CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING AND CONSTRUCTION DIVISION

PROJECT MANUAL
Almeda Road Paving and Drainage Improvements
WBS No. N-000806-0001-4; CSJ No. 0912-72-072

VOLUME 1 of 1

Divisions 00 through 16

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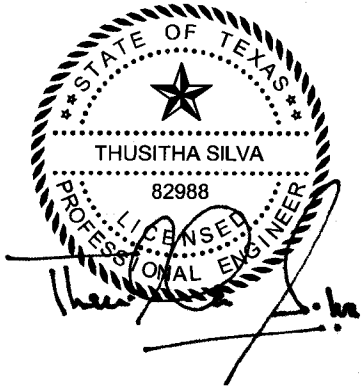

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NOTE: Bold capitalized Specification Sections are included in the City of Houston Department of Public Works and Engineering Standard Construction Specifications for Wastewater Collection Systems, Water Lines, Storm Drainage, Street Paving, and Traffic located here: **http://documents.publicworks.houstontx.gov/document-center/cat_view/88-engineering-and-construction/92-specifications/208-division-02-16-standard-specifications.html**; and are incorporated in Project Manuals by reference as if copied verbatim. Documents listed "for filing" are to be provided by Bidder and are not included in this Project Manual unless indicated for example only. The Document numbers and titles hold places for actual documents to be submitted by Contractor during Bid, post-bid, or construction phase of the Project. Specification Sections marked with an asterisk (*) are amended by a supplemental specification, printed on blue paper and placed in front of the Specification it amends. Documents in the 200, 300 and 400 series of Division 00, except for Document 00410B – Bid Form, Part B, are not part of the Contract.

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END OF DOCUMENT

Document 00041

LIST OF PRE-QUALIFIED ASBESTOS/LEAD ABATEMENT, MOLD & SOIL REMEDIATION, DEMOLITION AND PETROLEUM STORAGE TANK REMOVAL CONTRACTORS

1.01 DOCUMENT INCLUDES

A. Authorization

B. List of Authorized Contractors.

2.0 RELATED DOCUMENTS

A. Section 13280 – Hazardous Materials Remediation

B. Section 13281&13282 – Abatement of Asbestos/Lead Containing Materials

3.0 AUTHORIZATION

A. The list of Contractors Pre-qualified for Asbestos/Lead Abatement, Mold & Soil Remediation, Demolition & Petroleum Storage Tank Removal ("List") was authorized on March 21, 2012, by City of Houston Council Motion No. 12-0180.

B. Only those firms on the List can be utilized by Bidder in subcontracting for asbestos & lead abatement, mold & soil remediation, demolition & petroleum storage tank removal included in the Work.

C. The List is administered by General Services Department. All inquiries should be directed to Gabriel Mussio (832-393-8079).

4.0 LIST OF AUTHORIZED CONTRACTORS

A. As of the date specified in paragraph 3.0.A., all contractors listed in paragraph 4.0.B were licensed in the State of Texas for the type of work. Authorized Contractors must maintain there license to be on the list.

B. Authorized Contractors:

1. AAR Incorporated, 6640 Signat Drive, Houston, Texas 77041

2. A & M Environmental, LLC, 6536 Supply Row, Houston, Texas 77011

3. ARC Abatement Inc., 6827 Signat Drive, Houston, Texas 77041

4. AIA General Contractors, Inc., 18331 Running Vine Lane, Spring, Texas 77379

5. Arrow Services, Inc., 10202 Airline Drive, Suite A, Houston, Texas 77037

6. Basic Environmental Group, LLC., 1839 Key Biscayne Court, Houston,

Texas 77065

7. Cherry Environmental Services, Inc., 4501 Cherry Lane, Santa Fe, Texas 77517

8. Clark-Tech Environmental Systems, Inc., 1515 Globe Street, Houston, Texas 77034

9. CRG Environmental Services, LLC., 2504 Avenue I, Rosenberg, Texas 77471

10. DNB Enterprises, Inc., 12969 West Hardy, Houston, Texas 77037

11. Dunphey Petroleum Services, Inc., 3505 Daphne, Houston, Texas 77021

12. EC Government Services, 5850 San Felipe, Suite 400, Houston, Texas 77057

13. Effective Environmental, Inc., 9950 Chemical Road, Pasadena, Texas 77507

14. GenTech Construction Company, LLC., 2211 West 34th Street, Houston, Texas 77018

15. Hazard Assessment Leaders, Inc., dba HAL, Inc., 5311 Petty Street, Houston, Texas 77007

16. Inland Environmental, Ltd., PO Box 6751, Kingwood, Texas 77325

17. J.T.B. Services, Inc., 9026 Lambright, Houston, Texas 77075

18. NCM, 16421 Aldine Westfield Road, Houston, Texas 77032

19. PfP Abatement Group, LLC., 3823 Shadow Trail Drive, Houston, Texas 77084

20. PEMCO, Inc., PO Box 2009, Pearland, Texas 77588-2009

21. RNDI Companies, Inc., 2255 Ridge Road, Suite 216, Rockwell, Texas 75807

22. Separation Systems Consultants, Inc., 17041 El Camino Real, Suite 200 Houston, Texas 77058

23. Texas Environmental Control, Inc., 4623 Steffani Lane, Houston, Texas 77041

24. Weston Solutions, Inc., 5599 San Felipe, Suite 700, Houston, Texas 77056

25. 1 Priority Environmental Services, Inc., 2573 Gravel Drive, Fort Worth, Texas 76118

END OF DOCUMENT

Document 00042

DESIGNATED SUBCONTRACTORS AND SUPPLIERS

A. Subcontract work for the following Sections to firm(s) listed and for reason(s) stated below:

****
Edit following list. Ensure individual Sections include names of designated firms and the reason is stated here. Use the following sample format.
****

1. [Section 12610- Open Office Furniture; procurement and installation of Open Office Furniture. The City has an existing procurement/installation contract with the firm stated in Section 12610.]

END OF DOCUMENT

Document 00200

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Document 00200

INSTRUCTIONS TO BIDDERS

1.0 *RELATED DOCUMENTS*

A. Document 00210 – Supplementary Instructions to Bidders.

B. Document 00320 – Geotechnical Information.

C. Document 00330 – Existing Conditions.

D. Document 00410 – Bid Form, Parts A & B.

E. Document 00495 – Post-Bid Procedures.

F. Document 00520 – Agreement.

G. Document 00700 – General Conditions.

H. Document 00800 – Supplementary Conditions.

2.0 *DEFINITIONS*

A. Definitions set forth in Document 00700 – General Conditions and in other documents of Project Manual, are applicable to Bid Documents.

B. *Addendum:* Written or graphic instrument issued prior to Bid opening, which clarifies, modifies, corrects, or changes Bid Documents.

C. *Alternate:* The total amount bid for additions to work, as described in Section 01110 – Summary of Work. Each Alternate includes cost of effects on adjacent or related components, and Bidder's overhead and profit.

D. *Bid:* A complete and properly signed offer to perform the Work in accordance with this Document and Document 00210 – Supplementary Instructions to Bidders.

E. *Bid Date:* Date and time set for receipt of Bids as stated in Document 00210 – Supplementary Instructions to Bidders, or as modified by Addenda.

F. *Bid Documents:* Project Manual, Drawings, and Addenda.

G. *Bid Supplement: A* Bid submittal that is required in Document 00410 – Bid Form.

H. *Bidder:* Person or firm, identified in Document 00410B – Bid Form – Part B, including its successors, and its authorized representative.

I. *Code:* Code of Ordinances, Houston, Texas.

J. *Low Bidder:* Apparent successful Bidder that qualifies as a responsible Bidder and that submits Bid with lowest Total Bid Price.

K. *Project Manager:* Person designated in Document 00100 – Advertisement for Bids and Document 00220 – Request for Bid Information to represent the City during bidding and post-bid periods.

L. *Project Manual:* Volume assembled for the Work that includes the bidding requirements, sample forms, Conditions of the Contract, and Specifications.

M. *Security Deposit:* A certified check, cashier's check, or bid bond in the amount of 10 percent of the Total Bid Price.

N. *Total Bid Price:* Total amount bid for performing the Work as identified by Bidder in Document 00410B – Bid Form – Part B, which amount includes:

1. Stipulated Price;

2. Total Base Unit Prices;

3. Total Extra Unit Prices;

4. Total Cash Allowances; and

5. Total Alternates.

3.0 *NOTICE TO BIDDERS*

A. The City of Houston Fair Campaign Ordinance makes it unlawful for a Contractor to offer any contribution to a candidate for City elective office (including elected officers and officers-elect) during a certain period of time prior to and following the award of the Contract by the City Council. The term "Contractor" includes proprietors of proprietorships, all partners of partnerships, and all officers, directors, and holders of 10 percent or more of the outstanding shares of corporations. A statement disclosing the names and business addresses of each of those persons will be required to be submitted with each bid or proposal; for a City Contract. Bidder shall complete and submit Document 00452 – Form A, Contractor Submission List, City of Houston Fair Campaign Ordinance, with its Bid to comply with this requirement. See Chapter 18 of the Code for further information.

B. Chapter 15, Article VIII, of the City's Code provides that no contract shall be let, nor any other business transaction entered into, by the City with any person indebted to the City or a qualifying entity, if the contractor or transaction comes within the provisions of Section 15-1 (c) of the Code. Exceptions are provided in Section 15-126 of the Code. Bidder shall complete and submit Document 00455 – Affidavit of Ownership or Control, with its Bid to comply with this requirement.

C. Neither bidder(s) nor any person acting on bidder(s)'s behalf shall attempt to influence the outcome of the award by the offer, presentation or promise of gratuities, favors, or anything of value to any appointed or elected official or employee of the City of Houston, their families or staff members. All inquiries regarding the solicitation are to be directed to the designated City Representative identified on the first page of the solicitation. Upon issuance of the solicitation through the pre-award phase and up to the date the City Secretary publicly posts notice of any City Council agenda containing the applicable award, aside from bidder's formal response to the solicitation, through the pre-award phase, written requests for clarification during the period officially designated for such purpose by the City Representative, neither bidder(s) nor persons acting on their behalf shall communicate with any appointed or elected official or employee of the City of Houston, their families or staff through written or oral means in an attempt to persuade or influence the outcome of the award or to obtain or deliver information intended to or which could reasonably result in an advantage to any bidder. However, nothing in this paragraph shall prevent a bidder from making public statements to the City Council convened for a regularly scheduled session after the official selection has been made and placed on the City Council agenda for action, or to a City Council committee convened to discuss a recommendation regarding the solicitation.

4.0 *BID DOCUMENTS*

A. The Bid Documents may be obtained at location specified in Document 00210 – Supplementary Instructions to Bidders.

B. The Bid Documents are made available only for the purpose of bidding on the Work. Receipt of Bid Documents does not grant a license for other purposes.

C. On receipt of Bid Documents, Bidder shall verify that documents are legible and complete, compare contents of Project Manual with Document 00010 – Table of Contents, and compare Index of Drawings with Document 00015 – List of Drawings. Bidder shall notify Project Manager if Bid Documents are incomplete.

D. If City of Houston Standard Specifications or Standard Details are required by the Project Manual, Bidder shall refer to Document 00210 – Supplementary Instructions to Bidders for purchase information.

5.0 *EXAMINATION OF DOCUMENTS, SITE, AND LOCAL CONDITIONS*

A. Bidder shall examine Project site, become familiar with local conditions under which the Work shall be performed, conduct appropriate investigations, and correlate personal observations with requirements of the Bid Documents before submitting a Bid.

B. Bidder shall make site investigations to the extent Bidder deems necessary to ascertain extent of subsurface conditions.

C. Failure of Bidder to perform the investigations prior to submitting a Bid does not relieve Bidder of responsibility for investigations, interpretations and proper use of available information in the preparation of its Bid.

D. Bidder shall observe limitations of access to occupied or restricted site as stated in Document 00210 – Supplementary Instructions to Bidders.

6.0 *INTERPRETATIONS DURING BIDDING*

A. Bidder shall immediately submit Document 00220 – Request for Bid Information to Project Manager upon finding errors, discrepancies, or omissions in Bid Documents. Confirmation of receipt of questions by the City is the responsibility of Bidder. Verbal discussions and answers are not binding.

B. Document 00220 – Request for Bid Information must be received at least 10 days before the Bid Date to allow issuance of Addenda in accordance with Paragraph 7.O.D. Replies, if issued, are by Addenda.

7.0 *ADDENDA*

A. Addenda that affect bidding requirements are applicable only during applicable only through issuance of the Notice to Proceed. Addenda that affect the Contract are a part of the Contract.

B. BIDDERS WHO SUBMIT A BID ON THIS PROJECT SHALL BE PRESUMED TO HAVE RECEIVED ALL ADDENDA AND TO HAVE INCLUDED ANY COST THEREOF IN THEIR BIDS, REGARDLESS OF WHETHER THEY ACKNOWLEDGE THE ADDENDA OR NOT.

C. The City will make Addenda available at same location where the Bid Documents may be obtained. The City will notify plan holders of record when Addenda are available. Bidders are responsible for obtaining Addenda after notification.

D. No Addendum will be issued later than noon on Monday before Bid Date, except Addenda with minor clarifications, withdrawing request for Bids, or postponing Bid Date.

8.0 *SUBSTITUTION OF PRODUCTS*

A. No substitutions of Products will be considered during the bidding period.

9.0 *PREPARATION OF BIDS*

A. Bidder shall fill in applicable blanks in Document 00410A&B – Bid Form – Parts A & B and Bid Supplements. In addition, Bidder shall bid all Alternates. Bidder shall properly sign Document 00410B -Bid Form.

B. Bidder shall initial all pages, except signature page, of Document 00410B – Bid Form – Part B.

C. Bidder is responsible for all costs incurred by the Bidder, associated with preparation of its Bid and compliance with Post-bid Procedures.

D. Bidder may not adjust preprinted price on line items stating "Fixed Unit Price" in the description on the Bid Form.

E. Bidder may increase preprinted price on line items stating "Minimum Bid Price" in the description on the Bid Form by crossing out the minimum and inserting revised price on the line above.

F. Bidder may decrease preprinted price on line items stating "Maximum Bid Price" in the description on the Bid Form by crossing out the maximum and inserting revised price on the line above.

G. Bidder shall insert a price no greater than the maximum preprinted range and no less than the preprinted range for line items stating "Fixed Range Unit Price" in the description on the Bid Form by crossing out prices noted and inserting revised price on the line above.

H. Bidder may not adjust Cash Allowance amounts.

10.0 *BID SUBMISSION*

A. City Secretary will receive Bids on Bid Date at location specified in Document 00210 – Supplementary Instructions to Bidders.

B. Bids submitted after Bid Date will be returned to Bidder unopened.

C. Verbal, facsimile, or electronic Bids are invalid and will not be considered.

D. Bidder shall submit in person or by mail one copy of the signed Document 00410 – Bid Form, Parts A and B, along with required Security Deposit, and required Bid Supplements, in a sealed, opaque envelope. In addition, Bidder shall clearly identify Project, Bid Date and Bidder's name on outside of envelope. If forwarded by mail, the sealed envelope containing the Bid must be enclosed in another envelope addressed for postal delivery.

11.0 *BID SECURITY*

A. Bidder shall submit a Security Deposit with its Bid.

B. Certified Check or Cashier's Check

1. Bidder shall make check payable to the City of Houston.

2. A check is submitted on the condition that if Bidder is named Low Bidder and fails either to timely and properly submit documents required in Document 00495 – Post-Bid Procedures, the City will cash the check in accordance with Paragraph 11.0.E.

C. Bid Bond

1. The bid bond must be a valid and enforceable bond, signed by a surety that complies with other requirements set out by law.

2. The bid bond must name the City of Houston as obligee, and be signed by the Bidder as principal and signed and sealed by the surety.

3. The bid bond must be conditioned such that if Bidder is named Low Bidder and then fails to timely and properly submit documents required in Document 00495 – Post-Bid Procedures, surety will be obligated to pay to the City an amount in accordance with Paragraph 11.0.E.

D. Security Deposits will be retained until after the Contract is awarded or all Bids are rejected.

E. Low Bidder forfeits Security Deposit if it fails to timely and properly submit documents required in Document 00495 – Post-Bid Procedures. The City may claim an amount equal to the difference between the Total Bid

Price of the defaulting Bidder and the Total Bid Price of the Bidder awarded the Contract. If Security Deposit is a check, the City will reimburse any remaining balance to the defaulting Bidder.

12.0 *SUBCONTRACTORS AND SUPPLIERS*

A. The City may reject proposed Subcontractors or Suppliers.

B. Refer to Document 00800 – Supplementary Conditions, for MWBEPDBE, DBE and SBE goals.

13.0 *MODIFICATION OR WITHDRAWAL OF BID*

A. A Bidder may modify or withdraw a Bid submitted before the Bid Date by written notice to the City Secretary. The notice may not reveal the amount of the original Bid and must be signed by the Bidder.

B. Bidder may not modify or withdraw its Bid by verbal, facsimile, or electronic means.

C. A withdrawn Bid may be resubmitted up to the time designated for receipt of Bids.

14.0 *BID DISQUALIFICATION*

A. The City may disqualify a Bid if the Bidder:

1. fails to provide required Security Deposit in the proper amount;

2. improperly or illegibly completes information required by the Bid Documents;

3. fails to sign Bid or improperly signs Bid;

4. qualifies its Bid; or

5. improperly submits its Bid.

B. When requested, Low Bidder shall present satisfactory evidence that Bidder has regularly engaged in performing construction work as proposed, and has the capital, labor, equipment, and material to perform the Work.

15.0 *PREBID MEETING*

A. A prebid meeting is scheduled to be held at the place, time, and date listed in Document 00210 – Supplementary Instructions to Bidders.

B. All Bidders, subcontractors, and suppliers are invited to attend.

C. Representatives of City Engineer will attend.

16.0 *OPENING OF BIDS*

A. Bids are opened by the City Secretary and publicly read in City Council Chambers on the Public Level in City Hall Annex at 11:00 a.m. on Bid Date.

B. Place and date of Bid opening may be changed in accordance with Sections 15-3(b)(5) and 15-3(b)(6) of the City Code.

17.0 *EVALUATION AND CONSIDERATION OF BIDS*

A. Project Manager will tabulate, record and evaluate Bids.

B. The City may reject all Bids or may reject any defective Bid.

18.0 *ACCEPTANCE OF THE BID*

A. The City will send to Low Bidder Document 00498 – Notice of Intent to Award. Acceptance by the City is conditioned upon Bidder's timely and proper submittal of documents required in Document 00495 – Post-Bid Procedures.

B. The Bid remains open to acceptance and is irrevocable for the period of time stated in Document 00410A – Bid Form – Part A.

END OF DOCUMENT

Document 00210-T

TxDOT-FUNDED SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

The following Paragraphs modify Document 00200 - Instructions to Bidders. Where a portion of the Instructions to Bidders is modified or deleted by these Supplementary Instructions, the unaltered portions of the Instructions to Bidders remains in effect.

2.0 – DEFINITIONS: Add the following Paragraphs to this Section:

O. *Office of Business Opportunity (OBO):* All references to Affirmative Action Contract Compliance Division (AACC) set forth in Document 00700 – General Conditions and in other documents of the Project Manual, shall refer to, and include, the Office of Business Opportunity.

P. *Certificate of Responsibility:* An unexpired and unrevoked letter from the Director containing an identification number and stating that a Bidder has met the minimum qualifications to bid on street and bridge contracts within the amount and type of bidding capacity, based on Texas Department of Transportation (TxDOT) determination of Bidder's capability and approval of financial stability.

Q. *Director:* Director, Department of Public Works and Engineering, City of Houston.

3.0 - NOTICE TO BIDDERS: Add the following Paragraph to this Section:

C. This is a City Street and Bridge Construction or Improvement Contract which requires a current Certificate of Responsibility filed with the Director no later than three business days prior to Project Bid Date. A Certificate of Responsibility is a valid Prequalification Approval Letter issued by TxDOT stating that a Bidder is qualified to bid on State Highway improvement contracts pursuant to 43 Texas Administrative Code, Section 9.12, as it may be amended from time-to-time, and Chapter 15, Article IV of the Code of Ordinances, Houston, Texas (the "Ordinance").

4.0 – BID DOCUMENTS: Add the following Paragraphs to this Section:

A. Add the following Paragraph A.1:

1. Bid documents may only be obtained electronically at the City's website: http://bidsets.publicworks.houstontx.gov/ .

D. Add the following Paragraph D.1:

1. Copies of the City Standard Specifications and Details may be acquired at no cost on the City's website **http://documents.publicworks.houstontx.gov/document-center/specifications/index.htm**

E. The following plan rooms, whose names, addresses, phone and fax numbers were last updated on April 9, 2007, have been authorized by the City to display Bid Documents for examination:

1. AMTEK Information Services, Inc., 4001 Sherwood Lane, Houston, TX 77092, 713-956-0100, Fax 713-956-5340, Email: planroom@amtekusa.com

2. Associated Builders & Contractors, Inc., (ABC), 3910 Kirby, Suite 131, Houston, TX 77098-4151, 713-523-6222, Fax 713-874-0747. Email: lori@abchouston.org

3. Associated General Contractors (AGC-BB) Building Branch, 3825 Dacoma, Houston, TX 77092-8717, 713-843-3700, Fax 713-843-3701. Email: karla.s@agchouston.org

4. Associated General Contractors, (AGC-HHUI), Highway, Heavy Utilities and Industrial Branch, 2400 Augusta St., Suite 180, Houston, TX 77057, 713-334-7100, Fax 713-334-7130. Email: houston@agctx.org (Attention: Mel Keyser)

5. Construction Information Network, 1225 North Loop West, Suite 550, Houston, TX 77008, 713-868-2233 ext. 329, Fax 866-852-2713. Email: paul.tilford@cnsx.com

6. F. W. Dodge Corporation, 4101 Greenbriar, Suite 320, Houston, TX 77098, 713-529-4895, Fax 713-524-7639. Email: terrie_harris@mcgraw-hill.com

7. Hispanic Contractors Association of Houston (HCA-GHA), 11 Parker Road, Suite 7, Houston, TX 77241, 713-699-2732 or 832-754-3705, Fax 713-695-1556, Email: hispanicontractorsassociation@yahoo.com; or Randymagdaleno@yahoo.com

8. Houston Minority Business Development Center, 2900 Woodridge, Suite 124, Houston, TX 77087, 713-644-0821, Fax 713-644-3523. Email: gtamez@gacompanies.com

9. Reed Construction Data, 30 Technology Parkway South, Suite 100, Norcross, GA – 30092-8629. Tel. 1-800-424-3996 or 1-800-699-8640; Fax 1-800-317-0870 or 1-800-508-5370.

10. The Builders' Exchange of Texas, Inc., 3910 Kirby, Suite 131, Houston, TX 77098, 210-564-6900, Fax: 210-564-6921, Email: houston@bxtx.com

5.0 - EXAMINATION OF DOCUMENTS, SITE, AND LOCAL CONDITIONS: Insert the following paragraph:

D. Add the following Paragraph D.1:

1. Work will be performed in public right-of-way. The site may be examined at any time during daylight hours.

9.0 – PREPARATION OF BIDS: Add the following Paragraph I to this Paragraph:

I. For math errors the City encounters in analyzing Bids, the following guidance will be used:

In the event of a conflict between:	The Bid Price is:
1. Individual Unit Price and Extension of that Unit Price	Individual Unit Price times Estimated Quantity
2. A Unit Price extension and total of Unit Price Extensions	Sum of all Individual Unit Price Extensions
3. Individual Alternate and total of Alternates	Sum of all Individual Alternates
4. Individual subtotals for Stipulated Price, Base Unit Prices, Extra Unit Prices, Contractor Bonus, Cash Allowances, and Alternates; and the Total Bid Price	Sum of Individual subtotals for Stipulated Price, Base Unit Prices, Extra Unit Prices, Contractor Bonus, Cash Allowances and Alternates

10.0 – BID SUBMISSION: Add the following Paragraph A.1 to this Section:

A. Add the following Paragraph A.1:

1. City Secretary will receive Bids at 900 Bagby, Room P101, Houston, Texas until 10:30 a.m., local time on May 14, 2015.

D. Submit one copy of the executed offer on the bid forms provided, properly signed, with required Security Deposit, and other Supplements to Bid Forms, in a sealed, opaque envelope. On the outside of the envelope, clearly identify the Certificate of Responsibility number, Bidders name, Project name, and the City's name. Bids submitted by mail shall be enclosed in a separate envelope addressed for mailing, and identifying the enclosure as a bid.

E. Bidders are responsible for obtaining a Certificate of Responsibility number for the class of contract indicated in Document 00210 – Supplementary Instructions to Bidders. TxDOT Certificate of Qualification letter must be filed with the Director not less than three days prior to Project Bid opening. Bidders who do not have a City of Houston Certificate of Responsibility will be notified by the City.

14.0 – BID DISQUALIFICATION: Delete paragraphs A and B and replace with the following paragraph A:

A. The City shall disqualify a Bid if the Bidder:

1. fails to provide required Security Deposit in the proper amount;
2. improperly or illegibly completes information required by the Bid Documents;
3. fails to sign Bid or improperly signs Bid;
4. qualifies its Bid; or
5. improperly submits its Bid.

15.0 – PREBID MEETING: Add the following Paragraph A.1 to this Section:

A. Add the following Paragraph A.1:

1. A Prebid Meeting will be held at 2:30PM on Monday, May 4, 2015, in 15th Floor, Conference Room No. 1546 at 611 Walker Street, Houston, Texas 77002.

END OF DOCUMENT

Document 00220

REQUEST FOR BID INFORMATION

PROJECT: Almeda Road Paving and Drainage Improvements Old Spanish Trail to South MacGregor Way

PROJECT No.: WBS No. N-000806-0001-4; CSJ No. 0912-72-072

TO: Michelle Randon, P.E.
14th Floor
611 Walker, Houston, Texas 77002

Phone No. 832-395-2238
Fax No. 832-395-2251
Email Addr. michelle.randon@houstontx.gov

(Type or Print question legibly; use back if more space is needed)

This request relates to _____ and/or _____
Drawing / Detail No. Specification Section No.

Attachments to this request: _____

_____
Signature

_____
Date

_____
(Type or Print Name)

_____
(Type or Print Company Name)

END OF DOCUMENT

Document 00320

GEOTECHNICAL INFORMATION

1. DOCUMENT INCLUDES

   A. Soils investigation reports.
   B. Bidder's responsibilities.

2. RELATED DOCUMENTS

   A. Document 00340 – Environmental Information
   B. Section 02260 - Trench Safety Systems

3. SITE INVESTIGATION REPORTS

   A. In the design and preparation of Contract documents for this Project, the City and Design Consultant have used information in geotechnical reports for the investigation and analysis of soils and subsurface conditions at the Project site.

   B. An electronic copy of the report for this project is included in a CD-Rom affixed to the inside front cover of the project manual.

   C. Neither the City nor Design Consultant is responsible for accuracy or completeness of any information or data.

4. GEOTECHNICAL REPORTS

   A. Report No: **HG1018580** Prepared by (Firm Name): **HVJ Associates Inc.;** Title: **GEOTECHNICAL INVESTIGATION**, ALMEDA ROAD PAVING AND DRAINAGE FROM OLD SPANISH TRAIL TO SOUTH MACGREGOR WAY; Report Date: 12/5/2013 No. of Pages: 55

5. BIDDER RESPONSIBILITIES

   A. Bidder shall take full responsibility for interpretation and use of information contained in above listed reports for its bidding and construction purposes.

B. Bidder may perform additional soils investigations as Bidder deems appropriate.

END OF DOCUMENT

Document 00340

ENVIRONMENTAL INFORMATION

1.0 DOCUMENT INCLUDES

A. Environmental Site Assessment, if applicable.

B. Asbestos and Lead Surveys, if applicable.

C. Bidder's responsibilities.

2.0 RELATED DOCUMENTS

A. Document 00320 - Geotechnical Information

3.0 SITE INVESTIGATION REPORTS

A. In the design and preparation of Contract documents for this Project, the City and Design Consultant have used information in environmental site assessment reports for the investigation and analysis of soils and subsurface conditions at the Project site.

B. In the design and preparation of Contract documents for this Project, the City and Design Consultant have relied upon information in surveys taken for Asbestos-containing Materials (ACMs) and lead at the Project site.

C. An electronic copy of each report for this project is included in a CD-Rom affixed to the inside front cover of the project manual.

D. Neither the City nor Design Consultant is responsible for accuracy or completeness of any information or data.

4.0 REPORTS

A. Environmental Assessment Surveys

1. Report No.: 8497XP112 Prepared by (Firm Name): Berg-Oliver Associates Inc.; Title: Environmental Assessment Almeda Road (from South MacGregor Way to Old Spanish Trail; Report Date: 10/2013 No. of Pages: 155

2. Report No.: 7314H-P2 Prepared by (Firm Name): Berg-Oliver Associates Inc.; Title: Limited Phase II Environmental Site Assessment Report Almeda Road (from South MacGregor Way to Old Spanish Trail; Report Date: 11/2014 No. of Pages: 76

5.0 BIDDER RESPONSIBILITIES

A. Bidder shall take full responsibility for interpretation and use of information contained in above listed reports for bidding and construction purposes.

B. Bidder may perform additional investigations as Bidder deems appropriate.

END OF DOCUMENT

Document 00410A

BID FORM – PART A

To: **The Honorable Mayor and City Council of the City of Houston**
City Hall Annex
900 Bagby Street
Houston, Texas 77002

Project: *Almeda Road Paving and Drainage Improvements Old Spanish Trail to South MacGregor Way*
Project No.: WBS N-000806-0001-4; CSJ No. 0912-72-072
Bidder: _____
(Print or type full name of proprietorship, partnership, corporation, or joint venture.)

OFFER

A. Total Bid Price: Having examined the Project location and all matters referred to in Bid Documents for the Project, we, the undersigned, offer to enter into a Contract to perform the Work for the Total Bid Price shown on the signature page of this Document

B. Security Deposit: Included with the Bid is a Security Deposit in the amount of 10 percent of the Total Bid Price subject to terms described in Document 00200 – Instructions to Bidders.

C. Period for Bid Acceptance: This offer is open to acceptance and is irrevocable for 90 days from Bid Date. That period may be extended by mutual written agreement of the City and Bidder.

D. Addenda: All Addenda have been received. Modifications to Bid Documents have been considered and all related costs are included in the Total Bid Price.

E. Bid Supplements: The following documents are attached:

[X] Security Deposit *(as defined in Document 00200 – Instructions to Bidders)*
[X] Document 00450 - Bidder's Statement of MWBE/PDBE/DBE/SBE Status
[X] Document 00452 - Contractor's Submission List - Fair Campaign Ordinance Form A
[X] Document 00453 – Bidder's Statement of Residency *(not required for AIP funded project)*
[X] Document 00454 - Affidavit of Non-interest
[X] Document 00455 - Affidavit of Ownership or Control
[X] Document 00456 - Bidder's Certificate of Compliance with Buy American Program*)*
[X] Document 00457 – Conflicts of Interest Questionnaire (CIQ)
[X] Document 00458 - Bidder's Certificate Regarding Foreign Trade Restriction *(required for AIP funded project)*
[ ] Document 00459 - Contractor's Statement Regarding Previous Contracts Subject to EEO *(required for AIP funded project)*
[ ] Document 00460 – (POP-1) Pay or Play Acknowledgement Form
[ ] Document 00470 – Bidder's MWSBE Participation Plan *(required unless no MWSBE participation goal is provided in Document 00800* (the "Goal")*)*.
[ ] Document 00471 – Pre-bid Good Faith Efforts *(required if the goal in Bidder's Participation Plan–Document 00470 is lower than the Goal).*
[ ] Document 00472 – Bidder's Goal Deviation Request *(required if the goal in Bidder's Participation Plan–Document 00470 is lower than the Goal).*
[X] Document 00607 – Certification Regarding Debarment, Suspension, and Other Responsibility Matters
[ ] Others as listed: _____
_____

CONTRACT TIME

A. If offer is accepted, Contractor shall achieve Date of Substantial Completion within 600 days after Date of Commencement of the Work, subject to adjustments of Contract Time as provided in the Contract.

Document 00410B

BID FORM – PART B

1.0 TOTAL BID PRICE HAS BEEN CALCULATED BY BIDDER, USING THE FOLLOWING COMPONENT PRICES AND PROCESS (PRINT OR TYPE NUMERICAL AMOUNTS):

A. STIPULATED PRICE: $[N/A,]
(Total Bid Price; minus Base Unit Prices, Extra Unit Prices, Cash Allowances and All Alternates, if any)

B. BASE UNIT PRICE TABLE:

GENERAL ITEMS

Item No.	Spec Ref.	Base Unit Short Title	Unit of Measure	Estimated Quantity	Unit Price (this column controls)	Total in figures
1	01502	Mobilization	LS	1	$900,000(3)	$900,000(3)
2	01555	Traffic Control and Regulation	LS	1	$90,000(2)	$90,000(2)
3	01555	Uniformed Police Officers and Flagman	LS	1	$117,000(2)	$117,000(2)
4	01554	Traffic Control Signs (New)	EA	17		
5	01554	Traffic Control Signs (Relocated)	EA	20		
6	01555	Install water filled barriers	LF	12700		
7	01555	Relocate water filled barriers	LF	11600		
8	01555	Remove water filled barriers	LF	12700		
9	01570	Inlet Protection Barrier	LF	2048		
10	01570	Storm Inlet Sediment Trap	EA	56		
11	01570	Filter fabric fence	LF	3500		
12	01570	Reinforced filter fabric barrier	LF	430		
13	01575	Stabilized Construction Exit	SY	475		
14	02086	Adjust existing manhole frame and cover to new grade	EA	34		
15	02086	Adjust existing valve box to new grade	EA	2		

GENERAL ITEMS (cont.)

16	02086	Adjust existing inlet to new grade	EA	13		
17	02221	Remove/Dispose storm pipe 18-inch dia	LF	393		
18	02221	Remove/Dispose storm pipe 24-inch dia	LF	561		
19	02221	Remove/Dispose storm pipe 30-inch dia	LF	71		
20	02221	Remove/Dispose storm pipe 36-inch dia	LF	154		
21	02221	Remove/Dispose Inlets all sizes/depth	EA	15		
22	02221	Remove and Dispose 8 inch sewer line	LF	8		
23	02221	Remove and Dispose 10 inch sewer line	LF	32		
24	02221	Remove and Dispose of 15" storm sewer or culvert pipe	LF	109		
25	02221	Remove/Dispose Asphalt Surface/with or without Base	SY	42071		
26	02221	Remove/Dispose Conc driveway 6-inch thick/More	SY	1904		
27	02221	Remove/ Dispose Conc Sidewalk 4-inch thick/More	SY	4384		
28	02221	Remove/Dispose Misc Concrete	CY	32		
29	02221	Removing and disposing of Concrete pavements (all thickness, w/ or w/o Asphalt, including base & subgrade, w/ or w/o curb, all depth)	SY	13701		
30	02233	Clearing and grubbing	AC	23.31		
31	02260	Trench safety system for trench excavations	LF	5910		
32	02315	Roadway Excavation with or without subgrade	CY	17590		
33	02319	Borrow(Offsite)	CY	12670		
34	02741	Temporary Asphalt Concrete Pavement for detour/ Roadway and shoulder	SY	1600		
35	02765	Temporary Pavement Markers Class I	LF	3100		
TOTAL UNIT PRICES - GENERAL ITEMS						$_____

PAVING ITEMS

Item No.	Spec Ref.	Base Unit Short Title	Unit of Measure	Estimated Quantity	Unit Price (this column controls)	Total in figures
36	02336	Lime for Lime stabilized Subgrade (DRY WEIGHT)	TON	1251		
37	02336	Lime Stabilized Subgrade 6-inch thick	SY	3625		
38	02336	Lime Stabilized Subgrade 8-inch thick	SY	66706		
39	02711	HotMix Asphalt Base Course (TypeA/B) / All Thickness	TON	1815		
40	02713	Recycled crushed concrete Base Course/ All Thickness	TON	5		
41	02741	Hot Mix Asphalt Concrete Pavement 1.5-inch thick	TON	370		
42	02751	Reinforced Concrete Pavement 10-inch thick	SY	48784		
43	02751	Reinforced Concrete Pavement 6-inch thick	SY	3700		
44	02751	High Early Strength Reinforced Con Pav 10-inch thick	SY	8784		
45	02752	Street Pavement Expansion Joint with Load transfer	LF	6320		
46	02752	Horizontal Dowel, 24-Inch	EA	773		
47	02752S	Saw Cutting	LF	1271		
48	02754	Concrete Driveways including Excavation 7-inch thick	SF	28653		
49	02771	6-Inch Concrete Curb (Monolithic)	LF	12930		
50	02771	Esplanade Curb	LF	11180		
51	02771	Concrete Paving Header	LF	608		
52	02772	6-inch Concrete Median or Directional Island	SY	1315		
53	02775	Sidewalk 4-1/2-inch thick	SF	28880		
54	02775	6-inch thick Reinforced Concrete Slope Paving	SY	262		
55	02775	Wheelchair Ramps and sidewalks, complete in place	SF	3280		
56	02960	Milling Asphalt pavement upto 2-inches	SY	60		
TOTAL UNIT PRICES - PAVING ITEMS						$_____

STORM ITEMS

Item No.	Spec Ref.	Base Unit Short Title	Unit of Measure	Estimated Quantity	Unit Price (this column controls)	Total in figures
57	2081	Extra depth, Type C manhole	VF	4		
58	2801	Extra depth, manhole on box	VF	291		
59		Extra depth, manhole on box within Possible PPCA Limits	VF	42		
60	02081/ 02082/ 02087	Type C manhole for 42-inch diameter and smaller sewers	EA	4		
61	02081/ 02082/ 02087	Type C manhole for 48-inch to 72-inch diameter sewers	EA	2		
62	02081/ 02082/ 02087	Manhole for concrete box sewers within Possible PPCA limits	EA	3		
63	02081/ 02082/ 02087	Manhole for concrete box sewers	EA	26		
64	02086	Adjust Storm & Sanitary Manholes to Grade	EA	12		
65	02315	Reconstruction of roadside ditch	LF	5456		
66	02631	24-inch diameter storm sewer by open cut	LF	1103		
67	02631	36-inch diameter storm sewer by open cut	LF	148		
68	02631	30-inch diameter storm sewer by open cut	LF	5		
69	02631	6-foot by 3-foot box storm sewer by open cut	LF	154		
70	02632/ 02633	Type A grate inlet	EA	1		
71	02632/ 02633	Type A Mod. grate inlet	EA	25		
72	02633	24-inch diameter storm sewer lead	LF	1914		
73	HCFCD 02378	Rip-rap Gradation No. 1, 12-inch thick	SY	320		

STORM (Cont.)

74	TxDOT 465-2098	Inlet (Compl) (TY C1)	EA	12		
75	TxDOT 465-2098	Inlet (Compl) (TY C1) - Mod.	EA	31		
76	TxDOT 465-2229	Inlet Ext (TY C1)	EA	25		
TOTAL UNIT PRICES – STORM ITEMS						$_____

WASTE WATER ITEMS

Item No.	Spec Ref.	Base Unit Short Title	Unit of Measure	Estimated Quantity	Unit Price (this column controls)	Total in figures
77	02082	8-foot diameter precast concrete manholes	EA	2		
78	02082	4-foot diameter precast concrete manholes	EA	6		
79	02082	Extra depth, 4-foot diameter precast concrete manhole	VF	16		
80	02531	6-inch diameter sanitary sewer, by open-cut	LF	60		
81	02531	10-inch diameter sanitary sewer, by open-cut	LF	907		
82	02531	54-inch diameter sanitary sewer, by open-cut	LF	156		
83	02531	8-inch diameter sanitary sewer, by open-cut	LF	60		
85	02531	Remove and dispose - 6-inch diameter sanitary sewer	LF	60		
85	02531	Remove and dispose - 10-inch diameter sanitary sewer	LF	907		

WASTE WATER (Cont.)

86	02531	Remove and dispose - 54-inch diameter sanitary sewer	LF	159		
87	02534	Service stubs or reconnections without stack on sanitary sewer	EA	6		
TOTAL UNIT PRICES - WASTE WATER ITEMS						$_____

WATER ITEMS

Item No.	Spec Ref.	Base Unit Short Title	Unit of Measure	Estimated Quantity	Unit Price (this column controls)	Total in figures
88	02511	4-inch diameter water line by open-cut	LF	50		
89	02511	8-inch diameter water line by open-cut	LF	780		
90	02511	6-inch diameter water line by open-cut	LF	25		
91	02511	12-inch diameter water line by open-cut	LF	4493		
92	02511	12-inch diameter water line by open-cut with restrained joints	LF	272		
93	02511	12-inch diameter water line in steel casing by trenchless construction	LF	140		
94	02512	3/4-inch to 1-inch diameter water taps and copper service line with meter box, short side	EA	8		
95	02512	1-1/2-inch to 2-inch diameter watertap and service line with meter box, short side	EA	5		
96	02512	1-1/2-inch to 2-inch diameter service line with meter box, extra long side	EA	2		
97	02513	8-inch diameter wet connection	EA	12		

WATER (Cont.)

98	02513	6-inch diameter wet connection	EA	1		
99	02513	4-inch diameter wet connection	EA	2		
100	02513	12-inch diameter wet connection	EA	2		
101	02516	Cut, plug, and abandon existing 6-inch diameter water line	EA	1		
102	02516	Cut, plug, and abandon existing 8-inch diameter water line	EA	12		
103	02516	Cut, plug, and abandon existing 4-inch diameter water line	EA	1		
104	02516	Cut, plug, and abandon existing 12-inch diameter water line	EA	2		
105	02520	Remove and salvage existing fire hydrant	EA	6		
106	02520	Fire hydrant assembly, all depths, including 6-inch diameter gate valve and box	EA	12		
107	02520	6-inch diameter fire hydrant branch by open-cut	LF	200		
108	02525	12-inch by 12-inch diameter tapping sleeve and valve with box	EA	1		
TOTAL UNIT PRICES - WATER ITEMS						$_____

TRAFFIC ITEMS

Item No.	Spec Ref.	Base Unit Short Title	Unit of Measure	Estimated Quantity	Unit Price (this column controls)	Total in figures
109	02582	4-Inch Pole all style with foundation	EA	9		
110	02582/ 02465	40-feet Mast arm Pole Assembly	EA	1		

TRAFFIC ITEMS (cont.)

111	02582/ 02465	45-feet Mast arm Pole Assembly	EA	3		
112	02582/ 02465	50-feet Mast arm Pole Assembly	EA	1		
113	02582/ 02465	55-feet Mast arm Pole Assembly	EA	3		
114	02764	Raised Pav Marker Ty II Two face Reflective (W/Y)	EA	646		
115	02767	Thermoplastic Pavement Marking 4-inch wide White/Yellow(SLD/BRK)	LF	5990		
116	02767	Thermoplastic Pavement Marking 8-inch wide White/Yellow	LF	1755		
117	02767	Thermoplastic Pavement Marking 12-inch wide White/Yellow	LF	1034		
118	02767	Thermoplastic Pavement Marking 24-inch wide White/Yellow	LF	505		
119	02767	Thermoplastic Pavement Marking symbol ARROW	EA	38		
120	02767	Thermoplastic Pavement Marking Elongated Word ONLY	EA	13		
121	02893	Sign Left On Green Arrow Only R10-12 all sizes	EA	14		
122	02893	Electrical Service Pole Assembly-70AMP(Square D breakers Included)	EA	2		
123	02893	Remove and Salvage Existing Traffic Signal Equipment	EA	2		
124	02893	Overhead Street Name Signs	EA	8		
125	16710	Type A Pull Box with Gravel and Ground Rod	EA	26		
126	16711	Conduit 2-Inch Sch 80 PVC Trench	LF	2500		
127	16711	Conduit 3-Inch Sch 80 PVC Trench	LF	60		
128	16711	Conduit 4-Inch Sch 80 PVC Trench	LF	60		
129	16711	Conduit 4-Inch Sch 80 PVC Bore	LF	600		
130	16713	Performed Loop Detectors	EA	30		

Bidder's Initials [ ]

TRAFFIC ITEMS (cont.)

131	16715	3-Section Vehicle signal Head assembly	EA	24		
132	16715	3-Section Vehicle signal Head assembly(All Arrows)	EA	14		
133	16716	Pedestrian Push Button Assembly, Left, Right or Both Arrows	EA	16		
134	16719	Pedestrian Push Button Head Assembly,(Symbolic) Countdown	EA	16		
135	16720	2/C#14 Shielded Cable	LF	7370		
136	16720	3/C#14AWG Solid Cable	LF	1595		
137	16720	5/C#14AWG Solid Cable	LF	1755		
138	16720	7/C#14AWG Solid Cable	LF	5280		
139	16720	#2 XHHW Service Wire	LF	100		
140	16720	#8 AWG Bare Solid Wire	LF	1800		
141	16724	Emergency Vehicle Preemtion System	EA	2		
142	16727	Loop Detector Sawcut With Loop Wire	LF	900		
143	16730	ITS Controller Cabinet Assebly(Model 340)(Type 2070L)	EA	2		
144	16750	Accessble Pedestian Push Button System(Cental Control Unit,Eight Push Button Station)	EA	2		
TOTAL UNIT PRICES – TRAFFIC ITEMS						$_____

STREET LIGHTING ITEMS

Item No.	Spec Ref.	Base Unit Short Title	Unit of Measure	Estimated Quantity	Unit Price (this column controls)	Total in figures
145	02581	Conduit 2-inch Sch 40PVC	LF	10251		
146	02581	Conduit 2-inch Sch 80PVC	LF	1851		
TOTAL UNIT PRICES – STREET LIGHT ITEMS						$_____

Bidder's Initials [ ]

HERMANN PARK PEDESTRIAN LIGHTING

147	DWG / Hermann Park Pedestrian Lighting Electrical Specifications	Pedestrian Light fixture plus installation	EA	37		
148	DWG / Hermann Park Pedestrian Lighting Electrical Specifications	Pedestrian Light Pole bases	EA	37		
149	DWG / Hermann Park Pedestrian Lighting Electrical Specifications	Pedestrian Light Pull Boxes	EA	12		
150	DWG / Hermann Park Pedestrian Lighting Electrical Specifications	Pedestrian Light 100 amp meter box	EA	1		
151	DWG / Hermann Park Pedestrian Lighting Electrical Specifications	Pedestrian Light 100 amp meter switch	EA	1		
152	DWG / Hermann Park Pedestrian Lighting Electrical Specifications	Pedestrian Light 100 amp panel with breakers (NEMA 4X 316-SS)	EA	1		
153	DWG / Hermann Park Pedestrian Lighting Electrical Specifications	Pedestrian Light Photocell & Time Clock (in 316-SS Enclosure)	EA	1		
155	DWG / Hermann Park Pedestrian Lighting Electrical Specifications	Pedestrian Light Lighting Contactor	EA	1		
156	DWG / Hermann Park Pedestrian Lighting Electrical Specifications	Pedestrian Light Wire pulled #8 THWN Copper	LF	26600		
157	DWG / Hermann Park Pedestrian Lighting Electrical Specifications	Pedestrian Light Unistrut Rack	EA	1		
158	DWG / Hermann Park Pedestrian Lighting Electrical Specifications	Pedestrian Light 2" RGS Conduit	LF	75		
159	02581	Pedestrian Light 2" PVC Schedule 40	LF	150		
160	02581	Pedestrian Light 1" PVC Schedule 40PVC	LF	4430		
TOTAL UNIT PRICES – HERMANN PEDESTRIAN LIGHTING ITEMS						$_____

Bidder's Initials [ ]

LANDSCAPE & IRRIGATION ITEMS

Item No.	Spec Ref.	Base Unit Short Title	Unit of Measure	Estimated Quantity	Unit Price (this column controls)	Total in figures
161	1562	Tree and plant protection	LS	1	$40,000(3)	$40,000(3)
162	1562	Install Checker plate	SF	1800		
163	1562	Zero Curb Cut	LF	600		
165	2811	Irrigation System	LS	1		
166	2921	Bermuda grass hydro seed	SF	356000		
168	2915	30 gal. Montezuma Cypress	EA	63		
169	2915	30 gal. Live Oak	EA	74		
170	2915	30 gal. Natchez Crape Myrtle	EA	68		
171	2915	167	EA	61		
172	2915	30 gal. Cedar Elm	EA	26		
173	2915	1 gal. Gulf Coast Penstemon	SF	600		
174	2915	1 gal. Gulf Coast Muhly	SF	600		
175	2970	Landscape Ground Maintenance	MO	24		
175	2811	Irrigation sleeves	LF	2110		
TOTAL UNIT PRICES – LANDSCAPE & IRRIGATION ITEMS						$_____

Bidder's Initials [ ]

LOW IMPACT (LID) ITEMS

Item No.	Spec Ref.	Base Unit Short Title	Unit of Measure	Estimated Quantity	Unit Price (this column controls)	Total in figures
176	DWG/LID SPECIFICATIONS	High Performance Modular Biofiltration System (HPMBS)	SF	1140		
177	LID SPECIFICATIONS	Landscape Ground Maintenance	MO	24		
178	O & M MANUAL	2 Year Maintenance Plan for LID Features After 1 Year Warranty Period	LS	1		
TOTAL UNIT PRICES – LID ITEMS						$_____

C. EXTRA UNIT PRICE TABLE:

Item no.	Spec. Ref.	Extra Unit Short Title	Unit of Measure	Estimated Quantity	Unit Price (this column controls)	Total in Figures
179	02105	Extra PPCA handling	LS	1	$50,000.00 (2)	$50,000.00 (2)
180	02120	Excavation Around Obstructions in PPCA	CY	100	$.60.00 (2)	$.6,000.00 (2)
181	02120	Extra Placement of Backfill Material in PPCA	CY	100	$30.00 (2)	$.3,000.00 (2)
182	02120	Extra Hand Excavation in PPCA	CY	100	$50.00 (2)	$.5,000.00 (2)
183	02120	Extra Machine Excavation in PPCA	CY	100	$20.00 (2)	$2,000.00 (2)
184	02120	6-Inch Over Excavate Trench Bottom in PPCA	LF	250	$15.00 (2)	$3,750.00 (2)
185	02221	Remove miscellaneous concrete and masonry	CY	100	$100.00	$10,000.00 (2)
186	02317	6" Over excavate trench bottom	LF	100	$5.00 (2)	$500.00 (2)
187	02318	Excavation around obstructions	CY	100	$30.00 (2)	$3,000.00 (2)

EXTRA WORK ITEMS (Cont.)

188	02318	Extra hand excavation	CY	100	$25.00 (2)	$2,500.00 (2)
189	02318	Extra machine excavation	CY	100	$10.00 (2)	$1,000.00 (2)
190	02318	Extra placement of backfill material	CY	100	$15.00 (2)	$1,500.00 (2)
191	02318	Extra placement of granular fill	CY	100	$15.00 (2)	$1,500.00 (2)
192	02318	Extra cement-stabilized sand	CY	100	$15.00 (2)	$1,500.00 (2)
193	02714	Flexible Base Cource For Temporary Drive ways	SY	500	$25.00 (2)	$12,500.00 (2)
194	03315	Extra grade 60 reinforcing steel in place	LB	500	$2.00 (2)	$1,000.00 (2)
195	03315	Extra class "A" concrete with or without forms	CY	100	$350.00 (2)	$35,000.00 (2)
TOTAL UNIT PRICES – EXTRA WORK ITEMS						$_____

D. CASH ALLOWANCE TABLE:

Item No.	Spec Ref.	Cash Allowance Short Title	Cash Allowance in figures (1)
196	01110	City of Houston Street Cut Permit	$3,500.00
197	01110	City of Houston Floodplain Management Office Development Permit	$5,650.00
198	01110	Street Light Cash Allowance	$40,816.00
199	01110	Center Point Energy Connection to Pedestrian Lighting	$10,000.00
TOTAL CASH ALLOWANCES			**$60,816.00**

Bidder's Initials [ ]

E. ALTERNATES TABLE:

Item No.	Spec Ref.	Alternate Short Title	Unit of Measure	Estimated Quantity	Unit Price (this column controls)	Total Price for Alternate in figures
[1]		[N/A]				
TOTAL ALTERNATES						$_____

REST OF PAGE INTENTIONALLY LEFT BLANK

F. TOTAL BID PRICE: $_____
(Add Totals for Items A., B., C., D., and E. above)

2.0 SIGNATURES: By signing this Document, I agree that I have received and reviewed all Addenda and considered all costs associated with the Addenda in calculating the Total Bid Price.

Bidder: _____
(Print or type full name of your proprietorship, partnership, corporation, or joint venture.*)

** By: _____
Signature Date

Name: _____
(Print or type name) Title

Address: _____
(Mailing)

_____
(Street, if different)

Telephone and Fax Number: _____
(Print or type numbers)

* If Bid is a joint venture, add additional Bid Form signature sheets for each member of the joint venture.

** Bidder certifies that the only person or parties interested in this offer as principals are those named above. Bidder has not directly or indirectly entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding.

Note: This document constitutes a government record, as defined by § 37.01 of the Texas Penal Code. Submission of a false government record is punishable as provided in § 37.10 of the Texas Penal Code.

Footnotes for Tables B through E:
(1) Fixed Unit Price determined prior to Bid. Cannot be adjusted by the Bidder.
(2) Minimum Bid Price determined prior to Bid. Can be increased by the Bidder by crossing out the Minimum and noting revised price on the line above.
(3) Maximum Bid Price determined prior to Bid. Can be decreased but not increased by Bidder by crossing out the Maximum and noting revised price on the line above. A Bid that increases the Maximum Bid Price may be found non-conforming and non-responsive.
(4) Fixed Range Bid Price determined prior to Bid. Unit Price can be adjusted by Bidder to any amount within the range defined by crossing out prices noted and noting revised price on the line above.

Document 00430

BIDDER'S BOND

THAT WE, _____, as Principal,
(Bidder)
("Bidder"), and the other subscriber hereto, _____, as Surety, do hereby acknowledge ourselves to be held and firmly bound to the City of Houston, a municipal corporation, in the sum of _____ Dollars ($_____) (an amount equal to 10 percent of the Total Bid Price, including Cash Allowances and Alternates, if any, for the payment of which sum, well and truly to be made to the City of Houston and its successors, the Bidder and Surety do bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH THAT:

WHEREAS, the Bidder has submitted on or about this day a proposal offering to perform the following:

_____
(Project Name, Location and Number)
in accordance with the Drawings, Specifications, and terms and conditions related thereto to which reference is hereby made.

NOW, THEREFORE, if the Bidder's offer as stated in the Document 00410 – Bid Form is accepted by the City, and the Bidder executes and returns to the City Document 00520 – Agreement, required by the City, on the forms prepared by the City, for the Work and also executes and returns the same number of the Performance, Payment and Maintenance Bonds (such bonds to be executed by a Corporate Surety authorized by the State Board of Insurance to conduct insurance business in the State of Texas, and having an underwriting limitation in at least the amount of the bond) and other submittals as required by Document 00495 - Post-Bid Procedures, in connection with the Work, within the Contract Time, then this obligation shall become null and void; otherwise it is to remain in full force and effect.

If Bidder is unable to or fails to perform the obligations undertaken herein, the undersigned Bidder and Surety shall be liable to the City for the full amount of this obligation which is hereby acknowledged as the amount of damages which will be suffered by the City on account of the failure of such Bidder to perform such obligations, the actual amount of such damages being difficult to ascertain.

Notices required or permitted hereunder shall be in writing and shall be deemed delivered when actually received or, if earlier, on the third day following deposit in a United States Postal Service post office or receptacle, with proper postage affixed (certified mail, return receipt requested), addressed to the respective other Party at the address prescribed in the Contract documents, or at such other address as the receiving Party may hereafter prescribe by written notice to the sending Party.

IN WITNESS THEREOF, the Bidder and Surety have signed and sealed this instrument on the respective dates written below their signatures and have attached current Power of Attorney.

ATTEST, SEAL: (if a corporation)
WITNESS: (if not a corporation)

By: _____
Name:
Title:

ATTEST/SURETY WITNESS: (SEAL)

By: _____
Name:
Title:
Date:

_____
(Name of Bidder)

By: _____
Name:
Title:
Date:

_____
(Full Name of Surety)

_____
(Address of Surety for Notice)

_____
(Telephone Number of Surety)

By: _____
Name:
Title:
Date:

END OF DOCUMENT

Document 00450

BIDDER'S STATEMENT OF MWBE/PDBE/DBE/SBE STATUS

This certifies that the status of the Bidder, _____, in
(Bidder's Name)
regard to the City of Houston Code of Ordinances, Chapter 15, Article V, relating to City-wide percentage goals for contracting with Minority and Women-owned Business Enterprises (MWBE) and Disadvantaged Business Enterprises (DBE), Chapter 15, Article VI, relating to City-wide percentage goals for contracting with Persons with Disabilities Business Enterprises (PDBE) and Chapter 15, Article IX, relating to City-wide percentage goals for contracting with a Small Business Enterprise (SBE) is as follows:

1. Bidder (individual, partnership, corporation) is [__] is not [__] a Minority Business Enterprise as certified by the Affirmative Action and Contract Compliance Division.

2. Bidder (individual, partnership, corporation) is [__] is not [__] a Women-owned Business Enterprise as certified by the Affirmative Action and Contract Compliance Division.

3. Bidder (individual, partnership, corporation) does [__] does not [__] declare itself to be a Persons with Disabilities Business Enterprise as defined above.

4. Bidder (individual, partnership, corporation) does [__] does not [__] declare itself to be a Disadvantaged Business Enterprise as defined above.

5. Bidder (individual, partnership, corporation) does [__] does not [__] declare itself to be a Small Business Enterprise as defined above.

Signature: _____

Title: _____

Date: _____

END OF DOCUMENT

Document 00452
Form A
CONTRACTOR SUBMISSION LIST
CITY OF HOUSTON FAIR CAMPAIGN ORDINANCE

The City of Houston Fair Campaign Ordinance makes it unlawful for a Contractor to offer any contribution to a candidate for City elective office (including elected officers-elect) during a certain period of time prior to and following the award of the Contract by the City Council. The term "Contractor" includes proprietors of proprietorships, partners or joint venturers having an equity interest of 10 percent or more for the partnership or joint venture, and officers, directors and holders of 10 percent or more of the outstanding shares of corporations. Submission of a statement disclosing the names and business addresses of each of those persons is required with each Bid/Proposal for a City Contract. See Chapter 18 of the City of Houston Code of Ordinances for further information.

This list is submitted under the provisions of Section 18-36(b) of the City of Houston Code of Ordinances in connection with the attached Bid/Proposal of:

Firm or Company Name: _____

Firm or Company Address: _____

The firm/company is organized as indicated below. Check one as applicable and attach additional pages if needed to supply the required names and addresses.

[ ] SOLE PROPRIETOR

Name _____ _____
Proprietor Address

[ ] A PARTNERSHIP

LIST EACH PARTNER HAVING EQUITY INTEREST OF 10% OR MORE OF PARTNERSHIP (IF NONE STATE "NONE")

Name _____ _____
Partner Address

Name _____ _____
Partner Address

[ ] A CORPORATION

LIST ALL DIRECTORS OF THE CORPORATION (IF NONE STATE "NONE")

Name _____ _____

Director — Address

Name _____ (Director) _____ (Address)

Name _____ (Director) _____ (Address)

LIST ALL OFFICERS OF THE CORPORATION (IF NONE STATE "NONE")

Name _____ (Officer) _____ (Address)

Name _____ (Officer) _____ (Address)

Name _____ (Officer) _____ (Address)

LIST ALL INDIVIDUALS OWNING 10% OR MORE OF OUTSTANDING SHARES OF STOCK OF THE CORPORATION (IF NONE STATE "NONE")

Name _____ (Owner) _____ (Address)

Name _____ (Owner) _____ (Address)

Name _____ (Owner) _____ (Address)

I certify that I am duly authorized to submit this list on behalf of the firm, that I am associated with the firm in the capacity noted below, and that I have knowledge of the accuracy of the information provided herein.

_____
Signature

_____
Printed Name

_____
Title

Note: This list constitutes a government record as defined by § 37.01 of the Texas Penal Code.

END OF DOCUMENT

Document 00453

BIDDER'S STATEMENT OF RESIDENCY

The City may not award a contract for general construction, services, or purchases to a Nonresident Bidder unless Nonresident's Bid is lower than the lowest Bid submitted by a responsible Texas Resident Bidder by the same amount that a Texas Resident bidder would be required to underbid the Nonresident Bidder to obtain a comparable contract in the state in which Nonresident's principle place of business is located.

1. This certifies that the Bidder, _____, is a State of Texas Resident Bidder as defined in TEX. GOVT. CODE ANN. § 2252.001(4) (Vernon 1994).

_____ _____
Signature Title

"Texas Resident Bidder" means a bidder whose principal place of business is in this State, and includes a Contractor whose ultimate parent company or majority owner has its principal place of business in this State. *When bidder cannot sign 1, above, proceed to 2.*

2. a. _____ is a resident of _____ and is a Nonresident Bidder as defined in TEX. GOVT. CODE ANN. § 2252.001(3) (Vernon 1994).

_____ _____
Signature Title

"Nonresident Bidder" means a bidder whose principal place of business is not in this State, but excludes a contractor whose ultimate parent company or majority owner has its principal place of business in this State.

b. The State of _____ _____ have a state statute giving
Bidder's resident state Does or Does Not
preference to resident bidders.

_____ _____
Signature Title

If the answer to 2.b is that your state does have a statute giving preference to resident bidders, then you must provide a copy and proceed to 3.

3. A copy of the State of _____ statute is attached.

_____ _____
Signature Title

_____
Date

END OF DOCUMENT

Document 00454

AFFIDAVIT OF NON-INTEREST

BEFORE ME, the undersigned authority, a Notary Public in and for the State of Texas, on this day personally appeared _____, who
Affiant

being by me duly sworn on his oath stated that he is _____,
Title

_____

_____,
Name of Firm

the firm named and referred to and in the foregoing; and that he knows of no officer, agent, or employee of the City of Houston being in any manner interested either directly or indirectly in such Contract.

_____
Affiant's Signature

SWORN AND SUBSCRIBED before me on _____.
Date

_____
Notary Public in and for the State of TEXAS

_____
Print or type name

My Commission Expires: _____
Expiration Date

END OF DOCUMENT

Document 00455

AFFIDAVIT OF OWNERSHIP OR CONTROL

ORIG. DEPT.: DEPARTMENT OF PUBLIC WORKS AND ENGINEERING **FILE/I.D. NO.:** N-000806-0001-4; CSJ No. 0912-72-072

INSTRUCTION: ENTITIES USING AN ASSUMED NAME SHOULD DISCLOSE SUCH FACT TO AVOID REJECTION OF THE AFFIDAVIT. THE FOLLOWING FORMAT IS RECOMMENDED: CORPORATE/LEGAL NAME DBA ASSUMED NAME.

STATE OF _____ §
§ **AFFIDAVIT OF OWNERSHIP OR CONTROL**
COUNTY OF _____ §

BEFORE ME, the undersigned authority, on this day personally appeared _____ [*FULL NAME*] (hereafter "Affiant"), _____ [*STATE TITLE/CAPACITY WITH CONTRACTING ENTITY*] of _____ [*CONTRACTING ENTITY'S CORPORATE/LEGAL NAME*] ("Contracting Entity"), who being by me duly sworn on oath stated as follows:

1. Affiant is authorized to give this affidavit and has personal knowledge of the facts and matters herein stated.

2. Contracting Entity seeks to do business with the City in connection with _____ [*DESCRIBE PROJECT OR MATTER*] which is expected to be in an amount that exceeds $50,000.

3. The following information is submitted in connection with the proposal, submission or bid of Contracting Entity in connection with the above described project or matter.

4. Contracting Entity is organized as a business entity as noted below (check box as applicable).

FOR PROFIT ENTITY:	**NON-PROFIT ENTITY:**
[ ] SOLE PROPRIETORSHIP	[ ] NON-PROFIT CORPORATION
[ ] CORPORATION	[ ] UNINCORPORATED ASSOCIATION
[ ] PARTNERSHIP	
[ ] LIMITED PARTNERSHIP	
[ ] JOINT VENTURE	
[ ] LIMITED LIABILITY COMPANY	
[ ] OTHER (Specify type in space below)	

_____

_____

5. The information shown below is true and correct for the Contracting Entity and all owners of 5% or more of the Contracting Entity and, where the Contracting Entity is a non-profit entity, the required information has been shown for each officer, *i.e.*, president, vice-president, secretary, treasurer, etc. ***[NOTE: IN ALL CASES, USE FULL NAMES, LOCAL BUSINESS AND RESIDENCE ADDRESSES AND TELEPHONE NUMBERS. DO NOT USE POST OFFICE BOXES FOR ANY ADDRESS. INCLUSION OF E-MAIL ADDRESSES IS OPTIONAL, BUT RECOMMENDED. ATTACH ADDITIONAL SHEETS AS NEEDED.]***

Contracting Entity

Name: _____

Business Address *[NO./STREET]* _____

[CITY/STATE/ZIP CODE] _____

Telephone Number (____)_____

Email Address *[OPTIONAL]* _____

Residence Address *[NO./STREET]* _____

[CITY/STATE/ZIP CODE] _____

Telephone Number (____)_____

Email Address *[OPTIONAL]* _____

5% Owner(s) or More (IF NONE, STATE "NONE.")

Name: _____

Business Address *[NO./STREET]* _____

[CITY/STATE/ZIP CODE] _____

Telephone Number (____)_____

Email Address *[OPTIONAL]* _____

Residence Address *[NO./STREET]* _____

[CITY/STATE/ZIP CODE] _____

Telephone Number (____)_____

Email Address *[OPTIONAL]* _____

6. *Optional Information*

Contracting Entity and/or _____ [***NAME OF OWNER OR NON-PROFIT OFFICER***] is actively protesting, challenging or appealing the accuracy and/or amount of taxes levied against _____ [***CONTRACTING ENTITY, OWNER OR NON-PROFIT OFFICER***] as follows:

Name of Debtor: _____

Tax Account Nos. _____

Case or File Nos. _____

Attorney/Agent Name _____

Attorney/Agent Phone No. (____)_____

Tax Years _____

Status of Appeal ***[DESCRIBE]*** _____

_____

_____

_____

Affiant certifies that he or she is duly authorized to submit the above information on behalf of the Contracting Entity, that Affiant is associated with the Contracting Entity in the capacity noted above and has personal knowledge of the accuracy of the information provided herein, and that the information provided herein is true and correct to the best of Affiant's knowledge and belief.

_____
Affiant

SWORN TO AND SUBSCRIBED before me this _____ day of _____, 20____.

(Seal)

_____
Notary Public

NOTE:
This affidavit constitutes a **government record** as defined by Section 37.01 of the Texas Penal Code. Submission of a false government record is punishable as provided in Section 37.10 of the Texas Penal Code. Attach additional pages if needed to supply the required names and addresses.

END OF DOCUMENT

Document 00456

BIDDER'S CERTIFICATION OF COMPLIANCE WITH BUY AMERICAN PROGRAM (AVIATION SAFETY AND CAPACITY EXPANSION ACT OF 1990)

By submitting a bid, except for those items listed by Bidder below or on additional copies of this page, attached to this page, Bidder certifies that steel and each manufactured product, is produced in the United States (as defined in the clause Buy American - Steel and Manufactured Products for Construction Contracts) and that components of unknown origin are considered to have been produced or manufactured outside the United States. In case of conflicts with corresponding provisions of other Bidding Documents, Buy American Program provisions govern.

Bidders may obtain from the City a list of products excepted from this provision. Use additional copies of this page as required.

PRODUCT	COUNTRY OF ORIGIN

The above information is true and complete to the best of my knowledge and belief.

(Printed or typed Name of Signatory)

Signature Date

Note: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

END OF DOCUMENT

Document 00457

Conflict of Interest Questionnaire

Local Government Code Chapter 176 requires Bidders with the City of Houston ("City") to file a Conflict of Interest Questionnaire with the City Secretary of the City of Houston.

The Conflict of Interest Questionnaire is available for downloading on the Texas Ethics Commission's website at: http://www.ethics.state.tx.us/forms/CIQ.pdf. The completed Conflict of Interest Questionnaire will be posted on the City Secretary's website. Also you will find a list of the City Local Government Officers on the City Secretary's website.

For your convenience the CIQ form is attached as part of this document. Although the City has provided this document for the Bidders convenience, it is the Bidders responsibility to submit the latest version of the CIQ form as promulgated by the Texas Ethics Commission.

The Failure of any Bidder to comply with this law is a Class C misdemeanor.

END OF DOCUMENT

Document 00458

BIDDER'S CERTIFICATION REGARDING FOREIGN TRADE RESTRICTIONS (49 CFR PART 30)

The undersigned certifies that Contractor (a) is not owned or controlled by one or more citizens or nationals of a foreign country included in the list of countries that discriminate against U.S. firms published by the Office of the United States Trade representative (USTR); (b) has not knowingly entered into any contract or subcontract for this project with a contractor that is a citizen or national of a foreign country on said list, or is owned or controlled directly or indirectly by one or more citizens or nationals of a foreign country on said list; (c) has not procured any product nor subcontracted for the supply of any product for use in the Work that is produced in a foreign country on said list.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR 30.17, no contract shall be awarded to a contractor or subcontractor who is unable to certify to the above. If Contractor knowingly procures or subcontracts for the supply of any product or service of a foreign country on said list for use in the Work, the Federal Aviation Administration may direct, through the sponsor, cancellation of the Contract at no cost to the Government.

Further, Contractor agrees that, if awarded a contract, Contractor will incorporate this provision for certification without modification in each contract and in all lower tier subcontracts. Contractor may rely upon the certification of a prospective subcontractor unless Contractor has knowledge that the certification is erroneous. Contractor shall provide immediate written notice to the City if Contractor learns that its certification or that of a Subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. Subcontractor agrees to provide immediate written notice to Contractor, if at any time it learns that Subcontractor certification was erroneous by reason of changed circumstances.

This certification is a material representation of fact upon which reliance was placed when making the award. If it is later determined that Contractor or Subcontractors knowingly rendered an erroneous certification, the Federal Aviation Administration may direct, through the City, cancellation of the Contract or subcontract for default at no cost to the City.

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, certification required by this provision. The knowledge and information of Contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code, Section 1001.

Certification- The above information is true and complete to the best of my knowledge and belief.

_____
(Printed or typed Name of Signatory)

_____ _____
Signature Date

Note: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

END OF DOCUMENT

Document 00459

CONTRACTOR'S STATEMENT REGARDING PREVIOUS CONTRACTS SUBJECT TO EQUAL EMPLOYMENT OPPORTUNITY

Section 60-1.7(b) of the Regulations of the Secretary of Labor requires each bidder or prospective prime contractor and proposed subcontractor, where appropriate, to state in the bid or at the outset of negotiations for the contract whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and if so, whether it has filed with the Joint Reporting Committee, the Director, an agency, or the former President's Committee on Equal Employment Opportunity all reports due under the applicable filing requirements. In any case in which a bidder or prospective prime contractor or proposed subcontractor which participated in a previous contract subject to Executive Order 10925, 11114. or 11246 has not filed a report due under the applicable filing documents, no contract or subcontract shall be awarded unless such contractor submits a report covering the delinquent period or such other period specified by the FAA or the Director, OFCCP.

Contractor has __ has not __ participated in a previous contract subject to the equal opportunity clause prescribed by Executive Order 10925, or Executive Order 11114, or Executive Order 11246.

Contractor has __ has not __ submitted all compliance reports in connection with any such contract due under the applicable filing requirements; and that representations indicating submission of required compliance reports signed by proposed subcontractors will be obtained prior to award of subcontracts.

If Contractor has participated in a previous contract subject to the equal opportunity clause and has not submitted compliance reports due under applicable filing requirements, Contractor (Proposer) shall submit a compliance report on Standard Form 100, "Employee Information Report EEO-1" prior to the award of the Contract.

Standard Form 100 is normally furnished to contractors annually, based on a mailing list currently maintained by the Joint Reporting Committee. In the event Contractor has not received the form, Contractor may obtain it by writing to the following address:

Joint Reporting Committee
1800 G Street
Washington, DC 20506

_____
(Printed or typed Name of Signatory)

_____ _____
Signature Date

_____
Title

_____
Contractor's Firm Name

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

END OF DOCUMENT

Document 00495-T

POST-BID PROCEDURES FOR TXDOT FUNDED PROJECTS

1. DOCUMENT ADDRESSES

   A. Notice of Intent to Award

   B. Monitoring Authority

   C. Requirements of Bidder

   D. Failure of Bidder to comply with requirements

   E. Notice to Proceed

2. NOTICE OF INTENT TO AWARD

   A. The City will provide written Notice of Intent to Award to Low Bidder.

3. DEFINITIONS

   A. The "Monitoring Authority" for this Project is:
   Director, Mayor's Office of Business Opportunity
   City of Houston
   611 Walker Street, 7th Floor
   Houston, Texas 77002

   B. The "Contracting Department" for this Project is:
   Director, Department of DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
   City of Houston
   611 Walker Street
   Houston, Texas 77002
   ATTN: **Michelle Randon, P.E.,**

4. REQUIREMENTS OF BIDDER

   A. Within10 days of receipt of Notice of Intent to Award, Low Bidder shall execute and deliver to Michelle Randon, P.E., Project Manager and Monitoring Authority, for the City's approval, documents indicated by an "X" below:
   [X] Executed Subcontract(s), Letter(s) of Intent, or documentation of good faith efforts to meet the MWBE/PDBE/DBE/SBE goals

B. Within 10 days of receipt of Notice of Intent to Award, Low Bidder shall execute and deliver to Michelle Randon, P.E., Project Manager for the City's approval, documents indicated by an "X" below:

[ ] Document 00500 - Form of Business
[X] Document 00501 - Resolution of Contractor
[X] Document 00520-T - Agreement
[X] Document 00600 - List of Proposed Subcontractors and Suppliers
[X] Document 00601 - Drug Policy Compliance Agreement
[X] Document 00602 - Contractor's Drug-free Workplace Policy *(Contractor creates this document.)*
[X] Document 00604 - History of OSHA Actions and List of On-the-job Injuries
[X] Document 00605 - List of Safety Impact Positions *(Contractor completes this list. Do not submit if submitting Document 00606.)*
[ ] Document 00606 - Contractor's Certification of No Safety Impact Positions *(Do not submit if submitting Document 00605.)*
[X] Document 00610 - Performance Bond
[X] Document 00611 - Statutory Payment Bond
[X] Document 00612-T - One-year Warranty Bond
[X] Document 00620 - Affidavit of Insurance *(with Certificate of Insurance attached)*
[X] Document 00622 - Name and Qualifications of Proposed Superintendent *(Contractor creates this document.)*
[X] Document 00624 - Affidavit of Compliance with S/WMBE Program
[ ] Document 00625 - SRF Participation Summary
[ ] Document 00626 - SRF Affirmative Steps Solicitation Report
[ ] Document 00627 - SRF Prime Contractor Affirmative Steps Certification and Goals
[ ] Document 00629 - Affidavit for FAA Form 7460-1
[ ] Document 00630 - Certification of Compliance with Pay or Play Program
[ ] Document 00631 - City of Houston Pay or Play Program – List of Subcontractors

C. Within 10 days of receipt of Notice of Intent to Award, Low Bidder shall execute the following forms and deliver them directly to the Monitoring Authority.

1. Original forms contained in Document 00805 – Equal Employment Opportunity Program Requirements:
   [ ] Pages 00805-3 to 00805-5, Certification by Bidder Regarding Equal Employment Opportunity
   [ ] Page 00805-6, Total Work Force Composition of the Company, or copy of latest EEO-1 form (required only if Contractor has a work force of 50 or more people and the Original Contract Price is $50,000 or more)
   [ ] Page 00805-7, Equal Employment Opportunity Compliance Program
   [ ] Page 00805-26, Certification by Proposed Subcontractor Regarding Equal Employment Opportunity

[ ] *Page 00805-29, Certification by Proposed Material Supplier, Lessor, and Professional Service Providers Regarding Equal Employment Opportunity*

2. Original completed form Document 00633 - Certification by Proposed Material Suppliers, Lessors, and Professional Service Providers Regarding Equal Employment Opportunity, for each proposed material supplier and equipment supplier.

3. Original forms contained in Document 00820 – Wage Scale for Engineering Construction.
   [ ] *Certificate from Contractor Appointing Officer or Employee to Supervise Payment of Employees*
   [ ] *Certificate from SubContractor Appointing Officer or Employee to Supervise Payment of Employees*
   [ ] Document 00812, Exhibit "A" – Certificate from Contractor Appointing Officer or Employee to Supervise Payment of Employees

D. Designations of Subcontractors and Suppliers, who have been selected by Bidder in Document 00600 - List of Proposed Subcontractors and Suppliers, and accepted by the City, may be changed only with prior notice and acceptance by Project Manager as provided in Conditions of the Contract. For each Product Supplier subsequently added or substituted, provide an original completed form, Document 00633 - Certification by Proposed Material Suppliers, Lessors, and Professional Service Providers Regarding Equal Employment Opportunity, directly to the Monitoring Authority.

E. On Bidder's written request, Michelle Randon, P.E., Project Manager may grant an extension of time, not to exceed 5 days, to furnish documents specified in Paragraphs 4.0.A and 4.0.B. If Bidder is required to resubmit documents specified in Paragraph 4.0.A or 4.0.B, Bidder shall do so within time limits provided in the request for resubmission.

Designations of Subcontractors and Suppliers, who have been selected by Bidder in Document 00600 - List of Proposed Subcontractors and Suppliers, and accepted by the City, may be changed only with prior notice and acceptance by Project Manager as provided in Conditions of the Contract. For each Product Supplier subsequently added or substituted, provide an original completed form, Document 00633 - Certification by Proposed Material Suppliers, Lessors, and Professional Service Providers Regarding Equal Employment Opportunity, directly to the Monitoring Authority.

E. On Bidder's written request, Michelle Randon, P.E., Project Manager may grant an extension of time, not to exceed 5 days, to furnish documents specified in Paragraphs 4.0.A and 4.0.B. If Bidder is required to resubmit documents specified in Paragraph 4.0.A or 4.0.B, Bidder shall do so within time limits provided in the request for resubmission.

F. Designations of Subcontractors and Suppliers, who have been selected by Bidder in its Participation Plan, and accepted by the City, may be changed only with prior notice and acceptance by the Monitoring Authority as provided in Document 00806-T– Disadvantaged Business Enterprise Program Requirements.

5. FAILURE OF BIDDER TO COMPLY WITH REQUIREMENTS

A. Should Bidder, on receipt of Notice of Intent to Award, fail to comply with requirements of this Document 00495-T within stated time, the City may declare award in default and require forfeiture of the Security Deposit.

B. After the City's written notice of default to Low Bidder, the City may award the Contract to Bidder whose offer is the next lowest bid, and Security Deposit of Bidder in default shall be forfeited to the City in accordance with provisions of Document 00200-T - Instructions to Bidders.

6. NOTICE TO PROCEED

A. Upon the City's execution of the Agreement and delivery to Contractor, City Engineer will give Document 00551 - Notice to Proceed to Contractor, which establishes Date of Commencement of the Work.

END OF DOCUMENT

Document 00501

RESOLUTION OF CONTRACTOR

_____ ("Contractor"),
(Name of Contractor, e.g., "Biz. Inc.", "Biz LLP")

is a _____,
(Type of Organization, e.g.: Corporation, Limited Partnership, Limited Liability Partnership, Limited Liability Company, etc.)

which is bound by acts of _____,
(Name and Form of Governing Entity, e.g., "Biz Inc. Board of Directors", "Bill Smith, GP", etc.)

("Governing Entity").

On the _____ day of _____, 20_____, the Governing Entity resolved, in accordance with all documents, rules, and laws applicable to the Contractor, that _____, is authorized to act as the
(Contractor's Representative)

Contractor's Representative in all business transactions (initial one) ____ conducted in the State of Texas OR ____ related to this Contract; and

The Governing Entity warrants that the above resolution (a) was entered into without dissent or reservation by the Governing Entity, (b) has not been rescinded or amended, and (c) is now in full force and effect; and

In authentication of the adoption of this resolution, I subscribe my name on this ____ day of _____, 20___.

_____ _____
(Authorized Signature for Governing Entity) (Print or Type Name and Title of Authorized Signatory)

SWORN AND SUBSCRIBED before me on _____
Date

_____
Notary Public in and for the State of Texas

My Commission Expires: _____ _____
Expiration Date Print or Type Name of Notary Public

Document 00520-T

AGREEMENT

Project: Almeda Road Paving and Drainage Improvements Old Spanish Trail to South MacGregor Way

Project Location: South MacGregor Way to the North, Old Spanish Trail on the South, South Freeway 288 on the East and South Braeswood on the West (Key Map No. 533E, 533F, 533J)

Project No: WBS No. N-000806-0001-4; CSJ No. 0912-72-072

The City: THE CITY OF HOUSTON, 900 Bagby Street, Houston, Texas 77002 (the "City")

and

Contractor: _____

(Address for Written Notice) _____

_____

Fax Number: _____ **Phone Number:** _____

City Engineer, with respect to Sections 4.3 thru 4.5 of the General Conditions, is:

J. Timothy Lincoln, P.E. (or his successor)

P. O. Box 1562, Houston, Texas 77251-1562 (Address for Written Notice)

Fax Number: 832-394-9622

City Engineer, with respect to all other terms of the General Conditions, is:

Joseph T. Myers, P.E. (or his successor)

Fax Number: 832-395-2410

THE CITY AND CONTRACTOR AGREE AS FOLLOWS:

ARTICLE 1
THE WORK OF THE CONTRACT

1.1 Contractor shall perform the Work in accordance with the Contract.

ARTICLE 2
CONTRACT TIME

2.1 Contractor shall achieve Date of Substantial Completion within 600 days after Date of Commencement of the Work, subject to adjustments of Contract Time as provided in the Contract.

2.2 The Parties recognize that time is of the essence for this Agreement and that the City will suffer financial loss if the Work is not completed within the Contract Time. Parties also recognize delays, expense, and difficulties involved in proving in a legal or arbitration proceeding actual loss suffered by the City if the Work is not completed on time. Accordingly, instead of requiring any such proof, the Parties agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay the City the amount stipulated in Document 00800 – Supplementary Conditions, for each day beyond Contract Time.

ARTICLE 3
CONTRACT PRICE

3.1 Subject to terms of the Contract, the City will pay Contractor in current funds for Contractor's performance of the Contract, Contract Price of _____ which includes Alternates, if any, accepted below.

3.2 The City accepts Alternates as follows:

****

Delete or add lines below to indicate all Alternates that were included in Request for competative sealed proposals. Remove brackets and instructions when done. Change color of remaining text to black.

****

Alternate No. 1 _____ *[Accepted or Not Accepted]* _____
Alternate No. 2 _____ *[Accepted or Not Accepted]* _____
Alternate No. 3 _____ *[Accepted or Not Accepted]* _____
Alternate No. 4 _____ *[Accepted or Not Accepted]* _____

ARTICLE 4
PAYMENTS

4.1 The City will make progress payments to Contractor as provided below and in Conditions of the Contract.

4.2 The Period covered by each progress payment is one calendar month ending on the 15th, or [___] last day of the month.

4.3 The City will issue Certificates for Payment and will make progress payments on the basis of such Certificates as provided in Conditions of the Contract.

4.4 Final payment, constituting entire unpaid balance of Contract Price, will be made by the City to Contractor as provided in Conditions of the Contract.

ARTICLE 5
CONTRACTOR REPRESENTATIONS

5.1 Contractor represents:

5.1.1 Contractor has examined and carefully studied Contract documents and other related data identified in the Request For Competitive Sealed Proposals or Competitive Sealed Bids.

5.1.2 Contractor has visited the site and become familiar with and is satisfied as to general, local, and site conditions that may affect cost, progress, and performance of the Work.

5.1.3 Contractor is familiar with and is satisfied as to all federal, state, and local laws and regulations that may affect cost, progress, and performance of the Work.

5.1.4 Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except Underground Facilities) which have been identified in Contract documents and (2) reports and drawings of a hazardous environmental condition, if any, at the site which has been identified in Contract documents.

5.1.5 Contractor has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including applying specific means, methods, techniques, sequences, and procedures of construction, if any, expressly required by the Contract to be employed by Contractor, and safety precautions and programs incident thereto

5.1.6 Contractor does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for performance of the Work at Contract Price, within Contract Time, and in accordance with the Contract.

5.1.7 Contractor is aware of general nature of work to be performed by the City and others at the site that relates to the Work as indicated in Contract documents.

5.1.8 Contractor has correlated information known to Contractor, information and observations obtained from visits to the site, reports and drawings identified in the Contract, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract.

5.1.9 Contractor has given City Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract, and written resolution thereof by City Engineer is acceptable to Contractor.

5.1.10 Contract documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 6
MISCELLANEOUS PROVISIONS

6.1 The Contract may be terminated by either Party as provided in Conditions of the Contract.

6.2 The Work may be suspended by the City as provided in Conditions of the Contract.

ARTICLE 7
ENUMERATION OF CONTRACT DOCUMENTS

7.1 The following documents are incorporated into this Agreement:

7.1.1 Document 00700 - General Conditions.

7.1.2 Document 00800-T – TxDOT Supplementary Conditions.

7.1.3 General Requirements.

7.1.4 Divisions 02 through 16 of Specifications.

7.1.5 Drawings listed in Document 00015 - List of Drawings. Drawing No. and bound separately.

7.1.6 Addenda [and Riders] which apply to the Contract, are as follows:

Addendum No. 1, dated _____

Addendum No. 2, dated _____

Addendum No. 3, dated _____

Rider No. [___], dated _____

7.1.7 Other documents:

	Document No.	Title
[X]	00410B	Proposal Form – Part B
[ ]	00470	Standard Pre-Bid Participation Plan Document
[ ]	00471	Pre-Bid Good Faith Efforts Report
[ ]	00472	Goal Deviation Request
[X]	00501	Resolution of Contractor
[ ]	00570	Amended S/MWBE Participation Plan
[ ]	00571	Contractor's Good Faith Efforts Report
[ ]	00572	Plan Deviation Request
[X]	00610	Performance Bond
[X]	00611	Statutory Payment Bond
[X]	00612-T	One-year Warranty Work Bond
[X]	00620	Affidavit of Insurance (with the Certificate of Insurance attached)
[ ]	00623	Contractor's Act of Assurance (SRF Form ED-103)
[X]	00624	Affidavit of Compliance with Affirmative Action Program
[ ]	00630	(POP-2) Certification of Compliance with Pay or Play Program
[ ]	00631	(POP-3) Pay or Play Program List of Subcontractors
[ ]	00803	Work Order Supplementary Conditions
[ ]	00802	SRF Supplementary Conditions
[ ]	00805	Equal Employment Opportunity Program Requirements
[X]	00806-T	TxDOT Disadvantaged Business Enterprise (DBE) Program Requirements
[ ]	00807	Bidder/Contractor Requirements for DBE Program
[ ]	00808	Minority and Women-owned Business Enterprise (MWBE) & Persons with Disabilities Business Enterprise (PDBE) Program
[X]	00810	Federal Wage Rate - Highway
[ ]	00811	Federal Wage Rate - Building
[X]	00812	Federal Wage Rate – Heavy
[ ]	00820	Wage Rate for Engineering Construction
[X]	00830	Trench Safety Geotechnical Information
[X]	00851	Buy America Requirements
[X]	00852	Changed Conditions
[ ]	00840	Pay or Play Program Requirements
[ ]	00912	Rider

[X] FHWA1273 Required Contract Provisions for Federal-Aid Construction Contracts
[X] 000---001 TxDOT Special Provision 000---001 Schedule of Liquidated Damages
[X] 000---002 TxDOT Special Provision 000---002 Nondiscrimination
[X] 000---003 TxDOT Special Provision 000---003 Certification of Nondiscrimination Employment
[X] 000---004 TxDOT Special Provision 000---004 Notice of Requirement for Affirmative Action to Ensure EEO
[X] 000---005 TxDOT Special Provision 000---005 Standard Federal EEO Construction Contract Specifications
[X] 000---006 TxDOT Special Provision 000---006 On-The-Job Training Program
[X] 000---007 TxDOT Special Provision 000---007 Disadvantaged Business Enterprise In Federal Aid Contracts
[X] 000---010 TxDOT Special Provision 000---010 Important Notice to Contractors

ARTICLE 8
SIGNATURES

8.1 This Agreement is executed in two original copies and is effective as of the date of countersignature by City Controller.

CONTRACTOR:

By: _____
Name: _____
Title: _____
Date: _____
Tax Identification Number: _____

(If Joint Venture)

By: _____
Name: _____
Title: _____
Date: _____
Tax Identification Number: _____

CITY OF HOUSTON, TEXAS

APPROVED:

By: _____
Director,
Department of Public Works and Engineering

SIGNED:

By: _____
Mayor

COUNTERSIGNED:

By: _____
City Controller

Date Countersigned:

_____
_____

ATTEST/SEAL:

By: _____
City Secretary

8.2 This Contract and Ordinance have been reviewed as to form by the undersigned legal assistant and have been found to meet established Legal Department criteria. Legal Department has not reviewed the content of these documents.

_____ _____
Legal Assistant Date

END OF DOCUMENT

Document 00600-T

LIST OF PROPOSED SUBCONTRACTORS AND SUPPLIERS - PART A[1]
DBE PARTICIPATION PLAN

PROJECT NAME: *Almeda Road Paving and Drainage Improvements*
ORIG. CONTRACT PRICE: $_____
PROJECT NO.: N-000806-0001-4; CSJ No. 0912-72-072
DATE OF REPORT: _____ PERCENTAGE: _____%

PERCENTAGE DBE: _____%

SUBCONTRACTOR OR SUPPLIER[2] (INLCUDE MBE/WBE/PDBE/DBE/SBE DESIGNATION)	**ADDRESS**	**SCOPE OF WORK[3]**	**AGREED PRICE**

NOTES:
1. RETURN PART A FOR PROJECTS WITH A STATED MWBE, PDBE, DBE AND/OR SBE PERCENTAGE GOAL, AS REQUIRED IN DOCUMENT 00800 – SUPPLEMENTARY CONDITIONS. RETURN PART A WITHIN THE SPECIFIED NUMBER OF DAYS AFTER RECEIPT OF NOTICE OF INTENT TO AWARD
2. FIRMS LISTED IN PART A SHALL BE CERTIFIED BY THE CITY AFFIRMATIVE ACTION/ CONTRACT COMPLIANCE DIVISION.
3. DESCRIBE THE WORK TO BE PERFORMED, FOR WHICH THE FIRM IS CERTIFIED, SUCH AS PAVING, ELECTRICAL, ETC.

CONTRACTOR SHALL EXECUTE CONTRACTS WITH APPROVED SUBCONTRACTORS AND SUPPLIERS WITHIN 30 DAYS AFTER THE DATE OF THE NOTICE TO PROCEED.

SIGNATURE: _____ COMPANY NAME: _____

NAME: _____ TITLE: _____
(Type or Print)

END OF DOCUMENT

Document 00600-T

LIST OF PROPOSED SUBCONTRACTORS AND SUPPLIERS - PART B[1]
SCHEDULE OF NON- DBE SUBCONTRACTORS AND SUPPLIERS

PROJECT NAME: *Almeda Road Paving and Drainage Improvements*
DATE OF REPORT: _____
PROJECT NO.: N-000806-0001-4; CSJ No. 0912-72-072

SUBCONTRACTOR OR SUPPLIER	ADDRESS	SCOPE OF WORK[2]

NOTES: 1. RETURN PART B FOR ALL PROJECTS WITHIN THE SPECIFIED NUMBER OF DAYS AFTER RECEIPT OF NOTICE OF INTENT TO AWARD.
2. DESCRIBE THE WORK TO BE PERFORMED, SUCH AS PAVING, ELECTRICAL, ETC.

CONTRACTOR SHALL EXECUTE CONTRACTS WITH APPROVED SUBCONTRACTORS AND SUPPLIERS WITHIN 30 DAYS AFTER THE DATE OF THE NOTICE TO PROCEED.

SIGNATURE: _____ COMPANY NAME: _____

NAME: _____ TITLE: _____
(Type or Print)

END OF DOCUMENT

Document 00601

DRUG POLICY COMPLIANCE AGREEMENT

I, _____ _____,
Name Title

of _____
Contractor

have authority to bind Contractor with respect to its Bid, Proposal, or performance of any and all contracts it may enter into with the City of Houston; and that by making this Agreement, I affirm that Contractor is aware of and by the time the Contract is awarded will be bound by and agree to designate appropriate safety impact positions for company employee positions, and to comply with the following requirements before the City issues a Notice to Proceed:

1. Develop and implement a written Drug Free Workplace Policy and related drug testing procedures for Contractor that meet the criteria and requirements established by the Mayor's Amended Policy on Drug Detection and Deterrence (Mayor's Drug Policy) and the Mayor's Drug Detection and Deterrence Procedures for Contractors (Executive Order No. 1-31).

2. Obtain a facility to collect urine samples consistent with Health and Human Services (HHS) guidelines and an HHS-certified drug-testing laboratory to perform drug tests.

3. Monitor and keep records of drug tests given and results; and upon request from the City of Houston, provide confirmation of such testing and results.

4. Submit semi-annual Drug Policy Compliance Declarations.

I affirm on behalf of Contractor that full compliance with the Mayor's Drug Policy and Executive Order No. 1-31 is a material condition of the Contract with the City of Houston,

I further acknowledge that falsification, failure to comply with or failure to timely submit declarations or documentation in compliance with the Mayor's Drug Policy or Executive Order No. 1-31 will be considered a breach of the Contract with the City and may result in non-award or termination of the Contract by the City.

_____ _____
Contractor Title

_____ _____
Signature Date

END OF DOCUMENT

Document 00603
CHECKLIST FOR DRUG POLICY SUBMITTAL

TO: CARLOS MARTINEZ
PWE/DIRECTOR'S OFFICE
SECURITY MANAGEMENT SECTION
611 WALKER STREET
3RD FLOOR ANNEX
HOUSTON, TEXAS 77002

FROM: **ASSISTANT DIRECTOR**
[CONTRACTING DIVISION]
[CONTRACTING DEPARTMENT]

DATE: *[Today's Date]*

CONTRACTOR: _____

PROJECT NAME: Almeda Road Paving and Drainage Improvements Old Spanish Trail to South MacGregor Way

PROJECT No.: WBS No. N-000806-0001-4; CSJ No. 0912-72-072

PROJECT MANAGER: Michelle Randon, P.E. **TELEPHONE:** 832-395-2238 **FAX:** 832-395-2251

DOCUMENTS CHECKED BELOW ARE BEING SUBMITTED: (Project Manager, check.)

☐ **DOC. 00601 - DRUG POLICY COMPLIANCE AGREEMENT (Standard Form)**

☐ **DOC. 00602 - CONTRACTOR'S DRUG-FREE WORKPLACE POLICY (Contractor creates this Document)**

☐ **DOC. 00605 - LIST OF SAFETY IMPACT POSITIONS (Contractor creates this List)**
"OR"

☐ **DOC. 00606 - CONTRACTOR'S CERTIFICATION OF NO SAFETY IMPACT POSITIONS**

CCODT REVIEW: THE FOLLOWING CHECKED ITEM(S) ARE MISSING FROM SUBMISSION/POLICY AND NEED TO BE CORRECTED PRIOR TO AWARD:

☐ **NAME OF DRUG TESTING LAB**
REASON FOR TESTING:
- ☐ **RANDOM TESTING - 25% ANNUALLY**
- ☐ **REASONABLE SUSPICION**
- ☐ **POST ACCIDENT**

REJECTED	_____
	_____
	_____
APPROVED	_____

☐ **SAFETY IMPACT POSITIONS INCOMPLETE**

☐ **EMPLOYEE ACKNOWLEDGMENT FORM**

☐ **DRUG TESTING PROCEDURES**

☐ **CONSEQUENCE OF POSITIVE TEST:** *PERMANENTLY REMOVED FROM ANY CONTRACT CITY WORKSITE.*

☐ **CONSEQUENCE OF REFUSAL TO CONSENT:** *PERMANENTLY REMOVED FROM ANY CONTRACT CITY WORKSITE.*

☐ **OTHER:** _____

COMMENTS: _____

DATE RECEIVED: _____ **RESUBMITTAL DATE:** _____

END OF DOCUMENT

Document 00604

HISTORY OF OSHA ACTIONS AND LIST OF ON-THE-JOB INJURIES

Prior to award of the Contract, Low Bidder will be required to file the following with the City:

1. A history of all OSHA actions, advisories, etc., Contractor has received on all jobs worked in any capacity, prime or subcontractor. The history shall be for the two-year period preceding the Bid Date of the Project.

2. A list of all on-the-job injuries, accidents, and fatalities suffered by any present or former employees of Contractor during the same two-year period.

3. If less than the two-year period, give the date Contractor started doing business.

This information must be submitted to the City within the time period stated in Document 00498 - Notice of Intent to Award. An officer of the company must certify in a notarized statement that the information submitted is true and correct.

END OF DOCUMENT

Document 00605

LIST OF SAFETY IMPACT POSITIONS

****

Contractor is to provide a complete List of Employee Classifications that are considered in a "Safety Impact Position" and the number of employees in each of those classifications.

****

Employee Classification	**Number of Employees**

END OF DOCUMENT

Document 00606

CONTRACTOR'S CERTIFICATION OF NO SAFETY IMPACT POSITIONS IN PERFORMANCE OF A CITY CONTRACT

BEFORE ME, the undersigned authority, on this day personally appeared

_____,
Affiant

who being by me duly sworn on his oath stated that he is _____
Title

of _____
Contractor

and that no employee safety impact positions, as defined in §5.17 of Executive Order No. 1-31, will be involved in performing _____.
Project

Contractor agrees and covenants that it shall immediately notify the City of Houston Director of Personnel if any safety impact positions are established to provide services in performing this City Contract.

_____
Affiant's Signature

SWORN AND SUBSCRIBED before me on this day of _____, 20___.

_____
Notary Public in and for the State of TEXAS

_____
Print or Type Notary Public Name

My Commission Expires: _____
Expiration Date

END OF DOCUMENT

Document 00607

CERTIFICATION REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

Contractor certifies to the best of its knowledge and belief that it and its principals:

1. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal, State, or local department or agency;

2. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction: violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

3. Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph 2 of this certification; and

4. Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 USC Section 1001, a false statement may result in a fine of up to $10,000 or imprisonment for up to five years, or both.

Company:

_____
Typed Name & Title of Authorized Representative

_____ _____
Signature of Authorized Representative Date

☐ I am unable to certify the above statements. My explanation is attached.

END OF DOCUMENT

Document 00610

PERFORMANCE BOND

THAT WE, _____, as Principal, (the "Contractor"), and the other subscriber hereto, _____, as Surety, do hereby acknowledge ourselves to be held and firmly bound to the City of Houston (the "City"), a municipal corporation, in the penal sum of $_____ for the payment of which sum, well and truly to be made to the City, its successors and assigns, Contractor and Surety do bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH THAT:

WHEREAS, the Contractor has on or about this day executed a Contract in writing with the City for _____

_____,

all of such work to be done as set out in full in said Contract documents therein referred to and adopted by the City Council, all of which are made a part of this instrument as fully and completely as if set out in full herein.

NOW THEREFORE, if the said Contractor shall faithfully and strictly perform the Contract in all its terms, provisions, and stipulations in accordance with its true meaning and effect, and in accordance with the Contract documents referred to therein and shall comply strictly with each and every provision of the Contract and with this Bond, then this obligation shall become null and void and shall have no further force and effect; otherwise the same is to remain in full force and effect. Should the Contractor fail to faithfully and strictly perform the Contract in all its terms, including but not limited to the indemnifications thereunder, the Surety shall be liable for all damages, losses, expenses and liabilities that the City may suffer in consequence thereof, as more fully set forth herein.

It is further understood and agreed that the Surety does hereby relieve the City or its representatives from the exercise of any diligence whatever in securing compliance on the part of the Contractor with the terms of the Contract, and the Surety agrees that it shall be bound to take notice of and shall be held to have knowledge of all acts or omissions of the Contractor in all matters pertaining to the Contract. The Surety understands and agrees that the provision in the Contract that the City will retain certain amounts due the Contractor until the expiration of 30 days from the acceptance of the Work is intended for the City's benefit, and the City will have the right to pay or withhold such retained amounts or any other amount owing under the Contract without changing or affecting the liability of the Surety hereon in any degree.

It is further expressly agreed by Surety that the City or its representatives are at liberty at any time, without notice to the Surety, to make any change in the Contract documents and in the Work to be done thereunder, as provided in the Contract, and in the terms and conditions thereof, or to make any change in, addition to, or deduction from the Work to be done thereunder; and that such changes, if made, shall not in any way vitiate the obligation in this Bond and undertaking or release the Surety therefrom.

It is further expressly agreed and understood that the Contractor and Surety will fully indemnify and save harmless the City from any liability, loss, cost, expense, or damage arising out of Contractor's performance of the Contract.

If the City gives Surety notice of Contractor's default, Surety shall, within 45 days, take one of the following actions:

1. Arrange for Contractor, with consent of the City, to perform and complete the Contract; or

2. Take over and assume completion of the Contract itself, through its agents or through independent contractors, and become entitled to the payment of the balance of the Contract Price.

If the Surety fails to take either of the actions set out above, it shall be deemed to have waived its right to perform and complete the Contract and receive payment of the balance of the Contract Price and the City shall be entitled to enforce any remedies available at law, including but not limited to completing the Contract itself and recovering any cost in excess of the Original Contract Price from the Surety.

This Bond and all obligations created hereunder shall be performable in Harris County, Texas. This Bond is given in compliance with the provisions of Chapter 2253, Texas Government Code, as amended, which is incorporated herein by this reference.

Notices required or permitted hereunder shall be in writing and shall be deemed delivered when actually received or, if earlier, on the third day following deposit in a United States Postal Service post office or receptacle, with proper postage affixed (certified mail, return receipt requested), addressed to the respective other Party at the address prescribed in the Contract documents, or at such other address as the receiving party may hereafter prescribe by written notice to the sending party.

IN WITNESS THEREOF, the said Contractor and Surety have signed and sealed this instrument on the respective dates written below their signatures and have attached current Power of Attorney.

ATTEST, SEAL: (if a corporation)
WITNESS: (if not a corporation)

_____
Name of Contractor

By: _____
Name:
Title:

By: _____
Name:
Title:
Date:

ATTEST/SURETY WITNESS:

(SEAL)

_____
Full Name of Surety

_____
Address of Surety for Notice

_____

_____
Telephone Number of Surety

By: _____
Name:
Title:
Date:

By: _____
Name:
Title: Attorney-in-Fact
Date:

This Ordinance or Contract has been reviewed as to form by the undersigned legal assistant and have been found to meet established Legal Department criteria. The Legal Department has not reviewed the content of these documents.

_____ _____
Legal Assistant Date

END OF DOCUMENT

Document 00611

STATUTORY PAYMENT BOND

THAT WE, _____, as Principal, hereinafter called Contractor and the other subscriber hereto, _____, as Surety, do hereby acknowledge ourselves to be held and firmly bound unto the City of Houston, a municipal corporation, in the sum of $_____ for the payment of which sum, well and truly to be made to the City of Houston, and its successors, the said Contractor and Surety do bind themselves, their heirs, executors, administrators, successors, jointly and severally.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH THAT:

WHEREAS, the Contractor has on or about this day executed a contract in writing with the City of Houston for _____

_____,

all of such work to be done as set out in full in said Contract documents therein referred to and adopted by the City Council, all of which are made a part of this instrument as fully and completely as if set out in full herein;

NOW, THEREFORE, if the said Contractor shall pay all claimants supplying labor and materials to him or a Subcontractor in the prosecution of the Work provided for in the Contract, then, this obligation shall be void; otherwise the same is to remain in full force and effect;

PROVIDED HOWEVER, that this Bond is executed pursuant to the provisions of Chapter 2253, Texas Government Code, as amended, and all liabilities on this Bond shall be determined in accordance with the provisions of said Article to the same extent as if it were copied at length herein.

IN WITNESS THEREOF, the said Contractor and Surety have signed and sealed this instrument on the respective dates written below their signatures and have attached current Power of Attorney.

ATTEST, SEAL: (if a corporation)
WITNESS: (if not a corporation)

_____
Name of Contractor

By: _____
Name:
Title:

By: _____
Name:
Title:
Date:

ATTEST/SURETY WITNESS:

(SEAL)

_____
Full Name of Surety

_____
Address of Surety for Notice

_____

_____
Telephone Number of Surety

By: _____
Name:
Title:
Date:

By: _____
Name:
Title: Attorney-in-Fact
Date:

This Ordinance or Contract has been reviewed as to form by the undersigned legal assistant and have been found to meet established Legal Department criteria. The Legal Department has not reviewed the content of these documents.

_____ _____
Legal Assistant Date

END OF DOCUMENT

Document 00612-T

ONE-YEAR WARRANTY OF WORK BOND

THAT WE, [Name of Low Bidder] _____, as Principal, hereinafter called Contractor, and the other subscriber hereto, [Name of Surety] _____ sum well and truly to be made to the City of Houston and its successors, the said Contractor and Surety do bind themselves, their heirs, executors, administrators, successors, jointly and severally.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH THAT:

WHEREAS, the Contractor has on or about this day executed a Contract in writing with the City of Houston for [Legal Project Name] _____

_____,

all of such work to be done as set out in full in said Contract documents therein referred to and adopted by the City Council, all of which are made a part of this instrument as fully and completely as if set out in full herein.

NOW THEREFORE, if the said Contractor shall comply with the provisions of Paragraph 11.5.1 of the General Conditions, and correct work not in accordance with the Contract documents discovered within the established one-year period, then this obligation shall become null and void, and shall be of no further force and effect; otherwise, the same is to remain in full force and effect.

Notices required or permitted hereunder shall be in writing and shall be deemed delivered when actually received or, if earlier, on the third day following deposit in a United States Postal Service post office or receptacle, with proper postage affixed (certified mail, return receipt requested), addressed to the respective other party at the address prescribed in the Contract documents, or at such other address as the receiving party may hereafter prescribe by written notice to the sending party.

IN WITNESS THEREOF, the said Contractor and Surety have signed and sealed this instrument on the respective dates written below their signatures and have attached current Power of Attorney.

ATTEST, SEAL: (if a corporation)
WITNESS: (if not a corporation)

_____
Name of Contractor

By: _____
Name:
Title:

By: _____
Name:
Title:
Date:

ATTEST/SURETY WITNESS:

(SEAL)

_____
Full Name of Surety

_____
Address of Surety for Notice

_____

_____
Telephone Number of Surety

By: _____
Name:
Title:
Date:

By: _____
Name:
Title: Attorney-in-Fact
Date:

This Ordinance or Contract has been reviewed as to form by the undersigned legal assistant and have been found to meet established Legal Department criteria. The Legal Department has not reviewed the content of these documents.

_____
Legal Assistant

_____
Date

END OF DOCUMENT

Document 00620

AFFIDAVIT OF INSURANCE

BEFORE ME, the undersigned authority, on this day personally appeared

_____, who
Affiant

being by me duly sworn on his oath stated that he is _____, of
Title

_____,
Contractor's Company Name

the Contractor named and referred to within the Contract documents; that he is fully competent and authorized to give this affidavit and that the attached original insurance certificate truly and accurately reflects the insurance coverage that is now available and will be available during the term of the Contract.

_____
Affiant's Signature

SWORN AND SUBSCRIBED before me on _____.
Date

_____
Notary Public in and for the State of TEXAS

_____
Print or type Notary Public name

My Commission Expires: _____
Expiration Date

END OF DOCUMENT

Document 00624

AFFIDAVIT OF COMPLIANCE WITH AFFIRMATIVE ACTION PROGRAM

BEFORE ME, the undersigned authority, on this day personally appeared _____, who
Affiant

being by me duly sworn on his oath stated that he is _____,
Title

of _____,
Contractor

the Contractor named and referred to within the Contract documents; that he is fully competent and authorized to give this affidavit and that the Contract is in compliance with the Affirmative Action Program of the City and has done all that is required by the Contract documents, the Affirmative Action Program, and pursuant to Chapter 15, Code of Ordinances, City of Houston, §15.16 et seq.

_____
Affiant's Signature

SWORN AND SUBSCRIBED before me on this day of _____, 20___.

_____
Notary Public in and for the State of TEXAS

_____
Print or Type Notary Public Name

My Commission Expires: _____
Expiration Date

END OF DOCUMENT

CITY OF HOUSTON
STANDARD DOCUMENT

EQUAL EMPLOYMENT OPPORTUNITY CERTIFICATION BY MATERIAL SUPPLIERS

Document 00633

CERTIFICATION BY PROPOSED MATERIAL SUPPLIERS,
LESSORS, AND PROFESSIONAL SERVICE PROVIDERS
REGARDING EQUAL EMPLOYMENT OPPORTUNITY

Company Name: _____ $_____
(Supplier, Lessor, Professional Service Provider) (Amount of Contract)

Company Address: _____

Company Telephone Number: _____ Fax: _____

E-mail Address: _____

Web Page/URL Address: _____

Company Tax Identification Number: _____

Project No.: [*WBS/CIP/AIP/File No.*] _____

Project Name: [*Legal Project Name*] _____

In accordance with the City of Houston Ordinance 78-1538, Supplier/Lessor/Professional Service Provider represents to be an equal opportunity employer and agrees to abide by the terms of the Ordinance. This certification is required of all Suppliers/Lessors/Professional Service Providers (herein Supplier) with contracts in the amount of $10,000.00 or more.

[ ] Yes [ ] No Supplier agrees not to discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, or age.

[ ] Yes [ ] No Supplier agrees that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex, national origin, or age.

[ ] Yes [ ] No Supplier will comply with all provisions of Executive Order No. 11246 and rules, regulations and applicable orders of the Department of Labor or other Federal Agency responsible for enforcement of applicable equal opportunity and affirmative action provisions and will likewise furnish all information and reports required by the Mayor or Contract Compliance Officers for the purpose of investigation to ascertain and effect compliance with the City of Houston's Office of Affirmative Action and Contract Compliance.

[ ] Yes [ ] No The Supplier shall file and cause their sub-tier contractors to file compliance reports with the City in the form and to the extent as may be prescribed by the Mayor or Contract Compliance Officers. Compliance reports filed at such times as directed shall contain information including, but not limited to, the practices, policies, programs, and employment policies.

I hereby certify that the above information is true and correct.

_____ _____
COMPANY OFFICER (Signature) DATE

_____
NAME AND TITLE (Print or type)

END OF DOCUMENT

Document 00642

MONTHLY SUBCONTRACTOR PAYMENT REPORTING FORM

Legal Project Name:_____

Outline Agreement No.:_____ WBS No.:_____

Contractor's Company Name: _____

Address: _____

CERTIFICATION

_____, Contractor's Representative for the above referenced Contract, hereby certifies that (1) Contractor has paid all subcontractors, except those noted below, (2) Contractor made such payments (a) in proportion to the amount City paid Contractor and (b) in accordance and compliance with all applicable Contract Documents and laws; and (3) Contractor withheld no sums from any subcontractor for allegations of deficiency in Work. The term "subcontractor", as used herein, includes all persons or firms furnishing work, materials, services or equipment Contractor ordered incorporated into Work or placed near the Project for which the City made partial payment.

EXCEPTION: Contractor sent Payment Notifications to the following subcontractors explaining why Contractor withheld payment. Copies are attached.

Subcontractor Name:_____	Subcontractor Name: _____
Street Address: _____	Street Address: _____
City, State, and Zip Code: _____	City, State, and Zip Code: _____
Amount of Payment Withheld:_____	Amount of Payment Withheld: _____
Date Payment First Withheld: _____	Date Payment First Withheld: _____
Description of Good Faith Reason:_____	Description of Good Faith Reason:_____
_____	_____

_____
(Signature of Contractor's Representative)

_____
(Print or Type Name of Contractor's Representative)

SWORN TO AND SUBSCRIBED before me on:

_____
Date

_____
Notary Public in and for the State of Texas

My Commission Expires: _____
Expiration Date

_____
Print or Type Name of Notary Public

Document 00646

PAYMENT NOTIFICATION – EXPLANATION OF WITHHOLDING

Legal Project Name:_____

Outline Agreement No.:_____ WBS No.:_____

Contractor's Company Name: _____

Address: _____

Date: _____

SUBCONTRACTOR PAYMENT INFORMATION:

Subcontractor Name:_____

Street Address: _____

City, State, and Zip Code: _____

Business Phone Number: _____

Amount of Subcontractor Invoice: _____

Amount of Payment Made: _____

Amount of Payment Withheld:_____

Date Payment First Withheld: _____

DETAILED EXPLANATION OF WITHHOLDING: _____

_____

_____

_____

_____

_____ _____

(Signature of Contractor's Representative) (Print or Type Name of Contractor's Representative)

Document 00700

GENERAL CONDITIONS

January 1, 2015 EDITION

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ARTICLE 1 - GENERAL PROVISIONS

1.1 DEFINITIONS

1.1.1 Agreement: Document signed by the Parties and binding the Parties, containing the name of Contractor, title and location of the Project, Original Contract Time, Original Contract Price, enumeration of documents included in the Contract, and other provisions.

1.1.2 Bonds: Performance Bond, Payment Bond, Maintenance Bond, and other Surety instruments executed by Surety. When in singular form, refers to individual instrument.

1.1.3 Business Enterprise: Any business entity registered in a program authorized by 49 C.F.R. § 26 (where applicable) or City Code of Ordinances, Chapter 15, Article II, relating to Equal Opportunity Employment and taking affirmative action to ensure that applicants are employed and employees are treated without regard to race, religion, color, sex, national origin, or age. The term "Business Enterprise" may include any Disadvantaged Business Enterprise ("DBE"), Minority Business Enterprise ("MBE"), Woman Business Enterprise ("WBE"), Small Business Enterprise ("SBE"), Person with Disability Enterprise ("PDBE"), and any Historically Underutilized Business ("HUB").

1.1.4 Business Enterprise Policy: Contract documents and applicable policies relating to Business Enterprises and authorized under 49 C.F.R. § 26 or City Code of Ordinances, Chapter 15, Article II.

1.1.5 Cash Allowance: An estimated sum of money to be used only for a limited class of expenditures such as utility relocation costs, fees for special licenses or permits, or other "pass-through" costs that would be the same for any contractor. Cash Allowances may not be used to purchase goods or services that are not specified in the Contract. The unspecified items must be purchased according to the terms of Article 7.

1.1.6 Change Order: Written instrument prepared by the City and signed by City Engineer and Contractor, specifying the following:

.1 a change in the Work;
.2 a change in Contract Price, if any; and
.3 a change in Contract Time, if any.

The value of a Change Order is the net amount after offsetting all deductions against all additions effected by the Change Order.

1.1.7 City: The City of Houston, a home rule municipality located principally within Harris County, Texas, including its successors and its authorized representatives.

1.1.8 City Engineer: The City Engineer, or the City employee representing the City Engineer, designated in the Agreement and authorized to represent the City, or successors.

1.1.9 Claim: Written demand or written assertion by one Party seeking adjustment of the Contract, payment of money, extension of time, or other relief under the Contract and includes, but is not limited to, claims for materials, labor, equipment, delay, changes, adjustments, substitutions, fees and third party claims. The Party making the Claim has the responsibility to substantiate the Claim.

1.1.10 Conditions of the Contract: General Conditions and Supplementary Conditions.

1.1.11 Construction Manager: Person or firm under contract with the City as its authorized representative to oversee and administer construction of the Work, and who may perform the role of Project Manager and Inspector, as designated by City Engineer in writing.

1.1.12 Contract: The Agreement; documents enumerated in and incorporated into the Agreement, Modifications, and amendments.

1.1.13 Contract Price: The monetary amount stated in the Agreement adjusted by Change Order, and increases or decreases in Unit Price Quantities, if any.

1.1.14 Contract Time: The number of days stated in the Agreement to substantially complete the Work, plus days authorized by Change Order.

1.1.15 Contractor: Person or firm identified as such in the Agreement including its successors and its authorized representatives.

1.1.16 Date of Commencement of the Work: Date established in Notice to Proceed on which Contract Time will commence. This date will not be changed by failure of Contractor, or persons or entities for whom Contractor is responsible, to act.

1.1.17 Date of Substantial Completion: Date that construction, or portion thereof designated by City Engineer, is certified by City Engineer to be substantially complete.

1.1.18 Design Consultant: Person or firm, under contract with the City, to provide professional services during construction and its authorized representatives. If a Design Consultant is not employed for services during construction, Project Manager will perform duties of Design Consultant designated in the Contract in addition to usual duties of Project Manager.

1.1.19 Drawings: Graphic and pictorial portions of the Contract that define the character and scope of the Work.

1.1.20 Extra Unit Price: Unit Prices, which may be required for completion of the Work. These Unit Prices and Unit Price Quantities are in the Contract and are included in Original Contract Price.

1.1.21 Furnish: To supply, pay for, deliver to the site, and unload.

1.1.22 General Requirements: The sections of Division 01 Specifications that specify administrative and procedural requirements and temporary facilities required for the Work.

1.1.23 Inspector: City's employee or agent authorized to assist with inspection of the Work.

1.1.24 Install: Unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, clean, protect, and similar operations.

1.1.25 Legal Holiday: Day established by the City Council as a holiday.

1.1.26 Major Unit Price Work: An individual Unit Price item,

.1 whose value is greater than five percent of Original Contract Price,

.2 whose value becomes greater than five percent of Original Contract Price as the result of an increase in quantity, or

.3 whose value is $100,000, whichever is least.

1.1.27 Mayor's Office of Business Opportunity: any reference to, or use of, the "Office of Affirmative Action" shall mean the Mayor's Office of Business Opportunity, or any such future name to which it is changed.

1.1.28 Minor Change in the Work: A written change in the Work, ordered by City Engineer, that does not change Contract Price or Contract Time, and that is consistent with the general scope of the Contract.

1.1.29 Modification: Change Order, Work Change Directive, or Minor Change in the Work.

1.1.30 Notice of Noncompliance: A written notice by City Engineer to Contractor regarding defective or nonconforming work that does not meet the Contract requirements, and that establishes a time by which Contractor shall correct the defective or nonconforming work.

1.1.31 Notice to Proceed: A written notice by City Engineer to Contractor establishing Date of Commencement of the Work.

1.1.32 Original Contract Price: The monetary amount originally stated in the Agreement.

1.1.33 Parties: Contractor and the City. When in singular form, refers to Contractor or the City.

1.1.34 Pollutant: Any materials subject to the Texas Solid Waste Disposal Act.

1.1.35 Pollutant Facility: Any facility regulated by the State of Texas to protect the health and environment from contamination by Pollutants, including without limitation, landfills, oil and gas production and storage facilities, wastewater facilities, waste injection wells, and storage tanks (including drums).

1.1.36 Product: Materials, equipment, or systems incorporated into the Work or to be incorporated into the Work.

1.1.37 Product Data: Illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by Contractor to illustrate a Product.

1.1.38 Project: Total construction, of which the Work performed under the Contract may be the whole or a part, and which may include construction by the City or by separate contractors.

1.1.39 Project Manager: City Engineer's authorized representative for administration of the Work. Titles used within the City's departments may be different than those used in this definition.

1.1.40 Provide: Furnish and Install, complete, ready for intended use.

1.1.41 Samples: Physical examples that illustrate Products, or workmanship, and establish standards by which the Work is judged.

1.1.42 Shop Drawings: Drawings, diagrams, schedules, and other data specially prepared for the Work by Contractor, Subcontractor or Supplier, to illustrate a portion of the Work.

1.1.43 Specifications: Divisions 01 through 16 of the documents that are incorporated into the Agreement, consisting of written General Requirements and requirements for Products, standards, and workmanship for the Work, and performance of related services.

1.1.44 Stipulated Price: Single lump sum amount stated in the Contract for completion of the Work, or for designated portion of the Work.

1.1.45 Subcontractor: Person or firm that has direct or indirect contract with Contractor or with another Subcontractor to perform a portion of the Work and its authorized representatives.

1.1.46 Superintendent: Employee of Contractor having authority and responsibility to act for and represent Contractor.

1.1.47 Supplementary Conditions: Part of Conditions of the Contract that amends or supplements General Conditions.

1.1.48 Supplier: Manufacturer, distributor, materialman, or vendor having a direct agreement with Contractor or Subcontractor for Products, or services and its authorized representatives.

1.1.49 Surety: Corporate entity that is bound by one or more Bonds, and is responsible for completion of the Work, including the correction period, and for payment of debts incurred in fulfilling the Contract. Surety shall include co-surety or reinsurer, as applicable.

1.1.50 Underground Facilities: Pipes, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments and encasements containing such facilities that exist below ground level.

1.1.51 Unit Price: An amount stated in the Contract for an individual, measurable item of work, which, when multiplied by actual quantity incorporated into the Work, amounts to full compensation for completion of the item, including work incidental to it.

1.1.52 Unit Price Quantities: Quantities indicated in the Contract that are approximations made by the City for contracting purposes.

1.1.53 Work: Entire construction required by the Contract, including all labor, Products, and services provided by Contractor to fulfill Contractor's obligations. The Work may constitute the whole or a portion of the Project.

1.1.54 Work Change Directive: A written change in the Work, ordered by City Engineer, that is within the general scope of the Contract and consisting of additions, deletions, or other revisions. A Work Change Directive will state proposed basis for adjustment, if any, in Contract Price or Contract Time, or both.

1.2 EXECUTION, CORRELATION, AND INTENT

1.2.1 Execution of the Contract by Contractor is conclusive that Contractor has visited the Work site, become familiar with local conditions under which the Work will be performed, and fully informed itself as to conditions and matters which can affect the Work or costs. Contractor further agrees that it has carefully correlated personal observations with requirements of the Contract.

1.2.2 The Contract and Modifications have been read and carefully considered by Contractor, who understands and agrees to their sufficiency for the Work. The Contract may not be more strongly construed against the City than against Contractor and Surety.

1.2.3 Contractor shall include all items necessary for proper execution and completion of the Work.

1.2.4 Reference to standard specifications, manuals, or codes of a technical society, organization, or association, or to laws or regulations of a governmental authority, whether specific or implied, mean the latest edition in effect as of date of receipt of bids, except as may be otherwise specifically stated in the Contract.

1.2.5 No provision of any referenced standard, specification, or manual changes the duties and responsibilities of the City, City Engineer, Contractor, or Design Consultant from those set forth in the Contract. Nor do these provisions assign to Design Consultant any duty or authority to supervise or direct performance of the Work or any duty or

authority to undertake any actions contrary to provisions of the Contract.

1.2.6 Organization of Specifications into divisions, sections, and articles and arrangement of Drawings does not control Contractor in dividing the Work among Subcontractors or in establishing the extent of work to be performed by any trade.

1.2.7 Unless otherwise defined in the Contract, words which have well-known construction industry technical meanings are used in the Contract in accordance with these recognized meanings.

1.3 OWNERSHIP AND USE OF DOCUMENTS

1.3.1 Drawings, Specifications, and other documents prepared by the City or by Design Consultant are instruments of service through which the Work to be executed by Contractor is described. Contractor may retain one Contract record set.

1.3.2 Neither Contractor, Subcontractor, nor Supplier will own or claim a copyright to documents contained in the Contract or any part of the Contract.

1.3.3 Documents contained in the Contract, prepared by the City or by Design Consultant, and copies furnished to Contractor, are for use solely with respect to the Work. They may not be used by Contractor, Subcontractor or Supplier on other projects or for additions to the Work, outside the scope of the Work, without the specific written consent of City Engineer, and Design Consultant, when applicable.

1.3.4 Contractor, Subcontractors, and Suppliers are granted a limited license to use and reproduce applicable portions of the Contract appropriate to and for use in execution of their work under the Contract.

1.4 *INTERPRETATION*

1.4.1 Specifications are written in an imperative streamlined form and are directed to Contractor, unless noted otherwise. When written in this form, words "shall be" are included by inference where a colon (:) is used within sentences or phrases.

1.4.2 In the interest of brevity, the Contract frequently omits modifying words such as "all" and "any" and articles such as "the" and "an", but an absent modifier or article is not intended to affect interpretation of a statement.

ARTICLE 2 - THE CITY

2.1 *LIMITATIONS OF THE CITY'S OFFICERS AND EMPLOYEES*

2.1.1 No officer or employee of the City may authorize Contractor to perform an act or work contrary to the Contract, except as otherwise provided in the Contract.

2.2 *DUTIES OF THE CITY*

2.2.1 If a building permit is required, the City will process an application for, and Contractor shall purchase the building permit before Date of Commencement of the Work.

2.2.2 The City will make available to Contractor a reproducible set of Drawings. Additional copies will be furnished, on Contractor's request, at the cost of reproduction.

2.2.3 When necessary for performance of the Work, the City will provide surveys describing physical characteristics, legal limitations, legal description of site, and horizontal and vertical control adequate to lay out the Work.

2.2.4 Information or services that the City is required to provide under the Contract will be provided by the City with reasonable promptness to avoid delay in orderly progress of the Work.

2.2.5 The Contract imposes no implied duty on the City. The City does not warrant any plans or specifications associated with the Contract.

2.2.6 Except as expressly stated in this Article, the City owes no duty to the Contractor or any subcontractor.

2.3 *AVAILABILITY OF LAND AND USE OF SITE*

2.3.1 The City will furnish, as indicated in the Contract, rights-of-way, land on which the Work is to be performed, and other land designated in the Contract for use by Contractor unless otherwise provided in the Contract.

2.3.2 Contractor shall confine operations at site to those areas permitted by law, ordinances, permits, and the Contract, and may not unreasonably encumber site with materials or equipment.

2.3.3 In addition to land provided by the City under Section 2.3, Contractor shall provide all land and access to land that may be required for use by Contractor for temporary construction facilities or for storage of materials and equipment, and shall indemnify the City during its use of the land as stated in Section 3.25.

2.4 *THE CITY'S RIGHT TO STOP THE WORK*

2.4.1 If Contractor fails to carry out the Work in accordance with the Contract, or fails to correct work which is not in accordance with requirements of the Contract as required in Sections 12.1 and 12.2, the City may, by Notice of Noncompliance, order Contractor to stop the Work or any portion of the Work until the cause for the order has been eliminated. However, the right of the City to stop the Work will not give rise to a Claim for delay or to a duty on the part of the City to exercise this right for the benefit of Contractor or any other person or entity, except to the extent required by Section 6.2. If Contractor corrects the defective or nonconforming work within the time established in Notice of Noncompliance, City Engineer will give written notice to Contractor to resume performance of the Work.

2.5 *THE CITY'S RIGHT TO CARRY OUT WORK*

2.5.1 If Contractor fails to carry out work in accordance with the Contract, and fails within the period established in a Notice of Noncompliance to correct the nonconforming work, the City may, after expiration of the required period, correct the deficiencies without prejudice to other remedies the City may have, including rights of the City under Section 14.1.

2.5.1.1 When the City corrects deficiencies, City Engineer will issue an appropriate Change Order and deduct from payments then or thereafter due Contractor the cost of correcting the deficiencies, including compensation for Design Consultant's and Construction Manager's additional services and expenses made necessary by such default, neglect, or failure. This action by the City and amounts charged to Contractor are both subject to prior approval of City Engineer. If payments, then or thereafter due Contractor, are not sufficient to cover these amounts, Contractor shall pay the difference to the City.

2.5.2 Notwithstanding the City's right to carry out work, maintenance and protection of the Work remains Contractor's responsibility, as provided in the Contract.

ARTICLE 3 - CONTRACTOR

3.1 *RESPONSIBILITIES*

3.1.1 Contractor shall maintain office with agent in the greater City of Houston area during the Contractor's performance under the Contract. Contractor shall file its street address with City Engineer.

3.1.2 Contractor and Contractor's employees shall not give or lend money or anything of value to an officer or employee of the City. Should this Paragraph 3.1.2 be violated, City Engineer may terminate the Contract under Section 14.1.

3.2 *REVIEW OF CONTRACT AND FIELD CONDITIONS BY CONTRACTOR*

3.2.1 Contractor shall carefully study and compare documents contained in the Contract with each other and with information furnished by the City pursuant to Section 2.2 and shall immediately report, in writing, any errors, inconsistencies, or omissions to City Engineer. If work is affected, Contractor shall obtain a written interpretation or clarification from City Engineer before proceeding with the affected work. However, Contractor will not be liable to the City for failure to report an error, inconsistency, or omission in the Contract unless Contractor had actual knowledge or should have had knowledge of the error, inconsistency, or omission.

3.2.2 Contractor shall take field measurements and verify field conditions, and shall carefully compare the conditions and other information known to Contractor with the Contract, before commencing activities. Contractor shall immediately report, in writing, to City Engineer for interpretation or clarification of discrepancies, inconsistencies, or omissions discovered during this process.

3.2.3 Contractor shall make a reasonable attempt to understand the Contract before requesting interpretation from City Engineer.

3.3 *SUPERVISION AND CONSTRUCTION PROCEDURES*

3.3.1 Contractor shall supervise, direct, and inspect the Work competently and efficiently, devoting the attention and applying the skills and

expertise as necessary to perform the Work in accordance with the Contract. Contractor is solely responsible and has control over construction means, methods, techniques, sequences, and procedures of construction; for safety precautions and programs in connection with the Work; and for coordinating all work under the Contract.

3.3.2 Regardless of observations or inspections by the City or City's consultants, Contractor shall perform and complete the Work in accordance with the Contract and submittals approved pursuant to Section 3.18. The City is not liable or responsible to Contractor or Surety for work performed by Contractor that is not in accordance with the Contract regardless of whether discovered during construction or after acceptance of the Work.

3.4 *SUPERINTENDENT*

3.4.1 Contractor shall employ a competent Superintendent and necessary assistants who shall be present at the site during performance of the Work. Communications given to Superintendent are binding on the Contractor.

3.4.2 Contractor shall notify City Engineer in writing of its intent to replace the Superintendent. Contractor may not replace the Superintendent if City Engineer makes a reasonable objection in writing.

3.5 *LABOR*

3.5.1 Contractor shall provide competent, qualified personnel to survey and lay out the Work and perform construction as required by the Contract. The City may, by written notice, require Contractor to remove from the Work any employee of Contractor or Subcontractors to whom City Engineer makes reasonable objection.

3.5.2 Contractor shall comply with the applicable Business Enterprise Policy set out in this Agreement and in the Supplementary Conditions, as set out in Chapter 15, Article V of the City of Houston Code of Ordinances.

3.5.3 When Original Contract Price is greater than $1,000,000, Contractor shall make Good Faith Efforts to award subcontracts or supply agreements in at least the percentages set out in the Supplementary Conditions for Business Enterprise Policy. Contractor acknowledges that it has reviewed the requirements for Good Faith Efforts on file with the City's Office of Business Opportunity and shall comply with them.

3.5.3.1 Contractor shall require written subcontracts with Business Enterprises and shall submit all disputes with Business Enterprises to voluntary mediation. Business Enterprise subcontracts complying with City Code of Ordinances Chapter 15, Article II must contain the terms set out in Subparagraph 3.5.3.2. If Contractor is an individual person, as distinguished from a corporation, partnership, or other legal entity, and the amount of the subcontract is $50,000 or less, the subcontract must also be signed by the attorneys of the respective parties.

3.5.3.2 Contractor shall ensure that subcontracts with Business Enterprise firms are clearly labeled **"THIS CONTRACT MAY BE SUBJECT TO MEDIATION ACCORDING TO THE TEXAS ALTERNATIVE DISPUTE RESOLUTION ACT"** and contain the following terms:

.1 (Business Enterprise) may not delegate or subcontract more than 50 percent of work under this subcontract to any other subcontractor without the express written consent of the City's OBO Director (the "Director").

.2 (Business Enterprise) shall permit representatives of the City of Houston, at all reasonable times, to perform (1) audits of the books and records of the Subcontractors and Suppliers, and (2) inspections of all places where work is to be undertaken in connection with this subcontract. (Business Enterprise) shall keep the books and records available for this purpose for at least four years after the end of its performance under this subcontract. Nothing in this provision shall affect the time for bringing a cause of action nor the applicable statute of limitations.

.3 Within five business days of execution of this subcontract, Contractor and (Business Enterprise) shall designate in writing to the Director an agent for receiving any notice required or permitted to be given pursuant to Chapter 15 of the Houston City Code of Ordinances, along with the street and mailing address and phone number of the agent.

3.5.4 The requirements and terms of the City of Houston Pay or Play Program, as set out in Executive Order 1-7 and Ordinance 2007-0534, are incorporated into the Contract for all purposes. Contractor shall comply with the terms and conditions of the Pay or Play Program as they are set out at the time of City Council approval of this

agreement. IF CONTRACTOR DOES NOT PAY IN ACCORDANCE WITH THE PAY OR PLAY PROGRAM WITHIN 30 DAYS OF THE DATE CITY ENGINEEER SENDS CONTRACTOR WRITTEN NOTIFICATION, CITY CONTROLLER MAY DEDUCT FUNDS UP TO THE AMOUNT OWED FROM ANY PAYMENTS OWED TO CONTRACTOR UNDER THIS AGREEMENT, AND CONTRACTOR WAIVES ANY RECOURSE.

3.6 *PREVAILING WAGE RATES*

3.6.1 Contractor shall comply with governing statutes providing for labor classification of wage scales for each craft or type of laborer, worker, or mechanic.

3.6.2 Prevailing wage rates applicable to the Work may be one or a combination of the following wage rates identified in Division 00:

- .1 Federal Wage Rate General Decisions
  - .1 Highway Rates
  - .2 Building Rates
  - .3 Heavy Construction Rates
  - .4 Residential Rates
- .2 City Prevailing Wage Rates
  - .1 Building Construction Rates
  - .2 Engineering Construction Rates
  - .3 Asbestos Worker Rates

3.6.3 Each week Contractor shall submit to the City's Mayor's Office of Business Opportunity certified copies of payrolls showing classifications and wages paid by Contractor, Subcontractors, and Suppliers for each employee under the Contract, for any day included in the Contract.

3.7 *LABOR CONDITIONS*

3.7.1 In the event of labor disputes affecting Contractor or Contractor's employees, Contractor shall utilize all possible means to resolve disputes in order that the Work not be delayed to any extent. These means will include seeking injunctive relief and filing unfair labor practice charges, and any other action available to Contractor.

3.7.2 When Contractor has knowledge that any actual or potential labor dispute is delaying or is threatening to delay timely performance of the Work, Contractor shall immediately notify City Engineer in writing. No Claims will be accepted by City Engineer for costs incurred as a result of jurisdictional or labor disputes.

3.8 *DRUG DETECTION AND DETERRENCE*

3.8.1 It is the policy of the City to achieve a drug-free work force and to provide a workplace that is free from the use of illegal drugs and alcohol. It is also the policy of the City that manufacture, distribution, dispensation, possession, sale, or use of illegal drugs or alcohol by contractors while on the City's premises is prohibited. By executing the Contract, Contractor represents and certifies that it meets and will comply with all requirements and procedures set forth in the Mayor's Policy on Drug Detection and Deterrence, City Council Motion No. 92-1971 ("Mayor's Policy") and the Mayor's Drug Detection and Deterrence Procedures for Contractors, Executive Order No. 1-31, (Revised) ("Executive Order"). Mayor's Policy is on file in the office of the City Secretary. Copies of Executive Order may be obtained at the location specified in the Advertisement for Bids.

3.8.1.1 The Executive Order applies to the City's contracts for labor or services except the following:

- .1 contracts authorized by Emergency Purchase Orders,
- .2 contracts in which imposition of requirements of the Executive Order would exclude all potential bidders or proposers, or would eliminate meaningful competition for the Contract,
- .3 contracts with companies that have fewer than 15 employees during any 20-week period during a calendar year and no safety impact positions,
- .4 contracts with non-profit organizations providing services at no cost or reduced cost to the public, and
- .5 contracts with federal, state, or local governmental entities.

3.8.1.2 Prior to execution of the Contract, Contractor shall have filed with the City:

- .1 a Drug Policy Compliance Agreement form (Attachment "A" to the Executive Order), and
- .2 a copy of Contractor's drug free workplace policy, and
- .3 a written designation of all safety impact positions, if applicable, or a Contractor's Certification of a No Safety Impact Positions form (Attachment "C" to the Executive Order).

3.8.1.3 Every six months during performance of the Contract and upon completion of the Contract, Contractor shall file a Drug Policy Compliance Declaration form (Attachment "B" to the Executive Order). The Contractor shall submit the Drug Policy Compliance Declaration within 30 days of expiration of each six-month period of performance and within 30 days of completion of the Contract. The first six-month period shall begin on Date of Commencement of the Work.

3.8.1.4 Contractor shall have a continuing obligation to file updated designation of safety impact positions when additional safety impact positions are added to Contractor's employee workforce during performance of the Work.

3.8.1.5 Contractor shall require its Subcontractors and Suppliers to comply with the Mayor's Policy and Executive Order. Contractor is responsible for securing and maintaining required documents from Subcontractors and Suppliers for the City inspection throughout the term of the Contract.

3.8.1.6 Failure of Contractor to comply with requirements will be a material breach of the Contract entitling the City to terminate in accordance with Section 14.1.

3.9 *MATERIALS & EQUIPMENT*

3.9.1 Unless otherwise provided in the Contract, Contractor shall provide and assume full responsibility for Products, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, transportation, temporary facilities, supplies, and other facilities and incidentals necessary for Furnishing, performing, testing, starting-up, and completing the Work.

3.9.1.1 Contractor, Subcontractors, and Suppliers shall use Ultra Low Sulfur Diesel Fuel in all diesel operating vehicles and motorized equipment utilized in performing the Work. Ultra Low Sulfur Diesel Fuel is defined as diesel fuel having 15 ppm or the applicable standard set by state or federal law or rules and regulations of the Texas Commission on Environmental Quality, or the Environmental Protection Agency, whichever is less in sulfur content. Off-road Ultra Low Sulfur Diesel Fuel may be used in lieu of on-road Ultra Low Sulfur Diesel Fuel. Contractor shall provide, upon request by City Engineer, proof that Contractor, Subcontractors, and Suppliers are using Ultra Low Sulfur Diesel Fuel.

3.9.2 Contractor shall provide Products that are:

.1 new, unless otherwise required or permitted by the Contract, and

.2 of specified quality.

If required by City Engineer, Contractor shall furnish satisfactory evidence, including reports of required tests, as to kind and quality of Products.

3.9.3 Contractor shall store Products in a safe, neat, compact, and protected manner. Contractor shall also store Products delivered during the work, along the right-of-way:

.1 so as to cause the least inconvenience to property owners, tenants, and general public; and

.2 so as not to block access to, or be closer than, three feet to any fire hydrant.

Contractor shall protect trees, lawns, walks, drives, streets, and other improvements that are to remain, from damage. If private or public property is damaged by Contractor, Contractor shall, at its sole expense, restore the damaged property to at least its original condition.

3.9.3.1 Contractor shall obtain City Engineer's approval for storage areas used for Products for which payment has been requested under Paragraph 9.6.1. Contractor shall provide the City access to the storage areas for inspection purposes. Products, once paid for by the City, become the property of the City and may not be removed from place of storage, without City Engineer's written permission except for a movement to the site. Contractor's Installation Floater, required under Section 11.2, shall cover all perils, including loss or damage to Products during storage, loading, unloading, and transit to the site.

3.10 *PRODUCT OPTIONS AND SUBSTITUTIONS*

3.10.1 For Products specified by reference standards or by description only, Contractor may provide any Product meeting those standards or description.

3.10.2 For Products specified by naming one or more manufacturers with provision for substitutions or equal, Contractor may submit a request for substitution for any manufacturer not named.

3.10.3 City Engineer will consider requests for substitutions only within the first 15 percent of Contract Time, or first 90 days after date of Notice to Proceed, whichever is less.

3.10.4 Contractor shall document each request for substitution with complete data

substantiating compliance of proposed substitution with the Contract.

3.10.5 A request for substitution constitutes a representation that Contractor:

.1 has investigated the proposed Product and determined that it meets or exceeds the quality level of the specified Product;

.2 shall provide the same warranty for the substitution as for the specified Product;

.3 shall coordinate installation of the proposed substitution and make changes to other work which may be required for the Work to be completed, with no additional cost or increase in time to the City;

.4 confirms that cost data is complete and includes all related costs under the Contract;

.5 waives Claim for additional costs or time extensions that may subsequently become apparent; and

.6 shall provide review or redesign services by a design consultant with appropriate professional license and shall obtain re-approval and permits from authorities.

3.10.6 City Engineer will not consider and will not approve substitutions when:

.1 they are indicated or implied on Shop Drawing or Product Data submittals without separate written request; or

.2 acceptance will require revision to the Contract.

3.10.7 City Engineer may reject requests for substitution, and his decision will be final and binding on the Parties.

3.11 *CASH ALLOWANCES*

3.11.1 Contract Price includes Cash Allowances as identified in the Contract.

3.11.2 The City will pay the actual costs of Cash Allowance item exclusive of profit, overhead or administrative costs. If actual costs exceed the Cash Allowance, City Engineer must approve a Change Order for the additional costs.

3.12 *WARRANTY*

3.12.1 Contractor warrants to the City that Products furnished under the Contract are:

.1 free of defects in title;

.2 of good quality; and

.3 new, unless otherwise required or permitted by the Contract.

If required by the City Engineer, Contractor shall furnish satisfactory evidence as to kind, quality and title of Products, and that Products conform to requirements of the Contract.

3.12.2 In the event of a defect in a Product, either during construction or warranty period, Contractor shall take appropriate action with manufacturer of Product to assure correction or replacement of defective Product with minimum delay.

3.12.3 Contractor warrants that the Work is free of defects not inherent in the quality required or permitted, and that the Work does conform with the requirements of the Contract. Contractor further warrants that the Work has been performed in a thorough and workmanlike manner.

3.12.4 Contractor warrants that the Work is free of concentrations on polychlorinated biphenyl (PCB) and other substances defined as hazardous by the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) or any other applicable law or regulation.

3.12.5 Work not conforming to requirements of Section 3.12, including substitutions not properly approved and authorized, may be considered nonconforming work.

3.12.6 Contractor's warranty excludes remedy for damage or defect caused by:

.1 improper or insufficient maintenance by the City;

.2 normal wear and tear under normal usage; or

.3 claim that hazardous material was incorporated into the Work, if that material was specified in the Contract.

3.12.7 Contractor warrants that title to all work covered by Contractor's request for payment passes to the City upon incorporation into the Work or upon Contractor's receipt of payment, whichever occurs first. The Contractor further warrants that the title is free of all liens, claims, security interests or other interests ("Encumbrances"). If not, upon written demand from City Engineer, Contractor shall immediately take legal action necessary to remove Encumbrances.

3.13 *TAXES*

3.13.1 Contractor shall pay all sales, consumer, use, and similar taxes, which are in effect or scheduled to go into effect on or before bids are received, related to work provided by Contractor.

3.13.2 Contractor shall obtain, and require Subcontractors and Suppliers to obtain, necessary permits from the state and local taxing authorities to perform contractual obligations under the Contract, including sales tax permits.

3.13.3 The City is exempt from the Federal Transportation and Excise Tax. Contractor shall comply with federal regulations governing the exemptions.

3.13.4 Products incorporated into the Work are exempt from state sales tax according to provisions of the TEX. TAX CODE ANN. CH. 151, Subsection H.

3.14 *PERMITS, FEES, AND NOTICES*

3.14.1 Unless otherwise provided in the Contract, Contractor shall secure and pay for all construction permits, licenses, and inspections:

.1 necessary for proper execution and completion of the Work; and

.2 legally required at time bids are received.

3.15 *CONSTRUCTION SCHEDULES*

3.15.1 On receipt of Notice to Proceed, Contractor shall promptly prepare and submit construction schedule for the Work for City Engineer's review. The schedule must reflect the minimum time required to complete the Work not to exceed Contract Time.

3.15.2 Contractor shall give 24-hour written notice to City Engineer before commencing work or resuming work where work has been stopped. Contractor shall also give the same notice to inspectors.

3.15.3 Contractor shall incorporate milestones specified in Summary of Work Specification into the construction schedule. Contractor's failure to meet a milestone, as determined by City Engineer, may be considered a material breach of the Contract.

3.15.4 Each month, Contractor shall submit to City Engineer a copy of an updated construction schedule indicating actual progress, incorporating applicable changes, and indicating courses of action required to assure completion of the Work within Contract Time.

3.15.5 Contractor shall keep a current schedule of submittals that coordinates with the construction schedule, and shall submit the initial schedule of submittals to City Engineer for approval.

3.16 *DOCUMENTS AND SAMPLES AT THE SITE*

3.16.1 Contractor shall maintain at the site, and make available to City Engineer, one record copy of Drawings, Specifications, and Modifications. Contractor shall maintain the documents in good order and marked currently to record changes and selections made during construction. In addition, Contractor shall maintain at the site, approved Shop Drawings, Product Data, Samples, and similar submittals, which will be delivered to City Engineer prior to final inspection as required in Paragraph 9.11.4.

3.16.2 Contractor shall maintain all books, documents, papers, accounting records, and other relevant documentation pursuant to the Work and shall make the books, documents, papers, and accounting records available to representatives of the City for review and audits during the Contract term and for the greater of three years following Date of Substantial Completion or until all litigation or audits are fully resolved.

3.16.3 Contractor shall provide to City Attorney all documents and records that City Attorney deems necessary to assist in determining Contractor's compliance with the Contract, with the exception of those documents made confidential by federal or state law or regulation.

3.17 *MANUFACTURER'S SPECIFICATIONS*

3.17.1 Contractor shall handle, store, and Install Products and perform all work in the manner required by Product manufacturer. Should the Contract and manufacturer's instructions conflict, Contractor shall report conflict to City Engineer for resolution prior to proceeding with the affected work.

3.17.2 References in the Contract to the manufacturer's specifications, directions, or recommendations, mean manufacturer's current published documents in effect as of date of receipt of bids, or in the case of a Modification, as of date of Modification.

3.18 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

3.18.1 Shop Drawings, Product Data, and Samples are not part of the Contract. The purpose of Contractor submittals is to demonstrate, for those portions of the Work for which submittals are required, the way Contractor proposes to conform to information given and design concept expressed in the Contract.

3.18.2 Contractor shall submit to Project Manager for review the Shop Drawings, Product Data, and Samples, which are required by the Contract. Review by Project Manager is subject to limitations of Paragraph 4.1.4. Contractor shall transmit the submittals to the Project Manager with reasonable promptness and in a sequence, so as to cause no delay in the Work or in activities of the City or of separate contractors. Contractor shall transmit submittals in time to allow a minimum of 30 days for Project Manager's review prior to date Contractor needs reviewed submittals returned. This time may be shortened for a particular job requirement if approved by Project Manager in advance of submittal.

3.18.3 Contractor shall certify that the content of submittals conforms to the Contract without exception by affixing Contractor's approval stamp and signature. By certifying and submitting Shop Drawings, Product Data, and Samples, Contractor represents, and Contractor's stamp of approval shall state, that Contractor has determined and verified materials, quantities, field measurements, and field construction criteria related to the submittal, and has checked and coordinated information contained within the submittals with requirements of the Contract.

3.18.4 Contractor may not perform any work requiring submittal and review of Shop Drawings, Product Data, or Samples until the submittal has been returned with appropriate review decision by the Project Manager. Contractor shall perform work in accordance with the review.

3.18.5 If Contractor performs any work requiring submittals prior to review and acceptance of the submittals by Project Manager, such work is at Contractor's risk and the City is not obligated to accept work if the submittals are later found to be unacceptable.

3.18.6 If, in the opinion of Project Manager, the submittals are incomplete, or demonstrate an inadequate understanding of the Work or lack of review by the Contractor, then submittals may be returned to the Contractor for correction and resubmittal.

3.18.7 Contractor shall direct specific attention in writing and on the resubmitted Shop Drawings, Product Data, or Samples to any additional proposed revisions, other than those revisions requested by Project Manager on previous submittals.

3.18.8 Contractor is not relieved of responsibility for deviations from requirements of the Contract by Project Manager's review of Shop Drawings, Product Data, or Samples unless Contractor has specifically informed Project Manager in writing of the deviation at the time of the submittal, and Project Manager has given written approval of the deviation.

3.18.9 When professional certification of performance criteria of Products is required by the Contract, the City may rely upon accuracy and completeness of the calculations and certifications.

3.18.10 For Product colors or textures to be selected by the City, Contractor shall submit all samples together to allow preparation of a complete selection schedule.

3.18.11 Contractor shall submit informational submittals, on which Project Manager is not expected to take responsive action, as required by the Contract.

3.18.12 Submittals made by Contractor which are not required by the Contract may be returned to Contractor without action.

3.19 CULTURAL RESOURCES AND ENDANGERED SPECIES

3.19.1 Contractor may not remove or disturb, or cause to be removed or disturbed, any historical, archaeological, architectural, or other cultural artifacts, relics, vestiges, remains, or objects of antiquity. If Contractor discovers one of these items, Contractor shall immediately notify City Engineer and further comply with the requirements of 13 Tex. Admin. Code Chs. 25 and 26 (2002), or successor regulation. Contractor shall protect site and cultural resources from further disturbance until professional examination can be made or until clearance to proceed is authorized in writing by City Engineer.

3.19.2 Should either threatened or endangered plant or animal species be encountered,

Contractor shall cease work immediately in the area of encounter and notify City Engineer.

3.20 *CUTTING AND PATCHING*

3.20.1 Contractor is responsible for necessary cutting, fitting, and patching to accomplish the Work and shall suitably support, anchor, attach, match, and trim or seal materials to work of other contractors. Contractor shall coordinate the Work with work of other contractors to minimize conflicts, as provided in Article 6.

3.20.2 Contractor may not endanger work by cutting, digging, or other action, and may not cut or alter work of other contractors except by written consent of City Engineer and affected contractor.

3.21 *CLEANING*

3.21.1 Contractor shall perform daily cleanup of all dirt, debris, scrap materials and other disposable items resulting from Contractor's operations, whether on-site or off-site. Unless otherwise authorized in writing by City Engineer, Contractor shall keep all streets, access streets, driveways, areas of public access, walkways, and other designated areas clean and open at all times.

3.21.2 Failure of Contractor to maintain a clean site, including access streets, is the basis for City Engineer to issue a Notice of Noncompliance. Should compliance not be attained within the time period in the Notice of Noncompliance, City Engineer may authorize necessary cleanup to be performed by others and the cost of the cleanup will be deducted from monies due Contractor.

Contractor shall legally dispose off-site, all waste materials and other excess materials resulting from Contractor's operations.

3.22 *SANITATION*

3.22.1 Contractor shall provide and maintain sanitary facilities at site for use of all construction forces under the Contract. Newly-constructed or existing sanitary facilities may not be used by Contractor.

3.23 *ACCESS TO WORK AND TO INFORMATION*

3.23.1 Contractor shall provide the City, Design Consultant, testing laboratories, and governmental agencies which have jurisdictional interests, access to the Work in preparation and in progress wherever located. Contractor shall provide proper and safe conditions for the access.

3.23.2 If required by City Engineer, Contractor shall furnish information concerning character of Products and progress and manner of the Work, including information necessary to determine cost of the Work, such as number of employees, pay of employees, and time employees worked on various classes of the Work.

3.24 *TRADE SECRETS*

3.24.1 Contractor will not make any claim of ownership of trade secrets as to products used in the Work, or preparation of any mixture for the Work. City Engineer will at all times have the right to demand and Contractor shall furnish information concerning materials or samples of ingredients of any materials used, or proposed to be used, in preparation of concrete placed or other work to be done. Mixtures, once agreed on, shall not be changed in any manner without knowledge and consent of City Engineer. The City will make its best efforts to protect confidentiality of proprietary information.

3.25 *INDEMNIFICATION*

3.25.1 CONTRACTOR AGREES TO AND SHALL DEFEND, INDEMNIFY, AND HOLD THE CITY, ITS AGENTS, EMPLOYEES, OFFICERS, AND LEGAL REPRESENTATIVES (COLLECTIVELY THE "CITY") HARMLESS FOR ALL CLAIMS, CAUSES OF ACTION, LIABILITIES, FINES, AND EXPENSES (INCLUDING, WITHOUT LIMITATION, ATTORNEYS' FEES, COURT COSTS, AND ALL OTHER DEFENSE COSTS AND INTEREST) FOR INJURY, DEATH, DAMAGE, OR LOSS TO PERSONS OR PROPERTY SUSTAINED IN CONNECTION WITH OR INCIDENTAL TO PERFORMANCE UNDER THE CONTRACT INCLUDING, WITHOUT LIMITATION, THOSE CAUSED BY:

.1 CONTRACTOR'S AND/OR ITS AGENTS', EMPLOYEES', OFFICERS', DIRECTORS', CONTRACTORS', OR SUBCONTRACTORS' (COLLECTIVELY IN NUMBERED SUBPARAGRAPHS .1 through .3, "CONTRACTOR") ACTUAL OR ALLEGED NEGLIGENCE OR INTENTIONAL ACTS OR OMISSIONS;

.2 THE CITY'S AND CONTRACTOR'S ACTUAL OR ALLEGED CONCURRENT NEGLIGENCE, WHETHER CONTRACTOR IS IMMUNE FROM LIABILITY OR NOT;

.3 THE CITY'S AND CONTRACTOR'S ACTUAL OR ALLEGED STRICT PRODUCTS LIABILITY OR STRICT STATUTORY LIABILITY, WHETHER CONTRACTOR IS IMMUNE FROM LIABILITY OR NOT.

CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE CITY HARMLESS DURING THE TERM OF THE CONTRACT AND FOR FOUR YEARS AFTER THE CONTRACT TERMINATES. CONTRACTOR SHALL NOT INDEMNIFY THE CITY FOR THE CITY'S SOLE NEGLIGENCE.

3.25.2 NOTWITHSTANDING ANYTHING TO THE CONTRARY, THE LIABILITY OF CONTRACTOR FOR THE CITY'S CONCURRENT NEGLIGENCE SHALL NOT EXCEED $1,000,000.

3.26 *RELEASE AND INDEMNIFICATION – PATENT, COPYRIGHT, TRADEMARK, AND TRADE SECRET INFRINGEMENT*

3.26.1 UNLESS OTHERWISE SPECIFICALLY REQUIRED BY THE CONTRACT, CONTRACTOR AGREES TO AND SHALL RELEASE AND DEFEND, INDEMNIFY, AND HOLD HARMLESS THE CITY, ITS AGENTS, EMPLOYEES, OFFICERS, AND LEGAL REPRESENTATIVES (COLLECTIVELY THE "CITY") FROM ALL CLAIMS OR CAUSES OF ACTION BROUGHT AGAINST THE CITY BY ANY PARTY, INCLUDING CONTRACTOR, ALLEGING THAT THE CITY'S USE OF ANY EQUIPMENT, SOFTWARE, PROCESS, OR DOCUMENTS CONTRACTOR FURNISHES DURING THE TERM OF THE CONTRACT INFRINGES ON A PATENT, COPYRIGHT, OR TRADEMARK, OR MISAPPROPRIATES A TRADE SECRET. CONTRACTOR SHALL PAY ALL COSTS (INCLUDING, WITHOUT LIMITATION, ATTORNEYS' FEES, COURT COSTS, AND ALL OTHER DEFENSE COSTS, AND INTEREST) AND DAMAGES AWARDED.

3.26.2 CONTRACTOR SHALL NOT SETTLE ANY CLAIM ON TERMS WHICH PREVENT THE CITY FROM USING THE EQUIPMENT, SOFTWARE, PROCESS, OR PRODUCT WITHOUT THE CITY ENGINEER'S PRIOR WRITTEN CONSENT.

3.26.3 UNLESS OTHERWISE SPECIFICALLY REQUIRED BY THE CONTRACT, WITHIN 60 DAYS AFTER BEING NOTIFIED OF THE CLAIM, CONTRACTOR SHALL, AT ITS OWN EXPENSE, EITHER:

.1 OBTAIN FOR THE CITY THE RIGHT TO CONTINUE USING THE EQUIPMENT, SOFTWARE, PROCESS, OR PRODUCT, OR

.2 IF BOTH PARTIES AGREE, REPLACE OR MODIFY THEM WITH COMPATIBLE AND FUNCTIONALLY EQUIVALENT PRODUCTS.

IF NONE OF THESE ALTERNATIVES IS REASONABLY AVAILABLE, THE CITY MAY RETURN THE EQUIPMENT, SOFTWARE, OR PRODUCT, OR DISCONTINUE THE PROCESS, AND CONTRACTOR SHALL REFUND THE PURCHASE PRICE.

3.27 *INDEMNIFICATION PROCEDURES*

3.27.1 *Notice of Indemnification Claims:* If the City or Contractor receives notice of any claim or circumstances which could give rise to an indemnified loss, the receiving party shall give written notice to the other Party within 10 days. The notice must include the following:

.1 a description of the indemnification event in reasonable detail,

.2 the basis on which indemnification may be due, and

.3 the anticipated amount of the indemnified loss.

This notice does not estop or prevent the City from later asserting a different basis for indemnification or a different amount of indemnified loss than that indicated in the initial notice. If the City does not provide this notice within the 10-day period, it does not waive any right to indemnification except to the extent that Contractor is prejudiced, suffers loss, or incurs expense because of the delay.

3.27.2 *Defense of Indemnification Claims:*

.1 *Assumption of Defense:* Contractor may assume the defense of the claim at its own expense with counsel chosen by it that is reasonably satisfactory to the City. Contractor shall then control the defense and any negotiations to settle the claim. Within 10 days after receiving written notice of the indemnification request, Contractor must advise the City as to whether or not it will defend the claim. If Contractor does not assume the defense, the City shall assume and control the defense, and all defense expenses constitute an indemnified loss.

.2 *Continued Participation:* If Contractor elects to defend the claim, the City may

retain separate counsel to participate in, but not control, the defense and to participate in, but not control, any settlement negotiations. Contractor may settle the claim without the consent or agreement of the City, unless it:

.1 would result in injunctive relief or other equitable remedies or otherwise require the City to comply with restrictions or limitations that adversely affect the City;

.2 would require the City to pay amounts that Contractor does not fund in full; or

.3 would not result in the City's full and complete release from all liability to the plaintiffs or claimants who are parties to or otherwise bound by the settlement.

3.28 *CONTRACTOR DEBT*

IF CONTRACTOR, AT ANY TIME DURING THE TERM OF THIS AGREEMENT, INCURS A DEBT, AS THE WORD IS DEFINED IN SECTION 15-122 OF THE HOUSTON CITY CODE OF ORDINANCES, IT SHALL IMMEDIATELY NOTIFY CITY CONTROLLER IN WRITING. IF CITY CONTROLLER BECOMES AWARE THAT CONTRACTOR HAS INCURRED A DEBT, IT SHALL IMMEDIATELY NOTIFY CONTRACTOR IN WRITING. IF CONTRACTOR DOES NOT PAY THE DEBT WITHIN 30 DAYS OF EITHER SUCH NOTIFICATION, CITY CONTROLLER MAY DEDUCT FUNDS IN AN AMOUNT EQUAL TO THE DEBT FROM ANY PAYMENTS OWED TO CONTRACTOR UNDER THIS AGREEMENT, AND CONTRACTOR WAIVES ANY RECOURSE THEREFOR. CONTRACTOR SHALL FILE A NEW AFFIDAVIT OF OWNERSHIP, USING THE FORM DESIGNATED BY CITY, BETWEEN FEBRUARY 1 AND MARCH 1 OF EVERY YEAR DURING THE TERM OF THE CONTRACT.

