

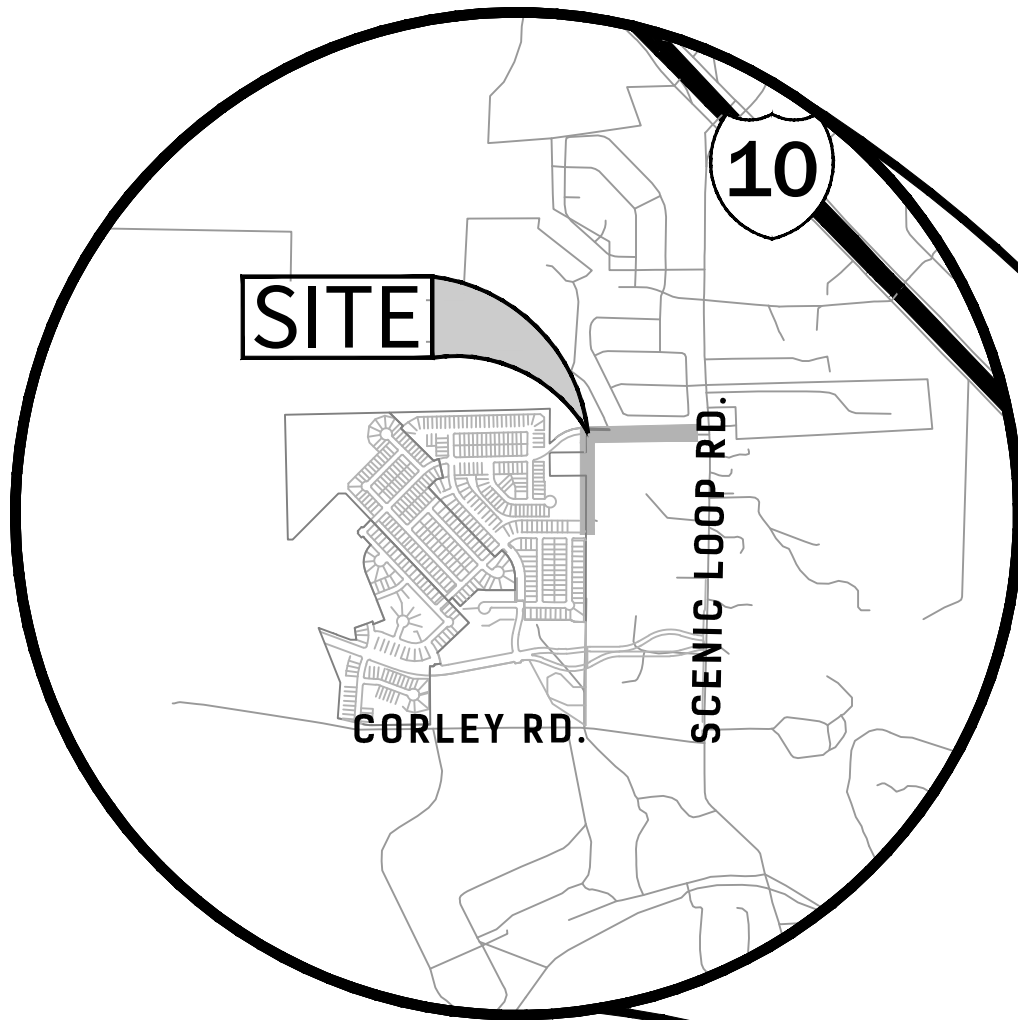
STREET AND DRAINAGE CONSTRUCTION PLANS

- C1 - TYPICAL STREET SECTIONS
- C2 - VALLERIE LANE EXISTING CONDITIONS PLAN
- C3 - VALLERIE LANE EXISTING CONDITIONS PLAN
- C4 - VALLERIE LANE N-S PLAN & PROFILE
- C5 - VALLERIE LANE E-W PLAN & PROFILE
- C6 - TRAFFIC SIGNAGE & STRIPING PLAN
- C7 - STREET DETAILS
- C8 - STANDARD PAVEMENT MARKINGS
- C9 - VALLERIE LANE N-S CULVERT PLAN & PROFILE
- C10 - VALLERIE LANE E-W CULVERT PLAN & PROFILE
- C11 - GRADING & DRAINAGE PLAN
- C12 - GRADING & DRAINAGE PLAN
- C13 - GRADING & DRAINAGE PLAN
- C14 - STORM WATER POLLUTION PREVENTION PLAN
- C15 - DRAINAGE DETAILS
- C16 - DRAINAGE DETAILS
- C17 - DRAINAGE DETAILS
- C18 - CONCRETE HEADWALL DETAIL
- C19 - METAL BEAM GUARD FENCE DETAIL

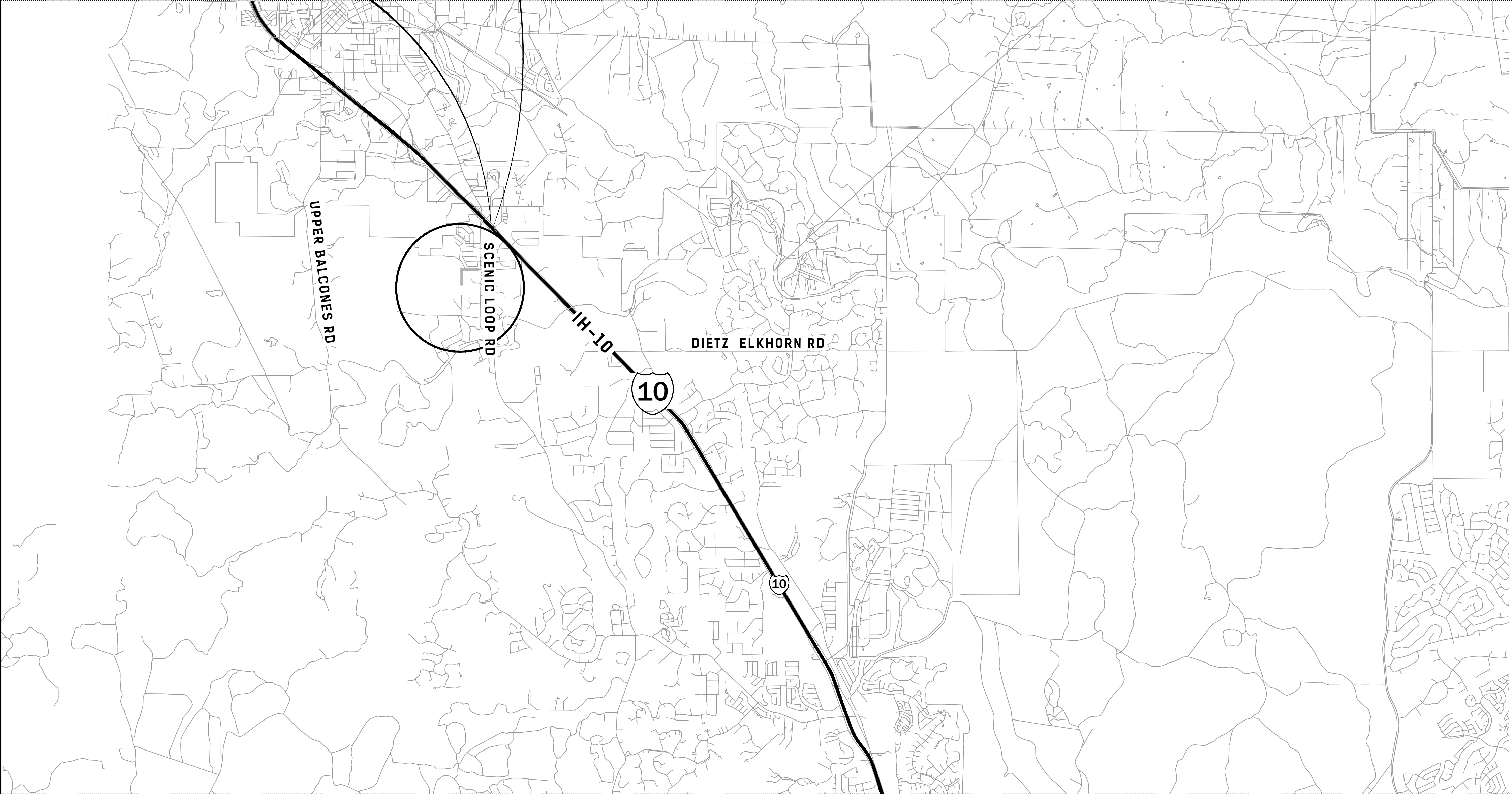
This project has been built per the approved plans and details.

Derek M. Moczygamba

Derek Moczygamba
VK Knowlton
Project Manager



LOCATION MAP



VICINITY MAP

Reviewed by City of Boerne Development Services:

Approved for Construction	
Approved as Noted	X
Disapproved	
Incomplete - Not Reviewed	
Not Reviewed - Accepted FIO	

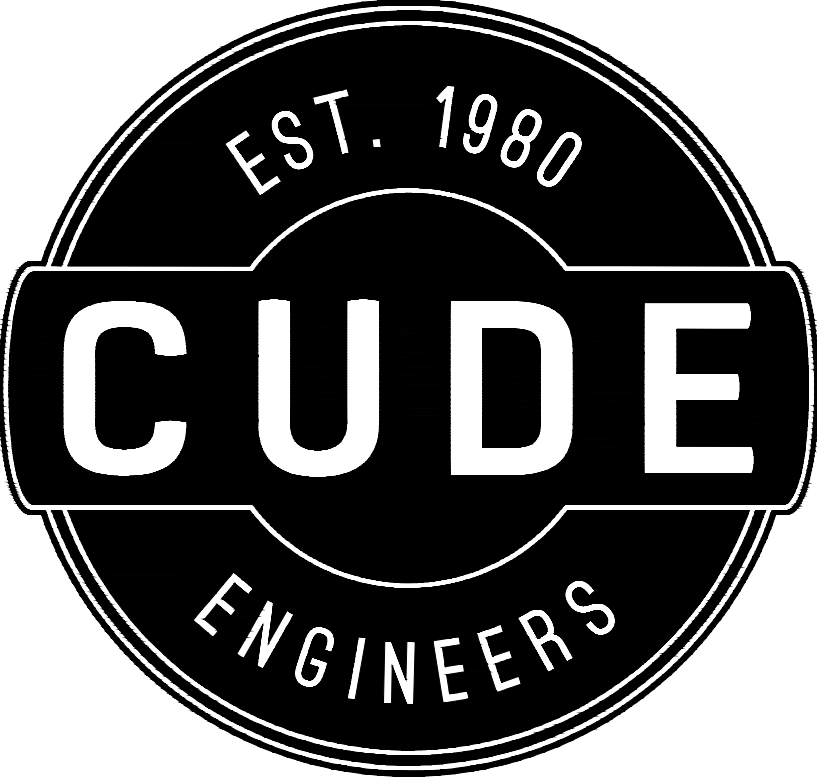
By: Cheryl J. Rogen Date: 6/19/2023

-offsite easements must be obtained prior to application of the construction release permit
-Obtain county approval prior to application of the construction release permit
-DA amendments/MOU must be finalized prior to approval of construction release permit

5th Review

CJR	CJR
JC	—
Maestas	✓

City of Boerne Review Notes:
1) Approval of these documents does not relieve the Engineer or Contractor from full compliance with the City of Boerne Standard Specifications or applicable City Ordinances.
2) Any changes to documents approved by the City of Boerne are required to be re-submitted for review and approval prior to proceeding with construction.



CORLEY FARMS OFFSITE
VALLERIE LANE IMPROVEMENTS
STREET & DRAINAGE
CONSTRUCTION PLANS

CORLEY FARMS SUBDIVISION IS VESTED TO THE SUBDIVISION ORDINANCE NO. 2007-56 OF THE CITY OF BOERNE, TEXAS (REVISED 10.08.2019) PER THE DEVELOPMENT AGREEMENT EXECUTED BETWEEN BOERNEBAK, LLC. AND THE CITY OF BOERNE, TEXAS EFFECTIVE NOVEMBER 26, 2019

IMPROVEMENTS SHOWN ON THIS CONSTRUCTION PLAN SET ARE BASED ON EXHIBIT G-4 AND TERMS OF THE DEVELOPMENT AGREEMENT

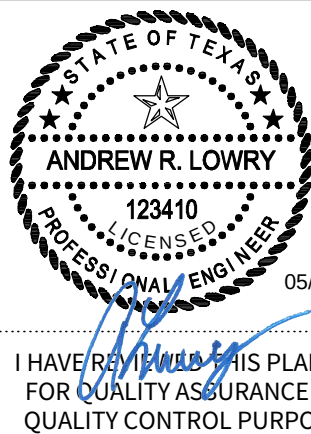
DEVELOPER:

KENDALL COUNTY WATER CONTROL AND IMPROVEMENTS DISTRICT 3A
DISTRICT ENGINEER: PAPE-DAWSON ENGINEERS
2000 NW LOOP 410
SAN ANTONIO, TX 78213
TEL: (210) 375-9000

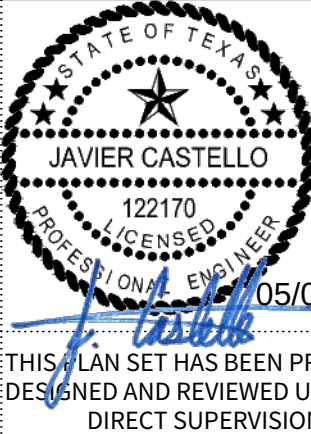
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San Antonio, Texas 78231
P:(210) 681.2951 F: (210) 523.7112

DRAWN BY
CA/CG/XV
CHECKED BY
XV/JC/DDC

DATE
03/27/2023
PROJECT NO.
03481.003

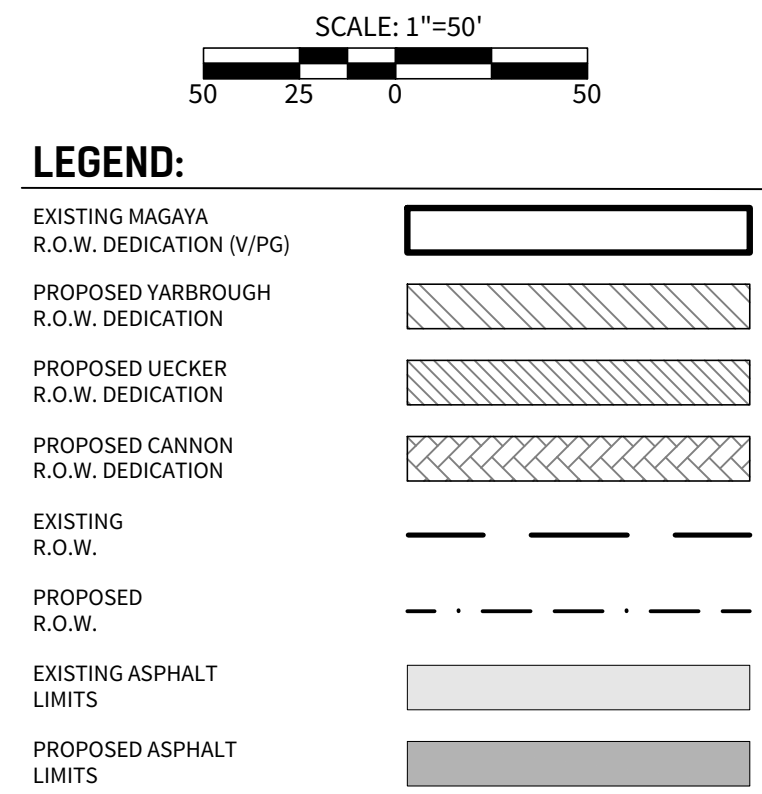
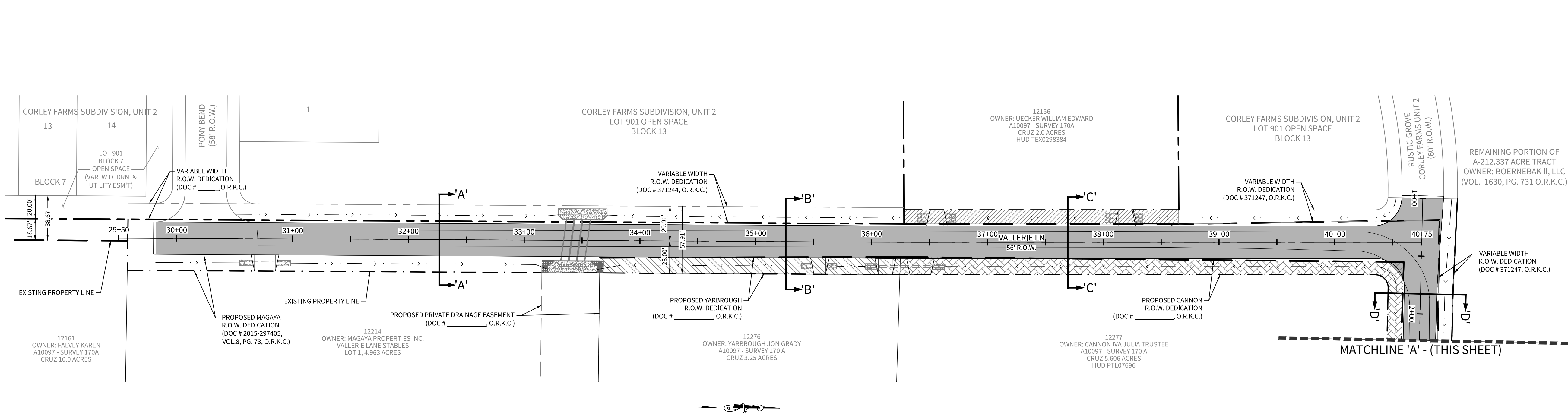


I HAVE REVIEWED THIS PLAN SET FOR QUALITY ASSURANCE AND QUALITY CONTROL PURPOSES.

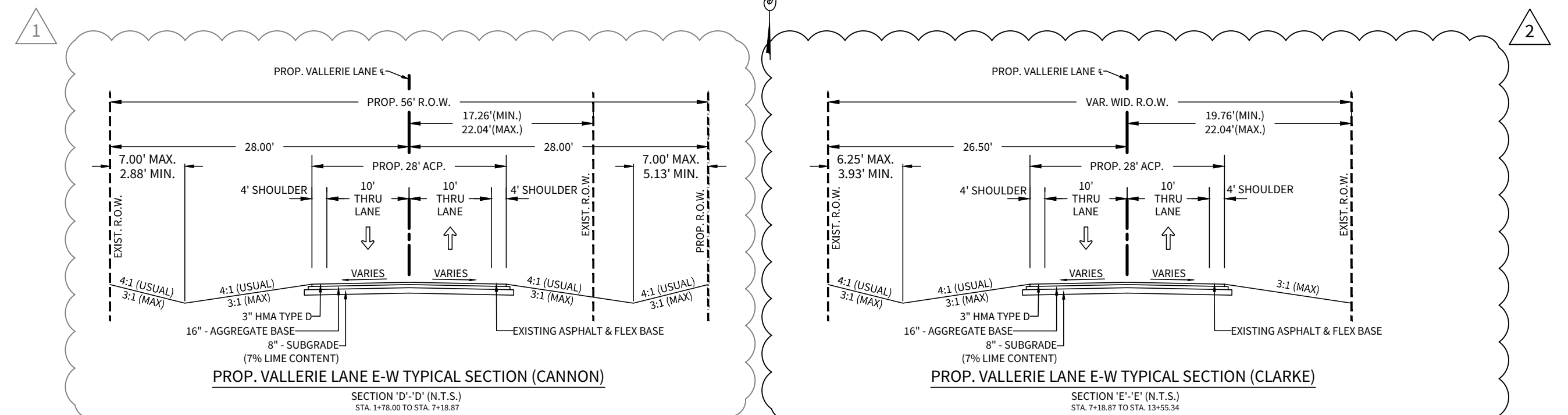
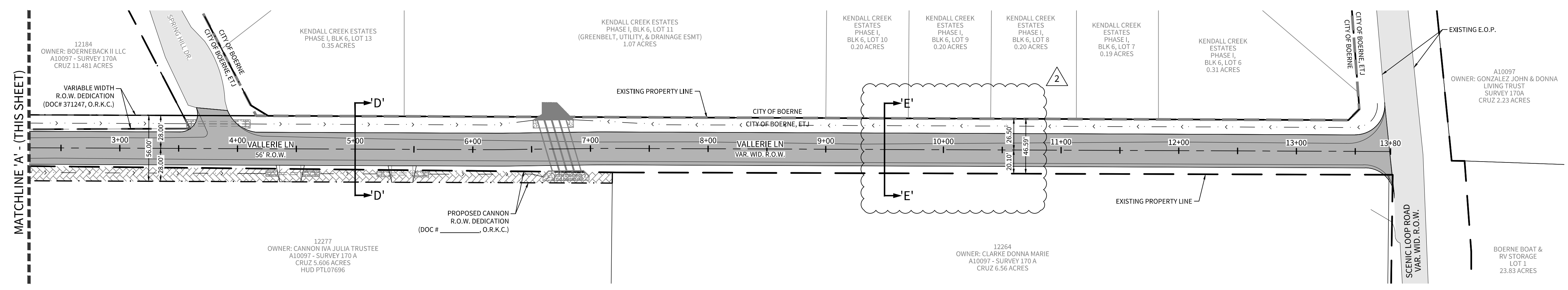
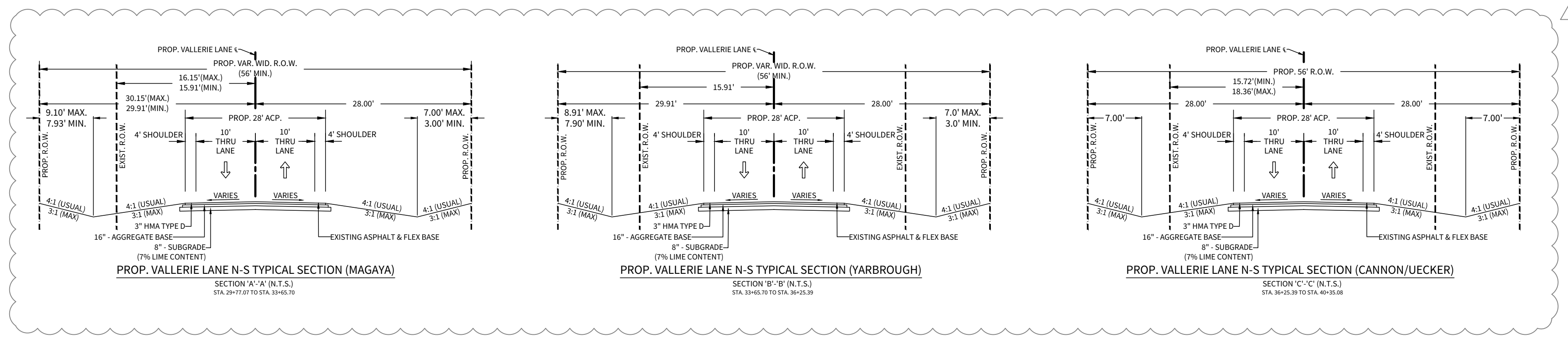


THIS PLAN SET HAS BEEN PREPARED, DESIGNED AND REVIEWED UNDER MY DIRECT SUPERVISION.

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- CITY OF BOERNE
GENERAL CONSTRUCTION NOTES
- GENERAL NOTES
- CONSTRUCTION OF ALL FACILITIES TO BE DEDICATED TO THE PUBLIC SHALL BE PERFORMED PER THE REQUIREMENTS OF THE CITY OF BOERNE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
 - ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE INFRASTRUCTURE DRAWINGS REMAIN WITH THE ENGINEER OF RECORD. IN APPROVING THESE INFRASTRUCTURE DRAWINGS, THE CITY OF BOERNE MUST RELY UPON THE ADEQUACY OF THE WORK OF THE ENGINEER OF RECORD.
 - PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL CONTACT THE CITY OF BOERNE DEVELOPMENT SERVICES TO SCHEDULE A PRE-CONSTRUCTION MEETING.
 - THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS PRIOR TO CONSTRUCTION.
 - THE CONTRACTOR SHALL NOTIFY CITY OF BOERNE DEVELOPMENT SERVICES AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION AT (830) 248-1538.
 - THE CONTRACTOR IS REQUIRED TO SCHEDULE ALL NECESSARY INSPECTIONS AT LEAST 24 HOURS IN ADVANCE.
 - THE CONTRACTOR SHALL HAVE AVAILABLE AT THE JOB SITE AT ALL TIMES THE APPROVED INFRASTRUCTURE DRAWINGS, INCLUDING ALL APPROVED REVISIONS; THE CITY OF BOERNE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION; ALL NECESSARY PERMITS; NOTICE OF INTENT; EROSION CONTROL PLANS; AND SWPPP. IT IS ENCOURAGED TO KEEP AN EXTRA COPY OF APPROVED SUBMITTALS ON-SITE.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL PUBLIC UTILITIES DURING CONSTRUCTION OF THE PROJECT.
 - THE CONTRACTOR SHALL DETERMINE THE DEPTH AND LOCATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO EXCAVATING, TRENCHING, OR DRILLING AND SHALL BE REQUIRED TO TAKE ANY PRECAUTIONARY MEASURE TO PROTECT ALL LINES SHOWN AND/OR ANY OTHER UNDERGROUND UTILITIES NOT OF RECORD OR NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL PUBLIC AGENCIES AND FRANCHISE UTILITIES 48 HOURS PRIOR TO CONSTRUCTION (TEXAS 811 1-800-344-8377).
 - THE CONTRACTOR MUST CONTACT CITY OF BOERNE DEVELOPMENT SERVICES IMMEDIATELY IF ANY DAMAGE TO EXISTING UTILITIES OCCURS. ANY DAMAGE TO UTILITIES RESULTING FROM CONTRACTOR'S OPERATIONS SHALL BE RESTORED AT THEIR EXPENSE.
 - ANY DISCREPANCIES ON THE INFRASTRUCTURE DRAWINGS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE DESIGN ENGINEER AND CITY OF BOERNE DEVELOPMENT SERVICES BEFORE COMMENCING WORK. NO FIELD CHANGES OR DEVIATIONS FROM THE INFRASTRUCTURE DRAWINGS ARE PERMITTED WITHOUT WRITTEN APPROVAL FROM THE CITY.
 - STORMWATER MANAGEMENT FACILITIES SHALL BE PROVIDED PRIOR TO SITE CONSTRUCTION OR CLEARING AND BE MAINTAINED DURING THE PROGRESS OF CONSTRUCTION.
 - THE CONTRACTOR IS RESPONSIBLE FOR SITE SAFETY. ALL WORK REQUIRED SHALL BE CONDUCTED IN CONFORMANCE WITH CURRENT SAFETY CODES AND STANDARDS WITH JURISDICTION OVER THIS PROJECT.
 - THE CONTRACTOR SHALL PROVIDE THE CITY ACCESS TO CITY PROPERTY, EASEMENTS, UTILITIES, AND FACILITIES AT ALL TIMES DURING CONSTRUCTION.
 - THE CONTRACTOR IS RESPONSIBLE FOR REQUIRED CONSTRUCTION SURVEYING AND STAKING AND SHALL NOTIFY THE CITY OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH ANY WORK.
 - THE CONTRACTOR SHALL VERIFY BENCHMARKS AND DATUMS PRIOR TO COMMENCING CONSTRUCTION OR STAKING OF IMPROVEMENTS.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL SURVEY MARKERS INCLUDING IRON RODS, PROPERTY CORNERS, OR SURVEY MONUMENTS WITHIN THE LIMITS OF THE CONSTRUCTION SITE AND OUTSIDE THE RIGHT-OF-WAY DURING CONSTRUCTION. ANY SURVEY MARKERS DISTURBED DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR AT THEIR OWN COST.
 - ALL CONCRETE SHALL BE PLANT MIXED MEETING CITY SPECIFICATIONS WITH A MINIMUM OF 4,000 PSI AT 28 DAYS COMPRESSIVE STRENGTH UNLESS OTHERWISE SPECIFIED.
 - THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ADEQUATE TRAFFIC FLOW (MINIMUM ONE WAY TRAFFIC) AND TRAFFIC MOVEMENTS. CONTRACTOR IS RESPONSIBLE FOR PRODUCING A TRAFFIC CONTROL PLAN AS REQUIRED BY THE CITY OF BOERNE AND ALL RIGHT OF WAY PERMITS NEEDED.



