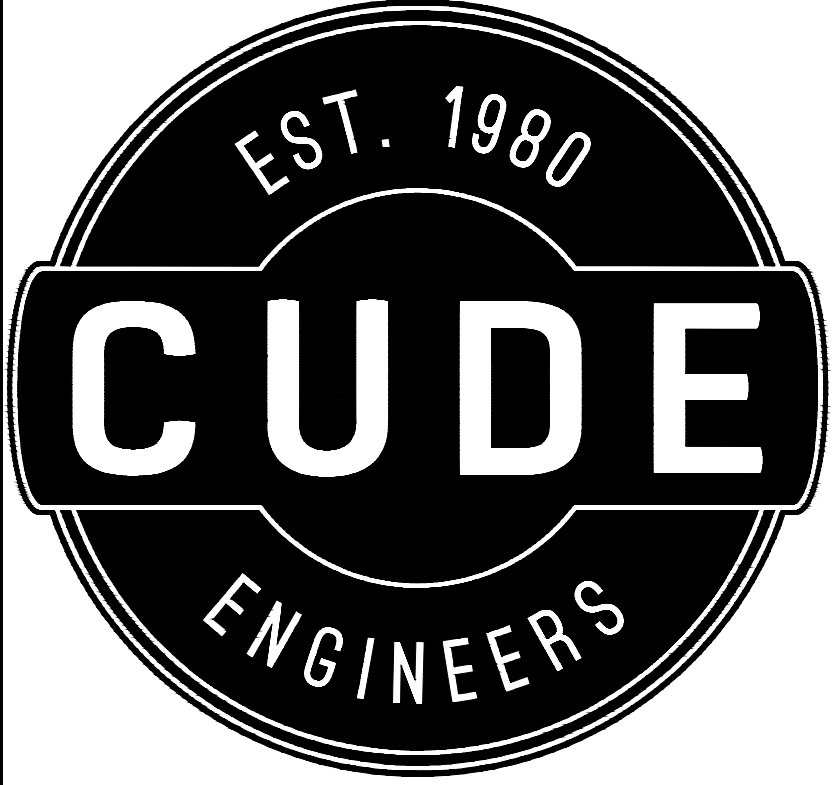
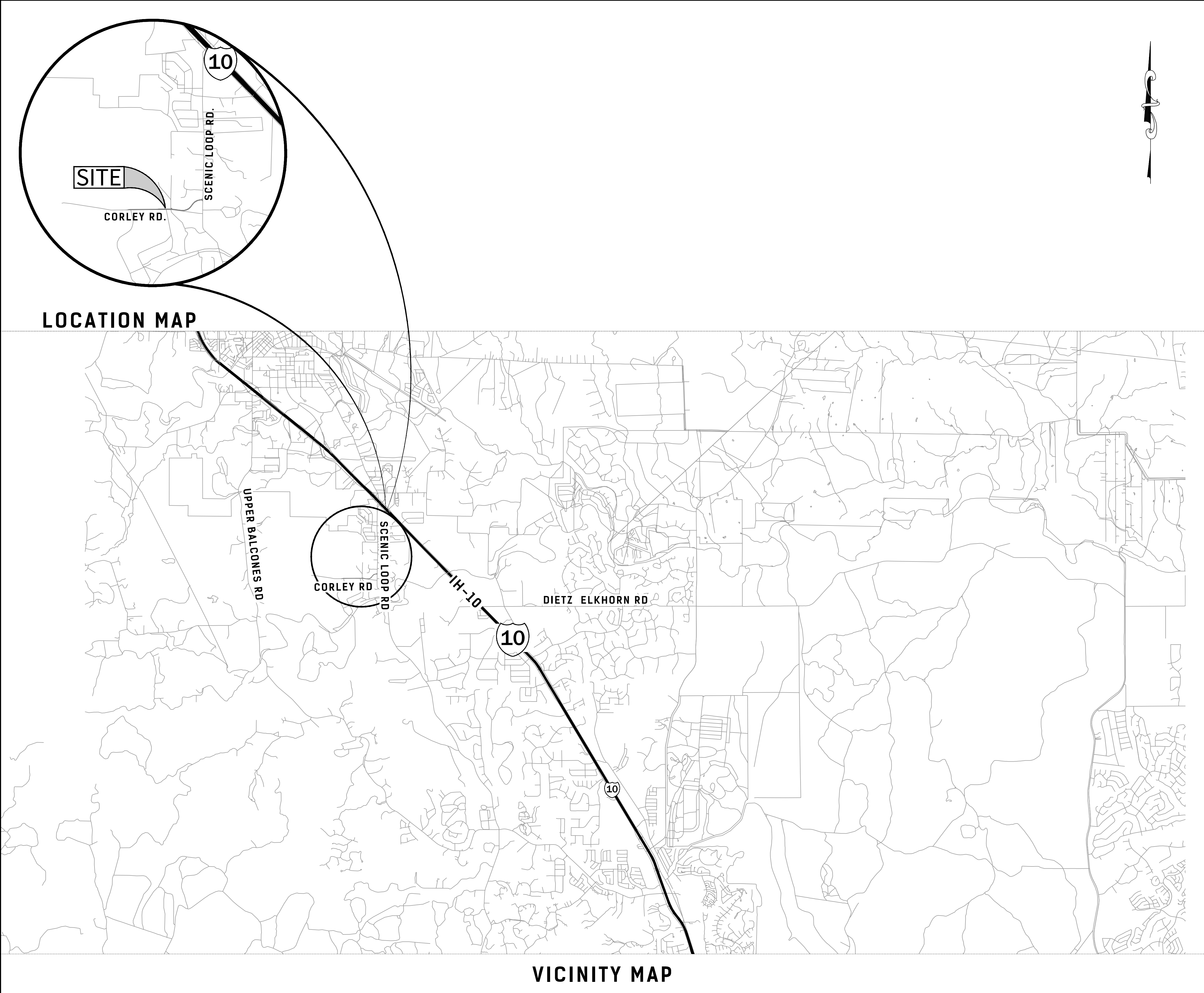


- STREET AND DRAINAGE CONSTRUCTION PLANS
- C1 - TYPICAL STREET SECTIONS
 - C2 - CORLEY ROAD EXISTING CONDITIONS
 - C3 - CORLEY ROAD EXISTING CONDITIONS
 - C4 - CORLEY ROAD EXISTING CONDITIONS
 - C5 - CORLEY ROAD PLAN & PROFILE
 - C6 - CORLEY ROAD PLAN & PROFILE
 - C7 - CORLEY ROAD PLAN & PROFILE
 - C8 - TRAFFIC SIGNAGE & STRIPING PLAN
 - C9 - SCENIC LOOP TURN LANE PLAN
 - C10 - STANDARD PAVEMENT MARKINGS
 - C11 - CITY OF BOERNE STANDARD STREET DETAILS
 - C12 - STREET AND DRAINAGE DETAILS
 - C13 - TXDOT PAVEMENT MARKING DETAILS
 - C14 - CR CULVERT '1' PLAN AND PROFILE
 - C15 - CR CULVERT '2' PLAN AND PROFILE
 - C16 - GRADING & DRAINAGE PLAN
 - C17 - GRADING & DRAINAGE PLAN
 - C18 - GRADING & DRAINAGE PLAN
 - C19 - STORM WATER POLLUTION PREVENTION PLAN
 - C20 - TXDOT CONCRETE WINGWALL & RIP-RAP DETAILS
 - C21 - TXDOT CULVERT DETAILS
 - C22 - DRAINAGE DETAILS
 - C23 - DRAINAGE DETAILS
 - C24 - METAL BEAM GUARD FENCE DETAILS

* STANDARD DETAILS ADOPTED FOR THIS CONSTRUCTION SET.



CORLEY FARMS OFFSITE
CORLEY ROAD IMPROVEMENTS PHASE I

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 BEORNEBAK, L.L.C. AND THE CITY OF BOERNE, TEXAS EFFECTIVE NOVEMBER 26, 2019

IMPROVEMENTS SHOWN ON THIS CONSTRUCTION PLAN SET ARE BASED ON EXHIBIT G-5 AND TERMS OF THE DEVELOPMENT AGREEMENT



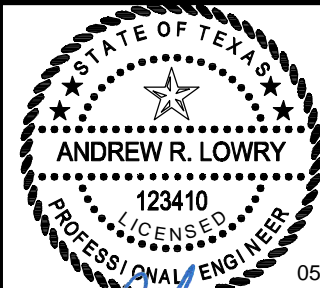
DEVELOPER:

PULTE HOMES OF TEXAS, L.P.
CONTACT PERSON: SEAN MILLER
1718 DRY CREEK WAY, SUITE 120
SAN ANTONIO, TX 78259
TEL: (210) 496-1985
FAX: (210) 496-0449

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

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JG/AC/JR/RC
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JC/CA

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05/07/2024
PROJECT NO.
03481.003

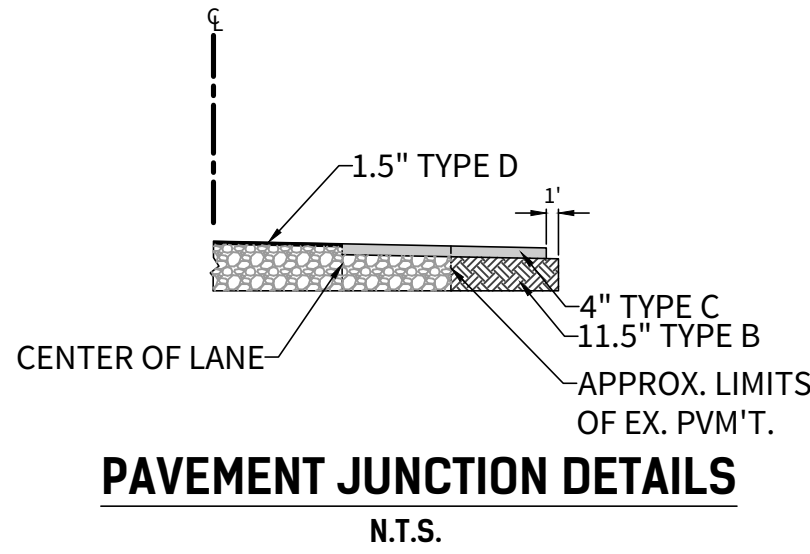
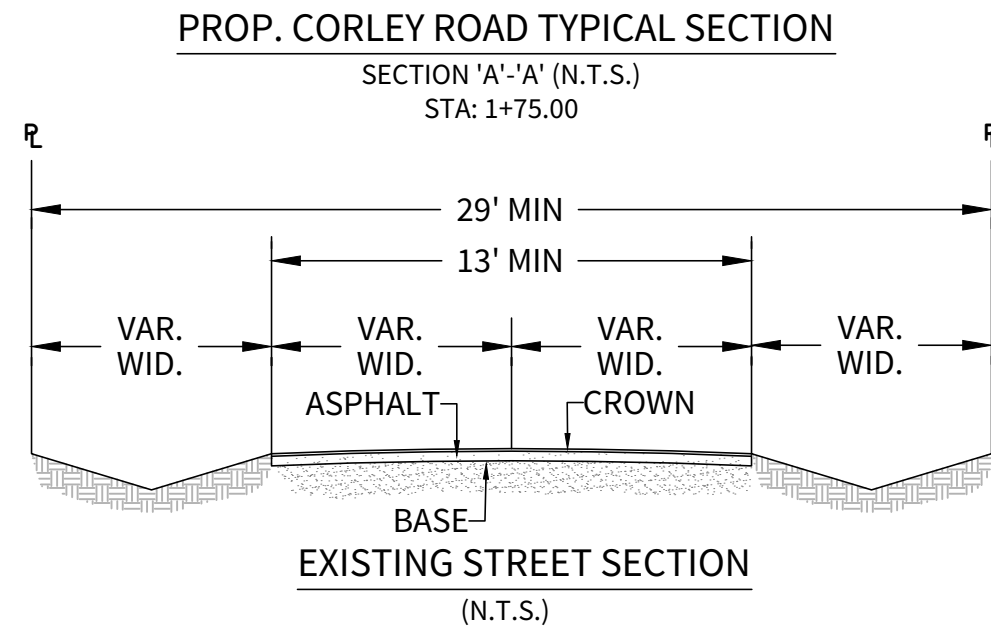
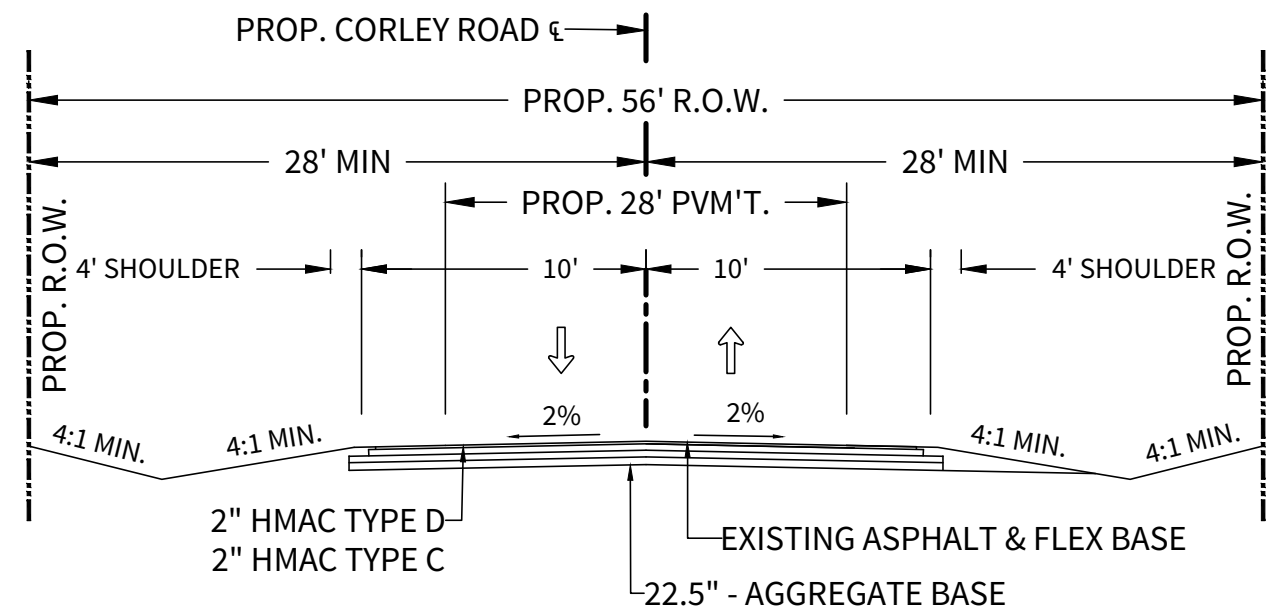
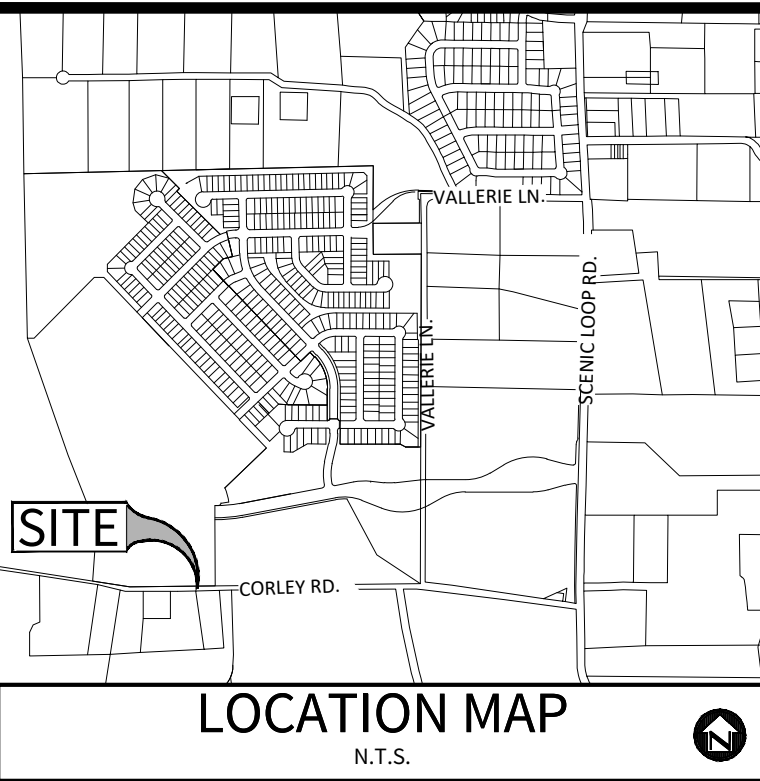


05/08/2024

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

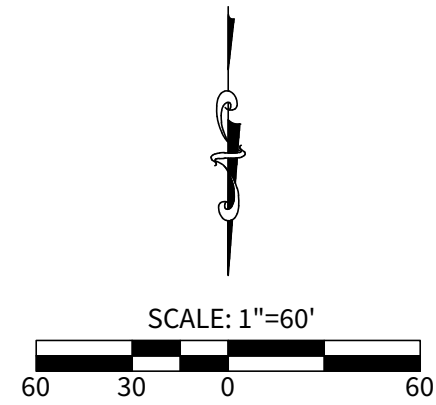
THIS PLAN SET HAS BEEN PREPARED, DESIGNED AND REVIEWED UNDER MY DIRECT SUPERVISION.

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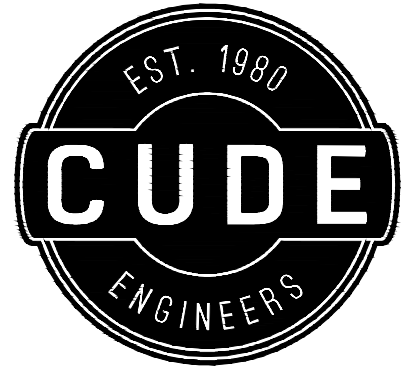
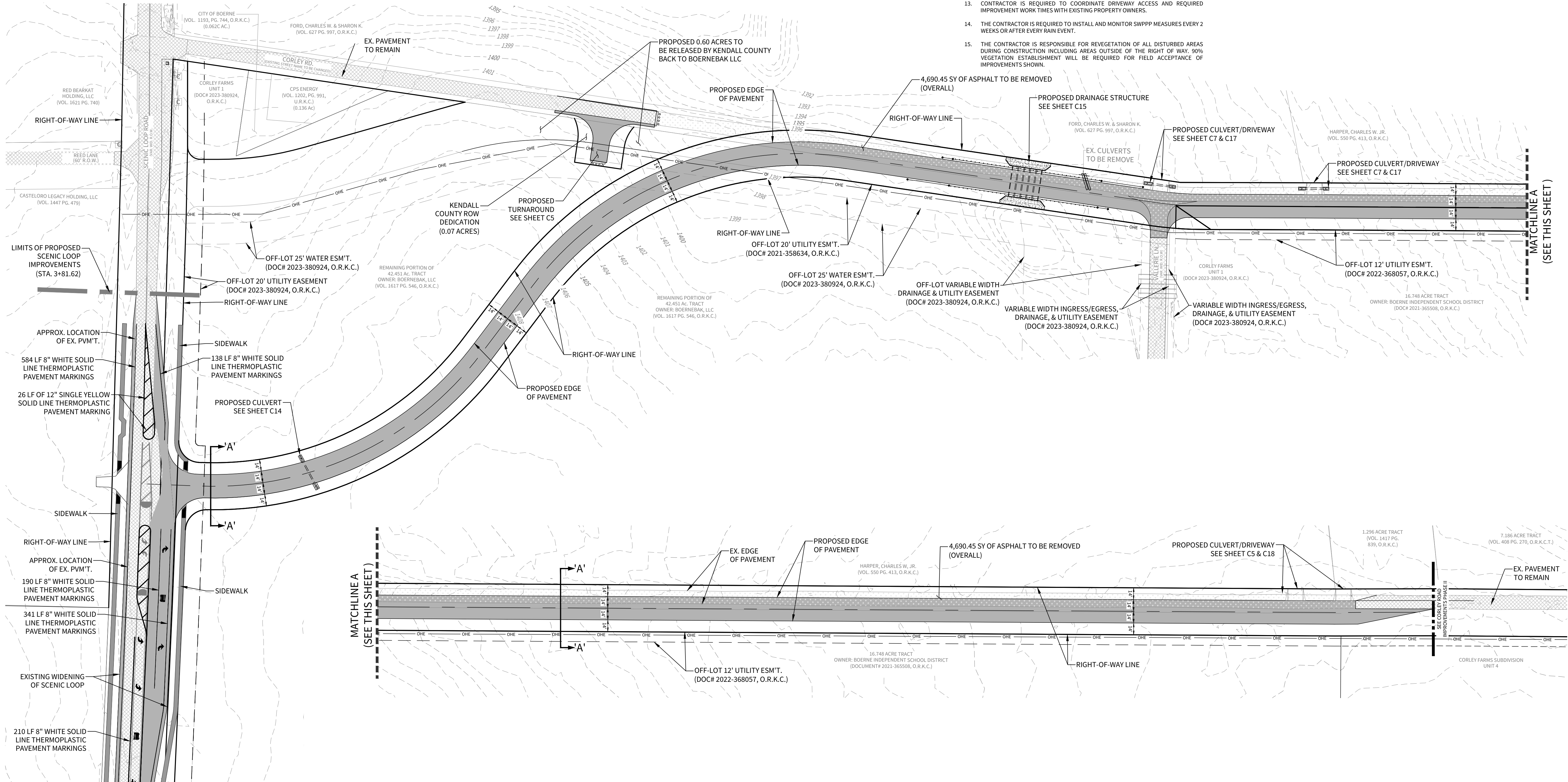
NOTES:

1. TYPICAL SECTIONS SHOWN DEPICT THE MOST COMMON CASES.
2. ALL GRADING SHALL BE WITHIN THE EXISTING RIGHT OF WAY LIMITS.
3. THE SUBGRADE SHALL BE SHAPED, BLADED, ROLLED AND PROOF ROLLED A MINIMUM DISTANCE OF 24" BEYOND THE EDGE OF THE PROPOSED BASE COURSE.
4. IF AREAS BEYOND THE CONSTRUCTION LIMITS ARE DISTURBED OR DAMAGED BY CONTRACTOR, THE CONTRACTOR SHALL REPAIR OR BRING BACK AS CLOSE AS POSSIBLE TO PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE ENGINEER. THERE WILL BE NO SEPARATE PAY FOR THIS WORK AND / OR MATERIALS.
5. CROSS SLOPE TO MATCH EXISTING CROSS SLOPE OF THE ADJOINING TRAVEL LANE.
6. 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.
7. CONTRACTOR TO REMOVE AND RELOCATE EXISTING SIGNS AND FENCES AS NECESSARY TO EXISTING OR BETTER CONDITION.
8. 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 KENDALL COUNTY. THE CONTRACTOR SHALL OBTAIN ANY AND ALL RIGHT OF WAY PERMITS NEEDED.
9. CONTRACTOR IS RESPONSIBLE FOR REVEGETATING ALL DISTURBED AREAS WITHIN THE RIGHT OF WAY OR UTILITY EASEMENTS.
10. CONTRACTOR SHALL GRADE RIGHT OF WAY AND ADJACENT SITE AREAS TO ENSURE POSITIVE DRAINAGE AT ALL TIMES DURING AND AFTER CONSTRUCTION OF IMPROVEMENTS SHOWN.
11. 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.
12. IF ANY DRAINAGE OR UTILITY CONFLICT ARISE DURING CONSTRUCTION, CONTRACTOR IS TO NOTIFY ENGINEER IMMEDIATELY.
13. CONTRACTOR IS REQUIRED TO COORDINATE DRIVEWAY ACCESS AND REQUIRED IMPROVEMENT WORK TIMES WITH EXISTING PROPERTY OWNERS.
14. THE CONTRACTOR IS REQUIRED TO INSTALL AND MONITOR SWPPP MEASURES EVERY 2 WEEKS OR AFTER EVERY RAIN EVENT.
15. 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.



LEGEND

OVERALL UNIT BOUNDARY	---
PROPOSED LOT LINE	---
PROPOSED RIGHT OF WAY	---
E.G.T.CA. EASEMENT	---
EXISTING 1' CONTOUR	--- 499 ---
EXISTING 5' CONTOUR	--- 500 ---
PROPOSED 1' CONTOUR	--- 499 ---
PROPOSED 5' CONTOUR	--- 500 ---
EX. P.V.M.T TO REMAIN	---
EX. P.V.M.T TO BE REMOVED	---
PROP. PAVEMENT	---



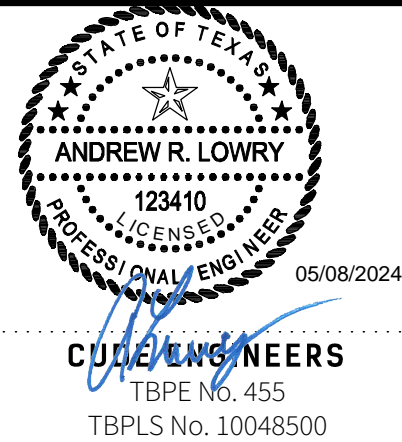
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San Antonio, Texas 78231
P:(210) 681.2951 F:(210) 523.7112

CORLEY FARMS OFFSITE CORLEY ROAD IMPROVEMENTS PHASE I

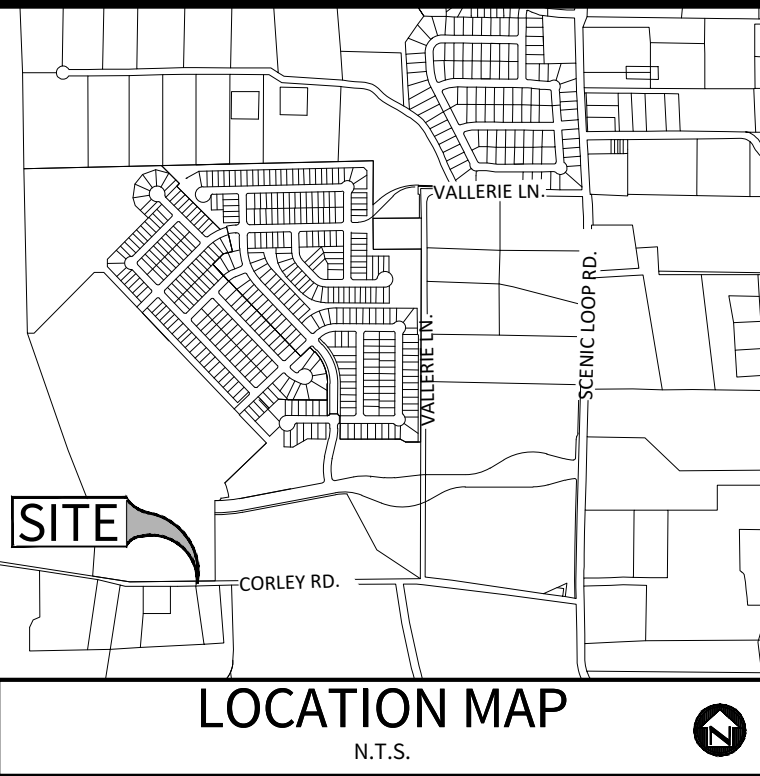
TYPICAL STREET SECTIONS

DATE
05/07/2024
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REVISIONS	DATE
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CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500



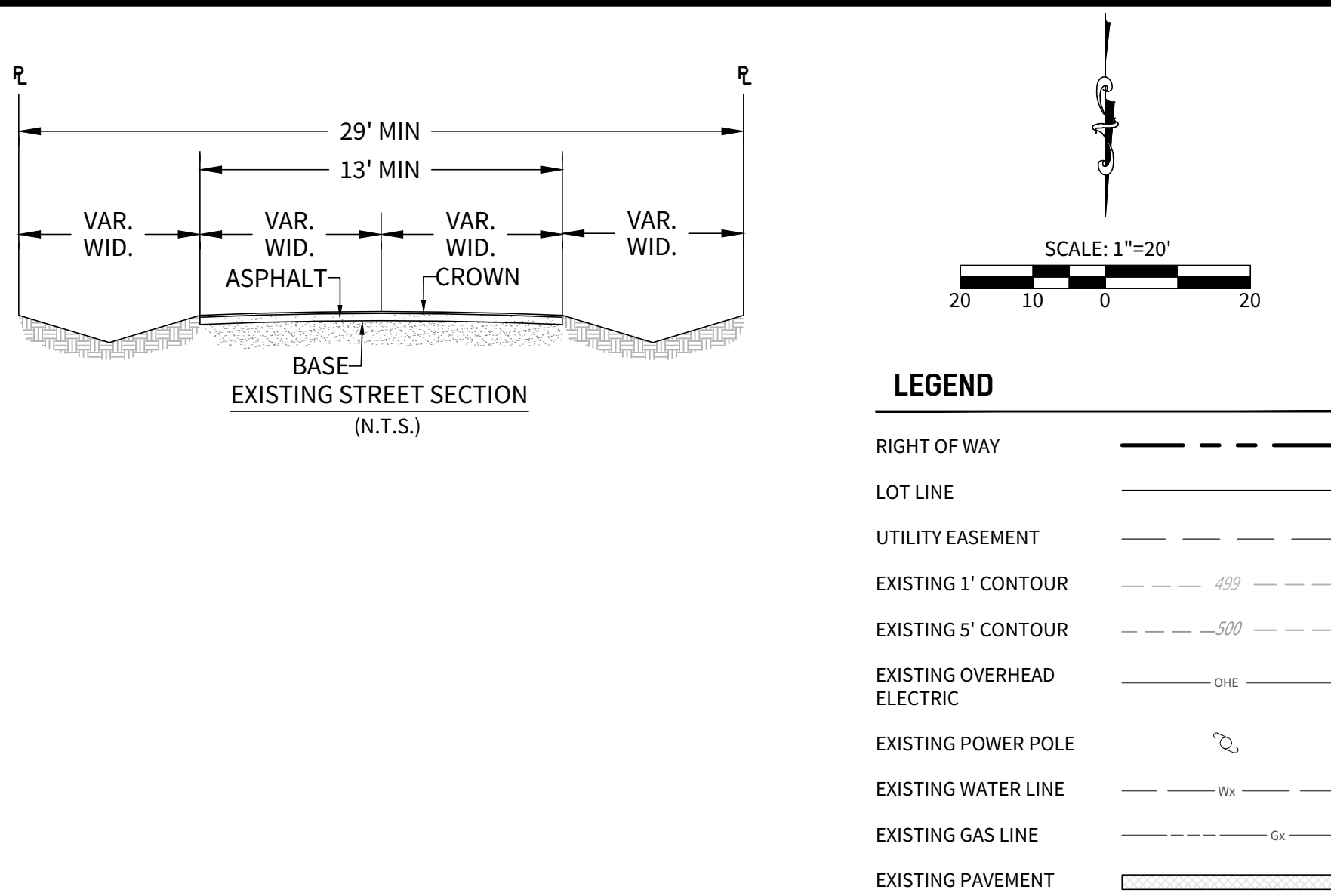
TRENCH EXCAVATION PROTECTION

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 SITES) 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.

