GRACE VALLEY RANCH PHASE 3B

CONSTRUCTION PLANS

EST. 1980 CUDE ENGINEERS

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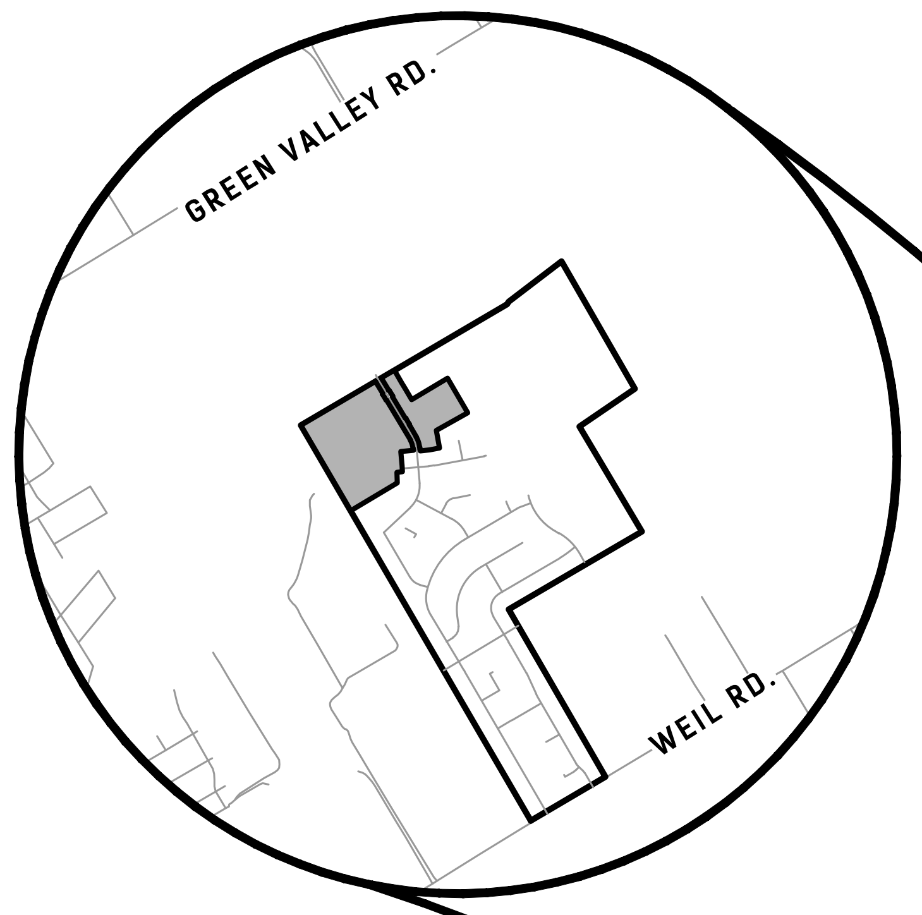
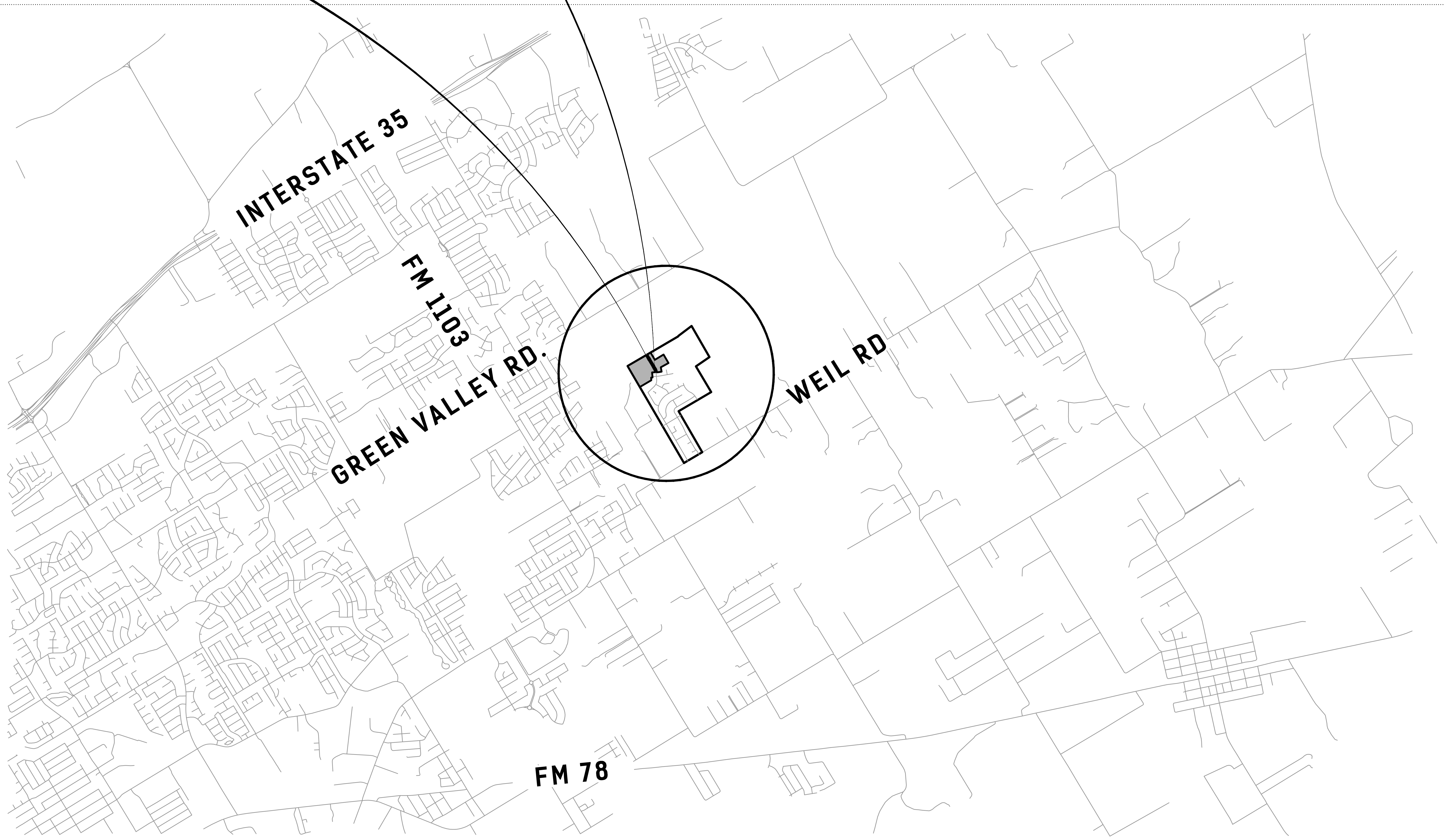


LOCATION MAP



VICINITY MAP

DEVELOPER:

LENNAR HOMES OF TEXAS LAND AND
CONSTRUCTION, LTD.
CONTACT: RICHARD MOTT, P.E.
100 NE LOOP 410, SUITE 1155
SAN ANTONIO, TEXAS 78216
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San Antonio, Texas 78231
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DRAWN BY	DATE	PLAT NO.
M.A.S.	11/25/2024	
CHECKED BY	**PROJECT NO.**	**CUDE ENGINEERS**
KYLE HUDEK, P.E.	03346.010	TBPE No. 455 TBPLS No. 10048500

KYLE M. HUDEK
138753

K. Hudek 11/27/2024

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.

STREET AND DRAINAGE GENERAL NOTES:

1. ALL WORK IS TO BE INSTALLED IN ACCORDANCE WITH STANDARDS OF THE CITY OF CIBOLO MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT WILL CONFORM TO APPLICABLE CITY OF CIBOLO SUBDIVIONS REGULATIONS AND, STANDARD SPECIFICATIONS AND DETAILS.
2. FOR ALL REFERENCES TO THE TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT), THE CONTRACTOR SHALL SEE THEIR CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MAINTENANCE OF HIGHWAYS, STREETS, AND BRIDGES, WHICH IS ALSO LOCATED AT WWW.TXDOT.GOV.
3. ALL CONCRETE SHALL BE AS DETAILED ON THE PLAN SHEETS AND MEET MATERIAL REQUIREMENTS OF GUADALUPE COUNTY.
4. ALL REINFORCING STEEL SHALL BE GRADE 60, MEET THE MATERIAL AND CONSTRUCTION REQUIREMENTS OF GUADALUPE COUNTY.
5. CONCRETE CURING SHALL BE WITH AN IMPERVIOUS MEMBRANE APPLICATION AND SHALL MEET THE MATERIAL AND APPLICATION REQUIREMENTS OF THE CITY OF SAN ANOTNIO'S "MEMBRANE CURING" AND BE LISTED ON THE GUADALUPE COUNTY APPROVED LIST OF SUPPLIERS IN ADDITION TO THE CONTRACTOR APPLYING THE CURING COMPOUND THEY ARE TO INSTALL CONTRACTION/EXPANSION JOINTS ON CONCRETE WORK.
6. ALL CONCRETE CONSTRUCTION AND FINISHING SHALL MEET THE REQUIREMENTS OF GUADALUPE COUNTY.
7. THE CONTRACTOR IS REQUIRED TO ATTEND A PRE-CONSTRUCTION CONFERENCE AND SHALL SCHEDULE IT WITH THE CITY PLANNING AND ENGINEERING DEPARTMENT (RUDY KLEIN A1 (210) 658-9900 EXT 3139) A MINIMUM OF ONE (1) WEEK PRIOR TO BEGINNING CONSTRUCTION.
8. MANHOLES SHALL BE BROKEN BELOW THE FINISH GRADE LEVEL UNTIL THE BASE IS COMPLETED AND THEN RESTORED.
9. THE ENGINEER WILL STAKE THE STREET ONE TIME ONLY AND FURNISH CUT SHEETS TO THE STREET CONTRACTOR; ANY CONSTRUCTION STAKES REMOVED OR DESTROYED BY THE CONTRACTOR OR HIS EMPLOYEES WILL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
10. AN INDEPENDENT TESTING LABORATORY APPROVED BY THE CITY OF CIBOLO SHALL PERFORM ALL "FIELD AND LABORATORY TESTING". THE CITY REQUIRES ALL INSPECTION AND/OR TESTING FIRMS TO BE ACCREDITED, QUALIFIED, AND IN COMPLIANCE WITH THE REQUIREMENTS OF ASTM E329, "STANDARD SPECIFICATION FOR AGENCIES ENGAGED IN CONSTRUCTION INSPECTION AND/OR TESTING". FIRMS MUST PRESENT A COPY OF THEIR CURRENT, OFFICIAL ACCREDITATION BY THE AMERICAN ASSOCIATION FOR LABORATORY ACCREDITATION (A2LA) OR THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) AND CURRENT AMRL AND CCRL PROFICIENCY RESULTS. THE FIRMS SHALL BE ACCREDITED IN ALL MATERIAL TEST PROCEDURES REQUIRED TO BE PERFORMED FOR EACH PROJECT.
11. THE DEVELOPER WILL HIRE A THIRD PARTY FOR CONSTRUCTION MATERIAL TESTING IN WHICH THE CONTRACTOR WILL REQUIRE TO COORDINATE AND PROVIDE NECESSARY INFORMATION TO THEM. THE FOLLOWING TEST SCHEDULE SHALL BE ADHERE TO:
    - A. ALL IMPORT FILL PLACED IN THE STREET'S SUBGRADE SHALL BE SELECT MATERIAL, WITH A PLASTICITY INDEX LESS THAN TWENTY (20), AND COMPACTED IN MAXIMUM EIGHT (8) INCH LIFTS TO 98% DENSITY OF TXDOT'S TEST METHOD TEX 113-E. PROVIDE TESTING ON EACH EIGHT (8) INCH COMPACTED LIFT. SUBGRADE MOISTURE DENSITY TESTING SHALL BE AT THE MINIMUM FREQUENCY OF THREE (3) PER BLOCK AND SHALL NOT TO EXCEED FIVE HUNDRED (500) FOOT SPACING.
    - B. FLEXIBLE BASE TESTING SHALL INCLUDE – P.I., L.L., GRADATION, AND WET BALL MILL OF MATERIAL SHALL BE TESTED UPON DELIVERY TO THE PROJECT AND AS DIRECTED BY THE CITY. MOISTURE DENSITY TESTING SHALL BE AT THE MINIMUM RATE OF THREE (3) PER BLOCK AND SHALL NOT TO EXCEED FIVE HUNDRED (500) FOOT SPACING. THE QUALITY CONTROL TEST ON THE MATERIALS SHALL BE PERFORMED BY THE CONTRACTOR'S CITY APPROVED TESTING FIRM. IN-PLACE DENSITY SHALL MEET THE REQUIREMENTS DETAILED IN THE CITY'S SUBDIVISION REGULATIONS.
    - C. HOT AND WARM MIX ASPHALTIC CONCRETE (HMAC/WMAC) DENSITY – IN PLACE DENSITY TESTING SHALL RESULT BETWEEN 92% AND 97% OF THE MAXIMUM THEORETICAL GRAVITY PER TEX 207-F. A SET OF TWO (2) CORES SHALL BE RANDOMLY SAMPLED AT A DISTANCE NOT TO EXCEED FIVE HUNDRED (500) FOOT SPACING PER BLOCK. ALL QUALITY CONTROL NUCLEAR TESTING OF THE IN-PLACE HMAC/WMAC IS FOR QUALITY CONTROL INFORMATION ONLY. THE HMAC/WMAC THICKNESS IS REQUIRED TO BE MEASUREMENT BY CORE. FIELD QUALITY CONTROL PERSONNEL SHALL BE TXDOT LEVEL IB CERTIFIED AND BE PRESENT AT START AND THROUGH THE DURATION OF THE PLACEMENT OPERATONS OF THE HMAC/WMAC TO DOCUMENT DENSITY, THICKNESS, AND COMPACTION AND PLACEMENT OPERATIONS. THE CITY WILL DETERMINE THE REMOVAL AND REPLACEMENT OF ALL FAILED PRODUCTION AND PLACEMENT HMAC/WMAC TEST RESULTS.
    - D. RECYCLED ASPHALT SHINGLES (RAS) AND RECYCLED ASPHALT PAVEMENT (RAP) SHALL NOT BE USED IN ANY HMAC OR WMAC MIXES.
    - E. CONCRETE STRUCTURES – A MINIMUM OF ONE (1) SET OF COMPRESSIVE CONCRETE STRENGTH TEST OF 4, SIX (6) INCH DIAMETER CYLINDERS EACH WILL BE TESTED PER EACH STRUCTURE AND THE FREQUNCY SHALL BE NO LESS THAN ONE (1) SET PER SIXTY (60) CUBIC YARDS OF CONCRETE PLACED AND AT LEAST ONE (1) SET PER DAY.
    - F. CONCRETE CURB AND SIDEWALK – PROVIDE ONE (1) SET OF FOUR (4), SIX (6) INCH DIAMETER CYLINDERS PER EACH 500 LINEAR FEET OF CURB AND/OR SIDEWALK AND AT LEAST ONE (1) SET PER DAY.
    - G. THE CONTRACTOR SHALL SUBMIT CONCRETE, WMAC, AND HMAC DESIGNS A MINIMUM OF 2 WEEKS PRIOR TO THE PLACEMENT OF THE MATERIAL.
12. PROOF ROLLING – ALL SUBGRADE AND EACH LIFT OF BASE MATERIAL SHALL BE PROOF–ROLLED TO THE SATISFACTION OF THE CITY. THE CONTRACTOR SHALL PROVIDE THE NECESSARY EQUIPMENT AND OPERATORS FOR PROOF-ROLLING AS DIRECTED BY THE CITY. SOFT AND YIELDING AREAS DISCOVERED SHALL BE CORRECTED BY THE CONTRACTOR AT THEIR EXPENSE.
13. SURFACE STRUCTURES SUCH AS MAILBOXES, STREET SIGNS, FENCES, DRIVEWAYS, SIDEWALKS, LANDSCAPING, CONCRETE ISLANDS, CURBS OR CONCRETE DRIVEWAYS, ETC., VISIBLE AT THE TIME OF THE SURVEY ARE SHOWN ON THE PLANS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SAFEGUARD AND MAINTAIN ANY AND ALL SURFACE STRUCTURES DURING THE COURSE OF WORK AND TO REPLACE OR REPAIR THOSE ITEMS WHICH ARE DAMAGED BY THE CONTRACTOR WITH LIKE OR BETTER QUALITY AND SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL OR BETTER CONDITION (NO SEPARATE PAY ITEM).
14. LOCATIONS AND DEPTHS OF EXISTING UTILITIES SHOWN ON THE PLANS ARE UNDERSTOOD TO BE APPROXIMATE. ACTUAL LOCATIONS MUST BE FIELD VERIFIED BY THE CONTRACTOR AT LEAST 48 HOURS PRIOR TO CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, PROTECT THEM DURING CONSTRUCTION AND REPAIR ANY DAMAGE TO OTHER UTILITIES AT NO COST TO THE CITY OF CIBOLO.
15. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT ALL SIGNS AND BARRICADES ARE PROPERLY INSTALLED AND MAINTAINED. ALL LOCATIONS AND DISTANCES WILL BE DECIDED UPON IN THE FIELD BY THE CONTRACTOR, USING THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. THE CITY'S CONSTRUCTION INSPECTOR/TRAFFIC ENGINEERING REPRESENTATIVE WILL ONLY BE RESPONSIBLE TO INSPECT BARRICADES AND SIGNS. IF IN THE OPINION OF THE TRAFFIC ENGINEERING REPRESENTATIVE/ CONSTRUCTION INSPECTOR, THE TRAFIC CONTROL DEVICES DO NOT CONFORM TO ESTABLISHED STANDARDS, ARE INCORRECTLY PLACED OR INSUFFICIENT IN QUANTITY TO PROTECT THE TRAVELING GENERAL PUBLIC, THE CONSTRUCTION INSPECTOR WILL HAVE THE OPTION OF STOPPING THE OPERATIONS UNTIL SUCH TIME AS THE CONDITIONS ARE CORRECTED AT NO EXPENSE TO THE CITY OF CIBOLO.
16. DEVELOPER/CONTRACTOR TO INSTALL ALL STREET NAME SIGNS, STOP SIGNS, SPEED LIMIT, YIELD SIGNS, ETC. SIGNS & STREET NAMES SHALL MEET TEXAS MUTCD STANDARDS.
17. THE STREET CONTRACTOR IS REQUIRED TO ADJUST ALL EXISTING MANHOLES (SEE "ADJUSTING EXISTING MANHOLES" OF THE SPECIFICATION) AND WATER VALVES TO MATCH THE GRADE OF THE STREET SECTION OR THE ELEVATION SPECIFIED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
18. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192.181 ACCESS TO GAS VALVES MUST BE MAINTAINED AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.
19. CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIES AND OTHER UNDERGROUND STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. CONTRACTOR WILL NOTIFY ALL UTILITY COMPANIES AT LEAST 72 HOURS PRIOR TO EXCAVATION.

CITY OF CIBOLO	(210) 658-9900
GVSUD	(830) 914-2330
GVTC	(830) 885-4411
GVEC	1-800-401-8345
DIG TESS	1-800-344-8377
TEXAS STATE WIDE ONE CALL LOCATORS	1-800-545-6005 OR 811

TIME WARNER CABLE
AT&T
MCI
VERIZON

20. CONCRETE CURB SHALL BE CONSTRUCTED WITH A MAXIMUM OF EIGHTY (80) FEET BETWEEN EXPANSION JOINTS AND MARKED AT TEN (10) FOOT INTERVALS WITH APPROVED STEEL MARKING TOOLS. EXPANSION JOINTS SHALL BE PLACED AT THE BEGINNING OF ALL RADII AND AT A MAXIMUM OF EIGHTY (80) FOOT INTERVALS AS DIRECTED BY THE ENGINEER.
21. THE CONTRACTOR SHALL NOTIFY THE CITY PLANNING AND ENGINEERING DEPARTMENT (RUDY KLEIN A1 (210) 658-9900 EXT 3139) PRIOR TO PLACING BACKFILL OR CONCRETE AND PRIOR TO ANY TESTING. CONTRACTOR SHALL REQUEST INSPECTIONS A MINIMUM OF 24 HOURS IN ADVANCE. NO INSPECTIONS ARE AVAILABLE BETWEEN 12:00 P.M. AND 1:00 P.M. OR AFTER 4:00 PM DAILY, ON WEEKENDS, OR ON CITY HOLIDAYS.
22. CONCRETE SIDEWALKS SHALL HAVE TOOLED WEAKENED PLANE JOINTS EVERY FOUR (4) FEET AND DOWELED EXPANSION JOINT WITH ONE QUARTER INCH (¼) BITUMASTIC MATERIAL FORTY FEET (40) ON CENTER AND ABUTTING EXISTING STRUCTURES.
23. ALL WORKMANSHIP AND MATERIAL SHALL CONFORM TO THE CITY OF CIBOLO ORDINANCES FOR PUBLIC WORKS CONSTRUCTION AND GUADALUPE COUNTY
24. CONTRACTOR SHALL INSTALL CURB FOR HANDICAP RAMPS AS SHOWN ON THE PLANS AND ADA STANDARD PLAN SHEETS.
25. CONTRACTOR SHALL PROVIDE BRASS KEYS TO BE USED TO OPEN LOCKING MANHOLE COVERS ON DRAINAGE STRUCTURES DURING PRELIMINARY INSPECTION FOR ACCEPTANCE OF PROJECT.
26. EXISTING STREETS TRENCHES ARE TO BE BACKFILLED WITH FLOWABLE FILL FROM THE TOP OF THE BEDDING MATERIAL TO WITHIN TWO (2) INCHES OF THE FINISHED GRADE ALLOWING FOR THE SURFACE HMAC/WMAC.
27. REMOVE EXISTING CURB ON ALL NEW DRIVEWAYS AND PLACE THE COMPLETE PAVEMENT THICKNESS WITH A MINIMUM OF FIVE (5) INCHES THICKNESS ON RESIDENTIAL AND SIX (6) INCHES MINIMUM ON COMMERCIAL; DEPENDING ON TRAFFIC WEIGHT.
28. CONCRETE PLACED IN NEW DRIVEWAYS INCLUDING ALLEY'S SHALL MEET A MINIMUM 3,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
29. EXCESS MATERIAL IS TO BE DISPOSED OF AS DIRECTED BY THE ENGINEER. NO EXCESS MATERIAL SHALL BE DUMPED OR ALLOWED TO ENTER ANY WATERWAY, CULVERT OR OTHER DRAINAGE STRUCTURE. THE CONTRACTOR SHALL NOT PLACE ANY MATERIAL IN THE 100-YEAR FLOODPLAIN WITHOUT OBTAINING AN APPROVED FLOOD PLAIN PERMIT.
30. ANY WORK COMPLETED WITHOUT PRIOR AUTHORIZATION WHETHER INCLUDED IN THE PLANS AND SPECIFICATIONS OR NOT, SHALL NOT BE COMPENSATED BY THE CITY OF UNIVERSAL CITY.
31. PRIOR TO THE COMMENCEMENT OF ANY WORK, THE COUNTY MUST ATTEND A PRE-CONSTRUCTION MEETING INCLUDING (BUT NOT LIMITED TO) THE CITY, ENGINEER, CONTRACTOR, DEVELOPER'S INSPECTION REPRESENTATIVE, AND DEVELOPER'S CONSTRUCTION MATERIAL TESTING REPRESENTATIVE.
32. DURING CONSTRUCTION, NOTIFY THE COUNTY AT CONSTRUCTION@CO.GUADALUPE.TX.US AT LEAST 48 HOURS IN ADVANCE OF ANY WORK TO BE PERFORMED AFFECTING SUBGRADE, BASE, OR PAVEMENT INCLUDING BACKFILL OF ANY PROPOSED UTILITIES UNDERNEATH THE PAVEMENT AND FILL AREAS UPON WHICH PAVEMENT IS PROPOSED TO BE PLACED. SUCH NOTIFICATION IS ALSO REQUIRED BEFORE IMPLEMENTING ANY APPROVED TRAFFIC CONTROL PLANS ON EXISTING COUNTY-MAINTAINED ROADS. FULL CLOSURE OF COUNTY ROADS REQUIRES AT LEAST ONE MONTH ADVANCE NOTICE AND IS SUBJECT TO THE DISCRETION OF THE COUNTY ENGINEER AND POSSIBLE APPROVAL BY GUADALUPE COUNTY COMMISSIONERS COURT PER TRANSPORTATION CODE, CHAPTER 251.
33. DURING CONSTRUCTION, PROVIDE ALL INSPECTION AND TESTING REPORTS TO THE COUNTY AT CONSTRUCTION@CO.GUADALUPE.TX.US AS SOON AVAILABLE FOR IDENTIFICATION AND CORRECTION OF ANY EMERGING DEFICIENCIES.
34. AT THE COMPLETION OF CONSTRUCTION, PROVIDE AS-BUILT DRAWINGS.

CERTIFICATE OF APPROVAL BY CITY ENGINEER:

APPROVED ON THIS THE _____ DAY OF ____________, 20 _____, BY THE CITY ENGINEER, CITY OF CIBOLO, TEXAS.

____
CITY ENGINEER, CITY OF CIBOLO

"RELEASE OF THIS APPLICATION DOES NOT CONSTITUTE A VERIFICATION OF ALL DATA, INFORMATION AND CALCULATIONS SUPPLIED BY THE APPLICANT. THE ENGINEER OF RECORD IS SOLELY RESPONSIBLE FOR THE COMPLETENESS, ACCURACY AND ADEQUACY OF HIS/HER SUBMITTAL, WHETHER OR NOT THE APPLICATION IS REVIEWED FOR CODE COMPLIANCE BY THE CITY ENGINEER."

"ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER WHO PREPARED THEM. IN APPROVING THESE PLANS, THE CITY OF CIBOLO MUST RELY UPON THE ADEQUACY OF THE WORK OF THE DESIGN ENGINEER."

MISCELLANEOUS NOTES:

1. ACCESS TO THIS SITE IS PROVIDED THROUGH TWO PROPOSED DRIVEWAYS ALONG GREEN VALLEY RD.
2. DRIVEWAYS ARE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY TO DENOTE A POTENTIAL CONFLICT WITH DRAINAGE FACILITY AND/OR ADA RAMP. ALL DRIVEWAYS WILL BE BUILT WITH HOMEBUILDING.
3. ALL REQUIRED ADA RAMPS ARE SHOWN ON THE PLANS. ONLY ADA RAMPS WITHOUT RESIDENTIAL LOT FRONTAGE SHALL BE BUILT WITH THE STREET INFRASTRUCTURE.
4. CONTRACTOR SHALL REFERENCE TREE PLAN AND PRIVATE GRADING PLAN FOR CLEARING AND GRADING LIMITS.
5. PRIOR TO THE INSTALLATION OF STREET BASE MATERIAL, CONTRACTOR SHALL COORDINATE WITH ENGINEER AND UTILITY PROVIDERS TO INSTALL NECESSARY CONDUITS FOR UTILITY INSTALLATION.
6. CONTRACTOR IS RESPONSIBLE FOR ENSURING POSITIVE SITE DRAINAGE AT ALL TIMES DURING AND UPON COMPLETION OF INFRASTRUCTURE.
7. CONTRACTOR IS REQUIRED TO NOTIFY ENTERPRISE UTILITIES WHEN ENCROACHING UPON THE EXISTING GAS EASEMENT ON SITE.

CITY OF CIBOLO NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF CIBOLO DESIGN AND CONSTRUCTION MANUAL AND THE UNIFIED DEVELOPMENT CODE, HERE AFTER REFERRED TO THE UDC.
2. APPROVAL OF THESE CONSTRUCTION PLANS BY THE CITY OF CIBOLO DOES NOT CONSTITUTE A VERIFICATION OF ALL DATA, INFORMATION AND CALCULATIONS SUPPLIED BY THE APPLICANT. THE ENGINEER OF RECORD IS SOLELY RESPONSIBLE FOR THE COMPLETENESS, ACCURACY AND ADEQUACY OF HIS/HER SUBMITTAL WHETHER OR NOT THE APPLICATION IS REVIEWED FOR CODE COMPLIANCE BY THE CITY ENGINEER.
3. ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER WHO PREPARED THEM. IN APPROVING THESE PLANS, THE CITY OF CIBOLO MUST RELY ON THE ADEQUACY OF THE WORK OF THE ENGINEER.
4. DESIGN PROCEDURES ARE IN COMPLETE COMPLIANCE WITH THE CITY OF CIBOLO DESIGN AND CONSTRUCTION MANUAL. IT IS THE RESPONSIBILITY OF THE ENGINEER TO REQUEST A WAIVER FROM ANY ASPECT OF THESE PLANS THAT DO NOT COMPLY WITH THE UDC.
5. A MINIMUM OF TWO EXISTING BENCH MARKS TIED TO CITY OF CIBOLO GRID SHOULD BE SHOWN ON THE PLANS. IN ADDITION TWO PERMANENT BENCHMARKS PER SUBDIVISION SHALL BE INSTALLED IN EACH SUBDIVISION TO INCLUDE DESCRIPTION, LOCATION, AND ELEVATION AND TIE TO CITY OF CIBOLO STANDARDS WHEN POSSIBLE.
6. CAST BRONZE SURVEY MARKERS SHALL BE PLACED IN CONCRETE IN PERMANENT, ACCESSIBLE LOCATIONS AT THE TIME OF CONSTRUCTION. THE LOCATIONS OF THE MARKERS SHALL BE INDICATED ON THE CONSTRUCTION PLANS. A MINIMUM OF ONE MARKER SHALL BE PLACED FOR EACH 20 ACRES OF THE PROJECT.
7. PRIOR TO BEGINNING CONSTRUCTION, THE OWNER OR HIS AUTHORIZED REPRESENTATIVE SHALL CONVENE A PRE-CONSTRUCTION CONFERENCE BETWEEN THE CITY OF CIBOLO, CONSULTING ENGINEER, CONTRACTOR, AND ANY OTHER AFFECTED PARTIES. NOTIFY THE CITY OF CIBOLO AT LEAST 48 HOURS PRIOR TO THE TIME OF THE CONFERENCE AND 48 HOURS PRIOR TO THE BEGINNING OF CONSTRUCTION.
8. THE CONTRACTOR SHALL GIVE THE CITY A MINIMUM OF 48 HOURS NOTICE BEFORE BEGINNING EACH PHASE OF CONSTRUCTION.
9. BARRICADES, BUILT TO CITY OF CIBOLO SPECIFICATIONS, SHALL BE CONSTRUCTED ON ALL DEAD-END STREETS AND AS NECESSARY DURING CONSTRUCTION TO MAINTAIN JOB SAFETY. (STREETS, ETC. MAY BE LISTED IN ADDITION TO OR INSTEAD OF NOTE.)
10. IF BLASTING IS PLANNED BY THE CONTRACTOR, A BLASTING PERMIT MUST BE SECURED PRIOR TO COMMENCEMENT OF ANY BLASTING.
11. ANY EXISTING PAVEMENT, CURBS, AND/ OR SIDEWALKS DAMAGED OR REMOVED WILL BE REPAIRED BY THE CONTRACTOR AT HIS EXPENSE BEFORE ACCEPTANCE OF THE SUBDIVISION.
12. THE LOCATION OF ANY WATER AND / OR WASTEWATER LINES SHOWN ON THE PLANS MUST BE VERIFIED BY THE PUBLIC WORKS DEPARTMENT.
13. USE ONE CALL UTILITY SYSTEM: DIAL 1-800-344-8377, 48 HOURS BEFORE YOU DIG.
14. ALL STORM SEWER PIPES TO BE CLASS III RCP UNLESS NOTED OTHERWISE.

GENERAL NOTES:

FOR ROADS INTENDED FOR MAINTENANCE BY GUADALUPE COUNTY:

1. PRIOR TO THE COMMENCEMENT OF ANY WORK, THE COUNTY SHALL ATTEND A PRECONSTRUCTION MEETING INCLUDING (BUT NOT LIMITED TO) THE CITY, ENGINEER, CONTRACTOR, DEVELOPER'S INSPECTION REPRESENTATIVE, AND DEVELOPER'S CONSTRUCTION MATERIAL TESTING REPRESENTATIVE.
2. DURING CONSTRUCTION, NOTIFY THE COUNTY AT CONSTRUCTION@CO.GUADALUPE.TX.US AT LEAST 48 HOURS IN ADVANCE OF ANY WORK TO BE PERFORMED AFFECTING SUBGRADE, BASE, OR PAVEMENT INCLUDING BACKFILL OF ANY PROPOSED UTILITIES UNDERNEATH THE PAVEMENT AND FILL AREAS UPON WHICH PAVEMENT IS PROPOSED TO BE PLACED. SUCH NOTIFICATION IS ALSO REQUIRED BEFORE IMPLEMENTING ANY APPROVED TRAFFIC CONTROL PLANS ON EXISTING COUNTY-MAINTAINED ROADS. FULL CLOSURE OF COUNTY ROADS REQUIRES AT LEAST ONE MONTH ADVANCE NOTICE AND IS SUBJECT TO THE DISCRETION OF THE COUNTY ENGINEER AND POSSIBLE APPROVAL BY GUADALUPE COUNTY COMMISSIONERS COURT PER TRANSPORTATION CODE, CHAPTER 251.
3. DURING CONSTRUCTION, PROVIDE ALL INSPECTION AND TESTING REPORTS TO THE COUNTY AT CONSTRUCTION@CO.GUADALUPE.TX.US AS SOON AS AVAILABLE FOR IDENTIFICATION AND CORRECTION OF ANY EMERGING DEFICIENCIES.
4. AT THE COMPLETION OF CONSTRUCTION, PROVIDE AS-BUILT DRAWINGS AND A LETTER SIGNED AND SEALED BY THE ENGINEER OF RECORD CERTIFYING THAT:
    - ALL IMPROVEMENTS WERE MADE IN ACCORDANCE WITH THE APPROVED IMPROVEMENT PLANS AND COUNTY REGULATIONS.
    - ANY CHANGED IMPROVEMENTS WERE MADE IN ACCORDANCE WITH THE COUNTY'S REGULATIONS.
    - THE ELEVATIONS AND GRADES WERE TAKEN BY AN ON-SITE SURVEY ON A DATE SPECIFIED TO ENSURE THAT ALL PAVEMENT, INLETS, MANHOLES, AND APPURTENANCES ARE CONSTRUCTED TO GRADE AS SHOWN ON THE RECORD DRAWINGS AND ARE IN COMPLIANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.
    - ALL TRUNK STORM SEWERS AND LEADS ARE OF THE PROPER SIZED AND AND THAT ALL IMPROVEMENTS ARE CAPABLE OF PERFORMANCE AS DESIGNED AND APPROVED.

FOR ROADS INTENDED FOR PRIVATE MAINTENANCE:

1. PRIOR TO THE COMMENCEMENT OF ANY WORK, THE COUNTY SHALL ATTEND A PRECONSTRUCTION MEETING INCLUDING (BUT NOT LIMITED TO) THE CITY, ENGINEER, CONTRACTOR, DEVELOPER'S INSPECTION REPRESENTATIVE, AND DEVELOPER'S CONSTRUCTION MATERIAL TESTING REPRESENTATIVE.
2. DURING CONSTRUCTION, NOTIFY THE COUNTY AT CONSTRUCTION@CO.GUADALUPE.TX.US AT LEAST 48 HOURS IN ADVANCE OF ANY WORK TO BE PERFORMED AFFECTING SUBGRADE, BASE, OR PAVEMENT INCLUDING BACKFILL OF ANY PROPOSED UTILITIES UNDERNEATH THE PAVEMENT AND FILL AREAS UPON WHICH PAVEMENT IS PROPOSED TO BE PLACED. SUCH NOTIFICATION IS ALSO REQUIRED BEFORE IMPLEMENTING ANY APPROVED TRAFFIC CONTROL PLANS ON EXISTING COUNTY-MAINTAINED ROADS. FULL CLOSURE OF COUNTY ROADS REQUIRES AT LEAST ONE MONTH ADVANCE NOTICE AND IS SUBJECT TO THE DISCRETION OF THE COUNTY ENGINEER AND POSSIBLE APPROVAL BY GUADALUPE COUNTY COMMISSIONERS COURT PER TRANSPORTATION CODE, CHAPTER 251.
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4. AT THE COMPLETION OF CONSTRUCTION, PROVIDE AS-BUILT DRAWINGS.

CONSTRUCTION SEQUENCING: (LIST PROCESS ON CONSTRUCTION PLAN SET)

1. CALL THE PLANNING AND DEVELOPMENT SERVICES DEPARTMENT 48 HOURS PRIOR TO BEGINNING ANY WORK AND SCHEDULE A RECONSTRUCTION MEETING WITH THE CITY AND ALL AFFECTED UTILITY PROVIDERS, THE GENERAL CONTRACTOR, THE DEVELOPER AND THE DEVELOPER'S ENGINEER.
2. OBTAIN A SITE DEVELOPMENT PERMIT FROM THE PLANNING AND DEVELOPMENT SERVICES DEPARTMENT.
3. PROVIDE THE PLANNING AND DEVELOPMENT SERVICES DEPARTMENT WITH EVIDENCE ALL TCEQ LICENSES AND REQUIREMENTS ARE UP TO DATE.
4. INSTALL TEMPORARY EROSION CONTROLS AND TREE PROTECTION FENCING PRIOR TO ANY CLEARING AND GRUBBING. NOTIFY THE CITY WHEN INSTALLED.
5. ROUGH-CUT ALL REQUIRED OR NECESSARY PONDS. EITHER THE PERMANENT OUTLET STRUCTURE OR A TEMPORARY OUTLET MUST BE CONSTRUCTED PRIOR TO DEVELOPMENT OF ANY EMBANKMENT OR EXCAVATION THAT LEADS TO PONDING CONDITIONS. THE OUTLET SYSTEM MUST CONSIST OF A LOW-LEVEL OUTLET AND AN EMERGENCY OVERFLOW MEETING THE REQUIREMENTS OF THE UDC. THE OUTLET SYSTEM SHALL BE PROTECTED FROM EROSION AND SHALL BE MAINTAINED THROUGHOUT THE COURSE OF CONSTRUCTION UNTIL FINAL RESTORATION IS ACHIEVED.
6. DELIVER APPROVED ROUGH CUT SHEETS TO THE CITY ENGINEER PRIOR TO CLEARING AND GRUBBING.
7. ROUGH GRADE STREETS. NO DEVELOPMENT OF EMBANKMENT WILL BE PERMITTED AT THIS TIME.
8. INSTALL ALL UTILITIES TO BE LOCATED UNDER THE PROPOSED PAVEMENT OR WITHIN THE ROAD RIGHT-OF-WAY.
9. DELIVER STORM SEWER CUT SHEETS TO THE CITY ENGINEER.
10. BEGIN INSTALLATION OF STORM SEWER LINES. UPON COMPLETION, RESTORE AS MUCH DISTURBED AREA AS POSSIBLE, PARTICULARLY CHANNELS AND LARGE OPEN AREAS.
11. DELIVER FINAL GRADE CUT SHEETS TO THE CITY ENGINEER.
12. RE-GRADE STREETS TO SUB-GRADE.
13. ENSURE THAT UNDERGROUND UTILITY CROSSINGS ARE COMPLETED. LAY 1ST COURSE BASE MATERIAL ON STREETS.
14. INSTALL CURB AND GUTTER.
15. LAY FINAL BASE COURSE ON ALL STREETS.
16. LAY ASPHALT.
17. COMPLETE FINAL GRADING AND RESTORATION OF DETENTION, SEDIMENTATION / FILTRATION PONDS.
18. COMPLETE PERMANENT EROSION CONTROL AND RESTORATION OF SITE VEGETATION.
19. REMOVE AND DISPOSE OF TEMPORARY EROSION CONTROLS.
20. COMPLETE ANY NECESSARY FINAL DRESS UP OF AREAS DISTURBED.

CUDEENGINEERS.COM
CUDE ENGINEERS EST. 1980
4122 Pond Hill Road, Suite 101
San Antonio, Texas 78231
P:(210) 681.2951 F: (210)523.7112

GRACE VALLEY RANCH
PHASE 3B

GENERAL NOTES

DATE
08/05/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS
1.
2.
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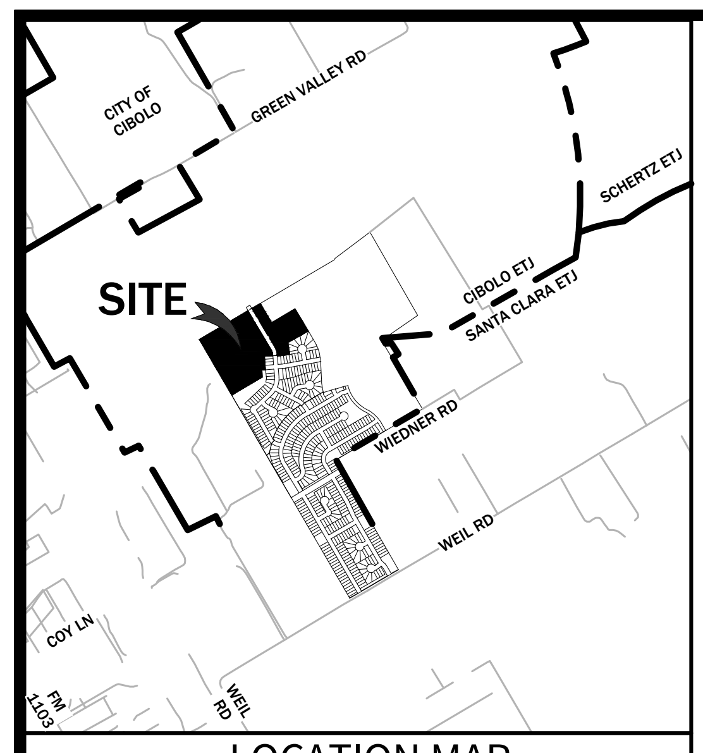
KYLE M. HUDEK
138753
K. Hudek 08/12/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500


CITY OF CIBOLO
GREEN VALLEY RD
SCHERTZ ETJ
SITE
CIBOLO ETJ
SANTA CLARA ETJ
WIEDNER RD
WEIL RD
COY LN
WEIL RD

LOCATION MAP
N.T.S.

DEVELOPER:

LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD.
CONTACT PERSON: RICHARD MOTT
100 NE LOOP 410, SUITE 1155
SAN ANTONIO, TX 78216
TEL: (210) 403-6200

CIVIL ENGINEER:

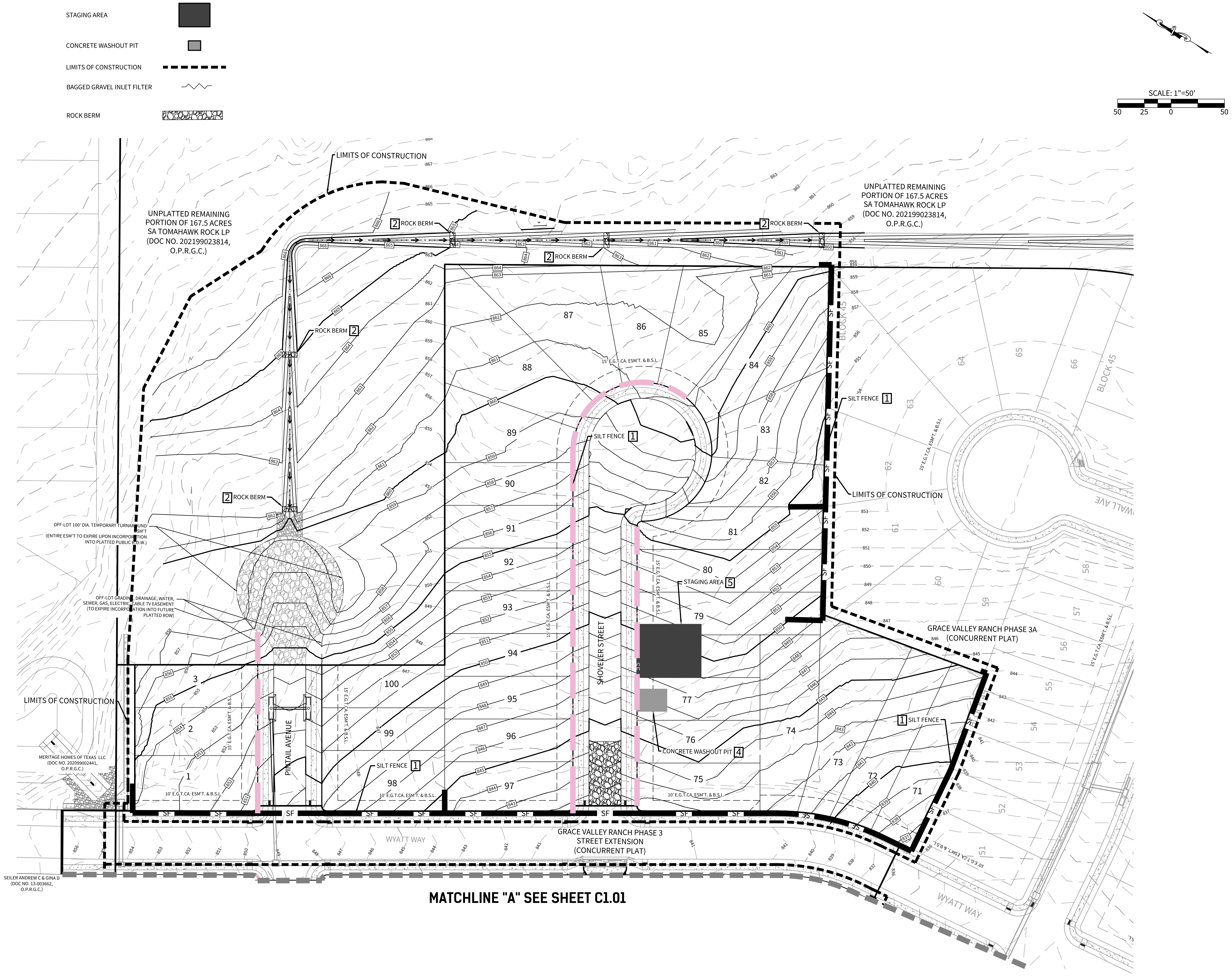
CUDE ENGINEERS
CONTACT PERSON: CHRIS CHAFFEE, P.E.
4122 POND HILL ROAD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951
FAX: (210) 523-7112

NOTE:

1. 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 SILT FENCE, ROCK BERMS AND/OR TEMPORARY CONSTRUCTION ENTRANCES/EXITS SHALL BE AT THE CONTRACTOR'S EXPENSE.
2. AREA OF SOIL DISTURBANCES INCLUDE STREET RIGHT-OF-WAYS, UTILITY EASEMENTS & LOTS.
3. THERE WILL NOT BE STORMWATER DISCHARGES INTO THE FEMA FLOOD PLAIN.
4. THE CONTRACTOR IS REQUIRED TO MAINTAIN EROSION CONTROLS THROUGHOUT THE DURATION OF THE PROJECT.
5. THE CITY 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.

LEGEND

PROPERTY LINE	───
EXISTING CONTOURS	— —930— —
BMP ITEM NUMBER	1
TEMPORARY CONSTRUCTION ENTRANCE/EXIT	▨
SILT FENCE	▬ SF ▬
SECONDARY SILT FENCE (TO BE INSTALLED ONCE GRADING IS COMPLETED)	▬ SF ▬
TERTIARY SILT FENCE (TO BE INSTALLED ONCE STREETS ARE INSTALLED)	▬ SF ▬
FLOW ARROW	→
STAGING AREA	■
CONCRETE WASHOUT PIT	■
LIMITS OF CONSTRUCTION	■ ■ ■ ■ ■ ■
BAGGED GRAVEL INLET FILTER	⁓
ROCK BERM	▨


SCALE: 1"=50'
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LIMITS OF CONSTRUCTION
UNPLATTED REMAINING PORTION OF 167.5 ACRES SA TOMAHAWK ROCK LP (DOC NO. 202199023814, O.P.R.G.C.)
UNPLATTED REMAINING PORTION OF 167.5 ACRES SA TOMAHAWK ROCK LP (DOC NO. 202199023814, O.P.R.G.C.)
2 ROCK BERM
2 ROCK BERM
2 ROCK BERM
ROCK BERM 2
2 ROCK BERM
OFF-LOT 100' DIA. TEMPORARY TURNAROUND ESM'T
(ENTIRE ESM'T TO EXPIRE UPON INCORPORATION INTO PLATTED PUBLIC R.O.W.)
OFF-LOT GRADING, DRAINAGE, WATER, SEWER, GAS, ELECTRIC, CABLE TV EASEMENT (TO EXPIRE INCORPORATION INTO FUTURE PLATTED ROW)
LIMITS OF CONSTRUCTION
MERITAGE HOMES OF TEXAS LLC (DOC NO. 202099002441, O.P.R.G.C.)
SEILER ANDREW C & GINA D (DOC NO. 13-003662, O.P.R.G.C.)
87
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83
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92
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75
73
72
71
3
2
1
15' E.G.T.CA. ESM'T. & B.S.L.
10' E.G.T.CA. ESM'T. & B.S.L.
SILT FENCE 1
SILT FENCE 1
SILT FENCE 1
1 SILT FENCE
1 SILT FENCE
LIMITS OF CONSTRUCTION
STAGING AREA 5
CONCRETE WASHOUT PIT 4
SHOVELER STREET
PINTAIL AVENUE
SF
GRACE VALLEY RANCH PHASE 3A (CONCURRENT PLAT)
GRACE VALLEY RANCH PHASE 3 STREET EXTENSION (CONCURRENT PLAT)
WYATT WAY
WYATT WAY
BLOCK 45
65
66
64
63
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52
51

MATCHLINE "A" SEE SHEET C1.01

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

GRACE VALLEY RANCH PHASE 3B

STORMWATER POLLUTION PREVENTION PLAN

DATE
08/05/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS
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KYLE M. HUDEK
138753
K Hudek
08/12/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C1.00

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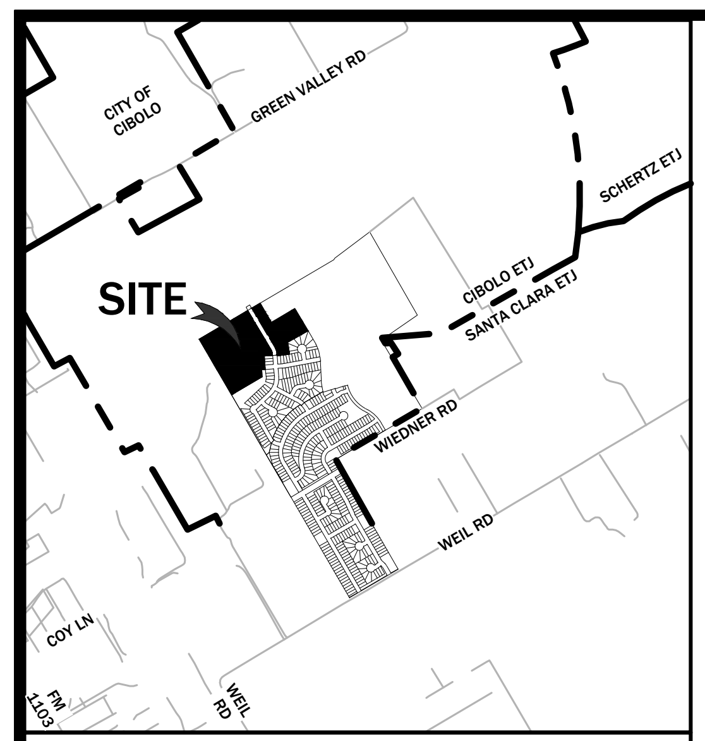
REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.


CITY OF CIBOLO
GREEN VALLEY RD
SCHERTZ ETJ
SITE
CIBOLO ETJ
SANTA CLARA ETJ
WIEDNER RD
WEIL RD
COY LN
FM 1518
WEIL RD

LOCATION MAP

N.T.S.

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LEGEND

PROPERTY LINE	━━━
EXISTING CONTOURS	— —930— —
BMP ITEM NUMBER	1
TEMPORARY CONSTRUCTION ENTRANCE/EXIT	▨
SILT FENCE	━ SF ━
SECONDARY SILT FENCE (TO BE INSTALLED ONCE GRADING IS COMPLETED)	━ SF ━
TERTIARY SILT FENCE (TO BE INSTALLED ONCE STREETS ARE INSTALLED)	━ SF ━
FLOW ARROW	→
STAGING AREA	■
CONCRETE WASHOUT PIT	■
LIMITS OF CONSTRUCTION	▬ ▬ ▬
BAGGED GRAVEL INLET FILTER	⌁
ROCK BERM	▨

DEVELOPER:

LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD.
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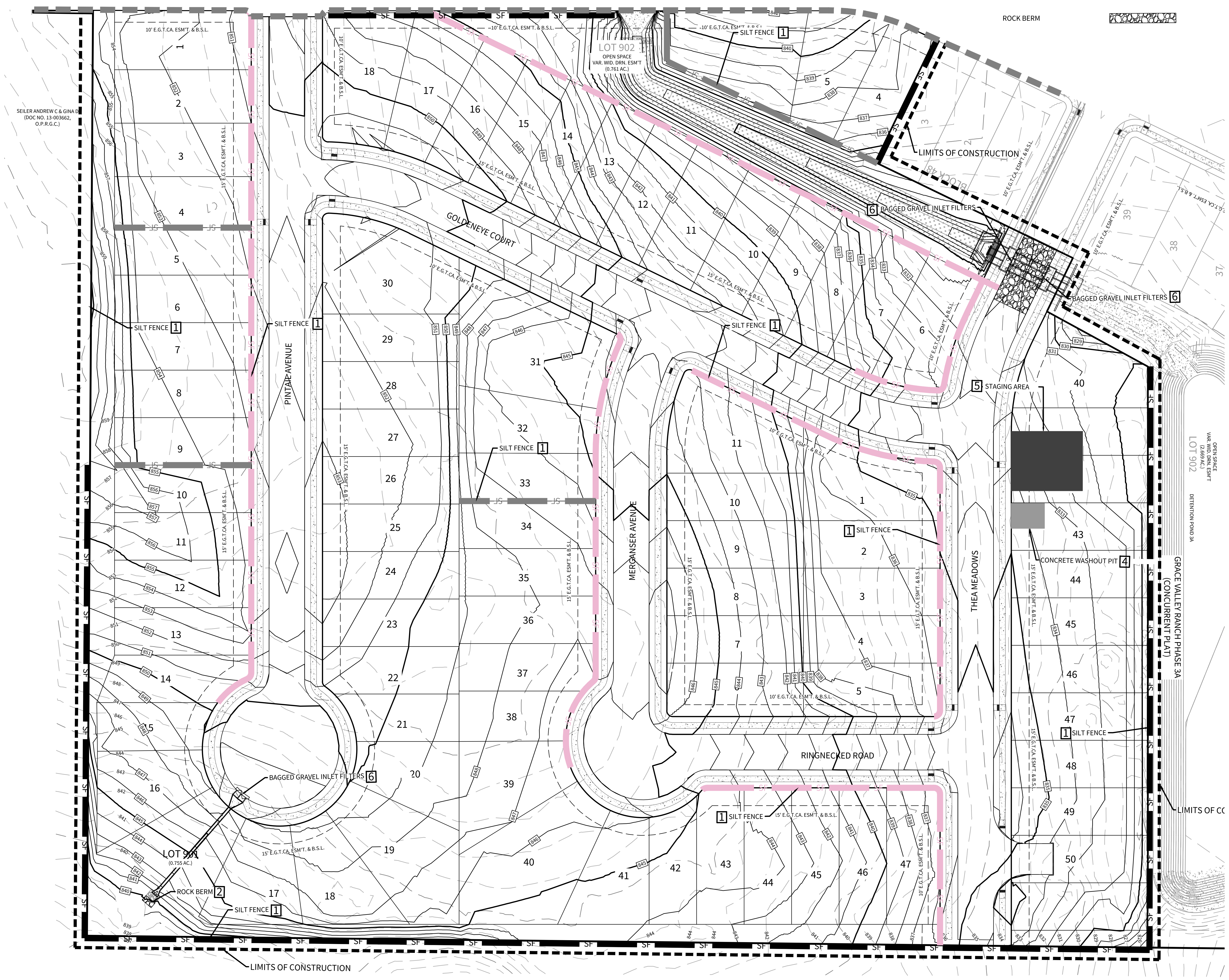
MATCHLINE "A" SEE SHEET C1.00


LOT 902
OPEN SPACE
VAR. WID. DRN. ESM'T
(0.761 AC.)
SEILER ANDREW C & GINA D
(DOC NO. 13-003662, O.P.R.G.C.)
SILT FENCE 1
LIMITS OF CONSTRUCTION
BAGGED GRAVEL INLET FILTERS 6
STAGING AREA 5
CONCRETE WASHOUT PIT 4
ROCK BERM 2
GOLDENEYE COURT
PINTAIL AVENUE
MERGANSER AVENUE
THEA MEADOWS
RINGNECKED ROAD
10' E.G.T.CA. ESM'T. & B.S.L.
15' E.G.T.CA. ESM'T. & B.S.L.
LOT 902
OPEN SPACE
VAR. WID. DRN. ESM'T
DETENTION POND 3A
GRACE VALLEY RANCH PHASE 3A
(CONCURENT PLAT)
LOT 901
(0.755 AC.)
LIMITS OF CO
SF

SCALE: 1"=50'

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EST. 1980 CUDE ENGINEERS

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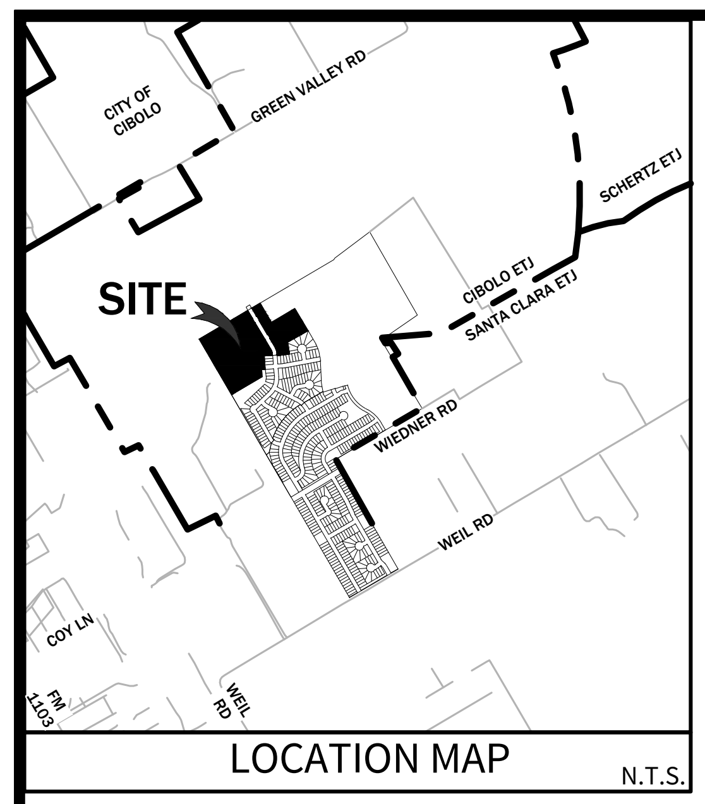
CITY OF CIBOLO
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SCHERTZ ETJ
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SANTA CLARA ETJ
WIEDNER RD
WEIL RD
COY LN
FM 1103
WEIL RD

LOCATION MAP

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NOTE:

LOT GRADING BASED ON SLABS BEING 15' BEHIND FRONT PROPERTY LINE.

MINIMUM SLAB EXPOSURE IS 1.0'.

ALL ELEVATIONS AT FRONT PROPERTY LINE ARE 0.30' ABOVE CURB ELEVATION ON LOCAL TYPE "A" STREETS.

TYPICAL PAD SIZES ARE 75' x 30' ON LOCAL TYPE "A" STREETS.

CONTRACTOR TO REFERENCE TREE PRESERVATION PLAN.

CONTOURS SHOWN ON STREET ARE TOP OF STREET.

CAUTION!!!

THE CONTRACTOR SHALL BE AWARE THAT EXISTING UTILITIES ARE WITHIN THE SITE. 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 SAFETY 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 EMPLOYEES 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.

LEGEND

PROPOSED CONTOUR	——1000——
EXISTING CONTOUR	— — 1000 — —
PROPOSED ELEVATION	× 1297.58
PROPOSED TOP OF WALL ELEVATION	× 1297.58 TW
PROPOSED BOTTOM OF WALL ELEVATION	× 1297.58 BW
EXISTING ELEVATION	× 672.00E
GRADE BREAK	▬ ▬ ▬ GRADE BREAK
BUILDING SETBACK	- - - - - - -
SWALE	— · · · → · · · → —

GENERAL SPECIFICATIONS FOR SITE PREPARATION

1. GENERAL DESCRIPTION

THIS ITEM SHALL CONSIST OF ALL CLEARING AND GRUBBING, DEMOLITION, PREPARATION OF LAND TO BE FILLED, FILLING OF THE LAND, SPREADING, COMPACTION TESTING AND INSPECTION OF THE FILL, AND ALL SUBSIDIARY WORK NECESSARY TO COMPLETE THE GRADING OF THE CUT AND FILL AREAS TO CONFORM WITH THE LINES, GRADES AND SLOPES AS SHOWN ON THE APPROVED PLANS.

ALL LOT GRADING MUST MEET REQUIREMENTS OF FHA/HUD HANDBOOK 4140.3, SPECIFICATIONS FOR LAND DEVELOPMENTS ON CONTROLLED EARTHWORK, DATASHEET 79G. HUD 79G REQUIREMENTS FOR FILL MATERIAL OF 6 INCHES AND MORE WILL BE CONDUCTED. ALL CUT AREAS WILL ALSO MEET THE REQUIREMENTS FOR HUD 79G COMPACTION TESTING. IN ADDITION, ENGINEERS MUST PROVIDED VERIFICATION OF ALL AREAS WHICH DO NOT REQUIRE HUD 79G.

2. CLEARING THE AREA TO BE FILLED

ALL TIMBER, LOGS, TREES, BRUSH AND RUBBISH SHALL BE REMOVED FROM THE SITE.

3. SCARIFYING THE AREA TO BE FILLED

ALL ORGANIC MATTER SHALL BE REMOVED FROM THE SURFACE UPON WHICH THE FILL IS TO BE PLACED, AND THE SURFACE SHALL THEN BE DISKED OR SCARIFIED TO A MINIMUM DEPTH OF SIX INCHES (6"), ALL SURFACE RUTS OR OTHER UNEVEN FEATURES WILL BE LEVELED PRIOR TO FIELD DENSITY TESTING.

4. COMPACTING THE AREA TO BE FILLED

FOLLOWING THE CLEARING AND DISKING OR SCARIFYING OF THE FILL AREA, IT SHALL BE BLADED UNTIL IT IS UNIFORM AND FREE FROM LARGE CLODS. THE AREA SHALL BE BROUGHT TO THE ADEQUATE MOISTURE CONTENT AND COMPACTED (TYPICALLY) TO NOT LESS THAN NINETY PERCENT (90%) OF MAXIMUM DENSITY IN ACCORDANCE WITH THE CURRENT ASTM D 1557 COMPACTION PROCEDURE, OR 95% OF MAXIMUM DENSITY IN ACCORDANCE WITH THE CURRENT THD--TEX--113--E COMPACTION PROCEDURE.

5. FILL MATERIALS

THE MATERIALS USED SHALL BE FREE FROM ORGANIC MATTER AND OTHER DELETERIOUS SUBSTANCES, SUCH AS TREES, BRUSH AND RUBBISH.

6. DEPTH AND MIXING OF FILL LAYERS

THE SELECTED FILL MATERIAL SHALL BE PLACED IN LEVEL, UNIFORM LAYERS WHICH, WHEN COMPACTED, SHALL HAVE A DENSITY CONFORMING TO THAT STIPULATED ABOVE. EACH LAYER SHALL BE THOROUGHLY MIXED DURING THE SPREADING TO ENSURE UNIFORMITY OF MATERIAL IN EACH LAYER. COMPACTED LAYER THICKNESS MAY VARY DEPENDING ON THE COMPACTION EQUIPMENT OF DEMONSTRATED CAPABILITY. THE MAXIMUM LOOSE DEPTH FOR ANY MATERIAL SHALL NOT EXCEED TWELVE INCHES (12"). FOR TESTING REQUIREMENTS OF FILL MATERIAL, SEE DENSITY TESTING.

7. ROCK

WHEN FILL MATERIAL INCLUDES ROCK, THE MAXIMUM ROCK SIZE SHALL BE AS APPROVED BY THE GEOTECHNICAL ENGINEER. NO LARGE ROCKS SHALL BE ALLOWED TO NEST AND ALL VOIDS MUST BE FILLED WITH SMALL STONES OR SOIL AND ADEQUATELY COMPACTED. NO LARGE ROCKS WILL BE PERMITTED WITHIN EIGHTEEN INCHES (18") OF THE FINISHED GRADE.

8. COMPACTION OF FILL LAYER

COMPACTION EQUIPMENT SHALL BE CAPABLE OF COMPACTING THE FILL TO THE SPECIFIED DENSITY. COMPACTION SHALL BE ACCOMPLISHED WHILE THE FILL MATERIAL IS AT OR NEAR THE APPROPRIATE MOISTURE CONTENT. COMPACTION OF EACH LAYER SHALL BE CONTINUOUS OVER THE ENTIRE STRUCTURAL AREA (BENEATH PROPOSED STRUCTURES).

9. COMPACTION OF SLOPES

THE FACES OF FILL SLOPES SHALL BE COMPACTED. COMPACTING OPERATIONS SHALL BE CONTINUED UNTIL THE SLOPE FACES ARE STABLE BUT NOT TOO DENSE FOR PLANTING ON THE SLOPES. COMPACTION OF THE SLOPE FACES MAY BE DONE PROGRESSIVELY IN INCREMENTS OF THREE TO FIVE FEET (3' TO 5') IN FILL HEIGHT AS THIS FILL PROGRESSES OR AFTER THE FILL HAS BEEN BROUGHT TO ITS TOTAL HEIGHT.

10. MOISTURE CONTENT

THE FILL MATERIAL SHALL BE COMPACTED AT THE APPROPRIATE MOISTURE CONTENT SPECIFIED FOR THE SOILS BEING USED. APPROPRIATE MOISTURE CONTENT IS DEFINED, TYPICALLY, AS OPTIMUM MOISTURE CONTENT; HOWEVER, FOR EXPANSIVE SOILS IT MAY BE GREATER THAN OPTIMUM MOISTURE CONTENT, AND OTHER MOISTURE CONTENTS MAY BE NECESSARY TO PRODUCE THE DESIRED RESULTS WITH CERTAIN SOILS.

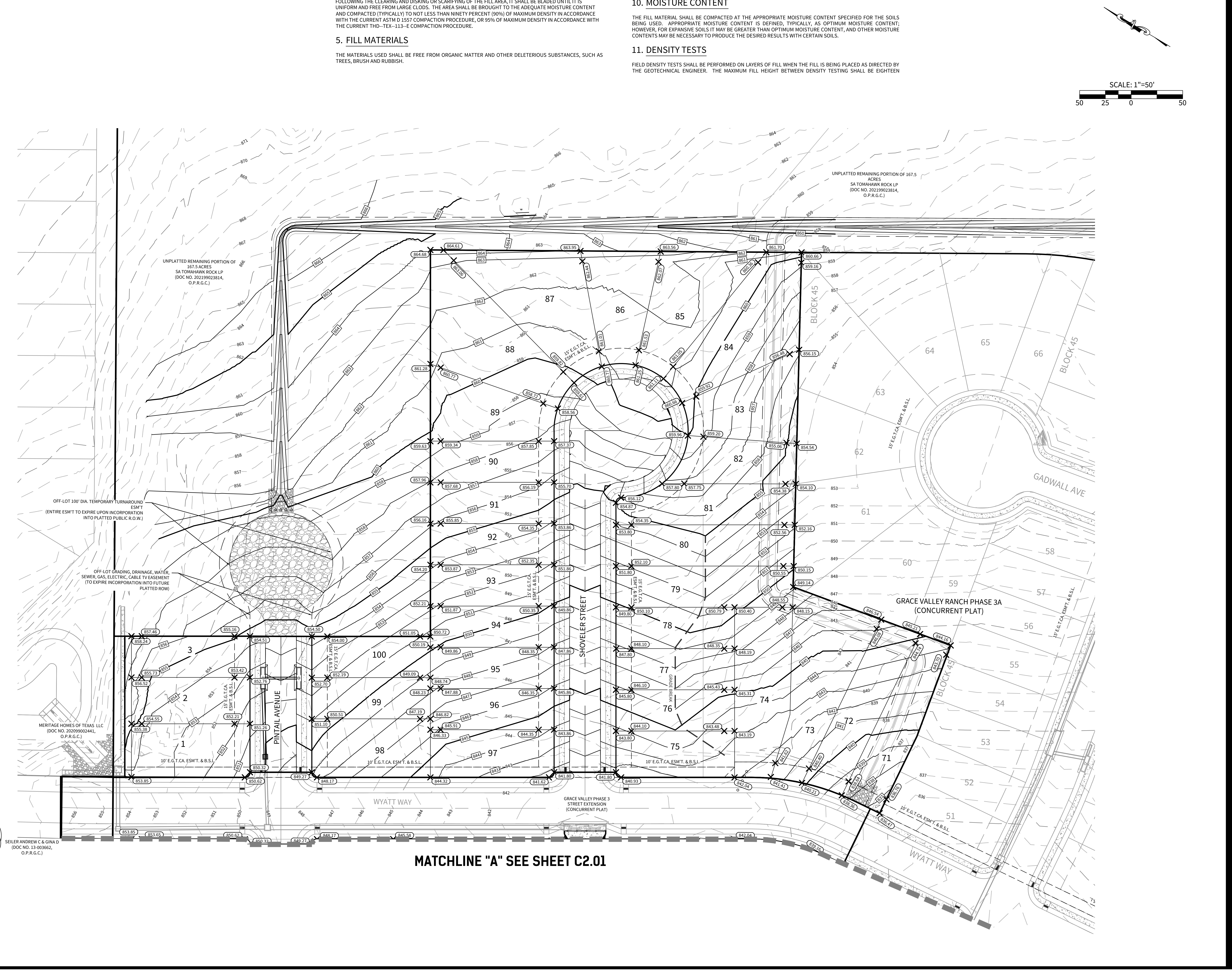
11. DENSITY TESTS

FIELD DENSITY TESTS SHALL BE PERFORMED ON LAYERS OF FILL WHEN THE FILL IS BEING PLACED AS DIRECTED BY THE GEOTECHNICAL ENGINEER. THE MAXIMUM FILL HEIGHT BETWEEN DENSITY TESTING SHALL BE EIGHTEEN INCHES (18"). ALL TESTING SHALL BE REQUESTED BY THE CONTRACTOR TO MEET THE CONTRACTOR'S CONSTRUCTION SCHEDULE. NOTIFICATION BY THE CONTRACTOR TO CONDUCT TESTS SHALL BE AT LEAST THE DAY BEFORE. THIS NOTIFICATION SHALL INCLUDE THE FILL AREA LOCATION (LOT AND BLOCK), THE LIFT OR HEIGHT OF FILL AND APPROXIMATE DESIRED TIME OF TESTING. WHEN THESE TESTS INDICATE THAT THE DENSITY OF ANY LAYER OF FILL OR PORTION THEREOF IS BELOW THE REQUIRED DENSITY, THE PARTICULAR LAYER OR PORTION SHALL BE REWORKED AND RETESTED AT THE EXPENSE OF THE CONTRACTOR UNLESS THE CONTRACTOR CAN SHOW EVIDENCE THAT CIRCUMSTANCES BEYOND HIS CONTROL REQUIRED THE RETESTING. GENERALLY, THE SPECIFIC TESTING WILL BE AS FOLLOWS AND CONDUCTED BY GEOTECHNICAL ENGINEER.

1. THE LAND TO BE FILLED (PREPARED SUBGRADE) SHALL BE PREPARED AND TESTED AT A FREQUENCY AS DETERMINED BY THE GEOTECHNICAL ENGINEER.
2. THE FIRST LIFT OF COMPACTED FILL (GENERALLY 8 TO 12-IN.) SHALL BE TESTED AS DETERMINED BY THE GEOTECHNICAL ENGINEER. ANY AREAS SUPPORTING THE PROPOSED STRUCTURES REQUIRING FILL SHALL BE TESTED FOR DENSITY COMPLIANCE.
3. FILLS SHALL BE TESTED A MAXIMUM OF EACH EIGHTEEN INCHES (18") OF FILL.
4. TEST RESULTS WILL BE PROVIDED BY THE FIELD TECHNICIAN TO THE CONTRACTOR WHEN POSSIBLE; HOWEVER, ALL TEST RESULTS ARE TO BE REVIEWED BY THE GEOTECHNICAL ENGINEER FOR COMPLIANCE. THE ENGINEER WILL NOTIFY THE CONTRACTOR OF ALL THE TEST RESULTS.

12. CUT/FILL LOTS

AREAS INVOLVING CUT ON ONE PORTION AND FILL ON ANOTHER PORTION OF A SPECIFIC LOT SHALL BE PREPARED TO A MINIMUM DEPTH OF 6-IN. AND WILL BE THE SAME MATERIAL CLASSIFICATION AT THE SAME COMPACTION AND MOISTURE CONTENT. A MINIMUM OF TWO (2) FIELD DENSITY TESTS SHALL BE REQUIRED ON EACH CUT/FILL LOT FOR THE PURPOSE OF DETERMINING UNIFORMITY OF THE AREA SUPPORTING THE PROPOSED STRUCTURES.


SCALE: 1"=50'
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UNPLATTED REMAINING PORTION OF 167.5 ACRES
SA TOMAHAWK ROCK LP
(DOC NO. 202199023814, O.P.R.G.C.)
UNPLATTED REMAINING PORTION OF 167.5 ACRES
SA TOMAHAWK ROCK LP
(DOC NO. 202199023814, O.P.R.G.C.)
OFF-LOT 100' DIA. TEMPORARY TURNAROUND ESM'T
(ENTIRE ESM'T TO EXPIRE UPON INCORPORATION INTO PLATTED PUBLIC R.O.W.)
OFF-LOT GRADING, DRAINAGE, WATER, SEWER, GAS, ELECTRIC, CABLE TV EASEMENT
(TO EXPIRE INCORPORATION INTO FUTURE PLATTED ROW)
MERITAGE HOMES OF TEXAS LLC
(DOC NO. 202099002441, O.P.R.G.C.)
SEILER ANDREW C & GINA D
(DOC NO. 13-003662, O.P.R.G.C.)
BLOCK 45
BLOCK 45
BLOCK 45
87
86
85
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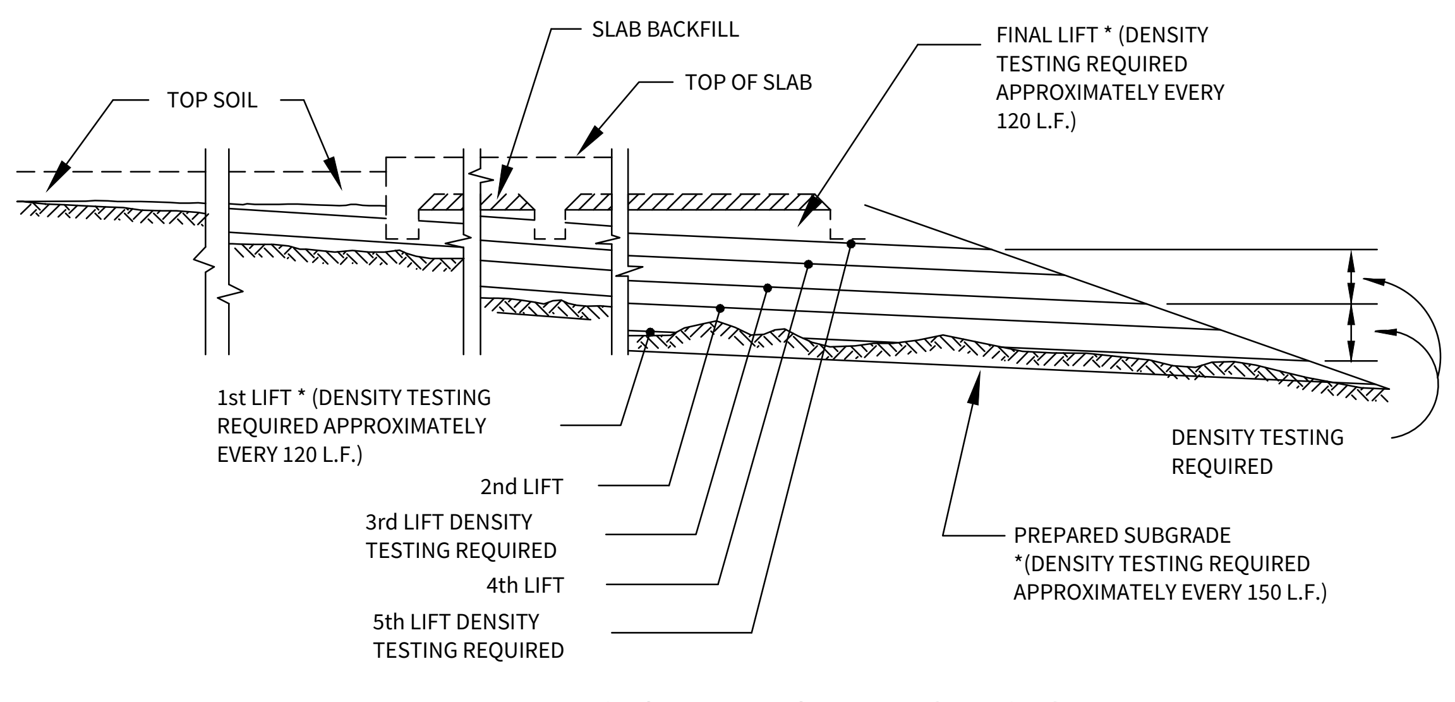
54
53
52
51
GADWALL AVE
PINTAIL AVENUE
SHOVELER STREET
WYATT WAY
WYATT WAY
GRADE BREAK
15' E.G.T.CA. ESM'T. & B.S.L.
10' E.G.T.CA. ESM'T. & B.S.L.
GRACE VALLEY RANCH PHASE 3A
(CONCURRENT PLAT)
GRACE VALLEY PHASE 3
STREET EXTENSION
(CONCURRENT PLAT)
857.46
858.24
855.16
854.51
860.66
859.16
852.35
851.86
852.10
851.80
850.55
850.15
849.14
850.35
849.86
849.80
850.10
850.79
850.40
848.55
848.15
846.54
845.21
844.16
848.35
847.86
847.80
848.10
848.19
846.08
844.74
843.70
846.35
845.86
845.80
846.10
845.43
845.31
844.35
843.86
843.80
844.10
843.48
843.19
841.62
841.80
841.80
840.93
842.04
841.41
840.21
838.36
838.64
836.76
836.47
841.62
840.40
842.04
839.16
MATCHLINE "A" SEE SHEET C2.01


SLAB BACKFILL
TOP SOIL
TOP OF SLAB
FINAL LIFT * (DENSITY TESTING REQUIRED APPROXIMATELY EVERY 120 L.F.)
1st LIFT * (DENSITY TESTING REQUIRED APPROXIMATELY EVERY 120 L.F.)
2nd LIFT
3rd LIFT DENSITY TESTING REQUIRED
4th LIFT
5th LIFT DENSITY TESTING REQUIRED
DENSITY TESTING REQUIRED
PREPARED SUBGRADE *(DENSITY TESTING REQUIRED APPROXIMATELY EVERY 150 L.F.)

DENSITY TEST FREQUENCY

NOT TO SCALE

CUDEENGINEERS.COM

EST. 1980 CUDE ENGINEERS

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

GRACE VALLEY RANCH PHASE 3B

GRADING PLAN

DATE	11/27/2024
PROJECT NO.	03346.010
DRAWN BY	M.A.S./R.B.
CHECKED BY	K.M.H.

REVISIONS

1.
2.
3.
4.
5.
6.
7.
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9.

KYLE M. HUDEK
138753
11/27/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C2.00

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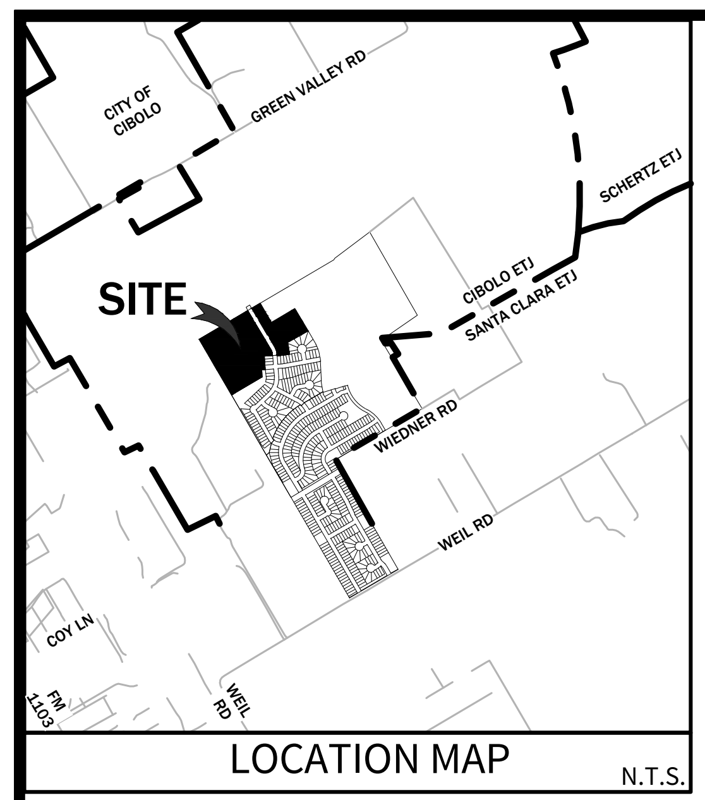


LOCATION MAP N.T.S.

DEVELOPER:

LENNAR HOMES OF TEXAS LAND AND
CONSTRUCTION, LTD.
CONTACT PERSON: RICHARD MOTT
100 NE LOOP 410, SUITE 1155
SAN ANTONIO, TX 78216
TEL: (210) 403-6200

CIVIL ENGINEER:

CUDE ENGINEERS
CONTACT PERSON: CHRIS CHAFFEE, P.E.
4122 POND HILL ROAD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951
FAX: (210) 523-7112

NOTE:

LOT GRADING BASED ON SLABS BEING 15' BEHIND FRONT PROPERTY LINE.

MINIMUM SLAB EXPOSURE IS 1.0'.

ALL ELEVATIONS AT FRONT PROPERTY LINE ARE 0.30' ABOVE CURB ELEVATION ON LOCAL TYPE "A" STREETS.

TYPICAL PAD SIZES ARE 75' x 30' ON LOCAL TYPE "A" STREETS.

CONTRACTOR TO REFERENCE TREE PRESERVATION PLAN.

CONTOURS SHOWN ON STREET ARE TOP OF STREET.

CAUTION!!!

THE CONTRACTOR SHALL BE AWARE THAT EXISTING UTILITIES ARE WITHIN THE SITE. 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 SAFETY 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 EMPLOYEES 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.

LEGEND

PROPOSED CONTOUR	—— 1000 ——
EXISTING CONTOUR	— — 1000 — —
PROPOSED ELEVATION	× 1297.58
PROPOSED TOP OF WALL ELEVATION	× 1297.58 TW
PROPOSED BOTTOM OF WALL ELEVATION	× 1297.58 BW
EXISTING ELEVATION	× 672.00E
GRADE BREAK	▬ ▬ ▬ GRADE BREAK
BUILDING SETBACK	- - - - - - - -
SWALE	—— · · · → · · · →——

GENERAL SPECIFICATIONS FOR SITE PREPARATION

1. GENERAL DESCRIPTION

THIS ITEM SHALL CONSIST OF ALL CLEARING AND GRUBBING, DEMOLITION, PREPARATION OF LAND TO BE FILLED, FILLING OF THE LAND, SPREADING, COMPACTION TESTING AND INSPECTION OF THE FILL, AND ALL SUBSIDIARY WORK NECESSARY TO COMPLETE THE GRADING OF THE CUT AND FILL AREAS TO CONFORM WITH THE LINES, GRADES AND SLOPES AS SHOWN ON THE APPROVED PLANS.

ALL LOT GRADING MUST MEET REQUIREMENTS OF FHA/HUD HANDBOOK 4140.3, SPECIFICATIONS FOR LAND DEVELOPMENTS ON CONTROLLED EARTHWORK, DATASHEET 79G. HUD 79G REQUIREMENTS FOR FILL MATERIAL OF 6 INCHES AND MORE WILL BE CONDUCTED. ALL CUT AREAS WILL ALSO MEET THE REQUIREMENTS FOR HUD 79G COMPACTION TESTING. IN ADDITION, ENGINEERS MUST PROVIDED VERIFICATION OF ALL AREAS WHICH DO NOT REQUIRE HUD 79G.

2. CLEARING THE AREA TO BE FILLED

ALL TIMBER, LOGS, TREES, BRUSH AND RUBBISH SHALL BE REMOVED FROM THE SITE.

3. SCARIFYING THE AREA TO BE FILLED

ALL ORGANIC MATTER SHALL BE REMOVED FROM THE SURFACE UPON WHICH THE FILL IS TO BE PLACED, AND THE SURFACE SHALL THEN BE DISKED OR SCARIFIED TO A MINIMUM DEPTH OF SIX INCHES (6"), ALL SURFACE RUTS OR OTHER UNEVEN FEATURES WILL BE LEVELED PRIOR TO FIELD DENSITY TESTING.

4. COMPACTING THE AREA TO BE FILLED

FOLLOWING THE CLEARING AND DISKING OR SCARIFYING OF THE FILL AREA, IT SHALL BE BLADED UNTIL IT IS UNIFORM AND FREE FROM LARGE CLODS. THE AREA SHALL BE BROUGHT TO THE ADEQUATE MOISTURE CONTENT AND COMPACTED (TYPICALLY) TO NOT LESS THAN NINETY PERCENT (90%) OF MAXIMUM DENSITY IN ACCORDANCE WITH THE CURRENT ASTM D 1557 COMPACTION PROCEDURE, OR 95% OF MAXIMUM DENSITY IN ACCORDANCE WITH THE CURRENT THD--TEX--113--E COMPACTION PROCEDURE.

