



**SAN ANTONIO WATER SYSTEM
REPLACE STEVENS RANCH PUMP STATION GROUND STORAGE TANK
SAWS Job No. 15-6104
Solicitation No. CO-00078-RA**

**ADDENDUM NO. 2
July 29, 2016**

**BID OPENING DATE: August 4, 2016
2:00 P.M. Central Standard Time**

**Consulting Engineer: River City Engineering, PLLC
TBPE Registration No. F-1546**

To: All Document Holders of Record

This Addendum, applicable to work referenced above, forms a part of the Contract Documents and modifies the original Contract Documents dated July 2016. Acknowledge receipt of this Addendum by entering the Addendum number and issue date in the spaces provided on submitted copies of the proposals. Failure to do so may subject Respondent to disqualification.

Addendum No. 2 consists of 40 items outlined in 9 pages. In addition to these 9 pages, Addendum No. 2 includes 7 re-issued specification pages; Table of Contents Page 4; Section 02050 – 5; Section 13414-3, 4, 5, 7 & 8; 1 new specification, Section 11300; and includes 11 re-issued sheets; Drawings G-4, C-4, C-5, C-6, C-7, C-8, C-9, C-13, T-1, T-3 and T-4.



ADDENDUM NO. 1

A. GENERAL QUESTIONS/CLARIFICATIONS

1. QUESTION: Please see the attachment for our formal request for product substitution consideration on the Replace Stevens Ranch PS Ground Storage Tank project. We are submitting **MEADOW-CRETE® GPS One-Component, Polymer-Modified, General Purpose Structural Repair Mortar** for your consideration. We appreciate your time in reviewing our request.

RESPONSE: Substitution requests will not be accepted until after the Contract has been awarded and will not be accepted from anyone except the Contractor for the project. Please reference General Conditions, Paragraph 5.11.E. qualified materials.

2. QUESTION: Can you please tell me if this is rehabilitation of an existing tank or construction of a new ground storage tank?

RESPONSE: This project involves construction of a new ground storage tank.

3. QUESTION: Sheet C-7, 16 WSP connection to the 20 WSP water line. On the profile 2-20 BF valves are shown and the plan view has 1. Are two 20 BF valves required? Are 2 – 16 gate valve required in the same area?

RESPONSE: Two (2) 16-inch gate valves shall be used as clarified by this addendum. Please reference Item No. 34 in the Drawing Section below and attached Sheet C-7 modifications.

4. QUESTION: On sheet C13 waterline 'A' tie in. You show the cross as existing but on sheet C7 the cross is shown as proposed. Please clarify.

RESPONSE: This is an existing cross: Please reference Item No's. 34 and 37 in the Drawing Section below and attached Sheet C-7 and C-13 modifications.

5. QUESTION: On sheet C7 temp blow off pipe required for 16 pipe will it be 2" as noted in the SAWS detail drawings, or 4" as noted on the plans. See SAWS detail drawing. Dd-844-01 4 of 4.

RESPONSE: The temporary blow-off shall be 2-inches as shown in SAWS Standard Detail DD-844-01, 4 of 4. Please reference Item No. 34 in the Drawing Section below and attached Sheet C-7 modifications.

6. QUESTION: On drawing C-8 a 20 BF valve is noted on the 24 waterline.

RESPONSE: A 24-inch butterfly valve is necessary: Please reference Item No. 35 in the Drawing Section below and attached Sheet C-8 modifications.

7. QUESTION: On drawing C-13 will there be any pipe support details for the 24 pipe header?

RESPONSE: Pipe support details have been added. Please reference Item No. 37 in the Drawings Section below and attached Sheet C- 13 modifications.

8. QUESTION: On drawing T-1 GS Tank 4 foundation drain pipe. Will there be any details for the perforation of the PVC pipe or can we use perforated HDPE pipe w/sock?

RESPONSE: No additional details will be provided at this time. The detail provided on Sheet T-3 shall be used.

9. QUESTION: Specification Section 13414 – Precast, Prestressed Concrete Ground Storage Tank; Page 4, Article 2.1.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.

RESPONSE: Section 13414 has been revised to reflect the seismic site class and the Ss and S1 values provided in the geotechnical report. Please reference Item No. 28 in the Specifications Section below and attached Section 13414 – 4 modifications.

10. QUESTION: Specification Section 13414 – Precast, Prestressed Concrete Ground Storage Tank; Page 5, Article 2.1.D, indicates a minimum 6 inch thick floor. Per AWWA D110-13, the minimum allowable membrane floor thickness shall be four inches (4"). Please confirm a four (4) inch thick membrane floor will be acceptable for this project.

RESPONSE: Section 13414 has been revised to indicate a minimum 4-inch thick floor. Please reference Item No. 28 in the Specifications Section below and attached Section 13414-5 modifications.

11. QUESTION: Specification Section 13414 – Precast, Prestressed Concrete Ground Storage Tank; Page 7, Article 2.8.A, indicates a 12-inch waterstop is required; however, given the size of this tank, we recommend the use of a 9-inch waterstop. Please confirm a 9-inch waterstop is acceptable for this project.

RESPONSE: Section 13414 has been revised to allow a 9 – inch minimum waterstop. Please reference Item No. 28 in the Specifications Section below and attached Section 13414 – 5 modifications.

12. QUESTION: Specification Section 13414 – Precast, Prestressed Concrete Ground Storage Tank; Page 8, Article 2.10.A, list the tank piping as (1) 16" inlet, (1) 24" inlet, and (1) 16" outlet pipe required. However, the drawings Sheet T-1 shows (1) 20" inlet and (1) 24" outlet. Please confirm the drawings are the correct sizes.

RESPONSE: Section 13414 has been revised to reflect the sizes shown on the drawing sheet T-1. Please reference Item No. 28 in the Specifications Section below and attached Section 13414-8 modifications.

13. QUESTION: Specification Section 13414 – Precast, Prestressed Concrete Ground Storage Tank; Page 8, Article 2.10.A.5, indicates a 24-inch overflow pipe; however, plan sheet T-4 indicates a 20" overflow pipe. Please confirm whether a minimum pipe size is required and/or if the tank manufacturer may be responsible for the design and sizing of the overflow pipe and weir cone based on the project overflow rate.

RESPONSE: Section 13414 and Plan Sheet T-4 have been modified to address the concern regarding the sizing of the overflow piping. Please reference Item No's. 28 and 31 in the Specifications Section below and attached Section 13414-8 and Plan Sheet T-4 modifications.

14. QUESTION: Specification Section 13414 – Precast, Prestressed Concrete Ground Storage Tank; Page 8, Article 2.10.A.6, indicates to refer to section 11300 for the tank roof hatch. We were unable to locate this section in the Contract Specification. Please provide Section 11300 for reference

RESPONSE: Specification Section 11300 has been added to the Contract Documents. Please reference Item No. 29 in the Specification Section below and attached Section 11300.

15. QUESTION: Specification Section 31414 – Precast, Prestressed Concrete Ground Storage Tank; Page 8, Article 2.10.A.7, indicates a minimum of two 24-inch diameter vents. Only one vent is shown in the Contract Drawings. Please confirm only one vent is required for this project. If two are required, please provide the plan location of the second vent.

RESPONSE: Section 13414 has been modified to indicate one (1) 24-inch diameter vent. Please reference Item No. 28 in the Specifications Section below and attached Section 13414-8 modifications.

16. QUESTION: Please confirm if the proposed tank's overflow will need to match the existing tank overflow elevation.

RESPONSE: The proposed tank's overflow will not need to match the existing tanks overflow elevation.

17. QUESTION: Sheet T-1, Ground Storage Tank Elevation, indicates the finish grade around the tank perimeter is at elevation 966.00. The Geotechnical Report recommends the tank foundation should be founded at least two feet below final adjacent grade. We typically recommend a minimum of 12" of backfill be placed above the finish floor elevation and sloped away from the tank to promote positive drainage

and proper erosion protection of the footing. Please confirm the required backfill elevation adjacent to the tank.

RESPONSE: Sheet T-1 has been modified to reflect the recommendation from the Geotechnical Report. Please reference Item No. 38 in the Drawings Section below and attached Sheet T-1 modifications.

18. QUESTION: Sheet T-1, Ground Storage Tank Floor Plan, indicates the manways with a step. The tank manways will be located near the base of the wall to provide easy access into the tank. Please confirm if a step is required for each manway. If a step is required, please provide material information and a detail of what is required.

RESPONSE: A step is required for each manway and a detail has been included in this addendum. Please reference Item No. 38 in the Drawings Section below and attached Sheet T-1 modifications.

19. QUESTION: Sheet T-2, we recommend that flexible couplings, such as a dresser, be installed on all under floor piping to allow for flexibility of the piping system in order to tolerate anticipated foundation settlements. The flexible couplings should be designed by the Engineer and located within 2' to 3' of the tank foundation. Please confirm flexible couplings will be required for this project.

RESPONSE: Flexible couplings have been added to the inflow and outflow piping connecting to the proposed ground storage tank. Please reference Item No's. 34 and 35 in the Drawings Section below and attached Sheet C-7 and C-8 modifications.

20. QUESTION: Sheet T-4, Overflow Pipe Detail, indicates the design overflow elevation is 1011' alluding to a design liquid level of 45-foot. Please confirm the design overflow elevation is 1006' as indicated on Sheet T-1, which would be a 40-foot liquid level.

RESPONSE: Sheet T-4 has been modified to reflect an overflow elevation of 1006' as indicated on Sheet T-1. Please reference Item No. 40 in the Drawings Section below and attached Sheet T-4 modifications.

21. QUESTION: Sheet T-4, Overflow Pipe Detail, indicates a pipe support bearing on the tank footing which may require a thickened footing to tolerate loadings. Please confirm the pipe support may be anchored into the overflow drainage structure.

RESPONSE: Sheet T-4 has been modified to indicate that the overflow pipe support shall be anchored into the overflow drainage structure. Please reference Item No. 40 in the Drawings Section below and attached Sheet T-4 modifications.

22. QUESTION: On Plan Sheet C-7, the plan view calls out 16" gate valves on waterline 'A' after it has increased to 20" in size. Also, the plan view calls out a 16" X 20" bullhead type tee in a place where both the rise and run are 20" in size. On the profile

view, both the tee and the isolation valves in this area are called out as 20" in size and the isolation valves are called out as butterfly valves. On plan sheet C-13, the waterline 'A' tie-in detail has all items as 16" in size except for the 20" branch. Please clarify the size of this line and the types of isolation valves.

RESPONSE: Sheets C-7 and C-13 have been modified to address the various concerns. Please reference Item No's. 34 and 37 in the Drawings Section below and attached Sheet C-7 and C-13 modifications.

23. QUESTION: On plan sheet C-8 at station 0 + 10, both the plan and profile views call the butterfly valve out as 20" in size with the pipeline on either side of the valve called out as 24" in size. Please clarify.

RESPONSE: Please see response to Item No. 6 above.

24. QUESTION: We request CROM, LLC Austin, TX be approved as a Pre-qualified Bidder in Specification Section 13414-3-1.4.B. The attached Pre-qualification Document demonstrates our experience as a Type III core wall designer and builder.

RESPONSE: Additional Pre-qualified Bidders will not be added to this project.

25. QUESTION: We request that SAWS modify specification section 13414 to allow the AWWA D110 Type II core wall as an or-equal alternative to the AWWA D110 Type III core wall specified. To date we have designed and constructed over 2250 Prestressed Concrete Tanks greater than 1.0 – MG.

RESPONSE: The specification will not be modified to allow AWWA D110 Type II tanks.

B. Specifications

26. Table of Contents

- a. Remove TOC – 4 and replace with the attached page TOC – 4

27. Section 02050

- a. Page 02050 – 5, Paragraph 3.4.C.5, delete the sentence that reads "Torch cutting of steel members is not allowed" in its entirety and replace with attached Page 02050 – 5.

28. Section 13414

- a. Page 13414-3, Paragraph 1.4.A.2, revise the second sentence to read "The Professional Engineer shall have been the engineer of record for a minimum of ten (10) AWWA 01 10-13, Type III tanks". Remove Page 13404-3 and replace with attached Page 13414-3.

- b. Page 13414-4, Paragraph 2.1.B.6, revise the sentence to read "Seismic loads shall be based on ACI 350.3 with an ASCE 7 site class of D, a short period acceleration (Ss) of 0.072 g and a i-second (S1) acceleration of 0.024 and an importance factor of 125". Remove Page 13401-4 and replace with the attached Page, 13414-4.
- c. Page 13414-5, Paragraph 2.1.C.D., revise the first sentence to read "The floor slab shall be designed as a membrane floor not less than four inches thick and shall be placed monolithically." Remove Page 13414-5 and replace with attached Page 13414-5.
- d. Page 13414-7, Paragraph 2.8.A, revise the first sentence to read "9-inch minimum waterstops with center bulbs shall be polyvinyl chloride meeting the requirements of the Corps of Engineers Specification CRD-C 572 and shall be NSF – approved". Remove Page 13414-7 and replace with attached Page 13414-7.
- e. Page 13414-8, Paragraphs 2.10.A, revise line 1 to read "20-inch Inlet Piping", Line 2 to read "not used", Line 3 to read "24-inch outlet piping", Line 5 the first sentence to read "Overflow Piping and Weir Tank Manufacturer to Design Wier and Overflow Pipe Size", and Line 7 the first sentence to read "Minimum of one (1) 24-inch diameter vent Calways Safe Tank Vent as manufactured by Advance Tank Construction: (no approved equals) screened with 16 X 16 mesh 316 stainless steel insect screens shall be provided". Remove Page 13414-8 and replace with attached Page 13414-8.

29. Section 11300

- a. Include the attached Section 11300 – Access Hatches in its entirety.

C. DRAWINGS

30. Drawing No. G-4

- a. Remove this drawing in its entirety and replace with the attached G-4.

31. Drawing No. C-4

- a. Remove this drawing in its entirety and replace with the attached C-4.

32. Drawing No. C-5

- a. Remove this drawing in its entirety and replace with the attached C-5.

33. Drawing No. C-6

- a. Remove this drawing in its entirety and replace with the attached C-6.
34. Drawing No. C-7
- a. Remove this drawing in its entirety and replace with the attached C-7.
35. Drawing No. C-8
- a. Remove this drawing in its entirety and replace with the attached C-8.
36. Drawing No. C-9
- a. Remove this drawing in its entirety and replace with the attached C-9.
37. Drawing No. C-13
- a. Remove this drawing in its entirety and replace with the attached C-13.
38. Drawing No. T-1
- a. Remove this drawing in its entirety and replace with the attached T-1.
39. Drawing No. T-3
- a. Remove this drawing in its entirety and replace with the attached T-3.
40. Drawing No. T-4
- a. Remove this drawing in its entirety and replace with the attached T-4.

ACKNOWLEDGEMENT BY RESPONDENT

Each respondent is requested to acknowledge receipt of this Addendum No. 2 by his/her signature affixed hereto and to file same with and attached to his/her bid.

The Undersigned acknowledges receipt of this Addendum No. 2 and the bid submitted herewith is in accordance with the information and stipulation set forth.

Date

Signature of Respondent

END OF ADDENDUM

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REPLACE STEVENS RANCH PUMP
STATION GROUND STORAGE TANK

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- B. Pollution Controls: Use water sprinkling, temporary enclosures, and other suitable methods to limit dust and dirt rising and scattering in air to lowest practical level. Comply with governing regulations pertaining to environmental protection.
 - 1. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution.
 - 2. Clean adjacent structures and improvements of dust, dirt, and debris caused by demolition operations, as directed by the OWNER or governing authorities. Return adjacent areas to condition existing prior to start of Work.
 - 3. Prior to demolition inside existing structures, provide covers consisting of plastic sheeting and framing over existing pumps, motors, switchgear and control panels. Maintain covers during demolition operations.

- C. Structure Demolition: Demolish as required and remove from site. Use such methods as required to complete Work within limitations of governing regulations.
 - 1. Proceed with demolition in a systematic manner, from top to ground.
 - 2. Locate demolition equipment throughout structure and remove materials so as to not impose excessive loads to supporting walls, floors or framing.
 - 3. Execute cutting and demolition by methods which will prevent damage to other Work, and will provide proper surfaces to receive installation of repairs. Torch cutting will not be permitted.
 - 4. Where physical cutting is required, cut Work with sawing and grinding tools, not with hammering and chopping tools. Unless otherwise specified, core drill or saw cut openings through all concrete Work. Core drilling shall be done utilizing diamond bits. Corners shall not be over cut without prior written approval from the ENGINEER.

- D. Execute excavating and backfilling by methods which will prevent settlement or damage to other Work.

- E. Execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances and finishes.

- F. Fit Work watertight and airtight to pipes, sleeves, ducts, conduit and other penetrations through surfaces.