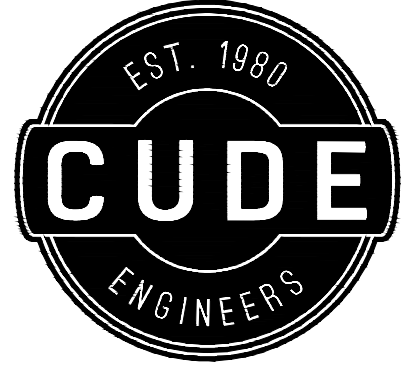
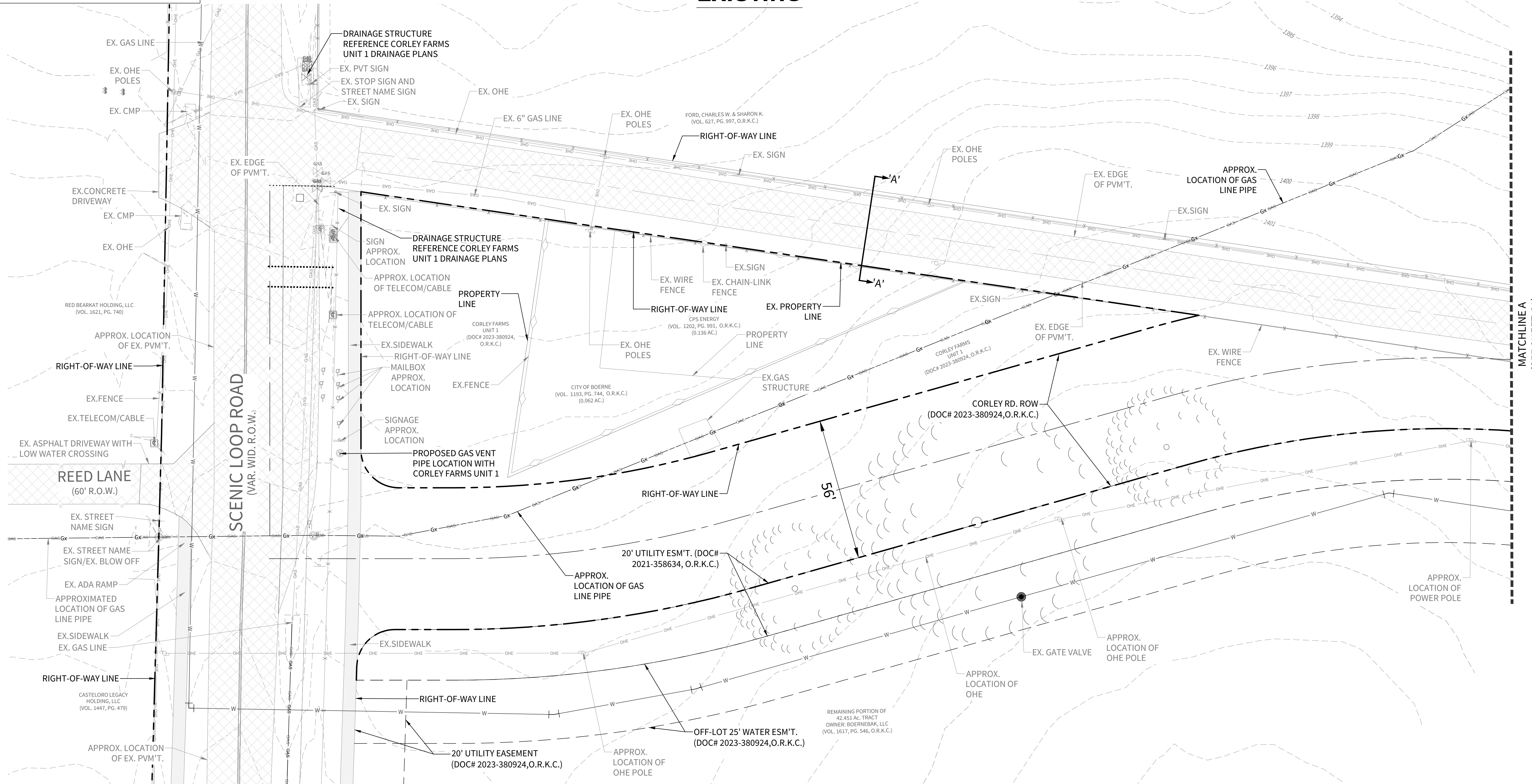
CAUTION!!

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.

- 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.
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 5. 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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 9. THE SOIL RETENTION BLANKET, WHETHER INSTALLED AS SLOPE PROTECTION OR AS FLEXIBLE CHANNEL LINER IN ACCORDANCE WITH THE APPROVED MATERIAL LIST, SHALL BE PLACED WITHIN 24 HOURS AFTER SEEDING OR SODDING OPERATIONS HAVE BEEN COMPLETED, OR AS APPROVED BY THE ENGINEER. PRIOR TO PLACING THE BLANKET, THE AREA TO BE COVERED SHALL BE RELATIVELY FREE OF ALL ROCKS OR CLODS OVER 1-1/2 INCHES IN MAXIMUM DIMENSION AND ALL STICKS OR OTHER FOREIGN MATERIAL WHICH WILL PREVENT THE CLOSE CONTRACT OF THE BLANKET WITH THE SOIL. THE AREA SHALL BE SMOOTH AND FREE OF RUTS AND OTHER DEPRESSIONS. IF AS A RESULT OF RAIN, THE PREPARED BED BECOMES CRUSTED OR ERODED OR IF ANY ERODED PLACES, RUTS, OR DEPRESSIONS EXIST FOR ANY REASON, THE CONTRACTOR SHALL BE REQUIRED TO REWORK THE SOIL UNTIL IT IS SMOOTH AND RESEED OR RESED THE AREA AT THE CONTRACTOR'S EXPENSE.



EXISTING



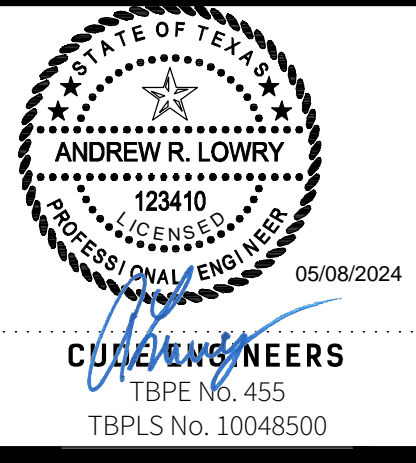
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CORLEY FARMS OFFSITE CORLEY ROAD IMPROVEMENTS PHASE I

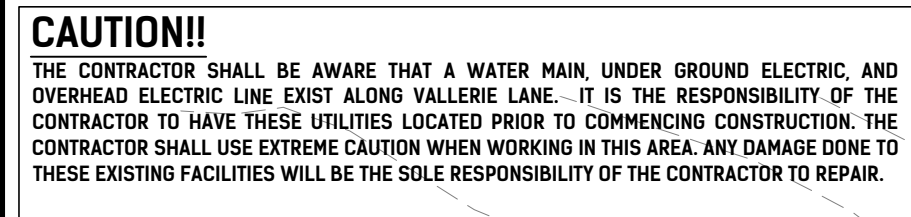
CORLEY ROAD EXISTING CONDITIONS

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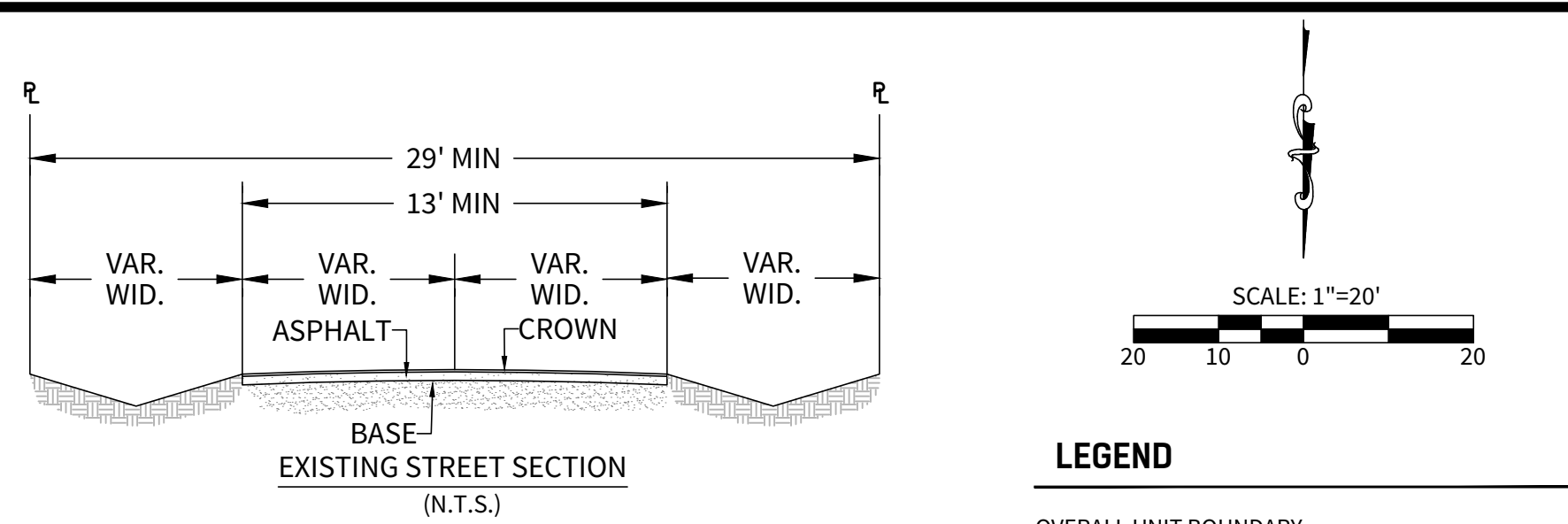


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TBPLS No. 10048500



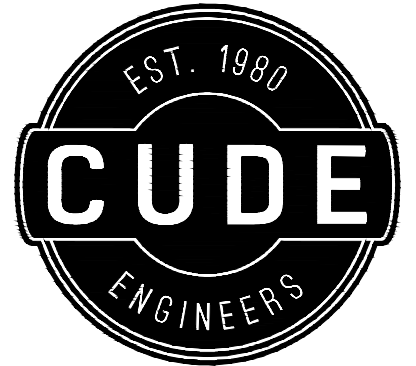
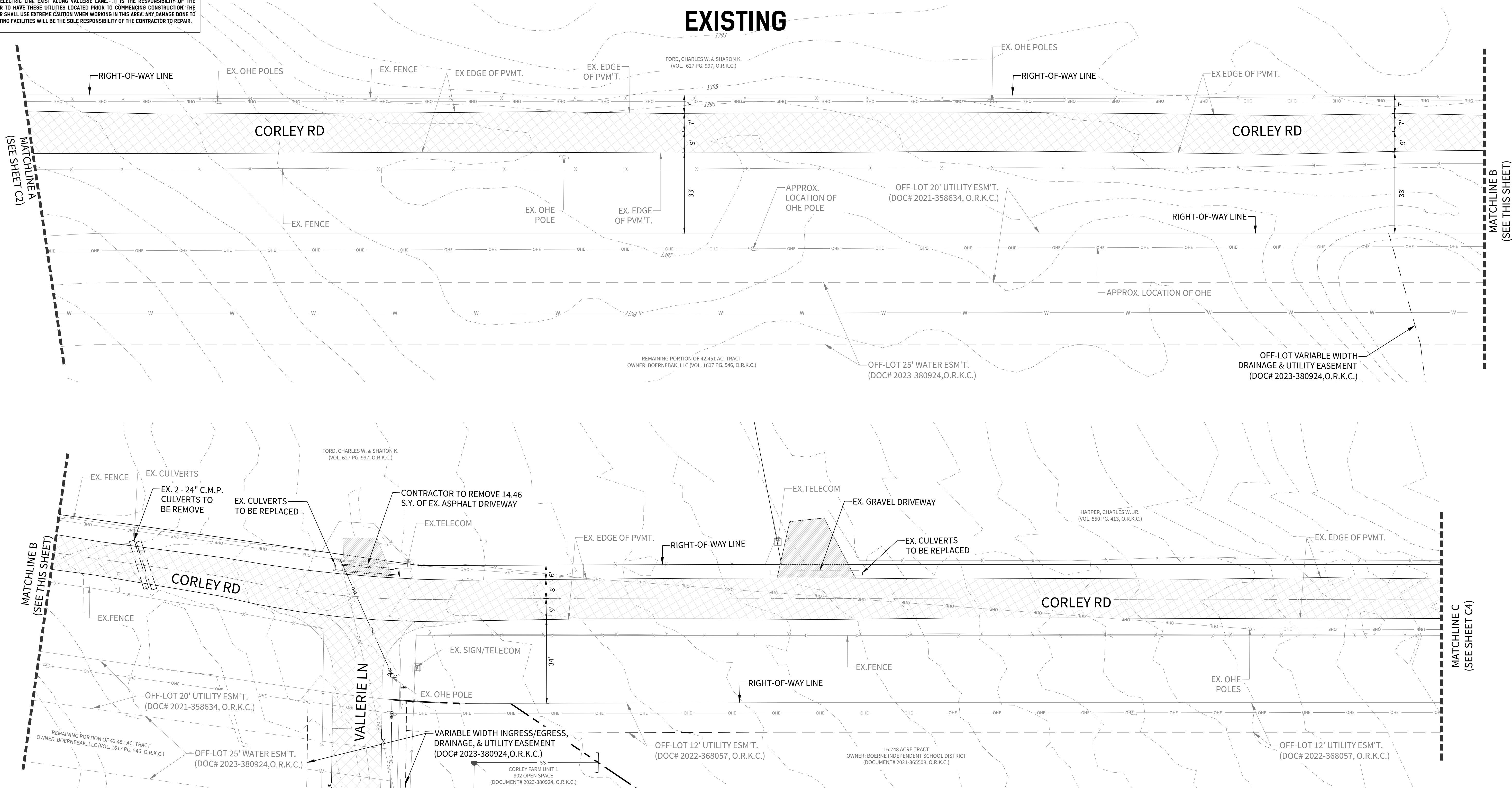
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5. CONTRACTOR MUST CONSTRUCT THE PROPOSED STREET CROSS SECTION SHOWN IN THIS SPECIFICATION. ANY VARIATION FROM THE PROPOSED SECTION WILL BE CONSIDERED A VIOLATION OF ANY DRAINAGE OR UTILITY CONTRACTING RIGHT OF WAY HAVE NO DRAINAGE ISSUES.
6. IF ANY AREAS WITHIN THE PROPOSED PAVEMENT RIGHT OF WAY HAVE NO DRAINAGE ISSUES, THE CONTRACTOR SHALL BE REQUIRED TO REWORK THE SOIL. UNTIL IT IS SMOOTH AND RESEED OR REDED AREA AT THE CONTRACTOR'S EXPENSE.



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	
EXISTING PAVEMENT	



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CORLEY ROAD EXISTING CONDITIONS

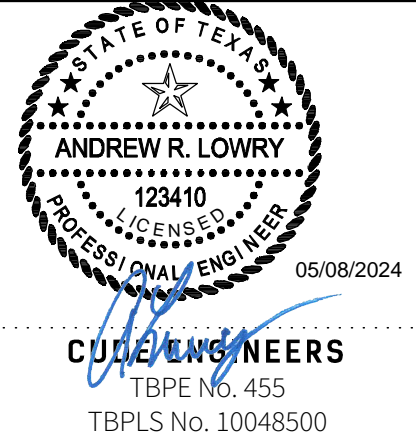
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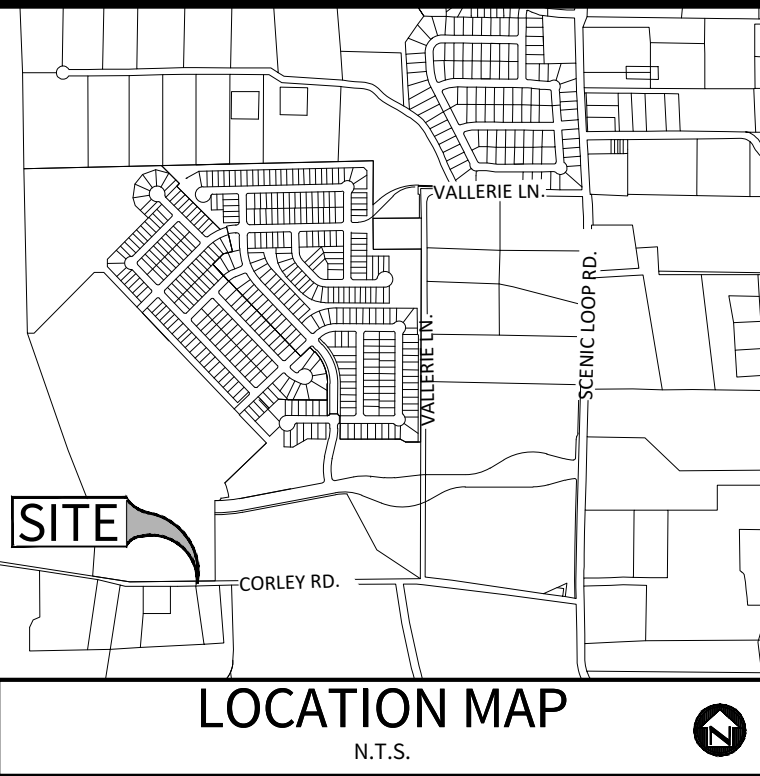
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TRENCH EXCAVATION PROTECTION

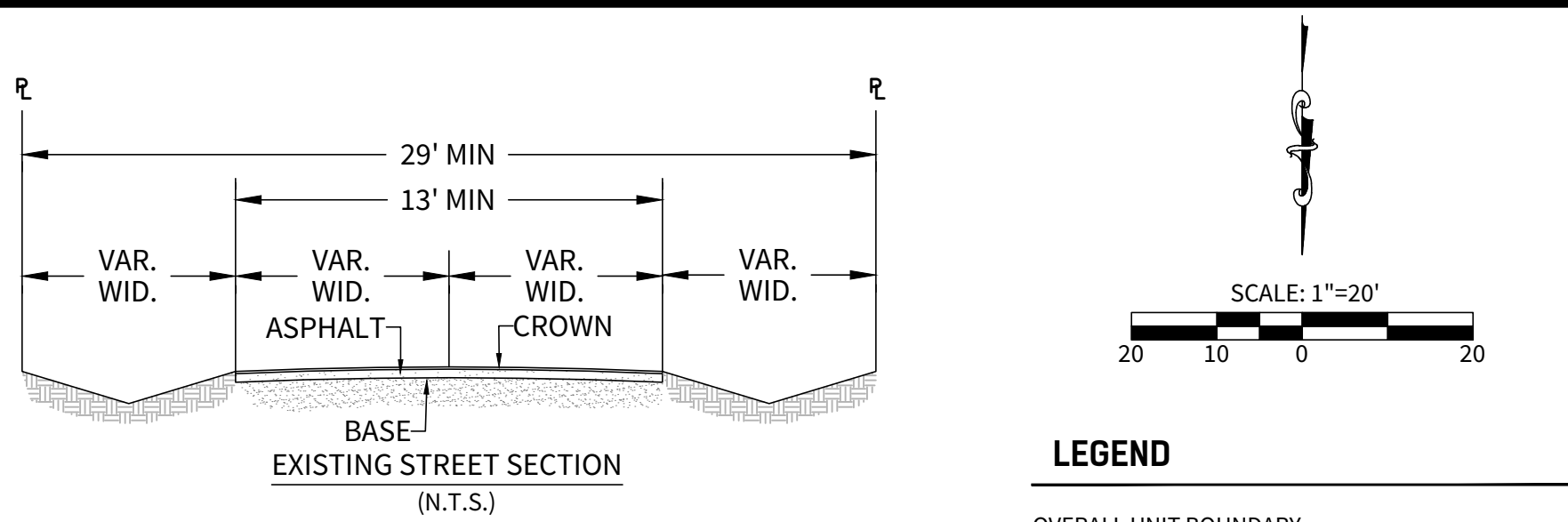
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CAUTION!!

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NOTES:

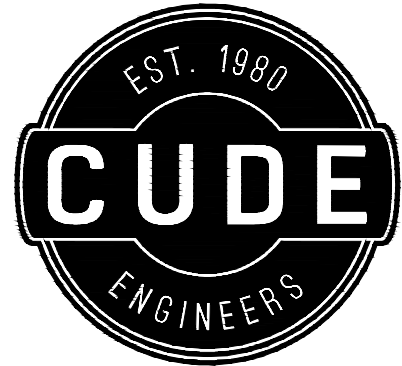
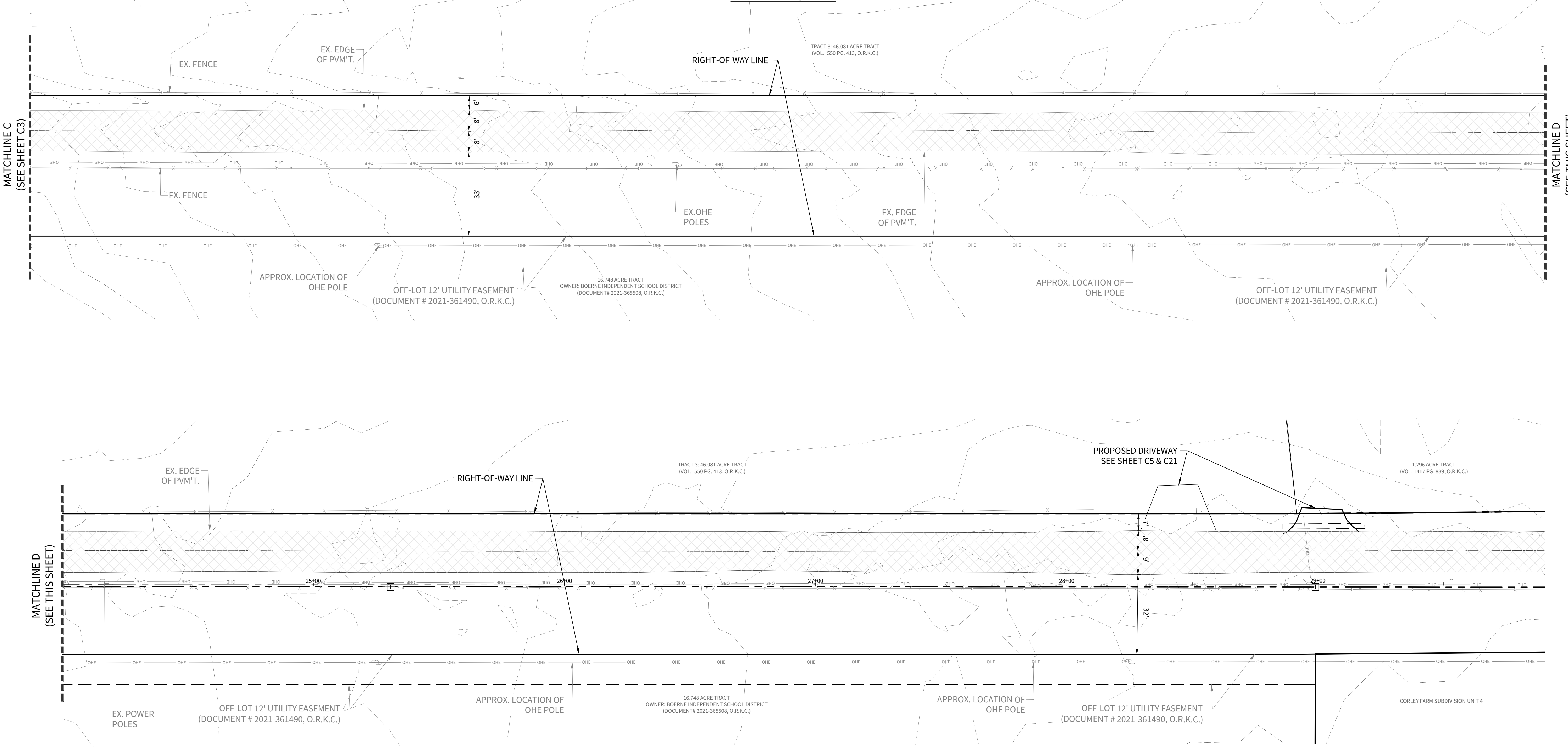
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LEGEND

OVERALL UNIT BOUNDARY	---
PROPOSED LOT LINE	---
PROPOSED RIGHT OF WAY	---
E.G.T.CA. EASEMENT	---
EXISTING 1' CONTOUR	---499---
EXISTING 5' CONTOUR	---500---
PROPOSED 1' CONTOUR	---499---
PROPOSED 5' CONTOUR	---500---
EXISTING PAVEMENT	---

EXISTING



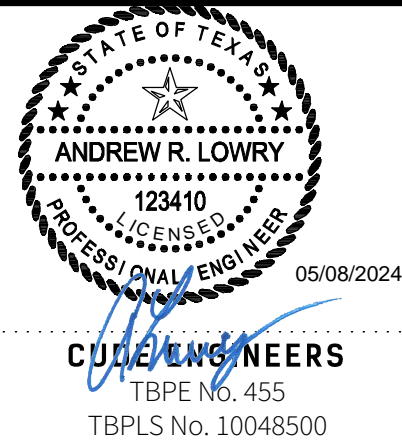
4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F:(210) 523.7112

CORLEY FARMS OFFSITE CORLEY ROAD IMPROVEMENTS PHASE I

CORLEY ROAD EXISTING CONDITIONS

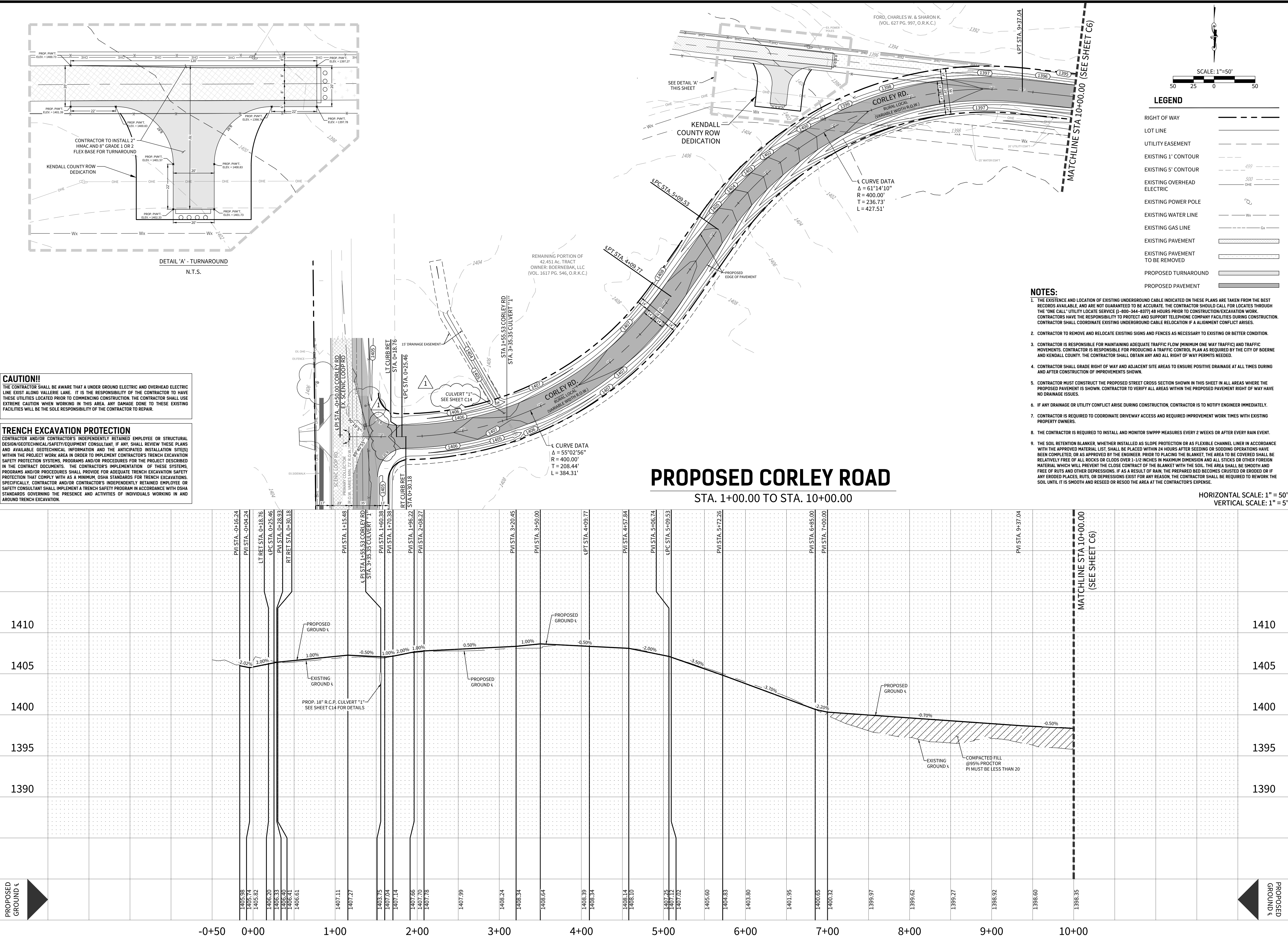
DATE	05/07/2024
PROJECT NO.	03481.003
DRAWN BY	AM/RC/CG
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REVISIONS	
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CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

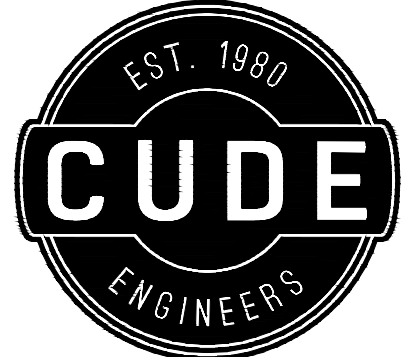
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CAUTION!!
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TRENCH EXCAVATION PROTECTION
CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES 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.