ARTICLE 4 - ADMINISTRATION OF THE CONTRACT

4.1 *CONTRACT ADMINISTRATION*

4.1.1 City Engineer will provide administration of the Contract and City Engineer is authorized to issue Change Orders, Work Change Directives, and Minor Changes in the Work.

4.1.2 City Engineer may act through Project Manager, Design Consultant, or Inspector. When the term "City Engineer" is used in the Contract, action by City Engineer is required unless City Engineer delegates his authority in writing. The City Engineer may not delegate authority to render decisions under Section 4.4.

The City does not have control over or charge of, and is not responsible for, supervision, construction, and safety procedures enumerated in Section 3.3. The City does not have control over or charge of and is not responsible for acts or omissions of Contractor, Subcontractors, or Suppliers.

4.1.3 The City and Design Consultant may attend project meetings and visit the site to observe progress and quality of the Work. The City and Design Consultant are not required to make exhaustive or continuous on-site inspections to check quality or quantity of the Work.

4.1.4 Project Manager will review and approve or take other appropriate action on Contractor's submittals, but only for limited purpose of checking for conformance with information given and design concept expressed in the Contract.

4.1.5 Project Manager's review of the submittals is not conducted for purpose of determining accuracy and completeness of other details, such as dimensions and quantities, or for substantiating instructions for installation or performance of Products, all of which remain the responsibility of Contractor.

4.1.6 Project Manager's review of submittals does not relieve Contractor of its obligations under Sections 3.3, 3.12, and 3.18. Review does not constitute approval of safety precautions or, unless otherwise specifically stated by Project Manager in writing, of construction means, methods, techniques, sequences, or procedures. Project Manager's review of a specific item does not indicate approval of an assembly of which the item is a component.

4.1.7 Based on field observations and evaluations, Project Manager will process Contractor's progress payments, certify amounts due Contractor, and issue Certificates for Payment in the amount certified.

4.1.8 Project Manager will receive and forward to City Engineer for his review and records, written warranties and related documents required by the Contract and assembled by Contractor.

4.1.9 Upon written request by Contractor or Project Manager, City Engineer will resolve matters

of interpretation of or performance of the Contract, which are not Claims. City Engineer's decisions are final and binding on the Parties.

4.1.10 City Engineer may reject work which does not conform to the Contract.

4.1.11 When City Engineer considers it necessary to implement the intent of the Contract, City Engineer may require additional inspection or testing of work in accordance with Paragraphs 13.6.3 and 13.6.4, whether such work is fabricated, Installed, or completed.

4.2 *COMMUNICATIONS IN ADMINISTRATION OF THE CONTRACT*

4.2.1 Except as otherwise provided in the Contract or when authorized by City Engineer in writing, Contractor shall communicate with Project Manager. Contractor shall communicate with Design Consultant, Design Consultant's subconsultants, and separate contractors through Project Manager. The City will communicate with Subcontractors and Suppliers through Contractor.

4.3 *CLAIMS AND DISPUTES*

4.3.1 *Documentation by Project Manager:* Contractor shall submit Claims, including those alleging an error or omission by Project Manager or Design Consultant, to Project Manager for documentation and recommendation to City Engineer.

4.3.2 *Decision of City Engineer:* Upon submission of Claim by Project Manager or Contractor, City Engineer will resolve Claims in accordance with Section 4.4.

4.3.3 *Time Limits on Claims:* Claims by Contractor must be made within 90 days after occurrence of event giving rise to the Claim.

4.3.4 *Continuing the Contract Performance:* Pending final resolution of a Claim including referral to non-binding mediation, unless otherwise agreed in writing, Contractor shall proceed diligently with the performance of the Contract and the City will continue to make payments in accordance with the Contract.

4.3.4.1 Pending final resolution of a Claim including referral to non-binding mediation, Contractor is responsible for safety and protection of physical properties and conditions at site.

4.3.5 *Claims for Concealed or Unknown Conditions:* Concealed or unknown physical conditions include utility lines, other man-made structures, storage facilities, Pollutants and Pollutant Facilities, and the like, but do not include conditions arising from Contractor operations, or failure of Contractor to properly protect and safeguard subsurface facilities. Concealed conditions also include naturally-occurring soil conditions outside the range of soil conditions identified through geotechnical investigations, but do not include conditions arising from groundwater, rain, or flood.

4.3.5.1 If conditions are encountered at the site which are Underground Facilities or otherwise concealed or unknown conditions which differ materially from:

.1 those indicated by the Contract; or

.2 conditions which Contractor could have discovered through site inspection, geotechnical testing, or otherwise;

then Contractor will give written notice to City Engineer no later than five days after Contractor's first observation of the condition and before condition is disturbed. Contractor's failure to provide notice constitutes a waiver of a Claim.

4.3.5.2 City Engineer will promptly investigate concealed or unknown conditions. If City Engineer determines that conditions at the site are not materially different and that no change in Contract Price or Contract Time is justified, City Engineer will notify Contractor in writing, stating reasons. If City Engineer determines the conditions differ materially and cause increase or decrease in Contractor's cost or time required for performance of part of the Work, City Engineer will recommend an adjustment in Contract Price or Contract Time, or both, as provided in Article 7. Opposition by a Party to the City Engineer's determination must be made within 21 days after City Engineer has given notice of the decision. If the Parties cannot agree on adjustment to Contract Price or Contract Time, adjustment is subject to further proceedings pursuant to Section 4.4.

4.3.6 *Claims for Additional Cost:* If Contractor wishes to make a Claim for increase in Contract Price, Contractor shall give written notice before proceeding with work for which Contractor intends to submit a Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

4.3.6.1 Contractor may file a Claim in accordance with Section 4.4 if Contractor believes it has incurred additional costs, for the following reasons:

.1 written interpretation of City Engineer;
.2 order by City Engineer to stop the Work when Contractor is not at fault;
.3 suspension of the Work by City Engineer;
.4 termination of the Contract by City Engineer; or
.5 The City's non-compliance with another provision of the Contract.

4.3.6.2 No increase in Contract Price is allowed for delays or hindrances to the Work, except for direct and unavoidable extra costs to Contractor caused by failure of the City to provide information and services, or to make land and materials available, when required of the City under the Contract. Any increase claimed is subject to the provisions of Section 4.4 and Article 7.

4.3.6.3 The City is not liable for Claims for delay when Date of Substantial Completion occurs prior to expiration of Contract Time.

4.3.7 *Claims for Additional Time:* If Contractor wishes to make a Claim for an increase in Contract Time, Contractor shall give written notice as provided in Section 8.2. In case of continuing delay, only one Claim is necessary.

4.4 *RESOLUTION OF CLAIMS AND DISPUTES*

4.4.1 City Engineer will review Claims and take one or more of the following preliminary actions within 30 days of receipt of Claim:

.1 submit a suggested time to meet and discuss the Claim with City Engineer;
.2 reject Claim, in whole or in part, stating reasons for rejection;
.3 recommend approval of the Claim by the other Party;
.4 suggest a compromise; or
.5 take other actions as City Engineer deems appropriate to resolve the Claim.

4.4.2 City Engineer may request additional supporting data from claimant. Party making Claim shall, within 10 days after receipt of City Engineer's request, submit additional supporting data requested by City Engineer.

4.4.3 At any time prior to rendering a written decision regarding a Claim, City Engineer may refer Claim to non-binding mediation. If Claim is resolved, City Engineer will prepare and obtain all appropriate documentation. If Claim is not resolved, City Engineer will take receipt of Claim and begin a new review under Section 4.4.

4.4.4 If Claim is not referred to or settled in non-binding mediation, City Engineer may conduct a hearing and will render a written decision, including findings of fact, within 75 days of receipt of Claim, or a time mutually agreed upon by the Parties in writing. City Engineer may notify Surety and request Surety's assistance in resolving Claim. City Engineer's decision is final and binding on the Parties.

4.5 *CONDITION PRECEDENT TO SUIT; WAIVER OF ATTORNEY FEES AND INTEREST*

4.5.1 Neither the City nor Contractor may recover attorney fees for any claim brought in connection with this Contract.

4.5.2 Neither the City nor the Contractor may recover interest for any damages claim brought in connection with this Contract except as allowed by TEXAS LOCAL GOVERNMENT CODE Chapter 2251.

4.6 *INTERIM PAYMENT WAIVER & RELEASE*

4.6.1 In accordance with section 4.3, the Contractor shall use due diligence in the discovery and submission of any Claim against the City related to the Contractor's work.

4.6.2 The Contractor shall submit any Claim to the City not later than the 90th day after the occurrence of the event giving rise to the Claim.

4.6.3 Any failure to timely comply with the requirements of section 4.6.2 waives and releases any Claim when the Contractor submits an application for payment after the 90th day.

4.6.4 This waiver does not cover any retainage. In case of any conflict of law, this language shall be revised to the minimum extent necessary to avoid legal conflict. This waiver is made specifically for the benefit of the City.

ARTICLE 5 - SUBCONTRACTORS AND SUPPLIERS

5.1 *AWARD OF SUBCONTRACTS OTHER CONTRACTS FOR PORTIONS OF THE WORK*

5.1.1 Contractor may not contract with a Subcontractor, Supplier, person, or entity that City Engineer has made a reasonable and timely objection to.

5.1.2 If City Engineer has a reasonable objection to person or entity proposed by Contractor, Contractor shall propose another with whom City Engineer has no reasonable objection.

5.1.3 Contractor shall execute contracts with approved Subcontractors, Suppliers, persons, or entities before the Subcontractors or Suppliers begin work under the Contract. All such contracts must be executed and sent to the OBO Director and Contracting Department within 30 days after the date of the Notice to Proceed and must include provisions set forth in Articles 3 and 5 of this Document.

5.1.4 Contractor shall notify City Engineer in writing of any proposed change of Subcontractor, Supplier, person, or entity previously accepted by the City.

5.1.5 Contractor shall make timely payments to Subcontractors and Suppliers for performance of the Contract. Contractor shall protect, defend, and indemnify the City from any claim or liability arising out of Contractor's failure to make the payments. Disputes relating to payment of Business Enterprise Subcontractors or Suppliers will be submitted to arbitration in same manner as other disputes under Business Enterprise subcontracts. Failure of Contractor to comply with decisions of arbitrator may be determined by City Engineer a material breach leading to termination of the Contract.

5.2 *CONTRACTOR RESPONSIBILITY FOR SUBCONTRACTORS*

5.2.1 Contractor is responsible to the City, as may be required by laws and regulations, for all acts and omissions of Subcontractors, Suppliers, and other persons and organizations performing or furnishing any of the Work under direct or indirect contract with Contractor.

5.2.2 Contractor shall make available to each proposed Subcontractor, prior to execution of subcontract, copies of the Contract to which Subcontractor is bound by this Section 5.2. Contractor shall notify Subcontractor of any terms of proposed subcontract which may be at variance with the Contract.

5.2.3 The City's approval of Subcontractor or Suppliers does not relieve Contractor of its obligation to perform, or to have performed to the full satisfaction of the City, the Work required by the Contract.

5.2.4 Unless there is a contractual relationship between Contractor and a Subcontractor or Supplier to the contrary, Contractor shall withhold no more retainage from Subcontractors or Suppliers than City withholds from Contractor under this Agreement. However, once a Subcontractor or Supplier completes performance, Contractor shall release all retainage to that Subcontractor or Supplier regardless if City continues to retain under this Agreement.

5.2.5 Prior to a Subcontractor or Supplier commencing performance for Contractor, Contractor shall meet with that Subcontractor or Supplier to provide instructions on invoicing procedures, dispute resolution procedures, and statutory rights, such as claim filing procedures under the McGregor Act. Subcontractors and Suppliers must certify to the City Engineer that Contractor has fulfilled the requirements of this Section.

ARTICLE 6 - CONSTRUCTION BY THE CITY OR BY SEPARATE CONTRACTORS

6.1 *THE CITY'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS*

6.1.1 The City may perform on-site construction operations related to the Work and as part of the Project with the City's workforce or with separate contractors.

6.2 *COORDINATION*

6.2.1 The City will coordinate activities of the City's workforce and of each separate contractor with work of Contractor, and Contractor shall cooperate with the City and separate contractors.

6.2.1.1 Contractor shall participate with other separate contractors and the City in reviewing their construction schedules when directed to do so by the Project Manager. Contractor shall make revisions to construction schedule and Contract Price deemed

necessary after joint review and mutual agreement. Construction schedules shall then constitute schedules to be used by Contractor, separate contractors, and the City, until subsequently revised.

6.2.2 Contractor shall afford to the City and to separate contractors reasonable opportunity for introduction and storage of their materials and equipment, and for performance of their activities.

6.2.3 If part of Contractor's work depends on proper execution of construction or operations by the City or a separate contractor, Contractor shall, prior to proceeding with that portion of the Work, inspect the other work and promptly report to City Engineer apparent discrepancies or defects in the other construction that would render it unsuitable for the proper execution of the Work. Failure of Contractor to report apparent discrepancies or defects in the other construction shall constitute acknowledgment that the City's or separate contractor's completed or partially completed construction is fit and proper to receive Contractor's work, except as to discrepancies or defects not then reasonably discoverable.

6.3 *MUTUAL RESPONSIBILITY*

6.3.1 The responsible party bears the costs caused by delays, by improperly timed activities, or by nonconforming construction.

6.3.2 Contractor shall promptly remedy damage caused by Contractor to completed or partially completed construction or to property of the City or separate contractor.

6.3.3 Claims or disputes between Contractor and other City contractors, or subcontractors of other City contractors, working on the Project must be submitted to binding arbitration in accordance with Construction Industry Arbitration Rules of the American Arbitration Association upon demand by any party to the dispute or by the City.

6.4 *THE CITY'S RIGHT TO CLEAN UP*

6.4.1 If dispute arises among Contractor, separate contractors, and the City as to responsibility under their respective contracts for maintaining premises and surrounding area free from waste materials and rubbish as described in Section 3.21, the City may clean up and allocate cost among those responsible, as determined by City Engineer.

ARTICLE 7 - CHANGES IN THE WORK

7.1 *CHANGES*

7.1.1 Changes in scope of the Work, subject to limitations in Article 7 and elsewhere in the Contract, may be accomplished without invalidating the Contract, or without notifying Surety by:

.1 Change Order;
.2 Work Change Directive; or
.3 Minor Change in the Work.

7.1.2 The following types of Change Orders require City Council approval:

.1 a single Change Order that exceeds five percent of Original Contract Price,
.2 a Change Order which, when added to previous Change Orders, exceeds five percent of Original Contract Price,
.3 a Change Order, in which the total value of increases outside of the general scope of work approved by City Council, when added to increases outside the general scope of work approved by City Council in previous Change Orders, exceeds 40 percent of the Original Contract Price, even if the net increase to the Original Contract Price is five percent or less.
In this context, "increase" means an increase in quantity resulting from the addition of locations not within the scope of work approved by City Council, or the addition of types of goods or services not bid as unit price items.

Nothing in this Section is intended to permit an increase of the Contract Price in excess of the limit set out in TEX. LOC. GOV'T CODE ANN. §252.048 or its successor statute.

7.1.3 Contractor shall proceed promptly to execute changes in the Work provided in Modifications, unless otherwise stated in the Modification.

7.2 *WORK CHANGE DIRECTIVES*

7.2.1 A Work Change Directive cannot change Contract Price or Contract Time, but is evidence that the Parties agree that a change, ordered by directive, will be incorporated in a subsequently issued Change Order as to its effect, if any, on Contract Price or Contract Time.

7.2.2 Failure by Contractor to commence work identified in a Work Change Directive within the time specified by City Engineer, or to complete the

work in a reasonable period of time, may be determined by City Engineer to be a material breach of Contract.

7.2.3 A Work Change Directive is used in the absence of total agreement of the terms of a Change Order. Interim payments are made in accordance with Paragraph 9.6.1.

7.2.4 If Contractor signs a Work Change Directive, then Contractor agrees to its terms including adjustment in Contract Price and Contract Time or method for determining them. Agreement by the Parties to adjustments in Contract Price and Contract Time are immediately recorded as a Change Order.

7.2.5 City Engineer, by Work Change Directive, may direct Contractor to take measures as necessary to expedite construction to achieve Date of Substantial Completion on or before expiration of Contract Time. When the Work is expedited solely for convenience of the City and not due to Contractor's failure to prosecute timely completion of the Work, then Contractor is entitled to an adjustment in Contract Price equal to actual costs determined in accordance with Article 7.

7.3 *ADJUSTMENTS IN CONTRACT PRICE*

7.3.1 Adjustments in Contract Price are accomplished by Change Order and are based on one of the following methods:

.1 mutual acceptance of fixed price, properly itemized and supported by sufficient data to permit evaluation;
.2 unit prices stated in the Contract or subsequently agreed upon;
.3 cost to be determined in a manner agreed upon by the Parties and mutually acceptable fixed or percentage fee; or
.4 as provided in Paragraph 7.3.2.

7.3.2 If Contractor does not agree with a change in Contract Price or Contract Time or the method for adjusting them specified in the Work Change Directive within 21 days from date of the Work Change Directive's issuance, method and adjustment are determined by City Engineer. If Project Manager or Contractor disagree with City Engineer's determination they then may file a Claim in accordance with Section 4.4.

7.3.2.1 If City Engineer determines a method and adjustment in Contract Price under Paragraph 7.3.2, Contractor shall provide, in a form as City Engineer may prescribe, appropriate supporting data for items submitted under Paragraph 7.3.2. Failure to submit the data within 21 days of request for the data by City Engineer shall constitute waiver of a Claim.

7.3.2.2 Unless otherwise provided in the Contract, costs for the purposes of this Paragraph 7.3.2 are limited to the following:

.1 costs of labor, including labor burden as stated below for social security, unemployment insurance, customary and usual fringe benefits required by agreement or custom, and Workers' Compensation insurance;
  .1 the maximum labor burden applied to costs of labor for changes in the Work is 55 percent;
.2 costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
.3 rental costs of machinery and equipment, exclusive of hand tools, whether rented from Contractor or others, with prior approval of City Engineer;
.4 costs of premiums for Bonds and insurance and permit fees related to the change in the Work;
.5 additional costs of direct supervision of work and field office personnel directly attributable to the change; and
.6 allowances for overhead and profit as stated below.
  .1 the maximum allowances for overhead and profit on increases due to Change Orders:
  .2 for changes in the Work performed by Contractor and Subcontractors, allowance for overhead and profit are applied to an amount equal to cost of all additions less cost of all deletions to the Work. Allowance for overhead to Contractor and first tier Subcontractors on changes performed by Subcontractors are applied to an amount equal to the sum of all increases to the Work by applicable Subcontractors.

	Overhead	Profit
to Contractor for change in the Work performed by Subcontractors:	10 percent	0 percent
to first tier Subcontractors for change in the Work performed by its Subcontractors:	10 percent	0 percent
to Contractor and Subcontractor for change in the Work performed by their respective firms:	10 percent	5 percent

7.3.3 If the City deletes or makes a change, which results in a net decrease in Contract Price, the City is entitled to a credit calculated in accordance with Paragraphs 7.3.1 and 7.3.2 and Subparagraphs 7.3.2.1, and 7.3.2.2.1 through 7.3.2.2.5. When both additions and credits covering related work or substitutions are involved in a change, allowance for overhead and profit is figured on the basis of a net increase, if any, with respect to that change in accordance with Subparagraph 7.3.2.2.6.

7.3.4 When Contractor agrees with the determination made by City Engineer concerning adjustments in Contract Price and Contract Time, or the Parties otherwise reach agreement upon the adjustments, the agreement will be immediately recorded by Change Order.

7.4 *MINOR CHANGES IN THE WORK*

7.4.1 A Minor Change in Work is binding on the Parties. Contractor shall acknowledge, in a written form acceptable to City Engineer, that there is no change in Contract Time or Contract Price and shall carry out the written orders promptly.

ARTICLE 8 - TIME

8.1 *PROGRESS AND COMPLETION*

8.1.1 Time is of the essence in the Contract. By executing the Contract, Contractor agrees that Contract Time is a reasonable period for performing the Work.

8.1.2 *Computation of Time:* In computing any period of time prescribed or allowed by the General Conditions, the day of the act, event, or default after which designated period of time begins to run is not to be included. Last day of the period so computed is to be included, unless it is a Sunday or Legal Holiday, in which event the period runs until end of next day which is not a Sunday or Legal Holiday. Sundays and Legal Holidays are considered to be days and are to be included in all other time computations relative to Contract Time.

8.1.3 Contractor may not commence the Work prior to the effective date of insurance and Bonds required by Article 11.

8.1.4 Contractor shall proceed expeditiously and without interruption, with adequate forces, and shall achieve Date of Substantial Completion within Contract Time.

8.1.5 Should progress of the Work fall behind construction schedule, except for reasons stated in Paragraph 8.2.1, Contractor shall promptly submit at the request of Project Manager, updated construction schedule to City Engineer for approval. Contractor's failure to submit updated schedule may, at City Engineer's discretion, constitute a material breach of the Contract. Contractor shall take action necessary to restore progress by working the hours, including night shifts and lawful overtime operations as necessary, to achieve Date of Substantial Completion within Contract Time.

8.1.6 Except in connection with safety or protection of persons or the Work or property at the site or adjacent to the site, and except as otherwise indicated in the Contract, all the Work at the site will be performed Monday through Saturday between the hours of 7:00 a.m. and 7:00 p.m. Contractor may not perform work between 7:00 p.m. and 7:00 a.m., on a Sunday, or on a Legal Holiday, without giving City Engineer 24-hour prior written notice and receiving written consent of City Engineer.

8.2 *DELAYS AND EXTENSIONS OF TIME*

8.2.1 Contractor may request extension of Contract Time for a delay in performance of work that arises from causes beyond control and without fault or negligence of Contractor. Examples of these causes are:

.1 acts of God or of the public enemy;
.2 acts of government in its sovereign capacity;
.3 fires;
.4 floods;
.5 epidemics;
.6 quarantine restrictions;
.7 strikes;
.8 freight embargoes;
.9 unusually severe weather; and
.10 discovery of Pollutants or Pollutant Facilities at the site.

8.2.2 For any reason other than those listed in Section 4.3.6.2, if the Contractor's work is delayed in any manner or respect, the Contractor shall have no claim for damages and shall have no right of additional compensation from the City by reason of any delay or increased expense to the Contractor's work, except for an extension of time as provided in this provision.

8.2.3 Contractor may request an extension of Contract Time for delay only if:

.1 delay is caused by failure of Subcontractor or Supplier to perform or make progress; and

.2 cause of failure is beyond control of both Contractor and Subcontractor or Supplier.

8.2.4 Claims relating to Contract Time must be made in accordance with Paragraph 4.3.7.

8.2.5 Claims for extending or shortening Contract Time are based on written notice promptly delivered by the Party making Claim to other Party. Claim must accurately describe occurrence generating Claim, and a statement of probable effect on progress of the Work.

8.2.6 Claims for extension of Contract Time are considered only when a Claim is filed within the time limits stated in Paragraph 4.3.3.

.1 Notwithstanding paragraph 4.3.3, an extension of time for delays under this paragraph may be granted only upon written application by the Contractor within 48 hours from the claimed delay.

8.2.7 Written notice of Claim must be accompanied by claimant's written statement that adjustment claimed is entire adjustment to which claimant is entitled as a result of the occurrence of the event. When the Parties cannot agree, Claims for adjustment in Contract Time are determined by City Engineer in accordance with Section 4.4.

8.2.8 Adjustments to Contract Time are accomplished by Change Order.

ARTICLE 9 - PAYMENTS AND COMPLETION

9.1 *UNIT PRICE WORK*

9.1.1 Where the Contract provides that all or part of the Work is based on Unit Prices, the Original Contract Price includes, for all Unit Price work, an amount equal to the sum of Unit Prices times Unit Price Quantities for each separately identified item of Unit Price work.

9.1.2 Each Unit Price includes an amount to cover Contractor's overhead and profit for each separately identified item.

9.1.3 The Contractor may not make a Claim against the City for excess or deficiency in Unit Price Quantities provided in the Contract, except as provided in Subparagraph 9.1.4. Payment at the prices stated in the Contract is in full for the completed work. Contractor is not entitled to additional payment for materials, supplies, labor, tools, machinery and all other expenditures incidental to satisfactory completion of the Work.

9.1.4 City Engineer may increase or decrease quantities of the Work within limitations stated in Paragraph 7.1.2. Contractor is entitled to payment for actual quantities of items provided at Unit Prices set forth in the Contract.

9.1.5 Where the final quantity of work performed by Contractor on Major Unit Price Work item differs by more than 25 percent from quantity of the item stated in the Contract, a Party may request an adjustment in Unit Price, for the portion that differs by more than 25 percent, by a Change Order under Section 7.3.

9.2 *ESTIMATES FOR PAYMENT, UNIT PRICE WORK*

9.2.1 Following the day of each month indicated in the Contract, Project Manager will prepare a Certificate for Payment for the preceding monthly period based on estimated units of work completed. Prior to preparing Certificate of Payment, Contractor shall have submitted to City Engineer on a form approved by the Director of the Mayor's Office of Business Opportunity, evidence satisfactory to the City Engineer of payments made to Subcontractors and Suppliers for the month preceding the month for which the Certificate for Payment is prepared.

9.2.2 Before final completion, City Engineer will review and confirm with Contractor the actual final installed Unit Price quantities. City Engineer's determination of actual final installed Unit Price quantities will be included in the final Certificate for Payment and any previous underpayments and overpayments will be reconciled with the actual final Unit Price quantities. Contractor shall file written notice of intent to appeal, if any, City Engineer's

determination within 10 days of receipt of final Certificate for Payment. Upon expiration of the 10-day period, City Engineer's decision is final and binding on the Parties. If Contractor submits notice within the 10-day period, Contractor shall submit a Claim in accordance with Section 4.4.

9.3 *STIPULATED PRICE WORK*

9.3.1 For work contracted on a Stipulated Price basis, 10 days before submittal of first Application for Payment, Contractor shall submit to City Engineer a Schedule of Values allocated to various portions of the Work, prepared in the form and supported by the data as City Engineer may require to substantiate its accuracy. This schedule, as approved by City Engineer, is used as a basis for approval of Contractor's Applications for Payment.

9.4 *APPLICATIONS FOR PAYMENT, STIPULATED PRICE WORK*

9.4.1 For work contracted on a Stipulated Price basis, Contractor shall submit Applications for Payment to City Engineer each month on a form acceptable to City Engineer in accordance with Schedule of Values. Application must indicate percentages of completion of each portion of the Work listed in Schedule of Values as of the end of the period covered by the Application for Payment.

9.4.2 Applications for Payment must be supported by substantiating data as City Engineer may require and must reflect retainages as provided below. Evidence satisfactory to the City Engineer of payments made to Subcontractors and Suppliers for the month preceding the month for which the Application for Payment is submitted must accompany each Application for Payment on a form approved by the Director of Mayor's Office of Business Opportunity. Application must be sworn and notarized.

9.5 *CERTIFICATES FOR PAYMENT*

9.5.1 City Engineer will, within 10 days after the date specified in the Contract for Unit Price work, or upon receipt of Contractor's Application for Payment for Stipulated Price work, issue a Certificate for Payment for work based on amount which City Engineer determines is properly due, with copy to Contractor.

9.5.2 Unless otherwise provided in the Contract, payment for completed work and for properly stored Products is conditioned upon compliance with procedures satisfactory to City Engineer to protect the City's interests. Procedures will include applicable insurance, storage, and transportation to site for materials and equipment stored off-site. Contractor is responsible for maintaining materials and equipment until Date of Substantial Completion.

9.5.3 Contractor shall document its use of Ultra Low Sulfur Diesel Fuel by providing invoices and receipts evidencing Contractor's use.

9.6 *COMPUTATIONS OF CERTIFICATES FOR PAYMENT*

9.6.1 Subject to the provisions of the Contract, the amount of each Certificate for Payment is calculated as follows:

.1 that portion of Contract Price allocated to completed work as determined by:
  .1 multiplying the percentage of completion of each portion of the Work listed in the Schedule of Values by the value of that portion of the Work, or
  .2 multiplying Unit Price quantities Installed times the Unit Prices listed in the Contract;
.2 plus progress payments for completed work that has been properly authorized by Modifications;
.3 less retainage of five percent;
.4 plus actual costs, properly substantiated by certified copies of invoices and freight bills, of non-perishable materials and equipment delivered and properly stored, if approved in advance by Project Manager, less 15 percent;
.5 less any previous payments by the City.

9.7 *DECISIONS TO WITHHOLD CERTIFICATION*

9.7.1 City Engineer may decline to certify payment and may withhold payment in whole or in part to the extent reasonably necessary to protect the City if, in City Engineer's opinion, there is reason to believe that:

.1 nonconforming work has not been remedied;
.2 the Work cannot be completed for unpaid balance of Contract Price;
.3 there is damage to the City or another contractor;
.4 the Work will not be completed within Contract Time and that unpaid balance will not be adequate to cover actual and liquidated damages;

.5 probable evidence that third party claims will be filed in court, in arbitration, or otherwise;

.6 Contractor has failed to make payments to Subcontractors or Suppliers for labor, material, or equipment; or

.7 Contractor has persistently failed to carry out work in accordance with the Contract.

.8 Contractor has not paid Subcontractors or Suppliers because of a payment dispute; or

.9 Contractor has failed to provide satisfactory evidence described in Paragraphs 9.2.1, 9.4.2, and 9.8.2.

9.7.2 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

9.7.3 City Engineer may decline to certify payment and may withhold request for payment in whole or in part upon failure of Contractor to submit initial construction schedule or monthly schedule updates, as required in Paragraphs 3.15.1 and 3.15.3.

9.8 *PROGRESS PAYMENTS*

9.8.1 The City will make payment, in an amount certified by City Engineer, within 20 days after City Engineer has issued a Certificate for Payment.

9.8.2 The City has no obligation to pay or to facilitate the payment to a Subcontractor or Supplier, except as may otherwise be required by law. Contractor shall comply with the prompt payment requirements of Chapter 2251 of the Government Code. State law requires payment of Subcontractors and Suppliers by Contractor within 7 calendar days of Contractor's receipt of payment from the City, unless there is a payment dispute between Contractor and a Subcontractor or Supplier evidenced on a form approved by the Director of Mayor's Office of Business Opportunity and submitted to the City Engineer each month with Application for Payment or Estimate for Payment. **CONTRACTOR SHALL DEFEND AND INDEMNIFY THE CITY FROM ANY CLAIMS OR LIABILITY ARISING OUT OF CONTRACTOR'S FAILURE TO MAKE THESE PAYMENTS.**

9.8.2.1 The City may, upon request and at the discretion of City Engineer, furnish to Subcontractor information regarding percentages of completion or the amounts applied for by Contractor, and action taken thereon by the City because of work done by the Subcontractor.

9.8.2.2 Contractor shall prepare and submit to City Engineer a Certification of Payment to Subcontractors and Suppliers form to be attached to each monthly Estimate for Payment or Application for Payment.

9.8.3 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Work by the City, does not constitute acceptance of work which is not in accordance with the Contract.

9.9 *DATE OF SUBSTANTIAL COMPLETION*

9.9.1 When Contractor considers the Work, or a portion thereof designated by City Engineer, to be substantially complete, Contractor shall prepare and submit to Project Manager a comprehensive punch list of items to be completed or corrected. Failure to include an item on the punch list does not alter the responsibility of Contractor to comply with the Contract.

9.9.1.1 By submitting the punch list to Project Manager, Contractor represents that work on the punch list will be completed within the time provided for in Subparagraph 9.9.4.3.

9.9.2 Upon receipt of Contractor's punch list, Project Manager will inspect the Work, or designated portion thereof, to verify that the punch list contains all items needing completion or correction. If Project Manager's inspection discloses items not on Contractor's punch list, the items must be added to the punch list of items to be completed or corrected. If Project Manager's inspection reveals that Contractor is not yet substantially complete, Contractor shall complete or correct the deficiencies and request another inspection by Project Manager. The City may recover the costs of re-inspection from Contractor.

9.9.3 Prior to City Engineer's issuing a Certificate of Substantial Completion, Contractor shall also provide:

.1 Certificate of Occupancy for new construction, or Certificate of Compliance for remodeled work, as applicable, and

.2 compliance with Texas Accessibility Standards through state inspection of the Work, if required. If Contractor calls for inspection in a timely manner

and the inspection is delayed through no fault of Contractor, and City Engineer so confirms, City Engineer may, upon request by Contractor, add the inspection to the punch list in Paragraph 9.9.2 and issue a Certificate of Substantial Completion.

9.9.4 When the Work, or designated portion thereof, is determined by City Engineer to be sufficiently complete in accordance with the Contract so the City can occupy or utilize the Work, or designated portion thereof, for the purpose for which it is intended, City Engineer will prepare a Certificate of Substantial Completion that incorporates the punch list in Paragraph 9.9.2 and establishes:

.1 Date of Substantial Completion;

.2 responsibilities of the Parties for security, maintenance, heating, ventilating and air conditioning, utilities, damage to the Work, and insurance; and

.3 fixed time within which Contractor shall complete all items on punch list of items to be corrected accompanying the certificate.

9.9.5 Warranties required by the Contract shall commence on the Date of Substantial Completion unless otherwise provided by City Engineer in Certificate of Substantial Completion. Warranties may not commence on items not substantially completed.

9.9.6 After Date of Substantial Completion and upon application by Contractor and approval by City Engineer, the City may make payment, reflecting adjustment in retainage, if any, as follows:

.1 with the consent of Surety, the City may increase payment to Contractor to 96 percent of Contract Price, less value of items to be completed and accrued liquidated damages.

9.9.7 Contractor shall complete or correct the items in Paragraph 9.9.2 within the time period set out in the Certificate of Substantial Completion. If Contractor fails to do so, the City may issue a Notice of Noncompliance and proceed according to Section 2.5.

9.10 *PARTIAL OCCUPANCY OR USE*

9.10.1 The City may occupy or use any completed or partially completed portion of the Work at any stage, provided the occupancy or use is consented to by Contractor and Contractor's insurer and authorized by public authorities having jurisdiction over the Work. Consent of Contractor to partial occupancy or use may not be unreasonably withheld.

9.10.2 Immediately prior to the partial occupancy or use, Project Manager and Contractor shall jointly inspect the area to be occupied or portion of the Work to be used to determine and record condition of the Work.

9.10.3 Partial occupancy or use of a portion of the Work does not constitute acceptance of work not in compliance with requirements of the Contract.

9.11 *FINAL COMPLETION AND FINAL PAYMENT*

9.11.1 Contractor shall review the Contract and inspect the Work prior to Contractor notification to City Engineer that the Work is complete and ready for final inspection. Contractor shall submit affidavit that the Work has been inspected and that the Work is complete in accordance with requirements of the Contract.

9.11.2 Project Manager will make final inspection within 15 days after receipt of Contractor's written notice that the Work is ready for final inspection and acceptance. If Project Manager finds the Work has been completed in accordance with the Contract, Contractor shall submit items set out in Paragraph 9.11.4 and, for stipulated price contracts, a final Application for Payment. City Engineer will, within 10 days, issue Certificate of Final Completion stating that to the best of City Engineer's knowledge, information, and belief, the Work has been completed in accordance with the Contract, and will recommend acceptance of the Work by City Council.

9.11.3 Should work be found not in compliance with requirements of the Contract, City Engineer will notify Contractor in writing of items of noncompliance. Upon inspection and acceptance of the corrections by Project Manager, compliance with all procedures of Paragraph 9.11.2, and Contractor's submission of the items set out in Paragraph 9.11.4, the City Engineer will issue Certificate of Final Completion to Contractor as provided in Paragraph 9.11.2.

9.11.4 Contractor shall submit the following items to City Engineer before City Engineer will issue a Certificate of Final Completion:

.1 affidavit that payrolls, invoices for materials and equipment, and other indebtedness of Contractor connected with the Work, less amounts withheld by the City, have been paid or otherwise satisfied. If required by City Engineer, Contractor shall submit

further proof including waiver or release of lien or claims from laborers or Suppliers of Products;

.2 certificate evidencing that insurance required by the Contract to remain in force after final payment is currently in effect, will not be canceled or materially changed until at least 30 days written notice has been given to the City;

.3 written statement that Contractor knows of no substantial reason that insurance will not be renewable to cover correction and warranty period required by the Contract;

.4 consent of Surety to final payment; and

.5 copies of record documents, maintenance manuals, tests, inspections, and approvals.

Upon City Engineer's issuance of a Certificate of Final Completion, Contractor may request increase in payment to 99 percent of Contract Price, less accrued liquidated damages.

9.11.5 If Contractor fails to submit required items in Paragraph 9.11.4 within 10 days of Project Manager's inspection of the Work under Paragraph 9.11.2 or Paragraph 9.11.3, City Engineer may, but is not obligated to:

.1 deduct liquidated damages accrued from monies held;

.2 proceed to City Council for acceptance of the Work, minus some or all of the items Contractor fails to submit under Paragraph 9.11.4; and,

.3 upon acceptance by City Council of the portion of the Work completed, make final payment as set out in Paragraph 9.11.8.

9.11.6 If final completion is materially delayed through no fault of Contractor, or by issuance of Change Orders affecting date of final completion, and City Engineer so confirms, the City may, upon application by Contractor and certification by City Engineer, and without terminating the Contract, make payment of balance due for that portion of the Work fully completed and accepted.

9.11.7 If remaining balance due for work not corrected is less than retainage stipulated in the Contract, Contractor shall submit to City Engineer written consent of Surety to payment of balance due for that portion of the Work fully completed and accepted, prior to certification of the payment. The payment is made under terms governing final payment, except that it does not constitute waiver of Claims.

9.11.8 The City will make final payment to Contractor within 30 days after acceptance of the Work by City Council, subject to limitations, if any, as stated in the Contract.

9.11.9 Acceptance of final payment by Contractor shall constitute a waiver of all Claims, whether known or unknown, by Contractor, except those previously made in writing and identified by Contractor as unsettled at time of final Application for Payment.

9.12 *LIQUIDATED DAMAGES*

9.12.1 Contractor, Surety, and the City agree that failure to complete the Work within Contract Time will cause damages to the City and that actual damages from harm are difficult to estimate accurately. Therefore, Contractor, Surety, and the City agree that Contractor and Surety are liable for and shall pay to the City the amount stipulated in Supplementary Conditions as liquidated damages, and that the amount of damages fixed therein is a reasonable forecast of just compensation for harm to the City resulting from Contractor's failure to complete the Work within Contract Time. The amount stipulated will be paid for each day of delay beyond Contract Time until Date of Substantial Completion.

9.12.2 Contractor shall pay the City an amount equal to $1,200.00 per diesel operating vehicle or piece of motorized equipment per incident of high sulfur diesel fuel usage.

ARTICLE 10 - SAFETY PRECAUTIONS

10.1 *SAFETY PROGRAMS*

10.1.1 Contractor is responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with performance of the Contract. Contractor shall submit a safety program to City Engineer prior to mobilizing for the Work, and is solely responsible for safety, efficiency, and adequacy of ways, means, and methods, and for damage which might result from failure or improper construction, maintenance, or operation performed by Contractor.

10.2 *POLLUTANTS AND POLLUTANT FACILITIES*

10.2.1 If Contractor encounters material on-site which it reasonably believes to be a Pollutant or

facilities which it reasonably believes to be a Pollutant Facility, Contractor shall immediately stop work in affected area and immediately notify City Engineer, confirming the notice thereafter in writing.

10.2.2 If City Engineer determines that the material is a Pollutant or facility is a Pollutant Facility, work in affected area may not be resumed except by Modification, and only if the work would not violate applicable laws or regulations.

10.2.3 If City Engineer determines that the material is not a Pollutant or a facility is not a Pollutant Facility, work in affected area will be resumed upon issuance of a Modification.

10.2.4 Contractor is not required to perform, unless authorized by Change Order, work relating to Pollutants or Pollutant Facilities except for that work relating to Pollutants or Pollutant Facilities specified in the Contract.

10.3 *SAFETY OF THE ENVIRONMENT, PERSONS, AND PROPERTY*

10.3.1 Contractor shall take reasonable precautions for safety and shall provide reasonable protection to prevent damage, injury, or loss from all causes, to:

.1 employees performing work on-site, and other persons who may be affected thereby;

.2 work, including Products to be incorporated into the Work, whether in proper storage, under control of Contractor or Subcontractor; and

.3 other property at or adjacent to the site, such as trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal or replacement in course of construction.

10.3.2 Contractor shall give notices and comply with applicable laws, ordinances, rules, regulations, and lawful orders of public authorities bearing on safety of persons, property, or environment.

10.3.2.1 Contractor shall comply with requirements of Underground Facility Damage Prevention and Safety Act TEX. UTIL. CODE ANN. Ch. 251 (Vernon Supp. 2002).

10.3.2.2 Contractor shall comply with all safety rules and regulations of the Federal Occupational Health and Safety Act of 1970 and subsequent amendments (OSHA).

10.3.3 Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection of persons and property, including posting danger signs and other warnings against hazards, promulgating safety regulations, and notifying owners and users of adjacent sites and utilities.

10.3.4 Contractor shall designate responsible member of Contractor's organization at site whose duty is prevention of accidents. This person will be Contractor's Superintendent unless otherwise designated by Contractor in writing to City Engineer.

10.3.5 Contractor shall prevent windblown dust and may not burn or bury trash debris or waste products on-site. Contractor shall prevent environmental pollution, including but not limited to particulates, gases and noise, as a result of the Work.

10.3.6 When use or storage of hazardous materials or equipment, or unusual methods are necessary for execution of the Work, Contractor shall exercise utmost care and carry on the activities under supervision of properly qualified personnel.

10.3.7 Contractor shall promptly remedy damage and loss to property referred to in Subparagraphs 10.3.1.2 and 10.3.1.3, caused in whole or in part by Contractor, or Subcontractors, which is not covered by insurance required by the Contract. Contractor is not required to remedy damage or loss attributable to the City, Design Consultant, or other contractors.

10.4 *EMERGENCIES*

10.4.1 In emergencies affecting safety of persons or property, Contractor shall act at Contractor's discretion to prevent imminent damage, injury, or loss. Additional compensation or extension of time claimed by Contractor because of emergencies are determined as provided in Article 7.

ARTICLE 11 - INSURANCE AND BONDS

11.1 *GENERAL INSURANCE REQUIREMENTS*

11.1.1 With no intent to limit Contractor's liability under indemnification provisions set forth in Paragraphs 3.25 and 3.26, Contractor shall provide and maintain in full force and effect during term of the Contract and all extensions and amendments

thereto, at least the following insurance and available limits of liability.

11.1.2 If any of the following insurance is written as "claims made" coverage and the City is required to be carried as additional insured, then Contractor's insurance shall include a two-year extended discovery period after last date that Contractor provides any work under the Contract.

11.1.3 Aggregate amounts of coverage, for purposes of the Contract, are agreed to be amounts of coverage available during fixed 12-month policy period.

11.2 *INSURANCE TO BE PROVIDED BY CONTRACTOR*

11.2.1 *Risks and Limits of Liability:* Contractor shall provide at a minimum insurance coverage and limits of liability set out in Table 1.

11.2.1.1 If Limit of Liability for Excess Coverage is $2,000,000 or more, Limit of Liability for Employer's Liability may be reduced to $500,000.

11.2.2 *Form of Policies:* Insurance may be in one or more policies of insurance, form of which is subject to approval by City Engineer. It is agreed, however, that nothing City Engineer does or fails to do with regard to insurance policies relieves Contractor from its duties to provide required coverage and City Engineer's actions or inactions will never be construed as waiving the City's rights.

11.2.3 *Issuers of Policies:* Issuer of any policy shall have:

.1 a Certificate of Authority to transact business in Texas, or

.2 have a Best's rating of at least B+ and a Best's Financial Size Category of Class VI or better, according to the most current edition of Best's Key Rating Guide, and the issuer must be an eligible nonadmitted insurer in the State of Texas.

Each insurer is subject to approval by City Engineer in City Engineer's sole discretion as to conformance with these requirements, pursuant to Paragraph 11.2.2.

11.2.4 *Insured Parties:* The City shall be an Additional Insured under this Contract. Each policy, except those for Workers' Compensation and Owner's and Contractor's Protective Liability, must name the City, its officers, agents, and employees as Additional Insured parties on original policy and all renewals or replacements during term of the Contract. The City's status as Additional Insured under Contractor's insurance does not extend to instances of sole negligence of the City unmixed with any fault of Contractor.

11.2.5 *Deductibles:* Contractor assumes and bears any claims or losses to extent of deductible amounts and waives any claim it may ever have for same against the City, its officers, agents, or employees.

11.2.6 *Cancellation:* Contractor shall notify the Director in writing 30 days prior to any cancellation or material change to Contractor's insurance coverage. Within the 30 day period, Contractor shall provide other suitable policies in lieu of those about to be canceled or nonrenewed so as to maintain in effect the required coverage. If Contractor does not comply with this requirement, the City Engineer, at his or her sole discretion, may:

.1 immediately suspend Contractor from any further performance under this Contract and begin procedures to terminate for default, or

.2 purchase the required insurance with City funds and deduct the cost of the premiums from amounts due to Contractor under this Contract.

11.2.7 *Subrogation:* Contractor waives any claim or right of subrogation to recover against the City, its officers, agents, or employees. Each policy, except professional liability, must contain an endorsement waiving such claim.

11.2.8 *Endorsement of Primary Insurance:* Each policy, except Workers' Compensation policies, must contain an endorsement that the policy is primary insurance to any other insurance available to additional insured with respect to claims arising hereunder.

11.2.9 *Liability for Premium:* Contractor is solely responsible for payment of all insurance premium requirements hereunder and the City is not obligated to pay any premiums.

11.2.10 *Additional Requirements for Workers' Compensation Insurance Coverage:* Contractor shall, in addition to meeting the obligations set forth in Table 1, maintain throughout the term of the Contract Workers' Compensation coverage as required by statute, and Contractor shall specifically comply with requirements set forth in Paragraph 11.2.10. The definitions set out below shall apply only for purposes of this Paragraph 11.2.10.

11.2.10.1 Definitions:

.1 *Certificate of Coverage:* A copy of certificate of insurance, or coverage agreement (TWCC-81, TWCC-82, TWCC-83, or TWCC-84), showing statutory Workers' Compensation insurance coverage for Contractor's, Subcontractor's, or Supplier's employees providing services for the duration of the Contract.

.2 *Duration of the Work:* Includes the time from Date of Commencement of the Work until Contractor's work under the Contract has been completed and accepted by City Council.

.3 *Persons providing services for the Work (Subcontractor in Texas Labor Code § 406.096):* includes all persons or entities performing all or part of services Contractor has undertaken to perform on the Work, regardless of whether that person contracted directly with Contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractors, leasing companies, motor carriers, owner-operators, employees of the entity, or employees of entity which furnishes persons to provide services on the Work. Services include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other service related to the Work. Services do not include activities unrelated to the Work, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

11.2.10.2 Contractor shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of coverage agreements, which meets the statutory requirements of TEX. LAB. CODE ANN., Section 401.011(44) for employees of Contractor providing services on the Work, for duration of the Work.

11.2.10.3 Contractor shall provide a Certificate of Coverage to the City prior to being awarded the Contract.

11.2.10.4 If coverage period shown on Contractor's original Certificate of Coverage ends during duration of the Work, Contractor shall file new Certificate of Coverage with the City showing that coverage has been extended.

11.2.10.5 Contractor shall obtain from each person providing services on the Work, and provide to City Engineer:

.1 Certificate of Coverage, prior to that person beginning work on the Work, so the City will have on file Certificates of Coverage showing coverage for all persons providing services on the Work; and

.2 no later than seven days after receipt by Contractor, new Certificate of Coverage showing extension of coverage, if coverage period shown on current Certificate of Coverage ends during the duration of the Work.

11.2.10.6 Contractor shall retain all required Certificates of Coverage for the duration of the Work and for one year thereafter.

11.2.10.7 Contractor shall notify City Engineer in writing by certified mail or personal delivery, within 10 days after Contractor knew or should have known, of any change that materially affects provision of coverage of any person providing services on the Work.

11.2.10.8 Contractor shall post on-site a notice, in text, form and manner prescribed by Texas Workers' Compensation Commission, informing all persons providing services on the Work that they are required to be covered, and stating how person may verify coverage and report lack of coverage.

11.2.10.9 Contractor shall contractually require each person with whom it contracts to provide services on the Work to:

.1 provide coverage, based on proper reporting of classification codes, payroll amounts and filing of any coverage agreements, which meets statutory requirements of TEX. LAB. CODE ANN., Section 401.011(44) for all its employees providing services on the Work, for the duration of the Work;

.2 provide to Contractor, prior to that person's beginning work on the Work, a Certificate of Coverage showing that coverage is being provided for all employees of the person providing services on the Work, for the duration of the Work;

.3 provide Contractor, prior to the end of the coverage period, a new Certificate of Coverage showing extension of coverage, if the coverage period shown on the current Certificate of Coverage ends during the duration of the Work;

.4 obtain from each other person with whom it contracts, and provide to Contractor: (1) Certificate of Coverage, prior to other person's beginning work on the Work; and (2) new Certificate of Coverage showing extension of coverage, prior to end of coverage period, if coverage period shown on the current Certificate of Coverage ends during duration of the Work.

.5 retain all required Certificates of Coverage on file for the duration of the Work and for one year thereafter;

.6 notify City Engineer in writing by certified mail or personal delivery within 10 days after person knew, or should have known, of change that materially affects provision of coverage of any person providing services on the Work; and

.7 contractually require each person with whom it contracts to perform as required by Paragraphs 11.2.10.1 through 11.2.10.7, with Certificates of Coverage to be provided to person for whom they are providing services.

11.2.10.10 By signing the Contract or providing or causing to be provided a Certificate of Coverage, Contractor is representing to the City that all employees of Contractor who will provide services on the Work will be covered by Workers' Compensation coverage for the duration of the Work, that coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with appropriate insurance carrier. Contractor is not allowed to self-insure Workers' Compensation. Contractor may be subject to administrative penalties, criminal penalties, civil penalties, or other civil actions for providing false or misleading information.

11.2.10.11 Contractor's failure to comply with Paragraph 11.2.10 is a breach of the Contract by Contractor, which entitles the City to declare the Contract void if Contractor does not remedy breach within 10 days after receipt of notice of breach from City Engineer.

11.2.11 *Subcontractor Insurance Requirements:* Contractor shall require Subcontractors and Suppliers to obtain Commercial General Liability, Workers' Compensation, Employer's Liability and Automobile Liability coverage that meets all the requirements of Paragraph 11.2. The amount must be commensurate with the amount of the subcontract, but not less than $500,000 per occurrence. Contractor shall require all Subcontractors with whom it contracts directly, whose subcontracts exceed $100,000, to provide proof of Commercial General Liability and Automobile Liability insurance coverage meeting the above requirements. Contractor shall comply with all requirements set out under Paragraph 11.2.10 as to Workers' Compensation Insurance for all Subcontractors and Suppliers.

TABLE 1
REQUIRED COVERAGE

(Coverage)	(Limit of Liability)
.1 Workers' Compensation	Statutory Limits for Workers' Compensation
.2 Employer's Liability	Bodily Injury by Accident $1,000,000 (each accident) Bodily Injury by Disease $1,000,000 (policy limit) Bodily Injury by Disease $1,000,000 (each employee)
.3 Commercial General Liability: Including Contractor's Protective, Broad Form Property Damage, Contractual Liability, Explosion, Underground and Collapse, Bodily Injury, Personal Injury, Products, and Completed Operations (for a period of one year following completion of the Work).	Combined single limit of $1,000,000 (each occurrence), subject to general aggregate of $1,000,000; Products and Completed Operations $1,000,000 aggregate.
.4 Owner's and Contractor's Protective Liability	$1,000,000 combined single limit each Occurrence/ aggregate
.5 Installation Floater (Unless alternative coverage approved by City Attorney)	Value of stored material or equipment, listed on Certificates of Payments, but not yet incorporated into the Work
.6 Automobile Liability Insurance: (For automobiles furnished by Contractor in course of his performance under the Contract, including Owned, Non-owned, and Hired Auto coverage)	$1,000,000 combined single limit each occurrence for (1) Any Auto or (2) All Owned, Hired, and Non-Owned Autos
.7 Excess Coverage	$1,000,000 each occurrence/combined aggregate in excess of limits specified for Employer's Liability, Commercial General Liability, and Automobile Liability
Aggregate Limits are per 12-month policy period unless otherwise indicated.	

11.3 *PROOF OF INSURANCE*

11.3.1 Prior to commencing services and at time during the term of the Contract, Contractor shall furnish City Engineer with Certificates of Insurance, along with Affidavit from Contractor confirming that Certificate accurately reflects insurance coverage that is available during term of the Contract. If requested in writing by City Engineer, Contractor shall furnish City Engineer with certified copies of Contractor's actual insurance policies. Failure of Contractor to provide certified copies, as requested, may be deemed, at City Engineer's or City Attorney's discretion, a material breach of the Contract.

11.3.2 Notwithstanding the proof of insurance requirements, Contractor shall continuously maintain in effect required insurance coverage set forth in Paragraph 11.2. Failure of Contractor to comply with this requirement does constitute a material breach by Contractor allowing the City, at its option, to immediately suspend or terminate work, or exercise any other remedy allowed under the Contract. Contractor agrees that the City has not waived or is not estopped to assert a material breach of the Contract because of any acts or omissions by the City regarding its review or non-review of insurance documents provided by Contractor, its agents, employees, or assigns.

11.3.3 Contractor shall provide updated certificates of insurance to the Director upon request. The Contractor shall be responsible for delivering a current certificate of insurance in the proper form to the Director as long as Contractor is required to furnish insurance coverage under Paragraph 11.2.

11.3.4 Every certificate of insurance Contractor delivers in connection with this Contract shall

.1 be less than 12 months old;

.2 include all pertinent identification information for the Insurer, including the company name and address, policy

number, NAIC number or AMB number, and authorized signature;

.3 include in the Certificate Holder Box the Project name and reference numbers, contractor's email address, and indicates the name and address of the Project Manager;

.4 include the Contractor's email address in the Certificate Holder Box;

.5 include the Project reference numbers on the City address so the Project reference number is visible in the envelope window; and

.6 be appropriately marked to accurately identify all coverages and limits of the policy, effective and expiration dates, and waivers of subrogation in favor of the City for Commercial General Liability, Automobile Liability, and Worker's Compensation/Employers' Liability.

11.4 *PERFORMANCE AND PAYMENT BONDS*

11.4.1 For Contracts over the value of $25,000, Contractor shall provide Bonds on the City's standard forms covering faithful performance of the Contract and payment of obligations arising thereunder as required in the Contract pursuant to Chapter 2253 of the Government Code. The Bonds must be for 100 percent of Original Contract Price and in accordance with conditions stated on standard City Performance and Payment Bond and Statutory Payment Bond forms. Bonds may be obtained from Contractor's usual source and cost for the Bonds are included in Contract Price.

11.5 *MAINTENANCE BONDS*

11.5.1 *One-year Maintenance Bond:* Contractor shall provide Bond on standard City One-year Maintenance Bond form, providing for Contractor's correction, replacement, or restoration of any portion of the Work which is found to be not in compliance with requirements of the Contract during one-year correction period required in Paragraph 12.2. The Maintenance Bond must be for 100 percent of the Original Contract Price.

11.6 *SURETY*

11.6.1 A Bond that is given or tendered to the City pursuant to the Contract must be executed by a surety company that is authorized and admitted to write surety Bonds in the State of Texas.

11.6.2 If a Bond is given or tendered to the City pursuant to the Contract in an amount greater than 10 percent of Surety's capital and surplus, Surety shall provide certification that Surety has reinsured that portion of the risk that exceeds 10 percent of Surety's capital and surplus. The reinsurance must be with one or more reinsurers who are duly authorized, accredited, or trusted to do business in the State of Texas. The amount reinsured by reinsurer may not exceed 10 percent of reinsurer's capital and surplus. The amount of allowed capital and surplus must be based on information received from State Board of Insurance.

11.6.3 If the amount of a Bond is greater than $100,000, Surety shall:

.1 also hold certificate of authority from the United States Secretary of Treasury to qualify as surety on obligations permitted or required under federal law; or,

.2 Surety may obtain reinsurance for any liability in excess of $100,000 from reinsurer that is authorized and admitted as a reinsurer in the State of Texas and is the holder of a certificate of authority from the United States Secretary of the Treasury to qualify as surety or reinsurer on obligations permitted or required under federal law.

11.6.4 Determination of whether Surety on the Bond or the reinsurer holds a certificate of authority from the United States Secretary of the Treasury is based on information published in Federal Register covering the date on which Bond was executed.

11.6.5 Each Bond given or tendered to the City pursuant to the Contract must be on City forms with no changes made by Contractor or Surety, and must be dated, executed, and accompanied by power of attorney stating that the attorney in fact executing such the bond has requisite authority to execute such Bond. The Bonds must be dated and must be no more than 30 days old.

11.6.6 Surety shall designate in its Bond, power of attorney, or written notice to the City, an agent resident in Harris County to whom any requisite notices may be delivered and on whom service of process may be had in matters arising out of the suretyship.

11.6.7 Contractor shall furnish information to a payment bond beneficiary as required by TEX. GOV'T CODE ANN. CH. 2253.

11.7 *DELIVERY OF BONDS*

11.7.1 Contractor shall deliver required Bonds to the City within time limits stated in Notice of Intent to Award and prior to Date of Commencement of the Work.

ARTICLE 12 - UNCOVERING AND CORRECTION OF THE WORK

12.1 *UNCOVERING OF THE WORK*

12.1.1 If a portion of the Work has been covered which City Engineer has not specifically requested to observe prior to its being covered, City Engineer may request to see such work and it must be uncovered by Contractor. If such work is in accordance with the Contract, the costs of uncovering and covering such work are charged to the City by Change Order. If such work is not in accordance with the Contract, Contractor shall pay for uncovering and shall correct the nonconforming Work promptly after receipt of Notice of Noncompliance to do so.

12.2 *CORRECTION OF THE WORK*

12.2.1 Contractor shall promptly correct or remove work rejected by City Engineer or work failing to conform to requirements of the Contract, whether observed before or after Date of Substantial Completion and whether fabricated, Installed, or completed.

12.2.2 Contractor bears costs of correcting the rejected or nonconforming work including additional testing and inspections, and compensation for Design Consultant's services and expenses made necessary thereby.

12.2.3 If within one year after Date of Substantial Completion, or after date for commencement of warranties established under Paragraph 9.9.5 or by other applicable special warranty required by the Contract, whichever is later in time, any of the Work is found not to be in accordance with the requirements of the Contract, Contractor shall correct such work promptly after receipt of Notice of Noncompliance to do so.

12.2.4 One-year correction period for portions of the Work completed after Date of Substantial Completion will begin on the date of acceptance of that portion of the Work. This obligation under this Paragraph survives acceptance of the Work under the Contract and termination of the Contract.

12.2.5 The one-year correction period does not establish a duration for the Contractor's general warranty under Paragraph 3.12. The City retains the right to recover damages from the Contractor as long as may be permitted by the applicable statute of limitations.

12.2.6 If Contractor does not proceed with correction of the nonconforming work within time fixed by Notice of Noncompliance, the City may correct nonconforming work or remove nonconforming work and store salvageable Products at Contractor's expense. Contractor shall pay the costs of correction of nonconforming work and removal and storage of salvageable Products to the City. If Contractor does not pay costs of the correction or removal and storage within 10 days after written notice, the City may sell the Products at auction or at private sale. The City will account for proceeds thereof after deducting costs and damages that would have been borne by Contractor, including compensation for services of Design Consultant and necessary expenses. If the proceeds of sale do not cover costs which Contractor should have borne, Contractor shall pay the value of the deficiency to the City.

12.2.7 Contractor bears cost of correcting work originally installed by Contractor, the City, or by separate contractors and damaged by Contractor's correction or removal of Contractor's work.

12.3 *ACCEPTANCE OF NONCONFORMING WORK*

12.3.1 If City Engineer prefers to accept work which is not in accordance with requirements of the Contract, City Engineer may do so only by issuance of Change Order, instead of requiring its removal and correction. City Engineer will determine Contract Price reduction. The reduction will become effective even if final payment has been made.

ARTICLE 13 - MISCELLANEOUS PROVISIONS

13.1 *GOVERNING LAWS*

13.1.1 The Contract is subject to the laws of the State of Texas, the City Charter and Ordinances, the laws of the federal government of the United States, and all rules and regulations of any regulatory body or officer having jurisdiction.

13.1.2 Venue for any litigation relating to the Contract is Harris County, Texas.

13.2 *SUCCESSORS*

13.2.1 The Contract binds and benefits the Parties and their legal successors and permitted assigns; however, this Paragraph 13.2.1 does not alter the restrictions on assignment and disposal of assets set out in Paragraph 13.3.1. The Contract does not create any personal liability on the part of any officer or agent of the City.

13.3 *BUSINESS STRUCTURE AND ASSIGNMENTS*

13.3.1 Contractor may not assign the Contract at law or otherwise, or dispose of all or substantially all of its assets without City Engineer's prior written consent. Nothing in this Section, however, prevents the assignment of accounts receivable or the creation of a security interest as described in §9.406 of the Texas Business & Commerce Code. In the case of such an assignment, Contractor shall immediately furnish the City with proof of the assignment and the name, telephone number, and address of the assignee and a clear identification of the fees to be paid to the assignee.

13.3.2 Any series, as defined by the TEX. BUS. ORG. CODE ANN., affiliate, subsidiary, or successor to which Contractor assigns or transfers assets shall join in privity and be jointly and severally liable under this Contract.

13.4 *WRITTEN NOTICE*

13.4.1 All notices required or permitted by the Contract must be in writing and must be effected by hand delivery; registered or certified mail, return receipt requested; or facsimile with confirmation copy mailed to receiving Party. Notice is sufficient if made or addressed with proper postage to the address stated in the Agreement for each Party ("Notice Address") or faxed to the facsimile number stated in the Agreement for each Party. The notice is deemed delivered on the earlier of:

.1 the date the Notice is actually received;
.2 the third day following deposit in a United States Postal Service post office or receptacle; or
.3 the date the facsimile is sent unless the facsimile is sent after 5:00 p.m. local time of the recipient and then it is deemed received on the following day.

Any Party may change its Notice Address or facsimile number at any time by giving written notice of the change to the other Party in the manner provided for in this Paragraph at least 15 days prior to the date the change is affected.

13.5 *RIGHTS AND REMEDIES*

13.5.1 Duties and obligations imposed by the Contract and rights and remedies available thereunder are in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

13.5.2 No act or failure to act by the City or Contractor is a waiver of rights or duties afforded them under the Contract, nor is the act or failure to act constitute approval of or acquiescence in a breach of the Contract. No waiver, approval or acquiescence is binding unless in writing and, in the case of the City, signed by City Engineer.

13.6 *TESTS AND INSPECTIONS*

13.6.1 Contractor shall give City Engineer, Construction Manager, and Design Consultant timely notice of the time and place where tests and inspections are to be made. Contractor shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

13.6.2 The City will employ and pay for services of an independent testing laboratory to perform inspections or acceptance tests required by the Contract except:

.1 inspections or tests covered by Paragraph 13.6.3;
.2 those otherwise specifically provided in the Contract; or
.3 costs incurred in connection with tests or inspections conducted pursuant to Paragraph 12.2.2.

13.6.3 Contractor is responsible for and shall pay all costs in connection with inspection or testing required in connection with City Engineer's acceptance of a Product to be incorporated into the Work, or of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation into the Work.

13.6.4 Neither observations by the City, Construction Manager, or Design Consultant, nor inspections, tests, or approvals by others, relieves Contractor from Contractor's obligations to perform the Work in accordance with the Contract.

13.7 *INTEREST*

13.7.1 No interest will accrue on late payments by the City except as provided under Chapter 2251 of the Government Code.

13.8 *PARTIES IN INTEREST*

13.8.1 The Contract does not bestow any rights upon any third party, but binds and benefits the Parties only.

13.9 *ENTIRE CONTRACT*

13.9.1 The Contract merges the prior negotiations and understandings of the Parties and embodies the entire agreement of the Parties. No other agreements, assurances, conditions, covenants, express or implied, or other terms of any kind, exist between the Parties regarding the Contract.

13.10 *WRITTEN AMENDMENT*

13.10.1 Changes to the Contract that cannot be effected by Modifications, must be made by written amendment, which will not be effective until approved by City Council.

13.11 *COMPLIANCE WITH LAWS*

13.11.1 Contractor shall comply with the Americans with Disabilities Act of 1990 as amended (ADA) and Texas Architectural Barriers Act and all regulations relating to either statute.

13.11.2 Contractor shall comply with all applicable federal, state, and city laws, rules and regulations.

13.12 *SEVERABILITY*

13.12.1 If any part of the Contract is for any reason found to be unenforceable, all other parts remain enforceable to the extent permitted by law.

ARTICLE 14 - TERMINATION OR SUSPENSION OF THE CONTRACT

14.1 *TERMINATION BY THE CITY FOR CAUSE*

14.1.1 Each of the following acts or omissions of Contractor or occurrences shall constitute an "Event of Default" under the Contract:

.1 Contractor refuses or fails to supply enough properly skilled workers or proper Products;

.2 Contractor disregards laws, ordinances, rules, regulations, or orders of a public authority having jurisdiction;

.3 Contractor is guilty of material breach of any duty or obligation of Contractor under the Contract;

.4 Contractor has had any other contract with the City terminated for cause at any time subsequent to the effective date of the Contract as set out in the Agreement; or

.5 Contractor fails to utilize Ultra Low Sulfur Diesel Fuel, as required in Paragraph 3.9.1.1.

14.1.2 If an Event of Default occurs, City Engineer may, at his option and without prejudice to any other rights or remedies which the City may have, deliver a written notice to Contractor and Surety describing the Event of Default and giving the Contractor 10 days to cure the Event of Default. If after the cure period, Contractor has failed or refused to cure the Event of Default, then City Engineer may deliver a second written notice to Contractor giving notice of the termination of the Contract or of the termination of Contractor's performance under the Contract ("Notice of Termination"). If City Engineer issues a Notice of Termination, then City Engineer may, subject to any prior rights of Surety and any other rights of the City under the Contract or at law:

.1 request that Surety complete the Work; or

.2 take possession of the site and all materials, equipment, tools, and construction equipment and machinery on the site owned by Contractor; and

.3 finish the Work by whatever reasonable method City Engineer may deem expedient.

14.1.3 After Contractor's receipt of a Notice of Termination, and except as otherwise directed in writing by City Engineer, Contractor shall:

.1 stop the Work on the date and to the extent specified in the Notice of Termination;

.2 place no further orders or subcontracts for Products or services;

.3 terminate all orders and subcontracts to the extent that they relate to performance of work terminated;

.4 assign to the City, in the manner, at the times, and to the extent directed by City Engineer, all rights, title, and interest of Contractor, under the terminated supply orders and subcontracts. The City may settle or pay claims arising out of termination of the orders and subcontracts;

.5 settle all outstanding liabilities and all claims arising out of the termination of supply orders and subcontracts with approval of City Engineer;

.6 take action as may be necessary, or as City Engineer may direct, for protection and preservation of property related to the Work that is in possession of Contractor, and in which the City has or may acquire an interest; and

.7 secure the Work in a safe state before leaving the site, providing any necessary safety measures, shoring, or other devices.

14.1.4 If the City terminates the Contract or terminates Contractor's performance under the Contract for any one or more of the reasons stated in Paragraph 14.1.1, Contractor may not receive any further payment until the Work is complete, subject to Paragraph 14.1.5.

14.1.5 If the unpaid balance of Contract Price exceeds the costs of finishing the Work, including liquidated damages and other amounts due under the Contract, the balance will be paid to Contractor. If the costs of finishing the Work exceed the unpaid balance, Contractor shall, within 10 days of receipt of written notice setting out the amount of the excess costs, pay the difference to the City. The amount to be paid to Contractor or the City will be certified by City Engineer in writing, and this obligation for payment shall survive termination of the Contract or termination of Contractor's performance under the Contract. Termination of the Contractor for cause shall not relieve the Surety from its obligation to complete the project.

14.2 *TERMINATION BY THE CITY FOR CONVENIENCE*

14.2.1 City Engineer may, without cause and without prejudice to other rights or remedies of the City, give Contractor and Surety a Notice of Termination with a seven days written notice.

14.2.2 After receipt of the Notice of Termination, and except as otherwise approved by City Engineer, Contractor shall conform to requirements of Paragraph 14.1.3.

14.2.3 After receipt of the Notice of Termination, Contractor shall submit to the City its termination Claim, in forms required by City Engineer. The Claim will be submitted to the City promptly, but no later than six months from the effective date of termination, unless one or more extensions are granted by City Engineer in writing. If Contractor fails to submit its termination Claim within the time allowed, in accordance with Paragraph 14.2.4, City Engineer will determine, on the basis of available information, the amount, if any, due to Contractor because of termination, and City Engineer's determination is final and binding on the Parties. The City will then pay to Contractor the amount so determined.

14.2.4 City Engineer will determine, on the basis of information available to City Engineer, the amount due, if any, to Contractor for the termination as follows:

.1 Contract Price for all work performed in accordance with the Contract up to the date of termination determined in the manner prescribed for monthly payments in Article 9, except no retainage is withheld by the City either for payment determined by percentage of completion or for materials and equipment delivered to the site, in storage or in transit.

.2 Reasonable termination expenses, including costs for settling and paying Subcontractor and Supplier claims arising out of termination of the Work, reasonable cost of preservation and protection of the City's property after termination, if required, and the cost of Claim preparation. Termination expenses do not include field or central office overhead, salaries of employees of Contractor, or litigation costs, including attorneys' fees.

No amount is allowed for anticipated profit or central office overhead on uncompleted work, or any cost or lost profit for other business of Contractor alleged to be damaged by the termination.

14.2.5 Contractor shall promptly remove from the site any construction equipment, tools, and temporary facilities, except the temporary facilities which City Engineer may wish to purchase and retain.

14.2.6 Contractor shall cooperate with City Engineer during the transition period.

14.2.7 The City will take possession of the Work and materials delivered to the site, in storage, or in transit, as of date or dates specified in the Notice of Termination, and is responsible for maintenance, utilities, security, and insurance, as stated in Notice of Termination.

14.3 *SUSPENSION BY THE CITY FOR CONVENIENCE*

14.3.1 City Engineer may, without cause, after giving Contractor and Surety 24-hour prior written

notice, order Contractor to suspend, delay, or interrupt the Work in whole or in part for a period of time as City Engineer may determine.

14.3.2 An adjustment will be made in Contract Time equivalent to the time of suspension.

14.3.3 Adjustment will be made to Contract Price for increases in the cost of performance of the Work, including profit on increased cost of performance caused by suspension, delay, or interruption of the Work in accordance with Paragraph 7.3. No adjustment will be made to the extent that:

.1 performance was, or would have been, suspended, delayed, or interrupted by another cause for which Contractor is responsible; or

.2 adjustment is made or denied under another provision of the Contract.

14.4 *TERMINATION BY CONTRACTOR*

14.4.1 Contractor may terminate the Contract if the Work is stopped for a period of 30 days through no act or fault of Contractor, directly related to one of these events:

.1 issuance of an order of a court or other public authority having jurisdiction;

.2 act of government, such as a declaration of national emergency which makes material unavailable; or

.3 if repeated suspensions, delays, or interruptions by the City as described in Paragraph 14.3 constitute, in the aggregate, more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less;

No termination will be effective for the above reasons if Contractor delivers written notice to City Engineer describing the reason for termination, giving the proposed termination date, and granting the City a reasonable opportunity to respond and cure any City default before termination is effective.

14.4.2 If the Contract is terminated pursuant to this Paragraph 14.4, Contractor shall comply with the requirements of Paragraphs 14.2.2 through 14.2.7.

END OF DOCUMENT

Document 00800-T

TxDOT SUPPLEMENTARY CONDITIONS

The following Paragraphs amend and supplement the January 1, 2015 edition of General Conditions. Unaltered portions of General Conditions remain in effect.

ARTICLE 1 - GENERAL PROVISIONS:

1.1 *DEFINITIONS*: *Insert the following Paragraph 1.1.9.1*

ARTICLE 3 - THE CONTRACTOR

3.5 *LABOR*: *Insert the following Paragraphs 3.5.3.1.1 and 3.5.3.1.2*

3.5.3.1.1 The Contractor shall make Good Faith Efforts to comply with the State ordinances regarding Disadvantaged Business Enterprises (DBE) participation goals. Overall, the City of Houston goal for DBE contracts is a cumulative goal, with DBE amounts varying from contract to contract. Updated annually in agreement with the Texas Department of Transportation, the goals are currently as follows:

.1 the DBE goal is 8% percent, with

.2 the race-conscious DBE goal of 8% percent.

3.5.3.1.2 "Good Faith Efforts" is defined in Document 00806-T, "DISADVANTAGED BUSINESS ENTERPRISE PROGRAM REQUIREMENTS", in accordance with 49 C.F.R. § 26.

3.9 MATERIALS & EQUIPMENT: *Insert the following Paragraph 3.9.4*

3.9.4 Materials produced in a prison facility or by prison labor may not be used on this project.

ARTICLE 8 - TIME

8.1 *PROGRESS AND COMPLETION: Delete Paragraph 8.1.6. and replace with the following 8.1.6. and 8.1.6.1.*

8.1.6.1 Contractor shall credit the City by Change Order for inspection services for overtime work or work performed on Sundays or Legal Holidays. The amount Contractor credits the City will be [$50.00 per hour] per inspector for inspection services.

ARTICLE 9 - PAYMENTS AND COMPLETION

9.1 *UNIT PRICE WORK*: *Delete Section 9.1 in its entirety and insert the following Section 9.1.*

9.1 References to Unit Prices in individual Specification sections are not applicable to the Contract. Include payment for portions of the Work required by these sections in the Stipulated Price for the Contract.

9.12 *LIQUIDATED DAMAGES*: *Insert the following Paragraph 9.12.1.1.*

9.12.1.1 The amount of liquidated damages payable by Contractor or Surety for each and every day of delay beyond Contract Time, are $1,500 per day.

ARTICLE 11 - INSURANCE AND BONDS

11.2 INSURANCE TO BE PROVIDED BY CONTRACTOR: Insert the following Paragraph 11.2.1.2

11.2.1.2 Contractor shall purchase for the duration of the Contract the insurance set out in Table 2 in addition to the minimum insurance coverage set out in section 11.2.1.

TABLE 2
ADDITIONAL REQUIRED COVERAGE
DEFENSE COSTS EXCLUDED FROM FACE AMOUNT OF POLICY.

Contractor's Pollution Liability: occurrence Including pollution coverage for Contractual Liability, Clean-up costs, Abatement, Transport, and Non-owned disposal sites. Including Bodily Injury Liability, Property Damage Liability, and environmental damage arising from pollution conditions caused in performance of operations. Including Asbestos and Lead if part of operations.	$1,000,000 each
(MCS - 90 endorsement: to Auto Policy and removal of Pollution Exclusion)	$1,000,000 CSL

11.5 MAINTENANCE BONDS: *Delete Section 11.5 in its entirety and insert the following Section 11.5.*

11.5 WARRANTY OF WORK BONDS

11.5.1 ONE-YEAR WARRANTY OF WORK BONDS: One-Year Warranty of Work Bond: Contractor shall provide Bond on standard City One-Year Warranty of Work Bond form, providing for Contractor's correction, replacement, or restoration of any portion of the Work which is found to be not in compliance with requirements of the Contract during one-year correction period required in Paragraph 12.2. The One-Year Warranty of Work Bond must be for 100 percent of the Original Contract Price.

END OF DOCUMENT

Document 00806-T

DISADVANTAGED BUSINESS ENTERPRISE PROGRAM REQUIREMENTS

(City of Houston Information Requirements
for the Successful Bidder on All Construction Contracts)

1. PURPOSE. 1
2. POLICY. 1
3. DEFINITIONS. 2
4. CONTRACTOR'S RESPONSIBILITIES. 4
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DISADVANTAGED BUSINESS ENTERPRISE PROGRAM

FUNDED BY FEDERAL HIGHWAY FUNDS

1. PURPOSE.
The purpose of Document 00806-T is to carry out the U.S. Department of Transportation's policy of ensuring nondiscrimination in the award and administration of DOT assisted contracts and of creating a level playing field on which firms owned and controlled by individuals who are determined to be socially and economically disadvantaged can compete fairly for U.S. Department of Transportation ("USDOT") contracts.

2. POLICY.
It is the policy of the U.S. Department of Transportation that Disadvantaged Business Enterprises ("DBEs") as described in 49 CFR Part 26, Subpart A, shall have the opportunity to participate in the performance of contracts financed in whole or in part

with Federal funds. This Document 00806-T implements the Memorandum of Understanding Regarding the Adoption of the Texas Department of Transportation's Federally-Approved Disadvantaged Business Program by the City of Houston (the "Memorandum of Understanding" or the "MOU") in accordance with 49 CFR Part 26. City Council adopted the Memorandum by Ordinance No. 2010-0800, countersigned October 21, 2010. Consequently, the Disadvantaged Business Enterprise requirements of 49 CFR Part 26 and Memorandum apply to this Contract as follows:

a. The Contractor will solicit DBEs through reasonable and available means, as described in 49 CFR Part 26, Appendix A and the Memorandum, or show a Good Faith Effort to meet the DBE goal for this Contract.

b. The Contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this Contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of USDOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this Contract, which may result in the termination of this Contract or such other remedy as the City deems appropriate.

c. The Contractor shall physically include all requirements of this Document 00806-T in any subcontract. Sections 1-3 of this Document 00806-T shall apply to this Contract. If this Contract contains a race-conscious DBE participation goal, Sections 4–8 shall apply to this Contract. If this Contract contains a race-neutral participation goal, Sections 6 and 9 shall apply to this Contract.

d. TxDOT DBE forms applicable to this DBE Program are currently available at: http://www.txdot.gov/txdot_library/doing_business/dbe.htm

If the Contractor encounters difficulties obtaining or completing the required documents, the Contractor shall request assistance from the Liaison Officer. Upon receiving a reasonable, written request, or at the Liaison Officer's sole discretion, the Liaison Officer shall provide documents and administrative assistance to the Contractor.

e. The Contractor or any participating subcontractor shall submit documents and questions concerning this Program to

DBE Liaison Officer
City of Houston
611 Walker, 7th Floor
Houston, Texas 77002
(713) 837-9015

3. DEFINITIONS.

Any term defined in 49 CFR Part 26 shall have the same definition and use in this Document 00806-T. The definitions of some key terms from 49 CFR § 26.5 are

included in this Document 00806-T merely for convenience. Any term used in this Document 00806-T that is not defined in 49 CFR Part 26 shall have the same meaning as defined elsewhere in this Contract or the meaning provided below:

a. "Broker" is an intermediary or middleman that does not take possession of a commodity or act as a regular dealer selling to the public.

b. "Disadvantaged Business Enterprise" or "DBE" means a for-profit small business concern

(1) That is at least 51 percent owned by one or more individuals who are both socially and economically disadvantaged or, in the case of a corporation, in which 51 percent of the stock is owned by one or more such individuals; and
(2) Whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it.

c. "DBE Joint Venture" means an association of a DBE firm and 1 or more other firm(s) to carry out a single business enterprise for profit for which purpose they combine their property, capital, efforts, skills and knowledge, and in which the DBE is responsible for a distinct, clearly defined portion of the work of the Contract and whose share in the capital contribution, control, management, risks, and profits of the joint venture are commensurate with its ownership interest.

d. "Federal Aid Contract" is any contract between the City and a Contractor which is paid for in whole or in part with USDOT financial assistance.

e. "Good Faith Effort" means efforts to achieve a DBE goal or other requirement of the DBE program which, by their scope, intensity, and appropriateness to the objective, can reasonably be expected to fulfill the program requirement, as set out in Section 4 below.

f. "Liaison Officer" means the Director of the Mayor's Office of Business Opportunity ("OBO") or an authorized representative.

g. "Manufacturer" is a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the contract and of the general character described by the specifications.

h. "Regular Dealer" is a firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business. To be a Regular Dealer, the firm must be an established, regular business that engages in, as its principal business and under its own name, the purchase and sale or lease of the products in question. A Regular Dealer in

such bulk items as steel, cement, gravel, stone, and petroleum products need not keep such products in stock if it owns and operates distribution equipment for the products. Any supplementing of a Regular Dealer's own distribution equipment shall be by a long-term lease agreement and not on an ad hoc or contract-by-contract basis. Brokers, packagers, manufacturers' representatives, or other persons who arrange or expedite transactions shall not be regarded as a Regular Dealer.

i. "Texas Unified Certification Program" or "TUCP" provides applicants with a consolidated process for DBE certification, such that applicants are required to apply only once for a DBE certification that will be honored by all recipients of federal funds in the state. The TUCP, by Memorandum of Agreement, established six member entities to serve as certifying agents for Texas in specified regions.

j. "TxDOT" means the Texas Department of Transportation.

k. "USDOT" means the U.S. Department of Transportation, including the Office of the Secretary, the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), and the Federal Aviation Administration (FAA).

4. CONTRACTOR'S RESPONSIBILITIES.

In this Contract, the Contractor must satisfy the following requirements:

a. After conditional award of the Contract, the Contractor shall submit a completed Form SMS.4901 "DBE Commitment Agreement", Form.SMS 4901-T "DBE Trucking Commitment Agreement", or Form SMS.4901-M/S "DBE Material & Supplier Commitment Agreement" for each DBE the Contractor intends to use to satisfy the DBE goal or a Good Faith Effort to explain why the goal could not be reached. The Contractor shall send the completed forms to the Liason Officer. The Contractor shall insure that these documents arrive at the City of Houston, Texas not later than 5:00 p.m. on the 10th business day (excluding national holidays) after the conditional award of the contract. When requested, additional time, not to exceed seven business days (excluding national holidays) may be granted based on documentation submitted by the Contractor.

b. If the Contractor is a DBE prime contractor, it may receive credit toward the DBE goal for work performed by the Contractor's own forces and work subcontracted to DBEs. A DBE prime contractor must make a Good Faith Effort to meet the goals. In the event a DBE prime contractor subcontracts to a non-DBE, that information must be reported on Form SMS.4902.

c. If the Contractor cannot meet the Contract goal, in whole or in part, the Contractor shall make adequate Good Faith Efforts to obtain DBE participation as described in 49 CFR Part 26, Appendix A. The following list is not mandatory but provides non-exhaustive examples of the types of action

that Contractor may take and document to show Good Faith Efforts. Other factors or types of efforts may be relevant in appropriate cases.

(1) Soliciting through all reasonable and available means (e.g. attendance at prebid meetings, advertising, and/or written notices) the interest of all certified DBEs who have the capability to perform the work of the contract. The solicitation must be done within sufficient time to allow the DBEs to respond to it. Appropriate steps must be taken to follow up initial solicitations to determine, with certainty, if the DBEs are interested.

(2) Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the Contractor might otherwise prefer to perform the work items with its own forces.

(3) Providing interested DBEs with adequate information about the plans, specifications, and requirements of the Contract in a timely manner to assist them in responding to a solicitation.

(4) Facilitating DBE participation by negotiating in good faith with interested DBEs to make a portion of the work available to DBE subcontractors and suppliers. The Contractor may select those portions of the work or material needs that are consistent with the available DBE subcontractors and suppliers. Evidence of such negotiations includes the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBEs to perform the work.

(5) Considering a number of factors in negotiating with subcontractors, including DBE subcontractors, and taking a firm price, capabilities, and contract goals into consideration. Additional cost involved in finding and using DBEs is not in itself sufficient reason for a Contractor to fail to meet the Contract DBE goal as long as such cost are reasonable. Also, the ability or desire of the Contractor to perform the work of the Contract with its own organization does not relieve the Bidder of the responsibility to make Good Faith Efforts. A Contractor is not required to accept higher quotes from DBEs if the price difference is excessive or unreasonable.

(6) Rejecting DBEs only after a thorough investigation of their capabilities and for sound reasons. The Contractor's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of

bids and the Contractor's efforts to meet the project goal.

(7) Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or Contractor.

(8) Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.

(9) Effectively using the services of available minority/women community organizations; minority/women Contractors' groups; local, state, and Federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBEs.

d. If the Liaison Officer's representative determines that the Contractor has failed to meet the Good Faith Effort requirements, the Contractor shall be given an opportunity for reconsideration by the Liaison Officer.

e. If the Contractor refuses, neglects, or fails to meet the DBE goal or comply with Good Faith Effort requirements, any proposal guaranty or similar security filed with the bid shall become the property of the City, not as a penalty, but as liquidated damages to the City.

f. The preceding information shall be submitted directly to the Liaison Officer, 611 Walker, 7th Floor, Houston, Texas 77002.

g. The Contractor shall not terminate for convenience a DBE subcontractor named in any DBE Commitment Agreement submitted by the Contractor without the prior, written consent of the Liaison Officer.

h. The Contractor shall also make a Good Faith Effort to replace a DBE subcontractor that is unable to perform successfully with another DBE, to the extent needed to meet the contract goal. The Contractor shall submit a completed Form SMS.4901 "DBE Commitment Agreement", Form SMS.4901-T "DBE Trucking Commitment Agreement", or Form SMS.4901-M/S "DBE Material & Supplier Commitment Agreement" for the substitute DBE firm(s). Any substitution of DBEs shall be subject to approval by the Liaison Officer. Prior to approving the substitution, the Liaison Officer's representative will request a statement from the DBE concerning it being replaced. The Contractor shall review the deviation language issued in 2011 for changes to the listed DBE.

i. The Contractor shall designate a DBE liaison representative who will administer the Contractor's DBE program and who will be responsible for maintenance of records of efforts and contacts made to subcontract with DBEs.

j. The Contractor is encouraged to investigate the services offered by banks owned and controlled by disadvantaged individuals and to make use of these banks where feasible.

5. ELIGIBILITY OF DBEs.

a. TxDOT maintains the Texas Unified Certification Program (TUCP) DBE Directory containing the names of firms that have been certified to be eligible to participate as DBE's on DOT financially assisted contracts. This Directory is available from the Liaison Officer or his or her representative. An update of the Directory can be currently found on the Internet at http://www.dot.state.tx.us/business/tucp/default.htm.

b. The member entities of the TUCP, including the City, certify the eligibility of DBEs and DBE joint ventures to perform DBE subcontract work on USDOT financially assisted contracts.

c. The Contractor shall only submit the names of DBE firms that are certified and eligible to perform the work at the time the Contractor submits commitments.

d. For purposes of the DBE participation goal on this project, DBEs will only be allowed to perform work in the categories of work for which they are certified.

e. Only DBE firms certified at the time of execution of a contract/subcontract/purchase order are eligible for DBE goal participation.

6. DETERMINATION OF DBE PARTICIPATION.

When a DBE subcontractor participates in this Contract, only the values of the work actually performed by the DBE subcontractor, as referenced below, shall be counted by the Contractor toward DBE goals:

a. The total amount paid to the DBE subcontractor for work performed with the DBE subcontractor's own forces is counted toward the DBE goal. When a DBE subcontractor subcontracts part of the work of its contract to another firm, the value of the subcontracted work may be counted toward DBE goals only if the subcontractor is itself a DBE. Work that a DBE subcontractor subcontracts to a non-DBE firm does not count toward DBE goals.

b. A Contractor may count toward its DBE goal a portion of the total value of the contract amount paid to a DBE Joint Venture equal to the distinct, clearly defined portion of the work of the contract performed by the DBE subcontractor.

(1) A Contractor may count toward its DBE goal only expenditures to DBE subcontractors that perform a commercially useful function (CUF) in the work of a contract or purchase order. A DBE subcontractor is considered to perform a CUF when it is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing,

managing, and supervising the work involved. To perform a CUF, the DBE subcontractor must also be responsible, with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself.

In accordance with 49 CFR Part 26, Appendix A, "Guidance Concerning Good Faith Efforts", contractors may make efforts to assist interested DBE subcontractors in obtaining necessary equipment, supplies, materials, or related assistance or services. Contractors may not however, negotiate the price of materials or supplies used on the contract by the DBE subcontractor, nor may they determine quality and quantity, order the materials themselves, nor install the materials (where applicable), or pay for the material themselves. Contractors, however, may share the quotations they receive from the material supplier with the DBE firm, so that the DBE firm may negotiate a reasonable price with the material supplier.

In all cases, prime or other non-DBE subcontractor assistance will not be credited toward the DBE goal.

(2) A DBE subcontractor does not perform a CUF if its role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of DBE subcontractor participation.

Consistent with industry practices, 49 CFR Part 26, and the TxDOT DBE program, a DBE subcontractor may enter into second-tier subcontracts, amounting up to 70% of their contract. Work subcontracted to a non-DBE does not count towards DBE goals. If a DBE subcontractor does not perform or exercise responsibility for at least 30% of the total cost of its contract with its own work force, or the DBE subcontractor subcontracts a greater portion of the work of a contract than would be expected on the basis of normal industry practice for the type of work involved, it will be presumed that the DBE subcontractor is not performing a CUF.

(3) A DBE trucking firm (including an owner operator who is certified as a DBE) is considered to be performing a CUF when the DBE subcontractor is responsible for the management and supervision of the entire trucking operation on a particular contract and the DBE subcontractor owns and operates at least 1 fully licensed, insured, and operational truck used on the contract.

a. The Contractor receives credit for the total value of the transportation services the DBE provides on a contract using trucks it owns, insures, and operates using drivers it employs.

b. The DBE subcontractor may lease trucks from another DBE subcontractor firm, including an owner operator who is certified as a DBE subcontractor. The DBE subcontractor who leases trucks from another DBE subcontractor receives credit for the total value of the transportation services the lessee DBE provides on the Contract.

c. The DBE subcontractor may also lease trucks from a non-DBE firm, including from an owner-operator. The DBE subcontractor who leases trucks from a non-DBE is entitled to credit for the total value of transportation services provided by non-DBE lessees not to exceed the value of transportation services provided by the DBE-owned trucks on the contract. Additional participation by non-DBE lessees receive credit only for the fee or commission it receives as result of the lease arrangement.

d. A lease must indicate that the DBE subcontractor has exclusive use of and control over the trucks giving the DBE absolute priority for use of the leased trucks. Leased trucks must display the name and identification number of the DBE subcontractor.

e. When a DBE subcontractor is presumed not to be performing a CUF, the DBE subcontractor may present evidence to rebut this presumption.

c. Project materials or supplies acquired from an affiliate of the prime contractor can not directly or indirectly (2nd or lower tier subcontractor) be used for DBE goal credit.

d. Depending on the classification of the DBE subcontractor, the Contractor may count purchases of materials and supplies from DBE subcontractor towards its DBE participation goal in the percentages described below:

(1) materials or supplies purchased from a DBE Manufacturer at 100% of the Contractor's cost of the materials or supplies ("Manufacturer" is defined in Section 3 of this Document 00806-T).

(2) materials or supplies purchased from a DBE Regular Dealer at 60% of the Contractor's cost of the materials or supplies ("Regular Dealer" is defined in Section 3 of this Document 00806-T).

(3) materials or supplies purchased from a DBE firm which is neither a Manufacturer nor a Regular Dealer, at 100% of Contractor's cost paid for fees or commissions charged by the DBE firm for assistance in the procurement of the materials and supplies, provided the fees are reasonable within the applicable market area and not excessive as compared with fees customarily allowed for similar services within the market area. No portion of the cost of the materials and supplies count

toward the DBE participation goal.

(4) services, such as professional, technical, consultant or managerial services, or for providing bonds or insurance specifically required for the performance of a DOT-assisted contract, at 100% toward DBE goals, provided the fees are reasonable within the applicable market area and not excessive as compared with fees customarily allowed for similar services within the market area.

e. If the Contractor chooses to assist a DBE firm, other than a manufacturing material supplier or regular dealer, and the DBE firm accepts the assistance, the Contractor may act solely as a guarantor by use of a two-party check for payment of materials to be used on the project by the DBE firm. The material supplier must invoice the DBE firm, who will then present the invoice to the Contractor. The Contractor may issue a joint check to the DBE firm and the material supplier, and the DBE firm must issue the remittance to the material supplier. No funds shall go directly from the Contractor to the material supplier. The DBE firm may accept or reject this joint checking arrangement. The Contractor shall:

(1) obtain approval from the Liaison Officer prior to implementing the use of joint check arrangements with the DBE firm;

(2) submit Joint Check Approval Form 2178 to the Liaison Officer requesting approval; and

(3) provide copies of cancelled joint checks upon request. No DBE goal credit will be allowed for the cost of DBE materials that are paid by the Contractor directly to the material supplier.

f. The Contractor shall receive no DBE participation goal credit for supplies and equipment the DBE subcontractor leases from the Contractor or its affiliates.

g. The Contractor shall receive no DBE participation goal credit for the time the Liaison Officer determines that the DBE firm was not performing a CUF. The denial period of time may occur before or after a determination has been made by the Liaison Officer. In case of the denial of credit for non-performance of a CUF of a DBE, the Contractor shall provide a substitute DBE firm to meet the contract goal or provide an adequate Good Faith Effort when applicable.

7. RECORDS AND REPORTS.

a. While the Contractor is performing work and until all Project work is completed, the Contractor shall submit a "DBE Progress Report", Form SMS.4903, for each month to the Liaison Officer no later than the 15 days after the end of the calendar month. The Contractor shall include on the

DBE Progress Report, Form SMS.4903, all payments the Contractor made to meet the DBE goal within the applicable month, identifying separately payments for DBE or SBE race-neutral participation and non-DBE SBEs participation. The Contractor shall submit a "DBE Final Report," SMS.4904, in the month after all DBE subcontracting work is completed and after the Contractor makes final payment to all DBE firms.

The Contractor shall submit the original final report to the Liaison Officer and a copy to the Project Manager. The Liaison Officer may require the Contractor to provide additional information to ensure final payment of DBE firms. The Contractor shall verify amounts as being paid to DBE firms by providing copies of cancelled checks paid to DBE firms, which the Liaison Officer may select on a random basis. Cancelled checks and invoices should reference the City project number.

b. The Contractor shall identify each DBE firm on the monthly report by Vendor Number, name, and the amount of actual payment made to each during the monthly period. The Contractor shall submit reports stating no activity occurred when the Contractor has not utilized any DBE firms in a monthly period.

c. Prior to receiving final payment, the Contractor shall submit Form SMS.4904, "DBE Final Report". If the DBE goal requirement is not met, the Contractor shall also submit a TxDOT Form 2182 with the Form SMS.4904, "DBE Final Report."

d. While the Contractor is performing work and until all Project work is completed, the Contractor shall submit TxDOT Form 2177, "Prompt Payment Certification (Federal-Aid Projects)" for each month to the Liaison Officer before the last day of the following calendar month.

e. If the Contractor uses a DBE trucker, the Contractor shall submit Form 2371, "DBE Trucking Credit Worksheet," for each month to the Liaison Officer before the last day of the following calendar month.

f. The Contractor shall retain copies of such records for a period of three years following completion of the Contract work and make such records available at reasonable times and places for inspection by authorized representatives of the City. The Contractor shall also provide copies of subcontracts or agreements and other documentation upon request from authorized representatives of the City.

g. If TxDOT changes any of the forms referenced in this Document 00806-T or DBE requirements, the Contractor shall use the newest available, applicable form provided by TxDOT for the purpose described in this Document 00806-

T. The Liaison Officer or Project Manager may provide the Contractor with instructions when material changes to the DBE Program occur.

8. COMPLIANCE OF CONTRACTOR.

To ensure that the Contractor complies with USDOT DBE requirements, the Liaison Officer and Project Manager shall monitor the Contractor's efforts involving DBE firms during the performance of this Contract. This will be accomplished by a review of monthly reports submitted to the Project Manager by the Contractor indicating the Contractor's progress in achieving the DBE contract goal, and by compliance reviews conducted on the project site by the Project Manager.

a. The Contractor shall receive credit toward the DBE goal based on actual payments to the DBE subcontractor. The Contractor shall notify the Project Manager if the Contractor withholds or reduces payment to any DBE subcontractor. The Contractor shall submit an affidavit detailing the DBE subcontract payments prior to receiving final payment for the Contract.

b. If the Contractor terminates a DBE subcontractor or reduces the work to be provided by a DBE firm as provided in Contractor's Form SMS.4901, "Commitment Agreement", the Contractor shall make Good Faith Efforts to find another DBE subcontractor to substitute for the original DBE subcontractor. These Good Faith Efforts shall be directed at finding another DBE firm to perform at least the same amount of work under the contract as the DBE subcontractor that was terminated, to the extent needed to meet the contract goal.

c. The Contractor shall submit Form 2228, "DBE Substitution Request", to the Project Manager and a copy to the Liaison Officer prior to substituting a DBE firm on the Project. The Contractor shall receive no DBE participation goal credit for work on those items being substituted unless the Contractor receives prior approval of the substitution from the Project Manager.

d. The Contractor shall receive no DBE participation goal credit for work when the Contractor or the Contractor's affiliate provides the DBE firm with a work crew, equipment, or supplies.

e. A Contractor's failure to comply with the requirements of this Document 00806-T shall constitute a material breach of this Contract. In such a case, the City reserves the right to terminate the contract; to deduct the amount of DBE goal not accomplished by DBE firms from the money due or to become due the Contractor, or to secure a refund, not as a penalty but as liquidated damages to the Department or such other remedy or remedies as the Department deems appropriate.

9. RACE-NEUTRAL DBE PARTICIPATION.

If there is no DBE goal, the DBE requirements of 49 CFR Part 26 apply to this Contract as follows:

a. The Contractor shall offer DBE firms, as described in 49 CFR Part 26, Subpart A, the opportunity to compete fairly for contracts and subcontractors financed in whole or in part with Federal funds. Each month until the Contractor receives final payment from the City, the Contractor shall report Race-Neutral DBE and SBE participation on projects with no DBE goal to the Liaison Officer on Form SMS.4903, "DBE Monthly Progress Report". Payments to DBE firms reported on Form SMS.4903 are subject to the requirements of this Document 00806-T, Section 6, "Determination of DBE Participation."

b. The Contractor shall receive credit toward the DBE goal based on actual payments to the DBE firms. The Contractor shall notify the Project Manager and Liaison Officer if the Contractor withholds or reduces payment to a DBE firm.

c. The Contractor's request for substitutions of DBE firms shall be accompanied by a detailed explanation which should substantiate the need for a substitution. The Department may verify the explanation with the DBE firm being replaced before giving approval of the substitution.

d. A Contractor's failure to meet the DBE goal and failure to demonstrate to the Department's satisfaction sufficient "Good Faith Effort" on the Contractor's part to obtain DBE firm participation shall constitute a breach of contract. In such a case, the City reserves the right to terminate the Contract; to deduct the amount of DBE goal not accomplished by DBEs from the money due or to become due the Contractor, not as a penalty but as damages to the City's DBE program; or such other remedy or remedies as the City deems appropriate.

END OF DOCUMENT

City of Houston

David Beacon Document

DOCUMENT 00810

WAGE SCALE FOR HIGHWAY CONSTRUCTION

1.01 Following 29 CFR 5.5 (a) (1) (v), use the rates listed on the Wage Determination Attachment for minimum wage and benefits for the labor classifications applicable to the Work.

1.02 These rates do not prohibit payment of more than the rates stated.

1.03 Apply rates in this Document 00810 to site work greater than five (5) feet from exterior wall of new building under construction or from exterior wall of existing building.

1.04 The Contractor shall submit the "Certificate from Contractor Appointing Officer or Employee to Supervise Payment of Employees" (Exhibit "A") to the Monitoring Authority listed in Document 00495 prior to final execution of the contract.

1.05 During the course of the work, Subcontractors shall submit the "Certificate from Subcontractor Appointing Officer or Employee to Supervise Payment of Employees" (Exhibit "B") to the Monitoring Authority listed in Document 00495.

1.06 Contractor and all subcontractors will submit payrolls electronically to the Department through the online reporting system unless told otherwise by the Office of Business Opportunity.

EXHIBIT "A"

CERTIFICATE FROM CONTRACTOR APPOINTING OFFICER OR EMPLOYEE TO SUPERVISE PAYMENT OF EMPLOYEES

Project Name _____

_____

_____

Project WBS#: _____ Date _____

(I) (We) hereby certify that (I am) (we are) the Prime Contractor for _____

_____
(specify type of job)

in connection with construction of the above-mentioned Project, and that (I) (we) have appointed _____, whose signature appears below, to supervise the payment of (my) (our) employees beginning _____, 20___; that he/she is in a position to have full knowledge of the facts set forth in the payroll documents and in the statement of compliance required by the Copeland Act and the City of Houston, which he/she is to execute with (my) (our) full authority and approval until such time as (I) (we) submit to the City of Houston a new certificate appointing some other person for the purposes hereinabove stated.

_____ Phone:_____
(Identifying Signature of Appointee)

Witness/Attest:

_____
(Name of Firm or Corporation)

By: _____ By: _____
(Signature) (Signature)

_____ _____
(Title) (Title)

NOTE: This certificate must be executed by an authorized officer of a corporation or by a member of a partnership, and shall be executed prior to and be submitted with the first payroll. Should the appointee be changed, a new certificate must accompany the first payroll for which the new appointee executes a statement of compliance required by the Copeland Act and the City of Houston.

EXHIBIT "B"

CERTIFICATE FROM SUBCONTRACTOR APPOINTING OFFICER OR EMPLOYEE TO SUPERVISE PAYMENT OF EMPLOYEES

Project Name _____

_____

_____

Project WBS#: _____ Date _____

(I) (We) hereby certify that (I am) (we are) the Subcontractor for _____

_____
(specify type of job)

in connection with construction of the above-mentioned Project, and that (I) (we) have appointed _____, whose signature appears below, to supervise the payment of (my) (our) employees beginning _____, 20___; that he/she is in a position to have full knowledge of the facts set forth in the payroll documents and in the statement of compliance required by the Copeland Act and the City of Houston, which he/she is to execute with (my) (our) full authority and approval until such time as (I) (we) submit to the City of Houston a new certificate appointing some other person for the purposes hereinabove stated.

_____ Phone: _____
(Identifying Signature of Appointee)

Witness/Attest: _____
(Name of Firm or Corporation)

By: _____ By: _____
(Signature) (Signature)

_____ _____
(Title) (Title)

NOTE: This certificate must be executed by an authorized officer of a corporation or by a member of a partnership, and shall be executed prior to and be submitted with the first payroll. Should the appointee be changed, a new certificate must accompany the first payroll for which the new appointee executes a statement of compliance required by the Copeland Act and the City of Houston.

Wage Determination Publication Date:
January 2, 2015
for
General Decision Number **TX150056 01/02/2015 TX56**
Superseded General Decision Number TX20140056

State: TEXAS
Construction Type: HIGHWAY
County (ies): Harris

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges)

Modification Number:	Publication Date:
0	01/02/2015

WAGE DETERMINATION ATTACHMENT:

END OF DOCUMENT

General Decision Number: TX150056 01/02/2015 TX56

Superseded General Decision Number: TX20140056

State: Texas

Construction Type: Highway

Counties: Austin, Brazoria, Chambers, Fort Bend, Galveston, Hardin, Harris, Jefferson, Liberty, Montgomery, Orange, San Jacinto and Waller Counties in Texas.

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Note: Executive Order (EO) 13658 establishes an hourly minimum wage of $10.10 for 2015 that applies to all contracts subject to the Davis-Bacon Act for which the solicitation is issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.10 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/02/2015

* SUTX2011-013 08/10/2011

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER (Paving and Structures)	$ 12.98	
ELECTRICIAN	$ 27.11	
FORM BUILDER/FORM SETTER		
Paving & Curb	$ 12.34	
Structures	$ 12.23	
LABORER		
Asphalt Raker	$ 12.36	
Flagger	$ 10.33	
Laborer, Common	$ 11.02	
Laborer, Utility	$ 11.73	
Pipelayer	$ 12.12	
Work Zone Barricade Servicer	$ 11.67	
PAINTER (Structures)	$ 18.62	

POWER EQUIPMENT OPERATOR:
Asphalt Distributor.....$ 14.06
Asphalt Paving Machine.....$ 14.32
Broom or Sweeper.....$ 12.68
Concrete Pavement
Finishing Machine.....$ 13.07
Concrete Paving, Curing,
Float, Texturing Machine....$ 11.71
Concrete Saw.....$ 13.99
Crane, Hydraulic 80 Tons
or less.....$ 13.86
Crane, Lattice boom 80
tons or less.....$ 14.97
Crane, Lattice boom over
80 Tons.....$ 15.80
Crawler Tractor.....$ 13.68
Excavator, 50,000 pounds
or less.....$ 12.71
Excavator, Over 50,000
pounds.....$ 14.53
Foundation Drill, Crawler
Mounted.....$ 17.43
Foundation Drill, Truck
Mounted.....$ 15.89
Front End Loader 3 CY or
Less.....$ 13.32
Front End Loader, Over 3 CY.$ 13.17
Loader/Backhoe.....$ 14.29
Mechanic.....$ 16.96
Milling Machine.....$ 13.53
Motor Grader, Fine Grade....$ 15.69
Motor Grader, Rough.....$ 14.23
Off Road Hauler.....$ 14.60
Pavement Marking Machine....$ 11.18
Piledriver.....$ 14.95
Roller, Asphalt.....$ 11.95
Roller, Other.....$ 11.57
Scraper.....$ 13.47
Spreader Box.....$ 13.58

Servicer.....$ 13.97

Steel Worker
Reinforcing Steel.....$ 15.15
Structural Steel Welder.....$ 12.85
Structural Steel.....$ 14.39

TRUCK DRIVER
Low Boy Float.....$ 16.03
Single Axle.....$ 11.46
Single or Tandem Axle Dump..$ 11.48
Tandem Axle Tractor w/Semi
Trailer.....$ 12.27

WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.

==========

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate

that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

DOCUMENT 00812

WAGE SCALE FOR HEAVY CONSTRUCTION

1.01 Following 29 CFR 5.5 (a) (1) (v), use the rates listed on the Wage Determination Attachment for minimum wage and benefits for the labor classifications applicable to the Work.

1.02 These rates do not prohibit payment of more than the rates stated.

1.03 Apply rates in this Document 00812 to site work greater than five (5) feet from exterior wall of new building under construction or from exterior wall of existing building.

1.04 The Contractor shall submit the "Certificate from Contractor Appointing Officer or Employee to Supervise Payment of Employees" (Exhibit "A") to the Monitoring Authority listed in Document 00495 prior to final execution of the contract.

1.05 During the course of the work, Subcontractors shall submit the "Certificate from Subcontractor Appointing Officer or Employee to Supervise Payment of Employees" (Exhibit "B") to the Monitoring Authority listed in Document 00495.

1.06 Contractor and all subcontractors will submit payrolls electronically to the Department through the online reporting system unless told otherwise by the Office of Business Opportunity.

EXHIBIT "A"

CERTIFICATE FROM CONTRACTOR APPOINTING OFFICER OR EMPLOYEE TO SUPERVISE PAYMENT OF EMPLOYEES

Project Name _____

_____

_____

Project WBS#: _____ Date _____

(I) (We) hereby certify that (I am) (we are) the Prime Contractor for _____

_____
(specify type of job)

in connection with construction of the above-mentioned Project, and that (I) (we) have appointed _____, whose signature appears below, to supervise the payment of (my) (our) employees beginning _____, 20___; that he/she is in a position to have full knowledge of the facts set forth in the payroll documents and in the statement of compliance required by the Copeland Act and the City of Houston, which he/she is to execute with (my) (our) full authority and approval until such time as (I) (we) submit to the City of Houston a new certificate appointing some other person for the purposes hereinabove stated.

_____ Phone:_____
(Identifying Signature of Appointee)

Witness/Attest:

_____
(Name of Firm or Corporation)

By: _____ By: _____
(Signature) (Signature)

_____ _____
(Title) (Title)

NOTE: This certificate must be executed by an authorized officer of a corporation or by a member of a partnership, and shall be executed prior to and be submitted with the first payroll. Should the appointee be changed, a new certificate must accompany the first payroll for which the new appointee executes a statement of compliance required by the Copeland Act and the City of Houston.

EXHIBIT "B"

CERTIFICATE FROM SUBCONTRACTOR APPOINTING OFFICER OR EMPLOYEE TO SUPERVISE PAYMENT OF EMPLOYEES

Project Name _____

_____

_____

Project WBS#: _____ Date _____

(I) (We) hereby certify that (I am) (we are) the Subcontractor for _____

_____
(specify type of job)

in connection with construction of the above-mentioned Project, and that (I) (we) have appointed _____, whose signature appears below, to supervise the payment of (my) (our) employees beginning _____, 20___; that he/she is in a position to have full knowledge of the facts set forth in the payroll documents and in the statement of compliance required by the Copeland Act and the City of Houston, which he/she is to execute with (my) (our) full authority and approval until such time as (I) (we) submit to the City of Houston a new certificate appointing some other person for the purposes hereinabove stated.

_____ Phone: _____
(Identifying Signature of Appointee)

Witness/Attest: _____
(Name of Firm or Corporation)

By: _____ By: _____
(Signature) (Signature)

_____ _____
(Title) (Title)

NOTE: This certificate must be executed by an authorized officer of a corporation or by a member of a partnership, and shall be executed prior to and be submitted with the first payroll. Should the appointee be changed, a new certificate must accompany the first payroll for which the new appointee executes a statement of compliance required by the Copeland Act and the City of Houston.

Wage Determination Publication Date:
January 2, 2015
for
General Decision Number **TX150042 01/02/2015 TX42**
Superseded General Decision Number TX20140042

State: TEXAS
Construction Type: HEAVY
County (ies): Harris

HEAVY CONSTRUCTION PROJECTS including work on water and sewer lines. (Does not include flood control.)

Modification Number:	Publication Date:
0	01/02/2015

WAGE DETERMINATION ATTACHMENT:

END OF DOCUMENT

General Decision Number: TX150042 01/02/2015 TX42

Superseded General Decision Number: TX20140042

State: Texas

Construction Type: Heavy

County: Harris County in Texas.

HEAVY CONSTRUCTION PROJECTS Including Water and Sewer Lines
(Does Not Include Flood Control).

Note: Executive Order (EO) 13658 establishes an hourly minimum wage of $10.10 for 2015 that applies to all contracts subject to the Davis-Bacon Act for which the solicitation is issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.10 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/02/2015

* SFTX0669-001 07/01/2013

	Rates	Fringes
SPRINKLER FITTER (Fire Sprinklers)	$ 26.36	16.62

SUTX2005-019 08/16/2005

	Rates	Fringes
CARPENTER	$ 14.04	0.00
CEMENT MASON/CONCRETE FINISHER	$ 12.50	1.17
ELECTRICIAN	$ 17.00	0.04
Formbuilder/Formsetter	$ 13.84	1.17
IRONWORKER, REINFORCING	$ 11.28	0.00
Laborers:		
Common	$ 8.94	0.00
Landscape	$ 7.35	0.00
Mason Tender Cement	$ 9.94	0.00
Pipelayer	$ 10.14	0.00
PIPEFITTER	$ 17.00	0.04
POWER EQUIPMENT OPERATOR:		
Backhoe	$ 13.47	0.00

Bulldozer	$ 12.58	0.00
Crane	$ 15.33	0.57
Excavator	$ 16.37	0.00
Front End Loader	$ 12.16	0.00
Grader	$ 12.20	1.48
Tractor	$ 15.00	0.00
TRUCK DRIVER	$ 12.02	1.02

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all

rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.

Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

Document 00830

TRENCH SAFETY GEOTECHNICAL INFORMATION

1.0 DOCUMENT INCLUDES

A. Trench Safety Geotechnical Information: Geotechnical information obtained for use in design of the trench safety system is included as an attachment to this document.

2.0 RELATED DOCUMENTS

A. Section 02260 - Trench Safety Systems.

END OF DOCUMENT

TXDOT – BUY AMERICA

DOCUMENT 00851

BUY AMERICA REQUIREMENTS

1.0 Contractors shall comply with the latest provisions of Buy America as listed at 23 CFR 635.410 and use steel or iron materials manufactured* in the United States except when:

- the cost of materials, including delivery, does not exceed 0.1% of the total Contract cost or $2,500, whichever is greater;
- the Contract contains an alternate Item for a foreign source steel or iron product and the Contract is awarded based on the alternate Item; or
- the materials are temporarily installed.

2.0 Contractor shall provide a notarized original of the FORM D-9-USA-1 with the proper attachments for verification of compliance. A current version of FORM D-9-USA-1 can be found here:

http://www.txdot.gov/txdoteforms/GetForm?formName=/1818.xdp&appID=/CST&status=/reportError.jsp&configFile=WFServletConfig.xml

* *Manufacturing is any process that modifies the chemical content, physical shape or size, or final finish of a product. Manufacturing begins with initial melting and mixing and continues through fabrication (cutting, drilling, welding, bending, etc.) and coating (paint, galvanizing, epoxy, etc.).*

DOCUMENT 00851

BUY AMERICA REQUIREMENTS

23 Code of Federal Regulations (CFR) Chapter I
§ 635.410 Buy America Requirements

(a) The provisions of this section shall prevail and be given precedence over any requirements of this subpart which are contrary to this section. However, nothing in this section shall be construed to be contrary to the requirements of §635.409(a) of this subpart.

(b) No Federal-aid highway construction project is to be authorized for advertisement or otherwise authorized to proceed unless at least one of the following requirements is met:

(1) The project either: (i) Includes no permanently incorporated steel or iron materials, or (ii) if steel or iron materials are to be used, all manufacturing processes, including application of a coating, for these materials must occur in the United States. Coating includes all processes which protect or enhance the value of the material to which the coating is applied.

(2) The State has standard contract provisions that require the use of domestic materials and products, including steel and iron materials, to the same or greater extent as the provisions set forth in this section.

(3) The State elects to include alternate bid provisions for foreign and domestic steel and iron materials which comply with the following requirements. Any procedure for obtaining alternate bids based on furnishing foreign steel and iron materials which is acceptable to the Division Administrator may be used. The contract provisions must (i) require all bidders to submit a bid based on furnishing domestic steel and iron materials, and (ii) clearly state that the contract will be awarded to the bidder who submits the lowest total bid based on furnishing domestic steel and iron materials unless such total bid exceeds the lowest total bid based on furnishing foreign steel and iron materials by more than 25 percent.

(4) When steel and iron materials are used in a project, the requirements of this section do not prevent a minimal use of foreign steel and iron materials, if the cost of such materials used does not exceed one-tenth of one percent (0.1 percent) of the total contract cost or $2,500, whichever is greater. For purposes of this paragraph, the cost is that shown to be the value of the steel and iron products as they are delivered to the project.

(c)(1) A State may request a waiver of the provisions of this section if;

(i) The application of those provisions would be inconsistent with the public interest; or

(ii) Steel and iron materials/products are not produced in the United States in sufficient and reasonably available quantities which are of a satisfactory quality.

(2) A request for waiver, accompanied by supporting information, must be submitted in writing to the Regional Federal Highway Administrator (RFHWA) through the FHWA Division Administrator. A request must be submitted sufficiently in advance of the need for the waiver in order to allow time for proper review and action on the request. The RFHWA will have approval authority on the request.

(3) Requests for waivers may be made for specific projects, or for certain materials or products in specific geographic areas, or for combinations of both, depending on the circumstances.

(4) The denial of the request by the RFHWA may be appealed by the State to the Federal Highway Administrator (Administrator), whose action on the request shall be considered administratively final.

(5) A request for a waiver which involves nationwide public interest or availability issues or more than one FHWA region may be submitted by the RFHWA to the Administrator for action.

(6) A request for waiver and an appeal from a denial of a request must include facts and justification to support the granting of the waiver. The FHWA response to a request or appeal will be in writing and made available to the public upon request. Any request for a nationwide waiver and FHWA's action on such a request may be published in the FEDERAL REGISTER for public comment.

(7) In determining whether the waivers described in paragraph (c)(1) of this section will be granted, the FHWA will consider all appropriate factors including, but not limited to, cost, administrative burden, and delay that would be imposed if the provision were not waived.

(d) Standard State and Federal-aid contract procedures may be used to assure compliance with the requirements of this section.

[48 FR 53104, Nov. 25, 1983, as amended at 49 FR 18821, May 3, 1984; 58 FR 38975, July 21, 1993]

November 25, 1983 Final Rule
Buy America Requirements

DEPARTMENT OF TRANSPORTATION
Federal Highway Administration
AGENCY: Federal Highway Administration [FHWA], DOT.
23 CFR Part 635
Buy America Requirements
48 FR 53099
November 25, 1983

ACTION: Final rule.

SUMMARY: The Federal Highway Administration (FHWA) is amending its Buy America regulation to implement procedures required by section 165 of the Surface Transportation Assistance Act (STAA) 1982 (Pub. L. 97-424). Section 165 provides with exceptions that funds authorized for Federal-aid highway projects may not be obligated unless the steel, cement, and manufactured products used in such projects are produced in the United States. The amendments are based on a review of comments received in response to an interim final rule (January 17, 1983) (48 FR 1946) and to amendments to that interim final rule (May 26, 1983) (48 FR 23631) which were issued to temporarily implement section 165. The final rule provides for application of the revised Buy America provisions to steel and cement regardless of project cost. The waiver exempting manufactured products other than steel and cement contained in the January 17, 1983, interim final rule is retained.

EFFECTIVE DATE: The final rule is effective December 27, 1983.

FOR FURTHER INFORMATION CONTACT: Mr. P. E. Cunningham, Construction and Maintenance Division, (202) 426-0392, or Ms. Ruth R. Johnson, Office of the Chief Counsel, (202) 426-0781, Federal Highway Administration, 1200 New Jersey Avenue SE, Washington, D.C. 20590. Office hours are from 7:45 a.m. to 4:15 p.m. ET, Monday through Friday.

TEXT: SUPPLEMENTARY INFORMATION:

Background

The FHWA is issuing a final rule revising the existing Buy America regulation to implement procedures required by section 165 of the STAA of 1982. Section 165 provides that, with exceptions, funds authorized by the STAA of 1982, title 23 of the United States Code, the Urban Mass Transportation Act of 1964, or the STAA of 1978 may not be obligated for highway projects unless steel, cement, and manufactured products used in such projects are produced in the United States. The legislative language also requires Buy America to apply to all projects as opposed to previous provisions which only applied to projects costing more than $500,000. The STAA of 1982 also permits States to impose more stringent requirements than are imposed by section 165 and revises the total contract cost differential permitting the use of foreign materials from 10 percent to 25 percent.

An interim final rule was issued under emergency procedures on January 17, 1983, with an expiration date of September 30, 1983. Comments were requested on or before July 1, 1983. In that interim rule, the FHWA determined that it was in the public interest and not inconsistent with the legislative intent to temporarily waive the provisions of section 165 as they applied to manufactured products other than cement and steel, as well as to projects estimated to cost less than $450,000. On May 26, 1983, an amendment to the interim final rule was published in consideration of comments which had been received to that date. The primary change was elimination of the $450,000 threshold, thereby making the Buy America provisions applicable to all federally funded highway projects regardless of size. The comment period on the interim final rule as amended was extended to August 1, 1983. On September 30, 1983, an emergency regulation was published which extended the expiration date of the interim final rule as amended, from September 30, 1983, until the date a final rule becomes effective.

Analysis of Comments to the Docket

On August 1, when Docket 83-2 closed, FHWA had received in excess of 560 comments. Members of Congress, foreign governments, manufacturers, suppliers, contractors, State and local agencies, and other parties were represented among the commenters. The FHWA fully considered the issues raised by these commenters as it developed this final regulation.

The principal issues brought out in the docket were that the threshold should be eliminated or lowered, that asphalt should be exempted in the final rule, and that Canadian clinker/cement imports should be permitted.

In general, domestic manufacturers and suppliers agreed with the interim rule; while importers, users, and transporters of imported products, foreign governments and foreign suppliers believe that the regulation reduces competition, restricts free trade, and is inflationary. The issues raised by the commenters were considered in light of the intent of Congress and how

implementation of a Buy America rule would affect the administering agencies, the construction industry, and the general public.

The commenters could be characterized as follows:

- Asphalt Paving Related Organizations -- 175 Commenters
- Steel Fabricators/Suppliers/Erectors -- 114 Commenters
- Ready-Mix Concrete Related Organizations/Cement Transporters -- 56 Commenters
- Domestic Steel Manufacturers/Associations -- 25 Commenters
- Private Citizens -- 18 Commenters
- Cast Iron Related Organizations -- 17 Commenters
- State and Local Highway Agencies/Governments -- 17 Commenters
- Oil Corporations/Refiners/Associations -- 15 Commenters
- Congressional Comments -- 45 Congressmen
- Domestic Cement Manufacturers -- 14 Commenters
- Prestressed Concrete Related Organizations -- 12 Commenters
- Others -- 82 Commenters

The following is a general discussion of the comments received in Docket 83-2:

I. Comments Regarding the $450,000 Threshold

Over 150 respondents commented on the FHWA decision, in the interim final rule published January 17, to temporarily waive the provisions of section 165 as they apply to projects estimated to cost less than $450,000. Most of the commenters on this issue objected to the $450,000 waiver with many noting that there was no legislative support for establishing any threshold of applicability. A number of respondents noted that limiting applicability of the Buy America provisions violates the letter and the spirit of the STAA of 1982.

Generally, respondents in favor of continuing the waiver included State and local highway agencies and groups representing foreign nations or foreign exporters. One of the State highway agencies commented that use of the $450,000 exclusion had been effective in holding down the cost of administering the Buy America regulations. Several commenters stated that the resource limitations of small local highway agencies would make the administration of the Buy America provisions difficult.

Respondents commenting on the waiver recommended a number of different threshold levels: 35 percent recommended total elimination; 20 percent favored a "drastically lower" threshold; 25 percent suggested placing the threshold at $50,000; 15 percent believe $100,000 is appropriate; and the remaining 5 percent suggested retaining the present $450,000 threshold level.

II. Comments Regarding Steel

Respondents who commented on steel related issues were generally concerned with prestressing strand.

A number of commenters, including State highway agencies and domestic manufacturers who produce strand from foreign high carbon steel rod, asked that prestressing strand be excluded from the list of steel products covered by Buy America provisions. Some of these commenters noted that the regulation should be concerned with the process of domestic manufacturing of prestressing strand from rod, rather than being concerned with the exclusive use of U.S. made rod. Other concerns included: disposition of current inventories; future availability of qualified strand; domestic manufacturers would raise prices and slow deliveries if foreign competition was excluded; strikes by domestic employees; and that elimination of some of the major manufacturers might cause supply problems in the event of an economic turnaround.

III. Comments Regarding Cement

Over 80 comments were received from respondents who were concerned with the extent of the Buy America provision as it applied to cement.

Many of the commenters in the northern States specifically asked for a waiver in section 165 to allow Canadian cement. These commenters included State highway agencies, ready-mix contractors, cement transporters and various concrete associations. They argued that: supply by the U.S. domestic cement industry is inconsistent and the Canadian cement industry has provided a stable source of cement; Canadian cement producers have major investments in the U.S. which contribute to local taxes, domestic employment, and local business activity for the purchase of equipment and maintenance; the cost of concrete would increase due to increased prices of the limited domestic cement; additional capital investments would be necessary for domestic concrete producers to handle and store this cement; exclusion of Canadian cement would

disrupt the market and alienate the Canadian producers who for years have been a very stabilizing influence; and, that it would create a hardship on domestic transporters of cement manufactured in Canada.

Domestic cement manufacturers welcomed the Buy America rule. A number of them stated that the regulation should specifically state that cement made in the U.S. does not include cement made with imported clinker.

Comments from domestic manufacturers regarding the importation of foreign cement or clinker indicated that a rise in imports at the expense of an under-utilized domestic capacity could well result in a problem similar to that of the U.S. steel industry attempting to compete against a flood of imports with existing domestic plants and equipment that are functionally obsolete. Approximately 90 percent of the production cycle is complete at the time the clinker has been produced and, therefore, 90 percent of the work force producing cement would be Canadians. Further they believed that the issues of public interest extend beyond the borders of an individual State. States should recognize in reviewing localized waiver requests that for every ton of Canadian clinker brought into this country, less work is available for American workers in the domestic cement industry.

IV. Comments Regarding Manufactured Products

A number of respondents objected to the waiver of the provisions of section 165 as they apply to manufactured products. The following comments were made: since American taxpayers are taxed to build highways, American industries should benefit; contractors should be compelled to use American made products or their bids should be rejected; the waiver is not in accord with the intent of Congress; the Buy America provisions should apply to construction machinery used on all projects funded by the STAA of 1982.

A number of respondents believe that the regulation should not allow imported manhole and drainage structure castings to be used on the new highway program. Their basis for this position was that the FHWA would be circumventing the intent of Congress; that there are a large number of foundries scattered throughout the United States with heavy inventories; and that cast metal products can arguably be defined as steel products within the intent of the legislation.

Because of administrative difficulties, several State highway agencies were opposed to the extension of the regulation to include manufactured products unless one of the following changes is made: (1) "Manufactured product" is defined so that only the final manufacturing process which produces a usable product is considered in the determination of foreign versus domestic character or (2), domestic items determined by the FHWA to be of inferior quality or in short supply should be excluded from the regulation or their application phased in to provide for development of domestic supplies. Several commenters noted that it is virtually impossible for a contracting agency to trace all components of some manufactured products incorporated into highway products; e.g.; signal controllers, glass for the signal heads, almost all electrical equipment, paints, and asphalt.

Comments were received from individual respondents interested in extending Buy America provisions to specific manufactured products; i.e., glass beads, pavement joint sealants, and wick drains. Comments were received from a number of respondents seeking to exempt certain specific manufactured products from Buy America provision based on considerations such as limited domestic availability. These products include fencing, ground rubber, laminated bridge bearings, and steel extrusions.

Miscellaneous comments concerning manufactured products included a recommendation that imported materials already in storage should not be subject to the Buy America regulation. Commenters also recommended that the regulation should exempt material originating in the U.S. which is shipped to a foreign country to undergo additional processing then returned for use in highway construction.

V. Comments Regarding Oil Products

Over 200 comments were received regarding the application of Buy America provisions to oil products. Virtually all the commenters (asphalt paving contractors and associations, State highway agencies, oil companies, etc.) asked that oil and/or petroleum products and/or asphalt be exempted from the final rule. Of those comments received on oil products, 20 percent of the respondents requested an exemption for foreign crude in the final rule; 30 percent of the respondents recommended exempting all petroleum products; approximately 15 percent of the respondents asked for a waiver for asphalt; and approximately 30 percent asked to exempt crude oil and component by-products. Less than 5 percent recommended including petroleum products and/or asphalt.

Respondents asked that the Buy America provisions be waived for crude oil products, noting that the eastern U.S. is almost entirely dependent upon foreign crude for asphalt and related petroleum products. They argued that a ban on the use of foreign crude oil would be counterproductive resulting in prohibitively high prices and the consumption of a disproportionate share of one of the United States' most valuable and rapidly diminishing natural resources.

A limited number of commenters, all oil companies or refiners, asked that petroleum products, in some fashion, be covered under Buy America provisions. Their comments noted that although the refining capacity of the U.S. is more than adequate to supply current requirements for asphalt and other highway project related products, insufficient amounts of crude oil are produced domestically to satisfy demand. These commenters believe that the waiver should therefore apply permanently to the crude oil component of asphalt or other petroleum products used in federally assisted projects, but not to the asphalt and other petroleum products.

VI. Miscellaneous Comments of Interest

Some commenters stated that the 25 percent preference insures that the STAA of 1982 will in fact reinforce American jobs, industry, and tax base, and will revitalize America's roads at the lowest "real" cost to the taxpayer.

Others commented that the allowance of a 25 percent or greater difference in the foreign bid versus native bid is inflationary and very counterproductive.

There was, however, a small number (less than 2 percent) of respondents who expressed philosophical opposition to the Buy America concept. These commenters included a State highway agency, foreign governments, contractors, equipment suppliers, a ready mix concrete association, and others. The comments basically noted that the use or non-use of foreign products should be left to the discretion of the States. They believed that because open trade between countries has been very beneficial in the past, it should not be ruled out completely as these provisions would do. The Canadian authorities view the Buy America provisions of the STAA as possibly in violation of the U.S. General Agreement on Tariffs and Trade (GATT). They believe that the Buy America provisions nullify and impair trade concessions which have been agreed to during multilateral GATT negotiations which the U.S. is obligated to observe. Given the economic climate in Canada, the Canadian authorities noted that this type of U.S. action will significantly add to pressure in Canada for similar protectionist measures.

Discussion of Revisions

A summary of the revisions to the existing provisions in 23 CFR 635.410 follows.

I. Exclusion of Manufactured Products

Most responses from product manufacturers recommended that manufactured products should be excluded from Buy America and/or expressed only a passing interest in the regulation. In evaluating the comments from manufacturers and suppliers who wanted to be covered, the indication was that they favored free trade agreements; however, they protested unfair practices such as foreign subsidized dumping, and foreign import restrictions. Government intervention may well be warranted to protect against these practices, but protectionism in terms of a Buy America regulation on all manufactured products would not serve this purpose.

The FHWA believes the message that Congress, State/local governments, and others sent was not to apply an all-inclusive Buy America rule. Although the earlier Buy America statute, section 401 of the STAA of 1978, provided that both unmanufactured and manufactured "articles, materials, and supplies" were covered under Buy America, the FHWA noted that only foreign structural steel could have a significant nationwide effect on the cost of Federal-aid highway construction projects. Therefore, FHWA determined it was in the public interest to apply section 401 only to structural steel. Section 165 of the STAA of 1982 reinforced congressional intent that Buy America should be applied to steel products. Section 165, however, also specifically cites cement products as covered for the first time and it does not apply at all to raw materials. With respect to manufactured products, Section 165 does not differ in its coverage from section 401 of the STAA of 1978. Since FHWA has never covered all manufactured products under its Buy America regulation and Congress did not specifically direct a change in that policy in enacting section 165, FHWA does not believe that all manufactured products must be covered.

Although asphalt use on Federal-aid highway construction is greater than cement and nearly equal to steel, many comments were received expressing support for an exemption for that manufactured product. It should be noted that the congressional debate on Section 165 was focused on the American steel and cement industries and little or no attention was given to the effect of the provision on the asphalt market [128 Cong. Rec. H8984-8990 (daily ed. December 6, 1982)]. A large number of congressional commenters pointed this out in urging an exemption for asphalt. The FHWA considered the minimal use and economic effect of applying Buy America to manufactured products other than asphalt and noted the potential administrative burdens to the State and contractors if those products were covered.

The materials and products other than steel, cement, asphalt, and natural materials comprise a small percent of the highway construction program. The FHWA agrees with the commenters who noted that it is very difficult to identify the various materials and then trace their origin. A manufactured product such as a traffic controller which has many components is particularly difficult to trace. For these reasons and because unfair practices or other specific problems can

be addressed by import laws such as title VII of the Tariff Act of 1930, as amended (19 U.S.C. 1671 et. seq.) (Imposition of Antidumping Duties), the FHWA finds that it is in the public interest to waive the application of Buy America to manufactured products other than steel and cement manufactured products.

Inclusion of Steel Products

Although Congress included steel, cement, and manufactured products in the STAA, the FHWA interim rule which was effective following enactment of the law on January 6 applied only to steel products and cement products. Previous provisions applied only to structural steel and a determination of foreign or domestic character was based upon the place of manufacture and on the origin of more than 50 percent of the components. The determination to include only structural steel was based in part on the word "substantially" in the language of Section 401 (1978-STAA).

By denoting "steel" in Section 165 (1982 STAA), Congress called attention to their intent to make the coverage more encompassing. The legislative history is also clear on this point. Congressional concern that Federal money spent to improve highways should also aid U.S. industry is apparent in the first sentence of Section 165 which requires the Secretary of Transportation to ensure that funds authorized for Federal-aid highway projects would only buy U.S. made steel. The FHWA therefore, has expanded the Buy America rule to include all steel products.

III. Inclusion of Cement Products

The issue of cement coverage under Buy America centered around imports from Canada. Over 90 percent of the letters received on this issue asked that Canadian cement/clinker imports be exempt from Buy America.

The FHWA recognizes that the U.S. plants which currently import clinker and grind that material into cement will have to change their operations if they desire to continue to be a supply source for Federal-aid highway projects. They can do this in several ways. For example, they can expand to perform all manufacturing processes in the U.S. or only use domestically produced clinker. As another alternative, they will be able to segregate their production of cement made from U.S. and non-U.S. clinker either by using separate facilities or producing in separate production runs. The existing domestic industry, which utilizes foreign imports, will have to make some adjustments, to avoid job displacements resulting from Buy America. However, those adjustments should not be major.

Several commenters were concerned that applying Buy America to cement would force concrete batch plants to separate their domestic and foreign cement storage or to use only domestic cement. FHWA does not believe the impact of this requirement will be great. Normally, if a large quantity of concrete will be needed, new batch plants are set up on the site or existing batch plants are dedicated to the project. Therefore, the commenters' concerns would be valid only to a small amount of cement. It is possible that, if a concrete supplier is unwilling to comply with the Buy America requirement by separating its foreign and domestic cement and is dependent on Federal-aid contracts for continued profitability, it could be economically injured. However, Section 165 specifically requires that only domestic produced cement shall be used on Federal-aid highway construction. The congressional debate on section 165 clearly refers to cement [128 Congressional Record S14772 (daily edition December 15, 1982)]. Segregated cement storage is the best way to assure that only domestic cement will be incorporated into the work and the minimal burden this imposes is fully warranted.

Congress was very specific in including the term "cement" in the Buy America rule and in stating that cement products must be produced in the United States. "Produced in the U.S." means that all manufacturing processes whereby a raw material is changed or transformed into an article which, because of the process, is different from the original product, must occur domestically. Congress intended that the funds authorized by the Act would mainly benefit American workers and that increasing the demand for U.S. cement products would help the cement industry. Congress fully recognized that there would be a cost to implementing this rule. Therefore, the shortage of cement in a particular geographical area cannot be used as a justification to allow imports if the material is available anywhere domestically and can be supplied at a reasonable cost differential.

The FHWA, therefore, has included comment products in the Buy America rule. It is noted that administrative procedures are provided in the final rule to apply waivers in accordance with the legislation to afford some relief in those instances where the cement product inclusion creates situations which are not in the public interest or where the cement product is not produced in the United States in sufficient and reasonably available quantities of satisfactory quality.

IV. Program Coverage

The final rule requires that steel products and cement products be produced domestically, and only those products which are brought to the construction site and permanently incorporated into the completed project are covered. Construction materials, forms, etc., which remain in place at the contractor's convenience, but are not required by the contract, are not covered.

To further define the coverage, a domestic product is a manufactured steel or cement construction material that was produced in one of the 50 States, the District of Columbia, Puerto Rico, or in the territories and possessions of the United States. Raw materials used in the steel and/or cement product may be imported. All manufacturing processes to produce steel and cement products must occur domestically. Raw materials are materials such as iron ore, limestone, waste products, slag used in cement/concrete, etc., which are used in the manufacturing process to produce the steel or cement products. Waste products would include scrap; i.e., steel no longer useful in its present form from old automobiles, machinery, pipe, railroad tracks and the like. Also steel trimmings from mills or product manufacturing are considered waste. Extracting, crushing, and handling the raw materials which is customary to prepare them for transporting are exempt from Buy America.

V. Threshold

The STAA of 1978 (Public Law 95-599), passed in November of 1978 covered projects whose total cost exceeded $500,000. When FHWA implemented the STAA of 1978, it exempted the Buy America provisions from projects estimated to cost less than $450,000. This allowed the construction cost to exceed the estimate by more than 10 percent before the total project cost would exceed $500,000, thus triggering application of the Act.

The STAA of 1982 did not include a threshold even though there exists legislative colloquy indicating it would be continued. The FHWA, however, retained the threshold from the existing regulation in the interim final rule, noting that it would eliminate the administrative burden of enforcing Buy America on a major percentage of highway projects of small size. Effective June 10, 1983, it was decided that for the remainder of the comment period and until the final rule was published that the threshold should be eliminated. It was hoped that information based on experience without a threshold could be obtained before the final rule was implemented.

The FHWA has determined that the administrative burden of including a Buy America provision in all contracts does not warrant the reimposition of a threshold. Also, although there in no conclusive information, FHWA believes that the contractors' documentation of compliance with Buy America for steel and cement does not place a significant burden on them. The FHWA has eliminated the threshold making Buy America applicable to all projects. However, it should be noted that the final rule does permit a very minimal use of foreign steel and cement. The purpose of this is to eliminate placing an administrative burden on the States for truly minor items.

Waivers

A State may request a waiver of the provisions of this section for specific projects and/or certain materials or products in specific locations. The basis for the request may be either a public interest finding or a determination that the product is not available domestically. An example of public interest would be a finding that applying Buy America would actually reduce rather than create jobs.

If the State finds, that a waiver request is warranted, it may document a justification for that waiver through the FHWA division office in its State and then to the Regional Federal Highway Administrator. There will be circumstances where a waiver should apply to an area larger than a region and possibly nationwide. In those cases, the Federal Highway Administrator will consider the merits of the problem and, if appropriate, approve a waiver which would afford uniform applications throughout the area affected. These cases would be forwarded to the Federal Highway Administrator by the Regional Administrator or arise when the Washington Headquarters ascertains that two regions may be acting on the same request.

VII. Compliance

The State's standard contract control procedures to assure that the contractor meets the terms of the contract shall be applicable to verify compliance with Buy America. It is presumed that a bidder who enters into a contract with a State agrees to comply with the Buy America provision. The States are expected to provide sufficient oversight to ensure compliance with the Buy America provisions. Penalties should be applied as may be appropriate in accordance with the standard State and Federal-aid procedures.

VIII. Legislative Changes

Section 165 sets forth two other requirements which supersede the previous requirements contained in section 401 of the 1978 STAA. The legislative language permits States to impose more stringent requirements than are imposed by section 165. Previously, only those State Buy America provisions which were in effect prior to the enactment of the STAA of 1978 were permitted. The STAA of 1982 also revises the total contract cost differential permitting the use of foreign materials from 10 percent to 25 percent. These two changes are incorporated into the final rule.

IX. Procedural Changes

The final rule implements three procedural changes from the interim final rule. The first involves confusion with the provisions in the STAA of 1982 which permit States to impose more stringent Buy America requirements than are contained in the Federal regulation.

Several comments were received which showed that this provision was being misunderstood. Specifically, State legislatures were considering "Buy-State materials and products preference" for Federal-aid highway work. Such a provision in Federal-aid contracts would be in violation of the longstanding prohibition contained in 23 CFR 635.409(a) against State restrictions on the use of articles or materials made or produced in any other State, territory, or possession of the United States. The issue addressed in section 165 of the STAA of 1982 is that certain materials must be produced in the United States rather than in foreign countries. This is obvious from the inclusion of the words "foreign countries" in the aforementioned provision regarding more stringent State requirements. Section 635.410(a) is being revised to clarify this matter.

The second procedural change is necessary to clarify the application of the alternate bid provisions. The previous regulation required alternate bids for foreign and domestic structural steel. Since the STAA of 1982 permits States to impose more stringent Buy America requirements than are imposed by section 165, it has been pointed out that a State could elect to prohibit the use of foreign steel or cement even on projects which could allow alternate bids under Section 635.410(b)(3). Therefore, the final rule is simplified by replacing the alternate bid requirements with a statement that alternate bids for foreign and domestic materials may be included on any Federal-aid highway project at the State's election. The FHWA still encourages States to consider alternate bids on projects where foreign materials are likely to be competitive even with the 25 percent cost differential.

Third, Section 635.410(b)(2) has been deleted. The paragraph has provided that certification acceptance (CA) procedures would apply to the Buy America provisions. However, section 165 of the STAA of 1982 is not incorporated into title 23 U.S.C. to which CA is applicable.

The FHWA has determined that this document does not contain a major rule under Executive Order 12291. However, under the regulatory policies and procedures of the DOT, this rulemaking action is considered significant based on the public interest involved.

A regulatory evaluation/regulatory flexibility assessment has been prepared and is available for review in the public docket. A copy may be obtained by contacting Mr. P. E. Cunningham at the address provided under the heading "FOR FURTHER INFORMATION CONTACT." The FHWA has determined that this action will not have a significant economic impact on a substantial number of small entities based upon the evaluation prepared.

List of Subjects in 23 CFR Part 635

Buy America, Government contracts, Grants programs -- transportation, Highways and roads.

In consideration of the foregoing, and under the authority of 23 U.S.C. 315, section 165, STAA of 1982, Pub. L. 97-424, 96 Stat. 2136, and 49 CFR 1.48(b), the FHWA amends Part 635, Subpart D, by revising Section 635.410 of 23 CFR to read as set forth below.

(Catalog of Federal Domestic Assistance Program Number 20.205, Highway Research, Planning and Construction. The regulations implementing Executive Order 12372 regarding intergovernmental consultation on Federal programs and activities apply to this program)

Issued on November 21, 1983.
R. A. Barnhart,
Administrator, Federal Highway Administration.

PART 635 -- [AMENDED]

Section 635.410 Buy America requirements.

a. The provisions of this section shall prevail and be given precedence over any requirements of this subpart which are contrary to this section. However, nothing in this section shall be construed to be contrary to the requirements of Section 635.409(a) of this subpart.

No Federal-aid highway construction project is to be authorized for advertisement or otherwise authorized to proceed unless at least one of the following requirements is met:

1. The project either: (i) Includes no permanently incorporated steel or (ii) if cement or steel materials are to be used, all manufacturing processes for these materials must occur in the United States.

2. The State has standard contract provisions that require the use of domestic materials and products, including cement and steel materials, to the same or greater extent as the provisions set forth in this section.
3. The State elects to include alternate bid provisions for foreign and domestic steel and/or cement materials which comply with the following requirements. Any procedure for obtaining alternate bids based on furnishing foreign steel and/or cement materials which is acceptable to the Division Administrator may be used. The contract provisions must (i) require all bidders to submit a bid based on furnishing domestic steel and/or cement materials, and (ii) clearly state that the contract will be awarded to the bidder who submits the lowest total bid based on furnishing domestic steel and/or cement materials unless such total bid exceeds the lowest total bid based on furnishing foreign steel and/or cement materials by more than 25 percent.
4. When cement and steel materials are used in a project, the requirements of this section do not prevent a minimal use of foreign cement and steel materials, if the cost of such materials used does not exceed one-tenth of one percent (0.1 percent) of the total contract cost or $2,500, whichever is greater. For purposes of this paragraph, the cost is that shown to be the value of the steel and/or cement products as they are delivered to the project.

c.

1. A State may request a waiver of the provisions of this section if;
   i. The application of those provisions would be inconsistent with the public interest; or
   ii. Steel and cement materials/products are not produced in the United States in sufficient and reasonably available quantities which are of a satisfactory quality.
2. A request for waiver, accompanied by supporting information, must be submitted in writing to the Regional Federal Highway Administrator (RFHWA) through the FHWA Division Administrator. A request must be submitted sufficiently in advance of the need for the waiver in order to allow time for proper review and action on the request. The RFHWA will have approval authority on the request.
3. Requests for waivers may be made for specific projects, or for certain materials or products in specific geographic areas, or for combinations of both, depending on the circumstances.
4. The denial of the request by the RFHWA may be appealed by the State to the Federal Highway Administrator (Administrator), whose action on the request shall be considered administratively final.
5. A request for a waiver which involves nationwide public interest or availability issues or more than one FHWA region may be submitted by the RFHWA to the Administrator for action.
6. A request for waiver and an appeal from a denial of a request must include facts and justification to support the granting of the waiver. The FHWA response to a request or appeal will be in writing and made available to the public upon request. Any request for a nationwide waiver and FHWA's action on such a request may be published in the Federal Register for public comment.
7. In determining whether the waivers described in paragraph (c)(1) of this section will be granted, the FHWA will consider all appropriate factors including, but not limited to, cost, administrative burden, and delay that would be imposed if the provision were not waived.

d. Standard State and Federal-aid contract procedures may be used to assure compliance with the requirements of this section.

(23 U.S.C. 315; sec. 165, Surface Transportation Assistance Act of 1982, Pub. L. 97-424, 96 Stat. 2097; 49 CFR 1.48(b).

[FR Doc. 83-31656 Filed 11-23-83; 8:45 am]

DOCUMENT 00852

CHANGED CONDITION CLAUSES

23 CFR § 635.109
Standardized Changed Condition Clauses

(a) Except as provided in paragraph (b) of this section, the following changed conditions contract clauses shall be made part of, and incorporated in, each highway construction project approved under 23 U.S.C. 106:

(1) *Differing site conditions.*

(i) During the progress of the work, if subsurface or latent physical conditions are encountered at the site differing materially from those indicated in the contract or if unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the contract, are encountered at the site, the party discovering such conditions shall promptly notify the other party in writing of the specific differing conditions before the site is disturbed and before the affected work is performed.

(ii) Upon written notification, the engineer will investigate the conditions, and if it is determined that the conditions materially differ and cause an increase or decrease in the cost or time required for the performance of any work under the contract, an adjustment, excluding anticipated profits, will be made and the contract modified in writing accordingly. The engineer will notify the contractor of the determination whether or not an adjustment of the contract is warranted.

(iii) No contract adjustment which results in a benefit to the contractor will be allowed unless the contractor has provided the required written notice

(iv) No contract adjustment will be allowed under this clause for any effects caused on unchanged work. (This provision may be omitted by the STD's at their option.)

(2) *Suspensions of work ordered by the engineer.*

(i) If the performance of all or any portion of the work is suspended or delayed by the engineer in writing for an unreasonable period of time (not originally anticipated, customary, or inherent to the construction industry) and the contractor believes that additional compensation and/or contract time is due as a result of such suspension or delay, the contractor shall submit to the engineer in writing a request for adjustment within 7 calendar days of receipt of the notice to resume work. The request shall set forth the reasons and support for such adjustment.

(ii) Upon receipt, the engineer will evaluate the contractor's request. If the engineer agrees that the cost and/or time required for the performance of the contract has increased as a result of such suspension and the suspension was caused by conditions beyond the control of and not the

fault of the contractor, its suppliers, or subcontractors at any approved tier, and not caused by weather, the engineer will make an adjustment (excluding profit) and modify the contract in writing accordingly. The contractor will be notified of the engineer's determination whether or not an adjustment of the contract is warranted.

(iii) No contract adjustment will be allowed unless the contractor has submitted the request for adjustment within the time prescribed.

(iv) No contract adjustment will be allowed under this clause to the extent that performance would have been suspended or delayed by any other cause, or for which an adjustment is provided or excluded under any other term or condition of this contract.

(3) *Significant changes in the character of work.*

(i) The engineer reserves the right to make, in writing, at any time during the work, such changes in quantities and such alterations in the work as are necessary to satisfactorily complete the project. Such changes in quantities and alterations shall not invalidate the contract nor release the surety, and the contractor agrees to perform the work as altered.

(ii) If the alterations or changes in quantities significantly change the character of the work under the contract, whether such alterations or changes are in themselves significant changes to the character of the work or by affecting other work cause such other work to become significantly different in character, an adjustment, excluding anticipated profit, will be made to the contract. The basis for the adjustment shall be agreed upon prior to the performance of the work. If a basis cannot be agreed upon, then an adjustment will be made either for or against the contractor in such amount as the engineer may determine to be fair and equitable.

(iii) If the alterations or changes in quantities do not significantly change the character of the work to be performed under the contract, the altered work will be paid for as provided elsewhere in the contract.

(iv) The term "significant change" shall be construed to apply only to the following circumstances:

(A) When the character of the work as altered differs materially in kind or nature from that involved or included in the original proposed construction; or

(B) When a major item of work, as defined elsewhere in the contract, is increased in excess of 125 percent or decreased below 75 percent of the original contract quantity. Any allowance for an increase in quantity shall apply only to that portion in excess of 125 percent of original contract item quantity, or in case of a decrease below 75 percent, to the actual amount of work performed.

(b) The provisions of this section shall be governed by the following:

(1) Where State statute does not permit one or more of the contract clauses included in paragraph (a) of this section, the State statute shall prevail and such clause or clauses need not be made applicable to Federal-aid highway contracts.

(2) Where the State transportation department has developed and implemented one or more of the contract clauses included in paragraph (a) of this section, such clause or clauses, as developed by the State transportation department may be included in Federal-aid highway contracts in lieu of the corresponding clause or clauses in paragraph (a) of this section. The State's action must be pursuant to a specific State statute requiring differing contract conditions clauses. Such State developed clause or clauses, however, must be in conformance with 23 U.S.C., 23 CFR and other applicable Federal statutes and regulations as appropriate and shall be subject to the Division Administrator's approval as part of the PS&E.

(c) In the case of a design-build project, STDs are strongly encouraged to use "suspensions of work ordered by the engineer" clauses, and may consider "differing site condition" clauses and "significant changes in the character of work" clauses which are appropriate for the risk and responsibilities that are shared with the design-builder.

[56 FR 37004, Aug. 2, 1991; 57 FR 10062, Mar. 23, 1992, as amended at 67 FR 75925, Dec. 10, 2002]

Document 00910

ADDENDUM NO. _____

Date of Addendum: _____
****Enter date by hand when signed for release****

PROJECT NAME: Almeda Road Paving and Drainage Improvements Old Spanish Trail to South MacGregor Way

PROJECT NO: WBS No. N-000806-0001-4; CSJ No. 0912-72-072

BID DATE: May 14, 2015 (There is no change to the Bid Date.)

FROM: J. Timothy Lincoln, P.E., City Engineer
City of Houston, Department of Public Works and Engineering
611 Walker Street
Houston, Texas 77002
Attn: *Michelle Randon, P.E.*, Project Manager

TO: Prospective Bidders

This Addendum forms a part of the Bidding Documents and will be incorporated into the Contract documents, as applicable. Insofar as the original Project Manual and Drawings are inconsistent, this Addendum governs.

****

Use the following heading and select the appropriate wording for postponement of the Bid Date. Delete the statement beside Bid Date above which indicates that the Bid Date is unchanged. If change in Bid Date, issue as separate addendum. Delete this section entirely if there is no change in Bid Date.

****

CHANGE IN BID DATE

The Bid Date for this Project has been changed from _____ (Date) to _____ (Date).
[Time of day and place for submittal of bid remains the same]. [Time of submittal has been changed from _____ (Time) to _____ (Time). The place for submittal remains the same].

****[OR]****

The bid date for this project has been indefinitely postponed.

****
Delete the following paragraph if the sole purpose of the Addendum is to postpone the Bid Date.
****

This Addendum uses the change page method: remove and replace or add pages, or Drawing sheets, as directed in the change instructions below. Change bars (|) are provided in the outside margins of pages from the Project Manual to indicate where changes have been made; no change bars are provided in added Sections. Reissued Drawing Sheets show the Addendum number below the title block and changes in the Drawing are noted by a revision mark and enclosed in a revision cloud.

****
Number each item of the Addendum beginning with 1 through the total number of change items in the Addendum. Sample entries are provided in brackets.
****

CHANGES TO PREVIOUS ADDENDA

****
Reference Addendum Number and item number to correct clarifications or make minor corrections of changes issued by previous Addenda.
****

ADDENDUM NO. _____
[1. Item 5. Change to read as follows:]

CHANGES TO PROJECT MANUAL

****
Follow this format to sequence changes to the Project Manual.
****

BIDDING REQUIREMENTS

****
Give the individual change instructions for each item of change by Document number and title. List changes in order of Document number.
****

[2. Document 00020 - Notice to Bidders. Replace page 00020-2.]

CONTRACT FORMS

[3. Document 00610 - Replace revised Performance Bond, page 00610-1.]

CONDITIONS OF THE CONTRACT

[4. Document 00800 - Supplementary Conditions. Replace page 00800-4 and add page 00800-5.]

SPECIFICATIONS

[5. Section 02050 - Demolition. Add section including pages 02050-1 through 02050-3.]

CHANGES TO DRAWINGS

[6. Delete Sheet S-9, Beam Schedule, and replace with Sheet S-9-A.]

CLARIFICATIONS

[7. Document 00210 - Supplementary Instructions to Bidders states that no substitutions will be considered during the bidding phase. Substitutions will be considered during the first 15 percent of the Contract Time or first 90 days of the Contract, whichever is less, as stated in Document 00700 - General Conditions.]

END OF ADDENDUM NO. ____

DATED: _____

Ravi Kaleyatodi, P.E., CPM
Senior Assistant Director
Department of Public Works and Engineering

RK:JHK:MR:BT:sdd

END OF DOCUMENT

Document 00911

NOTICE OF
ADDENDUM NO. _____

Date of Addendum: _____
****Enter date by hand when signed for release****

PROJECT NAME: Almeda Road Paving and Drainage Improvements Old Spanish Trail to South MacGregor Way

PROJECT NO: WBS No. N-000806-0001-4; CSJ No. 0912-72-072

BID DATE: May 14, 2015 (There is no change to the Bid Date.)

FROM: J. Timothy Lincoln, P.E., City Engineer
City of Houston
Department of Public Works and Engineering
611 Walker, 14th Floor
Houston, Texas 77002
Attn: Michelle Randon, P.E., Project Manager

TO: Prospective Bidders

****

Use the following heading and select the appropriate paragraph for postponement of the Bid Date. Delete the statement beside Bid Date above that indicates that the Bid Date is unchanged. Delete section entirely if there is no change in Bid Date.

****

CHANGE IN BID DATE

The Bid Date for this Project has been changed from _____ (Date) to _____ (Date).

[Time of day and place for submittal of bid remains the same]. [Time of submittal has been changed from _____ (Time) to _____ (Time). The place for submittal remains the same].

****[OR]****

The bid date for this project has been indefinitely postponed. Another Addendum will be issued to reset the Bid Date or to cancel bidding on this Project.

The referenced Addendum forms a part of the Bidding Documents and will be incorporated into the Contract documents, as applicable.

Written questions regarding this Addendum may be submitted to the Project Manager following the procedures specified in Document 00200 – Instructions to Bidders. Immediately notify the City Engineer through the named Project Manager upon finding discrepancies or omissions in the Bid Documents.

****

An Addendum Synopsis is not required. You may delete, edit, or amplify the following list, as appropriate.

****

This Addendum includes:

ADDENDUM SYNOPSIS

Changes to Previous Addendum
Changes to Project Manual
- Bidding Requirements
- Contract Forms
- Condition of the Contract
- Specifications

Changes to Drawings
Clarifications

DATED: _____

Ravi Kaleyatodi, P.E.
Senior Assistant Director
Department of Public Works and Engineering

END OF DOCUMENT

Document 00912

RIDER NO. _____

PROJECT NAME: Almeda Road Paving and Drainage Improvements Old Spanish Trail to South MacGregor Way

PROJECT NO: N-000806-0001-4; CSJ No. 0912-72-072

This Rider is incorporated into the Contract documents. In the event of a conflict with the original Contract documents, this Rider governs.

CHANGES TO PROJECT MANUAL

END OF RIDER NO. _____

DATED: _____ _____
Director of [*Contracting Department*]

DATED: _____ _____
Contractor

END OF DOCUMENT

SUPPLEMENTARY CONDITIONS
TxDOT

Special Provision to Item 000
Schedule of Liquidated Damages

Texas Department of Transportation

Table1
Schedule of Liquidated Damages

For Dollar Amount of Original Contract		Dollar Amount of Daily Contract Administration Liquidated Damages per Working Day
From More Than	To and Including	
0	100,000	**570**
100,000	500,000	**590**
500,000	1,000,000	**610**
1,000,000	1,500,000	**685**
1,500,000	3,000,000	**785**
3,000,000	5,000,000	**970**
5,000,000	10,000,000	**1125**
10,000,000	20,000,000	**1285**
20,000,000	Over 20,000,000	**2590**

Special Provision to Item 000
Nondiscrimination

1. DESCRIPTION

All recipients of federal financial assistance are required to comply with various nondiscrimination laws including Title VI of the Civil Rights Act of 1964, as amended, (Title VI). Title VI forbids discrimination against anyone in the United States on the grounds of race, color, or national origin by any agency receiving federal funds.

Texas Department of Transportation, as a recipient of Federal financial assistance, and under Title VI and related statutes, ensures that no person shall on the grounds of race, religion (where the primary objective of the financial assistance is to provide employment per 42 U.S.C. § 2000d-3), color, national origin, sex, age or disability be excluded from participation in, be denied the benefits of, or otherwise be subjected to discrimination under any Department programs or activities.

2. DEFINITION OF TERMS

Where the term "contractor" appears in the following six nondiscrimination clauses, the term "contractor" is understood to include all parties to contracts or agreements with the Texas Department of Transportation.

3. NONDISCRIMINATION PROVISIONS

During the performance of this contract, the contractor agrees as follows:

3.1. **Compliance with Regulations**. The Contractor shall comply with the Regulations relative to nondiscrimination in Federally-assisted programs of the Department of Transportation (hereinafter, "DOT") Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.

3.2. **Nondiscrimination**. The contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.

3.3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment:** In all solicitations either by competitive bidding or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.

3.4. **Information and Reports:** The contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the Texas Department of Transportation to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information the contractor shall so certify to the Recipient, or the Texas Department of Transportation as appropriate, and shall set forth what efforts it has made to obtain the information.

3.5. **Sanctions for Noncompliance**. In the event of the contractor's noncompliance with the nondiscrimination provisions of this contract, the Recipient shall impose such contract sanctions as it or the Texas Department of Transportation may determine to be appropriate, including, but not limited to:

- withholding of payments to the contractor under the contract until the contractor complies, and/or
- cancellation, termination or suspension of the contract, in whole or in part.

3.6. **Incorporation of Provisions**. The contractor shall include the provisions of paragraphs (1) through (6) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto. The contractor shall take such action with respect to any subcontract or procurement as the Recipient or the Texas Department of Transportation may direct as a means of enforcing such provisions including sanctions for non-compliance: Provided, however, that, in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request the Recipient to enter into such litigation to protect the interests of the Recipient, and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

Special Provision to Item 000
Certification of Nondiscrimination in Employment

1. GENERAL

By signing this proposal, the Bidder certifies that he has participated in a previous contract or subcontract subject to the equal opportunity clause, as required by Executive Orders 10925, 11114, or 11246, or if he has not participated in a previous contract of this type, or if he has had previous contract or subcontracts and has not filed, he will file with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

Note—The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b)(1)), and must be submitted by Bidders and proposed subcontractors only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally only contracts or subcontracts of $10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7(b)(1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

Special Provision to Item 000

Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246)

1. GENERAL

In addition to the affirmative action requirements of the Special Provision titled "Standard Federal Equal Employment Opportunity Construction Contract Specifications" as set forth elsewhere in this proposal, the Bidder's attention is directed to the specific requirements for utilization of minorities and females as set forth below.