- G. Patch with seams which are durable and as invisible as possible. Restore exposed finishes of patched areas and, where necessary, extend finish restoration onto retained Work, adjoining, in a manner which will eliminate evidence of patching.

- H. Take care in the removal of equipment and materials to be salvaged to prevent damage to such. Equipment to be retained by the OWNER shall be sufficiently dismantled to permit thorough cleaning and draining. All valves shall be left in the open position once cleaned. All discontinued piping shall be capped and openings remaining after removal of existing equipment, fittings, valves and/or appurtenances shall be plugged and sealed.

- I. Remove all buried piping encountered during excavation unless otherwise shown on the drawings or directed by the OWNER. Pipes indicated to be abandoned but not removed shall have open ends plugged with concrete. The ENGINEER will determine the location of where pipes shall be plugged. The OWNER shall be notified of any existing line, wire, pipelines, water lines, sewer lines, or other facility encountered in the demolition which was not shown on the plans.

- B. Submittals Required During Construction
Certified test results as required
- C. Submittals Required After Construction and Prior to Operation
and Maintenance Manual.

1.4 QUALITY ASSURANCE

- A. Qualifications and Experience
 1. All tank work shall be performed by a company which specializes in the design and construction of precast, wire-wound prestressed concrete tanks using the method of circumferential prestress wire reinforcing and with proven capability of meeting all the requirements of these specifications. Tank contractor shall have furnished at least five (5) circular, prestressed, concrete tanks of the general type and size specified herein within the last ten (10) years which have been in successful service for a minimum of five (5) years. The tank contractor shall have a record of experience and quality of work in the design and construction of circular prestressed concrete tanks that is satisfactory to the Engineer. "Tank contractor" shall be interpreted to refer to the company performing the work, not an individual employed with a particular company.
 2. The tank contractor shall have in its' employ a Professional Engineer with a minimum of ten (10) years' experience in the design of AWWA 0110-13, Type III tanks. The Professional Engineer shall have been the engineer of record for a minimum of ten (10) AWWA 0110-13, Type III tanks. All shop drawings provided for the tank construction shall bear the seal of a Licensed Professional Engineer licensed in the State of Texas.
 3. Experience in the design and construction of AWWA 0110-13 Type I, Type II, or Type IV tank is not acceptable.
- B. Prequalified Bidders: The following tank contractors are prequalified to bid on the design and construction of the prestressed concrete tank specified:

DN Tanks, Wakefield, Massachusetts
Preload, LLC., Hauppauge, New York
- C. Workers, including the tank contractor's superintendent and foreman, shall be fully qualified to perform the work. The tank contractor's superintendent and foreman shall have had experience on at least two tanks of comparable size and construction within the last ten years. The design of the prestressed concrete tank, the application of shotcrete and prestressed reinforcement, and the supervision of all tank construction under this contract shall be the responsibility of the tank contractor and shall not be subcontracted or otherwise assigned.
- D. Unit Responsibility and Coordination: The Contractor shall cause all equipment specified under this section to be furnished by the tank contractor (and their subcontractors) who shall be responsible for the adequacy and compatibility of all tank components, including the subgrade and underdrain system - reference 2.01 (F). Any component of each complete tank not provided by the tank contractor shall be designed, fabricated, tested, and installed by factory-authorized representatives experienced in the design and construction of ground tanks. This requirement, however, shall not be construed as relieving the Contractor of the overall responsibility for this portion of the work.

1.5 WARRANTY

The Contractor shall guarantee the structure against defective materials or workmanship for a period of two years from the Date of Final Acceptance by the Owner. If any materials or workmanship prove to be defective within two years, they shall be replaced or repaired by the Contractor at the Contractor's expense.

PART 2 PRODUCTS

2.1 DESIGN REQUIREMENTS

A. The tank shall be designed in accordance with the requirements of ANSI/AWWA D110 Standard for Wire Wound Circular Prestressed Concrete Tanks - Type III: Precast Concrete with Steel Diaphragm. An intrinsic feature of this specification is the use of continuous, circumferential, wirewound prestressing. The use of circumferential tendon prestressing is not permitted.

The tank shall conform to the requirements in the Plans and to the following requirements:

Storage Capacity	1 MG
Inside Diameter	+/- 65 feet
Liquid Depth	+/- 40 feet
Vent Capacity Requirements:	
Maximum Fill Rate	6 MGD
Maximum Draw Rate	6 MGD
Overflow Design Capacity	6 MGD

B. Tank Design: Design shall consider the following loading conditions:

1. Full hydrostatic load.
2. No hydrostatic load.
3. Vertical loads from the roof system and wall system.
4. Rooflive load of 20 psf minimum, unreduceable, not simultaneous with snow. If local building codes are more stringent then they shall govern.
5. Wind loads shall be based on ASCE 7 procedures for 90 mph, with exposure C, and importance factor 1.15.
6. Seismic loads shall be based on ACI 350.3 with an ASCE 7 Site Class of D, a short period acceleration (Ss) of 0.072 g, a 1-second (S1) acceleration of 0.024 g and an importance factor of 125.
7. Vehicle load Gross Vehicle Weight Rating 14,000 pounds on the backfill.
8. Construction loads.

Additionally, the wall design shall provide for the effects on the wall from the following stresses:

9. The tank shall be designed for a maximum temperature differential through the wall of 50 degrees F.
10. Losses from shrinkage, plastic flow, wire creep, and allowance residual compression in shotcrete. In no case shall the losses used for design (exclusive of residual compression requirements) be less than 25,000 psi, regardless of calculations.
11. Edge restraint at the wall junction with floor and roof.
12. Prestressing during and after tensioning.
13. Differential drying stresses. Calculations shall determine differential stresses and required reinforcement.

14. Overflow pipe supports and wall penetrations.

- C. Walls: The prestressed tank wall shall be designed as a composite concrete wall with an embedded mechanically bonded steel diaphragm in combination with vertical mild steel reinforcement. It shall be considered as a cylindrical shell with partial edge restraint and shall be reinforced vertically by deformed steel reinforcing rods and/or welded wire fabric in accordance with AWWA D110. The continuous mechanically bonded steel diaphragm can be taken as effective vertical reinforcing.

The prestressed tank wall shall be of precast construction. Shotcrete or cast-in-place concrete core walls are not permitted. A suitable stress plate shall be required at all locations where prestress wires are displaced by wall openings of 12 inches or greater. The stress plate shall be designated to transfer stress across the opening.

Minimum precast wall thickness shall be four inches. No reduction in ring compression or tension in the wall will be taken due to restraint at the bottom.

- D. Floor Slab: The floor slab shall be designed as a membrane floor not less than four 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. Minimum ratio of floor reinforcement area to concrete area shall be 0.60 percent.
- E. Dome Roof: The dome roof shall have a rise to span ratio in the range of 1:8 to 1:14. Minimum dome thickness shall be governed by buckling resistance, practical construction, or corrosion protection of the reinforcement but shall be not less than 3 inches for cast-in-place and 4 inches for precast domes. Columns or interior supports will not be allowed. Dome design shall be based on elastic spherical shell analysis.
- F. Geotechnical Report: Subsurface information contained within the geotechnical report or indicated in the Plans was obtained by Owner solely for use by the Consultant in establishing design criteria for the project. The accuracy and completeness of the information is not guaranteed and it is not to be construed as part of the Project Specifications governing construction of the project. The Contractor shall retain an independent third party Geotechnical Consultant to perform an additional geotechnical investigation to design tank foundation. The geotechnical firm retained by the Contractor cannot be the same firm that has provided the geotechnical report contained within these Contract Documents.

There shall not be any additional payment OT contract time extension to Contractor for additional geotechnical investigations and resulting additional work that may be required to complete the project.

2.2 CONCRETE

- A. Concrete shall conform to ACJ 301.
- B. Cement shall be Portland cement Type I or Type II.
- C. Admixtures, other than air-entraining and water reducing admixtures, will not be permitted unless approved by the Consultant.

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thickness. It shall be vertically ribbed with reentrant angles. The back of the channels shall be wider than the front, thus providing a mechanical keyway anchorage with the concrete and shotcrete encasement.

- B. The steel diaphragm shall extend within one inch of the full height of the wall panel with no horizontal joints. Vertical joints within a wall panel shall be roll seamed or otherwise fastened in a fashion which results in a firm mechanical lock. Joints between wall panels that are not roll seamed shall be edge sealed with polysulfide sealant.
- C. No punctures shall be permitted in the diaphragm except those required for pipe sleeves, temporary construction openings, or special appurtenances. Details of such openings, as are necessary, shall be approved by the Consultant. All such openings shall be completely edge sealed with polysulfide sealant.
- D. Diaphragm steel may be considered as contributing to the vertical reinforcement of the wall.

2.7 PRESTRESSING STEEL

- A. Steel for prestressing shall be cold drawn, high carbon wire meeting the requirements of ASTM A821, having a minimum ultimate tensile strength of 210,000 psi.
- B. Splices for horizontal prestressed reinforcement shall be ferrous material compatible with the reinforcement and shall develop the full strength of the wire. Wire splice and anchorage accessories shall not nick or otherwise damage the prestressing.

2.8 ELASTOMERIC MATERIALS

- A. 9-inch minimum waterstops with centerbulbs shall be polyvinyl chloride meeting the requirements of the Corp of Engineers Specification CRD-C 572 and shall be NSF-approved. Splices shall be made in accordance with the manufacturer's recommendations subject to the approval of the Consultant. Waterstops shall be style 713 (NSF-approved) as manufactured by Greenstreak, or equal.
- B. Bearing pads shall be neoprene or natural rubber.
 - 1. Neoprene bearing pads shall have a hardness of 40 to 50 durometer, a minimum tensile strength of 1500 psi, a minimum elongation of 500 percent, and a maximum compressive set of 50 percent. Pads shall meet the requirements of ASTM D2000 Line Call-Out 2 BC 415 A 1 4 B 14 for 40 durometer material.
 - 2. Natural rubber bearing pads shall contain only virgin natural polyisoprene as the raw polymer and the physical properties shall comply with ASTM 02000 Line Call-out M 4 AA 414 A1 3.
- C. Sponge rubber filler shall be closed cell neoprene or rubber conforming to the requirements of ASTM 01056, Type 2 A1 Class A Grades 1 through 4 with compression deflection limited to 25 percent at 2 to 5 psi.
- D. Polysulfide sealant shall be a two component elastomeric compound meeting the requirements of ASTM C920. Sealants must have permanent characteristics of bond to metal surfaces, flexibility, and resistance to extrusion due to hydrostatic pressure. Air cured sealants shall not be used.

2.9 DECORATIVE COATING

- A. Decorative coating for tanks shall be one of two systems. Either one coat of a cementitious based waterproofing product such as "Tamoseal" or equal, or one coat of a non-cementitious 100% acrylic such as "Tammscoat" or equal. Or two coats of an acrylic coating such as "Tammscoat Smooth Coating Smooth" or equal.
- B. Tank color will be selected by the Owner. APPURTENANCES

2.10 APPURTENANCES

- A. The Contractor shall provide and install all appurtenances as shown on the Plans. Appurtenances shall include the following:
 - 1. One 20-Inch Inlet Piping
 - 2. NOT USED
 - 3. One -24 - Inch Outlet Piping
 - 4. 12-Inch Drain Piping
 - 5. Overflow Piping and Weir: Single Overflow Pipe and Weir (Tank Manufacturer to Design Weir and Confirm Pipe Sizes). Any weir and overflow piping not encased in concrete shall be coated per Section 09900 - Painting. Contractor shall submit calculations of weir and overflow pipe sizing.
 - 6. Roof Hatches: Two (2) hatches shall be provided on the tank roof at the locations indicated on the Plans. Each opening shall have a curb at least 4 inches high, and the cover shall have a downward overlap of at least 2 inches. Each cover shall be provided with a neoprene gasket. The roof hatch shall be of aluminum construction and completely watertight..
 - 7. Roof Ventilators: Minimum of one (1) 24-inch diameter vent (Always Safe Tank Vent as manufactured by Advance Tank Construction; no approved equals) screened with 16 x 16 mesh 316 stainless steel insect screens shall be provided. The vent(s) shall be located as shown in the Plans. Refer to the details provided in the Plans. Submit design calculation for vent sizing for review.
 - 8. Interior Ladder: An interior ladder shall be provided under the roof hatch located as shown in the Plans. If the wall access manhole invert is more than three feet above the floor, an aluminum grab bar and ladder shall also be provided on the inside of the reservoir, between the level of each access manhole and the floor. Each ladder shall be designed to be rigid and meet all applicable OSHA standards. The ladder under the roof hatch shall have a fall prevention device consisting of a sliding, locking mechanism and safety belt. Refer to the details provided in the Plans. Interior ladder shall be Type 316 Stainless Steel.
 - 9. Exterior Ladder: One exterior ladder shall be provided where indicated in the Plans. The exterior ladder shall include a security gate with padlock. The exterior ladder shall include safety rails on top of the tank roof to the access hatch attached to the ladder side rails and anchored to the roof as required. Each ladder shall be designed to be rigid and meet all applicable OSHA standards. Each ladder shall have a fall prevention device consisting of a sliding, locking mechanism and safety belt. Refer to the details provided in the Plans. Exterior ladder shall be Type 316 Stainless Steel.
 - 10. Access Manways: Two wall access manholes (shell manways) shall be provided at the locations shown in the Plans. Each access manhole shall be 36 inches in diameter. The manhole center line shall be located as shown in the Plans. The manway flange shall be Type 316L stainless steel and shall be designed to withstand the weight and pressure of the tank contents. The manhole shall provide

SECTION 11300

ACCESS HATCHES

PART 1 GENERAL

1.1 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required to completely install and put into operation, access hatches for the proposed ground storage tank as specified herein and shown on the plans.

1.2 QUALITY ASSURANCE

- A. References:
ASTM A36-93a Structural Steel

1.3 SUBMITTALS

- A. Contractor shall submit manufacturer's technical information for all proposed access hatches.

1.4 WARRANTY

- A. Manufacturer shall guarantee against defects in material or workmanship for a period of five (5) years.

PART 2 PRODUCTS

2.1 ACCESS HATCHES

- A. The contractor shall furnish and install two (2) 42-inch by 42-inch aluminum roof access hatches (for the proposed ground storage tank). Hatches shall be manufactured by Bilco, Inc. or Holliday Products; no approved equals.
- B. Cover and frame shall be 11 gauge aluminum. Cover shall be breakformed, hollow-metal design with 1-inch concealed fiberglass insulation, 3-inch beaded, overlapping flange, fully welded at corners, and internally reinforced for 40 psf live load.
- C. Latch shall be a slam latch with interior and exterior turn handles and hinged hasps capable of being used with Schlage Locks.
- D. Compression spring operators enclosed in telescopic tubes shall be provided for spring-assisted opening of hatch doors and for smooth, easy and controlled door operation throughout the entire arc of opening and closing. Operation shall not be affected by temperature. The door shall automatically lock in the vertical position by means of a heavy steel hold-open arm with release handle. Hardware and all fasteners shall be Type 316 stainless steel.

- E. Factory finish shall be mill-finish aluminum with a coating applied to the exterior of the frame.
- F. Installation shall be in accordance with the manufacturer's instructions.

PART 3 EXECUTION

3.1 GENERAL

- A. All work shall be performed by skilled craftsmen qualified to perform the required work in a manner comparable with the best standards of practice.
- B. The contractor shall provide a supervisor at the work site during all construction operations. The supervisor shall have the authority to sign change orders, coordinate work and make decisions pertaining to the fulfillment of the contract.
- C. The contractor and all workmen employed by him shall conduct all operations in a clean and sanitary manner and in conformance with all aspects of the contract documents.