- NOTES:**
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 - IF ANY DRAINAGE OR UTILITY CONFLICT ARISE DURING CONSTRUCTION, CONTRACTOR IS TO NOTIFY ENGINEER IMMEDIATELY.
 - CONTRACTOR IS REQUIRED TO COORDINATE DRIVEWAY ACCESS AND REQUIRED IMPROVEMENT WORK TIMES WITH EXISTING PROPERTY OWNERS.
 - THE CONTRACTOR IS REQUIRED TO INSTALL AND MONITOR SWPPP MEASURES EVERY 2 WEEKS OR AFTER EVERY RAIN EVENT.
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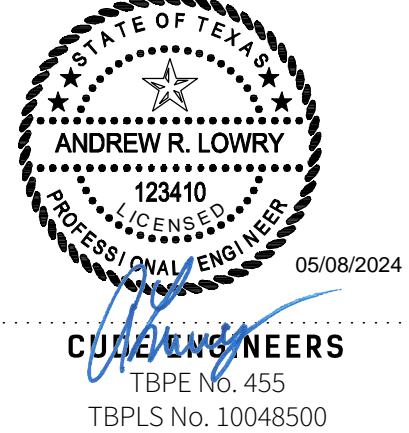
4122 Pond Hill Road, Suite 101
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CORLEY FARMS OFFSITE
CORLEY ROAD IMPROVEMENTS PHASE I

CORLEY ROAD PLAN & PROFILE

DATE
05/07/2024
PROJECT NO.
03481.003
DRAWN BY
AM/RC/CG
CHECKED BY
AL

DATE	REVISIONS
05/07/2024	1. ISSUED FOR PERMITTING AND DRAINAGE
	2. REVISED FOR COMMENTS
	3. REVISED FOR COMMENTS
	4. REVISED FOR COMMENTS
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	6. REVISED FOR COMMENTS
	7. REVISED FOR COMMENTS
	8. REVISED FOR COMMENTS
	9. REVISED FOR COMMENTS



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TBPE No. 455
TBPLS No. 10048500

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NOTES:

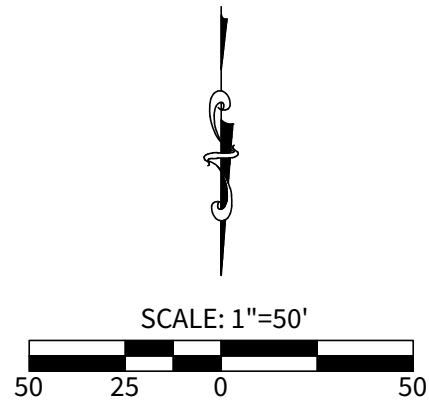
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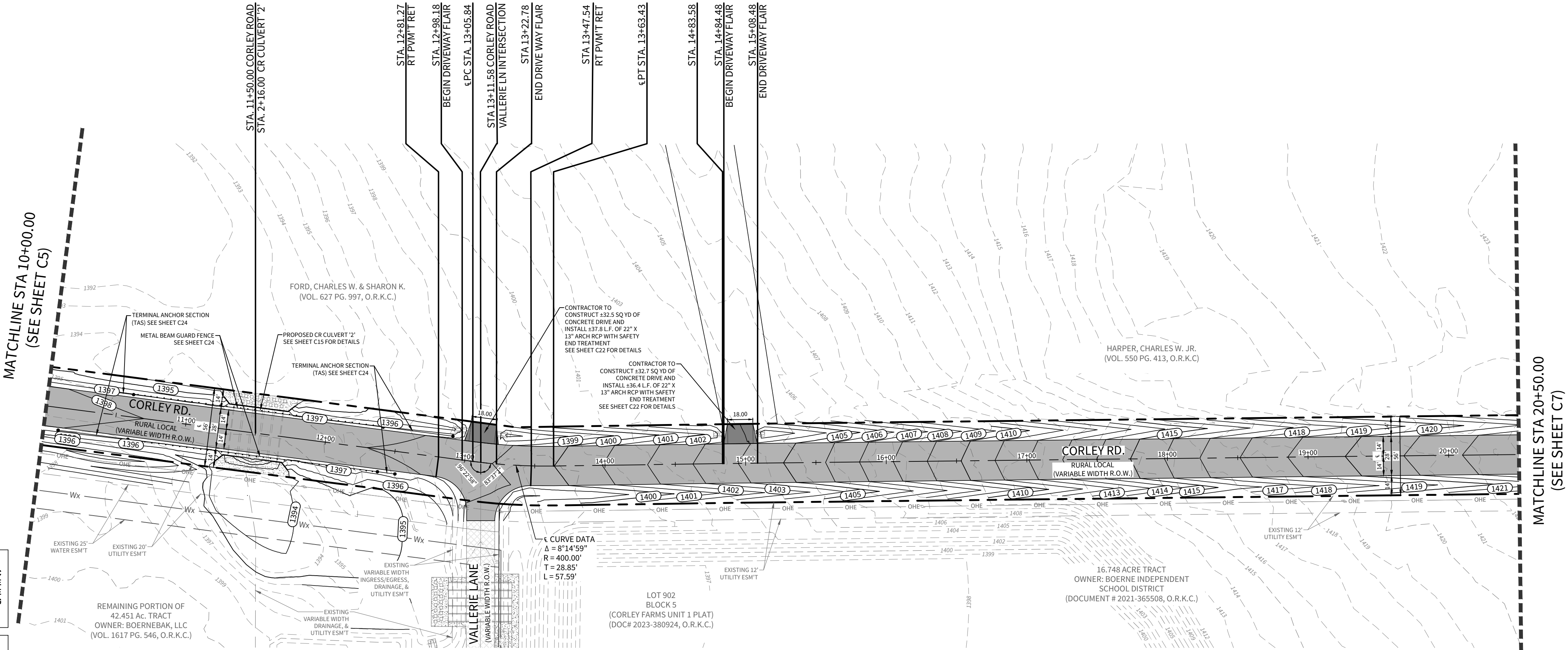
TRENCH EXCAVATION PROTECTION

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LEGEND

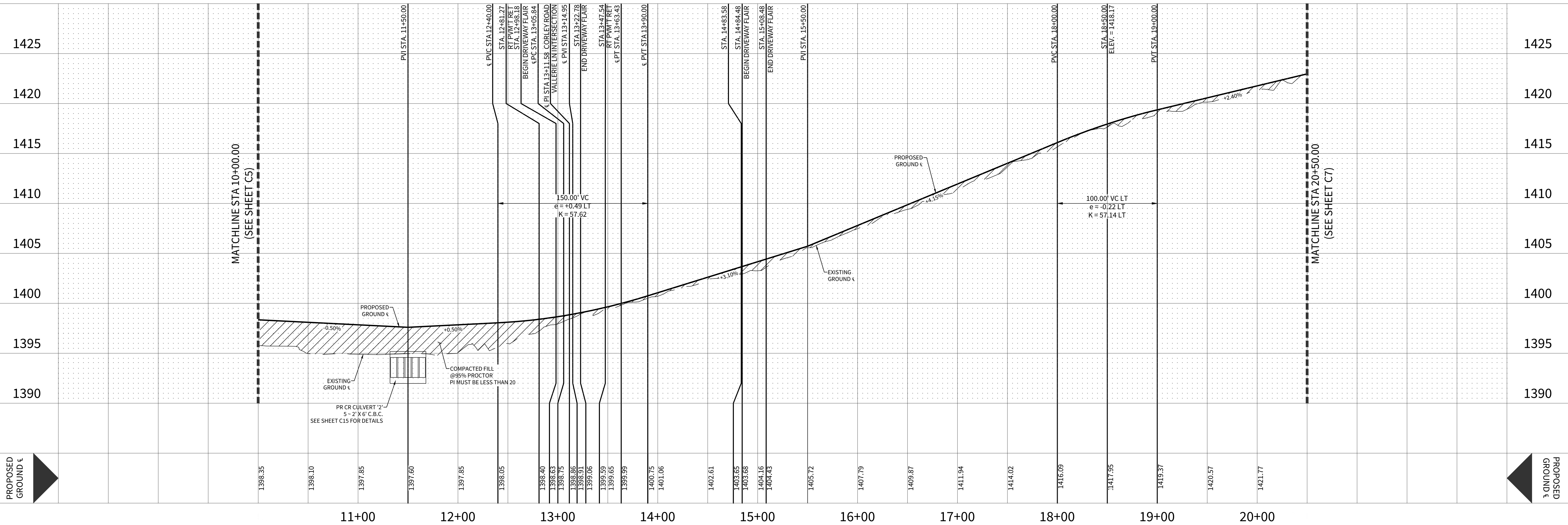
- RIGHT OF WAY
- LOT LINE
- UTILITY EASEMENT
- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EXISTING OVERHEAD ELECTRIC
- EXISTING POWER POLE
- EXISTING WATER LINE
- EXISTING GAS LINE
- EXISTING PAVEMENT
- PROPOSED PAVEMENT
- PROPOSED DRIVEWAY



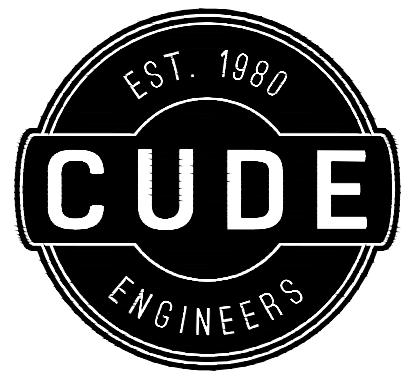
PROPOSED CORLEY ROAD

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HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'



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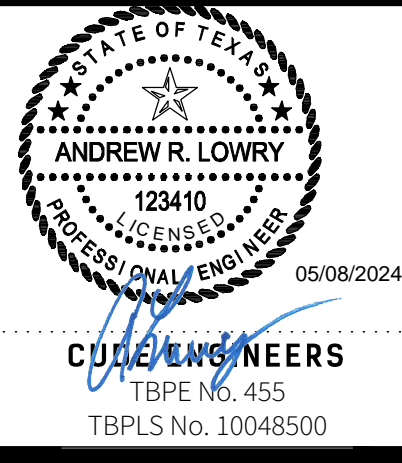
4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F:(210) 523.7112

CORLEY FARMS OFFSITE CORLEY ROAD IMPROVEMENTS PHASE I

CORLEY ROAD PLAN & PROFILE

DATE	05/07/2024
PROJECT NO.	03481.003
DRAWN BY	AM/RC/CG
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REVISIONS	
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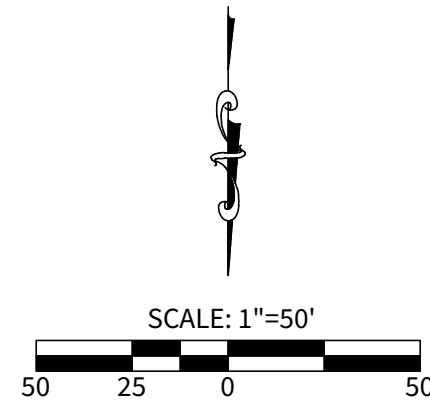


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LEGEND

RIGHT OF WAY	
LOT LINE	
UTILITY EASEMENT	
EXISTING 1' CONTOUR	
EXISTING 5' CONTOUR	
EXISTING OVERHEAD ELECTRIC	
EXISTING POWER POLE	
EXISTING WATER LINE	
EXISTING GAS LINE	
EXISTING PAVEMENT	
PROPOSED PAVEMENT	
PROPOSED DRIVEWAY	

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

NOTES:

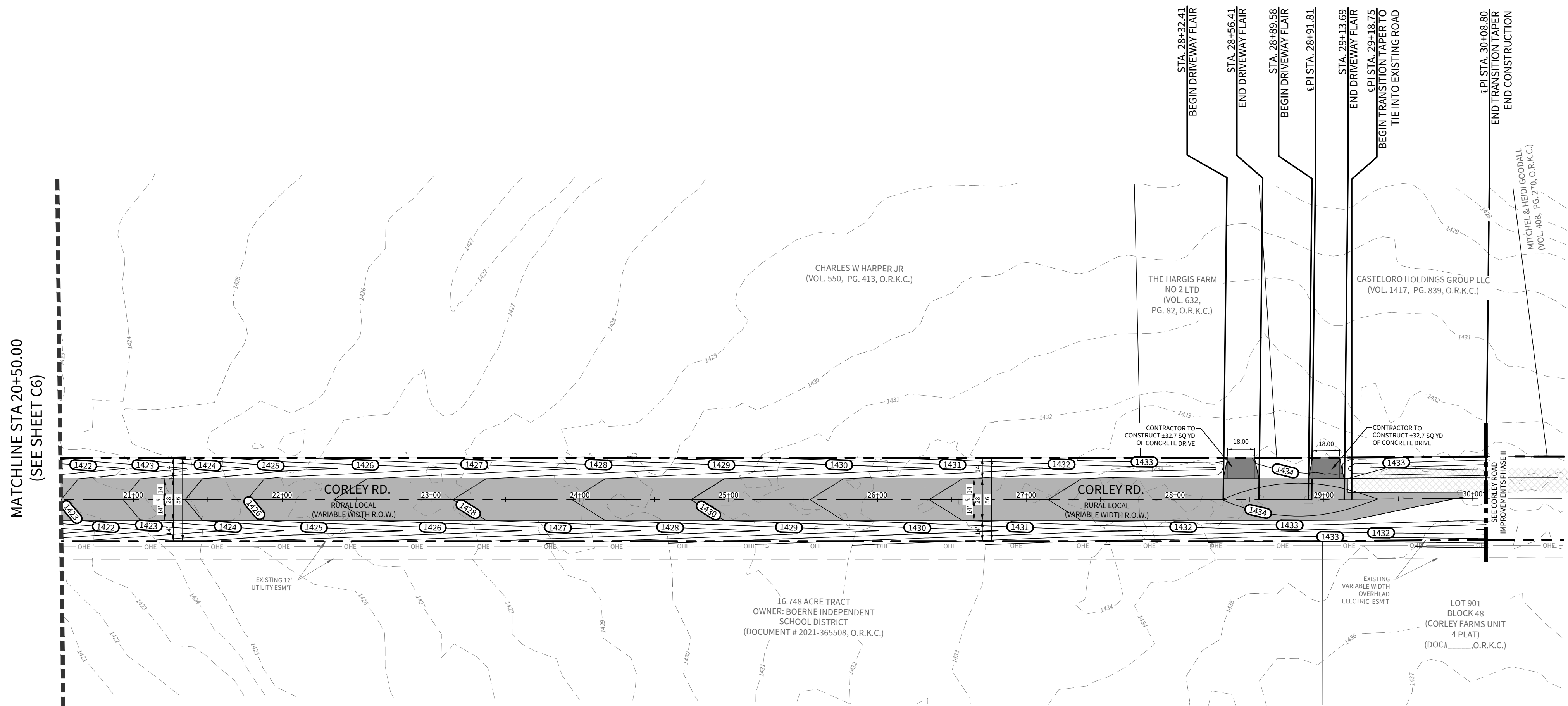
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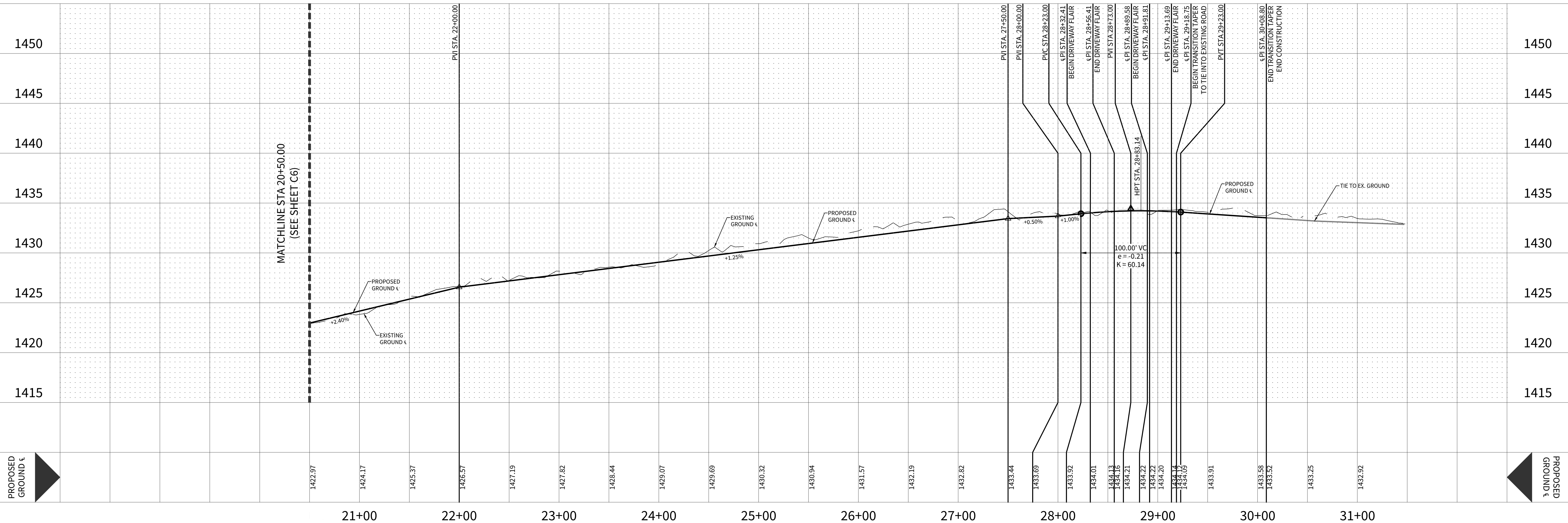
TRENCH EXCAVATION PROTECTION

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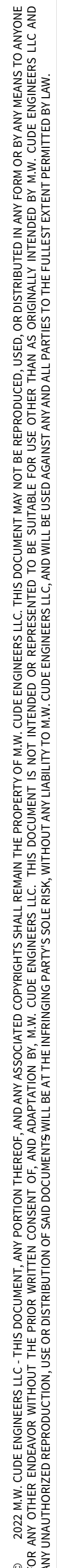


PROPOSED CORLEY ROAD

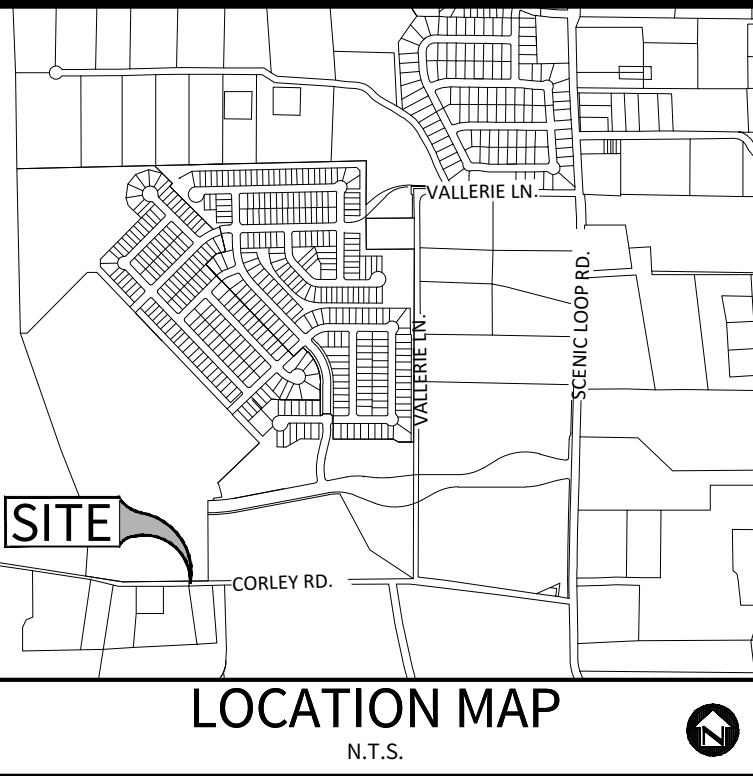
STA. 20+50.00 TO STA. 30+50.00

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LEGEND:

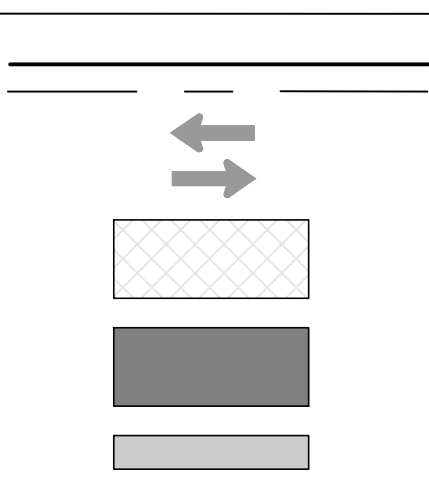
RIGHT-OF-WAY LINE
EXISTING STREET CENTERLINE

TRAFFIC FLOW ARROWS INDICATING DIRECTION

EXISTING PAVEMENT

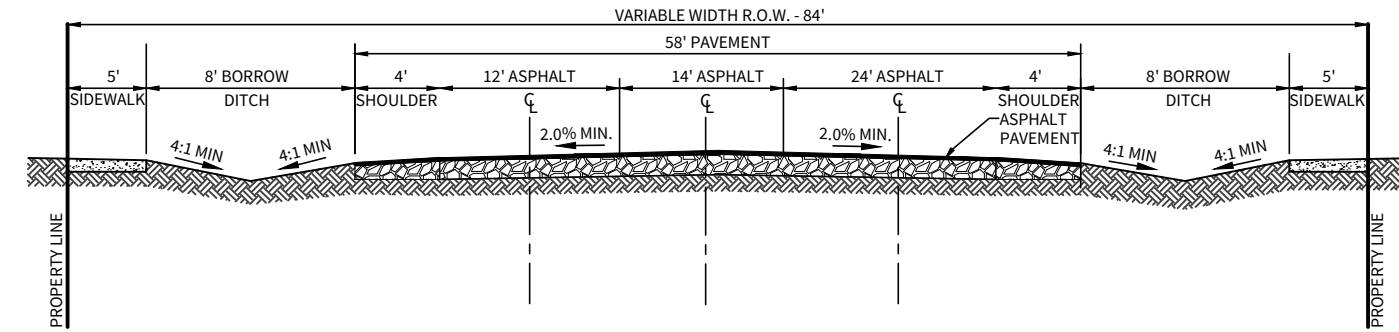
PROPOSED PAVEMENT

PROPOSED SIDEWALK



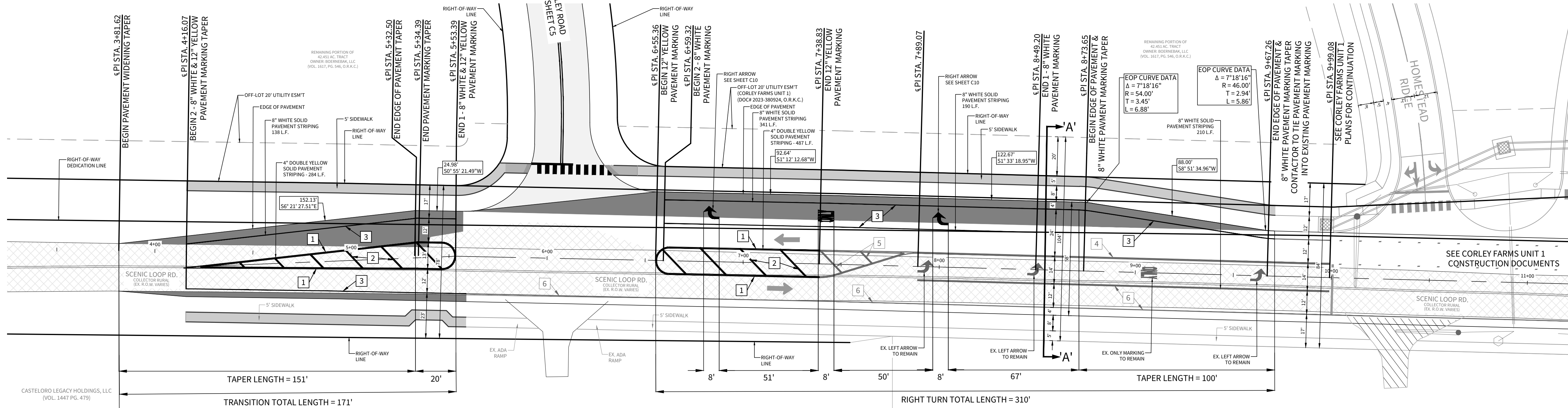
KEYNOTES:

- 4" DOUBLE SOLID YELLOW LINE THERMOPLASTIC PAVEMENT MARKING & TYPE II - A-A RAISE REFLECTIVE PAVEMENT MARKERS @ 20' O.C.
- 12" SINGLE SOLID YELLOW LINE THERMOPLASTIC PAVEMENT MARKING & TYPE II - A-A RAISE REFLECTIVE PAVEMENT MARKERS @ 20' O.C.
- 8" SINGLE WHITE SOLID LINE THERMOPLASTIC PAVEMENT MARKING
- EXISTING 4" DOUBLE SOLID YELLOW LINE THERMOPLASTIC PAVEMENT MARKING TO REMAIN
- EXISTING 12" SINGLE SOLID YELLOW LINE THERMOPLASTIC PAVEMENT MARKING TO REMAIN
- EXISTING 8" SINGLE WHITE SOLID LINE THERMOPLASTIC PAVEMENT MARKING TO REMAIN

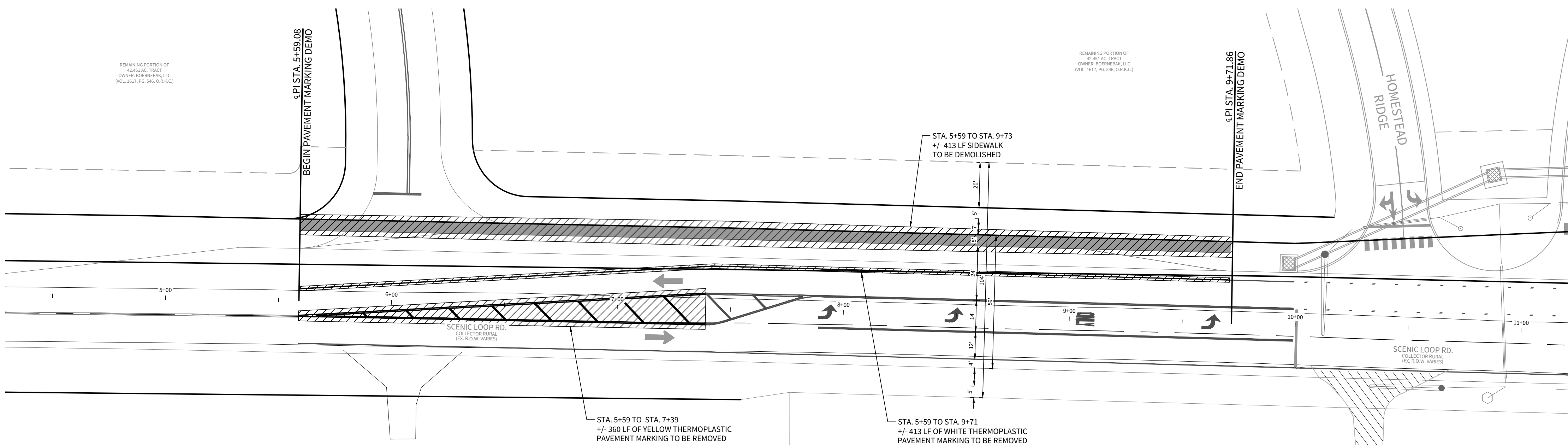


PROPOSED SCENIC LOOP ROAD CROSS SECTION (84' R.O.W.)
(NOT TO SCALE)

PROPOSED



DEMO PLAN

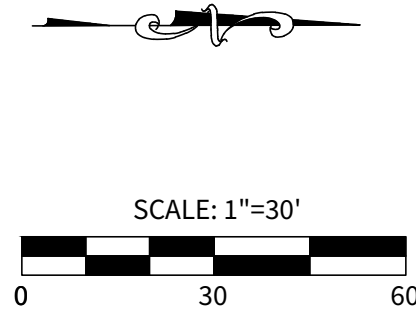


CAUTION NOTE:

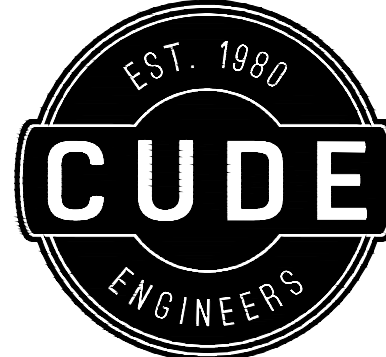
THE CONTRACTOR SHALL BE AWARE THAT OVERHEAD ELECTRIC, UNDERGROUND FIBER OPTIC, AND TELEPHONE UTILITIES EXIST ALONG CASCADE CAVERN ROAD AND OLD FREDERICKSBURG ROAD. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE THESE UTILITIES LOCATED PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING IN THIS AREA. ANY DAMAGE DONE TO THESE EXISTING FACILITIES WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR.