2. GOALS

2.1. Goals for minority and female participation are hereby established in accordance with 41 CFR 60-4.

2.2. The goals for minority and female participation expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area are as follows:

Goals for minority participation in each trade, %	Goals for female participation in each trade, %
See Table 1	6.9

2.3. These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it will apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and non-federally involved construction. The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 will be based on its implementation of the Standard Federal Equal Employment Opportunity Construction Contract Specifications Special Provision and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the Contract, and in each trade, and the Contractor must make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority and female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals will be a violation of the Contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

2.4. A Contractor or subcontractor will be considered in compliance with these provisions by participation in the Texas Highway-Heavy Branch, AGC, Statewide Training and Affirmative Action Plan. Provided that each Contractor or subcontractor participating in this plan must individually comply with the equal opportunity clause set forth in 41 CFR 60-1.4 and must make a good faith effort to achieve the goals set forth for each participating trade in the plan in which it has employees. The overall good performance of other Contractors and subcontractors toward a goal in an approved plan does not excuse any covered Contractor's or subcontractor's failure to make good faith efforts to achieve the goals contained in these provisions. Contractors or subcontractors participating in the plan must be able to demonstrate their participation and document their compliance with the provisions of this Plan.

3. SUBCONTRACTING

The Contractor must provide written notification to the Department within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the Contract resulting from this solicitation pending concurrence of the Department in the award. The notification will list the names,

address and telephone number of the subcontractor; employer identification number; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the Contract is to be performed.

4. COVERED AREA

As used in this special provision, and in the Contract resulting from this solicitation, the geographical area covered by these goals for female participation is the State of Texas. The geographical area covered by these goals for other minorities are the counties in the State of Texas as indicated in Table 1.

5. REPORTS

The Contractor is hereby notified that he may be subject to the Office of Federal Contract Compliance Programs (OFCCP) reporting and record keeping requirements as provided for under Executive Order 11246 as amended. OFCCP will provide direct notice to the Contractor as to the specific reporting requirements that he will be expected to fulfill.

Table 1
Goals for Minority Participation

County	Participation, %	County	Participation, %
Anderson	22.5	Chambers	27.4
Andrews	18.9	Cherokee	22.5
Angelina	22.5	Childress	11.0
Aransas	44.2	Clay	12.4
Archer	11.0	Cochran	19.5
Armstrong	11.0	Coke	20.0
Atascosa	49.4	Coleman	10.9
Austin	27.4	Collin	18.2
Bailey	19.5	Collingsworth	11.0
Bandera	49.4	Colorado	27.4
Bastrop	24.2	Comal	47.8
Baylor	11.0	Comanche	10.9
Bee	44.2	Concho	20.0
Bell	16.4	Cooke	17.2
Bexar	47.8	Coryell	16.4
Blanco	24.2	Cottle	11.0
Borden	19.5	Crane	18.9
Bosque	18.6	Crockett	20.0
Bowie	19.7	Crosby	19.5
Brazoria	27.3	Culberson	49.0
Brazos	23.7	Dallam	11.0
Brewster	49.0	Dallas	18.2
Briscoe	11.0	Dawson	19.5
Brooks	44.2	Deaf Smith	11.0
Brown	10.9	Delta	17.2
Burleson	27.4	Denton	18.2
Burnet	24.2	DeWitt	27.4
Caldwell	24.2	Dickens	19.5
Calhoun	27.4	Dimmit	49.4
Callahan	11.6	Donley	11.0
Cameron	71.0	Duval	44.2
Camp	20.2	Eastland	10.9
Carson	11.0	Ector	15.1
Cass	20.2	Edwards	49.4
Castro	11.0	Ellis	18.2

County	Participation, %	County	Participation, %
El Paso	57.8	Kenedy	44.2
Erath	17.2	Kent	10.9
Falls	18.6	Kerr	49.4
Fannin	17.2	Kimble	20.0
Fayette	27.4	King	19.5
Fisher	10.9	Kinney	49.4
Floyd	19.5	Kleberg	44.2
Foard	11.0	Knox	10.9
Fort Bend	27.3	Lamar	20.2
Franklin	17.2	Lamb	19.5
Freestone	18.6	Lampasas	18.6
Frio	49.4	LaSalle	49.4
Gaines	19.5	Lavaca	27.4
Galveston	28.9	Lee	24.2
Garza	19.5	Leon	27.4
Gillespie	49.4	Liberty	27.3
Glasscock	18.9	Limestone	18.6
Goliad	27.4	Lipscomb	11.0
Gonzales	49.4	Live Oak	44.2
Gray	11.0	Llano	24.2
Grayson	9.4	Loving	18.9
Gregg	22.8	Lubbock	19.6
Grimes	27.4	Lynn	19.5
Guadalupe	47.8	Madison	27.4
Hale	19.5	Marion	22.5
Hall	11.0	Martin	18.9
Hamilton	18.6	Mason	20.0
Hansford	11.0	Matagorda	27.4
Hardeman	11.0	Maverick	49.4
Hardin	22.6	McCulloch	20.0
Harris	27.3	McLennan	20.7
Harrison	22.8	McMullen	49.4
Hartley	11.0	Medina	49.4
Haskell	10.9	Menard	20.0
Hays	24.1	Midland	19.1
Hemphill	11.0	Milam	18.6
Henderson	22.5	Mills	18.6
Hidalgo	72.8	Mitchell	10.9
Hill	18.6	Montague	17.2
Hockley	19.5	Montgomery	27.3
Hood	18.2	Moore	11.0
Hopkins	17.2	Morris	20.2
Houston	22.5	Motley	19.5
Howard	18.9	Nacogdoches	22.5
Hudspeth	49.0	Navarro	17.2
Hunt	17.2	Newton	22.6
Hutchinson	11.0	Nolan	10.9
Irion	20.0	Nueces	41.7
Jack	17.2	Ochiltree	11.0
Jackson	27.4	Oldham	11.0
Jasper	22.6	Orange	22.6
Jeff Davis	49.0	Palo Pinto	17.2
Jefferson	22.6	Panola	22.5
Jim Hogg	49.4	Parker	18.2
Jim Wells	44.2	Parmer	11.0
Johnson	18.2	Pecos	18.9
Jones	11.6	Polk	27.4
Karnes	49.4	Potter	9.3
Kaufman	18.2	Presidio	49.0
Kendall	49.4	Randall	9.3

County	Participation, %	County	Participation, %
Rains	17.2	Reagan	20.0
Real	49.4	Throckmorton	10.9
Red River	20.2	Titus	20.2
Reeves	18.9	Tom Green	19.2
Refugio	44.2	Travis	24.1
Roberts	11.0	Trinity	27.4
Robertson	27.4	Tyler	22.6
Rockwall	18.2	Upshur	22.5
Runnels	20.0	Upton	18.9
Rusk	22.5	Uvalde	49.4
Sabine	22.6	Val Verde	49.4
San Augustine	22.5	Van Zandt	17.2
San Jacinto	27.4	Victoria	27.4
San Patricio	41.7	Walker	27.4
San Saba	20.0	Waller	27.3
Schleicher	20.0	Ward	18.9
Scurry	10.9	Washington	27.4
Shackelford	10.9	Webb	87.3
Shelby	22.5	Wharton	27.4
Sherman	11.0	Wheeler	11.0
Smith	23.5	Wichita	12.4
Somervell	17.2	Wilbarger	11.0
Starr	72.9	Willacy	72.9
Stephens	10.9	Williamson	24.1
Sterling	20.0	Wilson	49.4
Stonewall	10.9	Winkler	18.9
Sutton	20.0	Wise	18.2
Swisher	11.0	Wood	22.5
Tarrant	18.2	Yoakum	19.5
Taylor	11.6	Young	11.0
Terrell	20.0	Zapata	49.4
Terry	19.5	Zavala	49.4

Special Provision to Item 000

Standard Federal Equal Employment Opportunity Construction Contract Specifications (Executive Order 11246)

1. GENERAL

1.1. As used in these specifications:

- "Covered area" means the geographical area described in the solicitation from which this Contract resulted;
- "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
- "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
- "Minority" includes:
  - Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
  - Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
  - Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
  - American Indian or Alaskan Native (all persons having origins in any of the original peoples of North American and maintaining identifiable tribal affiliations through membership and participation or community identification).

1.2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it will physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this Contract resulted.

1.3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U. S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) will be in accordance with that plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the equal employment opportunity (EEO) clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

1.4. The Contractor will implement the specific affirmative action standards provided in Section 1.7.1. through Section 1.7.16. of these specifications. The goals set forth in the solicitation from which this Contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction Contractors performing Contracts in geographical areas where they do not have a Federal or federally assisted construction Contract will apply the minority and female goals established for the geographical area where the Contract is being performed. Goals are published periodically in the Federal Register in notice form and such notices may be obtained from any Office of Federal Contract Compliance Programs office or any Federal procurement contracting officer. The

Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

1.5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women will excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

1.6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U. S. Department of Labor.

1.7. The Contractor will take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications will be based upon its effort to achieve maximum results from its actions. The Contractor will document these efforts fully, and will implement affirmative action steps at least as extensive as the following:

1.7.1. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor will specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

1.7.2. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

1.7.3. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this will be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

1.7.4. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral Process has impeded the Contractor's efforts to meet its obligations.

1.7.5. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor will provide notice of these programs to the sources compiled under 7b above.

1.7.6. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and Collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

1.7.7. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other

employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foremen, etc., before the initiation of construction work at any job site. A written record must be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

1.7.8. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

1.7.9. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month before the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor will send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

1.7.10. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce.

1.7.11. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

1.7.12. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

1.7.13. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment-related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

1.7.14. Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities will be provided to assure privacy between the sexes.

1.7.15. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

1.7.16. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

1.8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (Section 7.1. through Section 7.16.). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under Section 7.1. through Section 7.16. of these Specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation will not be a defense for the Contractor's noncompliance.

1.9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor

may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

1.10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

1.11. The Contractor will not enter into any Subcontract with any person or firm debarred from Government Contracts pursuant to Executive Order 11246.

1.12. The Contractor will carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties will be in violation of these specifications and Executive Order 11246, as amended.

1.13. The Contractor, in fulfilling its obligations under these specifications, will implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director will proceed in accordance with 41 CFR 60-4.8.

1.14. The Contractor will designate a responsible official to monitor all employment-related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records must at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records must be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, Contractors shall not be required to maintain separate records.

1.15. Nothing herein provided will be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

1.16. In addition to the reporting requirements set forth elsewhere in this Contract, the Contractor and the subcontractors holding subcontracts, not including material suppliers, of $10,000 or more, will submit for every month of July during which work is performed, employment data as contained under Form PR 1391 (Appendix C to 23 CFR, Part 230), and in accordance with the included instructions.

Special Provision to Item 000
On-the-Job Training Program

1. DESCRIPTION

The primary objective of this Special Provision is the training and advancement of minorities, women and economically disadvantaged persons toward journeyworker status. Accordingly, make every effort to enroll minority, women and economically disadvantaged persons to the extent that such persons are available within a reasonable area of recruitment. This training commitment is not intended, and will not be used to discriminate against any applicant for training, whether or not he/she is a member of a minority group.

2. TRAINEE ASSIGNMENT

Training assignments are based on the past volume of state-let highway construction contracts awarded with the Department. Contractors meeting the selection criteria will be notified of their training assignment at the beginning of the reporting year by the Department's Office of Civil Rights.

3. PROGRAM REQUIREMENTS

Fulfill all of the requirements of the On-the-Job Training Program including the maintenance of records and submittal of periodic reports documenting program performance. Trainees will be paid at least 60% of the appropriate minimum journeyworker's rate specified in the Contract for the first half of the training period, 75% for the third quarter, and 90% for the last quarter, respectively.

4. REIMBURSEMENT

If requested, Contractors may be reimbursed $0.80 per training hour at no additional cost to the Department. Training may occur on this project, all other Department contracts, or local-administered federal-aid projects with concurrence of the local government entity. However, reimbursement for training is not available on projects to the extent that such projects that do not contain federal funds.

5. COMPLIANCE

The Contractor will have fulfilled the contractual responsibilities by having provided acceptable training to the number of trainees specified in their goal assignment. Noncompliance may be cause for corrective and appropriate measures pursuant to Article 8.7., "Abandonment of Work or Default of Contract," which may be used to comply with the sanctions for noncompliance pursuant to 23 CFR Part 230.

Special Provision to Item 000

Disadvantaged Business Enterprise in Federal Aid Contracts

1. DESCRIPTION

The purpose of this Special Provision is to carry out the U.S. Department of Transportation's (DOT) policy of ensuring nondiscrimination in the award and administration of DOT assisted Contracts and creating a level playing field on which firms owned and controlled by individuals who are determined to be socially and economically disadvantaged can compete fairly for DOT assisted Contracts. If the Disadvantaged Business Enterprise (DBE) goal is greater than zero, Article A, "Disadvantaged Business Enterprise in Federal Aid Contracts", of this Special Provision shall apply to this Contract. If there is no DBE goal, Article B, "Race-Neutral DBE Participation," of this Special Provision will apply to this Contract. The percentage goal for DBE participation in the work to be performed under this Contract will be shown on the proposal.

1.1. **Article A. Disadvantaged Business Enterprise in Federal Aid Contracts.**

1.1.1. **Policy**. It is the policy of the DOT and the Texas Department of Transportation (Department) that DBEs, as defined in 49 CFR Part 26, Subpart A and the Department's DBE Program, shall have the opportunity to participate in the performance of Contracts financed in whole or in part with Federal funds. The DBE requirements of 49 CFR Part 26, and the Department's DBE Program, apply to this Contract as follows:

1.1.1.1. The Contractor will solicit DBEs through reasonable and available means, as defined in 49 CFR Part 26, Appendix A and the Department's DBE Program, or show a good faith effort to meet the DBE goal for this Contract.

1.1.1.2. The Contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this Contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted Contracts. Failure by the Contractor to carry out these requirements is a material breach of this Contract, which may result in the termination of this Contract or such other remedy as the recipient deems appropriate.

1.1.1.3. The requirements of this Special Provision shall be physically included in any subcontract.

1.1.1.4. By signing the Contract proposal, the Bidder is certifying that the DBE goal as stated in the proposal will be met by obtaining commitments from eligible DBEs or that the Bidder will provide acceptable evidence of good faith effort to meet the commitment. The Department will determine the adequacy of a Contractor's efforts to meet the Contract goal, within 10 business days, excluding national holidays, from receipt of the information outlined in this Special Provision under Section 1.1.3., "Contractor's Responsibilities." If the requirements of Section 1.A.3 are met, the conditional situation will be removed and the Contract will be forwarded to the Contractor for execution.

1.1.2. **Definitions.**

1.1.2.1. "Broker" is an intermediary or middleman that does not take possession of a commodity or act as a regular dealer selling to the public.

1.1.2.2. "Disadvantaged Business Enterprise" or "DBE" is defined in the standard specifications, Article 1, Definition of Terms.

1.1.2.3. "DBE Joint Venture" means an association of a DBE firm and 1 or more other firm(s) to carry out a single business enterprise for profit for which purpose they combine their property, capital, efforts, skills and knowledge, and in which the DBE is responsible for a distinct, clearly defined portion of the work of the Contract and whose share in the capital contribution, control, management, risks, and profits of the joint venture are commensurate with its ownership interest.

1.1.2.4. "DOT" means the U.S. Department of Transportation, including the Office of the Secretary, the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), and the Federal Aviation Administration (FAA).

1.1.2.5. "Federal Aid Contract" is any Contract between the Department and a Contractor which is paid for in whole or in part with DOT financial assistance.

1.1.2.6. "Good Faith Effort" means efforts to achieve a DBE goal or other requirement of this Special Provision which, by their scope, intensity, and appropriateness to the objective, can reasonably be expected to fulfill the program requirement.

1.1.2.7. "Manufacturer" is a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the Contract and of the general character described by the specifications."

1.1.2.8. "Race-conscious" means a measure or program that is focused specifically on assisting only DBEs, including women-owned businesses.

1.1.2.9. "Race-neutral DBE Participation" means any participation by a DBE through customary competitive procurement procedures.

1.1.2.10. "Regular Dealer" is a firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under the Contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business. To be a regular dealer, the firm must be an established, regular business that engages in, as its principal business and under its own name, the purchase and sale or lease of the products in question.

A regular dealer in such bulk items as steel, cement, gravel, stone, and petroleum products need not keep such products in stock if it owns and operates distribution equipment for the products. Any supplementing of regular dealers own distribution equipment shall be by a long-term lease agreement and not on an ad hoc or contract-by-contract basis. Brokers, packagers, manufacturers' representatives, or other persons who arrange or expedite transactions shall not be regarded as a regular dealer.

1.1.2.11. "Texas Unified Certification Program" or "TUCP" provides one-stop shopping to applicants for certification, such that applicants are required to apply only once for a DBE certification that will be honored by all recipients of federal funds in the state. The TUCP by Memorandum of Agreement established six member entities to serve as certifying agents for Texas in specified regions.

1.1.3. **Contractor's Responsibilities**. These requirements must be satisfied by the Contractor.

1.1.3.1. After conditional award of the Contract, the Contractor shall submit a completed Form SMS.4901 "DBE Commitment Agreement", From SMS 4901-T "DBE Trucking Commitment Agreement", or Form SMS.4901-MS "DBE Material & Supplier Commitment Agreement" for each DBE he/she intends to use to satisfy the DBE goal or a good faith effort to explain why the goal could not be reached, so as to arrive in the Department's Office of Civil Rights (OCR) in Austin, Texas not later than 5:00 p.m. on the 10th business day, excluding national holidays, after the conditional award of the Contract. When requested, additional time, not to exceed 7 business days, excluding national holidays, may be granted based on documentation submitted by the Contractor.

1.1.3.2. DBE prime Contractors may receive credit toward the DBE goal for work performed by his/her own forces and work subcontracted to DBEs. A DBE prime must make a good faith effort to meet the goals. In the event a DBE prime subcontracts to a non-DBE, that information must be reported on Form SMS.4902.

1.1.3.3. A Contractor who cannot meet the Contract goal, in whole or in part, shall make adequate good faith efforts to obtain DBE participation as so stated and defined in 49 CFR Part 26, Appendix A. The following is a list of the types of action that may be considered as good faith efforts. It is not intended to be a mandatory checklist, nor is it intended to be exclusive or exhaustive. Other factors or types of efforts may be relevant in appropriate cases.

- Soliciting through all reasonable and available means (e.g. attendance at prebid meetings, advertising, and/or written notices) the interest of all certified DBEs who have the capability to perform the work of the Contract. The solicitation must be done within sufficient time to allow the DBEs to respond to it. Appropriate steps must be taken to follow up initial solicitations to determine, with certainty, if the DBEs are interested.
- Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out Contract work items into economically feasible units to facilitate DBE participation, even when the Contractor might otherwise prefer to perform the work items with its own forces.
- Providing interested DBEs with adequate information about the plans, specifications, and requirements of the Contract in a timely manner to assist them in responding to a solicitation.
- Negotiating in good faith with interested DBEs to make a portion of the work available to DBE subcontractors and suppliers and select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiations includes the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBEs to perform the work.
- A Bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm price and capabilities as well as Contract goals into consideration. However, the fact that there may be some additional cost involved in finding and using DBEs is not in itself sufficient reason for a bidders failure to meet the Contract DBE goal as long as such cost are reasonable. Also, the ability or desire of the Contractor to perform the work of the Contract with its own organization does not relieve the Bidder of the responsibility to make good faith effort. Contractors are not, however, required to accept higher quotes from DBEs if the price difference is excessive or unreasonable.
- Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The Contractor's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate cause for the rejection or non-solicitation of bids and the Contractors efforts to meet the project goal.
- Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or Contractor.
- Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.
- Effectively using the services of available minority/women community organizations; minority/women Contractors' groups; local, state, and Federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBEs.
- If the Program Manager of the OCR determines that the Contractor has failed to meet the good faith effort requirements, the Contractor will be given an opportunity for reconsideration by the Director of the OCR.

1.1.3.4. Should the bidder to whom the Contract is conditionally awarded refuse, neglect or fail to meet the DBE goal or comply with good faith effort requirements, the proposal guaranty filed with the bid shall become the property of the state, not as a penalty, but as liquidated damages to the Department.

1.1.3.5. The preceding information shall be submitted directly to the Office of Civil Rights, Texas Department of Transportation, 125 E. 11th Street, Austin, Texas 78701-2483.

1.1.3.6. The Contractor shall not terminate for convenience a DBE subcontractor named in the commitment submitted under Section 1.A.3.a, of this Special Provision. Before terminating or removing a DBE subcontractor named in the commitment, the Contractor must have a written consent of the Department.

1.1.3.7. The Contractor shall also make a good faith effort to replace a DBE subcontractor that is unable to perform successfully with another DBE, to the extent needed to meet the Contract goal. The Contractor shall submit a completed Form 4901 "DBE Commitment Agreement", From SMS 4901-T "DBE Trucking Commitment Agreement", or Form SMS.4901-MS "DBE Material & Supplier Commitment Agreement" for the substitute DBE firm(s). Any substitution of DBEs shall be subject to approval by the Department. Before approving the substitution, the Department will request a statement from the DBE concerning it being replaced.

1.1.3.8. The Contractor shall designate a DBE liaison officer who will administer the Contractor's DBE program and who will be responsible for maintenance of records of efforts and contacts made to subcontract with DBEs.

1.1.3.9. Contractors are encouraged to investigate the services offered by banks owned and controlled by disadvantaged individuals and to make use of these banks where feasible.

1.1.4. **Eligibility of DBEs.**

1.1.4.1. The member entities of the TUCP certify the eligibility of DBEs and DBE joint ventures to perform DBE subcontract work on DOT financially assisted Contracts.

1.1.4.2. The Department maintains the Texas Unified Certification Program DBE Directory containing the names of firms that have been certified to be eligible to participate as DBE's on DOT financially assisted Contracts. This Directory is available from the Department's OCR. An update of the Directory can be found on the Internet at http://www.txdot.gov/apps-cg/tucp/default.htm.

1.1.4.3. Only DBE firms certified at the time commitments are submitted are eligible to be used in the information furnished by the Contractor as required under Section 1.A.3.a. and 3.g. above. For purposes of the DBE goal on this project, DBEs will only be allowed to perform work in the categories of work for which they are certified.

1.1.4.4. Only DBE firms certified at the time of execution of a Contract/subcontract/purchase order, are eligible for DBE goal participation.

1.1.5. **Determination of DBE Participation.** When a DBE participates in a Contract, only the values of the work actually performed by the DBE, as referenced below, shall be counted by the prime Contractor toward DBE goals:

1.1.5.1. The total amount paid to the DBE for work performed with his/her own forces is counted toward the DBE goal. When a DBE subcontracts part of the work of its Contract to another firm, the value of the subcontracted work may be counted toward DBE goals only if the subcontractor is itself a DBE. Work that a DBE subcontracts to a non-DBE firm does not count toward DBE goals.

1.1.5.2. A Contractor may count toward its DBE goal a portion of the total value of the Contract amount paid to a DBE joint venture equal to the distinct, clearly defined portion of the work of the Contract performed by the DBE.

1.1.5.2.1. A Contractor may count toward its DBE goal only expenditures to DBEs that perform a commercially useful function (CUF) in the work of a Contract or purchase order. A DBE is considered to perform a CUF when it is

responsible for execution of the work of the Contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a CUF, the DBE must also be responsible, with respect to materials and supplies used on the Contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself.

In accordance with 49 CFR Part 26, Appendix A, guidance concerning Good Faith Efforts, Contractors may make efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services. Contractors may not however, negotiate the price of materials or supplies used on the Contract by the DBE, nor may they determine quality and quantity, order the materials themselves, nor install the materials (where applicable), or pay for the material themselves. Contractors however, may share the quotations they receive from the material supplier with the DBE firm, so that the DBE firm may negotiate a reasonable price with the material supplier.

In all cases, prime or other non-DBE subcontractor assistance will not be credited toward the DBE goal.

1.1.5.2.2. A DBE does not perform a CUF if its role is limited to that of an extra participant in a transaction, Contract, or project through which funds are passed in order to obtain the appearance of DBE participation.

Consistent with industry practices and the DOT/Department's DBE program, a DBE subcontractor may enter into second-tier subcontracts, amounting up to 70% of their Contract. Work subcontracted to a non-DBE does not count towards DBE goals. If a DBE does not perform or exercise responsibility for at least 30% of the total cost of its Contract with its own work force, or the DBE subcontracts a greater portion of the work of a Contract than would be expected on the basis of normal industry practice for the type of work involved, it will be presumed that the DBE is not performing a CUF

1.1.5.2.3. A DBE trucking firm (including an owner operator who is certified as a DBE is considered to be performing a CUF when the DBE is responsible for the management and supervision of the entire trucking operation on a particular Contract and the DBE itself owns and operates at least 1 fully licensed, insured, and operational truck used on the Contract.

1.1.5.2.3.1. The Contractor receives credit for the total value of the transportation services the DBE provides on a Contract using trucks it owns, insures, and operates using drivers it employs.

1.1.5.2.3.2. The DBE may lease trucks from another DBE firm, including an owner operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the Contract.

1.1.5.2.3.3. The DBE may also lease trucks from a non-DBE firm, including from an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit for the total value of transportation services provided by non-DBE lessees not to exceed the value of transportation services provided by the DBE-owned trucks on the Contract. Additional participation by non-DBE lessees receive credit only for the fee or commission it receives as result of the lease arrangement

1.1.5.2.3.4. A lease must indicate that the DBE has exclusive use of and control over the trucks giving the DBE absolute priority for use of the leased trucks. Leased trucks must display the name and identification number of the DBE.

1.1.5.2.4. When a DBE is presumed not to be performing a CUF the DBE may present evidence to rebut this presumption.

1.1.5.2.5. Project materials or supplies acquired from an affiliate of the prime Contractor can not directly or indirectly (2nd or lower tier subcontractor) be used for DBE goal credit.

1.1.5.3. A Contractor may count toward its DBE goals expenditures for materials and supplies obtained from a DBE manufacturer, provided that the DBE assumes the actual and contractual responsibility for the materials and

supplies. Count expenditures with DBEs for materials or supplies toward DBE goals as provided in the following:

1.1.5.3.1. If the materials or supplies are obtained from a DBE manufacturer, count 100% of the cost of the materials or supplies toward DBE goals. (Definition of a DBE manufacturer found at 1A.c.(1) of this provision.)

For purposes of this Section (1.A.c.(1)), a manufacturer is a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the Contract and of the general character described by the specifications.

1.1.5.3.2. If the materials or supplies are purchased from a DBE regular dealer, count 60% of the cost of the materials or supplies toward DBE goals.

For purposes of this Section (1.A.5.c.(2)), a regular dealer is a firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under the Contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business:

1.1.5.3.2.1. To be a regular dealer, the firm must be an established, regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in question.

1.1.5.3.2.2. A person may be a regular dealer in such bulk items as petroleum products, steel, cement, gravel, stone or asphalt without owning, operating, or maintaining a place of business as provided in the first paragraph under Section 1.A.5.c.(2), if the person both owns and operates distribution equipment for the products. Any supplementing of regular dealers' own distribution equipment shall be by a long-term lease agreement and not on an ad hoc or contract-by-contract basis.

1.1.5.3.2.3. Packagers, brokers, manufacturers' representatives, or other persons who arrange or expedite transactions are not regular dealers within the meaning of Section 1.A.5.c.(2).

1.1.5.3.3. With respect to materials or supplies purchased from DBE which is neither a manufacturer nor a regular dealer, count the entire amount of fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on a job site, toward DBE goals, provided you determine the fees to be reasonable and not excessive as compared with fees customarily allowed for similar services.

Do not count any portion of the cost of the materials and supplies themselves toward DBE goals.

1.1.5.3.4. Count the entire amount of fees or commissions charged by a DBE firm for providing a bona fide service, such as professional, technical, consultant or managerial services, or for providing bonds or insurance specifically required for the performance of a DOT-assisted Contract, toward DBE goals, provided you determine the fee to be reasonable and not excessive as compared with fees customarily allowed for similar services.

1.1.5.4. If the Contractor chooses to assist a DBE firm, other than a manufacturing material supplier or regular dealer, and the DBE firm accepts the assistance, the Contractor may act solely as a guarantor by use of a two-party check for payment of materials to be used on the project by the DBE. The material supplier must invoice the DBE who will present the invoice to the Contractor. The Contractor may issue a joint check to the DBE and the material supplier and the DBE firm must issue the remittance to the material supplier. No funds shall go directly from the Contractor to the material supplier. The DBE firm may accept or reject this joint checking arrangement.

The Contractor must obtain approval from the Department before implementing the use of joint check arrangements with the DBE. Submit to the Department, Joint Check Approval Form 2178 for requesting approval. Provide copies of cancelled joint checks upon request. No DBE goal credit will be allowed for the cost of DBE materials that are paid by the Contractor directly to the material supplier.

1.1.5.5. No DBE goal credit will be allowed for supplies and equipment the DBE subcontractor leases from the Contractor or its affiliates.

1.1.5.6. No DBE goal credit will be allowed for the period of time determined by the Department that the DBE was not performing a CUF. The denial period of time may occur before or after a determination has been made by the department. In case of the denial of credit for non-performance of a CUF of a DBE, the Contractor will be required to provide a substitute DBE to meet the Contract goal or provide an adequate good faith effort when applicable.

1.1.6. **Records and Reports.**

1.1.6.1. The Contractor shall submit monthly reports, after work begins, on DBE payments to meet the DBE goal and for DBE or HUB race-neutral participation. Report payments made to non-DBE HUBs. The monthly report is to be sent to the Area Engineer. These reports will be due within 15 days after the end of a calendar month. These reports will be required until all DBE subcontracting or material supply activity is completed. Form SMS.4903, "DBE Progress Report," is to be used for monthly reporting. Form. SMS.4904, "DBE Final Report," is to be used as a final summary of DBE payments submitted upon completion of the project.

The original final report must be submitted to the OCR and a copy must be submitted to the Area Engineer. These forms may be obtained from the Department or may be reproduced by the Contractor. The Department may verify the amounts being reported as paid to DBEs by requesting copies of cancelled checks paid to DBEs on a random basis. Cancelled checks and invoices should reference the Department's project number.

1.1.6.2. DBE subcontractors and/or material suppliers should be identified on the monthly report by Vendor Number, name, and the amount of actual payment made to each during the monthly period. Negative reports are required when no activity has occurred in a monthly period.

1.1.6.3. All such records must be retained for a period of 3 years following completion of the Contract work, and shall be available at reasonable times and places for inspection by authorized representatives of the Department or the DOT. Provide copies of subcontracts or agreements and other documentation upon request.

1.1.6.4. Before receiving final payment, the Contractor shall submit Form SMS.4904, "DBE Final Report". If the DBE goal requirement is not met, documentation supporting Good Faith Efforts, as outlined in Section 1.A.3.c of this Special Provision, must be submitted with the "DBE Final Report."

1.1.6.5. Provide a certification of prompt payment in accordance with the Department's prompt payment procedure to certify that all subcontractors and suppliers were paid from the previous months payments and retainage was released for those whose work is complete. Submit the completed form each month and the month following the month when final acceptance occurred at the end of the project.

1.1.7. **Compliance of Contractor**. To ensure that DBE requirements of this DOT assisted Contract are complied with, the Department will monitor the Contractor's efforts to involve DBEs during the performance of this Contract. This will be accomplished by a review of monthly reports submitted to the Area Engineer by the Contractor indicating his progress in achieving the DBE Contract goal, and by compliance reviews conducted on the project site by the Department.

The Contractor shall receive credit toward the DBE goal based on actual payments to the DBE subcontractor. The Contractor shall notify the Area Engineer if he/she withholds or reduces payment to any DBE subcontractor. The Contractor shall submit an affidavit detailing the DBE subcontract payments before receiving final payment for the Contract.

Contractors' requests for substitutions of DBE subcontractors shall be accompanied by a detailed explanation which should substantiate the need for a substitution. The Contractor may not be allowed to count work on those items being substituted toward the DBE goal before approval of the substitution from the Department.

The prime Contractor is prohibited from providing work crews and equipment to DBEs. DBE Goal credit for the DBE subcontractors leasing of equipment or purchasing of supplies from the prime Contractor or its affiliates is not allowed.

When a DBE subcontractor named in the commitment under Section 1.A.3.a. of this Special Provision, is terminated or fails to complete its work on the Contract for any reason, the prime Contractor is required to make good faith efforts to find another DBE subcontractor to substitute for the original DBE. These good faith efforts shall be directed at finding another DBE to perform at least the same amount of work under the Contract as the DBE that was terminated, to the extent needed to meet the Contract goal.

A Contractor's failure to comply with the requirements of this Special Provision shall constitute a material breach of this Contract. In such a case, the Department reserves the right to terminate the Contract; to deduct the amount of DBE goal not accomplished by DBEs from the money due or to become due the Contractor, or to secure a refund, not as a penalty but as liquidated damages to the Department or such other remedy or remedies as the Department deems appropriate.

Forward Form 2371, "DBE Trucking Credit Worksheet," completed by the DBE trucker every month DBE credit is used.

1.2. **Article B. Race-Neutral Disadvantaged Business Enterprise Participation.** It is the policy of the DOT that Disadvantaged Business Enterprises (DBE) as defined in 49 CFR Part 26 Subpart A, be given the opportunity to compete fairly for Contracts and subcontracts financed in whole or in part with Federal funds and that a maximum feasible portion of the Department's overall DBE goal be met using race-neutral means. Consequently, if there is no DBE goal, the DBE requirements of 49 CFR Part 26, apply to this Contract as follows:

The Contractor will offer DBEs as defined in 49 CFR Part 26, Subpart A, the opportunity to compete fairly for Contracts and subcontractors financed in whole or in part with Federal funds. Race-Neutral DBE and non-DBE HUB participation on projects with no DBE goal shall be reported on Form SMS.4903, "DBE or HUB Progress Report" and submitted to the Area Engineer each month and at project completion. Payments to DBEs reported on Form SMS.4903 are subject to the requirements of Section 1.1.5., "Determination of DBE Participation."

The Contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this Contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted Contracts. Failure by the Contractor to carry out these requirements is a material breach of this Contract, which may result in the termination of this Contract or such other remedy as the recipient deems appropriate.

Special Provision to Item 000
Important Notice to Contractors

Texas Department of Transportation

By the 20th day of each month, report to the Engineer the number of incidents and injuries that occurred on the project the previous month. Report:

- the total number of incidents and injuries for the Contractor and all subcontractors, and
- the number of Contractor and subcontractor-related incidents and injuries that involved a third party.

An "incident" is defined as any work-related occurrence that caused damage only to vehicles, equipment, materials, etc.

An "injury" is defined as an OSHA recordable injury.

Acquire an Electronic Project Records System (EPRS) account to report incidents and injuries. Submit an EPRS User Access Request Form (Form 2451) to request an account. This form can be found at http://www.txdot.gov/business/resources/doing-business/prequalification.html.

Report injuries and incidents using the EPRS website located at https://apps.dot.state.tx.us/apps/eprs/InjuryIncident/InjryIncdt.aspx.

Failure to submit this information to the Engineers by the 20th day of each month will result in the Department taking actions including, but not limited to withholding estimates and suspending the work. This report will not be paid for directly, but will be considered subsidiary to Items of the contract.

DISCLOSURE OF LOBBYING ACTIVITIES

Approved by OMB
0348-0046

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352
(See reverse for public burden disclosure.)

1. Type of Federal Action:	2. Status of Federal Action:	3. Report Type:
☐ a. contract b. grant c. cooperative agreement d. loan e. loan guarantee f. loan insurance	☐ a. bid/offer/application b. initial award c. post-award	☐ a. initial filing b. material change **For Material Change Only:** year _____ quarter _____ date of last report _____

4. Name and Address of Reporting Entity:	5. If Reporting Entity in No. 4 is a Subawardee, Enter Name and Address of Prime:
☐ Prime ☐ Subawardee Tier _____, *if known*: **Congressional District**, *if known*: 4c	**Congressional District**, *if known*:
6. Federal Department/Agency:	**7. Federal Program Name/Description:** CFDA Number, *if applicable*: _____
8. Federal Action Number, *if known*:	**9. Award Amount**, *if known*: $
10. a. Name and Address of Lobbying Registrant (*if individual, last name, first name, MI*):	**b. Individuals Performing Services** (*including address if different from No. 10a*) (*last name, first name, MI*):

11. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

Signature: _____

Print Name: _____

Title: _____

Telephone No.: _____ Date: _____

Federal Use Only:

Authorized for Local Reproduction
Standard Form LLL (Rev. 7-97)

INSTRUCTIONS FOR COMPLETION OF SF-LLL, DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime Federal recipient, at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a covered Federal action. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence the outcome of a covered Federal action.

2. Identify the status of the covered Federal action.

3. Identify the appropriate classification of this report. If this is a followup report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered Federal action.

4. Enter the full name, address, city, State and zip code of the reporting entity. Include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if it is, or expects to be, a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the 1st tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.

5. If the organization filing the report in item 4 checks "Subawardee," then enter the full name, address, city, State and zip code of the prime Federal recipient. Include Congressional District, if known.

6. Enter the name of the Federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.

7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.

8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Proposal (RFP) number; Invitation for Bid (IFB) number; grant announcement number; the contract, grant, or loan award number; the application/proposal control number assigned by the Federal agency). Include prefixes, e.g., "RFP-DE-90-001."

9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitment for the prime entity identified in item 4 or 5.

10. (a) Enter the full name, address, city, State and zip code of the lobbying registrant under the Lobbying Disclosure Act of 1995 engaged by the reporting entity identified in item 4 to influence the covered Federal action.

    (b) Enter the full names of the individual(s) performing services, and include full address if different from 10 (a). Enter Last Name, First Name, and Middle Initial (MI).

11. The certifying official shall sign and date the form, print his/her name, title, and telephone number.

According to the Paperwork Reduction Act, as amended, no persons are required to respond to a collection of information unless it displays a valid OMB Control Number. The valid OMB control number for this information collection is OMB No. 0348-0046. Public reporting burden for this collection of information is estimated to average 10 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0046), Washington, DC 20503.

4C

State of Texas Child Support Business Ownership Form

County: _____ Project Name: _____

TxDOT CSJ: _____ LG Project Number: _____

Business Entity Submitting Bid:_____

Section 231.006, Family Code, requires a bid for a contract paid from state funds to include the names and social security number of individuals owning 25% or more of the business entity submitting the bid.

1. In the spaces below please provide the names and social security number of individuals owning 25% or more of the business.

Name	Social Security Number
_____	_____
_____	_____
_____	_____
_____	_____

2. Please check the box below if no individual owns 25% or more of the business.

( ) No individual own 25% or more of the business.

Except as provided by Section 231.302(d), Family Code, a social security number is confidential and may be disclosed only for the purpose of responding to a request for information from an agency operating under the provisions of Part A and D to Title IV of the Federal Social Security Act (42 USC Section 601-617 and 651-699).

Under Section 231.006, Family Code, the vendor or applicant certifies that the individual or business entity named in this contract, bid, or application is not ineligible to receive the specified grant, loan, or payment and acknowledges that this contract may be terminated and payment may be withheld if this certification is inaccurate.

The information collected on this form will be maintained by Enter Local Government Name. With few exceptions, you are entitled on request to be informed about the information collected about you. Under Sections 552.021 and 552.023 of the Texas Government Code, you also are entitled to receive and review the information. Under Section 559.004 of the Government Code, you are also entitled to have information about you corrected that you believe is incorrect.

_____ _____

Signature Date

_____

Printed Name

IF THIS PROJECT IS A JOINT VENTURE,

ALL PARTIES TO THE JOINT VENTURE MUST PROVIDE A COMPLETED FORM.

CHILD SUPPORT STATEMENT

Under Section 231.006, Family Code, the vendor or applicant certifies that the individual or business entity named in this contract, bid, or application is not ineligible to receive the specified grant, loan, or payment and acknowledges that this contract may be terminated and payment may be withheld if this certification is inaccurate.

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. General
II. Nondiscrimination
III. Nonsegregated Facilities
IV. Davis-Bacon and Related Act Provisions
V. Contract Work Hours and Safety Standards Act Provisions
VI. Subletting or Assigning the Contract
VII. Safety: Accident Prevention
VIII. False Statements Concerning Highway Projects
IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
X. Compliance with Governmentwide Suspension and Debarment Requirements
XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under

this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are

applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor

will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH–1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b.(1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or

will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b.(1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
(2) the prime contractor remains responsible for the quality of the work of the leased employees;
(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1. **Instructions for Certification – First Tier Participants:**

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. **Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the

department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion–Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

Section 01110

SUMMARY OF WORK

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Summary of the Work including work by the City, City-furnished Products, work sequence, future work, Contractor use of Premises, special conditions for substantial completion and City occupancy.

B. Note: the Profile Grade Line (PGL), is top of curb (TC) up to STA 57+00 for this project. From Sta 57+00 to End of Project, the PGL is based on the projected top of pavement elevation at the Baseline (BL).

C. Diversion Pumping & Ground Water Control for this project is incidental to various bid items.

D. Plugging of storm sewer pipes is incidental various bid items.

1.02 WORK COVERED BY CONTRACT DOCUMENTS

Roadway

A. The purpose of the project is to reconstruct Almeda Road within the project corridor with ultimate medians and 36 foot wide travel lanes (6 lanes) between Old Spanish Tail to South McGregor Way. In addition, there will be a 10 foot wide shared use path along the west side that connects to the Herman Park Trail system and a 5 foot wide sidewalk on the east side.

B. Work of the Contract is for reconstruction of Almeda Road from Sta 6+41 SB and Sta 10+61.21 NB to South MacGregor Way Intersection. South MacGregor Way, intersection is not included.

C. Almeda Road north of Old Spanish Trail (intersection included) to South MacGregor Way shall be reconstructed to 6 lane roadway. The existing wide medians will be reduced to 16 feet wide City of Houston standard medians. Part of the border will be utilized to mitigate impact due to increase impervious cover. This mitigation is to be accomplished with Low Impact features that will additionally treat the runoff prior to discharge. This project is also classified as a "Pilot Low Impact Project by City of Houston".

D. As shown on the plans, intersections of Old Spanish Trail (OST), US 90, and Holcombe Blvd. are reconstructed as part of this project to the limits shown on the plans.

E. In addition to Holcombe Blvd. intersection reconstruction, a left turn lane, westbound on Holcombe Blvd. will be constructed. The fence along the St. Dominican Sisters of Houston, and a sign where additional ROW was acquired will be removed and relocated to new ROW line. To accommodate the right turn lane, a segment of the 2' wide median, one storm sewer inlet relocation to the proposed curbline and 5' wide sidewalks are incorporated to this project.

F. All public roadways that connect to Almeda and the intersections of OST and Holcombe will be reconstructed with fast track concrete up to curb returns on Almeda Road.

G. All new and signs that are identified as "To be Relocated" shall be relocated to new locations as shown on the plans per specification 1554 and City of Houston drawing number 01509-01 as shown on plan sheet 229A.

H. There are several bus shelters and bus stops that are owned by METRO within the project limits. The contractor to coordinate the relocation of these shelters/stops with METRO minimum of 10 days prior to its impact construction proposed activities. Please contact Zelma Ridley, (713) 615-7119 Zelma.Ridley@ridemetro.org, Shirley Mitchell, Shirley.Mitchell@RideMetro.org and Carl Taylor, Carl.Taylor@RideMetro.org for the bus shelter/stop relocations.

I. In addition to 6 lane roadway and associated turn lanes, 5 foot wide sidewalks and wheel chair ramps at intersections will be constructed on the east side of the project limits. There are existing sidewalks on some locations. Refer to the Demolition Plan sheets for the limits of existing sidewalk and wheel chair ramp removals and the Plan & Profile sheets for the location of new sidewalks and ramps.

J. On the west side of the project limits, a 10'wide shared use path will be constructed instead or regular sidewalks. The existing sidewalks on west side will be removed as to the limits as shown on the demolition plans. Refer to the Plan & Profile Sheets for the limits and location of the proposed new 10' Shared Use Path. The proposed wheel chair ramps are wider on the west side to accommodate the wider widths.

Along Hermann Park, the existing 8' wide shared use path will be protected in place except for the limits shown on the Demolition Plans that shall be removed and reconstructed. The width of the proposed new Shared Use Paths along Hermann Park shall 10' wide and taper to existing width over one panel.

If there are existing sidewalks and wheel chair ramps on intersecting roads that are being reconstructed, these sidewalks and wheel chair ramps are reconstructed to 5' wide and then taper over one sidewalk panel to existing widths at the limits of the improvements.

At the intersection of OST and Holcombe, the median openings for pedestrians are minimum 6' x 6'.

K. Every attempt should be made to protect existing signs and landscape that are to remain. Any damage to them shall be the responsibility of the contractor to restore them to existing condition.

L. Paving Contractor to coordinate and install pvc sleeves called for in the Sleeving Plan.

<u>Utilities</u> (Water)

M. All existing utilities are shown at approximate location and depth. Contractor shall verify them prior to start of construction.

N. The existing waterline from approximate Sta 18+20 to Sta 64+65 will be abandoned in place and new 12" waterline shall be installed. The existing waterline from beginning of project to Sta 18+20 shall be protected in place. If the removal of the existing waterline is required for the installation of any other proposed utilities shown on the Plans, that work shall be incidental to various bid items.

O. The plans have identified location of large diameter water meters. Contractor shall transfer all existing services from the existing line to new proposed waterline.

P. The waterline crossing at Holcombe Blvd. intersection is identified as open cut installation. However, allowance is made in this contact to install that segment of waterline trenchless shall that method becomes necessary.

Utilities (Sanitary)

Q. Diversion pumping when required shall be incidental to various bid items.

R. The existing 54" MRC sanitary sewer line and one manhole at Dixie Road identified in the Demolition Plans shall be removed. A new 54" sanitary sewer line is proposed at this location with new manholes.

S. From Hermann Park Court to end of project, the existing 10" sanitary line and the manholes shall be removed and replaced with new 10" sanitary sewer line and manholes as shown on the Sanitary Sewer Plan Profile Sheets. Contractor shall transfer all existing services to new proposed sanitary sewer line. There are special requirements identified in the Sanitary Sewer Plan Profile Sheets when sanitary line crosses an existing or proposed waterline. In addition, the proposed sanitary and waterline shall have minimum of 9' horizontal separation. For vertical separations, refer to the plan.

The existing sanitary line and the proposed replacement is in close proximity to the fence from Hermann Park Court to Camden Drive. Contractor to ensure that the existing fence at this location is not damaged during construction. Any damage to the fence shall be restored to its existing or better condition at no expense to the City.

Drainage

T. There shall be a Mandatory meeting prior to the start of High Performance Modular Biofiltration System construction

U. Proposed drainage improvements include construction of curb and gutter streets with curb inlets, bioretention swales, and new storm sewer leads to the existing storm sewer trunk line within the existing roadway median.

V. Proposed curb inlets consist of TxDOT standard Type C1 inlets with and without extension, and a Type C1 (MOD) inlet with and without extension. Standard Type C1 inlets utilize storm sewer leads to convey runoff to the existing trunk system while Type C1 (MOD) inlets convey runoff through the rear of the inlet into adjacent boiretention swales.

W. Proposed bioretention swales collect runoff from offsite sheet flows and the proposed Type C1 (MOD) inlets. The boiretention swales consist of linear ditches, High Performance Modular Biofiltration System filtration areas and Type A (MOD) inlets. The bioretention swales are designed to filter the first ½ inch of runoff through the Proposed High Performance Modular Biofiltration System. Treated runoff is piped into the proposed Type A (MOD) inlets. Rainfall events greater than ½ inch but less than the 1% (100 YR) event are collected in the swale and drained through side openings (orifices) located in the Type A (MOD) inlet. Swales are sized in conjunction with orifice size to retain runoff during the 1% (100 YR) event and maintain a release rate equal to predevelopment conditions. These swales mitigate runoff impacts due to the proposed roadway improvements.

X. High Performance Modular Biofiltration System areas consist of a three layers substrate including a 3 inches hardwood mulch top layer, a 18 inch high flow media center layer, and a 6 inch bridging stone layer installed above a perforated pipe or structural underdrain. Treated water is conveyed to the Type A (MOD) inlet through a 6 inch PVC outlet pipe. Each bioretention swale incorporates a High Performance Modular Biofiltration System specifically sized for the computed runoff collected by each swale.

Y. Modifications to existing storm sewers which outfall into the existing Almeda Road storm sewer are proposed where conflicts or modification are necessary due to proposed roadway work.

Z. The High Performance Modular Biofiltration System installation shall commence upon completion of all roadway paving, sidewalk/mixed use path installation, and sod & hydro mulching operations are completed. This is to insure that the filter media is not overloaded with suspended solids.

AA. Contractor is responsible for installation and verification that the HPMBS system perform as specified in the HPMBS specification.

BB. The contractor shall provide an additional two (2) years maintenance after the one (1) year manufacture warranty ends in accordance with Operations and Maintenance Plan manual .

CC. Storm sewer tie-in to existing off site systems are incidental to various bid items.

Traffic Control Plan

DD. Traffic control plans will be set up in phases corresponding with the work sequence in section 1.06. Each phase of the plans shall be in accordance with the drawings and specifications provided. At a minimum at least one driveway to businesses is to be maintained at all times. As shown on the drawings every other median is to be open for circulation along Almeda.

Traffic Signal, Pavement Markings and Signing

EE. New signals will be installed at Almeda-Holcombe and Almeda-Old Spanish Trail intersections. The existing signals will remain operational until after completion of phase 2 of the work sequence section 1.06. The signals will be installed as shown in the drawings and in accordance with City of Houston Traffic Signal Details (02893 Series). The contractor shall use Uniformed Peace Officers for coordination of signal work at these two intersections as needed to control traffic. The contractor will coordinate with CenterPoint to convert the existing power at the signals to the new signals.

FF. Temporary pavement markings will be installed and removed in accordance with Traffic Control Plan drawings. The permanent pavement markings will be installed during phase 3 of the work section 1.06 and in accordance with City of Houston Specifications.

GG. Signage which is to remain, salvaged or replaced will be in accordance with roadway demolition plan drawings. New permanent signage will installed in accordance with the pavement markings and signing sheets in the package. Relocation of existing

signs will not be paid directly but is incidental to various bid items. The sign and its proposed location is as shown on the table below:

Sign	Proposed Station & Offset	Sign	Proposed Station & Offset
Metro Bus Stop	15+00 55' RT	3 Hour Parking	49+00 50' LT
US 90 East and West	17+70 58' RT	3 Hour Parking	49+40 50' LT
Metro Bus Stop	17+25 65' LT	3 Hour Parking	49+90 50' LT
Fannin South Park & Ride	17+85 58' LT	3 Hour Parking	50+40 50' LT
Speed Limit	20+80 50' RT	Metro Bus Stop	49+00 60' RT
Metro Bus Stop	21+00 50' RT	Bike Route	53+00 48' RT
Hermann Park (Arrow)	22+50 50' RT	Metro Bus Stop	53+00 47' RT
Speed Limit	41+65 50' LT	Metro Bus Stop	59+00 50' LT
		Metro Bus Stop	66+40 45'LT
Metro Bus Stop	44+30 55' RT		
Metro Bus Stop	48+00 50' LT		

Street Lights

HH. The existing wooden poles, wooden poles with light, metal light poles shall be relocated/removed by CenterPoint Energy as shown in Demo Plans and Street Lighting Plans.

II. Only underground conduit and pull boxes are to be installed as part of this project. Proposed street light locations are for informational purposes and will be installed by CenterPoint Energy contractor, as a separate contract, after the project is complete.

JJ. Proposed decorative light on new pedestrian light poles along with necessary appurtenances are to be installed as shown on the drawings next to the pedestrian walkway along Hermann Park.

SWPPP

KK. Provide filter fabric fence along the edge of excavation to prevent contaminants.

LL. Provide reinforced filter fence in the existing as well as proposed ditch as shown on the drawings.

MM. Provide stage I inlet protection barrier on the proposed inlets. This include inlets proposed at High Performance Modular Biofiltration System locations.

NN. Provide stage II inlet protection barrier on the existing and proposed inlets.

OO. Provide stabilized construction access at the ingress and egress of the project.

Landscape & Irrigation

PP. Tree removal with approval from COH urban forester. Tree protection, installation of checker plates, and zero curb cut locations as indicated on plans and specification. Contractor shall employ qualified arborist acceptable to City's Parks and Recreation Department to complete all tree treatments. Arborist shall be normally engaged in the field and have a minimum of 5 year's experience. Qualifications of the selected arborist shall be submitted for review and approval by the project engineer and City of Houston. An Urban forester shall be hired to monitor and assist with field layout (exact locations of fencing, root pruning, and zero curb cutback) of the tree preservation program during demolition and construction to ensure tree protection procedures and techniques are practiced as specified to address concerns and conditions which occur in the field.

QQ. Tree planting shall include 30 gal. Montezuma Cypress, 30 gal. Mexican Sycamore, 30 gal. Live Oak, 30 gal. Cedar Elm and 30 gal. Natchez Crape Myrtle along the ROW and in the medians. 1 gal. Gulf Coast Penstemon, and 1 gal. Gulf Coast Muhly shall be planted in the High Performance Modular Biofiltration System locations. All other areas shall receive Bermuda grass hydroseed with exception for block sodding at new curb locations. Fine grading shall be defined as placing and grading of additional soil (topsoil 3" minimum) required bringing the grade to the required grades for lawns.

RR. Landscape ground maintenance shall commence at the Notice to Proceed and terminate at 24 months after the issuance of Notice of Substantial Completion.

SS. Irrigation system shall be used to irrigate all trees and the High Performance Modular Biofiltration System locations. Contractor is responsible to furnish and install a complete irrigation system, permits or fees per COH regulations, trenching and backfill, furnishing and installing backflow prevention devices, furnishing and installing sleeves where indicated, coordinate all activities with the installation of related electrical equipment and pri¬mary power wiring by electrical subcontractor, coordinating and installation of water meter and controller according to plans, boring under existing paving for irrigation piping and control valve wring if additional sleeves are required, inspections and tests, install extra control and ground wires if requested by Owners, clean up and disposal, coordinate connector of controller inside of building with other trades, record "As Built" drawings and Warranties.

1.03 CASH ALLOWANCES

A. Include the following specific Cash Allowances in Contract Price under provision of General Conditions Paragraph 3.11:

1. COH Flood Plain Management permit - copy of permit application included at the end of this document.
2. TDPES/ TCEQ general permit (NOI application fee).
3. Utility reimbursement - (permanent street lighting) for installation and re-circuiting 2-inch PVC conduits. Quantities for street lighting conduits are listed in document 00410B of this package.
4. Pedestrian Lightning

1.04 ALTERNATES

B. No alternates allowed in this contract

1.05 CITY-FURNISHED PRODUCTS

A. Items Furnished by the City for Installation and final connection by Contractor: Water meters (only if the existing water meters are damaged).

B. Contractor's Responsibilities:

1. Arrange and pay for Product delivery to the site.
2. Receive and unload Products at the site; jointly with the City, inspect for completeness or damage.
3. Handle, store, Install, and finish Products.
4. Repair or replace damaged items.

1.06 WORK SEQUENCE

A. Construct the Work in Phases during the construction period; coordinate construction schedule and operations with the City:

1. Phase 1: Construct 4 inside lanes.
   Two existing outside lanes on Almeda will carry traffic while the interior lanes and medians are constructed. Driveways, median openings, and major intersections will be constructed with high early strength concrete to avoid extended periods of traffic closures/delays.

2. Phase 2: Construct the outside lanes.
   This construction will have traffic on the newly constructed lanes with a minimum of two travel lanes in each direction with additional turning lanes as designed. The adjacent north and southbound lanes will be constructed during this phase along with sidewalk and curbs along Almeda.

3. Phase 3: Construct landscape features.
   During this phase the transition from temporary (existing) traffic signals to the final signal design will occur, although the traffic poles can be set in any earlier phase. High Performance Modular Biofiltration System installation shall be the last item to be completed.

B. For projects with no Phases, do not disturb more than 50% of total project linear feet of disturbed right-of-way and easement until site restored in accordance with Section 01740 – Site Restoration.

C. Coordination of the Work: Refer to Section 01312 - Coordination and Meetings.

1.07 CONTRACTOR USE OF PREMISES

A. Comply with procedures for access to the site and Contractor's use of rights-of-way as specified in Section 01145 - Use of Premises.

B. Temporary field office as specified in Section 01520 is required in this project. The cost of temporary field office shall be incidental to the cost of mobilization.

C. Construction Operations: Limited to the City's rights-of-way provided by the City and areas shown or described in the Contract documents.

D. Utility Outages and Shutdown: Provide a minimum of 48 hours notice to the City and private utility companies (when applicable), excluding weekends and holidays, in advance of required utility shutdown. Coordinate all work as required.

E. Private Utility Relocations: Pursuant to Section 40-395 of the City of Houston (City) Utility Relocation Ordinance Program (URO), and based upon the best information provided by the private facility owners, all required utility relocation work has been coordinated. The City expects there should have no perceivable conflicts with the proposed construction.

The following is a description of the private utilities identified for relocation within the project limits:

AT&T:

UTILITY			
Utility Owner	**Approximate Location**	**Estimated Clearance Date**	**Effect on Construction**
AT&T	STA 8+06 to 111+20	December 2016	None

CENTERPOINT GAS:

UTILITY			
Utility Owner	**Approximate Location**	**Estimated Clearance Date**	**Effect on Construction**
CenterPoint Energy - Gas	STA 8+25 to 109+28	July 2015	None

The relocation of these facilities is not anticipated to interfere with the Contractors operations, but the Contractor shall develop the project construction schedule and bid

accordingly. In the event that the clearance dates are deviated and proven to impact contractor's schedule, Contractor shall notify the construction project manager per Article 7 – Changes in the Work under Document 00700 General Conditions. The Contractor is invited to review all information of potential obstructions currently on file with the Engineer.

F. Outstanding Special Provisions - Right-of-Way Acquisitions, Encroachments, Permits, Etc.: The City of Houston (City) has determined that the following pending conditions may apply to the completion of the proposed construction identified herein, and should be considered essential in completion of this project.
   - Ongoing ROW acquisitions at Holcombe Blvd. and Old Spanish Trail.

1.08 STREET CUT ORDINANCE

A. Excavations on or under pavement in the City's right-of-way must have a permit. Comply with City of Houston, Texas Ordinance No. 2000-1115, an ordinance amending Chapter 40 of the Code of Ordinances, Houston, Texas, relating to excavating in the Public right-of-way.

B. Comply with the latest edition of street cut New Pavement Repair and Pavement Replacement details.

C. Quantities are included for street cut pavement repair and replacement in applicable Specification sections for Unit Price contracts.

D. Include payment for street cut pavement repair and replacement in lump sum bid for Stipulated Price contracts.

1.09 WARRANTY

A. Comply with warranty requirements in accordance with Document 00700 – General Conditions.

1.10 ADDITIONAL CONDITIONS FOR SUBSTANTIAL COMPLETION

A. In addition to requirements outlined in Document 00700 – General Conditions, for Contractor to be substantially complete with the Work and call for inspection by Project Manager to confirm, the following conditions must be met or completed:

   1. All testing shall be completed and accepted by Project Manager.

   2. All Safety related work including street lights, pavement stripping, signing and signalization installed and operational as intended.

   3. All safety-related systems and equipment shall be installed, accepted by manufacture's representative and approved for use.

   4. All pay items complete and reported.

   5. Contractor shall contact Construction Project Manager to complete Texas Department of Licensing and Regulations Post Construction Inspection of pedestrian elements for Texas Accessibility Standards.

   6. All landscape items are installed.

7. All Low Impact amenities installed, cleaned and operational.

8. Complete report of all pay items.

B. No additional condition described in Paragraph 1.10 may be included in Contractor's punch list.

PART 2 P R O D U C T S - Not Used

PART 3 E X E C U T I O N - Not Used

END OF SECTION

Section 01145

USE OF PREMISES

1.01 SECTION INCLUDES

A. General use of the site including properties inside and outside of rights-of-way, work affecting road, ramps, streets and driveways and notification to adjacent occupants.

1.02 RIGHTS-OF-WAY

A. Confine access, and operations and storage areas to rights-of-way provided by the City as stipulated in Document 00700 - General Conditions; trespassing on abutting lands or other lands in the area is not allowed.

B. Make arrangements, at no cost to the City, for temporary use of private properties. Contractor and Surety shall indemnify and hold harmless the City against claims or demands arising from such use of properties outside of rights-of-way. Submit a copy of agreements between private property owners and Contractor prior to use of the area. Agreements between private property owners and Contractor shall be notarized or bear the signatures of two witnesses.

C. Obtain written permission from City of Houston Parks and Recreation Department for storage of materials on esplanades and other areas within rights-of-way under that department's jurisdiction. Submit copies of written permission prior to use of the area.

D. Restrict total length of distributed materials along the route of construction to 1,000 linear feet unless otherwise approved in writing by City Engineer.

1.03 PROPERTIES OUTSIDE OF RIGHTS-OF-WAY

A. Do not alter the condition of properties adjacent to and along rights-of-way.

B. Do not use ways, means, methods, techniques, sequences, or procedures that result in damage to properties or improvements.

C. Restore damaged properties outside of rights-of-ways at no cost to the city

1.04 USE OF SITE

A. Obtain approvals from governing authorities prior to impeding or closing public roads and streets. Do not close more than two consecutive intersections at one time.

B. Notify Project Manager and Public Works and Engineering Traffic Management Branch at least five working days prior to closing a street or street crossing. Obtain permits for street closures in advance.

C. Maintain 10-foot-wide minimum access lanes for emergency vehicles including access to fire hydrants.

D. Avoid obstructing drainage ditches or inlets. When obstruction is unavoidable due to requirements of the Work, provide grading and temporary drainage structures to maintain unimpeded flow.

E. Locate and protect private lawn sprinkler systems that may exist within the site. Repair or replace damaged systems to condition existing at start of the Work, or better. Test irrigation system prior to construction.

F. Conform to daily clean-up requirements of Article 3 of Document 00700 - General Conditions.

G. Beware of overhead power lines existing in area and in close proximity of the Project. When 10 feet of clearance between energized overhead power line and construction-related activity cannot be maintained, request Center Point Energy (CPE) de-energize or move conflicting overhead power line. Contact CPE representatives at (713) 207-2222. Schedule, coordinate and pay costs associated with de-energizing or moving conflicting overhead power lines. When there is no separate pay item for this effort, include these costs in various items of bid that make such work necessary.

1.05 NOTIFICATION TO ADJACENT OCCUPANTS

A. Notify individual occupants in areas to be effected by the Work of proposed construction and time schedule. Notify not less than 72 hours or more than two weeks prior to work performed within 200 feet of homes or businesses. Follow form and content of sample door hanger provided by Project Manager.

B. Include in notification nature of the Work, and names and telephone numbers of two company representatives for resident contact available on 24-hour call.

C. Submit proposed notification to Project Manager for approval. Consider ethnicity of the neighborhood where English is not the dominant language. Provide notice in an understandable language.

1.06 PUBLIC, TEMPORARY, AND CONSTRUCTION ROADS AND RAMPS

A. Construct and maintain temporary detours, ramps, and roads to provide for normal public traffic flow when it is necessary to close public roads or streets.

B. Provide mats or other means to prevent overloading or damage to existing roadways from tracked equipment, large tandem axle trucks or equipment that will damage the existing roadway surfaces.

C. Construct and maintain access roads and parking areas as specified in Section 01504 - Temporary Facilities and Controls.

1.07 EXCAVATION IN STREETS AND DRIVEWAYS

A. Avoid hindering or inconveniencing public travel on streets or intersecting alleys for more than two blocks at any one time, except by permission of City Engineer.

B. Obtain Traffic Management Branch and City Engineer's approval when nature of the Work requires closure of an entire street. Permits required for street closure are Contractor's responsibility. Avoid unnecessary inconvenience to abutting property owners.

C. Remove surplus materials and debris and open each block for public use, as work in that block is complete.

D. Acceptance of any portion of the Work will not be based on return of street to public use.

E. Avoid obstructing driveways or entrances to private property.

F. Provide temporary crossings or complete excavation and backfill in one continuous operation to minimize duration of obstruction when excavation is required across drives or entrances.

G. Provide barricades and signs in accordance with Section VI of the State of Texas Manual on Uniform Traffic Control Devices.

1.08 TRAFFIC CONTROL

A. Comply with traffic regulation as specified in Section 01555 - Traffic Control and Regulation.

1.09 SURFACE RESTORATION

A. Restore the site including landscaping to the condition existing before construction, or better.

B. Repair paved areas per the requirements of Section 02951 - Pavement Repair and restoration.

C. Repair damaged turf areas, level with bank run sand conforming to Section 02317 - Excavation and Backfill for Utilities, or topsoil conforming to Section 02911 - Topsoil, and re-sod in accordance with Section 02922 - Sodding. Water and level newly sodded areas with adjoining turf using appropriate steel wheel rollers for sodding. Do not use spot sodding or sprigging.

1.10 LIMITS OF CONSTRUCTION

A. Confine operations to lands within construction work limits shown on Drawings. Unless otherwise noted on Drawings adhere to the following:

1. Where utility alignment is within esplanade, and construction limits are shown on Drawings to extend to edge of esplanade, keep equipment, materials, stockpiles a minimum of five feet from back of curb.

2. Where construction limits shown on Drawings extend to property line, keep sidewalks free of equipment, materials, and stockpiles.

1.11 EQUIPMENT AND MATERIAL SALVAGE

A. Upon completion of the Work, carefully remove salvageable equipment and material. Deliver them to City of Houston as directed by Project Manager. Dispose of equipment offsite at no additional cost to the City when Project Manager deems equipment unfit for further use.

PART 2 P R O D U C T S - Not Used

PART 3 E X E C U T I O N - Not Used

END OF SECTION

Section 01255

CHANGE ORDER PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedures for processing Change Orders, including:

1. Assignment of a responsible individual for approval and communication of changes in the Work;

2. Documentation of change in Contract Price and Contract Time;

3. Change procedures, using proposals and Modifications;

4. Execution of Change Orders;

5. Correlation of Contractor submittals.

1.02 REFERENCES

A. Blue Book is defined as the Rental Rate Blue Book for Construction Equipment (a.k.a. Data Quest Blue Book).

B. Rental Rate is defined as the full-unadjusted base rental rate for the appropriate item of construction equipment.

1.03 RESPONSIBLE INDIVIDUAL

A. Provide a letter indicating the name and address of the individual authorized to execute Modifications, and who will be responsible for informing others in Contractor's employ and Subcontractors of changes to the Work. Provide this information at the pre-construction meeting.

1.04 DOCUMENTATION OF CHANGE IN CONTRACT PRICE AND CONTRACT TIME

A. Maintain detailed records of changes in the Work. Provide full information required for identification and evaluation of proposed changes, and substantiate costs of changes in the Work.

B. Document each proposal for change in Contract Price or Contract Time with sufficient data to allow evaluation of proposal.

C. Include the following minimum information on proposals:

1. Quantities of items in original Document 00410 – Bid Form with additions, reductions, deletions, and substitutions.

2. Quantities and cost of items in original Schedule of Values with additions, reductions, deletions and substitutions.

3. Provide Unit Prices for new items, with supporting information, for inclusion in Schedule of Unit Price Work.

4. Justification for changes in Contract Time.

5. Additional data upon request.

D. For changes in the Work performed on a time-and-material basis, provide the following additional information:

1. Quantities and description of Products.

2. Taxes, insurance and Bonds.

3. Overhead and profit as noted in Document 00700 - General Conditions.

4. Dates, times and by who work was performed.

5. Time records and certified copies of applicable payrolls.

6. Invoices and receipts for Products, rental equipment, and subcontracts, similarly documented.

E. For changes in the Work performed on a time-and-materials basis, rental equipment is paid as follows:

1. Actual invoice cost for duration of time required to complete extra work without markup for overhead and profit. When extra work comprises only a portion of a rental invoice where equipment would otherwise be on site, compute hourly equipment rate by dividing the actual monthly invoice by 176. One day equals eight hours and one week equals 40 hours.

2. Do not exceed estimated operating costs given in Blue Book for items of equipment. Overhead and profit will be allowed on the operating cost.

F. For changes in the Work performed on a time-and-materials basis using Contractor-owned equipment, use Blue Book rates as follows:

1. Contractor-owned equipment will be paid at the Blue Book Rental Rate for the duration of time required to complete extra work without markup for overhead and profit. Utilize lowest cost combination of hourly, daily, weekly or monthly rates. Use 150 percent of Rental Rate for double shifts, one extra shift per day, and 200 percent of Rental Rate for more than two shifts per day. Standby rates shall be 50 percent of the appropriate Rental Rate shown in Blue Book. No other rate adjustments apply.

2. Do not exceed estimated operating costs given in Blue Book. Overhead and profit will be allowed on operating costs. Operating costs will not be allowed for equipment on standby.

1.05 CHANGE PROCEDURES

A. Changes to Contract Price or Contract Time can only be made by issuance of Document 00941 - Change Order. Issuance of Document 00940 - Work Change Directive will be formalized into a Change Order. Changes will be in accordance with requirements of Document 00700 - General Conditions.

B. City Engineer will advise of Minor Changes in the Work as authorized by the Document 00700 - General Conditions by issuing Document 00942 – Minor Change.

C. Request clarification of Drawings, Specifications, Contract documents or other information by using Document 00931- Request for Information. Response by Project Manager to Requests for Information does not authorize Contractor to perform tasks outside scope of the Work. Changes must be authorized as described in this Section.

1.06 PROPOSALS AND CONTRACT MODIFICATIONS

A. Project Manager may issue Document 00932- Request for Proposal, which includes a detailed description of the proposed change with supplementary or revised Drawings and Specifications. Project Manager may also request a proposal in response to a Request for Information. Prepare and submit the proposal within seven days or as specified in request.

B. Submit requests for Contract changes to City Engineer describing proposed change and its full effect on the Work, with a statement describing reason for change and effect on Contract Price and Contract Time including full documentation.

C. Design Consultant may review Change Orders.

1.07 WORK CHANGE DIRECTIVE

A. City Engineer may issue a signed Work Change Directive instructing Contractor to proceed with a change in the Work. Work Change Directive will subsequently be incorporated into a Change Order.

B. Work Change Directives will describe changes in the Work and designate the method of determining change in Contract Price or Contract Time.

C. Proceed promptly to execute changes in the Work in accordance with the Work Change Directive.

1.08 STIPULATED PRICE CHANGE ORDER

A. A Stipulated Price Change Order will be based on an accepted proposal.

1.09 UNIT PRICE CHANGE ORDER

A. Where Unit Prices for affected items of the Work are included in Document 00410 – Bid Form, the Change Order will be based on Unit Prices, subject to Articles 7 and 9 of Document 00700 - General Conditions.

B. Where Unit Prices of the Work are not pre-determined in Document 00410-Bid Form, the Work Change Directive or accepted proposal will specify the Unit Prices to be used.

1.10 TIME-AND-MATERIAL CHANGE ORDER

A. Provide itemized account and supporting data after completion of change, within time limits indicated for claims in Document 00700 - General Conditions.

B. City Engineer will determine the change allowable in Contract Price and Contract Time as provided in Document 00700 - General Conditions.

C. Maintain detailed records for work done on time-and-material basis as specified in Paragraph 1.04 above.

D. Provide full information required for evaluation of changes and substantiate costs for changes in the Work.

1.11 EXECUTION OF CHANGE DOCUMENTATION

A. City Engineer will issue Change Orders, Work Change Directives, or Minor Change in the Work for signatures of Parties as described in Document 00700 - General Conditions.

1.12 CORRELATION OF CONTRACTOR SUBMITTALS

A. For Stipulated Price Contracts, promptly revise Schedule of Values and Application for Payment forms to record authorized Change Orders as separate line item.

B. For Unit Price Contracts, the next monthly estimate of the Work after acceptance of a Change Order will be revised to include new items not previously included with appropriate Unit Prices.

C. Promptly revise progress schedules to reflect change in Contract Time, and to adjust time for other items of work affected by the change, and resubmit for review.

D. Promptly enter changes to on-site and record copies of Drawings, Specifications or Contract documents as required in Section 01785 - Project Record Documents.

PART 2 P R O D U C T S - Not Used

PART 3 E X E C U T I O N - Not Used

END OF SECTION

Section 01270

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedures for measurement and payment plus conditions for nonconformance assessment and nonpayment for rejected Products.

1.02 AUTHORITY

A. Measurement methods delineated in Specification sections are intended to complement criteria of this Section. In event of conflict, requirements of the Specification section shall govern.

B. Project Manager will take all measurements and compute quantities accordingly.

C. Assist by providing necessary equipment, workers, and survey personnel.

D. Measurement and Payment paragraphs are included only in those Specification sections of Division 01 where direct payment will be made. Include costs in the total bid price for those Specification sections in Division 01 that do not contain Measurement and Payment paragraphs,

1.03 UNIT QUANTITIES SPECIFIED

A. Quantity and measurement estimates stated in the Agreement are for contract purposes only. Quantities and measurements supplied or placed in the Work and verified by Project Manager will determine payment as stated in Article 9 of Document 00700 - General Conditions.

B. When actual work requires greater or lesser quantities than those quantities indicated in Document 00410 – Bid Form, provide required quantities at Unit Prices contracted, except as otherwise stated in Article 9 of Document 00700 - General Conditions.

1.04 MEASUREMENT OF QUANTITIES

A. Measurement by Weight: Reinforcing steel, rolled or formed steel or other metal shapes are measured by CRSI or AISC Manual of Steel Construction weights. Welded assemblies are measured by CRSI or AISC Manual of Steel Construction or scale weights.

B. Measurement by Volume:

1. Stockpiles: Measured by cubic dimension using mean length, width, and height or thickness.

2. Excavation and Embankment Materials: Measured by cubic dimension using average end area method.

C. Measurement by Area: Measured by square dimension using mean length and width or radius.

D. Linear Measurement: Measured by linear dimension, at item centerline or mean chord.

E. Stipulated Price Measurement: By unit designated in the Agreement.

F. Other: Items measured by weight, volume, area, or linear means or combination, as appropriate, as completed item or unit of the Work.

G. Measurement by Each: Measured by each instance or item provided.

H. Measurement by Lump Sum: Measure includes all associated work.

1.05 PAYMENT

A. Payment includes full compensation for all required supervision, labor, Products, tools, equipment, plant, transportation, services, and incidentals; and erection, application or Installation of an item of the Work; and Contractor's overhead and profit.

B. Total compensation for required Unit Price work shall be included in Unit Price bid in Document 00410 – Bid Form. Claims for payment as Unit Price work, but not specifically covered in the list of Unit Prices contained in Document 00410 – Bid Form, will not be accepted.

C. Interim payments for stored materials will be made only for materials to be incorporated under items covered in Unit Prices, unless disallowed in Document 00800 - Supplementary Conditions.

D. Progress payments will be based on Project Manager's observations and evaluations of quantities incorporated in the Work multiplied by Unit Price.

E. Final payment for work governed by Unit Prices will be made on the basis of actual measurements and quantities determined by Project Manager multiplied by the Unit Price for work which is incorporated in or made necessary by the Work.

1.06 NONCONFORMANCE ASSESSMENT

A. Remove and replace work, or portions of the Work, not conforming to the Contract documents.

B. When not practical to remove and replace work, City Engineer will direct one of the following remedies:

1. Nonconforming work will remain as is, but Unit Price will be adjusted lower at discretion of City Engineer.

2. Nonconforming work will be modified as authorized by City Engineer, and the Unit Price will be adjusted lower at the discretion of City Engineer, when modified work is deemed less suitable than specified.

C. Specification sections may modify the above remedies or may identify a specific formula or percentage price reduction.

D. Authority of City Engineer to assess nonconforming work and identify payment adjustment is final.

1.07 NONPAYMENT FOR REJECTED PRODUCTS

A. Payment will not be made for any of the following:

1. Products wasted or disposed of in an unacceptable manner.

2. Products determined as nonconforming before or after placement.

3. Products not completely unloaded from transporting vehicles.

4. Products placed beyond lines and levels of required work.

5. Products remaining on hand after completion of the Work, unless specified otherwise.

6. Loading, hauling, and disposing of rejected Products.

PART 2 P R O D U C T S - Not Used

PART 3 E X E C U T I O N - Not Used

END OF SECTION

Section 01292

SCHEDULE OF VALUES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preparation and submittal of Schedule of Values for Stipulated Price Contracts or for Major Unit Price Work on Unit Price Contracts.

1.02 PREPARATION

A. For Stipulated Price Contracts, subdivide the Schedule of Values into logical portions of the Work, such as major work items or work in contiguous construction areas. Use Section 01325 - Construction Schedule as a guide to subdivision of work items. Directly correlate Items in the Schedule of Values with tasks in the Construction Schedule. Organize each portion using the Project Manual Table of Contents as an outline for listing value of the Work by Sections. A pro rata share of mobilization, Bonds, and insurance may be listed as separate items for each portion of the Work.

B. For Unit Price Contracts, items should include a proportional share of Contractor's overhead and profit so that total of all items will equal Contract Price.

C. For lump sum equipment items, where submittal of operation and maintenance data and testing are required, include separate items for equipment operation and maintenance data where:

1. submittal of maintenance data is valued at five percent of the lump sum amount for each equipment item and

2. submittal for testing and adjusting is valued at five percent of the lump sum amount for each equipment item.

Round off figures for each item listed to the nearest $100. Set the value of one item, when necessary, to make total of all values equal the Contract Price for Stipulated Price Contracts or the lump sum amount for Unit Price Work.

1.03 SUBMITTAL

A. Submit the Schedule of Values, in accordance with requirements of Section 01330 - Submittal Procedures, at least 10 days prior to processing of the first Certificate for Payment.

B Submit the Schedule of Values in an approved electronic spreadsheet file and an 81/2-inch by 11-inch print on white bond paper.

C. Revise Schedule of Values for items affected by Contract Modifications. After City Engineer has reviewed changes, resubmit at least 10 days prior to the next scheduled Certificate for Payment date.

PART 2 P R O D U C T S - Not Used

PART 3 E X E C U T I O N - Not Used

END OF SECTION

Section 01312

COORDINATION AND MEETINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General coordination including pre-construction meeting, site mobilization conference, and progress meetings.

1.02 COORDINATION OF DOCUMENTS

A. Coordination is required throughout documents. Refer to Contract documents and coordinate as necessary.

1.03 CONTRACTOR COORDINATION

A. Coordinate scheduling, submittals, and work of various Specification sections to assure efficient and orderly sequence of Installation of interdependent construction elements.

B. Coordinate completion and clean up of the Work prior to the Date of Substantial Completion and for portions of the Work designated for City's partial occupancy.

C. Coordinate access to the site for correction of nonconforming work to minimize disruption of the City's activities where the City is in partial occupancy.

1.04 PRE-CONSTRUCTION MEETING

A. Project Manager will schedule pre-construction meeting.

B. Attendance Required: City representatives, Design Consultant, special consultants as required by Project Manager, Contractor, and major Subcontractors and Suppliers.

C. Agenda:

1. Distribution of Contract documents.

2. Designation of personnel representing the Parties and Design Consultant.

3. Review of insurance.

4. Discussion of formats for Schedule of Values and Construction Schedule.

5. Procedures and processing of Shop Drawings, substitutions, pay estimates or Applications for Payment, Requests for Information, Requests for Proposal, Modifications, and the Contract closeout, other submittals.

6. Scheduling of the Work and coordination with other contractors.

7. Review of Subcontractors and Suppliers.

8. Appropriate agenda items listed for the site mobilization conference, Paragraph 1.05.C, when pre-construction meeting and site mobilization conference are combined.

9. Procedures for testing.

10. Procedures for maintaining record documents.

1.05 SITE MOBILIZATION CONFERENCE

A. When required by Contract documents, Project Manager will schedule a conference at the Project site prior to Contractor mobilization.

B. Attendance Required: City representatives, Design Consultant, special consultants, Superintendent, and major Subcontractors.

C. Agenda:

1. Use of premises by the City and Contractor.

2. Safety and first aid procedures.

3. Construction controls provided by the City.

4. Temporary utilities.

5. Survey and layout.

6. Security and housekeeping procedures.

7. Field office requirements.

1.06 PROGRESS MEETINGS

A. Hold meetings at Project field office or other location designated by Project Manager. Hold meetings at monthly intervals, or more frequently when directed by Project Manager.

B. Attendance Required: Superintendent, major Subcontractors and Suppliers, City representatives, Design Consultant and its subconsultants as appropriate for agenda topics for each meeting.

C. Project Manager will make arrangements for meetings, and for recording minutes.

D. Project Manager will prepare the agenda and preside at meetings.

E. Provide required information and be prepared to discuss each agenda item.

F. Agenda:

1. Review minutes of previous meetings.
2. Review of construction schedule, pay estimates, cash flow curve, payroll and compliance submittals.
3. Field observations, problems, and necessary decisions.
4. Identification of problems that impede planned progress.
5. Review of submittal schedule and status of submittals.
6. Review of RFI and RFP status.
7. Modification status.
8. Review of off-site fabrication and delivery schedules.
9. Maintenance of Construction Schedule.
10. Corrective measures to regain Construction Schedule.
11. Planned progress during the succeeding work period.
12. Coordination of projected progress.
13. Maintenance of quality and work standards.

14. Effect of proposed Modifications on Construction Schedule and coordination.

15. Review Project Record Contract Drawings.

16. Other item relating to the Work.

PART 2 P R O D U C T S - Not Used

PART 3 E X E C U T I O N - Not Used

END OF SECTION

Section 01321

CONSTRUCTION PHOTOGRAPHS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Photographic requirements for construction photographs and submittals.

1.02 DEFINITIONS

A. Pre-construction Photographs: Photographs taken, in sufficient numbers and detail, prior to Date of Commencement of the Work, to show original construction site conditions.

B. Progress Photographs: Photographs, taken throughout the duration of construction at regular intervals and from fixed vantage points, pre-approved by the City, that document progress of the Work.

C. Finished Photographs: Photographs, taken by a professional photographer near Date of Substantial Completion and before City Council's acceptance of the Work, that are suitable for framing and for use in brochures or on the Internet

1.03 SUBMITTALS

A. Refer to Section 01330, Submittal Procedures, for submittal requirements.

B. Format and Media. Film or digital photography may be used. Submit color photographs, unless otherwise specified.

1. Prints. Submit each Progress or Pre-construction Photograph print in a three-hole plastic pocket or sleeve, bound in a three-ring notebook. Produce prints on photographic-quality paper approved by Project Manager. Minimum size for Pre-construction Photograph prints shall be 3-inches by 5-inches. Progress Photograph prints shall be 8-inches by 10-inches.

2. Film. Use 35mm or larger color film. Submit negatives used to make submitted photographs, in 3-hole 8-1/2 inch by 11-inch plastic sheets with sleeves for negatives.

3. Digital Photography. Use 2.1 megapixel density or greater for photographs. Scanned photographs must equal or exceed 400 dots

per inch when scanned from 8-inch by 10-inch prints. Submit digital photographic files on computer disks. Format disks for MS-DOS (Microsoft Disk Operating System) filing system and in JPEG (Joint Photographic Experts Group) format.

C. Submittal Quantities and Frequencies.

1. Pre-construction Photographs:
   a. For Stipulated Price Contracts, submit two sets of Pre-construction Photographs, if required, prior to first Application for Payment.
   b. For Unit Price Contracts, submit two sets of Pre-construction Photographs prior to start of construction operations.

2. Progress Photographs:
   a. For Stipulated Price Contracts, submit three sets of Progress Photographs with each Application for Payment at the times established for submittal of Applications for Payment. Monthly Applications for Payment shall be deemed incomplete if not accompanied by the required Progress Photographs. Contractor's failure or election to not submit a monthly Application for Payment shall not affect the requirement for monthly Progress Photographs.
   b. Progress Photographs are not required for Unit Price Contracts unless otherwise specified.

3. Finished Photographs: For Stipulated Price Contracts submit two sets of Finished Photographs, if required, after Date of Substantial Completion and prior to final payment. Each set shall contain one 11-inch by 14-inch matte finish color photographic print from each of the two vantage points pre-approved by the City. Vantage points for Finished Photographs will be approved separately from vantage points approved for Progress Photographs. Finished Photographs are not required for Unit Price Contracts unless otherwise specified.

D. Labeling. Place a label on the back of each photographic print, applied so as to not to show through on the front. Labels shall contain the following information:

1. Name of Project, address of Project and GFS Number.

2. Name and address of Contractor.

3. Date photograph was taken.

4. Location photo was taken from and short description of photo subject.

5. Name and address of professional photographer who took the photograph, if applicable.

E. Hand-deliver or transmit prints in standard photographic mailers marked "Photographs - Do Not Bend".

F. Photographic prints, negatives, photographic files and disks become the property of the City. Do not be publish photographs without written consent by the City.

1.04 QUALITY ASSURANCE

A. Contractor shall be responsible for the quality of and timely execution and submittal of photographs.

B. For Finished Photographs, Contractor shall use a professional photographer, with five years minimum professional experience in the Houston area. Contractor shall submit name, address and credentials of professional photographer for Project Manager's review and approval.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.01 PRE-CONSTRUCTION PHOTOGRAPHS

A. Prior to commencement of construction operations, photograph the site to include initial construction corridor, detour routes, and staging or storage areas.

1. For Stipulated Price Contracts, unless specified as a requirement in other Sections, these photographs are optional for Contractor, but are highly recommended for areas bounded by other property owners.

2. Pre-construction photographs are required for Unit Price Contracts. For line projects with scheduled construction segments, take Pre-construction Photographs prior to commencement of work on each segment.

B. Prepare Pre-construction Photographs as follows:

1. Show the following information on a non-reflective chalkboard placed within the picture frame:
   a. Job number.
   b. Project Number.
   c. Date and time photographs were taken (Automatic date/time in negative is acceptable).
   d. Baseline station, direction of view (i.e. N, S, NW, etc.) and house number or street address and street name.

2. Pre-construction Photographs shall indicate condition of the following:
   a. Esplanades and boulevards.
   b. Yards (near side and far side of street).
   c. House walks and sidewalks.
   d. Curbs.
   e. Areas between walks and curbs.
   f. Particular features (e.g. yard lights, shrubs, fences, trees).

3. Show date photographs were taken on negatives.

C. Show the location of vantage points and direction of shots on a key plan of the site.

3.02 PROGRESS PHOTOGRAPHS

A. Progress Photographs document monthly advancement of the Work. Select vantage points for each shot so as to best show status of construction and progress since last photograph submittal. Select camera stations that will require little or no movement or adjustment over the duration of construction.

B. Take monthly Progress Photographs at regular intervals to coincide with cutoff dates associated with each Application for Payment.

3.03 FINISHED PHOTOGRAPHS

A. Finished Photographs shall be "staged" and taken by a professional photographer to depict the most flattering images of a finished facility. Two vantage points, from which Finished Photographs will be taken, shall be agreed to in advance by the City. Photographer shall consider lighting, time of day, height of eye, landscaping and placement of vehicles, people and other props in each picture. Filters and post-photography processing may be utilized to achieve a finished product acceptable to the City.

3.04 LOCATION

A. Vantage points, times and conditions for camera stations and photography for Progress and Finished Photographs shall be mutually agreed upon by the City, Contractor and Photographer. Progress Photograph vantage points may be changed by mutual agreement as the Work progresses, at no additional cost to the City.

END OF SECTION

Section 01325

CONSTRUCTION SCHEDULE

PART 1 GENERAL

1.01 GENERAL

A. Provide Construction Schedules for the Work included in this Contract in accordance with requirements in this Section. Create Construction Schedule using Critical Path Method (CPM) computer software capable of mathematical analysis of Precedence Diagramming Method (PDM) plan. Provide printed activity listings and bar charts in formats described in this Section.

B. Combine activity listings and bar charts with narrative report to form Construction Schedule submittal for Project Manager.

1.02 SCHEDULING STAFF

A. Employ or retain services of individual experienced in CPM scheduling for duration of the Contract. Individual shall cooperate with Project Manager and update schedule monthly as required to indicate current status of the Work.

1.03 SUBMITTALS

A. Conform to requirements of Section 01330 - Submittal Procedures.

B. During preconstruction meeting, as described in Section 01312 - Coordination and Meetings, provide sample bar charts and activity listings produced from scheduling software proposed. Scheduling software is subject to review by Project Manager and must meet requirements provided in this Section. Project Manager will provide review of samples within seven days of submittal.

C. Within 21 days of receipt of approval of Contractor's format, or 30 days of Notice to Proceed, whichever is later, submit proposed Construction Schedule for review. Base Construction Schedule submittal on the following:

1. Level of detail and number of activities required in schedule are dependent on project type.
   a. For wastewater projects, categorize work type and area code in schedule.
      1) For wastewater rehabilitation projects, there are six work-type categories. An area code will be assigned for each

Meter Service Area or Basin. Include at least one activity for each unique combination of work type and area code. Normal schedules of wastewater rehabilitation projects contain between 35 and 100 activities, depending on number of basins and work types involved in each basin.

2) For wastewater relief projects (line work), area codes will be assigned geographically.

3) For wastewater plant or facility work, other criteria may apply to assignment of area codes, such as a combination of geographical and craft categories.

b. For projects with multiple types of tasks within scope, indicate types of work separately within schedule.

c. For projects with work at different physical locations or service areas, or different facilities within a site, indicate each location or facility separately within schedule. Show work on each floor of multi-story building as separate tasks.

d. For projects with multiple crafts or significant Subcontractor components, indicate elements separately within schedule. Unless permitted by Project Manager, tasks shall consist of work covered by only one division of Project Manual.

2. Unless permitted by Project Manager, each scheduled task shall be same as Schedule of Values line item, and vice versa.

3. For projects with Major Unit Price Work, indicate Shop Drawing submittal and review, purchase, delivery, and Installation dates on Project schedule. Include activities for testing, adjustment, and delivering O&M manuals.

4. No task except the acquisition of Major Unit Price Work shall represent more than one percent of Original Contract Price for facility projects and three percent of Original Contract Price for other projects. Duration of tasks may not exceed 40 calendar days.

5. For projects where operating facilities are involved, identify each period of work that will impact any process or operation in the schedule and that must be agreed to by Project Manager and facility operator prior to starting work in the area.

D. Construction Schedule submittals shall include:

1. printed bar charts that meet criteria outlined in this Section and are produced by Contractor's approved scheduling software;

2. activity listings that meet criteria outlined in this Section and are produced by Contractor's approved scheduling software; and

3. a predecessor/successor listing sorted by Activity ID that meets criteria outlined in this Section and is produced by Contractor's scheduling software.

4. A logic network diagram is required with the first Construction Schedule submittal for facilities projects.

5. Prepare and submit graphic or tabular display of estimated monthly billings (i.e. a cash flow curve for the Work) with the first schedule submittal. This information is not required in monthly updates, unless significant changes in work require re-submittal of schedule for review. Display shall allocate units indicated in bid schedule or Schedule of Values to Construction Schedule activities. Weighted allocations are acceptable, where appropriate. Dollar value associated with each allocated unit will be spread across the duration of that activity on a monthly basis. Total for each month and cumulative total will be indicated. These monthly forecasts are only for Project Manager's planning purposes. Monthly payments for actual work completed will be made in accordance with Document 00700 - General Conditions.

6. Narrative Report that provides the information outlined in this Section.

E. No payment will be made until Project Manager approves Construction Schedule and billing forecast.

F. If Contractor desires to make changes in its method of operating and scheduling, after Project Manager has reviewed original schedule, notify Project Manager in writing, stating reasons for changes. When Project Manager considers these changes to be significant, Contractor may be required to revise and resubmit for review all or affected portion of Contractor's Construction Schedule to show effect on the Work.

G. Upon written request from Project Manager, revise and submit for review all or any part of Construction Schedule submittal to reflect changed conditions in the Work or deviations made from original schedule.

H. Updated Construction Schedule with actual start and actual finish dates, percent complete, and remaining duration of each activity shall be submitted monthly. Data date used in updating monthly Construction Schedule shall be the same date as used in monthly Payment Application. Monthly update of Construction Schedule is required for monthly Payment Application to be processed for payment.

1.04 SCHEDULING COMPUTER SOFTWARE REQUIREMENTS

A. Contractor's scheduling software shall be capable of creating bar charts and activity listings, which can be sorted by various fields (i.e. Activity ID, Early Start, Total Float, Area Code, Specification Section number, and Subcontractor). Use software capable of producing logic network diagram.

B. Use scheduling software capable of producing activity listings and bar charts with the following information for each activity in the schedule:

1. Activity ID
2. Activity Description
3. Estimated (Original) Duration
4. Remaining Duration
5. Actual Duration
6. Early Start Date
7. Late Start Date
8. Early Finish Date
9. Late Finish Date
10. Free Float
11. Total Float
12. Activity Codes (such as Area Code, Work Type, Specification Section, Subcontractor)

C. Use scheduling software capable of printing calendars using mathematical analysis of schedule, indicating standard workdays of week and scheduled holidays.

D. Use scheduling software capable of printing activity listing that indicates predecessors and successors, lag factors and lag relationships used in creating logic of the schedule.

E. Use scheduling software to provide monthly time in Bar Chart format and scale with 12-month scale not to exceed one page width. Bar charts may be

printed or plotted on 8-1/2 by 11-inch, 8-1/2 by 14-inch or 11 by 17-inch sheet sizes. Over-size plots are not acceptable.

1.05 NARRATIVE SCHEDULE REPORT

A. Narrative schedule report shall list activities started this month, activities completed this month, activities continued this month, activities scheduled to start or complete next month, problems encountered this month, and actions taken to solve these problems.

B. Narrative schedule report shall describe changes made to Construction Schedule logic (i.e. changes in predecessors and lags), activities added to schedule, activities deleted from schedule, any other changes made to the schedule other than addition of actual start dates and actual finish dates and changes of data date and remaining durations for re-calculation of mathematical analysis.

PART 2 P R O D U C T S - Not Used

PART 3 E X E C U T I O N - Not Used

END OF SECTION

Section 01326

CONSTRUCTION SCHEDULE (BAR CHART)

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Provide an initial Construction Schedule as required by this section for the Work. Do not start construction until Project Manager reviews the schedule.

1.02 FORM AND CONTENT OF INITIAL CONSTRUCTION SCHEDULE

A. Bar Chart:

1. Show major construction activities such as pipe laying, by traffic control phases or other approved key areas; tunnel construction, pavement removal, pavement replacement, pressure testing, chlorination, clean up and punch list as separate activities on the schedule.

2. Show week duration for each activity.

3. Show separate activities for each Shop Drawing and Product Data submittal critical to timely completion. Show submittal dates and dates Project Manager needs to provide approved submittals.

4. Provide separate horizontal bar for each activity. List start and finish date for each activity at left side of diagram.

5. Horizontal Time Scale: Identify first work day of each week.

6. Scale and Spacing: Notes must be legible. Allow space for notations and future revisions.

7. Order of Listings: Order bar chart listings by phases or other approved groups of activities that are contiguous. List activities in chronological order within each phase or group.

B. Narrative Description:

1. Submit narrative descriptions of anticipated work sequences as indicated by the sequence of activities presented in the schedule.

2. Discuss any activity that affects the public (such as phases of traffic control), interaction with specific forces of the City (such as valve operation, chlorination and testing) or other associated contractors.

1.03 PROGRESS REVISIONS

A. Submit progress revisions or necessary information to complete and process Payment Applications. When required, re-submittals for rejected revisions must be submitted and reviewed prior to the following month's processing of a Payment Application. The following month's Payment Application will not be processed until the re-submittal is reviewed and required progress revisions are received.

B. Provide a narrative report to describe:

1. Major changes in scope.

2. Revised projections in progress, completion, or changes in activity duration.

3. Other identifiable changes.

4. Problem areas, anticipated delays, and the impact on schedule.

5. Corrective action recommended and its effect.

6. Effect of changes on schedules or other contractors.

7. Product delivery lead times.

C. Include additional data with Bar Chart described in Paragraph 1.03A of this Section:

1. Show original dates for each activity in the approved initial progress schedule by narrow bar next to a wider bar for the current schedule.

2. Show date each activity actually started or finished when an event has occurred. Clearly identify actual dates in two right-most columns in left portion of an 11 by 17-inch chart.

3. Indicate the percentage progress to the date of submittal for each activity.

1.04 SUBMITTALS

A. Submit the initial progress schedule within 15 days after award of contract. Project Manager will review the schedule and return a reviewed copy within 21 days after receipt.

B. Cut-off dates for progress revisions may be as early as the 20th of the month to avoid delaying processing of Payment Applications. Use the cut-off date for the first approved revision for further revisions.

C. When required, re-submit within seven days after return of review copy.

D. Include connecting lines between bars in the schedule to indicate the sequence that activities will be accomplished. Connecting lines when the activity's start or finish is modified will identify impact of preceding or succeeding activities. Submit a minimum of six copies of the bar chart on 11 by 17-inch opaque reproductions. Project Manager will retain five copies and return the remaining copy.

PART 2 P R O D U C T S - Not Used

PART 3 E X E C U T I O N - Not Used

END OF SECTION

Section 01330

SUBMITTAL PROCEDURES

PART 1 G E N E R A L

1.01 SECTION INCLUDES

A. Submittal procedures for:

1. Schedule of Values
2. Construction Schedules and Cash Flow Curve (billing forecast).
3. Shop Drawings, Product Data and Samples
4. Operations and Maintenance (O&M) Data
5. Manufacturer's Certificates
6. Construction Photographs
7. Project Record Documents and monthly certification.
8. Video Tapes
9. Design Mixes

1.02 SUBMITTAL PROCEDURES

A. Scheduling and Handling:

1. Submit Shop Drawings, data and Samples for related components as required by Specifications and Project Manager.
2. Schedule submittals well in advance of need for construction Products. Allow time for delivery of Products after submittal approval.
3. Develop submittal schedule that allows sufficient time for initial review, correction, resubmission and final review of all submittals. Allow a minimum of 30 days for initial review. Project Manager will review and return submittals to Contractor as expeditiously as possible but time required for review will vary depending on complexity and quantity of data submitted.

4. Project Manager's review of submittals covers only general conformity to Drawings, Specifications and dimensions that affect layout. Contractor is responsible for quantity determination. No quantities will be verified by Project Manager. Contractor is responsible for errors, omissions or deviations from Contract requirements; review of submittals does not relieve Contractor from the obligation to furnish required items in accordance with Drawings and Specifications.

5. Submit five copies of documents unless otherwise specified.

6. Revise and resubmit submittals as required. Identify all changes made since previous submittal.

7. Assume risk for fabricated Products delivered prior to approval. Do not incorporate Products into the Work, or include payment for Products in periodic progress payments, until approved by Project Manager.

B. Transmittal Form and Numbering:

1. Transmit each submittal to Project Manager with Transmittal letter which includes:
   a. Date and submittal number
   b. Project title and number
   c. Names of Contractor, Subcontractor, Supplier and manufacturer
   d. Identification of Product being supplied
   e. Location of where Product is to be Installed
   f. Applicable Specification section number

2. Identify deviations from Contract documents clouding submittal drawings. Itemize and detail on separate 8-1/2 by 11-inch sheets entitled "DEVIATIONS FOR _____." When no deviations exist, submit a sheet stating no deviations exist.

3. Have design deviations signed and sealed by an appropriate design professional, registered in the State of Texas.

4. Sequentially number transmittal letters beginning with number one. Use original number for resubmittals with an alphabetic suffix (i.e., 2A for the first resubmittal of submittal 2, or 15C for third resubmittal of submittal 15, etc.). Show only one type of work or Product on each submittal. Mixed submittals will not be accepted.

C. Contractor's Stamp:

1. Apply Contractor's Stamp certifying that the items have been reviewed in detail by Contractor and that they comply with Contract requirements, except as noted by requested variances.

2. As a minimum, Contractor's Stamp shall include:
   a. Contractor's name
   b. Job number
   c. Submittal number
   d. Certification statement Contractor has reviewed submittal and it is in compliance with the Contract
   e. Signature line for Contractor

D. Submittals will be returned with one of the following Responses:

1. "ACKNOWLEDGE RECEIPT" when no response and resubmittal is required.

2. "NO EXCEPTION" when sufficient information has supplied to determine that item described is accepted and that no resubmittal is required.

3. "EXCEPTIONS AS NOTED" when sufficient information has been supplied to determine that item will be acceptable subject to changes, or exceptions, which will be clearly stated. When exceptions require additional changes, the changes must be submitted for approval. Resubmittal is not required when exceptions require no further changes.

4. "REJECTED-RESUBMIT" when submittal does not contain sufficient information, or when information provided does not meet Contract requirements. Additional data or details requested by Project Manager must be submitted to obtain approval.

1.03 MANUFACTURER'S CERTIFICATES

A. When required by Specification sections, submit manufacturers' certificate of compliance for review by Project Manager.

B. Place Contractor's Stamp on front of certification.

C. Submit supporting reference data, affidavits, and certifications as appropriate.

D. Product certificates may be recent or from previous test results, but must be acceptable to Project Manager.

1.04 DESIGN MIXES

A. When required by Specification sections, submit design mixes for review.

B. Place Contractor's Stamp, as specified in this section, on the front of each design mix.

C. Mark each mix to identify proportions, gradations, and additives for each class and type of mix submitted. Include applicable test results from samples for each mix. Perform tests and certifications within 12 months of the date of the submittal.

D. Maintain copies of approved mixes at mixing plant.

1.05 CHANGES TO CONTRACT

A. Changes to Contract may be initiated by completing a Request for Information form. Project Manager will provide a response to Contractor by completing the form and returning it to Contractor.

1. If Contractor agrees that the response will result in no increase in cost or time, a Minor Change in the Work will be issued by City Engineer.

2. If Contractor and Project Manager agree that an increase in time or cost is warranted, Project Manager will forward the Request for Proposal for negotiation of a Change Order.

PART 2 P R O D U C T S - Not Used

PART 3 E X E C U T I O N - Not Used

END OF SECTION

Section 01340

SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

PART 1 G E N E R A L

1.01 SECTION INCLUDES

A. Methods, schedules, and processes to be followed for Shop Drawings, Product Data and Sample submittals.

1.02 REQUIREMENT

A. Submit Shop Drawings, Product Data and Samples as required by Document 00700 - General Conditions and Specification sections, using procedures specified in Section 01330 - Submittal Procedures and the requirements of this Section.

B. Shop Drawings, Product Data and Samples are not considered Contract documents.

1.03 SHOP DRAWING/SUBMITTAL SCHEDULE

A. Submit a separate Shop Drawing submittal schedule at same time the Construction Schedule is submitted. List Products for which Shop Drawings and other submittals are required in the order that they appear in Specifications. Include Product Data and Sample submittals in the schedule. Payment Applications or Certificates for Payment will not be processed until Project Manager has approved the Shop Drawing submittal schedule.

1.04 SHOP DRAWINGS

A. Submit a minimum of seven sets of Shop Drawings and Product Data in a form and quality suitable for microfilming. Review and sign Shop Drawings indicating compliance with the Contract.

B. Place Contractor's Stamp on each drawing as described in Section 01330 - Submittal Procedures.

C. Show the following accurately and distinctly:

1. Field and erection dimensions;

2. Arrangement and section views;

3. Relation to adjacent materials or structure, including complete information for making connections between the Work and work under other contracts;

4. Types of Products and finishes;

5. Parts list and descriptions;

6. Assembly drawings of equipment components and accessories showing respective positions and relationships to the complete equipment package;

7. Identify details by referencing drawing sheet and detail numbers, schedule or room numbers as shown on the Contract drawings, where necessary for clarity.

D. Scale drawings to provide a true representation of the specific equipment or item Furnished.

E. Coordinate and submit components, necessary for Project Manager to adequately review submittal, as a complete package. Reproduction of the Drawings for use in Shop Drawings is not allowed.

F. For major changes to original documents, submit Computer-Aided Design (CAD) drawings on a media acceptable to Project Manager.

1.05 PRODUCT DATA

A. Submit Product Data for review as required in Specifications.

B. Place Contractor's stamp, on each data item submitted, as described in Section 01330 - Submittal Procedures.

C. Mark each copy to identify applicable Products, models, and options to be used in the Work. Where required by Specifications, supplement manufacturers' standard data to provide information unique to the Work.

D. Give manufacturers, trade name, model or catalog designation and applicable reference standard for Products specified only by reference standards.

E. Pre-approved and Pre-qualified Products.

1. For "pre-approved", "pre-qualified" and "approved" Products named in the City standard products list, provide an appropriate list designation,

as described in Section 01630 - Product Substitution Procedures, within 30 days after Notice to Proceed.

2. For Products proposed as alternates to "approved" products, provide information required to demonstrate that the proposed Products meet the level of quality and performance criteria of the "approved" product.

1.06 SAMPLES

A. Submit Samples for review as required by Specifications. Have Samples reviewed and signed by a Registered Professional.

B. Place Contractor's stamp on each Sample or firmly attach a sheet of paper with Contractor's stamp, as described in Section 01330 - Submittal Procedures.

C. Submit the number of Samples specified in Specifications; Project Manager will retain one.

D. Reviewed Samples that may be used in the Work are identified in Specifications.

PART 2 P R O D U C T S - Not Used

PART 3 E X E C U T I O N - Not Used

END OF SECTION

SECTION 01351

ENVIRONMENTAL SAFETY AND WORKER PROTECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

Environmental Safety and Worker Protection including monitoring emissions and exposure to workers and providing an appropriate response. The role of the Certified Industrial Hygienist (CIH) is also defined.

1.02 MEASUREMENT AND PAYMENT

No separate measurement and payment for work performed under this Section. The Contractor shall include the cost for this work in the contract bid price for work of which this is a component part.

1.03 REFERENCES

The following is a list of applicable requirements to this project. It is not intended to be a complete listing of all laws and regulations to which the Contractor must comply.

A. Code of Federal Regulations

1. 29 CFR 1910, "Occupational Safety and Health Standards".

   a. 29 CFR 1910.146 "Permit-required confined spaces".

2. 29 CFR 1926, "Safety and Health Regulations for Construction" (Construction Industry Standards).

   a. 29 CFR 1926.33 "Access to Employee Exposure and Medical Records".

   b. 29 CFR 1926.51, "Sanitation Standard".

   c. 29 CFR 1926.59, "Hazard Communication".

   d. 29 CFR 1926.62, "Lead".

   e. 29 CFR 1926.103 "Respiratory Protection".

3. 40 CFR 50, "National Primary and Secondary Ambient Air Quality

Standards"

a. 40 CFR 50 Appendix B, "Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere (High Volume Method)".

b. 40 CFR 50 Appendix G, "Reference Method for the Determination of Lead in Suspended Particulate Matter Collected from Ambient Air".

4. 40 CFR 58, "Ambient Air Quality Surveillance".

5. 40 CFR 60 Appendix A, "Visual Determination of Fugitive Emissions from Material Sources and Smoke Emissions from Fires".

6. 40 CFR 117, "Determination of Reportable Quantities for Hazardous Substances".

7. 40 CFR 122, "Administered Permit Program: The National Pollutant Discharge Elimination System".

B. National Institute for Occupational Health and Safety

NIOSH Method 7082, "Lead" (or equivalent).

C. American Society for Testing and Materials

ASTM D3335, "Test Method for Low Concentrations for Lead, Cadmium, and Cobalt in Paint by Atomic Absorption Spectroscopy."

D. EPA (Environmental Protection Agency) Publications

1. SW-846, "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods".

2. EPA Method 3050, "Acid Digestion of Sediments, Sludges, and Soils".

E. SSPC Guide 6, "Guide for Containing Debris Generated During Paint Removal Operations".

F. SSPC Guide 7, "Guide for the Disposal of Lead Contaminated Surface Preparation Debris".

G. SSPC Publication 91-18, "Industrial Lead Paint Removal Handbook".

H. Texas Commission on Environmental Quality

1. Texas Administrative Code (TAC) 30, Chapter 101, "General Rules".

2. Texas Administrative Code (TAC) 30, Chapter 111, "Control of Air Pollution from Visible Emissions and Particulate Matter".

3. Texas Administrative Code (TAC) 30, Chapter 290, "Water Hygiene".

4. Texas Administrative Code (TAC) 30, Chapter 307, "Surface Water Quality Standards".

5. Texas Administrative Code (TAC) 30, Chapter 309, "Effluent Limitations".

6. Texas Administrative Code (TAC) 30, Chapter 335, "Industrial Solid Waste and Municipal Hazardous Waste".

1.04 SUBMITTALS

A. Submittals shall conform to requirements of Section 01330 – Submittal Procedures.

B. Submittals shall conform to appropriate codes for regulatory requirements.

1.05 DEFINITION

A. Acceptance Criteria: Minimum standards for the content of programs, plans, procedures, and designs required by this specification for the performance of this project. Acceptance criteria will be the basis for judging the responsiveness of Contractors' programs and will also be used as a basis for suspending work, if necessary.

B. Action Level: Employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air (µg/m3) calculated as an eight hour time-weighted average (TWA).

C. CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act; commonly called Superfund. Federal laws addressing the clean up of hazardous waste sites. Amended in 1986 by Superfund Amendments and Re-Authorization Act (SARA). EPA implementing regulations are contained in 40 CFR 300-373.

D. Competent Person: One who is capable of identifying existing and predictable lead hazards in the surroundings or working conditions and who has authorization to take prompt corrective measures to eliminate them.

E. Containment System: An enclosure built around lead paint removal areas designed to contain lead paint debris and prevent emissions to the environment.

F. Dust Collection: Mechanical ventilation system designed specifically for the containment, capture, and removal of airborne particulate from the containment. Dust collection systems shall include ductwork, plenums and/or hoppers, and dust collector(s) for the removal of leaded paint dust from the air stream prior to discharging to the atmosphere.

G. Emission: A release of material to the air, water, or ground.

H. Entry/Exit Airlock: An isolated enclosure located at the entrance of the containment in which the workers remove contaminated dust and debris from their work clothes.

I. EPA: The US. Environmental Protection Agency. Regulations are contained in Title 40 of the Code of Federal Regulations (40 CFR).

J. Hazardous Waste (lead paint debris): Waste that is classified as hazardous due to its concentrations of regulated hazardous substances. Paint debris is classified as hazardous waste if, after testing by the Toxicity Characteristic Leaching Procedure (TCLP), the leachate contains any of the 8 metals or other substances in concentrations at or above limits established in 40 CFR 261.

K. HEPA: A high efficiency particulate filter (HEPA) that is 99.97% efficient against particles of 0.3 microns in size or larger.

L. Lead Containing Dust and Debris: Dust and debris generated during the project which contains lead in any amount, including but not limited to pulverized paint, spent abrasive, filters (wet and dry), and containment materials upon which lead is still present.

M. NIOSH: National Institute of Occupational Safety and Health.

N. OSHA: Occupational Safety and Health Administration. Standards are contained in Title 29 of the Code of Federal Regulations, Parts 1910 and 1926 (29 CFR 1910 and 29 CFR 1926).

O. Owner: The City of Houston

P. PEL: Permissible Exposure Limit. An employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 50 µg/m3 over an 8 hour TWA.

Q. POTW: Publicly Owned Treatment Works

R. RCRA: Resource Conservation and Recovery Act. Federal law pertaining to hazardous waste management. EPA implementing regulations are contained in 40 CFR 240-280.

S. Regulated Area: Area established by the Contractor to demarcate the zone(s) beyond which airborne concentrations of lead do not exceed the Action Level.

T. SSPC: Society for Protective Coatings. An independent, non-profit organization of engineers, technical specialists, and Contractors whose goal is research and development of new coatings and methods for removal, application, and disposal of existing coatings on industrial structures.

U. Tarpaulins: Flexible fabric, vinyl, plastic or canvas cover sheets, impenetrable to dust, wind, and water, used to enclose the cable and/or scaffold support system comprising the containment enclosure.

V. TCLP: Toxicity Characteristic Leaching Procedure. Laboratory tests conducted on wastes that determine the amount of hazardous materials that leach out into a test solution. The test is intended to simulate the properties of water as it leaches through a solid waste landfill. TCLP testing is defined in 40 CFR 261, Appendix II.

W. TSP: Total Suspended Particulate

PART 2 PRODUCTS

2.01 MATERIAL AND EQUIPMENT

A. The Contractor is to supply materials and equipment to insure the safety and protection of workers and the environment in accordance with these specifications.

PART 3 EXECUTION

3.01 ENVIRONMENTAL PROTECTION AND MONITORING

NOTE: Section 09971 "Painting and Protective Coatings", 2.04 "Containment System" specifically identifies containment system requirements.

A. Protection of Ambient Air: Visible emissions are to be controlled to meet, as a minimum, TAC 30 Chapter 111," Control of Air Pollution from Visible Emissions and Particulate Matter" requirements and SSPC-Guide 6I (CON), Level 1 Emissions. Air monitoring and analysis may be performed by the City during abrasive blast cleaning operations. Such monitoring will be in accordance with 40

CFR 50, Appendix B, "Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere" and/or 40 CFR 50, Appendix G, "Reference Method for the Determination of Lead in Suspended Particulate Matter Collected from Ambient Air". The limits for down wind pollutant concentrations allowed during blasting operations are as follows:

PM-10: 450 micrograms/cubic meter/ 8 hr.. (40 CFR 50.6)

Lead (Pb): 13.5 micrograms/cubic meter/8 hr.. (40 CFR 50.12)

Visible emissions and/or monitored emissions for PM-10 and TSP lead in excess of the above levels shall be cause for shut down of the project until corrections to control/ containment system or paint removal/ surface preparation operations are made to comply with these requirements.

B. Protection of Surface and Storm Water: The Contractor shall take all necessary precautions to ensure lead contaminants do not enter surface waters or storm water drainage systems.

1. The Contractor shall protect the area around ditches and drainage inlets. Daily verification of proper protection to minimize the potential contaminants reaching the drainage system shall be performed.

2. The Contractor shall collect all potentially contaminated process waters for testing and, as appropriate, treatment. Process water from pressure washing, wet abrasive blast cleaning or hygiene facilities shall not be discharged to drainage systems or surface waters.

3. The Contractor may remove lead or other heavy metals from such waters through filtration, ion exchange or other approved means. Following treatment, water samples must be tested prior to disposal. Discharge to sanitary sewer lines requires authorization, in writing, from a POTW.

C. Protection of Soil and Grounds: The Contractor shall protect the soil around the structure to ensure that the soil does not become contaminated. Where lead is present in the coatings to be removed, as indicated in Section 02136 "Waste Material Handling and Disposal", the Contractor shall provide for the sampling and analysis of soil samples for total lead content.

1. Sampling and analysis shall be performed prior to commencement of paint removal operations to establish a background "base level". Soil samples shall be taken 3 feet from the base of the tank(s), at a distance of 6-10 feet beyond the proposed containment structure and at the property line.

2. Samples from each area shall be taken in a minimum of four directions, at

circular increments of 90^0, one of which shall include the direction of prevailing wind. Samples shall also be obtained, at the direction of the engineer, at the closest points of public access (i.e. housing, park, school).

3. The soil sampling procedure shall be as outlined in SSPC Guide 6 Section 5.5.5. Each sampling point shall be sufficiently identified on a site map to allow return to the exact location upon project completion.

4. Each sample shall be split in two portions, one for immediate analysis and the other sealed, preserved and furnished to the Engineer. The samples shall be analyzed in accordance with EPA Method 3050, "Acid Digestion of Sediments, Sludges and Soils", and shall be performed by a qualified laboratory approved by the Engineer.

5. Samples shall be obtained at the completion of work (post-construction samples) from all locations from which pre-construction samples were obtained. Samples shall be collected, handled and tested in the same manner as described above.

6. Upon completion of the work, soils found to be contaminated with lead in greater quantity than found in the background "base level", established at the start of the work, shall be removed by the Contractor to the depth necessary to achieve a lead content equivalent to, or below, the pre-construction back ground levels. Disposal shall be in accordance with applicable regulations.

7. The Contractor shall replace in-kind (i.e., topsoil, structural fill, etc.) with an equivalent amount of non-contaminated soil, compact in place and grade to pre-existing conditions. The Contractor shall also replace in-kind any surface improvements, such as grass, shrubs, etc. that were damaged or destroyed by the work. The soil removal, replacement and related work is to be performed by the Contractor at no additional cost to the Owner.

3.02 WORKER PROTECTION

A. The Contractor shall develop a written Compliance Program to establish and implement practices and procedures for assuring that no employee is exposed to lead at concentrations greater than 50 micrograms per cubic meter of air ($\mu g/m^3$), the OSHA permissible exposure limit (PEL). This program is in addition to other OSHA hazard communication and safety and health requirements of the project, and shall be revised and updated at least every six months.

1. The program shall establish methods for complying with this specification and the OSHA Construction Industry Lead Standard, 29 CFR 1926.62(e)(2)(ii). The Federal regulation is referred to as the "Lead

Standard" for the purpose of this specification.

2. The program shall apply to all Contractor employees associated with lead on the project, and to subcontractors working under the direct control of the Contractor who are associated with lead on the project.

3. The program shall assign the specific responsibility for implementation and enforcement of the program to the Contractors' company management. The Contractor's Competent Person(s) shall be identified, by name, and qualifications submitted. The Competent Person shall be on-site during any operations which involve the removal, handling or disturbing of lead containing materials.

4. The program shall contain a description of each activity in which lead is emitted (e.g. equipment used, material involved, controls in place, crew size, employee job responsibilities, operating procedures and maintenance practices).

5. The program shall contain a report of the technology considered in meeting the PEL and air monitoring data which documents the source of lead emissions.

6. The program shall contain a work practice program which includes items required in the lead standard such as protective clothing and equipment, housekeeping, and hygiene facilities and practices.

B. Exposure Monitoring: The Contractor shall be responsible for conducting and reporting worker exposure assessments in accordance with 29 CFR 1926.62.

1. Representative personal air samples shall be collected at the beginning of the lead removal work to determine employee lead exposures. Tasks involving potential lead exposure include, but are not limited to, paint removal operations, clean-up, and debris handling operations. Full shift (at least 7 hours) air samples shall be collected for each job classification in the exposure area. The range of exposures for lead removal and cleanup activities shall be determined.

2. During the initial monitoring, workers performing the following activities (or equivalent) shall be protected to the anticipated exposure levels which are dictated by the lead standard:

   a. 500 $\mu g/m^3$: Manual demolition of structures containing lead-containing coatings or paint (e.g., dry wall), manual scraping, manual sanding, heat gun applications, power tool cleaning with dust collection systems, and spray painting with lead paint.

b. 2,500 $\mu g/m^3$: Using lead-containing mortar, lead burning, or conducting the following activities where lead-containing coatings or paint are present: rivet busting, power tool cleaning without dust collection systems, clean-up activities where dry expendable abrasives are used, and the movement and removal of abrasive blasting enclosures.

c. More than 2,500 $\mu g/m^3$: Activities involving lead containing coatings or paint on structures disturbed by abrasive blasting, welding, cutting, and torch burning.

3. Protection requires compliance with the necessary respiratory protection, personal protective clothing and equipment, change areas and washing facilities, blood lead and zinc protoporphyrin monitoring, and employee training. The protection measures shall be modified, as necessary, after the exposure results are received.

4. Where initial monitoring indicates that lead exposures are below the Action Level, and where work activities and conditions remain the same as at the time of initial sampling, additional monitoring need not be repeated for that work activity.

5. Where the initial monitoring of a given work activity indicates that lead exposures are at or above the Action Level, additional exposure monitoring shall be conducted monthly. The monthly monitoring is more frequent than frequencies established in the lead standard which are at least every 6 months if above the Action Level, but below the PEL, or every 3 months if above the PEL.

6. All air samples shall be collected and analyzed according to NIOSH Method 7082, or equivalent. All samples shall be analyzed by laboratories accredited by the American Industrial Hygiene Association for metals analysis.

7. All exposed employees shall be notified in writing of the monitoring results within five (5) days after receiving the results.

8. The Action Level for airborne lead exposure is 30 $\mu g/m^3$, as an 8-hour time weighted average (TWA) concentration, without regard to the use of respirators. Whenever workers' airborne lead exposures exceed the Action Level, the Contractor shall implement the following:

   a. Periodic Exposure Monitoring
   b. Employee Information and Training

c. Employee Medical Surveillance and Medical Removal Protection
d. Housekeeping
e. Record keeping
f. Signs and Regulated Areas

9. The Permissible Exposure Limit (PEL) for airborne lead exposure is 50 $\mu g/m^3$, as an 8-hour TWA concentration. When the work area contains airborne lead levels above the PEL the Contractor shall implement the following in addition to those items listed in 3.02.B.8 of this section:

a. Compliance Program
b. Respiratory Protection
c. Protective Clothing and Equipment
d. Hygiene Facilities and Practices

C. Respiratory Protection: After feasible engineering controls and work practices have been implemented, respiratory protection shall be used to maintain employees' lead exposures below the PEL.

1. Respirators shall be worn by all employees, other Contractors, inspectors, or observers who enter regulated areas.

2. The Contractor shall develop a written Respiratory Protection Program in compliance with 29 CFR 1910.134, paragraphs (b), (d), (e), and (f), and the lead standard. The program shall address the selection, use, maintenance, and inspection of respirators, and qualifications for respirator users.

D. Protective Clothing and Equipment: The Contractor shall provide protective clothing and equipment and ensure they are worn by all employees whose lead exposures exceed the PEL, or who enter regulated areas.

1. Protective clothing shall include washable and/or disposable full body coveralls, gloves, foot coverings, and hoods. Other protective equipment shall include face shields, hard hats, eye protection, and hearing protection as appropriate.

2. Disposable protective clothing shall be used for no more than one work day. Such clothing may have to be disposed of as hazardous waste.

3. Reusable protective equipment shall be cleaned or replaced weekly if exposure levels are less than 200 $\mu g/m^3$, or daily if the exposure levels are greater than or equal to 200 $\mu g/m^3$.

4. Clothing shall not be removed or "cleaned" by any means which could reintroduce the lead dust into the ambient air. This includes brushing,

shaking, and blowing. Vacuums equipped with HEPA filters shall be used for this purpose.

5. Reusable coveralls shall be collected at the end of each work day in closed containers. The containers shall be labeled in accordance with the requirements of 29 CFR 1926.62(g)(2)(vii). Contaminated clothing shall be cleaned in accordance with all applicable Federal, State, or local regulations pertaining to lead-contaminated laundry and water discharge. Laundries shall be informed that the clothing contains lead. If the clothing is washed on site, the discharge water shall be filtered, containerized, and arrangements made with the local POTW or other approved means of proper disposal.

6. Protective clothing and equipment shall be removed in the contaminated section of the change area and shall not be worn into any clean areas.

7. The Contractor shall provide the necessary clothing and equipment for use by the Owner and its designated representatives.

E. Housekeeping: Accumulations of lead-containing dust and debris generated by work activities shall be removed and cleaned daily.

1. All persons doing the cleanup shall be trained in performing lead activities, respirator qualified, and participate in the medical surveillance program. Respirators and protective clothing shall be worn by all persons doing the cleanup.

2. Compressed air may be used for housekeeping if used within containment and in conjunction with a ventilation system designed to capture the dust. Otherwise, HEPA-filtered vacuum cleaners shall be employed.

3. All lead-containing dust and debris shall be collected in sealed containers. The waste shall be tested to determine whether it will be disposed of as hazardous waste.

F. Personal Hygiene Facilities and Practices

1. Clean change areas shall be provided when employees' lead exposures exceed the PEL. The change areas shall be equipped with storage facilities for street clothing and a separate area for the removal and storage of lead-contaminated clothing and equipment. They shall be designed and used so that contamination of street clothing does not occur. Employees shall not leave the project site wearing any clothing worn while performing lead activities. Airborne lead exposures in the change area shall be maintained below the Action Level.

2. Shower facilities shall be provided whenever employees' lead exposures exceed the PEL. Shower facilities shall comply with OSHA Sanitation Standard, 29 CFR 1929.51. All employees whose lead exposures exceed the PEL shall shower at the end of each work shift or before leaving the project area. The shower facilities shall be made available for use by the Owner and its representatives, such as inspectors or observers.

3. Arrangements shall be made with the local POTW for the proper disposal of the shower and wash water after filtration (e.g., through a three stage 100, 50, and 5 micron filtering system), ion exchange, or other approved treatment technology.

4. Clean lunch areas shall be provided for all employees whose lead exposures exceed the PEL. Employees shall remove or clean (by vacuuming) their protective clothing and wash their hands and face before entering the lunch area. Lead exposures in the lunch area shall be maintained as free as practicable from lead contamination.

5. An adequate number of clean lavatory and hand washing facilities shall be provided. These shall comply with the OSHA Sanitation Standard, 29 CFR 1929.51.

6. Eating, drinking, smoking, chewing of food or tobacco products, or the application of cosmetics shall not be permitted in any areas where the lead exposures exceed the PEL. Thorough washing of hands and face is required prior to undertaking any of these activities.

G. Medical Surveillance and Medical Removal Protection

1. All employees who are exposed to lead above the Action Level in a single day during this project shall be provided with initial and periodic medical examinations and blood lead tests as required by the lead standard. A final blood lead test shall be provided for each worker upon completion of the project, or at any time a worker's employment at the project ceases.

2. When blood lead levels over 50 µg/dl are encountered, the Contractor shall provide for the temporary removal of employees from lead exposure above the Action Level. The required medical surveillance and periodic blood lead tests shall be provided in strict accordance with the lead standard throughout the removal.

3. Employees who will be required to wear a respirator or who request one shall be provided with a respirator and the necessary medical examinations to determine their ability to wear a respirator.

4. All examinations shall be provided by the Contractor and shall be performed by or under the direct supervision of a licensed physician.

H. Employee Information and Training

1. The Contractor shall provide lead training for all employees who are exposed to lead above the Action Level for this project.

2. The content of lead training shall include, as a minimum, those items listed in the lead standard.

3. Training shall also include hazard communication in accordance with 29 CFR 1926.59.

4. The Contractor shall notify other employers at the project site of the nature of the lead exposure work, the need to remain out of exposure areas, the warning sign and labeling system in effect, and the potential need for them to take measures to protect their employees.

I. Signs and Regulated Areas

1. The Contractor shall establish a regulated area surrounding activities where lead exposures exceed the Action Level. This includes locations where lead-containing debris is handled or transferred to storage containers.

2. The regulated area shall be demarcated by ropes, tape, walls, or containment's with caution signs posted at all accessible sides. Signs shall contain the legend:

WARNING
LEAD WORK AREA
POISON
NO SMOKING OR EATING

3. The Contractor shall control access of persons into regulated areas. Access shall be limited to individuals with proper training and personal protective equipment, and medical surveillance testing.

4. All persons entering regulated areas shall wear protective clothing and respirators.

5. Eating, drinking, smoking, and chewing of food or tobacco products shall be prohibited in regulated areas and in any area where lead exposures exceed the Action Level.

J. Record keeping: All records relating to training, medical examinations, blood lead monitoring, and exposure monitoring shall be maintained by the Contractor as required by the lead standard. All records shall be available for review by the Owner or its representative upon request.

3.03 CERTIFIED INDUSTRIAL HYGIENIST (CIH)

A. The Contractor shall provide for the services of a Certified Industrial Hygienist (CIH) who must be certified by the American Board of Industrial Hygiene in comprehensive practice.

B. Duties of the CIH shall be as follows:

1. Conduct and/or verify training for contractor employees in accordance with 29 CFR 1926.62 (l).

2. Review and approve Contractor's Written Compliance Plan for conformance to 29 CFR 1926.62(e)(2)(ii) and this Specification.
3. Monitor and evaluate work weekly to assure conformance with the approved plan and that hazardous exposure is adequately controlled in accordance with worker safety and health requirements of these specifications

4. Provide monthly reports of work compliance with control requirements in regards to working in a lead environment.

C. Activities of the CIH shall include:

1. Meet with City to discuss details of Contractor's Written Compliance Plan for lead paint removal.

2. Ensure worker and area air monitoring, testing and reporting are conducted by or under the direction of the CIH.

3. Furnish a detailed worker and area air monitoring schedule coordinated with Contractor's proposed production schedule.

4. Directing, monitoring and inspecting lead paint removal work to ensure that the requirements of the Contract have been satisfied during the entire lead paint removal operation.

5. Report results of air monitoring samples to the Engineer, signed by the CIH within 48 hours after the air samples are taken.

6. The CIH shall review sampling data, collected on a day when lead paint

removal operations occur, to determine if conditions require any change in work methods. Removal work shall not continue until approval is given by the CIH.

7. The CIH shall verify in writing and submit monitoring data to verify that:

   a. Air borne lead levels at and beyond the lead control (regulated) area were and remained less than 30 mg/m^3 of air

   b. Contractor conformance to 29 CFR 1926.62 and Item 3.02, above

   c. There were no visible accumulations of lead contaminated paint, dust or debris on the work site. Adjacent areas that may have become contaminated were properly cleaned and inspected.

   d. The CIH shall verify that the work area and contractor's equipment have been adequately cleaned of lead contamination prior to demobilization from the work site.

3.04 DEMOBILIZATION

The Contractor shall not remove the lead control area, boundaries, warning signs, etc. prior to proper removal of all hazardous wastes, debris and materials from the site and the City's receipt and acceptance of the CIH's verification.

END OF SECTION

Section 01410

TPDES REQUIREMENTS

1.01 SECTION INCLUDES

A. Documentation to be prepared and signed by Contractor/Operator before conducting construction operations, in accordance with the Texas Pollutant Discharge Elimination System (TPDES) Construction General Permit Number TXR 150000 issued February 15, 2008 (the Construction General Permit).

B. Implementation, maintenance inspection, and termination of storm water pollution prevention control measures including, but not limited to, erosion and sediment controls, storm water management plans, waste collection and disposal, off-site vehicle tracking, and other appropriate practices shown on the Drawings or specified elsewhere in the Contract.

C. Review of the Storm Water Pollution Prevention Plan (SWP3) implementation in a meeting with Project Manager prior to start of construction.

1.02 DEFINITIONS

A. Commencement of Construction Activities: The exposure of soil resulting from activities such as clearing, grading, and excavation activities, as well as other construction related activities (e.g., stock piling of fill material, demolition).

B. Large Construction Activity: Project that:o

1. disturbs five acres or more, or

2. disturbs less than five acres but is part of a larger common plan of development that will disturb five acres or more of land.

C. Small Construction Activity: Project that:

1. disturbs one or more acres but less than five acres, or

2. disturbs less than one acre but is part of a larger common plan of development that will ultimately disturb one or more acres but less than five acres.

D. TPDES Operator:

Operator - The person or persons associated with a large or small construction activity that is either a primary or secondary as defined below:

Primary Operator – the person or persons associated with a large or small construction activity that meets either of the following two criteria:

(a) the persons have operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or

(b) the person or persons have day-to-day operational control of those activities at a construction site that are necessary to ensure compliance with a storm water pollution prevention plan (SWP3) for the site or other permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the SWP3 or comply with other permit conditions).

Secondary Operator – The person whose operational control is limited to the employment of other operators or to the ability to approve or disapprove changes to plans and specifications. A secondary operator is also defined as a primary operators if there are no other operators if there are no other operators at the construction site.

PART 2 P R O D U C T S - Not Used

PART 3 E X E C U T I O N

3.01 SITE SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWP3)

A. Prepare a SWP3 following Part III of the Construction General Permit and the Storm Water Management Handbook for Construction Activities issued under City Ordinance Section 47-695(b). If conflicts exist between the Construction General Permit and the handbook, the more stringent requirements will apply.

B. Update or revise the SWP3 as needed during the construction following Part III, Section E of the Construction General Permit.

C. Submit the SWP3 and any updates or revisions to Project Manager for review and address comments prior to commencing, or continuing, construction activities.

3.02 NOTICE OF INTENT For Large Construction Activity

A. Fill out, sign, and date TCEQ Form 20022 (03/05/2008) Notice of Intent (NOI) for Storm Water Discharges Associated with Construction Activity under the TPDES Construction General Permit (TXR 150000), **ATTACHMENT 1** of this Section 01410.

B. Transmit the signed Contractor's copy of TCEQ Form 20022 (03/05/2008), along with a $325.00 check, made out to Texas Commission on Environmental Quality, and the completed Payment Submittal Form to Project Manager.

C. Project Manager will complete a separate TCEQ Form 20022 (03/05/2008) for City's Notice of Intent, and will submit both Notices, along with checks for application fees, to the TCEQ.

D. Submission of the Notice of Intent form by both the City and Contractor to TCEQ if mailing is required a minimum of seven days before Commencement of Construction Activities.

3.03 CONSTRUCTION SITE NOTICE FOR SMALL CONSTRUCTION ACTIVITY

A. Fill out, sign, and date the Construction Site Notice, Attachment 2 to TPDES General Permit TXR 150000, "Construction Site Notice", **ATTACHMENT 2** of this Section 01410.

B. Transmit the signed Construction Site Notice to Project Manager at least seven days prior to Commencement of Construction Activity.

3.04 CERTIFICATION REQUIREMENTS

A. Fill out TPDES Operator's Information form, **ATTACHMENT 3** of this Section 01410, including Contractor's name, address, and telephone number, and the names of persons or firms responsible for maintenance and inspection of erosion and sediment control measures. Use multiple copies as required to document full information.

B. Contractor and Subcontractors shall sign and date the Contractor's / Subcontractor's Certification for TPDES Permitting, **ATTACHMENT 4** of this Section 01410. Include this certification with other Project certification forms.

C. Submit properly completed certification forms to Project Manager for review before beginning construction operations.

D. Conduct inspections in accordance with TCEQ requirements. Ensure persons or firms responsible for maintenance and inspection of erosion and sediment control measures read, fill out, sign, and date the Erosion Control Contractor's Certification for Inspection and Maintenance. Use the City of Houston Storm Water Pollution Prevention Plan, Construction Site Inspection Report, **ATTACHMENT 5** of this Section 01410 to record maintenance inspections and repairs.

3.05 RETENTION OF RECORDS

A. Keep a copy of this document and the SWP3 in a readily accessible location at the construction site from Commencement of Construction Activity until submission of the Notice of Termination (NOT) for Storm Water Discharges Associated with Construction Activity under TPDES Construction General Permit (TXR 150000). Contractors with day-to-day operational control over SWP3 implementation shall have a copy of the SWP3 available at a central location, on-site, for the use of all operators and those identified as having responsibilities under the SWP3. Upon submission of the NOT, submit all required forms and a copy of the SWP3 with all revisions to Project Manager.

3.06 REQUIRED NOTICES

A. Post the following notices from effective date of the SWP3 until date of final site stabilization as defined in the Construction General Permit:

1. Post the TPDES permit number for Large Construction Activity, with a signed TCEQ Construction Site Notice for large or Small Construction Activity. Signed copies of the City's and Contractor's NOI must also be posted.

2. Post notices near the main entrance of the construction site in a prominent place where it is safely and readily available for viewing by General Public, Local, State, and Federal Authorities. Post name and telephone number of Contractor's local contact person, brief project description and location of the SWP3.

    a. If posting near a main entrance is not feasible due to safety concerns, coordinate posting of notice with Project Manager to conform to requirements of the Construction General Permit.

    b. If Project is a linear construction project (e.g.: road, utilities, etc.), post notice in a publicly accessible location near active construction. Move notice as necessary.

3. Post a notice to equipment and vehicles operators, instructing them to stop, check, and clean tires of debris and mud before driving onto traffic lanes. Post at each stabilized construction access area.

4. Post a notice of waste disposal procedures in a readily visible location on site.

3.07 ON-SITE WASTE MATERIAL STORAGE

A. On-site waste material storage shall be self-contained and shall satisfy appropriate local, state, and federal rules and regulations.

B. Prepare list of waste material to be stored on-site. Update list as necessary to include up-to-date information. Keep a copy of updated list with the SWP3.

C. Prepare description of controls to reduce pollutants generated from on-site storage. Include storage practices necessary to minimize exposure of materials to storm water, and spill prevention and response measures consistent with best management practices. Keep a copy of the description with the SWP3.

3.08 NOTICE OF TERMINATION

A. Submit a NOT, **ATTACHMENT 7** of this Section 01410, to Project Manager within 30 days after:

1. Final stabilization has been achieved on all portions of the site that are the responsibility of the Contractor; or

2. Another operator has assumed control over all areas of the site that have not been stabilized; and

3. All silt fences and other temporary erosion controls have either been removed, scheduled to be removed as defined in the SWP3, or transferred to a new operator if the new operator has sought permit coverage.

B. Project Manager will complete City's NOT and submit Contractor and City's notices to the TCEQ and MS4 entities.

END OF SECTION

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ATTACHMENT 1

Notice of Intent (NOI) for Storm Water Discharges Associated with Construction Activity under the TPDES Construction General Permit (TXR150000)

For help completing this application, read the TXR150000 NOI Instructions (TCEQ-20022-Instructions).

TCEQ Office Use Only
TPDES Permit Number: TXR15|__|__|__|__| - NO
GIN Number: |__|__|__|__|__|__|__|__|

A. Construction Site Operator ☐New ☐No Change Customer Reference Number: CN_____
Name:_____
Mailing Address:_____ City:_____ State:____ Zip Code:_____
Country Mailing Information (*if outside USA*) Territory:_____ Country Code:_____ Postal Code:_____
Phone Number:_____ Extension:_____ Fax Number:_____
E-mail Address:_____
Type of Operator: ☐ Individual ☐ Sole Proprietorship - D.B.A. ☐ Partnership ☐ Corporation ☐ Federal Government
☐ State Government ☐ County Government ☐ City Government ☐ Other:_____
Independent Operator? ☐ Yes ☐ No Number of Employees: ☐ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 or higher
Federal Tax ID:_____ State Franchise Tax ID Number:_____ DUNS Number:_____

B. Billing Address
Name:_____
Mailing Address:_____ City:_____ State:____ Zip Code:_____
Country Mailing Information (*if outside USA*) Territory:_____ Country Code:_____ Postal Code:_____

C. Project / Site Information ☐New ☐No Change Regulated Entity Reference Number: RN_____
Name:_____
Mailing Address:_____ City:_____ State:____ Zip Code:_____
Physical Address:_____ City:_____ County:_____ Zip Code:_____
Location Access Description:_____
Latitude:___°___'___" N Longitude:___°___'___" W Degrees (°), Minutes ('), and Seconds (")
Latitude:_____ Longitude: -_____ Decimal Form
Standard Industrial Classification (SIC) code:_____ Also, describe the construction activity at this site (*do not repeat the SIC code*):
_____
Has a storm water pollution prevention plan been prepared as specified in the general permit (TXR150000)? ☐ Yes ☐ No
Estimated area of land disturbed (to the nearest acre):_____ Is the project / site located on Indian Country Lands? ☐ Yes ☐ No
Does this project / site discharge storm water into a municipal separate storm sewer system (MS4)? ☐ Yes ☐ No
If yes, provide the name of the MS4 operator:_____
Provide the name or segment number of the water body that receives storm water from this project / site:_____

D. Contact - If the TCEQ needs additional information regarding this application, who should be contacted?
Name:_____ Title:_____
Phone Number:_____ Extension:_____ Fax Number:_____
E-mail Address:_____

E. Payment Information - Check / Money Order Number:_____ Name on Check / Money Order:_____

F. Certification
I certify under penalty of law that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Construction Site Operator:
Prefix:_____ First:_____ Middle:_____
Last:_____ Suffix:_____ Title:_____
Signature:_____ Date:_____

If you have questions on how to fill out this form or about the storm water program, please contact us at (512) 239-4671.
Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, contact us at (512) 239-3282.

The completed NOI must be mailed to the following address. Use the attached document to submit the $100 application fee. Please note that the NOI and application fee are submitted separately to different addresses.

Texas Commission on Environmental Quality
Storm Water & General Permits Team; MC - 228
P.O. Box 13087
Austin, Texas 78711-3087

TCEQ-20022 (05/03) **Page 1 of 2**

ATTACHMENT 1

Texas Commission on Environmental Quality
Payment Submittal Form

The storm water application fee shall be sent under separate cover to the Texas Commission on Environmental Quality.

This form must be used to submit your Storm Water Application Fee. Please complete the following information, staple your check in the space provided at the bottom of this document, and mail it to:

BY REGULAR U.S. MAIL

Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
P.O. Box 13088
Austin, TX 78711-3088

BY OVERNIGHT/EXPRESS MAIL

Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
12100 Park 35 Circle
Austin, TX 78753

Fee Code: GPA

Storm Water General Permit: TXR150000

Check / Money Order No: _____ Amount of Check/Money Order: _____

Date of Check or Money Order: _____

Name on Check or Money Order: _____

Facility / Site Name: _____

Facility / Site Physical Address: _____

City: _____ Zip Code: _____

Staple Check In This Space

ATTACHMENT 1

Completing the Notice of Intent for Storm Water Discharges Associated with Construction Activity under the TPDES Construction General Permit (TXR150000)

A. Construction Site Operator Information

Check boxes and Customer Reference Number
These boxes designate the operator's status as a TCEQ "customer"—in other words, an individual or business that is involved in an activity that we regulate. We assign each customer a number that begins with "CN," followed by nine digits. ***This is not a permit number, registration number, or license number.*** In the remainder of this section, we will use "this customer" to mean the operator for Part A of the form.

- If this customer has not been assigned a Customer Reference Number or if this number is unknown, check "New" and leave the space for the Customer Reference Number blank.
- If this customer has already been assigned this number, enter the operator's Customer Reference Number and:
  - Check "No Change" if all the remaining customer information is the same as previously reported. However, you must still complete most blanks in this form for this notice of intent to be valid.
  - If this customer's information has changed since the last time it was reported to the TCEQ, check neither box and complete the remainder of this notice of intent.
- ***Do not enter a permit number, registration number, or license number in place of the Customer Reference Number.***

Name
Enter the legal name of this customer as authorized to do business in Texas. Include any abbreviations (LLC, Inc., etc.).

Mailing Address
Enter a central and general mailing address for this customer to receive mail from the TCEQ. For example, if this customer is a large company, this address might be the corporate or regional headquarters. On the other hand, for a smaller business, this address could be the same as the site address.

If this is a street address, please follow US Postal Service standards. In brief, these standards require this information in this order:

- the "house" number—for example, the 1401 in 1401 Main St
- if there is a direction before the street name, the one- or two-letter abbreviation of that direction (N, S, E, W, NE, SE, SW, or NW)
- the street name (if a numbered street, do not spell out the number—for example, 6th St, not Sixth St)
- an appropriate abbreviation of the type of street—for example, St, Ave, Blvd, Fwy, Exwy, Hwy, Cr, Ct, Ln
- if there is a direction after the street name, the one- or two-letter abbreviation of that direction (N, S, E, W, NE, SE, SW, or NW)
- if there is a room number, suite number, or company mail code

City, State, *and* ZIP Code
Enter the name of the city, the two-letter USPS abbreviation for the state (for example, TX), and the ZIP Code. (Enter the full ZIP+4 if you know it.)

Country Mailing Information
If this address is ***outside*** the United States, enter the territory name, country code, and any non-ZIP mailing codes or other non-U.S. Postal Service features here. If this address is ***inside*** the United States, leave these spaces blank.

Phone Number *and* Extension
This number should correspond to this customer's mailing address given earlier. Enter the area code and phone number here. Leave "Extension" blank if this customer's phone system lacks this feature.

Fax Number
This number should correspond to this customer's mailing address given earlier. Enter the area code and fax number here.

E-mail Address
As with the mailing address, this should be a general address that is appropriate for e-mail to this customer's central or regional headquarters, if applicable.

If "No Change" was checked for this customer, you may skip the rest of the fields in this part of the form and continue to the next part of the NOI.

Type of Operator
Check *only one* box

Check ...	*if this customer ...*
Individual	is a person and has not established a business to do whatever causes them to be regulated by us.
Sole Proprietorship—D.B.A.	is a business that is owned by only one person and has not been incorporated. This business may: • be under the person's name • have its own name ("doing business as" or d.b.a.) • have any number of employees
Partnership	is a business that is established as a partnership as defined by the Texas Secretary of State's Office
Corporation	meets all of these conditions • is a legally incorporated entity under the laws of any state or country • is recognized as a corporation by the Texas Secretary of State • has proper operating authority to operate in Texas
Federal, state, county, or city government (as appropriate)	is either an agency of one of these levels of government or the governmental body itself (If a utility district, water district, tribal government, college district, council of governments, or river authority, check "Other" and write in the specific type of government.)
Other	fits none of the above descriptions. Enter a short description of the type of customer in the blank provided.

Independent Operator?
Check "No" if this customer is a subsidiary or part of a larger company. Otherwise, check "Yes."

Number of Employees
Check one box to show the number of employees for this customer's entire company, at all locations. ***This is not necessarily the number of employees at the site named in this NOI.***

Federal Tax ID
All businesses, except for some small sole proprietors, should have a federal taxpayer identification number (TIN). Enter this number here. Use no prefixes, dashes, or hyphens. Individuals and sole proprietors do not need to provide a federal tax ID.

State Franchise Tax ID
Corporations and limited liability companies that operate in Texas are issued a franchise tax identification number. If this customer is a corporation or limited liability company, enter this number here.

DUNS Number
Most businesses have a DUNS (Data Universal Numbering System) number issued by Dun and Bradstreet Corp. If this customer has one, enter it here.

B. Billing Address

We will mail the annual fee invoice for this site to the address entered in this section.

Name
Enter the legal name of the person or business to which we should mail this site's fee invoice each year.

Mailing Address
Enter the specific mailing address to which we should mail this site's fee invoice each year. If this is a street address, please follow the US Postal Service standards as described under "A. Construction Site Operator Information" on page 1 of these instructions.

City, State, *and* ZIP Code
Enter the name of the city, the two-letter USPS abbreviation for the state (for example, TX), and the ZIP Code. (Enter the full ZIP+4 if you know it.)

Country Mailing Information
If this address is ***outside*** the United States, enter the territory name, country code, and any non-ZIP mailing codes or other non-U.S. Postal

ATTACHMENT 1

Service features here. If this address is ***inside*** the United States, leave these spaces blank.

C. Project / Site Information

Check boxes *and* Regulated Entity Reference Number
These boxes designate this site's status as a TCEQ "regulated entity"—in other words, a location where an activity that we regulate occurs. We assign each regulated entity a number that begins with "RN," followed by nine digits. ***This is not a permit number, registration number, or license number.***

- If this site has not been assigned a Regulated Entity Reference Number or if this number is unknown, check "New" and leave the space for the Regulated Entity Reference Number blank.
- If this site has already been assigned this number, enter the Regulated Entity Reference Number and:
  - Check "No Change" if all the remaining information is the same as previously reported. However, even if there has been no change, you must complete this section at least through "E-mail Address" for this NOI to be valid.
  - If this site's information has changed since the last time it was reported to the TCEQ, check neither box and complete the remainder of this notice of intent.
- ***Do not enter a permit number, registration number, or license number in place of the Regulated Entity Reference Number.***

Name
Enter the name by which you want this site to be known to the TCEQ.

Mailing Address
Enter the specific mailing address for this site. If this is a street address, please follow the US Postal Service standards as described under "A. Construction Site Operator Information" on page 1 of these instructions. If the project / site's mailing address is the same as what is provided in Section A, you may enter "Same as Section A".

City, State, *and* ZIP Code
Enter the name of the city, the two-letter USPS abbreviation for the state (for example, TX), and the ZIP Code. (Enter the full ZIP+4 if you know it.)

Physical Address
Enter the physical address of the site itself. TCEQ staff should be able to use this address to find the site. Please follow the US Postal Service standards as described under "A. Construction Site Operator Information" on page 1 of these instructions. If the project / site does not have a physical address, enter "No Address".

City, County, *and* ZIP Code
Enter the name of the city, the county, and the ZIP Code. (Enter the full ZIP+4 if you know it.) This information must be provided even if you have entered "No Address" in the previous field.

Location Access Description
Enter a physical description of the location of the site based on highway intersections and/or permanent landmarks.

Latitude *and* Longitude
Enter the latitude and longitude of the site in ***either*** degrees, minutes, and seconds ***or*** decimal form.

For help obtaining the latitude and longitude, go to:
http://www.tnrcc.state.tx.us/gis/drgview.html

Standard Industrial Classification (SIC) Code and Activity Description

Provide the SIC code that best describes the construction activity being conducted at the site.

For help with SIC codes, go to:
http://www.osha.gov/oshstats/sicser.html

In addition to the SIC code, you must also provide a description of the construction activity being conducted at the site. This may include such descriptions as: "Apartment Building Construction" or "Shopping Center Construction."

Storm Water Pollution Prevention Plan
This plan identifies the areas and activities that could produce contaminated runoff at your site and then tells how you will ensure that this contamination is mitigated. For example, in describing your mitigation measures, your site's plan might identify the devices that collect and filter storm water, tell how those devices are to be maintained, and tell how frequently that maintenance is to be carried out. ***You must develop this plan before you complete this NOI.*** This plan must be available for a TCEQ investigator to review on request. Specific requirements for the development of the plan can be found in the *Texas Pollutant Discharge Elimination System Construction General Permit (TXR150000).*

Estimated Area of Land Disturbed
Provide the approximate number of acres that the construction site will disturb. It is appropriate to enter a value less than 5, only if the project is part of a larger common plan that disturbs five or more acres. If the acreage is less than 1, enter 1. "Disturb" means any clearing, grading, excavating, or other similar activities.

Is the site located on Indian Country Lands?
Check "Yes" only if the site is on a reservation or other areas designated by the federal government as Indian Country Lands. If not, check "No."

Destination of Storm Water Discharge
The storm water from your site eventually reaches a receiving water body such as a local stream or lake, possibly via a drainage ditch. The discharge may initially be into a municipal separate storm sewer system (MS4). Check the appropriate boxes for whether storm water is discharged into an MS4. If you checked "Yes" to "An MS4?", then enter the name of the entity that operates the storm sewer—often a city, town, or utility district, but possibly another form of government.

You must also provide the name of the water body that receives the discharge from the construction site (a local stream or lake). Storm water may be discharged directly to a receiving stream or via a storm sewer system. If known, please include the segment number if the discharge is to a classified water body.

For a map that includes segment numbers, go to:
http://www.tnrcc.state.tx.us/water/quality/data/index.html

D. Contact

Give all the relevant information for the person whom TCEQ can contact if there are questions about any of the information on this form—perhaps the same person who completed the form.

E. Payment Information

Provide the number and account holder name from the check or money order used to pay the $100 application fee.

F. Certification

The operator must sign and date this statement to validate this NOI. Be sure to enter the full legal name of the person signing the form and the relevant title—for example, "Operator," "Vice-President," or "Partner." Use the "Prefix" blank for such titles as Dr., Mr., or Ms., as desired. Use the "Suffix" blank for such designations as Ph.D., Jr., Sr., III, or J.D., if applicable.

For a corporation, the application shall be signed by a responsible corporate officer. A responsible corporate officer means a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. Corporate procedures governing authority to sign permit applications may provide for assignment or delegation to applicable corporate positions rather than to specific individuals.

For a partnership or sole proprietorship, the application shall be signed by a general partner or the proprietor, respectively.

For a municipality, state, federal, or other public agency, the application shall be signed by either a principal executive officer or a ranking elected official. For purposes of this application, a principal executive officer of a federal agency includes the chief executive officer of the agency, or a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., regional administrator of the United States Environmental Protection Agency).

Questions?

If you have questions about any of the information on this form, contact our Storm Water Program at 512/239-4671 or look for "Storm Water" on our Web site:

www.tceq.state.tx.us

ATTACHMENT 2

CONSTRUCTION SITE NOTICE

FOR THE
Texas Commission on Environmental Quality (TCEQ)
Storm Water Program

TPDES GENERAL PERMIT TXR150000

The following information is posted in compliance with **Part II.D.2.** of the TCEQ General Permit Number TXR150000 for discharges of storm water runoff from construction sites. Additional information regarding the TCEQ storm water permit program may be found on the internet at:
www.tnrcc.state.tx.us/permitting/waterperm/wwperm/tpdestorm

Contact Name and Phone Number:	
Project Description: (Physical address or description of the site's location, estimated start date and projected end date, or date that disturbed soils will be stabilized)	
Location of Storm Water Pollution Prevention Plan :	

For Construction Sites Authorized Under Part II.D.2. (Obtaining Authorization to Discharge) the following certification must be completed:

I _____ (Typed or Printed Name Person Completing This Certification) certify under penalty of law that I have read and understand the eligibility requirements for claiming an authorization under Part II.D.2. of TPDES General Permit TXR150000 and agree to comply with the terms of this permit. A storm water pollution prevention plan has been developed and implemented according to permit requirements. A copy of this signed notice is supplied to the operator of the MS4 if discharges enter an MS4 system. I am aware there are significant penalties for providing false information or for conducting unauthorized discharges, including the possibility of fine and imprisonment for knowing violations.

_____ _____
Signature and Title Date

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ATTACHMENT 3

TPDES OPERATOR'S INFORMATION

Owner's Name and Address: City of Houston

Mr. _____
(City Official)

_____
(Department)
P. O. Box 1562
Houston, Texas 77251-1562
(713) 247-1000

Contractors' Names and Addresses:

General Contractor: _____

Telephone: _____

Site Superintendent: _____

Telephone: _____

Erosion Control and
Maintenance Inspection: _____

Telephone: _____

Subcontractors' Names and Addresses:

_____ _____

_____ _____

_____ _____

_____ _____

Phone: _____ Phone: _____

Note: Insert name, address, and telephone number of person or firms

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ATTACHMENT 4

CONTRACTOR'S / SUBCONTRACTOR'S

CERTIFICATION FOR TPDES PERMITTING

I certify under penalty of law that I understand the terms and conditions of TPDES General Permit No. TXR150000 and the Storm Water Pollution Prevention Plan for the construction site identified as part of this certification.

Signature: _____

Name: (printed or typed) _____

Title: _____

Company: _____

Address: _____

Date: _____

Signature: _____

Name: (printed or typed) _____

Title: _____

Company: _____

Address: _____

Date: _____

Signature: _____

Name: (printed or typed) _____

Title: _____

Company: _____

Address: _____

Date: _____

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ATTACHMENT 5

EPA NPDES Construction Inspection Form

The following inspection is being performed in compliance with Part IV.D.4. of the NPDES Region 6 Storm Water Construction General Permit [63 Fed. Reg. 36502] and being retained in accordance with Part V of the Permit. Qualified personnel (provided by the permittee or cooperatively by multiple permittees) shall inspect disturbed areas of the construction site that have not been finally stabilized, areas used for storage of materials that are exposed to precipitation, placement and effectiveness of structural control measures, and locations where vehicles enter or exit the site. Inspections shall be performed at least once every 14 days and within 24 hours of the end of a storm event of 0.5 inches or greater. Where sites have been temporarily stabilized, runoff is unlikely due to winter conditions, or during seasonal arid periods in arid areas (0-10 inches of rainfall annually) and semi-arid areas (10-20 inches annually) such inspections shall be conducted at least once every month. This form is primarily intended for use with construction projects in Texas and New Mexico. Permittees on Indian Country lands in Oklahoma, Louisiana and Arkansas and some oil and gas facilities in Oklahoma may use this form if they are eligible for this permit. Other facilities need to check with their NPDES authority before using this form.

If you do not know your NPDES Permit Number, contact the NOI Processing Center at (301)495-4145. This form was prepared as an example and it is not a required form for use with the permit. Alternative forms may be used if they contain all of the required information as set forth in the permit. This form and additional information regarding the NPDES Region 6 storm water program may be found on the Internet at http://www.epa.gov/region6/6wq/. Any person with a complaint about the operation of this facility in regards to this permit should contact EPA Region 6 at (214)665-7112.

Permit Number(s) covered by this inspection (e.g. owners, developers, general contractor, builders)		
Signature and Certification in accordance with Part VI.G of the permit:	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. Signature_____ Date_____	
Date of Inspection		
Inspector Name		
Is there a copy of the permit language with the SWPPP?	❒ YES	❒ NO
Is the inspector qualified and are the qualifications documented in the SWPPP?	❒ YES	❒ NO
Is an NPDES storm water construction sign posted at the entrance for all permittees?	❒ YES	❒ NO

You may want to use EPA Region 6 construction checklist to assure components of the SWPPP are complete. This form, the construction sign, and the checklist are available on the Region 6 NPDES Storm Water Forms and Documents web page which may be found on the internet at http://www.epa.gov/earth1r6/6en/w/formsw.htm. In addition to the checklist, you should provide a narrative (see next page) on the existing Best Management Practices and Structural Controls found during each inspection. Any problems identified in an inspection should be corrected within 7 days. The inspection should cover all components of the SWPPP and all potential pollutants. While eroded soil is the primary pollutant of concern, do not forget to inspect for other pollutant sources such as fuel tanks, paints, solvents, stabilization materials, concrete hardner, batch plants, and construction debris. The inspector will need to update the SWPPP to reflect findings of the inspection. The site map should be updated after an inspection to show controls that have been added or removed, to ensure the site map is kept current in accordance with Part IV.C. of the permit.

Revision 4, March 1, 2000

ATTACHMENT 5

Narrative Findings of the inspection:

Observations should include any findings of Best Management Practices or controls that are not in accordance with the SWPPP. If a control is not in place or failed, observe the reason why. A control removed temporarily for work is not necessarily a violation if properly recorded in the SWPPP. If it has been removed, record why it was removed and, if applicable, when it will be reinstalled. If the control has failed, observe the conditions so a conclusion may be made as to wether the control failed for improper maintenance or improper design. The qualified inspector will know when a failed control is inadequate and should be replaced by an improved control mechanism. Qualified inspectors are to have authority to make changes to the SWPPP to assure compliance. Controls that have not been installed should be given a reason why they are not installed and/or a scheduled date for installation if they are designed for a later phase of construction. After the inspection, the SWPPP and its site map should be updated to reflect current conditions of controls and Best Management Practices at the time of the inspection. This includes removing uninstalled controls from the site map or otherwise denoting on the site map if they are no longer installed if the controls have been removed because they are no longer necessary (e.g. stabilization has been achieved in that area).

ATTACHMENT 6

City of Houston

Storm Water Pollution Prevention Plan
Construction Site Inspection Report

TPDES/EPA Permit Number _____

COH Storm Water Quality Permit Number _____

DATE _____

No exceptions noted.

The following must be corrected prior to continuing work:

Public Notice improperly posted

Initial Construction Site Inspection Report information requires updating

Copy of NOI not on site

Storm water pollution prevention plan not on site

Erosion and sediment controls improperly installed

Erosion and sediment control devices improperly maintained

Fueling or washout areas not properly protected

Portocan or other sanitary facilities not properly protected

Self-inspection and maintenance records incomplete

Sediment from site outside area of construction

Other (see description below)

_____

_____

Please contact the Storm Water Quality Engineer at
611 Walker, RA-257, Houston TX 77002
713-837-7383 fax 713-837-0570

Once the above items have been corrected, call to arrange for reinspection. No further inspections for any construction related activity shall be made until the above items have been corrected.

