

Document 00910

ADDENDUM NO. 1

Date of Addendum: 3/19/15

PROJECT NAME: Northwest Wastewater Treatment Plant Improvements

PROJECT NO: WBS No. R-000265-0095-4

BID DATE: March 26, 2015 (There is no change to the Bid Date.)

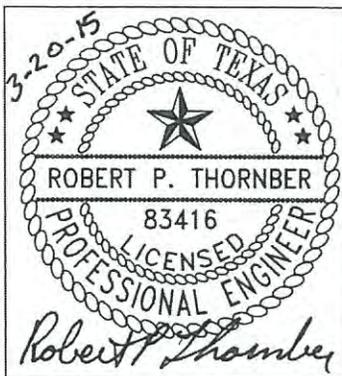
FROM: J. Timothy Lincoln, P.E., City Engineer
City of Houston, Department of Public Works and Engineering
611 Walker Street, Houston, Texas 77002
Houston, Texas 77002
Attn: Bill Zod, P.E., Project Manager

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.

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



CONTRACT DOCUMENTS

1. Document 00010 – Remove page 8 and replace with revised page 8.
2. Document 00410B - Remove Document 00410B and replace with revised Document 00410B.

SPECIFICATIONS

3. Section 11206 - Hydropneumatic Tank. Paragraph 1.05.A.2. – delete “and shall be ISO 9001 certified.”
4. Section 11280 – Stainless Steel Fabricated Slide Gates. Paragraph 2.01.D Materials: Components, Frame, Cover Slides, Yokes – replace “Type 316L” with “Type 304L”
5. Section 11285 - FRP Gates. Remove Section 11285 in its entirety.
6. Section 11317 – Submersible Non-Clog Chopper Pump Equipment.

Replace paragraph 1.08.A with “Provide warranty under provisions of Section 01770 – Closeout Procedures.”

Add Paragraph 1.08.B, “Pump manufacturer shall furnish to the City a warranty written expressly from the manufacturer to the City of Houston, covering workmanship, material, and performance deficiency under normal use and service. The full warranty shall cover 100 percent of parts and labor for at least 12 months. After the first year, the equipment shall be covered by a pro-rated warranty with the following minimum provisions:

1. From 12 to 36 months after acceptance: 50 percent of all replacement parts and labor for defective materials, workmanship, and performance deficiencies.
2. From 37 to 48 months after acceptance: 30 percent of all replacement parts and labor for defective materials, workmanship, and performance deficiencies.
3. From 49 to 60 months after acceptance: 20 percent of all replacement parts and labor for defective materials, workmanship, and performance deficiencies.”

Replace paragraph 2.01.A with “The following manufacturers are acceptable. Listing as an acceptable manufacturer will not relieve the manufacturer from conforming to Contract Specifications.

1. Vaughn.
2. Hayward Gordon.
3. Flygt.
4. Engineer approved equivalent.”

Replace paragraph 2.01.O with “Access Frame and Cover – Not Required.”

7. Section 11319 - Vertical Turbine Pumps. Paragraph 1.06 WARRANTY, revise A. to read: "Provide warranty under provisions of Document 00700 - General Conditions and 01770 - Closeout Procedures." Paragraph 2.02.D.2. Revise first sentence to read: "Impellers shall be of the enclosed or semi-open type, with the shroud designed to rotate against wearing rings installed in the bowl assembly." The Line Shaft maybe open or enclosed. Paragraph 2.02.L. Corrosion Protection. Add "and similar to Tnemec coating systems or approved equal."

8. Section 11332 – Static Screen.

Replace paragraph 1.06.A with "Provide warranty under provisions of Section 01770 – Closeout Procedures."

Replace paragraph 2.01 with "The following manufacturers are acceptable. Listing as an acceptable manufacturer will not relieve the manufacturer from conforming to Contract Specifications.

- A. Parkson Corporation.
- B. Andritz Separation, Inc.
- C. JDV Equipment Corporation.
- D. Engineer approved equivalent."

Add the following to paragraph 2.03.B "units with inlet connections differing from 12.00 inch in diameter are acceptable. Contractor and Manufacturer shall coordinate to ensure appropriate connection to scum line."

Replace paragraph 2.03.G with "Cabinet shall be enclosed with doors and/or removable access panels. Enclosure mechanism shall allow all maintenance procedures fully at all times. Provide two (2) 6" plain end connections future odor control. Connections locations determined during shop drawing phase."

Replace paragraph 2.06.E with "The coined transverse bars shall have maximum face width of 0.086 inches and maximum depth of 0.125 inches."

Replace paragraph 2.07.A with "The static screen unit shall be equipped with doors and/or removable covers constructed of 304 or 316 stainless steel."

Replace paragraph 2.07.B with "The doors or removable covers shall cover the screen panel, allowing clearance for solids to slide off the screen."

Replace paragraph 2.07E with "The doors shall be attached to static screen unit using type 316 or 18-8 stainless steel fasteners and type 316 or 18-8 stainless steel continuous hinge".

9. Section 11333 – Screw Conveyor.

Replace paragraph 1.1.B.1 with "Support legs."

Delete paragraph 1.3.B.9.

Replace paragraph 1.7.A with "Provide warranty under provisions of Section 01770 – Closeout Procedures."

Replace paragraph 2.1 with "The following manufacturers are acceptable. Listing as an acceptable manufacturer will not relieve the manufacturer from conforming to Contract Specifications.

- A. Parkson Corporation.
- B. Andritz Separation, Inc.
- C. JDV Equipment Corporation.
- D. Engineer approved equivalent."

Replace paragraph 2.2.A.6 with "Flight screw and spiral insert: High strength alloy carbon steel with a minimum hardness of 180 Brinnel, 80,000 psi tensile strength minimum."

Replace paragraph 2.2.A.7 with "Wear liner: UHMW or ceramic chip embedded polyurethane, minimum 3/8 inch.

Replace paragraph 2.2.B.1 with "Trough shall be U-shaped fabricated from an 11 gauge minimum stainless steel plate. Stiffeners shall be placed across the top of the trough and fastened to both sides of the trough to maintain trough shape and act as a face seal for the sidewalls. Stiffeners shall be shaped/oriented to not collect or accumulate solids."

Replace paragraph 2.2.B.4 with "Discharge openings shall be flanged for bolting and gasketing. Discharge shall be fabricated from an 11 gauge minimum 304 stainless steel plate."

Replace paragraph 2.2.D.1 with "Screw conveyor supplier shall coordinate all hopper/sidewall configurations and connection points shown on the Drawings with the static screen equipment and coordinate with those manufacturers. Refer to Section 11332. Hopper shall be minimum 11 gauge 304 stainless steel reinforced for the required service."

Replace paragraph 2.2.F with "Support Legs:

1. The manufacturer shall design and furnish the support members, anchor bolts, bearings, and accessories as indicated on the drawings and as required for installation. The conveyor support system shall be manufactured to carry all horizontal and vertical design loads with an impact factor of 1.25.
2. The support system for the conveyor shall be 304 stainless steel.
3. All structural members and connections shall be designed so that the unit stresses will not exceed AISC allowable stresses by more than one-third when subjected to loadings equal to twice the running torque of the drive motor."

Replace paragraph 2.2.G.1 with “The conveyor unit shall consist of a constant speed electric drive squirrel-cage induction type, motor – 5 hp maximum.”

Replace paragraph 2.2.G.3 with “The electric motor shall be energy-efficient, NEMA B designed for 480 volt, 3-phase, 60 HZ electric service.”

Delete Paragraph 2.2.H.5.

Add Paragraph 2.2.L.4, “Torque switch contacts shall be wired into the MFR control panel to stop the conveyor on a failure and alarm and indicate on MFR Panel.”

Replace Paragraph 2.2.M.1 with “The Screw Conveyor Control Panel (MFR control panel) shall contain all the necessary controls to operate the conveyance equipment and annunciate and alarm to the SCADA system”

Replace Paragraph 2.2.M.2 with “The Control panel cabinet shall be constructed to meet NEMA 4X requirements for exterior applications.”

Replace Paragraph 2.2.M.3 with “The control panel shall be mounted adjacent to the conveyor as shown on the contract drawings.”

Replace Paragraph 2.2.M.4 with “Refer to Division 13 and schematics for a description of the functional control of the screw conveyor and scum system. Refer to Division 16 for control panel construction elements.”

Replace Paragraph 2.2.M.6 with “The control panel shall have Hand-off-Auto switches and Forward –OFF-Reverse switches. When the switch is in the “hand” position, the motor may be operated in forward or reverse direction. In the “auto” position, the control panel shall take run commands from the PLC program based on the system operation and per the description in Division 13. The H-O-A switch shall have an extra contact to indicate switch is in Auto for SCADA indication. The panel shall have a collective alarm to indicate a common failure back to the SCADA system per P&ID diagram. In Auto/or Hand mode, pump output run contact from WAS/Scum control panel or local on-off shall be wired in series with conveyor seal in circuit, when the pump is shut down the conveyor shall continue to run for a set time (suitable) to clear material from conveyor.”

Add the following to Paragraph 2.2.M.7 “A safety stop cord shall be tied into the same circuit as the E-Stop button. The emergency cord shall be located along any moving portions of the conveyor.”

Section 11337 - Automatic Self-Cleaning Filters. Paragraph 1.06 WARRANTY, delete B. and C. Add 2.05.K. Listing as an acceptable manufacturer will not relieve the manufacturer from conforming to Contract Specifications.

10. Section 11338 – Scum Mixer.

Delete paragraph 1.06.B.

Delete paragraph 1.06.C.

Replace paragraph 2.01.B with “A quantity of one (1) top entry drive mixer is required for the scum accumulation box. The mixer shall be designed to meet the following requirements:

Number of Mixers	1	
Tank Dimensions (LxWxD)	(12x12x18.7)	feet
Liquid Level Variation (min-max)		inches
Volume	10,987.40	gallons
Tank Baffles (quantity @ width x height)	See Drawings	
Minimum Motor Nameplate Power	7.5	hp
Maximum Nominal Motor Speed	1,800	RPM
Material of Wetted Parts	316 Stainless Steel	
Impeller Type	3 Bladed Anti-Ragging Hyperfoil	
Impeller Quantity	2	
Maximum Output Speed	45	RPM
Minimum Impeller Diameter	48	inches
Impeller Off Bottom Spacing	16	inches
Minimum Shaft Diameter	3.50	inches

Replace paragraph 2.06.A.b with “Hayward Gordon.”

Add paragraph 2.06.A.c, “Cleveland Mixer.”

Add paragraph 2.06.A.d, “Engineer approved equivalent.”

Add paragraph 2.06.B with “Listing as an acceptable manufacturer will not relieve the manufacturer from conforming to Contract Specifications.”

11. Section 11350 - Fixed Header Coarse Bubble Diffused Aeration System. Paragraph 2.01 A add Environmental Dynamics Inc. as an acceptable manufacturer. Delete paragraph 3.03. A. & B. and replace with 3.03. A. “Provide warranty under provisions of Document 00700 - General Conditions and 01770 - Closeout Procedures.”

12. Section 13440 – Process Control System. Delete paragraph 2.01.H.3, replace with “Profibus Remote Base Controller: IM153 controller shall be provided where the remote base is provided for Profibus communication with Siemens S7-300 and Siemens 545 PLC.”

13. Section 15121 – Telescoping Valves.

Replace paragraph 1.06.A with “Provide warranty under provisions of Section 01770 – Closeout Procedures.”

Add paragraph 2.03.F, “Listing as an acceptable manufacturer will not relieve the manufacturer from conforming to Contract Specifications.

14. Section 15810. Delete 2.02 A. and replace with:

A. Manufacturers

1. Acceptable Manufacturers
 - a. Spunstrand Inc.
 - b. Viron International
 - c. Belco Manufacturing Company
 - d. Approved equal
2. Listing as an acceptable manufacturer will not relieve the manufacturer from conforming to Contract Specifications.

15. Section 16111 – Conduit, Fittings, and Bodies. Delete paragraphs 3.02.A, B, and C, replace with:

- A. Install rigid aluminum conduits in dry, inside, air-conditioned locations and all outdoor locations, inside valve vaults and wet wells, lift station drypits, areas that are not air-conditioned, and in all other and wet environments. Aluminum conduits shall not be installed in chlorine or caustic areas.
- B. Install PVC coated rigid galvanized steel (RGS) elbows in ductbanks incased in concrete slabs for stub-ups in chlorine and caustic locations only. Use installers certified by the manufacturer.
- C. Install PVC conduits in reinforced duct banks or encased in concrete slabs. For bends and stub-ups, use PVC coated rigid aluminum elbows as required in Section 16402. Use installers certified by the manufacturer.

16. Specification 16641 – Cathodic Protection for Existing Tank Bottoms. Remove Section 16641 in its entirety.

CHANGES TO DRAWINGS

17. Insert Drawing C-5 Civil Site Details. C-5 was left out during printing.

18. C-6 Scum Separation System, Grading & Paving Plan. Add the following General Note “6. Proposed gravel road shall consist of a 9 inch stabilized subgrade layer with a 6 inch limestone gravel top layer.”

19. Drawings E6, E7, E10, E11, E12, E13, E14, and EZ-2 are revised per Addendum 1

20. Drawings I-3, I-4, I-9, I-15, I-19, I-20, I-21, I-22 are revised per Addendum 1

21. Drawings I-9, I-10, and I-11 are replaced with new sheets per Addendum 1
22. M-3 Aeration Gate Overall Plan. Replace Note 3 with: "If gate is found inoperable replace with factory gate/complete with electric actuator."
23. M-19 Aeration Gate Schedule. Gate No. SG-112-1 change Gate Width and Gate Height from 48 x 48 to "54 x 54". On Gate No. SL-102-A and SL-102-B – Existing Operator Lift Type replace "Double Stem" to "Single".
24. M-36 Chlorine Contact Basin Plan. The 4" NPW piping layout was revised to match drawing M-32 NPW System Equipment Plan.
25. M-37 Biotrickling Filter Demolition Plan. Revise Note 1 to read: "Reuse existing grating where possible, replace/match any that is damaged. See Drawing S-20 for grating support details." Note 4, refers to protecting sump drain from debris during construction activities.
26. S-11 Guardrail, Handrail & Misc. Metal Plan. An acceptable repair will be one that can be accomplished by regrouting a post, replacement or tightening of brackets and fittings. Damaged tubing and posts that cannot be repaired shall be replaced. Toeboards are only required on sections of new guardrail and only on areas of active catwalks or walkways.
27. S-15, In Plan 1 and Sections A and B, REVISE all locations that indicate "6" LIME SUBGRADE TREATMENT" to "SUBGRADE PREPARATION (SEE GENERAL NOTE 6.)"
28. S-15, add General Note 6 as "6. SUBGRADE PREPARATION, CONTRACTORS OPTION TO EITHER FOLLOW SUBGRADE PREP NOTES 1 AND 3 ON SHEET S-21 OR LIME STABILIZATION OF SUBGRADE PER THE GEOTECHNICAL REPORT (G178-13) ON PAGE 11. BEARING PRESSURE SHALL BE BASED ON TABLE 3 (PAGE 10) OF THE GEOTECHNICAL REPORT (G178-13)."
29. S-16 NPW System foundation Plan, Sections, and Details. Concrete saddle details added to Section 1. Add Note "2. Set final elevation after tank is selected. Reference SH M-33."

CLARIFICATIONS

30. The bid date for this project will remain March 26, 2015.
31. Substantial Completion and Partial Substantial Completion. Comply with Section 01770 – Closeout Procedures, 1.02 Substantial Completion.
32. Listing as an acceptable manufacturer will not relieve the manufacturer from conforming to Contract Specifications.

33. Alternative manufacturers or “approved equals” other than those listed in the project specifications may be submitted for approval following contract award during submittal review. This approval is at the engineer’s discretion.
34. Drawing G-6 Impervious Cover Plan. The cost associated with the drainage swale, 6-inch PVC pipe and connection to the existing inlet illustrated on Sheet G-6 shall be included in Bid Item No. 5. Provide a breakdown of the cost in the Schedule of Values for the lump sum bid item.
35. Drawing H-2 HVAC Demolition. During the replacement of the HVAC systems in the Maintenance and Administrative buildings, work will only be done on one building at a time, keeping one system operational at all times. Coordinate shutdown with plant manager before any construction begins. During HVAC system installation replace in-kind all walls, ceilings, electrical, and lighting that are demolished or damaged.
36. Drawing M-3 Aeration Gate Overall Plan. Gates being retrofitted with electric actuators if found to be inoperable shall be replaced with a new factory gate and actuator. Extra Unit Prices for the different gate/actuator sizes are provided in Document 00410B.
37. Drawing M-6. By-pass pumping requirements. Typical dry weather average daily flow is 7.3 MGD, Typical dry weather maximum daily flow is 12 MGD, Typical dry weather peak 2-hour flow is 14 MGD, Permitted average daily flow is 18 MGD. Coordinate shutdown and by-pass pumping with plant manager. By-pass pumping will be allowed only during periods of dry weather.
38. Drawing M-19 Aeration Gate Schedule. Gate SL-107-7 is a standard gate. Information in table is correct.
39. Drawing M-41 Odor Control Building Fan. See Section 11402 Biological Odor Control System for fan/blower requirements.
40. Drawing S-7 Chemical Building Joint Repair Plan. To clarify Note 3 - Two bleach tanks can be removed from service at a time. The means and methods for relocating or removing the tanks to rehabilitate the tank pads are at the discretion of the Contractor.
41. Drawing S-8 Chemical Building Crack Repair Details. To clarify Note 4 - The bituminous fiber expansion joint material and the sealant are to be removed and replaced.
42. Drawing EC-3 Erosion Control Plan. Storm Water Pollution Prevention Control measures will be not be paid separately. Include the work in the applicable lump sum bid item. Provide a breakdown of the cost in the Schedule of Values.

43. Section 11338 – Scum Mixer. Cleveland Mixer will be listed as a prequalified manufacturer in Addendum 1. Prequalification does not relieve Cleveland Mixer from conforming to Contract Specifications.”

44. Per Sheet 21, please explain Note 8. Why would we terminate existing power cable since it is existing? Are we to add conductors? Please clarify.

Response:

Note 8 is deleted

Note 9 is revised to provide 600AF/400AT circuits breaker at APP-1A (circuit 3 and 5) and LVMCC-4.

45. Per Specification Section 11402-3/1.04A.6, is it the engineers intent for the VFD to provided by Spec Section 11402 and not Division 16? Please clarify.

Response:

Division 16175 shall be used for performance specification in with coordination with division 11 and required responsibility of Odor Control manufacturer and electrical contractor.

46. Per sheet 26, detail 2 scum & screw conveyor control panel doesn't match on sheet 27 detail 1. Sheet 27 shows conduits SCUM1P and SCUM1C between MCC-9 and control panel. Sheet 26 shows MC9-6P through MC9-9P and MC9-6C through MC9-9C and MCC – 9 and control panel. Please Clarify.

Response:

Details are provided per sheets 26 and 27

Refer to revised drawings E-10 (sheet 26) and E-11 (sheet 27) for clarifications per Addendum No. 1

47. Per sheet 30, Detail 1 conduit MC4-C1, what is the size of the conduit and how many conductors are to be installed?

Response:

The conduits and wiring quantities are provided.

Refer to revised drawings E-14 (sheet 30) for clarifications per Addendum No. 1

48. Per sheet 26, Detail 1 conduit P1A-P is in bold, is there any scope for this existing overhead feeder?

Response:

The bold text is removed, feeder is existing.

