



**SAN ANTONIO WATER SYSTEM
HIGHLAND ESTATES, UNIT 1 P.U.D. MONTANA PASS FLOATING GROUND
STORAGE TANK PROJECT**

**SAWS JOB NUMBER 15-1177
SOLICITATION NO. CO-00092**

**ADDENDUM NO. 5
October 13, 2016**

To Bidder of Record:

This addendum, applicable to work referenced above, is an amendment to the bidding documents and as such will be a part of and included in the Contract Documents. Acknowledge receipt of this addendum by entering the addendum number and issue date in the space provide in submitted copies of the proposal.

Clarifications

1. Upon advertisement a Geotechnical Report, dated May 26, 2015, was made available upon request to potential bidders for this project.

SAWS has now issued a revised Geotechnical Report, dated February 24, 2016. The revised Geotechnical Report is being made available for informational purposes only. However, it is highly recommended that bidders review the revised Geotechnical Report prior to submitting a bid. As reminder, the awarded contractor will be responsible for obtaining their own Geotechnical Report.

A link has been created on the SAWS website for the solicitation that allows Contractor's access to the Geotechnical Report. Potential bidders may obtain the revised Geotechnical Report as follows:

- Go to the SAWS website, choose this project solicitation, then select "Revised Geotechnical Report 2.24.16", which will take potential bidders *to the Disclaimer Form. The link to access the "Revised Geotechnical Report 2.24.16 is: http://www.saws.org/business_center/ContractSol/Drill.cfm?id=1775&View=Yes*
 - Next, enter a first and last name at the bottom and check the box.
 - Finally, select Submit to view.
2. A mandatory Pre-Bid Meeting was held on September 29, 2016. The following contractors attended and may submit a bid for this project:

Alterman Electric
Archer Western Construction
Associated Construction Partners, Ltd.
Bernard Controls
Bitterblue, Inc.
Black Castle
Clearly Zimmermann Engineers
Crom Prestressed Tanks
DN Tanks, Inc.
Lambda Construction, Ltd.
LNV
Payton Construction, Inc.
Pesado Construction
Preload, LLC
Rabalais I & E Constructors
The Scruggs Company

3. The estimated cost for this project has changed to **\$5,267,497.12**, which is also now reflected on SAWS website at the following link:
http://www.saws.org/business_center/ContractSol/Drill.cfm?id=1775&View=Yes

Questions and Responses

1. Section 13205, Page 5, Article 2.01.B.6, the seismic site class and design values provided differ from those provided in the geotechnical report. Please confirm seismic site class and the Ss and S1 values for this project.
The revised Geotechnical Report, dated February 24, 2016, should be referenced for seismic site class, Ss, and S1 values for bidding purposes. However, the awarded contractor will be responsible for obtaining a new Geotechnical Report at the start of the project.
2. Section 13205, Page 6, Article 2.01.D, indicates a minimum 4 inch thick floor. Sheet T-4 of the Contract Drawings indicates a minimum 8 inch floor. Please confirm tank manufacturer is responsible for final design of tank floor thickness.
As noted by sheet T-4, the tank floor thickness shall be designed by the tank manufacturer and approved by the engineer.
3. What is the minimum floor slab thickness: 4 inches as specified in Sections 13205-2.01.D and -3.02.E of the tank specs, or 8 inches as shown in drawing Sheet T-4?
Refer to response to question No. 2 above.
4. Section 13205, Page 9, Article 2.09.A.5, indicates a 30-inch overflow pipe; however, the note on Contract Drawing T-7 indicates tank manufacturer is responsible for final

design. Please confirm tank manufacturer is responsible for final sizing of overflow weir and pipe based on the specified overflow rate.

The engineer is responsible for the overflow piping design as indicated in T-7 R1. SAWS details indicate that the overflow piping and overflow drain shall be sized by the engineer. The tank manufacturer is responsible for the tank weir design.

5. In spec section 01321-3 it calls for Primavera to be used to generate the progress schedule. We would like to respectfully request that Microsoft Project be allowed as well?
Microsoft Project will be preferred method to generate the progress schedule.

6. Following the Specification on page 539/800, you specified 2 Electric Actuator Manufacturers as EIM and LIMITORQUE and any equivalent are not mandatory. We would like to inform you that if you specified only these 2 brands manufacturers the cost of the Motorized Operating Valves Packages will be high and to have an alternative manufacturer will help to decrease the cost on the M.O.V solutions. We would like to enlighten you that we, BERNARD CONTROLS INC. (USA), is a local company (based in TX Houston) which also manufacture, supply and service the Electric Actuators in USA, is well accepted by others US Municipalities as City of HOUSTON, of KINGSVILLE, of TAMPA, of CHANDLER etc. We would like to know if it will be possible that the Valve manufacturers will supply an equivalent or alternative manufacturer than EIM and LIMITORQUE Brands.? If it is a “Yes”, please let us know if the Bidding could be revised to accept an equivalent approved product?
An equivalent approved product for this particular item is not allowed.

7. I have noticed in the SECTION 09900 PAINTS AND COATINGS that we are not listed as one of the coating manufacturers and in the SECTION 09960 HIGH PERFORMANCE COATINGS we are listed as AMERON INTERNATIONAL. In August 1, 2016 PPG acquired Ameron International coating division (see letter attached) we advertise this brand under PPG Protective & Marine Coatings products. Please ask the engineer firm for the approval and inclusion of PPG Protective & Marine Coatings in both sections.
PPG Protective & Marine Coatings is an approved to paint manufacture to both referenced specifications.

8. Sheet T-6, indicates all of the pipes shall have 3’-0” min. cover from the tank finish floor elevation. Sheets C-6.1 and C-6.2 indicate the pipes shall have 5’-0” minimum cover from finish grade. Please confirm the bury depth or centerline elevation for all tank piping.
Minimum cover on pipes shall be 5’. Refer to revised Sheet T-6R1 attached as part of this addendum.

9. Sheet T-2, please confirm the handrail material for the tank dome.
Handrail material is 1½” Schedule 40 stainless steel 316L pipe. Reference Pipe Safety Railing detail on Sheet T6R1.

10. I'm trying to determine the suction inlet piping elevations on each Vertical turbine can pump to determine the required can length. Can you point me to the right page in the plans or provide this information? I have looked on page C-7 and C-5.
Refer to Sheet C6.2 for elevations.
11. We do not have drawing C-4.8 for this project.
Sheet C4.8 is void; it has been removed as part of this Addendum.
12. Is there chain link fence or handrail required at the modular block retaining wall? There appears to be something indicated on the site plans, but nothing is called out anywhere or shown on the cut sections.
A handrail is required at the modular block retaining wall. Reference C5 R1 and C5.1 R1.
13. On sheet C-4.0 both site gates are shown to be 22' double swing gates, but on sheet C-5.1 the gate coming off of Montana Pass is shown to be a 20' powered sliding gate. Which gate is correct?
Gates shall be as shown on Sheet C5.1 with a double swing gate off Highland Crest and a 20' powered sliding gate off Montana Pass. Reference C4.0R1 and C5.1R1.
14. Is there fence required on the East side of the site running parallel to the existing fence? Sheet C-4.0 appears to show us tying into the existing fence running North and South, but sheet C-5.1 shows proposed fence running North and South alongside the existing fence.
Fence shall follow layout on sheet C5.1. Reference C4.0R1 and C5.1R1.
15. Is there a detail and spec for the proposed trench drain running across and alongside the tank access road?
Reference sheet C5.4 for detail of trench drain. Installation to be as per manufacturer recommendations.
16. What is required at the 190' of vertical rock wall face shown on sheet C-5?
The intent is to leave the rock exposed in its natural state.
17. Is there a weir plate required at the flow splitter weir, or is this just a concrete weir wall?
Flow splitter is a concrete wall.
18. According to Sheet T-4 (Section "A" and Note 2) of the bid drawings, the total excavation thickness (for the select fill plus the leveling base) is 3 feet. Given a leveling-base thickness of 12", this results in a 2-foot thick select fill. On the other hand, the excavation depth and select fill recommendations of the geotechnical report are not very clear.
For example, the "Ring Wall Foundation" section (page 16 of the report) (i) recommends "..at least 2-feet thick compacted crushed limestone under the tank bottom.", but does not

clarify whether this is the only subbase or whether it is in addition to a leveling base; and (ii) states that “*In the fill area, the tank bottom may be underlain by 6-feet thick compacted crushed limestone select fill.*”

Considering that the maximum vertical distance from the bottom of the perimeter footing (1338.27’) to the lowest existing grade below (1334’, on the southwest side) is 4.27’, this means that the geotechnical report anticipates a 1.73’ excavation below existing grade (rather than a minimum 3 feet as recommended in Note 2 of Sheet T-4).

Question: Can we assume that the minimum excavation elevation is the lower of (a) three feet below the tank foundation or (b) 3 feet below existing grade as inferred from Sheet T-4?

The revised Geotechnical Report, dated February 24, 2016, should be referenced by potential bidders prior to submitting a bid. It is the intent of the construction drawings to provide a minimum 2’ of crushed limestone and 1’ of leveling base under the tank foundation.

19. The “Ring Wall Foundation” section (page 17 of the report) describes a ring wall footing that is “*..founded at a minimum depth of 3-ft below finish grade elevation of 1340-ft within the undisturbed Stratum II tan marl to limestone or compacted crushed limestone select fill.*” However, the standard perimeter footing for a prestressed concrete tank is only 15” thick (rather than 3 feet thick). Nevertheless, the 15” footing does meet the second requirement (namely, it is in fact founded within the undisturbed Stratum II tan marl to limestone or compacted crushed limestone select fill.) Given that the standard perimeter footing is 15”-thick, the additional statement on page 17 that “*The ring wall will confine 2 to 4 feet thick compacted crushed limestone select fill or Stratum II marl to limestone*”, does not apply. [Actually, given an 8”-thick floor slab, the 15”-thick footing confines only 7” of compacted crushed limestone select fill or Stratum II marl to limestone.]

Question: Can we assume that the standard 15-inch thick by 4±-ft wide perimeter footing is satisfactory and that is supersedes the ring wall geometry described on page 17 of the geotechnical report?

See response to Question #18.

20. Background: The 3,900 psf allowable bearing capacity recommended in the geotechnical report corresponds almost exactly to the actual contact pressure under the tank floor, but is only 85% of the maximum contact pressure under the footing (4,600± psf; see attached **Fig. 1**). Therefore, given a 3,900 psf allowable capacity, it is not possible to design the footing. On the other hand, given the properties of the subgrade at the bottom of the proposed excavations ($N \gg 50$ bpf at a minimum 3 feet below existing grade), it appears that an allowable bearing capacity in excess of 6,000 psf would be justified.

Question: Given the properties of the subgrade at the bottom of the proposed excavations ($N \gg 50$ bpf at 3 feet below existing grade throughout), can we assume an allowable soil bearing capacity of at least 4,600 psf?

See response to Question #18.

21. Can we bid part of the project or do we need to bid all of the project under division 6 – Electrical?

The bid proposal shall be for the entire project.

22. What is the size of service going in at the site?

Electric service cable size shown on drawing E7 cable/conduit P-100.

23. In the specifics it mentions that the contractor will need to pay for the installation of the CPS Energy service with a contract allowance. How much is the allowance and will it be included in the bid breakout?

A bid allowance has been included in the updated Bid Form. Refer to attachments.

24. There is no light fixture schedule mentioned in the drawing. Will you be including the light fixture schedule and poles for the lights in Addendum 3?

Light Fixture Schedule added to drawing E11R1.

25. What are the specifics for the antenna pole?

Refer to E11 for detail and to Specification 17600 Antenna Tower.

26. I've been looking at the drawings and specifics and I cannot find any information on the lighting fixture schedule. Can you assist me with this?

Refer to response to question #24.

27. The specifications Prestressed Concrete Tank with Steel Diaphragm, Section 13205, Part 2 - Section 2, Products 2.01, Design Requirements B.6, Tank Design Item 6, specifies the seismic loads shall be based on ACI 350.3 with ASCE Site Class B short period accelerations (Ss) of 0.1 g and a 1 second (S1) acceleration of 0.04 g; however the Geotechnical Report under Seismic Design Criteria in Table No. 6 specifies a site class as C, a Ss of 0.14g and a S1 of 0.04g. Please specify the criteria required to be used in designing the tank.

Refer to response to question #1 above.

28. In the Foundation Recommendation section, the geotechnical report advises to have at least 2-feet thick compacted crushed limestone under the tank bottom and the fill area may be underlain by 6-feet thick compacted select fill. In this section the report states a ring wall foundation may be used to support the tank and goes on to provide design criteria including design earth pressure and bearing pressure as well as height. Drawing T-4 does not show a ring wall foundation under the tank footer. Please specify if a ring wall is required to confine the crushed limestone under the tank in order to support the membrane floor.

See response to Question #18.

29. The specifications Prestressed Concrete Tank with Steel Diaphragm, Section 13205, Part 2 - Section 2, Products 2.01, Design Requirements B - Floor Slab, specifies a floor slab no less than 4" thick; however, Drawing T-4 shows a floor slab thickness of 8". Please confirm a floor slab of 4" thick is acceptable.

Refer to response to question #2 above.

30. Drawings T-2 and E-2 refer to dome sleeves for electrical connections to instrumentation inside the tank. We recommend using precast concrete curbs with 8" diameter PVC pipes with flanges and PVC blind flanges for these dome penetrations. Please confirm precast concrete curbs with 8" PVC pipes, PVC flanges, and PVC blind flanges are acceptable for this application.

No precast concrete curbs with 8" PVC pipes will be allowed for dome penetrations as they are not in compliance with typical SAWS standards. Refer to E9 for electrode holder detail.

31. Who is responsible for the PLC programming? Part A. above indicates the ASP but Part B. also above indicates the PCSI. Please clarify.

The PCSI is ultimately responsible for the entire project as outlined in specification section 17300 and if he requires the services of an ASP, the ASP will perform the PLC programming.

32. How many workshops are required and how is the requirement for the Engineer and Owner to observe the displays and control strategies expected to be accomplished prior to submitting database & graphics etc., especially considering that the project requires the modification of the SAWS existing DYNAC™ SCADA HMI system?

As described in 17300 1.01.E of the specifications, the PCSI is in charge of scheduling with the contractor, engineer, owner and ASP. The number of workshops will be as required by the PCSI.

33. 2.01.A – Hatch size here is listed as 18x18, while drawing T-8 shows a 4'x4' hatch. Please confirm hatch size.

Hatch size to be a 4'x4' hatch as per plan. Specification 2.01A is related to a minimum hatch that is required for installation and maintenance of mixer.

34. 2.02 – Will mixer control panel be located outside or indoors? What is the location of the panel?

The mixer is fed from the motor control center and is 480V,3 phase with the control switches located at the supervisory control panel.

35. 2.02.A.1.e – Is an epoxy coated enclosure with ventilation acceptable? See attached cutsheet. We are concerned about cooling and ventilation of the panel if it is located outside.

The SCADA panel will be air conditioned as per note on Sheet I4 and ventilated. The motor control center does not need to be epoxy coated as the canopy will assist in prevention of overheating.

36. Is 120 V, 1 Phase power available?

120V power is currently not available onsite. However, 120V 1 phase power will be available after transformer is set by CPS Energy.

37. Are there any baffles located inside the tank?

Baffles are not located within the tank.

38. Please provide location and pressure of any existing water lines available to tap in to in lieu of providing a booster pump.

The construction of the Highland Estates 24" Oversize Approach Water Main SAWS Job No. 14-1178 should be completed by January 2017. This will leave a 24" stubout at the location of the proposed tie in for the site piping of the tank.

39. Please explain the design and characteristics of a floating ground storage tank.

The Montana Pass Floating Ground Storage tank will back feed the downgradient pressure zone while boosting pressure to the up gradient pressure zone.

40. Also we are the manufacturers of epoxy coated bolted potable water storage tank. Would our solution of storage for potable water be scoped into your project?

Project requires for 3.11 MG tank to be in conformance with AWWA D110, Type III, Prestressed Concrete Storage Tank. Tanks that are not in compliance with this requirement are not acceptable.

41. Attached you will find our product substitution RFA and supporting documents for the trench drain portion of the Montana Pass Floating Ground Storage Tank Project.

DuraTrench will be allowed in this project.

42. The 34th Street Pump Station Improvements and the Highland Estates Montana Pass Tank projects have their mandatory pre-bids on the same day. The 34th Street project has a mandatory site visit, which will interfere w/ the Highland Estates project mandatory pre-bid. Can one of the pre-bids be moved?

The prebid was rescheduled as notified in Addendum #2.

43. The geotechnical report was not issued with this Bid Package. Is it available to review prior to the question deadline?

Please see Clarification # 1, response to Question #18 and item 54 under Changes to the Specifications regarding the revised Geotechnical Report.

44. Sub Section: 15500.24 talks extensively about the hydropneumatic tank air volume control and a local control panel, but all of the control and electrical drawings indicate that all controls other than the air compressor are in the Supervisory PLC Control Panel. Please clarify if a local control panel is required or if all controls will be provided in the Supervisory PLC Control Panel.

A local control panel will not be required. All controls will be provided within the SCADA Panel.

45. Sub Section: 15500.22 States that a total of (3) three safety relief valves are to be supplied, (1) one set at 100 psi and (2) two set at 200 psi, but the hydropneumatic tank rating is 175 psi. Where will the 100 psi set pressure safety relief be used and per ASME code, the safety relief valves on the hydropneumatic tank can not be set more that 10% above the design working pressure of the tank, so the highest pressure setting on the hydropneumatic tank safety relief valves would be 192 psi. Please clarify the quantity and set pressures of the safety relief valves.

Section 15500.22 specifies that the safety relief valve shall have a working pressure of 300 psi and shall be factory adjusted to release 1,736 scfm min at 100 psi and 3,267 scfm min at 200 psi. The plans call for an air release valve and an air vacuum valve. This results in one safety release valve, one air vacuum valve, and one air release valve. Final settings will be adjusted in the field with SAWS personnel.

46. Sub Section: 15500.24.2 specifies an Add Air solenoid valve, but the Supervisory PLC Control Panel drawings, also show a Vent Air solenoid valve which are typically used on Surge Tank System and not required on a hydropneumatic tank system. Is a Vent Air solenoid valve also required? Please clarify if a Vent Air Solenoid Valve is part of this system configuration.

A vent air solenoid valve is not required since the mechanical relief valves vent the tank pressure.

47. There's a requirement for a full timed armed guard and also a reference to a second trailer for SAWS personnel using the Somerset Plant facility? Any way we can get clarification on these items?

No full time armed guard nor jobsite trailer is required for this project. Contractor is responsible for implementing whatever security that they deem necessary to protect the project site.

Changes to Bid Proposal

48. Remove Bid Proposal BP-1 and Replace with attached Bid Proposal BP-1. This version of the Bid Proposal should be used when submitting a bid for this project. Failure to use the revised Bid Proposal may result in a bid being deemed as non-responsive.

Changes to Contract

49. Remove Contract Agreement CA-1 and Replace with attached Contract Agreement CA-1.

Changes to Technical Specifications

50. Remove Paragraph 1.08.A, 1.08D, and 1.09A, Technical Specifications, Section 01500, Construction Facilities and Temporary Controls, Part 1, General

51. SECTION 13205, 1.04, B, PRECAST, PRESTRESSED CONCRETE TANK WITH STEEL DIAPHRAGM

Page 13205 - 4, add the following Type III tank contractor: CROM Corporation, Gainesville, Florida

52. Remove Paragraph 3 2.01, Technical Specifications, Section 01321, Progress Schedule, Part 2, Products, and Replace with the Following:

The computer software utilized by the CONTRACTOR to produce the project schedule shall be Microsoft Project.

53. Remove Paragraph 2.01.B.6, Technical Specifications, Section 13205, Precast, Prestressed Concrete Ground Storage Tank, Part 2, Products, and Replace with the Following:

6. Seismic loads shall be based on ACI 350.3 with an ASCE 7 Site Class of C, a short period of acceleration (S_s) of 0.14 g, a 1-second (S_1) acceleration of 0.04g

54. Remove Paragraph 2.01.D, Technical Specifications, Section 13205, Precast, Prestressed Concrete Ground Storage Tank, Part 2, Products, and Replace with the Following:

D. Floor Slab: The floor slab shall be designed as a membrane floor not less than eight inches thick and shall be placed monolithically. No construction joints will be allowed unless otherwise approved by the Consultant. Wall footings may be above or below floor grade, but shall be placed monolithically with the floor.

Changes to Special Conditions

55. Remove Special Condition 7.0 inserted per Addendum 1 and replace with the following:

SC-7.0 A revised Geotechnical Report has been developed for SAWS on this project and has been made available for Contractors for informational purposes only. SAWS will require the execution of a SAWS disclaimer form by the Contractor as a condition of and prior to the release of the report. To complete the disclaimer form and obtain the report, please go to the following link on SAWS website:

http://www.saws.org/business_center/ContractSol/Drill.cfm?id=1775&View=Yes

Changes to Plans

56. Remove Pages C4.0, C5, C5.1, C5.2, C5.4, T-4, T-6, T-7, E-2, E-3, E-7, E-8, E-9, and E-11, and replace with the attached drawings: C4.0R1, C5R1, C5.1R1, C5.2R1, C5.4R1, T-4R1, T-6 R1, T-7 R1, E-2R1, E-3R1, E-7R1, E-8R1, E-9R1, and E-11R1
57. Remove Sheet C4.8.

END OF ADDENDUM 5

This Addendum, including these eleven (11) pages, is forty (40) pages with attachment in its entirety.

Attached: Bid Proposal Form and Bid Item List- three (3) pages, Sample Contract – twelve (12) pages, and Revised Construction Drawings C4.0R1, C5R1, C5.1R1, C5.2R1, C5.4R1, T-4R1, T-6 R1, T-7 R1, E-2R1, E-3R1, E-7R1, E-8R1, E-9R1 and E-11R1- fourteen (14) pages.



BID PROPOSAL

PROPOSAL OF _____, a corporation
a partnership consisting of _____
an individual doing business as _____

THE SAN ANTONIO WATER SYSTEM:

Pursuant to the instructions and Invitation to Bidders, the undersigned proposes to furnish all labor and materials as specified and perform the work required for the project as specified, in accordance with the Plans and Specifications for the following prices to wit:

(PLEASE SEE ATTACHED PDF LIST OF BID ITEMS)

TOTAL BID PRICE \$ _____

Mobilization shall be limited to the maximum percentage shown. **If the percentage exceeds the allowable maximum stated for mobilization, SAWS reserves the right to cap the amount at the percentages shown and adjust the extensions of the bid items accordingly.**

BIDDER'S SIGNATURE & TITLE

FIRM'S NAME (TYPE OR PRINT)

FIRM'S ADDRESS

FIRM'S PHONE NO. /FAX NO.

FIRM'S EMAIL ADDRESS

The Contractor herein acknowledges receipt of the following:
Addendum Nos. _____

OWNER RESERVES THE RIGHT TO ACCEPT THE OVERALL MOST RESPONSIBLE BID OR PROPOSAL.

The bidder offers to construct the Project in accordance with the Contract Documents for the contract price, and to complete the Project within **300** calendar days after the start date, as set forth in the Authorization to Proceed. **The bidder understands and accepts the provisions of the contract Documents relating to liquidated damages of the project if not completed on time.**

Complete the additional requirements of the Bid Proposal which are included on the following pages.

Quotes

Line No.	Item No.	Quote Category	SOV Item	Item Description	Unit	Quantity	Unit Bid Price	Total
1	SW01	General Water Bid Items	01.4600.00.0002 - Construction	Site work, drainage improvements, and erosion control	EA	1.00		
2	YP01	General Water Bid Items	01.4600.00.0002 - Construction	Site yard piping, valves, and miscellaneous items	EA	1.00		
3	CT01	General Water Bid Items	01.4600.00.0002 - Construction	3.11 MG Water Storage Tank (94' ID X 60' S.W.D); Including - Tank Complete, Concrete Foundation, Hatch, Vent, and Overflow. Additional Tank Piping and Appurtenances: (2) 24" Underslab Inlets, (2) 24" Underslab Outlets, (1) 12" Drain, Interior Ladder and Exterior Ladder with OSHA Fall Protection, (2) 6" Dome Sleeve, (1) Dome Hatch with Handrail, Interior Safety Handrail, (2) 36" Shell Manways, and (1) Plaque.	EA	1.00		
4	BP01	General Water Bid Items	01.4600.00.0002 - Construction	16" Pressure Sustaining Valve to include: all appurtenant steel fittings, steel piping, 16" Electromagnetic Flow Meter, 16" butterfly valve.	EA	1.00		
5	BP02	General Water Bid Items	01.4600.00.0002 - Construction	12" Pressure Relief Inlet Line to include: all appurtenant steel fittings, steel piping, 8" ball valve, 8" Pressure Release Valve.	EA	1.00		
6	BP03	General Water Bid Items	01.4600.00.0002 - Construction	100 GPM Vertical Turbine Pump to include: all appurtenant steel fittings, steel piping, 6" Gate Valve, 6" Ball Valve, 6" Check Valve, 6" Electromagnetic Flow Meter	EA	2.00		
7	BP04	General Water Bid Items	01.4600.00.0002 - Construction	200 GPM Vertical Turbine Pump to include: all appurtenant steel fittings, steel piping, 8" Gate Valve, 8" Ball Valve, 8" Check Valve, 8" Electromagnetic Flow Meter	EA	1.00		
8	BP05	General Water Bid Items	01.4600.00.0002 - Construction	1750 GPM Vertical Turbine Pump to include: all appurtenant steel fittings, steel piping, 12" Gate Valve, 10" Ball Valve, 10" Check Valve, 10" Electromagnetic Flow Meter	EA	1.00		
9	BP06	General Water Bid Items	01.4600.00.0002 - Construction	Vacant Vertical Turbine Pump Line to include: all appurtenant steel fittings, steel piping, 8" Gate Valve	EA	1.00		
10	HT01	General Water Bid Items	01.4600.00.0002 - Construction	10,000 Hydropneumatic Tank to include: all appurtenant steel fittings, steel piping, Air Compressor, Manway, Safety Valve, Air Vacuum Valve, Pressure Indicating Transmitter, Level Controls	EA	1.00		
11	ST01	General Water Bid Items	01.4600.00.0002 - Construction	Pressure Tank and Compressor Foundation Pads to include: Excavation, Fill Material, and all other work required to complete the installation of the foundation	EA	1.00		

Quotes

Line No.	Item No.	Quote Category	SOV Item	Item Description	Unit	Quantity	Unit Bid Price	Total
12	ST02	General Water Bid Items	01.4600.00.0002 - Construction	Electrical Equipment Canopy and Concrete Foundation to include: Excavation, Fill Material, and all other work required to complete the installation of the foundation	EA	1.00		
13	ST03	General Water Bid Items	01.4600.00.0002 - Construction	Piping Foundation Pad to include: Excavation, Fill Material, and all other work required to complete the installation of the foundation	EA	1.00		
14	ST04	General Water Bid Items	01.4600.00.0002 - Construction	Standby Generator Pad to include: Excavation, Fill Material, and all other work required to complete the installation of the foundation	EA	1.00		
15	ST05	General Water Bid Items	01.4600.00.0002 - Construction	Pump Foundation Pad to include: Excavation, Fill Material, and all other work required to complete the installation of the foundation	EA	1.00		
16	ST06	General Water Bid Items	01.4600.00.0002 - Construction	Antenna Pier to include: Excavation, Fill Material, and all other work required to complete the installation of the foundation	EA	1.00		
17	EL	General Water Bid Items	01.4600.00.0002 - Construction	Electrical, Instrumentation, SCADA, Security, and Generator	LS	1.00		
18	MOB	General Water Bid Items	01.4600.00.0002 - Construction	Mobilization (10% Max of Lines 1 through 17)	LS	1.00		
19	ALL	CPS Energy Allowance	01.4600.00.0002 - Construction	CPS Energy Allowance	LS	1.00	\$ 10,000.00	\$ 10,000.00
20	ALL	Permit Allowance	01.4600.00.0002 - Construction	Permit Allowance	LS	1.00	\$ 30,000.00	\$ 30,000.00

TRILATERAL AGREEMENT

STATE OF TEXAS §
COUNTY OF BEXAR §

KNOW ALL MEN BY THESE PRESENTS:

That this Agreement made and entered into this _ day of ___ A.D, ___ by and between **THE SAN ANTONIO WATER SYSTEM BOARD OF TRUSTEES**, hereinafter called **THE SAN ANTONIO WATER SYSTEM, COUNTY OF BEXAR, STATE OF TEXAS**, Acting through its Contracting Officer, First Party, hereinafter termed the Owner, _____, Second Party, hereinafter termed the Developer Customer, and _____, Third Party, hereinafter termed the Contractor.

WITNESSETH: That for and in consideration of the commitments and agreements hereinafter mentioned to be made and performed by the respective parties to this Trilateral Agreement, Contractor agrees to commence and complete the construction of certain improvements at the prices set forth in the Contractor's Proposal for the San Antonio Water System Job No. _____, dated _____, the same being designated as _____.

The Contractor shall perform all work shown on the Plans and described Specifications and shall meet all requirements of this Agreement, The General and Special Conditions of the Agreement; and such Orders and Agreements for Extra Work as may subsequently be entered by the above named parties to this Agreement.

The Contractor shall not offer, confer, or agree to confer any benefit or gift to any San Antonio Water System employee and Water System employees are prohibited from soliciting, accepting or agreeing to accept any gifts from outside sources; please see Section M. – Gifts or Benefits of the Water System’s Code of Ethical Standards. Section M of the Water System’s Code of Ethical Standards regarding Gifts or Benefits is available on the SAWS Business Center website.

The Contractor hereby agrees to commence work under this Contract on the date indicated in the SAWS written Authorization to Proceed. Under no circumstances shall the work commence prior to the Contractor's receipt of SAWS issued, written Authorization to Proceed. Computation of Contract Time will begin on the construction start date as indicated on the written Authorization to Proceed. All work specified in these Contract Documents shall be completed within «**Calendar Days**» calendar days from the construction start date indicated on the written Authorization to Proceed.

The parties agree and understand that the provisions of Chapter 252, Texas Local Government Code, and/or Chapter 2269, Texas Government Code (as amended) apply to this contract. As applicable, the terms of the aforementioned state law are incorporated herein by reference. Contractor and Owner agree that pursuant to state law that the, Owner, as a public body authorizes its duly designated administrative officer (Contracting Officer) to negotiate change orders up to and including the amount of \$100,000.00. It is also agreed and understood that any change orders which increase the cost of the work provided under the contract in excess of 25% of the original contract price are prohibited. The cost of the work provided under the contract may be decreased over 25% of the original contract price with the consent of the Contractor.

The Owner and Developer Customer agree to pay the Contractor in current funds, and to make payments on account, for the performance of the work in accordance with this Agreement, at the prices set forth in the Contractor's Proposal, subject to additions and deductions, all as provided in the documents incorporated herein by reference.

The following documents, together with this Contract, comprise the Agreement, and they are as fully a part thereof as if herein repeated in full:

- | | |
|-----------------------------------------------------|--------------------------------------------------|
| Invitation to Bidders | SAWS Construction and Material Specifications, |
| Instructions to Bidders | may be amended |
| Proposal | Plans and Technical Specifications |
| *Payment Bond | Special and Supplemental Condition |
| *Performance Bond | *Payment Specifications (Attachment 1, 2, and 3) |
| General Conditions of the Contract | *Conveyance of Facilities Attachment |
| Proof of Insurance | Addenda |
| SAWS Utility Service Regulations, as may be amended | Change Orders, if necessary |
| The Plans, designated SAWS «Project_Name» «Job_No» | Good Faith Effort Plan |
| *Items attached to this Contract | |

The Developer Customer must provide the Owner an Owner approved performance guarantee for the Developer Customer’s share of the oversize cost based on the Contractor’s Proposal at the time the Developer Customer signs this contract. Should the Developer Customer’s delay in providing the required performance guarantee or delay in signing this contract result in any postponement of project or price escalation charges, the Developer Customer will be responsible for 100% of these costs. Should the Developer Customer default on payment of the Developer Customer’s share of the oversize cost, the Owner may at its discretion implement any or all of the following: deny the Developer Customer impact fee credits for their share of the oversize, if applicable, deny the use or transfer of existing impact fee credits by the Developer Customer, deny the issuance of new services to the Developer Customer, deny the issuance of new connections or services to the oversized infrastructure and/or exercise the performance guarantee.

In witness thereof of the Parties of these presents have executed this Agreement in the year and day of first above written.

SAN ANTONIO WATER SYSTEM BOARD OF TRUSTEES, OWNER

By: _____
Name: «Contracting_Director»
Title: Director-Contracting
Date: _____

DEVELOPER

By: _____
Name: «Developer Name »
Title: «Developer Title »
Date: _____

CONTRACTOR

By: _____
Name: «Contractor Name »
Title: «Contractor Title »
Date: _____

CONTRACTOR'S PAYMENT BOND

STATE OF TEXAS §

KNOW ALL MEN BY THESE PRESENCE:

COUNTY OF BEXAR §

_____ of _____ County, Texas, as Principal, and _____, as Surety, a corporation organized under the laws of the State of _____, and duly authorized to do business in the State of _____, are held and firmly bound unto the City of San Antonio, Texas, a municipal corporation, for the use and benefit of the SAN ANTONIO WATER SYSTEM BOARD OF TRUSTEES, County of Bexar, State of Texas (BOARD), and _____ of Bexar County, Texas (DEVELOPER CUSTOMER), for the use, benefit and protection of all persons, firms, corporations, and municipal corporations who may furnish material for or perform labor upon the building, structures, or improvements referred to in the attached Contract, in the sum of _____ (\$ _____), to be paid in _____ County, _____, for the payment whereof Principal and Surety bind and obligate themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents;

THE CONDITIONS OF THIS BOND, HOWEVER, ARE SUCH THAT WHEREAS,

the said _____, hereinafter called CONTRACTOR or PRINCIPAL, has made and does this day make and enter into a certain Contract in writing with said BOARD and DEVELOPER CUSTOMER, a copy of which is attached hereto and made a part hereof, for the construction and completion of certain structures, work, and improvements generally described as:

«Project Title»

«Job_No.»

and for the faithful performance and observance of various other matters and things in connection with said work; all of which matters will more fully appear from said Contract, together with the plans, specifications and all other contract documents for said work, which are made a part hereof;

Now, therefore, if CONTRACTOR, the principal party to this obligation, shall promptly make payment to all persons supplying labor and material in the prosecution of the work provided for in said Contract and any and all duly authorized modifications of said Contract that may hereafter be made, notice of which modifications to the Surety being hereby waived, then this obligation shall become null and void, but otherwise remain in full force and effect; and it is hereby further understood and agreed that this bond shall be a continuous obligation against the PRINCIPAL and each member of said principal party hereto, and each and every Surety hereon, and that successive recoveries may be had thereon for each and every breach of this bond until the full amount thereof shall have been exhausted; and the liability of each and every Surety on this bond shall not be in any manner released or diminished by any changes in the work which may be authorized or directed by BOARD, or by the exercise or failure to exercise by or on behalf of the BOARD of any right or remedy provided by the Contract or specifications or by any law or ordinance; and further, that if any legal action be filed on this bond, venue shall lie in Bexar County, Texas.

The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract, or to the work performed thereunder, or plans, specifications, drawings and exhibits accompanying the same shall in anywise affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder.