_____ Inspector's Signature

_____ Contractor's Signature

_____ Inspector's Name

_____ Contractor's Name

not present

Distribution Stormwater Quality Engineer, Code Enforcement, Inspector, Operator
(Operator is Contractor)

Form _____ (10-01-01)

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ATTACHMENT 7

Notice of Termination (NOT) for Storm Water Discharges Associated with Construction Activity under the TPDES Construction General Permit (TXR150000)

TCEQ Office Use Only
TPDES Permit Number: TXR15__|__|__|__| - NO
GIN Number: __|__ __|__ __|__|__|

For help completing this application, read the TXR150000 NOI Instructions (TCEQ-20023-Instructions).

A. TPDES Permit Number: TXR15_____

B. Construction Site Operator Customer Reference Number: CN_____

Name:_____

Mailing Address:_____

City:_____ State:_____ Zip Code:_____

Country Mailing Information (*if outside USA*) Territory:_____ Country Code:_____ Postal Code:_____

Phone Number:_____ Extension:_____ Fax Number:_____

E-mail Address:_____

C. Project / Site Information Regulated Entity Reference Number: RN_____

Name:_____

Physical Address:_____

Location Access Description:_____

City:_____ County:_____ Zip Code:_____

D. Contact - If the TCEQ needs additional information regarding this termination, who should be contacted?

Name:_____ Title:_____

Phone Number:_____ Extension:_____ Fax Number:_____

E-mail Address:_____

E. Certification

I certify under penalty of law that authorization under the TPDES Construction General Permit (TXR150000) is no longer necessary based on the provisions of the general permit. I understand that by submitting this Notice of Termination, I am no longer authorized to discharge storm water associated with construction activity under the general permit TXR150000, and that discharging pollutants in storm water associated with construction activity to waters of the U.S. is unlawful under the Clean Water Act where the discharge is not authorized by a TPDES permit. I also understand that the submittal of this Notice of Termination does not release an operator from liability for any violations of this permit or the Clean Water Act.

Construction Site Operator Representative:

Prefix:_____ First:_____ Middle:_____

Last:_____ Suffix:_____

Title:_____

Signature:_____ Date:_____

If you have questions on how to fill out this form or about the storm water program, please contact us at (512) 239-4671. Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, contact us at (512) 239-3282.

The completed NOT must be mailed to the following address:

Texas Commission on Environmental Quality
Storm Water & General Permits Team; MC - 228
P.O. Box 13087
Austin, Texas 78711-3087

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ATTACHMENT 7

Completing the Notice of Termination for Storm Water Discharges Associated with Construction Activity under the TPDES Construction General Permit (TXR150000)

Who May File a Notice of Termination (NOT) Form
Permittees disturbing 5 acres or more (or part of a larger common plan of development or sale disturbing 5 acres or more) who are presently covered under the Texas Pollutant Discharge Elimination System (TPDES) Construction General Permit must submit a Notice of Termination (NOT) when final stabilization has been achieved on all portions of the site that is the responsibility of the permittee; or another permitted operator has assumed control over all areas of the site that have not been finally stabilized and all silt fences and other temporary erosion controls have either been removed, scheduled for removal as defined in the SWP3, or transferred to a new operator if the new operator has sought permit coverage. Erosion controls that are designed to remain in place for an indefinite period, such as mulches and fiber mats, are not required to be removed or scheduled for removal.

Final Stabilization occurs when either of the following conditions are met:

(a) All soil disturbing activities at the site have been completed and a uniform (e.g, evenly distributed, without large bare areas) perennial vegetative cover with a density of 70% of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or equivalent permanent stabilization measures (such as the use of riprap, gabions, or goetextiles) have been employed.

(b) For individual lots in a residential construction site by either:

(1) the homebuilder completing final stabilization as specified in condition (a) above; or

(2) the homebuilder establishing temporary stabilization for an individual lot prior to the time of transfer of the ownership of the home to the buyer and after informing the homeowner of the need for, and benefits of, final stabilization.

(c) For construction activities on land used for agricultural purposes (e.g. pipelines across crop or range land), final stabilization may be accomplished by returning the disturbed land to its preconstruction agricultural use. Areas disturbed that were not previously used for agricultural activities, such as buffer strips immediately adjacent to a surface water and areas which are not being returned to their preconstruction agricultural use must meet the final stabilization conditions of condition (a) above.

A. TPDES Permit Number
Provide the TPDES permit number assigned to the operator of the construction site.

B. Construction Site Operator Information
Customer Reference Number
This number designates the operator's status as a TCEQ "customer"—in other words, an individual or business that is involved in an activity that we regulate. We assign each customer a number that begins with "CN," followed by nine digits. ***This is not a permit number, registration number, or license number.*** In the remainder of this section, we will use "this customer" to mean the operator for Part B of the form.

- If this customer has not been assigned a Customer Reference Number, leave the space for the Customer Reference Number blank.
- If this customer has already been assigned this number, enter the operator's Customer Reference Number.
- ***Do not enter a permit number, registration number, or license number in place of the Customer Reference Number.***

Name
Enter the legal name of this customer as authorized to do business in Texas. Include any abbreviations (LLC, Inc., etc.).

Mailing Address
Enter a central and general mailing address for this customer to receive mail from the TCEQ. For example, if this customer is a large company, this address might be the corporate or regional headquarters. On the other hand, for a smaller business, this address could be the same as the site address.

If this is a street address, please follow US Postal Service standards. In brief, these standards require this information in this order:

- the "house" number—for example, the 1401 in 1401 Main St
- if there is a direction before the street name, the one- or two-letter abbreviation of that direction (N, S, E, W, NE, SE, SW, or NW)
- the street name (if a numbered street, do not spell out the number—for example, 6th St, not Sixth St)
- an appropriate abbreviation of the type of street—for example, St, Ave, Blvd, Fwy, Exwy, Hwy, Cr, Ct, Ln
- if there is a direction after the street name, the one- or two-letter abbreviation of that direction (N, S, E, W, NE, SE, SW, or NW)
- if there is a room number, suite number, or company mail code

City, State, *and* ZIP Code
Enter the name of the city, the two-letter USPS abbreviation for the state (for example, TX), and the ZIP Code. (Enter the full ZIP+4 if you know it.)

ATTACHMENT 7

Country Mailing Information
If this address is ***outside*** the United States, enter the territory name, country code, and any non-ZIP mailing codes or other non–U.S. Postal Service features here. If this address is ***inside*** the United States, leave these spaces blank.

Phone Number *and* Extension
This number should correspond to this customer's mailing address given earlier. Enter the area code and phone number here. Leave "Extension" blank if this customer's phone system lacks this feature.

Fax Number
This number should correspond to this customer's mailing address given earlier. Enter the area code and fax number here.

E-mail Address
As with the mailing address, this should be a general address that is appropriate for e-mail to this customer's central or regional headquarters, if applicable.

C. Project / Site Information

Regulated Entity Reference Number
This number designates this site's status as a TCEQ "regulated entity"—in other words, a location where an activity that we regulate occurs. We assign each regulated entity a number that begins with "RN," followed by nine digits. ***This is not a permit number, registration number, or license number.***

- If this site has not been assigned a Regulated Entity Reference Number, leave the space for the Regulated Entity Reference Number blank.
- If this site has already been assigned this number, enter the Regulated Entity Reference Number.
- ***Do not enter a permit number, registration number, or license number in place of the Regulated Entity Reference Number.***

Name
Enter the name by which you want this site to be known to the TCEQ.

Physical Address
Enter the physical address of the site itself. TCEQ staff should be able to use this address to find the site.

Location Description
Enter a physical description of the location of the site based on highway intersections and/or permanent landmarks.

City, County, *and* ZIP Code
Enter the name of the city, the county, and the ZIP Code. (Enter the full ZIP+4 if you know it.)

D. Contact

Give all the relevant information for the person whom TCEQ can contact if there are questions about any of the information on this form—perhaps the same person who completed the form.

E. Certification

The operator must sign and date this statement to validate this NOI. Be sure to enter the full legal name of the person signing the form and the relevant title—for example, "Operator," "Operator's attorney," or "Senior Site Manager." Use the "Prefix" blank for such titles as Dr., Mr., or Ms., as desired. Use the "Suffix" blank for such designations as Ph.D., Jr., Sr., III, or J.D., if applicable.

For a corporation, the application shall be signed by a responsible corporate officer. A responsible corporate officer means a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. Corporate procedures governing authority to sign permit applications may provide for assignment or delegation to applicable corporate positions rather than to specific individuals.

For a partnership or sole proprietorship, the application shall be signed by a general partner or the proprietor, respectively.

For a municipality, state, federal, or other public agency, the application shall be signed by either a principal executive officer or a ranking elected official. For purposes of this application, a principal executive officer of a federal agency includes the chief executive officer of the agency, or a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g. regional administrator of the United States Environmental Protection Agency).

Questions?

If you have questions about any of the information on this form, contact our Storm Water Program at 512/239-4671 or look for "Storm Water" on our Web site:

www.tceq.state.tx.us

Section 01422

REFERENCE STANDARDS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Section includes general quality assurance as related to Reference Standards and a list of references.

1.02 QUALITY ASSURANCE

A. For Products or workmanship specified by association, trade, or Federal Standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard by date of issue current on the date as stated in the General Conditions.

C. Request clarification from Project Manager before proceeding should specified reference standards conflict with Contract documents.

1.03 SCHEDULE OF REFERENCES

AASHTO	American Association of State Highway and Transportation Officials 444 North Capitol Street, N.W. Washington, DC 20001
ACI	American Concrete Institute P.O. Box 9094 Farmington Hills, MI 48333-9094
AGC	Associated General Contractors of America 333 John Carlyle Street Alexandria, VA 22314
AI	Asphalt Institute Research Park Drive P.O. Box 14052 Lexington, KY 40512

AITC	American Institute of Timber Construction 7012 S. Revere Parkway, Suite 140 Englewood, CO 80112
AISC	American Institute of Steel Construction One East Wacker Dr. Chicago, IL 60601
AISI	American Iron and Steel Institute 1101 17th Street NW, Suite 1300 Washington, DC 20036
ASME	American Society of Mechanical Engineers Three Park Avenue New York, NY 10016
ANSI	American National Standards Institute 1819 L Street NW Sixth Floor Washington, D.C. 20036
APA	American Plywood Association Box 11700 Tacoma, WA 98411
API	American Petroleum Institute 1220 L Street, N.W. Washington, DC 20005
AREA	American Railway Engineering and Maintenance-of-Way-Association 8201 Corporate Drive, Suite 1125 Landover, Maryland 20785
ASTM	American Society for Testing and Materials 100 Barr Harbor Drive West Conshohocken, PA 19428
AWPA	American Wood-Preservers' Association P.O. Box 5690 Granbury, TX 76049
AWS	American Welding Society 550 NW 42nd Avenue Miami, FL 33126

AWWA	American Water Works Association 6666 West Quincy Avenue Denver, CO 80235
COH	City of Houston P.O. Box 1562 Houston, TX 77251-1562
CLFMI	Chain Link Fence Manufacturers Institute 9891 Broken Land Parkway, Suite 300 Columbia, MD 21046
CRSI	Concrete Reinforcing Steel Institute 933 Plum Grove Road Schaumburg, IL 60173-4758
EJMA	Expansion Joint Manufacturers Association 25 North Broadway Tarrytown, NY 10591
FS	Federal Standardization Documents General Services Administration Specifications Unit (WFSIS) 7th and D Streets, S.W. Washington, DC 20406
ICEA	Insulated Cable Engineer Association P.O. Box 440 S. Yarmouth, MA 02664
IEEE	Institute of Electrical and Electronics Engineers 445 Hoes Lane P.O. Box 440 Piscataway, NJ 08855-459
ISA	International Society of Arboriculture P.O. Box 3129 Champaign, IL 61826-3129
MIL	Military Specifications General Services Administration Specifications Unit (WFSIS) 7th and D Streets, S.W. Washington, DC 20406

NACE	National Association of Corrosion Engineers 1440 South Creek Drive Houston, TX 77084-4906
NEMA	National Electrical Manufacturers' Association 1300 North 17th Street, Suite 1847 Rosslyn, VA 22209
NFPA	National Fire Protection Association 1 Batterymarch Park P.O. Box 9101 Quincy, MA 02269-9101
OSHA	Occupational Safety Health Administration U.S. Department of Labor Office of Public Affairs – Room N3647 Washington, DC 20210
PCA	Portland Cement Association 5420 Old Orchard Road Skokie, IL 60077-1083
PCI	Prestressed Concrete Institute 209 W. Jackson Blvd. Chicago, IL 60606
SDI	Steel Deck Institute P.O. Box 25 Fox River Grove, IL 60021
SSPC	Society for Protective Coatings (Steel Structures Painting Council) 40 24th Street, Sixth Floor Pittsburgh, PA 15222
TAC	Texas Administrative Code Texas Water Resources Conservation Commission P. O. Box 13087 Library MC-196 Austin, TX 78711-3087
TxDOT	Texas Department of Transportation 125 East 11th Street Austin, TX 78701-2483

UL	Underwriters' Laboratories, Inc. 333 Pfingston Road Northbrook, IL 60062
UNI-BELL	UNI-BELL Pipe Association 2655 Villa Creek Drive, Suite 155 Dallas, TX 75234

PART 2 P R O D U C T S - Not Used

PART 3 E X E C U T I O N - Not Used

END OF SECTION

Section 01450

CONTRACTOR'S QUALITY CONTROL

PART 1 G E N E R A L

1.01 SECTION INCLUDES

A. Quality assurance and control of Installation and manufacturers' field services and reports.

1.02 QUALITY ASSURANCE AND CONTROL OF INSTALLATION

A. Monitor quality control over Suppliers, manufacturers, Products, services, site conditions and workmanship, to produce work of specified quality at no additional cost to the City.

B. Comply fully with manufacturers' Installation instructions, including each step in sequence.

C. Request clarification from Project Manager before proceeding when manufacturers' instructions conflict with the Contract.

D. Comply with specified standards as minimum requirements for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Perform the Work by persons qualified to produce a specified level of workmanship.

1.03 REFERENCES

A. Obtain copies of standards and maintain at job site when required by individual Specification sections.

1.04 MANUFACTURERS' FIELD SERVICES AND REPORTS

A. When specified in individual Specification sections, or as required by Project Manager, provide Product suppliers' or manufacturers' technical representative to observe site conditions, conditions of surfaces and Installation, quality of workmanship, start-up of equipment, operator training, testing, adjusting and balancing of equipment as applicable and to initiate required operation. Conform to minimum time requirements for start-up operations and operator training when provided in Specification sections.

B. At Project Manager's request, submit qualifications of manufacturers' representative to Project Manager 15 days in advance of required representatives' services. Representative is subject to approval by Project Manager.

C. Manufacturer's representatives shall report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to a manufacturer's written instructions. Submit report within 14 days of observation to Project Manager for review.

PART 2 P R O D U C T S - Not Used

PART 3 E X E C U T I O N - Not Used

END OF SECTION

Section 01452

INSPECTION SERVICES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Inspection services and references

1.02 INSPECTION

A. City Engineer will appoint an Inspector to represent the City and perform inspections, tests, and other services specified in individual Specification sections.

B. City Engineer may also appoint, employ, and pay an independent firm to provide additional inspection or construction management services as indicated in Section 01454 - Testing Laboratory Services.

C. The independent firm will submit reports to Project Manager, indicating observations and results of tests and indicating compliance or noncompliance with Contract requirements.

D. Contractor shall assist and cooperate with the Inspector; furnish samples of materials, design mix, equipment, tools, and storage.

E. Contractor shall notify Project Manager 24 hours prior to expected time for operations requiring services.

F. Contractor shall sign and acknowledge reports for Inspector.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

Section 01454

TESTING LABORATORY SERVICES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Testing laboratory services and Contractor responsibilities related to those services.

1.02 REFERENCES

A. ASTM C 1077 - Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation.

B. ASTM D 3666 - Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Bituminous Paving Materials.

C. ASTM D 3740 - Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.

D. ASTM E 329 - Standard Specification for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction.

E. ISO/TEC Guide 25 - General Requirements for the Competence of Calibration and Testing Laboratories.

1.03 SELECTION AND PAYMENT

A. The City will select, employ, and pay for services of an independent testing laboratory to perform inspection and testing identified in Part 3 of individual Specification sections.

B. Contractor shall employ and pay for services of an independent testing laboratory or laboratories to perform inspection and testing identified in Part 2 of individual Specification sections.

C. Employment of a testing laboratory by the City shall not relieve Contractor of its obligation to perform work in accordance with requirements of Contract documents.

D. The City will deduct a minimum two-hour charge for testing laboratory time from periodic progress payment when operations requiring testing or inspection are canceled without prior notification.

E. The City will deduct cost of retesting from periodic progress payment whenever failed work is removed, replaced and retested.

1.04 QUALIFICATION OF LABORATORY

A. Meet laboratory requirements of ASTM E 329 and applicable requirements of ASTM C 1077, ASTM D 3666, and ASTM D 3740.

B. Meet ISO/TEC Guide 17025 conditions for accreditation by the American Association for Laboratory Accreditation (A2LA) in specific fields of testing required in individual Specification sections.

C. If laboratory subcontracts are part of the testing services, such work will be placed with a laboratory complying with the requirements of this Section.

1.05 LABORATORY REPORTS

A. Testing laboratory shall provide and distribute copies of laboratory reports to the distribution list Project Manager provides at the pre-construction conference.

B. Keep one copy of each laboratory report distributed or faxed at the site field office for duration of the Work.

C. Laboratory will fax material supplier, Contractor and Project Manager reports that indicate failing test results by no later than close of business on the working day following test completion and review.

1.06 LIMITS ON TESTING LABORATORY AUTHORITY

A. Laboratory may not release, revoke, alter, or enlarge requirements of the Contract.

B. Laboratory may not approve or accept any portion of the Work.

C. Laboratory may not assume Contractor duties.

D. Laboratory has no authority to stop the Work.

1.07 CONTRACTOR RESPONSIBILITIES

A. Provide safe access to the Work and to manufacturer's facilities for Project Manager and for testing laboratory personnel.

B. Provide testing laboratory with a copy of the Construction Schedule and a copy of each update to Construction Schedule.

C. Notify Project Manager and testing laboratory during normal working hours of the day previous to expected time for operations requiring inspection and testing services. When Contractor fails to make timely prior notification, do not proceed with the operations requiring inspection and testing services.

D. Notify Design Consultant 24 hours in advance when Specification requires presence of Design Consultant for sampling or testing.

E. Request and monitor testing as required to provide timely results and to avoid delays to the Work. Provide samples to laboratory in sufficient time to allow required test to be performed in accordance with specified test methods before intended use of the Product.

F. Cooperate with laboratory personnel in collecting samples on site. Provide incidental labor and facilities for safe access to the Work to be tested, to obtain and handle samples at site or at source of Products to be tested, and to facilitate tests and inspections including storage and curing of test samples.

G. Make arrangements with laboratory through Project Manager. Payment for additional testing will be made in accordance with Document 00700 - General Conditions:

1. Re-testing required for failed tests.

2. Re-testing for nonconforming work.

3. Additional sampling and tests requested beyond specified requirements.

4. Insufficient notification of cancellation of tests for work scheduled but not performed.

PART 2 P R O D U C T S - Not Used

PART 3 EXECUTION

3.01 CONDUCTING TESTING

A Conform to laboratory sampling and testing methods specified in individual Specification sections to the latest issues of ASTM standards, TxDOT methods, or other recognized test standards as approved by Project Manager.

B Requirements of this Section shall also apply to those tests for approval of materials, for mix designs, and for quality control of materials as performed by employed testing laboratories.

END OF SECTION

Section 01502

MOBILIZATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Mobilization of construction equipment and facilities onto the site.

1.02 MEASUREMENT AND PAYMENT

A. Unit Price Contracts. If Contract is Unit Price Contract, measurement for mobilization is on a lump sum basis.

B. Stipulated Price (Lump Sum) Contract. If Contract is Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

C. Mobilization payments will be included in monthly payment estimates upon written application by Contractor subject to the following provisions:

1. Authorization for payment of 50 percent of that portion of Contract Price designated for mobilization will be made upon receipt and approval by Project Manager of the following items, as applicable:

a. Safety Program (Document 00700, Paragraph 10.1.1).

b. Site Utilization Plan (Section 01145).

c. Schedule of Values (Section 01292), if any.

d. Initial Construction Photographs (Section 01321), if needed.

e. Preliminary Construction Schedule and Billing Forecast (Section 01325).

f. Construction Schedule (Section 01325 or Section 01326, as applicable).

g. Submittal Schedule (Section 01330).

h. Site specific Storm Water Pollution Prevention Plan (SWPPP) and Notice of Intent (NOI) along with storm water application fee (Section 01410), if required.

i. Contractor's Quality Control Plan (Section 01450), if required.

j. Establishment of a Field Office for Project Manager meeting requirements of Section 01520 - Temporary Field Office.

k. Traffic Control Plan (Section 01555), if required.

l. Plan for Control of Ground and Surface Water (Section 01578), if required.

m. Project Signs Submittal (Section 01580).

n. Trench Safety Program (Section 02260), if required.

o. Dewatering plan, when required.

2. Authorization for payment of the balance of that portion of Contract Price designated for mobilization will be made upon completion of the Work amounting to five percent of Original Contract Price. The amount of Contract Price designated for mobilization may not be applied in computing whether or not five percent of the Original Contract Price has been obtained.

3. Mobilization payments will be subject to retainage amounts stipulated in Document 00700 – General Conditions.

PART 2 P R O D U C T S -Not Used

PART 3 E X E C U T I O N -Not Used

END OF SECTION

Section 01504

TEMPORARY FACILITIES AND CONTROLS

PART 1 G E N E R A L

1.01 SECTION INCLUDES

A. Temporary facilities and necessary controls for the Project, including utilities, telephone, sanitary facilities, storage sheds and building, safety requirements, first aid equipment, fire protection, security measures, protection of the Work and property, access roads and parking, environmental controls, pest and rodent control and disposal of trash, debris and excavated material.

B. Facilities and controls specified in this section are considered minimum for the Project. Provide additional facilities and controls for proper execution of the Work and to meet Contractor's responsibilities for protection of persons and property.

1.02 MEASUREMENT AND PAYMENT

A. UNIT PRICES

1. No separate payment will be made for any temporary facilities and controls required under this section. Include cost of such work in contract price listed for mobilization.

1.03 CONTRACTOR'S RESPONSIBILITY

A. Comply with applicable requirements specified in other sections of Specifications.

1. Maintain and operate temporary facilities and systems to assure continuous service.

2. Modify and extend systems as the Work progress requires.

3. Completely remove temporary materials and equipment when no longer required.

4. Restore existing facilities used for temporary services to specified or original condition.

PART 2 P R O D U C T S - NOT USED

PART 3 EXECUTION

3.01 TEMPORARY UTILITIES

A. Obtaining Temporary Service:

1. Make arrangements with utility service companies for temporary services.

2. Abide by rules and regulations of the utility service companies or authorities having jurisdiction.

3. Be responsible for utility service costs until Date of Substantial Completion. Included are fuel, power, light, heat, and other utility services necessary for execution, completion, testing, and initial operation of work.

B. Water:

1. Provide water required for and in connection with work to be performed and for specified tests of piping, equipment, devices, or for other use as required for proper completion of the Work.

2. Water to be drawn from public fire hydrants. Obtain transit meter from City of Houston, Department of Public Works and Engineering, Taps and Meters Section. Pay required deposit based on rates established by latest ordinance.

3. Provide and maintain an adequate supply of potable water for domestic consumption by Contractor personnel, Project Manager and representatives of the City.

C. Electricity and lighting:

1. Provide electric power service required for the Work including required testing, lighting, operation of equipment, and other Contractor use.

2. Electric power service includes temporary power or generators required to maintain plant operations during scheduled shutdowns.

3. Minimum lighting level shall be 10 foot-candles for open areas; 20-foot-candles for stairs and shops. Provide a minimum of one 300-watt lamp for each 200 square feet of work area.

D. Temporary Heat and Ventilation:

1. Provide temporary heat necessary for protection or completion of the Work.

2. Provide temporary heat and ventilation to assure safe working conditions; maintain enclosed areas at a minimum of 50 degrees F.

E. Telephone:

1. Provide emergency telephone service at Project site for use by Contractor personnel and others performing work or furnishing services at the site.

2. Provide Houston-Metro lines, allowing unlimited calls, without charge in Greater Houston Metropolitan area with "call waiting" and "call forwarding" options. Provide one telephone answering machine with beeperless remote message retrieval capability.

F. Sanitary Facilities:

1. Provide and maintain sanitary facilities for persons on the site; comply with regulations of State and local departments of health.

2. Enforce use of sanitary facilities by construction personnel at site. Enclose sanitary facilities. Pit-type toilets are not permitted. No discharge will be allowed from these facilities. Collect and store sewage and waste so as not to cause nuisance or health problems. Haul sewage and waste off-site and properly dispose in accordance with applicable regulations.

3. Locate toilets near the Work site and secluded from view insofar as possible. Keep toilets clean and supplied throughout the course of the Work.

3.02 STORAGE SHEDS AND BUILDINGS

A. Provide adequately ventilated, watertight storage facilities with floor above ground level for Products susceptible to weather damage.

B. Storage of Products not susceptible to weather damage may be on blocks off the ground.

C. Store Products in a neat and orderly manner. Place Products to permit easy access for identification, inspection and inventory.

D. Fill and grade site for temporary structures to provide drainage away from temporary and existing buildings.

3.03 SAFETY REQUIREMENTS

A. Submit a safety program at the pre-construction meeting and follow the program in accordance with Document 00700 – General Conditions. Include documented response to trench safety requirements of Section 02260 - Trench Safety System.

B. Conduct operations in strict accordance with applicable Federal, State and local safety codes and statutes and with good construction practice. Establish and maintain procedures for safety of all work, personnel and equipment involved in the Work.

C. Observe and comply with Texas Occupational Safety Act (Art. 5182a, V.C.S.) and with all safety and health standards promulgated by Secretary of Labor under Section 107 of Contract Work Hours and Standards Act, published in 29 CFR Part 1926 and adopted by Secretary of Labor as occupational safety and health standards under Williams-Steiger Occupational Safety and Health Act of 1970, and to other legislation enacted for safety and health of Contractor employees. Safety and health standards apply to Subcontractors and Suppliers as well as to the Contractor.

D. Observance of and compliance with safety regulations is Contractor's responsibility without reliance or superintendence of or direction by Project Manager. Immediately advise Project Manager of investigation or inspection by Federal Safety and Health inspectors of Contractor's or Subcontractor's work or place of work on site under the Contract, and after investigation or inspection, advise Project Manager of results. Submit one copy of accident reports to Project Manager within 10 days of occurrence.

E. Protect areas occupied by workmen using the best available devices for detection of lethal and combustible gases. Test devices frequently to assure functional capability. Constantly observe infiltration of liquids into the Work area for visual or odor evidence of contamination, and immediately take appropriate steps to seal off entry of contaminated liquids to the Work area.

F. Implement safety measures, including but not limited to safety personnel, first-aid equipment, ventilating equipment and other safety equipment specified or detailed on Drawings.

G. Maintain required coordination with City Police and Fire Departments during entire period covered by the Contract.

H. Include Project safety analysis in safety plan. Itemize major tasks and potential safety hazards. Plan to eliminate hazards or protect workers and public from each hazard.

3.04 FIRST AID EQUIPMENT

A. Provide a first aid kit throughout the construction period. List telephone numbers for physicians, hospitals, and ambulance services in each first aid kit.

B. Have at least one person thoroughly trained in first aid and CPR procedures present on the site when work is in progress. Contractor to conform to protocols and requirements for training and protection against "blood borne pathogens".

3.05 FIRE PROTECTION

A. Conform to specified fire protection and prevention requirements established by Federal, State, or local governmental agencies and as provided in Safety Program.

3.06 SECURITY MEASURES

A. Protect the Work, materials, equipment, and property from loss, theft, damage, or vandalism. Protect City property used in performance of the Contract.

B. If existing fencing or barriers are breached or removed for purposes of construction, provide and maintain temporary security fencing equal to existing.

3.07 PROTECTION OF UTILITIES AND PIPELINES

A. Prevent damage to existing public utilities during construction. Approximate locations of known utilities are shown on Drawings, but all lines may not be shown. Excavate with caution and repair lines damaged by construction operations.

B. Use the Utility Coordinating Committee One Call System, telephone number, (713) 223-4567, which must be called 48 hours in advance. The toll free telephone number is 1-800-669-8344, Texas One Call System.

C. Before excavating, locate underground utilities by appropriate means including the use of metal detection equipment, and probes, or by excavation or surveys. Repair damage caused by investigative work and by failure to locate or to preserve underground utilities.

D. Give utility owners a minimum five days notice before commencing excavation to allow time to locate utilities and make adjustments or

relocations when they conflict with the Work. Include cost for temporary relocation of water, wastewater, and storm drainage lines, necessary to accommodate construction, in unit prices for utility construction unless otherwise noted. Bypassing of sanitary waste to storm drainage facilities is not allowed.

E. Prior to excavation near pipelines, request a representative of the pipeline company to meet with Contractor and Project Manager at the site to discuss procedures to be used. Request pipeline company's representative to locate the pipelines in at least three locations: at each side and at centerline of proposed excavation of proposed utility. Also request representative and Project Manager to be present to observe Contractor operations when excavation is conducted within 15 feet of pipeline.

F. Utility service lines are not shown on the construction document drawings. Contractor should anticipate that such service lines exit and should exercise extreme caution during construction. The utility service lines should be repaired and restored immediately as per the specification, if damaged due to any construction activities. No separate payment will be made for this repair and restoration work. Include payment in unit price for work in appropriate sections.

G. Prior to abandonment of utility, make appropriate arrangements with City and owner of utility to terminate service, remove meters, tranformers, and poles as may be required by site conditions.

3.08 PROTECTION OF THE WORK AND PROPERTY

A. Preventive Actions

1. Take necessary precautions and actions to prevent damage, injury, or loss to the Work or public and private property, including:

   a. Storage of apparatus, supplies, and Products in an orderly, safe manner to limit interference with progress of the Work or work of other contractors, utility service companies, or the City's operations.

   b. Suitable storage for Products subject to damage by exposure to weather, theft, breakage, etc.

   c. Limitation of loading pressures imposed upon portions of the Work.

   d. Frequent clean up of refuse, scrap materials, and debris from construction operations, necessary to maintain the site in a safe and orderly condition.

e. Provision of barricades and guard rails to protect pedestrian and traffic around openings, scaffolding, temporary stairs and ramps, excavations, elevated walkways, and other hazardous areas.

2. Protect public and private property adjacent to the site. Obtain written consent before entering or occupying privately-owned land except on easements provided for construction. Restore property damaged by construction operations to condition equal to or better than that existing before the damage.

B. Barricades and Warning Systems

1. Where work is performed on or adjacent to roadways, rights-of-ways, or public land, provide barricades, fences, lights, warning signs, danger signals, and other precautionary measures necessary for protection of persons or property and for protection of the Work.

a. Erect sufficient barricades to keep vehicles and pedestrians from entering the Work. Paint barricades to be visible at night. From sunset to sunrise, provide at least one light at each barricade.

b. Maintain barricades, signs, lights, and provide watchmen until Project Manager approves removal. Whenever work creates encroachment onto public roadways, station flagmen to manage traffic flow in accordance with approved traffic control plan.

c. Conform to requirements of section 01555 – Traffic Control and regulation.

C. PROTECTION OF EXISTING STRUCTURES

1. Underground Facilities

a. Known Underground Facilities are shown on the Drawings but all Facilities may not be shown. Explore sufficiently ahead of trenching and excavation work to locate Underground Facilities in order to prevent damage to them and to prevent interruption of utility services. Restore damage to Underground Facilities to original condition at no additional cost to the City.

b. If necessary to avoid unanticipated Underground Facilities, Project Manager may make changes in location of the Work.

c. If permanent relocation of an Underground Facility is required

and not provided for in the Contract documents, City Engineer will direct Contractor in writing to perform the Work under Modification provisions in Document 00700 - General Conditions.

2. Surface Structures include buildings, tanks, walls, bridges, roads, dams, channels, open drainage, piping, poles, wires, posts, signs, markers, curbs, walks, guard cables, fencing, and other facilities that are visible above the ground level.

3. Protection of Underground Facilities and Surface Structures:

   a. Support in place and protect Underground Facilities and Surface Structures located within or adjacent to the limits of the Work from damage. Install supports as required by the owner of the structure. Satisfy Project Manager that the owner of the facility or structure has approved methods and procedures before installing structure supports.

   b. Avoid moving or changing public utility or private corporation property without prior written consent of a responsible official of the facility or structure. Allow representatives of utilities to enter the construction site for maintenance and repair purposes or to make necessary changes.

   c. Notify utility and pipeline owners and operators of the nature of construction operations and dates when operations will be performed. When construction operations are required in immediate vicinity of existing structures, pipelines, or utilities, give a minimum of five working days advance notice. Probe and flag location of Underground Facilities prior to commencement of excavation. Keep flags in place until construction operations uncover the facility.

   d. Assume risk for damages and expenses to Underground Facilities and Surface Structures within or adjacent to the Work.

D. Employ a structural engineer to ensure protection measures are adequate for the safety and integrity of structures and facilities.

E. PROTECTION OF INSTALLED PRODUCTS:

1. Provide protection of Installed Products to prevent damage from subsequent operations. Remove protection facilities when no longer needed, prior to completion of the Work.

2. Control traffic to prevent damage to Products and surfaces.

3. Provide coverings to protect Products from damage. Cover projections, wall corners, jambs, sills, and exposed sides of openings in areas used for traffic and passage of materials in subsequent work.

3.09 ROADS AND PARKING

A. Prevent interference with traffic and operations of the City on existing roads.

B. Designate temporary parking areas to accommodate construction and City personnel. When site space is not adequate, provide additional off-site parking. Locate as approved by Project Manager.

C. Minimize use by construction traffic on existing streets and driveways.

D. Do not allow heavy vehicles or construction equipment in existing parking areas.

3.10 ENVIRONMENTAL CONTROLS

A. Use methods, equipment, and temporary construction necessary for control of environmental conditions at the site and adjacent areas.

B. Comply with statutes, regulations, and ordinances relating to prevention of environmental pollution and preservation of natural resources including National Environmental Policy Act of 1969, PL 91-190, Executive Order 11514.

C. Minimize impact to the surrounding environment. Do not use construction procedures that cause unnecessary excavation and filling of terrain, indiscriminate destruction of vegetation, air or stream pollution, or harassment or destruction of wildlife.

D. Limit disturbed areas to boundaries established by the Contract. Do not pollute on-site streams, sewers, wells, or other water sources.

E. Do not burn rubbish, debris or waste materials.

3.11 POLLUTION CONTROL

A. Provide methods, means, and facilities necessary to prevent contamination of soil, water or the atmosphere by discharge of Pollutants from construction operations.

B. Provide equipment and personnel to perform emergency measures to contain spillage, and to remove contaminated soils or liquids. Excavate and dispose of contaminated earth off-site in accordance with laws and regulations, and

replace with suitable compacted fill and topsoil.

C. Provide systems necessary for control of Pollutants.

1. Prevent toxic concentrations of chemicals.

2. Prevent harmful dispersal of Pollutants into the environment.

D. Use equipment that conforms to current Federal, State, and local laws and regulations.

3.12 PEST AND RODENT CONTROL

A. Provide rodent and pest control as necessary to prevent infestation of construction or storage areas.

B. Employ methods and use materials that will not adversely affect conditions at site or on adjoining properties.

3.13 NOISE CONTROL

A. Provide vehicles, equipment, and use construction activities that minimize noise to the greatest degree practicable. Conform to noise levels of Chapter 30 –Noise and Sound Level Regulation, City Code of Ordinances, and latest OSHA standards. Do not permit noise levels to interfere with the Work or create a nuisance to surrounding areas.

B. Conduct construction operations during daylight hours except as approved by Project Manager.

C. Select construction equipment that operates with minimum noise and vibration. When directed by Project Manager, correct objectionable noise or vibration produced by operation of equipment at no additional cost to the City. Sound Power Level (PWL) of equipment shall not exceed 85 dbA (re: 10^{-12} watts) measured five feet from the equipment, or at a lower level if prescribed by City Ordinances. Equipment noise requirements are contained in equipment specifications.

3.14 DUST CONTROL

A. Use water or other methods approved by Project Manager to control amount of dust generated by vehicle and equipment operations.

3.15 WATER RUNOFF AND EROSION CONTROL

A. Comply with requirements of section 01410 – TPDES Requirements.

B. Conduct fill, grading and ditching operations and provide adequate methods necessary to control surface water, runoff, subsurface water, and water from excavations and structures in order to prevent damage to the Work, the site, or adjoining properties.

1. Plan and execute construction and earthwork by methods that control surface drainage from cuts and fills, and from borrow and waste disposal areas.

2. Minimize area of bare soil exposed at one time.

3. Provide temporary control measures, such as berms, dikes, and drains.

4. Provide, operate, and maintain equipment and facilities of adequate size to control surface water.

5. Construct fill and waste areas by selective placement of materials to eliminate erosion of surface silts or clays that may erode.

6. Direct water away from excavations, pits, tunnels, and other construction areas to prevent erosion, sedimentation or damage.

7. Maintain existing drainage patterns adjacent to the site by constructing temporary earth berms, sedimentation basins, retaining areas, and temporary ground cover.

8. Dispose of drainage water in a manner to prevent flooding, erosion, or other damage to the site or adjoining areas, in conformance with environmental requirements.

9. Inspect earthwork periodically to detect any evidence of erosion. Take corrective measures as required to control erosion.

END OF SECTION

Section 01506

DIVERSION PUMPING

PART 1 GENERAL

1.01 DEFINITIONS

A. Diversion-pumping: Installation and operation of bulkheads, plugs, hoses, piping, and pumps required to maintain sewer flow and prevent backups and overflows.

1.02 SYSTEM DESCRIPTION

A. Provides continuous sewer service to users of sewer systems while maintenance or construction operations are in progress, by diverting flow around construction locations. Maintain sewer flow to prevent backup or overflow onto streets, yards and unpaved areas or into buildings, adjacent ditches, storm sewers, and waterways. Do not divert sewage outside of sanitary sewer system.

B When pumps are operating, have an experienced operator on site to monitor operation, adjust pumps, make minor repairs to system, and report problems.

1.03 SUBMITTALS

A. Conform to requirements of Section 01330 - Submittals Procedures.

B. For systems that bypass sanitary sewer line segments of 42-inch diameter or larger, submit a Diversion Pumping Plan prior to installation. Show location, number and size of pumps, number, location, size and type of hoses or rigid piping, and location of downstream discharge; and special features where pipes or hoses cross roadways, temporary trenches, support bridges.

1.04 SCHEDULING

A. When the City operates or maintains diversion pumping in construction areas, coordinate construction activities with Project Manager.

B. Cease operation of diversion pumping when approved by Project Manager.

PART 2 PRODUCTS

2.01 MATERIALS

A. Design piping, joints and accessories to withstand at least twice maximum system pressure or 50 psi, whichever is greater.

B. Use self-priming type or submersible electric pumps, with a working pressure gauge on the discharge. Pumps shall meet requirements of City of Houston Noise and Sound Level Regulations.

PART 3 EXECUTION

3.01 FIELD QUALITY CONTROL

A. During diversion pumping, do not allow sewage to leak, dump, or spill into or onto areas outside of existing sanitary sewer systems.

B. In the event of an accidental spill or overflow, immediately stop discharge and take action to clean up and disinfect spill. Promptly notify Project Manager so required reporting can be made to the Texas Commission on Environmental Quality (TCEQ) and the Environmental Protection Agency (EPA).

3.02 CLEANING

A. When diversion-pumping operations are complete, drain sewage within piping into sanitary sewers prior to disassembly.

END OF SECTION

Section 01520

TEMPORARY FIELD OFFICE

PART 1 GENERAL

1.01 SECTION INCLUDES

A Temporary field office building and associated parking area.

1.02 FACILITY DESCRIPTION

A Temporary field office to be utilized by authorized representatives of the City to coordinate and monitor daily construction activities performed by Contractor.

B. Field office shall be a non-smoking facility.

PART 2 PRODUCTS

2.01 FIELD OFFICE

A General:

1. Locate office in vicinity of the Work at a location approved by Project Manager or where indicated on Drawings.

2. Furnish, Install and maintain field office for exclusive use of authorized representatives of the City. Provide sufficient room for Project meetings and Inspector's office.

3. Provide office within 10 days of Date of Commencement of the Work.

4. Construct two all-weather, hard surfaced parking spaces for exclusive use of authorized representatives of the City. Provide all-weather surfaced walk between parking spaces and field office.

B. Minimum Construction:

1 Structurally sound foundation and superstructure.

Weather tight with insulated roof, walls and 7-foot ceiling (minimum).

3. Stairs or walkway with handrail and covered entrance platform (minimum 4 feet by 4 feet) with mud scraper at door.

4. Resilient floor covering.

5. Screened windows with area equal to approximately 10 percent of floor area sufficient for light, view of the site, and ventilation. Provide each window with operable sash and burglar bars.

6. Secure exterior doors with dead-bolt cylinder locks and burglar bars.

C. Minimum Services:

1. Exterior entrance light.

2. Interior lighting of 75 foot-candles minimum at desktop height

3. Automatic heating to maintain 65 degrees F in winter.

4. Automatic cooling to maintain 75 degrees F in summer.

5. Electric power service.

6. Three telephone service lines one for voice, one for data, and one for fax, for exclusive use of authorized representatives of the City.

7. Sanitary facilities in field office with one water closet, one lavatory, and one medicine cabinet for exclusive use of authorized representatives of the City.

D. Minimum Furnishings:

1. One 5-drawer desk

2. Two swivel desk chairs with casters.

3. One plan table.

4. One drawing plan rack.

5. One 4-drawer legal file cabinet complete with fifty legal-size hanging folders and two full-sized carriers.

6. One marker board with cleaner and markers.

7. Two waste baskets.

8. One 30-inch by 36-inch tack board.

9. One all-purpose fire extinguisher.

10. Six protective helmets (hard hats) with ratchet adjustment for exclusive use of authorized representatives of the City.

11. Conference table and chairs to accommodate 10 persons.

12. All in one printer, copier, plain paper fax machine.

13. Telephone instrument separate from fax machine.

E. Provide adequate space for one set of Contract documents for ready reference.

PART 3 EXECUTION

3.01 MAINTENANCE

A Maintain all-weather surface driveway and parking areas, buildings, walkways, stairs and required furnishings and equipment for duration of the Contract.

B. Provide janitorial services for duration of the Contract consisting of twice weekly sweeping and mopping floors, trash removal, weekly restroom cleaning, and weekly dusting of furniture and equipment.

C. Provide soap, paper towels, toilet paper, cleansers and other necessary consumables.

D. Immediately repair damage, leaks or defective service.

3.02 PROJECT CLOSEOUT

A Remove temporary field office and signs and restore site as specified in Section 01770 - Closeout Procedures.

END OF SECTION

SECTION 01554

TRAFFIC CONTROL AND STREET SIGNS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Materials, hardware and installation of Traffic Signs.

1.02 SUBMITTALS

A. Contractor shall submit a list of intended suppliers and products to be used for all signs, posts, and associated hardware. City reserves the right to request actual product samples prior to approval.

1.03 MEASUREMENT AND PAYMENT

A. Signs installed or replaced will be measured by the each sign. Signs refurbished will be measured by each sign.

B. Payment for installation of traffic signs will be on the basis of each sign installed.

C. The price is full compensation for furnishing and installing new signs and hardware. Cost of associated posts, footings, and miscellaneous mounting hardware will not be paid for directly but is to be included in the unit price bid for installation of each traffic sign.

D. Non-standard signs installed or replaced will be measured by the square foot of the sign face. Non-standard signs shall not be installed without prior approval from the City.

PART 2 PRODUCTS

2.01 MATERIALS

A. The following ASTM Standards and documents, of the issue in effect on the date of Invitation for Bid, form a part of this specification to the extent herein.

1. ASTM B 209 Specification for Aluminum and Aluminum Alloy Sheet and Plate

2. ASTM D 523 Standard Method for Test for Specular Gloss

3. ASTM D 4956 Standard Specification for Retroreflective Sheeting for Traffic Control

4. ASTM E 284 Standard Definition of Terms Relating to Appearance of Materials

5. ASTM E 308 Computing the Colors of Objects by Using the CIE System

6. ASTM E 810 Standard Test Method for Coefficient of Retroreflection of Retroreflective Sheeting

7. ASTM E 1164 Standard Practice for Obtaining Spectrophotometric Data for Object-Color Evaluation

B. Substrate (Sign Blanks). This shall be aluminum alloy 5052-H38 and otherwise in conformance with ASTM B-209 and have gold chromate finish. The size, shape and thickness of the sign blanks are as indicated on the standard detail sheet in the plans or as specified by the Engineer.

1. Metal working. The aluminum shall be free of burrs and pits on both sides, including
edges and holes, and shall be made ready for applications of the sheeting.

2. Surface Preparation. The aluminum shall be thoroughly cleaned and degreased with solvent and alkaline emulsions cleaner by immersion, spray, or vapor degreasing and dried prior to application of the gold chromate sheeting coat. The aluminum shall be new and corrosion-free with holes drilled or punched, corners rounded to the radii shown in the standard detail sheet, and all edges smoothed prior to application of sheeting. The heavy or medium chromate coating shall conform in color and corrosion resistance to that imparted by the Alodine 1200F treatment.

3. Size. The dimensions of substrate applications for regulatory, warning, and guide signs shall be as specified by the Engineer and as shown on the plans.

C. Sign Face (Background, Legends, Symbols, and Colors). These shall be in accordance with the Standard Highway Sign Designs (SHSD) for Texas and with the Texas Manual of Uniform Traffic Control Devices (TMUTCD).

1. The sign face, made of electronic film and retro-reflective sheeting shall comply with the appearance, specification, and good workmanship designated by the using agency for sign faces constructed of screen processed retro-reflective sheeting of the same type.

2. All sign blanks shall be covered with appropriate retro-reflective sheeting.

   a. All ground mounted stop signs, warning signs, and other regulatory signs, shall use at a minimum High Intensity Prismatic Reflective Sheeting.

   b. All overhead signs shall use Diamond Grade Reflective Sheeting.

   c. All other signs shall use Super Engineer Grade Sheeting

3. Application Methods. The method of application of sheeting, letters, numbers, and symbols shall be precisely as prescribed in writing by the manufacturer.

   a. Legend Spacing and Layout. Spacing and layout for all traffic control signs shall conform to the SHSD.

   b. Tolerance for Horizontal Alignment. Letters, numerals, and symbols shall be horizontally aligned to a tolerance of 1/16 inch.

   c. Tolerance for Vertical Alignment. Letters, numerals, and symbols shall be vertically aligned to a tolerance of 1/16 on each letter in each line.

D. Sign Posts. Steel post shall conform to the standard specification for hot rolled carbon sheet steel, structural quality, ASTM designation A570, Grade 50. Average minimum yield strength after cold forming is 60,000 psi. The cross section of the post shall be square tube formed steel, carefully rolled to size and shall be welded directly in the corner by high frequency resistance welding or equivalent process and externally scarified to agree with corner radii. Sign posts shall be hot dipped galvanized conforming to ASTM A653, G90.

   1. Installation. The square end of the post shall not be modified or pointed.

      a. Flange. When sign post installation is required over building basements, bridges and cavities, a galvanized cast iron pipe flange shall be used. The base shall be 8 inches in diameter with six 5/16 inch holes drilled equidistant around the circumference, ⅝ inch from the outer edge. The neck of the flange shall be 3inches in diameter, drilled and threaded to receive a 2 inch diameter galvanized post.

      b. Hardware. All ground mounted signs shall be attached to posts using 5/16" nut and bolt assembly, the bolt being 2 ½" in length. Stainless steel banding material, brackets and clips will be used for signs installed on light standards or mast arms.

c. Construction. Anchors shall be anchored in a minimum of one cubic foot of class "C" concrete, 28 inches deep, with a 6 inch long, ⅜ inch diameter pin inserted through the pre-drilled hole 3 inches from the bottom of the pole. Where the pole installation requires surface mounting, an 8 inch flange with a 2 inch threaded collar shall be used. The pole shall be galvanized, two inches in diameter and threaded to fit the flange. Sign placement and orientation shall be as specified in the construction plans.

E. Each finished sign shall have the following sticker affixed to the back in a location where it will be visible when the sign is installed:

CITY OF HOUSTON

VERNON CIVIL STATUTES
ART 6701d / ARTICLE III, SEC. 37
Unlawful to Deface, Remove, Knockdown, or Alter Any Traffic Control Device
MAXIMUM FINE $200.00
Date of Sign Manufacture: 00/04
Sheeting Manufacturer: XYZ, Inc.
Sheeting Lot No.: 12345-678

The sticker shall be Zebra Technologies Z-Ultimate 3000 White or approved equal. Finished product shall be weather and fade resistant for the expected life of the sign.

F. Warranty. The Contractor shall warrant the materials and workmanship of each sign in accordance with the maximum limits of material warranties extended by manufacturers of raw materials, subject to the conditions they specify. The retro-reflective sheeting will be considered unsatisfactory if it has deteriorated due to natural causes to the extent that: (1) the sign is ineffective for its intended purpose when viewed from a moving vehicle under normal day and night driving conditions; or (2) the coefficient of retro-reflection is less than the minimum specified for that sheeting. When sign failure occurs prior to the minimum years indicated and an inspection demonstrates that the failure is caused by materials warranted to contractor to endure at least that long, the sign will be replaced or repaired free of materials charges. When failure occurs and inspection demonstrates that such failure is due to poor workmanship, the sign will be replaced or repaired at Contractor's expense, including shipping charges.

PART 3 EXECUTION

3.01.1 EQUIPMENT

A. The contractor shall provide machinery, tools, and equipment necessary for proper execution of the work.

3.01.2 CONSTRUCTION

A. Construction shall be high quality with no visible defects in the finished product. Fabrication shall be in accordance with these specifications. Street name signs shall always be supplied and installed at each project intersection whether signs previously existed at the location or not.

B. The removal of existing signs shall be coordinated with the Traffic Operations Section of the Public Works Department (713-803-3054) and arrangements made for a convenient time to deliver City signs and poles. All salvaged traffic signs shall be delivered to the Traffic Operations Center located at 2200 Patterson Street. All deliveries to the Traffic Operations Center requires a minimum notice of two (2) working days prior to returning or delivering any sign and/or sign related material.

3.03 RESPONSIBILITIES

A. The contractor is responsible for providing and supplying aluminum traffic signs covered with retro-reflective sheeting, applying standard legends (or special legends if shown in the plans) to the covered sign blanks, galvanized steel sign poles, pole anchors, all hardware for installing the signs and poles, and for installing traffic signs, poles and anchors as shown in the plans or call for in the contract documents, complete and ready for field installations.

END OF SECTION

Section 01555

TRAFFIC CONTROL AND REGULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements for signs, signals, control devices, traffic barriers, flares, lights and traffic signals; construction parking control, designated haul routes, and bridging of trenches and excavations.

B. Qualifications and requirements for use of flagmen.

1.02 MEASUREMENT AND PAYMENT

A. Unit Price Contracts.

1. Traffic control and regulation. Payment for traffic control and regulation is on a lump sum basis. Include preparation and submittal of traffic control plan if different than shown on Drawings, and provision of traffic control devices, equipment, and personnel necessary to protect the Work and public. Payment will be based on Contractor's Schedule of Values for traffic control and regulation.

2. Payment for traffic control for wastewater or water line projects will be authorized by Project Manager in three (3) parts. Partial payment will be made according to following schedule:

   a. Payment of 25 percent of traffic control amount will be authorized when permanent control devices and necessary temporary markings, sufficiently deployed along job site as required to maintain progress of work, are installed at job site and approved. This limiting percentage will be prorated based upon extent of Contractor's setup.

   b. A payment of 50 percent of traffic control amount will be authorized when pavement replacement commences. This limiting percentage will be prorated based upon linear footage, as measured along centerline axis of wastewater or water line, of pavement replaced.

   c. A payment of 25 percent of traffic control amount will be authorized when permanent pavement markings are restored and all unnecessary permanent and temporary control devices removed.

This limiting percentage will be prorated based upon the extent of restoration.

3. Flagmen: Measurement is on a lump sum basis for flagmen as required for the project. The amount invoiced shall be determined based on the schedule of value submitted for flagmen.

4. New Portable Concrete Low Profile Traffic Barrier Provided. Payment is on a unit price basis for each linear foot of low profile traffic barrier provided, installed with hardware assemblies and connected together in accordance with the approved traffic control plan.

5. Portable Concrete Low Profile Traffic Barrier picked up from City of Houston Stockpile. Payment is on a unit price basis for each linear foot of low profile traffic barrier picked up from designated stockpile, moved onto the project, set at location and connected together.

6. Portable Concrete Low Profile Traffic Barrier Installed. Payment is on a unit price basis for each linear foot of low profile traffic barrier delivered to the project location, installed with hardware assemblies and connected together in accordance with the approved traffic control plan.

7. Portable Concrete Low Profile Traffic Barrier Moved and Reset. Payment is on a unit price basis for each linear foot of low profile traffic barrier disassembled, moved on the project, reset at the new locations and connected together. Include cost to repair roadway in the unit price.

8. Portable Concrete Low Profile Traffic Barrier Removed. Payment is on a unit price basis for each linear foot of low profile traffic barrier removed from the project, including hardware assemblies, and stockpiling at location listed in Section 01110 – Summary of Work. Include cost to repair roadway in the unit price.

9. Refer to Section 01270 - Measurement and Payment for unit price procedures.

B. Stipulated Price Contracts. Include payment for work under this section in the total Stipulated Price.

1.03 REFERENCES

A. Texas Manual on Uniform Traffic Control Devices (TMUTCD)

B. Article 4413 (29bb), commonly referred to as Private Investigators and Private Security Agencies Act, and Article 2.12, Texas Code of Criminal Procedure.

C. Code of Ordinances, City of Houston, Texas.

1. Chapter 10 Buildings And Neighborhood Protection, Article X Cleanup After Demolition Or Removal Of Structures

2. Chapter 40 Streets and Sidewalks, Article XVII Pedestrian Way Impairments

1.04 SUBMITTALS

A. Conform to requirements of Section 01330 - Submittal Procedures.

B. Traffic control plan:

1. If using traffic control plan contained in the Contract without modification, submit a letter confirming use of the plan.

2. If using a different traffic control plan, submit the plan for approval. The plan must conform to TMUTCD requirements and be sealed by a Registered Texas Professional Engineer.

C. Submit copies of approved lane closure permits issued by City Traffic Engineering Branch.

D. Submit Schedules of Values for traffic control plan and flagmen within 30 days following Notice to Proceed.

E. Submit records verifying qualifications of Uniformed Peace Officers and Certified Flagmen proposed for use on the Work.

F. When working in the central business district, submit copies of approved Pedestrian Way permits issued by the City's Traffic Engineering Branch.

1.05 FLAGMEN

A. Use Uniformed Peace Officers and Certified Flagmen to control movement of vehicular and pedestrian traffic when construction operations encroach on public traffic lanes. Unless otherwise approved by Project Manager, use Uniformed Peace Officer for work along major thoroughfares, schools, churches, hospitals and Work at signalized intersections.

B. Uniformed Peace Officer: Individual employed full-time as a peace officer

who receives separate compensation as a privately employed flagman. Private employment may be an employee-employer relationship or on an individual basis. Flagman may not be in the employ of another peace officer nor be a reserve peace officer.

1. Uniformed Peace Officers may be:

   a. sheriffs and their deputies;

   b. constables and deputy constables;

   c. marshals or police officers of an incorporated city, town or village; or

   d. as otherwise provided by Article 2.12, Code of Criminal Procedure.

2. The Uniformed Peace Officer must be a full-time peace officer, must work a minimum average of 32 paid hours per week, and must be paid a rate not less than the prevailing minimum hourly wage rate set by the federal Wage and Hour Act. The individual must be entitled to vacation, holidays, and insurance and retirement benefits.

C. Certified Flagman: Individual who receives compensation as a flagman and meets the following qualifications:

1. Formally trained and certified in traffic control procedures by the City s E. B. Cape Center.

2. Speaks English. Ability to speak Spanish is desirable but not required.

3. Paid for flagman duty at an hourly rate not less than the wage rate set for Rough Carpenter under the City's Wage Scale for Engineering Construction.

D. Certified Flagmen must wear a distinctive uniform, bright-colored vest, and be equipped with appropriate flagging and communication devices while at the Work site. They must also have in their possession while on duty, a proof of training identification card issued by the appropriate training institute.

PART 2 P R O D U C T S

2.01 SIGNS, SIGNALS, AND DEVICES

A. Comply with TMUTCD requirements.

B. Traffic cones and drums, flares and lights: Conform to local jurisdictions' requirements.

C. When working in the Central business district, provide pedestrian pathway signage approved by the City's Traffic Engineering Branch.

2.02 PORTABLE LOW PROFILE CONCRETE BARRIERS

A. The low profile concrete barrier is a patented design. Information concerning this barrier may be obtained from Texas Transportation Institute, Texas A&M University System, College Station, Texas 77843-3135, (409) 845-1712.

PART 3 E X E C U T I O N

3.01 PUBLIC ROADS

A. Submit requests forms for lane closure and sidewalk closure to the City's Traffic Engineering Branch at least three working days prior to need for blocking vehicular lanes or sidewalks. Do not block lanes or sidewalks without approved permits. Obtain application from the City's Traffic Engineering Branch at 611 Walker, 5th floor or at the following internet address: http://www.ci.houston.tx.us/pwe/mrow/laneclosure.htm.

B. Follow laws and regulations of governing jurisdictions when using public roads. Pay for and obtain permits from jurisdiction before impeding traffic or closing lanes. Coordinate activities with Project Manager.

C. Give Project Manager one-week notice before implementing approved traffic control phases. Inform local businesses of impending traffic control activities.

D. Notified police department, fire department, METRO, and local schools, churches, and businesses in writing a minimum of five business days prior to beginning work.

E. Maintain 10-foot wide all-weather lanes adjacent to the Work for emergency vehicle use. Keep all-weather lanes free of construction equipment and debris.

F. Do not to obstruct normal flow of traffic from 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m. on designated major arterials or as directed by Project Manager.

G. Maintain local driveway access to residential and commercial properties adjacent to work areas at all times. Use all-weather materials approved by Project Manager to maintain temporary driveway access to commercial and residential driveways.

H. Keep streets entering and leaving job site free of excavated material, debris, and foreign material resulting from construction operations in compliance with applicable ordinances.

I. Remove existing signage and striping that conflict with construction activities or that may cause driver confusion.

J. Provide safe access for pedestrians along major cross streets.

K. Alternate closures of cross streets so that two adjacent cross streets are not closed simultaneously.

L. Do not close more than two consecutive esplanade openings at a time without prior approval from Project Manager.

3.02 CONSTRUCTION PARKING CONTROL

A. Control vehicular parking to prevent interference with public traffic and parking, access by emergency vehicles, and the City's operations.

B. Monitor parking of construction personnel's vehicles in existing facilities. Maintain vehicular access to and through parking areas.

C. Prevent parking on or adjacent to access roads or in non-designated areas.

3.03 FLARES AND LIGHTS

A. Provide flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.

3.04 HAUL ROUTS

A. Utilize haul routes designated by authorities or shown on drawings for construction traffic.

B. Confine construction traffic to designated haul routes.

C. Provide traffic control at critical areas of haul routes to regulate traffic and minimize interference with public traffic.

3.05 TRAFFIC SIGNS AND SIGNALS

A. Construct necessary traffic control devices for temporary signals required to complete the Work including loop detectors, traffic signal conduits, traffic signal wiring and crosswalk signals. Notify the City's Traffic Engineering Branch a minimum of 60 days in advance of need for control boxes and switchgear. The City will perform necessary service, programming or adjustments, to signal boxes and switchgear if required during construction.

B. Install and operate traffic control signals to direct and maintain orderly traffic flow in areas under Contractor's control affected by Contractor's operations. Post notices, signs and traffic controls before moving into next phase of traffic control.

C. Relocate traffic signs and signals as the Work progresses to maintain effective traffic control.

D. Unless otherwise approved by Project Manager, provide driveway signs with name of business that can be accessed from each crossover. Use two signs for each crossover.

E. Replace existing traffic control devices in Project area.

F. Project Manager may direct Contractor to make minor adjustments to traffic control signage to eliminate driver confusion and maintain orderly traffic flow during construction at no additional cost to the City.

3.06 BRIDGING TRENCHES AND EXCAVATIONS

A. When necessary, construct bridges over trenches and excavation to permit an unobstructed flow of traffic across construction areas and major drives. Use steel plates of sufficient thickness to support H-20 loading and install to operate with minimum noise.

B. Shore trench or excavation to support bridge and traffic.

C. Secure bridging against displacement with adjustable cleats, angles, bolts or other devices when:

1. bridging is placed over existing bus routes,

2. more than five percent of daily traffic is comprised of commercial or truck traffic,

3. more than two separate plates are used for bridging, and

4. when bridge is to be used for more than five consecutive days.

D. Extend steel plates used for bridging a minimum of 1 foot beyond edges of trench or excavation. Use temporary paving materials such as premix to feather edges of plates to minimize wheel impact on secured bridging.

3.07 REMOVAL

A. Remove equipment and devices when no longer required.

B. Repair damage caused by installation.

C. Remove post settings to a depth of 2 feet.

3.08 TRAFFIC CONTROL, REGULATION AND DIRECTION

A. Use Flagmen to control, regulate and direct an even flow and movement of vehicular and pedestrian traffic, for periods of time as may be required to provide for public safety and convenience, where:

1. multi-lane vehicular traffic must be diverted into single lane vehicular traffic,

2. vehicular traffic must change lanes abruptly,

3. construction equipment must enter or cross vehicular traffic lanes and walks,

4. construction equipment may intermittently encroach on vehicular traffic lanes and unprotected walks and crosswalk,

5. traffic regulation is needed due to rerouting of vehicular traffic around the Work site, and

6. where construction activities might affect public safety and convenience.

B. Use of Flagmen to assist in the regulation of traffic flow and movement does not relieve Contractor of responsibility to take other means necessary to protect the Work and public.

3.09 INSTALLATION STANDARDS

A. Place temporary pavement for single lane closures, in accordance with TMUTCD.

B. Reinstall temporary and permanent pavement markings as approved by Project Manager. When weather conditions do not allow application according to manufacturer's requirements, alternate markings may be considered. Submit proposed alternate to Project Manager for approval prior to installation. No additional payment will be made for use of alternate markings.

3.10 MAINTENANCE OF EQUIPMENT AND MATERIAL

A. Submit name, address and telephone number of individual designated to be responsible for maintenance of traffic handling at construction site to Project Manager. Individual must be accessible at all times to immediately correct deficiencies in equipment and materials used to handle traffic including missing, damaged, or obscured signs, drums, barricades, or pavement markings.

B. Inspect signs, barricades, drums, lamps and temporary pavement markings daily to verify that they are visible, in good working order, and conform with traffic handling plans as approved by Project Manager. Immediately repair, clean, relocate, realign, or replace equipment or materials that are not in compliance.

C. Keep equipment and materials, signs and pavement markings, clean and free of dust, dirt, grime, oil, mud, or debris.

D. Obtain approval of Project Manager to reuse damaged or vandalized signs, drums, and barricades.

END OF SECTION

Section 01562

TREE AND PLANT PROTECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Tree and plant protection.

B. Minimum qualifications of Arborist and Urban Forester.

1.02 MEASUREMENT AND PAYMENT

A. Payment for Tree Protection, including tree pruning or tree removal, shall be paid as a Lump Sum basis that shall include all items specified in this section unless payment is specified otherwise in this section

B Payment for Zero Curb Cutback will be on a per linear foot basis.

C. Payment for Checker Plate will be on a square foot basis.

D. Refer to Section 01270-Measurement and Payment for unit price procedures.

1.03 SUBMITTALS

A. Conform to requirements of Section 01330 – Submittal Procedures.

B. Submit name and experience of qualified Arborist, proposed for use on the Work, to Project Manager.

1.04 PROJECT CONDITIONS

A. Preserve and protect existing trees and plants to remain from foliage, branch, trunk, or root damage that could result from construction operations.

B. Prevent following types of damage:

1. Compaction of root zone by foot or vehicular traffic, or material storage.

2. Trunk damage from equipment operations, material storage, or from nailing or bolting.

3. Trunk and branch damage caused by ropes or guy wires.

4. Root or soil contamination from spilled solvents, gasoline, paint, lime slurry, and other noxious materials.

5. Branch damage due to improper pruning or trimming.

6. Damage from lack of water due to:

   a. Cutting or altering natural water migration patterns near root zones.

   b. Failure to provide adequate watering

7. Damage from alteration of soil pH factor caused by depositing lime, concrete, plaster, or other base materials near roots zones.

8. Cutting of roots larger than one inch in diameter.

1.05 DAMAGE ASSESSMENT

A. When trees other than those designated for removal are destroyed or damaged as result of construction operations, remove and replace with same size, species, and variety up to and including 8 inches in trunk diameter. Trees larger than 8 inches in diameter shall be replaced with an 8 inch diameter tree of the same species and variety and total contract amount will be reduced by an amount determined from the following formula and paid to Tree Fund 0.7854 x D2 x $13.25 where D is diameter in inches of tree or shrub trunk measured 12 inches above grade for that portion of the tree which is greater than 8 inches in diameter. A permit must be applied for and approved by the City of Houston, Urban Forestry Division prior to removal of any tree not scheduled for removal in the tree treatment schedule. Contractor shall contact City of Houston, Urban Forestry, at 832-395-8459 to apply for tree removal permit when needed.

PART 2 PRODUCTS

2.01 MATERIALS

A. Pruning Paint: Black latex, water based paint, free of all petroleum products.

B. Fertilizer: Fertilizer shall be a root stimulant that contains at a minimum the following ingredients: Ectomycorrhizal Fungi, VA Mycorrhizal (VAM) Fungi, Rhizosphere Bacillus spp., Kelp Meal Humic Acid, and Soluble Yucca.

C. Tree Protection Fencing: Orange, plastic mesh fenching, 4 feet in height with 6 feet high "t" bar posts installed 10 feet on centers as per drawings.

D. Plastic Root/Soil Protection: Clear polyethylene sheeting, minimum 6 mil, thickness.

PART 3 EXECUTION

3.01 PROTECTION OF EXISTING TREES AND SHRUBS

A. Site preparation work and/or construction work shall not begin in any area where tree preservation measures have not been completed and approved.

B. Protect exposed roots and root zone areas from contamination from stabilization materials and concrete using polyethylene.

C. Cover exposed roots within 4 hours to reduce damage caused by desiccation. Roots may be covered with soil, mulch, polyethylene, or wet burlap to help protect them from drying.

D. Designate limited areas as concrete washout areas. Locate concrete washout areas away from root zones.

E. Install root pruning trenching where designated in tree treatment schedule and shown on the tree protection drawings. Trees scheduled for root pruning are called out specifically in the treatment schedule. Trench shall be located 2 ft. from the edge of proposed waterline or sanitary sewer for trees called out for root pruning for water or fittings, or sanitary sewer in the treatment schedule, 2 ft. from edge of proposed storm sewer pipe for trees called out for root pruning for storm in the treatment schedule, 30" back of proposed curb for trees called out for root pruning for street, and at edge of sidewalk for trees called out for root pruning for sidewalk. Root pruning shall not be performed where there is not adequate space to be located sufficiently away from tree to prevent damage. All pruning must be evaluated by Contractor's Certified Arborist and reviewed and approved by City Forester before being performed. Trench locations shown on tree preservation plan are drawn to scale and should be located in field as drawn on plan. Exact locations shall be approved in the field by engineer and/or project urban forester prior to installation. Trenching depth shall be a minimum of 2 ft. deep and a maximum of 6 inches wide for water, fittings, sanitary sewer, storm, and street. Trenching depth shall be to the anticipated bottom of sidewalk and base material for sidewalk root pruning, roots lower than sidewalk shall not be pruned. All roots shall be cut by trencher, chainsaw, or handsaw to the specified depth. Roots shall be cut cleanly, and or not ripped, torn, or chopped. Trench shall be backfilled and compacted immediately after trenching. Trench shall be installed prior to any clearing and grubbing, excavation for underground, or any other site work.

F. Install tree protection fencing around each tree to be preserved as indicated in the tree treatment schedule and on the tree protection plan.

1. Each tree to be preserved shall be protected with a tree protection fence. The fencing shall be continuous between posts, shall be pulled taut prior to securing to posts, and shall be firmly attached to the posts with a minimum of 4 wire ties.

2. All tree protection fencing shall be installed prior to site work or construction activity. The fence shall be placed in a continuous alignment as shown on the tree protection plan. Fences shown on tree protection plan are drawn to scale and shall be installed as drawn, in the field. In general fences shall be placed 30" back of existing curb or edge of pavement where root pruning or zero curb cutback is not specified, and 6" back of root pruning trench where root pruning is specified and immediately back of curb where zero curb cutback is specified. Exact locations shall be approved by the project urban forester and/or engineer in the field. The Fences shall be placed to protect roots, trunks, and foliage. The contractor shall not remove or relocate tree protection fencing and shall not operate within the limits shown without direct approval of the project urban forester. In areas where the proposed waterline is located in the existing road side ditch and where tree protection fencing can not be installed across the ditch, the fencing shall be installed at the top of outside ditch bank and no bore pits, peep holes, service taps, or any excavation should occur in the area immediately in front of the tree protection fencing for trees called out with "bore" in the Tree Treatment Schedule. The "bore" limits shall be the same as the limits of the tree protection fencing.

3. Storage of equipment or materials will not be allowed inside a fence. Entryways and access into a protected area shall not be provided unless approved by the project urban forester.

4. Damage to tree fences occurring during the progress of the work shall be repaired immediately at no additional cost to owner. Workmen shall be clearly instructed to exercise caution in performance of work near trees being preserved.

5. Tree protection fencing shall be removed by contractor, at no additional costs, upon completion of all construction activity in each work zone area. Tree protection fencing materials used in the first two work zone areas shall be removed and utilized in subsequent work zone areas. Materials and labor shall be paid for each linear foot of fencing installed in first two work areas. All fencing installed in subsequent work zone areas shall be paid for labor only.

G. Boring/Auguring of water lines or sanitary sewer lines

1. Water line or sanitary sewer line shall be bored/augured/ horizontally drilled under

critical root zones areas of trees designated with auger or bore in the tree treatment schedule. The entire area protected with tree protection fencing shall be bored. No bore pits, come through holes, peep holes, push pits, or long or short side service taps shall be allowed in the areas protected by tree protection fencing. The tree protection plan takes into consideration the limits of augering equipment, there should be room for adequately spaced bore pits, peep holes, come through holes, and push pits. Any changes to the location of the tree protection fencing shall be authorized by the project Urban Forester and City Engineer.

H. Hand digging of Service taps and leads

1. Trees called out for Hand dig short side service tap are located in very close proximity to existing short side water meters. Excavating the service tap with machinery would significantly impact the tree and be in violation of the City of Houston's Street Tree Ordinance. These short side service taps shall be excavated with manual labor to expose any roots 1" in diameter and larger. The first 24" of excavation shall be completed manually to expose the roots. Any root 1" in diameter and larger shall remain undamaged, the roots shall not be cut , nor shall the bark and cambium layer be scraped or damaged. Once the roots are exposed, if there is adequate room to utilize a mini-excavator without damaging the roots, the mini-excavator can be utilized to complete the excavation down to the water line. 1" plywood shall be placed on grade to provide root protection in the area of access of the mini-excavator. If roots 1" diameter or larger are cut or damaged, responsible party will be subject to a citation under the Street Tree Ordinance, and may also be required to incur the cost of tree removal and replacement of damaged tree on an inch for inch basis, if required by City of Houston Urban Forestry Division.

2. Trees called out for Hand dig short side or long side service lead are located in very close proximity to existing water meters. Excavating the service lead with machinery would significantly impact the tree and be in violation of the City of Houston's Street Tree Ordinance. Short side leads shall be excavated with manual labor to expose any roots 1" in diameter and larger from the service tap of the meter. Come out hole and excavation required for long service leads shall be excavated with manual labor to expose roots 1" in diameter and larger, from the come out hole to the meter. In each case, all roots 1" in diameter and larger shall remain undamaged, the roots shall not be cut, nor shall the bark and cambium layer be scraped or damaged. If roots 1" diameter or larger are cut or damaged, responsible party will be subject to a citation under the cost of tree removal and replacement of damaged tree on an inch by inch basis, if required by City of Houston Urban Forestry Division.

3. Trees called out for Hand dig sanitary stub up are located in very close proximity to proposed service lead. Excavating the service lead with machinery would significantly impact the tree and be in violation of the City of Houston's Street Tree

Ordinance. Excavation for sanitary stub up shall be completed with manual labor to expose any roots 1" in diameter and larger. The lead shall be bored from face of curb to stub up hole when called out in the tree treatment schedule. Come out and stub up holes shall be excavated with manual labor to expose roots 1" in diameter and larger. In case, all roots 1" in diameter and larger shall remain undamaged, the roots shall not be cut, nor shall the bark and cambium layer be scraped or damaged. If roots 1" diameter or larger are cut or damaged, responsible party will be subject to a citation under the Street Tree Ordinance, and may be required to incur the cost of tree removal and replacement of damaged tree on an inch by inch basis, if required by City of Houston Urban Forestry Division.

4. Long side service taps shall not be located in an area specified to be bored in the tree treatment schedule. Should it be absolutely necessary to locate a long side service tap in an area specified to be bored, the excavation shall be completed as specified in paragraph 1 of this section-Hand digging short side service taps.
5. All water meters and sanitary service leads called out on P&P drawings and visible in the field have been addressed in the Tree Protection Plan. Should any additional meters or lead be found during construction, or in any new meters or leads installed beneath the canopy of any tree, fenced for tree protection, the excavation shall be completed as specified in paragraph 1 and/or 2 of this section and paid for at the unit cost for each included in contract.

I. Pruning of Trees

1. Trees shall be pruned in accordance with the American National Standard for tree pruning, ANSI A300 (Part 1) – 2001 Pruning Revision of ANSI A300-1995 Tree, Shrub and Other Woody Plant Maintenance – Standard Practices. Pruning shall be completed by professional arborists who has received training in proper pruning techniques.

2. Clearance prune designated trees for public streets, sidewalks, and construction areas. Provide minimum 14 feet and maximum of 18 feet of vertical clearance over proposed water trunk lines. Provide minimum of 14 feet and maximum of 16 feet of vertical clearance over proposed street construction, from 24" back of curb on one side to 24" back of curb on the other side. Provide 20' of vertical clearance over proposed storm sewer up to 38" in size, and 30' of vertical clearance for storm sewer larger than 38" in size. Pruning to be installed prior to any construction activity. Contractor shall notify property owner prior to trimming or pruning any trees with trunks located on private property. Exceptions will be made for trees determined to be arboriculturally significant by City of Houston Urban Forestry. Pruning of trees identified will be completed with approval and supervision of City of Houston Urban Forestry.

3. All cuts should be made sufficiently close to the parent limb or trunk without cutting into the branch collar or leaving a protruding stub, so that closure can readily start under normal conditions. All lateral cuts shall be made to a lateral that is least 1/3 the diameter of the parent limb. Clean cuts shall be made at all times.

4. Trees shall be pruned in a manner that will not destroy or alter the natural shape and character of the tree. Apply black latex paint to all fresh wounds on Oak (Quercus) species immediately after each cut is made.

5. Crown cleaning prune designated trees shall include selective removal of dead, diseased, and/or broken limbs.

J. Tree Removal

1. Trees scheduled for removal shall be sawed down and debris hauled from the site the same day. The stump shall be ground to 6" below grade and excess grindings shall be hauled from the site the same day, so that a pile of grindings is not left where the stump was ground. Enough grindings should be left so that an open hole does not remain.

2. Only those trees called out for removal in the Tree Treatment Schedule shall be removed, or otherwise damaged. Should it be determined that any additional trees must be removed, a permit must be applied for and approved from the City of Houston Urban Forestry Division prior to removal. Contractor shall contact Urban Forestry at 832-395-8459.

K. Root Stimulation

1. Deep root stimulate designated trees. Mix fertilizer with wetting agent per label instructions.

2. Stimulate entire root zone area within the dripline of the tree and continue 10 feet beyond the dripline, leaving out areas of anticipated root loss (construction areas).

3. Mixture shall be injected into the top 10 inches of soil under pressure of 150 to 200 psi as soil conditions warrant.

4. Mix in a tank with agitation capability per label instructions. Inject the mixture on a 2.5 ft. square grid at 4 lbs, actual nitrogen per 1,000 sq. ft.

L. Regularly water trees which have received root damage, to eliminate additional stress caused by lack of moisture. Water during periods without adequate rainfall. For example, should 1.0" of rain not be received within a week period, the trees should be thoroughly watered.

March through September, water once every two weeks. October through February, water every three weeks. Water thoroughly to saturate the entire root zone area.

M. Chemically treat tree trunks with evidence of borer activity with the appropriate approved insecticide mixed and applied per the manufacturer's product application recommendations. Trees shall be sprayed within 24 hours after observance of borer activity.

N. Grading and filling around trees.

1. Maintain existing grade within the dripline of trees, unless otherwise indicated.

2. Where existing grade around trees is above new finish grade, under supervision of project urban forester, carefully hand excavate within the dripline to make transition to new finish grade.

3. Where existing grade is below new finish grade, place clean bank sand in a single layer to make the transition to new grade. Do not compact; hand grade to required elevation. Specifically to areas where proposed curb is higher than existing and backfill will be required.

O. Demolition, Forming and Pouring Sidewalks (Sidewalk on Grade)

1. Demolition of existing sidewalks, located in or adjacent to the limits of tree protection fencing, shall be completed without disturbing, cutting, or otherwise damaging tree roots and soil located beneath them.

2. The new sidewalk shall be formed at or above the elevation of the existing sidewalk, without disturbing, cutting or otherwise damaging tree roots. Every effort has been made to address tree root and sidewalk elevation issues with information available in the field and on plan and profile sheets. The elevation of every tree root was not available, if tree roots are found to be in conflict with proposed sidewalk, project engineer and urban forester shall be consulted as to how to install sidewalks with minimal impacts to adjacent trees.

3. Checkerplate shall be installed in areas called out only if tree root elevations prohibit construction of ADA compliant sloped concrete sidewalks. Checkerplate shall be installed per detail.

P. Zero curb cutback

1. Disturbance of tree roots or soil behind the existing and/or proposed curb within root zones of trees designated for zero curb cutback shall be prohibited. If the curb can not be removed without disturbing soil or damaging roots back of curb when using

equipment for demolition, the curb shall be broken using a hand held jackhammer and removed by hand.

2. The exposed roots and soil shall be covered immediately after demolition with 6 mil polyethylene in order to avoid desiccation, and contamination by the lime used for road bed stabilization. The polyethylene shall be placed so that it covers the vertical face of soil back of curb and laid back onto the grade 12 inches back of curb. The polyethylene should remain in place, across the entire area specified for zero curb cutback, from the time the existing curb is demolished until the time when the new curb is formed and backfilled. The polyethylene can be pulled up from the vertical face while the road bed is being graded or mixed, to avoid catching the plastic with machinery, but shall be replaced immediately after equipment has completed. The vertical face shall not be exposed for more than 8 hours in any 24 hour period.

3. There shall be no stabilization back of curb in the zero curb cutback areas, or forming with steel forms. The existing grade and roots back of existing curb shall not be disturbed. This may require forming of the new street with wooden forms with stakes inside forms, which may require leaving the forms in place after the street is poured. Should wooden forms be utilized, the wood shall be at minimum a 2x6. The new curb may require hand finishing, as a slip curb machine may not have adequate clearance without disturbing the roots that are to be protected with the zero curb cutback.

4. Roots extending into the street, or on top of the existing curb, in areas to paved shall be cut and removed by hand prior to disturbance or removal with equipment. Roots shall be pruned flush with the proposed back of curb. Roots one inch in diameter and larger shall be cut in a manner to provide a smooth, clean cut surface. Cuts shall be made with the appropriate pruning shears or pruning saws. Roots shall not be chopped or broken.

5. In areas where proposed curb will be may be lower than existing top of curb and tree roots 2" diameter or larger are present, the soil and roots shall not be graded or laid back. The existing elevation shall be maintained and the curb formed to meet elevation or a short elevation difference roots and top of curb maintained.

Q. Demolition, Forming and Pouring of Drive Way Approaches

1. Demolition of existing driveway approaches located beneath the dripline of any tree shall be completed without disturbing, cutting, or otherwise damaging tree roots and soil located beneath them.

2. The new approach shall be formed at or above the elevation of the existing approach where tree roots 2" diameter or larger are present, without disturbing, cutting or

otherwise damaging tree roots. Maximum drive slopes may be needed at bottom of apron to allow forming of drive over tree roots at top of drive. As with sidewalks, the elevation of every tree roots was not available in design. If tree roots are found to be in conflict with proposed approach, project engineer and urban forester shall be consulted as to how to install drive way with minimal impacts to adjacent trees.

R. Replacement Trees for Tree Removals under Ordinance

1. Location, species, and size of replacement trees are indicated on the drawings. Contractor shall layout individual trees at locations shown on drawings. Contractor shall layout individual trees at locations shown on drawings and be responsible for utility locate requirements. In case of conflicts, notify City Engineer and City Urban Forestry before proceeding with work. Trees shall be laid out and locations approved by City Engineer prior to planting.

2. Trees shall meet and be planted according to City of Houston Standard Specification 02915.

S. Arborist and Urban Forester Qualifications

1. Arborist – Employ qualified arborist acceptable to City's Parks and Recreation Department to complete all tree treatments. Arborist shall be normally engaged in the field and have a minimum of 5 years experience. Qualifications of the selected arborist shall be submitted for review and approval by the project engineer and City of Houston.

2. Urban Forester – An Urban forester shall be hired to monitor and assist with field layout (exact locations of fencing, root pruning, and zero curb cutback) of the tree preservation program during demolition and construction to ensure tree protection procedures and techniques are practiced as specified to address concerns and conditions which occur in the field. At a minimum, the individual responsible for monitoring and field layout of the tree protection shall have a minimum of 5 years of experience as a consultant, and shall not be affiliated with a tree care contractor in the Houston area. Qualifications of the selected urban forester shall be submitted for review and approval by the project engineer and City of Houston Urban Forestry Department.

END OF SECTION

Section 01570

STORM WATER POLLUTION PREVENTION CONTROL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Implementation of Storm Water Pollution Prevention Plans (SWP3) described in Section 01410 – TPDES Requirement.

B. Installation, maintenance and removal, of storm water pollution prevention structures: diversion dikes, interceptor dikes, diversion swales, interceptor swales, down spout extenders, pipe slope drains, paved flumes and level spreaders. Structures are used during construction and prior to final development of the site.

C. Filter Fabric Barriers:

1. Type 1: Temporary filter fabric barrier for erosion and sediment control in non-channelized flow areas.

2. Type 2: Temporary reinforced filter fabric barrier for erosion and sediment control in channelized flow areas.

D. Hay Bale Fence.

E. Drop Inlet Basket

F. Inlet Sediment Traps

G. Brush Berm

H. Sand Bag Barrier

I. Bagged Gravel Barrier

J. Sediment Basin

K. Inlet Protection Barrier

1.02 MEASUREMENT AND PAYMENT

A. UNIT PRICES

1. Payment for filter fabric barrier is on a linear foot basis measured between limits of beginning and ending of stakes.

2. Payment for reinforced filter fabric barrier is on a linear foot basis measured between limits of beginning and ending of stakes.

3. Payment for drop inlet baskets is on a unit price basis for each drop inlet basket.

4. Payment for storm inlet sediment traps is on a unit price basis for each storm inlet sediment trap.

5. Payment for storm water pollution prevention structures is on a lump sum basis for the project. Earthen structures with outlet and piping include diversion dikes, interceptor dikes, diversion swales, interceptor swales, and excavated earth-outlet sediment trap, embankment earth-outlet sediment trap, down spout extenders, pipe slope drains, paved flumes, stone outlet sediment trap, and level spreaders.

6. Payment for hay bale barrier, if included in Document 00410 - Bid Form, is on a linear foot of accepted bale barriers, if not include in cost of storm water pollution prevention structures.

7. Payment for brush berm, if included in Document 00410 - Bid Form, is on a linear foot of accepted brush berm, if not include in cost of storm water pollution prevention structures.

8. Payment for sandbag barrier, if included in Document 00410 - Bid Form, is on a linear foot basis measured between limits of beginning and ending of sandbags, if not include in cost of storm water pollution prevention structures.

9. Payment for bagged gravel barrier, if included in Document 00410 - Bid Form, is on a linear foot basis measured between limits of beginning and ending of bagged gravel barrier, if not include in cost of storm water pollution prevention controls.

10. Payment for inlet protection barriers, if included in Document 00410 - Bid Form, is on a linear foot basis measured along outside face of inlet protection barrier, if not include in cost of storm water pollution prevention structures.

11. Refer to Section 01270 - Measurement and Payment for unit price procedures.

B. Stipulated Price (Lump Sum) Contract. If Contract is Stipulated Price Contract, payment for Work in this Section is included in total Stipulated

1.03 REFERENCE STANDARDS

A. ASTM

1. A 36 – Standard Specification for Carbon Structural Steel.

2. D698 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600kN-m/m3)).

3. D3786 – Standard Test Method for Hydraulic Bursting Strength for knitted Goods and Nonwoven Fabrics.

4. D 4355 - Standard Test Method for Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus).

5. D 4491 - Standard Test Methods for Water Permeability of Geotextiles by Permittivity.

6. D 4632 - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.

7. D 4833 - Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products.

8. D 6382 - Standard Practice for Dynamic Mechanical Analysis and Thermogravimetry of Roofing and Waterproofing Membrane Material.

B. Storm Water Management Handbook for Construction Activities prepared by City of Houston, Harris County and Harris County Flood Control District.

1.04 SYSTEM DESCRIPTIONS

A. Filter Fabric Barrier Type 1 and Type 2: Install to allow surface or channel runoff percolation through fabric in sheet-flow manner and to retain and accumulate sediment. Maintain Filter Fabric Barriers to remain in proper position and configuration at all times.

B. Hay Bale Fence: Install to allow surface runoff percolation through hay in sheet-flow manner and to retain and accumulate sediment. Maintain Hay Bale Fence to remain in proper position and configuration at all times.

C. Interceptor Dikes and Swales: Construct to direct surface or channel runoff around the project area or runoff from project area into sediment traps.

D. Drop Inlet Baskets: Install to allow runoff percolation through the basket and to retain and accumulate sediment. Clean accumulation of sediment to prevent clogging and backups.

E. Sediment Traps: Construct to pool surface runoff from construction area to allow sediment to settle onto the bottom of trap.

F. Sand Bags: Are used during construction activities in unstabilized minor swales, ditches, or streambeds when the contributing drainage area is no greater than 2 acres. It is also sediment barrier for stage one Inlet.

G. Bagged Gravel Barrier: Are used during construction activities in unstabilized minor swales, ditches, or streambeds when the contributing drainage area is no greater than 2 acres. It is also sediment barrier for stage two Inlet.

H. Drop Inlet Insert Basket: Is a temporary barrier placed within a storm drain inlet (Lower Portion of Stage I and Upper Portion of Stage II Inlets) consisting of a filter fabric supported by a metal frame work to prevent sediment and other pollutants from entering convey system.

I. Brush Berm: Brush Berm is constructed at the perimeter of a distribute site within the developing area.

1.05 SUBMITTALS

A. Conform to requirements of Section 01330 - Submittal Procedures.

B. Submit manufacturer's literature for product specifications and installation instructions.

C. Submit manufacturer-s catalog sheets and other product data on geotextile or filter fabrics, outlet pipe, perforated riser and connectors.

D. Submit proposed methods, equipment, materials, and sequence of operations for storm-water pollution prevention structures.

E. Submit shop drawings for Drop Inlet Baskets.

PART 2 P R O D U C T S

2.01 CONCRETE

A. Concrete: Class B in accordance with Section 03315 – Concrete for Utility Construction or as shown on the Drawings.

2.02 AGREGATE MATERIALS

A. Use poorly graded cobbles with diameter greater than 3 inches and less than 5 inches.

B. Provide gravel lining in accordance with Section 2320 – Utility Backfill Materials or as shown on the drawings.

C. Provide clean cobbles and gravel consisting of crushed concrete or stone. Use clean, hard crushed concrete or stone free from adherent coatings, salt, alkali, dirt, clay, loam, shale, soft or flaky materials, or organic matter.

D. Sediment Pump Pit Aggregate: Use nominal 2-inch diameter river gravel.

2.03 PIPE

A. Polyethylene culvert pipe or PVC sewer pipe in accordance with Section 02505- High Density Polyethylene (HDPE) Solid and Profile Wall Pipe and Section 02506 Polyvinyl Chloride Pipe or as shown on the Drawings.

B. Inlet Pipes: Galvanized steel pipe in accordance with Section 02642 Corrugated Metal Pipe or as shown on the Drawings.

C. Standpipe for Sediment Pump Pits: Galvanized round culvert pipe or round PVC pipe, minimum of 12-inch and a maximum of 24-inch diameter, perforate at 6 to 12 inch centers around circumference.

2.04 GEOTEXTILE FILTER FABRIC

A. Woven or nonwoven geotextile filter fabric made of either polypropylene, polyethylene, ethylene, or polyamide material, in continuous rolls of longest practical length.

B. Grab Strength: 100 psi in any principal direction (ASTM D-4632), Mullen burst strength >200 psi (ASTM D-3786), and equivalent opening size between 50 and 140.

C. Furnish ultraviolet inhibitors and stabilizers for minimum 6 months of expected usable construction life at temperature range of 0 degrees F to 120 degrees F.

D. Mirafi, Inc., Synthetic Industries, or equivalent

2.05 BARRIER

A. Wire Barrier: Woven galvanized steel wire, 14 gauge by 6-inch square mesh spacing, minimum 24 inch roll or sheet width of longest practical length.

B. Barrier Stakes: Nominal 2 by 2 inch moisture-resistant treated wood or steel posts (min. of 1.25 lbs. per linear foot and Brinell Hardness greater than 140) with safety caps on top; length as required for minimum 8 inch bury and full

height of filter fabric.

2.06 SANDBAGS

A. Provide woven material made of polypropylene, polyethylene, or polyamide material.

1. Minimum unit weight of four ounces per square yard.

2. Minimum grab strength of 100 lbs in any principal direction (ASTM D4632)

3. Mullen burst strength exceeding 300 lbs (ASTM D4833).

4. Ultraviolet stability exceeding 70 percent. After 500 hours of exposure (ASTM 4355).

5. Size: Length:18 to 24 inches. Width: 12 to 18 inches. Thickness: 6 to 8 inches. Weight: Approximately 40 to 50 pounds not to exceed 75 pounds.

07 Bagged gravel Barrier

1. Minimum unit weight of four ounces per square yard.

2. Minimum grab strength of 100 lbs in any principal direction (ASTM D4632)

3. Mullen burst strength exceeding 300 lbs (ASTM D4833).

4. Ultraviolet stability exceeding 70 percent. After 500 hours of exposure (ASTM 4355).

5. Size: Length:18 to 24 inches. Width: 12 to 18 inches. Thickness: 6 to 8 inches. Weight: Approximately 40 to 50 pounds not to exceed 75 pounds.

2.08 DROP INLET BASKET

A. Provide steel frame members in accordance with ASTM A36.

B. Construct top frame of basket with two short sides of 2 inch by 2 inch and single long side of 1 inch by 1 inch, 1/8 inch angle iron. Construct basket hangers of 2 inch by 1/4 inch iron bars. Construct bottom frame of 1 inch by 1/4 inch iron bar or 1/4 inch plate with center 3 inches removed. Use minimum 1/4 inch diameter iron rods or equivalent for sides of inlet basket.

Weld minimum of 14 rods in place between top frame/basket hanger and bottom frame. Exact dimensions for top frame and insert basket will be determined based on dimensions of type of inlet being protected.

2.09 HAY BALE

A. Hay: Standard-baled agricultural hay bound by wire, nylon, or polypropylene rope. Do not use jute or cotton binding.

B. Hay Bale Stakes (applicable where bales are on soil): No. 3 (3/8 diameter) reinforcing bars, deformed or smooth at Contractor's option, length as required for minimum 18 inch bury and full height bales.

PART 3 E X E C U T I O N

3.01 PREPARATION, INSTALLATION AND MAINTEINANCE

A. Provide erosion and sediment control structures at locations shown on the Drawings.

B. Do not clear, grub or rough cut until erosion and sediment control systems are in place unless approved by Project Manger to allow installation of erosion and sediment control systems, soil testing and surveying.

C. Maintain existing erosion and sediment control systems located within project site until acceptance of Project or until directed by Project Manger to remove and discard existing system.

D. Regularly inspect and repair or replace damaged components of erosion and sediment control structures. Unless otherwise directed, maintain erosion and sediment control structure until project area stabilization is accepted. . Redress and replace granular fill at outlets as needed to replenish depleted granular fill. Remove erosion and sediment control structures promptly when directed by Project Manger. Dispose of materials in accordance with Section 01576 - Waste Material Disposal.

E. Remove and dispose sediment deposits at the designated spoil site for the Project. If a project spoil site is not designated on Drawings, dispose of sediment off site at approved location in accordance with Section 01576 - Waste Material Disposal.

F. Unless otherwise shown on the Drawings, compact embankments, excavations, and trenches in accordance with Section 02315 Roadway

Excavation or Section 2317 Excavation and Backfill for Utilities.

G. Prohibit equipment and vehicles from maneuvering on areas outside of dedicated right of way and easements for construction. Immediately repair damage caused by construction traffic to erosion and sediment control structures.

H. Protect existing trees and plants in accordance with Section 1562 – Tree and Plant Protection.

3.02 SEDIMENT TRAPS

A. Install sediment traps so that surface runoff shall percolate through system in sheet flow fashion and allow retention and accumulation of sediment.

B. Inspect sediment traps after each rainfall, daily during periods of prolonged rainfall, and at a minimum once each week. Repair or replace damaged sections immediately.

C. Use fill material for embankment in accordance with Section 02320 – Utility Backfill Materials.

D. Excavation length and height shall be as specified on Drawings. Use side slopes of 2:1 or flatter.

E. Stone outlet sediment traps:

1. Maintain minimum of 6 inches between top of core material and top of stone outlet, minimum of 4 inches between bottom of core material and existing ground and minimum of 1 foot between top of stone outlet and top of embankment.

2. Embed cobbles minimum of 4 inches into existing ground for stone outlet. Core shall be minimum of 1 foot in height and in width and wrapped in triple layer of geotextile filter fabric.

F. Sediment Basin with Pipe Outlet Construction Methods: Install outlet pipe and riser as shown on the Drawings.

G. Remove sediment deposits when design basin volume is reduced by one-third or sediment level is one foot below principal spillway crest, whichever is less.

3.03 FILTER FABRIC BARRIER CONSTRUCTION METHODS

A. Fence Type 1: Filter Fabric: Barrier

1. Install stakes 3 feet on center maximum and firmly embed minimum 8 inches in soil. If filter fabric is factory preassembled with support netting, then maximum support spacing is 8 feet. Install wood stakes at a slight angle toward the source of anticipated runoff.

2. Trench in the toe of the fence lines so the downward face of the trenches is flat and perpendicular to direction of flow. V-trench configuration as shown on Drawings may also be used.

3. Lay fabric along edges of trenches in longest practical continuous runs to minimize joints. Make joints only at a support post. Splice with minimum 6-inch overlap and seal securely.

4. Staple filter fabric to stakes at maximum 3 inches on center. Extend fabric minimum 18 inches and maximum 36 inches above natural ground.

5. Backfill and compact trench.

B. Barrier Type 2: Reinforced Filter Fabric Barrier

1. Layout barrier same as for Type 1.

2. Install stakes at 6 feet on center maximum and at each joint in wire fence, firmly embedded 1-foot minimum, and inclined it as for Type 1.

3. Tie wire fence to stakes with wire at 6 inches on center maximum. Overlap joints minimum one bay of mesh.

4. Install trench same as for Type 1.

5. Fasten filter fabric wire fence with tie wires at 3 inches on center maximum.

6. Layout fabric same as for Type 1. Fasten to wire fence with wire ties at 3 inches on center maximum and, if applicable, to stakes above top of wire fence it as for Type 1.

7. Backfill and compact trench.

8. Attach filter fabric to wooden fence stakes spaced a maximum of 6 feet apart or steel fence stakes spaced a maximum of 8 feet apart and embedded a minimum of 12 inches. Install stakes at a slight angle toward source of anticipated runoff.

9. Trench in toe of filter fabric barrier with spade or mechanical trencher so that downward face of trench is flat and perpendicular to direction of flow. A V-trench configuration may also be used. Lay filter fabric along edges of trench. Backfill and compact trench upon completion of Construction.

10. Filter fabric fence shall have a minimum height of 18 inches and a maximum height of 36 inches above natural ground.

11. Cut length of fence to minimize use of joints. When joints are necessary, splice fabric together only at support post with minimum 6 inch overlap and seal securely.

12. When used in swales, ditches or diversions, elevation of barrier at top of filter fabric at flow line location in channel shall be lower than bottom elevation of filter fabric at ends of barrier or top of bank, whichever is less, in order to keep storm water discharge in channel from overtopping bank.

C. Triangular Filter Fabric Barrier Construction Methods

1. Attach filter fabric to wire fencing, 18 inches on each side. Provide a fabric cover and skirt with continuous wrapping of fabric. Skirt should form continuous extension of fabric on upstream side of fence.

2. Secure triangular fabric filter barrier in place using one of the following methods:
   a. Toe-in skirt 6 inches with mechanically compacted material;
   b. Weight down skirt with continuous layer of 3-inch to 5-inch graded rock; or
   c. Trench-in entire structure 4 inches.

3. Anchor triangular fabric filter barrier structure and skirt securely in place using 6-inch wire staples on 2-foot centers on both edges and on skirt, or staked using 18-inch by 3/8-inch diameter re-bar with tee ends.

4. Lap fabric filter material by 6 inches to cover segment joints. Fasten joints with galvanized shoat rings.

3.04 DIKE AND SWALE

A. Unless otherwise indicated, maintain minimum dike height of 18 inches, measured from cleared ground at up slope toe to top of dike. Maintain side slopes of 2:1 or flatter.

B. Dike and Swale Stabilization: When shown on the Drawings, place gravel lining 3 inches thick and compacted into the soil or 6 inches thick if truck crossing is expected. Extend gravel lining across bottom and up both sides of swale minimum height of 8 inches vertically, above bottom. Gravel lining on dike side shall extend up the up slope side of dike a minimum height of 8 inches, measured vertically from interface of existing or graded ground and up slope toe of dike, as shown on Drawings.

C. Divert flow from dikes and swales to sediment basins, stabilized outlets, or sediment trapping devices of types and at locations shown on Drawings. Grade dikes and swales as shown on Drawings, or, if not specified, provide positive drainage with maximum grade of 1 percent to outlet or basin.

D. Clear in accordance with Section 2233 – Clearing and Grubbing Compact embankments in accordance with Section 2315 – Roadway Excavation.

E. Carry out excavation for swale construction so that erosion and water pollution is minimal. Minimum depth shall be 1 foot and bottom width shall be 4 feet, with level swale bottom. Excavation slopes shall be 2:1 or flatter. Clear, grub and strip excavation area of vegetation and root material.

3.05 DOWN SPOUT EXTENDER

A. Down spout extender shall have slope of approximately 1 percent. Use pipe diameter of 4 inches or as shown on the Drawings. Place pipe in accordance with Section 2317 - Bedding and Backfill for Utilities.

3.06 PIPE SLOPE DRAIN

A. Compact soil around and under drain entrance section to top of embankment in lifts appropriately sized for method of compaction utilized.

B. Inlet pipe shall have slope of 1 percent or greater. Use pipe diameter as shown on the Drawings.

C. Top of embankment over inlet pipe and embankments directing water to pipe shall be at least 1 foot higher at all points than top of inlet pipe.

D. Pipe shall be secured with hold-down grommets spaced 10 feet on centers.

E. Place riprap apron with a depth equal to pipe diameter with 2:1 side slopes.

3.07 PAVED FLUME

A. Compact soil around and under the entrance section to top of the embankment in lifts appropriately sized for method of compaction utilized.

B. Construct subgrade to required elevations. Remove and replace soft sections and unsuitable material. Compact subgrade thoroughly and shape to a smooth, uniform surface.

C. Construct permanent paved flumes in accordance with Drawings.

D. Remove sediment from riprap apron when sediment has accumulated to depth of one foot.

3.08 LEVEL SPREADER

A. Construct level spreader on undisturbed soil and not on fill. Ensure that spreader lip is level for uniform spreading of storm runoff.

B. Maintain at required depth, grade, and cross section as specified on Drawings. Remove sediment deposits as well as projections or other irregularities which will impede normal flow.

3.09 INLET PROTECTION BARRIER

A. Place sandbags for Stage I, Bagged gravel for Stage II and filter fabric barriers at locations shown on the SWP3. Maintain to allow minimal inlet in flow restrictions / blockage during storm event.

3.10 DROP INLET BASKET CONSTRUCTION METHODS

A. Fit inlet insert basket into inlet without gaps around insert at locations shown on the SWP3.

B. Support for inlet insert basket shall consist of fabricated metal as shown on Drawings.

C. Push down and form filter fabric to shape of basket. Use sheet of fabric large enough to be supported by basket frame when holding sediment and extend at least 6 inches past frame. Place inlet grates over basket/frame to serve as fabric anchor.

D. Remove sediment deposit after each storm event and whenever accumulation exceeds 1-inch depth during weekly inspections.

3.11 HAY BALE FENCE CONSTRUCTION METHODS

A. Place bales in row with ends tightly abutting adjacent bales. Place bales with bindings parallel to ground surface.

B. Embed bale in soil a minimum of 4 inches.

C. Securely anchor bales in place with Hay Bale Stakes driven through bales a minimum of 18-inches into ground. Angle first stake in each bale toward previously laid bale to force bales together.

D. Fill gaps between bales with straw to prevent water from channeling between bales. Wedge carefully in order not to separate bales.

E. Replace with new hay bale fence every two months or as required by Project Manager.

3.12 BRUSH BERM CONSTRUCTION METHODS

A. Construct brush berm along contour lines by hand placing method. Do not use machine placement of brush berm.

B. Use woody brush and branches having diameter less than 2-inches with 6-inches overlap. Avoid incorporation of annual weeds and soil into brush berm.

C. Use minimum height of 18-inches measured from top of existing ground at upslope toe to top of berm. Top width shall be 24 inches minimum and side slopes shall be 2:1 or flatter.

D. Embed brush berm into soil a minimum of 4-inches and anchor using wire, nylon or polypropylene rope across berm with a minimum tension of 50 pounds. Tie rope securely to 18-inch x 3/8-inch diameter rebar stakes driven into ground on 4-foot centers on both sides of berm.

3.13 STREET AND SIDEWALK CLEANING

A. Keep areas clean of construction debris and mud carried by construction vehicles and equipment. If necessary, install stabilized construction exits at construction, staging, storage, and disposal areas, following Section 01575-Stabilized Construction Exit.

B. In lieu of or in addition to stabilized construction exits, shovel or sweep pavements as required to keep areas clean. Do not waterhose or sweep debris and mud off street into adjacent areas, except, hose sidewalks during off-peak hours, after sweeping.

3.14 WASTE COLLECTION AREAS

A. Prevent water runoff from passing through waste collection areas, and prevent water runoff from waste collection areas migrating outside collection areas.

3.15 EQUIPMENT MAINTENANCE AND REPAIR

A. Confine maintenance and repair of construction machinery and equipment to areas specifically designated for that purpose, so fuels, lubricants, solvents, and other potential pollutants are not washed directly into receiving streams or storm water conveyance systems. Provide these areas with adequate waste disposal receptacles for liquid and solid waste. Clean and inspect maintenance areas daily.

B. Where designated equipment maintenance areas are not feasible, take precautions during each individual repair or maintenance operation to prevent potential pollutants from washing into streams or conveyance systems. Provide temporary waste disposal receptacles.

3.16 VEHICLE/ EQUIPMENT WASHING AREAS

A. Install wash area (stabilized with coarse aggregate) adjacent to stabilized construction access, as required to prevent mud and dirt run-off. Release wash water into drainage swales or inlets protected by erosion and sediment controls. Build wash areas following Section 01575- Stabilized Construction access. Install gravel or rock base beneath wash areas.

B. Wash vehicles only at designated wash areas. Do not wash vehicles such as concrete delivery trucks or dump trucks and other construction equipment at locations where runoff flows directly into waterways or storm water conveyance systems.

C. Locate wash areas to spread out and evaporate or infiltrate wash water directly into ground, or collect runoff in temporary holding or seepage basins.

3.17 WATER RUNOFF AND EROSION CONTROL

A. Control surface water, runoff, subsurface water, and water from excavations and structures to prevent damage to the Work, the site, or adjoining properties. Follow environment requirements.

B. Control fill, grading and ditching to direct water away from excavations, pits, tunnels, and other construction areas, and to direct drainage to proper runoff courses to prevent erosion, sedimentation or damage.

C. Provide, operate, and maintain equipment and facilities of adequate size to control surface water.

D. Retain existing drainage patterns external to the site by constructing temporary earth berms, sedimentation basins, retaining areas, and temporary ground cover as required to control conditions.

E. Plan and execute construction and earth work to control surface drainage from cuts and fills, and from borrow and waste disposal areas, to prevent erosion and sedimentation.

1. Hold area of bare soil exposed at one time to a minimum.

2. Provide temporary controls such as berms, dikes, and drains.

F. Construct fill and waste areas by selective placement to eliminate surface silts or clays which will erode.

G. Inspect earthwork periodically to detect start of erosion. Immediately apply corrective measures as required to control erosion.

H. Dispose of sediments offsite, not in or adjacent to waterways or floodplains, nor allow sediments to flush into streams or drainage ways. Assume responsibility for offsite disposal location.

I. Unless otherwise indicated, compact embankments, excavations, and trenches by mechanically blading, tamping, and rolling soil in maximum of 8-inch layers. Provide compaction density at minimum 90 percent Standard Proctor ASTM D-698-78 density. Make at least one test per 500 cubic yards of embankment.

J. Prohibit equipment and vehicles from maneuver on areas outside of dedicated rights-of-way and easements for construction. Immediately repair damage to erosion and sedimentation control systems caused by construction traffic.

K. Do not damage existing trees intended to remain.

3.18 REMOVAL OF CONTROLS

A. Remove erosion and sediment controls when the site is finally stabilized or as directed by Project Manager.

B. Dispose of sediments and waste products following Section 01505-Temporary Facilities.

END OF SECTION

Section 01575

STABILIZED CONSTRUCTION ACCESS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Installation and removal of erosion and sediment control for stabilized construction access used during construction and prior to final development of site, as shown in City of Houston Standard Construction details, DWG No. 01571-01.

1.02 MEASUREMENT AND PAYMENT

A. Unit Price Contracts. If Contract is Unit Price Contract, payment for work in this Section will be based on the following:

1. Stabilized construction roads, parking areas, access and wash areas: per square yard of aggregate/recycled concrete without reinforcing placed in 8-inch layers. No separate payment will be made for street cleaning necessary to meet TPDES requirements. Include cost of work for street cleaning under related Specification section.

B. Stipulated Price (Lump Sum) Contracts. If the Contract is a Stipulated Price Contract, include payment for work under this Section in the total Stipulated Price.

1.03 SUBMITTALS

A. Conform to requirements of Section 01330 - Submittal Procedures.

B. Submit manufacturer's catalog sheets and other Product Data on geotextile fabric.

C. Submit sieve analysis of aggregates conforming to requirements of this Specification.

1.04 REFERENCES

A. ASTM D 4632 - Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.

B. Storm Water Quality Management Handbook For Construction Activities prepared by the City of Houston, Harris County and Harris County Flood Control District.

PART 2 PRODUCTS

2.01 GEOTEXTILE FABRIC

A. Provide woven or non-woven geotextile fabric made of polypropylene, polyethylene, ethylene, or polyamide material.

B. Geotextile fabric: Minimum grab strength of 200 lbs in any principal direction (ASTM D-4632) and equivalent opening size between 50 and 140.

C. Geotextile and threads: Resistant to chemical attack, mildew, and rot and contain ultraviolet ray inhibitors and stabilizers to provide minimum of six months of expected usable life at temperature range of 0 to 120 degrees F.

D. Representative Manufacturers: Mirafi, Inc. or equal.

2.02 COARSE AGGREGATES

A. Coarse aggregate: Crushed stone, gravel, crushed blast furnace slag, or combination of these materials. Aggregate shall be composed of clean, hard, durable materials free from adherent coatings of, salt, alkali, dirt, clay, loam, shale, soft or flaky materials, or organic and injurious matter.

B. Coarse aggregates to consist of open graded rock 2" to 8" in size.

PART 3 EXECUTION

3.01 PREPARATION AND INSTALLATION

A. Provide stabilized construction roads and access at construction, staging, parking, storage,
and disposal areas to keep street clean of mud carried by construction vehicles and equipment. Construct erosion and sediment controls in accordance with Drawings and Specification requirements.

B. Do not clear grub or rough cut until erosion and sediment control systems are in place, unless approved by Project Manager to allow soil testing and surveying.

C. Maintain existing construction site erosion and sediment control systems until acceptance of the Work or until removal of existing systems is approved by Project Manager.

D. Regularly inspect, repair or replace components of stabilized construction access. Unless otherwise directed, maintain stabilized construction roads and

access until the City accepts the Work. Remove stabilized construction roads and access promptly when directed by Project Manager. Discard removed materials off-site.

E. Remove and dispose of sediment deposits at designated spoil site for Project. If a spoil site is not designated on Drawings, dispose of sediment off-site at a location not in or adjacent to stream or flood plain. Assume responsibility for off-site disposal.

F. Spread compacted and stabilized sediment evenly throughout site. Do not allow sediment to flush into streams or drainage ways. Dispose of contaminated sediment in accordance with existing federal, state, and local rules and regulations.

G. Prohibit equipment and vehicles from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Immediately repair damage to erosion and sediment control systems caused by construction traffic.

H. Conduct construction operations in conformance with erosion control requirements of Specification 01570 – Storm Water Pollution Control.

3.02 CONSTRUCTION MAINTENANCE

A. Provide stabilized access roads, subdivision roads, parking areas, and other on-site vehicle transportation routes where shown on Drawings.

B. Provide stabilized construction access and vehicle washing areas, when approved by Project Manager, of sizes and at locations shown on Drawings or as specified in this Section.

C. Clean tires to remove sediment on vehicles leaving construction areas prior to entering public right-of-ways. Construct wash areas needed to remove sediment. Release wash water into drainage swales or inlets protected by erosion and sediment control measures.

D. Details for stabilized construction access are shown on Drawings. Construct other stabilized areas to same requirements. Maintain minimum roadway widths of 14 feet for one-way traffic and 20 feet for two-way traffic and of sufficient width to allow ingress and egress. Place geotextile fabric as a permeable separator to prevent mixing of coarse aggregate with underlaying soil. Limit exposure of geotextile fabric to elements between laydown and cover to a maximum 14 days to minimize potential damage.

E. Grade roads and parking areas to provide sufficient drainage away from stabilized areas. Use sandbags, gravel, boards, or similar materials to prevent sediment from entering public right-of-ways, waterways or

storm water conveyance systems.

F. Inspect and maintain stabilized areas daily. Provide periodic top dressing with additional coarse aggregates to maintain required depth. Repair and clean out damaged control systems used to trap sediment. Immediately remove spilled, dropped, washed, or tracked sediment from public right-of-ways.

G. Maintain lengths of stabilized areas as shown on Drawings or a minimum of 50 feet. Maintain a minimum thickness of 8 inches. Maintain minimum widths at all points of ingress or egress.

H. Stabilize other areas with the same thickness, and width of coarse aggregate required for stabilized construction access, except where shown otherwise on Drawings.

I. Stabilized areas may be widened or lengthened to accommodate truck washing areas when authorized by Project Manager.

J. Clean street daily before end of workday. When excess sediments have tracked onto streets, Project Manager may direct Contractor to clean street as often as necessary. Remove and legally dispose of sediments.

K. Use other erosion and sediment control measures to prevent sediment runoff during rain periods and non-working hours and when storm discharges are expected.

END OF SECTION

Section 01576

WASTE MATERIAL DISPOSAL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Disposal of waste material and salvageable material.

1.02 SUBMITTALS

A. Conform to requirements of Section 01330 - Submittal Procedures.

B. Submit copy of approved "Development Permit", as defined in Chapter 19 of Flood Plain Ordinance (City Ordinance Number 81-914 and Number 85-1705), prior to disposal of excess material in areas designated as being in "100-year Flood Hazard Area" within the City. Contact the City of Houston Flood Plain Manager, 3300 Main Street, at (713) 525-7605 for flood plain information.

C. Obtain and submit disposal permits for proposed disposal sites, if required by local ordinances.

D. Submit copy of written permission from property owner, with description of property, prior to disposal of excess material adjacent to Project. Submit written and signed release from property owner upon completion of disposal work.

E. Describe waste materials expected to be stored on-site and a description of controls to reduce Pollutants from these materials, including storage practices to minimize exposure of materials to storm water; and spill prevention and response measures in the Project's Storm Water Pollution Prevention Plan (SWPPP). Refer to Section 01410 – TPDES Requirements.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.01 SALVAGEABLE MATERIAL

A. Excavated Material: When indicated on Drawings, load, haul, and deposit excavated material at location or locations shown on Drawings outside limits of Project.

B. Base, Surface, and Bedding Material: Load shell, gravel, bituminous, or other base and surfacing material designated for salvage into City trucks.

C. Pipe Culvert: Load culverts designated for salvage into City trucks.

D. Other Salvageable Materials: Conform to requirements of individual Specification Sections.

E. Coordinate loading of salvageable material on City trucks with Project Manager.

3.02 EXCESS MATERIAL

A. Remove and legally dispose of vegetation, rubble, broken concrete, debris, asphaltic concrete pavement, excess soil, and other materials not designated for salvage from job site.

B. Excess soil may be deposited on private property adjacent to Project when written permission is obtained from property owner. See Paragraph 1.02 D above.

C. Verify flood plain status of any proposed disposal site. Do not dispose of excavated materials in area designated as within 100-year Flood Hazard Area unless "Development Permit" has been obtained. Remove excess material placed in "100-year Flood Hazard Area" within the City, without "Development Permit", at no additional cost to the City.

D. Remove waste materials from site daily, in order to maintain site in neat and orderly condition.

END OF SECTION

Section 01578

CONTROL OF GROUND AND SURFACE WATER

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Dewatering, depressurizing, draining, and maintaining trenches, shaft excavations, structural excavations and foundation beds in stable condition, and controlling ground water conditions for tunnel excavations.

B. Protecting work against surface runoff and rising floodwaters.

C. Trapping suspended sediment in the discharge form the surface and ground water control systems.

1.02 MEASUREMENT AND PAYMENT

A. UNIT PRICES

1. When noted, dewatering of trench or excavation during course of project shall be measured per linear foot and paid for at contract unit prices for dewatering, when directed to perform such work by Project Manager. Dewatering must be fully detailed in submittal and submittal must be approved prior to performing dewatering work before payment will be made for dewatering. No payment will be made for work unless directed to perform work by Project Manager.

2. Presence of a pump on project does not constitute dewatering for payment under bid item "Ground Water Control for Open Cut Construction."

3. Dewatering required during course of project to lower water table for other utility installation less than 24 inches in diameter, construction of structures, removal of standing water, surface drainage seepage, or to protect against rising waters or floods shall be considered incidental to Work unless otherwise noted.

4. No separate payment will be made for groundwater control associated with augering, tunnels or casing. Include cost in unit price for augering.

5. Refer to Section 01270 - Measurement and Payment for unit price procedures.

B. Stipulated Price (Lump Sum) Contract. If the Contract is a Stipulated Price Contract, include payment for work under this section in the total Stipulated

Price.

1.03 REFERENCES

A. ASTM D 698 - Standard Test Methods for Laboratory Compaction of Soils Using Standard Effort (12,400 ft-lbf/ft3 (600kN-m/m3)

B. Federal Regulations, 29 CFR Part 1926, Standards-Excavation, Occupational Safety and Health Administration (OSHA)

C. Storm Water Management Handbook for Construction Activities prepared by City of Houston, Harris County and Harris County Flood Control District.

1.04 DEFINITIONS

A. Ground water control system: system used to dewater and depressurize water-bearing soil layers.

1. Dewatering: lowering the water table and intercepting seepage that would otherwise emerge from slopes or bottoms of excavations, or into tunnels and shafts; and disposing of removed water. Intent of dewatering is to increase stability of tunnel excavations and excavated slopes, prevent dislocation of material from slopes or bottoms of excavations, reduce lateral loads on sheeting and bracing, improve excavating and hauling characteristics of excavated material, prevent failure or heaving of bottom of excavations, and to provide suitable conditions for placement of backfill materials and construction of structures and other installations.

2. Depressurization: includes reduction in piezometric pressure within strata not controlled by dewatering alone, necessary to prevent failure or heaving of excavation bottom or instability of tunnel excavations.

B. Excavation drainage: includes keeping excavations free of surface and seepage water.

C. Surface drainage: includes use of temporary drainage ditches and dikes and installation of temporary culverts and sump pumps with discharge lines necessary to protect Work from any source of surface water.

D. Monitoring facilities for ground water control system: includes piezometers, monitoring wells and flow meters for observing and recording flow rates.

1.05 PERFORMANCE REQUIREMENTS

A. Conduct subsurface investigations to identify groundwater conditions and to

provide parameters for design, installation, and operation of groundwater control systems. Submit proposed method and spacing of readings for review prior to obtaining water level readings.

B. Design ground water control system, compatible with requirements of Federal Regulations 29 CFR Part 1926 and Section 02260 - Trench Safety Systems, to produce following results:

1. Effectively reduce hydrostatic pressure affecting:

   a. Excavations

   b. Tunnel excavation, face stability or seepage into tunnels

2. Develop substantially dry and stable subgrade for subsequent construction operations

3. Preclude damage to adjacent properties, buildings, structures, utilities, installed facilities and other work

4. Prevent loss of fines, seepage, boils, quick condition, or softening of foundation strata

5. Maintain stability of sides and bottom of excavations

C. Provide ground water control systems that include single-stage or multiple-stage well point systems, eductor and ejector-type systems, deep wells, or combinations of these equipment types.

D. Provide drainage of seepage water and surface water, as well as water from other sources entering excavation. Excavation drainage may include placement of drainage materials, crushed stone and filter fabric, together with sump pumping.

E. Provide ditches, berms, pumps and other methods necessary to divert and drain surface water from excavation and other work areas.

F. Locate ground water control and drainage systems so as not to interfere with utilities, construction operations, adjacent properties, or adjacent water wells.

G. Assume sole responsibility for ground water control systems and for any loss or damage resulting from partial or complete failure of protective measures and settlement or resultant damage caused by ground water control operations. Modify ground water control systems or operations if they cause or threaten to cause damage to new construction, existing site improvements, adjacent property, adjacent water wells, or potentially contaminated areas. Repair damage caused by ground water control systems or resulting from

failure of system to protect property as required.

H. Install an adequate number of piezometers installed at proper locations and depths, necessary to provide meaningful observations of conditions affecting excavation, adjacent structures and water wells.

I. Install environmental monitoring wells at proper locations and depths necessary to provide adequate observations of hydrostatic conditions and possible contaminant transport from contamination sources into work area or ground water control system.

1.06 SUBMITTALS

A. Conform to requirements of Section 01330 - Submittals Procedures.

B. Submit Ground Water and Surface Water Control Plan for review by Project Manager prior to start of excavation work. Include the following:

1. Results of subsurface investigations and description of extent and characteristics of water bearing layers subject to ground water control

2. Names of equipment Suppliers and installation Subcontractors

3. Description of proposed ground water control systems indicating arrangement, location, depth and capacities of system components, installation details and criteria and operation and maintenance procedures

4. Description of proposed monitoring facilities indicating depths and locations of piezometers and monitoring wells, monitoring installation details and criteria, type of equipment and instrumentation with pertinent data and characteristics

5. Description of proposed filters including types, sizes, capacities and manufacturer's application recommendations

6. Design calculations demonstrating adequacy of proposed systems for intended applications. Define potential area of influence of ground water control operation near contaminated areas.

7. Operating requirements, including piezometric control elevations for dewatering and depressurization

8. Excavation drainage methods including typical drainage layers, sump pump application and other means

9. Surface water control and drainage installations

10. Proposed methods and locations for disposing of removed water

C. Submit following records upon completion of initial installation:

1. Installation and development reports for well points, eductors, and deep wells

2. Installation reports and baseline readings for piezometers and monitoring wells

3. Baseline analytical test data of water from monitoring wells

4. Initial flow rates

D. Submit the following records weekly during control of ground and surface water operations:

1. Records of flow rates and piezometric elevations obtained during monitoring of dewatering and depressurization. Refer to Paragraph 3.02, Requirements for Eductor, Well Points, or Deep Wells.

2. Maintenance records for ground water control installations, piezometers and monitoring wells

1.07 ENVIRONMENTAL REQUIREMENTS

A. Comply with requirements of agencies having jurisdiction.

B. Comply with Texas Commission on Environmental Quality regulations and Texas Water Well Drillers Association for development, drilling, and abandonment of wells used in dewatering system.

C. Obtain necessary permits from agencies with jurisdiction over use of groundwater and matters affecting well installation, water discharge, and use of existing storm drains and natural water sources. Since review and permitting process may be lengthy, take early action to obtain required approvals.

D. Monitor ground water discharge for contamination while performing pumping in vicinity of potentially contaminated sites.

PART 2 P R O D U C T S

2.01 EQUIPMENT AND MATERIALS

A. Select equipment and materials necessary to achieve desired results for dewatering. Selected equipment and materials are subject to review by Project Manager through submittals required in Paragraph 1.06, Submittals.

B. Use experienced contractors, regularly engaged in ground water control system design, installation, and operation, to furnish and install and operate educators, well points, or deep wells, when needed

C. Maintain equipment in good repair and operating condition.

D. Keep sufficient standby equipment and materials available to ensure continuous operation, where required.

E. Portable Sediment Tank System: Standard 55-gallon steel or plastic drums, free of hazardous material contamination.

1. Shop or field fabricate tanks in series with main inlet pipe, inter-tank pipes and discharge pipes, using quantities sufficient to collect sediments from discharge water.

PART 3 EXECUTION

3.01 GROUND WATER CONTROL

A. Perform necessary subsurface investigation to identify water bearing layers, piezometric pressures and soil parameters for design and installation of ground water control systems. Perform pump tests, if necessary to determine draw down characteristics. Present results in the Ground Water and Surface Water Control Plan. submittal

B. Provide labor, material, equipment, techniques and methods to lower, control and handle ground water in manner compatible with construction methods and site conditions. Monitor effectiveness of installed system and its effect on adjacent property.

C. Install, operate, and maintain ground water control systems in accordance with the Ground Water and Surface Water Control Plan. Notify Project Manager in writing of changes made to accommodate field conditions and changes to Work. Provide revised drawings and calculations with notification.

D. Provide continuous system operation, including nights, weekends, and holidays. Arrange appropriate backup if electrical power is primary energy source for dewatering system.

E. Monitor operations to verify systems lower ground water piezometric levels at rate required to maintain dry excavation resulting in stable subgrade for

subsequent construction operations.

F. Depressurize zones where hydrostatic pressures in confined water bearing layers exist below excavations to eliminate risk of uplift or other instability of excavation or installed works. Define allowable piezometric elevations in the Ground Water and Surface Water Control Plan.

G. Removal of ground water control installations.

1. Remove pumping system components and piping when ground water control is no longer required.

2. Remove piezometers, including piezometers installed during design phase investigations and left for Contractor's use, upon completion of testing, as required in accordance with Part 3 of applicable specification.

3. Remove monitoring wells when directed by Project Manager.

4. Grout abandoned well and piezometer holes. Fill piping that is not removed with cement-bentonite grout or cement-sand grout.

H. During backfilling, maintain water level a minimum of 5 feet below prevailing level of backfill. Do not allow the water level to cause uplift pressures in excess of 80 percent of downward pressure produced by weight of structure or backfill in place. Do not allow water levels to rise into cement-stabilized sand until at least 48 hour after placement.

I. Provide uniform pipe diameter for each pipe drain run constructed for dewatering. Remove pipe drains when no longer required. If pipe removal is impractical, grout connections at 50-foot intervals and fill pipe with cement-bentonite grout or cement-sand grout after removal from service.

J. The extent of ground water control for structures with permanent perforated underground drainage systems may be reduced, for units designed to withstand hydrostatic uplift pressure. Provide a means to drain affected portions of underground systems, including standby equipment. Maintain drainage systems during construction operations.

K. Remove systems upon completion of construction or when dewatering and control of surface or ground water is no longer required.

L. Compact backfill to not less than 95 percent of maximum dry density in accordance with ASTM D 698.

M. Foundation Slab: Maintain saturation line at least 3 feet below lowest elevations where concrete is to be placed. Drain foundations in areas where

concrete is to be placed before placing reinforcing steel. Keep free from water for 3 days after concrete is placed.

3.02 REQUIREMENTS FOR EDUCTOR, WELL POINTS, OR DEEP WELLS

A. For aboveground piping in ground water control system, include a 12-inch minimum length of clear, transparent piping between each eductor well or well point and discharge header to allow visual monitoring of discharge from each installation.

B. Install sufficient piezometers or monitoring wells to show that trench or shaft excavations in water bearing materials are pre-drained prior to excavation. Provide separate piezometers for monitoring of dewatering and for monitoring of depressurization. Install piezometers and monitoring wells for tunneling as appropriate for selected method of work.

C. Install piezometers or monitoring wells at least one week in advance of the start of associated excavation.

D. Dewatering may be omitted for portions of under drains or other excavations, where auger borings and piezometers or monitoring wells show that soil is pre-drained by existing systems and that ground water control plan criteria are satisfied.

E. Replace installations that produce noticeable amounts of sediments after development.

F. Provide additional ground water control installations, or change method of control if, ground water control plan does not provide satisfactory results based on performance criteria defined by plan and by specifications. Submit revised plan according to Paragraph 1.06B.

3.03 SEDIMENT TRAPS

A. Install sediment tank as shown on approved plan.

B. Inspect daily and clean out tank when one-third of sediment tank is filled with sediment.

3.04 SEDIMENT SUMP PIT

A. Install sediment sump pits as shown on approved plan.

B. Construct standpipe by perforating 12 inch to 24-inch diameter corrugated metal or PVC pipe.

C. Extend standpipe 12 inches to 18 inches above lip of pit.

D. Convey discharge of water pumped from standpipe to sediment trapping device.

E. Fill sites of sump pits, compact to density of surrounding soil and stabilize surface when construction is complete.

3.05 EXCAVATION DRAINAGE

A. Use excavation drainage methods if well-drained conditions can be achieved. Excavation drainage may consist of layers of crushed stone and filter fabric, and sump pumping, in combination with sufficient ground water control wells to maintain stable excavation and backfill conditions.

3.06 MAINTENANCE AND OBSERVATION

A. Conduct daily maintenance and observation of piezometers or monitoring wells while ground water control installations or excavation drainage is operating at the site, or water is seeping into tunnels, and maintain systems in good operating condition.

B. Replace damaged and destroyed piezometers or monitoring wells with new piezometers or wells as necessary to meet observation schedules.

C. Cut off piezometers or monitoring wells in excavation areas where piping is exposed, only as necessary to perform observation as excavation proceeds. Continue to maintain and make specified observations

D. Remove and grout piezometers inside or outside of excavation area when ground water control operations are complete. Remove and grout monitoring wells when directed by Project Manager.

3.07 MONITORING AND RECORDING

A. Monitor and record average flow rate of operation for each deep well, or for each wellpoint or eductor header used in dewatering system. Also, monitor and record water level and ground water recovery. Record observations daily until steady conditions are achieved and twice weekly thereafter.

B. Observe and record elevation of water level daily as long as ground water control system is in operation, and weekly thereafter until Work is completed or piezometers or wells are removed, except when Project Manager determines more frequent monitoring and recording are required. Comply with Project Manager's direction for increased monitoring and recording and

take measures necessary to ensure effective dewatering for intended purpose.

3.08 SURFACE WATER CONTROL

A. Intercept surface water and divert it away from excavations through use of dikes, ditches, curb walls, pipes, sumps or other approved means. Requirement includes temporary works required to protect adjoining properties from surface drainage caused by construction operations.

B. Divert surface water and seepage water into sumps and pump it into drainage channels or storm drains, when approved by agencies having jurisdiction. Provide settling basins when required by agencies.

END OF SECTION

Section 01580

PROJECT IDENTIFICATION SIGNS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project identification sign description.

B. Project sign installation.

C. Maintenance and removal of Project sign.

1.02 SYSTEM DESCRIPTION

A. Sign Construction: Construct signs of new materials in accordance with Standard Detail provided at the Pre-construction Conference.

B. Appearance: Maintain signs to present a clean and neat look throughout contract duration.

C. Sign Manufacturer: Experienced professional sign company.

D. Sign Placement: At locations shown in Drawings unless otherwise specified by Project Manager at pre-construction meeting.

1. Provide one sign at each end of a linear Project involving paving, overlay, sewer line, storm drainage, or water main construction located in rights-of-ways.

2. Provide one sign for site or building construction Contracts

3. Provide one sign at each site for Contracts with multiple sites.

4. Sign Relocation: As work progresses, relocate signs if directed by Project Manager in writing. Include cost for one relocation of post-mounted signs in Contract Price. Subsequent relocations, if directed by Project Manager in writing, will be subject to Change Order.

E. Skid-mounted signs: Use for projects with noncontiguous locations where work progresses from one location to another. Design skid structure to withstand a 60 mile-per-hour wind load to the face or back of sign using stakes, straps, or ballast. Contractor shall be responsible for security of signs at each site.

1.03 SUBMITTALS

A. Submit Shop Drawings under provisions of Section 01330 - Submittal procedures.

B. Show content, layout, lettering style, lettering size, and colors. Make sign and lettering to scale, clearly indicating condensed lettering, if used.

PART 2 P R O D U C T S

2.01 SIGN MATERIALS

A. Structure and Framing: Use new sign materials.

1. Sign Posts: 4-inch by 4-inch pressure treated wood posts, 9 feet long for skid mounting and 12 feet long minimum for in-ground mounting.

2. Skid Bracing: 2-inch by 4-inch wood framing material.

3. Skid Members: 2-inch by 6-inch wood framing material.

4. Fasteners:
   a. Galvanized steel.
   b. Attach sign to posts with 1/2-inch by 5-1/2 inch button head carriage bolts and secure with nuts and flat head washers.
   c. Cover button heads with white reflective film or paint to match sign background.
   d. Use metal brackets and braces and 3/4-inch wood screws to attach sign header.

B. Sign and Sign Header: 3/4-inch thick marine plywood. Use 4-foot by 8 -foot sheet for the sign and a single piece for the header to minimize joints. Do not piece wood sheets to fabricate sign face.

C. Paint and Primers: White industrial grade, fast-drying, oil-based paint with gloss finish for structural and framing members, sign, and sign header material surfaces. Paint all sign surfaces prior to adding adhesive applications.

D. Colors:

1. Sign Background: Reflective white 3M Scotchlite Engineer Grade, Pressure Sensitive Sheeting (White), or approved equal.

2. Border: For red border around area, which designates project name and project amount, use reflective red 3M Scotchlite Engineer Grade, Pressure Sensitive Sheeting (Red), or approved equal.

3. Sign Film: 3M Scotchcal Pressure Sensitive Films, or approved equal for legends, symbols, lettering, and artwork. Match colors to 3M Scotchcal Pressure Sensitive Films.

a.	Lettering Below Seal:	Black
b.	Lettering Above Project Name:	Vivid Blue
c.	Lettering on Blue Background:	White
d.	Background Behind Project Name:	Vivid Blue

E. City Seal: Project Manager will provide City seals to Contractor, as needed.

2.02 SIGN LAYOUT

A. Lettering:

1. Style, Size, and Spacing: Helvetica Regular lettering.

2. Condensed Style: Text may be condensed if needed to maintain sign composition.

B. Composition:

1. Lines with Standard Text
   a. Top line shall read "BUILDING TOGETHER FOR THE FUTURE".
   b. Use lower left below City Seal to list names and titles for Mayor, Controller and Council Members. Place as shown on Drawings with indicated size and spacing.
   c. Center telephone number of the Customer Response Center, "311", near the bottom of the area with the blue background.

2. Lines with Variable Text. Use blue background space for Project name and dollar amount.
   a. Project Manager will provide Project name and dollar amount of Project for preparation of sign. Center name on one or two lines, and dollar amount immediately below Project name, in area with blue background. Use condensed lettering if necessary.

2.03 LAYOUT AND COMPOSITION FOR HEADER

A. City of Houston Seal:

1. A space of approximately 24 inches in diameter is provided for the City seal, the top 6 inches of which extends above the sign on the sign header.

2. Construct sign header of same material as sign face. Cut material to match curve of the City seal.

3. Project Manager will provide the seal to be affixed to the sign by sign maker.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install Project identification signs within seven days after Date of Commencement of the Work.

B. Erect signs at locations shown in Drawings unless otherwise designated by Project Manager at pre-construction meeting. Position sign so it is fully visible and readable to general public.

C. Erect sign level and plumb.

D. If mounted on posts, sink posts 3 to 4 feet below grade and stabilize posts to minimize lateral motion. Leave a minimum of 8 feet of post above existing grade for mounting of sign.

E. Erect sign so that top edge of sign is at a nominal 8 feet above existing grade.

3.02 MAINTENANCE AND REMOVAL

A. Keep signs and supports clean. Repair deterioration and damage.

B. Remove signs, framing, supports, and foundations to a depth of at least 2 feet upon completion of Project. Restore area to a condition equal to or better than before construction.

PROJECT No.: (FILE NO:)	CONTRACT No.:	REVIEWED BY:

*INSTRUCTIONS TO SIGN MAKER (LIST COMPANY NAME):	
QTY.	ACTION ITEMS:
	Make new sign(s)
	Follow City standards attached
	Provide submittal (drawing) to the City for project sign showing content, layout, lettering style, lettering size, and colors
VARIABLE TEXT	
Line 1	Project Name:
Line 2	Project Amount (rounded to nearest $1000):
ATTACHMENTS INCLUDED	
QTY.	SEALS / LOGOS
	City of Houston - 24" diameter
	STANDARDS
	Standard Specification Section 01580 - Project Identification Signs
	Standard Detail 01580-03 Construction Sign

(Instructions on reverse.)

INSTRUCTIONS

Contractor produces this form. Contractor shall insert the information and provide the form to the sign maker with Contractor's purchase order.

List PROJECT No., (FILE No.), CONTRACT No., and name of City's Project Manager REVIEWED BY.

INSTRUCTIONS TO SIGN MAKER:

- Give COMPANY NAME of sign maker.
- Indicate QUANTITY of new signs to be made.
- Direction for sign maker to follow City Standards in making signs.
- Require submittals from sign maker, who provides Shop Drawing of Project sign showing content, layout, lettering style, lettering size, and colors.

VARIABLE TEXT:

- Give PROJECT NAME. Write it out in all caps and suggest line break. Lines are required.
- Give Project amount to be listed on sign. Round off to nearest $1000.

ATTACHMENTS INCLUDED:

- **Seals**

  City provides the quantity of City seals required one for each Project sign.

- **Standards**

  Contractor provides set of Standards to sign maker, including (Specification Section 01580 - Project Identification Signs, and Standard Detail No. 01580-03 - Construction Sign.

Section 01581

EXCAVATION IN PUBLIC WAY PERMIT SIGNS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project sign installation.

B. Maintenance and removal of Project sign.

1.02 SYSTEM DESCRIPTION

A. Sign Construction: Construct signs of new materials.

B. Appearance: Maintain signs to present a clean and neat look throughout the Contract duration.

C. Sign Placement: Place signs at each street entrance to street cut excavation.

1.03 SUBMITTALS

A. Submit Shop Drawings under provisions of Section 01330 - Submittal Procedures.

B. Show content, layout, lettering style, lettering size and colors. Make sign and lettering to scale, clearly indicating condensed lettering, if used.

PART 2 PRODUCTS

2.01 SIGN LAYOUT

A. Conform to Texas Manual on Uniform Traffic Control Devices. Minimum size: 36 inches by 36 inches.

B. Lettering: Uppercase Helvetica Regular lettering.

C. Composition: Include on sign copy of street cut permit, title "City of Houston", contracting department's name, address, and emergency telephone number and Contractor's name. Project Manager will provide department name, address, and emergency telephone number for preparation of sign.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install Project signs before commencement of pavement excavation in Public Way.

B. Position sign so it is fully visible and readable to general public.

C. Erect sign level and plumb.

D. Erect sign so that top edge of sign is at a nominal 8 feet above existing grade.

3.02 MAINTENANCE AND REMOVAL

A. Keep signs and supports clean. Repair deterioration and damage.

B. Remove signs, framing, supports and foundations to depth of at least 2 feet upon completion of the Work. Restore area to condition equal to or better than before construction.

END OF SECTION

Section 01610

BASIC PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements for transportation, delivery, handling, and storage of Products.

1.02 PRODUCTS

A. Products: Defined in Document 00700 – General Conditions. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components designated for reuse.

B. For material and equipment specifically indicated or specified to be reused in the work:

1. Use special care in removal, handling, storage and reinstallation, to assure proper function in completed work.

2. Arrange for transportation, storage and handling of products which require off-site storage, restoration or renovation. Include cost in unit price for related items.

C. When contract documents require that installation of work comply with manufacturer's printed Instructions, obtain and distribute copies of such instructions to parties involved in installation, including two copies to Project Manager. Maintain one set of complete instructions at job site during installation until completion.

D. Provide Products from the fewest number of manufacturers as practical, in order to simplify spare parts inventory and to allow for maximum interchangeability of components. For multiple components of the same size, type or application, use the same make and model of component throughout the Work.

1.03 TRANSPORTATION

A. Make arrangements for transportation, delivery, and handling of Products required for timely completion of the Work.

B. Transport and handle Products in accordance with manufacturer's instructions.

C. Consign and address shipping documents to proper party giving name of the Project and its complete street address. Shipments shall be delivered to

Contractor.

1.04 DELIVERY

A. Arrange deliveries of Products to accommodate short-term site completion schedules and in ample time to facilitate inspection prior to Installation. Avoid deliveries that cause lengthy storage or overburden of limit storage space.

B. Coordinate deliveries to avoid conflict with the Work and conditions at the site and to accommodate the following:

1. Work of other contractors or the City.

2. Limitations of storage space.

3. Availability of equipment and personnel for handling Products.

4. The City's use of premises.

C. Have Products delivered to the site in manufacturer's original, unopened, labeled containers.

D. Immediately upon delivery, inspect shipment to assure:

1. Product complies with requirements of the Contract.

2. Quantities are correct.

3. Containers and packages are intact; labels are legible.

4. Products are properly protected and undamaged.

1.05 PRODUCT HANDLING

A. Coordinate off-loading of Products delivered to the site. If necessary during construction, move and relocate stored Products at no additional cost to the City.

B. Provide equipment and personnel necessary to handle Products, including those provided by the City, by methods to prevent damage to Products or packaging.

C. Provide additional protection during handling as necessary to prevent breaking, scraping, marring, or otherwise damaging Products or surrounding areas.

D. Handle Products by methods to prevent over-bending or overstressing.

E. Lift heavy components only at designated lifting points.

F. Handle Products in accordance with manufacturer's recommendations.

G. Do not drop, roll, or skid Products off delivery vehicles. Hand-carry or use Suitable materials handling equipment.

1.06 STORAGAE OF PRODUCTS

A. Store and protect Products in accordance with manufacturer's recommendations and requirements of these Specifications.

B. Make necessary provisions for safe storage of Products. Place Products so as to prevent damage to any part of the Work or existing facilities and to maintain free access at all times to all parts of the Work and to utility service company installations in the vicinity of the Work. Keep Products neatly and compactly stored in locations that will cause minimum inconvenience to other contractors, public travel, adjoining owners, tenants, and occupants. Arrange storage in a manner so as to provide easy access for inspection.

C. Restrict storage to areas available on the site for storage of Products as shown on Drawings or approved by Project Manager.

D. Provide off-site storage and protection when on-site storage is not adequate. Provide addresses of, and access to, off-site storage locations for inspection by Project Manager.

E. Do not use lawns, grass plots, or other private property for storage purposes without written permission of owner or other person in possession or control of premises.

F. Protect stored Products against loss or damage.

G. Store in manufacturers' unopened containers.

H. Neatly, safely, and compactly stack Products delivered and stored along the line of the Work to avoid inconvenience and damage to property owners and general public, and maintain at least 3 feet clearance around fire hydrants. Keep public, private driveways and street crossings open.

I. Repair or replace damaged lawns, sidewalks, streets or other improvements to satisfaction of Project Manager. Total length that Products may be distributed along route of construction at one time is 1000 linear feet, unless otherwise approved in writing by Project Manager.

PART 2 P R O D U C T S - Not Used

PART 3 E X E C U T I O N - Not Used

END OF SECTION

Section 01630

PRODUCT SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Options for making Product or process selections.

B. Procedures for proposing equivalent Products or processes, including pre-approved, pre-qualified, and approved Products or processes.

1.02 DEFINITIONS

A. Product: As defined in Document 00700 – General Conditions. Product does not include machinery and equipment used for production, fabrication, conveying, and erection of the Work. Products may also include existing materials or components designated for reuse.

B. Process: Any proprietary system or method for installing system components resulting in an integral, functioning part of the Work. For this Section, the word Products includes Processes.

1.03 SELECTION OPTIONS

A. Pre-approved Products: Construction products of certain manufacturers or Suppliers designated in Specifications as "pre-approved." The City maintains a list of pre-approved products. Pre-approved Products for this Project are designated as pre-approved in Specifications. Products of other manufacturers or suppliers are not acceptable for this Project and will not be considered under the submittal process for approving alternate products.

B. Pre-qualified Products: Construction products of certain manufacturers or Suppliers designated in Specifications as "pre-qualified." Pre-qualified Products for this Project are designated as pre-qualified in Specifications. Products of other manufacturers or suppliers are not acceptable for this Project and will not be considered under the submittal process for approving alternate products.

C. Approved Products: Construction products of certain manufacturers or Suppliers designated in Specifications followed by words "or approved equal." Approval of alternate products not listed in Specifications may be obtained through provisions for product options and substitutions in Document 00700 - General Conditions, and by following submittal procedures specified in

Section 01330- Submittal Procedures. The procedure for approval of alternate products is not applicable to pre-approved or pre-qualified products.

D. Product Compatibility: To the maximum extent possible, provide Products that are of the same type or function from a single manufacturer, make, or source. Where more than one choice is available, select Product that is compatible with other Products already selected, specified, or in use by the City.

1.04 CONTRACTOR'S RESPONSIBILITY

A. Responsibility related to Product options and substitutions is defined in Document 00700 - General Conditions.

B. Furnish information Project Manager deems necessary to judge equivalency of alternate Product.

C. Pay for laboratory testing, as well as any other review or examination costs, needed to establish equivalency between products in order to obtain information upon which Project Manager can base a decision.

D. If Project Manager determines alternate product is not equal to that named in Specifications, Furnish one of the specified Products.

1.05 CITY REVIEW

A. Use alternate Products only when approved in writing by Project Manager. Project Manager's determination regarding acceptance of proposed alternate Product is final.

B. Alternate Products shall be accepted if Products are judged by Project Manager to be equivalent to specified Product or to offer substantial benefit to the City.

C. The City retains the right to accept any Product deemed advantageous to the City, and similarly, to reject any product deemed not beneficial to City.

1.06 SUBSTITUTION PROCEDURE

A. Collect and assemble technical information applicable to the proposed Product to aid in determining equivalency as related to the approved Product specified.

B. Submit a written request for a construction Product to be considered as an alternate Product.

C. Submit Product information after the effective date of the Contract and within the time period allowed for substitution submittals given in Document 00700 - General Conditions. After the submittal period has expired, requests for alternate Products shall be considered only when specified Product becomes unavailable because of conditions beyond Contractor's control.

D. Submit five copies of each request for alternate Product approval. Include the following information:

1. Complete data substantiating compliance of proposed substitution with the Contract.

2. For Products:
   a. Product identification, including manufacturer's name and address.
   b. Manufacturer's literature with Product description, performance and test data, and reference standards.
   c. Samples, as applicable.
   d. Name and address of similar projects on which Product was used and date of installation. Include names of Owner, design consultant, and installing contractor.

3. For construction methods:
   a. Detailed description of proposed method.
   b. Drawings illustrating methods.

4. Itemized comparison of proposed substitution with Product or method specified.

5. Data relating to changes in Construction Schedule.

6. Relation to separate contracts, if any.

7. Accurate cost data on proposed substitution in comparison with Product or method specified.

8. Other information requested by Project Manager.

E. Approved alternate Products will be subject to the same review process as the specified Product would have been for Shop Drawings, Product Data, and Samples.

PART 2 P R O D U C T S - Not Used

PART 3 E X E C U T I O N - Not Used

END OF SECTION

Section 01725

FIELD SURVEYING

PART 1 GENERAL

1.01 QUALITY CONTROL

A. Conform to State of Texas laws for surveys requiring licensed surveyors. Employ a surveyor acceptable to Project Manager if required by the Contract.

1.02 MEASUREMENT AND PAYMENT

A. UNIT PRICES

1. No separate payment will be made for field surveying. Include cost in unit price for related items.

1.03 SUBMITTALS

A. Conform to requirements of Section 01330 - Submittal Procedures.

B. Submit name, address, and telephone number of Surveyor to Project Manager before starting survey work.

C. Submit documentation verifying accuracy of survey work on request.

D. Submit certificate signed by Surveyor, that elevations and locations of the Work are in conformance with the Contract.

1.04 PROJECT RECORD DOCUMENTS

A. Maintain a complete and accurate log of control and survey work as it progresses.

B. Prepare a certified survey setting forth dimensions, locations, angles, and elevations of construction and site work upon completion of foundation walls and major site improvements.

C. Submit record documents under provisions of Section 01785 - Project Record Documents.

1.05 EXAMINATION

A. Verify locations of survey control points prior to starting the Work.

B. Notify Project Manager immediately if any discrepancies are discovered.

1.06 SURVEY REFERENCE POINTS

A. The City will establish survey control datum as provided in Document 00700 - General Conditions and as indicated on Drawings. Inform Project Manager in Advance of time horizontal and vertical control points will be established so

verification deemed necessary by Project Manager may be done with minimum inconvenience to the City or Contractor.

B. Locate and protect survey control points prior to starting site work; preserve permanent reference points during construction.

C. Notify Project Manager a minimum of 48 hours before relocation of reference points is needed due to changes in grades or other reasons.

D. Promptly report loss or destruction of reference points to Project Manager.

E. Reimburse the City for cost of reestablishment of permanent reference points disturbed by construction operations.

07 SURVEY REQUIREMENTS

A. Utilize recognized engineering survey practices.

B. Establish a minimum of two permanent benchmarks on site, referenced to established control points. Record horizontal and vertical location data on Project record documents.

C. Establish elevations, lines and levels to provide quantities required for measurement and payment and for appropriate controls for the Work. Locate and lay out the following with appropriate instruments:

1. Site improvements including grading, fill and topsoil placement, utilities, and footings and slabs

2. Grid or axis for structures

3. Building foundation, column locations, and ground floor elevations

D. Periodically verify layouts.

PART 2 P R O D U C T S - Not Used

PART 3 E X E C U T I O N - Not Used

END OF SECTION

Section 01731

CUTTING AND PATCHING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Cutting, patching and fitting of the Work or work under construction. Coordinating Installation or connection of the Work to existing facilities, or uncovering work for access, inspection or testing and related submittals.

1.02 MEASUREMENT AND PAYMENT

A. UNIT PRICES

1. No separate payment will be made for cutting and patching. Include cost in unit price for related items.

1.03 CUTTING AND PATCHING

A. Perform activities to avoid interference with facility operations and work of others in accordance with Document 00700 - General Conditions of Contract.

B. Execute cutting and patching, including excavation, backfill and fitting to:

1. Remove and replace defective work or work not conforming to Drawings and Specifications;

2. Take samples of installed work as required for testing;

3. Remove construction required to provide for specified alterations or additions to existing work;

4. Uncover work to allow inspection or reinspection by Project Manager or regulatory agencies having jurisdiction;

5. Connect uninstalled work to completed work in proper sequence;

6. Remove or relocate existing utilities and pipes that obstruct work;

7. Make connections or alterations to existing or new facilities;

8. Provide openings, channels, chases and flues and cut, patch, and finish; if required; or

9. Provide protection for other portions of the Work.

C. Restore existing work to a condition equal to or better than that which existed Prior to cutting and patching, and to standards required by Specifications.

D. Support, anchor, attach, match, trim and seal materials to work of others. Unless otherwise specified, Furnish and Install sleeves, inserts, and hangers required for execution of the Work.

E. Provide shoring, bracing and support necessary to maintain structural integrity and to protect adjacent work from damage during cutting and patching. Request written approval from Project Manager, before cutting structural members such as beams, anchors, lintels, or other supports. Follow approved submittals, as applicable.

F. Match new materials to existing materials by bonding, lapping, mechanically tying, anchoring or other effective means in order to prevent cracks and to minimize evidence of patching. Conceal effects of demolition and patching by blending new construction to existing surfaces. Avoid obvious breaks, joints or changes of surface appearance unless shown on Drawings or authorized by Project Manager.

1.04 SUBMITTALS

A. Conform to requirements of Section 01330 - Submittal Procedures.

B. Submit a written request to Project Manager for consent to proceed, before conducting cutting operations that might affect structural integrity, design function, City operations, or work of another contractor.

C. Include the following in submittal:

1. Identification of Project

2. Description of affected work

3. Necessity for cutting

4. Effect on other work and on structural integrity

5. Describe the proposed work including:
   a. Scope of cutting and patching
   b. Contractor, Subcontractor or Supplier who will execute the work
   c. Proposed Products
   d. Extent of refinishing
   e. Schedule of operations

6. Alternatives to cutting and patching

D. When work conditions or schedules dictate the need for change of materials or methods, submit a written recommendation to Project Manager that includes:

1. conditions necessitating the change;

2. recommendations for alternative materials or methods; and

3. submittals required for proposed substitutions

E. Notify Project Manager in writing when work will be uncovered for observation. Do not begin cutting or patching operations until authorized by Project Manager.

1.05 CONNECTIONS TO EXISTING FACILITIES

A. Perform construction operations necessary to complete connections and tie-ins to existing facilities. Keep existing facilities in continuous operation unless otherwise permitted in the Specifications or approved in writing by Project Manager.

B. Coordinate interruption of service requiring connection to existing facilities with Project Manager. Do not bypass wastewater or sludge to waterways. Provide temporary pumping facilities to handle wastewater if necessary. Use temporary bulkheads to minimize disruption. Provide temporary power and piping to facilitate construction where necessary.

C. Submit a detailed schedule of proposed connections, including shut-downs and tie-ins. Include proposed time and date as well as anticipated duration of work. Coordinate the connection schedule with the construction schedule.

1. Submit specific times and dates to Project Manager at least 48 hours in advance of proposed work.

D. Procedures and Operations:

1. Operate existing pumps, valves and gates in required sequence under supervision of Project Manager. Do not operate valves, gates or other items of equipment without Project Manager's knowledge.

2. If possible, test equipment under operating conditions before making final tie-ins to connect equipment to existing facility.

3. Coordinate work and schedules. Notify Project Manger at least 48 Hours before shutdowns or bypasses are required.

PART 2 PRODUCTS Not Used

PART 3 EXECUTION Not Used

END OF SECTION

Section 01732

PROCEDURE FOR WATER VALVE ASSISTANCE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Operation of valves. City of Houston employees will operate existing valves. Contractor's employees may operate new valves included in the Project prior to acceptance by the City.

1.02 PROCEDURE

A. Perform activities listed in Exhibit A attached to this Section.

1.03 SUBMITTALS

A. Submit request for work order planning meetings in accordance with Exhibit A. Include information listed in Step 1 of Exhibit A, attached to this Section.

1.04 CANCELLATION

A. Contractor, Project Manager, or Public Utilities Division may cancel a scheduled valve assistance appointment at no extra cost or payment to Contractor. Contractor shall notify City's appointed Project Inspector ("Inspector") 24 hours in advance of cancellation. Inspector shall notify Central Operation Service (COS) immediately upon receipt of cancellation notice. Cancellation may be caused by bad weather, preparation work taking longer than anticipated, or unforeseen delays by one or more of the three parties.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION - Not Used

END OF SECTION

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EXHIBIT A

PROCEDURE FOR VALVE ASSISTANCE

The following procedure will be used by Utility Maintenance Branch personnel when completing a service request from individual Contractors, through Inspector, for operation of existing water valves.

ROUTINE VALVE ASSISTANCE REQUEST (NON-EMERGENCY JOBS):

Step 1. a. When notified by Contractor, Inspector will schedule a work order planning meeting by calling Central Operation Service (COS) at **(713) 295-5521** and providing information shown below. The work order planning meeting shall be conducted a minimum of three days after the request; excluding weekends, holidays, inclement weather days, and the day of the call.

Location of Work (Street Intersection)	Project #
Project Description	Contractor (Company Name)
Job Superintendent's Name	Superintendent's Office #/Mobile #/Pager #
Contractor's Emergency Information	Name and Phone #/Mobile #/Pager #
Inspector/Senior Inspector	Name, Phone #/Mobile #/Pager #
Date & Time assistance is requested	

b. COS will create a work order for each wet connection, cut and plug, etc. that will be designated as a "Code 40" (Private Contractor).

c. COS will give Inspector the work order number. This work order number must be used as a reference in all communications regarding this request for Valve Assistance.

d. Valve personnel must have the work order number on their route sheet. When valve personnel arrive at the job site for the Work Order Planning Meeting between Inspector, Contractor, and Utility Maintenance valve personnel, they will verify the street intersection and work order number with the Inspector before beginning Work Order Planning Meeting.

e. During Work Order Planning Meeting, the work to be performed will be outlined and the actual date work will be performed will be mutually determined by Inspector, Contractor and City's Utility Maintenance Division valve personnel, based upon relevant factors such as preparatory work needed, customer requirements, etc.

f. Valve personnel will perform work specifically outlined in the work order requested. Also, Utility Maintenance Branch valve personnel will only operate existing water valves. Inspector must contact COS and request a new work order for additional work.

g. Valve personnel will contact the dispatcher and advise when the job is complete. Valve personnel will list all appropriate information on the Crew Activity Report.

Step 2. Should valve personnel not be able to keep an appointment to provide valve assistance, Utility Maintenance Branch will provide notification to appropriate Inspector by phone at least 24 hours prior, with that fact and rescheduling information, if available.

Step 3. Inspector will notify COS if valve personnel have not arrived at the site within 30 minutes of scheduled appointment. If Contractor is not ready when valve operator arrives to provide valve assistance, the City shall charge Contractor $50.00 per hour, starting 15 minutes after the scheduled appointment time, minimum one hour charge.

Step 4. Contractor will not be due delay claims or downtime if Utility Maintenance Branch has notified Inspector that they will not be able to provide valve assistance as scheduled.

Step 5. Test installed new valves in the presence of Inspector before substantial completion inspection is scheduled. Place new valves in open position on or before the Date of Substantial Completion.

Step 6. Project Manager will notify, in writing, Utility Maintenance Branch two months before the warranty expires to report any problems they have with new water lines. Project Manager will notify Contractor about these problems.

EMERGENCY REQUEST FOR VALVE ASSISTANCE PROCEDURE:

Step 1. When notified by Contractor, Inspector will request emergency Valve Assistance due to a broken line/service, etc. by calling COS at **(713) 295-5521** and providing the following information:

Location of Work (Street Intersection)	Project #
Project Description	Superintendent's Office #/Mobile #/Pager #
Contractor (Company Name)	Name and Phone #/Mobile #/Pager #
Job Superintendent's Name	Name, Phone #/Mobile #/Pager #
Contractor's Emergency Information	
Inspector/Senior Inspector	
Date & Time assistance is requested	

Step 2. COS will create an emergency work order number and describe the work to be performed.

Step 3. COS will give Inspector the emergency work order number. Reference work order number in all communications regarding request for Valve Assistance.

Step 4. COS will contact designated valve personnel and assign emergency work order. Dispatcher will follow standard COS procedures if this situation occurs after normal working hours.

Step 5. Valve personnel must have the emergency work order number on the route sheet. When valve personnel arrive at the job site for emergency work, they will verify the street intersection and emergency work order number with Inspector prior to beginning work requested for operating existing water valves. Valve personnel will coordinate verification of street intersection and work order number with Inspector prior to performing work.

Section 01740

SITE RESTORATION

PART 1 G E N E R A L

1.01 SECTION INCLUDES

A. Restoration of site affected by the Work in public or private property, including pavement, esplanades, sidewalks, driveways, fences, lawns and landscaping.

1.02 MEASUREMENT AND PAYMENT

A. Unit Prices.

1. Payment for restoration of Project site disturbed by utility construction operations is on a linear foot basis. Measurement will be as provided for corresponding utility in each Specification section. No separate payment made for branch pipe, valves and, other associated work for utilities. Measurement for restoration with multiple utilities within the same right-of-way will be on a linear foot basis for only one utility.

2. No separate payment made for facility or roadway projects. Include cost in the surface improvements associated with the facility or roadway construction.

3. Payment includes required site restoration within the right-of-way or easement regardless of size or type of pipe, method of construction, paved or unpaved areas or thickness and width of pavement.

4. No separate payment made for site restoration for service connections under this Section. Include cost in appropriate utility section.

5. Refer to Section 01270 – Measurement and Payment for Unit Price procedures.

B. Stipulated Price (Lump Sum) Contracts. If Contract is Stipulated Price Contract, include payment for work under this section in total Stipulated Price.

1.03 DEFINITIONS

A. Phase: Locations identified on the plans and listed in Section 1110 – Summary of Work under Work Sequence.

B. Site Restoration: Replacement or reconstruction of Site Improvements located in rights-of-way, easements, public property, and private property affected or altered by the Work.

C. Site Improvement: Includes pavement, curbs and gutters, esplanades, sidewalks, driveways, fences, lawns, irrigation systems, landscaping, and other improvements in existence at the Project site before commencement of construction operations.

1.04 SUBMITTALS

A. Conform to requirements of Section 01330 - Submittal Procedures.

B. Schedule of testing, service connections, abandonment, backfill, and site restoration.

C. Sample of notices to residents outlining their responsibility for maintenance of site improvements adjacent to the Project that are not disturbed by construction operations

1.05 SCHEDULING

A. Schedule testing, service connections, abandonment, backfill and site restoration immediately following completion of pipe laying work or paving within each block or line segment.

B. Phased Construction:

1. Commencement of subsequent Phase will follow scheduling of site restoration of prior Phase. Limit work to a maximum of two Phases of the project.