Refer to revised drawings E-10 (sheet 26) for clarifications per Addendum No. 1

49. Per sheet 50, the Scum & Screw Conveyor control panel isn't shown on the P&ID drawing. For example, see sheet 51. Please clarify. (show detail on drawing)

Response:

Details are provided per sheets 50 and 51

Refer to revised drawings I-3 (sheet 50) and I-5 (sheet 51) for clarifications per Addendum No. 1

50. Is Lightning Protection required for the precast building for this project?

Response:

No

51. Per Specification Section 16161-3E.2, what grade stainless steel is required? Also states N4x SS for non-air conditioned areas. Sheet 24, Panel LP-4 (no A/C in this area) calls for N12. Please clarify.

Response:

Stainless steel 316 # 14 gage shall be provided per specification 16160.2.02.A.1 NEMA 12 enclosure shall be provided at the specified locations on the drawings and in schedules.

52. Per Sheet 28, Note 1 states to verify conduits are suitable for use. If not, how is the contractor to be paid to install the required conduits?

Response:

Refer to revised E12 (sheet 28) for alternative ductbank detail if the existing conduits are not usable and use Extra Unit Price Item for installation.

53. Per sheet 21, where are PJB-3, PB-1 and PB-2 located on sheet 20? Please Clarify.

Response:

PB-1 and PB-2 are no longer necessary to use the existing spare conductors. PJB-3 is located on the pull box 15 drawings E-4 (sheet 20) and additional detail is provided per revised EZ-2 drawing for modification and termination for the new MCC-9 feeders and PJB-3.

54. Sheet 49, note 3 calls for new fiber optic multimode cable 6 strand. The note is located on a Profibus cable between the existing lift stations 2 and 3 and the new WAS/SCUM PLC – WS enclosures. Please confirm which is correct.

Response:

Note 3 shall be revised to indicate Profibus cable

Note 2 shall be revised to indicate new Fiber Optic Multimode cable 6 strands.

The Cate 5e Cable connecting the New SIMATIC S7-300 Remote base to switch in the control panel DCHB/P001/ASP shall be Profibus and terminated to the existing Siemens 545 Profibus port.

Refer to revised specification section 13440 pages 10 and 11

55. Per Sheet 49 at the Cisco router in bold shows a T-1 circuit to Groveway, is this existing or new? If new, please provide routing.

Response:

The circuit is existing and shall not be bolded

56. Per sheet 29, Detail 1 what size conduit and how many wires are in the conduit from the new water panel to the new junction box at existing Tank 2? Also, Note 2, where is this information stating how many conductors are required?

Response:

Refer to revised E13 and E14 for details for clarifications per Addendum No. 1

57. Per Sheet 52, the Odor Control System shows to be connected to the Northwest 2 & 3 Lift Stations. Sheet 28 shows the Odor Control System connected to the RTU cabinet in the existing Chemical Building Control Room. Please Clarify.

Response:

The odor control PLC is connected to Chemical building PLC network. The P&ID diagram shows the process in reference to LS PLC where the blower fan is connected. The information is displayed via SCADA for both locations for operator view. There is no direct connection from odor control PLC to the Lift Station.

58. Per Sheet 19, Conduit Type Schedule calls for PVC coated aluminum conduit for an embedded conduit bends, underground duct bank of more than 20 degrees, and all conduit stub-ups. It also states that GRC is not acceptable for use on this project. Also, calls for ARC to be installed on all above grade areas. Per Spec Sec. 16111-6/3.02-A calls for PVC coated conduits in all outdoor locations, areas that are not air-conditioned. 3.02-B calls to install GRC in dry, inside, air-conditioned locations only. Which should the contractor use for this project, the drawing or the Specifications for this raceway system?

Response:

Aluminum conduits and PVC coated conduits to be used in all locations except in Chlorine and caustic areas. PVC coated Galvanized Rigid Conduits to be used in Chlorine and caustic areas. Specification section 16111-3.3.02.A, B & C and drawing sheet 19 will be revised with the conduit applications in the Addendum No. 1.

59. Will the Siemens MM440; ABB model Aes550 be the sole source or equal manufacturer such as Toshiba as an alternate source be allowed. (Specification 16175-2.01)

Response:

An equal product shall be submitted as an approved product per submittal process when the bid is awarded to the contractor.

60. Clarification of notes and chart on drawing E-3 (sheet 19).

Response:

1. Note 8: Change the words "BE 2 INCH" to "BE 3/4 INCH.
2. Note 27: Change the words "316 STAINLESS STEEL" TO "COPPER CLAD".
3. At "CONDUIT TYPE/ LOCATION" chart:
 - a. At RIGID GALVANIZED CONDUIT change the words in the LOCATION comments from "EXCEPT FOR BENDS" to "EXCEPT FOR CHLORINE AND CAUSTIC AREAS PLUS BENDS"
 - b. At PVC COATED ALUMINUM change the words in the LOCATION comments from "OR GRADE AND IN CHLORINE AND CAUSTIC ROOMS." To "OR GRADE."

4. Notes located after Note 11 of DEMOLITION NOTES:
Delete notes "A through F" in their entirety and relocate Note "G" after Note "F" located at the MCC, CONTROL PANELS, PANELBOARDS notes.
5. Add "NOTE 29" in the ELECTRICAL GENERAL NOTES to read as follows:
"PROVIDE ARC FLASH LABELING TO ALL NEW INSTALLED MCC,s,
PANELBOARDS AND BREAKERS, ACCORDING TO THE N.E.C.
REQUIRMENTS.

END OF ADDENDUM NO. 1

DATED:

E.N.P.


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

END OF DOCUMENT

<u>Doc. No.</u>	<u>Document Title</u>	<u>Doc. Date</u>
16060	Electrical Demolition.....	06-30-2014
16111	Conduit, Fittings, and Bodies	06-30-2014
16120	600-Volt Building Wire and Cable	06-30-2014
16121	600-Volt Control Cable.....	06-30-2014
16122	600-Volt Power Cable	06-30-2014
16126	Instrumentation Cable	06-30-2014
16131	Device, Pull and Junction Boxes	06-30-2014
16140	Wiring Devices	06-30-2014
16160	Cabinets and Enclosures	06-30-2014
16161	Panelboards.....	06-30-2014
16165	Disconnect Switches	06-30-2014
16170	Grounding and Bonding	06-30-2014
16171	Low Voltage Electric Motor.....	06-30-2014
16175	Low Voltage Variable Frequency Drives	06-30-2014
16195	Electrical Identification	06-30-2014
16402	Underground Duct Banks.....	06-30-2014
16461	Dry-Type Transformers	06-30-2014
16480	Motor Control Center.....	06-30-2014
16486	Mechanical Manufacturer's Provided Control Panels (MEMS).....	06-30-2014
16487	Electrical Control Panels (OEMS)	06-30-2014
16488	Gate Electric Actuators	06-30-2014
16510	Lighting Fixtures.....	06-30-2014
16640	Cathodic Protection for Pipelines	06-30-2014
16950	Uninterruptible Power Supplies.....	06-30-2014

Reports

- Mechanical Compliance Certificate
- Interior Lighting Compliance Certificate
- Geotechnical Investigation Report G128-12 April 2013
- Geotechnical Investigation Report G178-13 March 2014
- Asbestos Survey

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 Short Title	Unit of Measure	Estimated Quantity	Unit Price (this column controls)	Total in figures
1	01502	Mobilization	LS	1	\$250,000 ⁽¹⁾	\$250,000 ⁽¹⁾
2	Div 0 – Div 16	Construction of Odor Control System Improvements as shown on the contract drawings and specified including all permits, site preparation, demolition, installation of a fan, pre-cast concrete building with ventilation, and lighting, 18", 24", and 36" diameter fiberglass piping for the fan inlet and discharge lines, add a 4th biotrickling filter with control panel and foundation, duct work for the inlet and outlet lines, and dual bed granular activated carbon system, replace mist eliminators in the exhaust of the biotrickling filters, electrical, instrumentation and controls for the existing odor control system.	LS	1		
3	Div 0 – Div 16	Construction of Non-Potable Water System (NPWS) as shown on the contract drawings and specified including all permits, site preparation, demolition and installation of pumps, strainers, horizontal hydro pneumatic tank, and electrical, instrumentation and controls complete in place.	LS	1		

4	Div 0 – Div 16	Construction of improvements to Aeration System Basins 1,2,3,4,5 and Influent Channel as shown on the contract drawings and specified including site preparation, demolition, installation of new air drops and air drop isolation valves, new coarse bubble diffusers in aeration basins 1-5 and the west side of the influent channel, new 8", 24", and 36" air main isolation butterfly valves, replacement of damaged and missing guardrails/handrails, repair cracked and damaged aeration basin beam, and implementation of Maintenance of Plant Operations, start-up, testing and site restoration complete in place. Non-rubber compressed flange and valve gaskets shall be considered to be asbestos-containing and abated during renovation/demolition activities. No notifications are required.	LS	1		
5	Div 0 – Div 16	All works related to removal and disposal of accumulated grit, scum, and solids from the entire influent channel, RAS channel, Mixed Liquor Channel, Clarifier Feed Channels, Clarifier Return Channels and Aeration Basins 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11. Contractor is responsible for testing and disposal of sludge or solid waste at a waste disposal facility in accordance with local state and federal regulations.	CY	5,000		

6	Div 0 – Div 16	Construction of Sluice Gate Improvements as shown on the contract drawings and specified including site preparation, demolition, installation of gates, motorized actuators on specified gates, and electrical conduit required from MCC-8 to each gate shown on the electrical drawings complete in place.	LS	1		
7	Div 0 – Div 16	Replacement of Clarifier Drain Valve as shown on the contract drawings and specified including, demolition, excavation, protection of existing structures, trench protection, backfill, compaction, pavement replacement, sidewalk replacement, maintenance of plant operations, 12-inch plug valves, 8-inch plug valves, pipe, fittings, valve boxes, extension stems, site restoration for a complete and operating system.	LS	1		

8	Div 0 – Div 16	Construction of Scum Separation System Improvements including, but not limited to furnishing all labor and materials for the installation of equipment for the scum handling system consisting of ductile iron piping; check and plug valves; vertical mixer; submersible chopper pumps; static screen; screw conveyor; motor control center (MCC), MCC enclosure, instrumentation; electrical; plumbing; painting; concrete slab; granular paving; yard piping; sitework and revegetating all disturbed areas; selective demolition of piping, valves and associated accessories; existing vertical mixer; and scum pumps, together with related subsidiary and incidental work in accordance with the plans and specifications.	LS	1		
9	Div 0 – Div 16	Construction of Clarifier No. 6 Distribution Weir Modifications as shown on the contract drawings and specified including, maintenance of plant operations, removal of existing weir and installation of new weir plate, complete in place.	LS	1		
10	Div 0 – Div 16	Installation of Air Lift Pump Pressure Gauge Addition as shown on the contract drawings and specified including, maintenance of plant operations, demolition, and installation of pressure gauges, fittings, and appurtenances.	LS	1		

11	Div 0 – Div 16	Building Repairs as shown on the contract drawings and specified including, permits. Chemical Building repairs: demolition, removal and re-installation of bleach tanks during replacement of walkways and tank pads, cosmetic building crack repairs, and site restoration. Blower and Maintenance Building: cosmetic building crack repairs. Maintenance and Admin Building: replacement of the HVAC system, demolition and replacement of ductwork, circuit breakers, disconnects for all three units, and conduits and wiring, complete in place.	LS	1		
12	Div 0 – Div 16	Construction of Chlorine Contact Basin Improvements as shown on the contract drawings and specified including all permits, site preparation, demolition and installation of non-potable water piping and hydrants for basin cleaning, and the placement of pea-gravel concrete to slope the basin floors toward the trench drain complete in place.	LS	1		
<u>TOTAL BASE UNIT PRICES</u>						

C. EXTRA UNIT PRICE TABLE:

Item No.	Spec Ref.	Extra Unit Short Title	Unit of Measure	Estimated Quantity	Unit Price (this column controls)	Total in figures
1	02136	Extra removal and disposal of accumulated grit, scum, and solids from the Aerations Basins and other Channels	CY	1,000	\$197.65 ⁽³⁾	\$197,650 ⁽³⁾
2	05520	Extra Aluminum Guardrail Complete in Place	LF	100	\$48.00 ⁽²⁾	\$4,800 ⁽²⁾
3	11280	Slide Gate (48"x48") w/ factory electric actuator	EA	3	\$57,500 ⁽²⁾	\$172,500 ⁽²⁾
4	11280	Slide Gate (72"x72") w/ factory electric actuator	EA	2	\$69,500 ⁽²⁾	\$139,000 ⁽²⁾
5	02318	Extra Hand Excavation	CY	100	\$15.00 ⁽³⁾	\$1,500 ⁽³⁾
6	02318	Extra Machine Excavation	CY	200	\$30.00 ⁽³⁾	\$6,000 ⁽³⁾
7	02318/ 02321	Extra Cement Stabilized Sand	CY	100	\$50.00 ⁽³⁾	\$5,000 ⁽³⁾
8	16120	Copper No. 1/0 AWG conductor with XHHW-2 insulation, installed.	LF	200	\$5.00 ⁽²⁾	\$1,000 ⁽²⁾
9	16120	Twisted pair shielded Belden cable installed.	LF	500	\$4.00 ⁽²⁾	\$2,000 ⁽²⁾
10	16120	Copper No. 8 AWG conductor with XHHW-2 insulation, installed.	LF	600	\$4.00 ⁽²⁾	\$2,400 ⁽²⁾
11	16120	Copper No. 10 AWG conductor with XHHW-2 insulation, installed.	LF	500	\$2.00 ⁽²⁾	\$1,000 ⁽²⁾
12	16120	Copper No. 4/0 AWG conductor with XHHW-2 insulation, installed.	LF	200	\$10.00 ⁽²⁾	\$2,000 ⁽²⁾
13	16402	3/4" PVC Schedule 80 Conduit installed in underground duct bank	LF	1000	\$2.00 ⁽²⁾	\$2,000 ⁽²⁾
14	16402	1" PVC Schedule 80 Conduit installed in underground duct bank	LF	1000	\$2.50 ⁽²⁾	\$2,500 ⁽²⁾
15	16402	2" PVC Schedule 80 Conduit installed in underground duct bank	LF	200	\$3.00 ⁽²⁾	\$600 ⁽²⁾
16	16402	4" PVC Schedule 80 Conduit installed in underground duct bank	LF	200	\$6.00 ⁽²⁾	\$1,200 ⁽²⁾
17	16402	Duct bank trenching, rebar, concrete encasement and backfill for ductbanks.	LF	200	\$75.00 ⁽²⁾	\$15,000 ⁽²⁾
18	11280	Slide Gate (60"x72") w/ factory electric actuator	EA	2	\$67,500 ⁽²⁾	\$135,000 ⁽²⁾

19	11280	Slide Gate (120"x36") w/ factory electric actuator	EA	3	<u>\$72,500⁽²⁾</u>	<u>\$217,500⁽²⁾</u>
<u>TOTAL EXTRA UNIT PRICES</u>						<u>\$908,650⁽²⁾</u>

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D. CASH ALLOWANCE TABLE:

Item No.	Spec Ref.	Cash Allowance Short Title	Cash Allowance in figures (1)
1		Building Permits	\$25,000 ⁽¹⁾
<u>TOTAL CASH ALLOWANCES</u>			\$25,000

REST OF PAGE INTENTIONALLY LEFT BLANK

E. ALTERNATES TABLE:

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

REST OF PAGE INTENTIONALLY LEFT BLANK

F. TOTAL BID PRICE:

(Add Totals for Items A., B., C., D., and E. above)

\$ _____

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

Bidder:

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

**By:

Signature

Date

Name:

(Print or type name)

Title

Address:

(Mailing)

(Street, if different)

Telephone and Fax Number:

(Print or type numbers)