5. FILL MATERIALS

THE MATERIALS USED SHALL BE FREE FROM ORGANIC MATTER AND OTHER DELETERIOUS SUBSTANCES, SUCH AS TREES, BRUSH AND RUBBISH.

6. DEPTH AND MIXING OF FILL LAYERS

THE SELECTED FILL MATERIAL SHALL BE PLACED IN LEVEL, UNIFORM LAYERS WHICH, WHEN COMPACTED, SHALL HAVE A DENSITY CONFORMING TO THAT STIPULATED ABOVE. EACH LAYER SHALL BE THOROUGHLY MIXED DURING THE SPREADING TO ENSURE UNIFORMITY OF MATERIAL IN EACH LAYER. COMPACTED LAYER THICKNESS MAY VARY DEPENDING ON THE COMPACTION EQUIPMENT OF DEMONSTRATED CAPABILITY. THE MAXIMUM LOOSE DEPTH FOR ANY MATERIAL SHALL NOT EXCEED TWELVE INCHES (12"). FOR TESTING REQUIREMENTS OF FILL MATERIAL, SEE DENSITY TESTING.

7. ROCK

WHEN FILL MATERIAL INCLUDES ROCK, THE MAXIMUM ROCK SIZE SHALL BE AS APPROVED BY THE GEOTECHNICAL ENGINEER. NO LARGE ROCKS SHALL BE ALLOWED TO NEST AND ALL VOIDS MUST BE FILLED WITH SMALL STONES OR SOIL AND ADEQUATELY COMPACTED. NO LARGE ROCKS WILL BE PERMITTED WITHIN EIGHTEEN INCHES (18") OF THE FINISHED GRADE.

8. COMPACTION OF FILL LAYER

COMPACTION EQUIPMENT SHALL BE CAPABLE OF COMPACTING THE FILL TO THE SPECIFIED DENSITY. COMPACTION SHALL BE ACCOMPLISHED WHILE THE FILL MATERIAL IS AT OR NEAR THE APPROPRIATE MOISTURE CONTENT. COMPACTION OF EACH LAYER SHALL BE CONTINUOUS OVER THE ENTIRE STRUCTURAL AREA (BENEATH PROPOSED STRUCTURES).

9. COMPACTION OF SLOPES

THE FACES OF FILL SLOPES SHALL BE COMPACTED. COMPACTING OPERATIONS SHALL BE CONTINUED UNTIL THE SLOPE FACES ARE STABLE BUT NOT TOO DENSE FOR PLANTING ON THE SLOPES. COMPACTION OF THE SLOPE FACES MAY BE DONE PROGRESSIVELY IN INCREMENTS OF THREE TO FIVE FEET (3' TO 5') IN FILL HEIGHT AS THIS FILL PROGRESSES OR AFTER THE FILL HAS BEEN BROUGHT TO ITS TOTAL HEIGHT.

10. MOISTURE CONTENT

THE FILL MATERIAL SHALL BE COMPACTED AT THE APPROPRIATE MOISTURE CONTENT SPECIFIED FOR THE SOILS BEING USED. APPROPRIATE MOISTURE CONTENT IS DEFINED, TYPICALLY, AS OPTIMUM MOISTURE CONTENT; HOWEVER, FOR EXPANSIVE SOILS IT MAY BE GREATER THAN OPTIMUM MOISTURE CONTENT, AND OTHER MOISTURE CONTENTS MAY BE NECESSARY TO PRODUCE THE DESIRED RESULTS WITH CERTAIN SOILS.

11. DENSITY TESTS

FIELD DENSITY TESTS SHALL BE PERFORMED ON LAYERS OF FILL WHEN THE FILL IS BEING PLACED AS DIRECTED BY THE GEOTECHNICAL ENGINEER. THE MAXIMUM FILL HEIGHT BETWEEN DENSITY TESTING SHALL BE EIGHTEEN INCHES (18"). ALL TESTING SHALL BE REQUESTED BY THE CONTRACTOR TO MEET THE CONTRACTOR'S CONSTRUCTION SCHEDULE. NOTIFICATION BY THE CONTRACTOR TO CONDUCT TESTS SHALL BE AT LEAST THE DAY BEFORE. THIS NOTIFICATION SHALL INCLUDE THE FILL AREA LOCATION (LOT AND BLOCK), THE LIFT OR HEIGHT OF FILL AND APPROXIMATE DESIRED TIME OF TESTING. WHEN THESE TESTS INDICATE THAT THE DENSITY OF ANY LAYER OF FILL OR PORTION THEREOF IS BELOW THE REQUIRED DENSITY, THE PARTICULAR LAYER OR PORTION SHALL BE REWORKED AND RETESTED AT THE EXPENSE OF THE CONTRACTOR UNLESS THE CONTRACTOR CAN SHOW EVIDENCE THAT CIRCUMSTANCES BEYOND HIS CONTROL REQUIRED THE RETESTING. GENERALLY, THE SPECIFIC TESTING WILL BE AS FOLLOWS AND CONDUCTED BY GEOTECHNICAL ENGINEER.

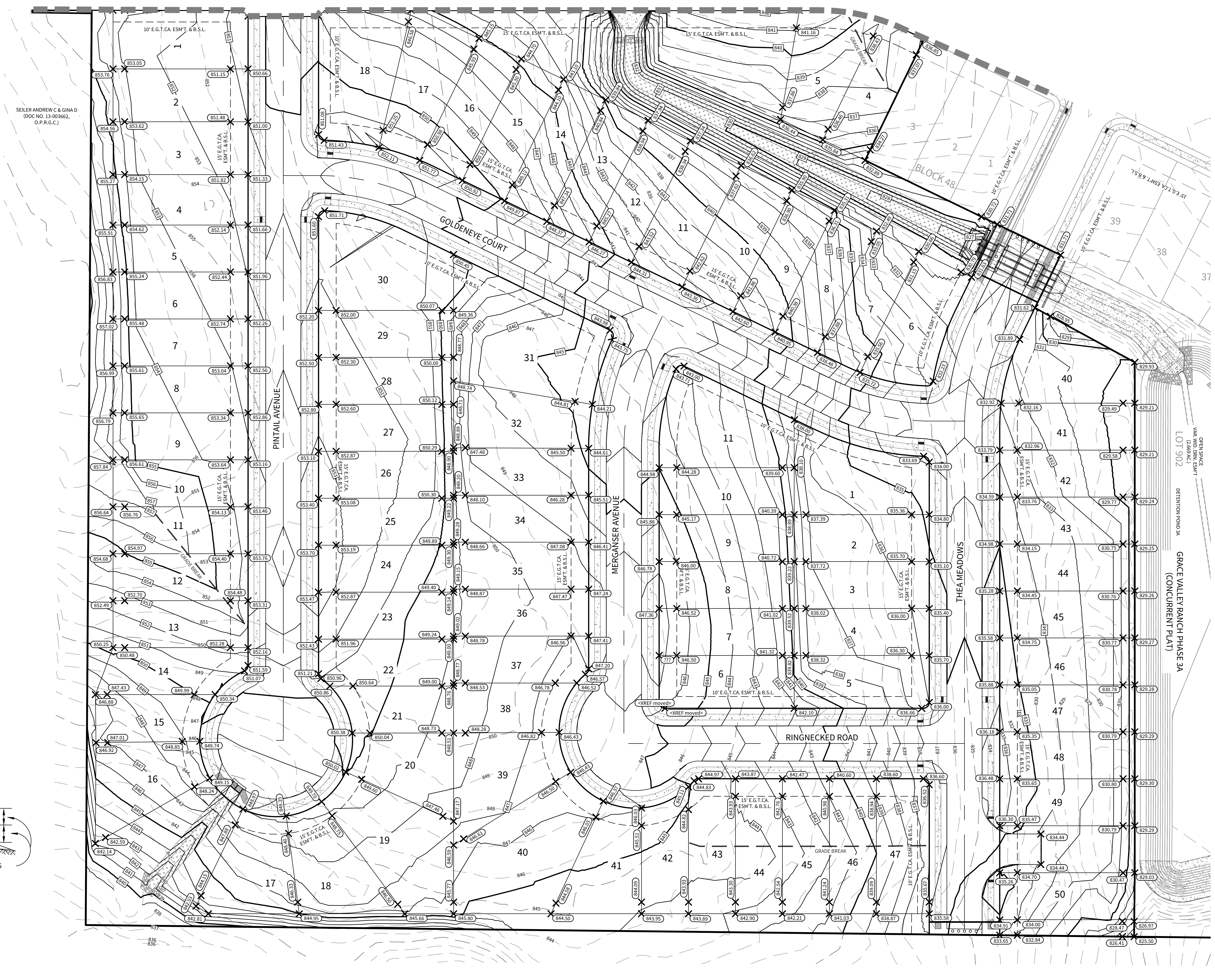
1. THE LAND TO BE FILLED (PREPARED SUBGRADE) SHALL BE PREPARED AND TESTED AT A FREQUENCY AS DETERMINED BY THE GEOTECHNICAL ENGINEER.
2. THE FIRST LIFT OF COMPACTED FILL (GENERALLY 8 TO 12-IN.) SHALL BE TESTED AS DETERMINED BY THE GEOTECHNICAL ENGINEER. ANY AREAS SUPPORTING THE PROPOSED STRUCTURES REQUIRING FILL SHALL BE TESTED FOR DENSITY COMPLIANCE.
3. FILLS SHALL BE TESTED A MAXIMUM OF EACH EIGHTEEN INCHES (18") OF FILL.
4. TEST RESULTS WILL BE PROVIDED BY THE FIELD TECHNICIAN TO THE CONTRACTOR WHEN POSSIBLE; HOWEVER, ALL TEST RESULTS ARE TO BE REVIEWED BY THE GEOTECHNICAL ENGINEER FOR COMPLIANCE. THE ENGINEER WILL NOTIFY THE CONTRACTOR OF ALL THE TEST RESULTS.

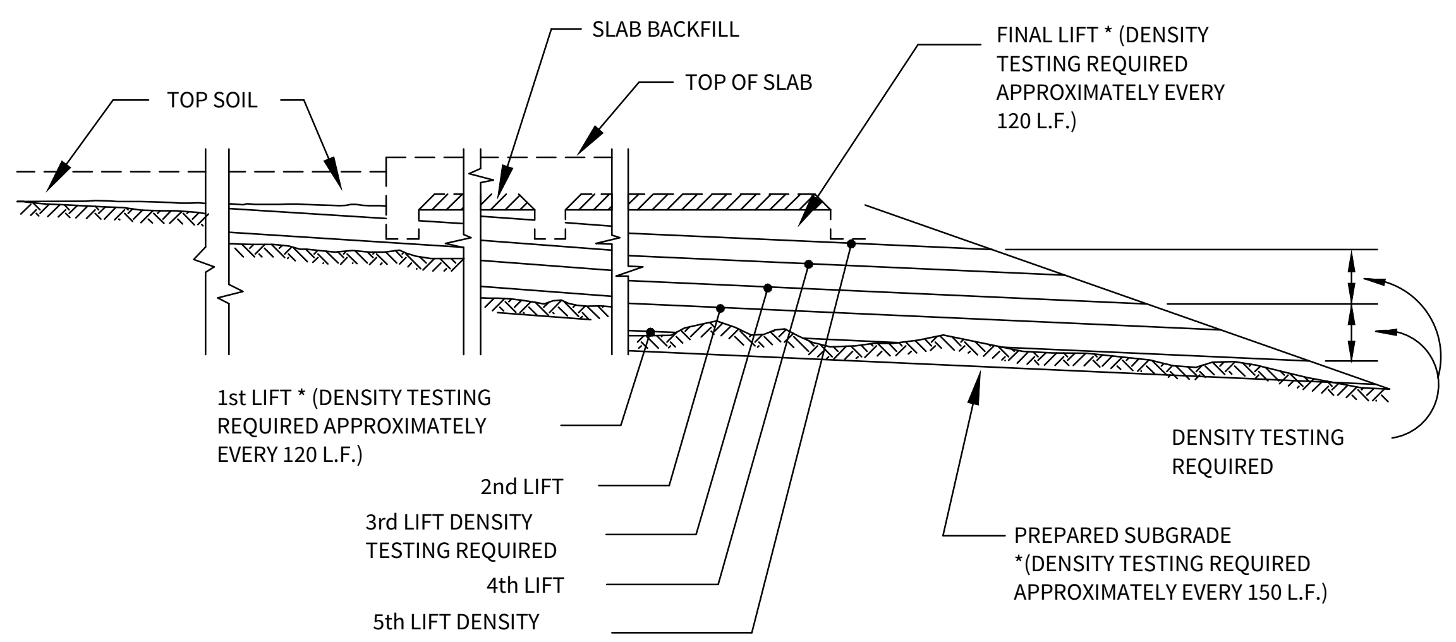
12. CUT/FILL LOTS

AREAS INVOLVING CUT ON ONE PORTION AND FILL ON ANOTHER PORTION OF A SPECIFIC LOT SHALL BE PREPARED TO A MINIMUM DEPTH OF 6-IN. AND WILL BE THE SAME MATERIAL CLASSIFICATION AT THE SAME COMPACTION AND MOISTURE CONTENT. A MINIMUM OF TWO (2) FIELD DENSITY TESTS SHALL BE REQUIRED ON EACH CUT/FILL LOT FOR THE PURPOSE OF DETERMINING UNIFORMITY OF THE AREA SUPPORTING THE PROPOSED STRUCTURES.

MATCHLINE "A" SEE SHEET C2.00

SCALE: 1"=50'
50 25 0 50


GOLDENEYE COURT
PINTAIL AVENUE
MERGANSER AVENUE
THEA MEADOWS
RINGNECKED ROAD
BLOCK 48
LOT 902
OPEN SPACE
DETENTION POND 3A
GRACE VALLEY RANCH PHASE 3A (CONCURRENT PLAT)
SEILER ANDREW C & GINA D (DOC NO. 13-003662, O.P.R.G.C.)
15' E.G.T.CA. ESM'T. & B.S.L.
10' E.G.T.CA. ESM'T. & B.S.L.
GRADE BREAK


TOP SOIL
SLAB BACKFILL
TOP OF SLAB
FINAL LIFT * (DENSITY TESTING REQUIRED APPROXIMATELY EVERY 120 L.F.)
1st LIFT * (DENSITY TESTING REQUIRED APPROXIMATELY EVERY 120 L.F.)
2nd LIFT
3rd LIFT DENSITY TESTING REQUIRED
4th LIFT
5th LIFT DENSITY TESTING REQUIRED
DENSITY TESTING REQUIRED
PREPARED SUBGRADE *(DENSITY TESTING REQUIRED APPROXIMATELY EVERY 150 L.F.)

DENSITY TEST FREQUENCY

NOT TO SCALE

CUDEENGINEERS.COM

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

GRACE VALLEY RANCH
PHASE 3B

GRADING PLAN

DATE
11/14/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS
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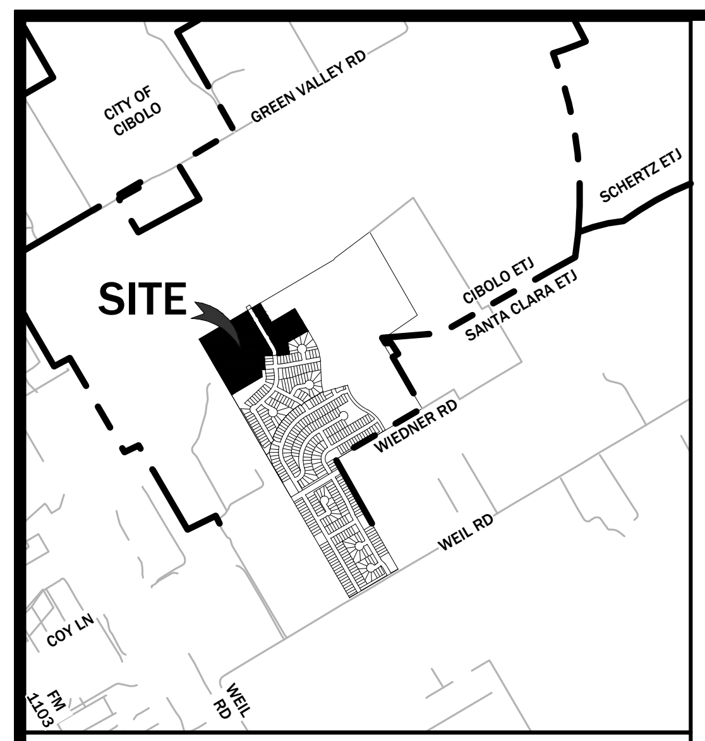
KYLE M. HUDEK
138753
11/14/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C2.01

P:\03346\010\2-DWG\4-Plans\09_GRAD.dwg 2024/11/14 7:57am msandoval


SITE
CITY OF CIBOLO
GREEN VALLEY RD
SCHERTZ ETJ
CIBOLO ETJ
SANTA CLARA ETJ
WIEDNER RD
WEIL RD
COY LN
FM 1103
WEIL RD

LOCATION MAP
N.T.S.

DEVELOPER:

LENNAR HOMES OF TEXAS LAND AND
CONSTRUCTION, LTD.
CONTACT PERSON: RICHARD MOTT
100 NE LOOP 410, SUITE 1155
SAN ANTONIO, TX 78216
TEL: (210) 403-6200

CIVIL ENGINEER:

CUDE ENGINEERS
CONTACT PERSON: CHRIS CHAFFEE, P.E.
4122 POND HILL ROAD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951
FAX: (210) 523-7112

CAUTION!!!

THE CONTRACTOR SHALL BE AWARE THAT EXISTING UTILITIES ARE WITHIN THE SITE. 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 SAFETY 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 EMPLOYEES 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.

NOTE

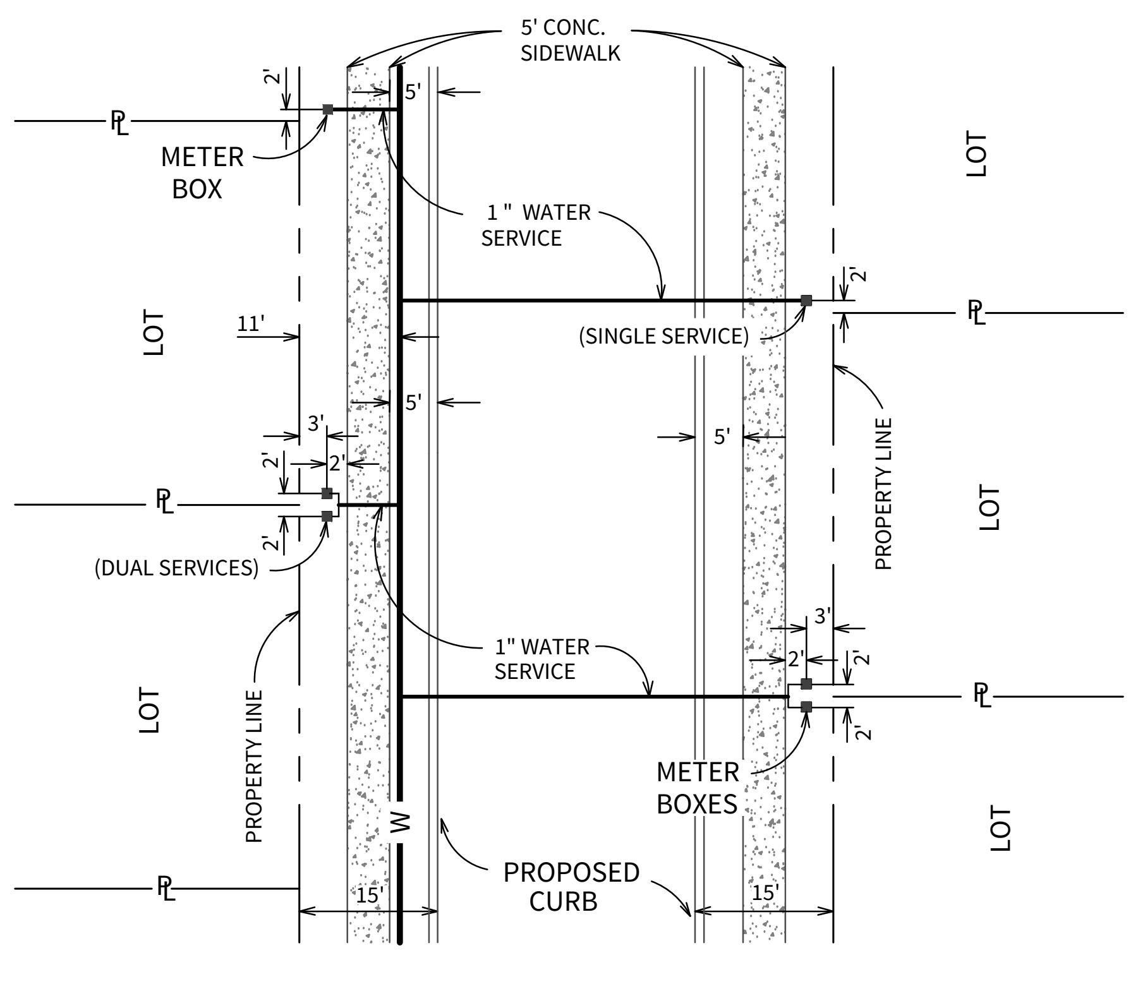
WATER METERS TO BE PLACED WITHIN RIGHT-OF-WAY TO AVOID CONFLICT WITH TRANSFORMERS/SECONDARY ENCLOSURE ELECTRIC SERVICE.

*CONDUIT SLEEVE NOTE:

1. SLEEVE INSTALLATION TO BE COMPLETED IN ACCORDANCE TO GVEC ISSUED ELECTRICAL PLAN.

GVEC REQUIREMENTS FOR ELECTRIC UTILITY ROAD CROSSINGS

1. ONLY 2 ½ INCH SCHEDULE 40 GRAY ELECTRICAL CONDUIT IS TO BE USED AND IS TO BE SUPPLIED BY THE DEVELOPER. ALL JOINTS MUST BE GLUED.
2. ROAD CROSSINGS MUST BE INSTALLED 3 FT. BELOW FINAL SUB-GRADE OR 4 FT. FROM FINAL GRADE ON NON-WATER SIDE. WHEN ELECTRICAL CROSSINGS ARE REQUIRED TO CROSS WATER MAINS, THEY MUST BE 2 FT. BELOW OR 2 FT ABOVE WATER MAINS, BUT NOT LESS THAN 48 INCHES OF COVER BELOW FINAL GRADE (PIT SAND MAY BE REQUIRED BY SOME WATER UTILITIES).
3. ALL CONDUIT PIPES SHOULD BE LAID FLAT IN THE DITCH, SIDE BY SIDE, NOT STACKED OR TWISTED. IF MORE THAN TWO PIPES ARE IN A DITCH YOU MUST NUMBER THE INSIDE, BOTTOM OF EACH PIPE (EX: 1, 2, 3, ETC.)
4. ALL OTHER UTILITIES MUST MAINTAIN A MINIMUM OF 3 FT. OF SEPARATION FROM THE ELECTRICAL CROSSING DITCH.
5. NO OTHER UTILITY CROSSINGS SHOULD BE STUBBED OUT IN FRONT OF ELECTRICAL TRANSFORMERS OR SWITCHES.
6. NO OTHER UTILITIES ARE TO BE PLACED IN THE SAME DITCH AS THE ELECTRICAL CROSSING.
7. ALL CROSSINGS ARE TO BE INSTALLED AT THE PROPERTY LINE UNLESS THERE ARE WATER METERS EXISTING ON EACH SIDE OF THE PROPERTY LINE AT THE CROSSING LOCATION. AT LOCATIONS WHERE WATER METER CONFLICTS EXIST, THE ELECTRICAL CROSSING MUST BE MOVED 7' FROM THE PROPERTY LINE TO AVOID WATER METERS. ALL OTHER UTILITY CROSSINGS MUST BE LOCATED 3 FT. ON OPPOSITE SIDE OF PROPERTY LINE.
8. ALL CROSSINGS MUST BE INSPECTED BY A GVEC REPRESENTATIVE BEFORE THEY ARE BACKFILLED. PLEASE PROVIDE ONE WEEK NOTICE AS TO WHEN INSPECTIONS WILL BE NEEDED.
9. ALL UTILITY CONDUIT LOCATIONS SHALL BE PROVIDED ON A SEPARATE EXHIBIT THAT MUST BE REQUESTED BY THE CONTRACTOR TO THE ENGINEER.

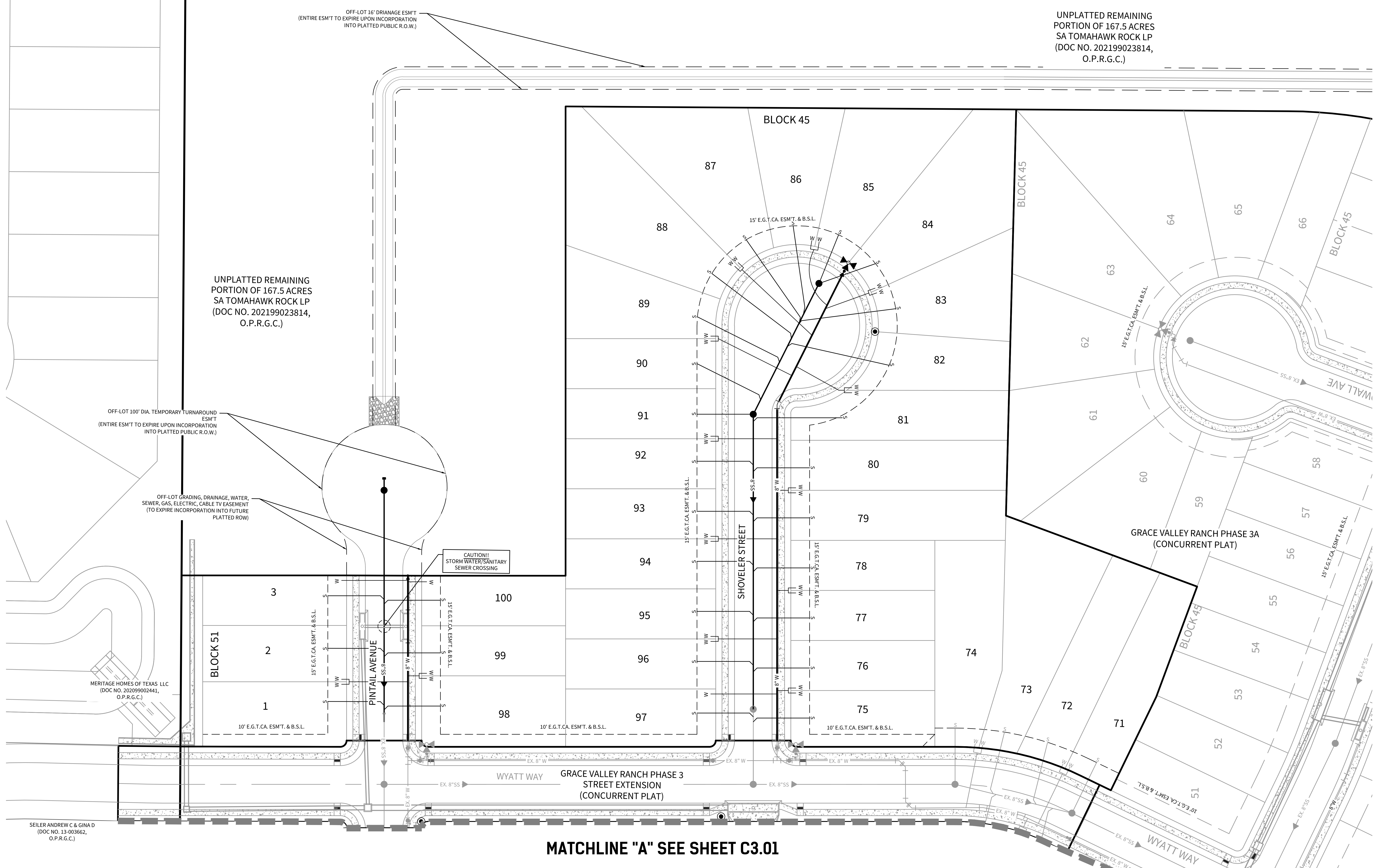

5' CONC. SIDEWALK
2'
5'
℄
METER BOX
1" WATER SERVICE
(SINGLE SERVICE)
LOT
11'
5'
3'
2'
2'
℄
2'
(DUAL SERVICES)
5'
PROPERTY LINE
LOT
1" WATER SERVICE
3'
2'
2'
℄
2'
METER BOXES
LOT
PROPERTY LINE
W
PROPOSED CURB
℄
15'
15'
LOT

WATER METER BOX LOCATION (60' R.O.W.)
N.T.S.

LEGEND

EXISTING SANITARY SEWER	EX.8"SS
PROPOSED SANITARY SEWER	8"SS
EXISTING SANITARY SEWER MANHOLE	●
PROPOSED SANITARY SEWER MANHOLE	●
EXISTING WATER MAIN	EX.8"W
PROPOSED WATER MAIN	8"W
EXISTING STANDARD FIRE HYDRANT	⧓
PROPOSED STANDARD FIRE HYDRANT	⧓
EXISTING STANDARD GATE VALVE	●
PROPOSED STANDARD GATE VALVE	●
EXISTING PERMANENT BLOWOFF	▸
PROPOSED PERMANENT BLOWOFF	▸
PROPOSED LIGHT POLE	◉
EXISTING OVERHEAD ELECTRIC	OHE
ELECTRIC, GAS, TELEPHONE, & CABLE T.V. EASEMENT	E.G.T.CA. ESM'T
BUILDING SETBACK LINE	B.S.L.

SCALE: 1"=50'
50 25 0 50


OFF-LOT 16' DRIANAGE ESM'T
(ENTIRE ESM'T TO EXPIRE UPON INCORPORATION INTO PLATTED PUBLIC R.O.W.)
UNPLATTED REMAINING PORTION OF 167.5 ACRES SA TOMAHAWK ROCK LP (DOC NO. 202199023814, O.P.R.G.C.)
UNPLATTED REMAINING PORTION OF 167.5 ACRES SA TOMAHAWK ROCK LP (DOC NO. 202199023814, O.P.R.G.C.)
OFF-LOT 100' DIA. TEMPORARY TURNAROUND ESM'T
(ENTIRE ESM'T TO EXPIRE UPON INCORPORATION INTO PLATTED PUBLIC R.O.W.)
OFF-LOT GRADING, DRAINAGE, WATER, SEWER, GAS, ELECTRIC, CABLE TV EASEMENT (TO EXPIRE INCORPORATION INTO FUTURE PLATTED ROW)
CAUTION!! STORM WATER/SANITARY SEWER CROSSING
BLOCK 45
BLOCK 51
BLOCK 45
BLOCK 45
BLOCK 49
87
86
85
84
88
83
89
82
90
91
81
92
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93
79
94
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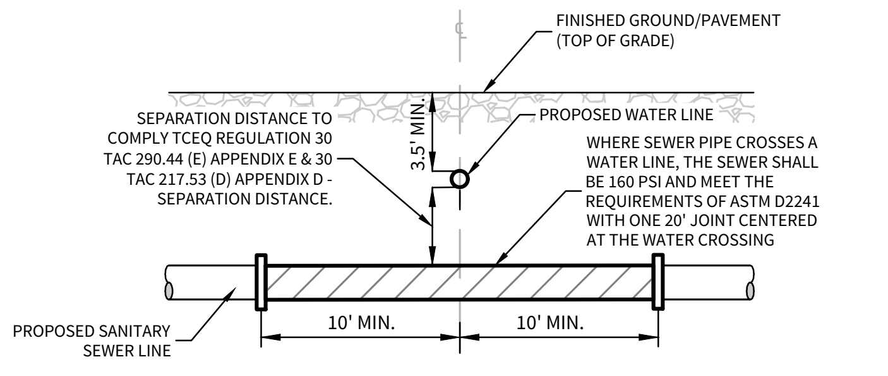
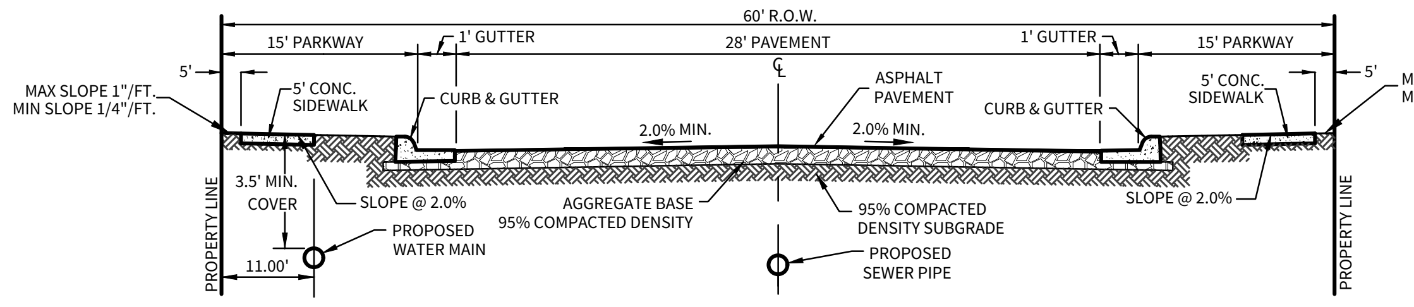
54
53
52
51
15' E.G.T.CA. ESM'T. & B.S.L.
10' E.G.T.CA. ESM'T. & B.S.L.
SHOVELER STREET
PINTAIL AVENUE
WYATT WAY
WYATT WAY
8"SS
8"W
EX. 8"SS
EX. 8"W
GRACE VALLEY RANCH PHASE 3A (CONCURRENT PLAT)
GRACE VALLEY RANCH PHASE 3 STREET EXTENSION (CONCURRENT PLAT)
MERITAGE HOMES OF TEXAS LLC (DOC NO. 202099002441, O.P.R.G.C.)
SEILER ANDREW C & GINA D (DOC NO. 13-003662, O.P.R.G.C.)

MATCHLINE "A" SEE SHEET C3.01


℄
FINISHED GROUND/PAVEMENT (TOP OF GRADE)
3.5' MIN.
PROPOSED WATER LINE
SEPARATION DISTANCE TO COMPLY TCEQ REGULATION 30 TAC 290.44 (E) APPENDIX E & 30 TAC 217.53 (D) APPENDIX D - SEPARATION DISTANCE.
WHERE SEWER PIPE CROSSES A WATER LINE, THE SEWER SHALL BE 160 PSI AND MEET THE REQUIREMENTS OF ASTM D2241 WITH ONE 20' JOINT CENTERED AT THE WATER CROSSING
PROPOSED SANITARY SEWER LINE
10' MIN.
10' MIN.

TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL
N.T.S.


60' R.O.W.
15' PARKWAY
1' GUTTER
28' PAVEMENT
1' GUTTER
15' PARKWAY
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5'
5'
MAX SLOPE 1"/FT. MIN SLOPE 1/4"/FT.
5' CONC. SIDEWALK
CURB & GUTTER
ASPHALT PAVEMENT
CURB & GUTTER
5' CONC. SIDEWALK
MAX SLOPE 1"/FT. MIN SLOPE 1/4"/FT.
2.0% MIN.
2.0% MIN.
3.5' MIN. COVER
SLOPE @ 2.0%
AGGREGATE BASE 95% COMPACTED DENSITY
95% COMPACTED DENSITY SUBGRADE
SLOPE @ 2.0%
PROPOSED WATER MAIN
11.00'
PROPOSED SEWER PIPE
PROPERTY LINE
PROPERTY LINE

LOCAL "A" STREET CROSS-SECTION
N.T.S.

CUDEENGINEERS.COM

CUDE ENGINEERS EST. 1980

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

GRACE VALLEY RANCH PHASE 3B

UTILITY LAYOUT PLAN

DATE
09/03/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS
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KYLE M. HUDEK
138753
K. Hudek
09/04/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

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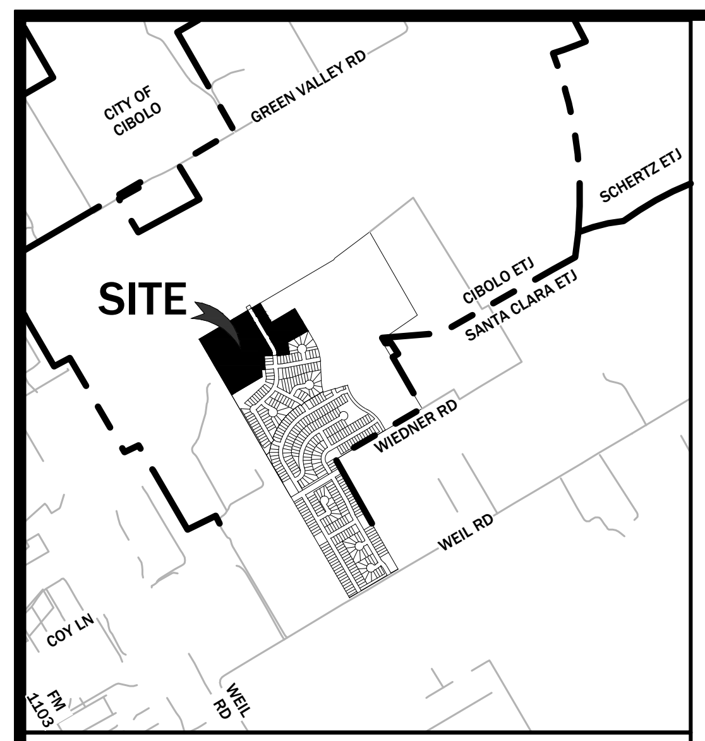

CITY OF CIBOLO
GREEN VALLEY RD
SCHERTZ ETJ
SITE
CIBOLO ETJ
SANTA CLARA ETJ
WIEDNER RD
WEIL RD
COY LN
FM 1103
WEIL RD

LOCATION MAP N.T.S.

DEVELOPER:

LENNAR HOMES OF TEXAS LAND AND
CONSTRUCTION, LTD.
CONTACT PERSON: RICHARD MOTT
100 NE LOOP 410, SUITE 1155
SAN ANTONIO, TX 78216
TEL: (210) 403-6200

CIVIL ENGINEER:

CUDE ENGINEERS
CONTACT PERSON: CHRIS CHAFFEE, P.E.
4122 POND HILL ROAD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951
FAX: (210) 523-7112

CAUTION!!!

THE CONTRACTOR SHALL BE AWARE THAT EXISTING UTILITIES ARE WITHIN THE SITE. 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 SAFETY 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 EMPLOYEES 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.

NOTE

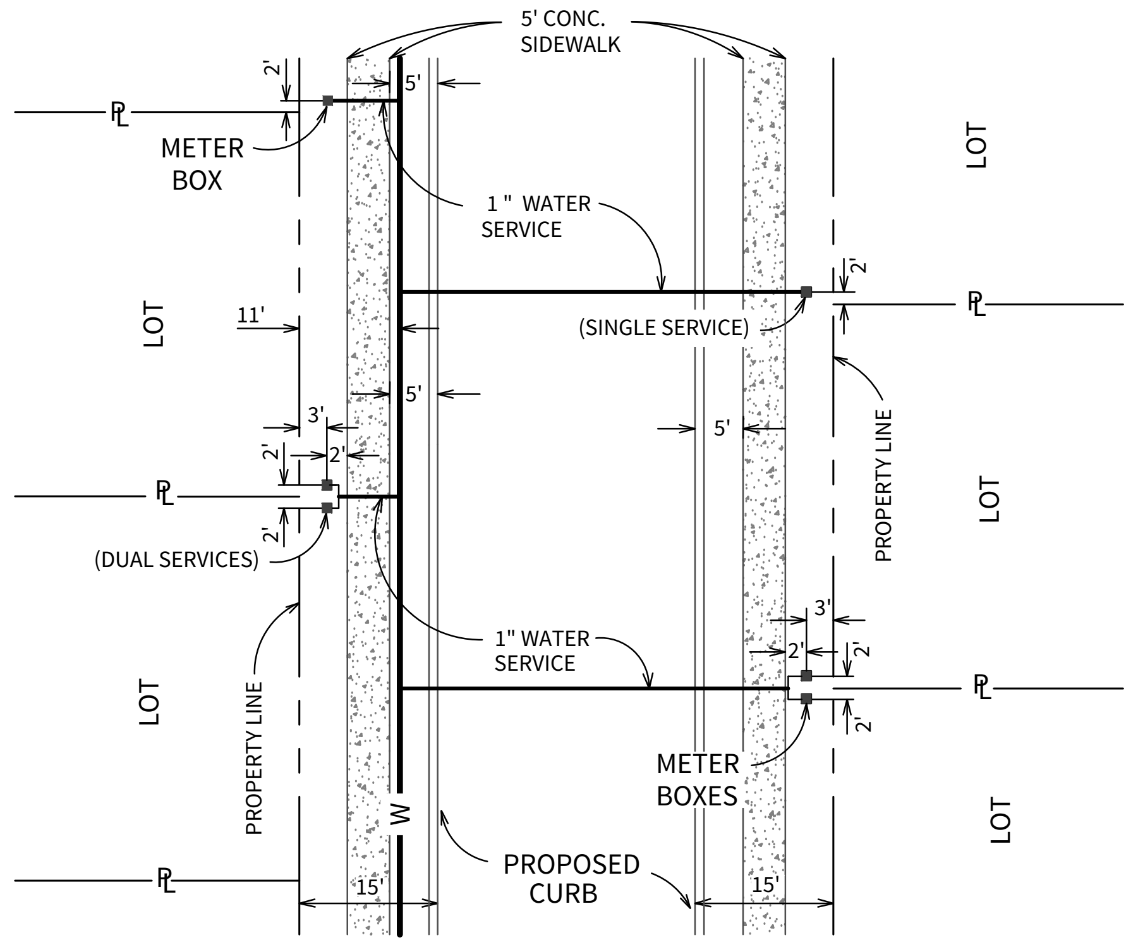
WATER METERS TO BE PLACED WITHIN RIGHT-OF-WAY TO AVOID CONFLICT WITH TRANSFORMERS/SECONDARY ENCLOSURE ELECTRIC SERVICE.

*CONDUIT SLEEVE NOTE:

1. SLEEVE INSTALLATION TO BE COMPLETED IN ACCORDANCE TO GVEC ISSUED ELECTRICAL PLAN.

GVEC REQUIREMENTS FOR ELECTRIC UTILITY ROAD CROSSINGS

1. ONLY 2 ½ INCH SCHEDULE 40 GRAY ELECTRICAL CONDUIT IS TO BE USED AND IS TO BE SUPPLIED BY THE DEVELOPER. ALL JOINTS MUST BE GLUED.
2. ROAD CROSSINGS MUST BE INSTALLED 3 FT. BELOW FINAL SUB-GRADE OR 4 FT. FROM FINAL GRADE ON NON-WATER SIDE. WHEN ELECTRICAL CROSSINGS ARE REQUIRED TO CROSS WATER MAINS, THEY MUST BE 2 FT. BELOW OR 2 FT ABOVE WATER MAINS, BUT NOT LESS THAN 48 INCHES OF COVER BELOW FINAL GRADE (PIT SAND MAY BE REQUIRED BY SOME WATER UTILITIES).
3. ALL CONDUIT PIPES SHOULD BE LAID FLAT IN THE DITCH, SIDE BY SIDE, NOT STACKED OR TWISTED. IF MORE THAN TWO PIPES ARE IN A DITCH YOU MUST NUMBER THE INSIDE, BOTTOM OF EACH PIPE (EX: 1, 2, 3, ETC.)
4. ALL OTHER UTILITIES MUST MAINTAIN A MINIMUM OF 3 FT. OF SEPARATION FROM THE ELECTRICAL CROSSING DITCH.
5. NO OTHER UTILITY CROSSINGS SHOULD BE STUBBED OUT IN FRONT OF ELECTRICAL TRANSFORMERS OR SWITCHES.
6. NO OTHER UTILITIES ARE TO BE PLACED IN THE SAME DITCH AS THE ELECTRICAL CROSSING.
7. ALL CROSSINGS ARE TO BE INSTALLED AT THE PROPERTY LINE UNLESS THERE ARE WATER METERS EXISTING ON EACH SIDE OF THE PROPERTY LINE AT THE CROSSING LOCATION. AT LOCATIONS WHERE WATER METER CONFLICTS EXIST, THE ELECTRICAL CROSSING MUST BE MOVED 7' FROM THE PROPERTY LINE TO AVOID WATER METERS. ALL OTHER UTILITY CROSSINGS MUST BE LOCATED 3 FT. ON OPPOSITE SIDE OF PROPERTY LINE.
8. ALL CROSSINGS MUST BE INSPECTED BY A GVEC REPRESENTATIVE BEFORE THEY ARE BACKFILLED. PLEASE PROVIDE ONE WEEK NOTICE AS TO WHEN INSPECTIONS WILL BE NEEDED.
9. ALL UTILITY CONDUIT LOCATIONS SHALL BE PROVIDED ON A SEPARATE EXHIBIT THAT MUST BE REQUESTED BY THE CONTRACTOR TO THE ENGINEER.

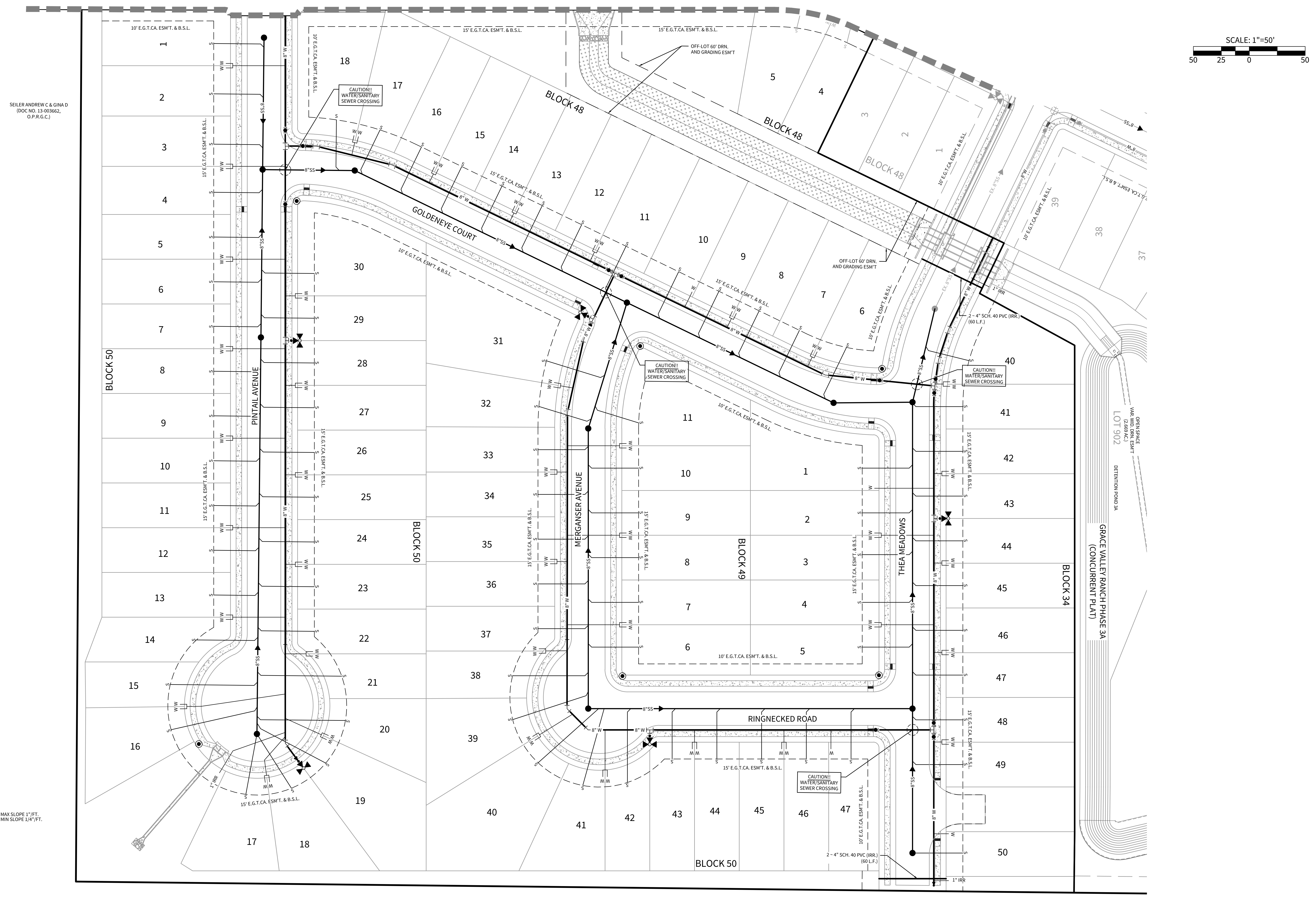

5' CONC. SIDEWALK
METER BOX
1" WATER SERVICE
(SINGLE SERVICE)
(DUAL SERVICES)
METER BOXES
PROPOSED CURB
PROPERTY LINE
LOT
℄
W
2'
3'
5'
11'
15'

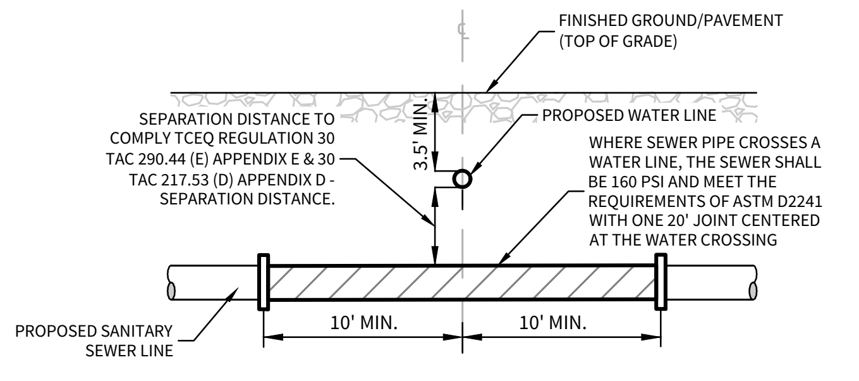
WATER METER BOX LOCATION (60' R.O.W.)
N.T.S.

LEGEND

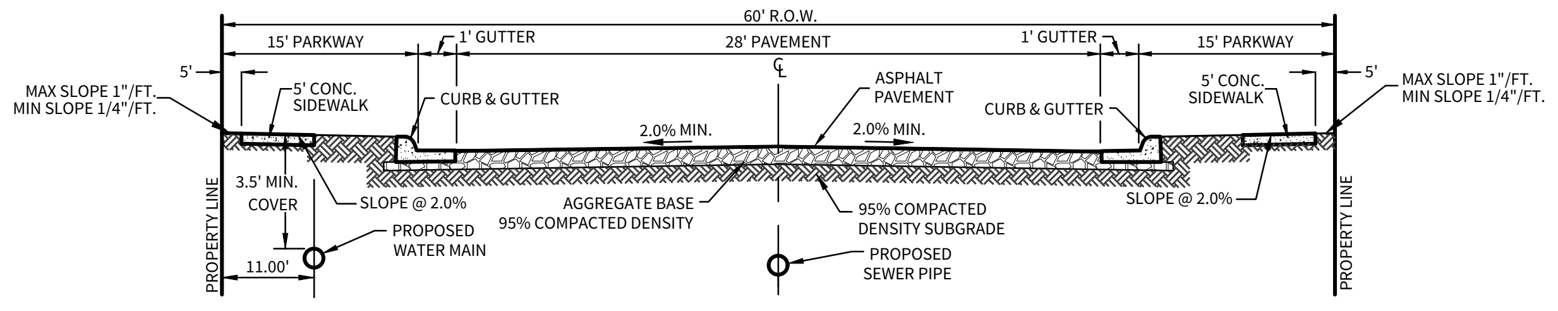
EXISTING SANITARY SEWER	EX.8"SS
PROPOSED SANITARY SEWER	8"SS
EXISTING SANITARY SEWER MANHOLE	●
PROPOSED SANITARY SEWER MANHOLE	●
EXISTING WATER MAIN	EX.8"W
PROPOSED WATER MAIN	8"W
EXISTING STANDARD FIRE HYDRANT	⧓
PROPOSED STANDARD FIRE HYDRANT	⧓
EXISTING STANDARD GATE VALVE	●┤
PROPOSED STANDARD GATE VALVE	●┤
EXISTING PERMANENT BLOWOFF	→
PROPOSED PERMANENT BLOWOFF	→
PROPOSED LIGHT POLE	◉
EXISTING OVERHEAD ELECTRIC	OHE
ELECTRIC, GAS, TELEPHONE, & CABLE T.V. EASEMENT	E.G.T.CA. ESM'T
BUILDING SETBACK LINE	B.S.L.

MATCHLINE "A" SEE SHEET C3.00


SCALE: 1"=50'
50 25 0 50
SEILER ANDREW C & GINA D (DOC NO. 13-003662, O.P.R.G.C.)
BLOCK 50
PINTAIL AVENUE
GOLDENEYE COURT
BLOCK 48
MERGANSER AVENUE
BLOCK 49
THEA MEADOWS
RINGNECKED ROAD
BLOCK 34
GRACE VALLEY RANCH PHASE 3A (CONCURRENT PLAT)
LOT 902
OPEN SPACE
DETENTION POND 3A
CAUTION!! WATER/SANITARY SEWER CROSSING
OFF-LOT 60' DRN. AND GRADING ESM'T
2 - 4" SCH. 40 PVC (IRR.) (60 L.F.)
15' E.G.T.CA. ESM'T. & B.S.L.
10' E.G.T.CA. ESM'T. & B.S.L.
8"SS
8"W
W
S
1" IRR


FINISHED GROUND/PAVEMENT (TOP OF GRADE)
PROPOSED WATER LINE
SEPARATION DISTANCE TO COMPLY TCEQ REGULATION 30 TAC 290.44 (E) APPENDIX E & 30 TAC 217.53 (D) APPENDIX D - SEPARATION DISTANCE.
WHERE SEWER PIPE CROSSES A WATER LINE, THE SEWER SHALL BE 160 PSI AND MEET THE REQUIREMENTS OF ASTM D2241 WITH ONE 20' JOINT CENTERED AT THE WATER CROSSING
3.5' MIN.
PROPOSED SANITARY SEWER LINE
10' MIN.
10' MIN.

TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL
N.T.S.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28' PAVEMENT
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5'
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5' CONC. SIDEWALK
CURB & GUTTER
℄
ASPHALT PAVEMENT
2.0% MIN.
2.0% MIN.
CURB & GUTTER
5' CONC. SIDEWALK
5'
MAX SLOPE 1"/FT. MIN SLOPE 1/4"/FT.
3.5' MIN. COVER
SLOPE @ 2.0%
AGGREGATE BASE 95% COMPACTED DENSITY
95% COMPACTED DENSITY SUBGRADE
SLOPE @ 2.0%
PROPOSED WATER MAIN
11.00'
PROPOSED SEWER PIPE
PROPERTY LINE
PROPERTY LINE

LOCAL "A" STREET CROSS-SECTION
N.T.S.

CUDEENGINEERS.COM

CUDE EST. 1980 ENGINEERS

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GRACE VALLEY RANCH
PHASE 3B

UTILITY LAYOUT PLAN

DATE
08/05/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS
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KYLE M. HUDEK
138753
08/12/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C3.01

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SILVER RECOVERY UNITS

SILVER RECOVERY UNITS SHALL BE INSTALLED IN WASTE LINES(S) LEADING FROM X-RAY PROCESSING, PHOTOGRAPHIC PROCESSING, AND/OR ANY PROCEDURES IN ESTABLISHMENT SUCH AS MEDICAL LABS, DENTAL LABS, PHOTO FINISHERS, PRINTERS, GRAPHIC ARTS PRODUCTION FACILITIES, HOSPITAL FACILITIES, VETERINARY HOSPITALS, OR OTHER ESTABLISHMENTS WHERE SILVER MAY BE INTRODUCED INTO THE SANITARY SEWER SYSTEM.

SOLID INTERCEPTORS

SOLIDS INTERCEPTORS SHALL BE INSTALLED WHEN PRE-TREATMENT OF WASTE STREAMS IS NECESSARY TO PREVENT SOLIDS GREATER THAN ½" IN DIAMETER, WHICH MAY CAUSE LINE STOPPAGE FROM ENTERING THE SANITARY SEWER SYSTEM.

INTERCEPTORS

a. INTERCEPTORS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DESIGN APPROVED BY THE GVSUD CONSISTING OF A MINIMUM OF TWO COMPARTMENTS WITH FITTINGS DESIGNED FOR GREASE RETENTION AND PROVIDE FOR A MINIMUM OF TWELVE (12) MINUTES RETENTION

b. THERE SHALL BE AN ADEQUATE NUMBER OF MANHOLES TO PROVIDE ACCESS FOR CLEANING ALL AREAS OF AN INTERCEPTOR, ONE MANHOLE PER TRAP COMPARTMENT. MANHOLE COVERS SHALL BE GAS TIGHT IN CONSTRUCTION HAVING A MINIMUM OPENING DIMENSION OF 20 INCHES (0.5 M).

c. IN AREAS WHERE TRAFFIC MAY EXIST THE INTERCEPTOR SHALL BE DESIGNED TO HAVE ADEQUATE REINFORCEMENT AND COVER.

d. ALL INTERCEPTORS SHALL HAVE THE SIZE OF THE INTERCEPTOR (IN GALLON PER MINUTE OR GALLON CAPACITY) PERMANENTLY AFFIXED TO THE DEVICE.

e. ALL CONCRETE UTILIZED IN THE CONSTRUCTION OF INTERCEPTOR SHALL HAVE A MINIMUM STRENGTH OF 3000 PSI.

f. AN EFFLUENT SAMPLING WELL ON ALL INTERCEPTORS SHALL BE REQUIRED. THE SAMPLE WELL SHALL HAVE A RISER A MINIMUM OF 6" INCHES IN DIAMETER AND SHALL BE INSTALLED AFTER THE CONFLUENCE OF ALL WASTE STREAMS FROM THE FACILITY AND PRIOR TO DISCHARGING INTO SANITARY SEWER COLLECTION SYSTEM. THE WELL SHALL BE PERPENDICULAR TO THE EFFLUENT LATERAL TO ALLOW VISUAL OBSERVATION OF THE FLOW STREAM AND PROVIDE FOR SAMPLING OF WASTEWATER.

WATERTIGHT TESTING (24 HOURS)

g. ALL INTERCEPTORS SHALL BE WATER TESTED OUT AT JOB SITE AFTER BEING INSTALLED (PLUG BOTH ENDS AND FILL TO TOP OF INTERCEPTOR). INTERCEPTOR SHALL SHOW NO LEAKAGE FROM SECTION SEAMS, PINHOLES, OR OTHER IMPERFECTIONS. ANY LEAKAGE IS CAUSE FOR REJECTION. WHEN LEAKAGE OCCURS, ADDITIONAL WATER TESTING SHALL BE MADE. AFTER CORRECTING MEASURE TEST, REPORTS SHALL SHOW TOTAL NUMBER OF INTERCEPTORS TESTED. WHEN LEAKAGE OCCURS, CORRECTIVE MEASURES TAKEN SHALL BE REPORTED BY GVSUD INSPECTORS. GVSUD INSPECTORS SHALL RECORD IN DAILY LOG WITH PROJECT NAME, DATE IT WAS TESTED AND COMPLETED.

B. MANHOLES WILL BE REQUIRED ON SIX (6) INCH AND LARGER LATERALS WHERE THEY CONNECT TO THE MAIN.

   a. LATERALS WILL NOT BE ATTACHED TO SEWER MAINS THAT ARE DEEPER THAN TWELVE (12) FEET.
   b. FITTINGS ARE NOT PERMITTED ON LATERALS BETWEEN THE WYE AND THE PROPERTY LINE.
   c. DEEP CUT OR DROP CONNECTIONS SHALL NOT BE PERMITTED.
   d. A MINIMUM OF ONE (1) LATERAL PER BUILDING SHALL BE REQUIRED. ALSO, A MINIMUM OF ONE (1) LATERAL PER RESIDENTIAL LOT SHALL BE REQUIRED. DUPLEXES SHALL HAVE TWO (2) LATERALS THAT SHALL BE INDEPENDENTLY ATTACHED TO THE MAIN.
   e. ALL SEWER LATERAL CROSSING WATER MAINS SHALL CONFORM TO THE REQUIREMENTS OF THE TCEQ CHAPTER 317 (DESIGN CRITERIA FOR SEWERAGE SYSTEMS) LATEST REVISION, SDR 26 150 PSI, OR DUCTILE IRON PIPE, CONCRETE ENCASEMENT.

24. WHERE REQUIRED CONCRETE ENCASEMENT SHALL BE PLACED FOR FULL WIDTH OF THE TRENCH TO A PLAIN SIX (6) INCHES ABOVE THE TOP OF THE PIPE WITH PAY UNITS AS SHOWN ON THE STANDARD DETAILS SHEET.

25. A MINIMUM OF FOUR (4) FEET OF COVER IS TO BE MAINTAINED OVER THE SANITARY SEWER MAIN AND LATERALS AT GRADE, OTHERWISE CONCRETE ENCASEMENT IS REQUIRED.

26. WHERE POROUS MATERIAL , INCLUDING "SUBGRADE FILLER" IS USED FOR BACKFILL IN THE BEDDING AND INITIAL BACKFILL ZONES, SEEPAGE RETAINERS ARE REQUIRED AT AN APPROXIMATE OF 180 FEET. RETAINERS SHALL CONSIST OF CLASS "D" CONCRETE ENCASEMENT. THE RETAINERS SHALL EXTEND FROM THE BOTTOM OF THE TRENCH TO THE TOP OF THE GRANULAR MATERIAL FOR THE ENTIRE TRENCH WIDTH. ENCASEMENT SHALL BE 24 INCHES LONG. NO EXTRA PAY ITEM

BLASTING

27. WHEN ALLOWABLE, BLASTING SHALL BE PREFORMED IN ACCORDANCE WITH THE ABOVE CRITERIA ESTABLISHED BY THE NATIONAL FIRE PROTECTION ASSOCIATION 312 TAC 313.5(C) (6).

28. BLASTING SEWER LINE EXCAVATION MUST BE DONE IN SUCH A MANNER AS TO MINIMIZE THE FRACTURING OF ROCK BEYOND THE REQUIRED EXCAVATION. THE CONTRACTOR SHALL CONSIDER THE ELEVATION OF THE EXISTING SANITARY SEWER MAIN IN RELATION TO THE BLASTING CHARGE AND RELATIVE DIRECTION OF EXISTING AND PROPOSED TRENCHES. BLASTING WITHIN SUCH AREAS SHALL BE ACCOMPLISHED ONLY BY QUALIFIED BLASTING CONTRACTORS WHO HOLD BLASTING LICENSES FROM A QUALIFIED AGENCY SUCH AS THE SAN ANTONIO FIRE DEPARTMENT IN BEXAR COUNTY. ANY DAMAGE TO EXISTING SANITARY SEWERS RESULTING FROM BLASTING SHALL BE REPAIRED AND RESTORED BY THE CONTRACTOR AT HIS OWN EXPENSE.

29. NO BLASTING SHALL BE PERFORMED WITHIN 75 FEET OF EXISTING UTILITIES.

TESTING

30. ALL SEWER LINES MUST BE TESTED IN ACCORDANCE WITH THE FOLLOWING:
    A. 317.2(A)(5)(B); DEFLECTION TEST FOR FLEXIBLE AND SEMI-RIGID PIPE CONDUCTED AFTER FINAL BACKFILL AS BEEN IN PLACE AT LEAST 30 DAYS.
    B. 317.2(A)(4)(A) & (B) OR GVSUD SPECIFICATIONS INFILTRATION AND OR EXFILTRATION AND OR LOW-PRESSURE AIR TEST.
    C. 313.5(C)(10)(C) OR GVSUD SPECIFICATIONS: ALL MANHOLES AND WET WELLS MUST BE TESTED SEPARATELY AND INDEPENDENTLY OF THE COLLECTION LINES.
    D. IN THE EVENT THAT TESTING REQUIREMENTS CONFLICT, THE LATEST TCEQ DESIGN CRITERIA SHALL BE USED.

31. SEWER LINES SHALL BE TESTED FROM MANHOLE TO MANHOLE.

32. SANITARY SEWER CONNECTIONS MADE DIRECTLY TO EXISTING MANHOLES WHICH REQUIRE PENETRATION INTO MANHOLE WILL BE CORE DRILLED. ANY DAMAGE TO EXISTING MANHOLE WILL BE REPLACED AT CONTRACTORS EXPENSE AND WILL REQUIRE SUCCESSFUL TESTING OF THE EXISTING MANHOLE IN ACCORDANCE WITH THE GVSUD SPECIFICATIONS. HANG A GOLF BALL IN FRONT OF CAMERA, PIPE GRADE IS OUT OF TOLERANCE IF GOLF BALL BECOMES 50% SUBMERGED.

33. AFTER CONSTRUCTION, TESTING WILL BE DONE BY PAN/TILT TV CAMERA BY THE CONTRACTOR AND OBSERVED BY INSPECTOR, WASTEWATER ENGINEERING PERSONNEL AND CONTRACTOR AS CAMERA IS RUN THROUGH THE LINES. PAN/TILT ALL 6" SERVICE LATERALS TO 6"X6" STUB-OUT. VIDEOS MUST INCLUDE SUBDIVISION NAME, MANHOLE NUMBER, SERVICE LATERAL STATION NUMBER, FLOW DIRECTION, LOCATION ANY ABNORMALITIES, SUCH AS BROKEN PIPE OR MISALIGNED, JOINT, GRAVEL, DIRT, MUST BE CLEANED OUT, REPLACE AT CONTRACTOR'S EXPENSE. NEW SEWER SYSTEM WILL BE FLOODED WITH H20 BEFORE BEING TV. ALL SEWER LINES MUST BE PRESSURE CLEANED TO INCLUDE SERVICE LATERALS 6" INCH TO STUB-OUT. ALL VIDEOS SHALL BE SUBMITTED IN DVD FORMAT WITH WRITTEN REPORTS.

34. A COPY OF ALL TESTING REPORTS INCLUDING BACKFILL COMPACTION TESTS SHALL BE FORWARDED TO GVSUD.
    A. DENSITY TEST WILL BE REQUIRED ON ALL SANITARY SEWER TRENCHES INCLUDING SERVICE LATERALS. SERVICE LATERALS TO BE CHOSEN RANDOMLY BY FIELD INSPECTOR. DENSITIES ON SERVICE LATERAL SHALL NOT EXCEED 25% OF TOTAL NUMBER OF SERVICES.

EXCAVATION

35. 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 CONTRACTORS TRENCH EXCAVATION SAFETY SYSTEMS, PROGRAMS AND/OR PROCEDURES. THE CONTRACTORS IMPLEMENTATION OF THE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITHIN OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

36. CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL WASTE MATERIALS UPON PROJECT COMPLETION. THE CONTRACTOR SHALL NOT PERMANENTLY PLACE ANY WASTE MATERIALS IN THE 100 YEAR FLOODPLAIN WITHOUT AN APPROVED FLOODPLAIN PERMIT.

37. WATER JETTING THE BACKFILL WITHIN A STREET WILL NOT BE PERMITTED. SANITARY SEWER TRENCHES SUBJECT TO TRAFFIC SHALL CONFORM TO GVSUD SPECIFICATIONS.

WATERLINE CROSSING

38. WHERE THE MINIMUM 9 FOOT SEPARATION DISTANCE BETWEEN SEWER LINES AND WATERLINES CANNOT BE MAINTAINED, THE INSTALLATION OF SEWER LINES SHALL BE IN STRICT ACCORDANCE WITH TCEQ RULES (31 TAC 317.3 APPENDIX E), SDR 26 ASTM 150 PSI OR CONCRETE ENCASEMENT DUCT IRON.

EROSION AND SEDIMENTATION

39. THE TCEQ AND THE ENVIRONMENTAL PROTECTION AGENCY (EPA) REQUIRE EROSION AND SEDIMENTATION CONTROL FOR CONSTRUCTION OF SEWER COLLECTION SYSTEMS. DEVELOPER OR AUTHORIZED REPRESENTATIVE SHALL PROVIDE EROSION AND SEDIMENTATION CONTROL AS NOTED ON THE PROJECT PLAN AND PROFILE SHEETS.

40. ALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS SHALL BE REMOVED BY THE CONTRACTOR AT FINAL ACCEPTANCE OF THE PROJECT BY GVSUD.

SUPPLEMENTING

41. NO EXTRA PAYMENT SHALL BE ALLOWED FOR WORK CALLED FOR ON THE PLANS BUT NOT INCLUDED ON THE BID SCHEDULE. THIS INCIDENTAL WORK WILL BE REQUIRED AND SHALL BE INCLUDED UNDER PAY ITEM 10 WHICH IT RELATES TO.

42. UNLESS THE DEVELOPMENT IS PRIVATELY OWNED, THE DEVELOPERS DEDICATES THE SANITARY SEWER MAIN AND MANHOLES TO THE GVSUD. UPON COMPLETION BY THE DEVELOPER AND FINAL ACCEPTANCE BY THE GVSUD. GVSUD WILL OWN AND MAINTAIN THE SANITARY SEWER MAINS AND MANHOLES WHICH ARE LOCATED WITHIN THIS PARTICULAR SUBDIVISION.

43. WORK COMPLETED BY CONTRACTOR WHICH HAS NOT RECEIVED A WORK ORDER OR THE CONSENT OF THE GVSUD CONSTRUCTION INSPECTION DIVISION WILL BE SUBJECT TO REMOVAL AND REPLACEMENT BY AND AT THE EXPENSE OF THE CONTRACTOR.

44. GVSUD IS NOT TO BE RESPONSIBLE FOR ANY ABNORMALITIES ON STUB-OUT, INVERT, GRADE OR SLOPE FOR ANY EXISTING MANHOLE TIE IN OR SERVICE LATERAL TIE IN.

45. ENGINEER, DEVELOPER, AND BUILDER, WILL HAVE PLUMBER AND CONTRACTOR WITH BID PRICE ON NEW INSTALLATION OF ALL 4" INCH SEWER SERVICE LATERALS TO COMPLY WITH TRENCH SAFETY (OSHA) SHORING PROTECTION ON ALL NEW INSTALLATION OF 4" INCH SEWER SERVICE LATERALS. GVSUD WILL NOT BE HELD RESPONSIBLE FOR ANY INJURIES OR DEATH CAUSED BY TRENCH FAILURE OR A WRONG OR DAMAGE DONE TO A PERSON OR TO HIS PROPERTY, OSHA GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

46. ALL 4" INCH SEWER SERVICE LATERALS WILL BE HYDRAULIC TESTED AND OR LOW AIR PRESSURE TESTED. ALL 4" INCH SEWER SERVICE LATERALS WILL BE TELEVISED (TV) FROM 4" INCH CLEAN OUT AT OUTSIDE EACH RESIDENCE TO 6"X6" CLEAN OUT. CONTRACTOR AND PLUMBER WILL SUBMIT REPORTS AND/OR VIDEOS TO GVSUD, WITH THE FOLLOWING INFORMATION: SUBDIVISION NAME, LOT NUMBER, BLOCK NUMBER, STATION NUMBER, STREET NAME AND ADDRESS OF EACH SEWER SERVICE LATERAL.

PLUMBER WILL BE PROVIDED PLAN/PROFILE BY ENGINEER/BUILDER. PLUMBER WILL WORK CLOSELY WITH THE GVSUD INSPECTOR ON DAILY TESTING AND TELEVISION BY MAKING ARRANGEMENTS 48 HOURS IN ADVANCE. SEWER SERVICE LATERALS THAT HAVE NOT BEEN INSPECTED OR APPROVED AND/OR COVERED UP, WILL HAVE TO BE RE-DUG AT CONTRACTOR/PLUMBER EXPENSE AND RE-INSPECTED.

A. A PROPERTY LINE CLEAN OUT (6"X6") SHALL BE INSTALLED FOR RESIDENTIAL SERVICES. CLEAN OUTS IN THE SIDEWALK OR DRIVEWAY SHALL HAVE A CAST IRON BOOT. CLEAN OUT NOT LOCATED IN A SIDEWALK OR DRIVEWAY SHALL BE LOCATED ON REINFORCED CONCRETE PAD A MINIMUM OF TWELVE (12") INCHES BY TWELVE (12") INCHES BY SIX (6") INCHES THICK. ALL PROPERTY LINE CLEAN OUTS SHALL INCLUDE A LID WITH SEWER IN GREEN COLOR.

47. N1 FENCING: ANY AND ALL FENCING, INCLUDING ELECTRIC FENCE, WHETHER OR NOTE IDENTIFIED ON THE PLANS, MUST BE MAINTAINED AT ALL TIMES. ANY AND ALL DAMAGES DIRECTLY ATTRIBUTED TO THE CONTRACTOR MUST BE REPLACED TO EQUAL OR BETTER CONDITIONS AT THE CONTRACTOR'S EXPENSE AND AS APPROVED BY THE PROJECT MANAGER. GAPS IN THE FENCING MUST BE PROVIDED AT ALL LOCATIONS WHERE THE SEWER LINE EASEMENT CROSSES FENCING. FENCING REQUIRED TO MAINTAIN LIVESTOCK MUST BE MAINTAINED AT ALL TIMES.

48. N2 DAMAGE TO ADJACENT LAND: THE CONTRACTOR MUST AVOID DAMAGE TO ADJACENT LAND OUTSIDE THE IDENTIFIED CONSTRUCTION LIMITS. ANY AND ALL CLAIMS DIRECTORY ATTRIBUTED TO THE CONTRACTOR RESULTING FROM HIS STRAYING BEYOND THE CONSTRUCTION LIMITS MUST BE SETTLED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER WITH THE APPROPRIATE LANDOWNER.

49. N3 PROPERTY OWNER ACCESS: THE CONTRACTOR MUST MAINTAIN ACCESS FOR PRIVATE INDIVIDUALS AT ALL TIMES. IF NORMAL ACCESS IS DAMAGED DURING CONSTRUCTION THE CONTRACTOR MUST REPLACE THE ACCESS TO EQUAL OR BETTER CONDITIONS AT THE CONTRACTOR'S EXPENSE, AS APPROVED BY THE ENGINEER.

50. N4 CONTRACTOR IS RESPONSIBLE FOR LOCATION AND PROTECTION ALL UTILITIES WHETHER OR NOT SHOWN ON THE PLANS. SHOULD THE CONTRACTOR DAMAGE ANY UTILITIES THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL COSTS TO REPAIR THE UTILITIES TO THEIR ORIGINAL CONDITION. CONTRACTOR IS SOLELY RESPONSIBLE FOR LOST REVENUE, LOSSES, ETC CLAIMED BY UTILITY COMPANIES DUE TO CONTRACTORS WORK. CONTRACTOR SHALL NOTIFY GVSUD AND IMPACTED UTILITY COMPANIES 48 HRS. PRIOR TO BEGINNING WORK. CONTRACTOR SHALL VERIFY THE LOCATION OF UTILITIES AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

51. N5 CLEARING PERMANENT EASEMENTS: THE LIMITS OF BOTH THE EXISTING AND PARALLEL SEWER LINES PERMANENT EASEMENTS, AS DELINEATED IN THESE PLANS, MUST BE CLEARED IN ACCORDANCE WITH THE SPECIFICATION. THE CONTRACTOR MAY BE DIRECTED BY THE ENGINEER TO PROTECT AND AVOID CERTAIN TRESS WITHIN THE LIMITS OF THE PERMANENT CONSTRUCTION EASEMENTS. ALL BRUSH MUST BE REMOVED FROM SITE. NO BRUSH PILES TO REMAIN AFTER CONSTRUCTION. BURNING OF BRUSH OR TRASH WILL NOT BE ACCEPTABLE.

52. N7 CONTRACTOR SHALL PROVIDE APPROPRIATE SAFE ACCESS AND BARRICADE WORK AT ALL TIMES TO PROTECT THE PUBLIC. THIS INCLUDES SUBSTANTIAL BARRICADES AROUND ALL TRENCHES, BORE PITS, OPEN EXCAVATIONS, EQUIPMENT, ETC. THE SITE MUST BE LEFT IN SECURE SAFE CONDITION AT NIGHT. IT IS THE CONTRACTORS RESPONSIBILITY TO TAKE NECESSARY PRECAUTIONS TO PROTECT THE PUBLIC THROUGHOUT THE DURATION OF THE PROJECT.

53. N14 SHOULD CONTRACTOR SELECT A TRENCH EXCAVATION PROCEDURE THAT EXTENDS THE LIMITS OF SEEDING OR PAVING AND FINAL SITE PREPARATION (I.E. SLOPE BACK PROTECTION SYSTEM) HE WILL BE RESPONSIBLE FOR MEETING PLAN AND SPECIFICATION REQUIREMENTS TO THE NEW LIMITS AT NO ADDITIONAL COST TO GVSUD.

54. N16 WARNING: NOTE THAT CERTAIN PORTIONS OF THE PROJECT MAY PARALLEL AND/OR CROSS EXISTING UTILITIES. THE CONTRACTORS WILL BE REQUIRED TO PROTECT EXISTING UTILITIES. ADDITIONAL SUPPORTIVE SHORING MAY BE REQUIRED. IT IS SPECIFICALLY THE CONTRACTORS RESPONSIBILITY TO PROTECT HIS WORKERS, EXISTING UTILITIES, AND FINISHED WORK THROUGHOUT THE JOB.

55. N17 OVERHEAD ELECTRIC, CITY PUBLIC SERVICE (CPS) AN APPROPRIATELY SAFE OVERHEAD CLEARANCE MUST BE MAINTAINED BETWEEN ALL EQUIPMENT AND PERSONNEL. THE CONTRACTOR SHALL NOTIFY CITY PUBLIC SERVICE AT 353-2700 AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION IN THE VICINITY OF THE CPS OVERHEAD ELECTRIC LINE CONTRACTOR SHALL MAINTAIN CPS RECOMMENDED CLEARANCE REQUIREMENTS.

56. N23 BYPASS PUMPING: THE CONTRACTOR IS RESPONSIBLE FOR ALL BYPASS PUMPING REQUIRED TO COMPLETE THE WORK. BYPASS PUMPS SHALL BE ADEQUATE TO HANDLE PEAK FLOW EVENTS DURING STORM EVENTS. CONTRACTOR SHALL HAVE STANDBY PUMPS AVAILABLE TO BYPASS FLOW IN CASE PRIMARY PUMP FAILS. CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR ALL COSTS FOR CLEANUP OF AN UNAUTHORIZED DISCHARGE AND ANY ASSOCIATED FINES.

57. N26 CONTRACTOR SHALL BACKFILL ALL OPEN TRENCHES AT THE END OF THE DAY. CONTRACTOR SHALL NO INSTALL MORE PIPE THAN CAN BE COVERED. NO OPEN TRENCHES WILL BE PERMITTED OVERNIGHT ALL END OF OPEN PIPE WILL BE PLUGGED OVERNIGHT.

58. N33 THE PROJECT AREA MAY BE SUBJECT TO ARCHEOLOGICAL MONITORING, SHOULD THE CONTRACTOR ENCOUNTER ANY ARCHEOLOGICAL DEPOSITS DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL STOP ALL WORK IN THE AREA OF THE DEPOSITS AND IMMEDIATELY CALL THE PROJECT MANAGER.

59. N37 CONTRACTOR TO NOTE THAT PORTIONS OF THE CONSTRUCTION ARE WITHIN THE LIMITS OF THE 100 YEAR FLOODPLAIN. THE CONTRACTOR IS REQUIRED TO KEEP THE CHANNEL CLEAR OF POTENTIAL OBSTRUCTIONS TO FLOOD FLOWS. POTENTIAL OBSTRUCTIONS INCLUDE HEAVY CONSTRUCTION EQUIPMENT, TEMPORARY ROADS ACROSS CHANNEL, EXCAVATED MATERIAL, STOCKPILED DEBRIS, ETC. UNDER THREATENING WEATHER CONDITIONS WHERE FLOODING IS LIKELY, OBSTRUCTIONS SHALL BE IMMEDIATELY REMOVED BY THE CONTRACTOR AT NO ADDITIONAL COST TO GVSUD. THE CONTRACTOR ASSUMES ALL RISK FOR UNFINISHED WORK.

GREEN VALLEY SPECIAL UTILITY DISTRICT STANDARD DETAILS	SANITARY SEWER SYSTEM GENERAL NOTES (2 OF 2)	
REVISED: OCTOBER 2021	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	DETAIL NO. G-2

GREEN VALLEY SPECIAL UTILITY DISTRICT SANITARY SEWER SYSTEM GENERAL NOTES:

THE STANDARD SPECIFICATIONS AND DRAWING (DD) ARE PROVIDED AS A TECHNICAL RESOURCE FOR ENGINEERING PROFESSIONALS FOR USE IN DESIGN AND CONSTRUCTION OF SEWER COLLECTION SYSTEMS PROJECTS MANAGED AND CONTRACTED BY THE GREEN VALLEY SPECIAL UTILITY DISTRICT (GVSUD)

GENERAL: THE OWNER, DEVELOPER, ENGINEERING FIRM SHALL SUBMIT TO THE GREEN VALLEY SPECIAL UTILITY DISTRICT (GVSUD) ENGINEER, FOR APPROVAL, TWO (2) COPIES OF ALL PLATES, PLANS AND PROFILES, PLUMBING LAYOUT, WHICH HAVE BEEN DESIGNED AND THE DRAWINGS SEALED BY A REGISTERED PROFESSIONAL ENGINEER. WHEN APPROVED, ONE (1) COPY WILL BE RETURNED TO THE OWNER, DEVELOPER, ENGINEERING FIRM, SO MARKED. THE OWNER WILL BE REQUIRED TO MAKE ALL CHANGES INDICATED BY THE GVSUD ENGINEER, AND RETURN WITH ALL CHANGES, CORRECTIONS, BACK TO GVSUD FOR APPROVAL.

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE APPROVED BY THE GVSUD AND COMPLY WITH:
   A. CURRENT GVSUD TECHNICAL SPECIFICATIONS FOR UTILITIES CONSTRUCTION.
   B. TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ), FORMERLY TEXAS NATURAL RESOURCE CONSERVATION COMMISSION (TNRCC), DESIGN CRITERIA FOR SEWAGE SYSTEMS 31 TAC 317.1, 31 TAC 317.2 AND 31 TAC 317.3, 30 TAC & 213 40 TAC &217.

2. THE CONTRACTOR IS TO NOTIFY AND MAKE ARRANGEMENTS WITH THE GVSUD INSPECTIONS DIVISION AT (830)914-2330 OR (210)372-2228 - 48 HOURS PRIOR TO ANY EXCAVATION. A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD BEFORE ANY EXCAVATION OR START OF PROJECT.

3. WORK SHALL NOT BE PERFORMED ON SATURDAYS, SUNDAYS OR HOLIDAYS BEFORE 7:30 A.M. OR AFTER 4:30 P.M., UNLESS PRIOR APPROVAL IS GRANTED BY THE GVSUD ENGINEER.
   A. THE LOCATIONS AND DEPTHS OF EXISTING UTILITIES TO INCLUDE SURFACE LATERALS, SHOWN IN THESE PLANS ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO LOCATION (POT HOLE, VERIFY LOCATION, ELEVATIONS OF ALL) UTILITY SERVICE LINES 48 HOURS PRIOR TO EXCAVATION AND TO PROTECT THE SAME DURING CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR ANY DAMAGES OF EXISTING UTILITIES AND REPAIRS WILL BE AT THE CONTRACTORS EXPENSE.

EXISTING MANHOLES/SEWER

4. CONTRACTOR WILL MAINTAIN SERVICE TO ALL EXISTING SANITARY SEWERS AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR WILL MARK, CLEAN ALL DEBRIS, GRAVEL, DIRT, ETC. OUT OF MANHOLES AND ANY STOPPAGES CAUSED BY DEBRIS DURING CONSTRUCTION. CONTRACTOR WILL UNPLUG STOPPAGE AT CONTRACTORS EXPENSE. ANY DAMAGE TO EXISTING MANHOLES OR SEWER MAIN WILL BE CORRECTED AT THE CONTRACTORS EXPENSE. CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO PREVENT DAMAGE TO EXISTING OR NEW RINGS, COVERS, OR CONES FROM EQUIPMENT AND MATERIALS USED OR TAKEN THROUGH THE WORK AREA. IF AN EXISTING OR NEW MANHOLE COVER, RING, OR CONE IS DAMAGED BY THE CONTRACTOR IT SHALL BE REPLACED AS DIRECTED BY THE GVSUD INSPECTOR. MANHOLES WILL NEED TO BE RESEALED WITH THE GVSUD APPROVED SEALING. IF SEAL COATING IS BROKEN, CONTRACTOR WILL HAVE MANHOLE RECOATED. RESEAL ALL LEAKS AT CONTRACTORS EXPENSE.
   A. CONTRACTOR TO ENSURE ALL PLUGS USED TO PLUG SEWER LINES, WHILE TESTING THE PROJECT (SUCH AS AIR PLUGS, SCREW TYPE PLUGS, ETC.) ARE LABELED, MARKED OR TAGGED. PROJECT INSPECTOR WILL RECORD HOW MANY PLUGS ARE BEING USED, LOCATION AND I.D., WITHIN COLLECTION SYSTEM. CONTRACTOR WILL REPORT TO PROJECT INSPECTOR OF ANY LOST OR UNRESTRAINED PLUGS INTO SEWER COLLECTION SYSTEM.
   B. CONTRACTOR WILL BE HELD LIABLE FOR ANY DAMAGES TO SEWER COLLECTION SYSTEM STOPPAGES, OVER-FLOWS, BACKUP INTO HOMES CAUSED BY LOST RUN-AWAY SEWER PLUGS THAT WERE USED ON THAT PROJECT OR OUTFALL LINE WASTEWATER TREATMENT PLANTS.
   C. CONTRACTOR WILL ALSO BE RESPONSIBLE FOR ANY DAMAGE TO WASTEWATER TREATMENT APPARATUS, SUCH AS SCREW PUMPS, ETC. CAUSED BY LOST OF RUN-AWAY SEWER PLUGS. CONTRACTOR WILL BE HELD LIABLE FOR DAMAGES, AS WELL AS COST OF REPAIRS.

