

Document 00910

ADDENDUM NO. 1

Date of Addendum: 4/20/16

PROJECT NAME: Clearwell Condition Assessment and Replacement of Select Valves and Actuators at the EWPP

PROJECT NO: WBS No. S-000056-0070-4

BID DATE: April 28, 2016 (Bid Date has changed.)

FROM: J. Timothy Lincoln, P.E., City Engineer
City of Houston, Department of Public Works and Engineering
611 Walker Street
Houston, Texas 77002
Attn: John Msigwa, 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.

CHANGE IN BID DATE

The Bid Date for this Project has been changed from Thursday April 14, 2016 to Thursday April 28, 2016. Time of day and place for submittal of bid remains the same.

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.



Sarah M. Berkey
4/15/16

00910-1
02-01-2004

ADDENDUM NO. 1

BIDDING REQUIREMENTS

1. Document 00210 - Supplementary Instructions to Bidders. Replace page 00210-4.

CONTRACTING REQUIREMENTS

1. Document 00520 - Agreement. Replace page 00520-1.
2. Document 00646 - Payment Notification Explanation of Withholding. Insert page 00646.

SPECIFICATIONS

1. Section 01110 - Summary of Work. Replace entire section, including pages 01110-1 through 01110-12.

CHANGES TO DRAWINGS

As a result of poor mylar physical scan quality, it has been noted that significant background information and line work on a number of the Issued for Bid drawings was difficult to discern and/or appeared to be missing altogether. In an effort to disseminate all available information related to the design and construction intent to all prospective bidders, the following sheets are being re-issued for improved clarity purposes only. The initial content of these sheets has not been modified from that of the original Issued for Bid drawings, with the exception of Sheet SM14, Pipe Gallery Sheet 5 of 6.

1. Sheet G01, Cover Sheet. Replace sheet with G01, attached.
2. Sheet G05, Overall Site Plan. Replace sheet with G05, attached.
3. Sheet G06, Hydraulic Profile. Replace sheet with G06, attached.
4. Sheet C01, Demolition Plan. Replace sheet with C01, attached.
5. Sheet C02, Site Plan. Replace sheet with C02, attached.
6. Sheet C03, Horiz. Control Plan (Sheet 1 of 2). Replace sheet with C03, attached.
7. Sheet C05, Roadway Plan & Profile. Replace sheet with C05, attached.
8. Sheet C06, Roadway Sections. Replace sheet with C06, attached.
9. Sheet C07, Box Storm Sewer P&P @ STA 1+00 to 6+00. Replace sheet with

- C07 attached.
10. Sheet C08, Box Storm Sewer P&P @ STA 6+00 to 8+28. Replace sheet with C08 attached.
 11. Sheet C09, Detention Basin Plan. Replace sheet with C09 attached.
 12. Sheet C14, SWPPP (Sheet 1 of 2). Replace sheet with C14 attached.
 13. Sheet SM01, Filter Building & Overflow Structure Site Plan. Replace sheet with SM01 attached.
 14. Sheet SM03, Clearwell Sheet 2 of 5. Replace sheet with SM03 attached.
 15. Sheet SM04, Clearwell Sheet 3 of 5. Replace sheet with SM04 attached.
 16. Sheet SM05, Clearwell Sheet 4 of 5. Replace sheet with SM05 attached.
 17. Sheet SM06, Clearwell Sheet 5 of 5. Replace sheet with SM06 attached.
 18. Sheet SM08, Approach Channel Sheet 2 of 3. Replace sheet with SM08 attached.
 19. Sheet SM09, Approach Channel Sheet 3 of 3. Replace sheet with SM09 attached.
 20. Sheet SM10, Pipe Gallery Sheet 1 of 6. Replace sheet with SM10 attached.
 21. Sheet SM11, Pipe Gallery Sheet 2 of 6. Replace sheet with SM11 attached.
 22. Sheet SM12, Pipe Gallery Sheet 3 of 6. Replace sheet with SM12 attached.
 23. Sheet SM13, Pipe Gallery Sheet 4 of 6. Replace sheet with SM13 attached.
 24. Sheet SM14, Pipe Gallery Sheet 5 of 6. Replace sheet with SM14 attached.
 25. Sheet SM15, Pipe Gallery Sheet 6 of 6. Replace sheet with SM15 attached.
 26. Sheet SM16, Overflow Structure Sheet 1 of 1. Replace sheet with SM16 attached.
 27. Sheet M02, Backwash Pump Bypass Details. Replace sheet with M02 attached.

CLARIFICATIONS

The following Clarification items represent Questions received from prospective bidders, followed by their respective responses.

1. Question 1: Can you please name Rodney Hunt Company on the Flap Valves for this project? The equivalent model to the Hydrogate 50 is our FV-AC.

Response: Rodney Hunt Company Model FV-AC will be considered as an equal to the Hydrogate Corporation Model 50 listed under Section 11292A, Flap Gates, paragraph 2.01.A.

2. Question 2: Clarification is needed on contract time. Bid form states 615 Days (Substantial) but p 520-1 in Contract says 410 days (substantial).

Response: The contract duration is 615 calendar days. Section 00520, Agreement, paragraph 2.1, has been revised and reissued as part of this addendum to reflect the correct duration.

3. Question 3: For this job can you give us an actuator specification and a wiring diagram for the replacement electric motor operators? We also need a mounting detail and information about the existing butterfly valves, i.e. brand and type (Flanged, wafer, lug?).

Response: No electric actuators or valves are being replaced in conjunction with the proposed work. The scope of the project involves disconnecting the existing power source associated with the filter effluent valve actuators, and replacing/reconnecting it to a different source, of the same voltage. No actuator specification or information related to the existing valves is required. Similarly, no wiring diagrams for 3 Phase 480 Volt removal and replacement are required.

4. Question 4: The bid form calls for substantial completion in 615 days. The agreement 00520-1 calls for substantial in 410 days. Please confirm 615 days is correct.

Response: The contract duration is 615 calendar days. Section 00520, Agreement, paragraph 2.1, has been revised and reissued as part of this addendum to reflect the correct duration.

5. Question 5: Reference specification 01110, par. 1.07.B.7. This appears to limit a shutdown of the clearwell and filter effluent to 7 days over the New Years holidays. Are the dates in this paragraph correct? This is not nearly enough time to complete the structural repairs. A local subcontractor with extensive experience in these type of repairs estimates a duration of 4-6 weeks for the structural repairs, plus we need a couple weeks to cleanout and descale the work

area. This time constraint needs to be adjusted or some other means given to allow continuous access the work areas.

Response: Section 01110, Summary of Work, paragraph 1.07.B.7.a, has been revised and reissued as part of this addendum to reflect at total shutdown period of 12/30/16 to 3/9/17 for the completion of the work in question.

6. Question 6: Are there any coatings on the concrete in the clearwell, clearwell approach, or filter effluent channel? If so, do we remove prior to reinforcement? Do we have to recoat?

Response: No coatings are indicated on available record drawings for the area of concern, and none were visible or noted behind the scale buildup during a previously completed dive inspection. If coatings are encountered during construction in areas where FRP will be applied, they should be removed as indicated in Section 03921, Strengthening of Concrete with Externally Bonded FRP Reinforcement, paragraph 3.02.D. No recoating will be required, as all areas where coatings are removed will be covered with FRP.

7. Question 7: Specification 01110, par. 1.13.C gives the structural containment testing requirements. It states that any leakage observed shall be repaired with an epoxy or hydrophobic injection system. Is this leak repair to be completed under the extra work items 33 and 34, or was the intent for it to be covered by the stipulated price? The limits of the structural repairs are provided by the City and Engineer and Contractors cannot know whether they address all deficiencies, so there is no way for us to establish a quantity for the injection and sealing. If any of this work is in the base bid, contractors need quantity in LF and Gallons for repairs of leaks, so we're all bidding the same scope.

Response: The quantities listed on the drawings for hydrophobic polyurethane resin injection are intended to be covered by the Stipulated Price. Additional epoxy or hydrophobic polyurethane injection that is performed, in order to repair leaks identified during the Structural Containment Testing or Overflow System Functionality Testing, shall be covered by Extra Unit Price Items 33 and 34. Section 01110, Summary of Work, paragraph 1.13, has been revised and reissued as part of this addendum to provide additional clarity regarding when and where repairs will be required, in conjunction with testing.

8. Question 8: The drawings give a percentage coverage and depth for scale buildup, and volume of media. How many tons of scale and media removal is included in the base bid? Can you give us unit price bid item to quote this removal and disposal? Otherwise, we're left to debate coverage amount and thickness during construction. A unit price is the fairest, easiest way to measure progress.

Response: Information provided in SM02, keynote 1, and SM10, keynote 7,

which equates to an approximate volume of 500 wet tons, should be utilized as prospective bidder's basis for Stipulated Price. Extra Unit Price Item 5 shall be utilized for quantities over and above those included in the Stipulated Price.

9. Question 9: The MWBE Goal seems high for this project. Please consider reducing.

Response: The City of Houston requires that the selected general contractor "document and verify good faith efforts to reach the MWBE goal."

10. Question 10: No bypass pumping is shown on the drawings. Please confirm none is required.

Response: Requirements for bypass pumping are outlined in Section 01506, Diversion Pumping; however, no specific bypass pumping associated with maintaining process operations is anticipated. It is expected that necessary piping relocations will be completed during the scheduled plant shutdown period(s), as stated in Section 01110, Summary of Work, paragraph 1.07.B.7. Should prospective bidder elect to perform such work during alternative periods wherein the plant is online, based on his preferred means and methods, bypass pumping may be required. Bypass piping is required for the Plant 1 backwash, as indicated on Sheet M02.

11. Question 11: Will the city operators drain the basins or wells as required to complete the work?

Response: Yes, City operations staff shall be responsible for accomplishing all plant-related shut-down activities as stated in Section 01110, Summary of Work, paragraph 1.07.B.7.

12. Question 12: Please clarify what is included in the stipulated price on this contract. How will the extra unit items be used on this project? In our experience extra unit items are rarely used and there isn't a clear indication of when and where the extra unit prices will be used. For example, at what quantity does the extra GFRP Reinforcement, single layer, complete in place extra unit line item come in to being used if there isn't a quantity in the base bid? The same question can be asked of many of the extra unit items.

Response: The Stipulated Price is intended to include all items of work indicated on the drawings and contained within the technical specifications. Extra Unit Price Items shall be utilized for unforeseen or changed conditions, as may be applicable, such as those encountered during the course of construction for which existing record information was either incorrect or unavailable, and therefore not accurately reflected on the drawings and/or in the specifications. Regarding the quantity of GFRP Reinforcement, prospective bidder's Stipulated

Price should be determined based upon drawing take-offs.

13. Question 13: Can the 24 inch and 36 inch lines being relocated be isolated by the city operations? Will the valves work? How long can these lines be down to make the connections?

Response: The design intent is to isolate the backwash feed pumps by bypassing backwash flow directly to Plant 1, as indicated on Sheet M02. Moreover, Sheet M02, keynotes 2 through 5, provide information related to allowable down time, involvement of city operations, and valve operability.

14. Question 14: Please clarify exactly what work is to be completed during the shutdown on 12/30/16 and 1/5/17. This doesn't seem like enough time to complete the FRP, cleaning, descaling and structural improvements.

Response: Section 01110, paragraph 1.07.B.7.a, has been revised and reissued as part of this addendum to reflect a total shutdown period of 12/30/16 to 3/9/17 for the completion of the work in question.

15. Question 15: Is there a proposed descaling method preferred?

Response: The proposed descaling method is physical removal of the scale. The use of powered mechanical tools, hydraulic tools, and/or pneumatic tools was not anticipated for this scope of work.

END OF ADDENDUM NO. 1

DATED:

JM

ACM

Ravi Kaleyatodi
Ravi Kaleyatodi, P.E., CPM
Senior Assistant Director
Department of Public Works and
Engineering

END OF DOCUMENT

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 April 28, 2016.

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 10:00 A.M. on Monday, April 4, 2016 at Training Room Plant 1, EWPP, 2300 Federal Road, Houston, TX, 77015.

END OF DOCUMENT

Document 00520

AGREEMENT

Project: Clearwell Condition Assessment and Replacement of Select Valves and Actuators at the EWPP

Project Location: 2300 Federal Road, Houston, TX, 77015(Key Map No. 496 U, Y)

Project No: WBS No. S-000056-0070-4

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)

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 **615** 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.

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)

SECTION 01110

SUMMARY OF WORK

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Summary of the Work including Work Covered By Contract Documents, Cash Allowances, City-Furnished Products, Contractor Use Of Premises, Warranty, Conditions For Substantial Completion, General Construction Notes, and Confidentiality of Contract Documents.
- B. Work related to this Section is found in:
 - 1. Section 01325 – Construction Schedule

1.02 REFERENCE CODES

- A. International Building Code (IBC), 2006, with all applicable Houston amendments.

1.03 WORK COVERED BY CONTRACT DOCUMENTS

- A. Work in these contract documents: the project includes construction of passive overflow system, multi-faceted structural reinforcement of EWPP No. 2 filter effluent channel and clearwell, sodium bisulfite system, expansion of existing onsite storm water detention area, automated control of existing EWPP No. 2 filter effluent discharge valve actuators, and filter effluent channel and clearwell cleaning to remove buildup of scale and media in EWPP no. 2. The full and complete project scope is described by the Contract Documents consisting of all technical specifications, drawings, and other documents included as part of this bid package. The exclusion of any scope from this summary does not relieve the Contractor from fulfilling his obligations under the Contract. The price for these items should be included in Section 00410, Part B, Paragraph A - Stipulated Price". The cost of Mobilization, traffic control and trench safety are included in Section 00410, Part B, Paragraph B - Base Unit Price. The cost of Extra Unit Price and Cash Allowance are included in Section 00410, Part C and D.
- B. Work included in the Stipulated Price for this contract, to be provided in Section 00410, Part B, Paragraph A, includes:
 - 1. All work not explicitly included in the Base Unit Price Bid Items, the Extra Unit Price Bid Items and the Cash Allowances.
- C. Project Component No. 1: Construction of passive overflow system, consisting of new concrete structure and box culvert in vicinity of existing EWPP No. 2 filter building, to accomplish diversion of plant flows from treatment process units to designated onsite detention area during power outage-induced overflow event.

- D. Project Component No. 2: Multi-faceted structural reinforcement of EWPP No. 2 clearwell and filter effluent channel/pipe gallery to withstand loading imparted by proposed passive overflow system.
- E. Project Component No. 3: Sodium bisulfite system to accomplish chloramine control of overflow discharge, including prefabricated building, concrete slab, packaged chemical feed unit, dedicated onsite generator, and all other associated electrical, instrumentation, and controls components. Proposed sodium bisulfite building location is depicted on Sheet G05, and its structural (foundation), mechanical, and electrical components detailed on Sheets SM16, M01, and E14, respectively. Additionally, requirements for the building enclosure are outlined in technical specification Section 13120, Pre-Cast Segmental Concrete Building.
- F. Project Component No. 4: Expansion of existing onsite storm water detention area, including all associated excavation, offsite material hauling, grading, concrete, slope stabilization, and seeding.
- G. Project Component No. 5: Automated control of existing EWPP No. 2 filter effluent discharge valve actuators to accomplish programmed shutoff via onsite generator connection, during power outage-induced overflow event.
- H. Project Component No. 6: Cleaning to remove buildup of scale and media in EWPP No. 2 filter effluent channel and clearwell.
- I. Contractor shall furnish all labor, supervision, tools, and material, as described in the specifications and as shown on the drawings to perform the required Work. Provide all appurtenant equipment, connections, and special items necessary to accomplish the purposes shown or specified, even if such appurtenant equipment, connections, and special items are not specifically specified or shown on the drawings. Install all items provided in accordance with the specifications, manufacturer's recommendations, and best practices of the trades involved.
- J. Contractor shall assume full responsibility for the means, methods, techniques, sequences, and procedures of construction and safety precautions and programs incidental thereto, and for the functional operation of the systems specified in this Contract. Provide, connect, test, and supervise the installation of the systems specified. The installation and testing of any device, subsystem, or system must be performed under the direct supervision of persons qualified by training and experience to capably perform the Work in a satisfactory manner. Contractor shall provide formal written documentation certifying compliance with all manufacturer recommended installation and testing procedures.
- K. Contractor shall perform Work in accordance with applicable statutes, ordinances, codes, and regulations of governmental authorities having jurisdiction.
- L. Contractor shall be responsible for compliance with all applicable portions of Texas Administrative Code (TAC) Chapter 290, Rules and Regulation for Public Water Systems, as administered by the Texas Commission on Environmental Quality (TCEQ). In particular, Contractor shall disinfect all portions of the work in

accordance with §290.42, Water Treatment, part (e), Disinfection, and §290.44, Water Distribution, part (f), Sanitary Precautions and Disinfection.

- M. Contractor shall be responsible for the development, implementation, and maintenance of a detailed, project-specific Storm Water Pollution Prevention Plan (SWPPP), which complies with all applicable stipulations and requirements of the Texas Commission on Environmental Quality (TCEQ) administered Texas Pollutant Discharge Elimination System (TPDES) general permit (TXR150000). Contractor shall provide copy of submitted SWPPP, and all supplemental documentation, to Owner and Engineer, prior to the commencement of construction activities.
- N. Contractor shall be fully responsible and obligated to maintain procedures for safety of all Work, personnel, and equipment involved in the project. Information presented herein does not extend to, or include, designs or systems pertaining to the safety of the Contractor or its employees, agents, or representatives, in the performance of the Work. The seal of the registered engineer(s) included on the drawings and technical specifications does not extend to any such safety systems that may now, or hereafter, be incorporated into the Work. Contractor shall prepare or obtain appropriate safety systems, including trench safety systems, designed and sealed by a professional engineer licensed in the state where the Work is to be performed.
- O. Materials that are specified by reference to Federal Specifications; ASTM, ASME, NEMA, ANSI or AWWA specifications; Federal Standards; or other standard specifications must comply with latest editions, revisions, amendments or supplements in effect on the date that bids are received. Requirements in reference specifications and standards represent a minimum for all equipment, material, and Work. In instances where capacities, size, or other features of equipment, devices, or materials exceed these minimums, meet listed or shown capacities.
- P. The location of existing utilities has been shown based on available survey data, record drawings, and Owner input. Contractor shall field-locate all existing utilities and points of crossing prior to initiating construction activities, and shall notify Owner and Engineer immediately upon discovery of a potential conflict and/or variation from the drawings. Contractor shall be responsible for the protection of existing utilities, structures and equipment, and shall bear all costs associated with their relocation, replacement, and/or repair if damaged during the course of construction.
- Q. Work included in the Base Unit Price Items included in the Base Unit Price Table, prices to be provided in Section 00410, Part B, Paragraph B, shall consist of the following:
 - 1. Base Unit Price Item No. 1: Mobilization by the Contractor to initiate project start-up, as specified in Section 01502 and Supplementary Section 01502S. Includes construction of temporary field offices and facilities as specified in Section 1520.
 - 2. Base Unit Price Item No. 2: Traffic Control
 - 3. Base Unit Price Item No. 3: Provide and install a trench safety system in accordance with City of Houston, and OSHA requirements.

- R. Work included in the Extra Unit Items included in the Extra Unit Price Table, prices to be provided in Section 00410, Part B, Paragraph C, shall consist of the following items:
4. Remove Remnants of Concrete Foundations Not Identified on Drawings
 5. Extra Solids Removal from Clearwell Cleaning Operations, Including Transportation and Disposal
 6. Extra Waste Material Removal and Disposal
 7. Extra Roadway Demolition
 8. Extra Hand Excavation and Backfill
 9. Extra Small Machine Excavation and Backfill using 12"-24" Bucket Tractor/Backhoe or similar
 10. Extra Large Machine Excavation and Backfill using D6-D8 Dozer or 11-22 CY Scraper or similar
 11. Extra Select Backfill Material, Complete in Place
 12. Extra Cement Stabilized Sand, Complete in Place
 13. Extra Depth for 18" Diameter Drilled Concrete Piers with 48" Bell, Complete in Place
 14. Extra Ductile Iron Pipe and Fittings, 4" Diameter, Buried, Complete in Place
 15. Extra Ductile Iron Pipe and Fittings, 8" Diameter, Buried, Complete in Place
 16. Extra Ductile Iron Pipe and Fittings, 16" Diameter, Buried, Complete in Place
 17. Extra Ductile Iron Pipe, 36" Diameter, Above Grade, Including all Fittings, Bends and Supports, Complete in Place
 18. Extra Polyvinyl Chloride Pipe and Fittings, 1" Diameter, Above Grade, Including all Fittings, Bends and Supports, Complete in Place
 19. Extra Polyvinyl Chloride Pipe and Fittings, 4" Diameter, Above Grade, Including all Fittings, Bends and Supports, Complete in Place
 20. Extra Polyvinyl Chloride Pipe and Fittings, 6" Diameter, Above Grade, Including all Fittings, Bends and Supports, Complete in Place
 21. Extra Reinforced Concrete Pipe, 18" Diameter, Buried, Complete in Place
 22. Extra Reinforced Concrete Pipe, 24" Diameter, Buried, Complete in Place
 23. Extra Reinforced Concrete Pipe, 36" Diameter, Buried, Complete in Place
 24. Extra Concrete Box Sewer, 10 FT x 3 FT, Complete in Place
 25. Extra Concrete Box Sewer, 9 FT x 4 FT, Complete in Place
 26. Extra Concrete Paving, Complete in Place
 27. Extra Curb and Gutter - CIP Concrete, Complete in Place
 28. Extra Concrete with Forms, Complete in Place
 29. Extra Concrete w/o Forms, Complete in Place
 30. Extra Concrete Repair, Complete in Place
 31. Extra Concrete Grout, 1" Thick, Complete in Place
 32. Extra GFRP Reinforcement, Single Layer, Complete in Place
 33. Extra Epoxy Injection System, Complete in Place
 34. Extra Hydrophilic Foam Polyurethane Resin Injection System, Complete in Place
 35. Extra Structural Stainless Steel, Complete in Place
 36. Extra Structural Aluminum, Complete in Place
 37. Extra Aluminum Handrail, Complete in Place
 38. Extra Aluminum Stair Treads, Complete in Place
 39. Extra Aluminum Grating, Complete in Place
 40. Extra High Solids Epoxy Coating, Complete in Place

41. 4 Strand Fiber Optic Cable Installed in Conduit, Complete in Place
42. 6 Strand Fiber Optic Cable Installed in Conduit, Complete in Place
43. 12 Strand Fiber Optic Cable Installed in Conduit, Complete in Place
44. 36 Strand Fiber Optic Cable Installed in Conduit, Complete in Place
45. Extra 1" Rigid Aluminum Conduit Installed Above Ground, Complete in Place
46. Extra 1 1/2" Rigid Aluminum Conduit Installed Above Ground, Complete in Place
47. Extra 2" Rigid Aluminum Conduit Installed Above Ground, Complete in Place
48. Extra Copper No. 14 AWG Conductor with XHHW-2 Insulation, Complete in Place
49. Extra Copper No. 12 AWG Conductor with XHHW-2 Insulation, Complete in Place
50. Extra Copper No. 10 AWG Conductor with XHHW-2 Insulation, Complete in Place
51. Extra Copper No. 6 AWG Conductor with XHHW-2 Insulation, Complete in Place
52. Extra Copper No. 4 AWG Conductor with XHHW-2 Insulation, Complete in Place
53. Extra Copper No. 1 AWG Conductor with XHHW-2 Insulation, Complete in Place
54. Extra Copper No. 1/0 AWG Conductor with XHHW-2 Insulation, Complete in Place
55. Extra Copper No. 3/0 AWG Conductor with XHHW-2 Insulation, Complete in Place
56. Extra 2/C or 3/C, #16 AWG Twisted Shielded Instrument Cable, Complete in Place
57. Extra 1" PVC Schedule 40 Conduit Installed in Underground Duct Bank, Complete in Place
58. Extra 1 1/2" PVC Schedule 40 Conduit Installed in Underground Duct Bank, Complete in Place
59. Extra 2" PVC Schedule 40 Conduit Installed in Underground Duct Bank, Complete in Place
60. Extra 4" PVC Schedule 40 Conduit Installed in Underground Duct Bank, Complete in Place
61. 61 Extra Duct Bank Trenching, Rebar, Concrete Encasement and Backfill for Duct Banks with Top of Duct Maximum 48" Below Grade, Complete in Place
62. Extra 3' X 3' Precast Concrete Pull Box Installed as Detailed, Complete in Place
63. Extra 4' X 4' Precast Concrete Pull Box Installed as Detailed, Complete in Place
64. Additional Temporary Bypass Provisions, Complete in Place
65. Additional Dewatering, Complete in Place
66. Additional Demolition
67. Additional Shoring and Protection, Complete in Place
68. Additional Utility Relocations, Complete in Place

1.04 CASH ALLOWANCES

- A. Include the following specific Cash Allowances in Contract Price under provision of General Conditions Paragraph 3.11:
 - 69. City of Galena Park Permit

1.05 ALTERNATES (NOT USED)

1.06 CITY-FURNISHED PRODUCTS (NOT USED)

1.07 WORK CONSTRAINTS

- A. Contractor shall submit a detailed phasing plan for review by the Owner and Engineer prior to the start of construction. The phasing plan shall address the Contractor's proposed method and timing of the major construction activities to be undertaken, such that the Owner and Engineer can readily ascertain the Contractor's intended means and methods, execution sequence, and plan feasibility. Contractor's plan shall also highlight all tasks requiring Owner action or input, including necessary existing utility relocations and plant shut down periods. Contractor shall coordinate the proposed phasing plan with the overall construction schedule. Contractor shall endeavor to minimize impacts to plant operation, including any full or partial service interruption durations, to the maximum extent possible. Contractor shall not commence construction activities prior to construction sequencing plan review by the Owner and Engineer.
- B. The following major assumptions and/or constraints are provided to guide Contractor's phasing plan development:
 - 1. Clearwell cleaning and FRP reinforcement to be completed in the "dry."
 - 2. Clearwell access to be obtained through existing roof vent located atop the transfer pump station and/or through existing metal plated slab openings located in the Clearwell Approach Channel area.
 - 3. One access stairwell (Clearwell Approach Channel or Pipe Gallery location) must remain in place and accessible at all times during the course of construction.
 - 4. Opening associated with existing Pipe Gallery window designated for removal and replacement may be utilized as construction access point.
 - 5. Continual access to Maintenance Building east side roll-up doors must be maintained at all times during the course of construction. Should temporary access restrictions be necessitated to facilitate completion of the work, Contractor shall notify Owner in writing at least seven calendar days prior to commencing work.
 - 6. Existing 24-inch and 36-inch filter backwash lines designated for relocation in vicinity of EWPP No. 2 are interconnected with the backwash tank serving EWPP No. 1. Temporary suspension of backwash operations at EWPP No. 1 to accomplish installation of line isolation provisions shall be limited to a maximum duration of 24 consecutive hours. Contractor shall notify Owner in writing at least seven calendar days prior to commencing work. Owner operations personnel shall be responsible for accomplishing all plant related shut-down activities.

7. Temporary EWPP No. 2 decommissioning durations shall be limited to succinct periods, as noted herein. In addition to the work directly associated with the temporary shutdown, all required existing utility relocations shall also be completed during these periods. Contractor shall notify Owner in writing at least seven calendar days prior to commencing work. Owner operations personnel shall be responsible for accomplishing all plant-related shut-down activities.
 - a. Clearwell and filter effluent flume structural improvements: 12/30/16 to 3/9/17.
 - b. Overflow structure construction (pipe installation): 8/4/17 to 9/14/17.

C. Coordination of the Work: Refer to Section 01312 – Coordination and Meetings.

1.08 UNDERGROUND UTILITY LINES

- A. Underground utility line locations shown on the drawings are based on available Owner-provided record drawings, and a site survey of observable features. It is important to note that the available record drawings may not be accurate. Moreover, the site survey of observable features may not indicate all existing underground utility lines.
- B. In some cases electrical, SCADA, security, and control underground conduits and duct banks are identified on available record drawings; however, cabling within these conduits and duct banks, as well as conduit/duct sizes are not known. While the best available information related to cabling and conduit/duct sizes has been utilized in the preparation of the Drawings depicting the current work, this information may require adjustment through the use of extra unit prices once actual information is uncovered during excavation.
- C. After mobilization, and prior to material procurement and start of construction, Contractor shall perform exploratory excavations to locate existing underground utilities in the vicinity of the proposed work. Contractor shall notify Owner and Engineer immediately should it be determined that existing underground utility lines conflict with proposed construction. Contractor shall obtain Owner's approval prior to starting excavation. Contractor shall proactively maintain "As-Built" drawings throughout the course of project construction to identify changes, additions, and deletions of any underground utility lines discovered prior to, and during completion of the work. Exploratory excavations and documentation of underground utility lines shall be included in the lump sum base bid amount.

1.09 CONTRACTOR USE OF PREMISES

- A. Comply with procedures for access to the site and Contractor's use of site areas as specified in Section 01145 – Use of Premises.
- B. Construction Operations: Limited to areas shown or described in the Contract Documents and/or areas of the site formally authorized in writing by Owner for Contractor's use.

- C. Utility Outages and Shutdown: Provide a minimum of seven calendar days written notice to the City and private utility companies (when applicable), excluding weekends and holidays, prior to initiating portions of the Work involving any anticipated and/or required utility or treatment process shutdowns, outages, and/or by-pass operations. Coordinate all work as required.
- D. Owner shall have access to the project area during the entire duration of construction.
- E. Cooperate with the Owner to minimize conflict, and to facilitate the Owner's operations. Contractor shall coordinate all construction-related activities with Owner's Inspector, and shall schedule his operations to accommodate this requirement.
- F. If Owner occupies any or all parts of the premises, this action shall not signify Substantial Completion or any limits to the Contractor's liability or contractual responsibility of premises.
- G. The Work associated with this contract shall occur in an operating water treatment plant. Contractor shall maintain continual access to treatment process components located within project vicinity for entire duration of construction. In addition, Contractor shall sequence work so as to minimize interruptions to treatment operations. Contractor's provision of temporary and/or permanent utility relocations may be required, should it be determined that existing utilities must be temporarily decommissioned and/or relocated to facilitate construction. Maintaining continual access and service during the completion of the Work shall require significant communication between the Contractor and Owner. Contractor shall cooperate with the Owner by any and all means necessary.
- H. Contractor shall develop an emergency contingency plan to guide his operations and construction activities in the event of an extreme weather condition, including hurricanes, tropical storms, flooding, etc. Contractor shall comply with all Owner directives related to construction activities during any and all of the aforementioned events, as applicable.

1.10 STREET CUT ORDINANCE (NOT USED)

1.11 WARRANTY

- A. Comply with warranty requirements in accordance with Document 00700 – General Conditions.

1.12 ADDITIONAL CONDITIONS FOR SUBSTANTIAL COMPLETION

- A. In addition to requirements outlined in Document 00700 – General Conditions, the following conditions must be met:
 - 1. Completion and acceptance of all testing.
 - 2. Delivery of draft O&M manuals to Project Manager.
 - 3. Completion of operator training using draft O&M manuals.

4. Installation of all safety-related systems and equipment, completion of all safety-related work, and acceptance and approval of all by manufacturer's representative.
 5. Submission of report certifying completion of all pay items.
 6. Installation, acceptance, and approval of all SCADA and security equipment by manufacturer's representative (if applicable).
 7. Completion of Texas Department of Licensing and Regulation Post Construction Inspection of pedestrian elements for Texas Accessibility Standards (if applicable).
 8. Successful completion of all System Performance Testing requirements, as outlined herein.
- B. No item included in the above-referenced list may be included on Contractor's punch list.

