

Document 00910

ADDENDUM NO. 1

Date of Addendum: October 13, 2015

PROJECT NAME: Rehabilitation of Distribution Pumps, Motors, Valves, Piping and  
Pump Station Buildings at Various Facilities - Package B

PROJECT NO: WBS No. S-001000-0046-4

BID DATE: October 22, 2015

FROM: J. Timothy Lincoln, P.E., City Engineer  
City of Houston, Department of Public Works and Engineering  
611 Walker Street, 15<sup>th</sup> Floor  
Houston, Texas 77002  
Attn: Tina (Na) Yao, 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 October 15, 2015 to October 22, 2015.  
Date Date

[Time 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.*

CHANGES TO PROJECT MANUAL

INTRODUCTORY INFORMATION

1. Document 00010 – Table of Contents. Replace Table of Contents in its entirety.

## BIDDING REQUIREMENTS

2. Document 00410 – Bid Form. Replace Bid Form Part B in its entirety.

## SPECIFICATIONS

3. Section 13120 – Precast Segmental Concrete Building. Replace entire section.
4. Section 15640 – Joint Bonding and Electrical Isolation. Delete entire section.
5. Section 15641 – Corrosion Control Test Stations. Delete entire section.

## CHANGES TO DRAWINGS

6. Delete Sheet 11 (STD-M-2), Miscellaneous Mechanical Details Sheet 2 of 3, and replace with revised Sheet 11 (STD-M-2).
7. Delete all notes on Sheet 19 (111 #2-M-1), Booster Pumps and Piping Demolition Plan.
8. Delete Sheet 20 (111#2-M-2), Booster Pumps and Piping Proposed Plan, and replace with revised Sheet 20 (111#2-M-2).
9. Delete Sheet 45 (WH#3-M-2), Booster Pumps and Piping Proposed Plan, and replace with revised Sheet 45 (WH#3-M-2).
10. Delete Sheet 50 (WH#3-S-3), Foundation for Proposed Booster Pump Area, and replace with revised Sheet 50 (WH#3-S-3).
11. Delete Sheet 57 (WH#3-E-2), Modified One Line Diagram, and replace with revised Sheet 57 (WH#3-E-2).
12. Delete Sheet 61 (WH#3-E-6), Proposed Pump Building Lighting & Power Plan, and replace with revised Sheet 61 (WH#3-E-6).
13. Delete Sheet 78 (PTC-M-2), Booster Pumps and Piping Proposed Plan, and replace with revised Sheet 78 (PTC-M-2).
14. Delete Sheet 79 (PTC-M-3), Booster Pumps and Piping Proposed Sections, and replace with revised Sheet 79 (PTC-M-3).
15. Delete Sheet 107 (SH#1-C-2), Proposed Site Plan, and replace with revised Sheet 107 (SH#1-C-2).
16. Delete Sheet 112 (SH#1-M-1), Booster Pumps and Piping Demolition Plan, and replace with revised Sheet 112 (SH#1-M-1).
17. Delete Sheet 117 (SH#1-H-1), Building HVAC Plan, and replace with revised Sheet 117 (SH#1-H-1).
18. Delete Sheet 121 (SH#1-E-4), Proposed One Line Diagram Sheet 3 of 3, and replace with revised Sheet 121 (SH#1-E-4).
19. Delete Sheet 124 (SH#1-E-7), Building Equipment Plan, and replace with revised Sheet 124 (SH#1-E-7).
20. Delete Sheet 126 (SH#1-E-9), Building Power Plan, and replace with revised Sheet 126 (SH#1-E-9).

21. Delete Sheet 133 (SH#1-E-16), Panelboard Schedules and Light Fixtures Schedule, and replace with revised Sheet 133 (SH#1-E-16).

#### CLARIFICATIONS

22. Manufacturers named in Specifications are designated to establish a level of acceptable product quality or manufacturing experience and are not to be construed as the only manufacturers of products acceptable for use. Other manufacturers will be considered on an individual basis. Consideration of alternates to listed/named equipment or products will be given in accordance with Document 00700 – General Conditions, Article 3.10, Product Options and Substitutions, and Section 01630 – Product Substitution Procedures.
23. Document 00821 – Wage Scale for Building Construction. The Building Wage Scale will apply to proposed pump, chemical, and electrical buildings.
24. Existing Drawings for District 111#2, Harris County Water Control & Improvement District No.111 dated March 1975 by Shaner, Hicks & Cherry Consulting Engineers, have been provided for District 111#2. These drawings do not guarantee as-built conditions and should be used only for information purposes.
25. The following existing drawings have been provided for West Houston #3. Water Plant No.3 dated June, 1982 by Lockwood, Andrews & Newman, Inc. Flow Meters at Various Facilities dated December, 2005 by PTI Incorporated. Proposed Construction of One and Rehabilitation of Seven Ground Storage Tanks at Eight Pumping Stations, dated November 1996 by Pate Engineers. These drawings do not guarantee as-built conditions and should be used only for information purposes.
26. Backfill material under the pump building slab for the West Houston #3 site is select backfill material per COH Specification Section 02316. Extent of backfill material is indicated in addendum sheet WH#3-S-3, Foundation for Proposed Booster Pump Area.
27. Only the piping at the West Houston #3 site will be insulated as described in part 4 of Section 15260 and as shown on Sheet WH#3-P-3, Risers and Details.

END OF ADDENDUM NO. 1

*Ravi Kaleyatodi*

DATED: 10/13/15

*74*  
*from*  
Ravi Kaleyatodi, P.E., CPM  
Senior Assistant Director  
Engineering Branch  
Engineering and Construction Division

END OF DOCUMENT



*Alex Kuzovkov*  
10/13/15

Document 00010

**TABLE OF CONTENTS**

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

<b><u>Doc.</u></b>	<b><u>Document Title</u></b>	<b><u>Doc. Date</u></b>
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**INTRODUCTORY INFORMATION**

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00450	Bidder's Statement of MWBE/PDBE/DBE/SBE Status .....	07-01-2013
00452	Contractor Submission List - Fair Campaign Ordinance.....	04-30-2004
00453	Bidder's Statement of Residency .....	02-01-2004
00454	Affidavit of Non-interest.....	02-01-2004

00455	Affidavit of Ownership or Control .....	09-04-2007
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00460	(POP-1) Pay or Play Acknowledgement Form.....	07-03-2012
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END OF DOCUMENT

Document 00410B

BID FORM – PART B

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

**A. STIPULATED PRICE:**

**\$ N/A**

(Total Bid Price; minus Base Unit Prices, Extra Unit Prices, Cash Allowances and All Alternates, if any)

**B. BASE UNIT PRICE TABLE:**

Item No.	Spec. Ref	Base Unit Description	Units	Est. Quantity	Unit Price	Total in Figures
<b>District 111 #2</b>						
1	01502	Mobilization	LS	1	\$29,800 <sup>(1)</sup>	\$29,800 <sup>(1)</sup>
2	01270S	Storm Water Pollution Prevention Control Measures	LS	1		
3	01270S	Civil and site work including demolition, site grading and restoration	LS	1		
4	01270S	Concrete Work	LS	1		
5	11210	Vertical Turbine Pump and Motor Assembly – 500 gpm, 30 hp	EA	2		
6	11210	Vertical Turbine Pump and Motor Assembly – 700 gpm, 40 hp	EA	1		
7	01270S	Modifications to pump suction and discharge piping, including pipe, fittings, valves accessories, pipe supports, disinfection and testing	LS	1		
8	01270S	Electrical, Instrumentation and Control modifications	LS	1		
<b>Total District 111 #2</b>					<b>\$ _____</b>	

Item No.	Spec. Ref	Base Unit Description	Units	Est. Quantity	Unit Price	Total in Figures
<b>Park Ten Central</b>						
9	01502	Mobilization	LS	1	\$84,400 <sup>(1)</sup>	\$84,400 <sup>(1)</sup>
10	01270S	Storm Water Pollution Prevention Control Measures	LS	1		
11	01270S	Civil and site work including demolition, storm sewer, site grading and restoration	LS	1		
12	01270S	Concrete Work	LS	1		
13	11133	Horizontal Split Case Pump and Motor Assembly – 500 gpm, 40 hp	EA	1		
14	11133	Horizontal Split Case Pump and Motor Assembly – 1,250 gpm, 100 hp	EA	2		
15	01270S	Modifications to pump suction and discharge piping, including pipe, fittings, valves accessories, pipe supports, disinfection and testing	LS	1		
16	13120	Precast Concrete Building	LS	1		
17	01270S	Electrical, Instrumentation and Control modifications	LS	1		
18	01270S	HMI Node License	LS	1	\$8,800 <sup>(2)</sup>	
<b>Total Park Ten Central</b>					<b>\$ _____</b>	
<b>Sharpstown #1</b>						
19	01502	Mobilization	LS	1	\$119,970 <sup>(1)</sup>	\$119,970 <sup>(1)</sup>
20	01270S	Storm Water Pollution Prevention Control Measures	LS	1		
21	01270S	Civil and site work including demolition, storm sewer, tree removal, site grading	LS	1		

Item No.	Spec. Ref	Base Unit Description	Units	Est. Quantity	Unit Price	Total in Figures
		and restoration				
22	01270S	Concrete Work	LS	1		
23	11133	Horizontal Split Case Pump and Motor Assembly – 500 gpm, 40 hp	EA	1		
24	11133	Horizontal Split Case Pump and Motor Assembly – 2,500 gpm, 150 hp	EA	2		
25	01270S	Modifications to pump suction and discharge piping, including pipe, fittings, valves accessories, pipe supports, disinfection and testing	LS	1		
26	11260	Chlorination System	LS	1		
27	13120	Precast Concrete Building	LS	1		
28	14622	Electric Crane, Hoist and Motorized Trolley	EA	1		
29	01270S	Electrical, Instrumentation and Control modifications	LS	1		
<b>Total Sharpstown #1</b>					<b>\$ _____</b>	
<b>West Houston #3</b>						
30	01502	Mobilization	LS	1	\$58,600 <sup>(1)</sup>	\$58,600 <sup>(1)</sup>
31	01270S	Storm Water Pollution Prevention Control Measures	LS	1		
32	01270S	Civil and site work including demolition, storm sewer, site grading and restoration	LS	1		
33	01270S	Concrete Work	LS	1		
34	11210	Vertical Turbine Pump and Motor Assembly – 950 gpm, 50 hp	EA	3		

Item No.	Spec. Ref	Base Unit Description	Units	Est. Quantity	Unit Price	Total in Figures
35	01270S	Modifications to pump suction and discharge piping, including pipe, fittings, valves accessories, pipe supports, disinfection and testing	LS	1		
36	01270S	LAS Feed System, including polyethylene storage tank, piping, fittings and accessories	LS	1		
37	13120	Precast Concrete Building	LS	1		
38	01270S	Restroom Plumbing, Modification, and Relocation	LS	1		
39	01270S	Electrical, Instrumentation and Control modifications	LS	1		
<b>Total West Houston #3</b>					\$ _____	

**BASE UNIT PRICE TOTAL** \_\_\_\_\_

**C. EXTRA UNIT PRICE TABLE:**

Item No.	Spec. Ref	Extra Unit Short Title	Units	Est. Quantity	Unit Price	Total in Figures
40	02318	Extra Hand Excavation	CY	20	<u>\$15.00<sup>(2)</sup></u>	<u>\$300.00<sup>(2)</sup></u>
41	02318	Extra Machine Excavation	CY	50	<u>\$20.00<sup>(2)</sup></u>	<u>\$1,000.00<sup>(2)</sup></u>
42	02318	Extra Placement Backfill Material	CY	50	<u>\$6.00<sup>(2)</sup></u>	<u>\$300.00<sup>(2)</sup></u>
43	01270S	Abatement and disposal of 1 mercury pressure switches. Includes abatement plan and regulatory reporting.	LS	1	<u>\$2,500.00<sup>(2)</sup></u>	<u>\$2,500.00<sup>(2)</sup></u>
44	16111	1" Rigid Aluminum Conduit installed above ground	LF	600	<u>\$10.50<sup>(2)</sup></u>	<u>\$6,300.00<sup>(2)</sup></u>
45	16111	2" Rigid Aluminum Conduit installed above ground	LF	400	<u>\$19.50<sup>(2)</sup></u>	<u>\$7,800.00<sup>(2)</sup></u>
46	16111	3" Rigid Aluminum Conduit installed above ground	LF	400	<u>\$35.50<sup>(2)</sup></u>	<u>\$14,200.00<sup>(2)</sup></u>
47	16120	Copper No. 14 AWG conductor with XHHW-2 insulation, installed	LF	3,000	<u>\$0.75<sup>(2)</sup></u>	<u>\$2,250.00<sup>(2)</sup></u>
48	16120	Copper No. 12 AWG conductor with XHHW-2 insulation, installed	LF	4,000	<u>\$0.92<sup>(2)</sup></u>	<u>\$3,680.00<sup>(2)</sup></u>
49	16120	Copper No. 10 AWG conductor with XHHW-2 insulation, installed	LF	2,000	<u>\$1.14<sup>(2)</sup></u>	<u>\$2,280.00<sup>(2)</sup></u>

Item No.	Spec. Ref	Extra Unit Short Title	Units	Est. Quantity	Unit Price	Total in Figures
50	16120	Copper No. 6 AWG conductor with XHHW-2 insulation, installed	LF	2,000	<u>\$1.70<sup>(2)</sup></u>	<u>\$3,400.00<sup>(2)</sup></u>
51	16120	Copper No. 2 AWG conductor with XHHW-2 insulation, installed	LF	1,000	<u>\$2.75<sup>(2)</sup></u>	<u>\$2,750.00<sup>(2)</sup></u>
52	16120	Copper No. 1 AWG conductor with XHHW-2 insulation, installed	LF	500	<u>\$3.70<sup>(2)</sup></u>	<u>\$1,850.00<sup>(2)</sup></u>
53	16120	Copper No. 1/0 AWG conductor with XHHW-2 insulation, installed	LF	500	<u>\$4.60<sup>(2)</sup></u>	<u>\$2,300.00<sup>(2)</sup></u>
54	16120	Copper No. 3/0 AWG conductor with XHHW-2 insulation, installed	LF	500	<u>\$6.10<sup>(2)</sup></u>	<u>\$3,050.00<sup>(2)</sup></u>
55	16120	Copper No. 500 kcmil copper conductor with XHHW-2 insulation, installed	LF	600	<u>\$17.00<sup>(2)</sup></u>	<u>\$10,200.00<sup>(2)</sup></u>
56	16123	Copper No. 2/0 (5KV) conductor, installed	LF	400	<u>\$21.00<sup>(2)</sup></u>	<u>\$8,400.00<sup>(2)</sup></u>
57	16126	2/C or 3/C, #16 AWG twisted shielded instrument cable, installed	LF	2,000	<u>\$2.10<sup>(2)</sup></u>	<u>\$4,200.00<sup>(2)</sup></u>
58	16402	1" PVC Schedule 40 Conduit Installed in Underground Duct	LF	1,000	<u>\$2.60<sup>(2)</sup></u>	<u>\$2,600.00<sup>(2)</sup></u>

Item No.	Spec. Ref	Extra Unit Short Title	Units	Est. Quantity	Unit Price	Total in Figures
		Bank				
59	16402	2" PVC Schedule 40 Conduit Installed in Underground Duct Bank	LF	1,000	<u>\$3.90<sup>(2)</sup></u>	<u>\$3,900.00<sup>(2)</sup></u>
60	16402	4" PVC Schedule 40 Conduit Installed in Underground Duct Bank	LF	500	<u>\$5.90<sup>(2)</sup></u>	<u>\$2,950.00<sup>(2)</sup></u>
61	16402	Duct bank trenching, rebar, concrete encasement and backfill for duct banks where the top of the ducts is maximum 48" below grade	LF	300	<u>\$50.00<sup>(2)</sup></u>	<u>\$15,000.00<sup>(2)</sup></u>

**EXTRA UNIT PRICE TOTAL** \_\_\_\_\_

**D. CASH ALLOWANCE TABLE:**

Item No.	Spec. Ref	Cash Allowance Short Title	Cash Allowance in Figures
62	01110	Building Permit Fees	\$50,000 <sup>(1)</sup>
63	01110	CenterPoint Energy Electrical Service	\$175,000 <sup>(1)</sup>
<b><u>TOTAL CASH ALLOWANCES</u></b>			<b>\$225,000<sup>(1)</sup></b>

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

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

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

\*\* By: \_\_\_\_\_  
Signature Date

Name: \_\_\_\_\_  
(Print or type name) Title

Address: \_\_\_\_\_  
(Mailing)

\_\_\_\_\_  
(Street, if different)

Telephone and Fax Number: \_\_\_\_\_  
(Print or type numbers)

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

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

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

Footnotes for Tables B through E:

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

SECTION 13120

PRECAST SEGMENTAL CONCRETE BUILDINGS

PART 1 GENERAL

1.01 SUMMARY

- A. Contractor to furnish precast, post-tensioned concrete building. Building to be field erected on a cast-in-place concrete foundation in accordance with manufacturer's recommendations. Precast building to be EASI-SET brand as manufactured by Lonestar Prestress Mfg., Inc., Houston, Texas or approved equal. Building to be provided by manufacturer with all necessary openings as specified in conformance with manufacturer's structural requirements.