END OF SECTION

RAI PHILANDLEY ELEMENTARY SCHOOL
 LOT 1, BLOCK 44
 C.B. 4329
 10.00 AC
 14185 BELLA VISTA PL. (78253)
 TAX# 1128577
 20080231240

CITY PUBLIC SERVICE
 BOARD OF SAN ANTONIO
 12' B. 1431 AC.
 ELECTRICAL EASEMENT
 20080188545

BELLA VISTA PLACE
 (70' MIN. 50W)
 DOC. 20070184168

CITY PUBLIC SERVICE
 BOARD OF SAN ANTONIO
 0.0312 AC
 ELECTRICAL EASEMENT
 20080188545

POTRANCO 2013 LAND LTD
 TRACT 4
 0.862 AC
 STEVENS PKWY 78253
 TAX# 1100716
 20130113262

POTRANCO 2013 LAND LTD
 TRACT 3
 3.343 AC
 BELLA VISTA PL. 78253
 TAX# 1109715
 20130113262

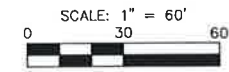
STEVENS PKWY
 180' MIN. ROW
 DOC. 20070184168

PROP. SILT FENCE
 1545 LF

PROP. GRAVEL FLARE
 TO SERVE AS
 CONSTRUCTION
 ENTRANCE

JOSE MUÑOZ
 SURVEY NO. 386 3/4
 ABSTRACT NO. 148
 COUNTY BLOCK 4386

CUMBERLAND POTRANCO JOINT VENTURE
 TRACT 2
 27.42 AC.
 POTRANCO 78253
 TAX# 1004553
 20070114612



DATE	APPROVED
DESIGNED BY: PS	
DRAWN BY: JD	
CHECKED BY: ADW	
SCALE:	
DATE: 29 July 2016	
PROJECT NO: 7025-147	



RIVER CITY ENGINEERING
 Civil, Environmental and Surveying
 Texas Engineering Firm #24346 Texas Survey Firm #33849

10117 COUNTY RD. SUITE C
 AUSTIN, TEXAS 78754
 PH: (512) 441-2028 FAX: (512) 441-8222 PH: (512) 441-2028 FAX: (512) 441-7801

SAN ANTONIO WATER SYSTEM
 REPLACE STEVENS RANCH PUMP STATION GROUND STORAGE TANK

SWPP & TREE PROTECTION PLAN

STORMWATER POLLUTION PLAN PREVENTION/TREE PROTECTION NOTES:
 CONTRACTOR TO PROVIDE LEVEL 1 PROTECTION TO ALL TREES ON SITE AT ALL TIMES DURING CONSTRUCTION. TREE PROTECTION SHALL CONFORM TO CITY OF SAN ANTONIO TREE PROTECTION DETAILS LOCATED ON SHEET G-6 OR AS DIRECTED BY THE SAWS INSPECTOR.

Atlan David Weikel
 7/29/2016

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CITY PUBLIC SERVICE
BOARD OF SAN ANTONIO
12 0.1431 AC.
ELECTRICAL EASEMENT
20080188545

BELLA VISTA PLACE
(70' MIN. ROW)
DOC 20070184188

CITY PUBLIC SERVICE
BOARD OF SAN ANTONIO
0.0312 AC.
ELECTRICAL EASEMENT
20080188545

POTRANCO 2013 LAND LTD
TRACT 4
0.960 AC.
STEVENS PKWY 78253
TAX# 1109716
20130113262

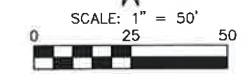
STEVENS PKWY
(88' MIN. ROW)
DOC 20070184188

PROP.
FLARED
GRAVEL
DRIVEWAY
ENTRANCE

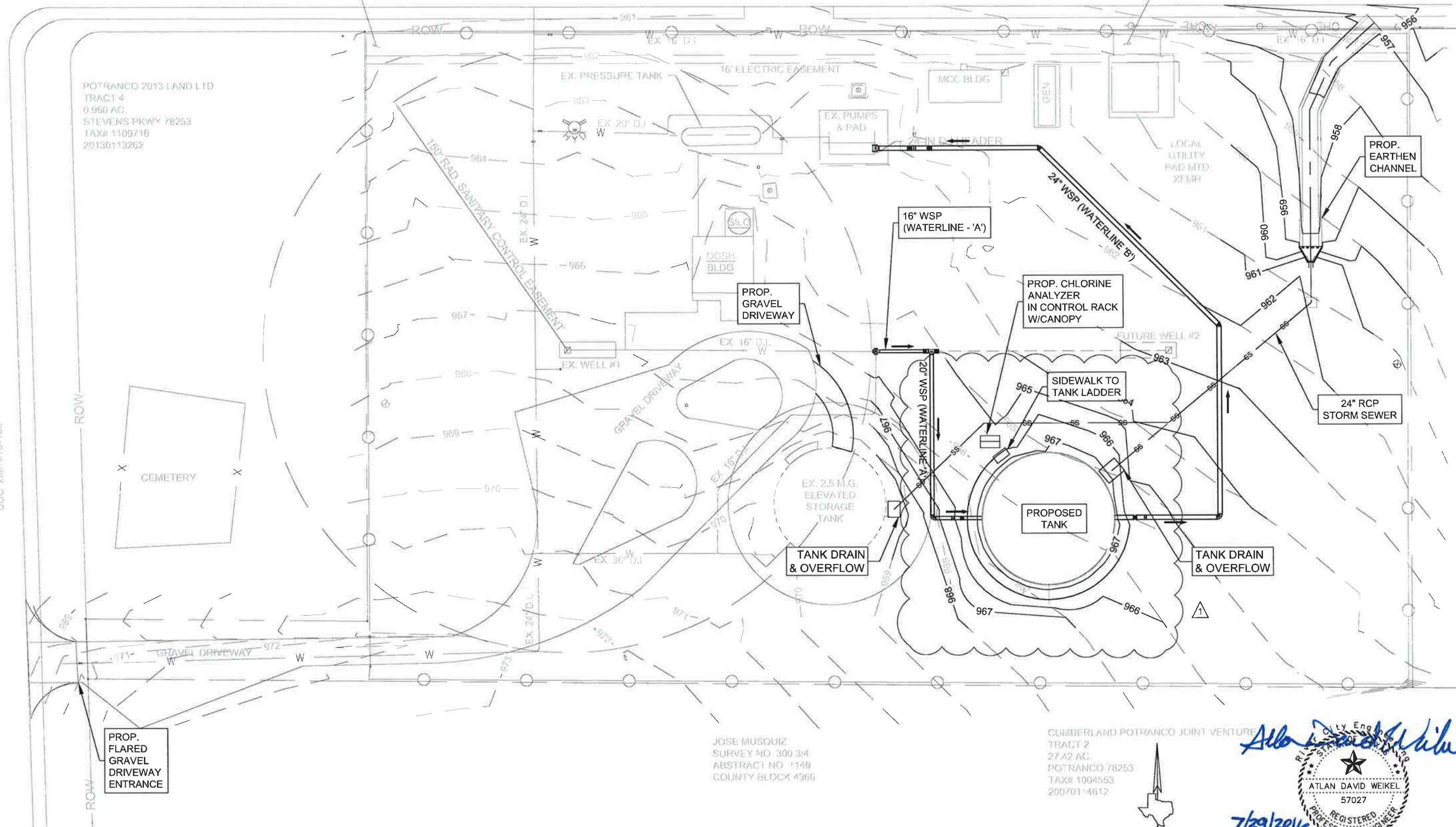
JOSE MUSQUIZ
SURVEY NO. 300 3/4
ABSTRACT NO. 1149
COUNTY BLOCK 4366

CUMBERLAND POTRANCO JOINT VENTURE
TRACT 2
27.42 AC.
POTRANCO 78253
TAX# 1004553
20070114612

Alto David Weikel
ATLAN DAVID WEIKEL
57027
REGISTERED
PROFESSIONAL ENGINEER
F-0001546
7/29/2016



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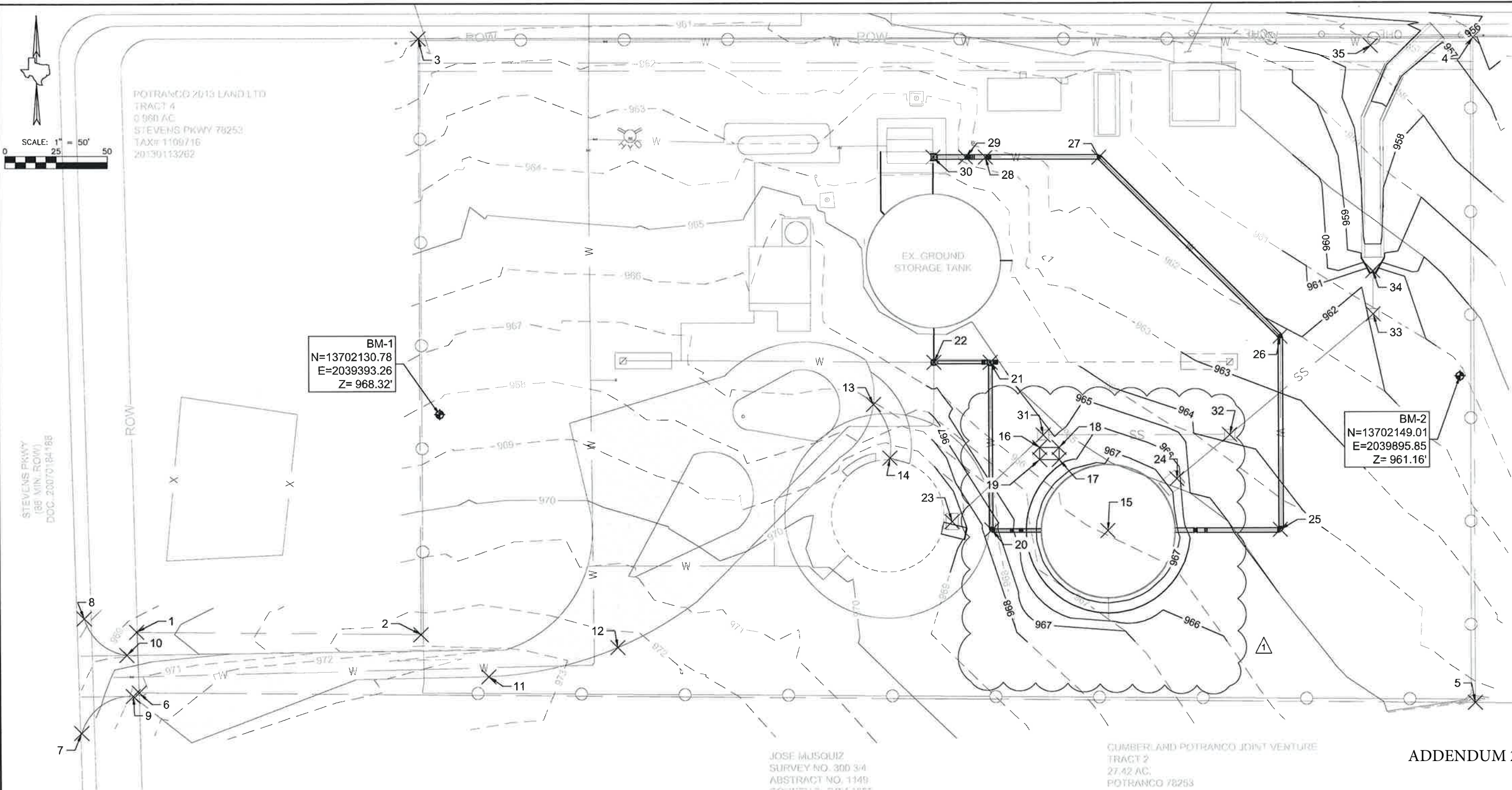
NO.	REVISIONS	DATE	APP'D.	DATE

SCALE:
 DESIGNED BY:
 DRAWN BY:
 CHECKED BY: ADW



RIVER CITY ENGINEERING
CIVIL, ENVIRONMENTAL & CONSULTING
Texas Registered Engineering Firm F-1546
1000 COUNTY ROAD 3110, SUITE C
NEW BRUNSWICK, TEXAS 78124
PH: 512.442.2008 FAX: 512.442.0522

SAN ANTONIO WATER SYSTEM
REPLACE STEVENS RANCH PUMP STATION GROUND STORAGE TANK
SITE IMPROVEMENT AND UTILITY PLAN



BM-1
N=13702130.78
E=2039393.26
Z= 968.32'

BM-2
N=13702149.01
E=2039895.85
Z= 961.16'

JOSE MUSQUIZ
SURVEY NO. 300 3/4
ABSTRACT NO. 1149

CUMBERLAND POTRANCO JOINT VENTURE
TRACT 2
27.42 AC.
POTRANCO 78253

ADDENDUM 2

Point Table				Point Table				Point Table				Point Table			
Point #	Northing	Easting	Description	Point #	Northing	Easting	Description	Point #	Northing	Easting	Description	Point #	Northing	Easting	Description
1	13702023.5320	2039244.1770	PROPERTY CORNER	10	13702012.1223	2039239.2494	EDGE OF GRAVEL	19	13702108.0861	2039688.4977	CANOPY SLAB CRNR	28	13702257.6972	2039662.5081	PIPING 'B' BEND 90 VERT.
2	13702022.1240	2039383.6390	PROPERTY CORNER	11	13702001.2000	2039416.7870	EDGE OF GRAVEL	20	13702073.4243	2039664.8634	PIPING 'A' BEND 90	29	13702257.6956	2039652.8026	PIPING 'B' BEND 90 VERT.
3	13702316.1730	2039383.8560	PROPERTY CORNER	12	13702015.5797	2039480.4636	EDGE OF GRAVEL	21	13702156.2679	2039664.4347	PIPING 'A' TEE	30	13702257.6930	2039636.6926	PIPING 'B' TEE
4	13702316.0930	2039903.0440	PROPERTY CORNER	13	13702135.5116	2039606.7712	EDGE OF GRAVEL	22	13702156.2679	2039636.6933	PIPING 'A' TEE	31	13702120.3030	2039690.3359	JUNCTION BOX '1'
5	13701987.6680	2039902.6400	PROPERTY CORNER	14	13702109.0186	2039614.7713	EDGE OF GRAVEL	23	13702077.5538	2039645.3422	OVERFLOW '2'	32	13702120.3030	2039782.1088	JUNCTION BOX '2'
6	13701993.5590	2039245.2220	PROPERTY CORNER	15	13702073.0460	2039722.0346	TANK CENTER	24	13702098.5087	2039756.0711	OVERFLOW '1'	33	13702179.8704	2039853.2739	JUNCTION BOX '3'
7	13701973.4994	2039216.8948	EDGE OF GRAVEL	16	13702114.0861	2039688.4977	CANOPY SLAB CRNR	25	13702073.4242	2039806.8635	PIPING 'B' BEND 90	34	13702201.2141	2039853.1781	STORM SEWER ENDS
8	13702030.1582	2039218.4255	EDGE OF GRAVEL	17	13702108.0861	2039698.0842	CANOPY SLAB CRNR	26	13702168.8762	2039807.1347	PIPING 'B' BEND 45	35	13702312.1103	2039852.5649	CONCRETE CHANNEL ENDS
9	13701991.7810	2039242.3423	EDGE OF GRAVEL	18	13702114.0861	2039698.0842	CANOPY SLAB CRNR	27	13702257.5924	2039718.4180	PIPING 'B' BEND 45				

Atlan David Weikel

 7/29/2016

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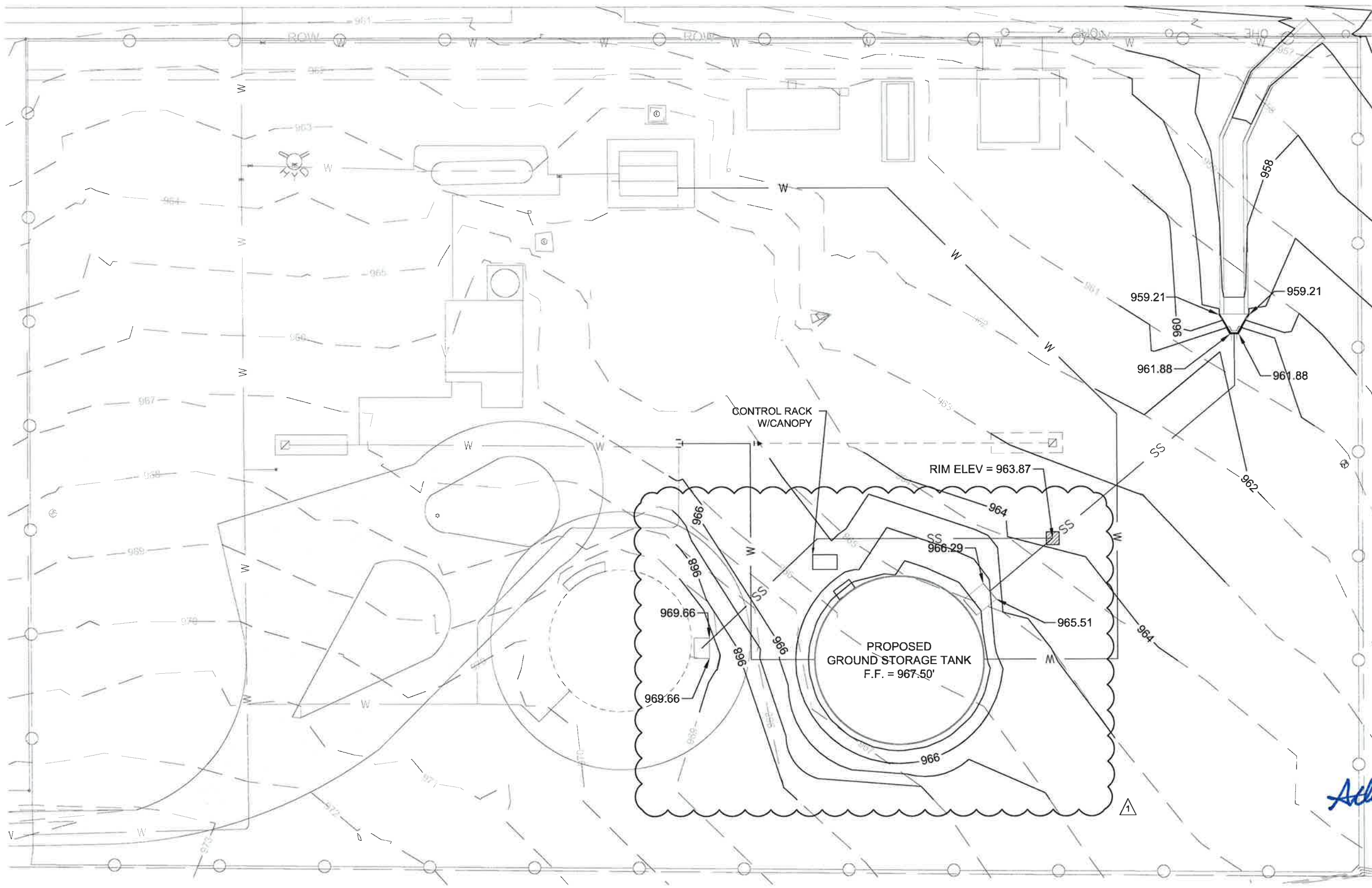
RIVER CITY ENGINEERING
 Civil, Environmental and Surveying
 Texas Engineering Firm #44846 Texas Survey Firm #282894
 1314 E. CHANDLER STREET, SUITE 200
 NEW WALKERS, TEXAS 78160
 P.O. BOX 1000, NEW WALKERS, TEXAS 78160
 PH: 371-622-2020 FAX: 371-622-9527 PH: 371-622-2598 FAX: 371-622-9527
 UPDATED GRADING BY TANK
 NO. _____ REVISIONS
 DESIGNED BY: PS
 DRAWN BY: JD
 CHECKED BY: ADW
 SCALE: _____ DATE: 29 July, 2016
 PROJECT NO.: 7025-52
 SAN ANTONIO WATER SYSTEM
 REPLACE STEVENS RANCH PUMP STATION GROUND STORAGE TANK
 HORIZONTAL CONTROL PLAN
 SHEET NO. **C-5**
 11 of 33 SHEETS

