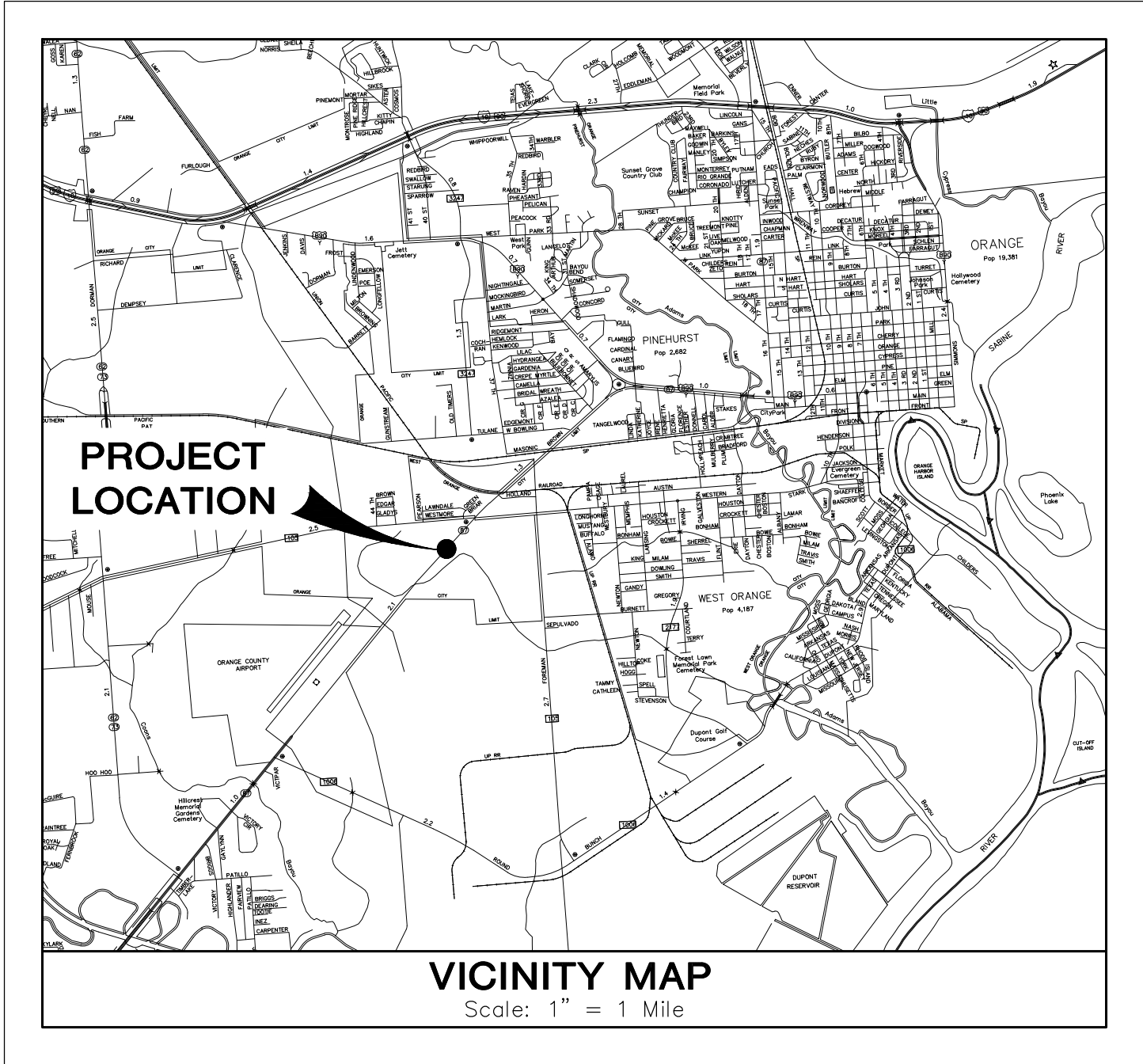


CONSTRUCTION  
OF  
GULF COAST CANAL STATE HIGHWAY 87  
CROSSING REPLACEMENT  
FOR  
SABINE RIVER AUTHORITY  
ORANGE COUNTY, TEXAS

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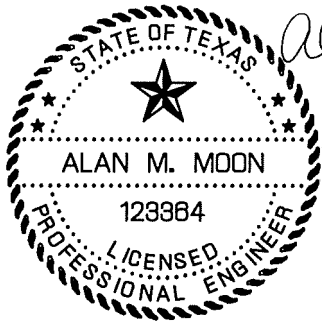
1750 SOUTH TX-87  
ORANGE, TEXAS 77630

ONE-CALL NOTIFICATION SYSTEM  
CALL BEFORE YOU DIG!!!  
(713) 223-4567 (in Houston)  
(New Statewide Number Outside Houston)  
1-(800) 344-8377

AUGUST 2022  
QUIDDITY JOB No. 17314-0002-00



Texas Board of Professional Engineers and Land Surveyors Reg. No. F-23290  
6330 West Loop South, Suite 150 • Bellaire, TX 77401 • 713.777.5337



GENERAL CONSTRUCTION NOTES:

- All work performed shall comply with current National specifications and standard practices, approved project plans and specifications and all applicable City standards, codes and ordinances.
- Upon completion of all construction projects, the Contractor shall restore existing facilities (i.e. property) to equal or better than original site conditions prior to construction.
- The Contractor shall furnish all materials, equipment, and labor for this project. The Contractor shall furnish all materials, equipment excavation, installation and backfilling of raw water conveyance box culverts and related appurtenances as shown on the plans and/or described in the specifications.
- The loading, unloading and handling of all culverts, appurtenances, and other accessories shall be in accordance with the manufacturer's recommended practices and shall at all times be performed with care to avoid any damage to the material. The contractor shall locate and provide the necessary storage areas for materials and equipment.
- The Contractor shall be responsible for safeguarding and protecting all material and equipment stored on the job site. The Contractor shall be responsible for the storage of materials in a safe and workmanlike manner to prevent injuries, during and after working hours, until project completion.
- The Contractor shall provide sheeting, shoring and bracing necessary to protect workmen and existing utilities during all phases of construction, as may be required by O.S.H.A., Federal, State and local laws, codes and ordinances.
- All testing procedures used on this project shall conform to specifications. The testing expenses shall be borne by the Contractor. Should any test results not meet the testing standards, it shall be the Contractor's responsibility to remove or replace such materials and installations so that the testing standards can be met. Additional testing to certify compliance with testing standards shall be at the Contractor's sole expense.
- The approximate location of existing utilities are given for reference only. Before commencing the work on this contract, the Contractor shall verify by field investigation the actual locations of all utility facilities within and adjacent to the limits of the work that may be affected by the project work. The Contractor shall be responsible prior to excavation to determine if conflicts exist. The Contractor shall notify the Project Manager or Authority at once of any conflict prior to commencing any construction. Conflicts which result due to negligence by the Contractor to locate, horizontally and vertically, existing utilities which are shown on the construction drawings, or which the contractor has been given notice or has knowledge, shall be the sole responsibility of the Contractor. The cost of remedial work, removal of portions of the work or extensive design changes occasioned by the failure of the Contractor to verify the location of existing utilities as described above shall be borne by the Contractor.
- The Contractor shall be fully responsible for any and all damage to existing public or private utility lines, including but not limited to paving, water lines, wastewater collection systems, storm sewer and traffic signals during construction. All damages shall be repaired in accordance with current editions of applicable governing entity. Repairs shall be at no cost to the Sabine River Authority.
- The Contractor shall not unload any track-type construction machinery on any existing pavement or cross over any existing pavement or curb during any project.
- The Contractor shall provide the Engineer detailed "Record Drawings," in reproducible form, upon completion of a project prior to final payment.
- The Contractor shall give notification to the Sabine River Authority for inspection of work in a timely manner. No completed work will be covered without approval. Contractor shall notify the following forty-eight (48) hours prior to beginning construction:  
A. Quiddity Engineering – (713) 777-5337  
B. Sabine River Authority – (409) 746-2111
- All work performed shall comply with current National specifications and standard practices, approved project plans and specifications and all applicable standards, codes and ordinances.
- Contractor shall notify all utility companies in the area at least 72 hours prior to commencing work in any right-of-way or existing easement. A verification number from the one-call utility coordinating committee is required.  
A. Texas811 (dig tess) – 1 (800) 344-8377  
B. CenterPoint Energy – Natural Gas – (713) 659-2111, 1 (800) 752-8036  
C. Entergy – Power – 1 (800) 368-3749  
D. AT&T Texas/SWB T – 1 (800) 344-8377  
E. City of Orange – (832) 595-3582
- The Contractor shall hold harmless the Sabine River Authority and all its representatives from all suits, actions, or claims, of any character, brought on account of any injuries or damages sustained by any person or property in consequence of any neglect in safeguarding the work or through the use of unacceptable material in the construction of the improvements, or on account of any act of omission by the said Contractor. The Contractor shall not be released from said responsibility until the project shall have been completed and accepted, and so much of the money due the Contractor under and by virtue of his contract may be retained by the City or his surety may be held until such claims have been settled and suitable evidence to that effect furnished to the Authority.
- Unless specifically authorized by the Owner, Contractor shall confine all work efforts within the designated area. Contractor shall exercise extreme care near adjacent property to protect any existing trees, structures, fences, and other existing features. Contractor shall be responsible for adequately protecting existing structures, utilities, trees, and other adjoining facilities and property, and repair and replace due to damage caused by Contractor at Contractor's sole expense. Restoration shall be as good as or better than prior to starting work.

GENERAL CONSTRUCTION NOTES CONT.:

- Owner shall provide horizontal and vertical control monuments. Contractor shall be responsible for construction staking for project.
- These plans, prepared by Quiddity Engineering, do not extend to or include the designs or systems pertaining to the safety of the Contractor or its employees, agents, or representatives in the performance of the work. The seal of the Registered Professional Engineer hereon does not extend to any such systems that may now or hereafter be incorporated in these plans. The Contractor shall prepare or obtain appropriate safety systems, including the plans and specifications required by House Bill 1569, as currently amended, enacted by the Texas Legislature and current OSHA Standards for Trench Safety.
- Prior to bidding the project, the Contractor shall inspect the site and satisfy himself that conditions of the site of this project are acceptable for construction.
- Extra bank sand as directed by Engineer shall be from an approved source. Use sand that is free from clay lumps, organic or other deleterious material, and having a plasticity index of four (4) or less.
- Access to driveways and parking lots must be maintained during construction.
- No open trenches are to be left unattended.

UTILITY CONSTRUCTION NOTES:

- The Contractor shall provide sheeting, shoring and bracing necessary to protect workmen and existing utilities during all phases of construction, as may be required by O.S.H.A, federal, state and local laws, codes and ordinances.
- Contractor shall include cost of shoring in bid price for trench safety.
- Trench safety boxes shall not be placed in pipe zone.
- Existing overhead power poles and support guy wires exist along project alignment. Where a guy wire impedes the path of consruction, the Contractor shall brace the existing power pole and temporarily relocate the guy wire. This work shall be coordinated with the appropriate utility company. This work is incidental to the contract.
- Working hours shall be from 7:00 a.m. to 6:00 p.m. Monday through Friday. The Contractor shall request approval of the Engineer a minimum of 48-hours prior to working on the weekends and/or holidays.
- Establishment of control points will be provided by the Owner or their representative. Alignment, centerline curve data, and stationing to be determined from approved recorded plat or road right-of-way. The Contractor will be responsible for coordinating this work with the field project representative.
- The Contractor shall return all existing paving and driveways to original or better condition at no additional cost to the owner unless otherwise noted or specifically called out as a pay item.
- No discharge of groundwater into the raw water canal shall be allowed.

TxDOT CROSSING NOTES:


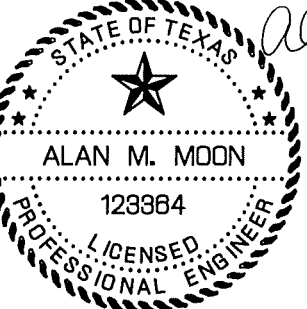
- All work shall be in acceptance with TxDOT requirements and standards.
- Contractor shall notify the TxDOT Beaumont District office Bryce Broussard at (409) 239-9746  
Email: bryce.broussard@txdot.gov at least 48-hours prior to commencing construction.
- No dirt nuisance to roadway.
- All surplus material shall be removed from the right-of-way and the excavation finishes flush with surrounding natural ground.
- No bore pits to be left unprotected.
- Area disturbed by work shall be re-sodded.
- All work shall be in acceptance with TxDOT requirements and standards.
- Personal vehicles of employees are not permitted to park within the right-of-way, including sections closed to public traffic. Employees may park on the right of way at the Contractor's office, equipment, and materials storage yard sites.
- Approval of this project does not include the discharge of groundwater or potable water into TxDOT right-of-way. If Contractor needs to discharge water into TxDOT's right-of-way a separate agreement is necessary. This work shall be the sole responsibility of the Contractor.
- Contractor shall contact TxDOT prior to beginning work to obtain an approved traffic control plan.

ENTERGY CONSTRUCTION NOTES:

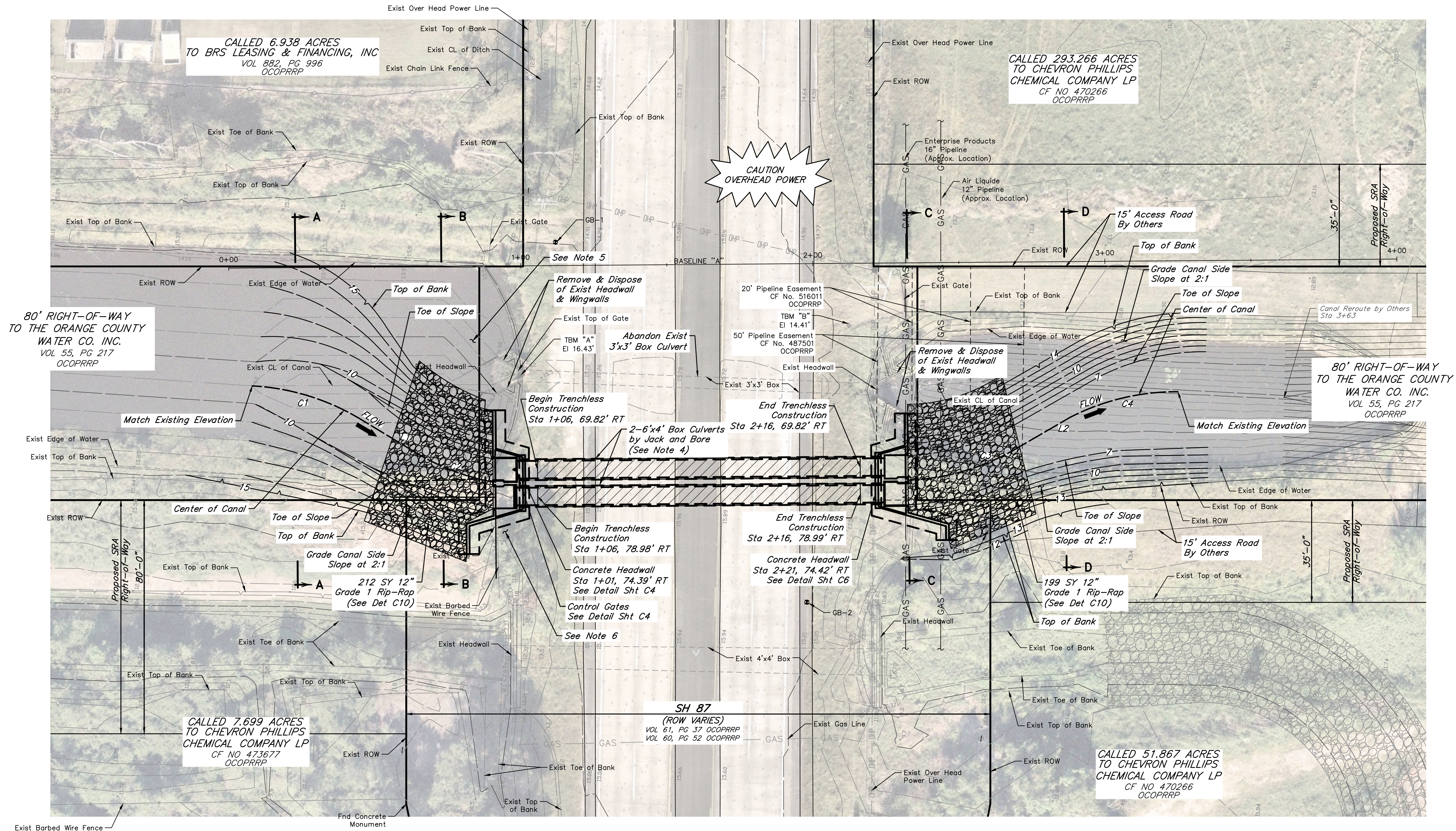
- Overhead lines may exist on the property. We have not attempted to mark those lines since they are clearly visible, but you should locate them prior to beginning any construction. Texas law, section 752, health and safety code forbids all activities in which persons or things may come within six (6) feet of live overhead high voltage lines and operating a crane, derrick, power shovel, drilling rig, pile driver, hoisting equipment, or similar apparatus within ten (10) feet of live overhead high voltage lines. Parties responsible for the work, including Contractors are legally responsible for the safety of construction workers under this law. This carries both criminal and civil liability.
- Contractor shall coordinate with Entergy before working within ten (10) feet of overhead power lines. Contact Entergy representative Sidney Williams at (409) 347-5039. for poles to be braced and lines to be de-energized and/or moved. Contractor shall be responsible to Entergy for any costs associated with bracing of power poles or de-energizing an/or moving any conflicting overhead power lines.
- To stake Entergy underground facilities, Contractor shall dial 811 to contact either TEXAS811 or LONESTAR811 one-call centers to process utility location requests a minimum of 48 hours prior to construction to have main and service lines field located, before starting excavation.
- Private underground electrical facilities may exist in the area and these will not be staked by Entergy personnel.

FILL/GRADING NOTES:

- General Contractor and all subcontractors shall verify the suitability of all existing and proposed site conditions including grades and dimensions before start of construction. The Engineer shall be notified immediately of any discrepancies.
- Before starting construction, Contractor shall verify benchmark elevation and notify Engineer of any discrepancy and/or conflict is found.
- Contractor shall protect all manhole covers, valve covers, vault lids, fire hydrants, power poles, guy wires, telephone boxes that are to remain in place and undisturbed during construction.
- All existing concrete paving, sidewalk, and curb demolition shall be removed and disposed of by Contractor. Disposal shall be at an approved off-site, lawful location, unless directed otherwise by the Owner.
- Areas that are to receive fill shall be prepared as follows (No Separate Pay):  
A. Areas that are to receive fill will be stripped to a dept of 3". Strippings shall be stock be stockpiled and then spread evenly on surface of filled areas.  
B. Prior to placement of fill on stripped areas, the Contractor shall proof rool using a pneumatic roller (12 ton or approved equal) (No Separate Pay). Should soft unstable areas appear in the lots, the Contractor shall remove unstable material as directed by the Engineer. The Contractor shall replace this with a suitable material compacted as required (No Separate Pay for a depth up to 1.5 foot).  
C. Fill shall be placed in maximum loose lifts of eight inches (8") or less and corn

NO.	DATE	REVISIONS	APP.
SABINE RIVER AUTHORITY ORANGE COUNTY, TEXAS			
GULF COAST CANAL-STATE HIGHWAY 87 CROSSING REPLACEMENT			
GENERAL CONSTRUCTION NOTES			
 <b>QUIDDITY</b> <small>Texas Board of Professional Engineers and Land Surveyors Reg. No. F-23290 6330 West Loop South, Suite 150 • Bellaire, TX 77401 • 713.777.5337</small>			
SCALE: AS SHOWN		DGN. BY: AMMOON	
DATE: AUGUST 2022		DWN. BY: JASTRUHAR	
JOB NO. 17314-0002-00		DWG. NO.	
SUBMITTED:		SURV. BY:	
		F.B. NO.	
 <i>Alan Moon</i> 8/4/2022			
G2 SHEET NO. 2 OF 17			





80' RIGHT-OF-WAY  
TO THE ORANGE COUNTY  
WATER CO. INC.  
VOL 55, PG 217  
OCOPRRP

80' RIGHT-OF-WAY  
TO THE ORANGE COUNTY  
WATER CO. INC.  
VOL 55, PG 217  
OCOPRRP

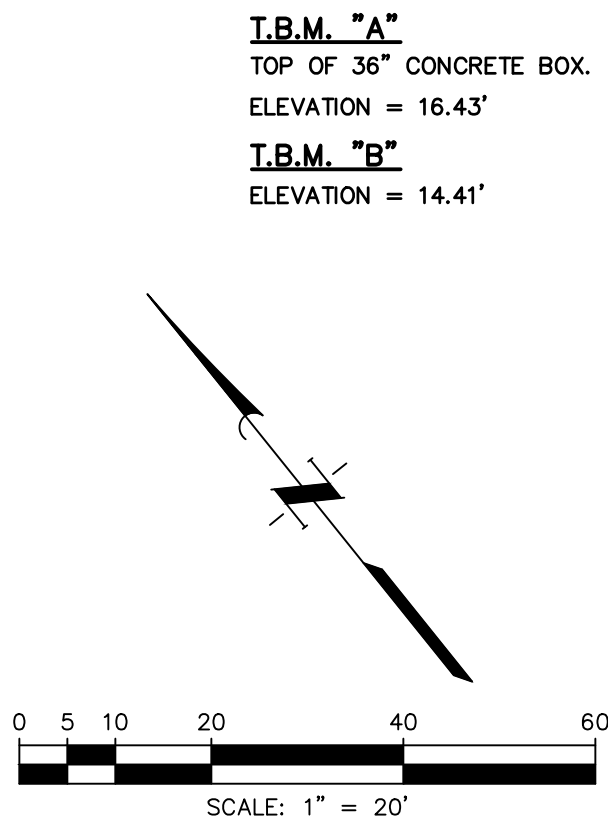
CALLED 7.699 ACRES  
TO CHEVRON PHILLIPS  
CHEMICAL COMPANY LP  
CF NO 473677  
OCOPRRP

CALLED 293.266 ACRES  
TO CHEVRON PHILLIPS  
CHEMICAL COMPANY LP  
CF NO 470266  
OCOPRRP

CALLED 6.938 ACRES  
TO BRS LEASING & FINANCING, INC  
VOL 882, PG 996  
OCOPRRP

CALLED 51.867 ACRES  
TO CHEVRON PHILLIPS  
CHEMICAL COMPANY LP  
CF NO 470266  
OCOPRRP

CAUTION  
OVERHEAD POWER



T.B.M. "A"  
TOP OF 36" CONCRETE BOX.  
ELEVATION = 16.43'  
T.B.M. "B"  
ELEVATION = 14.41'

NOTES:

1. The existing canal crossing of SH 87 must remain operational at all times until the new crossing has been completed and tested. Contractor is not permitted to discharge groundwater into the raw water canal.
2. Contractor to call Texas-811 a minimum of 48 hours prior to excavation begins southeast of SH 87 in order to notify Enterprise Products and Air Liquide.
3. Contractor shall not discharge any water into TXDOT right-of-way. If desired, Contractor shall obtain permit from TXDOT. No separate payment will be made for obtaining permit.
4. Contractor to grout the annular voids between and around the box culverts (see Specification 02431).
5. Contractor to fill area to match proposed top of bank.
6. Contract to restore area to existing conditions.

Curve	Delta	Radius	Arc Length	Chord Bearing	Chord Dist	Begin STA	End STA
C1	27.49°	80.0'	38.38'	S 34°23'58.43" E	38.01'	0+08	0+44
C2	21.49°	80.0'	30.01'	S 29°47'43.90" E	29.84'	0+62	0+90
C3	27.96°	80.0'	39.04'	S 67°27'55.07" E	38.65'	2+32	2+69
C4	27.36°	80.0'	38.20'	S 64°37'05.20" E	37.84'	2+88	3+25

Line	Bearing	Length	Begin STA	End STA
L1	S 20°01'18.84" E	21.36'	0+44	0+62
L2	S 81°21'14.86" E	21.34'	2+69	2+88

NO.	DATE	REVISIONS	APP.