1.02 PAYMENT

- A. Payment for precast concrete buildings is on a lump sum basis for each site. Payment includes labor, equipment, and materials for installation of the building and all components under this section.

1.03 RELATED WORK

- A. Section 08332 – Overhead Coiling Doors.
- B. Division 16 – Electrical: Precast building shall comply with all requirements of Division 16 for conduit, wiring, labeling, devices, and grounding.

1.04 CODES, STANDARDS, AND REFERENCES

- A. ACI-318-02, "Building Code Requirements for Structural Concrete".
- B. ASCE-7-02, "Minimum Design Loads for Buildings and Other Structures".
- C. 2003 IBC, "2003 International Building Code".
- D. PCI Design Handbook, Precast/Prestressed Concrete Institute.
- E. UL 752, Standard for Safety for Bullet Resisting Equipment, Underwriters Laboratories Inc.
- F. "Manual of Standard Practice", Concrete Reinforcing Institute.

- G. ASTM, American Society for Testing and Materials:
1. C150 - Standard Spec. for Type I and Type II – Low Alkali Portland Cement.
  2. C33 - Standard Spec. for Concrete Aggregates.
  3. A36 - Standard Spec. for Carbon Structural Steel.
  4. A615 - Standard Spec. for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
  5. A706 - Standard Spec. for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement.
  6. A416 - Standard Spec. for Steel Strand, Uncoated Seven-Wire for Prestressed Concrete.
  7. A185 - Standard Spec. for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement.
  8. A307 - Standard Spec. for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
  9. A123 - Standard Spec. for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
  10. A153 - Standard Spec. for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

#### 1.05 QUALITY ASSURANCE

- A. Building fabricator must have a minimum of 5 years experience manufacturing precast, post-tensioned concrete buildings.
- B. No alternate building designs to the pre-engineered EASI-SET building will be allowed unless pre- approved by the owner TEN (10) days prior to the bid date.

#### 1.06 DESIGN REQUIREMENTS

- A. Dimensions: Building plan dimensions are shown on the Drawings. Buildings shall have 12'-0" clear inside headroom, unless shown differently on the drawings.

- B. Standard Design Loads:
  - 1. Standard Wind Loading - 140 MPH (ASCE 7-02, Category II, Exposure C, Enclosed Building)
  - 2. Standard Roof Live Load - 60 PSF
  - 3. Standard Floor Live Load - 250 PSF
  - 4. Seismic Design category 'D', Seismic use Group I
- C. Roof: Roof panel shall slope 6" in 10'-0" in the direction of the narrow dimension from peak to edge. The roof shall extend a minimum of 4" beyond the wall panel on each side and have a turndown design which extends 3/4" below the top edge of the wall panels to prevent water migration into the building along top of wall panels. Roof shall also have a straight smooth edge.
- D. Keyway Roof Joints: Grout in keyway shall be polymer concrete placed after coating keyway with a methyl methacrylate resin and isocyanate resin.
- E. Floor: There shall be a 1/2" deep recess, the width of the wall panels, cast into the floor. The 1/2" recess makes the interior floor surface 1/2" higher than the joint between the wall panel and floor slab preventing intrusion of water.
- F. Wall panels shall set on top of floor slab. Wall panels are to be a minimum of 6.5" thick.
- G. Walls to be of an insulated precast concrete sandwich panel type. The walls shall have an extruded polystyrene core sandwiched between interior and exterior concrete wythes. The wall panels shall have a minimum thickness of 6.5". Minimum wythe thickness shall be 2". The walls shall have a minimum equivalent wood framed wall R-value of R-26 per the 2003 International Energy Conservation Code.

#### 1.07 SUBMITTALS

- A. Make submittals in accordance with Section 01330 - Submittal Procedures, and Section 01340 - Shop Drawings, Product Data, and Samples.
- B. The submittal shall contain building engineering calculations that are to be designed and sealed by a Professional Engineer licensed in the state of Texas.
- C. Summary of design criteria used in the building design including, as a minimum, material properties, loading, and dimensions assumed.

- D. Shop drawings containing as a minimum of the following information:
1. Elevations of all four sides of the building as well as plans for the roof and floor. The drawings shall contain critical dimensions required to fully describe the structure as well as allow for accurate field erection. Drawings shall be to scale providing a proportionally accurate representation of the structure.
  2. Plan and section drawings showing interior precast concrete partitions (if required).
  3. Connection details and pertinent dimensions.
  4. Proposed 28-day concrete compressive strength.
- E. Product data information sheets including but not limited to:
1. Doors, Door frames, and door hardware including handles/doorknobs, hinges, locks, overhead stops and holders, thresholds and closer, etc. All door finish hardware shall be in compliance with ADA requirements.
  2. Interior finish items: fiber reinforced plastic and accessories, base, floor tile, etc.
- F. Samples: Samples showing color and texture of the following materials shall be submitted for: fiber reinforced plastic, base material, floor tile, epoxy coating.

## PART 2 PRODUCTS

### 2.01 MATERIALS

- A. Concrete:
1. Concrete shall have 6,000-psi minimum, 28-day compressive strength.
  2. Cement used in the manufacture of concrete shall be Low Alkali Type I/II Portland Cement conforming to the requirements of ASTM C150 with total alkalis not to exceed 0.6%.
  3. Coarse aggregate shall be crushed limestone with a maximum size per ASTM C33 of 3/4".
- B. Reinforcing Steel shall be in accordance with requirements of ASTM A615, grade

60 for deformed bars and ASTM 185, grade 80 for welded wire fabric unless otherwise indicated.

- C. Post-tensioning strand shall be ½" diameter, grade 270, 7-wire, low relaxation strand:
1. Plain
  2. Encased in greased plastic sheathing (ASTM A416).
  3. If post-tensioning is *not* used in the roof panel, the following guidelines must be followed to ensure a watertight roof design.
    - a. The entire precast concrete roof panel surface must be cleaned and primed with a material that prepares the concrete surface for proper adherence to the coating material.
    - b. The entire precast concrete roof panel surface shall be sealed with a .045" EPDM continuous membrane cemented to the concrete with a compound designed for this purpose.
- D. Lifting Hardware: The lifting hardware to shall be permanently cast into the concrete and shall be hot dipped galvanized.
- E. Caulking: All joints between panels shall be caulked on the exterior and interior surface of the joints. Caulking shall be SIKAFLEX-IA elastic sealant or equal. Exterior caulk joint to be 3/8" x 3/8" square so that sides of joint are parallel for correct caulk adhesion. Back of joint to be taped with bond breaking tape to ensure adhesion of caulk to parallel sides of joint and not the back.
- F. Panel Connections: All panels shall be securely bolted together with 3/8" thick steel brackets. Steel is to be of structural quality, hot-rolled carbon complying with ASTM A36 and hot dipped galvanized after fabrication. All fasteners to be 1/2" diameter bolts complying with ASTM A307 for low-carbon steel bolts. Cast-in anchors used for panel connections to be Dayton-Superior #F-63, or equal. All inserts for corner connections must be secured directly to form before casting panels. Floating of connection inserts will not be allowed.

## 2.02 ACCESSORIES

- A. Door and Frame: Shall comply with Steel Door Institute "Recommended Specifications for Standard Steel Doors and Frames" (SDI-100), and as herein specified. The buildings shall be equipped with 18-gauge steel doors, with insulated core and hot-dip galvanized as listed in the schedule below. Doors shall open as noted on drawings. Frames shall be 16-gauge hot-dip galvanized steel. Doors and

frames shall be painted with one coat of rust inhibitor primer and one finish coat of epoxy paint, medium gray, if no other color is specified.

<b>Site Building</b>	<b>Single Door</b>	<b>Double Doors</b>	<b>Rollup Door</b>
Park Ten Central Electrical	1 @ 3'-0"x7'-6"	1 @ 8'-0"x9'-0"	n/a
Sharpstown #1 Pump/Electrical	6 @ 3'-6"x8'-0"	1 @ 8'-0"x9'-0"	1 @ 10'-0"x10'-0"
West Houston #3 LAS Feed	1 @ 3'-0"x7'-6"	n/a	n/a

**B. Door Hardware:**

1. Handle: Lindstrum lever type pull-handle, stainless steel, 8-1/2" x 2".
2. Lockset: City of Houston standard unit.
3. Deadbolt: City of Houston standard unit.
4. Hinges: Hagar stainless steel five knuckle ball bearing with non-removable pins or equal.
5. Threshold: Hagar or National Guard Products extruded aluminum with neoprene seal or equal.
6. Overhead Door Holder: Yale surface mounted overhead slide type with safety release or equal.
7. Drip Cap: Hager or National Guard Products aluminum with stainless steel screws or equal.
8. Door Closer: Norton 7500 or Yale 4410 with hold open or equal.
9. Surface Bolts (Upper and Lower): Magnokrom Inc. 400-401 cadmium plated finish or equal, as required for double doors.
10. Astragal: Galvanized steel, same finish and brand as door, as required for double doors. Astragal shall be removable for equipment access.
11. Door Stop: Ives 445B26D brushed chrome (inactive leaf only) or equal, as required for double doors.
12. PANIC BARS: All doors shall be equipped with panic bars which open

doors when pressure is applied to a horizontal bar on the inside of each door.

- C. Air Conditioning Unit: Two-ton wall mount HVAC Unit (BARD or equal) including supply and return air grills and temperature controller. Provide two units each building. See Project HVAC Drawings for additional information.
- D. Electrical: The electrical work and materials shall conform to Division 16.

## 2.04 FINISHES

- A. Building Exterior
  - 1. Exposed Aggregate: The exterior finish of the building shall consist of washed brown firestone aggregate on all exterior wall surfaces with the exception of a 4" wide vertical smooth concrete reveal at the building corners. Aggregate must be seeded into top of panel while in form, chemically retarded, and high-pressure water washed to expose the aggregate to a depth of 1/8".
- B. Interior of Building: Smooth steel form finish on all interior panel surfaces.
  - 1. The building floor shall be treated with a Sealer/Dustproofer per the manufacturer's recommendations.
  - 2. The walls and ceiling inside the building shall be painted with a minimum of two coats of white paint.
  - 3. Electrical: The electrical work and materials shall conform to Division 16.

## PART 3 EXECUTION

### 3.01 SITE PREPARATION REQUIREMENTS (Cast-In-Place Foundation)

- A. The precast, post-tensioned concrete building shall be erected on a cast-in-place concrete foundation. The foundation shall be constructed in accordance with the Contract Drawings.
- B. The floor shall have a 1 1/2" x 10" deep recess, the width of the wall plus 3 1/2" wide cast into the floor around the perimeter except at doors. The 1 1/2" recess makes the interior floor surface 1 1/2" higher than the joint between the wall panel and the foundation preventing intrusion of water.
- C. The finished floor slab elevation shall be above the exterior grade. The grade shall

have a slope such that all drainage will be away from the building at all points.

- D. The slab shall be steel reinforced and be level within 1/8" in both directions.
- E. Footer depth and reinforcement to be in accordance with Contract Drawings.

### 3.02 ACCESS

- A. Access to the building sites is indicated on the Contract Drawings.

### 3.03 ERECTION

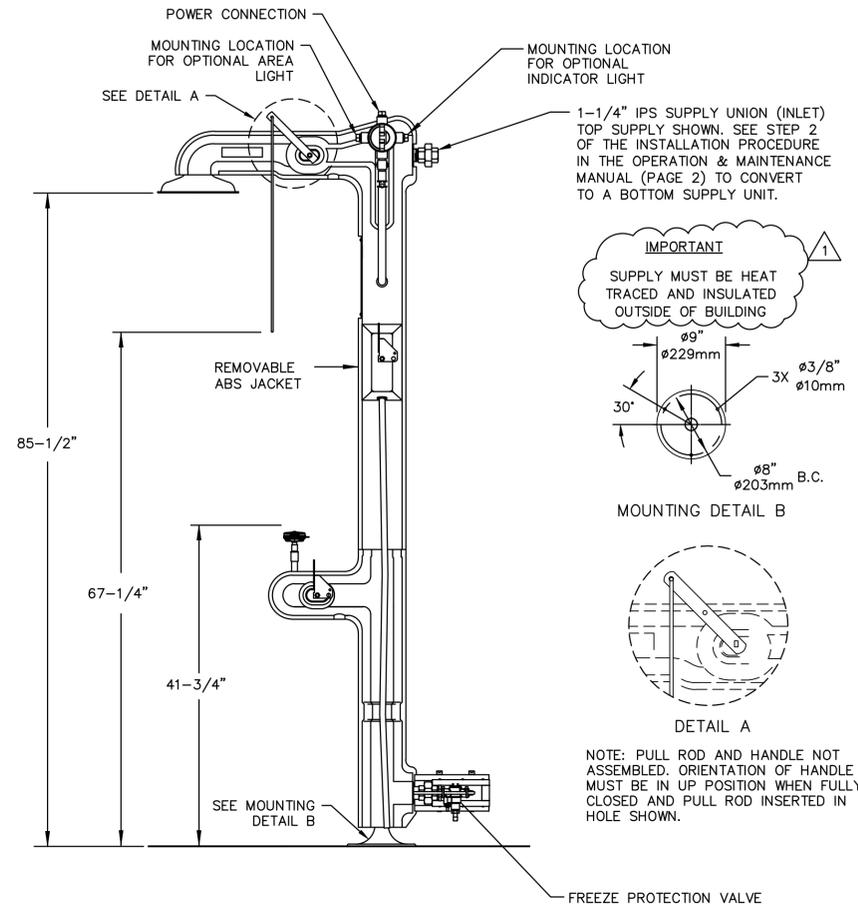
- A. The building manufacturer shall erect the building walls and roof.

### 3.04 AIR CONDITIONING UNITS

- A. The building manufacturer shall install and commission the air conditioning units.