5. ALL WORK IN THE TEXAS HIGHWAY DEPARTMENT, BEXAR COUNTY, GUADALUPE COUNTY, AND CITY OF CIBOLO RIGHT OF WAY SHALL BE DONE IN ACCORDANCE WITH RESPECTIVE CONSTRUCTION SPECIFICATIONS AND PERMIT.

6. ALL WORK IN PUBLIC STREETS SHALL BE COORDINATED WITH AND APPROVED BY THE BEXAR COUNTY OR GUADALUPE COUNTY PUBLIC WORKS DEPARTMENT TRAFFIC DIVISION AND STREET ENGINEER.

7. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192.161, CITY PUBLIC SERVICE MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND VALVES THAT ARE IN THE PROTECTED AREAS.

8. NO TESTING WILL BE PERFORMED PRIOR TO 30 DAYS FROM THE COMPLETE INSTALLATION OF THE SANITARY SEWER LINES.

   THE FOLLOWING SEQUENCE WILL BE STRICTLY ADHERED TO:
   A. PULL MANDREL - AFTER 30 DAYS OF INSTALLATION
   B. PERFORM AIR TEST
   C. PULL WIPER (AFTER STREET HAS BE ASPHALTED IN NEW SUBDIVISIONS)
   D. VACUUM TEST ALL MANHOLES WITHIN THE PROJECT
   E. CCTV-ALL NEW LINE-PAN (TILL ALL SERVICE LATERALS TO 6”X6” CLEAN OUT. FLOOD ALL LINES BEFORE CCTV, SUMMIT DVD)

9. CONTRACTOR SHALL SUBMIT FIELD COPY PLANS AND PROFILES SHOWING AS-BUILT WORK AT END OF PROJECT, CCTV DVD AND COMPACTION DENSITY REPORTS FOR MAIN SEWER LINE AND ALL SERVICE LATERALS TRENCHES. WARRANTY LETTERS ON MATERIALS, WORKMANSHIP FOR 24 MONTHS AFTER FINAL ACCEPTANCE.

10. ALL MANHOLES SHALL BE CONSTRUCTED SO THAT THE TOP OF THE RING IS AT LEAST TWELVE (12) INCHES ABOVE THE FINISHED GRADE OF THE SURROUNDING GROUND EXCEPT WHEN LOCATED IN PAVED AREAS. IN PAVED AREAS THE MANHOLE RING SHALL BE FLUSH WITH THE PAVEMENT. ALL NEW INSTALLED MANHOLES WILL BE WITH A 30" INCH OPENING, MINIMUM, WITH THE GVSUD LOGO ON THE COVER. EVERY THIRD MANHOLE COVER WILL HAVE A 1" HOLE FOR A VENT.

11. ALL MANHOLES SHALL BE WITH A 30" INCH OPENING, HAVE WATERTIGHT RING AND COVERS, WITH THE GVSUD LOGO. ON PRIVATE PROPERTY, MANHOLE RING AND COVER SHALL BE TYPICAL MANHOLE COVER WATER TIGHT.
    A. BEFORE BACK FILLING/COMPACTION/CONCRETE ENCASEMENT

       ALL MANHOLE JOINT SECTION RISERS, CONE SECTIONS AND GRADE RING SHALL BE WRAPPED WITH GATOR WRAP SEALING SYSTEMS, BUTYL ADHESIVE SEALANT WITH A MINIMUM THICKNESS OF 30 MILS. INFI-SHIELD WRAPPED WITH RISER-WRAP SEALING SYSTEM, GATOR WRAP

       MATERIAL: RUBBER MEETS ASTM C923/MASTIC MEETS ASTM C 990 OR APPROVE BY THE GVSUD ENGINEER SUBSTITUTION ON OUTSIDE FOR I/I, GROUND WATER TABLE.

12. IF CONCRETE THROAT RINGS ARE TO BE INSTALLED, A MINIMUM OF TWO AND A MAXIMUM OF FOUR THROAT RINGS WILL BE USED AT EACH MANHOLE FOR ADJUSTMENT.

13. INFILTRATION DISHES WILL BE REQUIRED IN MANHOLES WHERE APPLICABLE (I.E., SUCH AS LOW DRAINAGE AREAS) AND EVERY THIRD MANHOLE SHALL BE VENTED. 30" INCH MANHOLE COVER WITH 1" INCH HOLE CENTER OF COVER WHERE APPLICABLE.

Note: Manhole cover inserts shall be FRW Industries, inc., "Inflow Protector-Cover" "Preco Industries Ltd.", "Sewer Guard", or approved equal, and shall be installed in strict accordance with the manufacturer's recommendations. The contractor shall be responsible for making the necessary field measurements for the manufacturer prior to construction.

   A. ALL MANHOLES MUST HAVE 350-400 FEET SPACING BETWEEN MANHOLES TO PROVIDE ACCESS TO SEWER LINES FOR CLEANING, ON THE GVSUD PUBLIC SEWER EASEMENT. A 16 FOOT GATE WITH LOCK WILL BE PROVIDED BY THE CONTRACTOR FOR ACCESS TO CLEANING AND MAINTAINING SEWER LINES.
   B. DROP MANHOLES SHALL BE REQUIRED WHEN THE INFLOW ELEVATION IS MORE THAN TWENTY-FOUR (24) INCHES ABOVE THE OUTFLOW ELEVATION. DROP SHALL BE LOCATED OUTSIDE THE MANHOLE WITH ITS FLOW LINE ELEVATION LOCATED BETWEEN THE CENTER LINE AND TOP OF SEWER LINE.

14. ALL MANHOLES WILL BE CONCRETE ENCASEMENT 1 FOOT AROUND RING, 28-INCH DEEP AFTER GATOR WRAP SEALING SYSTEM HAS BEEN APPLIED.

15. NEW MANHOLE PROTECTIVE COATING, LINER IS FOR THE PURPOSE OF INFILTRATION BECAUSE OF HIGH WATER TABLE. APPLICATION PROCEDURES ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION AND PER THE FOLLOWING SPECIFICATIONS:
    A. MANHOLE PROTECTIVE COATING: CONTRACTOR WILL BE RESPONSIBLE FOR MANHOLES ON PROJECT SAFETY ASSESSMENT; CONFINED SPACE ENTRY SET BY OCCUPATIONAL SAFETY AND HEALTH STANDARDS, 29 CFR 1910.146 APP E.
    B. THE CONTRACTOR, SHALL NOTIFY THE GVSUD UTILITIES INSPECTIONS DEPARTMENT WITH A MINIMUM OF 2 DAYS ADVANCE NOTICE OF THE START OF ANY FIELD SURFACE PREPARATION WORK OF COATING APPLICATION WORK OF MANHOLES.
    C. ALL NEW MANHOLES IN NEW DEVELOPMENTS SHALL BE 30" INCH OPENING, WATERTIGHT AND THE INTERIOR WALL COATED WITH A GVSUD APPROVED SEWER STRUCTURE FOR ALL MANHOLES, SEWPERCOAT 2000 HR REGULAR, WITH THE REQUIRED ONE-INCH THICK APPLICATION.

APPROVED MATERIALS ARE AS FOLLOWS:
CEMENTITIOUS COATING WITH REQUIRED HALF-INCH THICK APPLICATION

- SEWPERCOAT 2000 HR REGULAR
- REFRATTA HAC 100
- MAXIMUM CA PLUS

EPOXY COATING: WITH SPECIFIED THICKNESS APPLICATION

- AROMATIC POLYUREA SCP DROPLINER REQUIRED THICKNESS 125 MILS

   D. WARRANTY LETTER ON MANHOLE PROTECTIVE COATING FOR 10 YEARS AFTER FINAL ACCEPTANCE OF PROTECTIVE COATINGS CONTRACTOR IS NOT RELIEVED OF ITS RESPONSIBILITIES UNDER THE CONTRACT DOCUMENTS.
      i. ANY CONNECTIONS TO EXISTING MANHOLES WILL REQUIRE A 36-INCH CRADLE TO SUPPORT INCOMING PIPE. A RUBBER GASKET WILL ALSO BE REQUIRED (CENTERED AT MANHOLE WALL) WITH GROUTING AT INTERIOR AND EXTERIOR PENETRATIONS.

         PENETRATION INTO MANHOLE WILL BE CORE DRILLED. ANY DAMAGE EXITING THE MANHOLE WILL BE REPLACED AT CONTRACTOR'S EXPENSE. IF COATING SEAL IS BROKEN, THE MANHOLE WILL BE RECOATED WITH THE SAME MATERIALS. IF EXISTING SEWER MANHOLE SEAL COATING IS BROKEN, ALL OF MANHOLE WILL BE RELEASED WITH SAME MATERIALS AND ONE-INCH THICKNESS.
      ii. ANY AND ALL EXISTING MANHOLES WITHIN CONSTRUCTION PROJECT THAT TIE IN, ARE DONE BY CONTRACTOR TO STUB-OUT ADJUSTMENT, RECONSTRUCTION, OR LEAKING. MANHOLE WILL BE COAT SEALED AT CONTRACTOR'S EXPENSE.
      iii. MANHOLES WITH STUB-OUTS (8") INCH OR LARGER MUST BE LOCATED AT THE END OF ALL SEWER LINES THAT MAY BE EXTENDED IN THE FUTURE. MANHOLES PLACED AT THE END OF THE WASTEWATER COLLECTION SYSTEM PIPES THAT MAY BE EXTENDED IN THE FUTURE MUST INCLUDE STUB-OUTS WITH PLUGS.

PIPING

16. THE KIND AND DESCRIPTION OF THE PIPE CONDUIT IS SHOWN ON THE PLANS (IF PVC, SDR AND ASTM/ANSI DESIGNATION CLASS). AS SDR 26 PVC, ASTM D-3034 WITH A MINIMUM STIFFNESS OF 115 PSI TEXAS ADMINISTRATIVE CODE (TAC) RULES TO INCLUDE30 TAC & 213, OR ANY REVISIONS THERE TO APPLICABLE TECQ, 30 TAC 7 217, FOR ALL NEW DEVELOPMENT.

17. THE USE OF ASBESTOS CEMENT PIPE WILL BE PROHIBITED UNDER THIS CONTRACT. ALL DUCTILE IRON PIPE USED IN THIS SYSTEM SHALL BE CORROSION PROTECTED ON BOTH THE INTERIOR AND EXTERIOR SURFACES. ALL CORROSION PROTECTION SHALL BE APPLIED AND INSTALLED IN SUCH A MANNER AS TO MAINTAIN A CONTINUOUSLY PROTECTED SURFACE AFTER FINAL PIPE INSTALLATION.

18. ALL PVC SEWER PIPE WITH OVER 14 FEET OF COVER SHALL BE EXTRA STRENGTH; MINIMUM PIPE STIFFNESS OF 150 PSI.

19. ALL SEWER PIPES SHALL HAVE COMPRESSION OR MECHANICAL JOINTS.

20. SEWER PIPE CONNECTIONS TO PRECAST MANHOLES SHALL BE APPROVED BY THE GVSUD. THIS CONNECTION SHALL USE FLEXIBLE "BOOT" TYPE CONNECTOR SUCH AS THE PSX POSITIVE SEAL SYSTEM OR ENGINEER APPROVED EQUAL AND COMPLY WITH ASTM C-923. SEWER PIPE CONNECTIONS TO MONOLITHIC MANHOLES WILL BE AS SHOWN ON THE STANDARD DETAIL SHEET. ANY CHANGES IN THESE METHODS MUST BE APPROVED BY GVSUD ENGINEER.

21. ALL PIPE TRENCHING, BEDDING AND BACKFILL SHALL BE DONE IN ACCORDANCE WITH APPROPRIATE ASTM/ANSI SPECIFICATIONS [REFERENCE 31 TAC 317.2(A)(5)(A); ASTMC-12 (ANSI A106.2) OR ASTM D-2321 (ANSI K65.171)]. ALL COMPACTION @ 98% DENSITY TESTS ACROSS THE BOARD, 1 RANDOM DENSITY TEST PER LIFT FOR EVERY 400 FEET.
    A. SAND MIGRATION, SEEPAGE PREVENTION COLLAR WHEN CHANGING THE INITIAL BACKFILL FROM SELECT INITIAL BACKFILL TO OPTIONAL SELECT INITIAL BACKFILL. A TWO (2) FOOT LONG CLASS D CONCRETE ENCASEMENT, EVERY 180 FEET ALONG PIPE AND 20 FEET FROM WALL OF MANHOLE IN EACH DIRECTION. NO EXTRA PAY ITEM.
    B. BEDDING SHALL CONSIST OF TXDOT-GRADE 4 (1 1/2"-1 5/8") COMMONLY KNOWN AS SEWER GRAVEL.
       i. THE BEDDING SHALL MEET THE FOLLOWING GRADATION:

a.	2"	100.0%
b.	1 ¾"	100.0%
c.	1 ½"	100.0%
d.	1"	52.6%
e.	¾"	10.7%
f.	⅜"	1.3%

    C. SEWER LINE LOCATION
       i. SEWER LINES SHALL BE SIZED AND EXTENDED THROUGH THE LIMITS OF A DEVELOPMENT TO SERVE ADJACENT PROPERTY, WITH MANHOLE AND STUB-OUT AT END OF SEWER LINE.
          a. IN PHASED CONSTRUCTION OF THOROUGHFARES, THE SEWER LINE SHALL BE EXTENDED THE ENTIRE LENGTH OF THE THOROUGHFARE BEING CONSTRUCTED.
       ii. NO PUBLIC SEWER LINE SHALL BE LOCATED NEARER THAN FIVE (5) FEET FROM ANY TREE.
       iii. SIZES AND GRADES FOR SANITARY SEWER SHALL BE AS REQUIRED BY THE GVSUD ENGINEER AND CONSIDERATION SHALL BE GIVE AS TO POSSIBLE EXTENSIONS FOR FUTURE DEVELOPMENT. NO SANITARY SEWERS, OTHER THAN LATERALS AND FORCE MAINS, SHALL BE LESS THAN EIGHT (8) INCH IN DIAMETER.

22. WHEN SEWER LATERALS ARE TO BE CONNECTED TO EXISTING SEWER MAINS AND NO STUB-OUT HAS BEEN EARLIER PROVIDED, THE CONNECTION MUST BE MADE WITH AN APPROVED SERVICE SADDLE AS PER 31 TAC 313.5(C) (7). NEW INVERT TO BE BUILT, SMOOTH CHANNEL FOR NEW PIPE/SLOPE AT 2% FLOW.

23. ALL RESIDENTIAL SERVICE LATERALS SHALL BE SDR 26 WITH RATING OF 115 PSI, BE EXTENDED TO THE PROPERTY LINE AT (6 X 6) CAPPED AND SEALED. ATTACH SEWER BURIAL TAPE TO THE END OF ALL SEWER LATERALS AND BRING UP TO THE GROUND LEVEL FOR MARKER (GREEN). (SEE HOUSE LATERALS DETAILS)
    AA. SEWER SERVICE LATERALS. THE SIZES AND LOCATIONS OF LATERALS SHALL BE DESIGNATED AS FOLLOWS UNLESS OTHERWISE DIRECTED BY THE GVSUD ENGINEER:
       i. IN GENERAL FOR SINGLE FAMILY DWELLING, THE LATERAL SIZE SHALL BE FOUR (4) INCH MINIMUM. HOUSE LATERALS SHALL BE IN STALL CENTER OF THE LOT AND SHALL HAVE A TEN(10) FOOT SEPARATION FROM THE WATER SERVICE. THE SERVICE SHALL THEN BE EXTENDED AT A FORTY-FIVE (45) DEGREE ANGLE TO FOUR (4) FEET ABOVE THE FINISHED GRADE AND CAPPED. USE SEWER BURIAL TAPE TO MARK ALL SEWER SERVICE LATERALS.
       ii. MULTIPLE UNITS, APARTMENTS, LOCAL RETAIL AND COMMERCIAL SIX (6) INCH MINIMUM, MANUFACTURING AND INDUSTRIAL - EIGHT (8) INCH MINIMUM, OR LARGER AS REQUIRED.

TRAPS AND INTERCEPTORS (FOG - TECQ)

UNIFORM PLUMBING CODE, CITY OF SAN ANTONIO BUILDING INSPECTIONS DEPARTMENT. ALL COMMERCIAL BUILDINGS WILL HAVE TRAPS (FOG-TECQ).

OIL SEPARATORS

WHICH INCLUDE OIL SEPARATOR-GASOLINE SERVICE STATIONS, CAR WASHES, GARAGES, DRY CLEANERS, CHEMICAL PLANTS, GAS PLANTS, HIDE PROCESSORS, TESTING LABORATORIES, OR ANY PLACE WHERE OIL OR SOLVENTS MAY BE INTRODUCED IN TO THE SANITARY SEWER SYSTEM. THE SIZING CRITERIA FOR OIL SEPARATORS SHALL BE BASED ON THE G.P.M. RATE OF ALL FIXTURES, APPLIANCE OR APPURTENANCE, DRAINING INTO SEWER SYSTEM.

SAND INTERCEPTORS

SAND INTERCEPTORS SHALL BE INSTALLED IN THE SEWER SYSTEM OF THE FOLLOWING ESTABLISHMENTS, GARAGES, CAR WASHES, SERVICE STATIONS, OR ANY PLACE OF BUSINESS WHERE HEAVY SOLIDS MAY BE INTRODUCED INTO THE SANITARY SEWER SYSTEM. THE SIZING CRITERIA FOR A SAND INTERCEPTOR SHALL BE BASED ON THE REQUIRED G.P.M. X 12 MINUTE RETENTION TIMES TO OBTAIN THE TANK SIZE IN GALLONS CAPACITY.

AUTOMATIC CAR WASHES

WITH HIGH PRESSURE SPRAYS AND/OR BRUSHES INSTALL A 50 G.P.M. INTERCEPTOR. MINIMUM, FOR A 4-BAY VEHICLE WASH, THE SIZE OF THE INTERCEPTOR SHALL INCREASE 10 G.P.M. FOR EACH ADDITIONAL WASH BAY OVER 4. SINGLE BAY OR PORTABLE WASHER TYPE VEHICLE WASHES SHALL INSTALL A 20 G.P.M. INTERCEPTOR MINIMUM.

NEUTRALIZING DEVICES

IN NO CASE SHALL CORROSIVE LIQUIDS, SPENT ACIDS, OR OTHER HARMFUL CHEMICALS WHICH MIGHT DESTROY OR INJURE A DRAIN, SEWER, SOIL, OR WASTE PIPE, OR WHICH MIGHT CREATE NOXIOUS OR TOXIC FUMES, DISCHARGE INTO THE SANITARY SEWER SYSTEM WITH OUT BEING THOROUGHLY NEUTRALIZED BY PASSING THOROUGHLY CONSTRUCTED AND ACCEPTABLE NEUTRALIZING DEVICE. SUCH DEVICE SHALL BE PROVIDED WITH A SUFFICIENT INTAKE OF NEUTRALIZING MEDIUM, CONSISTING OF LIMESTONE OR MARBLE CHIPS, SO AS THE MAKE ITS CONTENTS NON-INJURIOUS BEFORE BEING DISCHARGED INTO THE SANITARY SEWER SYSTEM.

LINT TRAPS

PUBLIC AND PRIVATE WASHATERIAS AND COMMERCIAL LAUNDRIES SHALL INSTALL A LINT TRAP EQUIPPED WITH A CONVENIENTLY LOCATED AND EASILY REMOVABLE WIRE BASKET OR OTHER SIMILAR DEVICE THAT WILL PREVENT THE STRINGS, RAGS, BUTTONS, OR OTHER PROHIBITED MATERIAL FROM ENTERING THE SANITARY SEWER SYSTEM. THE BASKET OR OTHER SIMILAR DEVICE SHALL PREVENT PASSAGE TO THE SANITARY SEWER SYSTEM OF SOLIDS GREATER THAN 1/2" INCH DIAMETER. THE LINT TRAP SIZE SHALL BE BASED ON THE TOTAL G.P.M. OF ALL FIXTURES, APPLIANCES AND APPURTENANCES DRAINING TO IT IN LIEU OF A LINT TRAP, A LINT INTERCEPTOR MAY BE INSTALL. THE INTERCEPTOR SHALL BE SIZED AND DESIGNED BY A TEXAS REGISTERED ENGINEER WITH HIS SEAL AND SIGNATURE ON THE DRAWINGS.

GREEN VALLEY SPECIAL UTILITY DISTRICT STANDARD DETAILS	SANITARY SEWER SYSTEM GENERAL NOTES (1 OF 2)	
REVISED: OCTOBER 2021	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	DETAIL NO. G-1

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GRACE VALLEY RANCH
PHASE 3B

SANITARY SEWER NOTES AND DETAILS

DATE
08/05/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS
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8.
9.

KYLE M. HUDEK
138753
08/12/2024
K. Hudek

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C4.00

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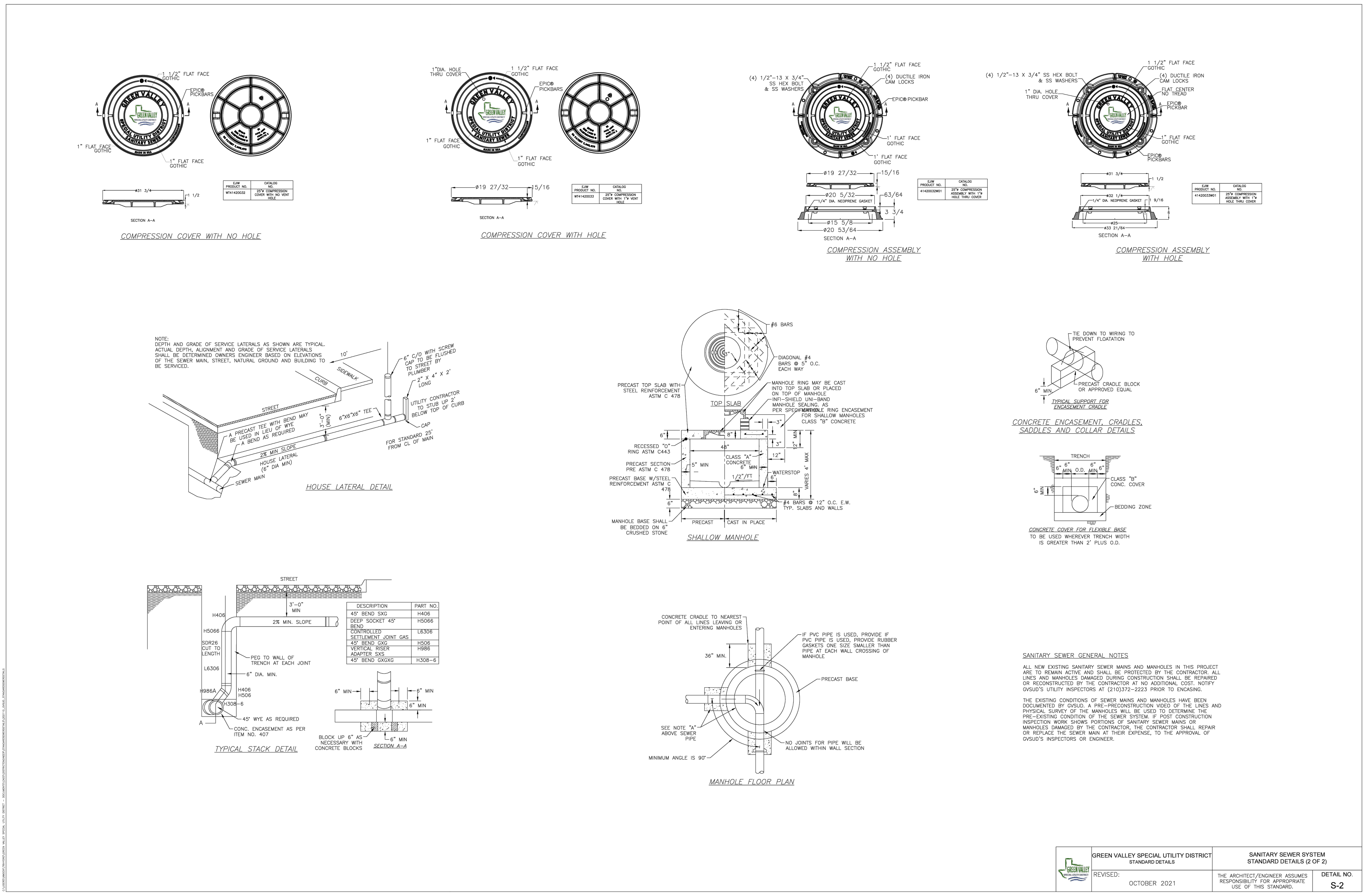
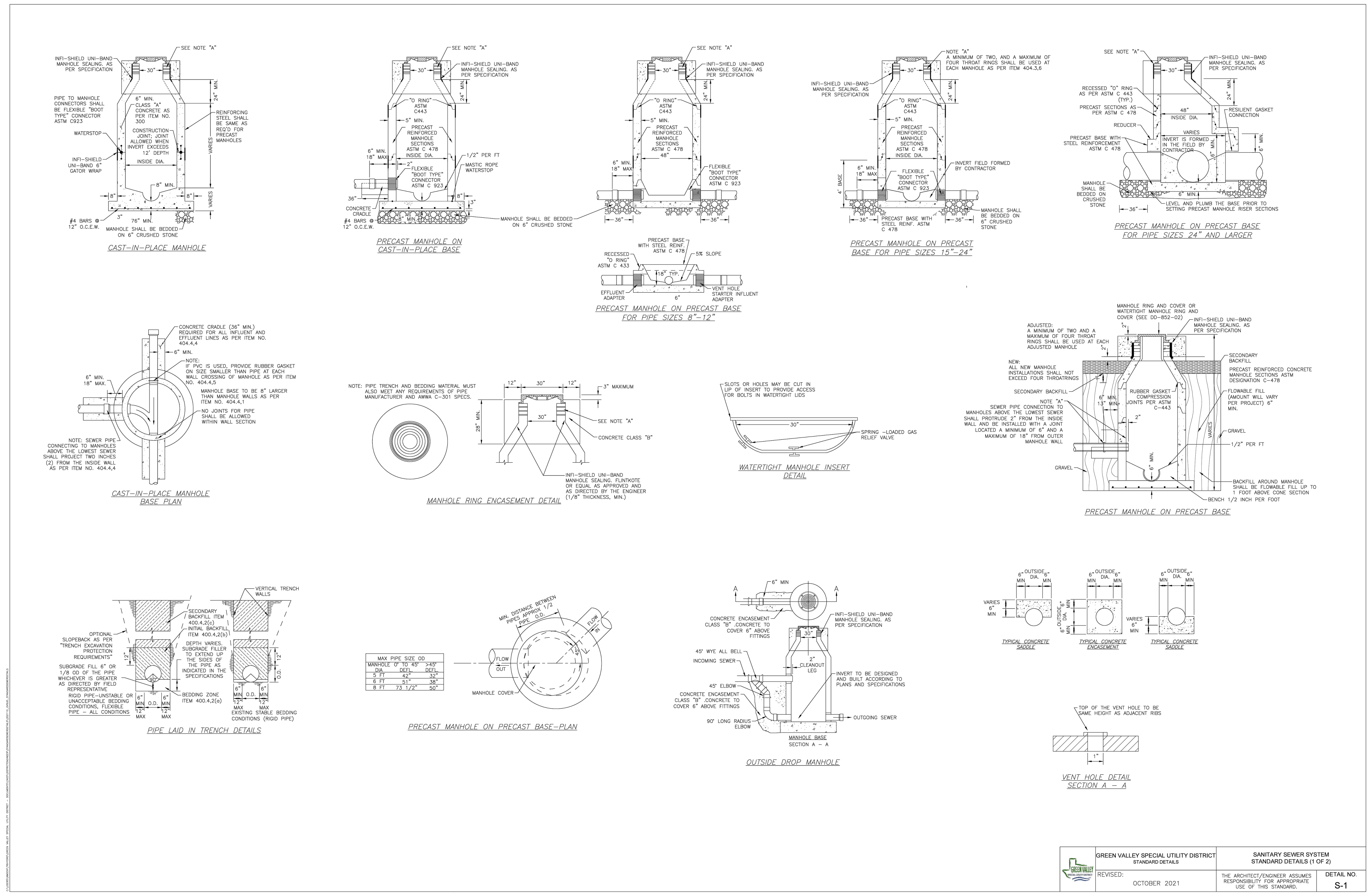

COMPRESSION COVER WITH NO HOLE
COMPRESSION COVER WITH HOLE
COMPRESSION ASSEMBLY WITH NO HOLE
COMPRESSION ASSEMBLY WITH HOLE
HOUSE LATERAL DETAIL
SHALLOW MANHOLE
CONCRETE ENCASEMENT, CRADLES, SADDLES AND COLLAR DETAILS
TYPICAL STACK DETAIL
MANHOLE FLOOR PLAN

SANITARY SEWER GENERAL NOTES

ALL NEW EXISTING SANITARY SEWER MAINS AND MANHOLES IN THIS PROJECT ARE TO REMAIN ACTIVE AND SHALL BE PROTECTED BY THE CONTRACTOR. ALL LINES AND MANHOLES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR RECONSTRUCTED BY THE CONTRACTOR AT NO ADDITIONAL COST. NOTIFY GVSUD'S UTILITY INSPECTORS AT (210)372–2223 PRIOR TO ENCASING.

THE EXISTING CONDITIONS OF SEWER MAINS AND MANHOLES HAVE BEEN DOCUMENTED BY GVSUD. A PRE–PRECONSTRUCTION VIDEO OF THE LINES AND PHYSICAL SURVEY OF THE MANHOLES WILL BE USED TO DETERMINE THE PRE–EXISTING CONDITION OF THE SEWER SYSTEM. IF POST CONSTRUCTION INSPECTION WORK SHOWS PORTIONS OF SANITARY SEWER MAINS OR MANHOLES DAMAGED BY THE CONTRACTOR, THE CONTRACTOR SHALL REPAIR OR REPLACE THE SEWER MAIN AT THEIR EXPENSE, TO THE APPROVAL OF GVSUD'S INSPECTORS OR ENGINEER.

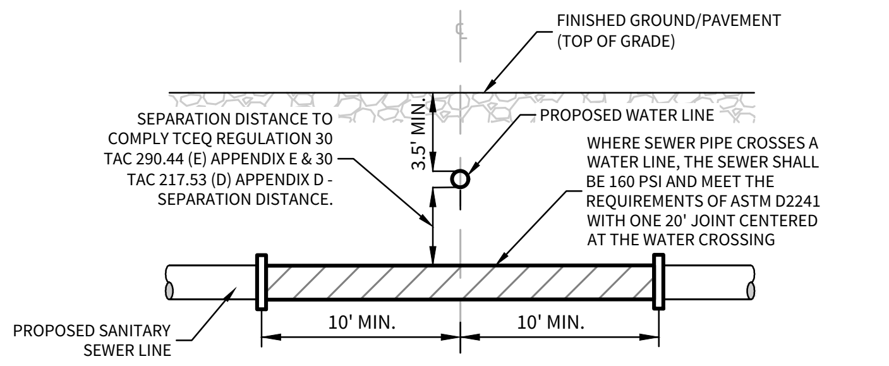
GREEN VALLEY SPECIAL UTILITY DISTRICT
STANDARD DETAILS
REVISED:
OCTOBER 2021
SANITARY SEWER SYSTEM
STANDARD DETAILS (2 OF 2)
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
DETAIL NO.
S-2


CAST-IN-PLACE MANHOLE
PRECAST MANHOLE ON CAST-IN-PLACE BASE
PRECAST MANHOLE ON PRECAST BASE FOR PIPE SIZES 8"-12"
PRECAST MANHOLE ON PRECAST BASE FOR PIPE SIZES 15"-24"
PRECAST MANHOLE ON PRECAST BASE FOR PIPE SIZES 24" AND LARGER
CAST-IN-PLACE MANHOLE BASE PLAN
MANHOLE RING ENCASEMENT DETAIL
WATERTIGHT MANHOLE INSERT DETAIL
PRECAST MANHOLE ON PRECAST BASE
PIPE LAID IN TRENCH DETAILS
PRECAST MANHOLE ON PRECAST BASE–PLAN
OUTSIDE DROP MANHOLE
TYPICAL CONCRETE SADDLE
TYPICAL CONCRETE ENCASEMENT
TYPICAL CONCRETE CRADLE
VENT HOLE DETAIL SECTION A – A

GREEN VALLEY SPECIAL UTILITY DISTRICT
STANDARD DETAILS
REVISED:
OCTOBER 2021
SANITARY SEWER SYSTEM
STANDARD DETAILS (1 OF 2)
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
DETAIL NO.
S-1

ENGINEER SANITARY SEWER GENERAL NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR REPLACING ANY FENCING THAT IS REMOVED OR DAMAGED DURING CONSTRUCTION TO EXISTING OR BETTER CONDITION.
2. CONTRACTOR IS TO NOTIFY ENGINEER OF ANY DISCREPANCIES OR UTILITY CONFLICTS.
3. CONTRACTOR SHALL REFERENCE TREE PLAN AND PRIVATE GRADING PLAN FOR CLEARING AND GRADING LIMITS.
4. CONTRACTOR SHALL REVEGETATE ALL DISTURBED AREAS WITHIN EASEMENT LIMITS UPON COMPLETION OF INFRASTRUCTURE


FINISHED GROUND/PAVEMENT (TOP OF GRADE)
SEPARATION DISTANCE TO COMPLY TCEQ REGULATION 30 TAC 290.44 (E) APPENDIX E & 30 TAC 217.53 (D) APPENDIX D - SEPARATION DISTANCE.
3.5' MIN.
PROPOSED WATER LINE
WHERE SEWER PIPE CROSSES A WATER LINE, THE SEWER SHALL BE 160 PSI AND MEET THE REQUIREMENTS OF ASTM D2241 WITH ONE 20' JOINT CENTERED AT THE WATER CROSSING
PROPOSED SANITARY SEWER LINE
10' MIN.
10' MIN.

TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL

N.T.S.

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.

TCEQ - 30 TAC290.44(e)

(e) LOCATION OF WATERLINES. THE FOLLOWING RULES APPLY TO INSTALLATIONS OF WATERLINES, WASTEWATER MAINS OR LATERALS, AND OTHER CONVEYANCES/APPURTENANCES IDENTIFIED AS POTENTIAL SOURCES OF CONTAMINATION. FURTHERMORE, ALL RATINGS SPECIFIED SHALL BE DEFINED BY ASTM OR AWWA STANDARDS UNLESS STATED OTHERWISE. NEW MAINS, SERVICE LINES, OR LATERALS ARE THOSE THAT ARE INSTALLED WHERE NO MAIN, SERVICE LINE, OR LATERAL PREVIOUSLY EXISTED, OR WHERE EXISTING MAINS, SERVICE LINES, OR LATERALS ARE REPLACED WITH PIPES OF DIFFERENT SIZE OR MATERIAL.

(1) WHEN NEW POTABLE WATER DISTRIBUTION LINES ARE CONSTRUCTED, THEY SHALL BE INSTALLED NO CLOSER THAN NINE FEET IN ALL DIRECTIONS TO WASTEWATER COLLECTION FACILITIES. ALL SEPARATION DISTANCES SHALL BE MEASURED FROM THE OUTSIDE SURFACE OF EACH OF THE RESPECTIVE PIECES.

(2) POTABLE WATER DISTRIBUTION LINES AND WASTEWATER MAINS OR LATERALS THAT FORM PARALLEL UTILITY LINES SHALL BE INSTALLED IN SEPARATE TRENCHES.

(3) NO PHYSICAL CONNECTION SHALL BE MADE BETWEEN A DRINKING WATER SUPPLY AND A SEWER LINE. ANY APPURTENANCE SHALL BE DESIGNED AND CONSTRUCTED SO AS TO PREVENT ANY POSSIBILITY OF SEWAGE ENTERING THE DRINKING WATER SYSTEM.

(4) WHERE THE NINE-FOOT SEPARATION DISTANCE CANNOT BE ACHIEVED, THE FOLLOWING CRITERIA SHALL APPLY.

(A) NEW WATERLINE INSTALLATION - PARALLEL LINES.

(i) WHERE A NEW POTABLE WATERLINE PARALLELS AN EXISTING, NON-PRESSURE OR PRESSURE RATED WASTEWATER MAIN OR LATERAL AND THE LICENSED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF TEXAS IS ABLE TO DETERMINE THAT THE EXISTING WASTEWATER MAIN OR LATERAL IS NOT LEAKING, THE NEW POTABLE WATERLINE SHALL BE LOCATED AT LEAST TWO FEET ABOVE THE EXISTING WASTEWATER MAIN OR LATERAL, MEASURED VERTICALLY, AND AT LEAST FOUR FEET AWAY, MEASURED HORIZONTALLY, FROM THE EXISTING WASTEWATER MAIN OR LATERAL. EVERY EFFORT SHALL BE EXERTED NOT TO DISTURB THE BEDDING AND BACKFILL OF THE EXISTING WASTEWATER MAIN OR LATERAL.

(ii) WHERE A NEW POTABLE WATERLINE PARALLELS AN EXISTING PRESSURE-RATED WASTEWATER MAIN OR LATERAL AND IT CANNOT BE DETERMINED BY THE LICENSED PROFESSIONAL ENGINEER IF THE EXISTING LINE IS LEAKING, THE EXISTING WASTEWATER MAIN OR LATERAL SHALL BE REPLACED WITH AT LEAST 150 PSI PRESSURE-RATED PIPE. THE NEW POTABLE WATERLINE SHALL BE LOCATED AT LEAST TWO FEET ABOVE THE NEW WASTEWATER LINE, MEASURED VERTICALLY, AND AT LEAST FOUR FEET AWAY, MEASURED HORIZONTALLY, FROM THE REPLACED WASTEWATER MAIN OR LATERAL.

(iii) WHERE A NEW POTABLE WATERLINE PARALLELS A NEW WASTEWATER MAIN, THE WASTEWATER MAIN OR LATERAL SHALL BE CONSTRUCTED OF AT LEAST 150 PSI PRESSURE-RATED PIPE. THE NEW POTABLE WATERLINE SHALL BE LOCATED AT LEAST TWO FEET ABOVE THE WASTEWATER MAIN OR LATERAL, MEASURED VERTICALLY, AND AT LEAST FOUR FEET AWAY, MEASURED HORIZONTALLY, FROM THE WASTEWATER MAIN OR LATERAL.

(B) NEW WATERLINE INSTALLATION - CROSSING LINES.

(i) WHERE A NEW POTABLE WATERLINE CROSSES ABOVE A WASTEWATER MAIN OR LATERAL, THE SEGMENT OF THE WATERLINE PIPE SHALL BE CENTERED OVER AND MUST BE PERPENDICULAR TO THE WASTEWATER MAIN OR LATERAL SUCH THAT THE JOINTS OF THE WATERLINE PIPE ARE EQUIDISTANT AND AT LEAST NINE FEET HORIZONTALLY FROM THE CENTERLINE OF THE WASTEWATER MAIN OR LATERAL. WHEN CROSSING AN EXISTING WASTEWATER MAIN OR LATERAL AND IT IS DISTURBED OR SHOWS SIGNS OF LEAKING, THE WASTEWATER MAIN OR LATERAL SHALL BE REPLACED FOR AT LEAST NINE FEET IN BOTH DIRECTIONS (18 FEET TOTAL) WITH AT LEAST 150 PSI PRESSURE-RATED PIPE EMBEDDED IN CEMENT STABILIZED SAND (SEE CLAUSE (V) OF THIS SUBPARAGRAPH) FOR THE TOTAL LENGTH OF ONE PIPE SEGMENT PLUS 12 INCHES BEYOND THE JOINT ON EACH END.

(I) THE POTABLE WATERLINE SHALL BE AT LEAST TWO FEET ABOVE AN EXISTING, NON-PRESSURE RATED WASTEWATER MAIN OR LATERAL.

(II) THE POTABLE WATERLINE SHALL BE AT LEAST SIX INCHES ABOVE AN EXISTING, PRESSURE-RATED WASTEWATER MAIN OR LATERAL.

(ii) WHERE A NEW POTABLE WATERLINE CROSSES A NEW, NON-PRESSURE RATED WASTEWATER MAIN OR LATERAL, THE SEGMENT OF THE WATERLINE PIPE SHALL BE CENTERED OVER AND SHALL BE PERPENDICULAR TO THE WASTEWATER MAIN OR LATERAL SUCH THAT THE JOINTS OF THE WATERLINE PIPE ARE EQUIDISTANT AND AT LEAST NINE FEET HORIZONTALLY FROM THE CENTERLINE OF THE WASTEWATER MAIN OR LATERAL. THE POTABLE WATERLINE SHALL BE AT LEAST TWO FEET ABOVE THE WASTEWATER MAIN OR LATERAL. WHENEVER POSSIBLE, THE CROSSING SHALL BE CENTERED BETWEEN THE JOINTS OF THE WASTEWATER MAIN OR LATERAL. THE WASTEWATER PIPE SHALL HAVE A MINIMUM PIPE STIFFNESS OF 115 PSI AT 5.0% DEFLECTION. THE WASTEWATER MAIN OR LATERAL SHALL BE EMBEDDED IN CEMENT STABILIZED SAND (SEE CLAUSE (V) OF THIS SUBPARAGRAPH) FOR THE TOTAL LENGTH OF ONE PIPE SEGMENT PLUS 12 INCHES BEYOND THE JOINT ON EACH END. THE MATERIALS AND METHOD OF INSTALLATION SHALL CONFORM TO ONE OF THE FOLLOWING OPTIONS:

(I) WITHIN NINE FEET HORIZONTALLY OF EITHER SIDE OF THE WATERLINE, THE WASTEWATER PIPE AND JOINTS SHALL BE CONSTRUCTED WITH PIPE MATERIAL HAVING A MINIMUM PRESSURE RATING OF AT LEAST 150 PSI. AN ABSOLUTE MINIMUM VERTICAL SEPARATION DISTANCE OF TWO FEET SHALL BE PROVIDED. THE WASTEWATER MAIN OR LATERAL SHALL BE LOCATED BELOW THE WATERLINE.

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

GRACE VALLEY RANCH
PHASE 3B

SANTIARY SEWER DEATAILS

DATE
08/05/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS
1.
2.
3.
4.
5.
6.
7.
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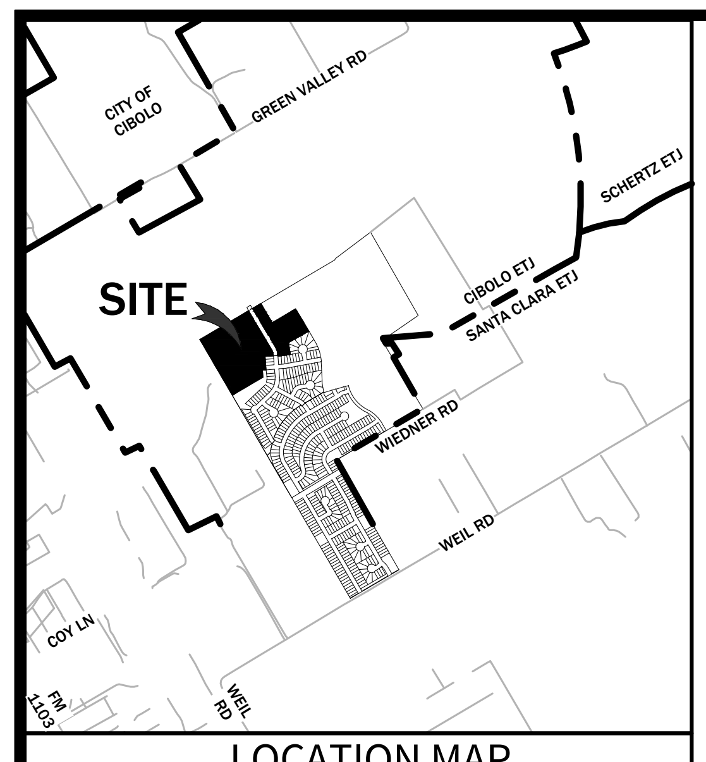
KYLE M. HUDEK
138753
08/12/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C4.01


SITE
GREEN VALLEY RD
CITY OF CIBOLO
SCHERTZ ETJ
CIBOLO ETJ
SANTA CLARA ETJ
WIEDNER RD
WEIL RD
COY LN
FM 1103

LOCATION MAP
N.T.S.

DEVELOPER:

LENNAR HOMES OF TEXAS LAND AND
CONSTRUCTION, LTD.
CONTACT PERSON: RICHARD MOTT
100 NE LOOP 410, SUITE 1155
SAN ANTONIO, TX 78216
TEL: (210) 403-6200

CIVIL ENGINEER:

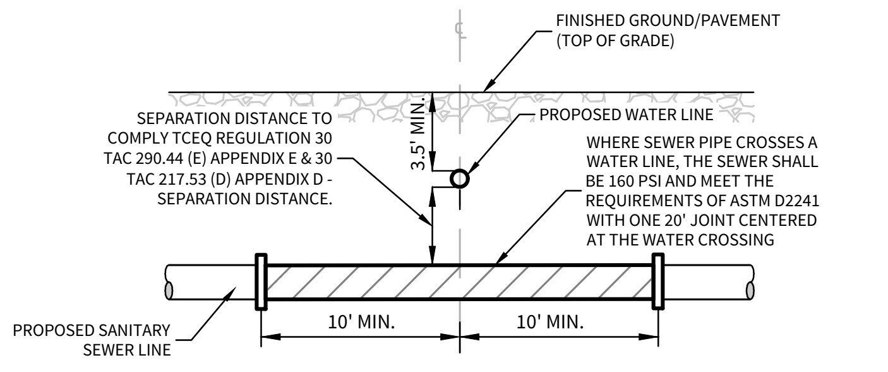
CUDE ENGINEERS
CONTACT PERSON: CHRIS CHAFFEE, P.E.
4122 POND HILL ROAD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951
FAX: (210) 523-7112

LEGEND

8" W	= PROPOSED WATER MAIN
EX. 8" W	= EXISTING WATER MAIN
EX. 8" SS ●	= EXISTING SEWER LINE AND MANHOLE
8" SS ●	= PROPOSED SEWER LINE AND MANHOLE
SS ●	= PROPOSED SEWER LINE AND MANHOLES BY OTHERS (GVSUD)
ELEC	= EXISTING OVERHEAD ELECTRIC LINE
⧓	= PROPOSED HYDRANT

KEYNOTES

⬡1	= CONTRACTOR TO ADJUST MANHOLE TOP TO MATCH PROPOSED GRADING AND RECOAT MANHOLE PER GVSUD SPECIFICATIONS


FINISHED GROUND/PAVEMENT
(TOP OF GRADE)
PROPOSED WATER LINE
SEPARATION DISTANCE TO
COMPLY TCEQ REGULATION 30
TAC 290.44 (E) APPENDIX E & 30
TAC 217.53 (D) APPENDIX D -
SEPARATION DISTANCE.
3.5' MIN.
WHERE SEWER PIPE CROSSES A
WATER LINE, THE SEWER SHALL
BE 160 PSI AND MEET THE
REQUIREMENTS OF ASTM D2241
WITH ONE 20' JOINT CENTERED
AT THE WATER CROSSING
PROPOSED SANITARY
SEWER LINE
10' MIN.
10' MIN.

TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL

N.T.S.

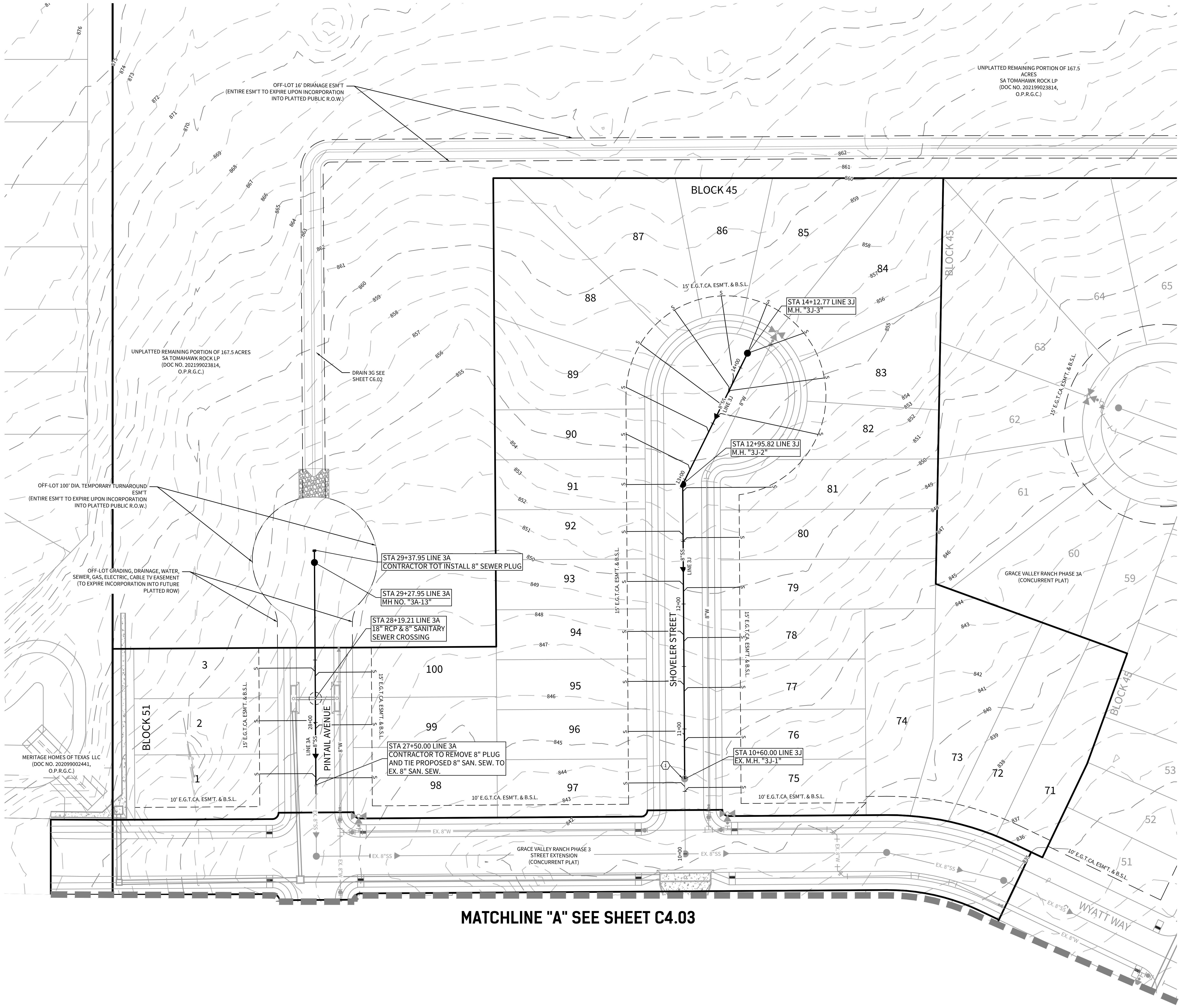
CAUTION!!!

THE CONTRACTOR SHALL BE AWARE THAT EXISTING UTILITIES ARE WITHIN PETEY PLACE AND HALEY WAY. 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 SAFETY 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.

SCALE: 1"=50'
50 25 0 50


OFF-LOT 16' DRIANAGE ESM'T
(ENTIRE ESM'T TO EXPIRE UPON INCORPORATION
INTO PLATTED PUBLIC R.O.W.)
UNPLATTED REMAINING PORTION OF 167.5 ACRES
SA TOMAHAWK ROCK LP
(DOC NO. 202199023814,
O.P.R.G.C.)
DRAIN 3G SEE
SHEET C6.02
UNPLATTED REMAINING PORTION OF 167.5
ACRES
SA TOMAHAWK ROCK LP
(DOC NO. 202199023814,
O.P.R.G.C.)
BLOCK 45
15' E.G.T.CA. ESM'T. & B.S.L.
STA 14+12.77 LINE 3J
M.H. "3J-3"
STA 12+95.82 LINE 3J
M.H. "3J-2"
14+00
13+00
8"SS
LINE 3J
8"W
OFF-LOT 100' DIA. TEMPORARY TURNAROUND
ESM'T
(ENTIRE ESM'T TO EXPIRE UPON INCORPORATION
INTO PLATTED PUBLIC R.O.W.)
OFF-LOT GRADING, DRAINAGE, WATER,
SEWER, GAS, ELECTRIC, CABLE TV EASEMENT
(TO EXPIRE INCORPORATION INTO FUTURE
PLATTED ROW)
STA 29+37.95 LINE 3A
CONTRACTOR TOT INSTALL 8" SEWER PLUG
STA 29+27.95 LINE 3A
MH NO. "3A-13"
STA 28+19.21 LINE 3A
18" RCP & 8" SANITARY
SEWER CROSSING
STA 27+50.00 LINE 3A
CONTRACTOR TO REMOVE 8" PLUG
AND TIE PROPOSED 8" SAN. SEW. TO
EX. 8" SAN. SEW.
BLOCK 51
PINTAIL AVENUE
LINE 3A
8"SS
28+00
MERITAGE HOMES OF TEXAS LLC
(DOC NO. 202099002441,
O.P.R.G.C.)
10' E.G.T.CA. ESM'T. & B.S.L.
SHOVELER STREET
STA 10+60.00 LINE 3J
EX. M.H. "3J-1"
11+00
10+00
1
GRACE VALLEY RANCH PHASE 3
STREET EXTENSION
(CONCURRENT PLAT)
EX. 8"W
EX. 8"SS
GRACE VALLEY RANCH PHASE 3A
(CONCURRENT PLAT)
BLOCK 45
WYATT WAY
10' E.G.T.CA. ESM'T. & B.S.L.
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MATCHLINE "A" SEE SHEET C4.03

CUDEENGINEERS.COM

EST. 1980
CUDE
ENGINEERS

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

GRACE VALLEY RANCH PHASE 3B

SANITARY SEWER MASTER PLAN

DATE
09/04/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS
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7.
8.
9.

KYLE M. HUDEK
138753
09/04/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C4.02

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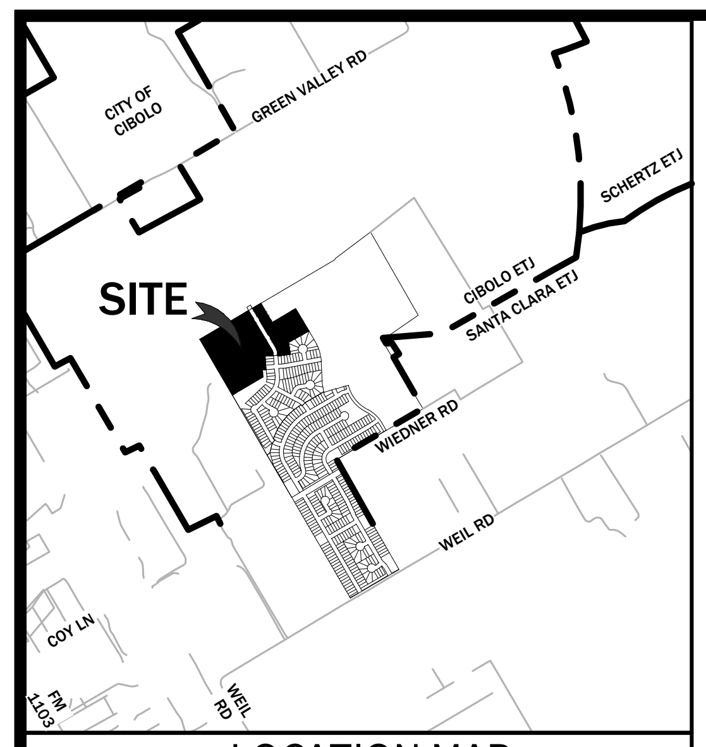
CITY OF CIBOLO
GREEN VALLEY RD
SITE
SCHERTZ ETJ
CIBOLO ETJ
SANTA CLARA ETJ
WIEDNER RD
WEIL RD
COY LN
FM 1103
WEIL RD

LOCATION MAP

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KEYNOTES

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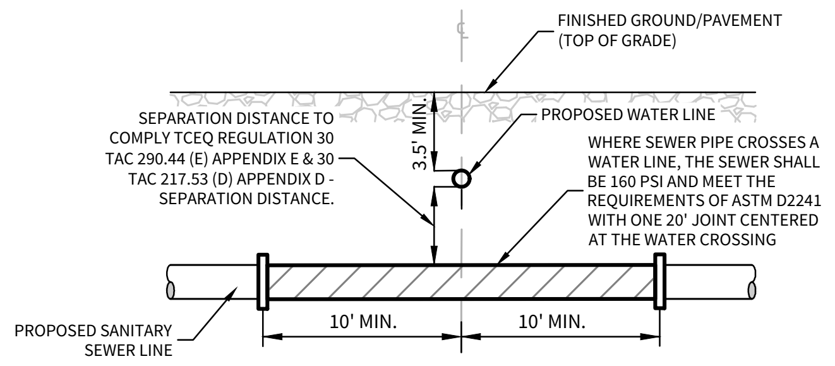
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PROPOSED SANITARY SEWER LINE
10' MIN.
10' MIN.

TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL

N.T.S.

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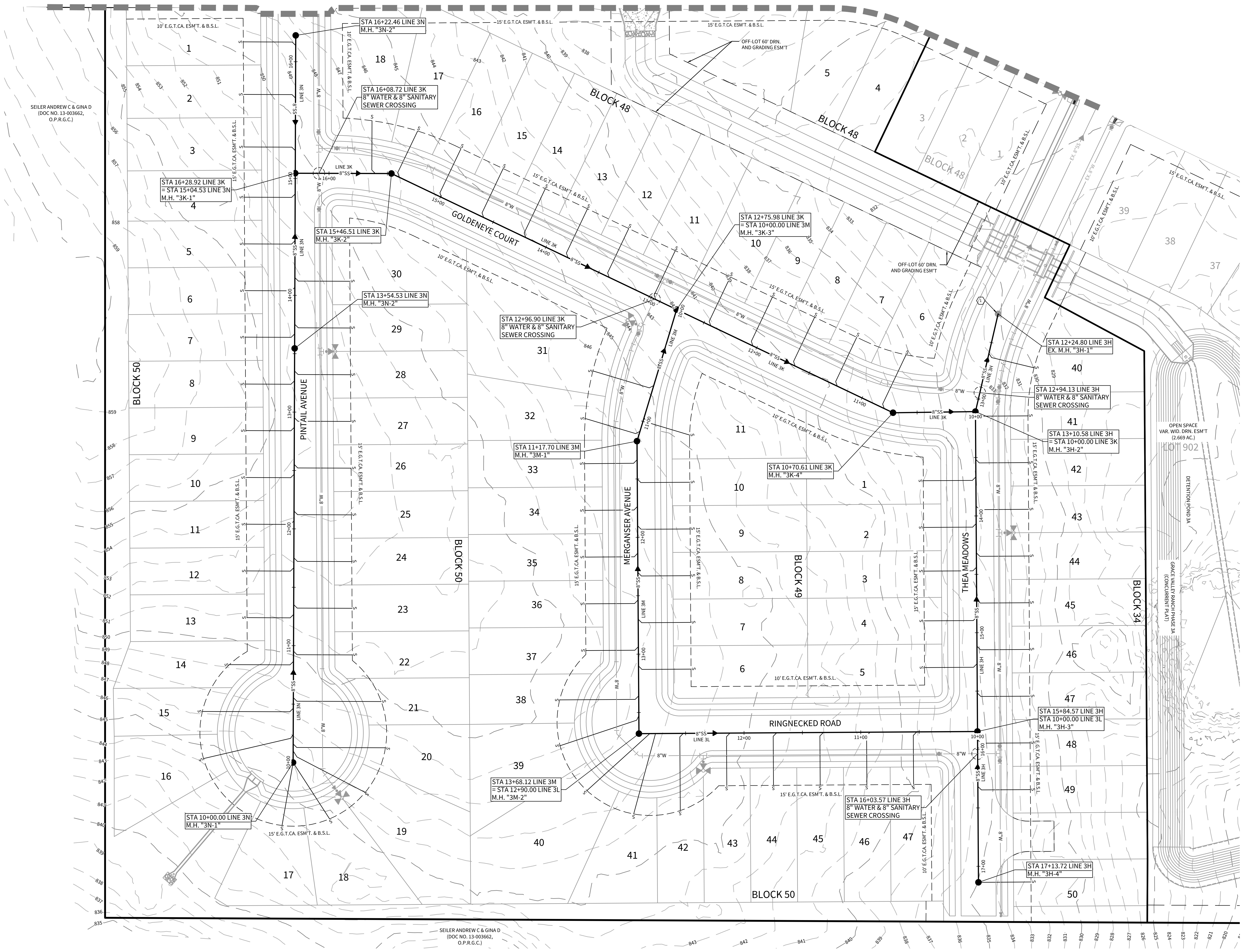
SCALE: 1"=50'
50 25 0 50

MATCHLINE "A" SEE SHEET C4.02


10' E.G.T.CA. ESM'T. & B.S.L.
15' E.G.T.CA. ESM'T. & B.S.L.
STA 16+22.46 LINE 3N
M.H. "3N-2"
STA 16+08.72 LINE 3K
8" WATER & 8" SANITARY SEWER CROSSING
STA 16+28.92 LINE 3K
= STA 15+04.53 LINE 3N
M.H. "3K-1"
STA 15+46.51 LINE 3K
M.H. "3K-2"
STA 13+54.53 LINE 3N
M.H. "3N-2"
STA 12+96.90 LINE 3K
8" WATER & 8" SANITARY SEWER CROSSING
STA 12+75.98 LINE 3K
= STA 10+00.00 LINE 3M
M.H. "3K-3"
STA 11+17.70 LINE 3M
M.H. "3M-1"
STA 10+70.61 LINE 3K
M.H. "3K-4"
STA 12+24.80 LINE 3H
EX. M.H. "3H-1"
STA 12+94.13 LINE 3H
8" WATER & 8" SANITARY SEWER CROSSING
STA 13+10.58 LINE 3H
= STA 10+00.00 LINE 3K
M.H. "3H-2"
STA 15+84.57 LINE 3H
STA 10+00.00 LINE 3L
M.H. "3H-3"
STA 13+68.12 LINE 3M
= STA 12+90.00 LINE 3L
M.H. "3M-2"
STA 16+03.57 LINE 3H
8" WATER & 8" SANITARY SEWER CROSSING
STA 17+13.72 LINE 3H
M.H. "3H-4"
STA 10+00.00 LINE 3N
M.H. "3N-1"
OFF-LOT 60' DRN. AND GRADING ESM'T
OPEN SPACE VAR. WID. DRN. ESM'T (2.669 AC.)
LOT 902
SEILER ANDREW C & GINA D (DOC NO. 13-003662, O.P.R.G.C.)
BLOCK 48
BLOCK 49
BLOCK 50
BLOCK 34
GOLDENEYE COURT
PINTAIL AVENUE
MERGANSER AVENUE
THEA MEADOWS
RINGNECKED ROAD
LINE 3N
LINE 3K
LINE 3M
LINE 3H
LINE 3L
8"SS
8"W

GRACE VALLEY RANCH PHASE 3B

SANITARY SEWER MASTER PLAN

CUDEENGINEERS.COM

EST. 1980
CUDE
ENGINEERS

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

DATE
09/24/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS
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9.

KYLE M. HUDEK
138753
10/01/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C4.03

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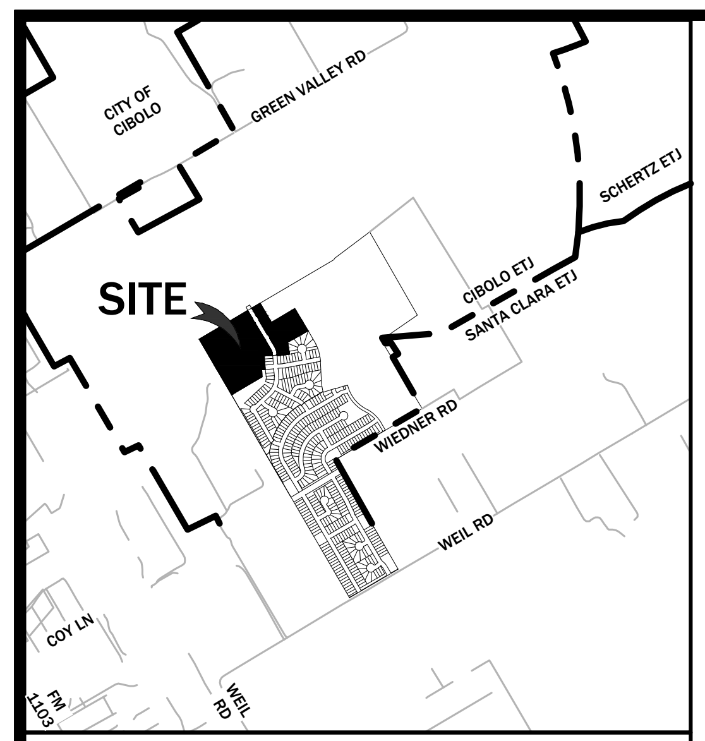

CITY OF CIBOLO
GREEN VALLEY RD
SITE
SCHERTZ ETJ
CIBOLO ETJ
SANTA CLARA ETJ
WIEDNER RD
WEIL RD
COY LN
FM 1103
WEIL RD

LOCATION MAP N.T.S.

DEVELOPER:

LENNAR HOMES OF TEXAS LAND AND
CONSTRUCTION, LTD.
CONTACT PERSON: RICHARD MOTT
100 NE LOOP 410, SUITE 1155
SAN ANTONIO, TX 78216
TEL: (210) 403-6200

CIVIL ENGINEER:

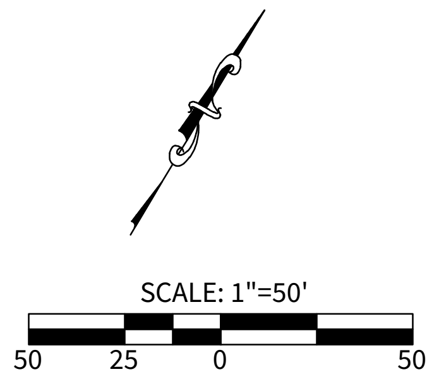
CUDE ENGINEERS
CONTACT PERSON: CHRIS CHAFFEE, P.E.
4122 POND HILL ROAD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951
FAX: (210) 523-7112

NOTE:

ALL SEWER LATERALS AND PROPERTY LINE CLEANOUTS ARE TO BE LOCATED OUTSIDE OF DRIVEWAY PAVED AREAS.

TRENCH EXCAVATION SAFETY 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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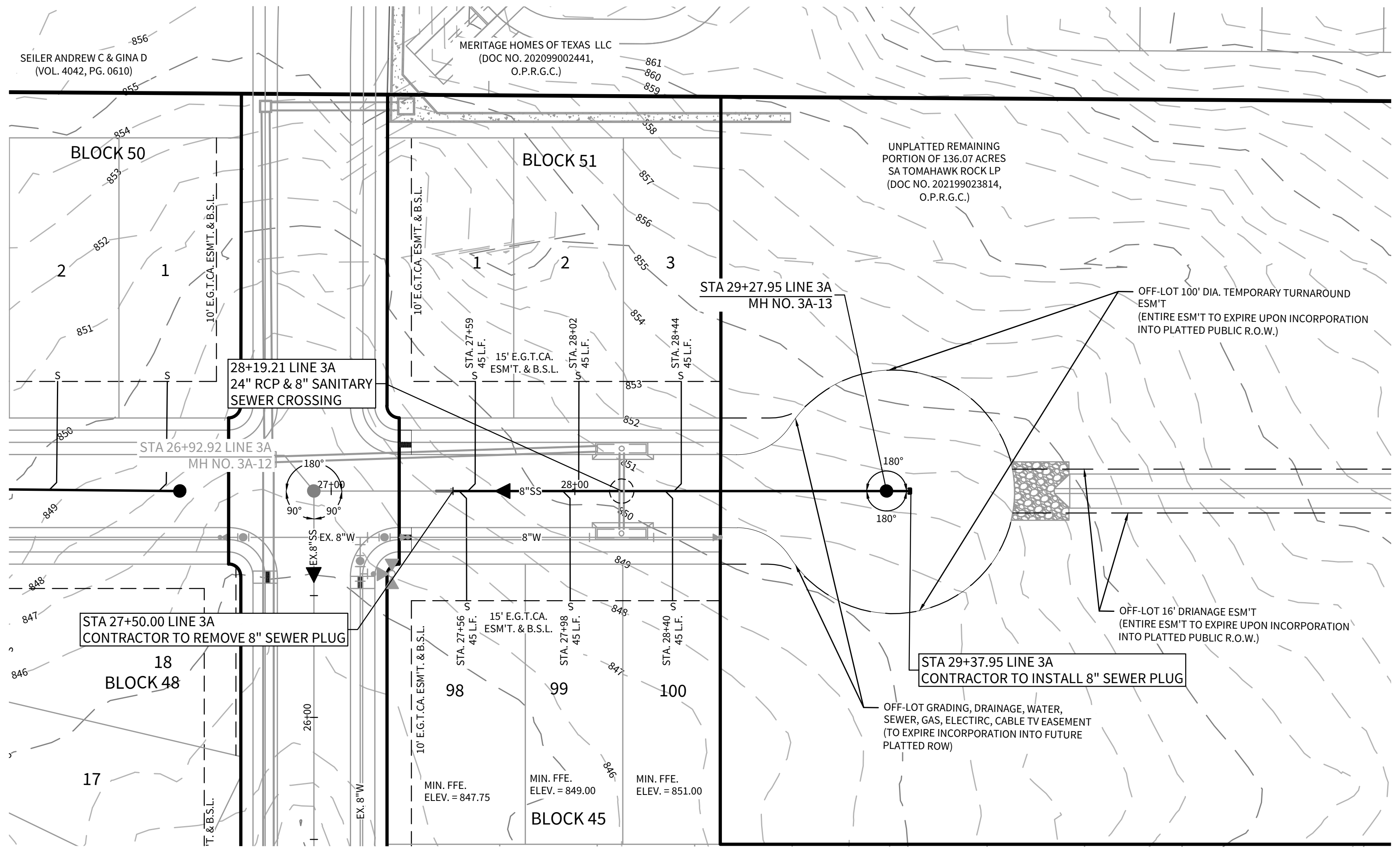
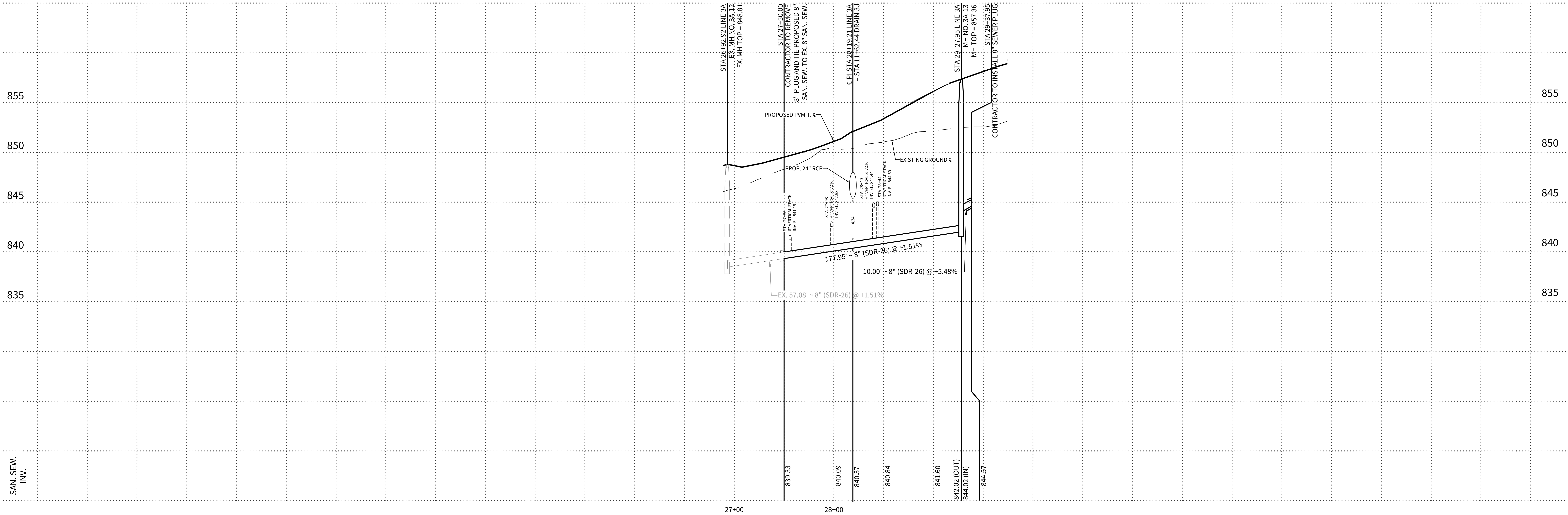

SEILER ANDREW C & GINA D
(VOL. 4042, PG. 0610)
MERITAGE HOMES OF TEXAS LLC
(DOC NO. 202099002441,
O.P.R.G.C.)
BLOCK 50
BLOCK 51
2
1
1
2
3
10' E.G.T.CA. ESM'T. & B.S.L.
10' E.G.T.CA. ESM'T. & B.S.L.
STA. 27+59
45 L.F.
15' E.G.T.CA.
ESM'T. & B.S.L.
STA. 28+02
45 L.F.
STA. 28+44
45 L.F.
28+19.21 LINE 3A
24" RCP & 8" SANITARY
SEWER CROSSING
STA 26+92.92 LINE 3A
MH NO. 3A-12
180°
27+00
90°
90°
8"SS
28+00
EX. 8"W
8"W
EX.8"SS
STA 27+50.00 LINE 3A
CONTRACTOR TO REMOVE 8" SEWER PLUG
STA. 27+56
45 L.F.
15' E.G.T.CA.
ESM'T. & B.S.L.
STA. 27+98
45 L.F.
STA. 28+40
45 L.F.
18
BLOCK 48
17
98
99
100
26+00
EX. 8"W
MIN. FFE.
ELEV. = 847.75
MIN. FFE.
ELEV. = 849.00
MIN. FFE.
ELEV. = 851.00
BLOCK 45
UNPLATTED REMAINING
PORTION OF 136.07 ACRES
SA TOMAHAWK ROCK LP
(DOC NO. 202199023814,
O.P.R.G.C.)
STA 29+27.95 LINE 3A
MH NO. 3A-13
180°
180°
OFF-LOT 100' DIA. TEMPORARY TURNAROUND
ESM'T
(ENTIRE ESM'T TO EXPIRE UPON INCORPORATION
INTO PLATTED PUBLIC R.O.W.)
OFF-LOT 16' DRIANAGE ESM'T
(ENTIRE ESM'T TO EXPIRE UPON INCORPORATION
INTO PLATTED PUBLIC R.O.W.)
STA 29+37.95 LINE 3A
CONTRACTOR TO INSTALL 8" SEWER PLUG
OFF-LOT GRADING, DRAINAGE, WATER,
SEWER, GAS, ELECTIRC, CABLE TV EASEMENT
(TO EXPIRE INCORPORATION INTO FUTURE
PLATTED ROW)
856
855
854
853
852
851
850
849
848
847
846
861
860
859
858
857

LINE "3A"

STA. 27+50.00 TO 29+37.95

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


STA 26+92.92 LINE 3A
EX. MH NO. 3A-12
EX. MH TOP = 848.81
STA 27+50.00
CONTRACTOR TO REMOVE
8" PLUG AND TIE PROPOSED 8"
SAN. SEW. TO EX. 8" SAN. SEW.
℄ PI STA 28+19.21 LINE 3A
= STA 11+62.44 DRAIN 3J
STA 29+27.95 LINE 3A
MH NO. 3A-13
MH TOP = 857.36
STA 29+37.95
CONTRACTOR TO INSTALL 8" SEWER PLUG
PROPOSED PVM'T. ℄
EXISTING GROUND ℄
PROP. 24" RCP
STA. 27+56
6" VERTICAL STACK
INV. EL. 841.19
STA. 27+98
6" VERTICAL STACK
INV. EL. 842.53
4.34'
STA. 28+40
6" VERTICAL STACK
INV. EL. 844.44
STA. 28+44
6" VERTICAL STACK
INV. EL. 844.59
177.95' ~ 8" (SDR-26) @ +1.51%
10.00' ~ 8" (SDR-26) @ +5.48%
EX. 57.08' ~ 8" (SDR-26) @ +1.51%
855
850
845
840
835
855
850
845
840
835
SAN. SEW. INV.
839.33
840.09
840.37
840.84
841.60
842.02 (OUT)
844.02 (IN)
844.57
27+00
28+00

CUDEENGINEERS.COM

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

GRACE VALLEY RANCH
PHASE 3B

SANITARY SEWER PLAN & PROFILE - LINE "3A"

DATE	09/04/2024
PROJECT NO.	03346.010
DRAWN BY	M.A.S./R.B.
CHECKED BY	K.M.H.

REVISIONS

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KYLE M. HUDEK
138753
09/04/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C4.04

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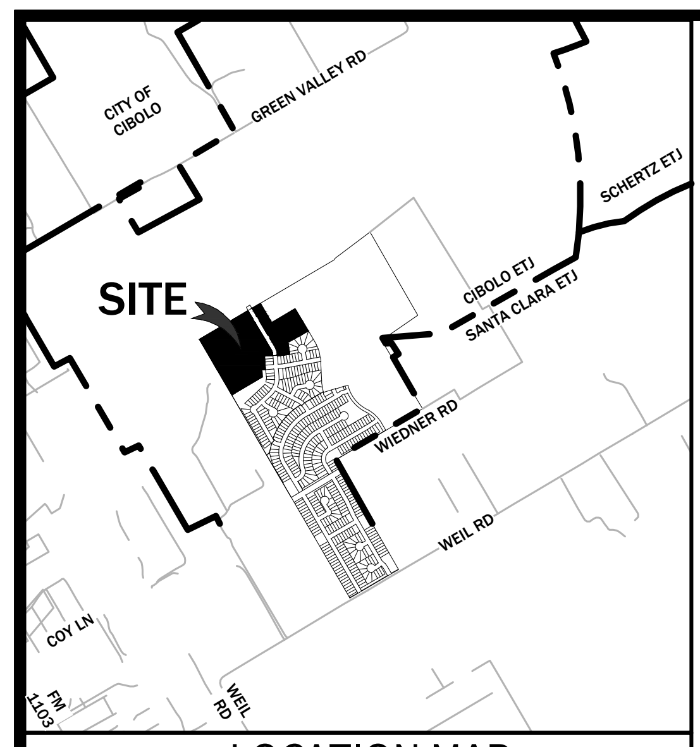
REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.


CITY OF CIBOLO
GREEN VALLEY RD
SCHERTZ ETJ
SITE
CIBOLO ETJ
SANTA CLARA ETJ
WIEDNER RD
WEIL RD
COY LN
FM 1103
WEIL RD

LOCATION MAP N.T.S.