SABINE RIVER AUTHORITY  
ORANGE COUNTY, TEXAS

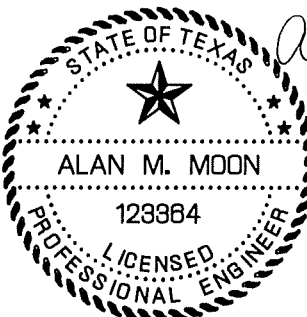
GULF COAST CANAL—STATE HIGHWAY 87  
CROSSING REPLACEMENT

PLAN VIEW



Texas Board of Professional Engineers and Land Surveyors Reg. No. F-23290  
6330 West Loop South, Suite 150 • Bellaire, TX 77401 • 713.777.5337

SCALE: 1"=20' DGN. BY: AMMOON  
DATE: AUGUST 2022 DWN. BY: JASTRUHAR  
JOB NO. 17314-0002-00 DWG. NO. \_\_\_\_\_  
SUBMITTED: SURV. BY: \_\_\_\_\_  
F.B. NO. \_\_\_\_\_

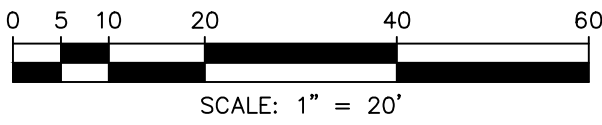


C1

SHEET NO. 3 OF 17



I.B.M. "A"  
TOP OF 36" CONCRETE BOX.  
ELEVATION = 16.43'  
I.B.M. "B"  
ELEVATION = 14.41'

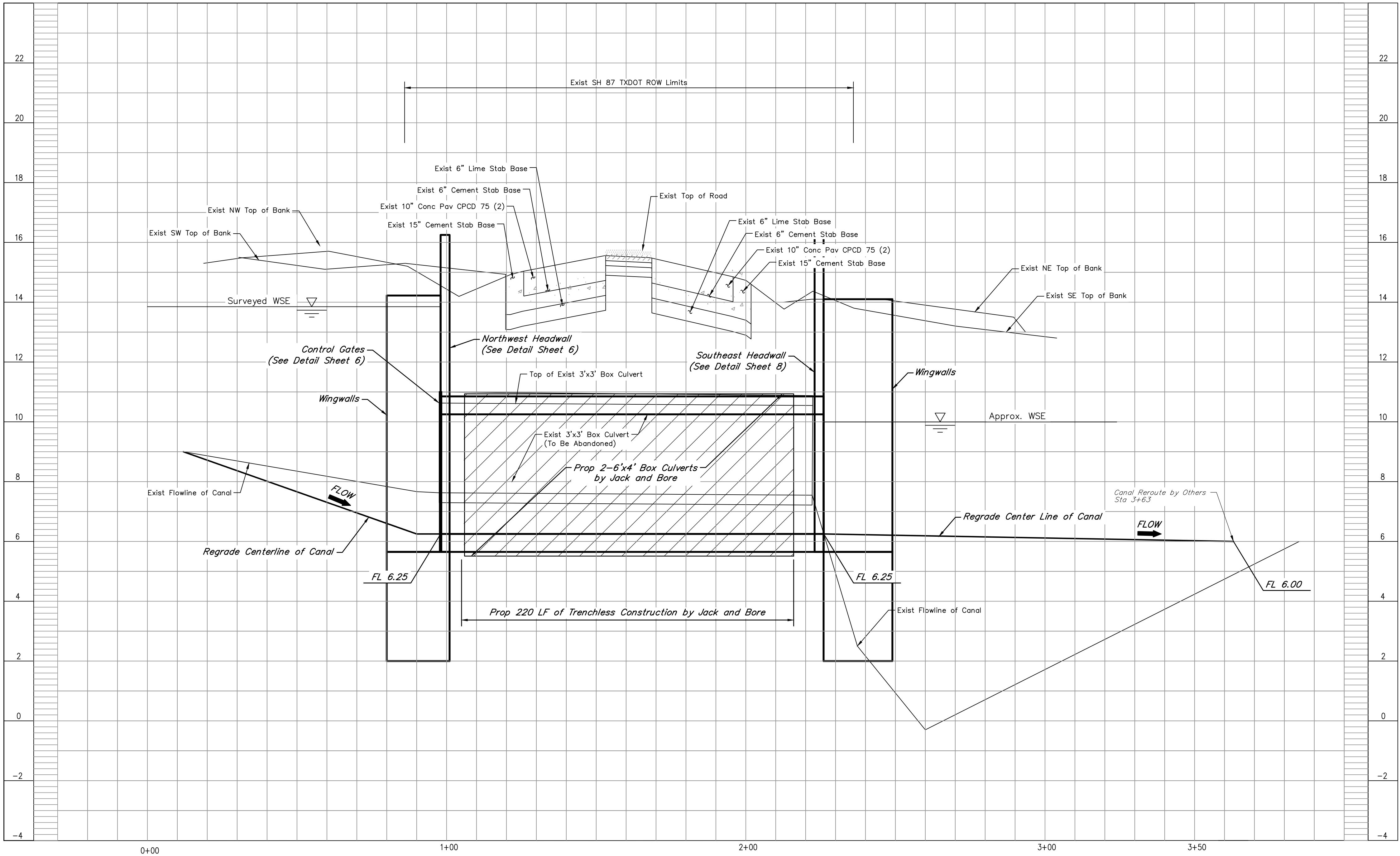


LEGEND:

Trenchless Construction

NOTES:

- The Enterprise Products 16" pipeline has approximately 15' cover below the canal flowline.
- The Air Liquide 12" pipeline has approximately 26' cover below the canal flowline.
- Contractor to pressure grout the annular voids between and around the box culverts after installation by jack and bore (see Specification 02431).



NO.	DATE	REVISIONS	APP.

SABINE RIVER AUTHORITY  
ORANGE COUNTY, TEXAS

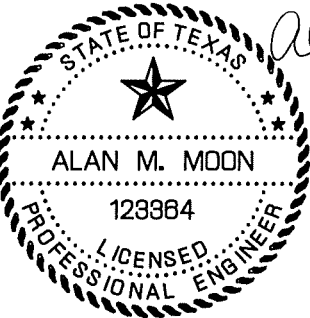
GULF COAST CANAL—STATE HIGHWAY 87  
CROSSING REPLACEMENT

PROFILE VIEW



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6330 West Loop South, Suite 150 • Bellaire, TX 77401 • 713.777.5337

SCALE: 1"=20' H, 1"=2' V DGN. BY: AMMOON  
DATE: AUGUST 2022 DWN. BY: JASTRUHAR  
JOB NO. 17314-0002-00 DWG. NO.  
SUBMITTED: SURV. BY:  
F.B. NO.

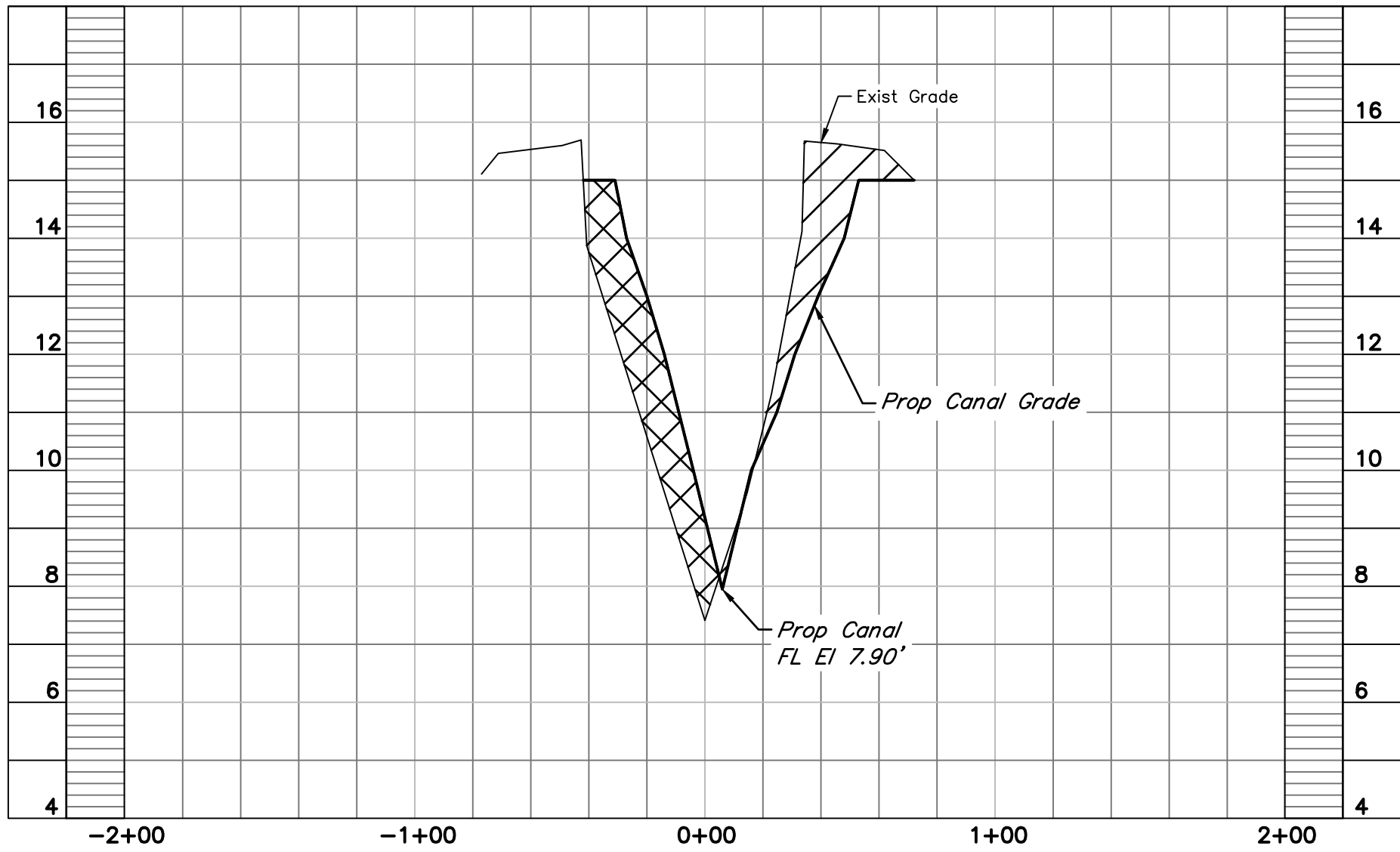


8/4/2022

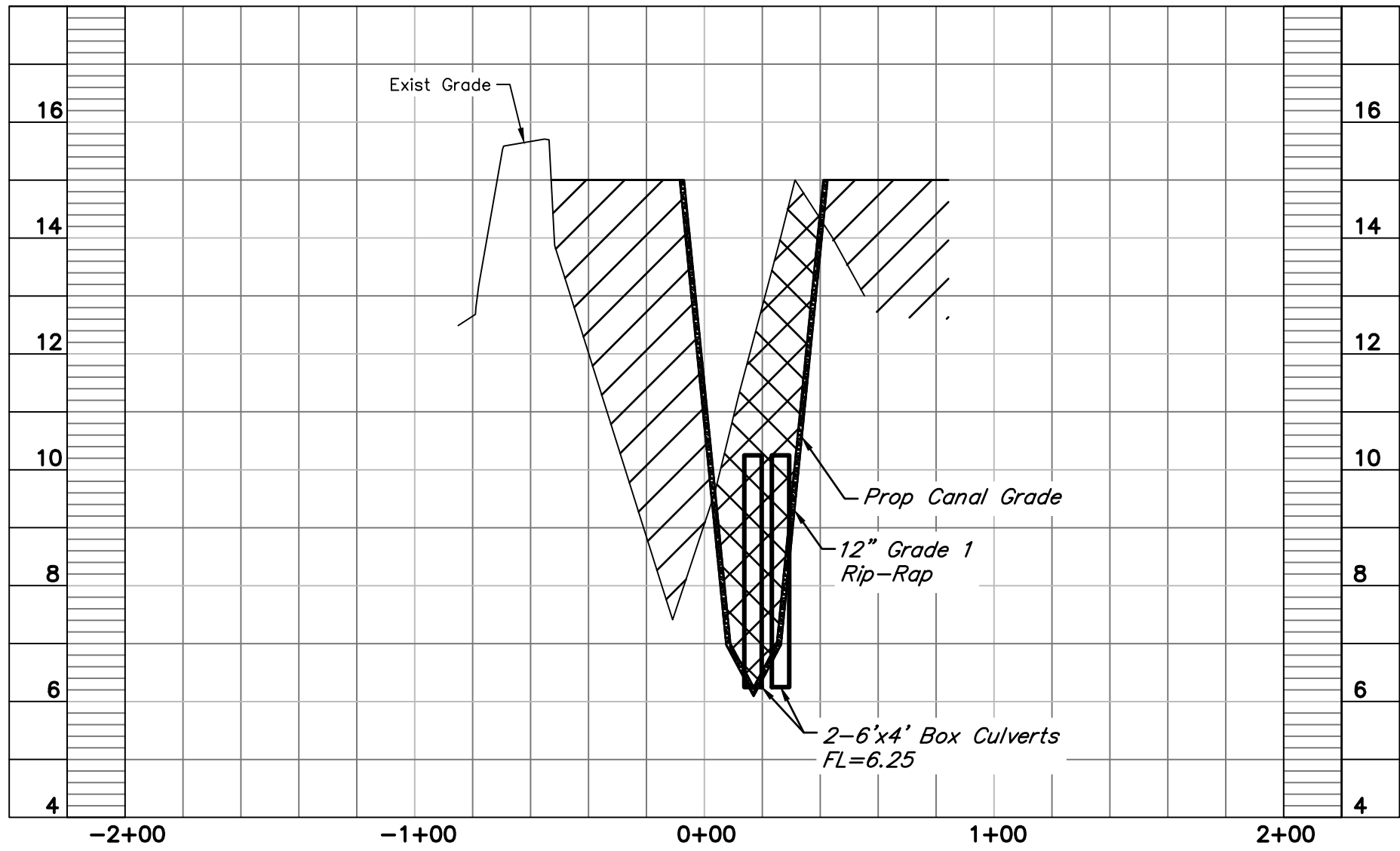
C2

SHEET NO. 4 OF 17

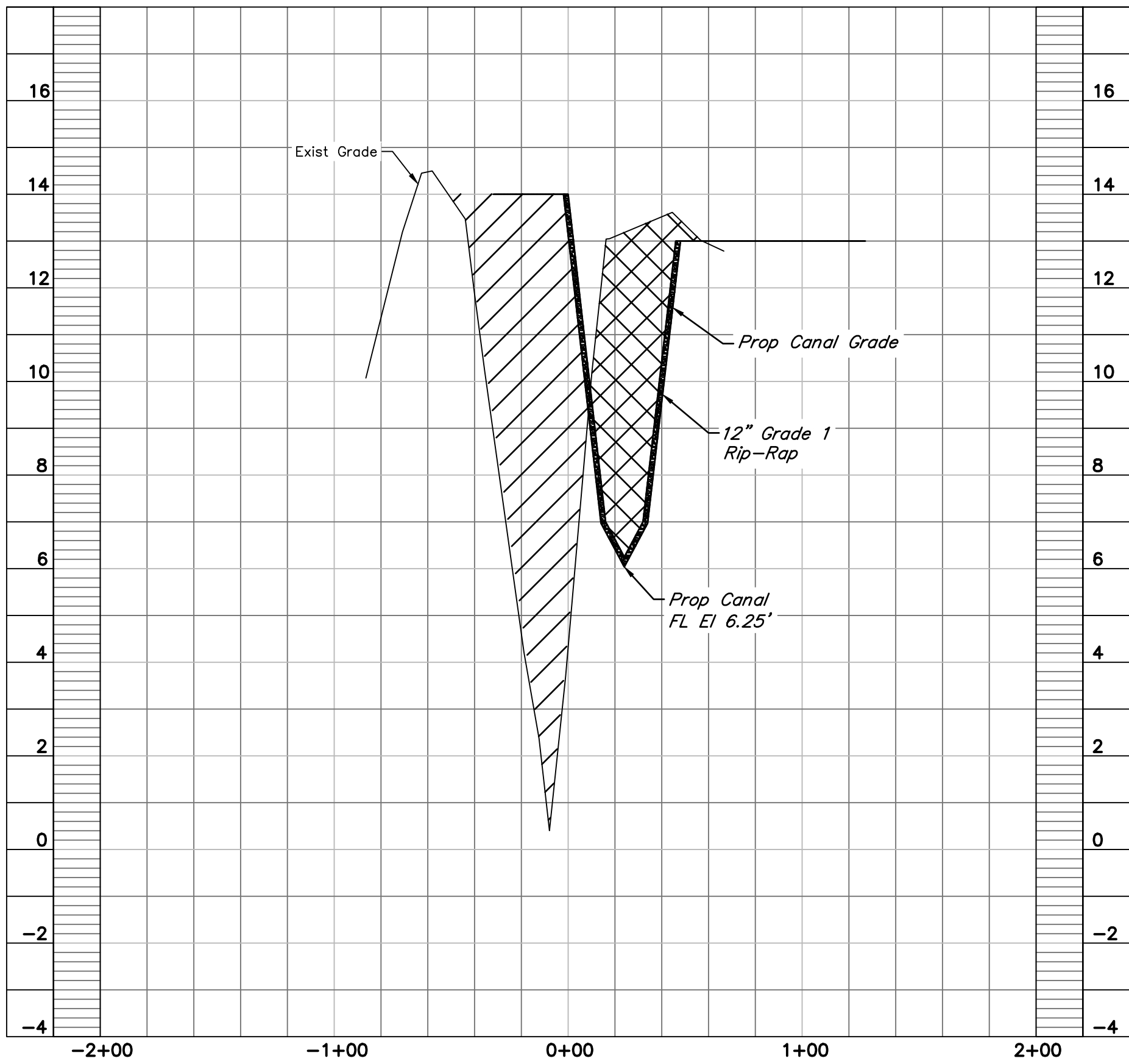




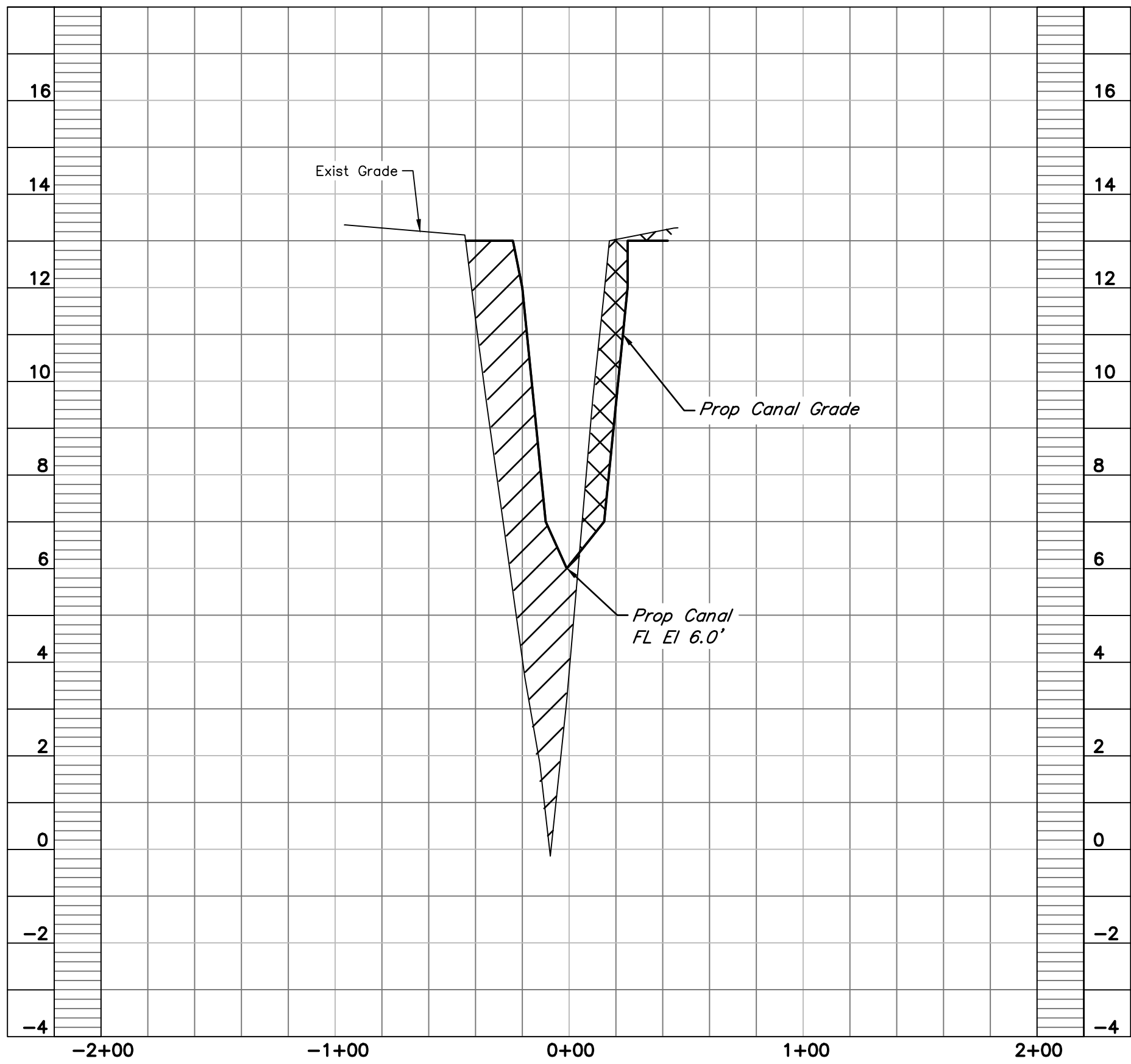
**SECTION A**  
SCALE: 1"=50'



**SECTION B**  
SCALE: 1"=50'




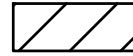
**SECTION C**  
SCALE: 1"=50'



**SECTION D**  
SCALE: 1"=50'

**I.B.M. "A"**  
TOP OF 36" CONCRETE BOX.  
ELEVATION = 16.43'  
**I.B.M. "B"**  
ELEVATION = 14.41'

**LEGEND:**

-  Proposed Cut  
 Proposed Fill

NO.	DATE	REVISIONS	APP.

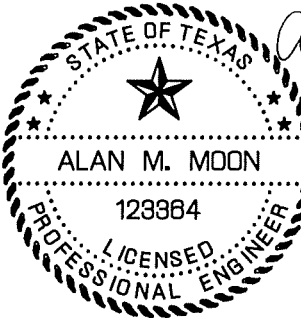
SABINE RIVER AUTHORITY  
ORANGE COUNTY, TEXAS

GULF COAST CANAL—STATE HIGHWAY 87  
CROSSING REPLACEMENT

**CROSS SECTIONS**



SCALE: 1" = 50' DGN. BY: AMMOON  
DATE: AUGUST 2022 DWN. BY: JASTRUHAR  
JOB NO. 17314-0002-00 DWG. NO.   
SUBMITTED: SURV. BY:   
F.B. NO.

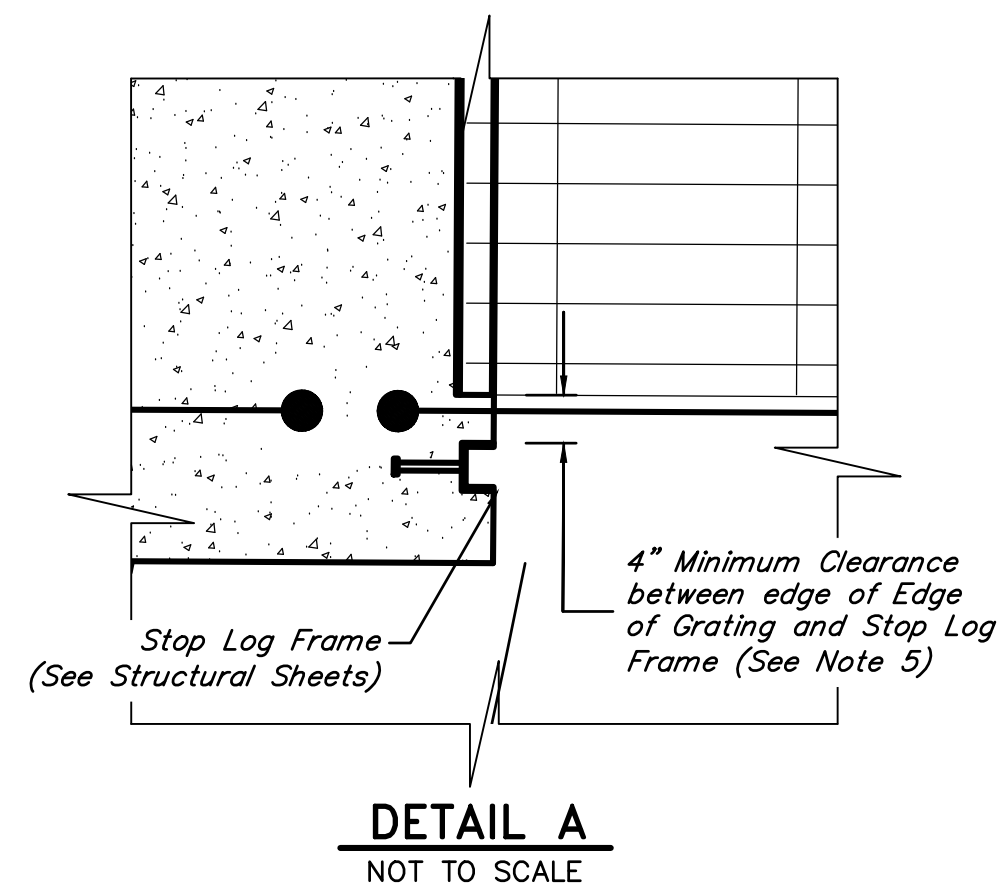
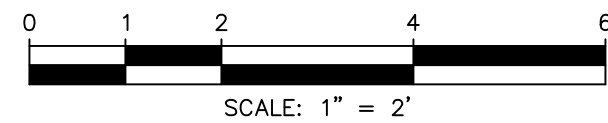
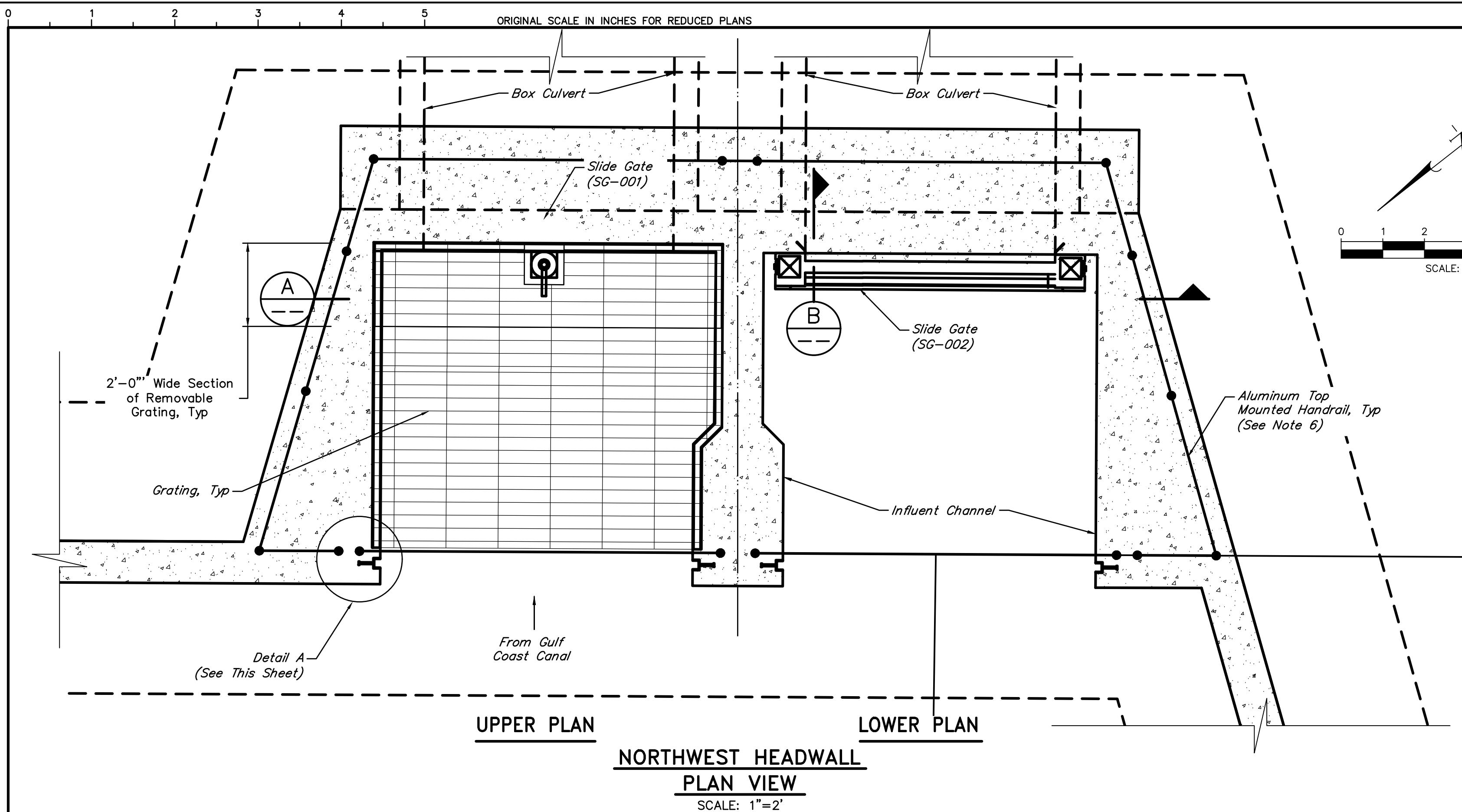