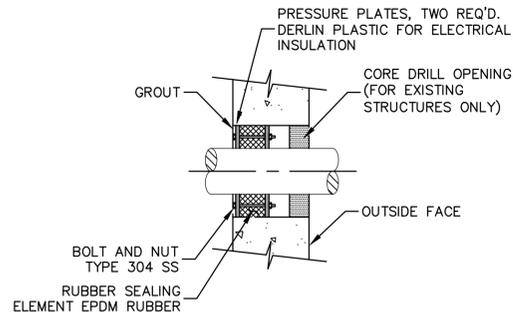
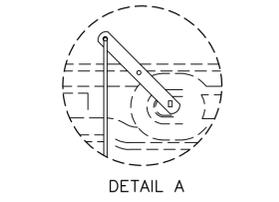
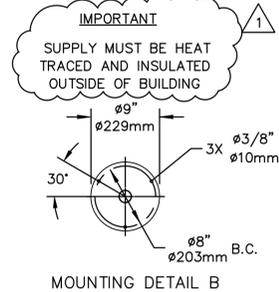
END OF SECTION

REV	DESCRIPTION	BY	DATE
1	ADDENDUM	AK	10/13/15



EMERGENCY EYEWASH/SHOWER STATION

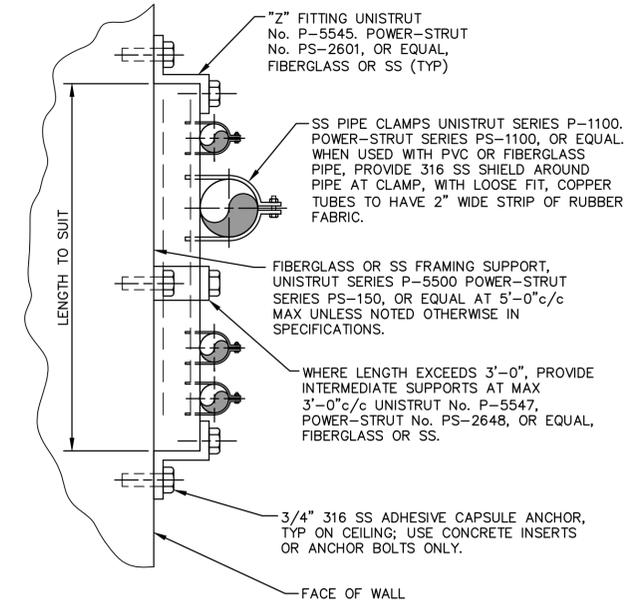
DETAIL 5  
NTS



- NOTES:
- INSIDE DIA. OF EACH WALL OPENING SHALL BE OF THE SIZE RECOMMENDED BY MANUFACTURER TO FIT THE PIPE OR CONDUIT & THE WALL SEAL ASSEMBLY TO ENSURE A WATER-TIGHT JOINT.
  - PIPE TO WALL PENETRATION CLOSURES SHALL BE OF THE MODULAR MECHANICAL TYPE CONSISTING OF INTERLOCKING SYNTHETIC RUBBER LINKS SHAPED TO FILL THE ANNULAR SPACE BETWEEN THE PIPE AND WALL OPENING. A PRESSURE PLATE SHALL BE PROVIDED UNDER EACH BOLT HEAD AND NUT, WITH THE SEAL CONSTRUCTED TO PROVIDE ELECTRICAL INSULATION BETWEEN WALL AND PIPE.
  - WALL SEAL ASSEMBLY SHALL BE LINK SEAL AS MFR BY THUNDERLINE CORP WAYNE, MICHIGAN OR EQUAL.
  - PROVIDE ESCUTCHEONS IN FINISHED SPACES.

TYPICAL PIPE PENETRATION IN EXISTING WALL

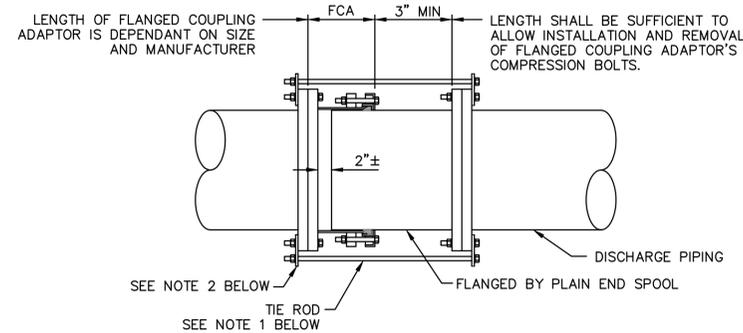
DETAIL 6  
NTS



- NOTES:
- WHERE SUBMERGED OR LOCATED ON OR ABOVE TOP OF WALL OF HYDRAULIC STRUCTURE, FRAMING SUPPORT, "Z" FITTINGS, INTERMEDIATE SUPPORTS, BOLTS, WASHERS AND SHIELD SHALL BE TYPE 316 SS.
  - WHERE LOCATED ON CHEMICAL TANK OR EQUIPMENT PADS, FRAMING SUPPORTS, INTERMEDIATE SUPPORTS, PIPE CLAMPS, AND "Z" FITTINGS SHALL BE REINFORCED POLYESTER; AND BOLTS AND WASHERS SHALL BE TYPE 316 SS, AND PIPE SHIELDS SHALL BE COMPATIBLE WITH PROCESS FLUID.

PIPE SUPPORT FOR PIPES ON WALL

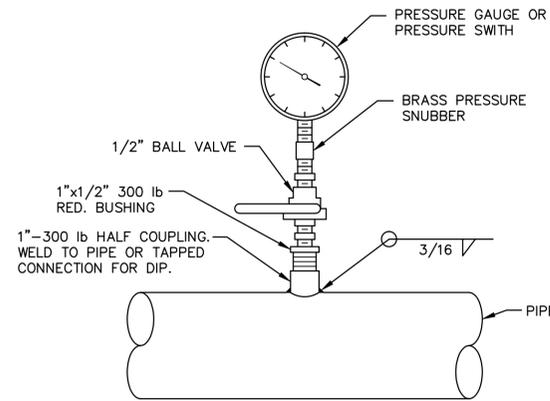
DETAIL 7  
NTS



RESTRAINED FLANGED COUPLING ADAPTER

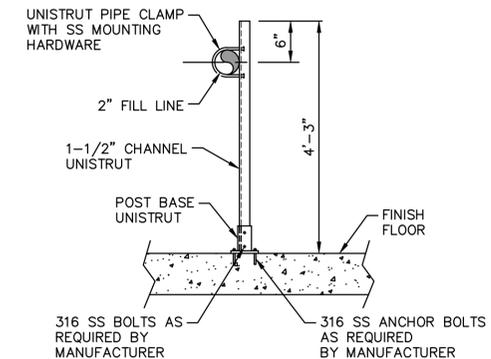
DETAIL 8  
NTS

- NOTES:
- PROVIDE A NUMBER OF TIE RODS EQUAL TO 1/2 THE NUMBER OF FLANGE BOLTS. EVENLY SPACE INSTALLATION OF THE TIE RODS. DIAMETER OF TIE RODS TO BE EQUAL TO THE DIAMETER OF FLANGE BOLTS. LENGTH OF TIE RODS TO BE DETERMINED BY CONTRACTOR BASED ON SIZE AND MANUFACTURER OF FLANGED COUPLING ADAPTOR AND FINAL LENGTH OF SPOOL PIECE.
  - PROVIDE 316 SS TAB FOR ATTACHMENT OF TIE RODS. SIZE TO BE DETERMINED BY CONTRACTOR.
  - CONTRACTOR TO SUBMIT DETAILS DURING SHOP DRAWING SUBMISSION.
  - ALL HARDWARE SHALL BE 316 STAINLESS STEEL. TIE RODS SHOULD BE THREADED.
  - THIS RESTRAINT DOES NOT REPLACE THRUST BLOCKS TO BE PROVIDED AT OTHER LOCATIONS.



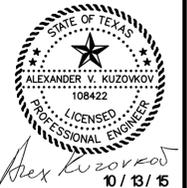
PRESSURE GAUGE FOR WATER SERVICE

DETAIL 9  
NTS



DETAIL 10  
NTS

**klotz associates**  
1160 Dairy Ashford, Suite 500  
Houston, Texas 77079  
T 281.589.7257 F 281.589.7309  
houston.office@klotz.com  
Texas PE Firm Reg. # F-929



SURVEYED BY: FB No.

**CITY OF HOUSTON**  
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

REHABILITATION OF PUMPS,  
MOTORS, VALVES, PIPING &  
BUILDINGS AT VARIOUS FACILITIES  
PACKAGE B

MISCELLANEOUS  
MECHANICAL DETAILS  
SHEET 2 OF 3  
MECHANICAL

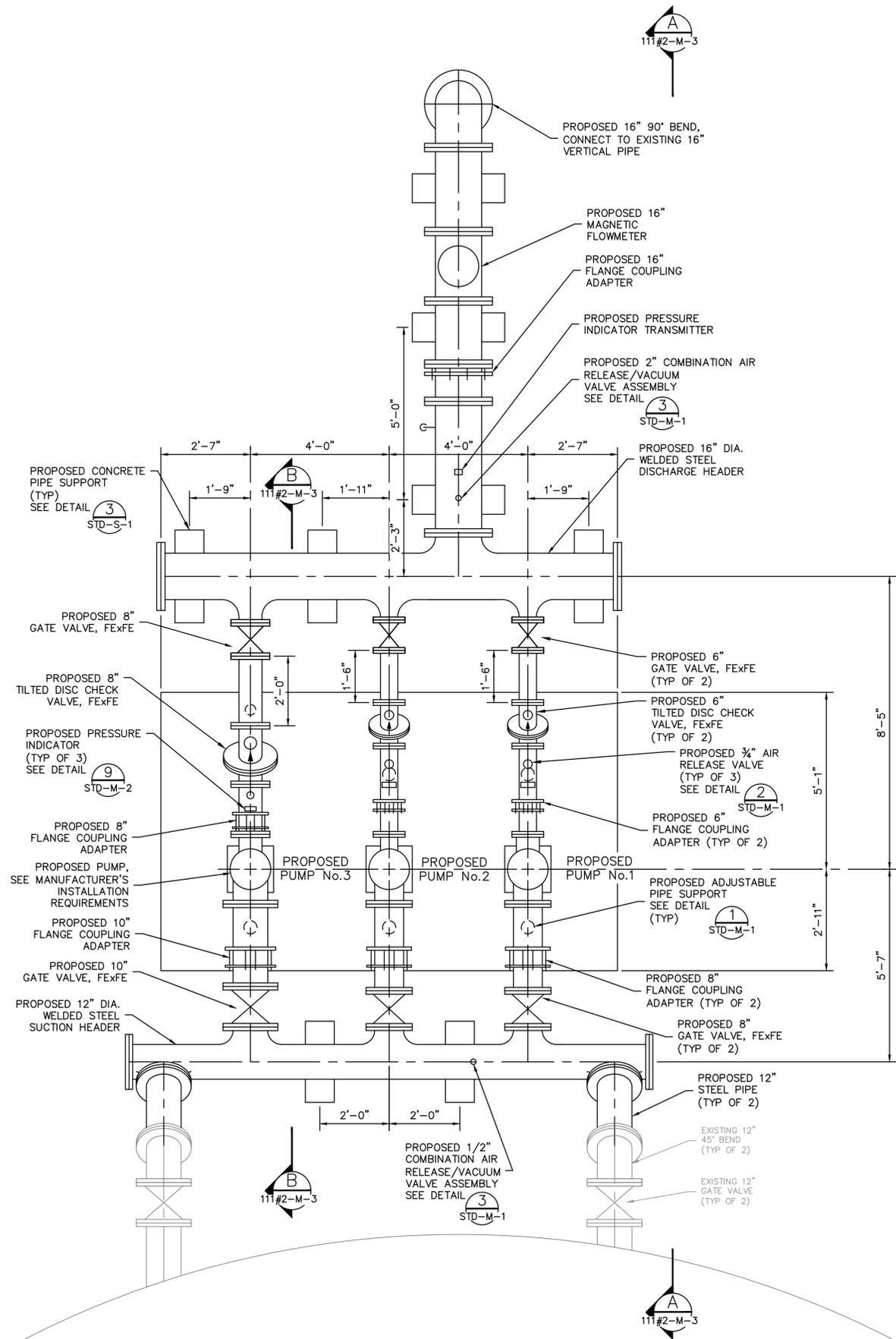
WBS NUMBER	
S-001000-0046-4	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
RAJINDER SINGH	

J:\0101.065.003\07.00 CADD\COH Package B\02-Construction Drawings\General\COH PS Pkg.B.M1-M3.Std.Details.dwg Oct. 09. 2015

REV	DESCRIPTION	BY	DATE
1	ADDENDUM	AK	10/13/15

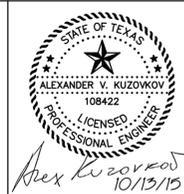
NOTES:

1. PAINT ALL NEW AND EXISTING EXPOSED PIPING, FITTINGS, AND VALVES, SHOWN ON THIS DRAWING, UPON COMPLETION OF WORK. FINISH COAT AMERON 450 AND INTERMEDIATE COATS AMERON 385 COLOR BARR BLUE (STANDARD CITY OF HOUSTON POTABLE WATER PIPING AND TANK COLOR). SEE SPECIFICATIONS 09901 AND 09971.
2. VERIFY DIMENSIONS WITH PUMP MANUFACTURER.
3. PUMP SUCTION AND DISCHARGE REDUCERS TO BE SIZED AS REQUIRED.
4. TEST AND DISINFECT ALL NEW PIPING AND PUMPS AS PER SECTIONS 02514 AND 02515.



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**CITY OF HOUSTON**  
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

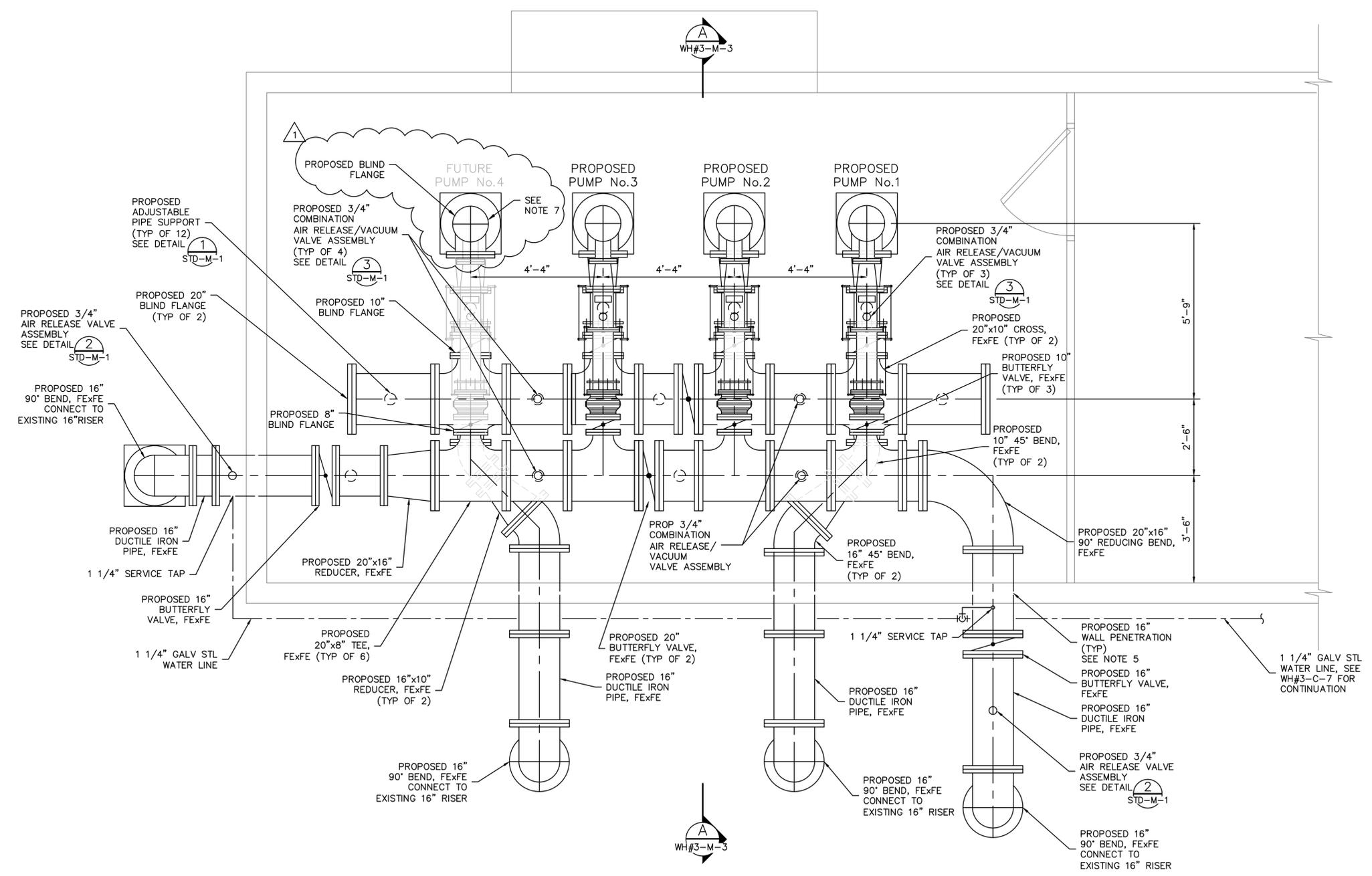
REHABILITATION OF PUMPS,  
MOTORS, VALVES, PIPING &  
BUILDINGS AT VARIOUS FACILITIES  
PACKAGE B  
DISTRICT 111 No.2 WATER PLANT  
BOOSTER PUMPS AND PIPING  
PROPOSED  
PLAN  
MECHANICAL

WBS NUMBER	
S-001000-0046-4	
DRAWING SCALE	
1/2"=1'-0"	
CITY OF HOUSTON PM	
RAJINDER SINGH	

REV	DESCRIPTION	BY	DATE
1	ADDENDUM	AK	10/13/15



- NOTES:**
- PAINT ALL NEW AND EXISTING EXPOSED PIPING, FITTINGS, AND VALVES, SHOWN ON THIS DRAWING, UPON COMPLETION OF WORK. FINISH COAT AMERON 450 AND INTERMEDIATE COATS AMERON 385. COLOR BARR BLUE (STANDARD CITY OF HOUSTON POTABLE WATER PIPING AND TANK COLOR).
  - VERIFY DIMENSIONS WITH PUMP MANUFACTURER.
  - PUMP SUCTION AND DISCHARGE REDUCERS TO BE SIZED AS REQUIRED.
  - TEST AND DISINFECT ALL NEW PIPING AND PUMPS AS PER SECTIONS 02514 AND 02515.
  - INSTALL NEW PIPE IN EXISTING WALL PENETRATION AND SEAL ANNULAR SPACE BETWEEN EXTERIOR OF THE PIPE AND EXISTING SLEEVE WITH NON-SHRINK GROUT.
  - THERE IS A MANUALLY ACTUATED 1.5 TON TRAVELING BRIDGE CRANE WITHIN THE PUMP BUILDING THAT MAY BE USED BY THE CONTRACTOR FOR PUMP AND MOTOR REMOVAL AND RE-INSTALLATION. CONTRACTOR SHALL PROVIDE ANY ADDITIONAL RIGGING AND LIFTING DEVICES AS REQUIRED TO PERFORM PROPOSED WORK. CONTRACTOR SHALL SERVICE CRANE AFTER COMPLETION OF WORK.
  - INSTALL SUCTION BARREL WITH BLIND FLANGES FOR FUTURE ADDITION OF PUMP No.4.