NOTES:

- ALL PAVEMENT MARKINGS AND STRIPING SHALL BE HOT APPLIED THERMOPLASTIC PAVEMENT MARKINGS PER CITY OF BOERNE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
- THE CONTRACTOR SHALL BE AWARE THAT EXISTING OVERHEAD ELECTRIC AND UNDERGROUND CABLE TV UTILITIES 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.
- CONTRACTOR IS REQUIRED TO REPLACE ALL EXISTING FENCES AND/OR DRIVEWAYS TO EXISTING OR BETTER CONDITION.
- CONTRACTOR IS REQUIRED TO PROVIDE ACCESS TO ALL ADJACENT HOMEOWNERS AND DRIVEWAYS AT ALL TIMES.
- CONTRACTOR IS RESPONSIBLE FOR 85% REVEGETATION OF ALL DISTURBED AREAS WITHIN THE ROW UPON INFRASTRUCTURE COMPLETION.
- CONTRACTOR IS RESPONSIBLE FOR ENSURING POSITIVE SITE DRAINAGE AT ALL TIMES DURING AND UPON COMPLETION OF INFRASTRUCTURE.
- A KENDALL COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN KENDALL COUNTY RIGHT OF WAY.
- UPON REMOVAL OF EXISTING STRIPING AND INSTALLATION OF NEW STRIPING, THE CONTRACTOR SHALL INSTALL A FINAL SEAL COAT OVERLAY OVER THE ENTIRE LIMITS OF THE EXISTING AND NEW ASPHALT FROM STA 3+81.62 TO STA 9+99.08



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CORLEY FARMS OFFSITE CORLEY ROAD IMPROVEMENTS PHASE I

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05/07/2024

PROJECT NO.
03481.003

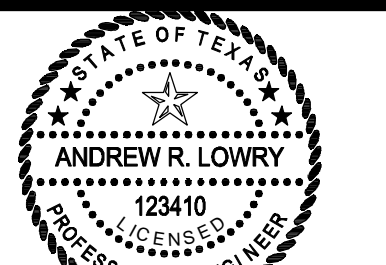
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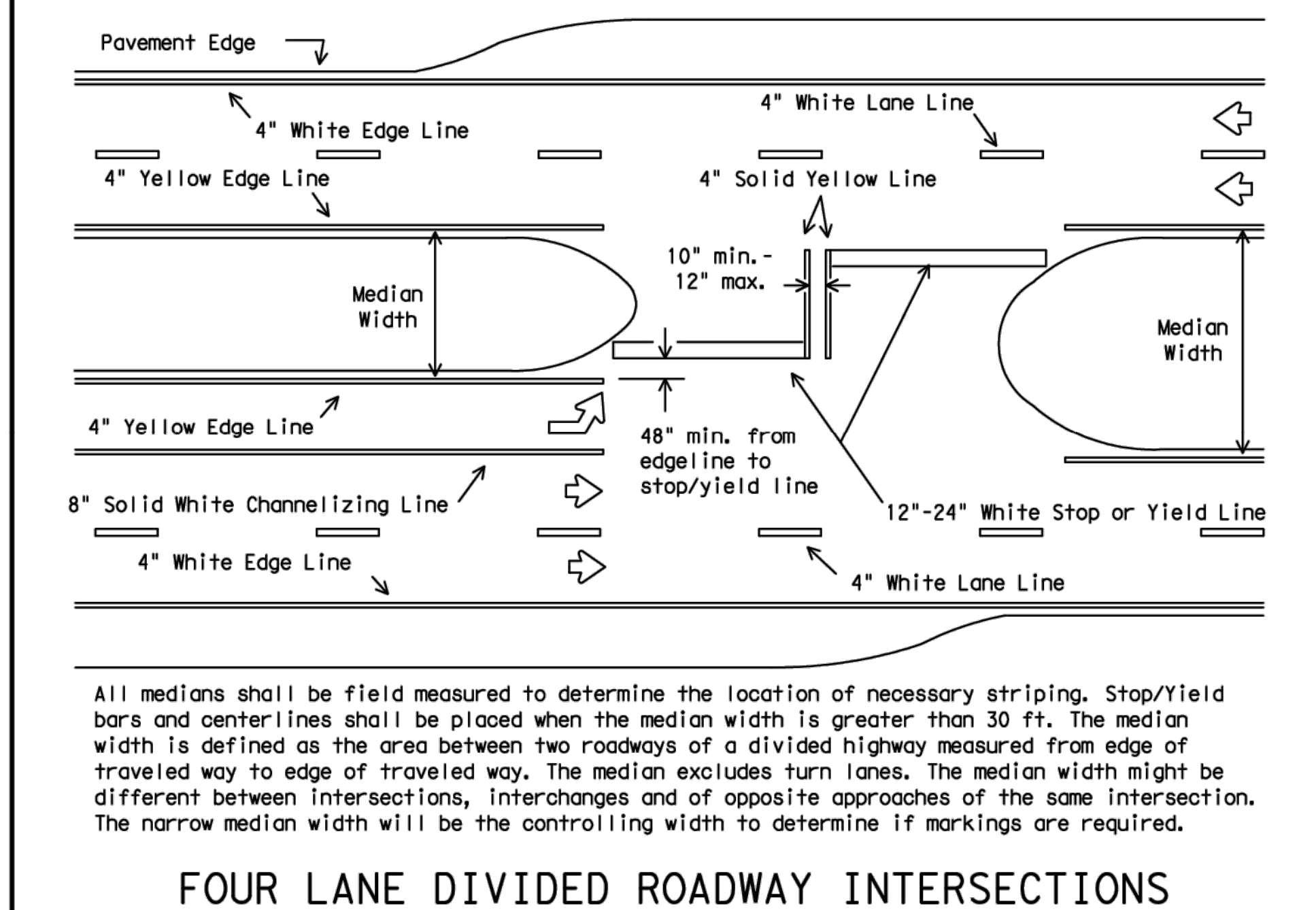
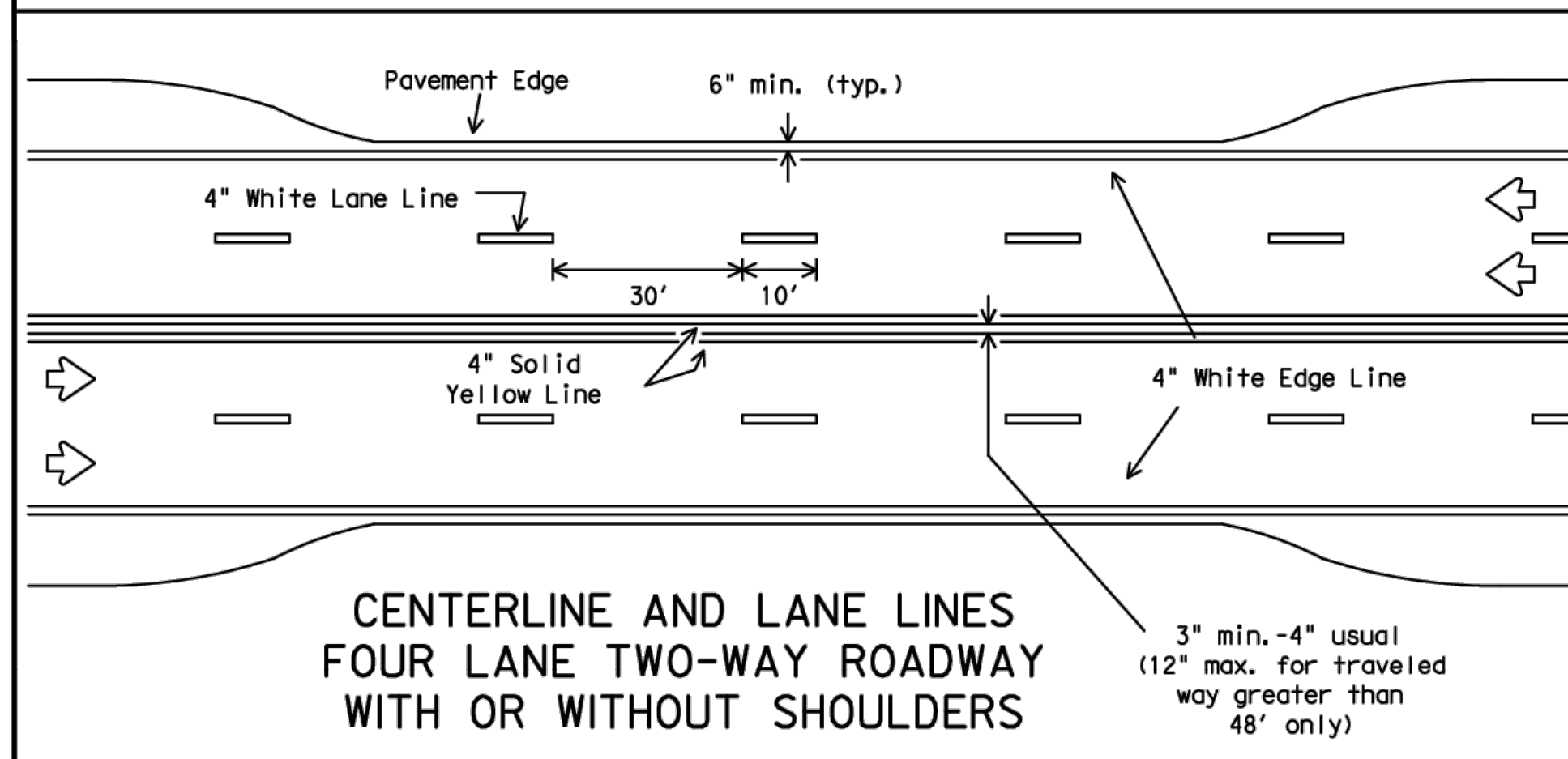
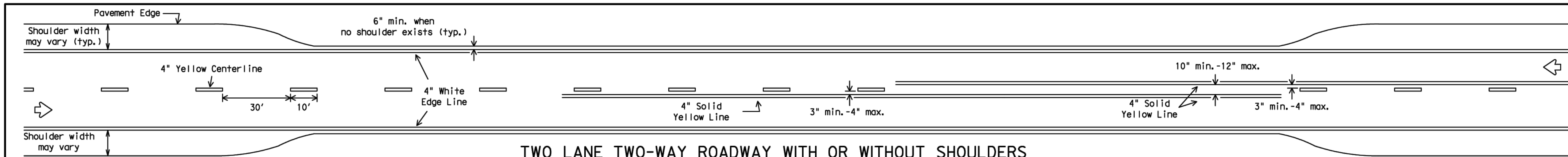
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DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by the Engineer or the Professional Engineer for the results or damages resulting from its use.

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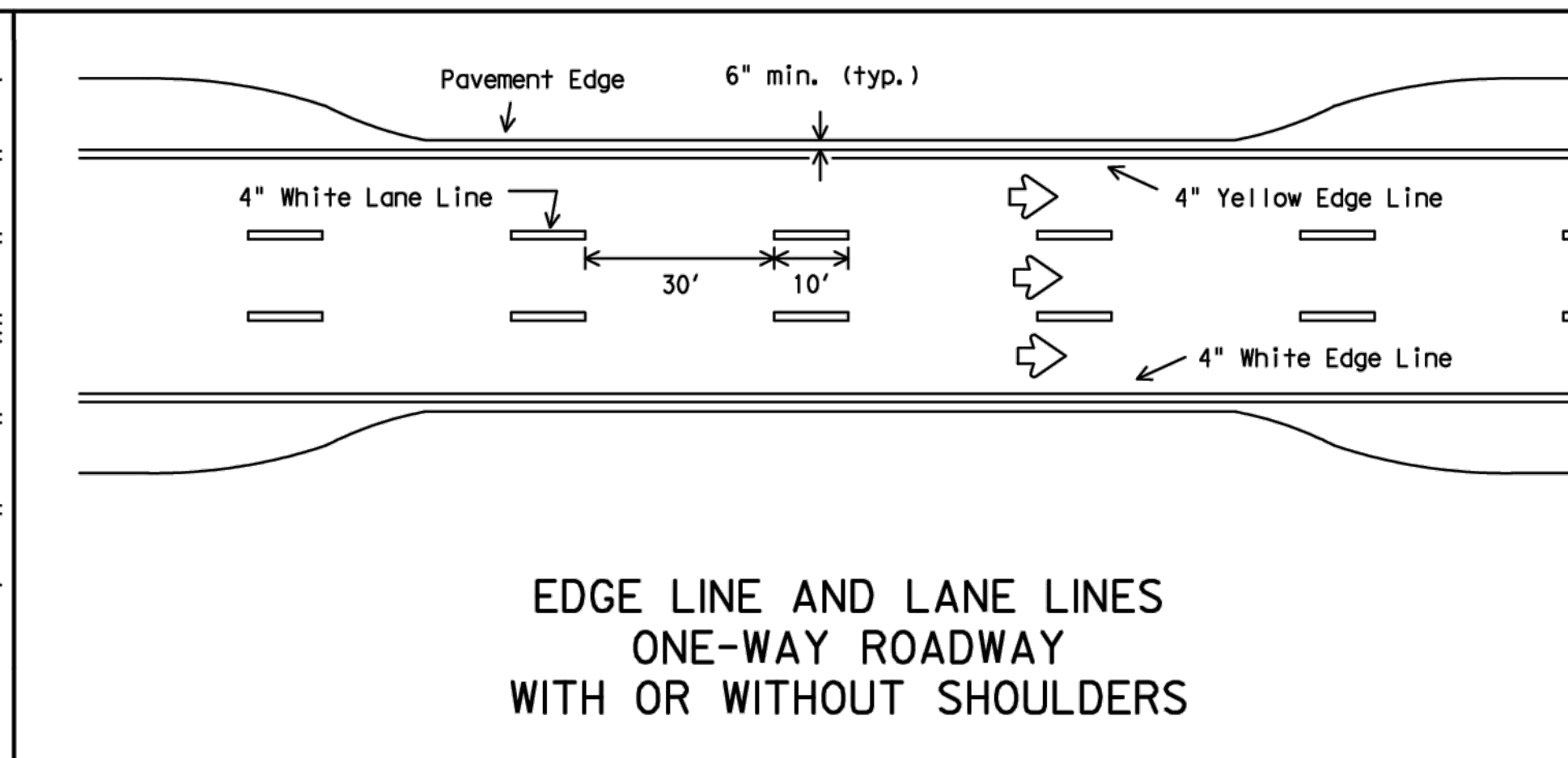
All medians shall be field measured to determine the location of necessary striping. Stop/Yield bars and centerlines shall be placed when the median width is greater than 30 ft. The median width is defined as the area between two roadways of a divided highway measured from edge of traveled way to edge 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

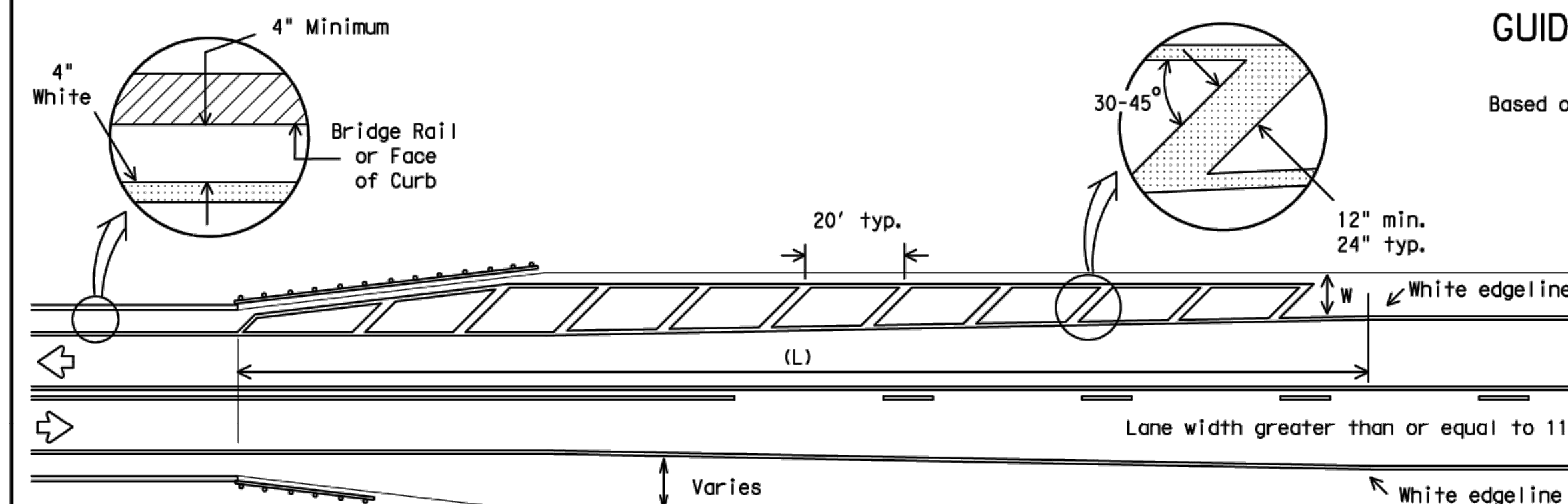
GENERAL NOTES

1. 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.
2. 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.

TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



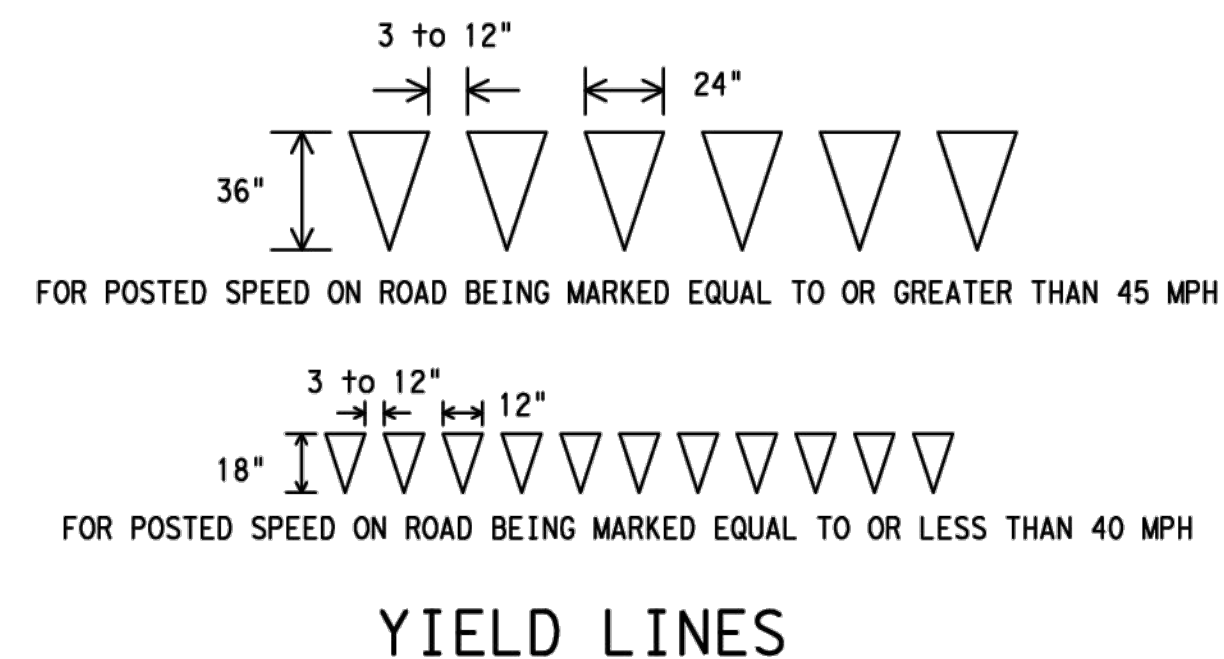
NOTES:

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

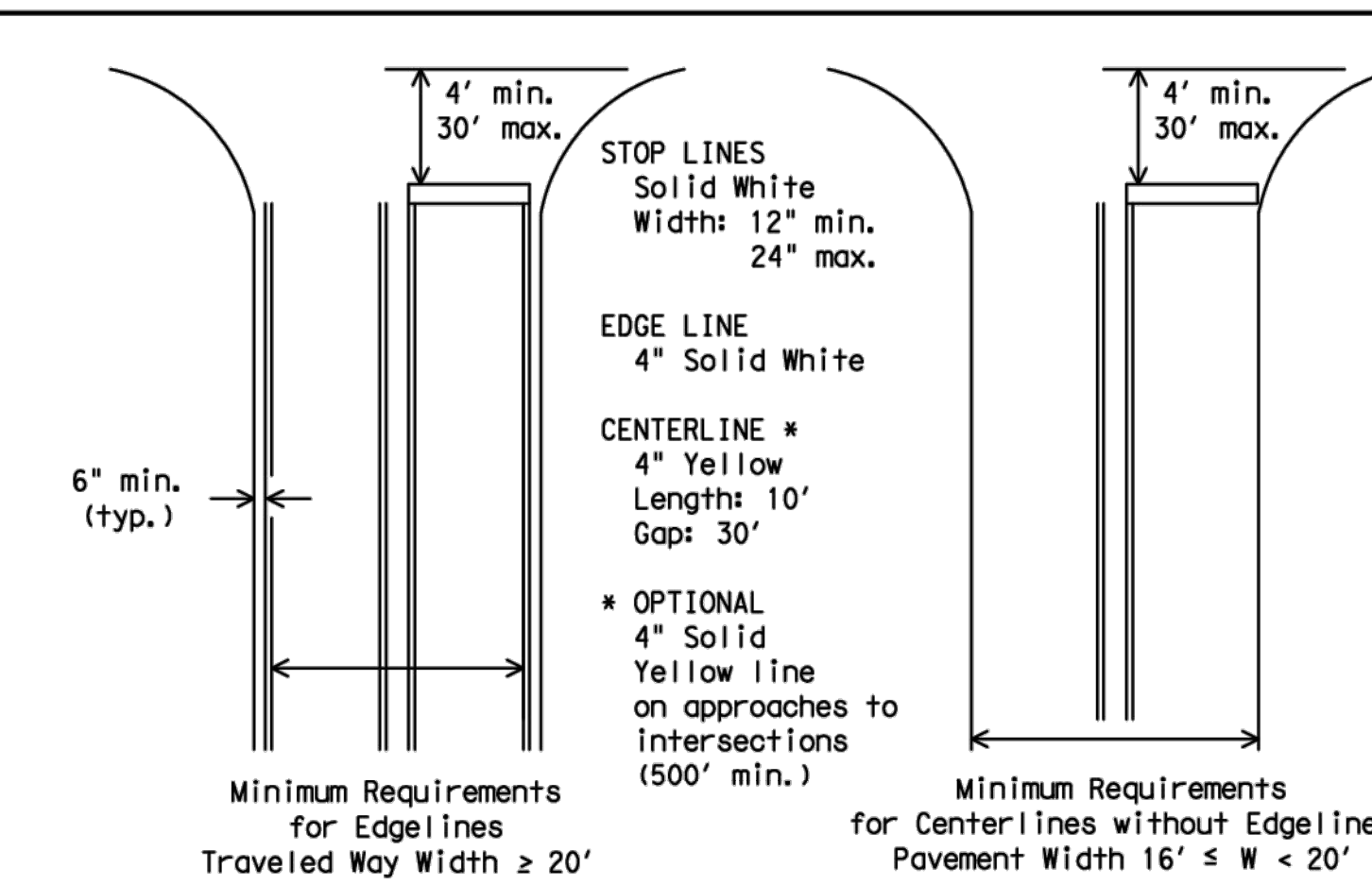
ROADWAYS WITH REDUCED SHOULDER WIDTHS ACROSS BRIDGE OR CULVERT

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:

$$L = 8 \times 70 = 560 \text{ ft.}$$

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:

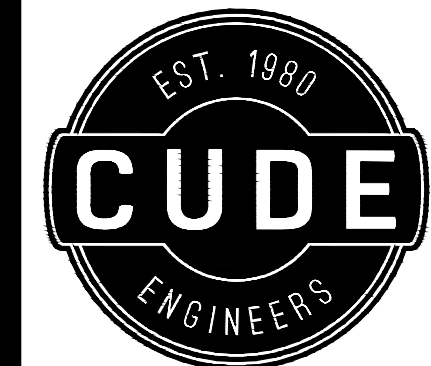
$$L = 4(40)^2 / 60 = 106.67 \text{ ft. rounded to 110 ft.}$$



TYPICAL STANDARD PAVEMENT MARKINGS

PM(1)-12

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REVISIONS	CONT	SECT	JOB	HIGHWAY
8-95 2-12				
5-00				
8-00				
3-03				
22A				



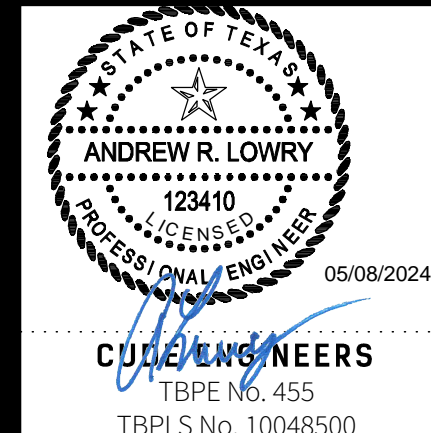
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STANDARD PAVEMENT MARKINGS