The Surety shall not be liable under this bond to the obligees, or either of them unless the said obligees, or either of them, shall make payments to the Principal, strictly in accordance with the terms of said Contract as to payments and/or shall perform all the other obligations to be performed under said Contract at the time and in the manner therein set forth.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Title 10, Chapter 2253, as amended, of the Texas Government Code, and all liabilities on this bond shall be determined in accordance with the provisions of this Chapter, to the same extent as if it were copied at length herein.

IN TESTIMONY WHEREOF, WITNESS OUR HANDS and seal hereon as of the ____ day of _____, 2016.

«Contractor»

CONTRACTOR AND PRINCIPAL

Mailing Address of Contractor and Principal:

«Street Address»

«City State Zip»

By: _____

Name: _____

Title: _____

«Surety_Name»
SURETY

Mailing Address of Surety:

«Street_Address»
«City_State_Zip»

By: _____

Name: _____

Title: _____

Approved by the SAN ANTONIO WATER SYSTEM BOARD OF TRUSTEES on behalf of the City of San Antonio a municipal corporation, acting by and through its San Antonio Water System Board of Trustees.

By: _____

Name: «Contracting_Director»

Title: Director – Contracting

CONTRACTOR'S PERFORMANCE BOND

STATE OF TEXAS §

KNOW ALL MEN BY THESE PRESENCE:

COUNTY OF BEXAR §

That _____ Of Bexar County, ___, as Principal, and _____, as Surety, a corporation organized under the laws of the State of Illinois, and duly authorized to do business in the State of Texas, are held and firmly bound unto the City of San Antonio, Texas, a municipal corporation, for the use and benefit of the SAN ANTONIO WATER SYSTEM BOARD OF TRUSTEES, County of Bexar, State of Texas (BOARD), and _____ of ___ County, ___.

(DEVELOPER CUSTOMER), in the sum of _____ (\$ _____), to be paid in Bexar County, Texas, for the payment whereof Principal and Surety bind and obligate themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents;

THE CONDITIONS OF THIS BOND, HOWEVER, ARE SUCH THAT WHEREAS,

the said _____, hereinafter called CONTRACTOR or PRINCIPAL, has made and does this day make and enter into a certain Contract in writing with said BOARD and DEVELOPER CUSTOMER, a copy of which is attached hereto and made a part hereof, for the construction and completion of certain structures, work, and improvements generally described as:

«Project Title»

«Job_No.»

and for the faithful performance and observance of various other matters and things in connection with said work; all of which matters will more fully appear from said Contract, together with the plans, specifications and all other contract documents for said work, which are made a part hereof;

Now, therefore, if CONTRACTOR, the principal party to this obligation, shall: (1) faithfully construct and complete said structures, work, and improvements, and shall observe, perform, and comply with all the terms, conditions, stipulations, undertakings, and provisions of said Contract and the plans and specifications and all other instruments according to their intent and purpose insofar as the same relate to or are incident to the construction and completion of said structures, work, and improvements as distinguished from the repair and maintenance thereof after acceptance thereof, and (2) repair any and all defects in the work occasioned by and resulting from defects in materials furnished by, or workmanship of, the CONTRACTOR in performing the work covered by said Contract occurring within a period of twenty four (24) months from the date of the Contract Completion Certificate, then and thereupon this obligation shall become null and void, but otherwise to remain in full force and effect; and it is hereby further understood and agreed that this

bond shall be a continuous obligation against the Principal, and each member of said Principal party hereto and each and every Surety hereon, and that successive recoveries may be had hereon for each and every breach of this bond until the full amount thereof shall have been exhausted; and that the liability of each and every Surety on this bond shall not be in any manner released or diminished by any changes in the work which may be authorized or directed by BOARD, nor by the exercise or failure to exercise by or on behalf of the BOARD of any right or remedy provided by the Contract or specifications or by any law or ordinance; and further, that if any legal action be filed on this bond, venue shall lie in Bexar County, Texas.

The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract, or to the work performed thereunder, or plans, specifications, drawings and exhibits accompanying the same shall in anywise affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the Contract or to the work to be performed thereunder.

The Surety shall not be liable under this bond to the obligees, or either of them unless the said obligees, or either of them, shall make payments to the Principal, strictly in accordance with the terms of said Contract as to payments and/or shall perform all the other obligations to be performed under said Contract at the time and in the manner therein set forth.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Title 10, Chapter 2253, as amended, of the Texas Government Code, and all liabilities on this bond shall be determined in accordance with the provisions of this Chapter, to the same extent as if it were copied at length herein.

IN TESTIMONY WHEREOF, WITNESS OUR HANDS and seal hereon as of the ____ day of _____, 2016.

«Contractor»
CONTRACTOR AND PRINCIPAL

Mailing Address of Contractor and Principal:

«Street Address»

«City State Zip»

By: _____

Name: _____

Title: _____

«Surety Name»

SURETY

Mailing Address of Surety:

«Street Address»

«City State Zip»

By: _____

Name: _____

Title: _____

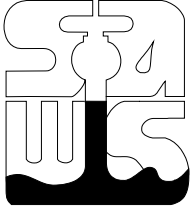
Approved by the SAN ANTONIO WATER SYSTEM BOARD OF TRUSTEES on behalf of the City of San Antonio a municipal corporation, acting by and through its San Antonio Water System Board of Trustees.

By: _____

Name: «Contracting_Director»

Title: Director-Contracting

PAYMENT SPECIFICATIONS EXHIBIT
ATTACHMENT 1



SAN ANTONIO WATER SYSTEM
P.O. BOX 2449
SAN ANTONIO, TEXAS 78298-2449
«Contract_No»

«Project_Title»

Developer and San Antonio Water System Allocation of Project Costs

Developer («Developer_Name»)

Construction \$0.00

SAWS

Construction \$0.00

Engineering Fees* \$0.00

Construction Contingency* \$0.00

Total \$0.00

* SAWS contribution to engineering fees and contingencies will be based on the same percentage participation as outlined for the construction funds. The amounts listed above indicate the maximum SAWS contribution for these fees.

PROJECT BREAKDOWN

«Developer_Name» is responsible for 0.00% of the project construction cost, SAWS is responsible for 0.00% project construction costs. «Developer_Name» will pre-pay a \$0.00 deposit before contract execution. At project completion, «Developer_Name» will pay or be refunded for their remaining proportionate share of any cost increases or decreases based on actual project costs, including change orders that may increase «Developer_Name» proportionate share in excess of \$0.00.

«Developer_Name» will pay SAWS their current proportionate share of the project, \$0.00, at the time «Developer_Name» returns the signed contract to SAWS. SAWS will pay to «Contractor_Name», monthly, for the construction costs for the «Project_Title» project.

Developer Name will receive impact fee credits for their share of the construction expenses for the project and up to an additional 10% of the construction expenses for engineering costs.

**PAYMENT SPECIFICATIONS EXHIBIT
ATTACHMENT 3**

**SAN ANTONIO WATER SYSTEM ENGINEERING CONTRACT
PAYMENT ESTIMATE CERTIFICATE
SYSTEM OVERSIZE REIMBURSEMENT FOR ENGINEERING FEES**

SYSTEM Job No.: «Job No» (Water) For Period _____ to _____ Est. No. _____
«Job No» (Sewer) Project Name: «Project Title»

Appropriations

SYSTEM Resolution No.: _____ Date: _____ Amount \$ _____
 SYSTEM Resolution No.: _____ Date _____ Amount \$ _____

Payable to: Name: _____
 Address: _____

RE: «Project Title»

For Professional Services for the above referenced project in accordance with the Trilateral Water Contract.

Approved Construction Bid (SAWS Share) = \$ 0.00
 Approved Engineering Design Fees (SAWS Share) = \$ 0.00

1. Design Phase Fee	= 60%	of	\$ 0.00	=	\$ 0.00
2. Construction Phase Fee	= 25%	of	\$ 0.00	=	\$ 0.00
3. <u>Completion Phase</u>	= 15%	of	\$ 0.00	=	\$ 0.00

Amount Due This Estimate:

1. Design Phase	= _____%	of \$	0.00	= \$	_____
2. Construction Phase	= _____%	of \$	0.00	= \$	_____
3. <u>Completion Phase</u>	= _____%	of \$	0.00	= \$	_____

Total Work Completed to Date: = \$ _____
 (Less Previous Payments): = \$ _____
 Amount Due This Estimate: = \$ _____

Certification is hereby made that this estimate is true and correct and eligible for payment.

 Consulting Engineer (must seal document) Date

 SYSTEM Engineer Date

 Developer Date

CONVEYANCE OF FACILITIES EXHIBIT

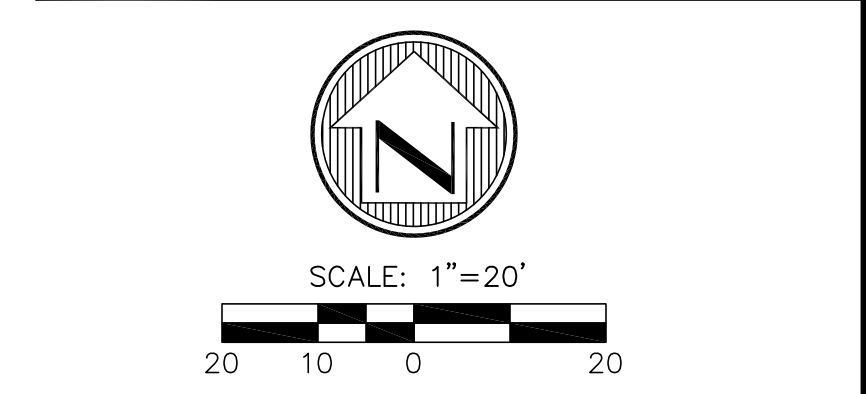
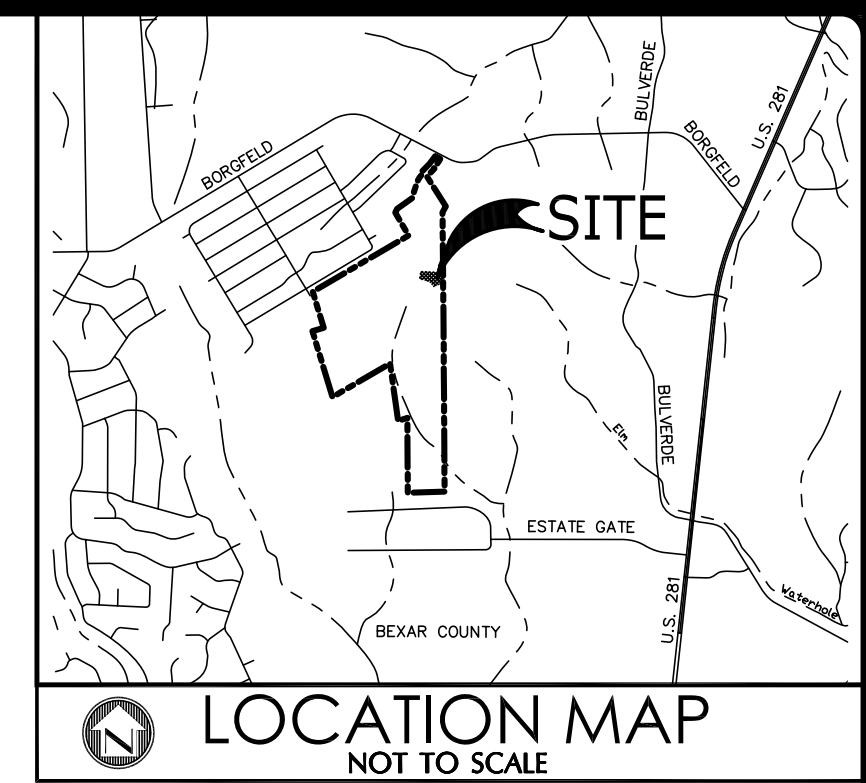
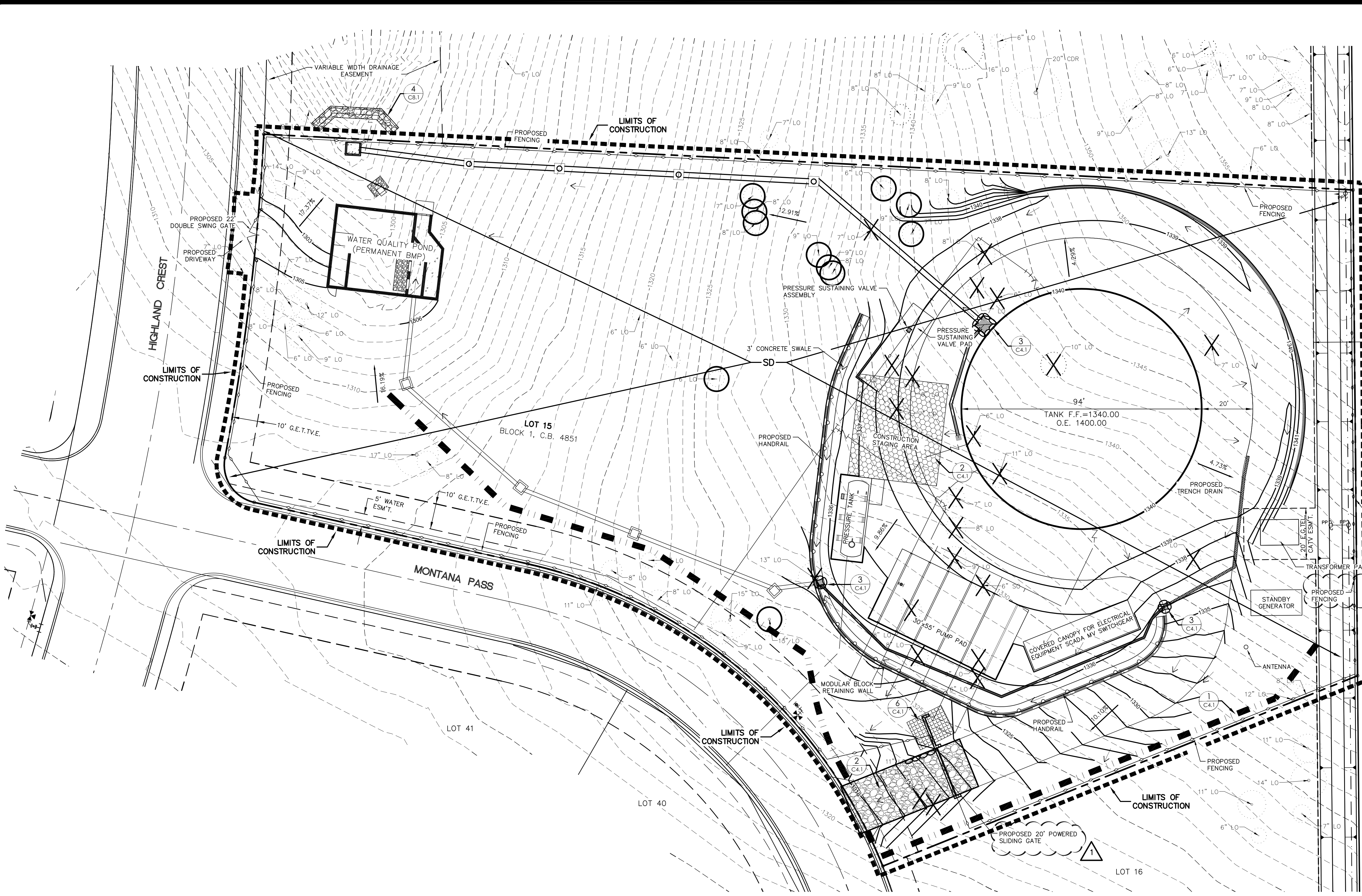
DEVELOPER CUSTOMER proposes to complete the following (hereinafter referred to as the "Facilities", and more particularly described in the plans and specifications previously submitted to BOARD):

Project Description: «Project Title»

Contract No. «Contract_No» Job No. «Job_No.»

Facilities-The Developer's share of the total value of all tangible personal property (total cost of material & other costs) to be physically incorporated into the Project realty, as detailed in the project semi-final payment application. All workmanship and materials to be furnished on this contract shall be in accordance with the plans and specifications approved by the BOARD.

Upon completion of the installation by CONTRACTOR and acceptance by the BOARD of the Facilities, such Facilities shall become unconditionally the singular property of the City of San Antonio for the use and benefit of BOARD, the City's water system and the lot owners in said subdivision, and by these presents DEVELOPER CUSTOMER has GRANTED, SOLD, and CONVEYED and does hereby GRANT, SELL and CONVEY free from all liens, deeds, or other encumbrances of any nature whatsoever unto the City of San Antonio for the use and benefit of the SAN ANTONIO WATER SYSTEM BOARD OF TRUSTEES, its successors and assigns, all right, title, and interest in and to said water mains, fire hydrants, water Service Lines and appurtenances herein described, or which may hereafter be installed, to provide water and fire protection water service within the said property and to the lots platted therein. As consideration for such conveyance BOARD obligates itself to render water service through all such Facilities and to perform all maintenance and replacement requirements in perpetuity in accordance with the "Regulations" and Ordinances of the City of San Antonio; provided, however, BOARD does not guarantee continuous uninterrupted service, and DEVELOPER CUSTOMER and CONTRACTOR agree that BOARD shall not be responsible for any damages resulting from interruptions in service.



LEGEND

	PROPERTY LINE
	EXISTING CONTOUR
	PROPOSED CONTOUR
	EXISTING TREES
	EXISTING TREE TO BE REMOVED
	EXISTING TREE TO BE PROTECTED
	SILT FENCE OR FIBER ROLL
	LIMITS OF CONSTRUCTION
	ROCK BERM
	GRAVEL INLET FILTER
	SAND/GRAVEL BAG
	NEW CONCRETE SIDEWALK/FLATWORK
	CONSTRUCTION STAGING AREA
	STABILIZED CONSTRUCTION ENTRANCE/EXIT
	CONCRETE TRUCK WASHOUT PIT
	ENGINEERED VEGETATIVE FILTER STRIP
	DRAINAGE FLOW ARROW
	NO SOIL DISTURBANCE
	SOIL DISTURBANCE

- GENERAL NOTES:**
- PROVIDE BAGGED GRAVEL INLET FILTERS AT ALL EXPOSED DRAINAGE STRUCTURES.
 - SOIL DISTURBANCES WILL OCCUR OVER THE ENTIRE SITE AS INDICATED ON PLAN.
 - LOCATIONS OF MAJOR STRUCTURAL AND NONSTRUCTURAL CONTROLS ARE LABELED.
 - THESE ARE THE TEMPORARY AND PERMANENT BEST MANAGEMENT PRACTICES.
 - SOIL STABILIZATION PRACTICES SHALL OCCUR OVER THE ENTIRE SITE WITH THE USE OF PAVEMENT, BUILDINGS, SIDEWALKS, GRASS SOD, GRASS SEEDING AND MULCH.
 - THERE ARE NO LOCATIONS WHERE STORM WATER DISCHARGES TO SURFACE WATER OR TO SENSITIVE FEATURES.
 - CONTRACTOR SHALL MODIFY PLAN AS NECESSARY TO PROVIDE FOR PROPER STORM WATER POLLUTION PREVENTION THROUGHOUT THE DURATION OF CONSTRUCTION ACTIVITIES. ALL MODIFICATIONS ARE TO BE NOTED ON CONTRACTOR'S COPY OF THE SWPPP DRAWING AND REPORT ON THE PROJECT SITE.
 - CONTRACTOR IS RESPONSIBLE FOR PROVIDING PROPER POLLUTION CONTROLS OF THE PROJECT SITE THROUGHOUT THE DURATION OF CONSTRUCTION ACTIVITIES.
 - THERE IS NO 100 YEAR FLOODPLAIN ON SITE PER FEMA PANEL NO. 4802920130. (REV. DATE SEPT. 29, 2010)
 - NO EXISTING WELLS ON THE SITE.
 - CONTRACTOR WILL INSPECT BMP'S AT LEAST TWICE A WEEK (EVERY 14 DAYS) AS WELL AS AFTER EVERY HALF INCH OR MORE OF RAINFALL. CONTROLS WILL BE REPAIRED REPLACED, AND/OR REVISED AS NECESSARY.
 - CONTRACTOR TO PLACE TRENCH EXCAVATION MATERIAL ON THE UPGRADIENT (HIGH) SIDE OF THE TRENCH.
 - WASHING - WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED STRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH, OR WATERCOURSE USING APPROVED METHODS.
 - MAINTENANCE - THE ENTRANCE/EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAYS. THIS MAY REQUIRE PERIODIC DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.
 - DRAINAGE - ENTRANCE/EXIT MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

PROPERTY DATA:

- SIZE - 2.005 ACRES
- LOT - 1 LOT
- OWNER - S.A. HIGHLAND ESTATES INC.

SITE INFORMATION:

DATA ON INDICATED SUBSURFACE CONDITIONS ARE NOT INTENDED AS REPRESENTATIONS OR WARRANTIES OF ACCURACY OR CONTINUITY BETWEEN SOIL BORINGS. IT IS EXPRESSLY UNDERSTOOD THAT THE OWNER, ARCHITECT, AND/OR STRUCTURAL, CIVIL OR MECHANICAL, PLUMBING OR ELECTRICAL ENGINEER WILL NOT BE RESPONSIBLE FOR INTERPRETATIONS OR CONCLUSIONS DRAWN THEREFROM BY CONTRACTOR. DATA ARE MADE AVAILABLE FOR CONVENIENCE OF CONTRACTOR ONLY AND AS SUCH, THE SOIL BORINGS ARE NOT CONSIDERED TO BE A PART OF THESE CONTRACT DOCUMENTS. THE CONTRACTOR MAY, AT HIS OPTION, OBTAIN A COPY OF THE GEOTECHNICAL REPORT.

TREE REMOVAL NOTE:

CONTRACTOR IS TO COORDINATE WITH TREE PRESERVATION PLAN FOR FINAL TREE REMOVAL INSTRUCTIONS.

PHASING NOTE:

CONTRACTOR SHALL IMPLEMENT STORM WATER POLLUTION PREVENTION MEASURES AS NECESSARY TO COMPLIMENT THE CONSTRUCTION SEQUENCE.



CONTRACTOR UTILITY WARNING!!!

THE EXISTING UTILITY LOCATIONS SHOWN ARE APPROXIMATE ONLY. SOME OF THE LOCATIONS SHOWN WERE OBTAINED FROM RECORDS AND INFORMATION AVAILABLE AND ARE NOT GUARANTEED. UTILITIES NOT SHOWN ON THIS DRAWING MAY EXIST. THE CONTRACTOR SHALL CONTACT THE RESPECTIVE UTILITY COMPANIES AND CALL 811 FOR FIELD VERIFICATION AND IS RESPONSIBLE FOR ANY DAMAGES TO, AND FOR MAINTENANCE AND PROTECTION OF ALL EXISTING UTILITIES. CONTRACTOR SHALL HAVE THE SOLE RESPONSIBILITY OF FIELD VERIFYING EACH UTILITY LOCATION AND COORDINATING AND NOTIFYING UTILITY COMPANIES AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO EXCAVATION. **CONTRACTOR SHALL CALL 811 (TEXAS811) FOR UTILITY LOCATES AT LEAST 72 HOURS PRIOR TO BEGINNING EXCAVATION.**

NO.	DATE	DESCRIPTION
1	10/20/16	ADDENDUM #5

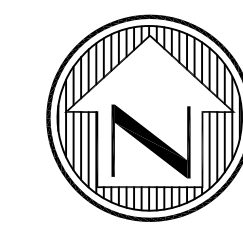
MTR
 Engineers
 Surveyors
 Planners
Moy Tarrin Ramirez Engineers, LLC
 FIRM TYPE NO. F-5237 TEL: (210) 698-0051
 12770 CHARRON PATH, SUITE 100 SAN ANTONIO, TEXAS 78249 FAX: (210) 698-0055



HIGHLAND ESTATES, UNIT 1A P.U.D.
 MONTANA PASS FLOATING GROUND STORAGE TANK
CZP SITE PLAN

SHEET C4.0R

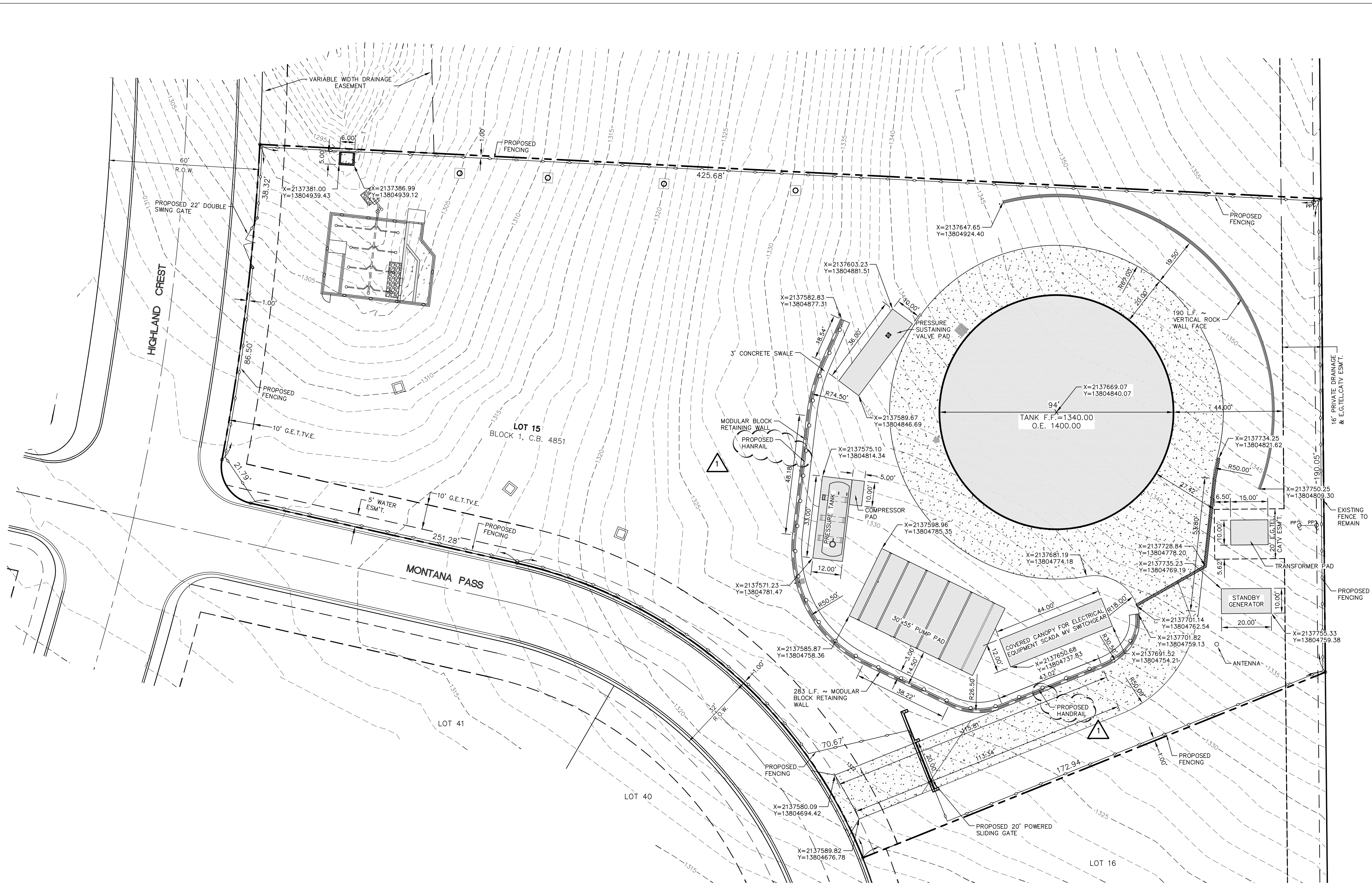
OF



SCALE: 1"=20'
0 20 40

LEGEND

- EASEMENT LINE
- MODULAR BLOCK RETAINING WALL
- EXISTING RIGHT-OF-WAY / PROPERTY LINE
- STRUCTURAL CONCRETE
- VERTICAL ROCK WALL FACE



TBPE FIRM NO. F-366

8918 TESORO DRIVE
SAN ANTONIO, TEXAS 78217



No.	Revision	Date	Drawn	Apprd.
1	ADDENDUM # 5	10/05/16		

REVISIONS	
	MONTANA PASS TANK AND BOOSTER STATION PROJECT
	DIMENSIONAL CONTROL PLAN

DEVELOPER: SAWS	
CONT.	BUDGET PROJ.
SUBMITTED _____	
APPROVED _____	
MAP No.	SHEET
SECT. No.	C-5R1
DR.	CK.
JOB No. 15-1177	



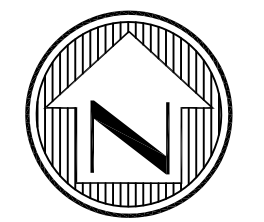
CONTRACTOR UTILITY WARNING!!!

THE EXISTING UTILITY LOCATIONS SHOWN ARE APPROXIMATE ONLY. SOME OF THE LOCATIONS SHOWN WERE OBTAINED FROM RECORDS AND INFORMATION AVAILABLE AND ARE NOT GUARANTEED. UTILITIES NOT SHOWN ON THIS DRAWING MAY EXIST. THE CONTRACTOR SHALL CONTACT THE RESPECTIVE UTILITY COMPANIES AND CALL 811 FOR FIELD VERIFICATION AND IS RESPONSIBLE FOR ANY DAMAGES TO, AND FOR MAINTENANCE AND PROTECTION OF ALL EXISTING UTILITIES. CONTRACTOR SHALL HAVE THE SOLE RESPONSIBILITY OF FIELD VERIFYING EACH UTILITY LOCATION AND COORDINATING AND NOTIFYING UTILITY COMPANIES AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO EXCAVATION. **CONTRACTOR SHALL CALL 811 (TEXAS811) FOR UTILITY LOCATES AT LEAST 72 HOURS PRIOR TO BEGINNING EXCAVATION.**

MTR
Moy Tarin Ramirez Engineers, LLC
FIRM TBPE NO. F-5297
12770 CIMARRON PATH, SUITE 100 TEL: (210) 698-5051
SAN ANTONIO, TEXAS 78249 FAX: (210) 698-5085

- Engineers
- Surveyors
- Planners

R:\Highland Estates\Unit 1B\Drawings\Exhibits\21172_Water Tank Site-Dimensional Contractor.dwg



SCALE: 1"=20'
0 20 40

LEGEND

SW	SIDEWALK
P	PAVEMENT
TC	TOP OF CURB
E	EARTH
TW	TOP OF WALL
BW	BOTTOM OF WALL
TG	TOP OF GRATE
INV	INVERT
TMH	TOP OF MANHOLE
CC	TOP OF CONCRETE
ESMT	EASEMENT
	PROPOSED CONCRETE PAVEMENT
	STRUCTURAL CONCRETE
	VERTICAL ROCK WALL FACE
	EXISTING SPOT ELEVATION
	PROPOSED SPOT ELEVATION
	EXISTING CONTOURS
	PROPOSED CONTOURS
	PROPOSED FLOWLINE
	PROPOSED CONCRETE CURB
	MODULAR BLOCK RETAINING WALL
	EXISTING RIGHT-OF-WAY / PROPERTY LINE

CONTROL POINTS

BENCHMARK CP/BM3
1/2" IRON ROD WITH MTR CAP
ELEV.=1239.81
N = 13805642.04
E = 2137124.02



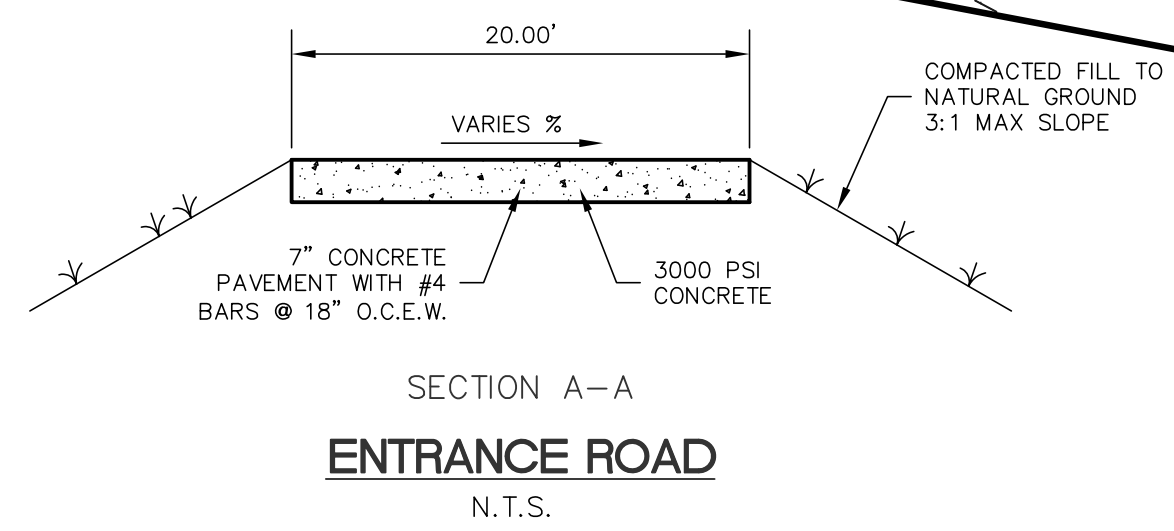
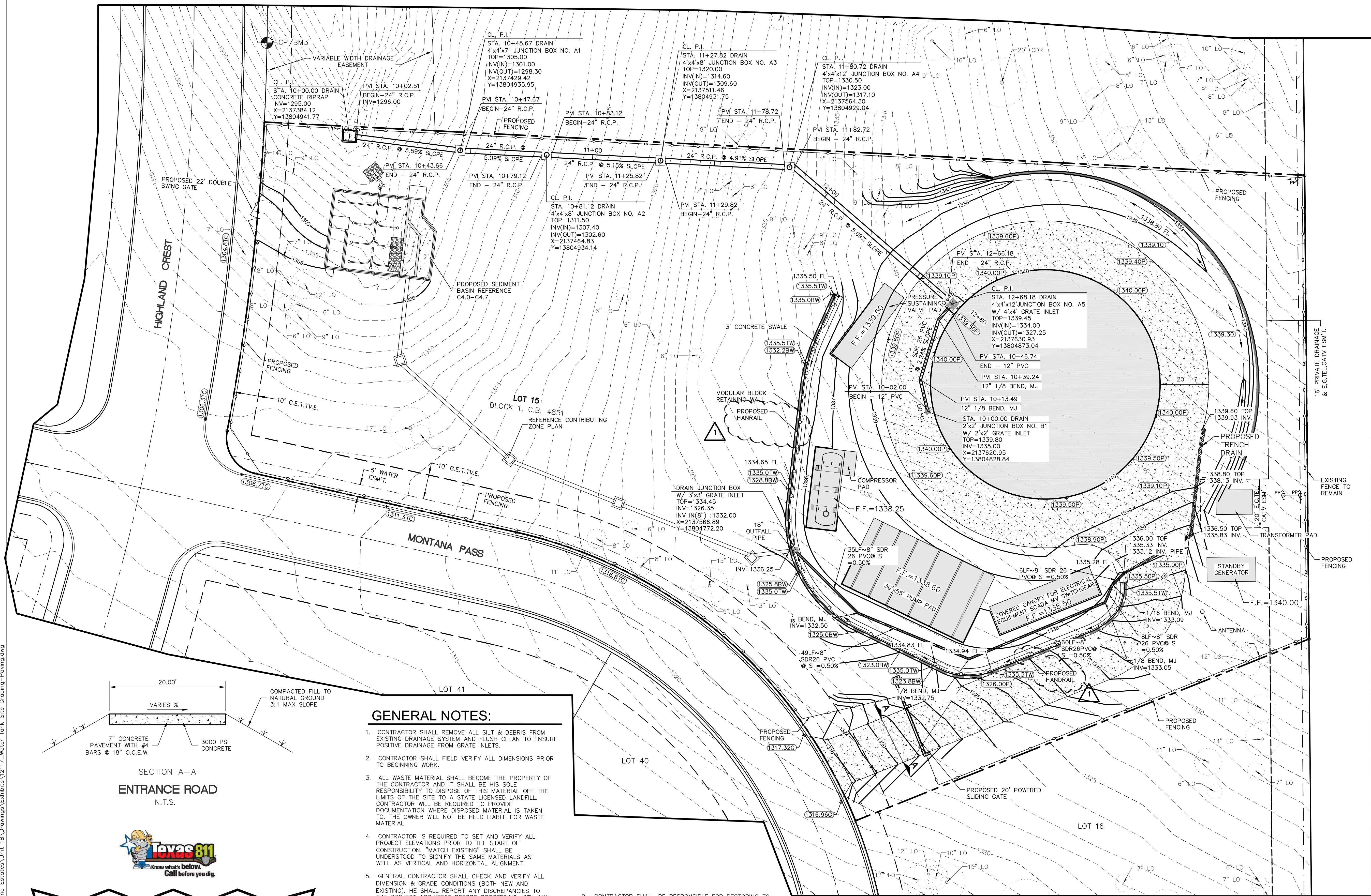
8918 TESORO DRIVE
SAN ANTONIO, TEXAS 78217



No.	Revision	Date	Drawn	Apprv.
1	ADDENDUM # 5	10/05/16		

REVISIONS
MONTANA PASS TANK AND BOOSTER STATION PROJECT
SITE GRADING, PAVING AND DRAINAGE PLAN

DEVELOPER: SWS	
CONT.	BUDGET PROJ.
SUBMITTED _____	
APPROVED _____	
MAP No.	SHEET
SECT. No.	C-5.1R1
DR.	CK.
JOB No. 15-1177	



SECTION A-A
ENTRANCE ROAD
N.T.S.