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EST. 1980
CUDE
ENGINEERS

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**CORLEY FARMS OFFSITE
VALLERIE LANE IMPROVEMENTS**

PROPOSED TYPICAL STREET SECTIONS
& RIGHT OF WAY DEDICATION MAP

DATE
03/27/2023

PROJECT NO.
03481.003

DRAWN BY
CA/CG

CHECKED BY
XV/AL

REVISIONS

1.	2023-02-20 - REVISED TYPICAL STREET CROSS SECTIONS, ADDED C&G GENERAL CONSTRUCTION NOTES.
2.	2023-03-27 - REVISED RIGHT OF WAY ON SECTION E-E
3.	
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STATE OF TEXAS
JAVIER CASTELLO
122170
Professional Engineer
03/28/2023

CUDE ENGINEERS
TBPELS No. 10048500

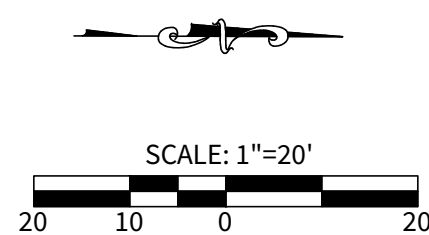
C1



- ## NOTES:
1. THE EXISTENCE AND LOCATION OF EXISTING UNDERGROUND CABLE (INDICATED ON THESE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE, AND ARE NOT GUARANTEED TO BE ACCURATE. THE CONTRACTOR SHOULD CALL FOR LOCATES THROUGH THE "ONE CALL" UTILITY LOCATE SERVICE (1-800-344-8377) 48 HOURS PRIOR TO CONSTRUCTION/EXCAVATION WORK ON ANY UNDERGROUND UTILITY. THE RESPONSIBILITY TO PROTECT AND SUPPORT TELEPHONE COMPANY FACILITIES DURING CONSTRUCTION, CONTRACTOR SHALL COORDINATE EXISTING UNDERGROUND CABLE RELOCATION IF A ALIGNMENT CONFLICT ARISES.
 2. CONTRACTOR TO REMOVE AND RELOCATE EXISTING SIGNS AND FENCES AS NECESSARY TO EXISTING OR BETTER CONDITION.
 3. DOUBLE 4" YELLOW STRIPING LIMITS WILL BE FOR MILLED AND OVERLAID ASPHALT PAVEMENT AREAS AS SHOWN.
 4. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ADEQUATE TRAFFIC FLOW (MINIMUM ONE WAY TRAFFIC) AND TRAFFIC MOVEMENTS. CONTRACTOR IS RESPONSIBLE FOR PRODUCING A TRAFFIC CONTROL PLAN AS REQUIRED BY THE CITY OF KANSAS AND KENDALL COUNTY. THE CONTRACTOR SHALL OBTAIN ANY AND ALL RIGHT OF WAY PERMITS NEEDED.
 5. CONTRACTOR IS RESPONSIBLE FOR REVEGETATING ALL DISTURBED AREAS WITH IN THE RIGHT OF WAY OR UTILITY EASEMENTS.
 6. CONTRACTOR SHALL GRADE RIGHT OF WAY AND ADJACENT SITE AREAS TO ENSURE POSITIVE DRAINAGE AT ALL TIMES DURING AND AFTER CONSTRUCTION OF IMPROVEMENTS SHOWN.
 7. CONTRACTOR MUST CONSTRUCT THE PROPOSED STREET CROSS SECTION SHOWN IN THIS SHEET IN ALL AREAS WHERE THE PROPOSED PAVEMENT IS SHOWN. CONTRACTOR TO VERIFY ALL AREAS WITHIN THE PROPOSED PAVEMENT RIGHT OF WAY HAVE NO DRAINAGE ISSUES.
 8. IF ANY DRAINAGE OR UTILITY CONFLICT ARISE DURING CONSTRUCTION, CONTRACTOR IS TO NOTIFY ENGINEER IMMEDIATELY.
 9. CONTRACTOR IS REQUIRED TO COORDINATE DRIVEWAY ACCESS AND REQUIRED IMPROVEMENT WORK TIMES WITH EXISTING PROPERTY OWNERS.
 10. THE CONTRACTOR IS REQUIRED TO INSTALL AND MONITOR SWPPP MEASURES EVERY 2 WEEKS OR AFTER EVERY RAIN EVENT.
 11. THE CONTRACTOR IS RESPONSIBLE FOR REVEGETATION OF ALL DISTURBED AREAS DURING CONSTRUCTION INCLUDING AREAS OUTSIDE OF THE RIGHT OF WAY. 90% VEGETATION ESTABLISHMENT WILL BE REQUIRED FOR FIELD ACCEPTANCE OF IMPROVEMENTS SHOWN.

PROPERTY LINE
EXISTING OVERHEAD ELECTRIC
EXISTING POWERPOLE
EXISTING SIGN
EXISTING FENCE
EXISTING PAVEMENT
EXISTING FORCE MAIN
EXISTING DRIVEWAY

The diagram illustrates the existing site conditions. At the top, a dashed line represents the property line. Below it, a horizontal line with a crossbar and a circle indicates an overhead electric line (OHE). A vertical line with a crossbar and a circle represents an existing powerpole. A vertical line with a crossbar and a circle indicates an existing sign. A horizontal line with a crossbar and a circle represents an existing fence. A horizontal line with a crossbar and a circle indicates existing pavement. A horizontal line with a crossbar and a circle represents an existing force main. A horizontal line with a crossbar and a circle indicates an existing driveway. The diagram also shows two existing trees, represented by circles with crosshairs, and a north arrow pointing towards the top right.



CAUTION!!

THE CONTRACTOR SHALL BE AWARE THAT A UNDER GROUND ELECTRIC AND OVERHEAD ELECTRIC LINE EXIST ALONG VALLERIE LANE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE THESE UTILITIES LOCATED PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING IN THIS AREA. ANY DAMAGE DONE TO THESE EXISTING FACILITIES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR.

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROGRAM AND/OR PREVENTIVE AND PROTECTIVE MEASURES. THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS, THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT SHALL COMPLY WITH ALL STANDARDS GOVERNING THE PRACTICES AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

[illegible]

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**CORLEY FARMS OFFSITE
VALLERIE LANE IMPROVEMENTS**

VALLERIE LANE EXISTING CONDITIONS PLAN

DATE
02/20/2023
PROJECT NO
03481.003

DRAWN BY
CA/CG

CHECKED BY
XV/AL

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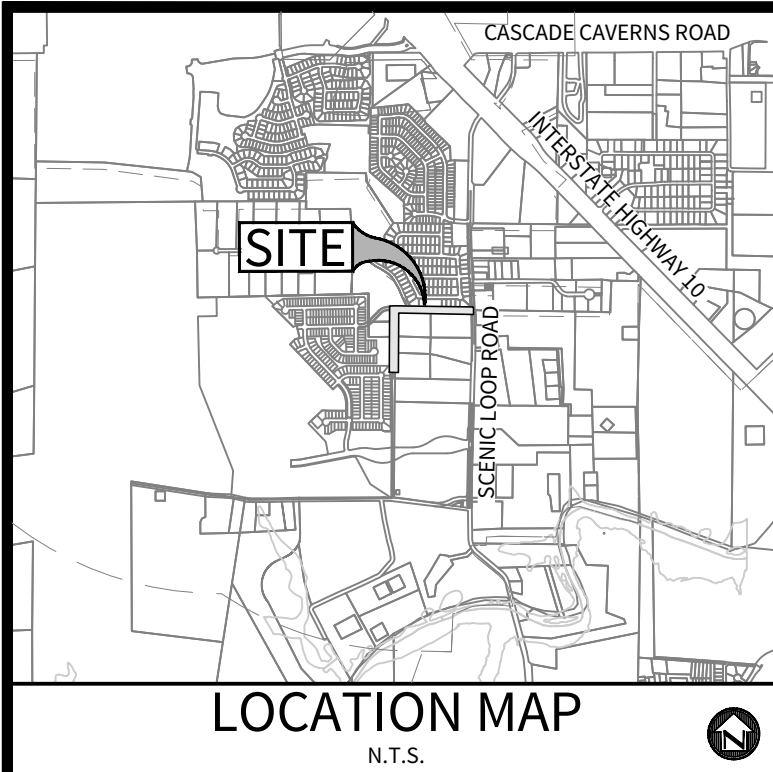


02/21/2023

CUDE ENGINEERS
TBPELS No. 10048500

C2

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DEVELOPER
KENDALL COUNTY WATER CONTROL AND IMPROVEMENTS DISTRICT 3A
DISTRICT ENGINEER: PAPE-DAWSON ENGINEERS
2000 NW LOOP 410
SAN ANTONIO, TX 78213
TEL: (210) 375-9000

CIVIL ENGINEER:
M.W. CUDE ENGINEERS, L.L.C.
CONTACT PERSON: DAVID D. CUPIT II, P.E.
4122 POND HILL ROAD, SUITE 101
SAN ANTONIO, TX 78231
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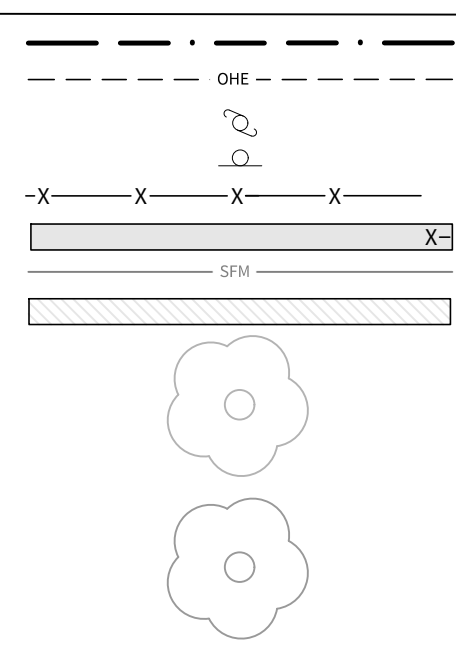
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 5. CONTRACTOR IS RESPONSIBLE FOR REVEGETATING ALL DISTURBED AREAS WITHIN THE RIGHT OF WAY OR UTILITY EASEMENTS.
 6. CONTRACTOR SHALL GRADE RIGHT OF WAY AND ADJACENT SITE AREAS TO ENSURE POSITIVE DRAINAGE AT ALL TIMES DURING AND AFTER CONSTRUCTION OF IMPROVEMENTS SHOWN.
 7. CONTRACTOR TO PRESERVE EXISTING DRAINAGE PATTERNS AND CONDITIONS WITHIN MILL AND OVERLAY RIGHT OF WAY.
 8. CONTRACTOR MUST CONSTRUCT THE PROPOSED STREET CROSS SECTION SHOWN IN THIS SHEET IN ALL AREAS WHERE THE PROPOSED PAVEMENT IS SHOWN. CONTRACTOR TO VERIFY ALL AREAS WITHIN THE PROPOSED PAVEMENT RIGHT OF WAY HAVE NO DRAINAGE ISSUES.
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LEGEND:

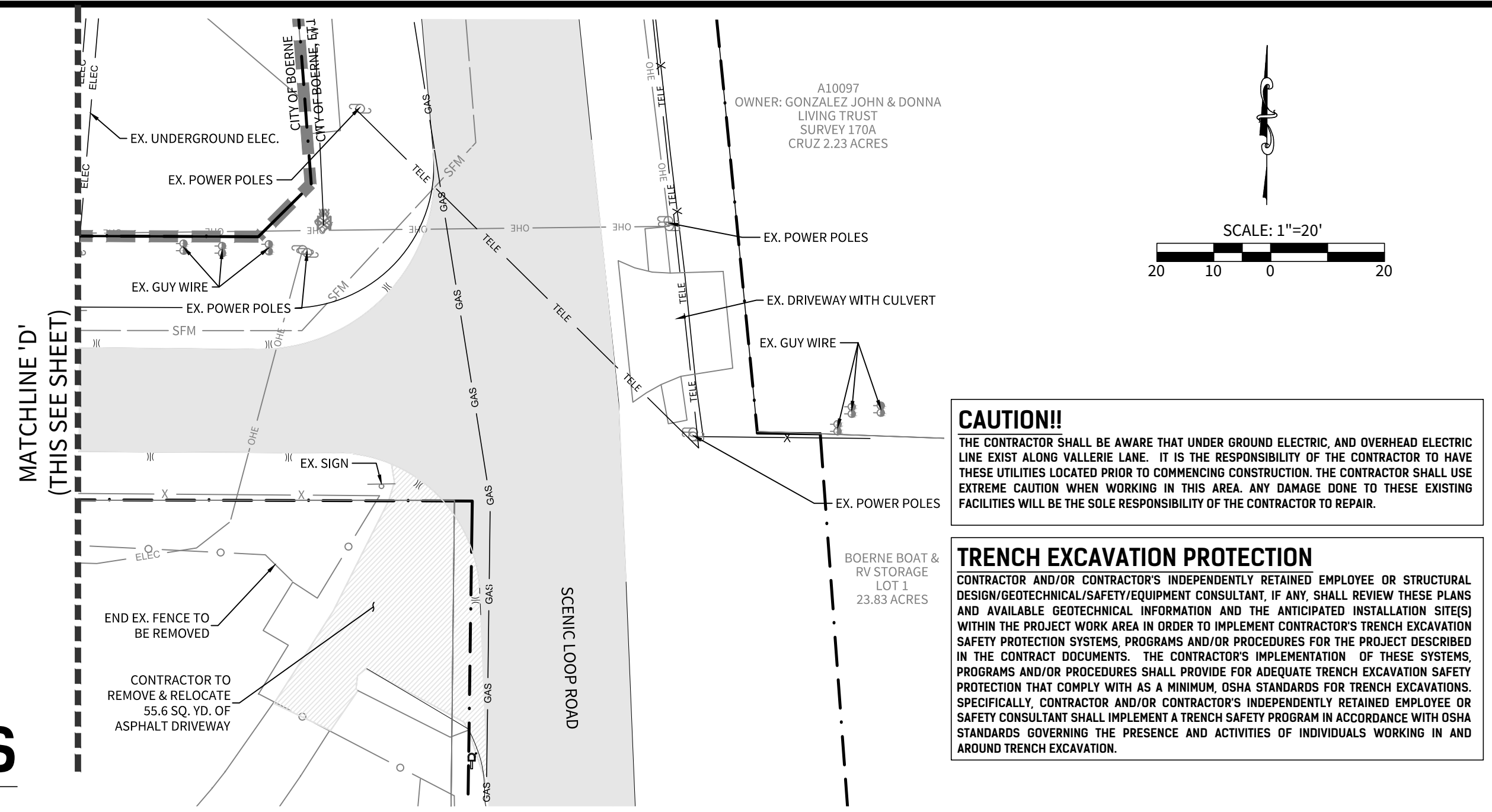
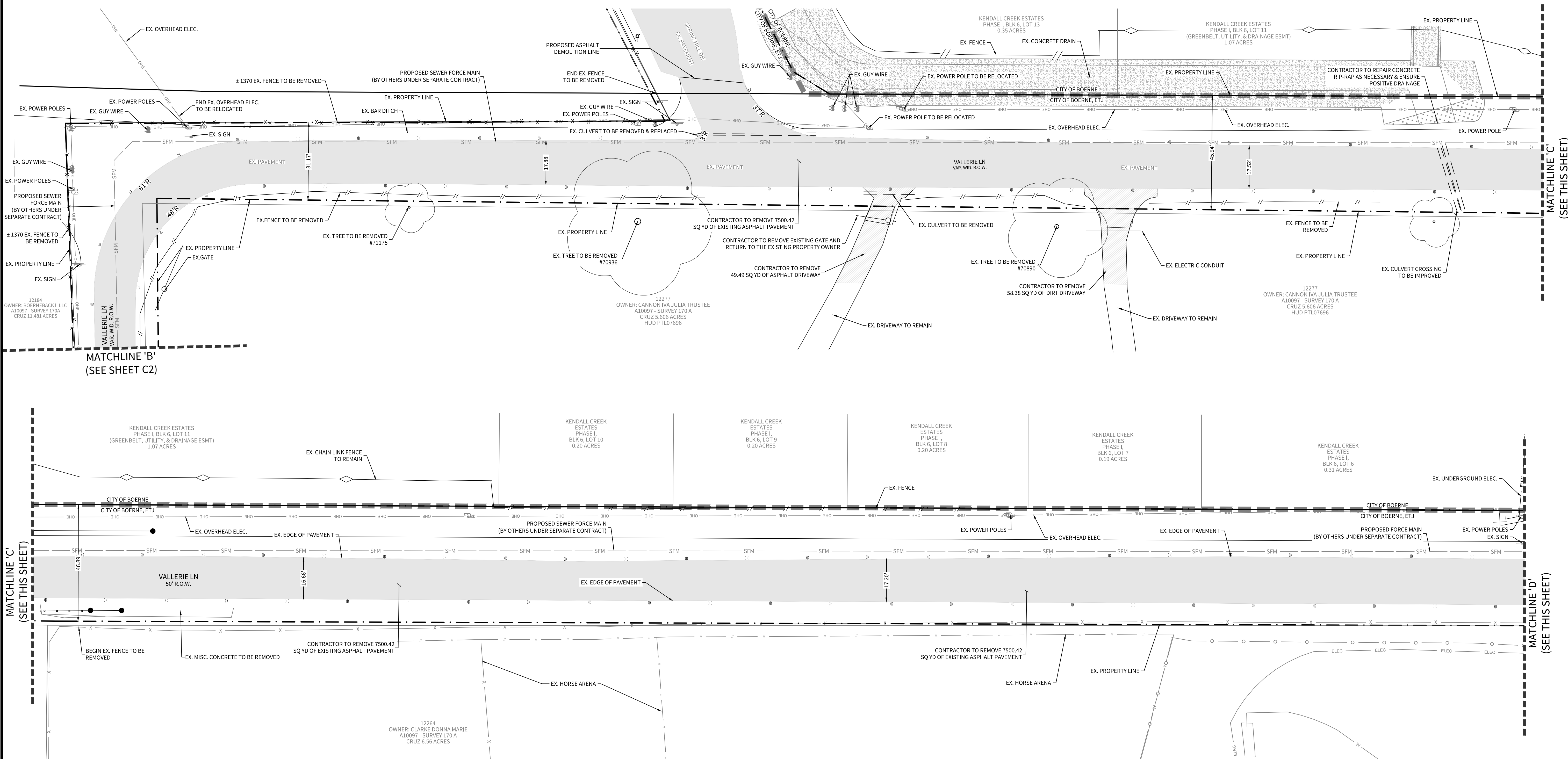
PROPERTY LINE
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EXISTING POWERPOLE
EXISTING SIGN
EXISTING FENCE
EXISTING PAVEMENT
EXISTING FORCE MAIN
EXISTING DRIVEWAY

EXISTING TREE

PRESERVED TREE



VALLERIE LANE E-W EXISTING CONDITIONS



CAUTION!!
THE CONTRACTOR SHALL BE AWARE THAT UNDER GROUND ELECTRIC, AND OVERHEAD ELECTRIC LINE EXIST ALONG VALLERIE LANE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE THESE UTILITIES LOCATED PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING IN THIS AREA. ANY DAMAGE DONE TO THESE EXISTING FACILITIES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR.

TRENCH EXCAVATION PROTECTION
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGNER/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

CUDEENGINEERS.COM

CUDE ENGINEERS

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**CORLEY FARMS OFFSITE
VALLERIE LANE IMPROVEMENTS**

VALLERIE LANE EXISTING CONDITIONS PLAN

DATE
02/20/2023

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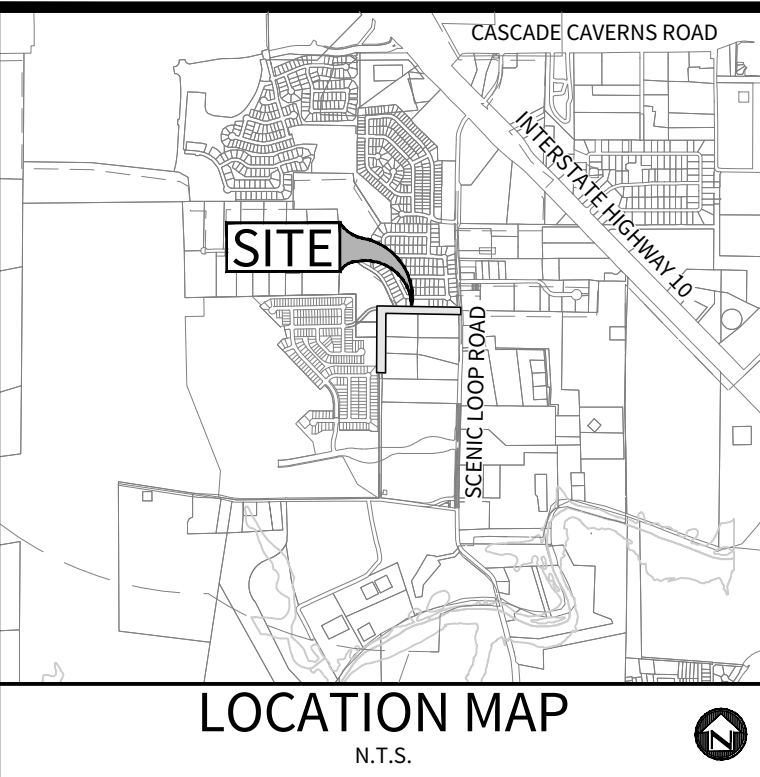
REVISIONS

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STATE OF TEXAS
JAVIER CASTELLO
122170
PROFESSIONAL ENGINEER
02/21/2023
CUDE ENGINEERS
TBPELS No. 10048500

C3

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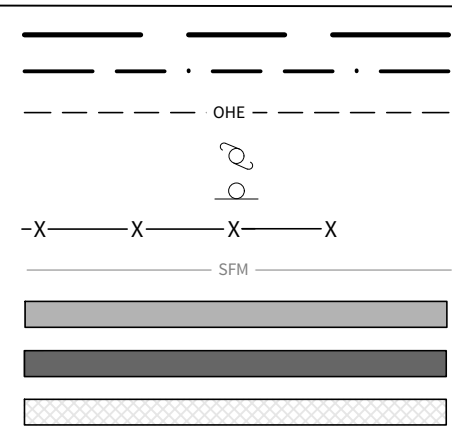


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TEL: (210) 681-2951
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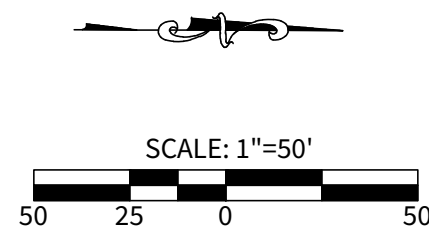
LEGEND:

- PROPERTY LINE
- R.O.W. DEDICATION LINE
- EXISTING OVERHEAD ELECTRIC
- EXISTING POWERPOLE
- EXISTING SIGN
- EXISTING FENCE
- EXISTING FORCE MAIN
- PROPOSED PAVEMENT
- PROPOSED DRIVEWAY
- PROPOSED CULVERT



CAUTION!!
THE CONTRACTOR SHALL BE AWARE THAT AN UNDER GROUND ELECTRIC AND OVERHEAD ELECTRIC LINE EXIST ALONG VALLERIE LANE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE THESE UTILITIES LOCATED PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING IN THIS AREA. ANY DAMAGE DONE TO THESE EXISTING FACILITIES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR.

TRENCH EXCAVATION PROTECTION
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.