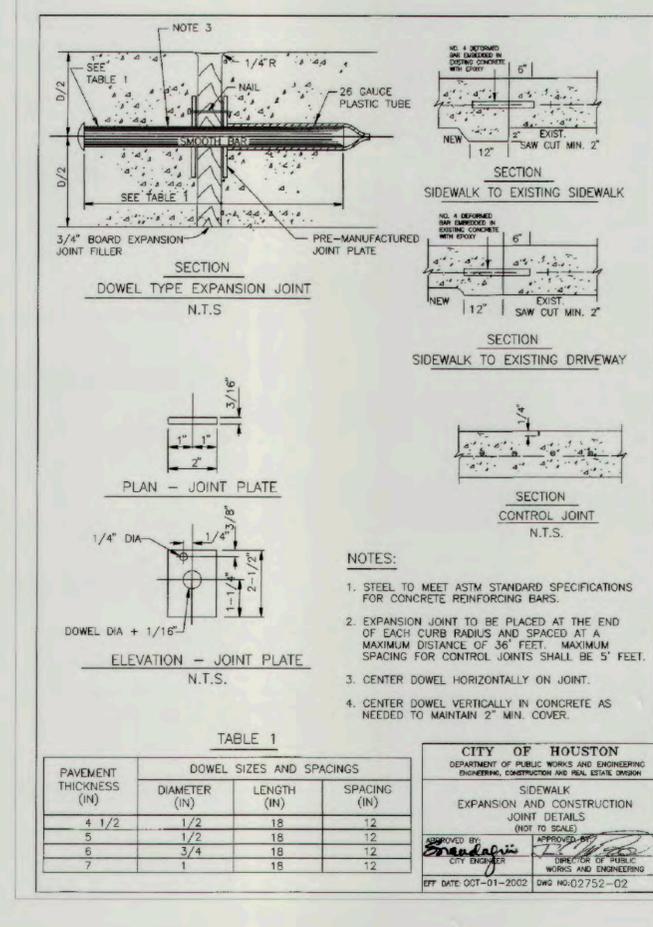
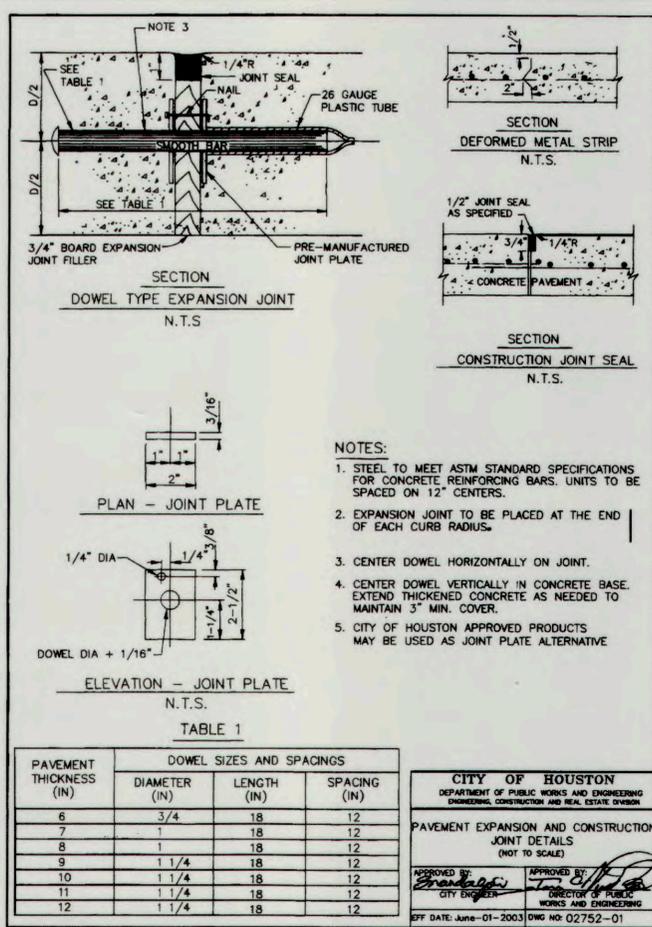
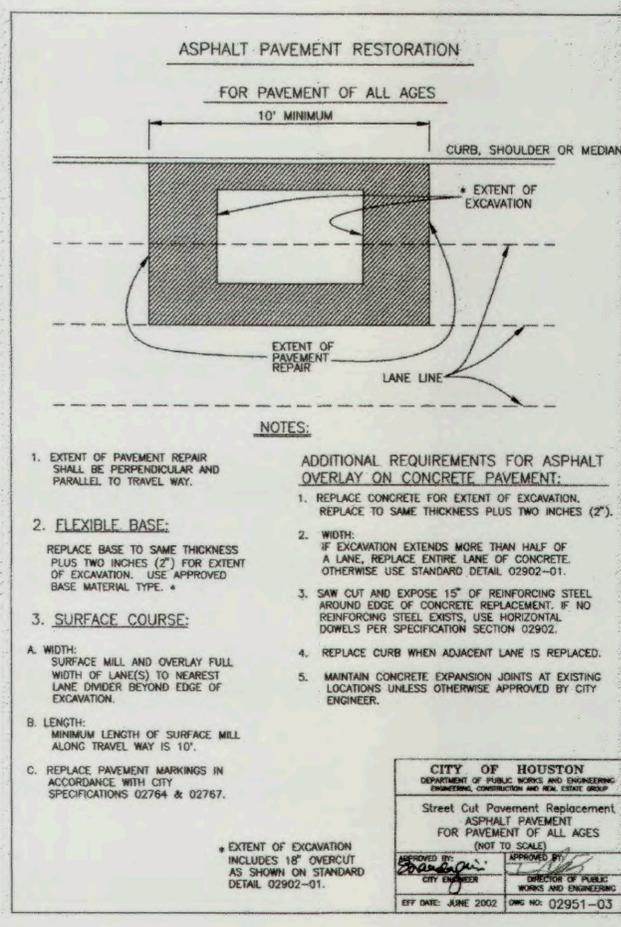
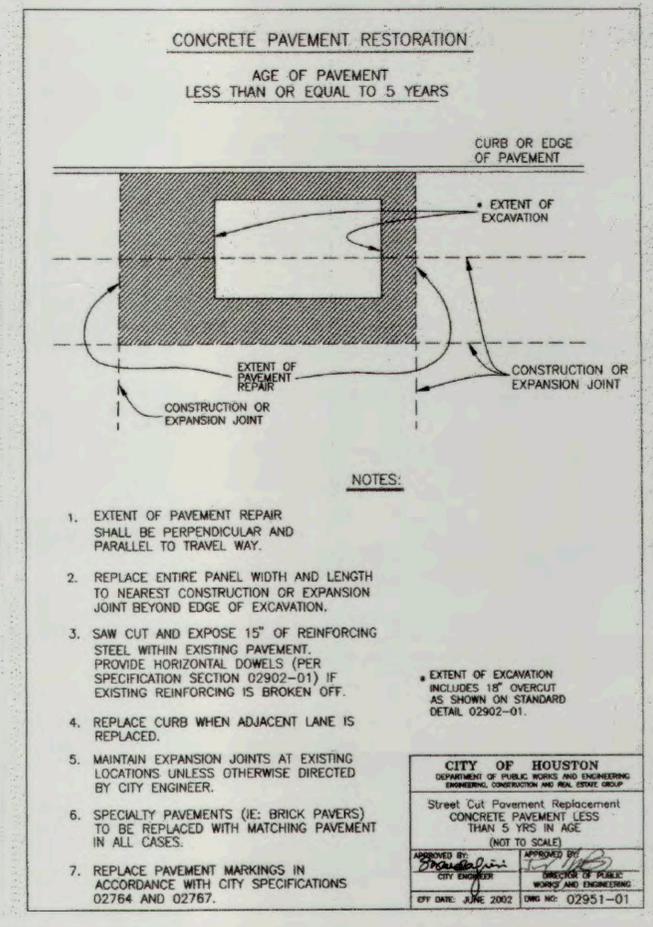
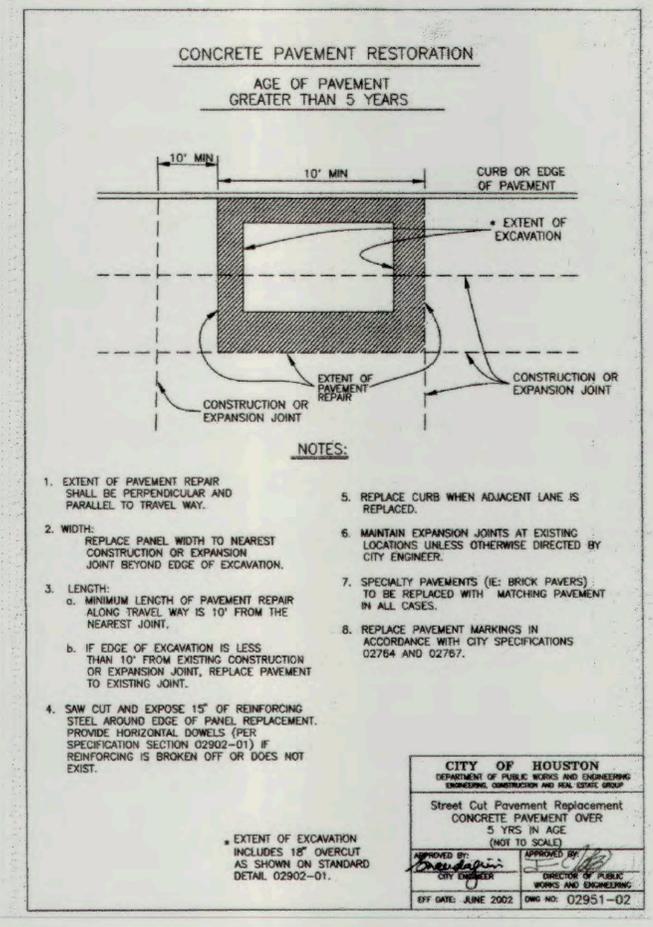
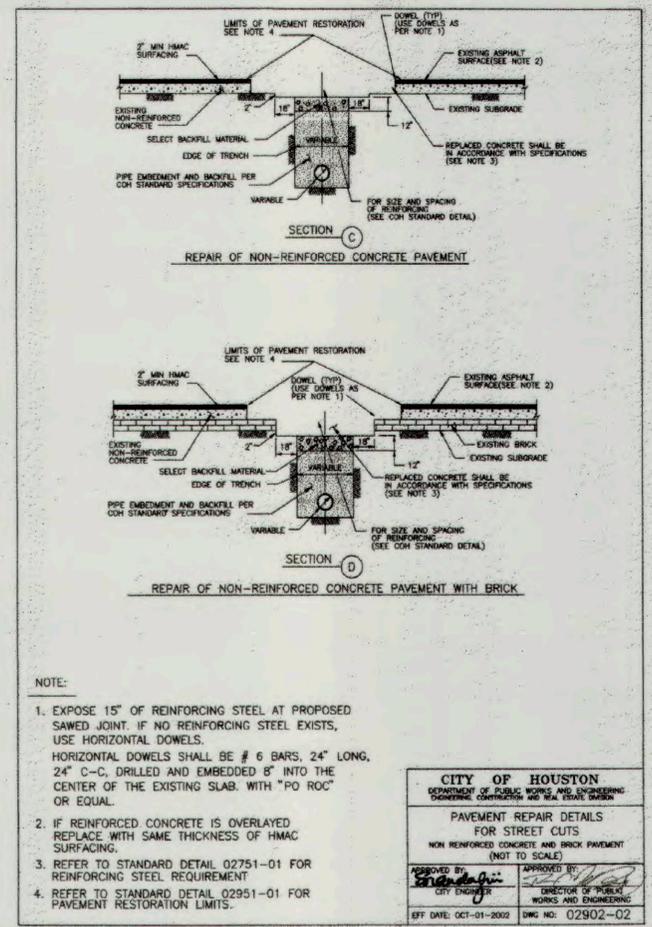
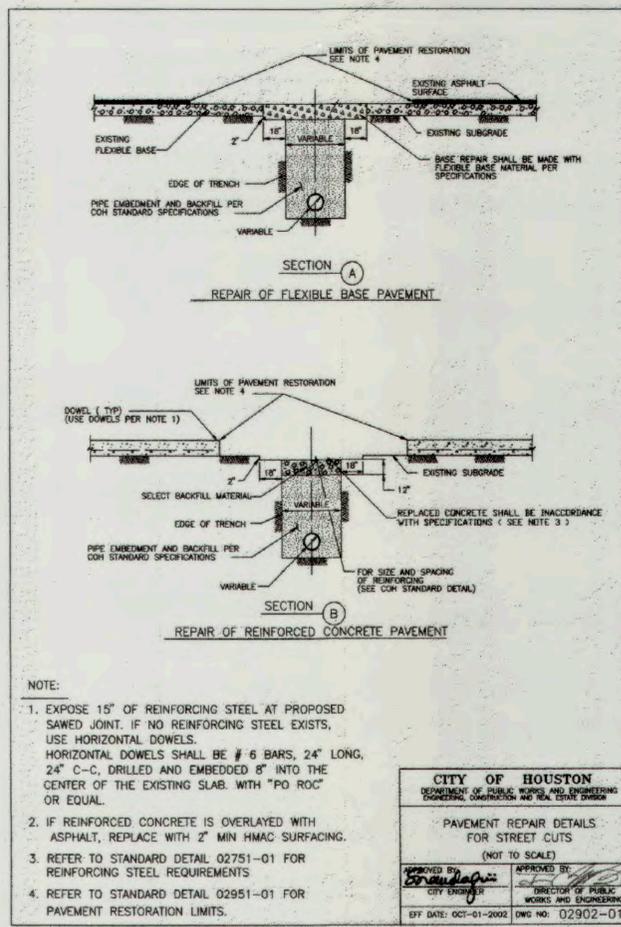
* If Bid is a joint venture, add additional Bid Form signature sheets for each member of the joint venture.

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

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

Footnotes for Tables B through E:

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



PARSONS
2200 WEST LOOP SOUTH,
SUITE 200
HOUSTON, TEXAS 77027
PH. 713 871-7000
TYPE FIRM REGISTRATION NO. 8008

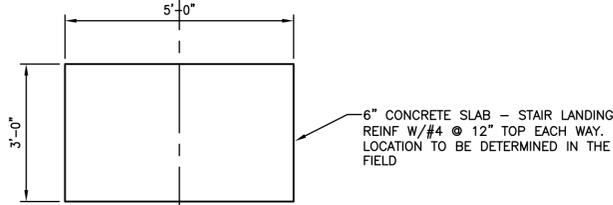
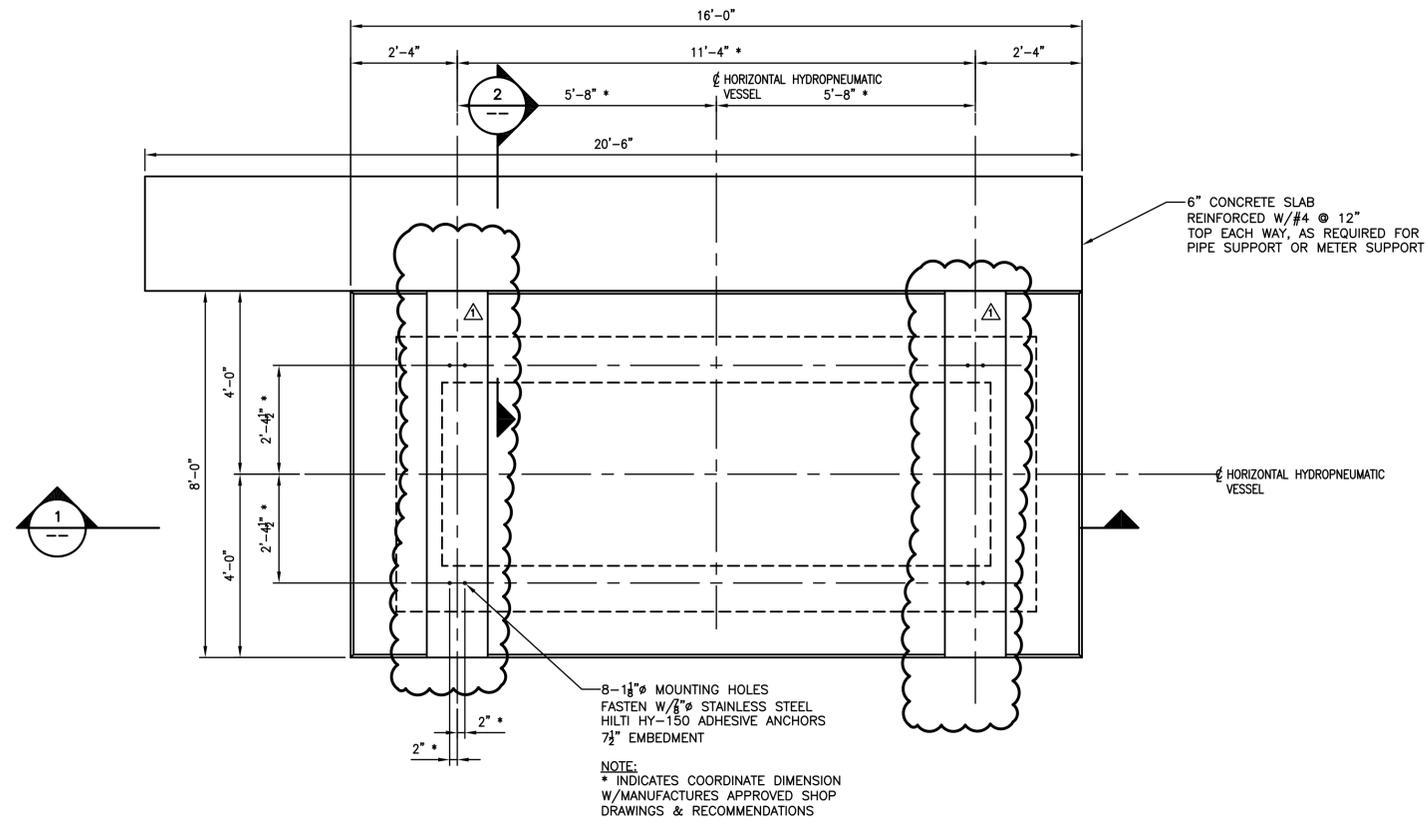
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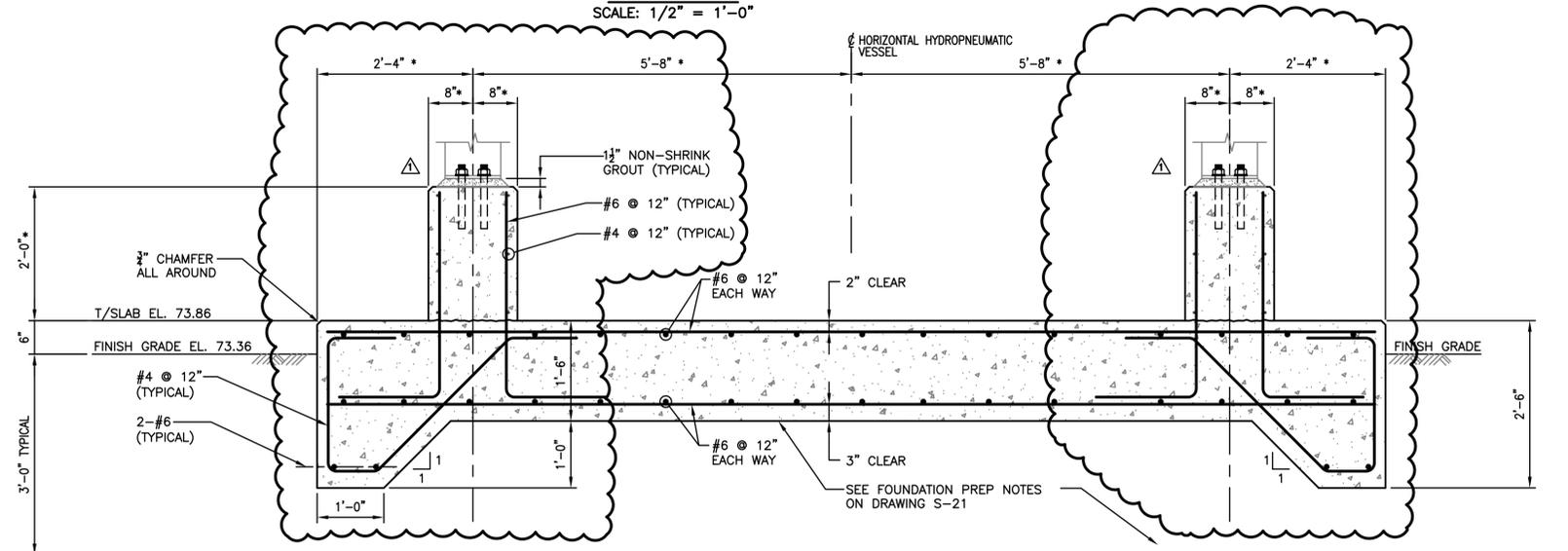
NORTHWEST WWTP IMPROVEMENTS
CIVIL SITE DETAILS

WBS NO. R-000265-0095-4	DRAWING SCALE
VERT. HORIZ.	CITY OF HOUSTON PM
BILL ZOD, P.E.	SHEET NO. 13 OF 137

DRAWING NUMBER
53623

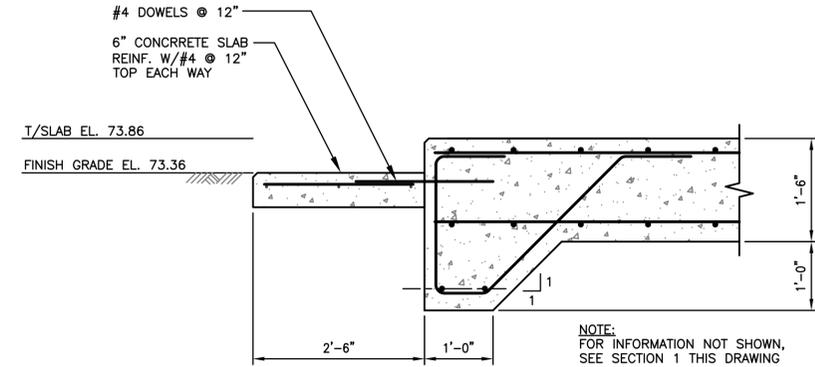


PLAN
SCALE: 1/2" = 1'-0"



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

- NOTES:
- SEE DRAWING S-21 FOR FOUNDATION PREP NOTES.
 - SET FINAL ELEVATION, AND ANCHOR BOLT LOCATIONS AFTER TANK IS SELECTED. REF M-33.