1.13 SYSTEM PERFORMANCE TESTING

- A. In addition to testing of individual pieces of equipment, materials, and other project-related components, as indicated in the individual sections of these technical specifications, Contractor shall be responsible for performing testing of the proposed EWPP No. 2 overflow system in its entirety. Specifically, testing shall consist of two components: 1) Structural Containment Testing and 2) Overflow System Functionality Testing. The tests shall be performed sequentially, with the Structural Containment Testing occurring first, followed by the Overflow System Functionality Testing.
- B. Structural Containment Testing:
1. Test shall entail controlled shutoff (by Owner) of four EWPP No. 2 clearwell transfer pumps; thereby allowing for controlled filling of the Clearwell, Clearwell Approach Channel, Filter Effluent Channel, and Overflow Structure; and monitoring for leakage during the filling process.
 - a. If at any point during the Structural Containment Testing water leakage is occurring at a rate unacceptable to the Owner or Engineer, or which may lead to damage of plant equipment, the test shall be suspended and the transfer pumps immediately turned on to lower the water level.
 - 1) Except where such action would result in danger to personnel or damage to equipment, continuation of testing - despite the presence of controlled, stable leakage -- may be allowed if acceptable to the Engineer and the Owner.
 - b. Conditions requiring suspension of the test and lowering of the water level for repairs include, but are not limited to running water; jetting water with jet height greater than 1 inch, or where saturated areas occur on an outside surface that could only have originated from inside the structure.
 - c. Repairs at locations where leakage was observed during testing may include crack injection as specified in Sections 03931 or 03933 or other methods accepted in advance by the Engineer.
 2. Testing shall consist of the following procedures:

- a. Fill Filter Effluent Channel, Clearwell Approach Channel, and Clearwell to the bottom of the Filter Pipe Gallery floor slab (approximate elevation +3.5).
- b. From the bottom of the Filter Pipe Gallery/Clearwell Approach Channel floor slab (located at approximate elevation +3.5), raise the water level at a rate of 2 feet per hour until the water reaches a level approximately 5 feet above the bottom of the Filter Pipe Gallery floor slab (approximate elevation +8.5).
 - 1) Hold the water level at this elevation of not less than 4 hours. During that period, observe the slab, pipe penetrations through the slab, and joints and cracks for leaks, running, jetting water, and saturated areas.
 - 2) If leaks are observed, lower the water level and provide repairs.
 - 3) After repairs are complete and have cured, restore water level to approximately 5 feet above the bottom of the Filter Pipe Gallery floor slab and hold for an additional 4 hours.
 - 4) Observe the structure for leaks. Repeat the process of filling, repair, and re-observation until "test success" as described in subsequent paragraphs is achieved to the satisfaction of the Engineer.
- c. Upon approval from the Owner and Engineer, continue the test by raising the water level at a rate of 2 feet per hour until the water level reaches the bottom of the Clearwell roof slab (approximate elevation +13.5).
 - 1) As the water is raised, continuously monitor Filter Pipe Gallery/Clearwell Approach Channel floor slab, Clearwell Approach Channel Overflow Control Box walls, roof, and roof hatch; and pipes/pipe penetrations through the structure for leakage or other concerns. If such conditions are observed, suspend filling, lower the water level, and make repairs or adjustments acceptable to the Engineer.
 - 2) Hold the water level at elevation +13.5 for not less than 4 hours. Monitor for visible leaks thru areas previously listed.
 - 3) If leaks are observed, lower the water level and make repairs.
 - 4) After repairs have been completed and allowed to set, restore the water level to the previously indicated elevation, and hold for not less than 4 hours, continuously monitoring for leaks during this duration.
 - 5) Repeat the process of filling, repair, and observation until "test success," as defined in subsequent paragraphs, is achieved to the satisfaction of the Engineer.
- d. Upon approval from the Owner and Engineer, continue the test by raising the water level at a rate of 2 feet per hour to a level 6 inches above the Clearwell roof slab (located at approximate elevation +14.5).
 - 1) Hold the water level at this elevation for not less than 2 hours. Continuously monitor for leaks through the clearwell roof slab into rooms above the Clearwell, giving particular attention to the Switch Gear Room. Also monitor for leaks thru the Pump Deck slab and the walls of the new vent structure on the Pump Deck.
 - 2) If leaks are observed, lower the water level and make repairs.

- 3) After repairs have been completed and allowed to set, restore the water level to the previously indicated elevation, and hold for not less than 2 hours, continuously monitoring for leaks during this duration.
 - 4) Repeat the process of filling, repair, and observation until "test success," as defined in subsequent paragraphs, is achieved to the satisfaction of the Engineer.
 - e. Upon approval from the Owner and Engineer, continue the test by raising the water level at a rate of 2 feet per hour to the invert elevation of the flap gates between the two chambers of the Overflow Structure (located at approximate elevation +15.8).
 - 1) Hold the water level at this elevation for not less than 4 hours. Continuously monitor for leaks as indicated in the preceding paragraphs.
 - 2) If leaks are observed, lower the water level and make repairs.
 - 3) After repairs have been completed and allowed to set, restore the water level to the previously indicated elevation, and hold for not less than 4 hours, continuously monitoring for leaks during this duration.
 - 4) Repeat the process of filling, repair, and observation until "test success," as defined in subsequent paragraphs, is achieved to the satisfaction of the Engineer.
 3. Test success shall be measured based upon achieving the following conditions:
 - a. No visible evidence of leaks at cracks, joints, or around penetrations at the following concrete slabs and walls during the test duration:
 - 1) Pipe Gallery and Clearwell Approach floor slab at approximate elevation +4.5.
 - 2) Pipe Gallery Overflow Control Structure walls, roof slab, and roof hatch.
 - 3) Filter Control Building room floor slabs at approximate elevation +14.5 located above the Clearwell. This includes, but is not limited to the Switch Gear Room and Instrument Room.
 - 4) Clearwell transfer pump deck slab at approximate elevation +14.5.
 - 5) Overflow Structure walls and overflow pipes.
 - b. All watertight hatches shall show no evidence of leakage or damp spots around perimeter of hatch.
- C. Overflow System Functionality Testing:
 1. After successful completion of the Structural Containment Testing, the Overflow System Testing may take place. The water level within the Clearwell should be at the normal operating level (approximate elevation +2.0) at the initiation of the test.
 2. The test shall entail controlled shutoff (by Owner) of four EWPP No. 2 clearwell transfer pumps; thereby allowing for sustained flow of 80 MGD to pass through the overflow system. Monitoring for additional leaks, particularly in the Switch Gear Room and Pipe Gallery, should also occur throughout the duration of the test.
 3. Test success shall be measured based upon achieving the following conditions in two consecutive iterations:

- a. Automated startup of the stand-by generator. Total elapsed time from shutoff of transfer pumps to generator reaching design output shall be as specified in Section 16210.
 - b. Automated pumping of sodium bisulfite to the overflow structure at design flow rate as specified in Section 11420. Total elapsed time from shutoff of transfer pumps to uniform dispersion of sodium bisulfite within overflow structure shall be five minutes or time at which water first passes through flap gates, whichever is less.
 - c. Automated closure of eight filter effluent valves. Total elapsed time from shutoff of transfer pumps to full closure of valves shall be 20 minutes or time at which water first passes through flap gates, whichever is less.
 - d. Automated shutoff of the sodium bisulfite pumps after the eight filter effluent valves have closed, and no further water is passing the flap gates.
 - e. Duration from initial transfer pump shutoff to transfer pump restart and fully restored transfer pump station operational status not exceeding 25 minutes.
 - f. No visible leaks thru the elements listed above in the Structural Containment Testing paragraph.
4. Lack of compliance of any of the aforementioned items will constitute a failure of Overflow System Functionality Testing and the clearwell transfer pumps should be turned on immediately until the water level in the Clearwell is returned to its original operating level. If additional leaks become evident during the test, they shall be repaired as previously indicated.
- D. In the event of non-conformance of any component during system testing, the test shall be considered not successful. Contractor shall be responsible for repeating testing, in coordination with the Owner, until all the components operate successfully together as a fully functional system. At Owner's discretion, Contractor may be held responsible for all costs associated with multiple repeat testing attempts. Additionally, the Contractor shall allow for sufficient time between successive Overflow System Functionality Tests so as to facilitate complete drainage of overflow system discharge from proposed detention basin.
- E. Contractor shall notify Owner and Engineer in writing a minimum of five working days in advance of any planned testing date(s). Contractor shall not commence testing without written confirmation and approval of proposed testing date by Owner. Moreover, Contractor shall not initiate any testing-related activities without direct onsite involvement of Owner operations and inspection staff.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

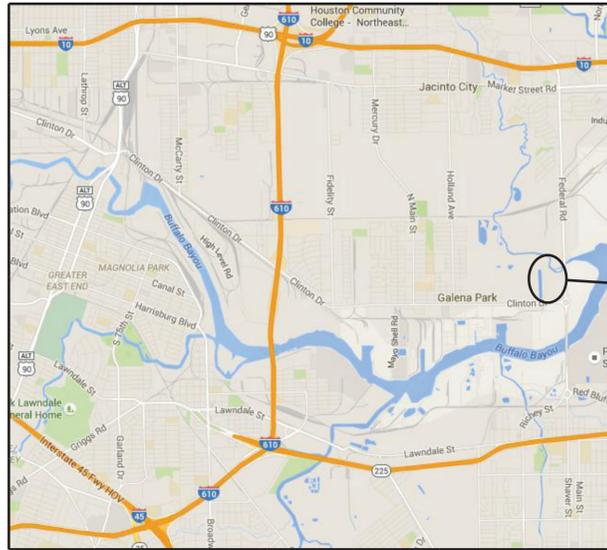
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CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING ENGINEERING AND CONSTRUCTION DIVISION

CLEARWELL CONDITION ASSESSMENT AND REPLACEMENT OF SELECT VALVES AND ACTUATORS AT THE EAST WATER PURIFICATION PLANT

WBS NO. S-000056-0070-4



LOCATION MAP



VICINITY MAP

KEY MAP NO 496 Y
GIMS MAP NO 5756b

CITY OF HOUSTON
EWPP
2300 FEDERAL RD.
HOUSTON, TX 77015

PROJECT
LOCATION

EWPP NO. 2



MAYOR
SYLVESTER TURNER

CONTROLLER
CHRIS BROWN

DISTRICT
COUNCIL MEMBERS

BRENDA STARDIG DISTRICT A	JERRY DAVIS DISTRICT B	ELLEN COHEN DISTRICT C	DWIGHT BOYKINS DISTRICT D
DAVE MARTIN DISTRICT E	STEVE LE DISTRICT F	GREG TRAVIS DISTRICT G	KARLA CISNEROS DISTRICT H
ROBERT GALLEGOS DISTRICT I	MIKE LASTER DISTRICT J	LARRY GREEN DISTRICT K	

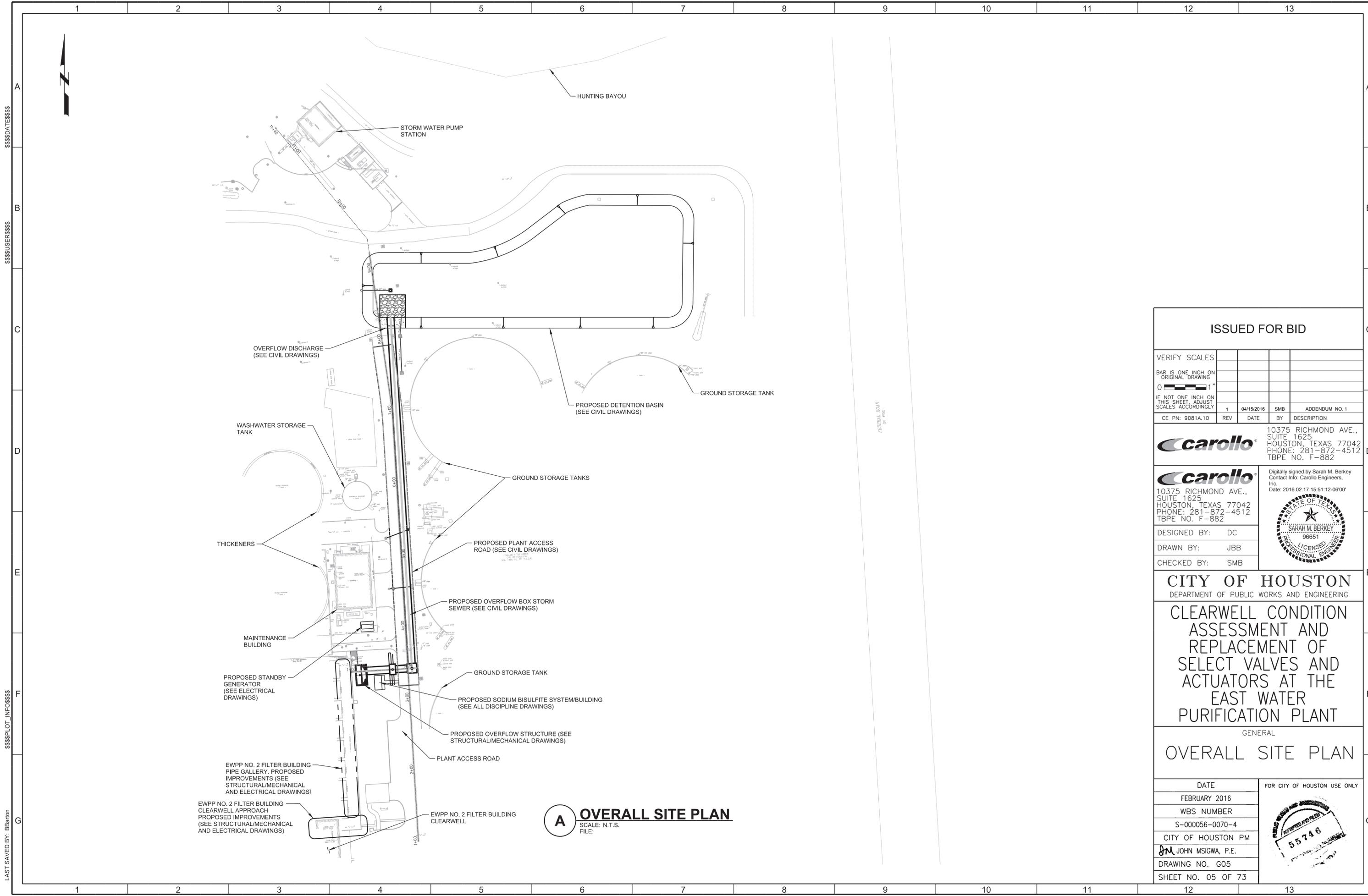
COUNCIL MEMBERS
AT-LARGE

MIKE KNOX POSITION 1	DAVID ROBINSON POSITION 2
MICHAEL KUBOSH POSITION 3	AMANDA EDWARDS POSITION 4
JACK CHRISTIE POSITION 5	

<p>10375 RICHMOND AVE., SUITE 1625 HOUSTON, TEXAS 77042 PHONE: 281-872-4512 TBPE NO. F-882</p>	1 REV	04/15/2016 DATE	SMB BY	ADDENDUM NO. 1 DESCRIPTION
	<p>Digitally signed by Sarah M. Berkey Contact Info: Carollo Engineers, Inc. Date: 2016.02.17 15:31:27-0600'</p>			
<p>SURVEYED BY: KUO & ASSOCIATES, INC. FB NO. P-5965</p>				

<p><i>[Signature]</i> 3/8/2016 WATER</p> <p style="text-align: center;">N/A</p> <p>WASTEWATER</p> <p style="text-align: center;">N/A</p> <p>STORMWATER</p> <p style="text-align: center;">N/A</p> <p>STREET & BRIDGE</p> <p style="text-align: center;">N/A</p> <p><i>[Signature]</i> 3/15/16 CONSTRUCTION</p>	<p style="text-align: center;">N/A</p> <p>TRAFFIC AND TRANSPORTATION</p> <p style="text-align: center;">N/A</p> <p>SIGNALS</p> <p style="text-align: center;"><i>[Signature]</i> 3/16/16</p> <p>MANAGING ENGINEER/ASSISTANT DIRECTOR</p> <p style="text-align: center;">N/A</p> <p>PARK-FORESTRY DEPT</p> <p style="text-align: center;"><i>[Signature]</i> 3/16/16</p> <p>SPONSOR DIV / DEPT</p>
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<p><i>[Signature]</i> 3/21/16 CITY ENGINEER DATE</p> <p><i>[Signature]</i> 3/17/16 DIRECTOR OF PUBLIC WORKS AND ENGINEERING DATE</p>	<p style="text-align: center;">FOR CITY OF HOUSTON USE ONLY</p> <div style="text-align: center;"> <p>55746</p> </div>
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A OVERALL SITE PLAN
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ISSUED FOR BID

VERIFY SCALES				
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY				
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	1	04/15/2016	SMB	ADDENDUM NO. 1

carollo
 10375 RICHMOND AVE., SUITE 1625
 HOUSTON, TEXAS 77042
 PHONE: 281-872-4512
 TBPE NO. F-882

carollo
 10375 RICHMOND AVE., SUITE 1625
 HOUSTON, TEXAS 77042
 PHONE: 281-872-4512
 TBPE NO. F-882

Digitally signed by Sarah M. Berkey
 Contact Info: Carollo Engineers, Inc.
 Date: 2016.02.17 15:51:12-06'00'



DESIGNED BY: DC
 DRAWN BY: JBB
 CHECKED BY: SMB

CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

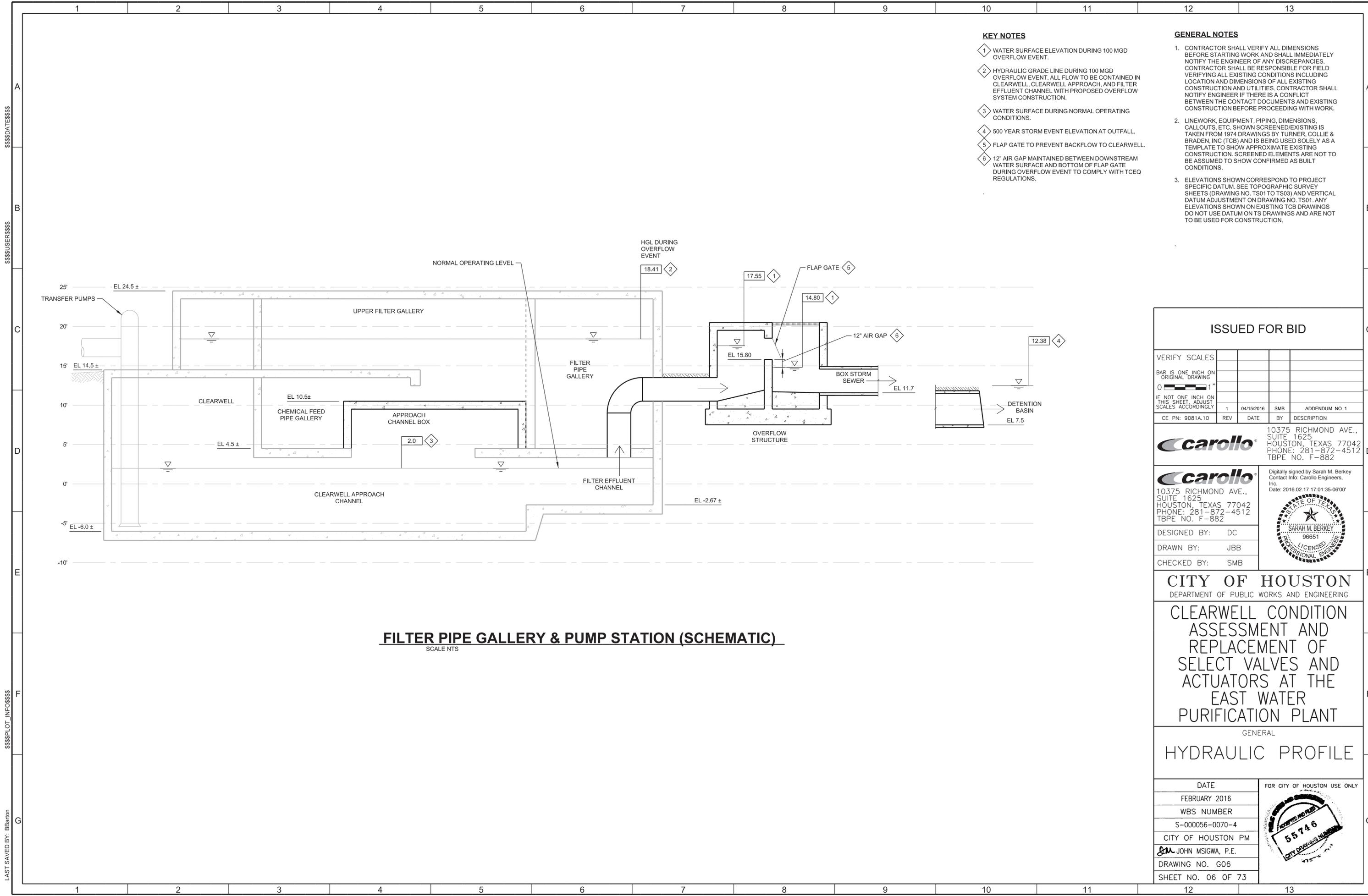
CLEARWELL CONDITION ASSESSMENT AND REPLACEMENT OF SELECT VALVES AND ACTUATORS AT THE EAST WATER PURIFICATION PLANT

GENERAL
OVERALL SITE PLAN

DATE	FOR CITY OF HOUSTON USE ONLY
FEBRUARY 2016	
WBS NUMBER	
S-000056-0070-4	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
DRAWING NO. G05	
SHEET NO. 05 OF 73	



\$\$\$\$DATE\$\$\$\$
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 \$\$\$PLOT_INFO\$\$\$\$
 LAST SAVED BY: bBarton



- KEY NOTES**
- 1 WATER SURFACE ELEVATION DURING 100 MGD OVERFLOW EVENT.
 - 2 HYDRAULIC GRADE LINE DURING 100 MGD OVERFLOW EVENT. ALL FLOW TO BE CONTAINED IN CLEARWELL, CLEARWELL APPROACH, AND FILTER EFFLUENT CHANNEL WITH PROPOSED OVERFLOW SYSTEM CONSTRUCTION.
 - 3 WATER SURFACE DURING NORMAL OPERATING CONDITIONS.
 - 4 500 YEAR STORM EVENT ELEVATION AT OUTFALL.
 - 5 FLAP GATE TO PREVENT BACKFLOW TO CLEARWELL.
 - 6 12" AIR GAP MAINTAINED BETWEEN DOWNSTREAM WATER SURFACE AND BOTTOM OF FLAP GATE DURING OVERFLOW EVENT TO COMPLY WITH TCEQ REGULATIONS.

- GENERAL NOTES**
1. CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK AND SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING CONDITIONS INCLUDING LOCATION AND DIMENSIONS OF ALL EXISTING CONSTRUCTION AND UTILITIES. CONTRACTOR SHALL NOTIFY ENGINEER IF THERE IS A CONFLICT BETWEEN THE CONTACT DOCUMENTS AND EXISTING CONSTRUCTION BEFORE PROCEEDING WITH WORK.
 2. LINEWORK, EQUIPMENT, PIPING, DIMENSIONS, CALLOUTS, ETC. SHOWN SCREENED/EXISTING IS TAKEN FROM 1974 DRAWINGS BY TURNER, COLLIE & BRADEN, INC (TCB) AND IS BEING USED SOLELY AS A TEMPLATE TO SHOW APPROXIMATE EXISTING CONSTRUCTION. SCREENED ELEMENTS ARE NOT TO BE ASSUMED TO SHOW CONFIRMED AS BUILT CONDITIONS.
 3. ELEVATIONS SHOWN CORRESPOND TO PROJECT SPECIFIC DATUM. SEE TOPOGRAPHIC SURVEY SHEETS (DRAWING NO. TS01 TO TS03) AND VERTICAL DATUM ADJUSTMENT ON DRAWING NO. TS01. ANY ELEVATIONS SHOWN ON EXISTING TCB DRAWINGS DO NOT USE DATUM ON TS DRAWINGS AND ARE NOT TO BE USED FOR CONSTRUCTION.

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CE PN: 9081A.10	REV	DATE	BY	DESCRIPTION

carollo 10375 RICHMOND AVE., SUITE 1625 HOUSTON, TEXAS 77042 PHONE: 281-872-4512 TBPE NO. F-882

carollo 10375 RICHMOND AVE., SUITE 1625 HOUSTON, TEXAS 77042 PHONE: 281-872-4512 TBPE NO. F-882

Digitally signed by Sarah M. Berkey
Contact Info: Carollo Engineers, Inc.
Date: 2016.02.17 17:01:35-06'00'



DESIGNED BY: DC
DRAWN BY: JBB
CHECKED BY: SMB

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

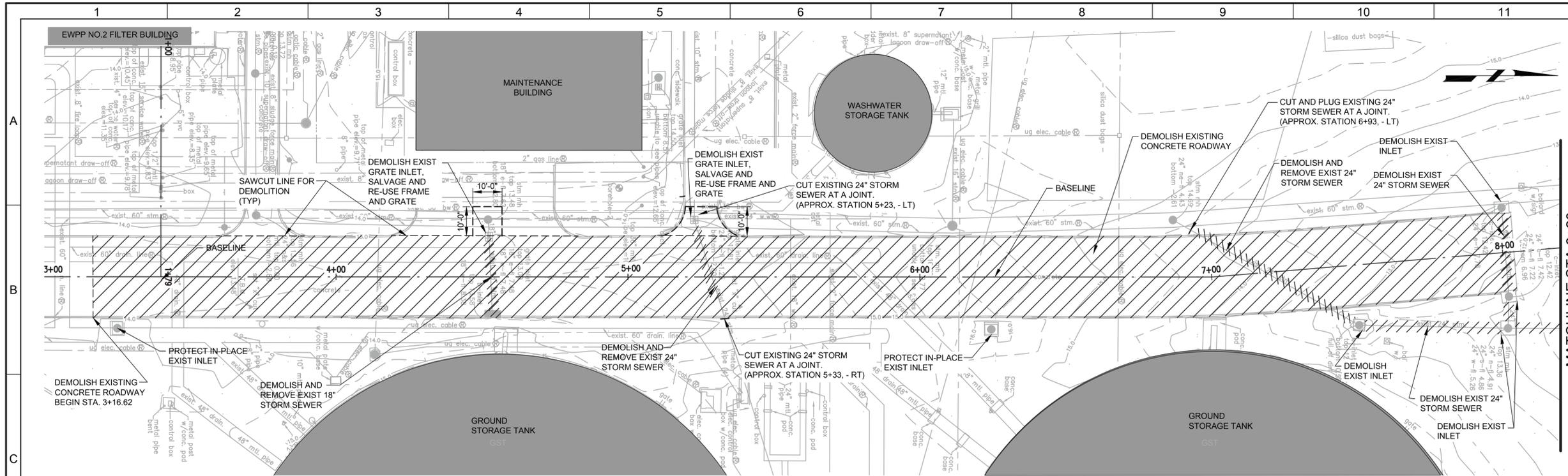
CLEARWELL CONDITION ASSESSMENT AND REPLACEMENT OF SELECT VALVES AND ACTUATORS AT THE EAST WATER PURIFICATION PLANT

GENERAL
HYDRAULIC PROFILE

DATE	FEBRUARY 2016	FOR CITY OF HOUSTON USE ONLY
WBS NUMBER	S-000056-0070-4	
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.	
DRAWING NO.	G06	
SHEET NO.	06 OF 73	

FILTER PIPE GALLERY & PUMP STATION (SCHEMATIC)
SCALE NTS

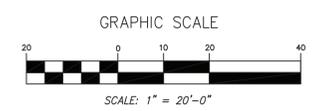
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- NOTES:**
- EXISTING STRUCTURES AND UTILITY INFORMATION SHOWN IS NOT GUARANTEED TO BE ACCURATE AND ALL INCLUSIVE. ALL EXISTING INFORMATION SHOWN IS APPROXIMATE, BASED ON AVAILABLE RECORD DRAWINGS, AND SHOULD BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION ACTIVITIES
 - CONTRACTOR SHALL COORDINATE WITH DRINKING WATER OPERATIONS PRIOR TO COMMENCING ANY DEMOLITION WORK.

LEGEND:

DEMOLISH EXISTING CONCRETE ROADWAY STA. 3+16.62 TO STA. 8+03.85 AND STORM SEWER SYSTEM COMPONENTS AS SHOWN



A DEMOLITION PLAN
 SCALE: 1"=20'
 FILE: 9081A10_34x22_COH-BORDER.DWG, TOPO-15024-CONTOUR.DWG, PROP_STM SWR.DWG

ISSUED FOR BID

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carollo 10375 RICHMOND AVE., SUITE 1625 HOUSTON, TEXAS 77042 PHONE: 281-872-4512 TBPE NO. F-882

KIT Professionals, Inc.
 2000 W. Sam Houston Pkwy S., Suite 1400 Houston, Texas 77042
 Phone: (713) 783-8700; Fax: (713) 783-8747
 TBPE Firm Registration No. F-4991

DESIGNED BY: SA
 DRAWN BY: TP
 CHECKED BY: FS

2/16/2016

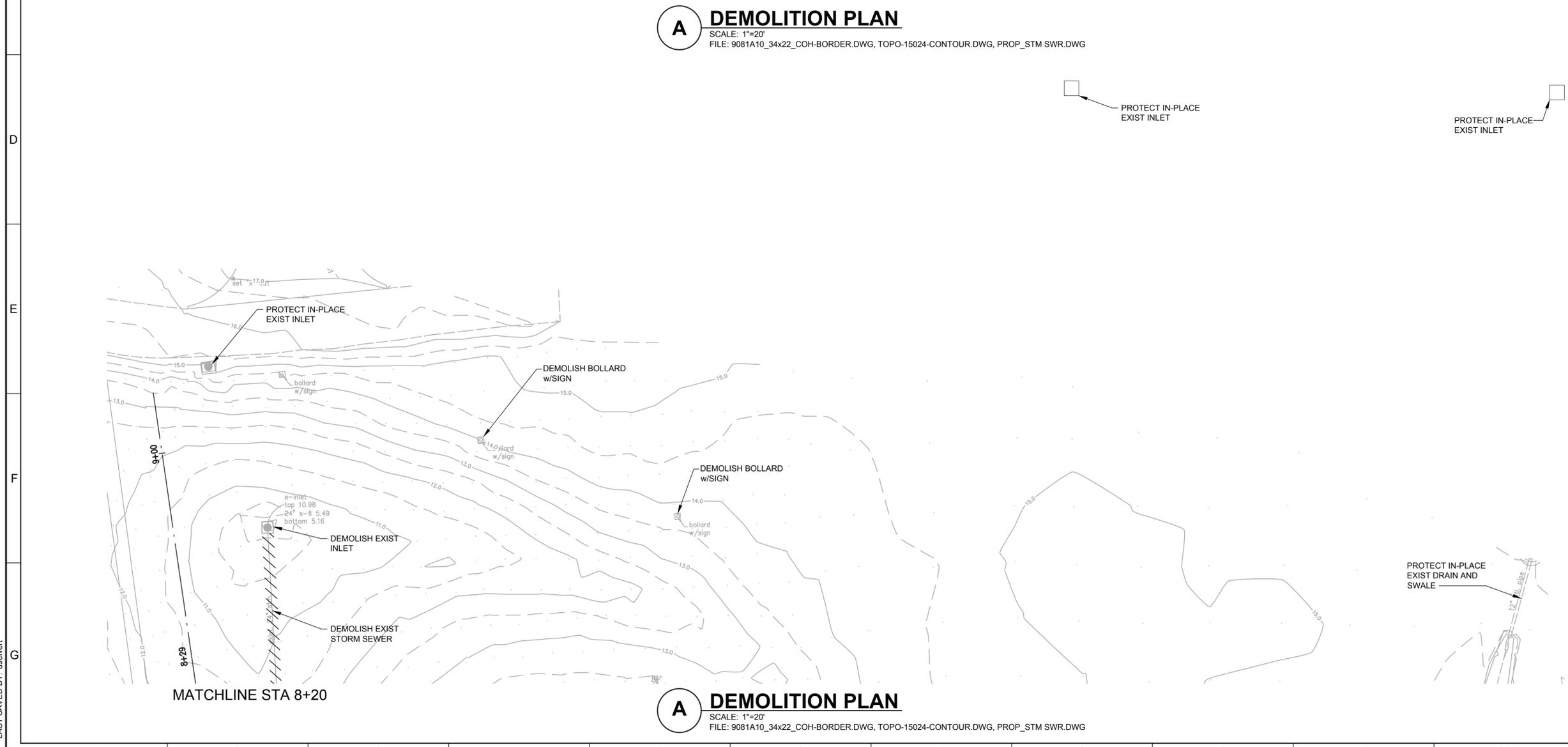
CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

CLEARWELL CONDITION ASSESSMENT AND REPLACEMENT OF SELECT VALVES AND ACTUATORS AT THE EAST WATER PURIFICATION PLANT

CIVIL

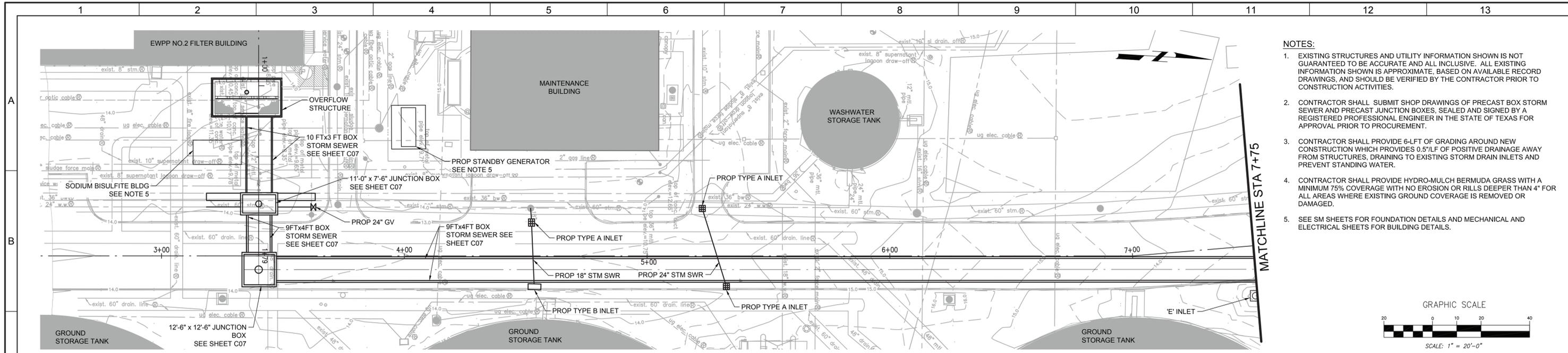
DEMOLITION PLAN

DATE	FOR CITY OF HOUSTON USE ONLY
FEBRUARY 2016	
WBS NUMBER	
S-000056-0070-4	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
DRAWING NO. C01	
SHEET NO. 12 OF 73	