C. Construction of Projects with no Phases listed in Section 01110- Summary of Work:

1. Complete site restoration prior to disturbing over 50% of total project linear feet or 2,000 linear feet, whichever is greater, of right-of-way or easement.

2. Limit work to a maximum of 50% of total project linear feet or 2,000 linear feet, whichever is greater, of right-of-way and easement. Commence work in additional right-of-way or easement after completion of site restoration.

PART 2 PRODUCTS

2.01 MATERIALS

A. Pavement, Sidewalks and Driveways: Materials specified in Section 02951 - Pavement Repair and Resurfacing.

B. Seeding and Sodding: Sod specified in Section 02922 - Sodding and Seed specified in Section 02921 - Hydromulch Seeding.

C. Trees, Shrubs and Plantings: Conform to requirements of Section 01562 – Tree and Plant Protection.

PART 3 EXECUTION

3.01 Preparatory Work

A. Provide cleanup and restoration crews to work closely behind pipe laying and roadway construction crews, and where necessary, during testing, service restoration, abandonment, backfill and surface restoration.

B. Water Lines: Unless otherwise approved by Project Manager, comply with the following:

1. Once Project Manager approves work within a Phase, immediately begin preparatory work for disinfection effort.

2. No later than three days after completing disinfection preparatory work, submit to City appropriate request for disinfection.

3. If City fails to perform initial disinfection of lines in accordance with Section 2514 - Disinfection of Water Lines, within seven days from submission of appropriate request, and if approved by Project Manager, pipe laying operations may continue beyond approved limits until the City responds.

4. Immediately after transfer of services, begin abandonment of old water lines and site restoration.

C. Wastewater Lines:

1. Once Project Manager approves work within a Line Segment, immediately begin preparatory work for testing effort.

2. No later than three days after completing preparatory work for testing, initiate testing work.

3. Immediately after transfer of service connections, begin abandonment of old wastewater lines, and site restoration.

D. Street Construction and Paving Projects

1. Once Project Manager approves work within a Line Segment or block, immediately begin preparatory work for testing effort.

2. No later than three days after completing preparatory work for testing, initiate testing work.

3. Immediately after testing begin site restoration.

E. Street Construction and Paving Projects

1. Once Project Manager approves work within a block, immediately begin preparatory work for sidewalk construction, sodding and hydromulching and tree planting.

2. No later than seven days after completing preparatory work, initiate construction.

3.02 CLEANING

A. Remove debris and trash to maintain a clean and orderly site in accordance with requirements of General Conditions and Section 01576 - Waste Material Disposal.

3.03 LANDSCAPING AND FENCES

A. Seeding and Sodding.

1. Remove construction debris and level area with bank sand so that new grass surface matches level of existing grass and maintains pre-construction drainage patterns. Level and fill minor ruts or depressions caused by construction operations with bank sand, where grass is still viable.

2. Restore previously existing turfed areas with sod and fertilize in accordance with Section 02922 - Sodding. Sod to match existing turf.

3. Restore unpaved areas not requiring sodding with hydromulch seeding conforming to Section 02921 - Hydromulch Seeding.

B. Trees, Shrubbery and Plants.

1. Remove and replant trees, shrubs, and plants in accordance with requirements of Section 01562 – Tree and Plant Protection.

C. Fence Replacement.

1. Replace removed or damaged fencing to equal or better condition than existed prior to construction, including concrete footings and mow strips. Provide new wood posts, top and bottom railing and panels. Metal fencing material, not damaged by the Work, may be reused.

2. Remove and dispose of damaged or substandard material.

3.04 MAINTENANCE

A. Maintain shrubs, plantings, sodded areas and seeded areas.

B. Replace shrubs, plantings and seeded or sodded areas that fail to become established.

C. Refer to Section 01562 - Tree and Plant Protection, Section 02921 - Hydromulch Seeding and Section 02922 - Sodding for maintenance requirements.

END OF SECTION

Section 01755

STARTING SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Starting systems.

B. Demonstration and instructions.

C. Testing, adjusting and balancing.

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

3.01 PREPARATION

A. Coordinate schedule for start-up of various equipment and systems.

B. Notify Project Manager seven days prior to startup of each item.

C. Verify each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, or other damage-causing conditions.

D. Verify tests, meter readings, and specified electrical characteristics agree with those required by equipment or system manufacturer.

E. Verify wiring and support components for equipment are complete and tested.

F. Execute start-up under supervision in accordance with manufacturer's instructions.

G. When specified in individual Specification sections, require manufacturer to provide an authorized representative to be present at the site to inspect, check and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.

H. Submit written report indicating that equipment or system has been properly installed and is functioning correctly.

3.02 DEMONSTRATION AND INSTRUCTIONS

A. Demonstrate operation and maintenance of Products to Project Manager two weeks prior to Date of Substantial Completion.

B. Utilize O&M Manuals as the basis for instruction. Review contents of manual with Project Manager in detail to explain aspects of operation and maintenance.

C. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at agreed-upon times, at the equipment location.

D. Prepare and insert additional data in O&M Manuals when the need for additional data becomes apparent during instruction.

E. At a minimum, Contractor will demonstrate the following:

1. Products and procedures to be used in maintaining various surfaces, e.g., counter tops, toilet partitions, tile floors and carpeting;

2. procedures to set and maintain landscape irrigation system;

3. procedures to set and maintain security and fire alarm systems; and

4. procedures to set and maintain HVAC systems.

3.03 TESTING, ADJUSTING AND BALANCING

A. Contractor shall appoint, employ and pay for the services of an independent firm to perform testing, adjusting and balancing.

B. Submit reports by the independent firm to Project Manager describing observations and results of tests and signifying compliance or non-compliance with specified requirements and requirements of the Contract.

END OF SECTION

Section 01770

CLOSEOUT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedures to establish Date of Substantial Completion.

B. Closeout procedures for final submittals, O&M data, warranties, spare parts and maintenance materials.

C. Texas Department of Licensing and Regulation (TDLR) inspection for Texas Accessibility Standards (TAS) compliance.

1.02 SUBSTANTIAL COMPLETION

A. Comply with Document 00700 - General Conditions regarding Date of Substantial Completion when Contractor considers the Work, or portion thereof designated by Project Manager, to be substantially complete.

B. Insure the following items have been completed when included in the Work, prior to presenting a list of items to be inspected by Project Manager for issuance of a Certificate of Substantial Completion:

1. cutting, plugging, and abandoning of water, wastewater, and storm sewer lines, as required by Contract documents for each item;

2. construction of, and repairs to, pavement, driveways, sidewalks, and curbs and gutters;

3. sodding and hydromulch seeding, unless waived by Project Manager in writing;

4. general clean up including pavement markings, transfer of services, successful testing and landscape;

5. additional requirements contained in Section 01110 - Summary of Work.

C. Assist Project Manager with inspection of Contractor's list of items and complete or correct the items, including items added by Project Manager, within specified time period.

D. Should Project Manager's inspection show failure of Contractor to comply with requirements to obtain Date of Substantial Completion, including those items in Paragraph 1.02 B. of this section, Contractor shall complete or correct the items, before requesting another inspection by Project Manager.

1.03 CLOSEOUT PROCEDURES

A. Comply with Document 00700 - General Conditions regarding final completion and final payment when the Work is complete and ready for Project Manager's final inspection.

B. Provide Project Record Documents in accordance with Section 01785 - Project Record Documents.

C. Complete or correct items on punch list, with no new items added. Address new items during warranty period.

D. The City will occupy portions of the Work as specified in other sections.

1.04 FINAL CLEANING

A. Execute final cleaning prior to final inspection.

B. For facilities, clean interior and exterior glass and surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.

C. Clean equipment and fixtures to sanitary condition.

D. Clean or replace filters of operating equipment.

E. Clean debris from roofs, gutters, down spouts, and drainage systems.

F. Clean site; sweep paved areas, and rake clean landscaped surfaces.

G. Remove waste and surplus materials, rubbish, and temporary construction facilities from site following final test of utilities and completion of the Work.

1.05 ADJUSTING

A. Adjust operating equipment to ensure smooth and unhindered operation. Value of this testing and adjusting is five percent of Lump Sum Price in the Schedule of Values for item being tested.

1.06 OPERATION AND MAINTENANCE DATA

A. Submit O&M data as noted in Section 01330 - Submittal Procedures.

B. Five percent of lump sum amount of each piece of equipment as indicated in Schedule of Unit Price Work or Schedule of Values will be paid after the required O&M data submittals are received and approved by Project Manager.

1.07 WARRANTIES

A. Provide one original of each warranty from Subcontractors, Suppliers, and manufacturers.

B. Provide Table of Contents and assemble warranties in a 3-ring/D binder with durable plastic cover.

C. Submit warranties prior to final progress payment.

D. Warranties shall commence in accordance with the requirements in Document 00700 - General Conditions.

1.08 SPARE PARTS AND MAINTENANCE MATERIALS

A. Provide Products, spare parts, maintenance and extra materials in quantities specified in individual Specification sections.

B. Deliver to a location within the City limits as directed by Project Manager. Applicable items must be delivered prior to issuance of a final Certificate for Payment.

PART 2 P R O D U C T S - Not Used

PART 3 E X E C U T I O N - Not Used

END OF SECTION

Section 01782

OPERATIONS AND MAINTENANCE DATA

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Submittal requirements for equipment and facility Operations and Maintenance (O&M) Manuals

1.02 MEASUREMENT AND PAYMENT

A. Measurement for equipment O&M Manuals is on a lump sum basis equal to five percent of the individual equipment value contained in Schedule of Unit Prices or Schedule of Values. The lump sum amount may be included in the first Progress Payment following approval of the O&M Manuals by Project Manager.

1.03 SUBMITTALS

A. Conform to requirements of Section 01330 - Submittal Procedures. Submit a list of O&M Manuals and parts manuals for equipment to be incorporated into the Work.

B. Submit documents with 8-1/2 x 11-inch text pages, bound in 3-ring/D binders with durable plastic covers.

C. Print "OPERATION AND MAINTENANCE INSTRUCTIONS", Project name, and subject matter of binder on covers when multiple binders are required.

D. Subdivide contents with permanent page dividers, logically organized according to the Table of Contents, with tab titling clearly printed under reinforced laminated plastic tabs.

E. O&M Manual contents: Prepare a Table of Contents for each volume, with each Product or system description identified.

1. Part 1 - Directory: Listing of names, addresses, and telephone numbers of Design Consultant, Contractor, Subcontractors, and major equipment Suppliers.

2. Part 2 - O&M instructions arranged by system. For each category, identify names, addresses, and telephone numbers of Subcontractors and Suppliers and include the following:
   a. Significant design criteria.
   b. List of equipment.
   c. Parts list for each component.
   d. Operating instructions.
   e. Maintenance instructions for equipment and systems.
   f. Maintenance instructions for special finishes, including recommended cleaning methods and materials and special precautions identifying detrimental agents.

3. Part 3 - Project documents and certificates including:
   a. Shop Drawings and relevant data.
   b. Air and water balance reports.
   c. Certificates.
   d. Photocopies of warranties.

F. Submit two copies of O&M Manuals and parts manuals, for review, within one month prior to placing the equipment or facility in service.

G. Submit one copy of completed volumes in final form 10 days prior to final inspection. One copy with Project Manager comments will be returned after final inspection. Revise content of documents based on Project Manager's comments prior to final submittal.

H. Revise and resubmit three final volumes within 10 days after final inspection.

1.04 EQUIPMENT O&M DATA

A. Furnish O&M Manuals, prepared by manufacturers for all equipment. Manuals must contain, as a minimum, the following:

1. Equipment functions, normal operating characteristics, and limiting conditions.

2. Assembly, Installation, alignment, adjustment, and checking instructions.

3. Operating instructions for start-up, normal operation, regulation and control, normal shutdown, and emergency shutdown.

4. Detailed drawings showing the location of each maintainable part and lubrication point with detailed instructions on disassembly and reassembly of the equipment.

5. Troubleshooting guide.

6. Spare parts list, predicted life of parts subject to wear, lists of spare parts recommended to be on hand for both initial start-up and for normal operating inventory, and local or nearest source of spare parts availability.

7. Outline, cross-section, and assembly drawings with engineering data and wiring diagrams.

8. Test data and performance curves.

B. Furnish parts manuals for all equipment, prepared by the equipment manufacturer, which contain, as a minimum, the following:

1. Detailed drawings giving the location of each maintainable part.

2. Spare parts list with predicted life of parts subject to wear, lists of spare parts recommended on hand for both initial start-up and for normal operating inventory, and local or nearest source of spare parts availability.

PART 2 P R O D U C T S - Not Used

PART 3 E X E C U T I O N - Not Used

END OF SECTION

Section 01785

PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Maintenance and submittal of record documents and Samples.

1.02 MAINTENANCE OF DOCUMENTS AND SAMPLES

A. Maintain one record copy of documents at the site in accordance with Document 00700 - General Conditions.

B. Store record documents and Samples in field office, if a field office is required by the Contract, or in a secure location. Provide files, racks, and secure storage for record documents and Samples.

C. Label each document "PROJECT RECORD" in neat, large, printed letters.

D. Maintain record documents in a clean, dry, and legible condition. Do not use record documents for construction purposes. Do not use permit drawings to record Modifications to the Work.

E. Keep record documents and Samples available for inspection by Project Manager.

F. Bring record documents to progress review meetings for viewing by Project Manager and, if applicable, Design Consultant.

1.03 RECORDING

A. Record information legibly with red ink pen on a set of blueline opaque drawings, concurrently with construction progress. Maintain an instrument on site at all times for measuring elevations accurately. Do not conceal work until required information is recorded

B. Contract Drawings and Shop Drawings: Mark each item to record completed Modifications, or when minor deviations exist, the actual construction including:

1. Measured depths of elements of foundation in relation to finish first floor datum.
2. Measured horizontal locations and elevations of Underground Facilities and appurtenances, referenced to permanent surface improvements.

3. Elevations of Underground Facilities referenced to City of Houston benchmark utilized for the Work.

4. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.

5. Dimensions and details of field changes

6. Changes made by Modifications.

7. Details not on original Drawings.

8. References to related Shop Drawings and Modifications.

C. Survey all joints of water mains at the time of construction. Record on Drawings, water main invert elevation, elevation top of manway, and centerline horizontal location relative to baseline.

D. For large diameter water mains, mark specifications and addenda to record:

1. Manufacturer, trade name, catalog number and Supplier of each Product actually Installed.

2. Changes made by Modification or field order.

3. Other matters not originally specified.

E. Annotate Shop Drawings to record changes made after review.

1.04 SUBMITTALS

A. At closeout of the Contract, deliver Project record documents to Project Manager.

PART 2 P R O D U C T S - Not Used

PART 3 E X E C U T I O N - Not Used

END OF SECTION

Section 2752S

The following supplement modifies Section 02752 Standard Specification. Where a portion of the Specification is modified or deleted by this Supplementary Specification, the unaltered portions of the Specification shall remain in effect.

1 01 SECTION INCLUDES.

Add Part C as follows.
C. Full depth saw cutting of concrete pavement as required by other agency.

1.02 MEASUREMENT AND PAYMENT

Add item 6.
6. Full depth Saw cutting for concrete pavement will be paid on linear foot base, if required by other agency for joining with existing roadway.

Renumber item 6 as 7

END OF SUPPLEMENT

Approved:

John H Kuo, P.E.
Assistant Director
Engineering and Construction Division

12/29/09
Date

Section 02752

CONCRETE PAVEMENT JOINTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Joints for concrete paving; concrete sidewalks, concrete driveways, curbs, and curb and gutters.

B. Saw-cutting existing concrete or asphalt pavements for new joints.

1.02 MEASUREMENT AND PAYMENT

A. Unit Prices.

1. Payment for street pavement expansion joints, with or without load transfer, is on linear foot basis.

2. Payment for horizontal dowels is on a unit price basis for each horizontal dowel.

3. No separate payment will be made for formed or sawed street pavement contraction joints and longitudinal weakened plane joints. Include payment in unit price for Concrete Paving.

4. No separate payment will be made for joints for Curb, Curb and Gutter, Saw-tooth Curb, Concrete Sidewalks, and Concrete Driveways. Include payment in unit price for Curb and Gutter, Concrete Sidewalks, and Concrete Driveways.

5. Payment will be made for Preformed Expansion Joints on a linear foot basis only when field conditions require that sidewalk be moved adjacent to existing concrete structure (i.e., street, back of curb, etc.).

6. Refer to Section 01270 - Measurement and Payment for unit price procedures.

B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

1.03 REFERENCES

A. ASTM A 615 - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.

B. ASTM D 994 - Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type).

C. ASTM D 1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).

D. ASTM D 3405 - Standard Specification for Joint Sealants, Hot-Applied, for Concrete and Asphalt Pavements.

E. TxDOT Tex-525-C - Tests for Asphalt and Concrete Joint Sealers

1.04 SUBMITTALS

A. Conform to requirements of Section 01330 - Submittal Procedures.

B. Submit product data for joint sealing compound and proposed sealing equipment for approval.

C. Submit samples of dowel cup, metal supports, and deformed metal strip for approval. Submit manufacturer's recommendation for placing sealant(s).

PART 2 PRODUCTS

2.01 BOARD EXPANSION JOINT MATERIAL

A. Filler board of selected stock. Use wood of density and type as follows:

1. Clear, all-heart cypress weighing no more than 40 pounds per cubic foot, after being oven dried to constant weight.

2. Clear, all-heart redwood weighing no more than 30 pounds per cubic foot, after being oven dried to constant weight.

2.02 PREFORMED EXPANSION JOINT MATERIAL

A. Bituminous fiber and bituminous mastic composition material conforming to ASTM D 994 and ASTM D 1751.

2.03 JOINT SEALING COMPOUND

A. Conform joint sealants to one of sealant classes described in this section.

B. Conform hot-poured rubber-asphalt compound to ASTM D 3405.

C. Two-component Synthetic Polymer.

1. Curing is to be by polymerization and not by evaporation of solvent or fluxing of harder particles.

2. Cure sufficiently at average temperature of 25 ∀ 1 C (77 ∀ 2 F) so as not to pick up under wheels of traffic in maximum three hours.

3. Performance requirements, when tested in accordance with TxDOT Tex-525-C, shall meet above curing times and requirements as follows:

Cold-Extruded and Cold-Pourable (Self-Leveling) Specifications	
Property	**Requirement**
Penetration, 25 C (77 F) 150 g Cone, 5 s, 0.1 mm (in.), maximum	130
Bond and Extension 50%, -29 C (-20 F), 3 cycles: X Dry Concrete Block X Steel blocks (Primed, if recommended by manufacturer) *Steel blocks shall be used when armor joints are specified	 Pass Pass
Flow at 70 C (158 F)	None
Water content % by mass, maximum	5.0
Resilience: X Original sample, % min. (cured) X Oven-aged at 70 C (158 F), % min.	 50 50
Cold-extruded material only - Cold Flow (10 minutes)	None

After bond and extension test, there shall be no evidence of cracking, separation or other opening that is over 3 millimeters (1/8 inch) deep in sealer or between sealer and test blocks.

4. Provide cold-extruded type for vertical or sloping joints.

5. Provide self-leveling type for horizontal joints.

D. Self-Leveling, Low Modulus Silicone or Polyurethane Sealant for Asphaltic Concrete and Portland Cement Concrete Joints. This shall be a single component self-leveling silicone or polyurethane material that is compatible with both asphalt and concrete pavements. The sealer shall not require a primer for bond; a backer rod shall be required which is compatible with the sealant; no reaction shall occur between rod and sealant.

When tested in accordance with TxDOT Tex-525-C, self-leveling sealant shall meet following requirements:

Self-Leveling, Low Modulus Silicone or Polyurethane Sealant	
Property	**Requirements**
Tack Free Time, 25 ∀ 1 C (77 ∀ 2 F), minutes	120 maximum
Nonvolatile content, % by mass	93 minimum
Tensile Strength and 24 Hour Extension Test: X Initial, 10-day cure, 25 ∀ 1 C (77 ∀ 2 F), kPa (psi) X After Water Immersion, kPa (psi) X After Heat Aging, kPa (psi) X After Cycling, -29 C (-20 F), 50%, 3 cycles, kPa (psi) X 24 Hour Extension	 X 21 to 69 (3 to 10) X 21 to 69 (3 to 10) X 21 to 69 (3 to 10) X 21 to 69 (3 to 10) X Pass (All Specimens) After 24 hours, there shall be no evidence of cracking, separation or other opening that is over 3 mm (1/8 in.) deep at any point in the sealer or between the sealer and test blocks.

2.04 LOAD TRANSMISSION DEVICES

A. Smooth, steel dowel bars conforming to ASTM A 615, Grade 60. When indicated on Drawings, encase one end of dowel bar in approved cap having inside diameter 1/16 inch greater than diameter of dowel bar.

B. Deformed steel tie bars conforming to ASTM A 615, Grade 60.

2.05 SUPPORTS FOR REINFORCING STEEL AND JOINT ASSEMBLY

A. Employ supports of approved shape and size that will secure reinforcing steel and joint assembly in correct position during placing and finishing of concrete. Space supports as directed by Project Manager.

PART 3 EXECUTION

3.01 PLACEMENT

A. When new Work is adjacent to existing concrete, place joints at same location as existing joints in adjacent pavement.

B. If limit of removal of existing concrete or asphalt pavement does not fall on existing joint, saw cut existing pavement minimum of 2 inches deep to provide straight, smooth joint surface without chipping, spalling or cracks.

3.02 CONSTRUCTION JOINTS

A. Place transverse construction joint wherever concrete placement must be stopped for more than 30 minutes. Place longitudinal construction joints at interior edges of pavement lanes using No. 6 deformed tie bars, 30 inches long and spaced 18 inches on centers.

3.03 EXPANSION JOINTS

A. Place 3/4 inch expansion joints at radius points of curb returns for cross street intersections, or as located in adjacent pavement but no further than 80 feet apart. Use no boards shorter than 6 feet. When pavement is 24 feet or narrower, use not more than 2 lengths of board. Secure pieces to form straight joint. Shape board filler accurately to cross section of concrete slab. Use load transmission devices of type and size shown on Drawings unless otherwise specified or shown as "No Load Transfer Device." Seal with joint sealing compound.

3.04 CONTRACTION JOINTS

A. Place contraction joints at same locations as in adjacent pavement or at spaces indicated on Drawings. Place smoothed, painted and oiled dowels accurately and normal to joint. Seal groove with joint sealing compound.

3.05 LONGITUDINAL WEAKENED PLANE JOINTS

A. Place longitudinal weakened plane joints at spaces indicated on Drawings. If more than 15 feet in width is poured, longitudinal joint must be saw cut. Seal groove with joint sealing compound.

3.06 SAWED JOINTS

A. Use sawed joints as alternate to contraction and weakened plane joints. Use circular cutter capable of cutting straight line groove minimum of 1/4 inch wide. Maintain depth of one quarter of pavement thickness. Commence sawing as soon as concrete has hardened sufficiently to permit cutting without chipping, spalling or tearing and prior to initiation of cracks. Once sawing has commenced, continue until completed. Make saw cut with one pass. Complete sawing within 24 hours of concrete placement. Saw joints at required spacing consecutively in sequence of concrete placement.

B. Concrete Saw: Provide sawing equipment adequate in power to complete sawing to required dimensions and within required time. Maintain ample supply of saw blades at work site during sawing operations. Maintain sawing equipment on job during concrete placement.

3.07 JOINTS FOR CURB, CURB AND GUTTER

A. Place 3/4 inch preformed expansion joints through curb and gutters at locations of expansion and contraction joints in pavement, at end of radius returns at street intersections and driveways, and at curb inlets. Maximum spacing shall be 120-foot centers.

3.08 JOINTS FOR CONCRETE SIDEWALKS

A. Provide 3/4 inch expansion joints conforming to ASTM A 1751 along and across sidewalk at back of curbs, at intersections with driveways, steps, and walls; and across walk at intervals not to exceed 36 feet. Provide expansion joint material conforming to ASTM D 994 for small radius curves and around fire hydrants and utility poles. Extend expansion joint material full depth of slab.

3.9 JOINTS FOR CONCRETE DRIVEWAYS

A. Provide 3/4-inch expansion joints conforming to ASTM D 1751 across driveway in line with street face of sidewalks, at existing concrete driveways, and along intersections with sidewalks and other structures. Extend expansion joint material full depth of slab.

3.10 JOINT SEALING

A. Seal joints only when surface and joints are dry, ambient temperature is above 50 degrees F and less than 85 degrees F and weather is not foggy or rainy.

B. Use joint sealing equipment in like new working condition throughout joint sealing operation, and be approved by Project Manager. Use concrete grooving machine or power-operated wire brush and other equipment such as plow, brooms, brushes, blowers or hydro or abrasive cleaning as required to produce satisfactory joints.

C. Clean joints of loose scale, dirt, dust and curing compound. The term joint includes wide joint spaces, expansion joints, dummy groove joints or cracks, either preformed or natural. Remove loose material from concrete surfaces adjacent to joints.

D. Fill joints neatly with joint sealer to depth shown. Pour sufficient joint sealer into joints so that, upon completion, surface of sealer within joint will be 1/4 inch above level of adjacent surface or at elevation as directed.

3.11 PROTECTION

A. Maintain joints in good condition until completion of Work.

B. Replace damaged joints material with new material as required by this Section.

END OF SECTION

Section 02811 S

LANDSCAPE IRRIGATION SUPPLEMENT

The following supplement modifies Section 02811 Standard Specification. Where a portion of the Specification is modified or deleted by this Supplementary Specification, the unaltered portions of the Specification shall remain in effect.

2.02 *PLANTING IRRIGATION: Add the following after C*

2.02 OUTLETS

D. Drip System

1. See plans legend for manufacturer and model.

2. 1 inch Control Zone Kit: See plans legend for manufacturer and model.

2.4 A1 *PLANTING IRRIGATION: Delete 2.04 A1 in its entirety and insert the following Section 2.04A1*

2.04 CONTROLLER

A. Manufacturer's or approved equal:

1. WeatherTRAK ET Pro3 Controller from Hydropoint.

2. See plan legend for manufacturer and model.

2.5 *PLANTING IRRIGATION: Insert the following sections after 2.04*

2.05 Gate Valves

A. Up to three inch (3"):125 lb. bronze construction, non-rising, as manufactured by "Grinnel", Red and White, or approved equal

2.06 Sleeves For Control Wire And Water Line

A. All conduits and sleeves for irrigation mains and laterals shall be six inch (6") Schedule 40 PVC common conduit, unless indicated otherwise in the contract drawings. Use two inch (2") Schedule 40 PVC for remote control wiring. For controller power feed, use 3/4" galvanized steel, unless otherwise specified on the drawings or existing in the field.

2.07 Control Wire

A. Wire

1. Solid copper wire, U.L. approved for direct burial in ground.

2. Minimum gauge: #14 U.F.

3. Common ground wire shall be white.

B. Extra Wire

1. Supply a minimum of one (1) extra wire for each direction of run to last valve.

2. Extra wire shall be of a fugitive color, loop at each valve.

C. Splicing Material

1. All wiring splicing material shall be 3M DBY/DBR and DBY- 6/DBR/6 Direct Bury Splice Kits.

2. All wire splice shall be placed in a 10" circular box.

2.08 Valve Boxes

A. Valve boxes shall be injection-molded of polyesters and fibrous inorganic, temperature-resistant components. Box shall provide adequate clearance to operate and service valve. Box and lid to be black, as manufactured by Carson Industries, Inc., LaVerne, California or approved equal.

1. Electric Valve Boxes shall be rectangular, approximately ten inches by fourteen inches (10" x 14"), and shall be approximately fifteen inches (15") deep. Model #1419-12 with 1419-2 hinged cover. Extensions for rectangular boxes shall be Carson #1419E-12 or Ametek or approved equal.

2. Gate Valve shall be round, approximately nine inches (9") inside diameter by ten inches (10") deep. Model #910-12. Extensions for round boxes shall be Carson #910E-12 or Ametek or approved equal.

2.9 Control Wire Splice Boxes

A. Shall be ten inches (10") in diameter by ten inches (10") deep. Rainbird 10" round series VB-10RND or equal.

2.10 Remote Control Tags

A. "Christy Irrigation I.D. Tags", yellow, with thermofused numbers with letter prefixes to match controller letters.

2.11 Valve Keys

A. "Champion" #30, thirty inches (30") long, or approved equal. Furnish two (2) keys.

2.12 Concrete For Thrust Blocks

A. Portland Cement

1. Shall conform to current requirements of ASTM Designation C150, Type I or II cement.

B. Coarse Aggregate

1. Coarse aggregate for regular-weight concrete shall be hard, durable, uncoated, washed, graded, cleaned and screened crushed rock or gravel, conforming to current requirements of ASTM Designation C33.

C. Concrete shall be designated to surpass compressive strength of 3,000 psi.

2.13 Gravel Backfill

A. Gravel for backfilling quick-couplers, remote control valve boxes and rotor heads shall be three-eighths inch (3/8") diameter "pea gravel".

3.1 Warranty

A. In addition to manufacturer's guarantees or warranties, all work shall be warranted for **two (2) years** from the date of Substantial Completion against defects in material, equipment and workmanship by the contractor. Warranty shall also cover repair of damage to any part of the premises resulting from leaks or other defects in materials, equipment, and workmanship, to the satisfaction of the owner. This shall not be interpreted to include damage caused by vandalism, accident or the result of activities by other parties.

B. The irrigation Contractor shall submit a letter of warranty, through the prime contractor, containing the following paragraph:

"We hereby guarantee that the sprinkler irrigation system that we have furnished and installed is free from defects in materials and workmanship. The work has been completed in accordance with the drawings and specifications, ordinary wear and tear and/or unusual abuse or neglect, excepted. We agree to repair or replace any defects in material or workmanship which may develop during the period of one year from the date of acceptance, and also to repair or replace any damage resulting from the repairing or replacing of such defects at no additional cost to the owner. We shall make such repairs or replacements within a reasonable time, as determined by the owner, after receipt of replacements within a reasonable time, after receipt of written notice by Certified Mail from the owner, we authorize the owner to proceed to have said repairs or replacements made at our expense and we will pay the costs and charges therefore upon demand."

END OF SUPPLEMENT

Approved:

John H. Kuo, PE.
Assistant Director
Engineering and Construction Division

Date 4/30/15

Section 02915 S

TREE PLANTING SUPPLEMENT

The following supplement modifies Section 02915 Standard Specification. Where a portion of the Specification is modified or deleted by this Supplementary Specification, the unaltered portions of the Specification shall remain in effect.

1.02 MEASUREMENT AND PAYMENT Add the following after 1.02 A.3.

4. Payment for shrubs and groundcovers is on a square foot basis. Shrub and groundcover planting shall include all soil, mulch, steel edging, excavation and incidentals to ensure planting meets specifications and details.

1.04 SUBMITTALS: Add the following after B

B1. Furnish required copies of manufacturers literature, samples, certifications, or laboratory analytical data for the following items:

1. Tree, shrubs and groundcovers (Samples and / or nursery photographs)
2. Planting backfill mix (3 lbs)
3. Mulch (manufacturer's literature and samples)
4. Tree and shrub planting fertilizer (certification or laboratory analytical data)
5. Tree paint (manufacturer's, literature)
6. Subdrainage materials (pipes, gravel, soil separator)
7. Geotextile Fabric

2.00 PRODUCTS AND MATERIALS: Add the following after 2.07

2.08 GUYING MATERIALS

A. The Contractor shall use guying materials necessary to meet the requirements herein.

1. Pressure-treated 3" diameter lodge poles, "Wolman" treated, as provided by Bourbow Valley Company.

2. Ties: Black rubber tire or other tie, as approved.

3. Tree Guying Material: Galvanized aircraft cable (7 x 19 GAC).

4. 12D Galvanized nails.

5. Hardware

a. Guying cable: 7 x 19 aircord, size as specified.

b. Turnbuckles: galvanized or dip-painted, size as specified.

c. 2 Hole Crimping Clamps: Galvanized or copper, size as required.

d. Plastic guy covers: 3/8 "diameter x 3 'long white plastic tubing.

e. Duckbill Anchors

2.09 FERTILIZER *(TREES AND SHRUBS)*

A. Post planting fertilization (shrubs and groundcover)

1. "Osmocote" Sierrablend. Apply at manufacturer's recommendation rate.
2.

2.10 STEEL EDGING

A. Shall be equal to that manufactured by the Ryerson Steel Company.

2.11 GEOTEXTILE FABRIC

A. Typar #3401 terminally spun bonded polypropylene, non woven, weed control fabric, 4.0 oz / lineal yard weight (American Excelsior or equal). Needle punched material is not acceptable.

2.12 Pre-Emergence Weed Control

A. All landscape and grass areas shall be treated with organic pre-emergent herbicide whenever possible. Application rate and timing shall be based on manufacturer's recommendation.

B. If applying organic pre-emergent herbicide is not feasible, commercial chemical herbicide may be used with prior approval from landscape architect or owner's representative. Application rate and timing shall be based on manufacturer's recommendation. Treatment should be only applied by state licensed commercial applicator.

C. If necessary, contact herbicide may be use such as Roundup or approved equal. Do not exceed manufacturer's recommended rate of application. Treatment should be only applied by state licensed commercial applicator.

3.03 COLLECTING, TRANSPORTING AND PLANTING: Add the following after Q

R. Do not excavate tree pits more than 24 hours in advance of planting operation. Excavate container grown tree pits to the following dimensions:

Excavation for	Width	Depth
Boxed Trees	Box + 24 in.	Ball + 6 in.
Container grown Trees	Cont. + 18 in.	Ball + 6 in.
B&B Trees	Ball + 12 in.	Ball + 6 in.
Container grown Shrubs	Cont. + 12 in.	Ball + 4 in

1. Excavation for trees pits in areas of select fill (crushed and compacted limestone or similar) shall be twice as wide and twice as deep as given root ball. Fill bottom four inches of tree pit with gravel and cover with soil separator before backfilling pit.

S. Excavate shrub and ground cover beds to the following depths:

Excavation for	Width	Depth
Shrubs &	Entire Bed	Cont. + 4 in., not to be less than
Groundcover	Entire Bed	Cont. +4 in., not less than 8 in

3.04 SURFACE DRAINAGE OF PLANTING AREAS

A. Contractor shall bear final responsibility for proper surface drainage of planted areas. Any discrepancy in the drawings or specifications, obstructions on the site, or prior work done by another party, which Contractor feels precludes establishing proper drainage, shall be brought to the attention of the Landscape Architect in writing.

3.05 POST PLANTING FERTILIZATION

A. Tree Planting

1. Apply fertilizer 30 - 45 days after installation.

2. Inject material specified in Section 2 with a high pressure injector into soil at depth and diameter shown below.

Tree Caliper	Application Points	Radius	Depth	Application Rate Per Tree
Under 2"	3	4" - 6"	16" - 18"	1-1/2
2" - 4"	3	4" - 6"	18" - 24"	2
4" - 5"	4	4" - 6"	2' - 3'	2-1/2
5" - 6"	5	4" - 6"	3' - 4'	3
Above 6"	3' 0. C.	4" - 6"		5 gal./100 SF Root Area (Drip Line)

3.06 STAKING

A. The Contractor, will be responsible for material remaining plumb and straight for all given conditions through the guarantee period. Tree support shall be done as outlined on the following tables and as illustrated on the details.

B. Trees should be staked during the same day as planting. Plants shall stand plumb after staking.

C. Stake all trees under 3 inches caliper in accordance with the following table:

Tree Caliper	Stakes	Length	Stake Size
To 1-3/4 in.	2	8'	Lodge/pole (2" dia)
2 in. to 3 in.	2	8'	Lodge/pole (2" dia)

3.07 GUYING

A. Guying shall be completed immediately after planting in accordance with the following table. Where manufactured product is specified, install per manufacturer's instructions. Plants shall stand plumb after guying.

B. Guy trees at points of branching with guys spaced equally around and outside perimeter of ball. Wrap rubber tire straps at points of contact with bark positioned at crotches and fasten to a deadman with specified cable with double crimp clamp. One turnbuckle shall be provided for each guy.

Tree Caliper at 12" Above Grade	No. Guys	Cable Size	Deadmen
3-1/4" to 4-1/2"	3	1/8" Diam. 7 x 7 Galvanized Steel Cable	Duck Bill Earth Anchor Model 68 DTS Kit
4-3/4" to 6"	3	1/8" Diam. 7 x 7 Galvanized Steel Cable	Duck Bill System Model 68 DTS Kit
6-1/4" to 8"	3	3/16" Diam.	Duck Bill System Model 88 DTS Kit

3.08 INSTALLATION OF BED PLANTED MATERIALS

A. Install landscape edging where shown. Anchor with metal stakes spaced not more than three (3') feet O.C. or as per often as necessary to have smooth radius or straight tangent. Drive stake to one (1") inch below top of edging.

B. Fill all shrub and groundcover beds with plant bed mix to finished grade (compacted) plus two (2") inches minimum.

C. Excavate in planting mix for individual plant and install as required. Set plant plumb and brace rigidly in position until planting soil mix has been tamped solidly around the ball and roots.

D. When plant pits have been backfilled approximately two-thirds (2/3) full, fertilizer per manufacturer" recommendations at the maximum rate.

E. Water plant thoroughly, saturating root ball, before installing remainder of the planting soil to top of pit, eliminating all air pockets. Top of root ball shall be two (2") inches above finished grade.

F. Smooth planting areas to conform to specified grade after full settlement has occurred. Contractor shall bear final responsibility for proper surface drainage of planting areas.

G. Water all plants immediately again after planting.

H. Apply pre-emergent weed control material over entire area to receive mulch.

l. Mulch all shrub and groundcover beds to three (3") thick.

3.04 FIELD QUANLITY CONTROL: Change section # 3.04 to 3.09

3.05 MAINTENANCE PERIOD: Change section # 3.05 to 3.10

3.06 CLEAN UP AND PROTECTION: Change section # 3.06 to 3.11

END OF SUPPLEMENT

Approved:

John H. Kuo, PE.
Assistant Director
Engineering and Construction Division

Date 4/30/15

SECTION 02900
PLANTING MEDIA

1.00 GENERAL

1.01 WORK INCLUDED

A. Provide materials, testing, equipment and labor required to prepare amended plant mediums for:

1. Planting Backfill Mix
2. Tree Planting Pit Backfill Mix
3. Shrub Bed Planting Backfill Mix

1.02 MEASUREMENT AND PAYMENT

A. Unit Prices.

1. No separate payment will be made for planting media. Payment shall be included and is incidental as set of in specification 02950 Planting.
2. Refer to Section 01270 – Measurement and payment for unit price procedures.

B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

1.03 RELATED SECTION

A. Planting: Section 02950

1.04 INSPECTION

A. Testing will be at the expense of the Owner.

1.05 QUALITY ASSURANCE

A. All soil components shall be tested & analysis by local testing laboratory per owner's requests.

1. Contractor to submit proposed laboratory name, address, and telephone numbers.

B. For delivered material, test one grab sample for each 100 c.y. of bulk material delivered to the site.

C. Excavated material from tree pits and shrub beds shall not be used for preparation of backfill mix.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver material to site when permitted by the Owner and only when project is ready for related work.

2.00 MATERIALS

2.01 ON SITE MATERIALS

A. Specified backfill mixes shall consist of like material to that used for landscape grading.

2.02 SOIL AMENDMENTS

A. Wood Residuals

1. Source

B. Shall be naturally composted stockpiled, and not have been chemically treated.

2. Physical Properties

A. Grading:

U.S. Sieve	Dry Weight Percent Passing
3/8	100
1/4"	90-100
No. 8	70-100
No. 35	0-30

3. Organic Content by Ash Analysis: 90-100% Dry Weight

4. Chemistry

A. Saturation Extract Conductivity (EDc): Nil-3.5

B. Reaction (pH): 3.0-5.5

5. Salinity

A. Maximum saturation extract conductivity 1.0 millimhos per cm at 25 degrees centigrade.

B. Sand

1. Physical Properties

A. Grading:

U.S. Sieve	Percent Passing
No. 4	100
No. 10	95-100
No. 18	90-100
No. 35	65-100
No. 60	0-50
No. 140	0-20
No. 270	0-7

2. Chemistry

A. Saturation Extract Conductivity (EDC): Nil-3.0

B. Sodium Absorption Ratio (SAR): Nil-6.0

C. Boron-ppm in saturation extract sltn.: Nil-1.0

D. Reaction (pH): 6.0-7.5

E. Available calcium-sodium acetate

extractable-ppm dry weight: Nil-2000

C. Iron Sulfate (Ferric or Ferrous)

1. Shall contain 30 to 35% iron, 35-40% sulphur and be supplied by a commercial fertilizer supplier.

D. Treble Superphosphate

1. Commercial product containing 19 to 20% available phosphoric acid.

E. Urea Formaldehyde

1. Commercial product containing 38% Nitrogen.

F. Soil Sulphur

1. Agricultural grade sulphur containing a minimum of 96% sulphur.

G. Ammonium Sulfate

1. Commercial product containing approximately 21% ammonia.

2.03 PLANTING MIX

A. Shall be thoroughly mixed in the following proportions:

1. Tree Planting, Shrub Bed, and Planter Backfill mixes

A. Contain sandy loam topsoil

B. Double ground aged rice hull compost

C. #1 bank sand

D. Growers grade pine bark

E. Forest floor mulch (Black Humus)

F. All material are screened to provide 99% 1" minus sizing then blended to provide a uniform mixture. A minimum of 40% composted organic are utilized to add natural nutrients, provide aeration and optimum moisture retention capacities.

B. Actual mixes and additive may vary depending on samples extracted from actual plant sources.

C. Prepared backfill mixes shall come from a reputable source such as the following:

1. Living Earth Technology, Houston, TX (713) 466-7360
2. Nature's Way Resources, Conroe, Texas (936) 321-6990

D. Contractors may select their own sources, as long as the sources are reputable. Contractors must submit samples and manufacturer's planting mix specification for approval prior to ordering materials.

3.00 EXECUTION

3.01 MIXING

A. Mix soil base, amendments and chemical additives by mechanical means. Do not mix additives with excavated material at the plant pit site.

B. Thoroughly mix all amendments with soil by mechanical means.

C. Soil and sand bases shall be completely pulverized and free of lumps or aggregated material. Moisture content of base materials shall not be such that chemical, granular or pelletized additives become dissolved during the mixing process.

D. Mix media in quantities of not less than 50 cubic yards or mix total quantity required, if less than 100 cubic yards. The Contractor shall be responsible for continuity between batches.

E. For soil media mixes, do not incorporate soil from mixing area with mix.

END OF SECTION

SECTION 02950
PLANTING

1.00 GENERAL

1.01 WORK INCLUDED

A. This Section includes specifications for furnishing and installing planting materials including:

1. Organic fertilizer
2. Chemical fertilizer
3. Mulch
4. Planting accessories
5. Inspecting material

1.02 MEASUREMENT AND PAYMENT

A. Unit Prices.

1. Payment for tree planting is on a unit price basis for each tree planted. Tree planting shall include all soil, mulch, guying material, excavation and incidentals to ensure planting meets specifications and details.

2. Payment for shrubs and groundcovers is on a square foot basis. Shrub and groundcover planting shall include all soil, mulch, steel edging, excavation and incidentals to ensure planting meets specifications and details.

3. Refer to Section 01270 – Measurement and payment for unit price procedures.

B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

1.02 RELATED SECTIONS

A. Fine Grading: Section 02210

B. Planting Media: Section 02900

1.03 STANDARDS

A. American National Standards Institute (ANSI)/American Association of Nurserymen (AAN): ANSI Z60.1 1-069 "Nursery Stock".

B. "Grades and Standards", latest edition, Texas Association of Nurserymen Specifications, Austin, Texas 78704.

C. Perform work in accordance with all applicable laws, codes, and regulations required by authorities having jurisdiction over such work and provide for all inspections and permits required by Federal, State, and local authorities in furnishing, transporting, and installing materials.

1.04 MATERIAL INSPECTIONS

A. Plants shall be subject to inspection and approval by Landscape Architect at place of growth and upon delivery for conformity to specifications. Landscape architect may reject plant material that in his opinion does not conform to specifications. Submit a written or verbal request for inspection of plant material to Landscape Architect at least five (5) days prior to preferred date. The Landscape Architect reserves the right to refuse inspection at this time if, in his judgment, a sufficient quantity of plants is not available for inspection. The Contractor shall submit a primary and alternate source for material. Should neither of those sources be acceptable, additional cost incurred by the Owner to find and approve suitable material shall be back-charged from this contract.

B. Substitutions of plant materials will not be permitted unless authorized in writing by Landscape Architect. If proof is submitted that any plant specified is not obtainable, a proposal will be considered for use of the nearest equivalent size or variety with corresponding adjustment of Contract Price. Such proof shall be substantiated and submitted in writing to Landscape Architect at least thirty (30) days prior to start of Work under this Section. These provisions shall not relieve Contractor of the responsibility of obtaining specified materials in advance if special growing conditions, or other arrangements must be made in order to supply specified materials.

C. Inspection: Make written request for inspection after planting operation have been completed. Such inspection is for the purpose of establishing the maintenance period.

D. Submit written request for inspections to the landscape architect 5 working days prior to anticipated inspection date.

1.05 SUBMITTALS

A. Furnish required copies of manufacturers literature, samples, certifications, or laboratory analytical data for the following items:

1. Tree, shrubs and groundcovers (Samples and / or nursery photographs)
2. Planting backfill mix (3 lbs)
3. Mulch (manufacturer's literature and samples)
4. Tree and shrub planting fertilizer (certification or laboratory analytical data)
5. Tree paint (manufacturer's, literature)
6. Subdrainage materials (pipes, gravel, soil separator)
7. Geotextile Fabric

1.06 PLANT MATERIAL DELIVERY, STORAGE AND HANDLING

A. The following considerations for product handling shall be evaluated:

1. During hot weather and when practical, the Contractor may be required to transport plant materials between sunset and sunrise if transported in an open trailer or unrefrigerated van.

2. Dug material should be maintained and watered as required at the nursery to guarantee their vitality and health until shipping.

3. Protect from all damage trunks, stems, branches and root balls during tree tying, wrapping and loading operations.

4. Load containers onto transport vehicle and secure in a manner that protects the structural integrity of the root balls and branches.

5. The Contractor shall be solely responsible for the safe transportation of plants to the site and their condition upon arrival. Trees damaged, dehydrated or abused during transit and storage will be rejected.

6. Plant materials should not be stored on concrete or left exposed to examples of climate without adequate protection.

8. Protect the root balls and water regularly until planting. If trees are left in storage over the weekend or holiday provide a means of periodical watering and inspection of container moisture.

9. B & B material shall be stored and maintained in a manner which affords protection from dehydration and damage of root ball. Balls shall be wrapped and stored in mulch or approved containers.

B. The Landscape Architect may inspect any phase of this operation and may reject plant material improperly handled during any point of this operation.

C. Nothing in this Section shall be interpreted as relieving the Contractor of his responsibility to provide healthy, viable plants, nor shall it have any affect upon the terms of the warranty specified herein.

1.07 INCIDENTAL REPAIRS

A. The Landscape Contractor shall coordinate repairs of damage to irrigation system incidental to the planting operation by either own forces or by Irrigation Subcontractor. Above repairs shall be made immediately so as to not interfere with the automatic cycling of the irrigation system. All repairs shall be permanent and include all flushing required to clean the lines of debris deposited by such damage.

B. Incidental damage to work by other subcontractors during landscape installation shall be made immediately and at no extra cost to the owner.

2.00 MATERIALS

2.01 PLANTS

A. Plants shall be nursery grown in accordance with good horticultural practices under climatic conditions similar to those of project for at least 12 (twelve) months unless specifically otherwise authorized by Landscape Architect in writing. Unless specifically noted otherwise, all plants shall be heavy, symmetrical, tightly knit, so trained or favored in development and appearance as to be superior in form, number of branches, compactness and symmetry.

B. Plants shall be sound, healthy and vigorous, well branched and densely foliated when in leaf. They shall be free of disease, insect pests, eggs, or larvae, and shall have healthy, well developed root systems. They shall be free from physical damage or adverse conditions that would prevent thriving growth.

C. Plants shall be true to species and variety and shall conform to measurements specified except that plants larger than specified may be used if approved by Landscape Architect. Use of such plants shall not increase Contract price. If larger plants are approved, the ball of earth or container size shall be increased as specified under "Applicable Standards" and subject to the approval of the Landscape Architect.

D. Plants shall be measured when branches are in their normal position. Height and spread dimensions specified refer to main body of plant and not branch tip to tip. Caliper measurement shall be taken at a point on the trunk six inches (6") above natural ground four inches (4") in caliper and at a point twelve inches (12") above the natural ground line for trees over four inches (4") in caliper. If a range of size is given, no plant shall be less than the minimum size and not less than 40% of the plants shall be as large as the maximum size specified. The measurements specified are the minimum size acceptable and are the measurements after

pruning, where pruning is required. Plants that meet the measurements specified, but do not possess a normal balance between height and spread shall be rejected.

E. Container stock shall have grown in the containers in which delivered for at least six months, but not over two years. Samples must prove no rootbound conditions exists. No container plants that have cracked or broken balls or earth when taken from container shall be planned. Container stock shall not be pruned before delivery. Field grown plants recently transplanted into containers will not be accepted.

F. Balled and burlapped trees, when accepted, shall have a root ball size of ten (10X) times the caliper.

1. Nursery grown B&B material shall be first pruned and thinned at the place of growth immediately prior to digging as required for packaging and safe moving. Method or pruning shall be as approved in the field by the Landscape Architect. Do not remove self-locking tags during this pruning prior to delivery to site. Final pruning shall take place at the site.

G. Trees which have damaged or crooked leaders, or multiple leaders, unless specified, will be rejected. Trees with abrasions of the bark, sun scalds, disfiguring knots, or fresh cuts of limbs over 3/4 "which have not completely callused, will be rejected.

H. Method of pruning shall be as approved in the field by the Landscape Architect. Do not remove self-locking tags during this pruning prior to delivery to site. Final pruning shall take place at the site.

2.02 PALM

A. Measurements for field grown palms shall be specified in trunk feet, as measured in the field from natural ground level at the palm base to the lowest live frond at the trunk per industry standard.

B. All dead or damaged fronds shall be pruned from palms prior to shipping and remaining live fronds bound upward with nursery baling twine, so as to protect the heart during shipment. Palm hearts shall remain bound during storage, and after planting, until such time that new growth from the heart is evident.

C. All digging, balling, burlapping, binding, and shipping shall be done in a manner consistent with common industry practices.

D. The Contractor shall be responsible for delivering all palms in a healthy, disease-free, pest-free condition, in conformance with all applicable quarantine regulations and shipping procedures identified by the United States Department of Agriculture.

2.03 GUYING MATERIALS

A. The Contractor shall use guying materials necessary to meet the requirements herein.

1. Pressure-treated 3" diameter lodge poles, "Wolman" treated, as provided by Bourbow Valley Company.

2. Ties: Black rubber tire or other tie, as approved.

3. Tree Guying Material: Galvanized aircraft cable (7 x 19 GAC).

4. 12D Galvanized nails.

5. Hardware

a.	Guying cable:	7 x 19 aircord, size as specified.
b.	Turnbuckles:	galvanized or dip-painted, size as specified.
c.	2 Hole Crimping Clamps:	Galvanized or copper, size as required.
d.	Plastic guy covers:	3/8 "diameter x 3 'long white plastic tubing.
e.	Duckbill Anchors	

2.04 WATER

A. Contractor is responsible for plant watering either by hand or by automatic irrigation system until substantial completion.

2.05 PRE-EMERGENCE WEED CONTROL

A. In areas of Woody Ornamental Plants Eptam or Eptam-5-G as manufactured by Greenlight Products Company, San Antonio, Texas 78217. Under no circumstances shall this be done in areas that are to be seeded.

2.06 MULCH

A. Shredded pine straws, oak, or hardwood bark; shall be the product of standard stripping of bark from pine trees for fiber or pulp manufacturing. Bark shall be shredded in a manner where large pieces are at a minimum. The mulch shall be free of debris.

2.07 PIPE FOR WATERING TUBE

A. Shall be perforated Polyvinyl Chloride pipe, Type (SDR 35), gray in color.

2.08 PLANTING MIX

A. See Section 02900 "Planting Media".

2.09 FERTILIZER *(TREES AND SHRUBS)*

A. Post planting fertilization (shrubs and groundcover)

1. "Osmocote" Sierrablend. Apply at manufacturer's recommendation rate.

2.10 STEEL EDGING

A. Shall be equal to that manufactured by the Ryerson Steel Company.

2.11 GEOTEXTILE FABRIC

A. Typar #3401 terminally spun bonded polypropylene, non woven, weed control fabric, 4.0 oz / lineal yard weight (American Excelsior or equal). Needle punched material is not acceptable.

3.00 EXECUTION

3.01 LAYOUT AND EXCAVATION OF PLANTING AREAS

A. Layout plants in locations shown on drawings. Use spray paint to show plant layout. Stake location of each tree and major shrub and outline of shrub and groundcover beds, as well as reforestation areas.

B. The Landscape Architect will check location of plants in the field and shall adjust to exact position before planting begins.

C. If underground obstructions are encountered notify the Landscape Architect as to whether an adjustment or change of location is possible within the design intent. If the Contractor is allowed to adjust or change location, rather than remove the obstruction, he shall make the change at no expense to the Owner. Backfill and tamp abandoned pits have obstructions which cannot be removed. See contract drawings for further information.

3.02 EXCAVATION TO SUBGRADE FOR PLANTING AREA AND VERIFICATION OF FINISHED GRADE

A. Excavate all planting areas (pit and beds) to required depth as hereinafter specified and stockpile enough material to prepare planting mix for all plants. Remove excess material from site.

B. Verify that required grades are within two (2") inches of required subgrade provided under a separate contract, and excavate further as may be required.

C. Subsoil shall not be worked when moisture content is so great that excessive compaction will occur, nor when it is so dry that clods will not break readily. Water shall be applied, if necessary, to bring soil to an optimum moisture content before tilling and planting.

D. Do not excavate tree pits more than 24 hours in advance of planting operation. Excavate container grown tree pits to the following dimensions:

Excavation for	Width	Depth
Boxed Trees	Box + 24 in.	Ball + 6 in.
Container grown Trees	Cont. + 18 in.	Ball + 6 in.
B&B Trees	Ball + 12 in.	Ball + 6 in.
Container grown Shrubs	Cont. + 12 in.	Ball + 4 in

1. Excavation for trees pits in areas of select fill (crushed and compacted limestone or similar) shall be twice as wide and twice as deep as given root ball. Fill bottom four inches of tree pit with gravel and cover with soil separator before backfilling pit.

E. Excavate shrub and ground cover beds to the following depths:

Excavation for	Width	Depth
Shrubs &	Entire Bed	Cont. + 4 in., not to be less than
Groundcover	Entire Bed	Cont. +4 in., not less than 8 in

F. Rip or cultivates subgrade in pits and beds to a depth of three (3") inches minimum.

3.03 DRAINAGE, DETRIMENTAL SOILS AND OBSTRUCTIONS

A. Test drainage of plant beds and pits by filling with water twice in succession. Conditions permitting the retention of water in planting beds for more than twenty-four (24) hours or percolation of less than one (1") inch per hour shall be brought to the attention of the Landscape Architect.

B. Notify the Landscape Architect of all soil or drainage conditions Contractor considers detrimental to growth of plant material. (State condition and submit proposal and cost estimate for correcting condition.)

C. If rock, hardpan, underground construction work, tree roots or other obstructions are encountered in the excavation of plant pits and beds, alternate locations may

be selected by Landscape Architect. Where locations cannot be changed, submit cost required to remove the obstructions to a depth of not less than six (6") inches below the required pit or bed depth. Proceed with work after approval.

3.04 PREPARING PLANT MATERIALS FOR PLANTING

A. Container grown stock shall be removed carefully and handled only by the root ball. Do not lift or handle container plants by tops, stems, or trunks at any time.

B. Do not bind or handle any plant with wire or rope at any time so as to damage bark or break branches. Lift and handle plants only from bottom of ball.

C. Balled and burlapped (B&B) plants shall have firm balls of earth. Plants moved with a ball will not be accepted if the ball is cracked or broken before or during planting operations. B&B material shall be dug only when dormant. Pre-dug stored B&B material shall be inspected and approved at the storage site.

3.05 INSTALLATION OF PIT PLANTED MATERIALS

A. Do not commence any planting until the irrigation system is completely automated or can be operated manually.

B. Fill plant pits with soil mix to compact depth to receive plant root ball, so top of root ball is two (2") inches above finished grade.

C. Install PVC watering tubes in tree pits, vertically, at edge of pit as shown.

D. Scarify the walls and bottom of all plant pits immediately prior to the placement of plant and backfill mix. The Contractor shall remove all glazing caused by an auger o mechanical hole digger.

E. For boxed & container grown material, break vertical bands and remove top and bottom of container. Carefully lower plant into pit with backhoe or approved method and adjust elevation. Cut horizontal banks and remove sides. Prune away girdled roots and tease root hair masses. Carefully fill pit and compact by watering in to support root ball.

F. Place B&B plants carefully in the prepared planting pit. Do not disturb root ball or untie twine or roping until backfill settlement is complete and tree is staked, if applicable. Fill planting pit by flooding each eight (8") inches of backfill for balls greater than 24" diameter. Wrap trunks with double layer of tree wrap.

G. Smooth planted areas to conform to specified grades after full settlement has occurred. Contractor shall bear final responsibility for proper surface drainage of planted areas. Any discrepancy in the drawings or specifications, obstructions on the site, or prior work done by another party, which Contractor feels precludes

establishing proper drainage, shall be brought to the attention of the Landscape Architect in writing.

H. Mulch circles shall not exceed width of root mass by more than 4". Mulch circles shall meet lawn or bed grades evenly and smoothly.

I. Water all plants immediately again after planting.

J. Apply pre-emergent weed control material in areas to receive mulch.

K. Spread mulch in required areas to the compacted depth of two (2") inches.

L. Palm tree

1. Palm trees shall be planted vertical and plumb to finished surface and secured with 3 steel cables with turnbuckle.

2. Each cables to be secured with duckbill anchor and be driven into undisturbed soil at 3' minimum depth.

3. All steel cables are required to wrap in white plastic tubing 4' feet from ground surface to provide visual warning as to minimize tripping.

4. Refer to palm planting detail in the construction document for more information.

3.06 INSTALLATION OF BED PLANTED MATERIALS

A. Install landscape edging where shown. Anchor with metal stakes spaced not more than three (3') feet O.C. or as per often as necessary to have smooth radius or straight tangent. Drive stake to one (1") inch below top of edging.

B. Fill all shrub and groundcover beds with plant bed mix to finished grade (compacted) plus two (2") inches minimum.

C. Excavate in planting mix for individual plant and install as required. Set plant plumb and brace rigidly in position until planting soil mix has been tamped solidly around the ball and roots.

D. When plant pits have been backfilled approximately two-thirds (2/3) full, fertilizer per manufacturer'' recommendations at the maximum rate.

D. Water plant thoroughly, saturating root ball, before installing remainder of the planting soil to top of pit, eliminating all air pockets. Top of root ball shall be two (2") inches above finished grade.

E. Smooth planting areas to conform to specified grade after full settlement has occurred. Contractor shall bear final responsibility for proper surface drainage of planting areas.

F. Water all plants immediately again after planting.

G. Apply pre-emergent weed control material over entire area to receive mulch.

H. Mulch all shrub and groundcover beds to three (3") thick.

3.07 SURFACE DRAINAGE OF PLANTING AREAS

A. Contractor shall bear final responsibility for proper surface drainage of planted areas. Any discrepancy in the drawings or specifications, obstructions on the site, or prior work done by another party, which Contractor feels precludes establishing proper drainage, shall be brought to the attention of the Landscape Architect in writing.

3.08 POST PLANTING FERTILIZATION

A. Tree Planting

1. Apply fertilizer 30 - 45 days after installation.

2. Inject material specified in Section 2 with a high pressure injector into soil at depth and diameter shown below.

Tree Caliper	Application Points	Radius	Depth	Application Rate Per Tree
Under 2"	3	4" - 6"	16" - 18"	1-1/2
2" - 4"	3	4" - 6"	18" - 24"	2
4" - 5"	4	4" - 6"	2' - 3'	2-1/2
5" - 6"	5	4" - 6"	3' - 4'	3
Above 6"	3' 0. C.	4" - 6"		5 gal./100 SF Root Area (Drip Line)

3.09 PRUNING

A. Prune containerized plants only at time of planting and according to standard horticultural practice to preserve the natural character of the plant. Prune by removing entangled branching and by removing crotches. Avoid removing

branch tips wherever possible. Pruning shall be done under supervision of the Landscape Architect.

B. Remove all dead wood, suckers, and broken or badly bruised branches. Use only clean, sharp tools.

C. Prune lower branching from trees to a height of 18" above ground per 1 1/4" caliper.

D. Prune B&B material in addition to place of growth as may be directed by Landscape Architect by removing a percentage of interior branching proportional to the root loss during digging (up to 1/3).

3.10 STAKING

A. The Contractor, will be responsible for material remaining plumb and straight for all given conditions through the guarantee period. Tree support shall be done as outlined on the following tables and as illustrated on the details.

B. Trees should be staked during the same day as planting. Plants shall stand plumb after staking.

C. Stake all trees under 3 inches caliper in accordance with the following table:

Tree Caliper	Stakes	Length	Stake Size
To 1-3/4 in.	2	8'	Lodge/pole (2" dia)
2 in. to 3 in.	2	8'	Lodge/pole (2" dia)

3.11 GUYING

A. Guying shall be completed immediately after planting in accordance with the following table. Where manufactured product is specified, install per manufacturer's instructions. Plants shall stand plumb after guying.

B. Guy trees at points of branching with guys spaced equally around and outside perimeter of ball. Wrap rubber tire straps at points of contact with bark positioned at crotches and fasten to a deadman with specified cable with double crimp clamp. One turnbuckle shall be provided for each guy.

Tree Caliper at 12" Above Grade	No. Guys	Cable Size	Deadmen
3-1/4" to 4-1/2"	3	1/8" Diam. 7 x 7 Galvanized Steel Cable	Duck Bill Earth Anchor Model 68 DTS Kit

4-3/4" to 6"	3	1/8" Diam. 7 x 7 Galvanized Steel Cable	Duck Bill System Model 68 DTS Kit
6-1/4" to 8"	3	3/16" Diam.	Duck Bill System Model 88 DTS Kit

3.12 MAINTENANCE BY THE CONTRACTOR

A. The Contractor shall begin maintenance after each plant is installed and continue until Final Acceptance or Substantial Completion.

B. The Contractor's Maintenance Period shall begin upon inspection and approval at Substantial Completion and shall be for **24 months** or as stipulate by owner.

C. The Contractor's maintenance of new planting shall consist of watering, cultivating, weeding, mulching, re-staking, tightening and repair of guys, resetting plants to proper grades or upright position, and furnishing and applying such pesticide sprays and invigorates as are necessary to keep the plantings free of insects and disease and in thriving condition.

D. Protect planting areas and plants at all times against damage of all kinds for duration of maintenance period. Maintenance includes temporary protection barriers and signs as required for protection. If any plants become damaged or injured, because sufficient protection was not provided, treat or replace as directed by Landscape Architect at no additional cost to Owner.

3.13 FINAL ACCEPTANCE

A. Work under this Section will be accepted by Landscape Architect upon satisfactory completion of all work, including maintenance, but exclusive of replacement of plant materials under the Warranty Period. Upon termination of maintenance period, the Owner will assume responsibility for maintenance of the work.

3.14 WARRANTY

A. Planting shall be warranted by the Contractor to remain alive and healthy for a period of **24 months** after the date of Substantial Completion. Plants in an impaired, dead or dying condition after initial acceptance or within 24 months shall be removed and replaced. New planting and method of placing shall comply with the requirements of the specifications. Plants replacing those removed during the guarantee period shall also be guaranteed to remain alive and healthy for an additional **24 months** after installation and acceptance.

B. Contractor shall not be held responsible for failure due to neglect by Owner, vandalism, Acts of God, during Warranty Period. Report such conditions to the Landscape Architect in writing when discovered.

C. Submit a letter of warranty containing the following information:

1. "We hereby guarantee that the landscape planting we have furnished and installed is free from disease and in good condition, and the work has been completed in accordance with the drawings and specifications, ordinary wear and tear and unusual abuse, or neglect excepted.

   We agree to repair or replace any defects in material or workmanship which may develop during the period of one (1) year from acceptance, and also to repair or replace any damage resulting from the repairing or replacing of such defects, at no additional cost to the Owner. We shall make such repairs or replacements within a reasonable time, as determined by the Owner, after receipt of written notice.

   In the event of our failure to make such repairs or replacements within a reasonable time after receipt of written notice from the Owner by Certified Mail, we authorize the Owner to proceed to have said repairs or replacements made at our expense, and we will pay the costs and charges therefore, upon demand."

3.15 CLEAN UP

A. Clean up all areas as required for complete and acceptable inspection.

B. It is Contractor's responsibilities to replace or restore any damaged or disturbed areas during planting operation back to its original condition.

3.16 INSPECTIONS

A. Make written request for inspections after planting operations are completed.

B. Submit requests for inspections to the Landscape Architect at least five (5) days prior to anticipated inspection date.

END OF SECTION

LOW IMPACT DEVELOPMENT (LID) SPECIAL SPECIFICATIONS

HIGH PERFORMANCE MODULAR BIOFILTRATION SYSTEM (HPMBS)

PART 1 G E N E R A L

1.01 SECTION INCLUDES

A. Pre-engineered storm water treatment systems for filtration of storm water utilizing physical, chemical and biological mechanisms of a soil, plant and microbe complex.

1.02 MEASUREMENT AND PAYMENT

A. Unit Prices

1. Payment for High Performance Modular Biofiltration Systems (Focal Points) is on a unit price basis for each square foot installed. Payment includes all manufactures required components to install and test a complete operational system. Components shall include but not be limited to top mulch layer, high flow Biofiltration media, and bridging stone, underdrain system, filter fabric, connection to storm sewer inlet and maintenance of the systems.

2. Refer to Section 01270 - Measurement and Payment for unit price procedures.

B. Stipulated Price (Lump Sum). If the Contract is a Stipulated Price Contract, payment for work in this Section is included in the total Stipulated Price.

PART 2 P R O D U C T S

2.01 MULCH

A. Mulch, fine shredded hardwood mulch aged 6 months minimum, shall comply with the type and size required by the approved drawings, and shall be screened to minimize fines.

2.02 BIOFILTRATION MEDIA

A. Pollutant removal performance, composition and characteristics of the Biofiltration Media must meet or exceed the following minimal standards as demonstrated by testing acceptable to the project engineer:

Pollutant	Removal Efficiency
TSS	85%
Total Nitriogen	43%
Heavy Metals	58-82%
Phosphorus	65%
Oil & Grease	90%
Bacteria	60%
Composition and Characteristics	
Sand – Fine	< 5%
Sand – Medium	10% - 15%
Sand – Coarse	15% - 25%
Sand – Very Coarse	40% - 45%
Gravel	10% - 20%
Infiltration Rate	> 100 – inches / hr.
Peat Moss*	5% - 15%
***Peat Moss Specification**	
Listed by Organic Materials Review Institute 100% natural peat (no composted sludge, yard, or leaf waste) Total Carbon >85% Carbon to Nitrogen Ratio 15:1 to 23:1 Lignin Content 49% to 52% Humic Acid >18% pH 6.0 to 7.0 Moisture Content 30% to 50% 95% to 100% passing 2.0mm sieve >80% passing 1.0mm sieve	

2.03 SEPARATION MESH (Filter Fabric)

A. Separation Mesh shall be composed of high-tenacity monofilament polypropylene yarns that are woven together to produce an open mesh geotextile which shall be inert to biological degradation and resistant to naturally encountered chemicals, alkalis and acids. The mesh shall meet or exceed the following characteristics:

Properties	Test Method	Unit	Min. Avg. Roll Value	
			KN/m	lbs/ft
MD-Ultimate Strength	ASTM D6637		21.6	1480
MD-Creep Limited Strength	ASTM D5262		13.5	925
CMD-Ultimate Strength	ASTM D6637		21.4	1465
Long Term Design Strength			10.2	701
Aperture Size (machine direction)		mm (in)	2.54 (0.10)	
Aperture Size (cross machine direction)		mm (in)	2.54 (0.10)	

2.04 BRIDGING STONE

A. Bridging Stone shall be 3/8-inch pea gravel, or other diameter sized to prevent migration of filter media, as specified by the manufacturer.

B. Stone must be washed and free from sediment, soil and contaminants.

2.05 UNDERDRAIN SYSTEM

A. Underdrain components shall be manufactured in an ISO certified facility and be manufactured from at least 90% post-consumer recycled materials.

B. Underdrain components shall meet or exceed the following characteristics:

Property	Value
Surface Void	≥85%
Unit Weight	3.25 lbs/cf
Service Temperature	-14° to 167°
Unconfined Crush Strength	32.48 psi
180 Day Creep Test	
Load Applied – Initial and Sustained	11.16 psi
• Ceep Sustained – After 180 Days	0.20 inches
• Ceep Sustained – After 180 Days	1.13%
• Projected Creep – 40 Years	1.72%

PART 3 EXECUTION

3.01 DELIVERY, STORAGE AND HANDLING

A. Protect all materials from damage during delivery and store UV sensitive materials under tarp to protect from sunlight including all plastics, when time from delivery to installation exceeds one week. Storage should occur on smooth surfaces, free from dirt, mud and debris.

B. Biofiltration media shall be segregated from any other aggregate materials and shall be protected against contamination, including contamination from any storm water runoff from areas on the site which are not stabilized.

3.02 SUBMITTALS

A. The following submittals are required:

1. Product Data. Submit manufacturer's product data and approved Installation Manual as well as manufacturer's Operations and Maintenance Manual for the system. It will be the responsibility of the system owner/operator or their contractor to ensure the system is operated and maintained in accordance with the manual.

2. Certification. Manufacturer shall submit a letter of certification that the complete system meets or exceeds all technical and packaging requirements. Biofiltration media packaging must bear a batch number marking from the manufacturer which matches a letter from the manufacturer certifying performance testing of the batch to meet or exceed the required infiltration rate.

3. Drawings. Manufacturer shall provide dimensional drawings including details for construction, materials, specifications and pipe connections.

4. Manufacturer's Warranty. Manufacturer shall provide a warranty for all components of the HPMBS for a period of one year provided the unit is installed, operated and maintained in accordance with the manual. Improper operation, maintenance or accidental or illegal activities (i.e. dumping of pollutants, vandalism, etc.) will void the warranty. Biofiltration media shall be warranted to pass the post-installation infiltration test described in this document.

5. Substitutions. Any proposed equal alternative product substitution to this specification must be submitted for review and approved prior to bid opening. Review package should include third party reviewed performance data for both flow rate and pollutant removal of Biofiltration media. Pollutant removal data must follow

specified protocols. All components must meet or exceed Quality Assurance and Performance Criteria indicated herein.

3.03 INSTALLATION

A. Project Conditions

1. Review manufacturer's recommended installation procedures and coordinate installation with other work affected, such as grading, excavation, utilities, construction access and erosion control to prevent all non-installation related construction traffic over the completed HPMBS installation.

2. Cold Weather
   a. Do not use frozen materials or materials mixed or coated with ice or frost.

   b. Do not build on frozen ground or wet, saturated or muddy subgrade.

   c. Care must be taken when handling plastics when air temperature is at 40 degrees or below as plastic becomes brittle.

3. Protect partially completed installation against damage from other construction traffic when work is in progress and following completion of backfill by establishing a perimeter with highly visible construction tape, fencing, or other means until construction is complete.

4. Soil stabilization of the surrounding site must be complete before the Biofiltration System can be brought online. Soil stabilization occurs when 90% of the site has been paved or vegetated and the drainage area has been fully vegetated. Temporary erosion control and/or sedimentation prevention measures shall be implemented to reduce the possibility of sediments being transported into the Biofiltration System prior to full stabilization of the site. Significant sediment loads can damage the HPBMS and lead to failure if not prevented or remediated promptly.

B. Excavation and Backfill

1. Base of excavation shall be smooth, level and free of lumps or debris, and compacted unless infiltration of storm water into

subgrade is desired. A thin layer (3") of compacted base material is recommended to establish a level working platform (may not be needed in sandy soils). If the base of the excavation is pumping or appears excessively soft, a geotechnical engineer should be consulted for advice. In many cases, a stabilization geotextile and 6" of compactable material that drains well will be sufficient to amend the bearing capacity of the soil.

2. Most applications require 8 oz. Non-Woven Geotextile or equivalent nonwoven geotextile with a nominal weight of 8 oz. per square yard to line the excavation to separate in situ soils and the HPMBS. (Applications requiring water to infiltrate the in situ sub-soils should use a bridging stone rather than geotextile to provide a separation layer between the HPMBS and the in situ soils). Geotextile, when utilized, should be placed on the bottom and up the sides of the excavation. Absolutely no geotextiles should be used in the water column. If an impermeable liner is specified, it shall be installed according to manufacturer's instructions and recommendations.

3. Specified backfill material must be free from lumps, debris and any sharp objects that could penetrate the geotextile. Material is used for backfill along the sides of the system as indicated in engineering detail drawings.

C. Biofiltration Media

1. Biologically active Biofiltration media shall be visually inspected to ensure appropriate volume, texture and consistency with the approved drawings, and must bear a batch number marking from the manufacturer which certifies performance testing of the batch to meet or exceed the required infiltration rate.

2. Blending is critical to a homogenous and functional high flow rate media and must be carried out in a highly controlled and accurate six-stage blending process to assure quality.

3. Manufacturer shall have a minimum of 5 years' experience with high infiltration rate Biofiltration media and a minimum of 1,000 systems installed and operational.

   a. Within 90 days after project completion, infiltration rate shall be confirmed at the manufacturer or installer's expense, by a wetted condition, hydraulic conductivity test.

b. Failure to pass this test will result in removal and replacement of all media in the system at no cost to the project owner/operator.

c. Test must utilize the equipment and follow the standard operating procedures found in the Harris County Texas manual entitled, Low Impact Development & Green Infrastructure Design Criteria for Storm Water Management (2011).

d. Replacement media, if required, must be provided from a different batch than the original.

4. Manufacturer shall make available a renewable five year maintenance contract if desired by owner. Within the terms of such maintenance contract, manufacturer shall provide, at no additional cost to the project owner/operator, maintenance of the Biofiltration system for a period of one year.

D. Inspection

1. Examine prepared excavation for smoothness, compaction and level. Check for presence of high water table, which must be kept at levels below the bottom of the under drain structure at all times. If the base is pumping or appears excessively soft, a geotechnical engineer should be consulted for advice.

2. Installation commencement constitutes acceptance of existing conditions and responsibility for satisfactory performance. If existing conditions are found to be unsatisfactory, contact Project Manager or Engineer for resolution prior to installation.

E. Cleanup and Protection During Construction Activity

1. Perform cleaning during the installation and upon completion of the work.

2. Remove from site all excess materials, debris, and equipment. Repair any damage to adjacent materials and surfaces resulting from installation.

3. If surrounding drainage area is not fully stabilized, a protective covering of geotextile fabric should be securely placed to protect the Biofiltration Media.

4. Construction phase erosion and sedimentation controls shall be placed to protect the inlet(s) to the Biofiltration System. Excessive

sedimentation, particularly prior to establishment of plants may damage the HPMBS.

5. Strictly follow manufacturer's guidelines with respect to protection of the HPMBS between Installation and Commissioning phases.

F. Commissioning

1. Commissioning should only be carried out once the contributing drainage area is fully stabilized. If Commissioning must be carried out sooner, it is imperative that appropriate erosion and sediment controls be placed to prevent the entry of excessive sediment/pollutant loads into the system.

2. Commissioning entails removing the protective covering from the Biofiltration Media, planting the plant material in accordance with the approved drawings, and placing mulch if specified.

3. Dig planting holes the depth of the root ball and two to three times as wide as the root ball. Wide holes encourage horizontal root growth that plants naturally produce.

4. With trees, you must ensure you are not planting too deep. Don't dig holes deeper than root balls. The media should be placed at the root collar, not above the root collar. Otherwise the stem will be vulnerable to disease.

5. Strictly follow manufacturer's planting guidance.

6. Cover the exposed root ball top with mulch. Mulch should not touch the plant base because it can hold too much moisture and invite disease and insects. Evenly place 3 inches of double-shredded hardwood mulch (if specified) on the surface of the media.

7. Plantings shall be watered-in at installation and temporary irrigations shall be provided, if specified.

G. Operation and Maintenance

1. Maintenance Requirements

a. HPMBS is to be maintained by the manufacturer for an additional year beyond the one year warranty. Cost of the additional year of maintaining the HPMBS will be paid for as a cash allowance.

b. Annual maintenance consists of four (4) scheduled visits unless otherwise specified.

c. Each maintenance visit consists of the following:

   i. Complete system inspection

   ii. Removal of foreign debris, silt, plant material, trash and mulch (as specified in the Landscape Ground Maintenance specification)

   iii. Evaluation of Biofiltration media

   iv. Evaluation of plant health and replace plants as needed

   v. Inspection of underdrain/storage system via Observation/Maintenance Port

   vi. Properly dispose of all maintenance refuse items (trash, mulch, etc.)

   vii. Take photographs documenting plant growth and general system health

   viii. Provide each quarterly maintenance record to the City of Houston Project Manager, Michelle Randon, P.E., michelle.randon@houston.gov, (832)-395-2238.

   ix. To ensure long term performance of the HPMBS, continuing annual maintenance should be performed per the manufacturer's Operations and Maintenance Manual.

d. If sediment accumulates beyond an acceptable level in the underdrain/storage system, it will be necessary to flush the underdrain. This can be done by pumping water into the Observation/Maintenance Port or adjacent overflow structure, allowing the turbulent flows through the underdrain to re-suspend the fine sediments. If multiple Observation/Maintenance Ports have been installed, water should be pumped into each port to maximize flushing efficiency. Sediment-laden water can be pumped out and either captured for disposal or filtered through a Dirtbag® filter bag, or equivalent, if permitted by the locality.

2. Manufacturer shall submit 3 full sets of manufacturer's literature and Operation and Maintenance Manual for the Biofiltration system for review and approval. Literature shall include

documentation as to the expected design life for storm water treatment unit and any warranties. The design life of the storm water treatment unit should be what would be expected from a standard concrete storm water structure. Provide documentation demonstrating that the manufacturer has at least 5 years of satisfactory experience and has the capability to perform the work.

END OF SECTION

Approved:

John H. Kuo, PE.
Assistant Director
Engineering and Construction Division

4/30/15
Date

LANDSCAPE GROUND MAINTENANCE

1.00 GENERAL

1.01 Scope

A. Maintenance required under this contract shall conform to the specifications and criteria in this section. Items included in this section include, but are not limited to, the following:

1. Mowing, edging and trimming of lawn areas
2. Application of pesticides, as required
3. Weeding, cultivating and cleaning of all plantings
4. Application of herbicides
5. General site clean up. Removal of trash and products of maintenance

1.02 MEASUREMENT AND PAYMENT

A. Unit Prices.

1. No separate payment will be made for landscape maintenance during construction starting at the Notice to proceed until the issuance of Notice of Substantial Completion. Payment shall be included and is incidental as set of in specification 0700 General Conditions.
2. Payment for landscape maintenance after the issuance of Notice of Substantial Completion shall be on a monthly basis. Payment shall include all items incidental for maintenance in this specification.
3. Refer to Section 01270 – Measurement and payment for unit price procedures.

B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for work in this Section is included in total Stipulated Price.

1.03 Contract Period

A. These specifications shall govern all maintenance work on completed and partially completed project areas, commencing at the Notice to Proceed and terminating at **24 months** after the issuance of Notice of Substantial Completion.

1.04 Intent of the Contract

A. It is the intent of the contract to provide the Owner with a project site that is attractive in appearance, and to keep all plant materials and lawns in a healthy and vigorous condition.

1.05 Contractor's Performance

A. The Contractor shall perform all work as often as necessary to fulfill the spirit and intent of the contract. The workmen shall be neat in appearance, perform their work in a professional manner, keep noise to a minimum, and stage their work from a location on

the site out of the way of the mainstream of the users. In general, the Contractor's presence on the site shall be as inconspicuous as possible.

1.06 Neglect and Vandalism

A. Turf, shrubs, trees or plants that are damaged or killed due to Contractor's operations, negligence, or chemicals shall be replaced at no expense to the Owner.

B. Sprinklers or structures that are damaged due to the Contractor's operation must be replaced by the Contractor promptly.

C. All damage to, or thefts of landscape elements not caused or allowed by the Contractor subsequent to the issuance of the Certificate of Substantial Completion shall be corrected by the Contractor at the Owner's expense, upon receipt of written authorization to proceed.

D. Damage due to thefts or vandalism prior to the date of the Certificate of Substantial Completion shall be at the Contractor's expense.

1.07 Emergencies

A. The Contractor shall answer emergency or complaint calls regarding conditions in landscaped areas regarding fallen trees or branches, or shrubs or trees that obstruct the driveways, and shall correct the problem or place warning signs and advise the Owner of the need for major work to be performed.

2.00 MATERIALS

2.01 Machinery

A. Machinery requirements listed under this Section are not intended to be restrictions of specific manufacturers or models unless so stated. Specific mention of manufacturers is intended as a guide to illustrate the final product of maintenance operations desired.

1. Lawn Mowers

a. Shall be of the rotary-type, in good working order, finely turned to protect the lawn from excessive exhaust fumes.

b. Blades shall be sharp, to reduce shredding of the cut grass.

2. Lawn Edgers

a. Shall be of a rigid or flexible blade-type that will produce a fine, clean edge where lawns meet walkways, pavements, or curbs.

3. Fertilizer Spreaders

a. Cyclone-type spreader, or equal.

b. No visible underlapping of applications will be permitted.

4. Pruning Tools

a. Shall be maintained in good working order.

b. Cutting edges shall be sharp.

c. Disinfect all tools when used for the removal of diseased limbs with a solution of Clorox and water, mixed at a 1:5 ratio.

5. Watering Truck & Pump

a. Minimum 1200 gal. tank/pump.

b. Pressure at nozzle: 35 PSI (1 1/2" outlet).

3.00 EXECUTION

3.01 General

A. All maintenance operations shall be performed by the Contractor's own force, superintended by personnel familiar with the job. Subcontracting of maintenance work shall not be allowed.

B. Maintenance Period shall commence immediately upon the issuance of the contract. It will be the Contractor's sole responsibility to maintain plantings in original intended condition throughout the Maintenance Period of this contract.

C. Accidental damage to the landscape plantings beyond the control of the Contractor shall be reported immediately to the Owner.

3.02 Irrigation System

A. Irrigation system maintenance shall generally be construed as any activity or activities necessary to keep the system 100% operational. Irrigation system maintenance shall include, but not be limited to:

1. Replacement of equipment damaged by Contractor operations.

2. Repair of other equipment damaged or malfunctioning on a time and material basis. (As requested by the Owner.)

3. Adjustment and cleaning of heads so as to correct miss-directional throw, improper coverage and damage to equipment.

B. The Contractor shall monitor and program the irrigation controllers to maintain optimum moisture levels in all planted areas.

C. Irrigation cycles shall be set to take place after 11:00 pm and prior to sunrise (4:00 am - 5:00 am), unless otherwise instructed by the Owner, except during visits of grounds maintenance personnel. During such visits, the irrigation system may be operated as desired by those personnel.

D. Irrigation cycles should gradually be reduced from September to the winter, in order to generally reduce late season plant growth and vigor, and to stimulate hardening off and dormancy of plant material.

3.03 Staking and Guying

A. Contractor shall maintain staking and guying of trees at all times, and shall be responsible for any damage to trees or plant materials caused by chafing or breaking of foliage or limbs coming in contact with stakes, ties, guys, eye bolts, or bracing materials. Periodically, adjust broken stakes and ties as needed. If ties are too tight, they must be

replaced or adjusted. All labor and material costs shall be considered in base bid for time.

B. Trees and large shrubs that may require guys, stakes or special care during the winds and rains shall receive the required care prior to and immediately after anticipated and actual occurrences, to insure that no damage results to the plant material.

3.04 Pruning

A. Contractor shall prune regularly, as required. Remove dead wood and aesthetically horticulturally balance the planting, as directed by the Landscape Architect. All suckers and undesired growth shall be removed immediately.

B. Do not prune limbs from trunks more than 12" above ground per 1" caliper (min. 8").

C. Pruning of shrubs should create a uniformly dense plant. Selectively thin and tip back annually. Prune to enhance natural branching effect of plants. Do not change shape of shrubs by pruning. Refer to schedule.

3.05 Turf Maintenance

A. Mowing

1. During periods of cool weather, mow at one and one-half inches (1 1/2"), but during hot weather should not be lower than two inches (2") from the soil.

2. Regular weekly mowing is strongly recommended. Never scalp the lawn, or cut more than one-third (1/3) of the existing top growth in one mowing.

3. Remove excessive clippings, never allowing clippings to remain on lawn surface for more than four (4) hours.

B. Watering

1. Provide a regular, deep watering program. The established turf should not be kept wet, but should dry out under regular conditions. If it is hot or windy, water more often.

2. In very hot weather, a fast watering with fine spray will cool the turf zone and can supplement the regular deeper watering program.

3. In shaded areas caused by trees or shrubs, water more frequently because of the competition for soil moisture.

4. If lawn wilts (shows gray-brown), water more frequently.

C. In areas of new planting and lawns, allow new lawn to grow over tree ball. Maintain height of grass at tree trunk with hand clippers. Do not use weed whips around tree trunks.

3.06 Manual Watering *(Quick Coupler System)*

A. Water all plant material (including plant material) twice weekly or as necessary to maintain materials in thriving condition. Frequency may be reduced, as directed by the Landscape Architect, during periods of wet weather.

container size	water quanity

65 gallon	30 gallons
30 gallon	16 gallons
15 gallon	10 gallons
10 gallon	7 gallons
5 gallon	4 gallons
3 gallon	2 gallons
1 gallon	2 gallons
seedlings, 4" pot and plugs	½ gallon

3.07 Mulching

A. At month 11 and month 23 of the post-substantial completion maintenance period, contractor shall provide new mulch. Mulch shall be standard fine shredded hardwood mulch aged 6 months minimum, placed to 3" depth.

3.08 General Clean Up

A. The Contractor shall dispose of all waste materials or refuse from his operations off the property, except where other arrangements have been made with the Owner.

B. Keep all expansion and score joints free of any vegetation which may appear, and apply appropriate herbicide to discourage future growth in these areas.

C. Leaves, papers, grass clippings or other debris shall be removed weekly, or at each visit from all areas.

D. Remove dead animals from the site immediately, as they are encountered.

4.00 SCHEDULE

4.01 Schedules

A. The Schedule as included herein shall be used as a guide for the work specified, which may fall within the post-construction maintenance period. Should the Contractor require an alteration of the Schedule, contact the Landscape Architect.

SCHEDULE "A"

FUNCTIONS	FREQUENCY											
	Jan.	Feb.	Mar.	Apr.	May	Jun.	July	Aug.	Sept.	Oct.	Nov.	Dec.
Mowing	3	3	4	5	5	5	4	4	5	4	4	4
Edging	1	1	4	5	5	4	4	4	5	4	1	1
Debris/Trash Removal	4	5	4	4	5	5	5	5	5	5	4	4
Pruning		1								1		
Weed Control Beds			1	1	1	1	1	1	1	1	1	1
Clean/Sweep Curbs/Gutters	2	2	4	4	5	4	5	4	4	5	4	4

Overseed Rye									1*			
Index Irrigation	1	1	1	1	1	1	1	1	1	1	1	1
Spray for Borers			1		1		1		1			
Mulching											1	

* Depending on Prevailing Weather

END OF SECTION

Approved:

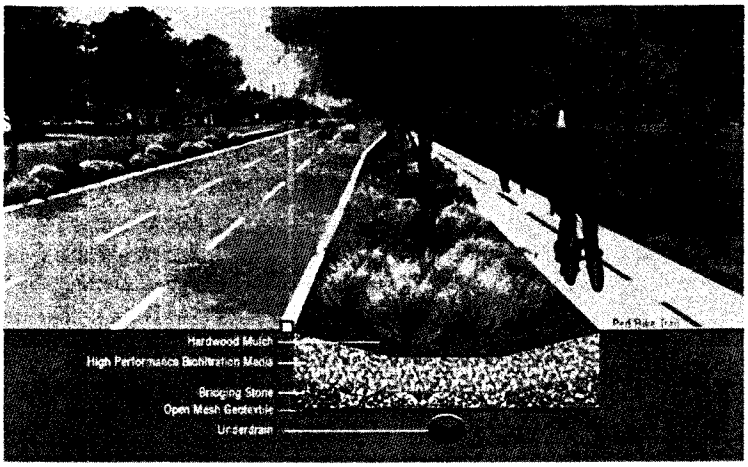
John H. Kuo, PE.
Assistant Director
Engineering and Construction Division

Date 4/30/15

ALMEDA OPERATIONS AND MAINTENANCE MANUAL PLAN

OPERATIONS & MAINTENANCE PLAN MANUAL

FOR CITY OF HOUSTON ALMEDA PAVING AND DRAINAGE IMPROVEMENTS

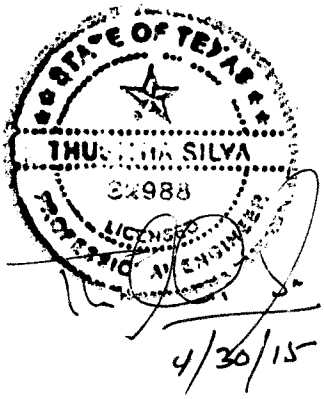


PREPARED BY:

CITY OF HOUSTON STREET & TRAFFIC ENGINEERING
HOUSTON, TEXAS

ASUKURA ROBBINSON COMPANY LLC.
1902 WASHINGTON AVENUE, SUITE A
HOUSTON, TEXAS 77007

WALTER P. MOORE & ASSOCIATES INC.
1301 McKINNEY STREET, SUITE 1100
HOUSTON, TEXAS 77010



Almeda Road Paving & Drainage Low Impact Project Operations & Maintenance of LID Facilities

Almeda Road is a principal major thoroughfare located in the Texas Medical Center Area, Houston. The segment of Almeda Road under WBS N-000806-0001-4 extends from a point approximately 900 feet south of Old Spanish Trail to the intersection of South MacGregor Way This is a Federally funded project with funds earmarked for mobility improvements in the Medical Center area. Due to the wide available right-of-way, the City of Houston will improve this segment of Almeda Road with Low Impact Development (LID) criteria. The low impact design will improve runoff water quality and provide detention storage for mitigation of any future improvements. The Almeda Road LID features is intended to showcase the benefits of post-construction storm water Best Management Practices (BMPs) and LID tools. Walter P Moore is excited to participate in this ground-breaking project.

The Project is located along Brays Bayou, a FEMA studied stream. The northern portion of the project limits are within the effective 100-year regulatory floodplain, FEMA Zone AE, along Brays Bayou, HCFC Unit D100-00-00, as shown in the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), Map Number 48201C0860L, Effective Date June 18, 2007. The project area lies entirely outside of the FEMA regulatory floodway. Out-of-bank flooding during a 100-year storm event inundates the existing roadway profile along Almeda Road. Other portions of the project limits are shown in FEMA Zone X (Shaded and Unshaded). FEMA Zone X (Shaded) represents areas of moderate flood hazard, usually the area between the limits of the 100-year and 500-year floods.

A peak flow impact analysis was performed for the project. The results indicate that the proposed project will increase peak runoff rates by approximately 28 cfs for a 10-year storm event and 38 cfs for a 100-year event. The City of Houston requires the use of stormwater detention to mitigate the effect of development on an existing drainage system. To comply with COH and HCFCD policy to avoid adverse impacts, the maximum allowable outflow rates from the detention mitigation will be restricted to existing (pre-development) 10-year and 100-year peak runoff rates. Since the outflow from the mitigation options will drain directly to the existing storm sewer system along Almeda Road, the maximum allowable outflow will be restricted to the COH criteria as presented in Chapter 9 – Stormwater Design Requirements of the *COH Infrastructure Design Manual.*

The required minimum detention volume was computed based on the amount of increased impervious area cover per the City of Houston Infrastructure Design Manual. The calculation of detention volume is based on areas between 1 acre and 50 acres whereby detention is required at a rate of 0.50 acre-feet per acre of increased impervious cover. The Almeda Road Reconstruction Project will increase the amount of impervious cover by 5.67 acres. The COH required minimum detention volume was calculated as 2.83 acre-feet.

The Almeda Road Reconstruction Project has been designed to meet the Green Roadway Standards (Low Impact Development Practices) with bioretention/detention systems, sidewalks and bikeways. The bioretention cells will serve as the primary Low Impact Development (LID) practice to reduce storm water runoff volume and pollutant loading from the roadway and

function by slowing storm water runoff, promoting infiltration and increase evapotranspiration through plantings. The bioretention/detention system will be comprised of roadside ditches that drain to a bioretention cell (focal points). Bioretention is a water quality and water quantity control practice using the chemical, biological, and physical properties of plants, microbes and soils for biofiltration and the removal of pollutants from storm water runoff. Bioretention cells (focal points) are vegetative depressions, filled with an engineered soil media which provides biofiltration for removal of pollutants, increases time of concentration, and prevents long-term storm water pounding. The bioretention/detention systems were designed to capture and treat the first 0.5 inch of runoff. The bioretention/detention systems will include detention storage and an outlet control structure (orifice) to reduce peak runoff rates to pre-project conditions.

The project includes 25 separate bioretention/detention systems. The minimum required detention volume was computed as 2.5 acre-feet based on the COH detention volume criteria. The total provided detention volume is 2.6 acre-feet in the bioretention/detention systems. A SWMM model analysis was performed to size the required orifice opening in the outlet control structure for each detention system. Rectangular restrictor orifices were sized for each outlet control structure. A standard grate is used on the top of the box as the emergency overflow. The results for the hydraulic detention routing analysis showed the proposed peak flows would be reduced by 23 cfs and 36 cfs for the 10- and 100-year events, respectively. These flow reductions exceed the peak flow impacts for the project.

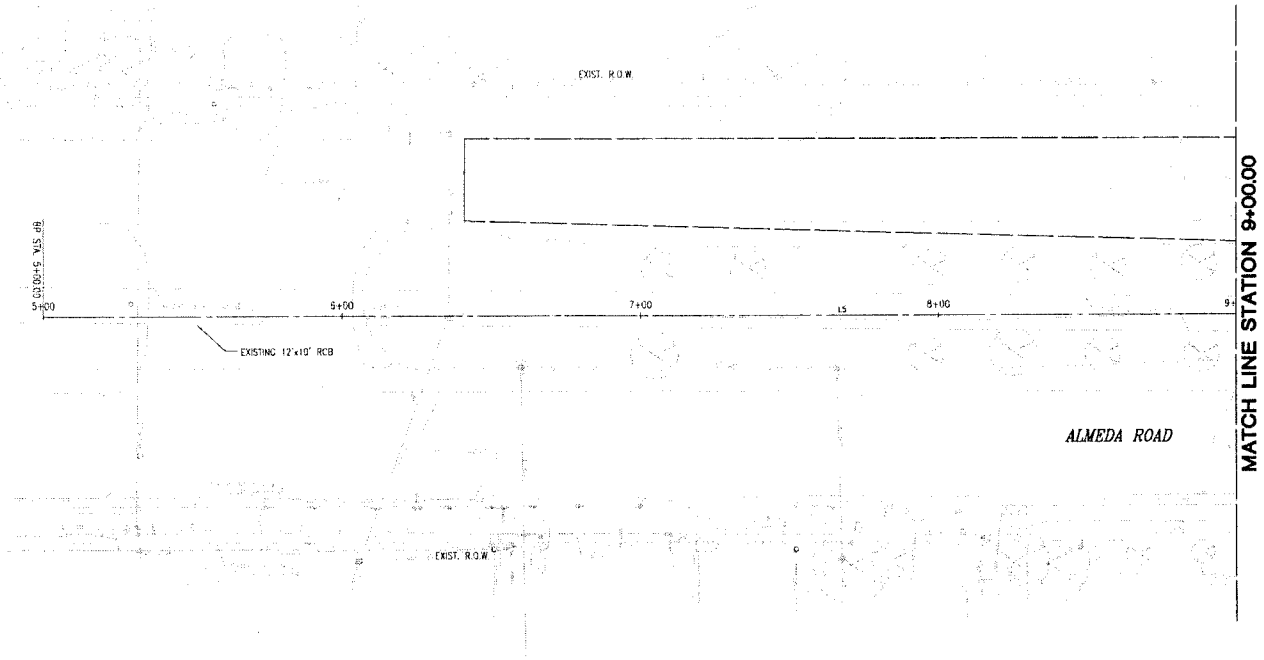
The final plan sheets are included in Appendix A and illustrates the location of the focal points along the Project.

The goals established for this project include:

i. Demonstrate advantages of utilizing LID features.
ii. Apply lessons learned to future City Capital Improvements Plan (CIP) and Rebuild Houston projects that include LID.
iii. Reduce proposed peak flows to existing conditions for the two-year and ten-year design events.
iv. Monitor hydrologic benefits of LID features as compared conventional mitigation methods.

O & M Fact Sheets are included in Appendix B and O&M inspection Sheets are included in Appendix C.

APPENDIX A: PLAN SHEETS



PLAN

SEE SHEET 121 FOR PROFILE VIEW

Reconnect Exist Offsite Storm Sewer Pipes To Proposed Storm Sewer System. This Work Is Incidental To Various Bid Items.

20 0 20 40

SCALE: HORIZ. 1"=20'
VERT. 1"=2'

LEGEND

	EXISTING	PROPOSED
Curb		
Edge of Pavement		
R.O.W.		
Curve Number		(C1)
Storm Sewer/Mh		
Curb Inlet/Grate Inlet		
Sanitary Sewer/ MH/Cleanout		
DITCH FLOW DIRECTION		

NOTE:
The location of existing underground utilities are shown in an approximate way only. The contractor shall contact the Texas One-Call System at 713-223-4567 or 1-800-669-8344 and the City of Houston Department of Public Works and Engineering at 832-394-9799 a minimum of two working days prior to construction to have utilities staked. The contractor shall determine the exact location of all existing utilities before commencing work. He agrees to be fully responsible for any and all damages which might be occasioned by his failure to exactly locate and preserve any and all underground utilities.

CAUTION: UNDERGROUND GAS FACILITIES
Locations of CenterPoint Energy mains (as Reliant Centerpoint Energy, Entex and Houston Pipeline Co., where applicable) are shown as an approximate location only. Service lines are usually not shown. The depictions on these plans only indicates that gas facilities are shown in approximate locations. It does not imply that a conflict analysis has been made. The contractor shall contact the Texas One-Call System at 713-223-4567 or 1-800-669-8344 a minimum of 48 hours prior to construction to have mains and service lines staked and located.
• When Center Point Energy gas line markings are not staked, call 713-207-1500 (770 am to 4:30 pm) for details of gas pressure against failure distribution targets.
• When excavating within eighteen inches (18") of the indicated location of Center Point Energy facilities, all excavation must be accomplished using non-mechanized excavation procedures.
• When Center Point Energy facilities are exposed, sufficient support must be provided by the Contractor to prevent excessive stress on the piping.
The contractor is fully responsible for any damages caused by the contractor's failure to exactly locate and preserve these underground facilities.

WARNING: OVERHEAD ELECTRICAL FACILITIES
Overhead lines may exist on the property. We have not attempted to mark these lines since they are clearly visible, but you should review them prior to beginning any construction. Texas law requires that safety work practices be employed to prevent employees and their tools and equipment from approaching overhead lines closer than 6 feet for lines rated 600 volts or less, and 10 feet for lines rated over 600 volts, measured in all directions. Any party (person, firm or corporation) working near high voltage lines, whether employees or the work, including contractors, are legally responsible for the safety of construction workers and the lines. The Texas Utility Code requires that any person who plans to move or operate any structure within six (6) feet of a high voltage overhead line must notify the owner of the line at least 48 hours before work begins. Failure to do so is a Class B misdemeanor. Call CenterPoint Energy at 713-207-2222. Revised 2009

WARNING: AT&T TEXAS/SWBT FACILITIES
The locations of AT&T Texas/SWBT facilities are shown on an approximate way only. The contractor shall determine the exact location before commencing work. He agrees to be fully responsible for any and all damages which might be occasioned by failure to exactly locate and preserve these underground facilities.
The contractor shall call 1 (800) 344-1077 a minimum of 48 hours prior to construction to have underground lines staked.
When excavating within eighteen inches (18") of the indicated location of AT&T Texas/SWBT facilities, all excavations must be accomplished using non-mechanized excavation procedures. When using the trenchless shall expose the AT&T Texas/SWBT facilities.
When AT&T Texas/SWBT facilities are exposed, the contractor will provide support to prevent damage to the conduit ducts or cables. When excavating near telephone poles the contractor shall locate the pole for support.
The presence or absence of AT&T Texas/SWBT underground conduit facilities does not mean that there are no direct buried cables in the area. Before the Direct Buried Cable Procedure to locate the AT&T Texas/SWBT buried cables as indicated in the AT&T Texas Relocation and Protection Process for AT&T Texas/SWBT facilities.
Please contact the AT&T Texas Damage Prevention Manager Mr. (Reserved) Lee at 713-567-4532 or email them at <1229@att.net>, if there are questions about locating or excavating near our AT&T Texas/SWBT services.

NO.	DATE	REVISIONS	APP.

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Texas Department of Transportation

TO ARRANGE FOR LINES TO BE MARKED OFF OR MORE CALL CONTRACTOR AT 713-207-2222

PRIVATE UTILITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS, CALL ONE CALL NOTIFICATION SYSTEM 713-223-4567.

Note:
Underground Utility Facilities
Information shown on these plans is approximate only. Utility lines are privately owned. No representation for construction is given.

Date:
Approved for SBC underground conduit facilities only.
Signature valid for one year.

Date:
CenterPoint Energy/Gas Facilities/TxDOT NOT/INCORPORATED
(Exist services shown are not shown)

CABLE COMPANY

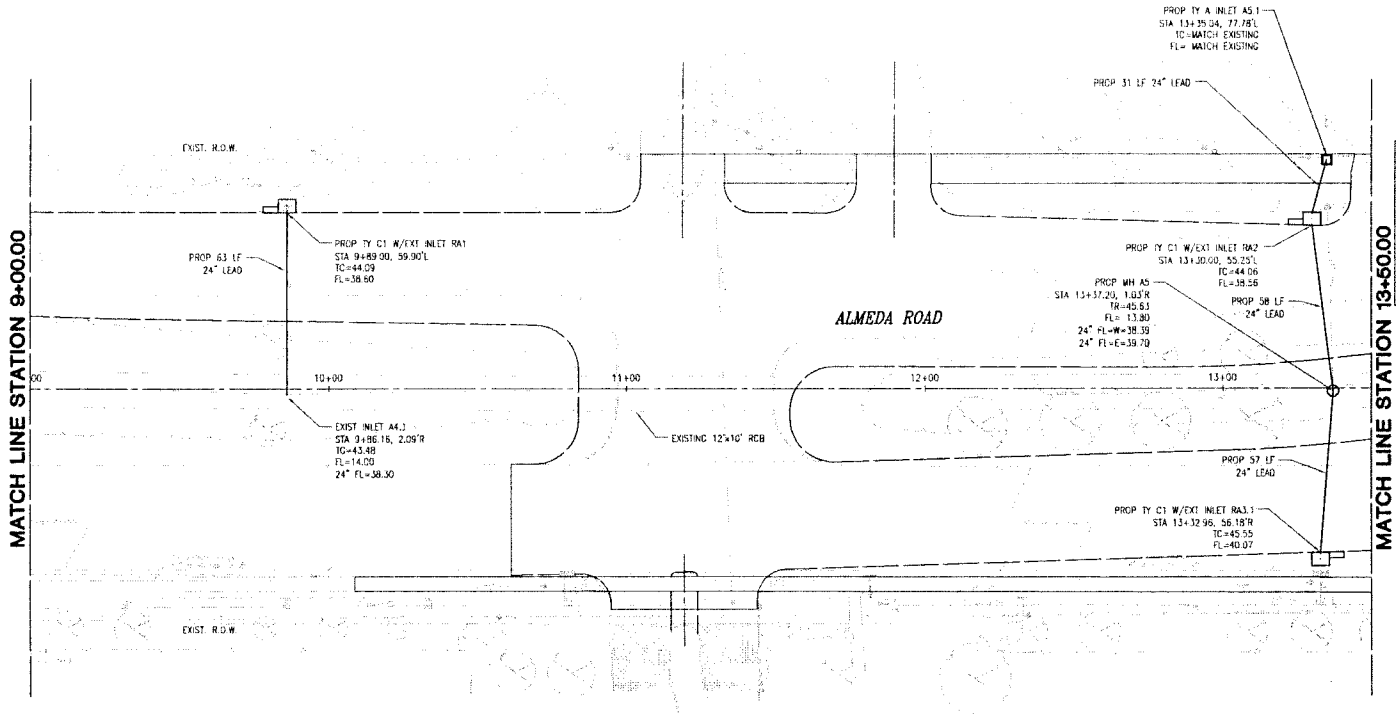
CivilTech Engineering, Inc.
11621 Telge Road
Cypress, Texas 77429
(281) 304-0200 Fax (281) 304-0210
Registration No. F-1362

DARRELL L. KADERKA
75208
LICENSED PROFESSIONAL ENGINEER
02/24/2015

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

ALMEDA ROAD FROM OLD SPANISH TRAIL TO S. MACGREGOR WAY DRAINAGE PLAN BEGIN STA. TO STA. 9+00

AMS NUMBER	FOR CITY OF HOUSTON DEPT. ONLY
Y-0000600-0001-	
DRAWING SCALE	
VERT. AS NOTED	
HORZ. AS NOTED	
CITY OF HOUSTON PM	
MICHELLE RAWSON, P.E.	
SHEET NO. 120 OF 271	



PLAN

SEE SHEET 123 FOR PROFILE VIEW

Possible PPCA contamination encounter during MH = A5 installation.

Reconnect Exist Offsite Storm Sewer Pipes To Proposed Storm Sewer System. This Work Is Incidental To Various Bid Items.

SCALE: HORIZ. 1"=20'
VERT. 1"=2'

LEGEND

	EXISTING	PROPOSED
Curb		
Edge of Pavement		
W.O.W.		
Curve Number		C1
Storm Sewer/Mh		
Curb Inlet/Grate Inlet		
Sanitary Sewer/ Mhy/Cleanout		
DITCH FLOW DIRECTION		

NOTE
The location of existing underground utilities are shown as per available data only. The contractor shall contact the Utility Coordinating Committee at 713 223 4567 or 1 800 669 8344 and the City of Houston Department of Public Works and Engineering at 832-394-9258 a minimum of two working days prior to construction to have located utilities. The contractor shall determine the exact location of all existing utilities before commencing work. He agrees to be fully responsible for any and all damages which might be occasioned by his failure to exactly locate and preserve any and all underground utilities.

CAUTION: UNDERGROUND GAS FACILITIES
Facilities of CenterPoint Energy may exist in or adjacent to this site. Service lines are usually not shown. The existence of these lines may indicate that no conflict exists has been made. The contractor shall contact the Utility Coordinating Committee at 713-223-4567 or 1-800-669-8344 a minimum of 48 hours prior to construction in these areas and various lines field located.

- When Center Point Energy gas line markings are not visible call 713-207-7500 (7:00 am to 4:30 pm) for status of line exposure required before excavation begins.
- When excavating within exposed pipeline riches (18") of the indicated location of Center Point Energy facilities, all excavation must be accomplished using non-mechanized excavation procedures.
- Where Center Point Energy facilities are exposed, sufficient support must be provided by the contractor to prevent damage shown on the plans.

The contractor is fully responsible for any damages caused by the contractor's failure to exactly locate and preserve these underground facilities.

WARNING: OVERHEAD ELECTRICAL FACILITIES
Overhead wire may exist on the property. We have not attempted to mark these lines on the plans. They are clearly visible, but you should locate them prior to beginning any construction. Texas law requires "OSHA" safety clearance between all individuals or equipment and energized overhead electrical conductors. Unless the conductors are known to be de-energized and visibly grounded at the work site, the contractor is legally responsible for the safety of construction workers while they work. This applies both overhead and underground. To arrange for wires to be turned off or removed call CenterPoint Energy at 713-207-1234. Revised 7/08

WARNING: AT&T TEXAS/SWBT FACILITIES
The locations of AT&T Texas/SWBT facilities are shown as an approximate only. The contractor shall determine the exact location before commencing work. He agrees to be fully responsible for any and all damages which might be occasioned by failure to exactly locate and preserve these underground facilities.
The contractor shall call 1-800-344-8377 a minimum of 48 hours prior to construction to have underground wires field located.
When excavating within exposed pipeline riches (18") of the indicated location of AT&T Texas/SWBT facilities, all excavations must be accomplished using non-mechanized excavation procedures. When boring, the contractor shall expose the AT&T Texas/SWBT facilities.
When AT&T Texas/SWBT facilities are exposed, the contractor will provide support to prevent damage to the conduit, duct or cables. When excavating near telephone poles, the contractor shall ensure the pole for support.
The presence or absence of AT&T Texas/SWBT underground conduit facilities does not mean that there are no direct buried cables in the area. Follow the Direct Buried Cable Procedure to locate the AT&T Texas/SWBT buried cables as indicated in the AT&T Texas Standards and Guidelines.
Process for AT&T Texas/SWBT Facilities
Texas Uniform One Call Damage Prevention Manual 5th Standard Size of 48
713-567-4550 or email texas.811@att.com. If there are questions about locating or contacting you our AT&T Texas/SWBT facilities.

NO	DATE	REVISIONS	APP

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Texas Department of Transportation

TO ARRANGE FOR LINES TO BE FLAGGED OUT OR MARKED, CALL (Contractor) AT 713-207-2222

PRIVATE UTILITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING OR DIRECTIONAL DRILLING OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

Date
CenterPoint Energy/Entex Facilities
Subject to compliance with CenterPoint Energy's rules and regulations, and property easement, NO APPROVAL FOR CONSTRUCTION IS GIVEN

Date
Approved for AT&T underground conduit facilities only
Signature valid for one year

Date
Centerpoint Energy/Gas Facilities (TX) (If INCORPORATED)
(Gas service lines are not shown)

CABLE COMPANY

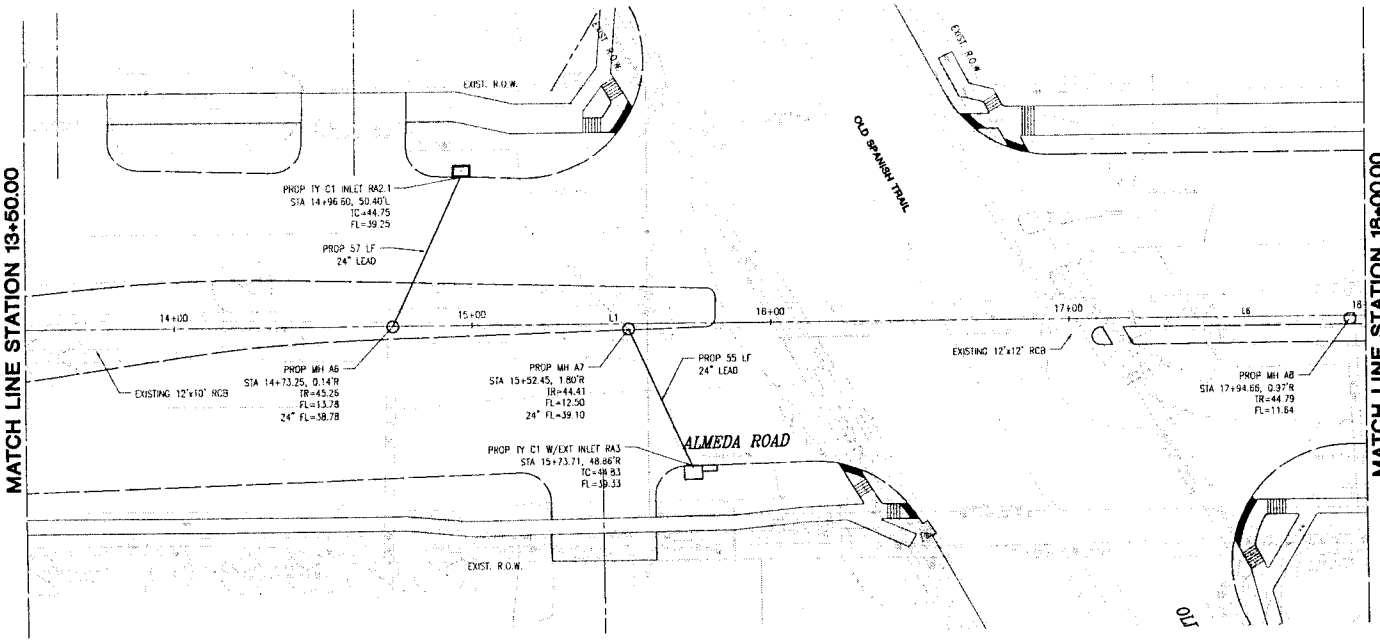
CivilTech Engineering, Inc.
11921 Telge Road
Cypress, Texas 77429
(281) 304-0200 Fax (281) 304-0210
Registration No. F-362

DARRELL E. KADERKA
79203
LICENSED PROFESSIONAL ENGINEER
02/24/2015

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

ALMEDA ROAD FROM OLD SPANISH TRAIL TO S. MACGREGOR WAY
DRAINAGE PLAN
STA. 9+00 TO STA. 13+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-000826-0021-4	
DRAWING SCALE	
VERT. AS NOTED	
HORIZ. AS NOTED	
CITY OF HOUSTON PM	
MICHELLE RAMDEEN, P.E.	
SHEET NO. 122 OF 271	



PLAN

SEE SHEET 125 FOR PROFILE VIEW

Possible PPCA contamination encounter during MH = A6 and MH=A7 installation.

Reconnect Exist Offsite Storm Sewer Pipes To Proposed Storm Sewer System. This Work Is Incidental To Various Bid Items.

20 0 20 40

SCALE: HORIZ. 1"=20'
VERT. 1"=2'

LEGEND

	EXISTING	PROPOSED
Curb		
Edge of Pavement		
R.O.W.		
Curve Number		C1
Storm Sewer/MH		
Curb Inlet/Grate Inlet		
Sanitary Sewer/ MH/Cleanout		
DITCH FLOW DIRECTION		

NOTE:
The locations of existing underground utilities are shown in an approximate way only. The contractor shall contact the Texas One-Call System at 713-223-4567 or 1-800-669-8344 and the City of Houston Department of Public Works and Engineering at 832-395-3099 a minimum of two working days prior to construction to have water utilities. The contractor shall determine the exact location of all existing utilities before commencing work, and agrees to be fully responsible for any and all damages which might be occasioned by his failure to exactly locate and preserve any and all underground utilities.

CAUTION: UNDERGROUND GAS FACILITIES
Centerpoint Energy's Energy Operations Texas Gas Service Operations Energy Services Inc. wires (gas/gas) are shown in an approximate manner only. Service lines are usually not shown. The signature on these plans only indicates that all facilities are shown in approximate locations. It does not imply that a conflict analysis has been made. The contractor shall contact the Utility Coordinating Committee at 713-223-4567 or 1-800-669-8344 a minimum of 48 hours prior to construction to have their services field located.
* When Centerpoint Energy gas line markings are not visible, call 713-207-4567 (7:00 am to 4:30 pm) for status of line location request before excavation begins.
* When excavating within eighteen inches (18") of the indicated location of Centerpoint Energy facilities, all excavation must be accomplished using non-mechanical excavation procedures.
* When Centerpoint Energy facilities are exposed, sufficient support must be provided to the facilities to prevent excessive stress in the joints.
The contractor is fully responsible for any damages caused by the contractor's failure to exactly locate and preserve these underground facilities.

WARNING: OVERHEAD ELECTRICAL FACILITIES
Overhead wires may exist on the property. No trees are allowed to grow under these wires since they are clearly visible, but also should not be planted in the vicinity any construction work, cranes, scaffolds, etc. Health and Safety Code, forbids all activities in which persons or things may come within ten (10) feet of live overhead high voltage lines. It is also responsible for the work, including persons and equipment, to be aware of overhead electrical wires under their care. The owners both electrical and property for damage for which he can be found at or removed. (Centerpoint Energy at 713-207-7220)

WARNING: AT&T TEXAS/SWBT FACILITIES
The locations of AT&T Texas/SWBT facilities are shown in an approximate way only. The contractor shall determine the exact location before commencing work. He is/shall be fully responsible for any and all damages which might be occasioned by failure to exactly locate and preserve these underground utilities.
The contractor shall call 1-800-344-8377 a minimum of 48 hours prior to construction to have underground lines field located.
When excavating within eighteen inches (18") of the indicated location of AT&T Texas/SWBT facilities, all excavations must be accomplished using non-mechanical excavation procedures. When boring, the contractor shall expose the AT&T Texas/SWBT facilities.
When AT&T Texas/SWBT facilities are exposed, the contractor will provide support to prevent damage to the conduit ducts or cables. When excavating near telephone poles the contractor shall locate the pole for support.
The presence or absence of AT&T Texas/SWBT underground conduit facilities does not mean that there are no direct buried cables in the area. Follow the Direct Buried Cable Procedure to locate the AT&T Texas/SWBT buried cables as indicated in the AT&T Texas Network and Signature Process for AT&T Texas/SWBT facilities.
Please contact the AT&T Texas Damage Prevention Manager Mr. Hunnewell Lee II at 713-567-4552 or email him at HL2296@att.com, if there are questions about locating or excavating near our AT&T Texas/SWBT facilities.

NO.	DATE	REVISIONS	APP

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Texas Department of Transportation

TO APPROVE YOUR LINES TO BE PLOTTED OFF THE NORTH, CALL ON TEXAS811 AT 713-223-4567

PRIVATE UTILITY LINES SHOWN
AS SHOWN ON SHEET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4761

Date
Centerpoint Energy/Gas Facilities
Note: Gas Facilities Shown Hereon Are Approximate Locations Only
Shown for APPROVAL FOR CONSTRUCTION ONLY

Date
Approved for SWC underground conduit facilities only
Signature valid for one year

Date
CenterPoint Energy/Gas Facilities/ENTEX (NORTH/SOUTH)
(See separate letter and mark-up sheet)

CABLE COMPANY

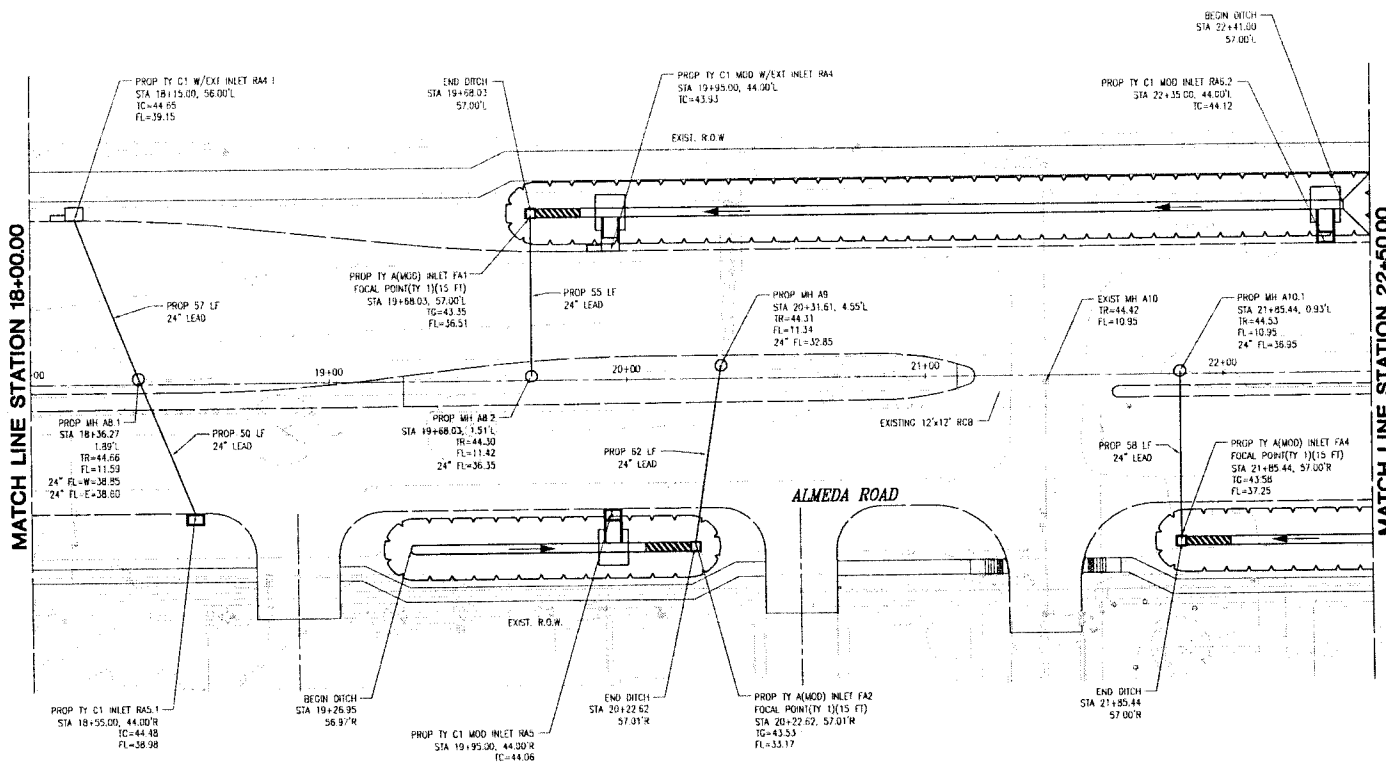
CivilTech Engineering, Inc.
11821 Telge Road
Cypress, Texas 77429
(281) 304-0200 Fax (281) 304-0210
Registration No. F-982

DARRELL L. KASBORA
78295
LICENSED PROFESSIONAL ENGINEER
02/24/2015

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

ALMEDA ROAD FROM OLD SPANISH TRAIL TO S. MACGREGOR WAY
DRAINAGE PLAN
STA. 13+50 TO STA. 18+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-0000806-0001-4	
DRAWING SCALE	
VERT. AS NOTED	
HORIZ. AS NOTED	
CITY OF HOUSTON PM	
MICHELLE HANDON, P.E.	
SHEET NO. 124 OF 271	



PLAN

SEE SHEET 127 FOR PROFILE VIEW

20 0 20 40

SCALE: HORIZ. 1"=20'
VERT. 1"=2'

LEGEND

	EXISTING	PROPOSED
Curb		
Edge of Pavement		
R.O.W.		
Curve Number		C1
Storm Sewer/MH		
Curb Inlet/Grate Inlet		
Sanitary Sewer/ MH/Cleanout		
DITCH FLOW DIRECTION		

Reconnect Exist Offsite Storm Sewer Pipes To Proposed Storm Sewer System. This Work Is Incidental To Various Bid Items.

NOTE:
The location of existing underground utilities are shown in an approximate way only. The contractor shall contact the Utility Coordinating Committee at 713-223-4567 or 1-800-669-8344 and the City of Houston Department of Public Works and Engineering at 832-394-9096 a minimum of two working days prior to construction to have locates marked. The contractor shall determine the exact location of all existing utilities before commencing work. He agrees to be fully responsible for any and all damages which might be occasioned by his failure to exactly locate and preserve any and all underground utilities.

CAUTION: UNDERGROUND GAS FACILITIES
Locations of CenterPoint Energy mains were (or include CenterPoint Energy, Entex and Reliant Energy HL&P, where applicable) are shown in an approximate location only. Services were not usually not shown. The omission of these plans only indicates that our records are shown in approximate location. It does not imply this is correct. The contractor shall contact the Utility Coordinating Committee at 713-223-4567 or 1-800-669-8344 a minimum of 48 hours prior to construction to have mains and services field marked.
• When Center Point Energy mains are crossings are not exposed, call 713-467-6937 (7400 am to 4:30 pm) for depths of line contact regard before excavation begins.
• When excavating within explorers within (24") of the indicated location of Center Point Energy facilities, all excavation must be accomplished using non-mechanized excavation procedures.
• When Center Point Energy facilities are exposed, sufficient support must be provided to the facilities to prevent excessive stress on the joints.
The contractor is fully responsible for any damages caused by the contractor's failure to exactly locate and preserve these underground facilities.

WARNING: OVERHEAD ELECTRICAL FACILITIES
Overhead lines may exist on the property. We have not attempted to mark these lines since they are clearly visible, but you should locate them prior to beginning any construction. Texas law, Section 752.116(a)(b) and (c)only cases, forbids all activities in which persons or things may come within six (6) feet of low overhead high voltage lines, unless permission for the work, including precautions, are equally responsible of the safety of construction workers upon the lines. The utility owner/operator may require the work to be carried out at a contracted cost. Call before digging at 713-207-2222. Revised 2005

WARNING: AT&T TEXAS/SWBT FACILITIES
The locations of AT&T Texas/SWBT facilities are shown in an approximate way only. The contractor shall determine the exact location before commencing work. He agrees to be fully responsible for any and all damages which might be occasioned by failure to exactly locate and preserve these underground facilities.
The contractor shall call 1-800-344-8377 a minimum of 48 hours prior to construction to have underground lines field located.
When excavating within explorers within (24") of the indicated location of AT&T Texas/SWBT facilities, all excavations must be accomplished using non-mechanized excavation procedures. When using the contractor shall expose the AT&T Texas/SWBT facilities.
When AT&T Texas/SWBT facilities are exposed, the contractor will provide support to prevent damage to the conduit ducts or cables. When excavating near structures such as conduits and ducts the pile for support.
The existence or absence of AT&T Texas/SWBT underground conduit locations does not mean that there are no direct buried cables in the area. Before the Owner/Owner's labor procedure to invoke the AT&T Texas/SWBT buried cables as indicated in the AT&T Texas Research and Alignment Process for AT&T Texas/SWBT locations.
Please contact the AT&T Texas Damage Prevention Manager at Richmond Tex. at 281-467-4502 or email him at KT2760@att.com, if there are questions about burying or excavating near our AT&T Texas/SWBT facilities.

NO.	DATE	REVISIONS	APP.

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TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-2222

PRIVATE UTILITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567

Date
CenterPoint Energy/Entex/Reliant Energy
Signature and date of underground utilities and properly located
Signature not required if no underground utilities

Date
Approved for SWBT underground conduit facilities only
Signature need not be obtained

Date
CenterPoint Energy/Gas Facilities/SWBT INCORPORATED
(Use normal lines on not shown)

CABLE COMPANY

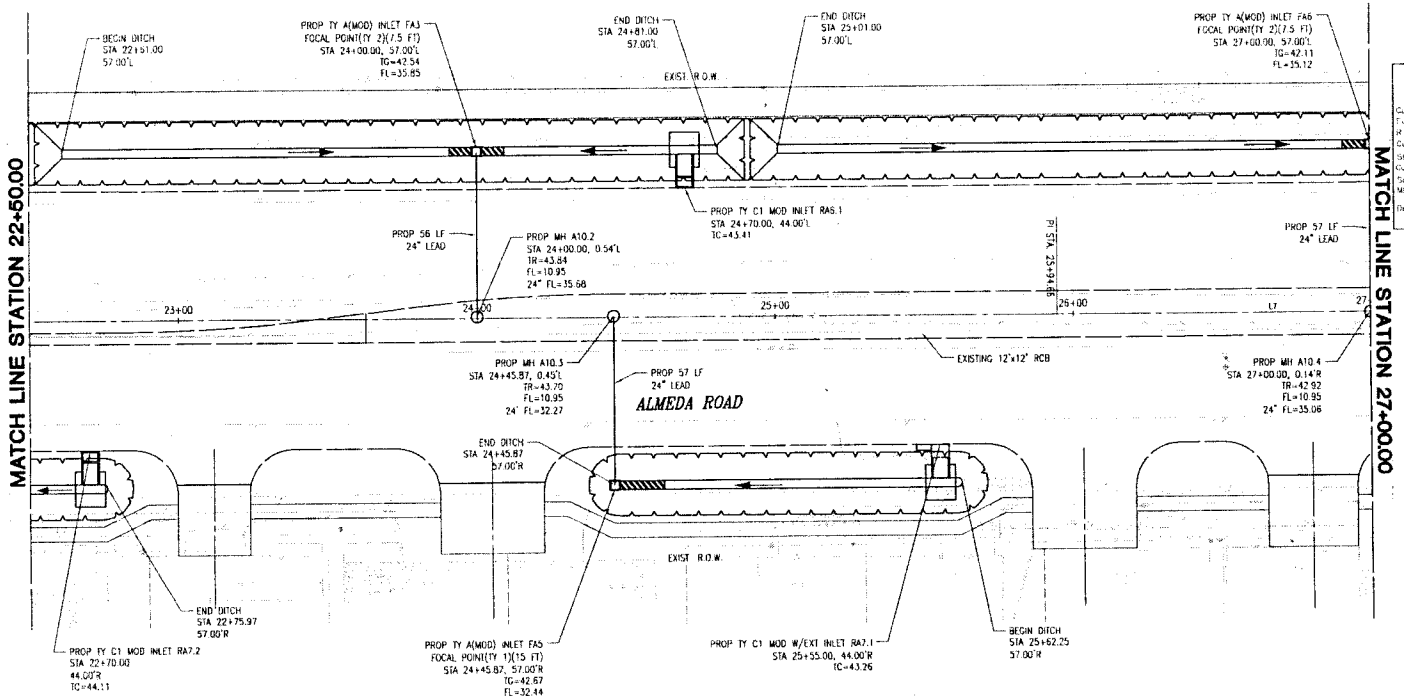
CivilTech Engineering, Inc.
11621 Telge Road
Cypress, Texas 77429
(281) 304-0200 Fax (281) 304-0210
Registration No. F-1862

DARRELL L. KADERKA
79298
LICENSED PROFESSIONAL ENGINEER
02/24/2015

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

ALMEDA ROAD FROM OLD SPANISH TRAIL TO S. MACGREGOR WAY
DRAINAGE PLAN
STA 18+00 TO STA 22+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-000386-0001-4	
DRAWING SCALE	
VERT.: AS NOTED	
HORIZ.: AS NOTED	
CITY OF HOUSTON PM	
MICHELLE RANDON, P.E.	
SHEET NO. 126 OF 271	



PLAN

SEE SHEET 129 FOR PROFILE VIEW

Reconnect Exist Offsite Storm Sewer Pipes To Proposed Storm Sewer System. This Work Is Incidental To Various Bid Items.

SCALE: HORIZ 1"=20'
VERT 1"=2'

LEGEND

	EXISTING	PROPOSED
Curb		
Edge of Pavement		
R.O.W.		
Curve Number		(C1)
Storm Sewer/Mh		
Curb Inlet/Grate Inlet		
Sanitary Sewer/ MH/Cleanout		
DITCH FLOW DIRECTION		

NOTE

The location of existing underground utilities are shown in an approximate way only. The contractor shall contact the Utility Coordinating Committee at (713) 223-4567 or 1 (800) 669-8344 and the City of Houston Department of Public Works and Engineering at (832) 394-9099 a minimum of two working days prior to construction to find locate utilities. The contractor shall determine the exact location of all existing utilities before commencing work, he agrees to be fully responsible for any and all damages which might be occasioned by his failure to exactly locate and preserve any and all underground utilities.

CAUTION: UNDERGROUND GAS FACILITIES

Locations of Centerpoint Energy mains were be include Centerpoint Energy Intrastate Pipeline mains, where applicable) are shown in an approximate fashion only. Service lines are usually not shown. The purposes on these plans only indicates that our highways are shown in approximate locations. It does not imply that a conflict exists. The contractor shall contact the Utility Coordinating Committee at 713-227-4567 or 1 (800) 669-8344 a minimum of 48 hours prior to construction to have lines and services field located.

- When Center Point Energy does have ownership one has existed, use 713-207-4100 (7:00 am to 4:30 pm) for notice of line location request before excavation begins.
- When excavating within eighteen inches (18") of the indicated location of Center Point Energy facilities, all excavation must be accomplished using non-mechanized excavation procedures.
- When Center Point Energy facilities are exposed, sufficient support must be provided to the facilities to prevent excessive stress at the joints.

The contractor is fully responsible for any damages caused by the contractor's failure to exactly locate and preserve these underground facilities.

WARNING: OVERHEAD ELECTRICAL FACILITIES

Overhead wires may exist on the property. We have not attempted to mark those wires which they are clearly visible, but give special notice that prior to beginning any construction Texas law, Section 752, Health and Safety Code, forbids all operators of which persons or things may come within ten (10) feet of the unprotected high voltage lines. The sole responsibility for the work, including construction, are legally responsible for the safety of construction workers and/or the public. The owners both overhead and underground, is warning of wires but failure of an employee still, contact Energy at 713-207-2222.

Revised 2008

WARNING: AT&T TEXAS/SWBT FACILITIES

The locations of AT&T Texas/SWBT facilities are shown in an approximate way only. The contractor shall determine the exact location before commencing work. He agrees to be fully responsible for any and all damages which might be occasioned by failure to exactly locate and preserve these underground facilities.

The contractor shall call 1 (800) 344-8377 a minimum of 48 hours prior to construction to have underground lines located.

When excavating within eighteen inches (18") of the indicated location of AT&T Texas/SWBT facilities, all excavations must be accomplished using non-mechanized excavation procedures. When using the contractor shall contact the AT&T Texas/SWBT facilities.

When AT&T Texas/SWBT facilities are exposed, the contractor will provide support to prevent damage to the conduit ducts or cables. When excavating near telephone poles the contractor shall ensure the pole for support.

The presence or absence of AT&T Texas/SWBT underground conduit facilities does not mean that there are no direct buried cables in the area. Follow the Direct Buried Cable Procedure to locate the AT&T Texas/SWBT buried cables as elaborated in the AT&T Texas Relocation and Signature Process for AT&T Texas/SWBT Facilities.

Please contact the AT&T Texas Damage Prevention Manager Mr. Roosevelt Lee Jr. at 713-567-4562 or email him at rl2296@att.com, if there are questions about buried or overhead near our AT&T Texas/SWBT facilities.

NO.	DATE	REVISIONS	APP.

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Texas Department of Transportation

TO ARRANGE FOR LINES TO BE MARKED OUT OR MOVED, CALL CENTERPOINT AT 713-207-2222

PRIVATE UTILITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS, CALL THE LONE STAR NOTIFICATION 713-235-2162

Date

CenterPoint Energy/Entex Facilities
SIGNATURE INDICATES underground ELECTRIC lines are properly SHOWN. NOT APPROVAL FOR CONSTRUCTION OR SPACE

Date

Approved for SBC underground conduit for cross only
Signature valid for one year

Date

CenterPoint Energy/Gas Facilities (Entex Incorporated)
(Gas service lines are not shown)

DATE COMPANY

CivilTech Engineering, Inc.
11621 Telge Road
Cypress, Texas 77429
(281) 304-0260 Fax (281) 304-0261
Registration No. F-952

GABRIELL L. WADENKA
79199
LICENSED PROFESSIONAL ENGINEER

02/24/2015

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

ALMEDA ROAD FROM OLD SPANISH TRAIL TO S. MACGREGOR WAY DRAINAGE PLAN
STA. 22+50 TO STA. 27+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-000080E-0001-4	
DRAWING SCALE	
VERT: AS NOTED	
HORIZ: AS NOTED	
CITY OF HOUSTON PM	
MICHELLE RANDON, P.E.	
SHEET NO. 126 OF 271	

PLAN

SEE SHEET 131 FOR PROFILE VIEW

Reconnect Exist Offsite Storm Sewer Pipes To Proposed Storm Sewer System. This Work Is Incidental To Various Bid Items.

NOTE:

CAUTION: UNDERGROUND GAS FACILITIES

WARNING: OVERHEAD ELECTRICAL FACILITIES

WARNING: AT&T TEXAS/SWBT FACILITIES

NO.	DATE	REVISIONS	APP

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PRIVATE UTILITY LINES SHOWN

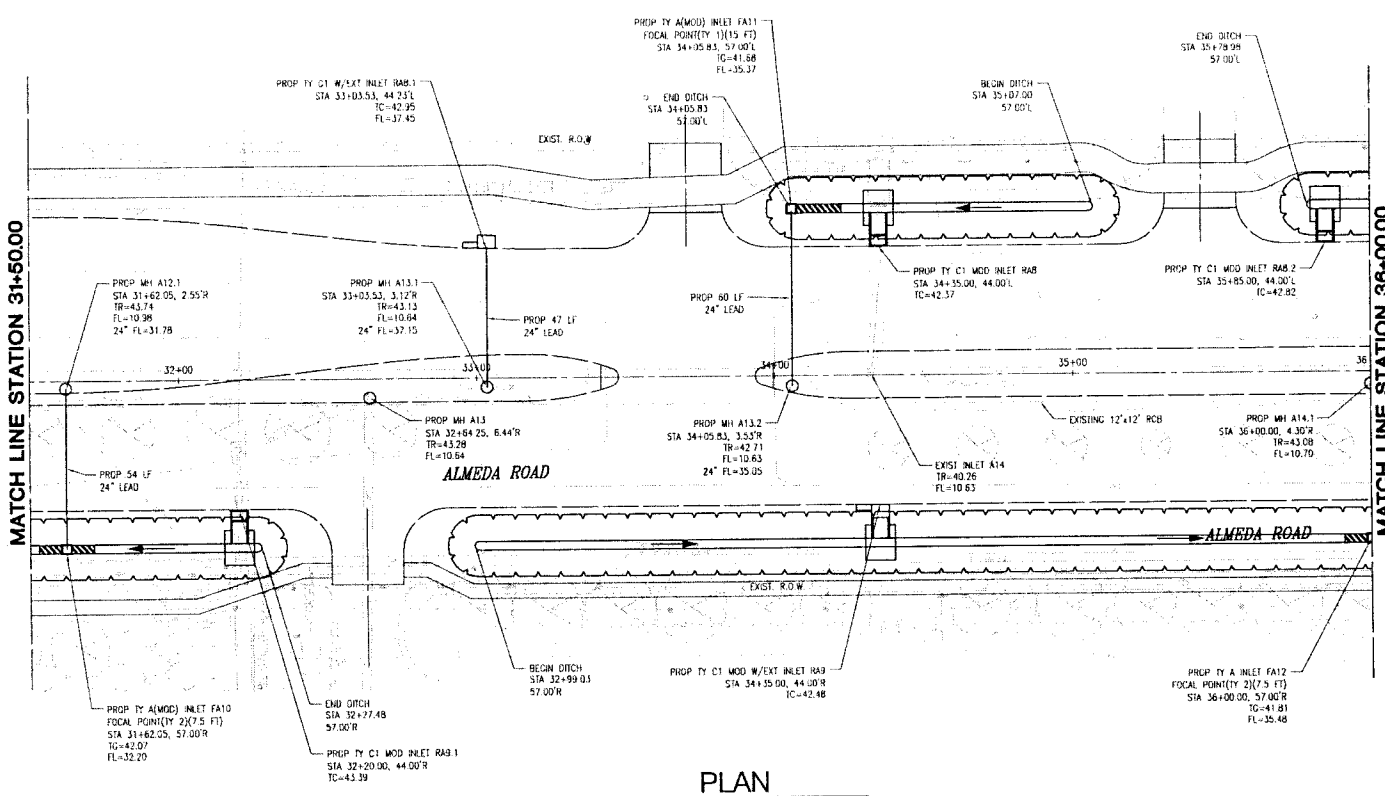
CivilTech Engineering, Inc.
11821 Telge Road
Cypress, Texas 77429
(281) 304-0200 Fax (281) 304-0210
Registration No. F-362

DARRELL L. KADERKA 79298
02/24/2015

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

ALMEDA ROAD FROM OLD SPANISH TRAIL TO S. MACGREGOR WAY
DRAINAGE PLAN
STA. 27+00 TO STA. 31+50

WBS NUMBER: N-000806-0001-
DRAWING SCALE: VERT.: AS NOTED HORIZ.: AS NOTED
CITY OF HOUSTON PM: MICHELLE RANDON, P.E.



PLAN

SEE SHEET 133 FOR PROFILE VIEW

Reconnect Exist Offsite Storm Sewer Pipes To Proposed Storm Sewer System. This Work Is Incidental To Various Bid Items.

20 0 20 40

SCALE HORIZ 1"=20'
VERT. 1"=2'

LEGEND

	EXISTING	PROPOSED
Curb		
Edge of Pavement		
R.O.W.		
Curve Number		C1
Storm Sewer/Mh		
Curb Inlet/Grate Inlet		
Sanitary Sewer/ Mh/Cleanout		
DITCH FLOW DIRECTION		

NOTE:

The location of existing underground utilities are shown in an approximate way only. The contractor shall contact the Texas One-Call System, Houston Department of Public Works and Engineering at (832) 395-2600 a minimum of two working days prior to construction to have utilities staked. The contractor shall determine the exact location of all existing utilities before commencing work and agrees to be fully responsible for any and all damages which might be occasioned by the failure to exactly locate and preserve any and all underground utilities.

CAUTION: UNDERGROUND GAS FACILITIES

Centerpoint Energy Gas Services Distribution Division, Centerpoint Energy Entex/Reliant Energy Arkla, and/or their predecessors and successors in interest may have gas facilities in the area of this project. The contractor shall contact the Texas One-Call System at 713-223-4567 or 1-800-669-8344 a minimum of 48 hours prior to construction to have them locate and mark any gas facilities.

- When Centerpoint Energy Gas Services Distribution Division, Centerpoint Energy Entex/Reliant Energy Arkla, and/or their predecessors and successors in interest facilities are found in conflict with proposed construction, the contractor shall notify the Texas One-Call System at 713-223-4567 or 1-800-669-8344 a minimum of 48 hours prior to construction to have them located and marked.
- When Centerpoint Energy Gas Services Distribution Division, Centerpoint Energy Entex/Reliant Energy Arkla, and/or their predecessors and successors in interest facilities are found in conflict with proposed construction, the contractor shall contact Centerpoint Energy Gas Services Distribution Division, Centerpoint Energy Entex/Reliant Energy Arkla, and/or their predecessors and successors in interest at 713-207-2222 for location of new valves or relocated facility construction details.
- When conducting within easement extents (10') of the relocated location of Centerpoint Energy Gas Services Distribution Division, Centerpoint Energy Entex/Reliant Energy Arkla, and/or their predecessors and successors in interest facilities, all excavation must be accomplished using hand excavation/air excavation procedures.
- When Centerpoint Energy Gas Services Distribution Division, Centerpoint Energy Entex/Reliant Energy Arkla, and/or their predecessors and successors in interest facilities are exposed sufficient support must be provided to the facilities to prevent excessive stress on the pipe.

The contractor is fully responsible for any damages caused by the contractor's failure to exactly locate and preserve these underground facilities.

WARNING: OVERHEAD ELECTRICAL FACILITIES

Overhead electric lines exist on the property. No work shall be performed in close proximity to overhead electric lines until the owner of the electric line has been notified at least two working days prior to beginning any construction. Texas Law, Section 752, Health and Safety Code, forbids all individuals or vehicle portions of the equipment to come within six (6) feet of any overhead high voltage wires. Persons responsible for the work, including contractors, are legally responsible for the safety of construction workers while they are near these power lines and will be liable for damages for injury or death to workers or damage to the power lines. Contact the Centerpoint Energy at 713-207-2222. Revised 2/16

WARNING: AT&T TEXAS/SWBT FACILITIES

The locations of AT&T Texas/SWBT facilities are shown in an approximate way only. The contractor shall determine the exact location before commencing work. He agrees to be fully responsible for any and all damages which might be occasioned by failure to exactly locate and preserve these underground utilities.

The contractor shall call 1-800-344-8377 a minimum of 48 hours prior to construction to have underground lines located.

When conducting within easement extents (10') of the indicated location of AT&T Texas/SWBT facilities, all excavation must be accomplished using hand excavation/air excavation procedures. After locating the underground plant expose the AT&T Texas/SWBT facilities.

When AT&T Texas/SWBT facilities are exposed, the contractor will provide support to prevent damage to the conduit, duct or cable. When excavating near sensitive cables the contractor shall ensure the pipe is supported.

The presence or absence of AT&T Texas/SWBT underground conduit facilities does not mean that there are no direct buried cables in the area. Follow the Direct Buried Cable Precautions to locate the AT&T Texas/SWBT buried cables as indicated in the AT&T Texas Network and Engineering Process for AT&T Texas/SWBT Facilities.

Please contact the AT&T Texas Damage Prevention Manager at Kenneth Lee P. E. 713-567-4552 at least two (2) weeks prior to construction if there are questions about digging or excavating near our AT&T Texas/SWBT facilities.

NO.	DATE	REVISIONS	APP'D

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Texas Department of Transportation

TO ARRANGE FOR LOCATE OF ALL BURIED CITY OF HOUSTON UTILITIES, CALL CENTERPOINT AT 713-207-2222

PRIVATE UTILITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL TEXAS ONE CALL SYSTEM NOTIFICATION 713-223-4567.

Owner

Contractor Company/Firm/Individual
Name (Print), Signature, Title, Date, and Telephone Number for Construction Coordination

Date

Approved for SAW underground conduit locations only
Signature, valid for one year

Date

Centerpoint Energy/Entex Reliant Energy/Arkla - Authorized
Name and Name (Print) (Initials)

CABLE COMPANY

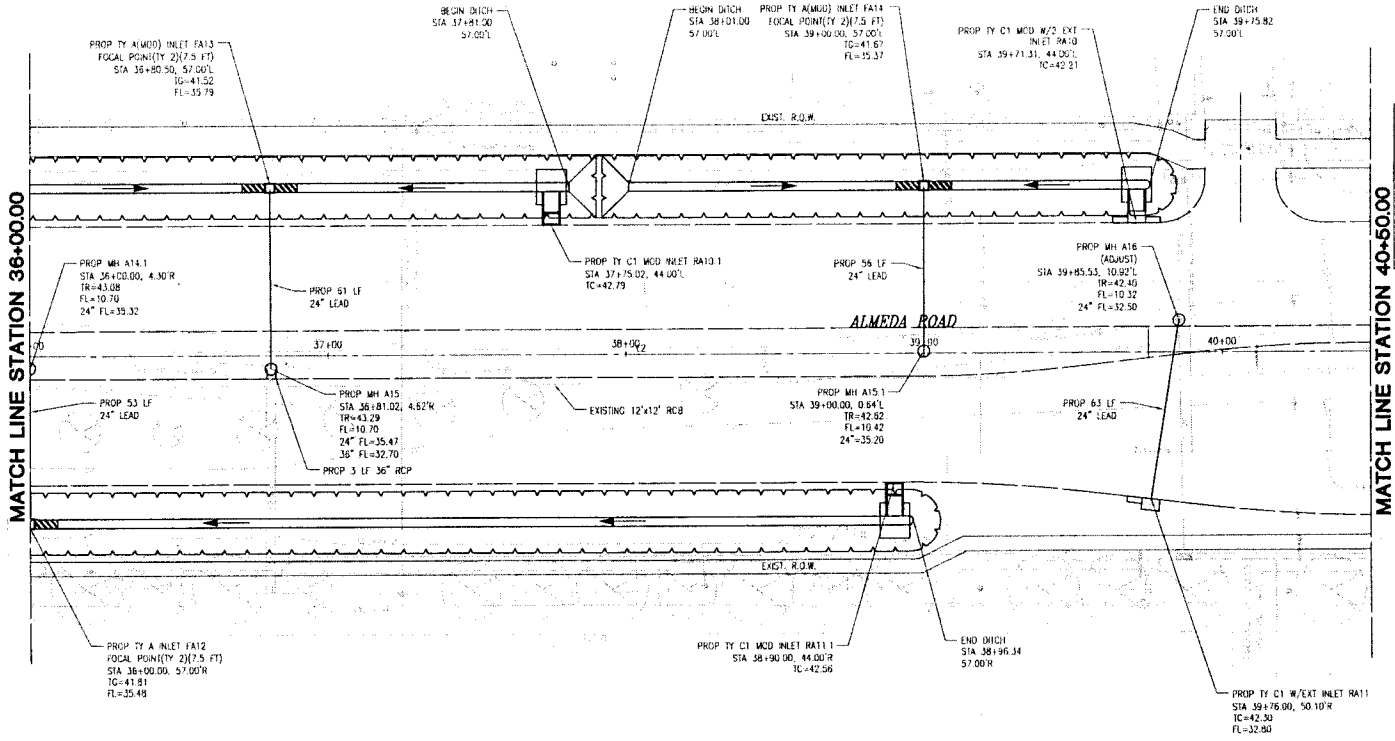
CivilTech Engineering, Inc.
11821 Telge Road
Cypress, Texas 77429
(281) 304-0200 Fax (281) 304-0210
Registration No. F-362

02/24/2015

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

ALMEDA ROAD FROM OLD SPANISH TRAIL TO S. MACGREGOR WAY DRAINAGE PLAN STA. 31+50 TO STA. 36+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-000508-0001-4	
DRAWING SCALE	
VERT. AS NOTED	
HORIZ. AS NOTED	
CITY OF HOUSTON PM	
MICHELLE RANSOM, P.E.	
SHEET NO. 132 OF 271	



PLAN

SEE SHEET 135 FOR PROFILE VIEW

SCALE: HORIZ. 1"=20'
VERT. 1"=2'

LEGEND

	EXISTING	PROPOSED
Curb		
Edge of Pavement		
R.O.W.		
Curve Number		C1
Storm Sewer/MH		
Curb Inlet/Grate Inlet		
Sanitary Sewer/MH/Cleanout		
DITCH FLOW DIRECTION		

Reconnect Exist Offsite Storm Sewer Pipes To Proposed Storm Sewer System. This Work Is Incidental To Various Bid Items.

NOTE:
The location of existing underground utilities shown hereon are shown in an approximate way only. The contractor shall notify the Utility Coordinating Committee at 713-223-3540 or 1-800-669-8344 and the City of Houston Department of Public Works and engineering at 832-394-9064 a minimum of two working days prior to construction in any locations whatsoever. The contractor shall determine the exact location of all existing utilities before commencing work, and agrees to be fully responsible for any and all damages which might be occasioned by his failure to exactly locate and preserve any and all underground utilities.

CAUTION: UNDERGROUND GAS FACILITIES
Locations of underground pipelines that are for natural gas fuel, gasoline, diesel, propane, chemicals, slurries (pipelines) are shown on an approximate manner only. Service lines are usually not shown. The omission of these lines may not imply that no natural gas pipelines are present. Contact the Texas Gas Service Company at 713-567-0444 or 1-800-992-4949 a minimum of 48 hours prior to construction to have them field located and service lines located.

- When Center Point Energy gas line markings are not visible, call 713-207-1111 or 1-800-227-1700 at least 48 hours prior to the start of the excavation to have them located.
- When excavating within exposed mains (105) of the calculated location of Center Point Energy facilities, a excavator must use compressed sand non-mechanical excavation procedure.
- When Center Point Energy facilities are exposed, sufficient support must be provided by the contractor to prevent excessive stress in the pipe.

The contractor is fully responsible for any damages caused by the contractor's failure to exactly locate and preserve these underground facilities.

WARNING: OVERHEAD ELECTRICAL FACILITIES
Overhead electric lines exist on the property. Be aware of attempts to work these lines since they are highly visible, but are almost invisible from prior to beginning any construction. Work can obtain OSHA health and safety rules, failures of activities in which persons or things may come within six (6) feet of the overhead high voltage lines. Persons responsible for the work, including contractors, are equally responsible for the safety of construction workers while they are near these overhead electric lines. To arrange for lines to be turned off or removed call Centerpoint Energy at 713-207-2222. Revised 3/08

WARNING: AT&T TEXAS/SWBT FACILITIES
The locations of AT&T Texas/SWBT facilities shown hereon are approximate only. The contractor shall determine the exact location before commencing work. He agrees to be fully responsible for any and all damages which might be occasioned by failure to exactly locate and preserve these underground utilities.
The contractor shall call 1-800-344-8377 a minimum of 48 hours prior to construction to have underground lines field located.
When excavating within exposed mains (36") of the calculated location of AT&T Texas/SWBT facilities, all excavations must be accomplished using non-mechanical excavation procedures when using, the contractor shall expose the AT&T Texas/SWBT facilities.
When AT&T Texas/SWBT facilities are exposed, the contractor will provide support to prevent damage to the conduit bulk or cable. When excavating near telephone poles the contractor shall furnish the pole for support.
The presence or absence of AT&T Texas/SWBT underground conduit facilities does not mean that there are no direct buried cables in the area. Future line direct buried cable Protection to locate the AT&T Texas/SWBT buried cables is indicated in the AT&T texas Requests and Signature Process for AT&T Texas/SWBT network.
Please contact the AT&T Texas Damage Prevention Manager Mr. Roosevelt Lee at at 713-567-4042 or email him at rl2298@att.com, if there are questions about locating or excavating near our AT&T Texas/SWBT facilities.

NO.	DATE	REVISIONS	APP.

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TO REQUEST FOR LINES TO BE TURNED OFF OR MOVED, CALL LEAD/REPORT AT 713-207-2222

PRIVATE UTILITY LINES SHOWN
AT LEAST 48 HOURS (NOTICE) EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL 811 LONE STAR NOTIFICATION 713-223-4567

Date
Centerpoint Energy/Electric Division
STREETLIGHT INCIDENTS underground conduit and cable are shown(if known) but not all(if unknown) THE EXACTION IS YOURS

Date
Approved for ONE underground conduit facilities only
Signature need for one year

Date
Centerpoint Energy/Gas Distribution/CNTR accompanied
(Gas services owner not shown)

CABLE COMPANY

CivilTech Engineering, Inc.
11621 Targe Koost
Cypress, Texas 77429
(281) 304-0300 Fax (281) 304-0210
Registration No. F-3182

DARRELL L. KATHRIVAS
79268
REGISTERED PROFESSIONAL ENGINEER
02/24/2015

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

ALMEDA ROAD FROM OLD SPANISH TRAIL TO S. MACGREGOR WAY
DRAINAGE PLAN
STA. 36+00 TO STA. 40+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-000089-0001-4	
DRAWING SCALE	
VERT.: AS NOTED	
HORIZ.: AS NOTED	
CITY OF HOUSTON PM	
MICHELLE MANTON, P.E.	
SHEET NO. 134 OF 271	

Aug 24, 2015 - 11:52am - S:\Drainage\ALMEDA\Dgn\SHEETS\134-DRAINAGE.dgn

PLAN

SEE SHEET 137 FOR PROFILE VIEW

Reconnect Exist Offsite Storm Sewer Pipes To Proposed Storm Sewer System. This Work Is Incidental To Various Bid Items.

NOTE

CAUTION: UNDERGROUND GAS FACILITIES

WARNING: OVERHEAD ELECTRICAL FACILITIES

WARNING: AT&T TEXAS/SWBT FACILITIES

NO.	DATE	REVISIONS	APP.

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Texas Department of Transportation

PRIVATE UTILITY LINES SHOWN

CivilTech Engineering, Inc.
11821 Telge Road
Cypress, Texas 77429
(281) 304-0200 Fax (281) 304-0210
Registration No. F-382

DARRELL E. KADERKA
79298

02/24/2015

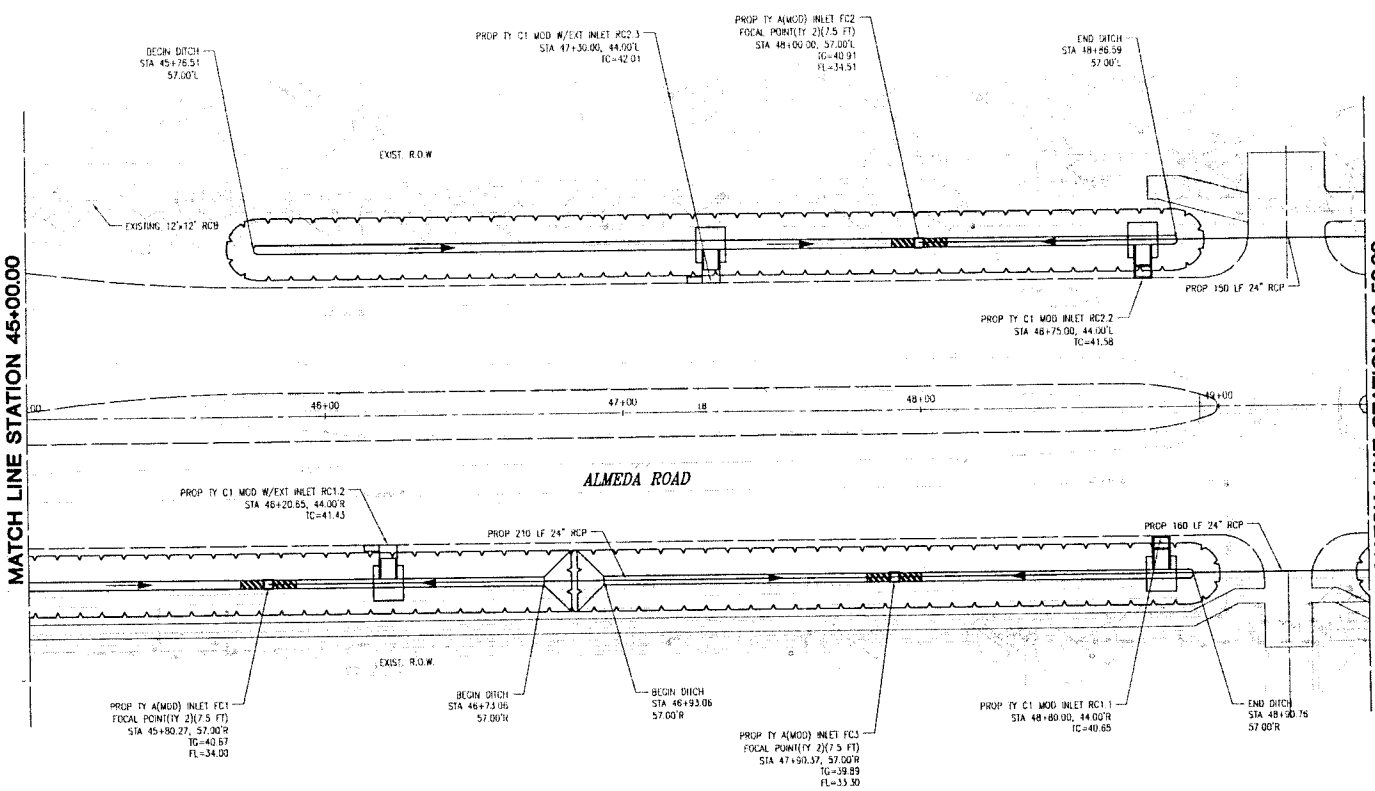
CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

ALMEDA ROAD FROM OLD SPANISH TRAIL TO S. MACGREGOR WAY DRAINAGE PLAN STA. 40+50 TO STA. 45+00

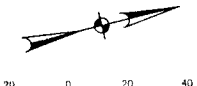
WBS NUMBER: N-000806-0003-
DRAWING SCALE: VERT. AS NOTED, HORZ. AS NOTED
CITY OF HOUSTON PM: MICHELLE RANDON, P.E.