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SURVEYED BY: KUO&A FB No. P-5906

**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 REHABILITATION OF PUMPS,  
 MOTORS, VALVES, PIPING &  
 BUILDINGS AT VARIOUS FACILITIES  
 PACKAGE B  
 WEST HOUSTON No.3 WATER PLANT  
 BOOSTER PUMPS AND PIPING  
 PROPOSED  
 PLAN  
 MECHANICAL

WBS NUMBER	S-001000-0046-4
DRAWING SCALE	1/2"=1'-0"
CITY OF HOUSTON PM	RAJINDER SINGH

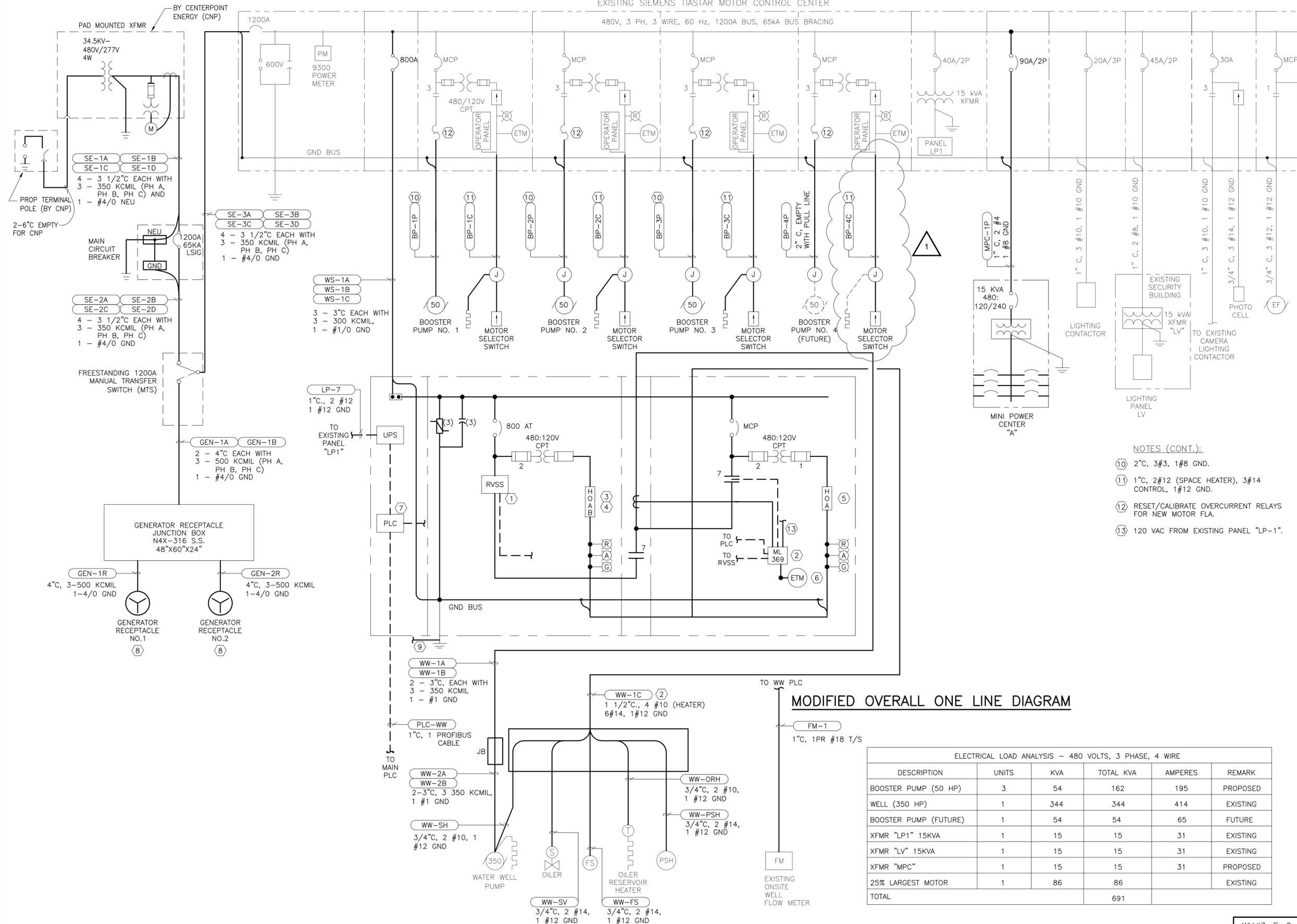
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REV	DESCRIPTION	BY	DATE
Δ	ADDENDUM 1	BSC	10-12-15

EXISTING SIEMENS TIASTAR MOTOR CONTROL CENTER

480V, 3 PH, 3 WIRE, 60 Hz, 1200A BUS, 65KA BUS BRACING



- NOTES:**
- SEVERE DUTY RATED SOLID STATE SOFT STARTER.
  - 369 TO BE LOCATED IN BYPASS CONTACTOR SECTION AND IT SHALL SERVE BOTH RVSS AND BYPASS, SENSE RELAY VOLTAGE ON MCC BUS.
  - WHEN HAND-OFF-AUTO-BYPASS SWITCH POSITION IN "BYPASS" THE ISOLATION CONTACTOR TO BE TIMED OPEN FOR PUMP COAST DOWN BEFORE BYPASS STARTER MAY BE ENERGIZED.
  - HAND-OFF-AUTO-BYPASS SWITCH TO BE LOCATED IN THE RVSS SECTION DOOR AND WIRED TO DISCRETE INPUTS IN PLC. PLACING SWITCH IN BYPASS WILL SHUTDOWN RVSS VIA PLC COMMAND.
  - BYPASS START/STOP SWITCHES TO BE LOCATED IN BYPASS CONTACTOR SECTION DOOR, WITH START TO BE ENABLED WHEN HOAB IS IN BYPASS AFTER A PLC CONTROLLED COAST DOWN TIME OUT.
  - ELAPSED TIME METER SENSING TO BE LOCATED SUCH THAT RVSS OR BYPASS OPERATION WILL BE INDICATED.
  - PLC SHALL CONTROL NORMAL PUMP START AND STOP OPERATIONS. E-STOP AND MOTOR MONITOR RELAY SHALL SHUT DOWN MOTOR AT RVSS OR STARTER WHILE SENDING ALARM SIGNAL TO THE PLC.
  - CROUSE-HINDS ARKITE HEAVY DUTY RECEPTACLE ASSEMBLY WITH AJ BACK BOXES AND ANGLE ADAPTER MODEL AREX4042210 AND MATCHING PLUG MODEL AP404612.
  - CONNECT TO GROUND GRID.

- NOTES (CONT.):**
- 2" C, 3#3, 1#8 GND.
  - 1" C, 2#12 (SPACE HEATER), 3#14 CONTROL, 1#12 GND.
  - RESET/CALIBRATE OVERCURRENT RELAYS FOR NEW MOTOR FLA.
  - 120 VAC FROM EXISTING PANEL "LP-1".

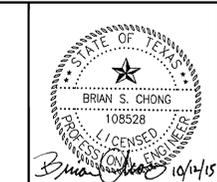
**MODIFIED OVERALL ONE LINE DIAGRAM**

ELECTRICAL LOAD ANALYSIS - 480 VOLTS, 3 PHASE, 4 WIRE

DESCRIPTION	UNITS	KVA	TOTAL KVA	AMPERES	REMARK
BOOSTER PUMP (50 HP)	3	54	162	195	PROPOSED
WELL (350 HP)	1	344	344	414	EXISTING
BOOSTER PUMP (FUTURE)	1	54	54	65	FUTURE
XFMR "LP1" 15KVA	1	15	15	31	EXISTING
XFMR "LV" 15KVA	1	15	15	31	EXISTING
XFMR "MPC"	1	15	15	31	PROPOSED
25% LARGEST MOTOR	1	86	86		EXISTING
<b>TOTAL</b>			<b>691</b>		

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**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

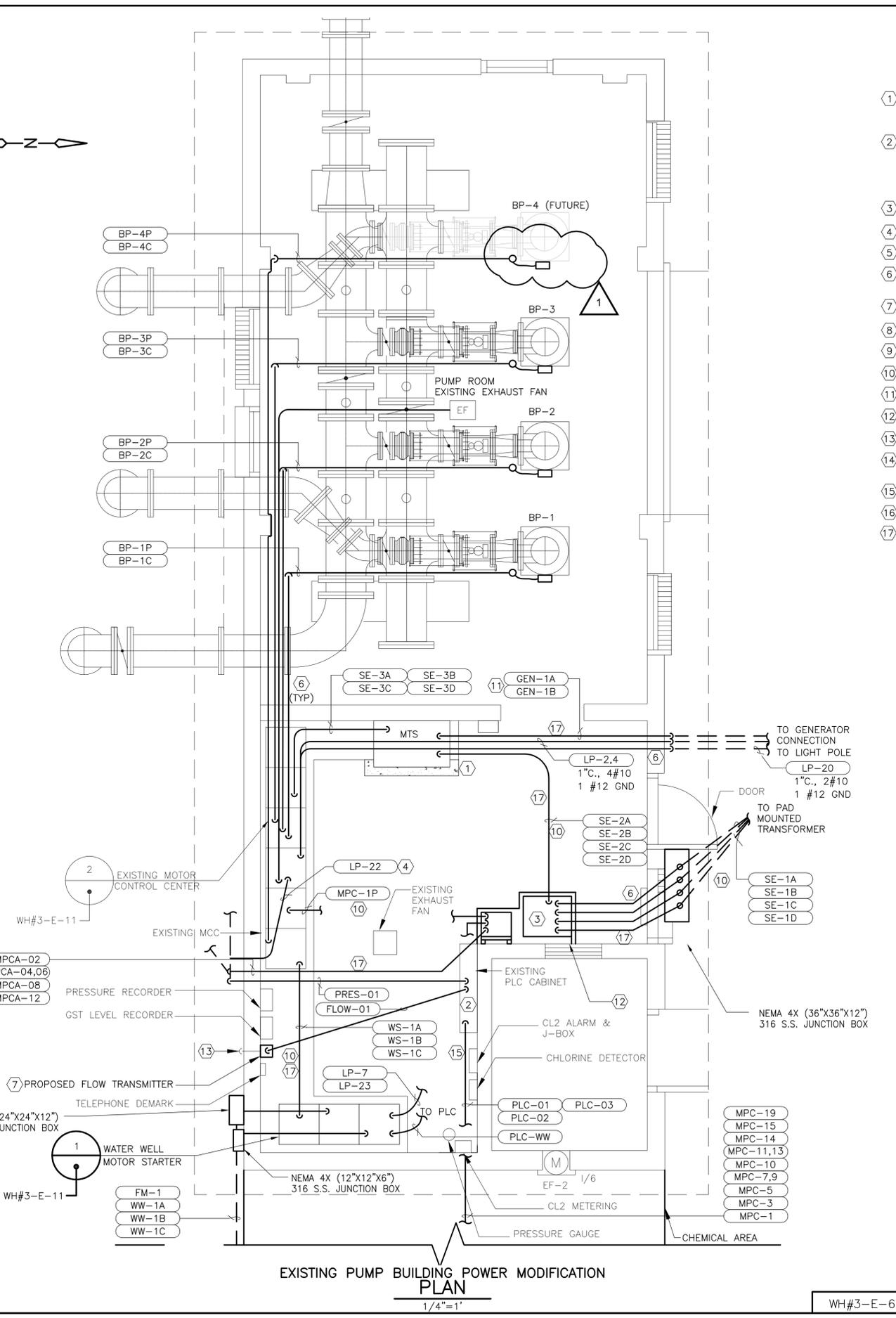
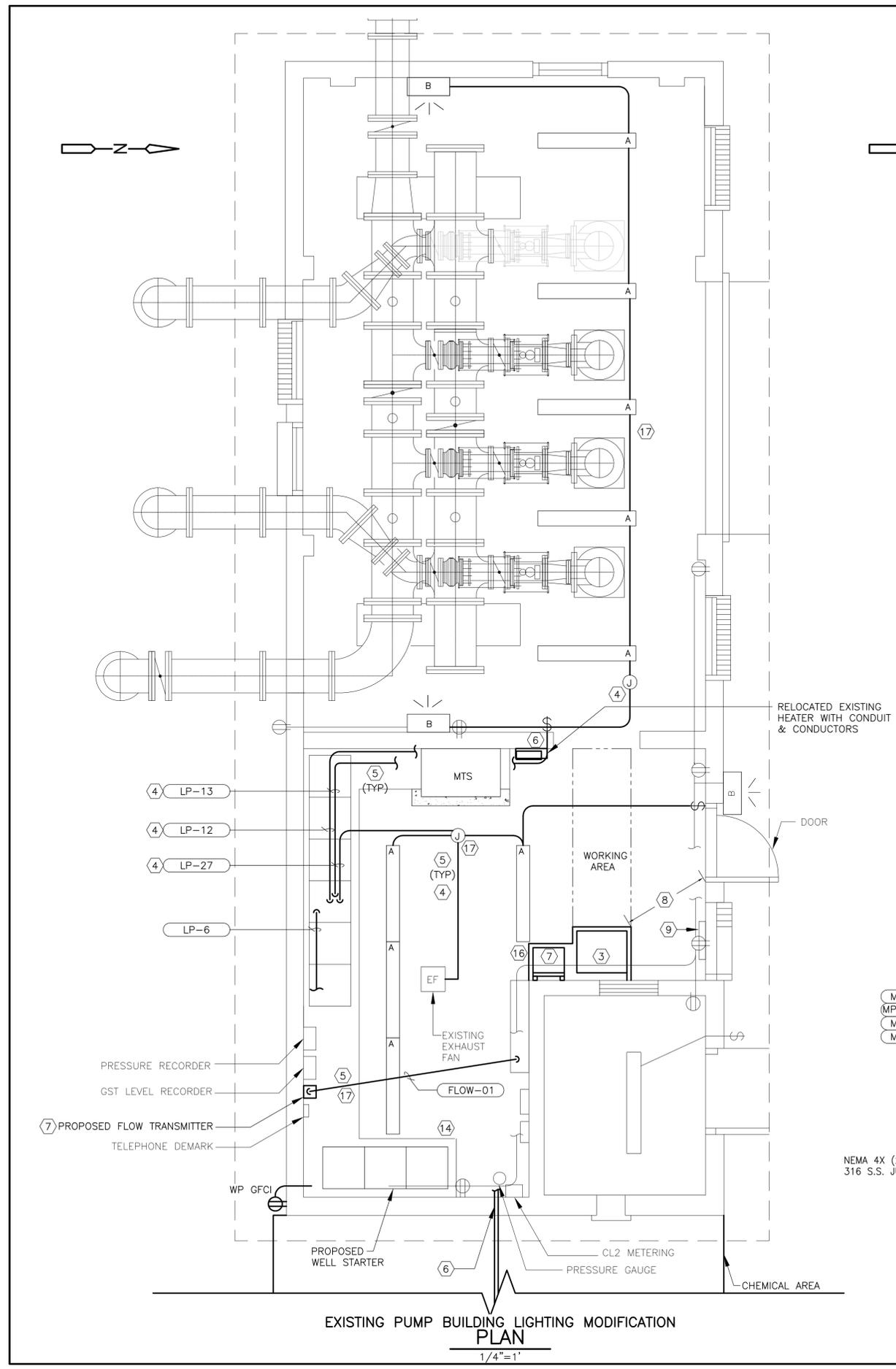
**REHABILITATION OF PUMPS, MOTORS, VALVES, PIPING & BUILDINGS AT VARIOUS FACILITIES PACKAGE B**  
**WEST HOUSTON #3 MODIFIED ONE LINE DIAGRAM**  
 ELECTRICAL