SECTION 2
SCALE: 3/4" = 1'-0"

REV. NO.	DESCRIPTION	APP'D	DATE

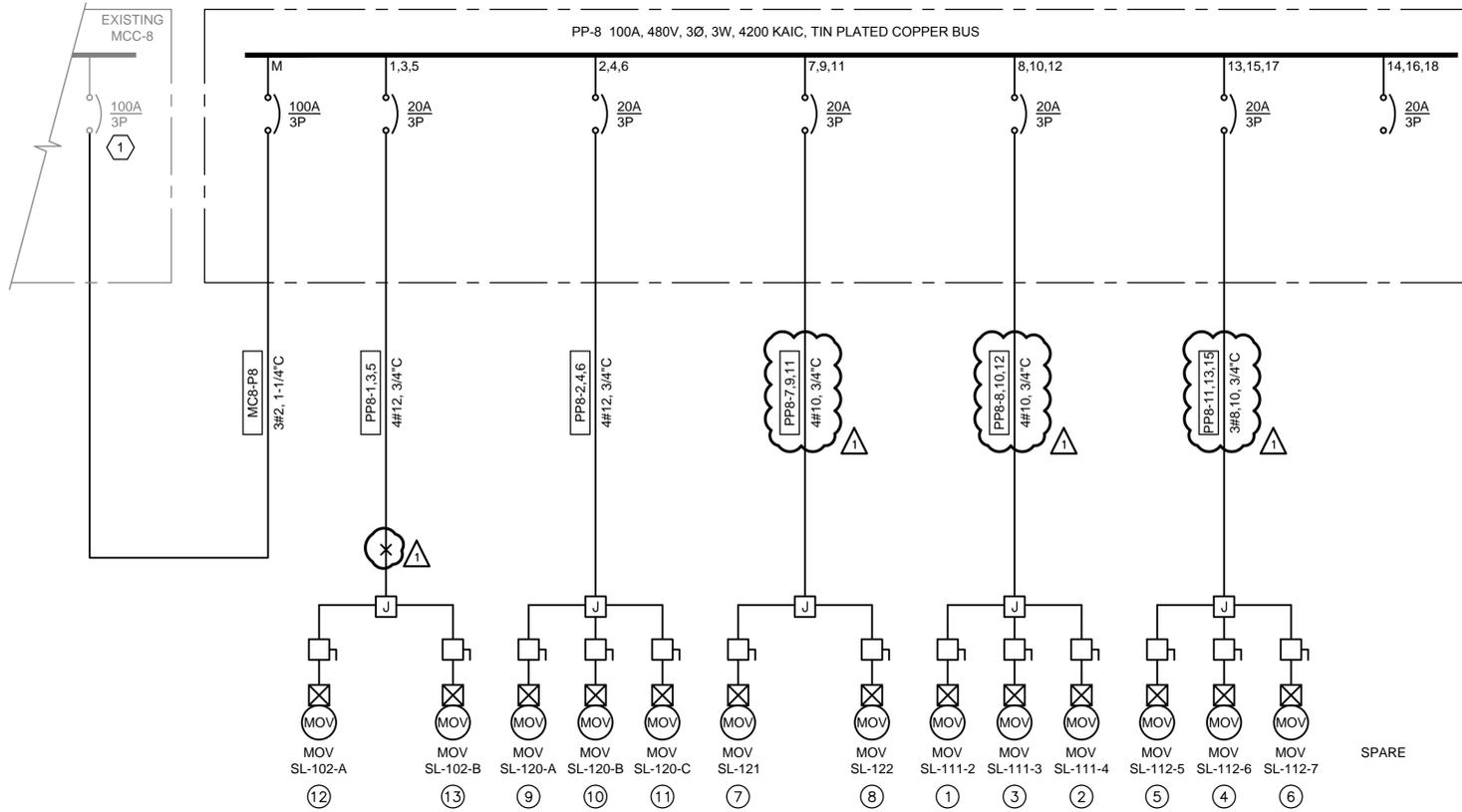
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SUITE 200
HOUSTON, TEXAS 77027
PH. 713 871-7000
TBPE FIRM REGISTRATION NO. 8008
SURVEYED BY:
FB NO.



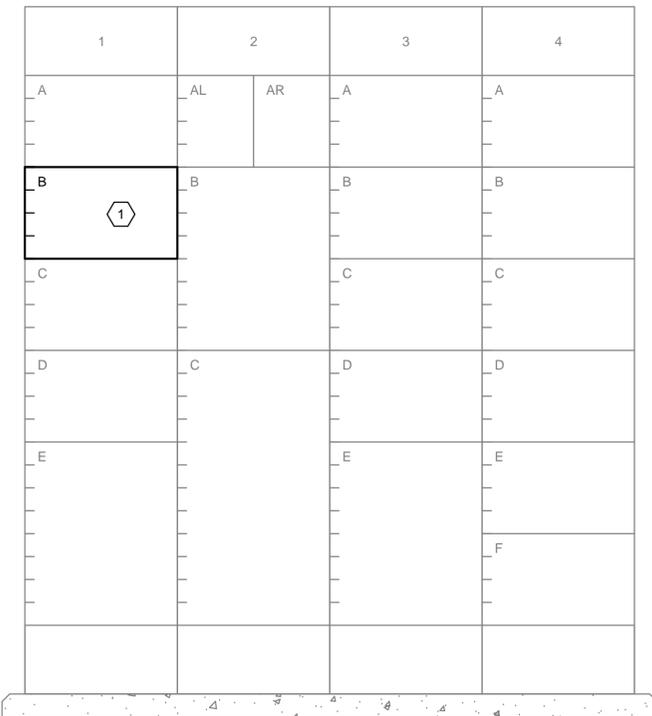
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NORTHWEST WWTP
IMPROVEMENTS
NPW SYSTEM FOUNDATION
PLAN SECTIONS AND DETAILS

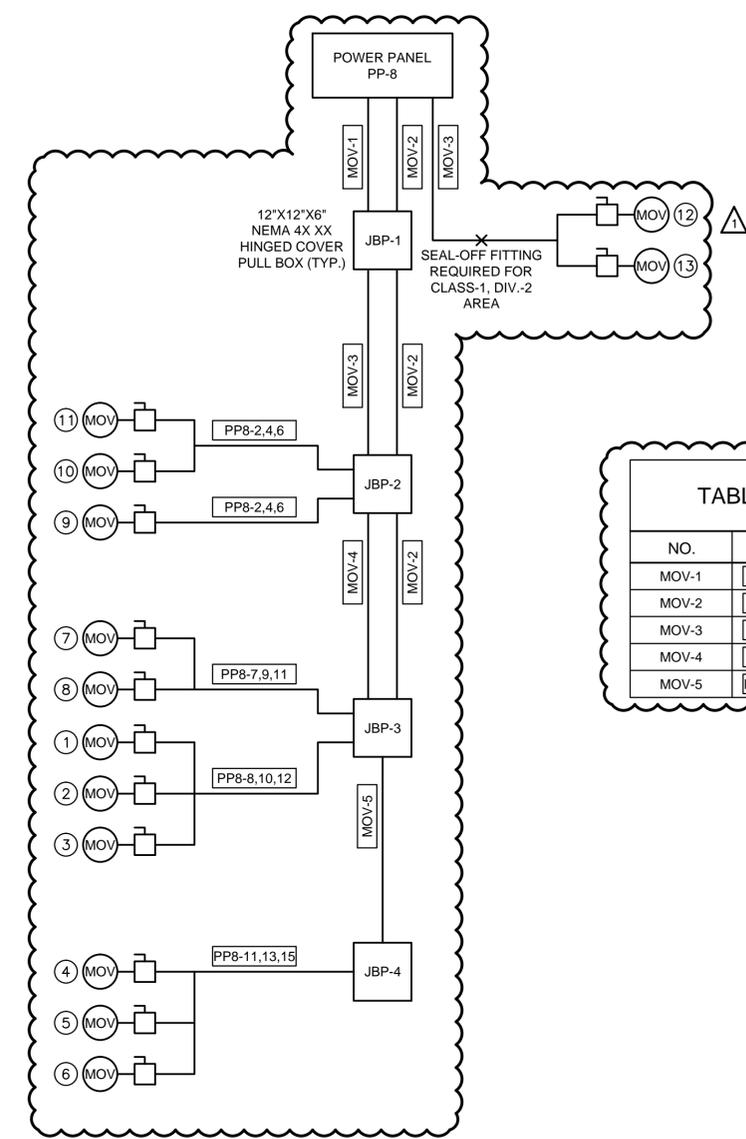
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VERT. HORIZ.
CITY OF HOUSTON PM
BILL ZOD, P.E.



POWER PANEL PP-8
ONE-LINE
DIAGRAM 1



EXISTING MCC-8 MODIFICATION
ELEVATION



RISER
DIAGRAM 2

TABLE FOR DIAGRAM-1

NO.	CONDUIT TAG	CONDUIT SIZE
MOV-1	PP8-2,4,6 PP8-7,9,11	1" C
MOV-2	PP8-8,10,12 PP8-11,13,15	1" C
MOV-3	PP8-1,3,5	3/4" C
MOV-4	PP8-7,9,11	3/4" C
MOV-5	PP8-11,13,15	3/4" C

- NOTES:
- 1 REPLACE EXISTING SPARE STARTER WITH 100A/3P CIRCUIT BREAKER.
 - 2 REFER TO SHEET EY-1 FOR SCHEMATICS.

REV. NO.	DESCRIPTION	APP'D	DATE
ADDENDUM NO.1		HF	03/12/2015

GAI
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Registration No. F-2593

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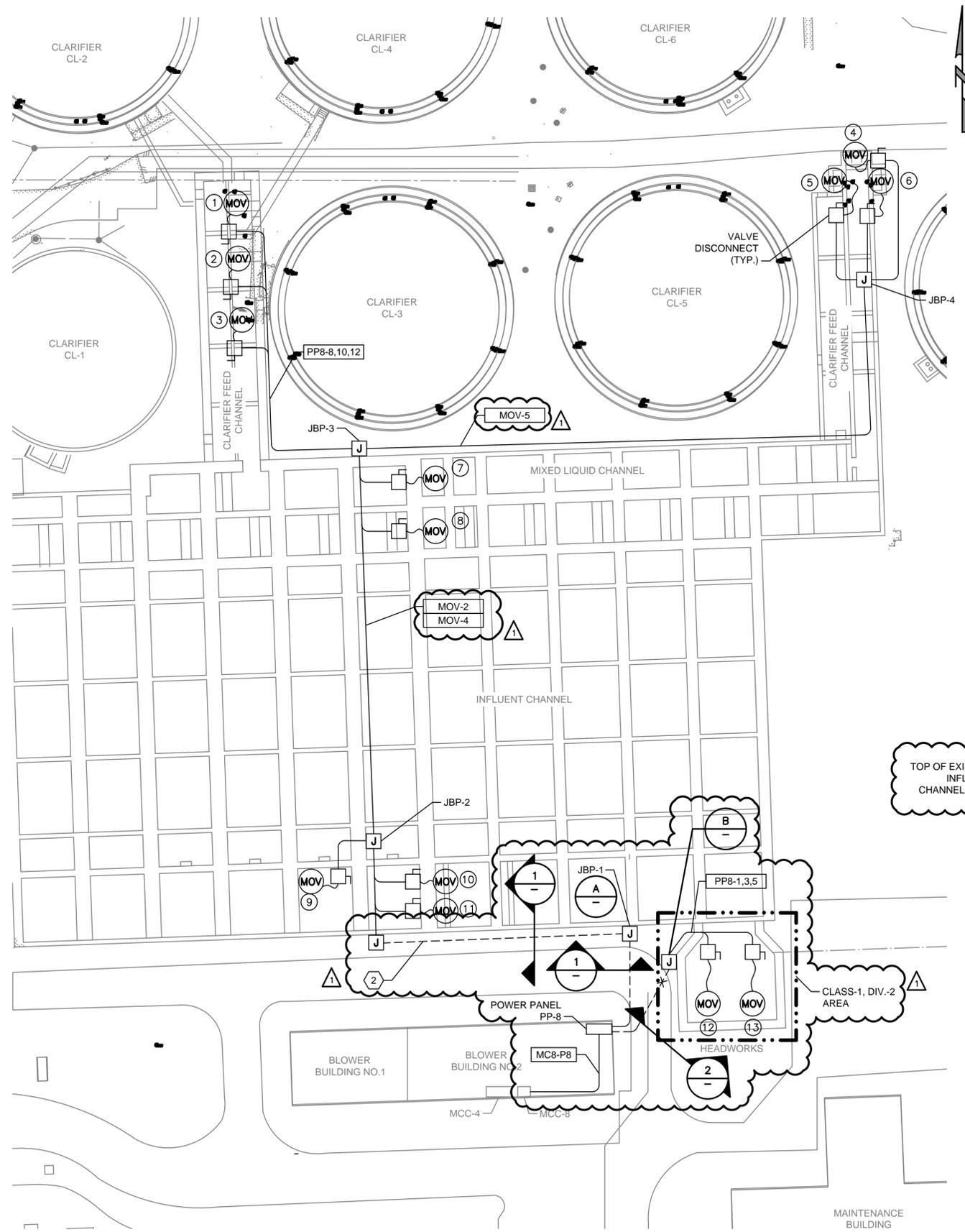
PARSONS
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TBPE FIRM REGISTRATION NO. 8008

H. A. FOROUZAN
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07/09/2014

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

NORTHWEST WWTP
IMPROVEMENTS
ELECTRICAL
POWER PANEL PP-8
ONE-LINE DIAGRAM

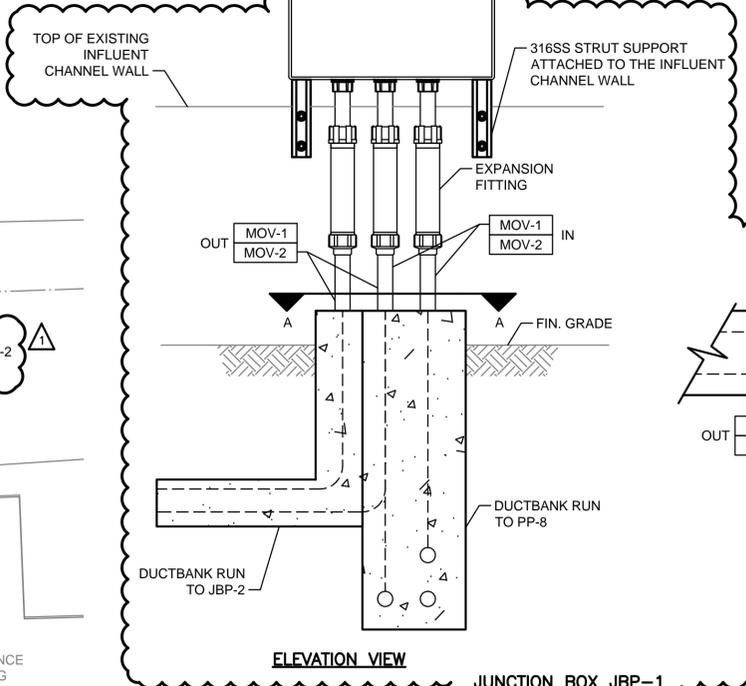
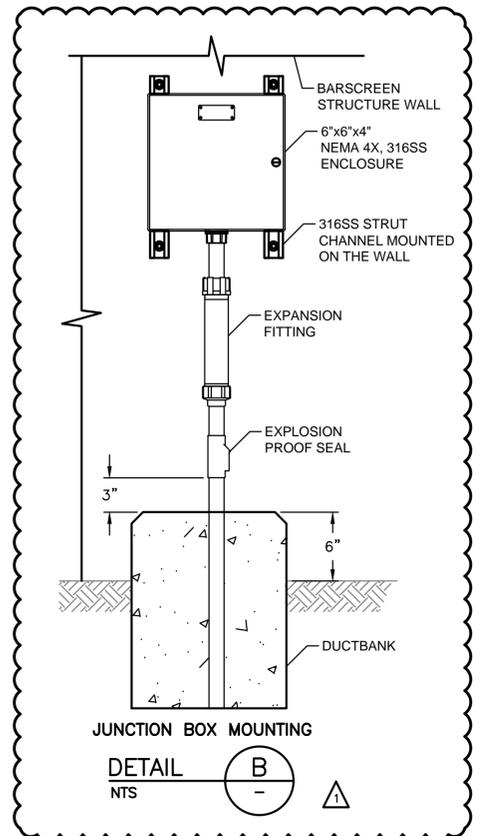
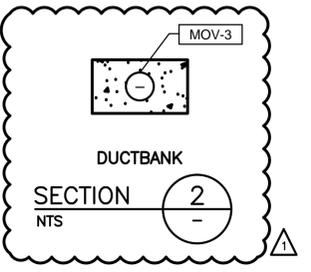
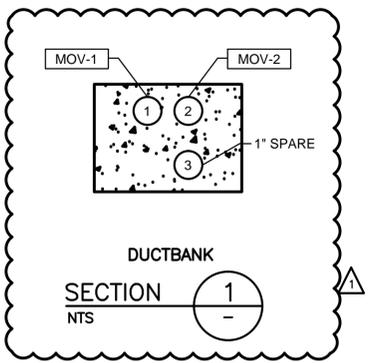
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NTS
CITY OF HOUSTON PM
BILL ZOD, P.E.
E-6 SHEET NO. 22 OF 137



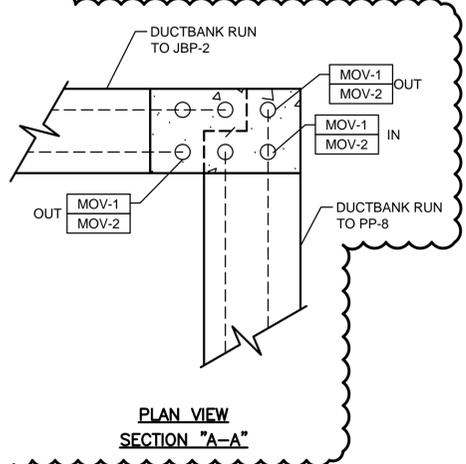
ENLARGED SITE PLAN
1" = 30'

TAG NO.	EQUIPMENT TAG
1	MOV-SL-111-2
2	MOV-SL-111-4
3	MOV-SL-111-3
4	MOV-SL-112-6
5	MOV-SL-112-5
6	MOV-SL-112-7
7	MOV-SL-121
8	MOV-SL-122
9	MOV-SL-120-A
10	MOV-SL-120-B
11	MOV-SL-120-C
12	MOV-SL-102-A
13	MOV-SL-102-B

- NOTES:
- REFER TO SHEET E-6 FOR RISER DIAGRAM.
 - EXISTING PROCESS PIPING IN THIS AREA REQUIRES HAND DIGGING OF DUCTBANK.
 - MOUNT CONDUIT RUNS AND PULL BOXES TO EXISTING WALKWAY STRUCTURE AND CHANNEL WALL AS APPLICABLE.