SHEET NO. 136 OF 271



PLAN

SEE SHEET 139 FOR PROFILE VIEW



SCALE: HORIZ. 1"=20'
VERT. 1"=2'

LEGEND

	EXISTING	PROPOSED
Curb		
Edge of Pavement		
R.O.W.		
Curve Number		C1
Storm Sewer/MH		
Curb Inlet/Grate Inlet		
Sanitary Sewer/MH/Cleanout		
DITCH FLOW DIRECTION		

Reconnect Exist Offsite Storm Sewer Pipes To Proposed Storm Sewer System. This Work Is Incidental To Various Bid Items.

NOTE:

The locations of existing underground utilities are shown in all approximate way only. The contractor shall contact the Utility Coordinating Committee at 713-223-4567 or 1-800-669-8344 and the City of Houston Department of Public Works and Engineering at 832-395-2346 a minimum of two working days prior to construction to have locals utilities. The contractor shall determine the exact location of all existing utilities before commencing work. He agrees to be fully responsible for any and all damages which might be occasioned by his failure to exactly locate and preserve any and all underground utilities.

CAUTION: UNDERGROUND GAS FACILITIES

Locations of CenterPoint Energy mains are for route underlined (single, centerline) purposes only and should be considered approximate. Actual locations may vary from those shown. The contractor shall determine the exact location of all CenterPoint Energy facilities before excavation begins. For the purpose of these plans any locations that are shown as approximate unless it can be clearly proven that they have been made. The contractor shall contact the Texas Excavation Safety System at 713-223-4567 or 1-800-669-8344 a minimum of 48 hours prior to construction to have mains and service lines located.

- When CenterPoint Energy gas line crossings are not exposed, call 713-207-2122 (or) at 4:30 pm) for notice of one working day's notice required before excavation begins.
- When excavating within right-of-way (ROW) of the indicated location of CenterPoint Energy facilities, all excavation must be accomplished using non-mechanized excavation procedures.
- When CenterPoint Energy facilities are exposed, sufficient support must be provided by the contractor to prevent movement while of the facility.

The contractor is fully responsible for any damages caused by the contractor's failure to exactly locate and preserve these underground facilities.

WARNING: OVERHEAD ELECTRICAL FACILITIES

Overhead wires may exist on the property. We have not attempted to mark these lines since they are usually visible, but you should locate them prior to beginning any construction. Texas Law, Section 752, Health and Safety Code, requires all activities in which persons or equipment may come within six (6) feet of any overhead high voltage wires, persons responsible for the work, including contractors, are legally responsible for the safety of construction workers while they work. This carries both criminal and civil liability. To arrange for work to be carried out or removal of CenterPoint Energy 24 hr 713-207-2222.

WARNING: AT&T TEXAS/SWBT FACILITIES

The locations of AT&T Texas/SWBT facilities are shown as an approximate way only. The contractor shall determine the exact location before excavating work. He agrees to be fully responsible for any and all damages which might be occasioned by failure to exactly locate and preserve these underground utilities.

The contractor shall call 1-800-344-8377 a minimum of 48 hours prior to construction to have underground wires field located.

When excavating within engineer exposed (ROW) of the indicated location of AT&T Texas/SWBT facilities, all excavations must be accomplished using non-mechanized excavation procedures. When locating the contractor shall expose the AT&T Texas/SWBT 24 hour.

When AT&T Texas/SWBT facilities are exposed, the contractor will provide support to prevent damage to the conduit ducts or cables. When excavating near telephone cables the contractor shall cross the cable for support.

The presence or absence of AT&T Texas/SWBT underground service facilities does not mean that there are no buried service cables in the area. Follow the 3-part Buried Cable Procedure to locate the AT&T Texas/SWBT owned cables as indicated in the AT&T Texas Resources and Signature Process for AT&T Texas/SWBT Facilities.

Please contact the AT&T Texas Damage Prevention Manager Mr. Richmond Lee Jr. at 713-567-4016 or email him at rl4296@att.com, if there are questions about identity or ownership over our AT&T Texas/SWBT facilities.

NO	DATE	REVISIONS	APP

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Texas Department of Transportation

TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-2222

PRIVATE UTILITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS, CALL ONE CALL NOTIFICATION SYSTEM 713-223-4567

Date

Contractor Signature and Company

Approved for ABC underground conduit facilities only

Signature valid for one year

Date

CenterPoint Energy/Gas Field Representative

(Gas service shall not be cut or moved)

DAILY COMPANY

CivilTech Engineering, Inc.
11521 Telge Road
Cypress, Texas 77429
(281) 304-0290 Fax (281) 304-0210
Registration No. F-2162

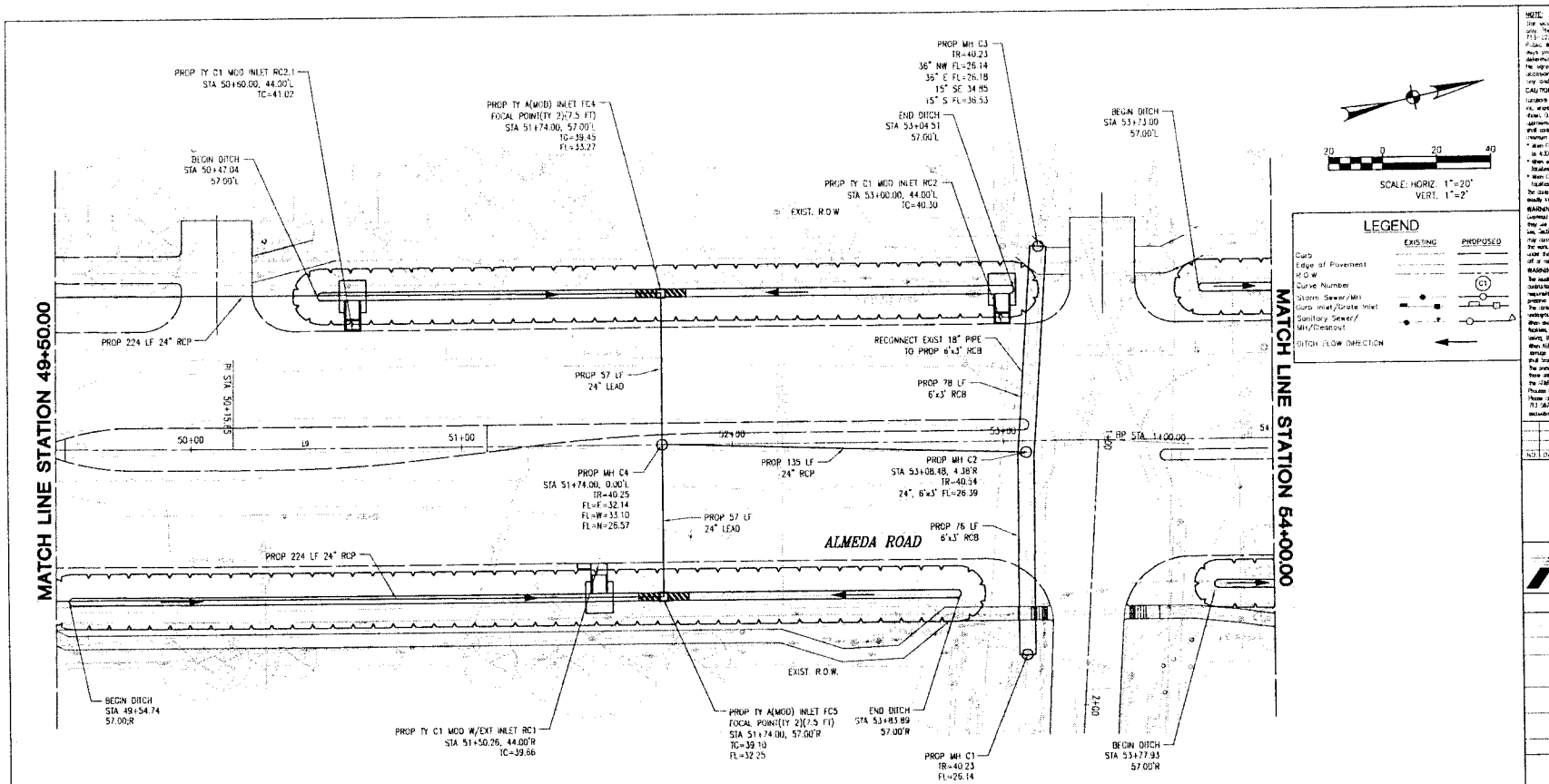
DARRELL L. KARRER
79208
LICENSED
PROFESSIONAL ENGINEER
STATE OF TEXAS

02/24/2015

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

ALMEDA ROAD FROM OLD SPANISH TRAIL TO S. MACGREGOR WAY DRAINAGE PLAN STA. 45+00 TO STA. 49+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-000880-0001-4	
DRAWING SCALE	
VERT. AS NOTED	
HORIZ. AS NOTED	
CITY OF HOUSTON PM	
MICHELLE RANDON, P.E.	
SHEET NO. 138 OF 271	



PLAN

SEE SHEET 1-41 FOR PROFILE VIEW

Reconnect Exist Offsite Storm Sewer Pipes To Proposed Storm Sewer System. This Work Is Incidental To Various Bid Items.

LEGEND

	EXISTING	PROPOSED
Curb		
Edge of Pavement		
R.O.W.		
Curve Number		(C1)
Storm Sewer/MH		
Curb Inlet/Grate Inlet		
Sanitary Sewer/ MH/Cleanout		
DITCH FLOW DIRECTION		

NOTE:
The location of existing underground utilities are known to be approximate in any way. The contractor shall contact the Utility Coordinating Committee at 713-223-4567 or 1-800-669-8344 and the City of Houston Department of Public Works and Engineering at 832-394-9048 a minimum of two working days prior to construction for field locate utilities. The contractor shall determine the exact location of all existing utilities before commencing work. He agrees to be fully responsible for any and all damages which might be occasioned by the failure to exactly locate and preserve any and all underground utilities.

CAUTION: UNDERGROUND GAS FACILITIES
Locations of Centerpoint Energy main lines (or private Centerpoint Energy installed facilities, where applicable) are shown as an approximate location only. Service lines are usually not shown. For purposes of these plans only indicates that gas facilities are shown in approximate location. It does not imply that a conflict exists nor does it imply that no other gas facilities exist. It does not imply that a conflict exists nor does it imply that no other gas facilities exist. The contractor shall contact the Utility Coordinating Committee at 713-223-4567 or 1-800-669-8344 a minimum of 48 hours prior to construction to have mains and service lines field located.

- When Center Point Energy pipe line markings are not visible and 713-207-1234 (AM or PM) is 4:30 pm) not value of one location request before excavation begins.
- When excavating within eighteen inches (18") of the indicated location of Center Point Energy facilities, all excavation must be accomplished using non-mechanized excavation procedures.
- When Center Point Energy facilities are exposed, sufficient support must be provided to the facilities to prevent excessive stress on the pipeline.

The contractor is fully responsible for any damages caused by the contractor's failure to exactly locate and preserve these underground facilities.

WARNING: OVERHEAD ELECTRICAL FACILITIES
Overhead wires may exist on the property we have not identified to mark these wires even they are clearly visible, but you should locate them prior to beginning any construction. Texas Law, Section 752, Health and Safety code, forbids all persons or equipment to work or things may come within six (6) feet of low overhead high voltage wires. Further responsible for the work, including subcontractors, are legally responsible for the safety of construction workers under this law. The owners both electrical and cost reliably to arrange for wires to be turned off or removed call Centerpoint Energy at 713-207-2222. Revised 2008

WARNING: AT&T TEXAS/SWBT FACILITIES
The locations of AT&T Texas/SWBT facilities are shown on an approximate site only, the contractor shall determine the exact location before commencing work. He agrees to be fully responsible for any and all damages which might be occasioned by failure to exactly locate and preserve these underground facilities.
The contractor shall call 1-800-344-8377 a minimum of 48 hours prior to construction to have underground lines field located.
When excavating within eighteen inches (18") of the indicated location of AT&T Texas/SWBT facilities, all excavations must be accomplished using non-mechanized excavation procedures. When using the contractor shall expose the AT&T Texas/SWBT facilities.
When AT&T Texas/SWBT facilities are exposed, the contractor will provide support to prevent damage to the conduit ducts or cables. When excavating near telephone poles the contractor shall ensure the pole for support.
The contractor in absence of AT&T Texas/SWBT underground conduit facilities does not mean that there are no direct buried cables in the area. Follow the Direct Buried Cable Procedure to locate the AT&T Texas/SWBT buried cables as indicated in the AT&T Texas Network and Signature Process for AT&T Texas/SWBT Facilities.
Please contact the AT&T Texas Damage Prevention Manager Mr. Raymond Lee Jr. at 713-567-4002 a minimum of 48 hours prior to construction. If there are questions about locating or excavating near an AT&T Texas/SWBT facilities.

NO.	DATE	REVISIONS	APP.

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Texas Department of Transportation

TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-7222

PRIVATE UTILITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE TEXAS ONE NOTIFICATION 713-223-4567

Date

CenterPoint Energy/Electric Facilities
Should utility relocation be required CITY MAY LEVY LIEN PROPERTY OWNER has APPROVAL FOR CONSTRUCTION IS GIVEN.

Date

Approved for TDC under ground conduit facilities only
Signature valid for one year

Date

CenterPoint Energy/Gas Facilities/WATER INCORPORATED
(Gas line work is not shown)

CABLE COMPANY

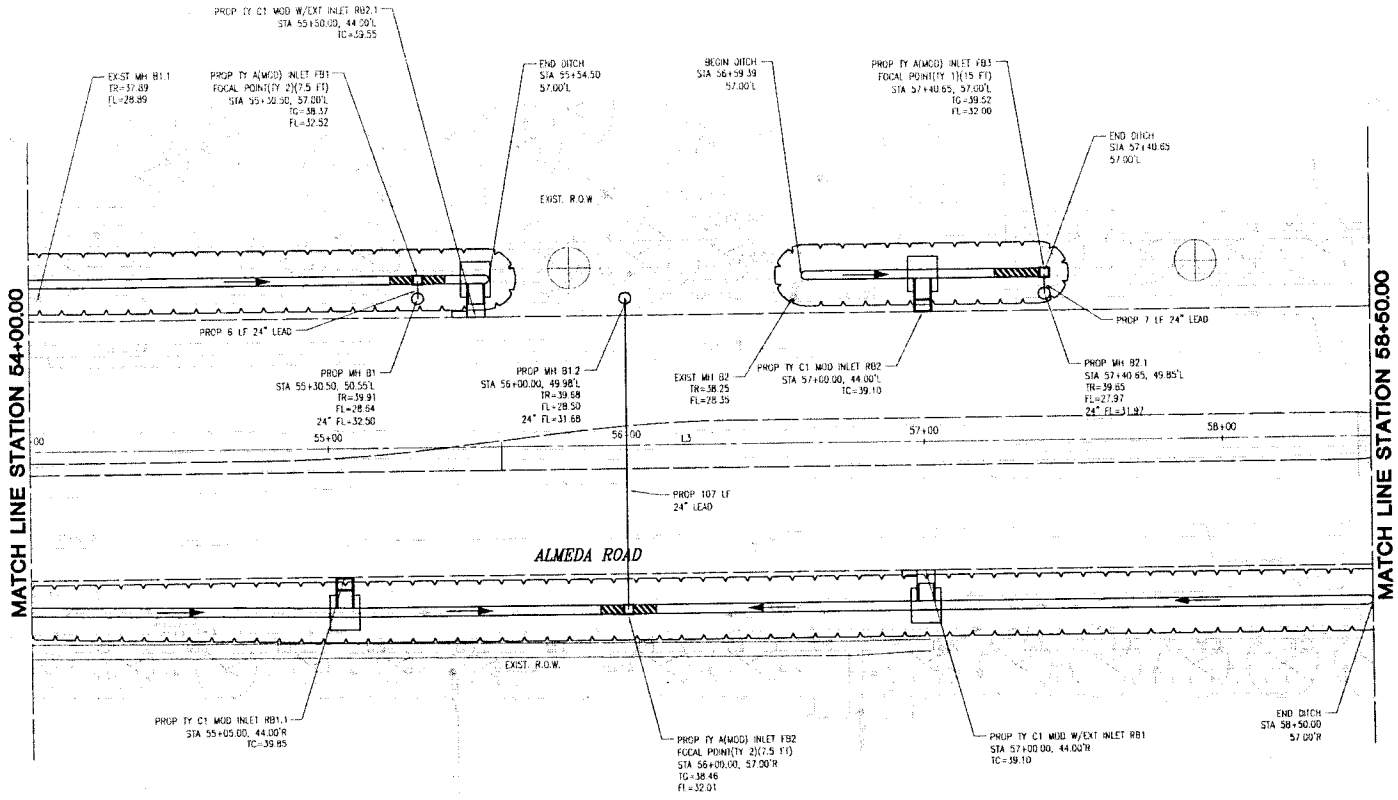
CivilTech Engineering, Inc.
11821 Tanya Road
Cypress, Texas 77429
(281) 304-0200 Fax (281) 304-0210
Registration No. F-352

DARRELL L. RADKA
79298
LICENSED PROFESSIONAL ENGINEER
02/24/2015

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

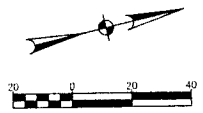
ALMEDA ROAD FROM OLD SPANISH TRAIL TO S. MACGREGOR WAY DRAINAGE PLAN STA. 49+50 TO STA. 54+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-000308-0001-3	
DRAWING SCALE	
VERT. AS NOTED	
HORIZ. AS NOTED	
CITY OF HOUSTON PM	
MICHELLE HANSON, P.E.	
SHEET NO. 140 OF 271	



PLAN

SEE SHEET 143 FOR PROFILE VIEW



SCALE: HORIZ. 1"=20'
VERT. 1"=2'

LEGEND

	EXISTING	PROPOSED
Curb		
Edge of Pavement		
R.O.W.		
Curve Number		C1
Storm Sewer/MH		
Curb Inlet/Grate Inlet		
Sanitary Sewer/ MH/Cleanout		
DITCH FLOW DIRECTION		

Reconnect Exist Offsite Storm Sewer Pipes To Proposed Storm Sewer System. This Work Is Incidental To Various Bid Items.

NOTE:
The locations of existing underground utilities are shown in an approximate way only. The contractor shall contact the Utility Coordinating Committee at 713 223-4567 or 1-800 669-8344 and the City of Houston Department of Public Works and Engineering at 832 395 2400 a minimum of two working days prior to construction to field locate utilities. The contractor shall determine the exact location of all existing utilities before commencing work. He agrees to be fully responsible for any and all damages which might be occasioned by his failure to exactly locate and preserve any and all underground utilities.

CAUTION: UNDERGROUND GAS FACILITIES
Locations of Centerpoint Energy main lines (or mains distributing energy, excluding those etc. where duplicated) are shown in an approximate location only. Service lines are usually not shown. Gas pressures in these lines are relatively low but failures are known to experience location. It has not more than 2 months elapsed since Centerpoint Energy personnel visited the site. The contractor shall contact the Utility Coordinating Committee at 713 223-4567 or 1-800 669-8344 a minimum of 48 hours prior to construction to have mains and services lines located.
• When Center Point Energy has also engineering we not realize not 713 381 4567 (TDD can be 800 345 7233) for locate of gas pressure request before excavation begins.
• When excavating within eighteen inches (18") of the indicated location of Center Point Energy facilities, all excavation must be accomplished using non-mechanized excavation procedures.
• When Center Point Energy facilities are exposed, sufficient support must be provided to the facilities to prevent excessive stress on the pipe.
The contractor is fully responsible for any damages caused by his contractor's failure to exactly locate and preserve these underground facilities.

WARNING: OVERHEAD ELECTRICAL FACILITIES
Overhead lines may exist on the property. We have not attempted to mark these since these are easily visible, but you should locate them prior to beginning any construction. Texas law (Section 752.004(b) and Safety Code) forbids all workers, persons or firms from any work within ten (10) feet of live overhead high voltage lines. Persons responsible for the work, including contractors, are legally responsible for the safety of construction workers and the public. The owners of these lines must be notified to arrange for lines to be turned off or removed for construction. Energy at 713-207-2222 Reliant 4218

WARNING: AT&T TRANSMITTER FACILITIES
The locations of AT&T Texas/SWBT facilities are shown, on an approximate way only. The contractor shall determine the exact location before commencing work. He agrees to be fully responsible for any and all damages which might be occasioned by failure to exactly locate and preserve these underground facilities.
The contractor shall call 1-800-344-5377 a minimum of 48 hours prior to construction to have underground lines field located.
When excavating within eighteen inches (18") of the indicated location of AT&T Texas/SWBT facilities, all excavations must be accomplished using non-mechanized excavation procedures. When using the contractor shall expose the AT&T Texas/SWBT facilities.
When AT&T Texas/SWBT facilities are exposed, the contractor will provide support to prevent damage to the conduit, ducts or cables. When excavating near facilities cross the contractor shall cross the pipe by support.
The presence or absence of AT&T Texas/SWBT underground conduit facilities does not mean that there are no direct buried cables in the area. Follow the Direct Buried Cable Procedure to locate the AT&T Texas/SWBT buried cables as indicated in the AT&T Texas Research and Signature Process for AT&T Texas/SWBT facilities.
Please contact the AT&T Texas Outside Plant Engineering Manager Mr. Richmond Lee Jr. at 713 567 4550 or email him at rl1756@att.com, if there are questions about locating or excavating near our AT&T Texas/SWBT facilities.

NO	DATE	REVISIONS	APP

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TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED CALL CENTERPOINT AT 713-207-2222

PRIVATE UTILITY LINES SHOWN
AT LEAST ONE WORKS INTERESTED LOCATION OF R.O.W. OR EASEMENTS CALL TEXAS 811 NOTIFICATION 713-223-4567

Date:
Centerpoint Energy Electric Facilities
Signature below indicates agreement to the lines and equipment shown are accurate. See construction sheets

Date:
Centerpoint for gas underground conduit facilities only
Signature below for gas only

Date:
Centerpoint Energy Gas Facilities (NOT INCLUDING TELECOMMUNICATIONS)
(Gas lines are not shown on this drawing)

CABLE COMPANY

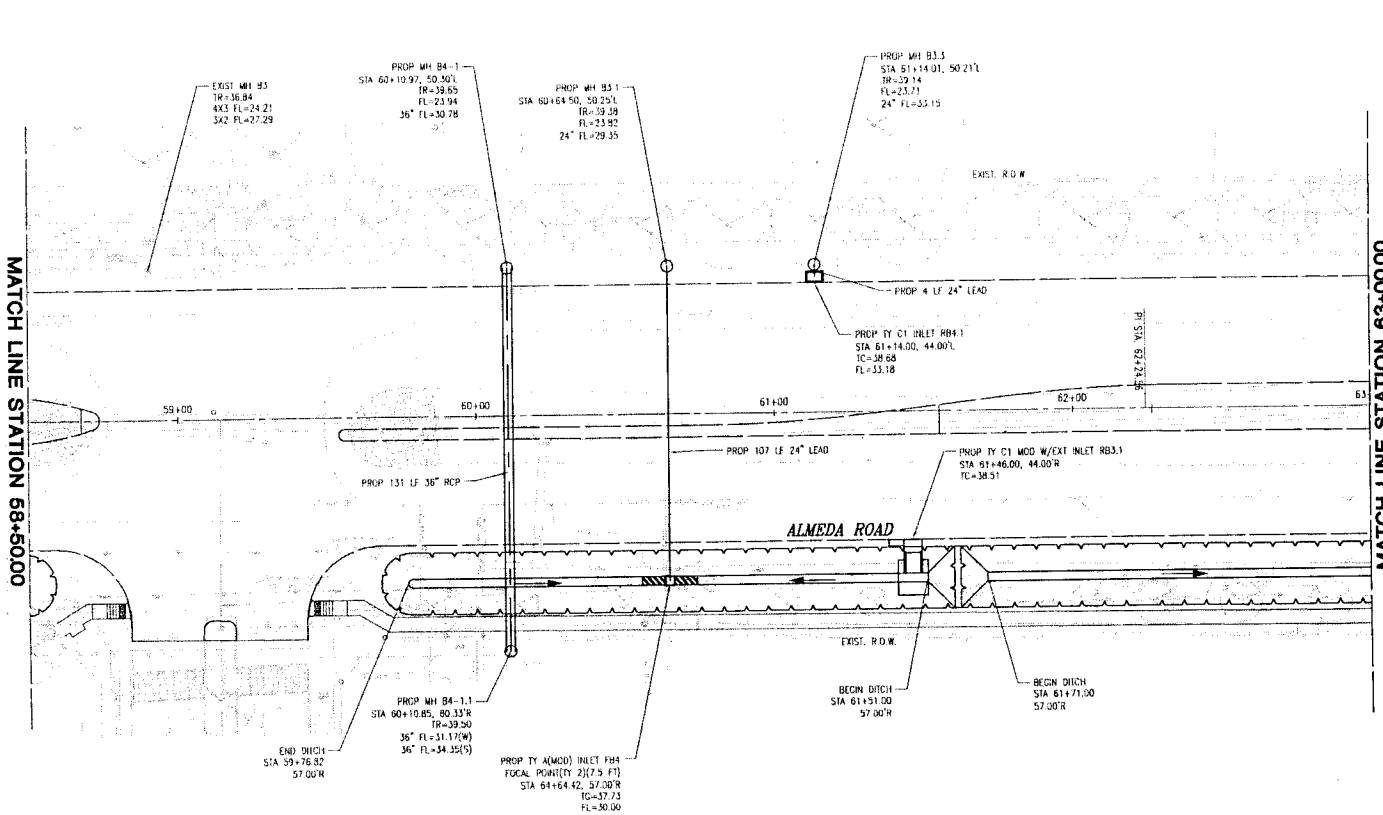
CivilTech Engineering, Inc.
11621 Telge Road
Cypress, Texas 77429
(281) 304-0200 Fax (281) 304-0210
Registration No. F-3812

GABRIEL S. MADERKA
79295
02/24/2015

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

ALMEDA ROAD FROM OLD SPANISH TRAIL TO S. MACGREGOR WAY DRAINAGE PLAN STA. 54+00 TO STA. 58+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-300080-0001-4	
DRAWING SCALE	
VERT: AS NOTED	
HORIZ: AS NOTED	
CITY OF HOUSTON PM	
MICHELLE RANSOM, P.E.	
SHEET NO. 142 OF 271	



PLAN

SEE SHEET 145 FOR PROFILE VIEW

Reconnect Exist Offsite Storm Sewer Pipes To Proposed Storm Sewer System. This Work Is Incidental To Various Bid Items.

SCALE HORIZ. 1"=20'
VERT. 1"=2'

LEGEND

	EXISTING	PROPOSED
Curb		
Edge of Pavement		
R.O.W.		
Curve Number		C1
Storm Sewer/Mh		
Curb Inlet/Grate Inlet		
Sanitary Sewer/ Mh/Cleanout		
DITCH FLOW DIRECTION		

NOTE

The location of existing underground utilities are shown in an approximate way only. The contractor shall contact the Utility Coordinating Committee at 713-223-4567 or 1-800-669-8344 and the City of Houston Department of Public Works and Engineering at 832-394-8888 a minimum of two working days prior to construction to have locate utilities. The contractor shall determine the exact location of all existing utilities before commencing work. He expects to be fully responsible for any and all damages which might be occasioned by his failure to exactly locate and preserve any and all underground utilities.

CAUTION: UNDERGROUND GAS FACILITIES

Locations of CenterPoint Energy gas lines include CenterPoint Energy Houston Electric, LLC, where applicable, as shown as an approximate location only. Service lines are usually not shown. Gas equipment on these lines only indicates that our facilities are shown in approximate locations. It does not imply that a conflict exists. The contractor shall contact the Utility Coordinating Committee at 713-223-4567 or 1-800-669-8344 a minimum of 48 hours prior to construction so that these gas lines can be located.

- When Center Point Energy gas line markings are not visible, call 713-207-2222 (720 am to 430 pm) for status of the contract request before excavation begins.
- When excavating within eighteen inches (18") of the indicated location a Center Point Energy Technician shall be contacted prior to excavation.
- When Center Point Energy facilities are exposed, adequate support must be provided to the facilities to prevent excessive stress on the joints.
- The contractor is fully responsible for any damages caused by the contractor's failure to exactly locate and preserve these underground facilities.

WARNING: OVERHEAD ELECTRICAL FACILITIES

Overhead wires may exist on the property. We have not attempted to mark these wires since they are clearly visible, but you should locate them prior to beginning any construction. Texas Law, Section 752, Health and Safety Code, forbids all persons in which persons or things may come within six (6) feet of any overhead high voltage wires. Persons responsible for the work including contractors are legally responsible for the safety of these overhead workers under the law. The owners have contacted the law violators. To comply for wires to be turned off or removed call CenterPoint Energy at 713-207-2222. Revised 2008

WARNING: AT&T TEXAS/SWBT FACILITIES

The locations of AT&T Texas/SWBT facilities are shown on an approximate way only. The contractor shall determine the exact location before commencing work. He agrees to be fully responsible for any and all damages which might be occasioned by failure to exactly locate and preserve these underground facilities.

The contractor shall call 1-800-344-8377 a minimum of 48 hours prior to construction to have underground lines field located.

When excavating within eighteen inches (18") of the indicated location of AT&T Texas/SWBT facilities, all excavations must be underground using non-mechanized excavation processes. When locating the contractor shall expose the AT&T Texas/SWBT facilities.

When AT&T Texas/SWBT facilities are exposed, the contractor will provide support to prevent damage to the exposed facility or cables. When excavating near telephone poles the contractor shall locate the pole for support.

The presence or absence of AT&T Texas/SWBT underground conduit facilities does not mean that there are no direct buried cables in the area. Follow the Direct Buried Cable Procedure to locate the AT&T Texas/SWBT buried cables as indicated in the AT&T Texas Network and Technical Process for AT&T Texas/SWBT Facilities.

Please contact the AT&T Texas Damage Prevention Manager at: Richard Fox Jr. at 713-567-4002 or email him at rf2590@att.com, if there are questions about locating or excavating near our AT&T Texas/SWBT facilities.

NO.	DATE	REVISIONS	APP

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Texas Department of Transportation

TO ARRANGE FOR LINES TO BE FLAGGED OFF OR MARKED, CALL CENTERPOINT AT 713-207-2222

PRIVATE UTILITY LINES SHOWN

ALL KNOWN OR VISIBLE PRIVATE UTILITY LINES IN STREETS, ROW OR EASEMENTS (CALL ONE CALL STAR NOTIFICATION 713-223-4567)

Date

Date

Date

CABLE COMPANY

CivilTech Engineering, Inc.
11621 Telge Road
Cypress, Texas 77429
(281) 304-0200 Fax (281) 304-0210
Registration No. F-1852

DARRELL L. KADERKA
79209
REGISTERED PROFESSIONAL ENGINEER
02/24/2015

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

ALMEDA ROAD FROM OLD SPANISH TRAIL TO S. MACGREGOR WAY DRAINAGE PLAN STA. 58+50 TO STA. 63+00

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-000089-0001-4	
DRAWING SCALE	
VERT. AS NOTED	
HORZ. AS NOTED	
CITY OF HOUSTON PM	
MICHELLE RANDON, P.E.	
SHEET NO. 144 OF 271	

PLAN

SEE SHEET 147 FOR PROFILE VIEW

Reconnect Exist Offsite Storm Sewer Pipes To Proposed Storm Sewer System. This Work Is Incidental To Various Bid Items.

NOTE:

CAUTION: UNDERGROUND GAS FACILITIES

WARNING: OVERHEAD ELECTRICAL FACILITIES

WARNING: AT&T TEXAS/SWBT FACILITIES

NO	DATE	REVISIONS	APP

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PRIVATE UTILITY LINES SHOWN

CivilTech Engineering, Inc.
11821 Telge Road
Cypress, Texas 77429
(281) 304-0200 Fax (281) 304-0210
Registration No. F-382

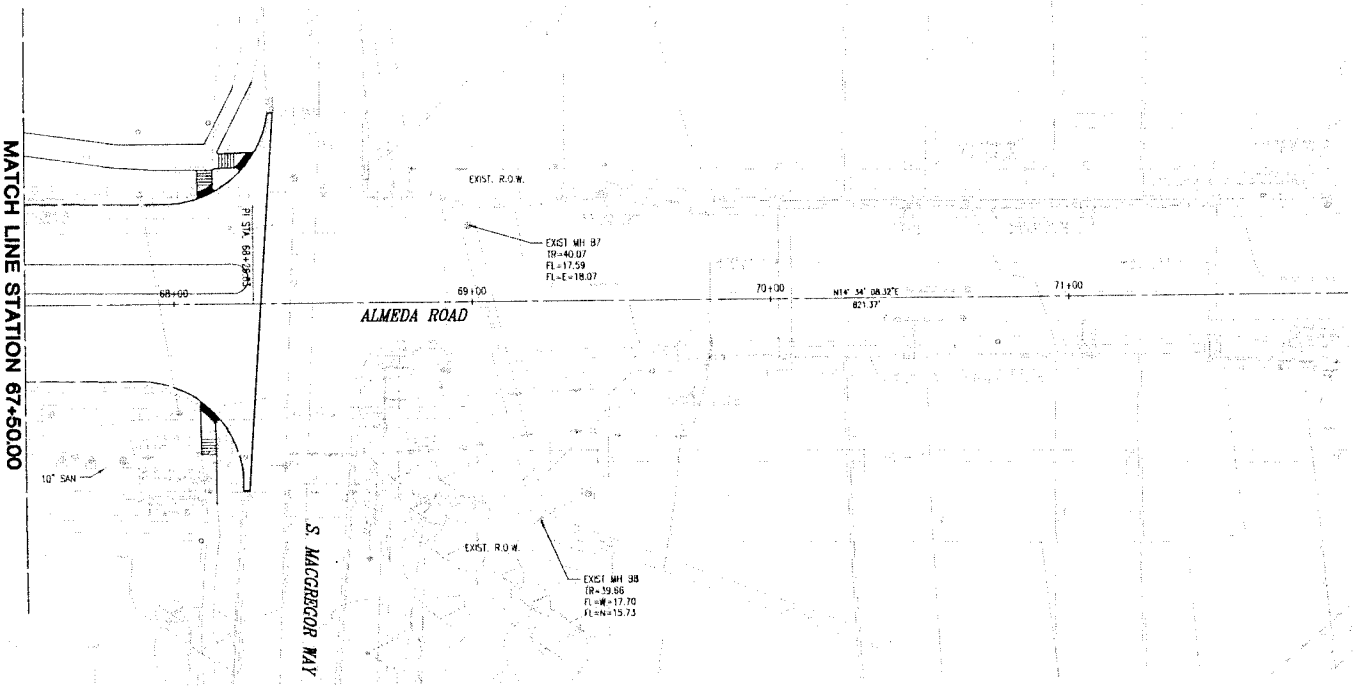
DARRELL L. KADERKA 79208

02/24/2015

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

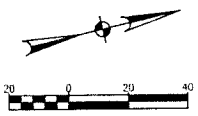
ALMEDA ROAD FROM OLD SPANISH TRAIL TO S. MACGREGOR WAY
DRAINAGE PLAN
STA. 63+00 TO STA. 67+50

WBS NUMBER
N-000806-0061-
DRAWING SCALE
VERT: AS NOTED
HORZ: AS NOTED
CITY OF HOUSTON PM
MICHELLE RANDON, P.E.



PLAN

SEE SHEET 149 FOR PROFILE VIEW



SCALE: HORIZ. 1"=20'
VERT. 1"=2'

LEGEND

	EXISTING	PROPOSED
Curb		
Edge of Pavement		
R.O.W.		
Curve Number		(51)
Storm Sewer Mh		
Curb Inlet/Grate Inlet		
Sanitary Sewer/ MH/Cleanout		
DITCH FLOW DIRECTION		

Reconnect Exist Offsite Storm Sewer Pipes To Proposed Storm Sewer System. This Work Is Incidental To Various Bid Items.

NOTE

The location of existing underground utilities are shown in an approximate way only. The contractor shall contact the Utility Coordinating Committee at 713-223-4567 or 1-800-669-8344 and the City of Houston Department of Public Works and Engineering at 832-394-9099 a minimum of two working days prior to construction for field locations. The contractor shall determine the exact location of all existing utilities before commencing work. The contractor to be fully responsible for any and all damages which might be occasioned by his failure to exactly locate and preserve any and all underground utilities.

CAUTION: UNDERGROUND GAS FACILITIES

Locations of CenterPoint Energy main lines (to include CenterPoint Energy, Reliant, Hydrow, etc. where applicable) are shown in an approximate manner only. Service lines are usually not shown. Gas regulators at home plans and indicators that gas facilities are shown in approximate locations. It does not imply that a conflict analysis has been made. The contractor shall contact the Utility Coordinating Committee at 713-223-4567 or 1-800-669-8344 a minimum of 48 hours prior to construction to have them and service lines field located.

- When Center Point Energy lines are crossing are not known, call 713-207-7122 on a 4 ft pit for exact if are located prior to excavation begins.
- When excavating within eighteen inches (18") of the indicated location of Center Point Energy facilities, all excavation must be accomplished using non-mechanized excavation procedures.
- When Center Point Energy facilities are exposed, sufficient support must be provided to the facilities to prevent excessive stress on the joints.

Be contractor is fully responsible for any damages caused by the contractor's failure to exactly locate and preserve these underground facilities.

WARNING: OVERHEAD ELECTRICAL FACILITIES

Overhead lines may exist on the property as have not attempted to mark these lines even they are clearly visible, but you should locate them prior to beginning any construction work. See Section 752, Health and Safety Code. Owners of structures or equipment or persons may come within an (10) feet of low overhead high voltage lines are responsible for the work, including contractors, are legally responsible for the safety of structures, workers and public from the fact that the owners both normal and can safely by energy or wire to the extent of a removed call CenterPoint Energy at 713-207-7222. (revised 3/08)

WARNING: AT&T TEXAS/SWBT FACILITIES

The locations of AT&T Texas/SWBT facilities are shown in an approximate way only. The contractor shall determine the exact location before commencing work. He agrees to be fully responsible for any and all damages which might be occasioned by failure to exactly locate and preserve these underground utilities.

The contractor shall call 1-800-344-8377 a minimum of 48 hours prior to construction to have underground lines field located.

When excavating within eighteen inches (18") of the indicated location of AT&T Texas/SWBT facilities, all excavations must be accomplished using non-mechanized excavation procedures. When using, the contractor shall expose the AT&T Texas/SWBT facilities.

When AT&T Texas/SWBT facilities are exposed, the contractor will provide support to prevent damage to the conduit ducts or cables. When excavation, road telephone poles the contractor shall brace for work for support.

The presence or absence of AT&T Texas/SWBT underground conduit facilities does not imply that there are no direct buried cables in the area. Follow the Direct Buried Cable Procedure to locate the AT&T Texas/SWBT buried cables as indicated in the AT&T Texas Research and Signature Process for AT&T Texas/SWBT Facilities.

Please contact the AT&T Texas Damage Prevention Manager M. Rasheed Lee Jr. at 713-567-4222 or e-mail him at rl2754@att.com if there are questions about locating or excavating near our AT&T Texas/SWBT facilities.

NO.	DATE	REVISIONS	APP.

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Texas Department of Transportation

TO ARRANGE FOR LINES TO BE FLAGGED OUT SIDE MOWED, CALL CENTERPOINT AT 713-207-2222

PRIVATE UTILITY LINES SHOWN
AT LEAST ONE WORKING BEFORE EXCAVATION STREET R.O.W. OR EASEMENTS, CALL THE TEXAS STATE NOTIFICATION 713-223-4567

Date

CenterPoint Energy/Electric Facilities
Signature and date is required for plans, other uses are invalid. SHOWN AND APPROVED FOR CONSTRUCTION AS DRAWN

Date

Approved for SBC underground service facilities only
Signature valid for one year

Date

CenterPoint Energy/Gas Facilities/ENTEX INCORPORATED
(Gas service lines are not shown)

CABLE COMPANY

CivilTech Engineering, Inc.
11821 Targe Road
Cypress, Texas 77429
(281) 304-0300 Fax (281) 304-0210
Registration No. F-362

DARRELL E. KADENA
79098
REGISTERED PROFESSIONAL ENGINEER
02/24/2015

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

ALMEDA ROAD FROM OLD SPANISH TRAIL TO S. MACGREGOR WAY DRAINAGE PLAN STA. 67+50 TO END STA.

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-000806-0007-4	
DRAWING SCALE	
VERT. AS NOTED HORIZ. AS SHOWN	
CITY OF HOUSTON PM	
MICHELLE HANSON, P.E.	
SHEET NO. 148 OF 271	

APPENDIX B: O & M FACT SHEETS

O & M FACT SHEET FOR HIGH PERFORMANCE BIOFILTRATION SYSTEM
(FOCAL POINT)

Inspection and Maintenance Schedules:
See Inspection Sheets.

Maintenance Records:
Inspect and maintain facilities to ensure proper function and aesthetic appearance. Record date, description, and contractor, or City staff for all structural repairs and facility clean-out activities in Inspection Sheets.

Replacement and Reconstruction:
Use adaptive management methods to determine reconstruction or replacement of the facilities.

Infiltration/Flow Control:
All facilities shall drain completely within 48 hours after end of rainfall event. Record time, date, and weather conditions when excessive ponding occurs or 48 hours is exceeded. Use practices specified under Growing/Filter Medium maintenance to restore capacity, if needed.

Pollution Prevention:
Implement Best Management Practices (BMPs) to prevent hazardous or solid wastes or excessive oil and sediment from contaminating stormwater. Clean out system immediately in the event of an oil or gasoline spill. See City's SWPPP for additional information. Use compost and mulch without manure and/or animal by-products to avoid leaching of contaminants in stormwater facilities.

Sediment Disposal:
Current research generally indicates that residuals are not hazardous wastes and can generally be disposed of in the same way as uncontaminated soil once dewatered. Refer to the USEPA Fact Sheet titled *Storm Water O&M Fact Sheet: Handling and Disposal of Residuals* (www.epa.gov/npdes/pubs/handdisp.pdf) for additional guidance on residual disposal.

Vectors (Mosquitoes & Rodents):
Comply with City of Houston Public Health Department vector control requirements. All facilities shall drain within 48 hours after end of rainfall event.

Access: Maintain ingress/egress, including access roads, to design standards.

O & M FACT SHEET FOR HIGH PERFORMANCE BIOFILTRATION SYSTEM (FOCAL POINT)

What To Look For	What To Do as Required
Structural Components, including inlets and outlets/overflows, shall freely convey stormwater.	
➢ Clogged inlets or outlets	➢ Remove sediment and debris from catch basins, trench drains, curb inlets, and pipes to maintain at least 50% conveyance capacity at all times.
➢ Cracked drain pipes or grates	➢ Repair/seal cracks. Replace when repair is insufficient.
Vegetation shall cover minimum of 75% of ground surface.	
➢ Dead or strained vegetation	➢ Replant per original planting plan[1]. Maintain minimum 75% vegetative cover.
➢ Grasses and vegetation	➢ Irrigate as needed for establishment during first 18 to 24 months after planting or replanting.
	➢ Remove and replace mulch annually (shredded hardwood mulch preferred)[2]. Do not apply fertilizers, herbicides, or pesticides[3].
	➢ Cut back vegetation if desired.
	➢ Prune other vegetation overgrowth.
	➢ Prune to allow sight lines and foot traffic.
➢ Weeds	➢ Manually remove weeds. Remove all plant debris.
Sediment and Debris, including sediment and floatables removal and sediment disposal.	
➢ Sediment Loads	➢ Inspect annually roadway and landscape areas that may contribute to sediment loading issues.
➢ Sediment/Debris Removal	➢ Record sediment accumulation in inspection logs. Check whether sedimentation has encroached on design volume by comparing actual maximum depth against design maximum depth.
	➢ Manually remove and dispose of accumulated sediment and debris.
Growing/Filter Medium, including soil and gravels, shall sustain healthy plant cover and infiltrate within 48 hours after end of rainfall event, without isolated ponding areas or pockets of ponding.	
➢ Gullies	➢ Fill, lightly compact, and install plant vegetation to disperse flow.
➢ Erosion	➢ Repair inlet gravel/rock or other erosion control elements.
➢ Slopes	➢ Stabilize 3:1 (i.e., maximum slope of 33%) slopes/banks with plantings from original planting plan.
➢ Ponding	➢ Record ponding in excess of 48 hours after end of rainfall event and/or sediment accumulation in inspection logs.
	➢ Rake, till or amend to restore infiltration rate[2].
	➢ Use compost and mulch without animal manure to avoid leaching of nutrients in stormwater facilities[2].

[1]Refer to Landscape Specifications and Construction Drawings for project for additional details on plant lists.

[2]Use compost and mulch without manure or animal by-products to avoid leaching of contaminants into stormwater facilities.

[3]Do not use fertilizers, herbicides, or pesticides as these are water quality facilities and stormwater runoff typically contains contaminants (i.e., nitrogen, phosphorous, and hydrocarbons) that serve as nutrients for the vegetation. At a minimum, follow Integrated Pest Management (IPM) practices. See U.S. Environmental Protection Agency (EPA) website at www.epa.gov/opp00001/factsheets/ipm.htm for details.

APPENDIX C: O&M INSPECTION SHEETS

LID Inspection Sheet
(Focal Points)

Location: Almeda Road from OST to S. MacGregor Way

Date (Month/Day/Year): _____

LID Inspection/Maintenance Notes:

Note: *Do not use pesticide/herbicide in Focal Points

	Item	Activity	When	Names (Print)	Comments
Inspection					
☐	1	Inspect for structural issues (cracked drain pipes or grates, etc.)	One time each fall/winter and spring/summer		
☐	2	Inspect for clogged inlets or outlets (pipes)	After major rainfall event or one time each fall/winter and		
	3	Inspect for contributing sediment load from roadway and/or adjacent landscape	Ongoing		
☐	4	Check for erosion, debris, and sediment accumulation	Ongoing/measure quarterly		
☐	5	Inspect for weeds and dead/strained vegetation	Ongoing		
☐	6	Check for ponded water in excess of three days after major rainfall events	After major rainfall event or minimum of twice annually		
Maintenance					
☐	8	Make any structural repairs	As-needed		
☐	9	Improve filter medium as needed	As-needed		
☐	10	Clear inlets and outlet/overflows to maintain conveyance	As-needed		
☐	11	Replant exposed soil and replace dead plants	Fall or spring		
☐	12	Irrigate as needed for establishment during first 18 to 24 months after planting or replanting	Spring through early fall		
☐	13	Remove trash, litter, sediment, and debris	Ongoing		
☐	14	Manually remove weeds and plant debris (DO NOT USE HERBICIDES AS THEY IMPACT WATER QUALITY)	Ongoing		
☐	15	Prune vegetation overgrowth if straggly or dried out. Use only hand tools. No weed-whackers or gas-powered equipment.	Late winter/early spring		
☐	16	Remove and replace mulch annually (shredded hardwood mulch preferred; DO NOT USE BARK OR DYED MULCH)	Late spring (April or May)		

HERMANN PARK
PEDESTRIAN LIGHTING
ELECTRICAL
SPECIFICATION

COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Summary of Work.
2. Submittals, Analysis and Device Schedules.
3. Record Documents.
4. Operating and Maintenance Manuals.
5. General Electrical Product Requirements.
6. General Electrical Installation Requirements.
7. Electrical equipment coordination and installation.
8. Sleeves for raceways and cables.
9. Sleeve seals.
10. Grout.
11. Common electrical installation requirements.

B. Provide all work required for complete electrical and ancillary system as indicated on the drawings and in these specifications. This may include, but is not necessarily limited to; panelboards, transformers, cabinets, motor controllers, circuit breakers, fuses, disconnect switches, surge suppression, fire alarm system, Lighting Control System, interior and exterior lighting, parking lot lighting, lamps, relay panels, contactors, controls, wiring devices, wire and cable, grounding and bonding, lightning protection, equipment wiring system, conduit, raceways, boxes, supporting devices, identification, fire stopping, testing, excavating, concrete equipment bases, concrete duct encasements, conduit sleeves and supports, anchors, vibration and sound isolation, access panels, record drawings, installation permits, inspections by governing authorities, electrical work of certain temporary facilities and services, cutting-and-patching work, utility connection coordination, start-up of electrical systems and equipment, training of Owner's operating personnel, operating and maintenance manuals, final cleaning of electrical and similar work.

C. Except where otherwise indicated, electrical drawings prepared by Engineer (contract drawings) are diagrammatic in nature and may not show locations accurately for various components of electrical systems. It is the intention of the Construction Documents to establish the types and functions of the systems, but not to set forth each and every item essential to the functioning of any system. The Contractor shall make necessary changes or additions as may be reasonably inferred from the construction documents for a complete operating system as required and record these on the record documents at no cost to the Owner.

D. Contractor shall visit site prior to submitting his proposal and become familiar with the conditions under which the Work is to be performed, and correlate site

observations with the requirements of the Contract Documents. Errors, inconsistencies or omissions discovered shall be reported to the Architect/Engineer at once.

E. All electrical products and installations shall comply with the latest additions of the following standards where applicable:

1. ADA - AMERICANS WITH DISABILITIES ACT
2. ANSI - AMERICAN NATIONAL STANDARDS INSTITUTE
3. ASTM - AMERICAN SOCIETY FOR TESTING AND MATERIALS
4. CBM - CERTIFIED BALLAST MANUFACTURERS
5. ETL - ELECTRICAL TESTING LABORATORIES
6. FM - FACTORY MUTUAL
7. ICEA - INSULATED CABLE ENGINEERS ASSOCIATION
8. IEEE - INSTITUTE OF ELECTRONICS AND ELECTRICAL ENGINEERS
9. NEC - NATIONAL ELECTRICAL CODE
10. NECA - NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION
11. NEMA - NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
12. NESC - NATIONAL ELECTRICAL SAFETY CODES
13. NFPA - NATIONAL FIRE PROTECTION ASSOCIATION
14. NETA - INTERNATIONAL ELECTRICAL TESTING ASSOCIATION
15. OSHA - OCCUPATIONAL SAFETY AND HEALTH ASSOCIATION
16. UBC - UNIFORM BUILDING CODE
17. IBC – INTERNATIONAL BUILDING CODE
18. ICC – INTERNATIONAL CODE COUNCIL
19. IECC – INTERNATIONAL ENERGY CONSERVATION CODE
20. ISO – INTERNATIONAL ORGANIZATION FOR STANDARDIZATION
21. UL - UNDERWRITERS LABORATORIES, INC.
22. STATE ENERGY CONSERVATION CODE
23. MUNICIPAL OR COUNTY CODES. IN THE EVENT OF CONFLICTS BETWEEN CODES OR STANDARDS, THE MORE STRINGENT REQUIREMENTS SHALL GOVERN

F. All work and materials shall be warranted as indicated in Division 1.

G. Contractor is responsible for filing and paying for all fees and obtaining necessary permits and certificates of inspection, and shall deliver all certificates of inspection to Owner, and include copies with maintenance manuals.

1.3 SUBMITTALS

A. General Submittal Requirements:

1. All submittals shall be in accordance with Division 1 requirements.
2. Submit number of copies indicated in Division 1 or 6 copies, whichever is greater.
3. Applicability: Wherever it is indicated that shop drawings, samples, manufacturer's brochure, certification, test, copy of standard operating instructions, manual, extra stock, or warranty is required, appropriate submittal is required regardless of whether it is specified as "submittal"; Engineer's decision shall be final.
4. Do not purchase equipment until submittals have been reviewed by Engineer with no exceptions taken.
5. Signed Commitments: Do not proceed with transfer of electrical systems to Owner for operation until warranties, performance certifications, maintenance

agreements and similar commitments to be signed by Contractor and other entities have been executed and transmitted to Engineer (for Owner's records).

6. Response to Submittals: Where standard product data have been submitted in fulfillment of project requirements, it is recognized that submitter has already determined that products fulfill specified requirements, and that submittals are for engineer's information only, but will be returned without action where observed to be non-complying with requirements. Where uniquely prepared information is submitted, it is recognized to represent preparer's interpretation or solution to specified requirements, subject to Engineer's concurrence and appropriate action as indicated in Division 1.
7. Submittals shall be signed by the General Contractor and Subcontractor responsible for this work.
8. The Engineer's review of submittals is solely for general conformance with the design concept. The Engineer's review does not relieve the Contractor from total responsibility for quantities, errors, omissions or compliance with the intent of the original contract documents. Review and approval by the Contractor is required before fabrication, shipment or installation.

B. Substitutions: Electrical submittals are not opportunities for gaining acceptance of substitutions. Any variance from the contract documents shall be identified in accordance with Division 1 requirements. Substitutions will be reviewed only for those reason identified in Division 1 and only if the procedures identified in Division 1 are followed. Any variances from the contract documents in the submittals which are not identified by the Contractor in accordance with the procedures of Division 1 and subsequently not identified by the Engineer's review shall be corrected by the Contractor at no cost to the Owner. Substitution request would only be considered if product is equal or better than what listed.

C. By submitting shop drawings on the project, this contractor is indicating that all necessary coordination has been completed and that the systems, products and equipment submitted can be installed in the building and will operate as specified and intended, in full coordination with all other trades. Submittals for each group will be returned without review unless all sections are included. Sections will not be reviewed separately. At the Engineer's discretion, when a re-submittal is required for one section, any other sections within each group may require re-submittal. Contractor shall expedite submittals and re-submittals as required to allow for the Engineer's review time specified in Division 1. The groups of equipment shall be divided as follows:

1. Raceways, Conductors and Miscellaneous Equipment

    a. Fire stopping
    b. Conduit
    c. Raceways, Multioutlet Assemblies, Wireways and Auxiliary Gutters
    d. Wires and Cables
    e. Outlet Boxes
    f. Wiring Devices
    g. Cabinets and Enclosures
    h. Grounding and Bonding
    i. Supporting Devices
    j. Electrical Identification

2. Distribution Equipment

a. Distribution Panelboards
b. Enclosed Switches
c. Dry Type Transformers
d. Branch Circuit Panelboards
e. Enclosed Motor Controllers
f. Electrical Controls

3. Lighting Fixtures

a. Interior and Building Lighting Fixtures

4. Specialty Systems

a. Transient Voltage Surge Suppression
b. Fire Alarm System

5. Testing

a. Field Electrical Testing

D. Shop Drawings: Prepare electrical shop drawings to accurate scale except where diagrammatic representations are specifically indicated. Show clearance dimensions of critical locations, and show dimensions of spaces required for operation and maintenance of equipment. Show conduit layouts and wire/cable connections and other electrical service connections and show interfaces with other work, including structural support. Indicate by note, portions of electrical work shown on shop drawings which deviates from indication of work in contract documents, and explain reasons for deviations. Show how such deviations coordinate with interfacing deviations on shop drawings for other portions of work, currently or previously submitted. Show wiring diagrams, erection, setting, weights, capacities, speeds, outputs, consumption, efficiencies, voltages, amperages, hertz, phases, noise levels, etc.

E. Samples: Engineer's review of required sample submittals will be limited to observation of general type, pattern, and finish; and will not include testing and inspection of submitted samples, except for those specifically indicated for that purpose in the contract documents. Compliance with specified requirements remains the exclusive responsibility of the Contractor.

F. Manufacturer's Data: Where pre-printed data covers more than one distinct product, size, type, material, trim, accessory group or other variation, mark submitted copy with black pen to indicate which variations are to be provided. Delete or mark-out all portions or pre-printed data which are not applicable. Where operating ranges are shown, mark data to show portions of range required for project application. Expansion or elaboration of standard data to describe non-standard product must be processed as shop drawing data to describe non-standard product. For each product include manufacturer's production specifications, installation or fabrication instructions, nearest source of supply (including telephone number), sizes, weights, speeds, operating characteristics, ratings, conduit and wire/cable connection sizes and locations, statements of compliance with required standard and governing regulations (include manufacturer's signed statements if not covered in printed data), performance data (where applicable) and similar information needed to confirm compliance with requirements.

G. Manufacturer's Certification: Each manufacturer is required to review the system design as related to the proper operation of his equipment, including electrical requirements, automatic controls, mechanical systems and equipment locations and related items. With shop drawings submit a letter from the manufacturer stating that his equipment will operate satisfactorily under the design conditions. The manufacturer's representative shall review the final installation at the site and submit a second letter stating that the equipment operates satisfactorily as installed. Furnish certification for the systems listed in each section of Division 26.

H. Test Reports: The contractor for various sub-system shall submit proposed testing procedure for their system, subject to review and approval and owner acceptance. The contract will not be declared to be substantially complete until the functional operation of the subsystems have been demonstrated and verified and reports have been provided, reviewed and accepted. The project will not be declared substantially complete until the following has taken place:

1. The "As-Built" drawings have been submitted, reviewed, and accepted by owner.
2. The various systems have been commissioned and accepted. This will include the following systems:

    a. Building Fire Alarm System
    b. Building Computer Network
    c. Surveillance and Security System
    d. Intercom/Telephone

Submit test report signed and dated by firms performing test, and prepare in manner specified in standard or regulation governing test procedure as indicated. Provide notarized executions on test reports.

I. Warranties: Refer to Division 1 for procedures and submittal requirements for warranties. Refer to individual equipment specifications for warranty requirements. A minimum of one-year warranty period is required for all materials and equipment. Warranty period starts upon first beneficial use or acceptance by OWNER whichever comes first.

1. Provide complete warranty information for each item to include product or equipment to include date of beginning of warranty or bond; duration of warranty or bond; names, addresses and telephone numbers and procedures for filing a claim and obtaining warranty services.
2. Where pre-printed and published warranty includes substantial deviation from required warranty (as judged by Engineer), product is automatically disqualified from use on project, except where manufacturer prepares and issues specific project, warranty on product, stating that it is in lieu of published warranty, and is executed by authorized officer, and complies with requirements.

J. Load Current and Overload Relay Heater List: Compiled by Contractor after motors have been installed. Arrange to demonstrate selection of heaters to suit actual motor nameplate full load currents.

1.4 RECORD DOCUMENTS

A. Prepare record documents in accordance with the requirements in Division 1. In addition to the requirements specified in Division 1, indicate installed conditions for:

1. Major raceway systems, size and location, for both exterior and interior; locations of control devices; distribution and branch electrical circuitry; access panels; and fuse and circuit breaker size and arrangements.
2. Equipment locations (exposed and concealed), dimensioned from prominent building lines.
3. Approved substitutions, Contract Modifications, and actual equipment and materials installed.
4. Underground cabling and conduits both interior and exterior, drawn to scale and fully dimensioned.
5. Work concealed behind or within other work, in a non-accessible arrangement.
6. Mains and branches of wiring/cabling systems, with switchboards, panelboards, and control equipment and devices located and numbered with terminals and connections located, and with equipment requiring maintenance located.
7. Grounding systems including primary, secondary and special.

B. Execution: Each installer or other entity responsible for recording installed work shall record firm name, signature and date on each drawing so marked.

C. Prior to transmittal of corrected drawings, obtain three (3) sets of blue-line prints of each drawing in each set, regardless of whether corrections were necessary, and include in transmittal (two (2) sets are for Owner's use, and one (1) is for Engineer's records).

1.5 OPERATING AND MAINTENANCE MANUALS

A. Prepare maintenance manuals in accordance with Division 1. In addition to the requirements specified in Division 1, provide the following.

B. Submit sets prior to final inspection, in 8½ x 11 inch text pages, bound in style D, three ring binders with durable plastic covers.

C. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS, ELECTRICAL", and title of project.

D. Internally sub-divide the binder contents with permanent page dividers, logically organized, with tab titling clearly printed under reinforced laminated plastic tabs.

E. Contents:

1. Directory, listing names, addresses, and telephone numbers of Architect/Engineer, Contractor, Subcontractor, and major equipment suppliers.
2. Operation and maintenance instructions, arranged by system.
3. Project documents and certificates.
4. Description of function, normal operating characteristics and limitations, performance curves, engineering data and tests, and complete nomenclature and commercial numbers of replacement parts.
5. Manufacturer's original printed operating procedures to include start-up, break-in, and routine and normal operating instructions; regulation, control, stopping, shutdown, and emergency instructions; and summer and winter operating instructions. (Copies are not acceptable).

6. Maintenance procedures for routine preventative maintenance and troubleshoot; disassembly, repair, and re-assembly; aligning and adjusting instructions.
7. Servicing instructions and lubrication charts and schedules.
8. Warranty information including any corrections made during submittals.
9. Replacement parts list.
10. List of tools and accessories needed for maintenance.

1.6 COORDINATION

A. Coordinate arrangement, mounting, and support of electrical equipment:

1. To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
2. To provide for ease of disconnecting the equipment with minimum interference to other installations.
3. To allow right of way for piping and conduit installed at required slope.
4. So connecting raceways, cables, wireways, cable trays, and busways will be clear of obstructions and of the working and access space of other equipment.

B. Coordinate installation of required supporting devices and set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.

C. Coordinate location of access panels and doors for electrical items that are behind finished surfaces or otherwise concealed. Access doors and panels are specified in Division 08 Section "Access Doors and Frames."

D. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 07 Section "Penetration Firestopping."

PART 2 - PRODUCTS

2.1 GENERAL MANUFACTURER QUALIFICATION:

A. Production Experience: For all electrical equipment, manufacturer shall be firm with not less than five (5) years successful production experience. Experience means production of units similar to those required, as judged by Engineer. Comply with longer-period experience requirements specified in other Division 26 sections of these specifications. Product shall be new and design for quiet, vibration free operation.

2.2 GENERAL ELECTRICAL PRODUCT REQUIREMENTS:

A. Standard Products: Provide not less (quality) than manufacturer's standard products as specified by published product data. Do not assume that available off-the-shelf condition of product complies with requirements; as example, specific finish or color may be required.

B. Unencumbered Purchases: Avoid purchases and use of products which are encumbered with questionable title transfers, patent rights, trade union restrictions, code compliance, non-listings as "approved products" for compliance

with governing regulations, duties due, embargoes and similar possible encumbrances, claims or sellers interest.

1. Purchasing: Do not purchase specific electrical materials and equipment for project until completion of submittals.

C. Condition of Products: Except as otherwise indicated, provide new electrical products, free of defects and harmful deterioration at time of installation. Do not use units, which have been subjected to destructive testing, or other high-limits testing except where pre-tested products are specified. Comply with Division 1 requirements for exposure or visual display limitations against trademarks and manufacturer's names. Provide each product complete with trim, accessories, finish, guards, safety devices and similar components specified or recognized as integral parts of products, or required by governing regulations.

D. Assembly and Testing: To greatest extent possible and unless otherwise indicated, complete fabrication, assembly, finishing and testing of products prior to delivery to project. Notify Engineer not less than one week in advance of pre-installation testing to be performed in response to project requirements. Engineer reserves right to be present at tests of electrical products; however, neither their absence nor presence relieves the Contractor of responsibility for compliance with requirements.

E. Uniformity: Where multiple units of generic product are required for single major system of electrical work, e.g., cable trays, lighting systems, provide identical products by same manufacturer, without variations.

1. Limitations: Product/manufacturer uniformity does not apply to conduit and fittings, 600V electrical wire, sheet metal, steel bar stock, welding rods, solder, factory applied paint between different systems, fasteners, motors for unalike equipment units, and similar items used in work, and except as otherwise indicated.

F. Product Compatibility, Options: Where more than one product selection is specified, selections are Purchaser's or Installer's options, except do not provide products which are not compatible with previously purchased or installed products which must interface with selections. Provide electrical adaptations as needed for interfacing of selected products in work.

G. Quality Assurance: Provide products listed by and installed in accordance with all references in each section under quality assurance any other applicable requirements.

H. Elevation Requirements: Electrical equipment provided shall perform at mean elevation of 1000 feet above sea level.

2.3 SLEEVES FOR RACEWAYS AND CABLES

A. Retain one of first two paragraphs below for penetrations through exterior walls above and below grade.

B. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends.

C. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

D. Sleeves for Rectangular Openings: Galvanized sheet steel.

1. Minimum Metal Thickness:

a. For sleeve cross-section rectangle perimeter less than 50 inches and no side more than 16 inches, thickness shall be 0.052 inch.
b. For sleeve cross-section rectangle perimeter equal to, or more than, 50 inches and 1 or more sides equal to, or more than, 16 inches, thickness shall be 0.138 inch.

2.4 SLEEVE SEALS

A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable.

2.5 GROUT

A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

PART 3 - EXECUTION

3.1 ELECTRICAL DEMOLITION

A. Refer to Division 01 Section "Cutting and Patching" and Division 02 Section "Selective Structure Demolition" for general demolition requirements and procedures.

B. Disconnect, demolish, and remove electrical systems, equipment, and components indicated to be removed.

1. Wiring to Be Removed: Remove portion of wiring indicated to be removed and cap remaining wiring.
2. Wiring to Be Abandoned in Place: Disconnect wiring and cap wiring with compatible wiring material.
3. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
4. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material.
5. Equipment to Be Removed: Disconnect and cap services and remove equipment.
6. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
7. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.

C. If wire, raceway or equipment to remain is damaged in appearance or is unserviceable, remove damaged or unserviceable portions and replace with new products of equal capacity and quality.

3.2 GENERAL ELECTRICAL INSTALLATIONS

A. The contractor shall provide all necessary items for a complete operating system.

B. Provide all electrical systems required by and in accordance with Division 26.

C. Perform work for other divisions as required for electrical installations, or coordinate such work with other trades which includes but is not necessarily limited to:

1. Division 1: Cutting and Patching, Temporary Controls, Submittals, Facility Start-up, Contract Close Out, Record Documents, etc.
2. Division 2: Trenching, Backfilling, Compaction, Demolition, etc.
3. Division 3: Concrete Formwork.
4. Division 5: Metal Fabrications.
5. Division 6: Rough Carpentry.
6. Division 7: Joint Sealers and Fire Stopping
7. Division 8: Electric Door Hardware and Access Doors

    a. Deviation: Contractor is encouraged to coordinate and combine electrical access with mechanical access, and has the option to not add electrical access panels if acceptable coordination can be achieved.

8. Division 9 - Painting: In addition to Division 9, paint electrical equipment factory applied paint surfaces damaged during installation with paint purchased from equipment manufacturer to match each damaged surface.
9. Divisions 11 and 13: Laboratory Furniture, Electronic Systems, Intercoms, etc.
10. Division 15 for motors, controls, accessories, and connections.

D. Verify all dimensions by field measurements.

E. Arrange for chases, sleeve, slots, and openings in other building components during progress of construction, to allow for electrical installations.

F. Coordinate the installation of required supporting devices and sleeves to be set in poured-in-place concrete and other structural components, as they are constructed.

G. Where mounting heights or locations are not detailed or dimensioned, install systems, materials, and equipment to provide the maximum headroom and working clearances possible, but not less than required by Code.

H. Install systems, materials, and equipment to conform with approved submittal data, including coordination drawings and manufacturer's instructions, to greatest extent possible. Conform to arrangements indicated by the Contract Documents, recognizing that portions of the Work are shown only in diagrammatic form. Where coordination requirements conflict with individual system requirements, refer conflict to the Architect.

I. Install systems, materials, and equipment level and plumb, parallel and perpendicular to other building systems and components, where installed exposed in finished spaces.

J. Install electrical equipment to facilitate servicing, maintenance, and repair or replacement of equipment components. As much as practical, connect equipment for ease of disconnecting, with minimum of interference with other installations.

K. Install J-boxes for all other equipment requiring access or maintenance, which are concealed behind surfaces so that these devices can be serviced from the access panels. Where practical, group J-boxes and equipment so that they can be accessed from the same panel or door. If additional panels are needed, panels must be submitted for approval.

L. Cut, remove and legally dispose of selected electrical equipment, components, and materials, including but not limited to removal of electrical items indicated to be removed and items made obsolete by the new work.

M. The A/E reserves the right to make relocations up to 6 feet of outlets, boxes, cabinets, lighting, etc. before finished rough-in at no cost to the Owner.

N. Contractor shall notify design prime consultant and associated owner representative when he requests an inspection by the City Inspector.

3.3 COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATIONS

A. Comply with NECA 1.

B. Measure indicated mounting heights to bottom of unit for suspended items and to center of unit for wall-mounting items.

C. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide maximum possible headroom consistent with these requirements.

D. Equipment: Install to facilitate service, maintenance, and repair or replacement of components of both electrical equipment and other nearby installations. Connect in such a way as to facilitate future disconnecting with minimum interference with other items in the vicinity.

E. Right of Way: Give to piping systems installed at a required slope.

3.4 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Electrical penetrations occur when raceways, cables, wireways, cable trays, or busways penetrate concrete slabs, concrete or masonry walls, or fire-rated floor and wall assemblies.

B. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.

C. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.

D. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.

E. Cut sleeves to length for mounting flush with both surfaces of walls.

F. Extend sleeves installed in floors 2 inches above finished floor level.

G. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway or cable, unless indicated otherwise.

H. Seal space outside of sleeves with grout for penetrations of concrete and masonry

1. Promptly pack grout solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect grout while curing.

I. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint. Comply with requirements in Division 07 Section "Joint Sealants".

J. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at raceway and cable penetrations. Install sleeves and seal raceway and cable penetration sleeves with firestop materials. Comply with requirements in Division 07 Section "Penetration Firestopping."

K. Roof-Penetration Sleeves: Seal penetration of individual raceways and cables with flexible boot-type flashing units applied in coordination with roofing work.

L. Aboveground, Exterior-Wall Penetrations: Seal penetrations using steel pipe sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

M. Underground, Exterior-Wall Penetrations: Install cast-iron pipe sleeves. Size sleeves to allow for 1-inch annular clear space between raceway or cable and sleeve for installing mechanical sleeve seals.

3.5 SLEEVE-SEAL INSTALLATION

A. Install to seal exterior wall penetrations.

B. Use type and number of sealing elements recommended by manufacturer for raceway or cable material and size. Position raceway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.6 FIRESTOPPING

A. Apply firestopping to penetrations of fire-rated floor and wall assemblies for electrical installations to restore original fire-resistance rating of assembly. Firestopping materials and installation requirements are specified in Division 07 Section "Penetration Firestopping."

3.7 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Protection and Identification: Deliver products to project properly identified with names, model numbers, types, grades, compliance labels and similar information needed for distinct identification; adequately packaged or protected to prevent deterioration during shipment, storage and handling. Store in dry, well ventilated, indoor space, except where prepared and protected by manufacturer specifically for exterior storage.

3.8 TEMPORARY WIRING

A. The electrical contractor shall arrange for and provide all necessary equipment, outlets, temporary lights, metering and communications as required during the construction period for temporary electrical service to the project.

B. It shall be the responsibility of the electrical contractor to consult with all other trades on the project in order to determine the voltage of temporary electrical service required to operate the construction equipment to be employed and to provide such services to the project.

C. It shall be the responsibility of the electrical contractor to make all arrangements for, and to furnish and install, any and all temporary wiring, switches, and structures which may be required to maintain service continuity during the entire construction period. Temporary power and lights shall be UL listed and shall include a ground wire, a guard and a proper means of support.

D. All temporary installations shall be performed in accordance with the current edition of the National Electrical Code. All machinery and equipment powered by electricity shall have effective electrical equipment grounding provided with all electrical circuits.

3.9 UTILITIES

A. This contractor shall examine the site and shall verify, to his own satisfaction, the location and elevation of all utilities, and shall adequately inform himself as to their relation to the work before entering into a contract.

B. Existing utility lines shown within the scope of this project to be abandoned or removed shall be performed as directed by the Owner, and/or utility companies.

C. Existing utility lines not shown on the drawings but encountered during construction shall be protected, relocated or capped as directed by the Owner, and/or utility companies. All precautions shall be exercised to prevent damage to existing lines not shown, but should work become necessary, it must be authorized prior to execution except in an emergency situation.

D. Before beginning excavations of any nature whatsoever, the contractor shall make an attempt to locate all underground utilities of every nature occurring within the bounds of the area to be excavated. The contractor shall then proceed with caution in his excavation work so that no utility shall be damaged with a resultant loss of service.

E. Should any damage result to any utility through the contractor's negligence or failure to comply with the above directive, he will be liable for such damage and for

all expense incurred in the expeditious repair or replacement of such damaged utilities.

F. Repair of damaged utilities shall be to a condition equal to or better than the adjacent undamaged portion of such utility and to the complete satisfaction of the Owner and/or utility companies.

3.10 EXCAVATION

A. The contractor shall perform all excavation of every description and of whatever substances encountered, to the depths indicated and/or required for the installation of all portions of the utilities systems. All excavated materials not required for fill or backfill shall be removed. All excavation shall be made by open cut. The banks of trenches shall be kept as nearly vertical as practicable and where required shall be properly shored and braced. Trenches shall be not less than 12" wider nor more than 16" wider than the outside diameter of the conduit, and shall be excavated true to line so that a clear space not less than 6" nor more that 8" in width is provided on each side of the conduit or duct bank.

B. Except at locations where excavations of rock from bottom of trenches is required, care shall be taken not to excavate below the depths indicated. Where rock excavation is required, the rock shall be excavated to a minimum over-depth of 4" below the trench depths indicated on the drawings or as specified. The over-depth rock excavation shall be back-filled with loose, moist earth and thoroughly tamped.

C. Whenever wet or otherwise unstable soil that is incapable of supporting the conduit duct bank, pole base or pad is encountered in the trench bottom, such soil shall be removed to a depth required. The trench bottom shall be filled with course sand, fine gravel, or other suitable material.

D. Backfill with earth under pole bases, pads or other buried structures will not be permitted, and any unauthorized excess excavation below the levels indicated for foundation of such structures shall be filled with sand, gravel or concrete at the expense of the contractor.

E. All grading in the vicinity of excavations shall be controlled to prevent surface ground water from flowing into the excavations. Any water accumulated in the excavations shall be removed by pumping or by other approved method. During excavation, material suitable for backfilling shall be stacked in an orderly manner a sufficient distance back from the edges of trenches to avoid overloading and to prevent slides or cave-ins.

3.11 BACK-FILLING

A. Trenches shall not be back filled until all required tests are performed and until the utilities systems as installed conform to the requirements specified.

B. Trenches shall be carefully back filled with the excavated materials approved for back filling. This material shall consist of earth, loam, sandy clay, sand and gravel, soft shale, or other approved materials, free from large clods of earth or stones, deposited in thoroughly and carefully tamped 6" layers, until the conduit has a cover as specified. Broken rock, broken concrete or pavement, and large boulders shall not be used as backfill material.

C. Settling the backfill with water will be permissible and will be a requirement when so directed.

D. Any trenches across roadways or other areas to be paved shall be back filled with K-Crete or approved equal (ashes combined with concrete) in such manner as to permit the rolling and compaction of the filled trench. Together with the adjoining earth, shall provide required bearing value so that paving of the area can proceed immediately after the backfilling is completed.

3.12 CLOSEOUT PROCEDURES

A. General Coordination: Refer to Division 1 sections and individual specification sections for coordination of electrical closeout work with variable loads on electrical system. Coordinate taking of final photographs (if any) with electrical closeout, so that maximum detail of work as finally accepted is shown. Sequence closeout procedures properly, so that work will not be endangered or damaged, and so that every required performance with be fully tested and demonstrated.

B. System Performance Test Runs: Coordinate test runs of electrical systems with test runs of equipment served thereby (heating, air conditioning, plumbing, etc.). Check each item in each system to determine that it is set for proper operation. With Owner's Representative and Engineer present, operate each system in test run of appropriate duration to demonstrate compliance with performance requirements. During or following test runs, make final corrections or adjustments of systems to refine and improve performances where possible, including noise and vibration reductions, elimination of hazards, better response of controls, signals and alarms, and similar system performance improvements. Provide testing or inspection devices as may be reasonably requested for Engineer's observation of actual system performances. Demonstrate that controls and items requiring service or maintenance are accessible.

C. Cleaning and Lubrication: After final performance test run of each electrical system, clean system both externally and internally. Comply with manufacturer's instructions for lubrication of both power and hand-operated equipment, and remove excess lubrication. Touch-up minor damage to factory-painted finishes and other painting specified as electrical work; refinish work where damage is extensive.

D. General Operating Instructions: In addition to specific training of Owner's operating personnel specified in individual Division 26 work sections, and in addition to preparation of written operating instructions and compiled maintenance manuals specified in Division-26 Sections and elsewhere in these specifications, provide general operating instructions for each operational system and equipment item of electrical work. Coordinate instructions with instructions for mechanical work, elevators and other equipment where associated with electrical systems or equipment.

1. Describe each basic electrical system and functioning of its control system.
2. Explain identification system, mimic diagrams, signals, actuators, sensors, alarms, telecommunication systems, and similar audio/visual provisions.
3. Describe interfaces with mechanical equipment, including interlocks, sequencing, start-up, shut down, emergency, safety, system failure, security and similar provisions.

4. Outline basic maintenance procedures and major equipment turnaround requirements, including adjustments to optimize output and efficiency of electrical system.
5. Display and conduct "thumb-through" explanation of maintenance manuals, record drawings, spare parts inventory, storage of extra materials, meter readings and similar service items.

E. Construction Equipment: After completion of performance testing and Owner's operating instructions and demonstrations, remove installer's tools, test facilities, construction equipment and similar devices and materials used in execution of work but not incorporated in work.

F. Security and Protection: During electrical work closeout phase, meet with Owner's operating representative frequently (daily where necessary) and agree upon status of operational responsibility for electrical systems (including securing provisions to prevent unauthorized operations, and including protective measures to ensure that systems are not neglected or misused.

3.13 CONTINUED SYSTEM OPERATIONS

A. Acceptance and Continued Services: Coordinate Owner's take-over of electrical systems with take-over of mechanical systems, including the provision of skilled electrical operating and maintenance personnel until time Owner's personnel take over operation of entire mechanical and electrical plant. Contractor shall continue consultation and services (beyond take-over date) for electrical systems, matching required continued services on associated mechanical systems and equipment.

Approved:

John H. Kuo, PE.
Assistant Director
Engineering and Construction Division

4/30/15
Date

END OF SECTION

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

This Section includes methods and materials for grounding systems and equipment, plus the following special applications:

1. Underground distribution grounding.
2. Common ground bonding with lightning protection system.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Other Informational Submittals: Plans showing dimensioned as-built locations of grounding features specified in Part 3 "Field Quality Control" Article, including the following:

1. Test wells.
2. Ground rods.
3. Ground rings.
4. Grounding arrangements and connections for separately derived systems.
5. Grounding for sensitive electronic equipment.

C. Qualification Data: For testing agency and testing agency's field supervisor.

D. Field quality-control test reports.

E. Operation and Maintenance Data: For grounding to include the following in emergency, operation, and maintenance manuals:

1. Instructions for periodic testing and inspection of grounding features at ground rings grounding connections for separately derived systems based on NFPA 70B.

    a. Tests shall be to determine if ground resistance or impedance values remain within specified maximums, and instructions shall recommend corrective action if they do not.
    b. Include recommended testing intervals.

1.4 QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a member company of the InterNational Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.

1. Testing Agency's Field Supervisor: Person currently certified by the InterNational Electrical Testing Association to supervise on-site testing specified in Part 3.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

C. Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 - PRODUCTS

2.1 CONDUCTORS

A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

B. Bare Copper Conductors:

1. Solid Conductors: ASTM B 3.
2. Stranded Conductors: ASTM B 8.
3. Tinned Conductors: ASTM B 33.
4. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch in diameter.
5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
6. Bonding Jumper: Copper tape, braided conductors, terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.
7. Tinned Bonding Jumper: Tinned-copper tape, braided conductors, terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.

C. Bare Grounding Conductor and Conductor Protector for Wood Poles:

1. No. 4 AWG minimum, soft-drawn copper.
2. Conductor Protector: Half-round PVC or wood molding. If wood, use pressure-treated fir or cypress or cedar.

D. Grounding Bus: Rectangular bars of annealed copper, 1/4 by 2 inches in cross section, unless otherwise indicated; with insulators.

2.2 CONNECTORS

A. Listed and labeled by a nationally recognized testing laboratory acceptable to authorities having jurisdiction for applications in which used, and for specific types, sizes, and combinations of conductors and other items connected.

B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy, bolted pressure-type, with at least two bolts.

1. Pipe Connectors: Clamp type, sized for pipe.

C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

2.3 GROUNDING ELECTRODES

A. Ground Rods: Copper-clad steel; 3/4 inch by10 feet in diameter.

B. Chemical-Enhanced Grounding Electrodes: Copper tube, straight or L-shaped, charged with nonhazardous electrolytic chemical salts.

1. Termination: Factory-attached No. 4/0 AWG bare conductor at least 48 inches long.
2. Backfill Material: Electrode manufacturer's recommended material.

PART 3 - EXECUTION

3.1 APPLICATIONS

A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger, unless otherwise indicated.

B. Underground Grounding Conductors: Install bare tinned copper conductor, No. 2/0 AWG minimum.

1. Bury at least 24 inches below grade.
2. Duct-Bank Grounding Conductor: Bury 12 inches above duct bank when indicated as part of duct-bank installation.

C. Isolated Grounding Conductors: Green-colored insulation with continuous yellow stripe. On feeders with isolated ground, identify grounding conductor where visible to normal inspection, with alternating bands of green and yellow tape, with at least three bands of green and two bands of yellow.

D. Grounding Bus: Install in electrical and telephone equipment rooms, in rooms housing service equipment, and elsewhere as indicated.

1. Install bus on insulated spacers 1 inch, minimum, from wall 6 inches above finished floor, unless otherwise indicated.
2. Where indicated on both sides of doorways, route bus up to top of door frame, across top of doorway, down to specified height above floor, and connect to horizontal bus.

E. Conductor Terminations and Connections:

1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
2. Underground Connections: Welded connectors, except at test wells and as otherwise indicated.
3. Connections to Ground Rods at Test Wells: Bolted connectors.

4. Connections to Structural Steel: Welded connectors.

3.2 GROUNDING UNDERGROUND DISTRIBUTION SYSTEM COMPONENTS

A. Comply with IEEE C2 grounding requirements.

B. Grounding Manholes and Handholes: Install a driven ground rod through manhole or handhole floor, close to wall, and set rod depth so 4 inches will extend above finished floor. If necessary, install ground rod before manhole is placed and provide No. 1/0 AWG bare, tinned-copper conductor from ground rod into manhole through a waterproof sleeve in manhole wall. Protect ground rods passing through concrete floor with a double wrapping of pressure-sensitive insulating tape or heat-shrunk insulating sleeve from 2 inches above to 6 inches below concrete. Seal floor opening with waterproof, nonshrink grout.

C. Grounding Connections to Manhole Components: Bond exposed-metal parts such as inserts, cable racks, pulling irons, ladders, and cable shields within each manhole or handhole, to ground rod or grounding conductor. Make connections with No. 4 AWG minimum, stranded, hard-drawn copper bonding conductor. Train conductors level or plumb around corners and fasten to manhole walls. Connect to cable armor and cable shields as recommended by manufacturer of splicing and termination kits.

D. Pad-Mounted Transformers and Switches: Install two ground rods and ground ring around the pad. Ground pad-mounted equipment and noncurrent-carrying metal items associated with substations by connecting them to underground cable and grounding electrodes. Install tinned-copper conductor not less than No. 2 AWG for ground ring and for taps to equipment grounding terminals. Bury ground ring not less than 6 inches from the foundation.

3.3 EQUIPMENT GROUNDING

A. Install insulated equipment grounding conductors with all feeders and branch circuits.

B. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:

1. Feeders and branch circuits.
2. Lighting circuits.
3. Receptacle circuits.
4. Single-phase motor and appliance branch circuits.
5. Three-phase motor and appliance branch circuits.
6. Flexible raceway runs.
7. Armored and metal-clad cable runs.
8. Busway Supply Circuits: Install insulated equipment grounding conductor from grounding bus in the switchgear, switchboard, or distribution panel to equipment grounding bar terminal on busway.
9. Computer and Rack-Mounted Electronic Equipment Circuits: Install insulated equipment grounding conductor in branch-circuit runs from equipment-area power panels and power-distribution units.

C. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air

cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.

D. Water Heater, Heat-Tracing, and Antifrost Heating Cables: Install a separate insulated equipment grounding conductor to each electric water heater and heat-tracing cable. Bond conductor to heater units, piping, connected equipment, and components.

E. Isolated Grounding Receptacle Circuits: Install an insulated equipment grounding conductor connected to the receptacle grounding terminal. Isolate conductor from raceway and from panelboard grounding terminals. Terminate at equipment grounding conductor terminal of the applicable derived system or service, unless otherwise indicated.

F. Isolated Equipment Enclosure Circuits: For designated equipment supplied by a branch circuit or feeder, isolate equipment enclosure from supply circuit raceway with a nonmetallic raceway fitting listed for the purpose. Install fitting where raceway enters enclosure, and install a separate insulated equipment grounding conductor. Isolate conductor from raceway and from panelboard grounding terminals. Terminate at equipment grounding conductor terminal of the applicable derived system or service, unless otherwise indicated.

G. Signal and Communication Equipment: For telephone, alarm, voice and data, and other communication equipment, provide No. 4 AWG minimum insulated grounding conductor in raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.

1. Service and Central Equipment Locations and Wiring Closets: Terminate grounding conductor on a 1/4-by-2-by-12-inch grounding bus.
2. Terminal Cabinets: Terminate grounding conductor on cabinet grounding terminal.

H. Metal Poles Supporting Outdoor Lighting Fixtures: Install grounding electrode and a separate insulated equipment grounding conductor in addition to grounding conductor installed with branch-circuit conductors.

3.4 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible, unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

B. Common Ground Bonding with Lightning Protection System: Comply with NFPA 780 and UL 96 when interconnecting with lightning protection system. Bond electrical power system ground directly to lightning protection system grounding conductor at closest point to electrical service grounding electrode. Use bonding conductor sized same as system grounding electrode conductor, and install in conduit.

C. Ground Rods: Drive rods until tops are 2 inches below finished floor or final grade, unless otherwise indicated.

1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating, if any.

2. For grounding electrode system, install at leas three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.

D. Test Wells: Ground rod driven through drilled hole in bottom of handhole. Handholes are specified in Division 26 Section "Underground Ducts and Raceways for Electrical Systems," and shall be at least 12 inches deep, with cover.

1. Test Wells: Install at least one test well for each service, unless otherwise indicated. Install at the ground rod electrically closest to service entrance. Set top of test well flush with finished grade or floor.

E. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance, except where routed through short lengths of conduit.

1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install so vibration is not transmitted to rigidly mounted equipment.
3. Use exothermic-welded connectors for outdoor locations, but if a disconnect-type connection is required, use a bolted clamp.

F. Grounding and Bonding for Piping:

1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes, using a bolted clamp connector or by bolting a lug-type connector to a pipe flange, using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.

G. Bonding Interior Metal Ducts: Bond metal air ducts to equipment grounding conductors of associated fans, blowers, electric heaters, and air cleaners. Install bonding jumper to bond across flexible duct connections to achieve continuity.

H. Grounding for Steel Building Structure: Install a driven ground rod at base of each corner column and at intermediate exterior columns at distances not more than 60 feet apart.

I. Ground Ring: Install a grounding conductor, electrically connected to each building structure ground rod and to each indicated item, extending around the perimeter of building.

1. Install tinned-copper conductor not less than No. 2/0 AWG for ground ring and for taps to building steel.
2. Bury ground ring not less than 24 inches from building foundation.

3.5 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.

B. Testing Agency: Engage a qualified testing and inspecting agency to perform the following field tests and inspections and prepare test reports:

C. Perform the following tests and inspections and prepare test reports:

1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
2. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal and at individual ground rods. Make tests at ground rods before any conductors are connected.

    a. Measure ground resistance not less than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
    b. Perform tests by fall-of-potential method according to IEEE 81.

3. Prepare dimensioned drawings locating each test well, ground rod and ground rod assembly, and other grounding electrodes. Identify each by letter in alphabetical order, and key to the record of tests and observations. Include the number of rods driven and their depth at each location, and include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results.

D. Report measured ground resistances that exceed the following values:

1. Power and Lighting Equipment or System with Capacity More Than 1000 kVA: 5 ohms.
2. Power Distribution Units or Panelboards Serving Electronic Equipment: 3 ohm(s).
3. Substations and Pad-Mounted Equipment: 5 ohms.
4. Manhole Grounds: 10 ohms.

E. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.

Approved:

John H. Kuo, PE.
Assistant Director
Engineering and Construction Division

Date 4/30/15

END OF SECTION

IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Identification for raceways.
2. Identification of power and control cables.
3. Identification for conductors.
4. Underground-line warning tape.
5. Warning labels and signs.
6. Instruction signs.
7. Equipment identification labels.
8. Miscellaneous identification products.

1.3 SUBMITTALS

A. Product Data: For each electrical identification product indicated.

B. Samples: For each type of label and sign to illustrate size, colors, lettering style, mounting provisions, and graphic features of identification products.

C. Identification Schedule: An index of nomenclature of electrical equipment and system components used in identification signs and labels.

1.4 QUALITY ASSURANCE

A. Comply with ANSI A13.1.

B. Comply with NFPA 70.

C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.

D. Comply with ANSI Z535.4 for safety signs and labels.

E. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

1.5 COORDINATION

A. Coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual; and with those required by codes, standards, and 29 CFR 1910.145. Use consistent designations throughout Project.

B. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

C. Coordinate installation of identifying devices with location of access panels and doors.

D. Install identifying devices before installing acoustical ceilings and similar concealment.

PART 2 - PRODUCTS

2.1 POWER RACEWAY IDENTIFICATION MATERIALS

A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway size.

B. Colors for Raceways Carrying Circuits at 600 V or Less:

1. Black letters on an orange field.
2. Legend: Indicate voltage and system or service type.

C. Colors for Raceways Carrying Circuits at More Than 600 V:

1. Black letters on an orange field.
2. Legend: "DANGER CONCEALED HIGH VOLTAGE WIRING" with 3-inch- high letters on 20-inch centers.

D. Self-Adhesive Vinyl Labels for Raceways Carrying Circuits at 600 V or Less: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.

E. Snap-Around Labels for Raceways Carrying Circuits at 600 V or Less: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeve, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.

F. Snap-Around, Color-Coding Bands for Raceways Carrying Circuits at 600 V or Less: Slit, pretensioned, flexible, solid-colored acrylic sleeve, 2 inches long, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.

G. Tape and Stencil for Raceways Carrying Circuits More Than 600 V: 4-inch-wide black stripes on 10-inch centers diagonally over orange background that extends full length of raceway or duct and is 12 inches wide. Stop stripes at legends.

H. Metal Tags: Brass or aluminum, 2 by 2 by 0.05 inch, with stamped legend, punched for use with self-locking cable tie fastener.

I. Write-On Tags: Polyester tag, 0.010 inch thick, with corrosion-resistant grommet and cable tie for attachment to conductor or cable.

1. Marker for Tags: Permanent, waterproof, black ink marker recommended by tag manufacturer.
2. Marker for Tags: Machine-printed, permanent, waterproof, black ink marker recommended by printer manufacturer.

2.2 ARMORED AND METAL-CLAD CABLE IDENTIFICATION MATERIALS

A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway and cable size.

B. Colors for Raceways Carrying Circuits at 600 V and Less:

1. Black letters on an orange field.
2. Legend: Indicate voltage and system or service type.

C. Colors for Raceways Carrying Circuits at More Than 600 V:

1. Black letters on an orange field.
2. Legend: "DANGER CONCEALED HIGH VOLTAGE WIRING" with 3-inch- high letters on 20-inch centers.

D. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.

E. Self-Adhesive Vinyl Tape: Colored, heavy duty, waterproof, fade resistant; 2 inches wide; compounded for outdoor use.

2.3 POWER AND CONTROL CABLE IDENTIFICATION MATERIALS

A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway and cable size.

B. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.

C. Metal Tags: Brass or aluminum, 2 by 2 by 0.05 inch, with stamped legend, punched for use with self-locking cable tie fastener.

D. Write-On Tags: Polyester tag, 0.010 inch thick, with corrosion-resistant grommet and cable tie for attachment to conductor or cable.

1. Marker for Tags: Permanent, waterproof, black ink marker recommended by tag manufacturer.
2. Marker for Tags: Machine-printed, permanent, waterproof, black ink marker recommended by printer manufacturer.

E. Snap-Around Labels: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeve, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.

F. Snap-Around, Color-Coding Bands: Slit, pretensioned, flexible, solid-colored acrylic sleeve, 2 inches long, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.

2.4 CONDUCTOR IDENTIFICATION MATERIALS

A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide.

B. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.

C. Snap-Around Labels: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeve, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.

D. Snap-Around, Color-Coding Bands: Slit, pretensioned, flexible, solid-colored acrylic sleeve, 2 inches long, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.

E. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.

F. Write-On Tags: Polyester tag, 0.010 inch thick, with corrosion-resistant grommet and cable tie for attachment to conductor or cable.

1. Marker for Tags: Permanent, waterproof, black ink marker recommended by tag manufacturer.
2. Marker for Tags: Machine-printed, permanent, waterproof, black ink marker recommended by printer manufacturer.

2.5 FLOOR MARKING TAPE

A. 2-inch- wide, 5-mil pressure-sensitive vinyl tape, with black and white stripes and clear vinyl overlay.

2.6 UNDERGROUND-LINE WARNING TAPE

A. Tape:

1. Recommended by manufacturer for the method of installation and suitable to identify and locate underground electrical and communications utility lines.
2. Printing on tape shall be permanent and shall not be damaged by burial operations.
3. Tape material and ink shall be chemically inert, and not subject to degrading when exposed to acids, alkalis, and other destructive substances commonly found in soils.

B. Color and Printing:

1. Comply with ANSI Z535.1 through ANSI Z535.5.
2. Inscriptions for Red-Colored Tapes: ELECTRIC LINE, HIGH VOLTAGE.
3. Inscriptions for Orange-Colored Tapes: TELEPHONE, COMMUNICATIONS CABLE, OPTICAL FIBER CABLE.

2.7 WARNING LABELS AND SIGNS

A. Comply with NFPA 70 and 29 CFR 1910.145.

B. Self-Adhesive Warning Labels: Factory-printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment unless otherwise indicated.

C. Baked-Enamel Warning Signs:

1. Preprinted aluminum signs, punched or drilled for fasteners, with colors, legend, and size required for application.
2. 1/4-inch grommets in corners for mounting.
3. Nominal size, 7 by 10 inches.

D. Warning label and sign shall include, but are not limited to, the following legends:

1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
2. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES."

2.8 EQUIPMENT IDENTIFICATION LABELS

A. Adhesive Film Label: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch.

B. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch. Overlay shall provide a weatherproof and UV-resistant seal for label.

C. Self-Adhesive, Engraved, Laminated Acrylic or Melamine Label: Adhesive backed, with white letters on a dark-gray background. Minimum letter height shall be 3/8 inch.

D. Engraved, Laminated Acrylic or Melamine Label: Punched or drilled for screw mounting. White letters on a dark-gray background. Minimum letter height shall be 3/8 inch.

E. Stenciled Legend: In non-fading, waterproof, black ink or paint. Minimum letter height shall be 1 inch.

2.9 CABLE TIES

A. General-Purpose Cable Ties: Fungus inert, self extinguishing, one piece, self locking, Type 6/6 nylon.

1. Minimum Width: 3/16 inch.
2. Tensile Strength at 73 deg F, According to ASTM D 638: 12,000 psi.
3. Temperature Range: Minus 40 to plus 185 deg F.
4. Color: Black except where used for color-coding.

B. UV-Stabilized Cable Ties: Fungus inert, designed for continuous exposure to exterior sunlight, self extinguishing, one piece, self locking, Type 6/6 nylon.

1. Minimum Width: 3/16 inch.
2. Tensile Strength at 73 deg F, According to ASTM D 638: 12,000 psi.
3. Temperature Range: Minus 40 to plus 185 deg F.
4. Color: Black.

C. Plenum-Rated Cable Ties: Self extinguishing, UV stabilized, one piece, self locking.

1. Minimum Width: 3/16 inch.
2. Tensile Strength at 73 deg F, According to ASTM D 638: 7000 psi.
3. UL 94 Flame Rating: 94V-0.
4. Temperature Range: Minus 50 to plus 284 deg F.
5. Color: Black.

2.10 MISCELLANEOUS IDENTIFICATION PRODUCTS

A. Paint: Comply with requirements in Division 09 painting Sections for paint materials and application requirements. Select paint system applicable for surface material and location (exterior or interior).

B. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Verify identity of each item before installing identification products.

B. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.

C. Apply identification devices to surfaces that require finish after completing finish work.

D. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.

E. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.

F. System Identification Color-Coding Bands for Raceways and Cables: Each color-coding band shall completely encircle cable or conduit. Place adjacent bands of two-color markings in contact, side by side. Locate bands at changes in direction,

at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.

G. Aluminum Wraparound Marker Labels and Metal Tags: Secure tight to surface of conductor or cable at a location with high visibility and accessibility.

H. Cable Ties: For attaching tags. Use general-purpose type, except as listed below:

1. Outdoors: UV-stabilized nylon.
2. In Spaces Handling Environmental Air: Plenum rated.

I. Underground-Line Warning Tape: During backfilling of trenches install continuous underground-line warning tape directly above line at 6 to 8 inches (below finished grade. Use multiple tapes where width of multiple lines installed in a common trench exceeds 16 inches overall.

J. Painted Identification: Comply with requirements in Division 09 painting Sections for surface preparation and paint application.

3.2 IDENTIFICATION SCHEDULE

A. Concealed Raceways, Duct Banks, More Than 600 V, within Buildings: Tape and stencil 4-inch- wide black stripes on 10-inch centers over orange background that extends full length of raceway or duct and is 12 inches wide. Stencil legend "DANGER CONCEALED HIGH VOLTAGE WIRING" with 3-inch-high black letters on 20-inch centers. Stop stripes at legends. Apply to the following finished surfaces:

1. Floor surface directly above conduits running beneath and within 12 inches of a floor that is in contact with earth or is framed above unexcavated space.
2. Wall surfaces directly external to raceways concealed within wall.
3. Accessible surfaces of concrete envelope around raceways in vertical shafts, exposed in the building, or concealed above suspended ceilings.

B. Accessible Raceways and Metal-Clad Cables, 600 V or Less, for Service, Feeder, and Branch Circuits More Than 30 A, and 120 V to ground: Identify with self-adhesive vinyl label. Install labels at 10-foot maximum intervals.

C. Accessible Raceways and Cables within Buildings: Identify the covers of each junction and pull box of the following systems with self-adhesive vinyl labels with the wiring system legend and system voltage. System legends shall be as follows:

1. Emergency Power.
2. Power.

D. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and hand-holes, use color-coding conductor tape to identify the phase.

1. Color-Coding for Phase and Voltage Level Identification, 600 V or Less: Use colors listed below for ungrounded service, feeder, and branch-circuit conductors.

   a. Color shall be factory applied or field applied for sizes larger than No. 8 AWG, if authorities having jurisdiction permit.
   b. Colors for 208/120-V Circuits:

1) Phase A: Black.
2) Phase B: Red.
3) Phase C: Blue.

c. Colors for 480/277-V Circuits:

1) Phase A: Brown.
2) Phase B: Orange.
3) Phase C: Yellow.

d. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.

E. Power-Circuit Conductor Identification, More than 600 V: For conductors in vaults, pull and junction boxes, manholes, and hand-holes, use nonmetallic plastic tag holder with adhesive-backed phase tags, and a separate tag with the circuit designation.

F. Install instructional sign including the color-code for grounded and ungrounded conductors using adhesive-film-type labels.

G. Conductors to Be Extended in the Future: Attach marker tape to conductors and list source.

H. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.

1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
2. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-installed connections.
3. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual.

I. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, communication, and control wiring and optical fiber cable.

1. Limit use of underground-line warning tape to direct-buried cables.
2. Install underground-line warning tape for both direct-buried cables and cables in raceway.

J. Workspace Indication: Install floor marking tape to show working clearances in the direction of access to live parts. Workspace shall be as required by NFPA 70 and 29 CFR 1926.403 unless otherwise indicated. Do not install at flush-mounted panelboards and similar equipment in finished spaces.

K. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Self-adhesive warning labels.

1. Comply with 29 CFR 1910.145.
2. Identify system voltage with black letters on an orange background.
3. Apply to exterior of door, cover, or other access.

4. For equipment with multiple power or control sources, apply to door or cover of equipment including, but not limited to, the following:

    a. Power transfer switches.
    b. Controls with external control power connections.

L. Operating Instruction Signs: Install instruction signs to facilitate proper operation and maintenance of electrical systems and items to which they connect. Install instruction signs with approved legend where instructions are needed for system or equipment operation.

M. Emergency Operating Instruction Signs: Install instruction signs with white legend on a red background with minimum 3/8-inch- high letters for emergency instructions at equipment used for power transfer.

N. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.

1. Labeling Instructions:

    a. Indoor Equipment: Self-adhesive, engraved, laminated acrylic or melamine label. Unless otherwise indicated, provide a single line of text with 1/2-inch- high letters on 1-1/2-inch- high label; where two lines of text are required, use labels 2 inches high.
    b. Outdoor Equipment: Engraved, laminated acrylic or melamine label.
    c. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.
    d. Unless provided with self-adhesive means of attachment, fasten labels with appropriate mechanical fasteners that do not change the NEMA or NRTL rating of the enclosure.

2. Equipment to Be Labeled:

    a. Panelboards: Typewritten directory of circuits in the location provided by panelboard manufacturer. Panelboard identification shall be laminated acrylic or melamine label.
    b. Enclosures and electrical cabinets.
    c. Access doors and panels for concealed electrical items.
    d. Switchboards.
    e. Transformers: Label that includes tag designation shown on Drawings for the transformer, feeder, and panelboards or equipment supplied by the secondary.
    f. Substations.
    g. Emergency system boxes and enclosures.
    h. Motor-control centers.
    i. Enclosed switches.
    j. Enclosed circuit breakers.
    k. Enclosed controllers.
    l. Variable-speed controllers.
    m. Push-button stations.
    n. Power transfer equipment.

o. Contactors.
p. Remote-controlled switches, dimmer modules, and control devices.
q. Battery-inverter units.
r. Battery racks.
s. Power-generating units.
t. Monitoring and control equipment.

Approved:

John H. Kuo, PE.
Assistant Director
Engineering and Construction Division

Date 9/30/15

END OF SECTION

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Building wires and cables rated 600V and less.
2. Connectors, splices, and terminations rated 600V and less.
3. Sleeves and sleeve seals for cables.

B. Related Sections include the following:

1. Division 26 Section "Medium-Voltage Cables" for single-conductor and multiconductor cables, cable splices, and terminations for electrical distribution systems with 2001 to 35,000V.
2. Division 27 Section "Communications Horizontal Cabling" for cabling used for voice and data circuits.

1.3 DEFINITIONS

A. EPDM: Ethylene-propylene-diene terpolymer rubber.

B. NBR: Acrylonitrile-butadiene rubber.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Qualification Data: For testing agency.

C. Field quality-control test reports.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a member company of the InterNational Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.

1. Testing Agency's Field Supervisor: Person currently certified by the InterNational Electrical Testing Association or the National Institute for Certification in Engineering Technologies to supervise on-site testing specified in Part 3.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

C. Comply with NFPA 70.

D. UL Compliance: Provide components which are listed and labeled by UL under the following standards.

1. UL Std. 83 - Thermoplastic-Insulated Wires and Cables.
2. UL Std. 4 - Armored Cable
3. UL Std. 1569 - Metal-Clad Cables
4. UL Std. 486A - Wire Connectors and Soldering Lugs for Use with Copper Conductors.
5. UL 13 - Power limited circuit cables.
6. UL 1666 - Test for flame propagation height of electrical and optical-fiber cables installed vertically in shafts.
7. UL 910 - Test for flame propagation and smoke density values for and optical fiber cables used in spaces environmental air.
8. UL 1685 - Vertical tray fire propagation and smoke release test for and optical fiber cables.

E. NEMA WC-5: Thermoplastic-insulated wire and cable for the transmission and distribution of electrical energy.

F. Federal Specifications

1. J-C-30B(1) cable and wire, electrical (power, fixed installation).

1.6 COORDINATION

A. Set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Alcan Products Corporation; Alcan Cable Division.
2. American Insulated Wire Corp.; a Leviton Company.
3. General Cable Corporation.
4. Senator Wire & Cable Company.
5. Southwire Company.

B. Copper Conductors: Comply with NEMA WC 70.

C. Conductor Insulation: Comply with NEMA WC 70 for Types THW, THHN-THWN, XHHW, UF, USE and SO.

D. Multiconductor Cable: Comply with NEMA WC 70 for armed cable, Type AC, metal clad cable, Type MC, mineral-insulated, sheathed cabel, Type MI with ground wire.

2.2 CONNECTORS AND SPLICES

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. AFC Cable Systems, Inc.
2. Hubbell Power Systems, Inc.
3. O-Z/Gedney; EGS Electrical Group LLC.
4. 3M; Electrical Products Division.
5. Tyco Electronics Corp.

C. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

2.3 SLEEVES FOR CABLES

A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends.

B. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

C. Sleeves for Rectangular Openings: Galvanized sheet steel with minimum 0.052- or 0.138-inch thickness as indicated and of length to suit application.

D. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 07 Section "Penetration Firestopping."

2.4 SLEEVE SEALS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

B. Basis-of-Design Product: Subject to compliance with requirements, provide a comparable product by one of the following:

1. Advance Products & Systems, Inc.
2. Calpico, Inc.
3. Metraflex Co.
4. Pipeline Seal and Insulator, Inc.

C. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and cable.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

A. Feeders: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

3.2 INSTALLATION OF CONDUCTORS AND CABLES

A. Conceal cables in finished walls, ceilings, and floors, unless otherwise indicated.

B. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

C. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

D. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

E. Support cables according to Division 26 Section "Hangers and Supports for Electrical Systems."

F. Identify and color-code conductors and cables according to Division 26 Section "Identification for Electrical Systems."

G. All wire shall be installed in conduit or raceways.

H. All circuits shall have a hot, neutral and green ground wire unless otherwise indicated.

I. Provide #12 conductors and #12 ground minimum to all 15 and 20 amp devices unless otherwise indicated.

J. Provide #10 conductors and #10 ground minimum to all 30 ano devices unless otherwise indicated.

K. Provide #10 minimum conductors for 120/208V 20 amp circuits for which the distance from the panelboard to the to the first device is greater than 100 feet.

L. Provide #10 minimum conductors for 277/480V 20 amp circuits for which the distance from the panelboard to the to the first device is greater than 200 feet.

M. Do not install wires in conduit until entire system of conduit and outlet boxes is permanently in place.

N. Exercise care when installing wire in conduit so as to prevent injury to the conductor insulation. Mechanical means of pulling shall not be used unless

approved. Conductors shall be pulled using UL non-flammable listed lubricant when necessary.

O. Whenever wiring leaves the conduit and terminates at a terminal board, the wiring shall be formed and laced with plastic wire ties.

P. In the event circuits feed through outlet boxes, provide splice and pigtail for device connection, with sufficient slack to pull splice out of box at least 6 inches (for inspection).

Q. Coordinate cable installation with other Work.

R. Pull conductors simultaneously where more than one is being installed in same raceway.

S. Use pulling means including, fish tape, cable, rope, and basket weave wire/cable grips which will not damage cables or raceways. Do not use rope hitches for pulling attachment to wire or cable.

T. Keep conductor splices to a minimum.

U. Install splice and tap connectors which possess equivalent or better mechanical strength and insulation rating than conductors being spliced.

V. Use splice and tap connectors which are compatible with conductor material.

W. Provide adequate length of conductors within electrical enclosures and train the conductors to terminal points with no excess. Bundle multiple conductors, with conductors larger than no.10 AWG cabled in individual circuits. Make terminations so there is no bare conductor at the terminal.

X. Home Runs: except where specifically indicated, provide lighting branch circuit home runs with not more than three different line conductors and a common neutral in a single raceway for 4-wire, 3-phase systems.

Y. Conductors may be run inn parallel in sizes 1/0 through 750 MCM where indicated and provided that all conductors of each phase are the same length and so arranged and terminated as to ensure equal division of the current between all paralleled phase conductors.

Z. Feeders shall be installed in continuous pieces without splice.

AA. Install a separate neutral for each circuit which serves GFCI or isolated ground receptacles.

BB. Each circuit originating from a GFCI type circuit breaker shall also have a separate neutral.

CC. Where specifically indicated, for receptacle branch circuits, provide a separate neutral conductor for each line conductor.

DD. Each circuit serving receptacles where data terminals are used shall have separate neutral.

3.3 CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

B. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

1. Use oxide inhibitor in each splice and tap conductor for aluminum conductors.

C. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches of slack.

3.4 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 07 Section "Penetration Firestopping."

B. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.

C. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.

D. Rectangular Sleeve Minimum Metal Thickness:

1. For sleeve rectangle perimeter less than 50 inches and no side greater than 16 inches, thickness shall be 0.052 inch.
2. For sleeve rectangle perimeter equal to, or greater than, 50 inches and 1 or more sides equal to, or greater than, 16 inches, thickness shall be 0.138 inch.

E. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.

F. Cut sleeves to length for mounting flush with both wall surfaces.

G. Extend sleeves installed in floors 2 inches above finished floor level.

H. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and cable unless sleeve seal is to be installed.

I. Seal space outside of sleeves with grout for penetrations of concrete and masonry and with approved joint compound for gypsum board assemblies.

J. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and cable, using joint sealant appropriate for size, depth, and location of joint according to Division 07 Section "Joint Sealants."

K. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at cable penetrations. Install sleeves and seal with firestop materials according to Division 07 Section "Penetration Firestopping."

L. Roof-Penetration Sleeves: Seal penetration of individual cables with flexible boot-type flashing units applied in coordination with roofing work.

M. Aboveground Exterior-Wall Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Size sleeves to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

N. Underground Exterior-Wall Penetrations: Install cast-iron "wall pipes" for sleeves. Size sleeves to allow for 1-inch annular clear space between cable and sleeve for installing mechanical sleeve seals.

3.5 SLEEVE-SEAL INSTALLATION

A. Install to seal underground exterior-wall penetrations.

B. Use type and number of sealing elements recommended by manufacturer for cable material and size. Position cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.6 FIRESTOPPING

A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Division 07 Section "Penetration Firestopping."

3.7 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections and prepare test reports.

B. Perform tests and inspections and prepare test reports.

C. Tests and Inspections:

1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors, and conductors feeding the following critical equipment and services for compliance with requirements.

2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
3. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each splice in cables and conductors No. 3 AWG and larger. Remove box and equipment covers so splices are accessible to portable scanner.

    a. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each splice 11 months after date of Substantial Completion.
    b. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.

c. Record of Infrared Scanning: Prepare a certified report that identifies splices checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

D. Test Reports: Prepare a written report to record the following:

1. Test procedures used.
2. Test results that comply with requirements.
3. Test results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

E. Remove and replace malfunctioning units and retest as specified above.

Approved:

Reni Kalyatodi

John H. Kuo, PE.
Assistant Director
Engineering and Construction Division

4/30/15
Date

END OF SECTION

RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.

B. Related Sections include the following:

1. Division 26 Section "Underground Ducts and Raceways for Electrical Systems" for exterior ductbanks, manholes, and underground utility construction.

1.3 DEFINITIONS

A. EMT: Electrical metallic tubing.

B. ENT: Electrical nonmetallic tubing.

C. EPDM: Ethylene-propylene-diene terpolymer rubber.

D. FMC: Flexible metal conduit.

E. IMC: Intermediate metal conduit.

F. LFMC: Liquidtight flexible metal conduit.

G. LFNC: Liquidtight flexible nonmetallic conduit.

H. NBR: Acrylonitrile-butadiene rubber.

I. RNC: Rigid nonmetallic conduit.

1.4 SUBMITTALS

A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.

B. Shop Drawings: For the following raceway components. Include plans, elevations, sections, details, and attachments to other work.

1. Custom enclosures and cabinets.
2. For handholes and boxes for underground wiring, including the following:

a. Duct entry provisions, including locations and duct sizes.
b. Frame and cover design.
c. Grounding details.
d. Dimensioned locations of cable rack inserts, and pulling-in and lifting irons.
e. Joint details.

C. Coordination Drawings: Conduit routing plans, drawn to scale, on which the following items are shown and coordinated with each other, based on input from installers of the items involved:

1. Structural members in the paths of conduit groups with common supports.
2. HVAC and plumbing items and architectural features in the paths of conduit groups with common supports.

D. Qualification Data: For professional engineer and testing agency.

E. Source quality-control test reports.

1.5 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 METAL CONDUIT AND TUBING

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. AFC Cable Systems, Inc.
2. Alflex Inc.
3. Allied Tube & Conduit; a Tyco International Ltd. Co.
4. Anamet Electrical, Inc.; Anaconda Metal Hose.
5. Electri-Flex Co.
6. Manhattan/CDT/Cole-Flex.
7. Maverick Tube Corporation.
8. O-Z Gedney; a unit of General Signal.
9. Wheatland Tube Company.

C. Rigid Steel Conduit: ANSI C80.1.

D. Aluminum Rigid Conduit: ANSI C80.5.

E. IMC: ANSI C80.6.

F. PVC-Coated Steel Conduit: PVC-coated rigid steel conduit.

1. Comply with NEMA RN 1.
2. Coating Thickness: 0.040 inch, minimum.

G. EMT: ANSI C80.3.

H. FMC: Zinc-coated steel or aluminum.

I. LFMC: Flexible steel conduit with PVC jacket.

J. Fittings for Conduit (Including all Types and Flexible and Liquidtight), EMT, and Cable: NEMA FB 1; listed for type and size raceway with which used, and for application and environment in which installed.

1. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 886.
2. Fittings for EMT: compression type.
3. Coating for Fittings for PVC-Coated Conduit: Minimum thickness, 0.040 inch, with overlapping sleeves protecting threaded joints.

K. Joint Compound for Rigid Steel Conduit or IMC: Listed for use in cable connector assemblies, and compounded for use to lubricate and protect threaded raceway joints from corrosion and enhance their conductivity.

2.2 NONMETALLIC CONDUIT AND TUBING

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. AFC Cable Systems, Inc.
2. Anamet Electrical, Inc.; Anaconda Metal Hose.
3. Arnco Corporation.
4. CANTEX Inc.
5. CertainTeed Corp.; Pipe & Plastics Group.
6. Condux International, Inc.
7. ElecSYS, Inc.
8. Electri-Flex Co.
9. Lamson & Sessions; Carlon Electrical Products.
10. Manhattan/CDT/Cole-Flex.
11. RACO; a Hubbell Company.
12. Thomas & Betts Corporation.

C. ENT: NEMA TC 13.

D. RNC: NEMA TC 2, Type EPC-40-PVC, unless otherwise indicated.

E. LFNC: UL 1660.

F. Fittings for ENT and RNC: NEMA TC 3; match to conduit or tubing type and material.

G. Fittings for LFNC: UL 514B.

2.3 OPTICAL FIBER/COMMUNICATIONS CABLE RACEWAY AND FITTINGS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Arnco Corporation.
2. Endot Industries Inc.
3. IPEX Inc.
4. Lamson & Sessions; Carlon Electrical Products.

C. Description: Comply with UL 2024; flexible type, approved for general-use installation.

2.4 METAL WIREWAYS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Cooper B-Line, Inc.
2. Hoffman.
3. Square D; Schneider Electric.

C. Description: Sheet metal sized and shaped as indicated, NEMA 250, Type 1, 12, 3R, unless otherwise indicated.

D. Fittings and Accessories: Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

E. Wireway Covers: Hinged type.

F. Finish: Manufacturer's standard enamel finish.

2.5 NONMETALLIC WIREWAYS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Hoffman.

2. Lamson & Sessions; Carlon Electrical Products.

C. Description: Fiberglass polyester, extruded and fabricated to size and shape indicated, with no holes or knockouts. Cover is gasketed with oil-resistant gasket material and fastened with captive screws treated for corrosion resistance. Connections are flanged, with stainless-steel screws and oil-resistant gaskets.

D. Description: PVC plastic, extruded and fabricated to size and shape indicated, with snap-on cover and mechanically coupled connections with plastic fasteners.

E. Fittings and Accessories: Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

2.6 SURFACE RACEWAYS

A. Surface Metal Raceways: Galvanized steel with snap-on covers. Manufacturer's standard enamel finish in color selected by Architect.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Thomas & Betts Corporation.
    b. Walker Systems, Inc.; Wiremold Company (The).
    c. Wiremold Company (The); Electrical Sales Division.

B. Surface Nonmetallic Raceways: Two-piece construction, manufactured of rigid PVC with texture and color selected by Architect from manufacturer's standard colors.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Butler Manufacturing Company; Walker Division.
    b. Enduro Systems, Inc.; Composite Products Division.
    c. Hubbell Incorporated; Wiring Device-Kellems Division.
    d. Lamson & Sessions; Carlon Electrical Products.
    e. Panduit Corp.
    f. Walker Systems, Inc.; Wiremold Company (The).
    g. Wiremold Company (The); Electrical Sales Division.

2.7 BOXES, ENCLOSURES, AND CABINETS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Cooper Crouse-Hinds; Div. of Cooper Industries, Inc.
2. EGS/Appleton Electric.
3. Erickson Electrical Equipment Company.
4. Hoffman.
5. Hubbell Incorporated; Killark Electric Manufacturing Co. Division.
6. O-Z/Gedney; a unit of General Signal.
7. RACO; a Hubbell Company.
8. Robroy Industries, Inc.; Enclosure Division.
9. Scott Fetzer Co.; Adalet Division.
10. Spring City Electrical Manufacturing Company.
11. Thomas & Betts Corporation.
12. Walker Systems, Inc.; Wiremold Company (The).
13. Woodhead, Daniel Company; Woodhead Industries, Inc. Subsidiary.

C. Sheet Metal Outlet and Device Boxes: NEMA OS 1.

D. Cast-Metal Outlet and Device Boxes: NEMA FB 1, aluminum, Type FD, with gasketed cover.

E. Nonmetallic Outlet and Device Boxes: NEMA OS 2.

F. Metal Floor Boxes: Cast or sheet metal rectangular.

G. Nonmetallic Floor Boxes: Nonadjustable, round.

H. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

I. Cast-Metal Access, Pull, and Junction Boxes: NEMA FB 1, galvanized, cast iron with gasketed cover.

J. Hinged-Cover Enclosures: NEMA 250, Type 1, with continuous-hinge cover with flush latch, unless otherwise indicated.

1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
2. Nonmetallic Enclosures: Plastic.

K. Cabinets:

1. NEMA 250, Type 1, galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
2. Hinged door in front cover with flush latch and concealed hinge.
3. Key latch to match panelboards.
4. Metal barriers to separate wiring of different systems and voltage.
5. Accessory feet where required for freestanding equipment.

2.8 HANDHOLES AND BOXES FOR EXTERIOR UNDERGROUND WIRING

A. Description: Comply with SCTE 77.

1. Color of Frame and Cover: Green.
2. Configuration: Units shall be designed for flush burial and have closed bottom, unless otherwise indicated.

3. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure.
4. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
5. Cover Legend: Molded lettering, "ELECTRIC." as indicated for each service.
6. Conduit Entrance Provisions: Conduit-terminating fittings shall mate with entering ducts for secure, fixed installation in enclosure wall.
7. Handholes 12 inches wide by 24 inches long and larger shall have inserts for cable racks and pulling-in irons installed before concrete is poured.

B. Polymer-Concrete Handholes and Boxes with Polymer-Concrete Cover: Molded of sand and aggregate, bound together with polymer resin, and reinforced with steel or fiberglass or a combination of the two.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

   a. Armorcast Products Company.
   b. Carson Industries LLC.
   c. CDR Systems Corporation.
   d. NewBasis.

C. Fiberglass Handholes and Boxes with Polymer-Concrete Frame and Cover: Sheet-molded, fiberglass-reinforced, polyester-resin enclosure joined to polymer-concrete top ring or frame.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

   a. Armorcast Products Company.
   b. Carson Industries LLC.
   c. Christy Concrete Products.
   d. Synertech Moulded Products, Inc.; a division of Oldcastle Precast.

2.9 SLEEVES FOR RACEWAYS

A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends.

B. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

C. Sleeves for Rectangular Openings: Galvanized sheet steel with minimum 0.052- or 0.138-inch thickness as indicated and of length to suit application.

D. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 07 Section "Penetration Firestopping."

2.10 SLEEVE SEALS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Advance Products & Systems, Inc.
2. Calpico, Inc.
3. Metraflex Co.
4. Pipeline Seal and Insulator, Inc.

B. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and cable.

1. Sealing Elements: EPDM interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable.
2. Pressure Plates: Plastic. Include two for each sealing element.
3. Connecting Bolts and Nuts: Carbon steel with corrosion-resistant coating of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.11 SOURCE QUALITY CONTROL FOR UNDERGROUND ENCLOSURES

A. Handhole and Pull-Box Prototype Test: Test prototypes of handholes and boxes for compliance with SCTE 77. Strength tests shall be for specified tier ratings of products supplied.

1. Tests of materials shall be performed by a independent testing agency.
2. Strength tests of complete boxes and covers shall be by either an independent testing agency or manufacturer. A qualified registered professional engineer shall certify tests by manufacturer.
3. Testing machine pressure gages shall have current calibration certification complying with ISO 9000 and ISO 10012, and traceable to NIST standards.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. Outdoors: Apply raceway products as specified below, unless otherwise indicated:

1. Exposed Conduit: Rigid steel conduit IMC.
2. Concealed Conduit, Aboveground: Rigid steel conduit IMC EMT.
3. Underground Conduit: RNC, Type EPC-40-PVC, direct buried.
4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
5. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.
6. Application of Handholes and Boxes for Underground Wiring:

a. Handholes and Pull Boxes in Driveway, Parking Lot, and Off-Roadway Locations, Subject to Occasional, Nondeliberate Loading by Heavy Vehicles: Polymer concrete, SCTE 77, Tier 15 structural load rating.

b. Handholes and Pull Boxes in Sidewalk and Similar Applications with a Safety Factor for Nondeliberate Loading by Vehicles: Polymer-concrete units, SCTE 77, Tier 8 structural load rating.
c. Handholes and Pull Boxes Subject to Light-Duty Pedestrian Traffic Only: Fiberglass-reinforced polyester resin, structurally tested according to SCTE 77 with 3000-lbf vertical loading.

B. Comply with the following indoor applications, unless otherwise indicated:

1. Exposed, Not Subject to Physical Damage: EMT.
2. Exposed, Not Subject to Severe Physical Damage: EMT.
3. Exposed and Subject to Severe Physical Damage: Rigid steel conduit or IMC. Includes raceways in the following locations:

   a. Loading dock.
   b. Corridors used for traffic of mechanized carts, forklifts, and pallet-handling units.
   c. Mechanical rooms.

4. Concealed in Ceilings and Interior Walls and Partitions: EMT.
5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
6. Damp or Wet Locations: Rigid steel conduit or IMC.
7. Raceways for Optical Fiber or Communications Cable in Spaces Used for Environmental Air: EMT.
8. Raceways for Optical Fiber or Communications Cable Risers in Vertical Shafts: EMT.
9. Raceways for Concealed General Purpose Distribution of Optical Fiber or Communications Cable: EMT.
10. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4, stainless steel in damp or wet locations.

C. Minimum Raceway Size: 3/4-inch trade size.

D. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated.
2. PVC Externally Coated, Rigid Steel Conduits: Use only fittings listed for use with that material. Patch and seal all joints, nicks, and scrapes in PVC coating after installing conduits and fittings. Use sealant recommended by fitting manufacturer.

E. Do not install aluminum conduits in contact with concrete.

3.2 INSTALLATION

A. Comply with NECA 1 for installation requirements applicable to products specified in Part 2 except where requirements on Drawings or in this Article are stricter.

B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

C. Complete raceway installation before starting conductor installation.

D. Support raceways as specified in Division 26 Section "Hangers and Supports for Electrical Systems."

E. Arrange stub-ups so curved portions of bends are not visible above the finished slab.

F. Install no more than the equivalent of three 90-degree bends in any conduit run except for communications conduits, for which fewer bends are allowed.

G. Conceal conduit and EMT within finished walls, ceilings, and floors, unless otherwise indicated.

H. Raceways Embedded in Slabs:

1. Run conduit larger than 1-inch trade size, parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support.
2. Arrange raceways to cross building expansion joints at right angles with expansion fittings.
3. Change from ENT to RNC, Type EPC-40-PVC, rigid steel conduit, or IMC before rising above the floor.

I. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.

J. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors, including conductors smaller than No. 4 AWG.

K. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire.

L. Raceways for Optical Fiber and Communications Cable: Install raceways, metallic and nonmetallic, rigid and flexible, as follows:

1. 3/4-Inch Trade Size and Smaller: Install raceways in maximum lengths of 50 feet.
2. 1-Inch Trade Size and Larger: Install raceways in maximum lengths of 75 feet.
3. Install with a maximum of two 90-degree bends or equivalent for each length of raceway unless Drawings show stricter requirements. Separate lengths with pull or junction boxes or terminations at distribution frames or cabinets where necessary to comply with these requirements.

M. Install raceway sealing fittings at suitable, approved, and accessible locations and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings at the following points:

1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
2. Where otherwise required by NFPA 70.

N. Expansion-Joint Fittings for RNC: Install in each run of aboveground conduit that is located where environmental temperature change may exceed 30 deg F, and that has straight-run length that exceeds 25 feet.

1. Install expansion-joint fittings for each of the following locations, and provide type and quantity of fittings that accommodate temperature change listed for location:

   a. Outdoor Locations Not Exposed to Direct Sunlight: 125 deg F temperature change.
   b. Outdoor Locations Exposed to Direct Sunlight: 155 deg F temperature change.
   c. Indoor Spaces: Connected with the Outdoors without Physical Separation: 125 deg F temperature change.
   d. Attics: 135 deg F temperature change.

2. Install fitting(s) that provide expansion and contraction for at least 0.00041 inch per foot of length of straight run per deg F of temperature change.
3. Install each expansion-joint fitting with position, mounting, and piston setting selected according to manufacturer's written instructions for conditions at specific location at the time of installation.

O. Flexible Conduit Connections: Use maximum of 72 inches of flexible conduit for recessed and semirecessed lighting fixtures, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.

1. Use LFMC in damp or wet locations subject to severe physical damage.
2. Use LFMC or LFNC in damp or wet locations not subject to severe physical damage.

P. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall.

Q. Set metal floor boxes level and flush with finished floor surface.

R. Set nonmetallic floor boxes level. Trim after installation to fit flush with finished floor surface.

3.3 INSTALLATION OF UNDERGROUND CONDUIT

A. Direct-Buried Conduit:

1. Excavate trench bottom to provide firm and uniform support for conduit. Prepare trench bottom as specified in Division 31 Section "Earth Moving" for pipe less than 6 inches in nominal diameter.
2. Install backfill as specified in Division 31 Section "Earth Moving."
3. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled backfill to within 12 inches of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction as specified in Division 31 Section "Earth Moving."

4. Install manufactured duct elbows for stub-ups at poles and equipment and at building entrances through the floor, unless otherwise indicated. Encase elbows for stub-up ducts throughout the length of the elbow.
5. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through the floor.

    a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete.
    b. For stub-ups at equipment mounted on outdoor concrete bases, extend steel conduit horizontally a minimum of 60 inches from edge of equipment pad or foundation. Install insulated grounding bushings on terminations at equipment.

6. Warning Planks: Bury warning planks approximately 12 inches above direct-buried conduits, placing them 24 inches o.c. Align planks along the width and along the centerline of conduit.

3.4 INSTALLATION OF UNDERGROUND HANDHOLES AND BOXES

A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting conduits to minimize bends and deflections required for proper entrances.

B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.

C. Elevation: In paved areas, set so cover surface will be flush with finished grade. Set covers of other enclosures 1 inch above finished grade.

D. Install removable hardware, including pulling eyes, cable stanchions, cable arms, and insulators, as required for installation and support of cables and conductors and as indicated. Select arm lengths to be long enough to provide spare space for future cables, but short enough to preserve adequate working clearances in the enclosure.

E. Field-cut openings for conduits according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.

3.5 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 07 Section "Penetration Firestopping."

B. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.

C. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.

D. Rectangular Sleeve Minimum Metal Thickness:

1. For sleeve cross-section rectangle perimeter less than 50 inches and no side greater than 16 inches, thickness shall be 0.052 inch.
2. For sleeve cross-section rectangle perimeter equal to, or greater than, 50 inches and 1 or more sides equal to, or greater than, 16 inches, thickness shall be 0.138 inch.

E. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.

F. Cut sleeves to length for mounting flush with both surfaces of walls.

G. Extend sleeves installed in floors 2 inches above finished floor level.

H. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway unless sleeve seal is to be installed.

I. Seal space outside of sleeves with grout for penetrations of concrete and masonry and with approved joint compound for gypsum board assemblies.

J. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and raceway, using joint sealant appropriate for size, depth, and location of joint. Refer to Division 07 Section "Joint Sealants" for materials and installation.

K. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at raceway penetrations. Install sleeves and seal with firestop materials. Comply with Division 07 Section "Penetration Firestopping."

L. Roof-Penetration Sleeves: Seal penetration of individual raceways with flexible, boot-type flashing units applied in coordination with roofing work.

M. Aboveground, Exterior-Wall Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

N. Underground, Exterior-Wall Penetrations: Install cast-iron "wall pipes" for sleeves. Size sleeves to allow for 1-inch annular clear space between raceway and sleeve for installing mechanical sleeve seals.

3.6 SLEEVE-SEAL INSTALLATION

A. Install to seal underground, exterior wall penetrations.

B. Use type and number of sealing elements recommended by manufacturer for raceway material and size. Position raceway in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.7 FIRESTOPPING

A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly. Firestopping materials and

installation requirements are specified in Division 07 Section "Penetration Firestopping."

3.8 PROTECTION

A. Provide final protection and maintain conditions that ensure coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

Approved:

John H. Kuo, PE.
Assistant Director
Engineering and Construction Division

Date 4/30/15

END OF SECTION

WIRING DEVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Receptacles, receptacles with integral GFCI, and associated device plates.
2. Twist-locking receptacles.
3. Receptacles with integral surge suppression units.
4. Hospital Grade
5. Wall-box motion sensors.
6. Isolated-ground receptacles.
7. Snap switches and wall-box dimmers.
8. Wall-switch and exterior occupancy sensors.
9. Communications outlets.
10. Pendant cord-connector devices.
11. Cord and plug sets.
12. Floor service outlets, poke-through assemblies, service poles, and multi-outlet assemblies.

1.3 DEFINITIONS

A. EMI: Electromagnetic interference.

B. GFCI: Ground-fault circuit interrupter.

C. Pigtail: Short lead used to connect a device to a branch-circuit conductor.

D. RFI: Radio-frequency interference.

E. TVSS: Transient voltage surge suppressor.

F. UTP: Unshielded twisted pair.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: List of legends and description of materials and process used for pre-marking wall plates.

C. Samples: One for each type of device and wall plate specified, in each color specified.

D. Field quality-control test reports.

E. Operation and Maintenance Data: For wiring devices to include in all manufacturers' packing label warnings and instruction manuals that include labeling conditions.

1.5 QUALITY ASSURANCE

A. Source Limitations: Obtain each type of wiring device and associated wall plate through one source from a single manufacturer. Insofar as they are available, obtain all wiring devices and associated wall plates from a single manufacturer and one source.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

C. Comply with NFPA 70.

1.6 COORDINATION

A. Receptacles for Owner-Furnished Equipment: Match plug configuration.

1. Cord and Plug Sets: Match equipment requirements.

1.7 EXTRA MATERIALS

A. Furnish extra materials described in subparagraphs below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Service/Power Poles: One for every 10, but no less than one.
2. Floor Service Outlet Assemblies: One for every 10 but no less than one.
3. Poke-Through, Fire-Rated Closure Plugs: One for every five floor service outlets installed, but no fewer than two.
4. TVSS Receptacles: One for every 10 of each type installed, but no fewer than two of each type.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers' Names: Shortened versions (shown in parentheses) of the following manufacturers' names are used in other Part 2 articles:

1. Pass & Seymour/Legrand
2. Hubbell Incorporated; Wiring Device-Kellems (Hubbell).
3. Leviton Mfg. Company Inc. (Leviton).

2.2 STRAIGHT BLADE RECEPTACLES

A. Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 configuration 5-20R, and UL 498.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Pass & Seymour/Legrand ; 5381 (single), PS5362 (duplex), PT5362 (duplex)
b. Hubbell;HBL5351 (single), HBL5362 (duplex).
c. Leviton; 5891 (single), 5362 (duplex).

B. Hospital-Grade, Duplex Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 configuration 5-20R, and UL 498 Supplement SD.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Pass & Seymour/Legrand; 8301 (single), 8300H (duplex) OR PT8300
b. Hubbell; HBL8310 (single), HBL8300H (duplex).
c. Leviton; 8310 (single), 8300 (duplex).

C. Isolated-Ground, Duplex Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 configuration 5-20R, and UL 498.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Hubbell; 5362IG.
b. Leviton; 5362-IG.
c. Pass & Seymour; IG5362 OR PTIG5362.

2. Description: Straight blade; equipment grounding contacts shall be connected only to the green grounding screw terminal of the device and with inherent electrical isolation from mounting strap. Isolation shall be integral to receptacle construction and not dependent on removable parts.

D. Tamper-Resistant Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 configuration 5-20R, and UL 498.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Pass & Seymour; TR63H OR PTTR63H
b. Hubbell; HBL8300SG.
c. Leviton; 8300-SGG.

2. Description: Labeled to comply with NFPA 70, "Health Care Facilities" Article, "Pediatric Locations" Section.

2.3 GFCI RECEPTACLES

A. General Description: Straight blade, feed-through type. Comply with NEMA WD 1, NEMA WD 6, UL 498, and UL 943, Class A, and include indicator light that is lighted when device is tripped.

B. Duplex GFCI Convenience Receptacles, 125 V, 20 A:

1. Products: Subject to compliance with requirements, provide one of the following:

a. Pass & Seymour/Legrand; 2095 OR PT2095

C. Hospital-Grade, Duplex GFCI Convenience Receptacles, 125 V, 20 A: Comply with UL 498 Supplement SD.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Pass & Seymour/Legrand; 2095-HG OR PT2095-HG
b. Hubbell; HGF8300.
c. Leviton; 6898-HG.

2.4 TVSS RECEPTACLES

A. General Description: Comply with NEMA WD 1, NEMA WD 6, UL 498, and UL 1449, with integral TVSS in line to ground, line to neutral, and neutral to ground.

1. TVSS Components: Multiple metal-oxide varistors; with a nominal clamp-level rating of 400 volts and minimum single transient pulse energy dissipation of 240 J, according to IEEE C62.41.2 and IEEE C62.45.
2. Active TVSS Indication: Visual and audible, with light visible in face of device to indicate device is "active" or "no longer in service."

B. Duplex TVSS Convenience Receptacles:
1. Products: Subject to compliance with requirements, provide one of the following:

a. Pass & Seymour/Legrand; 5362SP
b. Hubbell; HBL5362SA.
c. Leviton; 5380.

2. Description: Straight blade, 125 V, 20 A; NEMA WD 6 configuration 5-20R.

C. Isolated-Ground, Duplex Convenience Receptacles:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
2. Products: Subject to compliance with requirements, provide one of the following:

a. Pass & Seymour/Legrand; IG5362SP
b. Hubbell; IG5362SA.
c. Leviton; 5380-IG.

3. Description: Straight blade, 125 V, 20 A; NEMA WD 6 configuration 5-20R. Equipment grounding contacts shall be connected only to the green grounding screw terminal of the device and with inherent electrical isolation from mounting strap. Isolation shall be integral to receptacle construction and not dependent on removable parts.

D. Hospital-Grade, Duplex Convenience Receptacles: Comply with UL 498 Supplement SD.

1. Products: Subject to compliance with requirements, provide one of the following:

   a. Pass & Seymour/Legrand; 8300SP
   b. Hubbell; HBL8362SA.
   c. Leviton; 8380.

2. Description: Straight blade, 125 V, 20 A; NEMA WD 6 configuration 5-20R.

E. Isolated-Ground, Hospital-Grade, Duplex Convenience Receptacles:

1. Products: Subject to compliance with requirements, provide one of the following:

   a. Pass & Seymour/Legrand
   b. Hubbell; IG8362SA.
   c. Leviton; 8380-IG.

2. Description: Straight blade, 125 V, 20 A; NEMA WD 6 configuration 5-20R. Comply with UL 498 Supplement SD. Equipment grounding contacts shall be connected only to the green grounding screw terminal of the device and with inherent electrical isolation from mounting strap. Isolation shall be integral to receptacle construction and not dependent on removable parts.

2.5 HAZARDOUS (CLASSIFIED) LOCATION RECEPTACLES

A. Wiring Devices for Hazardous (Classified) Locations: Comply with NEMA FB 11 and UL 1010.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. Cooper Crouse-Hinds.
   b. EGS/Appleton Electric.
   c. Killark; a division of Hubbell Inc.

2.6 TWIST-LOCKING RECEPTACLES

A. Single Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 configuration L5-20R, and UL 498.

1. Products: Subject to compliance with requirements, provide one of the following:

   a. Pass & Seymour/Legrand ; L520-R.

b. Hubbell; HBL2310.
c. Leviton; 2310.

B. Isolated-Ground, Single Convenience Receptacles, 125 V, 20 A:

1. Products: Subject to compliance with requirements, provide one of the following:

a. Hubbell; IG2310.
b. Leviton; 2310-IG.
c. Pass & Seymour/Legrand; IGL520R

2. Description: Comply with NEMA WD 1, NEMA WD 6 configuration L5-20R, and UL 498. Equipment grounding contacts shall be connected only to the green grounding screw terminal of the device and with inherent electrical isolation from mounting strap. Isolation shall be integral to receptacle construction and not dependent on removable parts.

2.7 PENDANT CORD-CONNECTOR DEVICES

A. Description: Matching, locking-type plug and receptacle body connector; NEMA WD 6 configurations L5-20P and L5-20R, heavy-duty grade.

1. Body: Nylon with screw-open cable-gripping jaws and provision for attaching external cable grip.
2. External Cable Grip: Woven wire-mesh type made of high-strength galvanized-steel wire strand, matched to cable diameter, and with attachment provision designed for corresponding connector.

2.8 CORD AND PLUG SETS

A. Description: Match voltage and current ratings and number of conductors to requirements of equipment being connected.

1. Cord: Rubber-insulated, stranded-copper conductors, with Type SOW-A jacket; with green-insulated grounding conductor and equipment-rating ampacity plus a minimum of 30 percent.
2. Plug: Nylon body and integral cable-clamping jaws. Match cord and receptacle type for connection.

2.9 SNAP SWITCHES

A. Comply with NEMA WD 1 and UL 20.

B. Switches, 120/277 V, 20 A:

1. Products: Subject to compliance with requirements, provide one of the following:

a. Pass & Seymour/Legrand; PS20AC1 (single pole), PS20AC2 (two pole), PS20AC3 (three way), PS20AC4 (four way).
b. Hubbell; HBL1221 (single pole), HBL1222 (two pole), HBL1223 (three way), HBL1224 (four way).

c. Leviton; 1221-2 (single pole), 1222-2 (two pole), 1223-2 (three way), 1224-2 (four way).

C. Pilot Light Switches, 20 A:

1. Products: Subject to compliance with requirements, provide one of the following:

a. Pass & Seymour/Legrand; PS20AC1-RPL for 120 V.
b. Hubbell; HPL1221PL for 120 V and 277 V.
c. Leviton; 1221-PLR for 120 V, 1221-7PLR for 277 V.

2. Description: Single pole, with neon-lighted handle, illuminated when switch is "ON."

D. Key-Operated Switches, 120/277 V, 20 A:

1. Products: Subject to compliance with requirements, provide one of the following:

a. Pass & Seymour/Legrand; PS20AC1-L.
b. Hubbell; HBL1221L.
c. Leviton; 1221-2L.

2. Description: Single pole, with factory-supplied key in lieu of switch handle.

E. Single-Pole, Double-Throw, Momentary Contact, Center-Off Switches, 120/277 V, 20 A; for use with mechanically held lighting contactors.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Pass & Seymour/Legrand; 1251.
b. Hubbell; HBL1557.
c. Leviton; 1257.

F. Key-Operated, Single-Pole, Double-Throw, Momentary Contact, Center-Off Switches, 120/277 V, 20 A; for use with mechanically held lighting contactors, with factory-supplied key in lieu of switch handle.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Pass & Seymour/Legrand; 1251L.
b. Hubbell; HBL1557L.
c. Leviton; 1257L.

2.10 WALL-BOX DIMMERS

A. Dimmer Switches: Modular, full-wave, solid-state units with integral, quiet on-off switches, with audible frequency and EMI/RFI suppression filters.

B. Control: Continuously adjustable slider; with single-pole or three-way switching. Comply with UL 1472.

C. Incandescent Lamp Dimmers: 120 V; control shall follow square-law dimming curve. On-off switch positions shall bypass dimmer module.

D. Fluorescent Lamp Dimmer Switches: Modular; compatible with dimmer ballasts; trim potentiometer to adjust low-end dimming; dimmer-ballast combination capable of consistent dimming with low end not greater than 20 percent of full brightness.

2.11 OCCUPANCY SENSORS

A. Wall-Switch Sensors:

1. Products: Subject to compliance with requirements, provide one of the following:

   a. Pass & Seymour/Legrand; WSP200
   b. Hubbell; WS1277.
   c. Leviton; ODS 10-ID.
   d. Watt Stopper (The); WS-200.

2. Description: Passive-infrared type, 120/277 V, adjustable time delay up to 30 minutes, 180-degree field of view, with a minimum coverage area of 900 sq. ft.

B. Wall-Switch Sensors:

1. Products: Subject to compliance with requirements, provide one of the following:

   a. Hubbell; AT120 for 120 V, AT277 for 277 V.
   b. Leviton; ODS 15-ID.
   c. Pass & Seymour/Legrand; OS300S

2. Description: Adaptive-technology type, 120/277 V, adjustable time delay up to 20 minutes, 180-degree field of view, with a minimum coverage area of 900 sq. ft.

C. Long-Range Wall-Switch Sensors:

1. Products: Subject to compliance with requirements, provide one of the following:

   a. Hubbell; ATP1600WRP.
   b. Leviton; ODWWV-IRW.
   c. Pass & Seymour; WA1001.
   d. Watt Stopper (The); CX-100.

2. Description: Passive-infrared type, 120/277 V, adjustable time delay up to 30 minutes, 110-degree field of view, with a minimum coverage area of 1200 sq. ft.

D. Long-Range Wall-Switch Sensors:

1. Products: Subject to compliance with requirements, provide one of the following:

a. Hubbell; ATD1600WRP.
b. Leviton; ODW12-MRW.
c. Watt Stopper (The); DT-200.
d. Pass & Seymour/Legrand; CSD1000

2. Description: Dual technology, with both passive-infrared- and ultrasonic-type sensing, 120/277 V, adjustable time delay up to 30 minutes, 110-degree field of view, and a minimum coverage area of 1200 sq. ft.

E. Wide-Range Wall-Switch Sensors:

1. Products: Subject to compliance with requirements, provide one of the following:

a. Hubbell; ATP120HBRP.
b. Leviton; ODWHB-IRW.
c. Pass & Seymour; HS1001.
d. Watt Stopper (The); CX-100-3.

2. Description: Passive-infrared type, 120/277 V, adjustable time delay up to 30 minutes, 150-degree field of view, with a minimum coverage area of 1200 sq. ft.

F. Exterior Occupancy Sensors:

1. Products: Subject to compliance with requirements, provide one of the following:

a. Leviton; PS200-10.
b. Watt Stopper (The); EW-100-120.
c. Pass & Seymour/Legrand; WSP200

2. Description: Passive-infrared type, 120/277 V, weatherproof, adjustable time delay up to 15 minutes, 180-degree field of view, and 110-foot detection range. Minimum switch rating: 1000-W incandescent, 500-VA fluorescent.

2.12 COMMUNICATIONS OUTLETS

A. Telephone Outlet:

1. Products: Subject to compliance with requirements, provide one of the following:

a. Cooper; 3560-6.
b. Leviton; 40649.
c. Pass & Seymour/Legrand; 26TE16

2. Description: Single RJ-45 jack for terminating 100-ohm, balanced, four-pair UTP; TIA/EIA-568-B.1; complying with Category 5e. Comply with UL 1863.

B. Combination TV and Telephone Outlet:

1. Products: Subject to compliance with requirements, provide one of the following:

a. Cooper; 3562.
b. Leviton; 40595.
c. Pass & Seymour/Legrand; C25E2F

2. Description: Single RJ-45 jack for 100-ohm, balanced, four-pair UTP; TIA/EIA-568-B.1; complying with Category 5e; and one Type F coaxial cable connector.

2.13 WALL PLATES

A. Single and combination types to match corresponding wiring devices.

1. Plate-Securing Screws: Metal with head color to match plate finish.
2. Material: Smooth, high-impact thermoplastic.

B. Wet-Location, Weatherproof Cover Plates: NEMA 250, complying with type 3R weather-resistant thermoplastic with lockable cover.

2.14 FLOOR SERVICE FITTINGS

A. Type: Modular, flush-type, dual-service units suitable for wiring method used.

B. Compartments: Barrier separates power from voice and data communication cabling.

C. Service Plate: Rectangular, solid brass with satin finish.

D. Power Receptacle: NEMA WD 6 configuration 5-20R, gray finish, unless otherwise indicated.

E. Voice and Data Communication Outlet: Blank cover with bushed cable opening.

2.15 POKE-THROUGH ASSEMBLIES

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Hubbell Incorporated; Wiring Device-Kellems.
2. Pass & Seymour/Legrand; Wiring Devices & Accessories.
3. Square D/ Schneider Electric.
4. Thomas & Betts Corporation.
5. Wiremold Company (The).

C. Description: Factory-fabricated and -wired assembly of below-floor junction box with multi-channeled, through-floor raceway/fire-stop unit and detachable matching floor service outlet assembly.

1. Service Outlet Assembly: Pedestal type with services indicated.

2. Size: Selected to fit nominal 3-inch cored holes in floor and matched to floor thickness.
3. Fire Rating: Unit is listed and labeled for fire rating of floor-ceiling assembly.
4. Closure Plug: Arranged to close unused 3-inch cored openings and reestablish fire rating of floor.
5. Wiring Raceways and Compartments: For a minimum of four No. 12 AWG conductors and a minimum of four, 4-pair, Category 5e voice and data communication cables.

2.16 MULTIOUTLET ASSEMBLIES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Hubbell Incorporated; Wiring Device-Kellems.
2. Wiremold Company (The).

B. Components of Assemblies: Products from a single manufacturer designed for use as a complete, matching assembly of raceways and receptacles.

C. Raceway Material: Metal, with manufacturer's standard finish.

D. Wire: No. 12 AWG.

2.17 SERVICE POLES

A. Description: Factory-assembled and -wired units to extend power and voice and data communication from distribution wiring concealed in ceiling to devices or outlets in pole near floor.

1. Poles: Nominal 2.5-inch square cross section, with height adequate to extend from floor to at least 6 inches above ceiling, and with separate channels for power wiring and voice and data communication cabling.
2. Mounting: Ceiling trim flange with concealed bracing arranged for positive connection to ceiling supports; with pole foot and carpet pad attachment.
3. Finishes: Manufacturer's standard painted finish and trim combination.
4. Wiring: Sized for minimum of five No. 12 AWG power and ground conductors and a minimum of four, 4-pair, Category 3 or 5 voice and data communication cables.
5. Power Receptacles: Two duplex, 20-A, heavy-duty, NEMA WD 6 configuration 5-20R units.
6. Voice and Data Communication Outlets: Blank insert with bushed cable opening.

2.18 FINISHES

A. Color: Wiring device catalog numbers in Section Text do not designate device color.

1. Wiring Devices Connected to Normal Power System: Ivory, or as selected by Architect unless otherwise indicated or required by NFPA 70 or device listing.
2. Wiring Devices Connected to Emergency Power System: Red.
3. TVSS Devices: Blue.

4. Isolated-Ground Receptacles: Orange.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1, including the mounting heights listed in that standard, unless otherwise noted.

B. Coordination with Other Trades:

1. Take steps to insure that devices and their boxes are protected. Do not place wall finish materials over device boxes and do not cut holes for boxes with routers that are guided by riding against outside of the boxes.
2. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.
3. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.
4. Install wiring devices after all wall preparation, including painting, is complete.

C. Conductors:

1. Do not strip insulation from conductors until just before they are spliced or terminated on devices.
2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
3. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails.
4. Existing Conductors:

    a. Cut back and pigtail, or replace all damaged conductors.
    b. Straighten conductors that remain and remove corrosion and foreign matter.
    c. Pigtailing existing conductors is permitted provided the outlet box is large enough.

D. Device Installation:

1. Replace all devices that have been in temporary use during construction or that show signs that they were installed before building finishing operations were complete.
2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
3. Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.
4. Connect devices to branch circuits using pigtails that are not less than 6 inches in length.
5. When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, 2/3 to 3/4 of the way around terminal screw.

6. Use a torque screwdriver when a torque is recommended or required by the manufacturer.
7. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
8. Tighten unused terminal screws on the device.
9. When mounting into metal boxes, remove the fiber or plastic washers used to hold device mounting screws in yokes, allowing metal-to-metal contact.

E. Receptacle Orientation:

1. Install ground pin of vertically mounted receptacles down, and on horizontally mounted receptacles to the right.
2. Install hospital-grade receptacles in patient-care areas with the ground pin or neutral blade at the top.

F. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.

G. Dimmers:

1. Install dimmers within terms of their listing.
2. Verify that dimmers used for fan speed control are listed for that application.
3. Install unshared neutral conductors on line and load side of dimmers according to manufacturers' device listing conditions in the written instructions.

H. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical and with grounding terminal of receptacles on top. Group adjacent switches under single, multi-gang wall plates.

I. Adjust locations of floor service outlets and service poles to suit arrangement of partitions and furnishings.

3.2 IDENTIFICATION

A. Comply with Division 26 Section "Identification for Electrical Systems."

1. Receptacles: Identify panelboard and circuit number from which served. Use hot, stamped or engraved machine printing with black-filled lettering on face of plate, and durable wire markers or tags inside outlet boxes.

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections and prepare test reports.

1. In healthcare facilities, prepare reports that comply with recommendations in NFPA 99.
2. Test Instruments: Use instruments that comply with UL 1436.
3. Test Instrument for Convenience Receptacles: Digital wiring analyzer with digital readout or illuminated LED indicators of measurement.

B. Tests for Convenience Receptacles:

1. Line Voltage: Acceptable range is 105 to 132 V.
2. Percent Voltage Drop under 15-A Load: A value of 6 percent or higher is not acceptable.
3. Ground Impedance: Values of up to 2 ohms are acceptable.
4. GFCI Trip: Test for tripping values specified in UL 1436 and UL 943.
5. Using the test plug, verify that the device and its outlet box are securely mounted.
6. The tests shall be diagnostic, indicating damaged conductors, high resistance at the circuit breaker, poor connections, inadequate fault current path, defective devices, or similar problems. Correct circuit conditions, remove malfunctioning units and replace with new ones, and retest as specified above.

Approved:

John H. Kuo, PE.
Assistant Director
Engineering and Construction Division

4/30/15
Date

END OF SECTION

PANEL BOARDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Distribution panelboards.
2. Lighting and appliance branch-circuit panelboards.

1.3 DEFINITIONS

A. SVR: Suppressed voltage rating.

B. TVSS: Transient voltage surge suppressor.

1.4 SUBMITTALS

A. Product Data: For each type of panelboard, switching and overcurrent protective device, transient voltage suppression device, accessory, and component indicated. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.

B. Shop Drawings: For each panelboard and related equipment.

1. Include dimensioned plans, elevations, sections, and details. Show tabulations of installed devices, equipment features, and ratings.
2. Detail enclosure types and details for types other than NEMA 250, Type 1.
3. Detail bus configuration, current, and voltage ratings.
4. Short-circuit current rating of panelboards and overcurrent protective devices.
5. Include evidence of NRTL listing for series rating of installed devices.
6. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
7. Include wiring diagrams for power, signal, and control wiring.
8. Include time-current coordination curves for each type and rating of overcurrent protective device included in panelboards. Submit on translucent log-log graft paper; include selectable ranges for each type of overcurrent protective device.

C. Qualification Data: For qualified testing agency.

D. Field Quality-Control Reports:

1. Test procedures used.
2. Test results that comply with requirements.
3. Results of failed tests and corrective action taken to achieve test results that comply with requirements.

E. Panelboard Schedules: For installation in panelboards.

F. Operation and Maintenance Data: For panelboards and components to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 01 Section "Operation and Maintenance Data," include the following:

1. Manufacturer's written instructions for testing and adjusting overcurrent protective devices.
2. Time-current curves, including selectable ranges for each type of overcurrent protective device that allows adjustments.

1.5 QUALITY ASSURANCE

A. Source Limitations: Obtain panelboards, overcurrent protective devices, components, and accessories from single source from single manufacturer.

B. Product Selection for Restricted Space: Drawings indicate maximum dimensions for panelboards including clearances between panelboards and adjacent surfaces and other items. Comply with indicated maximum dimensions.

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

D. Comply with NEMA PB 1.

E. Comply with NFPA 70.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Remove loose packing and flammable materials from inside panelboards; install temporary electric heating (250 W per panelboard) to prevent condensation.

B. Handle and prepare panelboards for installation according to NEMA PB 1.

1.7 PROJECT CONDITIONS

A. Environmental Limitations:

1. Do not deliver or install panelboards until spaces are enclosed and weathertight, wet work in spaces is complete and dry, work above panelboards is complete, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

B. Service Conditions: NEMA PB 1, usual service conditions, as follows:

1. Ambient temperatures within limits specified.
2. Altitude not exceeding 6600 feet.

C. Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electric service according to requirements indicated:

1. Notify Owner no fewer than two weeks days in advance of proposed interruption of electric service.
2. Comply with NFPA 70E.

1.8 COORDINATION

A. Coordinate layout and installation of panelboards and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, encumbrances to workspace clearance requirements, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.

B. Coordinate sizes and locations of concrete bases with actual equipment provided. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.

1.9 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace transient voltage suppression devices that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

1.10 EXTRA MATERIALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Keys: Two spares for each type of panelboard cabinet lock.
2. Circuit Breakers Including GFCI and Ground Fault Equipment Protection (GFEP) Types: Two spares for each panelboard.
3. Fuses for Fused Switches: Equal to 10 percent of quantity installed for each size and type, but no fewer than three of each size and type.
4. Fuses for Fused Power-Circuit Devices: Equal to 10 percent of quantity installed for each size and type, but no fewer than three of each size and type.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR PANELBOARDS

A. Fabricate and test panelboards according to IEEE 344 to withstand seismic forces defined in Division 26 Section "Vibration and Seismic Controls for Electrical Systems."

B. Enclosures: Flush- and surface-mounted cabinets.

1. Rated for environmental conditions at installed location.

   a. Indoor Dry and Clean Locations: NEMA 250, Type 1.
   b. Outdoor Locations: NEMA 250, Type 3R.
   c. Wash-Down Areas: NEMA 250, Type 4X stainless steel.
   d. Other Wet or Damp Indoor Locations: NEMA 250, Type 4.
   e. Indoor Locations Subject to Dust, Falling Dirt, and Dripping Non-corrosive Liquids: NEMA 250, Type 5.

2. Front: Secured to box with concealed trim clamps. For surface-mounted fronts, match box dimensions; for flush-mounted fronts, overlap box.
3. Hinged Front Cover: Entire front trim hinged to box and with standard door within hinged trim cover.
4. Skirt for Surface-Mounted Panelboards: Same gage and finish as panelboard front with flanges for attachment to panelboard, wall, and ceiling or floor.
5. Gutter Extension and Barrier: Same gage and finish as panelboard enclosure; integral with enclosure body. Arrange to isolate individual panel sections.
6. Finishes:

   a. Panels and Trim: Steel and galvanized steel, factory finished immediately after cleaning and pretreating with manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat.
   b. Back Boxes: Same finish as panels and trim.
   c. Fungus Proofing: Permanent fungicidal treatment for overcurrent protective devices and other components.

7. Directory Card: Inside panelboard door, mounted in metal frame with transparent protective cover.

C. Incoming Mains Location: Top and bottom.

D. Phase, Neutral, and Ground Buses:

1. Material: Hard-drawn copper, 98 percent conductivity.
2. Equipment Ground Bus: Adequate for feeder and branch-circuit equipment grounding conductors; bonded to box.
3. Isolated Ground Bus: Adequate for branch-circuit isolated ground conductors; insulated from box.
4. Extra-Capacity Neutral Bus: Neutral bus rated 200 percent of phase bus and UL listed as suitable for nonlinear loads.
5. Split Bus: Vertical buses divided into individual vertical sections.

E. Conductor Connectors: Suitable for use with conductor material and sizes.

1. Material: Hard-drawn copper, 98 percent conductivity.
2. Main and Neutral Lugs: Mechanical type.
3. Ground Lugs and Bus-Configured Terminators: Mechanical type.
4. Feed-Through Lugs: Mechanical type, suitable for use with conductor material. Locate at opposite end of bus from incoming lugs or main device.
5. Sub-feed (Double) Lugs: Mechanical type suitable for use with conductor material. Locate at same end of bus as incoming lugs or main device.
6. Gutter-Tap Lugs: Mechanical type suitable for use with conductor material. Locate at same end of bus as incoming lugs or main device.
7. Extra-Capacity Neutral Lugs: Rated 200 percent of phase lugs mounted on extra-capacity neutral bus.

F. Service Equipment Label: NRTL labeled for use as service equipment for panelboards or load centers with one or more main service disconnecting and overcurrent protective devices.

G. Future Devices: Mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.

H. Panelboard Short-Circuit Current Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals. Series-connected ratings are not acceptable.

2.2 DISTRIBUTION PANELBOARDS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Square D.
2. General Electric Company.
3. Eaton.

B. Panelboards: NEMA PB 1, power and feeder distribution type.

C. Doors: Secured with vault-type latch with tumbler lock; keyed alike.

1. For doors more than 36 inches high, provide two latches, keyed alike.

D. Mains: Circuit breaker.

E. Branch Overcurrent Protective Devices for Circuit-Breaker Frame Sizes 125 A and Smaller: Bolt-on circuit breakers.

F. Branch Overcurrent Protective Devices for Circuit-Breaker Frame Sizes Larger than 125 A: Bolt-on circuit breakers; plug-in circuit breakers where individual positive-locking device requires mechanical release for removal.

G. Branch Overcurrent Protective Devices: Circuit Breaker.

H. Contactors in Main Bus: NEMA ICS 2, Class A, mechanically held, general-purpose controller, with same short-circuit interrupting rating as panelboard.

1. Internal Control-Power Source: Control-power transformer, with fused primary and secondary terminals, connected to main bus ahead of contactor connection.