*Alan M. Moon*  
8/4/2022

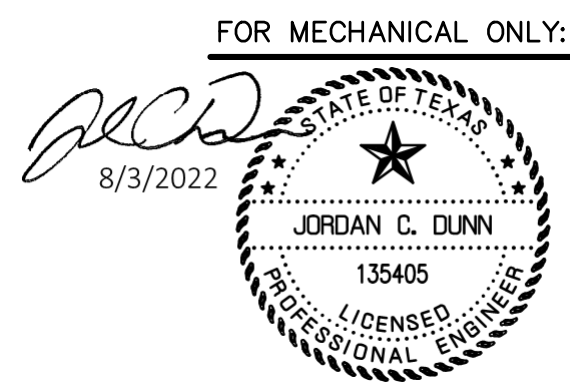
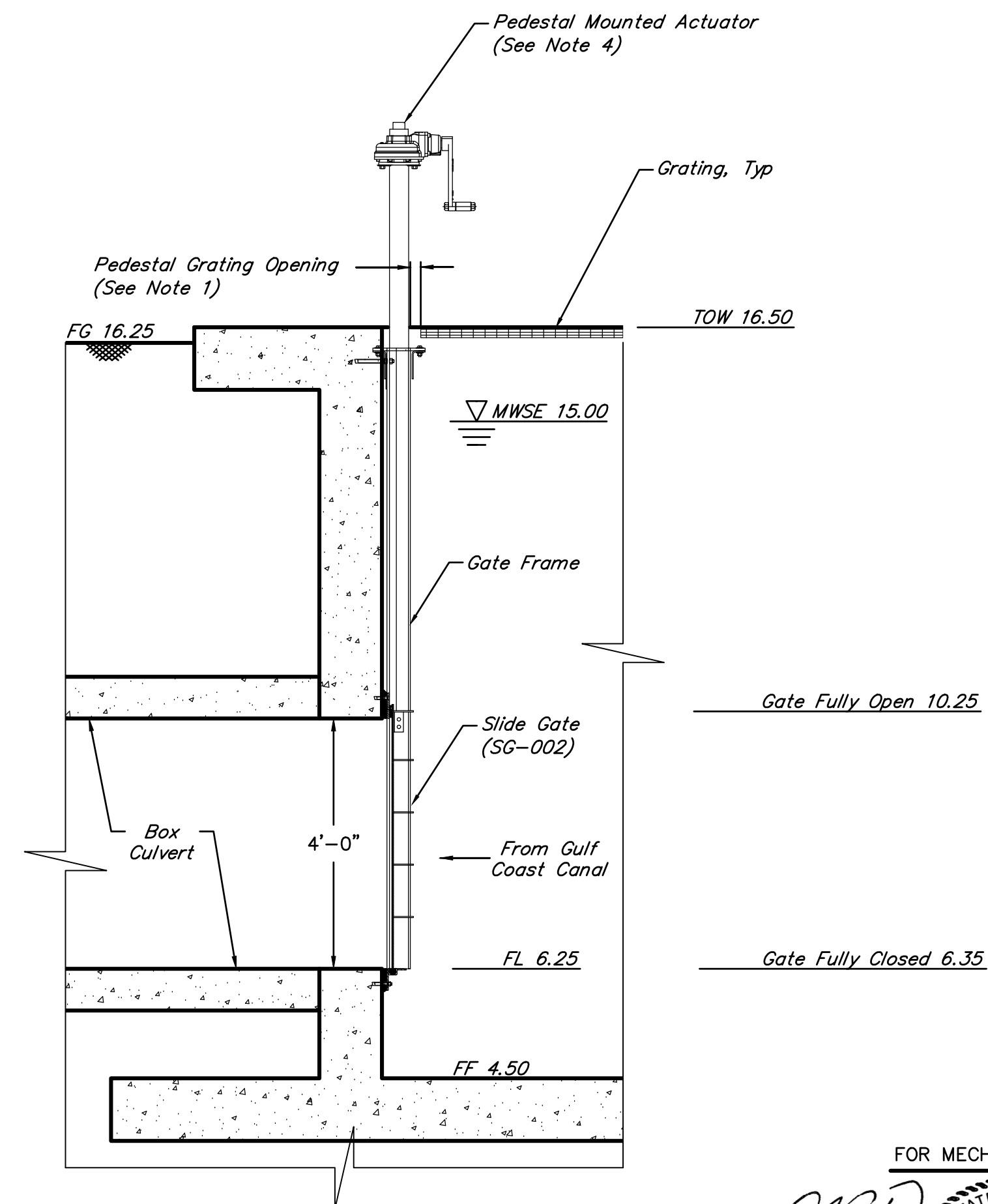
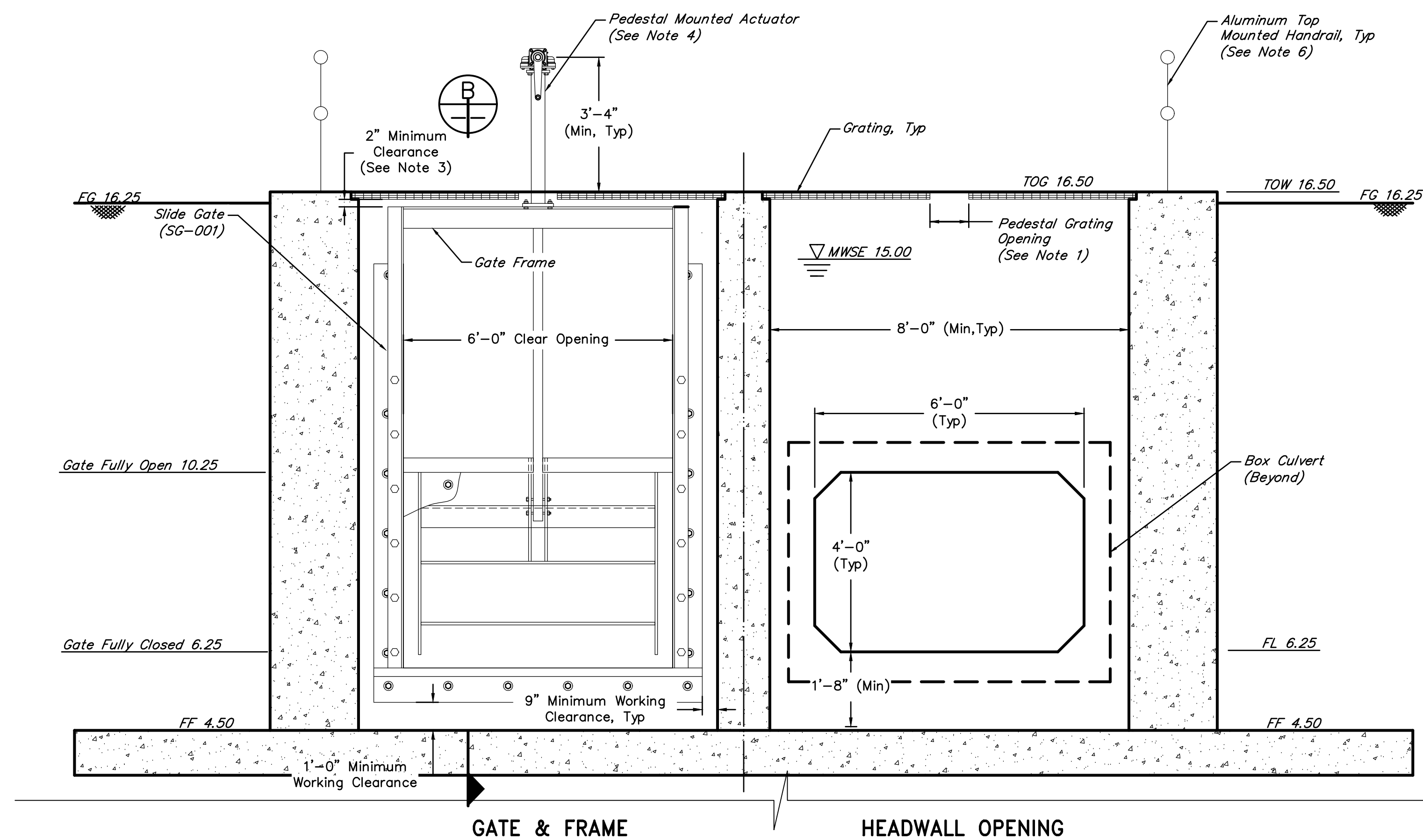
**C3**

SHEET NO. 5 OF 17



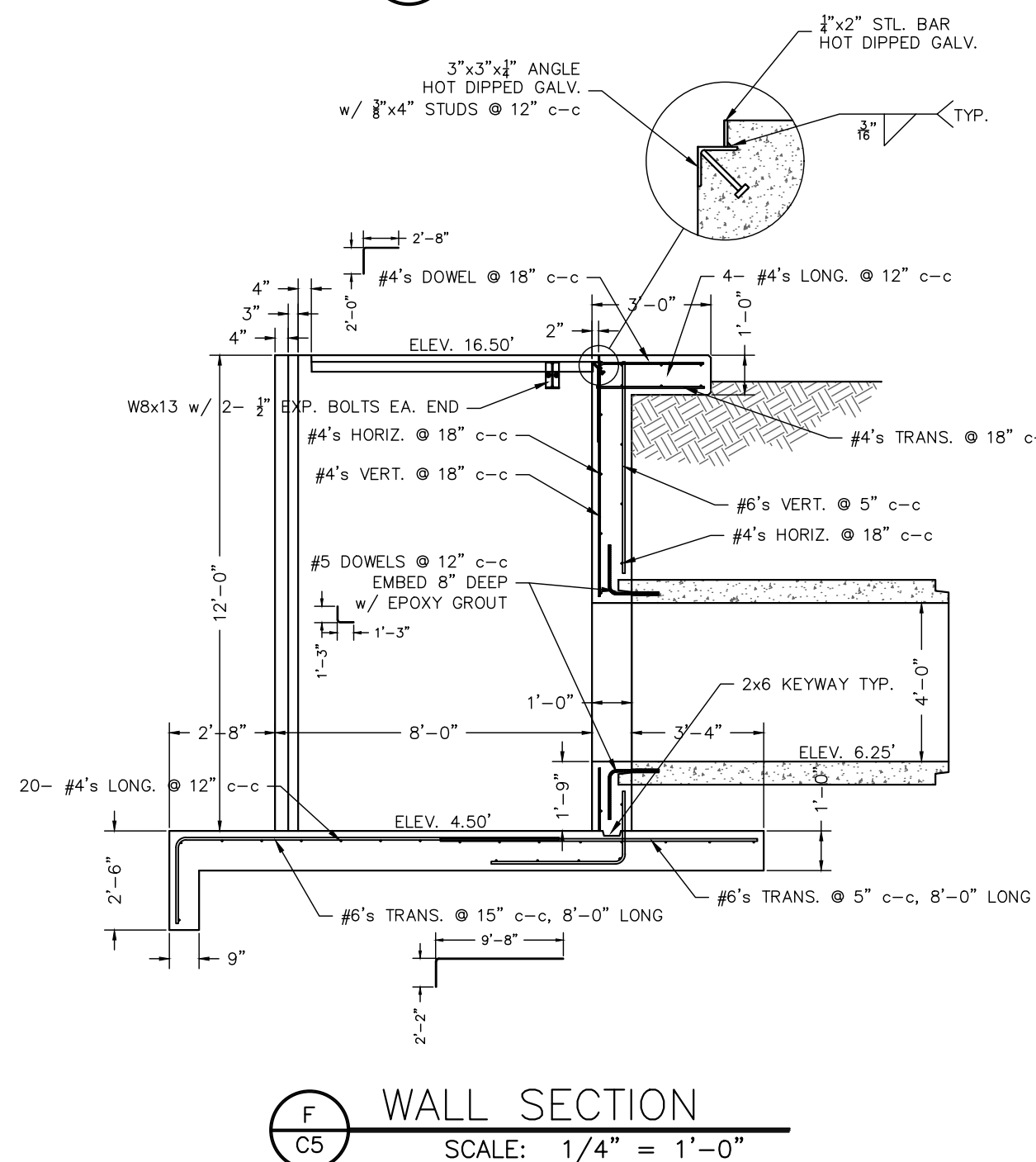
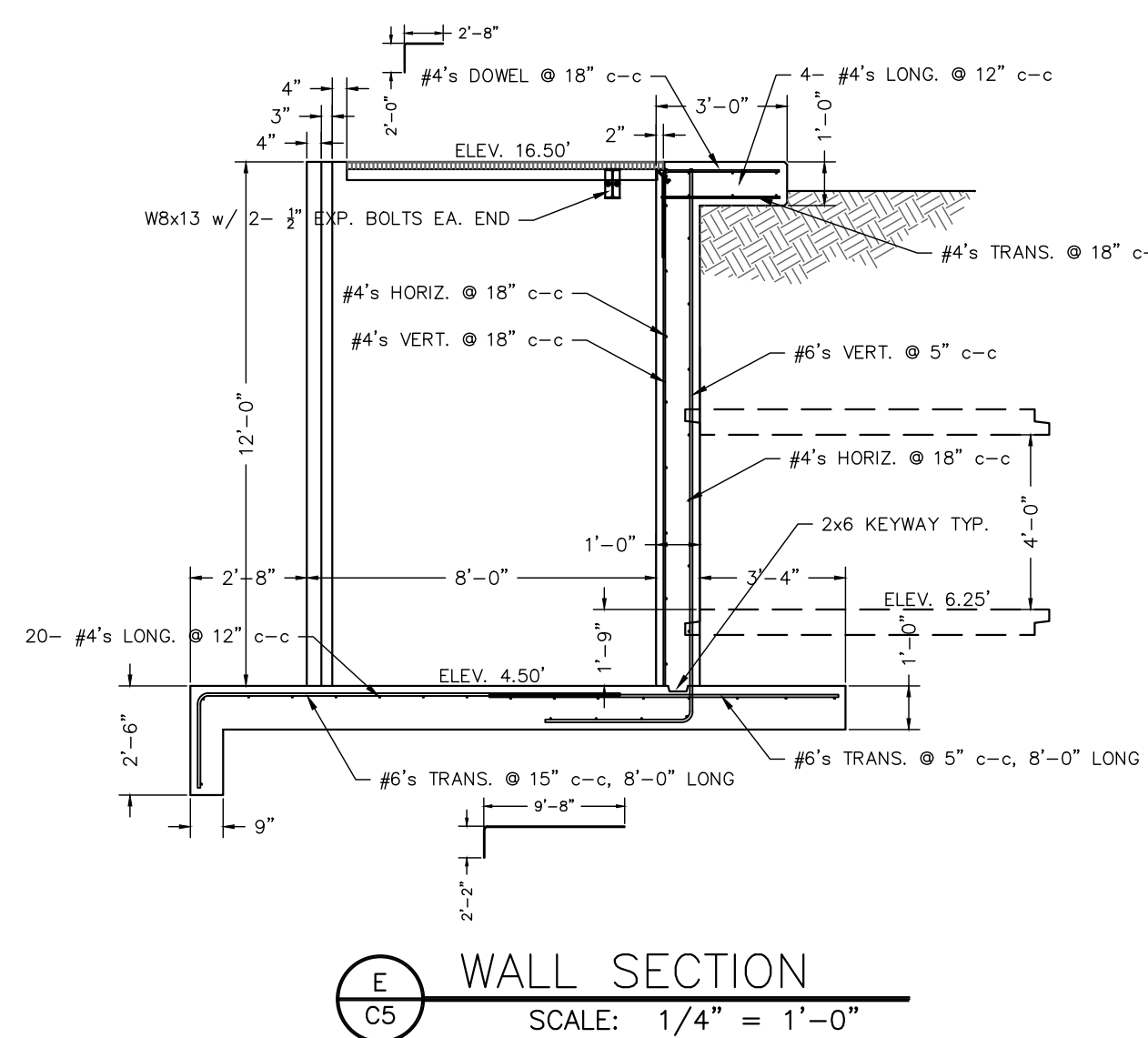
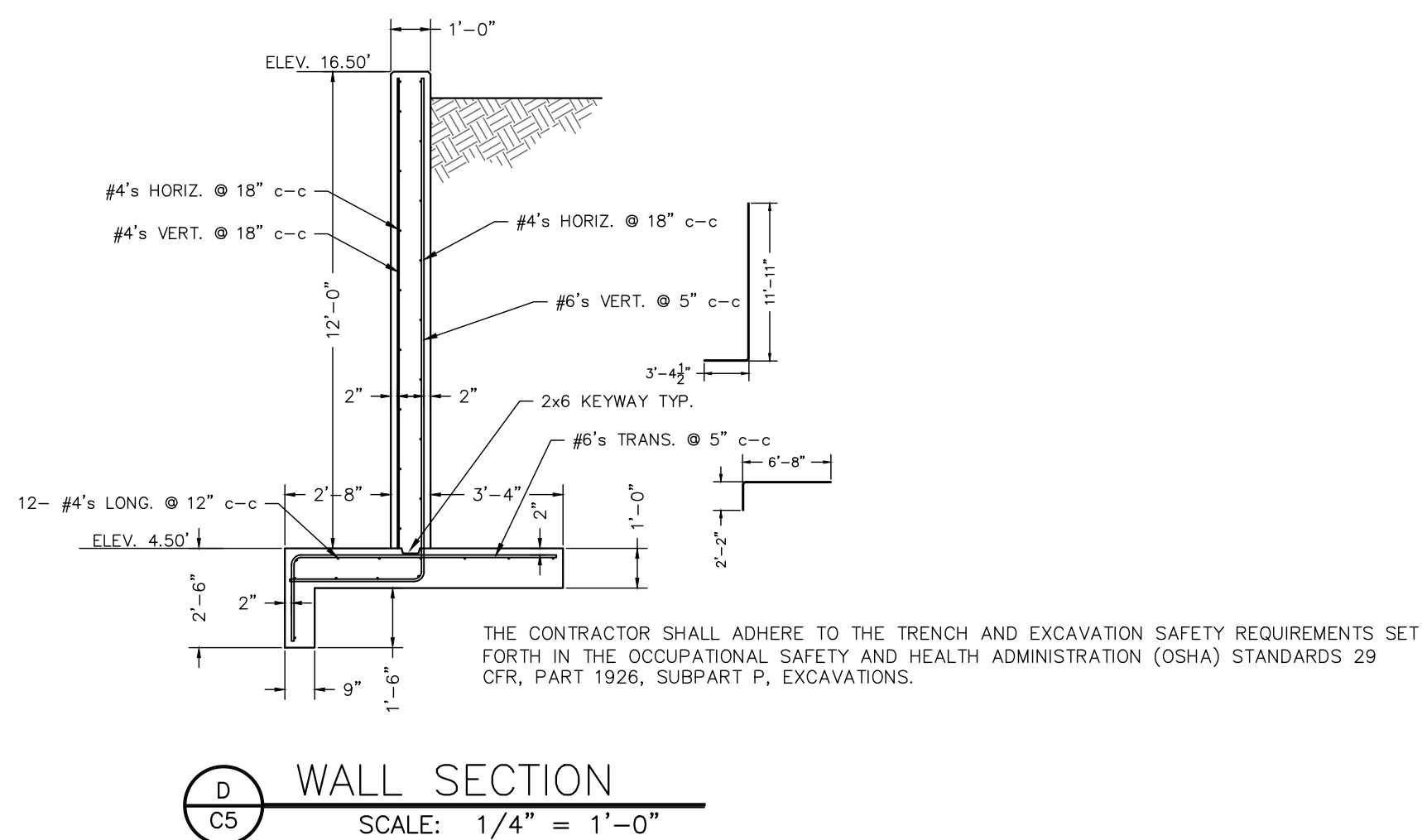
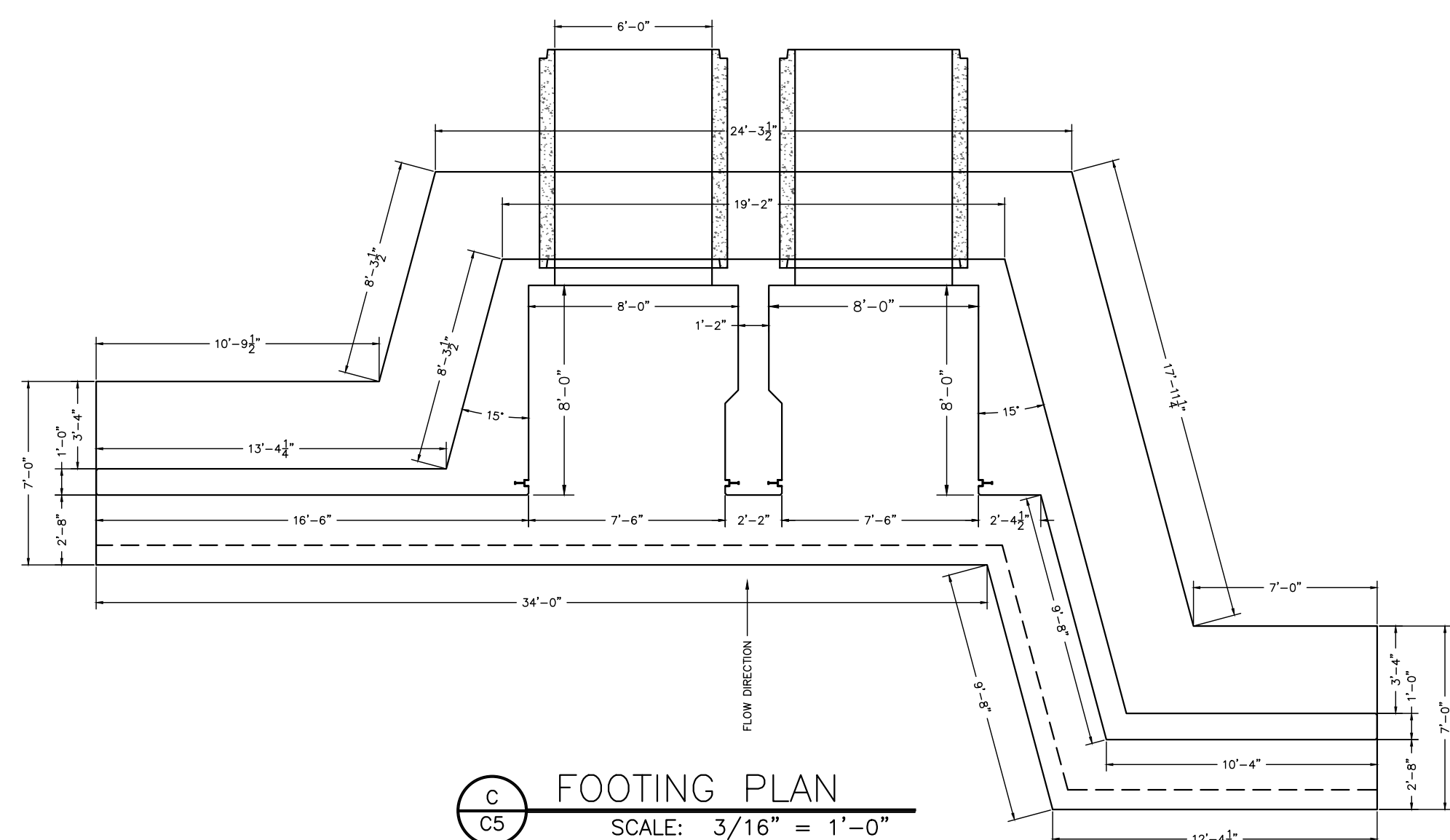
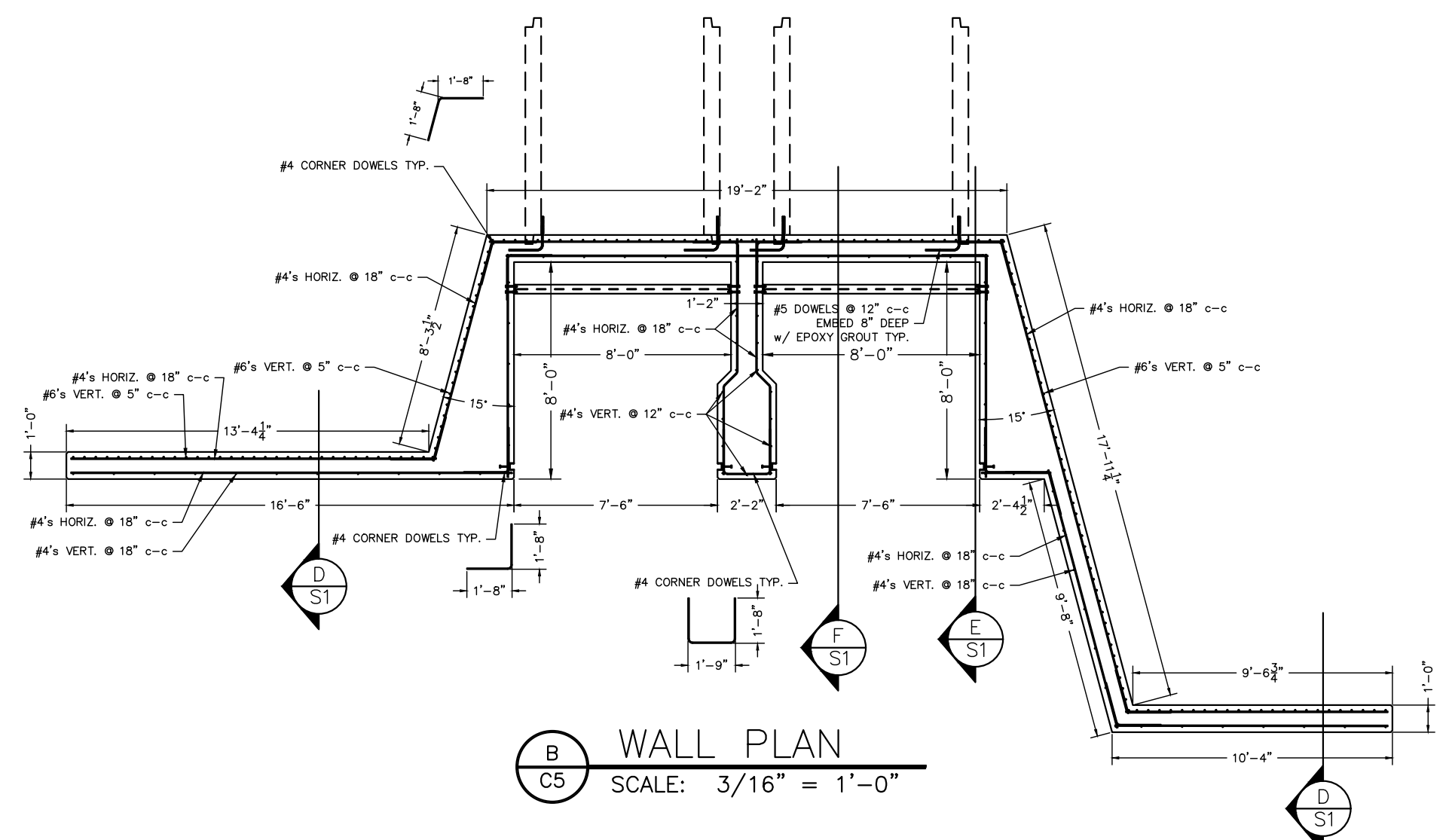
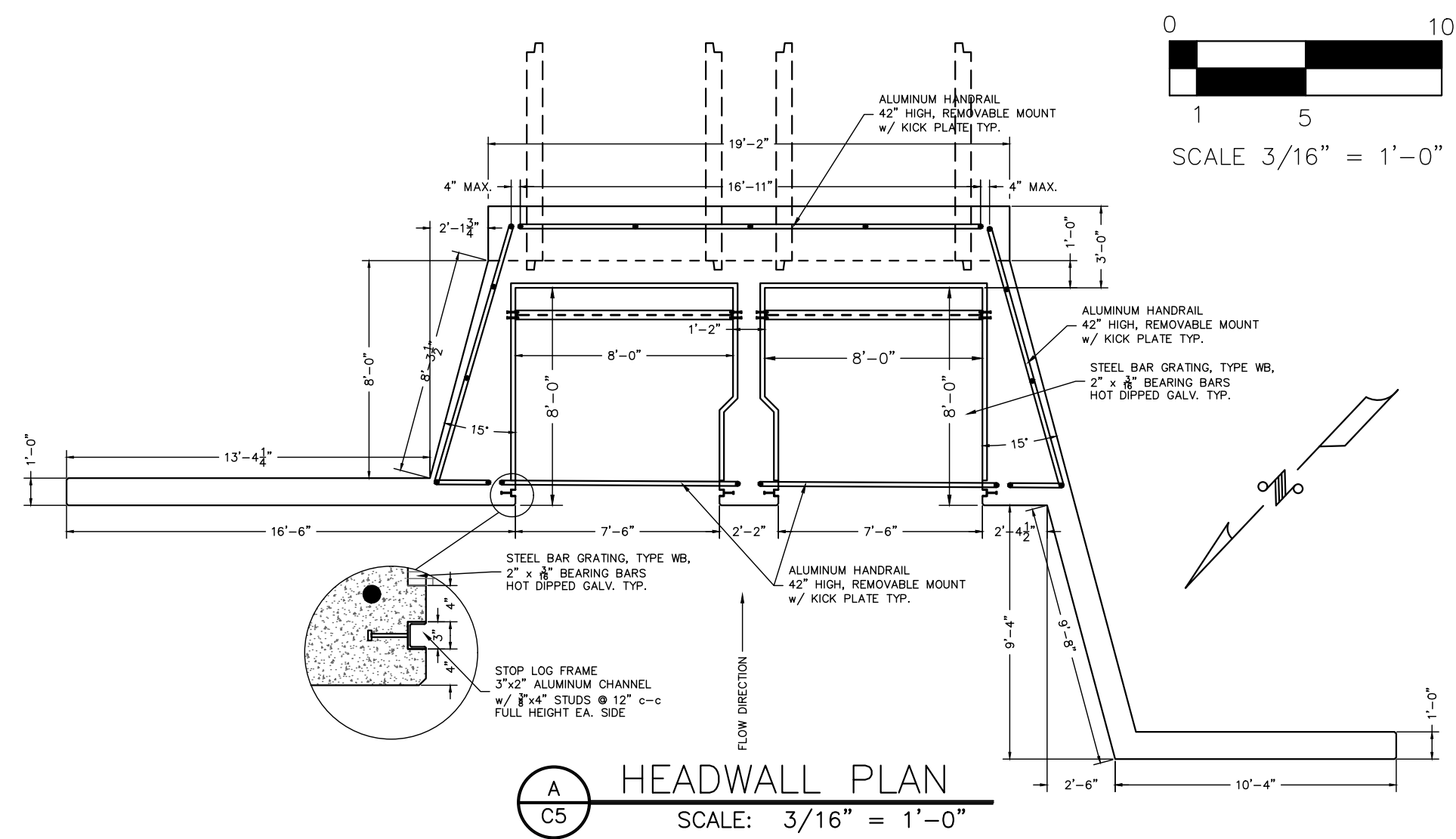