JUNCTION BOX JBP-1
DETAIL A NTS



PLAN VIEW SECTION "A-A"

REV. NO.	DESCRIPTION	APP'D	DATE
ADDENDUM NO.1		HF	03/12/2015

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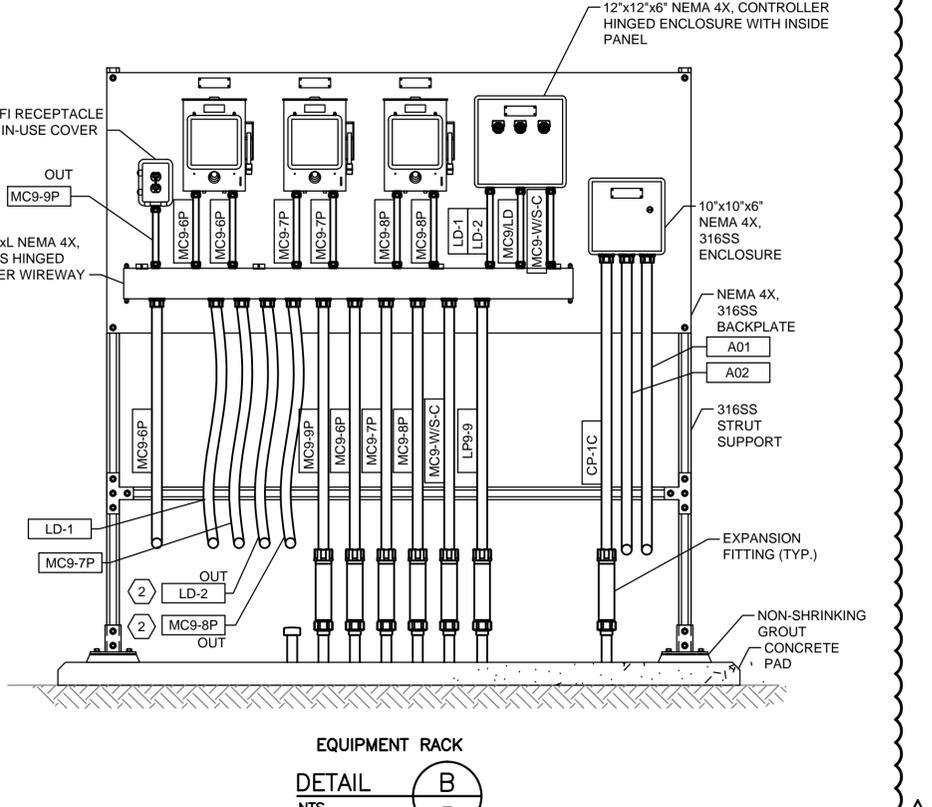
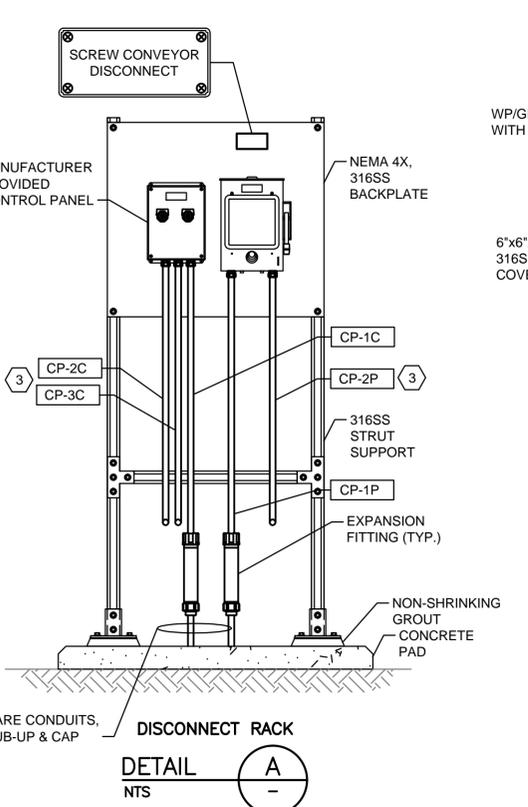
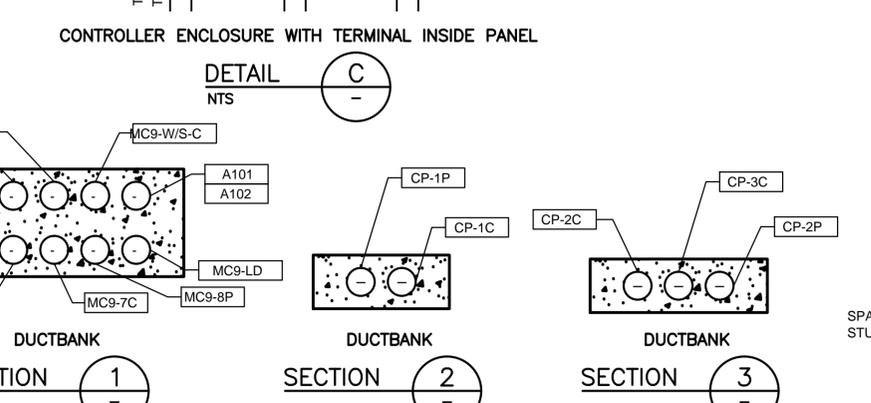
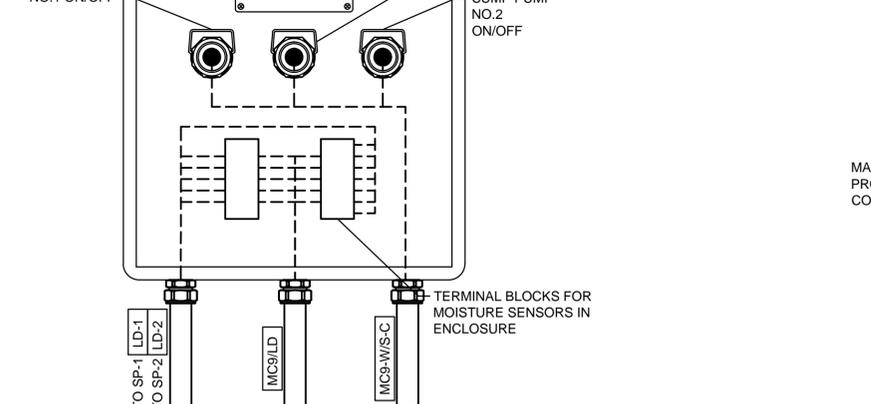
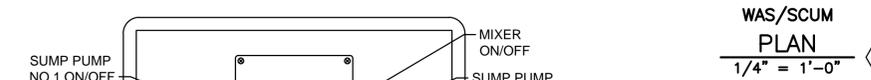
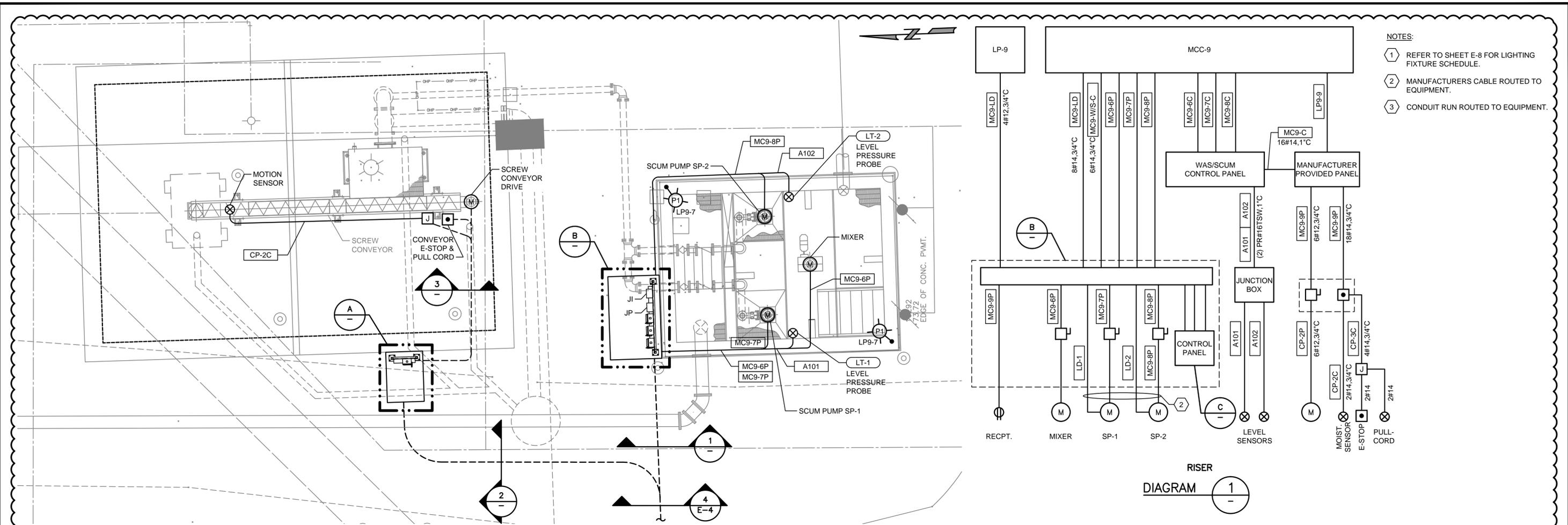
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

NORTHWEST WWTP IMPROVEMENTS ELECTRICAL
ENLARGED PARTIAL SITE PLAN

WBS NO. R-000265-0095-4
DRAWING SCALE
1" = 30'
CITY OF HOUSTON PM
BILL ZOD, P.E.
E-7 SHEET NO. 23 OF 137



REV. NO.	DESCRIPTION	APP'D	DATE
ADDENDUM NO.1		HF	03/12/2015

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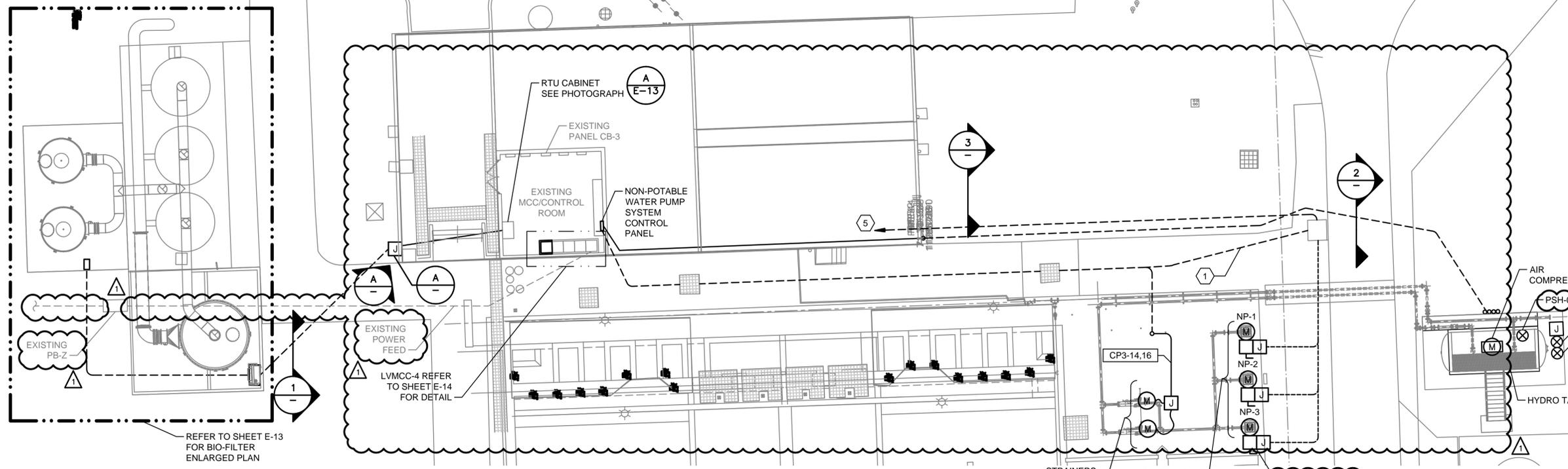
STATE OF TEXAS
REGISTERED PROFESSIONAL ENGINEER
H. A. FOROUZAN
77748
SURVEYED BY:
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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

NORTHWEST WWTP IMPROVEMENTS ELECTRICAL WAS/SCUM MODIFICATION PLAN

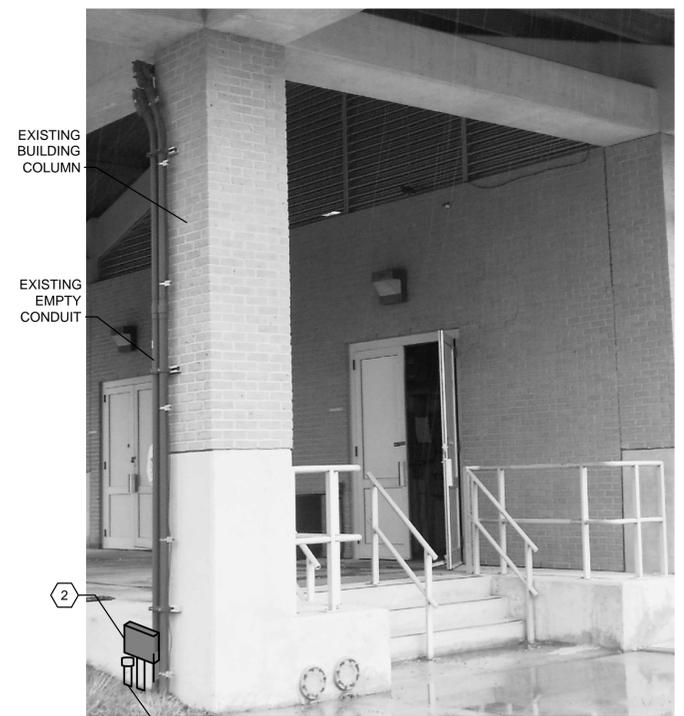
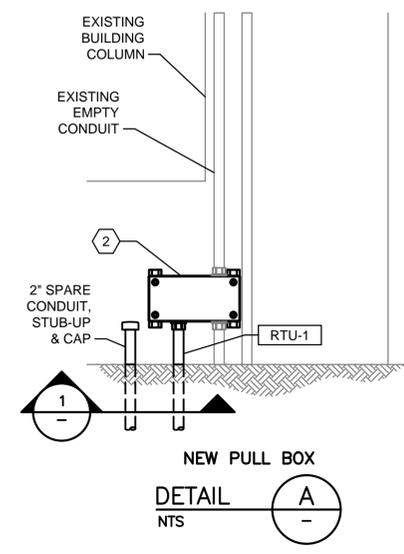
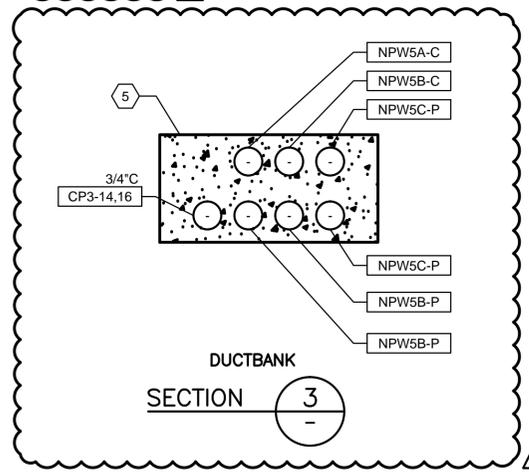
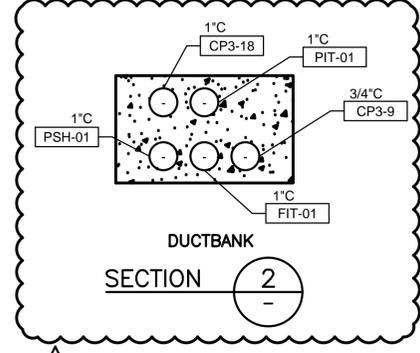
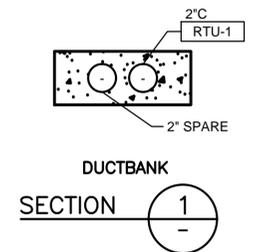
WBS NO. R-000265-0095-4
DRAWING SCALE
1/4" = 1'-0"
CITY OF HOUSTON PM
BILL ZOD, P.E.

E-11 SHEET NO. 27 OF 137



- NOTES:**
- EXISTING UNDERGROUND CONDUITS, VERIFY CONDUITS ARE SUITABLE FOR USE. CLEAN AND SWAB BEFORE PULLING NEW WIRE. SEE NOTE 5.
 - CUT INTO EXISTING EMPTY CONDUIT. INSTALL 6"x12"x6" NEMA 4X, STAINLESS STEEL PULL BOX IN CONDUIT RUN. REFER TO PHOTO AND DETAIL-A ON THIS SHEET.
 - WIRE SIZE INCREASED DUE TO VOLTAGE DROP.
 - REFER TO SHEET E-13 FOR NON-POTABLE WATER PUMP RISER DIAGRAM.
 - ALTERNATE DUCTBANK ROUTING TO BE USED ON FAILURE OF EXISTING CONDUITS. SEE NOTE 1.

**NON-POTABLE WATER SYSTEM
PLAN
3/32" = 1'-0"**



**NEW PULL BOX
PHOTOGRAPH A**
INSTALL PULL CORD IN CONDUITS

PANELBOARD: CP-3		BUS TYPE: COPPER		MAINS: 90A		SPD: NONE			
SERVICE: 208Y/120V, 3Ø, 4W		BUS RATING: 250A		LOCATION:					
MOUNTING: SURFACE - NEMA		FEED: TOP							
CKT NO.	BRKR SIZE	WIRE SIZE	COND. SIZE	LOAD	LOAD	COND. SIZE	WIRE SIZE	BRKR SIZE	CKT NO.
1	20/1	12	3/4"	PANEL CBP-1	PANEL CBP-2	3/4"	12	20/1	2
3	20/1	12	3/4"	NON-POTABLE WATER PUMP CONTROL PANEL	TANK LEVEL TRANSMITTERS	3/4"	12	20/1	4
5	20/1	12	3/4"	PUMP ROOM MAG METERS	ANALYZER & TURBIDITY	3/4"	12	20/1	6
7	20/1	12	3/4"	PANEL CBP-3	MOV NO.612	3/4"	12	20/1	8
9	20/1	12	3/4"	NPW FLOW METER FIT-01	MOV NO.622	3/4"	12	20/1	10
11	20/1	12	3/4"	EFFLUENT FLOW METERS	MOV NO.624	3/4"	12	20/1	12
13	20/1	12	3/4"	PANEL CCP-1 CLAIR VAC NO.1	NPW STRAINER NO.1	3/4"	12	20/1	14
15	20/1	12	3/4"	PANEL CCP-1 CLAIR VAC NO.2	NPW STRAINER NO.2	3/4"	12	20/1	16
17	20/1	12	3/4"	RECEPTACLE / NPW PAD	NPW AIR COMPRESSOR	1"	8	20/1	18
19	20/1	12	3/4"	RECYCLE MAG METER / AUTO SAMPLER	-	3/4"	12	20/1	20
21	20/1	12	3/4"	-	-	3/4"	12	20/1	22
23	20/1	12	3/4"	-	-	3/4"	12	20/1	24
25	20/1	12	3/4"	-	-	3/4"	12	20/1	26
27	20/1	10	3/4"	-	-	3/4"	12	20/1	28
29	20/1	10	3/4"	-	-	3/4"	12	20/1	30
31	20/1	10	3/4"	-	-	3/4"	12	20/1	32
33	20/1	8	3/4"	-	-	3/4"	12	20/1	34
35	20/1	8	3/4"	-	-	3/4"	12	20/1	36
37	20/1	8	3/4"	-	-	3/4"	12	20/1	38
39	20/1	12	3/4"	-	-	3/4"	12	20/1	40
41	20/1	12	3/4"	-	-	3/4"	12	20/1	42

PANELBOARD NOTES:
CONDUIT SIZE SHOWN IS THE MINIMUM SIZE REQUIRED FOR INDIVIDUAL CIRCUITS. MULTIPLE CIRCUITS MAY BE COMBINED IN A SINGLE CONDUIT FOR FIELD ROUTING PROVIDED NEC MAXIMUM CONDUIT FILL IS NOT EXCEEDED.