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**CORLEY FARMS OFFSITE
VALLERIE LANE IMPROVEMENTS**

VALLERIE LANE N-S PLAN & PROFILE

DATE
05/03/2023

PROJECT NO.
03481.003

DRAWN BY
CA/CG

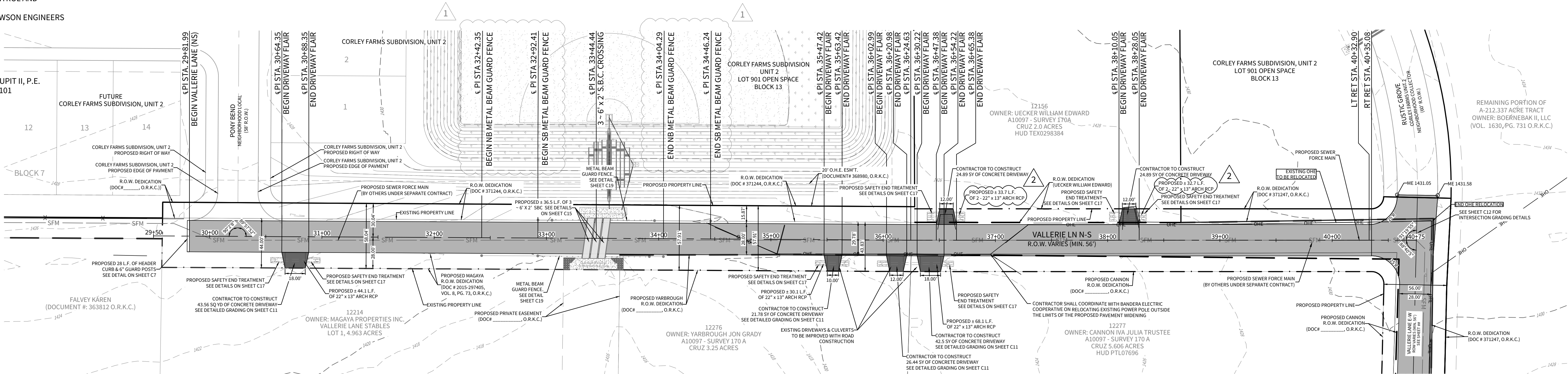
CHECKED BY
XV/AL

REVISIONS

- 2023-03-27 - ADDED MBFG BEGINNING AND END.
- 2023-04-19 - REVISED CULVERT LENGTHS.
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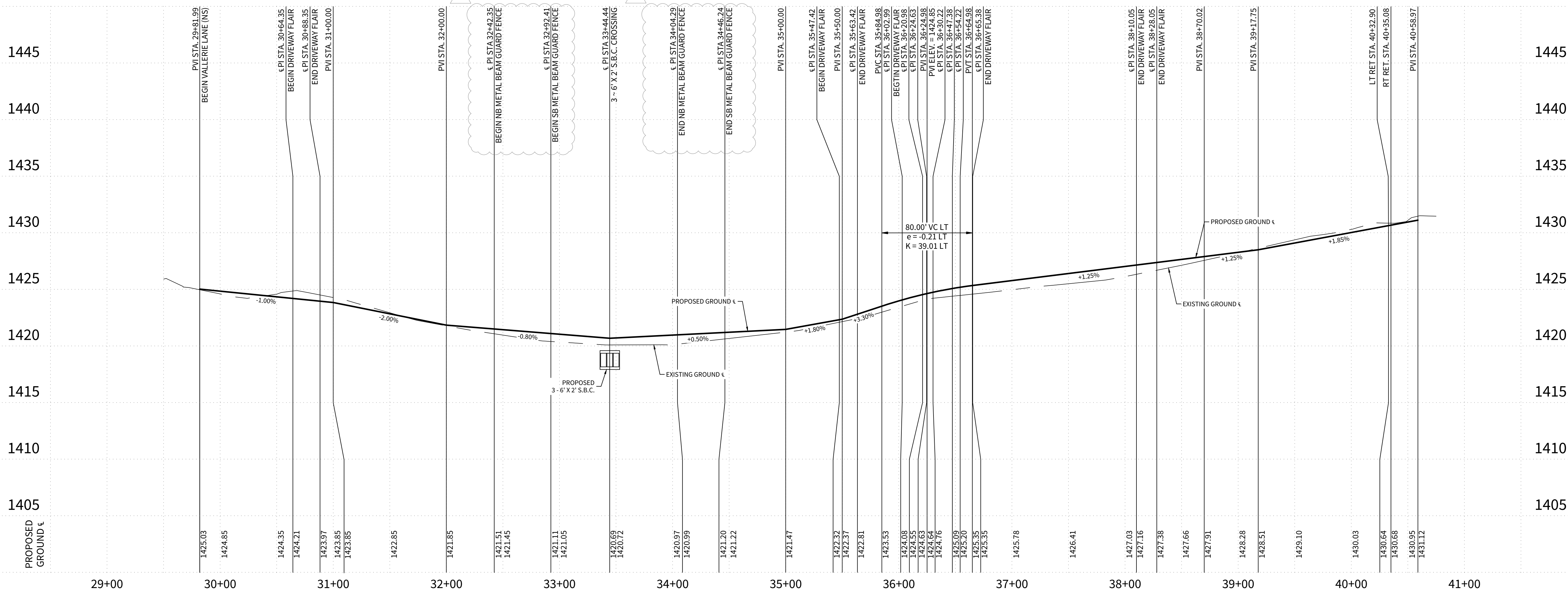
STATE OF TEXAS
JAVIER CASTELLO
122170
PROFESSIONAL ENGINEER
05/03/2023
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TBPELS No. 10048500

C4

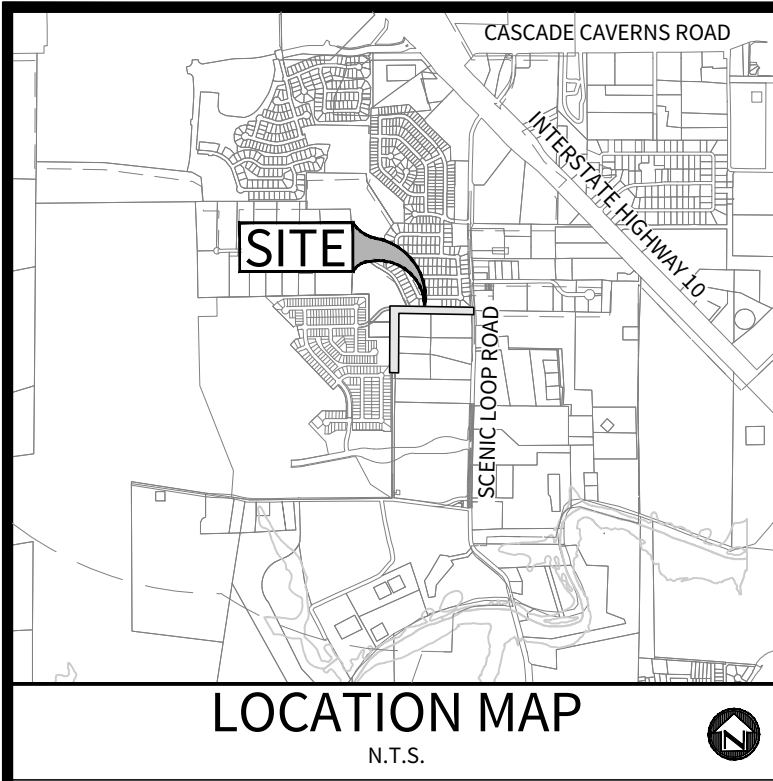


PROPOSED VALLERIE LANE N-S

STA. 29+81.99 TO END

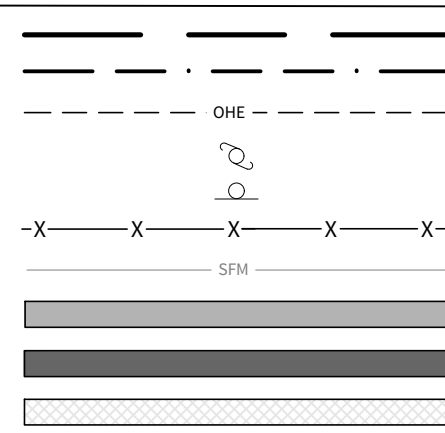


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LEGEND:

PROPERTY LINE
R.O.W. DEDICATION LINE
EXISTING OVERHEAD ELECTRIC
EXISTING POWERPOLE
EXISTING SIGN
EXISTING FENCE
EXISTING FORCE MAIN
PROPOSED PAVEMENT
PROPOSED DRIVEWAY
PROPOSED CULVERT

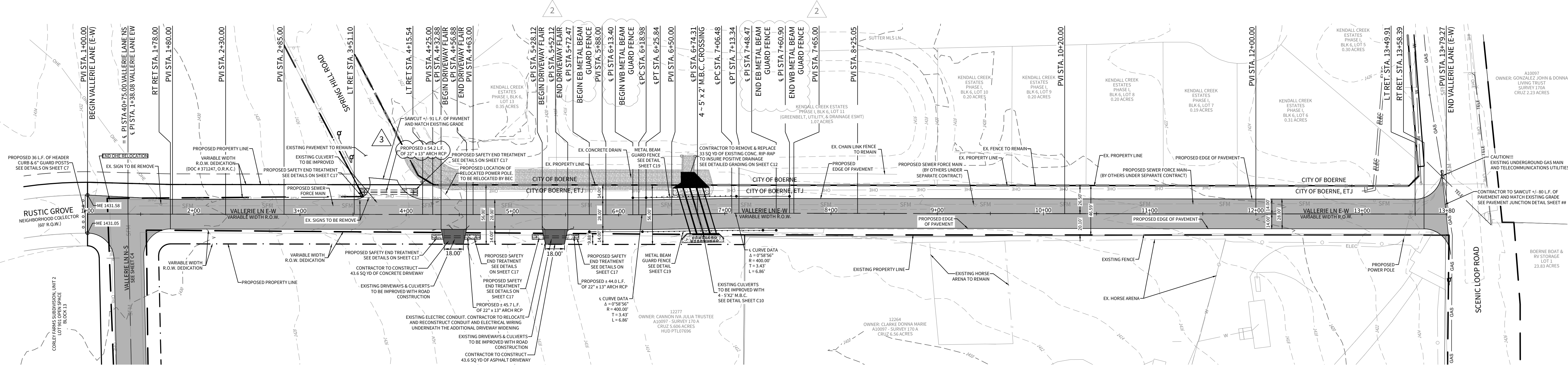
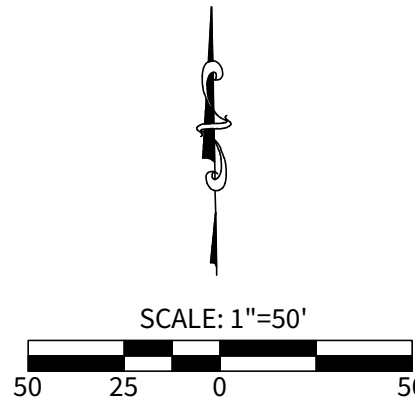


CAUTION!!

THE CONTRACTOR SHALL BE AWARE THAT A WATER MAIN, UNDER GROUND ELECTRIC, AND OVERHEAD ELECTRIC LINE EXIST ALONG VALLERIE LANE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE THESE UTILITIES LOCATED PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING IN THIS AREA. ANY DAMAGE DONE TO THESE EXISTING FACILITIES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR.

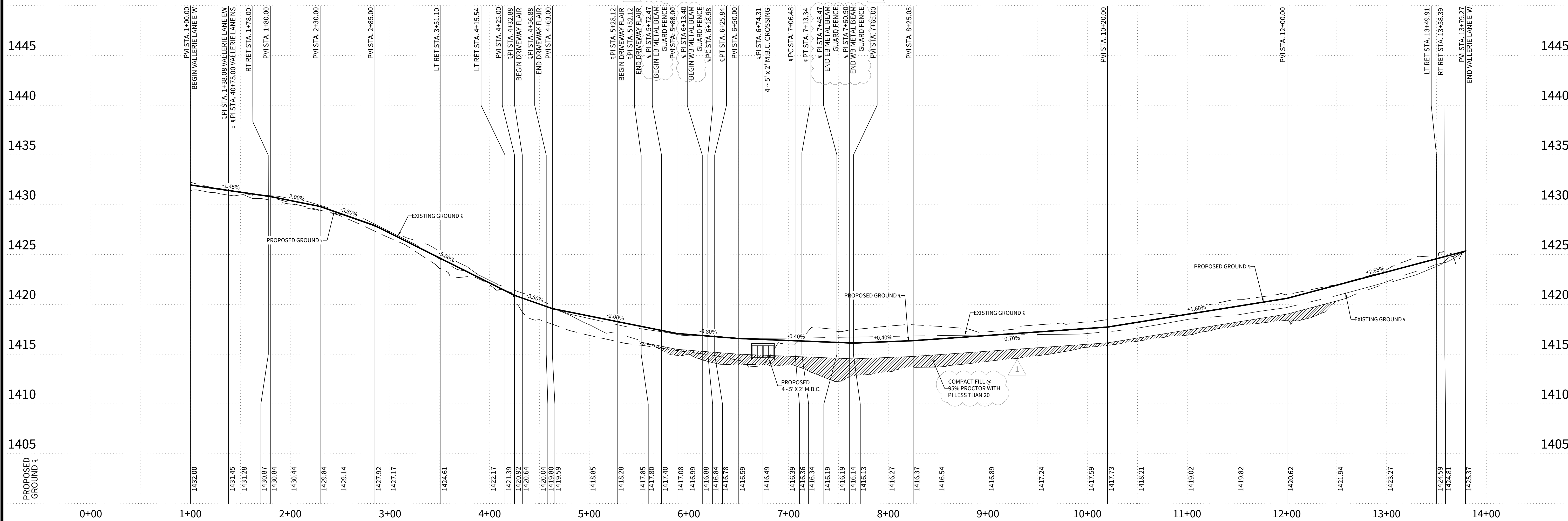
TRENCH EXCAVATION PROTECTION

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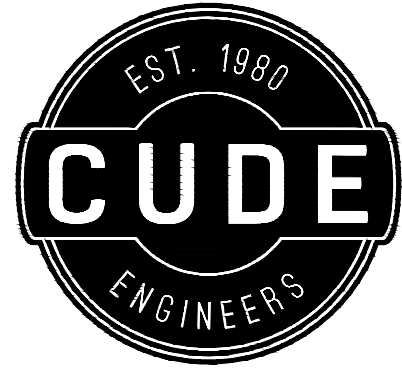


PROPOSED VALLERIE LANE E-W

STA. 1+00.00 TO END



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CORLEY FARMS OFFSITE VALLERIE LANE IMPROVEMENTS

VALLERIE LANE E-W PLAN & PROFILE

DATE
05/03/2023
PROJECT NO.
03481.003

DRAWN BY
CA/CG
CHECKED BY
XV/AL

REVISIONS

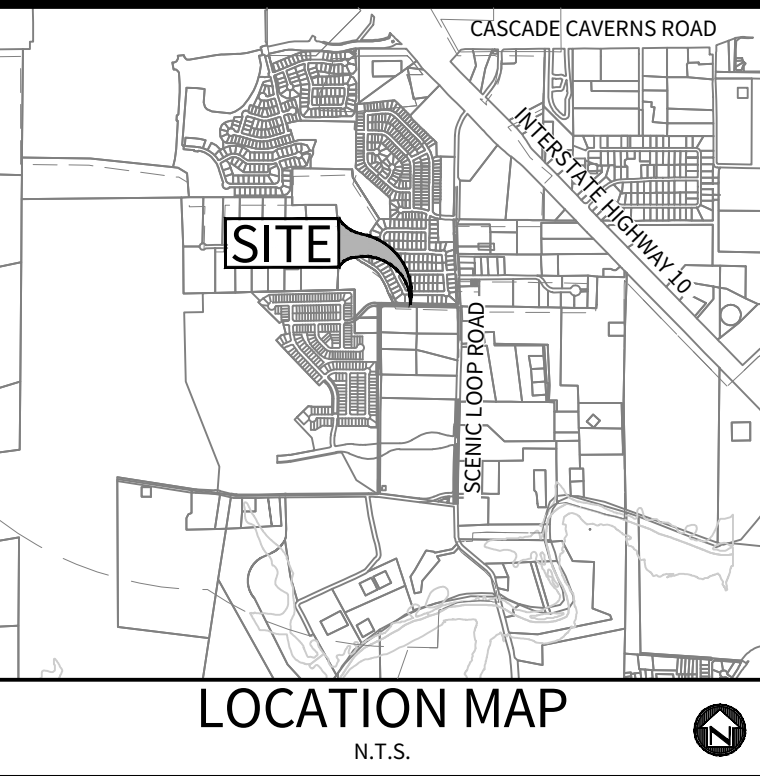
- 2023-02-20 - ADDED COMPACT FILL CALL OUT
- 2023-03-27 - ADDED MREG BEGINNING AND END
- 2023-04-19 - REVISED CULVERT LENGTH.
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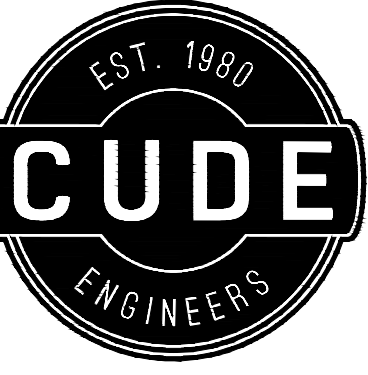
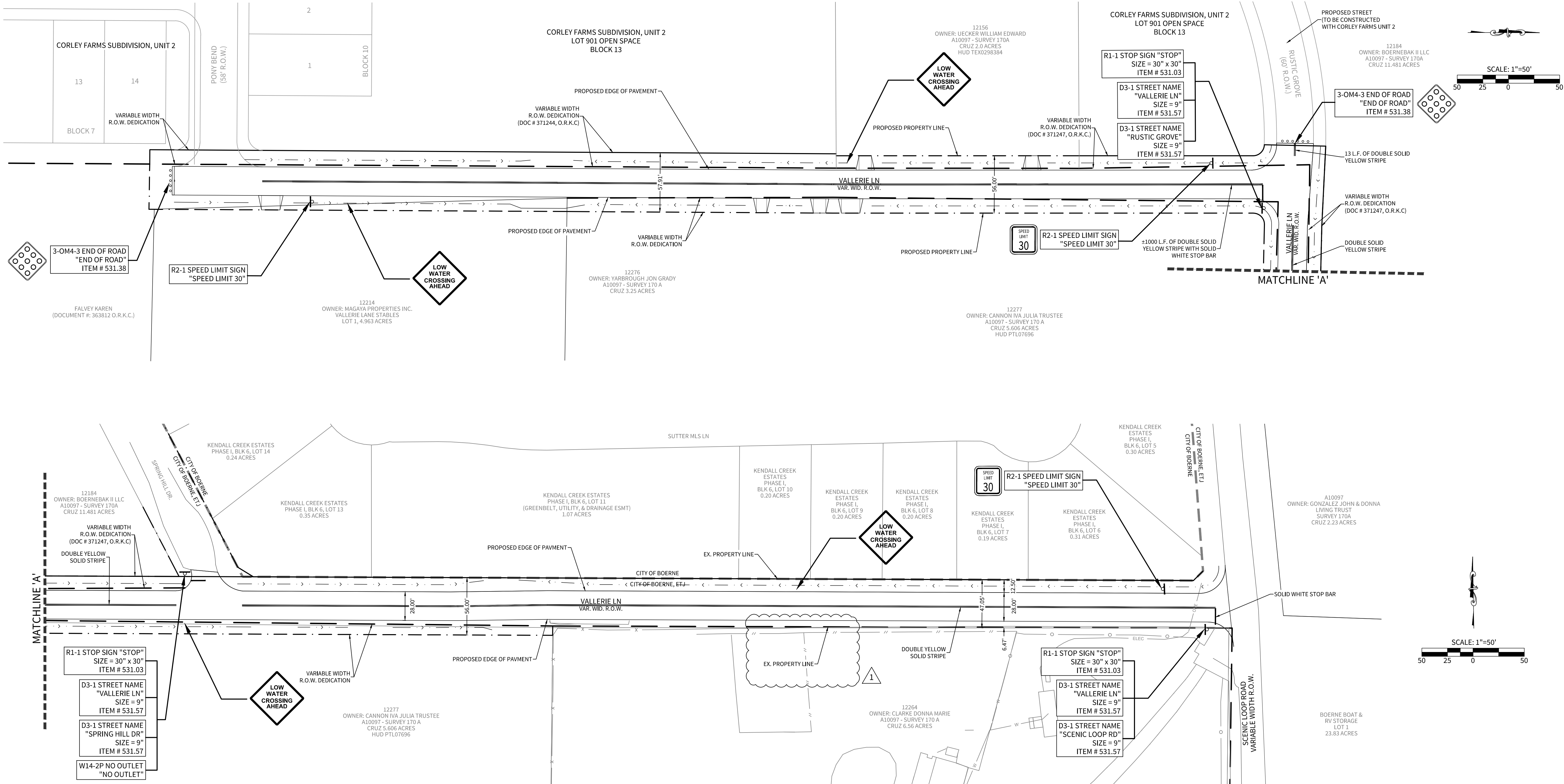
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DEVELOPER
KENDALL COUNTY WATER CONTROL AND IMPROVEMENTS DISTRICT 3A
DISTRICT ENGINEER: PAPE-DAWSON ENGINEERS
2000 NW LOOP 410
SAN ANTONIO, TX 78213
TEL: (210) 375-9000

CIVIL ENGINEER:
M.W. CUDE ENGINEERS, L.L.C.
CONTACT PERSON: DAVID D. CUPIT II, P.E.
4122 POND HILL ROAD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951
FAX: (210) 523-7112



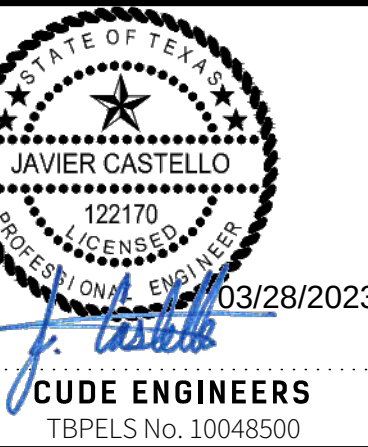
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**CORLEY FARMS OFFSITE
VALLERIE LANE IMPROVEMENTS**

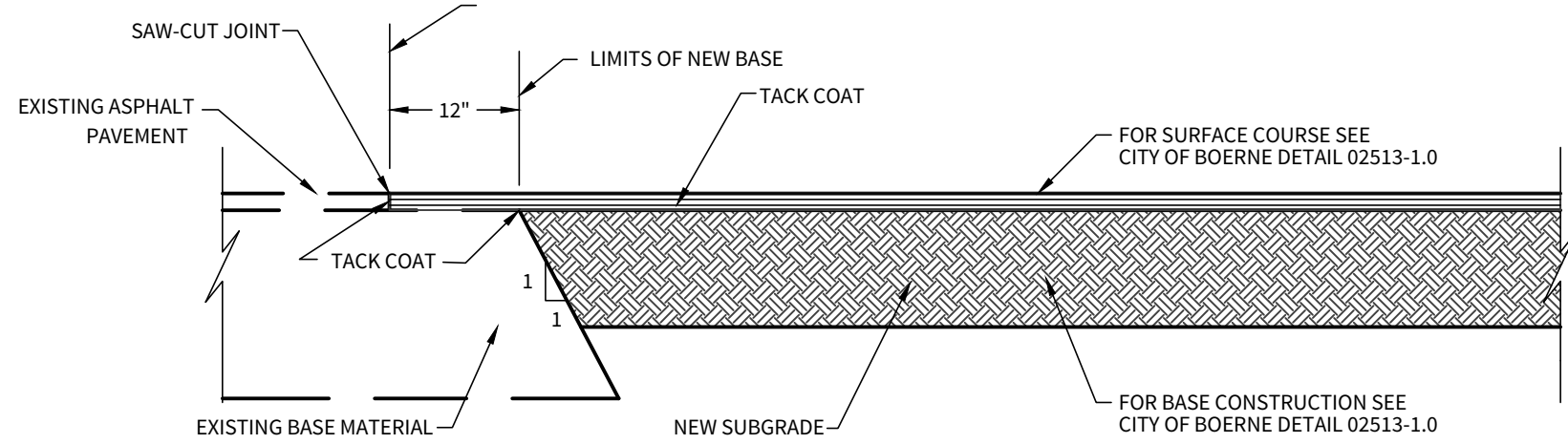
TRAFFIC SIGNAGE & STRIPING PLAN

DATE
03/27/2023
PROJECT NO.
03481.003
DRAWN BY
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REVISIONS
1. 2023-03-27 - REVISED RIGHT OF WAY.
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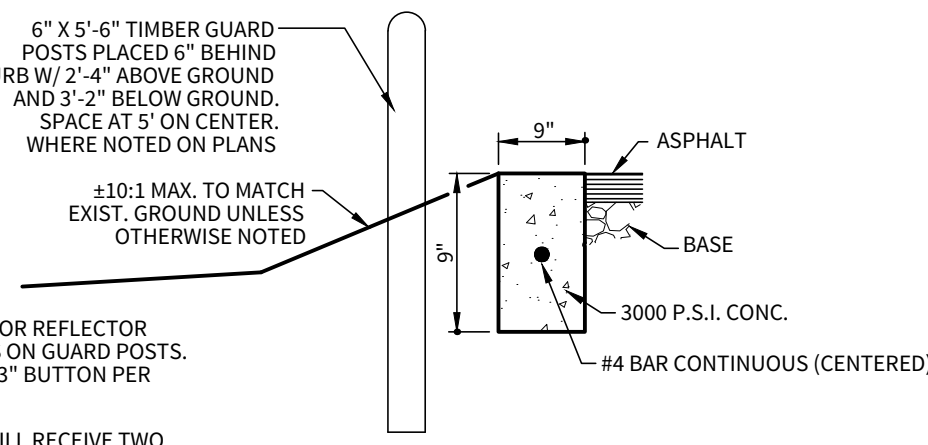


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PAVEMENT JUNCTION DETAILS

N.T.S.

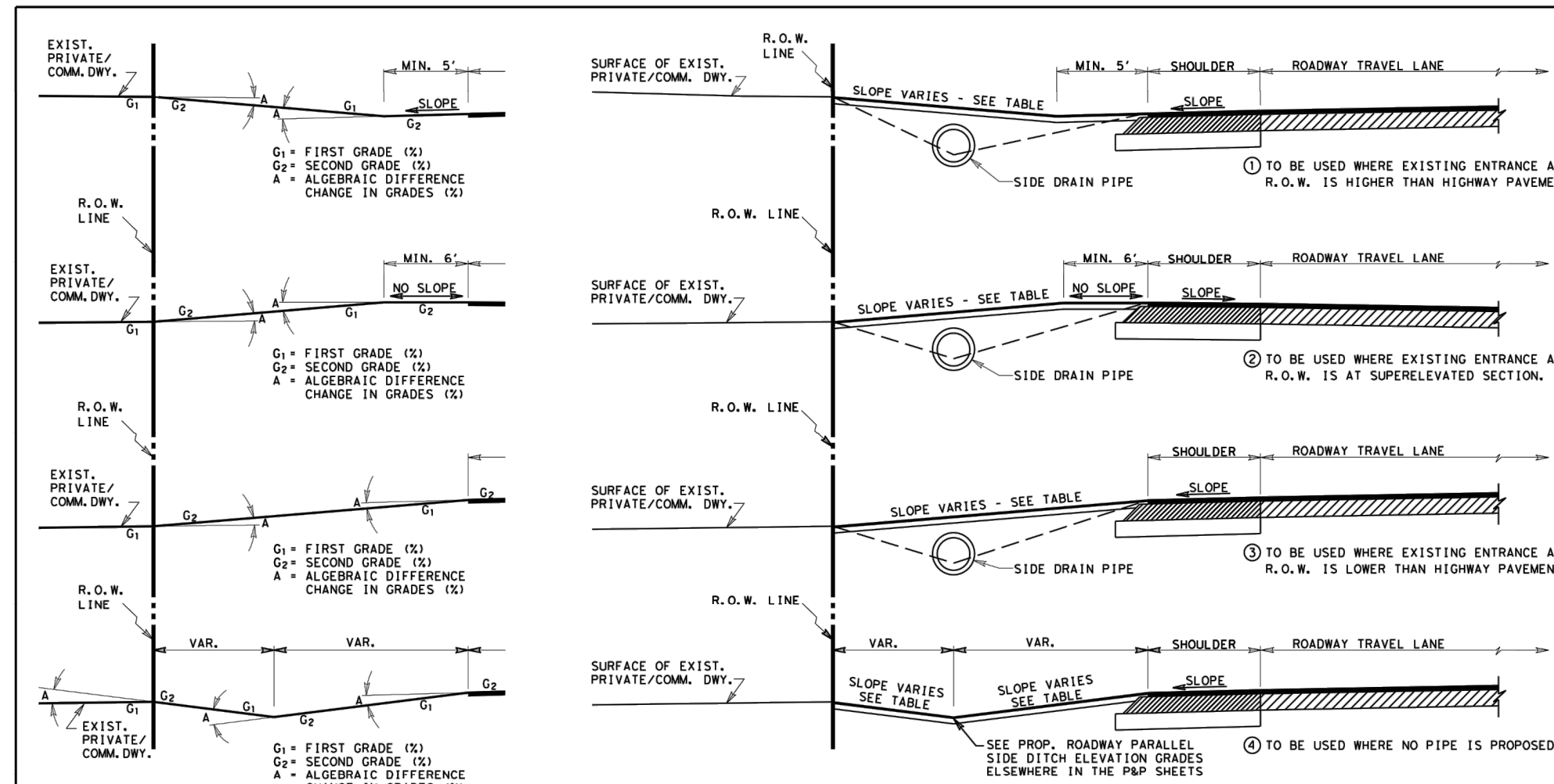


HEADER CURB & GUARD POST DETAIL

N.T.S.