- NOTES:**
- Contractor shall coordinate with gate manufacturer and grating fabricator to provide an opening in the grating sized to ensure that there is no conflict between the pedestal and the grating and to ensure that the distance between edge of grating and the edge of the pedestal is no greater than 2 inches.
  - Stop logs shall be provided by Owner.
  - Contractor shall coordinate with gate manufacturer and grating fabricator to ensure the minimum specified clearance is provided between the top of the gate frame and the bottom of the grating.
  - The gate operator hand crank shall be located on the side of the pedestal that faces the influent channel opening.
  - Contractor shall coordinate with grating fabricator and with the setting of concrete forms to ensure that the minimum specified clearance between the edge of grating and the edge of the stop log frame is provided. The stop log frames shall be accessible from the grating when the handrail/kickplate section is removed such that the stop logs can be installed and removed without impediment.
  - All handrail shall be fabricated and installed in sections in a manner so as to facilitate temporary removal of all handrail sections for stop log installation, maintenance, and removal.



NO.	DATE	REVISIONS	APP.
SABINE RIVER AUTHORITY ORANGE COUNTY, TEXAS			
GULF COAST CANAL—STATE HIGHWAY 87 CROSSING REPLACEMENT			
NORTHWEST HEADWALL DETAIL			
<b>QUIDDITY</b> <small>Texas Board of Professional Engineers and Land Surveyors Reg. No. F-23290 6330 West Loop South, Suite 150 • Bellaire, TX 77401 • 713.777.5337</small>			
SCALE: AS SHOWN		DGN. BY: HWISENSEE	
DATE: AUGUST 2022		DWN. BY: JASTRUHAR	
JOB NO. 17314-0002-00		DWG. NO.	
SUBMITTED:		SURV. BY:	
		F.B. NO.	





- STRUCTURAL NOTES:

## I. GENERAL

- A. ALL STRUCTURAL PLAN DIMENSIONS ARE INTERPRETED FROM AND SHALL BE VERIFIED WITH THE CIVIL DRAWINGS. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES EXISTING.
- B. STRUCTURAL DRAWINGS TO BE COORDINATED WITH CIVIL, ELECTRICAL, MECHANICAL DRAWINGS FOR ALL OPENINGS, INSERTS, AND RELATED ITEMS.
- C. ANY UNUSUAL CONDITIONS ENCOUNTERED SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO CONCRETE PLACEMENT.
- D. LOCATIONS OF CONSTRUCTION JOINTS NOT SHOWN SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONCRETE PLACEMENT.
- E. THE CONTRACTOR SHALL ADHERE TO THE TRENCH AND EXCAVATION SAFETY REQUIREMENTS SET FORTH IN THE 2009 NATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) STANDARDS 29 CFR, PART 1926, SUBPART P, EXCAVATIONS.

## II. CONCRETE

- A. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS IN ACCORDANCE WITH ASTM C-39 AND SHALL HAVE A MINIMUM MODULUS OF RUPTURE OF 350 PSI AT 28 DAYS IN ACCORDANCE WITH ASTM C-78. AN ALTERNATE TRANSMITTAL AGENT SHALL BE USED. ELY AGENT SHALL NOT BE USED.
- B. WHERE CONCRETE IS PLACED AGAINST FORMS OR SEAL SLABS REINFORCING BARS SHALL HAVE A MINIMUM OF 2 INCHES CLEAR COVER UNLESS OTHERWISE SHOWN OTHERWISE. WHERE CONCRETE IS PLACED AGAINST EARTH, REINFORCING BARS SHALL HAVE A MINIMUM OF 3 INCHES CLEAR COVER.
- C. METAL KEYED CONSTRUCTION JOINTS AND SAWED JOINTS MAY NOT BE USED.
- D. APPLY FLOAT FINISH TO SLAB SURFACES TO RECEIVE A TROWEL FINISH.
- E. CONCRETE FACES SHALL NOT DEVIATE MORE THAN 3/16" FROM THE PLAN DIMENSIONS.
- F. UNLESS NOTED, ANCHOR BOLTS AND EXPANSION BOLTS SHALL BE STAINLESS STEEL.

### III. REINFORCING STEEL

- A. ALL REINFORCING STEEL SHALL BE ASTM A-615, GRADE 60.
- B. DETAILING OF REINFORCING SHALL BE IN ACCORDANCE WITH ACI 315, LATEST EDITION, UNLESS SHOWN OTHERWISE. PLACING OF REINFORCING SHALL BE IN ACCORDANCE WITH C.R.S.I. RECOMMENDED PRACTICE FOR PLACING OF REINFORCING BARS", LATEST EDITION.
- C. WHERE IT IS NECESSARY TO SPLICED REINFORCEMENT AT LOCATIONS OTHER THAN THOSE SHOWN ON THE DRAWINGS, THE SPLICE LOCATIONS SHALL BE APPROVED BY THE ENGINEER. LAP SPLICES AND EMBEDMENT LENGTHS, NOT SHOWN ON THE DRAWINGS, SHALL BE IN ACCORDANCE WITH C.R.S.I., LATEST EDITION.
- D. SUPPORT FOR THE REINFORCEMENT SHALL BE BY METAL HOOK CHAIRS EITHER GALV.

#### IV. STRUCTURAL SUBGRADE

- A. THE TOTAL AREA OF THE FOUNDATION SHALL BE EXCAVATED TO REQUIRED ELEVATION. THE SUBGRADE SHALL BE PROOF ROLLED PRIOR TO PLACEMENT OF SEAL SLAB IF REQUIRED. THE SUBGRADE SHALL BE PROOF ROLLED TO THE REQUIRED ELEVATION. THE PROOF ROLLING SHALL BE DIRECTED BY THE ENGINEER. THE PREPARATION OF THE SUBGRADE SHALL BE SUBJECT TO REVIEW OF THE ACTUAL FIELD SOIL CONDITIONS BY THE ENGINEER UPON EXPOSURE OF THE SUBGRADE BY EXCAVATION.
- B. ALL FILL PLACED UNDER THE FOUNDATION SLAB SHALL BE MAXIMUM PLASTICITY INDEX 20 OR LESS. THE MINIMUM PLASTICITY INDEX SHALL BE 5. ALL FILL SHALL BE PLACED IN MAXIMUM LIFT THICKNESSES OF SIX INCHES. EACH LIFT SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY (ASTM D-698) AT A MOISTURE CONTENT OF 1% TO 12% OPTIMUM.

NO.	DATE	REVISIONS	APP.

SABINE RIVER AUTHORITY  
ORANGE COUNTY, TEXAS

GULF COAST CANAL – STATE HIGHWAY 87  
CROSSING REPLACEMENT

NORTHWEST  
HEADWALL  
STRUCTURAL



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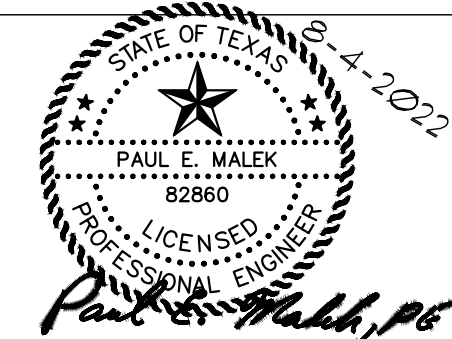
SCALE: AS SHOWN DGN. BY: PEM

DATE: JULY, 2022 DWN. BY: SGH

JOB NO. 17314-0002-00 DWG. NO.

SUBMITTED: \_\_\_\_\_ SURV. BY: \_\_\_\_\_

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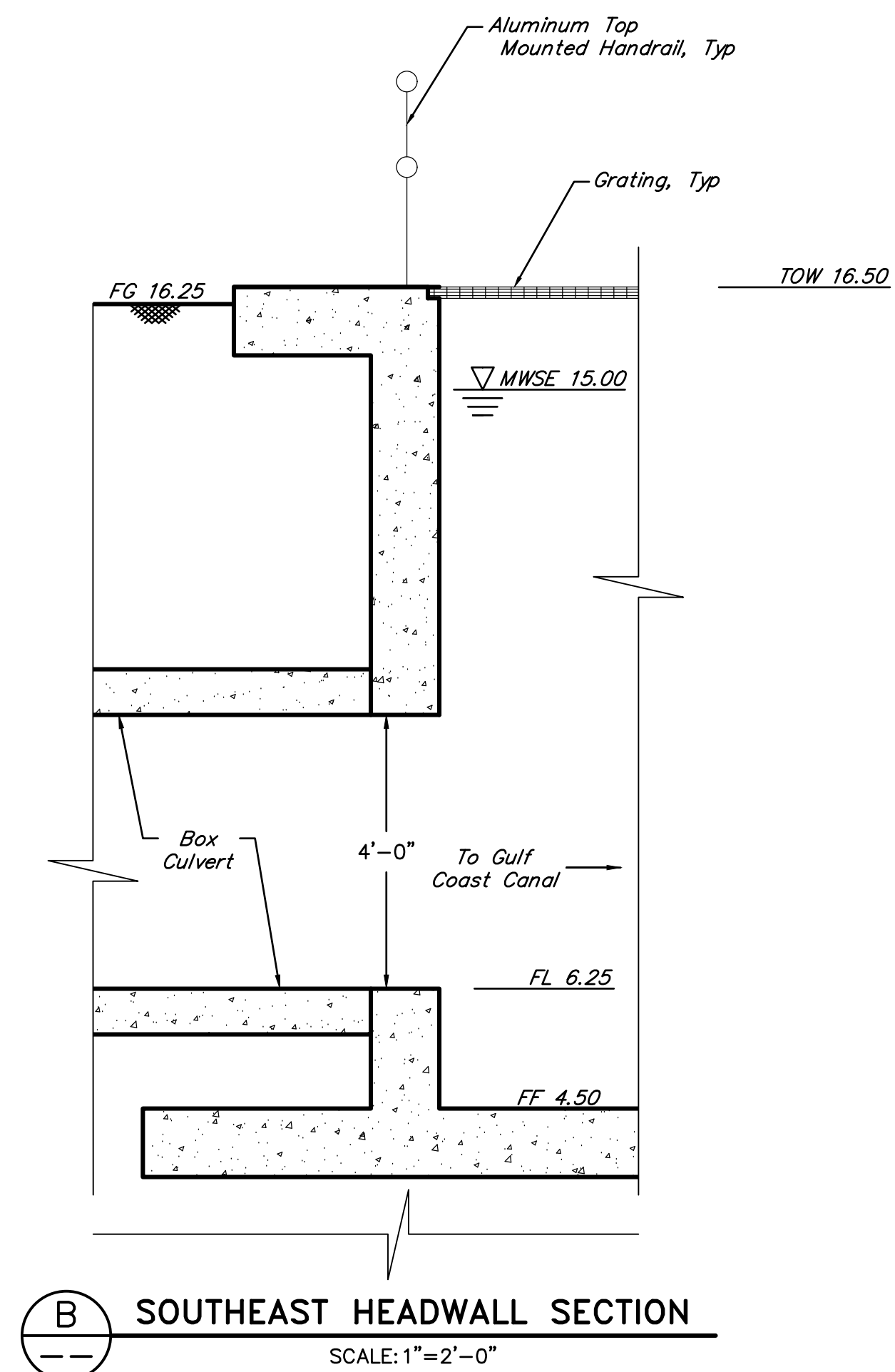
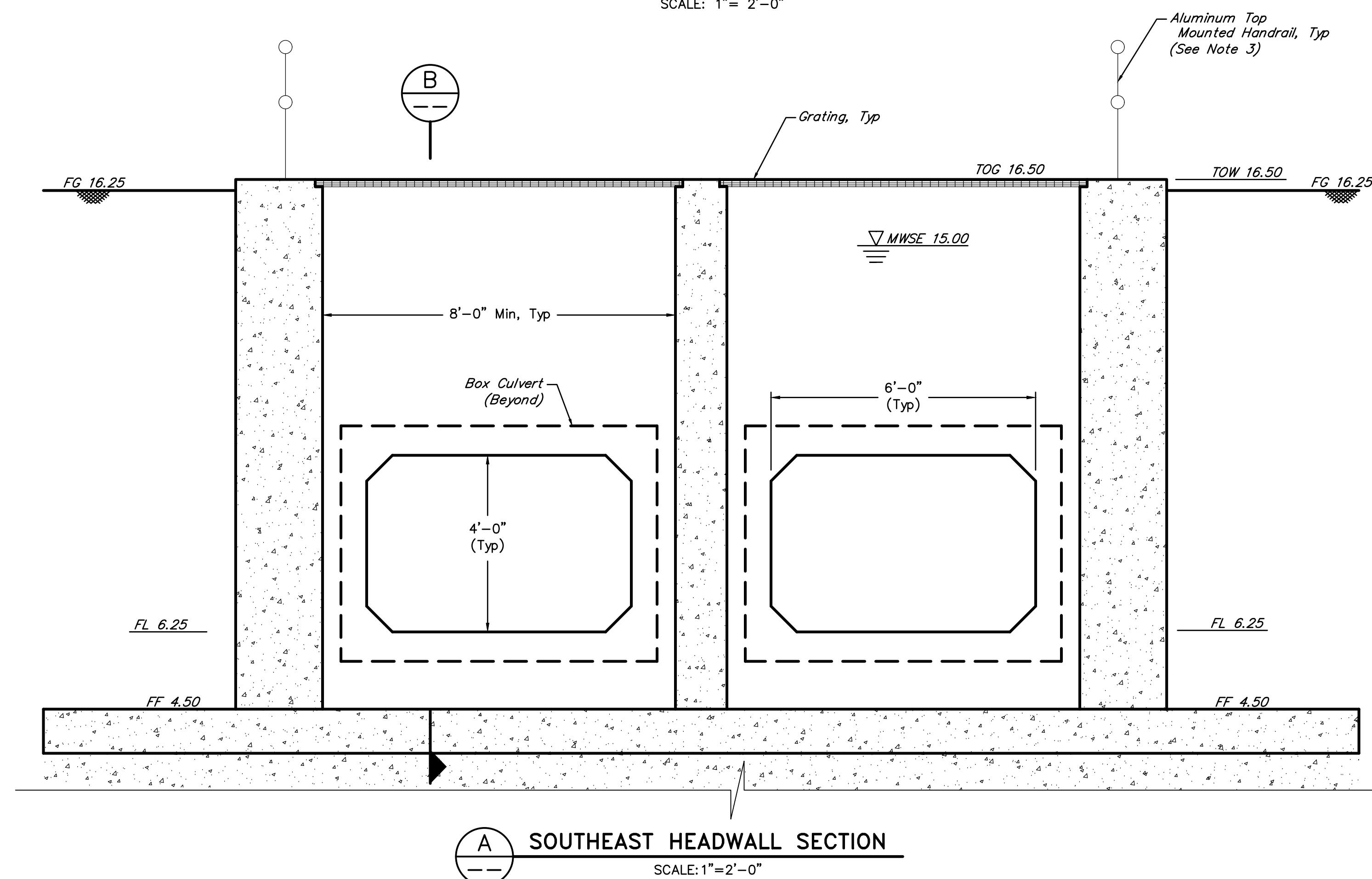
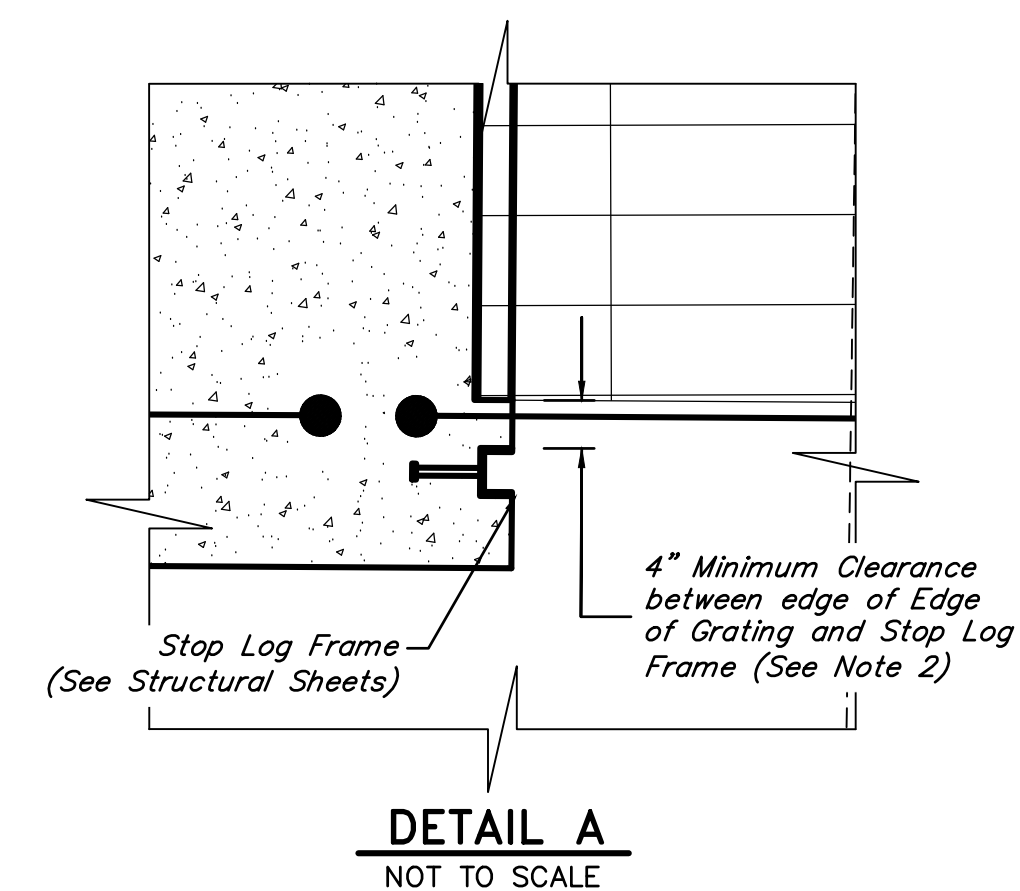
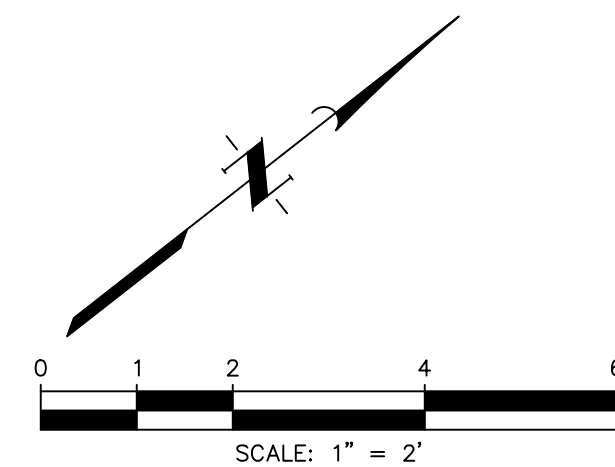
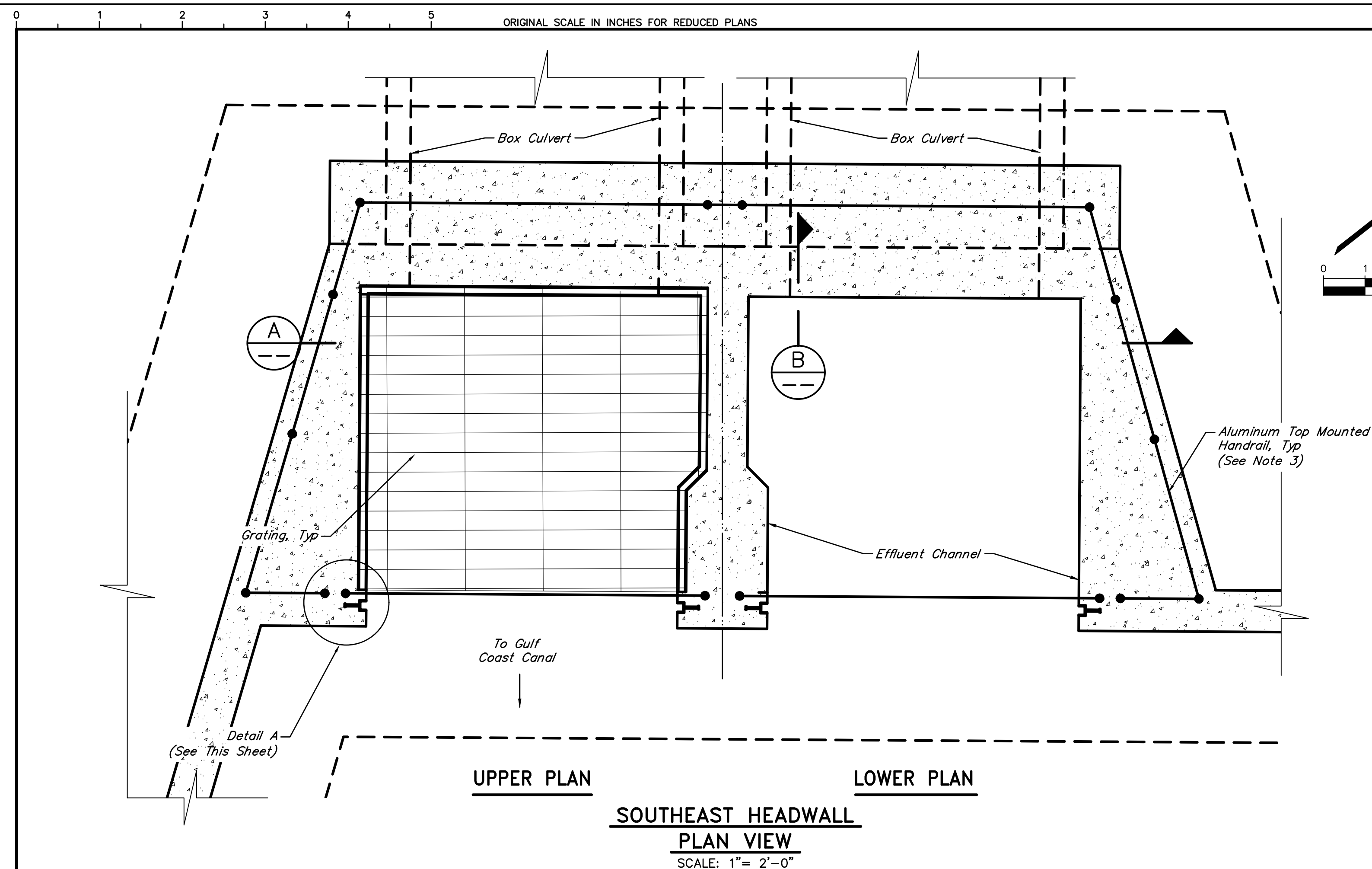
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UNDER THE SUPERVISION OF  
MBC MANAGEMENT, Inc.  
FIRM NO. F-789  
7984 HWY 6 NAVASOTA, TX 77868  
CONSULTING ENGINEER PAUL MALEK, P.E.  
P.E. LICENSE # 82860

SHEET NO

C5

7 OF 17





- NOTES:

1. Stop logs shall be provided by Owner.
2. Contractor shall coordinate with grating fabricator and with the setting of concrete forms to ensure that the minimum specified clearance between the edge of grating and the edge of the stop log frame is provided. The stop log frames shall be accessible from the grating when the handrail/kickplate section is removed such that the stop logs can be installed and removed without impediment.
6. All handrail shall be fabricated and installed in sections in a manner so as to facilitate temporary removal of all handrail sections for stop log installation, maintenance, and removal.