DEVELOPER:

LENNAR HOMES OF TEXAS LAND AND
CONSTRUCTION, LTD.
CONTACT PERSON: RICHARD MOTT
100 NE LOOP 410, SUITE 1155
SAN ANTONIO, TX 78216
TEL: (210) 403-6200

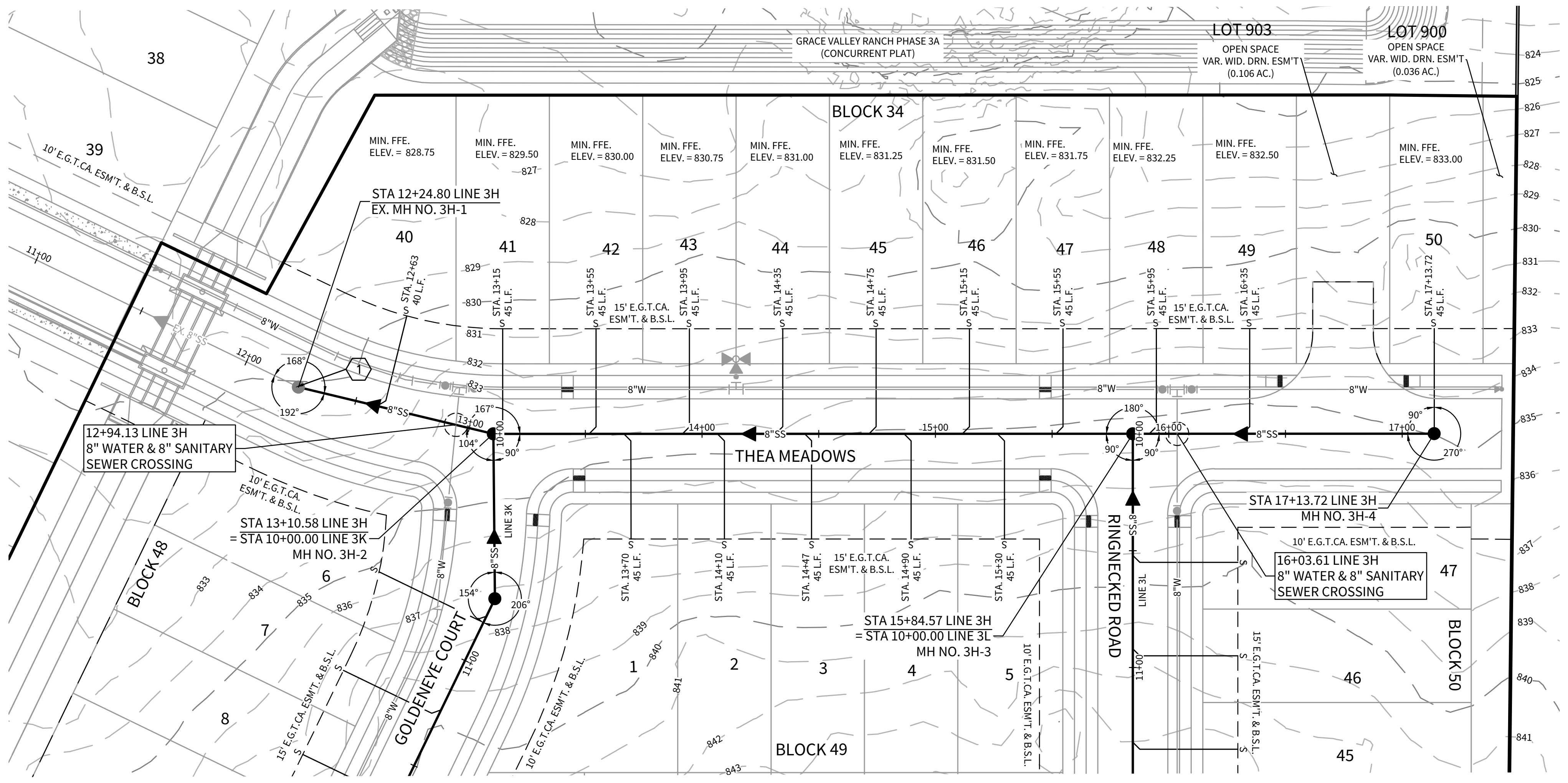
CIVIL ENGINEER:

CUDE ENGINEERS
CONTACT PERSON: CHRIS CHAFFEE, P.E.
4122 POND HILL ROAD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951
FAX: (210) 523-7112

KEYNOTES

CONTRACTOR TO ADJUST MANHOLE TOP TO MATCH PROPOSED GRADING AND RECOAT MANHOLE PER GVSUD SPECIFICATIONS	1

SCALE: 1"=50'
50 25 0 50


38
39
10' E.G.T.CA. ESM'T. & B.S.L.
11+00
12+00
EX. 8"SS
8"W
GRACE VALLEY RANCH PHASE 3A
(CONCURRENT PLAT)
LOT 903
OPEN SPACE
VAR. WID. DRN. ESM'T
(0.106 AC.)
LOT 900
OPEN SPACE
VAR. WID. DRN. ESM'T
(0.036 AC.)
BLOCK 34
MIN. FFE. ELEV. = 828.75
MIN. FFE. ELEV. = 829.50
MIN. FFE. ELEV. = 830.00
MIN. FFE. ELEV. = 830.75
MIN. FFE. ELEV. = 831.00
MIN. FFE. ELEV. = 831.25
MIN. FFE. ELEV. = 831.50
MIN. FFE. ELEV. = 831.75
MIN. FFE. ELEV. = 832.25
MIN. FFE. ELEV. = 832.50
MIN. FFE. ELEV. = 833.00
STA 12+24.80 LINE 3H
EX. MH NO. 3H-1
40
41
42
43
44
45
46
47
48
49
50
STA. 12+63 40 L.F.
STA. 13+15 45 L.F.
STA. 13+55 45 L.F.
STA. 13+95 45 L.F.
STA. 14+35 45 L.F.
STA. 14+75 45 L.F.
STA. 15+15 45 L.F.
STA. 15+55 45 L.F.
STA. 15+95 45 L.F.
STA. 16+35 45 L.F.
STA. 17+13.72 45 L.F.
15' E.G.T.CA. ESM'T. & B.S.L.
168°
192°
1
8"SS
167°
104°
90°
13+00
10+00
14+00
15+00
16+00
17+00
180°
90°
270°
12+94.13 LINE 3H
8" WATER & 8" SANITARY
SEWER CROSSING
THEA MEADOWS
10' E.G.T.CA. ESM'T. & B.S.L.
STA 13+10.58 LINE 3H
= STA 10+00.00 LINE 3K
MH NO. 3H-2
LINE 3K
154°
206°
BLOCK 48
6
7
8
GOLDENEYE COURT
15' E.G.T.CA. ESM'T. & B.S.L.
STA. 13+70 45 L.F.
STA. 14+10 45 L.F.
STA. 14+47 45 L.F.
STA. 14+90 45 L.F.
STA. 15+30 45 L.F.
1
2
3
4
5
BLOCK 49
STA 15+84.57 LINE 3H
= STA 10+00.00 LINE 3L
MH NO. 3H-3
RINGNECKED ROAD
LINE 3L
11+00
STA 17+13.72 LINE 3H
MH NO. 3H-4
16+03.61 LINE 3H
8" WATER & 8" SANITARY
SEWER CROSSING
10' E.G.T.CA. ESM'T. & B.S.L.
47
46
45
BLOCK 50
824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843

NOTE:

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TRENCH EXCAVATION SAFETY PROTECTION

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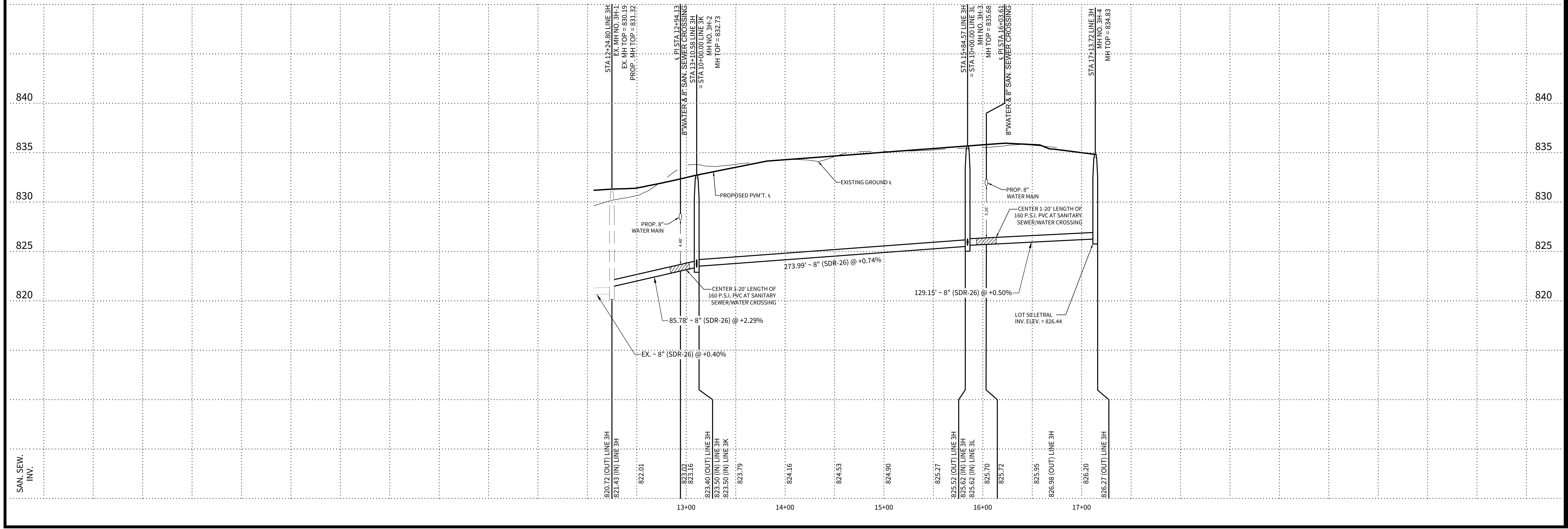
LINE "3H"

STA. 12+24.80 TO 17+13.72

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


STA 12+24.80 LINE 3H
EX. MH NO. 3H-1
EX. MH TOP = 830.19
PROP. MH TOP = 831.32
℄ PI STA 12+94.13
8"WATER & 8" SAN. SEWER CROSSING
STA 13+10.58 LINE 3H
= STA 10+00.00 LINE 3K
MH NO. 3H-2
MH TOP = 832.73
STA 15+84.57 LINE 3H
= STA 10+00.00 LINE 3L
MH NO. 3H-3
MH TOP = 835.68
℄ PI STA 16+03.61
8"WATER & 8" SAN. SEWER CROSSING
STA 17+13.72 LINE 3H
MH NO. 3H-4
MH TOP = 834.83
840
835
830
825
820
EXISTING GROUND ℄
PROPOSED PVM'T. ℄
PROP. 8" WATER MAIN
4.48'
5.26'
CENTER 1-20' LENGTH OF 160 P.S.I. PVC AT SANITARY SEWER/WATER CROSSING
273.99' ~ 8" (SDR-26) @ +0.74%
129.15' ~ 8" (SDR-26) @ +0.50%
85.78' ~ 8" (SDR-26) @ +2.29%
EX. ~ 8" (SDR-26) @ +0.40%
LOT 50 LETRAL INV. ELEV. = 826.44
SAN. SEW. INV.
820.72 (OUT) LINE 3H
821.43 (IN) LINE 3H
822.01
823.02
823.16
823.40 (OUT) LINE 3H
823.50 (IN) LINE 3H
823.50 (IN) LINE 3K
823.79
824.16
824.53
824.90
825.27
825.52 (OUT) LINE 3H
825.62 (IN) LINE 3H
825.62 (IN) LINE 3L
825.70
825.72
825.95
826.98 (OUT) LINE 3H
826.20
826.27 (OUT) LINE 3H
13+00
14+00
15+00
16+00
17+00

CUDEENGINEERS.COM

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

GRACE VALLEY RANCH PHASE 3B

SANITARY SEWER PLAN & PROFILE - LINE "3H"

DATE
08/05/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS

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KYLE M. HUDEK
138753
K Hudek
08/12/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C4.05

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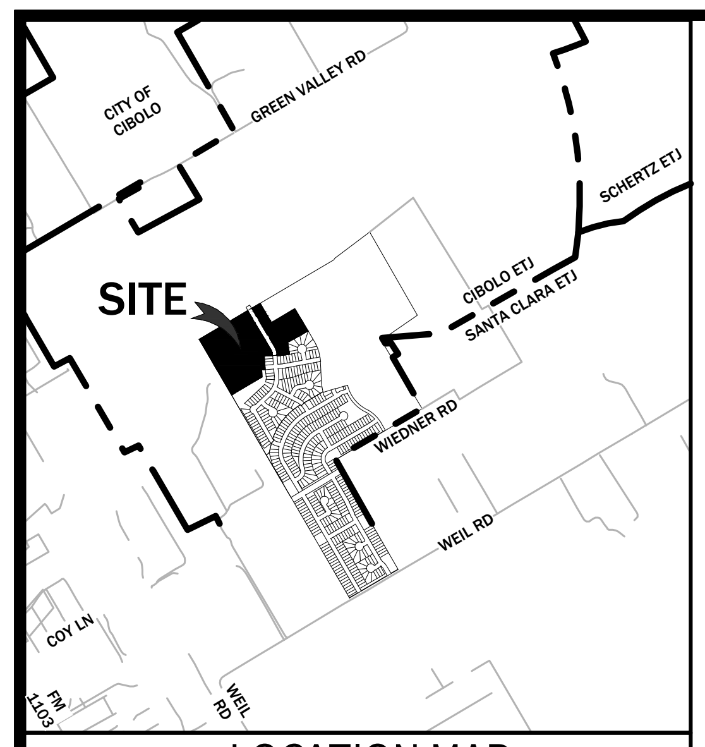
CITY OF CIBOLO
GREEN VALLEY RD
SCHERTZ ETJ
SITE
CIBOLO ETJ
SANTA CLARA ETJ
WIEDNER RD
WEIL RD
COY LN
FM 1103
WEIL RD

LOCATION MAP
N.T.S.

DEVELOPER:

LENNAR HOMES OF TEXAS LAND AND
CONSTRUCTION, LTD.
CONTACT PERSON: RICHARD MOTT
100 NE LOOP 410, SUITE 1155
SAN ANTONIO, TX 78216
TEL: (210) 403-6200

CIVIL ENGINEER:

CUDE ENGINEERS
CONTACT PERSON: CHRIS CHAFFEE, P.E.
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SAN ANTONIO, TX 78231
TEL: (210) 681-2951
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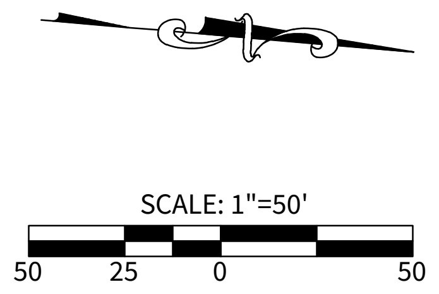
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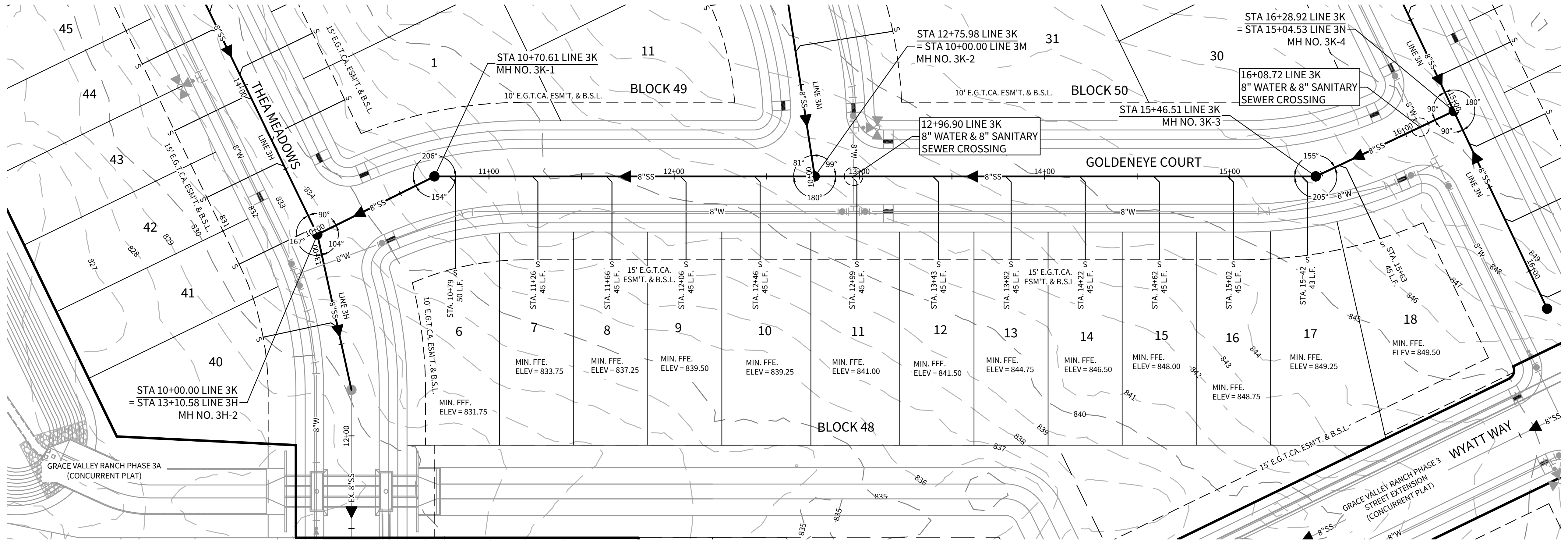
STA 10+70.61 LINE 3K
MH NO. 3K-1
STA 12+75.98 LINE 3K
= STA 10+00.00 LINE 3M
MH NO. 3K-2
12+96.90 LINE 3K
8" WATER & 8" SANITARY
SEWER CROSSING
STA 15+46.51 LINE 3K
MH NO. 3K-3
16+08.72 LINE 3K
8" WATER & 8" SANITARY
SEWER CROSSING
STA 16+28.92 LINE 3K
= STA 15+04.53 LINE 3N
MH NO. 3K-4
STA 10+00.00 LINE 3K
= STA 13+10.58 LINE 3H
MH NO. 3H-2
THEA MEADOWS
GOLDENEYE COURT
WYATT WAY
BLOCK 49
BLOCK 50
BLOCK 48
GRACE VALLEY RANCH PHASE 3A
(CONCURRENT PLAT)
GRACE VALLEY RANCH PHASE 3
STREET EXTENSION
(CONCURRENT PLAT)
10' E.G.T.CA. ESM'T. & B.S.L.
15' E.G.T.CA. ESM'T. & B.S.L.
MIN. FFE. ELEV = 831.75
MIN. FFE. ELEV = 833.75
MIN. FFE. ELEV = 837.25
MIN. FFE. ELEV = 839.50
MIN. FFE. ELEV = 839.25
MIN. FFE. ELEV = 841.00
MIN. FFE. ELEV = 841.50
MIN. FFE. ELEV = 844.75
MIN. FFE. ELEV = 846.50
MIN. FFE. ELEV = 848.00
MIN. FFE. ELEV = 848.75
MIN. FFE. ELEV = 849.25
MIN. FFE. ELEV = 849.50
1
11
31
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NOTE:

ALL SEWER LATERALS AND PROPERTY LINE CLEANOUTS ARE TO BE LOCATED OUTSIDE OF DRIVEWAY PAVED AREAS.

TRENCH EXCAVATION SAFETY PROTECTION

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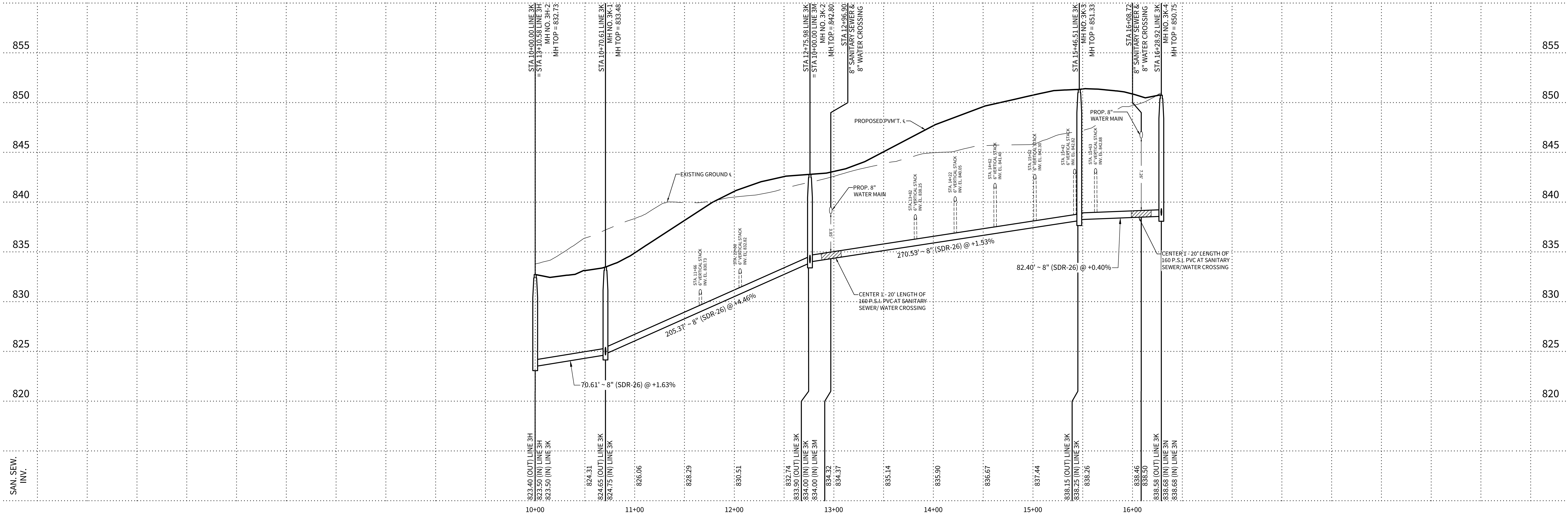
LINE "3K"

STA. 10+00.00 TO 16+28.92

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


STA 10+00.00 LINE 3K
= STA 13+10.58 LINE 3H
MH NO. 3H-2
MH TOP = 832.73
STA 10+70.61 LINE 3K
MH NO. 3K-1
MH TOP = 833.48
STA 12+75.98 LINE 3K
= STA 10+00.00 LINE 3M
MH NO. 3K-2
MH TOP = 842.80
STA 12+96.90
8" SANITARY SEWER &
8" WATER CROSSING
STA 15+46.51 LINE 3K
MH NO. 3K-3
MH TOP = 851.33
STA 16+08.72
8" SANITARY SEWER &
8" WATER CROSSING
STA 16+28.92 LINE 3K
MH NO. 3K-4
MH TOP = 850.75
855
850
845
840
835
830
825
820
EXISTING GROUND
PROPOSED PVM'T.
PROP. 8"
WATER MAIN
PROP. 8"
WATER MAIN
70.61' ~ 8" (SDR-26) @ +1.63%
205.37' ~ 8" (SDR-26) @ +4.46%
270.53' ~ 8" (SDR-26) @ +1.53%
82.40' ~ 8" (SDR-26) @ +0.40%
CENTER 1 - 20' LENGTH OF
160 P.S.I. PVC AT SANITARY
SEWER/ WATER CROSSING
CENTER 1 - 20' LENGTH OF
160 P.S.I. PVC AT SANITARY
SEWER/WATER CROSSING
6" VERTICAL STACK
SAN. SEW. INV.
823.40 (OUT) LINE 3H
823.50 (IN) LINE 3H
823.50 (IN) LINE 3K
824.31
824.65 (OUT) LINE 3K
824.75 (IN) LINE 3K
826.06
828.29
830.51
832.74
833.90 (OUT) LINE 3K
834.00 (IN) LINE 3K
834.00 (IN) LINE 3M
834.32
834.37
835.14
835.90
836.67
837.44
838.15 (OUT) LINE 3K
838.25 (IN) LINE 3K
838.26
838.46
838.50
838.58 (OUT) LINE 3K
838.68 (IN) LINE 3N
838.68 (IN) LINE 3N
10+00
11+00
12+00
13+00
14+00
15+00
16+00

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

GRACE VALLEY RANCH
PHASE 3B

SANITARY SEWER PLAN & PROFILE - LINE "3K"

DATE	08/05/2024
PROJECT NO.	03346.010
DRAWN BY	M.A.S./R.B.
CHECKED BY	K.M.H.

REVISIONS

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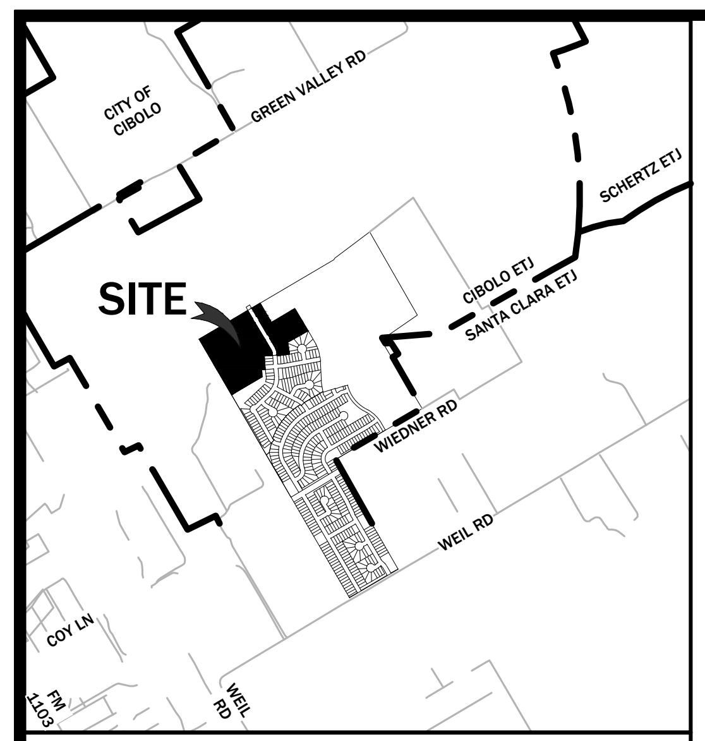
KYLE M. HUDEK
138753
08/12/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C4.06


CITY OF CIBOLO
GREEN VALLEY RD
SCHERTZ ETJ
SITE
CIBOLO ETJ
SANTA CLARA ETJ
WIEDNER RD
WEIL RD
COY LN
FM 1103
WEIL RD

LOCATION MAP

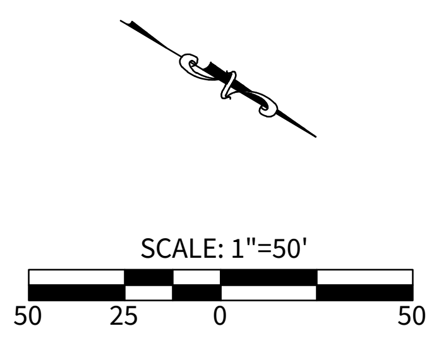
N.T.S.

DEVELOPER:

LENNAR HOMES OF TEXAS LAND AND
CONSTRUCTION, LTD.
CONTACT PERSON: RICHARD MOTT
100 NE LOOP 410, SUITE 1155
SAN ANTONIO, TX 78216
TEL: (210) 403-6200

CIVIL ENGINEER:

CUDE ENGINEERS
CONTACT PERSON: CHRIS CHAFFEE, P.E.
4122 POND HILL ROAD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951
FAX: (210) 523-7112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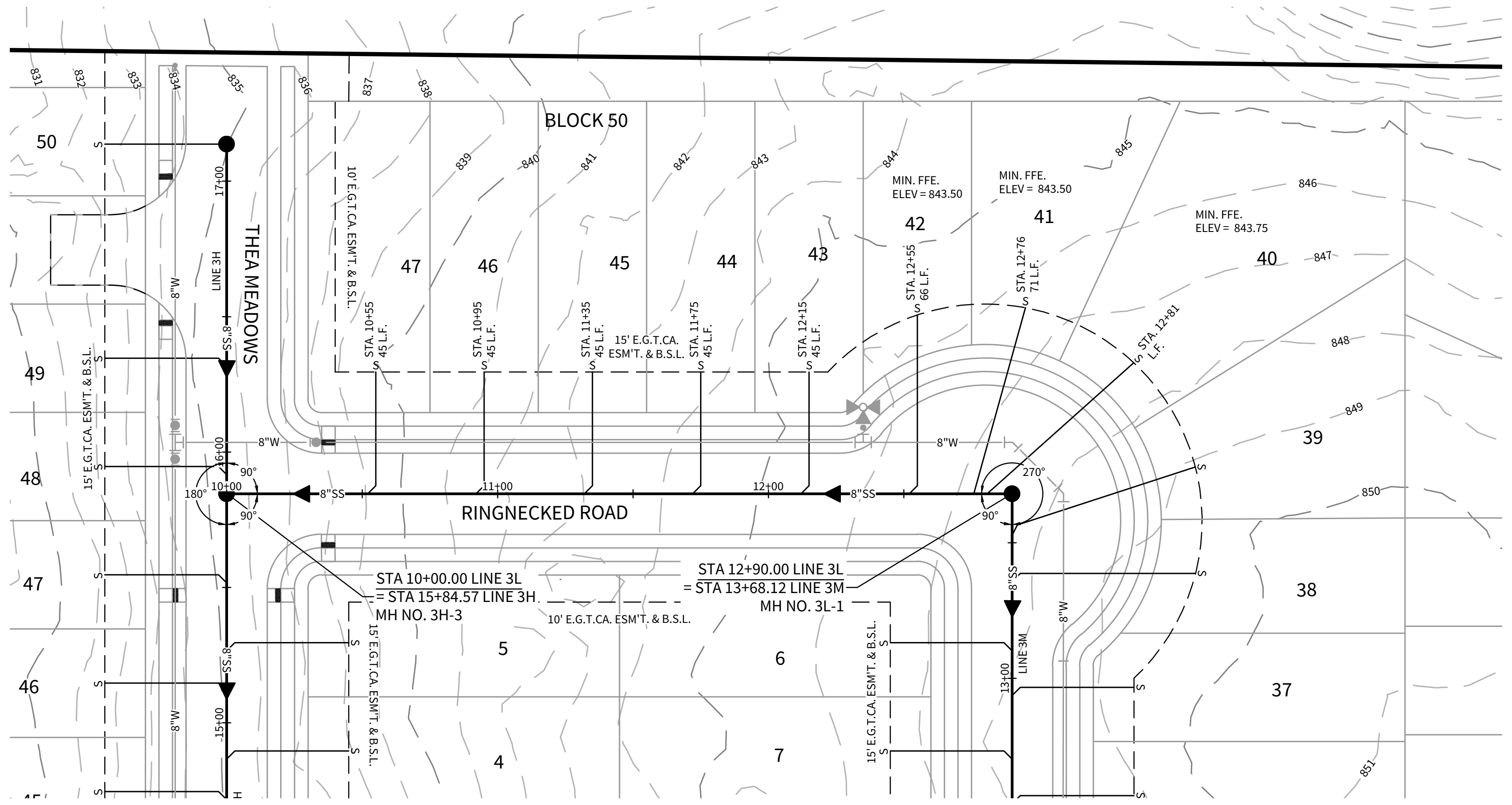

BLOCK 50
50
49
48
47
46
47
46
45
44
43
42
41
40
39
38
37
5
6
4
7
831
832
833
834
835
836
837
838
839
840
841
842
843
844
845
846
847
848
849
850
851
THEA MEADOWS
LINE 3H
17+00
16+00
15+00
8"SS
8"W
RINGNECKED ROAD
10+00
11+00
12+00
13+00
90°
180°
270°
10' E.G.T.CA. ESM'T. & B.S.L.
15' E.G.T.CA. ESM'T. & B.S.L.
STA. 10+55 45 L.F.
STA. 10+95 45 L.F.
STA. 11+35 45 L.F.
STA. 11+75 45 L.F.
STA. 12+15 45 L.F.
STA. 12+55 66 L.F.
STA. 12+76 71 L.F.
STA. 12+81 L.F.
MIN. FFE. ELEV = 843.50
MIN. FFE. ELEV = 843.50
MIN. FFE. ELEV = 843.75
STA 10+00.00 LINE 3L
= STA 15+84.57 LINE 3H
MH NO. 3H-3
STA 12+90.00 LINE 3L
= STA 13+68.12 LINE 3M
MH NO. 3L-1
LINE 3M
S

NOTE:

ALL SEWER LATERALS AND PROPERTY LINE CLEANOUTS ARE TO BE LOCATED OUTSIDE OF DRIVEWAY PAVED AREAS.

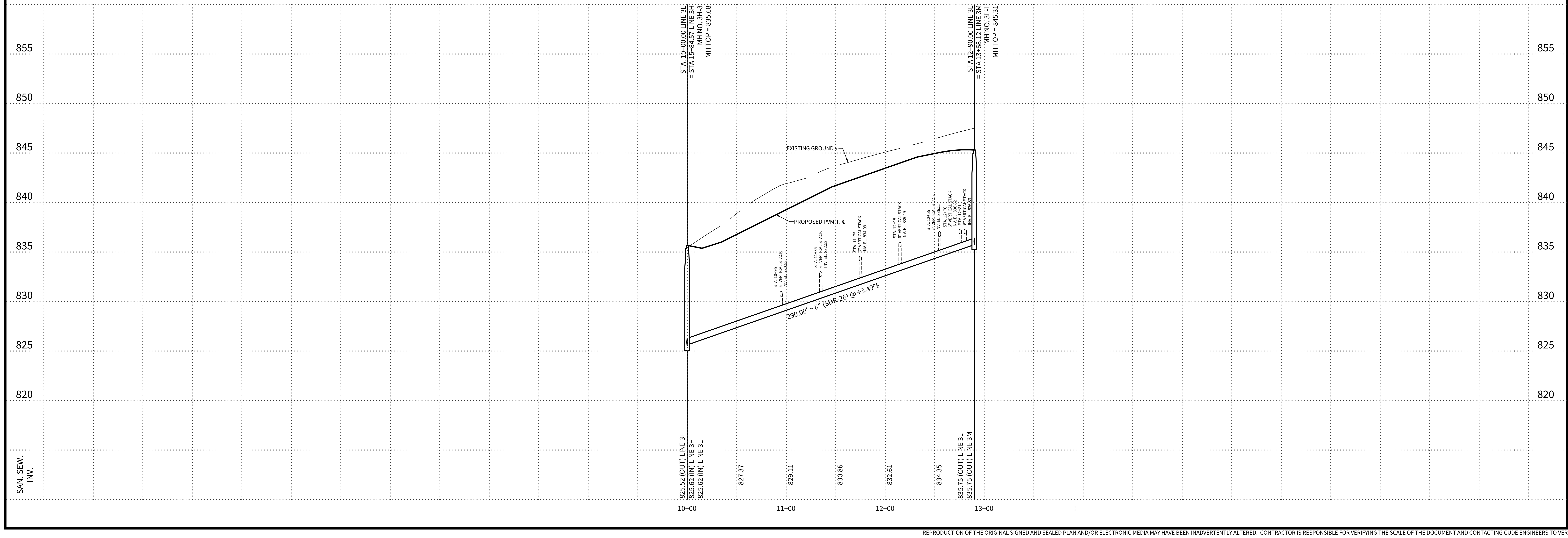
TRENCH EXCAVATION SAFETY PROTECTION

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.

LINE "3L"

STA. 10+00.00 TO 12+90.00

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


855
850
845
840
835
830
825
820
STA. 10+00.00 LINE 3L
= STA 15+84.57 LINE 3H
MH NO. 3H-3
MH TOP = 835.68
STA 12+90.00 LINE 3L
= STA 13+68.12 LINE 3M
MH NO. 3L-1
MH TOP = 845.31
EXISTING GROUND ℄
PROPOSED PVM'T. ℄
STA. 10+95 6" VERTICAL STACK INV. EL. 830.52
STA. 11+35 6" VERTICAL STACK INV. EL. 832.52
STA. 11+75 6" VERTICAL STACK INV. EL. 834.09
STA. 12+15 6" VERTICAL STACK INV. EL. 835.49
STA. 12+55 6" VERTICAL STACK INV. EL. 836.55
STA. 12+76 6" VERTICAL STACK INV. EL. 836.82
STA. 12+81 6" VERTICAL STACK INV. EL. 836.83
290.00' ~ 8" (SDR-26) @ +3.49%
SAN. SEW. INV.
825.52 (OUT) LINE 3H
825.62 (IN) LINE 3H
825.62 (IN) LINE 3L
827.37
829.11
830.86
832.61
834.35
835.75 (OUT) LINE 3L
835.75 (OUT) LINE 3M
10+00
11+00
12+00
13+00
855
850
845
840
835
830
825
820

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P:(210) 681.2951 F: (210)523.7112

GRACE VALLEY RANCH
PHASE 3B

SANITARY SEWER PLAN & PROFILE - LINE "3L"

DATE	08/05/2024
PROJECT NO.	03346.010
DRAWN BY	M.A.S./R.B.
CHECKED BY	K.M.H.

REVISIONS

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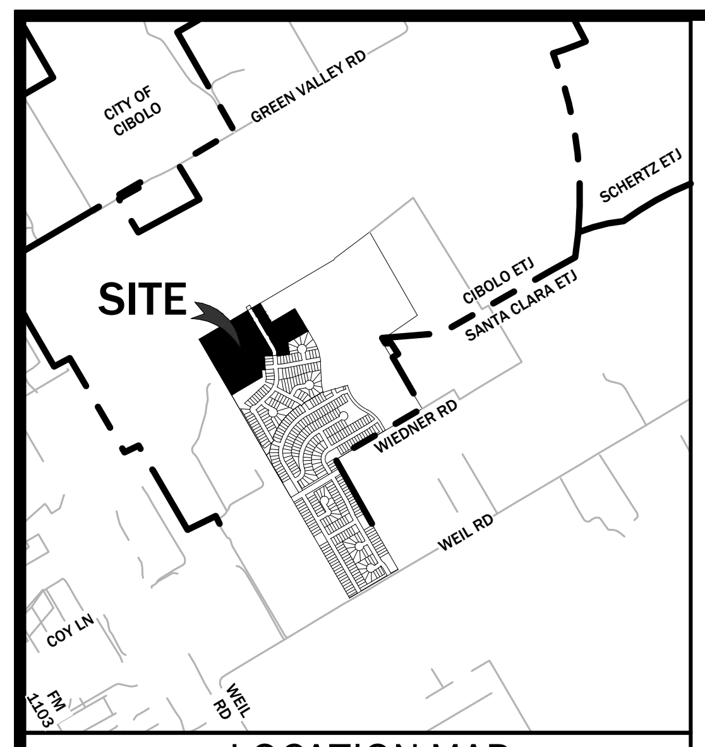
KYLE M. HUDEK
138753
K Hudek
08/12/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C4.07

P:\03346\010\2-DWG\4-Plans\C4.08_SSPP-3L.dwg 2024/08/05 12:28pm msandoval

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.


CITY OF CIBOLO
GREEN VALLEY RD
SCHERTZ ETJ
SITE
CIBOLO ETJ
SANTA CLARA ETJ
WIEDNER RD
WEIL RD
COY LN
FM 1103
WEIL RD

LOCATION MAP

N.T.S.

DEVELOPER:

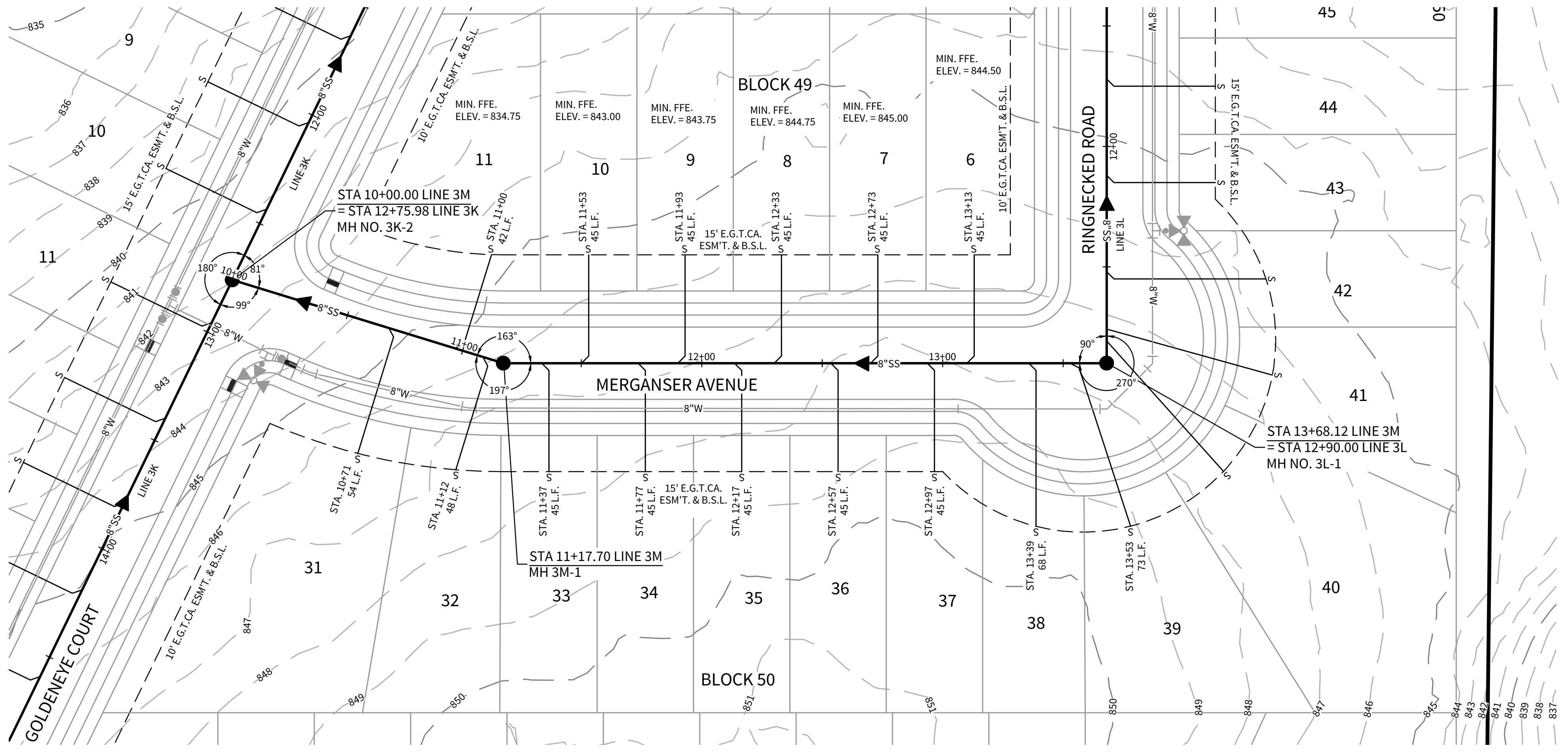
LENNAR HOMES OF TEXAS LAND AND
CONSTRUCTION, LTD.
CONTACT PERSON: RICHARD MOTT
100 NE LOOP 410, SUITE 1155
SAN ANTONIO, TX 78216
TEL: (210) 403-6200

CIVIL ENGINEER:

CUDE ENGINEERS
CONTACT PERSON: CHRIS CHAFFEE, P.E.
4122 POND HILL ROAD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951
FAX: (210) 523-7112

SCALE: 1"=50'

50 25 0 50


835
9
10
11
836
837
838
839
840
841
842
843
844
845
846
847
848
849
850
851
15' E.G.T.CA. ESM'T. & B.S.L.
10' E.G.T.CA. ESM'T. & B.S.L.
8"SS
8"W
12+00
LINE 3K
14+00
13+00
GOLDENEYE COURT
STA 10+00.00 LINE 3M
= STA 12+75.98 LINE 3K
MH NO. 3K-2
180°
10+00
81°
99°
163°
197°
11+00
BLOCK 49
MIN. FFE. ELEV. = 834.75
MIN. FFE. ELEV. = 843.00
MIN. FFE. ELEV. = 843.75
MIN. FFE. ELEV. = 844.75
MIN. FFE. ELEV. = 845.00
MIN. FFE. ELEV. = 844.50
11
10
9
8
7
6
STA. 11+00 42 L.F.
STA. 11+53 45 L.F.
STA. 11+93 45 L.F.
STA. 12+33 45 L.F.
STA. 12+73 45 L.F.
STA. 13+13 45 L.F.
15' E.G.T.CA. ESM'T. & B.S.L.
MERGANSER AVENUE
12+00
13+00
STA. 10+71 54 L.F.
STA. 11+12 48 L.F.
STA. 11+37 45 L.F.
STA. 11+77 45 L.F.
STA. 12+17 45 L.F.
STA. 12+57 45 L.F.
STA. 12+97 45 L.F.
STA. 13+39 68 L.F.
STA. 13+53 73 L.F.
STA 11+17.70 LINE 3M
MH 3M-1
31
32
33
34
35
36
37
38
39
40
BLOCK 50
RINGNECKED ROAD
8"SS
LINE 3L
12+00
8"W
90°
270°
45
44
43
42
41
STA 13+68.12 LINE 3M
= STA 12+90.00 LINE 3L
MH NO. 3L-1
844
843
842
841
840
839
838
837

NOTE:

ALL SEWER LATERALS AND PROPERTY LINE CLEANOUTS ARE TO BE LOCATED OUTSIDE OF DRIVEWAY PAVED AREAS.

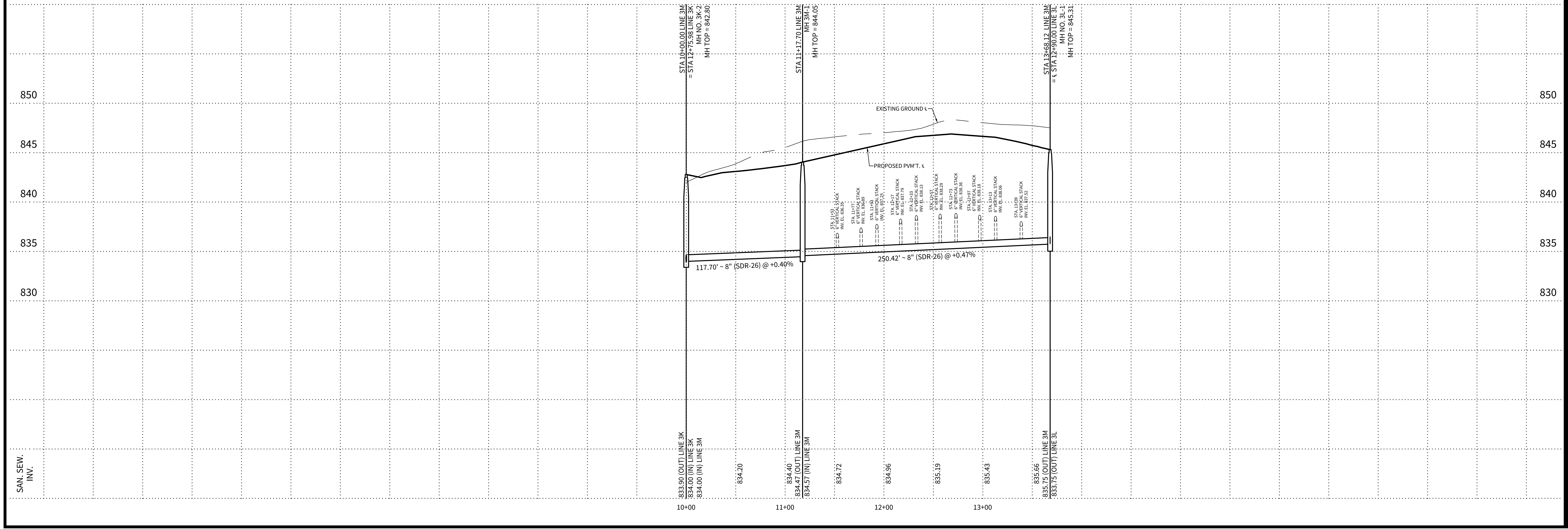
TRENCH EXCAVATION SAFETY PROTECTION

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.

LINE "3M"

STA. 10+00.00 TO 13+68.12

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


STA 10+00.00 LINE 3M
= STA 12+75.98 LINE 3K
MH NO. 3K-2
MH TOP = 842.80
STA 11+17.70 LINE 3M
MH 3M-1
MH TOP = 844.05
STA 13+68.12 LINE 3M
= ℄ STA 12+90.00 LINE 3L
MH NO. 3L-1
MH TOP = 845.31
850
845
840
835
830
EXISTING GROUND ℄
PROPOSED PVM'T. ℄
STA. 11+53 6" VERTICAL STACK INV. EL. 836.35
STA. 11+77 6" VERTICAL STACK INV. EL. 836.89
STA. 11+93 6" VERTICAL STACK INV. EL. 837.25
STA. 12+17 6" VERTICAL STACK INV. EL. 837.79
STA. 12+33 6" VERTICAL STACK INV. EL. 838.13
STA. 12+57 6" VERTICAL STACK INV. EL. 838.29
STA. 12+73 6" VERTICAL STACK INV. EL. 838.36
STA. 12+97 6" VERTICAL STACK INV. EL. 838.18
STA. 13+13 6" VERTICAL STACK INV. EL. 838.06
STA. 13+39 6" VERTICAL STACK INV. EL. 837.52
117.70' ~ 8" (SDR-26) @ +0.40%
250.42' ~ 8" (SDR-26) @ +0.47%
SAN. SEW. INV.
833.90 (OUT) LINE 3K
834.00 (IN) LINE 3K
834.00 (IN) LINE 3M
834.20
834.40
834.47 (OUT) LINE 3M
834.57 (IN) LINE 3M
834.72
834.96
835.19
835.43
835.66
835.75 (OUT) LINE 3M
833.75 (OUT) LINE 3L
10+00
11+00
12+00
13+00

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ENGINEERS

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

GRACE VALLEY RANCH
PHASE 3B

SANITARY SEWER PLAN & PROFILE - LINE "3M"

DATE	08/05/2024
PROJECT NO.	03346.010
DRAWN BY	M.A.S./R.B.
CHECKED BY	K.M.H.

REVISIONS

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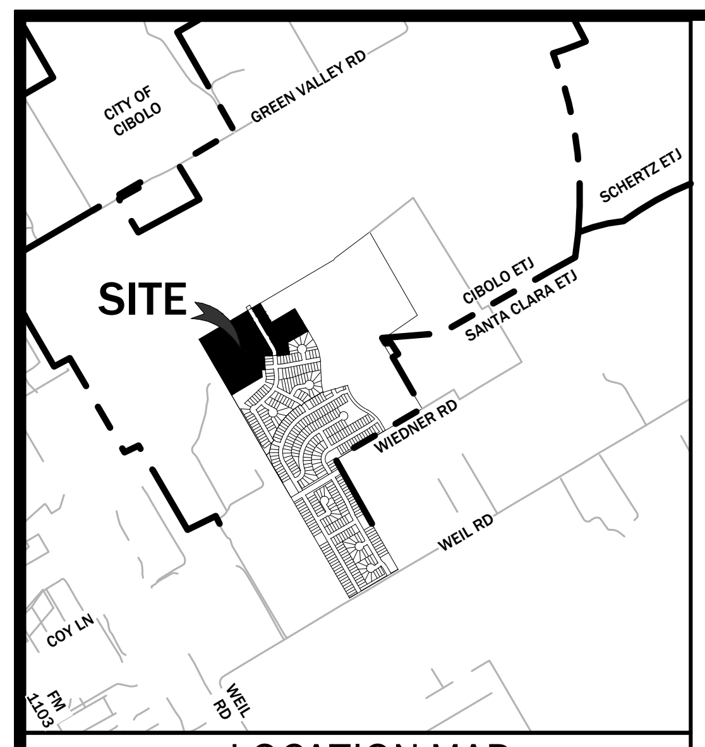
KYLE M. HUDEK
138753
08/12/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C4.08

P:\03346\010\2-DWG\4-Plans\C4.08_SSPP-3M.dwg 2024/08/05 12:28pm msandoval


SITE
CITY OF CIBOLO
GREEN VALLEY RD
SCHERTZ ETJ
CIBOLO ETJ
SANTA CLARA ETJ
WIEDNER RD
WEIL RD
COY LN
FM 1103
WEIL RD

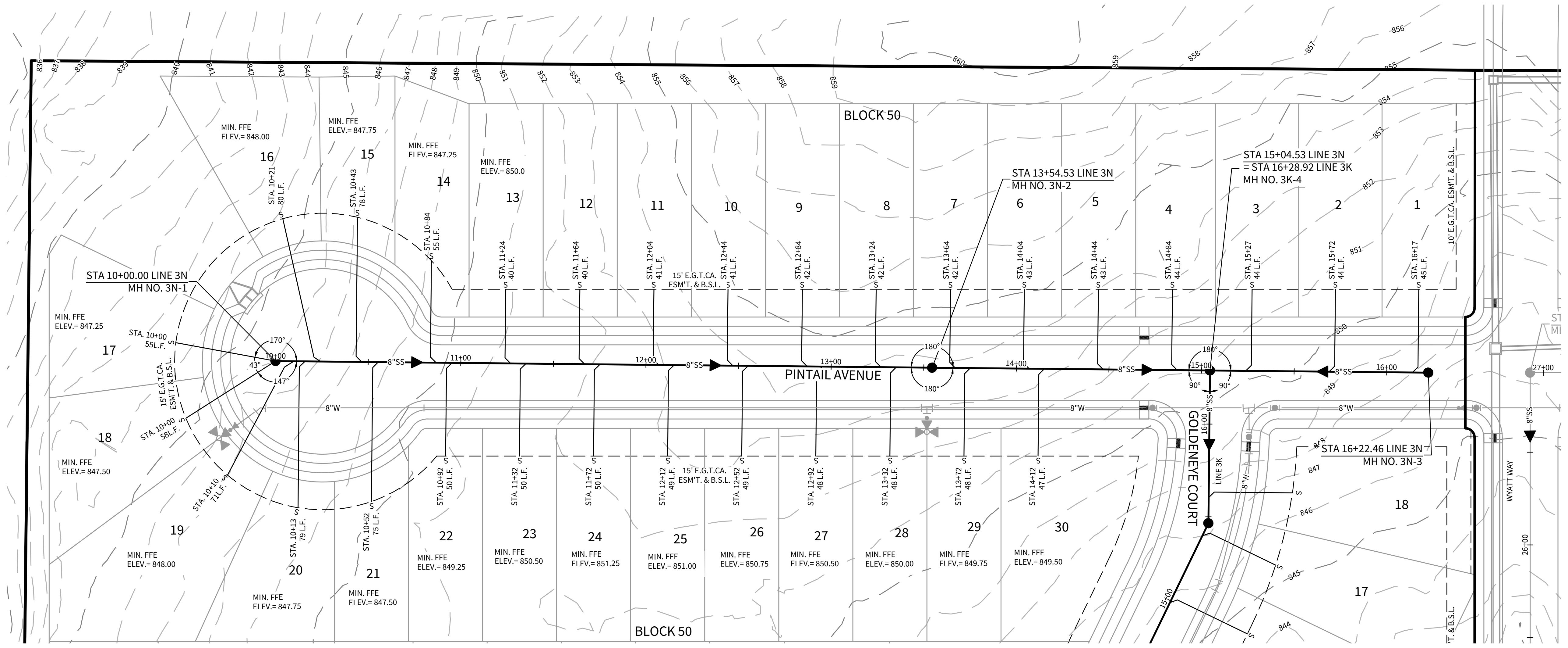
LOCATION MAP N.T.S.

DEVELOPER:

LENNAR HOMES OF TEXAS LAND AND
CONSTRUCTION, LTD.
CONTACT PERSON: RICHARD MOTT
100 NE LOOP 410, SUITE 1155
SAN ANTONIO, TX 78216
TEL: (210) 403-6200

CIVIL ENGINEER:

CUDE ENGINEERS
CONTACT PERSON: CHRIS CHAFFEE, P.E.
4122 POND HILL ROAD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951
FAX: (210) 523-7112


BLOCK 50
STA 10+00.00 LINE 3N
MH NO. 3N-1
STA 13+54.53 LINE 3N
MH NO. 3N-2
STA 15+04.53 LINE 3N
= STA 16+28.92 LINE 3K
MH NO. 3K-4
STA 16+22.46 LINE 3N
MH NO. 3N-3
PINTAIL AVENUE
GOLDENEYE COURT
WYATT WAY
15' E.G.T.CA. ESM'T. & B.S.L.
8"W
MIN. FFE ELEV.= 848.00
MIN. FFE ELEV.= 847.75
MIN. FFE ELEV.= 847.25
MIN. FFE ELEV.= 850.0
MIN. FFE ELEV.= 847.50
MIN. FFE ELEV.= 849.25
MIN. FFE ELEV.= 850.50
MIN. FFE ELEV.= 851.25
MIN. FFE ELEV.= 851.00
MIN. FFE ELEV.= 850.75
MIN. FFE ELEV.= 850.00
MIN. FFE ELEV.= 849.75
MIN. FFE ELEV.= 849.50
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
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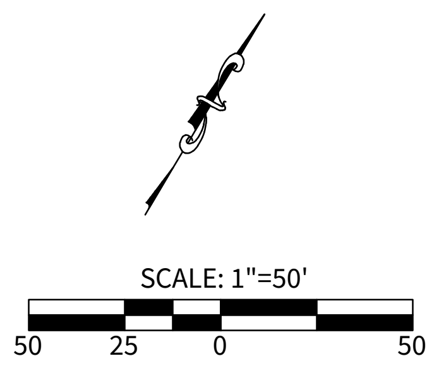
13+00
14+00
15+00
16+00


SCALE: 1"=50'
50
25
0
50

NOTE:

ALL SEWER LATERALS AND PROPERTY LINE CLEANOUTS ARE TO BE LOCATED OUTSIDE OF DRIVEWAY PAVED AREAS.

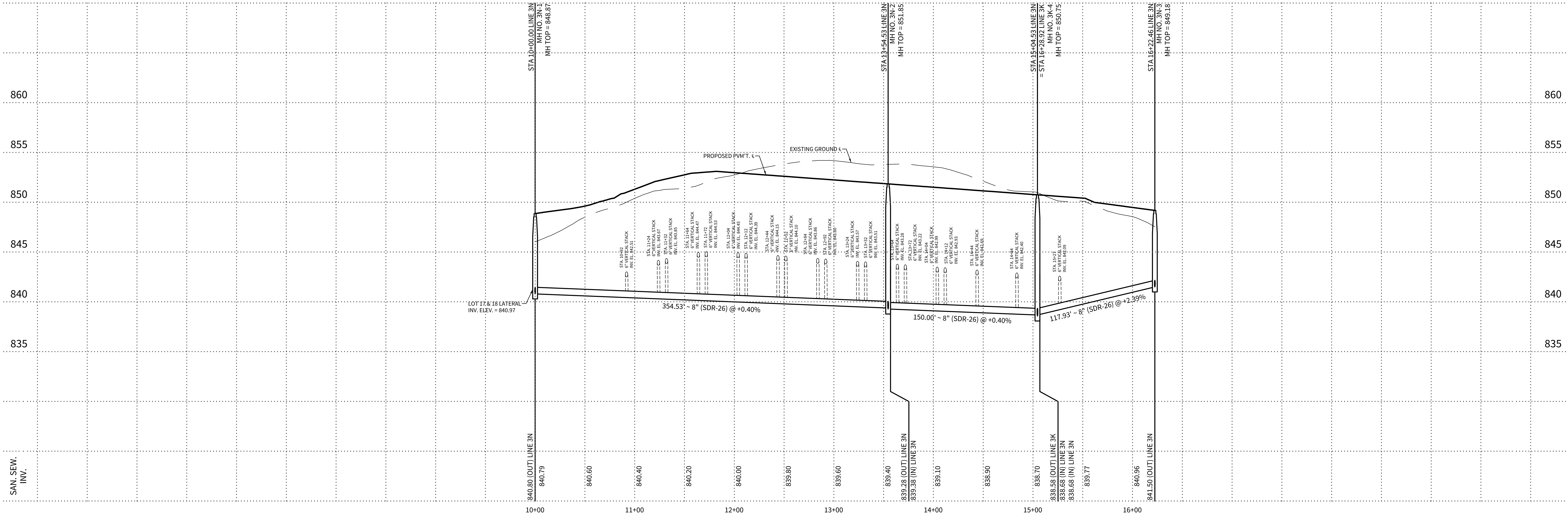
TRENCH EXCAVATION SAFETY PROTECTION

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.

LINE "3N"

STA. 10+00.00 TO 16+22.46

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


STA 10+00.00 LINE 3N
MH NO. 3N-1
MH TOP = 848.87
STA 13+54.53 LINE 3N
MH NO. 3N-2
MH TOP = 851.85
STA 15+04.53 LINE 3N
= STA 16+28.92 LINE 3K
MH NO. 3K-4
MH TOP = 850.75
STA 16+22.46 LINE 3N
MH NO. 3N-3
MH TOP = 849.18
860
855
850
845
840
835
PROPOSED PVM'T. ℄
EXISTING GROUND ℄
STA. 10+92 6" VERTICAL STACK INV. EL. 842.51
STA. 11+24 6" VERTICAL STACK INV. EL. 843.67
STA. 11+32 6" VERTICAL STACK INV. EL. 843.85
STA. 11+64 6" VERTICAL STACK INV. EL. 844.47
STA. 11+72 6" VERTICAL STACK INV. EL. 844.53
STA. 12+04 6" VERTICAL STACK INV. EL. 844.45
STA. 12+12 6" VERTICAL STACK INV. EL. 844.39
STA. 12+44 6" VERTICAL STACK INV. EL. 844.15
STA. 12+52 6" VERTICAL STACK INV. EL. 844.10
STA. 12+84 6" VERTICAL STACK INV. EL. 843.86
STA. 12+92 6" VERTICAL STACK INV. EL. 843.80
STA. 13+24 6" VERTICAL STACK INV. EL. 843.57
STA. 13+32 6" VERTICAL STACK INV. EL. 843.51
STA. 13+64 6" VERTICAL STACK INV. EL. 843.28
STA. 13+72 6" VERTICAL STACK INV. EL. 843.22
STA. 14+04 6" VERTICAL STACK INV. EL. 842.99
STA. 14+12 6" VERTICAL STACK INV. EL. 842.93
STA. 14+44 6" VERTICAL STACK INV. EL. 842.69
STA. 14+84 6" VERTICAL STACK INV. EL. 842.40
STA. 15+27 6" VERTICAL STACK INV. EL. 842.09
LOT 17 & 18 LATERAL INV. ELEV. = 840.97
354.53' ~ 8" (SDR-26) @ +0.40%
150.00' ~ 8" (SDR-26) @ +0.40%
117.93' ~ 8" (SDR-26) @ +2.39%
SAN. SEW. INV.
840.80 (OUT) LINE 3N
840.79
840.60
840.40
840.20
840.00
839.80
839.60
839.40
839.28 (OUT) LINE 3N
839.38 (IN) LINE 3N
839.10
838.90
838.70
838.58 (OUT) LINE 3K
838.68 (IN) LINE 3N
838.68 (IN) LINE 3N
839.77
840.96
841.50 (OUT) LINE 3N
10+00
11+00
12+00
13+00
14+00
15+00
16+00

CUDEENGINEERS.COM

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

SANITARY SEWER PLAN & PROFILE - LINE "3N"

DATE
08/05/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS

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KYLE M. HUDEK
138753
08/12/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C4.09

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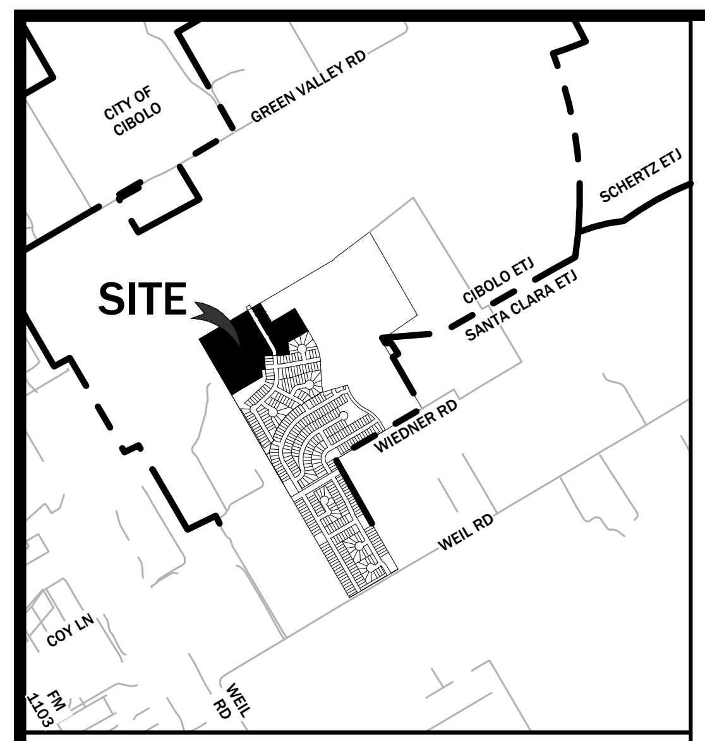
REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.


SITE
CITY OF CIBOLO
GREEN VALLEY RD
SCHERTZ ETJ
CIBOLO ETJ
SANTA CLARA ETJ
WIEDNER RD
WEIL RD
COY LN
FM 1103
WEIL RD

LOCATION MAP

N.T.S.

DEVELOPER:

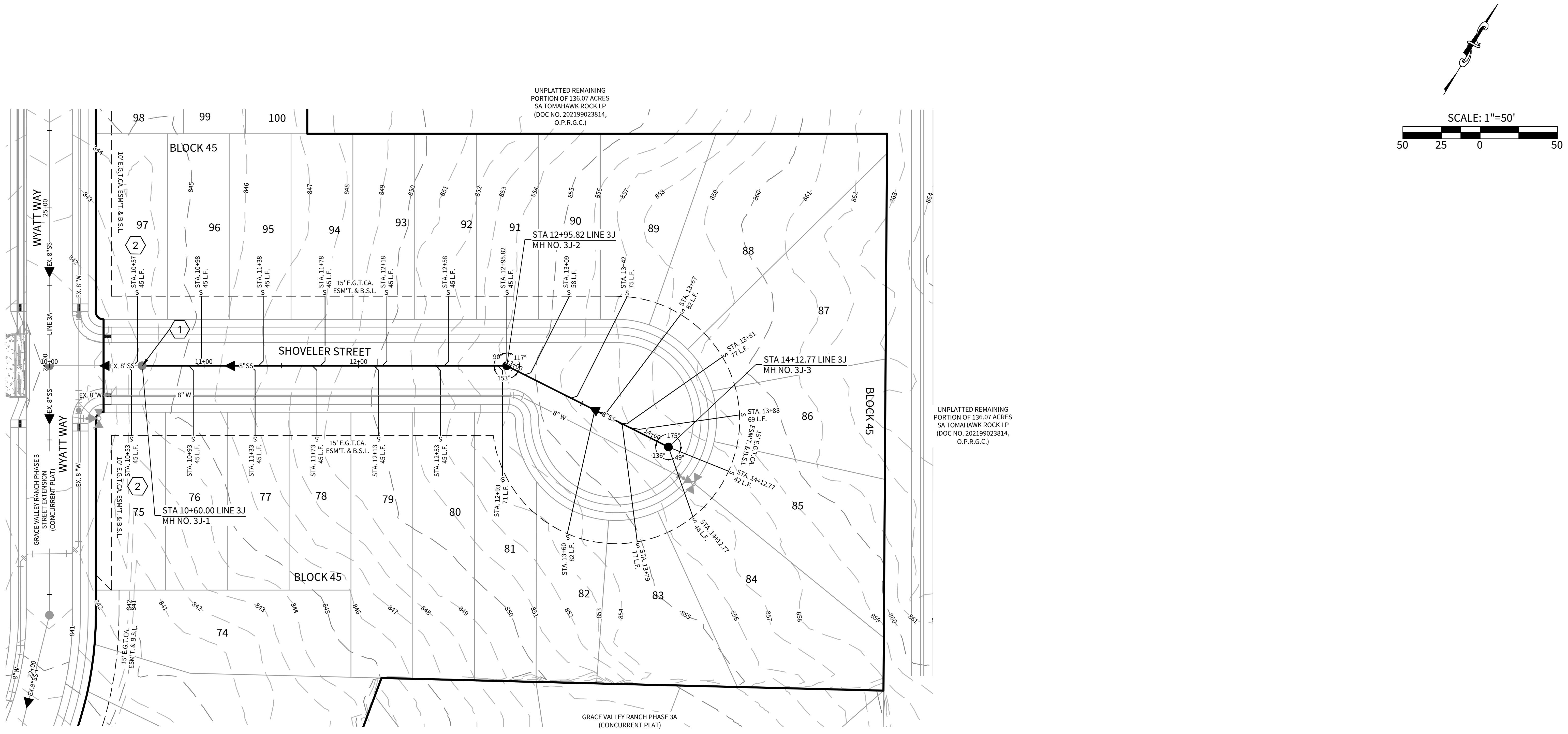
LENNAR HOMES OF TEXAS LAND AND
CONSTRUCTION, LTD.
CONTACT PERSON: RICHARD MOTT
100 NE LOOP 410, SUITE 1155
SAN ANTONIO, TX 78216
TEL: (210) 403-6200

CIVIL ENGINEER:

CUDE ENGINEERS
CONTACT PERSON: CHRIS CHAFFEE, P.E.
4122 POND HILL ROAD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951
FAX: (210) 523-7112

KEYNOTES

CONTRACTOR TO CONNECT PROPOSED 8" MAIN INTO EXISTING MANHOLE AND RECOAT MANHOLE PER GVSUD SPECIFICATIONS	1
CONTRACTOR TO USE A LATERAL SADDLE TO MAKE SEWER LATERAL CONNECTION TO EXISTING MAIN	2


SCALE: 1"=50'
50 25 0 50
UNPLATTED REMAINING PORTION OF 136.07 ACRES SA TOMAHAWK ROCK LP (DOC NO. 20219023814, O.P.R.G.C.)
BLOCK 45
98
99
100
97
96
95
94
93
92
91
90
89
88
87
86
85
84
83
82
81
80
79
78
77
76
75
74
WYATT WAY
SHOVELER STREET
STA 12+95.82 LINE 3J
MH NO. 3J-2
STA 14+12.77 LINE 3J
MH NO. 3J-3
STA 10+60.00 LINE 3J
MH NO. 3J-1
15' E.G.T.CA. ESM'T. & B.S.L.
10' E.G.T.CA. ESM'T. & B.S.L.
EX. 8" SS
EX. 8" W
8" SS
8" W
11+00
12+00
GRACE VALLEY RANCH PHASE 3 STREET EXTENSION (CONCURRENT PLAT)
GRACE VALLEY RANCH PHASE 3A (CONCURRENT PLAT)
1
2

NOTE:
ALL SEWER LATERALS AND PROPERTY LINE CLEANOUTS ARE TO BE LOCATED OUTSIDE OF DRIVEWAY PAVED AREAS.

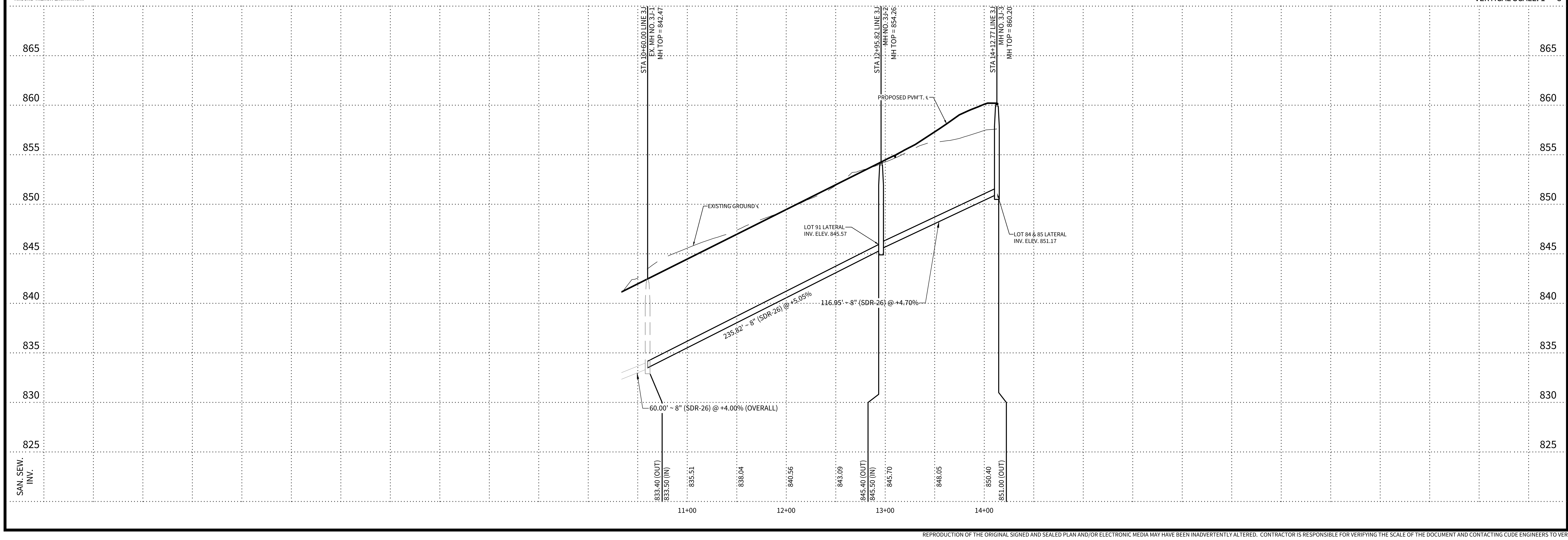
TRENCH EXCAVATION SAFETY PROTECTION

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.

LINE "3J"

STA. 10+60.00 TO 14+12.77

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


STA 10+60.00 LINE 3J
EX. MH NO. 3J-1
MH TOP = 842.47
STA 12+95.82 LINE 3J
MH NO. 3J-2
MH TOP = 854.26
STA 14+12.77 LINE 3J
MH NO. 3J-3
MH TOP = 860.20
PROPOSED PVM'T. ℄
EXISTING GROUND ℄
LOT 91 LATERAL
INV. ELEV. 845.57
LOT 84 & 85 LATERAL
INV. ELEV. 851.17
235.82' ~ 8" (SDR-26) @ +5.05%
116.95' ~ 8" (SDR-26) @ +4.70%
60.00' ~ 8" (SDR-26) @ +4.00% (OVERALL)
865
860
855
850
845
840
835
830
825
SAN. SEW. INV.
833.40 (OUT)
833.50 (IN)
835.51
838.04
840.56
843.09
845.40 (OUT)
845.50 (IN)
845.70
848.05
850.40
851.00 (OUT)
11+00
12+00
13+00
14+00

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EST. 1980
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ENGINEERS

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GRACE VALLEY RANCH
PHASE 3B

SANITARY SEWER PLAN & PROFILE - LINE "3J"

DATE
11/27/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS
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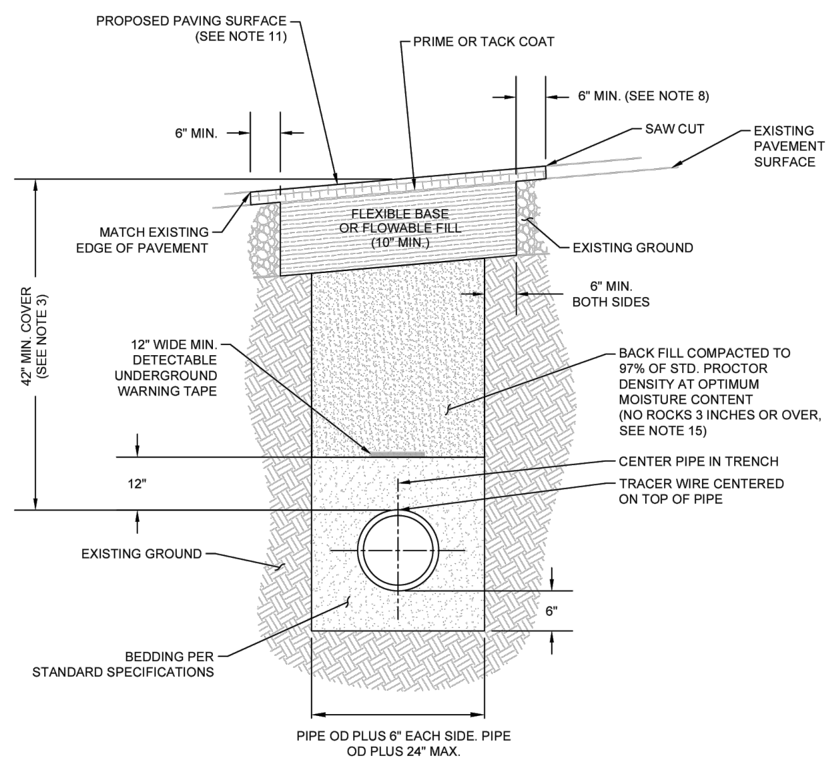
KYLE M. HUDEK
138753
11/27/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C4.10

P:\03346\010\2-DWG\4-Plans\C4.10_SSPP-3J.dwg 2024/11/27 5:02pm msandoval

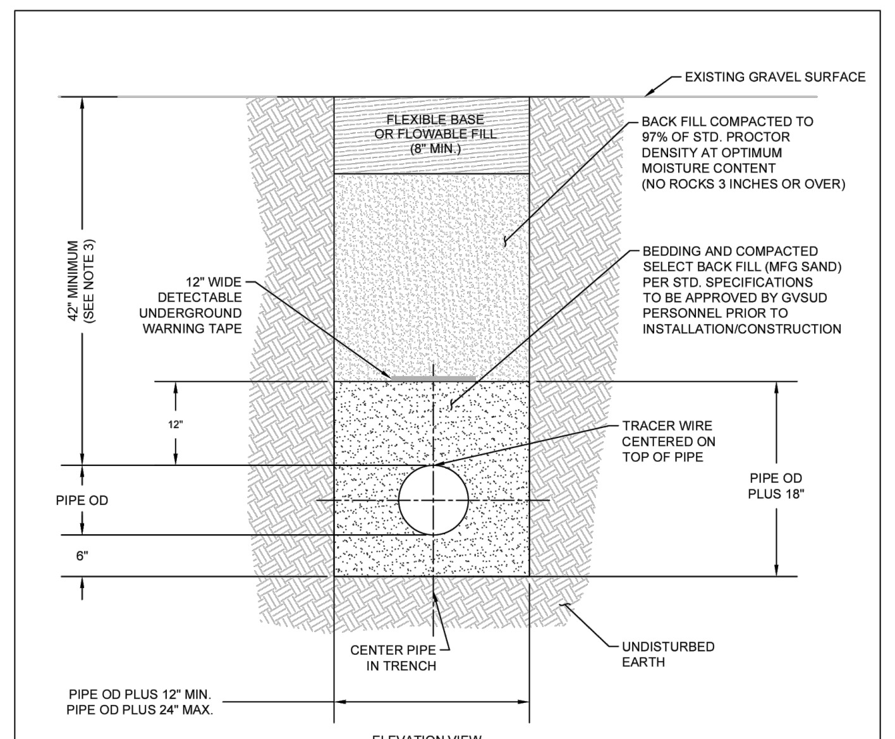

PROPOSED PAVING SURFACE (SEE NOTE 11)
PRIME OR TACK COAT
6" MIN. (SEE NOTE 8)
6" MIN.
SAW CUT
EXISTING PAVEMENT SURFACE
FLEXIBLE BASE OR FLOWABLE FILL (10" MIN.)
MATCH EXISTING EDGE OF PAVEMENT
EXISTING GROUND
6" MIN. BOTH SIDES
42" MIN. COVER (SEE NOTE 3)
12" WIDE MIN. DETECTABLE UNDERGROUND WARNING TAPE
BACK FILL COMPACTED TO 97% OF STD. PROCTOR DENSITY AT OPTIMUM MOISTURE CONTENT (NO ROCKS 3 INCHES OR OVER, SEE NOTE 15)
12"
CENTER PIPE IN TRENCH
TRACER WIRE CENTERED ON TOP OF PIPE
EXISTING GROUND
6"
BEDDING PER STANDARD SPECIFICATIONS
PIPE OD PLUS 6" EACH SIDE. PIPE OD PLUS 24" MAX.

GREEN VALLEY SPECIAL UTILITY DISTRICT
STANDARD DETAILS
TRENCH DETAIL FOR PAVED AREAS
(I OF 2)
REVISED: JANUARY 2024
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
DETAIL NO. W-1

NOTES:

1. ALL WASTEWATER PVC PIPING SHALL BE GREEN IN COLOR. NO WATER DESIGNATED PIPE SHALL BE USED IN WASTEWATER WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
2. ALL WATER PIPING SHALL HAVE A MINIMUM PRESSURE CLASS OF 235 PSI WATER PVC PIPING SHALL BE BLUE IN COLOR.
3. ALL WATER LINES AND WASTEWATER FORCEMAIN SHALL HAVE 42 INCH MINIMUM COVER AND 72 INCH MAXIMUM COVER. WASTEWATER GRAVITY LINES SHALL HAVE 42 INCH MINIMUM COVER AND 15 FOOT MAXIMUM COVER.
4. GENERAL CONTRACTOR SHALL CONTACT THE APPROPRIATE STREET OWNER AND PROCESS, POST FISCAL SURETY, AND HAVE STREET CUT PERMIT ISSUED IN THEIR NAME.
5. CONTRACTOR TO REPAIR PAVED AREA TO STREET OWNER'S ROAD STANDARDS FOR ALL DISTURBED AREA. GREEN VALLEY SPECIAL UTILITY DISTRICT PAYS FOR QUANTITY OF REPAIR SHOWN IN DETAIL.
6. CONTRACTOR SHALL NOT EXCEED THE MAXIMUM TRENCH ALLOWED AS INDICATED IN THE PLANS AND SPECIFICATIONS.
7. THE EXISTING PAVED SURFACE SHALL BE SAW CUT IN A STRAIGHT LINE, A MINIMUM OF 12 INCHES WIDER THAN UNDISTURBED SIDES OF THE TRENCH AND SYMMETRICAL ABOUT THE CENTER LINE OF THE EXCAVATION.
8. ANY CONCRETE PAVING SHALL BE CUT 6 INCHES WIDER THAN UNDISTURBED SIDES OF EXCAVATION.
9. IF EXCAVATION AREA IS OPEN FOR TEMPORARY PUBLIC USE, THE SURFACE SHALL BE MAINTAINED LEVEL WITH ADJACENT RIDING SURFACE WITH TEMPORARY COLD MIX ASPHALT CONCRETE OR TEMPORARY HOT MIXED ASPHALT CONCRETE. TEMPORARY MIX SHALL BE PLACED OVER FLEXIBLE BASE.
10. FLEXIBLE BASE SHALL BE REPLACED IN KIND WITH BASE AND PAVEMENT THICKNESS WITH BASE EQUAL TO EXISTING BASE THICKNESS PLUS 3 INCHES, BUT IN NO CASE LESS THAN 10 INCHES.
11. DAMAGED PAVEMENT OUTSIDE THE TRENCH CUT SHALL BE REMOVED AND REPLACED WITH A MINIMUM OF 2 INCHES HOT MIXED ASPHALT CONCRETE AND A BASE OF 10 INCHES OR A THICKNESS MATCHING EXISTING, WHICHEVER IS GREATER.
12. TACK COAT ALL EXPOSED EDGES AND SURFACES.
13. TYPE AND THICKNESS OF PROPOSED PAVING SURFACE SHALL BE AS FOLLOWS:
    - TWO COURSE SURFACE TREATMENT: SHALL MATCH EXISTING SURFACE AND SHALL BE IN ACCORDANCE WITH SPECIFICATION 02770.
    - ASPHALT PAVING: SHALL BE IN ACCORDANCE WITH SPECIFICATION 02740. HOT MIXED ASPHALT CONCRETE TYPE 'D' SHALL BE USED FOR LIFT THICKNESS UP TO 2 INCHES, AND TYPE 'C' FOR LIFT THICKNESS OVER 2 INCHES AND UP TO 3 INCHES. LIFT THICKNESS SHALL NOT BE MORE THAN 3 INCHES.
14. DETECTABLE UNDERGROUND WARNING TAPE SHALL BE PLACED DIRECTLY ABOVE THE CENTERLINE OF THE PIPE AND ABOVE BEDDING, IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS. THE DETECTABLE UNDERGROUND WARNING TAPE SHALL CONFORM TO THE SPECIFICATIONS AND COLOR CODED IN ACCORDANCE WITH THE AMERICAN PUBLIC WORKS ASSOCIATION UNIFORM COLOR CODE.
15. PIPE BEDDING SHALL BE PLACED BEFORE PIPING IS LAID, UP TO BOTTOM OF PIPE, AND COMPACTED TO 97% STANDARD PROCTOR DENSITY.
16. PLACE PIPE BEDDING IN 12 INCH LIFTS AFTER PIPE IS LAID TO 12 INCHES ABOVE THE PIPE.
17. SELECT BACKFILL MATERIAL PLACED TO REQUIRED HEIGHT IN 6 INCH LIFTS.

GREEN VALLEY SPECIAL UTILITY DISTRICT
STANDARD DETAILS
TRENCH DETAIL FOR PAVED AREAS
(2 OF 2)
REVISED: JANUARY 2024
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
DETAIL NO. W-1

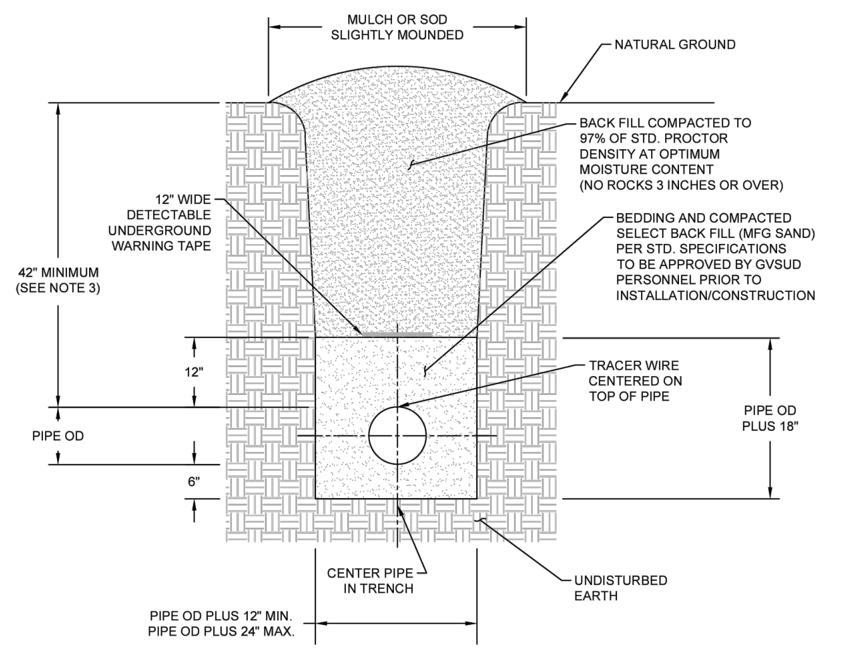

EXISTING GRAVEL SURFACE
FLEXIBLE BASE OR FLOWABLE FILL (8" MIN.)
BACK FILL COMPACTED TO 97% OF STD. PROCTOR DENSITY AT OPTIMUM MOISTURE CONTENT (NO ROCKS 3 INCHES OR OVER)
42" MINIMUM (SEE NOTE 3)
12" WIDE DETECTABLE UNDERGROUND WARNING TAPE
BEDDING AND COMPACTED SELECT BACK FILL (MFG SAND) PER STD. SPECIFICATIONS TO BE APPROVED BY GVSUD PERSONNEL PRIOR TO INSTALLATION/CONSTRUCTION
12"
TRACER WIRE CENTERED ON TOP OF PIPE
PIPE OD
PIPE OD PLUS 18"
6"
CENTER PIPE IN TRENCH
UNDISTURBED EARTH
PIPE OD PLUS 12" MIN. PIPE OD PLUS 24" MAX.

ELEVATION VIEW

NOTES:

1. ALL WASTEWATER PVC PIPING SHALL BE GREEN IN COLOR. NO WATER DESIGNATED PIPE WILL BE USED IN WASTEWATER.
2. ALL WATER PIPING SHALL HAVE A MINIMUM PRESSURE CLASS OF 235 PSI. WATER PVC PIPING SHALL BE COLOR CODED BLUE.
3. ALL WATER LINES AND WASTEWATER FORCEMAIN SHALL HAVE 42 INCHES MINIMUM COVER AND 72 INCHES MAXIMUM COVER. WASTEWATER GRAVITY LINES SHALL HAVE 42 INCHES MINIMUM COVER AND 15 FEET MAXIMUM COVER.
4. CONTRACTOR SHALL NOT EXCEED THE MAXIMUM TRENCH ALLOWED AS INDICATED IN THE PLANS AND SPECIFICATIONS.
5. DETECTABLE UNDERGROUND WARNING TAPE SHALL BE PLACED DIRECTLY ABOVE THE CENTERLINE OF THE PIPE AND ABOVE BEDDING, IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS. THE TAPE SHALL CONFORM TO THE SPECIFICATIONS AND COLOR CODED IN ACCORDANCE WITH APWA UNIFORM COLOR CODE.
6. PIPE BEDDING PLACED BEFORE PIPING IS LAID UP TO BOTTOM OF PIPE COMPACTED TO 95% ASHTO DENSITY.
7. PLACE IN 12 INCH LIFTS AFTER PIPE IS LAID TO 12 INCHES ABOVE THE PIPE.
8. SELECT BACKFILL MATERIAL PLACED TO REQUIRED HEIGHT IN 6 INCH LIFTS.

GREEN VALLEY SPECIAL UTILITY DISTRICT
STANDARD DETAILS
TRENCH DETAIL FOR GRAVEL SURFACED AREAS
REVISED: JANUARY 2024
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
DETAIL NO. W-2

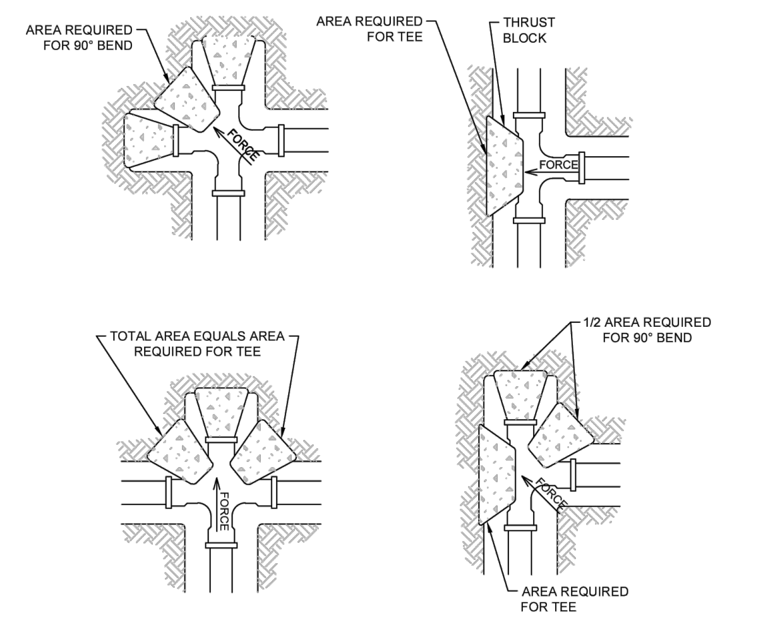

MULCH OR SOD SLIGHTLY MOUNDED
NATURAL GROUND
BACK FILL COMPACTED TO 97% OF STD. PROCTOR DENSITY AT OPTIMUM MOISTURE CONTENT (NO ROCKS 3 INCHES OR OVER)
12" WIDE DETECTABLE UNDERGROUND WARNING TAPE
BEDDING AND COMPACTED SELECT BACK FILL (MFG SAND) PER STD. SPECIFICATIONS TO BE APPROVED BY GVSUD PERSONNEL PRIOR TO INSTALLATION/CONSTRUCTION
42" MINIMUM (SEE NOTE 3)
12"
TRACER WIRE CENTERED ON TOP OF PIPE
PIPE OD
PIPE OD PLUS 18"
6"
CENTER PIPE IN TRENCH
UNDISTURBED EARTH
PIPE OD PLUS 12" MIN. PIPE OD PLUS 24" MAX.