CONTRACTOR UTILITY WARNING!!!
THE EXISTING UTILITY LOCATIONS SHOWN ARE APPROXIMATE ONLY. SOME OF THE LOCATIONS SHOWN WERE OBTAINED FROM RECORDS AND INFORMATION AVAILABLE AND ARE NOT GUARANTEED. UTILITIES NOT SHOWN ON THIS DRAWING MAY EXIST. THE CONTRACTOR SHALL CONTACT THE RESPECTIVE UTILITY COMPANIES AND CALL 811 FOR FIELD VERIFICATION AND IS RESPONSIBLE FOR ANY DAMAGES TO, AND FOR MAINTENANCE AND PROTECTION OF ALL EXISTING UTILITIES. CONTRACTOR SHALL HAVE THE SOLE RESPONSIBILITY OF FIELD VERIFYING EACH UTILITY LOCATION AND COORDINATING AND NOTIFYING UTILITY COMPANIES AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO EXCAVATION AND NOTIFYING UTILITY COMPANIES AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO EXCAVATION. **CONTRACTOR SHALL CALL 811 (TEXAS811) FOR UTILITY LOCATES AT LEAST 72 HOURS PRIOR TO BEGINNING EXCAVATION.**

GENERAL NOTES:

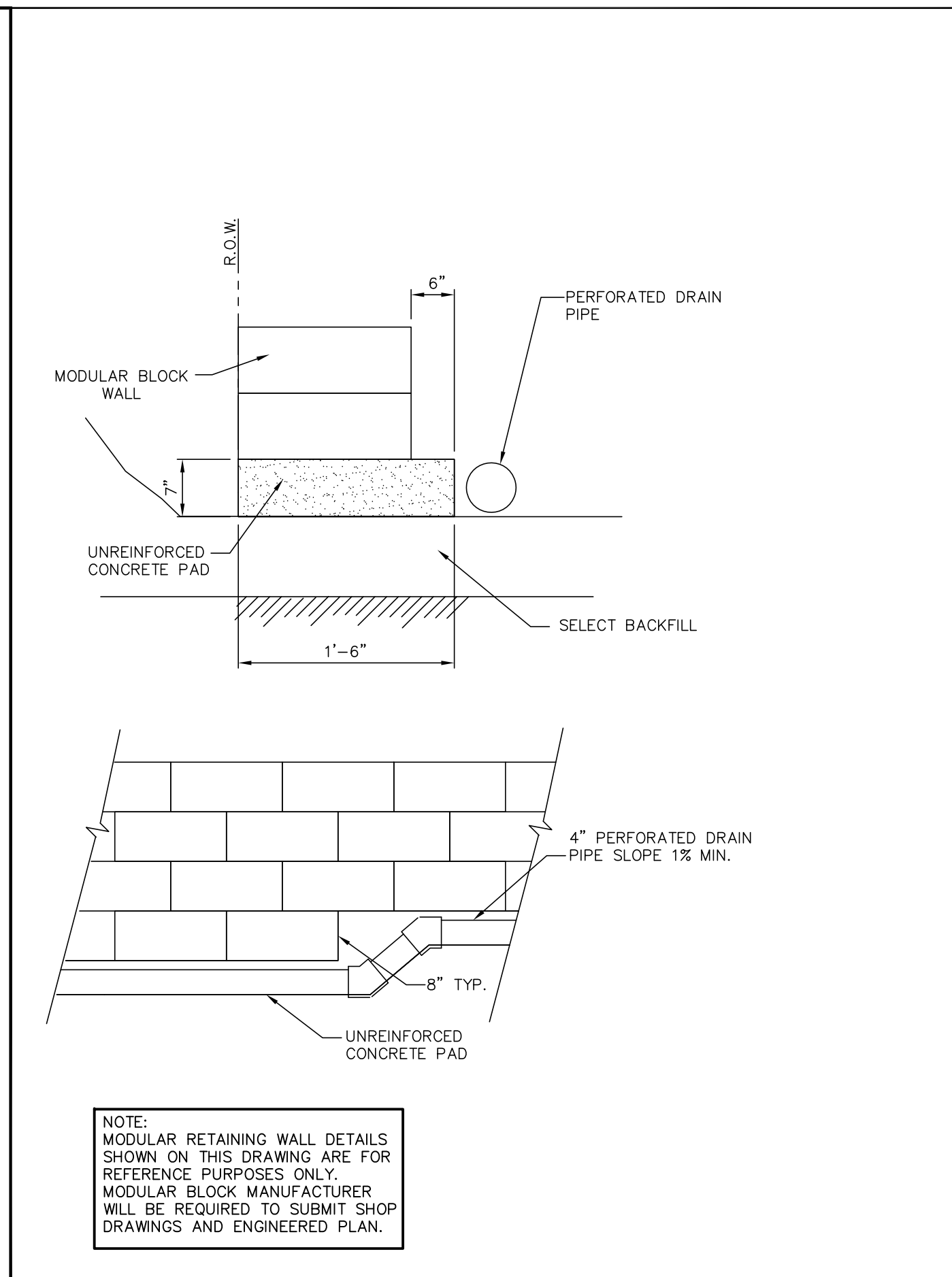
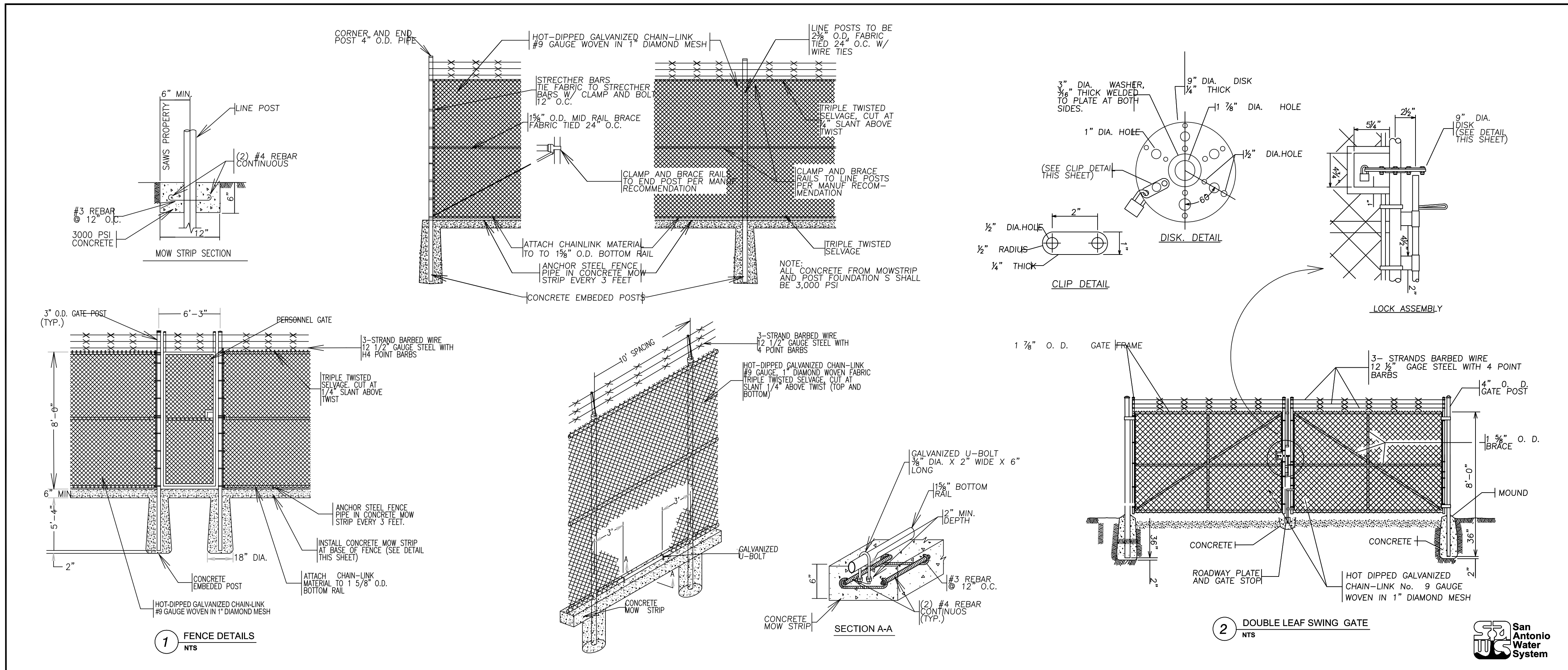
- CONTRACTOR SHALL REMOVE ALL SILT & DEBRIS FROM EXISTING DRAINAGE SYSTEM AND FLUSH CLEAN TO ENSURE POSITIVE DRAINAGE FROM GRATE INLETS.
- CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO BEGINNING WORK.
- ALL WASTE MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND IT SHALL BE HIS SOLE RESPONSIBILITY TO DISPOSE OF THIS MATERIAL OFF THE LIMITS OF THE SITE TO A STATE LICENSED LANDFILL. CONTRACTOR WILL BE REQUIRED TO PROVIDE DOCUMENTATION WHERE DISPOSED MATERIAL IS TAKEN TO. THE OWNER WILL NOT BE HELD LIABLE FOR WASTE MATERIAL.
- CONTRACTOR IS REQUIRED TO SET AND VERIFY ALL PROJECT ELEVATIONS PRIOR TO THE START OF CONSTRUCTION. "MATCH EXISTING" SHALL BE UNDERSTOOD TO SIGNIFY THE SAME MATERIALS AS WELL AS VERTICAL AND HORIZONTAL ALIGNMENT.
- GENERAL CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSION & GRADE CONDITIONS (BOTH NEW AND EXISTING). HE SHALL REPORT ANY DISCREPANCIES TO THE PROJECT ARCHITECT BEFORE PROCEEDING WITH ANY PHASE OF THE WORK AS HE WILL BE RESPONSIBLE FOR ALL WORK AS INTENDED BY THE DRAWINGS AND SPECIFICATIONS.
- CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY.
- BARRICADES AND WARNING SIGNS SHALL CONFORM TO THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND GENERALLY BE LOCATED TO AFFORD MAXIMUM PROTECTION TO THE PUBLIC AS WELL AS CONSTRUCTION PERSONNEL AND EQUIPMENT AND TO ASSURE AN EXPEDITIOUS TRAFFIC FLOW AT ALL TIMES DURING CONSTRUCTION.
- ANY EXISTING OFF-SITE IMPROVEMENTS OR UTILITIES REMOVED, DAMAGED OR UNDERDUG BY CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED AS DIRECTED BY THE ENGINEER AND APPROVED BY THE PROJECT ARCHITECT AT THE CONTRACTOR'S EXPENSE.
- CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL OR BETTER CONDITION, ANY DAMAGES DONE TO EXISTING FENCES, CURBS, CONCRETE DRIVEWAYS, SIDEWALK STRUCTURES, PAVEMENT, ETC. THAT ARE NOT INDICATED TO BE REMOVED. AN INVENTORY OF EXISTING CONDITIONS SHALL BE CONDUCTED WITH CONTRACTOR AND PROJECT ARCHITECT PRIOR TO DEMOLITION.
- THE CONTRACTOR SHALL MAINTAIN CONTINUAL ALL UTILITY SERVICES (GAS, TELE, CATV, ELEC., WATER, SEWER, STORM SEWER, ETC.) TO THE EXISTING FACILITIES & BUILDINGS. WHERE CONSTRUCTION IS IN THE PROXIMITY OF A UTILITY, THE CONTRACTOR WILL TAKE PRECAUTION TO PROTECT AND/OR SUPPORT THE UTILITY.
- CONTRACTOR SHALL VERIFY ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.
- NOTIFY OWNER AND ARCHITECT 72 HOURS IN ADVANCE OF UTILITY SHUTDOWN.
- ADJUST ALL EXISTING VALVES & UTILITIES TO REMAIN TO FINISH GRADE. REFERENCE GRADING & UTILITY PLANS.
- CONTRACTOR SHALL REMOVE STONES EXCEEDING 12" DIAMETER, ROOTS, STICKS, DEBRIS, AND FOREIGN MATTER DURING AND AFTER TOPSOIL PLACEMENT. SITE TO BE CLEANED AND ACCEPTABLE TO PREVENT ISSUES WITH YARD MAINTENANCE.
- THE CONTRACTOR SHALL PERFORM ANY YARD MAINTENANCE REQUIRED FOR FACILITY (GRASS CUTTING, WEED TRIMMING, ETC...) DURING PROJECT.

RETAINING WALL NOTE:

BOTTOM OF WALL (TOP OF FOOTING) ELEVATIONS ARE APPROXIMATE AND SHALL BE VERIFIED BY RETAINING WALL DESIGN ENGINEER. CONTRACTOR SHALL COORDINATE. RETAINING WALL WEEP HOLE ELEVATIONS SHALL BE COORDINATED WITH FINAL SITE ELEVATIONS. SITE ELEVATIONS INDICATED ARE APPROXIMATE SUBGRADE ELEVATIONS.

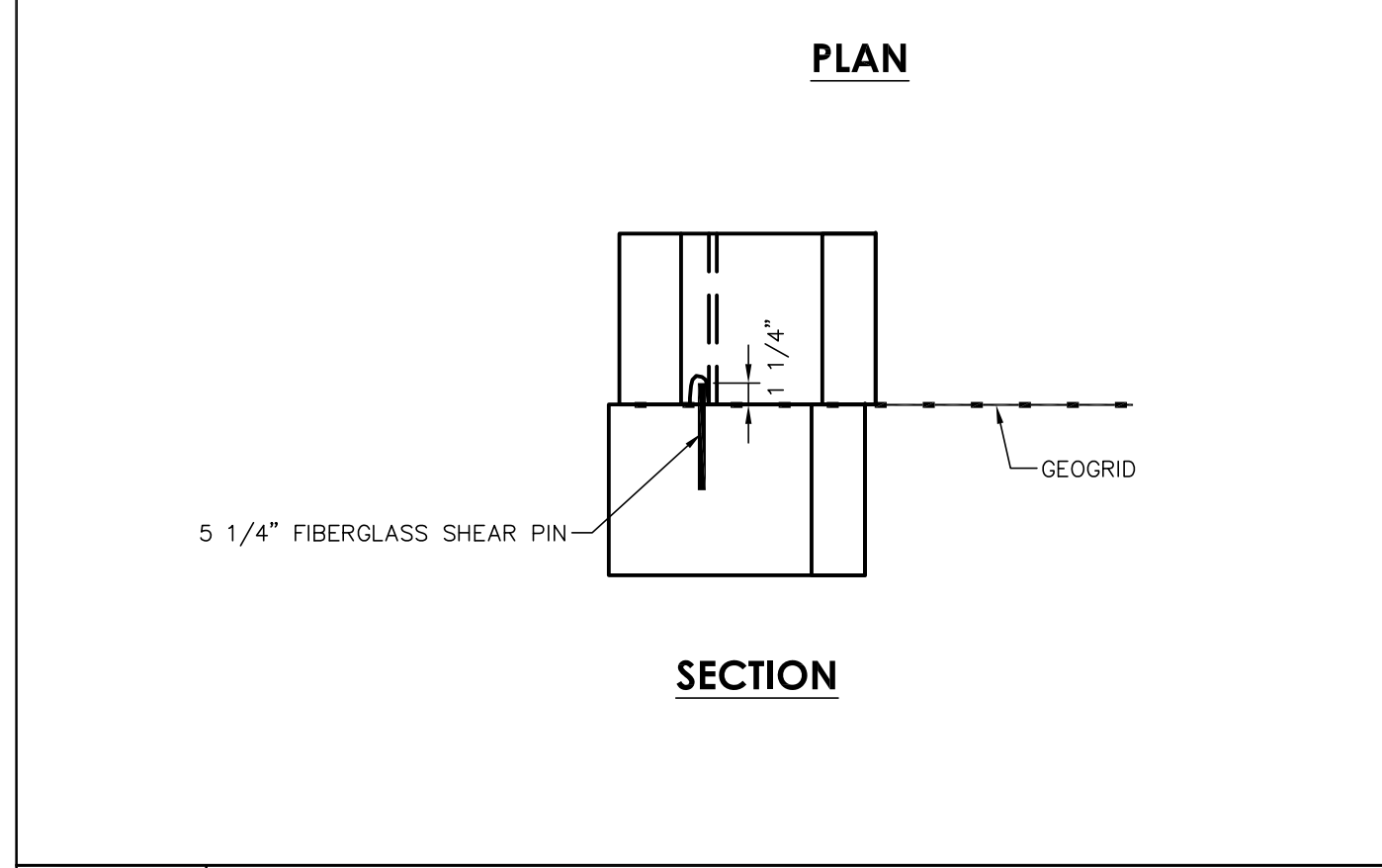
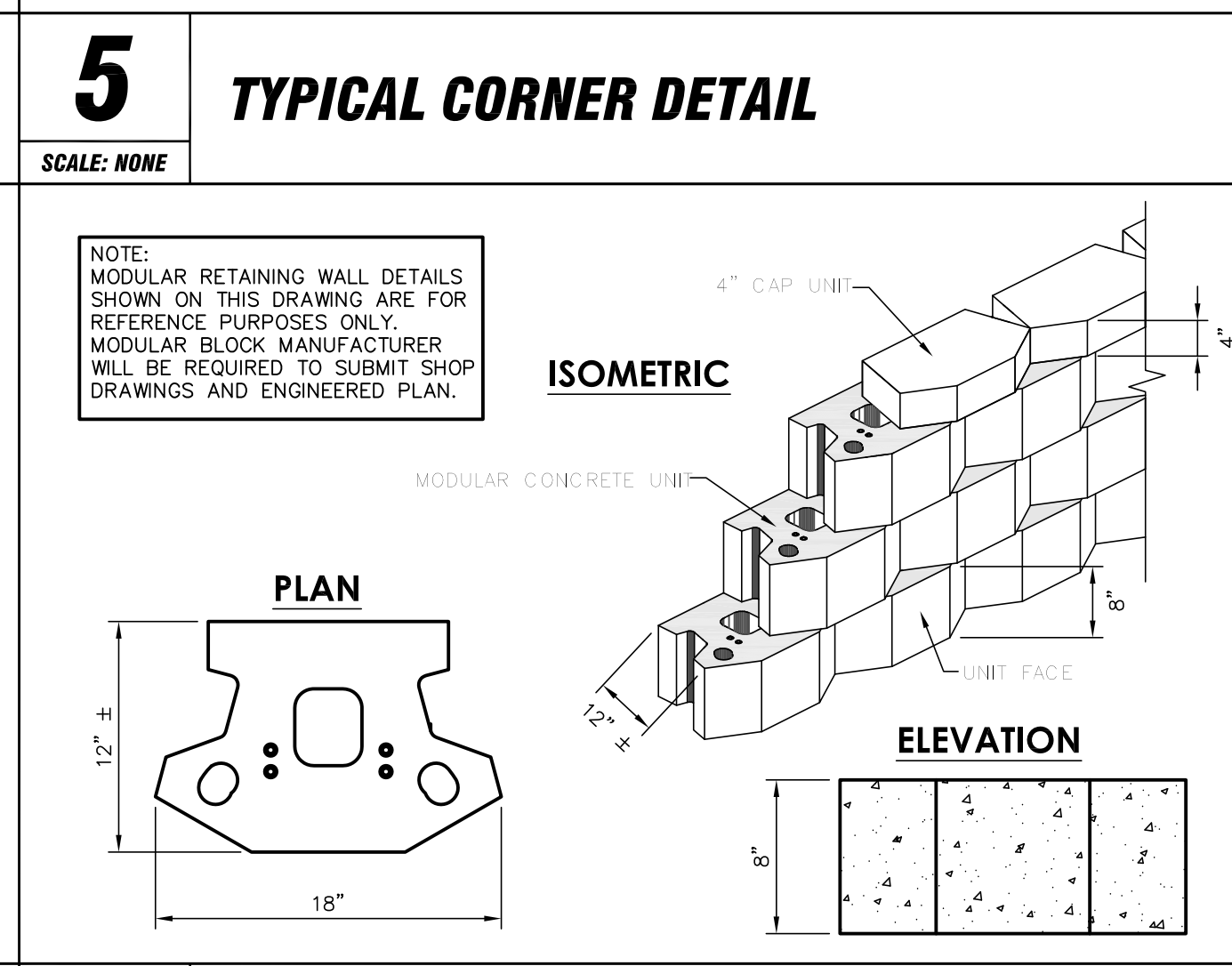
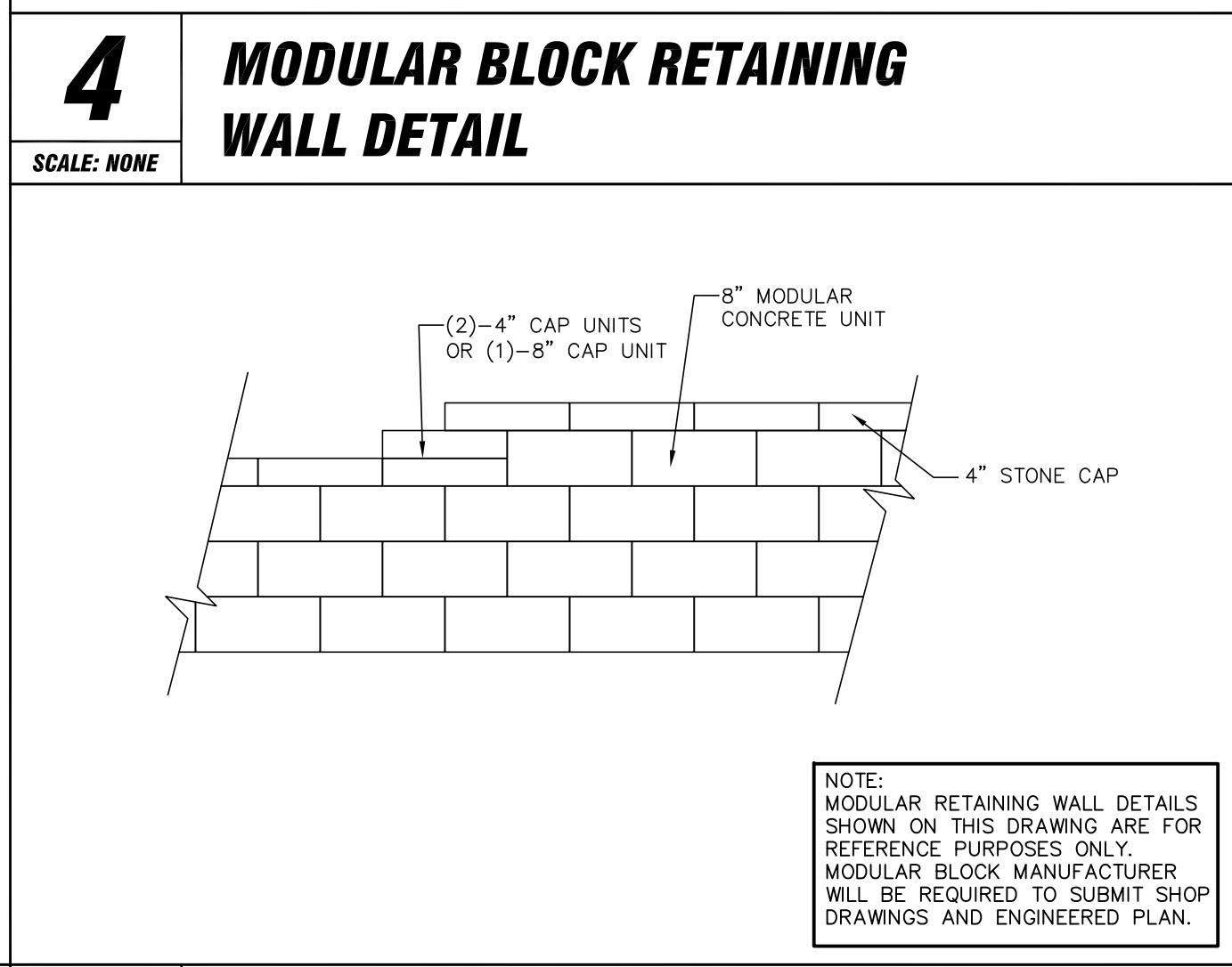
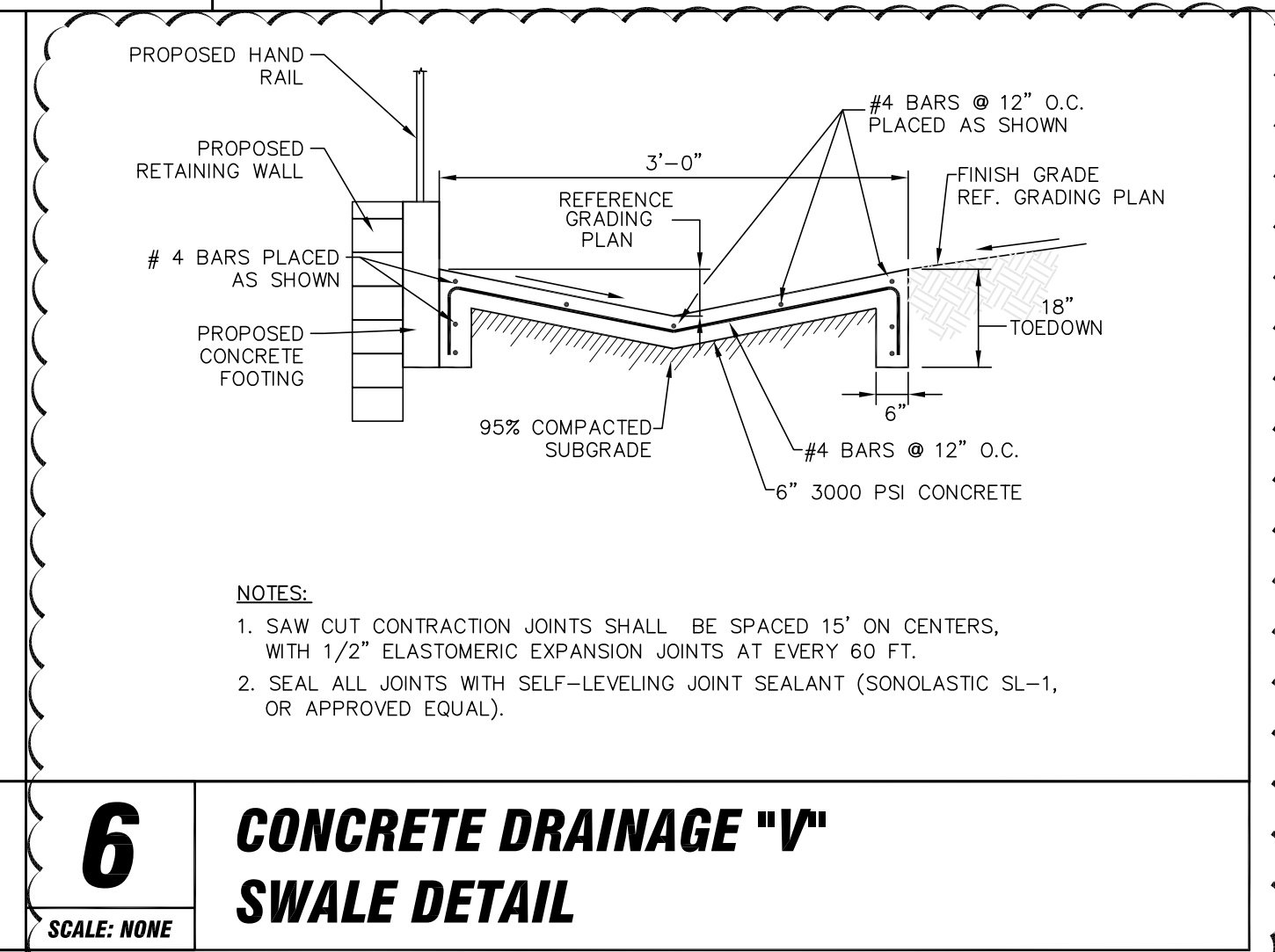
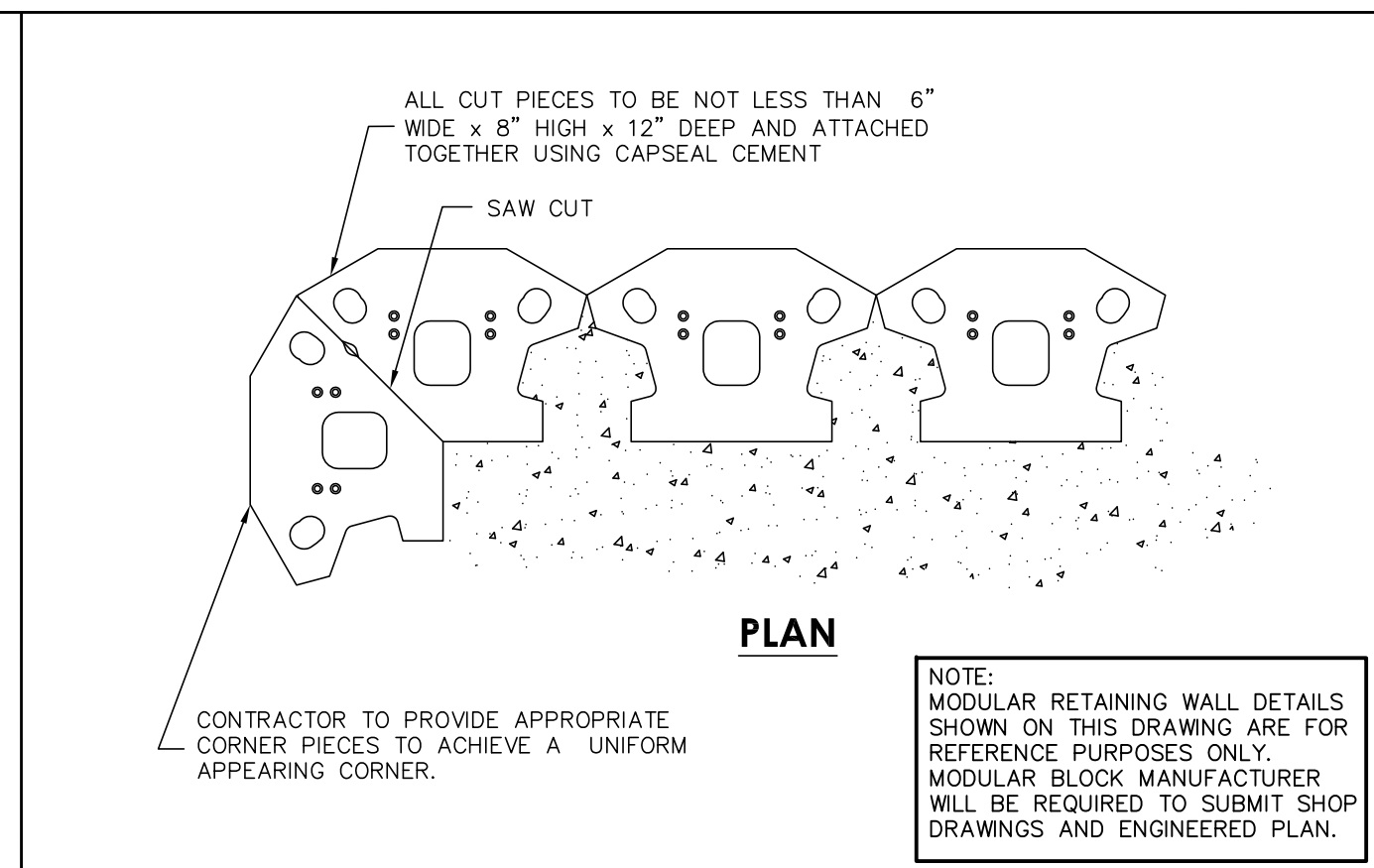
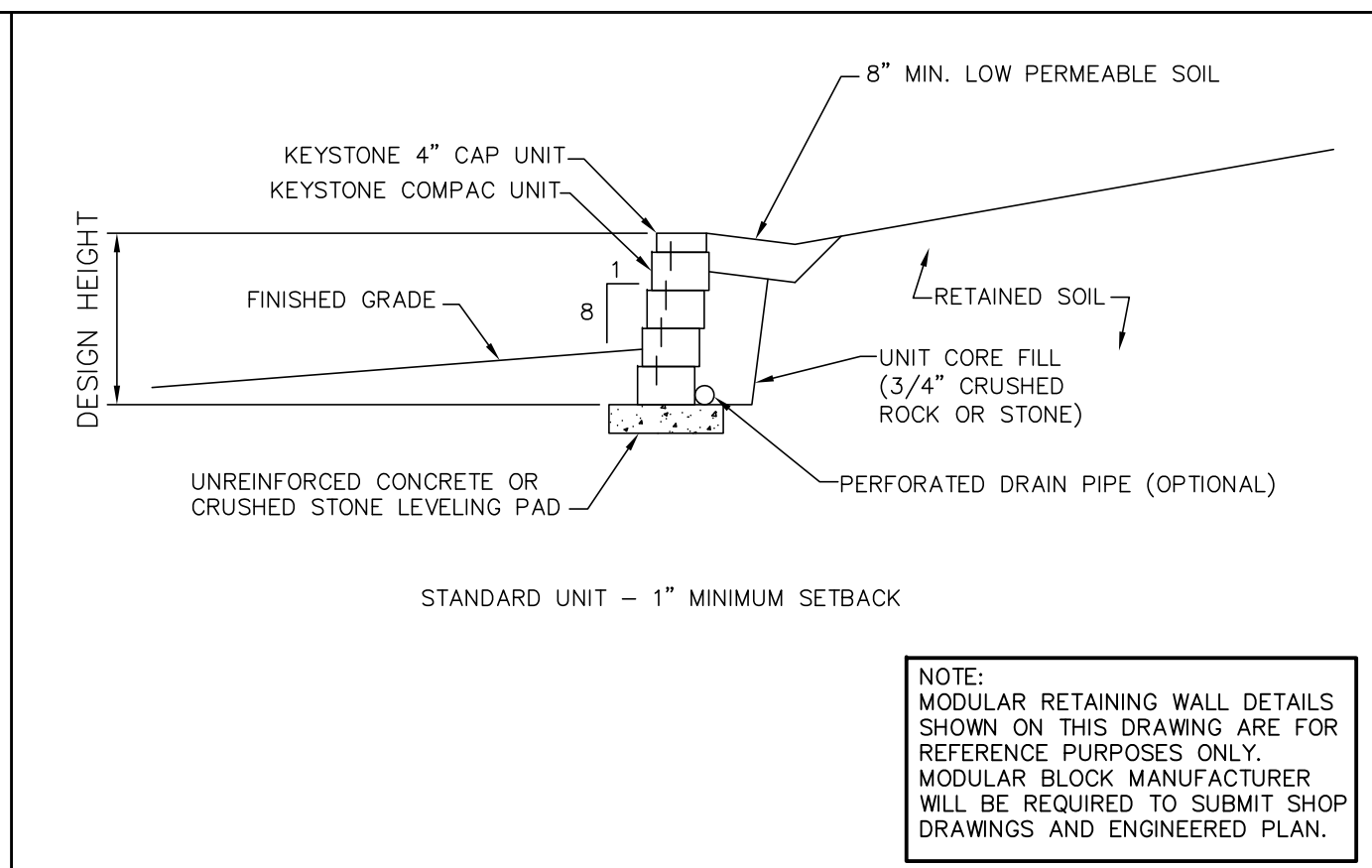
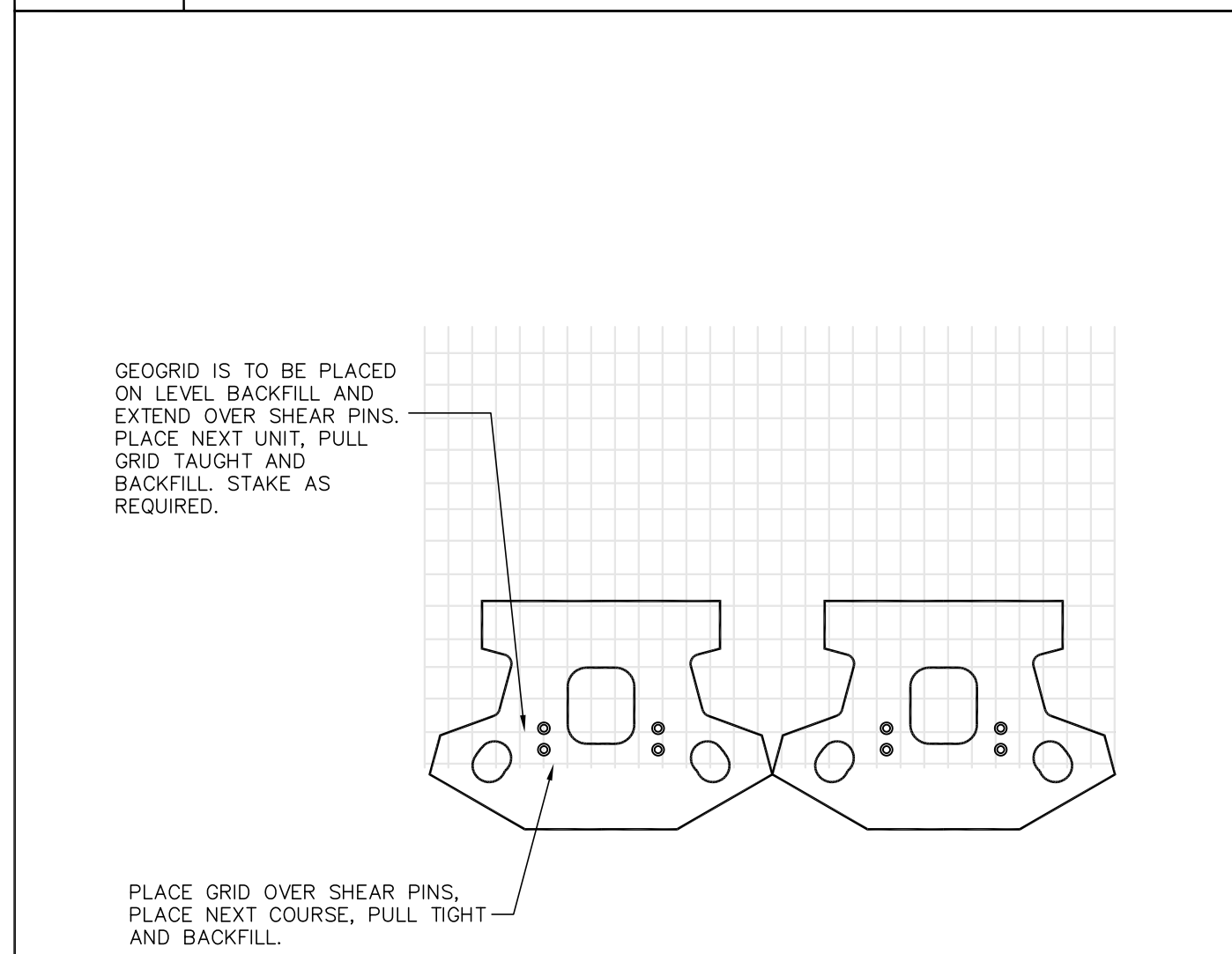
MTR
Moy Tarin Ramirez Engineers, LLC
FIRM TBPE NO. F-5297
12770 CIMARRON PATH, SUITE 100 TEL: (210) 698-5051
SAN ANTONIO, TEXAS 78249 FAX: (210) 698-5085