NO.	DATE	REVISIONS	APP.
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SABINE RIVER AUTHORITY  
ORANGE COUNTY, TEXAS


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GULF COAST CANAL—STATE HIGHWAY 87  
CROSSING REPLACEMENT

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SOUTHEAST  
HEADWALL DETAIL

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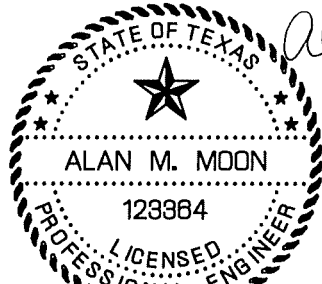
# QUIDDITY

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SCALE:	<u>AS SHOWN</u>	DGN. BY:	<u>AMMOON</u>
DATE:	<u>AUGUST 2022</u>	DWN. BY:	<u>JASTRUHAR</u>
JOB NO.	<u>17314-0002-00</u>	DWG. NO.	_____
SUBMITTED:	_____	SURV. BY:	_____
		F.B. NO.	_____

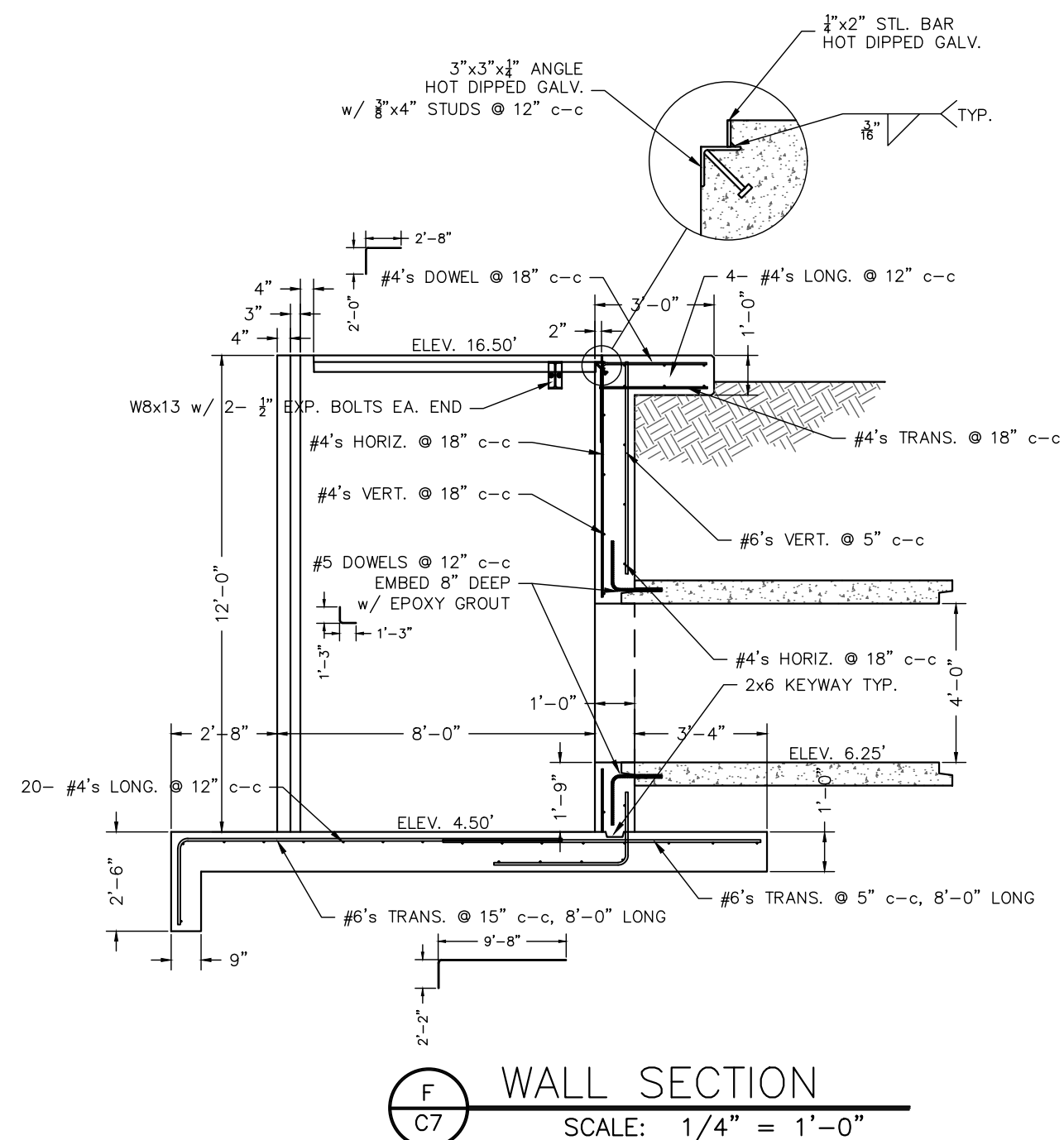
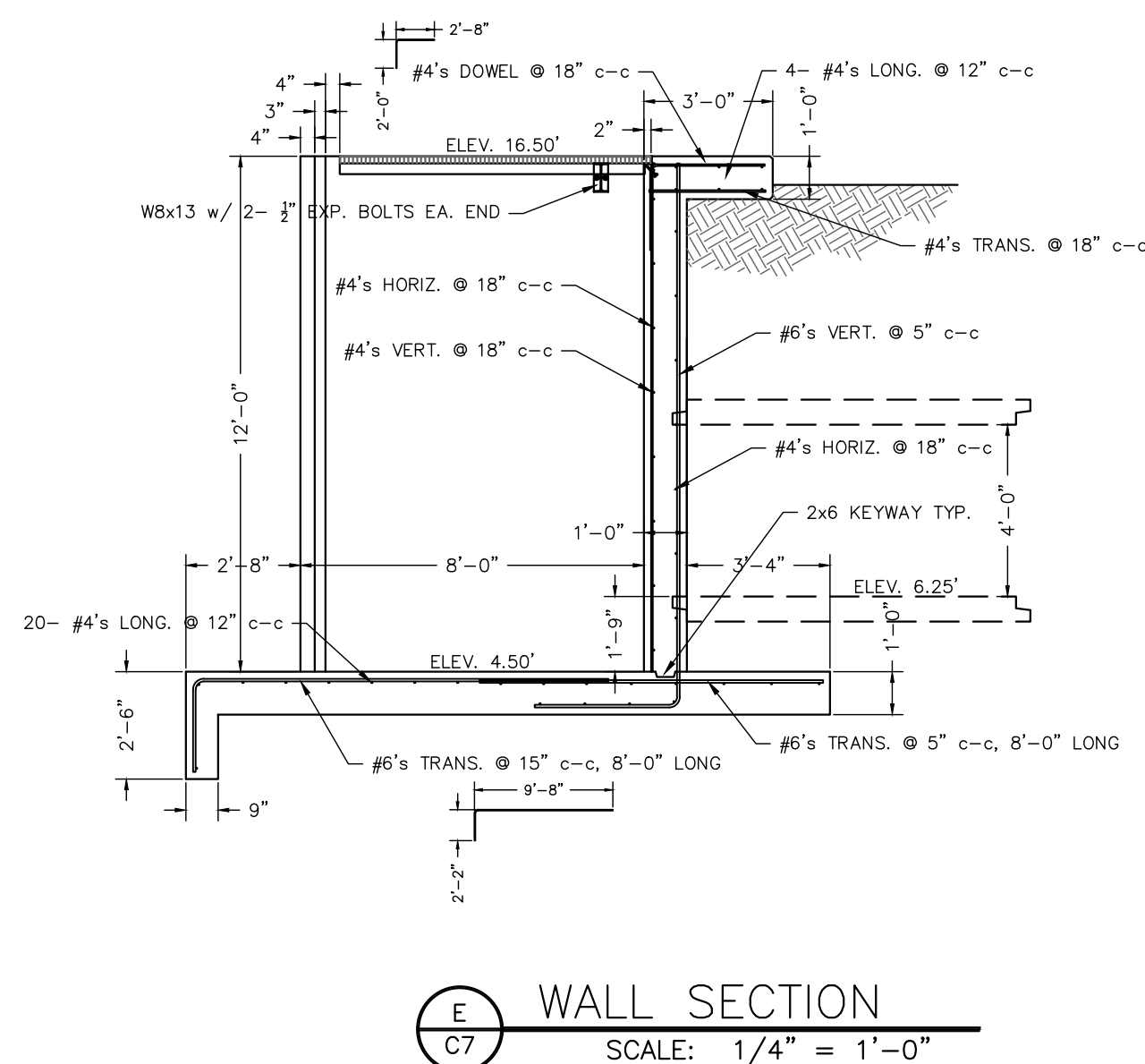
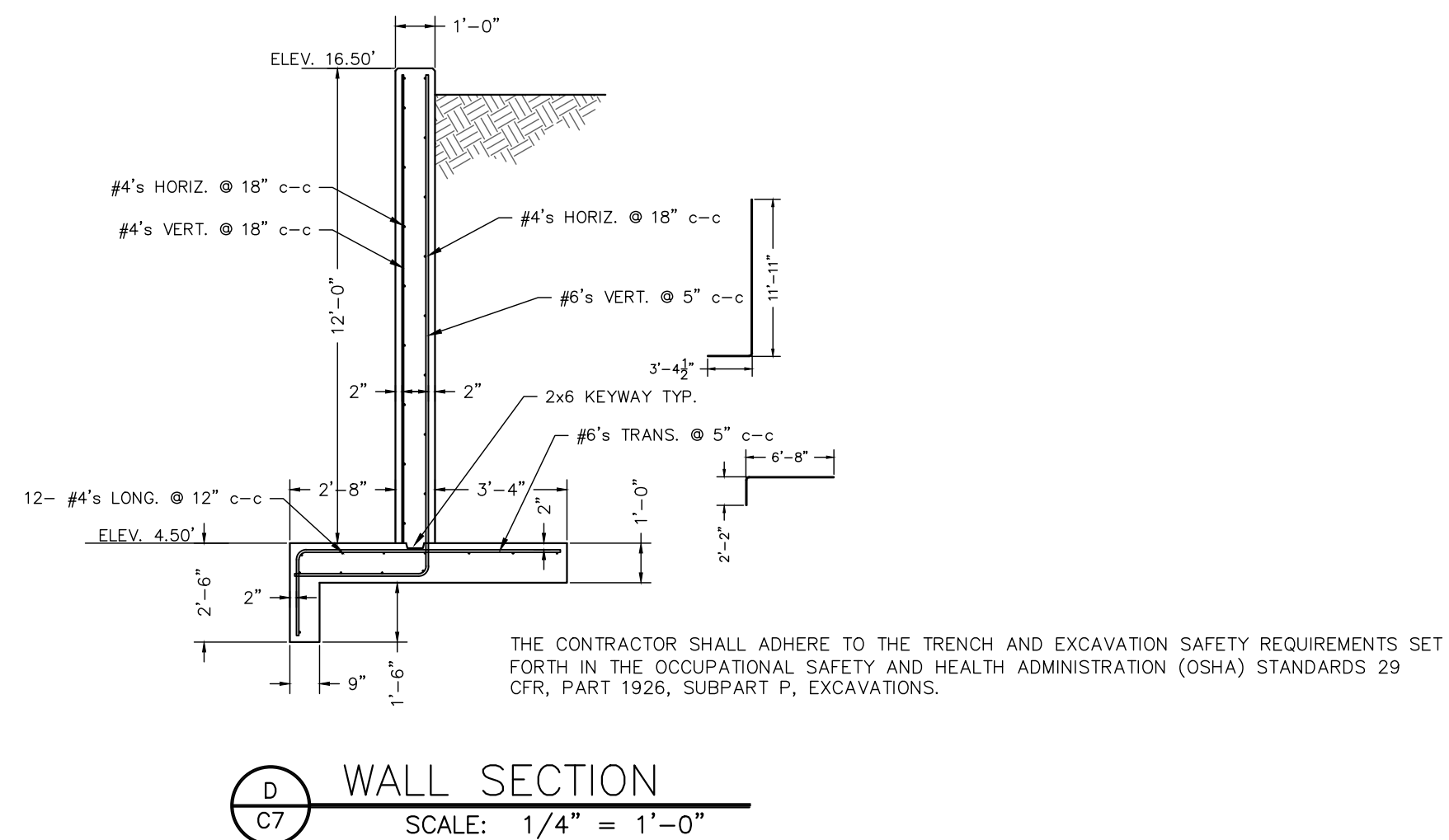
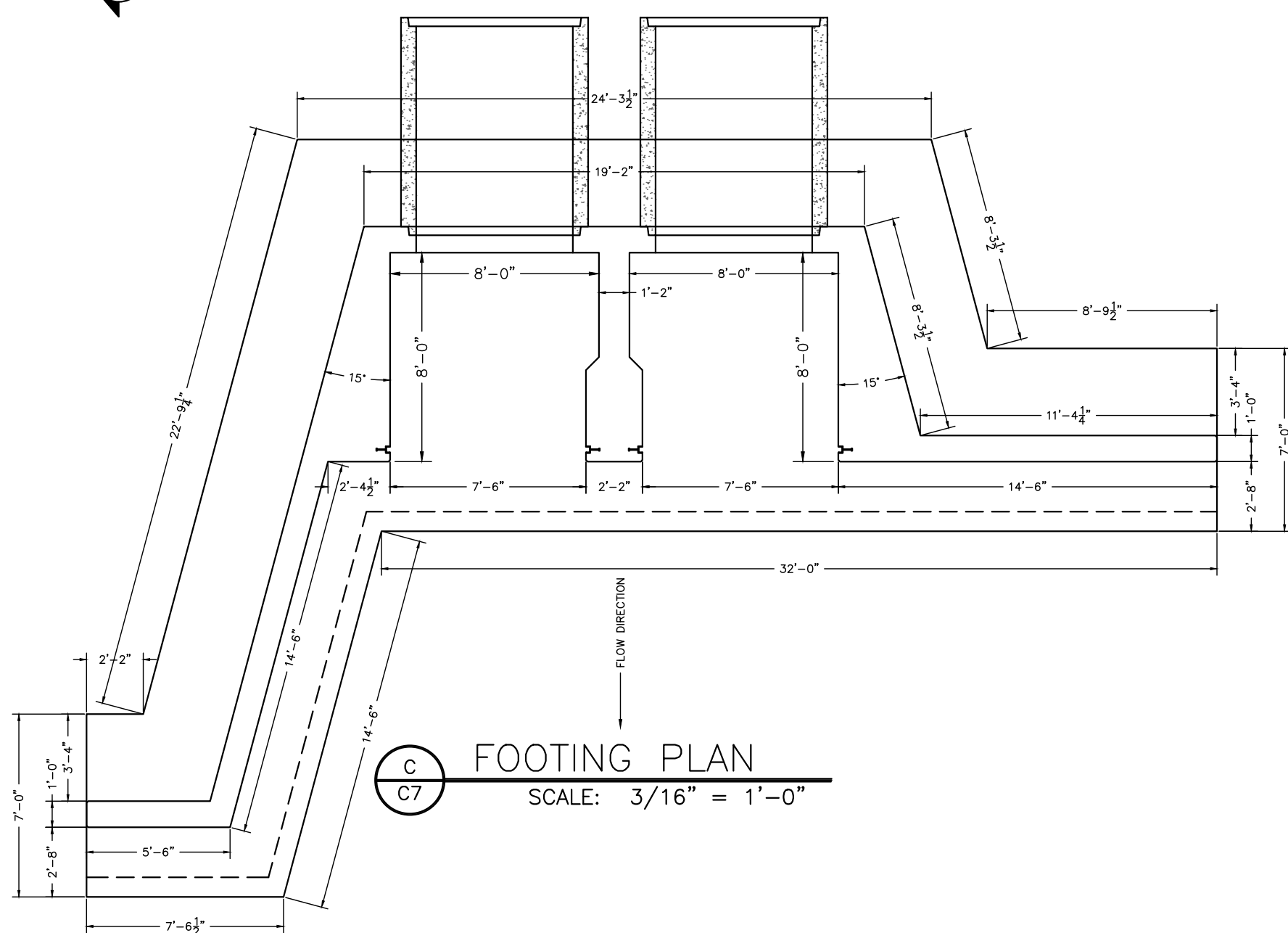
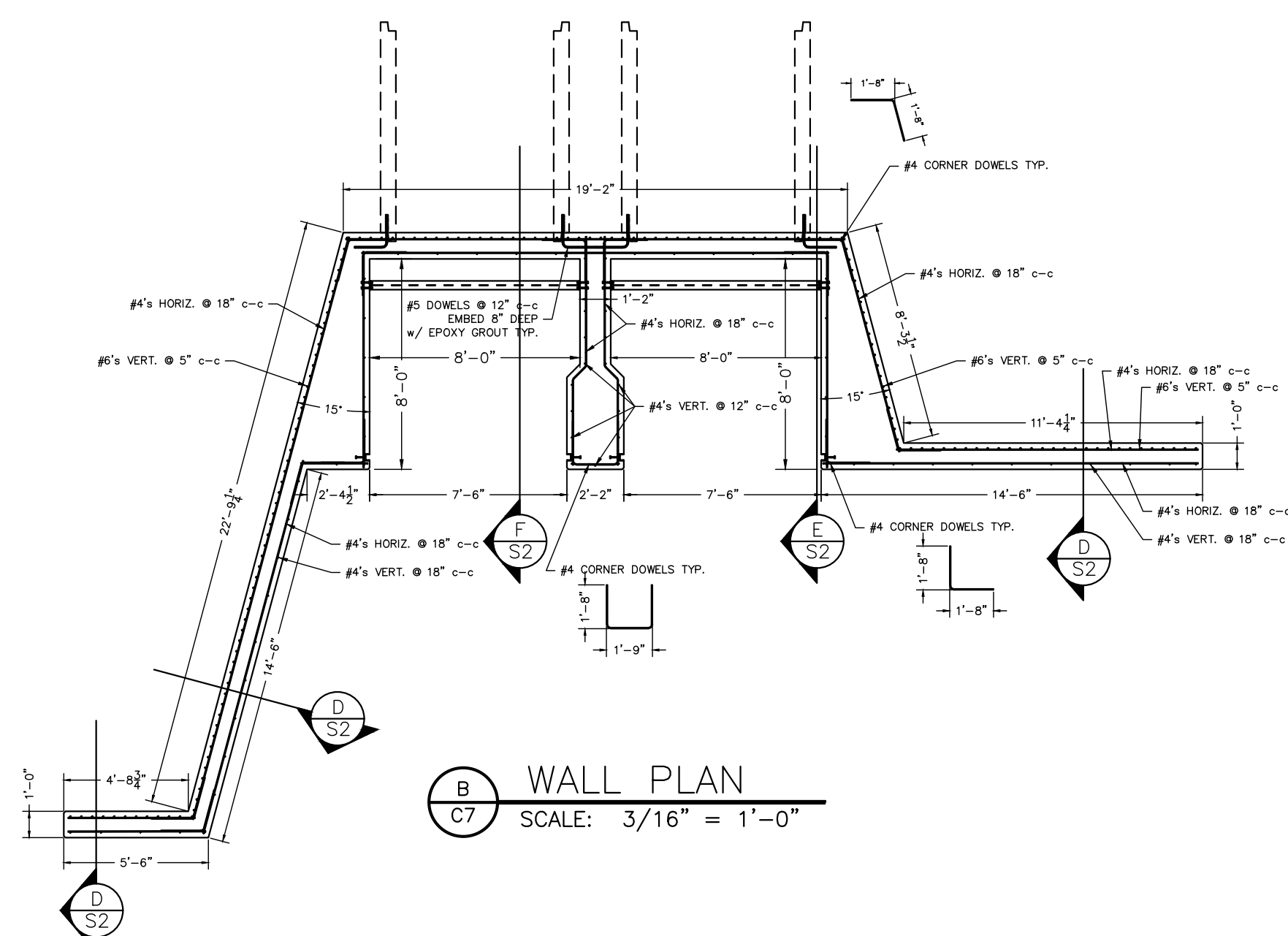
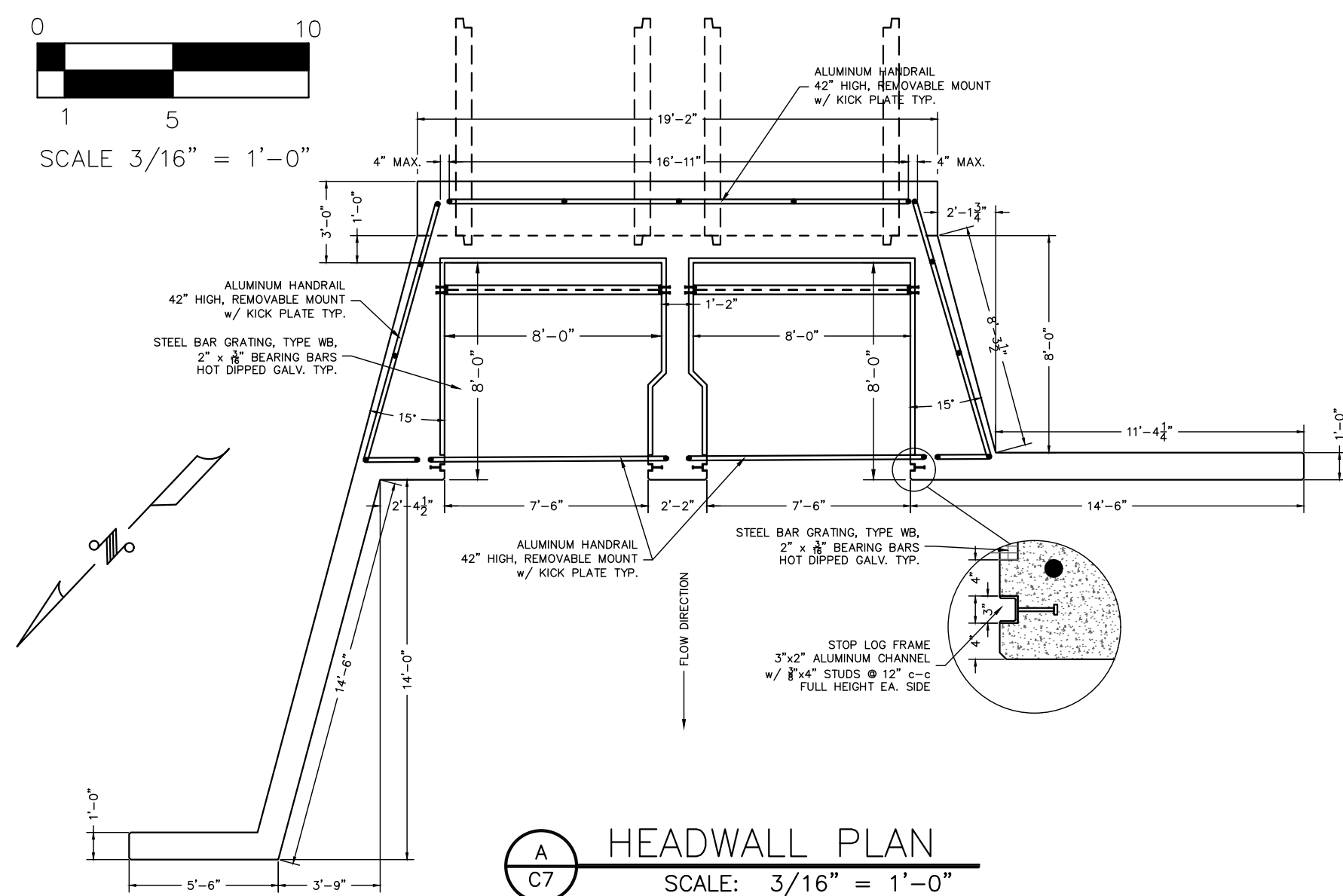
  



C6

SHEET NO. 8 OF 17





- STRUCTURAL NOTES:
- I. GENERAL
- B. ALL STRUCTURAL PLAN DIMENSIONS ARE INTERPRETED FROM AND SHALL BE VERIFIED WITH THE CIVIL DRAWINGS. THE ENGINEER SHALL BE NOTIFIED IF DISCREPANCIES EXIST.
  - B. STRUCTURAL DRAWINGS TO BE COORDINATED WITH CIVIL, ELECTRICAL, MECHANICAL DRAWINGS FOR ALL OPENINGS, INSERTS, AND RELATED ITEMS.
  - C. ANY UNUSUAL CONDITIONS ENCOUNTERED SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO CONCRETE PLACEMENT.
  - D. LOCATIONS OF CONSTRUCTION JOINTS NOT SHOWN SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONCRETE PLACEMENT.
  - E. THE CONTRACTOR SHALL ADHERE TO THE TRENCH AND EXCAVATION SAFETY REQUIREMENTS SET FORTH IN THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) STANDARDS 29 CFR, PART 1926, SUBPART P, EXCAVATIONS.