REV. NO.	DESCRIPTION	APP'D	DATE
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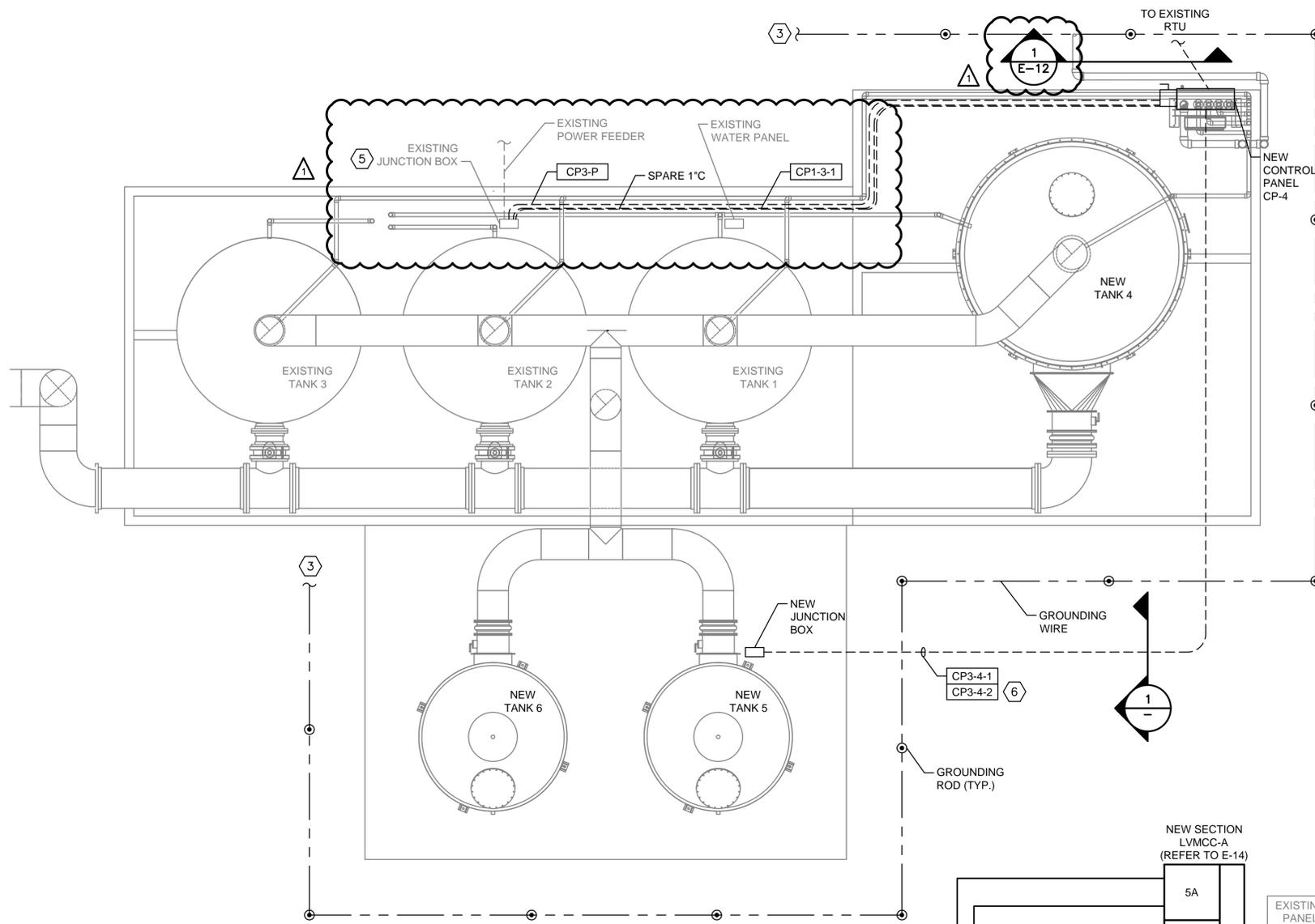
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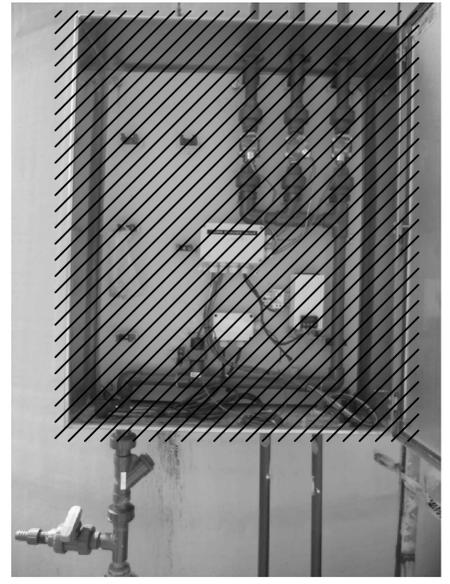
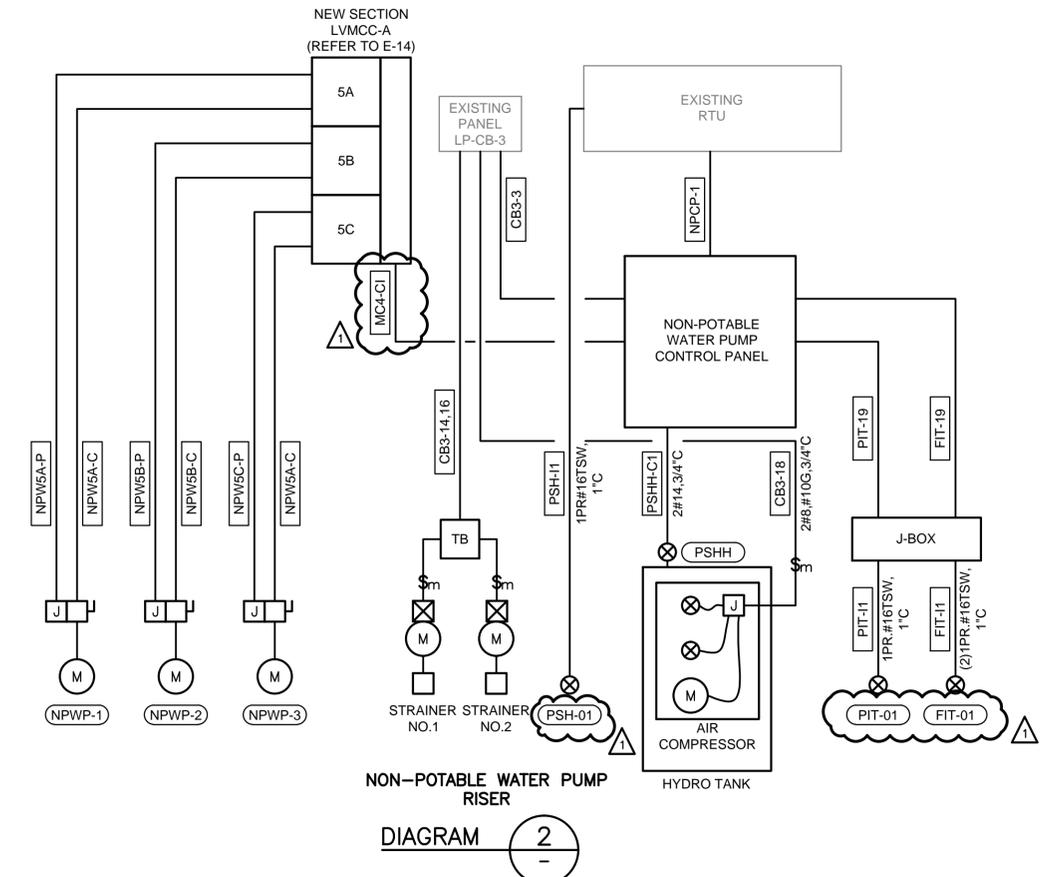
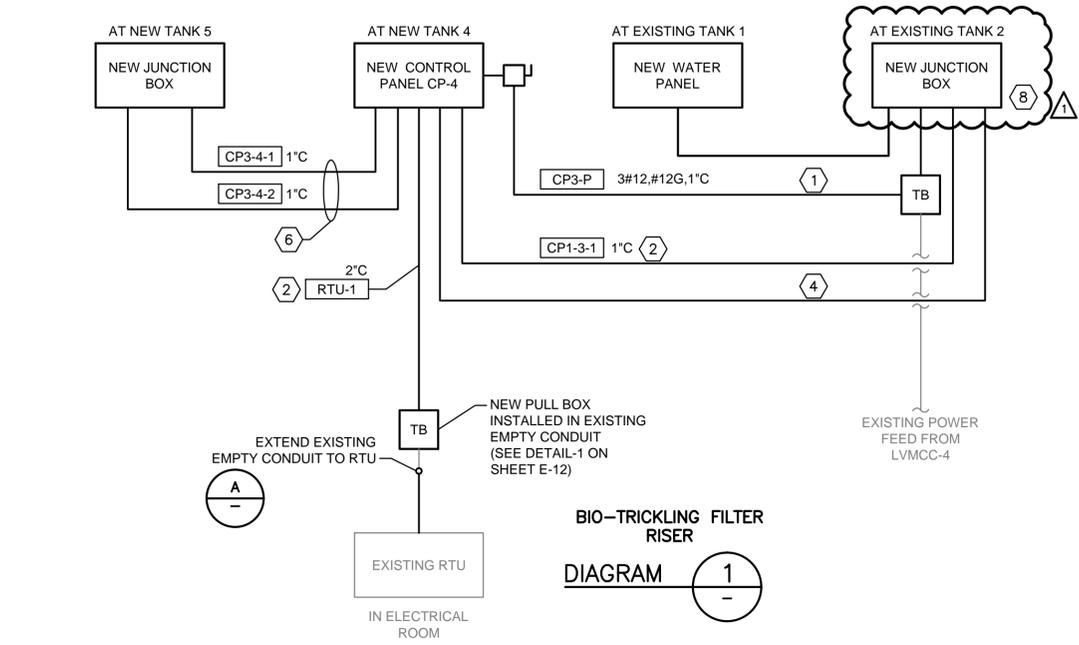
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77748
07/09/2014

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
NORTHWEST WWTP IMPROVEMENTS
ELECTRICAL
NON-POTABLE WATER SYSTEM
PLAN AND DETAIL

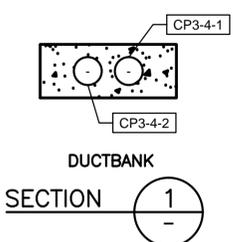
WBS NO. R-000265-0095-4
DRAWING SCALE 3/32" = 1'-0"
CITY OF HOUSTON PM BILL ZOD, P.E.
E-12 SHEET NO. 28 OF 137



BIO TRICKLING FILTERS ELECTRICAL PLAN
1" = 40'



- NOTES:
- 1 INSTALL 4"x4"x4" NEMA 4X, STAINLESS STEEL POWER TERMINAL BOX IN EXISTING CP-1 POWER FEED RUN AND EXTEND POWER FEED TO NEW CP-3.
 - 2 CONTROL AND INSTRUMENTATION INTERCONNECTION WIRING PER MANUFACTURER'S REQUIREMENTS.
 - 3 CONNECT TO EXISTING GROUNDING.
 - 4 1" C SPARE FOR ADDITIONAL CONTROL SIGNAL.
 - 5 DEMOLISH THE EXISTING WATER PANEL COMPONENT AND USE THE PANEL AS JUNCTION BOX TO PROVIDE POWER AND CONTROL TO NEW CONTROL PANEL.
 - 6 SPARE CONDUITS FOR FUTURE USE.
 - 7 DEMOLISH ALL PIPING AND COMPONENTS ASSOCIATED WITH TANK 1 THROUGH 3. CONTRACTOR SHALL PROVIDE PIPING AND COMPONENTS INCLUDING CONNECTION TO NEW TANK 4. CONTRACTOR SHALL PROVIDE PANEL ENCLOSURE SIZED PER MANUFACTURER RECOMMENDATION AT MINIMUM 30"Wx36"Hx12"D. REFER TO L-5 FOR WATER PANEL CONNECTION DETAILS AND P&ID.
 - 8 REMOVE THE EXISTING CONTROL PANEL AND REPLACE NEW NEMA 4X, 316SS J-BOX TO TERMINATE ALL POWER & CONTROL WIRING.



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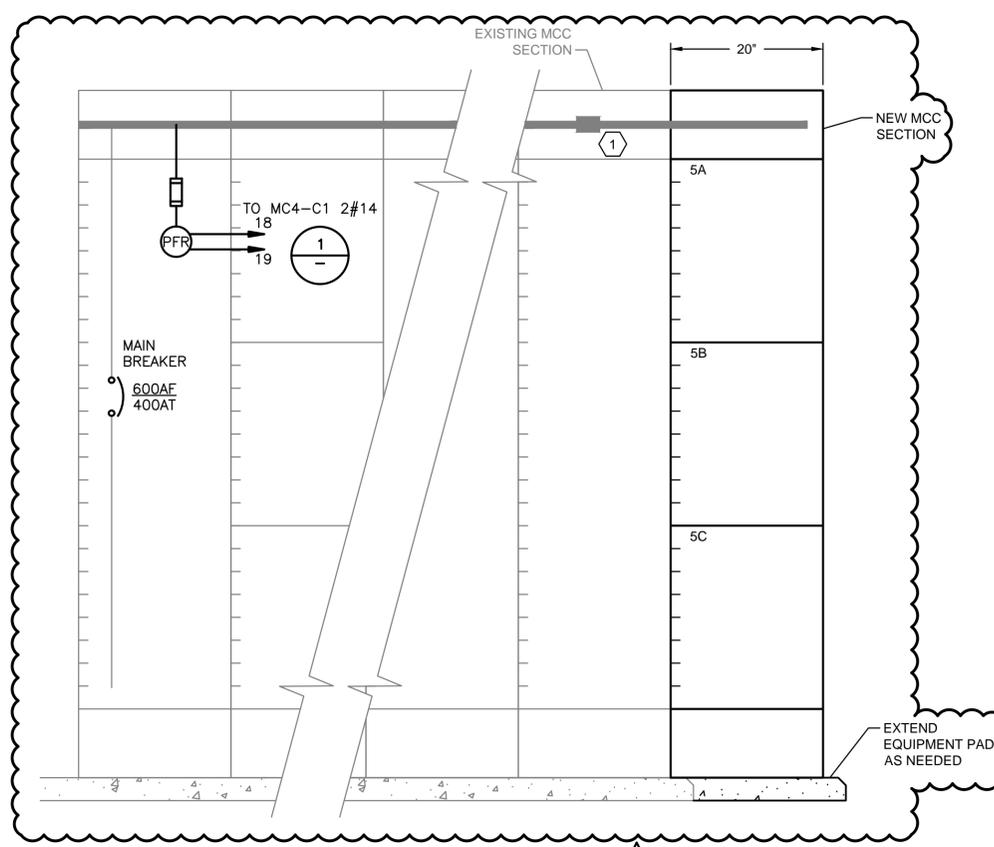
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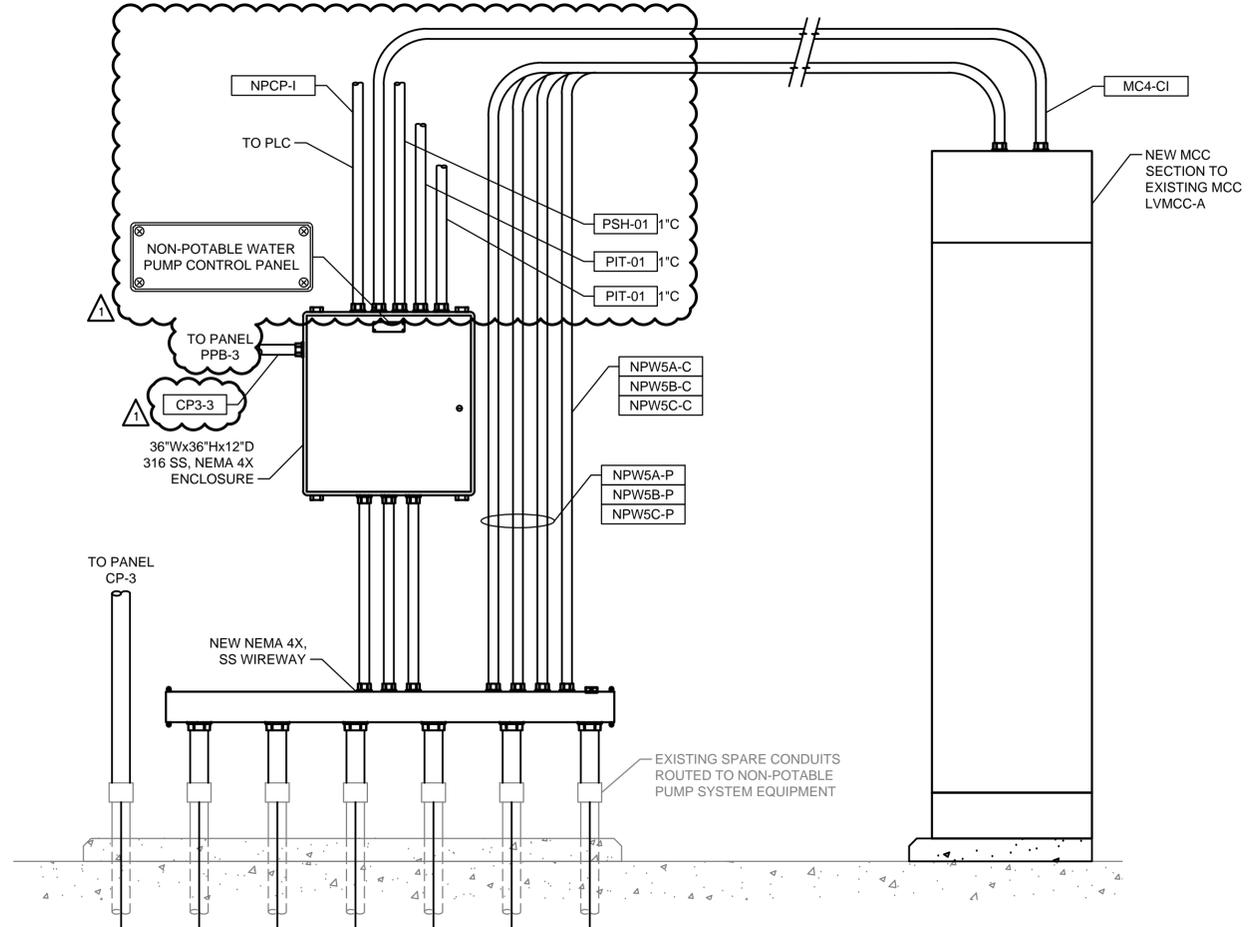
NORTHWEST WWTP IMPROVEMENTS
ELECTRICAL
BIO-TRICKLING FILTER PLAN

WBS NO. R-000265-0095-4	
DRAWING SCALE	1" = 40'
CITY OF HOUSTON PM	BILL ZOD, P.E.
E-13	SHEET NO. 29 OF 137

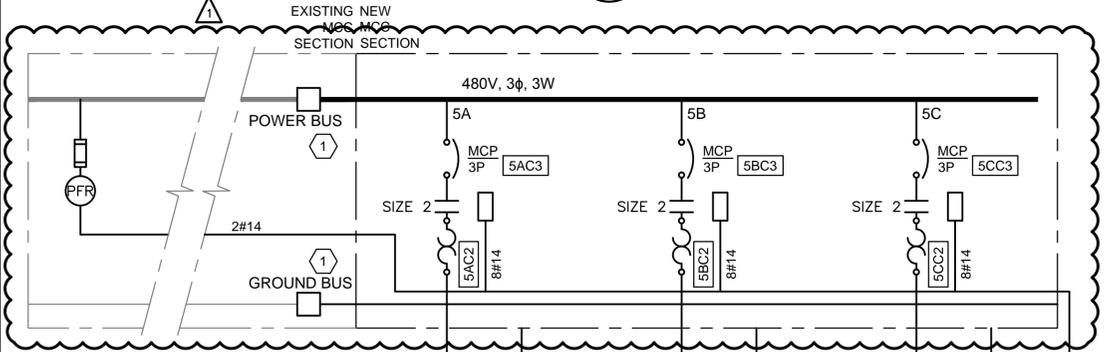


LVMCC-4 PARTIAL ELEVATION

DETAIL A



NON-POTABLE WATER PUMP SYSTEM INTER-CONNECTION ELEVATION



NON-POTABLE WATER PUMP SYSTEM POWER & CONTROL ONE-LINE DIAGRAM

DIAGRAM 1

NOTES:
 1 EXTEND AND TERMINATE EXISTING POWER & GROUND BUS TO ADD NEW MCC SECTION PER MANUFACTURER'S REQUIREMENTS.