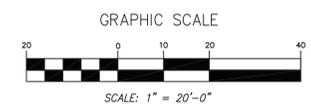


A DEMOLITION PLAN
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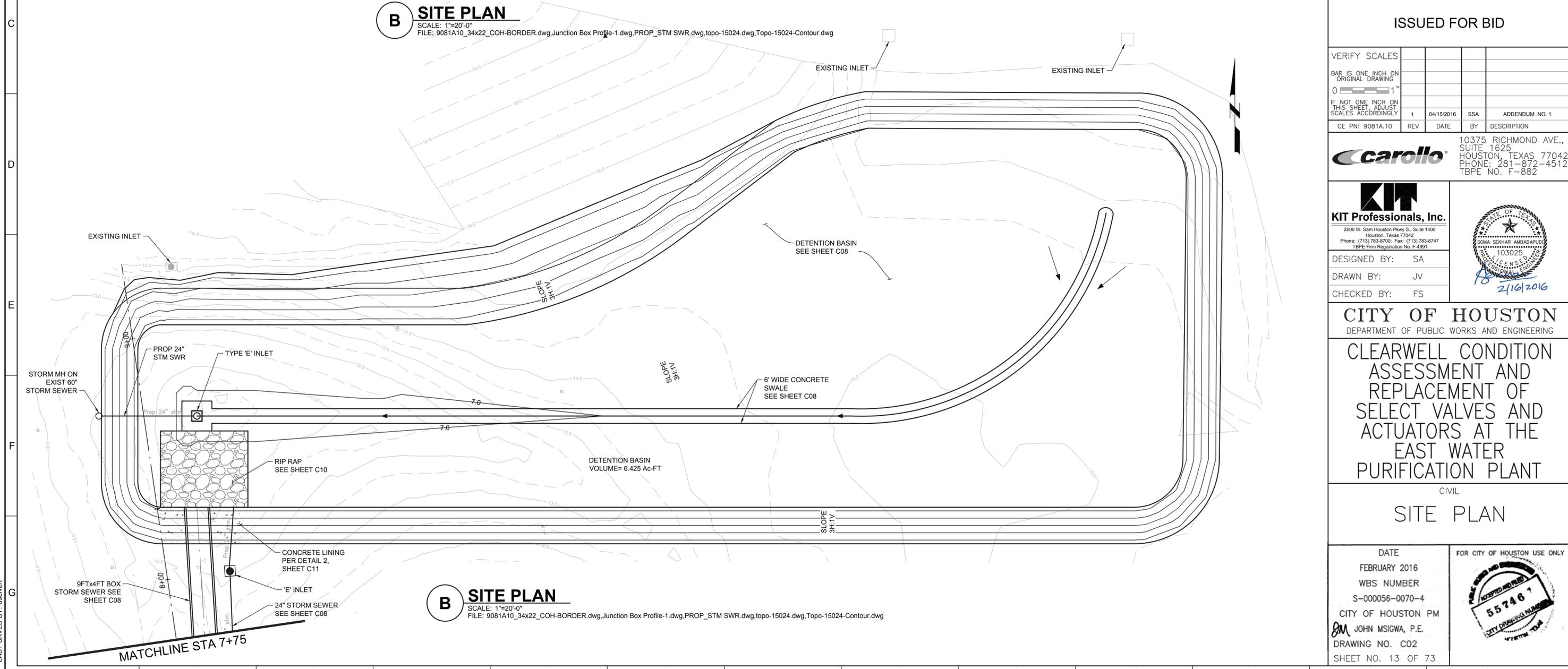
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- NOTES:**
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 - CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF PRECAST BOX STORM SEWER AND PRECAST JUNCTION BOXES, SEALED AND SIGNED BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF TEXAS FOR APPROVAL PRIOR TO PROCUREMENT.
 - CONTRACTOR SHALL PROVIDE 6-LFT OF GRADING AROUND NEW CONSTRUCTION WHICH PROVIDES 0.5'LF OF POSITIVE DRAINAGE AWAY FROM STRUCTURES, DRAINING TO EXISTING STORM DRAIN INLETS AND PREVENT STANDING WATER.
 - CONTRACTOR SHALL PROVIDE HYDRO-MULCH BERMUDA GRASS WITH A MINIMUM 75% COVERAGE WITH NO EROSION OR RILLS DEEPER THAN 4" FOR ALL AREAS WHERE EXISTING GROUND COVERAGE IS REMOVED OR DAMAGED.
 - SEE SM SHEETS FOR FOUNDATION DETAILS AND MECHANICAL AND ELECTRICAL SHEETS FOR BUILDING DETAILS.



B SITE PLAN
 SCALE: 1"=20'-0"
 FILE: 9081A10_34x22_COH-BORDER.dwg,Junction Box Profile-1.dwg,PROP_STM SWR.dwg,topo-15024.dwg,Topo-15024-Contour.dwg



B SITE PLAN
 SCALE: 1"=20'-0"
 FILE: 9081A10_34x22_COH-BORDER.dwg,Junction Box Profile-1.dwg,PROP_STM SWR.dwg,topo-15024.dwg,Topo-15024-Contour.dwg

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	1	04/15/2016	SSA	ADDENDUM NO. 1

10375 RICHMOND AVE., SUITE 1625 HOUSTON, TEXAS 77042
 PHONE: 281-872-4512
 TBPE NO. F-882

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 2000 W. Sam Houston Pkwy S., Suite 1400
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 Phone: (713) 783-8700; Fax: (713) 783-8747
 TBPE Firm Registration No. F-4991

DESIGNED BY: SA
 DRAWN BY: JV
 CHECKED BY: FS

2/16/2016

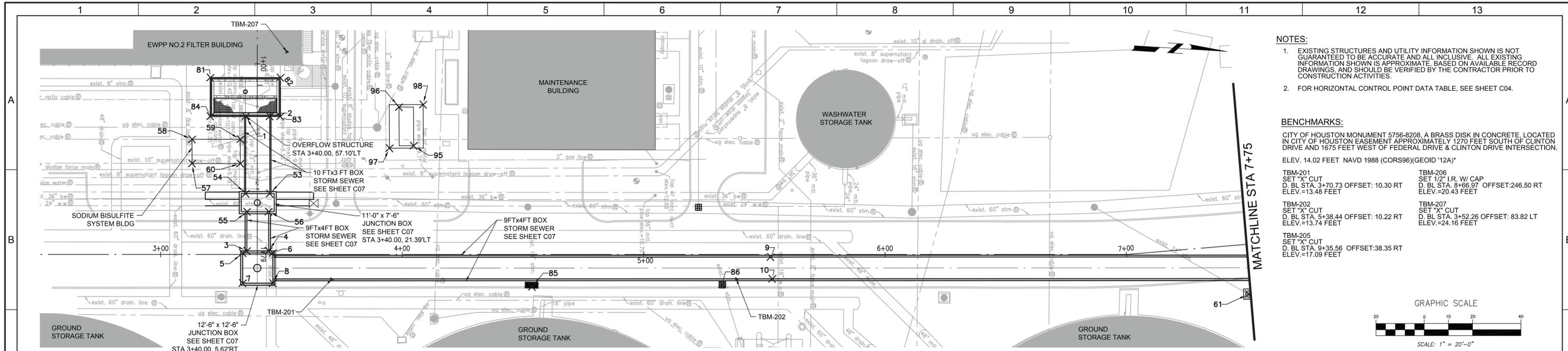
CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

CLEARWELL CONDITION ASSESSMENT AND REPLACEMENT OF SELECT VALVES AND ACTUATORS AT THE EAST WATER PURIFICATION PLANT

CIVIL

SITE PLAN

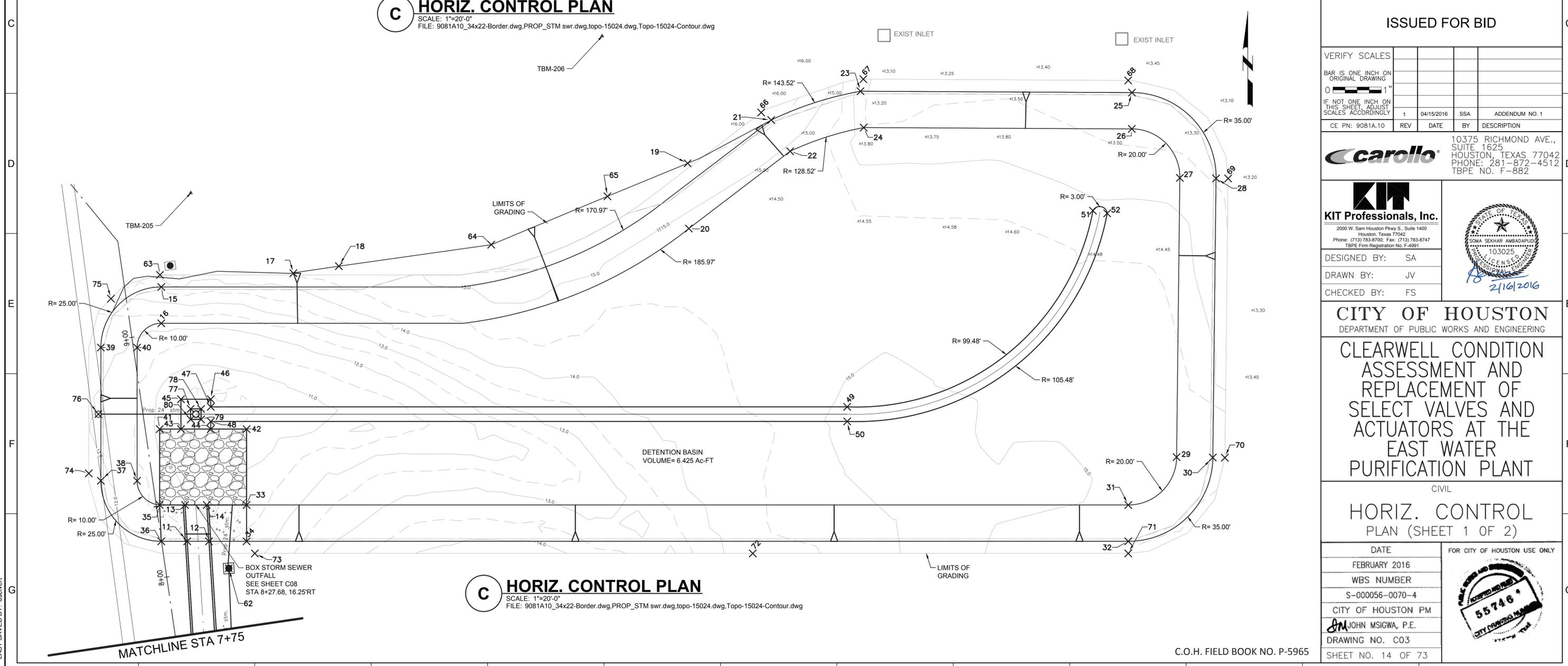
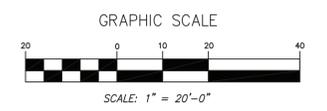
DATE	FOR CITY OF HOUSTON USE ONLY
FEBRUARY 2016	
WBS NUMBER	
S-000056-0070-4	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
DRAWING NO. C02	
SHEET NO. 13 OF 73	



C HORIZ. CONTROL PLAN
 SCALE: 1"=20'-0"
 FILE: 9081A10_34x22-Border.dwg,PROP_STM swr.dwg,topo-15024.dwg,Topo-15024-Contour.dwg

NOTES:
 1. EXISTING STRUCTURES AND UTILITY INFORMATION SHOWN IS NOT GUARANTEED TO BE ACCURATE AND ALL INCLUSIVE. ALL EXISTING INFORMATION SHOWN IS APPROXIMATE, BASED ON AVAILABLE RECORD DRAWINGS, AND SHOULD BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION ACTIVITIES.
 2. FOR HORIZONTAL CONTROL POINT DATA TABLE, SEE SHEET C04.

BENCHMARKS:
 CITY OF HOUSTON MONUMENT 5756-8208, A BRASS DISK IN CONCRETE, LOCATED IN CITY OF HOUSTON EASEMENT APPROXIMATELY 1270 FEET SOUTH OF CLINTON DRIVE AND 1675 FEET WEST OF FEDERAL DRIVE & CLINTON DRIVE INTERSECTION.
 ELEV. 14.02 FEET NAVD 1988 (CORSS96)(GEOID '12A')
 TBM-201 SET "X" CUT D. BL. STA. 3+70.73 OFFSET: 10.30 RT ELEV.=13.48 FEET
 TBM-206 SET 1/2" IR. W. CAP D. BL. STA. 8+66.97 OFFSET:246.50 RT ELEV.=20.43 FEET
 TBM-202 SET "X" CUT D. BL. STA. 5+38.44 OFFSET: 10.22 RT ELEV.=13.74 FEET
 TBM-207 SET "X" CUT D. BL. STA. 3+52.26 OFFSET: 83.82 LT ELEV.=24.16 FEET
 TBM-205 SET "X" CUT D. BL. STA. 9+35.56 OFFSET:38.35 RT ELEV.=17.09 FEET



C HORIZ. CONTROL PLAN
 SCALE: 1"=20'-0"
 FILE: 9081A10_34x22-Border.dwg,PROP_STM swr.dwg,topo-15024.dwg,Topo-15024-Contour.dwg

ISSUED FOR BID

VERIFY SCALES				
BAR IS ONE INCH ON ORIGINAL DRAWING				
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY				
CE PN: 9081A.10	REV	DATE	BY	DESCRIPTION
	1	04/15/2016	SSA	ADDENDUM NO. 1

10375 RICHMOND AVE., SUITE 1625 HOUSTON, TEXAS 77042 PHONE: 281-872-4512 TBPE NO. F-882

KIT Professionals, Inc.
 2000 W. Sam Houston Pkwy S., Suite 1400 Houston, Texas 77042 Phone: (713) 783-8700; Fax: (713) 783-8747 TBPE Firm Registration No. F-4991

DESIGNED BY: SA
 DRAWN BY: JV
 CHECKED BY: FS

2/16/2016

CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

CLEARWELL CONDITION ASSESSMENT AND REPLACEMENT OF SELECT VALVES AND ACTUATORS AT THE EAST WATER PURIFICATION PLANT

CIVIL

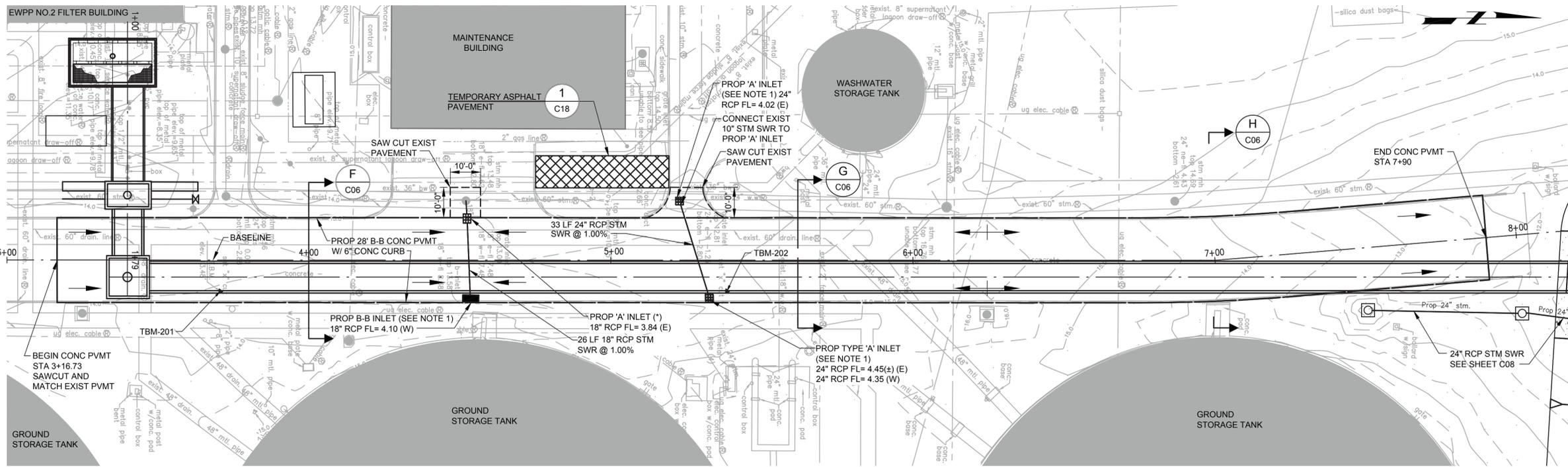
HORIZ. CONTROL PLAN (SHEET 1 OF 2)

DATE	FEBRUARY 2016
WBS NUMBER	S-000056-0070-4
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
DRAWING NO.	C03
SHEET NO.	14 OF 73

FOR CITY OF HOUSTON USE ONLY

55746

LAST SAVED BY: dselvert



NOTE

- EXISTING STRUCTURES AND UTILITY INFORMATION SHOWN IS NOT GUARANTEED TO BE ACCURATE AND ALL INCLUSIVE. ALL EXISTING INFORMATION SHOWN IS APPROXIMATE, BASED ON AVAILABLE RECORD DRAWINGS, AND SHOULD BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION ACTIVITIES.
- CONTRACTOR TO SALVAGE & RE-USE EXISTING FRAME & GRATE/INLET COVER.
- CONTRACTOR SHALL PROVIDE CONTINUAL/ UNINTERRUPTED DRIVEWAY ACCESS ALONG ENTIRE LENGTH OF PROPOSED ROADWAY SECTION THROUGHOUT DURATION OF CONSTRUCTION.
- UTILITY RELOCATIONS ARE SHOWN ON BOX STORM SEWER PLANS AND PROFILE SHEETS.

BENCHMARKS:

CITY OF HOUSTON MONUMENT 5756-8208, A BRASS DISK IN CONCRETE, LOCATED IN CITY OF HOUSTON EASEMENT APPROXIMATELY 1270 FEET SOUTH OF CLINTON DRIVE AND 1675 FEET WEST OF FEDERAL DRIVE & CLINTON DRIVE INTERSECTION.

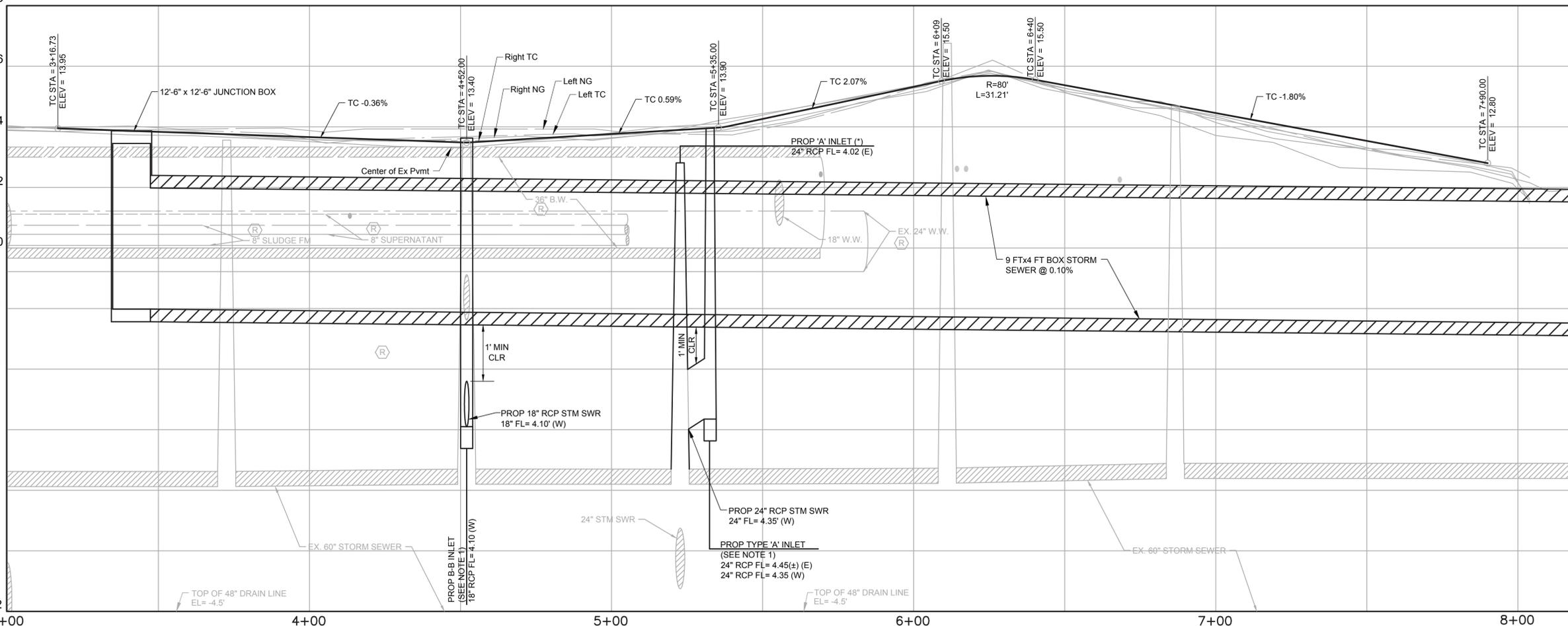
ELEV. 14.02 FEET NAVD 1988 (CORS96)(GEOID '12A')

TBM-201
SET "X" CUT
D. BL STA. 3+70.73 OFFSET: 10.30 RT
ELEV.=13.48 FEET

TBM-202
SET "X" CUT
D. BL STA. 5+38.44 OFFSET: 10.22 RT
ELEV.=13.74 FEET

GRAPHIC SCALE
SCALE: 1" = 20'-0"

D ROADWAY PLAN
SCALE: 1"=20'-0"
FILE: 9081A10_34x22_COH-BORDER.DWG, JUNCTION BOX PROFILE-1.DWG, TOPO-15024-CONTOUR.DWG, PROP_STM SWR.DWG



E ROADWAY PROFILE
SCALE: H: 1"=20' V: 1"=2"
FILE: 9081A10_34x22_COH-BORDER.DWG, JUNCTION BOX PROFILE-1.DWG, TOPO-15024-CONTOUR.DWG, PROP_STM SWR.DWG

ISSUED FOR BID

VERIFY SCALES				
BAR IS ONE INCH ON ORIGINAL DRAWING				
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY				
CE PN: 9081A.10	REV	DATE	BY	DESCRIPTION
		04/15/2016	SSA	ADDENDUM NO. 1

10375 RICHMOND AVE., SUITE 1625 HOUSTON, TEXAS 77042 PHONE: 281-872-4512 TBPE NO. F-882

KIT Professionals, Inc.
2000 W. Sam Houston Pkwy S., Suite 1400 Houston, Texas 77042 Phone: (713) 783-8700; Fax: (713) 783-8747 TBPE Firm Registration No. F-4991

DESIGNED BY: SA
DRAWN BY: TP
CHECKED BY: FS

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

CLEARWELL CONDITION ASSESSMENT AND REPLACEMENT OF SELECT VALVES AND ACTUATORS AT THE EAST WATER PURIFICATION PLANT

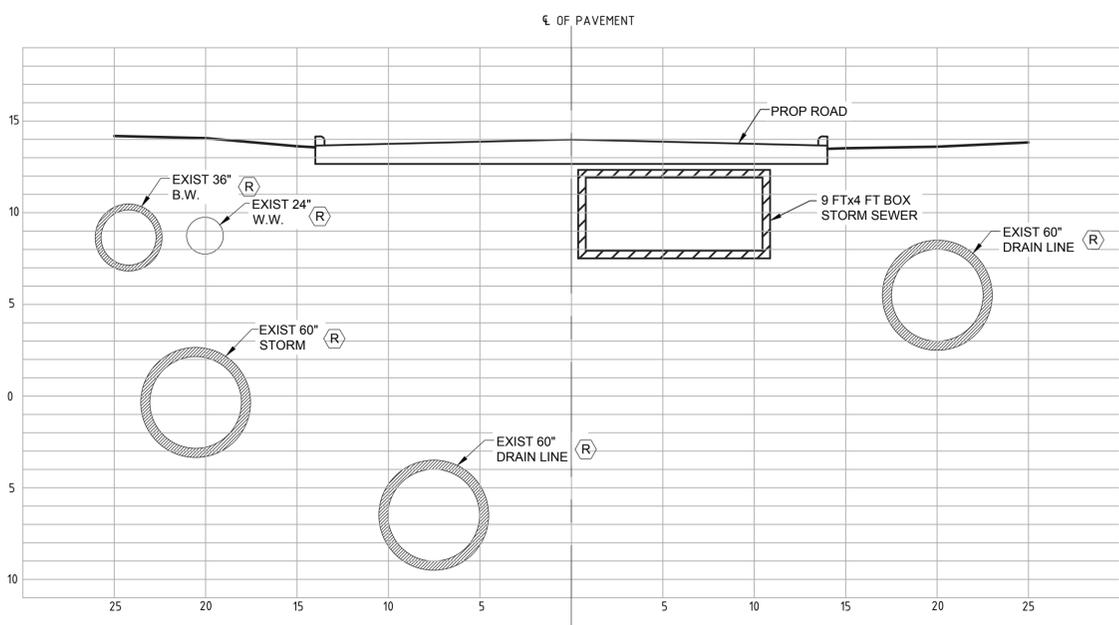
CIVIL

ROADWAY PLAN & PROFILE

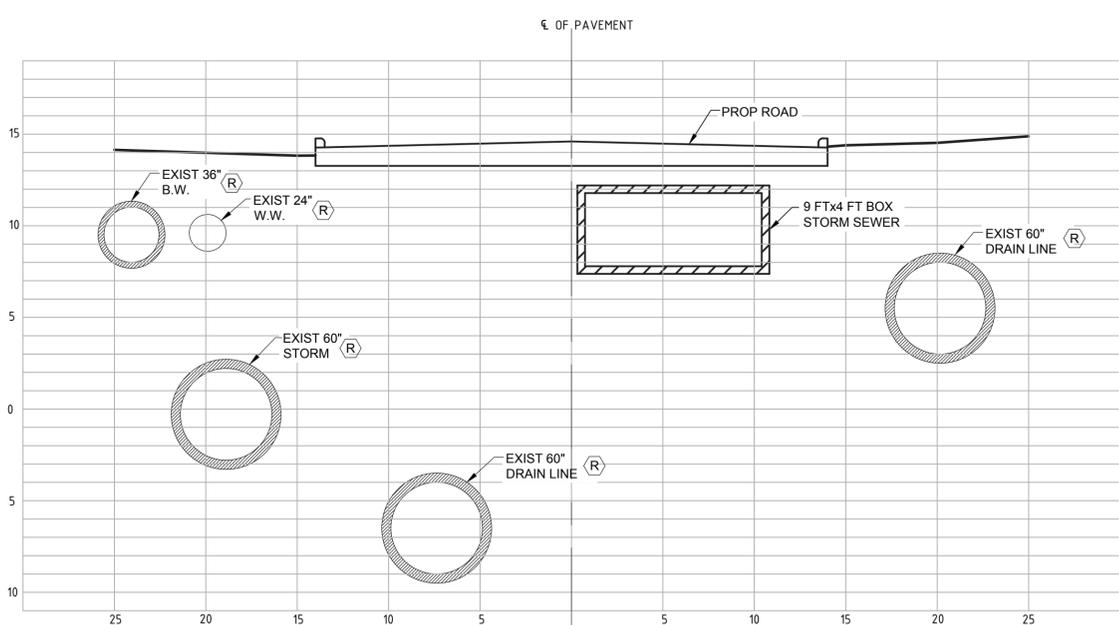
DATE	FOR CITY OF HOUSTON USE ONLY
FEBRUARY 2016	
WBS NUMBER	
S-000056-0070-4	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
DRAWING NO. C05	
SHEET NO. 16 OF 73	

55746

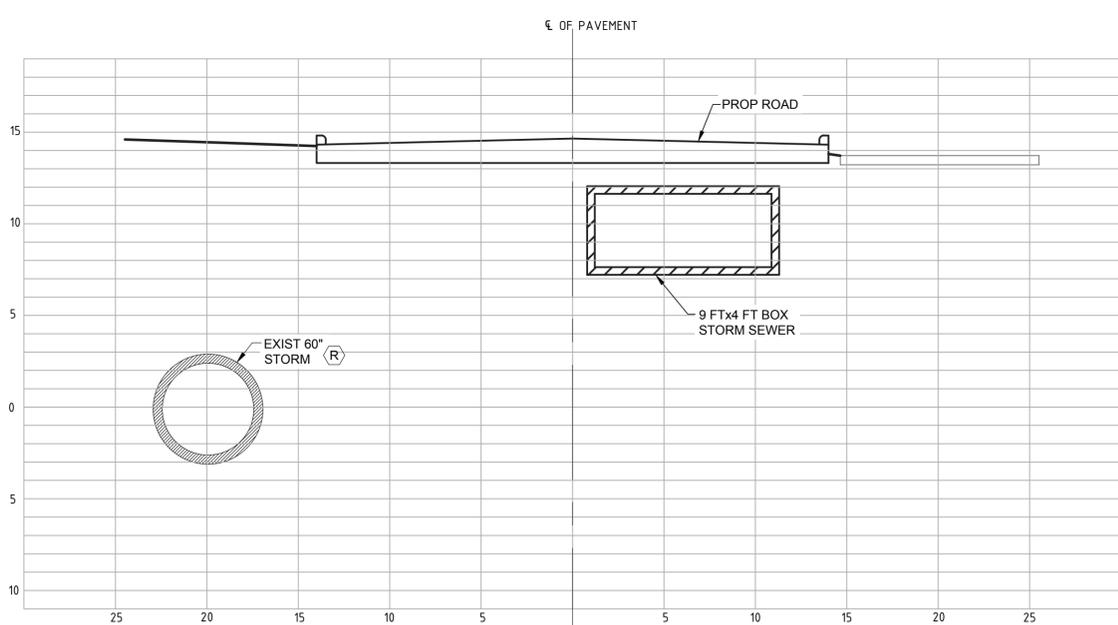
LAST SAVED BY: dselwert



F CROSS-SECTION AT STATION 4+00
 1"=5'
 9081A10_34x22_COH-BORDER.DWG, CROSS-SECTION-02.DWG



G CROSS-SECTION AT STATION 5+50
 1"=5'
 9081A10_34x22_COH-BORDER.DWG, CROSS-SECTION-02.DWG



H CROSS-SECTION AT STATION 7+00
 1"=5'
 9081A10_34x22_COH-BORDER.DWG, CROSS-SECTION-02.DWG

NOTES:
 1. EXISTING STRUCTURES AND UTILITY INFORMATION SHOWN IS NOT GUARANTEED TO BE ACCURATE AND ALL INCLUSIVE. ALL EXISTING INFORMATION SHOWN IS APPROXIMATE, BASED ON AVAILABLE RECORD DRAWINGS, AND SHOULD BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION ACTIVITIES.