R:\Highland Estates\Unit_18\Drawings\Exhibits\2117_Water_Main_Site_Details_1.dwg
 PLOT BY: BUDROD
 PLOT DATE: 8/15/16



1 SAN ANTONIO WATER SYSTEM - FENCE DETAILS
 SCALE: NONE

2 LEVELING PAD AND STEP DETAILS
 SCALE: NONE



3 MODULAR CONCRETE UNIT GRID/PIN CONNECTION DETAIL
 SCALE: NONE

7 TOP OF WALL STEPS DETAIL
 SCALE: NONE

8 TYPICAL MODULAR CONCRETE UNIT
 SCALE: NONE

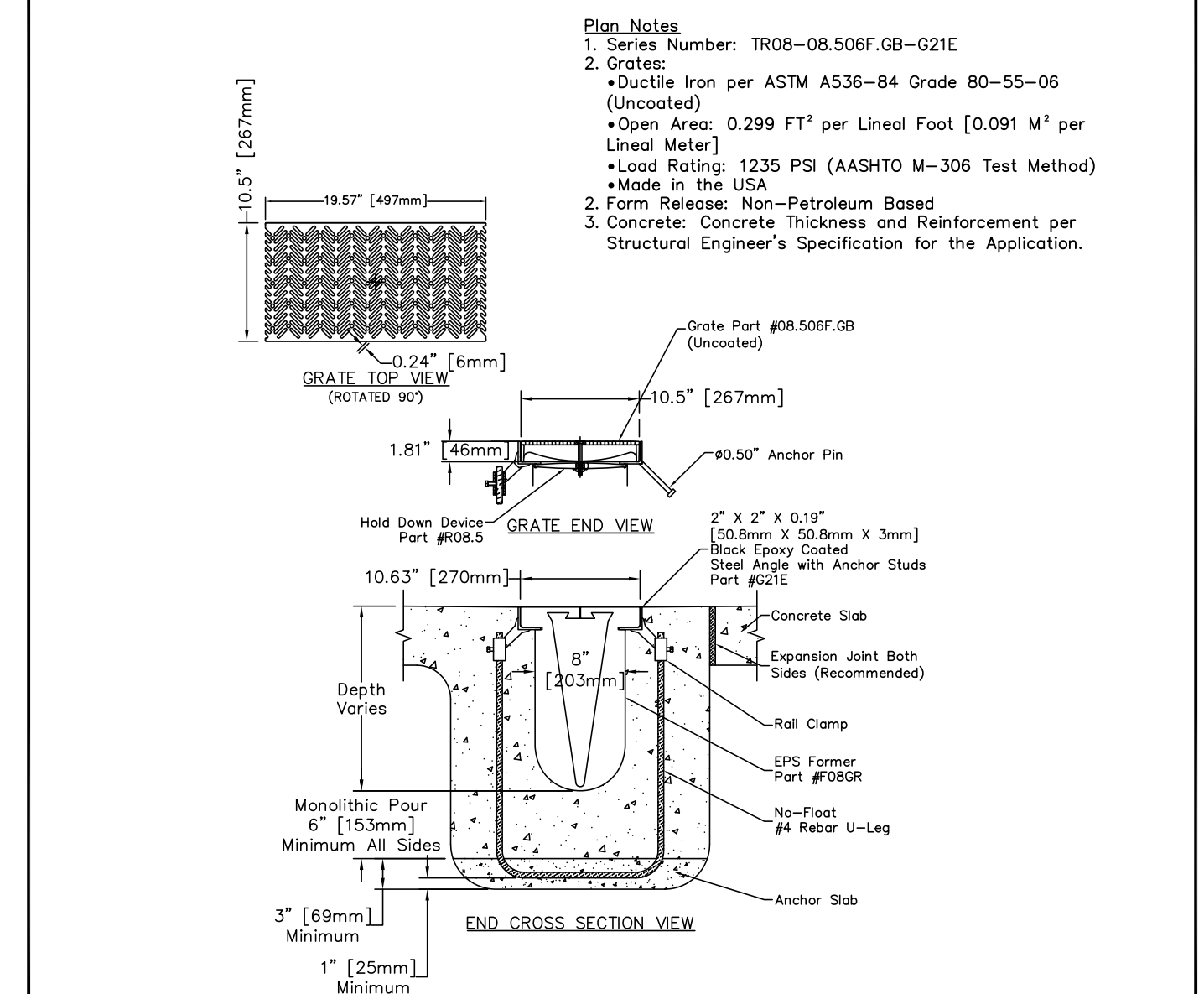
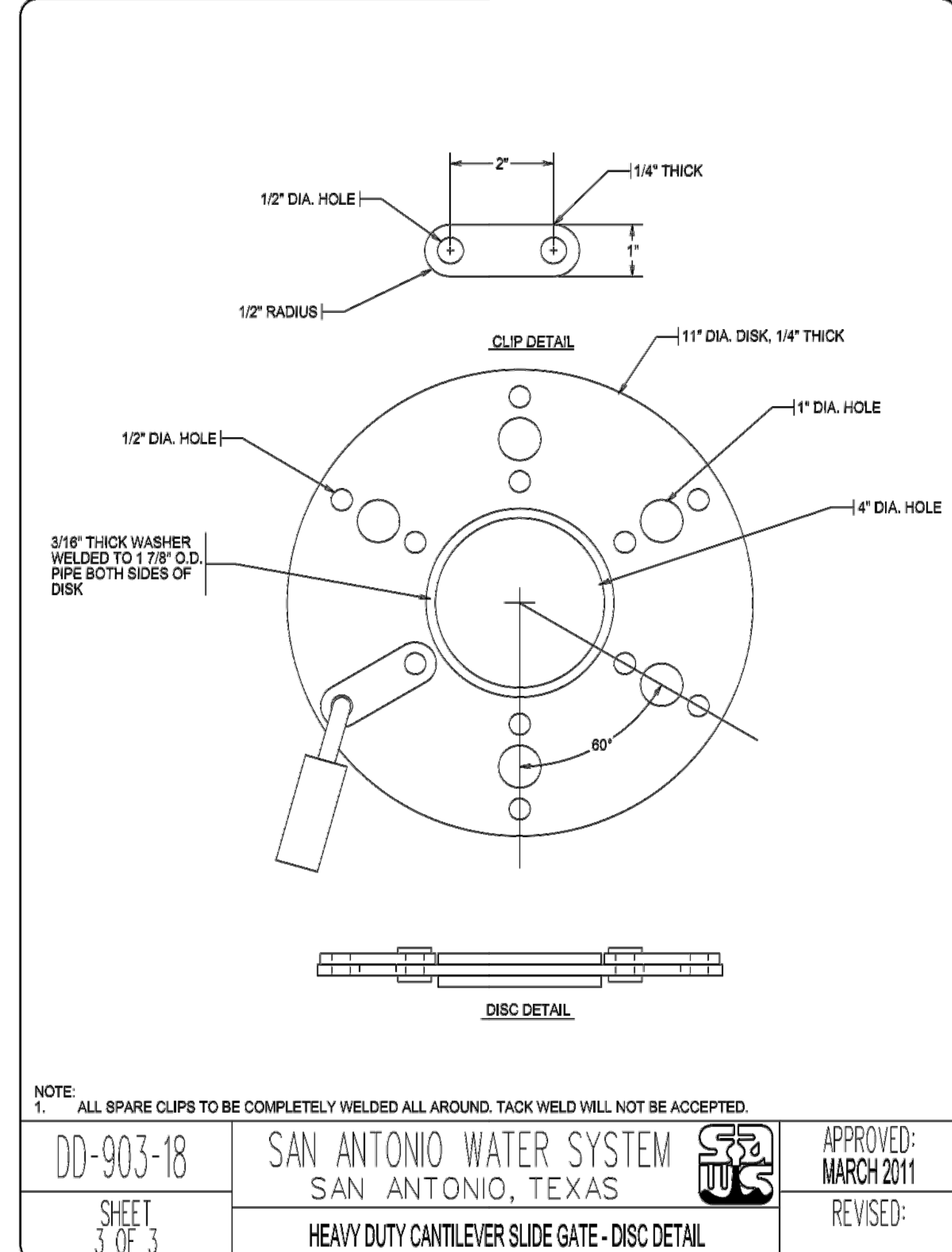
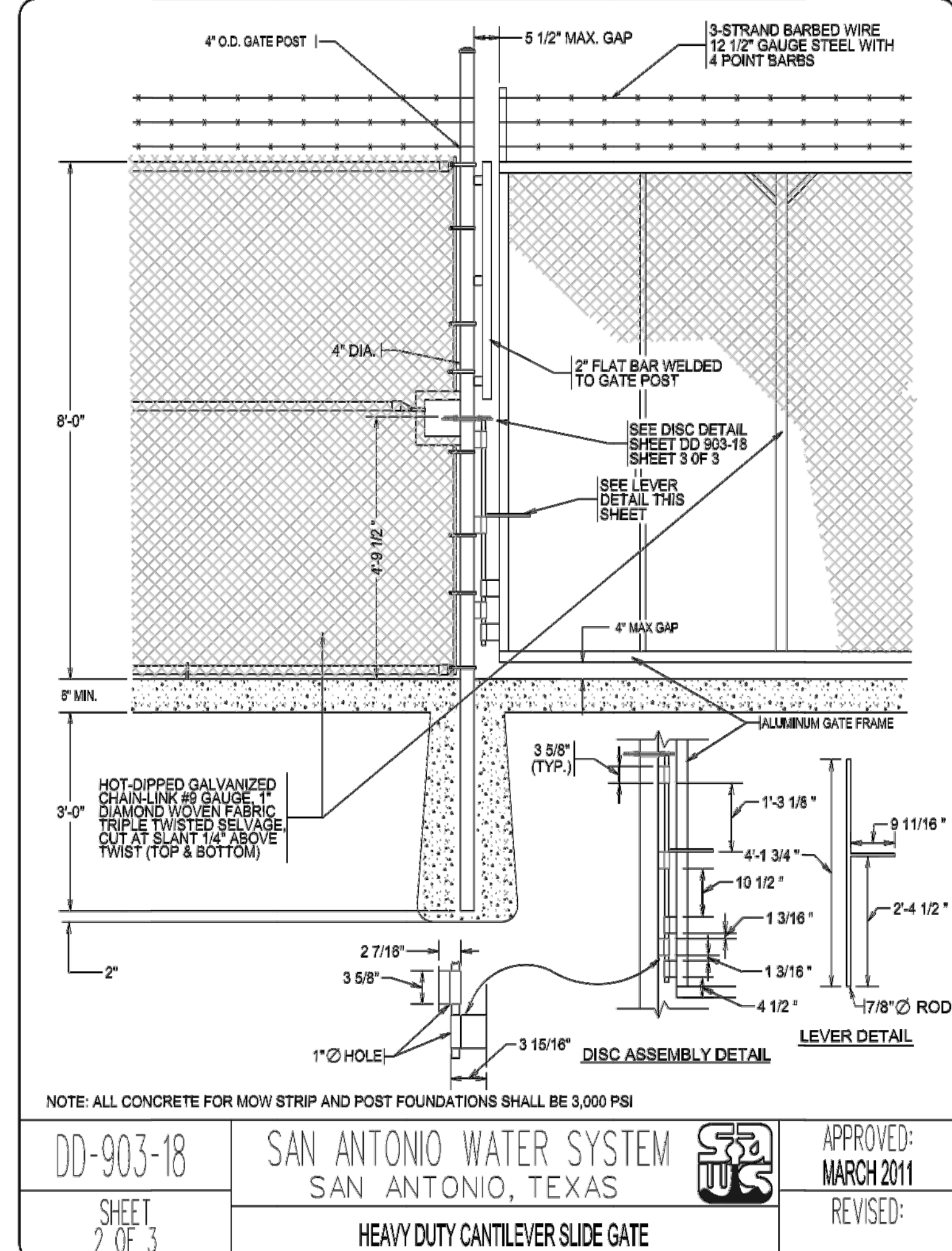
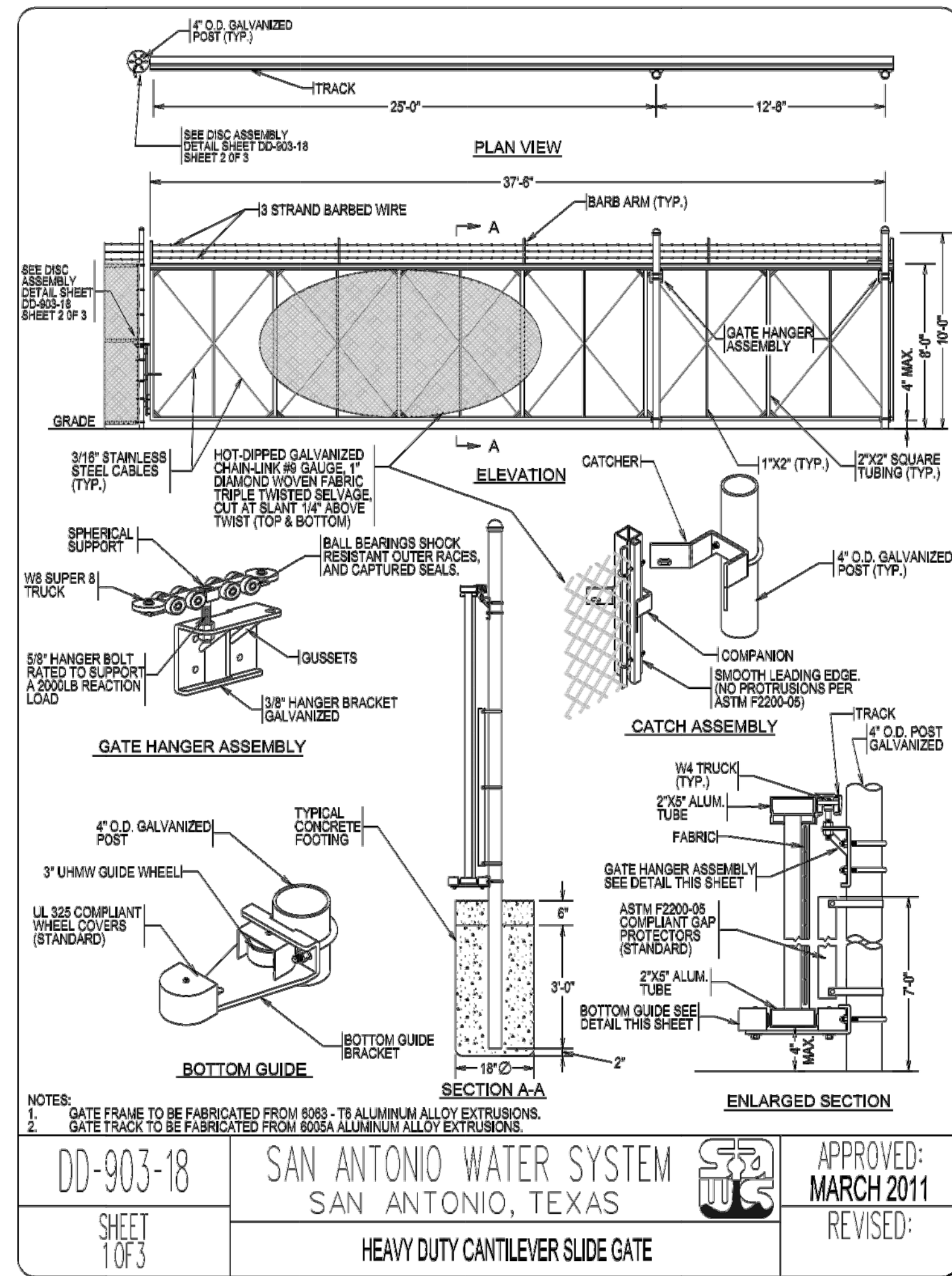
LNV
 TBPE FIRM NO. F-366
 8918 TESORO DRIVE
 SAN ANTONIO, TEXAS 78217



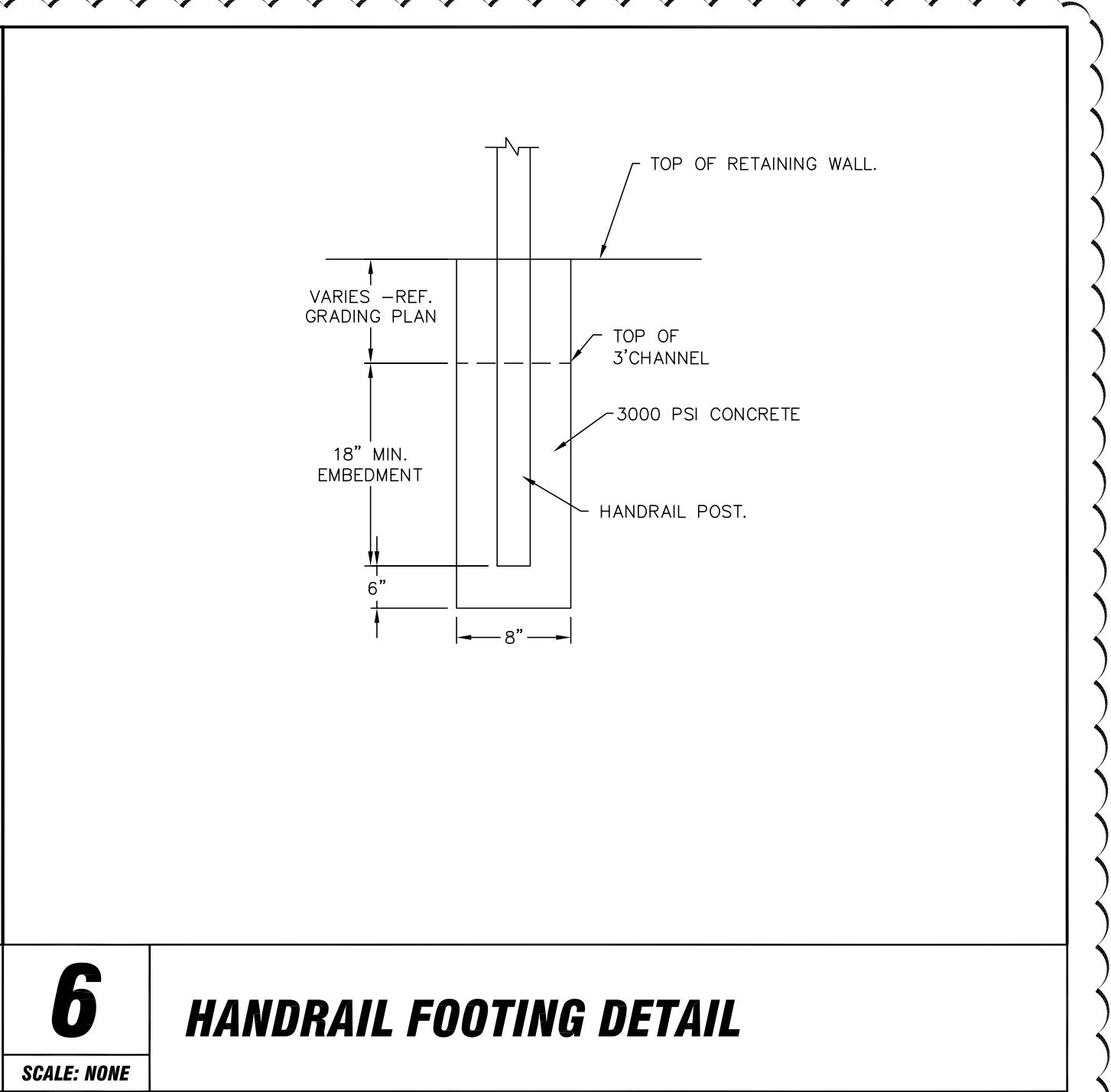
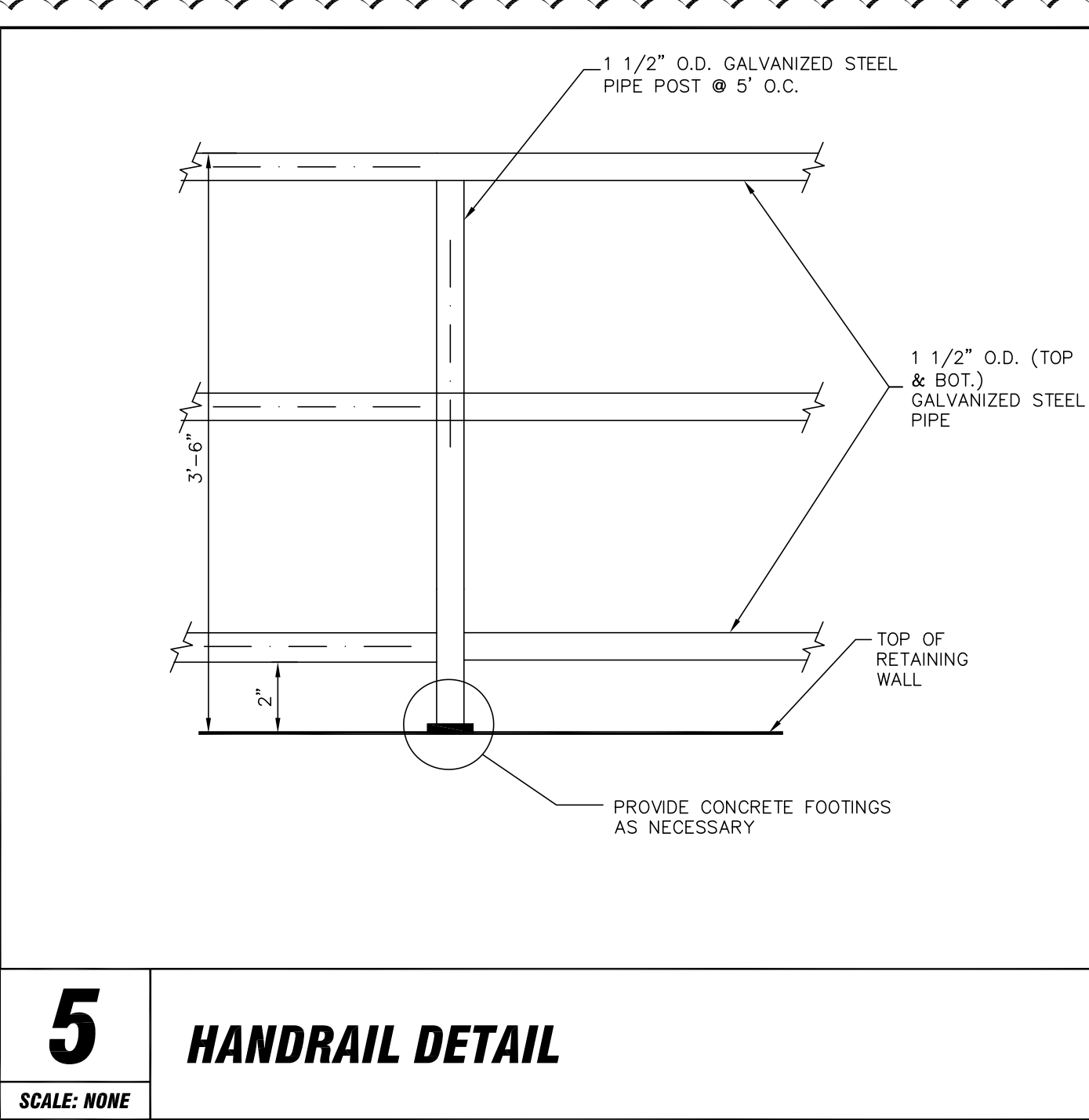
No.	Revision	Date	Drawn	Apprvd.
1	ADDENDUM #5	10/05/16		
REVISIONS				
MONTANA PASS TANK AND BOOSTER STATION PROJECT				
SITE DETAILS				
DEVELOPER: SAWS				
CONT.		BUDGET PROJ.		
SUBMITTED _____				
APPROVED _____				
MAP No.				SHEET
SECT. No.				C-5.2R1
DR.	CK.	JOB No. 15-1177		

MTR
 Moy Tarin Ramirez Engineers, LLC
 FIRM TBPE NO. F-5297
 12770 CIMARRON PATH, SUITE 100 TEL: (210) 698-5051
 SAN ANTONIO, TEXAS 78249 FAX: (210) 698-5085

• Engineers
 • Surveyors
 • Planners



4 **8" TRENCHFORMER TFX SYSTEM**
 SCALE: NONE
 DETAIL



8918 TESORO DRIVE
 SAN ANTONIO, TEXAS 78217



No.	Revision	Date	Drawn	Apprv.
1	ADDENDUM #5	10/05/16		

REVISIONS
 MONTANA PASS TANK AND BOOSTER STATION PROJECT
 SITE DETAILS

DEVELOPER: SAWS
 CONT. BUDGET PROJ.
 SUBMITTED
 APPROVED
 MAP No.
 SECT. No.
 DR. CK. JOB No. 15-1177

SHEET C-5.4R1

MTR
 Moy Tarin Ramirez Engineers, LLC
 FIRM TBPE NO. F-5297
 12770 CIMARRON PATH, SUITE 100 SAN ANTONIO, TEXAS 78249
 TEL: (210) 698-5051 FAX: (210) 698-5085

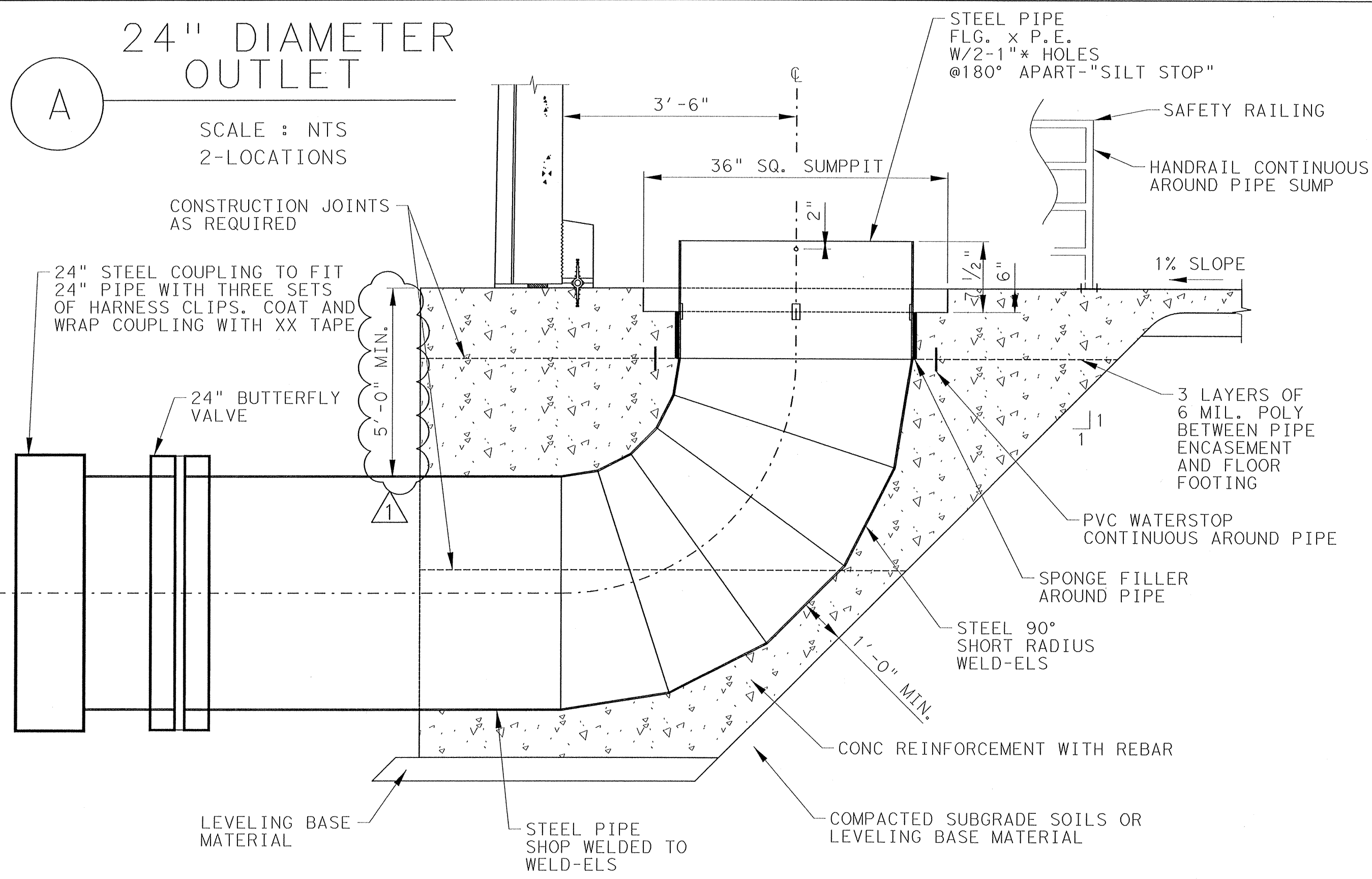
• Engineers
 • Surveyors
 • Planners

R:\Highland Estates\Unit_1B\Drawings\Exhibits\2117_Water_Main_Site_Details_3.dwg
 not in block
 PLOT DATE: 2016-03-08