<b>WBS NUMBER</b>	S-001000-00046-4
<b>DRAWING SCALE</b>	AS NOTED
<b>CITY OF HOUSTON PM</b>	RAJINDER SINGH
<b>SHEET No. 57 OF 139</b>	

WH#3-E-2

REV	DESCRIPTION	BY	DATE
▲	ADDENDUM 1	BSC	10-12-15

- NOTES:
- REMOVE AND REPLACE THE EXISTING HOUSEKEEPING PAD AS SHOWN TO ACCOMMODATE NEW TRANSFER SWITCH. SEE DETAIL 2 ON DRAWING STD-S-1.
  - REMOVE EXISTING SIEMENS 505 PLC AND REPLACE WITH SIEMENS 1513 PN/DP PLC WITH ALL REQUIRED COMMUNICATION CARDS. RECONNECT ALL EXISTING I/O TO NEW PLC. PROVIDE NEW DIN RAIL AND ALL REQUIRED HARDWARE FOR INSTALLATION.
  - MAIN CIRCUIT BREAKER.
  - 3/4" C., 2 #12, 1 #12 GND
  - PROVIDE CONDUIT SUPPORT.
  - CORE DRILL WALL FOR CONDUITS PENETRATION AND SEAL AFTER INSTALLATION.
  - MINI-POWER CENTER 'A' (EATON MODEL P48G11S15P).
  - MINIMUM DISTANCE 3'-6".
  - EXISTING FAN.
  - FIELD ROUTE AS REQUIRED.
  - ROUTE AS HIGH AS POSSIBLE.
  - UNISTRUT SUPPORT RACK.
  - EXISTING CONDUIT TO FLOW TRANSDUCER.
  - MODIFY EXISTING HOUSE KEEPING PAD AS REQUIRED FOR PROPOSED WELL STARTER.
  - RELOCATED EXISTING BOX.
  - PROPOSED HOUSEKEEPING PAD.
  - PROVIDE UNISTRUT CONDUIT SUPPORT WITH ALL REQUIRED HARDWARE.



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**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

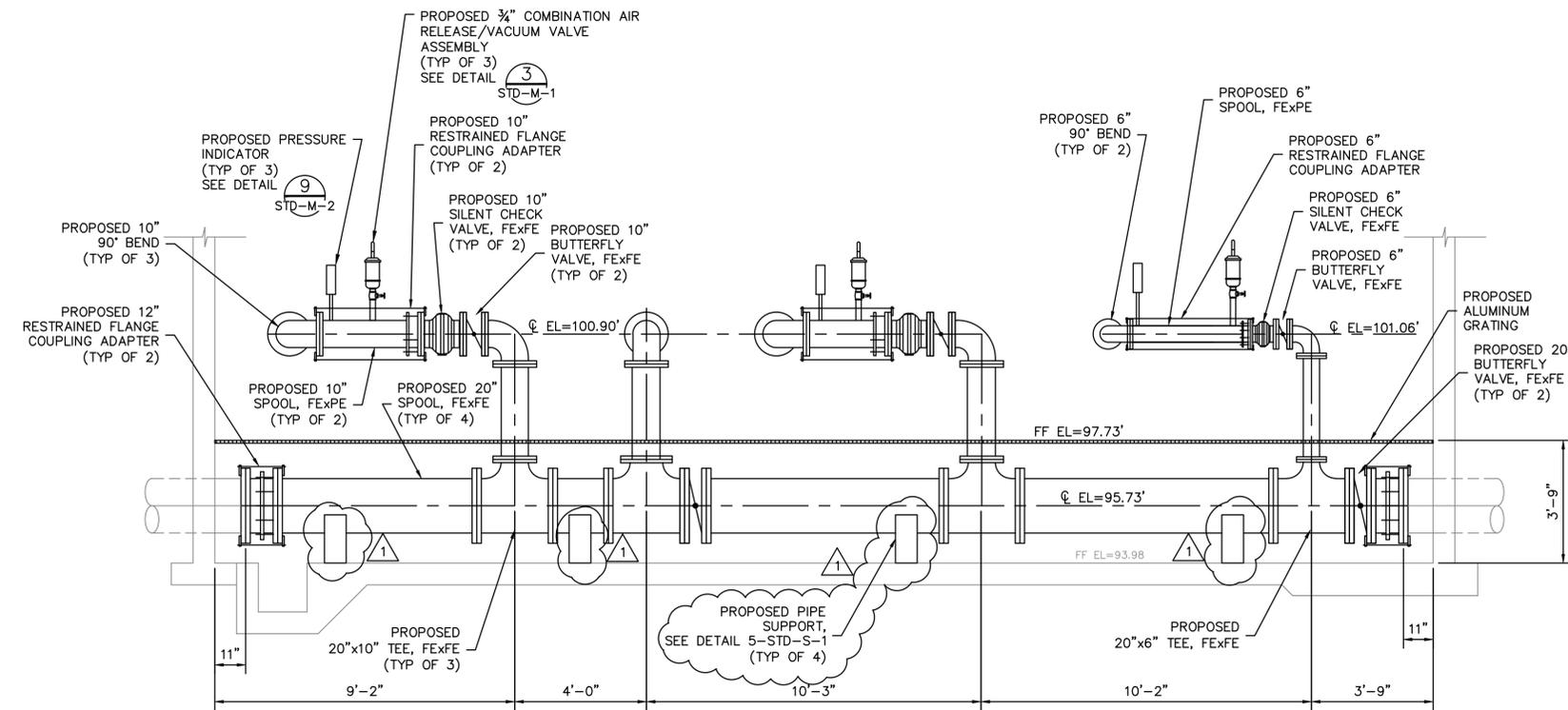
**REHABILITATION OF PUMPS,  
 MOTORS, VALVES, PIPING &  
 BUILDINGS AT VARIOUS FACILITIES  
 PACKAGE B**  
**WEST HOUSTON #3  
 PROPOSED PUMP BUILDING  
 LIGHTING & POWER PLAN**  
 ELECTRICAL

WBS NUMBER	S-001000-00046-4
DRAWING SCALE	AS NOTED
CITY OF HOUSTON PM	RAJINDER SINGH
SHEET No.	61 OF 139

WH#3-E-6



REV	DESCRIPTION	BY	DATE
1	ADDENDUM	AK	10/13/15

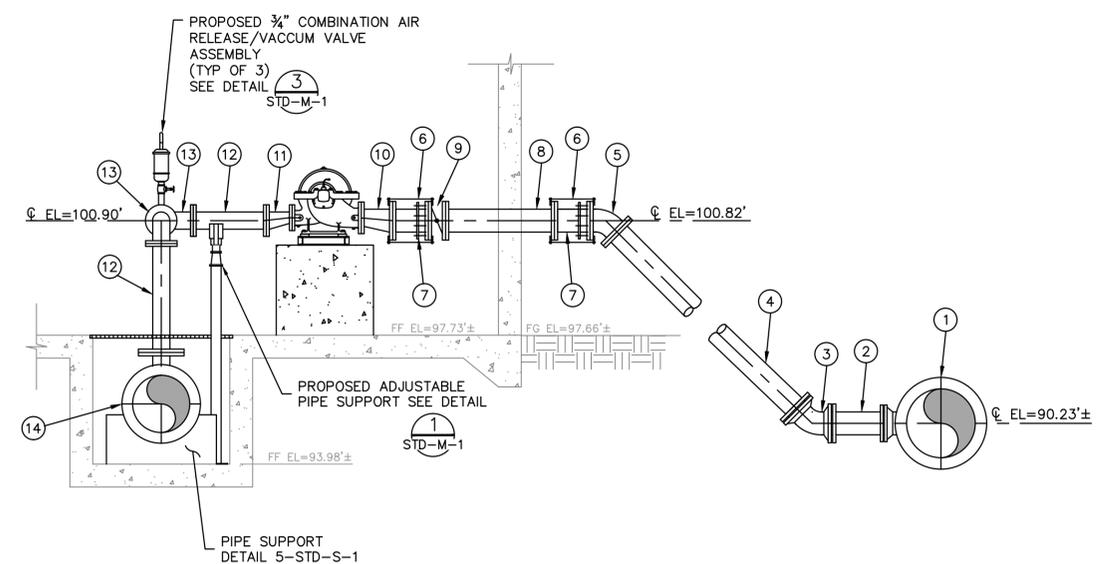


SECTION A  
3/8"=1'-0" PTC-M-2

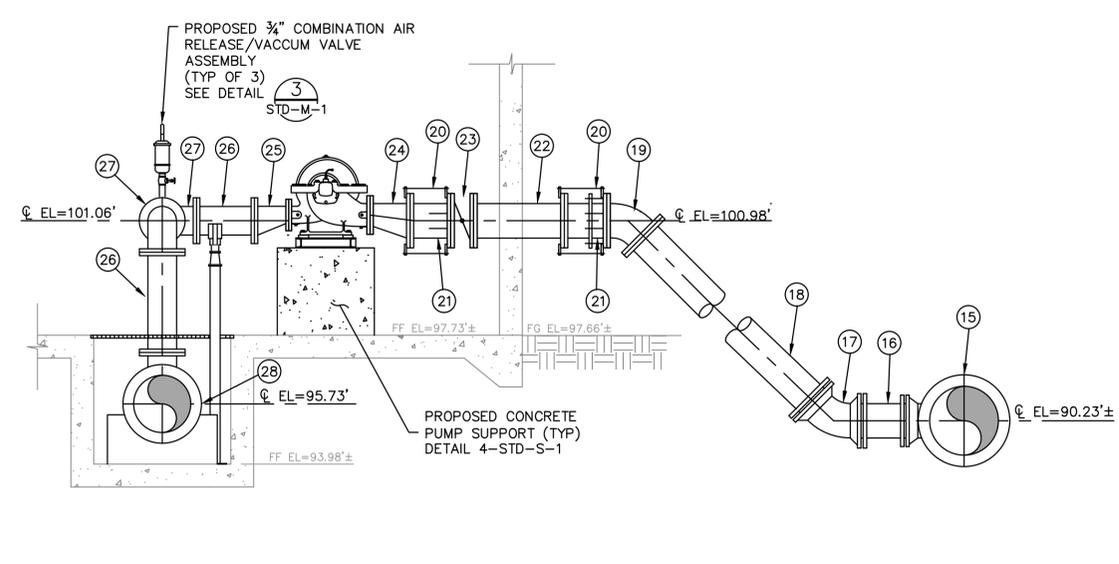
SECTIONS A, B & C  
VALVE AND PIPE FITTINGS INDEX

TAG No.	DESCRIPTION
1	24"x10" TEE, MJxMJ
2	8" DUCTILE IRON PIPE, PEXPE
3	8" 45° BEND, MJxMJ
4	8" DUCTILE IRON PIPE, FEXPE
5	8" 45° BEND, FEXFE
6	8" RESTRAINED FLANGE COUPLING ADAPTER
7	8" DUCTILE IRON PIPE, FEXPE
8	8" WALL PIPE, FEXFE
9	8" BUTTERFLY VALVE, FEXFE
10	8"x____" ECCENTRIC REDUCER, FEXFE
11	6"x____" ECCENTRIC REDUCER, FEXFE
12	6" DUCTILE IRON PIPE, FEXFE
13	6" 90° BEND, FEXFE
14	20"x10" TEE, FEXFE
15	24"x12" TEE, MJxMJ
16	12" DUCTILE IRON PIPE, PEXPE
17	12" 45° BEND, MJxMJ
18	12" DUCTILE IRON PIPE, FEXPE
19	12" 45° BEND, MJxMJ
20	12" RESTRAINED FLANGE COUPLING ADAPTER
21	12" DUCTILE IRON PIPE, FEXPE
22	12" WALL PIPE, FEXFE
23	12" BUTTERFLY VALVE, FEXFE
24	12"x8" ECCENTRIC REDUCER, FEXFE
25	10"x6" ECCENTRIC REDUCER, FEXFE
26	10" DUCTILE IRON PIPE, FEXFE
27	10" 90° BEND, FEXFE
28	20"x10" TEE, FEXFE

NOTES:  $\diamond$   
1. PUMP SECTION AND DISCHARGE REDUCERS TO BE SIZED AS REQUIRED



SECTION B  
3/8"=1'-0" PTC-M-2



SECTION C  
3/8"=1'-0" PTC-M-2

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REHABILITATION OF PUMPS,  
MOTORS, VALVES, PIPING &  
BUILDINGS AT VARIOUS FACILITIES  
PACKAGE B  
PARK TEN CENTRAL WATER PLANT  
BOOSTER PUMPS AND PIPING  
PROPOSED  
SECTIONS  
MECHANICAL