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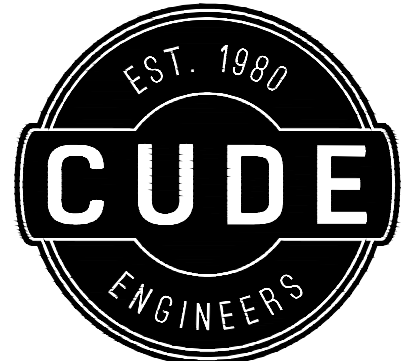
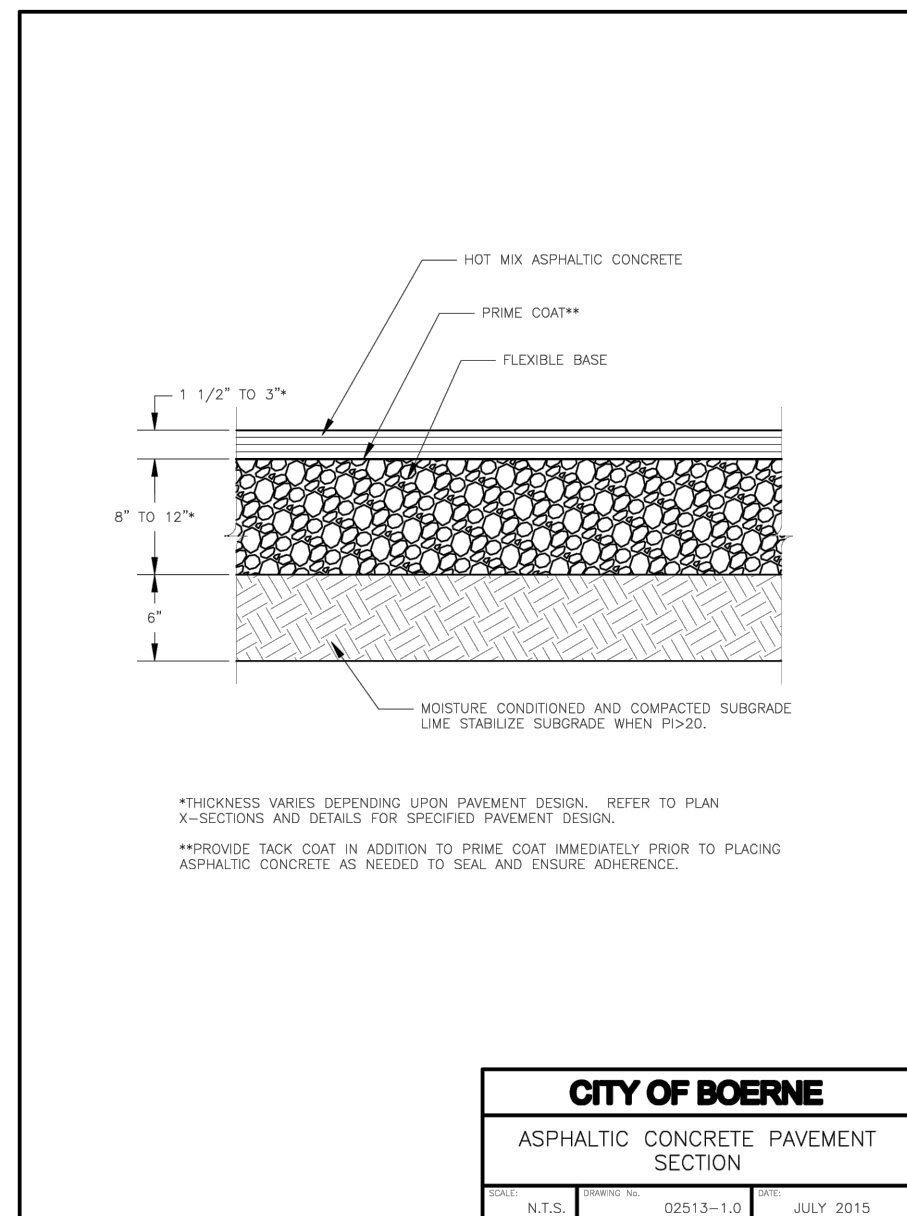
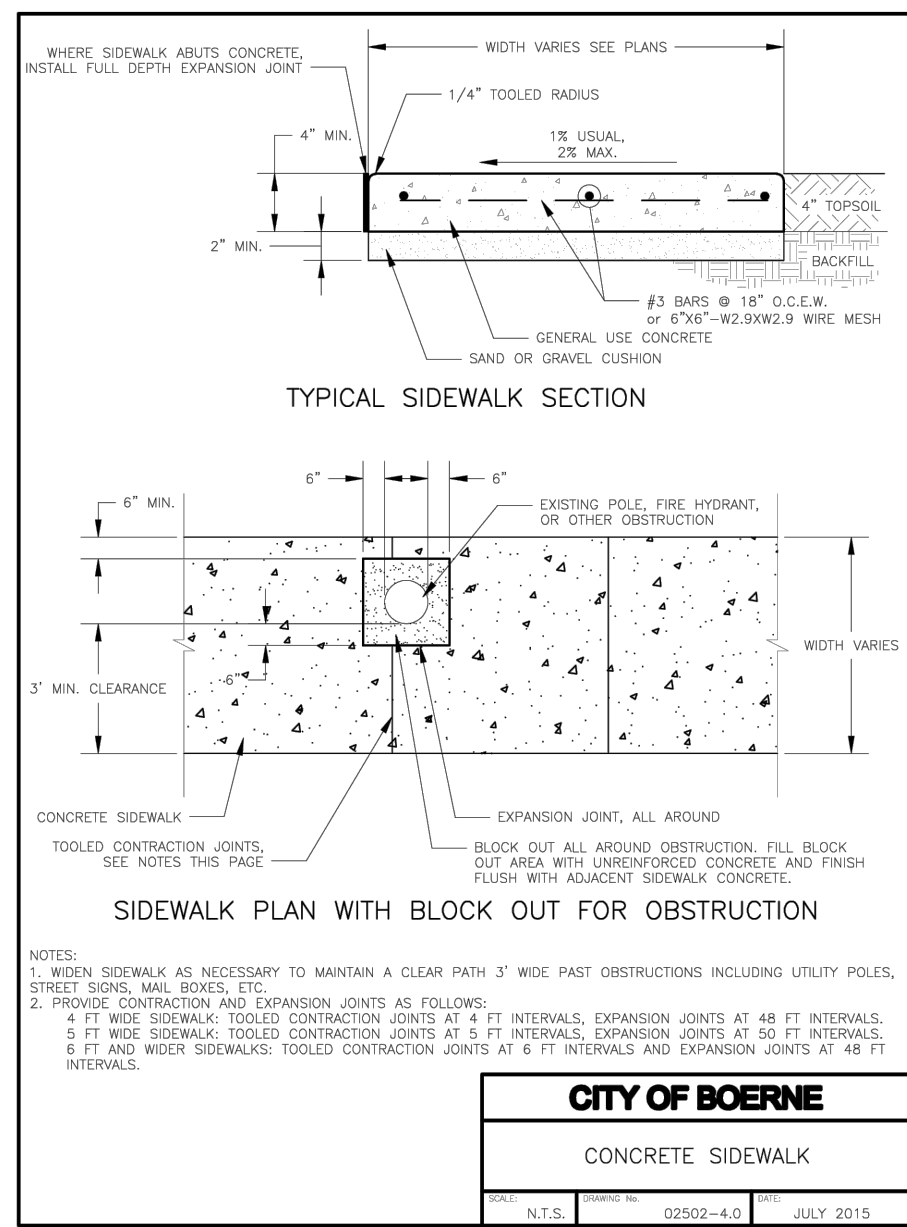
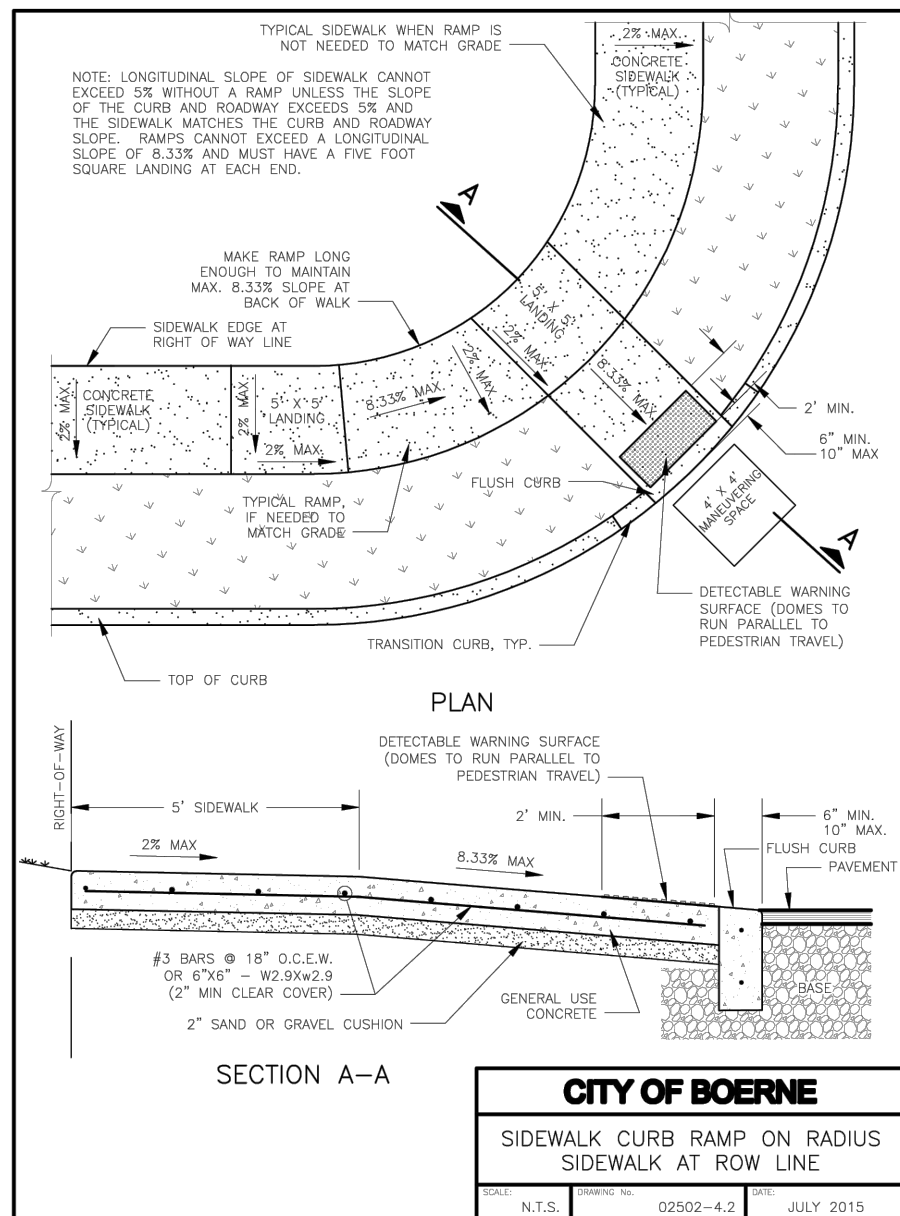
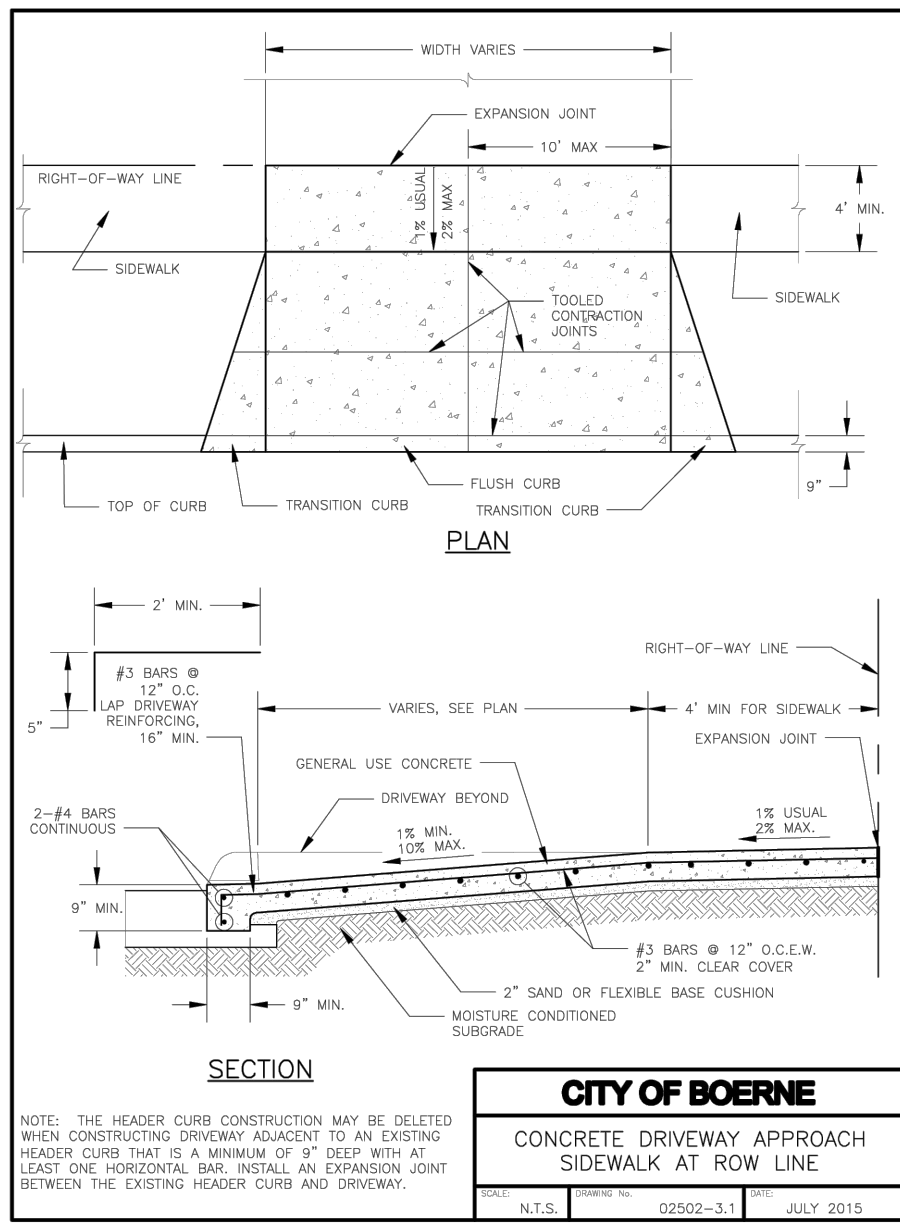
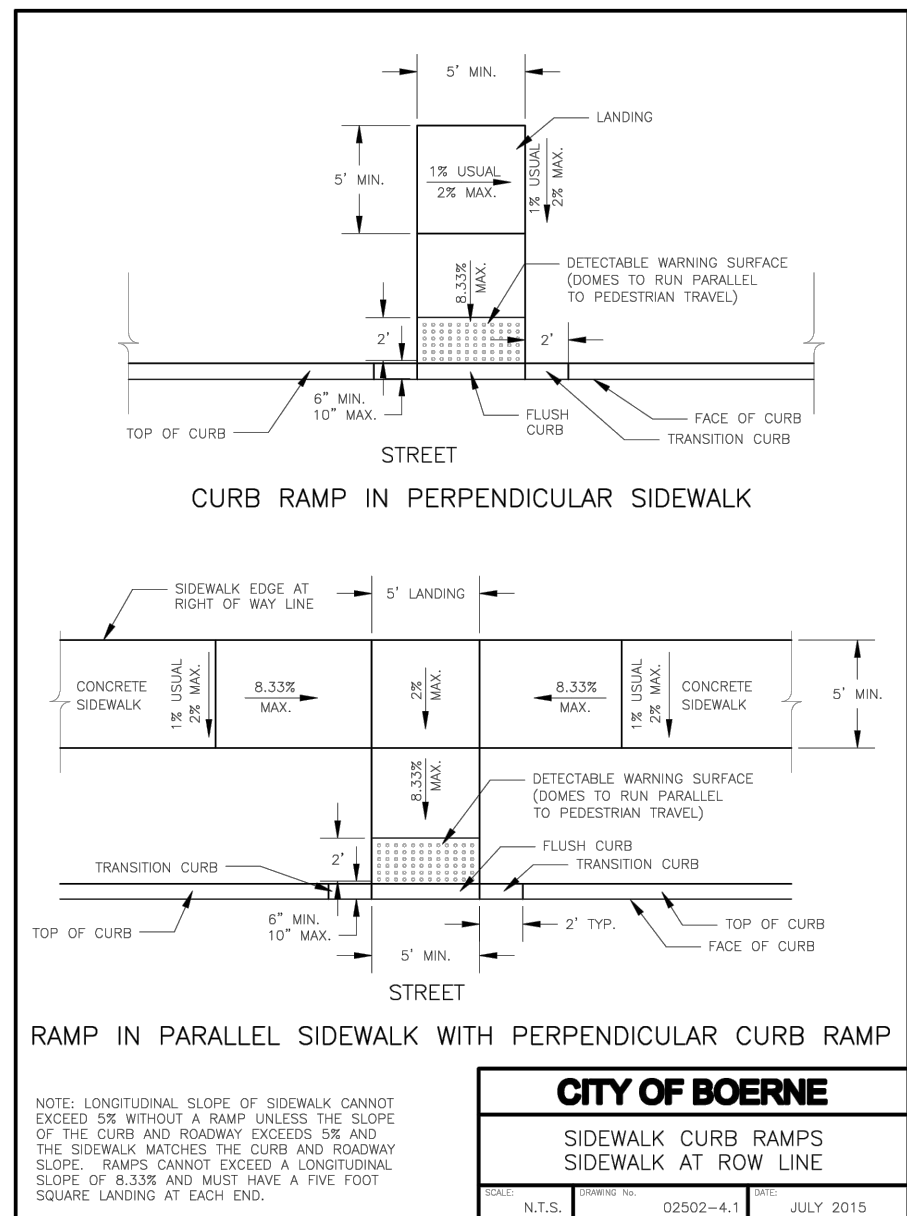
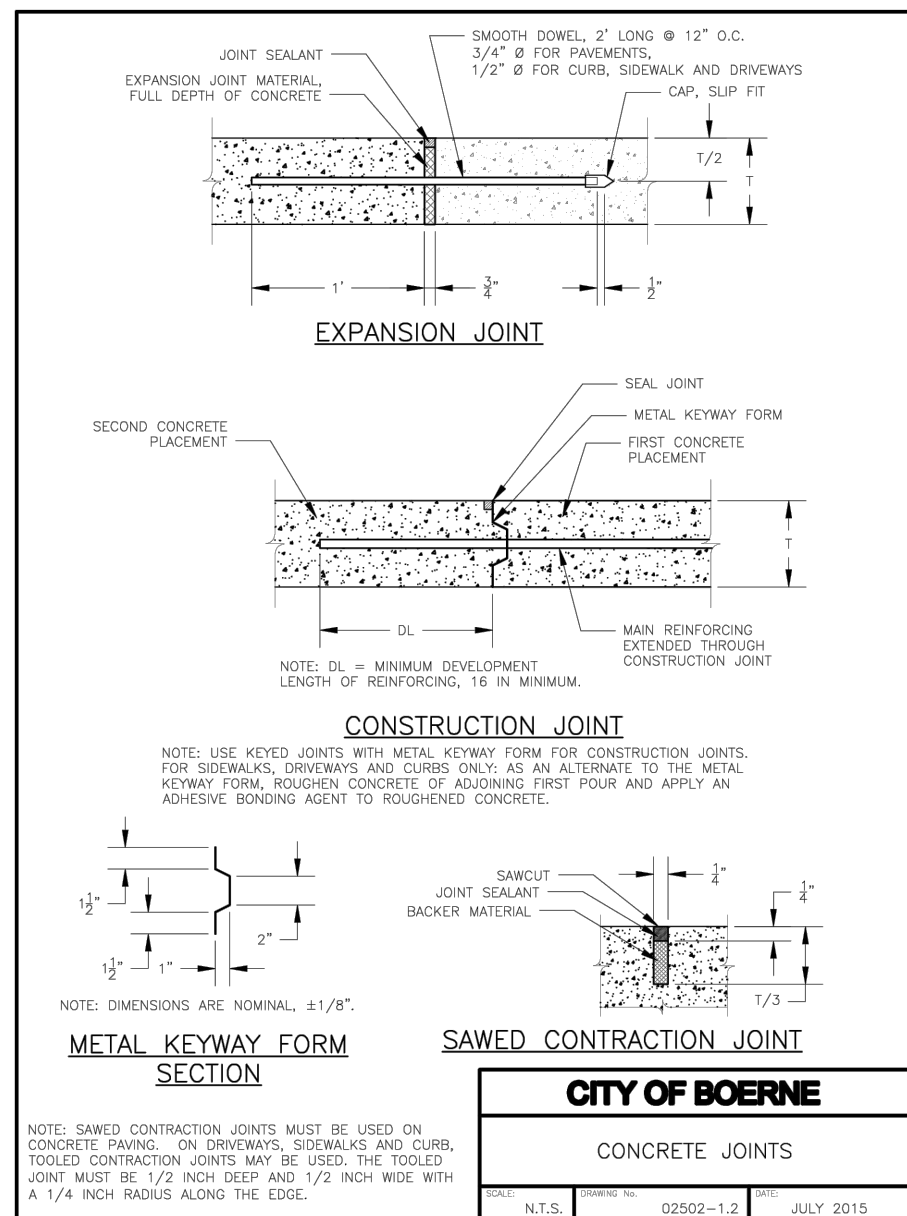
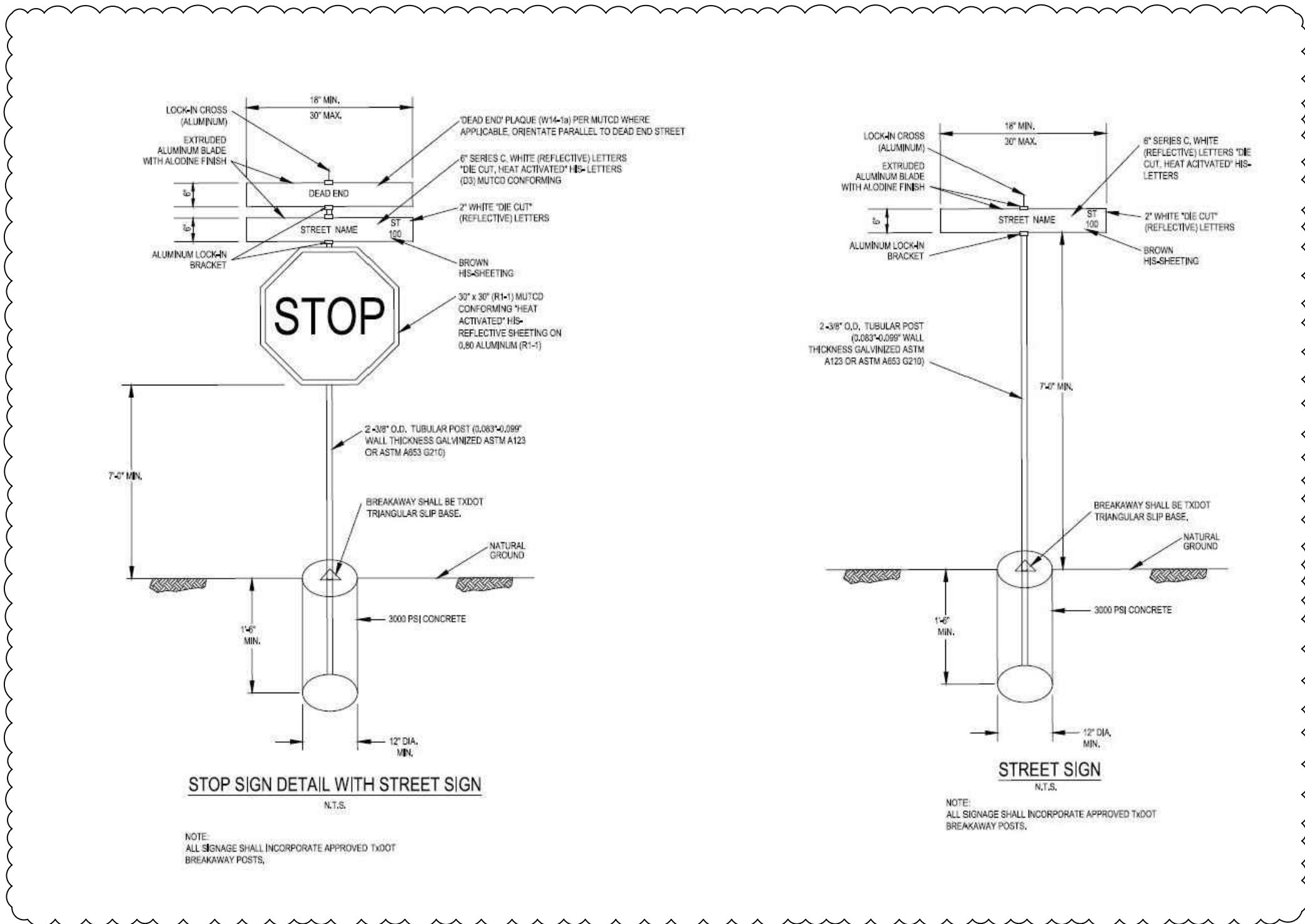
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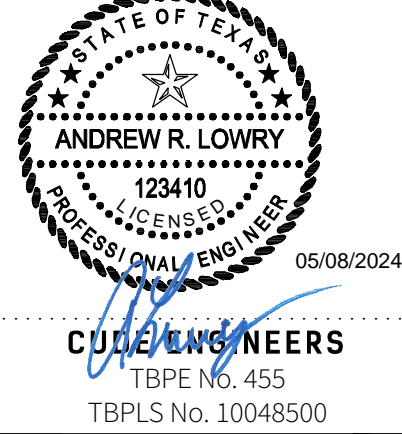
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**CORLEY FARMS OFFSITE
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CITY OF BOERNE STANDARD STREET DETAILS