ELEVATION VIEW

NOTES:

1. ALL WASTEWATER PVC PIPING SHALL BE GREEN IN COLOR. NO WATER DESIGNATED PIPE WILL BE USED IN WASTEWATER.
2. ALL WATER PIPING SHALL HAVE A MINIMUM PRESSURE CLASS OF 235 PSI WATER PVC PIPING SHALL BE COLOR CODED BLUE.
3. ALL WATER LINES AND WASTEWATER FORCEMAIN SHALL HAVE 42 INCHES MINIMUM COVER AND 72 INCHES MAXIMUM COVER. WASTEWATER GRAVITY LINES SHALL HAVE 42 INCHES MINIMUM COVER AND 15 FEET MAXIMUM COVER.
4. CONTRACTOR SHALL NOT EXCEED THE MAXIMUM TRENCH ALLOWED AS INDICATED IN THE PLANS AND SPECIFICATIONS.
5. DETECTABLE UNDERGROUND WARNING TAPE SHALL BE PLACED DIRECTLY ABOVE THE CENTERLINE OF THE PIPE AND ABOVE BEDDING, IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS. THE TAPE SHALL CONFORM TO THE SPECIFICATIONS AND COLOR CODED IN ACCORDANCE WITH APWA UNIFORM COLOR CODE.
6. PIPE BEDDING PLACED BEFORE PIPING IS LAID UP TO BOTTOM OF PIPE COMPACTED TO 95% AASHTO DENSITY.
7. PLACE IN 12 INCH LIFTS AFTER PIPE IS LAID TO 12 INCHES ABOVE THE PIPE.
8. SELECT BACKFILL MATERIAL PLACED TO REQUIRED HEIGHT IN 6 INCH LIFTS.

GREEN VALLEY SPECIAL UTILITY DISTRICT
STANDARD DETAILS
TRENCH DETAIL FOR NON-PAVED AREAS
REVISED: JANUARY 2024
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
DETAIL NO. W-3

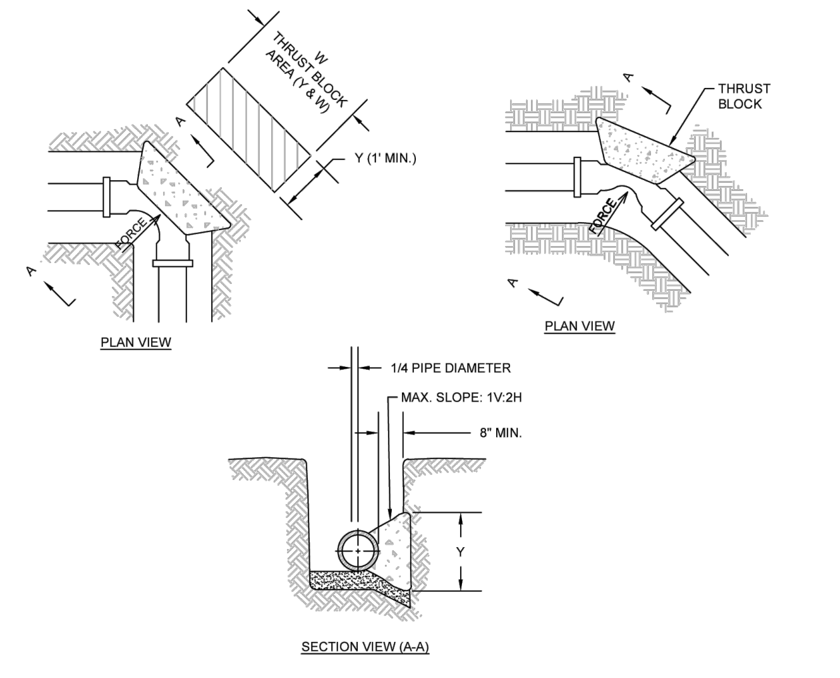

AREA REQUIRED FOR 90° BEND
FORCE
AREA REQUIRED FOR TEE
THRUST BLOCK
FORCE
TOTAL AREA EQUALS AREA REQUIRED FOR TEE
FORCE
1/2 AREA REQUIRED FOR 90° BEND
FORCE
AREA REQUIRED FOR TEE

MINIMUM THRUST BLOCK AREA REQUIRED (Y AND W)		
PIPE SIZE	WATER PIPE	
	TEE, DEAD END, 90° BEND	45° AND 22.5° BENDS
4" & LESS	3 SQ. FEET	3 SQ. FEET
6"	4 SQ. FEET	3 SQ. FEET
8"	6 SQ. FEET	3 SQ. FEET
10"	9 SQ. FEET	5 SQ. FEET
12"	13 SQ. FEET	7 SQ. FEET
16"	23 SQ. FEET	12 SQ. FEET
18"	29 SQ. FEET	15 SQ. FEET

NOTES:

1. TABLE IS BASED ON SOILS WITH A MINIMUM BEARING CAPACITY OF 3,000 PSF. IF CONDITIONS ARE FOUND TO INDICATE SOIL BEARING IS LESS, THE AREAS SHALL BE INCREASED ACCORDINGLY.
2. AREAS FOR PIPE LARGER THAN 18 INCHES SHALL BE RESTRAINED.
3. THRUST BLOCKS SHALL EXTEND TO UNDISTURBED GROUND. CONCRETE SHALL BE CLASS "C" (MIN. 2,500 PSI).
4. FITTINGS SHALL BE DUCTILE IRON MECHANICAL JOINT WITH A MINIMUM PRESSURE RATING OF 250 PSI AND SHALL CONFORM TO THE REQUIREMENTS OF ANSI/AWWA A21.10/C110 OR A21.53/C153.

GREEN VALLEY SPECIAL UTILITY DISTRICT
STANDARD DETAILS
CONCRETE THRUST BLOCKING
(1 OF 2)
REVISED: JANUARY 2024
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
DETAIL NO. W-4

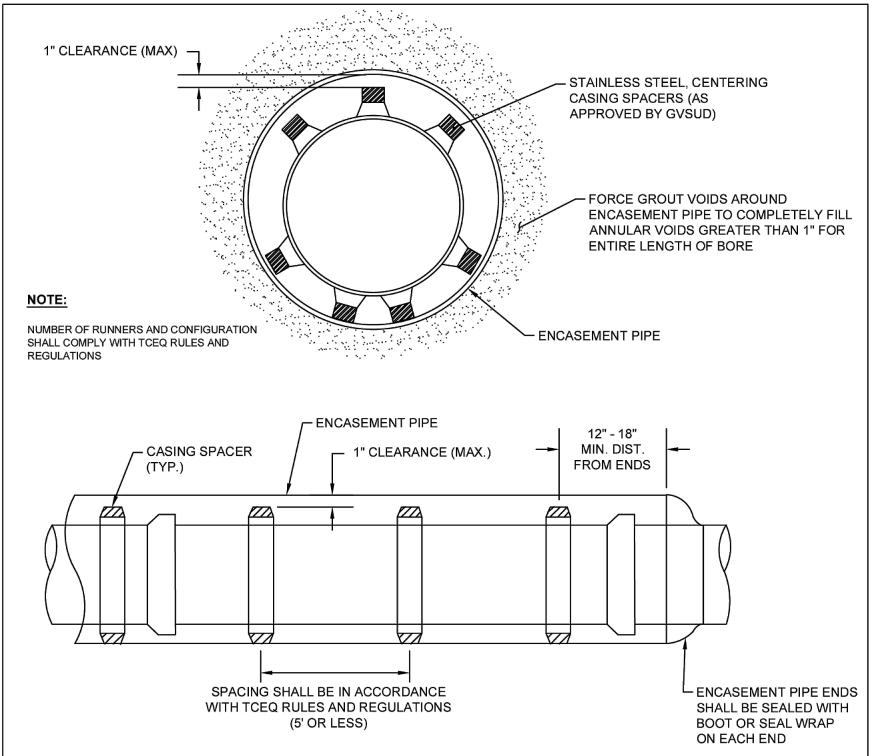

W THRUST BLOCK AREA (Y & W)
A
Y (1' MIN.)
FORCE
A
PLAN VIEW
A
THRUST BLOCK
FORCE
A
PLAN VIEW
1/4 PIPE DIAMETER
MAX. SLOPE: 1V:2H
8" MIN.
Y
SECTION VIEW (A-A)

MINIMUM THRUST BLOCK AREA REQUIRED (Y AND W)		
PIPE SIZE	WATER PIPE	
	TEE, DEAD END, 90° BEND	45° AND 22.5° BENDS
4" & LESS	3 SQ. FEET	3 SQ. FEET
6"	4 SQ. FEET	3 SQ. FEET
8"	6 SQ. FEET	3 SQ. FEET
10"	9 SQ. FEET	5 SQ. FEET
12"	13 SQ. FEET	7 SQ. FEET
16"	23 SQ. FEET	12 SQ. FEET
18"	29 SQ. FEET	15 SQ. FEET

NOTES:

1. TABLE IS BASED ON SOILS WITH A MINIMUM BEARING CAPACITY OF 3,000 PSF. IF CONDITIONS ARE FOUND TO INDICATE SOIL BEARING IS LESS, THE AREAS SHALL BE INCREASED ACCORDINGLY.
2. AREAS FOR PIPE LARGER THAN 18 INCHES SHALL BE RESTRAINED.
3. THRUST BLOCKS SHALL EXTEND TO UNDISTURBED GROUND. CONCRETE SHALL BE CLASS "C" (MIN. 2,500 PSI).
4. FITTINGS SHALL BE DUCTILE IRON MECHANICAL JOINT WITH A MINIMUM PRESSURE RATING OF 250 PSI AND SHALL CONFORM TO THE REQUIREMENTS OF ANSI/AWWA A21.10/C110 OR A21.53/C153.

GREEN VALLEY SPECIAL UTILITY DISTRICT
STANDARD DETAILS
CONCRETE THRUST BLOCKING
(2 OF 2)
REVISED: JANUARY 2024
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
DETAIL NO. W-4


1" CLEARANCE (MAX)
STAINLESS STEEL, CENTERING CASING SPACERS (AS APPROVED BY GVSUD)
FORCE GROUT VOIDS AROUND ENCASEMENT PIPE TO COMPLETELY FILL ANNULAR VOIDS GREATER THAN 1" FOR ENTIRE LENGTH OF BORE
ENCASEMENT PIPE
ENCASEMENT PIPE
CASING SPACER (TYP.)
1" CLEARANCE (MAX.)
12" - 18" MIN. DIST. FROM ENDS
SPACING SHALL BE IN ACCORDANCE WITH TCEQ RULES AND REGULATIONS (5' OR LESS)
ENCASEMENT PIPE ENDS SHALL BE SEALED WITH BOOT OR SEAL WRAP ON EACH END

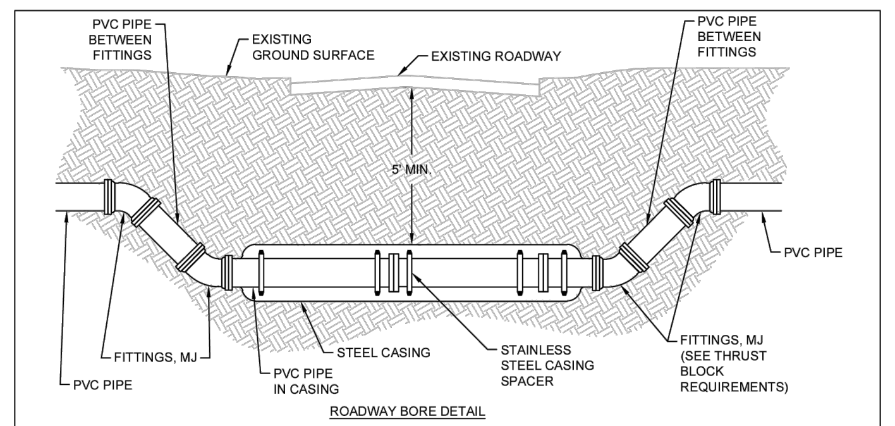
NOTE:

NUMBER OF RUNNERS AND CONFIGURATION SHALL COMPLY WITH TCEQ RULES AND REGULATIONS

NOTES:

1. TCEQ RULES AND REGULATIONS ON SANITARY SEWER, STORM SEWER AND WATER MAIN CROSSING AND SEPARATIONS WILL BE STRICTLY ENFORCED TO TAC, CHAPTER 290, SUBCHAPTER D.
2. ALL PIPE IN ENCASEMENT PIPE SHALL BE RESTRAINED AT JOINTS FOR ENTIRE LENGTH OF THE ENCASEMENT PIPE PLUS 10 FEET ON EACH SIDE.
3. AT ANY CREEK CROSSING OR DRAINAGE DITCH THE PIPE SHALL BE ENCASED IN STEEL PIPE AND HAVE A MINIMUM OF 3 FEET OF COVER FROM THE BOTTOM OF THE CREEK/STREAM.
4. AT ANY ROADWAY CROSSING THE MAIN SHALL BE STEEL ENCASED AND HAVE A MINIMUM OF 5 FEET OF COVER FROM THE BOTTOM OF THE BASE MATERIAL.
5. BORE SHALL HAVE SUFFICIENT ROOM FOR 2" PVC O.D. (MIN) FOR FORCE GROUTING AS REQUIRED.

GREEN VALLEY SPECIAL UTILITY DISTRICT
STANDARD DETAILS
ENCASEMENT DETAIL WITH ENCASEMENT SPACERS
REVISED: JANUARY 2024
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
DETAIL NO. W-6


PVC PIPE BETWEEN FITTINGS
EXISTING GROUND SURFACE
EXISTING ROADWAY
PVC PIPE BETWEEN FITTINGS
5' MIN.
PVC PIPE
FITTINGS, MJ
STEEL CASING
STAINLESS STEEL CASING SPACER
FITTINGS, MJ (SEE THRUST BLOCK REQUIREMENTS)
PVC PIPE
PVC PIPE IN CASING

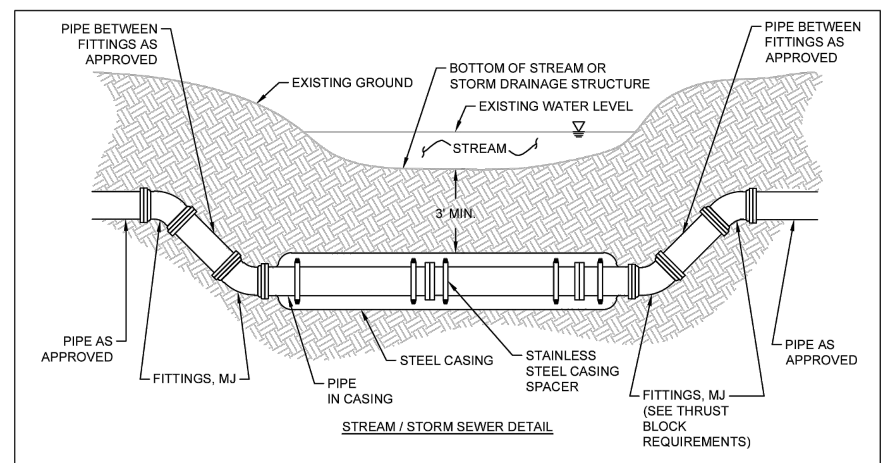
ROADWAY BORE DETAIL

NOTES:

1. ALL PIPE IN ENCASEMENT PIPE SHALL BE RESTRAINED WITH AN APPROVED METHOD FOR ENTIRE LENGTH OF THE ENCASEMENT PIPE PLUS 10 FEET ON EACH SIDE.
2. FOR A PIPE 20 FEET IN LENGTH, A MINIMUM OF 4 SPACERS ARE REQUIRED. FOR A PIPE 13 FEET IN LENGTH, A MINIMUM OF 3 SPACERS ARE REQUIRED.
3. FOR ENCASED PIPE LOCATED IN PROXIMITY TO SANITARY SEWERS, SPACERS SHALL CONFORM TO TEXAS ADMINISTRATIVE CODE (TAC) CHAPTER 290, SUBCHAPTER D.
4. AT ANY ROADWAY CROSSING THE PIPE SHALL BE STEEL ENCASED AND HAVE A MINIMUM OF 5 FEET OF COVER FROM THE BOTTOM OF THE BASE MATERIAL.
5. FOR ROAD WAY CROSSINGS, THE ENDS OF THE CASING PIPE SHALL EXTEND TO THE RIGHT OF WAY LINES.
6. ALL PIPE FITTINGS, VALVES, AND APPURTENANCES SHALL MATCH OR EXCEED CLASS RATING OF PIPE AS SHOWN ON THE PLANS.
7. SEE ENCASEMENT DETAIL WITH ENCASEMENT SPACER DETAIL W-6.
8. DUCTILE IRON PIPE,AMERICAN ZINC COATED AWWA/ANSI C-151 MAY BE USED IN LIEU OF STEEL CASING WHEN APPROVED BY GVSUD.

WATER LINE IN ENCASEMENT PIPE			
WATER LINE SIZE (INCHES)	NOM. DIA. STEEL (INCHES)	ENCASEMENT PIPE THICKNESS (INCHES)	PIPE WEIGHT (LBS./FT.)
6	18	0.375	70.59
8	24	0.375	94.62
12	24	0.375	94.62
16	30	0.375	118.65
20	36	0.438	166.19
24	42	0.438	194.02
30	48	0.50	259.02
36	54	0.50	291.07

GREEN VALLEY SPECIAL UTILITY DISTRICT
STANDARD DETAILS
INSTALLATION OF PIPE IN STEEL ENCASEMENT UNDER ROADS
REVISED: JANUARY 2024
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
DETAIL NO. W-7


PIPE BETWEEN FITTINGS AS APPROVED
EXISTING GROUND
BOTTOM OF STREAM OR STORM DRAINAGE STRUCTURE
EXISTING WATER LEVEL
STREAM
PIPE BETWEEN FITTINGS AS APPROVED
3' MIN.
PIPE AS APPROVED
FITTINGS, MJ
STEEL CASING
STAINLESS STEEL CASING SPACER
PIPE AS APPROVED
PIPE IN CASING
FITTINGS, MJ (SEE THRUST BLOCK REQUIREMENTS)

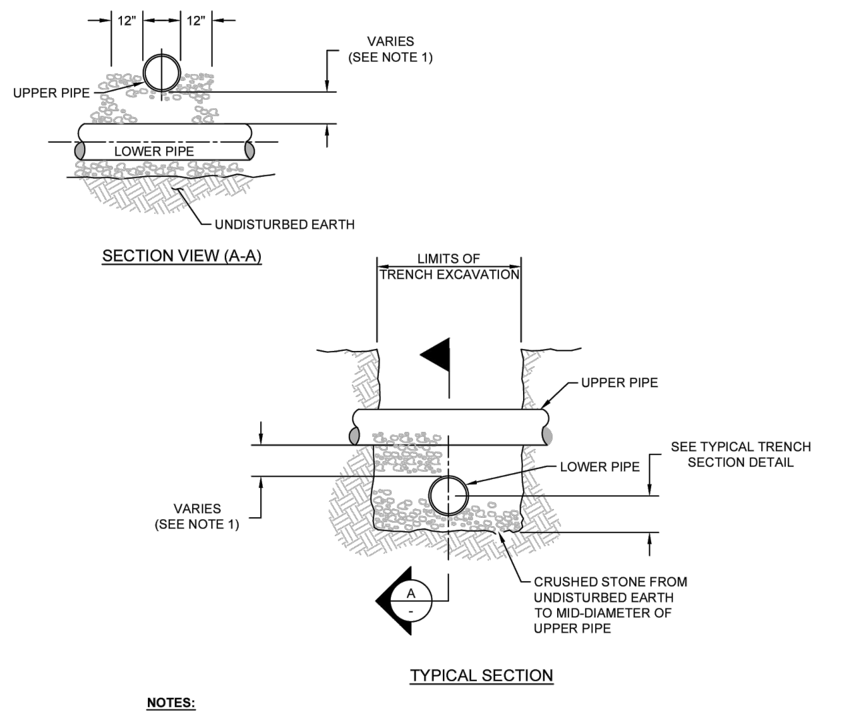
STREAM / STORM SEWER DETAIL

NOTES:

1. ALL PIPE IN ENCASEMENT PIPE SHALL BE RESTRAINED WITH AN APPROVED METHOD FOR ENTIRE LENGTH OF THE ENCASEMENT PIPE PLUS 10 FEET ON EACH SIDE.
2. FOR A PIPE 20 FEET IN LENGTH, A MINIMUM OF 4 SPACERS ARE REQUIRED. FOR A PIPE 13 FEET IN LENGTH, A MINIMUM OF 3 SPACERS ARE REQUIRED.
3. FOR ENCASED PIPE LOCATED IN PROXIMITY TO SANITARY SEWERS, SPACERS SHALL CONFORM TO TEXAS ADMINISTRATIVE CODE (TAC) CHAPTER 290, SUBCHAPTER D.
4. AT ANY CREEK CROSSING OR DRAINAGE DITCH THE PIPE SHALL BE STEEL ENCASED AND HAVE A MINIMUM OF 3 FEET OF COVER FROM THE BOTTOM OF THE CREEK/STREAM.
5. SEE ENCASEMENT DETAIL WITH ENCASEMENT SPACER DETAIL W-6.
6. ANNULAR SPACE TO BE FILLED WITH SAND-CEMENT SLURRY.
7. MINIMUM DEPTH BETWEEN CASING PIPE AND BOX CULVERTS OR STORM SEWER PIPE IS 2 FEET.

WATER LINE IN ENCASEMENT PIPE			
WATER LINE SIZE (INCHES)	NOM. DIA. STEEL (INCHES)	ENCASEMENT PIPE THICKNESS (INCHES)	PIPE WEIGHT (LBS./FT.)
6	18	0.375	70.59
8	24	0.375	94.62
12	24	0.375	94.62
16	30	0.375	118.65
20	36	0.438	166.19
24	42	0.438	194.02
30	48	0.50	259.02
36	54	0.50	291.07

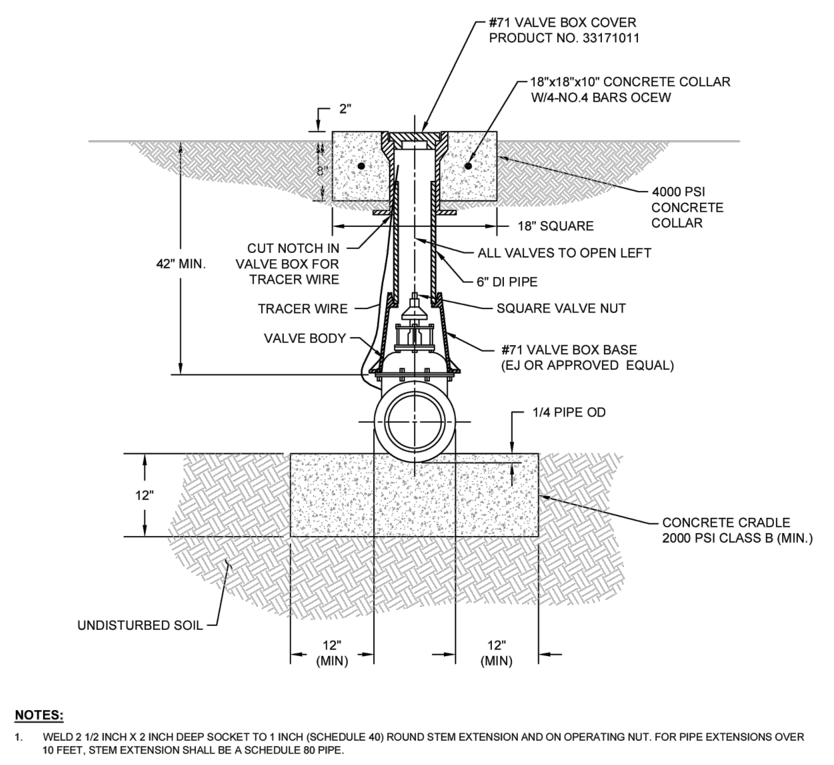
GREEN VALLEY SPECIAL UTILITY DISTRICT
STANDARD DETAILS
INSTALLATION OF PIPE IN STEEL ENCASEMENT UNDER STREAMS / STORM SEWERS
REVISED: JANUARY 2024
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
DETAIL NO. W-8


12"
12"
VARIES (SEE NOTE 1)
UPPER PIPE
LOWER PIPE
UNDISTURBED EARTH
SECTION VIEW (A-A)
LIMITS OF TRENCH EXCAVATION
UPPER PIPE
SEE TYPICAL TRENCH SECTION DETAIL
LOWER PIPE
VARIES (SEE NOTE 1)
A
CRUSHED STONE FROM UNDISTURBED EARTH TO MID-DIAMETER OF UPPER PIPE
TYPICAL SECTION

NOTES:

1. MAINTAIN A MINIMUM 5 FOOT HORIZONTAL AND 2 FOOT VERTICAL SEPARATION FROM BETWEEN UTILITIES AND WATER AND WASTEWATER PIPES AND SERVICES. GAS, ELECTRIC, CABLE, ETC. TO BE LOCATED OPPOSITE SIDES OF PROPERTIES.
2. UTILITY CROSSINGS SEPARATED BY LESS THAN 5 FEET SHALL BE ENCASED WITH A MINIMUM OF 6 INCHES OF CONCRETE.
3. SPECIFICATIONS: BEDDING MATERIAL MUST BE APPROVED BY AUTHORIZED GVSUD PERSONNEL, BEFORE START OF JOB.
4. AT ANY CREEK CROSSING OR DRAINAGE DITCH THE MAIN SHALL BE ENCASED WITH STEEL PIPE AND/OR 6 INCHES CONCRETE ENCASEMENT TO WITHIN 10 FEET OUTSIDE OF CREEK OR DRAINAGE DITCH AREA.
5. PIPE JOINTS SHALL BE AT LEAST 9 FEET HORIZONTALLY FROM CROSSINGS.

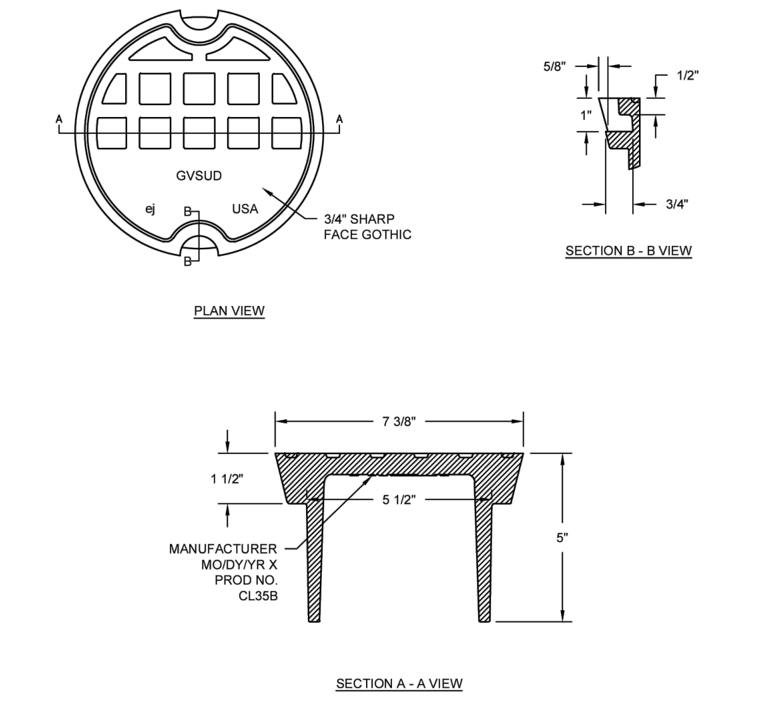
GREEN VALLEY SPECIAL UTILITY DISTRICT
STANDARD DETAILS
UTILITIES CROSSING DETAIL
REVISED: JANUARY 2024
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
DETAIL NO. W-10


#71 VALVE BOX COVER PRODUCT NO. 33171011
18"x18"x10" CONCRETE COLLAR W/4-NO.4 BARS OCEW
2"
8"
4000 PSI CONCRETE COLLAR
18" SQUARE
42" MIN.
CUT NOTCH IN VALVE BOX FOR TRACER WIRE
ALL VALVES TO OPEN LEFT
6" DI PIPE
TRACER WIRE
SQUARE VALVE NUT
VALVE BODY
#71 VALVE BOX BASE (EJ OR APPROVED EQUAL)
1/4 PIPE OD
12"
CONCRETE CRADLE 2000 PSI CLASS B (MIN.)
UNDISTURBED SOIL
12" (MIN)
12" (MIN)

NOTES:

1. WELD 2 1/2 INCH X 2 INCH DEEP SOCKET TO 1 INCH (SCHEDULE 40) ROUND STEM EXTENSION AND ON OPERATING NUT. FOR PIPE EXTENSIONS OVER 10 FEET, STEM EXTENSION SHALL BE A SCHEDULE 80 PIPE.
2. VALVE EXTENSIONS ARE REQUIRED ON ALL VALVES THAT EXCEED 3 FEET DEEP FROM FINISHED GRADE. VALVE EXTENSIONS SHALL BE PLACED SUCH THAT THE EXTENSION NUT IS BETWEEN 18 TO 24 INCHES FROM FINISHED GRADE.
3. CONCRETE COLLARS TO BE INSTALLED ON ALL VALVE BOXES LOCATED OUTSIDE PAVEMENT. SEE APPROPRIATE VALVE BOX ADJUSTMENT DETAILS.
4. GATE VALVES SHALL BE MUELLER TYPE OR APPROVED EQUAL.
5. FOR VALVE DEEPER THAN 5 FEET, ADD EXTENSION.
6. VALVE TURNS UNDERNEATH CAP.

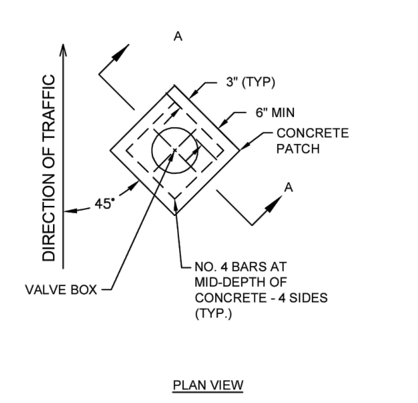
GREEN VALLEY SPECIAL UTILITY DISTRICT
STANDARD DETAILS
NON-RISING STEM VERTICAL GATE VALVE WITH BOX ASSEMBLY
REVISED: JANUARY 2024
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
DETAIL NO. W-11


A
A
GVSUD
ej
B
USA
B
3/4" SHARP FACE GOTHIC
PLAN VIEW
5/8"
1/2"
1"
3/4"
SECTION B - B VIEW
7 3/8"
1 1/2"
5 1/2"
5"
MANUFACTURER MO/DY/YR X PROD NO. CL35B
SECTION A - A VIEW

NOTES:

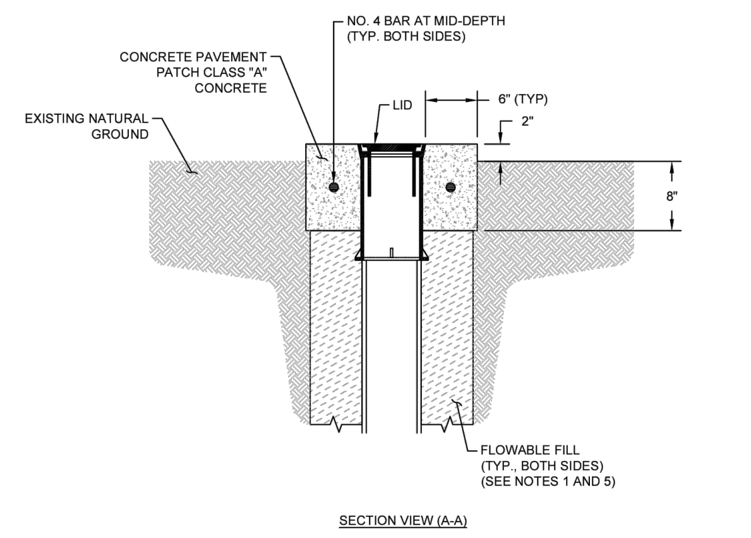
1. VALVE BOX COVER SHALL BE EJ GROUP, INC. $71 VALVE BOX COVER PRODUCT NUMBER 33171011, OR APPROVED EQUIVALENT WITH GVSUD LOGO.
2. TYPICAL FILLET IS 3/16 INCH RADIUS.
3. LETTERING SHALL BE 3/4 INCH SHARP FACE GOTHIC AND LOCATED AS SHOWN.
4. LID REQUIRES TWO (2) PICK SLOTS.
5. THE MANUFACTURER'S IDENTIFICATION, CASTING NUMBER, AND THE COUNTRY WHERE CAST, SHALL BE DISTINCTLY CAST ONTO EACH LID.
6. DRAFT AND SHRINKAGE ALLOWANCE SHALL BE IN ACCORDANCE WITH NORMAL FOUNDRY PRACTICE.
7. FINISH BY REMOVING FINS AND FLASHING AND PAINT WITH BLACK ASPHALT COATING.

GREEN VALLEY SPECIAL UTILITY DISTRICT
STANDARD DETAILS
VALVE BOX CASTING LID
REVISED: JANUARY 2024
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
DETAIL NO. W-12


DIRECTION OF TRAFFIC
A
3" (TYP)
6" MIN
CONCRETE PATCH
45°
A
VALVE BOX
NO. 4 BARS AT MID-DEPTH OF CONCRETE - 4 SIDES (TYP.)
PLAN VIEW

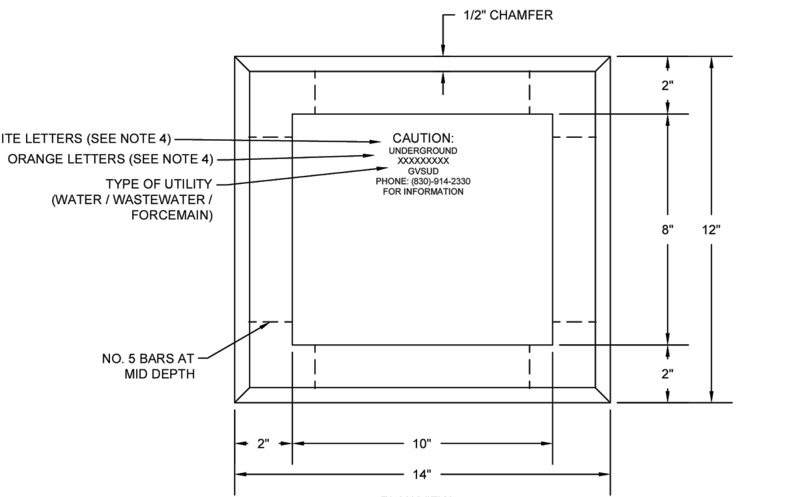
NOTES:

1. SUBGRADE SHALL BE COMPACTED PER SPECIFICATIONS, SUBGRADE PREPARATION.
2. VALVE CASTINGS SHALL BE ADJUSTED TO GRADE AFTER FINAL LIFT OF OVERLAY IS IN PLACE.
3. CLEAN VALVE BOX OF ALL DEBRIS DOWN TO BASE OF THE VALVE.
4. CONTRACTOR TO USE VALVE BOX ADJUSTING RISER TO ADJUST VALVE BOX TO GRADE.
5. WHERE CAST IRON CASTINGS ARE TO BE REMOVED IN EXCAVATION GREATER THAN 20 INCHES DEEP, CONTRACTOR MAY ELECT TO FILL EXCAVATION WITH CONTROLLED LOW STRENGTH MATERIAL TO THE UNDERSIDE OF THE CONCRETE PAVEMENT PATCH IN LIEU OF COMPACTED BACKFILL.
6. REINFORCING STEEL SHALL MEET SPECIFICATIONS FOR REINFORCING STEEL.


NO. 4 BAR AT MID-DEPTH (TYP. BOTH SIDES)
CONCRETE PAVEMENT PATCH CLASS "A" CONCRETE
LID
6" (TYP)
2"
EXISTING NATURAL GROUND
8"
FLOWABLE FILL (TYP., BOTH SIDES) (SEE NOTES 1 AND 5)

SECTION VIEW (A-A)

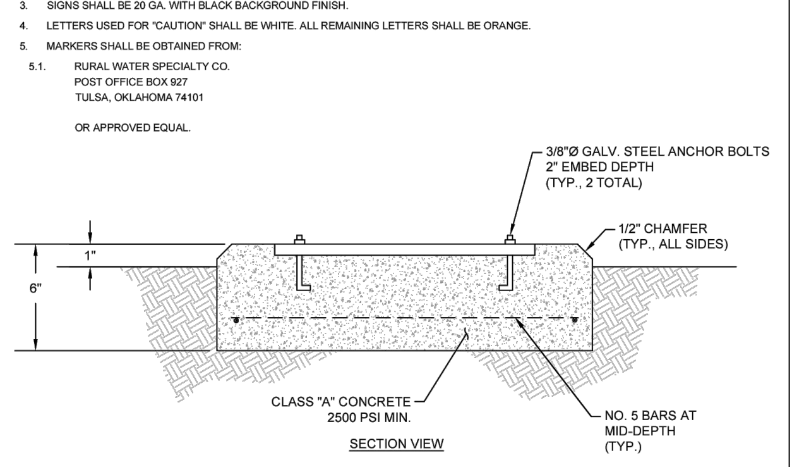
GREEN VALLEY SPECIAL UTILITY DISTRICT
STANDARD DETAILS
VALVE BOX ADJUSTMENT OUTSIDE OF PAVEMENT
REVISED: JANUARY 2024
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
DETAIL NO. W-14


1/2" CHAMFER
WHITE LETTERS (SEE NOTE 4)
ORANGE LETTERS (SEE NOTE 4)
TYPE OF UTILITY (WATER / WASTEWATER / FORCEMAIN)
CAUTION: UNDERGROUND XXXXXXXXX GVSUD PHONE: (830)-914-2330 FOR INFORMATION
2"
8"
12"
2"
NO. 5 BARS AT MID DEPTH
2"
10"
14"
PLAN VIEW

NOTES:

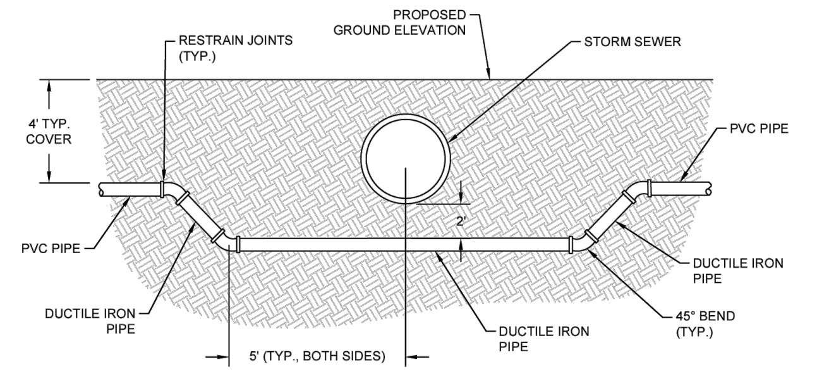
1. MARKERS SHALL BE PLACED AT VALVES, AIR VALVES, AND ACCESS PORTS.
2. PLACE WATER/WASTEWATER LINE MARKERS AT EVERY FENCE, ROAD CROSSING, AND AT 500' INTERVALS ALONG THE PIPELINE.
3. SIGNS SHALL BE 20 GA. WITH BLACK BACKGROUND FINISH.
4. LETTERS USED FOR "CAUTION" SHALL BE WHITE. ALL REMAINING LETTERS SHALL BE ORANGE.
5. MARKERS SHALL BE OBTAINED FROM:
   5.1. RURAL WATER SPECIALTY CO.
   POST OFFICE BOX 927
   TULSA, OKLAHOMA 74101

   OR APPROVED EQUAL.


3/8"Ø GALV. STEEL ANCHOR BOLTS 2" EMBED DEPTH (TYP., 2 TOTAL)
1/2" CHAMFER (TYP., ALL SIDES)
1"
6"
CLASS "A" CONCRETE 2500 PSI MIN.
NO. 5 BARS AT MID-DEPTH (TYP.)

SECTION VIEW

GREEN VALLEY SPECIAL UTILITY DISTRICT
STANDARD DETAILS
UTILITY MARKER DETAIL
REVISED: JANUARY 2024
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
DETAIL NO. W-16


PROPOSED GROUND ELEVATION
RESTRAIN JOINTS (TYP.)
STORM SEWER
4' TYP. COVER
PVC PIPE
PVC PIPE
2'
DUCTILE IRON PIPE
DUCTILE IRON PIPE
45° BEND (TYP.)
DUCTILE IRON PIPE
5' (TYP., BOTH SIDES)

NOTES:

1. MAINTAIN 24 INCH (MIN.) SEPARATION FROM STORM SEWER LINE.
2. 45° BENDS MUST BE THRUST BLOCKED AND RESTRAINED AT BOTTOM BENDS. SEE STANDARD DETAIL.

GREEN VALLEY SPECIAL UTILITY DISTRICT
STANDARD DETAILS
STORM SEWER CROSSING
REVISED: JANUARY 2024
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
DETAIL NO. W-17

CUDEENGINEERS.COM

EST. 1980
CUDE
ENGINEERS

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

GRACE VALLEY RANCH PHASE 3B

WATER DISTRIBUTION STANDARD DETAILS

DATE
09/03/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

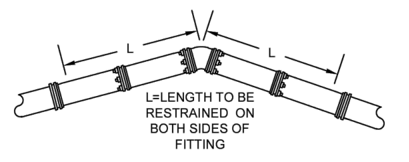
CHECKED BY
K.M.H.

REVISIONS
1.
2.
3.
4.
5.
6.
7.
8.
9.

KYLE M. HUDEK
138753
09/04/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C5.00


L
L
L=LENGTH TO BE RESTRAINED ON BOTH SIDES OF FITTING

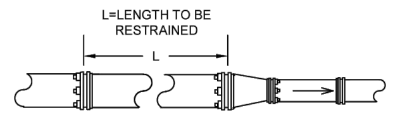
RESTRAINED LENGTH FOR BENDS

PIPE SIZE (INCHES)	BEND ANGLE (DEG)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 200 PSI
6	90	23
6	45	9
6	22.5	5
6	11.25	2
8	90	30
8	45	12
8	22.5	6
8	11.25	3
12	90	43
12	45	18
12	22.5	8
12	11.25	4
16	90	63
16	45	26
16	22.5	13
16	11.25	7
24	90	85
24	45	35
24	22.5	17
24	11.25	9

NOTES:

1. RESTRAINED LENGTH CALCULATIONS FOR P.V.C PIPE BEDDED IN COMPACTED GRANULAR MATERIAL EXTENDING TO THE TOP OF THE PIPE. NATIVE SOIL MATERIAL IS ASSUMED TO BE INORGANIC CLAY OF HIGH PLASTICITY. DEPTH OF BURY IS ASSUMED TO BE 4 FEET.
2. THESE CALCULATIONS ARE PROVIDED FOR REFERENCE. THE RESTRAINED LENGTH SHALL BE DESIGNED BASED UPON THE CONDITIONS ENCOUNTERED DURING INSTALLATION.
3. CONTRACTOR SHALL RESTRAIN ALL JOINTS WITHIN THE REQUIRED RESTRAINT DISTANCE PLUS THE NEXT JOINT OUTSIDE THE REQUIRED RESTRAINT DISTANCE.

GREEN VALLEY SPECIAL UTILITY DISTRICT
STANDARD DETAILS
BEND RESTRAINED LENGTH DESIGN
REVISED: JANUARY 2024
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
DETAIL NO. W-18


L=LENGTH TO BE RESTRAINED
L

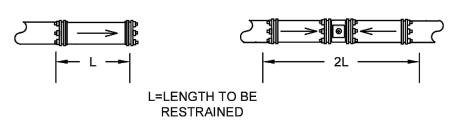
RESTRAINED LENGTH FOR REDUCERS

PIPE SIZE (INCHES)	SMALL SIZE (INCHES)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 200 PSI
6	4	30
8	4	55
8	6	32
12	4	95
12	6	80
12	8	58
16	4	131
16	6	120
16	8	104
16	12	60
24	16	110

NOTES:

1. RESTRAINED LENGTH CALCULATIONS FOR P.V.C PIPE BEDDED IN COMPACTED GRANULAR MATERIAL EXTENDING TO THE TOP OF THE PIPE. NATIVE SOIL MATERIAL IS ASSUMED TO BE INORGANIC CLAY OF HIGH PLASTICITY. DEPTH OF BURY IS ASSUMED TO BE 4 FEET.
2. THESE CALCULATIONS ARE PROVIDED FOR REFERENCE. THE RESTRAINED LENGTH SHALL BE DESIGNED BASED UPON THE CONDITIONS ENCOUNTERED DURING INSTALLATION.
3. CONTRACTOR SHALL RESTRAIN ALL JOINTS WITHIN THE REQUIRED RESTRAINT DISTANCE PLUS THE NEXT JOINT OUTSIDE THE REQUIRED RESTRAINT DISTANCE.

GREEN VALLEY SPECIAL UTILITY DISTRICT
STANDARD DETAILS
REDUCER RESTRAINED LENGTH DESIGN
REVISED: JANUARY 2024
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
DETAIL NO. W-19


L
2L
L=LENGTH TO BE RESTRAINED

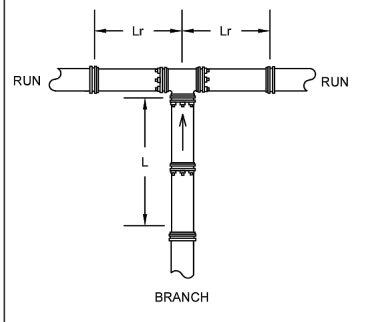
RESTRAINED LENGTH FOR DEAD ENDS/INLINE VALVES

PIPE SIZE (INCHES)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 200 PSI
4	42
6	59
8	77
12	109
16	142
24	202

NOTES:

1. RESTRAINED LENGTH CALCULATIONS FOR P.V.C PIPE BEDDED IN COMPACTED GRANULAR MATERIAL EXTENDING TO THE TOP OF THE PIPE. NATIVE SOIL MATERIAL IS ASSUMED TO BE INORGANIC CLAY OF HIGH PLASTICITY. DEPTH OF BURY IS ASSUMED TO BE 4 FEET.
2. THESE CALCULATIONS ARE PROVIDED FOR REFERENCE. THE RESTRAINED LENGTH SHALL BE DESIGNED BASED UPON THE CONDITIONS ENCOUNTERED DURING INSTALLATION.
3. CONTRACTOR SHALL RESTRAIN ALL JOINTS WITHIN THE REQUIRED RESTRAINT DISTANCE PLUS THE NEXT JOINT OUTSIDE THE REQUIRED RESTRAINT DISTANCE.

GREEN VALLEY SPECIAL UTILITY DISTRICT
STANDARD DETAILS
VALVE AND DEAD END RESTRAINED LENGTH DESIGN
REVISED: JANUARY 2024
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
DETAIL NO. W-20


Lr
Lr
RUN
RUN
L
BRANCH

Lr=LENGTH OF PIPE ALONG THE RUN FREE OF JOINTS.
L=LENGTH TO BE RESTRAINED

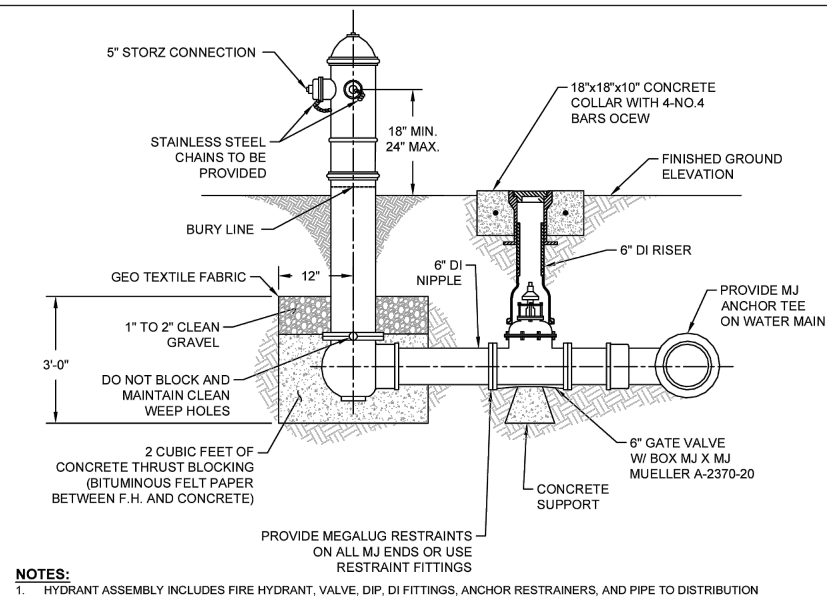
NOTES:

1. RESTRAINED LENGTH CALCULATIONS FOR P.V.C PIPE BEDDED IN COMPACTED GRANULAR MATERIAL EXTENDING TO THE TOP OF THE PIPE. NATIVE SOIL MATERIAL IS ASSUMED TO BE INORGANIC CLAY OF HIGH PLASTICITY. DEPTH OF BURY IS ASSUMED TO BE 4 FEET.
2. THESE CALCULATIONS ARE PROVIDED FOR REFERENCE. THE RESTRAINED LENGTH SHALL BE DESIGNED BASED UPON THE CONDITIONS ENCOUNTERED DURING INSTALLATION.
3. CONTRACTOR SHALL RESTRAIN ALL JOINTS WITHIN THE REQUIRED RESTRAINT DISTANCE PLUS THE NEXT JOINT OUTSIDE THE REQUIRED RESTRAINT DISTANCE.

RESTRAINED LENGTH FOR TEES

PIPE SIZE (INCHES)	BRANCH SIZE (INCHES)	LENGTH OF RUN (FEET)	RESTRAINED LENGTH IN FEET, WHEN TEST PRESSURE = 200 PSI
6	4	0	42
6	4	5	7
6	4	10	1
6	6	0	59
6	6	5	35
6	6	10	11
8	4	0	42
8	4	5	1
8	6	0	59
8	6	5	28
8	6	10	1
8	8	0	77
8	8	5	53
8	8	10	30
8	8	15	6
12	4	0	42
12	4	5	1
12	6	0	59
12	6	5	13
12	6	10	1
12	8	0	77
12	8	5	42
12	8	10	7
12	8	15	1
12	12	0	109
12	12	5	86
12	12	10	63
12	12	15	39
16	4	0	42
16	4	5	1
16	6	0	59
16	6	5	1
16	8	0	78
16	8	5	39
16	8	10	1
16	12	0	110
16	12	5	84
16	12	10	59
16	12	15	33
16	12	20	7
16	16	0	142
16	16	5	123
16	16	10	104
16	16	15	85
16	16	20	65
24	24	5	169
24	24	10	136
24	24	15	103
24	24	20	70

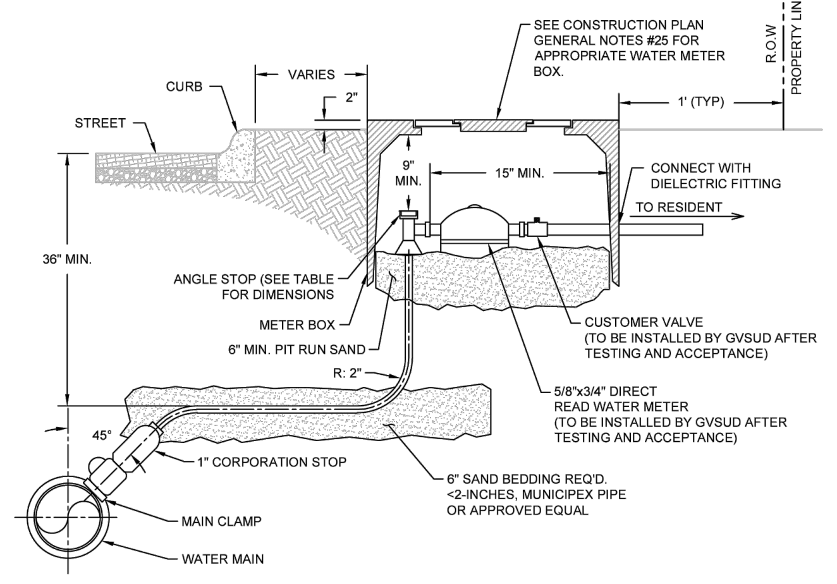
GREEN VALLEY SPECIAL UTILITY DISTRICT
STANDARD DETAILS
TEE RESTRAINED LENGTH DESIGN
REVISED: JANUARY 2024
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
DETAIL NO. W-21


5" STORZ CONNECTION
STAINLESS STEEL CHAINS TO BE PROVIDED
18" MIN. 24" MAX.
18"x18"x10" CONCRETE COLLAR WITH 4-NO.4 BARS OCEW
FINISHED GROUND ELEVATION
BURY LINE
6" DI RISER
GEO TEXTILE FABRIC
12"
6" DI NIPPLE
PROVIDE MJ ANCHOR TEE ON WATER MAIN
1" TO 2" CLEAN GRAVEL
3'-0"
DO NOT BLOCK AND MAINTAIN CLEAN WEEP HOLES
2 CUBIC FEET OF CONCRETE THRUST BLOCKING (BITUMINOUS FELT PAPER BETWEEN F.H. AND CONCRETE)
6" GATE VALVE W/ BOX MJ X MJ MUELLER A-2370-20
CONCRETE SUPPORT
PROVIDE MEGALUG RESTRAINTS ON ALL MJ ENDS OR USE RESTRAINT FITTINGS

NOTES:

1. HYDRANT ASSEMBLY INCLUDES FIRE HYDRANT, VALVE, DIP, DI FITTINGS, ANCHOR RESTRAINERS, AND PIPE TO DISTRIBUTION SYSTEM.
2. FIRE HYDRANTS SHALL HAVE A MINIMUM OF 3 FEET OF CLEARANCE SURROUNDING HYDRANT.
3. HYDRANTS SHALL BE A MINIMUM DISTANCE OF 3 FEET BEHIND THE CURB OR 3 FEET FROM THE R.O.W. UNDER NO CIRCUMSTANCES SHALL VALVES OR HYDRANTS BE PLACED IN A CURB OR SIDEWALK. IN AREAS WITHOUT CURBS OR SIDEWALKS, HYDRANT SHALL BE PLACED 3-6 FEET FROM THE DISTRIBUTION SYSTEM.
4. FOR BURY DEPTHS GREATER THAN 5 FEET, ONE BARREL EXTENSION NOT EXCEEDING 3 FEET IN LENGTH SHALL BE INSTALLED DIRECTLY BELOW THE FIRE HYDRANT.
5. 1 CU FOOT (MIN) OF CRUSHED STONE OR GRAVEL SHALL BE PLACED AROUND WEEP HOLE FOR A RADIUS OF 12 INCHES AND EXTEND 12 INCHES ABOVE THE OUTLET.
6. VALVE, DUCTILE IRON PIPE, AND STANDARD FIRE HYDRANT SYSTEM SHALL BE RESTRAINT JOINT CONTINUOUSLY TOGETHER.
7. FIRE HYDRANT SHALL BE 6 INCH (3) WAY HYDRANT WITH BREAK AWAY BOLTS (SHOE TYPES) PROVIDED WITH STORZ CONNECTION. DEPTH OF BURY SHALL BE 42 INCHES MINIMUM. FIRE HYDRANTS MUST BE SET PLUMB. HOSE CONNECTION MUST FACE ROADWAY.
8. HYDRANT ASSEMBLY SHALL BE RESTRAINED FROM TEE TO HYDRANT.
9. IN THE CITY OF CIBOLO'S CITY LIMITS, FIRE HYDRANTS SHALL BE MUELLER TYPE AND SHALL BE 1 FOOT MINIMUM AND 7 FEET MAXIMUM FROM THE BACK OF CURB.
10. HYDRANTS UPPER BARREL SHALL BE FACTORY PAINTED RED WITH BONNET AND CAPS COATED PER CURRENT NFPA 291 STANDARDS.
11. HYDRANTS LOCATED IN RURAL AREAS SHALL HAVE 6' TALL POLLARD WATER FLEXIFLAG #PP68802.

GREEN VALLEY SPECIAL UTILITY DISTRICT
STANDARD DETAILS
STANDARD HYDRANT ASSEMBLY INSTALLATION
REVISED: JANUARY 2024
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
DETAIL NO. W-22


SEE CONSTRUCTION PLAN GENERAL NOTES #25 FOR APPROPRIATE WATER METER BOX.
R.O.W.
PROPERTY LINE
CURB
VARIES
2"
STREET
1' (TYP)
9" MIN.
15" MIN.
CONNECT WITH DIELECTRIC FITTING
TO RESIDENT
36" MIN.
ANGLE STOP (SEE TABLE FOR DIMENSIONS
METER BOX
6" MIN. PIT RUN SAND
R: 2"
CUSTOMER VALVE (TO BE INSTALLED BY GVSUD AFTER TESTING AND ACCEPTANCE)
5/8"x3/4" DIRECT READ WATER METER (TO BE INSTALLED BY GVSUD AFTER TESTING AND ACCEPTANCE)
45°
1" CORPORATION STOP
6" SAND BEDDING REQ'D. <2-INCHES, MUNICIPEX PIPE OR APPROVED EQUAL
MAIN CLAMP
WATER MAIN

MAIN SIZE	METER SIZE	MAIN SADDLE	CORPORATION	ANGLE STOP
<12"	5/8" OR 3/4"	S-91804 IP	H-15028 IP 1"	B-24258N: 1"x 3/4"
<12"	1"	S-91804 IP	H-15028 IP 1"	B-24258N: 1"X1"

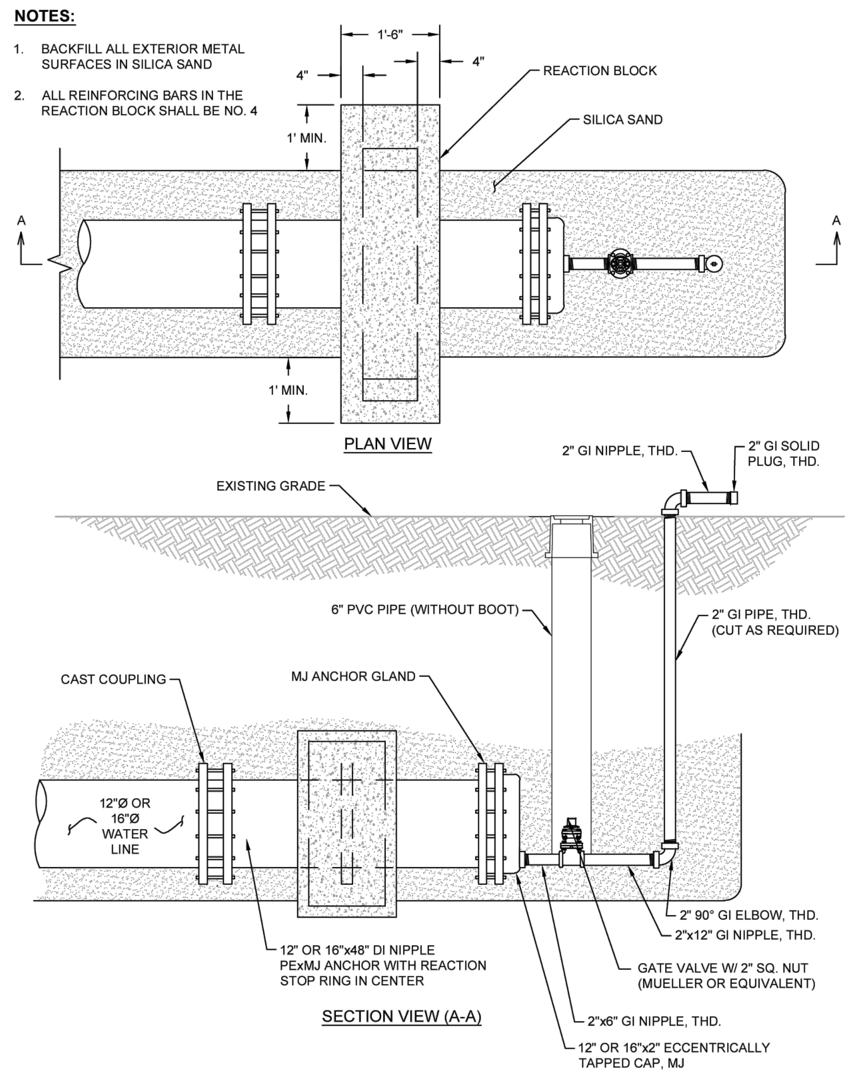
NOTES:

1. FITTINGS SHALL BE MUELLER OR APPROVED EQUAL.
2. A TRACER WIRE SHALL BE INSTALLED ON THE SERVICE LINE TAPED AT 10-INCH INCREMENTS.

GREEN VALLEY SPECIAL UTILITY DISTRICT
STANDARD DETAILS
STANDARD SERVICE CONNECTION
REVISED: JANUARY 2024
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
DETAIL NO. W-23

NOTES:

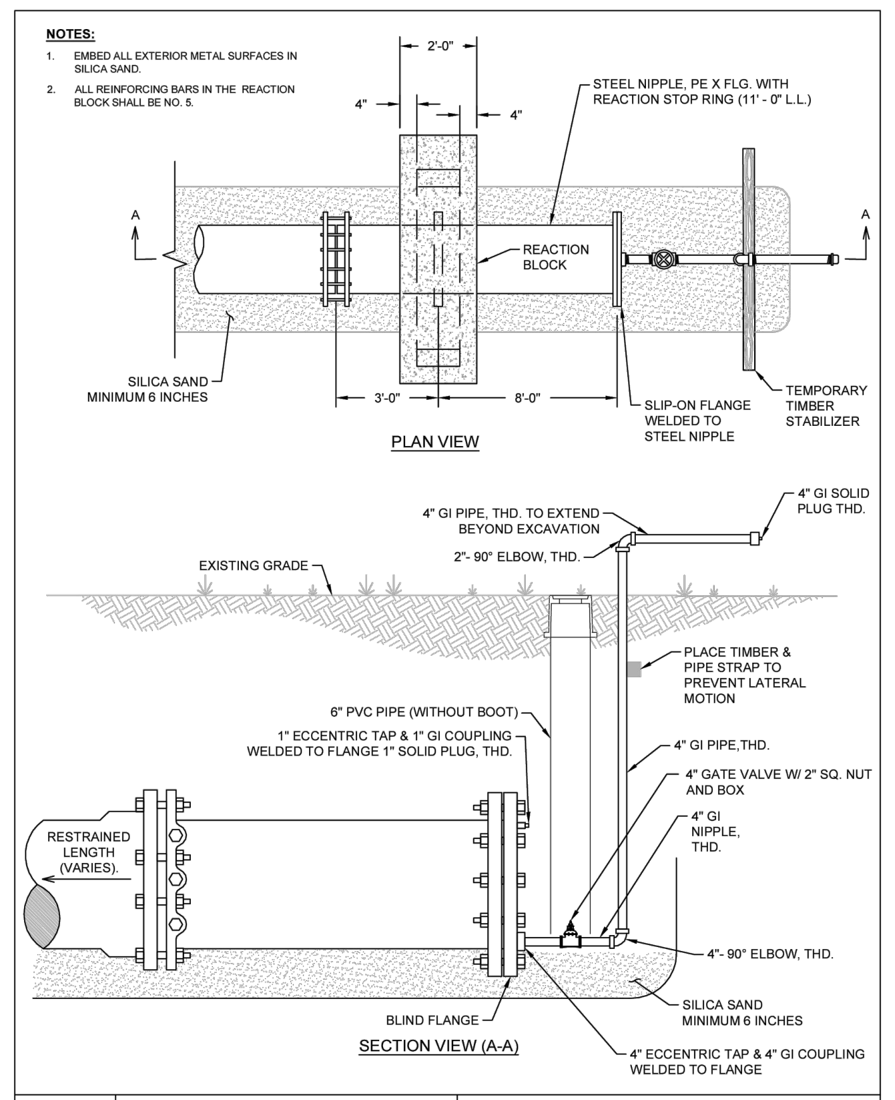
1. BACKFILL ALL EXTERIOR METAL SURFACES IN SILICA SAND
2. ALL REINFORCING BARS IN THE REACTION BLOCK SHALL BE NO. 4


1'-6"
4"
4"
REACTION BLOCK
1' MIN.
SILICA SAND
A
A
1' MIN.
PLAN VIEW
2" GI NIPPLE, THD.
2" GI SOLID PLUG, THD.
EXISTING GRADE
6" PVC PIPE (WITHOUT BOOT)
2" GI PIPE, THD. (CUT AS REQUIRED)
CAST COUPLING
MJ ANCHOR GLAND
12"Ø OR 16"Ø WATER LINE
2" 90° GI ELBOW, THD.
2"x12" GI NIPPLE, THD.
12" OR 16"x48" DI NIPPLE PExMJ ANCHOR WITH REACTION STOP RING IN CENTER
GATE VALVE W/ 2" SQ. NUT (MUELLER OR EQUIVALENT)
SECTION VIEW (A-A)
2"x6" GI NIPPLE, THD.
12" OR 16"x2" ECCENTRICALLY TAPPED CAP, MJ

GREEN VALLEY SPECIAL UTILITY DISTRICT
STANDARD DETAILS
2" TEMPORARY BLOW-OFF ASSEMBLY ON 12" TO 16" MAINS
REVISED: JANUARY 2024
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
DETAIL NO. W-25

NOTES:

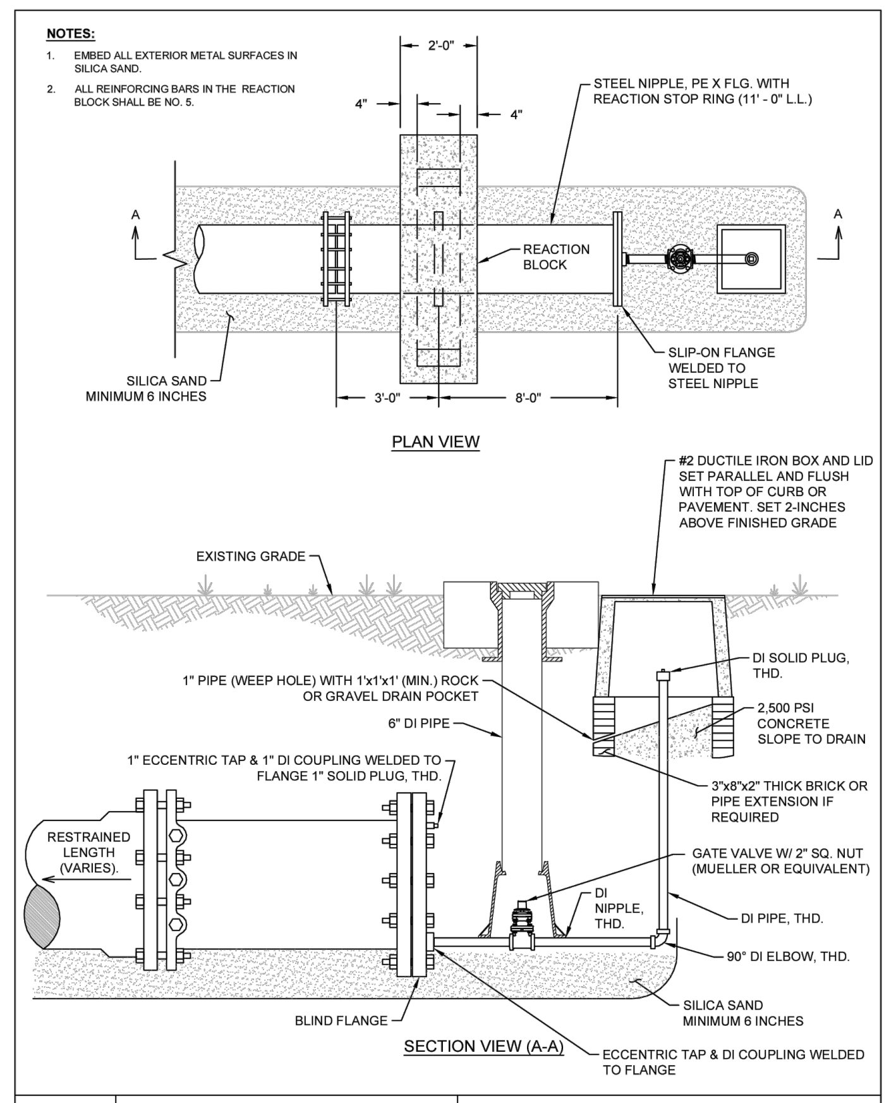
1. EMBED ALL EXTERIOR METAL SURFACES IN SILICA SAND.
2. ALL REINFORCING BARS IN THE REACTION BLOCK SHALL BE NO. 5.


2'-0"
4"
4"
STEEL NIPPLE, PE X FLG. WITH REACTION STOP RING (11' - 0" L.L.)
A
A
REACTION BLOCK
SILICA SAND MINIMUM 6 INCHES
3'-0"
8'-0"
SLIP-ON FLANGE WELDED TO STEEL NIPPLE
TEMPORARY TIMBER STABILIZER
PLAN VIEW
4" GI PIPE, THD. TO EXTEND BEYOND EXCAVATION
4" GI SOLID PLUG THD.
2"- 90° ELBOW, THD.
EXISTING GRADE
PLACE TIMBER & PIPE STRAP TO PREVENT LATERAL MOTION
6" PVC PIPE (WITHOUT BOOT)
1" ECCENTRIC TAP & 1" GI COUPLING WELDED TO FLANGE 1" SOLID PLUG, THD.
4" GI PIPE,THD.
4" GATE VALVE W/ 2" SQ. NUT AND BOX
4" GI NIPPLE, THD.
RESTRAINED LENGTH (VARIES).
4"- 90° ELBOW, THD.
SILICA SAND MINIMUM 6 INCHES
BLIND FLANGE
SECTION VIEW (A-A)
4" ECCENTRIC TAP & 4" GI COUPLING WELDED TO FLANGE

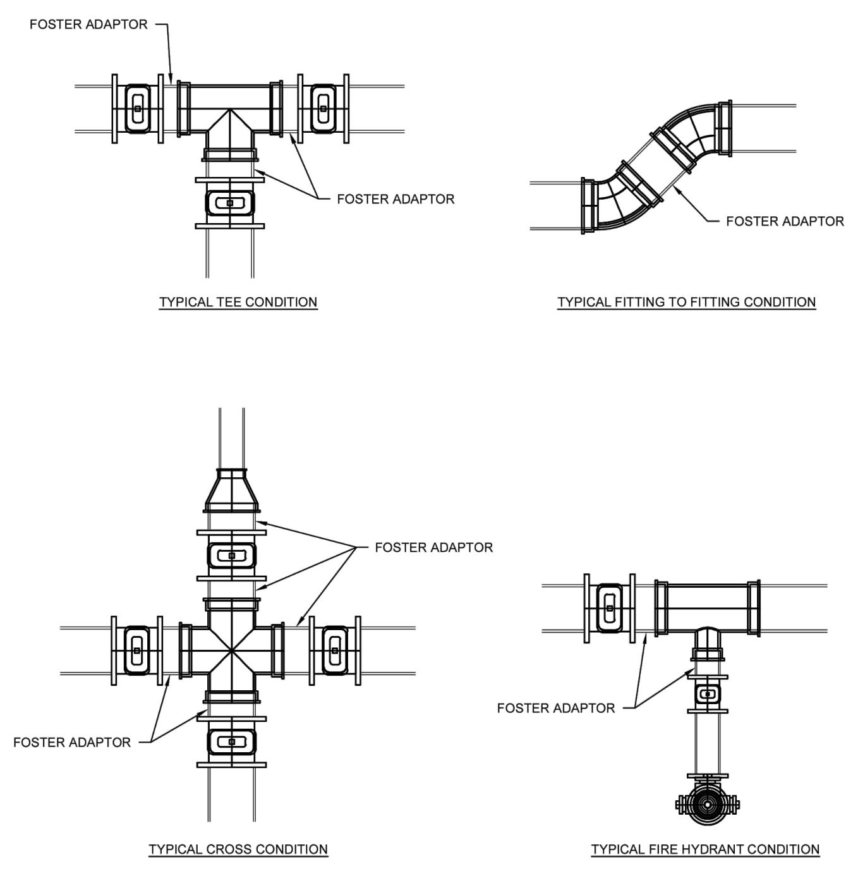
GREEN VALLEY SPECIAL UTILITY DISTRICT
STANDARD DETAILS
4" TEMPORARY BLOW-OFF ASSEMBLY ON 20" OR LARGER MAINS (JOINT RESTRAINT)
REVISED: JANUARY 2024
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
DETAIL NO. W-26

NOTES:

1. EMBED ALL EXTERIOR METAL SURFACES IN SILICA SAND.
2. ALL REINFORCING BARS IN THE REACTION BLOCK SHALL BE NO. 5.


2'-0"
4"
4"
STEEL NIPPLE, PE X FLG. WITH REACTION STOP RING (11' - 0" L.L.)
A
A
REACTION BLOCK
SILICA SAND MINIMUM 6 INCHES
3'-0"
8'-0"
SLIP-ON FLANGE WELDED TO STEEL NIPPLE
PLAN VIEW
#2 DUCTILE IRON BOX AND LID SET PARALLEL AND FLUSH WITH TOP OF CURB OR PAVEMENT. SET 2-INCHES ABOVE FINISHED GRADE
EXISTING GRADE
DI SOLID PLUG, THD.
1" PIPE (WEEP HOLE) WITH 1'x1'x1' (MIN.) ROCK OR GRAVEL DRAIN POCKET
2,500 PSI CONCRETE SLOPE TO DRAIN
6" DI PIPE
1" ECCENTRIC TAP & 1" DI COUPLING WELDED TO FLANGE 1" SOLID PLUG, THD.
3"x8"x2" THICK BRICK OR PIPE EXTENSION IF REQUIRED
RESTRAINED LENGTH (VARIES).
GATE VALVE W/ 2" SQ. NUT (MUELLER OR EQUIVALENT)
DI NIPPLE, THD.
DI PIPE, THD.
90° DI ELBOW, THD.
SILICA SAND MINIMUM 6 INCHES
BLIND FLANGE
SECTION VIEW (A-A)
ECCENTRIC TAP & DI COUPLING WELDED TO FLANGE

GREEN VALLEY SPECIAL UTILITY DISTRICT
STANDARD DETAILS
2" & 4" PERMANENT URBAN BLOW-OFF ASSEMBLY
REVISED: JANUARY 2024
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
DETAIL NO. W-28


FOSTER ADAPTOR
FOSTER ADAPTOR
FOSTER ADAPTOR
TYPICAL TEE CONDITION
TYPICAL FITTING TO FITTING CONDITION
FOSTER ADAPTOR
FOSTER ADAPTOR
FOSTER ADAPTOR
TYPICAL CROSS CONDITION
TYPICAL FIRE HYDRANT CONDITION

NOTE:

1. FOSTER ADAPTORS, OR APPROVED EQUAL, REQUIRED AT ALL FITTING TO FITTING CONNECTIONS AND FITTING TO VALVE CONNECTIONS.
2. ANCHOR COUPLINGS MAY BE SUBSTITUTED FOR FOSTER ADAPTORS AT GVSUD'S DISCRETION.

GREEN VALLEY SPECIAL UTILITY DISTRICT
STANDARD DETAILS
MECHANICAL JOINT ADAPTOR DETAIL
REVISED: JANUARY 2024
THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.
DETAIL NO. W-31

GVSUD CONSTRUCTION PLAN GENERAL NOTES

1. ALL WORKMANSHIP AND MATERIALS FOR THE WATER SYSTEM SHALL CONFORM TO THE WATER STANDARDS AND DESIGN CRITERIA OF GREEN VALLEY SPECIAL UTILITY DISTRICT (GVSUD).
2. PVC MAINS 12-INCHES AND BELOW SHALL CONFORM TO AWWA C-909 PRESSURE CLASS 235 OR ABOVE DEPENDING ON SYSTEM PRESSURES. PVC MAIN GREATER THAN 12 INCHES SHALL CONFORM TO AWWA C-900 DR 18 OR ABOVE DEPENDING ON SYSTEM PRESSURES. WATER MAINS SHALL HAVE AN ABSOLUTE MINIMUM DEPTH OF 5-FEET BELOW ROADWAY LEVEL AND 42-INCHES IN ALL OTHER AREAS.
3. ALL WATER MAIN DUCTILE IRON FITTINGS SHALL BE MECHANICAL JOINT AND CONFORM TO ANSI/AWWA C-153 OR C-110. ALL BOLTS SHALL HAVE KOPR KOTE OR APPROVED EQUAL ANTI-SEIZE CORROSION RESISTANT COATING. VALVES SHALL BE ATTACHED TO TEES BY FOSTER ADAPTOR OR ANCHOR NIPPLE. FOSTER ADAPTER, ANCHOR NIPPLE, OR FORD UNI-FLANGE RETAINER GLANDS AND THRUST BLOCKS SHALL BE USED ON ALL FITTINGS AND VALVES.
4. TRACER WIRE SHALL BE INSTALLED ON ALL PIPELINES INCLUDING SERVICE LINES AND BROUGHT INTO VALVE AND METER BOXES FOR LOCATING PURPOSES. INSULATED WATER PROOF CONNECTORS SHALL BE USED TO SPLICE WIRES TOGETHER. A 12-INCH-WIDE DETECTABLE METAL TAPE SHALL BE PLACED ABOVE BEDDING INITIAL BACKFILL.
5. EXCEEDING MAXIMUM DEFLECTION IS PROHIBITED. THE ANGULAR DEFLECTION AT BELL-SPIGOT JOINTS SHOULD NOT EXCEED ONE (1) DEGREE. THIS WILL PRODUCE A 4-INCH OFFSET FOR EVERY 20-FOOT SECTION OF PIPE. JOINT DEFLECTION IS ACHIEVED AFTER THE JOINT IS ASSEMBLED IN STRAIGHT ALIGNMENT AND DEFLECTED TO THE REFERENCE MARK. THE BELL SHOULD BE BRACED TO ALLOW THE FREE END TO MOVE LATERALLY UNDER STEADY PRESSURE USING A PRY BAR OR OTHER SUITABLE MEANS. CARE SHOULD BE TAKEN NOT TO EXCEED THE MAXIMUM DEFLECTION ALLOWED OR TO DAMAGE THE PIPE WITH MACHINERY. ABRUPT CHANGES IN DIRECTION SHALL BE ACCOMPLISHED WITH FITTINGS.
6. OVER STRESSING THE BELL BY OVER INSERTING THE JOINTS, OVERBELLING, AND PASSING THE INSERTION REFERENCE MARK IS PROHIBITED AND WILL REQUIRE REMOVAL AND REINSTALLATION.
7. STANDARD FIRE HYDRANT SHALL INCLUDE HYDRANT, 6-INCH RESILIENT GATE VALVE AND BOX, ANCHOR FITTINGS, DUCTILE IRON PIPE, AND ALL APPURTENANCES. HYDRANTS SHALL BE LIMITED TO THOSE MANUFACTURED BY MUELLER, AVK, AMERICAN FLOW, CLOW, OR EAST JORDAN. ONLY MUELLER HYDRANTS AND EJ SHALL BE USED IN CITY OF CIBOLO'S JURISDICTION. HYDRANT UPPER BARREL SHALL BE FACTORY PAINTED RED. HYDRANTS SHALL HAVE A STORTZ CONNECTION ON STEAMER NOZZLE. FITTINGS FOR PLUG SHALL BE FULLY RESTRAINED AND TIED TO VALVE.

GVSUD CONSTRUCTION PLAN GENERAL NOTES

8. VALVES SHALL BE AWWA APPROVED RESILIENT WEDGE SEATED GATE VALVE, OPEN LEFT, AND LIMITED TO THOSE MANUFACTURED BY MUELLER, AVK, AMERICAN FLOW, CLOW, OR EAST JORDAN.
9. VALVES ARE PROHIBITED IN ADA RAMPS, CURBS, AND ROADWAYS. VALVES ARE PROHIBITED IN SIDEWALKS IN CITY OF NEW BRAUNFELS.
10. METER BOXES ARE PROHIBITED IN ANY SIDEWALKS, DRIVEWAYS, OR ROADWAYS.
11. SMALL SERVICE TAPS SHALL BE EITHER 1-INCH OR 2 INCH AND SHALL BE REHAU MUNICIPEX WITH CTS 200 PSI PLASTIC INSERT. SMALL SERVICE TAPS TO BE MADE WITH SINGLE BRASS STRAP TAPPING SADDLE WITH IRON PIPE THREADS. EXCEPTION: IF LOCATED WITHIN CITY OF CIBOLO- SERVICE TAPS TO BE MADE WITH DOUBLE STAINLESS STRAP EPOXY COATING SADDLES WITH IRON PIPE THREADS.
12. CASING REQUIRED FOR ALL LONG SMALL SERVICES. 1 INCH SERVICE REQUIRES 3 INCH CASING AND 2 INCH SERVICE REQUIRES 4 INCH CASING. CASING SHALL BE PVC SCHEDULE 40 OR APPROVED EQUAL.
13. SINGLE 5/8” & ¾” METER BOXES SHALL BE DFW36C 16” X 11”. DUAL 5/8” & ¾” METER BOXES SHALL BE DFW38C 17” X 15”. 1-INCH METER BOXES SHALL BE DFW65C-14-1A 15 1/4" X 30 3/8”. ALL METER BOXES SHALL BE PLASTIC WITH LIDS HAVING REBAR, ARM, AND KNOCKOUT.
14. THE FORD U BRANCH IS TO BE USED ON ALL DUAL SERVICES (U48-43Q) WITH THE 5/8” X 3/4” FEMALE THREAD ANGLE HEAD. ALL OTHER ANGLE HEADS WILL BE THE FORD Q NUT. ALL CORPORATION STOPS WILL BE IPS X Q NUT. ALL BRASS VALVES TO BE ‘BALL’ TYPE MINIMUM 200 PSI PRESSURE RATING. "CC" THREADED CORPORATION STOPS PROHIBITED.
15. TAPPING MACHINES UTILIZED FOR INSTALLING ANY TYPE OF TAP 1-INCH TO 2-INCHES WILL BE OF THE PURGE TYPE, WHICH AT THE TIME OF TAPPING SHALL EXPEL ALL CHIPS AND RESIDUE TO ATMOSPHERE THROUGH AN APPROPRIATE OUTLET AND/OR BE ABLE TO RETAIN THE COUPON.
16. ALL WATER MAIN, PIPE, CASINGS, FITTINGS, AND VALVES SHALL BE LAID IN MANUFACTURED SAND EMBEDMENT PER DETAILS. THE SAND SHALL FULLY ENCASE ALL PIPES, INCLUDING FITTINGS AND VALVES, BY A MINIMUM OF 12-INCHES. ALL FITTINGS AND VALVES ARE TO RECEIVE THRUST BLOCKING, FOSTER ADAPTER, ANCHOR NIPPLE, FORD UNI-FLANGE RETAINER GLAND JOINT RESTRAINTS, AND BELL JOINT RESTRAINTS WHEN SPECIFIED BY GVSUD OR THE DISTRICT'S ENGINEER.
17. CONTRACTOR TO CURB CUT V'S FOR VALVES AND X'S FOR METERS.
18. PRIOR TO CONSTRUCTION OF THE SEWER AND WATER MAINS, ALL R.O.W. ROADWAYS AND PARKWAY SHALL HAVE REFERENCE SURVEY STAKING AND BE EXCAVATED OR PROPERLY FILLED TO SUB-GRADE ELEVATION.

GVSUD CONSTRUCTION PLAN GENERAL NOTES

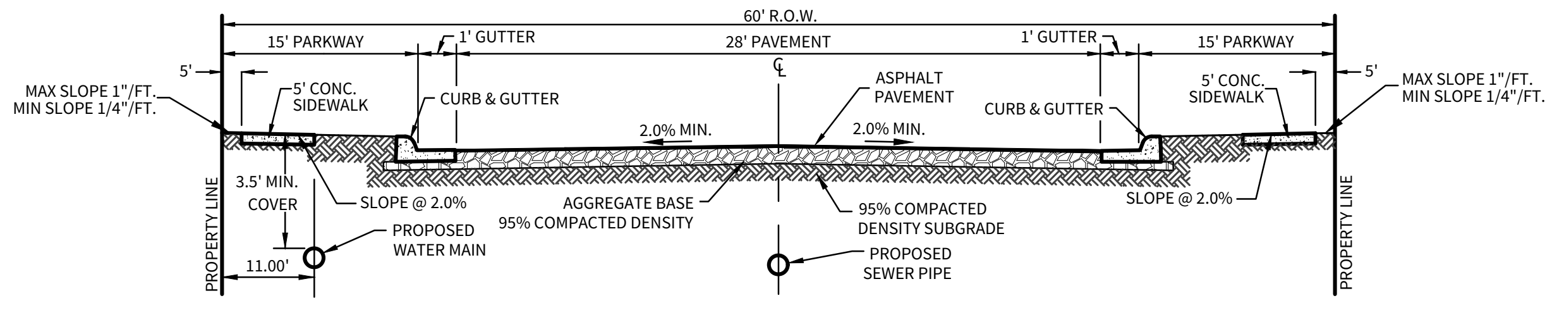
19. SURVEY STAKING OFFSETS ARE REQUIRED FOR ALL WATER MAIN AND APPURTENANCES.
20. THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES INDICATED ON THE PLANS ARE TAKEN FROM AVAILABLE RECORDS AND ARE NOT GUARANTEED. CONTRACTOR SHALL INVESTIGATE AND FIELD VERIFY UTILITY LOCATIONS A MINIMUM OF 300 LF AHEAD OF CROSSING AND TIE-IN LOCATIONS. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY DAMAGE TO AND FOR MAINTENANCE PROTECTION OF THE EXISTING UTILITIES, WHETHER THEY ARE SHOWN ON THE PLANS OR NOT.
21. ALL WASTEWATER PIPES CROSSING THE POTABLE WATER DISTRIBUTION SYSTEM WILL BE HELD IN STRICT ACCORDANCE WITH TCEQ RULES AND REGULATIONS. PROPOSED SUB-GRADE LIMITS AND DIMENSIONS MUST BE SHOWN ON THE PLANS, AND CONSTRUCTION PROCEDURES WILL BE INSPECTED TO VERIFY COMPLIANCE WITH TCEQ 290.44(E).
22. OTHER UTILITIES SHALL NOT BE LOCATED CLOSER THAN 3-FEET TO WATER MAINS.
23. THE GREEN VALLEY INSPECTOR SHALL BE NOTIFIED AT LEAST FORTY-EIGHT HOURS PRIOR TO BACK FILLING OR TESTING.
24. A FIELD PRE-CONSTRUCTION MEETING SHALL BE HELD BEFORE CONSTRUCTION BEGINS AND MATERIAL SHALL BE AVAILABLE ON-SITE FOR INSPECTION.
25. CONTRACTOR SHALL CHLORINATE NEW MAINS PER TCEQ AND ANSI/AWWA C651 AND DECHLORINATE DURING FLUSHING PER ANSI/AWWA C655; THE CONTRACTOR SHALL COORDINATE WITH THE GVSUD INSPECTOR TO WITNESS CHLORINATING AND PRESSURE TESTING OF NEW MAINS. ALL TEST RESULTS MUST BE PROVIDED TO GVSUD.
26. OPERATION OF EXISITNG VALVES IN THE GVSUD WATER DISTRIBUTION SYSTEM SHALL ONLY BE AS APPROVED BY GVSUD AND IN THE PRESENCE OF GVSUD PERSONNEL. THE CONTRACTOR SHALL NOTIFY GVSUD WHEN A VALVE NEEDS TO BE OPERATED AND MAY ONLY OPERATE A VALVE IN THE PRESENCE OF THE GVSUD INSPECTOR.
27. NEW WATER MAINS AND APPURTENANCES SHALL PASS PRESSURE TESTING AND PASS THE MINIMUM PUBLIC HEALTH STANDARDS FOR BACTERIOLOGICAL QUALITY TESTING PRIOR TO ANY TIE IN TO THE EXISTING GVSUD WATER SYSTEM AS REQUIRED BY TCEQ AND ANSI/AWWA.
28. HYDROSTATIC PRESSURE TESTING SHALL BE EVERY 200 LF (MAX) OF LINE OR AS APPROVED BY THE ENGINEER. ALL ERRORS OF WORKMANSHIP SHALL BE CORRECTED IMMEDIATELY. ALL PARTS OF THE PIPELINE SHALL BE BACKFILLED AND BRACED SUFFICIENTLY TO PREVENT MOVEMENT UNDER PRESSURE.
29. CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH AND CONFINED SPACE ENTRY SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION AND ALL RELATED WORK. ANY

GVSUD CONSTRUCTION PLAN GENERAL NOTES

TRENCH PROTECTION SAFETY VIOLATION WILL BE DOCUMENTED AND WILL RESULT IN AN IMMEDIATE WORK STOPPAGE BY THE GVSUD INSPECTOR AT MINUMUM UNTIL THE NEXT WORKDAY.