- II. CONCRETE
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  - B. WHERE CONCRETE IS PLACED AGAINST FORMS OR SEAL SLABS REINFORCING BARS SHALL HAVE A MINIMUM OF 2 INCHES CLEAR COVER UNLESS SHOWN OTHERWISE. WHERE CONCRETE IS PLACED AGAINST EARTH, REINFORCING BARS SHALL HAVE A MINIMUM OF 3 INCHES CLEAR COVER.
  - C. METAL KEYED CONSTRUCTION JOINTS AND SAWED JOINTS MAY NOT BE USED.
  - D. APPLY FLOAT FINISH TO SLAB SURFACES TO RECEIVE A TROWEL FINISH.
  - E. CONCRETE FACES SHALL NOT DEVIATE MORE THAN 3/16" FROM THE PLAN DIMENSIONS.
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- ### III. REINFORCING STEEL
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  - C. WHERE IT IS NECESSARY TO SPlice REINFORCEMENT AT LOCATIONS OTHER THAN THOSE SHOWN ON THE DRAWINGS, THE SPlice LOCATIONS SHALL BE APPROVED BY THE ENGINEER. LAP SPICES AND EMBEDMENT LENGTHS, NOT SHOWN ON THE DRAWINGS, SHALL BE IN ACCORDANCE WITH C.R.S.I., LATEST EDITION.
  - D. SUPPORT FOR THE REINFORCEMENT SHALL BE BY METAL HIGH CHAIRS EITHER GALV.

- IV. STRUCTURAL SUBGRADE
- A. THE TOTAL AREA OF THE FOUNDATION SHALL BE EXCAVATED TO REQUIRED ELEVATION. THE SUBGRADE SHALL BE PROOF ROLLED PRIOR TO PLACEMENT OF SEAL SLAB IF REQUIRED AREAS FOUND TO BE SUBSTANDARD SHALL BE REMOVED AND REPLACED AS DIRECTED BY THE ENGINEER. THE PREPARATION OF THE SUBGRADE SHALL BE SUBJECT TO REVIEW OF THE ACTUAL FIELD CONDITIONS BY THE ENGINEER UPON EXPOSURE OF THE SUBGRADE BY SITE EXCAVATION.
- B. ALL FILL PLACED UNDER THE FOUNDATION SLAB SHALL HAVE A MAXIMUM PLASTICITY INDEX OF 20 OR LESS. THE MINIMUM PLASTICITY INDEX SHALL BE 5. ALL FILL SHALL BE PLACED IN MAXIMUM FILL THICKNESSES OF SIX INCHES. EACH FILL SHALL BE COMPACTED TO 95% OF STANDARD PROCTOR DENSITY (ASTM D-698) AT A MOISTURE CONTENT OF  $-2\%$  TO  $+2\%$  OF OPTIMUM.

NO.	DATE	REVISIONS	APP.

SABINE RIVER AUTHORITY  
ORANGE COUNTY, TEXAS

GULF COAST CANAL - STATE HIGHWAY 87  
CROSSING REPLACEMENT

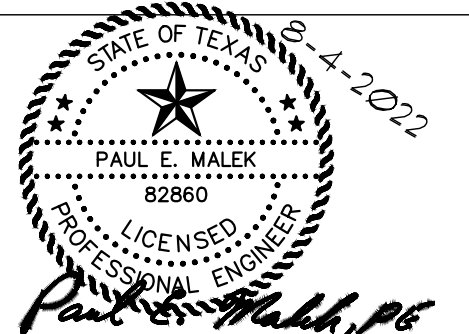
SOUTHEAST  
HEADWALL  
STRUCTURAL



## QUIDDITY

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SCALE: AS SHOWN DGN. BY: PEM  
DATE: JULY, 2022 DWN. BY: SGH  
JOB NO. 17314-0002-00 DWG. NO. \_\_\_\_\_  
SUBMITTED: \_\_\_\_\_ SURV. BY: \_\_\_\_\_  
F.B. NO. \_\_\_\_\_



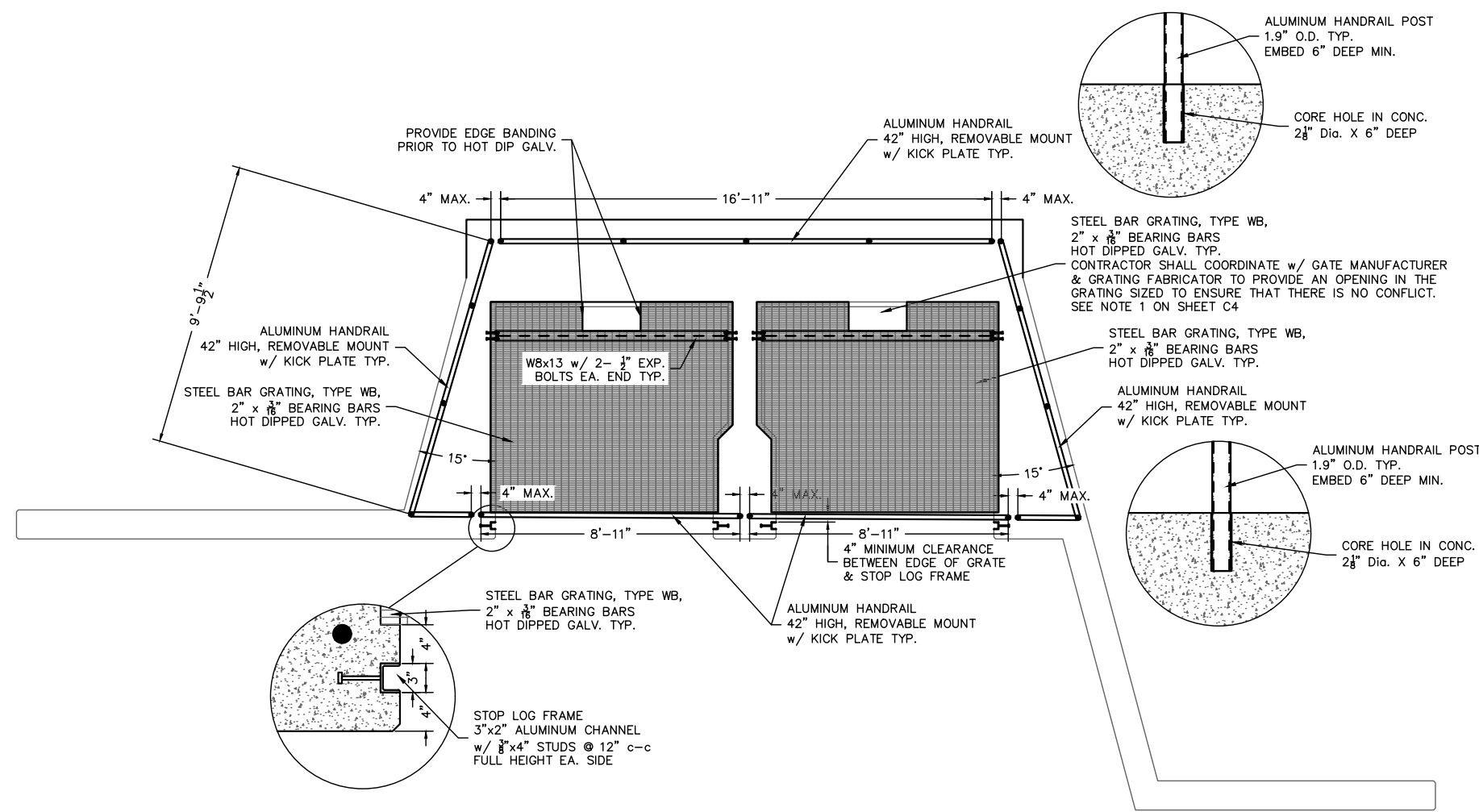
THESE PLANS WERE PREPARED  
UNDER THE SUPERVISION OF  
**MBC MANAGEMENT, Inc.**  
**FIRM NO. F-789**  
7984 HWY 6 NAVASOTA, TX 77868  
CONSULTING ENGINEER PAUL MALEK, P.E.  
P.E. LICENSE # 82860

SHEET NO.

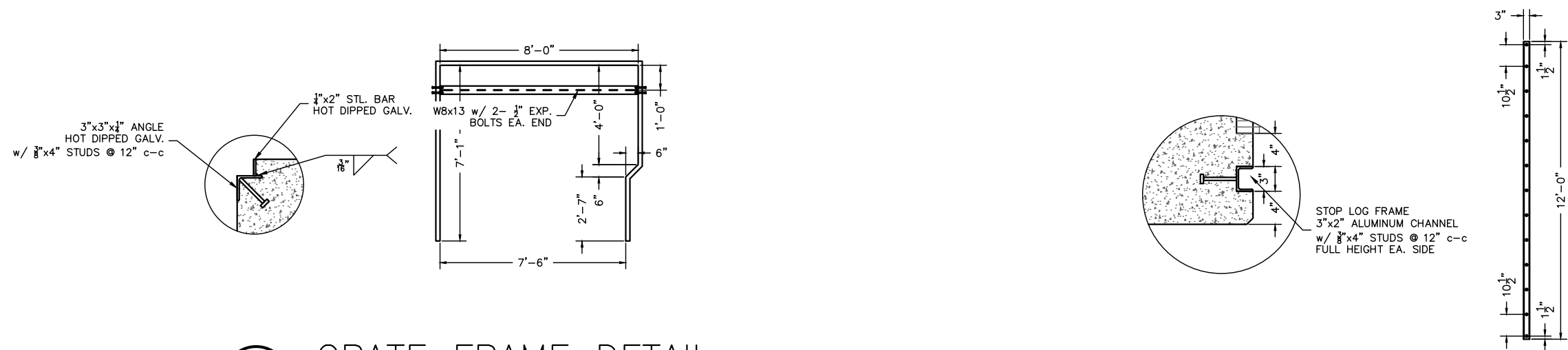
C7

F 17



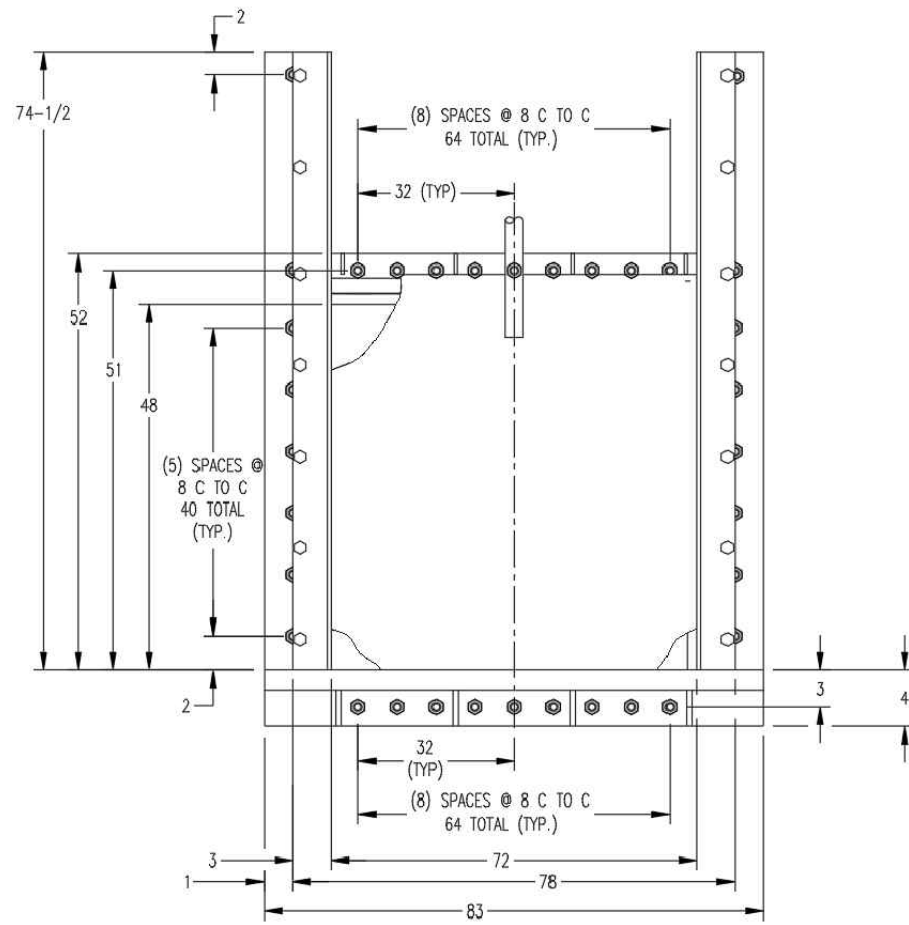


**A**  
C8 HANDRAIL DETAIL  
SCALE: 3/16" = 1'-0"

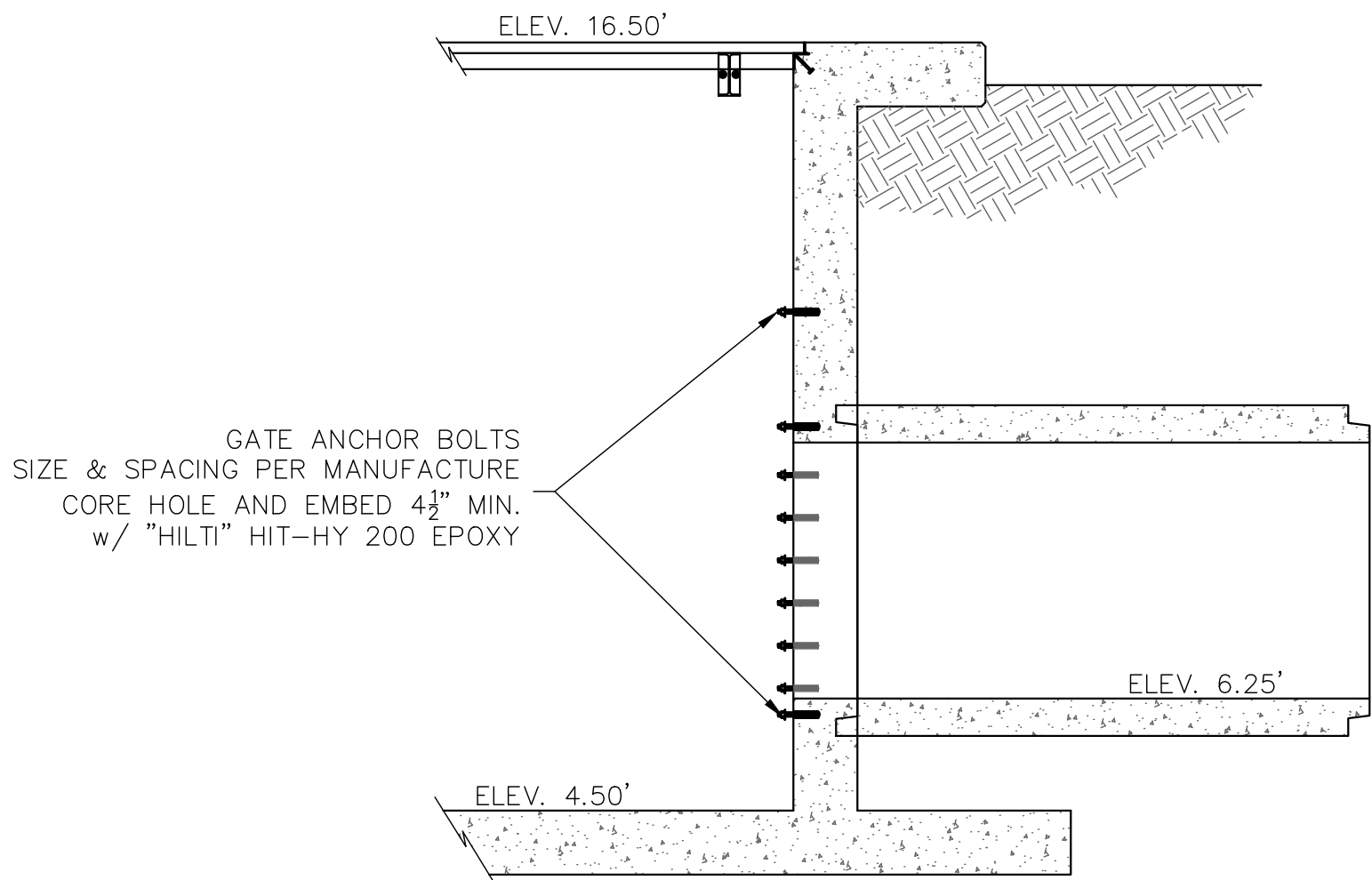


**B**  
C8 GRATE FRAME DETAIL  
SCALE: 3/16" = 1'-0"  
4 TOTAL REQUIRED (2- OFFHAND)

**C**  
C8 STOP LOG FRAME DETAIL  
SCALE: 3/16" = 1'-0"  
8 TOTAL REQUIRED (4- OFFHAND)



**D**  
C8 GATE FRAME ANCHOR DETAIL  
SCALE: 3/8" = 1'-0"  
2 TOTAL REQUIRED



**E**  
C8 GATE FRAME ANCHOR SECTION  
SCALE: 3/8" = 1'-0"  
2 TOTAL REQUIRED

NO.	DATE	REVISIONS	APP.

SABINE RIVER AUTHORITY  
ORANGE COUNTY, TEXAS  
GULF COAST CANAL - STATE HIGHWAY 87  
CROSSING REPLACEMENT

## STRUCTURAL DETAILS



THESE PLANS WERE PREPARED  
UNDER THE SUPERVISION OF  
PAUL E. MALEK  
82260  
PROFESSIONAL ENGINEER  
STATE OF TEXAS  
8-4-2022

SCALE: AS SHOWN DGN. BY: PEM  
DATE: JULY, 2022 DWN. BY: SGH  
JOB NO. 17314-0002-00 DWG. NO. \_\_\_\_\_  
SUBMITTED: \_\_\_\_\_ SURV. BY: \_\_\_\_\_  
F.B. NO. \_\_\_\_\_

THESE PLANS WERE PREPARED  
UNDER THE SUPERVISION OF  
MBC MANAGEMENT, Inc.  
FIRM NO. F-789  
7884 HWY 6 NAVASOTA, TX 77868  
CONSULTING ENGINEER PAUL MALEK, P.E.  
P.E. LICENSE # 82260

SHEET NO.  
C8  
10 OF 17



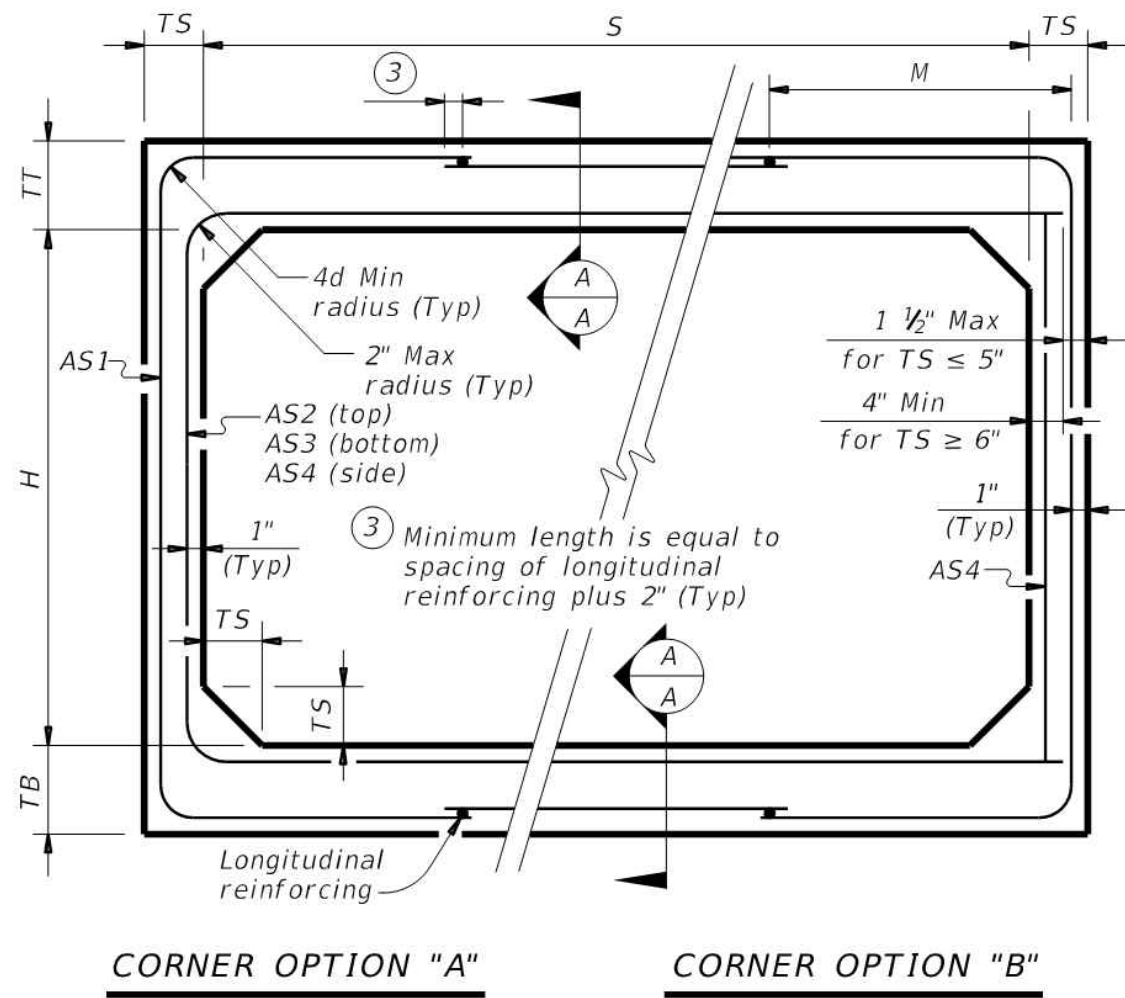
DISCLAIMER: This standard is governed by the Texas Engineering Practice Act. No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE: FILE:

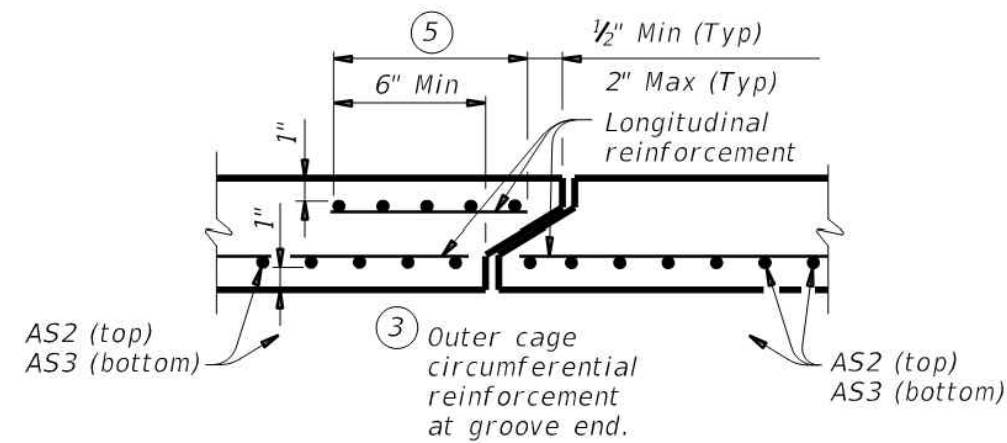
BOX DATA															
SECTION DIMENSIONS					Fill Height (ft.)	M (Min) (in.)	REINFORCING (sq. in. / ft.) <sup>②</sup>								① Lift Weight (tons)
S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)			AS1	AS2	AS3	AS4	AS5	AS7	AS8		
6	2	8	7	7	< 2	-	0.23	0.27	0.19	0.17	0.19	0.19	0.17	7.2	
6	2	7	7	7	2 < 3	43	0.25	0.21	0.17	0.17	-	-	-	6.8	
6	2	7	7	7	3 - 5	43	0.20	0.17	0.17	0.17	-	-	-	6.8	
6	2	7	7	7	10	39	0.20	0.17	0.17	0.17	-	-	-	6.8	
6	2	7	7	7	15	39	0.26	0.20	0.20	0.17	-	-	-	6.8	
6	2	7	7	7	20	39	0.34	0.26	0.26	0.17	-	-	-	6.8	
6	2	7	7	7	25	39	0.43	0.32	0.32	0.17	-	-	-	6.8	
6	2	7	7	7	30	39	0.52	0.38	0.39	0.17	-	-	-	6.8	
6	3	8	7	7	< 2	-	0.20	0.31	0.22	0.17	0.19	0.19	0.17	7.9	
6	3	7	7	7	2 < 3	43	0.21	0.24	0.19	0.17	-	-	-	7.5	
6	3	7	7	7	3 - 5	39	0.17	0.18	0.17	0.17	-	-	-	7.5	
6	3	7	7	7	10	39	0.17	0.18	0.19	0.17	-	-	-	7.5	
6	3	7	7	7	15	38	0.22	0.24	0.24	0.17	-	-	-	7.5	
6	3	7	7	7	20	38	0.28	0.31	0.31	0.17	-	-	-	7.5	
6	3	7	7	7	25	38	0.35	0.38	0.39	0.17	-	-	-	7.5	
6	3	7	7	7	30	38	0.42	0.46	0.46	0.17	-	-	-	7.5	
6	4	8	7	7	< 2	-	0.19	0.34	0.25	0.17	0.19	0.19	0.17	8.6	
6	4	7	7	7	2 < 3	43	0.19	0.27	0.21	0.17	-	-	-	8.2	
6	4	7	7	7	3 - 5	39	0.17	0.21	0.19	0.17	-	-	-	8.2	
6	4	7	7	7	10	39	0.17	0.20	0.21	0.17	-	-	-	8.2	
6	4	7	7	7	15	38	0.18	0.27	0.27	0.17	-	-	-	8.2	
6	4	7	7	7	20	38	0.24	0.34	0.35	0.17	-	-	-	8.2	
6	4	7	7	7	25	38	0.29	0.43	0.42	0.17	-	-	-	8.2	
6	4	7	7	7	30	38	0.35	0.51	0.52	0.17	-	-	-	8.2	
6	5	8	7	7	< 2	-	0.19	0.37	0.28	0.17	0.19	0.19	0.17	9.3	
6	5	7	7	7	2 < 3	43	0.17	0.30	0.24	0.17	-	-	-	8.9	
6	5	7	7	7	3 - 5	43	0.17	0.23	0.21	0.17	-	-	-	8.9	
6	5	7	7	7	10	39	0.17	0.22	0.23	0.17	-	-	-	8.9	
6	5	7	7	7	15	38	0.17	0.28	0.29	0.17	-	-	-	8.9	
6	5	7	7	7	20	38	0.20	0.37	0.38	0.17	-	-	-	8.9	
6	5	7	7	7	25	38	0.25	0.45	0.46	0.17	-	-	-	8.9	
6	5	7	7	7	30	38	0.30	0.54	0.55	0.17	-	-	-	8.9	
6	6	8	7	7	< 2	-	0.19	0.38	0.30	0.17	0.19	0.19	0.17	10	
6	6	7	7	7	2 < 3	52	0.17	0.32	0.26	0.17	-	-	-	9.6	
6	6	7	7	7	3 - 5	52	0.17	0.24	0.22	0.17	-	-	-	9.6	
6	6	7	7	7	10	43	0.17	0.23	0.24	0.17	-	-	-	9.6	
6	6	7	7	7	15	39	0.17	0.29	0.31	0.17	-	-	-	9.6	
6	6	7	7	7	20	39	0.18	0.38	0.39	0.17	-	-	-	9.6	
6	6	7	7	7	25	38	0.23	0.46	0.48	0.17	-	-	-	9.6	
6	6	7	7	7	30	38	0.27	0.55	0.57	0.17	-	-	-	9.6	

① For box length = 8'-0"

② AS1 thru AS4, AS7 and AS8 are minimum required areas of reinforcement per linear foot of box length. AS5 is minimum required area of reinforcement per linear foot of box width.