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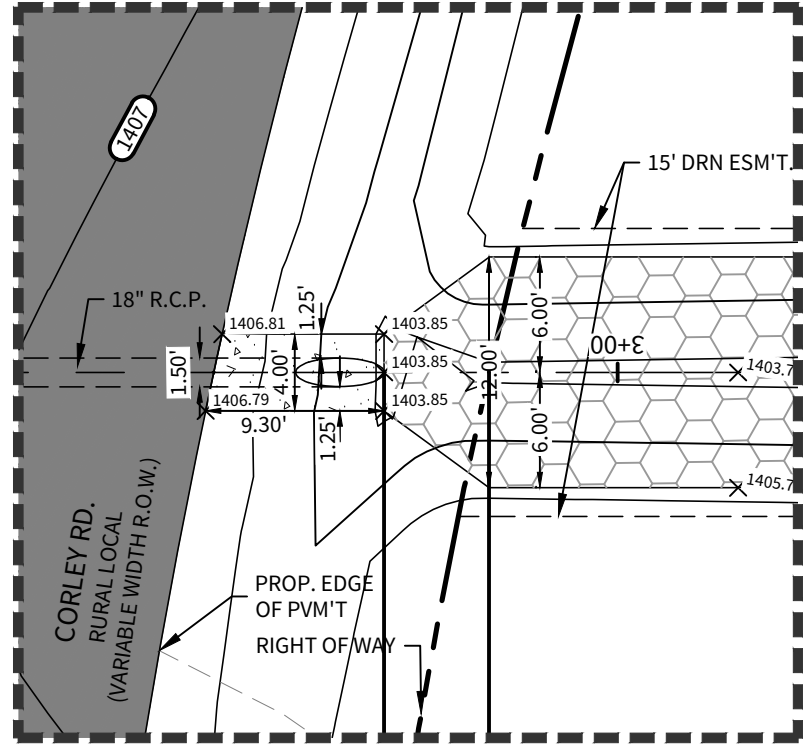
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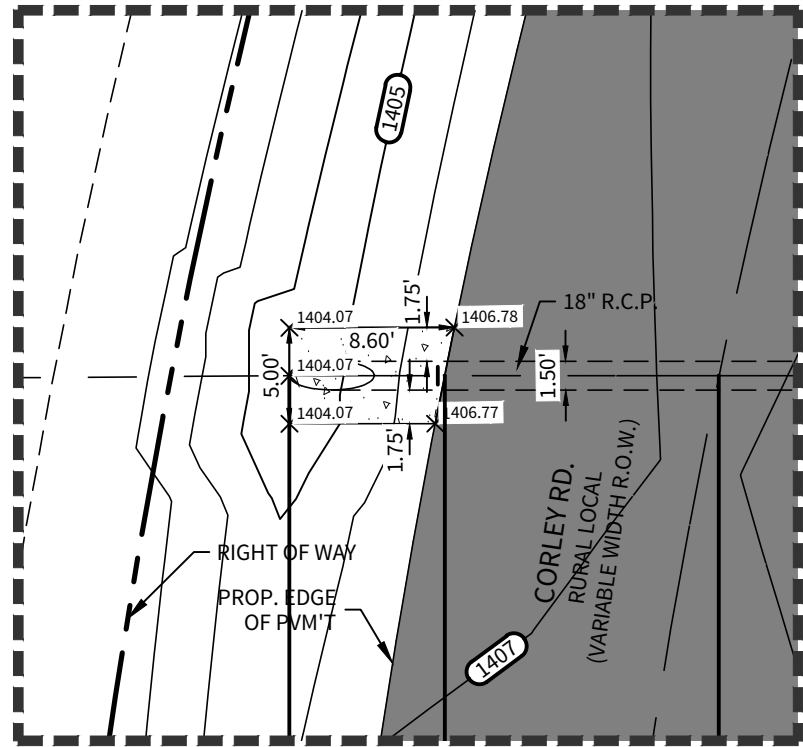
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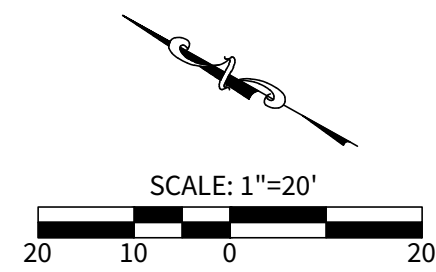
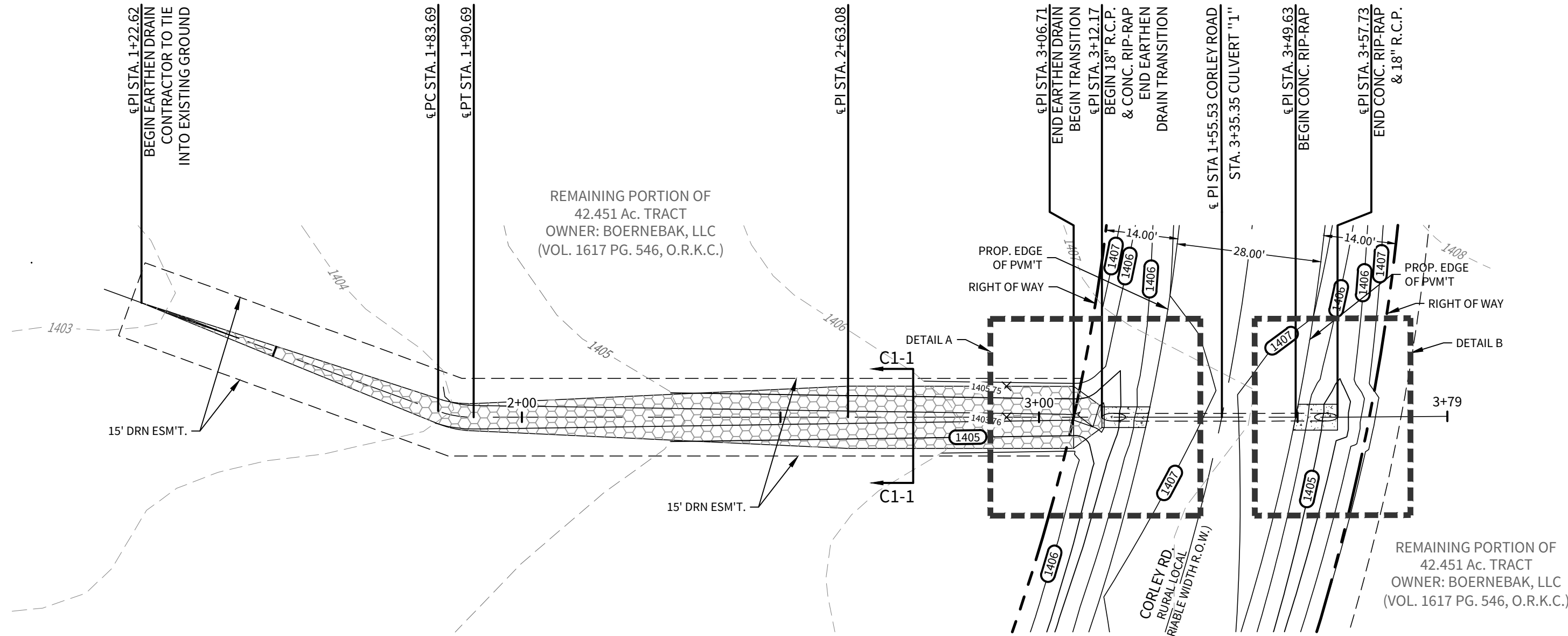
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DETAIL 'A'
SCALE: 1"=10'

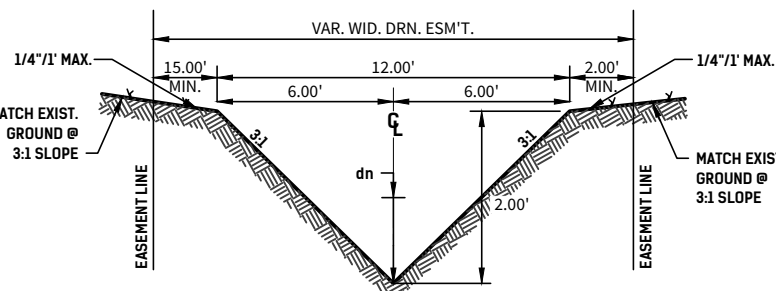


DETAIL 'B'
SCALE: 1"=10'



LEGEND

- OVERALL UNIT BOUNDARY ————
- E.G.T.C.A. EASEMENT - - - - -
- EXISTING 1' CONTOUR ———— 499 ————
- EXISTING 5' CONTOUR ———— 500 ————
- PROPOSED 1' CONTOUR ———— 499 ————
- PROPOSED 5' CONTOUR ———— 500 ————
- CONCRETE RIP RAP [Pattern]
- PROPOSED CULVERT [Pattern]
- EARTHEN/SOD LINED [Pattern]



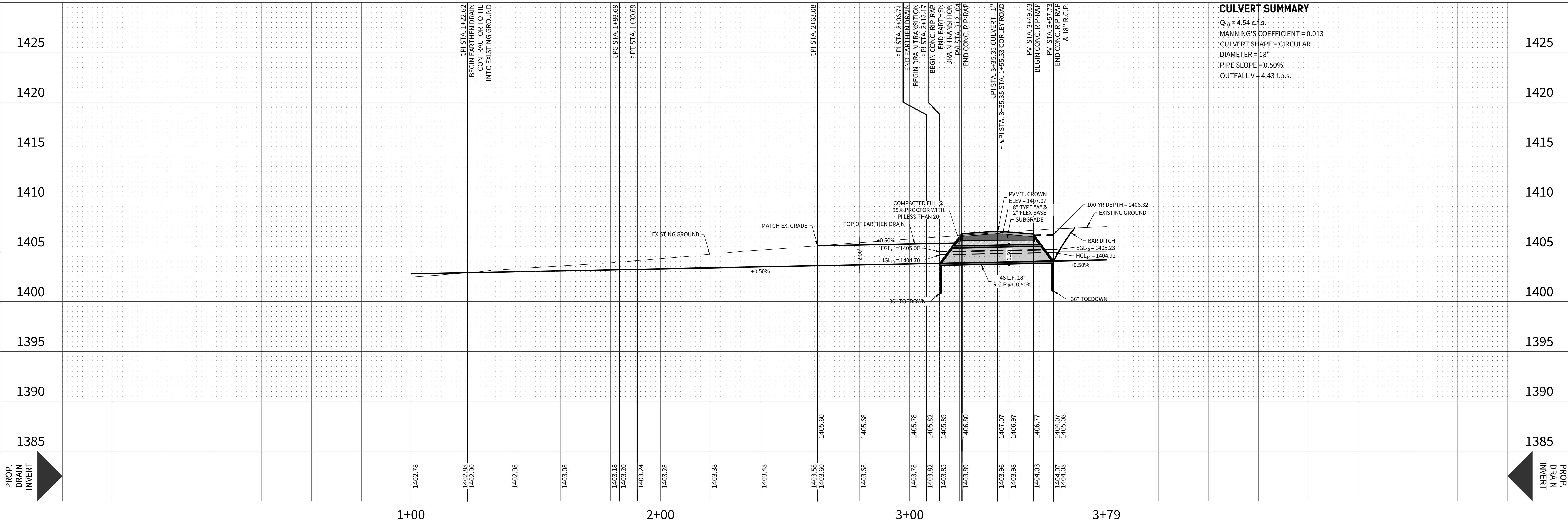
CULVERT '1' 'C1-1' SECTION
(N.T.S.)

Name	"C1-1"
BEGIN STA	2+63.08
END STA	3+06.71
Q ₁₀ (cfs)	6.27
h ₁ (ft)	2.00'
Q _w (ft)	0.00'
n	0.035
Slope (%)	0.50%
d ₁ (ft)	1.05'
V (fps)	1.89
Channel Type	Channel
Min Esm't (ft)	29.00

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

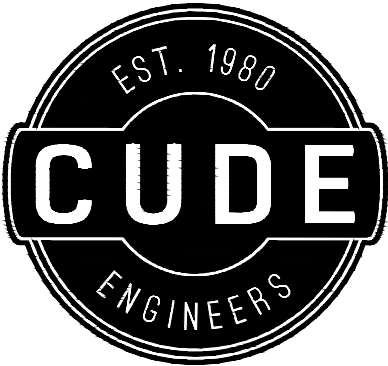
PROPOSED CR CULVERT '1'

STA. 1+22.62 TO END



CULVERT SUMMARY

Q₁₀ = 4.54 c.f.s.
MANNING'S COEFFICIENT = 0.013
CULVERT SHAPE = CIRCULAR
DIAMETER = 18"
PIPE SLOPE = 0.50%
OUTFALL V = 4.43 f.p.s.



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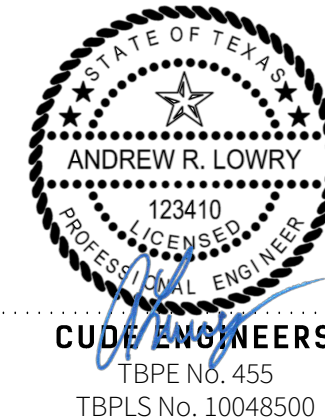
CR CULVERT '1' PLAN AND PROFILE

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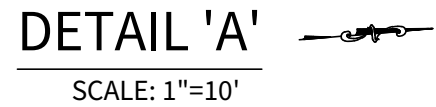
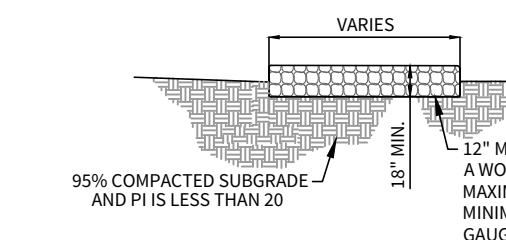
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$$\begin{aligned} Y_1 &= 2.00 \text{ FT} & V_1 &= 8.62 \text{ FPS} & F_1 &= 1.12 \\ Y_2/Y_1 &= \frac{1}{2} (\sqrt{1+8(F_1)^2}-1) = 1.17 \\ Y_2 &= 2.34 \text{ FT} \\ L_b &= 4.5(Y_2) / (F_1)^{0.76} = 9.67 \text{ FT (USED 9.67 FT)} \\ L_b / 3 &= 3.23 \text{ FT (USED 3.25 FT)} \\ H &= Y_1(0.168 * F_1 + 0.58) = 1.54 \text{ FT (USED 2.00 FT)} \\ \text{EXIT VELOCITY} &= 6.00 \text{ FPS} \end{aligned}$$


$Q_{10} = 477.60 \text{ c.f.s.}$
 MANNING'S COEFFICIENT = 0.013
 CULVERT SHAPE = RECTANGULAR
 RISE = 24"
 SPAN = 72"
 PIPE SLOPE = 0.50%
 OUTFALL V = 6.40 f.p.s.

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

PROP.
DRAIN
INVERT



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CR CULVERT '2' PLAN AND PROFILE

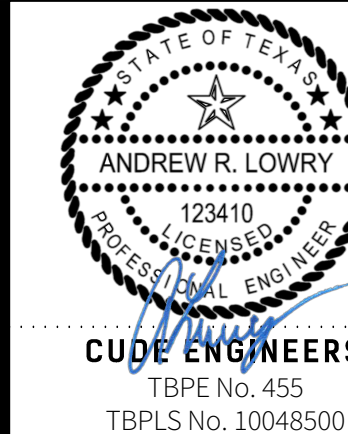
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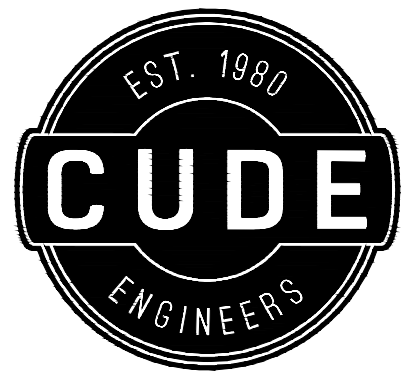
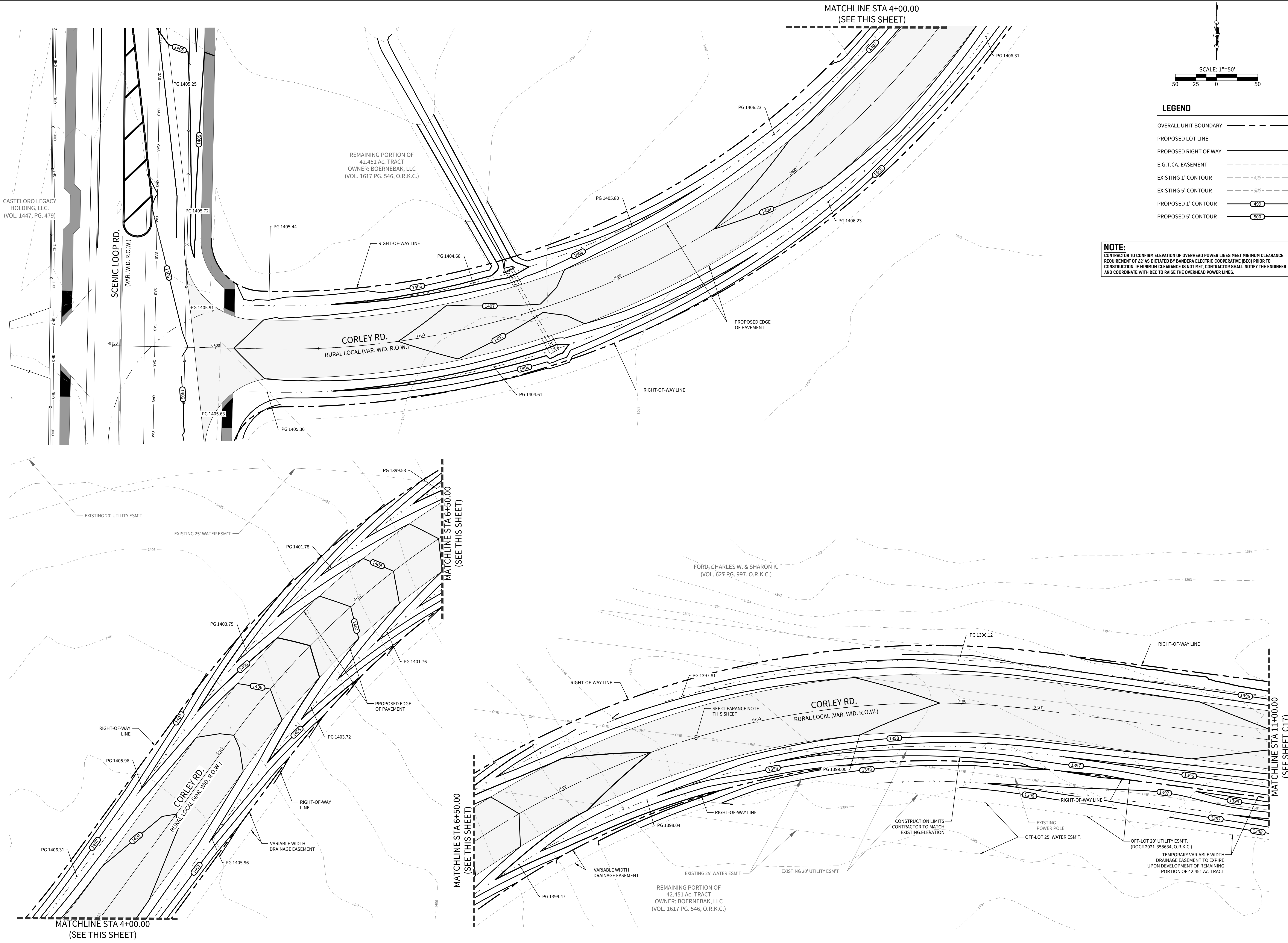
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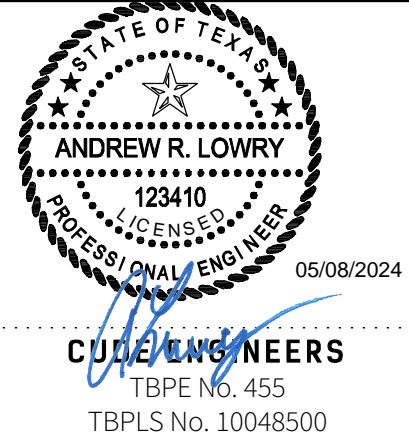


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GRADING & DRAINAGE PLAN

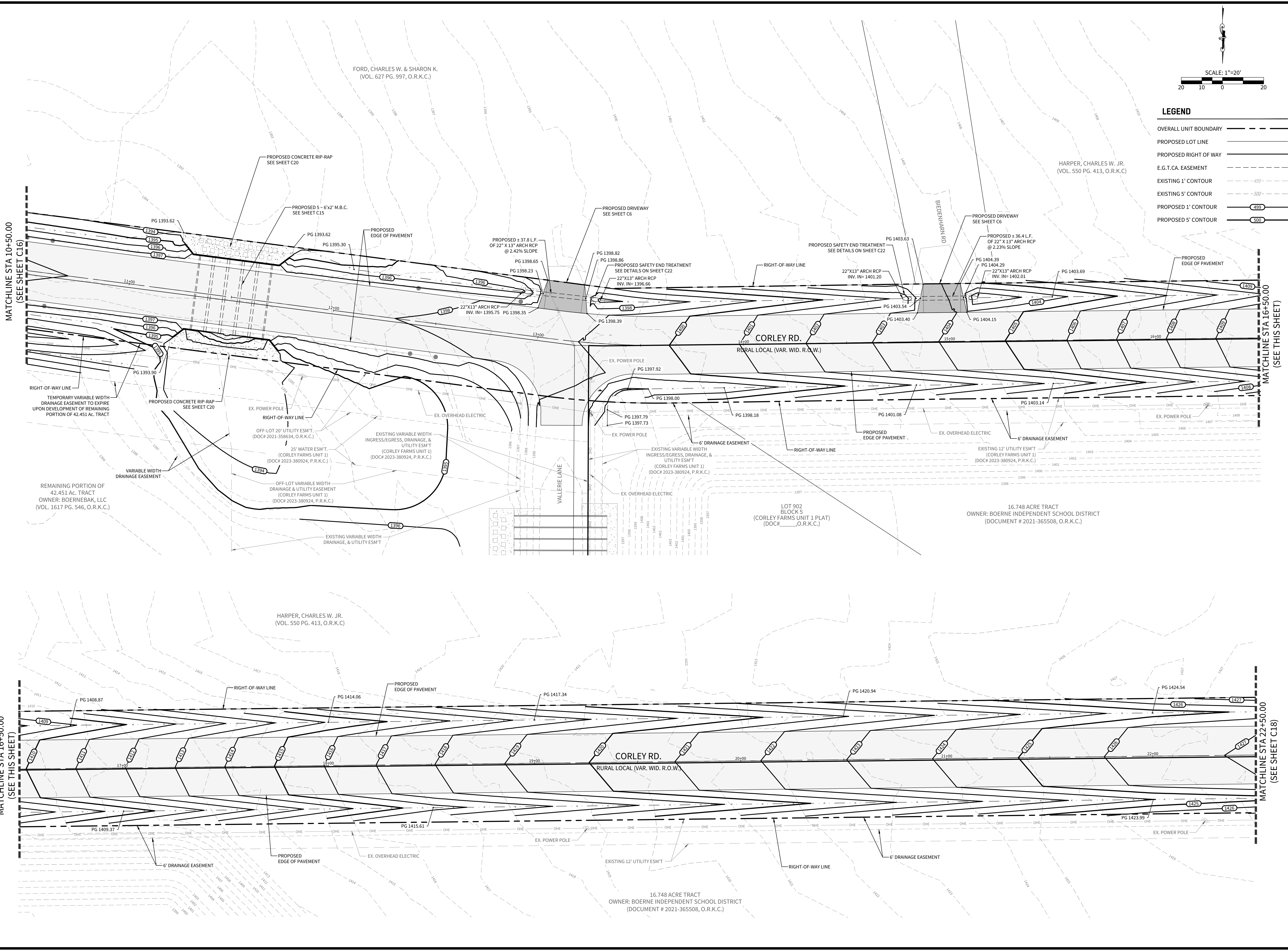
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LEGEND

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

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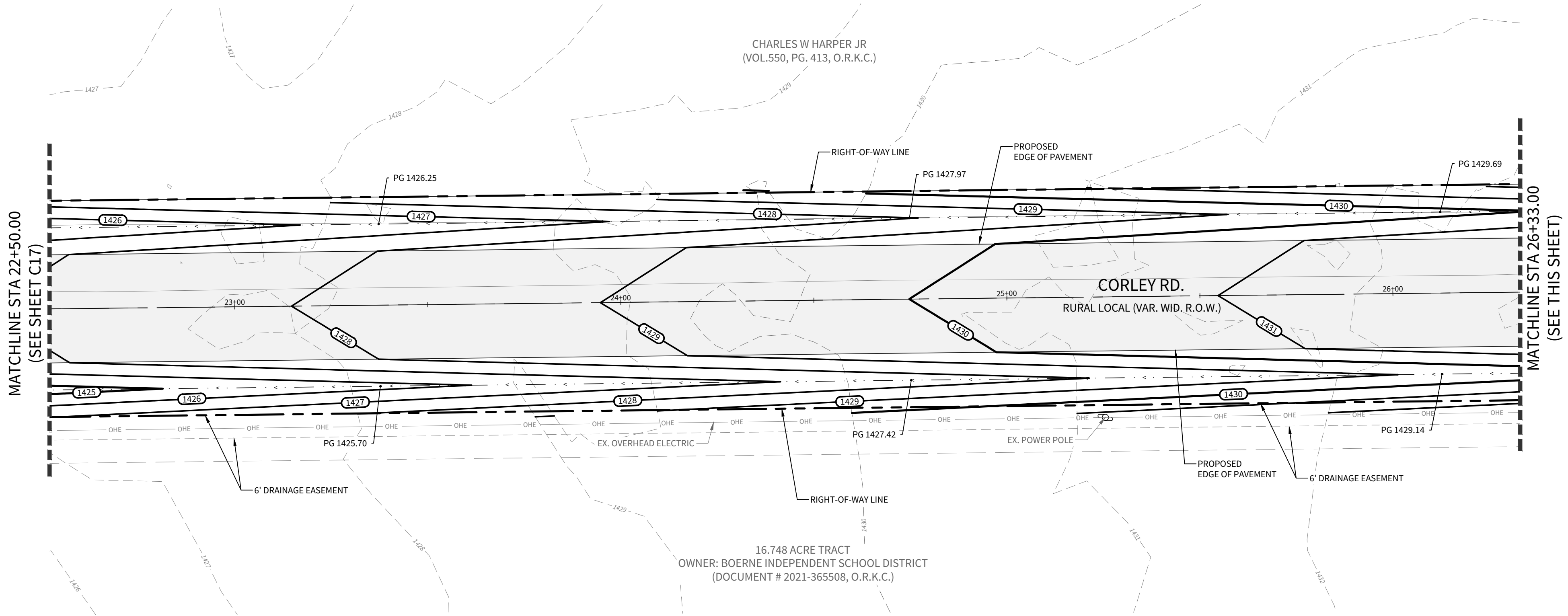
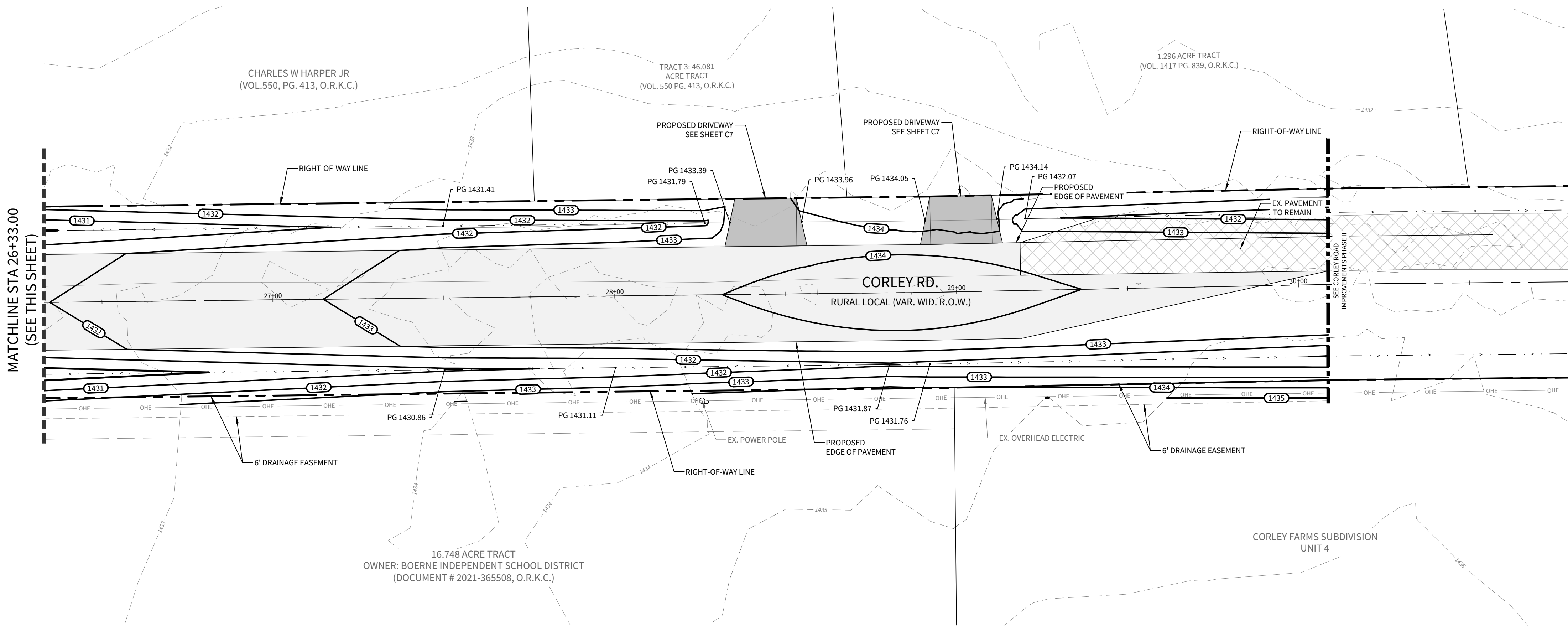
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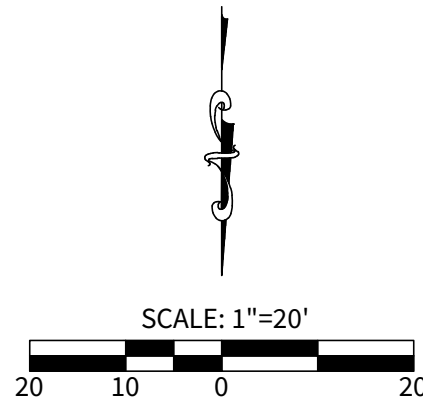
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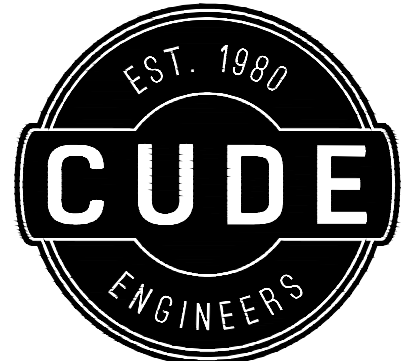


LEGEND

OVERALL UNIT BOUNDARY	---
PROPOSED LOT LINE	---
PROPOSED RIGHT OF WAY	---
E.G.T.C.A. EASEMENT	---
EXISTING 1' CONTOUR	---499---
EXISTING 5' CONTOUR	---500---
PROPOSED 1' CONTOUR	---499---
PROPOSED 5' CONTOUR	---500---



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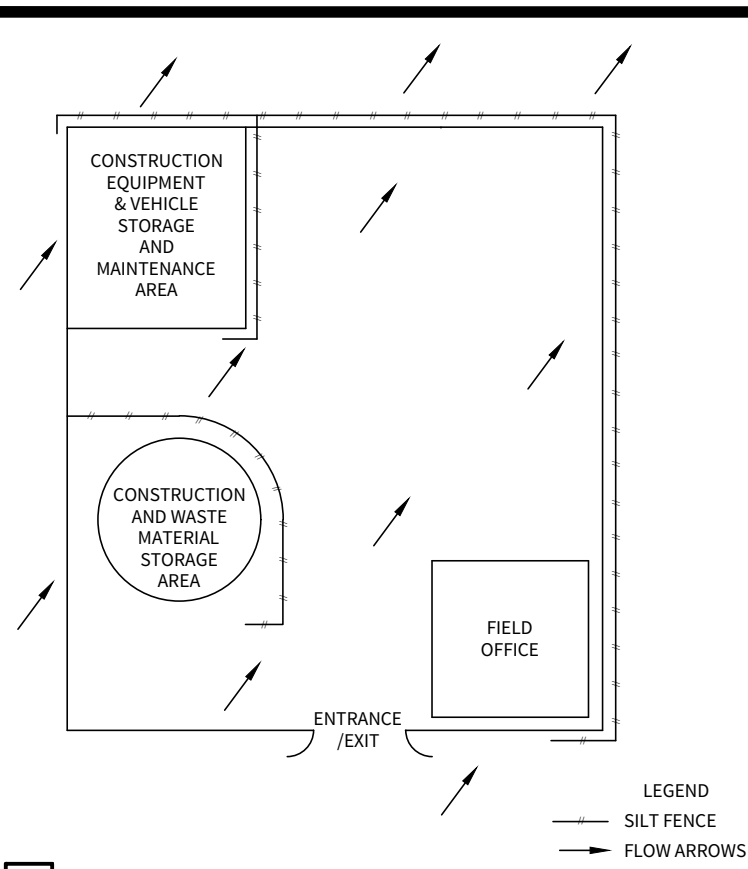
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REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.