BELL VISTA PLACE
(70' MIN. ROW)

ADDENDUM 2



SCALE: 1" = 40'
0 20 40



DESIGNED BY: PS	SCALE:	DATE: 29 APR 2016
DRAWN BY: JD	PROJECT NO: 7005-42	
CHECKED BY: ADW		



RIVER CITY ENGINEERING
Civil, Environmental and Surveying
Texas Engineering Firm #4446 Texas Survey Firm 12212940

101 SOUTH 15 STREET
AUSTIN, TEXAS 78704-2047
PH: 512-452-3000 FAX: 512-452-8522 PH: 512-452-3000 FAX: 512-452-3000

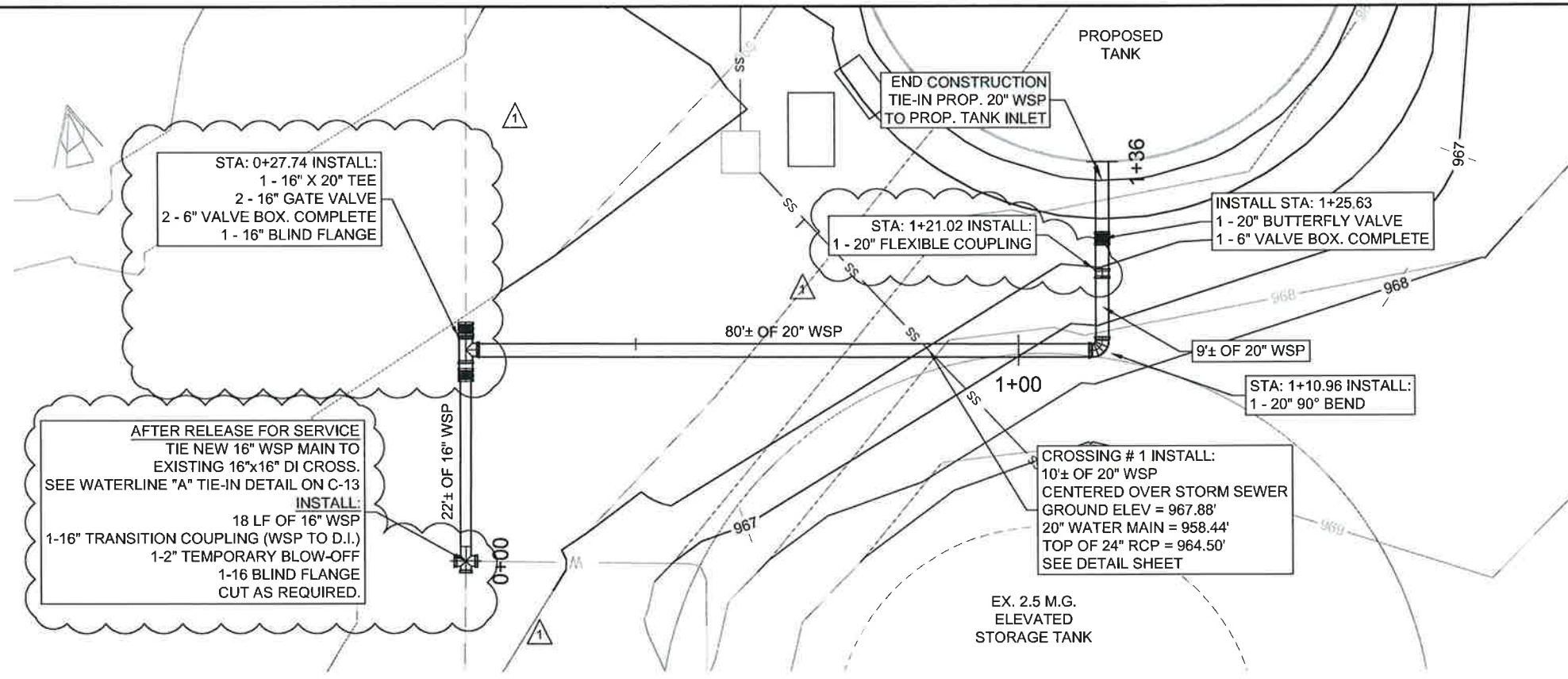
SAN ANTONIO WATER SYSTEM
REPLACE STEVENS RANCH PUMP STATION GROUND STORAGE TANK

GRADING PLAN

Atlan David Weikel
REGISTERED PROFESSIONAL ENGINEER
57027
7/29/2016

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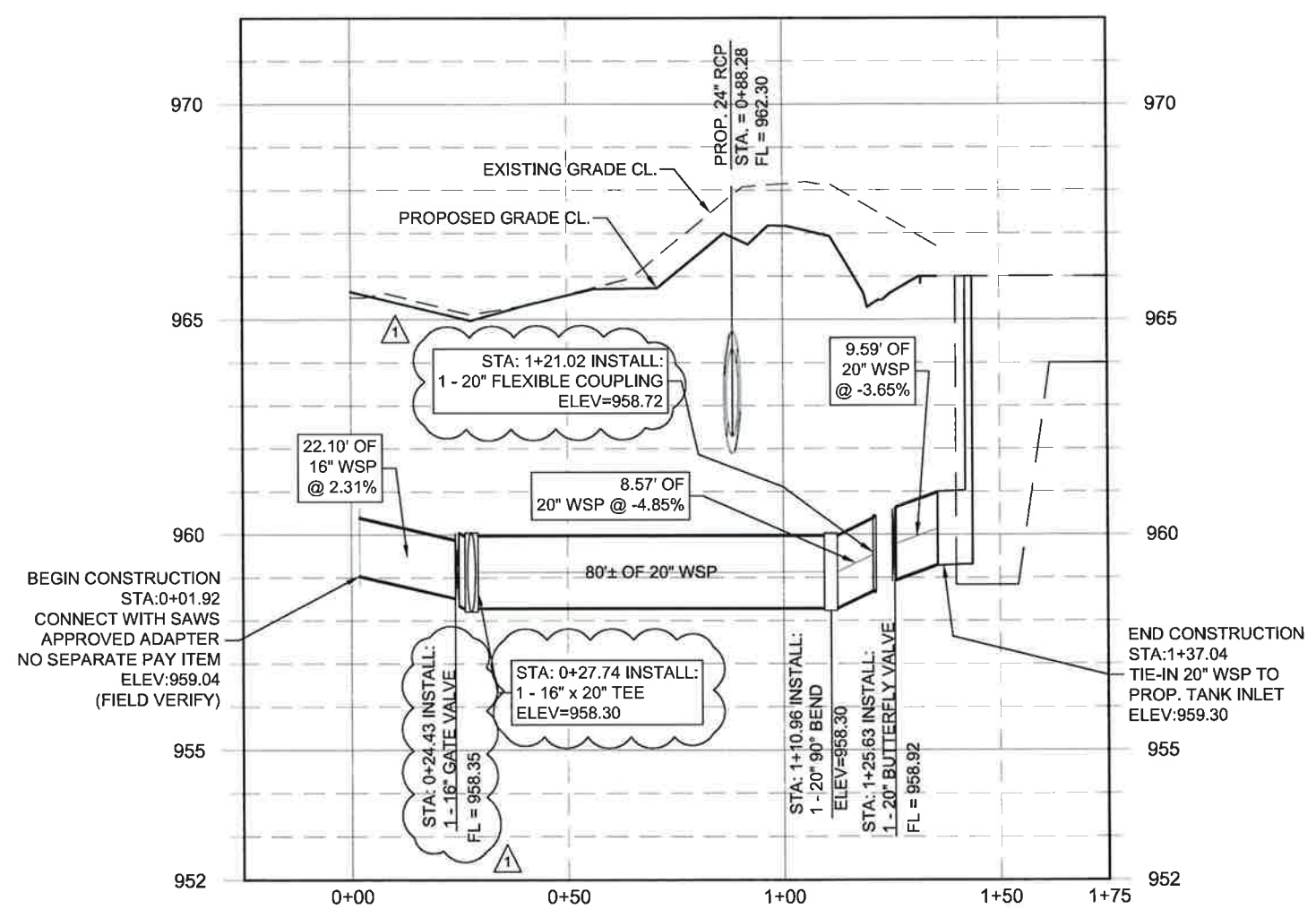
P:\Projects\17028 (SAS)\17028 - 2015 Stevens Ranch GST Replacement\CAD\Proposed\GROUNDING AND DRAINAGE.dwg, Jul 29, 2016, 10:14am



WATERLINE "A" PLAN

NOTES:

1. REFER TO SPECIFICATION SECTION 02510 AND DIVISION 15 FOR ABOVE GRADE AND BELOW GRADE COATING AND LINING OF STEEL PIPE.
2. CONTRACTOR SHALL PROVIDE FIVE FEET OF COVER FOR ALL PROPOSED UTILITY AND PIPE SLEEVES.
3. CONTRACTOR SHALL PLACE WATER PIPELINES INTO SERVICE UPON SUCCESSFUL HYDROSTATIC TESTING AND DISINFECTION.
4. REFER TO SHEET G-03 FOR GENERAL NOTES.
5. ALL PIPES ABOVE AND BELOW GROUND ARE TO BE RESTRAINED.

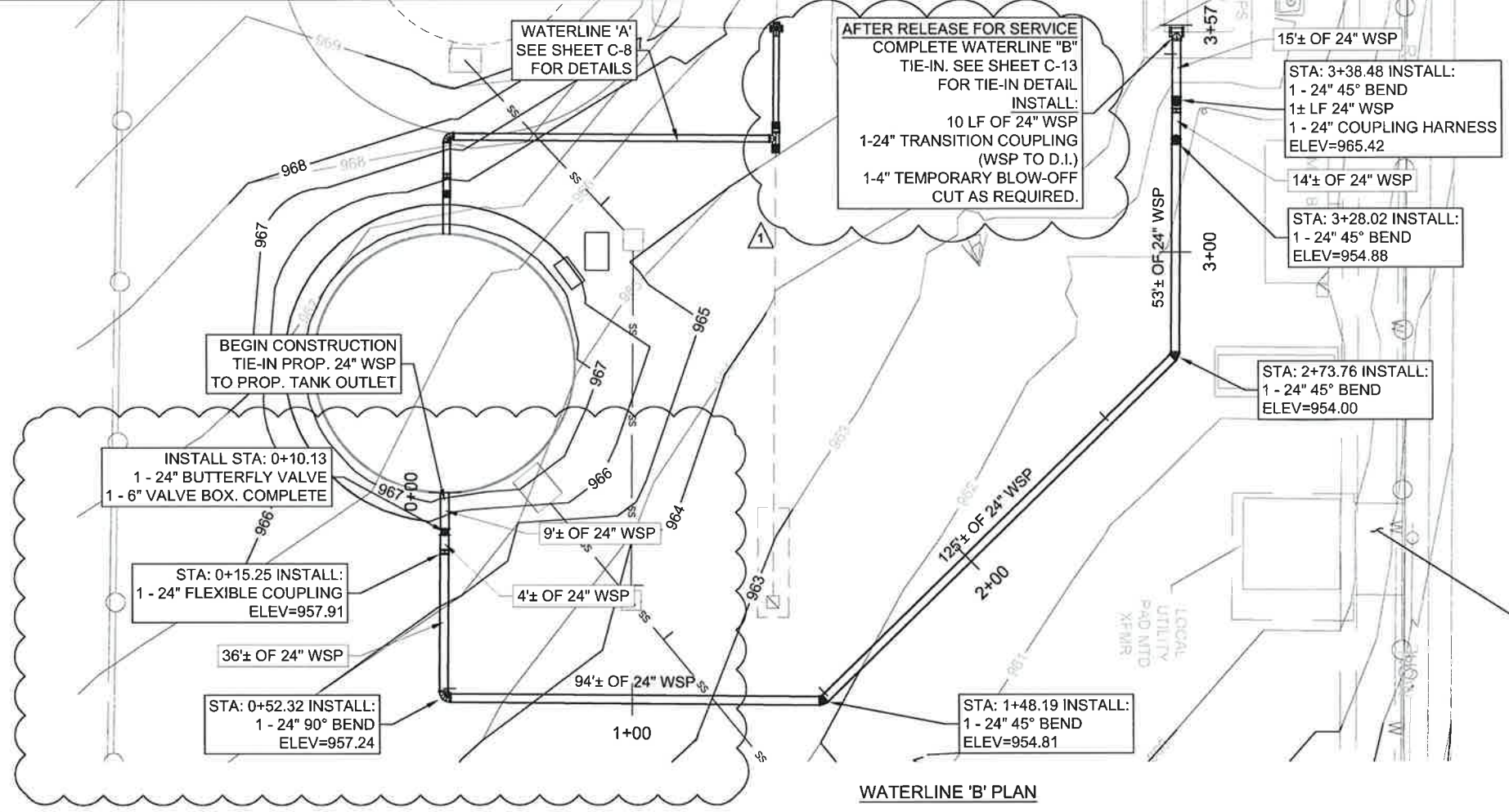
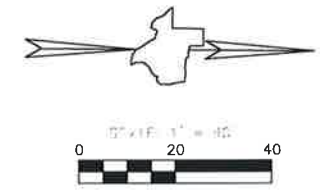


WATERLINE "A" PROFILE
VERT SCALE 1" = 5' HORIZ SCALE 1" = 40'