ISSUED FOR BID

VERIFY SCALES				
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY				
CE PN: 9081A.10	REV	DATE	BY	DESCRIPTION
	1	04/15/2016	SSA	ADDENDUM NO. 1

carollo 10375 RICHMOND AVE., SUITE 1625 HOUSTON, TEXAS 77042 PHONE: 281-872-4512 TBPE NO. F-882

KIT Professionals, Inc.
 2000 W. Sam Houston Pkwy S., Suite 1400 Houston, Texas 77042 Phone: (713) 783-8700; Fax: (713) 783-8747 TBPE Firm Registration No. F-4991

DESIGNED BY: SA
 DRAWN BY: JT
 CHECKED BY: FS

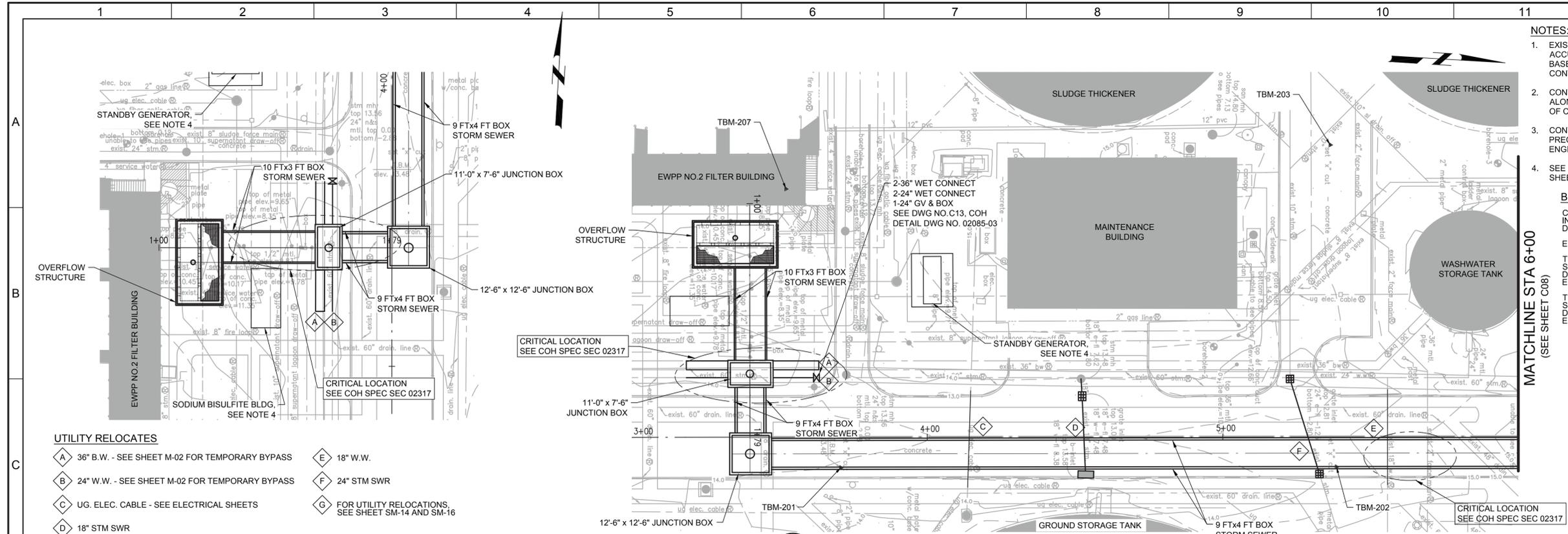
CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

CLEARWELL CONDITION ASSESSMENT AND REPLACEMENT OF SELECT VALVES AND ACTUATORS AT THE EAST WATER PURIFICATION PLANT

CIVIL
ROADWAY SECTIONS

DATE	FOR CITY OF HOUSTON USE ONLY
FEBRUARY 2016	
WBS NUMBER	
S-000056-0070-4	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
DRAWING NO. C06	
SHEET NO. 17 OF 73	

LAST SAVED BY: dseibert



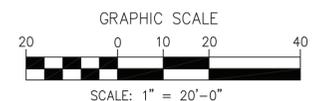
- NOTES:**
- EXISTING STRUCTURES AND UTILITY INFORMATION SHOWN IS NOT GUARANTEED TO BE ACCURATE AND ALL INCLUSIVE. ALL EXISTING INFORMATION SHOWN IS APPROXIMATE, BASED ON AVAILABLE RECORD DRAWINGS, AND SHOULD BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION ACTIVITIES.
 - CONTRACTOR SHALL PROVIDE CONTINUAL/ UNINTERRUPTED DRIVEWAY ACCESS ALONG ENTIRE LENGTH OF PROPOSED ROADWAY SECTION THROUGHOUT DURATION OF CONSTRUCTION.
 - CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF PRECAST BOX STORM SEWER AND PRECAST JUNCTION BOXES, SEALED AND SIGNED BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF TEXAS FOR APPROVAL PRIOR TO PROCUREMENT.
 - SEE SM SHEETS FOR FOUNDATION DETAILS AND MECHANICAL AND ELECTRICAL SHEETS FOR BUILDING DETAILS.

BENCHMARKS:

CITY OF HOUSTON MONUMENT 5756-8208, A BRASS DISK IN CONCRETE, LOCATED IN CITY OF HOUSTON EASEMENT APPROXIMATELY 1270 FEET SOUTH OF CLINTON DRIVE AND 1675 FEET WEST OF FEDERAL DRIVE & CLINTON DRIVE INTERSECTION.

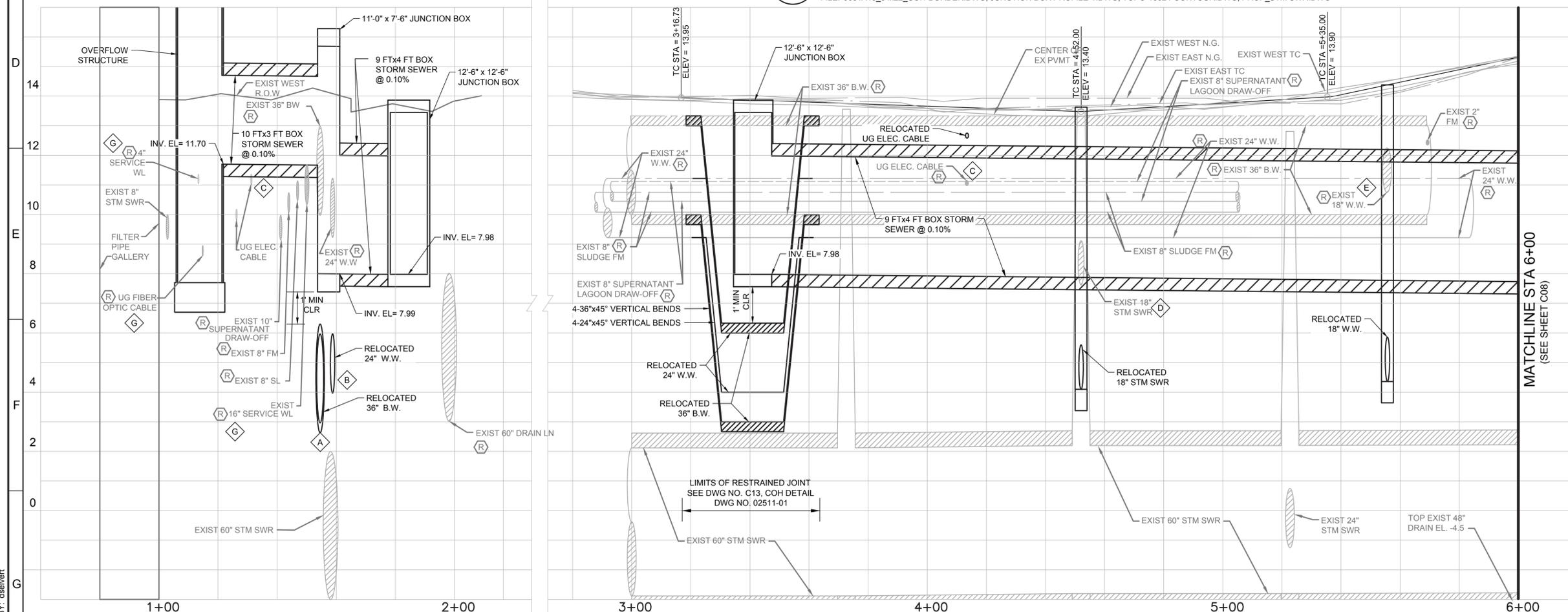
ELEV. 14.02 FEET NAVD 1988 (CORS96)(GEOID '12A')

TBM-201 SET "X" CUT D. BL STA. 3+70.73 OFFSET: 10.30 RT ELEV.=13.80 FEET	TBM-203 D. BL STA. 5+36.44 OFFSET: 98.49 LT ELEV.=13.80 FEET
TBM-202 SET "X" CUT D. BL STA. 5+38.44 OFFSET: 10.22 RT ELEV.=13.74 FEET	TBM-207 SET "X" CUT D. BL STA. 3+52.26 OFFSET: 83.82 LT ELEV.=24.16 FEET



I BOX STORM SEWER PLAN

SCALE: 1"=20'-0"
FILE: 9081A10_34x22_COH-BORDER.DWG, JUNCTION BOX PROFILE-1.DWG, TOPO-15024-CONTOUR.DWG, PROP_STM SWR.DWG



J BOX STORM SEWER PROFILE

SCALE: 1"=20'-0"
FILE: 9081A10_34x22_COH-BORDER.DWG, JUNCTION BOX PROFILE-1.DWG, TOPO-15024-CONTOUR.DWG, PROP_STM SWR.DWG

- UTILITY RELOCATES**
- | | |
|--|--|
| A 36" B.W. - SEE SHEET M-02 FOR TEMPORARY BYPASS | E 18" W.W. |
| B 24" W.W. - SEE SHEET M-02 FOR TEMPORARY BYPASS | F 24" STM SWR |
| C UG. ELEC. CABLE - SEE ELECTRICAL SHEETS | G FOR UTILITY RELOCATIONS, SEE SHEET SM-14 AND SM-16 |
| D 18" STM SWR | |

ISSUED FOR BID

VERIFY SCALES			
BAR IS ONE INCH ON ORIGINAL DRAWING			
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY			
CE PN: 9081A.10	REV	DATE	BY DESCRIPTION
		04/15/2016	SSA ADDENDUM NO. 1

carollo 10375 RICHMOND AVE., SUITE 1625 HOUSTON, TEXAS 77042 PHONE: 281-872-4512 TBPE NO. F-882

KIT Professionals, Inc. 2000 W. Sam Houston Pkwy S., Suite 1400 Houston, Texas 77042 Phone: (713) 783-8700, Fax: (713) 783-8747 TBPE Firm Registration No. F-4991

DESIGNED BY: SA
DRAWN BY: JT
CHECKED BY: FS

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

CLEARWELL CONDITION ASSESSMENT AND REPLACEMENT OF SELECT VALVES AND ACTUATORS AT THE EAST WATER PURIFICATION PLANT

CIVIL

BOX STORM SEWER
P&P @ STA 1+00 TO 6+00

DATE	FEBRUARY 2016
WBS NUMBER	S-000056-0070-4
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
DRAWING NO. C07	
SHEET NO. 18 OF 73	

FOR CITY OF HOUSTON USE ONLY

55746

LAST SAVED BY: dseibert

NOTES:

- EXISTING STRUCTURES AND UTILITY INFORMATION SHOWN IS NOT GUARANTEED TO BE ACCURATE AND ALL INCLUSIVE. ALL EXISTING INFORMATION SHOWN IS APPROXIMATE, BASED ON AVAILABLE RECORD DRAWINGS, AND SHOULD BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION ACTIVITIES.
- ESTABLISH TURF GRASS ON ALL DISTURBED AREAS WITHIN THE CHANNEL OR DETENTION RIGHT-OF-WAY, EXCEPT THE CONCRETE SWALE AND WHERE STRUCTURAL EROSION MEASURES ARE USED. MINIMUM ACCEPTANCE CRITERIA ARE 75% COVERAGE OF LIVE BERMUDA GRASS AND NO EROSION OR RILLS DEEPER THAN 4 INCHES.
- BACKFILL IN ACCORDANCE WITH THE CITY OF HOUSTON STANDARD SPECIFICATION, SECTION 02317-EXCAVATING AND BACKFILLING, OR EQUIVALENT.
- EXCAVATE DETENTION BASIN AND CONCRETE SWALE TO ACCOMPLISH GRADES AND FLOWLINE ELEVATIONS AS SHOWN. FIELD ADJUST AS NECESSARY TO ENSURE FULL STORM WATER SYSTEM FUNCTIONALITY AND NO STANDING WATER IN DETENTION BASIN DURING "DRY" CONDITIONS.

- OBTAIN AND COMPLY WITH ALL APPLICABLE CITY, COUNTY, STATE AND FEDERAL PERMITS AND APPROVALS WITH ASSISTANCE FROM ENGINEER, IF NECESSARY.
- CONTRACTOR TO PROTECT IN-PLACE EXISTING DUCT BANKS AND INLETS DURING ALL CONSTRUCTION AND GRADING OPERATIONS.

BENCHMARKS:

CITY OF HOUSTON MONUMENT 5756-8208, A BRASS DISK IN CONCRETE, LOCATED IN CITY OF HOUSTON EASEMENT APPROXIMATELY 1270 FEET SOUTH OF CLINTON DRIVE AND 1675 FEET WEST OF FEDERAL DRIVE & CLINTON DRIVE INTERSECTION.

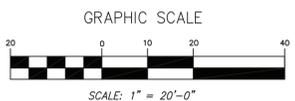
ELEV. 14.02 FEET NAVD 1988 (CORS96)(GEOID '12A)*

TBM-205
SET "X" CUT
D. BL STA. 9+35.56 OFFSET:38.35 RT
ELEV.=17.09 FEET

TBM-206
SET 1/2" I.R. W/ CAP
D. BL STA. 8+66.97 OFFSET:246.50 RT
ELEV.=20.43 FEET

LEGENDS:

- BOB — BOTTOM OF BASIN (BOB)
TOB — TOP OF BASIN (TOB)
3H:1V — SLOPE 3 HORIZONTAL: 1 VERTICAL
- CUT-FILL VOLUME
CUT= 14,456 CY
FILL= 4 CY
NET CUT VOLUME= 14,452 CY ~ 8.95 AC-FT
- DETENTION VOLUME
= 10,367 CY ~ 6.425 AC-FT



ISSUED FOR BID

VERIFY SCALES				
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY				
CE PN: 9081A.10	REV	DATE	BY	DESCRIPTION
	1	04/15/2016	SSA	ADDENDUM NO. 1

carollo 10375 RICHMOND AVE., SUITE 1625 HOUSTON, TEXAS 77042 PHONE: 281-872-4512 TBPE NO. F-882

KIT Professionals, Inc.
2000 W. Sam Houston Pkwy S., Suite 1400 Houston, Texas 77042
Phone: (713) 783-8700; Fax: (713) 783-8747
TBPE Firm Registration No. F-4991

DESIGNED BY: SA
DRAWN BY: TP
CHECKED BY: FS



CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

CLEARWELL CONDITION ASSESSMENT AND REPLACEMENT OF SELECT VALVES AND ACTUATORS AT THE EAST WATER PURIFICATION PLANT

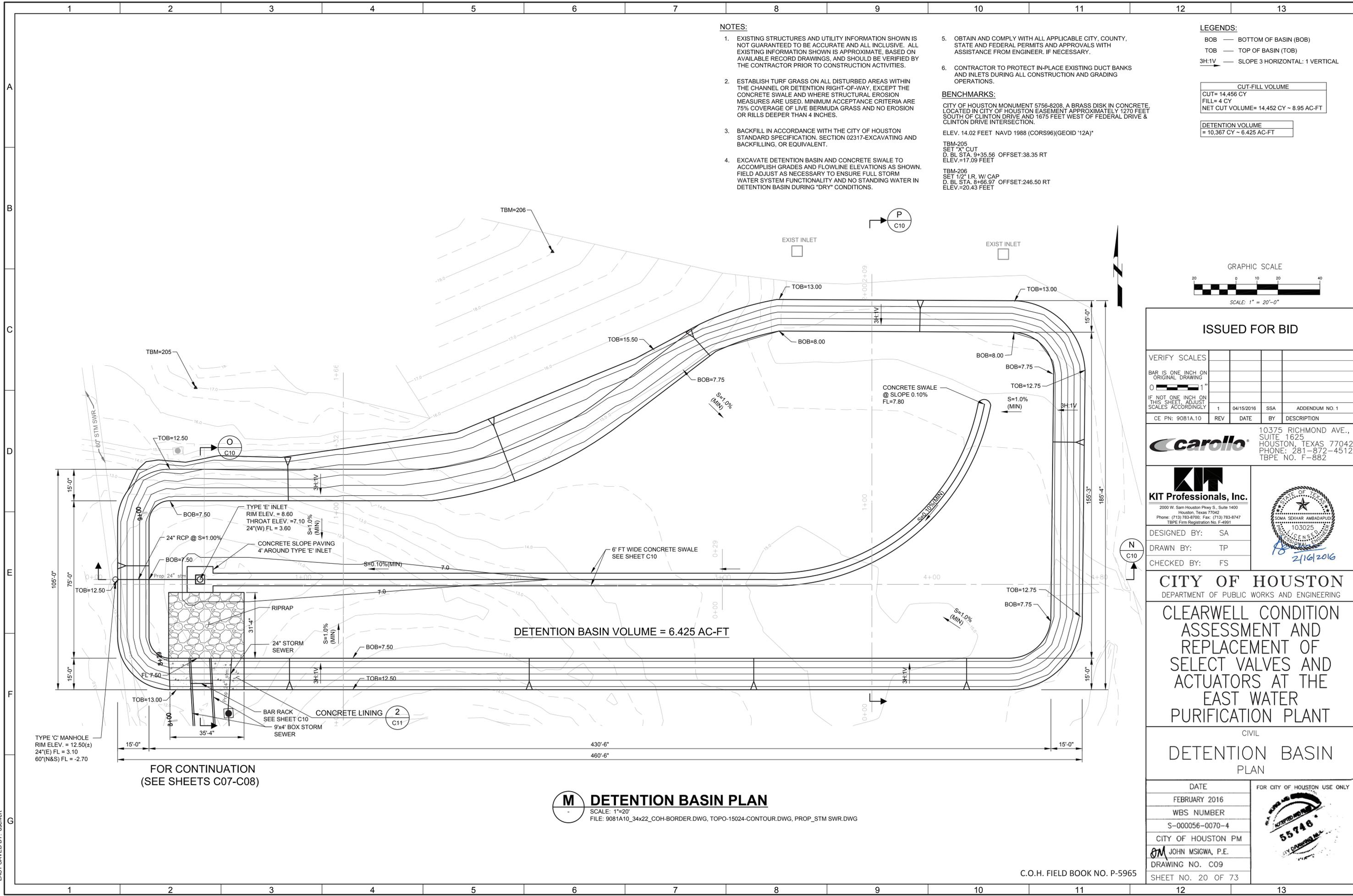
CIVIL
DETENTION BASIN PLAN

DATE	FOR CITY OF HOUSTON USE ONLY
FEBRUARY 2016	
WBS NUMBER	
S-000056-0070-4	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
DRAWING NO. C09	
SHEET NO. 20 OF 73	



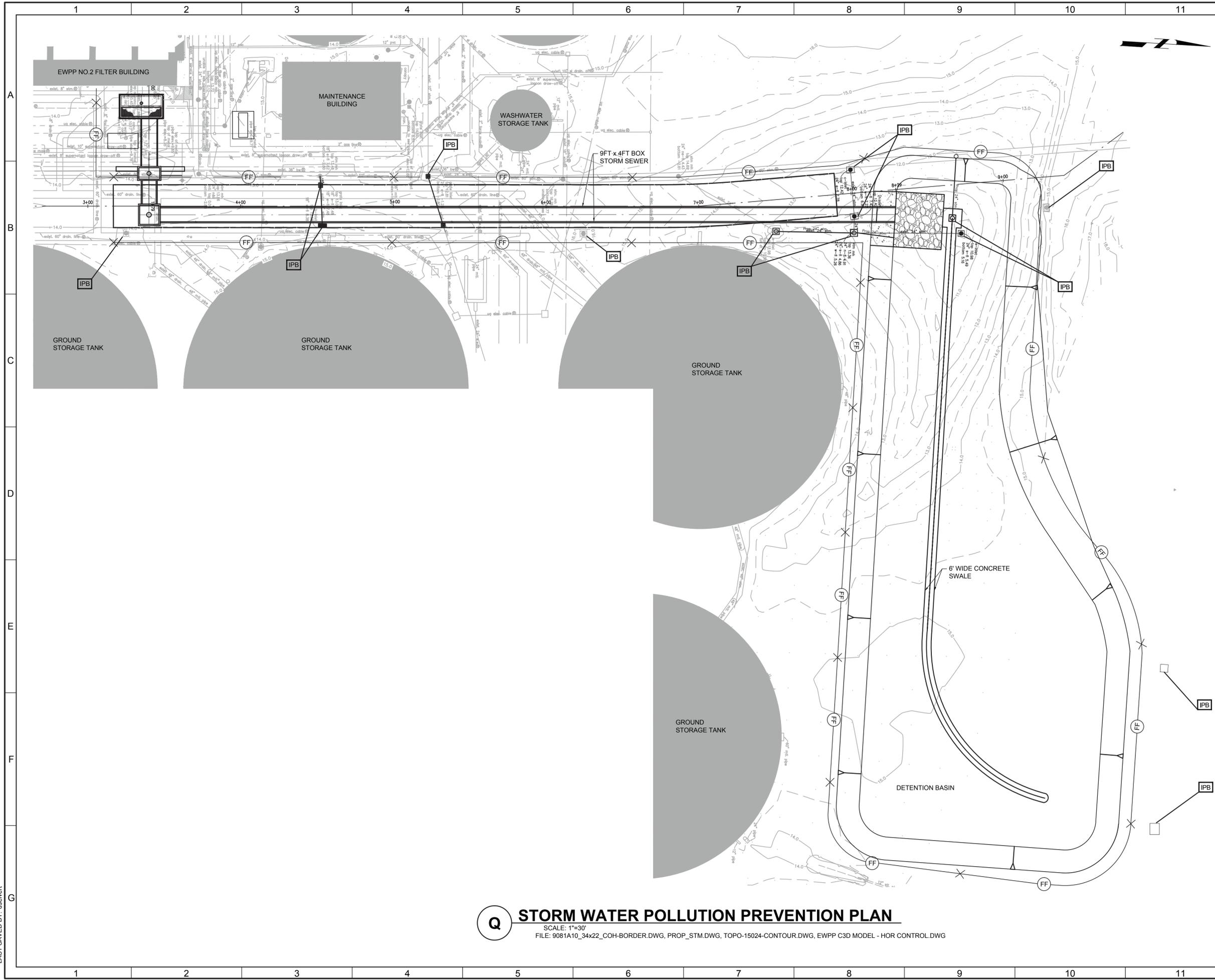
C.O.H. FIELD BOOK NO. P-5965

M DETENTION BASIN PLAN
SCALE: 1"=20'
FILE: 9081A10_34x22_COH-BORDER.DWG, TOPO-15024-CONTOUR.DWG, PROP_STM SWR.DWG



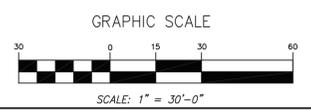
FOR CONTINUATION
(SEE SHEETS C07-C08)

LAST SAVED BY: dselvert



- NOTES:**
- EXISTING STRUCTURES AND UTILITY INFORMATION SHOWN IS NOT GUARANTEED TO BE ACCURATE AND ALL INCLUSIVE. ALL EXISTING INFORMATION SHOWN IS APPROXIMATE, BASED ON AVAILABLE RECORD DRAWINGS, AND SHOULD BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION ACTIVITIES.
 - CONTRACTOR TO PROTECT IN-PLACE EXISTING INLETS DURING ALL CONSTRUCTION AND GRADING OPERATIONS.

- LEGEND**
- STAGE I AND STAGE II, INLET PROTECTION BARRIER
 - FILTER FABRIC FENCE
 - STABILIZED CONSTRUCTION EXIST
 - RIDGE LINE



ISSUED FOR BID

VERIFY SCALES				
BAR IS ONE INCH ON ORIGINAL DRAWING				
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY				
CE PN: 9081A.10	REV	DATE	BY	DESCRIPTION
	1	04/15/2016	SSA	ADDENDUM NO. 1

10375 RICHMOND AVE., SUITE 1625 HOUSTON, TEXAS 77042
PHONE: 281-872-4512
TBPE NO. F-882

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2000 W. Sam Houston Pkwy S., Suite 1400
Houston, Texas 77042
Phone: (713) 783-8700; Fax: (713) 783-8747
TBPE Firm Registration No. F-4991

DESIGNED BY: SA
DRAWN BY: JV
CHECKED BY: FS

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

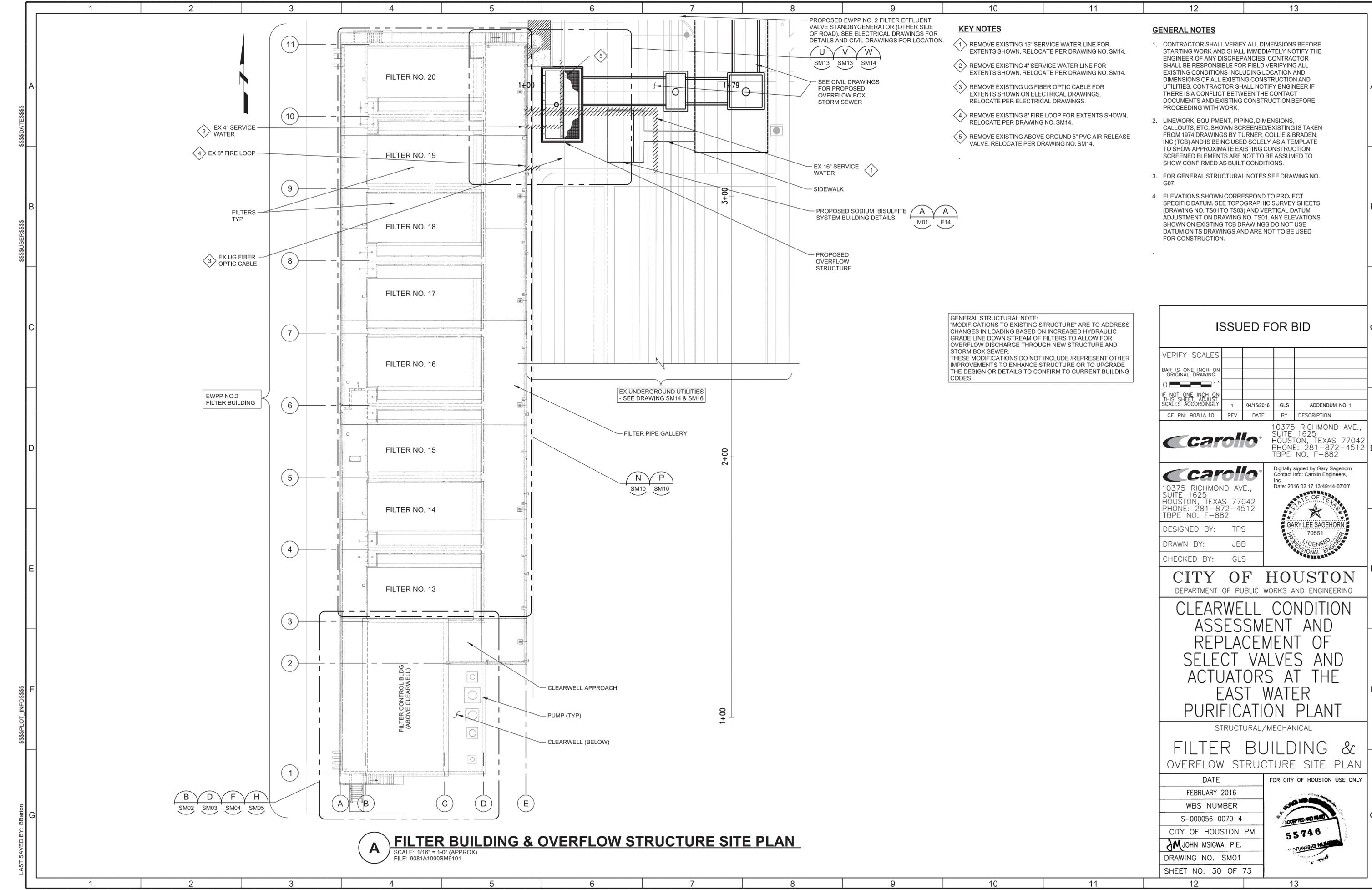
CLEARWELL CONDITION ASSESSMENT AND REPLACEMENT OF SELECT VALVES AND ACTUATORS AT THE EAST WATER PURIFICATION PLANT

CIVIL
SWPPP
(SHEET 1 OF 2)

DATE	FOR CITY OF HOUSTON USE ONLY
FEBRUARY 2016	
WBS NUMBER	
S-000056-0070-4	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
DRAWING NO. C14	
SHEET NO. 25 OF 73	

Q STORM WATER POLLUTION PREVENTION PLAN
SCALE: 1"=30'
FILE: 9081A10_34x22_COH-BORDER.DWG, PROP_STM.DWG, TOPO-15024-CONTOUR.DWG, EWPP C3D MODEL - HOR CONTROL.DWG

LAST SAVED BY: dseivert



- KEY NOTES**
- 1 REMOVE EXISTING 16" SERVICE WATER LINE FOR EXTENTS SHOWN. RELOCATE PER DRAWING NO. SM14.
 - 2 REMOVE EXISTING 4" SERVICE WATER LINE FOR EXTENTS SHOWN. RELOCATE PER DRAWING NO. SM14.
 - 3 REMOVE EXISTING UG FIBER OPTIC CABLE FOR EXTENTS SHOWN ON ELECTRICAL DRAWINGS. RELOCATE PER ELECTRICAL DRAWINGS.
 - 4 REMOVE EXISTING 8" FIRE LOOP FOR EXTENTS SHOWN. RELOCATE PER DRAWING NO. SM14.
 - 5 REMOVE EXISTING ABOVE GROUND 5" PVC AIR RELEASE VALVE. RELOCATE PER DRAWING NO. SM14.

- GENERAL NOTES**
1. CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK AND SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING CONDITIONS INCLUDING LOCATION AND DIMENSIONS OF ALL EXISTING CONSTRUCTION AND UTILITIES. CONTRACTOR SHALL NOTIFY ENGINEER IF THERE IS A CONFLICT BETWEEN THE CONTACT DOCUMENTS AND EXISTING CONSTRUCTION BEFORE PROCEEDING WITH WORK.
 2. LINEWORK, EQUIPMENT, PIPING, DIMENSIONS, CALLOUTS, ETC. SHOWN SCREENED/EXISTING IS TAKEN FROM 1974 DRAWINGS BY TURNER, COLLIE & BRADEN, INC (TCB) AND IS BEING USED SOLELY AS A TEMPLATE TO SHOW APPROXIMATE EXISTING CONSTRUCTION. SCREENED ELEMENTS ARE NOT TO BE ASSUMED TO SHOW CONFIRMED AS BUILT CONDITIONS.
 3. FOR GENERAL STRUCTURAL NOTES SEE DRAWING NO. G07.
 4. ELEVATIONS SHOWN CORRESPOND TO PROJECT SPECIFIC DATUM. SEE TOPOGRAPHIC SURVEY SHEETS (DRAWING NO. TS01 TO TS03) AND VERTICAL DATUM ADJUSTMENT ON DRAWING NO. TS01. ANY ELEVATIONS SHOWN ON EXISTING TCB DRAWINGS DO NOT USE DATUM ON TS DRAWINGS AND ARE NOT TO BE USED FOR CONSTRUCTION.

GENERAL STRUCTURAL NOTE:
 "MODIFICATIONS TO EXISTING STRUCTURE" ARE TO ADDRESS CHANGES IN LOADING BASED ON INCREASED HYDRAULIC GRADE LINE DOWN STREAM OF FILTERS TO ALLOW FOR OVERFLOW DISCHARGE THROUGH NEW STRUCTURE AND STORM BOX SEWER.
 THESE MODIFICATIONS DO NOT INCLUDE/REPRESENT OTHER IMPROVEMENTS TO ENHANCE STRUCTURE OR TO UPGRADE THE DESIGN OR DETAILS TO CONFIRM TO CURRENT BUILDING CODES.