2.3 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Square D.
2. General Electric Company.
3. Eaton.

B. Panelboards: NEMA PB 1, lighting and appliance branch-circuit type.

C. Mains: Circuit breaker.

D. Branch Overcurrent Protective Devices: Bolt-on circuit breakers, replaceable without disturbing adjacent units.

E. Contactors in Main Bus: NEMA ICS 2, Class A, mechanically held, general-purpose controller, with same short-circuit interrupting rating as panelboard.

1. Internal Control-Power Source: Control-power transformer, with fused primary and secondary terminals, connected to main bus ahead of contactor connection.

F. Doors: Concealed hinges; secured with flush latch with tumbler lock; keyed alike.

G. Column-Type Panelboards: Narrow gutter extension, with cover, to overhead junction box equipped with ground and neutral terminal buses.

H. Panelboard Short-Circuit Current Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals. Series-connected ratings are not acceptable.

2.4 ACCESSORY COMPONENTS AND FEATURES

A. Accessory Set: Include tools and miscellaneous items required for overcurrent protective device test, inspection, maintenance, and operation.

B. Portable Test Set: For testing functions of solid-state trip devices without removing from panelboard. Include relay and meter test plugs suitable for testing panelboard meters and switchboard class relays.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Receive, inspect, handle, and store panelboards according to NEMA PB 1.1.

B. Examine panelboards before installation. Reject panelboards that are damaged or rusted or have been subjected to water saturation.

C. Examine elements and surfaces to receive panelboards for compliance with installation tolerances and other conditions affecting performance of the Work.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install panelboards and accessories according to NEMA PB 1.1.

B. Equipment Mounting: Install panelboards on concrete bases, 4-inch nominal thickness.

1. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch centers around full perimeter of base.
2. For panelboards, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete floor.
3. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
4. Install anchor bolts to elevations required for proper attachment to panelboards.
5. Attach panelboard to the vertical finished or structural surface behind the panelboard.

C. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from panelboards.

D. Comply with mounting and anchoring requirements specified in Division 26 Section "Vibration and Seismic Controls for Electrical Systems."

E. Mount top of trim 90 inches above finished floor unless otherwise indicated.

F. Mount panelboard cabinet plumb and rigid without distortion of box. Mount recessed panelboards with fronts uniformly flush with wall finish and mating with back box.

G. Install overcurrent protective devices and controllers not already factory installed.

1. Set field-adjustable, circuit-breaker trip ranges.

H. Install filler plates in unused spaces.

I. Stub four 1-inch empty conduits from panelboard into accessible ceiling space or space designated to be ceiling space in the future. Stub four 1-inch empty conduits into raised floor space or below slab not on grade.

J. Comply with NECA 1.

3.3 IDENTIFICATION

A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs complying with Division 26 Section "Identification for Electrical Systems."

B. Create a directory to indicate installed circuit loads after balancing panelboard loads; incorporate Owner's final room designations. Obtain approval before installing. Use a computer or typewriter to create directory; handwritten directories are not acceptable.

C. Panelboard Nameplates: Label each panelboard with a nameplate complying with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."

D. Device Nameplates: Label each branch circuit device in distribution panelboards with a nameplate complying with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."

3.4 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.

B. Perform tests and inspections.

1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

C. Acceptance Testing Preparation:

1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.
2. Test continuity of each circuit.

D. Tests and Inspections:

1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
3. Perform the following infrared scan tests and inspections and prepare reports:

a. Initial Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each panelboard. Remove front panels so joints and connections are accessible to portable scanner.
b. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each panelboard 11 months after date of Substantial Completion.
c. Instruments and Equipment:

1) Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.

E. Panelboards will be considered defective if they do not pass tests and inspections.

F. Prepare test and inspection report, including a certified report that identifies panelboards included and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.5 ADJUSTING

A. Adjust moving parts and operable component to function smoothly, and lubricate as recommended by manufacturer.

B. Set field-adjustable circuit-breaker trip ranges as indicated.

C. Load Balancing: After Substantial Completion, but not more than 60 days after Final Acceptance, measure load balancing and make circuit changes.

1. Measure as directed during period of normal system loading.
2. Perform load-balancing circuit changes outside normal occupancy/working schedule of the facility and at time directed. Avoid disrupting critical 24-hour services such as fax machines and on-line data processing, computing, transmitting, and receiving equipment.
3. After circuit changes, recheck loads during normal load period. Record all load readings before and after changes and submit test records.
4. Tolerance: Difference exceeding 20 percent between phase loads, within a panelboard, is not acceptable. Rebalance and recheck as necessary to meet this minimum requirement.

3.6 PROTECTION

A. Temporary Heating: Apply temporary heat to maintain temperature according to manufacturer's written instructions.

Approved:

John H. Kuo, PE.
Assistant Director
Engineering and Construction Division

Date 4/30/15

END OF SECTION

Appendix

GEOTECHNICAL INVESTIGATION PREPARED BY HVJ & ASSOCIATES

GETECHNICAL INVESTIGATION
ALMEDA ROAD PAVING AND DRAINAGE FROM OLD SPANISH TRAIL TO SOUTH MACGREGOR WAY
WBS NO. N-000806-0001-3
TXDOT CSJ NO. 0912-72-072
HOUSTON, TEXAS

SUBMITTED TO
WALTER P MOORE AND ASSOCIATES, INC.
1301 MCKINNEY, SUITE 1100
HOUSTON, TEXAS 77010

BY
HVJ ASSOCIATES, INC.
HOUSTON, TEXAS
DECEMBER 5, 2013

REPORT NO. HG1018580
KEY MAP NOS. 533 E & J

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December 5, 2013

Mr. Thusitha Silva, PE
Principal
Walter P Moore and Associates, Inc.
1301 McKinney, Suite 1100
Houston, Texas 77010

Re: Geotechnical Investigation
Almeda Road Paving and Drainage
From Old Spanish Trail (OST) to South MacGregor Way
Owner: City of Houston
WBS No. N-000806-0001-3
TxDOT CSJ No. 0912-72-072
HVJ Report No. HG1018580

Dear Mr. Silva:

Submitted herein is the final report of our geotechnical investigation for the above referenced project. The study was conducted in general accordance with our proposal number HG1018580 dated November 12, 2010 (revised September 13, 2012) and is subject to the limitations presented in this report. We appreciate the opportunity of working with you on this project. We received comments on our draft report form the City of Houston (August 9, 2013) and from TxDOT (October 8, 2013) and we addressed them in this revised report. Please read the entire report and notify us if there are questions concerning this report or if we may be of further assistance.

Sincerely,

HVJ ASSOCIATES, INC.
Texas Firm Registration No. F-000646

STATE OF TEXAS
12-5-2013
ZIAD R. ALAAWAR
107115
LICENSED PROFESSIONAL ENGINEER

Ziad AlAawar, PhD, PE
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The seal appearing on this document was authorized by Ziad AlAawar, PE 107115 on December 5, 2013. Alteration of a sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act.

- Main Text – 17 pages
- Plates – 11 pages
- Appendix A – 11 pages
- Appendix B – 4 pages
- Appendix C – 4 pages
- Appendix D – 4 pages
- Appendix E – 2 pages

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1 EXECUTIVE SUMMARY

HVJ Associates, Inc. was retained by Walter P Moore and Associates, Inc. to provide geotechnical recommendations for the proposed reconstruction of Almeda Road from Old Spanish Trail (OST) to South MacGregor in Houston, Texas. The project also involves sanitary sewer replacement crossing Almeda Road at the intersection of Dixie Road and also water line replacement along Almeda Road between Lockett Street and Holcombe Boulevard. Based on the information provided to us by Walter P Moore and Associates, Inc., we understand that the invert depth of the water line is about 7 feet below the existing grade at most locations, and 17 feet below the existing grade near the sanitary sewer location, and the invert depth of the sanitary sewer line is at approximately 10 feet below the existing grade. Based on the information provided to us by Walter P Moore and Associates, Inc., we also understand that open cut techniques will be used for the installation of the utility lines. A site vicinity map showing the approximate project location is presented on Plate 1 of the report.

The purpose of this study is to provide geotechnical recommendations for utilities replacement using open cut techniques. Design of pavement cross section is beyond our scope and will be performed by TxDOT as mentioned in our proposal dated November 12, 2010 (Revised September 13, 2012). The field and laboratory investigations study performed for the pavement reconstruction were in accordance with TxDOT Geotechnical Manual dated December, 2012 and for utilities replacement were in accordance with the City of Houston, Department of Public Works and Engineering Design Manual Chapter 11 "Geotechnical and Environmental Requirements" dated July, 2012.

Based on the subsurface conditions revealed by the soil borings, the findings and recommendations of this report are summarized below:

1. At the design invert depth, the soil consisted mainly of firm and stiff clay as illustrated in the boring logs. At this level, the soil consisted predominantly of lean clay at B-1, B-3, and B-4, and of fat clay at boring B-2. At the location of the sewer line (B-4), stiff fat clay was observed at the invert depth corresponding to approximately 10 feet. The subsurface soils at the site generally comprise firm to stiff cohesive fat clays and firm to very stiff lean clays in the upper 12 feet at borings B-1, B-2, and B-3. At boring B-4, stiff to very stiff lean and fat clay were encountered up to a depth of approximately 33 feet. Fill material comprising of sand with shells and gravel was encountered at the top 2 feet at borings B-4 and P-2. Fill material consisting of sandy clay with shells and rocks was observed at top 2 feet at boring P-1 and also between 3 to 5 feet at boring P-2. Ferrous and calcareous nodules were encountered at various depths in most of the borings.

2. A review of surface faults was made from geologic literature and available in-house records. Based on our review, Pierce Junction salt dome is located at about 3.5 miles south of the project site and Memorial Park fault is located at about 4 miles northwest of the project site. We believe that faulting may not impact the project site. A detailed fault study is beyond the scope of our work.

3. Groundwater was not encountered at any of the borings during drilling operations except at boring B-4, which is a deeper boring. One piezometer was installed at boring location B-4 (PZ-1) and the 24-hour water level reading was recorded at 28.0 feet. Piezometer installation records and groundwater level data are provided in Appendix C.

4. Recommendations for replacement of sanitary sewer and water line using open cut techniques are presented in this report.

5. The existing pavement was cored at eight locations and the core data revealed three different types of pavement sections: 1- Asphalt over crushed concrete, 2- Asphalt over concrete, and 3- concrete over either stabilized sand or crushed concrete. In the case were asphalt was placed over crushed concrete (Borings C-2, C-4, and C-6), the asphalt thickness varied between 6 and 12 inches, and the crushed concrete varied between 4 and 12 inches. In the case where asphalt was placed over concrete (Borings C-1, C-3, and C-5), the asphalt thickness varied between 2 to 3 inches, and the concrete thickness varied between 9 and 10 inches. In this case, the concrete itself was placed over crushed concrete in the section corresponding to boring C-1. In the case of concrete over stabilized sand / crushed concrete (Borings C-7 and C-8), the observed stabilized base thickness was approximately 6 inches and the concrete layer varied in depth between 6 and 9 inches. At the location of the pavement borings (P-1 to P-4), sandy clay with sand and rocks were predominantly observed. Similar conditions were observed near the surface at boring B-4. At borings B-1 to B-3 fat clay was encountered and could be encountered in some locations beneath the pavement. More Details on the existing pavement thickness are presented in Section 8.2 of this report.

Please note that this executive summary does not fully relate our findings and opinions. Those findings and opinions are only presented through our full report.

2 INTRODUCTION

2.1 Project Description

HVJ Associates, Inc. was retained by Walter P Moore and Associates, Inc. to provide geotechnical recommendations for the proposed reconstruction of Almeda Road from Old Spanish Trail (OST) to South MacGregor in Houston, Texas. The project also involves sanitary sewer replacement crossing Almeda Road at the intersection of Dixie Road and also water line replacement along Almeda Road between Lockett Street and Holcombe Boulevard. Based on the information provided to us by Walter P Moore and Associates, Inc., we understand that the invert depth of the water line is about 7 feet below the existing grade at most locations, and 17 feet below the existing grade near the sanitary sewer location, and the invert depth of the sanitary sewer line is at approximately 10 feet below the existing grade. Based on the information provided to us by Walter P Moore and Associates, Inc., we also understand that open cut techniques will be used for the installation of the utility lines. A site vicinity map showing the approximate project location is presented on Plate 1 of the report.

2.2 Geotechnical Investigation Program

The major objectives of this study were to gather information on subsurface conditions at the site and to provide recommendations for the proposed utilities and pavement reconstruction. The field and laboratory investigations study performed for the pavement reconstruction were in accordance with TxDOT Geotechnical Manual dated December, 2012 and for utilities replacement were in accordance with the City of Houston, Department of Public Works and Engineering Design Manual Chapter 11 "Geotechnical and Environmental Requirements" dated July, 2012. The objectives were accomplished by:

- Drilling eight soil borings to depths ranging from 5 to 55 feet below the existing grade to determine soil stratigraphy and to obtain samples for laboratory testing. The 55 feet boring was drilled at the location of the sewer line assuming a depth of 36 feet based on our understanding of the information available at the time of the preparation of the proposal. When preparing the report, the invert depth at this location for the sewer line was found to be 10 feet based on the drawings provided to us by Walter P Moore and Associates, Inc.

- Installing one piezometer to gain an understanding of the groundwater conditions at the site and to evaluate the potential need for dewatering during construction.

- Performing laboratory tests to determine physical and engineering characteristics of the soils.

- Performing engineering analyses to develop design guidelines and recommendations for the proposed pavement reconstruction and utilities replacement.

Subsequent sections of this report contain descriptions of the field exploration, laboratory-testing program, general subsurface conditions, design recommendations, and construction considerations.

3 FIELD INVESTIGATION

3.1 Geotechnical Borings

The field exploration program undertaken at the project site was performed between May 10, 2013 and May 13, 2013. Subsurface conditions were investigated by drilling eight soil borings to depths

ranging from 5 to 55 feet below the existing grade. The pavement was cored at eight locations near to the borings and the pavement thickness information was obtained.

All boreholes excluding the one with the piezometer were backfilled with cement grout by tremie method in accordance with the City Guidelines and patched at the surface where applicable. The piezometer was plugged after obtaining the 30 day water level reading. Approximate boring locations are presented on Plates 2A to 2G of the report.

3.2 Survey Data

Based on the survey information provided to us by Walter P Moore and Associates, Inc. according to the Texas State Plane Coordinate System, the station number, offset distance, ground surface elevation and coordinates for all the borings is presented below.

Boring Number	Base Line	Station Number	Offset, feet	Northing, feet	Easting, feet	Ground Elevation, feet
P-1	Almeda Road	13+83.20	22.01' LT	13,820,672.87	3,115,631.14	44.25
P-2	Almeda Road	23+20.52	25.63' RT	13,821,566.62	3,115,917.56	44.82
P-3	Almeda Road	59+98.97	19.10' LT	13,825,135.90	3,116,808.09	38.86
P-4	Almeda Road	67+69.89	5.91' LT	13,825,878.92	3,117,014.10	39.44
B-1	Almeda Road	33+00.42	7.40' LT	13,822,522.43	3,116,136.12	42.47
B-2	Almeda Road	38+01.30	0.81' RT	13,823,004.62	3,116,271.94	43.14
B-3	Almeda Road	44+00.24	2.15' RT	13,823,583.36	3,116,426.14	43.42
B-4	Almeda Road	52+56.82	27.05' RT	13,824,405.71	3,116,667.57	41.29

3.3 Sampling Methods

Soil samples were obtained continuously to the termination depth of the borings except at boring B-4 where samples were obtained continuously to a depth of 20 feet and then at 5 foot intervals thereafter to the termination depth of the borings. Cohesive soil samples were obtained with a three-inch thin-walled (Shelby) tube sampler in general accordance with ASTM D-1587 standard. Each sample was removed from the sampler in the field, carefully examined and then classified. The shear strength of the cohesive soils was estimated by a hand penetrometer in the field. Cohesionless soils were sampled with the split spoon sampler in accordance with ASTM D 1586 standard. Suitable portions of each sample were sealed and packaged for transportation to our laboratory.

The TxDOT cone penetrometer test was performed at the termination depth of pavement borings (P-1 to P-4). The TxDOT cone test is used to determine the relative density or consistency of a soil material. The test involves driving a 3-inch diameter cone with a 170-pound hammer, which is dropped for a distance of 2 feet. The cone is seated and driven to 12 blows or 12 inches whichever comes first. Then, it is driven for two consecutive 6-inch increments and the blow counts for each increment are noted. In hard materials, the cone is driven with the resulting penetration in inches

recorded for the 50 blows. The number of blows for each 6-inch increment and/or the amount of penetration for each 50 blows is presented on the boring logs presented in Appendix A

Detailed descriptions of the soils encountered in the borings are given on the boring logs presented in Appendix A. A key to the soils classification and symbols used in the boring logs is also presented in Appendix A.

3.4 Water Level Measurements

Groundwater was not encountered at any of the borings except at boring B-4 during drilling operations. One piezometer was installed at boring location B-4 (PZ-1) to observe 24-hour and 30-day water level readings. Piezometer installation records and groundwater level data are provided in Appendix C. Appendix C also includes the "Well Report" and the "Plugging Report". The well was plugged using the "tremmie pipe cement from bottom to top" plugging method.

4 LABORATORY TESTING

Selected soil samples were tested in the laboratory to determine applicable physical and engineering properties. All tests were performed according to the relevant ASTM Standards. These tests consisted of moisture content measurement, pocket penetrometer, percent passing No. 200 sieve, Atterberg limits, unconsolidated undrained compression and unit dry weight tests.

The Atterberg limits and percent passing number 200 sieve tests were utilized to verify field classification by the Unified Soils Classification System, and the unconsolidated undrained compression tests was performed to obtain the undrained shear strength of the soil. The type and number of tests performed for this investigation are summarized below:

Type of Test	Number of Tests
Moisture Content (ASTM D2216)	46
Atterberg Limits (ASTM D4318)	20
Percent Passing No. 200 Sieve (ASTM D1140)	14
Pocket Penetrometer	31
Unconsolidated Undrained (UU) (ASTM D 2850	18
Unit Dry Weight (ASTM D 2166/2850)	18
Standard Proctor (ASTM D698)	1
Laboratory CBR (ASTM D1883)	1

The laboratory test results are presented on the boring logs in Appendix A. A summary of laboratory test results are provided in Appendix B. Standard proctor and CBR test results are presented in Appendix D.

5 SITE CHARACTERIZATION

5.1 General Geology

There are two major surface geological formations that exist in the Houston area: the Beaumont formation and the Lissie formation. The Beaumont formation is a relatively younger formation generally found to the southeast of the Lissie formation. The Beaumont formation dips southeastward and extends beneath beach sand and waters of the Gulf of Mexico as far as the continental shelf. The project site is located in an area where the Beaumont formation is typically encountered.

The Beaumont formation was deposited on land near sea level in flat river deltas and in inter-delta regions. Soil deposition occurred in fresh water streams and in flood plains (as backwater marsh and natural levees). The courses of major streams and deltaic tributaries changed frequently during the period of deposition, generating within the Beaumont clay a complex stratification of sand, silt and clay deposits. Frequently, stream courses were diverted significant distances from a given point in a backwater marsh, and the water overlying the soil would evaporate since it was cut off from a drainage path. Such water, which would be highly alkaline, would precipitate large nodules of calcium carbonate (calcareous nodules) throughout the surface of evaporation. With the coming of the Second Wisconsin Ice Age, the nearby sea withdrew, leaving the formation several hundred feet above sea level and permitting the soil to desiccate. The process of desiccation compressed the clays in the formation such that they became significantly overconsolidated to a large depth. In addition to preconsolidating the soil, the process of desiccation, together with the later rewetting, produced a network of fissures and slickensides that are now closed but which represent potential planes of weakness in the soil.

5.2 Geologic Faulting

The tectonic history of the Texas Gulf Coast includes a relatively stable depositional cycle since the Cretaceous Period (about 65 million years). During this period the area has been subjected to deposition of clays, silts, and sands resulting in over 30 thousand feet of sedimentary rocks. Underlying this clastic sequence are salt formations, which have migrated upwards to produce the typical salt dome features associated with the Texas Gulf Coast. In conjunction with salt movement, dewatering and compaction of some of the deeper sediments in the basin have resulted in the development of growth faults.

A review of surface faults was made from geologic literature and available in-house records. Based on our review, Pierce Junction salt dome is located at about 3.5 miles south of the project site and Memorial Park fault is located at about 4 miles northwest of the project site. We believe that faulting may not impact the project site. A detailed fault study is beyond the scope of our study.

5.3 Soil Stratigraphy

Our interpretation of soil and groundwater conditions at the project site is based on information obtained at the boring locations only. This information has been used as the basis for our conclusions and recommendations. Significant variations at areas not explored by the project boring may require reevaluation of our findings and conclusions.

At the design invert depth, the soil consisted mainly of firm and stiff clay as illustrated in the boring logs. At this level, the soil consisted predominantly of lean clay at B-1, B-3, and B-4, and of fat clay at boring B-2. At the location of the sewer line (B-4), stiff fat clay was observed at the invert depth corresponding to approximately 10 feet. The subsurface soils at the site generally comprise firm to stiff cohesive fat clays and firm to very stiff lean clays in the upper 12 feet at borings B-1, B-2, and B-3. At boring B-4, stiff to very stiff lean and fat clay were encountered up to a depth of approximately 33 feet. Also, at boring B-4, cohesionless medium dense clayey sand was encountered at deeper location (below 33 feet) followed by sandy lean clay and fat clay to the termination depth of the boring. Fill material comprising of sand with shells and gravel was encountered at the top 2 feet at borings B-4 and P-2. Fill material consisting of sandy clay with shells and rocks was observed at top 2 feet at boring P-1 and also between 3 to 5 feet at boring P-2. Ferrous and calcareous nodules were encountered at various depths in most of the borings.

At the location of the pavement borings (P-1 to P-4), sandy clay with sand and rocks were predominantly observed. Similar conditions were observed near the surface at boring B-4. At

borings B-1 to B-3 fat clay was encountered and could be encountered in some locations beneath the pavement.

Details of the subsurface stratigraphy encountered in the borings are shown on the boring logs presented in Appendix A.

5.4 Groundwater Conditions

Groundwater was not encountered at any of the borings except at boring B-4 during drilling operations. During drilling, the water level was observed at a depth of 20 feet at B-4. One piezometer was installed at boring location B-4 (PZ-1) and the 24-hour water level reading was recorded at 28 feet. Piezometer installation records and groundwater level data are provided in Appendix C.

It should be noted that groundwater levels determined during drilling may not accurately reflect the true groundwater conditions, and therefore should only be considered as approximate. Groundwater levels measured in open standpipe piezometers are, on the other hand are more accurate; however, these readings will fluctuate seasonally and in response to rainfall. Other factors that might impact piezometric groundwater levels include leakage from existing water lines, storm sewers and/or sanitary sewers.

6 UTILITY DESIGN CRITERIA AND RECOMMENDATIONS FOR OPEN CUT TECHNIQUES

6.1 General

The project involves the replacement of a 40 feet segment of sanitary sewer crossing Almeda Road at the intersection of Dixie Road and about 1,200 feet of water line along Almeda Road between Lockett Street and Holcombe Boulevard. We understand that the invert depth of the water line is about 7 feet below the existing grade at most locations, and 17 feet below the existing grade near the sanitary sewer location, and the invert depth of the sanitary sewer line is at approximately 10 feet below the existing grade. Boring, B-4 was drilled within the close vicinity of both the sanitary sewer and the water line where as the borings B-1, B-2 and B-3 were drilled only for the water line replacement. Our recommendations for the installation of utilities using open cut techniques are presented below.

6.2 Geotechnical Parameters

Geotechnical design parameters are presented in the following table. Design parameters given in the table are based on field and laboratory test data obtained at boring locations drilled for the water lines at the approximate invert depth. It must be noted that because of the nature of the soil stratigraphy at this site, parameters at locations away from the borings may vary substantially from values reported in the table.

Boring No.	Street Name	Approximate Invert Depth (ft)	Soil Description at Invert Depth	Total Unit Weight (pcf)	Undrained Shear Strength (psf)	Allowable Bearing Pressure (psf)	E'_n, Long Term (psi)
B-1	Almeda Road	7	Stiff Lean Clay	103	1,600	2,600	600
B-2	Almeda Road	7	Firm Fat Clay	117	1,000	1,600	300
B-3	Almeda Road	7	Firm Lean Clay	128	1,000	1,400	300
B-4	Almeda Road	10 (Sanitary Sewer)	Firm Lean Clay	128	1,000	1,600	300
B-4	Almeda Road	17 (Water Line)	Firm Lean Clay	128	1,000	1,600	300

The values shown in the above table represent our interpretation of the soil properties based on the available laboratory and field test data. Use of the soil properties shown above may or may not be appropriate for a particular analysis, since choice of design parameters often depends on whether total or effective stress analysis is used, rate of loading, duration of loading, geometry of loaded area, and other factors. The total unit weight values shown above represent our interpretation of soil unit weight at natural moisture content. The undrained shear strength and allowable bearing pressure values represent our interpretation of the shear strength in clay soils based primarily on the results of unconsolidated undrained compression tests and hand penetrometer tests. The allowable bearing pressures include a factor of safety of three.

6.3 Pipe Design

The loads imposed on underground pipes depend principally upon the method of installation, the weight of overburden soils, roadway traffic load, and loads due to existing surface structures. For design of rigid pipes installed using open-cut excavation methods, loads due to overburden and traffic can be determined from Plate 3.

The traffic load applied to the pipe can be calculated using 85% of wheel load with an impact factor of 1.5 for one foot of soil cover, 50% of wheel load with an impact factor of 1.35 for 2 feet of cover, and 30% of wheel load with an impact factor of 1.15 for 3 feet of cover. This results in a total design traffic load on the pipe or box culvert of about 1.28, 0.68 and 0.35 times the wheel load for 1, 2 and 3 feet of cover, respectively. For pipes with four or more feet of cover, the traffic loads may be taken as a surcharge equivalent to 250 psf.

The design of flexible pipes requires the modulus of soil reaction of the native soil (E_n') in the trench wall as input. The E_n' values are based on empirical relationships to the soil consistency as defined by unconfined compression tests for cohesive soils. E_n' values for the native soils are presented in the table above. The E_n' values for short-term conditions in cohesive soils may be assumed to be 1.5 times the long-term values. These values are based on the soil data obtained at the boring locations only and may be used for the noted invert depth zone.

6.4 Open Cut Bedding and Backfill

Pipe Bedding. Pipe bedding should be performed according to City of Houston Standard Specification Section 02317, part 3.07 with item (J) for the water lines and item (K) for the sanitary sewers not constructed of HDPE (High Density Polyethylene). Water line installed using open-cut trenches should be placed using City of Houston Drawing No. 02317-04. The sanitary sewer may

be installed according to City of Houston Standard Drawing Nos. 02317-01, which is the typical cross section in the case of dry or wet stable trench, 02317-02, for wet stable trench where dewatering not used according to City of Houston Standard Specification 02317 item 3.07B, and 02317-08 for the shafts/manholes. Knowing that the water depth observed during drilling was at 20 feet, and after 24 hours at 28 feet, we do not expect the ground water to be above the trench bottom during construction and thus we do not expect ground water control measures to be needed and thus Drawing Nos. 02317-01 should be followed.

The excavations should be performed with equipment capable of providing a relatively clean bearing area. Stable soils are essential to provide a strong base during construction. In addition, stable soils enhance trench bottom stability, support for bedding compaction, and minimize possible pipe settlement. Whenever soft foundation soils are encountered during trench excavation, in accordance with section 02317, item 3.07.C, we recommend over excavating 3 feet below the base of the foundation and replacing with on-site soils or approved bedding material compacted to at least 95% of maximum dry density determined by ASTM D698 in loose lifts not exceeding 8 inches.

Trench Backfill. Trench backfill for utilities should be in accordance with Section 02317, Excavation and Backfill for Utilities, and in particular item 3.09 of the City of Houston Standard Specifications, January 2011. Backfill around the sanitary sewers should be in accordance with the provisions that are explained in the City of Houston Standard Details on Drawing Nos. 02317-01, knowing that the water table is below the bottom of the trench, and 02317-08 for the manholes. The water line backfill should be in accordance with Drawing No. 02317-04.

Pipe embedment should be in accordance with Section 02317 and the material used should be in accordance with City of Houston Standard Specification Sections 02320.

Trench zone backfill is that portion of trench backfill that extends vertically from the top of pipe embedment up to pavement subgrade or up to final grade when not beneath pavement. Trench zone backfill for utilities may consist of bank run sand, select fill, or random backfill material as specified in City of Houston Standard Specification Section 02320.

6.5 Thrust Force Design Recommendations

Piping System Thrust Restraint. Unbalanced thrust forces will be developed in water lines due to changes in direction, cross-sectional areas, or when the pipe is terminated. These forces may cause joints to disengage if not adequately restrained. There will be a slight loss of head due to turbulence in bends in the pipes. This loss will cause a pressure change across the bend, but it is usually small enough to be neglected.

The thrust force may require more reaction than is available just from the pipe bearing against the backfill. In order to prevent intolerable movement and overstressing of the pipe, suitable buttressing should be provided. In general, thrust blocks, concrete encasement, restrained joints and tie rods are common methods of providing reaction for the thrust restraint design. The thrust restraint design provisions described in this section are based on the American Water Works Association (AWWA) Manual M9 (2008) Concrete Pressure Pipe.

Various types of thrust restraint systems are used depending on the type of pipes and installation conditions. The thrust force at the bends should be evaluated based on the procedures described in Chapter 9 of AWWA manual M9.

Frictional Resistance. The unbalanced force produced by grade and alignment changes can also be resisted by friction on the pipe. The length of pipe will be formed by tying or welding joints together for the distance required to develop adequate capacity or by encasing the pipe in concrete. The resisting frictional force, F_R is computed, for most cases, as

$$F_R = f\,(2W_e+W_w+W_p)$$

Where:

f = Coefficient of friction between pipe and soil

W_e = Weight of soil over pipe in lb/ft

W_w = Weight of contained water in lb/ft

W_p = Weight of pipe in lb/ft

The friction value depends on the material in contact with the pipe and the soil used in the backfill around the pipe. For pipe surrounded by compacted sand or crushed stone, the friction between the pipe and soil may be based on a friction angle of 30 degrees. The allowable coefficient of friction, f, of 0.28, 0.23 and 0.18 can be used for concrete, steel and PVC pipes, respectively. This value includes a factor of safety of 2.0. The weight of soil above the pipe will depend on the soil unit weight and the pipe depth. For compacted soils used for backfill, a total unit weight of 125 pcf can be used.

In low cover situations, where depth of cover is less than 50% of pipe diameter, we should be contacted to evaluate the impact of shallow cover on thrust resistance.

Tied joints are used to transmit thrust across joints. These ties may be welded or harnessed joints. Joints may be welded in the field in order to transmit the thrust involved. Information concerning types of harnessed joints available and size and pressure limitations can be obtained from the pipe manufacturers.

7 UTILITY CONSTRUCTION RECOMMENDATIONS

7.1 General

This section is intended to address issues that might arise during construction. Our recommendations are intended for use as guidelines in dealing with particular soil conditions. The topics addressed in this section include trench excavation stability, groundwater control, and open-cut construction considerations.

The recommendations contained herein are not intended to dictate construction methods or sequences. Instead they are provided solely to assist designers in identifying potential construction problems related to excavation, based upon findings derived from sampling. Depending upon the final design chosen for the project, the recommendations may also be useful to personnel who observe construction activity.

Prospective contractors for the project must evaluate potential construction problems on the basis of their review of the contract documents, their own knowledge of and experience in the local area, and on the basis of similar projects in other localities, taking into account their own proposed methods and procedures.

7.2 Open Cut Excavation Considerations

Excavations should satisfy two requirements. First, the soils above final grade must be removed without disturbing the soil below, which will support constructed facilities. Second, the sides of the excavation must be stable to prevent damage to adjacent streets and facilities as a result of either vertical or lateral movements of the soil. In addition, a satisfactory excavation procedure must include an adequate construction dewatering system to lower and maintain the water level at least a few feet below the lowest excavation grade.

Excavation Stability. Excavations shall be shored, laid back to a stable slope or some other equivalent means may be used to provide safety for workers and adjacent structures. Earth pressures for braced excavations are presented on Plate 4. Assessment of the need for excavation sloping, use of trench boxes, or other measures required to provide a stable excavation, and the use of appropriate construction practices and/or equipment is the contractor's responsibility. The following comments are intended to represent common solutions to stability problems encountered in similar soil conditions in the Houston area, and may not be construed as excavation system design recommendations. The excavation operations shall be performed in accordance with 29 CFR Part 1926 subpart P, as amended, including rules published in the Federal Register, Vol. 54, No. 209, dated October 31, 1989, as a minimum. In addition, the provisions of legislation enacted by the Texas Legislature and City of Houston should be satisfied.

Boring No.	Street Name	Station No.	OSHA Soil Type			
			Depth of Trench (ft.)			
			0 – 5	5 – 10	10 – 15	15-20
B-1	Almeda Road	33+00.42	B	B	-	-
B-2	Almeda Road	38+01.30	C	B	-	-
B-3	Almeda Road	44+00.24	B	B	-	-
B-4	Almeda Road	52+56.82	C	B	B	B

In general, it is our opinion that the pressure distribution (for braced walls) should be used for design of sheeting or trench boxes. To reduce the potential for ground movement adjacent to the top of the excavation, the bracing should be preloaded in stages as the excavation is deepened. The detailed earth pressure diagram is presented on Plate 4.

The planned construction will be performed along alignments near existing utility installations (either crossing or paralleling the new alignments). The contractors should be aware of potential excavation stability problems while working in the vicinity of old trenches and the excavation system should be designed to accommodate this weak material (trench backfill).

The vertical walls of excavations should be located a safe distance from existing utilities in order to prevent movement in the soil mass behind the excavation that may adversely affect the utilities. We recommend that the horizontal distance should be 4 feet for excavation depths of up to 10 feet.

7.3 Select Fill and General Earthwork Recommendations

The select fill required to raise the grade or backfill should consist of sandy clay with a liquid limit less than 40 and a plasticity index between 8 and 20. Fill material that is used should be placed in loose lifts not exceeding eight inches and should be compacted to 95 percent of standard Proctor maximum dry density as determined by ASTM D698.

7.4 Spoil Disposal

Spoil from construction will be generated from trench excavations. Soils that will be excavated from this project area will consist primarily of cohesive soils. Economically, possible uses of the cohesive spoil material may be limited to land reclamation, site grading, and final cover in sanitary landfill operations. These soils may not be suitable for use in engineered fill.

7.5 Groundwater Control

Based on our field investigation, we do not expect the groundwater seepage during excavation up to 10 feet. However, it depends upon the groundwater conditions at the time of construction. Assessment of the need for groundwater control and installation of appropriate dewatering equipment is the contractor's responsibility. The following comments are intended to represent common solutions to groundwater control problems encountered in similar soil conditions in the Houston area, and may not be construed as dewatering system design recommendations. A conventional pump and sump arrangement may be adequate if water bearing cohesive soils are encountered during trench excavations. Well points or eductors may be utilized to lower the groundwater level to at least three feet below the excavation level where water bearing cohesionless soils are encountered. Well points are generally not effective below about 15 feet beneath the top of the well point, and deeper dewatering requires deep wells with submersible pumps and eductors.

Control of groundwater should be accomplished in a manner that will preserve the strength of the foundation soils, will not cause instability of the excavation, and will not result in damage to existing structures. Where necessary, the water will be lowered in advance of excavation by pump and sump arrangement, wells, well points, or similar methods. Open pumping should not be permitted if it results in boils, loss of fines, softening of the subgrade, or excavation instability. Discharge should be arranged to facilitate sampling by the owner's representative or engineer.

8 EXISTING PAVEMENT DESCRIPTION

8.1 General

We understand that the project involves reconstruction of Almeda Road between from Old Spanish Trail (OST) to South MacGregor Way in Houston, Texas. Our scope is limited to provide field, laboratory test results and to obtain existing pavement thickness. Design of pavement cross section is beyond our scope and will be performed by TxDOT as mentioned in our proposal dated November 12, 2010 (Revised September 13, 2012).

8.2 Existing Pavement Thickness

The existing pavement within the project area was cored at eight locations as shown on Plates 2A to 2G. The existing pavement structure and thickness are presented in the following table:

Coring No.	Approximate Station No.	Total Thickness (inch)	Asphalt Thickness (inch)	Concrete Thickness (inch)	Base Thickness and Description
C-1	13+83.20	24	3	9	6" crushed concrete and 6" stabilized sand
C-2	23+20.52	18	6	-	12" crushed concrete
C-3	33+00.42	12	2	10	-
C-4	38+01.30	16	12	-	4" crushed concrete
C-5	44+00.24	12	2	10	-
C-6	52+56.82	24	9	-	9" crushed concrete and 6" shell
C-7	59+98.97	15	-	9	6" stabilized sand
C-8	67+69.89	12	-	6	6" crushed concrete

8.3 Moisture Density Relationship

Based on the results of the standard Proctor test presented on Plate D-1 of Appendix D, the maximum dry density of the composite sample was determined to be 107.6 pounds per cubic foot (pcf) at optimum moisture content of 16.6 percent.

8.4 CBR Value

One California Bearing Ratio (CBR) test was performed on the composite sample obtained from all the boring locations at the top 2 feet below pavement. A design CBR of 1.8 was estimated at 95% of the maximum dry density. The results of the CBR test are presented on Plates D-2 and D-3 of Appendix D.

9 MONITORING

9.1 Excavation Safety

As required under OSHA regulations, the contractor should provide a "competent person" to inspect trench excavations daily before the start of work, as needed during the shift, and after every rainstorm or other hazard increasing occurrence. When the competent person finds evidence of a hazardous condition, exposed workers should be removed from the hazardous area until the necessary precautions have been taken to ensure their safety. A competent person means one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to workers, and who has authorization to take prompt corrective measures to eliminate them.

9.2 Construction Material Testing

We recommend that backfill be monitored by an accredited testing laboratory to verify that construction is performed in conformance with project specifications. HVJ Associates routinely provides these services and would be pleased to do so for this project.

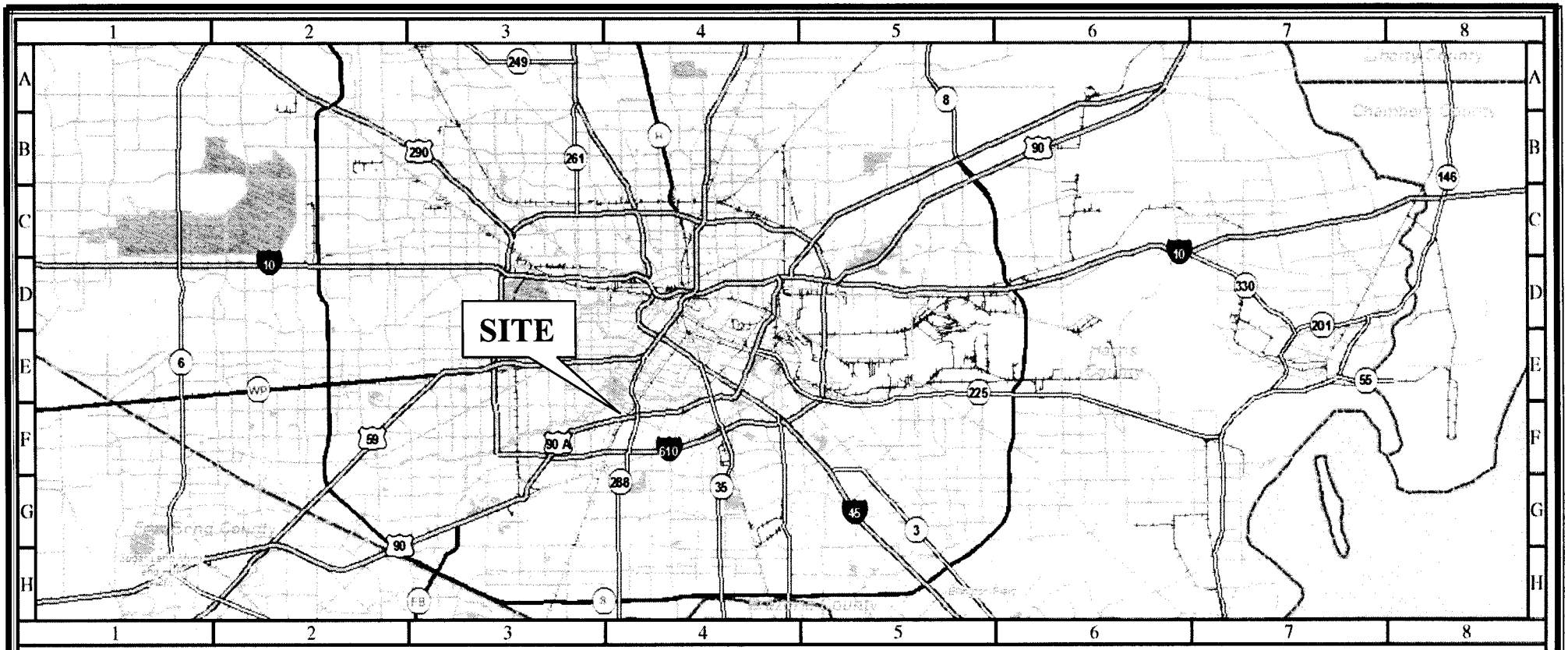
10 DESIGN REVIEW

HVJ Associates should be retained to review the final design plans and specifications for this project. During all excavation, grading and construction phases of this project, HVJ should provide the materials testing verification and observation services so our geotechnical recommendations may be interpreted and implemented correctly.

11 LIMITATIONS

This investigation was performed for the exclusive use of Walter P Moore and Associates, Inc., City of Houston and Texas Department of Transportation (TxDOT) for the proposed Almeda Road paving and drainage in Houston, Texas. HVJ Associates, Inc. has endeavored to comply with generally accepted geotechnical engineering practice common in the local area. HVJ Associates, Inc. makes no warranty, express or implied. The analyses and recommendations contained in this report are based on data obtained from subsurface exploration, laboratory testing, the project information provided to us and our experience with similar soils and site conditions. The methods used indicate subsurface conditions only at the specific locations where samples were obtained, only at the time they were obtained, and only to the depths penetrated. Samples cannot be relied on to accurately reflect the strata variations that usually exist between sampling locations. Should any subsurface conditions other than those described in our boring logs be encountered, HVJ Associates, Inc. should be immediately notified so that further investigation and supplemental recommendations can be provided.

PLATES



CITY OF HOUSTON
Department of Public Works and Engineering
Geographic Information & Management System (GIMS)

1 inch = 23146 feet

DISCLAIMER: THIS MAP REPRESENTS THE BEST INFORMATION AVAILABLE TO THE CITY. THE CITY DOES NOT WARRANT ITS ACCURACY OR COMPLETENESS. FIELD VERIFICATIONS SHOULD BE DONE AS NECESSARY.

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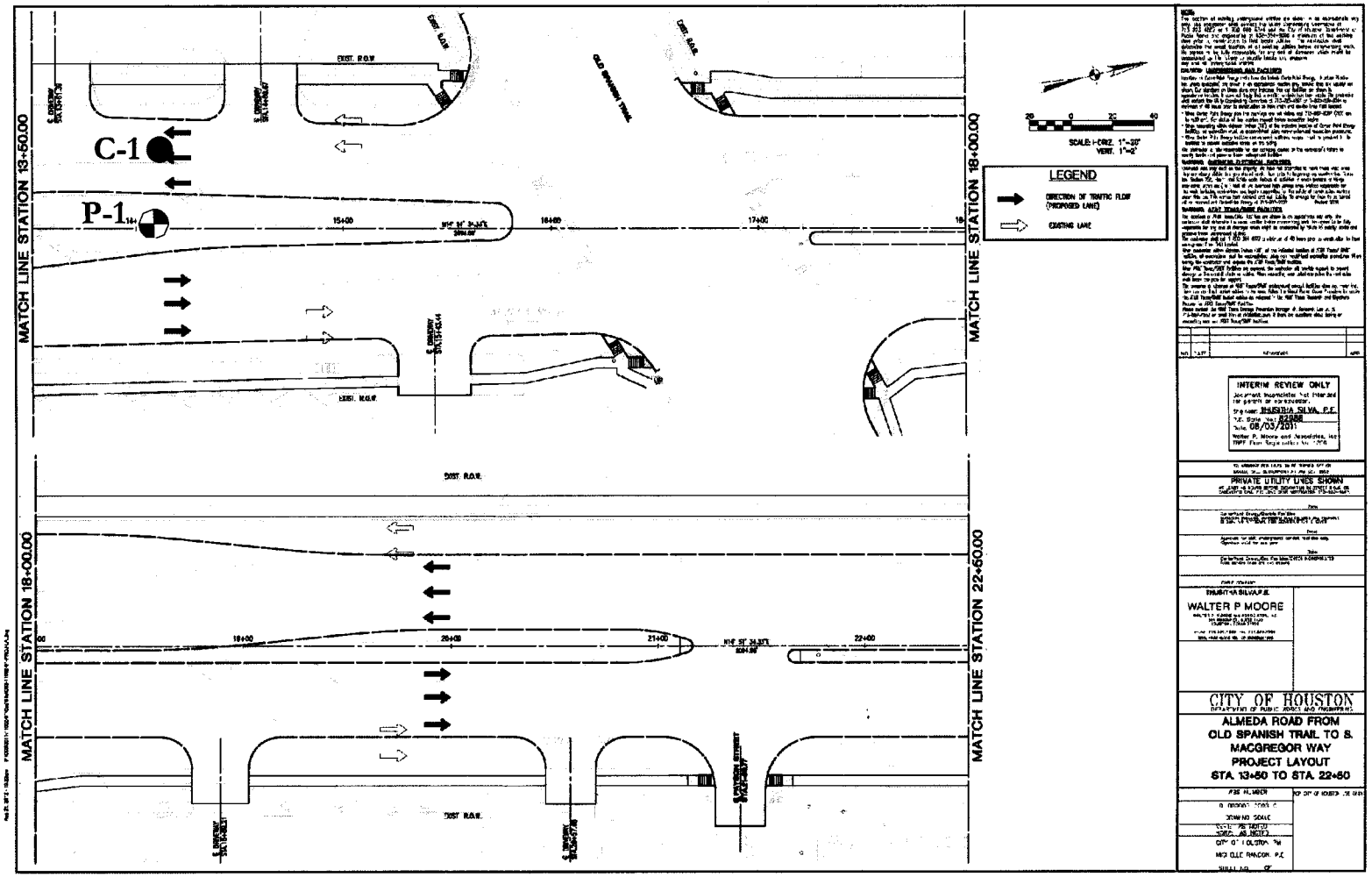
SITE VICINITY MAP
ALMEDA ROAD PAVING AND DRAINAGE
WBS No. N-000806-0001-3/ CSJ No. 0912-72-072

PROJECT NO.:	DRAWING NO.:
HG1018580	ATE 1



● APPROXIMATE BORING LOCATION

● APPROXIMATE CORING LOCATION

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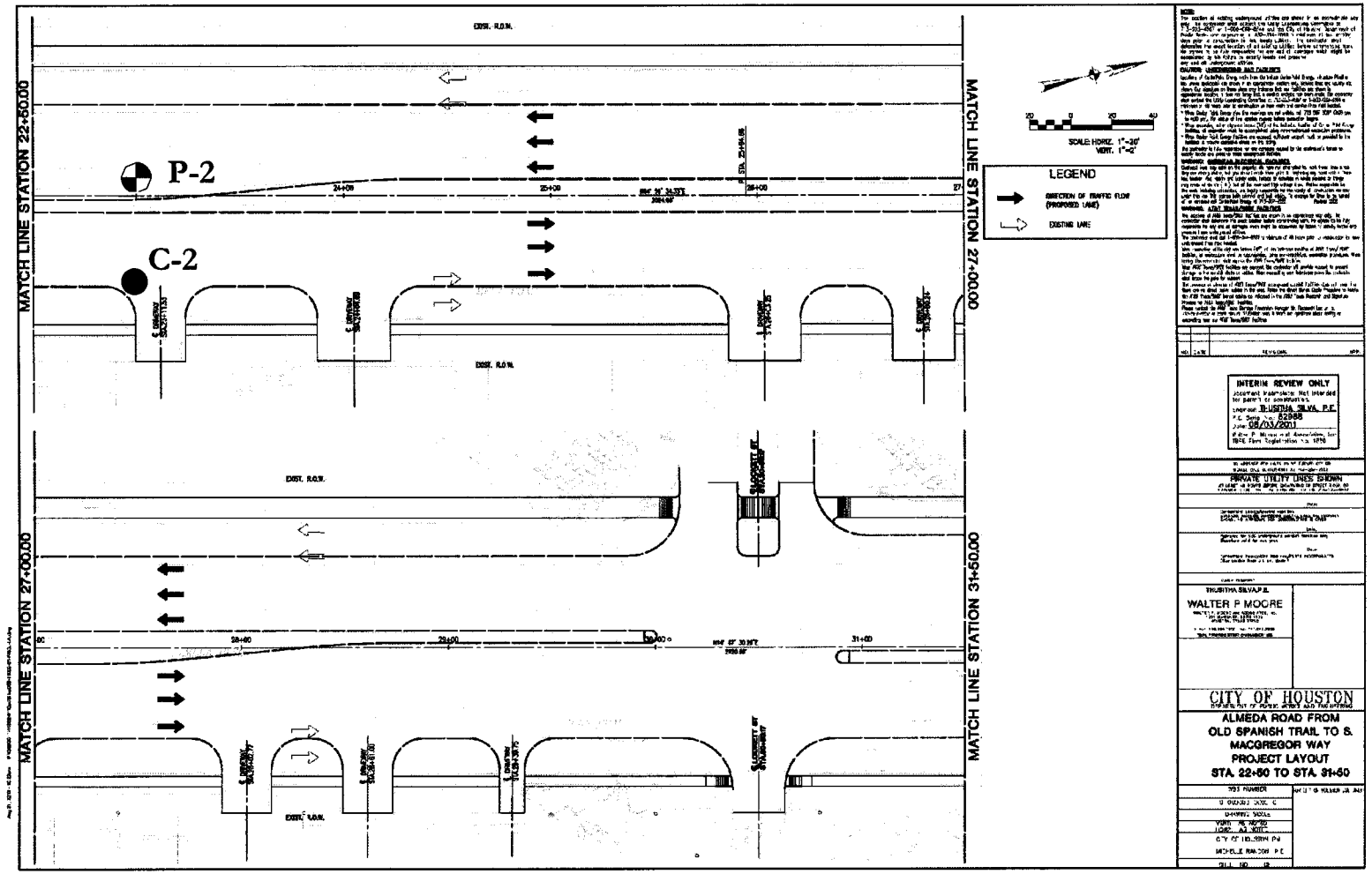
PLAN OF BORINGS
ALMEDA ROAD PAVING AND DRAINAGE
WBS NO.: N-000806-0001-3/ CSJ No. 0912-72-072

PROJECT NO.:	DRAWING NO.:
HG1018580	PLATE 2A



● APPROXIMATE BORING LOCATION

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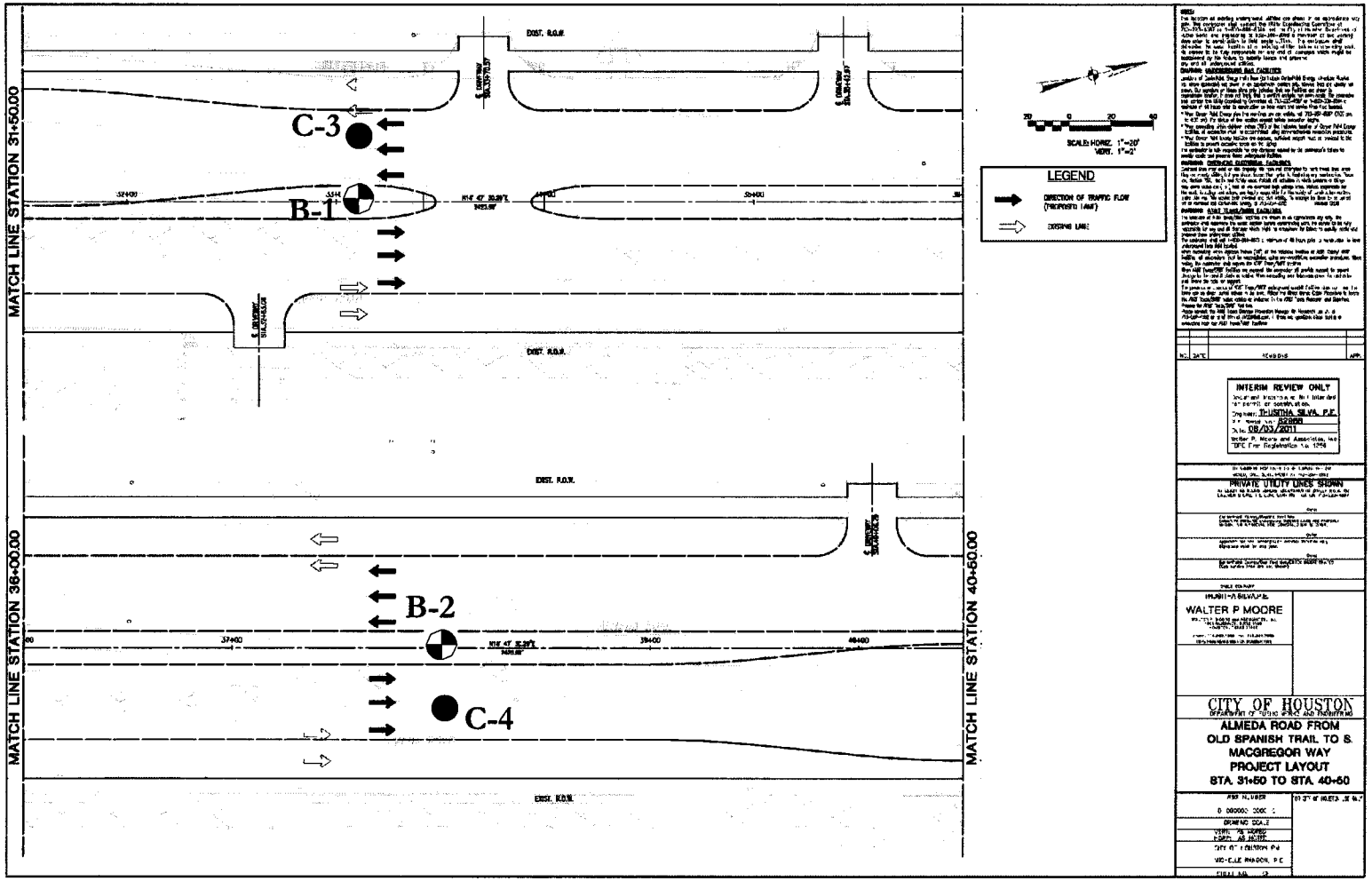
ALMEDA ROAD PAVING AND DRAINAGE
WBS NO.: N-000806-0001-3/ CSJ No. 0912-72-072

PROJECT NO.:	DRAWING NO.:
HG1018580	PLATE 2B



● APPROXIMATE BORING LOCATIONS

● APPROXIMATE CORING LOCATIONS

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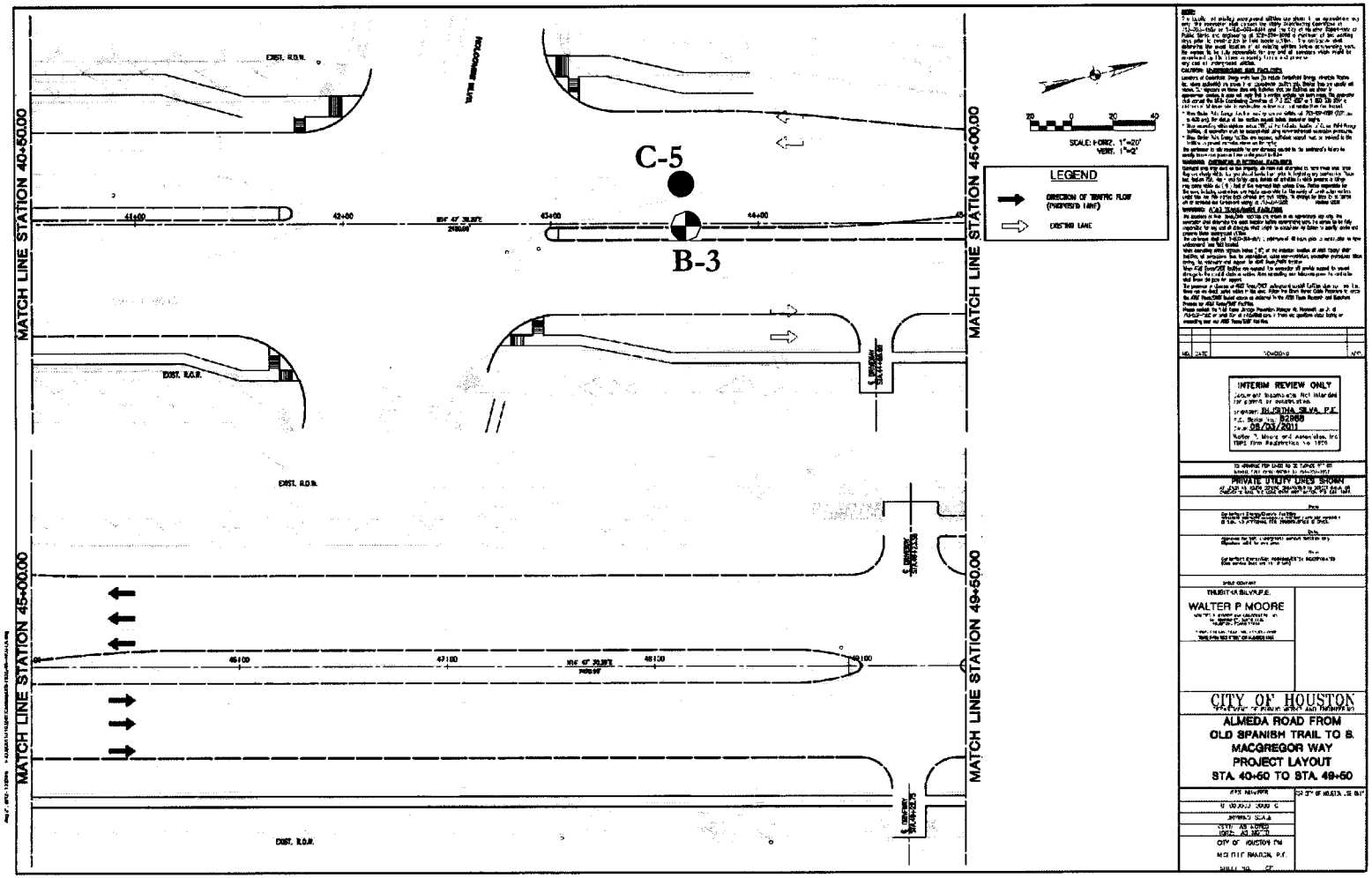
ALMEDA ROAD PAVING AND DRAINAGE
WBS NO.: N-000806-0001-3/ CSJ No. 0912-72-072

PROJECT NO.:	DRAWING NO.:
HG1018580	PLATE 2C



● APPROXIMATE BORING LOCATION

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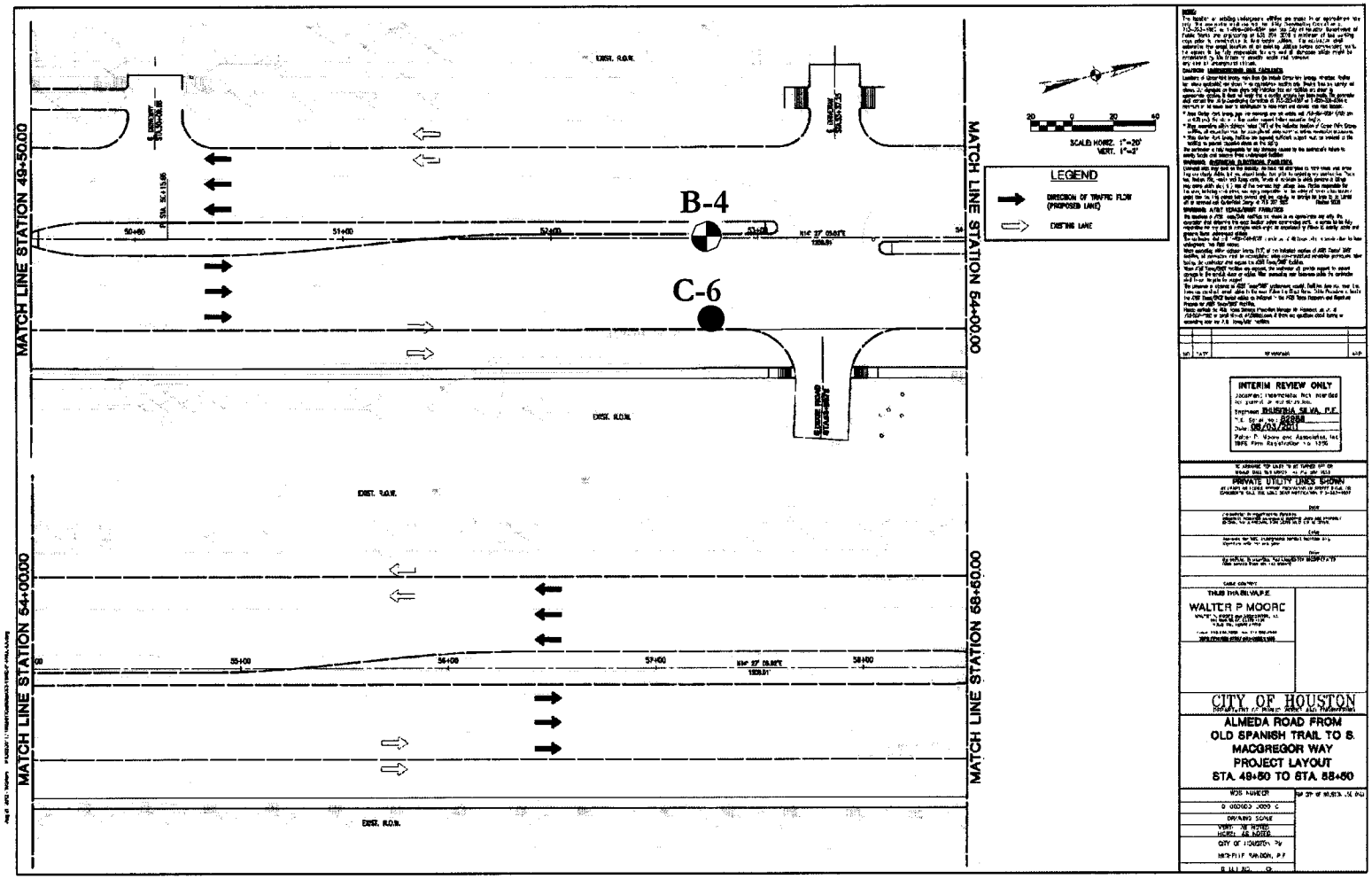
PLAN OF BORINGS
ALMEDA ROAD PAVING AND DRAINAGE
WBS NO.: N-000806-0001-3/CSJ No. 0912-72-072

PROJECT NO.:	DRAWING NO.:
HG1018580	PLATE 2D



● APPROXIMATE BORING LOCATION

● APPROXIMATE CORING LOCATION

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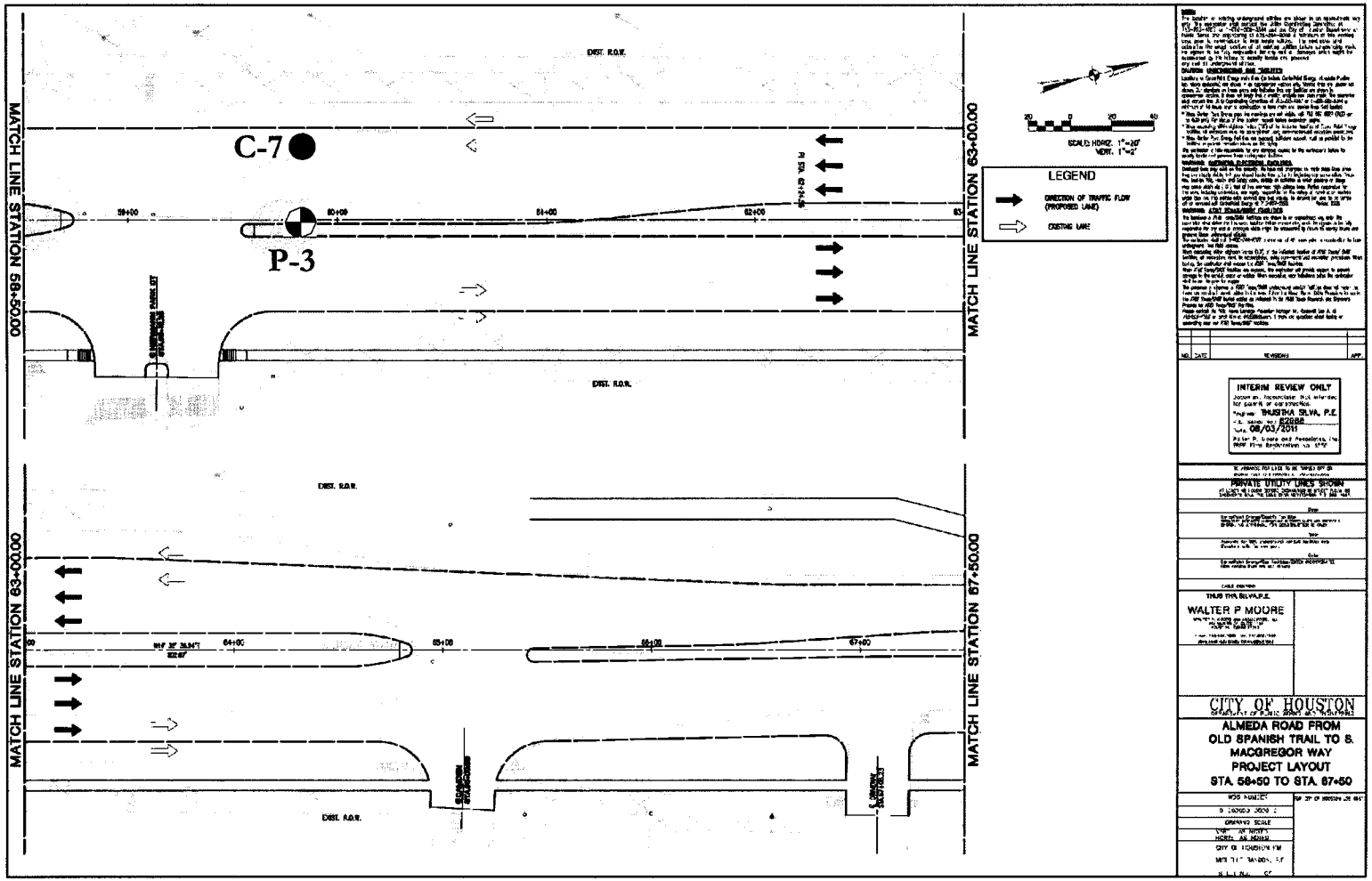
PLAN OF BORINGS
ALMEDA ROAD PAVING AND DRAINAGE
WBS NO.: N-000806-0001-3/CSJ No. 0912-72-072

PROJECT NO.:	DRAWING NO.:
HG1018580	PLATE 2E



● APPROXIMATE BORING LOCATION

● APPROXIMATE CORING LOCATION

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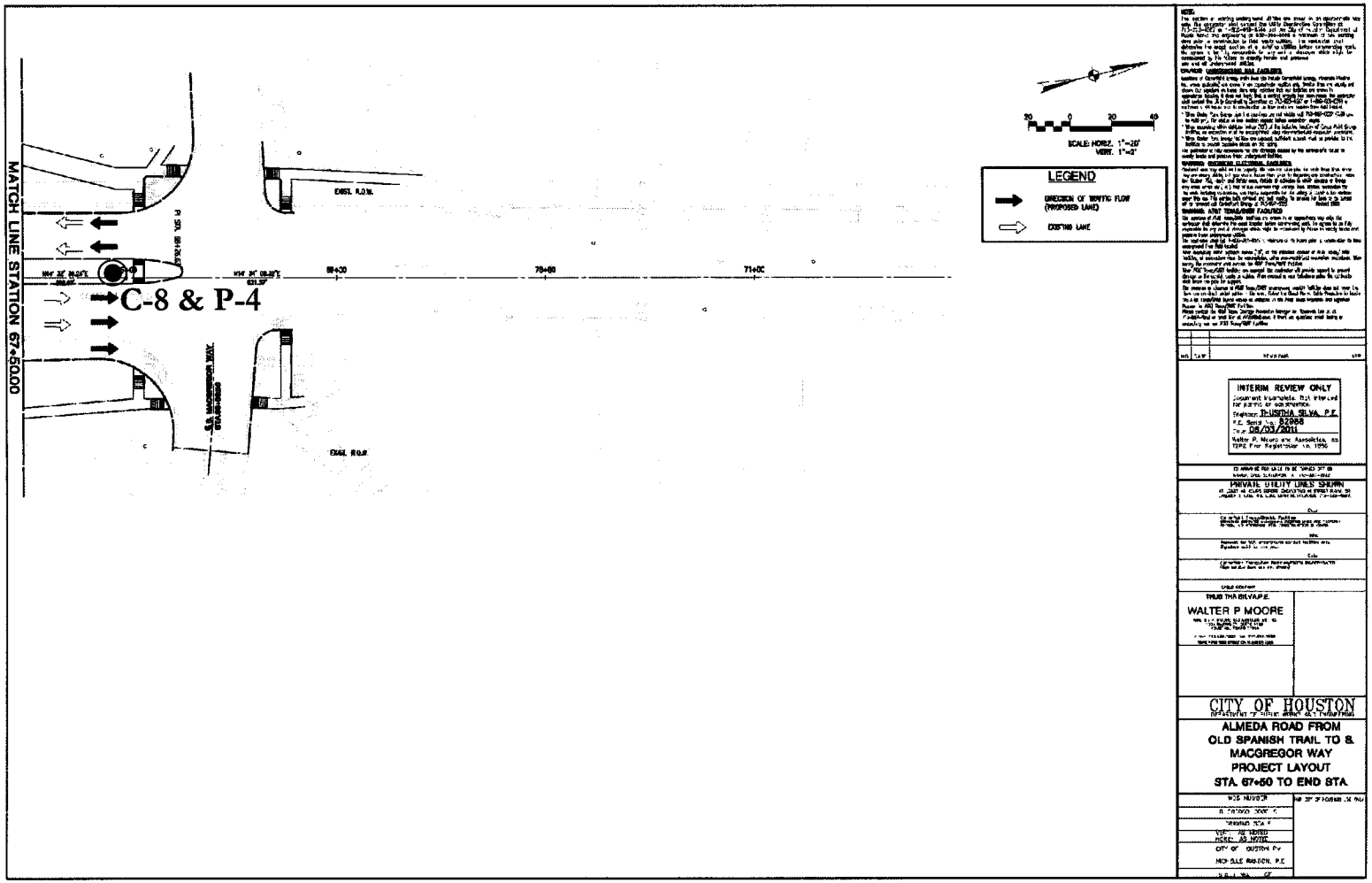
PLAN OF BORINGS
ALMEDA ROAD PAVING AND DRAINAGE
WBS NO.: N-000806-0001-3/CSJ No. 0912-72-072

PROJECT NO.:	DRAWING NO.:
HG1018580	PLATE 2F



◉ APPROXIMATE CORING & BORING LOCATION

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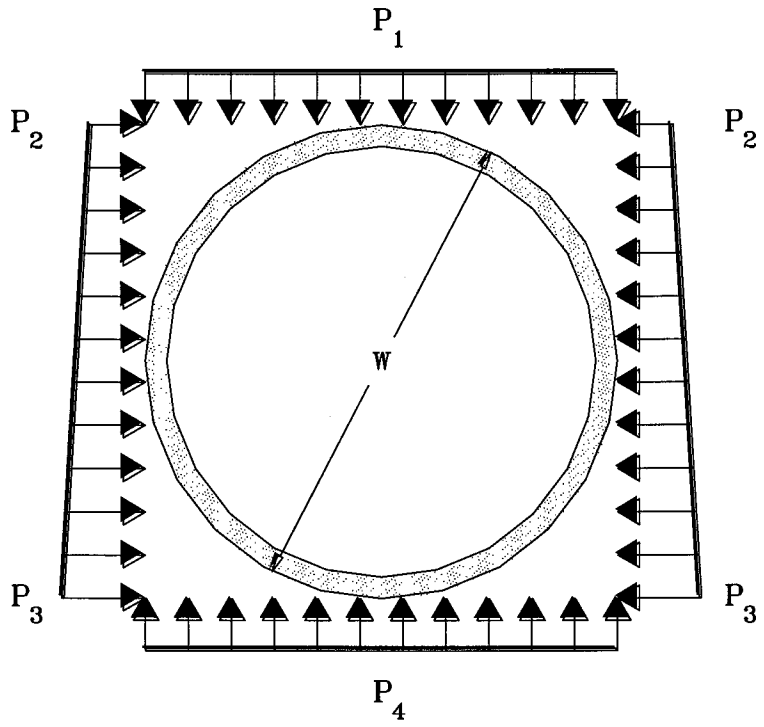
PLAN OF BORINGS
ALMEDA ROAD PAVING AND DRAINAGE
WBS NO.: N-000806-0001-3/CSJ No. 0912-72-072

PROJECT NO.:	DRAWING NO.:
HG1018580	PLATE 2G



For

$D_w \leq H$

$P_1 = \gamma D_w + (H - D_w)(\gamma - \gamma_w) + P_s + (H - D_w)\gamma_w$

$P_2 = [\gamma D_w + (H - D_w)(\gamma - \gamma_w) + P_s]K_o + (H - D_w)\gamma_w$

$P_3 = [\gamma D_w + (H + W - D_w)(\gamma - \gamma_w) + P_s]K_o + (H + W - D_w)\gamma_w$

$P_4 = \gamma D_w + (H + W - D_w)(\gamma - \gamma_w) + P_s + (H + W - D_w)\gamma_w$

For

$H < D_w < H + W$

$P_1 = H\gamma + P_s$

$P_2 = (\gamma H + P_s)K_o$

$P_3 = [\gamma D_w + (H + W - D_w)(\gamma - \gamma_w) + P_s]K_o + (H + W - D_w)\gamma_w$

$P_4 = \gamma D_w + (H + W - D_w)(\gamma - \gamma_w) + P_s + (H + W - D_w)\gamma_w$

For

$D_w \geq (H + W)$

$P_1 = H\gamma + P_s$

$P_2 = (\gamma H + P_s)K_o$

$P_3 = [(H + W)\gamma + P_s]K_o$

$P_4 = (H + W)\gamma + P_s$

Where

P_1, P_2, P_3 = Pressure imposed on pipe, psf

D_w = Depth of groundwater, feet

H = Depth of top of pipe from ground surface, feet

W = Diameter of pipe, feet

γ = Total Unit weight of soil, pcf

γ_w = Unit weight of water, pcf

P_s = Surcharge load, psf

K_o = Coefficient of earth pressure, (1.0 for clays and 0.5 for sands)

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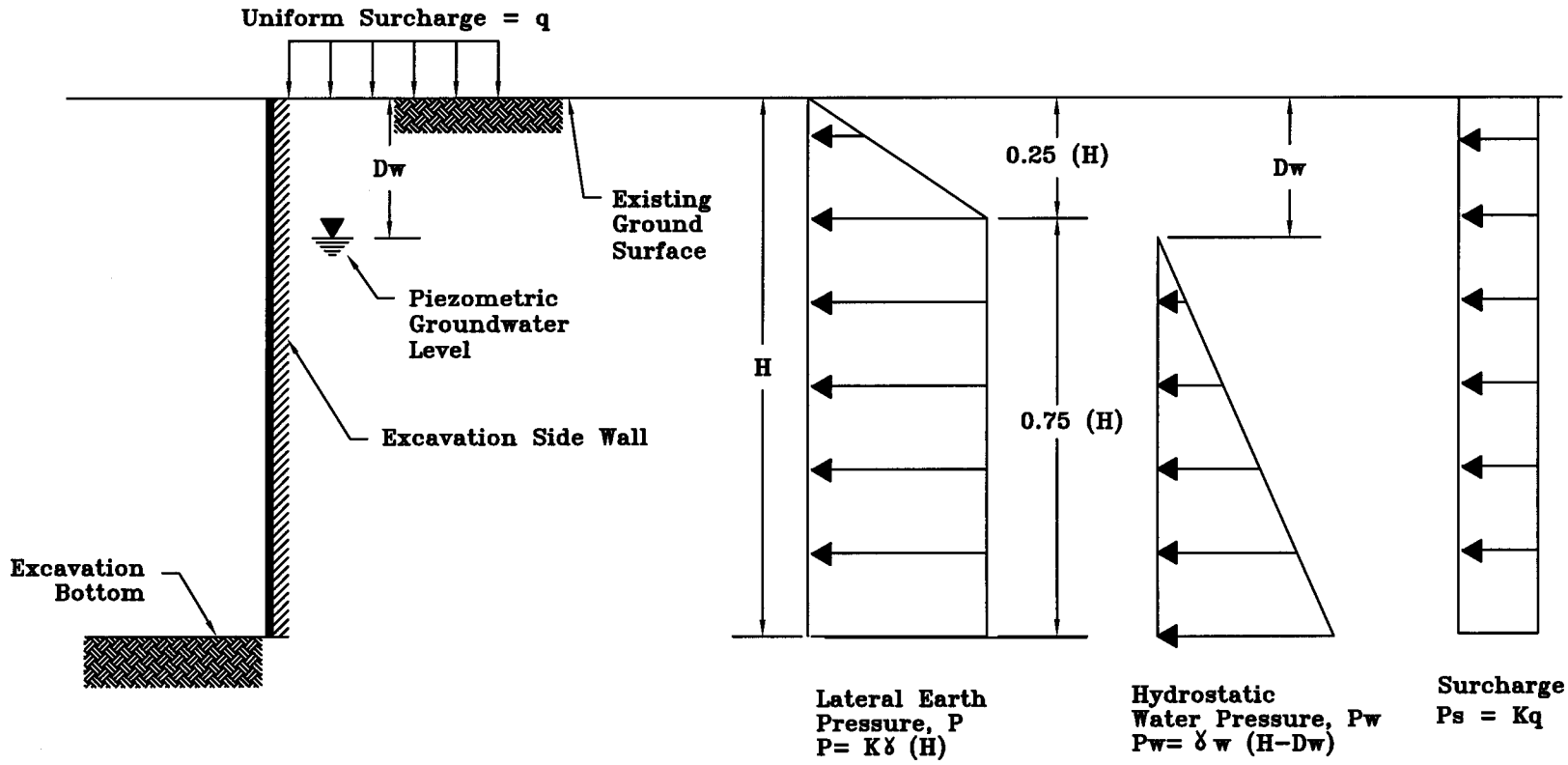
DATE: 06/03/2013	APPROVED BY: ZA	PREPARED BY: AR

RIGID PIPE AND TUNNEL LINER LOADS
WBS No. N-000806-0001-3/CSJ No. 0912-72-072

PROJECT NO.: HG1018580	DRAWING NO.: PLATE 3



H, (ft) = Depth to Excavation Bottom

Ps, (psf) = Surcharge loading adjacent to Excavation wall

Dw, (ft) = Depth to groundwater below Existing grade

= Zero for temporary excavation

K = Lateral Earth Pressure coefficient

= Ka "active" for short–term conditions (use 0.50)

= Ko "at rest" for long–term conditions (use 1.0)

ɣ, (pcf) = Total unit weight above water table or submerged unit weight below groundwater level

ɣw, (pcf) = Unit weight of water = 62.4 pcf

Note: The pressure diagram shown is not appropriate for design of cantilever walls.

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BRACED EXCAVATION
LATERAL EARTH PRESSURE DIAGRAM (CLAY)
WBS No. N-000806-0001-3/CSJ No. 0912-72-072

PROJECT NO.:	DRAWING NO.:
HG1018580	PLATE 4

APPENDIX A

BORING LOGS AND KEY TO TERMS AND SYMBOLS

LOG OF BORING

Project: Almeda Road Paving and Drainage
Project No.: HG1018580
WBS No.: N-000806-0001-3
Boring No.: B-1
Date: 5/13/2013
Elevation: 42.471 feet
Groundwater during drilling: Dry
Northing: 13,822,522.4
Station: 33+00.42
Groundwater after 24 hrs: ---
Easting: 3,116,136.1
Offset: 7.40' LT

ELEV. DEPTH, FEET	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	SOIL/ROCK CLASSIFICATION	% PASSING NO. 200 SIEVE	DRY DENSITY PCF
0		Stiff reddish brown and gray FAT CLAY (CH)	92.3	104
5		Stiff to very stiff reddish brown and gray LEAN CLAY (CL) -w/ sand 4'-6'	76.6	
10		Firm brown and gray SANDY LEAN CLAY (CL)	67.4	92

SHEAR STRENGTH, TSF
0.5 1.0 1.5 2.0
MOISTURE ○ CONTENT, %
PLASTIC LIMIT ⊢ LIQUID LIMIT
10 20 30 40 50 60 70 80 90

Shear Types: ● = Hand Penet. ■ = Torvane ▲ = Unconf. Comp. ✳ = UU Triaxial

See Plate 2 for boring location.

PLATE A-1

HVJ ASSOCIATES

LOG OF SOIL BORING HG-10-18580.GPJ HVJ.GDT 6/24/13

LOG OF BORING

Project: Almeda Road Paving and Drainage
Boring No.: B-2
Groundwater during drilling: Dry
Groundwater after 24 hrs: ---

Project No.: HG1018580
Date: 5/10/2013
Northing: 13,823,004.6
Easting: 3,116,271.9

WBS No.: N-000806-0001-3
Elevation: 43.144 feet
Station: 38+01.30
Offset: 0.81' RT

ELEV. DEPTH, FEET	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	SOIL/ROCK CLASSIFICATION	% PASSING NO. 200 SIEVE	DRY DENSITY PCF
43 – 0		Firm to stiff reddish brown and gray FAT CLAY (CH)		
40 – 5			90.4	
35 – 10			90.5	98
30 – 15			96.0	90
25 – 20				90
20 – 25				
15 – 30				
10 – 35				

SHEAR STRENGTH, TSF
0.5 1.0 1.5 2.0

MOISTURE O CONTENT, %
PLASTIC LIMIT — LIQUID LIMIT
10 20 30 40 50 60 70 80 90

Shear Types: ● = Hand Penet. ■ = Torvane ▲ = Unconf. Comp. ✳ = UU Triaxial

See Plate 2 for boring location.

PLATE A-2

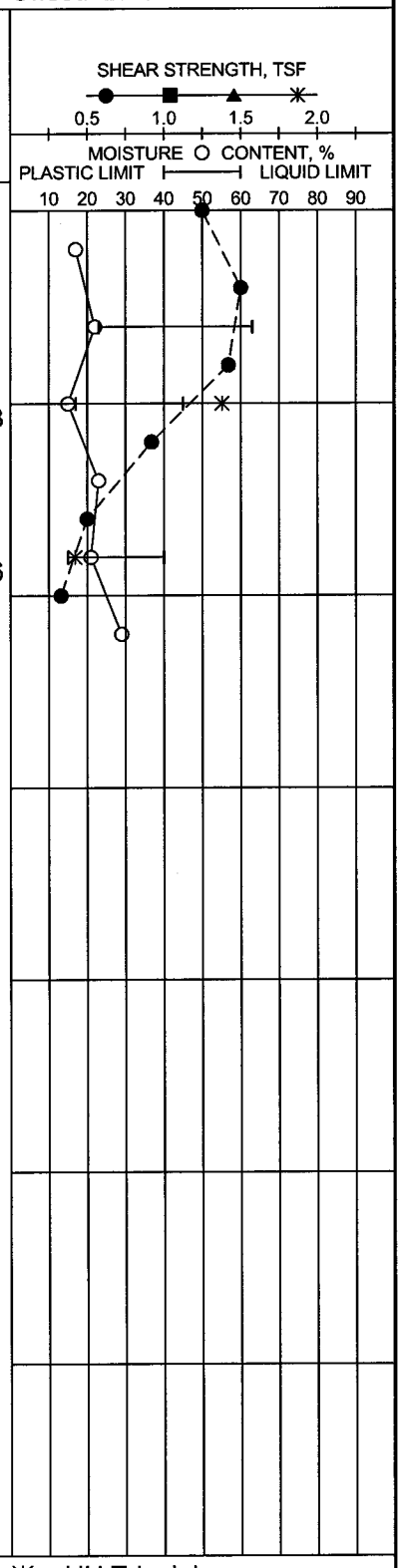
HVJ ASSOCIATES

LOG OF SOIL BORING HG-10-18580.GPJ HVJ.GDT 6/24/13

LOG OF BORING

Project: Almeda Road Paving and Drainage
Project No.: HG1018580
WBS No.: N-000806-0001-3
Boring No.: B-3
Date: 5/10/2013
Elevation: 43.423 feet
Groundwater during drilling: Dry
Northing: 13,823,583.4
Station: 44+00.24
Groundwater after 24 hrs: ---
Easting: 3,116,426.1
Offset: 2.15' RT

ELEV. DEPTH, FEET	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	SOIL/ROCK CLASSIFICATION	% PASSING NO. 200 SIEVE	DRY DENSITY PCF
0 / 40		Very stiff reddish brown and gray FAT CLAY (CH)		
5 / 35		Firm to very stiff reddish brown and gray LEAN CLAY (CL) -w/ calcareous nodules 4'-10'	56.5	103
10 / 30				106
15 / 25				
20 / 20				
25 / 15				
30 / 10				
35				



Shear Types: ● = Hand Penet. ■ = Torvane ▲ = Unconf. Comp. ✳ = UU Triaxial

See Plate 2 for boring location.

PLATE A-3

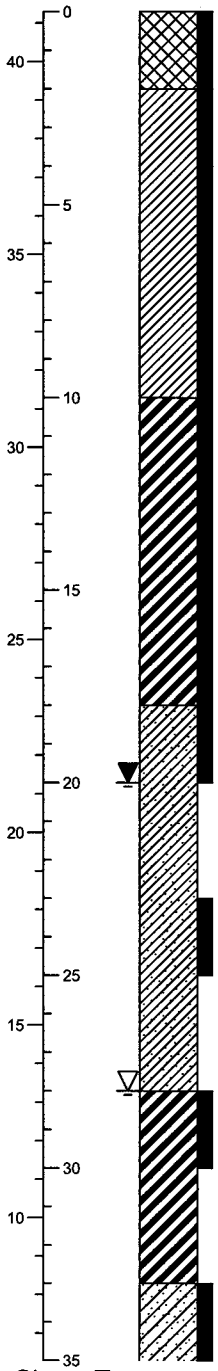
HVJ ASSOCIATES

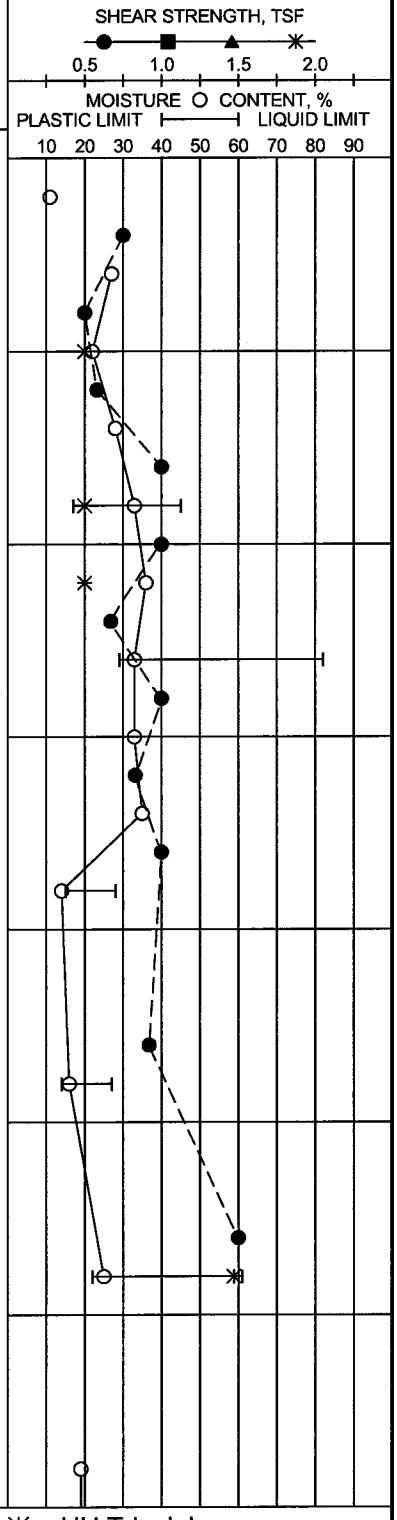
LOG OF SO RING HG-10-18580.GPJ HVJ.GDT 6/24/13

LOG OF BORING

Project: Almeda Road Paving and Drainage
Project No.: HG1018580
WBS No.: N-000806-0001-3
Boring No.: B-4 (PZ-1)
Date: 5/13/2013
Elevation: 41.29 feet
Groundwater during drilling: 20 feet
Northing: 13,824,405.7
Station: 52+56.82
Groundwater after 24 hrs: 28 feet
Easting: 3,116,667.6
Offset: 27.05' RT

ELEV. DEPTH, FEET	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	SOIL/ROCK CLASSIFICATION	% PASSING NO. 200 SIEVE	DRY DENSITY PCF
40 / 0		FILL: Dark gray sand with shells & rocks		
		Stiff brown and gray LEAN CLAY (CL) -w/ calcareous nodules 2'-6'	84.4	99
35 / 5			88.2	95
30 / 10		Stiff reddish brown and gray FAT CLAY (CH)		87
25 / 15		-w/ sand 16'-18'	85.4	
20 / 20		Stiff brown and gray SANDY LEAN CLAY (CL)		
15 / 25		Very stiff reddish brown FAT CLAY (CH)		101
10 / 30		Medium dense brown CLAYEY SAND (SC)	42.7	
35				





Shear Types: ● = Hand Penet. ■ = Torvane ▲ = Unconf. Comp. ✳ = UU Triaxial

See Plate 2 for boring location.

PLATE A-4a

HVJ ASSOCIATES

LOG OF SOIL BORING HG-10-18580.GPJ HVJ.GDT 6/24/13

LOG OF BORING

Project: Almeda Road Paving and Drainage
Boring No.: B-4 (PZ-1)
Groundwater during drilling: 20 feet
Groundwater after 24 hrs: 28 feet

Project No.: HG1018580
Date: 5/13/2013
Northing: 13,824,405.7
Easting: 3,116,667.6

WBS No.: N-000806-0001-3
Elevation: 41.29 feet
Station: 52+56.82
Offset: 27.05' RT

ELEV. DEPTH, FEET	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	SOIL/ROCK CLASSIFICATION	% PASSING NO. 200 SIEVE	DRY DENSITY PCF
35 / 5	5-4-8	Medium dense brown CLAYEY SAND (SC)	37.8	
40 / 0		Very stiff to hard reddish brown SANDY LEAN CLAY (CL)		108
45 / -5				
50 / -10		Very stiff reddish brown FAT CLAY (CH)		106
55 / -15				102
60 / -20				
65 / -25				
70				

SHEAR STRENGTH, TSF
0.5 1.0 1.5 2.0
MOISTURE O CONTENT, %
PLASTIC LIMIT — LIQUID LIMIT
10 20 30 40 50 60 70 80 90

Shear Types: ● = Hand Penet. ■ = Torvane ▲ = Unconf. Comp. ✳ = UU Triaxial

See Plate 2 for boring location.

PLATE A-4b

HVJ ASSOCIATES

LOG OF SOIL BORING HG-10-18580.GPJ HVJ.GDT 6/24/13

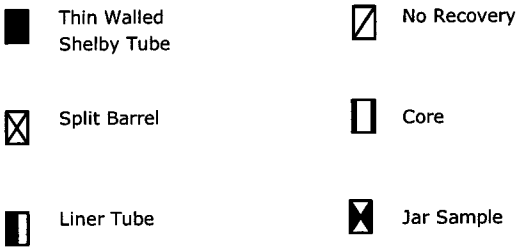
SOIL SYMBOLS

Soil Types

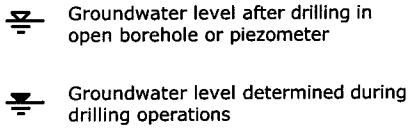
Modifiers

Construction Materials

SAMPLER TYPES



WATER LEVEL SYMBOLS



SOIL GRAIN SIZE

Classification	Particle Size	Particle Size or Sieve No. (U.S. Standard)
Clay	< 0.002 mm	< 0.002 mm
Silt	0.002 - 0.075 mm	0.002 mm - #200 sieve
Sand	0.075 - 4.75 mm	#200 sieve - #4 sieve
Gravel	4.75 - 75 mm	#4 sieve - 3 in.
Cobble	75 - 200 mm	3 in. - 8 in.
Boulder	> 200 mm	> 8 in.

DENSITY OF COHESIONLESS SOILS

Descriptive Term	Penetration Resistance "N" * Blows/Foot
Very Loose	0 - 4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	> 50

CONSISTENCY OF COHESIVE SOILS

Consistency	Undrained Shear Strength (tsf)	Penetration Resistance "N" * Blows/Foot
Very Soft	0 - 0.125	0 - 2
Soft	0.125 - 0.25	2 - 4
Firm	0.25 - 0.5	4 - 8
Stiff	0.5 - 1.0	8 - 16
Very Stiff	1.0 - 2.0	16 - 32
Hard	> 2.0	> 32

PENETRATION RESISTANCE

3/6	Blows required to penetrate each of three consecutive 6-inch increments per ASTM D-1586 *
50/4"	If more than 50 blows are required, driving is discontinued and penetration at 50 blows is noted
0/18"	Sampler penetrated full depth under weight of drill rods and hammer

* The N value is taken as the blows required to penetrate the final 12 inches

TERMS DESCRIBING SOIL STRUCTURE

Slickensided	Fracture planes appear polished or glossy, sometimes striated
Fissured	Breaks along definite planes of fracture with little resistance to fracturing
Inclusion	Small pockets of different soils, such as small lenses of sand scattered through a mass of clay
Parting	Inclusion less than 1/4 inch thick extending through the sample
Seam	Inclusion 1/4 inch to 3 inches thick extending through the sample
er	Inclusion greater than 3 inches thick extending through the sample
Laminated	Soil sample composed of alternating partings of different soil type
Stratified	Soil sample composed of alternating seams or layers of different soil type
Intermixed	Soil sample composed of pockets of different soil type and laminated or stratified structure is not evident
Calcareous	Having appreciable quantities of calcium carbonate
Ferrous	Having appreciable quantities of iron
Nodule	A small mass of irregular shape

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KEY TO TERMS AND SYMBOLS
USED ON BORING LOGS
WBS No. N-000806-0001-3

PROJECT NO.:	DRAWING NO.:
HG1018580	PLATE A-5

DRILLING LOG

WinCore Version 3.1	County	Harris	Hole	P-1	District	Houston
	Highway	Almeda Road	Structure	Pavement	Date	5/13/2013
	CSJ	0912-72-072	Station	13+83.20	Grnd. Elev.	44.25 ft
			Offset	22.01'LT	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
42.3			FILL, Dark gray fat clay with gravel			21	59	32		
			CLAY, Sandy, stiff, brown and gray (CL)			16				
38.8		11 (6) 10 (6)		3	23.5	24	31	14	129	

Remarks: WBS No. N-000806-0001-3

The ground water elevation was not determined during the course of this boring.

Driller: Van & Sons Logger: EE Organization: HVJ Associates, Inc.

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DRILLING LOG

	County	Harris	Hole	P-2	District	Houston
WinCore	Highway	Almeda Road	Structure	Pavement	Date	5/10/2013
Version 3.1	CSJ	0912-72-072	Station	23+20.52	Grnd. Elev.	44.82 ft
			Offset	25.63'RT	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
42.8			FILL, Brown sand with shells and gravel			7				
			FILL, Dark gray fat clay with shells and gravel	2	56.5	25	62	32	123	
39.3	5	9 (6) 6 (6)								
	10									
	15									
	20									
	25									
	30									
	35									
	40									
	45									
	50									
	55									
	60									

Remarks: WBS No. N-000806-0001-3

The ground water elevation was not determined during the course of this boring.

Driller: Van & Sons **Logger: EE** **Organization: HVJ Associates, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Harris	Hole	P-3	District	Houston
Highway	Almeda Road	Structure	Pavement	Date	5/13/2013
CSJ	0912-72-072	Station	59+98.97	Grnd. Elev.	38.86 ft
		Offset	19.10'LT	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			CLAY, Fat, stiff to hard, brown and gray (CH)			24				
						23				% Passing #200 Sieve: 87.6
		17 (6) 13 (6)		3	99.3	20	72	42	128	
33.4	5									
	10									
	15									
	20									
	25									
	30									
	35									
	40									
	45									
	50									
	55									
	60									

Remarks: WBS No. N-000806-0001-3

The ground water elevation was not determined during the course of this boring.

Driller: Van & Sons **Logger: EE** **Organization: HVJ Associates, Inc.**

DRILLING LOG

	County	Harris	Hole	P-4	District	Houston
WinCore	Highway	Almeda Road	Structure	Pavement	Date	5/13/2013
Version 3.1	CSJ	0912-72-072	Station	67+69.89	Grnd. Elev.	39.44 ft
			Offset	5.91'LT	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
38.4			PAVEMENT, See Below							
			CLAY, Fat, soft to stiff, brown and gray w/ sand at 2' (CH)			23				% Passing #200 Sieve: 78.5
						24				
		7 (6) 7 (6)		3	21.1	26	56	33	121	
33.9	5									
	10									
	15									
	20									
	25									
	30									
	35									
	40									
	45									
	50									
	55									
	60									

Remarks: WBS No. N-000806-0001-3. Pavement: 6" Concrete; Base: 6" Crushed Concrete.

The ground water elevation was not determined during the course of this boring.

Driller: Van & Sons **Logger: EE** **Organization: HVJ Associates, Inc.**

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SOIL SYMBOLS

Soil Types

SOIL GRAIN SIZE

Classification	Particle Size	Particle Size or Sieve No. (U.S. Standard)
Clay	< 0.002 mm	< 0.002 mm
Silt	0.002 - 0.075 mm	0.002 mm - #200 sieve
Sand	0.075 - 4.75 mm	#200 sieve - #4 sieve
Gravel	4.75 - 75 mm	#4 sieve - 3 in.
Cobble	75 - 200 mm	3 in. - 8 in.
Boulder	> 200 mm	> 8 in.

DENSITY OF COHESIONLESS SOILS

Density of Cohesionless Soil	TxDOT Cone Penetrometer Blow Count
Very Loose	0 - 8
Loose	8 - 20
Slightly Compact	20 - 40
Compact	40 - 80
Dense	80 - 100 (5")
Very Dense	100 (5") - 100 (0")

CONSISTENCY OF COHESIVE SOILS

Consistency	Deviator Stress Strength (psi)	TxDOT Cone Penetrometer Blow Count
Very Soft	0 - 3.48	0 - 8
Soft	3.48 - 13.9	8 - 20
Stiff	13.9 - 27.8	20 - 40
Very Stiff	27.8 - 55.6	40 - 80
Hard	> 55.6	80 - 100 (5")
Very Hard		100 (5") - 100 (0")

TxDOT Cone Penetrometer

Blows required to penetrate each of two consecutive 6-inch increments

If more than 50 blows are required, driving is discontinued and penetration at 50 blows is noted

TERMS DESCRIBING SOIL STRUCTURE

Slickensided	Fracture planes appear polished or glossy, sometimes striated
Fissured	Breaks along definite planes of fracture with little resistance to fracturing
Inclusion	Small pockets of different soils, such as small lenses of sand scattered through a mass of clay
Parting	Inclusion less than 1/4 inch thick extending through the sample
Seam	Inclusion 1/4 inch to 3 inches thick extending through the sample
Layer	Inclusion greater than 3 inches thick extending through the sample
Laminated	Soil sample composed of alternating partings of different soil type
Stratified	Soil sample composed of alternating seams or layers of different soil type
Intermixed	Soil sample composed of pockets of different soil type and laminated or stratified structure is not evident
Calcareous	Having appreciable quantities of calcium carbonate
Ferrous	Having appreciable quantities of iron
Nodule	A small mass of irregular shape

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KEY TO TERMS AND SYMBOLS
USED ON BORING LOGS
WBS No. N-000806-0001-3

PROJECT NO.: HG1018580

DRAWING NO.: PLATE A-10

APPENDIX B

SUMMARY OF LABORATORY TEST RESULTS

Project: Almeda Road Paving and Drainage
Location: Houston, Texas
Number: HG1018580
WBS No. N-000806-0001-3
CSJ No. 0912-72-072

Borehole	Depth	Liquid Limit	Plastic Limit	Plasticity Index	% Pass #200 Sieve	Moisture Content (%)	Unit Weight (pcf)	Shear Strength (UU) (tsf)	Shear Strength (Pocket Pen) (tsf)
B-1	0								0.83
B-1	1					19.8			
B-1	2								0.67
B-1	3	56	25	31	92	22.3	126.6	0.7	
B-1	4								1.5
B-1	5				77	11.8			
B-1	6								1.5
B-1	7					13.9			
B-1	8								1.5
B-1	9	42	19	23		32	120.8	0.86	
B-1	10								0.33
B-1	11				67	21			
B-2	0								0.58
B-2	1					17.2			
B-2	2								0.25
B-2	3				90	29.8			
B-2	4								0.42
B-2	5	53	20	33	91	30.4	127.2	0.38	
B-2	6								0.67
B-2	7					32	118.7	0.52	
B-2	8								0.42
B-2	9				96	33.7			
B-2	10								0.42
B-2	11	64	24	40		33.5	119.8	0.39	
B-3	0								1.25
B-3	1					17.1			
B-3	2								1.5
B-3	3	63	23	40		22			
B-3	4								1.42
B-3	5	45	17	28	57	15	124.3	1.38	
B-3	6								0.92
B-3	7					23.3			
B-3	8								0.5
B-3	9	40	15	25		20.7	128.5	0.42	
B-3	10								0.33
B-3	11					29.4			
B-4	1					11.1			
B-4	2								0.75

Project: Almeda Road Paving and Drainage
Location: Houston, Texas
Number: HG1018580
WBS No. N-000806-0001-3
CSJ No. 0912-72-072

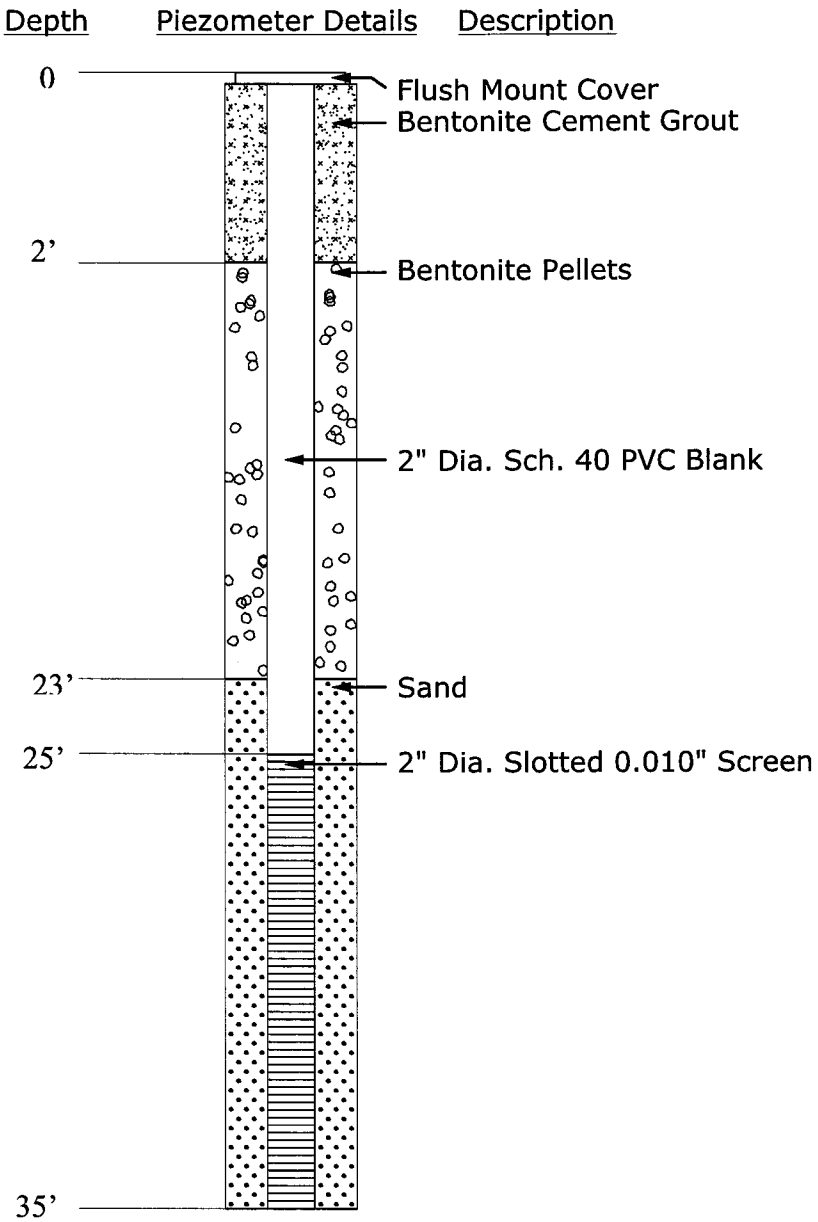
Borehole	Depth	Liquid Limit	Plastic Limit	Plasticity Index	% Pass #200 Sieve	Moisture Content (%)	Unit Weight (pcf)	Shear Strength (UU) (tsf)	Shear Strength (Pocket Pen) (tsf)
B-4	3				84	27.1			
B-4	4								0.5
B-4	5					22	120.6	0.5	
B-4	6								0.58
B-4	7					28.5			
B-4	8								1
B-4	9	45	17	28	88	33.3	125.3	0.5	
B-4	10								1
B-4	11					35.9	118.3	0.5	
B-4	12								0.67
B-4	13	82	29	53		33.3			
B-4	14								1
B-4	15					33.1			
B-4	16								0.83
B-4	17				85	34.5			
B-4	18								1
B-4	19	28	15	13		14.3			
B-4	23								0.92
B-4	24	27	14	13		16.5			
B-4	28								1.5
B-4	29	61	22	39		25.2	126.7	1.47	
B-4	34				43	19			
B-4	39				38	19.1			
B-4	43								1.5
B-4	44	34	17	17		20	129.2	2.13	
B-4	48								1.5
B-4	49	59	26	33		25.6	133.3	1.99	
B-4	54	55	22	33		26.2	129	1.86	
P-1	1	59	27	32		21			
P-1	3					16			
P-1	4	31	17	14		24	129	0.85	
P-2	1					7			
P-2	3	62	30	32		25	123	2.03	
P-3	1					24			
P-3	3				87.6	23			
P-3	4	72	30	42		20	128	3.57	
P-4	2				78.5	23			
P-4	3					24			

Project: Almeda Road Paving and Drainage
Location: Houston, Texas
Number: HG1018580
WBS No. N-000806-0001-3
CSJ No. 0912-72-072

Borehole	Depth	Liquid Limit	Plastic Limit	Plasticity Index	% Pass #200 Sieve	Moisture Content (%)	Unit Weight (pcf)	Shear Strength (UU) (tsf)	Shear Strength (Pocket Pen) (tsf)
P-4	4	56	23	33		26	121	0.76	
Total		**20**	**20**	**20**	**14**	**46**	**18**	**18**	**31**

APPENDIX C

PIEZOMETER INSTALLATION RECORDS



Water Level Readings

Date	Depth (ft.)	Elev. (ft.)
5/14/13	28.0	13.29
6/12/13	Dry	N/A

NOTES:

- Piezometer was installed on 5/13/13.
- See Plate 2 for boring location; see Plate A-4 for boring log.

HVJ
6120 S. Dairy Ashford Road
Houston, Texas 77072-1010
281.933.7388 Ph
281.933.7293 Fax

PIEZOMETER INSTALLATION REPORT
PIEZOMETER NO. PZ-1 (B-4)
WBS No. N-000806-0001-3/CSJ No. 0912-72-072

PROJECT NO.:	DRAWING NO.:
HG1018580	PLATE C-1

HV

Attention Owner: Confidentiality Privilege Notice on reverse side of owner's copy.

Texas Department of Licensing and Regulation

Water Well Driller/Pump Installer Program
P.O. Box 12157 Austin, Texas 78711 (512) 463-7880 FAX (512) 463-8616
Toll free (800) 803-9202
Email address: water.well@license.state.tx.us

This form must be completed and filed with the department and owner within 60 days upon completion of the well.

WELL REPORT

A. WELL IDENTIFICATION AND LOCATION DATA

1) OWNER

Name	Address	City	State	Zip
City of Houston Geotech Dept	611 Walker Floor 14	Houston	Tx	77002

2) WELL LOCATION

County	Physical Address	City	State	Zip
Harris	Almeda Rd at Dixie Dr	Houston	Tx	77030

Lat. ° ' " Long. ° ' " Grid # 65-21-6

3) Type of Work
☒ New Well ☐ Reconditioning ☐ Replacement ☐ Deepening

4) Proposed Use (check) ☒ Monitor ☐ Environmental Soil Boring ☐ Domestic ☐ Industrial ☐ Irrigation ☐ Injection ☐ Public Supply ☐ De-watering ☐ Testwell ☐ Rig Supply ☐ Stock or Livestock
If Public Supply, were plans approved? ☐ Yes ☐ No

5) N↑

6) Drilling Date
Started 5/13/2013
Completed 5/13/2013

Diameter of Hole

Dia. (in)	From (ft)	To (ft)
	Surface	
4	0	55

7) Drilling Method (check)
☐ Driven ☐ Air Rotary ☒ Mud Rotary ☐ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☐ Hollow Stem Auger ☐ Reverse Circulation ☐ Other

From (ft)	To (ft)	Description and color of formation material
0	2	Fill
2	10	Cl
10	18	Ch
18	28	Cl
28	33	Ch
33	43	ClSa
43	48	SaCl
48	55	Ch

(Use reverse side of Well Owner's copy, if necessary)

8) Borehole Completion ☐ Open Hole ☐ Straight Wall ☐ Under-reamed ☐ Gravel Packed ☒ Other 9&12
Gravel Packed interval from ft. to ft. Size

Casing, Blank Pipe, and Well Screen Data

Dia. (in.)	New Or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft) From	Setting (ft) To	Gage Casing Screen
2	n	Sch 40 PVC Riser	0	25	
2	n	Sch 40 PVC Screen	25	35	.010

9) Annular Seal Data: i.e. (from 0 ft to 100 ft #sacks & material 13 cement)
from 0 ft. to 20 ft. #sacks & material 2 cement
from 20 ft. to 22 ft. #sacks & material .5 bentonite
from ____ ft. to ____ ft. #sacks & material ____
Method Used tremmie
Distance to septic field or other concentrated contamination na ft.
Distance to Property Line na ft Method na
Verified: na

13) Plugged ☐ Well plugged within 48 hours

Casing left in well: Cement/Bentonite placed in well:

From (ft)	To (ft)	From (ft)	To (ft)	Material used & # Sacks

10) Surface Completion (If steel cased, leave blank)
☐ Surface Slab Installed ☐ Surface Sleeve Installed ☐ Pitless Adapter Used ☒ Alternative Procedure Used

14) Type Pump
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☐ Other na
Depth to pump bowls, cylinder, jet, etc., ft.

11) Water Level
Static level 20 ft. Date 5/13/2013
Artesian Flow ____ gpm

15) Water Test
Type test ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: na gpm with ____ ft. drawdown after ____ hrs.

12) Packers

Type	Depth	Type	Depth
20/40	22-55		

16) Water Quality
Type of water: ____ Depth of Strata: ____ Was a chemical analysis made? ☐ Yes ☒ No
Did you knowingly penetrate a strata which contains undesirable constituents? ☐ Yes ☒ No If yes, Continue:
Check One: ☐ Naturally poor-quality groundwater – type ____ ☐ Hydrocarbons (i.e. gas, oil, etc.) ☐ Hazardous material/waste contamination encountered ☐ Other (describe) ____

☐ *I certify that while drilling, deepening, or otherwise altering the above described well, undesirable water or constituents was encountered and the landowner was informed that such well must be completed or plugged in such a manner as to avoid injury or pollution.*

Company or Individual's Name (type or print) Van and Sons Drilling Service, Inc | Lic. No. 2903M
Address 312 John Alber | City Houston | State Tx | Zip 77076

Signature		6/24/2013	Signature	/ /
Licensed Driller/Pump Installer		Date	Apprentice	Date

Texas Department of License and Regulation

Water Well Driller/Pump Installer Program
P.O. Box 12157 Austin, Texas 78711 (512)463-7880 FAX (512)463-8616
Email address: water.well@license.state.tx.us

This form must be completed and filed with the department within 30 days following the plugging of the well.

PLUGGING REPORT

A. WELL IDENTIFICATION AND LOCATION DATA

1) OWNER

Name	Address	City	State	Zip
City of Houston Geo Dept	611 Walker Floor 14	Houston	Tx	77002

2) WELL LOCATION

County	Physical Address	City	State	Zip
Harris	Almeda Rd at Dixie Dr	Houston	Tx	77030

3) Owner's Well No. 1 | Long. ° ' " | Lat. ° ' " | Grid # 65-21-6

4) Type of Well ☐ Water ☒ Monitor ☐ Injection ☐ De-Watering

5) N↑

Drill, Pump Installer, or Landowner performing the plugging operations **must** locate and identify the location of the well within a specific grid on a full scale gridded map available from Texas Natural Resource Information Service. The location of the well should be denoted within the grid by placing a corresponding dot in the square to the right. The legal description is optional.

B) HISTORICAL DATA ON WELL TO BE PLUGGED (if available)

6) Driller: Eddie VanAntwerp | License No. 2903M

7) Drilled 05/13/2013 | 8) Diameter of hole 4 inches | 9) Total depth of well 35 feet.

C. CURRENT PLUGGING DATA

10) Date well plugged: 07/02/2013

12) Name of Driller/Pump Installer or Well Owner performing the plugging: Eddie VanAntwerp

License No. 2903M

13) CASING AND CEMENTING DATA RELATIVE TO THE PLUGGING OPERATIONS.

CASING LEFT IN WELL

DIAMETER (inches)	FROM (feet)	TO (feet)
2	0	35

CEMENT/BENTONITE PLUG(S) PLACED IN WELL

FROM (feet)	TO (feet)	SACKS
0	35	2

11) **REMOVE ALL REMOVEABLE CASING**

Please check box beside the method of plugging used

- ☒ Tremmie pipe cement from bottom to top.
- ☐ Tremmie pipe bentonite from bottom to 2 feet from surface, cement top 2 feet.
- ☐ Pour in 3/8 bentonite chips when standing water in well is less than 100 feet in depth, cement top 2 feet.
- ☐ Large diameter well filled with clay material from top to bottom.

COMMENTS

Tried to pull well
Top section of PVC broke off
Grouted well material in place

D. VALIDATION OF INFORMATION INCLUDED IN FORM

I certify that I plugged this well (or the well was plugged under my supervision) and that all of the statements herein are true and correct. I understand that failure to complete items 1 through 13 will result in the report(s) being returned for completion and resubmitted.

Company or Individual's Name (type or print): Van and Sons Drilling Service, Inc

Address: 319 John Alber | City: Houston | State: Tx | Zip: 77076

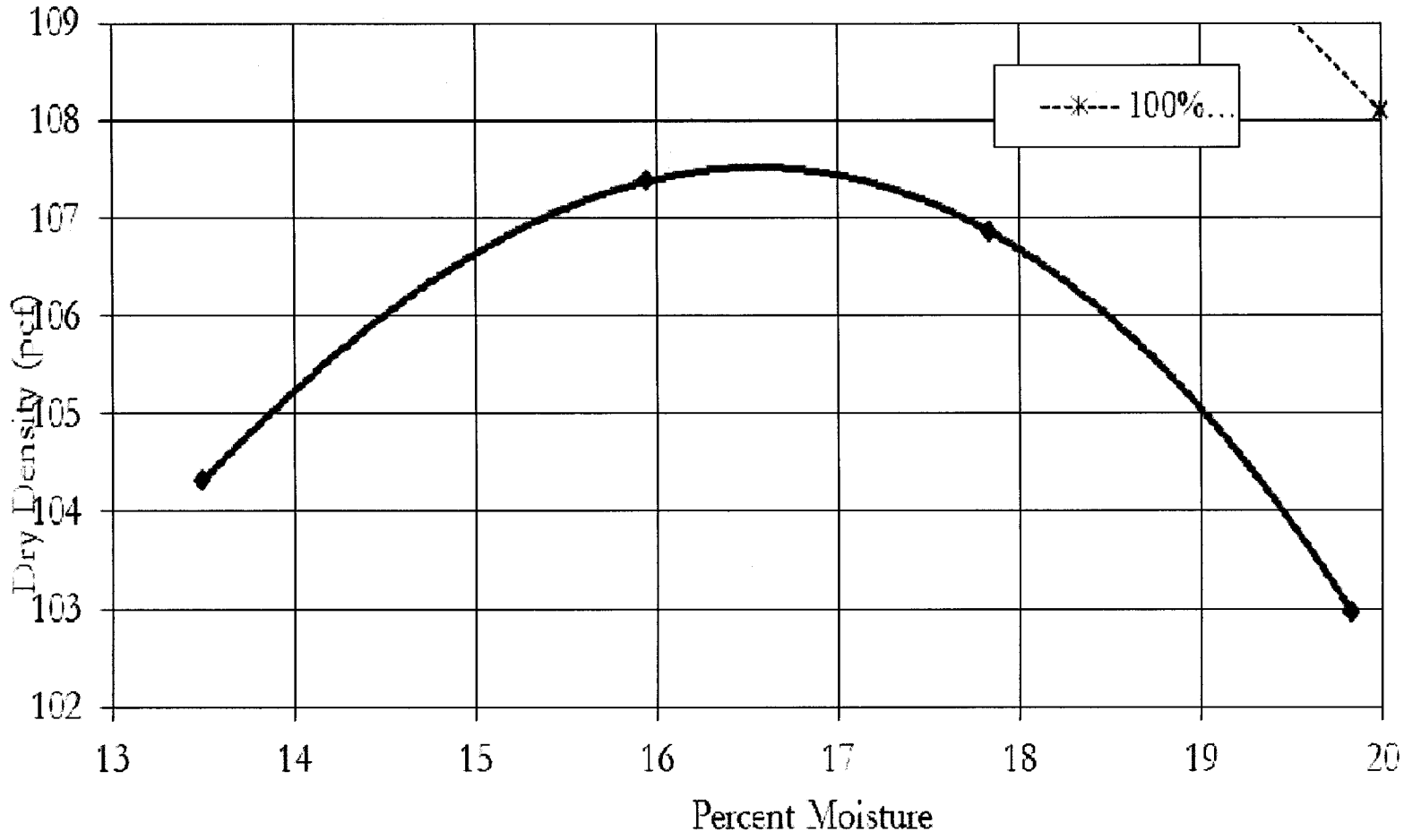
Signature	7/8/2013	Signature	/ /
Licensed Driller/Pump Installer	Date	Apprentice	Date

Form provided by Forms On-A-Disk, Inc. - Dallas, Texas - (214) 340-9429

RECEIVED
JUL 11 2013
ASSOCIATES

APPENDIX D

STANDARD PROCTOR AND CBR TEST RESULTS



TEST DATA

DATE TESTED:	5/21/13		LIQUID LIMIT :	55
TYPE OF MATERIAL :	Brown Fat Clay with Sand (CH)		PLASTICITY INDEX :	36
MAXIMUM DRY DENSITY :	107.6	pcf	-200 SEIVE % :	75.8
OPT. MOISTURE CONTENT :	16.6	%		

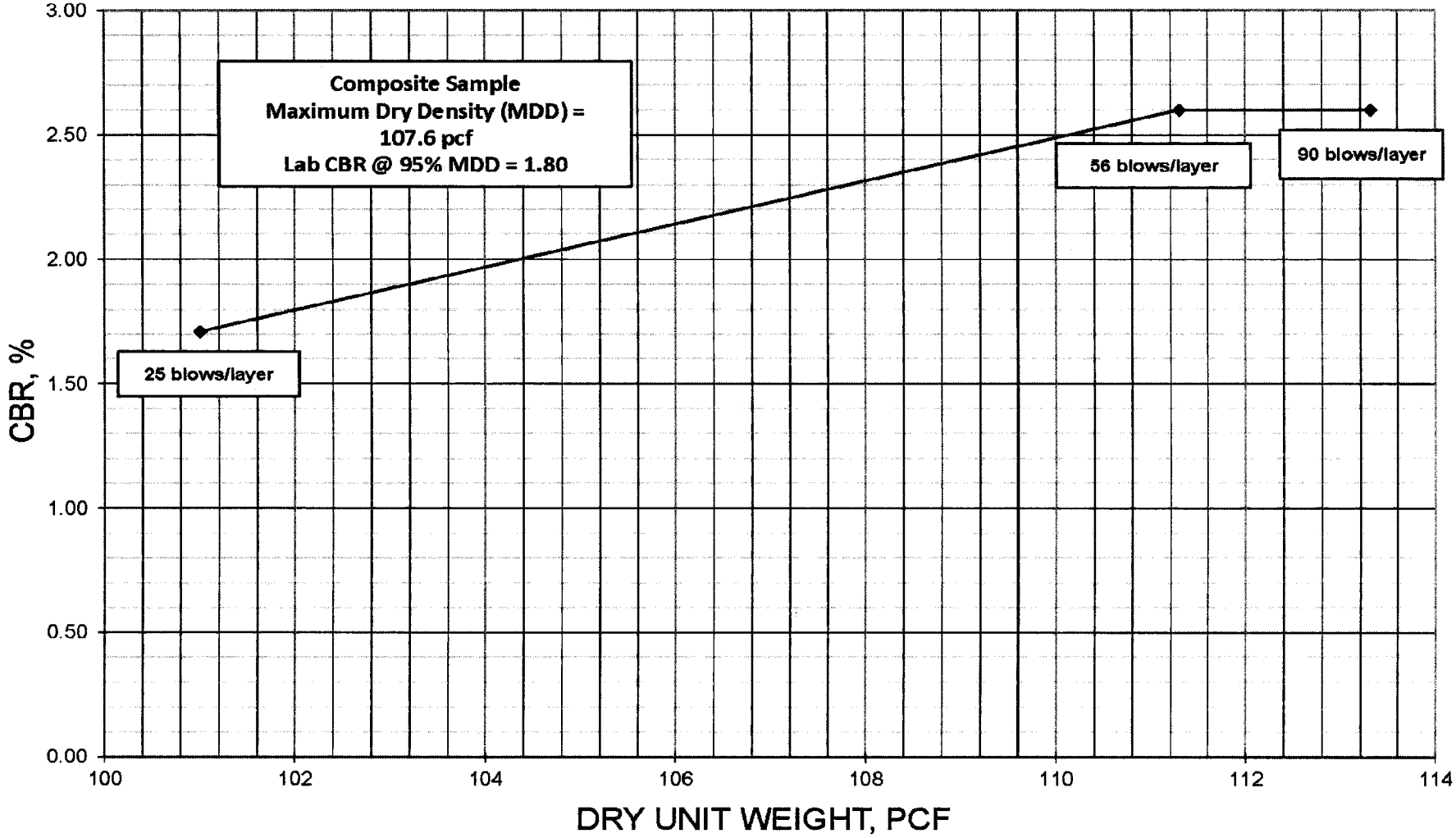
HVJ
6120 S. Dairy Ashford Road
Houston, Texas 77072-1010
281.933.7388 Ph
281.933.7293 Fax

DATE: 06/03/2013	APPROVED BY: ZA	PREPARED BY: AR

PROCTOR TEST RESULTS
ALMEDA ROAD PAVING AND DRAINAGE
WBS NO. N-000806-0001-3/CSJ NO. 0912-72-072

PROJECT NO.:	DRAWING NO.:
HG1018580	ATE D - 1

CALIFORNIA BEARING RATIO TEST RESULT



H V J

6120 S. Dairy Ashford Road
Houston, Texas 77072-1010
281.933.7388 Ph
281.933.7293 Fax

DATE: 06/03/2013	APPROVED BY: ZA	PREPARED BY: AR

CBR TEST RESULT
ALMEDA ROAD PAVING AND DRAINAGE
WBS NO. N-000806-0001-3/CSJ NO. 0912-72-072

PROJECT NO.:	DRAWING NO.:
HG1018380	PLATE D - 2

CBR (CALIFORNIA BEARING RATIO) OF LABORATORY COMPACTED SOILS ASTM D1883

Project: Almeda Road Paving and Drainage

Sample Location: Composite

Liquid Limit: 55 **Plastic Limit:** 19 **Plasticity Index:** 36

Method of Compaction: ☒ ASTM D698
☐ ASTM D1557

Sample Condition:	☒ soaked	☐ unsoaked	
No. of Blows:	**25**	**56**	**90**
Dry Density Before Soaking (pcf):	101.01	111.30	113.31
Dry Density After Soaking (pcf):	98.70	105.20	107.20
Moisture Content:			
Before Compaction (%):	16.4	16.0	15.7
Top 1-inch Layer After Soaking (%):	29.4	25.9	25.3
Swell (%):	7.54	3.56	3.65
Bearing Ratio (%): (☒ soaked ☐ unsoaked)	1.71	2.60	2.60

Surcharge: 10 lbs.

HVJ
6120 S. Dairy Ashford Road
Houston, Texas 77072-1010
281.933.7388 Ph
281.933.7293 Fax

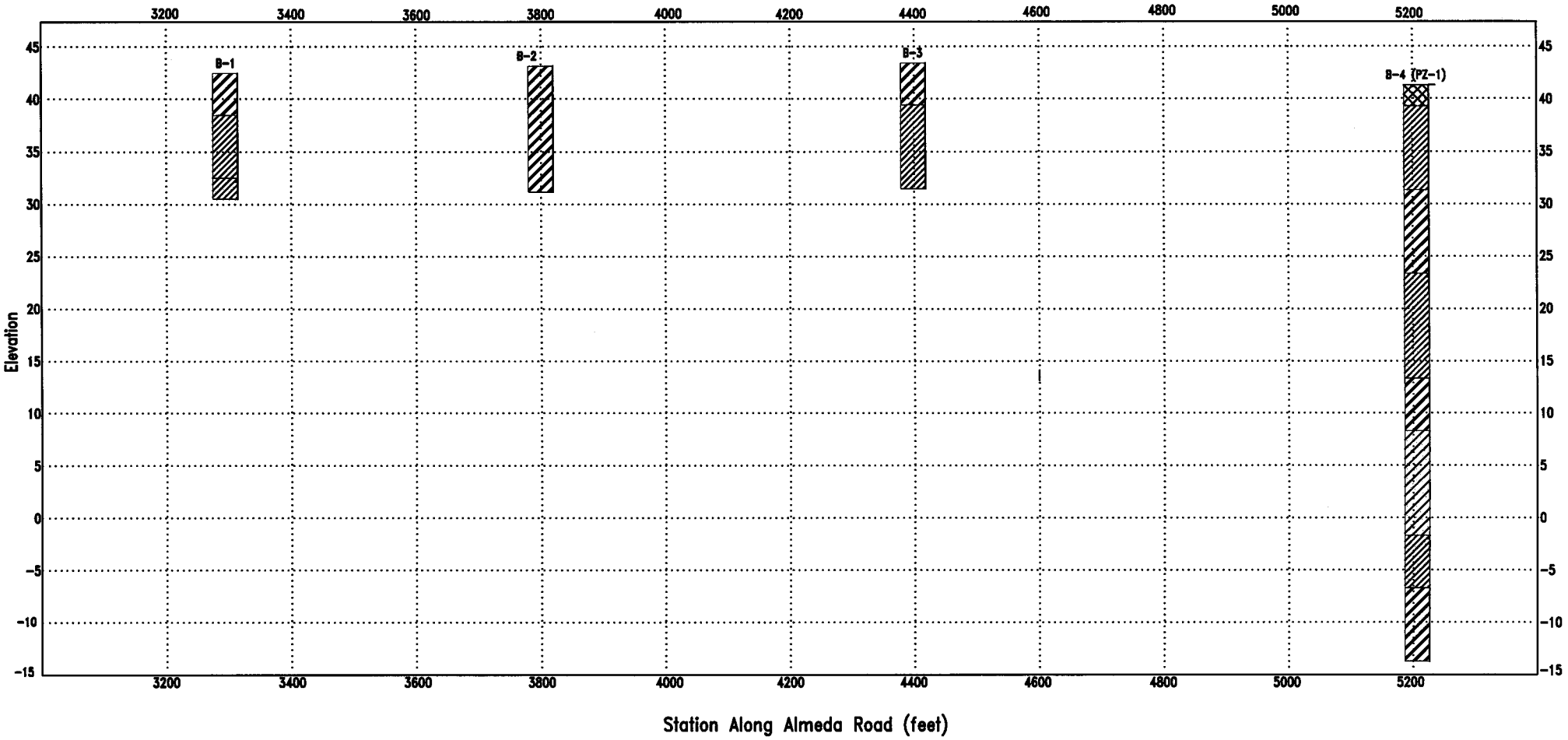
DATE: 06/04/2013	APPROVED BY: ZA	PREPARED BY: AR

CBR TEST SUMMARY
ALMEDA ROAD PAVING AND DRAINAGE
WBS NO. N-000806-0001-3/CSJ NO. 0912-72-072

PROJECT NO.: HG1018580	DRAWING NO.: PLATE D - 3

APPENDIX E

SOIL PROFILE



LEGEND:

- Concrete
- Fill (made ground)
- Sandy Clay
- Silt
- Asphaltic Concrete
- Fat Clay
- Base
- Clayey Sand
- Sand

Note:
Data concerning subsurface conditions obtained at boring locations only.

HVJ ASSOCIATES

11/07/2013

APPROVED BY: ZA

PREPARED BY: KL

BORING LOG PROFILE
ALMEDA ROAD PAVING AND DRAINAGE
WBS No: N-000806-0001-3/CSJ No: 0912-72-072

PROJECT NO.: HG1018580

DRAWING N

PLATE E-1

TRENCH SAFETY DESIGN CONSIDERATIONS LETTER

HVJ ASSOCIATES

Houston
Austin
Dallas
San Antonio

6120 S. Dairy Ashford Rd.
Houston, TX 77072-1010
281.933.7388 Ph
281.933.7293 Fax
www.hvj.com

May 15, 2014

Mr. Thusitha Silva, PE
Principal
Walter P Moore and Associates, Inc.
1301 McKinney, Suite 1100
Houston, Texas 77010

Re: Geotechnical Investigation
Almeda Road Paving and Drainage
From Old Spanish Trail (OST) to South MacGregor Way
Owner: City of Houston
WBS No. N-000806-0001-3
TxDOT CSJ No. 0912-72-072
HVJ Project No. HG1018580

Dear Mr. Silva:

The project includes reconstruction of Almeda Road from Old Spanish Trail (OST) to South MacGregor in Houston, Texas. The project also involves sanitary sewer replacement crossing Almeda Road at the intersection of Dixie Road and also water line replacement along Almeda Road between Lockett Street and Holcombe Boulevard. Based on the information provided to us by Walter P Moore and Associates, Inc., we understand that the invert depth of the water line is about 7 feet below the existing grade at most locations, and 17 feet below the existing grade near the sanitary sewer location, that open cut techniques will be used for the installation of the utility lines. This study was performed in general accordance with the City of Houston Department of Public Works and Engineering Infrastructure Design Manual dated July 2011.

Trench Excavation Considerations. Excavations should satisfy two requirements. First, the soils above final grade must be removed without disturbing the soil below excavation grade, which will support constructed facilities. Second, the sides of the excavation must be stable to prevent damage to adjacent streets and facilities as a result of either vertical or lateral movements of the soil. In addition, a satisfactory excavation procedure must include an adequate construction dewatering system to lower and maintain the water level at least a few feet below the lowest excavation grade.

Excavation Stability. Excavations shall be shored, laid back to a stable slope or some other equivalent means may be used to provide safety for workers and adjacent structures. Assessment of the need for excavation sloping, use of trench boxes or other measures required to provide a stable excavation, and the use of appropriate construction practices and/or equipment is the contractor's responsibility. The following comments are intended to represent common solutions to stability problems encountered in similar soil conditions in the Houston area, and may not be construed as excavation system design recommendations. The excavation operations shall be performed in accordance with 29 CFR Part 1926 subpart P, as amended, including rules published in the Federal Register, Vol. 54, No. 209, dated October 31, 1989, as a minimum. In addition, the provisions of legislation enacted by the Texas Legislature and City of Houston should be satisfied.

Excavations Shallower Than Five Feet. Trenches that are less than five feet deep should be appropriately protected when any indication of hazardous ground movement is anticipated. Based on the soil conditions revealed by the borings, all trenches shallower than five feet may be excavated with side slopes of one vertical to one and one-half horizontal. If there are any indications of sloughing during excavation, the side slopes should be flattened.

Excavations Deeper Than Five Feet. Trenches that are deeper than five feet should be shored, laid back to a stable slope, or some other appropriate means of protection should be provided where workers might be exposed to moving ground or caving. The slopes may be constructed in accordance with Table B-1 and shoring may be constructed in accordance with Table C-1.1, Table C-1.2 and Table C-1.3 of 29 CFR Part 1926. Soil types required by Table C-1.1, Table C-1.2 and Table C-1.3 (Trench Shoring - Minimum Timber Requirements) are given below:

Boring No.	Street Name	Station No.	OSHA Soil Type			
			Depth of Trench (ft.)			
			0 – 5	5 – 10	10 – 15	15-20
B-1	Almeda Road	33+00.42	B	B	-	-
B-2	Almeda Road	38+01.30	C	C	-	-
B-3	Almeda Road	44+00.24	B	C	-	-
B-4	Almeda Road	52+56.82	C	C	C	B

Please call us if you have any questions or need more information.

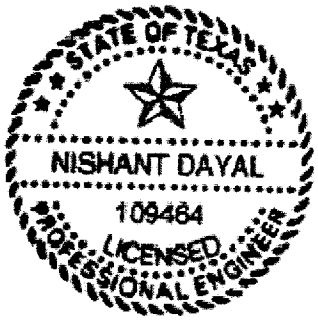
Sincerely,

HVJ ASSOCIATES, INC.
Texas Firm Registration No. F-000646

ND

Nishant Dayal, P.E.
Project Manager

ND/ar



Date: 05/15/2014

The seal appearing on this document was authorized by Nishant Dayal, PE 109464 on May 15, 2014. Alteration of a sealed document without proper notification to the responsible engineer is an offense under the Texas Engineering Practice Act.

SPECIAL PROVISION – IMPORTANT NOTICE TO CONTRACTORS

UTILITY CERTIFICATION

CSJ : 0912-70-082
Highway: CS
Project : C 912-70-82
County : Harris
Limits : On Memorial Drive from N. Kirkwood Road to Eldridge Parkway

UTILITY CERTIFICATION

This is to certify that all utilities will be adjusted in accordance with the appropriate directives covering the adjustment of utilities, except those utilities listed below which will be adjusted in accordance with appropriate directives.

Location	Description	Utility Owner	Expected Completion Date
STA 8+06 to STA 111+20	Underground & Aerial communications	AT&T Texas	December 2016
STA 8+25 to STA 109+28	2" to 6" Gas Lines	CenterPoint Energy - Gas	July 2015 Contractor may work in other areas

RIGHT OF WAY CERTIFICATION

This is to certify that all right-of-way has been acquired in accordance with the current FHWA directives concerning the acquisition of the real property, except those listed below, which will be acquired in accordance with FHWA directives. The following parcels have not been acquired there is not a right to use and to occupy.

Parcel Description	Owner	Anticipated Acquisition Date
N/A		

Memorial Drive from N. Kirkwood Road to Eldridge Parkway
0912-70-082

RELOCATION ASSISTANCE PROGRAM CERTIFICATION

This is to certify that this project did not cause any displacements, and the steps relative to relocation advisory assistance and payments under the current FHWA directive(s) covering the administration of the Highway Relocation Assistance Program were not required.

RAILROAD WORK

This is to certify that this project did not require any railroad work.

RIGHT OF WAY ENCROACHMENTS

This is to certify that no right of way encroachments existed within the limits of this project or all removal of encroachments has been completed.

This certification is issued with the understanding that State and/or Federal funds will not participate in any cost or time suspensions caused by delays in acquiring the right-of-way or adjusting utilities.

John Kuo, P.E.
Assistant Director
Public Works and Engineering Department

3/23/15
Date

STORM WATER POLLUTION PREVENTION PLAN NARRATIVES

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

FOR

ALMEDA ROAD
FROM OLD SPANISH TRAIL TO S. MACGREGOR WAY
WBS No. N-000806-0001-3

Prepared For:

CITY OF HOUSTON
PUBLIC WORKS AND ENGINEERING DEPARTMENT

STATE OF TEXAS
VINCENT N. JACOB
98325
LICENSED PROFESSIONAL ENGINEER

Prepared by:

iSani CONSULTANTS
engineers construction managers
3143 Yellowstone Blvd.,
Houston, Texas 77054
Ph: (713) 747-2399
TBPE Firm Registration # 4575

SWPPP Report Prepared in **April 2014**

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A. VICINITY MAP
B. PROJECT LOCATION MAP

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A. Notice of Intent (NOI) Forms
B. Items to be Posted at Site
C. Certification Forms
D. Inspection and Maintenance Forms
E. Notice of Termination (NOT) Forms
F. SWPPP Drawings
G. TPDES General Permit No. TXR150000 (Issued Feb 15, 2008)

Technical Specifications (Included with Construction Documents)

1. REGULATIONS

Section 405 of the Water Quality Act of 1987 added section 402(p) of the Clean Water Act which requires the Environmental Protection Agency to develop a phased approach to regulating storm water discharges under the National Pollutant Discharge Elimination System (NPDES) program.

On November 16, 1990, EPA published regulations under the NPDES program which defined the term "storm water discharge associated with industrial activity to include storm water discharges from construction activities (including clearing, grading, and excavation activities) that result in the disturbance of five or more acres of total land area, including areas that are part of a larger common plan of development or sale. On September 9, 1992, EPA published final regulations for NPDES General Permits for Storm Water Discharge from Construction Sites, which are currently in effect.

On February 19, 2013 the Texas Pollutant Discharge Elimination System (TPDES) General Permit Number TXR 150000 was issued (the Construction General Permit) with an effective date of March 5, 2013. Since this project includes construction activities covering approximately **24.20** acres and is greater than 5 acres, TPDES permitting for Large Construction Activities applies. A Notice of Intent prior to the construction is followed by a Notice of Termination for this contract.

Walter P. Moore and Associates, Inc. has directed Isani Consultants to prepare this Storm Water Pollution Prevention Plan (SW3P) and to assist in the completion of the proper notices under the appropriate TPDES Construction General Permit Number TXR150000 for City of Houston Project Almeda Road from Old Spanish Trail to S. MacGregor Way (WBS No: N-000806-0001-3) .

2. PROJECT INFORMATION

The proposed drainage and paving project is located in the southwest part of Houston. The Project Area is generally bounded by S. MacGregor Way on the north, Corder Street on the south, SH288 on the east, and Cambridge Street on the west (Key Map Numbers 533 E, F & J, Council District D).

Project location and limits are shown in the Vicinity Map and Location Map in Exhibits A and B respectively. The GIMS Map numbers for the project are 5354B, 5355B & 5355D.

Operator
City of Houston
Department of Public Works and Engineering
611 Walker, 15th Floor
Houston, Texas 77002

Contractor Name and Address : TBD

Subcontractor Name and Address

Landscape (Seeding)
TBD

Construction Waste Disposal
TBD

Hazardous Waste Disposal
TBD

3. SITE DESCRIPTION

A. Description of the Construction Activity

The general scope of this project is the reconstruction of existing 4 lane asphalt roadway from Old Spanish Trail to South MacGregor Way to 6 lanes reinforced concrete pavement with medians, curbs and all public utility upgrades. The work also includes site and pavement restoration, street lighting, tree protection, storm water pollution prevention and traffic control in relation to the construction of the roadway.

B. Sequence of Major Activities

The contract duration is **540** calendar days. The following Construction Sequencing (Phasing Layout) is recommended:

The stabilized construction access, staging parking and concrete truck wash structures will be constructed first. The project will be generally constructed beginning at downstream and terminating at upstream.

Phase 1: Construct medians and inside lanes, while keeping one to two lanes of existing traffic.

Phase 2: Construct outside lanes and ditches, with traffic now on the newly constructed inside lanes.

At the end of installation of storm sewer system on each phase, perform pavement restoration according to standard City of Houston details.

C. Estimated Total Site Area and Disturbed Area

The Construction Zone Area is estimated as: **24.20 Acres** which is the area within the right-of-way of the proposed improvements.

D. Runoff Coefficient

The rainfall-runoff coefficient for this project is approximated as **0.66** for the project area which is mixed residential and commercial.

E. Name of Receiving Water and Extent of Wetlands

The storm waters from the project area outfall to Storm System on Almeda Road which eventually outfalls to Brays Bayou on the north. The project area site is a developed land and **no wetlands have been identified** in the project area.

F. Soils

The soil conditions will be updated once the Geotechnical Investigation is completed for the project.

4. CONTROLS

A. Erosion and Sediment Controls

i. Major erosion and sediment controls are shown on the Drawings included with Construction Documents.
   (1) The onsite staging, parking areas and construction exits will be stabilized using coarse aggregate. A filter fabric fence will surround the staging and parking area.
   (2) In completed pavement sections, all disturbed soils in the right-of-way will be stabilized with seeding, hydromulch or block sod to minimize erosion and sediment as soon as possible.
   (3) At the end of water line work, all disturbed areas that are not paved will be seeded or hydromulched or sodded as required by Section 01740 (Site Restoration) of the Contract Specifications.

ii. Structural Practices
   (1) Inlet protection barriers will be placed at the inlets as shown on the construction drawings to remove sediments from runoff.
   (2) Filter Fabric fencing will be placed between the back of the curb and the excavated pit to capture sediment from the disturbed area.
   (3) A reinforced filter fabric fence will be placed in the ditches downstream of the work areas.
   (4) A vehicle/equipment wash area stabilized with coarse aggregate will be established near the staging/parking area for trucks and equipment leaving the site.

iii. Sequence of Major Erosion and Sediment Control Activities
   The erosion and sediment control activities for the project will occur in phases. The staging, parking and construction exits will be constructed at the first phase. All construction vehicles that travel over the disturbed areas will be washed at these construction exits prior to leaving the site. The wash-down water will drain to a sediment trap where the sediments will be separated from the clean water. The sediments will be disposed and the clean water will drain to the existing storm sewer system. During the excavation phase of the project, dump trucks that are to be used for hauling away the excavated material will remain parked on the existing pavement. Any loose excavated material that falls on the pavement will be swept back into the excavated area. During a rainfall event, the excavated area will serve as a sediment trap and will prevent disturbed soils from

being carried to the storm inlets. All materials and supply trucks shall remain parked on existing pavement during their unloading. These steps will minimize the number of vehicles that need to be washed down. Once the excavated area is repaved, backfilled and re-graded, the disturbed soils will be planted with solid sod, seeded or hydro-mulched. Lastly, the construction exit, staging and parking areas will be removed and stabilized.

Completion of the project is expected within **540** calendar days.

B. Storm Water Management

i. Due to site restrictions, detention, retention and infiltration systems for storm water treatment are not attainable. The re-vegetated landscaping strips will be used to the extent practicable for flow attenuation purposes.
ii. Storm water from the roadway will discharge into the open ditch and/or curb and gutter system, and then drain into an existing storm sewer. No velocity dissipation devices are needed.

C. Other Controls

i. Waste Disposal - Waste Materials

All waste materials will be collected and stored in securely lidded metal dumpsters rented from the _____ which is a licensed solid waste management company. The dumpsters will meet all local and State solid waste management regulations. All trash and construction debris from the site will be deposited in the dumpsters. The trash and debris will be hauled to an approved landfill. No construction waste material will be buried on site. All personnel will be instructed regarding the correct procedure for waste disposal. Notices stating these practices will be posted in the office trailer and the individual who manages the day-to-day site operations will be responsible for seeing that these procedures are followed.

ii. Waste Disposal - Hazardous Waste

Hazardous waste is expected to be generated or encountered in the vicinity. In the event that hazardous waste is encountered all hazardous waste materials will be disposed of in the manner specified by local or State regulation or by the manufacturer, by _____company, a licensed hazardous waste management contractor. The individual, who manages day-to-day site operations, will be responsible for seeing that these practices are followed.

iii. Waste Disposal - Sanitary Waste
All sanitary waste will be regularly collected from the portable units by the _____company, a licensed sanitary waste management contractor.

D. Off Site Vehicle Tracking

i. A stabilized construction exit will be provided to help reduce vehicle tracking of sediments.

ii. A stabilized vehicle/equipment washing area will be provided to help remove dirt and loose material from vehicles and equipment. Wash water will be directed to sediment traps, with eventual discharge into storm sewer system.

iii. The paved streets adjacent to the site entrance will be cleaned daily, as necessary, to remove any excess mud, dirt, or rock tracked from the site.

E. Demonstration of Compliance with State or Local Plans.

The proposed project will be in compliance with applicable State and local waste disposal and sanitary sewer regulations.

F. Approved State or Local Plans

There is no approved State or local site plan requirement for storm water management or erosion and sediment control.

5. MAINTENANCE

A. The following is a list of erosion and sediment controls to be used on this project.

i. Stabilization Practices

(1) Stabilized construction exits
(2) Stabilized onsite staging and parking areas
(3) Hydromulch or block sod on disturbed soil as soon as possible
(4) Hydromulch or block sod on all disturbed areas that are not paved, upon completion of paving work

ii. Structural Practices

(1) Inlet protection barriers
(2) Filter fabric fences
(3) Stabilized vehicle/equipment wash area, with wash water directed to a sediment trap, and then released into a diversion swale
(4) Immediate removal of trench excavation spoils or backfilling in a continuous operation
(5) Storm sewers, gutters and inlet protection barriers for the Stage I storm sewer inlets

iii. To maintain the above practices, the following will have to be done:

(1) Maintenance and repairs will be conducted within 24 hours of inspection report (see Section 6 below).
(2) Sediment will be removed from behind the reinforced filter fabric barriers, or other device when it becomes about 1/3 the height of the device.
(3) Sediment will be removed from the sediment trap when storage capacity has been approximately 50% filled.
(4) Any sediment in the storm sewer inlets will be removed.
(5) All temporary controls will be removed after the disturbed areas have been stabilized.

6. INSPECTIONS

A. A qualified person will be delegated authority per the regulations **(TPDES General Permit TXR150000)**. Each contractor will designate a qualified person or persons to perform the following inspections:

i. Disturbed areas and areas used for storage of materials that are exposed to precipitation will be inspected for evidence of, or the potential for, pollutants entering the drainage system.

ii. Erosion and sediment control measures identified in the plan will be observed to ensure that they are operating correctly.

iii. Where discharge locations or points are accessible, they will be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.

iv. Locations where vehicles enter or exit the site will be inspected for evidence of offsite sediment tracking.

v. The vehicle/equipment wash area will be inspected for loss of aggregate, proper drainage, and proper maintenance of sediment trap and washing equipment.

vi. The inspection will be conducted by the responsible person at least once every week and within 24 hours after a storm event of 0.5 inch or greater.

vii. After a portion of the site is finally stabilized, inspection will be conducted at least once every month until the entire site is stabilized.

B. Based on the results of the inspection, the site description (Section 3) and control measures (Section 4) of this SWPPP will be revised as appropriate, but in no case later than 7 calendar days following the inspection.

C. A report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the storm water pollution prevention plan, and actions taken in accordance with item "B" above will be made and retained as part of the storm water pollution prevention plan for at least three years from the date that the site is finally stabilized. The report will be signed in accordance with Section 01410 (TPDES Requirements (with Attachments)) of the Contract Specifications.

Copies of the forms to be used for the Inspection and Maintenance reports are included in Appendix D of this plan.

7. NON-STORM WATER DISCHARGES

Inventory for Pollution Prevention Plan

The following substances listed below are expected to be present on site during construction:

Concrete
Hydrated lime
Motor fuel
Motor oil and other lubricants
Fertilizers
Detergents
Adhesives
Waterproofing materials
Wood
Steel
Paint
Solvents
Plastic pipe
Sand, clean or Portland cement stabilized
Crushed aggregates, limestone, rock
Benzene

A. Spill Prevention
   i. The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to storm water runoff.

B. Good Housekeeping
   i. The following are good housekeeping practices to be followed on site during the construction project.
      (1) An effort will be made to store only enough product required to do the job.
      (2) All materials stored onsite will be stored in a neat, orderly *manner* in their appropriate container and, if possible, under a roof or other enclosure.
      (3) Products will be kept in their original containers with the original manufacturer's label.
      (4) Substances will not be mixed with one another unless recommended by the manufacturer.
      (5) Whenever possible, all of a product will be used up before disposing of the container.
      (6) Manufacturers' recommendations for proper use and disposal will be followed.

(7) The site superintendent will inspect daily to ensure proper use and disposal of materials onsite.

C. Hazardous Products: These practices will be used to reduce the risks associated with hazardous materials, if hazardous materials are used.

i. Keep products in original containers unless they are not re-sealable.
ii. Original labels and material safety data will be retained.
iii. If surplus product must be disposed of it will be done according to manufacturers' recommended methods or according to State and local regulations.

D. Product Specific Practices
The produce specific practices to be followed are listed in Table I.

E. Spill Prevention Practices
The spill prevention practices to be followed are listed in Table I.

TABLE I
Product Specific Practices

The following product specific practices will be followed onsite:

Petroleum Products: All onsite vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers that are clearly labeled. Any asphalt substances used onsite will be applied according to the manufacturer's recommendations.

Fertilizers: Fertilizers used will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked in the soil to limit exposure to storm water. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bid to avoid spills.

Paints: All containers will be tightly sealed and stored when not required for use. Excess paint will not be discharged to the storm sewer system but will be properly disposed of according to manufacturers' instructions or State and local regulations.

Concrete Trucks: Concrete trucks will not be allowed to wash out or discharge surplus concrete or drum wash water on the site.

Spill Prevention Practices

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup:

Manufacturers' recommended methods for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.

Materials and equipment necessary for spill cleanup will be kept in the material storage area onsite. Equipment and materials will include but not be limited to brooms, dustpans, mops, rags, gloves, goggles, kitty liner, sand, sawdust, and plastic and metal trash containers specifically for this purpose.

All spills will be cleaned up immediately after discovery.

The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance,

Spills of toxic or hazardous material will be reported to the appropriate State or local government agency, regardless of the size.

The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring and how to clean up the spill if there is another one. A description of the spill, what caused it, and the cleanup measures will also be included.

Mr. / Ms. _____, the site superintendent responsible for the day-to-day site operations, will be the spill prevention and cleanup coordinator. He will designate at least three other site personnel who will receive spill prevention and cleanup training. These individuals will each become responsible for a particular phase of prevention and cleanup. The names of responsible spill personnel will be posted in the material storage area and in the office trailer onsite.

8. TECHNICAL SPECIFICATIONS

This section is not required by the General Permit, but is included for information purposes.

Control measures are listed in the *Storm Water Management Handbook for Construction Activities* prepared by Harris County/Harris County Flood Control District and the City of Houston, 2006 Edition. The specifications included in this project are given below:

ITEMS SPECIFIED

Specifications

01410	TPDES Requirements (with attachments)
01570	Storm Water Pollution Control
01575	Stabilized Construction Exit
01576	Waste Material Disposal
01578	Control of Ground Water
02921	Hydromulch Seeding
02922	Sodding

Standard Abbreviations

FF	Filter Fabric Fence
RFB	Reinforced Filter Fabric Barrier
IPB I	Curb Inlet Protection Barrier - Stage I
IPB II	Curb Inlet Protection Barrier - Stage II & Existing
SCA	Stabilized Construction Exit

Drawing Sheet's Name

Storm Water Pollution Prevention Plan (Sheet 1 of 7)
Storm Water Pollution Prevention Plan (Sheet 2 of 7)
Storm Water Pollution Prevention Plan (Sheet 3 of 7)
Storm Water Pollution Prevention Plan (Sheet 4 of 7)
Storm Water Pollution Prevention Plan (Sheet 5 of 7)
Storm Water Pollution Prevention Plan (Sheet 6 of 7)
Storm Water Pollution Prevention Plan (Sheet 7 of 7)

TCEQ NOTICE OF INTENT

CITY OF HOUSTON

TCEQ Office Use Only
Permit No.:
RN:
CN:
Region:

TCEQ Notice of Intent (NOI) for Stormwater Discharges Associated with Construction Activity under TPDES General Permit (TXR150000)

IMPORTANT:

- Use the INSTRUCTIONS to fill out each question in this form.
- Use the CHECKLIST to make certain all you filled out all required information. Incomplete applications **WILL** delay approval or result in automatic denial.
- Once processed your permit can be viewed at: http://www2.tceq.texas.gov/wq_dpa/index.cfm

ePERMITS: Sign up now for online NOI: https://www3.tceq.texas.gov/steers/index.cfm
Pay a $225 reduced application fee by using ePermits.

APPLICATION FEE:

- You must pay the **$325** Application Fee to TCEQ for the paper application to be complete.
- Payment and NOI must be mailed to separate addresses.
- Did you know you can pay on line?
  - Go to https://www3.tceq.texas.gov/epay/index.cfm
  - Select Fee Type: GENERAL PERMIT CONSTRUCTION STORM WATER DISCHARGE NOI APPLICATION
- **Provide your payment information below, for verification of payment:**

☐ Mailed — Check/Money Order No.: _____
Name Printed on Check: _____

☐ EPAY — Voucher No.: _____
Is the Payment Voucher copy attached? ☐ Yes

RENEWAL: Is this NOI a Renewal of an existing General Permit Authorization? (Note: A permit cannot be renewed after June 3, 2013.)

☐ Yes The Permit number is: TXR15_____
(If a permit number is not provided, a new number will be assigned.)
☒ No

1) OPERATOR (Applicant)

a) If the applicant is currently a customer with TCEQ, what is the Customer Number (CN) issued to this entity? You may search for your CN at: http://www12.tceq.texas.gov/crpub/index.cfm?fuseaction=cust.CustSearch

CN 600128995

b) What is the Legal Name of the entity (applicant) applying for this permit?
CITY OF HOUSTON - Public Works Department
(The legal name must be spelled exactly as filed with the Texas Secretary of State, County, or in the legal document forming the entity.)

c) What is the name and title of the person signing the application? The person must be an executive official meeting signatory requirements in TAC 305.44(a).
Prefix (Mr. Ms. Miss): Mr.
First/Last Name: J. Timothy Lincoln Suffix: _____
Title: Senior Assistant Director Credential: _____

d) What is the Operator Contact's (Responsible Authority) contact information and mailing address as recognized by the US Postal Service (USPS)? You may verify the address at: http://zip4.usps.com/zip4/welcome.jsp
Phone #: (832) 394-9140 ext: _____ Fax #: _____
E-mail: _____
Mailing Address: 611 Walker
Internal Routing (Mail Code, Etc.): 17th Floor
City: Houston State: Texas ZIP Code: 77002
If outside USA: Territory: _____ Country Code: _____ Postal Code: _____

e) Indicate the type of Customer (The instructions will help determine your customer type):

☐ Individual	☐ Limited Partnership	☐ Sole Proprietorship-DBA
☐ Joint Venture	☐ General Partnership	☐ Corporation
☐ Trust	☐ Estate	☐ Federal Government
☐ State Government	☐ County Government	☒ City Government
☐ Other Government		

f) Independent Operator? ☐ Yes ☒ No
(If governmental entity, subsidiary, or part of a larger corporation, check "No".)

g) Number of Employees:
☐ 0-20; ☐ 21-100; ☐ 101-250; ☐ 251-500; or ☒ 501 or higher

h) Customer Business Tax and Filing Numbers:
(REQUIRED for Corporations and Limited Partnerships. Not Required for Individuals, Government, or Sole Proprietors)
State Franchise Tax ID Number: _____
Federal Tax ID: _____
Texas Secretary of State Charter (filing) Number: _____
DUNS Number (if known): _____

2) APPLICATION CONTACT

If TCEQ needs additional information regarding this application, who should be contacted?

Is the application contact the same as the applicant identified above?

☒ Yes, go to Section 3). ☐ No, complete section below.

Prefix (Mr. Ms. Miss): _____
First/Last Name: _____ Suffix: _____
Title: _____ Credential: _____

Organization Name:_____
Phone No.:_____ ext:_____ Fax Number:_____
E-mail:_____
Mailing Address:_____
Internal Routing (Mail Code, Etc.):_____
City:_____ State:_____ ZIP Code:_____
Mailing Information if outside USA:
Territory:_____ Country Code:_____ Postal Code:_____

3) REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE

If the site of your business is part of a larger business site or if other businesses were located at this site before yours, a Regulated Entity Number (RN) may already be assigned for the larger site. Use the RN assigned for the larger site. Search TCEQ's Central Registry to see if the larger site may already be registered as a regulated site at: http://www12.tceq.texas.gov/crpub/index.cfm?fuseaction=regent.RNSearch.

If the site is found, provide the assigned Regulated Entity Reference Number and provide the information for the site to be authorized through this application below. The site information for this authorization may vary from the larger site information.

a) TCEQ issued RE Reference Number (RN): RN_____

b) Name of project or site (the name known by the community where located):
Almeda Road from Old Spanish Trail to S. MacGregor Way

c) In your own words, briefly describe the primary business of the Regulated Entity: (Do not repeat the SIC and NAICS code):
City Government

d) County (or counties if > 1) Harris County

e) Latitude: 29d 42' 16.98" N Longitude: 95d 23' 5.58"W

f) Does the site have a physical address?
☐ Yes, complete Section A for a physical address.
☒ No, complete Section B for site location information.

Section A: Enter the physical address for the site.
Verify the address with USPS. If the address is not recognized as a delivery address, provide the address as identified for overnight mail delivery, 911 emergency or other online map tools to confirm an address.

Physical Address of Project or Site:
Street Number: _____ Street Name: _____
City: _____ State: _____ ZIP Code: _____

Section B: Enter the site location information.
If no physical address (Street Number & Street Name), provide a written location access description to the site. (Ex.: located 2 miles west from intersection of Hwy 290 & IH35 accessible on Hwy 290 South)

Project is about 1 mile northwest of intersection of IH610 & SH288

City where the site is located or, if not in a city, what is the nearest city:
Houston

State: Texas ZIP Code where the site is located: 77021

4) GENERAL CHARACTERISTICS

a) Is the project/site located on Indian Country Lands?

☐ Yes - If the answer is Yes, you must obtain authorization through EPA, Region 6.