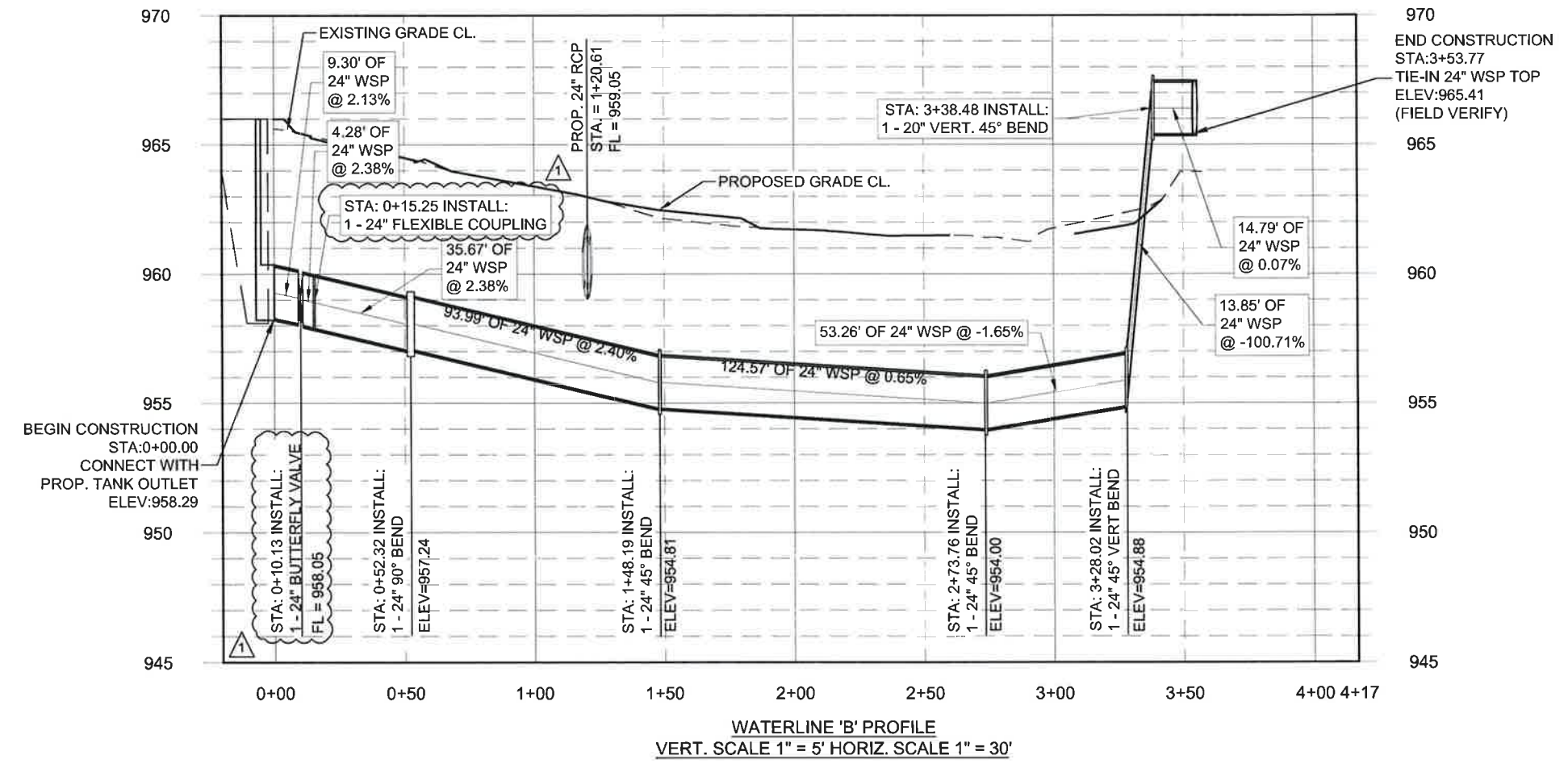
Atlan David Weikel
7/29/2016
ATLAN DAVID WEIKEL
57027
REGISTERED PROFESSIONAL ENGINEER
E-0001546

SAN ANTONIO WATER SYSTEM REPLACE STEVENS RANCH PUMP STATION GROUND STORAGE TANK	RIVER CITY ENGINEERING Civil, Environmental and Surveying 1001 SOUTH 41ST STREET AUSTIN, TEXAS 78745-7911 PH: 512-442-3300 FAX: 512-442-0502 Texas Service Firm 02829493
PROJECT NO.: 7025-ES DATE: 29 JULY 2016 DESIGNED BY: PS DRAWN BY: JD CHECKED BY: ADW	SCALE: APPD:

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY ATLAN DAVID WEIKEL, REGISTERED P.E. NO. 57027, JULY 29, 2016. ALTERATION OF A SEALED DOCUMENT WITHOUT PROPER NOTIFICATION TO THE RESPONSIBLE ENGINEER IS AN OFFENSE UNDER THE TEXAS ENGINEERING PRACTICE ACT.



- NOTES:**
1. REFER TO SPECIFICATION SECTION 02510 AND DIVISION 15 FOR ABOVE GRADE AND BELOW GRADE COATING AND LINING OF STEEL PIPE.
 2. CONTRACTOR SHALL PROVIDE FIVE FEET OF COVER FOR ALL PROPOSED UTILITY AND PIPE SLEEVES.
 3. CONTRACTOR SHALL PLACE WATER PIPELINES INTO SERVICE UPON SUCCESSFUL HYDROSTATIC TESTING AND DISINFECTION.
 4. REFER TO SHEET G-03 FOR FOR GENERAL NOTES.
 5. ALL PIPE ABOVE AND BELOW GROUND IS TO BE RESTRAINED.



Atlan David Weikel
 7/29/2016

 ATLAN DAVID WEIKEL
 57027
 REGISTERED PROFESSIONAL ENGINEER
 F-0001546

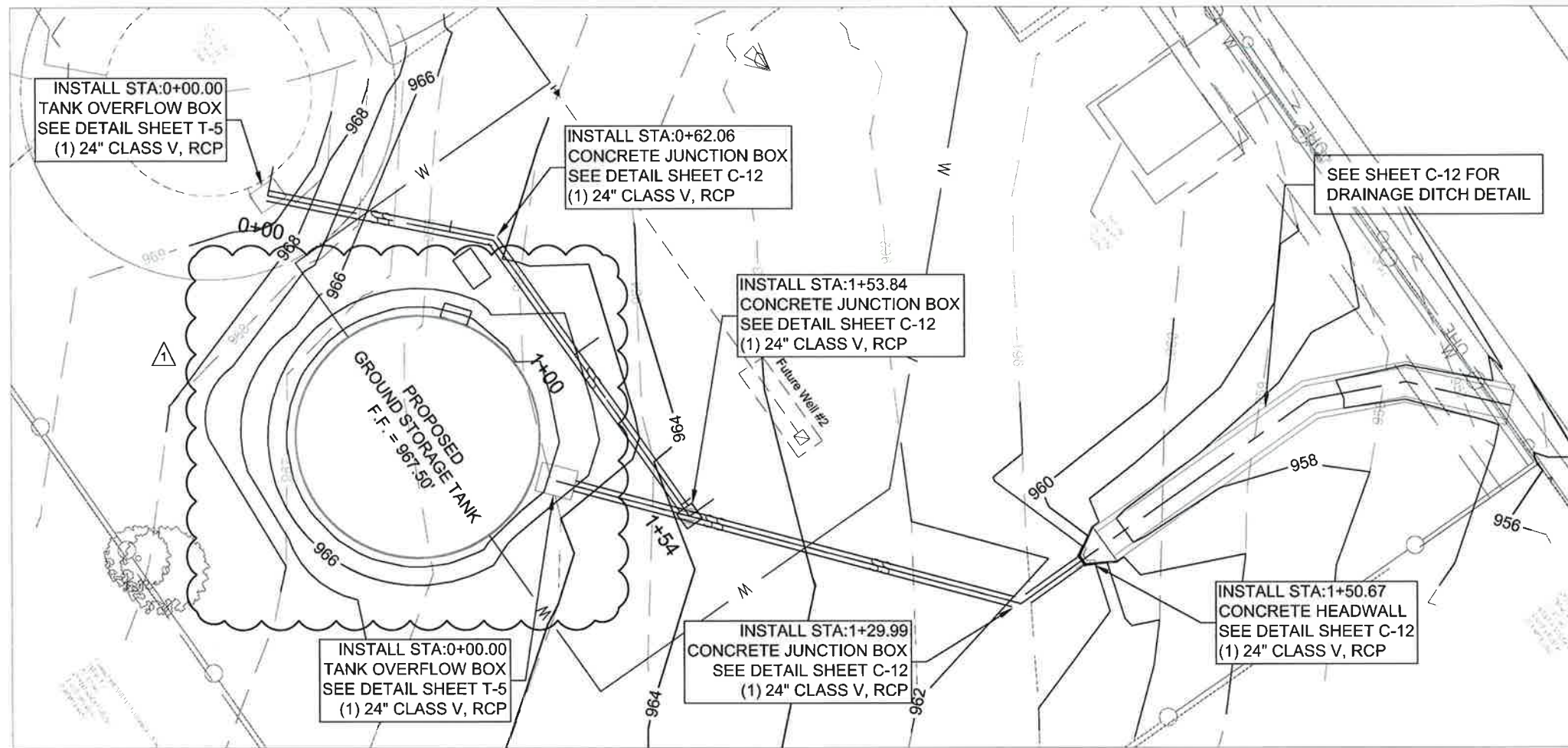
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NO.	REVISIONS	APP'D.	DATE
DESIGNED BY:	SCALE:	DATE:	29 JULY 2016
DRAWN BY:	CHECKED BY:	PROJECT NO.:	7025-59

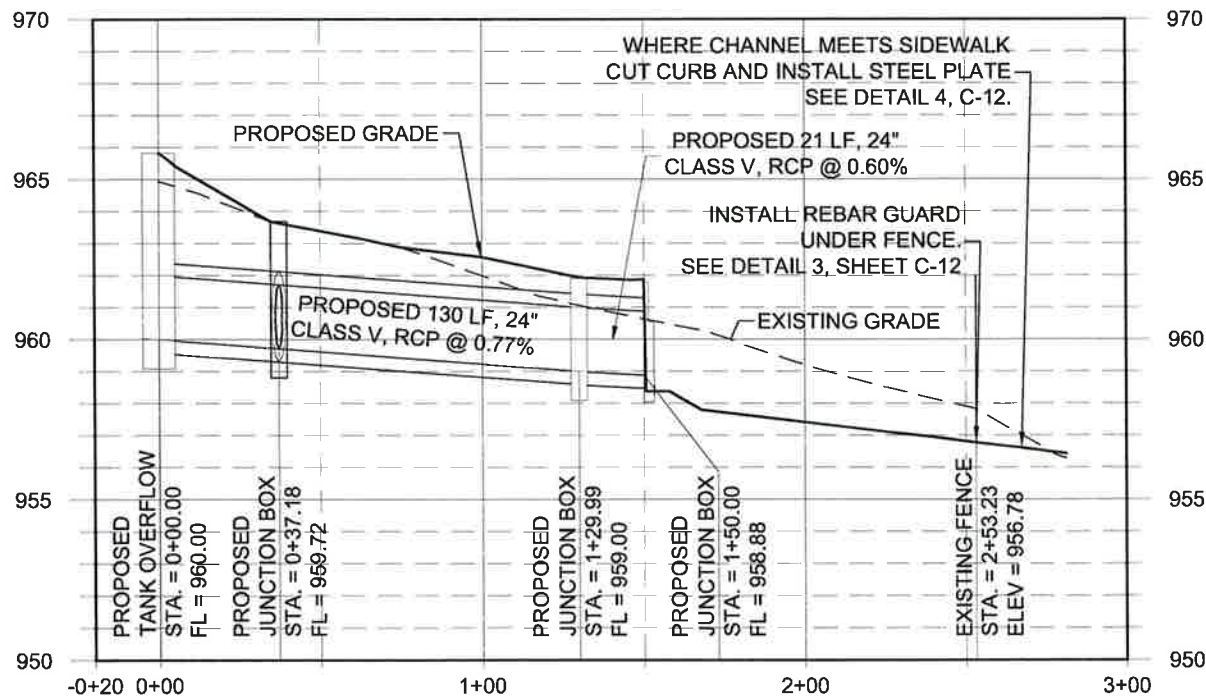
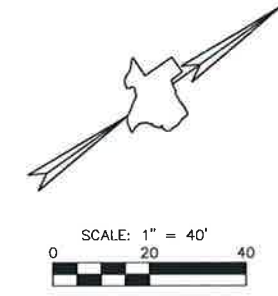


SAN ANTONIO WATER SYSTEM
 REPLACE STEVENS RANCH PS GROUND STORAGE TANK
 WATERLINE B

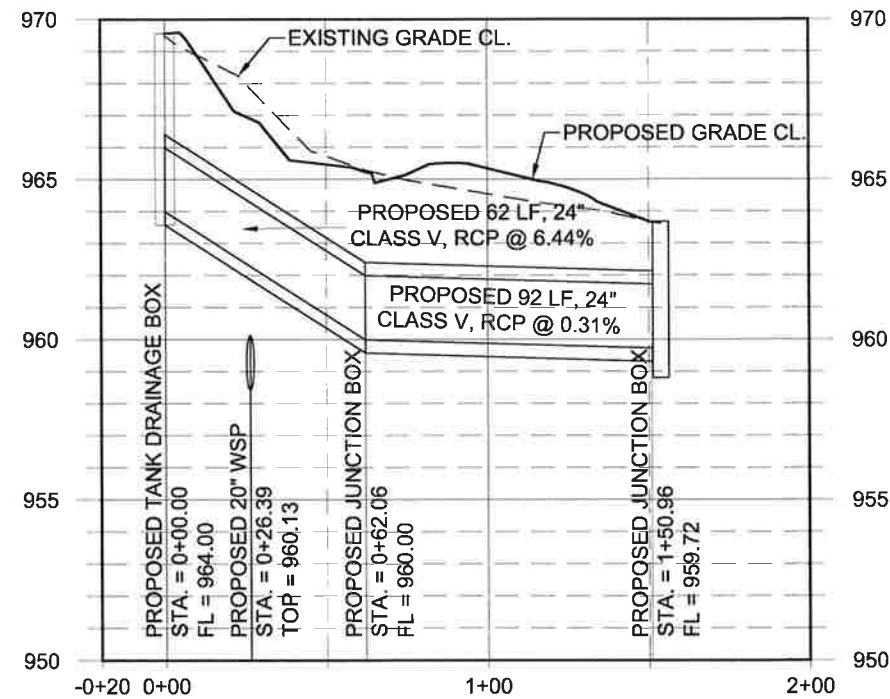
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TANK DRAIN PLAN



GROUND STORAGE TANK DRAIN PROFILE
VERT SCALE 1" = 5' HORIZ SCALE 1" = 10'



EST TO GST DRAIN PROFILE
VERT SCALE 1" = 5' HORIZ SCALE 1" = 10'