24" DIAMETER OUTLET

A

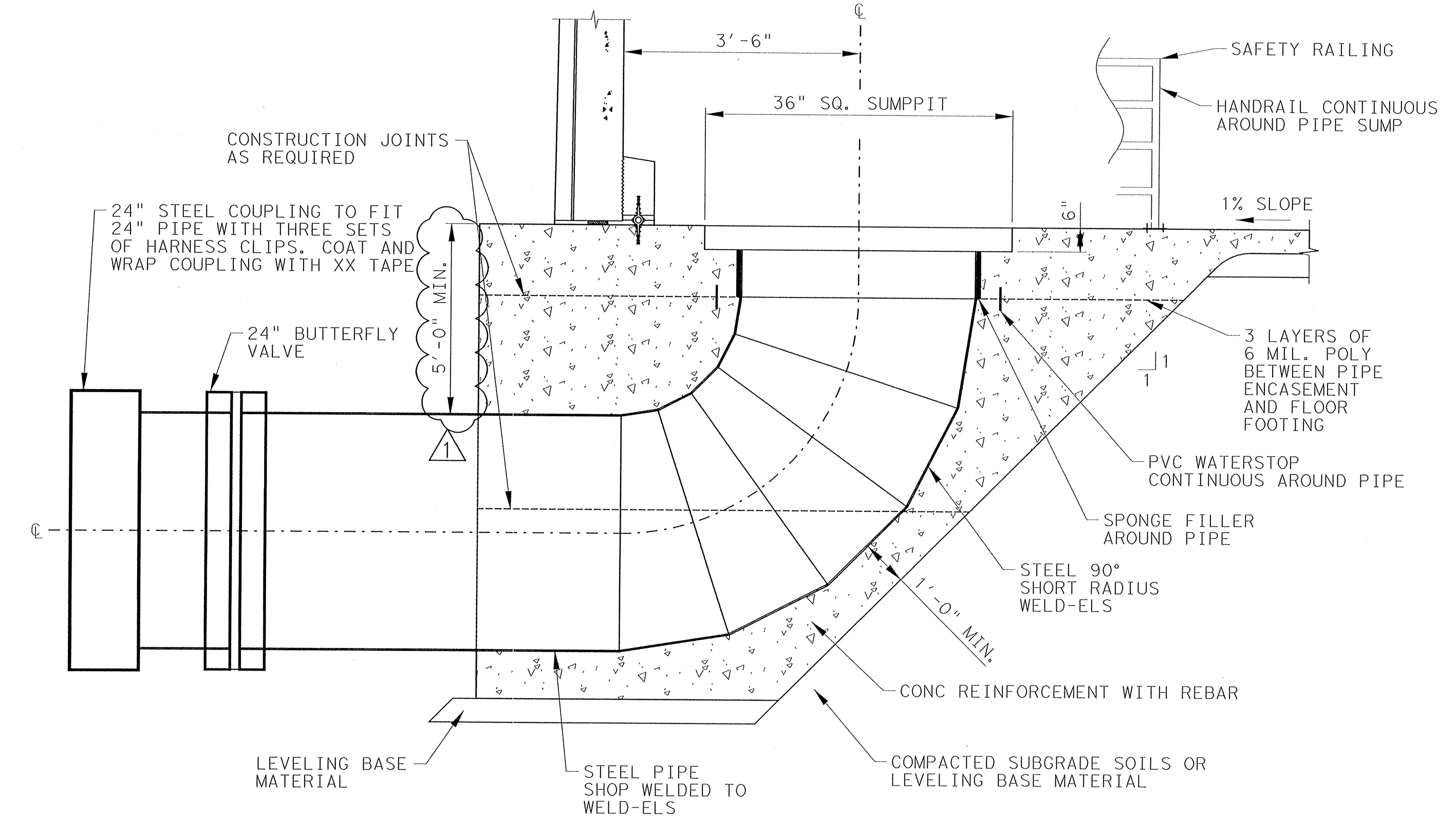
SCALE : NTS
2-LOCATIONS



24" DIAMETER INLET

B

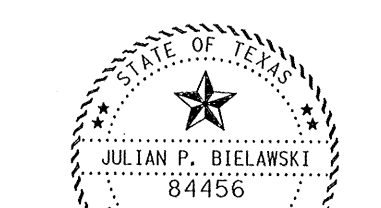
SCALE : NTS



ADDENDUM #5 10/5/16



8918 TESORO DRIVE
SAN ANTONIO, TEXAS 78217



Julian P. Bielawski 10/24/16

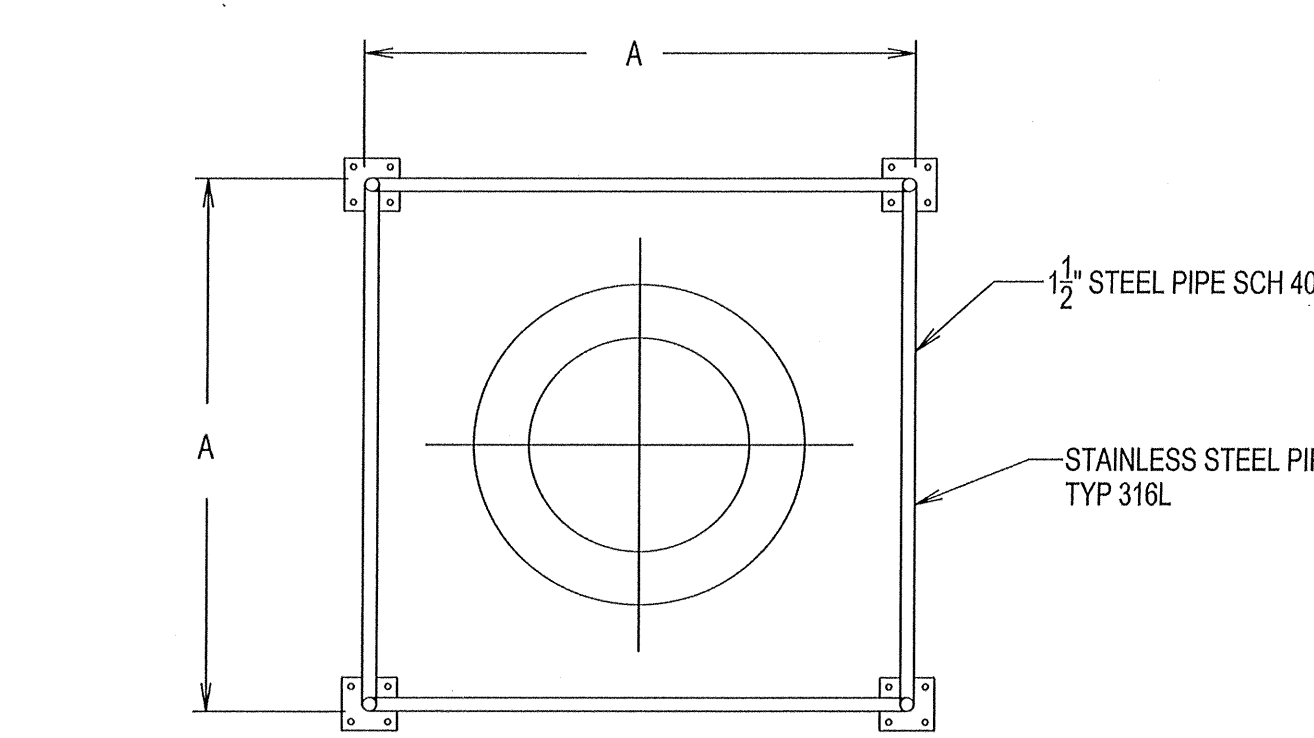
No.	Revision	Drawn	Approved	Date

REVISIONS
MONTANA PASS TANK AND BOOSTER STATION PROJECT
INLET AND OUTLET DETAILS

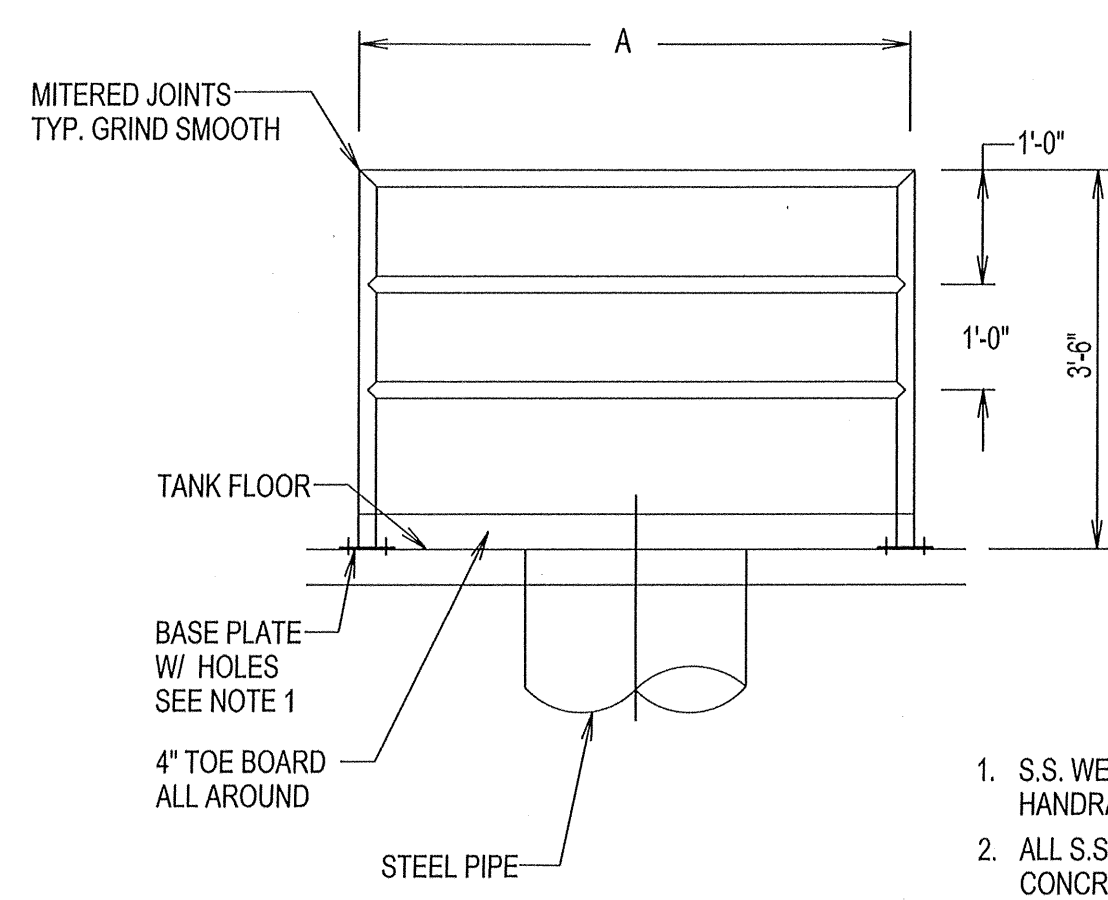
DEVELOPER: SAWS
CONT. BUDGET PROJ.

SUBMITTED: _____
APPROVED: _____

MAP No. _____ SHEET T-6R1
SECT. No. _____
DR. CK. JOB No. 15-1177



PIPE DIA.	A
20"	42"
24"	48"
30"	54"
36"	60"
42"	66"
48"	72"
54"	78"
60"	84"



1. S.S. WEDGE ANCHORS TO BE USED TO CONNECT HANDRAIL BASE PLATES TO THE TANK FLOOR
2. ALL S.S. TO BE ISOLATED FROM CONCRETE USING NEOPRENE GASKETS.
3. TOE BOARD TO BE PROVIDED ON ALL SIDES OF PIPE.
4. REMOVABLE RAILING. ONE SIDE OF RAILING SHALL BE REMOVABLE FOR MAINTENANCE

DD-904-05
SHEET 1 OF 1

SAN ANTONIO WATER SYSTEM
SAN ANTONIO, TEXAS

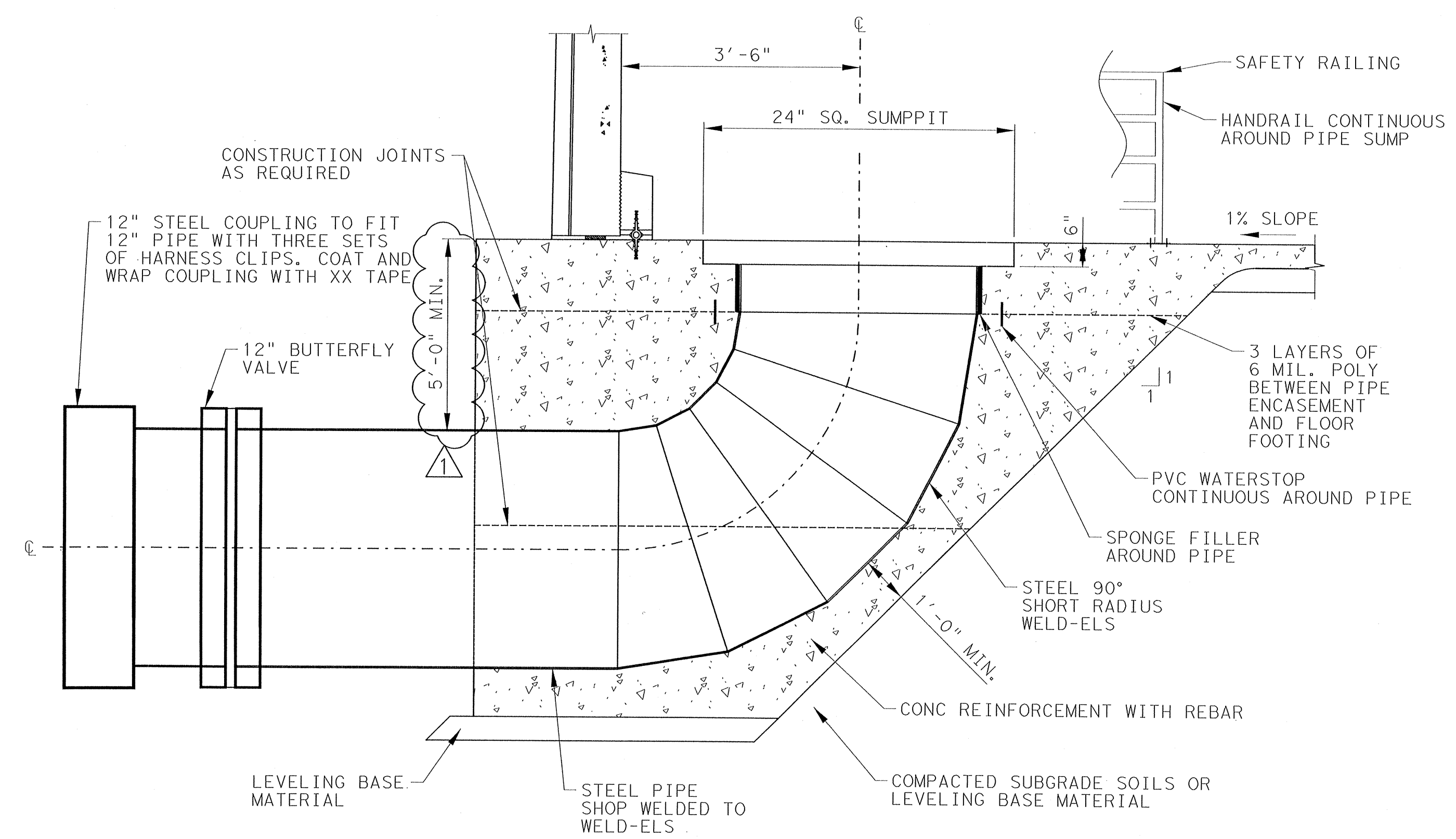
APPROVED: NOV 2011
REVISED: NOV 2011

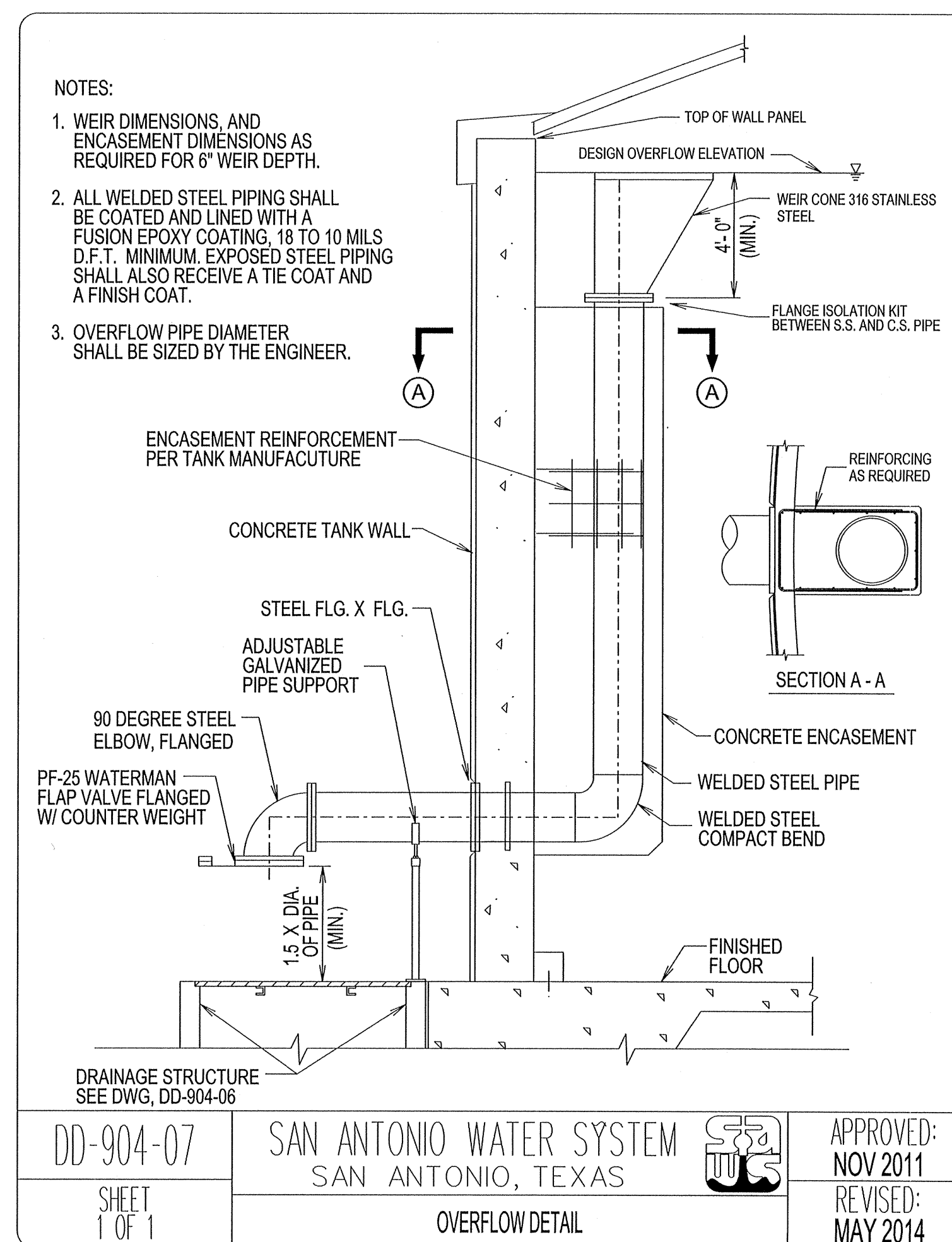
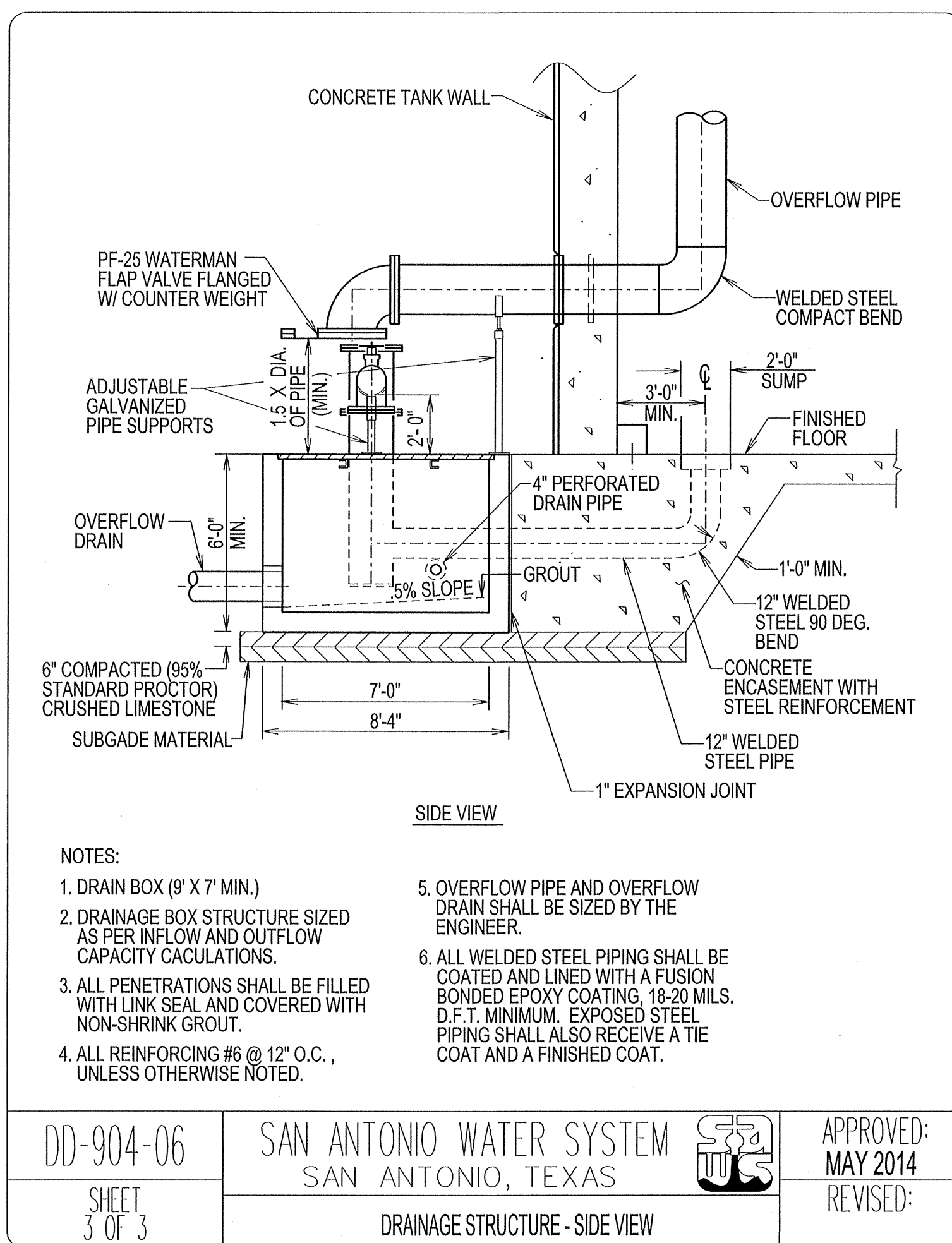
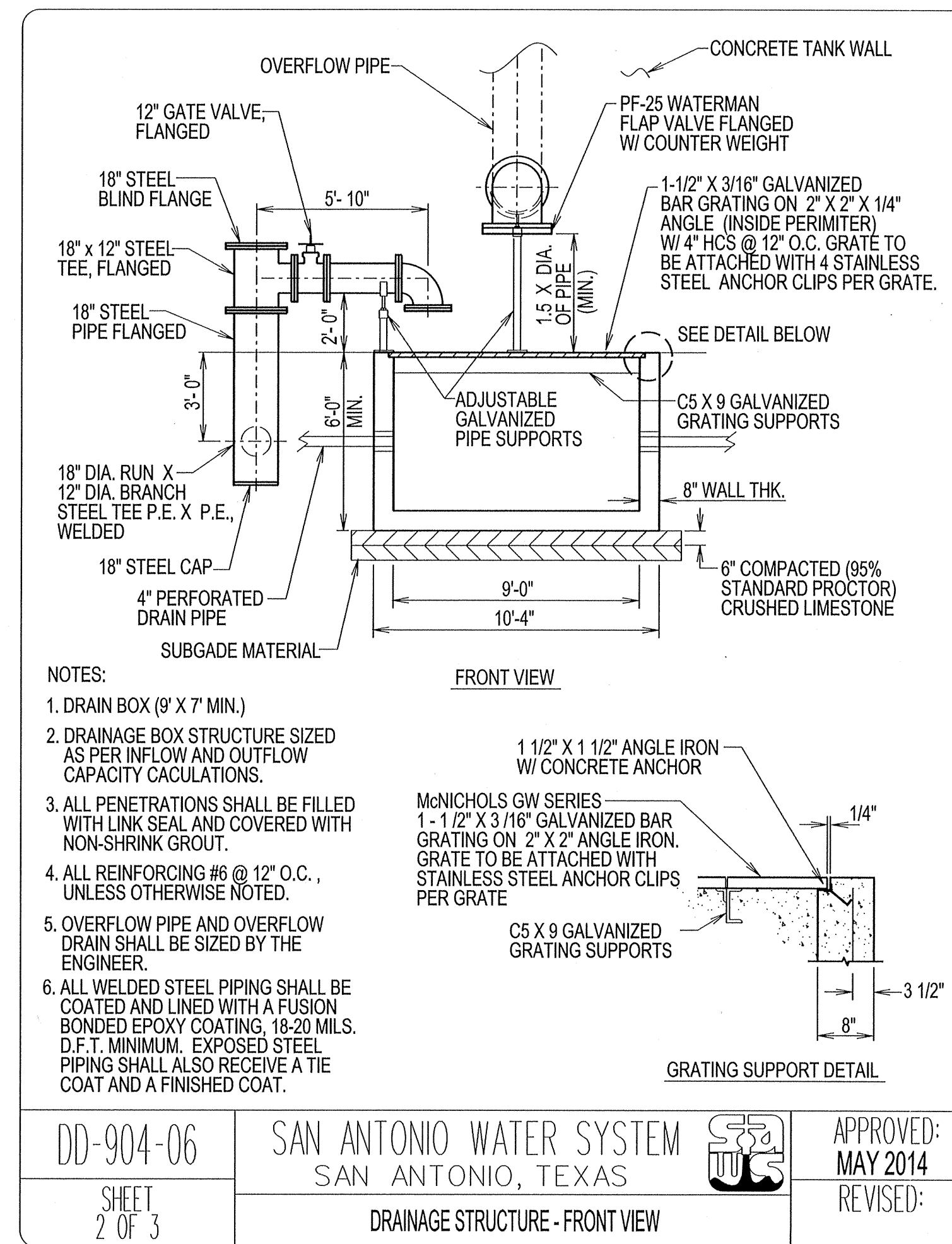
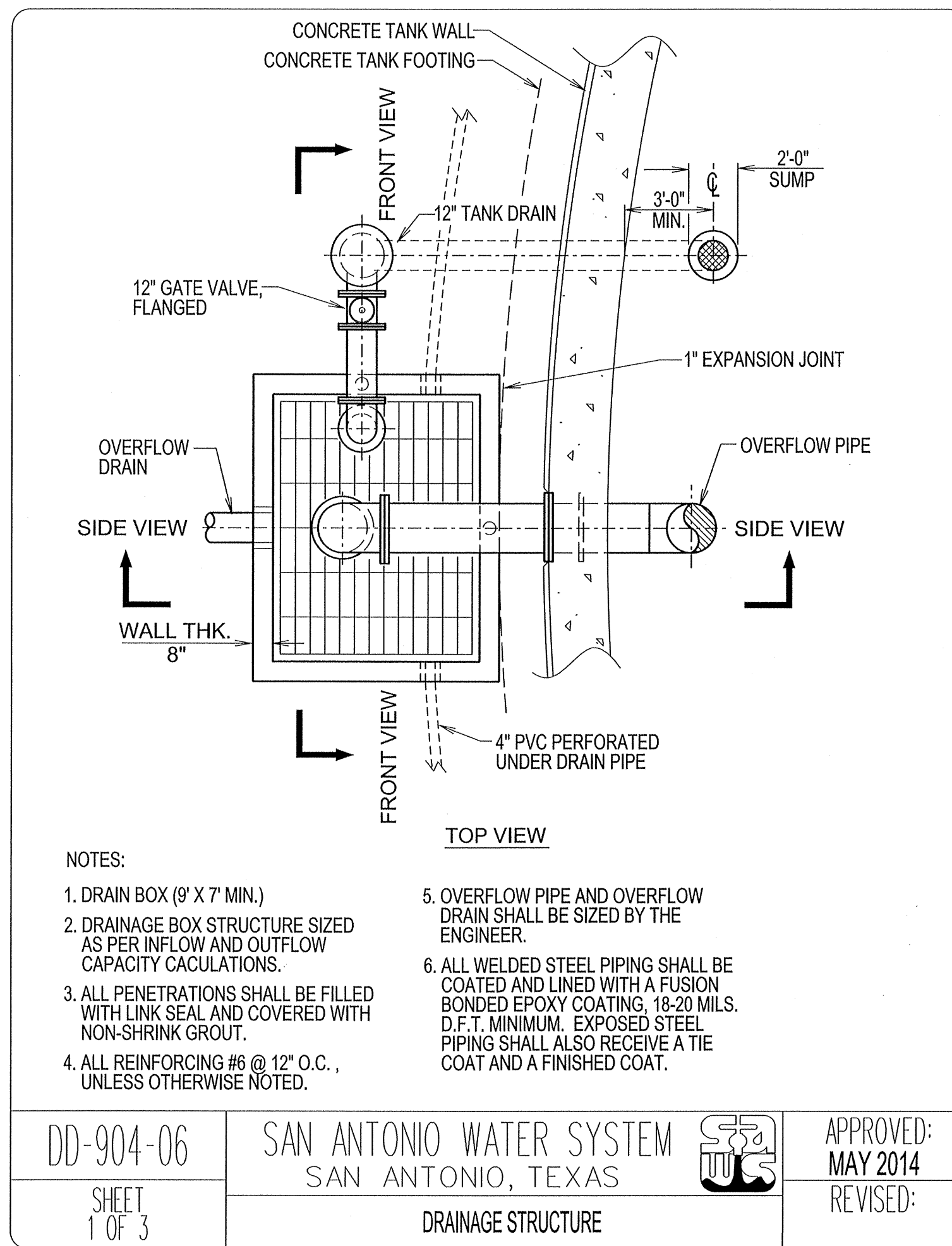
PIPE SAFETY RAILING

12" DIAMETER OUTLET

C

SCALE : NTS





ADDENDUM #5 10/5/16

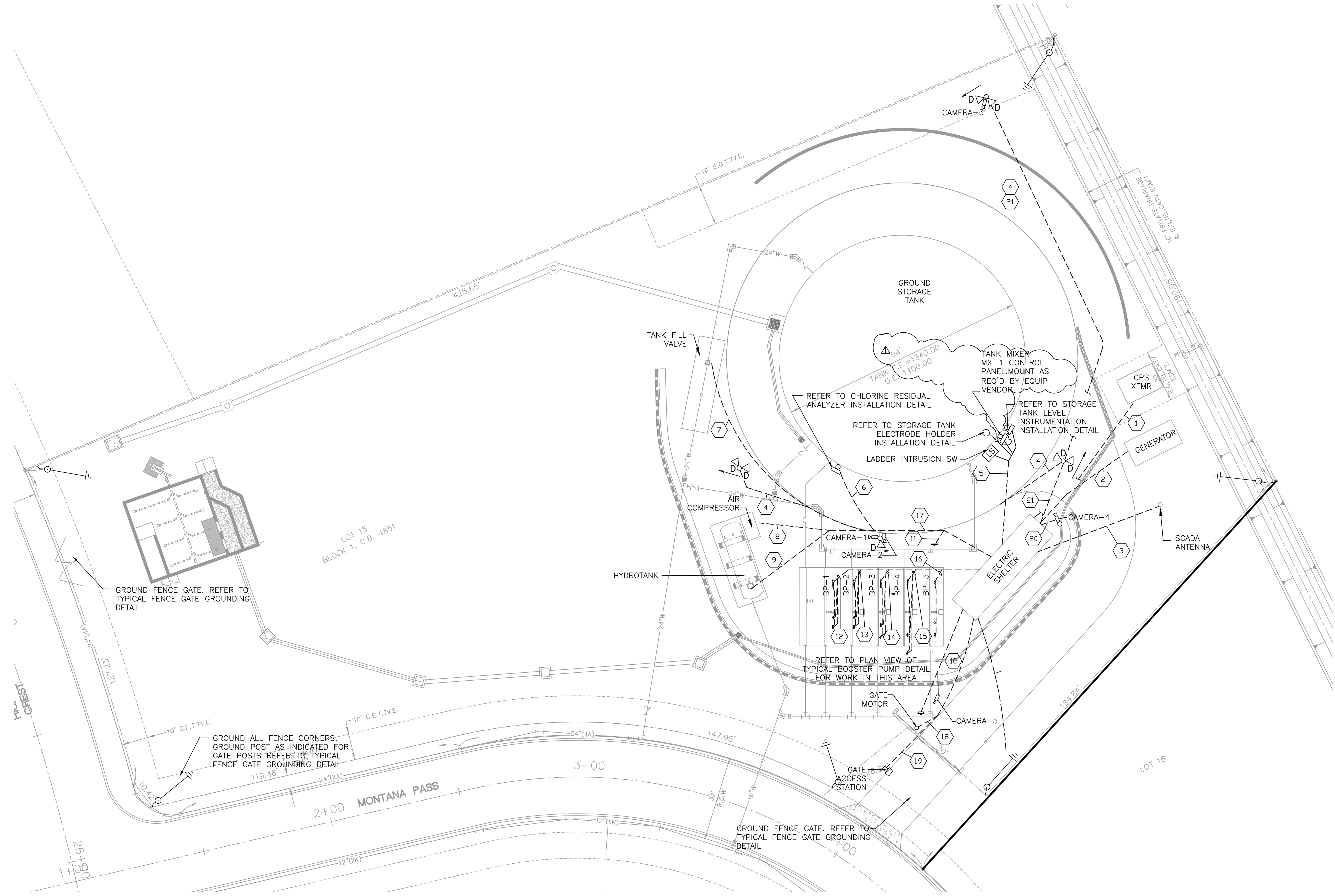


8918 TESORO DRIVE
SAN ANTONIO, TEXAS 78217

NOTE: TANK MANUFACTURER IS RESPONSIBLE FOR DESIGN OF THE OVERFLOW WEIR BASED ON THE SPECIFIED FILL RATES

No.	Revision	Drawn	Approved	Date
REVISIONS				
MONTANA PASS TANK AND BOOSTER STATION PROJECT				
OVERFLOW AND DRAIN LINE DETAILS				
DEVELOPER: SAWS				
CONT.		BUDGET PROJ.		
SUBMITTED _____				
APPROVED _____				
MAP No.				SHEET
SECT. No.				T-7R1
DR.	CK.	JOB No. 15-1177		

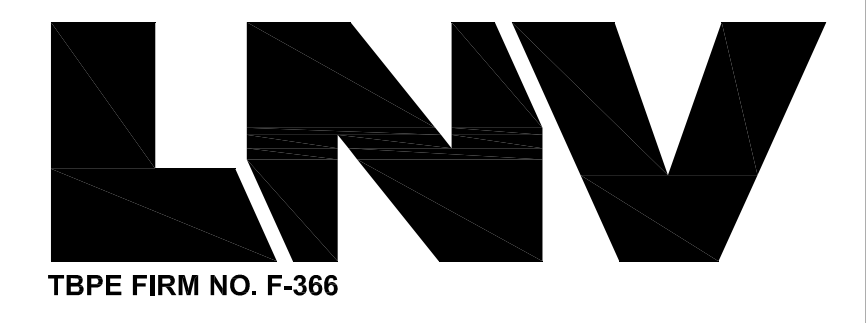
SAWS ENGINEERING, INC. 14000 Highway 160, Suite 100, San Antonio, TX 78240
 PLOT FILE: DD-904-06.dwg
 PLOT DATE: 10/22/2016
 PLOT BY: JPL



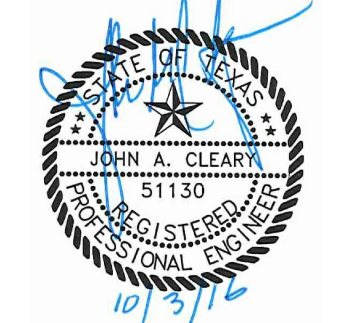
OVERALL ELECTRICAL SITE PLAN
SCALE: 3/16"=1'-0"