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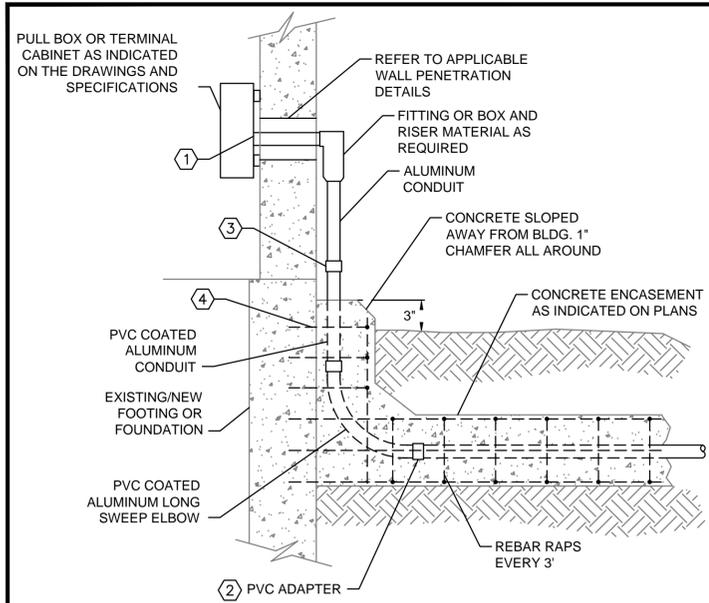
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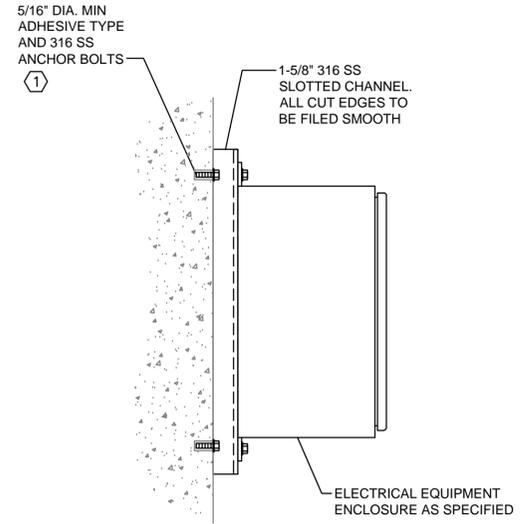
NORTHWEST WWTP IMPROVEMENTS
 ELECTRICAL NPW PUMP STATION POWER & CONTROL ONE-LINE DIAGRAM

WBS NO. R-000265-0095-4
DRAWING SCALE
NTS
CITY OF HOUSTON PM
BILL ZOD, P.E.
E-14 SHEET NO. 30 OF 137



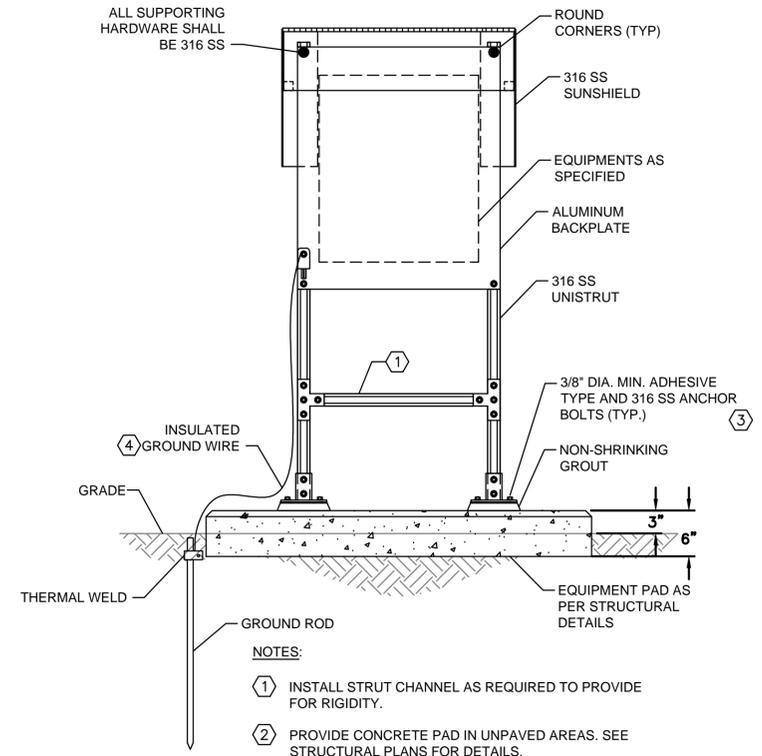
- NOTES:
- ① SEAL ALL CONDUITS ENTERING ENCLOSURES WITH REMOVABLE SILICON CAULK.
 - ② APPLY RUBBER ELECTRICAL TAPE TO ALL EXPOSED METAL CONDUIT OR CONDUIT THREADS. EXTEND TAPE A MINIMUM 2" IN BOTH DIRECTIONS BEYOND EXPOSED CONDUIT.
 - ③ THE FIRST FITTING PAST ANY FINISH SURFACE SHALL BE A MIN. OF 3" ABOVE THAT FINISH SURFACE.
 - ④ DOWEL INTO WALL TO ATTACH DUCTBANK.

ABOVE GRADE CONDUIT TERMINATION
DETAIL A
 NTS



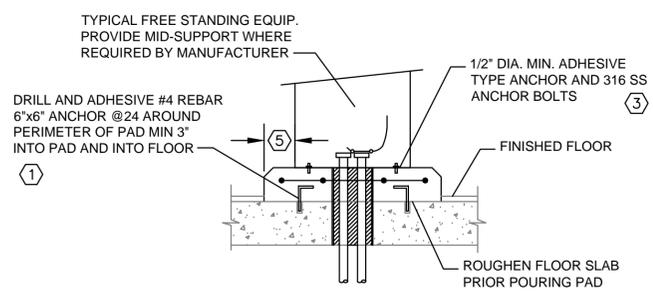
- NOTES:
- ① CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE CORRECT SIZE ANCHOR BOLTS BASED ON LOAD

ELECTRICAL EQUIPMENT MOUNTING
DETAIL B
 NTS



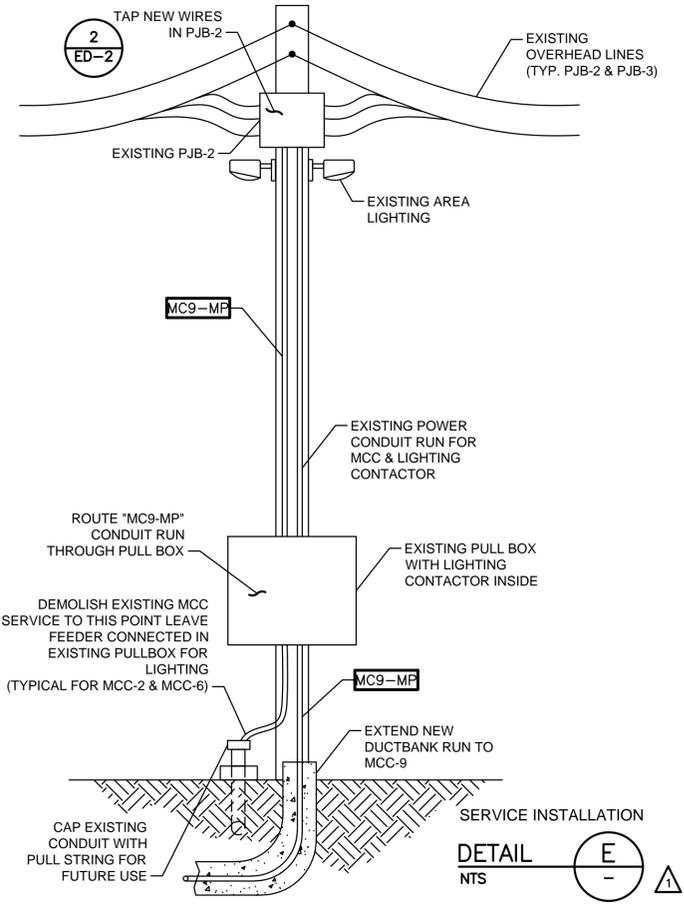
- NOTES:
- ① INSTALL STRUT CHANNEL AS REQUIRED TO PROVIDE FOR RIGIDITY.
 - ② PROVIDE CONCRETE PAD IN UNPAVED AREAS. SEE STRUCTURAL PLANS FOR DETAILS.
 - ③ CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING THE CORRECT SIZE ANCHOR BOLTS ON LOAD. (TYPICAL)
 - ④ SECURE GROUND WIRE TO EQUIPMENT RACK LEG. BOLT GROUND WIRE TO BACKPLATE WITH APPROVED GROUND LUGS.

OUTDOOR MOUNTED SWITCH (UNPAVED AREA)
DETAIL C
 NTS

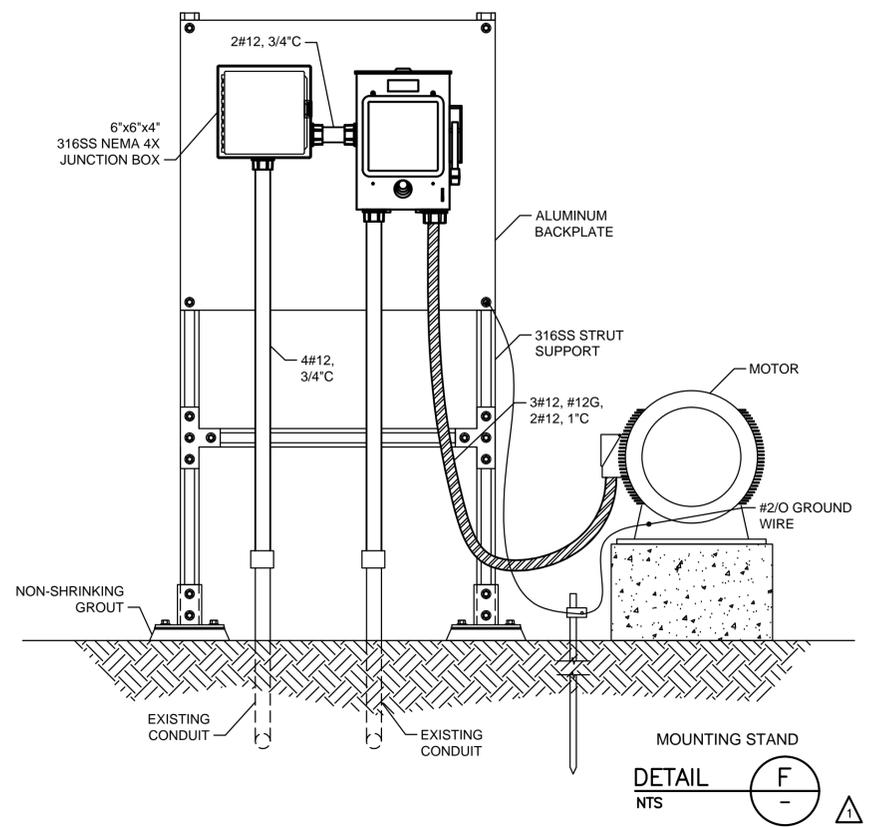


- NOTES:
- ① ALSO SEE STRUCTURAL DETAILS FOR FURTHER INFORMATION.
 - ② CONTRACTOR SHALL ENSURE FINAL INSTALLATION LEVEL.
 - ③ CONTRACTOR SHALL PROVIDE THE CORRECT SIZE ANCHOR BASED ON LOAD.
 - ④ COORDINATE CONDUIT PENETRATION THROUGH FLOOR AND EQUIPMENT PAD WITH STRUCTURAL DESIGN.
 - ⑤ EQUIPMENT PAD SHALL BE 3" MORE IN LENGTH AND WIDTH THAN THE EQUIPMENT TO BE PLACED. IF EQUIPMENT IS PLACED UP AGAINST THE WALL, THERE SHALL NOT BE A 3" GAP BETWEEN THE EQUIPMENT AND WALL. REFER TO PLAN VIEWS FOR ADDITIONAL INFORMATION.

ELECTRICAL EQUIPMENT MOUNTING
DETAIL D
 NTS



DETAIL E
 NTS



DETAIL F
 NTS

REV. NO.	DESCRIPTION	APP'D	DATE

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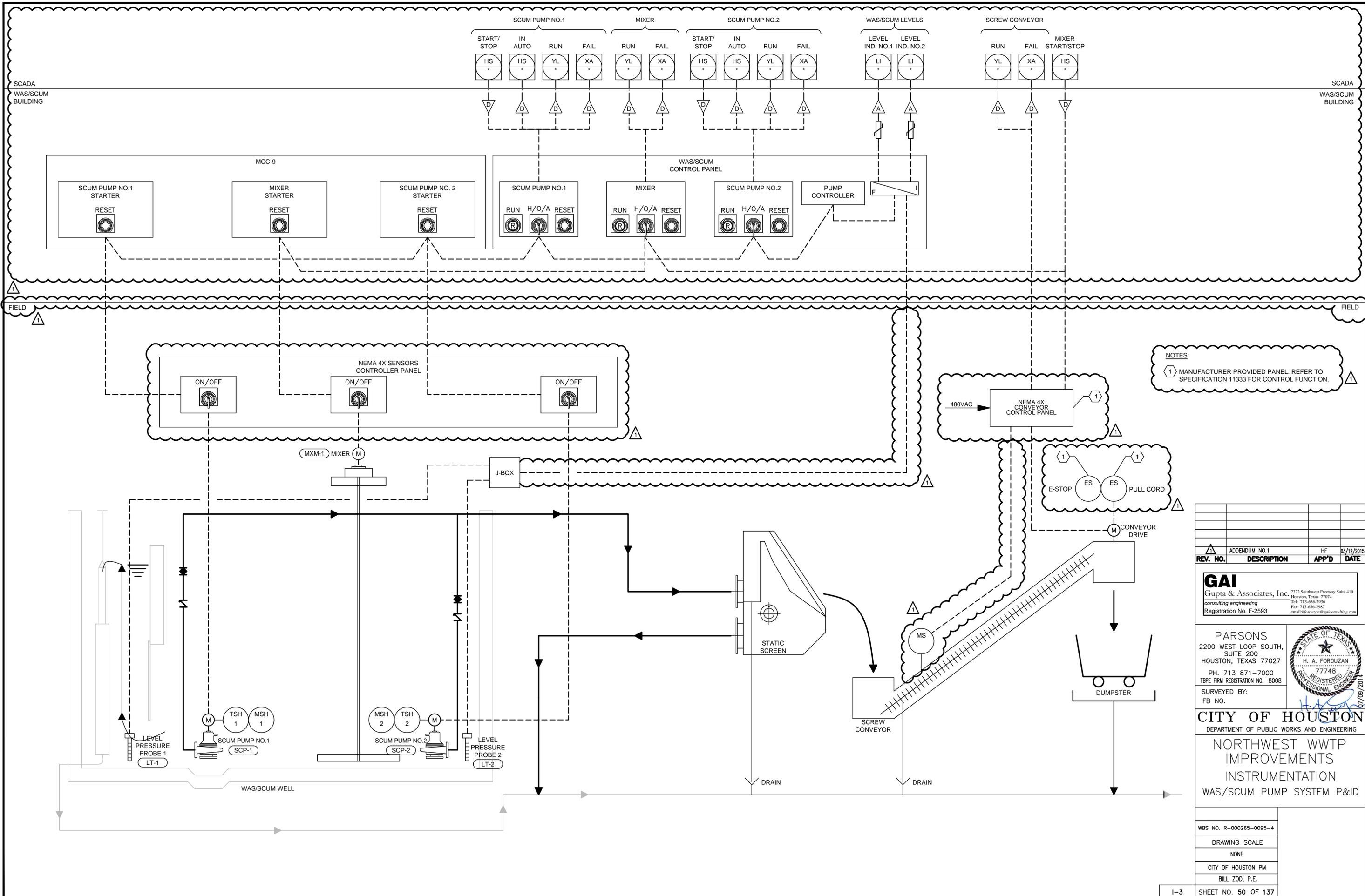
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NORTHWEST WWTP IMPROVEMENTS
 ELECTRICAL
 STANDARD DETAILS - II

WBS NO. R-000265-0095-4
DRAWING SCALE
NTS
CITY OF HOUSTON PM
BILL ZOD, P.E.
EZ-2 SHEET NO. 39 OF 137



NOTES:
 1) MANUFACTURER PROVIDED PANEL. REFER TO SPECIFICATION 11333 FOR CONTROL FUNCTION.

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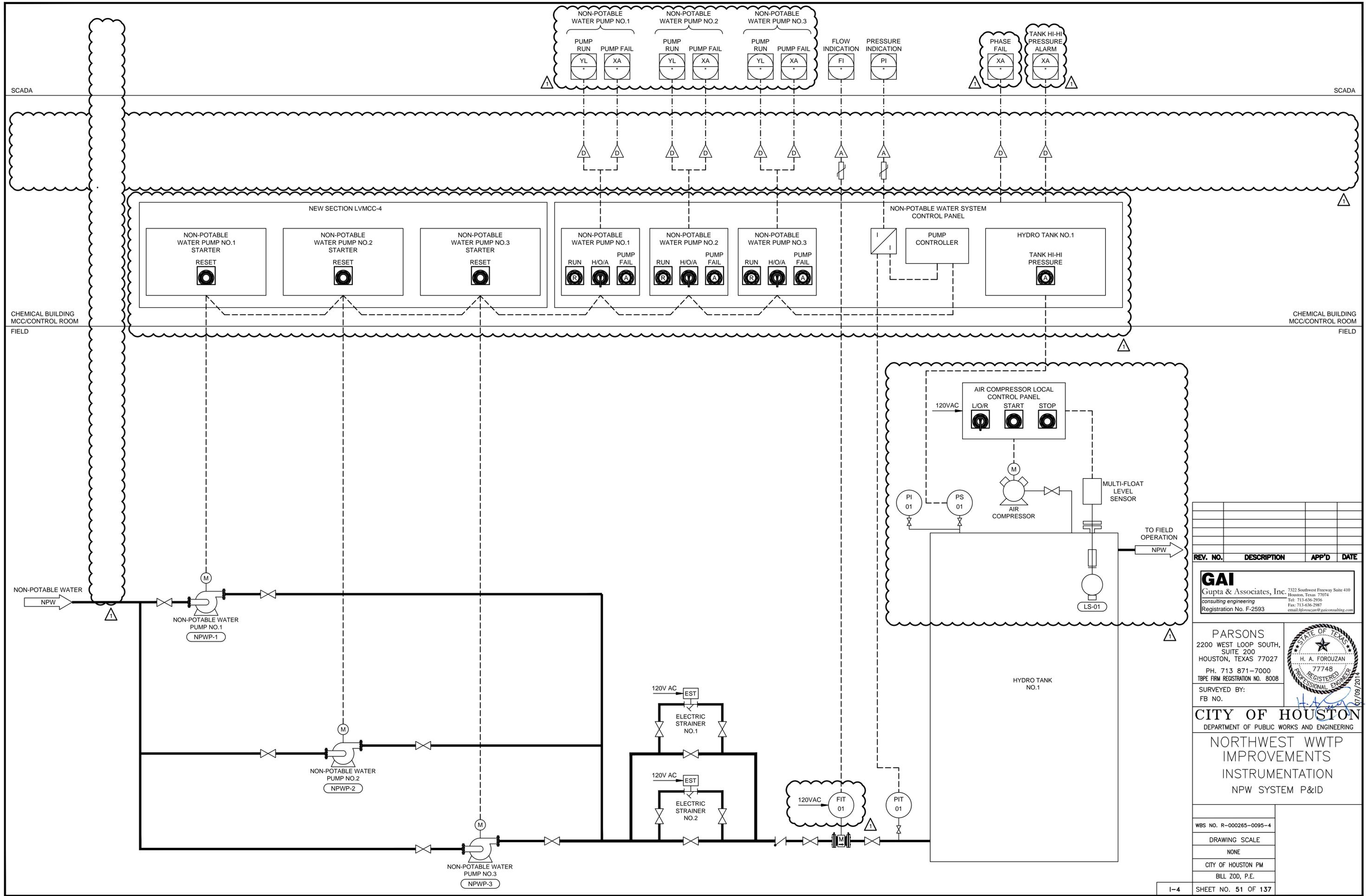
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CITY OF HOUSTON
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NORTHWEST WWTP IMPROVEMENTS INSTRUMENTATION
 WAS/SCUM PUMP SYSTEM P&ID