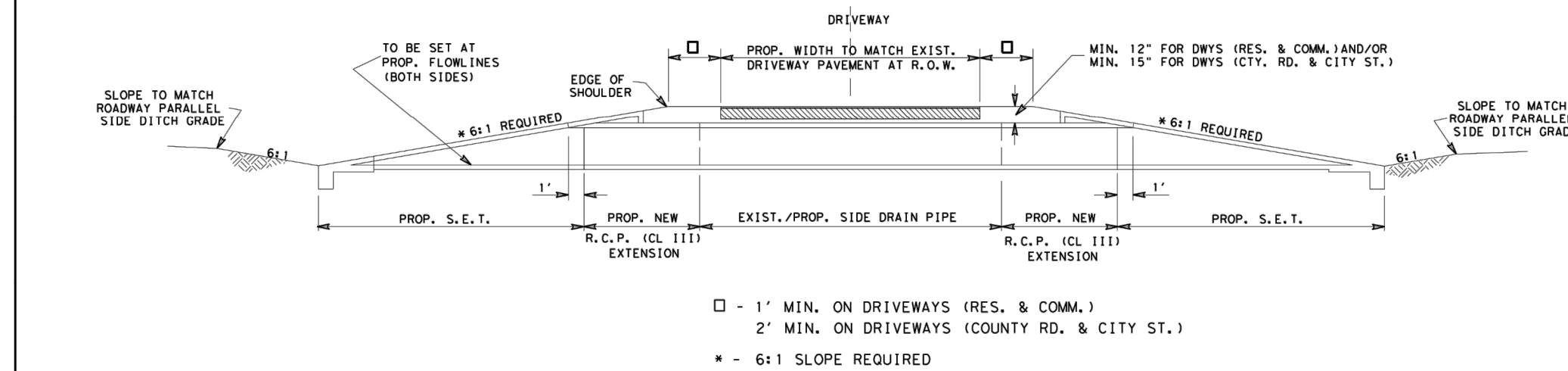
NOTES

- PAVEMENT DESIGN THICKNESS BASED ON GEOTECHNICAL REPORT. SEE TABLE FOR STRUCTURAL NUMBER CALCULATION. REFERENCE PROJECT GEOTECHNICAL REPORT AND PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND ALTERNATE PAVEMENT SECTIONS.
- ANY AREAS OF CLAY ENCOUNTERED DURING CONSTRUCTION SHALL BE REMOVED DOWN TO THE WEATHERED/FRIABLE MARLSTONE/LIMESTONE AND PROPERLY BACKFILLED WITH MARLSTONE/LIMESTONE MILLINGS HAVING A CBR VALUE EQUAL OR EXCEEDING 6.
- A GEOTECHNICAL ENGINEERING REPRESENTATIVE SHALL BE RETAINED TO: (1) OBSERVE THE SITE PREPARATION AND SUBGRADE OPERATIONS; (2) EVALUATE THE ACTUAL SUBGRADE MATERIAL CLASSIFICATION; AND (3) VERIFY THAT RECOMMENDATIONS ARE FOLLOWED. THE ACTUAL SUBGRADE CONDITION AT A PARTICULAR LOCATION WILL NEED TO BE EVALUATED DURING CONSTRUCTION. ONCE THE SUBGRADE IS CUT/FILLED TO THE PROPER GRADE.
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING MATERIAL TESTING. TESTING TO BE PAID BY OWNER.
- PAVEMENT SECTIONS ARE SUBJECT TO CHANGE DUE TO RETESTING OF SOIL AFTER STREET EXCAVATION HAS BEEN DONE TO TOP OF CURB.
- CONTRACTOR SHALL CONTACT ENGINEER 48 HRS IN ADVANCE FOR FIELD OBSERVATION DURING STREET CONSTRUCTION. CONTRACTOR WILL BE REQUIRED TO CONTACT ENGINEER FOR INSPECTION OF THE SUBGRADE, BASE, ASPHALT, AND CURB.
- GENERAL FILL MATERIALS SHOULD CONSIST OF ONSITE SOILS OR CLEAN IMPORTED FILL SOILS WITH EQUAL OR BETTER CBR CHARACTERISTICS TO THE ONSITE SOILS. GENERAL FILL MATERIAL SHOULD BE CLEAN AND FREE OF ANY VEGETATION ROOTS, ORGANIC MATERIALS, TRASH OR GARBAGE, CONSTRUCTION DEBRIS, OR OTHER DELETERIOUS MATERIALS AND SHOULD CONTAIN NO LARGER THAN THREE (3) INCHES IN MAXIMUM DIMENSION.

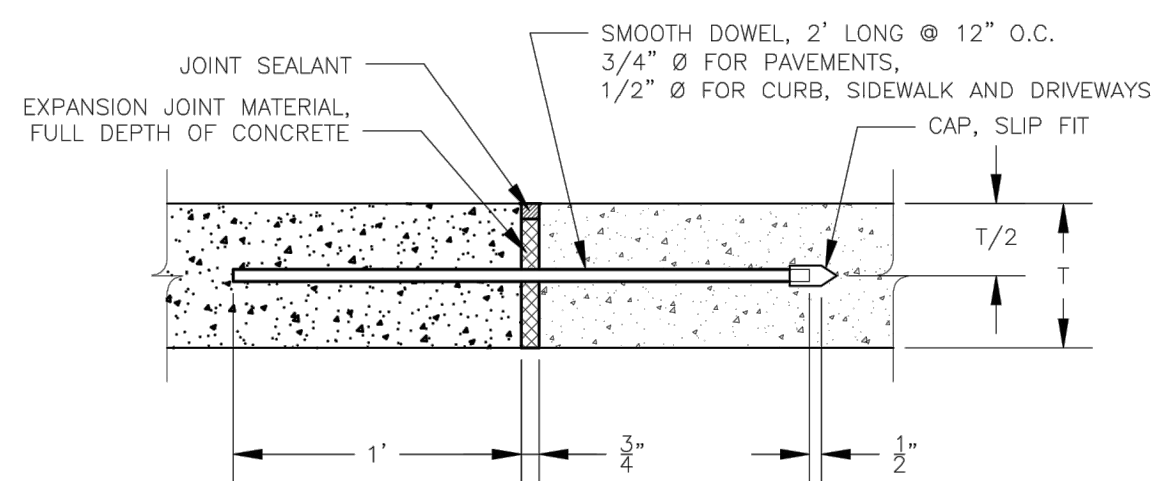


TYPICAL ENTRANCE PROFILE FOR DRIVEWAYS W/OUT C&G

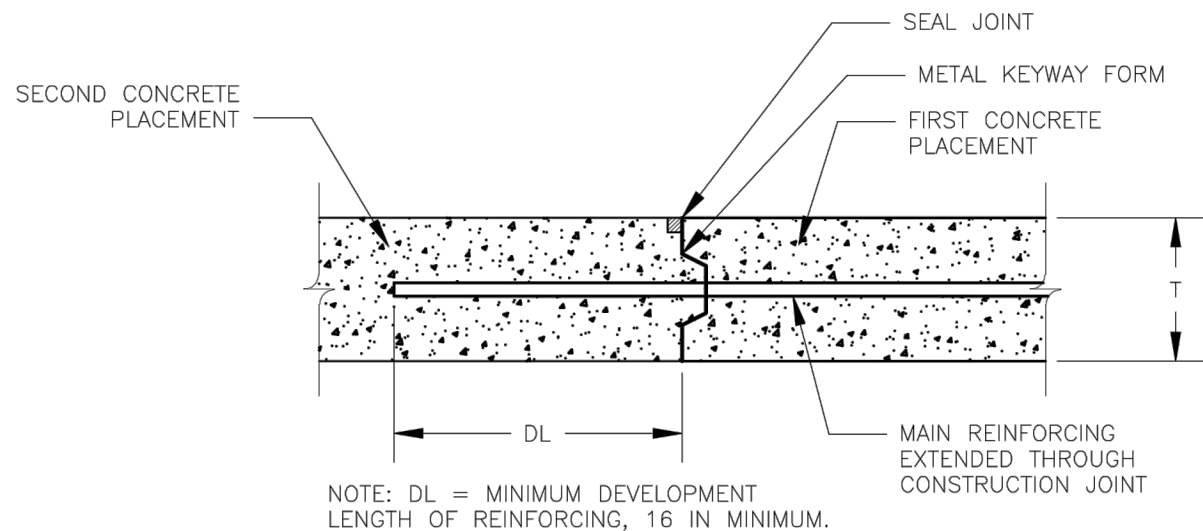
PROPOSED DRIVEWAY SLOPE TABLE	PROP. DWY ALGEBRAIC DIFFERENCE TABLE
COMMERCIAL DRIVEWAYS # 12:1 MAX. RESIDENTIAL DRIVEWAYS # 6:1 MAX.	COMMERCIAL DRIVEWAYS # A = 6% MAX. RESIDENTIAL DRIVEWAYS # A = 6% MAX.



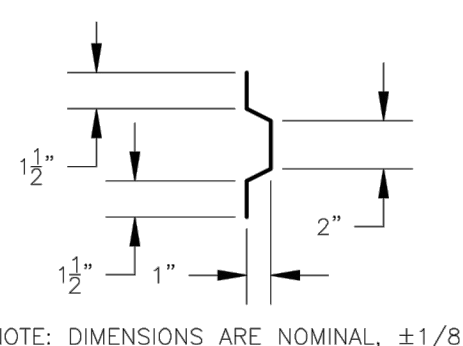
TEXAS DEPARTMENT OF TRANSPORTATION	
DRIVEWAY PROFILE DETAILS	
REV. 1/17	DRIVEWAY DGN
STATE AND PROJECT NO.	FUND NO.
COUNTY	CONTRACT NO.
DATE	JOB
TEXAS	21



EXPANSION JOINT



CONSTRUCTION JOINT



METAL KEYWAY FORM SECTION

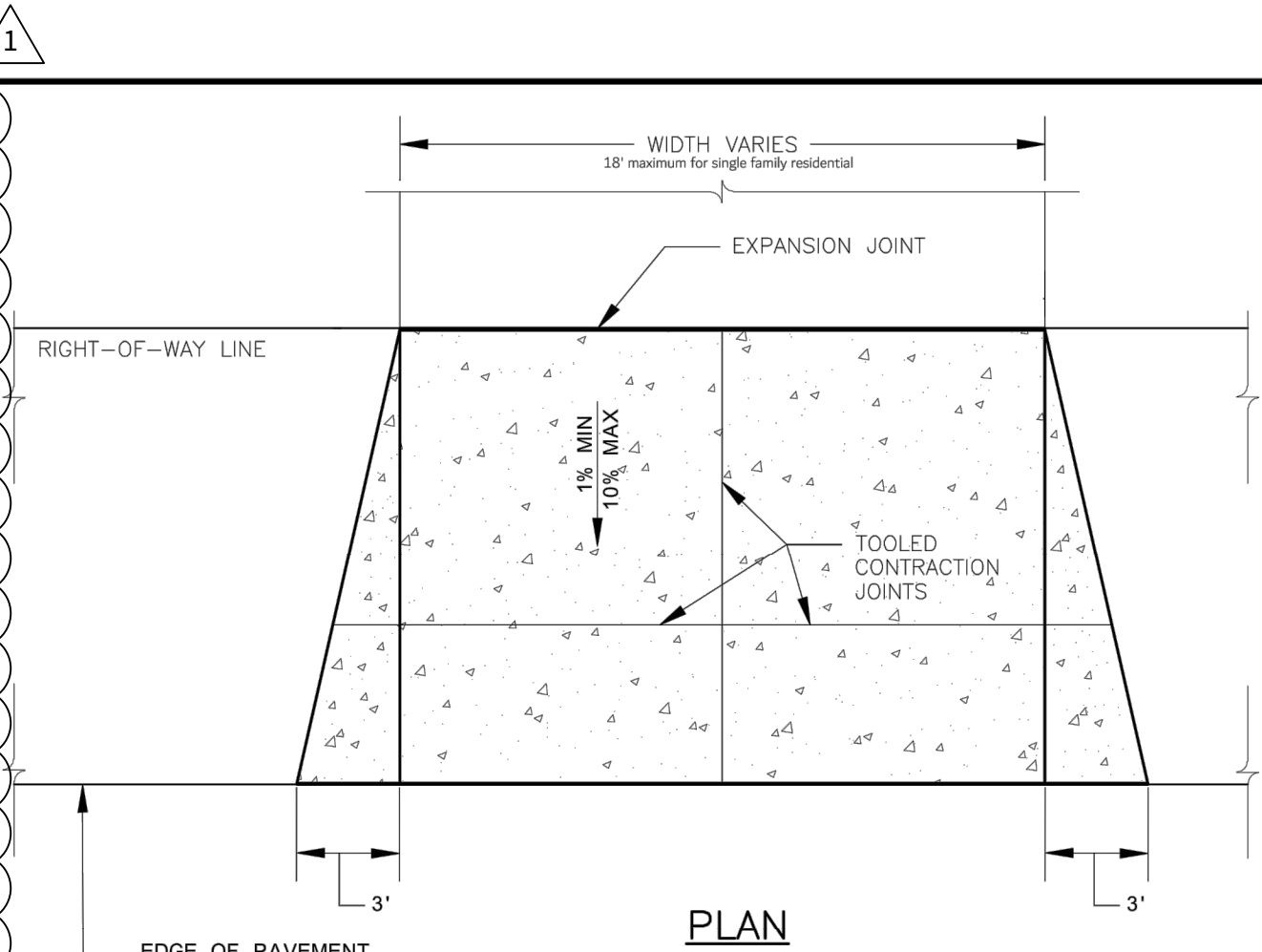
NOTE: SAWED CONTRACTION JOINTS MUST BE USED ON CONCRETE PAVING. ON DRIVEWAYS, SIDEWALKS AND CURBS, TOOLED CONTRACTION JOINTS MAY BE USED. THE TOOLED JOINT MUST BE 1/2 INCH DEEP AND 1/2 INCH WIDE WITH A 1/4 INCH RADIUS ALONG THE EDGE.

SAWED CONTRACTION JOINT

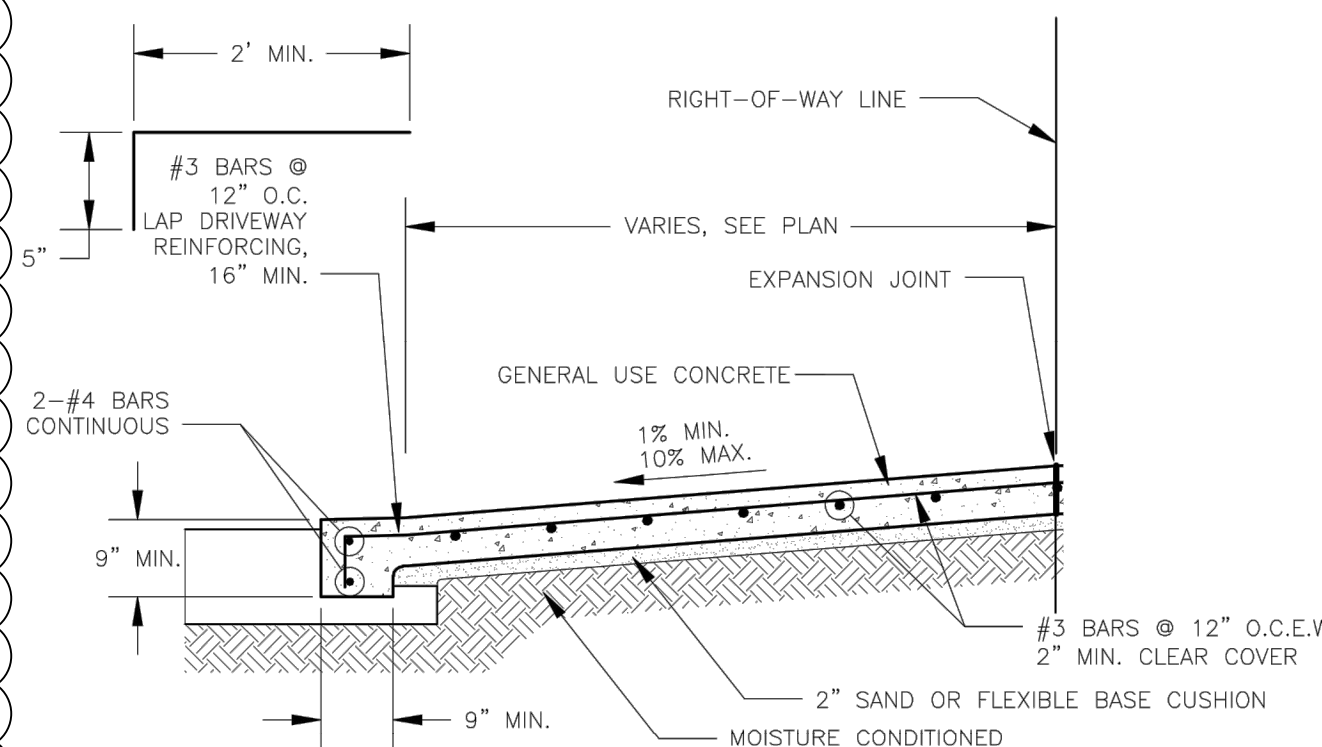
CITY OF BOERNE

CONCRETE JOINTS

SCALE: N.T.S. DRAWING NO. 02502-1.2 DATE: JULY 2015



PLAN



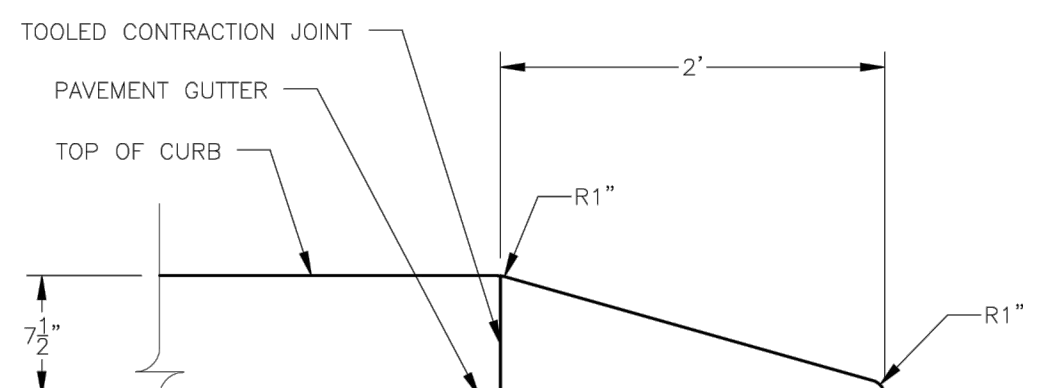
SECTION

NOTE: THE HEADER CURB CONSTRUCTION MAY BE DELETED WHEN CONSTRUCTING DRIVEWAY ADJACENT TO AN EXISTING HEADER CURB THAT IS A MINIMUM OF 9" DEEP WITH AT LEAST ONE HORIZONTAL BAR. INSTALL AN EXPANSION JOINT BETWEEN THE EXISTING HEADER CURB AND DRIVEWAY.

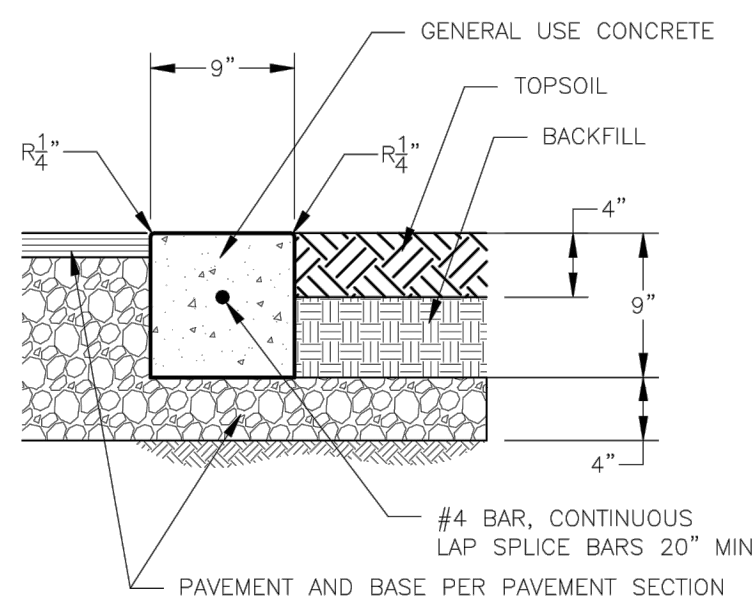
CITY OF BOERNE

CONCRETE DRIVEWAY APPROACH

SCALE: N.T.S. DRAWING NO. 02502-3.1 DATE: JULY 2015



CURB TERMINATION ELEVATION

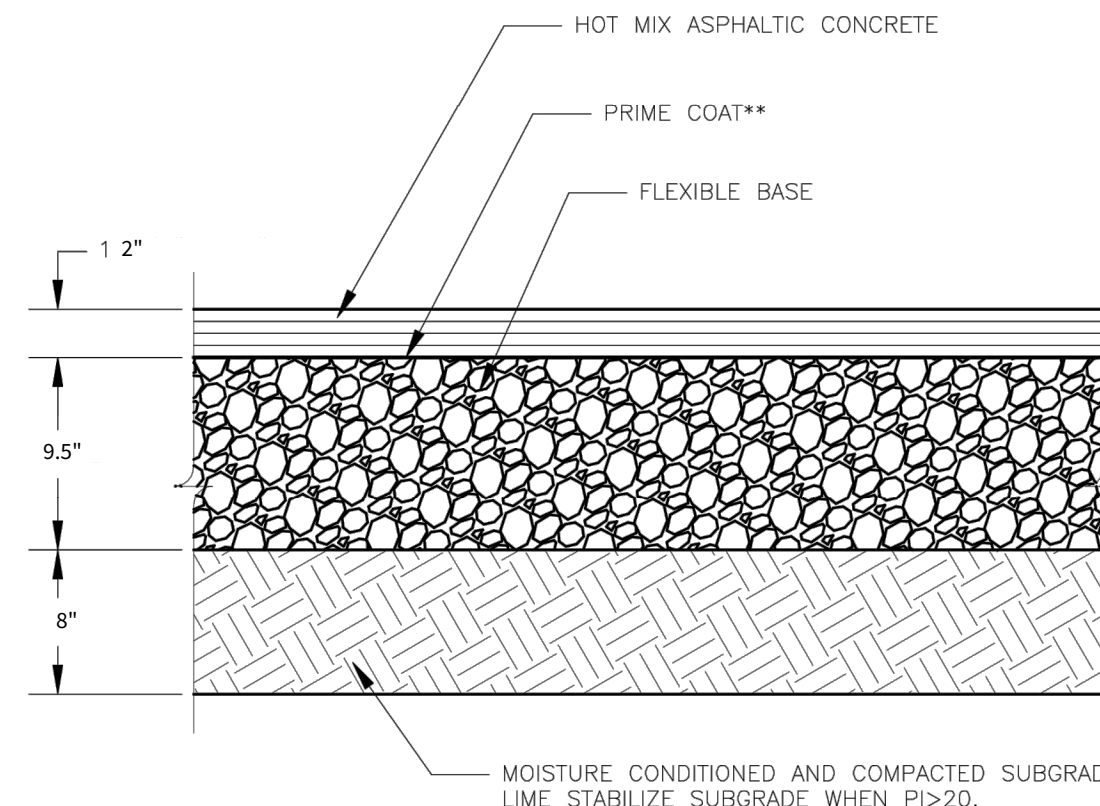


HEADER CURB SECTION

CITY OF BOERNE

CONCRETE CURB TERMINATION AND HEADER CURB

SCALE: N.T.S. DRAWING NO. 02502-2.1 DATE: JULY 2015

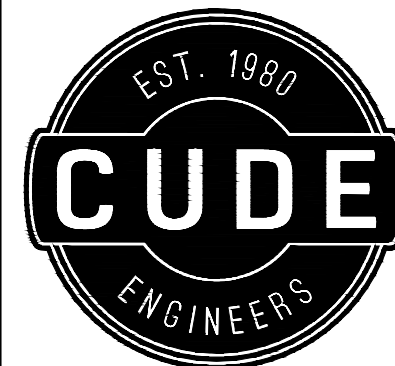


*THICKNESS VARIES DEPENDING UPON PAVEMENT DESIGN. REFER TO PLAN X-SECTIONS AND DETAILS FOR SPECIFIED PAVEMENT DESIGN.
**PROVIDE TACK COAT IN ADDITION TO PRIME COAT IMMEDIATELY PRIOR TO PLACING ASPHALTIC CONCRETE AS NEEDED TO SEAL AND ENSURE ADHERENCE.

CITY OF BOERNE

ASPHALTIC CONCRETE PAVEMENT SECTION

SCALE: N.T.S. DRAWING NO. 02513-1.0 DATE: JULY 2015



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CORLEY FARMS OFFSITE VALLERIE LANE IMPROVEMENTS

STREET DETAILS

DATE

02/20/2023

PROJECT NO.