ISSUED FOR BID

VERIFY SCALES				
BAR IS ONE INCH ON ORIGINAL DRAWING				
0 1"				
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY				
1	04/15/2016	GLS	ADDENDUM NO. 1	
CE PN: 9081A.10	REV	DATE	BY	DESCRIPTION

10375 RICHMOND AVE., SUITE 1625 HOUSTON, TEXAS 77042
 PHONE: 281-872-4512 TBPE NO. F-882

Digitally signed by Gary Sagehorn
 Contact Info: Carollo Engineers, Inc.
 Date: 2016.02.17 13:49:44-0700'

10375 RICHMOND AVE., SUITE 1625 HOUSTON, TEXAS 77042
 PHONE: 281-872-4512 TBPE NO. F-882

DESIGNED BY:	TPS
DRAWN BY:	JBB
CHECKED BY:	GLS

CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

CLEARWELL CONDITION ASSESSMENT AND REPLACEMENT OF SELECT VALVES AND ACTUATORS AT THE EAST WATER PURIFICATION PLANT

STRUCTURAL/MECHANICAL

FILTER BUILDING & OVERFLOW STRUCTURE SITE PLAN

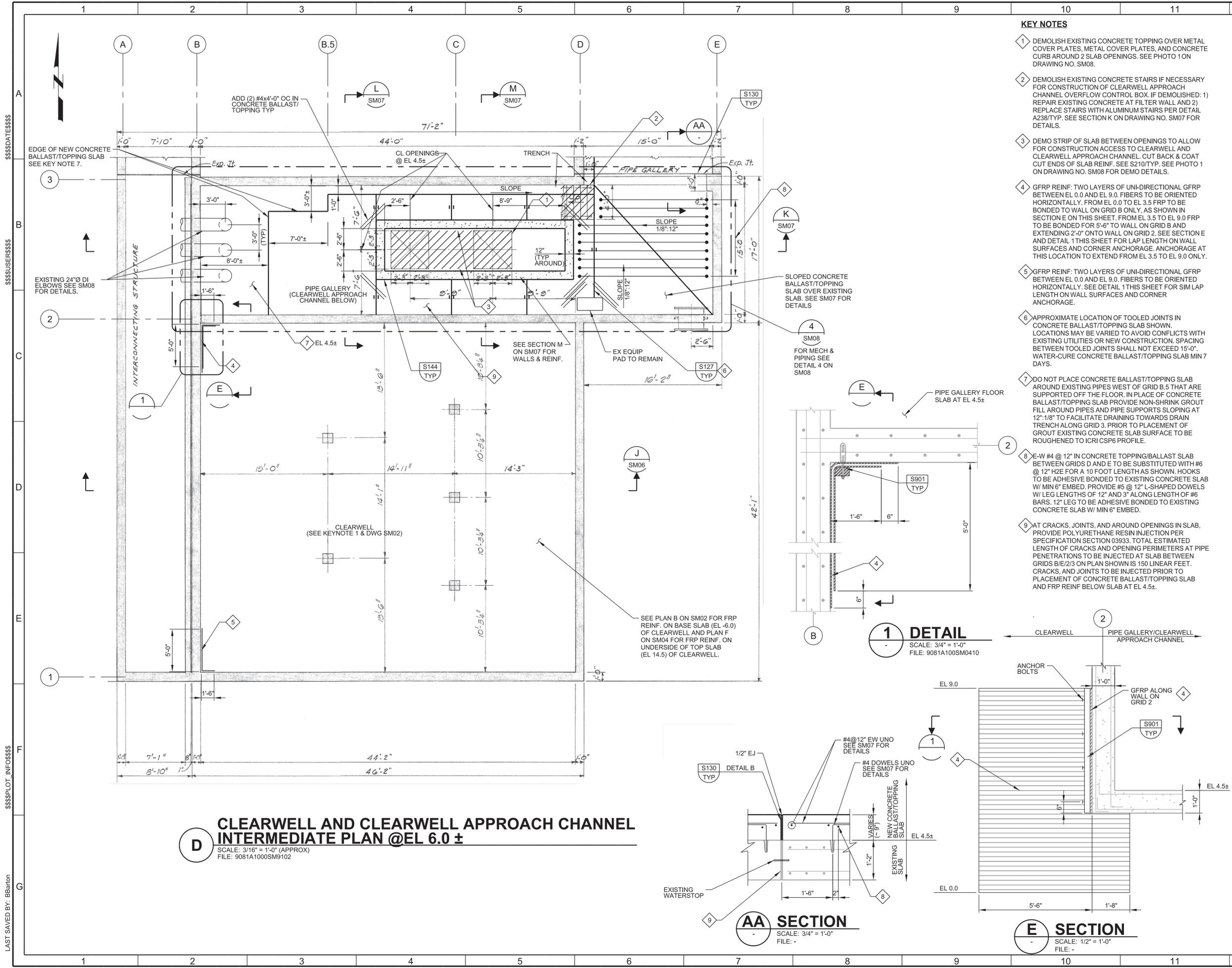
DATE	FEBRUARY 2016
WBS NUMBER	S-000056-0070-4
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
DRAWING NO.	SM01
SHEET NO.	30 OF 73

FOR CITY OF HOUSTON USE ONLY

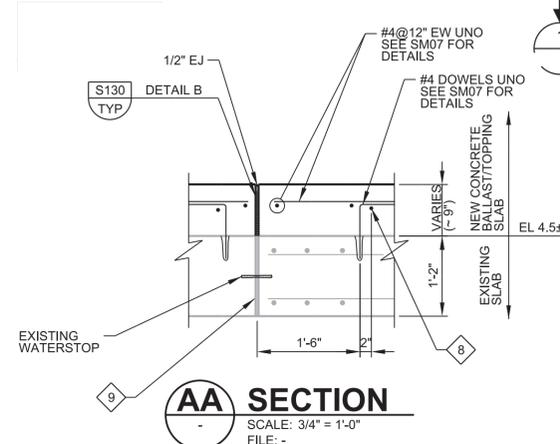
55746

A FILTER BUILDING & OVERFLOW STRUCTURE SITE PLAN
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 FILE: 9081A1000SM9101

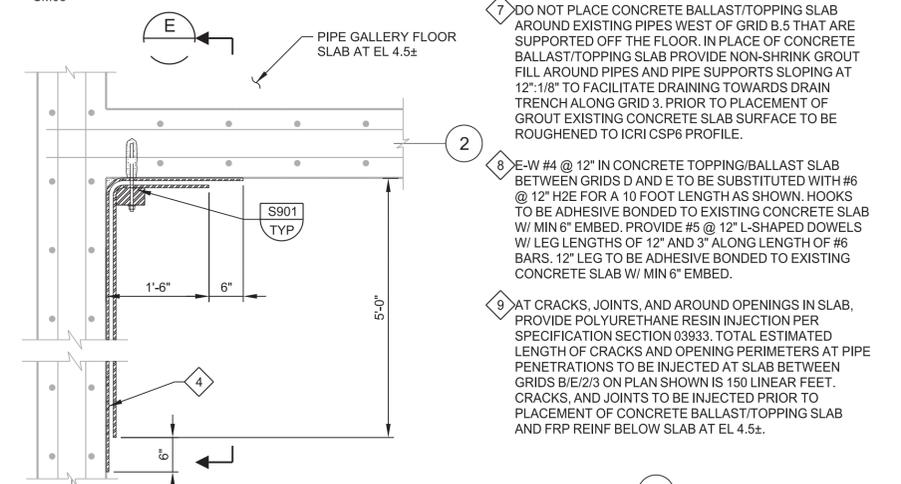
LAST SAVED BY: BBarron



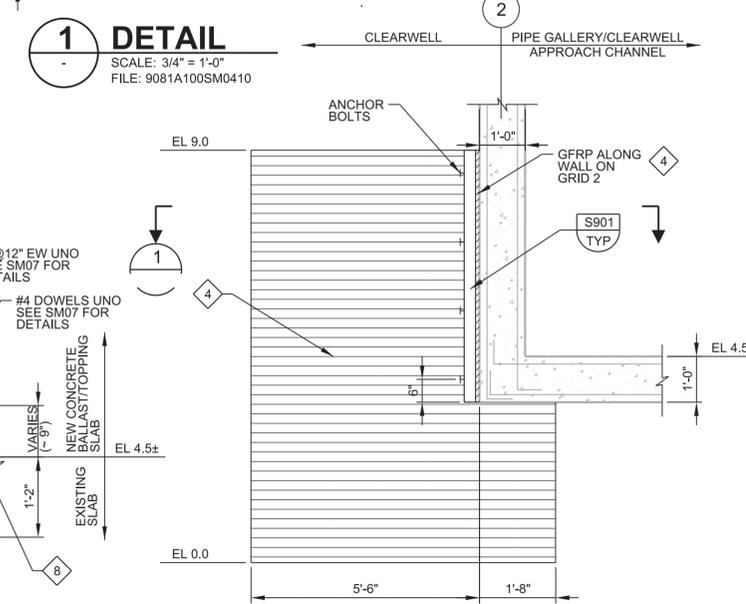
D CLEARWELL AND CLEARWELL APPROACH CHANNEL INTERMEDIATE PLAN @EL 6.0 ±
 SCALE: 3/16" = 1'-0" (APPROX)
 FILE: 9081A1000SM9102



AA SECTION
 SCALE: 3/4" = 1'-0"
 FILE: -



E SECTION
 SCALE: 1/2" = 1'-0"
 FILE: -



1 DETAIL
 SCALE: 3/4" = 1'-0"
 FILE: 9081A1000SM0410

- KEY NOTES**
- DEMOLISH EXISTING CONCRETE TOPPING OVER METAL COVER PLATES, METAL COVER PLATES, AND CONCRETE CURB AROUND 2 SLAB OPENINGS. SEE PHOTO 1 ON DRAWING NO. SM08.
 - DEMOLISH EXISTING CONCRETE STAIRS IF NECESSARY FOR CONSTRUCTION OF CLEARWELL APPROACH CHANNEL OVERFLOW CONTROL BOX. IF DEMOLISHED: 1) REPAIR EXISTING CONCRETE AT FILTER WALL AND 2) REPLACE STAIRS WITH ALUMINUM STAIRS PER DETAIL A238/TYP. SEE SECTION K ON DRAWING NO. SM07 FOR DETAILS.
 - DEMO STRIP OF SLAB BETWEEN OPENINGS TO ALLOW FOR CONSTRUCTION ACCESS TO CLEARWELL AND CLEARWELL APPROACH CHANNEL. CUT BACK & COAT CUT ENDS OF SLAB REINF. SEE S210/TYP. SEE PHOTO 1 ON DRAWING NO. SM08 FOR DEMO DETAILS.
 - GFRP REINF: TWO LAYERS OF UNI-DIRECTIONAL GFRP BETWEEN EL 0.0 AND EL 9.0. FIBERS TO BE ORIENTED HORIZONTALLY. FROM EL 0.0 TO EL 3.5 FRP TO BE BONDED TO WALL ON GRID B ONLY, AS SHOWN IN SECTION E ON THIS SHEET. FROM EL 3.5 TO EL 9.0 FRP TO BE BONDED FOR 5'-6" TO WALL ON GRID B AND EXTENDING 2'-0" ONTO WALL ON GRID 2. SEE SECTION E AND DETAIL 1 THIS SHEET FOR LAP LENGTH ON WALL SURFACES AND CORNER ANCHORAGE. ANCHORAGE AT THIS LOCATION TO EXTEND FROM EL 3.5 TO EL 9.0 ONLY.
 - GFRP REINF: TWO LAYERS OF UNI-DIRECTIONAL GFRP BETWEEN EL 0.0 AND EL 9.0. FIBERS TO BE ORIENTED HORIZONTALLY. SEE DETAIL 1 THIS SHEET FOR SIM LAP LENGTH ON WALL SURFACES AND CORNER ANCHORAGE.
 - APPROXIMATE LOCATION OF TOOLED JOINTS IN CONCRETE BALLAST/TOPPING SLAB SHOWN. LOCATIONS MAY BE VARIED TO AVOID CONFLICTS WITH EXISTING UTILITIES OR NEW CONSTRUCTION. SPACING BETWEEN TOOLED JOINTS SHALL NOT EXCEED 15'-0". WATER-CURE CONCRETE BALLAST/TOPPING SLAB MIN 7 DAYS.
 - DO NOT PLACE CONCRETE BALLAST/TOPPING SLAB AROUND EXISTING PIPES WEST OF GRID B.5 THAT ARE SUPPORTED OFF THE FLOOR. IN PLACE OF CONCRETE BALLAST/TOPPING SLAB PROVIDE NON-SHRINK GROUT FILL AROUND PIPES AND PIPE SUPPORTS SLOPING AT 12":18" TO FACILITATE DRAINING TOWARDS DRAIN TRENCH ALONG GRID 3. PRIOR TO PLACEMENT OF GROUT EXISTING CONCRETE SLAB SURFACE TO BE ROUGHENED TO ICRI CSP6 PROFILE.
 - E-W #4 @ 12" IN CONCRETE TOPPING/BALLAST SLAB BETWEEN GRIDS D AND E TO BE SUBSTITUTED WITH #6 @ 12" H2E FOR A 10 FOOT LENGTH AS SHOWN. HOOKS TO BE ADHESIVE BONDED TO EXISTING CONCRETE SLAB W/ MIN 6" EMBED. PROVIDE #5 @ 12" L-SHAPED DOWELS W/ LEG LENGTHS OF 12" AND 3" ALONG LENGTH OF #6 BARS. 12" LEG TO BE ADHESIVE BONDED TO EXISTING CONCRETE SLAB W/ MIN 6" EMBED.
 - AT CRACKS, JOINTS, AND AROUND OPENINGS IN SLAB, PROVIDE POLYURETHANE RESIN INJECTION PER SPECIFICATION SECTION 03933. TOTAL ESTIMATED LENGTH OF CRACKS AND OPENING PERIMETERS AT PIPE PENETRATIONS TO BE INJECTED AT SLAB BETWEEN GRIDS B.5/2/3 ON PLAN SHOWN IS 150 LINEAR FEET. CRACKS AND JOINTS TO BE INJECTED PRIOR TO PLACEMENT OF CONCRETE BALLAST/TOPPING SLAB AND FRP REINF BELOW SLAB AT EL 4.5±.

- GENERAL NOTES**
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK AND SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING CONDITIONS INCLUDING LOCATION AND DIMENSIONS OF ALL EXISTING CONSTRUCTION AND UTILITIES. CONTRACTOR SHALL NOTIFY ENGINEER IF THERE IS A CONFLICT BETWEEN THE CONTACT DOCUMENTS AND EXISTING CONSTRUCTION BEFORE PROCEEDING WITH WORK.
 - LINEWORK, EQUIPMENT, PIPING, DIMENSIONS, CALLOUTS, ETC. SHOWN SCREENED/EXISTING IS TAKEN FROM 1974 DRAWINGS BY TURNER, COLLIE & BRADEN, INC (TCB) AND IS BEING USED SOLELY AS A TEMPLATE TO SHOW APPROXIMATE EXISTING CONSTRUCTION. SCREENED ELEMENTS ARE NOT TO BE ASSUMED TO SHOW CONFIRMED AS BUILT CONDITIONS.
 - FOR GENERAL STRUCTURAL NOTES SEE DRAWING NO. G07.
 - ELEVATIONS SHOWN CORRESPOND TO PROJECT SPECIFIC DATUM. SEE TOPOGRAPHIC SURVEY SHEETS (DRAWING NO. TS01 TO TS03) AND VERTICAL DATUM ADJUSTMENT ON DRAWING NO. TS01. ANY ELEVATIONS SHOWN ON EXISTING TCB DRAWINGS DO NOT USE DATUM ON TS DRAWINGS AND ARE NOT TO BE USED FOR CONSTRUCTION.
 - FIELD LOCATE EXISTING REINFORCEMENT BEFORE CUTTING OR DRILLING INTO CONCRETE. RELOCATE HOLES TO AVOID CUTTING REINFORCEMENT WHERE POSSIBLE.

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VERIFY SCALES			
BAR IS ONE INCH ON ORIGINAL DRAWING			
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY			
CE PN: 9081A.10	REV	DATE	BY

10375 RICHMOND AVE., SUITE 1625 HOUSTON, TEXAS 77042 PHONE: 281-872-4512 TBPE NO. F-882

10375 RICHMOND AVE., SUITE 1625 HOUSTON, TEXAS 77042 PHONE: 281-872-4512 TBPE NO. F-882

DESIGNED BY: TPS
 DRAWN BY: JBB
 CHECKED BY: GLS

CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

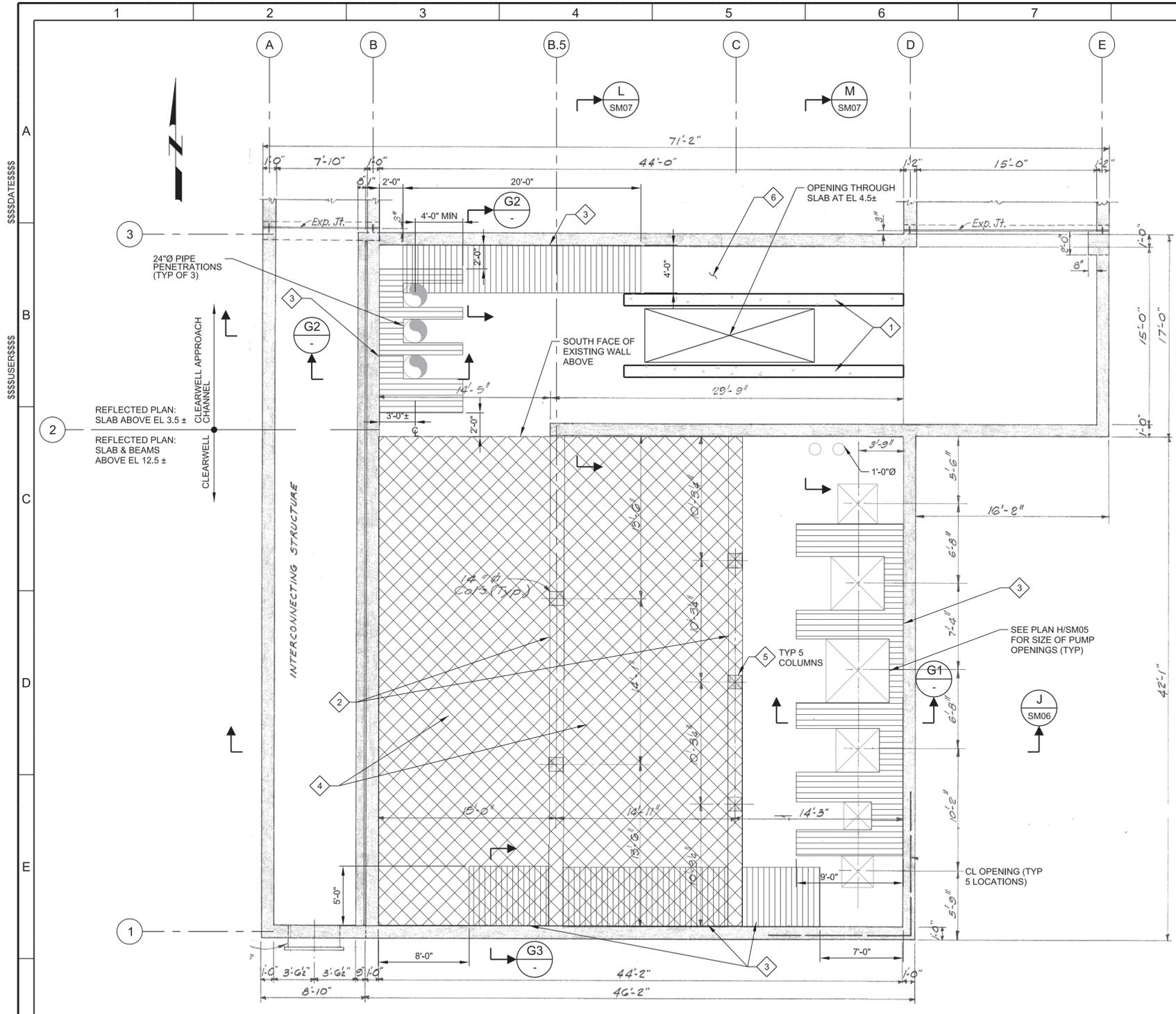
CLEARWELL CONDITION ASSESSMENT AND REPLACEMENT OF SELECT VALVES AND ACTUATORS AT THE EAST WATER PURIFICATION PLANT

STRUCTURAL/MECHANICAL
CLEARWELL
 SHEET 2 OF 5

DATE	FOR CITY OF HOUSTON USE ONLY
FEBRUARY 2016	
WBS NUMBER	
S-000056-0070-4	
CITY OF HOUSTON PM	
JOHN MSGWA, P.E.	
DRAWING NO. SM03	
SHEET NO. 32 OF 73	

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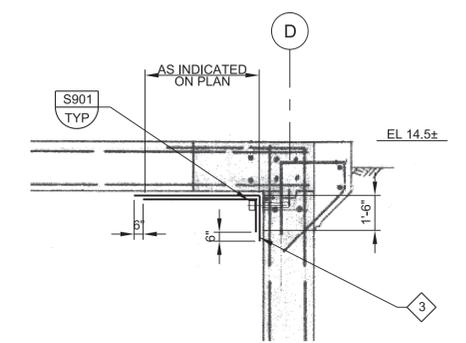
**F CLEARWELL AND CLEARWELL APPROACH CHANNEL:
REFLECTED ROOF SLAB PLAN (ABOVE EL NOTED - SEE GRID 2A)**
SCALE: 3/16" = 1'-0" (APPROX)
FILE: 9081A1000SM9102

KEY NOTES

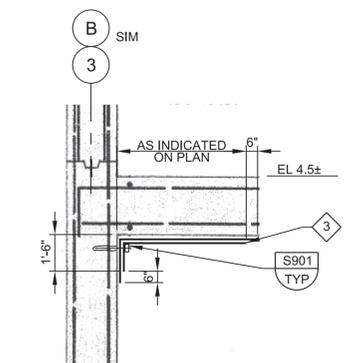
- 1 SEE PLAN B ON SM02 AND SECTION M ON SM07 FOR LOCATION, SIZE, AND REINF OF WALLS.
- 2 CLEARWELL ROOF BEAMS. 14" WIDE X 12" DROP. SEE SECTION J ON SM06.
- 3 GFRP REINF: TWO LAYERS OF UNI-DIRECTIONAL GFRP. HATCH PATTERN INDICATES ORIENTATION OF FIBERS. SEE SECTION G1 OR G2 THIS SHEET FOR LAP LENGTH ON WALL SURFACES AND CORNER ANCHORAGE.
- 4 GFRP REINF: SINGLE LAYER OF BI-DIRECTIONAL (0/90°) GFRP. HATCH PATTERN INDICATES ORIENTATION OF FIBERS. SEE SECTION J ON SM06 FOR LAP LENGTH ON WALL AND WRAP AT SIDES & BOTTOM OF BEAM. PLACEMENT OF BI-DIRECTIONAL GFRP AFTER UNDERLYING UNI-DIRECTIONAL GFRP IS APPLIED.
- 5 SEE DETAIL 3 ON SM06 FOR DETAILS FOR COLUMN-BEAM CONNECTION FRP REINF.
- 6 AT CRACKS AND AROUND OPENINGS IN SLAB, PROVIDE POLYURETHANE RESIN INJECTION PER SPECIFICATION SECTION 03933. TOTAL ESTIMATED LENGTH OF CRACKS AND OPENING PERIMETERS AT PIPES TO BE INJECTED AT SLAB BETWEEN GRIDS B/E/2/3 ON PLAN SHOWN IS 150 LINEAR FEET. CRACKS TO BE INJECTED PRIOR TO PLACEMENT OF CONCRETE BALLAST/TOPPING SLAB AND FRP REINF BELOW SLAB AT EL 4.5±

GENERAL NOTES

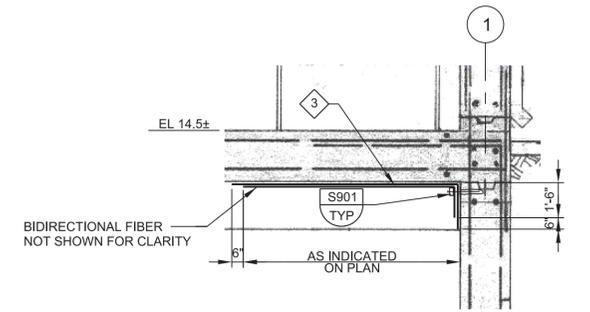
1. CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK AND SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING CONDITIONS INCLUDING LOCATION AND DIMENSIONS OF ALL EXISTING CONSTRUCTION AND UTILITIES. CONTRACTOR SHALL NOTIFY ENGINEER IF THERE IS A CONFLICT BETWEEN THE CONTACT DOCUMENTS AND EXISTING CONSTRUCTION BEFORE PROCEEDING WITH WORK.
2. LINWORK, EQUIPMENT, PIPING, DIMENSIONS, CALLOUTS, ETC. SHOWN SCREENED/EXISTING IS TAKEN FROM 1974 DRAWINGS BY TURNER, COLLIE & BRADEN, INC (TCB) AND IS BEING USED SOLELY AS A TEMPLATE TO SHOW APPROXIMATE EXISTING CONSTRUCTION. SCREENED ELEMENTS ARE NOT TO BE ASSUMED TO SHOW CONFIRMED AS BUILT CONDITIONS.
3. FOR GENERAL STRUCTURAL NOTES SEE DRAWING NO. G07.
4. ELEVATIONS SHOWN CORRESPOND TO PROJECT SPECIFIC DATUM. SEE TOPOGRAPHIC SURVEY SHEETS (DRAWING NO. TS01 TO TS03) AND VERTICAL DATUM ADJUSTMENT ON DRAWING NO. TS01. ANY ELEVATIONS SHOWN ON EXISTING TCB DRAWINGS DO NOT USE DATUM ON TS DRAWINGS AND ARE NOT TO BE USED FOR CONSTRUCTION.
5. REFLECTED PLAN VIEW SHOWS THE UNDERSIDE/SOFFIT OF EXISTING SLABS, BEAMS, ETC.
6. FIELD LOCATE EXISTING REINFORCEMENT BEFORE CUTTING OR DRILLING INTO CONCRETE. RELOCATE HOLES TO AVOID CUTTING REINFORCEMENT WHERE POSSIBLE.



G1 SECTION



G2 SECTION



G3 SECTION

ISSUED FOR BID

VERIFY SCALES				
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0 1"				
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY				
CE PN: 9081A.10	REV	DATE	BY	DESCRIPTION

carollo 10375 RICHMOND AVE., SUITE 1625 HOUSTON, TEXAS 77042 PHONE: 281-872-4512 TBPE NO. F-882

carollo 10375 RICHMOND AVE., SUITE 1625 HOUSTON, TEXAS 77042 PHONE: 281-872-4512 TBPE NO. F-882

Digitally signed by Gary Sagehorn
Contact Info: Carollo Engineers, Inc.
Date: 2016.02.17 13:52:17-0700'

DESIGNED BY: TPS
DRAWN BY: JBB
CHECKED BY: GLS

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

CLEARWELL CONDITION ASSESSMENT AND REPLACEMENT OF SELECT VALVES AND ACTUATORS AT THE EAST WATER PURIFICATION PLANT

STRUCTURAL/MECHANICAL
CLEARWELL
SHEET 3 OF 5

DATE	FEBRUARY 2016	FOR CITY OF HOUSTON USE ONLY
WBS NUMBER	S-000056-0070-4	
CITY OF HOUSTON PM	JM JOHN MSIGWA, P.E.	
DRAWING NO.	SM04	
SHEET NO.	33 OF 73	

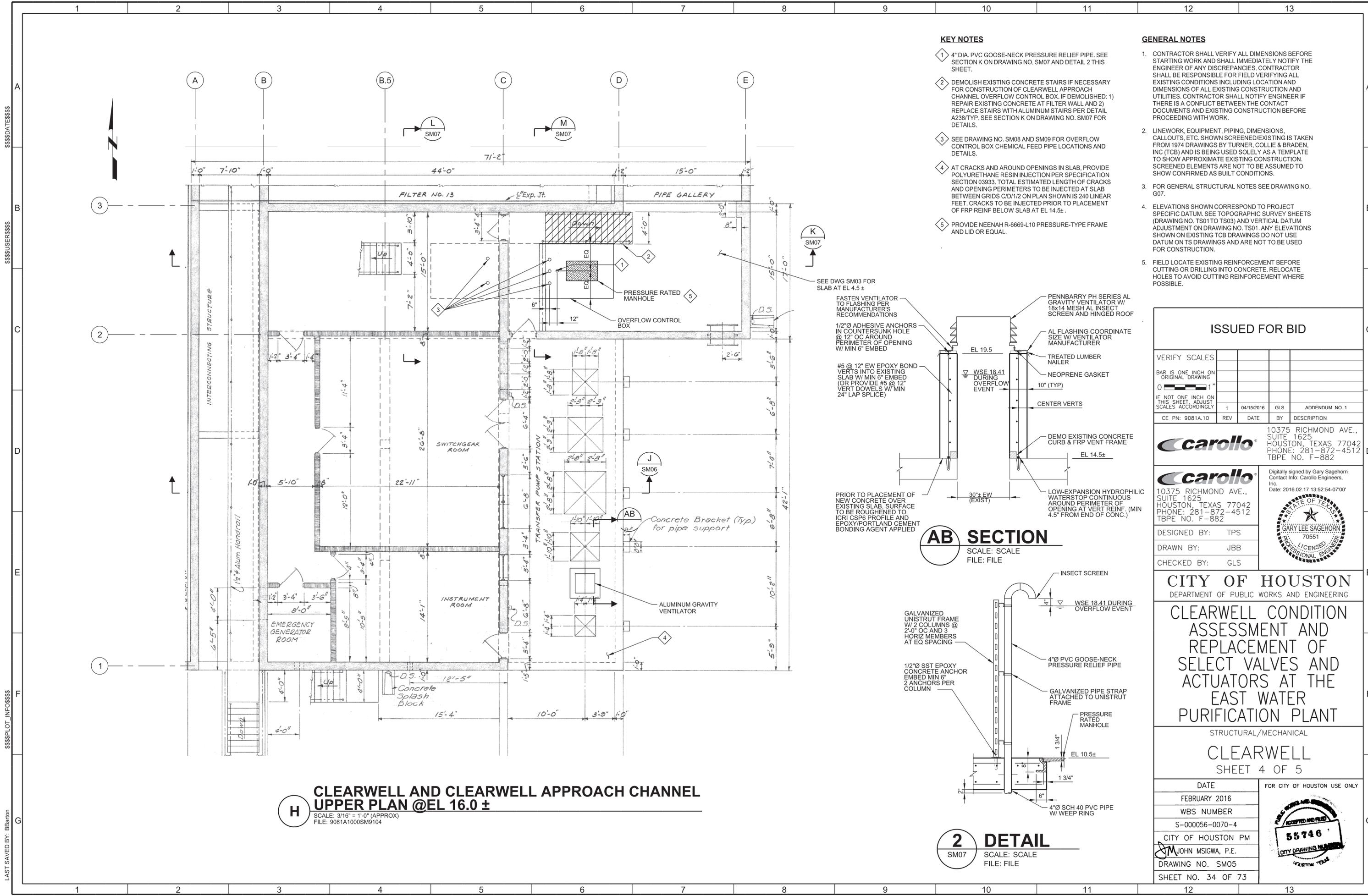


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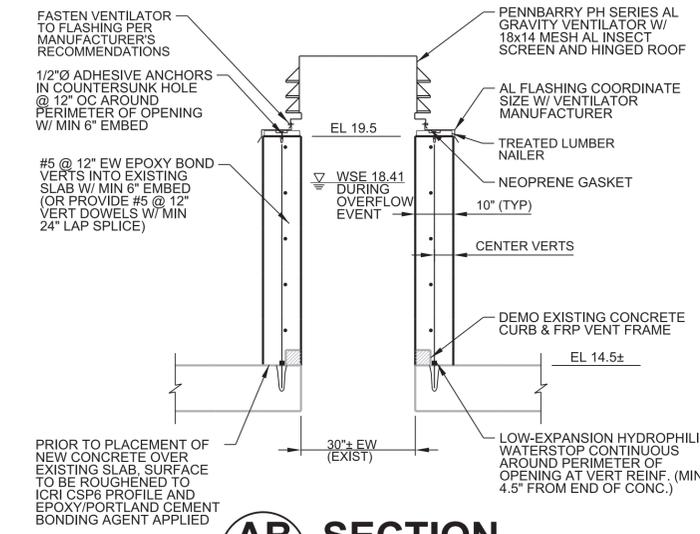


KEY NOTES

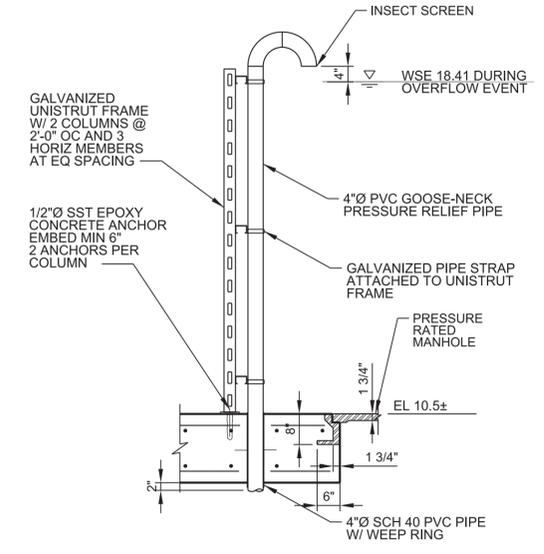
- 1 4" DIA. PVC GOOSE-NECK PRESSURE RELIEF PIPE. SEE SECTION K ON DRAWING NO. SM07 AND DETAIL 2 THIS SHEET.
- 2 DEMOLISH EXISTING CONCRETE STAIRS IF NECESSARY FOR CONSTRUCTION OF CLEARWELL APPROACH CHANNEL OVERFLOW CONTROL BOX. IF DEMOLISHED: 1) REPAIR EXISTING CONCRETE AT FILTER WALL AND 2) REPLACE STAIRS WITH ALUMINUM STAIRS PER DETAIL A238/TYP. SEE SECTION K ON DRAWING NO. SM07 FOR DETAILS.
- 3 SEE DRAWING NO. SM08 AND SM09 FOR OVERFLOW CONTROL BOX CHEMICAL FEED PIPE LOCATIONS AND DETAILS.
- 4 AT CRACKS AND AROUND OPENINGS IN SLAB, PROVIDE POLYURETHANE RESIN INJECTION PER SPECIFICATION SECTION 03933. TOTAL ESTIMATED LENGTH OF CRACKS AND OPENING PERIMETERS TO BE INJECTED AT SLAB BETWEEN GRIDS C/D/1/2 ON PLAN SHOWN IS 240 LINEAR FEET. CRACKS TO BE INJECTED PRIOR TO PLACEMENT OF FRP REINF BELOW SLAB AT EL. 14.5±.
- 5 PROVIDE NEENAH R-6669-L10 PRESSURE-TYPE FRAME AND LID OR EQUAL.