WBS NUMBER	S-001000-0046-4
DRAWING SCALE	3/8"=1'-0"
CITY OF HOUSTON PM	RAJINDER SINGH
PTC-M-3	SHEET No. 79 OF 139

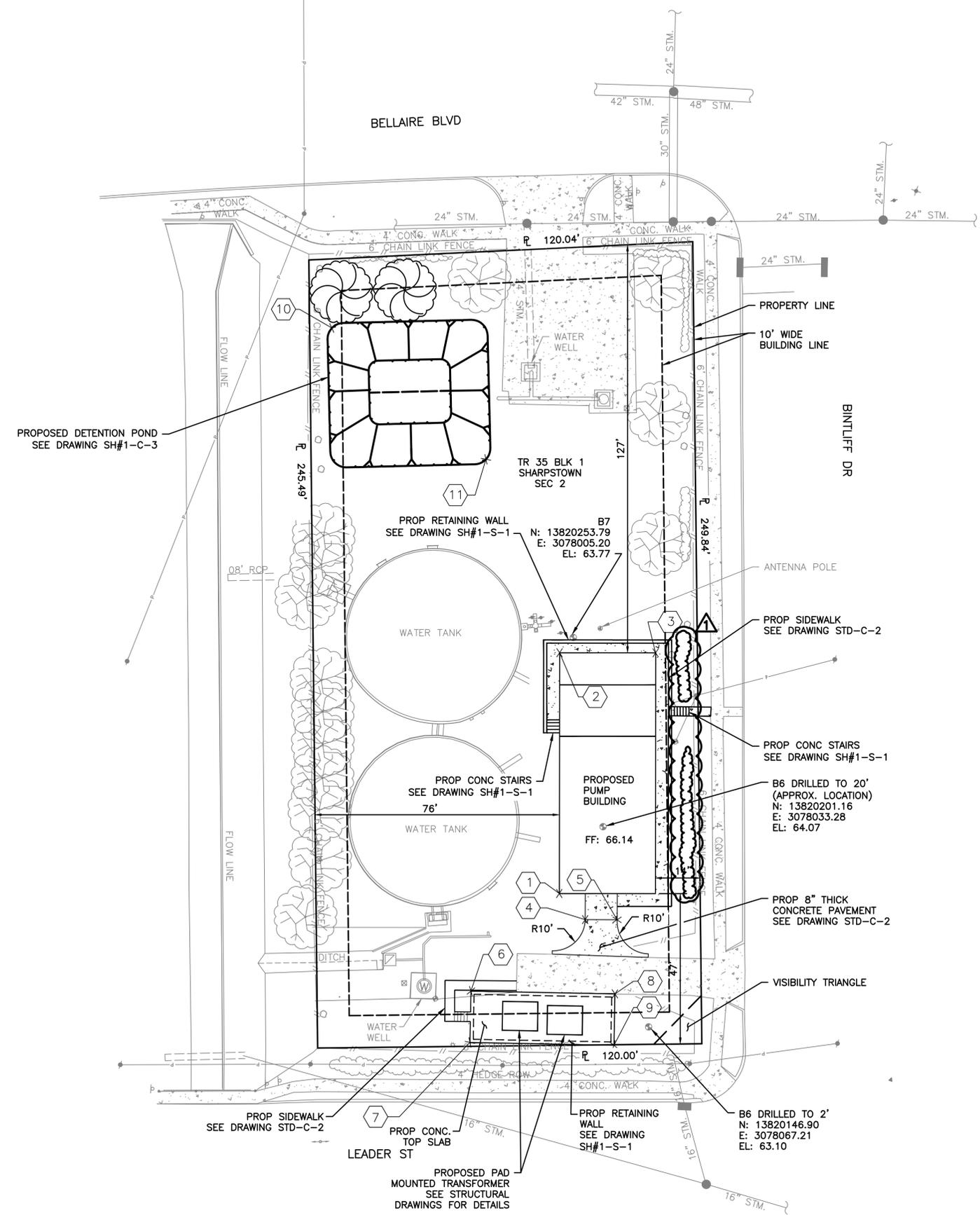
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REV	DESCRIPTION	BY	DATE
△	ADDENDUM NO. 1	PB	10/13/15

HORIZONTAL CONTROL POINTS				
PT #	EASTING	NORTHING	ELEV.	DESC.
①	3,078,027.24	13,820,177.04	66.14	TP
②	3,078,002.73	13,820,247.92	66.14	TP
③	3,078,031.09	13,820,257.73	66.14	TP
④	3,078,037.54	13,820,171.99	66.04	TP
⑤	3,078,046.98	13,820,175.23	66.04	TP
⑥	3,078,011.12	13,820,139.28	65.64	TP
⑦	3,078,016.07	13,820,124.06	65.64	TP
⑧	3,078,053.91	13,820,153.19	65.64	TP
⑨	3,078,058.86	13,820,137.98	65.64	TP
⑩	3,077,902.40	13,820,320.17	63.10	TB
⑪	3,077,961.24	13,820,297.29	63.28	TB

**LEGEND:**  
 FF: XX.XX FINISH FLOOR ELEVATION  
 MEP: XX.XX MATCH EXISTING PAVEMENT ELEVATION

- NOTES:**
- ALL VERTICAL CONTROL SHOWN HEREON THIS MAP IS REFERENCE TO NORTH AMERICAN VERTICAL DATUM OF 1988 (NAV88/GEOD12A).
  - DRAWINGS SHOW EXISTING UTILITY & PIPELINE EASEMENTS. THIS INFORMATION WAS OBTAINED FROM RECORD INFORMATION AND IT IS NOT GUARANTEED TO BE ACCURATE AND ALL INCLUSIVE.
  - STABILIZED ALL DISTURBED AREAS WITH HYDROMULCH. ALL DISTURBED AREAS TO BE RESTORED TO ORIGINAL CONDITION OR BETTER.
  - ACTUAL LOCATION OF EXISTING UTILITIES MAY VARY FROM COORDINATES AND ELEVATION PROVIDED. CONTRACTOR TO VERIFY BEFORE CONSTRUCTION AND NOTIFY THE ENGINEER IF DISCREPANCIES ARE IDENTIFIED.
  - GRADE AREAS AROUND FOUNDATION PADS TO DRAIN AWAY FROM STRUCTURE.
  - CONTRACTOR SHALL ENSURE THAT SLOPE ON FINISHED CONCRETE SURFACES IN FIRST FIVE FEET OUTSIDE DOORS DOES NOT EXCEED 2%.
  - CONTRACTOR SHALL ENSURE THAT SLOPE OF SIDEWALKS DO NOT EXCEED 5% IN THE DIRECTION OF TRAVEL AND 2% CROSS-SLOPE.
  - ADJUST EXISTING MANHOLE FRAME, RIM AND COVER TO FIT NEW GRADE.



**LANDSCAPE LEGEND**

TREE SYMBOL	COMMON NAME	SCIENTIFIC NAME	DESCRIPTION
	TEXAS PERSIMMON	DIOSPYROS VIRGINIANA	STREET TREE, 4" CALIPER
	CRAPE MYRTLE	LAGERSTROEMIA FAURIEI	PARKING LOT TREE, STANDARD SIZE
	JAPANESE BOXWOOD	BUXUS MICROPHYLLA JAPONICA	SHRUB 5 GALLON

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**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
**REHABILITATION OF PUMPS, MOTORS, VALVES, PIPING & BUILDINGS AT VARIOUS FACILITIES PACKAGE B**  
**SHARPSTOWN #1 WATER PLANT**  
 6910 BINTLIFF DRIVE, HOUSTON, TEXAS  
**PROPOSED SITE PLAN**  
 CIVIL

WBS NUMBER	S-001000-00046-4
DRAWING SCALE	1"=20'-0"
CITY OF HOUSTON PM	RAJINDER SINGH

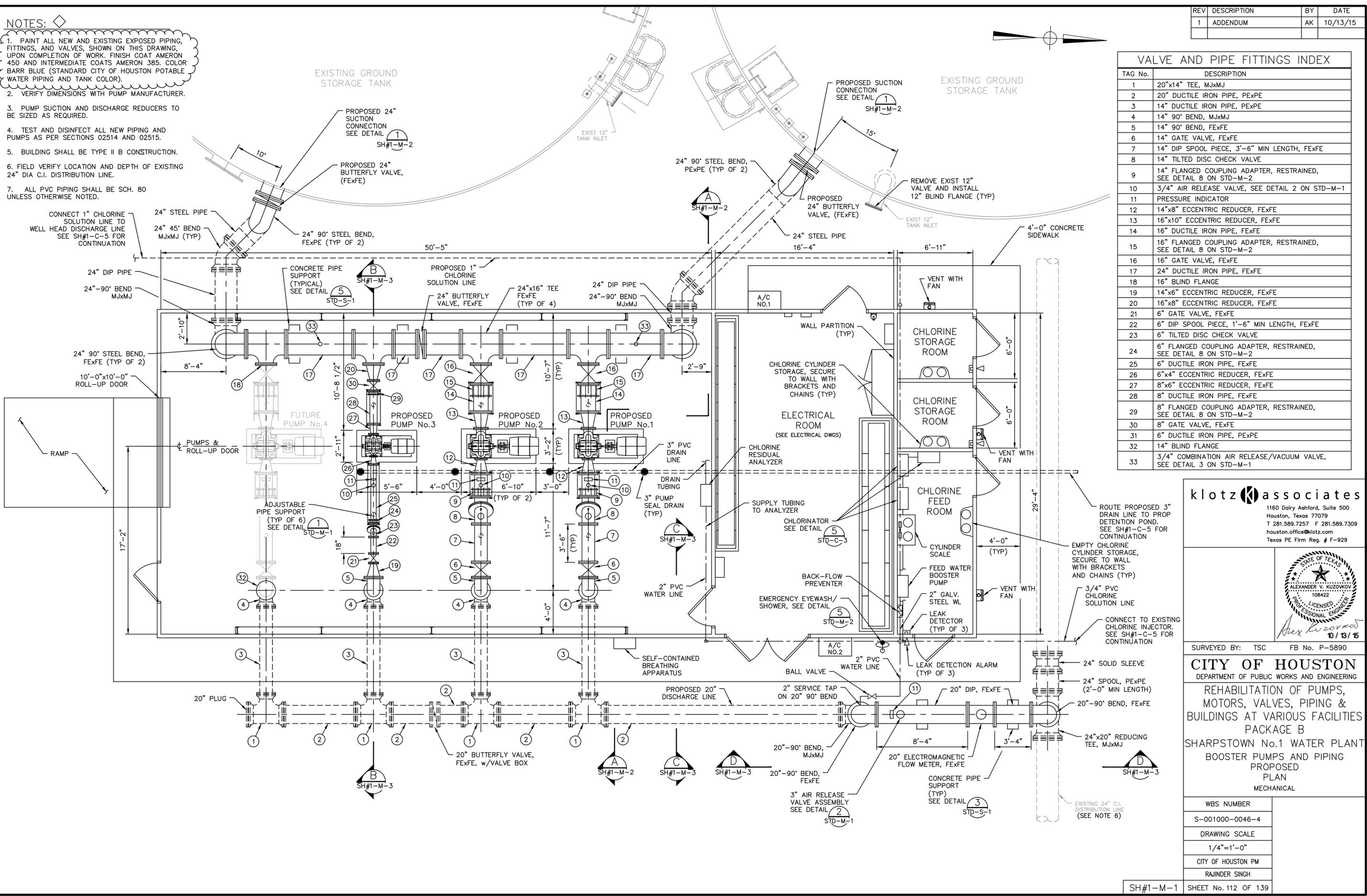
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NOTES: ◊

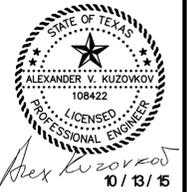
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2. VERIFY DIMENSIONS WITH PUMP MANUFACTURER.
3. PUMP SUCTION AND DISCHARGE REDUCERS TO BE SIZED AS REQUIRED.
4. TEST AND DISINFECT ALL NEW PIPING AND PUMPS AS PER SECTIONS 02514 AND 02515.
5. BUILDING SHALL BE TYPE II B CONSTRUCTION.
6. FIELD VERIFY LOCATION AND DEPTH OF EXISTING 24" DIA C.I. DISTRIBUTION LINE.
7. ALL PVC PIPING SHALL BE SCH. 80 UNLESS OTHERWISE NOTED.

REV	DESCRIPTION	BY	DATE
1	ADDENDUM	AK	10/13/15

VALVE AND PIPE FITTINGS INDEX	
TAG No.	DESCRIPTION
1	20"x14" TEE, MjxMj
2	20" DUCTILE IRON PIPE, PEXPE
3	14" DUCTILE IRON PIPE, PEXPE
4	14" 90° BEND, MjxMj
5	14" 90° BEND, FEXFE
6	14" GATE VALVE, FEXFE
7	14" DIP SPOOL PIECE, 3'-6" MIN LENGTH, FEXFE
8	14" TILTED DISC CHECK VALVE
9	14" FLANGED COUPLING ADAPTER, RESTRAINED, SEE DETAIL 8 ON STD-M-2
10	3/4" AIR RELEASE VALVE, SEE DETAIL 2 ON STD-M-1
11	PRESSURE INDICATOR
12	14"x8" ECCENTRIC REDUCER, FEXFE
13	16"x10" ECCENTRIC REDUCER, FEXFE
14	16" DUCTILE IRON PIPE, FEXFE
15	16" FLANGED COUPLING ADAPTER, RESTRAINED, SEE DETAIL 8 ON STD-M-2
16	16" GATE VALVE, FEXFE
17	24" DUCTILE IRON PIPE, FEXFE
18	16" BLIND FLANGE
19	14"x6" ECCENTRIC REDUCER, FEXFE
20	16"x8" ECCENTRIC REDUCER, FEXFE
21	6" GATE VALVE, FEXFE
22	6" DIP SPOOL PIECE, 1'-6" MIN LENGTH, FEXFE
23	6" TILTED DISC CHECK VALVE
24	6" FLANGED COUPLING ADAPTER, RESTRAINED, SEE DETAIL 8 ON STD-M-2
25	6" DUCTILE IRON PIPE, FEXFE
26	6"x4" ECCENTRIC REDUCER, FEXFE
27	8"x6" ECCENTRIC REDUCER, FEXFE
28	8" DUCTILE IRON PIPE, FEXFE
29	8" FLANGED COUPLING ADAPTER, RESTRAINED, SEE DETAIL 8 ON STD-M-2
30	8" GATE VALVE, FEXFE
31	6" DUCTILE IRON PIPE, PEXPE
32	14" BLIND FLANGE
33	3/4" COMBINATION AIR RELEASE/VACUUM VALVE, SEE DETAIL 3 ON STD-M-1



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 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING  
 REHABILITATION OF PUMPS,  
 MOTORS, VALVES, PIPING &  
 BUILDINGS AT VARIOUS FACILITIES  
 PACKAGE B  
 SHARPSTOWN No.1 WATER PLANT  
 BOOSTER PUMPS AND PIPING  
 PROPOSED  
 PLAN  
 MECHANICAL

WBS NUMBER	S-001000-0046-4
DRAWING SCALE	1/4"=1'-0"
CITY OF HOUSTON PM	RAJINDER SINGH
SH#1-M-1	SHEET No. 112 OF 139

J:\0101.065.003\07.00 CADD\COH Package B\02-Construction Drawings\Sharpstown #1\SH#1-M-1-M.3.Pump Station.dwg Oct 09 2015

REV	DESCRIPTION	BY	DATE
▲	ADDENDUM 1	BSC	10-12-15

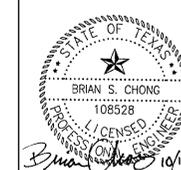
NOTES:

- ① 2" PVC DRAIN LINE.
- ② BARD TECO40 CONTROLLER.
- ③ 1" C. WITH CONTROL WIRING
- ④ BARD UNIT NO. W24A2C9XXX3STD
- ⑤ 20" X 20" FRP VENTILATION DUCT.
- ⑥ CORE DRILL WALL FOR LOUVER VENTILATION DUCT WORK.
- ⑦ FRP DAMPER, FRP BOOT GUARD, FRP BOOT, FRP WALL VENTILATOR, FRP HOOD AND BIRDSCREEN.
- ⑧ FIELD MOUNT SUPPLY FAN 8" FROM FINISH FLOOR. PROVIDE ALL REQUIRED HARDWARE FOR SECURE INSTALLATION.
- ⑨ PROVIDE & INSTALL FRP SFG40 16"x48" EXACT OD SWARTOUT FIXED BLADE LOUVER WITH SS INSECT SCREEN (ON REAR) 6" OFF FINISH FLOOR. PROVIDE ALL REQUIRED HARDWARE FOR A SECURE INSTALLATION.
- ⑩ PROVIDE & INSTALL ALUMINUM D-HV-4 60"x60" EXACT OD UNITED ENERTECH FIXED BLADE LOUVER WITH SS INSECT SCREEN (ON REAR) 1'-0" ABOVE FINISHED GRADE WITH BRONZE ANODIZED FINISH WITH CLEAR COAT. PROVIDE ALL REQUIRED HARDWARE FOR A SECURE INSTALLATION.
- ⑪ PROVIDE & INSTALL HARTZELL EXHAUST FAN.