30. CONTRACTOR MUST PROTECT ALL UNATTENDED TRENCHES AND EXCAVATIONS WITH TEMPORARY FENCING.
31. NO TREES MAY BE PLANTED IN THE AREAS DESIGNATED AS WATER OR UTILITY EASEMENTS, OR AREAS WHERE WATER MAINS AND WATER SERVICE CROSSINGS EXIST OR ARE PLANNED TO BE CONSTRUCTED.
32. ALL GARBAGE OR SPOIL MATERIAL FROM THE WORK SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR AT CONTRACTOR'S EXPENSE.
33. CONTRACTOR SHALL PROVIDE “AS-BUILT” WATER LINE PLANS AT THE PRELIMINARY WALK THRU FOR THE GVSUD INSPECTOR AND ENGINEER. THE PLANS SHALL LIST MATERIAL MANUFACTURERS, LINE LENGTH FROM FITTING TO FITTING, AND TAP LOCATIONS.
34. GPS FILES SHALL BE PROVIDED BY THE CONTRACTOR TO THE ENGINEER AND GVSUD INSPECTOR FOR THE PLAN OF RECORD. CONTRACTOR SHALL PROVIDE AN ASCII COMMA DELIMITED OR EXCEL FILE CONTAINING THREE-DIMENSIONAL GPS SURVEY POINTS WITH FOUR (4) DECIMAL PLACES OF PRECISION, LESS THAN FOUR (4) INCHES OF HORIZONTAL POSITION ACCURACY, AND LESS THAN EIGHT (8) INCHES OF VERTICAL POSITION ACCURACY. POINTS SHALL BE PROVIDED FOR A MINIMUM OF THREE (3) CONTROL POINTS AND ALL FITTINGS, APPURTENANCES, ENCASEMENTS, VAULTS, AND TANKS. THE ENGINEER SHALL FURNISH PLAN OF RECORD DRAWINGS TO GVSUD FOR APPROVAL HAVING FINAL MEASUREMENTS AND THAT MATCH THE GPS ‘X’, ‘Y’, AND ‘Z’ COORDINATES.
35. THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH ALL THE INFORMATION AS REQUIRED SO THAT THE ENGINEER CAN SUPPLY GVSUD THE GIS PACKAGE FOR APPROVAL.
36. A FINAL WALK THRU FOR FINAL FIELD ACCPETANCE WILL BE SCHEDULED WITH THE CONTRACTOR AFTER THE PRELIMINARY WALK THRU PUNCH LIST ITEMS HAVE BEEN COMPLETED AND AFTER THE GIS PACKAGE IS APPROVED AND ACCEPTED BY GVSUD.
37. GVSUD CONTACT NUMBER: 830-914-2330

REVISED: JULY 22,2022


60' R.O.W.
15' PARKWAY
1' GUTTER
28' PAVEMENT
1' GUTTER
15' PARKWAY
5'
5'
℄
MAX SLOPE 1"/FT. MIN SLOPE 1/4"/FT.
5' CONC. SIDEWALK
CURB & GUTTER
ASPHALT PAVEMENT
2.0% MIN.
2.0% MIN.
CURB & GUTTER
5' CONC. SIDEWALK
MAX SLOPE 1"/FT. MIN SLOPE 1/4"/FT.
3.5' MIN. COVER
SLOPE @ 2.0%
AGGREGATE BASE 95% COMPACTED DENSITY
95% COMPACTED DENSITY SUBGRADE
SLOPE @ 2.0%
PROPOSED WATER MAIN
PROPOSED SEWER PIPE
PROPERTY LINE
11.00'
PROPERTY LINE

LOCAL "A" STREET CROSS-SECTION

N.T.S.

CUDEENGINEERS.COM

EST. 1980 CUDE ENGINEERS

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

GRACE VALLEY RANCH
PHASE 3B

WATER DISTRIBUTION STANDARD DETAILS

DATE
09/03/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS
1.
2.
3.
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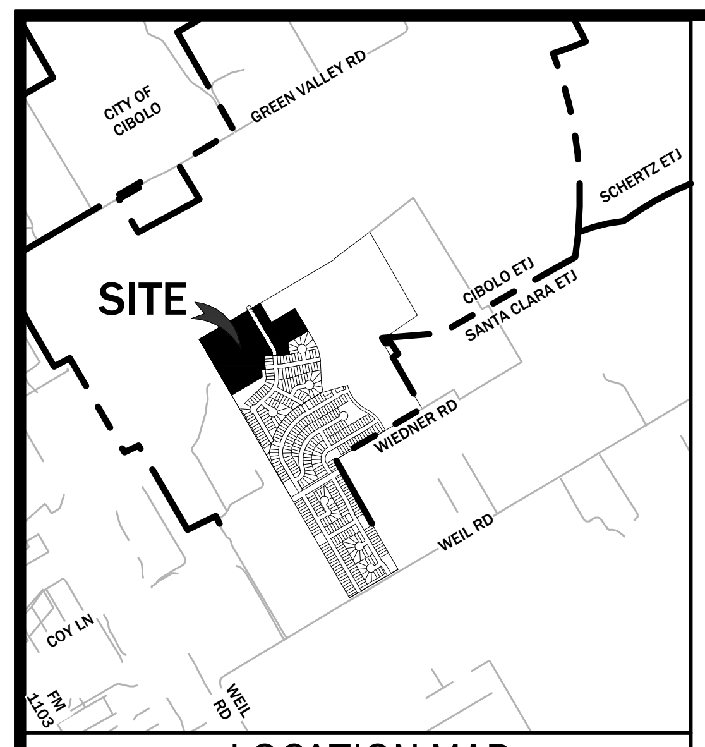
5.
6.
7.
8.
9.

KYLE M. HUDEK
138753
09/04/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C5.01


CITY OF CIBOLO
GREEN VALLEY RD
SCHERTZ ETJ
SITE
CIBOLO ETJ
SANTA CLARA ETJ
WIEDNER RD
WEIL RD
COY LN
FM 1103
WEIL RD

LOCATION MAP
N.T.S.

CAUTION!!!

THE CONTRACTOR SHALL BE AWARE THAT EXISTING UTILITIES ARE WITHIN THE SITE. 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 SAFETY 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 EMPLOYEES 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:

1. IN THE CITY OF CIBOLO, FIRE HYDRANTS SHALL BE MUELLER OR EJ TYPE AND SHALL BE 2' MINIMUM AND 7' MAXIMUM FROM THE BACK OF CURB.

2. DISINFECTION SHALL BE BY MACHINE CHLORINATION.

3. CONTRACTOR TO UTILIZE APPROVED WATER LINE STOPS AND/OR MUELLER INSERTION-VALVES TO MINIMIZE WATER OUTAGES AS REQUIRED BY GVSUD DURING CONSTRUCTION.

4. MOISTURE DENSITY COMPACTION TESTING FREQUENCY- WATER MAIN TRENCHES REQUIRED EVERY 300 L.F. FOR EACH VERTICAL FOOT OF COMPACTED BACKFILL. SERVICES RANDOMLY SELECTED AS REQUIRED BY GVSUD INSPECTOR.

5. ALL TESTING AND TEST REPORTS SHALL BE COORDINATED WITH GVSUD INSPECTOR BY THE CONTRACTOR.

6. ALL DUCTILE IRON PIPE TO BE AMERICAN, ZINC COATED, AWWA/ANSI C-151

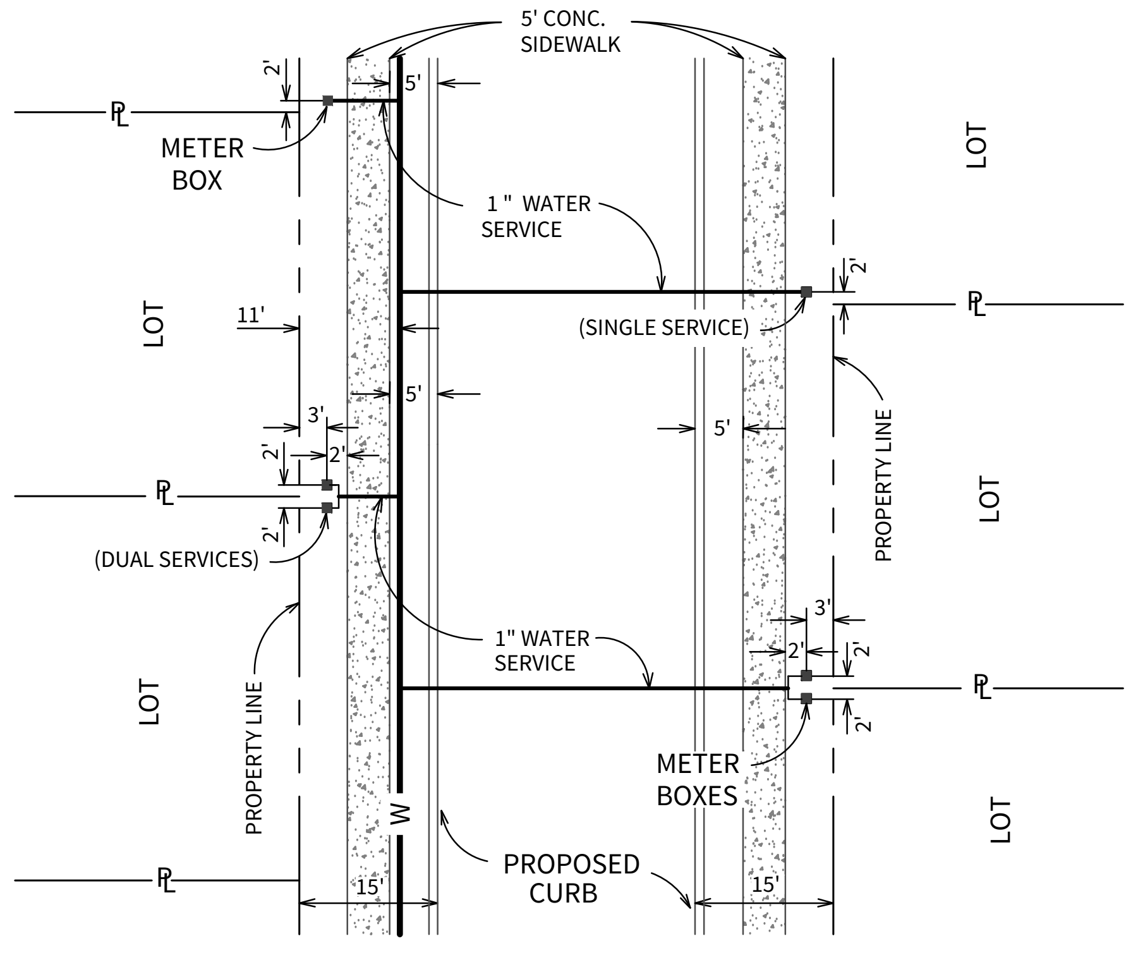
KEY NOTES:

⬡1 AFTER RELEASED FOR SERVICE, CONTRACTOR TO TIE NEW 8" WATER MAIN INTO EXIST. 8" WATER MAIN. CUT AS REQUIRED. VALVE TO REMAIN CLOSED UNTIL AFTER DISINFECTION & ACCEPTANCE BY GVSUD.

CONTRACTOR TO REMOVE:
- 2" BLOW-OFF ASSEMBLY (PERM.)
- 8" M.J.X2" THR. D.I. ECCENTRIC REDUCER (PERM.)

CONTRACTOR TO INSTALL:
- 1 - 8 " M.J. X 2" THR. D.I. ECCENTRIC (TEMP.)
- 1 - 2" BLOW-OFF ASSEMBLY (TEMP.)

TO BE REMOVED FOR TIE-IN AFTER NEW MAIN IS TESTED AND ACCEPTED.
- 1 - 8" SOLID SLEEVE, M.J.


5' CONC. SIDEWALK
METER BOX
1 " WATER SERVICE
(SINGLE SERVICE)
(DUAL SERVICES)
1" WATER SERVICE
METER BOXES
PROPOSED CURB
PROPERTY LINE
LOT
PL
W
2'
3'
5'
11'
15'

WATER METER BOX LOCATION (60' R.O.W.)
N.T.S.

LEGEND

EXISTING SANITARY SEWER	EX.8"SS
PROPOSED SANITARY SEWER	8"SS
EXISTING SANITARY SEWER MANHOLE	●
PROPOSED SANITARY SEWER MANHOLE	●
EXISTING WATER MAIN	EX.8"W
PROPOSED WATER MAIN	8"W
EXISTING STANDARD FIRE HYDRANT	⧓
PROPOSED STANDARD FIRE HYDRANT	⧓
EXISTING STANDARD GATE VALVE	┤●├
PROPOSED STANDARD GATE VALVE	┤●├
EXISTING PERMANENT BLOWOFF	▶●
PROPOSED PERMANENT BLOWOFF	▶●
ELECTRIC, GAS, TELEPHONE, & CABLE T.V. EASEMENT	E.G.T.CA. ESM'T
BUILDING SETBACK LINE	B.S.L.

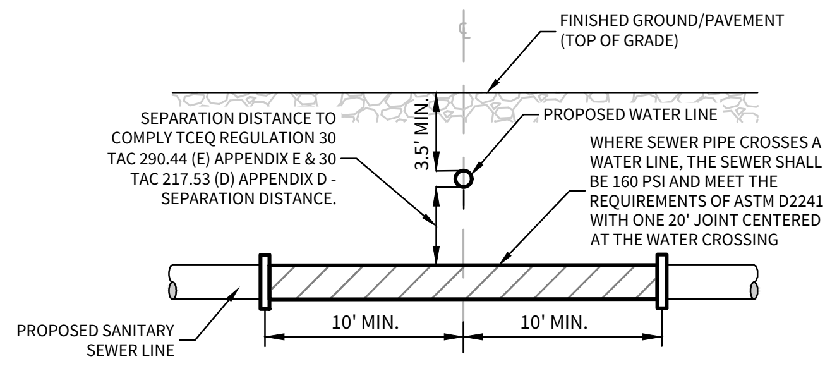
DEVELOPER:

LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD.
CONTACT PERSON: RICHARD MOTT
100 NE LOOP 410, SUITE 1155
SAN ANTONIO, TX 78216
TEL: (210) 403-6200

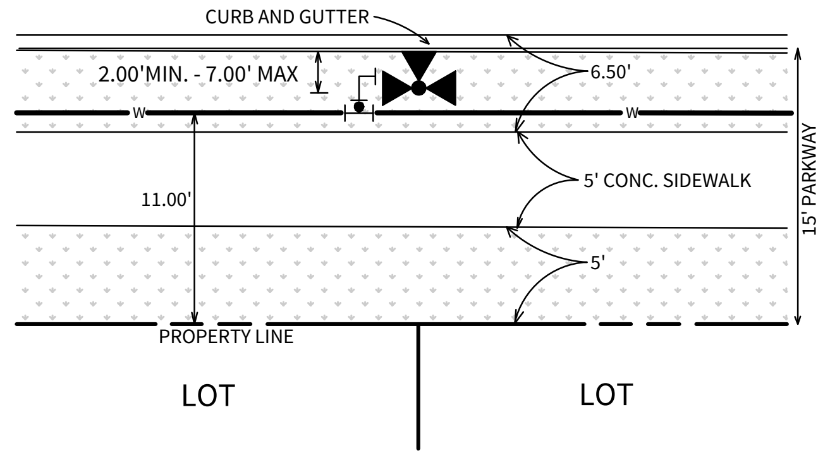
CIVIL ENGINEER:

CUDE ENGINEERS
CONTACT PERSON: CHRIS CHAFFEE, P.E.
4122 POND HILL ROAD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951
FAX: (210) 523-7112

Developer's Name LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD
Developer's Address 100 NE LOOP 410, SUITE 1155
City SAN ANTONIO State TEXAS Zip 78216
Phone # (210) 403-6282 Fax # -
Total EDU's 121.5 Total Acreage 21
Total Linear Footage of Pipe 8" W - 3,125 L.F. Plat No. N/A
Meter Size 117 - 5/8" METER , 3 - 3/4" METER (IRR.)
Number of Lots 117 Job No. N/A


FINISHED GROUND/PAVEMENT (TOP OF GRADE)
PROPOSED WATER LINE
SEPARATION DISTANCE TO COMPLY TCEQ REGULATION 30 TAC 290.44 (E) APPENDIX E & 30 TAC 217.53 (D) APPENDIX D - SEPARATION DISTANCE.
3.5' MIN.
WHERE SEWER PIPE CROSSES A WATER LINE, THE SEWER SHALL BE 160 PSI AND MEET THE REQUIREMENTS OF ASTM D2241 WITH ONE 20' JOINT CENTERED AT THE WATER CROSSING
PROPOSED SANITARY SEWER LINE
10' MIN.
10' MIN.

TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL
N.T.S.


CURB AND GUTTER
2.00'MIN. - 7.00' MAX
6.50'
W
5' CONC. SIDEWALK
11.00'
5'
15' PARKWAY
PROPERTY LINE
LOT
LOT

NOTE:

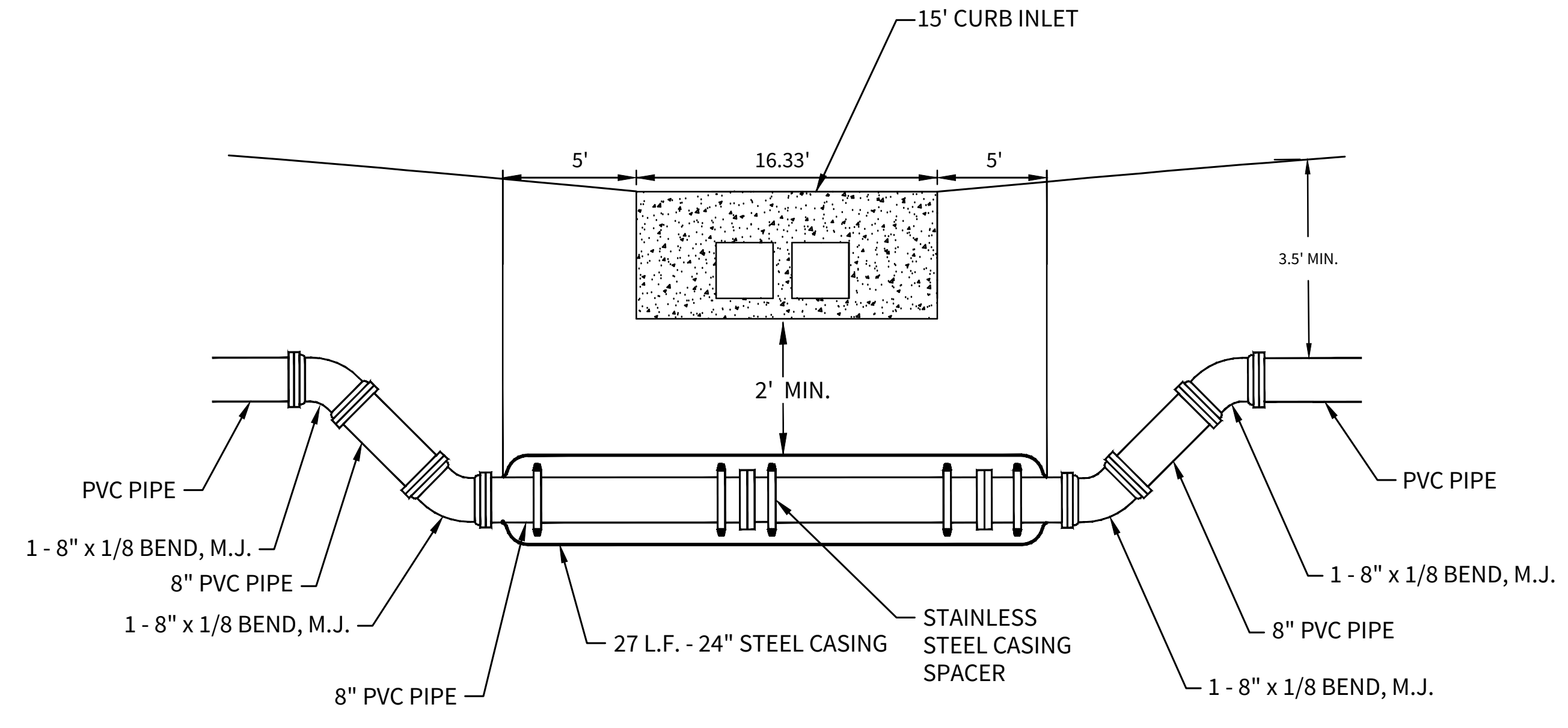
1. EXCLUSIVE OF THE TEE, PAYMENT FOR THE FIRE HYDRANT SHALL INCLUDE ALL FITTINGS, 6" D.I. PIPE AND 6" GATE VALVE & BOX.
2. FIRE HYDRANT TO BE INSTALLED OUTSIDE OF THE LIMITS OF ALL PROPOSED SIDEWALKS.

LOCAL RESIDENTIAL FIRE HYDRANT DETAIL (5' SIDEWALK)
N.T.S.

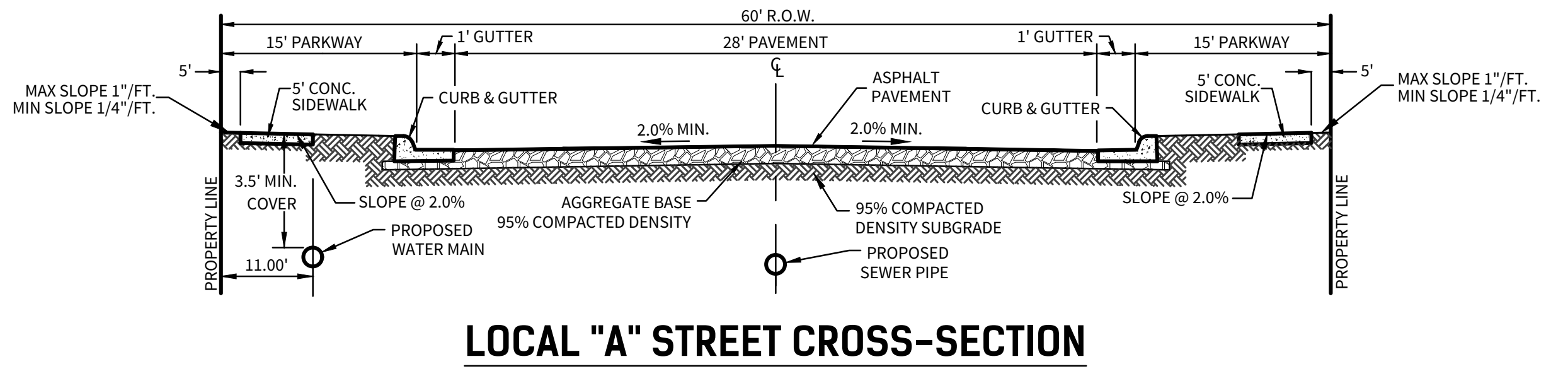
GRACE VALLEY UNIT 3B

WATER QUANTITIES

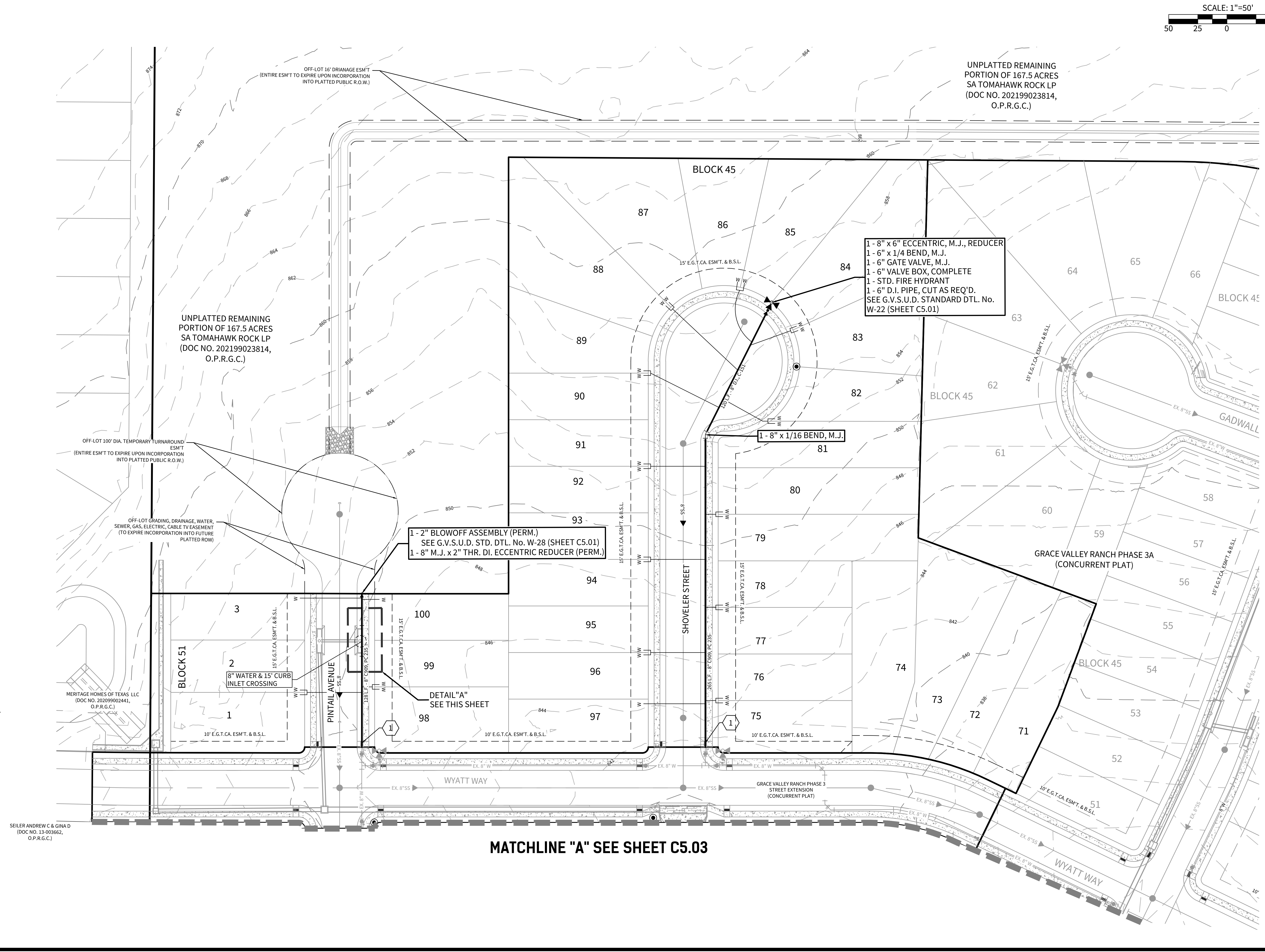
TRENCH EXCAVATION PROTECTION	3125	L.F.
8" D.I. C-151 PIPE	601	L.F.
8" PVC C-909 PIPE	2524	L.F.
FIRE HYDRANT ASSEMBLY W/ VALVE	6	EA.
8" GATE VALVE MJ W/ BOX, COMPLETE	12	EA.
METER BOXES	114	EA.
24" STEEL CASING	59	L.F.
8" SOLID SLEEVE, M.J.	4	EA.
8" PERM. BLOW-OFF	2	EA.
8" TEMPORARY BLOW-OFF	4	EA.
8" X 6" ECCENTRIC REDUCER, M.J.	2	EA.
8" X 2" THR D.I. ECCENTRIC REDICER, M.J.	6	EA.
8"x6" TEE, M.J.	4	EA.
8"x8" TEE, M.J.	4	EA.
8" - 1/8 BEND, M.J	11	EA.
8" - 1/16 BEND, M.J.	2	EA.
8" - 1/32 BEND, M.J.	6	EA.
1" LONG WATER SERVICE (DUAL)	26	EA.
1" SHORT WATER SERVICE (DUAL)	26	EA.
1" LONG WATER SERVICE (SINGLE)	3	EA.
1" SHORT WATER SERVICE (SINGLE)	4	EA.
1" IRRIGATION SERVICE	3	EA.
DISINFECTION AND HYDROSTATIC TESTING	3	EA.


15' CURB INLET
5'
16.33'
5'
3.5' MIN.
2' MIN.
PVC PIPE
1 - 8" x 1/8 BEND, M.J.
8" PVC PIPE
1 - 8" x 1/8 BEND, M.J.
8" PVC PIPE
27 L.F. - 24" STEEL CASING
STAINLESS STEEL CASING SPACER
PVC PIPE
1 - 8" x 1/8 BEND, M.J.
8" PVC PIPE
1 - 8" x 1/8 BEND, M.J.

CURB INLET / WATER CROSSING - DETAIL "A"
N.T.S.


60' R.O.W.
15' PARKWAY
1' GUTTER
28' PAVEMENT
1' GUTTER
15' PARKWAY
5'
MAX SLOPE 1"/FT. MIN SLOPE 1/4"/FT.
5' CONC. SIDEWALK
CURB & GUTTER
ASPHALT PAVEMENT
2.0% MIN.
2.0% MIN.
CURB & GUTTER
5' CONC. SIDEWALK
MAX SLOPE 1"/FT. MIN SLOPE 1/4"/FT.
3.5' MIN. COVER
SLOPE @ 2.0%
AGGREGATE BASE 95% COMPACTED DENSITY
95% COMPACTED DENSITY SUBGRADE
SLOPE @ 2.0%
PROPOSED WATER MAIN
PROPOSED SEWER PIPE
11.00'
PROPERTY LINE
PROPERTY LINE

LOCAL "A" STREET CROSS-SECTION
N.T.S.


SCALE: 1"=50'
50 25 0 50
UNPLATTED REMAINING PORTION OF 167.5 ACRES SA TOMAHAWK ROCK LP (DOC NO. 202199023814, O.P.R.G.C.)
OFF-LOT 16' DRAINAGE ESM'T (ENTIRE ESM'T TO EXPIRE UPON INCORPORATION INTO PLATTED PUBLIC R.O.W.)
UNPLATTED REMAINING PORTION OF 167.5 ACRES SA TOMAHAWK ROCK LP (DOC NO. 202199023814, O.P.R.G.C.)
BLOCK 45
1 - 8" x 6" ECCENTRIC, M.J., REDUCER
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
1 - STD. FIRE HYDRANT
1 - 6" D.I. PIPE, CUT AS REQ'D.
SEE G.V.S.U.D. STANDARD DTL. No. W-22 (SHEET C5.01)
1 - 8" x 1/16 BEND, M.J.
OFF-LOT 100' DIA. TEMPORARY TURNAROUND ESM'T (ENTIRE ESM'T TO EXPIRE UPON INCORPORATION INTO PLATTED PUBLIC R.O.W.)
OFF-LOT GRADING, DRAINAGE, WATER, SEWER, GAS, ELECTRIC, CABLE TV EASEMENT (TO EXPIRE INCORPORATION INTO FUTURE PLATTED ROW)
1 - 2" BLOWOFF ASSEMBLY (PERM.) SEE G.V.S.U.D. STD. DTL. No. W-28 (SHEET C5.01)
1 - 8" M.J. x 2" THR. DI. ECCENTRIC REDUCER (PERM.)
8" WATER & 15' CURB INLET CROSSING
DETAIL"A" SEE THIS SHEET
BLOCK 51
PINTAIL AVENUE
SHOVELER STREET
GADWALL
128 L.F. - 8" C909, PC235
15' E.G.T.CA. ESM'T. & B.S.L.
10' E.G.T.CA. ESM'T. & B.S.L.
MERITAGE HOMES OF TEXAS LLC (DOC NO. 202099002441, O.P.R.G.C.)
GRACE VALLEY RANCH PHASE 3A (CONCURRENT PLAT)
GRACE VALLEY RANCH PHASE 3 STREET EXTENSION (CONCURRENT PLAT)
SEILER ANDREW C & GINA D (DOC NO. 13-003662, O.P.R.G.C.)
WYATT WAY
EX. 8"W
EX. 8"SS
1
1
1
1 2 3 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66

MATCHLINE "A" SEE SHEET C5.03

CUDEENGINEERS.COM

CUDE ENGINEERS EST. 1980

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

GRACE VALLEY RANCH PHASE 3B

WATER DISTRIBUTION PLAN

DATE	09/04/2024
PROJECT NO.	03346.010
DRAWN BY	M.A.S./R.B.
CHECKED BY	K.M.H.

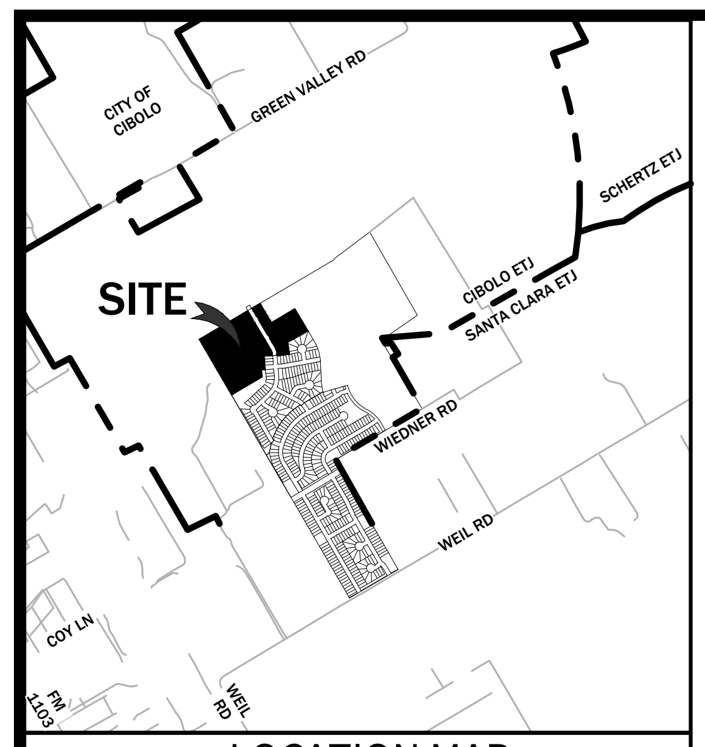
REVISIONS
1.
2.
3.
4.
5.
6.
7.
8.
9.

KYLE M. HUDEK
138753
09/04/2024
CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C5.02

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.

P:\03346\010\2-DWG\4-Plans\C5.02_WMDP.dwg 2024/09/04 11:08am msandoval


CITY OF CIBOLO
GREEN VALLEY RD
SCHERTZ ETJ
SITE
CIBOLO ETJ
SANTA CLARA ETJ
WIEDNER RD
WEIL RD
COY LN
FM 1103
WEIL RD

LOCATION MAP
N.T.S.

DEVELOPER:

LENNAR HOMES OF TEXAS LAND AND
CONSTRUCTION, LTD.
CONTACT PERSON: RICHARD MOTT
100 NE LOOP 410, SUITE 1155
SAN ANTONIO, TX 78216
TEL: (210) 403-6200

CIVIL ENGINEER:

CUDE ENGINEERS
CONTACT PERSON: CHRIS CHAFFEE, P.E.
4122 POND HILL ROAD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951
FAX: (210) 523-7112

CAUTION!!!

THE CONTRACTOR SHALL BE AWARE THAT EXISTING UTILITIES ARE WITHIN THE SITE. 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 SAFETY 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 EMPLOYEES 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:

1. IN THE CITY OF CIBOLO, FIRE HYDRANTS SHALL BE MUELLER OR EJ TYPE AND SHALL BE 2' MINIMUM AND 7' MAXIMUM FROM THE BACK OF CURB.
2. DISINFECTION SHALL BE BY MACHINE CHLORINATION.
3. CONTRACTOR TO UTILIZE APPROVED WATER LINE STOPS AND/OR MUELLER INSERTION-VALVES TO MINIMIZE WATER OUTAGES AS REQUIRED BY GVSUD DURING CONSTRUCTION.
4. MOISTURE DENSITY COMPACTION TESTING FREQUENCY- WATER MAIN TRENCHES REQUIRED EVERY 300 L.F. FOR EACH VERTICAL FOOT OF COMPACTED BACKFILL. SERVICES RANDOMLY SELECTED AS REQUIRED BY GVSUD INSPECTOR.
5. ALL TESTING AND TEST REPORTS SHALL BE COORDINATED WITH GVSUD INSPECTOR BY THE CONTRACTOR.
6. ALL DUCTILE IRON PIPE TO BE AMERICAN, ZINC COATED, AWWA/ANSI C-151

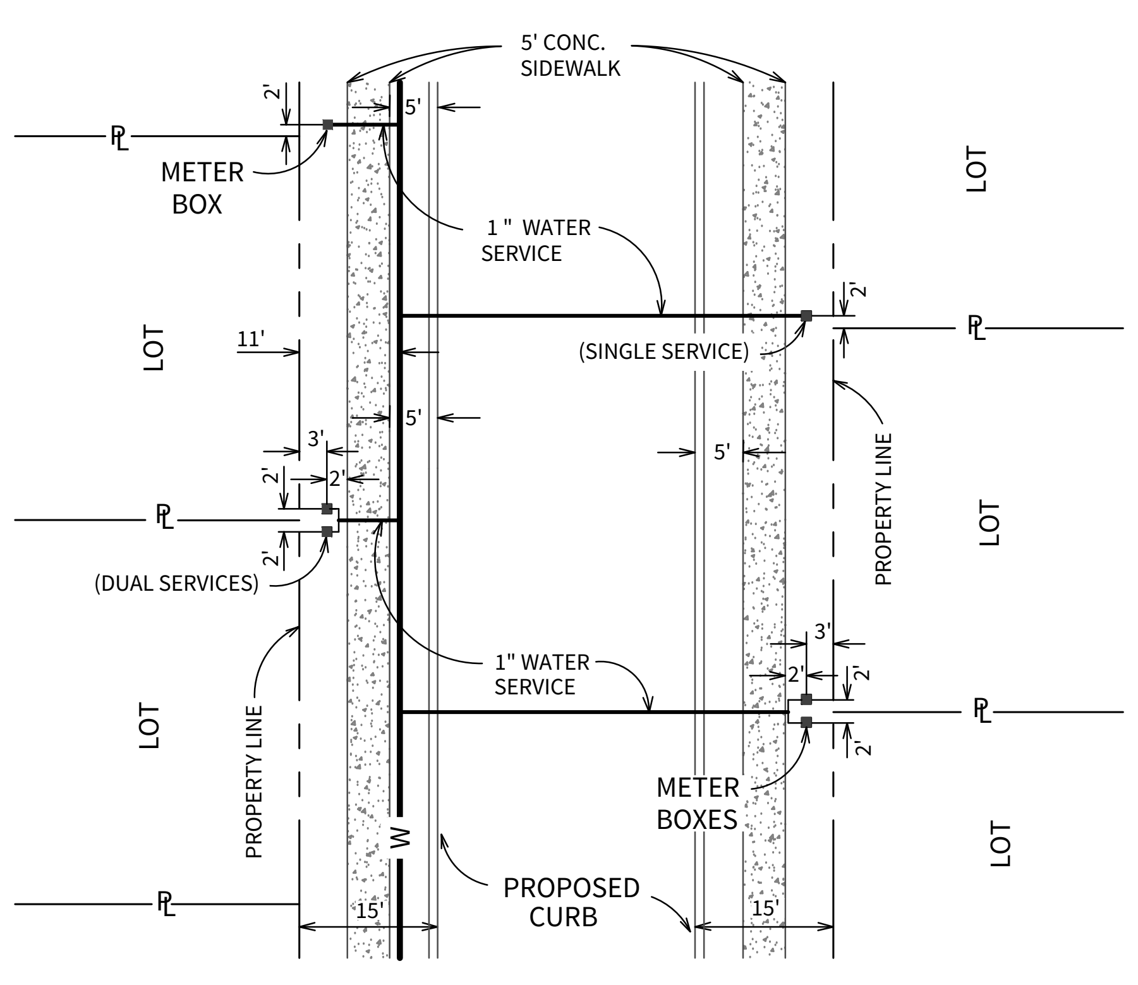
KEY NOTES:

⟨1⟩ AFTER RELEASED FOR SERVICE, CONTRACTOR TO TIE NEW 8" WATER MAIN INTO EXIST. 8" WATER MAIN. CUT AS REQUIRED. VALVE TO REMAIN CLOSED UNTIL AFTER DISINFECTION & ACCEPTANCE BY GVSUD.

CONTRACTOR TO REMOVE:
- 2" BLOW-OFF ASSEMBLY (PERM.)
- 8" M.J.X2" THR. D.I. ECCENTRIC REDUCER (PERM.)

CONTRACTOR TO INSTALL:
- 1 - 8 " M.J. X 2" THR. D.I. ECCENTRIC (TEMP.)
- 1 - 2" BLOW-OFF ASSEMBLY (TEMP.)

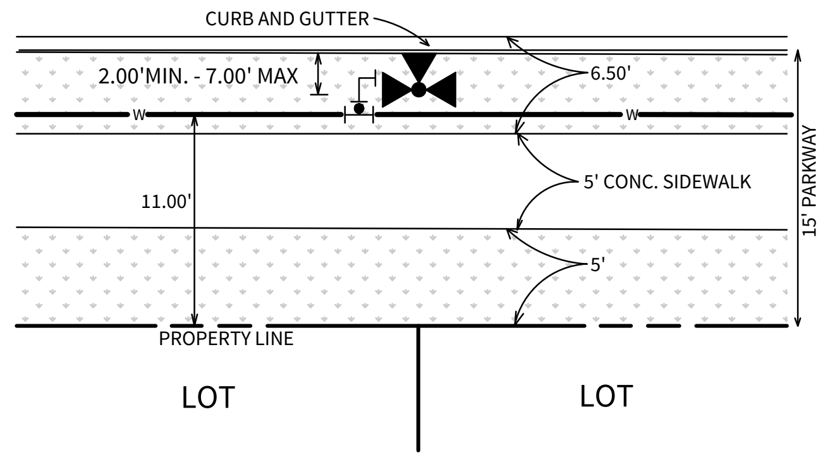
TO BE REMOVED FOR TIE-IN AFTER NEW MAIN IS TESTED AND ACCEPTED.
- 1 - 8" SOLID SLEEVE, M.J.


5' CONC. SIDEWALK
METER BOX
1" WATER SERVICE
(SINGLE SERVICE)
11'
3'
2'
5'
(DUAL SERVICES)
1" WATER SERVICE
METER BOXES
PROPOSED CURB
PROPERTY LINE
LOT
LOT
LOT
LOT
LOT
LOT
15'
15'
W

WATER METER BOX LOCATION (60' R.O.W.)
N.T.S.

LEGEND

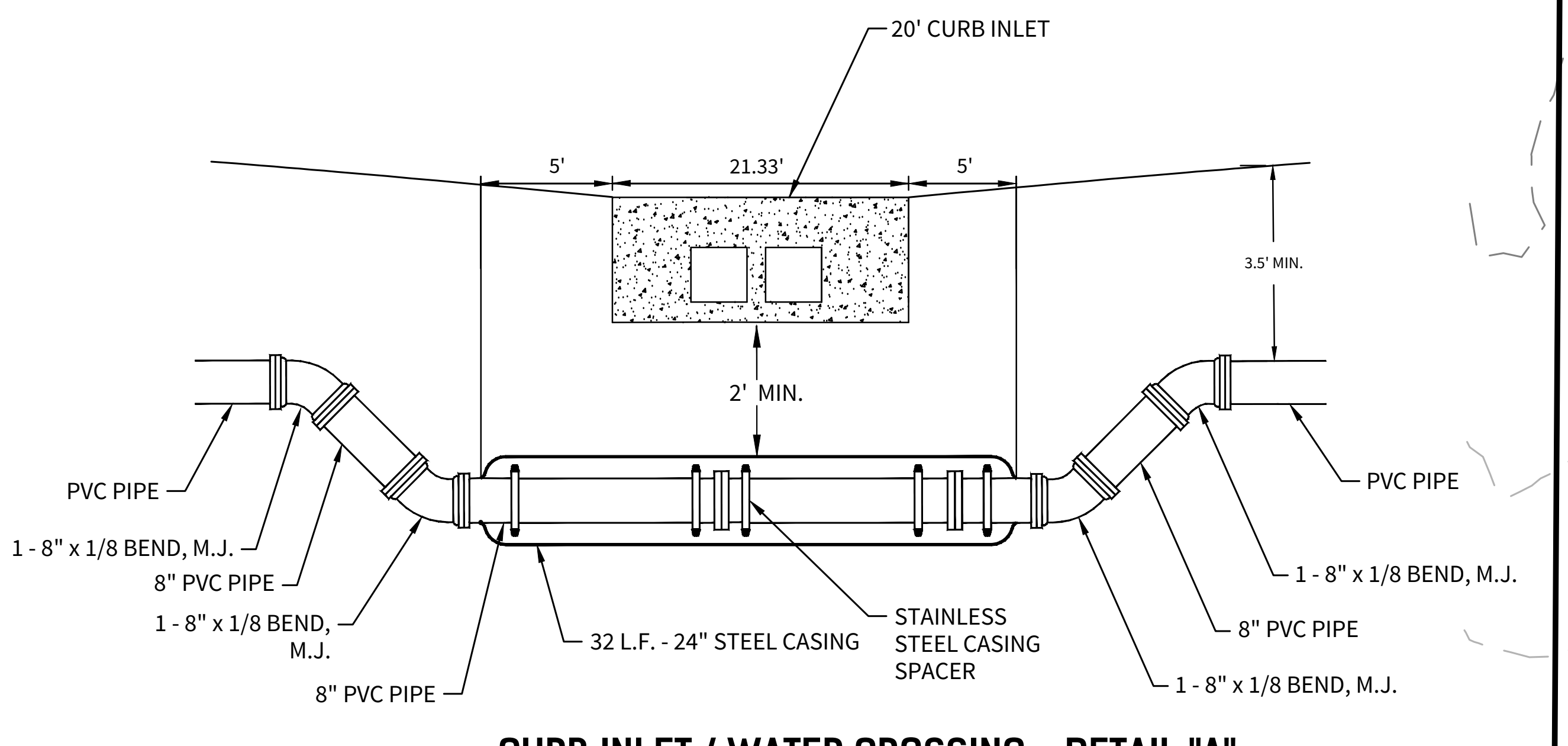
EXISTING SANITARY SEWER	EX.8"SS
PROPOSED SANITARY SEWER	8"SS
EXISTING SANITARY SEWER MANHOLE	●
PROPOSED SANITARY SEWER MANHOLE	●
EXISTING WATER MAIN	EX.8"W
PROPOSED WATER MAIN	8"W
EXISTING STANDARD FIRE HYDRANT	⧓
PROPOSED STANDARD FIRE HYDRANT	⧓
EXISTING STANDARD GATE VALVE	●
PROPOSED STANDARD GATE VALVE	●
EXISTING PERMANENT BLOWOFF	▶●
PROPOSED PERMANENT BLOWOFF	▶●
ELECTRIC, GAS, TELEPHONE, & CABLE T.V. EASEMENT	E.G.T.CA. ESM'T
BUILDING SETBACK LINE	B.S.L.


CURB AND GUTTER
2.00'MIN. - 7.00' MAX
6.50'
5' CONC. SIDEWALK
11.00'
5'
15' PARKWAY
PROPERTY LINE
LOT
LOT
W

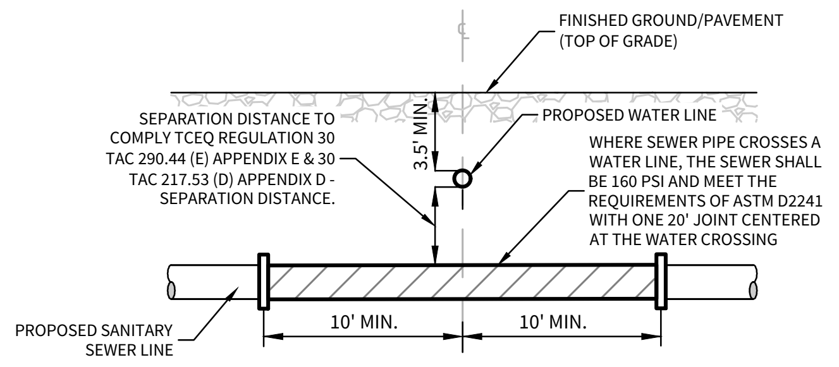
NOTE:

1. EXCLUSIVE OF THE TEE, PAYMENT FOR THE FIRE HYDRANT SHALL INCLUDE ALL FITTINGS, 6" D.I. PIPE AND 6" GATE VALVE & BOX.
2. FIRE HYDRANT TO BE INSTALLED OUTSIDE OF THE LIMITS OF ALL PROPOSED SIDEWALKS.

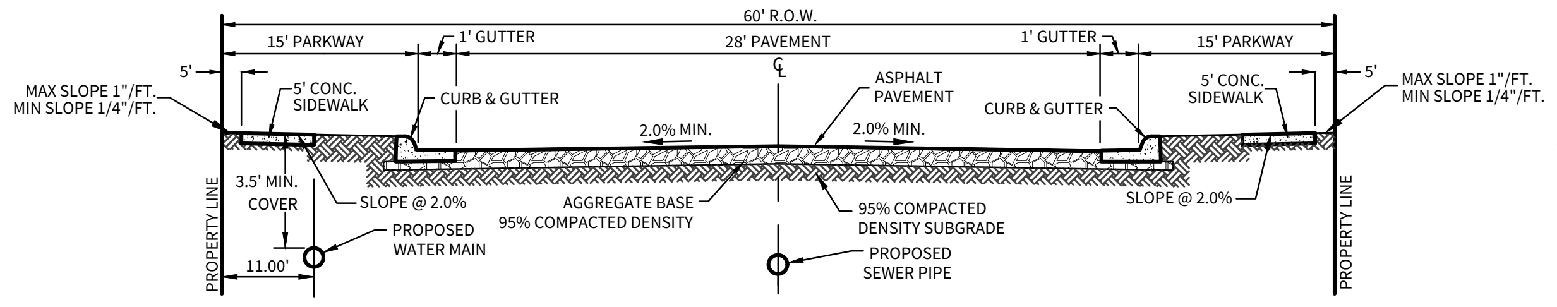
LOCAL RESIDENTIAL FIRE HYDRANT DETAIL (5' SIDEWALK)
N.T.S.


20' CURB INLET
5'
21.33'
5'
3.5' MIN.
2' MIN.
PVC PIPE
1 - 8" x 1/8 BEND, M.J.
8" PVC PIPE
1 - 8" x 1/8 BEND, M.J.
8" PVC PIPE
32 L.F. - 24" STEEL CASING
STAINLESS STEEL CASING SPACER
8" PVC PIPE
1 - 8" x 1/8 BEND, M.J.
PVC PIPE
1 - 8" x 1/8 BEND, M.J.

CURB INLET / WATER CROSSING - DETAIL "A"
N.T.S.

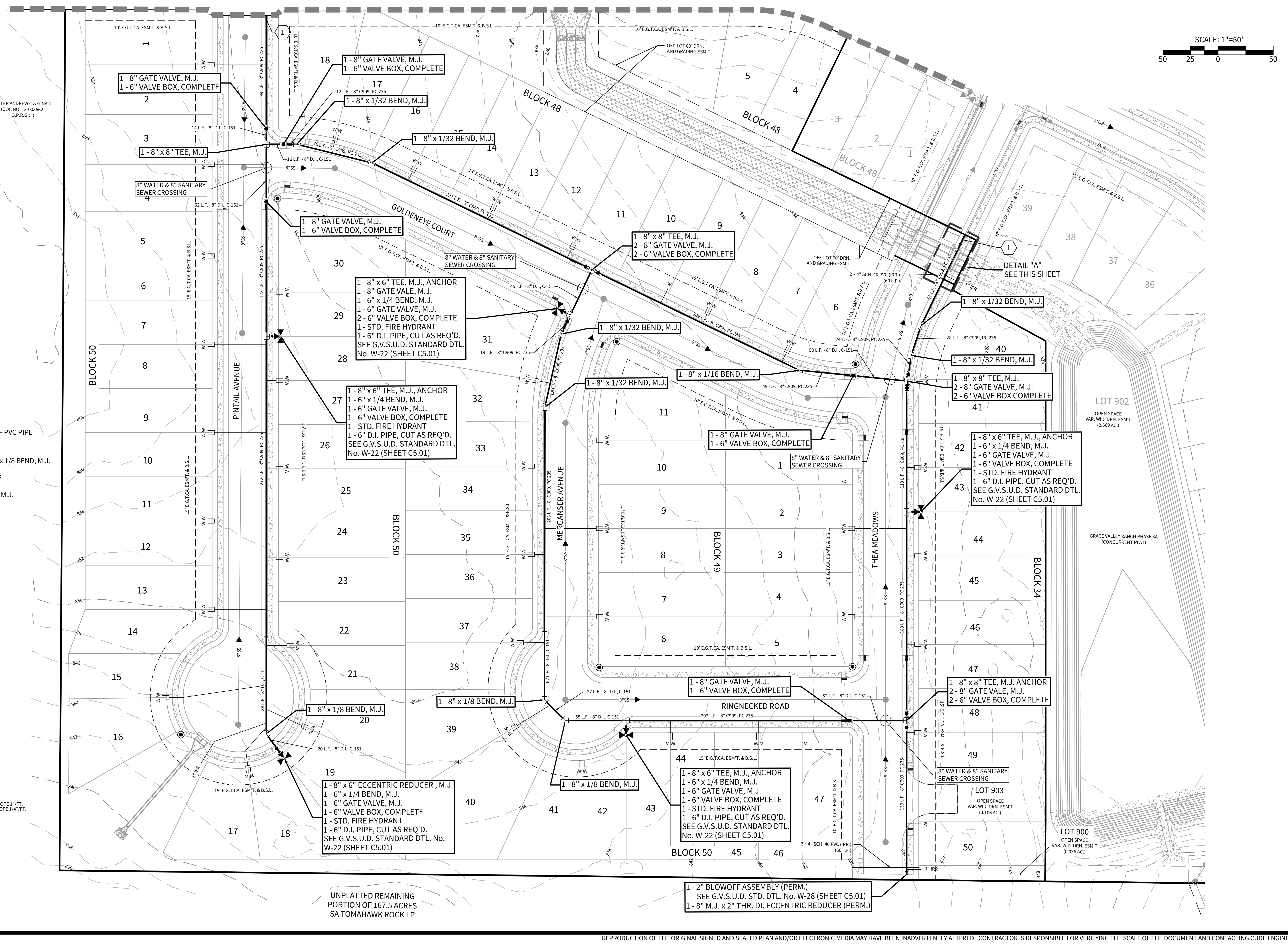

FINISHED GROUND/PAVEMENT (TOP OF GRADE)
SEPARATION DISTANCE TO COMPLY TCEQ REGULATION 30 TAC 290.44 (E) APPENDIX E & 30 TAC 217.53 (D) APPENDIX D - SEPARATION DISTANCE.
3.5' MIN.
PROPOSED WATER LINE
WHERE SEWER PIPE CROSSES A WATER LINE, THE SEWER SHALL BE 160 PSI AND MEET THE REQUIREMENTS OF ASTM D2241 WITH ONE 20' JOINT CENTERED AT THE WATER CROSSING
PROPOSED SANITARY SEWER LINE
10' MIN.
10' MIN.

TYPICAL SANITARY SEWER/ WATER CROSSING DETAIL
N.T.S.


60' R.O.W.
15' PARKWAY
1' GUTTER
28' PAVEMENT
1' GUTTER
15' PARKWAY
MAX SLOPE 1"/FT. MIN SLOPE 1/4"/FT.
5' CONC. SIDEWALK
CURB & GUTTER
ASPHALT PAVEMENT
2.0% MIN.
2.0% MIN.
CURB & GUTTER
5' CONC. SIDEWALK
MAX SLOPE 1"/FT. MIN SLOPE 1/4"/FT.
3.5' MIN. COVER
SLOPE @ 2.0%
AGGREGATE BASE 95% COMPACTED DENSITY
95% COMPACTED DENSITY SUBGRADE
SLOPE @ 2.0%
PROPOSED WATER MAIN
PROPOSED SEWER PIPE
11.00'
PROPERTY LINE
PROPERTY LINE

LOCAL "A" STREET CROSS-SECTION
N.T.S.

MATCHLINE "A" SEE SHEET C5.02


SCALE: 1"=50'
50 25 0 50
1 - 8" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
1 - 8" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
1 - 8" x 1/32 BEND, M.J.
1 - 8" x 8" TEE, M.J.
1 - 8" x 1/32 BEND, M.J.
8" WATER & 8" SANITARY SEWER CROSSING
1 - 8" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
GOLDENEYE COURT
8" WATER & 8" SANITARY SEWER CROSSING
1 - 8" x 8" TEE, M.J.
2 - 8" GATE VALVE, M.J.
2 - 6" VALVE BOX, COMPLETE
1 - 8" x 6" TEE, M.J., ANCHOR
1 - 8" GATE VALE, M.J.
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
2 - 6" VALVE BOX, COMPLETE
1 - STD. FIRE HYDRANT
1 - 6" D.I. PIPE, CUT AS REQ'D.
SEE G.V.S.U.D. STANDARD DTL. No. W-22 (SHEET C5.01)
1 - 8" x 6" TEE, M.J., ANCHOR
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
1 - STD. FIRE HYDRANT
1 - 6" D.I. PIPE, CUT AS REQ'D.
SEE G.V.S.U.D. STANDARD DTL. No. W-22 (SHEET C5.01)
1 - 8" x 1/32 BEND, M.J.
1 - 8" x 1/32 BEND, M.J.
1 - 8" x 1/16 BEND, M.J.
1 - 8" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
8" WATER & 8" SANITARY SEWER CROSSING
DETAIL "A" SEE THIS SHEET
1 - 8" x 1/32 BEND, M.J.
1 - 8" x 1/32 BEND, M.J.
1 - 8" x 8" TEE, M.J.
2 - 8" GATE VALVE, M.J.
2 - 6" VALVE BOX COMPLETE
1 - 8" x 6" TEE, M.J., ANCHOR
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
1 - STD. FIRE HYDRANT
1 - 6" D.I. PIPE, CUT AS REQ'D.
SEE G.V.S.U.D. STANDARD DTL. No. W-22 (SHEET C5.01)
1 - 8" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
RINGNECKED ROAD
1 - 8" x 8" TEE, M.J. ANCHOR
2 - 8" GATE VALE, M.J.
2 - 6" VALVE BOX, COMPLETE
8" WATER & 8" SANITARY SEWER CROSSING
1 - 8" x 1/8 BEND, M.J.
1 - 8" x 1/8 BEND, M.J.
1 - 8" x 1/8 BEND, M.J.
1 - 8" x 6" ECCENTRIC REDUCER , M.J.
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
1 - STD. FIRE HYDRANT
1 - 6" D.I. PIPE, CUT AS REQ'D.
SEE G.V.S.U.D. STANDARD DTL. No. W-22 (SHEET C5.01)
1 - 8" x 6" TEE, M.J., ANCHOR
1 - 6" x 1/4 BEND, M.J.
1 - 6" GATE VALVE, M.J.
1 - 6" VALVE BOX, COMPLETE
1 - STD. FIRE HYDRANT
1 - 6" D.I. PIPE, CUT AS REQ'D.
SEE G.V.S.U.D. STANDARD DTL. No. W-22 (SHEET C5.01)
1 - 2" BLOWOFF ASSEMBLY (PERM.)
SEE G.V.S.U.D. STD. DTL. No. W-28 (SHEET C5.01)
1 - 8" M.J. x 2" THR. DI. ECCENTRIC REDUCER (PERM.)
PINTAIL AVENUE
MERGANSER AVENUE
THEA MEADOWS
BLOCK 50
BLOCK 50
BLOCK 48
BLOCK 48
BLOCK 49
BLOCK 34
LOT 902
OPEN SPACE VAR. WID. DRN. ESM'T (2.669 AC.)
LOT 903
OPEN SPACE VAR. WID. DRN. ESM'T (0.106 AC.)
LOT 900
OPEN SPACE VAR. WID. DRN. ESM'T (0.036 AC.)
GRACE VALLEY RANCH PHASE 3A (CONCURRENT PLAT)
SEILER ANDREW C & GINA D (DOC NO. 13-003662, O.P.R.G.C.)
OFF-LOT 60' DRN. AND GRADING ESM'T
UNPLATTED REMAINING PORTION OF 167.5 ACRES SA TOMAHAWK ROCK LP
10' E.G.T.CA. ESM'T & B.S.L.
15' E.G.T.CA. ESM'T & B.S.L.
2 - 4" SCH. 40 PVC (IRR.) (60 L.F.)

GRACE VALLEY RANCH PHASE 3B

WATER DISTRIBUTION PLAN

CUDEENGINEERS.COM

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

DATE	08/05/2024
PROJECT NO.	03346.010
DRAWN BY	M.A.S./R.B.
CHECKED BY	K.M.H.

REVISIONS

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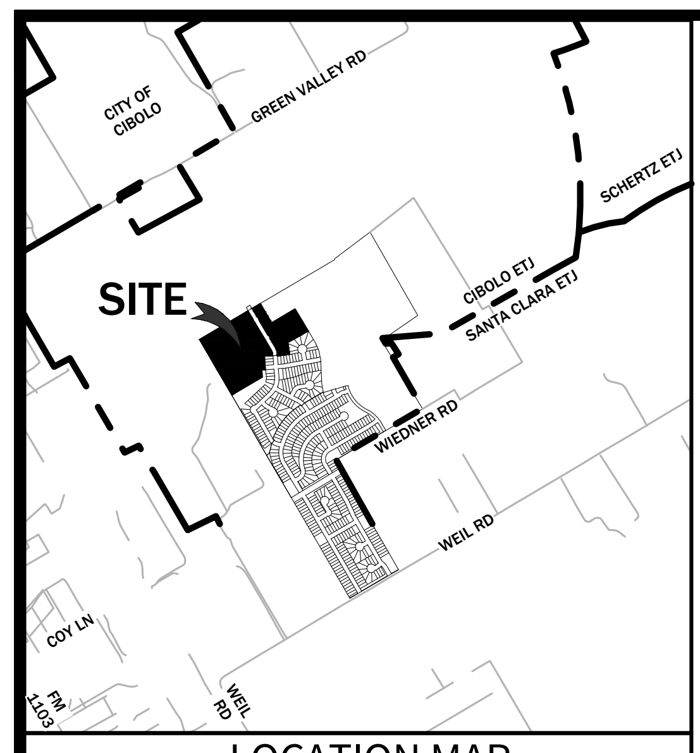
KYLE M. HUDEK
138753
K. Hudek 08/12/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C5.03

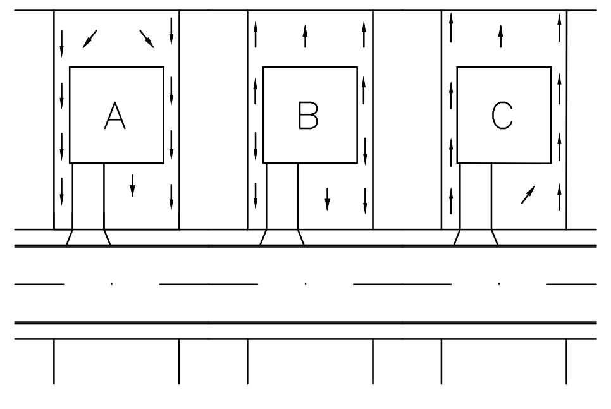
P:\03346\010\2-DWG\4-Plans\C5.02_WMDP.dwg 2024/08/05 12:29pm msandoval


CITY OF CIBOLO
GREEN VALLEY RD
SCHERTZ ETJ
SITE
CIBOLO ETJ
SANTA CLARA ETJ
WIEDNER RD
WEIL RD
COY LN
FM 1103
WEIL RD

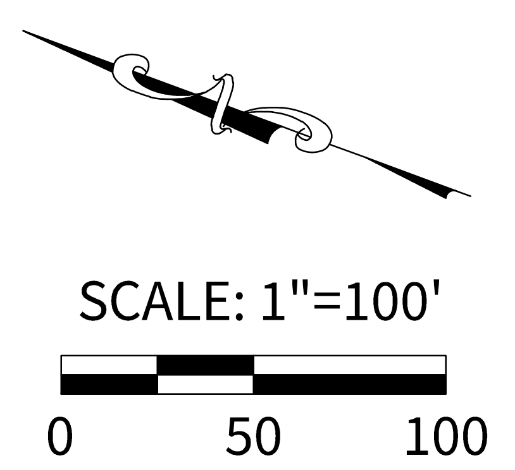
LOCATION MAP N.T.S.

LEGEND

- ▨ = UNIT 3 STREET EXTENSION BOUNDARY
- ▬ = DRAINAGE BOUNDARY
- = SHEET FLOW Tc LINE
- = SHALLOW CONCENTRATED Tc LINE
- = CONCENTRATED Tc LINE
- (XX) = ACCUMULATION POINT



TYPICAL LOT SITE PLAN
N.T.S.

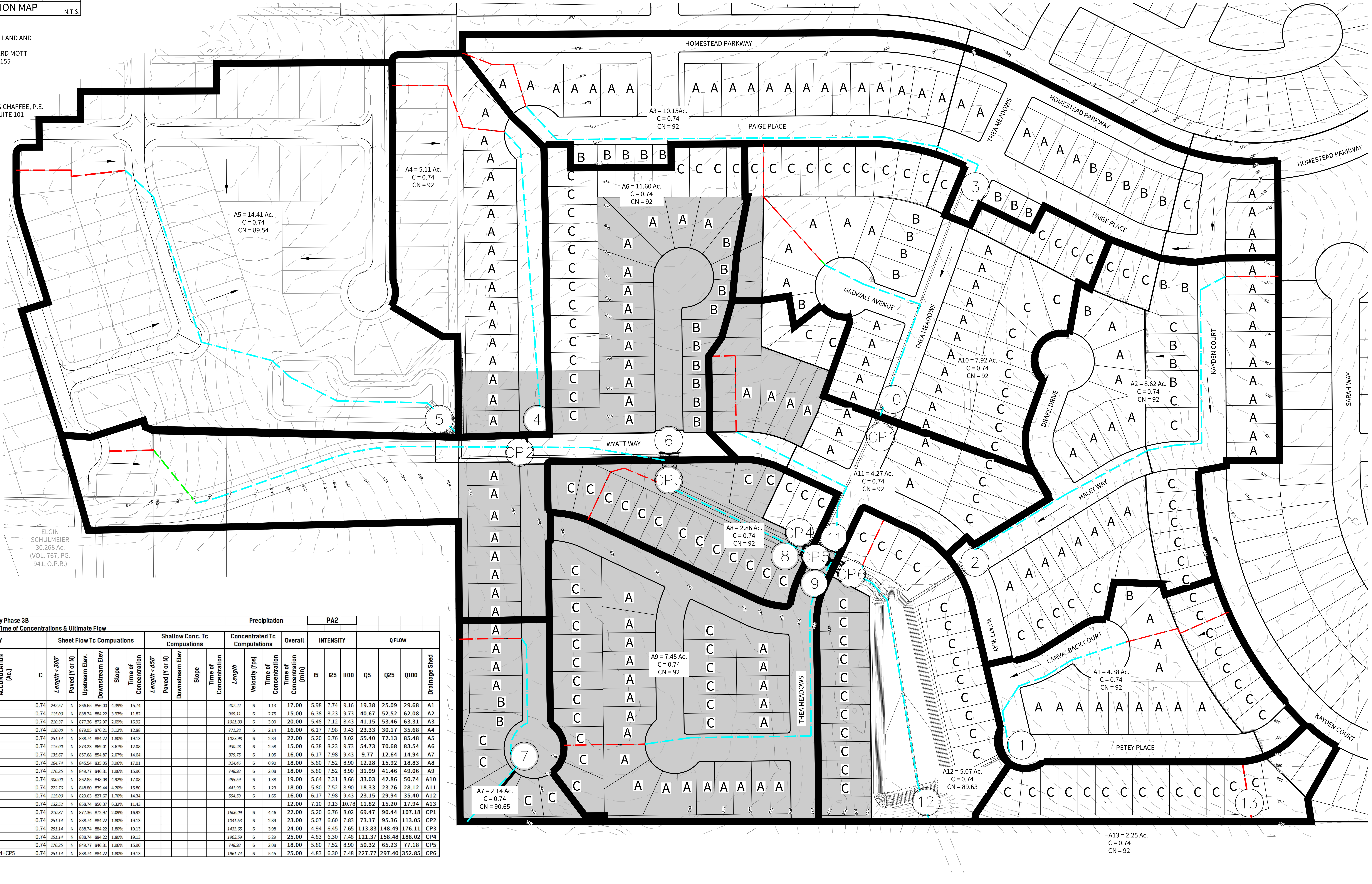

SCALE: 1"=100'
0
50
100

DEVELOPER:

LENNAR HOMES OF TEXAS LAND AND
CONSTRUCTION, LTD.
CONTACT PERSON: RICHARD MOTT
100 NE LOOP 410, SUITE 1155
SAN ANTONIO, TX 78216
TEL: (210) 403-6200

CIVIL ENGINEER:

CUDE ENGINEERS
CONTACT PERSON: CHRIS CHAFFEE, P.E.
4122 POND HILL ROAD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951
FAX: (210) 523-7112


HOMESTEAD PARKWAY
PAIGE PLACE
HOMESTEAD PARKWAY
THEA MEADOWS
GADWALL AVENUE
DRAKE DRIVE
KAYDEN COURT
SARAH WAY
HALEY WAY
WYATT WAY
CANVASBACK COURT
PETEY PLACE
KAYDEN COURT
ELGIN SCHUELMEIR 30.268 Ac. (VOL. 767, PG. 941, O.P.R.)
A1 = 4.38 Ac. C = 0.74 CN = 92
A2 = 8.62 Ac. C = 0.74 CN = 92
A3 = 10.15 Ac. C = 0.74 CN = 92
A4 = 5.11 Ac. C = 0.74 CN = 92
A5 = 14.41 Ac. C = 0.74 CN = 89.54
A6 = 11.60 Ac. C = 0.74 CN = 92
A7 = 2.14 Ac. C = 0.74 CN = 90.65
A8 = 2.86 Ac. C = 0.74 CN = 92
A9 = 7.45 Ac. C = 0.74 CN = 92
A10 = 7.92 Ac. C = 0.74 CN = 92
A11 = 4.27 Ac. C = 0.74 CN = 92
A12 = 5.07 Ac. C = 0.74 CN = 89.63
A13 = 2.25 Ac. C = 0.74 CN = 92
1
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3
4
5
6
7
8
9
10
11
12
13
CP1
CP2
CP3
CP4
CP5
CP6

Project Name: Grace Valley Phase 3B
Calculation Summary for Time of Concentrations & Ultimate Flow

Precipitation PA2

HYDROLOGY				Sheet Flow Tc Compuations						Shallow Conc. Tc Compuations					Concentrated Tc Computations			Overall	INTENSITY			Q FLOW			
Drainage Shed	Shed Area (Ac.)	AREA OF ACCUMULATION (Ac.)	C	Length ‹ 300'	Paved (Y or N)	Upstream Elev.	Downstream Elev	Slope	Time of Concentration	Length ‹ 650'	Paved (Y or N)	Downstream Elev	Slope	Time of Concentration	Length	Velocity (fps)	Time of Concentration	Time of Concentration (min)	I5	I25	I100	Q5	Q25	Q100	Drainage Shed
A1	4.38	= A1	0.74	242.57	N	866.65	856.00	4.39%	15.74						407.22	6	1.13	17.00	5.98	7.74	9.16	19.38	25.09	29.68	A1
A2	8.62	= A2	0.74	115.00	N	888.74	884.22	3.93%	11.82						989.11	6	2.75	15.00	6.38	8.23	9.73	40.67	52.52	62.08	A2
A3	10.15	= A3	0.74	210.37	N	877.36	872.97	2.09%	16.92						1081.00	6	3.00	20.00	5.48	7.12	8.43	41.15	53.46	63.31	A3
A4	5.11	= A4	0.74	120.00	N	879.95	876.21	3.12%	12.88						771.28	6	2.14	16.00	6.17	7.98	9.43	23.33	30.17	35.68	A4
A5	14.41	= A5	0.74	251.14	N	888.74	884.22	1.80%	19.13						1023.98	6	2.84	22.00	5.20	6.76	8.02	55.40	72.13	85.48	A5
A6	11.60	= A6	0.74	115.00	N	873.23	869.01	3.67%	12.08						930.28	6	2.58	15.00	6.38	8.23	9.73	54.73	70.68	83.54	A6
A7	2.14	= A7	0.74	135.67	N	857.68	854.87	2.07%	14.64						379.75	6	1.05	16.00	6.17	7.98	9.43	9.77	12.64	14.94	A7
A8	2.86	= A8	0.74	264.74	N	845.54	835.05	3.96%	17.01						324.46	6	0.90	18.00	5.80	7.52	8.90	12.28	15.92	18.83	A8
A9	7.45	= A9	0.74	176.25	N	849.77	846.31	1.96%	15.90						748.92	6	2.08	18.00	5.80	7.52	8.90	31.99	41.46	49.06	A9
A10	7.92	= A10	0.74	300.00	N	862.85	848.08	4.92%	17.08						495.59	6	1.38	19.00	5.64	7.31	8.66	33.03	42.86	50.74	A10
A11	4.27	= A11	0.74	222.76	N	848.80	839.44	4.20%	15.80						441.93	6	1.23	18.00	5.80	7.52	8.90	18.33	23.76	28.12	A11
A12	5.07	= A12	0.74	115.00	N	829.63	827.67	1.70%	14.34						594.59	6	1.65	16.00	6.17	7.98	9.43	23.15	29.94	35.40	A12
A13	2.25	= A13	0.74	132.52	N	858.74	850.37	6.32%	11.43									12.00	7.10	9.13	10.78	11.82	15.20	17.94	A13
CP1	18.07	= A3+A10	0.74	210.37	N	877.36	872.97	2.09%	16.92						1606.09	6	4.46	22.00	5.20	6.76	8.02	69.47	90.44	107.18	CP1
CP2	19.52	= A4+A5	0.74	251.14	N	888.74	884.22	1.80%	19.13						1041.53	6	2.89	23.00	5.07	6.60	7.83	73.17	95.36	113.05	CP2
CP3	31.12	= A6 + CP2	0.74	251.14	N	888.74	884.22	1.80%	19.13						1433.65	6	3.98	24.00	4.94	6.45	7.65	113.83	148.49	176.11	CP3
CP4	33.98	= A8 + CP3	0.74	251.14	N	888.74	884.22	1.80%	19.13						1903.59	6	5.29	25.00	4.83	6.30	7.48	121.37	158.48	188.02	CP4
CP5	11.72	= A9 + A11	0.74	176.25	N	849.77	846.31	1.96%	15.90						748.92	6	2.08	18.00	5.80	7.52	8.90	50.32	65.23	77.18	CP5
CP6	63.77	= CP1 + CP4+CP5	0.74	251.14	N	888.74	884.22	1.80%	19.13						1961.74	6	5.45	25.00	4.83	6.30	7.48	227.77	297.40	352.85	CP6

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

GRACE VALLEY RANCH PHASE 3B

MASTER DRAINAGE PLAN - ULTIMATE CONDITIONS

DATE
08/05/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS
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KYLE M. HUDEK
138753
08/12/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C6.00

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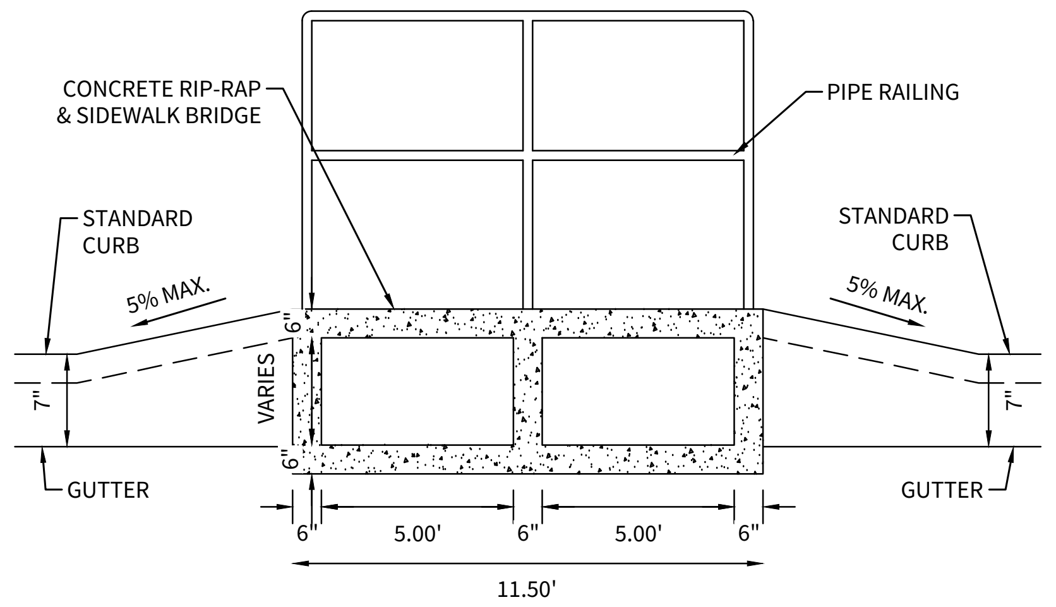
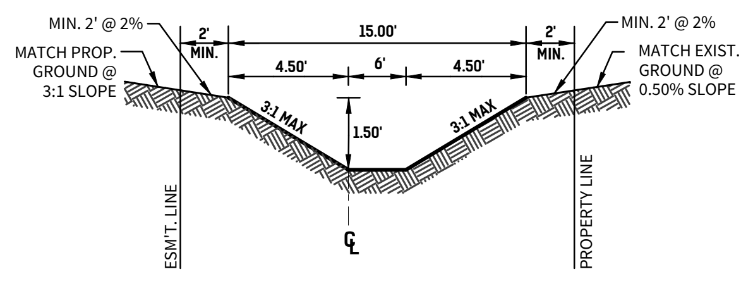
REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.

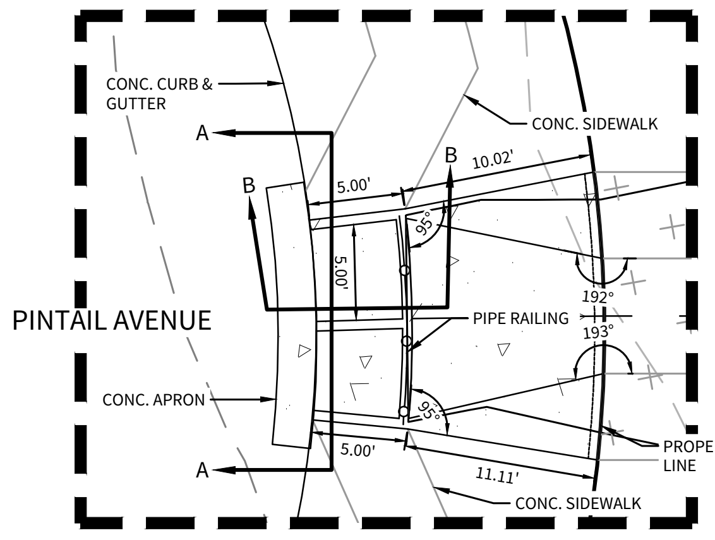

CONCRETE RIP-RAP & SIDEWALK BRIDGE
PIPE RAILING
STANDARD CURB
STANDARD CURB
5% MAX.
5% MAX.
7"
7"
VARIES
6"
GUTTER
GUTTER
5.00'
6"
5.00'
6"
6"
11.50'

DRAIN 3A
SECTION A-A THRU SIDEWALK BOX


MIN. 2' @ 2%
MATCH PROP. GROUND @ 3:1 SLOPE
2' MIN.
15.00'
4.50'
6'
4.50'
2' MIN.
MIN. 2' @ 2%
MATCH EXIST. GROUND @ 0.50% SLOPE
3:1 MAX
1.50'
3:1 MAX
℄
ESM'T. LINE
PROPERTY LINE

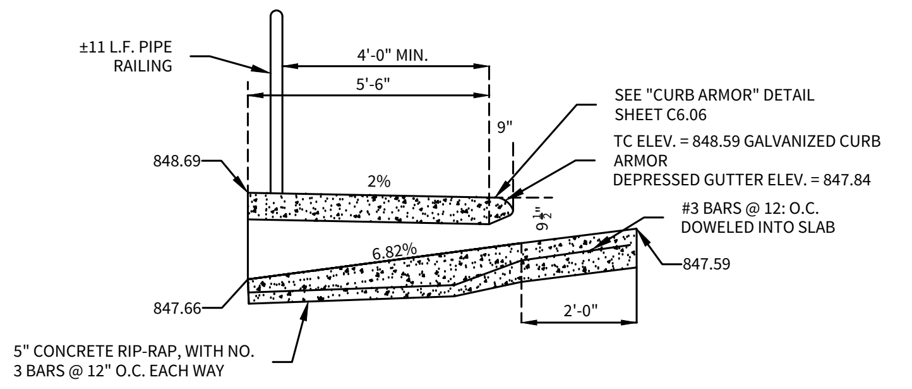
DRAIN "3A-1" SECTION
STA 10+30.73 TO STA 11+22.03

(N.T.S.)


CONC. CURB & GUTTER
CONC. SIDEWALK
A
A
B
B
5.00'
10.03'
PINTAIL AVENUE
PIPE RAILING
CONC. APRON
PROPERTY LINE
5.00'
11.11'
CONC. SIDEWALK

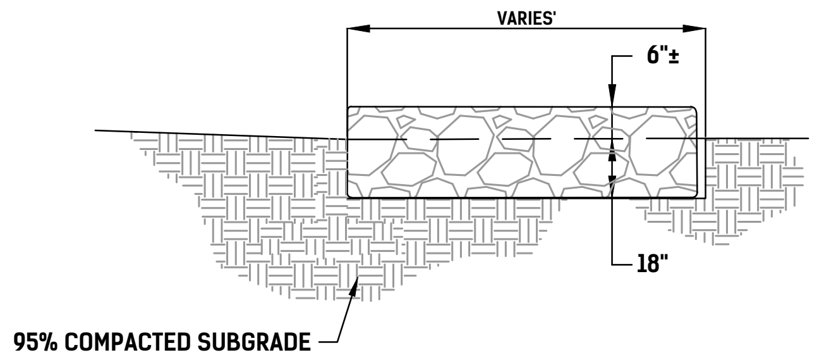
DRAIN '3A' HYDRAULIC SUMMARY	
SECTION	'3A-1'
STATION	10+30.73 - 11+22.03
Q_{25} (cfs)	12.64
n	0.035
S (%)	6.83
D (ft)	1.50
d_n (ft)	0.36
V (fps)	4.96
Bw (ft)	6.00

DETAIL "B"
SCALE: 1" = 10'

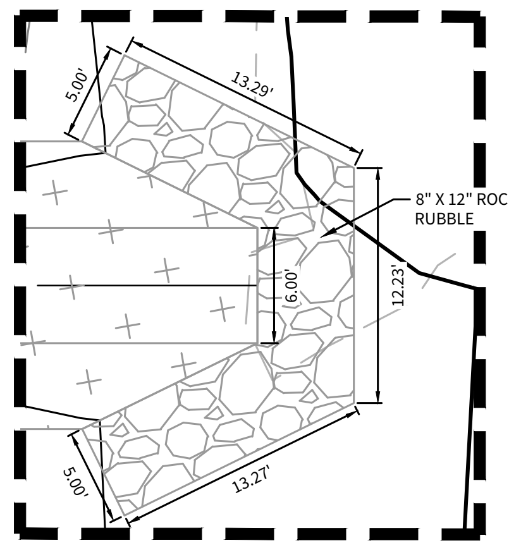

±11 L.F. PIPE RAILING
4'-0" MIN.
5'-6"
SEE "CURB ARMOR" DETAIL SHEET C6.06
TC ELEV. = 848.59 GALVANIZED CURB ARMOR
DEPRESSED GUTTER ELEV. = 847.84
#3 BARS @ 12" O.C. DOWELED INTO SLAB
848.69
2%
6.83%
847.66
847.59
2'-0"
5" CONCRETE RIP-RAP, WITH NO. 3 BARS @ 12" O.C. EACH WAY

DRAIN 3A
SECTION "B-B"
SIDEWALK BOX DETAIL SECTION

(N.T.S.)