03481.003

DRAWN BY

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CHECKED BY

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REVISIONS

- 2023-02-20 - ADDED CONCRETE JOINT DETAIL
-
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02/21/2023

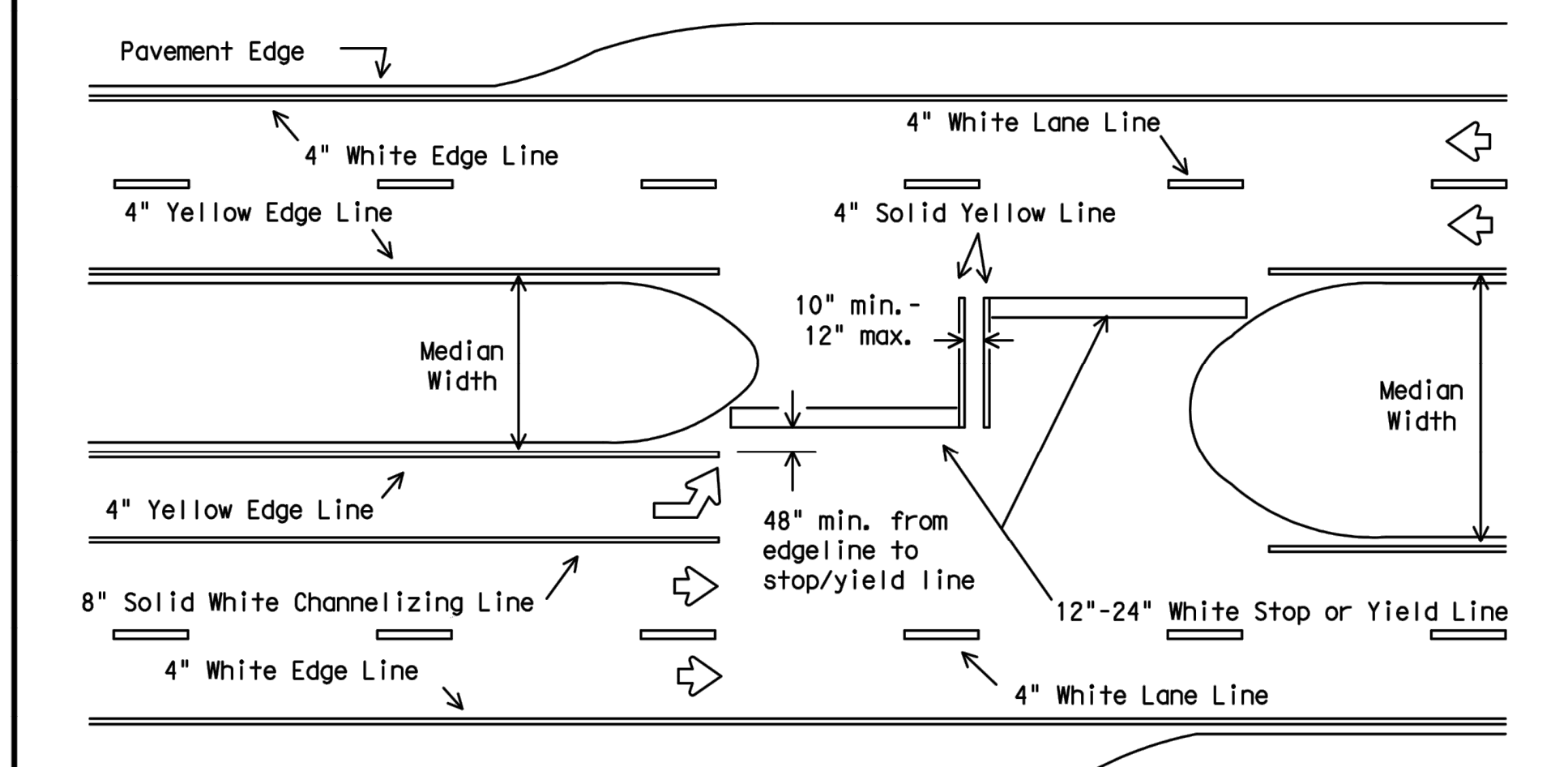
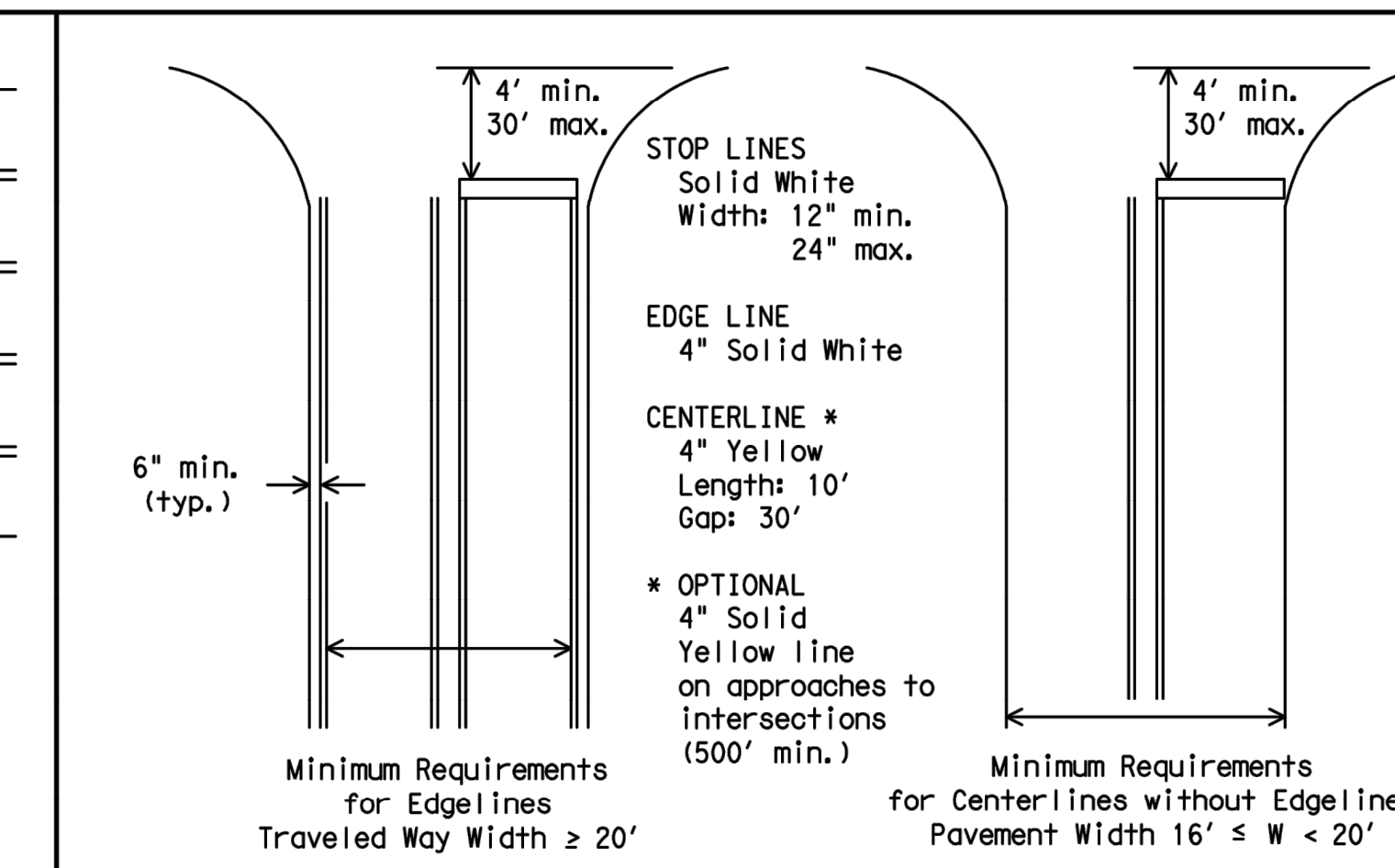
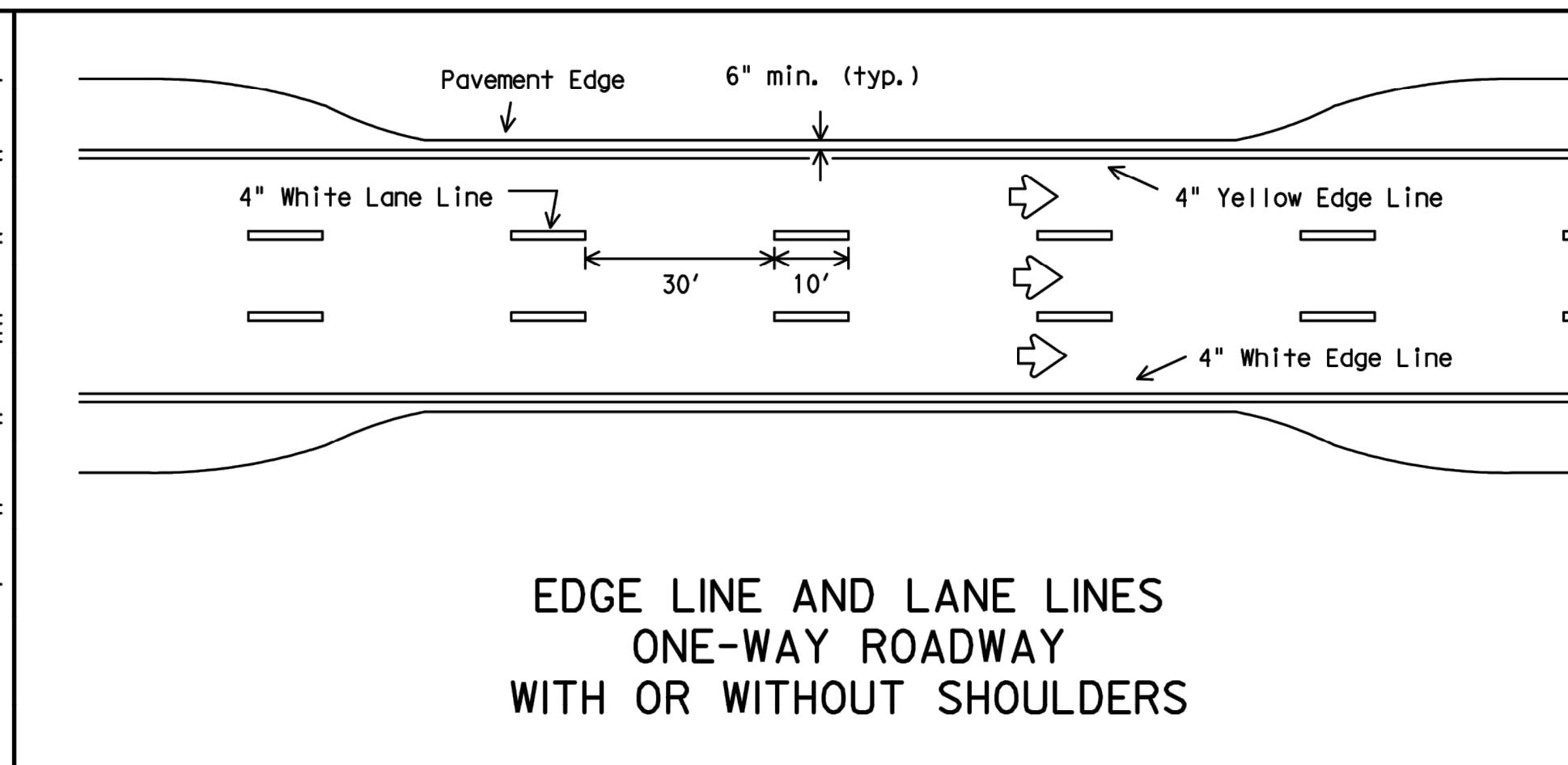
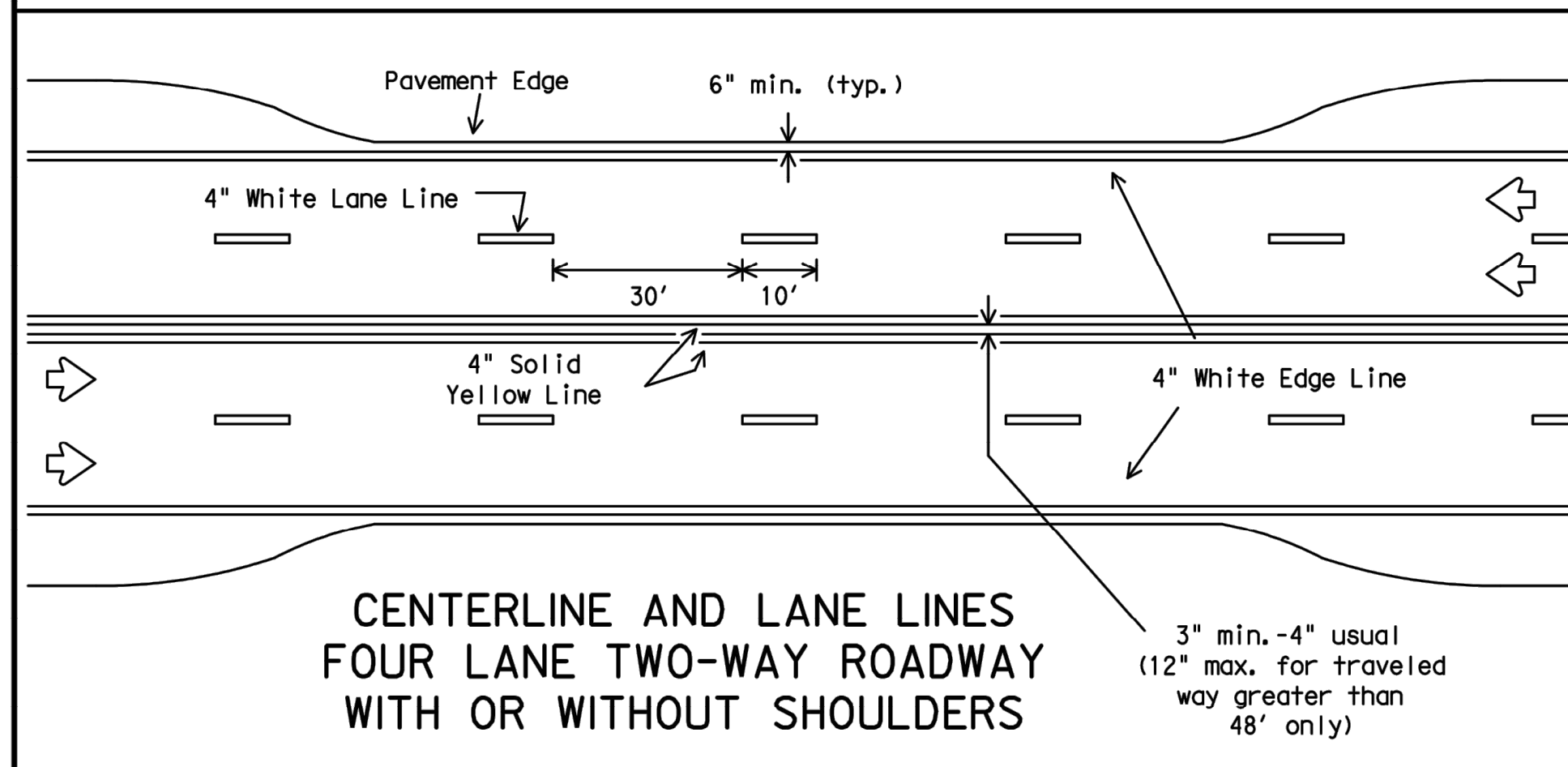
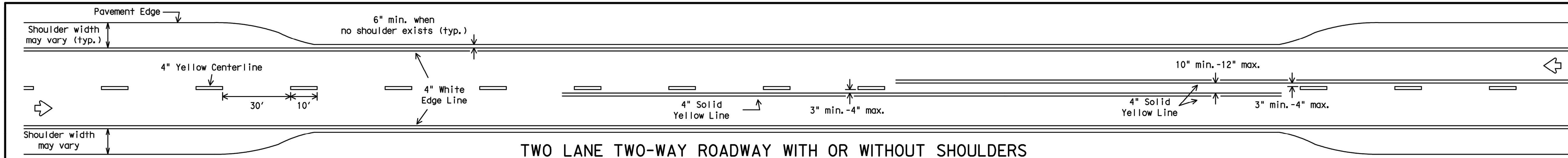
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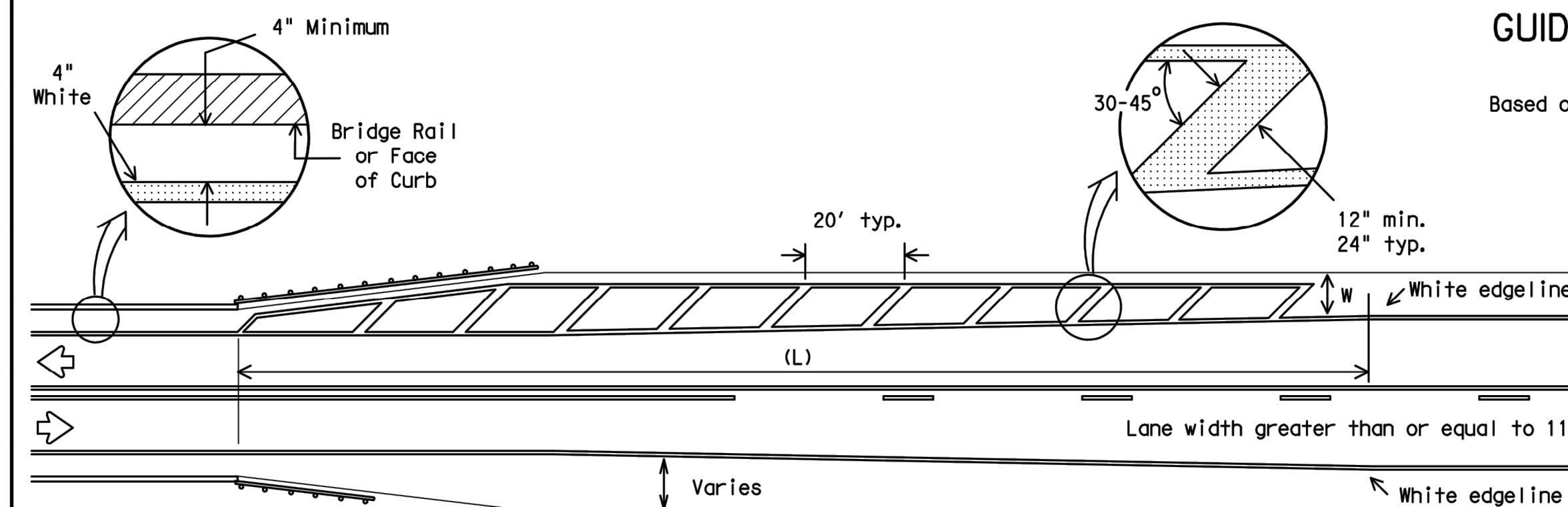
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DATE: FILE:



All medians shall be field measured to determine the location of necessary striping. Stop/Yield bars and centerlines shall be placed when the median width is greater than 30 feet. The median width is defined as the area between two roadways of a divided highway measured from edge of traveled way to edge of traveled way. The median excludes turn lanes. The median width might be different between intersections, interchanges and of opposite approaches of the same intersection. The narrow median width will be the controlling width to determine if markings are required.

FOUR LANE DIVIDED ROADWAY INTERSECTIONS



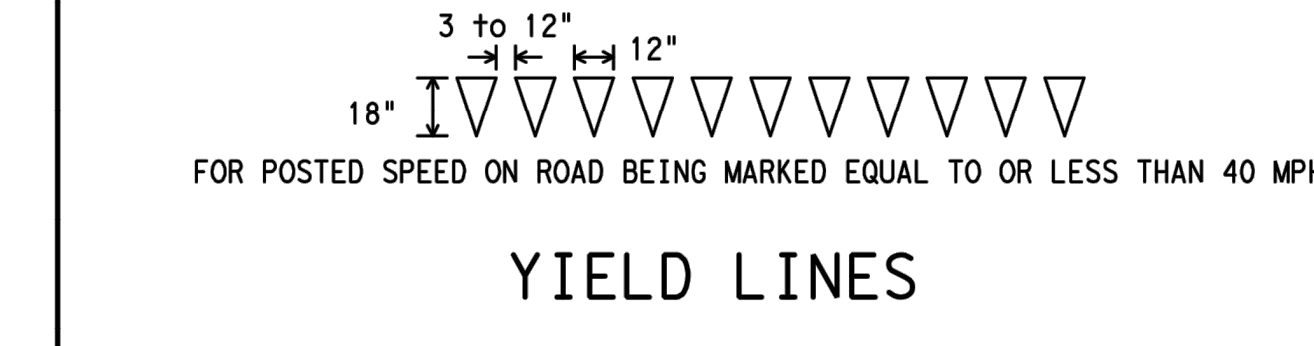
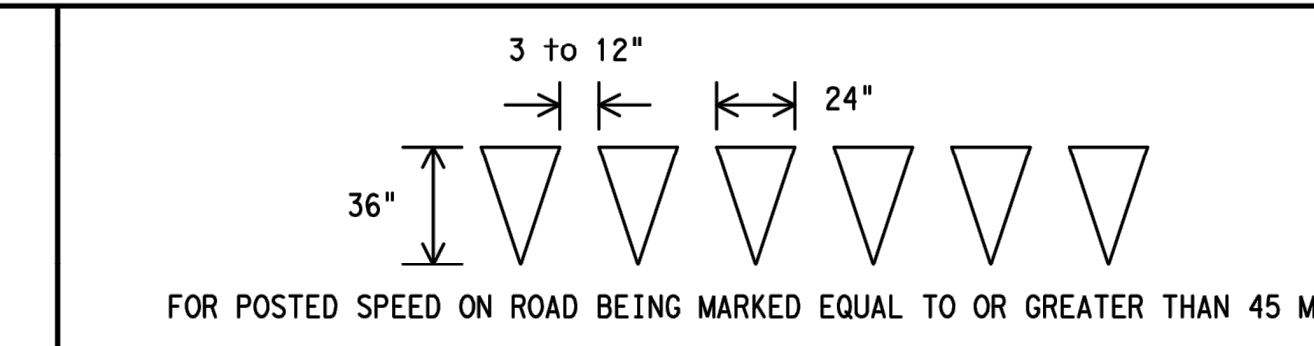
- NOTES:
- No-passing zone on bridge approach is optional but if used, it shall be a minimum 500 feet long.
 - For crosshatching length (L) see Table 1.
 - The width of the offset (W) and the required crosshatching width is the full shoulder width in advance of the bridge.
 - The crosshatching is not required if delineators or barrier reflectors are used along the structure.
 - For guard fence details, refer elsewhere in the plans.

ROADWAYS WITH REDUCED SHOULDER WIDTHS ACROSS BRIDGE OR CULVERT

- GENERAL NOTES
- Edgeline striping shall be as shown in the plans or as directed by the Engineer. The edgeline should typically be placed a minimum of 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edgelines are not required in curb and gutter sections of roadways.
 - The traveled way includes only that portion of the roadway used for vehicular travel and not the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the inside of edgeline to inside of edgeline of a two lane roadway.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



YIELD LINES

GUIDE FOR PLACEMENT OF STOP LINES, EDGE LINE & CENTERLINE

Based on Traveled Way and Pavement Widths for Undivided Highways

TABLE 1 - TYPICAL LENGTH (L)

Posted Speed	Formula
≤ 40	$L = \frac{WS^2}{60}$
≥ 45	$L = WS$

* 85th Percentile Speed may be used on roads where traffic speeds normally exceed the posted speed limit. Crosshatching length should be rounded up to nearest 5 foot increment.
L=Length of Crosshatching (FT.) W=Width of Offset (FT.) S=Posted Speed (MPH)

EXAMPLES:

An 8 foot shoulder in advance of a bridge reduces to 4 feet on a 70 MPH roadway. The length of the cross-hatching should be:
 $L = 8 \times 70 = 560$ ft.

A 4 foot shoulder in advance of a bridge reduces to 2 feet on a 40 MPH roadway. The length of the cross-hatching should be:
 $L = 4(40)^2 / 60 = 106.67$ ft. rounded to 110 ft.



TYPICAL STANDARD PAVEMENT MARKINGS

PM(1)-12

© TxDOT November 1978	DN: TxDOT	CK: TxDOT	DM: TxDOT	CK: TxDOT
REVISIONS	CONT	SECT	JOB	HIGHWAY
8-95 2-12				
5-00				
8-00				
3-03				
22A				

CORLEY FARMS OFFSITE VALLERIE LANE IMPROVEMENTS

STANDARD PAVEMENT MARKINGS

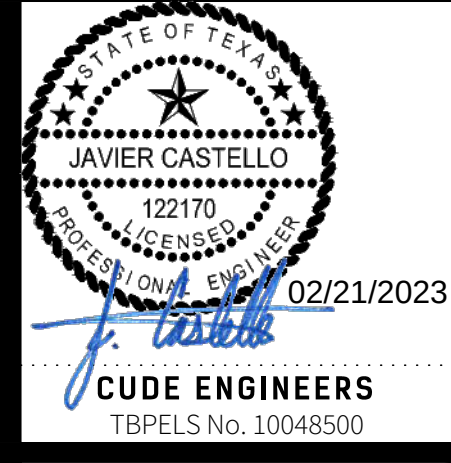
DATE
02/20/2023

PROJECT NO.
03481.003

DRAWN BY
CA/CG

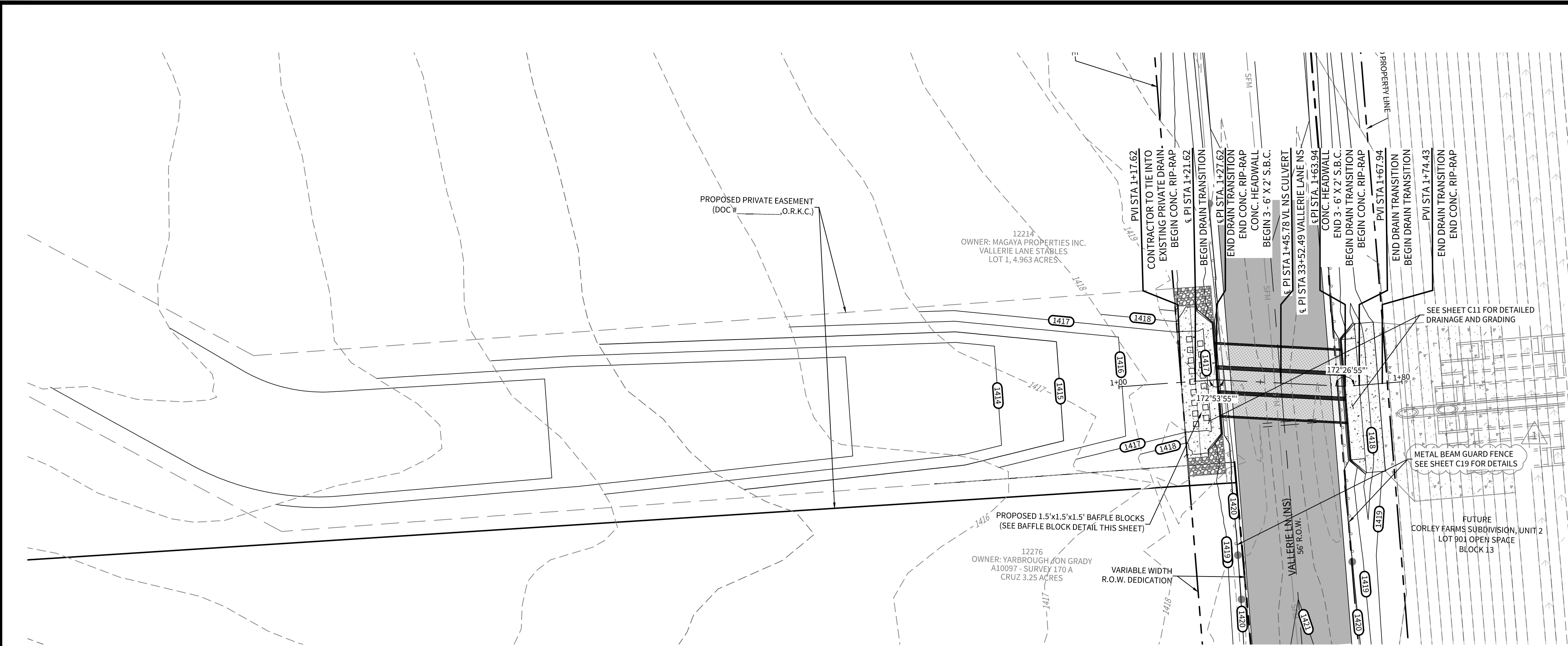
CHECKED BY
XV/AL

REVISIONS	
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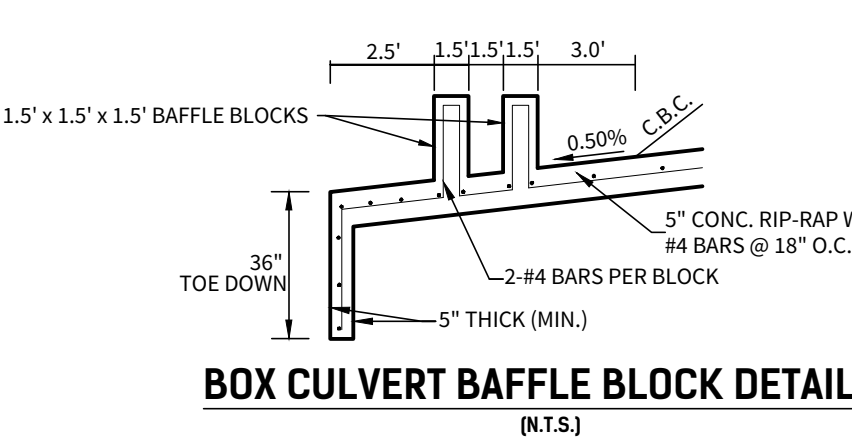
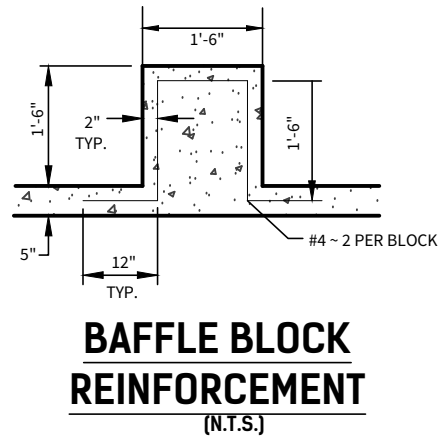
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TBPELS No. 10048500