WBS NO. R-000265-0095-4
DRAWING SCALE
NONE
CITY OF HOUSTON PM
BILL ZOD, P.E.
I-3 SHEET NO. 50 OF 137



REV. NO.	DESCRIPTION	APP'D	DATE

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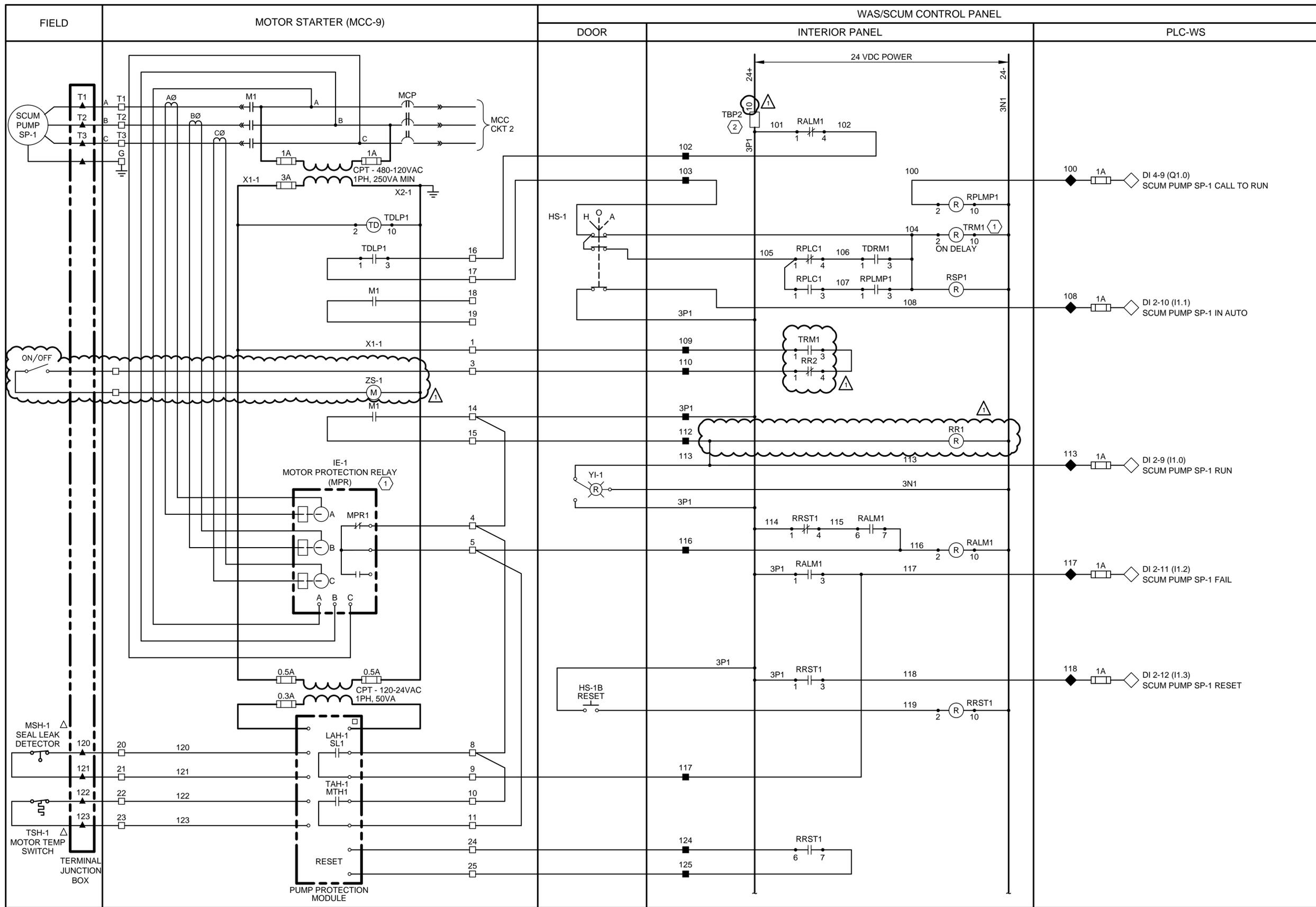
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NORTHWEST WWTP IMPROVEMENTS INSTRUMENTATION
 NPW SYSTEM P&ID

WBS NO. R-000265-0095-4
DRAWING SCALE
NONE
CITY OF HOUSTON PM
BILL ZOD, P.E.
I-4 SHEET NO. 51 OF 137



- NOTES:
- 1 WHEN SCUM PUMP IS CALLED TO RUN, MIXER SHALL RUN FOR 1 MINUTE BEFORE THE SCUM PUMP COMES ON.
 - 2 FUSED TERMINAL BLOCK TB4. SEE CONTROL, POWER, AND COMMUNICATION WIRING DIAGRAM ON I-16.

REV. NO.	DESCRIPTION	APP'D	DATE
ADDENDUM NO.1		HF	03/12/2015

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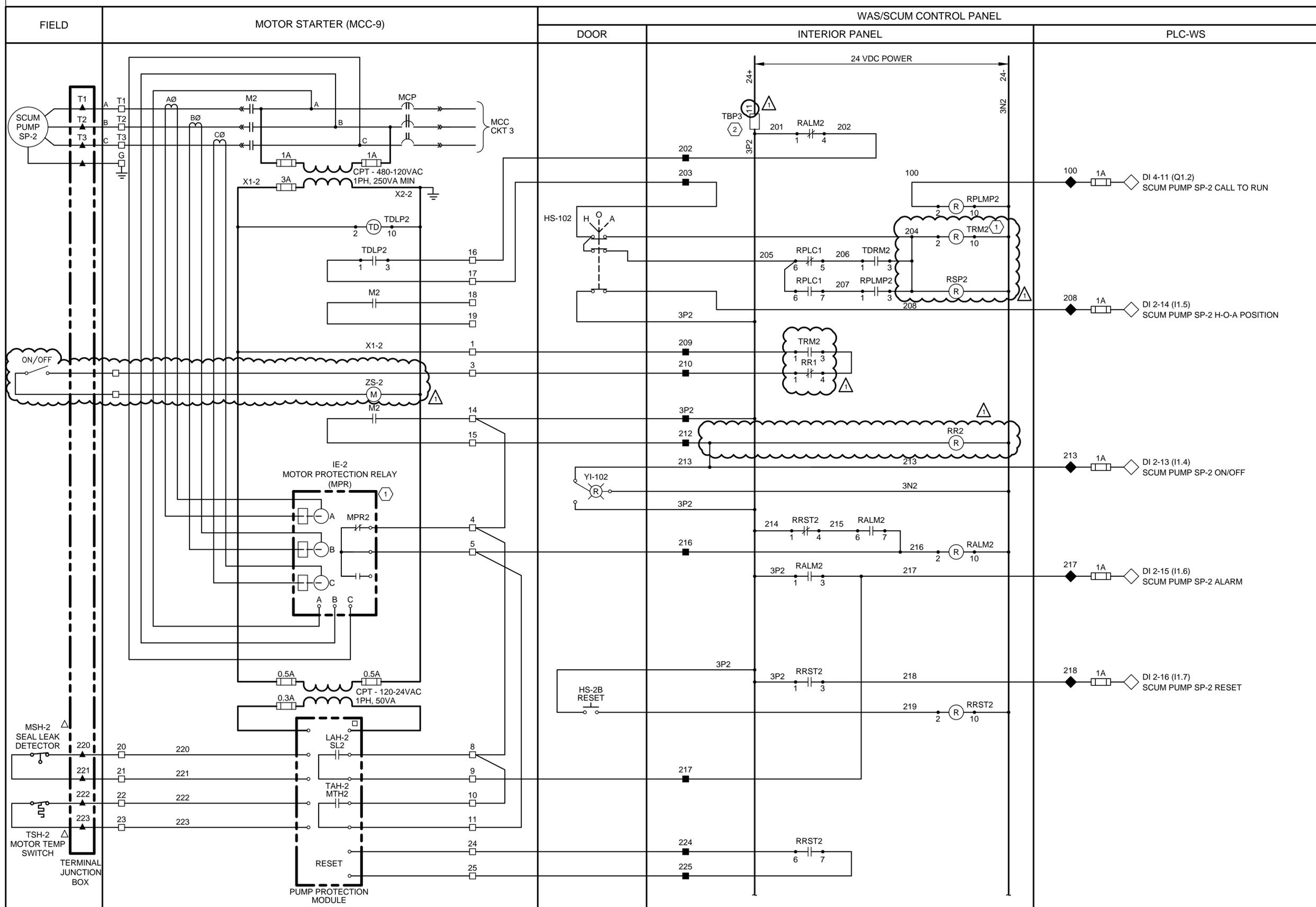
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NORTHWEST WWTP IMPROVEMENTS
 INSTRUMENTATION
 WAS/SCUM PUMP SYSTEM
 CONTROL WIRING DIAGRAM - III

- LEGEND**
- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
 - * DEVICE OR FIELD TERMINAL LOCATED REMOTE
 - DEVICE OR FIELD TERMINAL LOCATED AT MCC
 - FIELD TERMINAL LOCATED AT CONTROL PANEL
 - ▲ REMOTE TERMINAL
 - DEVICE TERMINAL NO.
 - ◆ PLC INTERFACE TERMINAL

WBS NO. R-000265-0095-4
DRAWING SCALE
NONE
CITY OF HOUSTON PM
BILL ZOD, P.E.
I-19 SHEET NO. 66 OF 137



- NOTES:
- 1 WHEN SCUM PUMP IS CALLED TO RUN, MIXER SHALL RUN FOR 1 MINUTE BEFORE THE SCUM PUMP COMES ON.
 - 2 FUSED TERMINAL BLOCK TB4. SEE CONTROL, POWER, AND COMMUNICATION WIRING DIAGRAM ON I-16.

REV. NO.	DESCRIPTION	APP'D	DATE
ADDENDUM NO.1		HF	03/12/2015

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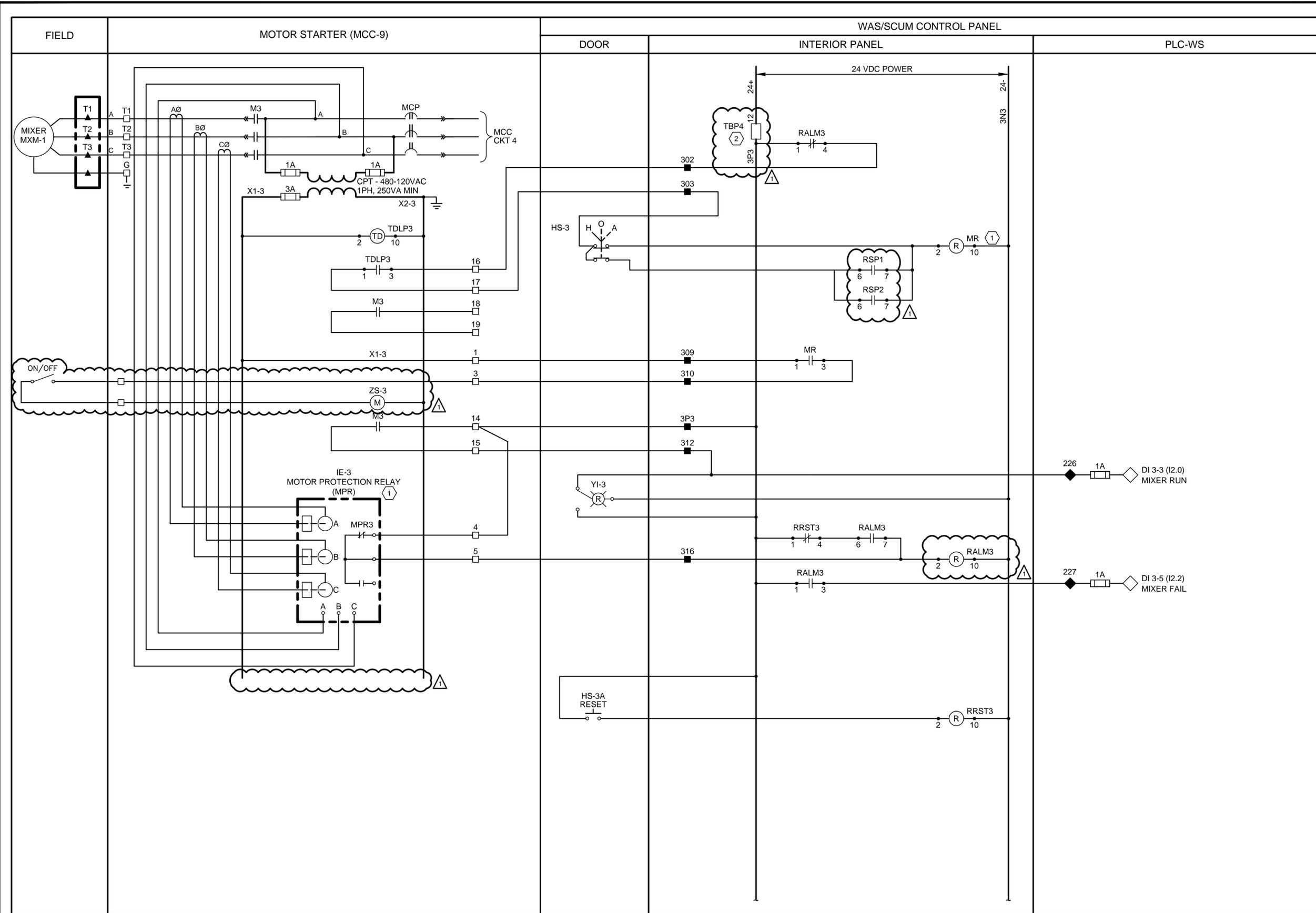
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NORTHWEST WWTP
 IMPROVEMENTS
 INSTRUMENTATION
 WAS/SCUM PUMP SYSTEM
 CONTROL WIRING DIAGRAM - IV

WBS NO. R-000265-0095-4
DRAWING SCALE
NONE
CITY OF HOUSTON PM
BILL ZOD, P.E.
I-20 SHEET NO. 67 OF 137



- NOTES:
- 1 WHEN SCUM PUMP IS CALLED TO RUN, MIXER SHALL RUN FOR 1 MINUTE BEFORE THE SCUM PUMP COMES ON.
 - 2 FUSED TERMINAL BLOCK TB4. SEE CONTROL, POWER, AND COMMUNICATION WIRING DIAGRAM ON I-16.

REV. NO.	DESCRIPTION	APP'D	DATE
ADDENDUM NO.1		HF	03/12/2015

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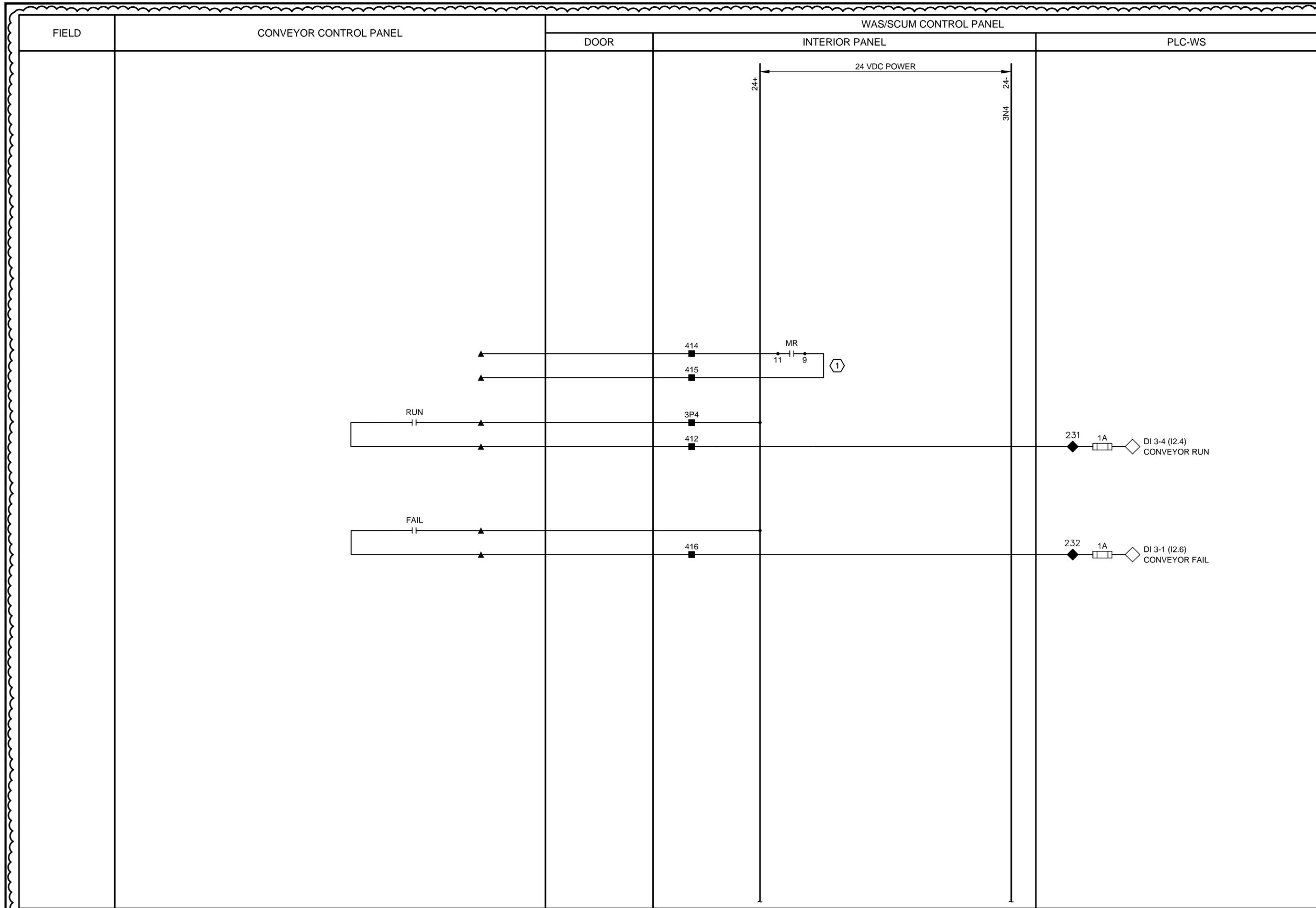
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NORTHWEST WWTP IMPROVEMENTS
 INSTRUMENTATION
 WAS/SCUM PUMP SYSTEM-MIXER
 CONTROL WIRING DIAGRAM

WBS NO. R-000265-0095-4
DRAWING SCALE
NONE
CITY OF HOUSTON PM
BILL ZOD, P.E.
I-21 SHEET NO. 68 OF 137



NOTES:
 1 MIXER SHALL BE WIRED IN SERIES WITH CONVEYOR SEAL IN CIRCUIT, TO STOP CONVEYOR WHEN MIXER IS NOT RUNNING.

REV. NO.	DESCRIPTION	APP'D	DATE
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 IMPROVEMENTS
 INSTRUMENTATION
 CONVEYOR
 CONTROL WIRING DIAGRAM

- LEGEND**
- △ DEVICE OR FIELD TERMINAL LOCATED AT MOTOR
 - * DEVICE OR FIELD TERMINAL LOCATED REMOTE
 - DEVICE OR FIELD TERMINAL LOCATED AT MCC
 - FIELD TERMINAL LOCATED AT CONTROL PANEL
 - ▲ REMOTE TERMINAL
 - DEVICE TERMINAL NO.
 - ◆ PLC INTERFACE TERMINAL

WBS NO. R-000265-0095-4
DRAWING SCALE
NONE
CITY OF HOUSTON PM
BILL ZOD, P.E.