GENERAL NOTES

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3. FOR GENERAL STRUCTURAL NOTES SEE DRAWING NO. G07.
4. ELEVATIONS SHOWN CORRESPOND TO PROJECT SPECIFIC DATUM. SEE TOPOGRAPHIC SURVEY SHEETS (DRAWING NO. TS01 TO TS03) AND VERTICAL DATUM ADJUSTMENT ON DRAWING NO. TS01. ANY ELEVATIONS SHOWN ON EXISTING TCB DRAWINGS DO NOT USE DATUM ON TS DRAWINGS AND ARE NOT TO BE USED FOR CONSTRUCTION.
5. FIELD LOCATE EXISTING REINFORCEMENT BEFORE CUTTING OR DRILLING INTO CONCRETE. RELOCATE HOLES TO AVOID CUTTING REINFORCEMENT WHERE POSSIBLE.



AB SECTION
SCALE: SCALE
FILE: FILE



2 DETAIL
SM07 SCALE: SCALE
FILE: FILE

H CLEARWELL AND CLEARWELL APPROACH CHANNEL UPPER PLAN @EL 16.0 ±
SCALE: 3/16" = 1'-0" (APPROX)
FILE: 9081A1000SM9104

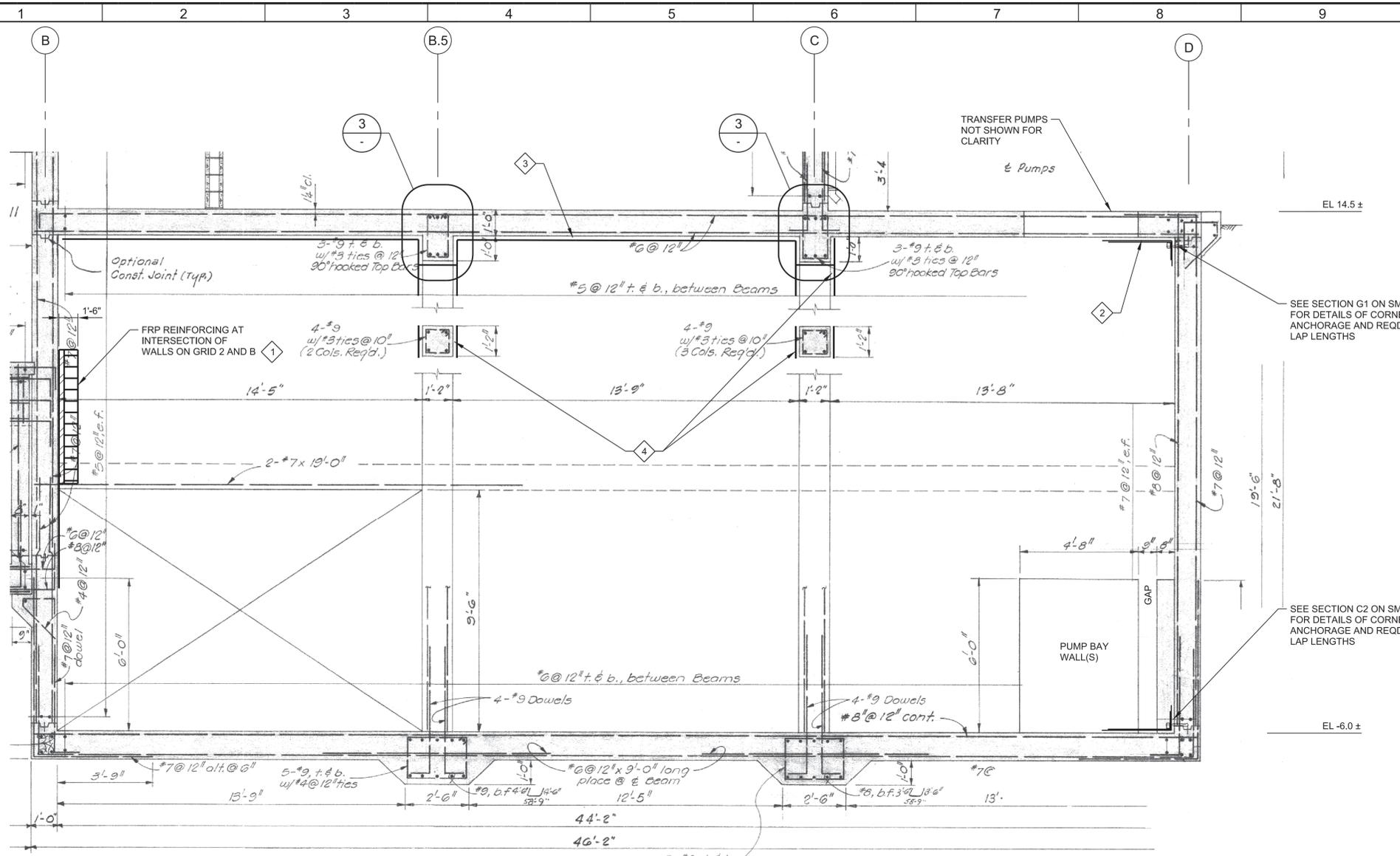
ISSUED FOR BID				
VERIFY SCALES				
BAR IS ONE INCH ON ORIGINAL DRAWING				
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY				
CE PN: 9081A.10	REV	DATE	BY	DESCRIPTION
10375 RICHMOND AVE., SUITE 1625 HOUSTON, TEXAS 77042 PHONE: 281-872-4512 TBPE NO. F-882				
Digitally signed by Gary Sagehorn Contact Info: Carollo Engineers, Inc. Date: 2016.02.17 13:52:54-0700'				
DESIGNED BY:	TPS			
DRAWN BY:	JBB			
CHECKED BY:	GLS			
CITY OF HOUSTON				
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING				
CLEARWELL CONDITION ASSESSMENT AND REPLACEMENT OF SELECT VALVES AND ACTUATORS AT THE EAST WATER PURIFICATION PLANT				
STRUCTURAL/MECHANICAL				
CLEARWELL				
SHEET 4 OF 5				
DATE	FOR CITY OF HOUSTON USE ONLY			
FEBRUARY 2016				
WBS NUMBER				
S-000056-0070-4				
CITY OF HOUSTON PM				
JOHN MSIGWA, P.E.				
DRAWING NO. SM05				
SHEET NO. 34 OF 73				

KEY NOTES

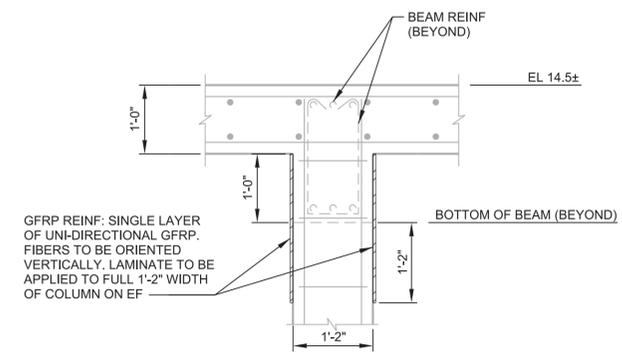
- 1 GFRP REINF. SEE PLAN ON SM03.
- 2 GFRP REINF. SEE PLAN ON SM04.
- 3 GFRP ON CLEARWELL CEILING AS SHOWN ON PLAN ON SM04. FRP TO BE WRAPPED AROUND SIDES & BOTTOM OF CEILING BEAMS ON GRIDS B.5 & C, AND 1'-6" DOWN SURFACE OF WALL ON GRID B.
- 4 SEE DETAIL 3 ON THIS SHEET FOR DETAILS OF FRP REINF AT CONNECTION BETWEEN COLUMNS AND CLEARWELL CEILING BEAMS.

GENERAL NOTES

- 1. CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK AND SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING CONDITIONS INCLUDING LOCATION AND DIMENSIONS OF ALL EXISTING CONSTRUCTION AND UTILITIES. CONTRACTOR SHALL NOTIFY ENGINEER IF THERE IS A CONFLICT BETWEEN THE CONTACT DOCUMENTS AND EXISTING CONSTRUCTION BEFORE PROCEEDING WITH WORK.
- 2. LINEWORK, EQUIPMENT, PIPING, DIMENSIONS, CALLOUTS, ETC. SHOWN SCREENED/EXISTING IS TAKEN FROM 1974 DRAWINGS BY TURNER, COLLIE & BRADEN, INC (TCB) AND IS BEING USED SOLELY AS A TEMPLATE TO SHOW APPROXIMATE EXISTING CONSTRUCTION. SCREENED ELEMENTS ARE NOT TO BE ASSUMED TO SHOW CONFIRMED AS BUILT CONDITIONS.
- 3. FOR GENERAL STRUCTURAL NOTES SEE DRAWING NO. G07.
- 4. ELEVATIONS SHOWN CORRESPOND TO PROJECT SPECIFIC DATUM. SEE TOPOGRAPHIC SURVEY SHEETS (DRAWING NO. TS01 TO TS03) AND VERTICAL DATUM ADJUSTMENT ON DRAWING NO. TS01. ANY ELEVATIONS SHOWN ON EXISTING TCB DRAWINGS DO NOT USE DATUM ON TS DRAWINGS AND ARE NOT TO BE USED FOR CONSTRUCTION.
- 5. FIELD LOCATE EXISTING REINFORCEMENT BEFORE CUTTING OR DRILLING INTO CONCRETE. RELOCATE HOLES TO AVOID CUTTING REINFORCEMENT WHERE POSSIBLE.



J CLEARWELL SECTION
SM02 SCALE: 3/16" = 1'-0" (APPROX)
FILE: 9081A1000SM0301



3 FIBER AT COLUMNS DETAIL
SCALE: 3/4" = 1'-0"
FILE: 9081A1000SM0410

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CE PN: 9081A.10	REV	DATE	BY	DESCRIPTION			

carollo
10375 RICHMOND AVE., SUITE 1625
HOUSTON, TEXAS 77042
PHONE: 281-872-4512
TBPE NO. F-882

10375 RICHMOND AVE., SUITE 1625
HOUSTON, TEXAS 77042
PHONE: 281-872-4512
TBPE NO. F-882

DESIGNED BY: TPS
DRAWN BY: JBB
CHECKED BY: GLS

Digitally signed by Gary Sagehorn
Contact Info: Carollo Engineers, Inc.
Date: 2016.02.17 13:53:17-0700

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

CLEARWELL CONDITION ASSESSMENT AND REPLACEMENT OF SELECT VALVES AND ACTUATORS AT THE EAST WATER PURIFICATION PLANT

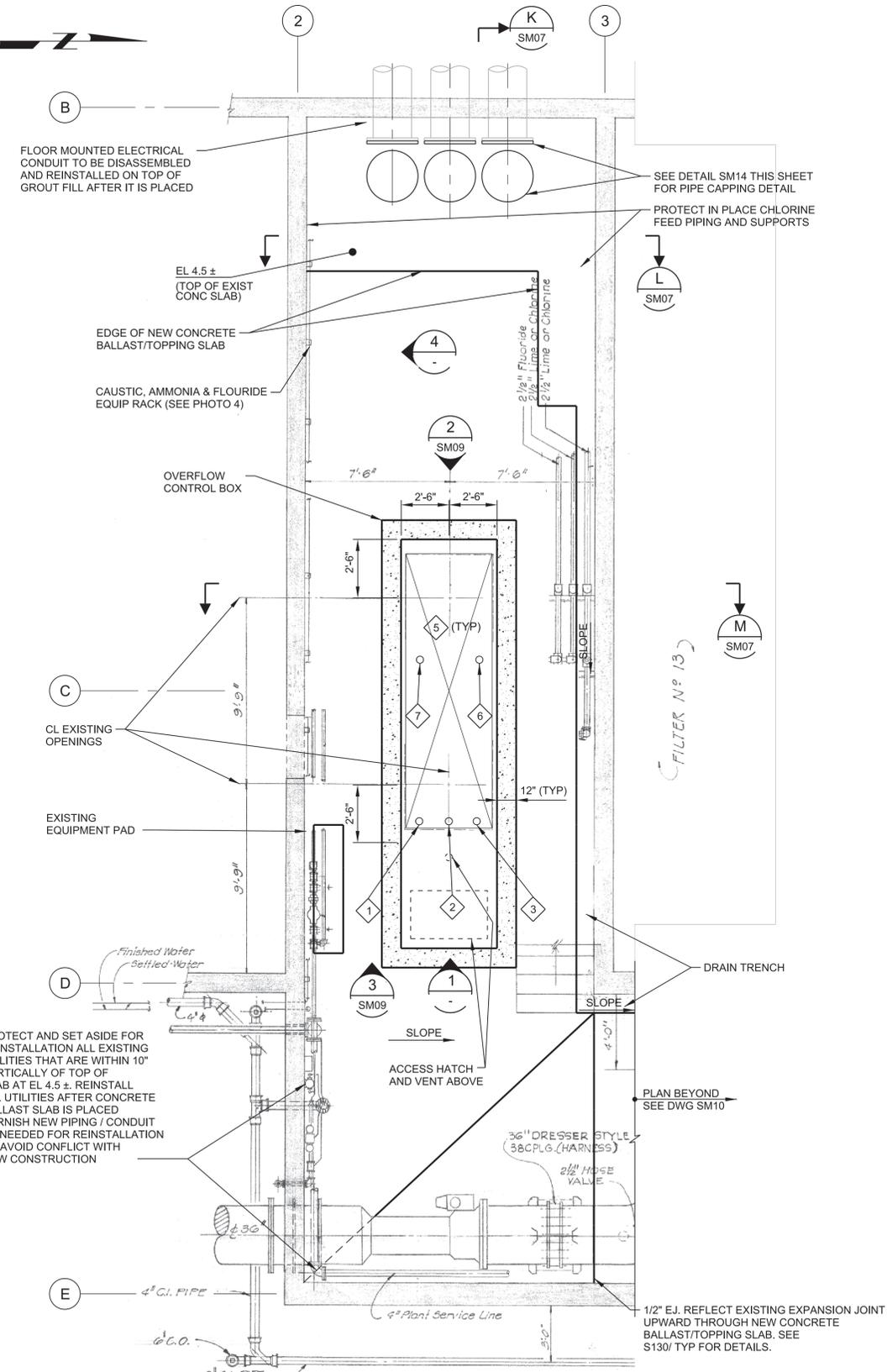
STRUCTURAL/MECHANICAL

CLEARWELL SHEET 5 OF 5

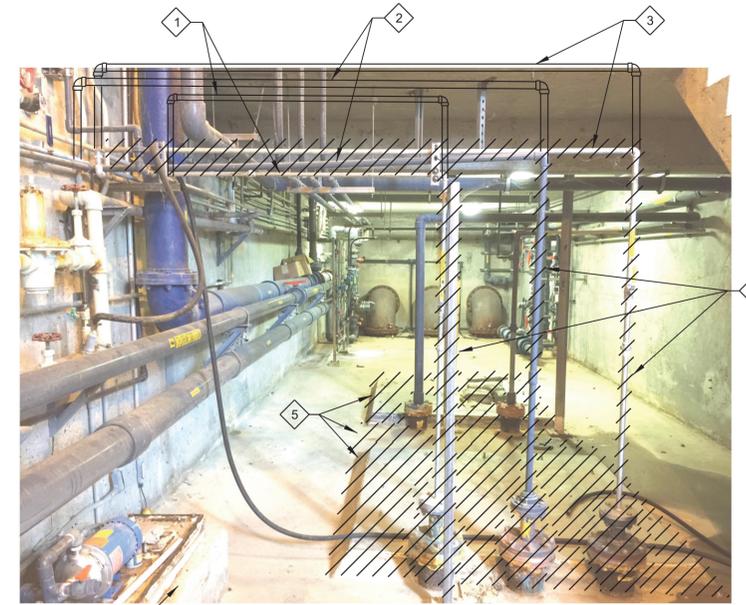
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FEBRUARY 2016	 55746 CITY DRAWING NUMBER
WBS NUMBER	
S-000056-0070-4	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
DRAWING NO. SM06	
SHEET NO. 35 OF 73	

PROJECT NO. 9081A.10 FILE NAME: 9081A1000SM006.dgn

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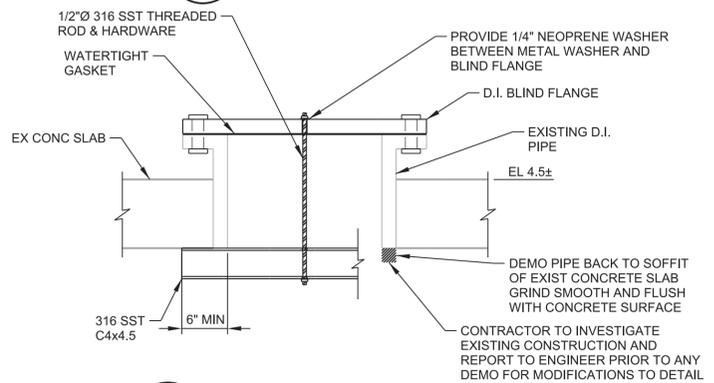
4 DETAIL
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 FILE: 9081A1000SM401



1 PHOTO
 SCALE: NTS
 FILE: 9081A1000SM0402



4 PHOTO
 SCALE: NTS
 FILE: 9081A1000SM08PHOTO4



14 DETAIL
 SCALE: 1" = 1'-0"
 FILE: FILE

KEY NOTES

- 1 RELOCATE EXISTING AMMONIA FEED LINE FOR CONSTRUCTION OF PROPOSED OVERFLOW CONTROL BOX. CONTRACTOR SHALL RE-ROUTE LINE TO LOCATION SHOWN IN DETAIL 4 THIS SHEET, AND SHALL USE FLANGED CONNECTION AT POINT OF BOX PENETRATION SIMILAR TO DETAIL P507/TYP W/O ROOFING SYSTEM TO BE PROVIDED. PIPE SHALL BE EXTENDED THROUGH BOX AND INTO BELOW-GRADE CLEARWELL APPROACH CHANNEL AREA TO ELEVATION CONSISTENT WITH THAT OF EXISTING FEED LINE. CONTRACTOR SHALL ADEQUATELY SUPPORT RE-ROUTED LINE IN ACCORDANCE WITH DETAIL P660/TYP. CONTRACTOR SHALL FIELD-MEASURE AND FIELD-ROUTE EXISTING FEED LINE, INCLUDING PROVISION OF ADDITIONAL PIPE, FITTINGS, ADAPTORS, AND APPURTENANCES, AS REQUIRED TO RESTORE AMMONIA FEED FUNCTIONALITY AND ESTABLISH COMPLETE/WORKING SYSTEM.
- 2 RELOCATE UNMARKED CHEMICAL FEED LINE FOR CONSTRUCTION OF PROPOSED OVERFLOW CONTROL BOX. CONTRACTOR SHALL RE-ROUTE LINE TO LOCATION SHOWN IN DETAIL 4 THIS SHEET, AND SHALL USE FLANGED CONNECTION AT POINT OF BOX PENETRATION PER DETAIL P507/TYP. CONTRACTOR SHALL RE-ROUTE LINE TO LOCATION SHOWN IN DETAIL 4 THIS SHEET, AND SHALL USE FLANGED CONNECTION AT POINT OF BOX PENETRATION SIMILAR TO DETAIL P507/TYP W/O ROOFING SYSTEM TO BE PROVIDED. PIPE SHALL BE EXTENDED THROUGH BOX AND INTO BELOW-GRADE CLEARWELL APPROACH CHANNEL AREA TO ELEVATION CONSISTENT WITH THAT OF EXISTING FEED LINE. CONTRACTOR SHALL ADEQUATELY SUPPORT RE-ROUTED LINE IN ACCORDANCE WITH DETAIL P660/TYP. CONTRACTOR SHALL FIELD-MEASURE AND FIELD-ROUTE EXISTING FEED LINE, INCLUDING PROVISION OF ADDITIONAL PIPE, FITTINGS, ADAPTORS, AND APPURTENANCES, AS REQUIRED TO RESTORE CHEMICAL FEED FUNCTIONALITY AND ESTABLISH COMPLETE/WORKING SYSTEM.
- 3 RELOCATE EXISTING CAUSTIC FEED FOR CONSTRUCTION OF PROPOSED OVERFLOW CONTROL BOX. CONTRACTOR SHALL RE-ROUTE LINE TO LOCATION SHOWN IN DETAIL 4 THIS SHEET, AND SHALL USE FLANGED CONNECTION AT POINT OF BOX PENETRATION SIMILAR TO DETAIL P507/TYP W/O ROOFING SYSTEM TO BE PROVIDED. PIPE SHALL BE EXTENDED THROUGH BOX AND INTO BELOW-GRADE CLEARWELL APPROACH CHANNEL AREA TO ELEVATION CONSISTENT WITH THAT OF EXISTING FEED LINE. CONTRACTOR SHALL ADEQUATELY SUPPORT RE-ROUTED LINE IN ACCORDANCE WITH DETAIL P660/TYP. CONTRACTOR SHALL FIELD-MEASURE AND FIELD-ROUTE EXISTING FEED LINE, INCLUDING PROVISION OF ADDITIONAL PIPE, FITTINGS, ADAPTORS, AND APPURTENANCES, AS REQUIRED TO RESTORE CAUSTIC FEED FUNCTIONALITY AND ESTABLISH COMPLETE/WORKING SYSTEM.
- 4 DEMO EXISTING PIPING AND SUPPORTS. RELOCATE AS INDICATED IN KEYNOTES 1 THROUGH 3.
- 5 DEMO EXISTING CONCRETE TOPPING OVER METAL COVER PLATES (NOT SHOWN IN PHOTO 1), METAL COVER PLATE, AND CONCRETE CURB TO TOP OF EXISTING SLAB AT ELEVATION 4.5±. DEMO EXISTING CONCRETE SLAB BETWEEN FLOOR OPENINGS FOR EXTENTS SHOWN ON DRAWING SM03 TO ALLOW FOR CONSTRUCTION ACCESS TO CLEARWELL AND APPROACH CHANNEL.
- 6 WATERLINE/FLORIDE INJECTION POINT. SEE PHOTO 2 ON DRAWING NO. SM09 FOR DETAILS.
- 7 4" CHLORINE SOLUTION INJECTION POINT. SEE PHOTO 2 ON DRAWING NO. SM09 FOR DETAILS.
- 8 PROTECT AND SET ASIDE FOR RE-INSTALLATION EXISTING CAUSTIC, AMMONIA, AND FLUORIDE FEED PIPING, EQUIPMENT, AND CONDUIT SUPPORTED ON UNISTRUT FRAME. DEMO UNISTRUT FRAME AND PROVIDE NEW ALUMINUM UNISTRUT FRAME OF SAME CONFIGURATION ANCHORED TO TOP OF NEW CONCRETE BALLAST/TOPPING SLAB. CONTRACTOR SHALL FIELD-MEASURE AND FIELD-ROUTE EXISTING FEED LINES, INCLUDING PROVISION OF ADDITIONAL PIPE, FITTINGS, ADAPTORS, AND APPURTENANCES, AS REQUIRED TO RESTORE CAUSTIC, AMMONIA, AND FLUORIDE FEED FUNCTIONALITY AND ESTABLISH COMPLETE/WORKING SYSTEM.

GENERAL NOTES

1. CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK AND SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING CONDITIONS INCLUDING LOCATION AND DIMENSIONS OF ALL EXISTING CONSTRUCTION AND UTILITIES. CONTRACTOR SHALL NOTIFY ENGINEER IF THERE IS A CONFLICT BETWEEN THE CONTACT DOCUMENTS AND EXISTING CONSTRUCTION BEFORE PROCEEDING WITH WORK.
2. LINework, EQUIPMENT, PIPING, DIMENSIONS, CALLOUTS, ETC. SHOWN SCREENED/EXISTING IS TAKEN FROM 1974 DRAWINGS BY TURNER, COLLIE & BRADEN, INC (TCB) AND IS BEING USED SOLELY AS A TEMPLATE TO SHOW APPROXIMATE EXISTING CONSTRUCTION. SCREENED ELEMENTS ARE NOT TO BE ASSUMED TO SHOW CONFIRMED AS BUILT CONDITIONS.
3. FOR GENERAL STRUCTURAL NOTES SEE DRAWING NO. G07.
4. ELEVATIONS SHOWN CORRESPOND TO PROJECT SPECIFIC DATUM. SEE TOPOGRAPHIC SURVEY SHEETS (DRAWING NO. TS01 TO TS03) AND VERTICAL DATUM ADJUSTMENT ON DRAWING NO. TS01. ANY ELEVATIONS SHOWN ON EXISTING TCB DRAWINGS DO NOT USE DATUM ON TS DRAWINGS AND ARE NOT TO BE USED FOR CONSTRUCTION.
5. FIELD LOCATE EXISTING REINFORCEMENT BEFORE CUTTING OR DRILLING INTO CONCRETE. RELOCATE HOLES TO AVOID CUTTING REINFORCEMENT WHERE POSSIBLE.

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VERIFY SCALES				
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 DRAWN BY: JBB
 CHECKED BY: SMB

CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

CLEARWELL CONDITION ASSESSMENT AND REPLACEMENT OF SELECT VALVES AND ACTUATORS AT THE EAST WATER PURIFICATION PLANT

STRUCTURAL/MECHANICAL
APPROACH CHANNEL
 SHEET 2 OF 3

DATE	FEBRUARY 2016	FOR CITY OF HOUSTON USE ONLY
WBS NUMBER	S-000056-0070-4	
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.	
DRAWING NO.	SM08	
SHEET NO.	37 OF 73	



2 PHOTO
SM08 SCALE: NONE
FILE: 9081A1076SM0403



3 PHOTO
SM08 SCALE: NONE
FILE: 9081A1076SM0404

KEY NOTES

- 1 RELOCATE EXISTING WATERLINE FOR CONSTRUCTION OF PROPOSED CLEARWELL APPROACH CHANNEL BOX. CONTRACTOR SHALL RE-ROUTE LINE TO LOCATION SHOWN IN DETAIL 4 OF SHEET SM08, AND SHALL USE FLANGED CONNECTION AT POINT OF BOX PENETRATION SIMILAR TO DETAIL P507/TYP W/O ROOFING SYSTEM TO BE PROVIDED. PIPE SHALL BE EXTENDED THROUGH BOX AND INTO BELOW-GRADE CLEARWELL APPROACH CHANNEL AREA TO ELEVATION CONSISTENT WITH THAT OF EXISTING LINE. CONTRACTOR SHALL ADEQUATELY SUPPORT RE-ROUTED LINE IN ACCORDANCE WITH DETAIL P660/TYP. CONTRACTOR SHALL FIELD-MEASURE AND FIELD-ROUTE EXISTING LINE, INCLUDING PROVISION OF ADDITIONAL PIPE, FITTINGS, ADAPTORS, AND APPURTENANCES, AS REQUIRED TO RESTORE WATER FLOW AND ESTABLISH COMPLETE/WORKING SYSTEM.
- 2 CONNECT FLUORIDE LINE TO WATER LINE ABOVE PROPOSED CLEARWELL APPROACH CHANNEL BOX USING SIMILAR FITTINGS AS EXISTING.
- 3 RELOCATE EXISTING 4" CHLORINE SOLUTION FEED LINE FOR CONSTRUCTION OF PROPOSED CLEARWELL APPROACH CHANNEL BOX. CONTRACTOR SHALL RE-ROUTE LINE TO LOCATION SHOWN IN DETAIL 4 ON DRAWING NO. SM08, AND SHALL USE FLANGED CONNECTION AT POINT OF BOX PENETRATION SIMILAR TO DETAIL P507/TYP W/O ROOFING SYSTEM TO BE PROVIDED. PIPE SHALL BE EXTENDED THROUGH BOX AND INTO BELOW-GRADE CLEARWELL APPROACH CHANNEL AREA TO ELEVATION CONSISTENT WITH THAT OF EXISTING FEED LINE. CONTRACTOR SHALL ADEQUATELY SUPPORT RE-ROUTED LINE IN ACCORDANCE WITH DETAIL P660/TYP. CONTRACTOR SHALL FIELD-MEASURE AND FIELD-ROUTE EXISTING FEED LINE, INCLUDING PROVISION OF ADDITIONAL PIPE, FITTINGS, ADAPTORS, AND APPURTENANCES, AS REQUIRED TO RESTORE CHLORINE SOLUTION FEED FUNCTIONALITY AND ESTABLISH COMPLETE/WORKING SYSTEM.
- 4 DEMO EXISTING PIPING AND SUPPORTS, RELOCATE AS INDICATED IN KEY NOTES 1 THROUGH 3.
- 5 RELOCATE EXISTING CONDUITS FOR CONSTRUCTION OF PROPOSED CLEARWELL APPROACH CHANNEL BOX. CONTRACTOR SHALL RE-ROUTE CONDUIT WITH SIMILAR SUPPORTS AND SPACING AS EXISTING. NORTH EDGE OF SUPPORTS SHALL BE SOUTH OF PROPOSED OVERFLOW CONTROL BOX. CONTRACTOR SHALL FIELD-MEASURE AND FIELD-ROUTE EXISTING CONDUIT, INCLUDING PROVISION OF ADDITIONAL CONDUIT, FITTINGS, ADAPTORS, AND APPURTENANCES, AS REQUIRED TO RESTORE FUNCTIONALITY AND ESTABLISH COMPLETE/WORKING SYSTEM.
- 6 SEE DRAWING SM08 FOR DEMO DETAILS OF EXISTING METAL COVER PLATES AND CONCRETE CURB.

GENERAL NOTES

- 1. CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK AND SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING CONDITIONS INCLUDING LOCATION AND DIMENSIONS OF ALL EXISTING CONSTRUCTION AND UTILITIES. CONTRACTOR SHALL NOTIFY ENGINEER IF THERE IS A CONFLICT BETWEEN THE CONTACT DOCUMENTS AND EXISTING CONSTRUCTION BEFORE PROCEEDING WITH WORK.
- 2. LINEWORK, EQUIPMENT, PIPING, DIMENSIONS, CALLOUTS, ETC. SHOWN SCREENED/EXISTING IS TAKEN FROM 1974 DRAWINGS BY TURNER, COLLIE & BRADEN, INC (TCB) AND IS BEING USED SOLELY AS A TEMPLATE TO SHOW APPROXIMATE EXISTING CONSTRUCTION. SCREENED ELEMENTS ARE NOT TO BE ASSUMED TO SHOW CONFIRMED AS BUILT CONDITIONS.
- 3. FOR GENERAL STRUCTURAL NOTES SEE DRAWING NO. G07.
- 4. ELEVATIONS SHOWN CORRESPOND TO PROJECT SPECIFIC DATUM. SEE TOPOGRAPHIC SURVEY SHEETS (DRAWING NO. TS01 TO TS03) AND VERTICAL DATUM ADJUSTMENT ON DRAWING NO. TS01. ANY ELEVATIONS SHOWN ON EXISTING TCB DRAWINGS DO NOT USE DATUM ON TS DRAWINGS AND ARE NOT TO BE USED FOR CONSTRUCTION.
- 5. FIELD LOCATE EXISTING REINFORCEMENT BEFORE CUTTING OR DRILLING INTO CONCRETE. RELOCATE HOLES TO AVOID CUTTING REINFORCEMENT WHERE POSSIBLE.