KEYED NOTES:
REFER TO CABLE AND CONDUIT SCHEDULE FOR CABLES AND CONDUITS

- | | | |
|--------------------------------------------------|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| 1 P-100 | 8 P-108 | 16 P-106, FUTURE CKT A-1-2, FUTURE CKT A-1-3,5,7, FUTURE CKT A-1-1, FUTURE CKT A-1-4, C-148, C-130, C-166, C-167 |
| 2 P-101, CKT A-7,9, CKT A-8, C-125, C-115 | 9 C-123, C-124, C-153 | 17 CKT A-6, C-117, CKT A-10, C-139, C-112, C-168, C-169 |
| 3 C-141, C-142 | 10 C-116, C-172 | 18 P-109 |
| 4 CKT A-6 | 11 C-117 | 19 C-149, C-150, C-151 |
| 5 CKT A1-9, CKT A-37, C-143, C-114, C-113, C-173 | 12 P-102, CKT A-13, CKT A-17,19,21, C-131, C-126, CKT A-29, C-144, CKT A-33, C-154, C-158, C-162 | 20 C-171 |
| 6 CKT A-10, C-139 | 13 P-103, CKT A-12, CKT A-16,18,20, C-132, C-127, CKT A-28, C-145, CKT A-36, C-155, C-159, C-163 | 21 C-170 |
| 7 C-112 | 14 P-104, CKT A-15, CKT A-23,25,27, C-133, C-128, C-146, CKT A-31, CKT A-35, C-156, C-160, C-164 | |
| | 15 P-105, CKT A-14, CKT A-22,24,26, C-134, C-129, C-147, CKT A-30, CKT A-39, C-157, C-161, C-165 | |



TBPE FIRM NO. F-366
8918 TESORO DRIVE
SAN ANTONIO, TEXAS 78217



No.	Revision	Date	Drawn	Apprvd.
1	ADDENDUM #5	10/05/16	JF	JAC

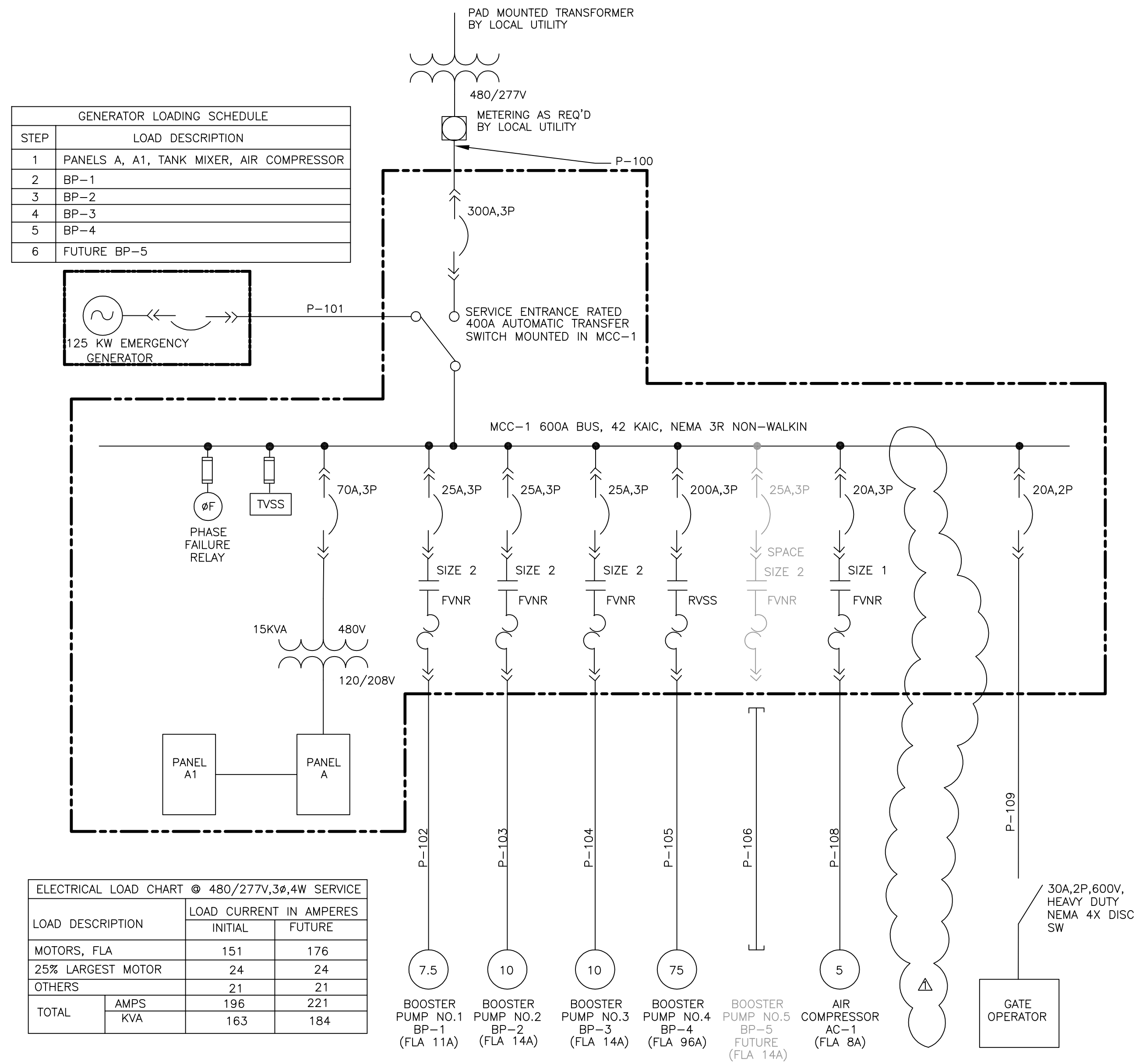
REVISIONS
MONTANA PASS TANK AND BOOSTER STATION PROJECT
OVERALL ELECTRICAL SITE PLAN

DEVELOPER: SAWS	
CONT.	BUDGET PROJ.
SUBMITTED _____	
APPROVED _____	
MAP No.	SHEET
SECT. No.	DR.
CK.	JOB No. 15-1177
	E2R1



Tx. Reg. # F-9357
1344 S. Flores, Suite 101
San Antonio, Texas 78204
T 210-447-6100 / F 210-447-6101
ClearyZimmermann.com

CZ JOB: 14099



GENERATOR LOADING SCHEDULE

STEP	LOAD DESCRIPTION
1	PANELS A, A1, TANK MIXER, AIR COMPRESSOR
2	BP-1
3	BP-2
4	BP-3
5	BP-4
6	FUTURE BP-5

ELECTRICAL LOAD CHART @ 480/277V, 3Ø, 4W SERVICE

LOAD DESCRIPTION	LOAD CURRENT IN AMPERES	
	INITIAL	FUTURE
MOTORS, FLA	151	176
25% LARGEST MOTOR	24	24
OTHERS	21	21
TOTAL	AMPS: 196 KVA: 163	AMPS: 221 KVA: 184

PROPOSED ELECTRICAL ONE LINE DIAGRAM

LOCATED IN MCC-1 FEEDER: 4#6,1#8G

PANEL: A

COORDINATED PANEL ASSEMBLY INTERRUPTING RATING: EQUIPMENT GROUND BUS SOLID NEUTRAL

VOLTAGE: 120/208V PHASES: 3 WIRES: 4 AMPERES: 125 MTG: MCC-1 ENCL: NEMA 1 MAIN BKR: 60A,3P

LOAD SERVED	WIRE SIZE	PHASE LOAD IN VA	BKR SIZE	BKR SIZE	PHASE LOAD IN VA			WIRE SIZE	LOAD SERVED					
					A	B	C							
SECURITY PANEL	12	1000	20A,1P	20A,1P	200		12	12	SHELTER LIGHTS					
SUPERVISORY CONTROL PANEL	12	1000	20A,1P	20A,1P		200	12	12	SHELTER RECEPTACLE					
ALARM PANEL	12	300	20A,1P	20A,1P		1000	10	10	FLOODLIGHTS					
GENERATOR BLOCK HEATER	10	900	20A,2P	20A,1P	800		10	10	GEN BATTERY CHARGER					
GENERATOR BLOCK HEATER	10	900	20A,1P	20A,1P		200	10	10	CL2 ANALYZER					
YARD RECEPTACLES	10	200	20A,1P	20A,1P		200	10	10	BP-2 FLOWMETER					
BP-1 FLOWMETER	10	200	20A,1P	20A,1P			10	10	BP-4 FLOWMETER					
BP-3 FLOWMETER	10	200	20A,1P	20A,1P			10	10	BP-2 MOV					
BP-1 MOV	10	384	20A,3P	20A,3P		384	10	10	BP-2 MOV					
BP-1 MOV	10	384	20A,3P	20A,3P			10	10	BP-2 MOV					
BP-3 MOV	10	384	20A,3P	20A,3P			10	10	BP-4 MOV					
BP-3 MOV	10	384	20A,3P	20A,3P		384	10	10	BP-4 MOV					
BP-3 MOV	10	384	20A,3P	20A,3P			10	10	BP-4 MOV					
BP-1 HEAT TRACE	10	400	20A,1P	20A,1P		400	10	10	BP-2 HEAT TRACE					
BP-3 HEAT TRACE	10	400	20A,1P	20A,1P		400	10	10	BP-4 HEAT TRACE					
BP-1 RECEPTACLE	10	200	20A,1P	20A,1P		1000	12	12	SECURITY UPS					
BP-3 RECEPTACLE	10	200	20A,1P	20A,1P			10	10	BP-2 RECEPTACLE					
GROUND STORAGE TANK HEATER	10	100	20A,1P	20A,1P		984	6	8	PANEL A-1					
BP-5 RECEPTACLE	10	200	20A,1P	20A,1P			6	6	PANEL A-1					
SCP AIR CONDITIONER	12	1200	20A,1P	20A,1P			6	6	PANEL A-1					
TOTAL CONNECTED PHASE LOADS IN VA					A	6,670	B	6,420	C	7,020	TOTAL CONNECTED LOAD IN VA	20,110	DEMAND LINE AMPERES	43
					ESTIMATED DEMAND LOAD IN VA					15,502				

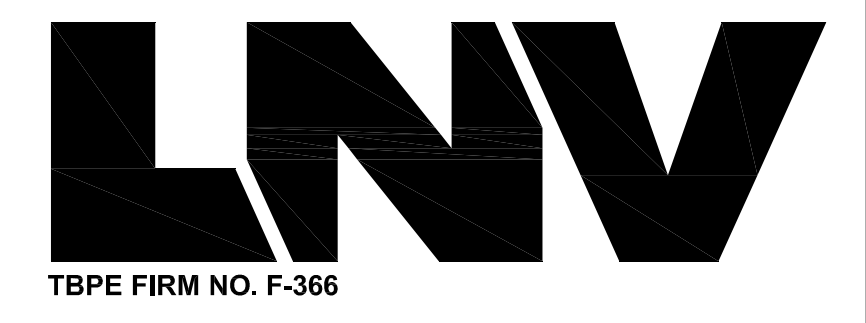
LOCATED IN MCC-1 FEEDER: 4#6,1#8G

PANEL: A1

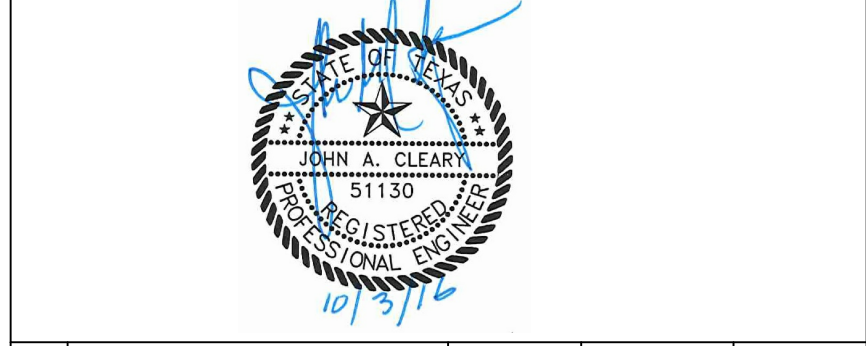
COORDINATED PANEL ASSEMBLY INTERRUPTING RATING: EQUIPMENT GROUND BUS SOLID NEUTRAL

VOLTAGE: 120/208V PHASES: 3 WIRES: 4 AMPERES: 125 MTG: MCC-1 ENCL: NEMA 1 MAIN BKR: MLO

LOAD SERVED	WIRE SIZE	PHASE LOAD IN VA	BKR SIZE	BKR SIZE	PHASE LOAD IN VA			WIRE SIZE	LOAD SERVED					
					A	B	C							
FUTURE BP-5 HEAT TRACE	-	400	20A,1P	20A,1P	200		-	-	FUTURE BP-5 RECPT					
FUTURE BP-5 MOV	-	384	20A,3P	20A,1P		200	-	-	FUTURE BP-5 FLOWMETER					
FUTURE BP-5 MOV	-	384	20A,3P	20A,1P			-	-	SPARE					
FUTURE BP-5 MOV	-	384	20A,3P	20A,1P			-	-	SPARE					
TANK MIXER	10	400	20A,1P	20A,1P			-	-	SPARE					
SPARE	-	-	20A,1P	20A,1P			-	-	SPARE					
SPARE	-	-	20A,1P	20A,1P			-	-	SPARE					
SPARE	-	-	20A,1P	20A,1P			-	-	SPARE					
TOTAL CONNECTED PHASE LOADS IN VA					A	984	B	584	C	384	TOTAL CONNECTED LOAD IN VA	1,952	DEMAND LINE AMPERES	5
					ESTIMATED DEMAND LOAD IN VA					1,952				



8918 TESORO DRIVE
SAN ANTONIO, TEXAS 78217



No.	Revision	Date	Drawn	Apprvd.
1	ADDENDUM #5	10/05/16	JF	JAC

REVISIONS

MONTANA PASS TANK AND BOOSTER STATION PROJECT

ONE LINE DIAGRAM & PANEL SCHEDULES

DEVELOPER: SAWS

CONT. BUDGET PROJ.

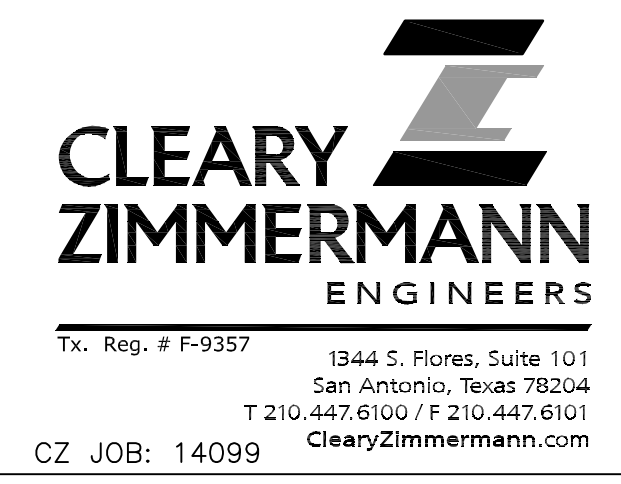
SUBMITTED _____

APPROVED _____

MAP No. _____ SHEET

SECT. No. _____

DR. CK. JOB No. 15-1177 E3R1



CONTROLS AND INSTRUMENTATION CABLE AND CONDUIT SCHEDULE

CABLE/CONDUIT NO.	CONDUIT	CABLE TYPE	CONDUCTORS	FROM	TO	VIA	FUNCTION
C-100	-	THWN	6#14	BOOSTER PUMP BP-1 STARTER IN MCC-1	SUPERVISORY CONTROL PANEL	THRU MCC-1 WIREWAYS	BP-1 AUTO START/STOP MANUAL START/STOP
C-101	-	THWN	6#14	BOOSTER PUMP BP-2 STARTER IN MCC-1	SUPERVISORY CONTROL PANEL	THRU MCC-1 WIREWAYS	BP-2 AUTO START/STOP MANUAL START/STOP
C-102	-	THWN	6#14	BOOSTER PUMP BP-3 STARTER IN MCC-1	SUPERVISORY CONTROL PANEL	THRU MCC-1 WIREWAYS	BP-3 AUTO START/STOP MANUAL START/STOP
C-103	-	THWN	6#14	BOOSTER PUMP BP-4 STARTER IN MCC-1	SUPERVISORY CONTROL PANEL	THRU MCC-1 WIREWAYS	BP-4 AUTO START/STOP MANUAL START/STOP
C-104	-	THWN	2#14	BOOSTER PUMP BP-1 STARTER IN MCC-1	SUPERVISORY CONTROL PANEL	THRU MCC-1 WIREWAYS	BP-1 PUMP GROUND STORAGE TANK LOW LEVEL LOCKOUT
C-105	-	THWN	2#14	BOOSTER PUMP BP-2 STARTER IN MCC-1	SUPERVISORY CONTROL PANEL	THRU MCC-1 WIREWAYS	BP-2 PUMP GROUND STORAGE TANK LOW LEVEL LOCKOUT
C-106	-	THWN	2#14	BOOSTER PUMP BP-3 STARTER IN MCC-1	SUPERVISORY CONTROL PANEL	THRU MCC-1 WIREWAYS	BP-3 PUMP GROUND STORAGE TANK LOW LEVEL LOCKOUT
C-107	-	THWN	2#14	BOOSTER PUMP BP-4 STARTER IN MCC-1	SUPERVISORY CONTROL PANEL	THRU MCC-1 WIREWAYS	BP-4 PUMP ON/OFF STATUS
C-108	-	THWN	2#14	BOOSTER PUMP BP-1 STARTER IN MCC-1	SUPERVISORY CONTROL PANEL	THRU MCC-1 WIREWAYS	BP-1 PUMP ON/OFF STATUS
C-109	-	THWN	2#14	BOOSTER PUMP BP-2 STARTER IN MCC-1	SUPERVISORY CONTROL PANEL	THRU MCC-1 WIREWAYS	BP-2 PUMP ON/OFF STATUS
C-110	-	THWN	2#14	BOOSTER PUMP BP-3 STARTER IN MCC-1	SUPERVISORY CONTROL PANEL	THRU MCC-1 WIREWAYS	BP-3 PUMP ON/OFF STATUS
C-111	-	THWN	2#14	BOOSTER PUMP BP-4 STARTER IN MCC-1	SUPERVISORY CONTROL PANEL	THRU MCC-1 WIREWAYS	BP-4 PUMP GROUND STORAGE TANK LOW LEVEL LOCKOUT
C-112	3/4" C	THWN	6#12,1#12G	ALTITUDE VALVE VALVE POSITION LIMIT SWITCHES AND SOLENOID VALVE	SUPERVISORY CONTROL PANEL	CONDUIT	ALTITUDE VALVE SOLENOID ON/OFF, VALVE OPEN/CLOSED POSITIONS
C-113	3/4" C	BELDEN 8760	2/C#18 TWISTED PAIR	GROUND STORAGE TANK LEVEL TRANSMITTER	SUPERVISORY CONTROL PANEL	CONDUIT	GROUND STORAGE TANK LEVEL
C-114	3/4" C	THWN	5#14	GROUND STORAGE TANK LEVEL SWITCHES	SUPERVISORY CONTROL PANEL	CONDUIT	GROUND STORAGE TANK HIGH LEVEL, RESET, LOW LEVEL, RESET
C-115	3/4" C	THWN	4#14	GENERATOR CONTROL PANEL	SUPERVISORY CONTROL PANEL	CONDUIT	GENERATOR TROUBLE ALARM, GENERATOR RUNNING
C-116	3/4" C	BELDEN 8760	2/C#18 TWISTED PAIR	PUMPS DISCHARGE HEADER PRESSURE TRANSMITTER	SUPERVISORY CONTROL PANEL	CONDUIT	PUMPS DISCHARGE PRESSURE
C-117	3/4" C	BELDEN 8760	2/C#18 TWISTED PAIR	PUMPS SUCTION HEADER PRESSURE TRANSMITTER	SUPERVISORY CONTROL PANEL	CONDUIT	PUMPS SUCTION PRESSURE
C-118	3/4" C	BELDEN 8760	2/C#18 TWISTED PAIR	BOOSTER PUMP NO.1 DISCHARGE FLOWMETER	SUPERVISORY CONTROL PANEL	CONDUIT	BOOSTER PUMP NO.1 DISCHARGE FLOW SIGNAL
C-119	3/4" C	BELDEN 8760	2/C#18 TWISTED PAIR	BOOSTER PUMP NO.2 DISCHARGE FLOWMETER	SUPERVISORY CONTROL PANEL	CONDUIT	BOOSTER PUMP NO.2 DISCHARGE FLOW SIGNAL
C-120	3/4" C	BELDEN 8760	2/C#18 TWISTED PAIR	BOOSTER PUMP NO.3 DISCHARGE FLOWMETER	SUPERVISORY CONTROL PANEL	CONDUIT	BOOSTER PUMP NO.3 DISCHARGE FLOW SIGNAL
C-121	3/4" C	BELDEN 8760	2/C#18 TWISTED PAIR	BOOSTER PUMP NO.4 DISCHARGE FLOWMETER	SUPERVISORY CONTROL PANEL	CONDUIT	BOOSTER PUMP NO.4 DISCHARGE FLOW SIGNAL
C-122	3/4" C	-	-	FUTURE BP-5 DISCHARGE FLOWMETER	SUPERVISORY CONTROL PANEL	CONDUIT	FUTURE FLOWMETER SIGNAL STUB UP AND CAP BOTH ENDS
C-123	3/4" C	BELDEN 8760	2/C#18 TWISTED PAIR	HYDROTANK PRESSURE TRANSMITTER	SUPERVISORY CONTROL PANEL	CONDUIT	HYDROTANK PRESSURE SIGNAL
C-124	3/4" C	BELDEN 8760	2/C#18 TWISTED PAIR	HYDROTANK LEVEL TRANSMITTER	SUPERVISORY CONTROL PANEL	CONDUIT	HYDROTANK LEVEL SIGNAL
C-125	3/4" C	THWN	2#14	GENERATOR CONTROL PANEL	AUTO TRANSFER SW IN MCC-1	CONDUIT	GENERATOR AUTO START/STOP
C-126	1" C	THWN	14#12	BP-1 DISCH VALVE CONTROL CABINET	SUPERVISORY CONTROL PANEL	CONDUIT	VALVE OPEN/CLOSED STATUS, VALVE CONTROL IN MANUAL/COMPUTER, OPEN/CLOSE VALVE
C-127	1" C	THWN	14#12	BP-2 DISCH VALVE CONTROL CABINET	SUPERVISORY CONTROL PANEL	CONDUIT	VALVE OPEN/CLOSED STATUS, VALVE CONTROL IN MANUAL/COMPUTER, OPEN/CLOSE VALVE
C-128	1" C	THWN	14#12	BP-3 DISCH VALVE CONTROL CABINET	SUPERVISORY CONTROL PANEL	CONDUIT	VALVE OPEN/CLOSED STATUS, VALVE CONTROL IN MANUAL/COMPUTER, OPEN/CLOSE VALVE
C-129	1" C	THWN	14#12	BP-4 DISCH VALVE CONTROL CABINET	SUPERVISORY CONTROL PANEL	CONDUIT	VALVE OPEN/CLOSED STATUS, VALVE CONTROL IN MANUAL/COMPUTER, OPEN/CLOSE VALVE
C-130	1" C	-	-	FUTURE BP-5 DISCH VALVE CONTROL CABINET	SUPERVISORY CONTROL PANEL	CONDUIT	FUTURE VALVE OPEN/CLOSED STATUS, VALVE CONTROL IN MANUAL/COMPUTER, OPEN/CLOSE VALVE. STUB UP AND CAP BOTH ENDS
C-131	3/4" C	THWN	4#12	BOOSTER PUMP BP-1 STARTER IN MCC-1	BP-1 DISCH VALVE CONTROL CABINET	CONDUIT	OPEN, CLOSE BP-1 DISCH VALVE
C-132	3/4" C	THWN	4#12	BOOSTER PUMP BP-2 STARTER IN MCC-1	BP-2 DISCH VALVE CONTROL CABINET	CONDUIT	OPEN, CLOSE BP-2 DISCH VALVE
C-133	3/4" C	THWN	4#12	BOOSTER PUMP BP-3 STARTER IN MCC-1	BP-3 DISCH VALVE CONTROL CABINET	CONDUIT	OPEN, CLOSE BP-3 DISCH VALVE
C-134	3/4" C	THWN	4#12	BOOSTER PUMP BP-4 STARTER IN MCC-1	BP-4 DISCH VALVE CONTROL CABINET	CONDUIT	OPEN, CLOSE BP-4 DISCH VALVE
C-135	3/4" C	-	-	FUTURE BOOSTER PUMP BP-5 STARTER IN MCC-1	BP-5 DISCH VALVE CONTROL CABINET	CONDUIT	FUTURE OPEN, CLOSE BP-1 DISCH VALVE. STUB UP AND CAP BOTH ENDS
C-136	-	THWN	2#14	TANK MIXER STARTER IN MCC-1	SUPERVISORY CONTROL PANEL	THRU MCC-1 WIREWAYS	MIXER ON
C-137	-	THWN	2#14	TANK MIXER STARTER IN MCC-1	SUPERVISORY CONTROL PANEL	THRU MCC-1 WIREWAYS	MIXER AUTO START/STOP
C-138	3/4" C	BELDEN 8760	2/C#18 TWISTED PAIR	INFLUENT FLOW TRANSMITTER	SUPERVISORY CONTROL PANEL	CONDUIT	INFLUENT FLOW SIGNAL
C-139	3/4" C	BELDEN 8760	2/C#18 TWISTED PAIR	CL2 RESIDUAL ANALYZER	SUPERVISORY CONTROL PANEL	CONDUIT	CL2 RESIDUAL SIGNAL
C-140	-	THWN	2#14	ATS IN MCC-1	SUPERVISORY CONTROL PANEL	THRU MCC-1 WIREWAYS	ATS IN EMERGENCY POSITION

POWER CABLE AND CONDUIT SCHEDULE

CABLE/CONDUIT NO.	CONDUIT	CABLE TYPE	CONDUCTORS	FROM	TO	VIA	FUNCTION
P-100	3" C	THWN	3#350MCM, 1#2G	CPS PAD MOUNTED TRANSFORMER SECONDARY	MCC-1 MAIN BREAKER	CONDUIT	PLANT NORMAL FEEDER
P-101	3" C	THWN	3#350MCM, 1#2G	EMERGENCY GENERATOR MAIN BREAKER	MCC-1 AUTO TRANSFER SW EMERGENCY SIDE	CONDUIT	PLANT EMERGENCY FEEDER
P-102	1" C	THWN	3#10,1#10G 2#12	BOOSTER PUMP BP-1 MOTOR CONNECTION BOX	BOOSTER PUMP BP-1 SATERTER IN MCC-1	CONDUIT	MOTOR FEEDER MOTOR SPACE HEATER
P-103	1" C	THWN	3#10,1#10G 2#12	BOOSTER PUMP BP-2 MOTOR CONNECTION BOX	BOOSTER PUMP BP-2 SATERTER IN MCC-1	CONDUIT	MOTOR FEEDER MOTOR SPACE HEATER
P-104	1" C	THWN	3#10,1#10G 2#12	BOOSTER PUMP BP-3 MOTOR CONNECTION BOX	BOOSTER PUMP BP-3 SATERTER IN MCC-1	CONDUIT	MOTOR FEEDER MOTOR SPACE HEATER
P-105	2" C	THWN	3#3/0,1#4G 2#12	BOOSTER PUMP BP-4 MOTOR CONNECTION BOX	BOOSTER PUMP BP-4 SATERTER IN MCC-1	CONDUIT	MOTOR FEEDER MOTOR SPACE HEATER
P-106	1" C	-	FUTURE	BOOSTER PUMP BP-5 MOTOR CONNECTION BOX	BOOSTER PUMP BP-5 SATERTER IN MCC-1	CONDUIT	FUTURE MOTOR FEEDER MOTOR SPACE HEATER STUB UP AND CAP BOTH ENDS
P-108	1" C	THWN	3#10,1#10G 2#12	AIR COMPRESSOR MOTOR CONNECTION BOX	AIR COMPRESSOR SATERTER IN MCC-1	CONDUIT	MOTOR FEEDER MOTOR SPACE HEATER
P-109	1" C	THWN	2#10,1#10G	GATE MOTOR CONNECTION BOX	GATE MOTOR BREAKER IN MCC-1	CONDUIT	MOTOR FEEDER

GENERAL NOTE: CABLE AND CONDUIT CIRCUITS FROM PANEL A ARE NOT INDICATED ON CABLE AND CONDUIT SCHEDULES. REFER TO PANELBOARD SCHEDULE



TBPE FIRM NO. F-366

8918 TESORO DRIVE
SAN ANTONIO, TEXAS 78217



No.	Revision	Date	Drawn	Apprvd.
1	ADDENDUM # 5	10/05/16	JF	JAC

REVISIONS

MONTANA PASS TANK AND BOOSTER STATION PROJECT

CABLE AND CONDUIT SCHEDULE SHEET NO.1

DEVELOPER: SAWS
CONT. BUDGET PROJ.

SUBMITTED _____
APPROVED _____

MAP No. _____ SHEET
SECT. No. _____ E7R1
DR. CK. JOB No. 15-1177



Tx. Reg. # F-9357
1344 S. Flores, Suite 101
San Antonio, Texas 78204
T 210-447-6100 / F 210-447-6101
ClearyZimmermann.com

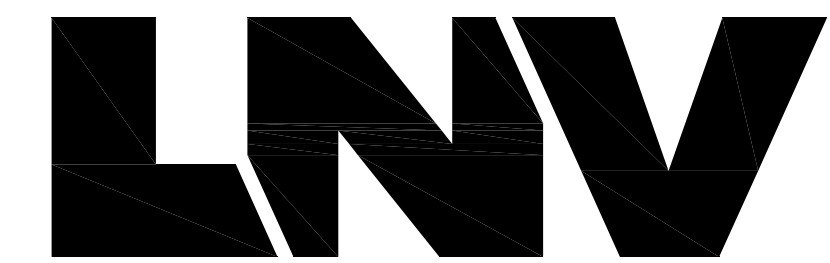
CZ JOB: 14099

PLOT BY: BUBBRS

CONTROLS AND INSTRUMENTATION CABLE AND CONDUIT SCHEDULE

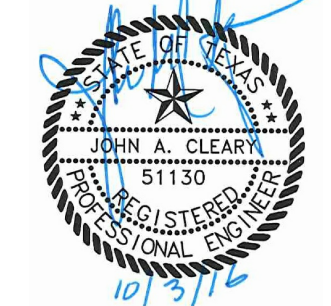
GENERAL NOTE: CABLE AND CONDUIT CIRCUITS FROM PANEL A ARE NOT INDICATED ON CABLE AND CONDUIT SCHEDULES. REFER TO PANELBOARD SCHEDULE

CABLE/CONDUIT NO.	CONDUIT	CABLE TYPE	CONDUCTORS	FROM	TO	VIA	FUNCTION
C-141	1 1/2" C	RADIO COAXIAL CABLE	RADIO COAXIAL CABLE	TOWER MOUNTED ANTENNA	SUPERVISORY CONTROL PANEL	CONDUIT	SCADA RADIO SIGNAL
C-142	1 1/2" C	RADIO COAXIAL CABLE	RADIO COAXIAL CABLE	TOWER MOUNTED ANTENNA	SECURITY RACK	CONDUIT	SECURITY RADIO SIGNAL
C-143	3/4" C	THWN	2#14	LADDER INTRUSION SWITCH	SECURITY RACK	CONDUIT	LADDER INTRUSION
C-144	3/4" C	THWN	4#12	BOOSTER PUMP BP-1 CONTROL CABINET	BP-1 STARTER IN MCC-1	CONDUIT	BP-1 E STOP, LOCAL START/STOP
C-145	3/4" C	THWN	4#12	BOOSTER PUMP BP-2 CONTROL CABINET	BP-2 STARTER IN MCC-1	CONDUIT	BP-2 E STOP, LOCAL START/STOP
C-146	3/4" C	THWN	4#12	BOOSTER PUMP BP-3 CONTROL CABINET	BP-3 STARTER IN MCC-1	CONDUIT	BP-3 E STOP, LOCAL START/STOP
C-147	3/4" C	THWN	4#12	BOOSTER PUMP BP-4 CONTROL CABINET	BP-4 STARTER IN MCC-1	CONDUIT	BP-4 E STOP, LOCAL START/STOP
C-148	3/4" C	-	-	FUTURE BOOSTER PUMP BP-5 CONTROL CABINET	BP-5 STARTER IN MCC-1	CONDUIT	FUTURE BP-5 E STOP, LOCAL START/STOP
C-149	3/4" C	THWN	10#14,1#14	GATE OPERATOR	GATE CONTROL PANEL	CONDUIT	GATE CONTROLS
C-150	1 1/2" C	CABLE REQ'D BY VENDOR	-	GATE STATION	GATE CONTROL PANEL	CONDUIT	GATE CONTROLS
C-151	3/4" C	CAT e6	-	GATE CONTROL STATION	SECURITY RACK	CONDUIT	GATE COMMUNICATIONS
C-152	3/4" C	THWN	2#12,1#12G	GATE CONTROL STATION	SECURITY RACK	CONDUIT	UPS POWER
C-153	3/4" C	THWN	4#12,1#12G	HYDROTANK ADD AIR/VENT AIR SOLENOIDS	SUPERVISORY CONTROL PANEL	CONDUIT	ADD/VENT AIR TO HYDROTANK
C-154	3/4" C	THWN	6#12	BP-1 DISCH VALVE STARTER	BP-1 STARTER IN MCC-1	CONDUIT	VALVE CONTACTS TO STARTER
C-155	3/4" C	THWN	6#12	BP-2 DISCH VALVE STARTER	BP-2 STARTER IN MCC-1	CONDUIT	VALVE CONTACTS TO STARTER
C-156	3/4" C	THWN	6#12	BP-3 DISCH VALVE STARTER	BP-3 STARTER IN MCC-1	CONDUIT	VALVE CONTACTS TO STARTER
C-157	3/4" C	THWN	6#12	BP-4 DISCH VALVE STARTER	BP-4 STARTER IN MCC-1	CONDUIT	VALVE CONTACTS TO STARTER
C-158	3/4" C	THWN	2#12	BP-1 LOCAL CONTROL PANEL	SUPERVISORY CONTROL PANEL	CONDUIT	LOCAL START/STOP PUMP
C-159	3/4" C	THWN	2#12	BP-2 LOCAL CONTROL PANEL	SUPERVISORY CONTROL PANEL	CONDUIT	LOCAL START/STOP PUMP
C-160	3/4" C	THWN	2#12	BP-3 LOCAL CONTROL PANEL	SUPERVISORY CONTROL PANEL	CONDUIT	LOCAL START/STOP PUMP
C-161	3/4" C	THWN	2#12	BP-4 LOCAL CONTROL PANEL	SUPERVISORY CONTROL PANEL	CONDUIT	LOCAL START/STOP PUMP
C-162	3/4" C	THWN	2#12	BP-1 DISCH VALVE LOCAL CONTROL PANEL	SUPERVISORY CONTROL PANEL	CONDUIT	PUMP CS1 IN MANUAL POSITION
C-163	3/4" C	THWN	2#12	BP-2 DISCH VALVE LOCAL CONTROL PANEL	SUPERVISORY CONTROL PANEL	CONDUIT	PUMP CS1 IN MANUAL POSITION
C-164	3/4" C	THWN	2#12	BP-3 DISCH VALVE LOCAL CONTROL PANEL	SUPERVISORY CONTROL PANEL	CONDUIT	PUMP CS1 IN MANUAL POSITION
C-165	3/4" C	THWN	2#12	BP-4 DISCH VALVE LOCAL CONTROL PANEL	SUPERVISORY CONTROL PANEL	CONDUIT	PUMP CS1 IN MANUAL POSITION
C-166	3/4" C	-	-	FUTURE BP-5 DISCH VALVE STARTER	BP-5 STARTER IN MCC-1	CONDUIT	VALVE CONTACTS TO STARTER
C-167	3/4" C	-	-	FUTURE BP-5 DISCH VALVE LOCAL CONTROL PANEL	SUPERVISORY CONTROL PANEL	CONDUIT	PUMP CS1 IN MANUAL POSITION
C-168	3/4" C	CAT E6	-	CAMERA 1	SECURITY RACK	CONDUIT	CAMERA 1 VIDEO
C-169	3/4" C	CAT E6	-	CAMERA 2	SECURITY RACK	CONDUIT	CAMERA 2 VIDEO
C-170	3/4" C	CAT E6	-	CAMERA 3	SECURITY RACK	CONDUIT	CAMERA 3 VIDEO
C-171	3/4" C	CAT E6	-	CAMERA 4	SECURITY RACK	CONDUIT	CAMERA 4 VIDEO
C-172	3/4" C	CAT E6	-	CAMERA 5	SECURITY RACK	CONDUIT	CAMERA 5 VIDEO
C-173	3/4" C	THWN	10#12	TANK MIXER CONTROL PANEL	SUPERVISORY CONTROL PANEL	CONDUIT	TANK MIXER START/STOP, STATUSES