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 Texas PE Firm Reg. # F-929



SURVEYED BY: TSC FB No. P-5890

**CITY OF HOUSTON**  
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

REHABILITATION OF PUMPS,  
 MOTORS, VALVES, PIPING &  
 BUILDINGS AT VARIOUS FACILITIES  
 PACKAGE B  
 SHARPSTOWN #1  
 BUILDING  
 HVAC PLAN

ELECTRICAL

WBS NUMBER

S-001000-00046-4

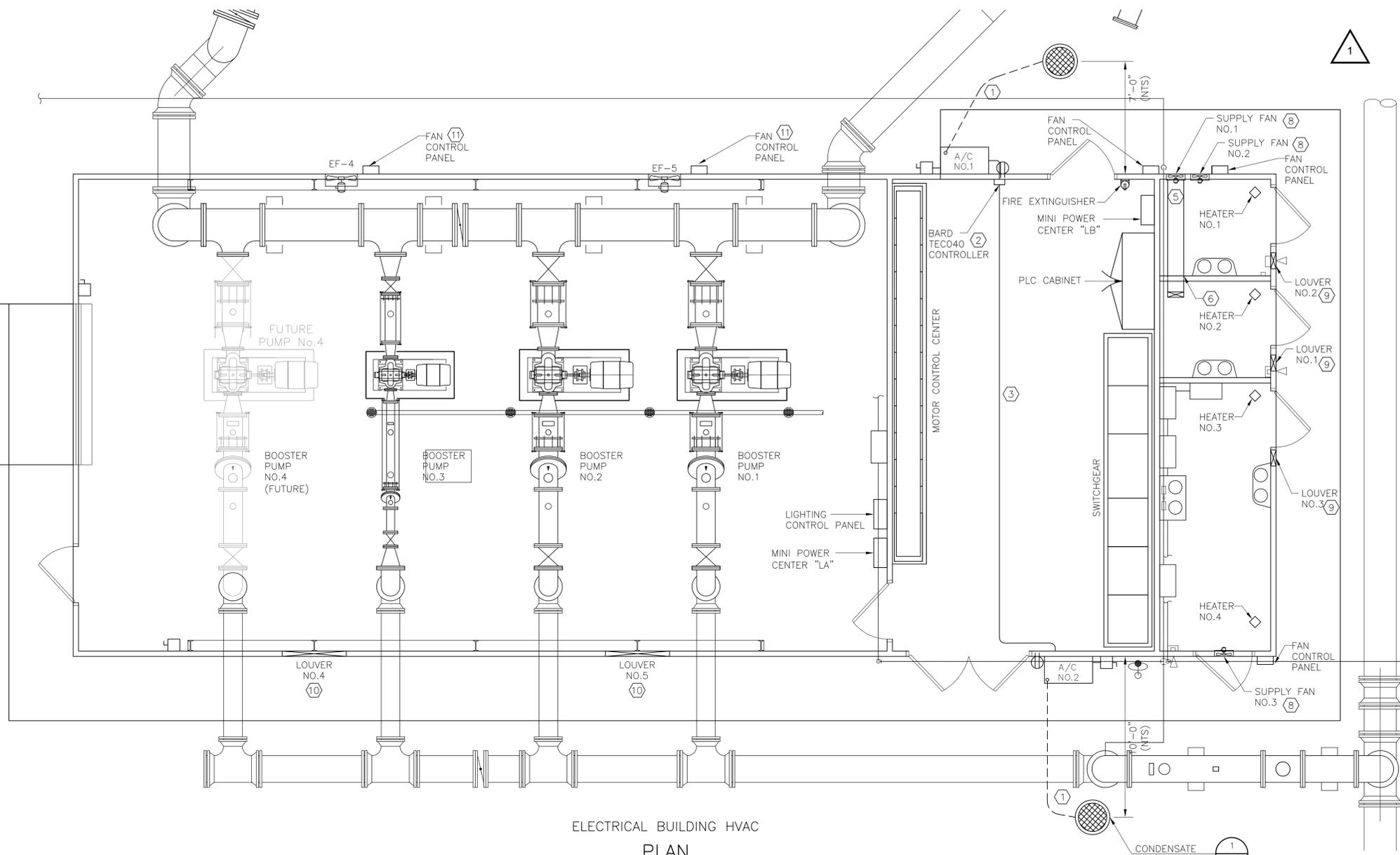
DRAWING SCALE

AS NOTED

CITY OF HOUSTON PM

RAJINDER SINGH

SHEET No. 117 OF 139



ELECTRICAL BUILDING HVAC  
 PLAN  
 1/4" = 1'-0"

**ELECTRICAL BUILDING A/C UNIT SCHEDULE**

SERVES	MARK	NOM. SIZE TONS	SUPPLY AIR CFM	OUTSIDE AIR CFM	MIN. E.S.P. IN. WTR.	FAN HP	ELECT. CHAR.			EVAPORATOR				AMBIENT TEMP	ELECTRIC HEATING			NOTES
							VOLTS	PH	FLA	TC-MBH	SC-MBH	E.A.T.	L.A.T.		KW	VOLTS	PHASE	
ELECTRICAL BUILDING	A/C NO. 1	2	1700	-	-	1/6	480	3	5.8	-	-	-	-	-	6	480	3	④
ELECTRICAL BUILDING	A/C NO. 2	2	1700	-	-	1/6	480	3	5.8	-	-	-	-	-	6	480	3	④

REMARKS:

NOTES:

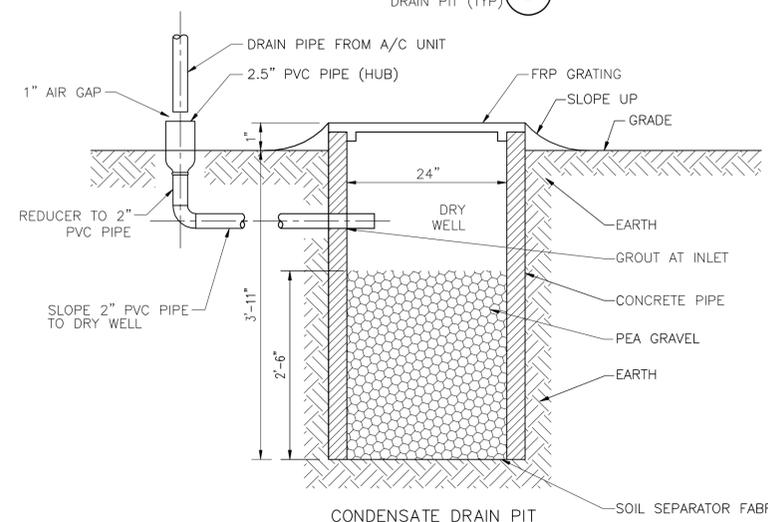
1. MINIMUM EER=9.0
2. SINGLE STAGE.

**EXHAUST/SUPPLY FAN SCHEDULE**

MARK	CFM	DRIVE TYPE	STATIC PRESS. (IN. W.G.)	FAN MOTOR			MANUFACTURER & MODEL	ACCESSORIES
				HP	RPM	VOLT/PH/HZ		
SF-1	1200	DIRECT	-	1/2	1600	230/1	HARTZELL A59-12FWD3-CONFIG2SF	⑦ (NOTE 1)
SF-2	1200	DIRECT	-	1/2	1600	230/1	HARTZELL A59-12FWD3-CONFIG2SF	⑦ (NOTE 1)
SF-3	1200	DIRECT	-	1/2	1600	230/1	HARTZELL A59-12FWD3-CONFIG2SF	⑦ (NOTE 1)
EF-4	8000	DIRECT	-	2	1700	230/1	HARTZELL A02SH-244AL306SFTCK3	(NOTE 1)
EF-5	8000	DIRECT	-	2	1700	230/1	HARTZELL A02SH-244AL306SFTCK3	(NOTE 1)

NOTES:

1. PROVIDE AND INSTALL NEMA 4X(316 SS) CONTROL PANEL (MOTOR STARTER) AND DISCONNECT SWITCH.
2. COORDINATE ELECTRICAL REQUIREMENTS FOR ALL MECHANICAL EQUIPMENT.



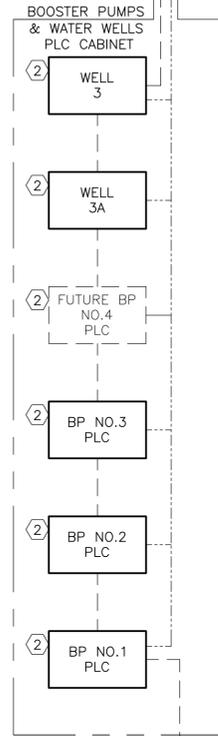
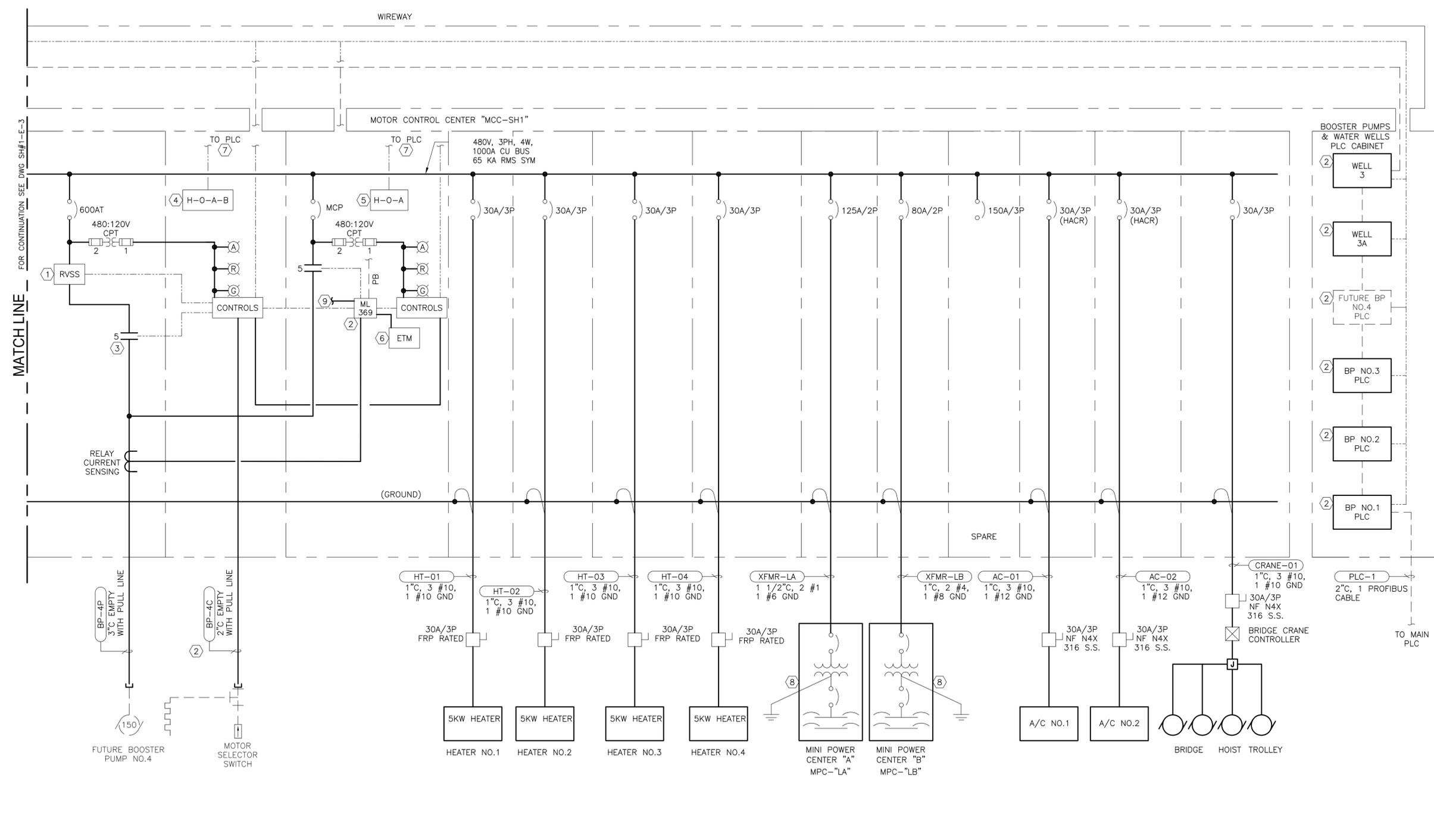
CONDENSATE DRAIN PIT  
 SECTION  
 NTS

SH#1-H-1

1

REV	DESCRIPTION	BY	DATE
ADDENDUM 1		BSC	10-12-15

- NOTES:
- SEVERE DUTY RATED SOLID STATE SOFT STARTER.
  - MOTOR MONITOR RELAY TO BE LOCATED IN BYPASS CONTACTOR SECTION AND IT SHALL SERVE BOTH RVSS AND BYPASS, SENSE RELAY VOLTAGE ON MCC BUS.
  - WHEN HAND-OFF-AUTO-BYPASS SWITCH POSITION IN "BYPASS" THE ISOLATION CONTACTOR TO BE TIMED OPEN FOR PUMP COAST DOWN BEFORE BYPASS STARTER MAY BE ENERGIZED.
  - HAND-OFF-AUTO-BYPASS SWITCH TO BE LOCATED IN THE RVSS SECTION DOOR AND WIRED TO DISCRETE INPUTS IN PLC. PLACING SWITCH IN BYPASS WILL SHUTDOWN RVSS VIA PLC COMMAND.
  - BYPASS START/STOP SWITCHES TO BE LOCATED IN BYPASS CONTACTOR SECTION DOOR, WITH START TO BE ENABLED WHEN HOAB IS IN BYPASS AFTER A PLC CONTROLLED COAST DOWN TIME OUT.
  - ELAPSED TIME METER SENSING TO BE LOCATED SUCH THAT RVSS OR BYPASS OPERATION WILL BE INDICATED.
  - PLC SHALL CONTROL NORMAL PUMP START AND STOP OPERATIONS. E-STOP AND MOTOR MONITOR RELAY SHALL SHUT DOWN MOTOR AT RVSS OR STARTER WHILE SENDING ALARM SIGNAL TO THE PLC.
  - EATON MINI POWER CENTER IN A NEMA 3R ENCLOSURE.
  - 120 VAC FROM "MPC-LB".



MOTOR CONTROL CENTER "MCC-SH1"  
PROPOSED ONE LINE DIAGRAM

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MOTORS, VALVES, PIPING &  
BUILDINGS AT VARIOUS FACILITIES  
PACKAGE B  
SHARPTOWN #1  
PROPOSED ONE LINE  
DIAGRAM SHEET 3 OF 3  
ELECTRICAL

STATE OF TEXAS  
BRIAN S. CHONG  
10952B  
LICENSED PROFESSIONAL ENGINEER  
10/12/15

SURVEYED BY: TSC      FB No. P-5890

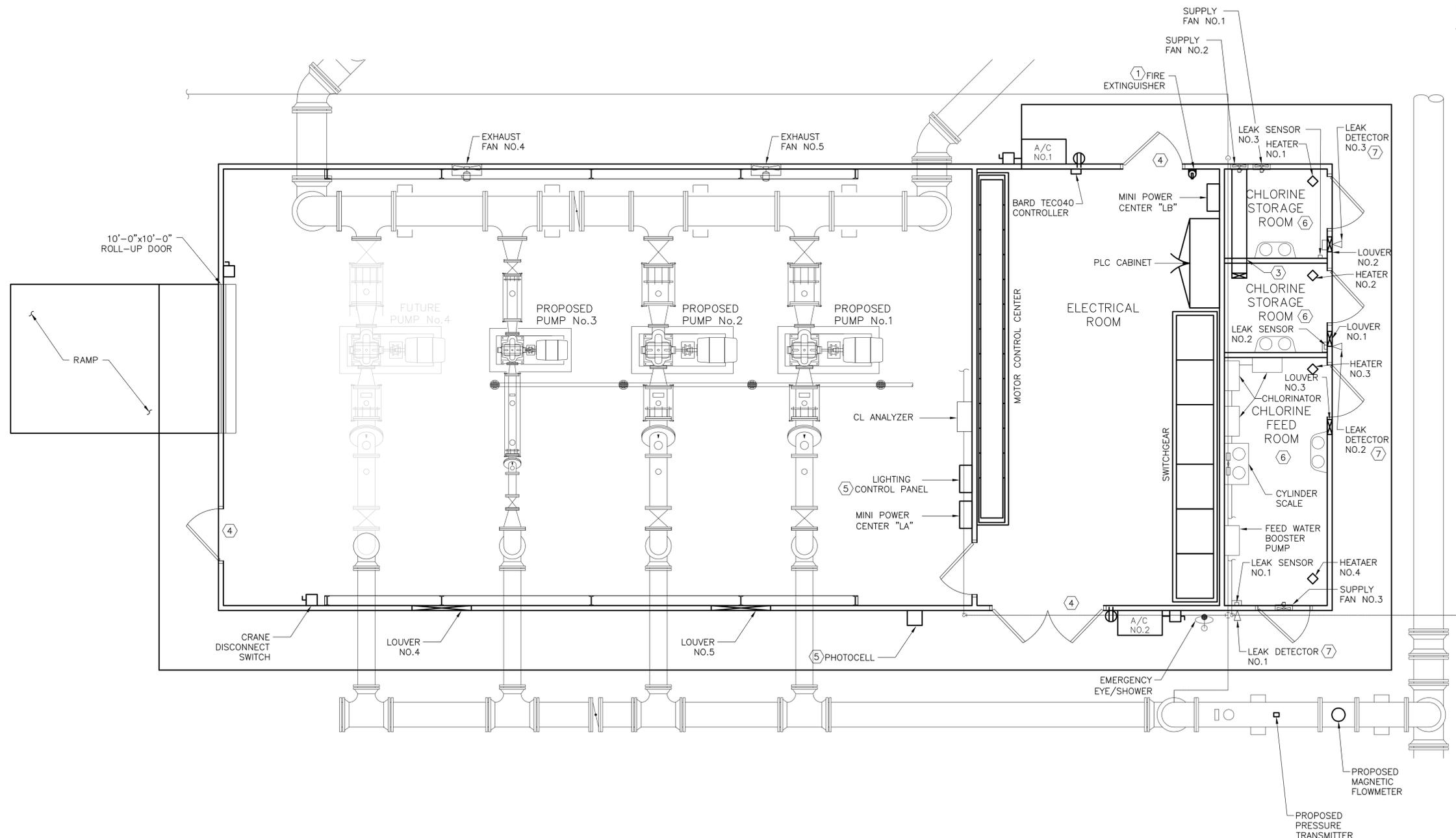
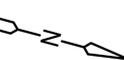
WBS NUMBER	
S-001000-00046-4	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
RAJINDER SINGH	