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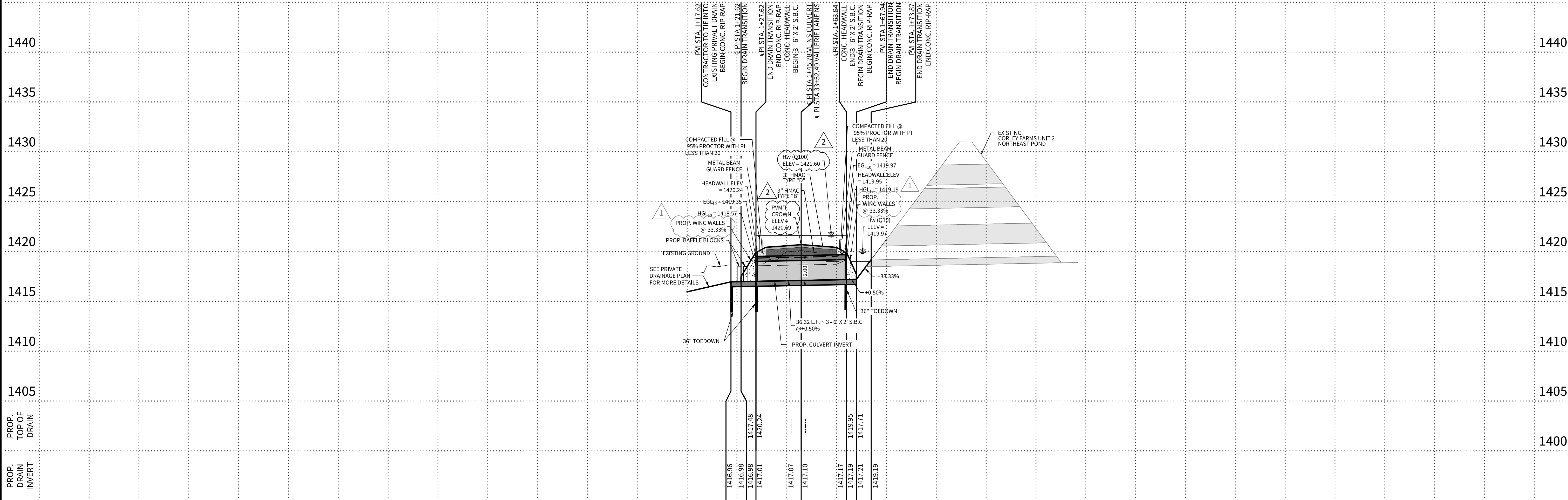
**VL N-S (USBR TYPE III)
BAFFLE BLOCK CALCULATIONS**

$V_1 = 1.44 \text{ FT}$ $V_2 = 7.72 \text{ FPS}$ $F_1 = 1.13$
 $V_2 = 5.96 \text{ FPS}$
 $V_2/V_1 = \frac{1}{2}(\sqrt{1+8(F_1^2)}-1) = 1.18$
 $V_2 = 1.70 \text{ FT}$
 $L_b = 4.5(V_2) / (F_1)^{0.76} = 6.95 \text{ FT (USED 7.00 FT)}$
 $L_b / 3 = 2.32 \text{ FT (USED 3.00 FT)}$
 $H = V_1(0.168^*F_1+0.58) = 1.11 \text{ FT (USED 1.50 FT)}$
EXIT VELOCITY = 5.96 FPS

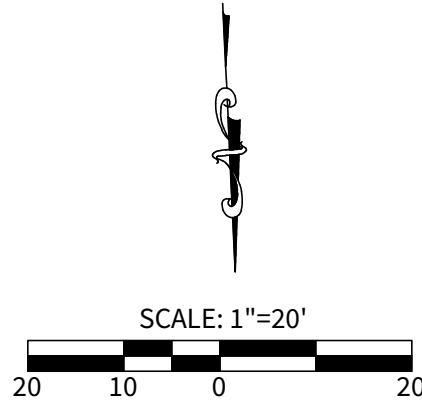


VALLERIE LANE N-S CULVERT

STA. 1+18.18 TO END

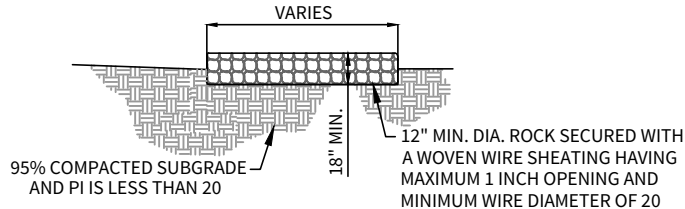


1+00



LEGEND

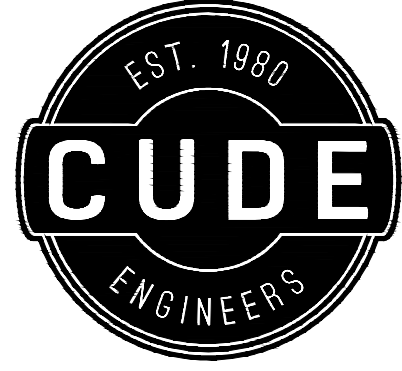
- OVERALL UNIT BOUNDARY
- PROPOSED LOT LINE
- PROPOSED RIGHT OF WAY
- E.G.T.C.A. EASEMENT
- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- CONCRETE RIP RAP
- PROPOSED CULVERT



GABION STYLE ROCK EROSION CONTROL MATRESS DETAIL

NOTE: GABION MATRESS TO BE FREE OF GEO-TEXTILE FABRIC LINING AT DETENTION POND OUTFALL.
(N.T.S.)

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'



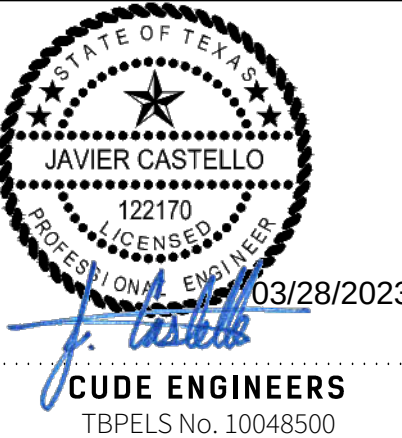
4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F:(210) 523.7112

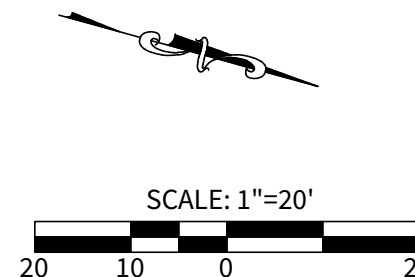
CORLEY FARMS OFFSITE VALLERIE LANE IMPROVEMENTS

VALLERIE LANE N-S CULVERT PLAN & PROFILE

DATE
03/28/2023
PROJECT NO.
03481.003
DRAWN BY
CA/CG
CHECKED BY
XV/AL

REVISIONS
1. 2023-02-20 - ADDED MBRG CALL OUT, ADDED SLOPE OF PROPOSED WING WALLS.
2. 2023-03-27 - ADDED 100 YR HEADWATER, ADDED CROWN ELEVATION.
3.
4.
5.
6.
7.
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9.





PROPERTY BOUNDARY

PROPOSED LOT LINE

PROPOSED RIGHT OF WAY

E.G.T.C.A. EASEMENT

EXISTING 1' CONTOUR

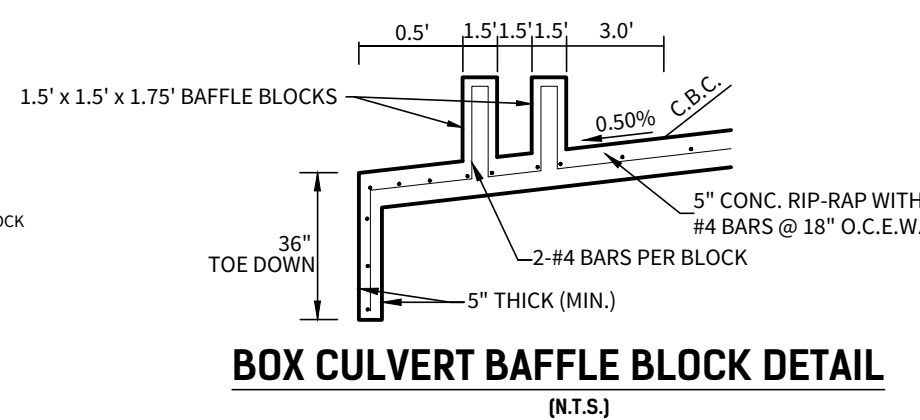
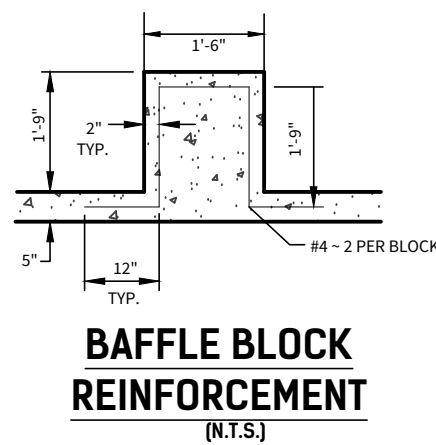
EXISTING 5' CONTOUR

PROPOSED 1' CONTOUR

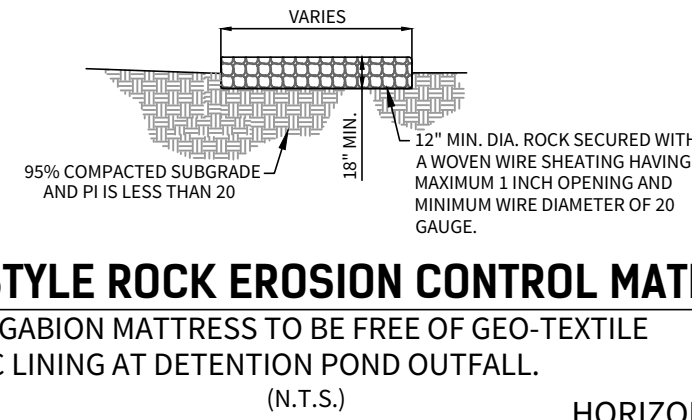
PROPOSED 5' CONTOUR

CONCRETE RIP RAP	
PROPOSED CULVERT	

1

 $\hat{1}$

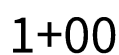
$Q_{100} = 418.58 \text{ c.f.s.}$
 MANNING'S COEFFICIENT = 0.013
 CULVERT SHAPE = RECTANGULAR
 RISE = 24"
 SPAN = 60"
 PIPE SLOPE = 0.50%
 OUTFALL V = 8.01 f.p.s.



NOTE: GABION MATTRESS TO BE FREE OF GEO-TEXTILE FABRIC LINING AT DETENTION POND OUTFALL.

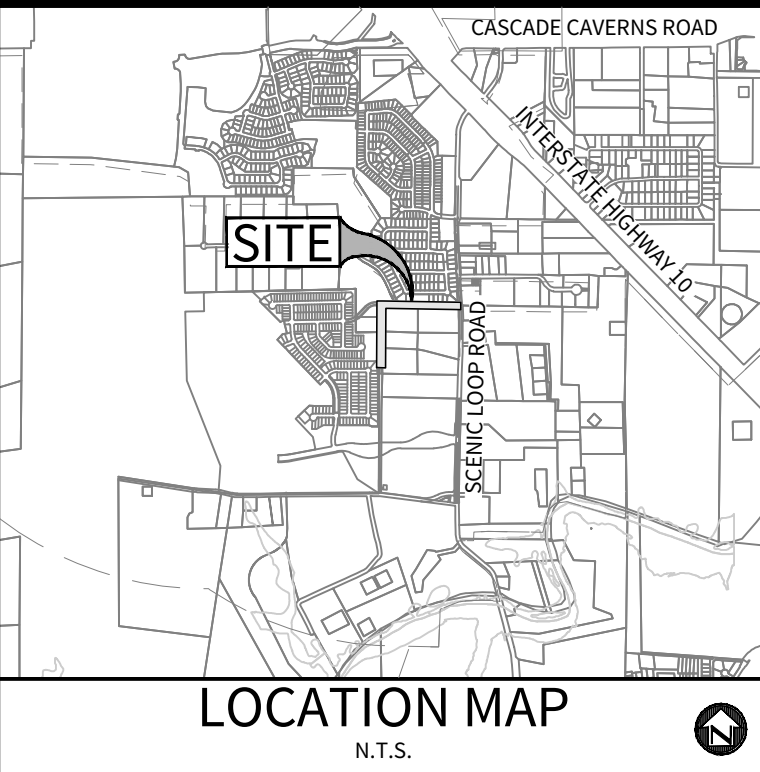
(N.T.S.)

HORIZONTAL SCALE: 1" = 20'



2+00

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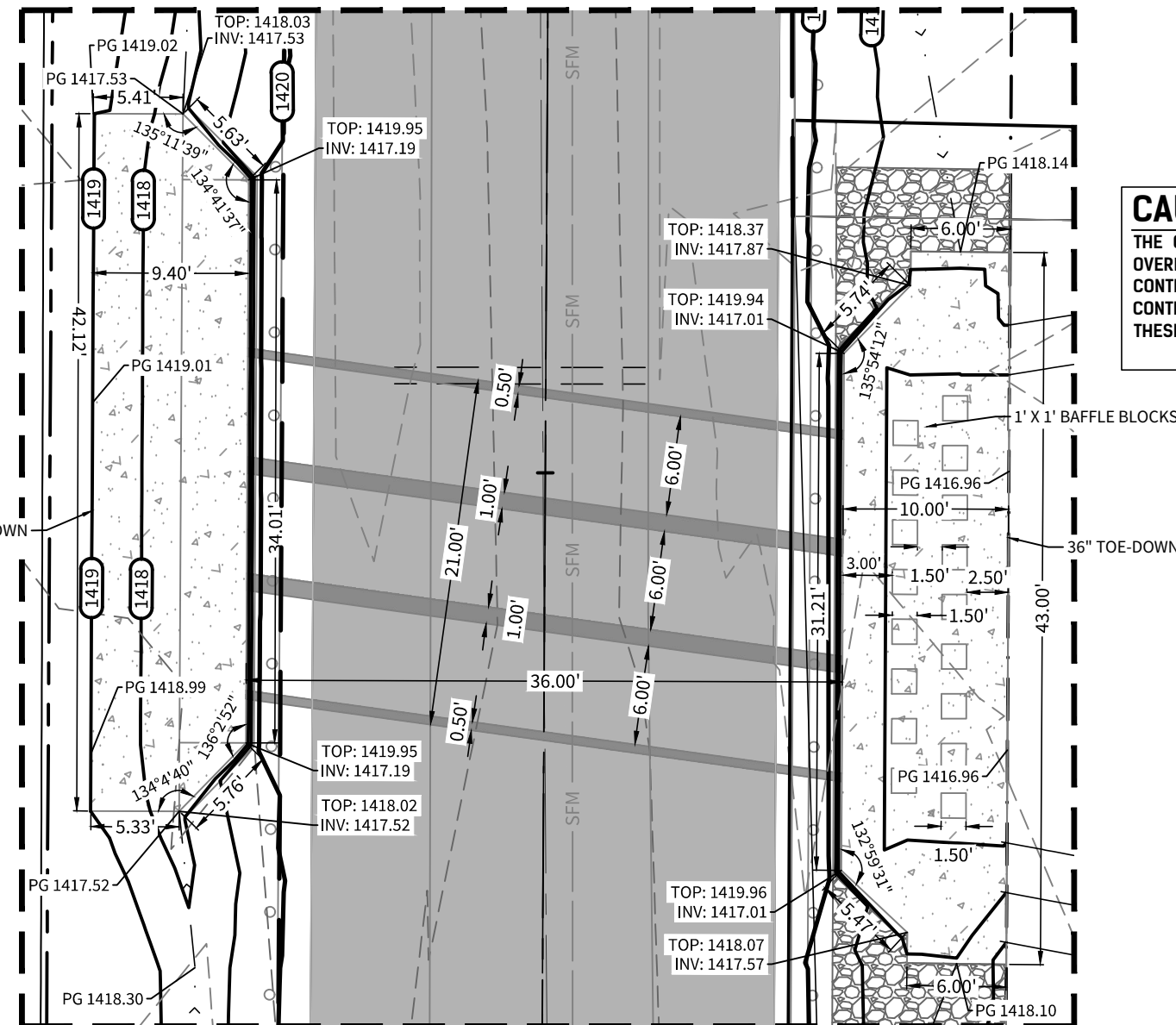
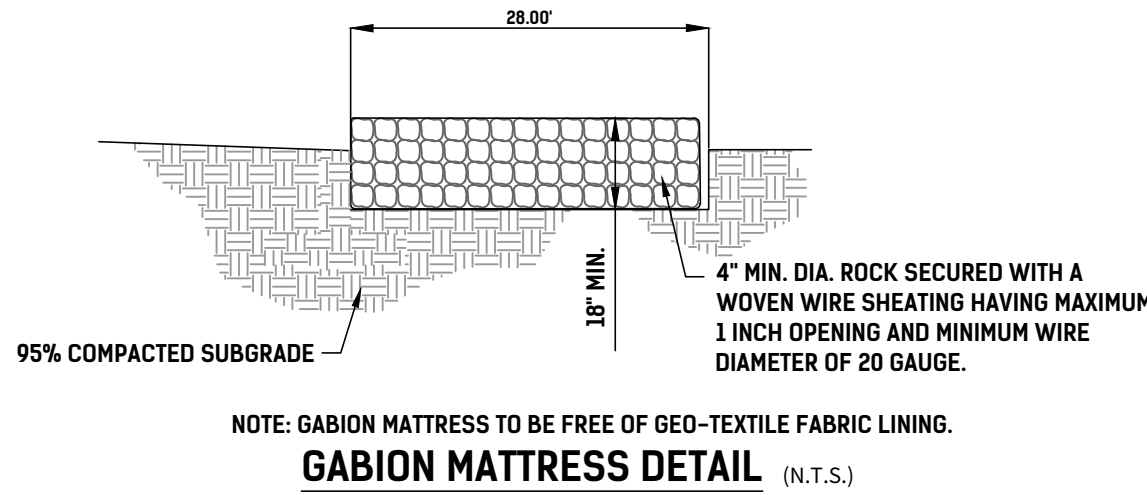
DEVELOPER
KENDALL COUNTY WATER CONTROL AND IMPROVEMENTS DISTRICT 3A
DISTRICT ENGINEER: PAPE-DAWSON ENGINEERS
2000 NW LOOP 410
SAN ANTONIO, TX 78213
TEL: (210) 375-9000

CIVIL ENGINEER:
M.W. CUDE ENGINEERS, L.L.C.
CONTACT PERSON: DAVID D. CUPIT II, P.E.
4122 POND HILL ROAD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951
FAX: (210) 523-7112

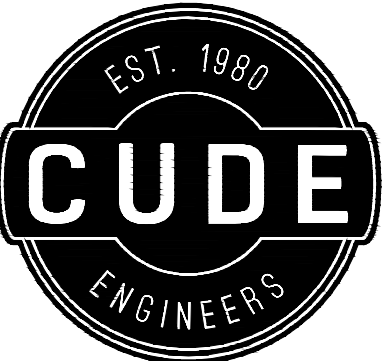
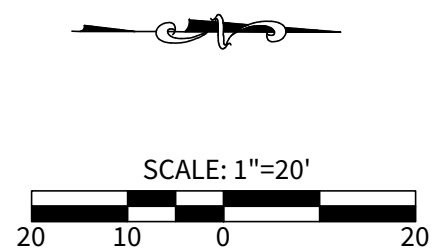
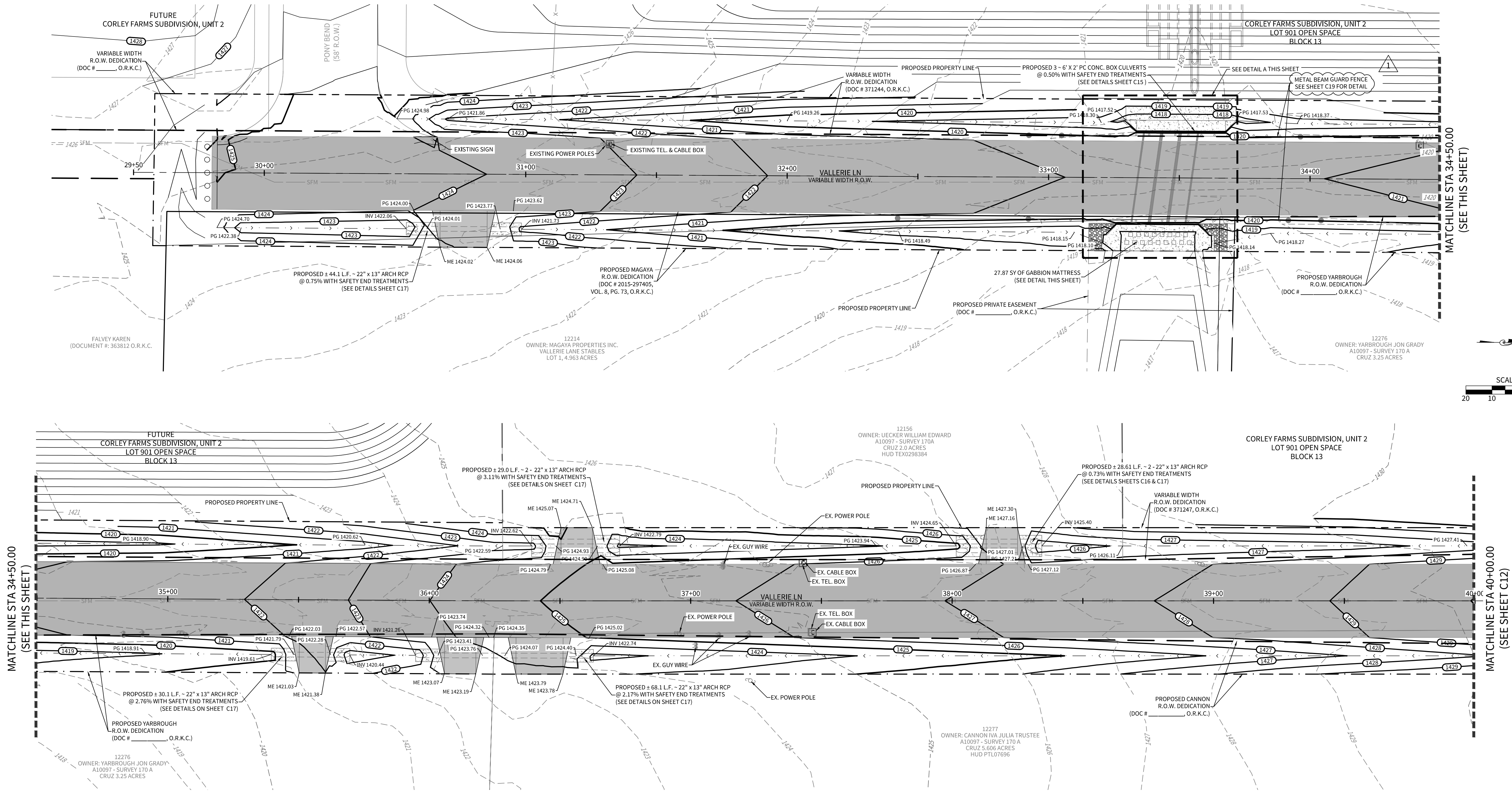
- NOTES:**
1. THE EXISTENCE AND LOCATION OF EXISTING UNDERGROUND CABLE INDICATED ON THESE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE, AND ARE NOT GUARANTEED TO BE ACCURATE. THE CONTRACTOR SHOULD CALL FOR LOCATES THROUGH THE "ONE CALL" UTILITY LOCATE SERVICE (1-800-344-8377) 48 HOURS PRIOR TO CONSTRUCTION/EXCAVATION WORK. CONTRACTORS HAVE THE RESPONSIBILITY TO PROTECT AND SUPPORT TELEPHONE COMPANY FACILITIES DURING CONSTRUCTION. CONTRACTOR SHALL COORDINATE EXISTING UNDERGROUND CABLE RELOCATION IF A ALIGNMENT CONFLICT ARISES.
 2. CONTRACTOR TO REMOVE AND RELOCATE EXISTING SIGNS AND FENCES AS NECESSARY TO EXISTING OR BETTER CONDITION.
 3. DOUBLE 4" YELLOW STRIPING LIMITS WILL BE FOR MILLED AND OVERLAID ASPHALT PAVEMENT AREAS AS SHOWN.
 4. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ADEQUATE TRAFFIC FLOW AND TRAFFIC MOVEMENTS. CONTRACTOR IS RESPONSIBLE FOR PRODUCING A TRAFFIC CONTROL PLAN AS REQUIRED BY THE CITY OF BOERNE.
 5. CONTRACTOR IS RESPONSIBLE FOR REVEGETATING ALL DISTURBED AREAS WITH IN THE RIGHT OF WAY OR UTILITY EASEMENTS.
 6. CONTRACTOR SHALL GRADE RIGHT OF WAY AND ADJACENT SITE AREAS TO ENSURE POSITIVE DRAINAGE AT ALL TIMES DURING AND AFTER CONSTRUCTION OF IMPROVEMENTS SHOWN.

LEGEND:

PROPERTY LINE
R.O.W. DEDICATION LINE
EXISTING OVERHEAD ELECTRIC
EXISTING POWERPOLE
EXISTING SIGN
PROPOSED PAVEMENT



CAUTION!!
THE CONTRACTOR SHALL BE AWARE THAT A WATER MAIN, UNDER GROUND ELECTRIC, AND OVERHEAD ELECTRIC LINE EXIST ALONG VALLERIE LANE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE THESE UTILITIES LOCATED PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING IN THIS AREA. ANY DAMAGE DONE TO THESE EXISTING FACILITIES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR.