ADDENDUM 2

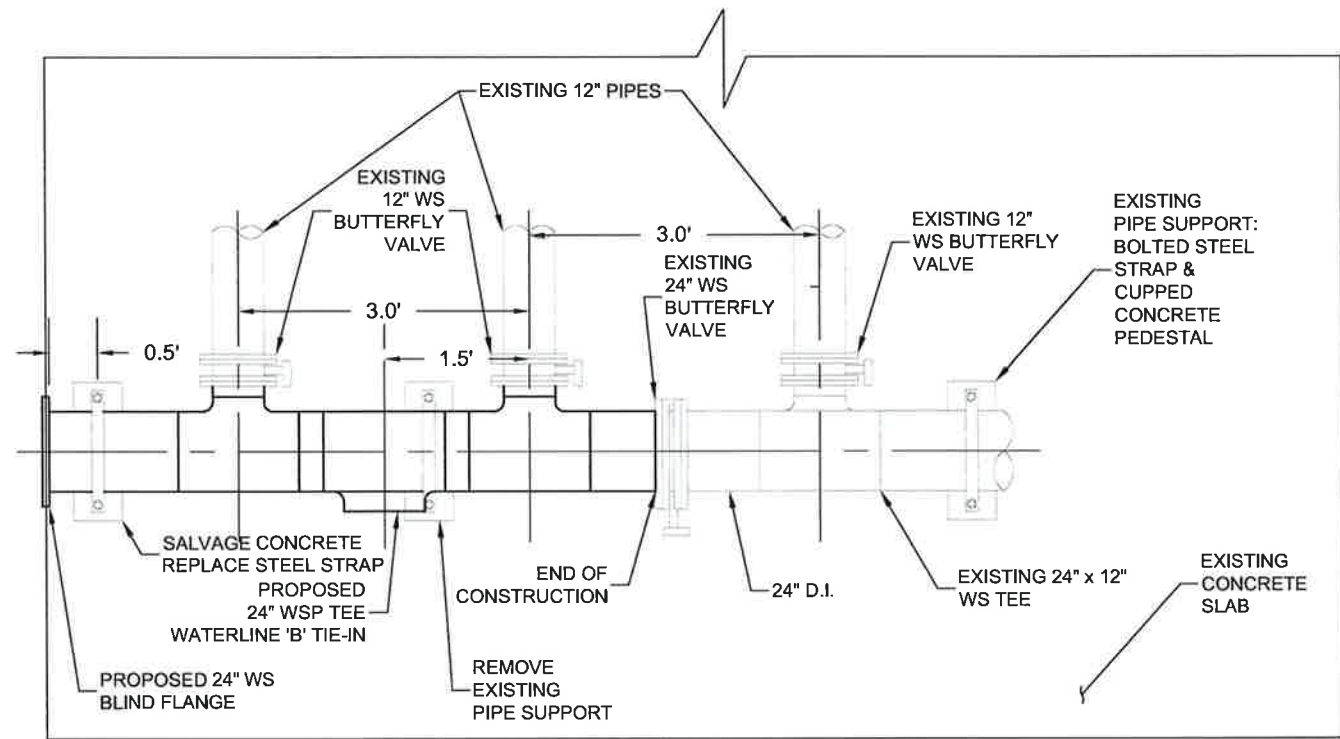
Atlan David Weikel

 7/29/2016

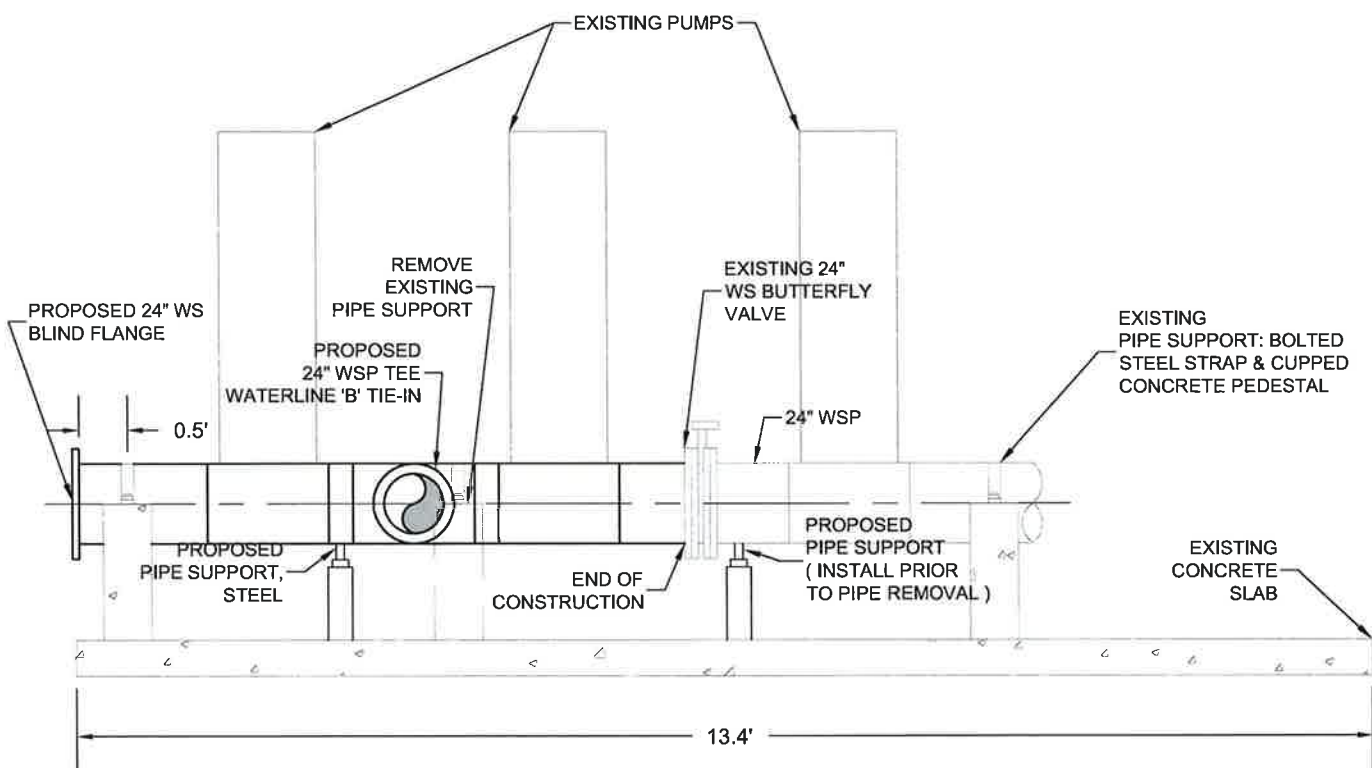
SAN ANTONIO WATER SYSTEM REPLACE STEVENS RANCH PUMP STATION GROUND STORAGE TANK	
DRAINAGE PLAN & PROFILE	
SHEET NO. C-9	15 of 33 SHEETS

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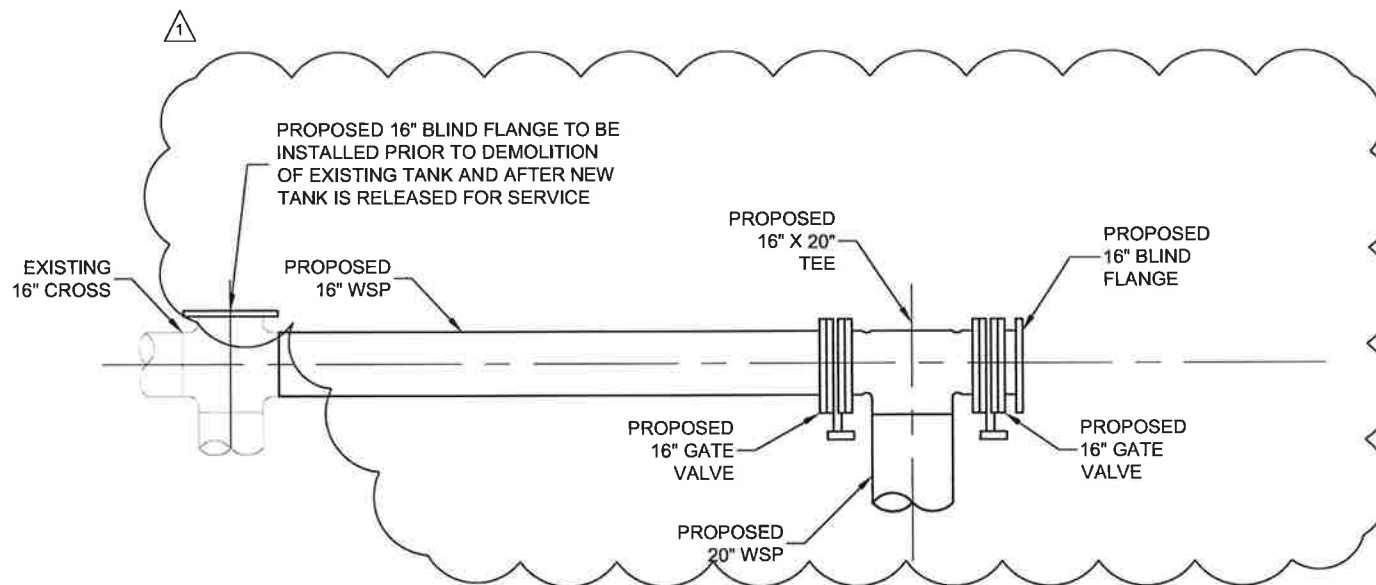
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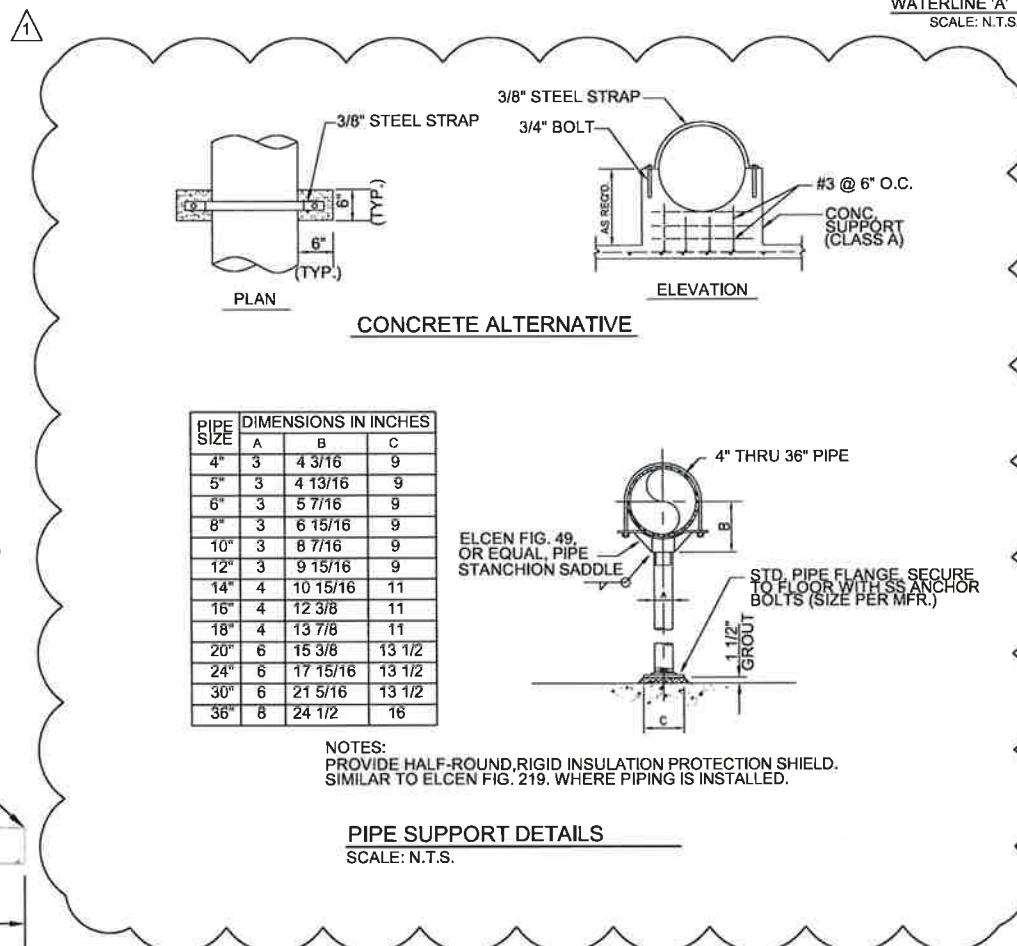
**WATERLINE 'B' TIE-IN
PUMP PAD
PLAN VIEW**
SCALE: N.T.S.



WATERLINE 'B' TIE-IN PUMP PAD PROFILE VIEW
SCALE: N.T.S.



WATERLINE 'A' TIE-IN
SCALE: N.T.S.



PIPE SUPPORT DETAILS
SCALE: N.T.S.

Atlan David Weikel
7/29/2016

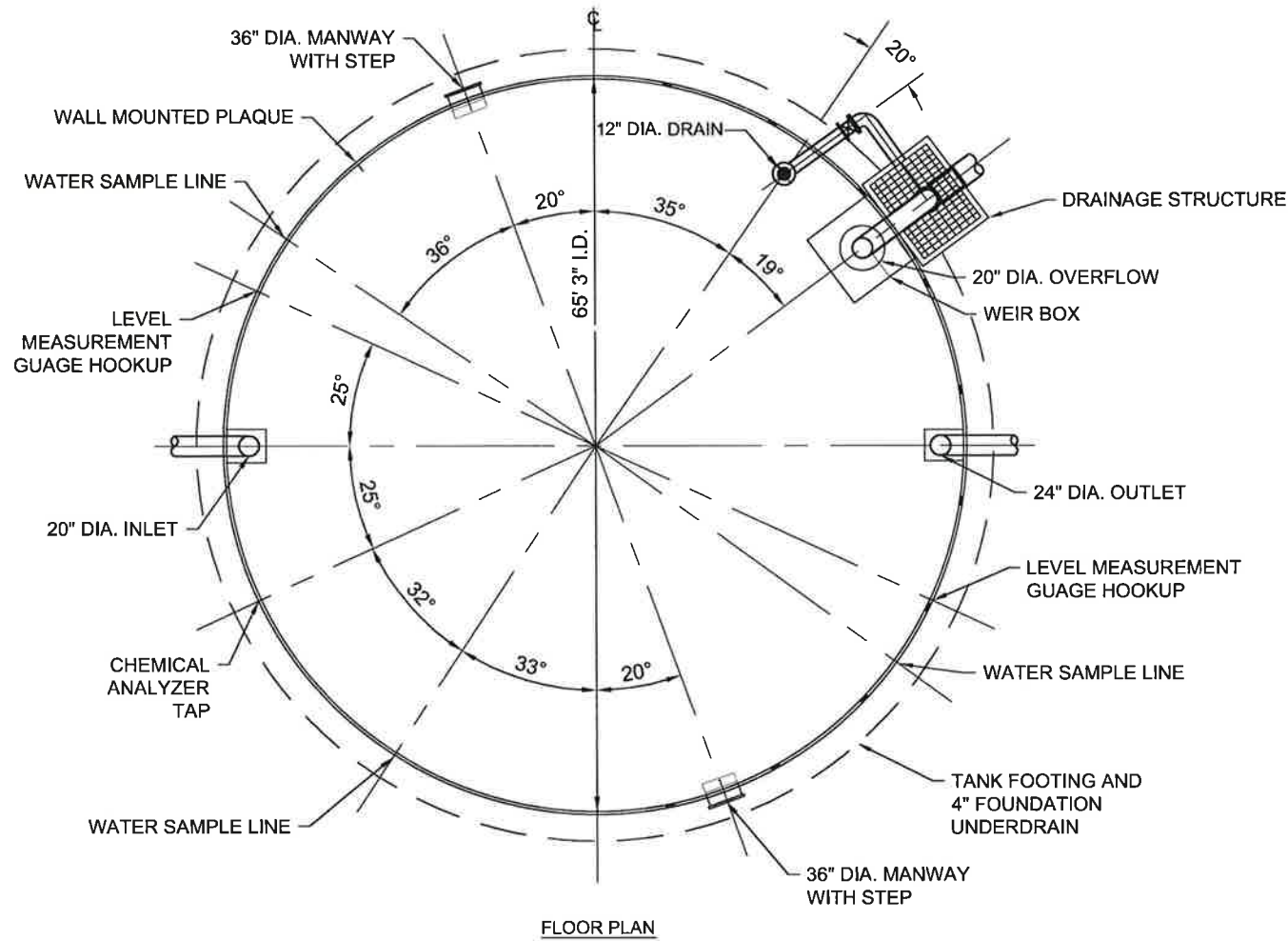
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PROJECT NO. 15-000000-001
 APP'D: DATE
 DESIGNED BY: PS
 DRAWN BY: JD
 CHECKED BY: ADW
 SCALE: DATE: 29 July, 2016
 PROJECT NO: 7025-52

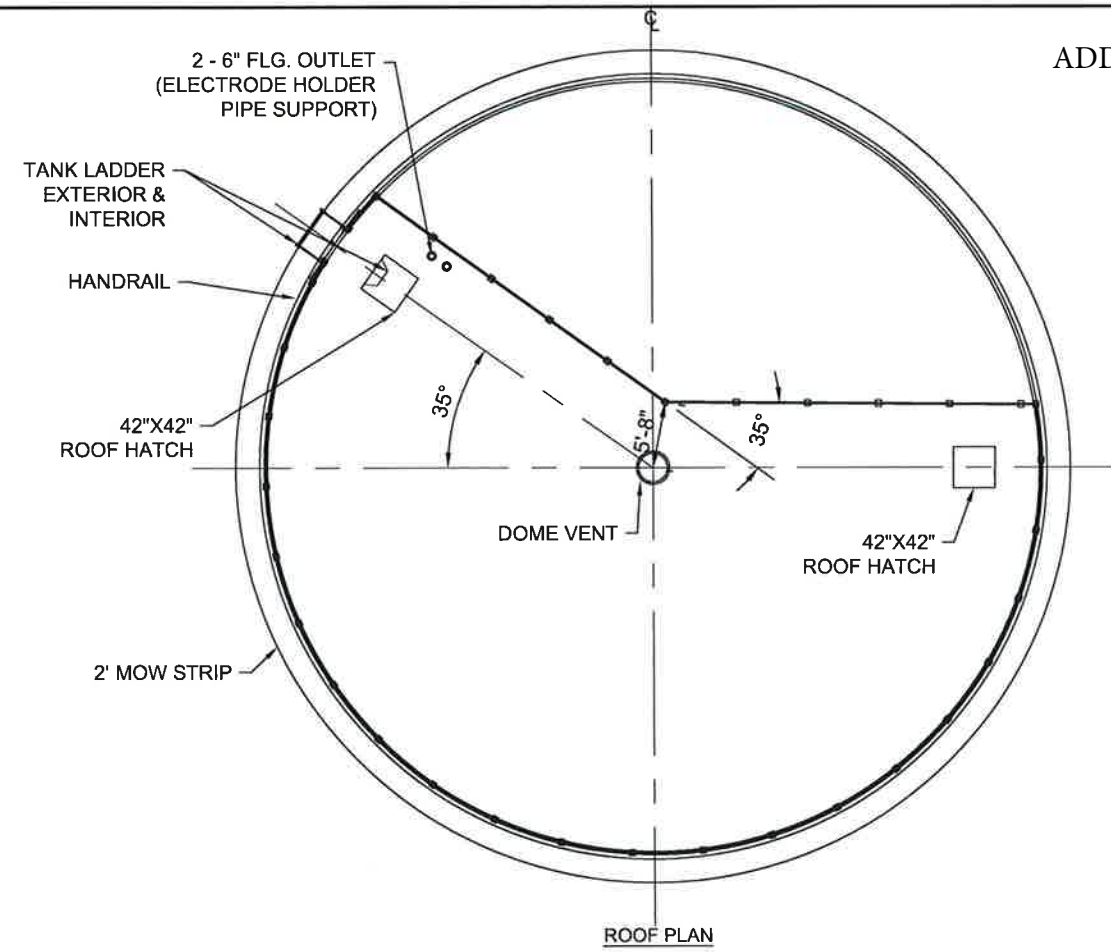
RIVER CITY ENGINEERING
 Civil, Environmental and Surveying
 Texas Survey Firm 2232940
 101 W. COUNTY (INT. RD. 370) SUITE G
 AUSTIN, TEXAS 78704
 PH: (512) 442-8522 FAX: (512) 442-8522