SH#1-E-4      SHEET No. 121 OF 139

REV	DESCRIPTION	BY	DATE
▲	ADDENDUM 1	BSC	10-12-15

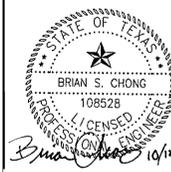
NOTES:

- ① 20 LBS. CLASS C FIRE EXTINGUISHER.
- ② NOT USED
- ③ CORE DRILL WALL FOR LOUVER VENTILATION DUCT WORK.
- ④ EACH DOOR EQUIPPED WITH PANIC HARDWARE. SEE SPECIFICATION 13120 PRECAST SEGMENTAL CONCRETE BUILDING FOR MORE DETAILS.
- ⑤ SEE DWG. SH#1-E-18.
- ⑥ "UNCLASSIFIED AREA"
- ⑦ PROVIDE LEAK DETECTOR WITH ROTATE WARNING LIGHT AND HORN. FIELD MOUNT LEAK DETECTOR WITH UNISTRUT SUPPORT SYSTEM TO WALL. PROVIDE ALL REQUIRED HARDWARE.



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**REHABILITATION OF PUMPS,  
 MOTORS, VALVES, PIPING &  
 BUILDINGS AT VARIOUS FACILITIES  
 PACKAGE B  
 SHARPSTOWN #1  
 BUILDING  
 EQUIPMENT PLAN**

ELECTRICAL	
WBS NUMBER	S-001000-00046-4
DRAWING SCALE	AS NOTED
CITY OF HOUSTON PM	RAJINDER SINGH

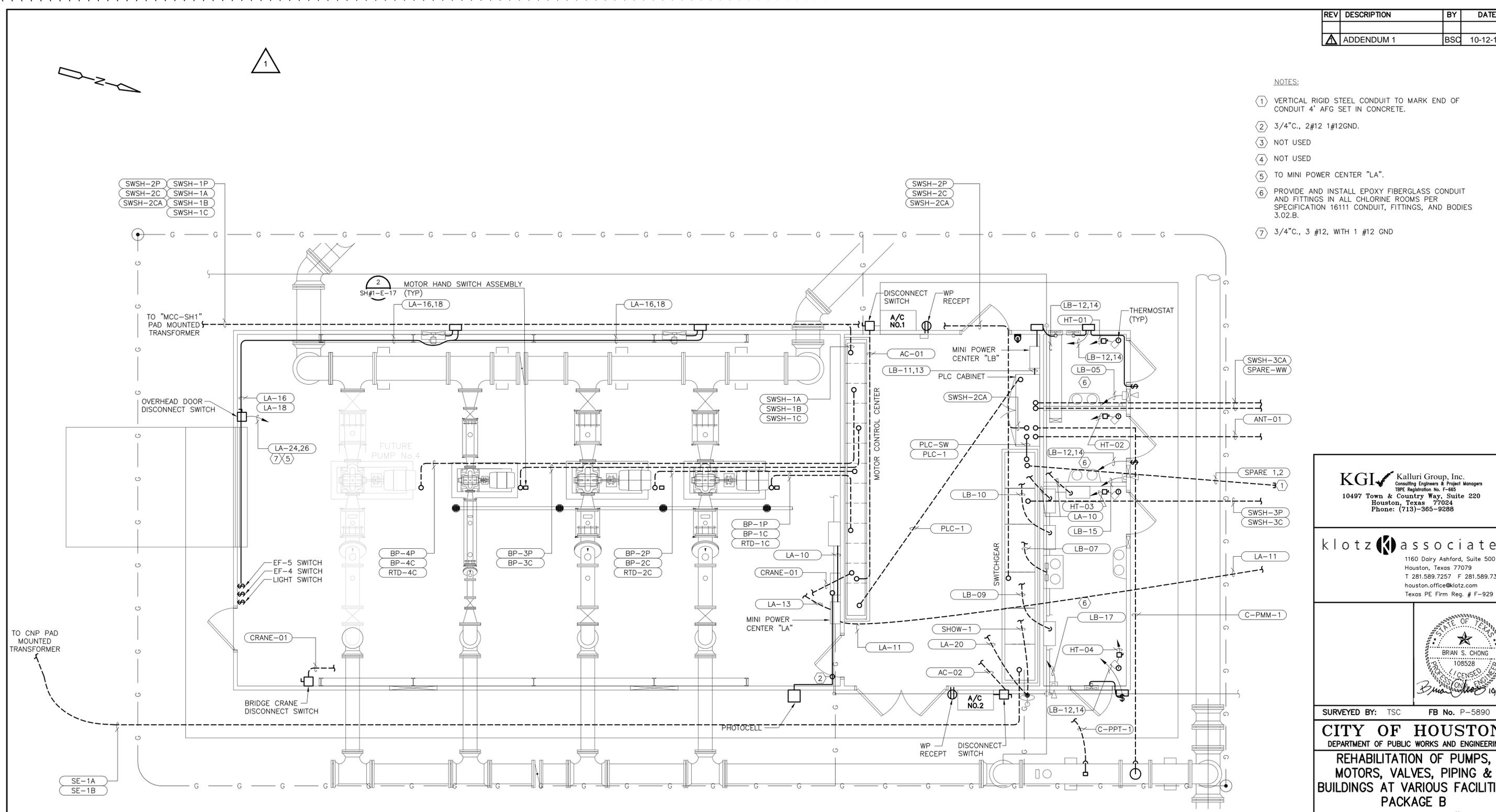
SH#1-E-7

SHEET No. 124 OF 139

REV	DESCRIPTION	BY	DATE
1	ADDENDUM 1	BSC	10-12-15

NOTES:

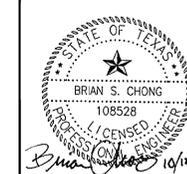
- 1 VERTICAL RIGID STEEL CONDUIT TO MARK END OF CONDUIT 4' AFG SET IN CONCRETE.
- 2 3/4"C, 2#12 1#12GND.
- 3 NOT USED
- 4 NOT USED
- 5 TO MINI POWER CENTER "LA".
- 6 PROVIDE AND INSTALL EPOXY FIBERGLASS CONDUIT AND FITTINGS IN ALL CHLORINE ROOMS PER SPECIFICATION 16111 CONDUIT, FITTINGS, AND BODIES 3.02.B.
- 7 3/4"C, 3 #12, WITH 1 #12 GND



BUILDING POWER  
**PLAN**  
 1/4" = 1'-0"

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 PACKAGE B**  
**SHARPSTOWN #1  
 BUILDING  
 POWER PLAN**  
 ELECTRICAL

WBS NUMBER	
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DRAWING SCALE	
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CITY OF HOUSTON PM	
RAJINDER SINGH	



REV	DESCRIPTION	BY	DATE
△	ADDENDUM 1	BSC	10-12-15

NOTES:

- ① PROVIDE LABEL PER CITY OF HOUSTON ELECTRICAL CODE SECTION 504.1.1 AVAILABLE FAULT CURRENT LABELING. THE LABEL SHALL BE 2" X 3" IN SIZE AND SHALL BE BLUE LETTERING ON WHITE BACKGROUND. THE LABEL SHALL ALSO INCLUDE THE DATE OF CALCULATION.

PANEL "MPC-LA"									
PRIMARY BREAKER 100 AMPS TRANSFORMER 25kVA SECONDARY BREAKER 125 AMPS PANEL VOLTS 120/240 PHASE <u>1</u> WIRE <u>3</u> SN ✓					NOTES 1. BREAKERS 1P/20A UNLESS MARKED OTHERWISE 2. ADJ. CKTS. TO BAL. PNL. 3. SURFACE MOUNT, NEMA 1 4. MOUNT MINI POWER CENTER WITH PANEL COVER HINGE AT 72" AFF				
CKT. DESCRIPTION	WIRE	LOAD	BKR.	A	B	BKR.	LOAD	WIRE	CKT. DESCRIPTION
ELECTRICAL ROOM EXIT LIGHT	12	200	20	1	2	20	200	12	PUMP ROOM EXIT LIGHT
ELECTRICAL ROOM EMERGENCY LIGHTS	12	350	20	3	4	70	350	12	PUMP ROOM EMERGENCY LIGHTS
ELECTRICAL ROOM LIGHTS	12	200	20	5	6	20	200	12	PUMP ROOM LIGHTS
ELECTRICAL ROOM RECEPTACLES	12	400	20	7	8	20	200	12	PUMP ROOM RECEPTACLES
BUILDING EXTERIOR LIGHTS	12	800	20	9	10	20	400	12	CL ANALYZER
SITE LIGHT	12	400	20	11	12	20	400	12	PLANT DISCHARGE MAGMETER
SITE LIGHT	12	400	20	13	14	20	200	12	PRESSURE TRANSMITTER
A/C NO.1 RECEPTACLE	12	180	20	15	16	20	500	12	PUMP ROOM EF NO.4 AND 5
A/C NO.2 RECEPTACLE	12	180	20	17	18	20	500	12	SPARE
CATHODIC RECEPTACLE	10	800	20	19	20	20	1000	12	EMERGENCY SHOWER
CATHODIC RECEPTACLE	10	800	20	21	22	20	400	12	LIGHTING CONTROL PANEL
TANK RECEPTACLE	10	180	20	23	24	20	800	12	OVERHEAD DOOR
SPARE	-	-	20	25	26	20	800	12	
				N					
TOTAL LOAD = 4890						TOTAL LOAD = 4350			

- PROVIDE SINGLE POLE CIRCUIT WITH 3/4"C., 2 #12, 1 #12 GND OR OTHERWISE NOTED - SAME HERE  
 - PROVIDE DOUBLE CIRCUIT WITH 3/4"C., 3 #12, 1 #12 GND OR OTHERWISE NOTED - SAME HERE

SHORT CIRCUIT CALCULATION: 1,689A ON 6/09/2015 ①

PANEL "MPC-LB"									
PRIMARY BREAKER 60 AMPS TRANSFORMER 15kVA SECONDARY BREAKER 70 AMPS PANEL VOLTS 120/240 PHASE <u>1</u> WIRE <u>3</u> SN ✓					NOTES 1. BREAKERS 1P/20A UNLESS MARKED OTHERWISE 2. ADJ. CKTS. TO BAL. PNL. 3. SURFACE MOUNT, NEMA 1 4. MOUNT MINI POWER CENTER WITH PANEL COVER HINGE AT 72" AFF				
CKT. DESCRIPTION	WIRE	LOAD	BKR.	A	B	BKR.	LOAD	WIRE	CKT. DESCRIPTION
CL STORAGE ROOM LIGHTS	12	100	20	1	2	20	200	12	CL FEED ROOM LIGHTS
CL STORAGE ROOM EMERGENCY LIGHTS	12	100	20	3	4	20	300	12	CL FEED ROOM RECEPTACLES
CL LEAK DETECTORS NO. 3	12	1800	20	5	6	20	100	12	CL FEED ROOM EMERGENCY LIGHT
WEIGHT SCALE	12	200	20	7	8	20	100	12	CL FEED ROOM EXIT LIGHT
FEED WATER BOOSTER PUMP	12	1200	20	9	10	20	600	12	CHLORINATOR
PLC	12	600	20	11	12	20	200	12	SUPPLY FAN NO.1,2,3
PLC CABINET RECEPTACLE	12	180	20	13	14	20	200	12	SPARE
CL LEAK DETECTOR NO. 2	12	1800	20	15	16	20	200	12	SPARE
CL LEAK DETECTOR NO. 1	12	1800	20	17	18	20	300	12	BP NO.1 369
WELL 3 369	12	300	20	19	20	20	300	12	BP NO.2 369
WELL 3A 369	12	300	20	21	22	20	300	12	BP NO.3 369
SPARE				23	24	20	300	12	BP NO.4 369
				N					
TOTAL LOAD = 3580						TOTAL LOAD = 3100			

SHORT CIRCUIT CALCULATION: 1,689A ON 6/09/2015 ①

LIGHT FIXTURE SCHEDULE				
TYPE	CATALOG NUMBER	DESCRIPTION	LAMPS	REMARKS
A A	LITHONIA No. AF10 3 32 120 GEB10IS	4 FEET FLUORESCENT LIGHT FIXTURE WITH UPLIGHT APERTURED REFLECTOR.	3-32W	FIELD MOUNT FIXTURE TO UNISTRUT WITH TYPE 316 S.S. STRUT AND TYPE 316 S.S. HARDWARE.
B B	LITHONIA No. TWH-LED-20C-40K-MVOLT-DDBXD	DIE-CAST ALUMINUM WALL PACK FIXTURE WITH GLASS REFRACTOR, SPECULAR ANODIZED ALUMINUM REFLECTOR, AND DARK BRONZE POWDER COAT PAINT FINISH.	LED	MOUNT WITH TYPE 316 S.S. HARDWARE. MOUNT ON OUTSIDE WALL WITH BOTTOM OF FIXTURE AT 10'-0" ABOVE ELECTRICAL ROOM FLOOR ELEVATION.
C C	LITHONIA No. ELT50-H1212 WITH 3' CORD & GROUNDED PLUG	EMERGENCY LIGHT UNIT WITH 90 MINUTE, 12 VOLT, LEAD CALCIUM BATTERY.	TWO 12 WATT HALOGEN	PROVIDE A RECEPTACLE NEXT TO UNIT FOR UNIT TO PLUG-IN. MOUNT WITH TYPE 316 S.S. HARDWARE. MOUNT BOTTOM OF FIXTURE AT 8'-0" ABOVE ELECTRICAL ROOM FLOOR.
X X	LITHONIA No. LE-S-1-R-120-ELNSD	EMERGENCY EXIT LIGHT WITH 90 MINUTE BACK UP BATTERY AND POLYCARBONITE HOUSING.	LED ILLUMINATED	MOUNT BOTTOM OF FIXTURE AT 9'-6" ABOVE ELECTRICAL ROOM FLOOR.
D D	LITHONIA No. DSXF3 LED 8 A530/40K WFL 120 SF DLL127F1.5JU DDBXD	LED FLOOD LIGHT FIXTURE WITH PHOTOCCELL	LED	TENON MOUNT ON POLE WITH PHOTOCCELL

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 PACKAGE B**  
**SHARPTOWN #1  
 PANELBOARD SCHEDULES AND  
 LIGHT FIXTURES SCHEDULE**

ELECTRICAL

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