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**CORLEY FARMS OFFSITE
VALLERIE LANE IMPROVEMENTS**

GRADING & DRAINAGE PLAN

DATE

03/27/2023

PROJECT NO.
03481.003

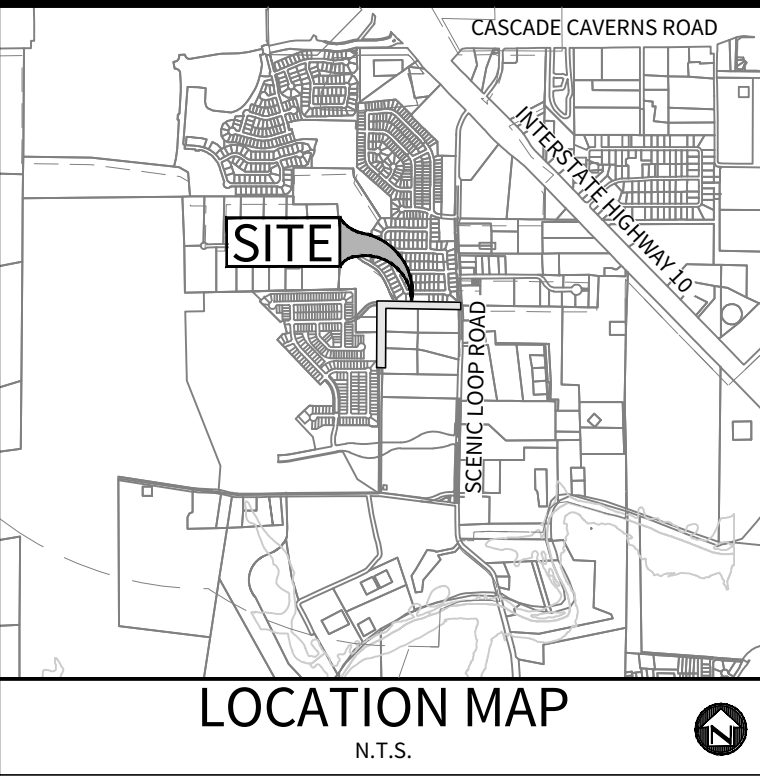
DRAWN BY
CA/CG

CHECKED BY
XV/AL

REVISIONS

1. 2023-02-26 - ADDED MBGF CALL OUT.
- 2.
- 3.
- 4.
- 5.
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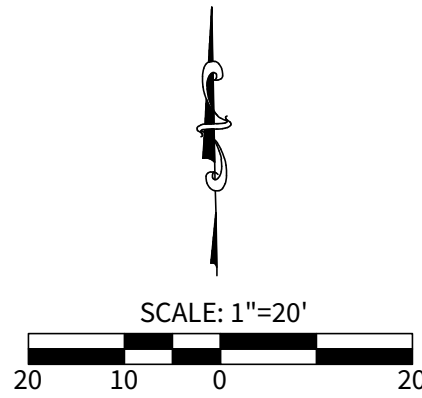
DEVELOPER
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DISTRICT ENGINEER: PAPE-DAWSON ENGINEERS
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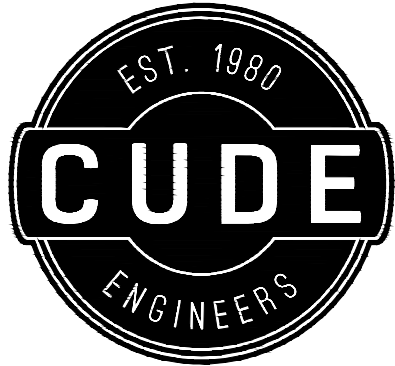
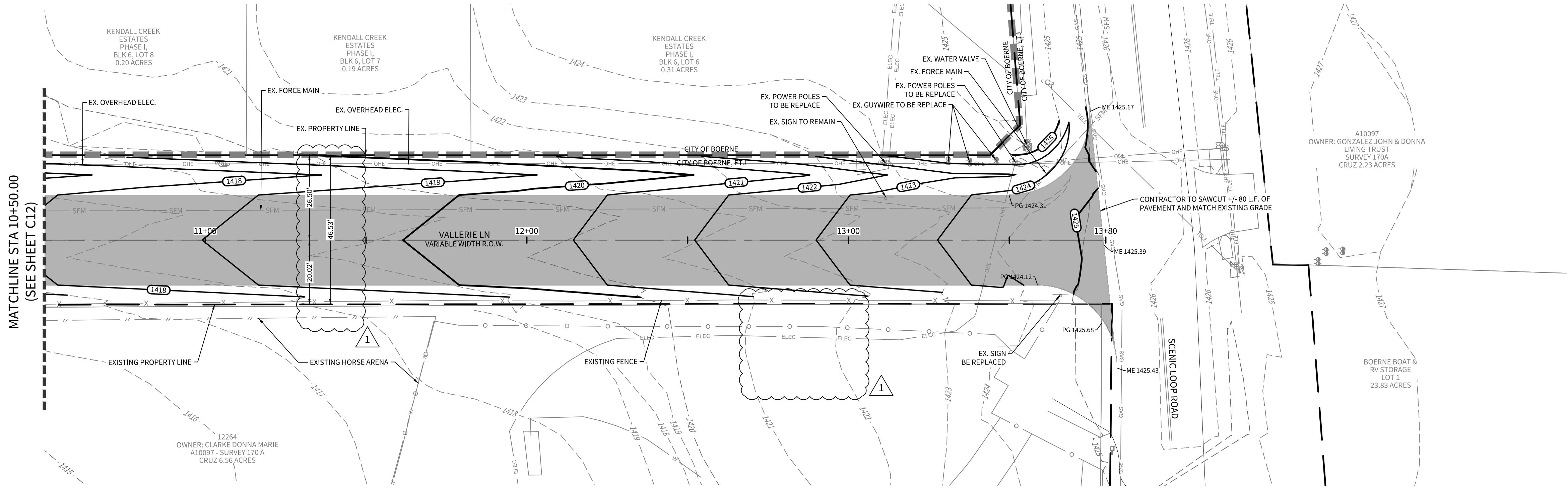
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LEGEND:

PROPERTY LINE
R.O.W. DEDICATION LINE
EXISTING OVERHEAD ELECTRIC
EXISTING POWERPOLE
EXISTING SIGN
PROPOSED PAVEMENT



CAUTION!!
THE CONTRACTOR SHALL BE AWARE THAT A WATER MAIN, UNDER GROUND ELECTRIC, AND OVERHEAD ELECTRIC LINE EXIST ALONG SCENIC LOOP ROAD. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE THESE UTILITIES LOCATED PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING IN THIS AREA. ANY DAMAGE DONE TO THESE EXISTING FACILITIES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR.



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**CORLEY FARMS OFFSITE
VALLERIE LANE IMPROVEMENTS**
GRADING & DRAINAGE PLAN

DATE

03/27/2023

PROJECT NO.
03481.003

DRAWN BY
CA/CG

CHECKED BY
XV/AL

REVISIONS

1. 2023-03-27 - REVISED RIGHT OF WAY, REMOVED ALL CALLOUTS REGARDING CLARE ROW DEDICATION.
- 2.
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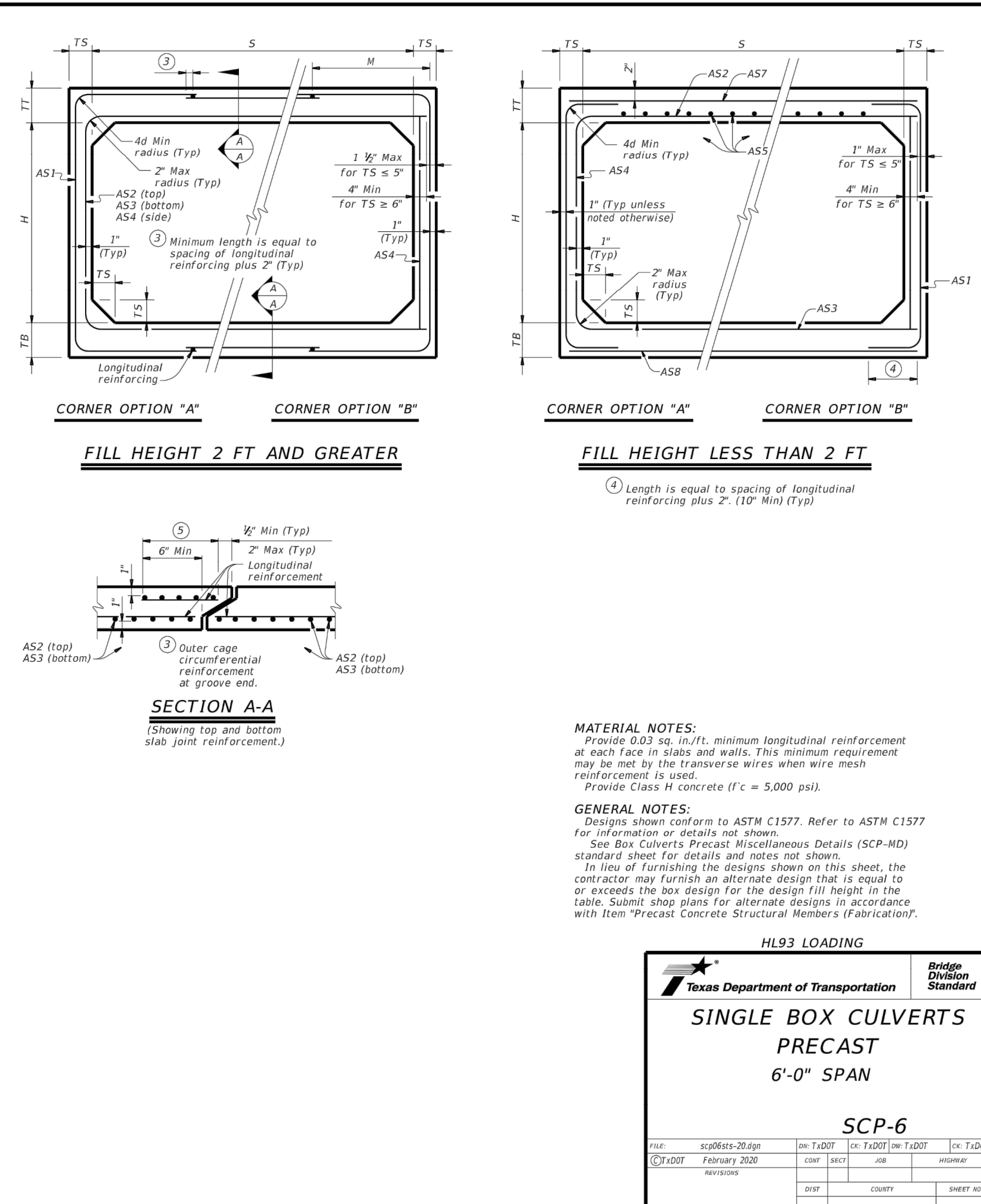
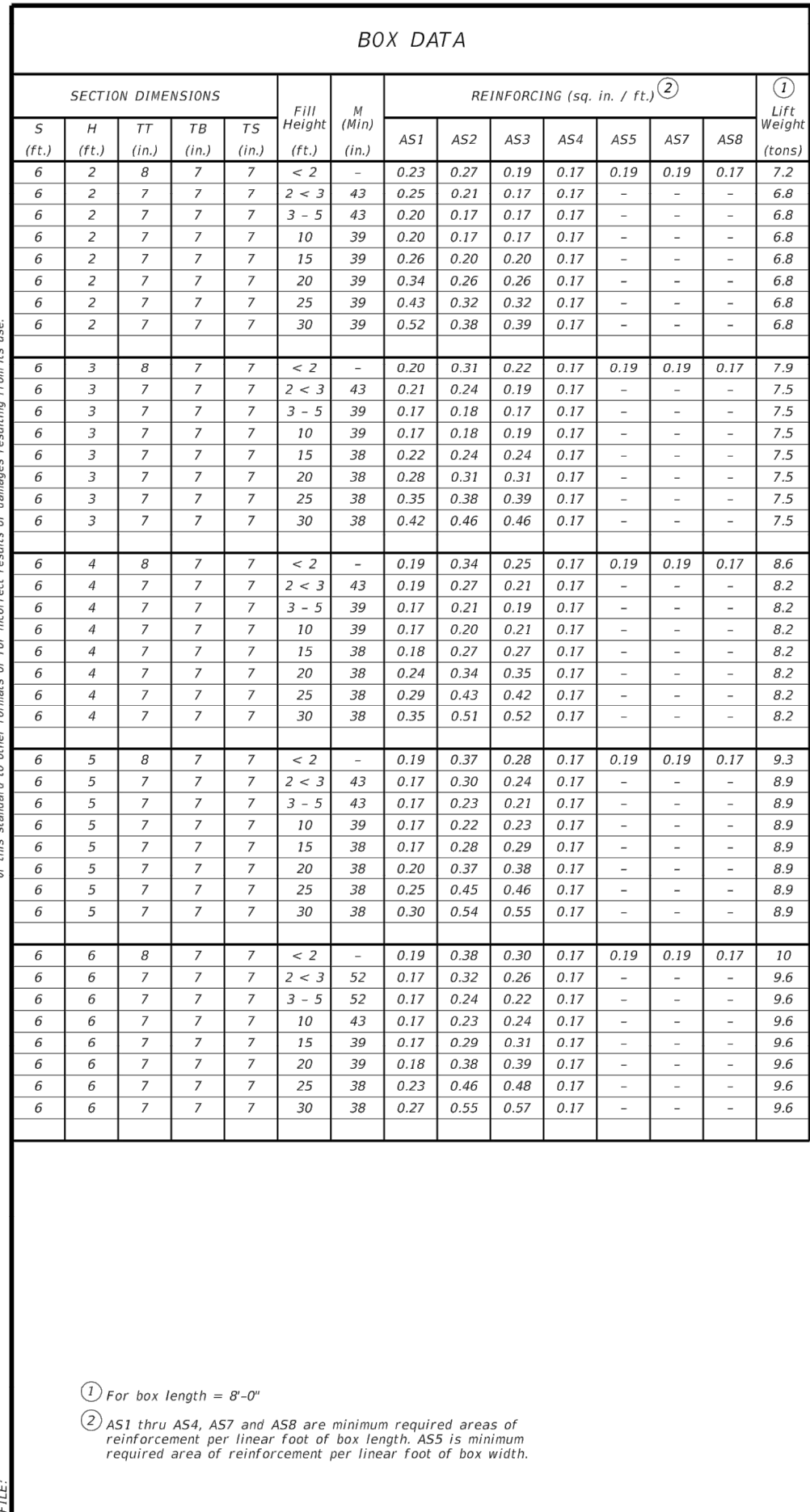
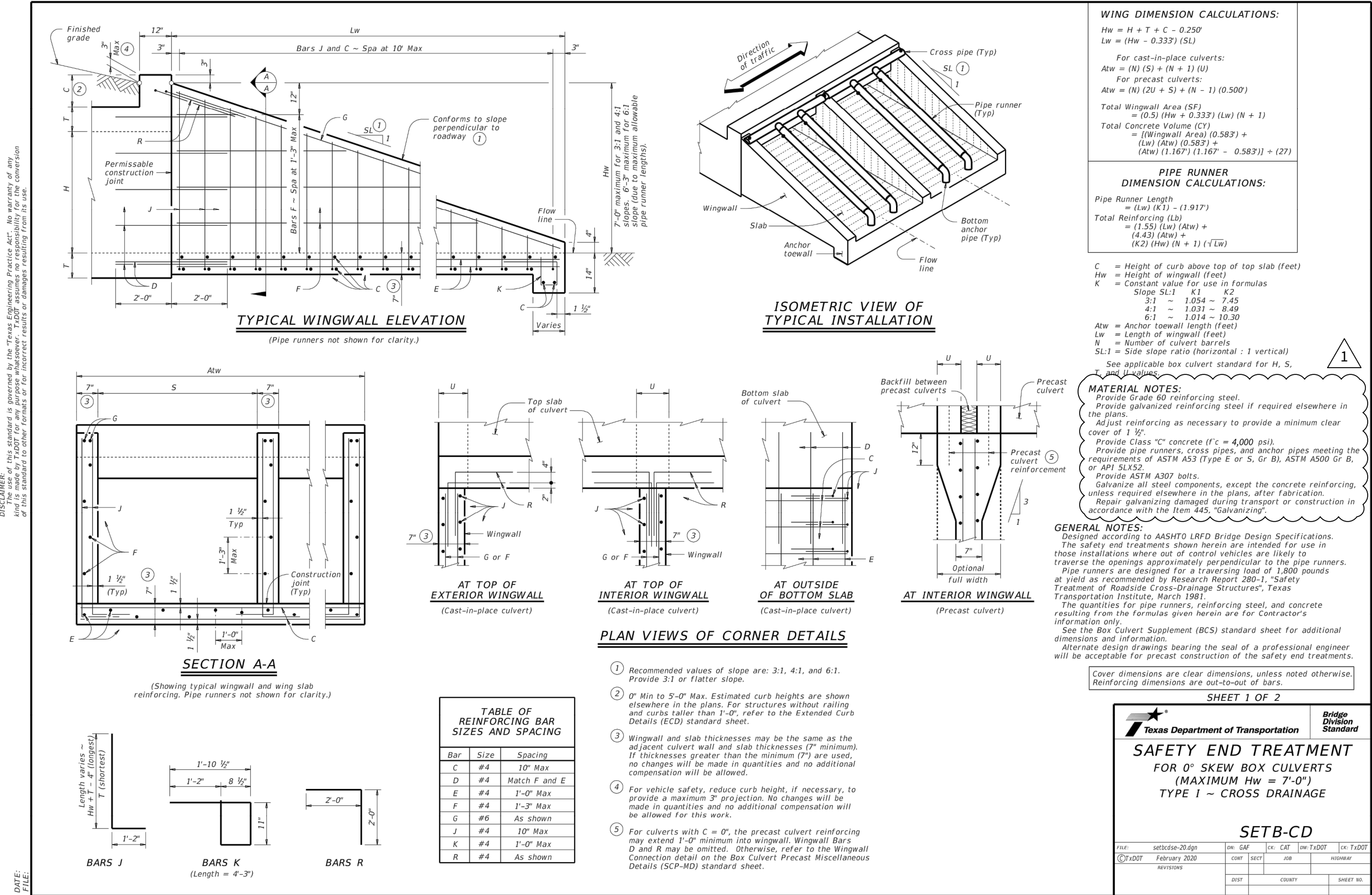


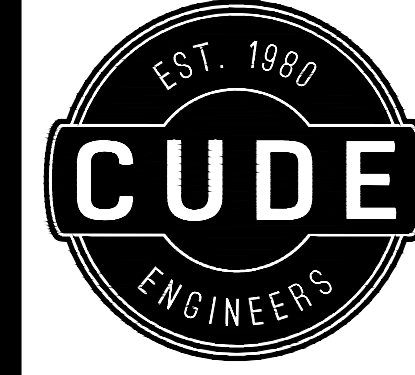
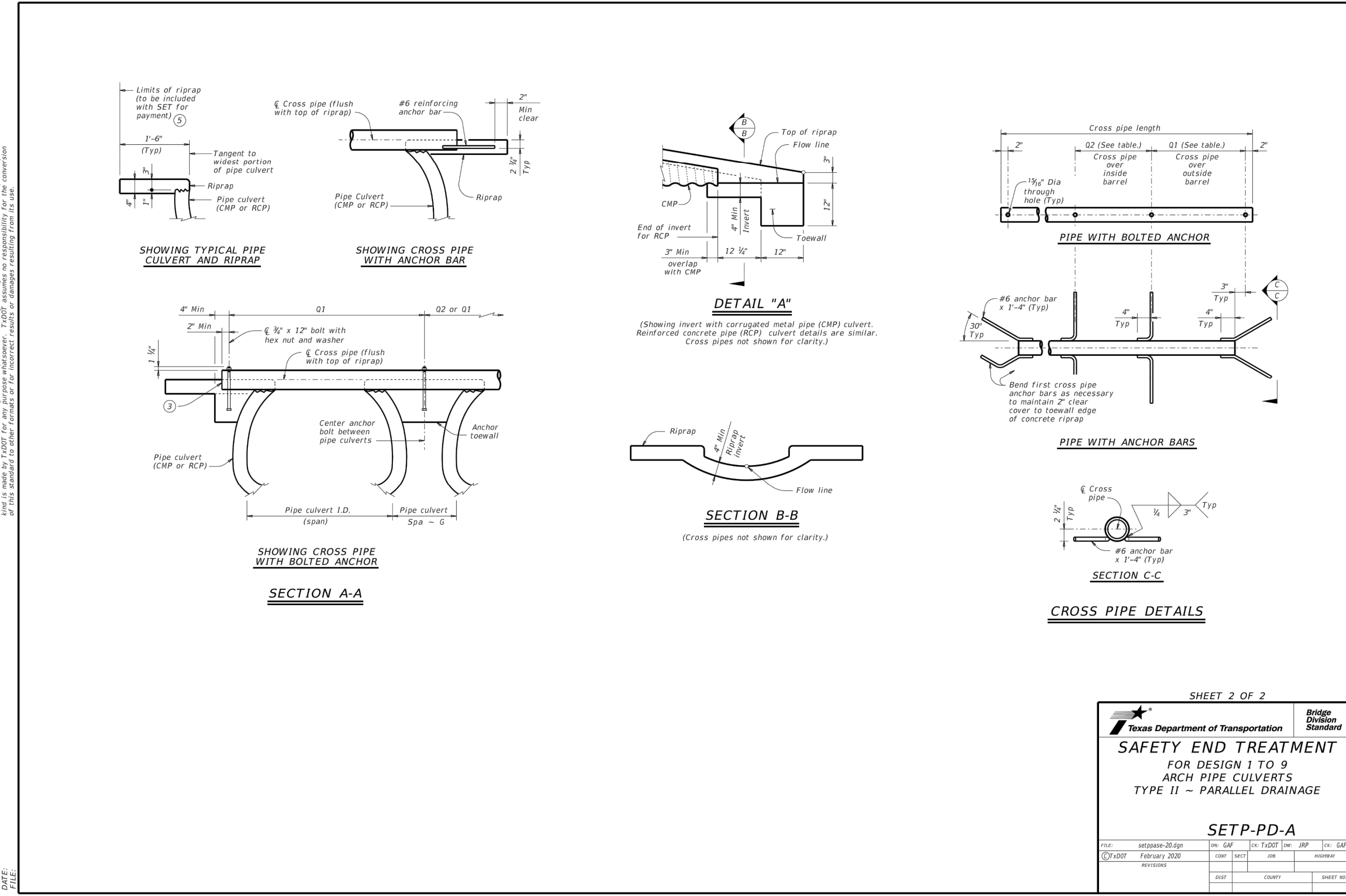
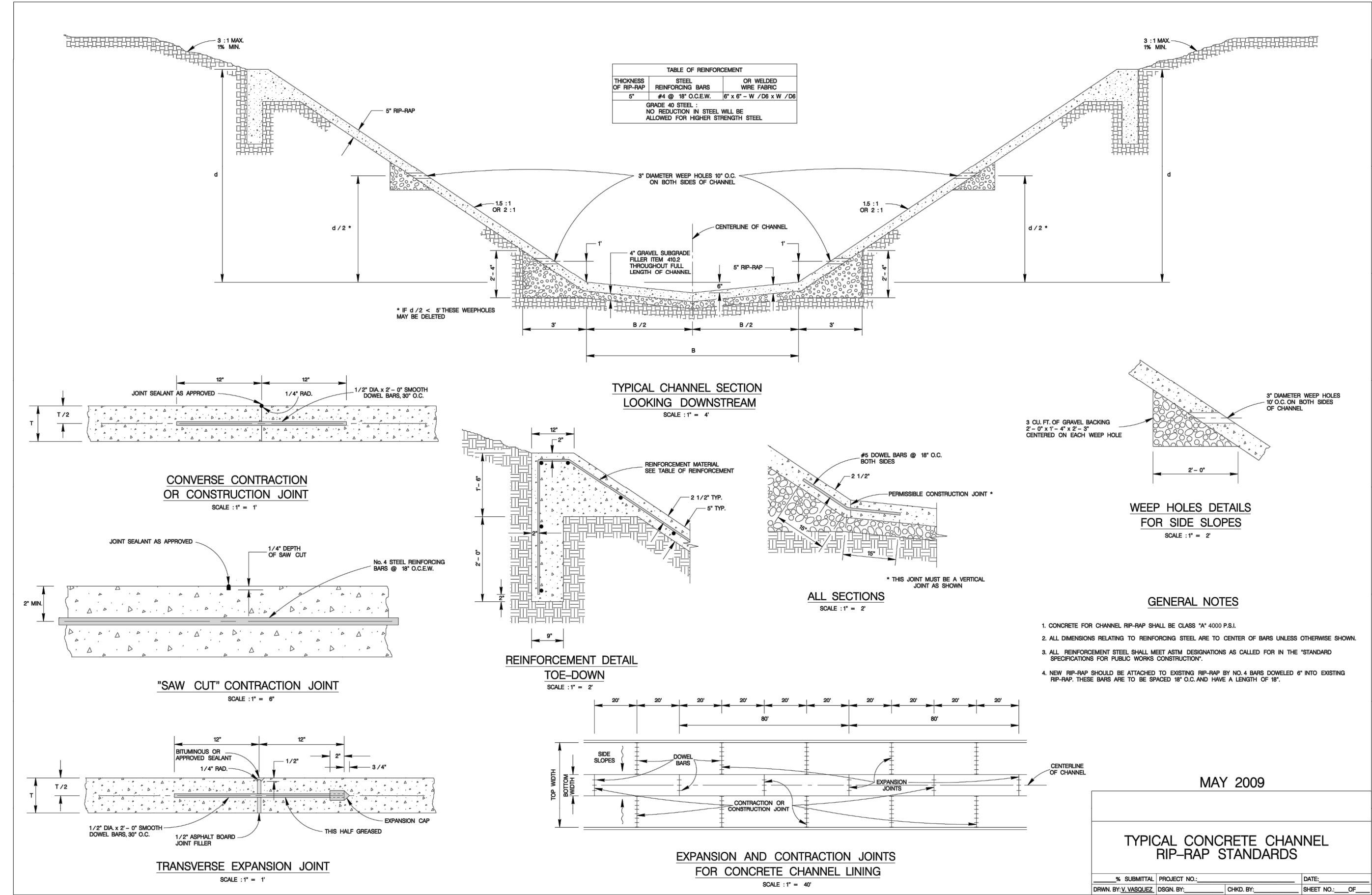
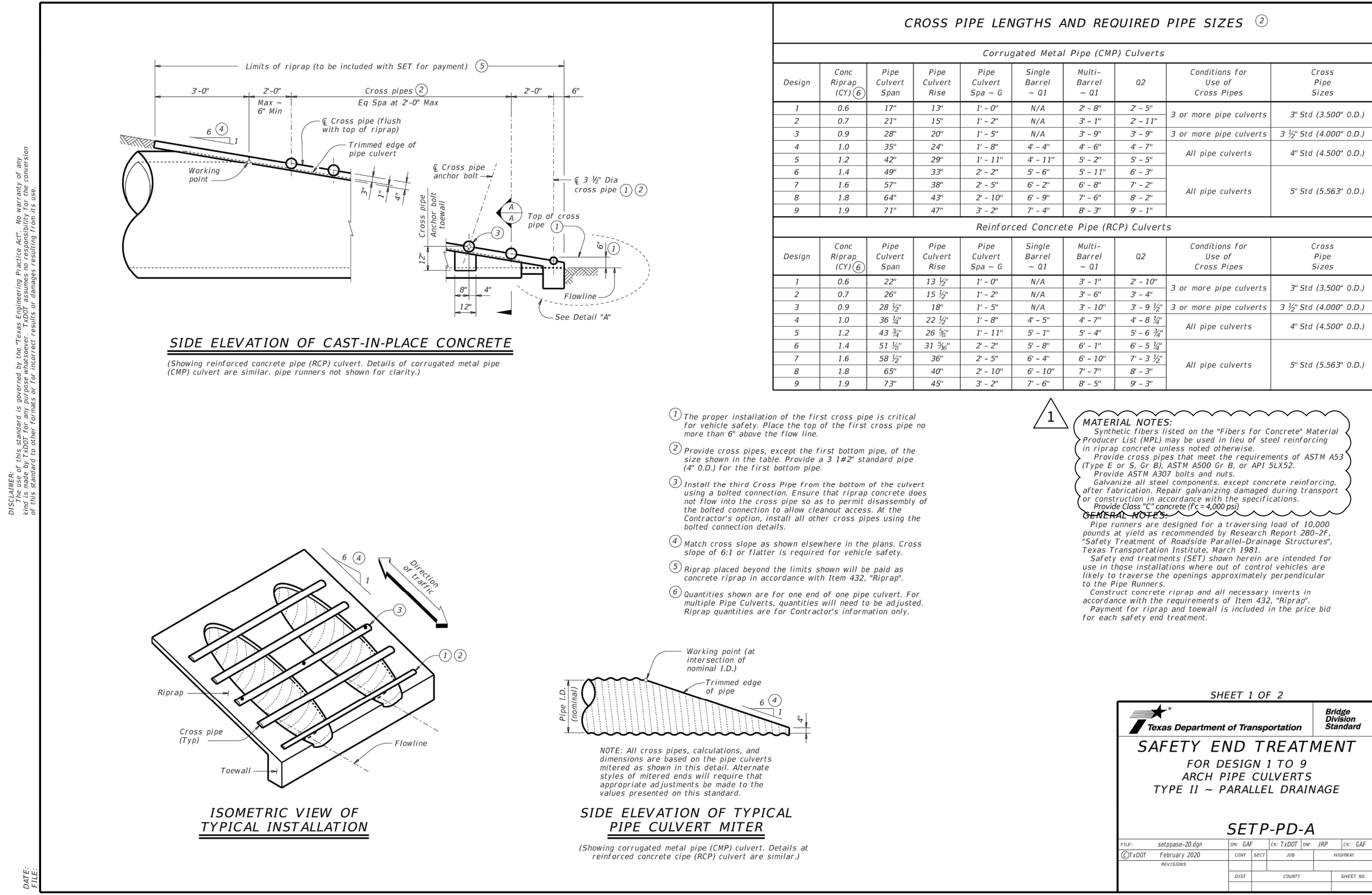
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C13

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DATE: 02/21/2023





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CORLEY FARMS OFFSITE
VALLERIE LANE IMPROVEMENTS
DRAINAGE DETAILS

DATE
02/20/2023
PROJECT NO.
03481.003
DRAWN BY
CA/CG
CHECKED BY
XV/AL

REVISIONS
1. 2023.02.20 - REVISED COMPRESSIVE STRENGTH PER CODE SPEC.
2.
3.
4.
5.
6.
7.
8.
9.