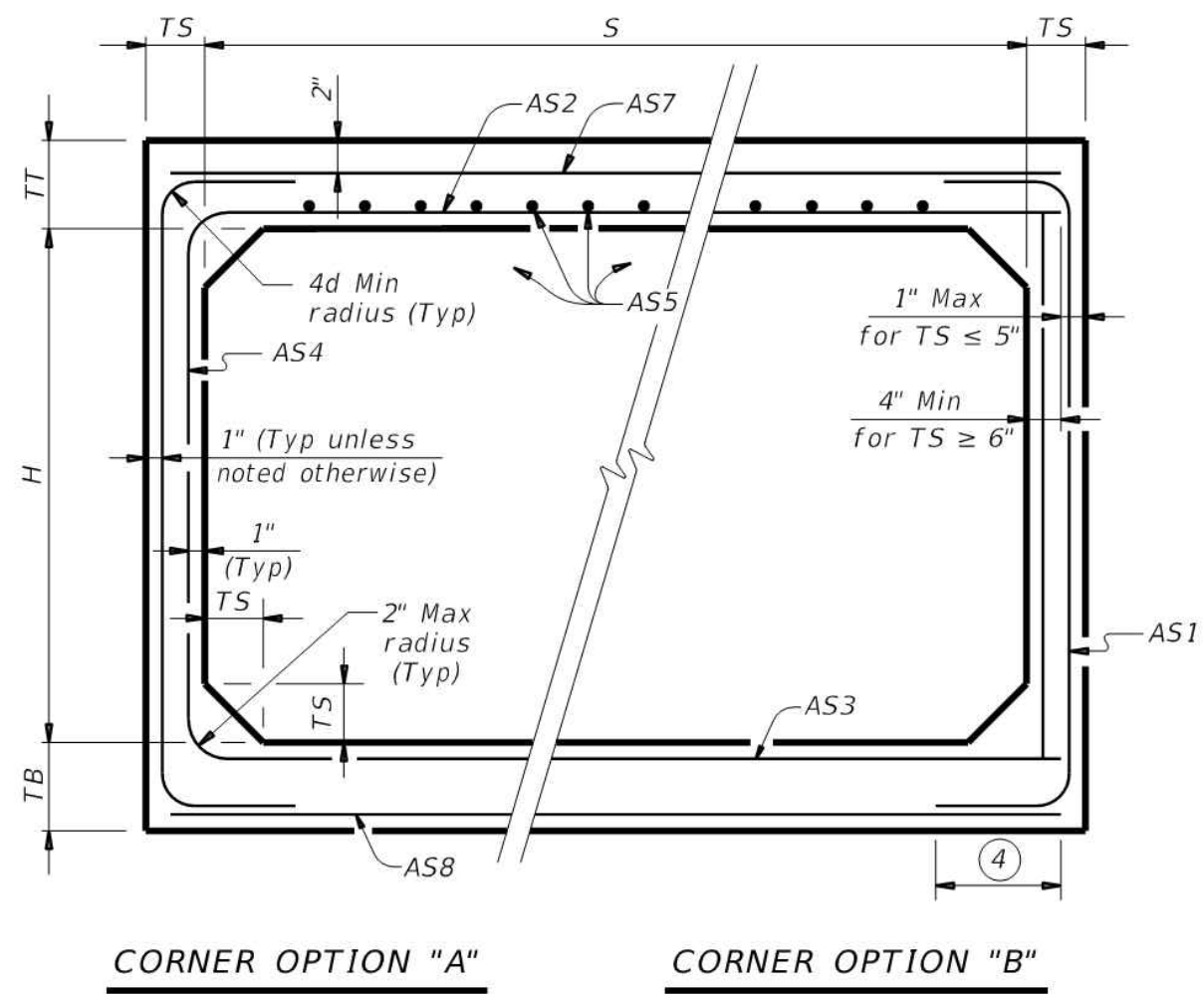


FILL HEIGHT 2 FT AND GREATER



SECTION A-A

(Showing top and bottom slab joint reinforcement.)



FILL HEIGHT LESS THAN 2 FT

④ Length is equal to spacing of longitudinal reinforcing plus 2". (10" Min) (Typ)

**MATERIAL NOTES:**

Provide 0.03 sq. in./ft. minimum longitudinal reinforcement at each face in slabs and walls. This minimum requirement may be met by the transverse wires when wire mesh reinforcement is used.  
Provide Class H concrete ( $f'c = 5,000$  psi).

**GENERAL NOTES:**

Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.  
See Box Culverts Precast Miscellaneous Details (SCP-MD) standard sheet for details and notes not shown.  
In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Submit shop plans for alternate designs in accordance with Item "Precast Concrete Structural Members (Fabrication)".

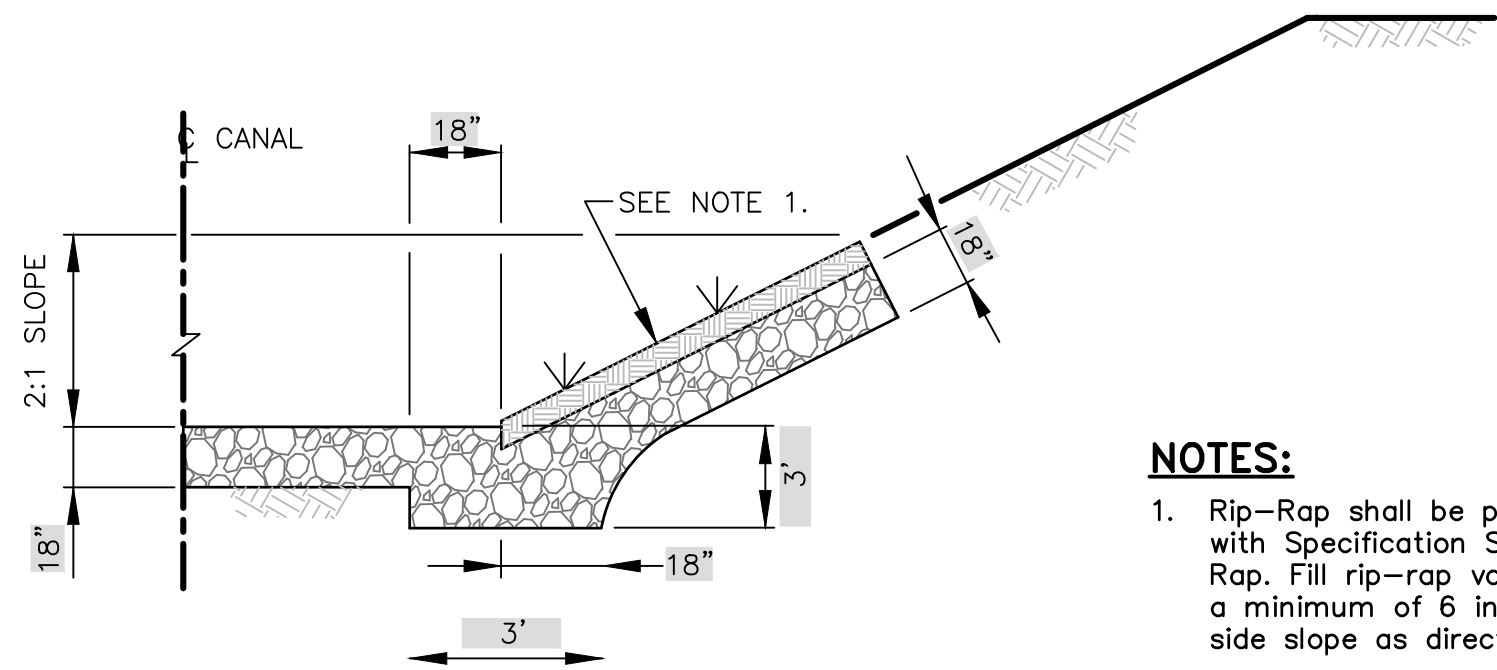
HL93 LOADING			
		Bridge Division Standard	
SINGLE BOX CULVERTS PRECAST 6'-0" SPAN			
SCP-6			
FILE: scp06sts-20.dgn	DN: TxDOT	CK: TxDOT	DN: TxDOT
©TxDOT February 2020	CONT	SECT	JOB
REVISIONS		HIGHWAY	
DIST		COUNTY	SHEET NO.

**GENERAL NOTES:**

- All precast box concrete shall be Class "H" with a minimum compressive strength of 5000 PSI at 28 days, in accordance with the 2014 TxDOT standard specifications for construction and maintenance of highways, streets and bridges, unless noted otherwise.
- All reinforcing steel shall meet the requirements of ASTM A615 Grade 60.
- Design of the precast box structure shall conform to the requirements of ASTM C1577 and the current AASHTO LRFD design guidelines.

NO.	DATE	REVISIONS	APP.
SABINE RIVER AUTHORITY ORANGE COUNTY, TEXAS			
GULF COAST CANAL—STATE HIGHWAY 87 CROSSING REPLACEMENT			
MISCELLANEOUS DETAILS SHEET 1 OF 2			
Texas Board of Professional Engineers and Land Surveyors Reg. No. F-23290 6330 West Loop South, Suite 150 • Bellaire, TX 77401 • 713.777.5337			
SCALE: AS SHOWN	DGN: BY: AMMOON		
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JOB NO. 17314-0002-00	DWG. NO.		
SUBMITTED:	SURV. BY:		
F.B. NO.			
C9			

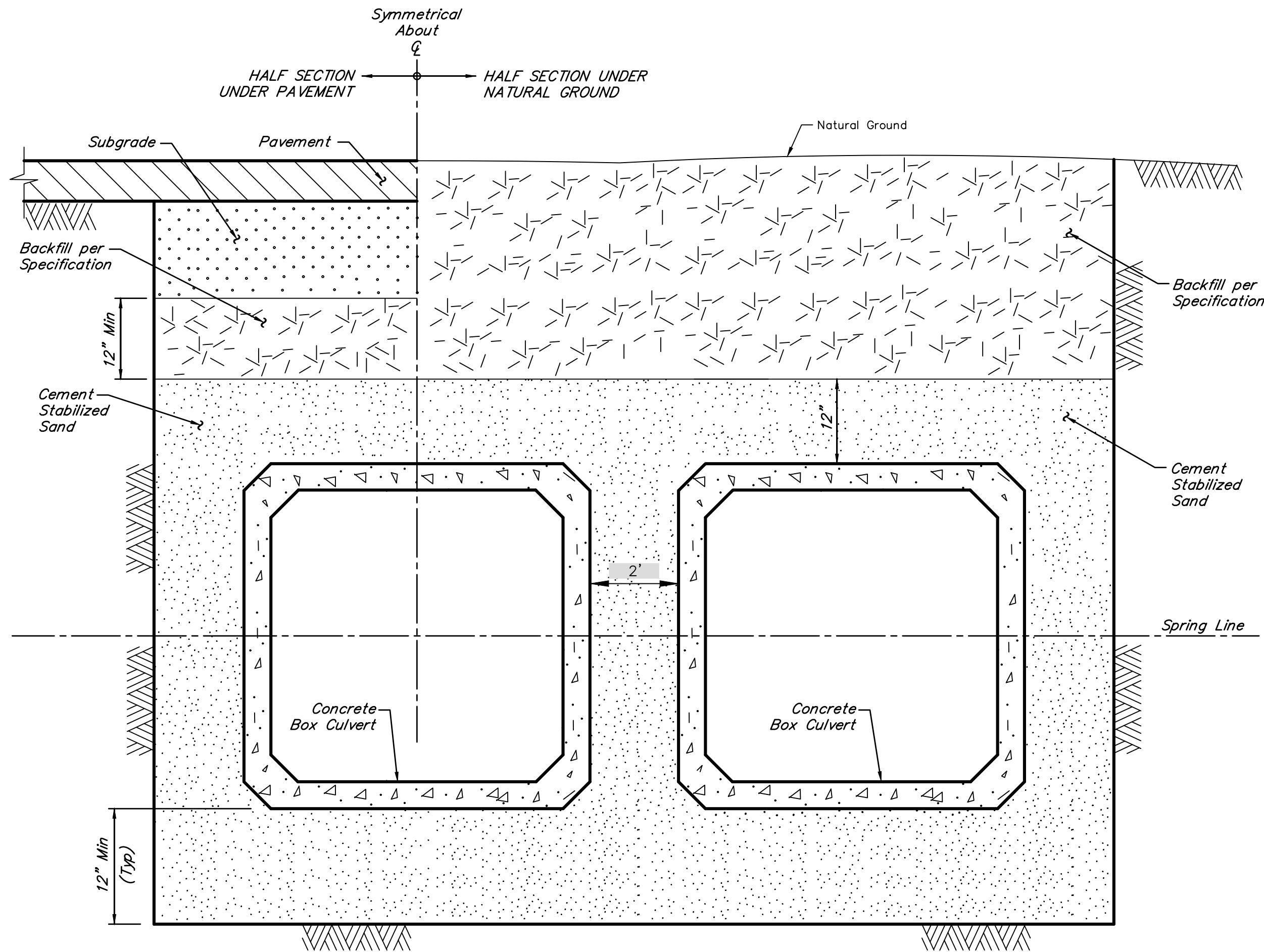




**NOTES:**

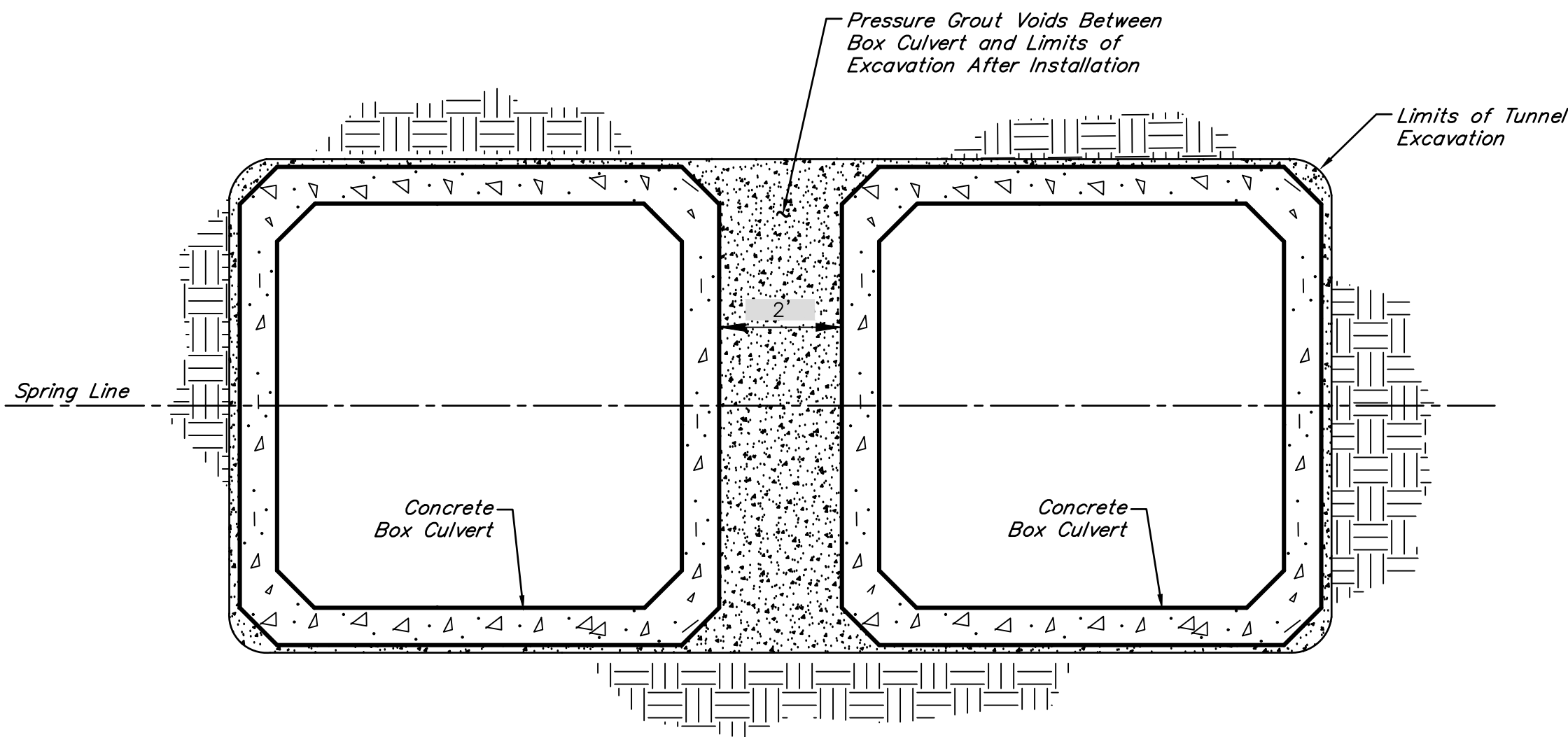
1. Rip-Rap shall be placed in accordance with Specification Section 02228-Rip Rap. Fill rip-rap voids and bury rip-rap a minimum of 6 inches of topsoil on side slope as directed by the Engineer.

**TYPICAL RIPRAP AT CONCRETE CHANNEL LINING**  
NOT TO SCALE



**BEDDING AND BACKFILL  
FOR PRECAST CONCRETE BOX  
(OPEN CUT CONSTRUCTION)**

NOT TO SCALE



**JACK & BORE CROSS SECTION  
FOR PRECAST CONCRETE BOX**

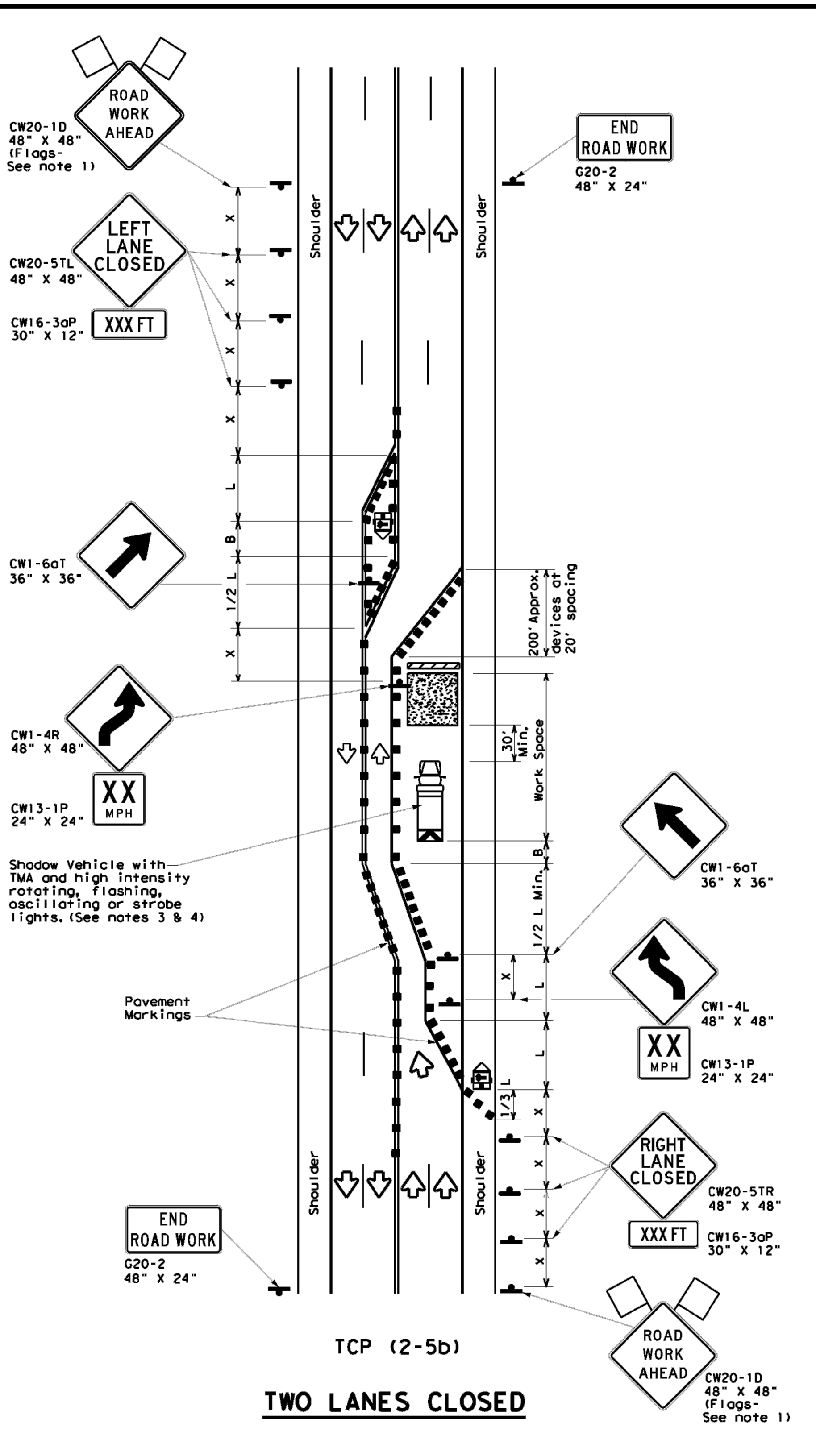
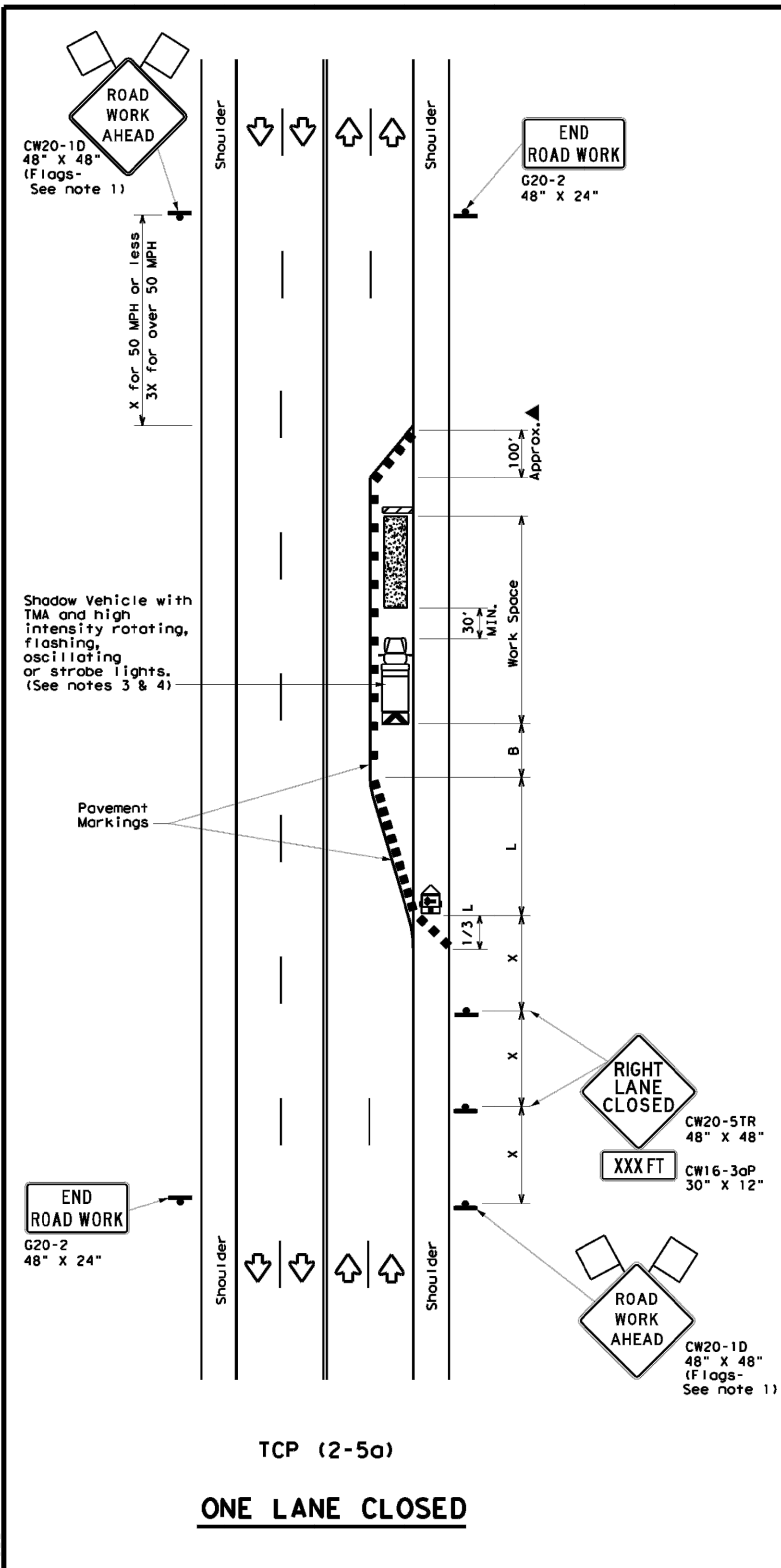
NOT TO SCALE

NO.	DATE	REVISIONS	APP.
SABINE RIVER AUTHORITY ORANGE COUNTY, TEXAS			
GULF COAST CANAL-STATE HIGHWAY 87 CROSSING REPLACEMENT			
MISCELLANEOUS DETAILS SHEET 2 OF 2			
Texas Board of Professional Engineers and Land Surveyors Reg. No. F-23290 6330 West Loop South, Suite 150 • Bellaire, TX 77401 • 713.777.5337			
SCALE: AS SHOWN	DGN. BY: AMMOON		
DATE: AUGUST 2022	DWN. BY: JASTRUHAR		
JOB NO. 17314-0002-00	DWG. NO.		
SUBMITTED:	SURV. BY:		
	F.B. NO.		
C10 SHEET NO. 12 OF 17			



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DATE: FILE:



LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45		450'	495'	540'	45'	90'	320'	195'
50	L=WS	500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

\* Conventional Roads Only  
\*\* Taper lengths have been rounded off.  
L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
			✓	✓

#### GENERAL NOTES

- Flags attached to signs where shown, are REQUIRED.
- All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
- A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
- Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.
- The downstream taper is optional. When used, it should be 100 feet approximately per lane, with channelizing devices spaced at 20 feet.