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DRAWN BY: JBB
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

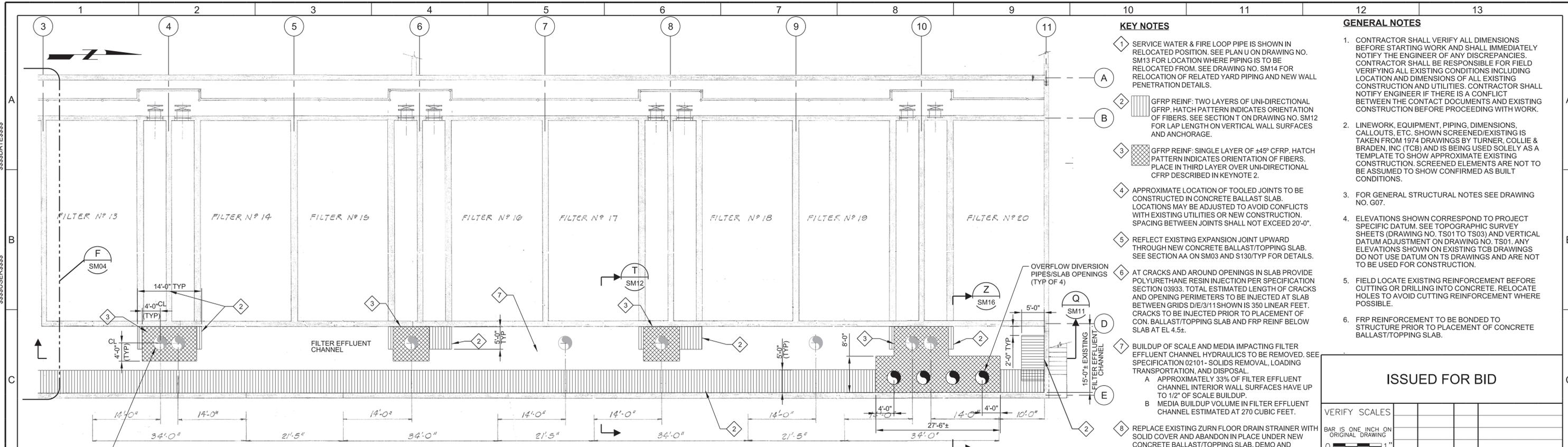
CLEARWELL CONDITION ASSESSMENT AND REPLACEMENT OF SELECT VALVES AND ACTUATORS AT THE EAST WATER PURIFICATION PLANT

STRUCTURAL/MECHANICAL
APPROACH CHANNEL
SHEET 3 OF 3

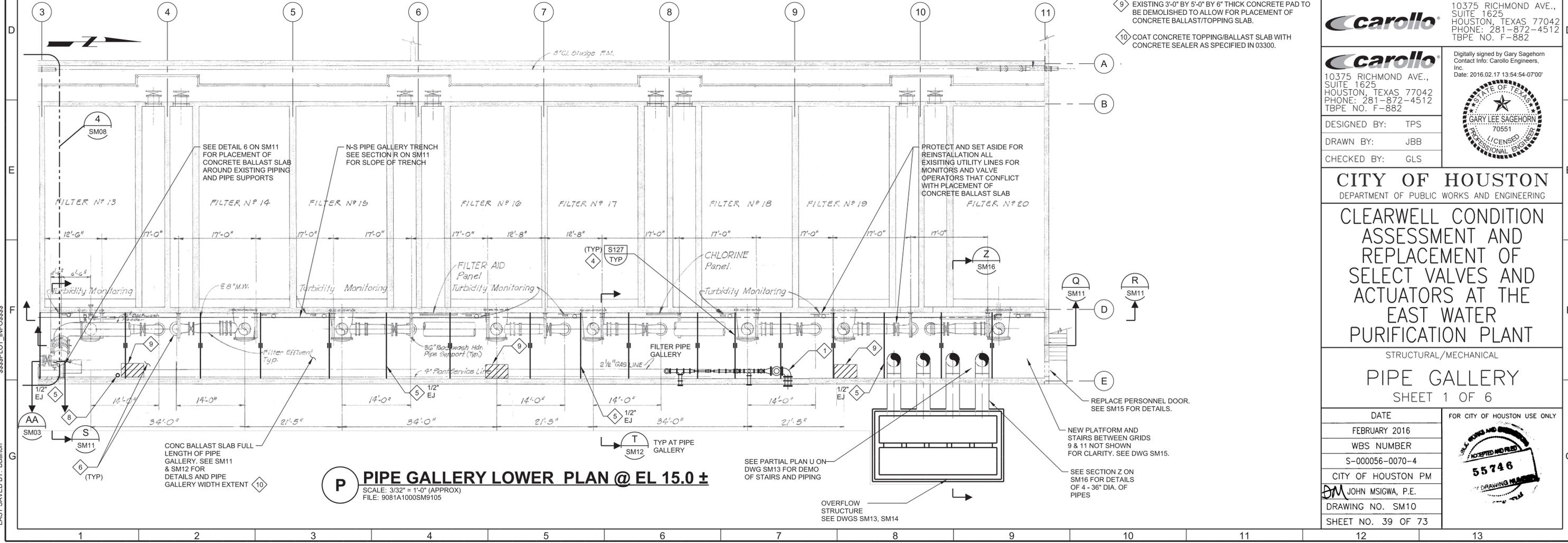
DATE	FEBRUARY 2016
WBS NUMBER	S-000056-0070-4
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
DRAWING NO.	SM09
SHEET NO.	38 OF 73



LAST SAVED BY: BBairton



N PIPE GALLERY: FILTER EFFLUENT CHANNEL - REFLECTED ROOF SLAB PLAN (ABOVE EL 3.5±)
 SCALE: 3/32" = 1'-0" (APPROX)
 FILE: 9081A1000SM9105



P PIPE GALLERY LOWER PLAN @ EL 15.0 ±
 SCALE: 3/32" = 1'-0" (APPROX)
 FILE: 9081A1000SM9105

- KEY NOTES**
- SERVICE WATER & FIRE LOOP PIPE IS SHOWN IN RELOCATED POSITION. SEE PLAN U ON DRAWING NO. SM13 FOR LOCATION WHERE PIPING IS TO BE RELOCATED FROM. SEE DRAWING NO. SM14 FOR RELOCATION OF RELATED YARD PIPING AND NEW WALL PENETRATION DETAILS.
 - GFRP REINF: TWO LAYERS OF UNI-DIRECTIONAL GFRP. HATCH PATTERN INDICATES ORIENTATION OF FIBERS. SEE SECTION T ON DRAWING NO. SM12 FOR LAP LENGTH ON VERTICAL WALL SURFACES AND ANCHORAGE.
 - GFRP REINF: SINGLE LAYER OF #45° GFRP. HATCH PATTERN INDICATES ORIENTATION OF FIBERS. PLACE IN THIRD LAYER OVER UNI-DIRECTIONAL CFRP DESCRIBED IN KEYNOTE 2.
 - APPROXIMATE LOCATION OF TOOLED JOINTS TO BE CONSTRUCTED IN CONCRETE BALLAST SLAB. LOCATIONS MAY BE ADJUSTED TO AVOID CONFLICTS WITH EXISTING UTILITIES OR NEW CONSTRUCTION. SPACING BETWEEN JOINTS SHALL NOT EXCEED 20'-0".
 - REFLECT EXISTING EXPANSION JOINT UPWARD THROUGH NEW CONCRETE BALLAST/TOPPING SLAB. SEE SECTION AA ON SM03 AND S130/TYP FOR DETAILS.
 - AT CRACKS AND AROUND OPENINGS IN SLAB PROVIDE POLYURETHANE RESIN INJECTION PER SPECIFICATION SECTION 03933. TOTAL ESTIMATED LENGTH OF CRACKS AND OPENING PERIMETERS TO BE INJECTED AT SLAB BETWEEN GRIDS D/E/3/11 SHOWN IS 350 LINEAR FEET. CRACKS TO BE INJECTED PRIOR TO PLACEMENT OF CON. BALLAST/TOPPING SLAB AND FRP REINF BELOW SLAB AT EL 4.5±.
 - BUILDUP OF SCALE AND MEDIA IMPACTING FILTER EFFLUENT CHANNEL HYDRAULICS TO BE REMOVED. SEE SPECIFICATION 02101- SOLIDS REMOVAL, LOADING TRANSPORTATION, AND DISPOSAL.
 - A APPROXIMATELY 33% OF FILTER EFFLUENT CHANNEL INTERIOR WALL SURFACES HAVE UP TO 1/2" OF SCALE BUILDUP.
 - B MEDIA BUILDUP VOLUME IN FILTER EFFLUENT CHANNEL ESTIMATED AT 270 CUBIC FEET.
 - REPLACE EXISTING ZURN FLOOR DRAIN STRAINER WITH SOLID COVER AND ABANDON IN PLACE UNDER NEW CONCRETE BALLAST/TOPPING SLAB. DEMO AND RE-ROUTE EXISTING CEILING-SUPPORTED HVAC UNIT DRAIN LINE TO TRENCH/FLOOR DRAINS ALONG WEST WALL OF PIPE GALLERY SIMILAR TO DRAIN LINE ON PIPE GALLERY MIDDLE HVAC UNIT.
 - EXISTING 3'-0" BY 5'-0" BY 6" THICK CONCRETE PAD TO BE DEMOLISHED TO ALLOW FOR PLACEMENT OF CONCRETE BALLAST/TOPPING SLAB.
 - COAT CONCRETE TOPPING/BALLAST SLAB WITH CONCRETE SEALER AS SPECIFIED IN 03300.
- GENERAL NOTES**
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK AND SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING CONDITIONS INCLUDING LOCATION AND DIMENSIONS OF ALL EXISTING CONSTRUCTION AND UTILITIES. CONTRACTOR SHALL NOTIFY ENGINEER IF THERE IS A CONFLICT BETWEEN THE CONTACT DOCUMENTS AND EXISTING CONSTRUCTION BEFORE PROCEEDING WITH WORK.
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 - FOR GENERAL STRUCTURAL NOTES SEE DRAWING NO. G07.
 - ELEVATIONS SHOWN CORRESPOND TO PROJECT SPECIFIC DATUM. SEE TOPOGRAPHIC SURVEY SHEETS (DRAWING NO. TS01 TO TS03) AND VERTICAL DATUM ADJUSTMENT ON DRAWING NO. TS01. ANY ELEVATIONS SHOWN ON EXISTING TCB DRAWINGS DO NOT USE DATUM ON TS DRAWINGS AND ARE NOT TO BE USED FOR CONSTRUCTION.
 - FIELD LOCATE EXISTING REINFORCEMENT BEFORE CUTTING OR DRILLING INTO CONCRETE. RELOCATE HOLES TO AVOID CUTTING REINFORCEMENT WHERE POSSIBLE.
 - FRP REINFORCEMENT TO BE BONDED TO STRUCTURE PRIOR TO PLACEMENT OF CONCRETE BALLAST/TOPPING SLAB.

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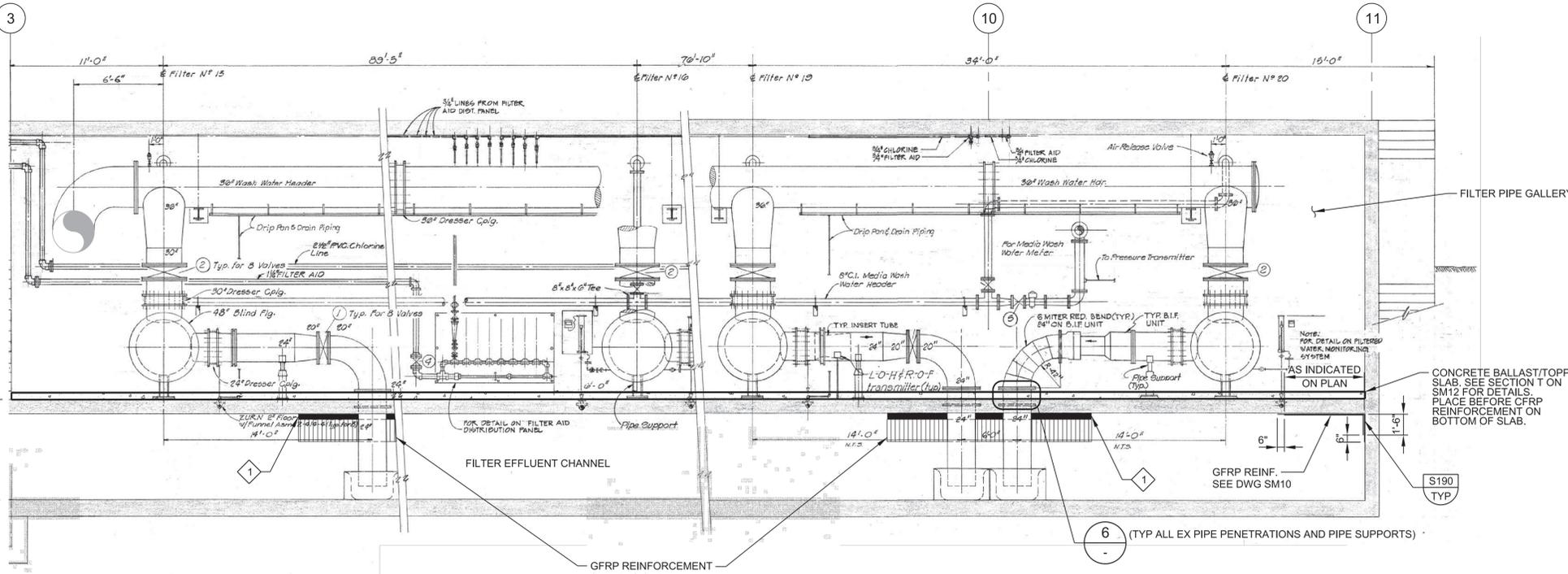
CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

CLEARWELL CONDITION ASSESSMENT AND REPLACEMENT OF SELECT VALVES AND ACTUATORS AT THE EAST WATER PURIFICATION PLANT

STRUCTURAL/MECHANICAL

PIPE GALLERY
 SHEET 1 OF 6

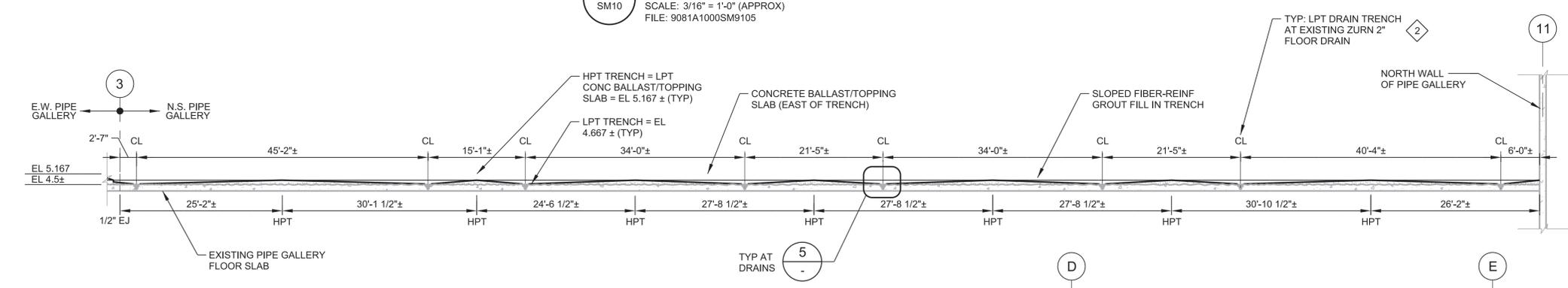
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WBS NUMBER	
S-000056-0070-4	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
DRAWING NO. SM10	
SHEET NO. 39 OF 73	



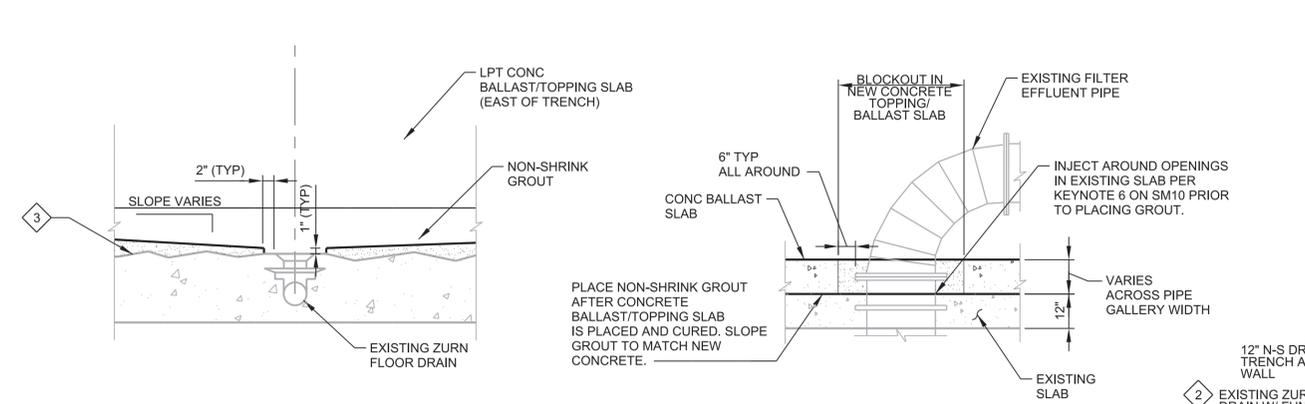
- KEY NOTES**
- SEE SECTION T ON SM12 FOR LAP LENGTH ON WALL SURFACES AND CORNER ANCHORAGE.
 - CONFIRM LOCATION & CONDITION OF EXISTING PIPE GALLERY FLOOR DRAIN. EXISTING FLOOR DRAINS TO BE VIDEO-SCOPED AND CLEANED OUT PRIOR TO PLACEMENT OF CONCRETE BALLAST SLAB. NON-FUNCTIONING/ DAMAGED DRAIN COMPONENTS TO BE REPLACED.
 - PRIOR TO PLACEMENT OF GROUT IN DRAIN TRENCH EXISTING CONCRETE SURFACE TO BE ROUGHENED TO ICRI CSP6 PROFILE AND EPOXY/PORTLAND CEMENT BONDING AGENT APPLIED. SEE SPECIFICATION 03072 FOR INSTALLATION INSTRUCTIONS.
 - BLOCK-OUT CONCRETE BALLAST/TOPPING SLAB AROUND DRAIN ELBOW AND BUTTERFLY VALVE BENEATH 60" DIAMETER FILTER EFFLUENT PIPING. BLOCK-OUT SHOULD BE EXTENDED 3" AROUND SIDES AND BACK OF ELBOW, AND 8" IN FRONT OF BUTTERFLY VALVE. PLACE GROUT BENEATH DRAIN ELBOW TO ACHIEVE DRAINING OF BLOCK-OUT TOWARDS DRAIN TRENCH ALONG WEST WALL OF PIPE GALLERY.

- GENERAL NOTES**
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 - FIELD LOCATE EXISTING REINFORCEMENT BEFORE CUTTING OR DRILLING INTO CONCRETE. RELOCATE HOLES TO AVOID CUTTING REINFORCEMENT WHERE POSSIBLE.

Q SECTION
SM10 SCALE: 3/16" = 1'-0" (APPROX)
FILE: 9081A1000SM9105

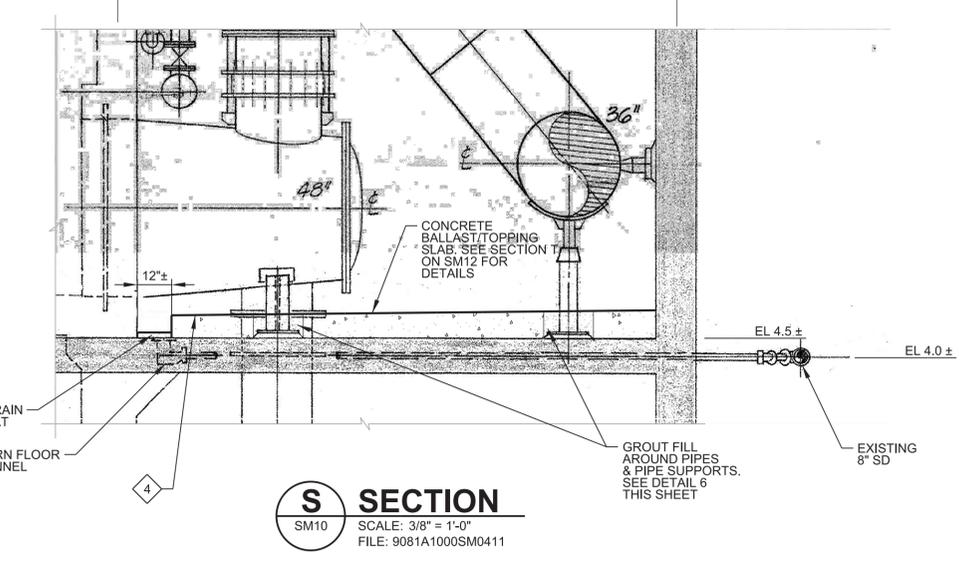


R SECTION
SM10 SCALE: NO SCALE
FILE: 9081A1000SM0411



5 DETAIL
SCALE: 3/4" = 1'-0"
FILE: 9081A1000SM0411

6 DETAIL
SCALE: 3/8" = 1'-0"
FILE: 9081A1000SM0411



S SECTION
SM10 SCALE: 3/8" = 1'-0"
FILE: 9081A1000SM0411

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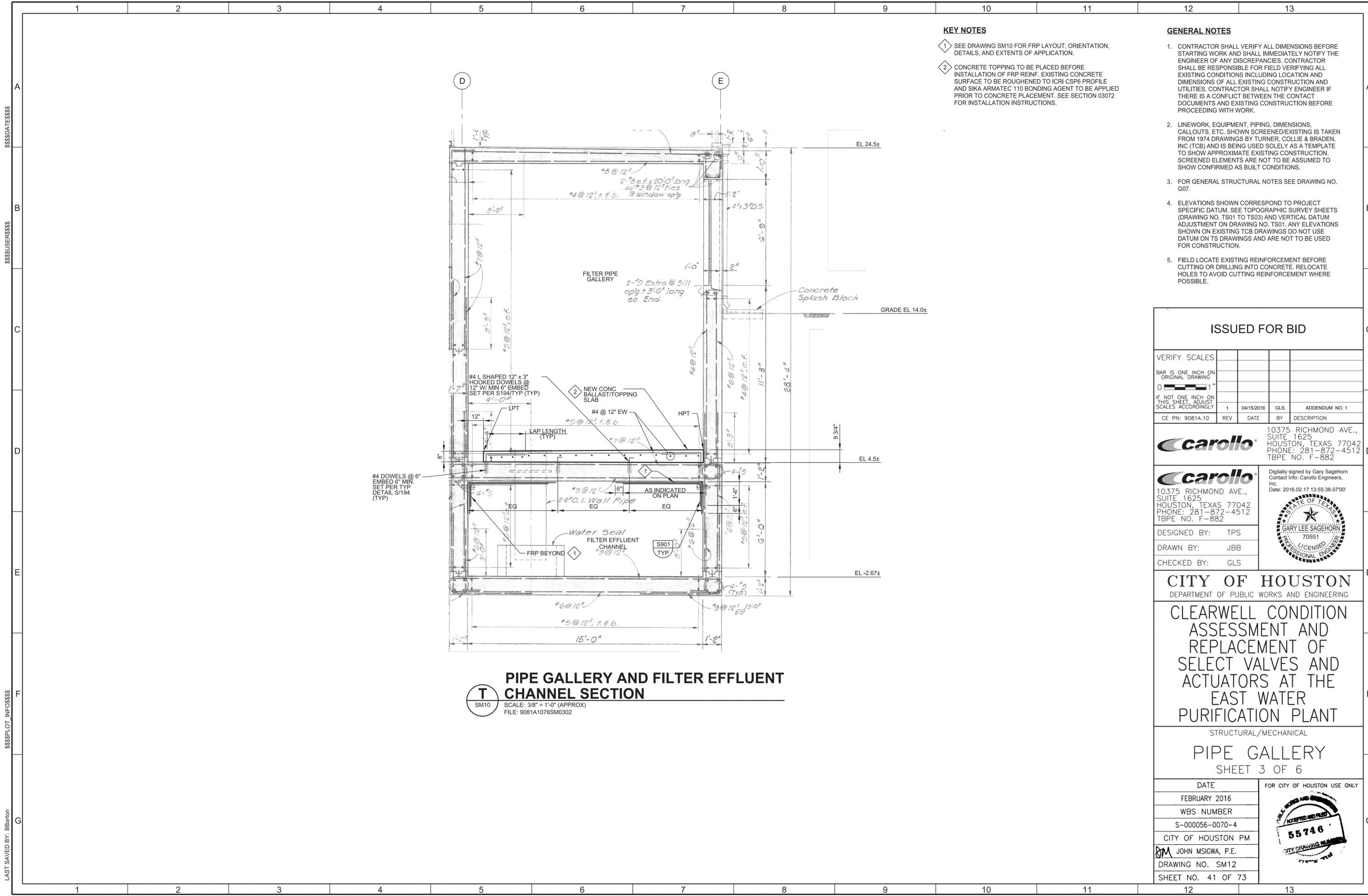
CLEARWELL CONDITION ASSESSMENT AND REPLACEMENT OF SELECT VALVES AND ACTUATORS AT THE EAST WATER PURIFICATION PLANT

STRUCTURAL/MECHANICAL
PIPE GALLERY
SHEET 2 OF 6

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CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
DRAWING NO. SM11	
SHEET NO. 40 OF 73	



PROJECT NO. 9081A.10 FILE NAME: 9081A1000SM011.dgn



KEY NOTES

- 1 SEE DRAWING SM10 FOR FRP LAYOUT, ORIENTATION, DETAILS, AND EXTENTS OF APPLICATION.
- 2 CONCRETE TOPPING TO BE PLACED BEFORE INSTALLATION OF FRP REINF. EXISTING CONCRETE SURFACE TO BE ROUGHENED TO ICRI CSP6 PROFILE AND SIKA ARMATEC 110 BONDING AGENT TO BE APPLIED PRIOR TO CONCRETE PLACEMENT. SEE SECTION 03072 FOR INSTALLATION INSTRUCTIONS.

GENERAL NOTES

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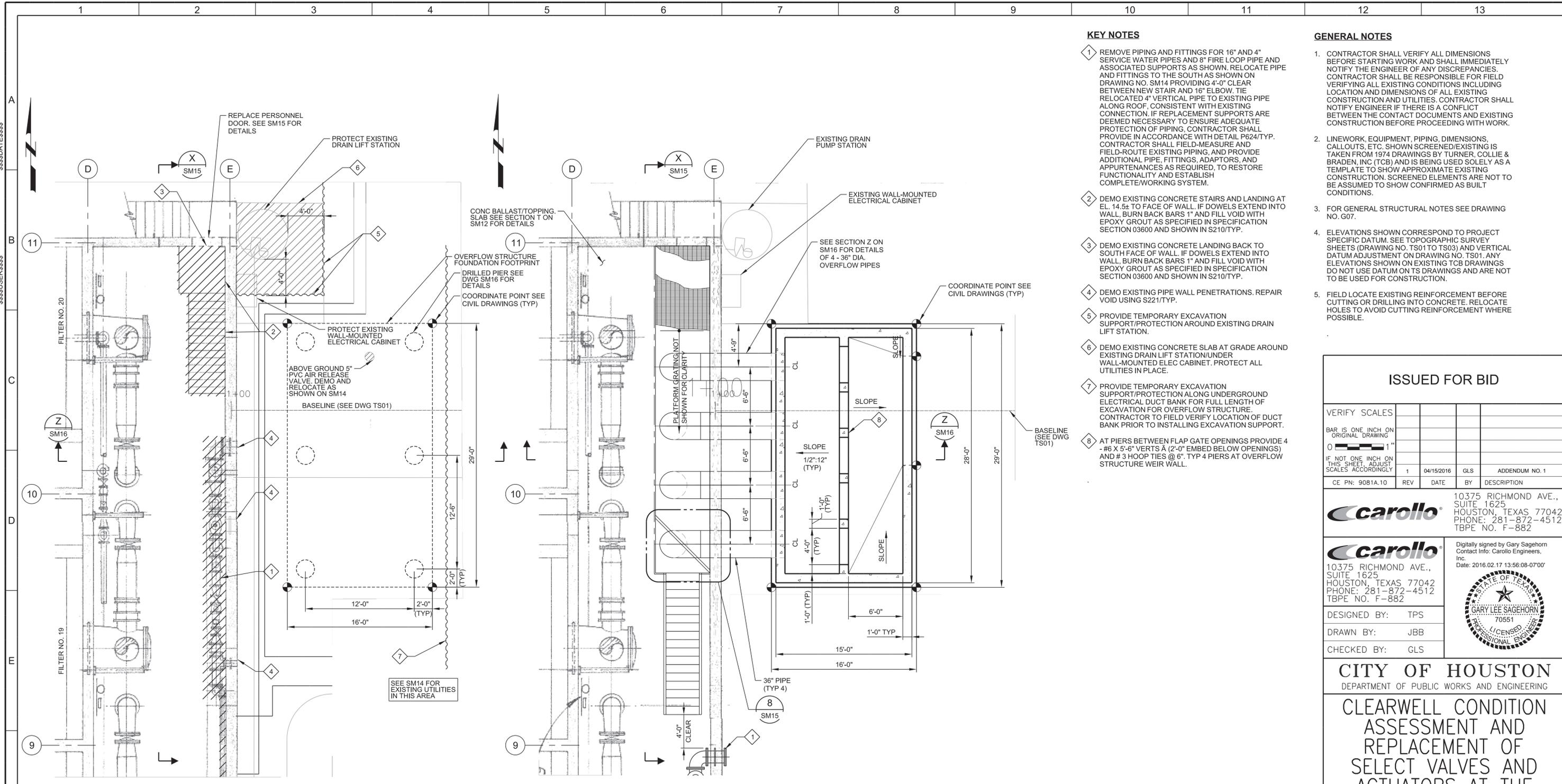
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JOHN MSIGWA, P.E.	
DRAWING NO. SM12	
SHEET NO. 41 OF 73	

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KEY NOTES

- 1 REMOVE PIPING AND FITTINGS FOR 16" AND 4" SERVICE WATER PIPES AND 8" FIRE LOOP PIPE AND ASSOCIATED SUPPORTS AS SHOWN. RELOCATE PIPE AND FITTINGS TO THE SOUTH AS SHOWN ON DRAWING NO. SM14 PROVIDING 4'-0" CLEAR BETWEEN NEW STAIR AND 16" ELBOW. THE RELOCATED 4" VERTICAL PIPE TO EXISTING PIPE ALONG ROOF, CONSISTENT WITH EXISTING CONNECTION. IF REPLACEMENT SUPPORTS ARE DEEMED NECESSARY TO ENSURE ADEQUATE PROTECTION OF PIPING, CONTRACTOR SHALL PROVIDE IN ACCORDANCE WITH DETAIL P624/TYP. CONTRACTOR SHALL FIELD-MEASURE AND FIELD-ROUTE EXISTING PIPING, AND PROVIDE ADDITIONAL PIPE, FITTINGS, ADAPTORS, AND APPURTENANCES AS REQUIRED, TO RESTORE COMPLETE/WORKING SYSTEM.
- 2 DEMO EXISTING CONCRETE STAIRS AND LANDING AT EL. 14.5± TO FACE OF WALL. IF DOWELS EXTEND INTO WALL, BURN BACK BARS 1" AND FILL VOID WITH EPOXY GROUT AS SPECIFIED IN SPECIFICATION SECTION 03600 AND SHOWN IN S210/TYP.
- 3 DEMO EXISTING CONCRETE LANDING BACK TO SOUTH FACE OF WALL. IF DOWELS EXTEND INTO WALL, BURN BACK BARS 1" AND FILL VOID WITH EPOXY GROUT AS SPECIFIED IN SPECIFICATION SECTION 03600 AND SHOWN IN S210/TYP.
- 4 DEMO EXISTING PIPE WALL PENETRATIONS. REPAIR CUTTING OR DRILLING INTO CONCRETE. RELOCATE HOLES TO AVOID CUTTING REINFORCEMENT WHERE POSSIBLE.
- 5 PROVIDE TEMPORARY EXCAVATION SUPPORT/PROTECTION AROUND EXISTING DRAIN LIFT STATION.
- 6 DEMO EXISTING CONCRETE SLAB AT GRADE AROUND EXISTING DRAIN LIFT STATION/UNDER WALL-MOUNTED ELEC CABINET. PROTECT ALL UTILITIES IN PLACE.
- 7 PROVIDE TEMPORARY EXCAVATION SUPPORT/PROTECTION ALONG UNDERGROUND ELECTRICAL DUCT BANK FOR FULL LENGTH OF EXCAVATION FOR OVERFLOW STRUCTURE. CONTRACTOR TO FIELD VERIFY LOCATION OF DUCT BANK PRIOR TO INSTALLING EXCAVATION SUPPORT.
- 8 AT PIERS BETWEEN FLAP GATE OPENINGS PROVIDE 4 -#6 X 5'-6" VERTS A (2'-0" EMBED BELOW OPENINGS) AND #3 HOOP TIES @ 6". TYP 4 PIERS AT OVERFLOW STRUCTURE WEIR WALL.

GENERAL NOTES

1. CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK AND SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING CONDITIONS INCLUDING LOCATION AND DIMENSIONS OF ALL EXISTING CONSTRUCTION AND UTILITIES. CONTRACTOR SHALL NOTIFY ENGINEER IF THERE IS A CONFLICT BETWEEN THE CONTACT DOCUMENTS AND EXISTING CONSTRUCTION BEFORE PROCEEDING WITH WORK.
2. LINENWORK, EQUIPMENT, PIPING, DIMENSIONS, CALLOUTS, ETC. SHOWN SCREENED/EXISTING IS TAKEN FROM 1974 DRAWINGS BY TURNER, COLLIE & BRADEN, INC (T08) AND IS BEING USED SOLELY AS A TEMPLATE TO SHOW APPROXIMATE EXISTING CONSTRUCTION. SCREENED ELEMENTS ARE NOT TO BE ASSUMED TO SHOW CONFIRMED AS BUILT CONDITIONS.
3. FOR GENERAL STRUCTURAL NOTES SEE DRAWING NO. G07.
4. ELEVATIONS SHOWN CORRESPOND TO PROJECT SPECIFIC DATUM. SEE TOPOGRAPHIC SURVEY SHEETS (DRAWING NO. TS01 TO TS03) AND VERTICAL DATUM ADJUSTMENT ON DRAWING NO. TS01. ANY ELEVATIONS SHOWN ON EXISTING TCB DRAWINGS DO NOT USE DATUM ON TS DRAWINGS AND ARE NOT TO BE USED FOR CONSTRUCTION.
5. FIELD LOCATE EXISTING REINFORCEMENT BEFORE CUTTING OR DRILLING INTO CONCRETE. RELOCATE HOLES TO AVOID CUTTING REINFORCEMENT WHERE POSSIBLE.