TBPE FIRM NO. F-366

8918 TESORO DRIVE
SAN ANTONIO, TEXAS 78217



No.	Revision	Date	Drawn	Apprvd.
1	ADDENDUM #5	10/05/16	JF	JAC

REVISIONS

MONTANA PASS TANK AND BOOSTER STATION PROJECT
CABLE AND CONDUIT SCHEDULE SHEET NO.2

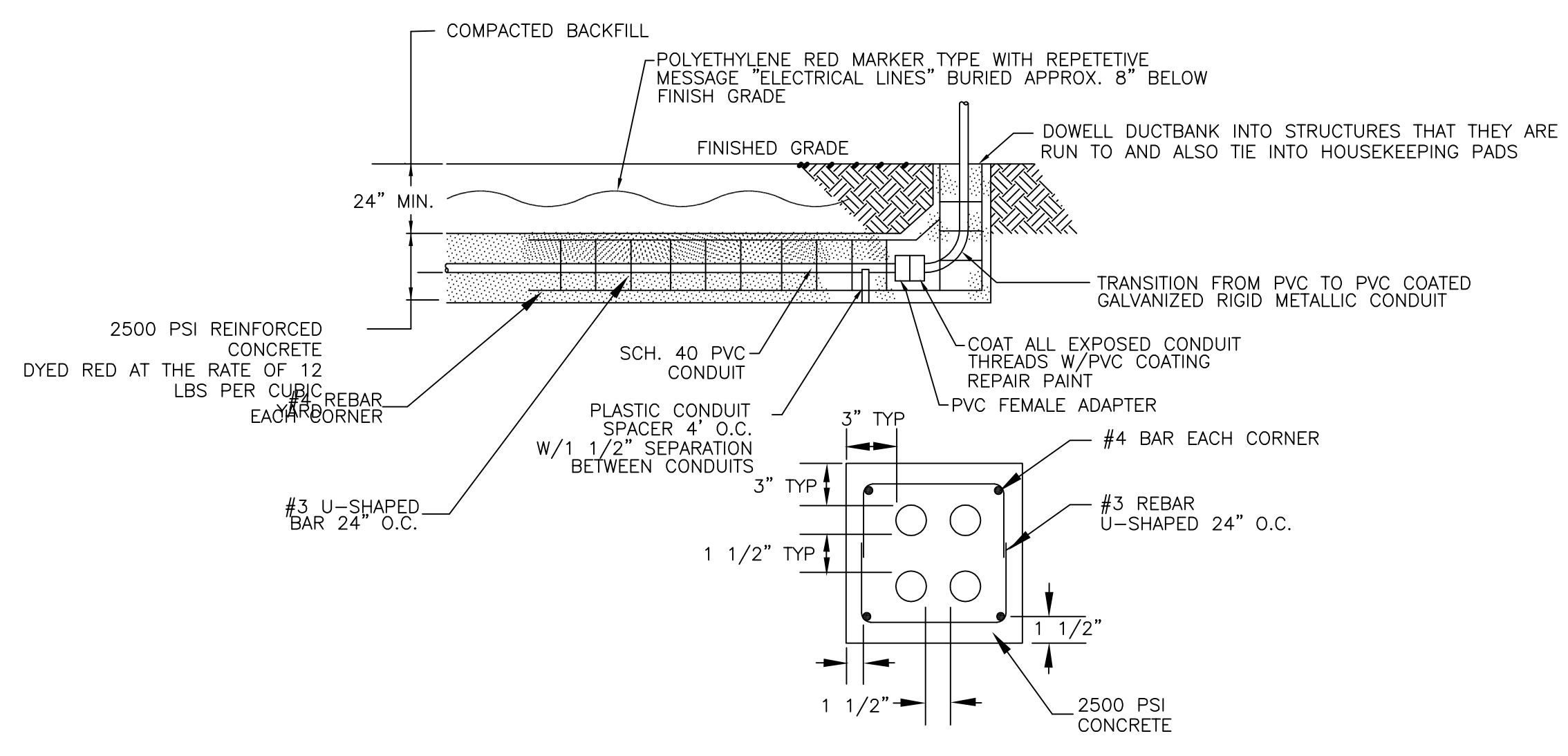
DEVELOPER: SAWS
CONT. BUDGET PROJ.

SUBMITTED _____
APPROVED _____

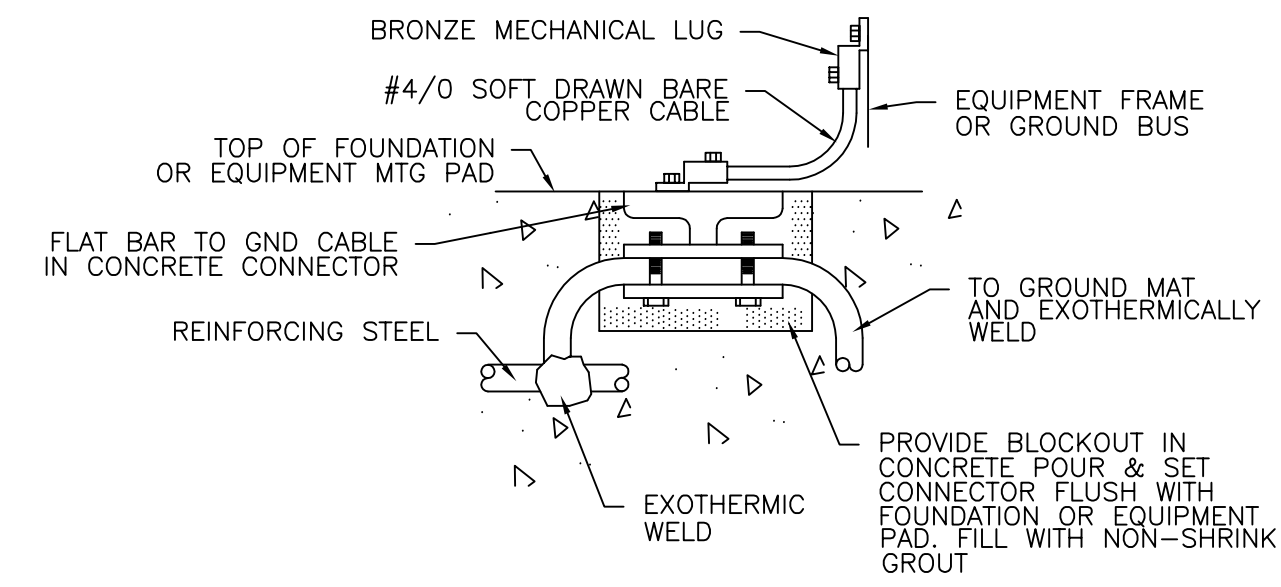
MAP No. _____ SHEET
SECT. No. _____ E8R1
DR. CK. JOB No. 15-1177



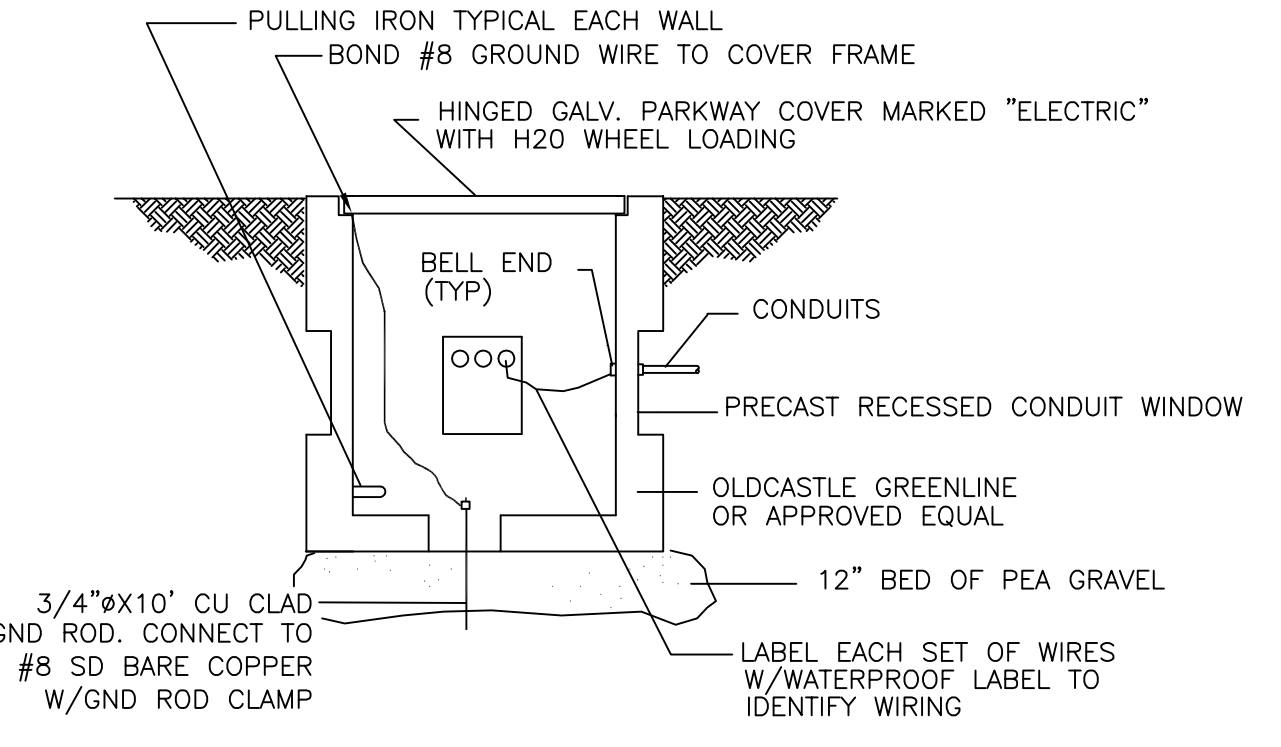
Tx. Reg. # F-9357 1344 S. Flores, Suite 101
San Antonio, Texas 78204
T 210-447-6100 / F 210-447-6101
ClearyZimmermann.com



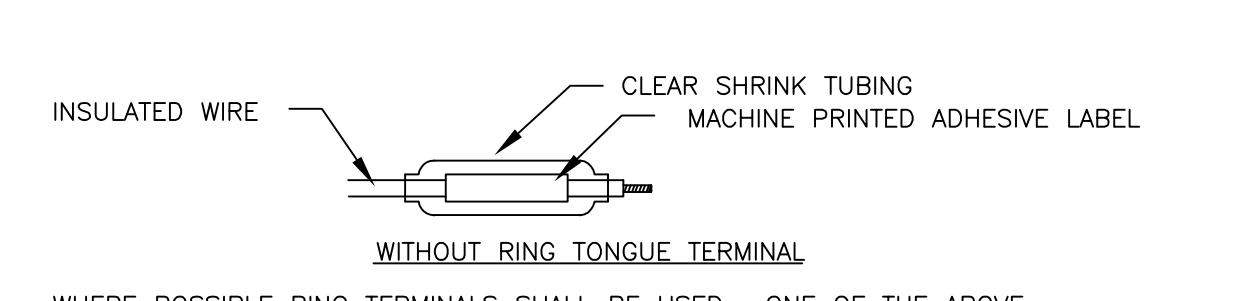
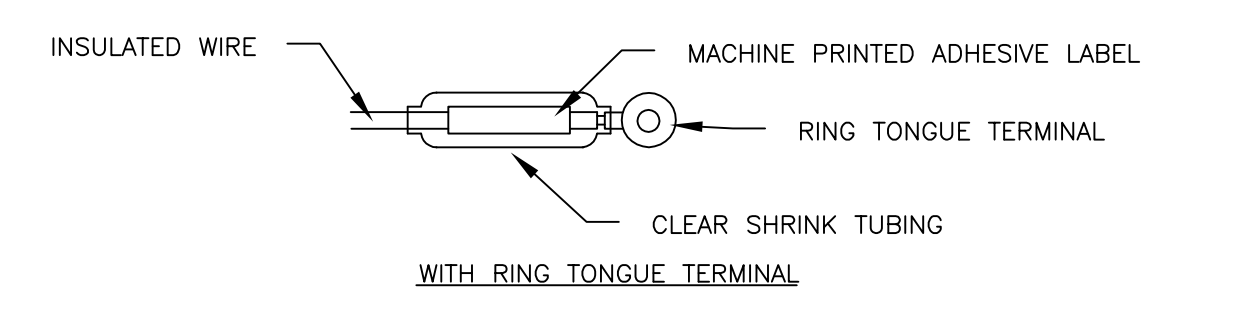
TYPICAL UNDERGROUND CONDUIT RUN
NTS



EQUIPMENT CONNECTION TO GROUND MAT DETAIL
NTS

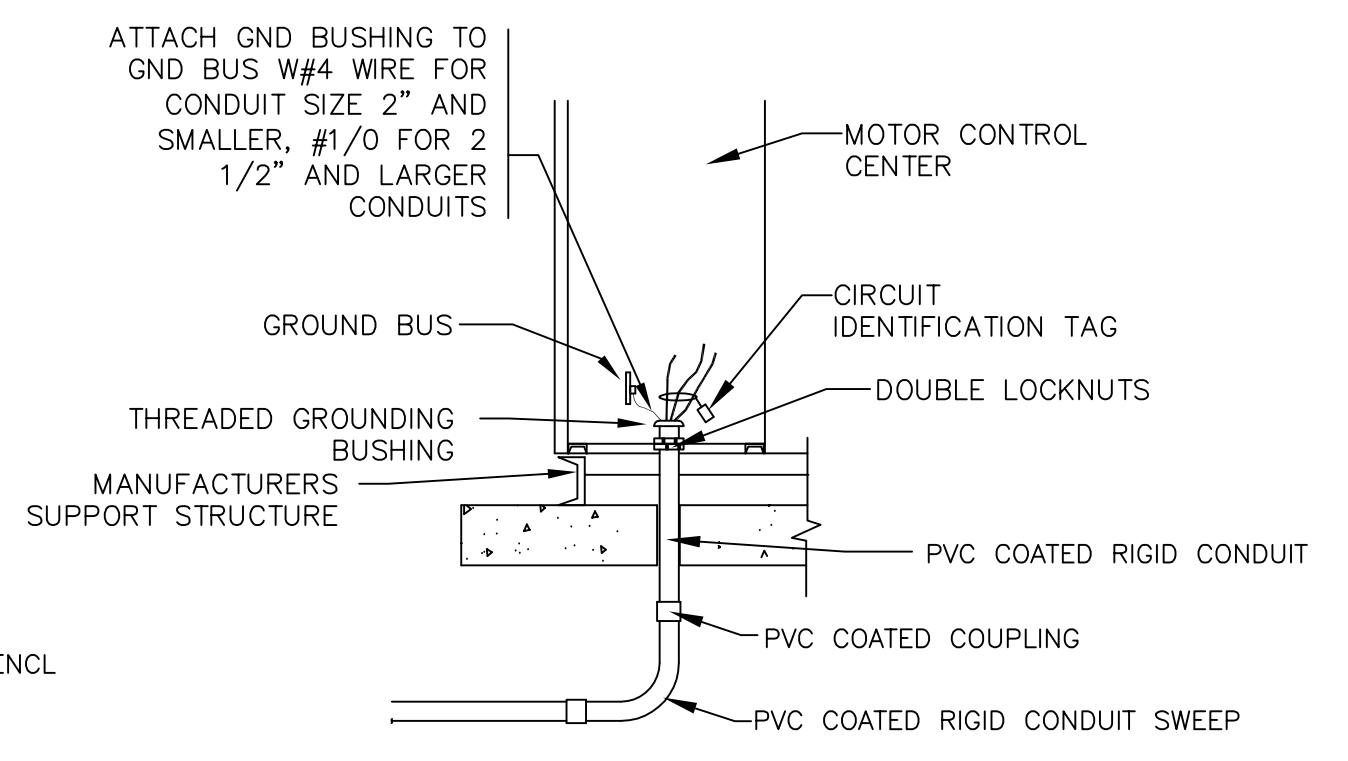


ELECTRICAL MANHOLE (MH) DETAIL
NTS

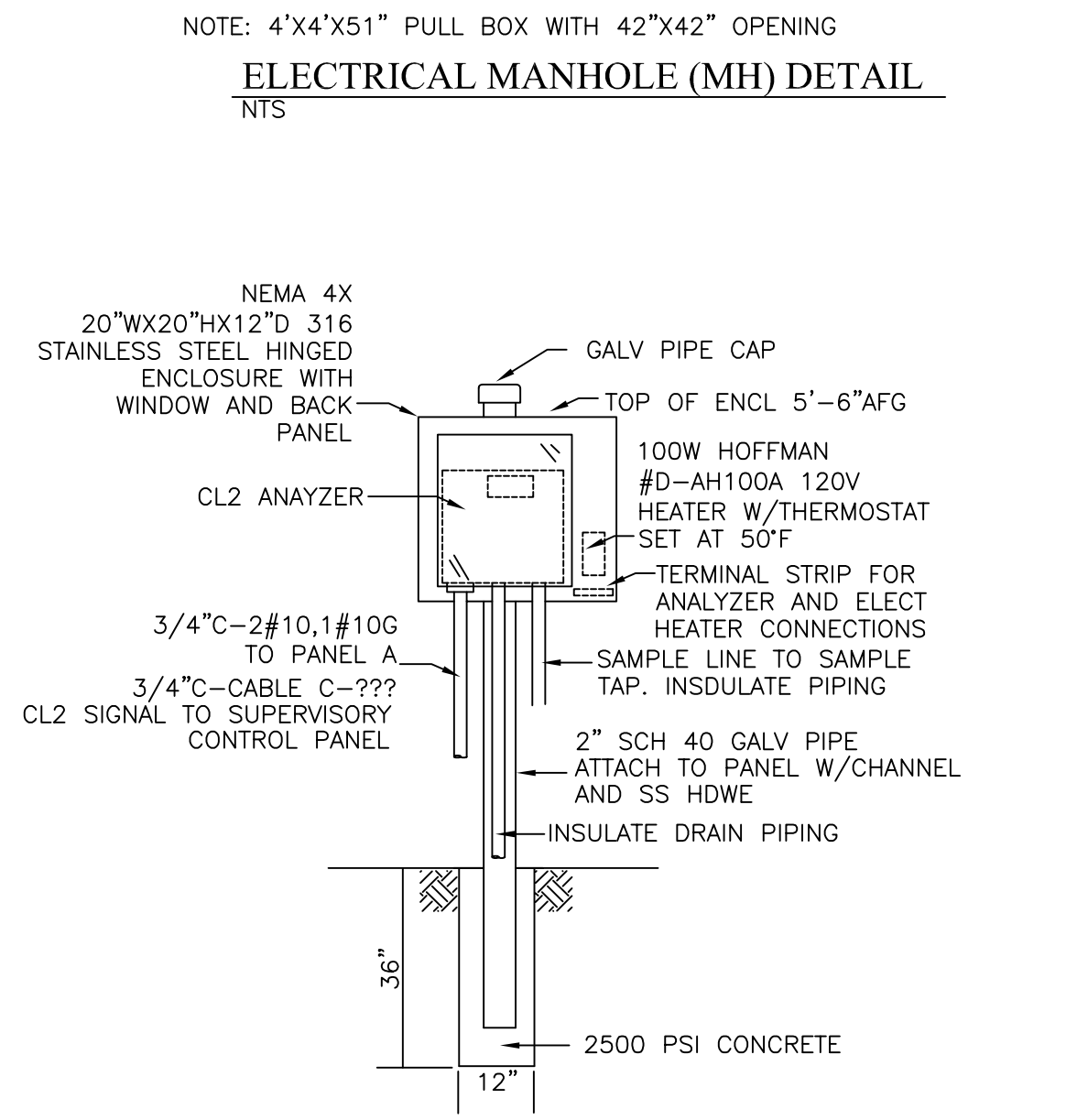


WHERE POSSIBLE RING TERMINALS SHALL BE USED. ONE OF THE ABOVE METHODS MUST BE USED ON ALL WIRE #8 AWG & SMALLER. THE SAME MUST ALSO BE USED ON LARGER WIRE UNLESS AN ALTERNATE METHOD IS SUBMITTED & APPROVED.

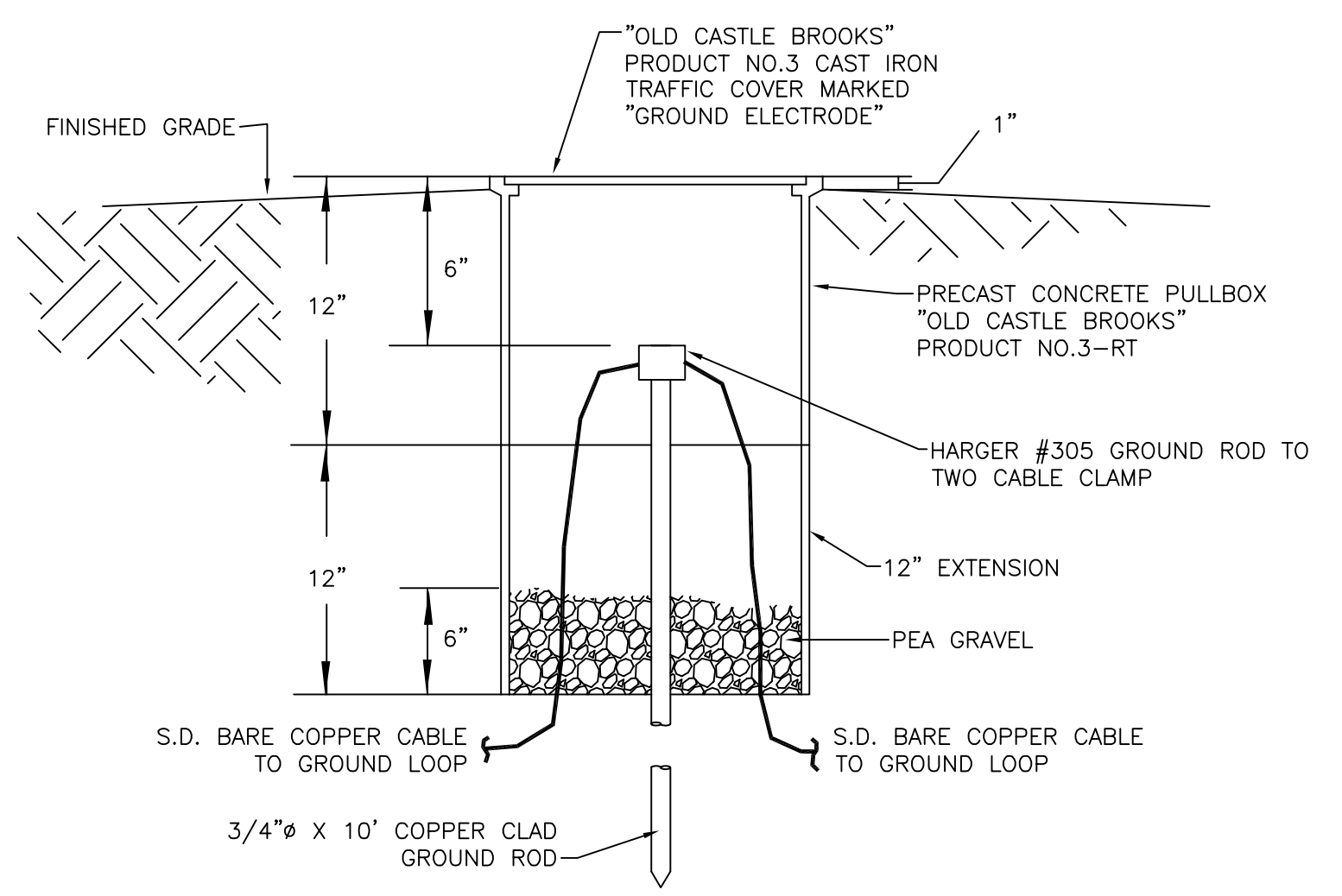
WIRE TERMINATION AND MARKING DETAIL
NTS



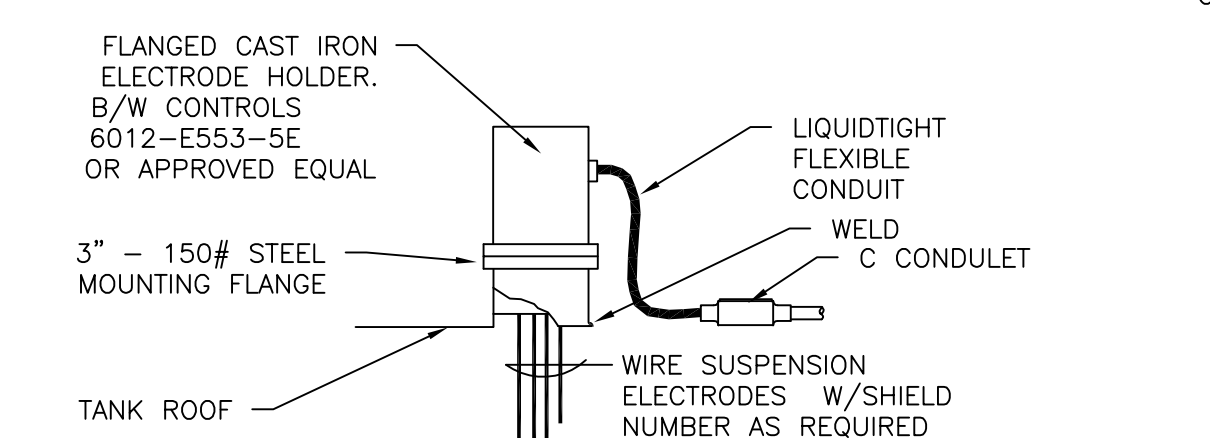
TYPICAL WIRING TERMINATION INTO MCC
SCALE: NTS



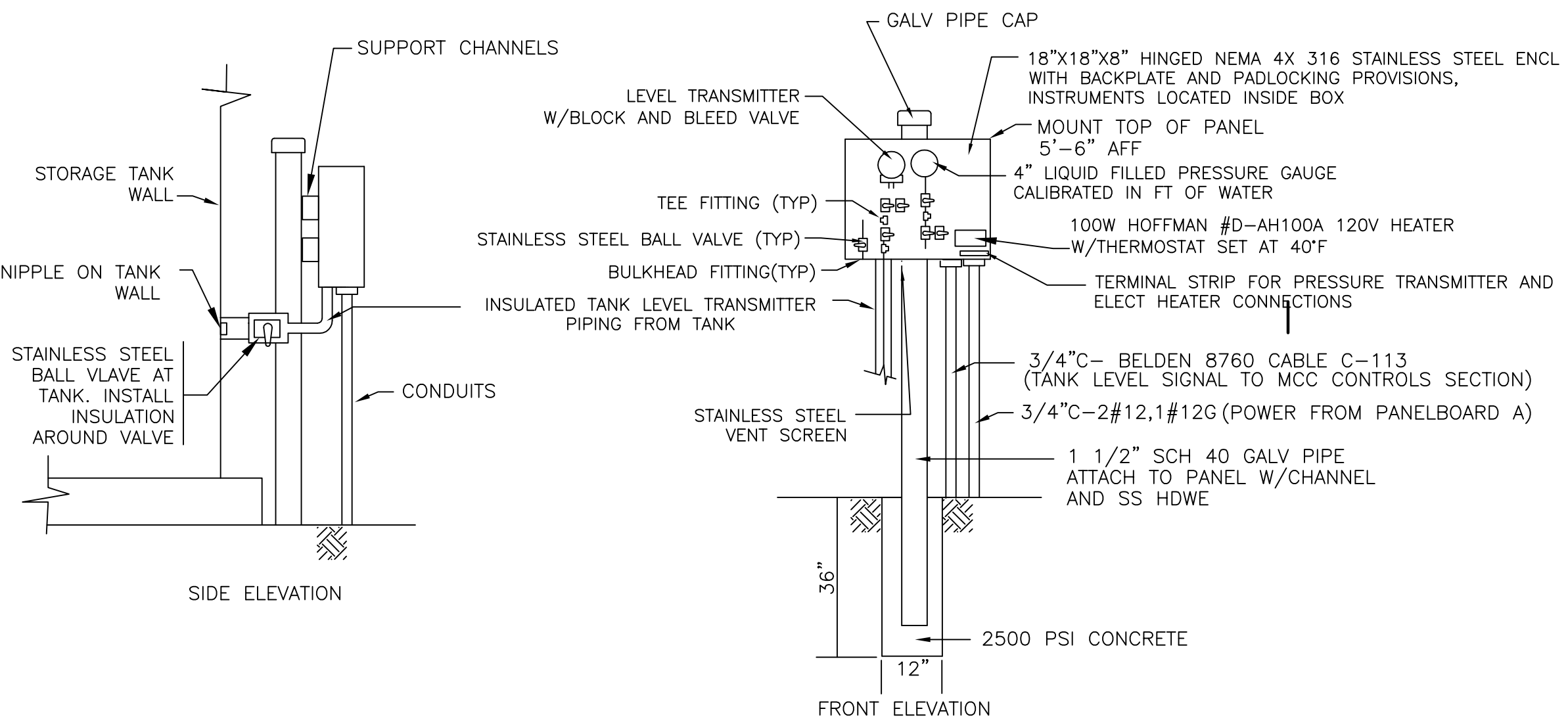
CHLORINE RESIDUAL ANALYZER INSTALLATION
NTS