#### TCP (2-5a)

- If this TCP is used for a left lane closure, CW20-5TL "LEFT LANE CLOSED" signs shall be used and channelizing devices shall be placed on the centerline to protect the work space from opposing traffic, with the arrow board placed in the closed lane near the end of the merging taper.

#### TCP (2-5b)

- Conflicting pavement markings shall be removed for long-term projects.

		Traffic Operations Division Standard			
TRAFFIC CONTROL PLAN LONG TERM LANE CLOSURES MULTILANE CONVENTIONAL RDS.					
TCP (2-5) - 18					
FILE: tcp2-5-18.dgn	DWG: 18	CHK: 18	CHK: 18		
© TxDOT December 1985	CONT: 18	SECT: 18	JOB: 18		
8-95 2-12	REV: 18	DIST: 18	COUNTY: 18		
1-97 3-03					
4-98 2-18					
18					

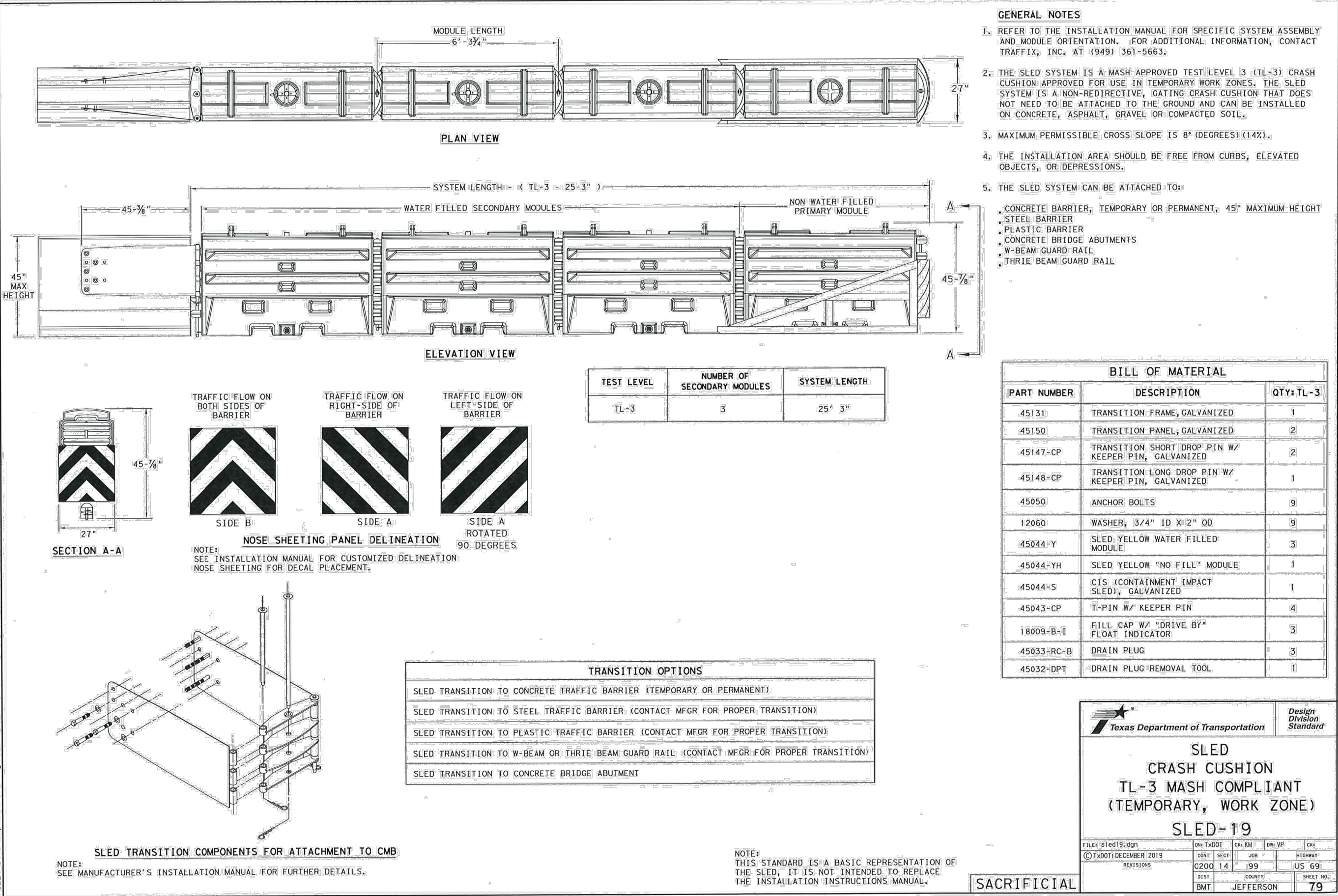
#### NOTES:

- Contractor to provide the crash cushions and single slope concrete barriers between the work area and traffic in accordance with sheets C12 & C13.

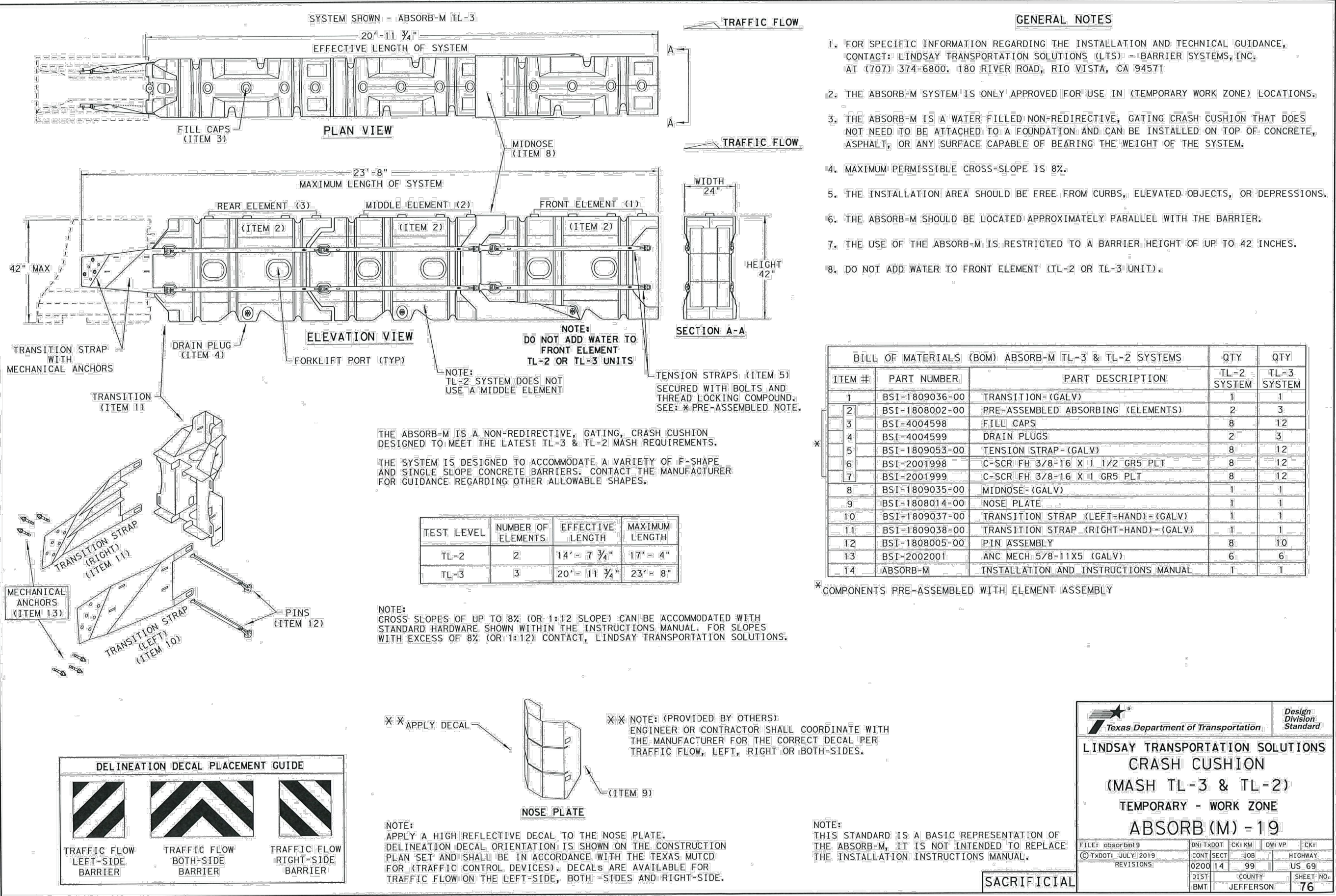
NO.	DATE	REVISIONS	APP.		
SABINE RIVER AUTHORITY ORANGE COUNTY, TEXAS					
GULF COAST CANAL—STATE HIGHWAY 87 CROSSING REPLACEMENT					
TRAFFIC CONTROL PLAN					
Texas Board of Professional Engineers and Land Surveyors Reg. No. F-23290 6330 West Loop South, Suite 150 • Bellaire, TX 77401 • 713.777.5337					
SCALE: AS SHOWN	DGN. BY: AMMOON				
DATE: AUGUST 2022	DWN. BY: JASTRUHAR				
JOB NO. 17314-0002-00	DWG. NO.				
SUBMITTED:	SURV. BY:				
	F.B. NO.				
C11					



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NO. DATE REVISIONS APP.

SABINE RIVER AUTHORITY  
ORANGE COUNTY, TEXAS

GULF COAST CANAL-STATE HIGHWAY 87  
CROSSING REPLACEMENT

CRASH CUSHIONS

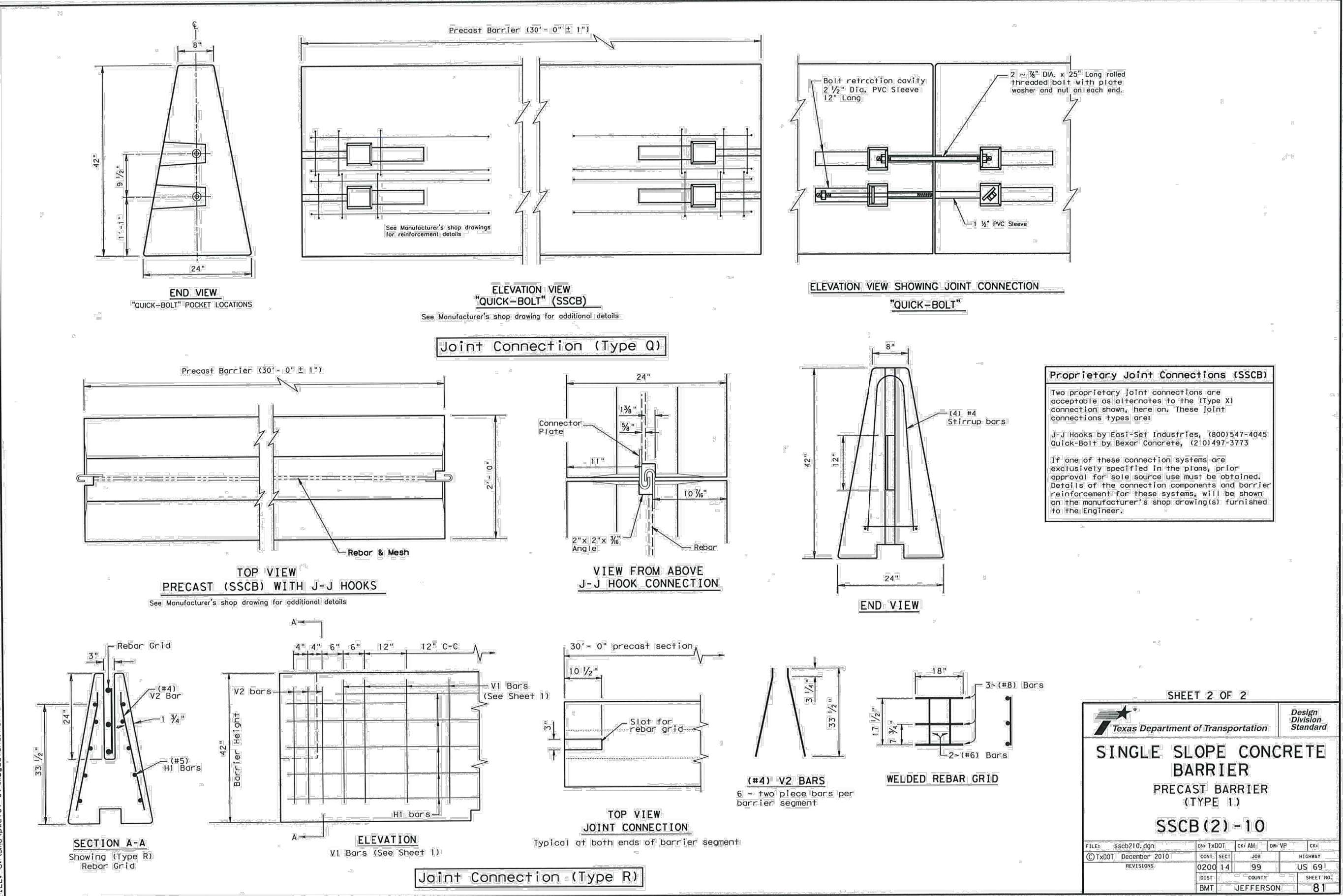
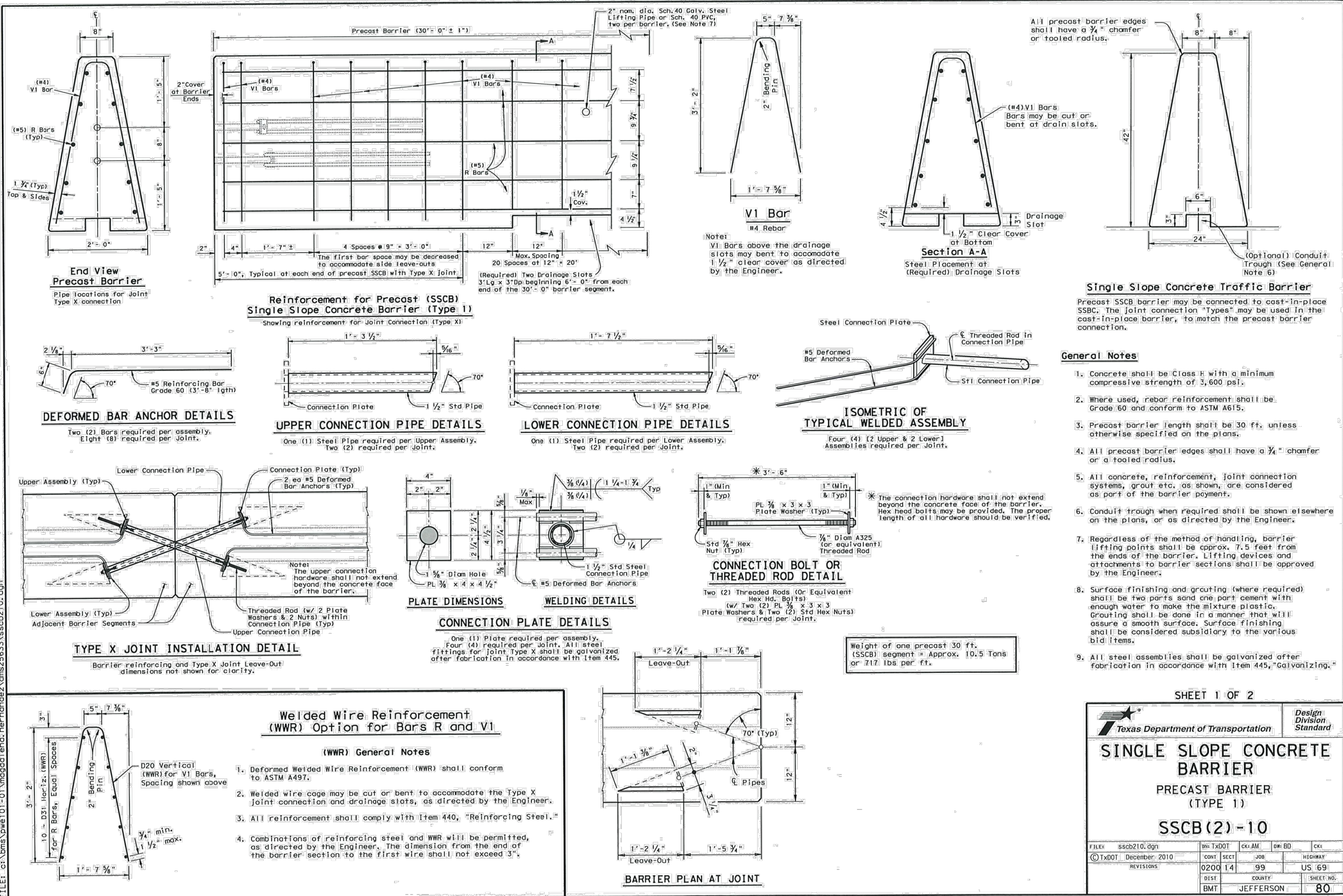
QUIDDITY  
Texas Board of Professional Engineers and Land Surveyors Reg. No. F-23290  
6330 West Loop South, Suite 150 • Bellaire, TX 77401 • 713.777.5337

SCALE: AS SHOWN DGN. BY: AMMOON  
DATE: AUGUST 2022 DWN. BY: JASTRUHAR  
JOB NO. 17314-0002-00 DWG. NO.  
SUBMITTED: SURV. BY: F.B. NO.

ALAN M. MOON  
128984  
LICENSED PROFESSIONAL ENGINEER  
8/4/2022

C12  
SHEET NO. 14 OF 17



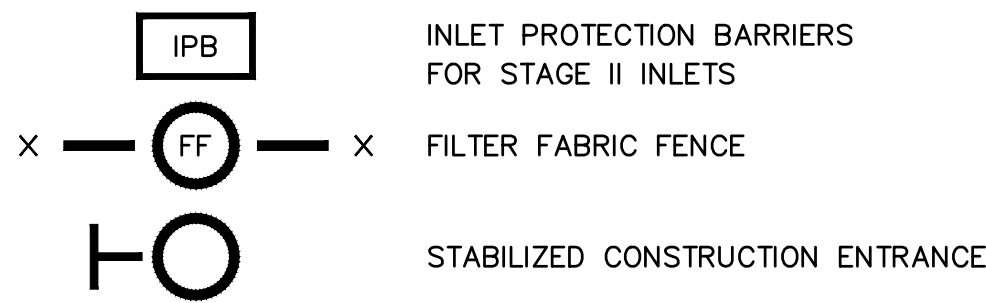






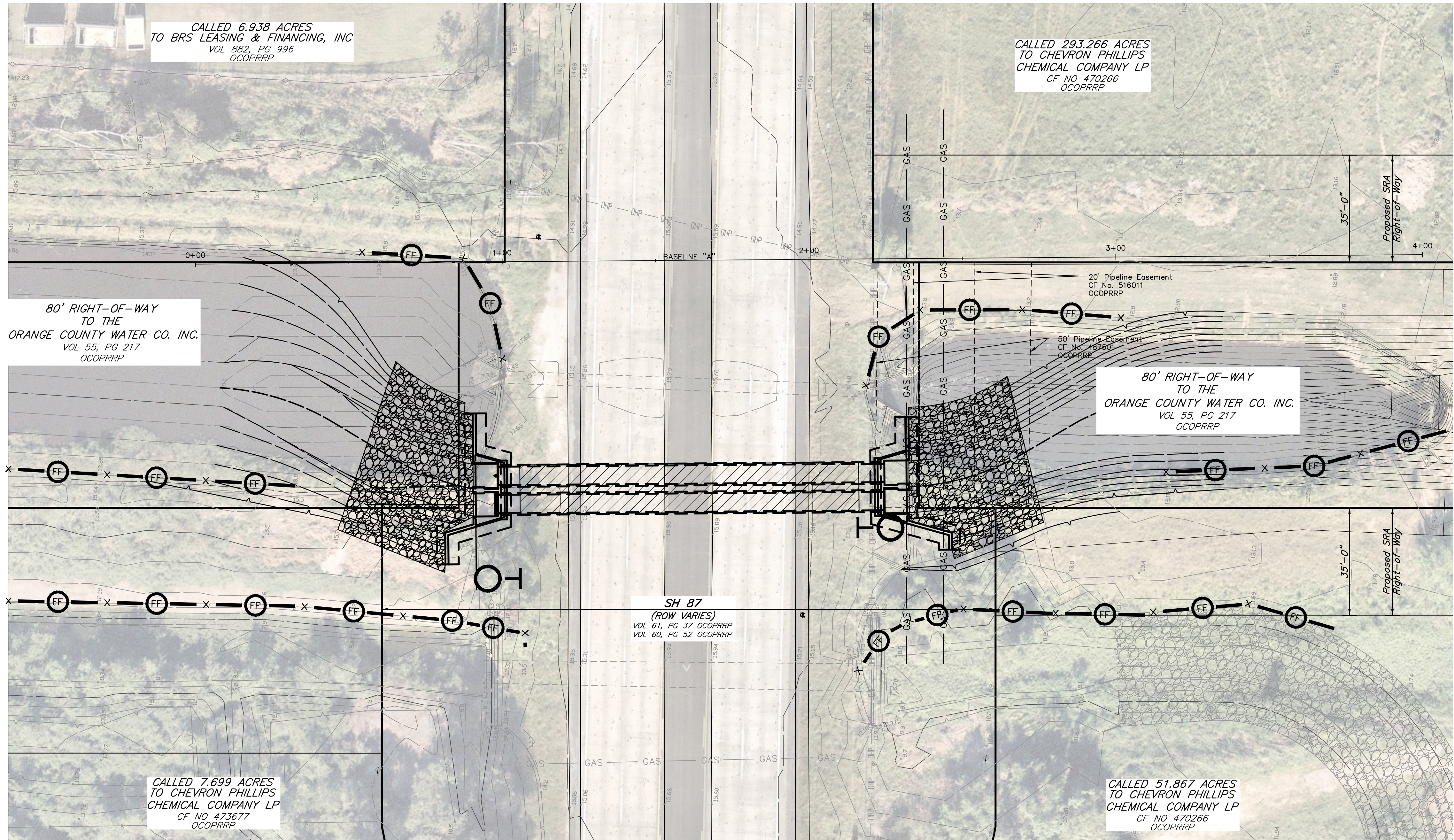
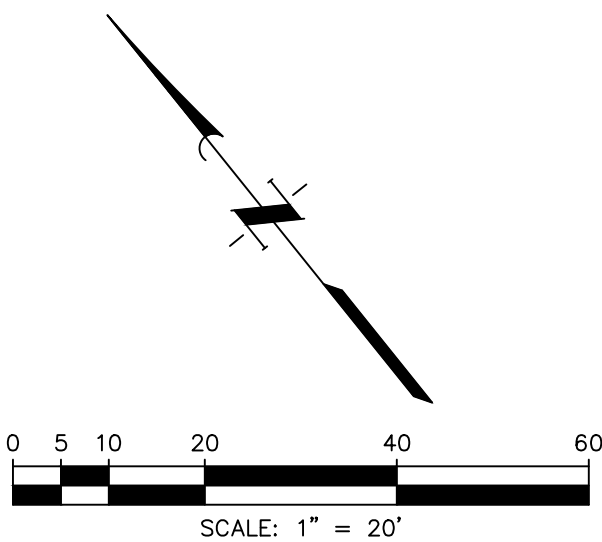



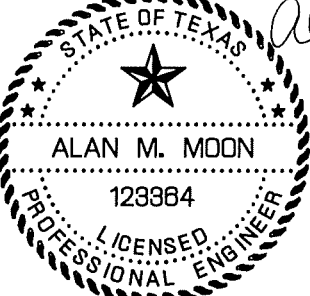
LEGEND



I.B.M. "A"  
TOP OF 36" CONCRETE BOX.  
ELEVATION = 16.43'

I.B.M. "B"  
ELEVATION = 14.41'



NO.	DATE	REVISIONS	APP.
SABINE RIVER AUTHORITY ORANGE COUNTY, TEXAS			
GULF COAST CANAL—STATE HIGHWAY 87 CROSSING REPLACEMENT			
STORM WATER POLLUTION PREVENTION PLAN			
<div> <b>QUIDDITY</b> Texas Board of Professional Engineers and Land Surveyors Reg. No. F-23290 6330 West Loop South, Suite 150 • Bellaire, TX 77401 • 713.777.5337</div>			
SCALE: 1"=20'		DGN. BY: AMMOON	
DATE: AUGUST 2022		DWN. BY: JASTRUHAR	
JOB NO. 17314-0002-00		DWG. NO.	
SUBMITTED:		SURV. BY:	
		F.B. NO.	
<div> <i>Alan Moon</i> 8/4/2022</div>			
C15 SHEET NO. 17 OF 17			