SAN ANTONIO WATER SYSTEM
 REPLACE STEVENS RANCH PUMP STATION GROUND STORAGE TANK
 HIGH SERVICE PUMP PLAN VIEW & DETAIL

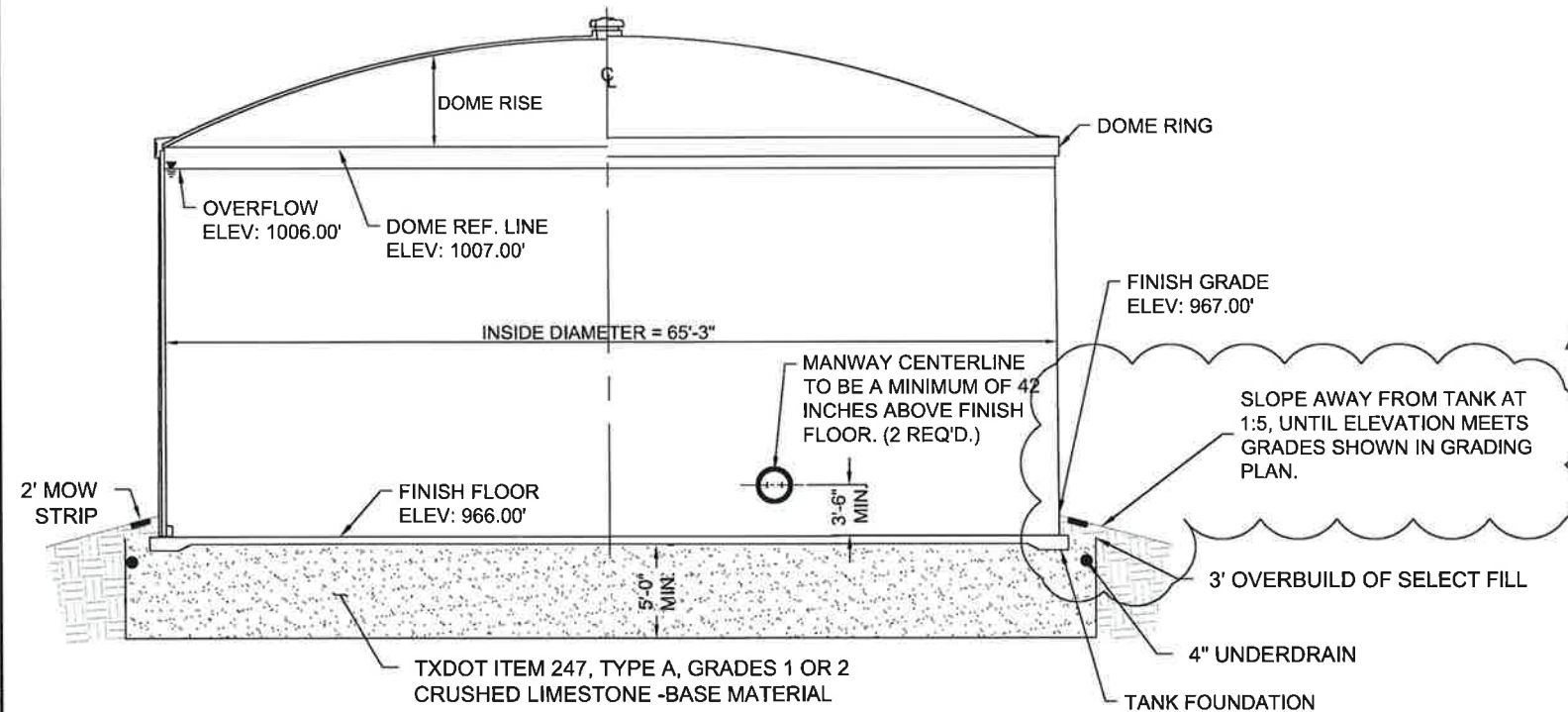
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 19 of 33 SHEETS



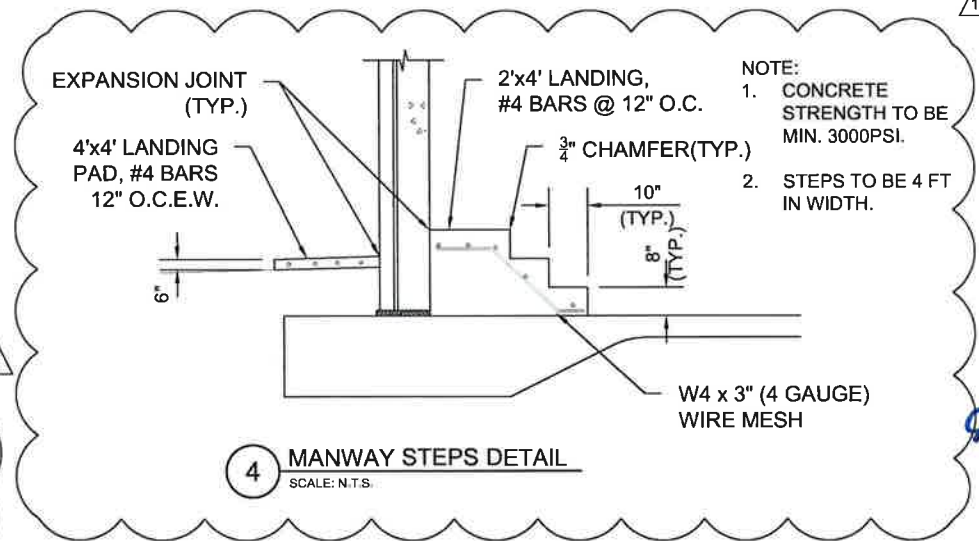
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SCALE: N.T.S.



2 GROUND STORAGE TANK ROOF PLAN
SCALE: N.T.S.



3 1 MG GROUND STORAGE TANK ELEVATION
SCALE: N.T.S.



4 MANWAY STEPS DETAIL
SCALE: N.T.S.



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UPDATED STEP DETAILS AND FINAL GRADE NOTE TO TANK PROFILE

NO. REVISIONS

DESIGNED BY: PS

DRAWN BY: JD

CHECKED BY: ADW

SCALE

DATE: 29 July 2016

PROJECT NO: 7025-52

RIVER CITY ENGINEERING
Civil, Environmental and Surveying
Texas Engineering Firm License No. 124546

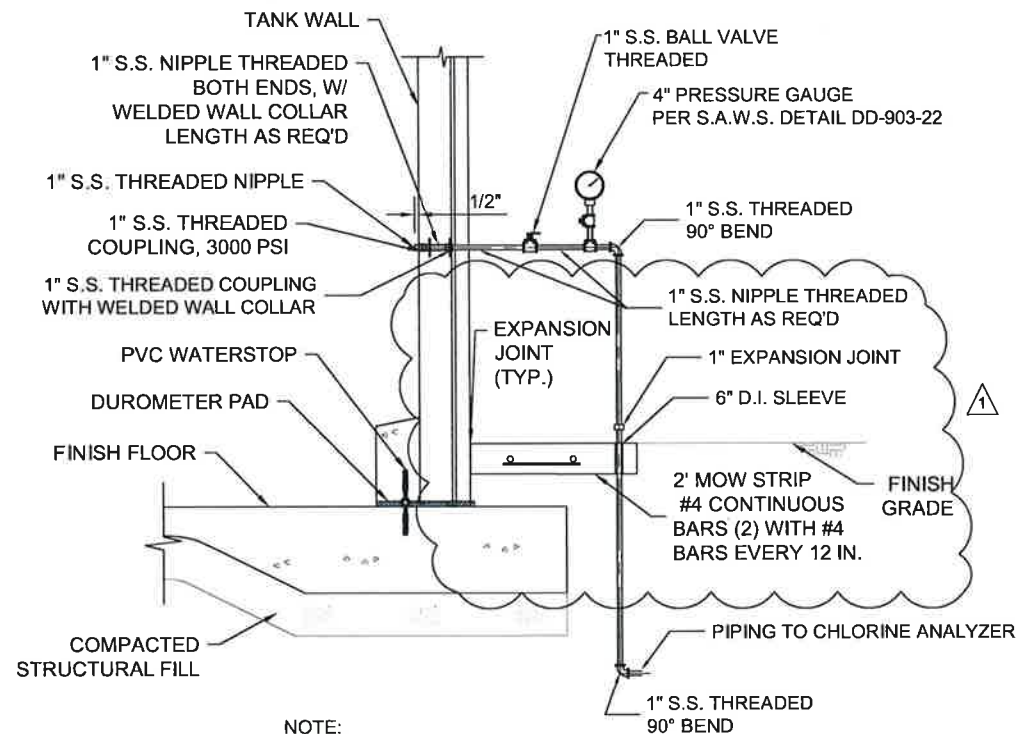
1500 BENTLEY STREET
AUSTIN, TEXAS 78705-7905
PH: 512-424-0828 FAX: 512-424-0822 PH: 800-455-5848 FAX: 800-455-2001

SAN ANTONIO WATER SYSTEM
REPLACE STEVENS RANCH PUMP STATION GROUND STORAGE TANK

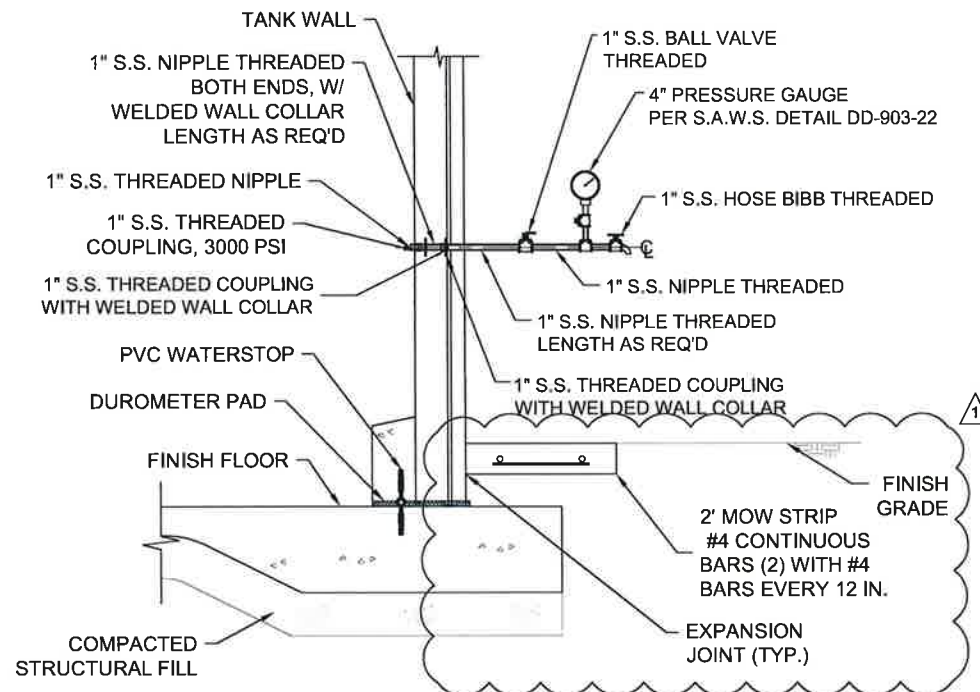
GST - PLAN & SECTION VIEW

SHEET NO T-1

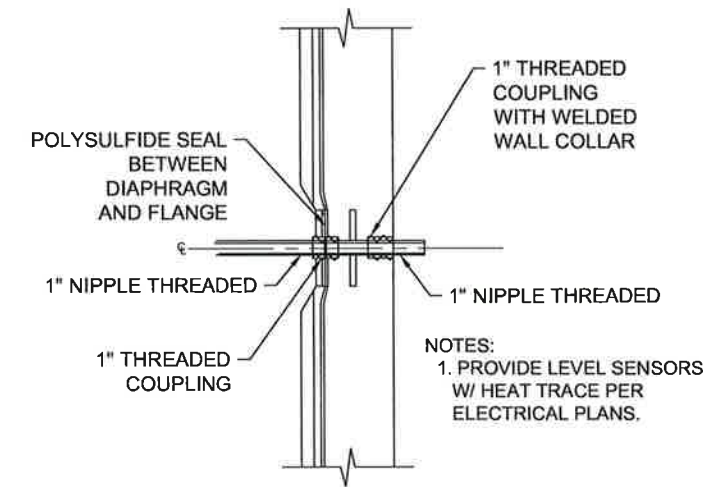
20 of 33 SHEETS



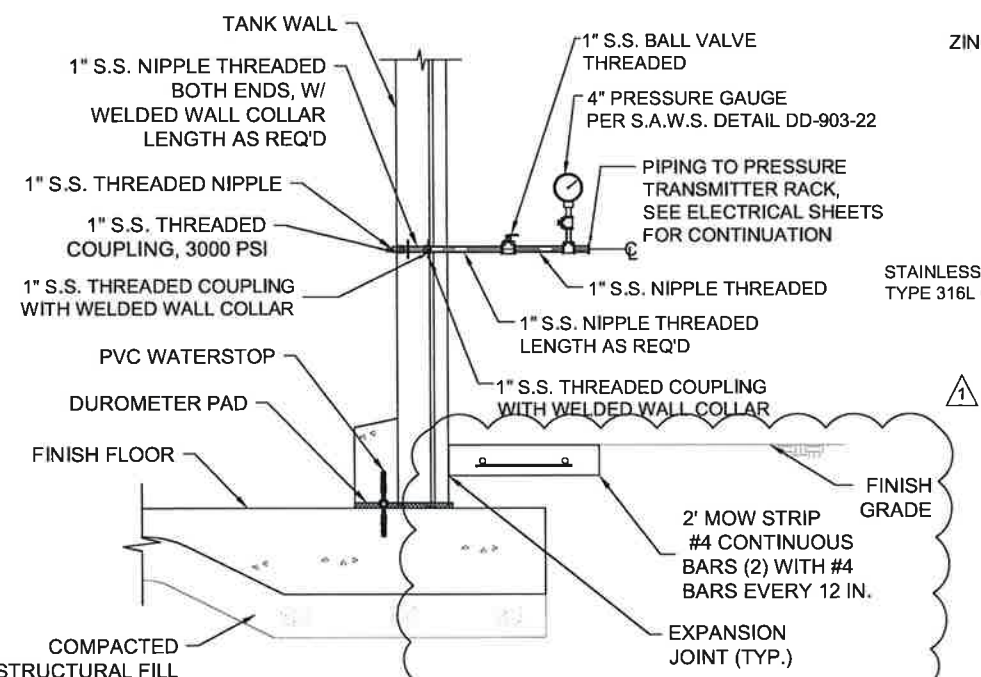
1 CHLORINE SAMPLE TAP
SCALE: N.T.S.



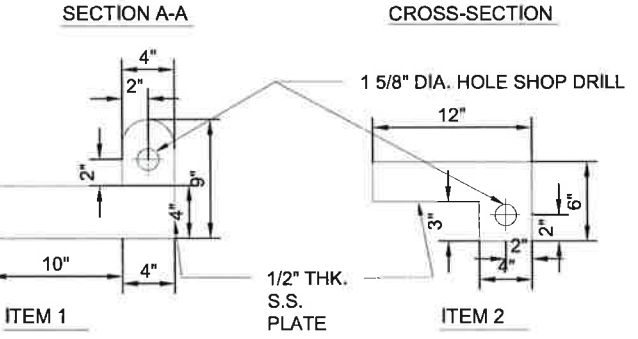
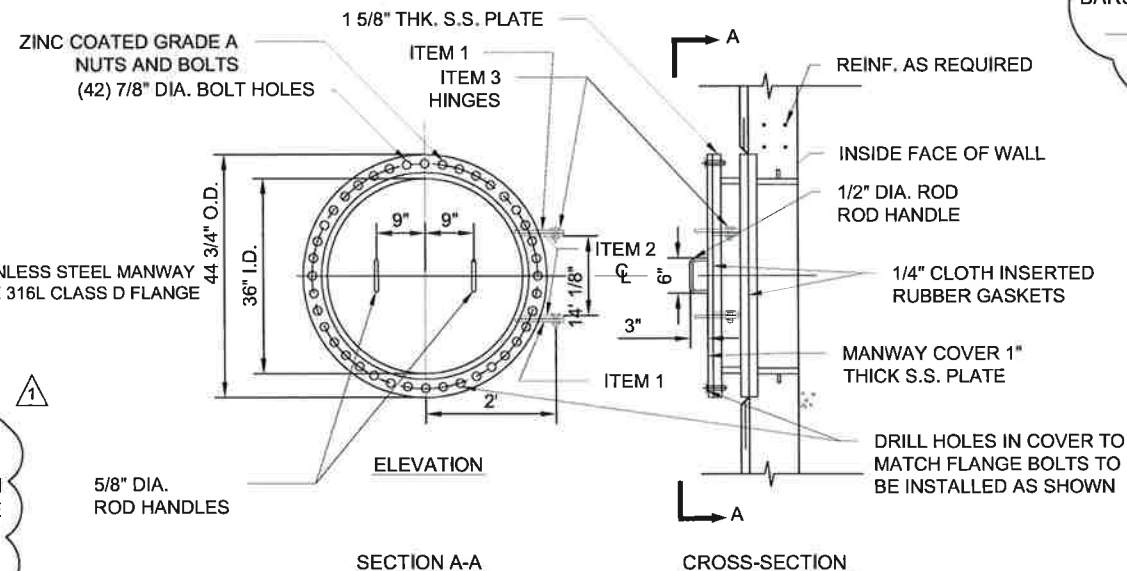
2 SAMPLE TAP
SCALE: N.T.S.