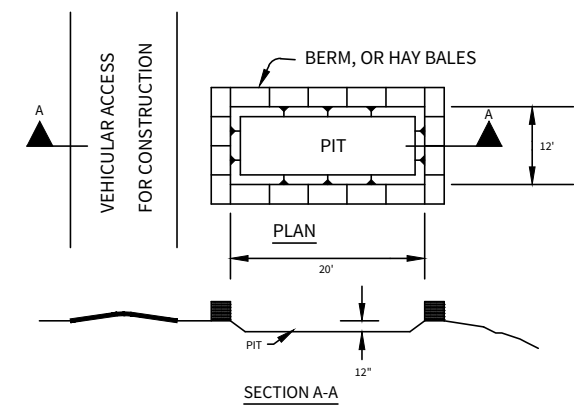
1 TYP. CONSTRUCTION STAGING AREA
N.T.S.

NOTE:

- ALL SILT FENCES AND/OR ROCK BERMS AND TEMPORARY CONSTRUCTION ENTRANCES/EXITS SHALL BE PLACED AT THE MOST DOWN GRADIENT POINT OF CONSTRUCTION AS SHOWN ON THIS SITE PLAN. CONTRACTOR SHALL TAKE INTO CONSIDERATION ANY PROPOSED CONSTRUCTION THAT MAY TAKE PLACE AT THESE LOCATIONS. ANY RELOCATION OF THE SILT FENCE, ROCK BERMS AND/OR TEMPORARY CONSTRUCTION ENTRANCES/EXITS SHALL BE AT THE CONTRACTOR'S EXPENSE.
- AREA OF SOIL DISTURBANCES INCLUDE STREET RIGHT-OF-WAYS, EASEMENTS AND LOTS.
- THERE WILL BE NO STORMWATER DISCHARGES INTO THE FEMA FLOOD PLAIN.
- THE CONTRACTOR IS REQUIRED TO MAINTAIN EROSION CONTROLS THROUGHOUT THE DURATION OF THE PROJECT.
- THE COUNTY INSPECTOR HAS THE AUTHORITY TO HAVE THE CONTRACTOR MODIFY THE EROSION CONTROLS AT THE DEVELOPER'S EXPENSE. THE DEVELOPER SHALL BE NOTIFIED OF THESE MODIFICATIONS PRIOR TO COMMENCEMENT OF MODIFICATIONS.



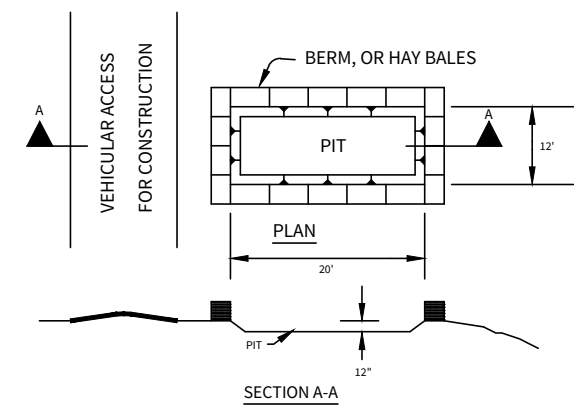
2 STANDARD SILT FENCE
N.T.S.



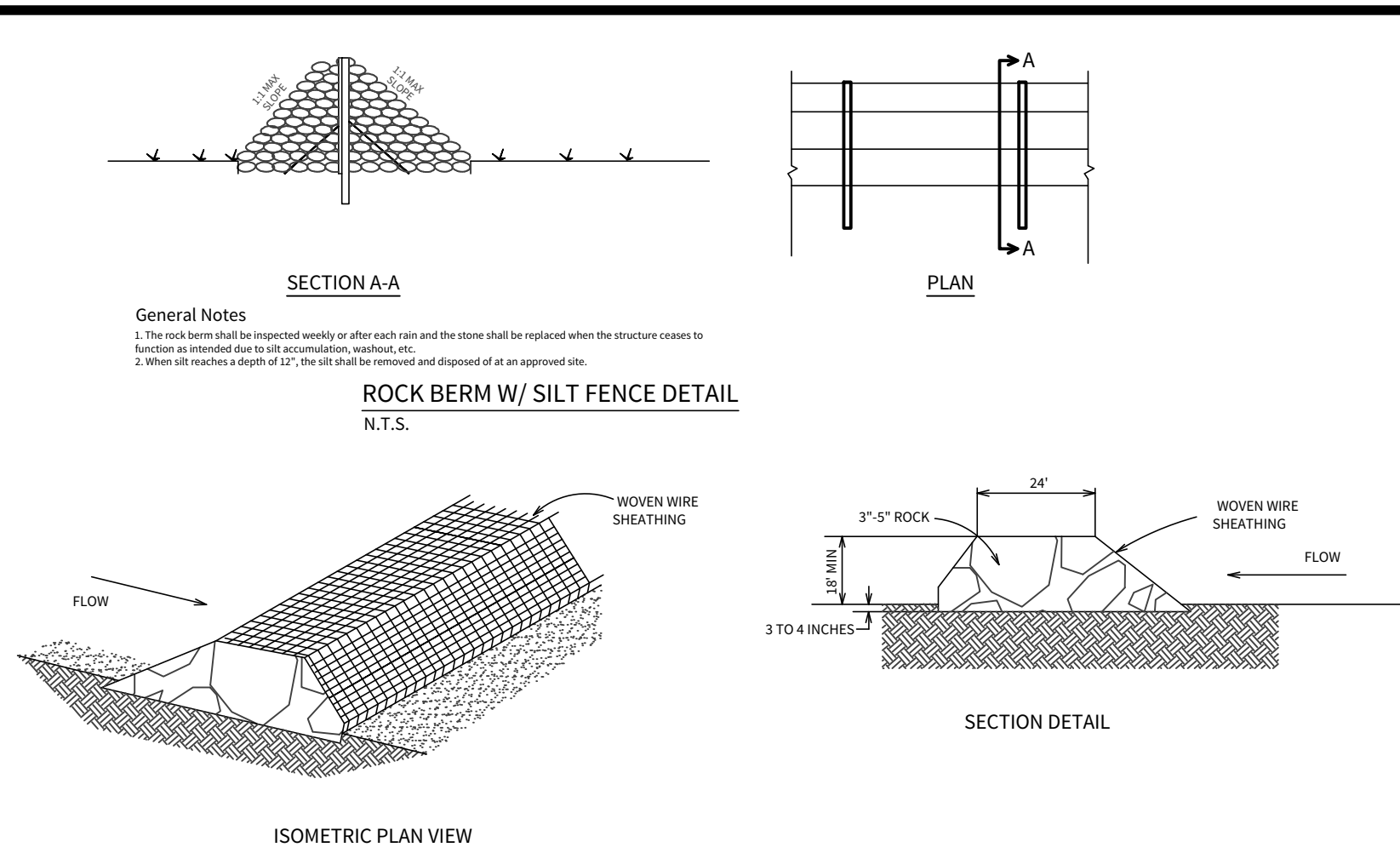
GENERAL NOTES:

- Detail above illustrates minimum dimensions. Pit can be increased in size depending on expected frequency of use.
- If hay bales are used, they shall be placed in accordance with details shown on Exhibit for hay bales.
- Washout pit shall be located in an area easily accessible to construction traffic.
- Washout pit shall not be located in areas subject to inundation from storm water runoff.
- Washout pit shall be lined with a 10-mil thick polyethylene sheeting free of holes, tears and other defects.

3 CONCRETE TRUCK WASHOUT PIT
N.T.S.



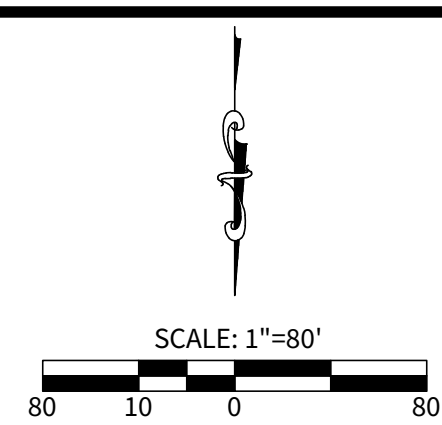
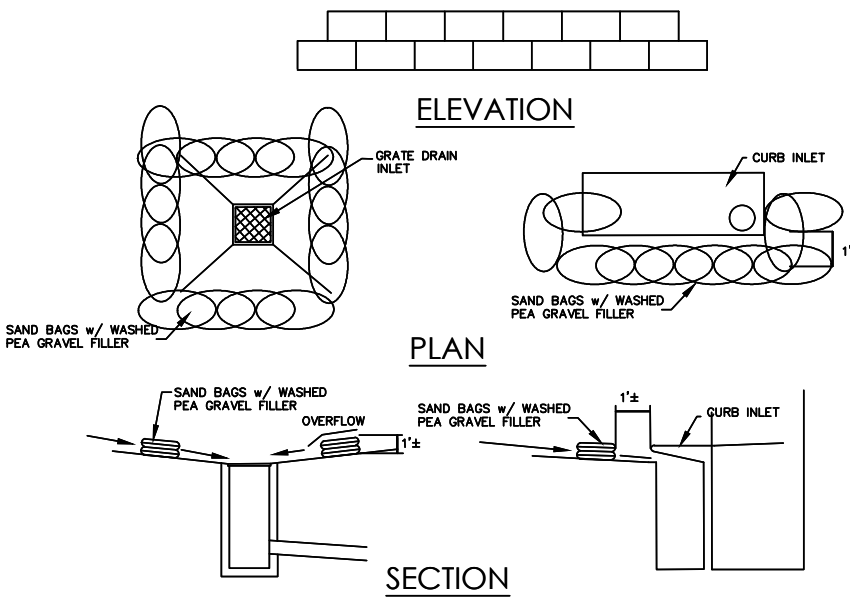
4 ROCK BERM
N.T.S.



BAGGED GRAVEL INLET FILTER NOTES

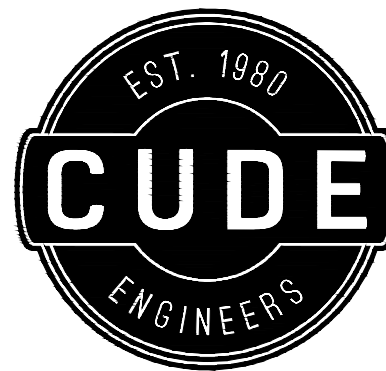
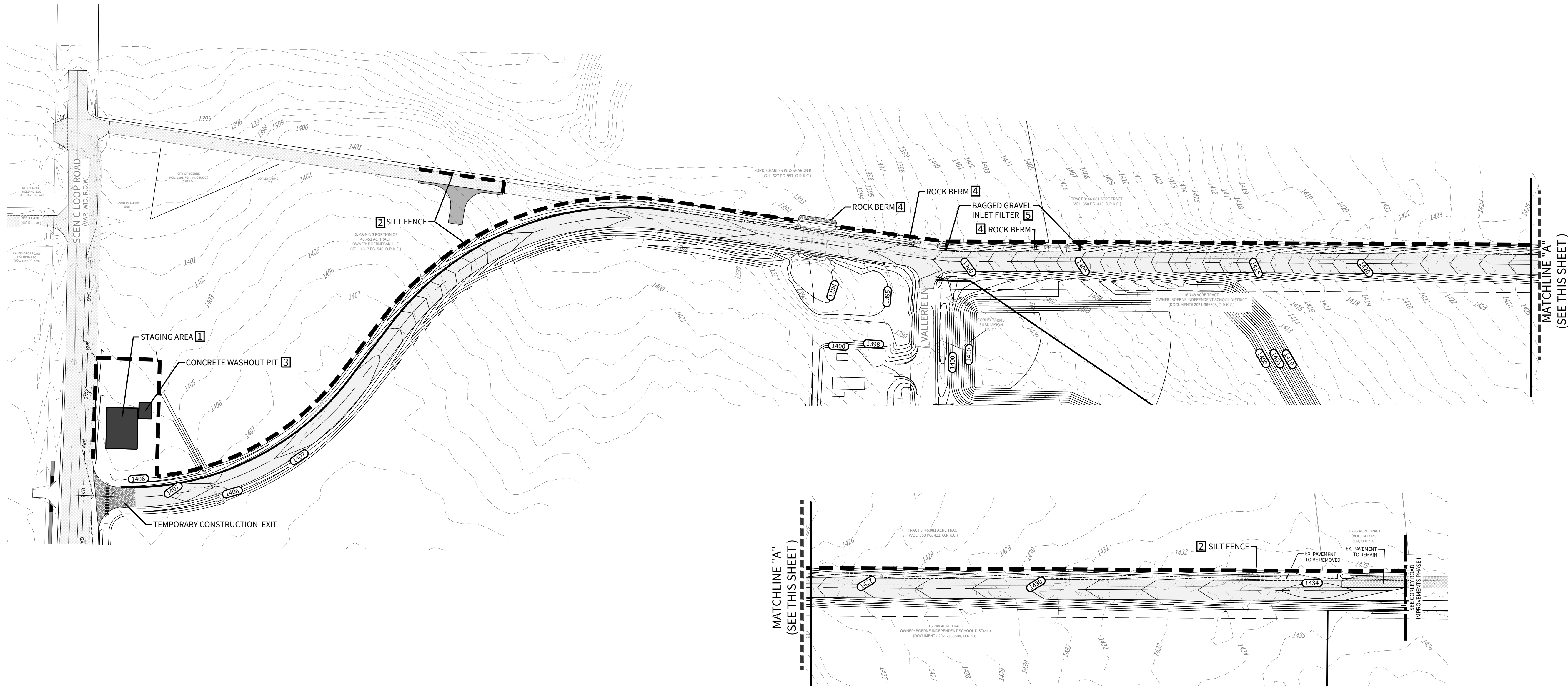
- THE GRAVEL BAG MATERIAL SHOULD BE POLYPROPYLENE, POLYETHYLENE, POLYAMIDE OR COTTON BURLAP WOVEN FABRIC, MINIMUM UNIT WEIGHT 4 OZ/YD², MULEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRAVIOLET STABILITY EXCEEDING 70 PERCENT.
- THE BAG LENGTH SHOULD BE 24 INCHES, WIDTH SHOULD BE 18 INCHES AND THICKNESS SHOULD BE 6 INCHES.
- THE GRAVEL BAGS SHOULD BE FILLED WITH 3/4" GRAVEL.
- WHEN A GRAVEL BAG IS FILLED WITH GRAVEL, THE OPEN END OF THE GRAVEL BAG SHOULD BE STAPLED OR TIED WITH NYLON OR POLY CORD.
- THE GRAVEL BAGS SHOULD BE PLACED AS SHOWN ON THE DETAIL. THE GRAVEL BAGS SHALL BE STACKED TO FORM A CONTINUOUS BARRIER AROUND THE INLETS. THE BAGS SHOULD BE TIGHTLY ABUTTED AGAINST EACH OTHER TO PREVENT RUNOFF FROM FLOWING BETWEEN THE BAGS.
- INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL. REPAIR OR REPLACEMENT SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.
- CHECK PLACEMENT OF DEVICE TO PREVENT GAPS BETWEEN DEVICE AND CURB.
- REMOVE SEDIMENT WHEN BUILDUP REACHES A DEPTH OF 3 INCHES. REMOVED SEDIMENT SHOULD BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
- STRUCTURES SHOULD BE REMOVED AND THE AREA STABILIZED ONLY AFTER THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

5 BAGGED GRAVEL INLET FILTER NOTES
N.T.S.



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	---
BMP ITEM NUMBER	1
TEMPORARY CONSTRUCTION ENTRANCE/EXIT	---
ROCK BERM	---
SILT FENCE	---
FLOW ARROW	---
STAGING AREA	---
CONCRETE WASHOUT PIT	---



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**CORLEY FARMS OFFSITE
CORLEY ROAD IMPROVEMENTS PHASE I**
STORM WATER POLLUTION PREVENTION PLAN

DATE	05/07/2024
PROJECT NO.	03481.003
DRAWN BY	AM/RC/CG
CHECKED BY	AL

REVISIONS	DATE
1	
2	
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CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

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FIGURE 1000 has standard is governed by the Texas Engineering Practice Act. No warranty of any kind is made by T&D for any purpose whatsoever. T&D assume no responsibility for the correct results or for incorrect results or damages resulting from its use.

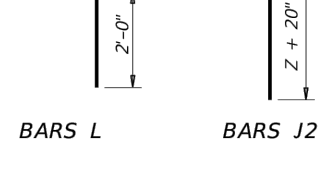
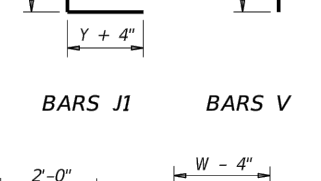
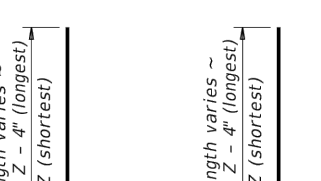
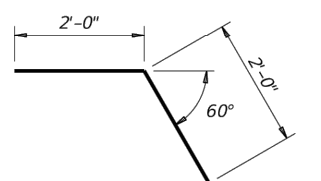
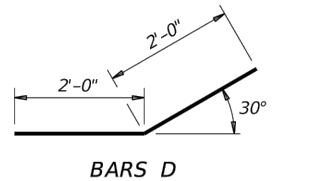
TABLE OF DIMENSIONS AND REINFORCING STEEL (Wings for one structure end)									
Dimensions					Variable Reinforcing		Estimated Quantities per ft of wing length (2-wings) (3)		
Maximum Wingwall Height Hw	W	X	Y	Z	Bars J1		Reinf (LB/FT)	Conc (CY/FT)	Spa
					Size	Spa			
2'-6"	2'-5"	1'-0"	9"	7"	#4	1'-0"	33.73	0.248	
3'-0"	2'-5"	1'-0"	9"	7"	#4	1'-0"	37.07	0.261	
3'-6"	2'-5"	1'-0"	9"	7"	#4	1'-0"	37.74	0.273	
4'-0"	2'-5"	1'-0"	9"	7"	#4	1'-0"	38.41	0.285	
4'-6"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	41.75	0.330	
5'-0"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	45.09	0.343	
5'-6"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	45.75	0.355	
6'-0"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	46.42	0.367	
7'-0"	3'-8"	1'-9"	1'-3"	7"	#4	1'-0"	52.77	0.414	
8'-0"	4'-2"	2'-0"	1'-6"	8"	#5	1'-0"	60.19	0.486	
9'-0"	4'-8"	2'-3"	1'-9"	8"	#4	6"	81.49	0.535	
10'-0"	5'-2"	2'-6"	2'-0"	8"	#5	6"	97.25	0.584	
11'-0"	5'-8"	2'-9"	2'-3"	8"	#6	6"	133.65	0.634	
12'-0"	6'-2"	3'-0"	2'-6"	9"	#7	6"	162.29	0.721	
13'-0"	6'-8"	3'-3"	2'-9"	11"	#7	6"	178.80	0.856	
14'-0"	7'-2"	3'-6"	3'-0"	1'-0"	#8	6"	216.78	0.959	
15'-0"	7'-8"	4'-0"	3'-0"	1'-1"	#9	6"	283.06	1.068	
16'-0"	8'-2"	4'-6"	3'-0"	1'-2"	#9	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	#4	~	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.)
 $Hw = H + T + C - 0.250'$
 $A = (Hw - 0.333') (SL)$
 $B = (A) \tan(30^\circ)$
 $Lw = (A) + \cosine(30^\circ)$
For cast-in-place culverts:
 $Lw = (N) (S) + (N + 1) (U)$
For precast culverts:
 $Lw = (N) (2U + S) + (N - 1) (0.5)$
Total wingwall area (two wings - SF) = $(Hw + 0.333') (Lw)$

Hw = Height of wingwall
SL = Side slope ratio (horizontal:1 vertical)
Lw = Length of wingwall
A = Culvert toewall length
N = Number of culvert spans
See applicable box culvert standard sheet for H, S, T, and U values.



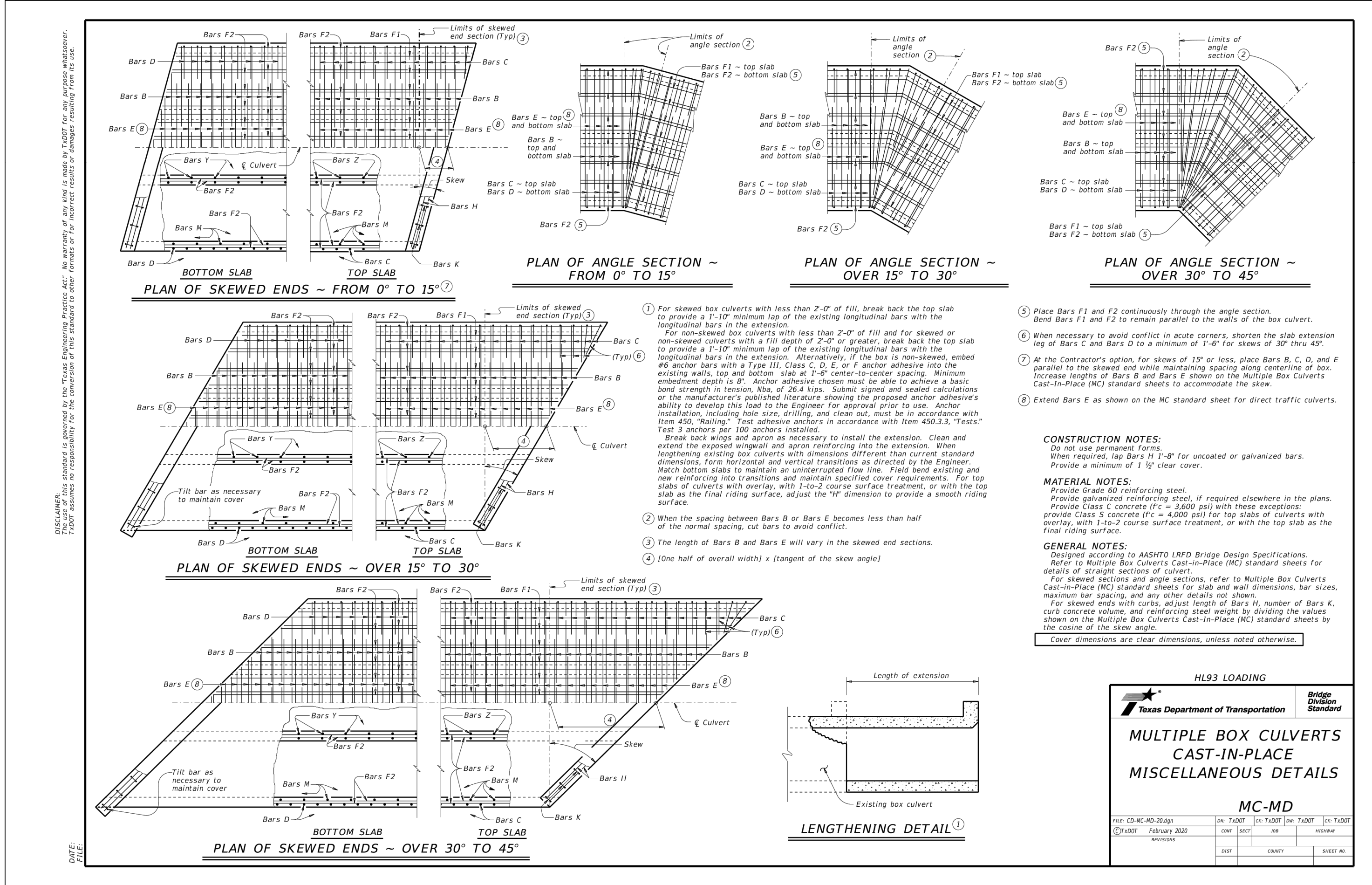
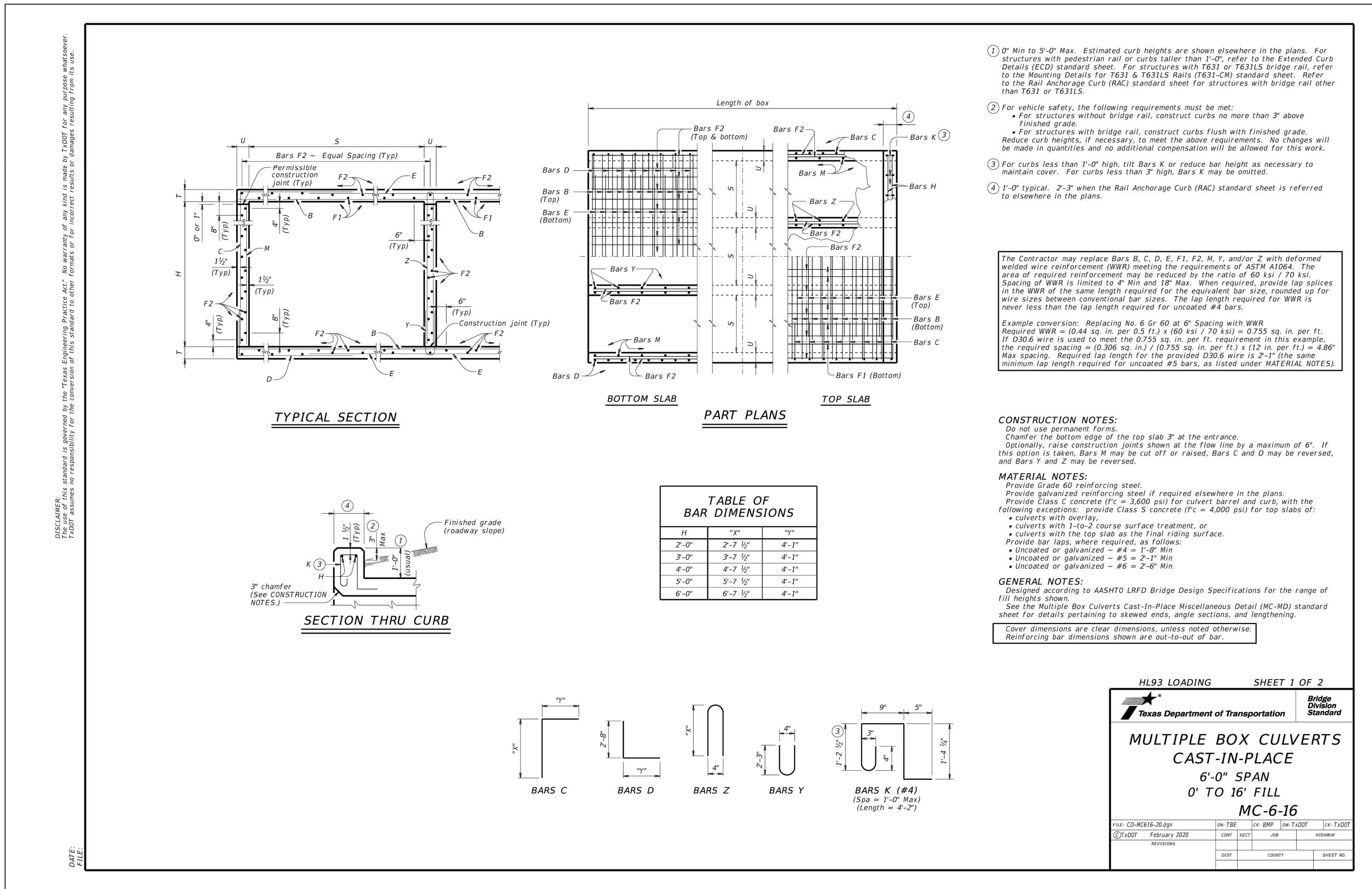
- Extend Bars P 3'-0" minimum into bottom slab of box culvert.
- Adjust as necessary to maintain 1 1/2" clear cover and 4" minimum between bars.
- Quantities shown are based on an average wing height for two wings (one structure end). To determine total quantities for two wings, multiply the tabulated values by 2.
- Recommended values of side slope are: 2:1, 3:1, 4:1, and 6:1.
- When shown elsewhere on the plans, construct 3'-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.
- 6" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-6", refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631L5 bridge rail, refer to the Mounting Details for T631 & T631L5 Rails (T631-CN) standard sheet. Refer to the Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than T631 or T631L5.
- 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.