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VERIFY SCALES				
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Digitally signed by Gary Sagehorn
 Contact Info: Carollo Engineers, Inc.
 Date: 2016.02.17 13:56:08-0700'



DESIGNED BY:	TPS
DRAWN BY:	JBB
CHECKED BY:	GLS

CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

CLEARWELL CONDITION ASSESSMENT AND REPLACEMENT OF SELECT VALVES AND ACTUATORS AT THE EAST WATER PURIFICATION PLANT

STRUCTURAL/MECHANICAL
PIPE GALLERY
 SHEET 4 OF 6

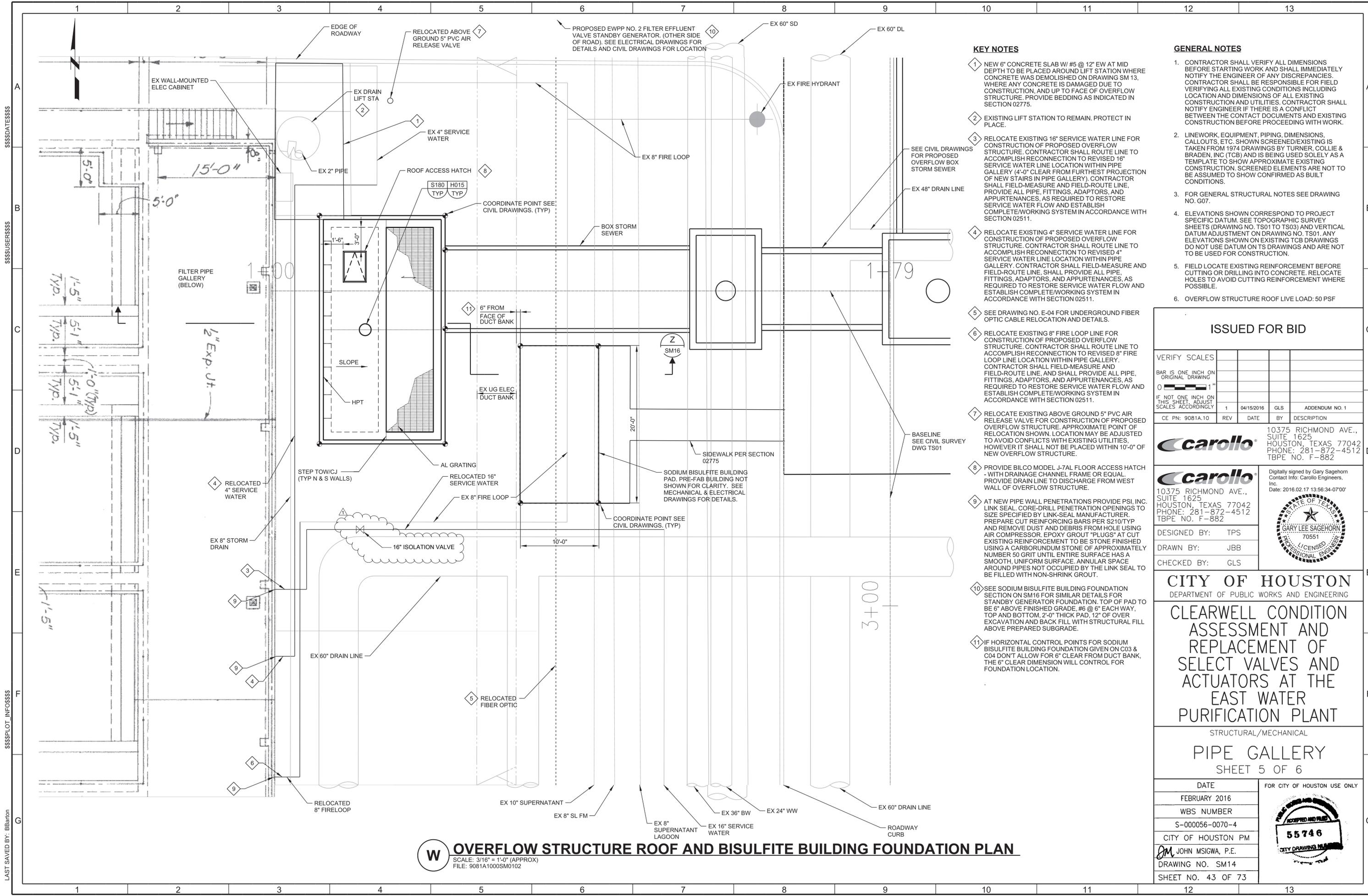
DATE	FEBRUARY 2016	FOR CITY OF HOUSTON USE ONLY
WBS NUMBER	S-000056-0070-4	
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.	
DRAWING NO.	SM13	
SHEET NO.	42 OF 73	



OVERFLOW STRUCTURE FOUNDATION & PIPE GALLERY DEMO PLAN
 SCALE: 3/16" = 1'-0" (APPROX)
 FILE: 9081A1000SM9105E

PIPE GALLERY ACCESS PLATFORM AND OVERFLOW STRUCTURE PLAN
 SCALE: 3/16" = 1'-0" (APPROX)
 FILE: 9081A1000SM0101

LAST SAVED BY: BBaron



KEY NOTES

- 1 NEW 6" CONCRETE SLAB W/ #6 @ 12" EW AT MID DEPTH TO BE PLACED AROUND LIFT STATION WHERE CONCRETE WAS DEMOLISHED ON DRAWING SM 13, WHERE ANY CONCRETE IS DAMAGED DUE TO CONSTRUCTION, AND UP TO FACE OF OVERFLOW STRUCTURE, PROVIDE BEDDING AS INDICATED IN SECTION 02775.
- 2 EXISTING LIFT STATION TO REMAIN. PROTECT IN PLACE.
- 3 RELOCATE EXISTING 16" SERVICE WATER LINE FOR CONSTRUCTION OF PROPOSED OVERFLOW STRUCTURE. CONTRACTOR SHALL ROUTE LINE TO ACCOMPLISH RECONNECTION TO REVISED 16" SERVICE WATER LINE LOCATION WITHIN PIPE GALLERY (4'-0" CLEAR FROM FURTHEST PROJECTION OF NEW STAIRS IN PIPE GALLERY). CONTRACTOR SHALL FIELD-MEASURE AND FIELD-ROUTE LINE, PROVIDE ALL PIPE, FITTINGS, ADAPTORS, AND APPURTENANCES, AS REQUIRED TO RESTORE SERVICE WATER FLOW AND ESTABLISH COMPLETE/WORKING SYSTEM IN ACCORDANCE WITH SECTION 02511.
- 4 RELOCATE EXISTING 4" SERVICE WATER LINE FOR CONSTRUCTION OF PROPOSED OVERFLOW STRUCTURE. CONTRACTOR SHALL ROUTE LINE TO ACCOMPLISH RECONNECTION TO REVISED 4" SERVICE WATER LINE LOCATION WITHIN PIPE GALLERY. CONTRACTOR SHALL FIELD-MEASURE AND FIELD-ROUTE LINE, SHALL PROVIDE ALL PIPE, FITTINGS, ADAPTORS, AND APPURTENANCES, AS REQUIRED TO RESTORE SERVICE WATER FLOW AND ESTABLISH COMPLETE/WORKING SYSTEM IN ACCORDANCE WITH SECTION 02511.
- 5 SEE DRAWING NO. E-04 FOR UNDERGROUND FIBER OPTIC CABLE RELOCATION AND DETAILS.
- 6 RELOCATE EXISTING 8" FIRE LOOP LINE FOR CONSTRUCTION OF PROPOSED OVERFLOW STRUCTURE. CONTRACTOR SHALL ROUTE LINE TO ACCOMPLISH RECONNECTION TO REVISED 8" FIRE LOOP LINE LOCATION WITHIN PIPE GALLERY. CONTRACTOR SHALL FIELD-MEASURE AND FIELD-ROUTE LINE, AND SHALL PROVIDE ALL PIPE, FITTINGS, ADAPTORS, AND APPURTENANCES, AS REQUIRED TO RESTORE SERVICE WATER FLOW AND ESTABLISH COMPLETE/WORKING SYSTEM IN ACCORDANCE WITH SECTION 02511.
- 7 RELOCATE EXISTING ABOVE GROUND 5" PVC AIR RELEASE VALVE FOR CONSTRUCTION OF PROPOSED OVERFLOW STRUCTURE. APPROXIMATE POINT OF RELOCATION SHOWN. LOCATION MAY BE ADJUSTED TO AVOID CONFLICTS WITH EXISTING UTILITIES, HOWEVER IT SHALL NOT BE PLACED WITHIN 10'-0" OF NEW OVERFLOW STRUCTURE.
- 8 PROVIDE BILCO MODEL J-7AL FLOOR ACCESS HATCH - WITH DRAINAGE CHANNEL FRAME OR EQUAL. PROVIDE DRAIN LINE TO DISCHARGE FROM WEST WALL OF OVERFLOW STRUCTURE.
- 9 AT NEW PIPE WALL PENETRATIONS PROVIDE PSI, INC. LINK SEAL. CORE-DRILL PENETRATION OPENINGS TO SIZE SPECIFIED BY LINK-SEAL MANUFACTURER. PREPARE CUT REINFORCING BARS PER S210/TYP AND REMOVE DUST AND DEBRIS FROM HOLE USING AIR COMPRESSOR. EPOXY GROUT "PLUGS" AT CUT EXISTING REINFORCEMENT TO BE STONE FINISHED USING A CARBORUNDUM STONE OF APPROXIMATELY NUMBER 50 GRIT UNTIL ENTIRE SURFACE HAS A SMOOTH, UNIFORM SURFACE. ANNULAR SPACE AROUND PIPES NOT OCCUPIED BY THE LINK SEAL TO BE FILLED WITH NON-SHRINK GROUT.
- 10 SEE SODIUM BISULFITE BUILDING FOUNDATION SECTION ON SM16 FOR SIMILAR DETAILS FOR STANDBY GENERATOR FOUNDATION. TOP OF PAD TO BE 6" ABOVE FINISHED GRADE. #6 @ 6" EACH WAY, TOP AND BOTTOM, 2'-0" THICK PAD, 12" OF OVER EXCAVATION AND BACK FILL WITH STRUCTURAL FILL ABOVE PREPARED SUBGRADE.
- 11 IF HORIZONTAL CONTROL POINTS FOR SODIUM BISULFITE BUILDING FOUNDATION GIVEN ON C03 & C04 DON'T ALLOW FOR 6" CLEAR FROM DUCT BANK, THE 6" CLEAR DIMENSION WILL CONTROL FOR FOUNDATION LOCATION.

GENERAL NOTES

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2. LINEWORK, EQUIPMENT, PIPING, DIMENSIONS, CALLOUTS, ETC. SHOWN SCREENED/EXISTING IS TAKEN FROM 1974 DRAWINGS BY TURNER, COLLIE & BRADEN, INC (TCB) AND IS BEING USED SOLELY AS A TEMPLATE TO SHOW APPROXIMATE EXISTING CONSTRUCTION. SCREENED ELEMENTS ARE NOT TO BE ASSUMED TO SHOW CONFIRMED AS BUILT CONDITIONS.
3. FOR GENERAL STRUCTURAL NOTES SEE DRAWING NO. G07.
4. ELEVATIONS SHOWN CORRESPOND TO PROJECT SPECIFIC DATUM. SEE TOPOGRAPHIC SURVEY SHEETS (DRAWING NO. TS01 TO TS03) AND VERTICAL DATUM ADJUSTMENT ON EXISTING TCB DRAWINGS DO NOT USE DATUM ON THIS DRAWING AND ARE NOT TO BE USED FOR CONSTRUCTION.
5. FIELD LOCATE EXISTING REINFORCEMENT BEFORE CUTTING OR DRILLING INTO CONCRETE. RELOCATE HOLES TO AVOID CUTTING REINFORCEMENT WHERE POSSIBLE.
6. OVERFLOW STRUCTURE ROOF LIVE LOAD: 50 PSF

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 CHECKED BY: GLS

CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

CLEARWELL CONDITION ASSESSMENT AND REPLACEMENT OF SELECT VALVES AND ACTUATORS AT THE EAST WATER PURIFICATION PLANT

STRUCTURAL/MECHANICAL
PIPE GALLERY
 SHEET 5 OF 6

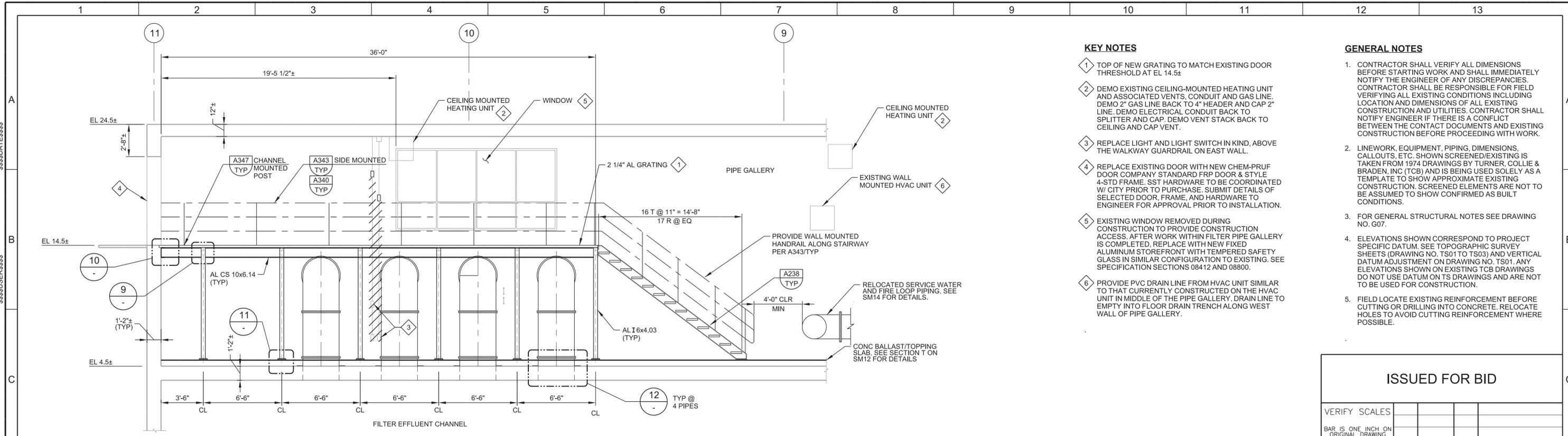
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CITY OF HOUSTON PM	DM JOHN MSIGWA, P.E.	
DRAWING NO.	SM14	
SHEET NO.	43 OF 73	



OVERFLOW STRUCTURE ROOF AND BISULFITE BUILDING FOUNDATION PLAN

SCALE: 3/16" = 1'-0" (APPROX)
 FILE: 9081A1000SM0102

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X SECTION
SM13 SCALE: 1/4" = 1'-0"
FILE: 9081A1000SM0305

KEY NOTES

- 1 TOP OF NEW GRATING TO MATCH EXISTING DOOR THRESHOLD AT EL 14.5±
- 2 DEMO EXISTING CEILING-MOUNTED HEATING UNIT AND ASSOCIATED VENTS, CONDUIT AND GAS LINE. DEMO 2" GAS LINE BACK TO 4" HEADER AND CAP 2" LINE. DEMO ELECTRICAL CONDUIT BACK TO SPLITTER AND CAP. DEMO VENT STACK BACK TO CEILING AND CAP VENT.
- 3 REPLACE LIGHT AND LIGHT SWITCH IN KIND, ABOVE THE WALKWAY GUARDRAIL ON EAST WALL.
- 4 REPLACE EXISTING DOOR WITH NEW CHEM-PRUF DOOR COMPANY STANDARD FRP DOOR & STYLE 4-STD FRAME. SST HARDWARE TO BE COORDINATED W/ CITY PRIOR TO PURCHASE. SUBMIT DETAILS OF SELECTED DOOR, FRAME, AND HARDWARE TO ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.
- 5 EXISTING WINDOW REMOVED DURING CONSTRUCTION TO PROVIDE CONSTRUCTION ACCESS. AFTER WORK WITHIN FILTER PIPE GALLERY IS COMPLETED, REPLACE WITH NEW FIXED ALUMINUM STOREFRONT WITH TEMPERED SAFETY GLASS IN SIMILAR CONFIGURATION TO EXISTING. SEE SPECIFICATION SECTIONS 08412 AND 08800.
- 6 PROVIDE PVC DRAIN LINE FROM HVAC UNIT SIMILAR TO THAT CURRENTLY CONSTRUCTED ON THE HVAC UNIT IN MIDDLE OF THE PIPE GALLERY. DRAIN LINE TO EMPTY INTO FLOOR DRAIN TRENCH ALONG WEST WALL OF PIPE GALLERY.

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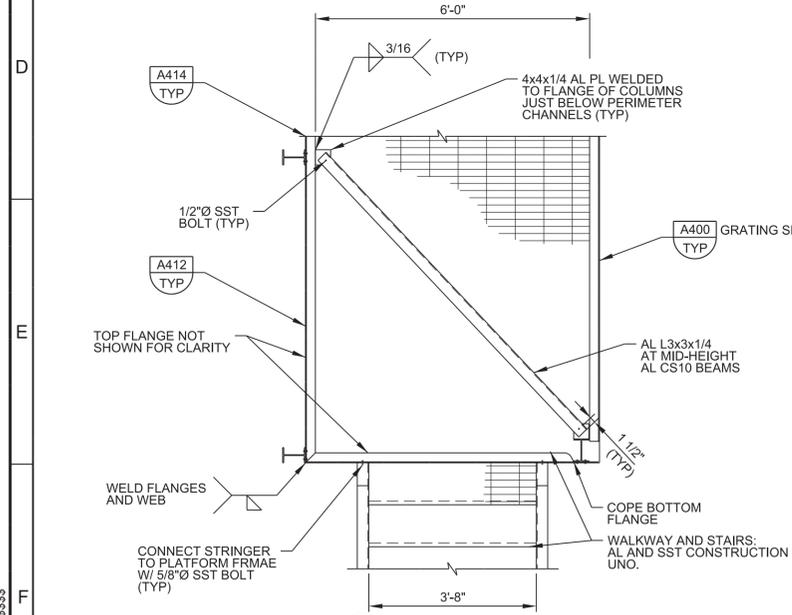
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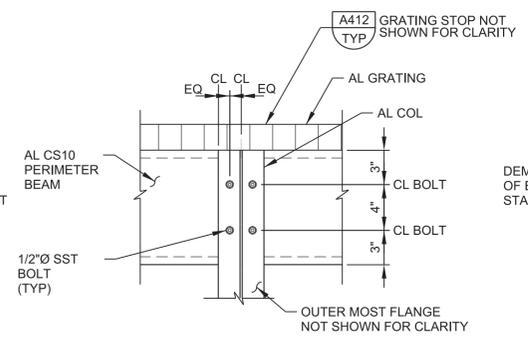
CLEARWELL CONDITION ASSESSMENT AND REPLACEMENT OF SELECT VALVES AND ACTUATORS AT THE EAST WATER PURIFICATION PLANT

STRUCTURAL/MECHANICAL
PIPE GALLERY
SHEET 6 OF 6

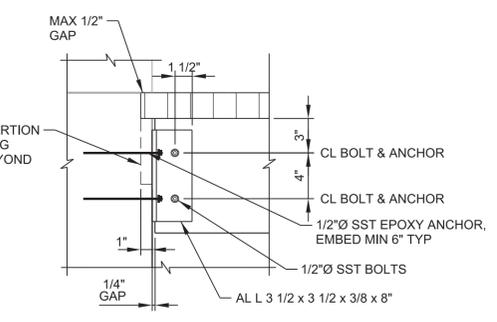
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JOHN MSIGWA, P.E.	
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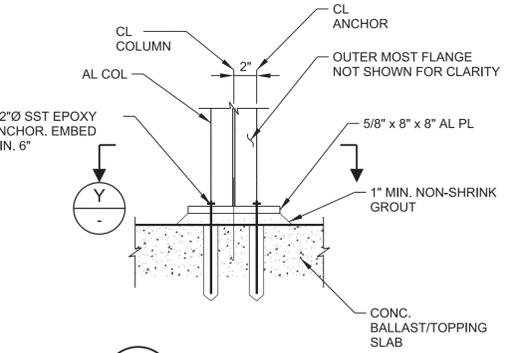
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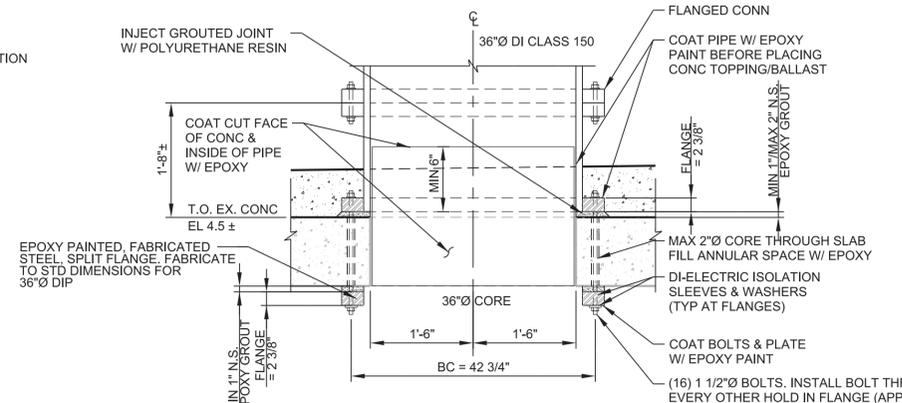
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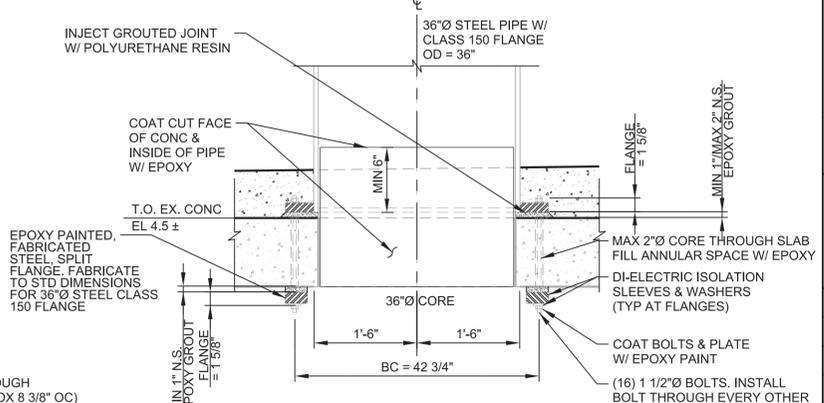
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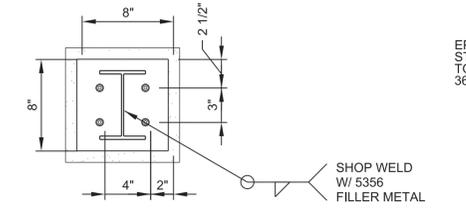
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FILE: 9081A1000SM0305



12 DETAIL
SCALE: 3/4" = 1'-0"
FILE: 9081A1000SM0305



12A DETAIL
SCALE: 3/4" = 1'-0"
FILE: 9081A1000SM0305



Y SECTION
SCALE: 1 1/2" = 1'-0"
FILE: 9081A1000SM0305

KEY NOTES

- 1 WATER SURFACE ELEVATION AT OVERFLOW CONDITION. SEE DWG G06.
- 2 APPROXIMATE 12'-0" X 5'-9" BLOCK-OUT FOR PRECAST BOX CULVERT. COORDINATE OPENING DIMENSIONS & ELEVATION WITH SELECTED PRECAST BOX CULVERT FLOOR THICKNESS TO ACHIEVE INVERT AT EL 11.7. PROVIDE PREFORMED COLD-APPLIED FLEXIBLE JOINT SEALANT IN ACCORDANCE WITH ASTM C990 AND AASHTO M 198 MANUFACTURED BY HENRY CORP. OR APPROVED EQUAL WITHIN ANNULAR VOID BETWEEN OVERFLOW STRUCTURE AND PRECAST BOX SEWER. SEE CIVIL DRAWINGS FOR BOX CULVERT DETAILS.
- 3 SLOPE CONCRETE FILL SO LOW POINT MATCHES INVERT OF BOX CULVERT. MIN 8" THICKNESS. #5 @ 12" EW MID-DEPTH. PROVIDE LOW-EXPANSION HYDROPHILIC WATERSTOP CONTINUOUS AROUND PERIMETER AT MID DEPTH.
- 4 4' X 2' FLAP GATES PER SPECIFICATION 11292A.
- 5 SET OVERFLOW PIPES AND STRUCTURE ELEVATIONS BASED ON REFERENCE ELEVATIONS INDICATED (DOOR THRESHOLD).
- 6 PERIMETER WALL REINFORCEMENT: #5@12" EW EF.
- 7 WEIR WALL REINFORCEMENT: #5@12" VERT EF W/ MATCHING DOWELS. #5@12" HORZ EF W/ MATCHING CORNER BARS AS INDICATED IN S144/TYP.

KEY NOTES CONT.

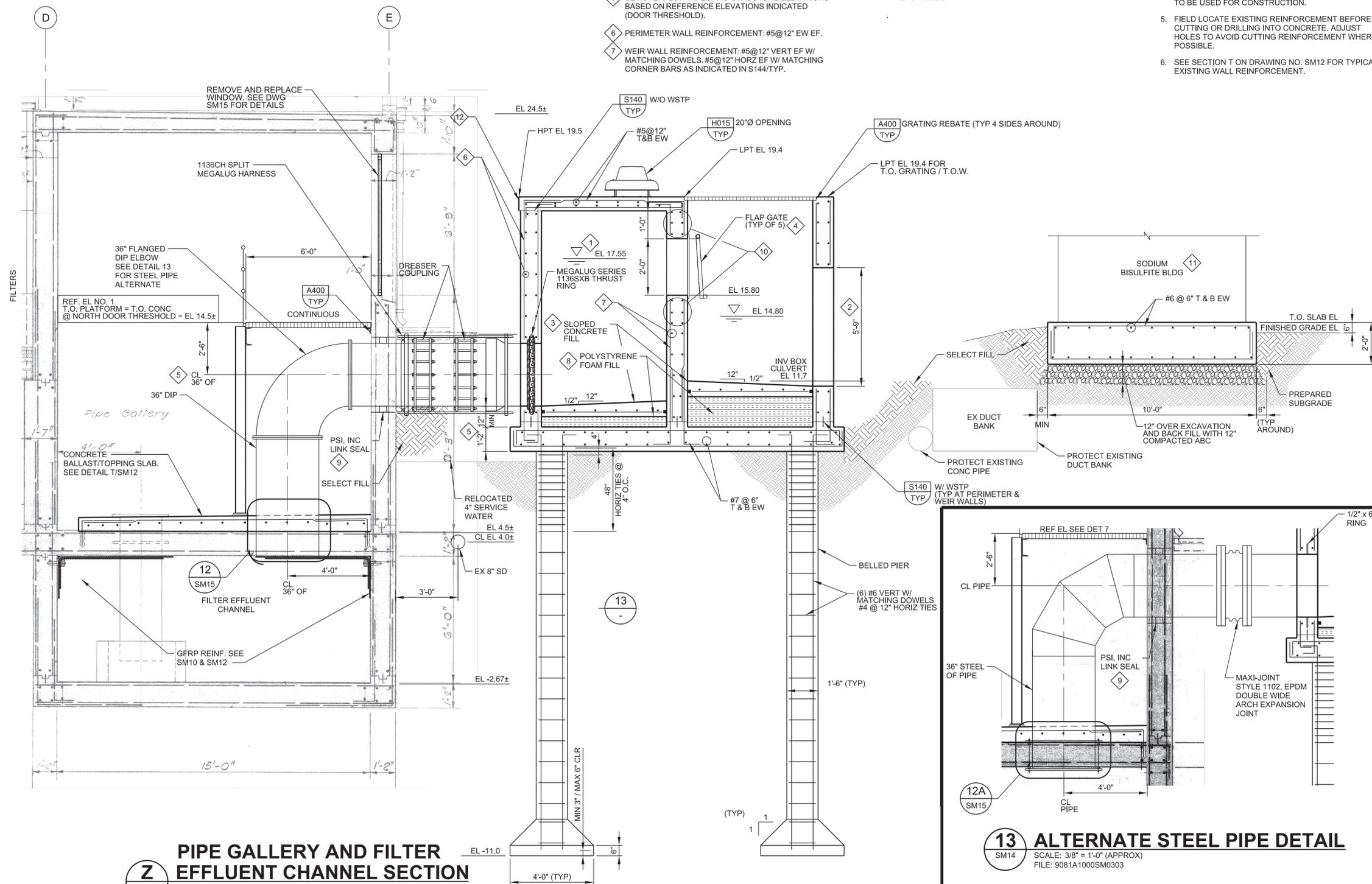
- 8 POLYSTYRENE CONCRETE VOID FILLER AS SPECIFIED IN 03150.
- 9 CORE-DRILL OPENING TO SIZE SPECIFIED BY LINK-SEAL MANUFACTURER. PREPARE CUT REINFORCING BARS PER S210/TYP AND REMOVE DUST AND DEBRIS FROM HOLE USING AIR COMPRESSOR. EPOXY GROUT "PLUGS" AT CUT EXISTING REINFORCEMENT TO BE STONE FINISHED USING A CARBORUNDUM STONE OF APPROXIMATELY NUMBER 50 GRIT UNTIL ENTIRE SURFACE HAS A SMOOTH UNIFORM SURFACE. ANNULAR SPACE AROUND PIPES NOT OCCUPIED BY THE LINK SEAL TO BE FILLED WITH NON-SHRINK GROUT.
- 10 3 - #5 @ 6" EF CONTINUOUS ABOVE AND BELOW OPENINGS.
- 11 SEE SPECIFICATION 13120. COORDINATE SLAB WITH DETAILS REQUIRED FOR INSTALLATION & ATTACHMENT OF PRECAST CONCRETE BUILDING.
- 12 1" ROOF SLAB OVERHANG AT NORTH, WEST AND EAST SIDES.

GENERAL NOTES

- 1. CONTRACTOR TO FIELD VERIFY EXISTING DIMENSIONS AND ELEVATIONS FOR ALL CONSTRUCTION AND UTILITIES PRIOR TO INITIATING WORK, AND SHALL NOTIFY OWNER AND ENGINEER OF ANY DISCREPANCIES BETWEEN ACTUAL FIELD CONDITIONS AND THOSE SHOWN HEREIN.
- 2. ANY LINework, EQUIPMENT, PIPING, DIMENSIONS, CALLOUTS, ETC SCREENED AS EXISTING WAS ORIGINALLY PRODUCED BY TURNER, COLLIE & BRADEN, INC AND IS BEING USED SOLELY AS A TEMPLATE TO SHOW APPROXIMATE CONSTRUCTION. SCREENED ELEMENTS ARE NOT TO BE ASSUMED TO SHOW AS BUILT CONDITIONS.
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- 5. FIELD LOCATE EXISTING REINFORCEMENT BEFORE CUTTING OR DRILLING INTO CONCRETE. ADJUST HOLES TO AVOID CUTTING REINFORCEMENT WHERE POSSIBLE.
- 6. SEE SECTION T ON DRAWING NO. SM12 FOR TYPICAL EXISTING WALL REINFORCEMENT.

GENERAL NOTES CONT.

- 7. ALLOWABLE FOUNDATION BEARING PRESSURE:
 - a. OVERFLOW STRUCTURE: DRILLED AND UNDER REAMED PIERS = 4,800 PSF FOR TOTAL DEAD AND LIVE LOADS, 3,200 PSF FOR DEAD PLUS SUSTAINED LOADS.
 - b. SODIUM BISULFITE BLDG PAD: MAT FOUNDATION = 2,500 PSF FOR TOTAL DEAD AND LIVE LOADS, 1,670 PSF FOR DEAD AND SUSTAINED LOADS.
- 8. RELOCATED UNDERGROUND FIBER OPTIC CABLE NOT SHOWN ON THIS SHEET. SEE E-04 FOR DETAILS.



PIPE GALLERY AND FILTER EFFLUENT CHANNEL SECTION
 SCALE: 3/8" = 1'-0" (APPROX)
 FILE: 9081A1000SM0303

13 ALTERNATE STEEL PIPE DETAIL
 SCALE: 3/8" = 1'-0" (APPROX)
 FILE: 9081A1000SM0303

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Digitally signed by Gary Sagehorn
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DESIGNED BY: TPS
 DRAWN BY: JBB
 CHECKED BY: GLS

CITY OF HOUSTON
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CLEARWELL CONDITION ASSESSMENT AND REPLACEMENT OF SELECT VALVES AND ACTUATORS AT THE EAST WATER PURIFICATION PLANT

STRUCTURAL/MECHANICAL
OVERFLOW STRUCTURE
 SHEET 1 OF 1

DATE	FOR CITY OF HOUSTON USE ONLY
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S-000056-0070-4	
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JOHN MSGWA, P.E.	
DRAWING NO. SM16	
SHEET NO. 45 OF 73	

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