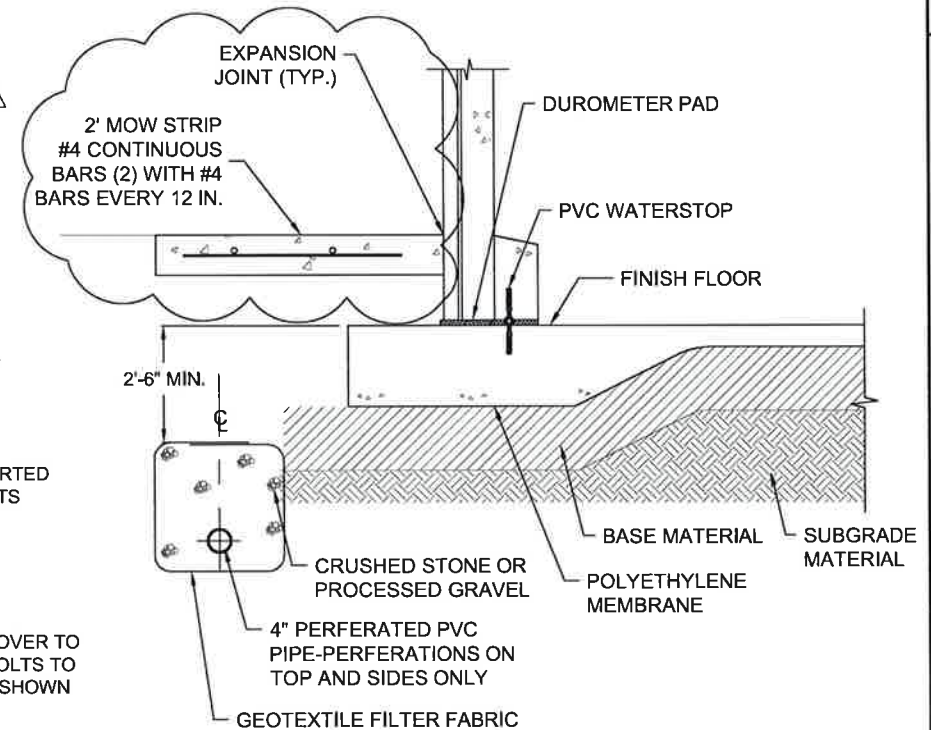
5 1\"/>



3 LEVEL MEASUREMENT GAUGE HOOK UP
SCALE: N.T.S.

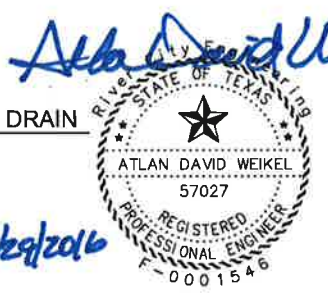


4 SHELL MANWAY DETAIL
SCALE: N.T.S.



6 PERIMETER DRAIN
SCALE: N.T.S.

- NOTE:
- PURPOSE OF THE 4\"/>



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San Antonio Water System logo

RIVER CITY ENGINEERING logo

San Antonio Water System logo

REPLACE STEVENS RANCH PUMP STATION GROUND STORAGE TANK

GST - SAMPLE TAP DETAILS

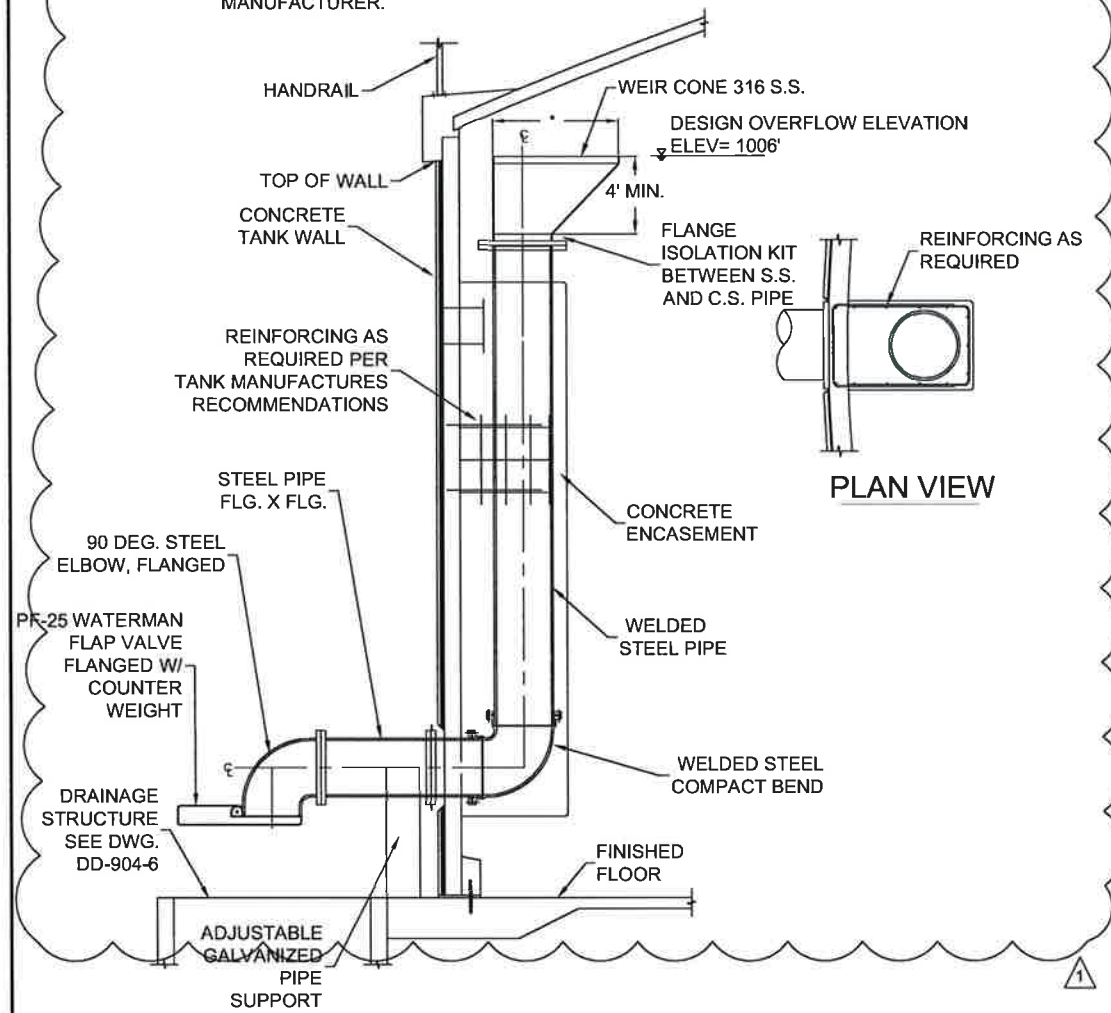
DATE: 29 July 2016
DRAWN BY: JD
CHECKED BY: ADW

PROJECT NO: 7025-52

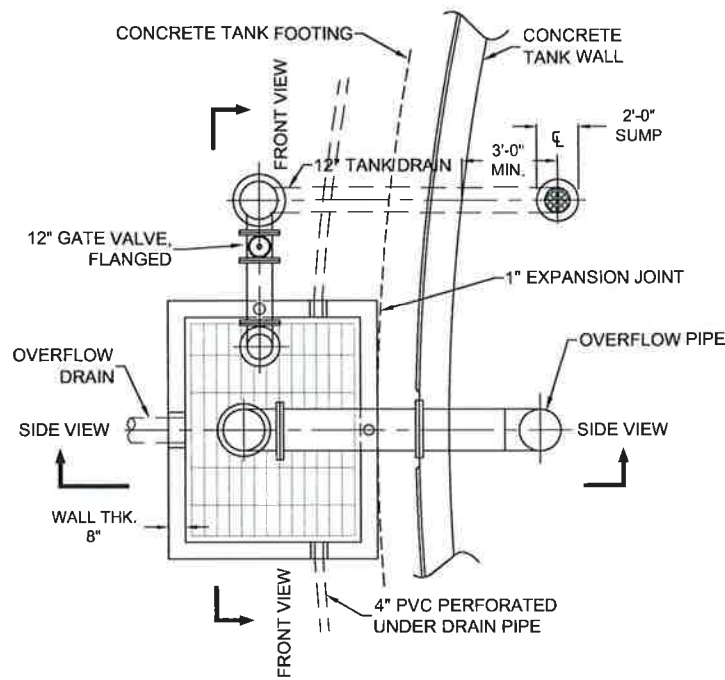
SCALE: N.T.S.

22 of 33 SHEETS

- NOTE:
1. PIPE SIZE, WEIR DIMENSIONS, AND ENCASEMENT DIMENSIONS AS REQUIRED BY OVERFLOW RATE
 2. ALL WELDED STEEL PIPING SHALL BE COATED AND LINED WITH A FUSION EPOXY COATING, 18 TO 10 MILS D.F.T. MINIMUM. EXPOSED STEEL PIPING SHALL ALSO RECEIVE A TIE COAT AND A COAT.
 3. OVERFLOW PIPE DIAMETER SHALL BE SIZED BY THE TANK MANUFACTURER.

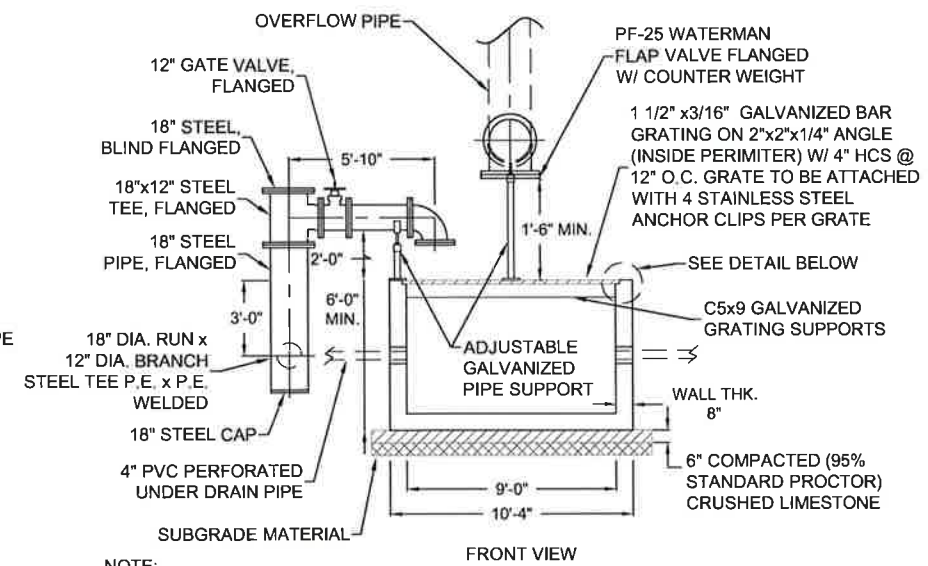


1 OVERFLOW PIPE DETAIL
SCALE: N.T.S.



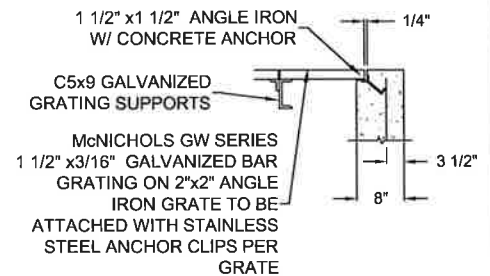
- NOTE:
1. DRAIN BOX (9'x7' MIN.)
 2. DRAINAGE BOX STRUCTURE SIZED AS PER INFLOW AND OUTFLOW CAPACITY CALCULATIONS.
 3. ALL PENETRATIONS SHALL BE FILLED WITH LINK SEAL AND COVERED WITH NON-SHRINK GROUT.
 4. ALL REINFORCING #6 @ 12" O.C., UNLESS OTHERWISE NOTED.
 5. OVERFLOW PIPE AND OVERFLOW DRAIN SHALL BE SIZED BY THE ENGINEER.
 6. ALL WELDED STEEL PIPING SHALL BE COATED AND LINED WITH A FUSION BONDED EPOXY COATING, 18-20 MILS. D.F.T. MINIMUM. EXPOSED STEEL PIPING SHALL ALSO RECEIVE A TIE COAT AND A FINISHED COAT.

2 DRAINAGE STRUCTURE PLAN VIEW
SCALE: N.T.S.

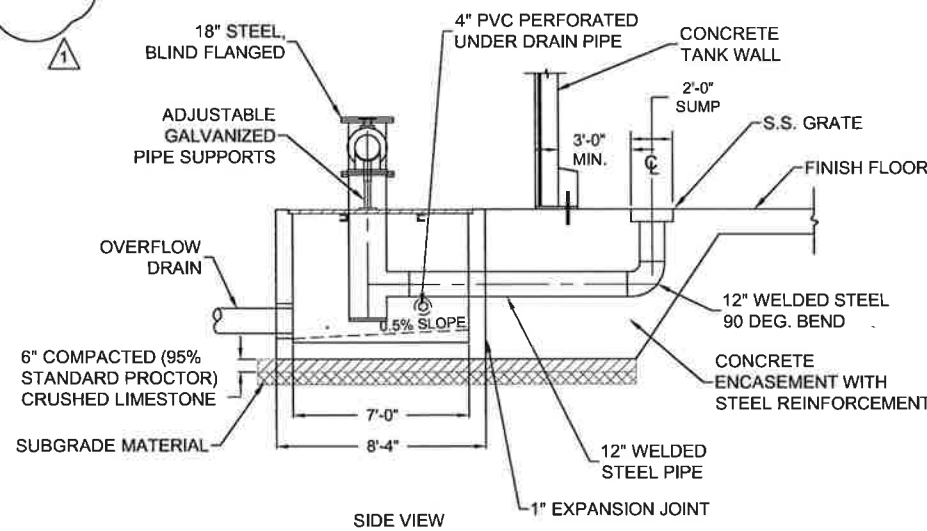


- NOTE:
1. DRAIN BOX (9'x7' MIN.)
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3 DRAINAGE STRUCTURE FRONT VIEW
SCALE: N.T.S.



GRATING SUPPORT DETAIL



- NOTE:
1. DRAIN BOX (9'x7' MIN.)
 2. DRAINAGE BOX STRUCTURE SIZED AS PER INFLOW AND OUTFLOW CAPACITY CALCULATIONS.
 3. ALL PENETRATIONS SHALL BE FILLED WITH LINK SEAL AND COVERED WITH NON-SHRINK GROUT.
 4. ALL REINFORCING #6 @ 12" O.C., UNLESS OTHERWISE NOTED.
 5. OVERFLOW PIPE AND OVERFLOW DRAIN SHALL BE SIZED BY THE ENGINEER.
 6. ALL WELDED STEEL PIPING SHALL BE COATED AND LINED WITH A FUSION BONDED EPOXY COATING, 18-20 MILS. D.F.T. MINIMUM.
- EXPOSED STEEL PIPING SHALL ALSO RECEIVE A TIE COAT AND A FINISHED COAT.

4 DRAINAGE STRUCTURE SIDE VIEW
SCALE: N.T.S.

ADDENDUM 2

Atlan David Weikel
7/29/2016

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NO.	REVISIONS	DATE

SCALE: N.T.S.
DESIGNED BY: PS
DRAWN BY: JD
CHECKED BY: ADW
PROJECT NO.: 7025-52



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SAN ANTONIO WATER SYSTEM
REPLACE STEVENS RANCH PUMP STATION GROUND STORAGE TANK
GST - DRAIN & OVERFLOW DETAILS