STATE OF TEXAS
JAVIER CASTELLO
122170
PROFESSIONAL ENGINEER
02/21/2023
CUDE ENGINEERS
TBPELS No. 10048500

C17

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DATE: FILE:

TABLE OF DIMENSIONS AND REINFORCING STEEL (Wings for one structure end)										
Dimensions					Variable Reinforcing				Estimated Quantities per ft. of wing length (2-wings) (3)	
Maximum Wingwall Height Hw	W	X	Y	Z	Bars J1		Bars J2			
					Size	Spa	Size	Spa		
2'-6"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	33.73	0.248
3'-0"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	37.07	0.261
3'-6"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	37.74	0.273
4'-0"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	38.41	0.285
4'-6"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	41.75	0.330
5'-0"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.09	0.343
5'-6"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.75	0.355
6'-0"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	46.42	0.367
7'-0"	3'-8"	1'-9"	1'-3"	7"	#4	1'-0"	#4	1'-0"	52.77	0.414
8'-0"	4'-2"	2'-0"	1'-6"	8"	#5	1'-0"	#4	1'-0"	60.19	0.486
9'-0"	4'-8"	2'-3"	1'-9"	8"	#4	6"	#4	6"	81.49	0.535
10'-0"	5'-2"	2'-6"	2'-0"	8"	#5	6"	#4	6"	97.25	0.584
11'-0"	5'-8"	2'-9"	2'-3"	8"	#6	6"	#5	6"	133.65	0.634
12'-0"	6'-2"	3'-0"	2'-6"	9"	#7	6"	#5	6"	162.29	0.721
13'-0"	6'-8"	3'-3"	2'-9"	11"	#7	6"	#5	6"	178.80	0.856
14'-0"	7'-2"	3'-6"	3'-0"	1'-0"	#8	6"	#5	6"	216.78	0.959
15'-0"	7'-8"	4'-0"	3'-0"	1'-1"	#9	6"	#6	6"	283.06	1.068
16'-0"	8'-2"	4'-6"	3'-0"	1'-3"	#9	6"	#6	6"	297.02	1.234

TABLE OF WINGWALL REINFORCING (2-wings)			
Bar	Size	No.	Spa
D	#5	~	1'-0"
E	#4	~	1'-0"
F	#4	~	1'-0"
G	#6	4	~
M	#4	4	~
P	#4	~	1'-0"
R	#5	6	~
V	#4	~	1'-0"

TABLE OF ESTIMATED CULVERT TOEWALL QUANTITIES			
Bar	Size	No.	Spa
L	#4	~	1'-6"
Q	#4	1	~
Reinf (Lb/Ft)		2.45	
Conc (CY/Ft)		0.037	

WING DIMENSION FORMULAS:

(All values are in feet.)

$$Hw = H + T + C - 0.250'$$

$$A = (Hw - 0.333') (SL)$$

$$B = (A) \tan(30^\circ)$$

$$Lw = (A) \div \cos(30^\circ)$$

For cast-in-place culverts:

$$Ltw = (N) (S) + (N + 1) (U)$$

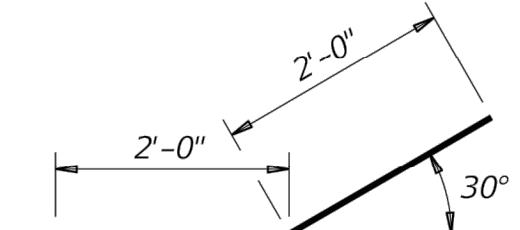
For precast culverts:

$$Ltw = (N) (2U + S) + (N - 1) (0.5')$$

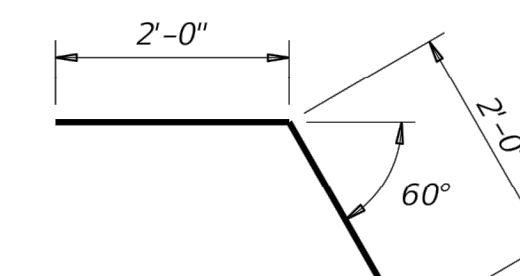
$$\text{Total wingwall area (two wings ~ SF)} = (Hw + 0.333') (Lw)$$

Hw = Height of wingwall
SL:1 = Side slope ratio (horizontal:1 vertical)
Lw = Length of wingwall
Ltw = Culvert toewall length
N = Number of culvert spans

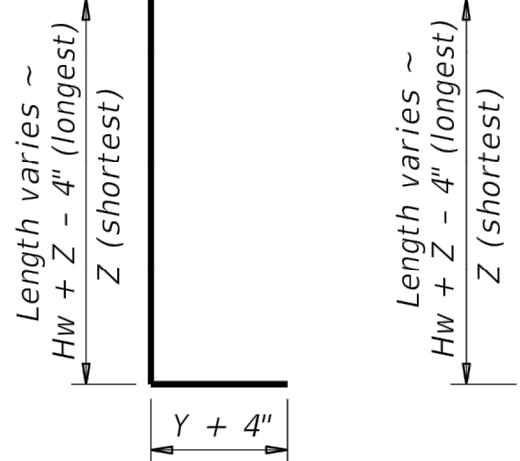
See applicable box culvert standard sheet for H, S, T, and U values.



BARS D

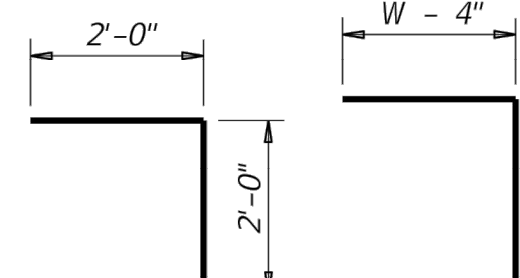


BARS R



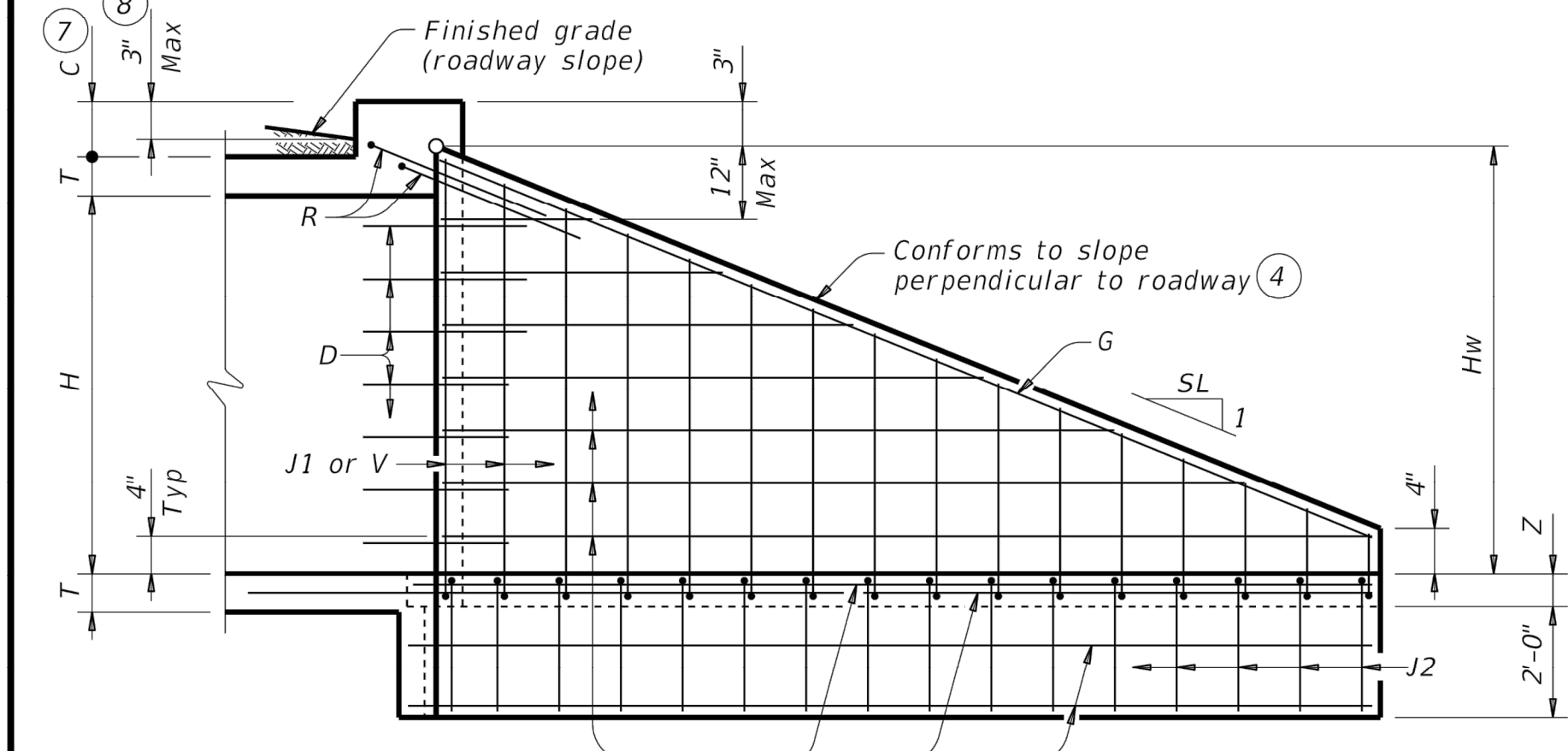
BARS J1

BARS V



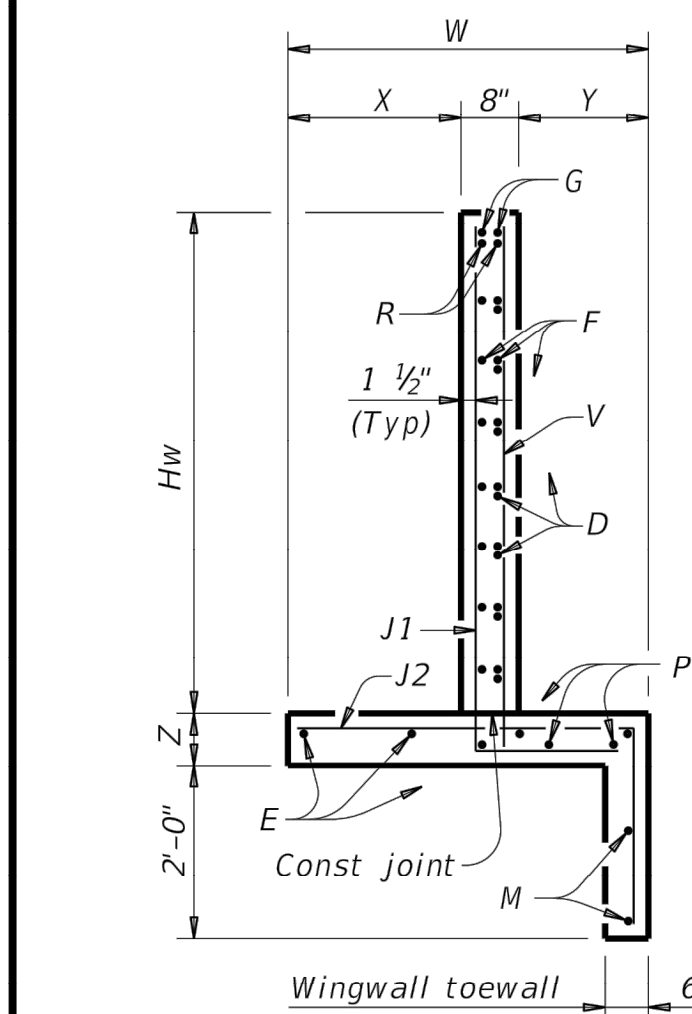
BARS L

BARS J2

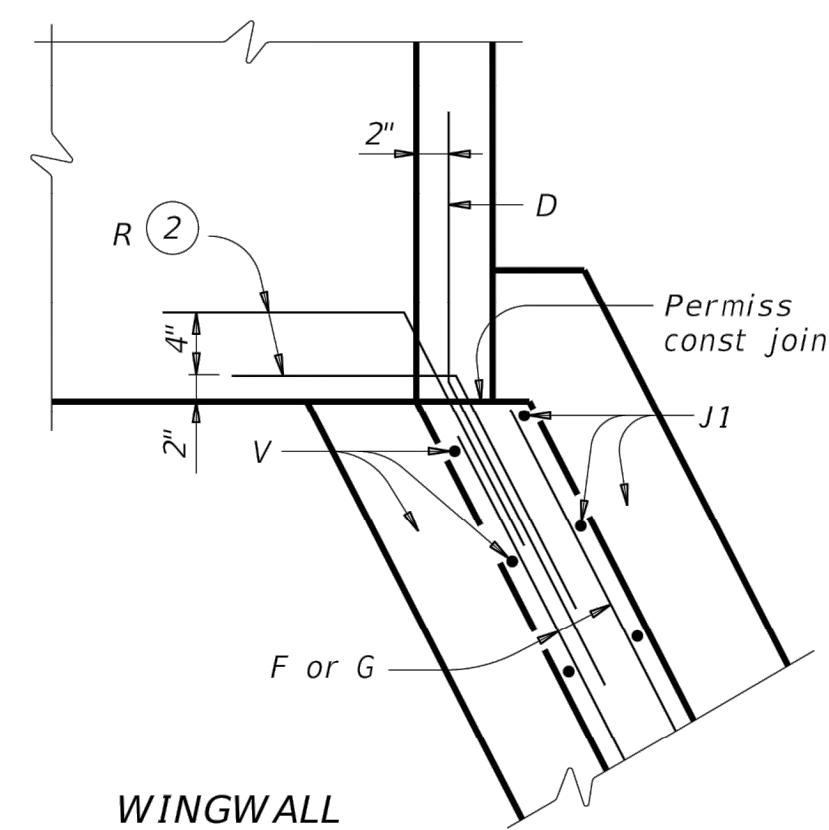


INSIDE ELEVATION

(Showing reinforcing. Culvert and culvert toewall reinforcing not shown for clarity.)

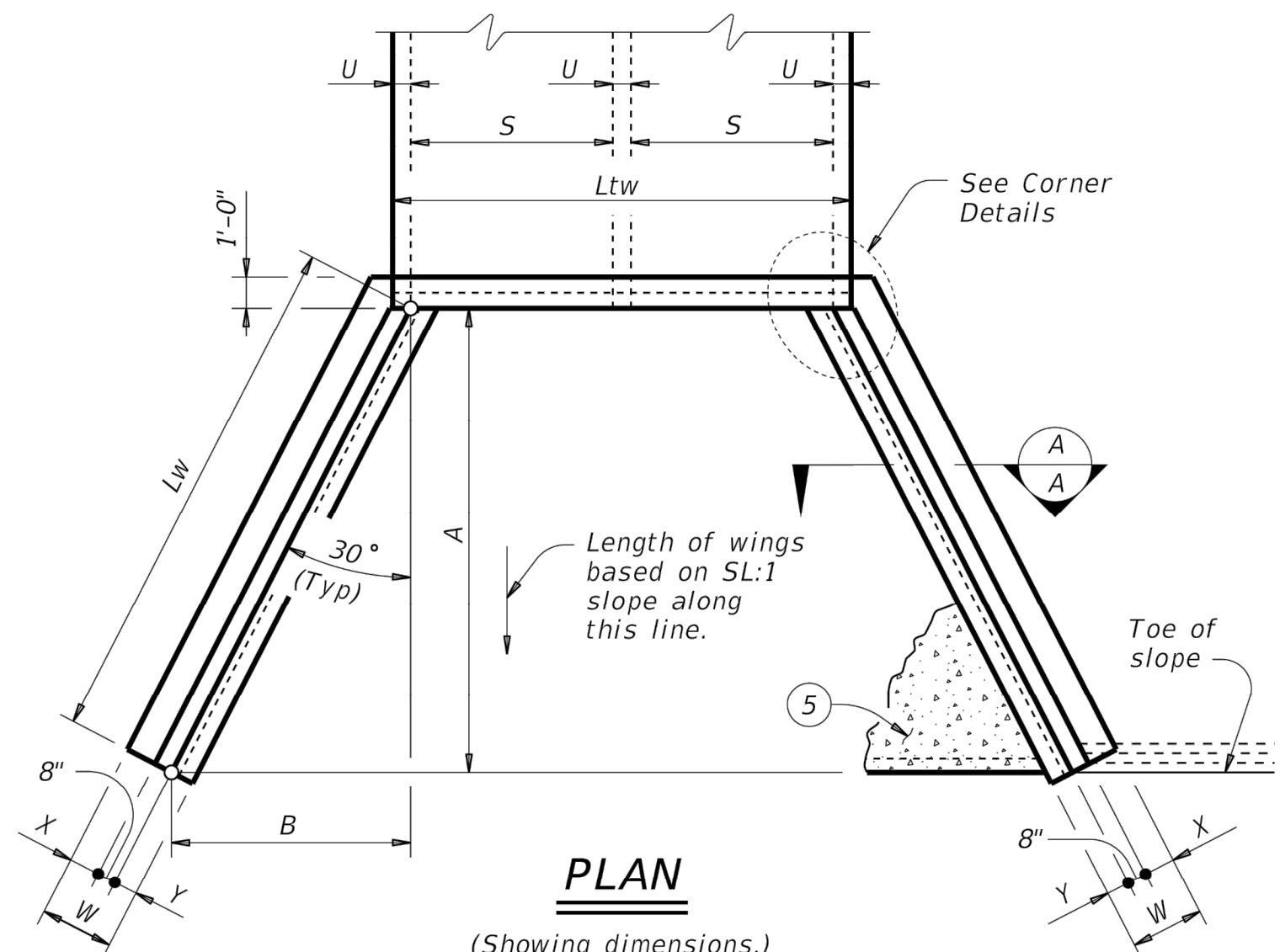


SECTION A-A



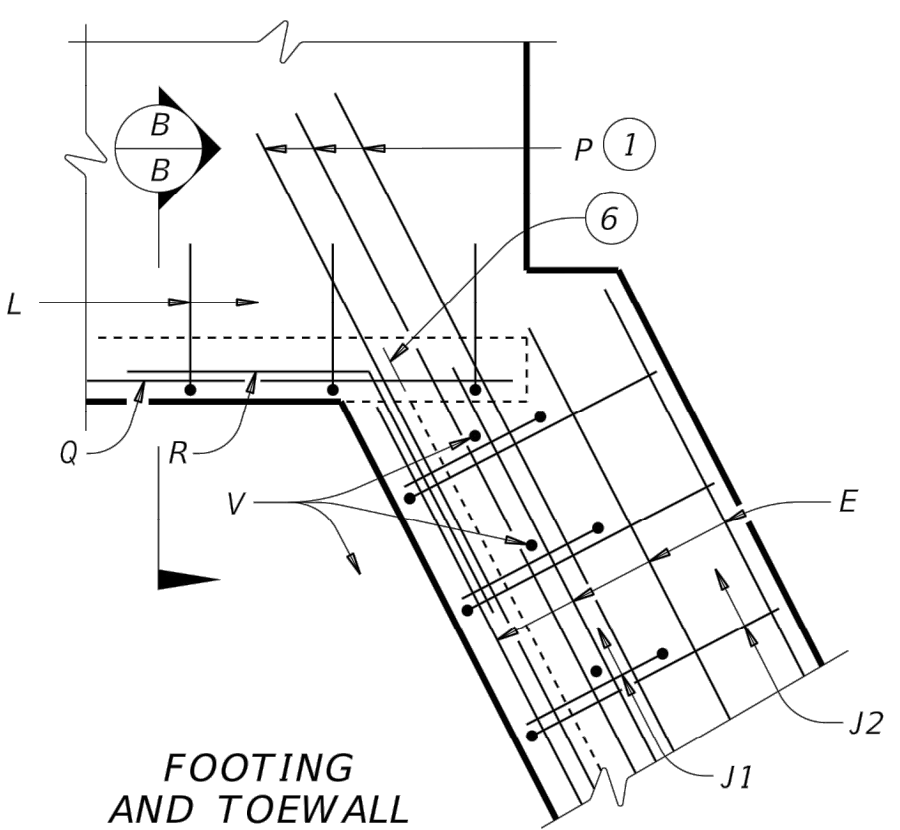
CORNER DETAILS

(Culvert and culvert toewall reinforcing not shown for clarity.)

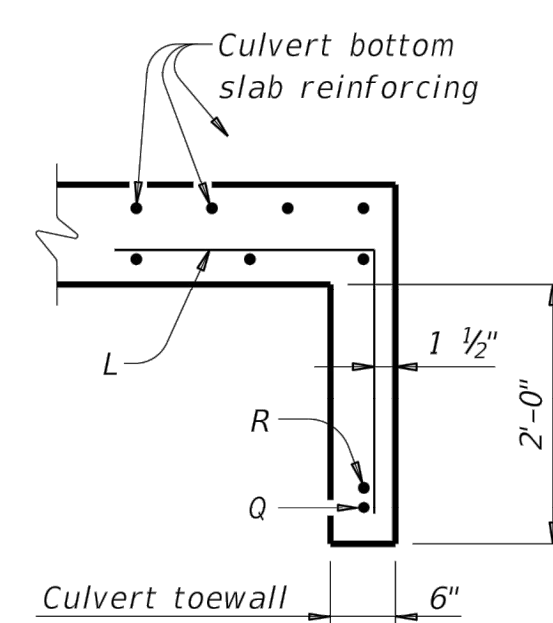


PLAN

(Showing dimensions.)



FOOTINGS AND TOEWALL



SECTION B-B

- Extend Bars P 3'-0" minimum into bottom slab of box culvert.
- Adjust as necessary to maintain 1 1/2" clear cover and 4" minimum between bars.
- Quantities shown are based on an average wing height for two wings (one structure end). To determine total quantities for two wings, multiply the tabulated values by Lw.
- Recommended values of side slope are: 2:1, 3:1, 4:1, and 6:1.
- When shown elsewhere on the plans, construct 5' deep concrete riprap. Payment for riprap is as required by Item 432, "Riprap". Unless otherwise shown on the plans or directed by the Engineer, provide a 6" wide by 1'-6" deep reinforced concrete toewall along all edges of the riprap adjacent to natural ground; reinforce the toewall by extending typical riprap reinforcing into the toewall; and extend construction joints or grooved joints oriented in the direction of flow across the full distance of the riprap at intervals of approximately 20'. When such riprap is provided, the culvert toewall shown in SECTION B-B will not be required.
- At Contractor's option, culvert toewall may be ended flush with wingwall toewall. Adjust reinforcing as needed.
- 0' Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-0, refer to the Existing Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.
- For vehicle safety, the following requirements must be met:
 - For structures without bridge rail, construct curbs no more than 3" above finished grade.
 - For structures with bridge rail, construct curbs flush with finished grade.Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

MATERIAL NOTES:
Provide Class C concrete (f'c=4,000 psi).
Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel if required elsewhere in the plans.
In riprap concrete synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing unless noted otherwise.

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
When structure is founded on solid rock, depth of toewalls for culverts and wingwalls may be reduced or eliminated as directed by the Engineer.
See Box Culvert Supplement (BCS) standard sheet for additional dimensions and information.
The quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for Contractor's information only.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing dimensions are out-to-out of bars.

		Bridge Division Standard			
CONCRETE WINGWALLS WITH FLARED WINGS FOR 0° SKEW BOX CULVERTS					
FW-0					
FILE: fw-0std-20.dgn	DN: GAF	CK: CAT	DW: TxDOT		
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REVISIONS	DIST	COUNTY	SHEET NO.		