☒ No

b) Is your construction activity associated with a facility that, when completed, would be associated with the exploration, development, or production of oil or gas or geothermal resources?

☐ Yes - If the answer is Yes, you may be under jurisdiction of the Railroad Commission of Texas and may need to obtain authorization through EPA, Region 6.

☒ No

c) What is the Primary Standard Industrial Classification (SIC) Code that best describes the construction activity being conducted at the site?
Primary SIC Code: 1611

d) If applicable, what is the Secondary SIC Code(s):

e) What is the total number of acres disturbed? 24.20

f) Is the project site part of a larger common plan of development or sale?

☐ Yes - If the answer is Yes, the total number of acres disturbed can be less than 5 acres.

☒ No - If the answer is No, the total number of acres disturbed must be 5 or more. If the total number of acres disturbed is less than 5 then the project site does not qualify for coverage through this Notice of Intent. Coverage will be denied. See the requirements in the general permit for small construction sites.

g) What is the name of the first water body(s) to receive the stormwater runoff or potential runoff from the site?
HCFCD Unit No. D100-00-00 (Brays Bayou)

h) What is the segment number(s) of the classified water body(s) that the discharge will eventually reach?
1007

i) Is the discharge into an MS4?

☒ Yes - If the answer is Yes, provide the name of the MS4 operator below.

☐ No

If Yes, provide the name of the MS4 operator:
City of Houston

Note: The general permit requires you to send a copy of the NOI to the MS4 operator.

j) Are any of the surface water bodies receiving discharges from the construction site on the latest EPA-approved CWA 303(d) List of impaired waters?

☒ Yes - If the answer is Yes, provide the name(s) of the impaired water body(s) below.

☐ No

If Yes, provide the name(s) of the impaired water body(s):
Brays Bayou Above Tidal

k) Is the discharge or potential discharge within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer as defined in 30 TAC Chapter 213?

☐ Yes - If the answer is Yes, complete certification below by checking "Yes."

☒ No

I certify that a copy of the TCEQ approved Plan required by the Edwards Aquifer Rule (30 TAC Chapter 213) is either included or referenced in the Stormwater Pollution Prevention Plan.

☐ Yes

5) CERTIFICATION

Check Yes to the certifications below. Failure to indicate Yes to ***ALL*** items may result in denial of coverage under the general permit.

a) I certify that I have obtained a copy and understand the terms and conditions of the Construction General Permit (TXR150000). ☒ Yes

b) I certify that the full legal name of the entity applying for this permit has been provided and is legally authorized to do business in Texas. ☒ Yes

c) I understand that a Notice of Termination (NOT) must be submitted when this authorization is no longer needed. ☒ Yes

d) I certify that a Stormwater Pollution Prevention Plan has been developed, will be implemented prior to construction and to the best of my knowledge and belief is compliant with any applicable local sediment and erosion control plans, as required in the general permit TXR150000. Note: For multiple operators who prepare a shared SWP3, the confirmation of an operator may be limited to its obligations under the SWP3 provided all obligations are confirmed by at least one operator. ☒ Yes

Operator Certification:

I, J. Timothy Lincoln (Typed or printed name) Senior Assistant Director (Title)

certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I further certify that I am authorized under 30 Texas Administrative Code 305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signature: _____ Date: _____

(Use blue ink)

TCEQ Office Use Only
Permit No.:
RN:
CN:
Region:

CONTRACTOR

TCEQ Notice of Intent (NOI) for Stormwater Discharges Associated with Construction Activity under TPDES General Permit (TXR150000)

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- Use the CHECKLIST to make certain all you filled out all required information. Incomplete applications **WILL** delay approval or result in automatic denial.
- Once processed your permit can be viewed at: http://www2.tceq.texas.gov/wq_dpa/index.cfm

ePERMITS: Sign up now for online NOI: https://www3.tceq.texas.gov/steers/index.cfm
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APPLICATION FEE:

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  - Go to https://www3.tceq.texas.gov/epay/index.cfm
  - Select Fee Type: GENERAL PERMIT CONSTRUCTION STORM WATER DISCHARGE NOI APPLICATION
- **Provide your payment information below, for verification of payment:**

☐ Mailed — Check/Money Order No.: _____
Name Printed on Check: _____

☐ EPAY — Voucher No.: _____
Is the Payment Voucher copy attached? ☐ Yes

RENEWAL: Is this NOI a Renewal of an existing General Permit Authorization? (Note: A permit cannot be renewed after June 3, 2013.)

☐ Yes The Permit number is: TXR15_____
(If a permit number is not provided, a new number will be assigned.)
☐ No

1) OPERATOR (Applicant)

a) If the applicant is currently a customer with TCEQ, what is the Customer Number (CN) issued to this entity? You may search for your CN at: http://www12.tceq.texas.gov/crpub/index.cfm?fuseaction=cust.CustSearch

CN_____

b) What is the Legal Name of the entity (applicant) applying for this permit?

_____

(The legal name must be spelled exactly as filed with the Texas Secretary of State, County, or in the legal document forming the entity.)

c) What is the name and title of the person signing the application? The person must be an executive official meeting signatory requirements in TAC 305.44(a).
Prefix (Mr. Ms. Miss): _____
First/Last Name: _____ Suffix: _____
Title: _____ Credential: _____

d) What is the Operator Contact's (Responsible Authority) contact information and mailing address as recognized by the US Postal Service (USPS)? You may verify the address at: http://zip4.usps.com/zip4/welcome.jsp
Phone #: _____ ext: _____ Fax #: _____
E-mail: _____
Mailing Address: _____
Internal Routing (Mail Code, Etc.): _____
City: _____ State: _____ ZIP Code: _____
If outside USA: Territory: _____ Country Code: _____ Postal Code: _____

e) Indicate the type of Customer (The instructions will help determine your customer type):

☐ Individual	☐ Limited Partnership	☐ Sole Proprietorship-DBA
☐ Joint Venture	☐ General Partnership	☐ Corporation
☐ Trust	☐ Estate	☐ Federal Government
☐ State Government	☐ County Government	☐ City Government
☐ Other Government		

f) Independent Operator? ☐ Yes ☐ No
(If governmental entity, subsidiary, or part of a larger corporation, check "No".)

g) Number of Employees:
☐ 0-20; ☐ 21-100; ☐ 101-250; ☐ 251-500; or ☐ 501 or higher

h) Customer Business Tax and Filing Numbers:
(REQUIRED for Corporations and Limited Partnerships. Not Required for Individuals, Government, or Sole Proprietors)
State Franchise Tax ID Number: _____
Federal Tax ID: _____
Texas Secretary of State Charter (filing) Number: _____
DUNS Number (if known): _____

2) APPLICATION CONTACT

If TCEQ needs additional information regarding this application, who should be contacted?

Is the application contact the same as the applicant identified above?

☐ Yes, go to Section 3). ☐ No, complete section below.

Prefix (Mr. Ms. Miss): _____
First/Last Name: _____ Suffix: _____
Title: _____ Credential: _____

Organization Name:_____
Phone No.:_____ ext:_____ Fax Number:_____
E-mail:_____
Mailing Address:_____
Internal Routing (Mail Code, Etc.):_____
City:_____State:_____ZIP Code:_____
Mailing Information if outside USA:
Territory:_____Country Code:_____Postal Code:_____

3) REGULATED ENTITY (RE) INFORMATION ON PROJECT OR SITE

If the site of your business is part of a larger business site or if other businesses were located at this site before yours, a Regulated Entity Number (RN) may already be assigned for the larger site. Use the RN assigned for the larger site. Search TCEQ's Central Registry to see if the larger site may already be registered as a regulated site at: http://www12.tceq.texas.gov/crpub/index.cfm?fuseaction=regent.RNSearch.

If the site is found, provide the assigned Regulated Entity Reference Number and provide the information for the site to be authorized through this application below. The site information for this authorization may vary from the larger site information.

a) TCEQ issued RE Reference Number (RN): RN_____

b) Name of project or site (the name known by the community where located):
Almeda Road from Old Spanish Trail to S. MacGregor Way

c) In your own words, briefly describe the primary business of the Regulated Entity: (Do not repeat the SIC and NAICS code):

_____

d) County (or counties if > 1) Houston

e) Latitude: 29d 42' 16.98"N Longitude: 95d 23' 5.58"W

f) Does the site have a physical address?
☐ Yes, complete Section A for a physical address.
☒ No, complete Section B for site location information.

Section A: Enter the physical address for the site.
Verify the address with USPS. If the address is not recognized as a delivery address, provide the address as identified for overnight mail delivery, 911 emergency or other online map tools to confirm an address.

Physical Address of Project or Site:
Street Number: _____ Street Name: _____
City: _____State: _____ ZIP Code: _____

Section B: Enter the site location information.
If no physical address (Street Number & Street Name), provide a written location access description to the site. (Ex.: located 2 miles west from intersection of Hwy 290 & IH35 accessible on Hwy 290 South)

Project is about 1 mile northwest of intersection of IH610 & SH288

City where the site is located or, if not in a city, what is the nearest city:
Houston

State: Texas ZIP Code where the site is located: 77021

4) GENERAL CHARACTERISTICS

a) Is the project/site located on Indian Country Lands?

☐ Yes - If the answer is Yes, you must obtain authorization through EPA, Region 6.

☒ No

b) Is your construction activity associated with a facility that, when completed, would be associated with the exploration, development, or production of oil or gas or geothermal resources?

☐ Yes - If the answer is Yes, you may be under jurisdiction of the Railroad Commission of Texas and may need to obtain authorization through EPA, Region 6.

☒ No

c) What is the Primary Standard Industrial Classification (SIC) Code that best describes the construction activity being conducted at the site?
Primary SIC Code: 1611

d) If applicable, what is the Secondary SIC Code(s):

e) What is the total number of acres disturbed? 24.20

f) Is the project site part of a larger common plan of development or sale?

☐ Yes - If the answer is Yes, the total number of acres disturbed can be less than 5 acres.

☒ No - If the answer is No, the total number of acres disturbed must be 5 or more. If the total number of acres disturbed is less than 5 then the project site does not qualify for coverage through this Notice of Intent. Coverage will be denied. See the requirements in the general permit for small construction sites.

g) What is the name of the first water body(s) to receive the stormwater runoff or potential runoff from the site?
HCFCD Unit No. D100-00-00 (Brays Bayou)

h) What is the segment number(s) of the classified water body(s) that the discharge will eventually reach?
1007

i) Is the discharge into an MS4?

☒ Yes - If the answer is Yes, provide the name of the MS4 operator below.

☐ No

If Yes, provide the name of the MS4 operator:
City of Houston

Note: The general permit requires you to send a copy of the NOI to the MS4 operator.

j) Are any of the surface water bodies receiving discharges from the construction site on the latest EPA-approved CWA 303(d) List of impaired waters?

☒ Yes - If the answer is Yes, provide the name(s) of the impaired water body(s) below.

☐ No

If Yes, provide the name(s) of the impaired water body(s):
Brays Bayou Above Tidal

k) Is the discharge or potential discharge within the Recharge Zone, Contributing Zone, or Contributing Zone within the Transition Zone of the Edwards Aquifer as defined in 30 TAC Chapter 213?

☐ Yes - If the answer is Yes, complete certification below by checking "Yes."

☒ No

I certify that a copy of the TCEQ approved Plan required by the Edwards Aquifer Rule (30 TAC Chapter 213) is either included or referenced in the Stormwater Pollution Prevention Plan.

☐ Yes

5) CERTIFICATION

Check Yes to the certifications below. Failure to indicate Yes to ***ALL*** items may result in denial of coverage under the general permit.

a) I certify that I have obtained a copy and understand the terms and conditions of the Construction General Permit (TXR150000). ☒ Yes

b) I certify that the full legal name of the entity applying for this permit has been provided and is legally authorized to do business in Texas. ☒ Yes

c) I understand that a Notice of Termination (NOT) must be submitted when this authorization is no longer needed. ☒ Yes

d) I certify that a Stormwater Pollution Prevention Plan has been developed, will be implemented prior to construction and to the best of my knowledge and belief is compliant with any applicable local sediment and erosion control plans, as required in the general permit TXR150000. Note: For multiple operators who prepare a shared SWP3, the confirmation of an operator may be limited to its obligations under the SWP3 provided all obligations are confirmed by at least one operator. ☒ Yes

Operator Certification:

I,_____ _____
Typed or printed name Title

certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I further certify that I am authorized under 30 Texas Administrative Code 305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signature: _____ Date:_____
(Use blue ink)

FLOOD PLAIN MANAGEMENT PERMIT

CITY OF HOUSTON

Department of Public Works and Engineering
1002 Washington Avenue, Houston, Texas 77002 (832) 394-8854

Floodplain Development Permit

Development Permit #: 15-0648 **Building Permit #:** 15036772 **Revision #:** **Master:** No **Sub:** No **Date of Issue:** 07-APR-2015 **Revision Date:**

Address: CITY MASTER PROJECT, ,
Location: **Tax Assessor ID:**

Contact Name: CITY OF HOUSTON **Company Name:**
Company Address: 611 WALKER, HOUSTON, TX 77002
Phone: 8323952238 **Email:**

Flood Zone: AE **BFE(FT):** 40.2 **Panel #:** 48201C0860-L
Firm Date: 18-JUN-2007 **500 Year Elevation (FT):** 42.6 **NAVD Datum:** 1988, 2001 ADJ.

Project Estimate: $11,664,301 **Appraised Value:** **% Improvement:** %
Permit Type: FO-CMFR GFS>=1 Acre **Project Description:** Sitework - Greater Than One Acre
Project Type: Public Infastructure **Critical Facility Type:** Not Applicable
Min. Flood Protection Elev (FT): **Based on:**
Diagram No:
Additional Project Details: The proposed roadways and the existing drainage improvements

Mitigation Required? Yes **Cut:** 8,347.00 CY **Fill:** 7,262.00 CY **Credit:** 1,085.00 CY
Mitigation Type: Grading **Reference Development Permit # for Mitigation:**
Conveyance Zone? No **Reference Development Permit # for Conveyance Analysis:**
Floodway? Yes **Reference Development Permit # for Impact Analysis:**
FCO Required? No **FCO Volume:** **FCO Type-1:**

Special Conditions:

The applicant does hereby:

1. Understand this permit is not complete until signed, dated and returned to the City's Floodplain Management Office and the permit fee is paid;
2. Acknowledge the disclaimer described below;
3. Agree with the conditions of permit approval;
4. Agree to provide certifications of work described on page 2;
5. Understand the violations of this permit will be subject to citations as provided by Chapter 19 of the Code of Ordinances of the City of Houston.

Floodplain Manager's Signature

HANH NGUYEN 07-APR-2015
Print Name Date

Owner/Contractor/Applicant Signature

TITUSITHA SILVA 04/07/2015
Print Name Date

DISCLAIMER: The flood hazard boundary maps and other flood data used by the City of Houston in evaluating flood hazards to proposed developments are considered reasonable and accurate for regulatory purposes and are based on the best available scientific and engineering data. On rare occasions, greater floods may occur and flood heights may be increased. Construction standards required by the City of Houston Floodplain Management are the minimum standards deemed necessary to minimize or eliminate flood damage, but reliance on these minimum standards shall not create liability on the part of the City of Houston or any other employee of the City of Houston in the event flooding or flood damage occurs. Please review Guidelines issued for Chapter 19 of the Code of Ordinances for more information.

City of Houston
Public Works and Engineering
Building Code Enforcement Branch
1002 Washington Ave. 1st Fl. Houston, TX 77002
Phone: 832.394.8899 / Email: rmcacd@houstontx.gov

OFFICE USE ONLY	
PROJECT NO.	15036772
Address Verified	
Flood Review	☐ Yes ☐ No
Permit Fee	$

BUILDING PERMIT APPLICATION

I. Applicant Information

☐ *Residential* ☐ *Commercial*

Date	Applicant Name	Email
4/2/15	Thusitha Silva	tsilva@walterpmoore.com

Relationship to Project	Contact Phone No.
☐ Owner ☐ Contractor ☒ Architect/Designer ☐ Agent ☐ Other: _____	(713) 630-7468

II. Property Information

Owner, Tenant or Business Name	Project Address		Bldg. No.	Unit/Ste. No.
City of Houston	Almeda Road from OST to S. MacGregor Way			
City	**Zip Code**	**County**	**Key Map #**	**No. of Stories**
Houston		Harris	533 EFJ	NA

Subdivision (Only for New Construction)	Block/Lot (Only for New Construction)	Tract (Only for New Construction)

III. Responsible Parties (as applicable)

Project Manager	Address	City	Zip Code
Michelle Randon, P.E.	611 Walker, 14th Floor	Hosuton	770002
	Email	**Phone Number**	
	Michelle.Randon@houstontx.gov	(832) 395-2238	
General Contractor	**Address**	**City**	**Zip Code**
	Email	**Phone Number**	
		( )	

IV. Type of Structure

Residential		Commercial		
☐ Single Residence	☐ Swimming Pool	☐ Retail	☐ Parking Garage	☐ Apartments
☐ Duplex	☐ Fence	☐ Office	☐ Swimming Pool	_____ Apt. Units in the bldg.
☐ Carport	☐ Storage Shed	☐ Warehouse	☐ Fence	☒ Other: Roadway
☐ Garage	☐ Other: _____	☐ School		

V. Project Information

Scope of Project	
☒ New Construction	☐ Conversion
☐ Addition	☐ Foundation
☐ Remodel	☐ Demolition
☐ Repair	☐ Other: _____

MDI Project	☐ Yes MDI Reg # _____
Green Building Type (If applicable)	
☐ LEED ☐ GBI ☐ GHBA/GBGC	

Total Cost of Improvements	Square Footage (added)
$ 11,664,301	
Present Occupancy	**Proposed Occupancy (If different)**
- Commercial Projects Only -	
Sprinklers	☐ Yes Percentage _____ Type _____ ☐ No
TDLR	TDLR Project No. EABPR B5809809 ☐EXEMPT

Other Remarks: Reconstruction of Almeda Road from OST to S. Mac Gregor way

Warning: *The applicable deed restriction unsworn declaration must accompany this application when required. Any false statement thereon may result in criminal prosecution. The City will rely upon the representations in the declaration in issuing the permit. The issuance of a permit does not authorize construction on, or use of, any property in violation of deed restrictions. Any misrepresentations on this application or the declaration will render the permit void.*

Signature of Applicant _____ **Date** 4/2/15

Deed restriction unsworn declarations are located online at http://www.houstonpermittingcenter.org/building-code-enforcement.html

CITY OF HOUSTON

Department of Public Works and Engineering
1002 Washington Avenue, Houston, Texas 77002 (832) 394-8854
Floodplain Development Permit
Page 2 of 2 - Post Permit Documents & Inspections

Building Permit #: 15036772 **Master:** Yes **Date of Issue:** 07-APR-2015

Development Permit #: 15-0648 **Revision #:** **Sub:** No **Revision Date:**

Address: CITY MASTER PROJECT, , **Tax Assessor ID:**

Location:

THE CITY OF HOUSTON HEREBY APPROVES THE PROPOSED DEVELOPMENT SUBJECT TO THE FOLLOWING SUBMITTALS AND INSPECTIONS:

Inspections	When	Documents Required (Plans and permit must be onsite)
☑ Pre-Construction	➢ Before start of construction	
☑ Pre-Fill Mitigation	➢ Before placing fill including building foundation	☐ Pre-Fill Mitigation Certificate ☐ Pre-Fill Topo Survey ☐ Evidence of Spoils Removal
☐ 2nd Elevation Certificate (EC)	➢ Foundation is Poured ➢ Prior to framing or other vertical construction	☐ 2nd EC (During Construction)
☐ Sitework Final	➢ Sitework is 100% Complete ➢ Prior to Final Inspection by Structural	☐ As-Built Survey ☐ As-Built Mitigation Plan/Calculations ☐ Evidence of Spoils Removal
☐ 3rd Elevation Certificate (EC)	➢ Improvement is 100% Complete ➢ Prior to Final Inspection by Structural	☐ 3rd EC (Finished Construction) ☐ Flood Protection Certificate (Non-Building Structures or Equipment) ☐ Flood Protection Certificate (Structures)
☑ Final Floodplain Inspection	➢ Project is 100% Complete	☐ Flood Proofing Certificate

OPTIONS FOR SCHEDULING A FLOODPLAIN INSPECTION

- ✓ Call (713) 222.9922 for Automated Inspection Request and Status
- ✓ Visit www.houstonpermittingcenter.org
  - ➢ Building Code Enforcement
  - ➢ Code Enforcement Online Permits
  - ➢ Schedule Inspections and Inspection History
- ✓ Visit 1002 Washington Avenue, 3rd floor in person
  - ➢ Complete the pink form (FMO Inspection Routing Slip)
  - ➢ Attach original documents
  - ➢ Leave with 3rd floor reception

NOTE REGARDING VIOLATIONS

Placement of fill in the floodplain without a development permit, or placement in noncompliance with the conditions of this development permit, or placement of fill before mitigation of the fill volume is complete, or any other action in violation of Chapter 19, Code of Ordinances, may be subject to the following: stop work orders; fines of not less than $250 nor more than $2000 each day that any violation continues and other remedies. See Chapter 19-91 and 19-92.

TEXAS POLLUTION DISCHARGE ELIMINATION SYSTEM (TPDES) GENERAL PERMIT

Texas Commission on Environmental Quality

P.O. Box 13087, Austin, Texas 78711-3087

GENERAL PERMIT TO DISCHARGE UNDER THE

TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM

under provisions of
Section 402 of the Clean Water Act
and Chapter 26 of the Texas Water Code

This permit supersedes and replaces
TPDES General Permit No. TXR150000, issued March 5, 2008

Construction sites that discharge stormwater associated with construction activity

located in the state of Texas

may discharge to surface water in the state

only according to monitoring requirements and other conditions set forth in this general permit, as well as the rules of the Texas Commission on Environmental Quality (TCEQ or Commission), the laws of the State of Texas, and other orders of the Commission of the TCEQ. The issuance of this general permit does not grant to the permittee the right to use private or public property for conveyance of stormwater and certain non-stormwater discharges along the discharge route. This includes property belonging to but not limited to any individual, partnership, corporation or other entity. Neither does this general permit authorize any invasion of personal rights nor any violation of federal, state, or local laws or regulations. It is the responsibility of the permittee to acquire property rights as may be necessary to use the discharge route.

This general permit and the authorization contained herein shall expire at midnight, five years from the permit effective date.

EFFECTIVE DATE: March 5, 2013

ISSUED DATE: FEB 19 2013

Bryan W. Shaw

For the Commission

TPDES GENERAL PERMIT NUMBER TXR150000 RELATING TO STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES

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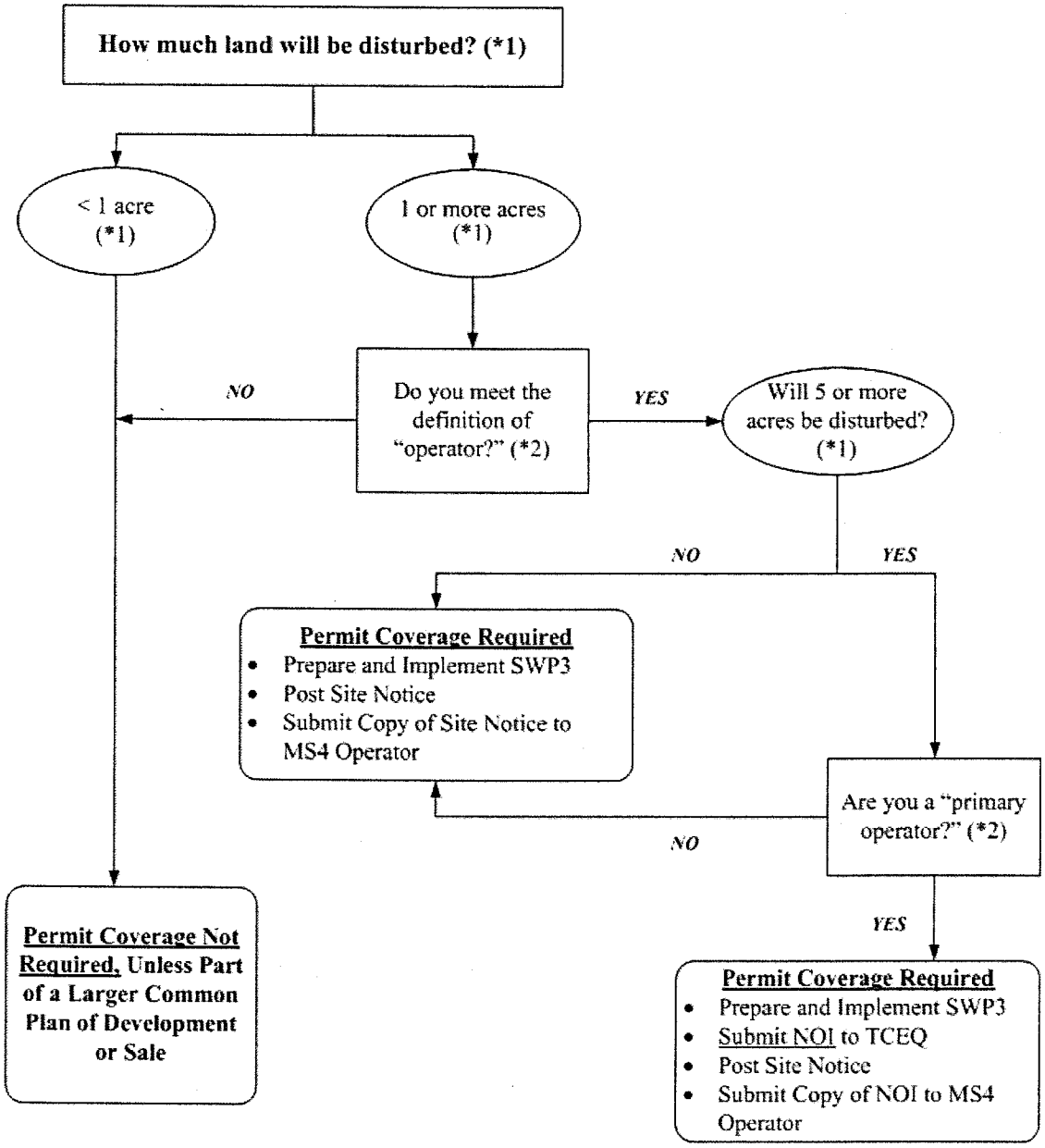
Part I. Flow Chart and Definitions

Section A. Flow Chart to Determine Whether Coverage is Required



*(*1) To determine the size of the construction project, use the size of the entire area to be disturbed, and include the size of the larger common plan of development or sale, if the project is part of a larger project (refer to Part I.B., "Definitions," for an explanation of "common plan of development or sale").*

*(*2) Refer to the definitions for "operator," "primary operator," and "secondary operator" in Part I., Section B. of this permit.*

Section B. Definitions

Arid Areas - Areas with an average annual rainfall of 0 to 10 inches.

Best Management Practices (BMPs) - Schedules of activities, prohibitions of practices, maintenance procedures, structural controls, local ordinances, and other management practices to prevent or reduce the discharge of pollutants. BMPs also include treatment requirements, operating procedures, and practices to control construction site runoff, spills or leaks, waste disposal, or drainage from raw material storage areas.

Commencement of Construction - The initial disturbance of soils associated with clearing, grading, or excavation activities, as well as other construction-related activities (e.g., stockpiling of fill material, demolition).

Common Plan of Development - A construction activity that is completed in separate stages, separate phases, or in combination with other construction activities. A common plan of development (also known as a "common plan of development or sale") is identified by the documentation for the construction project that identifies the scope of the project, and may include plats, blueprints, marketing plans, contracts, building permits, a public notice or hearing, zoning requests, or other similar documentation and activities. A common plan of development does not necessarily include all construction projects within the jurisdiction of a public entity (e.g., a city or university). Construction of roads or buildings in different parts of the jurisdiction would be considered separate "common plans," with only the interconnected parts of a project being considered part of a "common plan" (e.g., a building and its associated parking lot and driveways, airport runway and associated taxiways, a building complex, etc.). Where discrete construction projects occur within a larger common plan of development or sale but are located ¼ mile or more apart, and the area between the projects is not being disturbed, each individual project can be treated as a separate plan of development or sale, provided that any interconnecting road, pipeline or utility project that is part of the same "common plan" is not included in the area to be disturbed.

Construction Activity - Includes soil disturbance activities, including clearing, grading, and excavating; and does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the site (e.g., the routine grading of existing dirt roads, asphalt overlays of existing roads, the routine clearing of existing right-of-ways, and similar maintenance activities). Regulated construction activity is defined in terms of small and large construction activity.

Dewatering – The act of draining rainwater or groundwater from building foundations, vaults, and trenches.

Discharge – For the purposes of this permit, the drainage, release, or disposal of pollutants in stormwater and certain non-stormwater from areas where soil disturbing activities (e.g., clearing, grading, excavation, stockpiling of fill material, and demolition), construction materials or equipment storage or maintenance (e.g., fill piles, borrow area, concrete truck wash out, fueling), or other industrial stormwater directly related to the construction process (e.g., concrete or asphalt batch plants) are located.

Drought-Stricken Area – For the purposes of this permit, an area in which the National Oceanic and Atmospheric Administration's U.S. Seasonal Drought Outlook indicates for the period during which the construction will occur that any of the following conditions are likely: (1) "Drought to persist or intensify", (2) "Drought ongoing, some improvement", (3) "Drought likely to improve, impacts ease", or (4) "Drought development likely". See http://www.cpc.ncep.noaa.gov/products/expert_assessment/seasonal_drought.html.

Edwards Aquifer - As defined under Texas Administrative Code (TAC) § 213.3 of this title (relating to the Edwards Aquifer), that portion of an arcuate belt of porous, water-bearing, predominantly carbonate rocks known as the Edwards and Associated Limestones in the Balcones Fault Zone trending from west to east to northeast in Kinney, Uvalde, Medina, Bexar, Comal, Hays, Travis, and Williamson Counties; and composed of the Salmon Peak

Limestone, McKnight Formation, West Nueces Formation, Devil's River Limestone, Person Formation, Kainer Formation, Edwards Formation, and Georgetown Formation. The permeable aquifer units generally overlie the less-permeable Glen Rose Formation to the south, overlie the less-permeable Comanche Peak and Walnut Formations north of the Colorado River, and underlie the less-permeable Del Rio Clay regionally.

Edwards Aquifer Recharge Zone - Generally, that area where the stratigraphic units constituting the Edwards Aquifer crop out, including the outcrops of other geologic formations in proximity to the Edwards Aquifer, where caves, sinkholes, faults, fractures, or other permeable features would create a potential for recharge of surface waters into the Edwards Aquifer. The recharge zone is identified as that area designated as such on official maps located in the offices of the Texas Commission on Environmental Quality (TCEQ) and the appropriate regional office. The Edwards Aquifer Map Viewer, located at http://www.tceq.texas.gov/compliance/field_ops/eapp/mapdisclaimer.html, can be used to determine where the recharge zone is located.

Edwards Aquifer Contributing Zone - The area or watershed where runoff from precipitation flows downgradient to the recharge zone of the Edwards Aquifer. The contributing zone is located upstream (upgradient) and generally north and northwest of the recharge zone for the following counties: all areas within Kinney County, except the area within the watershed draining to Segment No. 2304 of the Rio Grande Basin; all areas within Uvalde, Medina, Bexar, and Comal Counties; all areas within Hays and Travis Counties, except the area within the watersheds draining to the Colorado River above a point 1.3 miles upstream from Tom Miller Dam, Lake Austin at the confluence of Barrow Brook Cove, Segment No. 1403 of the Colorado River Basin; and all areas within Williamson County, except the area within the watersheds draining to the Lampasas River above the dam at Stillhouse Hollow reservoir, Segment No. 1216 of the Brazos River Basin. The contributing zone is illustrated on the Edwards Aquifer map viewer at http://www.tceq.texas.gov/compliance/field_ops/eapp/mapdisclaimer.html.

Effluent Limitations Guideline (ELG) – Defined in 40 Code of Federal Regulations (CFR) § 122.2 as a regulation published by the Administrator under § 304(b) of the Clean Water Act (CWA) to adopt or revise effluent limitations.

Facility or Activity – For the purpose of this permit, a construction site or construction support activity that is regulated under this general permit, including all contiguous land and fixtures (for example, ponds and materials stockpiles), structures, or appurtances used at a construction site or industrial site described by this general permit.

Final Stabilization - A construction site status where any of the following conditions are met:

A. All soil disturbing activities at the site have been completed and a uniform (that is, evenly distributed, without large bare areas) perennial vegetative cover with a density of at least 70% of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed.

B. For individual lots in a residential construction site by either:

   (1) the homebuilder completing final stabilization as specified in condition (a) above; or

   (2) the homebuilder establishing temporary stabilization for an individual lot prior to the time of transfer of the ownership of the home to the buyer and after informing the homeowner of the need for, and benefits of, final stabilization. If temporary stabilization is not feasible, then the homebuilder may fulfill this requirement by retaining perimeter controls or BMPs, and informing the homeowner of the need for removal of temporary controls and the establishment of final stabilization.

Fullfillment of this requirement must be documented in the homebuilder's stormwater pollution prevention plan (SWP3).

C. For construction activities on land used for agricultural purposes (such as pipelines across crop or range land), final stabilization may be accomplished by returning the disturbed land to its preconstruction agricultural use. Areas disturbed that were not previously used for agricultural activities, such as buffer strips immediately adjacent to surface water and areas that are not being returned to their preconstruction agricultural use must meet the final stabilization conditions of condition (a) above.

D. In arid, semi-arid, and drought-stricken areas only, all soil disturbing activities at the site have been completed and both of the following criteria have been met:

(1) Temporary erosion control measures (for example, degradable rolled erosion control product) are selected, designed, and installed along with an appropriate seed base to provide erosion control for at least three years without active maintenance by the operator, and

(2) The temporary erosion control measures are selected, designed, and installed to achieve 70% of the native background vegetative coverage within three years.

Hyperchlorination of Waterlines – Treatment of potable water lines or tanks with chlorine for disinfection purposes, typically following repair or partial replacement of the waterline or tank, and subsequently flushing the contents.

Impaired Water - A surface water body that is identified on the latest approved CWA §303(d) List as not meeting applicable state water quality standards. Impaired waters include waters with approved or established total maximum daily loads (TMDLs), and those where a TMDL has been proposed by TCEQ but has not yet been approved or established.

Indian Country Land – (from 40 CFR §122.2) (1) all land within the limits of any Indian reservation under the jurisdiction of the United States government, notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation; (2) all dependent Indian communities with the borders of the United States whether within the originally or subsequently acquired territory thereof, and whether within or without the limits of a state; and (3) all Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same.

Indian Tribe - (from 40 CFR §122.2) any Indian Tribe, band, group, or community recognized by the Secretary of the Interior and exercising governmental authority over a Federal Indian Reservation.

Large Construction Activity - Construction activities including clearing, grading, and excavating that result in land disturbance of equal to or greater than five (5) acres of land. Large construction activity also includes the disturbance of less than five (5) acres of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than five (5) acres of land. Large construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the site (for example, the routine grading of existing dirt roads, asphalt overlays of existing roads, the routine clearing of existing right-of-ways, and similar maintenance activities.)

Linear Project – Includes the construction of roads, bridges, conduits, substructures, pipelines, sewer lines, towers, poles, cables, wires, connectors, switching, regulating and transforming equipment and associated ancillary facilities in a long, narrow area.

Minimize - To reduce or eliminate to the extent achievable using stormwater controls that are technologically available and economically practicable and achievable in light of best industry practices.

Municipal Separate Storm Sewer System (MS4) - A separate storm sewer system owned or operated by the United States, a state, city, town, county, district, association, or other public body (created by or pursuant to state law) having jurisdiction over the disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under state law such as a sewer district, flood control or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, that discharges to surface water in the state.

Notice of Change (NOC) – Written notification to the executive director from a discharger authorized under this permit, providing changes to information that was previously provided to the agency in a notice of intent form.

Notice of Intent (NOI) - A written submission to the executive director from an applicant requesting coverage under this general permit.

Notice of Termination (NOT) - A written submission to the executive director from a discharger authorized under a general permit requesting termination of coverage.

Operator - The person or persons associated with a large or small construction activity that is either a primary or secondary operator as defined below:

Primary Operator – the person or persons associated with a large or small construction activity that meets either of the following two criteria:

(a) the person or persons have on-site operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or

(b) the person or persons have day-to-day operational control of those activities at a construction site that are necessary to ensure compliance with a Storm Water Pollution Prevention Plan (SWP3) for the site or other permit conditions (for example, they are authorized to direct workers at a site to carry out activities required by the SWP3 or comply with other permit conditions).

Secondary Operator – The person or entity, often the property owner, whose operational control is limited to:

(a) the employment of other operators, such as a general contractor, to perform or supervise construction activities; or

(b) the ability to approve or disapprove changes to construction plans and specifications, but who does not have day-to-day on-site operational control over construction activities at the site.

Secondary operators must either prepare their own SWP3 or participate in a shared SWP3 that covers the areas of the construction site where they have control over the plans and specifications.

If there is not a primary operator at the construction site, then the secondary operator is defined as the primary operator and must comply with the requirements for primary operators.

Outfall - For the purpose of this permit, a point source at the point where stormwater runoff associated with construction activity discharges to surface water in the state and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels, or other conveyances that connect segments of the same stream or other water of the U.S. and are used to convey waters of the U.S.

Permittee - An operator authorized under this general permit. The authorization may be gained through submission of a notice of intent, by waiver, or by meeting the requirements for automatic coverage to discharge stormwater runoff and certain non-stormwater discharges.

Point Source – (from 40 CFR §122.2) Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are, or may be, discharged. This term does not include return flows from irrigated agriculture or agricultural stormwater runoff.

Pollutant - Dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, filter backwash, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste discharged into any surface water in the state. The term "pollutant" does not include tail water or runoff water from irrigation or rainwater runoff from cultivated or uncultivated rangeland, pastureland, and farmland. For the purpose of this permit, the term "pollutant" includes sediment.

Pollution - (from Texas Water Code (TWC) §26.001(14)) The alteration of the physical, thermal, chemical, or biological quality of, or the contamination of, any surface water in the state that renders the water harmful, detrimental, or injurious to humans, animal life, vegetation, or property or to public health, safety, or welfare, or impairs the usefulness or the public enjoyment of the water for any lawful or reasonable purpose.

Rainfall Erosivity Factor (R factor) - the total annual erosive potential that is due to climatic effects, and is part of the Revised Universal Soil Loss Equation (RUSLE).

Receiving Water - A "Water of the United States" as defined in 40 CFR §122.2 into which the regulated stormwater discharges.

Semiarid Areas - areas with an average annual rainfall of 10 to 20 inches

Separate Storm Sewer System - A conveyance or system of conveyances (including roads with drainage systems, streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains), designed or used for collecting or conveying stormwater; that is not a combined sewer, and that is not part of a publicly owned treatment works (POTW).

Small Construction Activity - Construction activities including clearing, grading, and excavating that result in land disturbance of equal to or greater than one (1) acre and less than five (5) acres of land. Small construction activity also includes the disturbance of less than one (1) acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than one (1) and less than five (5) acres of land. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the site (for example, the routine grading of existing dirt roads, asphalt overlays of existing roads, the routine clearing of existing right-of-ways, and similar maintenance activities.)

Steep Slopes – Where a state, Tribe, local government, or industry technical manual (e.g. stormwater BMP manual) has defined what is to be considered a "steep slope", this permit's definition automatically adopts that definition. Where no such definition exists, steep slopes are automatically defined as those that are 15 percent or greater in grade.

Stormwater (or Stormwater Runoff) - Rainfall runoff, snow melt runoff, and surface runoff and drainage.

Stormwater Associated with Construction Activity - Stormwater runoff from a construction activity where soil disturbing activities (including clearing, grading, excavating) result in the disturbance of one (1) or more acres of total land area, or are part of a larger common plan of development or sale that will result in disturbance of one (1) or more acres of total land area.

Structural Control (or Practice) - A pollution prevention practice that requires the construction of a device, or the use of a device, to reduce or prevent pollution in stormwater

runoff. Structural controls and practices may include but are not limited to: silt fences, earthen dikes, drainage swales, sediment traps, check dams, subsurface drains, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins.

Surface Water in the State - Lakes, bays, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, wetlands, marshes, inlets, canals, the Gulf of Mexico inside the territorial limits of the state (from the mean high water mark (MHWM) out 10.36 miles into the Gulf), and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, navigable or nonnavigable, and including the beds and banks of all water-courses and bodies of surface water, that are wholly or partially inside or bordering the state or subject to the jurisdiction of the state; except that waters in treatment systems which are authorized by state or federal law, regulation, or permit, and which are created for the purpose of waste treatment are not considered to be water in the state.

Temporary Stabilization - A condition where exposed soils or disturbed areas are provided a protective cover or other structural control to prevent the migration of pollutants. Temporary stabilization may include temporary seeding, geotextiles, mulches, and other techniques to reduce or eliminate erosion until either permanent stabilization can be achieved or until further construction activities take place.

Total Maximum Daily Load (TMDL) - The total amount of a pollutant that a water body can assimilate and still meet the Texas Surface Water Quality Standards.

Turbidity – A condition of water quality characterized by the presence of suspended solids and/or organic material.

Waters of the United States - (from 40 CFR §122.2) Waters of the United States or waters of the U.S. means:

(a) all waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(b) all interstate waters, including interstate wetlands;

(c) all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds that the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

(1) which are or could be used by interstate or foreign travelers for recreational or other purposes;

(2) from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

(3) which are used or could be used for industrial purposes by industries in interstate commerce;

(d) all impoundments of waters otherwise defined as waters of the United States under this definition;

(e) tributaries of waters identified in paragraphs (a) through (d) of this definition;

(f) the territorial sea; and

(g) wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR §423.11(m) which also meet the criteria of this definition) are not waters of the U.S. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the U.S. (such as

disposal area in wetlands) nor resulted from the impoundment of waters of the U.S. Waters of the U.S. do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with EPA.

Part II. Permit Applicability and Coverage

Section A. Discharges Eligible for Authorization

1. Stormwater Associated with Construction Activity

Discharges of stormwater runoff from small and large construction activities may be authorized under this general permit.

2. Discharges of Stormwater Associated with Construction Support Activities

Examples of construction support activities include, but are not limited to, concrete batch plants, rock crushers, asphalt batch plants, equipment staging areas, material storage yards, material borrow areas, and excavated material disposal areas. Construction support activities authorized under this general permit are not commercial operations, and do not serve multiple unrelated construction projects. Discharges of stormwater runoff from construction support activities may be authorized under this general permit, provided that the following conditions are met:

(a) the activities are located within one (1) mile from the boundary of the permitted construction site and directly support the construction activity;

(b) an SWP3 is developed for the permitted construction site according to the provisions of this general permit, and includes appropriate controls and measures to reduce erosion and discharge of pollutants in stormwater runoff from the construction support activities; and

(c) the construction support activities either do not operate beyond the completion date of the construction activity or, at the time that they do, are authorized under separate Texas Pollutant Discharge Elimination System (TPDES) authorization. Separate TPDES authorization may include the TPDES Multi Sector General Permit (MSGP), TXR050000 (related to stormwater discharges associated with industrial activity), separate authorization under this general permit if applicable, coverage under an alternative general permit if available, or authorization under an individual water quality permit.

3. Non-Stormwater Discharges

The following non-stormwater discharges from sites authorized under this general permit are also eligible for authorization under this general permit:

(a) discharges from fire fighting activities (fire fighting activities do not include washing of trucks, run-off water from training activities, test water from fire suppression systems, or similar activities);

(b) uncontaminated fire hydrant flushings (excluding discharges of hyperchlorinated water, unless the water is first dechlorinated and discharges are not expected to adversely affect aquatic life), which include flushings from systems that utilize potable water, surface water, or groundwater that does not contain additional pollutants (uncontaminated fire hydrant flushings do not include systems utilizing reclaimed wastewater as a source water);

(c) water from the routine external washing of vehicles, the external portion of buildings or structures, and pavement, where detergents and soaps are not used, where spills or leaks of toxic or hazardous materials have not occurred (unless spilled materials

have been removed; and if local state, or federal regulations are applicable, the materials are removed according to those regulations), and where the purpose is to remove mud, dirt, or dust;

(d) uncontaminated water used to control dust;

(e) potable water sources, including waterline flushings, but excluding discharges of hyperchlorinated water, unless the water is first dechlorinated and discharges are not expected to adversely affect aquatic life;

(f) uncontaminated air conditioning condensate;

(g) uncontaminated ground water or spring water, including foundation or footing drains where flows are not contaminated with industrial materials such as solvents; and

(h) lawn watering and similar irrigation drainage.

4. Other Permitted Discharges

Any discharge authorized under a separate National Pollutant Discharge Elimination System (NPDES), TPDES, or TCEQ permit may be combined with discharges authorized by this general permit, provided those discharges comply with the associated permit.

Section B. Concrete Truck Wash Out

The wash out of concrete trucks at regulated construction sites must be performed in accordance with the requirements of Part V of this general permit.

Section C. Limitations on Permit Coverage

1. Post Construction Discharges

Discharges that occur after construction activities have been completed, and after the construction site and any supporting activity site have undergone final stabilization, are not eligible for coverage under this general permit. Discharges originating from the sites are not authorized under this general permit following the submission of the notice of termination (NOT) or removal of the appropriate site notice, as applicable, for the regulated construction activity.

2. Prohibition of Non-Stormwater Discharges

Except as otherwise provided in Part II.A. of this general permit, only discharges that are composed entirely of stormwater associated with construction activity may be authorized under this general permit.

3. Compliance With Water Quality Standards

Discharges to surface water in the state that would cause, have the reasonable potential to cause, or contribute to a violation of water quality standards or that would fail to protect and maintain existing designated uses are not eligible for coverage under this general permit. The executive director may require an application for an individual permit or alternative general permit (see Parts II.H.2. and 3.) to authorize discharges to surface water in the state if the executive director determines that any activity will cause, has the reasonable potential to cause, or contribute to a violation of water quality standards or is found to cause, has the reasonable potential to cause, or contribute to, the impairment of a designated use. The executive director may also require an application for an individual permit considering factors described in Part II.H.2. of this general permit.

4. Impaired Receiving Waters and Total Maximum Daily Load (TMDL) Requirements

New sources or new discharges of the pollutants of concern to impaired waters are not authorized by this permit unless otherwise allowable under 30 TAC Chapter 305 and applicable state law. Impaired waters are those that do not meet applicable water quality standards and are listed on the EPA approved CWA §303(d) List. Pollutants of concern are those for which the water body is listed as impaired.

Discharges of the pollutants of concern to impaired water bodies for which there is a TMDL are not eligible for this general permit unless they are consistent with the approved TMDL. Permittees must incorporate the conditions and requirements applicable to their discharges into their SWP3, in order to be eligible for coverage under this general permit. For consistency with the construction stormwater-related items in an approved TMDL, the SWP3 must be consistent with any applicable condition, goal, or requirement in the TMDL, TMDL Implementation Plan (I-Plan), or as otherwise directed by the executive director.

5. Discharges to the Edwards Aquifer Recharge or Contributing Zone

Discharges cannot be authorized by this general permit where prohibited by 30 TAC Chapter 213 (relating to Edwards Aquifer). In addition, commencement of construction (i.e., the initial disturbance of soils associated with clearing, grading, or excavating activities, as well as other construction-related activities such as stockpiling of fill material and demolition) at a site regulated under 30 TAC Chapter 213, may not begin until the appropriate Edwards Aquifer Protection Plan (EAPP) has been approved by the TCEQ's Edwards Aquifer Protection Program.

(a) For new discharges located within the Edwards Aquifer Recharge Zone, or within that area upstream from the recharge zone and defined as the Contributing Zone (CZ), operators must meet all applicable requirements of, and operate according to, 30 TAC Chapter 213 (Edwards Aquifer Rule) in addition to the provisions and requirements of this general permit.

(b) For existing discharges located within the Edwards Aquifer Recharge Zone, the requirements of the agency-approved Water Pollution Abatement Plan (WPAP) under the Edwards Aquifer Rule is in addition to the requirements of this general permit. BMPs and maintenance schedules for structural stormwater controls, for example, may be required as a provision of the rule. All applicable requirements of the Edwards Aquifer Rule for reductions of suspended solids in stormwater runoff are in addition to the requirements in this general permit for this pollutant.

6. Discharges to Specific Watersheds and Water Quality Areas

Discharges otherwise eligible for coverage cannot be authorized by this general permit where prohibited by 30 TAC Chapter 311 (relating to Watershed Protection) for water quality areas and watersheds.

7. Protection of Streams and Watersheds by Other Governmental Entities

This general permit does not limit the authority or ability of federal, other state, or local governmental entities from placing additional or more stringent requirements on construction activities or discharges from construction activities. For example, this permit does not limit the authority of a home-rule municipality provided by Texas Local Government Code §401.002.

8. Indian Country Lands

Stormwater runoff from construction activities occurring on Indian Country lands are not under the authority of the TCEQ and are not eligible for coverage under this general permit. If discharges of stormwater require authorization under federal NPDES

regulations, authority for these discharges must be obtained from the U.S. Environmental Protection Agency (EPA).

9. Oil and Gas Production

Stormwater runoff from construction activities associated with the exploration, development, or production of oil or gas or geothermal resources, including transportation of crude oil or natural gas by pipeline, are not under the authority of the TCEQ and are not eligible for coverage under this general permit. If discharges of stormwater require authorization under federal NPDES regulations, authority for these discharges must be obtained from the EPA.

10. Stormwater Discharges from Agricultural Activities

Stormwater discharges from agricultural activities that are not point source discharges of stormwater are not subject to TPDES permit requirements. These activities may include clearing and cultivating ground for crops, construction of fences to contain livestock, construction of stock ponds, and other similar agricultural activities. Discharges of stormwater runoff associated with the construction of facilities that are subject to TPDES regulations, such as the construction of concentrated animal feeding operations, would be point sources regulated under this general permit.

11. Endangered Species Act

Discharges that would adversely affect a listed endangered or threatened aquatic or aquatic-dependent species or its critical habitat are not authorized by this permit, unless the requirements of the Endangered Species Act are satisfied. Federal requirements related to endangered species apply to all TPDES permitted discharges and site-specific controls may be required to ensure that protection of endangered or threatened species is achieved. If a permittee has concerns over potential impacts to listed species, the permittee may contact TCEQ for additional information.

12. Other

Nothing in Part II of the general permit is intended to negate any person's ability to assert the force majeure (act of God, war, strike, riot, or other catastrophe) defenses found in 30 TAC §70.7.

Section D. Deadlines for Obtaining Authorization to Discharge

1. Large Construction Activities

(a) New Construction - Discharges from sites where the commencement of construction occurs on or after the effective date of this general permit must be authorized, either under this general permit or a separate TPDES permit, prior to the commencement of those construction activities.

(b) Ongoing Construction - Operators of large construction activities continuing to operate after the effective date of this permit, and authorized under TPDES general permit TXR150000 (effective on March 5, 2008), must submit an NOI to renew authorization or a NOT to terminate coverage under this general permit within 90 days of the effective date of this general permit. During this interim period, as a requirement of this TPDES permit, the operator must continue to meet the conditions and requirements of the previous TPDES permit.

2. Small Construction Activities

(a) New Construction - Discharges from sites where the commencement of construction occurs on or after the effective date of this general permit must be authorized, either

under this general permit or a separate TPDES permit, prior to the commencement of those construction activities.

(b) Ongoing Construction - Discharges from ongoing small construction activities that commenced prior to the effective date of this general permit, and that would not meet the conditions to qualify for termination of this permit as described in Part II.E. of this general permit, must meet the requirements to be authorized, either under this general permit or a separate TPDES permit, within 90 days of the effective date of this general permit. During this interim period, as a requirement of this TPDES permit, the operator must continue to meet the conditions and requirements of the previous TPDES permit.

Section E. Obtaining Authorization to Discharge

1. Automatic Authorization for Small Construction Activities With Low Potential for Erosion:

If all of the following conditions are met, then a small construction activity is determined to occur during periods of low potential for erosion, and a site operator may be automatically authorized under this general permit without being required to develop an SWP3 or submit an NOI:

(a) the construction activity occurs in a county listed in Appendix A;

(b) the construction activity is initiated and completed, including either final or temporary stabilization of all disturbed areas, within the time frame identified in Appendix A for the location of the construction site;

(c) all temporary stabilization is adequately maintained to effectively reduce or prohibit erosion, permanent stabilization activities have been initiated, and a condition of final stabilization is completed no later than 30 days following the end date of the time frame identified in Appendix A for the location of the construction site;

(d) the permittee signs a completed TCEQ construction site notice, including the certification statement;

(e) a signed copy of the construction site notice is posted at the construction site in a location where it is readily available for viewing by the general public, local, state, and federal authorities prior to commencing construction activities, and maintained in that location until completion of the construction activity;

(f) a copy of the signed and certified construction site notice is provided to the operator of any MS4 receiving the discharge at least two days prior to commencement of construction activities;

(g) any supporting concrete batch plant or asphalt batch plant is separately authorized for discharges of stormwater runoff or other non-stormwater discharges under an individual TPDES permit, another TPDES general permit, or under an individual TCEQ permit where stormwater and non-stormwater is disposed of by evaporation or irrigation (discharges are adjacent to water in the state); and

(h) any non-stormwater discharges are either authorized under a separate permit or authorization, or are not considered to be a wastewater.

Part II.G. of this general permit describes how an operator may apply for and obtain a waiver from permitting, for certain small construction activities that occur during a period with a low potential for erosion, where automatic authorization under this section is not available.

2. Automatic Authorization For All Other Small Construction Activities:

Operators of small construction activities not described in Part II.E.1. above may be automatically authorized under this general permit, and operators of these sites shall not be required to submit an NOI, provided that they meet all of the following conditions:

(a) develop a SWP3 according to the provisions of this general permit, that covers either the entire site or all portions of the site for which the applicant is the operator, and implement that plan prior to commencing construction activities;

(b) sign and certify a completed TCEQ small construction site notice, post the notice at the construction site in a location where it is safely and readily available for viewing by the general public, local, state, and federal authorities, prior to commencing construction, and maintain the notice in that location until completion of the construction activity (for linear construction activities, e.g. pipeline or highway, the site notice must be placed in a publicly accessible location near where construction is actively underway; notice for these linear sites may be relocated, as necessary, along the length of the project, and the notice must be safely and readily available for viewing by the general public; local, state, and federal authorities); and

(c) provide a copy of the signed and certified construction site notice to the operator of any municipal separate storm sewer system receiving the discharge prior to commencement of construction activities.

Operators of small construction activities as defined in Part I.B of this general permit shall not submit an NOI for coverage unless otherwise required by the executive director.

As described in Part I (Definitions) of this general permit, large construction activities include those that will disturb less than five (5) acres of land, but that are part of a larger common plan of development or sale that will ultimately disturb five (5) or more acres of land, and must meet the requirements of Part II.E.3. below.

3. Authorization for Large Construction Activities:

Operators of large construction activities that qualify for coverage under this general permit must meet all of the following conditions:

(a) develop a SWP3 according to the provisions of this general permit that covers either the entire site or all portions of the site for which the applicant is the operator, and implement that plan prior to commencing construction activities;

(b) primary operators must submit an NOI, using a form provided by the executive director, at least seven (7) days prior to commencing construction activities, or if utilizing electronic submittal, prior to commencing construction activities. If an additional primary operator is added after the initial NOI is submitted, the new primary operator must submit an NOI at least seven (7) days before assuming operational control, or if utilizing electronic NOI submittal, prior to assuming operational control. If the primary operator changes after the initial NOI is submitted, the new primary operator must submit a paper NOI or an electronic NOI at least ten (10) days before assuming operational control;

(c) all operators of large construction activities must post a site notice in accordance with Part III.D.2. of this permit. The site notice must be located where it is safely and readily available for viewing by the general public, local, state, and federal authorities prior to commencing construction, and must be maintained in that location until completion of the construction activity (for linear construction activities, e.g. pipeline or highway, the site notice must be placed in a publicly accessible location near where construction is actively underway; notice for these linear sites may be relocated, as necessary, along the length of the project, and the notice must be safely and readily available for viewing by the general public; local, state, and federal authorities);

(d) prior to commencing construction activities, all primary operators must (1) provide a copy of the signed NOI to the operator of any MS4 receiving the discharge and to any secondary construction operator, and (2) list in the SWP3 the names and addresses of all MS4 operators receiving a copy;

(e) all persons meeting the definition of "secondary operator" in Part I of this permit are hereby notified that they are regulated under this general permit, but are not required to submit an NOI, provided that a primary operator at the site has submitted an NOI, or is required to submit an NOI, and the secondary operator has provided notification to the operator(s) of the need to obtain coverage (with records of notification available upon request). Any secondary operator notified under this provision may alternatively submit an NOI under this general permit, may seek coverage under an alternative TPDES individual permit, or may seek coverage under an alternative TPDES general permit if available; and

(f) all secondary operators must provide a copy of the signed and certified Secondary Operator construction site notice to the operator of any MS4 receiving the discharge prior to commencement of construction activities.

4. Waivers for Small Construction Activities:

Part II.G. describes how operators of certain small construction activities may obtain a waiver from coverage.

5. Effective Date of Coverage

(a) Operators of small construction activities as described in either Part II.E.1. or II.E.2. above are authorized immediately following compliance with the applicable conditions of Part II.E.1. or II.E.2. Secondary operators of large construction activities as described in Part II.E.3. above are authorized immediately following compliance with the applicable conditions in Part II.E.3. For activities located in areas regulated by 30 TAC Chapter 213, related to the Edwards Aquifer, this authorization to discharge is separate from the requirements of the operator's responsibilities under that rule. Construction may not commence for sites regulated under 30 TAC Chapter 213 until all applicable requirements of that rule are met.

(b) Primary operators of large construction activities as described in Part II.E.3. above are provisionally authorized seven (7) days from the date that a completed NOI is postmarked for delivery to the TCEQ, unless otherwise notified by the executive director. If electronic submission of the NOI is provided, and unless otherwise notified by the executive director, primary operators are authorized immediately following confirmation of receipt of the NOI by the TCEQ. Authorization is non-provisional when the executive director finds the NOI is administratively complete and an authorization number is issued for the activity. For activities located in areas regulated by 30 TAC Chapter 213, related to the Edwards Aquifer, this authorization to discharge is separate from the requirements of the operator's responsibilities under that rule. Construction may not commence for sites regulated under 30 TAC Chapter 213 until all applicable requirements of that rule are met.

(c) Operators are not prohibited from submitting late NOIs or posting late notices to obtain authorization under this general permit. The TCEQ reserves the right to take appropriate enforcement actions for any unpermitted activities that may have occurred between the time construction commenced and authorization was obtained.

6. Notice of Change (NOC)

If relevant information provided in the NOI changes, an NOC must be submitted at least 14 days before the change occurs, if possible. Where 14-day advance notice is not possible, the operator must submit an NOC within 14 days of discovery of the change. If

the operator becomes aware that it failed to submit any relevant facts or submitted incorrect information in an NOI, the correct information must be provided to the executive director in an NOC within 14 days after discovery. The NOC shall be submitted on a form provided by the executive director, or by letter if an NOC form is not available. A copy of the NOC must also be provided to the operator of any MS4 receiving the discharge, and a list must be included in the SWP3 that includes the names and addresses of all MS4 operators receiving a copy.

Information that may be included on an NOC includes, but is not limited to, the following: the description of the construction project, an increase in the number of acres disturbed (for increases of one or more acres), or the operator name. A transfer of operational control from one operator to another, including a transfer of the ownership of a company, may not be included in an NOC.

A transfer of ownership of a company includes changes to the structure of a company, such as changing from a partnership to a corporation or changing corporation types, so that the filing number (or charter number) that is on record with the Texas Secretary of State must be changed.

An NOC is not required for notifying TCEQ of a decrease in the number of acres disturbed. This information must be included in the SWP3 and retained on site.

7. Signatory Requirement for NOI Forms, Notice of Termination (NOT) Forms, NOC Letters, and Construction Site Notices

NOI forms, NOT forms, NOC letters, and Construction Site Notices that require a signature must be signed according to 30 TAC § 305.44 (relating to Signatories for Applications).

8. Contents of the NOI

The NOI form shall require, at a minimum, the following information:

(a) the TPDES CGP authorization number for existing authorizations under this general permit, where the operator submits an NOI to renew coverage within 90 days of the effective date of this general permit;

(b) the name, address, and telephone number of the operator filing the NOI for permit coverage;

(c) the name (or other identifier), address, county, and latitude/longitude of the construction project or site;

(d) the number of acres that will be disturbed by the applicant;

(e) confirmation that the project or site will not be located on Indian Country lands;

(f) confirmation that a SWP3 has been developed in accordance with this general permit, that it will be implemented prior to construction, and that it is compliant with any applicable local sediment and erosion control plans; for multiple operators who prepare a shared SWP3, the confirmation for an operator may be limited to its obligations under the SWP3 provided all obligations are confirmed by at least one operator;

(g) name of the receiving water(s);

(h) the classified segment number for each classified segment that receives discharges from the regulated construction activity (if the discharge is not directly to a classified segment, then the classified segment number of the first classified segment that those discharges reach); and

(i) the name of all surface waters receiving discharges from the regulated construction activity that are on the latest EPA-approved CWA § 303(d) List of impaired waters.

Section F. Terminating Coverage

1. Notice of Termination (NOT) Required

Each operator that has submitted an NOI for authorization under this general permit must apply to terminate that authorization following the conditions described in this section of the general permit. Authorization must be terminated by submitting an NOT on a form supplied by the executive director. Authorization to discharge under this general permit terminates at midnight on the day the NOT is postmarked for delivery to the TCEQ. If electronic submission of the NOT is provided, authorization to discharge under this permit terminates immediately following confirmation of receipt of the NOT by the TCEQ. Compliance with the conditions and requirements of this permit is required until an NOT is submitted.

The NOT must be submitted to TCEQ, and a copy of the NOT provided to the operator of any MS4 receiving the discharge (with a list in the SWP3 of the names and addresses of all MS4 operators receiving a copy), within 30 days after any of the following conditions are met:

(a) final stabilization has been achieved on all portions of the site that are the responsibility of the permittee;

(b) a transfer of operational control has occurred (See Section II.F.4. below); or

(c) the operator has obtained alternative authorization under an individual TPDES permit or alternative TPDES general permit.

2. Minimum Contents of the NOT

The NOT form shall require, at a minimum, the following information:

(a) if authorization was granted following submission of an NOI, the permittee's site-specific TPDES authorization number for the construction site;

(b) an indication of whether the construction activity is completed or if the permittee is simply no longer an operator at the site;

(c) the name, address, and telephone number of the permittee submitting the NOT;

(d) the name (or other identifier), address, county, and location (latitude/longitude) of the construction project or site; and

(e) a signed certification that either all stormwater discharges requiring authorization under this general permit will no longer occur, or that the applicant is no longer the operator of the facility or construction site, and that all temporary structural erosion controls have either been removed, will be removed on a schedule defined in the SWP3, or have been transferred to a new operator if the new operator has applied for permit coverage. Erosion controls that are designed to remain in place for an indefinite period, such as mulches and fiber mats, are not required to be removed or scheduled for removal.

3. Termination of Coverage for Small Construction Sites and for Secondary Operators at Large Construction Sites

Each operator that has obtained automatic authorization and has not been required to submit an NOI must remove the site notice upon meeting any of the conditions listed below, complete the applicable portion of the site notice related to removal of the site notice, and submit a copy of the completed site notice to the operator of any MS4 receiving the discharge (or provide alternative notification as allowed by the MS4 operator, with documentation of such notification included in the SWP3), within 30 days of meeting any of the following conditions:

(a) final stabilization has been achieved on all portions of the site that are the responsibility of the permittee;

(b) a transfer of operational control has occurred (See Section II.F.4. below); or

(c) the operator has obtained alternative authorization under an individual or general TPDES permit.

Authorization to discharge under this general permit terminates immediately upon removal of the applicable site notice. Compliance with the conditions and requirements of this permit is required until the site notice is removed.

4. Transfer of Operational Control

Coverage under this general permit is not transferable. A transfer of operational control includes changes to the structure of a company, such as changing from a partnership to a corporation, or changing to a different corporation type such that a different filing (or charter) number is established with the Texas Secretary of State.

When the primary operator of a large construction activity changes or operational control is transferred, the original operator must submit an NOT within ten (10) days prior to the date that responsibility for operations terminates, and the new operator must submit an NOI at least ten (10) days prior to the transfer of operational control, in accordance with condition (a) or (b) below. A copy of the NOT must be provided to the operator of any MS4 receiving the discharge in accordance with Section II.F.1. above.

Operators of regulated construction activities who are not required to submit an NOI must remove the original site notice, and the new operator must post the required site notice prior to the transfer of operational control, in accordance with condition (a) or (b) below. A copy of the completed site notice must be provided to the operator of any MS4 receiving the discharge, in accordance with Section II.F.3. above.

A transfer of operational control occurs when either of the following criteria is met:

(a) Another operator has assumed control over all areas of the site that have not been finally stabilized; and all silt fences and other temporary erosion controls have either been removed, scheduled for removal as defined in the SWP3, or transferred to a new operator, provided that the permitted operator has attempted to notify the new operator in writing of the requirement to obtain permit coverage. Record of this notification (or attempt at notification) shall be retained by the operator in accordance with Part VI of this permit. Erosion controls that are designed to remain in place for an indefinite period, such as mulches and fiber mats, are not required to be removed or scheduled for removal.

(b) A homebuilder has purchased one or more lots from an operator who obtained coverage under this general permit for a common plan of development or sale. The homebuilder is considered a new operator and shall comply with the requirements listed above, including the development of a SWP3 if necessary. Under these circumstances, the homebuilder is only responsible for compliance with the general permit requirements as they apply to lot(s) it has operational control over, and the original operator remains responsible for common controls or discharges, and must amend its SWP3 to remove the lot(s) transferred to the homebuilder.

Section G. Waivers from Coverage

The executive director may waive the otherwise applicable requirements of this general permit for stormwater discharges from small construction activities under the terms and conditions described in this section.

1. Waiver Applicability and Coverage

Operators of small construction activities may apply for and receive a waiver from the requirements to obtain authorization under this general permit, where all of the following conditions are met. This waiver from coverage does not apply to non-stormwater discharges. The operator must insure that any non-stormwater discharges are either authorized under a separate permit or authorization, or are not considered to be a wastewater.

(a) the calculated rainfall erosivity (R) factor for the entire period of the construction project is less than five (5);

(b) the operator submits to the TCEQ a signed waiver certification form, supplied by the executive director, certifying that the construction activity will commence and be completed within a period when the value of the calculated R factor is less than five (5); and

(c) the waiver certification form is postmarked for delivery to the TCEQ at least seven (7) days before construction activity begins or, if electronic filing is available, then any time following the receipt of written confirmation from TCEQ that a complete electronic application was submitted and acknowledged.

2. Steps to Obtaining a Waiver

The construction site operator may calculate the R factor to request a waiver using the following steps:

(a) Estimate the construction start date and the construction end date. The construction end date is the date that final stabilization will be achieved.

(b) Find the appropriate Erosivity Index (EI) zone in Appendix B of this permit.

(c) Find the EI percentage for the project period by adding the results for each period of the project using the table provided in Appendix D of this permit, in EPA Fact Sheet 2.1, or in USDA Handbook 703, by subtracting the start value from the end value to find the percent EI for the site.

(d) Refer to the Isoerodent Map (Appendix C of this permit) and interpolate the annual isoerodent value for the proposed construction location.

(e) Multiply the percent value obtained in Step (c) above by the annual isoerodent value obtained in Step (d). This is the R factor for the proposed project. If the value is less than 5, then a waiver may be obtained. If the value is five (5) or more, then a waiver may not be obtained, and the operator must obtain coverage under Part II.E.2. of this permit.

Alternatively, the operator may calculate a site-specific R factor utilizing the following online calculator: http://ei.tamu.edu/index.html, or using another available resource.

The waiver certification form is not required to be posted at the small construction site.

3. Effective Date of Waiver

Operators of small construction activities are provisionally waived from the otherwise applicable requirements of this general permit seven (7) days from the date that a completed waiver certification form is postmarked for delivery to TCEQ, or immediately upon receiving confirmation of approval of an electronic submittal, if electronic form submittals are available.

4. Activities Extending Beyond the Waiver Period

If a construction activity extends beyond the approved waiver period due to circumstances beyond the control of the operator, the operator must either:

(a) recalculate the R factor using the original start date and a new projected ending date, and if the R factor is still under five (5), submit a new waiver certification form at least two (2) days before the end of the original waiver period; or

(b) obtain authorization under this general permit according to the requirements delineated in either Part II.E.2. or Part II.E.3. before the end of the approved waiver period.

Section H. Alternative TPDES Permit Coverage

1. Individual Permit Alternative

Any discharge eligible for coverage under this general permit may alternatively be authorized under an individual TPDES permit according to 30 TAC §305 (relating to Consolidated Permits). Applications for individual permit coverage should be submitted at least three hundred and thirty (330) days prior to commencement of construction activities to ensure timely authorization.

2. Individual Permit Required

The executive director may suspend an authorization or deny an NOI in accordance with the procedures set forth in 30 TAC §205 (relating to General Permits for Waste Discharges), including the requirement that the executive director provide written notice to the permittee. The executive director may require an operator of a construction site, otherwise eligible for authorization under this general permit, to apply for an individual TPDES permit in the following circumstances:

(a) the conditions of an approved TMDL or TMDL I-Plan on the receiving water;

(b) the activity being determined to cause a violation of water quality standards or being found to cause, or contribute to, the loss of a designated use of surface water in the state: and

(c) any other consideration defined in 30 TAC Chapter 205 (relating to General Permits for Waste Discharges) including 30 TAC Chapter 205.4(c)(3)(D), which allows the commission to deny authorization under the general permit and require an individual permit if a discharger "has been determined by the executive director to have been out of compliance with any rule, order, or permit of the commission, including non-payment of fees assessed by the executive director."

Additionally, the executive director may cancel, revoke, or suspend authorization to discharge under this general permit based on a finding of historical and significant noncompliance with the provisions of this general permit, relating to 30 TAC §60.3 (Use of Compliance History). Denial of authorization to discharge under this general permit or suspension of a permittee's authorization under this general permit shall be done according to commission rules in 30 TAC Chapter 205 (relating to General Permits for Waste Discharges).

3. Alternative Discharge Authorization

Any discharge eligible for authorization under this general permit may alternatively be authorized under a separate general permit according to 30 TAC Chapter 205 (relating to General Permits for Waste Discharges), if applicable.

Section I. Permit Expiration

1. This general permit is effective for a term not to exceed five (5) years. All active discharge authorizations expire on the date provided on page one (1) of this permit. Following public notice and comment, as provided by 30 TAC §205.3 (relating to

Public Notice, Public Meetings, and Public Comment), the commission may amend, revoke, cancel, or renew this general permit.

2. If the executive director publishes a notice of the intent to renew or amend this general permit before the expiration date, the permit will remain in effect for existing, authorized discharges until the commission takes final action on the permit. Upon issuance of a renewed or amended permit, permittees may be required to submit an NOI within 90 days following the effective date of the renewed or amended permit, unless that permit provides for an alternative method for obtaining authorization.
3. If the commission does not propose to reissue this general permit within 90 days before the expiration date, permittees shall apply for authorization under an individual permit or an alternative general permit. If the application for an individual permit is submitted before the expiration date, authorization under this expiring general permit remains in effect until the issuance or denial of an individual permit. No new NOIs will be accepted nor new authorizations honored under the general permit after the expiration date.

Part III. Stormwater Pollution Prevention Plans (SWP3)

All regulated construction site operators shall prepare an SWP3, prior to submittal of an NOI, to address discharges authorized under Parts II.E.2. and II.E.3. of this general permit that will reach Waters of the U.S., including discharges to MS4s and privately owned separate storm sewer systems that drain to Waters of the U.S., to identify and address potential sources of pollution that are reasonably expected to affect the quality of discharges from the construction site, including off-site material storage areas, overburden and stockpiles of dirt, borrow areas, equipment staging areas, vehicle repair areas, fueling areas, etc., used solely by the permitted project. The SWP3 must describe the implementation of practices that will be used to minimize to the extent practicable the discharge of pollutants in stormwater associated with construction activity and non-stormwater discharges described in Part II.A.3., in compliance with the terms and conditions of this permit.

Individual operators at a site may develop separate SWP3s that cover only their portion of the project, provided reference is made to the other operators at the site. Where there is more than one SWP3 for a site, permittees must coordinate to ensure that BMPs and controls are consistent and do not negate or impair the effectiveness of each other. Regardless of whether a single comprehensive SWP3 is developed or separate SWP3s are developed for each operator, it is the responsibility of each operator to ensure compliance with the terms and conditions of this general permit in the areas of the construction site where that operator has control over construction plans and specifications or day-to-day operations.

Section A. Shared SWP3 Development

For more effective coordination of BMPs and opportunities for cost sharing, a cooperative effort by the different operators at a site is encouraged. Operators must independently obtain authorization, but may work together to prepare and implement a single, comprehensive SWP3 for the entire construction site.

1. The SWP3 must clearly list the name and, for large construction activities, the general permit authorization numbers, for each operator that participates in the shared SWP3. Until the TCEQ responds to receipt of the NOI with a general permit authorization number, the SWP3 must specify the date that the NOI was submitted to TCEQ by each operator. Each operator participating in the shared plan must also sign the SWP3.

2. The SWP3 must clearly indicate which operator is responsible for satisfying each shared requirement of the SWP3. If the responsibility for satisfying a requirement is not described in the plan, then each permittee is entirely responsible for meeting the requirement within the boundaries of the construction site where they perform construction activities. The SWP3 must clearly describe responsibilities for meeting each requirement in shared or common areas.
3. The SWP3 may provide that one operator is responsible for preparation of a SWP3 in compliance with the CGP, and another operator is responsible for implementation of the SWP3 at the project site.

Section B. Responsibilities of Operators

1. Secondary Operators and Primary Operators with Control Over Construction Plans and Specifications

All secondary operators and primary operators with control over construction plans and specifications shall:

(a) ensure the project specifications allow or provide that adequate BMPs are developed to meet the requirements of Part III of this general permit;

(b) ensure that the SWP3 indicates the areas of the project where they have control over project specifications, including the ability to make modifications in specifications;

(c) ensure that all other operators affected by modifications in project specifications are notified in a timely manner so that those operators may modify their BMP s as necessary to remain compliant with the conditions of this general permit; and

(d) ensure that the SWP3 for portions of the project where they are operators indicates the name and site-specific TPDES authorization number(s) for operators with the day-to-day operational control over those activities necessary to ensure compliance with the SWP3 and other permit conditions. If the party with day-to-day operational control has not been authorized or has abandoned the site, the person with control over project specifications is considered to be the responsible party until the authority is transferred to another party and the SWP3 is updated.

2. Primary Operators with Day-to-Day Operational Control

Primary operators with day-to-day operational control of those activities at a project that are necessary to ensure compliance with an SWP3 and other permit conditions must ensure that the SWP3 accomplishes the following requirements:

(a) meets the requirements of this general permit for those portions of the project where they are operators;

(b) identifies the parties responsible for implementation of BMPs described in the SWP3;

(c) indicates areas of the project where they have operational control over day-to-day activities; and

(d) includes, for areas where they have operational control over day-to-day activities, the name and site-specific TPDES authorization number of the parties with control over project specifications, including the ability to make modifications in specifications.

Section C. Deadlines for SWP3 Preparation, Implementation, and Compliance

The SWP3 must be prepared prior to obtaining authorization under this general permit, and implemented prior to commencing construction activities that result in soil

disturbance. The SWP3 must be prepared so that it provides for compliance with the terms and conditions of this general permit.

Section D. Plan Review and Making Plans Available

1. The SWP3 must be retained on-site at the construction site or, if the site is inactive or does not have an on-site location to store the plan, a notice must be posted describing the location of the SWP3. The SWP3 must be made readily available at the time of an on-site inspection to: the executive director; a federal, state, or local agency approving sediment and erosion plans, grading plans, or stormwater management plans; local government officials; and the operator of a municipal separate storm sewer receiving discharges from the site. If the SWP3 is retained off-site, then it shall be made available as soon as reasonably possible. In most instances, it is reasonable that the SWP3 shall be made available within 24 hours of the request.
2. A primary operator of a large construction activity must post the TCEQ site notice near the main entrance of the construction site. An operator of a small construction activity seeking authorization under this general permit and a secondary operator of a large construction activity must post the TCEQ site notice required in Part II.E.1., 2., or 3. of this general permit in order to obtain authorization. If the construction project is a linear construction project, such as a pipeline or highway, the notices must be placed in a publicly accessible location near where construction is actively underway. Notices for these linear sites may be relocated, as necessary, along the length of the project. The notices must be readily available for viewing by the general public; local, state, and federal authorities; and contain the following information:
   (a) the site-specific TPDES authorization number for the project if assigned;
   (b) the operator name, contact name, and contact phone number;
   (c) a brief description of the project; and
   (d) the location of the SWP3.
3. This permit does not provide the general public with any right to trespass on a construction site for any reason, including inspection of a site; nor does this permit require that permittees allow members of the general public access to a construction site.

Section E. Revisions and Updates to SWP3s

The permittee must revise or update the SWP3 whenever the following occurs:

1. a change in design, construction, operation, or maintenance that has a significant effect on the discharge of pollutants and that has not been previously addressed in the SWP3;
2. changing site conditions based on updated plans and specifications, new operators, new areas of responsibility, and changes in BMPs; or
3. results of inspections or investigations by site operators, operators of a municipal separate storm sewer system receiving the discharge, authorized TCEQ personnel, or a federal, state or local agency approving sediment and erosion plans indicate the SWP3 is proving ineffective in eliminating or significantly minimizing pollutants in discharges authorized under this general permit.

Section F. Contents of SWP3

The SWP3 must include, at a minimum, the information described in this section and must comply with the construction and development effluent guidelines in Part III, Section G of the general permit.

1. A site or project description, which includes the following information:
   (a) a description of the nature of the construction activity;
   (b) a list of potential pollutants and their sources;
   (c) a description of the intended schedule or sequence of activities that will disturb soils for major portions of the site, including estimated start dates and duration of activities;
   (d) the total number of acres of the entire property and the total number of acres where construction activities will occur, including off-site material storage areas, overburden and stockpiles of dirt, and borrow areas that are authorized under the permittee's NOI;
   (e) data describing the soil or the quality of any discharge from the site;
   (f) a map showing the general location of the site (e.g. a portion of a city or county map);
   (g) a detailed site map (or maps) indicating the following:
      (i) drainage patterns and approximate slopes anticipated after major grading activities;
      (ii) areas where soil disturbance will occur;
      (iii) locations of all controls and buffers, either planned or in place;
      (iv) locations where temporary or permanent stabilization practices are expected to be used;
      (v) locations of construction support activities, including off-site activities, that are authorized under the permittee's NOI, including material, waste, borrow, fill, or equipment or chemical storage areas;
      (vi) surface waters (including wetlands) either at, adjacent, or in close proximity to the site, and also indicating those that are impaired waters;
      (vii) locations where stormwater discharges from the site directly to a surface water body or a municipal separate storm sewer system;
      (viii) vehicle wash areas; and
      (ix) designated points on the site where vehicles will exit onto paved roads (for instance, this applies to construction transition from unstable dirt areas to exterior paved roads).

      Where the amount of information required to be included on the map would result in a single map being difficult to read and interpret, the operator shall develop a series of maps that collectively include the required information.
   (h) the location and description of support activities authorized under the permittee's NOI, including asphalt plants, concrete plants, and other activities providing support to the construction site that is authorized under this general permit;
   (i) the name of receiving waters at or near the site that may be disturbed or that may receive discharges from disturbed areas of the project;
   (j) a copy of this TPDES general permit;
   (k) the NOI and acknowledgement certificate for primary operators of large construction sites, and the site notice for small construction sites and for secondary operators of large construction sites;
   (l) stormwater and allowable non-stormwater discharge locations, including storm drain inlets on site and in the immediate vicinity of the construction site; and

(m) locations of all pollutant-generating activities, such as paving operations; concrete, paint and stucco washout and water disposal; solid waste storage and disposal; and dewatering operations.

2. A description of the BMPs that will be used to minimize pollution in runoff.

The description must identify the general timing or sequence for implementation. At a minimum, the description must include the following components:

(a) General Requirements

(i) Erosion and sediment controls must be designed to retain sediment on-site to the extent practicable with consideration for local topography, soil type, and rainfall.

(ii) Control measures must be properly selected, installed, and maintained according to the manufacturer's or designer's specifications.

(iii) Controls must be developed to minimize the offsite transport of litter, construction debris, and construction materials.

(b) Erosion Control and Stabilization Practices

The SWP3 must include a description of temporary and permanent erosion control and stabilization practices for the site, compliant with the requirements of Part III.G.1 and G.2 of this general permit, including a schedule of when the practices will be implemented. Site plans should ensure that existing vegetation is preserved where it is possible.

(i) Erosion control and stabilization practices may include but are not limited to: establishment of temporary or permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of existing trees and vegetation, slope texturing, temporary velocity dissipation devices, flow diversion mechanisms, and other similar measures.

(ii) The following records must be maintained and either attached to or referenced in the SWP3, and made readily available upon request to the parties listed in Part III.D.1 of this general permit:

(A) the dates when major grading activities occur;

(B) the dates when construction activities temporarily or permanently cease on a portion of the site; and

(C) the dates when stabilization measures are initiated.

(iii) Erosion control and stabilization measures must be initiated immediately in portions of the site where construction activities have temporarily ceased and will not resume for a period exceeding 14 calendar days. Stabilization measures that provide a protective cover must be initiated immediately in portions of the site where construction activities have permanently ceased. The term "immediately" is used to define the deadline for initiating stabilization measures. In the context of this requirement, "immediately" means as soon as practicable, but no later than the end of the next work day, following the day when the earth-disturbing activities have temporarily or permanently ceased. Except as provided in (A) through (D) below, these measures must be completed as soon as practicable, but no more than 14 calendar days after the initiation of soil stabilization measures:

(A) Where the immediate initiation of stabilization measures after construction activity temporarily or permanently ceased is precluded

by snow cover or frozen ground conditions, stabilization measures must be initiated as soon as practicable.

(B) In arid areas, semi-arid areas, or drought-stricken areas where the immediate initiation of stabilization measures after construction activity has temporarily or permanently ceased or is precluded by arid conditions, erosion control and stabilization measures must be initiated as soon as practicable. Where vegetative controls are not feasible due to arid conditions, the operator shall immediately install, and within 14 calendar days of a temporary or permanent cessation of work in any portion of the site complete, non-vegetative erosion controls. If non-vegetative controls are not feasible, the operator shall install temporary sediment controls as required in Paragraph (C) below.

(C) In areas where temporary stabilization measures are infeasible, the operator may alternatively utilize temporary perimeter controls. The operator must document in the SWP3 the reason why stabilization measures are not feasible, and must demonstrate that the perimeter controls will retain sediment on site to the extent practicable. The operator must continue to inspect the BMPs at the frequency established in Section III.F.7.(a) for unstabilized sites.

(D) If the initiation or completion of vegetative stabilization is affected by circumstances beyond the control of the permittee, vegetative stabilization must be initiated or completed as soon as conditions or circumstances allow it on the site. The requirement to initiate stabilization is triggered as soon as it is known with reasonable certainty that work will be stopped for 14 or more additional calendar days.

(iv) Final stabilization must be achieved prior to termination of permit coverage.

(v) TCEQ does not expect that temporary or permanent stabilization measures to be applied to areas that are intended to be left un-vegetated or un-stabilized following construction (e.g., dirt access roads, utility pole pads, areas being used for storage of vehicles, equipment, or materials).

(c) Sediment Control Practices

The SWP3 must include a description of any sediment control practices used to remove eroded soils from stormwater runoff, including the general timing or sequence for implementation of controls.

(i) Sites With Drainage Areas of Ten or More Acres

(A) Sedimentation Basin(s)

(1) A sedimentation basin is required, where feasible, for a common drainage location that serves an area with ten (10) or more acres disturbed at one time. A sedimentation basin may be temporary or permanent, and must provide sufficient storage to contain a calculated volume of runoff from a 2-year, 24-hour storm from each disturbed acre drained. When calculating the volume of runoff from a 2-year, 24-hour storm event, it is not required to include the flows from offsite areas and flow from onsite areas that are either undisturbed or have already undergone permanent stabilization, if these flows are diverted around both the disturbed areas of the site and the sediment basin. Capacity calculations shall be included in the SWP3.

(2) Where rainfall data is not available or a calculation cannot be performed, the sedimentation basin must provide at least 3,600 cubic feet of storage per acre drained until final stabilization of the site.

(3) If a sedimentation basin is not feasible, then the permittee shall provide equivalent control measures until final stabilization of the site. In determining whether installing a sediment basin is feasible, the permittee may consider factors such as site soils, slope, available area, public safety, precipitation patterns, site geometry, site vegetation, infiltration capacity, geotechnical factors, depth to groundwater, and other similar considerations. The permittee shall document the reason that the sediment basins are not feasible, and shall utilize equivalent control measures, which may include a series of smaller sediment basins.

(4) Unless infeasible, when discharging from sedimentation basins and impoundments, the permittee shall utilize outlet structures that withdraw water from the surface.

(B) Perimeter Controls: At a minimum, silt fences, vegetative buffer strips, or equivalent sediment controls are required for all down slope boundaries of the construction area, and for those side slope boundaries deemed appropriate as dictated by individual site conditions.

(ii) Controls for Sites With Drainage Areas Less than Ten Acres:

(A) Sediment traps and sediment basins may be used to control solids in stormwater runoff for drainage locations serving less than ten (10) acres. At a minimum, silt fences, vegetative buffer strips, or equivalent sediment controls are required for all down slope boundaries of the construction area, and for those side slope boundaries deemed appropriate as dictated by individual site conditions.

(B) Alternatively, a sediment basin that provides storage for a calculated volume of runoff from a 2-year, 24-hour storm from each disturbed acre drained may be utilized. Where rainfall data is not available or a calculation cannot be performed, a temporary or permanent sediment basin providing 3,600 cubic feet of storage per acre drained may be provided. If a calculation is performed, then the calculation shall be included in the SWP3.

(C) If sedimentation basins or impoundments are used, the permittee shall comply with the requirements in Part III.G.6 of this general permit.

3. Description of Permanent Stormwater Controls

A description of any measures that will be installed during the construction process to control pollutants in stormwater discharges that may occur after construction operations have been completed must be included in the SWP3. Permittees are only responsible for the installation and maintenance of stormwater management measures prior to final stabilization of the site or prior to submission of an NOT.

4. Other Required Controls and BMPs

(a) Permittees shall minimize, to the extent practicable, the off-site vehicle tracking of sediments and the generation of dust. The SWP3 shall include a description of controls utilized to accomplish this requirement.

(b) The SWP3 must include a description of construction and waste materials expected to be stored on-site and a description of controls to minimize pollutants from these materials.

(c) The SWP3 must include a description of potential pollutant sources from areas other than construction (such as stormwater discharges from dedicated asphalt plants and dedicated concrete batch plants), and a description of controls and measures that will be implemented at those sites to minimize pollutant discharges.

(d) Permittees shall place velocity dissipation devices at discharge locations and along the length of any outfall channel (i.e., runoff conveyance) to provide a non-erosive flow velocity from the structure to a water course, so that the natural physical and biological characteristics and functions are maintained and protected.

(e) Permittees shall design and utilize appropriate controls to minimize the offsite transport of suspended sediments and other pollutants if it is necessary to pump or channel standing water from the site.

(f) Permittees shall ensure that all other required controls and BMPs comply with all of the requirements of Part III.G of this general permit.

5. Documentation of Compliance with Approved State and Local Plans

(a) Permittees must ensure that the SWP3 is consistent with requirements specified in applicable sediment and erosion site plans or site permits, or stormwater management site plans or site permits approved by federal, state, or local officials.

(b) SWP3s must be updated as necessary to remain consistent with any changes applicable to protecting surface water resources in sediment erosion site plans or site permits, or stormwater management site plans or site permits approved by state or local official for which the permittee receives written notice.

(c) If the permittee is required to prepare a separate management plan, including but not limited to a WPAP or Contributing Zone Plan in accordance with 30 TAC Chapter 213 (related to the Edwards Aquifer), then a copy of that plan must be either included in the SWP3 or made readily available upon request to authorized personnel of the TCEQ. The permittee shall maintain a copy of the approval letter for the plan in its SWP3.

6. Maintenance Requirements

(a) All protective measures identified in the SWP3 must be maintained in effective operating condition. If, through inspections or other means, the permittee determines that BMPs are not operating effectively, then the permittee shall perform maintenance as necessary to maintain the continued effectiveness of stormwater controls, and prior to the next rain event if feasible. If maintenance prior to the next anticipated storm event is impracticable, the reason shall be documented in the SWP3 and maintenance must be scheduled and accomplished as soon as practicable. Erosion and sediment controls that have been intentionally disabled, run-over, removed, or otherwise rendered ineffective must be replaced or corrected immediately upon discovery.

(b) If periodic inspections or other information indicates a control has been used incorrectly, is performing inadequately, or is damaged, then the operator shall replace or modify the control as soon as practicable after making the discovery.

(c) Sediment must be removed from sediment traps and sedimentation ponds no later than the time that design capacity has been reduced by 50%. For perimeter

controls such as silt fences, berms, etc., the trapped sediment must be removed before it reaches 50% of the above-ground height.

(d) If sediment escapes the site, accumulations must be removed at a frequency that minimizes off-site impacts, and prior to the next rain event, if feasible. If the permittee does not own or operate the off-site conveyance, then the permittee shall work with the owner or operator of the property to remove the sediment.

7. Inspections of Controls

(a) Personnel provided by the permittee must inspect disturbed areas of the construction site that have not been finally stabilized, areas used for storage of materials that are exposed to precipitation, discharge locations, and structural controls for evidence of, or the potential for, pollutants entering the drainage system. Personnel conducting these inspections must be knowledgeable of this general permit, familiar with the construction site, and knowledgeable of the SWP3 for the site. Sediment and erosion control measures identified in the SWP3 must be inspected to ensure that they are operating correctly. Locations where vehicles enter or exit the site must be inspected for evidence of off-site sediment tracking. Inspections must be conducted at least once every 14 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater.

Where sites have been finally or temporarily stabilized or where runoff is unlikely due to winter conditions (e.g. site is covered with snow, ice, or frozen ground exists), inspections must be conducted at least once every month. In arid, semi-arid, or drought-stricken areas, inspections must be conducted at least once every month and within 24 hours after the end of a storm event of 0.5 inches or greater. The SWP3 must also contain a record of the total rainfall measured, as well as the approximate beginning and ending dates of winter or drought conditions resulting in monthly frequency of inspections.

As an alternative to the above-described inspection schedule of once every 14 calendar days and within 24 hours of a storm event of 0.5 inches or greater, the SWP3 may be developed to require that these inspections will occur at least once every seven (7) calendar days. If this alternative schedule is developed, then the inspection must occur regardless of whether or not there has been a rainfall event since the previous inspection.

The inspections may occur on either schedule provided that the SWP3 reflects the current schedule and that any changes to the schedule are conducted in accordance with the following provisions: the schedule may be changed a maximum of one time each month, the schedule change must be implemented at the beginning of a calendar month, and the reason for the schedule change must be documented in the SWP3 (e.g., end of "dry" season and beginning of "wet" season).

(b) Utility line installation, pipeline construction, and other examples of long, narrow, linear construction activities may provide inspection personnel with limited access to the areas described in Part III.F.7.(a) above. Inspection of these areas could require that vehicles compromise temporarily or even permanently stabilized areas, cause additional disturbance of soils, and increase the potential for erosion. In these circumstances, controls must be inspected at least once every 14 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater, but representative inspections may be performed. For representative inspections, personnel must inspect controls along the construction site for 0.25 mile above and below each access point where a roadway, undisturbed right-of-way, or other similar feature intersects the construction site and allows access to the areas described in Part III.F.7.(a)

above. The conditions of the controls along each inspected 0.25 mile portion may be considered as representative of the condition of controls along that reach extending from the end of the 0.25 mile portion to either the end of the next 0.25 mile inspected portion, or to the end of the project, whichever occurs first.

As an alternative to the above-described inspection schedule of once every 14 calendar days and within 24 hours of a storm event of 0.5 inches or greater, the SWP3 may be developed to require that these inspections will occur at least once every seven (7) calendar days. If this alternative schedule is developed, the inspection must occur regardless of whether or not there has been a rainfall event since the previous inspection. The inspections may occur on either schedule provided that the SWP3 reflects the current schedule and that any changes to the schedule are conducted in accordance with the following provisions: the schedule may be changed a maximum of one time each month, the schedule change must be implemented at the beginning of a calendar month, and the reason for the schedule change must be documented in the SWP3 (e.g., end of "dry" season and beginning of "wet" season).

(c) In the event of flooding or other uncontrollable situations which prohibit access to the inspection sites, inspections must be conducted as soon as access is practicable.

(d) The SWP3 must be modified based on the results of inspections, as necessary, to better control pollutants in runoff. Revisions to the SWP3 must be completed within seven (7) calendar days following the inspection. If existing BMPs are modified or if additional BMPs are necessary, an implementation schedule must be described in the SWP3 and wherever possible those changes implemented before the next storm event. If implementation before the next anticipated storm event is impracticable, these changes must be implemented as soon as practicable.

(e) A report summarizing the scope of the inspection, the date(s) of the inspection, and major observations relating to the implementation of the SWP3 must be made and retained as part of the SWP3. Major observations should include: The locations of discharges of sediment or other pollutants from the site; locations of BMPs that need to be maintained; locations of BMPs that failed to operate as designed or proved inadequate for a particular location; and locations where additional BMPs are needed.

Actions taken as a result of inspections must be described within, and retained as a part of, the SWP3. Reports must identify any incidents of non-compliance. Where a report does not identify any incidents of non-compliance, the report must contain a certification that the facility or site is in compliance with the SWP3 and this permit. The report must be signed by the person and in the manner required by 30 TAC §305.128 (relating to Signatories to Reports).

The names and qualifications of personnel making the inspections for the permittee may be documented once in the SWP3 rather than being included in each report.

8. The SWP3 must identify and ensure the implementation of appropriate pollution prevention measures for all eligible non-stormwater components of the discharge, as listed in Part II.A.3. of this permit.
9. The SWP3 must include the information required in Part III.B. of this general permit.
10. The SWP3 must include pollution prevention procedures that comply with Part III.G.4 of this general permit.

Section G. Erosion and Sediment Control Requirements Applicable to All Sites

Except as provided in 40 CFR §§125.30-125.32, any discharge regulated under this general permit, with the exception of sites that obtained waivers based on low rainfall erosivity, must achieve, at a minimum, the following effluent limitations representing the degree of effluent reduction attainable by application of the best practicable control technology currently available (BPT).

1. *Erosion and sediment controls.* Design, install, and maintain effective erosion controls and sediment controls to minimize the discharge of pollutants. At a minimum, such controls must be designed, installed, and maintained to:

   (a) Control stormwater volume and velocity within the site to minimize soil erosion;

   (b) If any stormwater flow will be channelized at the site, stormwater controls must be designed to control both peak flowrates and total stormwater volume to minimize erosion at outlets and to minimize downstream channel and streambank erosion;

   (c) Minimize the amount of soil exposed during construction activity;

   (d) Minimize the disturbance of steep slopes;

   (e) Minimize sediment discharges from the site. The design, installation, and maintenance of erosion and sediment controls must address factors such as the amount, frequency, intensity and duration of precipitation, the nature of resulting stormwater runoff, and soil characteristics, including the range of soil particle sizes expected to be present on the site;

   (f) If earth disturbance activities are located in close proximity to a surface water, provide and maintain appropriate natural buffers if feasible and as necessary, around surface waters, depending on site-specific topography, sensitivity, and proximity to water bodies. Direct stormwater to vegetated areas to increase sediment removal and maximize stormwater infiltration. If providing buffers is infeasible, the permittee shall document the reason that natural buffers are not feasible, and shall implement additional erosion and sediment controls to reduce sediment load;

   (g) Preserve native topsoil at the site, unless infeasible; and

   (h) Minimize soil compaction in post-construction pervious areas. In areas of the construction site where final vegetative stabilization will occur or where infiltration practices will be installed, either:

      (1) restrict vehicle and equipment use to avoid soil compaction; or

      (2) prior to seeding or planting areas of exposed soil that have been compacted, use techniques that condition the soils to support vegetative growth, if necessary and feasible;

   (i) TCEQ does not consider stormwater control features (e.g., stormwater conveyance channels, storm drain inlets, sediment basins) to constitute "surface waters" for the purposes of triggering the buffer requirement in Part III.G.(f) above.

2. *Soil stabilization.* Stabilization of disturbed areas must, at a minimum, be initiated immediately whenever any clearing, grading, excavating, or other earth disturbing activities have permanently ceased on any portion of the site, or temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days. In the context of this requirement, "immediately" means as soon as practicable, but no later than the end of the next work day, following the day when the earth-disturbing activities have temporarily or permanently ceased. Temporary

stabilization must be completed no more than 14 calendar days after initiation of soil stabilization measures, and final stabilization must be achieved prior to termination of permit coverage. In arid, semi-arid, and drought-stricken areas where initiating vegetative stabilization measures immediately is infeasible, alternative non-vegetative stabilization measures must be employed as soon as practicable. Refer to Part III.F.2.(b) for complete erosion control and stabilization practice requirements.

3. *Dewatering*. Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, are prohibited, unless managed by appropriate controls.
4. *Pollution prevention measures*. Design, install, implement, and maintain effective pollution prevention measures to minimize the discharge of pollutants. At a minimum, such measures must be designed, installed, implemented, and maintained to:
   (a) Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge;
   (b) Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, and other materials present on the site to precipitation and to stormwater; and
   (c) Minimize the discharge of pollutants from spills and leaks, and implement chemical spill and leak prevention and response procedures.
5. *Prohibited discharges*. The following discharges are prohibited:
   (a) Wastewater from wash out of concrete trucks, unless managed by an appropriate control (see Part V of the general permit);
   (b) Wastewater from wash out and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;
   (c) Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance; and
   (d) Soaps or solvents used in vehicle and equipment washing.
6. *Surface outlets*. When discharging from basins and impoundments, utilize outlet structures that withdraw water from the surface, unless infeasible.

Part IV. Stormwater Runoff from Concrete Batch Plants

Discharges of stormwater runoff from concrete batch plants at regulated construction sites may be authorized under the provisions of this general permit provided that the following requirements are met for concrete batch plant(s) authorized under this permit. If discharges of stormwater runoff from concrete batch plants are not covered under this general permit, then discharges must be authorized under an alternative general permit or individual permit. This permit does not authorize the discharge or land disposal of any wastewater from concrete batch plants at regulated construction sites. Authorization for these wastes must be obtained under an individual permit or an alternative general permit.

Section A. Benchmark Sampling Requirements

1. Operators of concrete batch plants authorized under this general permit shall sample the stormwater runoff from the concrete batch plants according to the requirements

of this section of this general permit, and must conduct evaluations on the effectiveness of the SWP3 based on the following benchmark monitoring values:

Table 1. Benchmark Parameters

Benchmark Parameter	Benchmark Value	Sampling Frequency	Sample Type
Oil and Grease	15 mg/L	1/quarter (*1) (*2)	Grab (*3)
Total Suspended Solids	100 mg/L	1/quarter (*1) (*2)	Grab (*3)
pH	6.0 – 9.0 Standard Units	1/quarter (*1) (*2)	Grab (*3)
Total Iron	1.3 mg/L	1/quarter (*1) (*2)	Grab (*3)

(*1) When discharge occurs. Sampling is required within the first 30 minutes of discharge. If it is not practicable to take the sample, or to complete the sampling, within the first 30 minutes, sampling must be completed within the first hour of discharge. If sampling is not completed within the first 30 minutes of discharge, the reason must be documented and attached to all required reports and records of the sampling activity.

(*2) Sampling must be conducted at least once during each of the following periods. The first sample must be collected during the first full quarter that a stormwater discharge occurs from a concrete batch plant authorized under this general permit.

January through March

April through June

July through September

October through December

For projects lasting less than one full quarter, a minimum of one sample shall be collected, provided that a stormwater discharge occurred at least once following submission of the NOI or following the date that automatic authorization was obtained under Section II.E.2., and prior to terminating coverage.

(*3) A grab sample shall be collected from the stormwater discharge resulting from a storm event that is at least 0.1 inches of measured precipitation that occurs at least 72 hours from the previously measurable storm event. The sample shall be collected downstream of the concrete batch plant, and where the discharge exits any BMPs utilized to handle the runoff from the batch plant, prior to commingling with any other water authorized under this general permit.

2. The permittee must compare the results of sample analyses to the benchmark values above, and must include this comparison in the overall assessment of the SWP3's effectiveness. Analytical results that exceed a benchmark value are not a violation of this permit, as these values are not numeric effluent limitations. Results of analyses are indicators that modifications of the SWP3 should be assessed and may be necessary to protect water quality. The operator must investigate the cause for each exceedance and must document the results of this investigation in the SWP3 by the end of the quarter following the sampling event.

The operator's investigation must identify the following:

(a) any additional potential sources of pollution, such as spills that might have occurred,

(b) necessary revisions to good housekeeping measures that are part of the SWP3,

(c) additional BMPs, including a schedule to install or implement the BMPs, and

(d) other parts of the SWP3 that may require revisions in order to meet the goal of the benchmark values.

Background concentrations of specific pollutants may also be considered during the investigation. If the operator is able to relate the cause of the exceedance to background concentrations, then subsequent exceedances of benchmark values for that pollutant may be resolved by referencing earlier findings in the SWP3. Background concentrations may be identified by laboratory analyses of samples of stormwater runon to the permitted facility, by laboratory analyses of samples of stormwater run-off from adjacent non-industrial areas, or by identifying the pollutant is a naturally occurring material in soils at the site.

Section B. Best Management Practices (BMPs) and SWP3 Requirements

Minimum SWP3 Requirements – The following are required in addition to other SWP3 requirements listed in this general permit (including, but not limited to Part III.F.7. of this permit):

1. Description of Potential Pollutant Sources - The SWP3 must provide a description of potential sources (activities and materials) that may reasonably be expected to affect the quality of stormwater discharges associated with concrete batch plants authorized under this permit. The SWP3 must describe practices that that will be used to reduce the pollutants in these discharges to assure compliance with this general permit, including the protection of water quality, and must ensure the implementation of these practices.

   The following must be developed, at a minimum, in support of developing this description:

   (a) Drainage – The site map must include the following information:

      (1) the location of all outfalls for stormwater discharges associated with concrete batch plants that are authorized under this permit;

      (2) a depiction of the drainage area and the direction of flow to the outfall(s);

      (3) structural controls used within the drainage area(s);

      (4) the locations of the following areas associated with concrete batch plants that are exposed to precipitation: vehicle and equipment maintenance activities (including fueling, repair, and storage areas for vehicles and equipment scheduled for maintenance); areas used for the treatment, storage, or disposal of wastes; liquid storage tanks; material processing and storage areas; and loading and unloading areas; and

      (5) the locations of the following: any bag house or other dust control device(s); recycle/sedimentation pond, clarifier or other device used for the treatment of facility wastewater (including the areas that drain to the treatment device); areas with significant materials; and areas where major spills or leaks have occurred.

   (b) Inventory of Exposed Materials – A list of materials handled at the concrete batch plant that may be exposed to stormwater and that have a potential to

affect the quality of stormwater discharges associated with concrete batch plants that are authorized under this general permit.

(c) Spills and Leaks - A list of significant spills and leaks of toxic or hazardous pollutants that occurred in areas exposed to stormwater and that drain to stormwater outfalls associated with concrete batch plants authorized under this general permit must be developed, maintained, and updated as needed.

(d) Sampling Data - A summary of existing stormwater discharge sampling data must be maintained, if available.

2. Measures and Controls - The SWP3 must include a description of management controls to regulate pollutants identified in the SWP3's "Description of Potential Pollutant Sources" from Part IV.B.1.(a) of this permit, and a schedule for implementation of the measures and controls. This must include, at a minimum:

(a) Good Housekeeping - Good housekeeping measures must be developed and implemented in the area(s) associated with concrete batch plants.

(1) Operators must prevent or minimize the discharge of spilled cement, aggregate (including sand or gravel), settled dust, or other significant materials from paved portions of the site that are exposed to stormwater. Measures used to minimize the presence of these materials may include regular sweeping or other equivalent practices. These practices must be conducted at a frequency that is determined based on consideration of the amount of industrial activity occurring in the area and frequency of precipitation, and shall occur at least once per week when cement or aggregate is being handled or otherwise processed in the area.

(2) Operators must prevent the exposure of fine granular solids, such as cement, to stormwater. Where practicable, these materials must be stored in enclosed silos, hoppers or buildings, in covered areas, or under covering.

(b) Spill Prevention and Response Procedures - Areas where potential spills that can contribute pollutants to stormwater runoff, and the drainage areas from these locations, must be identified in the SWP3. Where appropriate, the SWP3 must specify material handling procedures, storage requirements, and use of equipment. Procedures for cleaning up spills must be identified in the SWP3 and made available to the appropriate personnel.

(c) Inspections - Qualified facility personnel (i.e., a person or persons with knowledge of this general permit, the concrete batch plant, and the SWP3 related to the concrete batch plant(s) for the site) must be identified to inspect designated equipment and areas of the facility specified in the SWP3. The inspection frequency must be specified in the SWP3 based upon a consideration of the level of concrete production at the facility, but must be a minimum of once per month while the facility is in operation. The inspection must take place while the facility is in operation and must, at a minimum, include all areas that are exposed to stormwater at the site, including material handling areas, above ground storage tanks, hoppers or silos, dust collection/containment systems, truck wash down and equipment cleaning areas. Follow-up procedures must be used to ensure that appropriate actions are taken in response to the inspections. Records of inspections must be maintained and be made readily available for inspection upon request.

(d) Employee Training - An employee training program must be developed to educate personnel responsible for implementing any component of the SWP3, or personnel otherwise responsible for stormwater pollution prevention, with the provisions of the SWP3. The frequency of training must be documented in

the SWP3, and at a minimum, must consist of one training prior to the initiation of operation of the concrete batch plant.

(e) Record Keeping and Internal Reporting Procedures - A description of spills and similar incidents, plus additional information that is obtained regarding the quality and quantity of stormwater discharges, must be included in the SWP3. Inspection and maintenance activities must be documented and records of those inspection and maintenance activities must be incorporated in the SWP3.

(f) Management of Runoff - The SWP3 shall contain a narrative consideration for reducing the volume of runoff from concrete batch plants by diverting runoff or otherwise managing runoff, including use of infiltration, detention ponds, retention ponds, or reusing of runoff.

3. Comprehensive Compliance Evaluation – At least once per year, one or more qualified personnel (i.e., a person or persons with knowledge of this general permit, the concrete batch plant, and the SWP3 related to the concrete batch plant(s) for the site) shall conduct a compliance evaluation of the plant. The evaluation must include the following.

(a) Visual examination of all areas draining stormwater associated with regulated concrete batch plants for evidence of, or the potential for, pollutants entering the drainage system. These include but are not limited to: cleaning areas, material handling areas, above ground storage tanks, hoppers or silos, dust collection/containment systems, and truck wash down and equipment cleaning areas. Measures implemented to reduce pollutants in runoff (including structural controls and implementation of management practices) must be evaluated to determine if they are effective and if they are implemented in accordance with the terms of this permit and with the permittee's SWP3. The operator shall conduct a visual inspection of equipment needed to implement the SWP3, such as spill response equipment.

(b) Based on the results of the evaluation, the following must be revised as appropriate within two weeks of the evaluation: the description of potential pollutant sources identified in the SWP3 (as required in Part IV.B.1., "Description of Potential Pollutant Sources"); and pollution prevention measures and controls identified in the SWP3 (as required in Part IV.B.2., "Measures and Controls"). The revisions may include a schedule for implementing the necessary changes.

(c) The permittee shall prepare and include in the SWP3 a report summarizing the scope of the evaluation, the personnel making the evaluation, the date(s) of the evaluation, major observations relating to the implementation of the SWP3, and actions taken in response to the findings of the evaluation. The report must identify any incidents of noncompliance. Where the report does not identify incidences of noncompliance, the report must contain a statement that the evaluation did not identify any incidence(s), and the report must be signed according to 30 TAC §305.128, relating to Signatories to Reports.

(d) The Comprehensive Compliance Evaluation may substitute for one of the required inspections delineated in Part IV.B.2.(c) of this general permit.

Section C. Prohibition of Wastewater Discharges

Wastewater discharges associated with concrete production including wastewater disposal by land application are not authorized under this general permit. These wastewater discharges must be authorized under an alternative TCEQ water quality permit or otherwise disposed of in an authorized manner. Discharges of concrete truck wash out at construction sites may be authorized if conducted in accordance with the requirements of Part V of this general permit.

Part V. Concrete Truck Wash Out Requirements

This general permit authorizes the wash out of concrete trucks at construction sites regulated under Sections II.E.1., 2., and 3. of this general permit, provided the following requirements are met. Authorization is limited to the land disposal of wash out water from concrete trucks. Any other direct discharge of concrete production waste water must be authorized under a separate TCEQ general permit or individual permit.

1. Direct discharge of concrete truck wash out water to surface water in the state, including discharge to storm sewers, is prohibited by this general permit.
2. Concrete truck wash out water shall be discharged to areas at the construction site where structural controls have been established to prevent direct discharge to surface waters, or to areas that have a minimal slope that allow infiltration and filtering of wash out water to prevent direct discharge to surface waters. Structural controls may consist of temporary berms, temporary shallow pits, temporary storage tanks with slow rate release, or other reasonable measures to prevent runoff from the construction site.
3. Wash out of concrete trucks during rainfall events shall be minimized. The direct discharge of concrete truck wash out water is prohibited at all times, and the operator shall insure that its BMPs are sufficient to prevent the discharge of concrete truck wash out as the result of rainfall or stormwater runoff.
4. The discharge of wash out water must not cause or contribute to groundwater contamination.
5. If a SWP3 is required to be implemented, the SWP3 shall include concrete wash out areas on the associated site map.

Part VI. Retention of Records

The permittee must retain the following records for a minimum period of three (3) years from the date that a NOT is submitted as required by Part II.E.3. For activities in which an NOT is not required, records shall be retained for a minimum period of three (3) years from the date that the operator terminates coverage under Section II.F.3. of this permit. Records include:

1. A copy of the SWP3;
2. All reports and actions required by this permit, including a copy of the construction site notice;
3. All data used to complete the NOI, if an NOI is required for coverage under this general permit; and
4. All records of submittal of forms submitted to the operator of any MS4 receiving the discharge and to the secondary operator of a large construction site, if applicable.

Part VII. Standard Permit Conditions

1. The permittee has a duty to comply with all permit conditions. Failure to comply with any permit condition is a violation of the permit and statutes under which it was issued, and is grounds for enforcement action, for terminating, revoking, or denying coverage under this general permit, or for requiring a discharger to apply for and obtain an individual TPDES permit.
2. Authorization under this general permit may be suspended or revoked for cause. Filing a notice of planned changes or anticipated non-compliance by the permittee does not stay any permit condition. The permittee must furnish to the executive director, upon request and within a reasonable time, any information necessary for the executive director to determine whether cause exists for revoking, suspending, or

terminating authorization under this permit. Additionally, the permittee must provide to the executive director, upon request, copies of all records that the permittee is required to maintain as a condition of this general permit.

3. It is not a defense for a discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity to maintain compliance with the permit conditions.
4. Inspection and entry shall be allowed under TWC Chapters 26-28, Texas Health and Safety Code §§361.032-361.033 and 361.037, and 40 CFR §122.41(i). The statement in TWC §26.014 that commission entry of a facility shall occur according to an establishment's rules and regulations concerning safety, internal security, and fire protection is not grounds for denial or restriction of entry to any part of the facility or site, but merely describes the commission's duty to observe appropriate rules and regulations during an inspection.
5. The discharger is subject to administrative, civil, and criminal penalties, as applicable, under TWC Chapter 7 for violations including but not limited to the following:
   (a) negligently or knowingly violating the federal CWA §§301, 302, 306, 307, 308, 318, or 405, or any condition or limitation implementing any sections in a permit issued under CWA §402, or any requirement imposed in a pretreatment program approved under CWA §§402(a)(3) or 402(b)(8);
   (b) knowingly making any false statement, representation, or certification in any record or other document submitted or required to be maintained under a permit, including monitoring reports or reports of compliance or noncompliance; and
   (c) knowingly violating §303 of the federal CWA, and placing another person in imminent danger of death or serious bodily injury.
6. All reports and other information requested by the executive director must be signed by the person and in the manner required by 30 TAC §305.128 (relating to Signatories to Reports).
7. Authorization under this general permit does not convey property or water rights of any sort and does not grant any exclusive privilege.
8. The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.
9. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.
10. The permittee shall comply with the reporting requirements in 40 CFR §122.41(l), as applicable.

Part VIII. Fees

1. A fee of must be submitted along with the NOI:
   (a) $325 if submitting a paper NOI, or
   (b) $225 if submitting an NOI electronically.

2. Fees are due upon submission of the NOI. An NOI will not be declared administratively complete unless the associated fee has been paid in full.
3. No separate annual fees will be assessed for this general permit. The Water Quality Annual Fee has been incorporated into the NOI fees as described above.

Appendix A: Automatic Authorization

Periods of Low Erosion Potential by County – Eligible Date Ranges

Andrews: Nov. 15 - Apr. 30

Archer: Dec. 15 - Feb. 14

Armstrong: Nov. 15 - Apr. 30

Bailey: Nov. 1 - Apr. 30, or Nov. 15 - May 14

Baylor: Dec. 15 - Feb. 14

Borden: Nov. 15 - Apr. 30

Brewster: Nov. 15 - Apr. 30

Briscoe: Nov. 15 - Apr. 30

Brown: Dec. 15 - Feb. 14

Callahan: Dec. 15 - Feb. 14

Carson: Nov. 15 - Apr. 30

Castro: Nov. 15 - Apr. 30

Childress: Dec. 15 - Feb. 14

Cochran: Nov. 1 - Apr. 30, or Nov. 15 - May 14

Coke: Dec. 15 - Feb. 14

Coleman: Dec. 15 - Feb. 14

Collingsworth: Jan. 1 - Mar. 30, or Dec. 1 - Feb. 28

Concho: Dec. 15 - Feb. 14

Cottle: Dec. 15 - Feb. 14

Crane: Nov. 15 - Apr. 30

Crockett: Nov. 15 - Jan. 14, or Feb. 1 - Mar. 30

Crosby: Nov. 15 - Apr. 30

Culberson: Nov. 1 - May 14

Dallam: Nov. 1 - Apr. 14, or Nov. 15 - Apr. 30

Dawson: Nov. 15 - Apr. 30

Deaf Smith: Nov. 15 - Apr. 30

Dickens: Nov. 15 - Jan. 14, or Feb. 1 - Mar. 30

Dimmit: Dec. 15 - Feb. 14

Donley: Jan. 1 - Mar. 30, or Dec. 1 - Feb. 28

Eastland: Dec. 15 - Feb. 14

Ector: Nov. 15 - Apr. 30

Edwards: Dec. 15 - Feb. 14

El Paso: Jan. 1 - Jul. 14, or May 15 - Jul. 31, or Jun. 1 - Aug. 14, or Jun. 15 - Sept. 14, or Jul. 1 - Oct. 14, or Jul. 15 - Oct. 31, or Aug. 1 - Apr. 30, or Aug. 15 - May 14, or Sept. 1 - May 30, or Oct. 1 - Jun. 14, or Nov. 1 - Jun. 30, or Nov. 15 - Jul. 14

Fisher: Dec. 15 - Feb. 14

Floyd: Nov. 15 - Apr. 30

Foard: Dec. 15 - Feb. 14

Gaines: Nov. 15 - Apr. 30

Garza: Nov. 15 - Apr. 30

Glasscock: Nov. 15 - Apr. 30

Hale: Nov. 15 - Apr. 30

Hall: Feb. 1 - Mar. 30

Hansford: Nov. 15 - Apr. 30

Hardeman: Dec. 15 - Feb. 14

Hartley: Nov. 15 - Apr. 30

Haskell: Dec. 15 - Feb. 14

Hockley: Nov. 1 - Apr. 14, or Nov. 15 - Apr. 30

Howard: Nov. 15 - Apr. 30

Hudspeth: Nov. 1 - May 14

Hutchinson: Nov. 15 - Apr. 30

Irion: Dec. 15 - Feb. 14

Jeff Davis: Nov. 1 - Apr. 30 or Nov. 15 - May 14

Jones: Dec. 15 - Feb. 14

Kent: Nov. 15 - Jan. 14 or Feb. 1 - Mar. 30

Kerr: Dec. 15 - Feb. 14

Kimble: Dec. 15 - Feb. 14

King: Dec. 15 - Feb. 14

Kinney: Dec. 15 - Feb. 14

Knox: Dec. 15 - Feb. 14

Lamb: Nov. 1 - Apr. 14, or Nov. 15 - Apr. 30

Loving: Nov. 1 - Apr. 30, or Nov. 15 - May 14

Lubbock: Nov. 15 - Apr. 30

Lynn: Nov. 15 - Apr. 30

Martin: Nov. 15 - Apr. 30

Mason: Dec. 15 - Feb. 14

Maverick: Dec. 15 - Feb. 14

McCulloch: Dec. 15 - Feb. 14

Menard: Dec. 15 - Feb. 14

Midland: Nov. 15 - Apr. 30

Mitchell: Nov. 15 - Apr. 30

Moore: Nov. 15 - Apr. 30

Motley: Nov. 15 - Jan. 14, or Feb. 1 - Mar. 30

Nolan: Dec. 15 - Feb. 14

Oldham: Nov. 15 - Apr. 30

Parmer: Nov. 1 - Apr. 14, or Nov. 15 - Apr. 30

Pecos: Nov. 15 - Apr. 30

Potter: Nov. 15 - Apr. 30

Presidio: Nov. 1 - Apr. 30, or Nov. 15 - May 14

Randall: Nov. 15 - Apr. 30

Reagan: Nov. 15 - Apr. 30

Real: Dec. 15 - Feb. 14

Reeves: Nov. 1 - Apr. 30, or Nov. 15 - May 14

Runnels: Dec. 15 - Feb. 14

Schleicher: Dec. 15 - Feb. 14

Scurry: Nov. 15 - Apr. 30

Shackelford: Dec. 15 - Feb. 14

Sherman: Nov. 15 - Apr. 30

Stephens: Dec. 15 - Feb. 14

Sterling: Nov. 15 - Apr. 30

Stonewall: Dec. 15 - Feb. 14

Sutton: Dec. 15 - Feb. 14

Swisher: Nov. 15 - Apr. 30

Taylor: Dec. 15 - Feb. 14

Terrell: Nov. 15 - Apr. 30

Terry: Nov. 15 - Apr. 30

Throckmorton: Dec. 15 - Feb. 14

Tom Green: Dec. 15 - Feb. 14

Upton: Nov. 15 - Apr. 30

Uvalde: Dec. 15 - Feb. 14

Val Verde: Nov. 15 - Jan. 14, or Feb. 1 - Mar. 30

Ward: Nov. 1 - Apr. 14, or Nov. 15 - Apr. 30

Wichita: Dec. 15 - Feb. 14

Wilbarger: Dec. 15 - Feb. 14

Winkler: Nov. 1 - Apr. 30, or Nov. 15 - May 14

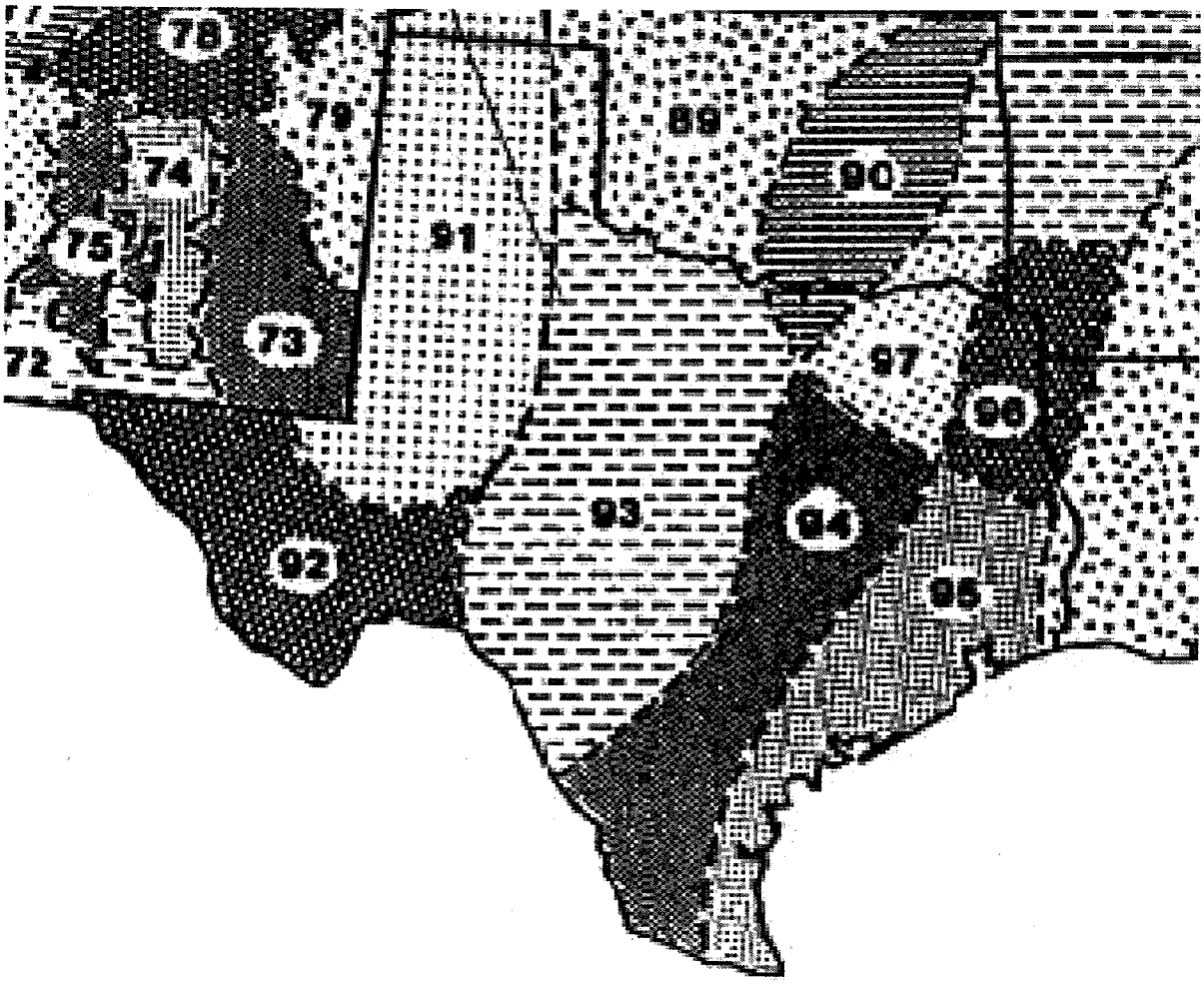
Yoakum: Nov. 1 - Apr. 30, or Nov. 15 - May 14

Young: Dec. 15 - Feb. 14

Wheeler: Jan. 1 - Mar. 30, or Dec. 1 - Feb. 28

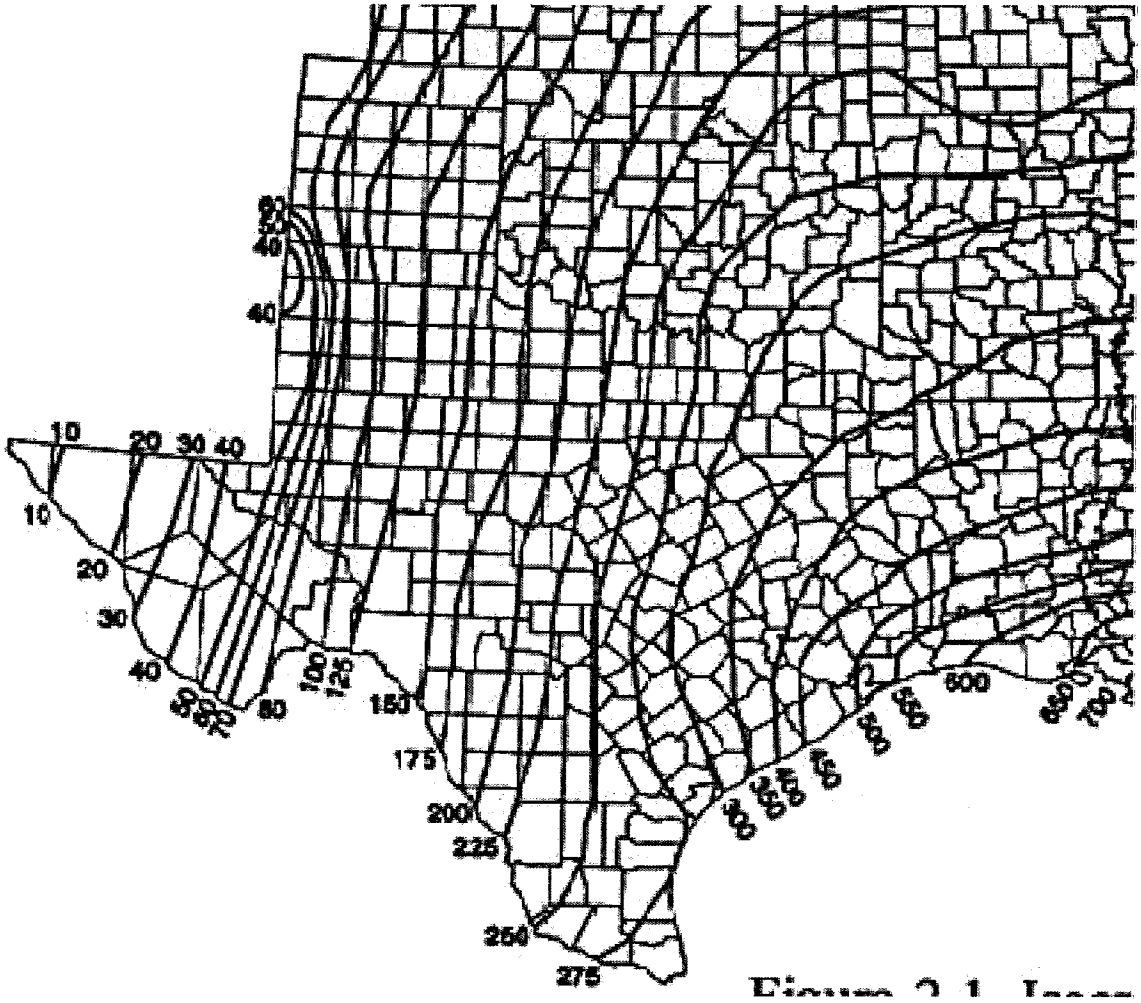
Zavala: Dec. 15 - Feb. 14

Appendix B: Erosivity Index (EI) Zones in Texas



Adapted from Chapter 2 of USDA Agriculture Handbook 703: "Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE)," U.S. Department of Agriculture, Agricultural Research Service

Appendix C: Isoerodent Map



Adapted from Chapter 2 of USDA Agriculture Handbook 703: "Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE)," U.S. Department of Agriculture, Agricultural Research Service

Appendix D: Erosivity Indices for EI Zones in Texas

Periods:

EI #	1/1	1/16	1/31	2/15	3/1	3/16	3/31	4/15	4/30	5/15	5/30	6/14	6/29	7/14	7/29	8/13	8/28	9/12	9/27	10/12	10/27	11/11	11/26	12/11	12/31
89	0	1	1	2	3	4	7	2	8	27	38	48	55	62	69	76	83	90	94	97	98	99	100	100	100
90	0	1	2	3	4	6	8	13	21	29	37	46	54	60	65	69	74	81	87	92	95	97	98	99	100
91	0	0	0	0	1	1	1	2	6	16	29	39	46	53	60	67	74	81	88	95	99	99	100	100	100
92	0	0	0	0	1	1	1	2	6	16	29	39	46	53	60	67	74	81	88	95	99	99	100	100	100
93	0	1	1	2	3	4	6	8	13	25	40	49	56	62	67	72	76	80	85	91	97	98	99	99	100
94	0	1	2	4	6	8	10	15	21	29	38	47	53	57	61	65	70	76	83	88	91	94	96	98	100
95	0	1	3	5	7	9	11	14	18	27	35	41	46	51	57	62	68	73	79	84	89	93	96	98	100
96	0	2	4	6	9	12	17	23	30	37	43	49	54	58	62	66	70	74	78	82	86	90	94	97	100
97	0	1	3	5	7	10	14	20	28	37	48	56	61	64	68	72	77	81	86	89	92	95	98	99	100
106	0	3	6	9	13	17	21	27	33	38	44	49	55	61	67	71	75	78	81	84	86	90	94	97	100

* Each period begins on the date listed in the table above and lasts until the day before the following period. The final period begins on December 11 and ends on December 31.

Table adapted from Chapter 2 of USDA Agriculture Handbook 703: "Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE)," U.S. Department of Agriculture, Agricultural Research Service

FEDERAL HIGHWAY ADMINISTRATION FINDING OF NO SIGNIFICANT IMPACT

FEDERAL HIGHWAY ADMINISTRATION
FINDING OF NO SIGNIFICANT IMPACT

ALMEDA ROAD
(FROM SOUTH MACGREGOR WAY TO OLD SPANISH TRAIL)
HARRIS COUNTY, TEXAS
CSJ 0912-72-072

INTRODUCTION

The Federal Highway Administration (FHWA) has determined, in accordance with 23 Code of Federal Regulations (CFR) §771.119 and §771.121, that the proposed widening and reconstruction of Almeda Road between South MacGregor Way to Old Spanish Trail will not have a significant impact on the human or natural environment. The completed project would provide a facility with three lanes in each direction throughout the project limits. A mixed-use trail is proposed on the west side of Almeda Road to accommodate bicyclists and pedestrians, and a sidewalk is proposed on the east side.

This Finding of No Significant Impact (FONSI) for the preferred alternative is based on the Almeda Road Environmental Assessment (EA) dated January 2014 and revised October 2014. The January 2014 EA was approved by FHWA for public involvement on April 2, 2014. A Notice Affording Opportunity for Public Hearing (NAOPH) was published in August of 2014, and a hearing was requested by two individuals. Discussions between those individuals and representatives for Texas Department of Transportation (TxDOT) and the City of Houston led to withdrawal of the hearing requests in September of 2014.

The EAs have been independently evaluated by the FHWA and determined to adequately and accurately discuss the need, purpose, alternatives, environmental issues, and impacts of the proposed Almeda Road project and appropriate mitigation measures. These documents provide sufficient evidence and analysis for determining that an Environmental Impact Statement (EIS) is not required. Finally, these documents are incorporated by reference into this document.

PROJECT BACKGROUND

The existing facility is a four- to six-lane (two to three in each direction) roadway separated by a 33- to 76-foot wide depressed, grassy median. Almeda Road has three northbound lanes from approximately 390 feet south of Holcombe Boulevard to approximately 390 feet south of Dixie Drive (approximately 1,200 feet total) and three southbound lanes from approximately Lockett to 660 feet south of Dixie Drive (approximately 1,600 feet total). Travel lanes are typically 11 to 12 feet wide. Striped (i.e., dedicated) left-turn lanes exist on Almeda Road at Holcombe Boulevard and OST. Striped right-turn lanes exist at South MacGregor Way (northbound), Holcombe Boulevard (northbound and southbound), and Lockett Street (southbound). Drainage is via curb and gutter (C&G) and open ditch, with C&G on one side of the road and open ditch on the other in some areas. The existing speed limit is 45 miles per hour (mph).

Within the project limits, a continuous 5- to 8-foot wide sidewalk exists on the west side of Almeda Road. A 4-foot wide sidewalk exists along much of the east side of Almeda Road, but it is not continuous and is broken, cracked and uneven towards OST.

The need for the proposed project is presented in the EA and is demonstrated by the following existing conditions:

- The project area has experienced increased traffic congestion and reduced mobility due to substantially increased population and is projected to continue to experience future increases
- There exists a lack of sufficient pedestrian and bicycle facilities along the project corridor
- The roadway contains substantial structural deficiencies (such as rutted, potholed, broken, and cracked travel lanes, uneven roadway surfaces due to past roadway repairs, faded/obscure lane striping, and missing reflectors).

The purpose of the proposed project is to increase capacity so the roadway can meet current and future traffic demands, improving mobility and reducing congestion in the area; to improve and expand the area's pedestrian/bicycle network by constructing pedestrian and bicycle facilities and connecting them to trails within Hermann Park; and to reconstruct the facility to meet current roadway design standards, eliminating the existing damage and creating a better facility.

Preferred Alternative

The preferred alternative is the Build Alternative evaluated in the EA. The Build Alternative would meet the purpose and need of the project by improving mobility and reducing existing and projected congestion, improving and expanding the area's pedestrian/ bicycle network, and correcting substantial structural problems.

Where Almeda Road has only two lanes in a direction, the proposed project would add one lane, creating a facility with three lanes in each direction throughout the project limits. The center of Almeda Road is proposed to contain a 16-foot wide raised grassy median. All travel lanes would be 11 to 12 feet wide. The proposed project includes the addition of southbound left-turn lanes at Camden Drive, Hermann Park Court, and Payson Street and northbound and southbound left-turn lanes at Dixie Drive and Lockett Street. A new southbound left-turn lane is proposed on Holcombe Boulevard, as is a southbound right-turn lane at OST. All turn lanes would be 11 feet wide. Drainage would be via curb-and-gutter (C&G) and open ditch, with C&G on one side of the road and open ditch on the other in some areas. Grass swales are also proposed along Almeda Road between the roadway and sidewalk and trail for conveyance and mitigation of stormwater. The speed limit would remain 45 mph.

A 10-foot wide mixed-use trail is proposed on the west side of Almeda Road to accommodate bicyclists and pedestrians, and a 5-foot wide sidewalk is proposed on the east side. The trail, sidewalk, and their associated curb ramps and landings would be compliant with the Americans with Disabilities Act (ADA). The three signalized intersections (South MacGregor Way, Holcombe Boulevard and OST) would have 6-foot medians for pedestrian refuge.

Preferred Alternative Justification

The Build Alternative achieves the project goals and was chosen as the preferred alternative because it would minimize right-of-way (ROW) acquisition and avoid and minimize environmental impacts.

Implementation of the Preferred Alternative would meet the need and purpose of the project by increasing capacity along existing portions of Almeda Road, improving mobility and reducing existing and projected congestion, improving and expanding the area's pedestrian/bicycle network, and correcting substantial structural problems. The preferred alternative would be constructed using standard, proven techniques at a reasonable cost and would not restrict consideration of reasonable alternatives for future improvements.

The preferred alternative utilizes as much of the existing facility as practical and is consistent with local and regional plans. The proposed project would also be compatible with other proposed and on-going Texas Medical Center projects.

POTENTIAL IMPACTS AND PROPOSED MITIGATION COMMITMENTS

Most potential impacts associated with the construction of the Preferred Alternative are proposed to be avoided or minimized, as documented in the EA. The design and construction of the Almeda Road project will incorporate measures to minimize harm to the environment, as described below.

Land Use

The proposed project is located in a fully developed urban setting near downtown Houston. Land use in the vicinity of the project includes residential, commercial, institutional, public, professional, light and heavy industrial, open, and undeveloped. The Preferred Alternative would convert approximately 0.13 acre of land to transportation use. The proposed additional roadway ROW is located at the northeast corner of Almeda Road and Holcombe Boulevard (along the St. Dominic Convent on Holcombe Boulevard) and at the southwest corner of Almeda Road at OST (for a corner clip in front of a gas station). The Preferred Alternative is not anticipated to have indirect effects on future land use and is consistent with regional and local plans.

Mitigation commitment: No mitigation is required or recommended.

Relocations and Right-of-Way Acquisition

The Preferred Build Alternative would require approximately 0.13 acre of additional ROW in two areas. Approximately 0.12 acre would be required at the northeast corner of Almeda Road and Holcombe Boulevard (along Holcombe Boulevard), and approximately 0.01 acre would be required at the southwest corner of Almeda Road at OST.

The Preferred Alternative would require no displacements of businesses or residences.

Mitigation Commitment: Access to residences or use of any commercial, industrial or public area would be maintained at all times during and after project construction. All ROW acquisitions would be conducted in accordance with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970* and the *Uniform Relocation Act Amendments of 1987.*

Environmental Justice (EJ)

No disproportionate adverse effect on any minority or low-income population would result from construction of the Preferred Alternative. Minority populations exist within the project study area. Two (2) of the 6 populated U.S. Census Blocks exceed the 50-percent threshold of minority individuals and are considered to have Environmental Justice (or EJ, by minority) populations. Median household incomes were evaluated at the census block group (BG) level. All four BGs within the study area exceed the Department of Health and Human Services 2014 poverty guideline of $23,850/year for a family of four. However, the number of households below the poverty level ranged from 10.3 to 18.1 percent at the census tract level. Therefore, low-income individuals do exist within the study area.

Effects from the proposed project, including noise impacts, would be distributed throughout the length of the project corridor. The residential complexes which would experience noise impacts, the Villas at Hermann Park and the Marquis Lofts at Hermann Park, are not EJ-oriented. No displacements would be required. The proposed project would not cause isolation of any EJ population from needed community and social services. The project would not adversely impact public transit services. Established residents and businesses (EJ and non-EJ), and the City of Houston itself, would benefit from the improved mobility, reduced congestion, additional sidewalk and shared-use trail, and improved roadway surfaces provided by this alternative. There would be no substantial adverse impacts to EJ populations from the proposed project; therefore, the requirements of Executive Order 12898 appear to be satisfied.

Mitigation Commitment: All ROW acquisitions would be conducted in accordance with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970* and the *Uniform Relocation Act Amendments of 1987.*

Soils and Farmland

Projects considered exempt under the Farmland Protection Policy Act (FPPA) include those that are developed, urbanized, or zoned for urban use or do not require additional ROW. The land uses for the properties within and adjacent to the proposed project area are developed; therefore, the proposed project is exempt from the requirements of FPPA and no coordination with the NRCS is required.

Mitigation Commitment: No mitigation is required or recommended.

Vegetation

Construction activities associated with the proposed project permanently and temporarily impact a total of approximately 9.39 acres of vegetation within existing and proposed ROW. The vegetation community within the project ROW is mowed and maintained grasses, with some individual trees located within the median. No special habitat features or unusual vegetation as defined by the TxDOT-Texas Parks and Wildlife (TPWD) Memorandum of Understanding (MOU) would be impacted by the proposed project. The vegetated areas not graded and paved to accommodate construction of the additional lanes and sidewalk/trail would be reestablished as mowed and maintained ROW.

Mitigation Commitment: During construction, clearing of vegetation throughout the project corridor would be avoided or minimized, where possible, for construction of the proposed project and establishment of clear zones. Unavoidable vegetation impacts would be appropriately re-vegetated in accordance with Executive Order 13112 on invasive species and the Executive Memorandum on beneficial landscaping.

Wildlife

The Preferred Alternative would require construction work within existing and proposed ROW. During construction, some animals could potentially be injured or killed by construction equipment or vehicles. However, the project is primarily adjacent to urban, commercial, public, institutional, and light industrial land uses. The habitat within existing and proposed ROW is not unique to the area nor does it provide habitat for any listed threatened or endangered species. No adverse permanent impact to wildlife is anticipated with the proposed project.

Mitigation Commitment: Adjacent wildlife habitats would be protected from stormwater runoff by implementing best management practices (BMPs) under the Stormwater Pollution Prevention Plan (SW3P), which would provide erosion and sedimentation control.

Migratory Birds

Field reconnaissance did not identify the presence of nests and nesting habitat for bird species within the proposed project limits. To ensure compliance with the Migratory Bird Treaty Act, clearing vegetation and work within the project area will be conducted outside of the normal nesting season, or measures will be taken to discourage birds from nesting in existing structures. Trees planned for removal in the project ROW will be inspected for migratory birds and their nests before construction. If migratory birds or their nests are observed, measures will be taken to avoid harm to migratory birds, their nests, eggs or young.

Mitigation commitment: Construction around nests will be avoided during the peak nesting season (March 1 to August 31) where migratory birds may be nesting. If clearing is required during the nesting season, a specialist will survey trees to be cleared to ensure that any nests are empty.

Threatened and Endangered Species

Databases of sensitive species maintained by the U.S. Fish and Wildlife Service (USFWS) and TPWD were reviewed to determine if state and/or federally-listed threatened or endangered species occur or have historically occurred within the proposed project study area.

According to a check of the TPWD's "live" version of the Natural Diversity Database (NDD) in conjunction with GIS, there have been no species documented within a 1.5-mile radius of the proposed project. There have been no other recorded sightings of any federally- or state-listed species of Harris County within close proximity of the proposed project area. Based on field surveys and review of available records, a determination of no effect has been made for all federally-listed threatened and endangered species. No state-listed threatened or endangered species would be adversely impacted by the proposed project.

Mitigation Commitment: No mitigation is required or recommended.

Essential Fish Habitat (EFH)

No tidally influenced waters exist within the proposed project area; therefore, no EFH would be adversely affected.

Mitigation Commitment: No mitigation is required or recommended.

Cultural Resources

Historic Structures

In accordance with the Programmatic Agreement (PA) for Transportation Undertakings between FHWA, the THC, the Advisory Council on Historic Preservation (ACHP), and TxDOT, and the MOU among TxDOT and THC, TxDOT has determined that no historic properties are present within the proposed project APE and individual project coordination with SHPO is not required.

Mitigation Commitment: No mitigation is required or recommended.

Archeological Resources

In accordance with the PA among the FHWA, the THC, the ACHP, and TxDOT, and the MOU among TxDOT and THC, TxDOT has determined that the proposed project activities do not have the potential to affect archeological historic resources.

Mitigation Commitment: In the event that unanticipated archeological deposits are encountered during construction, work in the immediate area would cease and TxDOT archeological staff would be contacted.

Parkland and Section 4(f)/6(f) Properties

The Preferred Alternative does not require the use of any publicly owned lands from a public park, recreation area, wildlife/waterfowl refuge, or any historic sites of national, state, or local significance. Neither a Section 4(f) nor a Section 6(f) evaluation is required.

Mitigation Commitment: No mitigation is required or recommended.

Waters of the U.S. including Wetlands

No waters of the U.S. (including wetlands) exist within the proposed project area; therefore, Executive Order 11990 does not apply, and no Clean Water Act Section 404 permitting is required.

Mitigation Commitment: No mitigation is required or recommended.

Water Quality

The proposed project would require more than 5 acres of earth disturbances.
Runoff from this project would not discharge directly into or within 5 miles upstream of a Section 303(d) listed threatened or impaired water. The Texas Commission on Environmental Quality (TCEQ) 2012 Texas Water Quality Inventory List was utilized in this assessment.

Mitigation Commitment: The proposed project would comply with TCEQ's Texas Pollutant Discharge Elimination System (TPDES) Construction General Permit. A SW3P would be implemented, and a construction site notice would be posted on the construction site. A Notice of Intent (NOI) would be required.

Design and construction of the proposed project would promote minimal earth disturbances to lessen the potential for excessive erosion and sedimentation. Development of a SW3P would include BMPs such as silt fencing, inlet protection barriers, hay bales, and seeding and sodding of un-vegetated areas. BMPs would be maintained and remain in place during and after construction, until the project area has been stabilized.

Groundwater

No adverse effects to the quality and quantity of groundwater in the project area are expected. Subsurface water would not be required.

Mitigation Commitment: TxDOT will ensure that any existing wells encountered during construction or located on properties potentially requiring acquisition would be sealed utilizing currently accepted methods to protect local groundwater quality.

Floodplains

Approximately 5.6 acres of the proposed project are located within the Federal Emergency Management Agency (FEMA) designated 100-year floodplain of Brays Bayou. Crossings at these waters would be spanned by bridge to help minimize the Preferred Alternative's impacts to floodplains.

The hydraulic design of the proposed roadway improvements would be in accordance with current TxDOT and FHWA policy standards. The hydraulic design of the roadway will be done with the most recent available floodplain data. The final hydraulic design will be done in accordance with the applicable federal, state, and local policies. The facility would permit conveyance of the design-year flood levels, but the roadway would be designed to prevent inundation at recurrence intervals of at least 100 years. Inundation of the roadway would be acceptable, without causing significant damage to the roadway, stream, or property. The City of Houston and Harris County are participants in the National Flood Insurance Program.

The proposed project would not include significant encroachment on the floodplain; therefore, 23 CFR 650.113 (only practicable alternative finding) does not apply.

Mitigation Commitment: Coordination with the local floodplain administrator would be required.

Coastal Zone Management

The proposed project is not located within the designated Texas Coastal Management Zone; therefore, coordination with the Coastal Zone Management Agency is not required.

Mitigation Commitment: No mitigation is required or recommended.

Noise

A noise analysis was performed in accordance with TxDOT's *Guidelines for Analysis and Abatement of Roadway Traffic Noise* (2011). Existing and predicted traffic noise levels were modeled at receiver locations representing land use activity areas adjacent to the proposed project that might be impacted by traffic noise and potentially benefit from feasible and reasonable noise abatement. The noise analysis identified noise impacts at multiple locations. Two preliminary barriers were evaluated as both reasonable and feasible along two townhome complexes on Almeda Road, the Villas at Hermann Park and the Marquis Lofts at Hermann Park.

Mitigation Commitment: The two townhome complex owners have declined noise barriers; therefore, none are required or recommended.

To minimize construction noise, provisions would be included in the plans and specifications requiring the contractor to make every reasonable effort to minimize construction noise through abatement measures such as work-hour controls and proper equipment maintenance.

Air Quality

The proposed project is located within Harris County, which is part of the Houston-Galveston area that has been designated by EPA as a marginal non-attainment area for the 2008 8-hour ozone National Ambient Air Quality Standards; therefore, transportation conformity rules apply.

The proposed action is consistent with the Houston-Galveston Area Council's (H-GAC) financially constrained 2035 Regional Transportation Plan (RTP) Update, as amended, and the 2013-2016 Transportation Improvement Program (TIP). The 2035 RTP Update and the FY 2013-2016 TIP were found to conform to the TCEQ State Implementation Plan (SIP) by FHWA and the Federal Transit Administration (FTA) on January 25, 2011 and November 1, 2012, respectively.

Design year (2035) traffic is estimated to be 39,741 vehicles per day; therefore, a Traffic Air Quality Analysis (TAQA) is not required. Although the project is adding capacity, the design year average annual daily traffic (ADT) is less than 140,000 vehicles per day. The 140,000 ADT is a threshold based on a TxDOT modeling study which demonstrated it is highly unlikely that the NAAQS for carbon monoxide would ever be exceeded on any project with traffic numbers below this level.

A qualitative Mobile Source Air Toxics (MSAT) assessment determined that the proposed project may result in increased exposure to MSAT emissions in certain locations; however, since concentrations and exposure durations are uncertain, health effects from emissions exposure cannot be estimated.

Mitigation Commitment: During construction, the contractor will be required to follow applicable regulations and ordinances to reduce impacts to air quality, including dust suppression procedures in construction and layover areas and construction equipment shut down when not in use to reduce air pollution emissions.

Hazardous Materials

An investigation of the proposed project study area was performed to determine the presence of hazardous materials contamination within the existing and proposed ROW. This consisted of on-site investigations and review of applicable hazardous materials database records. The hazardous materials analysis identified four sites that pose potential environmental concerns due to close proximity to the ROW and/or construction activities associated with the proposed project. Sites estimated to be of high or moderate risk would have further investigation to determine the potential of encountering hazardous materials during construction of the project. However, three of the four sites currently appear to have a low potential for environmental concern to the project; the fourth appears to have a low to moderate potential.

Mitigation Commitment: Any hazardous materials encountered during construction would be handled according to applicable federal, state, and local regulations per TxDOT Standard Specifications. Asbestos inspections, specification, notification, license, accreditation, abatement, and disposal, as applicable, would be in compliance with federal and state regulations. Asbestos issues would be addressed during the ROW acquisition process prior to construction. The contractor would take appropriate measures to prevent, minimize, and control the spill of hazardous materials. All materials will be removed or disposed of by the contractor in accordance with state and federal laws.

Visual and Aesthetic Qualities

The reconstruction and widening of the existing roadway within the project limits would not affect aesthetic quality within the project area.

Mitigation Commitment: Landscaping included with this project would be in compliance with the Executive Memorandum and the guidelines for environmentally and economically beneficial landscape practices.

Summary of Indirect and Cumulative Impacts

Based on the indirect impacts analysis, the proposed project is unlikely to induce development. Approximately 7 acres of potentially developable land is located within the Area of Influence (AOI). Although a mix of uses including residential are possible on these 7 acres, no specific development plans have been identified at this time. Therefore, no effects related to induced growth are anticipated.

Cumulative impacts in the project vicinity are likely to occur, but based on the analysis of cumulative impacts on air quality, the proposed action's contribution to the cumulative impacts on this resource is negligible. When combined, planned transportation improvements, revised EPA fuel and vehicle regulations, and fleet turnover are anticipated to have a cumulatively beneficial impact on air quality.

PUBLIC INVOLVEMENT

Public involvement is an integral and critical component of the National Environmental Policy Act (NEPA) project development process. Public involvement efforts were developed and exercised to incorporate all of the different types of stakeholders and their needs, from safety to mobility to environmental concerns. The public involvement team for the Almeda Road project included representatives from the TxDOT Houston District, the TxDOT Environmental Affairs Division, and the environmental and engineering consultants.

Public Meeting

On January 31, 2013, the City of Houston and TxDOT conducted an open-house public meeting for property owners along Almeda Road and persons interested in the planned roadway improvements. The Public Meeting was held from 5:30 pm to 7:30 pm at the Robinson Jr. Community Center, located at 2020 Hermann Drive, Houston, Texas 77004. The purpose of the meeting was to present the proposed improvements and gather public input.

The public meeting was announced and advertised through a variety of methods. Thirty days prior to the meeting, the City of Houston made extensive efforts to announce the meeting through mailings and published advertisements. Copies of the Public Notice announcing the meeting time, location and purpose were mailed to local public officials and to property owners adjacent to the proposed ROW, including several townhome complexes, the St. Dominic Center, and the Texas Medical Center. Meeting notices sent to adjacent landowners were sent in English, since Census data and windshield surveys did not indicate presence of a Limited English Proficiency (LEP) population within the project area. The public notice was published in English in the local/regional newspaper, *Houston Chronicle*, on December 28, 2012 and January 11, 2013 and in Spanish in *La Voz* on December 30, 2012 and January 13, 2013.

Members of the public were encouraged to visit information stations for information on project design and environmental constraints. Several engineers and environmental professionals were available at each station to provide information and answer questions. The public was provided an opportunity to visit informally with City of Houston representatives to ask questions and make comments regarding the project. Provisions

were made for LEP individuals in advertising for the meetings, meeting materials (e.g., bilingual comment forms), and interpreters.

Comments received indicated strong support for the project, although concerns regarding the following issues were raised: bicycle safety crossing Almeda Road and landscaping. The City responded that cyclists can get from Columbia Tap Trail to the park via the trails along the bayou and other alternate paths, and that a signalized crossing at Dixie Road (as desired by some commenters) is not warranted based on traffic counts. Consultation with the Parks Department occurred regarding maintenance of the proposed landscaping. Each comment was considered and responded to in a Public Meeting Summary Report, which was published on the TxDOT website.

Notice Affording Opportunity for Public Hearing (NAOPH)

The FHWA approved the January 2014 EA as "Satisfactory for Further Processing" on April 2, 2014. The City of Houston published a NAOPH in English in the local/regional newspaper, *Houston Chronicle*, on August 4, 2014, and in Spanish in *La Voz* on August 10, 2014. The notice was also mailed to elected officials and adjacent property owners. Requests for a hearing were received from a City councilmember and a State Representative. TxDOT met with Representative Coleman on August 27, 2014. The City met with Councilmember Boykin on or about August 28, 2014. The Councilmember agreed to withdraw his request for a hearing after the City made the following public involvement commitments: the City of Houston Public Works and Engineering Department will hold a standard pre-construction meeting with the community, and CitizensNet, a City of Houston eNewsletter, will periodically inform the community about the project status through emails and/or website postings. TxDOT then contacted the Representatives office again on September 9, 2014 to discuss the commitments made to the councilmember by the City, and the Representative subsequently agreed to withdraw his request for a hearing.

Stakeholder Involvement

Coordination occurred with state and local governmental agencies including the City of Houston Parks & Recreation Department, as well as the Texas Medical Center. As part of the public involvement process, federal, state, and local public officials were invited to attend the public meeting. Public outreach and stakeholder involvement will continue through the construction of the project.

SUMMARY

The following table summarizes the environmental effects of the preferred alternative and committed mitigation measures.

Summary of Environmental Constraints and Mitigation Commitments

Environmental Constraints	*Unit*	*Impacts*	*Mitigation Commitment*
Land Use			
Land use impact	Yes / No	Yes	The Preferred Alternative would convert approximately 0.13 acre of institutional/residential and commercial land to transportation use. The Preferred Alternative is not anticipated to have indirect effects on future land use and is consistent with regional and local plans. No mitigation is required or recommended.
Socioeconomics			
Community cohesion	Effect	None	No mitigation is required or recommended.
Minority, low-income populations	Effect	None	
ROW Acquisition and Displacements			
Land to be acquired	Acres	0.13	Access to residences or use of any commercial, industrial, or public area would be maintained at all times during and after project construction. TxDOT would conduct all ROW acquisitions in accordance with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970* and the *Uniform Relocation Act Amendments of 1987*.
Total displacements	Number	0	
Vegetation			
Mowed and Maintained - Existing ROW	Acres (temporary/ permanent)	5.28 / 3.98	During construction, clearing of vegetation throughout the project corridor would be avoided or minimized, where possible, for the construction of the proposed project and establishment of clear zones. Unavoidable vegetation impacts would be appropriately re-vegetated in accordance with Executive Order 13112 on invasive species and the Executive Memorandum on beneficial landscaping.
Mowed and Maintained - Proposed ROW	Acres (temporary/ permanent)	0.04 / 0.09	
Woody Vegetation – Individual Trees	Number	23	
Wildlife and Endangered Species			
Wildlife	Effect	None	No mitigation is required or recommended.
Migratory birds	Effect	None	In accordance with the MBTA, construction around nests will be avoided during the peak nesting season (March 1 to August 31) where migratory birds may be nesting. If clearing is required during the nesting season, a specialist will survey trees to be cleared to ensure that any nests are empty
Threatened and Endangered Species	Effect	None	No mitigation is required or recommended.
Essential fish habitat	Effect	None	
Cultural Resources			
Archaeological resources	Effect	None	If unanticipated archaeological deposits are encountered during construction, work in the immediate area will cease and TxDOT archaeological staff will be contacted to begin discovery procedures.
Historical resources	Effect	None	No mitigation is required or recommended.
Sections 4(f) & 6(f)	Effect	None	
Water Resources			
Jurisdictional stream impacts	Acres	0.0	No mitigation is required or recommended.
Jurisdictional wetland impacts	Acres	0.0	
Texas Pollution Discharge Elimination System	Effect	Yes	The proposed project would comply with TCEQ's TPDES Construction General Permit. A SW3P would be implemented, and a construction site notice would be posted on the construction site. A Notice of Intent would be required.

Environmental Constraints	***Unit***	***Impacts***	***Mitigation Commitment***
Impaired waters (Section 303(d))	Effect	None	Design and construction of the proposed project would promote minimal earth disturbances to lessen the potential for excessive erosion and sedimentation. Development of an SW3P would include BMPs such as silt fencing, inlet protection barriers, hay bales, and seeding and sodding of un-vegetated areas. BMPs would be maintained and remain in place during and after construction, until the project area has been stabilized.
Floodplains	Acres	5.6	Coordination with the local floodplain administrator would be required.
Groundwater	Effect	None	No mitigation is required or recommended.
Coastal resources	Effect	None	
Air Quality			
Air Quality	Effect	None	During construction, the contractor will be required to follow applicable regulations and ordinances to reduce impacts to air quality, including dust suppression procedures in construction and layover areas and construction equipment shut down when not in use to reduce air pollution emissions.
MSATs	Effect	None	Localized level of MSAT emissions could be higher relative to the No-Build Alternative, but this could be offset due to increases in speeds and reductions in congestion. MSATs would also be lower in other locations when traffic shifts away from them. On a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, would over time cause substantial reductions that, in almost all cases, would cause region-wide MSAT levels to be significantly lower than today. No mitigation is required or recommended.
Noise			
Noise walls	Yes / No	Yes	The two townhome complex owners have declined noise barriers; therefore, none are required or recommended. To minimize construction noise, provisions would be included in the plans and specifications that require the contractor to make every reasonable effort to minimize construction noise through abatement measures such as work-hour controls and proper equipment maintenance.
Hazardous Materials			
Hazardous waste sites	Effect	None	Any hazardous materials encountered during construction would be handled according to applicable federal, state, and local regulations per TxDOT Standard Specifications. The contractor would take appropriate measures to prevent, minimize, and control the spill of hazardous materials.
Public Involvement			
Continued public involvement	Yes / No	Yes	The City of Houston Public Works and Engineering Department will hold a standard pre-construction meeting with the community, and CitizensNet will periodically inform the community about the project status through emails and/or website postings. Public outreach and stakeholder involvement will continue through the construction of the project.

FHWA Decision

FHWA has reviewed all of the relevant documents and materials and all of the previous environmental studies and findings. Based upon our own independent review and analysis, we find that the January 2014 and revised October 2014 Almeda Road EAs analyzed and considered all the relevant potential environmental impacts and issues. FHWA concurs with the findings made in the October 2014 EA in that: (1) the Preferred Alternative would provide transportation improvements consistent with regional goals presented in the 2035 RTP Update and the 2013-2016 TIP, and (2) the proposed project with all the required mitigation and coordination as detailed above will have no significant impacts on the quality of the human or natural environment under NEPA.

Based upon our own agency review and consideration of the analysis and evaluation contained in the EA for this proposed project, and after further careful consideration of all social, economic, and environmental factors, including input from the public involvement process, FHWA hereby approves the issuance of a Finding of No Significant Impact for the Almeda Road project. The project is included in and is consistent with the area's financially constrained 2035 Regional Transportation Plan (RTP) Update, as amended, and the 2013–2016 Transportation Improvement Program (TIP) for the Houston-Galveston Transportation Management Area. The RTP and the TIP were found to conform to the TCEQ State Implementation Plan (SIP) by FHWA and the Federal Transit Administration (FTA) on January 25, 2011, and November 1, 2012, respectively.

As to project mitigation, TxDOT is hereby required to ensure completion of all mitigation outlined above and set out specifically in this FONSI. TxDOT is also required to ensure that any and all local, state, or federal permit requirements and conditions are met and otherwise complied with.

Federal Highway Administration

Date 11/19/2014