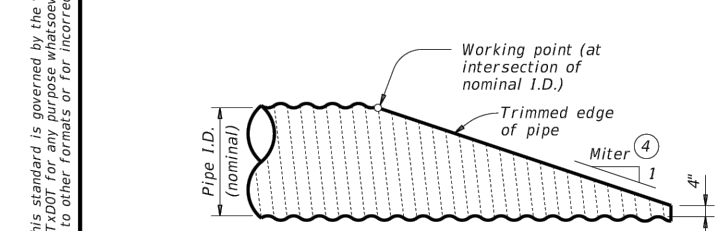
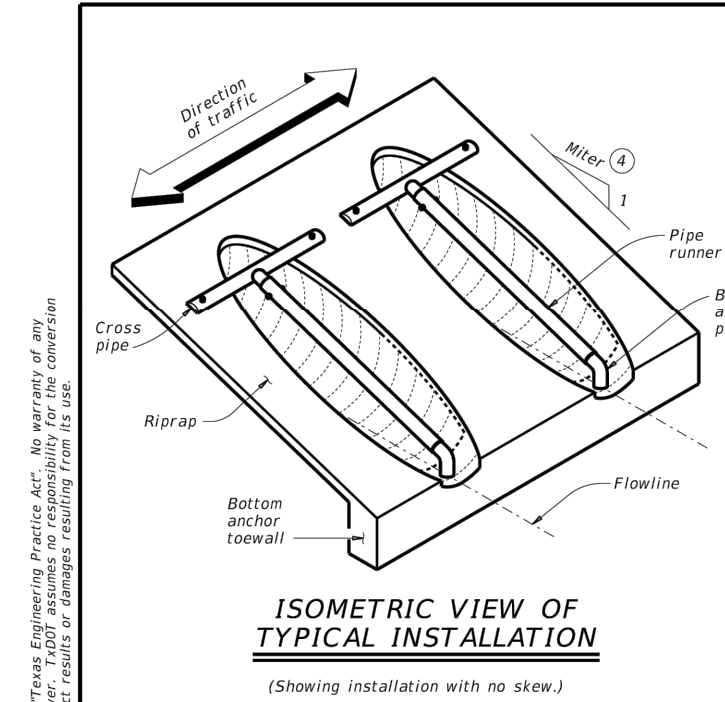
MATERIAL NOTES:
Provide Class C concrete (Pc=3600 psi).
Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel if required elsewhere in the plans.
In riprap concrete synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing 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.

CONCRETE WINGWALLS WITH FLARED WINGS FOR 0° SKEW BOX CULVERTS			
FW-0			
Proj. CD-190-20 (2020)	Rev. 01	Rev. 02	Rev. 03
Rev. 04	Rev. 05	Rev. 06	Rev. 07
Rev. 08	Rev. 09	Rev. 10	Rev. 11
Rev. 12	Rev. 13	Rev. 14	Rev. 15
Rev. 16	Rev. 17	Rev. 18	Rev. 19
Rev. 20	Rev. 21	Rev. 22	Rev. 23
Rev. 24	Rev. 25	Rev. 26	Rev. 27
Rev. 28	Rev. 29	Rev. 30	Rev. 31
Rev. 32	Rev. 33	Rev. 34	Rev. 35
Rev. 36	Rev. 37	Rev. 38	Rev. 39
Rev. 40	Rev. 41	Rev. 42	Rev. 43
Rev. 44	Rev. 45	Rev. 46	Rev. 47
Rev. 48	Rev. 49	Rev. 50	Rev. 51
Rev. 52	Rev. 53	Rev. 54	Rev. 55
Rev. 56	Rev. 57	Rev. 58	Rev. 59
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Rev. 64	Rev. 65	Rev. 66	Rev. 67
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Rev. 72	Rev. 73	Rev. 74	Rev. 75
Rev. 76	Rev. 77	Rev. 78	Rev. 79
Rev. 80	Rev. 81	Rev. 82	Rev. 83
Rev. 84	Rev. 85	Rev. 86	Rev. 87
Rev. 88	Rev. 89	Rev. 90	Rev. 91
Rev. 92	Rev. 93	Rev. 94	Rev. 95
Rev. 96	Rev. 97	Rev. 98	Rev. 99
Rev. 100	Rev. 101	Rev. 102	Rev. 103
Rev. 104	Rev. 105	Rev. 106	Rev. 107
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Rev. 148	Rev. 149	Rev. 150	Rev. 151
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Rev. 388	Rev. 389	Rev. 390	Rev. 391
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Rev. 420	Rev. 421	Rev. 422	Rev. 423
Rev. 424	Rev. 425	Rev. 426	Rev. 427
Rev. 428	Rev. 429	Rev. 430	Rev. 431
Rev. 432	Rev. 433	Rev. 434	Rev. 435
Rev. 436	Rev. 437	Rev. 438	Rev. 439
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Rev. 592	Rev. 593	Rev. 594	Rev. 595
Rev. 596	Rev. 597	Rev. 598	Rev. 599
Rev. 600	Rev. 601	Rev. 602	Rev. 603
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Rev. 612	Rev. 613	Rev. 614	Rev. 615
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Rev. 624	Rev. 625	Rev. 626	Rev. 627
Rev. 628	Rev. 629	Rev. 630	Rev. 631
Rev. 632	Rev. 633	Rev. 634	Rev. 635
Rev. 636	Rev. 637	Rev. 638	Rev. 639
Rev. 640	Rev. 641	Rev. 642	Rev. 643
Rev. 644	Rev. 645	Rev. 646	Rev. 647
Rev. 648	Rev. 649	Rev. 650	Rev. 651
Rev. 652	Rev. 653	Rev. 654	Rev. 655
Rev. 656	Rev. 657	Rev. 658	Rev. 659
Rev. 660	Rev. 661	Rev. 662	Rev. 663
Rev. 664	Rev. 665	Rev. 666	Rev. 667
Rev. 668	Rev. 669	Rev. 670	Rev. 67





NOTE: All pipe runners, calculations, and dimensions are based on the pipe culverts mitered as shown in this detail. Alternate styles of mitered ends will require that appropriate adjustments be made to the values presented on this standard.

1. Provide pipe runner of the size shown in the tables. Provide cross pipe of the same size as the pipe runner. Provide cross pipe stub out and bottom anchor pipe of the next smaller size pipe as shown in the Standard Pipe Sizes and Max Pipe Runners Lengths table.

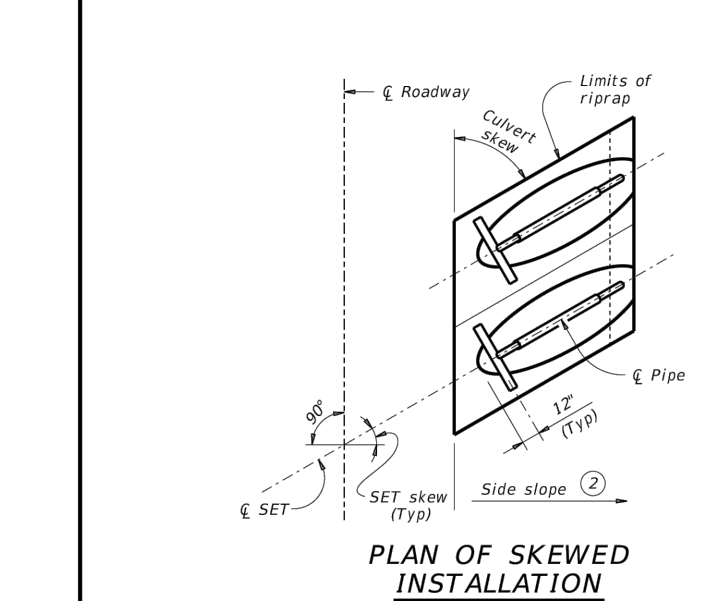
2. Recommended values of slope are 3:1, 4:1, and 6:1. All quantities, calculations, and dimensions shown herein are based on these recommended values. Slope of 3:1 or flatter is required for vehicle safety.

3. This standard allows for the placement of only one pipe runner across each culvert pipe opening. In order to limit the clear opening to be traversed by an errant vehicle, the following conditions must be met:

For Design 1 through 5 culvert pipe sizes, the skew must not exceed 45°. For Design 6 culvert pipes, the skew must not exceed 30°. For Design 7 culvert pipes, the skew must not exceed 15°.

If the above conditions cannot be met, the designer should consider using a safety and treatment with flared wings. For further information, refer to the TxDOT "Roadway Design Manual".

4. Miter - slope of mitered end of pipe culvert.



CROSS PIPE LENGTHS AND PIPE RUNNER LENGTHS ① ③												
Corrugated Metal Pipe (CMP) Culverts												
Design	Pipe Culvert Span	Pipe Culvert Rise	Pipe Culvert Spa - G	Cross Pipe Length	Pipe Runner Length							
					3:1 Side Slope				4:1 Side Slope			
					0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew
1	17'	12'	1'-0"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	21'	15'	1'-2"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3	26'	20'	1'-5"	3'-9"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	35'	24'	1'-8"	4'-4"	3'-10"	4'-0"	4'-7"	4'-7"	N/A	N/A	N/A	N/A
5	42'	29'	1'-11"	4'-11"	5'-1"	5'-4"	6'-1"	7'-10"	7'-2"	7'-5"	8'-6"	10'-9"
6	49'	35'	2'-2"	5'-6"	6'-2"	6'-5"	7'-4"	N/A	8'-0"	8'-10"	10'-0"	N/A
7	57'	39'	2'-5"	6'-2"	7'-0"	7'-9"	N/A	N/A	10'-2"	10'-7"	N/A	N/A

Reinforced Concrete Pipe (RCP) Culverts												
Design	Pipe Culvert Span	Pipe Culvert Rise	Pipe Culvert Spa - G	Cross Pipe Length	Pipe Runner Length							
					3:1 Side Slope				4:1 Side Slope			
					0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew
1	22'	13 1/2'	1'-0"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	26'	15 1/2'	1'-2"	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3	28 1/2'	16'	1'-5"	3'-9 1/2"	N/A	N/A	2'-10"	3'-10"	N/A	N/A	N/A	N/A
4	36 1/2'	22 1/2'	1'-8"	4'-5 1/2"	3'-7"	4'-2"	5'-4"	6'-11"	5'-11"	6'-2"	7'-9"	11'-11"
5	43 1/2'	26 1/2'	1'-11"	4'-0 3/4"	4'-6"	4'-8"	5'-5"	6'-11"	6'-4"	6'-7"	7'-6"	9'-7"
6	51 1/2'	31 3/8'	2'-2"	5'-8"	5'-9"	6'-0"	6'-10"	N/A	7'-11"	8'-3"	9'-4"	N/A
7	58 1/2'	36'	2'-5"	6'-3 1/2"	6'-11"	7'-3"	N/A	N/A	9'-0"	9'-11"	N/A	N/A

TYPICAL PIPE CULVERT MITERS ⑤				STANDARD PIPE SIZES AND MAX PIPE RUNNER LENGTHS ①				CONDITIONS WHERE PIPE RUNNERS ARE NOT REQUIRED ③			
Side Slope	0° Skew	15° Skew	30° Skew	Pipe Size	Pipe I.D.	Max Pipe Runner Length	Design	Single Pipe Culvert	Multiple Pipe Culverts	Design	Single Pipe Culvert
3:1	3:1	3:106:1	3:464:1	2" STD	2.375"	2.067'	N/A	1 and 2	Skews thru 45°	1 and 2	Skews thru 45°
4:1	4:1	4:141:1	4:619:1	3" STD	3.500"	3.068'	10'-0"	3	Skews thru 35°	3	Skews thru 10°
6:1	6:1	6:212:1	6:928:1	4" STD	4.500"	4.026'	19'-0"	4	Normal (no skew)	4	Always required
				5" STD	5.563"	5.047'	34'-7"	5 thru 7	Always required		Always required

MATERIAL NOTES:

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

Provide pipe runners, cross pipes, and anchor pipes that meet the requirements of ASTM A53 (Type E or S, Gr. B), ASTM A500 (Gr. B, or API 5LX52).

Provide ASTM A307 bolts and nuts.

Galvanize all steel components, except concrete reinforcing, after fabrication. Repair, galvanizing damaged during transport or construction in accordance with the specifications.

GENERAL NOTES:

Pipe runners are designed for a traversing load of 1,800 pounds at yield as recommended by Research Report 280-1, "Safety Treatment of Roadside Cross-Drainage Structures", Texas Transportation Institute, March 1981.

Safety and treatments (SFT) shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the Pipe Runners.

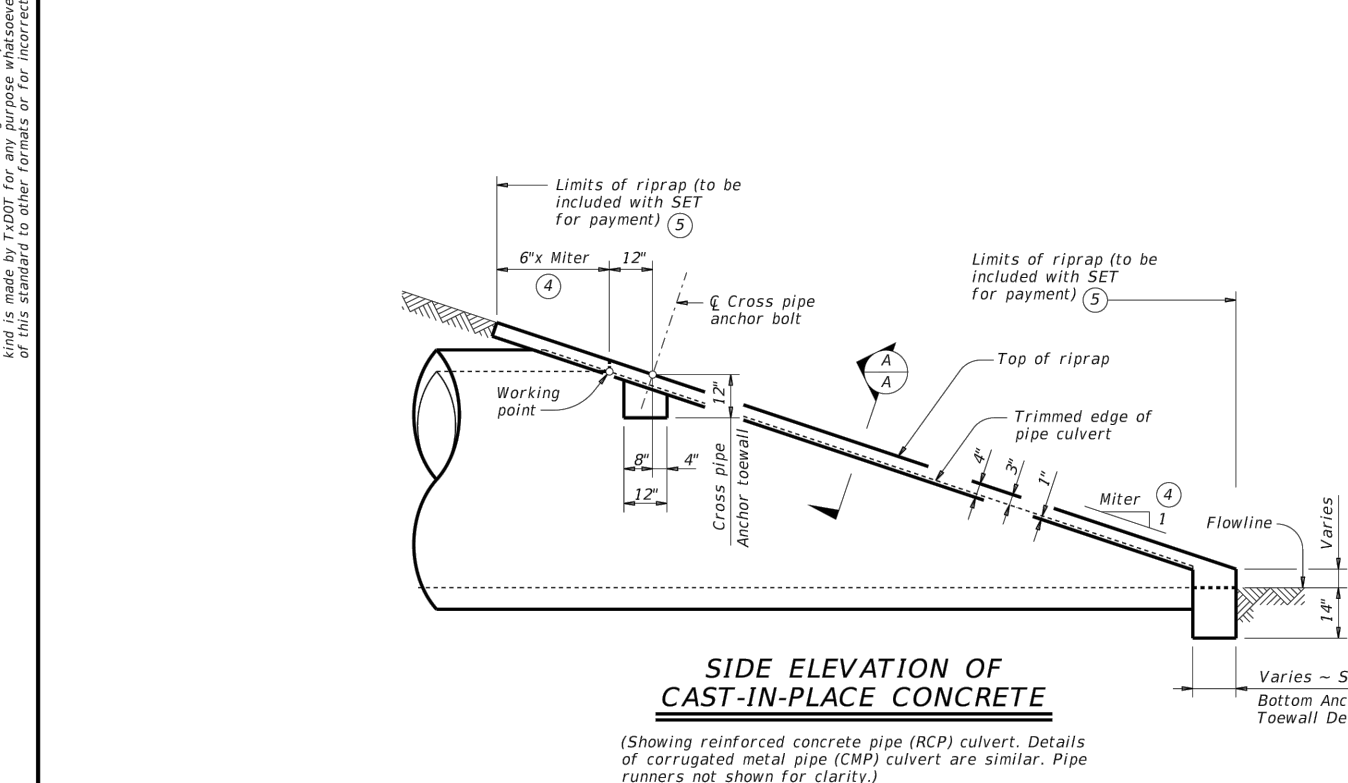
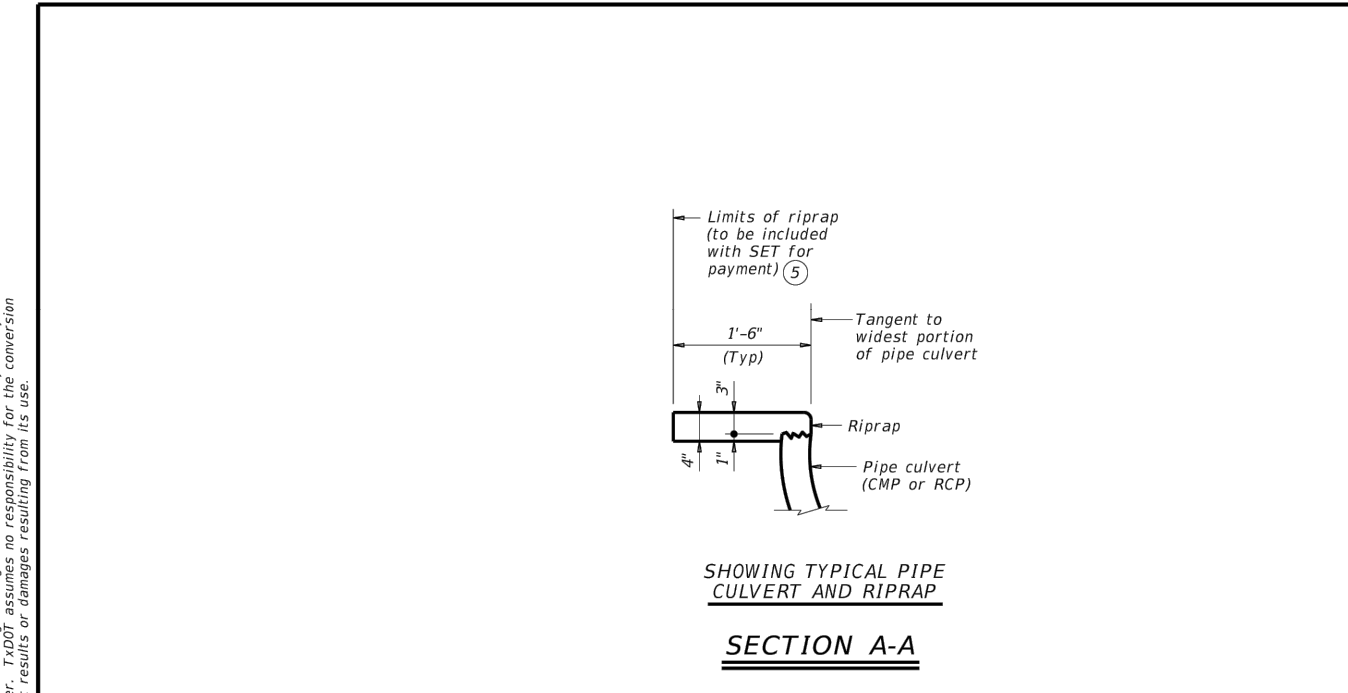
Construct concrete riprap and all necessary inverts in accordance with the requirements of Item 432, "Riprap".

Payment for riprap and towall is included in the price bid for each safety and treatment.

TEXAS DEPARTMENT OF TRANSPORTATION
SAFETY END TREATMENT
FOR DESIGN 1 TO 7
ARCH PIPE CULVERTS
TYPE II - CROSS DRAINAGE

SETP-CD-A

DATE: 02/07/2020
DRAWN: J. L. GAY
CHECKED: J. L. GAY
APPROVED: J. L. GAY



NOTE: The standard is governed by the "Texas Engineering Practice Act". No warranty or any other statement of liability is made by CUDE ENGINEERS, LLC. This standard is intended to be used in conjunction with the "Texas Engineering Practice Act".

DATE: 02/07/2020

ESTIMATED CONCRETE RIPRAP QUANTITIES (CY) ⑥												
FOR BOTH CORRUGATED METAL PIPE CULVERTS AND CONCRETE PIPE CULVERTS												
Design	3:1 Side Slope				4:1 Side Slope				6:1 Side Slope			
	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew
1	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.9
2	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.8	0.8	1.0
3	0.6	0.6	0.7	0.8	0.7	0.7	0.8	0.9	0.9	1.0	1.0	1.2
4	0.7	0.7	0.8	0.9	0.8	0.8	0.9	0.9	1.0	1.1	1.1	1.4
5	0.8	0.8	0.9	1.0	1.0	1.0	1.1	1.2	1.3	1.3	1.4	1.7
6	0.9	1.0	1.0	N/A	1.1	1.1	1.2	N/A	1.4	1.5	1.6	N/A
7	1.0	1.1	N/A	N/A	1.3	1.3	N/A	N/A	1.7	1.7	N/A	N/A

④ Miter - slope of mitered end of pipe culvert.

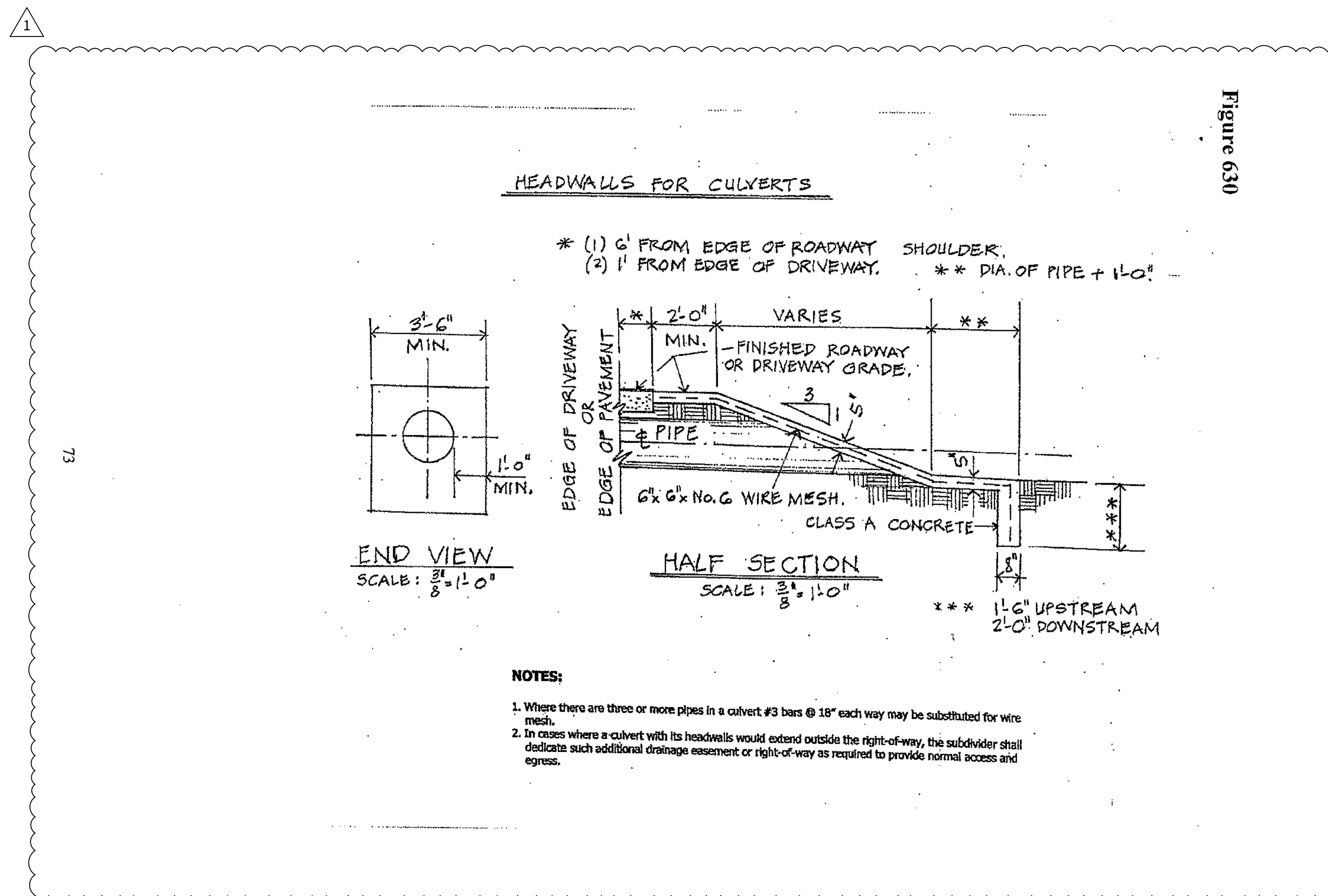
⑤ Riprap placed beyond the limits shown will be paid for as concrete riprap in accordance with Item 432, "Riprap".

⑥ Quantities shown are for one end of one pipe culvert. For multiple pipe culverts, quantities will need to be adjusted. Riprap quantities are for Contractor's information only.

TEXAS DEPARTMENT OF TRANSPORTATION
SAFETY END TREATMENT
FOR DESIGN 1 TO 7
ARCH PIPE CULVERTS
TYPE II - CROSS DRAINAGE

SETP-CD-A

DATE: 02/07/2020
DRAWN: J. L. GAY
CHECKED: J. L. GAY
APPROVED: J. L. GAY



* (1) 6' FROM EDGE OF ROADWAY SHOULDER.
(2) 1' FROM EDGE OF DRIVEWAY.
** DIA. OF PIPE + 1'-0"

END VIEW
SCALE: 3/8" = 1'-0"

HALF SECTION
SCALE: 3/8" = 1'-0"

*** 1'-6" UPSTREAM
2'-0" DOWNSTREAM

NOTES:

1. Where there are three or more pipes in a culvert #3 bars @ 18" each way may be substituted for wire mesh.

2. In cases where a culvert with its headwalls would extend outside the right-of-way, the subdivisor shall dedicate such additional drainage easement or right-of-way as required to provide normal access and egress.

END VIEW

PLAN VIEW

WALL THICKNESS

JOINT DIMENSIONS

PIPE DATA

REINFORCED CONCRETE ARCH PIPE

NOTE:

AVAILABLE IN CLASS III, IV
CONFORMS TO CURRENT ASTM C-506 SPECIFICATIONS FOR REINFORCED CONCRETE ARCH CULVERT.

REGION, STATE
C & S MS

DATE
2018

REINFORCED CONCRETE ARCH PIPE
TONGUE & GROOVE - STRAIGHT WALL

SECTION PAGE
12.1.5

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

CORLEY FARMS OFFSITE
CORLEY ROAD IMPROVEMENTS PHASE I

DRAINAGE DETAILS

DATE
05/07/2024

PROJECT NO.
03481.003

DRAWN BY
AM/RC/CG

CHECKED BY
AL

REVISIONS

DATE	DESCRIPTION	BY	CHK
05/07/2024	ISSUED FOR CONSTRUCTION	AL	AL

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C22

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