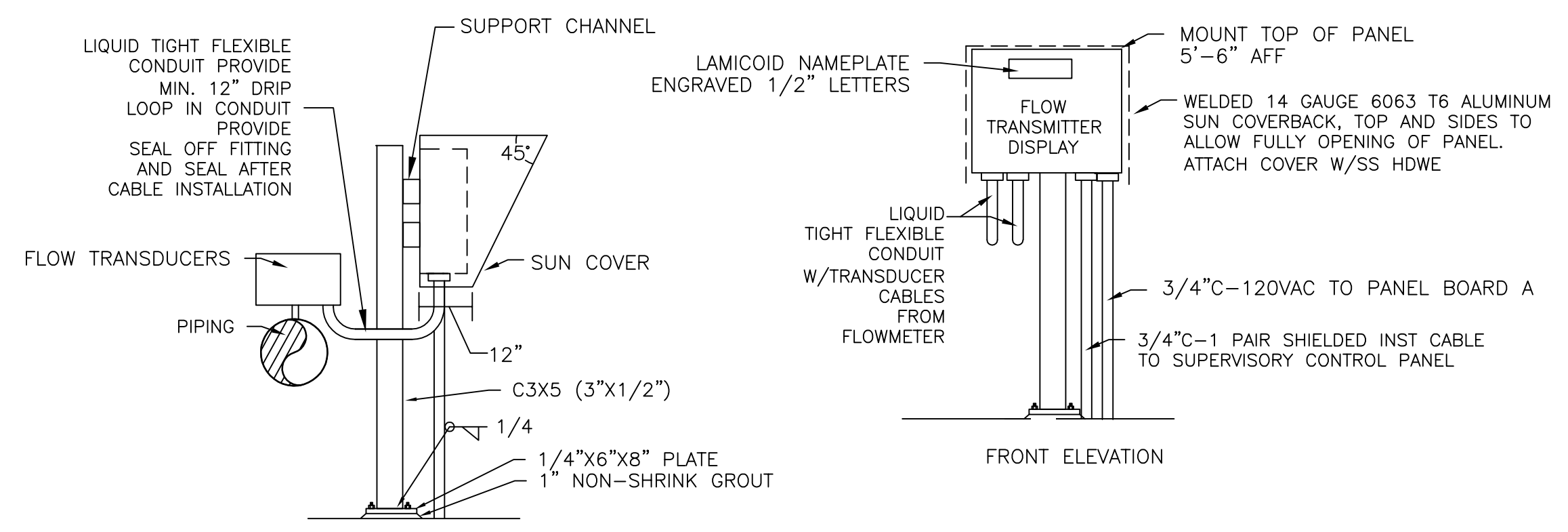
GROUNDING SYSTEM TEST WELL INSTALLATION DETAIL
NTS



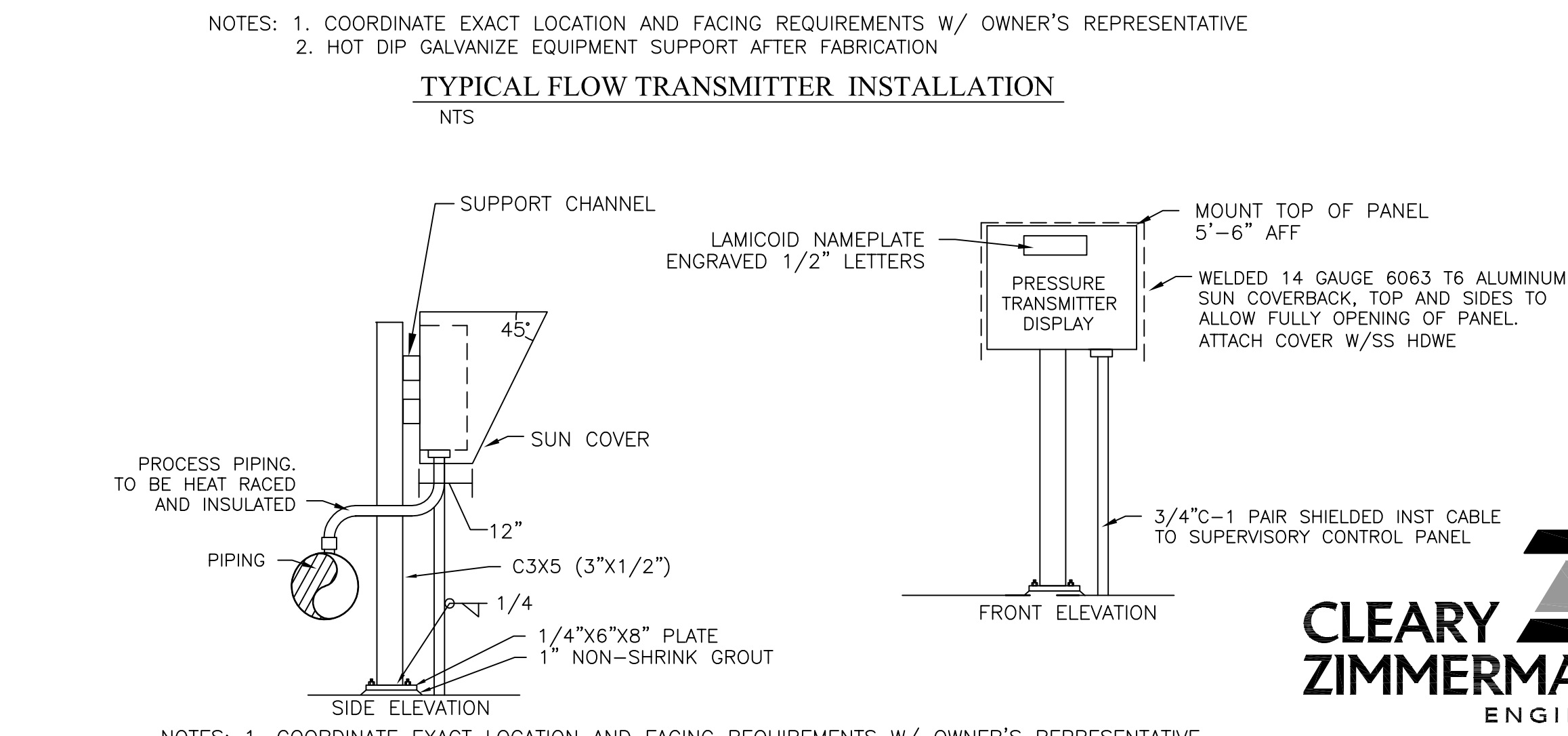
STORAGE TANK ELECTRODE HOLDER INSTALLATION DETAIL
NTS



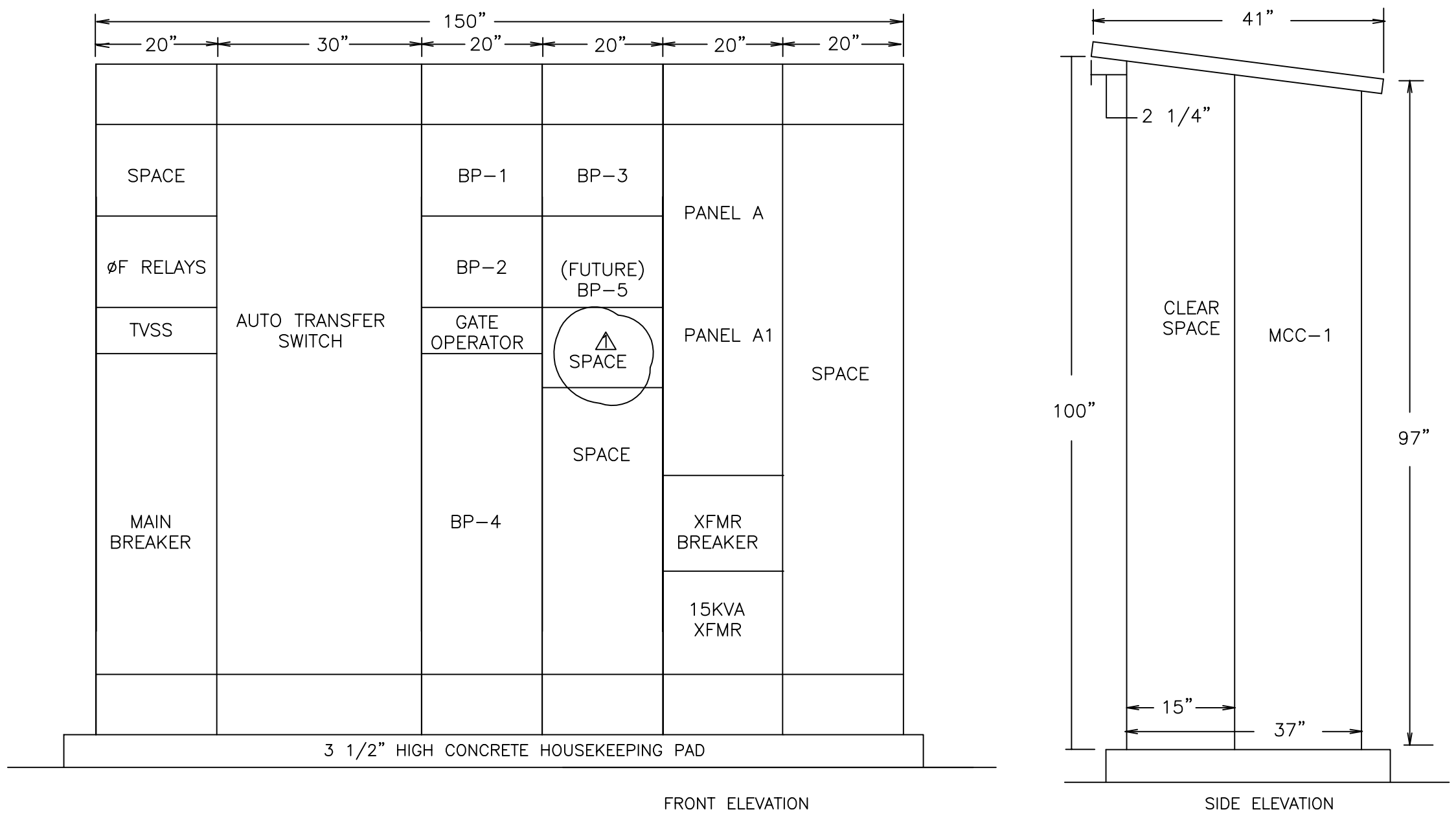
STORAGE TANK LEVEL INSTRUMENTATION INSTALLATION
SCALE: NTS



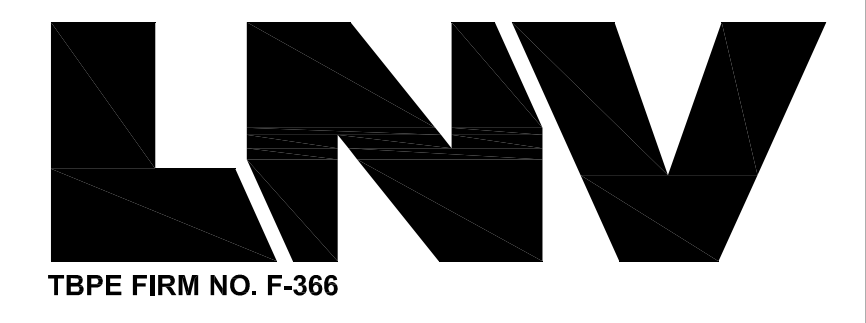
TYPICAL FLOW TRANSMITTER INSTALLATION
NTS



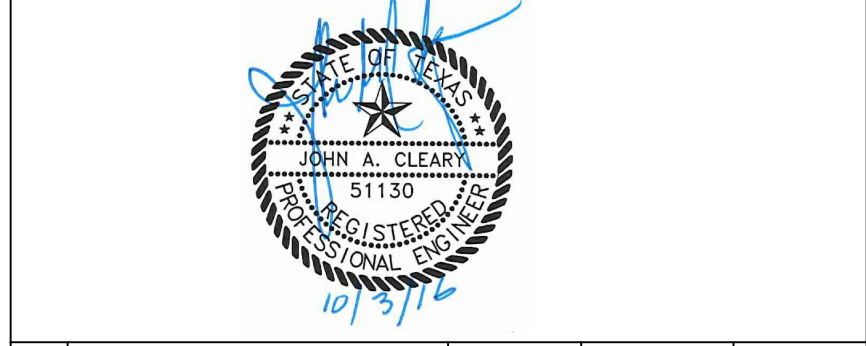
TYPICAL PRESSURE TRANSMITTER INSTALLATION
NTS



MCC-1 ELEVATIONS
SCALE: NTS



8918 TESORO DRIVE
SAN ANTONIO, TEXAS 78217



No.	Revision	Date	Drawn	Apprvd.
1	ADDENDUM #5	10/05/16	JF	JAC

REVISIONS
MONTANA PASS TANK AND BOOSTER STATION PROJECT

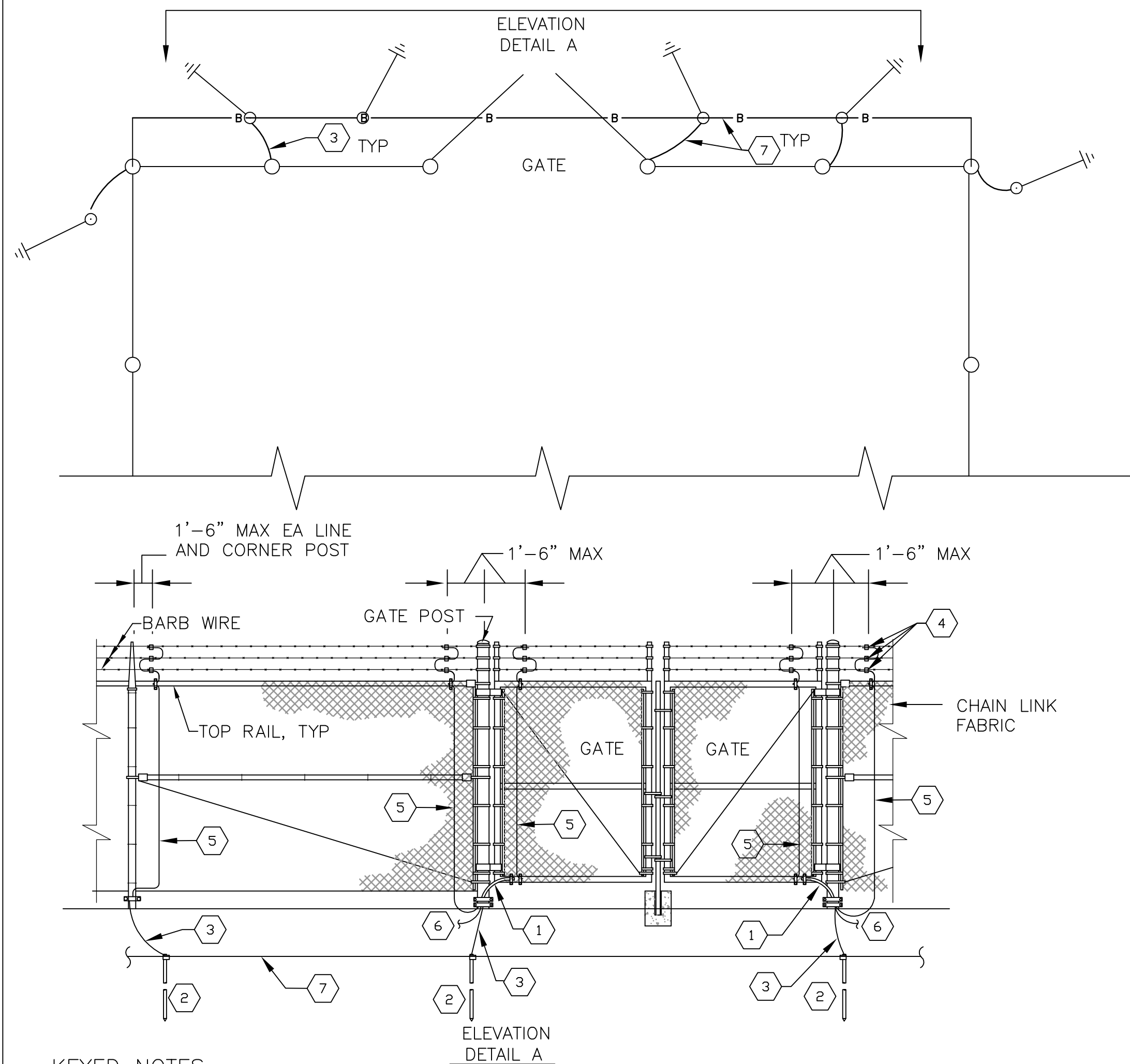
ELECTRICAL DETAILS SHEET NO.1

DEVELOPER: SAWS
CONT. BUDGET PROJ.

SUBMITTED
APPROVED

MAP No. SHEET
SECT. No. E9R1
DR. CK. JOB No. 15-1177

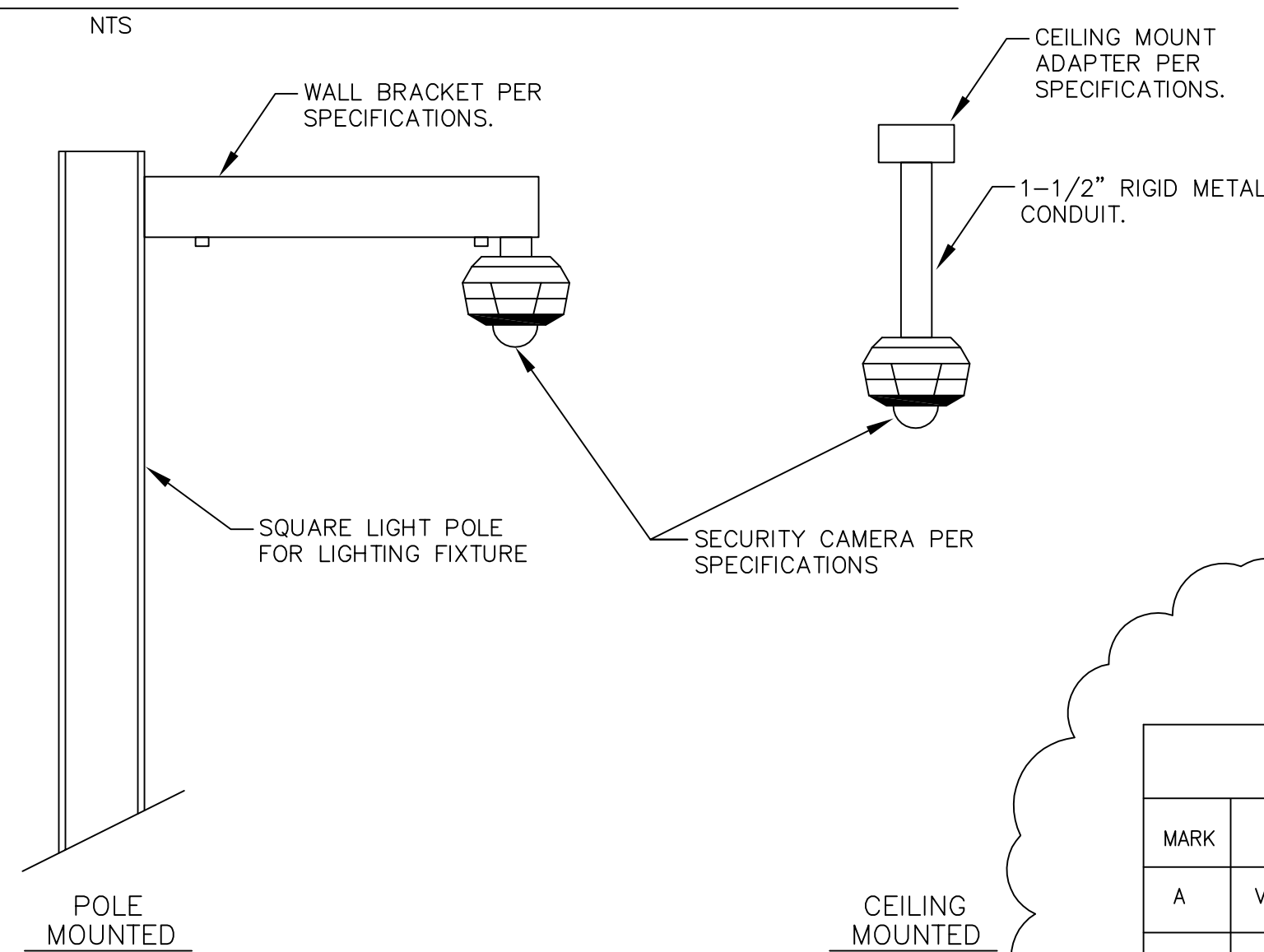
CLEARY ZIMMERMANN ENGINEERS
Tx. Reg. # F-9357
1344 S. Flores, Suite 101
San Antonio, Texas 78204
T 210-447-6100 / F 210-447-6101
CZ JOB: 14099
ClearyZimmermann.com



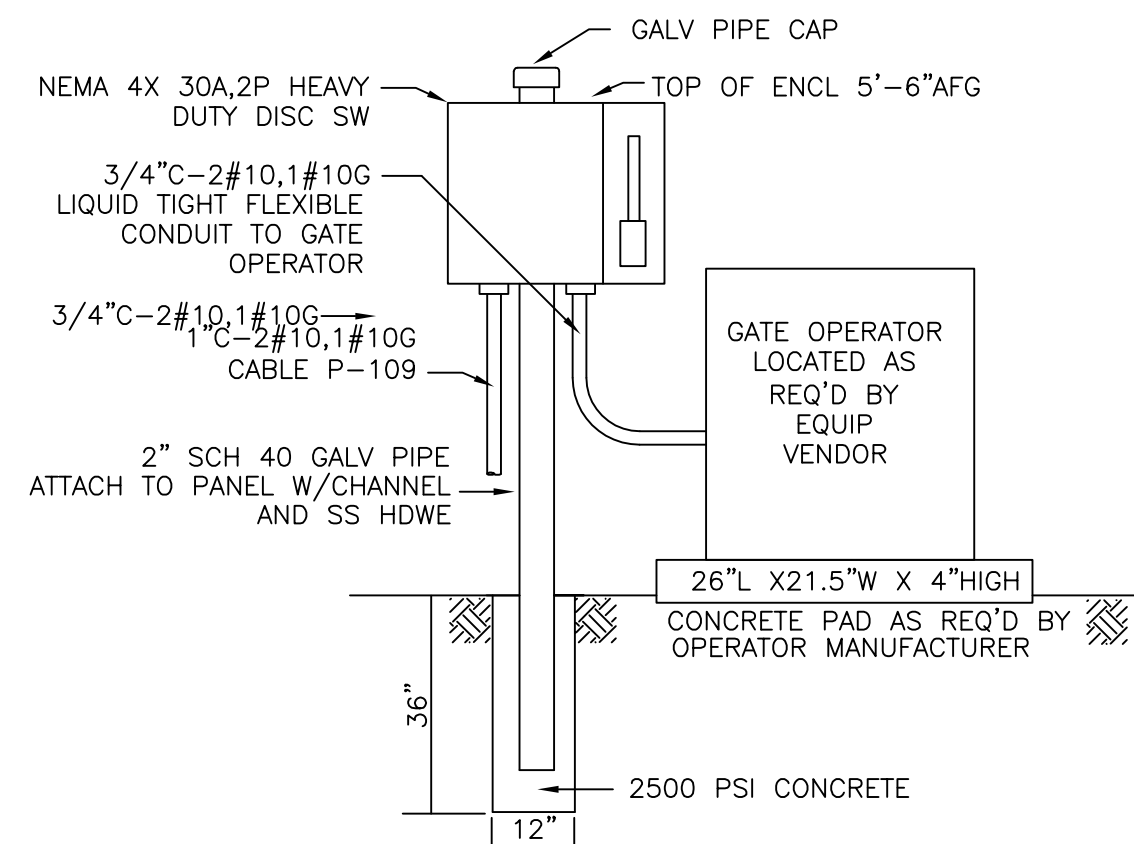
KEYED NOTES:

- 1 TINNED COPPER FLEXIBLE BRAID HUBBELL POWER SYSTEMS GB SERIES WITH LENGTH TO ALLOW TOTAL OPENING OF GATE. CONNECT TO POST WITH TYPE GC-109 FLEXIBLE BRAID TO TUBE GROUND CLAMP
- 2 3/4"Ø X 10 FT COPPER CLAD STEEL GROUND ROD DRIVEN 18" BELOW GRADE. EXOTHERMICALLY WELD CABLE TO GROUND ROD. TYP ALL LOCATIONS
- 3 #4/0 SOFT DRAWN BARE COPPER CABLE. CONNECT TO HUBBELL POWER SYSTEMS GC 111 SERIES CABLE TO TUBE GROUND CONNECTOR
- 4 BRONZE SPLIT BOLT CONNECTOR. CONNECT GROUND CABLE TO BARB WIRE. TYP ALL LOCATIONS
- 5 #2 TINNED SOFT DRAWN SOLID BARE COPPER CABLE. WEAVE INTO CHAIN LINK FABRIC. CONNECT TO FENCE TUBING WITH HUBBELL POWER SYSTEMS GC-111 SERIES CABLE TO TUBE CONNECTOR
- 6 #4/0 SOFT DRAWN BARE COPPER CABLE TO GATE BYPASS
- 7 #4/0 SOFT DRAWN BARE COPPER CABLE 24" FROM EDGE OF FENCE. BURIED 18" BELOW GRADE. EXOTHERMICALLY WELD ALL BELOW GRADE CONNECTIONS

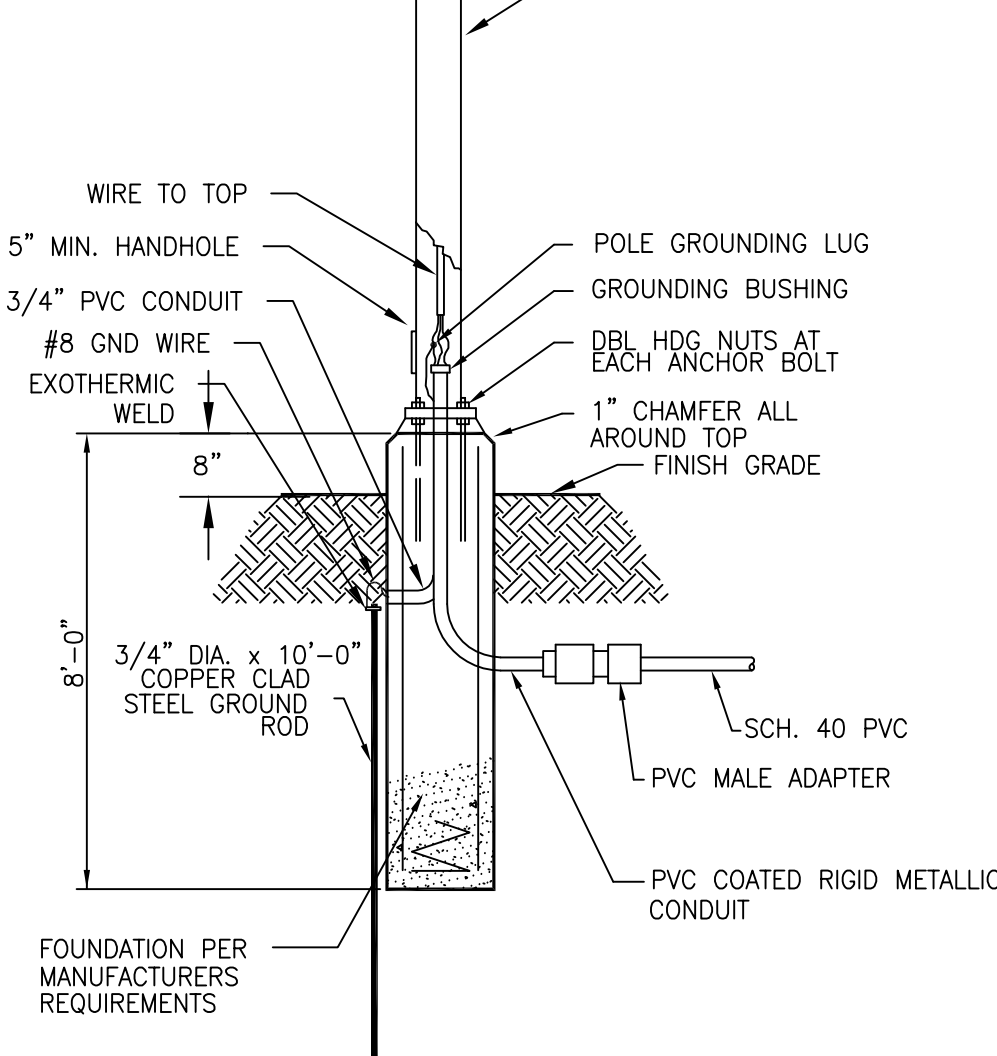
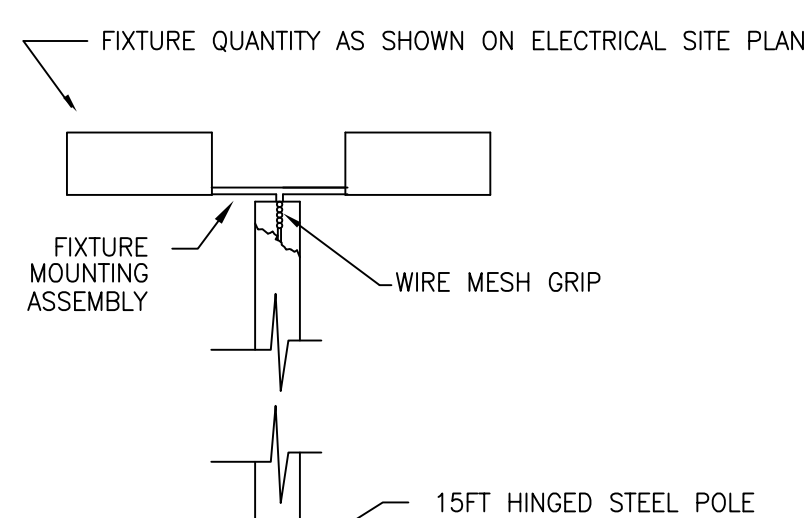
TYPICAL FENCE GATE GROUNDING DETAIL



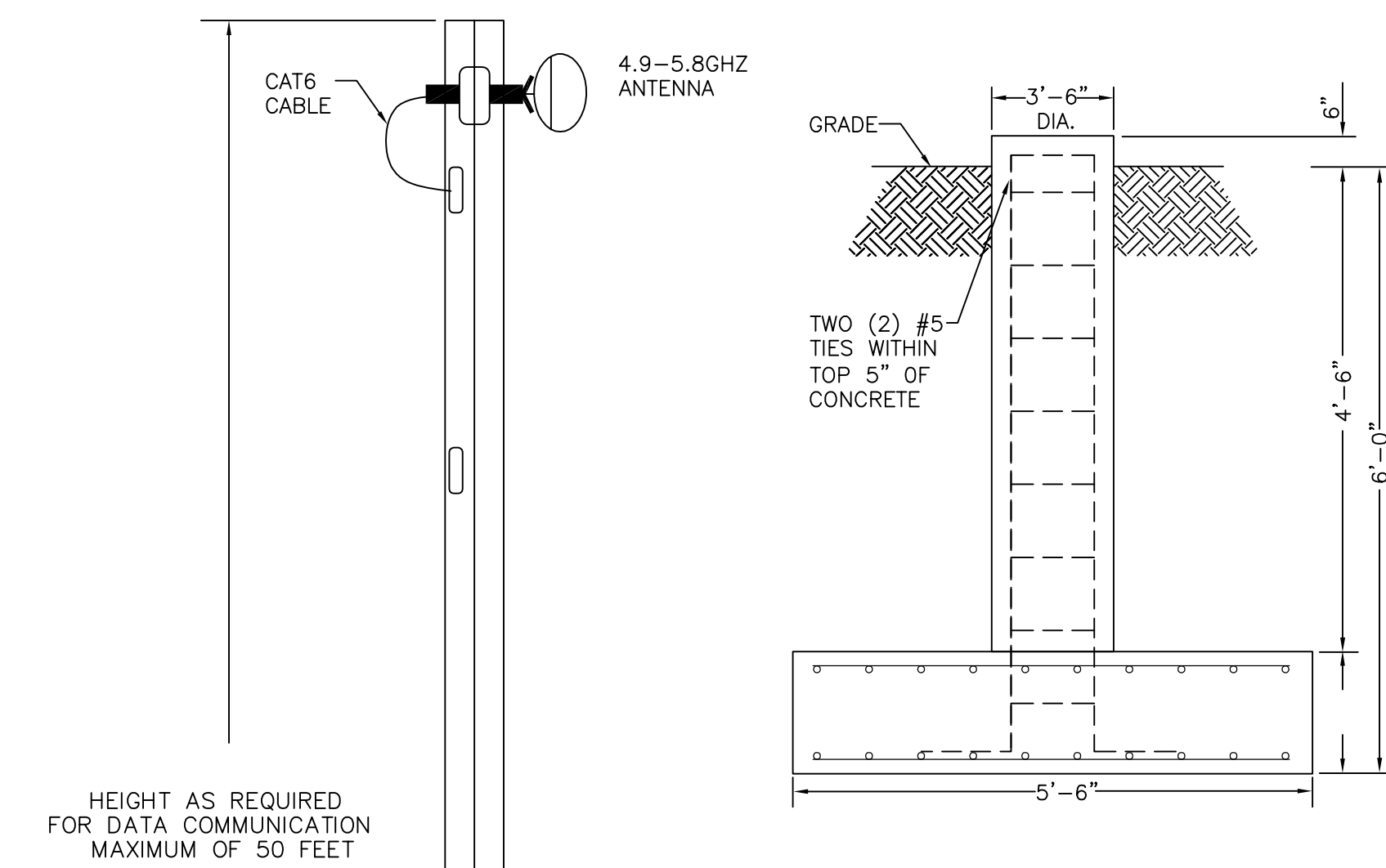
SECURITY/SUSPENDED MOUNTED



GATE OPERATOR INSTALLATION



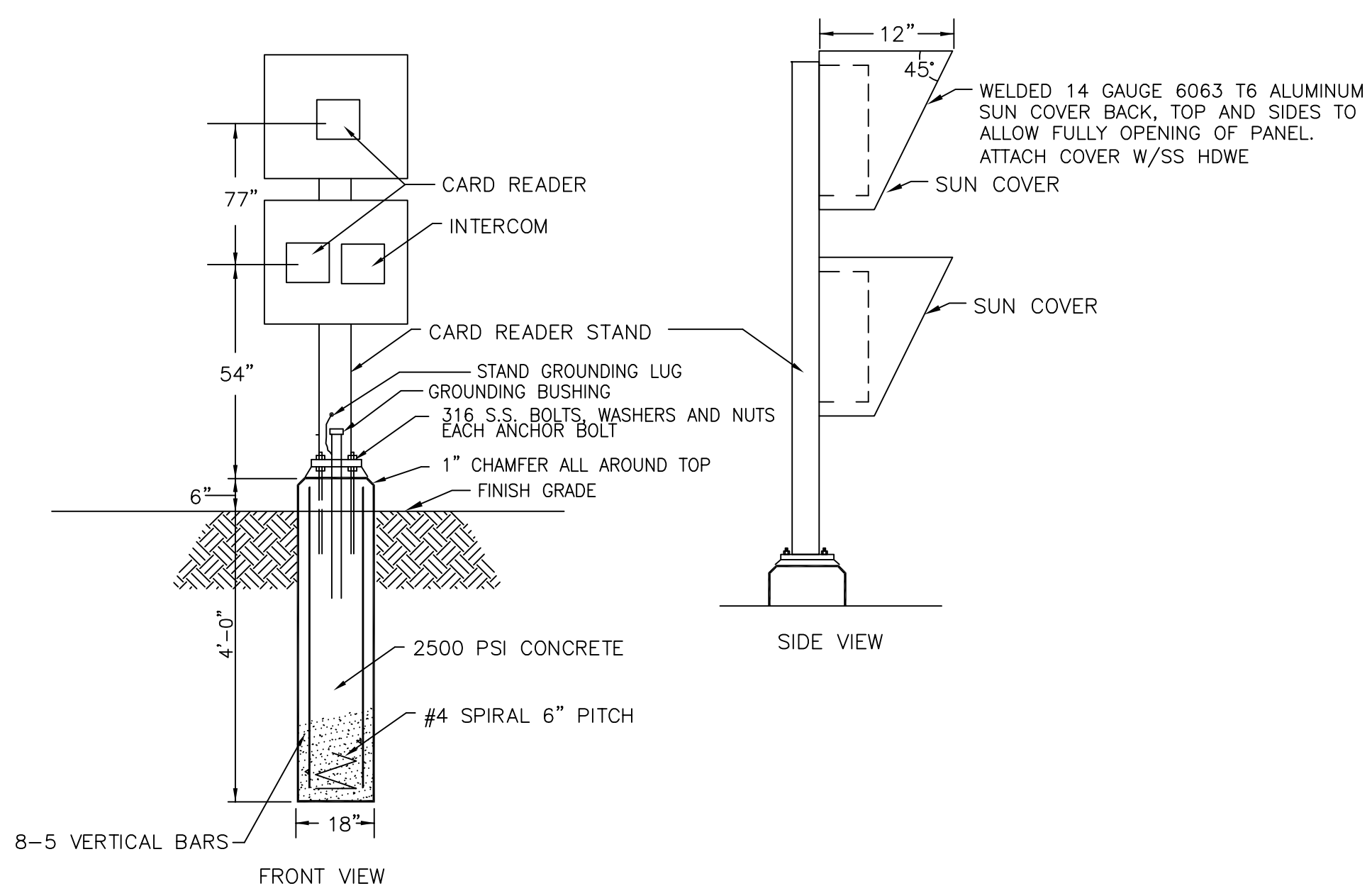
FIXTURE "D" INSTALLATION



NOTE: TOWER FOUNDATION MUST BE DESIGNED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF TEXAS AND SUBMITTED TO OWNER BEFORE CONSTRUCTION STARTS

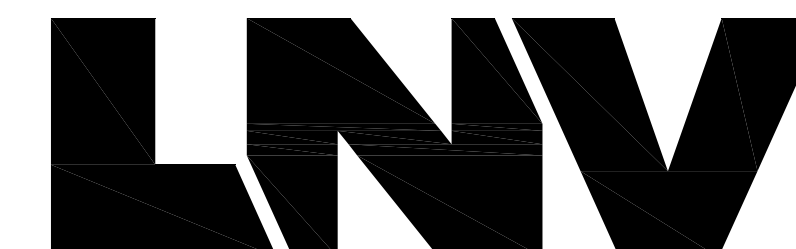
FOUNDATION PLAN

ANTENNA INSTALLATION DETAILS



GATE ACCESS STATION MOUNTING STAND

LIGHTING FIXTURE SCHEDULE							
MARK	DESCRIPTION	VOLTAGE	LAMPS	MOUNTING	POLE DATA	MANUFACTURER	CATALOG NUMBER
A	VAPORTIGHT FLUORESCENT	120	120	SURFACE	-	LITHONIA OR APPROVED EQUAL	LITHONIA #DMW332ARDP120.
D	METAL HALIDE FLOODLIGHT PULSE START	120	2-250W M58	POLE	TEXAS POLE SBO-15-GALV W/BULLHORNS AS REQ'D FURNISH ONE(1) WINCH ASSEMBLY	HUBBELL OR APPROVED EQUAL	MVK-0250H-268



TBPE FIRM NO. F-366

8918 TESORO DRIVE
SAN ANTONIO, TEXAS 78217



REVISIONS			
No.	Revision	Date	Drawn / Apprvd.
ADDENDUM #5		10/05/16	JF / JAC

MONTANA PASS TANK AND BOOSTER STATION PROJECT

ELECTRICAL DETAILS SHEET NO.3

DEVELOPER: SAWS
CONT. BUDGET PROJ.

SUBMITTED
APPROVED

MAP No. SHEET
SECT. No. E11R1
DR. CK. JOB No. 15-1177

CLEARY ZIMMERMANN ENGINEERS

Tx. Reg. # F-9357

1344 S. Flores, Suite 101
San Antonio, Texas 78204
T 210-447-6100 / F 210-447-6101
CZ JOB: 14099 ClearyZimmermann.com