VARIES'
6"±
18"
95% COMPACTED SUBGRADE

8"X12" ROCK RUBBLE DETAIL
N.T.S.


5.00'
13.29'
8" X 12" ROCK RUBBLE
12.21'
5.00'
13.21'

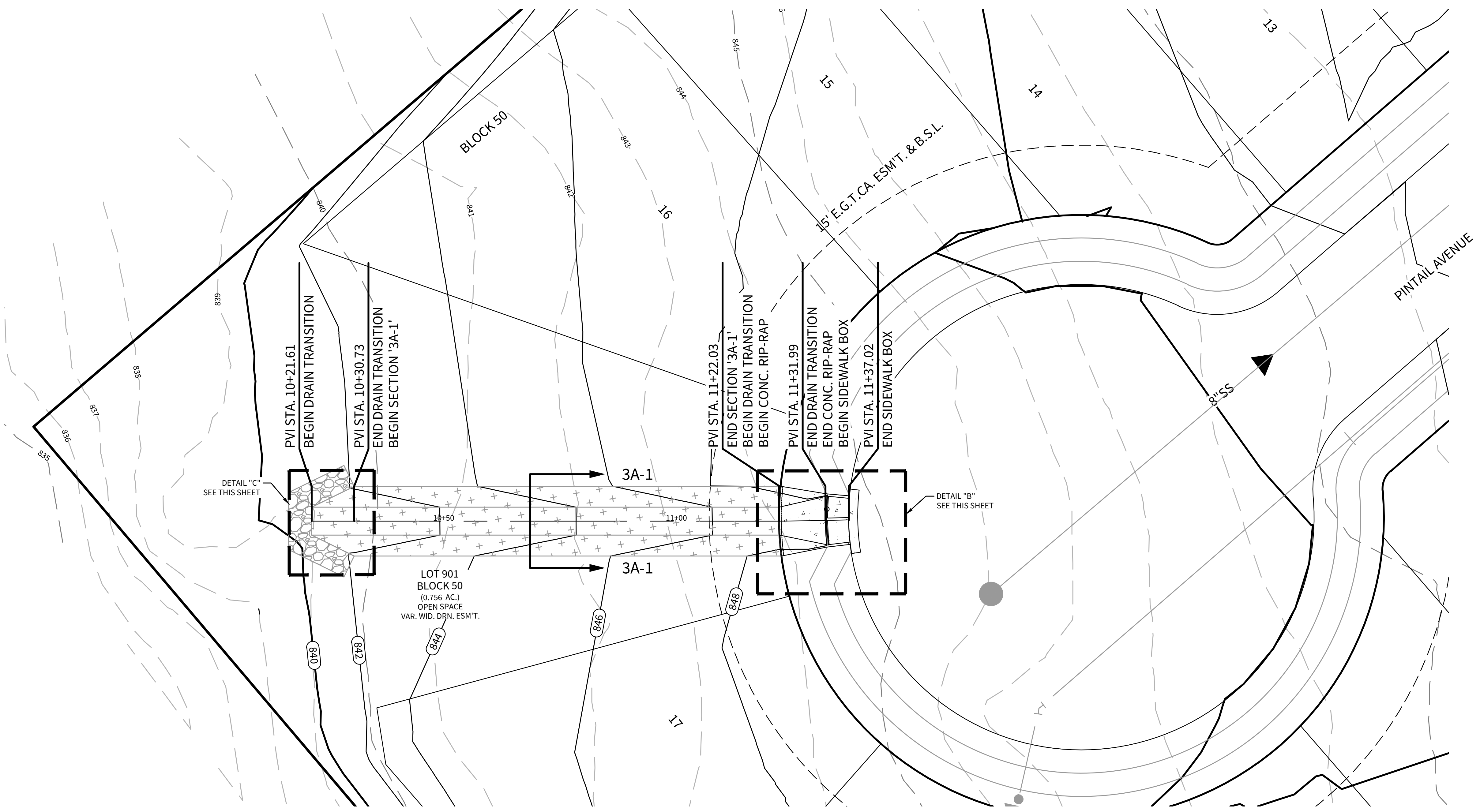
DETAIL "C"
SCALE: 1" = 10'

NOTES:

1. ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI IN 28 DAYS.
2. 85% OF CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION PRIOR TO ACCEPTANCE OF THE CHANNEL BY THE CITY OF CIBOLO & GUADALUPE COUNTY. HYDROMULCH PAY ITEM TO INCLUDE SOIL, SEEDING, OR SODDING & WATERING FOR THE TIME PERIOD NEEDED TO ACHIEVE 85% VEGETATION.
3. REFERENCE TYPICAL CONCRETE CHANNEL RIP-RAP STANDARDS FOUND ON SHEET C6.05.

SCALE: 1"=20'

20 10 0 20

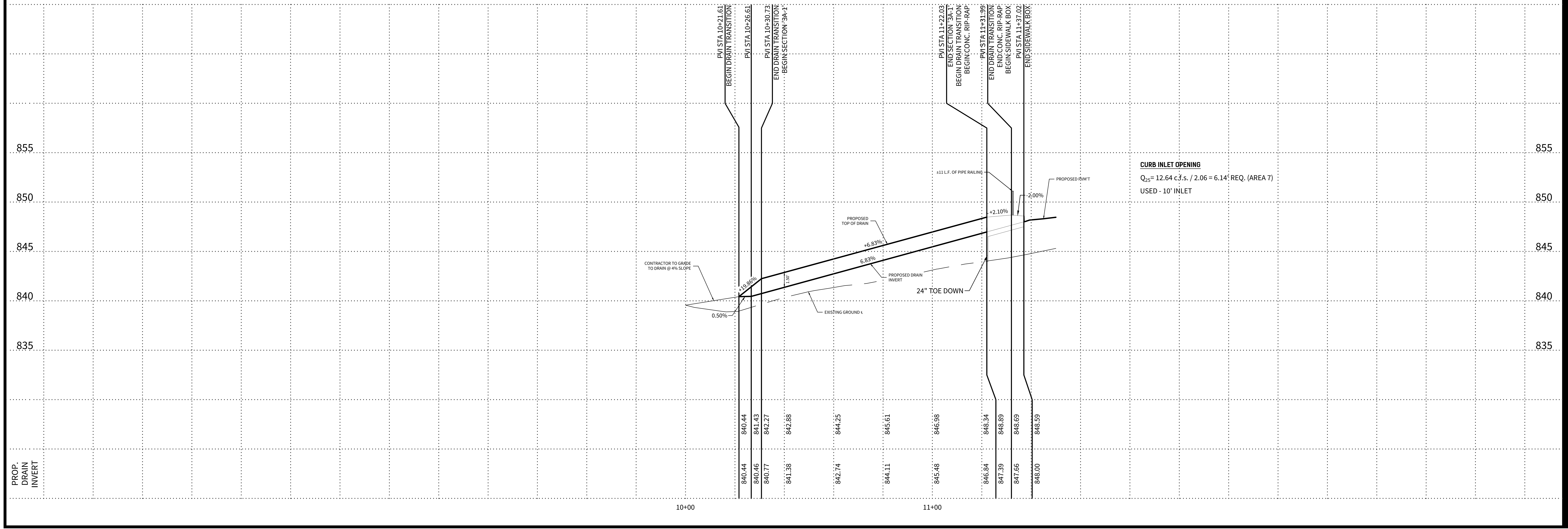

BLOCK 50
13
14
15
16
17
10' E.G.T.CA. ESM'T. & B.S.L.
PINTAIL AVENUE
8"SS
PVI STA. 10+21.61 BEGIN DRAIN TRANSITION
PVI STA. 10+30.73 END DRAIN TRANSITION BEGIN SECTION '3A-1'
PVI STA. 11+22.03 END SECTION '3A-1' BEGIN DRAIN TRANSITION BEGIN CONC. RIP-RAP
PVI STA. 11+31.99 END DRAIN TRANSITION END CONC. RIP-RAP BEGIN SIDEWALK BOX
PVI STA. 11+37.02 END SIDEWALK BOX
DETAIL "C" SEE THIS SHEET
DETAIL "B" SEE THIS SHEET
3A-1
3A-1
10+50
11+00
LOT 901 BLOCK 50 (0.756 AC.) OPEN SPACE VAR. WID. DRN. ESM'T.
840
842
844
846
848

LEGEND:

▨	= CONCRETE
▨	= 8" X 12" ROCK RUBBLE

DRAIN '3A'
STA. 10+21.61 TO STA. 11+37.02

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


PVI STA 10+21.61 BEGIN DRAIN TRANSITION
PVI STA 10+26.61
PVI STA 10+30.73 END DRAIN TRANSITION BEGIN SECTION '3A-1'
PVI STA 11+22.03 END SECTION '3A-1' BEGIN DRAIN TRANSITION BEGIN CONC. RIP-RAP
END DRAIN TRANSITION END CONC. RIP-RAP BEGIN SIDEWALK BOX
PVI STA 11+31.99
PVI STA 11+37.02 END SIDEWALK BOX
855
850
845
840
835
±11 L.F. OF PIPE RAILING
PROPOSED PVM'T
-2.00%
+2.10%
PROPOSED TOP OF DRAIN
+6.83%
6.83%
PROPOSED DRAIN INVERT
24" TOE DOWN
CONTRACTOR TO GRADE TO DRAIN @ 4% SLOPE
+19.86%
0.50%
1.5%
EXISTING GROUND
840.44
841.43
842.27
842.88
844.25
845.61
846.98
848.34
848.89
848.69
848.59
PROP. DRAIN INVERT
840.44
840.46
840.77
841.38
842.74
844.11
845.48
846.84
847.39
847.66
848.00
10+00
11+00

CURB INLET OPENING

Q_{25}= 12.64 c.f.s. / 2.06 = 6.14' REQ. (AREA 7)

USED - 10' INLET

CUDEENGINEERS.COM

EST. 1980
CUDE
ENGINEERS

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

GRACE VALLEY RANCH
PHASE 3B

DRAINAGE PLAN & PROFILE - DRAIN 3A

DATE
11/13/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS
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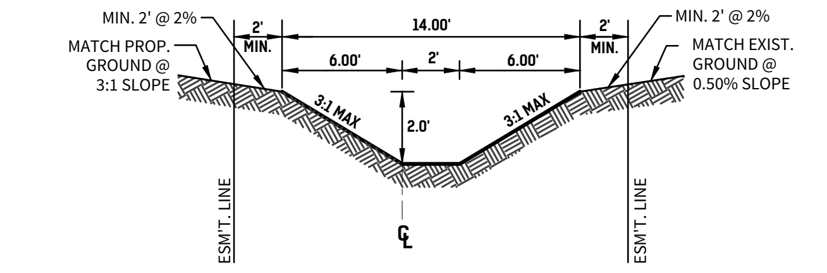
9.

KYLE M. HUDEK
138753
11/13/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C6.01

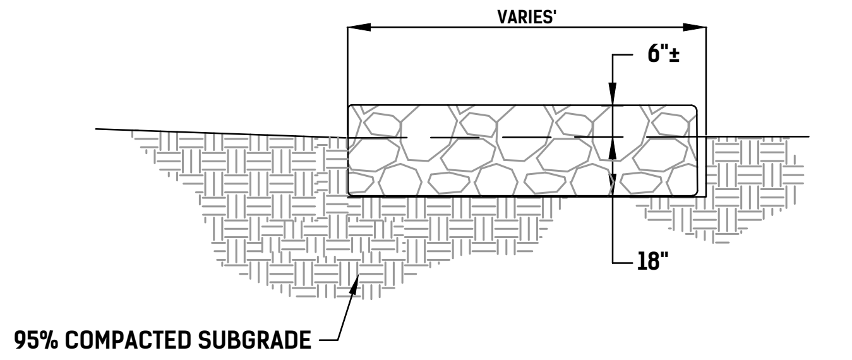
TEMP DRAIN '3C' HYDRAULIC SUMMARY			
SECTION	"3C-1"		
STATION	10+06.37 - 12+60.00	12+60.00 - 17+40.00	17+40.00 - 17+49.60
Q_{25} (cfs)	28.41	31.03	31.03
n	0.035	0.035	0.035
S (%)	1.92	1.39	0.65
D (ft)	2.00	2.00	2.00
d_n (ft)	1.16	1.29	1.53
V (fps)	4.47	4.10	3.08
Bw (ft)	2	2	2


MIN. 2' @ 2%
MATCH PROP. GROUND @ 3:1 SLOPE
2' MIN.
14.00'
6.00'
2'
6.00'
2' MIN.
MIN. 2' @ 2%
MATCH EXIST. GROUND @ 0.50% SLOPE
3:1 MAX
2.0'
3:1 MAX
ESM'T. LINE
℄
ESM'T. LINE

DRAIN "3C-1" SECTION

STA 10+06.37 TO STA 17+49.60

(N.T.S.)

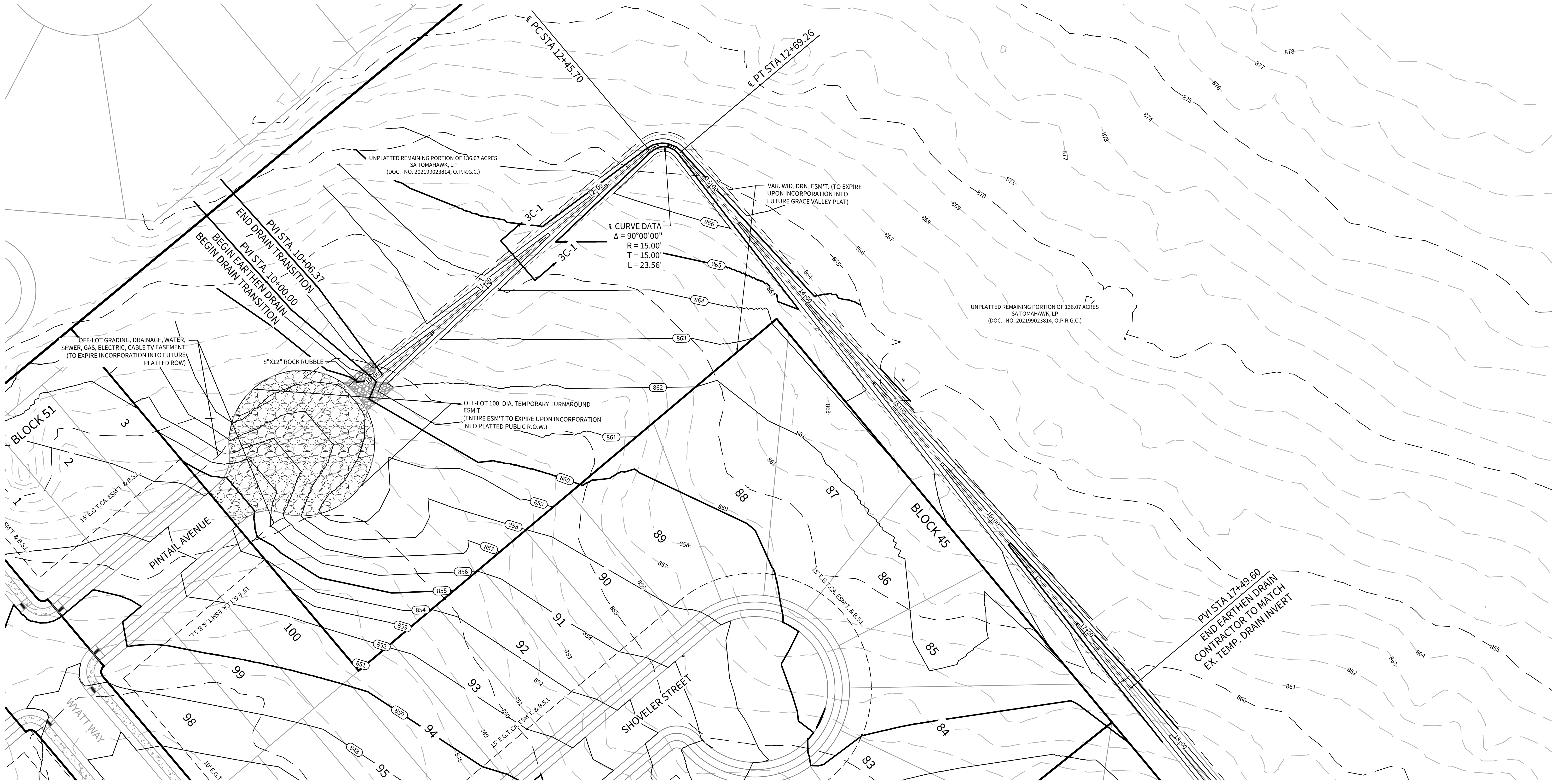

VARIES'
6"±
18"
95% COMPACTED SUBGRADE

8"X12" ROCK RUBBLE DETAIL

N.T.S.

NOTES:

1. ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI IN 28 DAYS.
2. 85% OF CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION PRIOR TO ACCEPTANCE OF THE CHANNEL BY THE CITY OF CIBOLO & GUADALUPE COUNTY. HYDROMULCH PAY ITEM TO INCLUDE SOIL, SEEDING, OR SODDING & WATERING FOR THE TIME PERIOD NEEDED TO ACHIEVE 85% VEGETATION.
3. REFERENCE TYPICAL CONCRETE CHANNEL RIP-RAP STANDARDS FOUND ON SHEET C6.05.


℄ PC STA 12+45.70
℄ PT STA 12+69.26
UNPLATTED REMAINING PORTION OF 136.07 ACRES
SA TOMAHAWK, LP
(DOC. NO. 202199023814, O.P.R.G.C.)
3C-1
3C-1
℄ CURVE DATA
Δ = 90°00'00"
R = 15.00'
T = 15.00'
L = 23.56'
VAR. WID. DRN. ESM'T. (TO EXPIRE UPON INCORPORATION INTO FUTURE GRACE VALLEY PLAT)
PVI STA. 10+06.37
END DRAIN TRANSITION
PVI STA. 10+00.00
BEGIN EARTHEN DRAIN
BEGIN DRAIN TRANSITION
OFF-LOT GRADING, DRAINAGE, WATER, SEWER, GAS, ELECTRIC, CABLE TV EASEMENT (TO EXPIRE INCORPORATION INTO FUTURE PLATTED ROW)
8"X12" ROCK RUBBLE
OFF-LOT 100' DIA. TEMPORARY TURNAROUND ESM'T
(ENTIRE ESM'T TO EXPIRE UPON INCORPORATION INTO PLATTED PUBLIC R.O.W.)
UNPLATTED REMAINING PORTION OF 136.07 ACRES
SA TOMAHAWK, LP
(DOC. NO. 202199023814, O.P.R.G.C.)
BLOCK 51
BLOCK 45
PINTAIL AVENUE
SHOVELER STREET
WYATT WAY
15' E.G.T.CA. ESM'T. & B.S.L.
PVI STA 17+49.60
END EARTHEN DRAIN
CONTRACTOR TO MATCH
EX. TEMP. DRAIN INVERT
10+00
11+00
12+00
13+00
14+00
15+00
16+00
17+00
18+00
1
2
3
83
84
85
86
87
88
89
90
91
92
93
94
95
98
99
100
858
859
860
861
862
863
864
865
866
867
868
869
870
871
872
873
874
875
876
877
878

SCALE: 1"=50'

50 25 0 50

LEGEND:

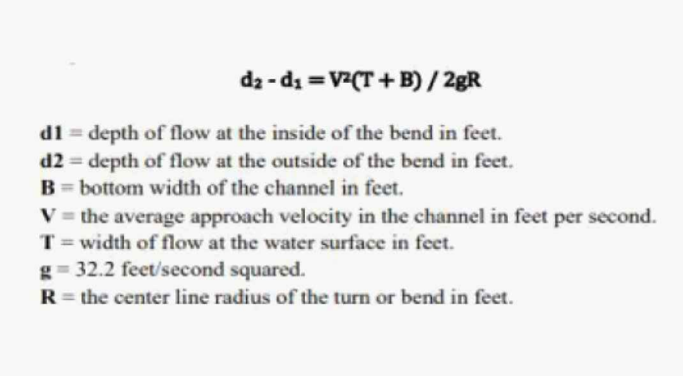
▨ = CONCRETE

▨ = 8" X 12" ROCK RUBBLE

TEMP DRAIN '3C'

STA. 10+00.00 TO STA. 17+49.60

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



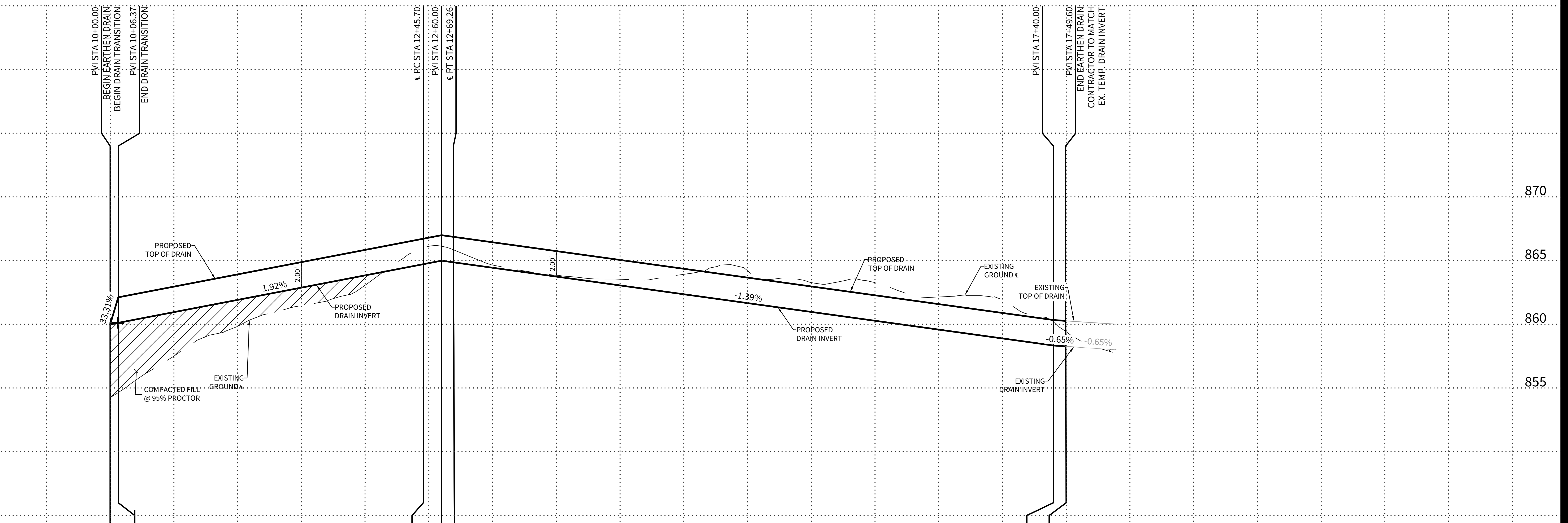
$$d_2 - d_1 = V^2(T + B) / 2gR$$

d1 = depth of flow at the inside of the bend in feet.
d2 = depth of flow at the outside of the bend in feet.
B = bottom width of the channel in feet.
V = the average approach velocity in the channel in feet per second.
T = width of flow at the water surface in feet.
g = 32.2 feet/second squared.
R = the center line radius of the turn or bend in feet.

B = 2
V = 4.1
T = 9.74
g = 32.2
R = 15

d2-d1 = 0.204295
d1 = 1.392148
d2 = 1.187852

2.00' - d1= 0.607852


PVI STA 10+00.00
BEGIN EARTHEN DRAIN
BEGIN DRAIN TRANSITION
PVI STA 10+06.37
END DRAIN TRANSITION
℄ PC STA 12+45.70
PVI STA 12+60.00
℄ PT STA 12+69.26
PVI STA 17+40.00
PVI STA 17+49.60
END EARTHEN DRAIN
CONTRACTOR TO MATCH
EX. TEMP. DRAIN INVERT
870
865
860
855
PROPOSED TOP OF DRAIN
2.00'
1.92%
33.31%
PROPOSED DRAIN INVERT
EXISTING GROUND ℄
COMPACTED FILL @ 95% PROCTOR
2.00'
-1.39%
PROPOSED TOP OF DRAIN
EXISTING GROUND ℄
EXISTING TOP OF DRAIN
PROPOSED DRAIN INVERT
-0.65%
-0.65%
EXISTING DRAIN INVERT

PROP. TOP OF DRAIN	860.00	862.12	862.96	863.92	864.88	865.85	866.72	866.81	867.00	866.87	866.44	865.75	865.06	864.36	863.67	862.97	862.28	861.59	860.89	860.34	860.28
PROP. DRAIN INVERT	860.00	860.12	860.96	861.92	862.88	863.85	864.72	864.81	865.00	864.87	864.44	863.75	863.06	862.36	861.67	860.97	860.28	859.59	858.89	858.34	858.28

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00

CUDEENGINEERS.COM

EST. 1980 CUDE ENGINEERS

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

GRACE VALLEY RANCH
PHASE 3B

DRAINAGE PLAN & PROFILE - TEMP DRAIN 3B

DATE
10/01/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

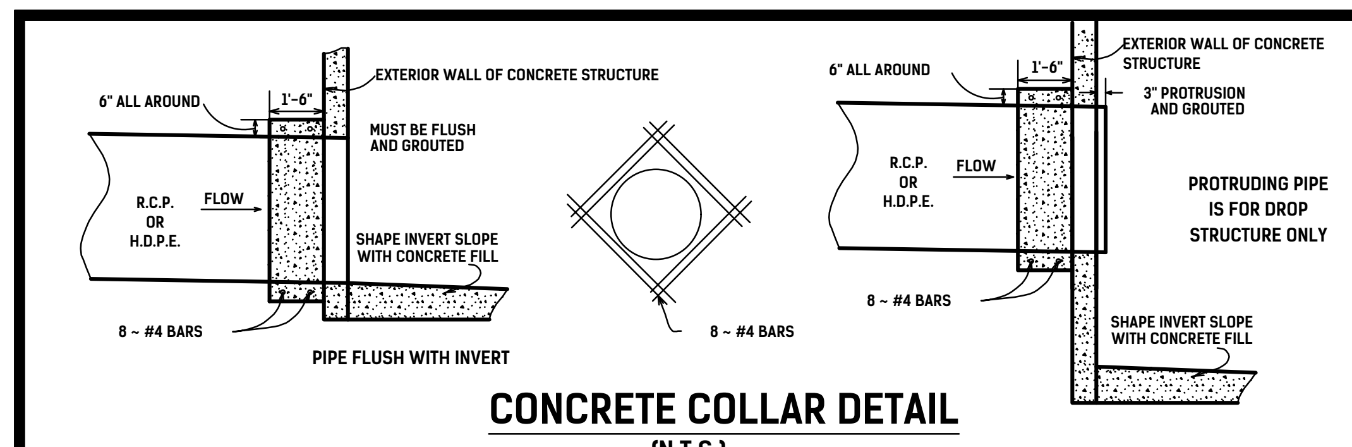
REVISIONS
1.
2.
3.
4.
5.
6.
7.
8.
9.

KYLE M. HUDEK
138753
10/01/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C6.02

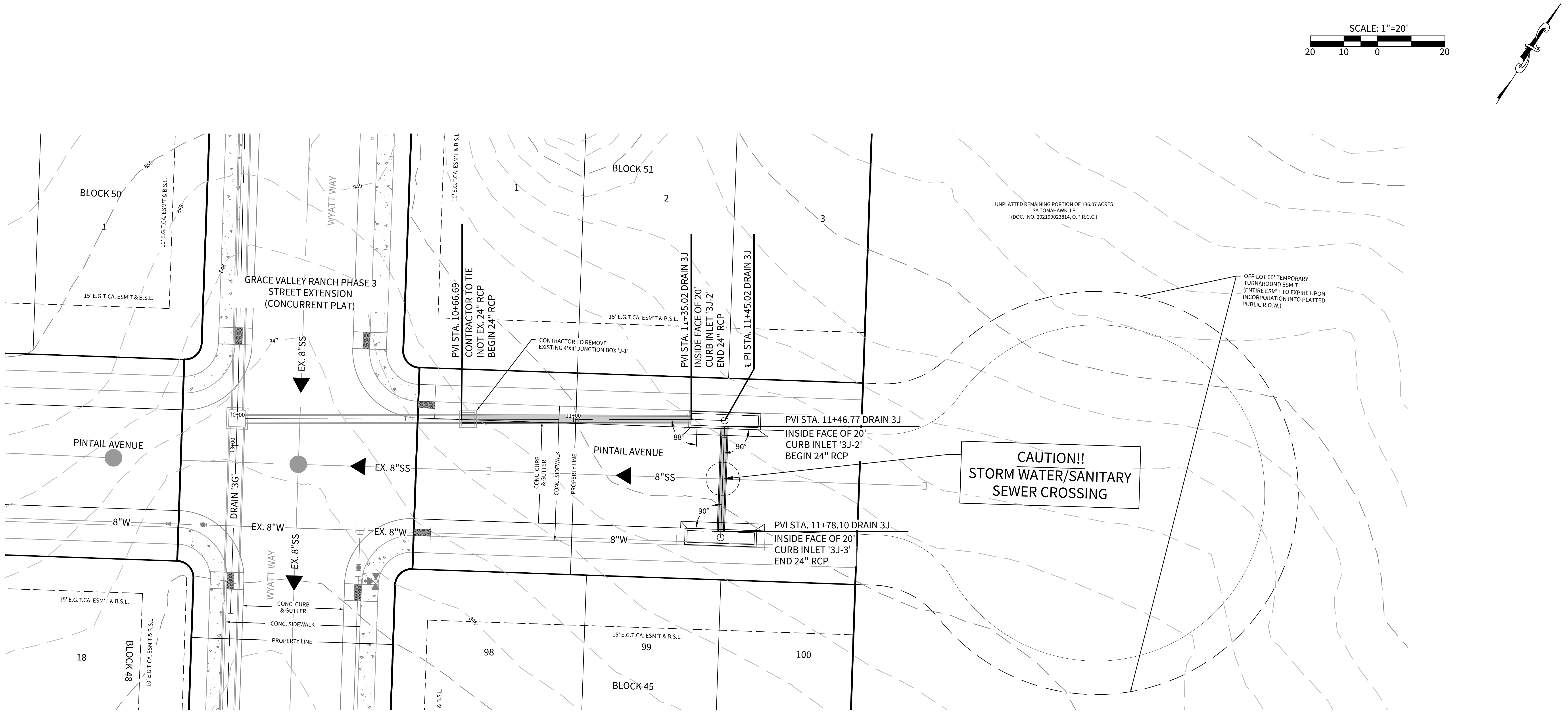
P:\03346\010\2-DWG\4-Plans\C6.01_DRPP TEMP DRN.dwg 2024/10/01 8:40am msandoval


6" ALL AROUND
1'-6"
EXTERIOR WALL OF CONCRETE STRUCTURE
MUST BE FLUSH AND GROUTED
R.C.P. OR H.D.P.E.
FLOW
SHAPE INVERT SLOPE WITH CONCRETE FILL
8 ~ #4 BARS
PIPE FLUSH WITH INVERT
8 ~ #4 BARS
6" ALL AROUND
1'-6"
EXTERIOR WALL OF CONCRETE STRUCTURE
3" PROTRUSION AND GROUTED
R.C.P. OR H.D.P.E.
FLOW
PROTRUDING PIPE IS FOR DROP STRUCTURE ONLY
8 ~ #4 BARS
SHAPE INVERT SLOPE WITH CONCRETE FILL

CONCRETE COLLAR DETAIL

(N.T.S.)

SCALE: 1"=20'


20 10 0 20
BLOCK 50
1
BLOCK 51
1
2
3
UNPLATTED REMAINING PORTION OF 136.07 ACRES
SA TOMAHAWK, LP
(DOC. NO. 202199023814, O.P.R.G.C.)
OFF-LOT 60' TEMPORARY TURNAROUND ESM'T (ENTIRE ESM'T TO EXPIRE UPON INCORPORATION INTO PLATTED PUBLIC R.O.W.)
WYATT WAY
GRACE VALLEY RANCH PHASE 3 STREET EXTENSION (CONCURRENT PLAT)
15' E.G.T.CA. ESM'T & B.S.L.
10' E.G.T.CA. ESM'T & B.S.L.
PVI STA. 10+66.69
CONTRACTOR TO TIE INOT EX. 24" RCP
BEGIN 24" RCP
CONTRACTOR TO REMOVE EXISTING 4'X4' JUNCTION BOX 'J-1'
PVI STA. 11+35.02 DRAIN 3J
INSIDE FACE OF 20' CURB INLET '3J-2'
END 24" RCP
℄ PI STA. 11+45.02 DRAIN 3J
EX. 8"SS
11+00
10+00
88°
90°
PVI STA. 11+46.77 DRAIN 3J
INSIDE FACE OF 20' CURB INLET '3J-2'
BEGIN 24" RCP
CAUTION!!
STORM WATER/SANITARY SEWER CROSSING
PINTAIL AVENUE
PINTAIL AVENUE
DRAIN '3G'
EX. 8"SS
8"SS
CONC. CURB & GUTTER
CONC. SIDEWALK
PROPERTY LINE
8"W
EX. 8"W
EX. 8"W
8"W
90°
PVI STA. 11+78.10 DRAIN 3J
INSIDE FACE OF 20' CURB INLET '3J-3'
END 24" RCP
EX. 8"SS
WYATT WAY
CONC. CURB & GUTTER
CONC. SIDEWALK
PROPERTY LINE
15' E.G.T.CA. ESM'T & B.S.L.
BLOCK 48
18
98
99
100
BLOCK 45
846
847
848
849
850

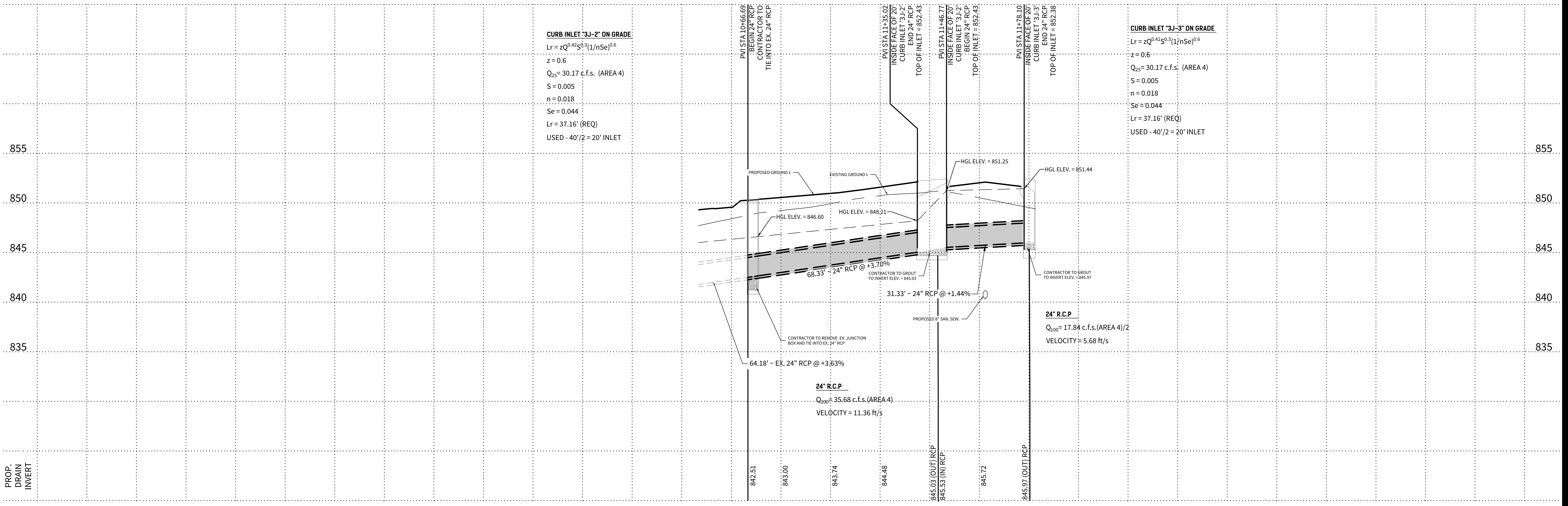
NOTES:

1. ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI IN 28 DAYS.
2. REFERENCE TYPICAL CONCRETE CHANNEL RIP-RAP STANDARDS FOUND ON SHEET C6.05.

DRAIN '3J'

STA. 10+66.69 TO STA. 11+78.10

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


PVI STA 10+66.69
BEGIN 24" RCP
CONTRACTOR TO TIE INTO EX. 24" RCP
PVI STA 11+35.02
INSIDE FACE OF 20' CURB INLET '3J-2'
END 24" RCP
TOP OF INLET = 852.43
PVI STA 11+46.77
INSIDE FACE OF 20' CURB INLET '3J-2'
BEGIN 24" RCP
TOP OF INLET = 852.43
PVI STA 11+78.10
INSIDE FACE OF 20' CURB INLET '3J-3'
END 24" RCP
TOP OF INLET = 852.38
855
850
845
840
835
855
850
845
840
835
PROPOSED GROUND ℄
EXISTING GROUND ℄
HGL ELEV. = 851.25
HGL ELEV. = 851.44
HGL ELEV. = 848.21
HGL ELEV. = 846.60
68.33' ~ 24" RCP @ +3.70%
CONTRACTOR TO GROUT TO INVERT ELEV. = 845.03
CONTRACTOR TO GROUT TO INVERT ELEV. = 845.97
31.33' ~ 24" RCP @ +1.44%
PROPOSED 8" SAN. SEW.
CONTRACTOR TO REMOVE EX. JUNCTION BOX AND TIE INTO EX. 24" RCP
64.18' ~ EX. 24" RCP @ +3.63%
PROP. DRAIN INVERT
842.51
843.00
843.74
844.48
845.03 (OUT) RCP
845.53 (IN) RCP
845.72
845.97 (OUT) RCP
11+00

CURB INLET "3J-2" ON GRADE

$Lr = zQ^{0.42}S^{0.3}(1/nSe)^{0.6}$

$z = 0.6$

Q_{25}= 30.17 c.f.s. (AREA 4)

$S = 0.005$

$n = 0.018$

$Se = 0.044$

Lr = 37.16' (REQ)

USED - 40'/2 = 20' INLET

CURB INLET "3J-3" ON GRADE

$Lr = zQ^{0.42}S^{0.3}(1/nSe)^{0.6}$

$z = 0.6$

Q_{25}= 30.17 c.f.s. (AREA 4)

$S = 0.005$

$n = 0.018$

$Se = 0.044$

Lr = 37.16' (REQ)

USED - 40'/2 = 20' INLET

24" R.C.P

Q_{100}= 35.68 c.f.s.(AREA 4)

VELOCITY = 11.36 ft/s

24" R.C.P

Q_{100}= 17.84 c.f.s.(AREA 4)/2

VELOCITY = 5.68 ft/s

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

GRACE VALLEY RANCH
PHASE 3B

DRAINAGE PLAN & PROFILE - DRAIN 3J

DATE
08/05/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS
1.
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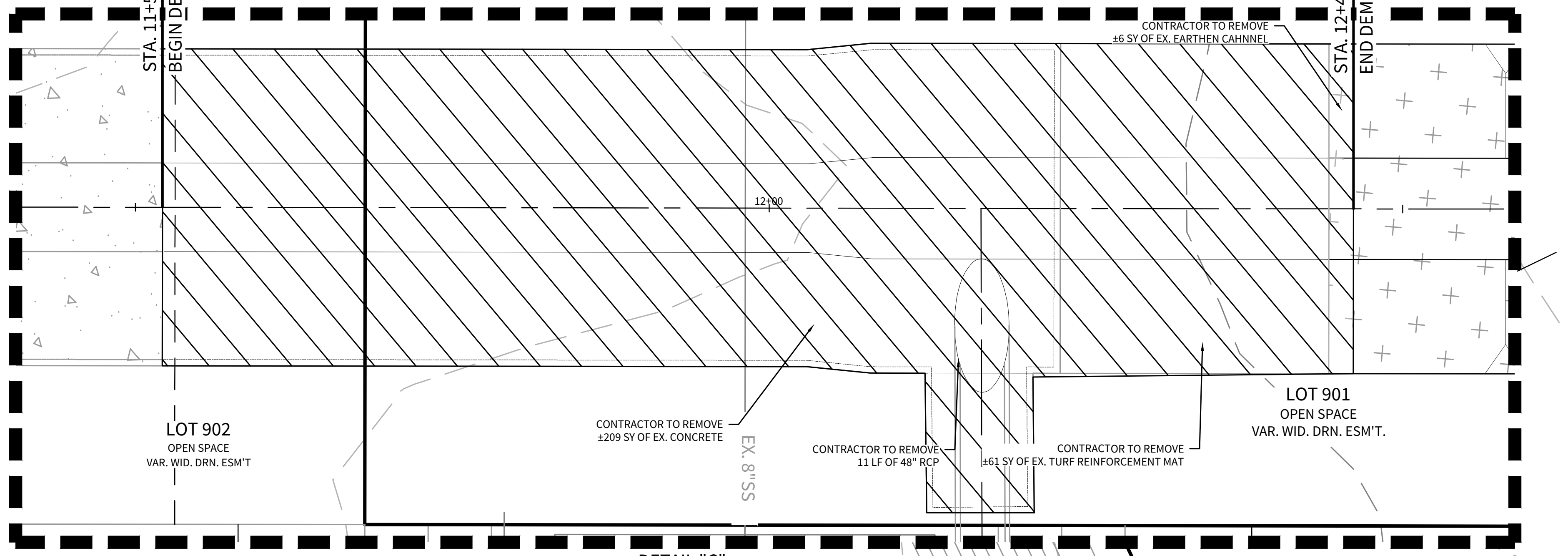
8.
9.

KYLE M. HUDEK
138753
K Hudek
08/12/2024

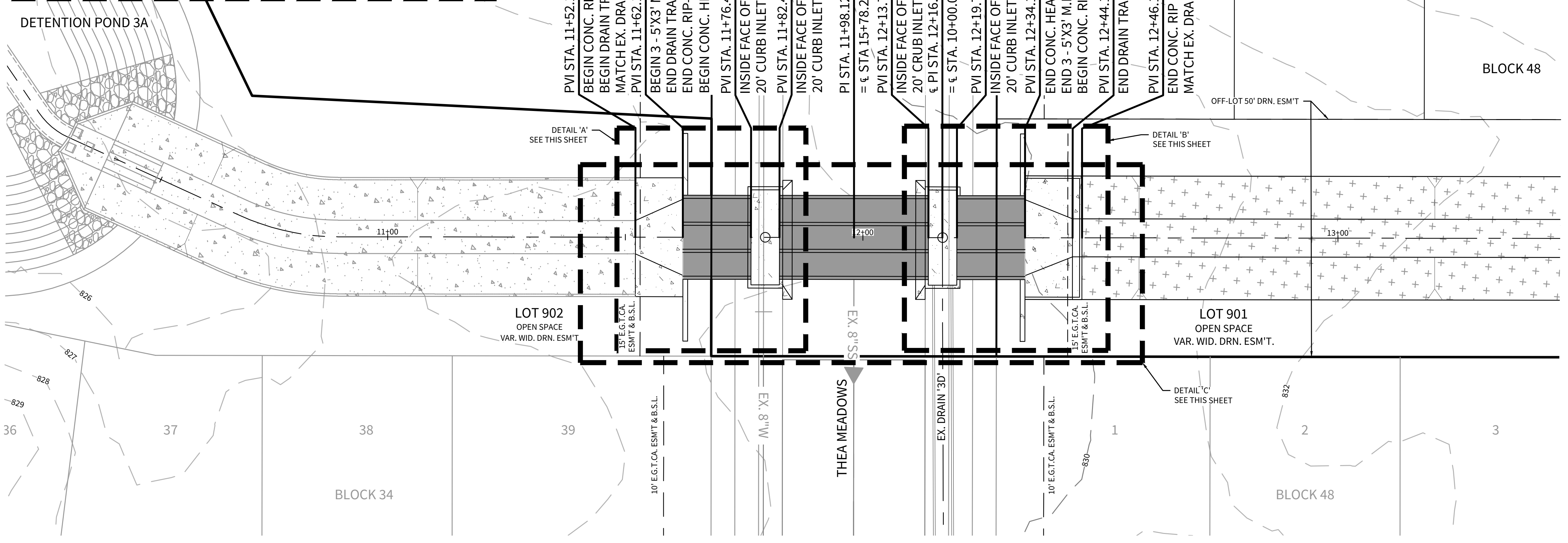
CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

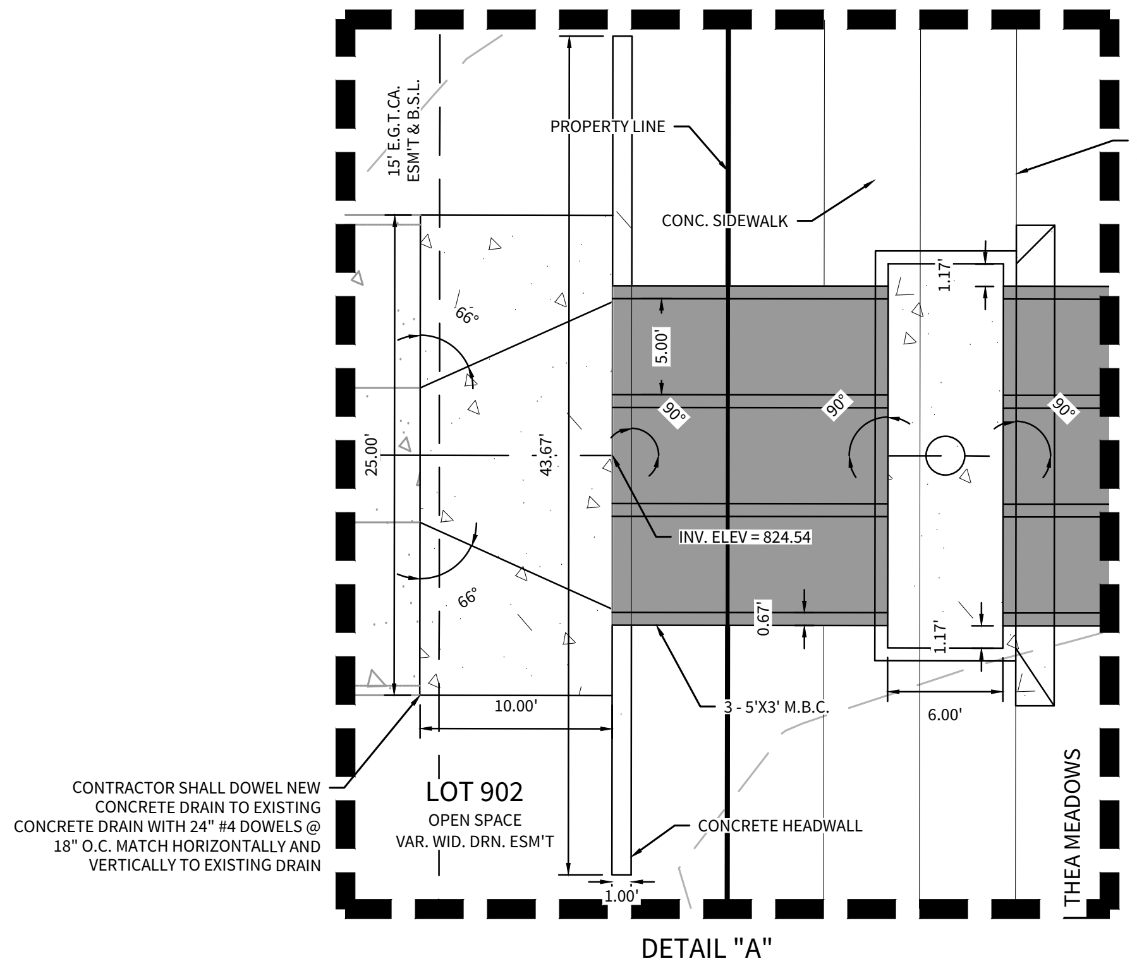
C6.03

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.


STA. 11+52.12
BEGIN DEMO
STA. 12+46.12
END DEMO
CONTRACTOR TO REMOVE ±6 SY OF EX. EARTHEN CHANNEL
12+00
LOT 902
OPEN SPACE
VAR. WID. DRN. ESM'T
CONTRACTOR TO REMOVE ±209 SY OF EX. CONCRETE
CONTRACTOR TO REMOVE 11 LF OF 48" RCP
CONTRACTOR TO REMOVE ±61 SY OF EX. TURF REINFORCEMENT MAT
LOT 901
OPEN SPACE
VAR. WID. DRN. ESM'T.

DETAIL "C"
SCALE: 1" = 10'


8" SS
8" W
CONC. CURB & GUTTER
CONC. SIDEWALK
PROPERTY LINE
PVI STA. 11+52.12
BEGIN CONC. RIP RAP
BEGIN DRAIN TRANSITION
MATCH EX. DRAIN
PVI STA. 11+62.12
BEGIN 3 - 5'X3' M.B.C.
END DRAIN TRASITION
END CONC. RIP-RAP
BEGIN CONC. HEADWALL (PW-1)
PVI STA. 11+76.45
INSIDE FACE OF
20' CURB INLET '3F-1'
PVI STA. 11+82.45
INSIDE FACE OF
20' CURB INLET '3F-1'
PI STA. 11+98.12 DRAIN '3F'
= ℄ STA 15+78.21 THEA MEADOWS
PVI STA. 12+13.79
INSIDE FACE OF
20' CRUB INLET '3F-2'
℄ PI STA. 12+16.72 DRAIN 3F
= ℄ STA. 10+00.00 DRAIN 3D
PVI STA. 12+19.79
INSIDE FACE OF
20' CURB INLET '3F-2'
PVI STA. 12+34.12
END CONC. HEADWALL (PW-1)
END 3 - 5'X3' M.B.C.
BEGIN CONC. RIP RAP
PVI STA. 12+44.12
END DRAIN TRANSITION
PVI STA. 12+46.12
END CONC. RIP RAP
MATCH EX. DRAIN
835
834
833
832
830
826
827
828
829
6
7
8
DETENTION POND 3A
BLOCK 48
DETAIL 'A'
SEE THIS SHEET
DETAIL 'B'
SEE THIS SHEET
DETAIL 'C'
SEE THIS SHEET
OFF-LOT 50' DRN. ESM'T
11+00
12+00
13+00
LOT 902
OPEN SPACE
VAR. WID. DRN. ESM'T
LOT 901
OPEN SPACE
VAR. WID. DRN. ESM'T.
15' E.G.T.CA. ESM'T & B.S.L.
EX. 8" SS
EX. 8" W
THEA MEADOWS
EX. DRAIN '3D'
10' E.G.T.CA. ESM'T & B.S.L.
36
37
38
39
1
2
3
BLOCK 34
BLOCK 48

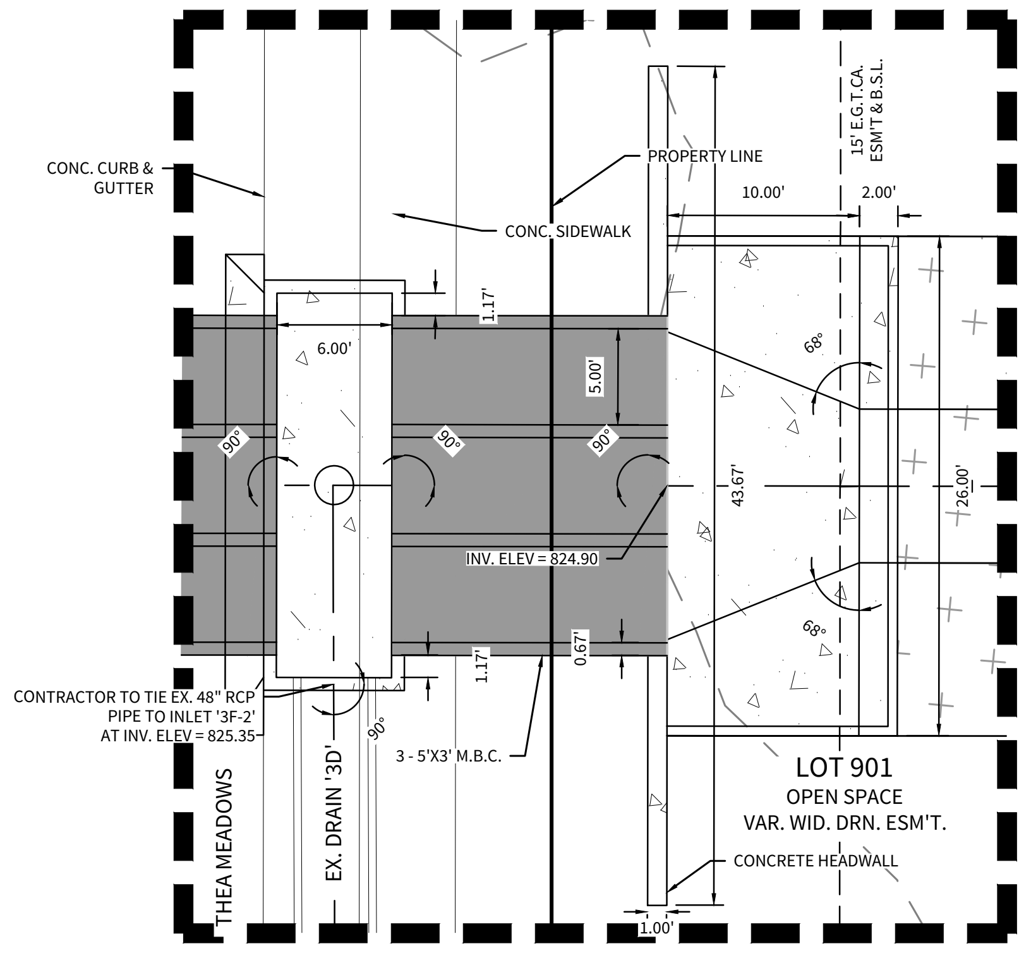

15' E.G.T.CA. ESM'T & B.S.L.
PROPERTY LINE
CONC. CURB & GUTTER
CONC. SIDEWALK
1.17'
5.83'
60°
43.67'
25.00'
INV. ELEV = 824.54
6.00'
10.00'
3 - 5'X3' M.B.C.
CONTRACTOR SHALL DOWEL NEW CONCRETE DRAIN TO EXISTING CONCRETE DRAIN WITH 24" #4 DOWELS @ 18" O.C. MATCH HORIZONTALLY AND VERTICALLY TO EXISTING DRAIN
LOT 902
OPEN SPACE
VAR. WID. DRN. ESM'T
CONCRETE HEADWALL
THEA MEADOWS
1.00'

DETAIL "A"
SCALE: 1" = 10'

LEGEND:

= EARTHEN
= CONCRETE
= EXISTING CONCRETE
▨ = CONC. TO BE REMOVED
= TURF REINFORCEMENT MAT TO BE REMOVED
▨ = EARTHEN TO BE REMOVED

SCALE: 1"=20'
20 10 0 20


CONC. CURB & GUTTER
PROPERTY LINE
CONC. SIDEWALK
15' E.G.T.CA. ESM'T & B.S.L.
10.00'
2.00'
6.00'
1.17'
5.83'
43.67'
25.00'
60°
INV. ELEV = 824.90
CONTRACTOR TO TIE EX. 48" RCP PIPE TO INLET '3F-2' AT INV. ELEV = 825.35
3 - 5'X3' M.B.C.
THEA MEADOWS
EX. DRAIN '3D'
LOT 901
OPEN SPACE
VAR. WID. DRN. ESM'T.
CONCRETE HEADWALL

DETAIL "B"
SCALE: 1" = 10'

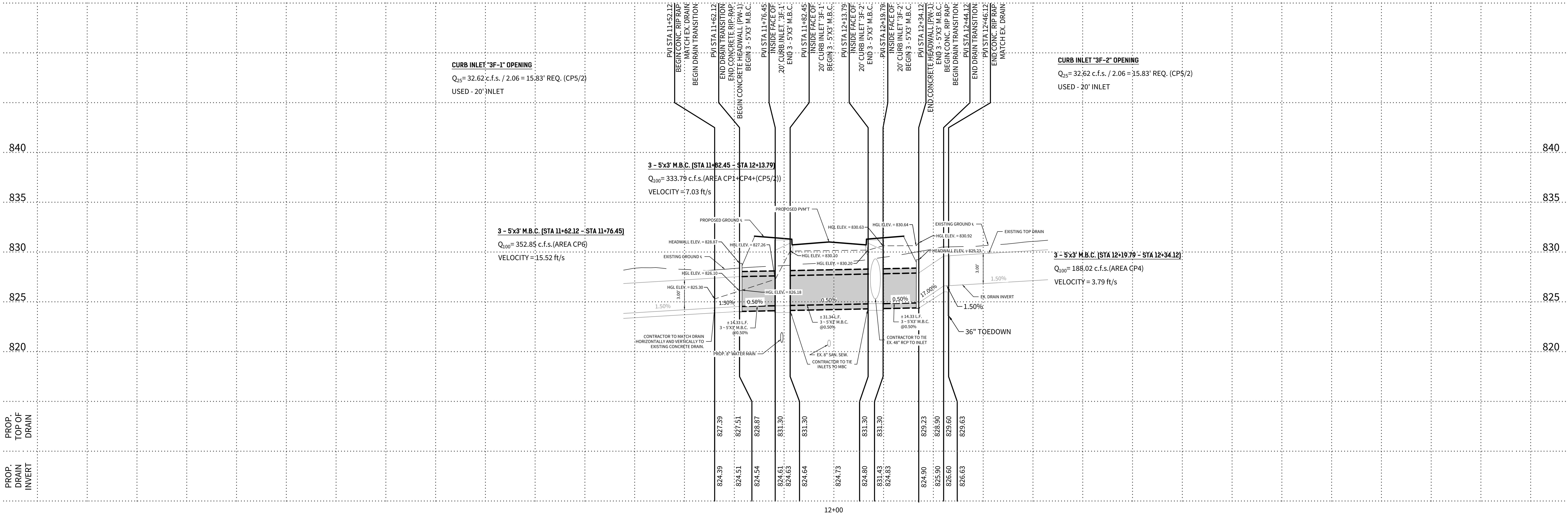
NOTES:

1. ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI IN 28 DAYS.
2. 85% OF CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION PRIOR TO ACCEPTANCE OF THE CHANNEL BY THE CITY OF CIBOLO & GUADALUPE COUNTY. HYDROMULCH PAY ITEM TO INCLUDE SOIL, SEEDING, OR SODDING & WATERING FOR THE TIME PERIOD NEEDED TO ACHIEVE 85% VEGETATION.
3. REFERENCE TYPICAL CONCRETE CHANNEL RIP-RAP STANDARDS FOUND ON SHEET C6.05.

DRAIN '3F'

STA. 11+52.12 TO STA. 12+46.12

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


PVI STA 11+52.12
BEGIN CONC. RIP RAP
MATCH EX. DRAIN
BEGIN DRAIN TRANSITION
PVI STA 11+62.12
END DRAIN TRANSITION
END CONCRETE RIP-RAP
BEGIN CONCRETE HEADWALL (PW-1)
BEGIN 3 - 5'X3' M.B.C.
PVI STA 11+76.45
INSIDE FACE OF
20' CURB INLET '3F-1'
END 3 - 5'X3' M.B.C.
PVI STA 11+82.45
INSIDE FACE OF
20' CURB INLET '3F-1'
BEGIN 3 - 5'X3' M.B.C.
PVI STA 12+13.79
INSIDE FACE OF
20' CURB INLET '3F-2'
END 3 - 5'X3' M.B.C.
PVI STA 12+19.79
INSIDE FACE OF
20' CURB INLET '3F-2'
BEGIN 3 - 5'X3' M.B.C.
PVI STA 12+34.12
END CONCRETE HEADWALL (PW-1)
END 3 - 5'X3' M.B.C.
BEGIN CONC. RIP RAP
BEGIN DRAIN TRANSITION
PVI STA 12+44.12
END DRAIN TRANSITION
PVI STA 12+46.12
END CONC. RIP RAP
MATCH EX. DRAIN
840
835
830
825
820
PROPOSED GROUND ℄
PROPOSED PVM'T
HEADWALL ELEV. = 828.87
HGL ELEV. = 827.26
EXISTING GROUND ℄
HGL ELEV. = 826.10
HGL ELEV. = 825.30
HGL ELEV. = 826.18
HGL ELEV. = 830.10
HGL ELEV. = 830.20
HGL ELEV. = 830.63
HGL ELEV. = 830.64
EXISTING GROUND ℄
HGL ELEV. = 830.92
HEADWALL ELEV. = 829.23
EXISTING TOP DRAIN
3.00'
1.50%
1.50%
0.50%
0.50%
0.50%
17.00%
1.50%
1.50%
3.00'
EX. DRAIN INVERT
± 14.33 L.F.
3 ~ 5'X3' M.B.C.
@0.50%
± 31.34 L.F.
3 ~ 5'X3' M.B.C.
@0.50%
± 14.33 L.F.
3 ~ 5'X3' M.B.C.
@0.50%
36" TOEDOWN
CONTRACTOR TO MATCH DRAIN HORIZONTALLY AND VERTICALLY TO EXISTING CONCRETE DRAIN.
PROP. 8" WATER MAIN
EX. 8" SAN. SEW.
CONTRACTOR TO TIE INLETS TO MBC
CONTRACTOR TO TIE EX. 48" RCP TO INLET
PROP. TOP OF DRAIN
827.39
827.51
828.87
831.30
831.30
831.30
831.30
829.23
828.90
829.60
829.63
PROP. DRAIN INVERT
824.39
824.51
824.54
824.61
824.63
824.64
824.73
824.80
831.43
824.83
824.90
825.90
826.60
826.63
12+00

CURB INLET "3F-1" OPENING

Q_{25}= 32.62 c.f.s. / 2.06 = 15.83' REQ. (CP5/2)

USED - 20' INLET

CURB INLET "3F-2" OPENING

Q_{25}= 32.62 c.f.s. / 2.06 = 15.83' REQ. (CP5/2)

USED - 20' INLET

3 - 5'x3' M.B.C. (STA 11+82.45 - STA 12+13.79)

Q_{100}= 333.79 c.f.s.(AREA CP1+CP4+(CP5/2))

VELOCITY = 7.03 ft/s

3 - 5'x3' M.B.C. (STA 11+62.12 - STA 11+76.45)

Q_{100}= 352.85 c.f.s.(AREA CP6)

VELOCITY = 15.52 ft/s

3 - 5'x3' M.B.C. (STA 12+19.79 - STA 12+34.12)

Q_{100}= 188.02 c.f.s.(AREA CP4)

VELOCITY = 3.79 ft/s

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GRACE VALLEY RANCH
PHASE 3B

DRAINAGE PLAN & PROFILE - DRAIN 3F

DATE
09/24/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS
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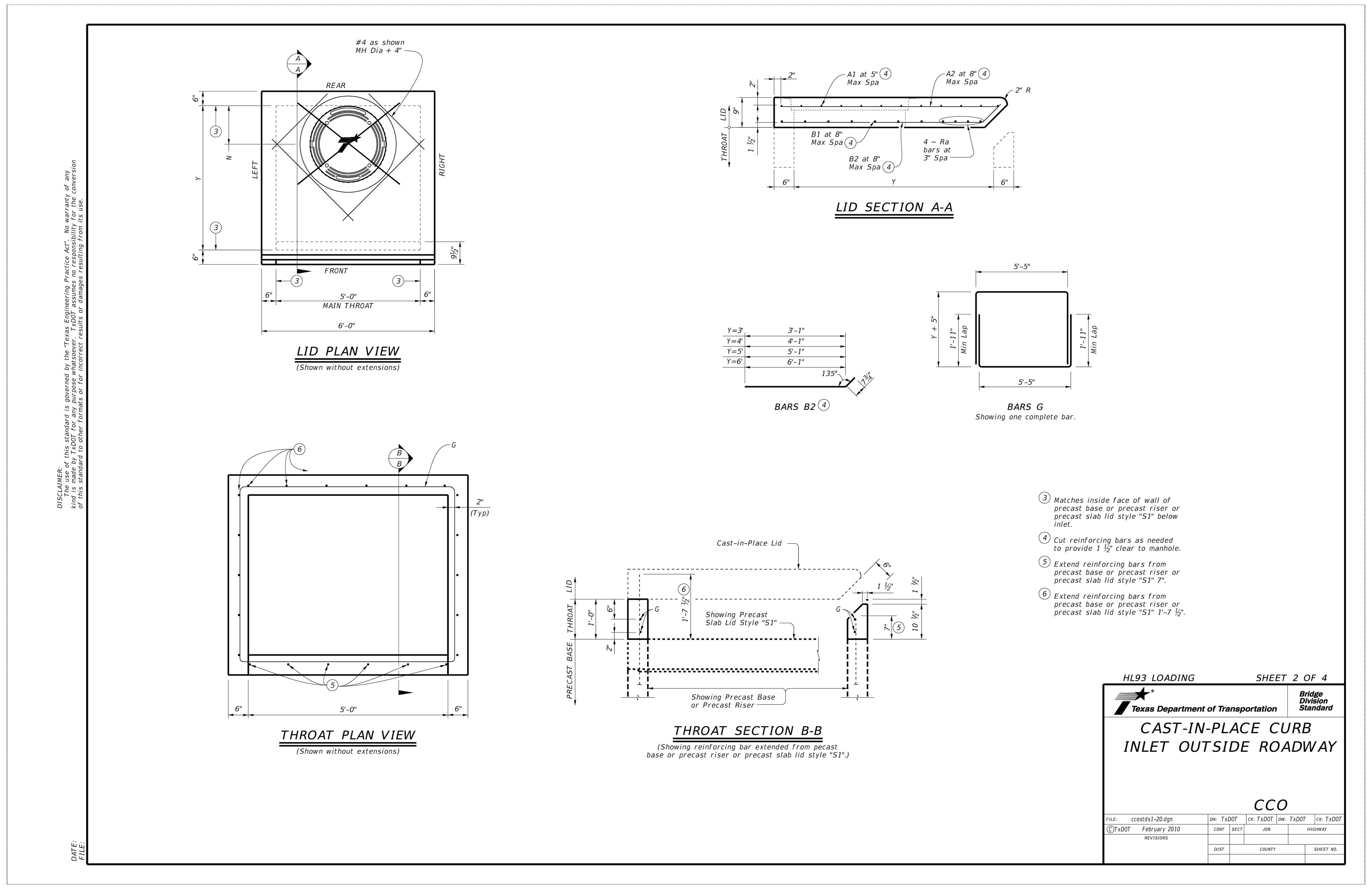
KYLE M. HUDEK
138753
10/01/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C6.04


LID PLAN VIEW
(Shown without extensions)
LID SECTION A-A
BARS B2
BARS G
Showing one complete bar.
THROAT PLAN VIEW
(Shown without extensions)
THROAT SECTION B-B
(Showing reinforcing bar extended from pecast base or precast riser or precast slab lid style "S1".)

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

③ Matches inside face of wall of precast base or precast riser or precast slab lid style "S1" below inlet.

④ Cut reinforcing bars as needed to provide 1 ½" clear to manhole.

⑤ Extend reinforcing bars from precast base or precast riser or precast slab lid style "S1" 7".

⑥ Extend reinforcing bars from precast base or precast riser or precast slab lid style "S1" 1'-7 ½".

HL93 LOADING SHEET 2 OF 4

Texas Department of Transportation
Bridge Division Standard

CAST-IN-PLACE CURB INLET OUTSIDE ROADWAY

CCO

FILE: ccostds1-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	DIST	COUNTY		SHEET NO.

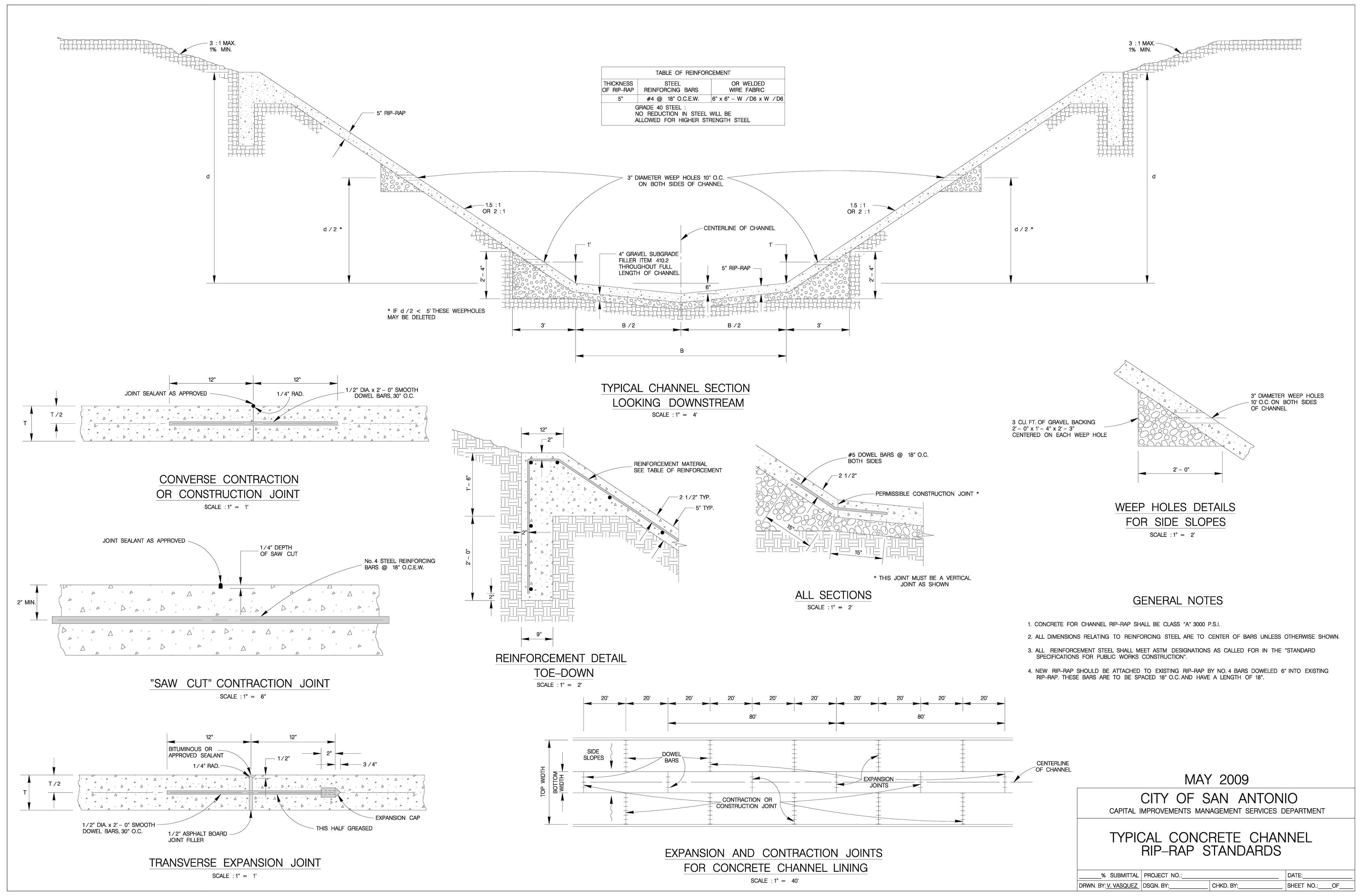

3 : 1 MAX.
7% MIN.
3" DIAMETER WEEP HOLES 10" O.C. ON BOTH SIDES OF CHANNEL
CENTERLINE OF CHANNEL
1.5 : 1 OR 2 : 1
TYPICAL CHANNEL SECTION LOOKING DOWNSTREAM
CONVERSE CONTRACTION OR CONSTRUCTION JOINT
"SAW CUT" CONTRACTION JOINT
TRANSVERSE EXPANSION JOINT
REINFORCEMENT DETAIL TOE-DOWN
ALL SECTIONS
WEEP HOLES DETAILS FOR SIDE SLOPES
SCALE : 1" = 2'
EXPANSION AND CONTRACTION JOINTS FOR CONCRETE CHANNEL LINING
CENTERLINE OF CHANNEL

TABLE OF REINFORCEMENT		
THICKNESS OF RIP-RAP	STEEL REINFORCING BARS	OR WELDED WIRE FABRIC
5"	#4 @ 18" O.C.E.W.	6" x 6" – W /D6 x W /D6
GRADE 40 STEEL : NO REDUCTION IN STEEL WILL BE ALLOWED FOR HIGHER STRENGTH STEEL		

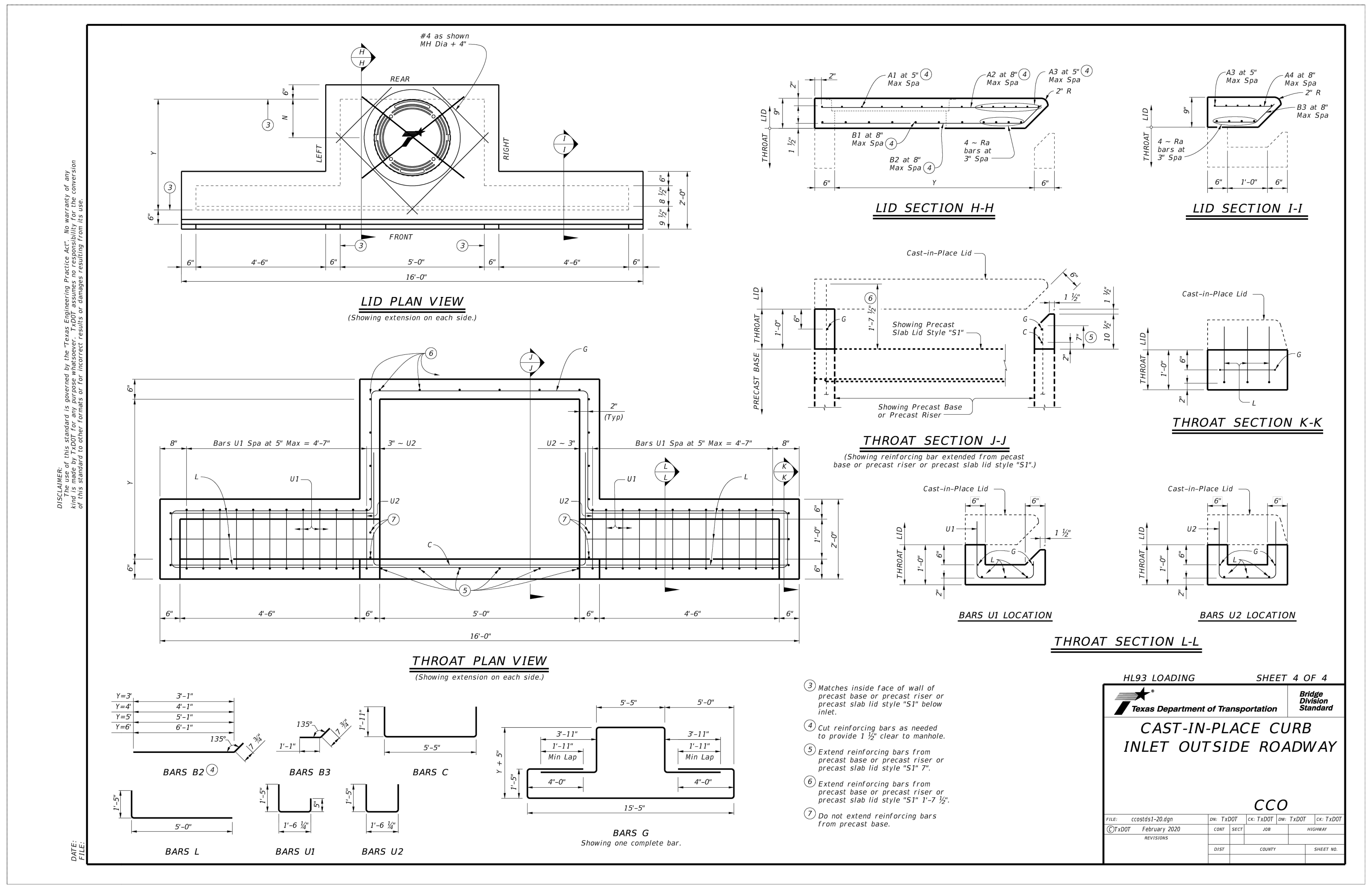
GENERAL NOTES

1. CONCRETE FOR CHANNEL RIP-RAP SHALL BE CLASS "A" 3000 P.S.I.
2. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS UNLESS OTHERWISE SHOWN.
3. ALL REINFORCEMENT STEEL SHALL MEET ASTM DESIGNATIONS AS CALLED FOR IN THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION".
4. NEW RIP-RAP SHOULD BE ATTACHED TO EXISTING RIP-RAP BY NO. 4 BARS DOWELED 6" INTO EXISTING RIP-RAP. THESE BARS ARE TO BE SPACED 18" O.C. AND HAVE A LENGTH OF 18".

MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TYPICAL CONCRETE CHANNEL RIP-RAP STANDARDS


LID PLAN VIEW
(Showing extension on each side.)
LID SECTION H-H
LID SECTION I-I
THROAT SECTION J-J
(Showing reinforcing bar extended from precast base or precast riser or precast slab lid style "S1".)
THROAT SECTION K-K
THROAT PLAN VIEW
(Showing extension on each side.)
BARS U1 LOCATION
BARS U2 LOCATION
THROAT SECTION L-L
BARS B2
BARS B3
BARS C
BARS G
Showing one complete bar.
BARS L
BARS U1
BARS U2

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③ Matches inside face of wall of precast base or precast riser or precast slab lid style "S1" below inlet.

④ Cut reinforcing bars as needed to provide 1 ½" clear to manhole.

⑤ Extend reinforcing bars from precast base or precast riser or precast slab lid style "S1" 7".

⑥ Extend reinforcing bars from precast base or precast riser or precast slab lid style "S1" 1'-7 ½".

⑦ Do not extend reinforcing bars from precast base.

HL93 LOADING SHEET 4 OF 4

Texas Department of Transportation
Bridge Division Standard

CAST-IN-PLACE CURB INLET OUTSIDE ROADWAY

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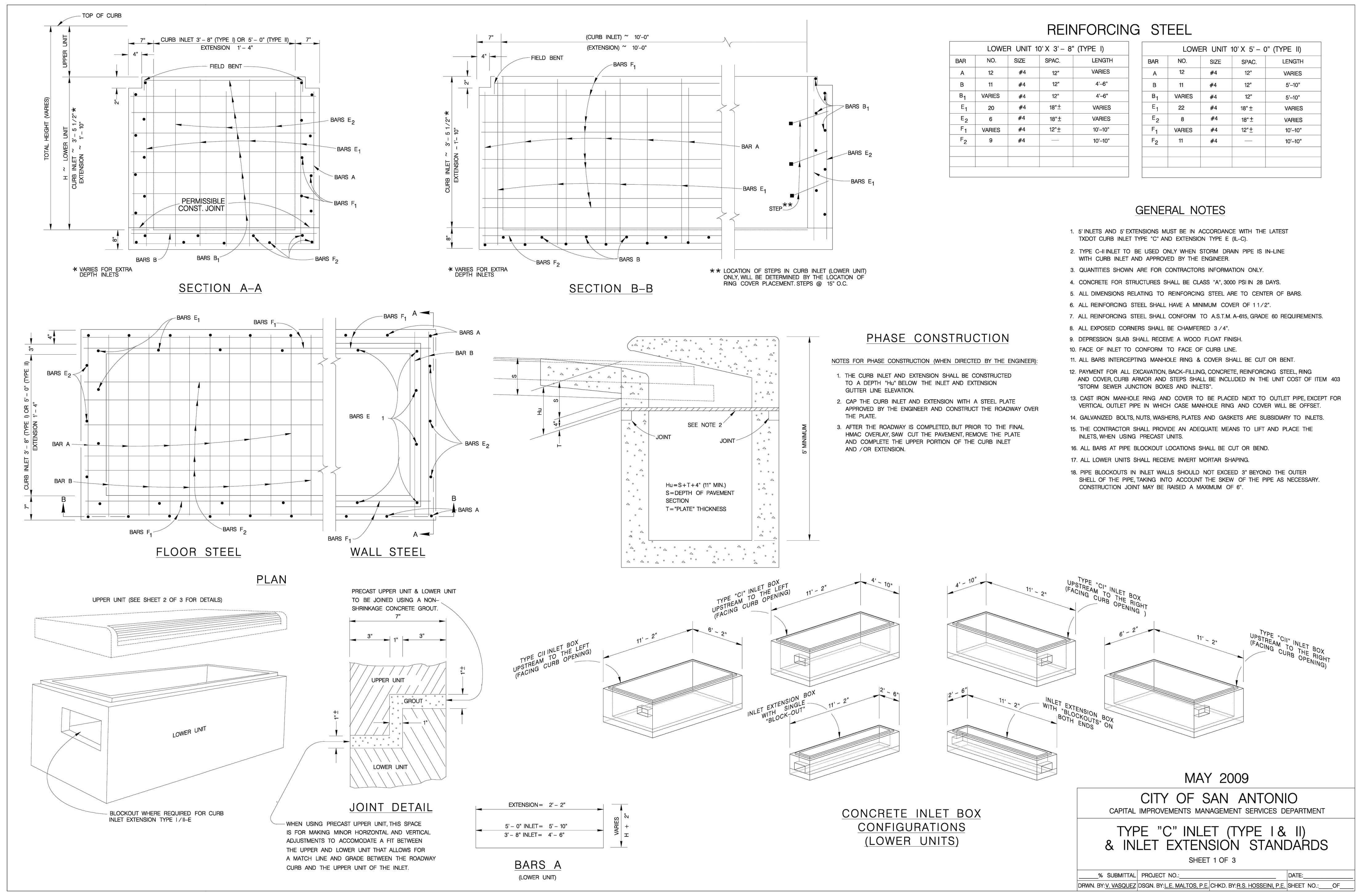
REVISIONS	DIST	COUNTY		SHEET NO.


SECTION A–A
SECTION B–B
FLOOR STEEL
WALL STEEL
PLAN
JOINT DETAIL
CONCRETE INLET BOX CONFIGURATIONS (LOWER UNITS)
BARS A
(LOWER UNIT)
TYPE "CI" INLET BOX UPSTREAM TO THE LEFT (FACING CURB OPENING)
TYPE "CI" INLET BOX UPSTREAM TO THE RIGHT (FACING CURB OPENING)
5' MINIMUM

LOCATION OF STEPS IN CURB INLET (LOWER UNIT) ONLY WILL BE DETERMINED BY THE LOCATION OF RING COVER PLACEMENT. STEPS @ 15" O.C.

REINFORCING STEEL

LOWER UNIT 10' X 3' – 8" (TYPE I)				
BAR	NO.	SIZE	SPAC.	LENGTH
A	12	#4	12"	VARIES
B	11	#4	12"	4'–6"
B_1	VARIES	#4	12"	4'–6"
E_1	20	#4	18"±	VARIES
E_2	6	#4	18"±	VARIES
F_1	VARIES	#4	12"±	10'–10"
F_2	9	#4	—	10'–10"

LOWER UNIT 10' X 5' – 0" (TYPE II)				
BAR	NO.	SIZE	SPAC.	LENGTH
A	12	#4	12"	VARIES
B	11	#4	12"	5'–10"
B_1	VARIES	#4	12"	5'–10"
E_1	22	#4	18"±	VARIES
E_2	8	#4	18"±	VARIES
F_1	VARIES	#4	12"±	10'–10"
F_2	11	#4	—	10'–10"

PHASE CONSTRUCTION

NOTES FOR PHASE CONSTRUCTION (WHEN DIRECTED BY THE ENGINEER):

1. THE CURB INLET AND EXTENSION SHALL BE CONSTRUCTED TO A DEPTH "Hu" BELOW THE INLET AND EXTENSION GUTTER LINE ELEVATION.
2. CAP THE CURB INLET AND EXTENSION WITH A STEEL PLATE APPROVED BY THE ENGINEER AND CONSTRUCT THE ROADWAY OVER THE PLATE.
3. AFTER THE ROADWAY IS COMPLETED, BUT PRIOR TO THE FINAL HMAC OVERLAY, SAW CUT THE PAVEMENT, REMOVE THE PLATE AND COMPLETE THE UPPER PORTION OF THE CURB INLET AND / OR EXTENSION.

GENERAL NOTES

1. 5' INLETS AND 5' EXTENSIONS MUST BE IN ACCORDANCE WITH THE LATEST TXDOT CURB INLET TYPE "C" AND EXTENSION TYPE E (IL–C).
2. TYPE C–II INLET TO BE USED ONLY WHEN STORM DRAIN PIPE IS IN–LINE WITH CURB INLET AND APPROVED BY THE ENGINEER.
3. QUANTITIES SHOWN ARE FOR CONTRACTORS INFORMATION ONLY.
4. CONCRETE FOR STRUCTURES SHALL BE CLASS "A", 3000 PSI IN 28 DAYS.
5. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
6. ALL REINFORCING STEEL SHALL HAVE A MINIMUM COVER OF 1 1/2".
7. ALL REINFORCING STEEL SHALL CONFORM TO A.S.T.M. A–615, GRADE 60 REQUIREMENTS.
8. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3 / 4".
9. DEPRESSION SLAB SHALL RECEIVE A WOOD FLOAT FINISH.
10. FACE OF INLET TO CONFORM TO FACE OF CURB LINE.
11. ALL BARS INTERCEPTING MANHOLE RING & COVER SHALL BE CUT OR BENT.
12. PAYMENT FOR ALL EXCAVATION, BACK–FILLING, CONCRETE, REINFORCING STEEL, RING AND COVER, CURB ARMOR AND STEPS SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 "STORM SEWER JUNCTION BOXES AND INLETS".
13. CAST IRON MANHOLE RING AND COVER TO BE PLACED NEXT TO OUTLET PIPE, EXCEPT FOR VERTICAL OUTLET PIPE IN WHICH CASE MANHOLE RING AND COVER WILL BE OFFSET.
14. GALVANIZED BOLTS, NUTS, WASHERS, PLATES AND GASKETS ARE SUBSIDIARY TO INLETS.
15. THE CONTRACTOR SHALL PROVIDE AN ADEQUATE MEANS TO LIFT AND PLACE THE INLETS, WHEN USING PRECAST UNITS.
16. ALL BARS AT PIPE BLOCKOUT LOCATIONS SHALL BE CUT OR BEND.
17. ALL LOWER UNITS SHALL RECEIVE INVERT MORTAR SHAPING.
18. PIPE BLOCKOUTS IN INLET WALLS SHOULD NOT EXCEED 3" BEYOND THE OUTER SHELL OF THE PIPE, TAKING INTO ACCOUNT THE SKEW OF THE PIPE AS NECESSARY. CONSTRUCTION JOINT MAY BE RAISED A MAXIMUM OF 6".

MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TYPE "C" INLET (TYPE I & II) & INLET EXTENSION STANDARDS
SHEET 1 OF 3

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GRACE VALLEY RANCH
PHASE 3B

CONCRETE RIP-RAP AND CURB INLET DETAILS

DATE
09/24/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS
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KYLE M. HUDEK
138753
10/01/2024
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TBPE No. 455
TBPLS No. 10048500

C6.05

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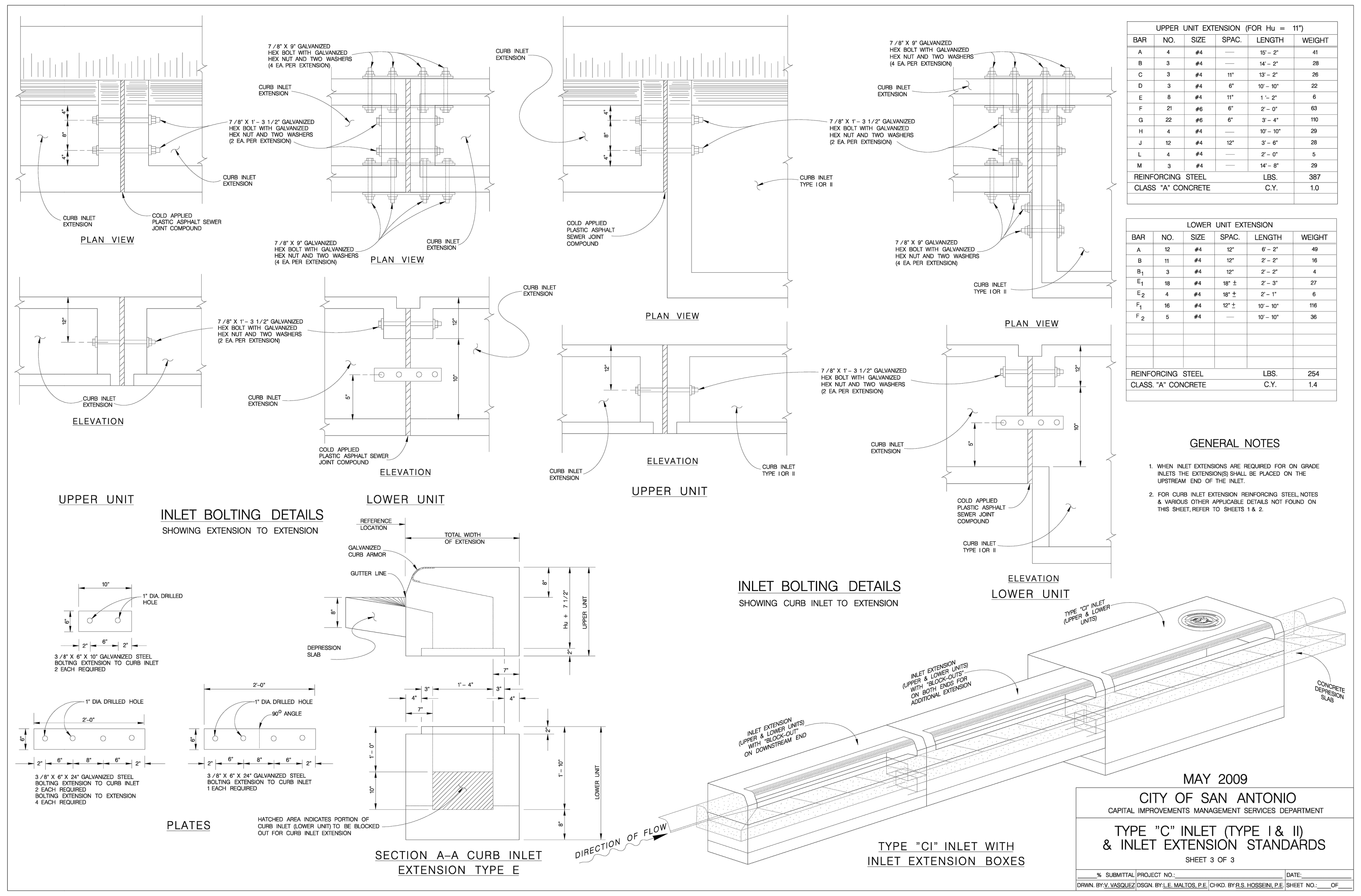
REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.


PLAN VIEW
ELEVATION
UPPER UNIT
INLET BOLTING DETAILS
SHOWING EXTENSION TO EXTENSION
LOWER UNIT
INLET BOLTING DETAILS
SHOWING CURB INLET TO EXTENSION
PLATES
SECTION A-A CURB INLET EXTENSION TYPE E
DIRECTION OF FLOW
TYPE "CI" INLET WITH INLET EXTENSION BOXES
CONCRETE DEPRESION SLAB

UPPER UNIT EXTENSION (FOR Hu = 11")					
BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	4	#4	—	15' – 2"	41
B	3	#4	—	14' – 2"	28
C	3	#4	11"	13' – 2"	26
D	3	#4	6"	10' – 10"	22
E	8	#4	11"	1 '– 2"	6
F	21	#6	6"	2' – 0"	63
G	22	#6	6"	3' – 4"	110
H	4	#4	—	10' – 10"	29
J	12	#4	12"	3' – 6"	28
L	4	#4	—	2' – 0"	5
M	3	#4	—	14' – 8"	29
REINFORCING STEEL				LBS.	387
CLASS "A" CONCRETE				C.Y.	1.0

LOWER UNIT EXTENSION					
BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	12	#4	12"	6' – 2"	49
B	11	#4	12"	2' – 2"	16
B_1	3	#4	12"	2' – 2"	4
E_1	18	#4	18" ±	2' – 3"	27
E_2	4	#4	18" ±	2' – 1"	6
F_1	16	#4	12" ±	10' – 10"	116
F_2	5	#4	—	10' – 10"	36
REINFORCING STEEL				LBS.	254
CLASS. "A" CONCRETE				C.Y.	1.4

GENERAL NOTES

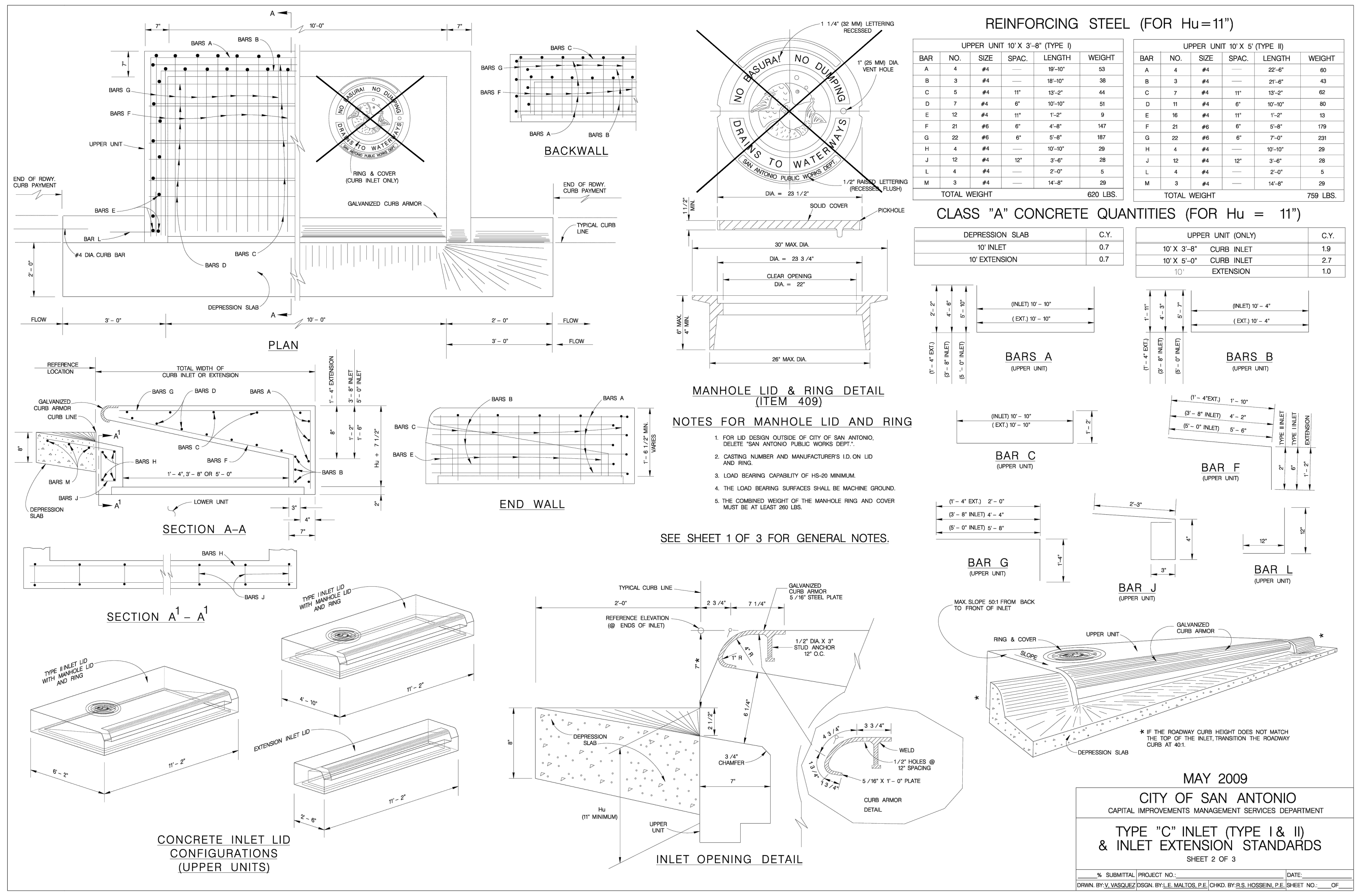
1. WHEN INLET EXTENSIONS ARE REQUIRED FOR ON GRADE INLETS THE EXTENSION(S) SHALL BE PLACED ON THE UPSTREAM END OF THE INLET.
2. FOR CURB INLET EXTENSION REINFORCING STEEL, NOTES & VARIOUS OTHER APPLICABLE DETAILS NOT FOUND ON THIS SHEET, REFER TO SHEETS 1 & 2.

MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TYPE "C" INLET (TYPE I & II)
& INLET EXTENSION STANDARDS
SHEET 3 OF 3

______% SUBMITTAL	PROJECT NO.:______		DATE:______
DRWN. BY: V. VASQUEZ	DSGN. BY: L.E. MALTOS, P.E.	CHKD. BY: R.S. HOSSEINI, P.E.	SHEET NO.:____OF____


PLAN
BACKWALL
SECTION A-A
END WALL
SECTION A¹ - A¹
CONCRETE INLET LID CONFIGURATIONS (UPPER UNITS)
INLET OPENING DETAIL
BARS A (UPPER UNIT)
BARS B (UPPER UNIT)
BAR C (UPPER UNIT)
BAR F (UPPER UNIT)
BAR G (UPPER UNIT)
BAR J (UPPER UNIT)
BAR L (UPPER UNIT)
26" MAX. DIA.
6" MAX. 4" MIN.
TYPICAL CURB LINE
GALVANIZED CURB ARMOR 5/16" STEEL PLATE
REFERENCE ELEVATION (@ ENDS OF INLET)
1/2" DIA. X 3" STUD ANCHOR 12" O.C.
DEPRESSION SLAB

MANHOLE LID & RING DETAIL
(ITEM 409)

NOTES FOR MANHOLE LID AND RING

1. FOR LID DESIGN OUTSIDE OF CITY OF SAN ANTONIO, DELETE "SAN ANTONIO PUBLIC WORKS DEPT.".
2. CASTING NUMBER AND MANUFACTURER'S I.D. ON LID AND RING.
3. LOAD BEARING CAPABILITY OF HS-20 MINIMUM.
4. THE LOAD BEARING SURFACES SHALL BE MACHINE GROUND.
5. THE COMBINED WEIGHT OF THE MANHOLE RING AND COVER MUST BE AT LEAST 260 LBS.

SEE SHEET 1 OF 3 FOR GENERAL NOTES.

REINFORCING STEEL (FOR Hu=11")

UPPER UNIT 10' X 3'–8" (TYPE I)					
BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	4	#4	—	19'–10"	53
B	3	#4	—	18'–10"	38
C	5	#4	11"	13'–2"	44
D	7	#4	6"	10'–10"	51
E	12	#4	11"	1'–2"	9
F	21	#6	6"	4'–8"	147
G	22	#6	6"	5'–8"	187
H	4	#4	—	10'–10"	29
J	12	#4	12"	3'–6"	28
L	4	#4	—	2'–0"	5
M	3	#4	—	14'–8"	29
TOTAL WEIGHT					620 LBS.

UPPER UNIT 10' X 5' (TYPE II)					
BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	4	#4	—	22'–6"	60
B	3	#4	—	21'–6"	43
C	7	#4	11"	13'–2"	62
D	11	#4	6"	10'–10"	80
E	16	#4	11"	1'–2"	13
F	21	#6	6"	5'–8"	179
G	22	#6	6"	7'–0"	231
H	4	#4	—	10'–10"	29
J	12	#4	12"	3'–6"	28
L	4	#4	—	2'–0"	5
M	3	#4	—	14'–8"	29
TOTAL WEIGHT					759 LBS.

CLASS "A" CONCRETE QUANTITIES (FOR Hu = 11")

DEPRESSION SLAB	C.Y.
10' INLET	0.7
10' EXTENSION	0.7

UPPER UNIT (ONLY)	C.Y.
10' X 3'–8" CURB INLET	1.9
10' X 5'–0" CURB INLET	2.7
10' EXTENSION	1.0

* IF THE ROADWAY CURB HEIGHT DOES NOT MATCH THE TOP OF THE INLET, TRANSITION THE ROADWAY CURB AT 40:1.

MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TYPE "C" INLET (TYPE I & II)
& INLET EXTENSION STANDARDS
SHEET 2 OF 3

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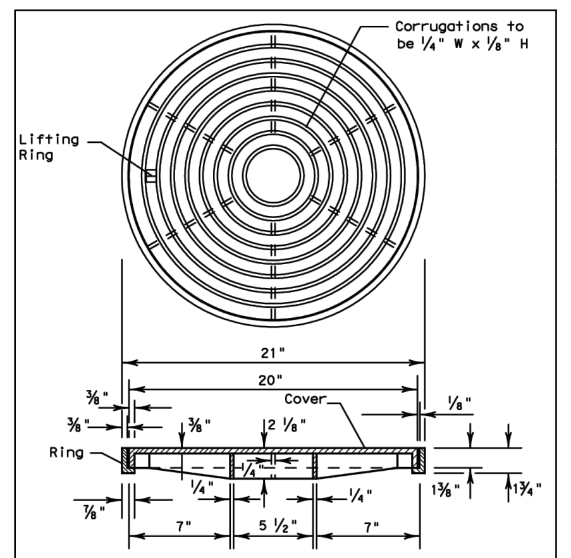
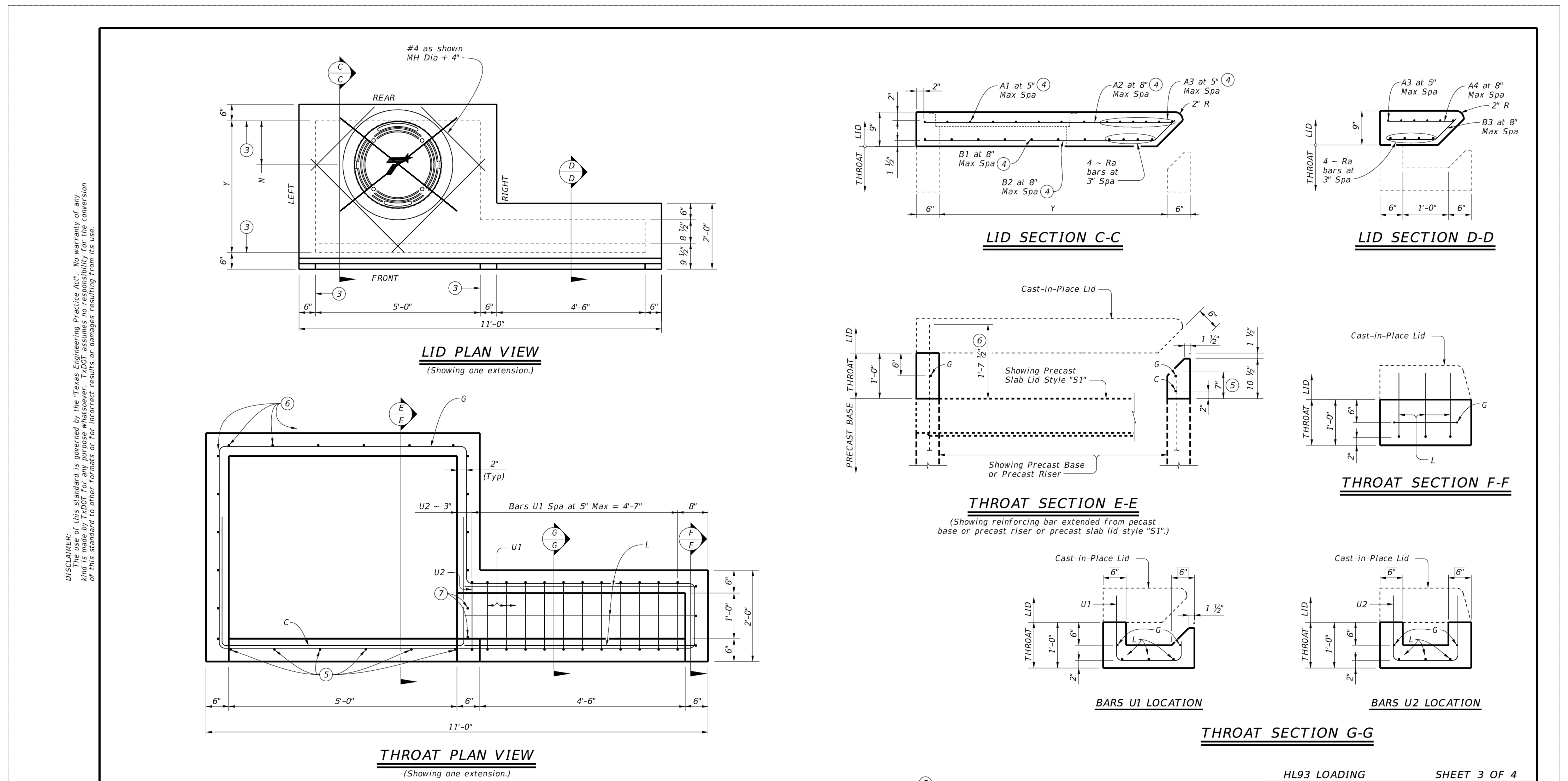
DRWN. BY: V, VASQUEZ	DSGN. BY: L.E. MALTOS, P.E.	CHKD. BY: R.S. HOSSEINI, P.E.	SHEET NO.:____OF____


Corrugations to be 1/8" x 1/8"
Lifting Ring
21"
20"
Cover
Ring

CAST IRON RING & COVER DETAIL


LID PLAN VIEW
(Showing one extension.)
LID SECTION C-C
LID SECTION D-D
THROAT SECTION E-E
(Showing reinforcing bar extended from precast base or precast riser or precast slab lid style "S1".)
THROAT SECTION F-F
THROAT PLAN VIEW
(Showing one extension.)
BARS U1 LOCATION
BARS U2 LOCATION
THROAT SECTION G-G
BARS B2
BARS B3
BARS C
BARS L
BARS U1
BARS U2
BARS G
Showing one complete bar.

③ Matches inside face of wall of precast base or precast riser or precast slab lid style "S1" below inlet.

④ Cut reinforcing bars as needed to provide 1 ½" clear to manhole.

⑤ Extend reinforcing bars from precast base or precast riser or precast slab lid style "S1" 7".

⑥ Extend reinforcing bars from precast base or precast riser or precast slab lid style "S1" 1'–7 ½".

⑦ Do not extend reinforcing bars from precast base.

HL93 LOADING SHEET 3 OF 4

Texas Department of Transportation — Bridge Division Standard

CAST-IN-PLACE CURB
INLET OUTSIDE ROADWAY

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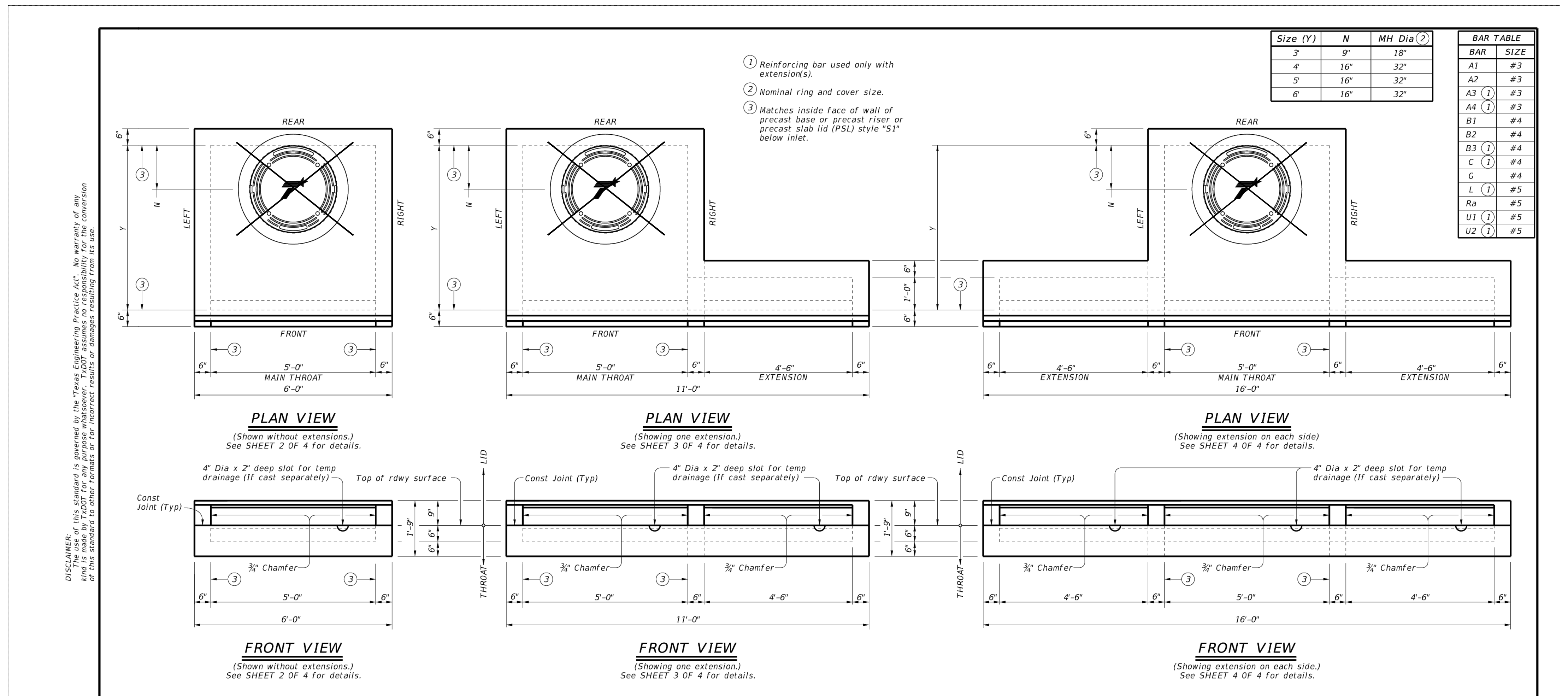
PLAN VIEW
(Shown without extensions.)
See SHEET 2 OF 4 for details.
PLAN VIEW
(Showing one extension.)
See SHEET 3 OF 4 for details.
PLAN VIEW
(Showing extension on each side)
See SHEET 4 OF 4 for details.
FRONT VIEW
(Shown without extension.)
See SHEET 2 OF 4 for details.
FRONT VIEW
(Showing one extension.)
See SHEET 3 OF 4 for details.
FRONT VIEW
(Showing extension on each side.)
See SHEET 4 OF 4 for details.
REAR
FRONT
LEFT
RIGHT
MAIN THROAT
EXTENSION
¾" Chamfer
LEFT SIDE VIEW
(Extensions not shown for clarity.)
DETAIL "A"

① Reinforcing bar used only with extension(s).

② Nominal ring and cover size.

③ Matches inside face of wall of precast base or precast riser or precast slab lid (PSL) style "S1" below inlet.

Size (Y)	N	MH Dia ②
3'	9"	18"
4'	16"	32"
5'	16"	32"
6'	16"	32"

BAR TABLE	
BAR	SIZE
A1	#3
A2	#3
A3 ①	#3
A4 ①	#3
B1	#4
B2	#4
B3 ①	#4
C ①	#4
G	#4
L ①	#5
Ra	#5
U1 ①	#5
U2 ①	#5

CONSTRUCTION NOTES:
Chamfer all vertical edges of inlet lid ¾" as shown in Front View, Sheet 1 of 4.
Maintain 1 ½" clear cover to ends of all vertical reinforcing bars, unless otherwise noted.

MATERIAL NOTES:
Provide Class "S" concrete (f'c = 4,000 psi).
Provide Grade 60 reinforcing steel or equivalent area of WWR.
Provide cast iron solid cover, unless noted otherwise elsewhere in the plans.

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
The intent of this standard is to provide a cast-in-place lid to be used with precast base, precast riser or precast slab lid style "S1".
Inlet throat and lid are not intended for direct traffic. Do not place in roadway.
Lid and throat may be cast monolithically or separately.
See Precast Base (PB) standard for details and notes not shown.
See Precast Slab Lid (PSL) standard for details and notes not shown.
See Curb & Gutter Transitions Details (CGT-PCO) standard for transition examples.
Extensions may be right, left, both, or none. Provide extensions as specified elsewhere in the plans.
Shop drawings for approval are not required.
Payment for inlet is per Item 465, "Junction Boxes, Manholes, and Inlets" by type, size, and extension placement. Extensions are subsidiary to inlet.
Open area of main throat = 360 sq in.
Open area of one extension throat = 324 sq in.

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

HL93 LOADING SHEET 1 OF 4

Texas Department of Transportation — Bridge Division Standard

CAST-IN-PLACE CURB
INLET OUTSIDE ROADWAY

CCO

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GRACE VALLEY RANCH PHASE 3B

CURB INLET DETAILS

DATE
09/24/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS
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KYLE M. HUDEK
138753
10/01/2024
CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C6.06

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TABLE OF DIMENSIONS AND REINFORCING STEEL
(Wings for one structure end)

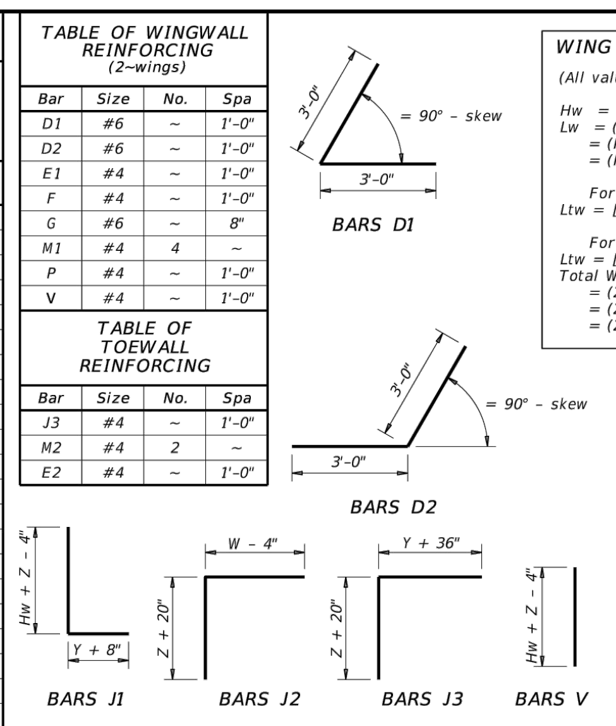
Maximum Wingwall Height Hw	Dimensions W	Dimensions X	Dimensions Y	Dimensions Z	Bars J1 Size	Bars J1 Spa	Bars J2 Size	Bars J2 Spa	Estimated Quantities per ft of wing (2~wings) ④ Reinf Lb/Ft)	Estimated Quantities per ft of wing (2~wings) ④ Conc (CY/Ft)	Estimated Quantities per ft of Toewall (1~toewall) Reinf (Lb/Ft)	Estimated Quantities per ft of Toewall (1~toewall) Conc (CY/Ft)
2'-6"	2'-10"	10"	1'-0"	7"	#4	1'-0"	#4	1'-0"	48.64	0.406	6.85	0.071
2'-9"	2'-10"	10"	1'-0"	7"	#4	1'-0"	#4	1'-0"	49.31	0.424	6.85	0.071
3'-0"	2'-10"	10"	1'-0"	7"	#4	1'-0"	#4	1'-0"	49.98	0.444	6.85	0.071
3'-3"	2'-10"	10"	1'-0"	7"	#4	1'-0"	#4	1'-0"	53.32	0.462	6.85	0.071
3'-6"	2'-10"	10"	1'-0"	7"	#4	1'-0"	#4	1'-0"	53.98	0.480	6.85	0.071
4'-0"	3'-2"	1'-2"	1'-0"	7"	#4	1'-0"	#4	1'-0"	55.77	0.532	6.85	0.071
4'-6"	3'-2"	1'-2"	1'-0"	7"	#4	1'-0"	#4	1'-0"	59.77	0.568	6.85	0.071
5'-0"	3'-9"	1'-7"	1'-2"	7"	#4	1'-0"	#4	1'-0"	63.45	0.632	6.96	0.075
5'-6"	3'-9"	1'-7"	1'-2"	7"	#4	1'-0"	#4	1'-0"	67.46	0.668	6.96	0.075
6'-0"	4'-4"	2'-0"	1'-4"	7"	#5	1'-0"	#5	1'-0"	80.67	0.730	7.07	0.078
6'-6"	4'-4"	2'-0"	1'-4"	7"	#5	1'-0"	#5	1'-0"	85.05	0.768	7.07	0.078
7'-0"	5'-0"	2'-3"	1'-9"	8"	#5	1'-0"	#5	1'-0"	92.15	0.864	8.07	0.093
7'-6"	5'-0"	2'-3"	1'-9"	8"	#5	1'-0"	#5	1'-0"	96.54	0.902	8.07	0.093
8'-0"	5'-6"	2'-8"	1'-10"	8"	#5	6"	#5	6"	139.04	0.962	8.13	0.095
8'-6"	5'-6"	2'-8"	1'-10"	8"	#5	6"	#5	6"	144.47	1.000	8.13	0.095
9'-6"	6'-0"	2'-10"	2'-2"	9"	#5	6"	#5	6"	156.93	1.136	8.41	0.110
10'-6"	6'-5"	3'-0"	2'-5"	9"	#6	6"	#5	6"	196.27	1.234	8.57	0.117
11'-6"	7'-2"	3'-6"	2'-8"	11"	#6	6"	#6	6"	230.13	1.438	9.52	0.140
12'-6"	7'-8"	3'-9"	2'-11"	1'-0"	#7	6"	#6	6"	283.41	1.592	9.74	0.157
13'-6"	8'-2"	4'-0"	3'-2"	1'-2"	#8	6"	#6	6"	348.72	1.804	10.02	0.186
14'-6"	8'-10"	4'-5"	3'-5"	1'-4"	#9	6"	#6	6"	432.94	2.046	10.30	0.218
15'-6"	9'-6"	4'-10"	3'-8"	1'-6"	#9	6"	#7	6"	489.52	2.302	11.24	0.253
16'-0"	9'-11"	5'-0"	3'-11"	1'-7"	#9	6"	#7	6"	505.72	2.448	11.47	0.279

TABLE OF WINGWALL REINFORCING
(2~wings)

Bar	Size	No.	Spa
D1	#6	~	1'-0"
D2	#6	~	1'-0"
E1	#4	~	1'-0"
F	#4	~	1'-0"
G	#6	~	8"
M1	#4	4	~
P	#4	~	1'-0"
V	#4	~	1'-0"

TABLE OF TOEWALL REINFORCING

Bar	Size	No.	Spa
J3	#4	~	1'-0"
M2	#4	2	~
E2	#4	~	1'-0"


3'-0"
= 90° - skew
3'-0"
BARS D1
3'-0"
= 90° - skew
3'-0"
BARS D2
Hw + Z - 4"
Y + 8"
BARS J1
W - 4"
Z + 20"
BARS J2
Y + 36"
Z + 20"
BARS J3
Hw + Z - 4"
BARS V

WING DIMENSION FORMULAS:

(All values are in feet.)

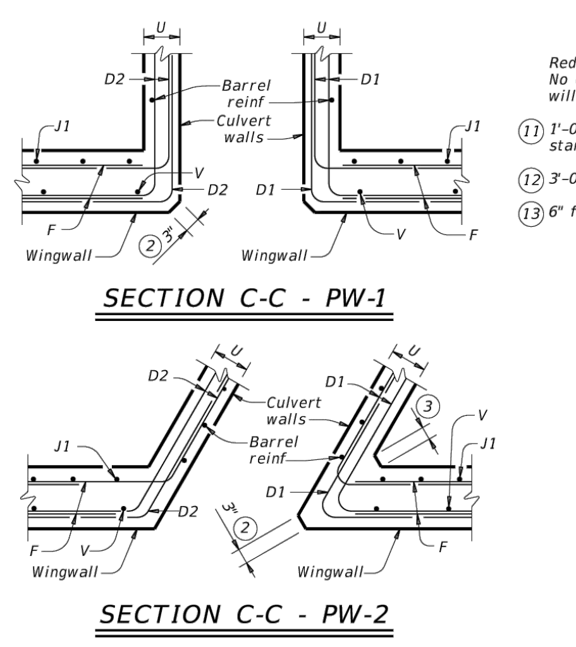
Hw = H + T + C
Lw = (Hw) (SL) ÷ cosine (θ) for Type PW-1
= (Hw - 1') (SL) ÷ cosine (θ) for Type PW-2 and Hw ≥ 4'
= (Hw - 0.5') (SL) ÷ cosine (θ) for Type PW-2 and Hw < 4'

For cast-in-place culverts:
Ltw = [(N) (S) + (N + 1) (U)] ÷ cosine (θ)

For precast culverts:
Ltw = [(N) (2 U + S) + (N - 1) (0.5')] ÷ cosine (θ)
Total Wingwall Area (two wings ~ SF)
= (2)(Hw)(Lw) for Type PW-1
= (2)(Hw)(Lw) - 6 SF for Type PW-2 and Hw ≥ 4'
= (2)(Hw)(Lw) - 1.5 SF for Type PW-2 and Hw < 4'

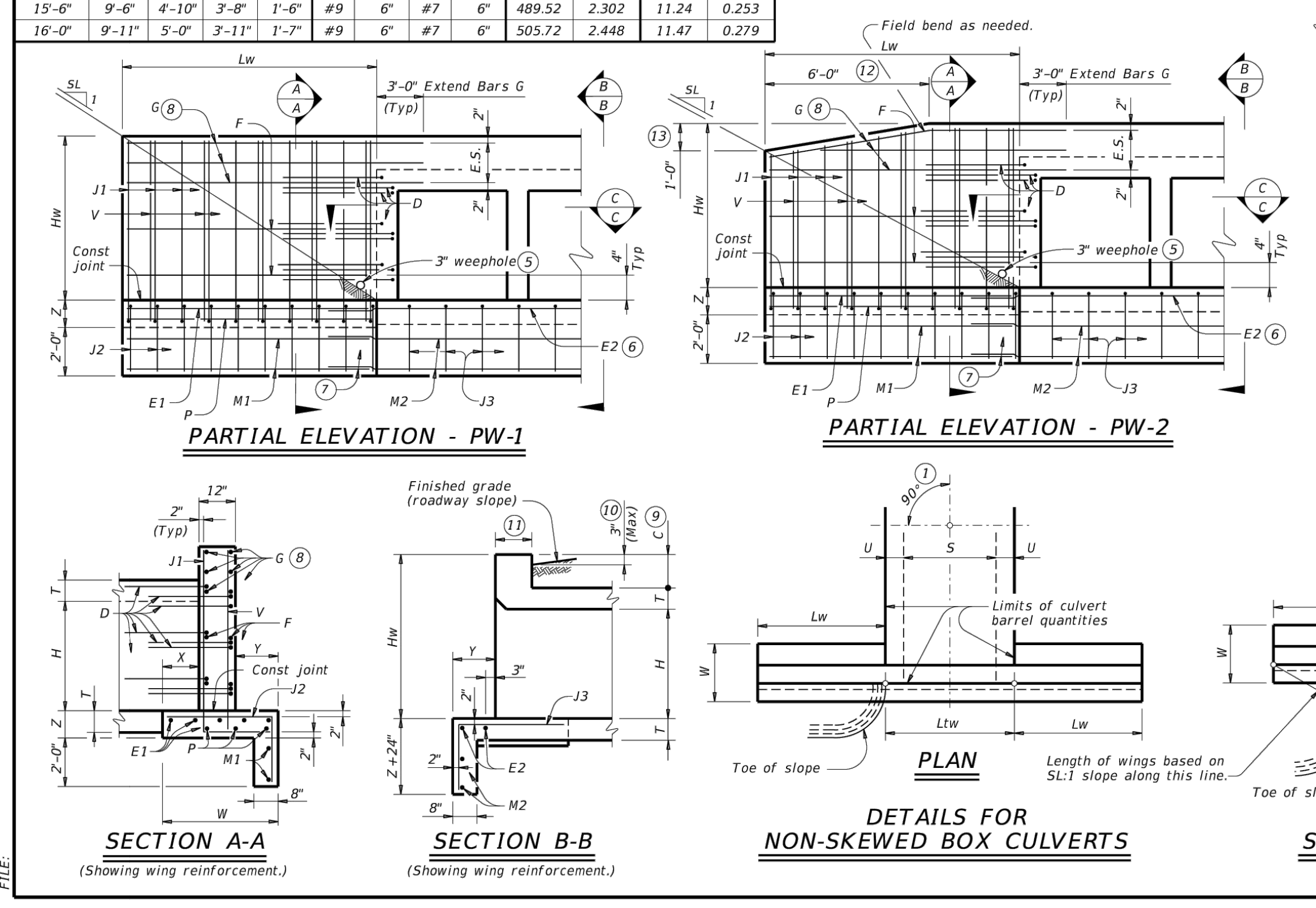
Hw = Height of wingwall
Lw = Length of wingwall
Ltw = Culvert toewall length
N = Number of culvert spans
SL:1 = Channel slope ratio. (horizontal: 1 vertical, usual value is 2:1)
θ = Culvert skew

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


U
D2
Barrel reinf
Culvert walls
J1
V
D2
F
Wingwall
② 3"
D1
Culvert skew
③

SECTION C-C - PW-1

SECTION C-C - PW-2


Lw
SL 1
G ⑧
F
A A
3'-0" Extend Bars G (Typ)
2"
E.S.
B B
J1
V
Hw
Const joint
D
C C
3" weephole ⑤
4" Typ
E1
E2 ⑥
J2
Field bend as needed.
6'-0" ⑫
⑬ 1'-0"
12" (Typ)
Finished grade (roadway slope)
Const joint
M1
M2
P
J3
Toe of slope
Ltw
Limits of culvert barrel quantities
Length of wings based on SL:1 slope along this line.

PARTIAL ELEVATION - PW-1

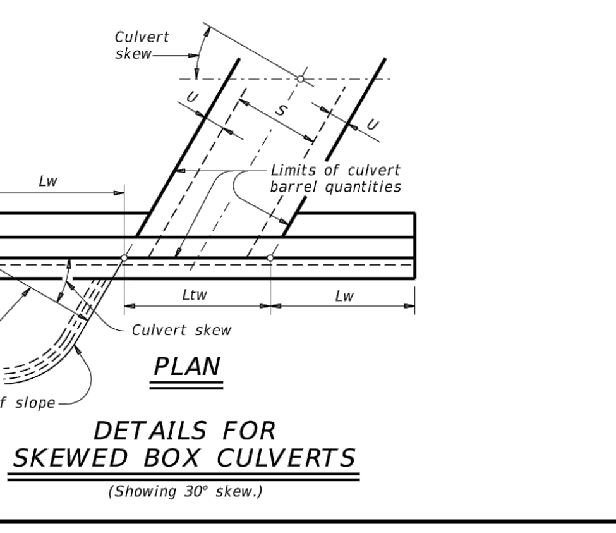
PARTIAL ELEVATION - PW-2

SECTION A-A
(Showing wing reinforcement.)

SECTION B-B
(Showing wing reinforcement.)

PLAN

DETAILS FOR NON-SKEWED BOX CULVERTS


Culvert skew
①
Limits of culvert barrel quantities
Culvert skew
Toe of slope
Lw
Ltw

PLAN

DETAILS FOR SKEWED BOX CULVERTS
(Showing 30° skew.)

① Skew = 0°

② At discharge end, chamfer may be ¾" minimum.

③ For 15° skew ~ 1"
For 30° skew ~ 2"
For 45° skew ~ 3"

④ Quantities shown are for two Type PW-1 wings. Adjust concrete volume for Type PW-2 wings. To determine estimated quantities for two wings, multiply the tabulated values by Lw. Quantities shown do not include weight of Bars D.

⑤ Provide weepholes for Hw = 5'-0" and greater. Fill around weepholes with coarse gravel.

⑥ Extend Bars E2 1'-6" minimum into the wingwall footing.

⑦ Lap Bars M1 1'-6" minimum with Bars M2.

⑧ Place Bars G as shown, equally spaced at 8" maximum. Provide at least two pairs of Bars G per wing.

⑨ 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 Extended 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.

⑩ 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.

⑪ 1'-0" typical. 2'-3" when the Box Culvert Rail Mounting Details (RAC) standard sheet is referred to elsewhere in the plans.

⑫ 3'-0" for Hw < 4'.

⑬ 6" for Hw < 4'.

DESIGNER NOTES:
Type PW-1 can be used for all applications and must be used if railing is to be mounted to the wingwall.
Type PW-2 can only be used for applications without a railing mounted to the wingwall.

MATERIAL NOTES:
Provide Class C concrete (f'c=3,600 psi).
Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel if required elsewhere in the plans.

GENERAL NOTES:
Designed in accordance with AASHTO LRFD Bridge Design Specifications.
Depth of toewalls for wingwalls and culverts may be reduced or eliminated when founded on solid rock, when directed by the Engineer.
See Box Culvert Supplement (BCS) standard sheet for wingwall type and additional dimensions and information.
Quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for the Contractor's information only.

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

Texas Department of Transportation
Bridge Division Standard

CONCRETE WINGWALLS
WITH PARALLEL WINGS FOR BOX CULVERTS TYPES PW-1 AND PW-2
PW

FILE: CD-PW-20.dgn | DN: GAF | CK: CAT | DW: TxDOT | CK: TxDOT
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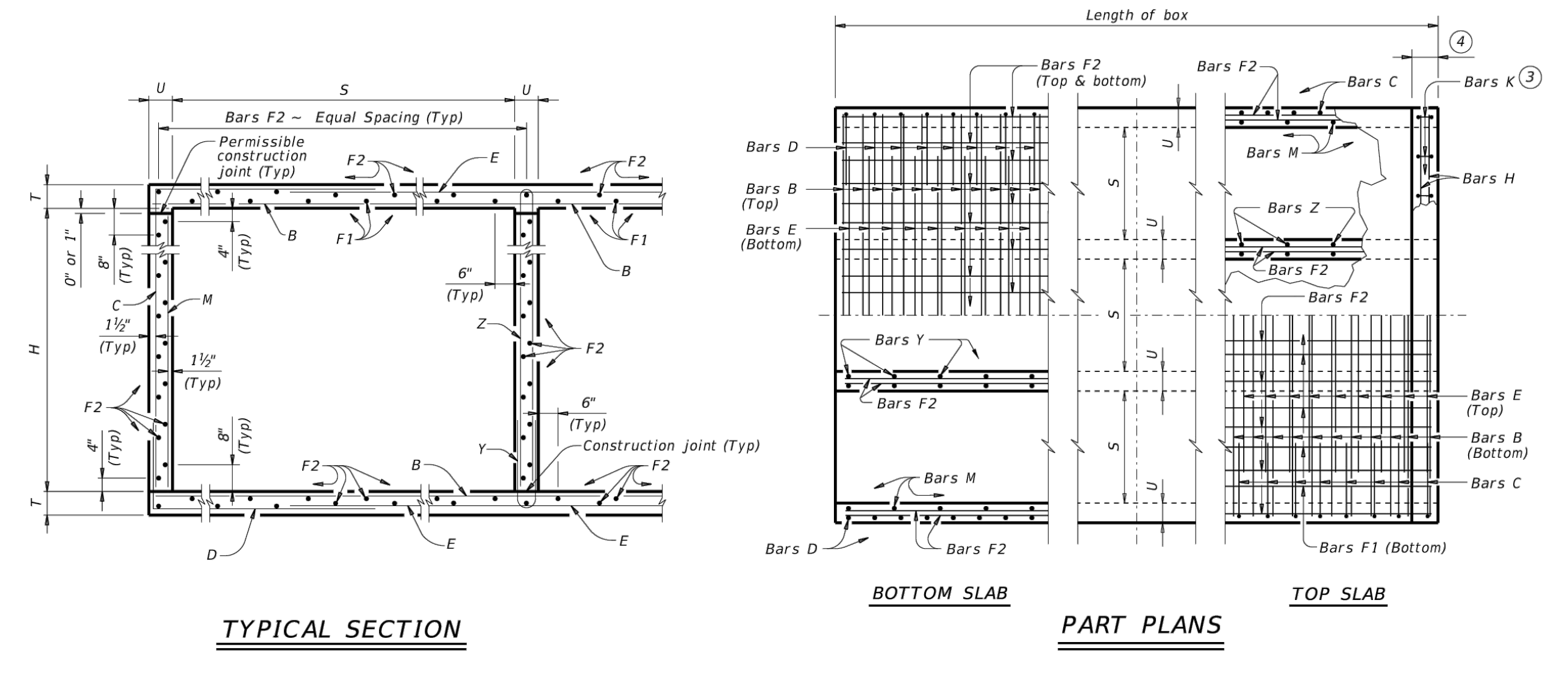
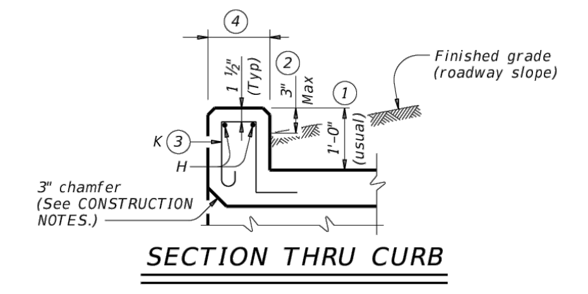

U
S
U
Bars F2 ~ Equal Spacing (Typ)
Permissible construction joint (Typ)
F2
E
F1
B
Construction joint (Typ)
Bars C
Bars D
H
M
Y
Z
Length of box
Bars F2 (Top & bottom)
Bars K ③
Bars H
Bars Z
Bars F2
Bars Y
Bars M
Bars E (Top)
Bars B (Bottom)
Bars C
Bars F1 (Bottom)
④

TYPICAL SECTION

BOTTOM SLAB

TOP SLAB

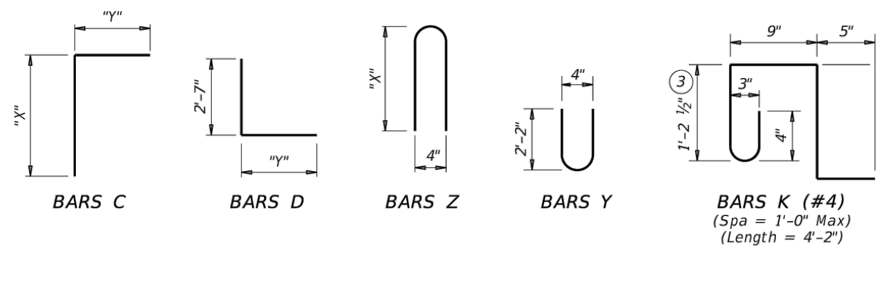
PART PLANS


④
Finished grade (roadway slope)
K ③
H
3" chamfer (See CONSTRUCTION NOTES)
3" Max
1'-0" usual

SECTION THRU CURB

TABLE OF BAR DIMENSIONS

H	"X"	"Y"
2'-0"	2'-6 ½"	3'-8 ½"
3'-0"	3'-6 ½"	3'-8 ½"
4'-0"	4'-6 ½"	3'-8 ½"
5'-0"	5'-6 ½"	3'-8 ½"


"Y"
"X"
2'-7"
"Y"
"X"
4"
4"
2'-2"
9"
5"
③ 1'-2 ½"
3"
4"
1'-4 ¼"

BARS C

BARS D

BARS Z

BARS Y

BARS K (#4)
(Spa = 1'-0" Max)
(Length = 4'-2")

① 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 Extended 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 Rail Anchorage Curb (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.

② 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.

③ For curbs less than 1'-0" high, tilt Bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, Bars K may be omitted.

④ 1'-0" typical. 2'-3" when the Rail Anchorage Curb (RAC) standard sheet is referred to elsewhere in the plans.

The Contractor may replace Bars B, C, D, E, F1, F2, M, Y, and/or Z with deformed welded wire reinforcement (WWR) meeting the requirements of ASTM A1064. The area of required reinforcement may be reduced by the ratio of 60 ksi / 70 ksi. Spacing of WWR is limited to 4" Min and 18" Max. When required, provide lap splices in the WWR of the same length required for the equivalent bar size, rounded up for wire sizes between conventional bar sizes. The lap length required for WWR is never less than the lap length required for uncoated #4 bars.

Example conversion: Replacing No. 6 Gr 60 at 6" Spacing with WWR
Required WWR = (0.44 sq. in. per 0.5 ft.) x (60 ksi / 70 ksi) = 0.755 sq. in. per ft.
If D30.6 wire is used to meet the 0.755 sq. in. per ft. requirement in this example, the required spacing = (0.306 sq. in.) / (0.755 sq. in. per ft.) x (12 in. per ft.) = 4.86" Max spacing. Required lap length for the provided D30.6 wire is 2'-1" (the same minimum lap length required for uncoated #5 bars, as listed under MATERIAL NOTES).

CONSTRUCTION NOTES:
Do not use permanent forms.
Chamfer the bottom edge of the top slab 3" at the entrance.
Optionally, raise construction joints shown at the flow line by a maximum of 6". If this option is taken, Bars M may be cut off or raised, Bars C and D may be reversed, and Bars Y and Z may be reversed.

MATERIAL NOTES:
Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel if required elsewhere in the plans.
Provide Class C concrete (f'c = 3,600 psi) for culvert barrel and curb, with the following exceptions: provide Class S concrete (f'c = 4,000 psi) for top slabs of:
- culverts with overlay,
- culverts with 1-to-2 course surface treatment, or
- culverts with the top slab as the final riding surface.

Provide bar laps, where required, as follows:
- Uncoated or galvanized ~ #4 = 1'-8" Min
- Uncoated or galvanized ~ #5 = 2'-1" Min
- Uncoated or galvanized ~ #6 = 2'-6" Min

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications for the range of fill heights shown.
See the Multiple Box Culverts Cast-In-Place Miscellaneous Detail (MC-MD) standard sheet for details pertaining to skewed ends, angle sections, and lengthening.

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

HL93 LOADING SHEET 1 OF 2

Texas Department of Transportation
Bridge Division Standard

MULTIPLE BOX CULVERTS CAST-IN-PLACE
5'-0" SPAN
0' TO 20' FILL
MC-5-20

FILE: CD-MC520-20.dgn | DN: TBE | CK: BMP | DW: TxDOT | CK: TxDOT
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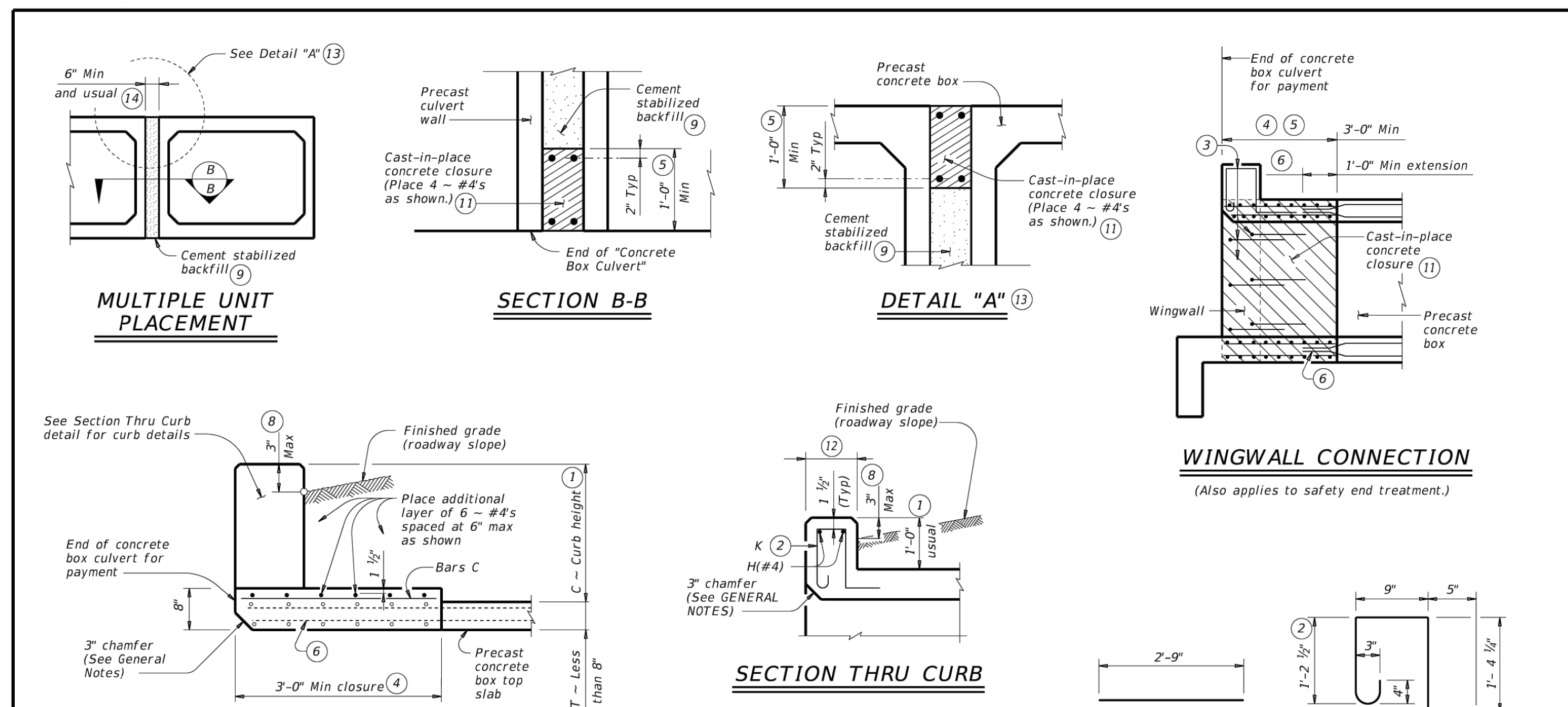

See Detail "A" ⑬
6" Min and usual ⑭
Cement stabilized backfill
Precast culvert wall
Cast-in-place concrete closure (Place 4 ~ #4's as shown) ⑪
End of "Concrete Box Culvert"
Cement stabilized backfill ⑨
Precast concrete box
Cast-in-place concrete closure (Place 4 ~ #4's as shown) ⑪
End of concrete box culvert for payment
④ ⑤
3'-0" Min
1'-0" Min extension
Wingwall
Cast-in-place concrete closure
Precast concrete box
See Section Thru Curb detail for curb details
Finished grade (roadway slope)
Place additional layer of 6 ~ #4's spaced at 6" max as shown
End of concrete box culvert for payment
Bars C
C ~ Curb height ①
T ~ Less than 8"
3" chamfer (See General Notes)
Precast concrete box top slab
3'-0" Min closure ④
Finished grade (roadway slope)
K ②
H(#4)
3" chamfer (See GENERAL NOTES)
1'-0" usual
3" Max
2'-9"
9"
5"
1'-2 ½"
1'-4 ¼"

MULTIPLE UNIT PLACEMENT

SECTION B-B

DETAIL "A" ⑬

WINGWALL CONNECTION
(Also applies to safety end treatment.)

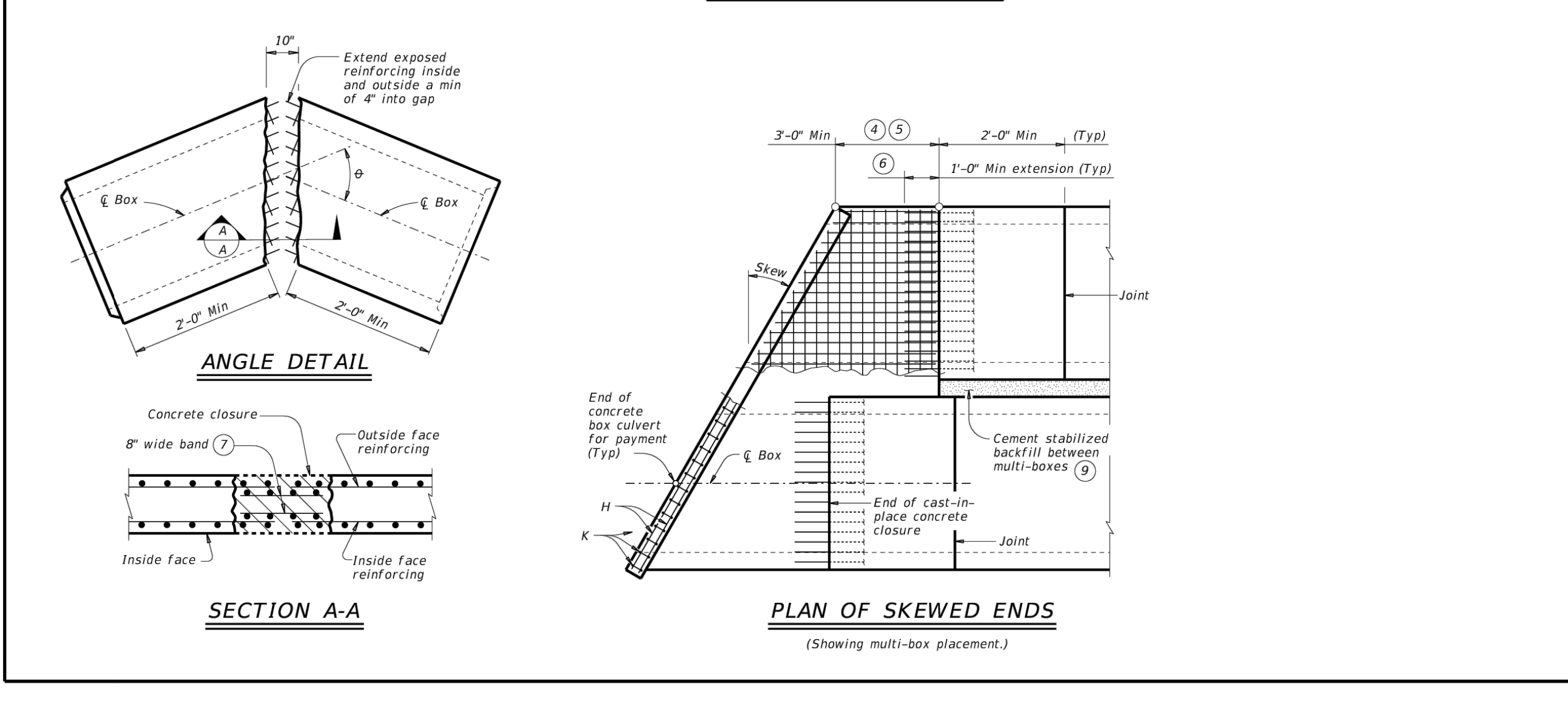
SECTION THRU TOP SLABS LESS THAN 8"

SECTION THRU CURB

BARS C (#4)
(Spa = 1'-0" Max)

BARS K (#4)
(Spa = 1'-0" Max)
(Length = 4'-2")

QUANTITIES PER FOOT OF CURB ⑩	
Reinforcing Steel	4.12 Lb
Concrete	0.037 CY


10°
Extend exposed reinforcing inside and outside a min of 4" into gap
Box
Box
2'-0" Min
Concrete closure
8" wide band
Outside face reinforcing
Inside face
Inside face reinforcing
3'-0" Min ④⑤
2'-0" Min (Typ)
1'-0" Min extension (Typ)
Skew
Joint
End of concrete box culvert for payment (Typ)
Box
End of cast-in-place concrete closure
Cement stabilized backfill between multi-boxes
Joint
H

ANGLE DETAIL

SECTION A-A

PLAN OF SKEWED ENDS
(Showing multi-box placement.)

① 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail, bicycle rail, or curbs taller than 1'-0, refer to the Extended 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.

② For curbs less than 1'-0" high, tilt Bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, Bars K may be omitted.

③ Extend curb, wingwall, or safety end treatment reinforcing into concrete closure. Bend or trim, as necessary, any reinforcing that does not fit into closure area.

④ Provide a 3'-0" Min cast-in-place concrete closure. Break back boxes in the field or cast boxes short. Provide bands of reinforcing in the closure that are the same size and spacing as in the precast box section. Provide #4 longitudinal reinforcement spaced at 12 inches Max within the closure. Except where shown otherwise, construct the cast-in-place closure flush with the inside and outside faces of the precast box section.

⑤ For multiple unit placements, adjust the length of the closure for the interior walls as necessary. Provide a 3'-0" Min cast-in-place closure in the top slab, bottom slab, and exterior wall. See Section B-B detail when interior walls are cast full length.

⑥ Extend precast box reinforcing a minimum of 1'-0" into concrete closure (Typ).

⑦ Place bands of reinforcing matching the inside and outside face reinforcing in the gaps of the top and bottom slabs. Place a band matching the outside face reinforcing of the wall in the gaps of the walls (placed in the outside face only). Tack weld the bands to the exposed reinforcing at each point of contact.

⑧ 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.

⑨ Cement stabilized backfill between boxes is considered part of the box culvert for payment.

⑩ All curb concrete and reinforcing is considered part of the box culvert for payment.

⑪ Any additional concrete and reinforcing required for the closures will be considered subsidiary to the box culvert for payment.

⑫ 1'-0" typical. 2'-3" when the Box Culvert Rail Mounting Details (RAC) standard sheet is referred to elsewhere in the plans.

⑬ For multiple unit placement with overlay, with 1 to 2 course surface treatment, or with the top slab as the final riding surface, provide wall closure as shown in Detail "A".

⑭ This dimension may be increased with approval of the Engineer to allow the precast boxes to be tunneled or jacked in accordance with Item 476, "Jacking, Boring, or Tunneling Pipe or Box." No payment will be made for any additional material in the gap between adjacent boxes.

MATERIAL NOTES:
Provide Grade 60 reinforcing steel.
Provide ASTM A1064 welded wire reinforcement.
Provide Class C concrete (f'c = 3,600 psi) for the closures.
Provide cement stabilized backfill meeting the requirements of Item 400, "Excavation and Backfill for Structures."
Any additional concrete required for the closures will be considered subsidiary to the box culvert.

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
Refer to the Single Box Culverts Precast (SCP) standard sheets for details and notes not shown.
Chamfer the bottom edge of the top slab closure 3 inches at culvert closure ends.

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

HL93 LOADING

Texas Department of Transportation
Bridge Division Standard

BOX CULVERTS PRECAST MISCELLANEOUS DETAILS
SCP-MD

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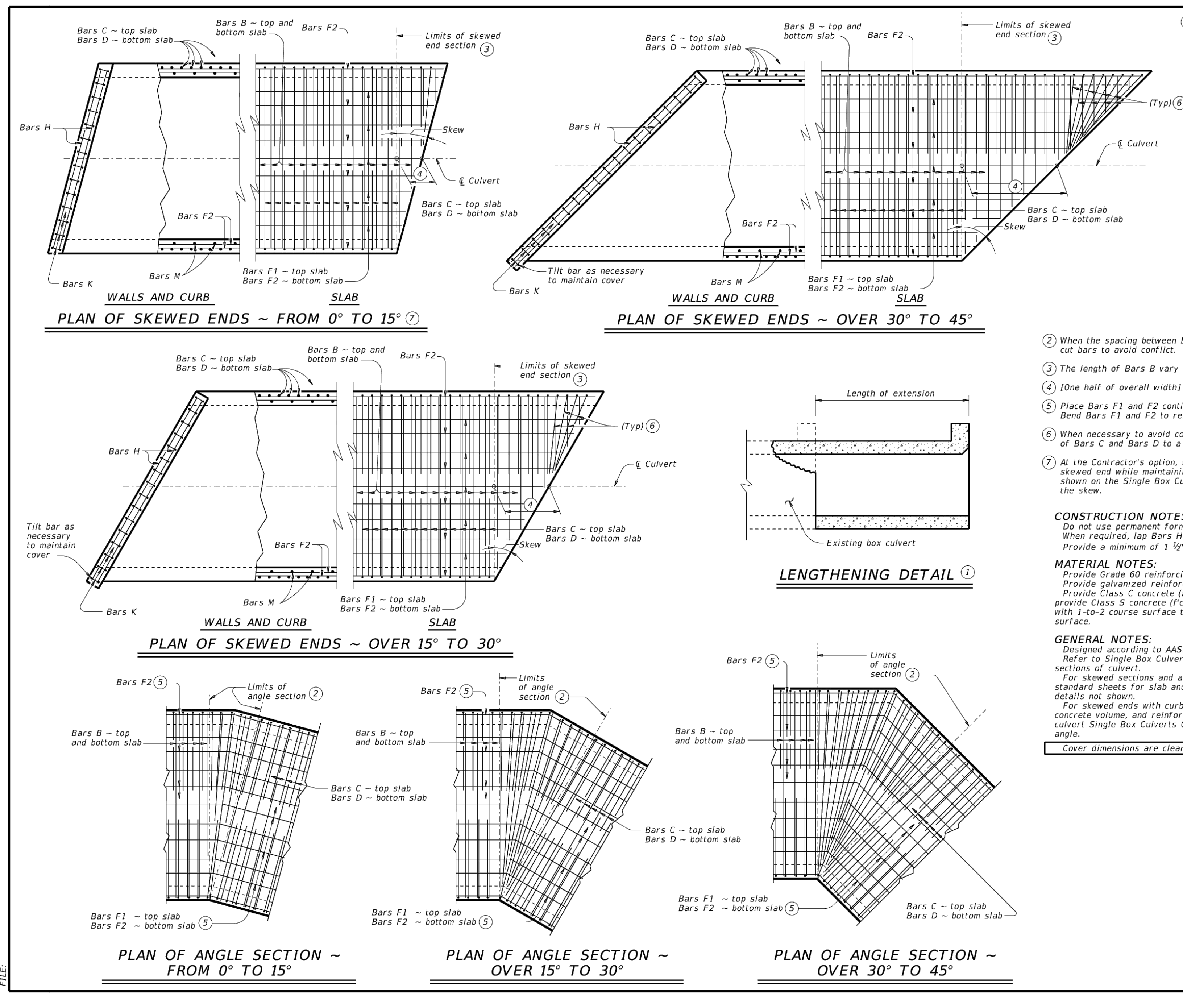
Bars C ~ top slab
Bars D ~ bottom slab
Bars B ~ top and bottom slab
Bars F2
Limits of skewed end section ③
Bars H
Skew
Bars F2
℄ Culvert
Bars C ~ top slab
Bars D ~ bottom slab
Bars M
Bars K
Bars F1 ~ top slab
Bars F2 ~ bottom slab
Tilt bar as necessary to maintain cover
(Typ) ⑥
Length of extension
Existing box culvert
Bars F2 ⑤
Limits of angle section ④
Bars B ~ top and bottom slab
Bars C ~ top slab
Bars D ~ bottom slab
Bars F1 ~ top slab
Bars F2 ~ bottom slab ⑤

WALLS AND CURB

SLAB

PLAN OF SKEWED ENDS ~ FROM 0° TO 15° ⑦

PLAN OF SKEWED ENDS ~ OVER 30° TO 45°

PLAN OF SKEWED ENDS ~ OVER 15° TO 30°

LENGTHENING DETAIL ①

PLAN OF ANGLE SECTION ~ FROM 0° TO 15°

PLAN OF ANGLE SECTION ~ OVER 15° TO 30°

PLAN OF ANGLE SECTION ~ OVER 30° TO 45°

① For skewed box culverts with less than 2'-0" of fill, break back the top slab to provide a 1'-10" minimum lap of the existing longitudinal bars with the longitudinal bars in the extension.
For non-skewed box culverts with less than 2'-0" of fill and for skewed or non-skewed culverts with a fill depth of 2'-0" or greater, break back the top slab to provide a 1'-10" minimum lap of the existing longitudinal bars with the longitudinal bars in the extension. Alternatively, if the box is non-skewed, embed #6 anchor bars with a Type III, C, D , E, or F anchor adhesive into the existing walls, top and bottom slab at 1'-6" center-to-center spacing. Minimum embedment depth is 8". Anchor adhesive chosen must be able to achieve a basic bond strength in tension, Nba, of 26.4 kips. Submit signed and sealed calculations or the manufacturer's published literature showing the proposed anchor adhesive's ability to develop this load to the Engineer for approval prior to use. Anchor installation, including hole size, drilling, and clean out, must be in accordance with Item 450, "Railing." Test adhesive anchors in accordance with Item 450.3.3, "Tests." Test 3 anchors per 100 anchors installed.
Break back wings and apron as necessary to install the extension. Clean and extend the exposed wingwall and apron reinforcing into the extension. When lengthening existing box culverts with dimensions different than current standard dimensions, form horizontal and vertical transitions as directed by the Engineer. Match bottom slabs to maintain an uninterrupted flow line. Field bend existing and new reinforcing into transitions and maintain specified cover requirements. For top slabs of culverts with overlay, with 1-to-2 course surface treatment, or with the top slab as the final riding surface, adjust the "H" dimension to provide a smooth riding surface.

② When the spacing between Bars B becomes less than half of the normal spacing, cut bars to avoid conflict.

③ The length of Bars B vary in the skewed end sections.

④ [One half of overall width] x [tangent of the skew angle]

⑤ Place Bars F1 and F2 continuously through the angle section.
Bend Bars F1 and F2 to remain parallel to the walls of the box culvert.

⑥ When necessary to avoid conflict in acute corners, shorten the slab extension leg of Bars C and Bars D to a minimum of 1'-6" for skews of 30° thru 45°.

⑦ At the Contractor's option, for skews of 15° or less, place Bars B, C, and D parallel to the skewed end while maintaining spacing along centerline of box. Increase lengths of Bars B shown on the Single Box Culverts Cast-In-Place (SCC) standards sheets to accommodate the skew.

CONSTRUCTION NOTES:
Do not use permanent forms.
When required, lap Bars H 1'-8" for uncoated or galvanized bars.
Provide a minimum of 1 ½" clear cover.

MATERIAL NOTES:
Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel, if required elsewhere in the plans.
Provide Class C concrete (f'c = 3,600 psi) with these exceptions: provide Class S concrete (f'c = 4,000 psi) for top slabs of culverts with overlay, with 1-to-2 course surface treatment, or with the top slab as the final riding surface.

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
Refer to Single Box Culverts Cast-in-Place (SCC) standard sheets for details of straight sections of culvert.
For skewed sections and angle sections, refer to Single Box Culverts Cast-in-Place (SCC) standard sheets for slab and wall dimensions, bar sizes, maximum bar spacing, and any other details not shown.
For skewed ends with curbs, adjust length of Bars H, number of Bars K, curb concrete volume, and reinforcing steel weight by dividing the values shown on the culvert Single Box Culverts Cast-In-Place (SCC) standard sheets by the cosine of the skew angle.

Cover dimensions are clear dimensions, unless noted otherwise.

HL93 LOADING

Texas Department of Transportation
Bridge Division Standard

SINGLE BOX CULVERTS CAST-IN-PLACE MISCELLANEOUS DETAILS
SCC-MD

FILE: CD-SCC-MD-20.dgn | DN: TxDOT | CK: TxDOT | DW: TxDOT | CK: TxDOT
©TxDOT February 2020 | CONT | SECT | JOB | HIGHWAY
REVISIONS | DIST | COUNTY | SHEET NO.

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EST. 1980

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

GRACE VALLEY RANCH
PHASE 3B

BOX CULVERT AND HEADWALL DETAILS

DATE
09/24/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS
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KYLE M. HUDEK
138753
K. Hudek 10/01/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C6.07

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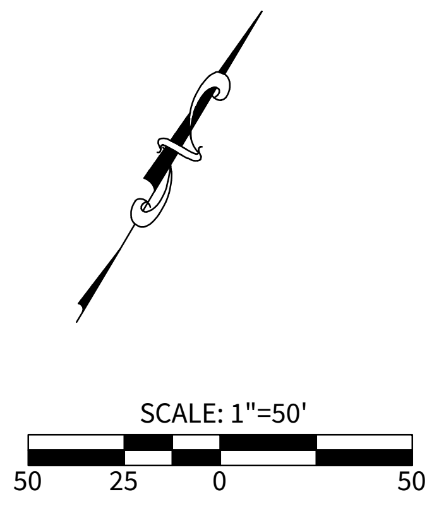
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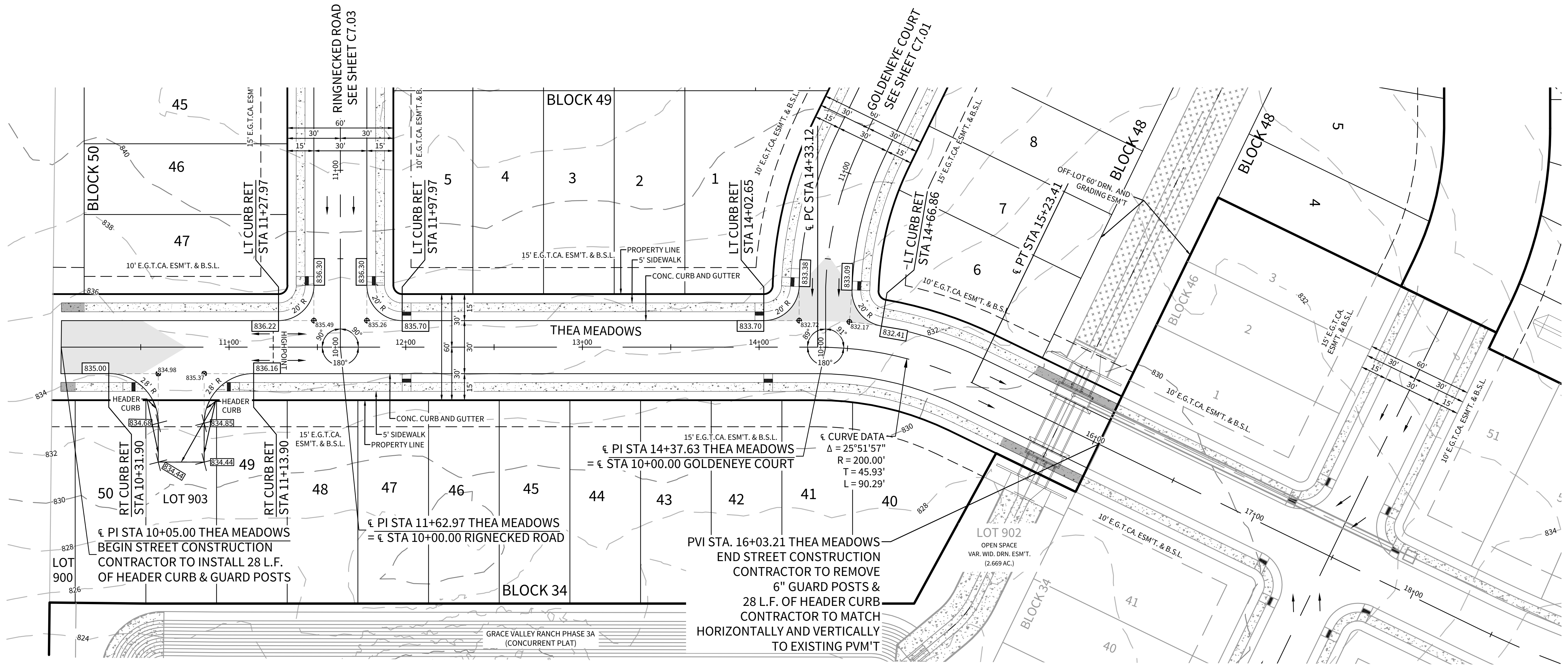

RINGNECKED ROAD
SEE SHEET C7.03
GOLDENEYE COURT
SEE SHEET C7.01
BLOCK 50
BLOCK 49
BLOCK 48
BLOCK 48
BLOCK 46
BLOCK 34
BLOCK 34
45
46
47
5
4
3
2
1
8
7
6
5
4
3
2
1
51
50
49
48
47
46
45
44
43
42
41
40
41
40
LOT 903
LOT 900
LOT 902
OPEN SPACE
VAR. WID. DRN. ESM'T.
(2.669 AC.)
LT CURB RET
STA 11+27.97
LT CURB RET
STA 11+97.97
LT CURB RET
STA 14+02.65
℄ PC STA 14+33.12
LT CURB RET
STA 14+66.86
℄ PT STA 15+23.41
RT CURB RET
STA 10+31.90
RT CURB RET
STA 11+13.90
60'
30'
30'
15'
30'
15'
10' E.G.T.CA. ESM'T. & B.S.L.
15' E.G.T.CA. ESM'T. & B.S.L.
15' E.G.T.CA. ESM'T
PROPERTY LINE
5' SIDEWALK
CONC. CURB AND GUTTER
OFF-LOT 60' DRN. AND GRADING ESM'T
836.30
836.30
833.38
833.09
836.22
835.49
835.26
835.70
833.70
832.72
832.17
832.41
835.00
834.98
835.37
836.16
834.68
834.85
834.44
834.44
HIGHPOINT
HEADER CURB
HEADER CURB
20' R
28' R
90°
180°
89°
91°
THEA MEADOWS
11+00
12+00
13+00
14+00
16+00
17+00
18+00
836
834
832
830
828
826
824
840
838
℄ PI STA 10+05.00 THEA MEADOWS
BEGIN STREET CONSTRUCTION
CONTRACTOR TO INSTALL 28 L.F.
OF HEADER CURB & GUARD POSTS
℄ PI STA 11+62.97 THEA MEADOWS
= ℄ STA 10+00.00 RIGNECKED ROAD
℄ PI STA 14+37.63 THEA MEADOWS
= ℄ STA 10+00.00 GOLDENEYE COURT
℄ CURVE DATA
Δ = 25°51'57"
R = 200.00'
T = 45.93'
L = 90.29'
PVI STA. 16+03.21 THEA MEADOWS
END STREET CONSTRUCTION
CONTRACTOR TO REMOVE
6" GUARD POSTS &
28 L.F. OF HEADER CURB
CONTRACTOR TO MATCH
HORIZONTALLY AND VERTICALLY
TO EXISTING PVM'T
GRACE VALLEY RANCH PHASE 3A
(CONCURRENT PLAT)

LEGEND

▨	- SIDEWALK CONSTRUCTED WITH INFRASTRUCTURE
▢	- STREET WASHOUT (SEE DETAIL SHEETC7.06)
——	- STREET CENTERLINE
— —	- EXISTING CONTOURS
XXX.XX	- TOP OF CURB SPOT ELEVATION
▨	- DRIVEWAY
⊕XXX.XX	- PAVEMENT ELEVATION

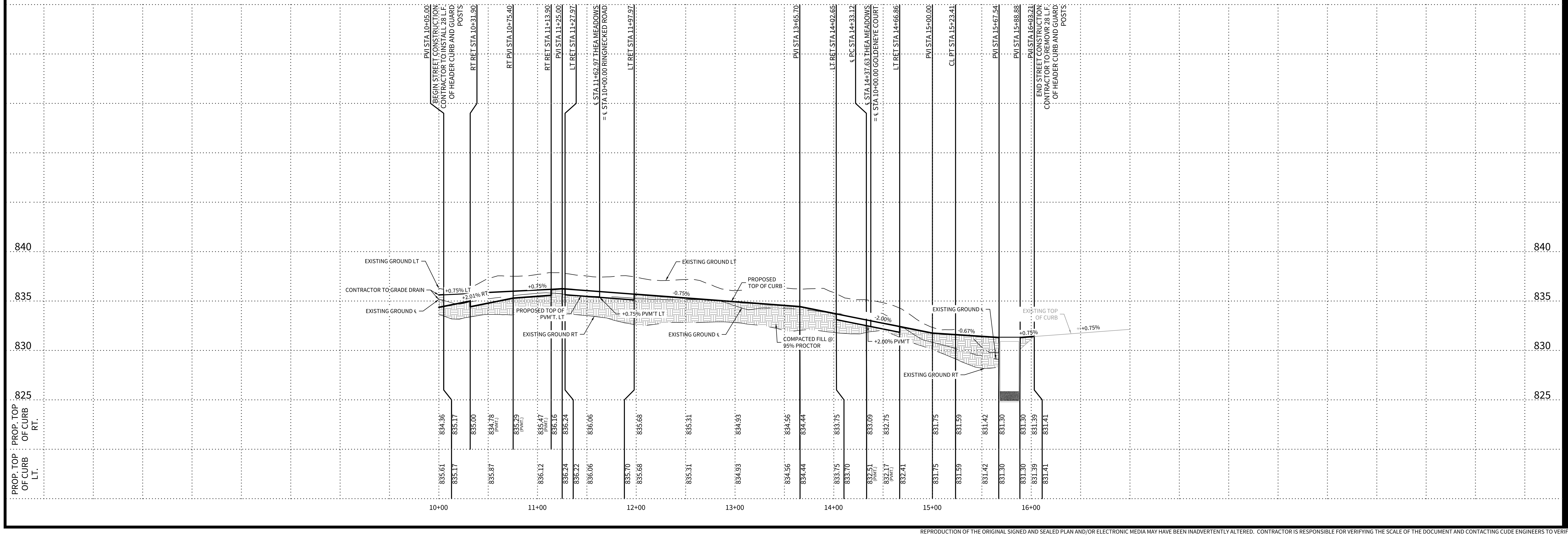
COSA TYPE "III" WHEEL CHAIR RAMPS ARE INDICATED THUS " ▭ " UNLESS OTHERWISE NOTED.

(SEE DETAIL SHEET C7.07) FOR ADA RAMPS AT SIDEWALK INTERSECTIONS . DETECTABLE WARNING PAVER WITH TRUNCATED DOMES ONLY.

THEA MEADOWS

STA. 10+05.00 TO STA. 16+03.21

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


PVI STA 10+05.00
BEGIN STREET CONSTRUCTION CONTRACTOR TO INSTALL 28 L.F. OF HEADER CURB AND GUARD POSTS
RT RET STA 10+31.90
RT PVI STA 10+75.40
RT RET STA 11+13.90
PVI STA 11+25.00
LT RET STA 11+27.97
℄ STA 11+62.97 THEA MEADOWS
= ℄ STA 10+00.00 RINGNECKED ROAD
LT RET STA 11+97.97
PVI STA 13+65.70
LT RET STA 14+02.65
℄ PC STA 14+33.12
℄ STA 14+37.63 THEA MEADOWS
= ℄ STA 10+00.00 GOLDENEYE COURT
LT RET STA 14+66.86
PVI STA 15+00.00
CL PT STA 15+23.41
PVI STA 15+67.54
PVI STA 15+88.88
PVI STA 16+03.21
END STREET CONSTRUCTION CONTRACTOR TO REMOVR 28 L.F. OF HEADER CURB AND GUARD POSTS
840
835
830
825
EXISTING GROUND LT
CONTRACTOR TO GRADE DRAIN
EXISTING GROUND ℄
+0.75% LT
+2.01% RT.
+0.75%
PROPOSED TOP OF PVM'T. LT
+0.75% PVM'T LT
EXISTING GROUND RT
EXISTING GROUND LT
-0.75%
PROPOSED TOP OF CURB
EXISTING GROUND ℄
COMPACTED FILL @ 95% PROCTOR
-2.00%
+2.00% PVM'T
EXISTING GROUND ℄
-0.67%
+0.75%
EXISTING GROUND RT
EXISTING TOP OF CURB
+0.75%
PROP. TOP OF CURB RT.
834.36
835.17
835.00
834.78 (PVMT.)
835.29 (PVMT.)
835.47 (PVMT.)
836.16
836.24
836.06
835.68
835.31
834.93
834.56
834.44
833.75
833.09
832.75
831.75
831.59
831.42
831.30
831.30
831.39
831.41
PROP. TOP OF CURB LT.
835.61
835.17
835.87
836.12
836.24
836.22
836.06
835.70
835.68
835.31
834.93
834.56
834.44
833.75
833.70
832.51 (PVMT.)
832.17 (PVMT.)
832.41
831.75
831.59
831.42
831.30
831.30
831.39
831.41
10+00
11+00
12+00
13+00
14+00
15+00
16+00

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**GRACE VALLEY RANCH
PHASE 3B**

STREET PLAN & PROFILE -
THEA MEADOWS

DATE
09/26/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS
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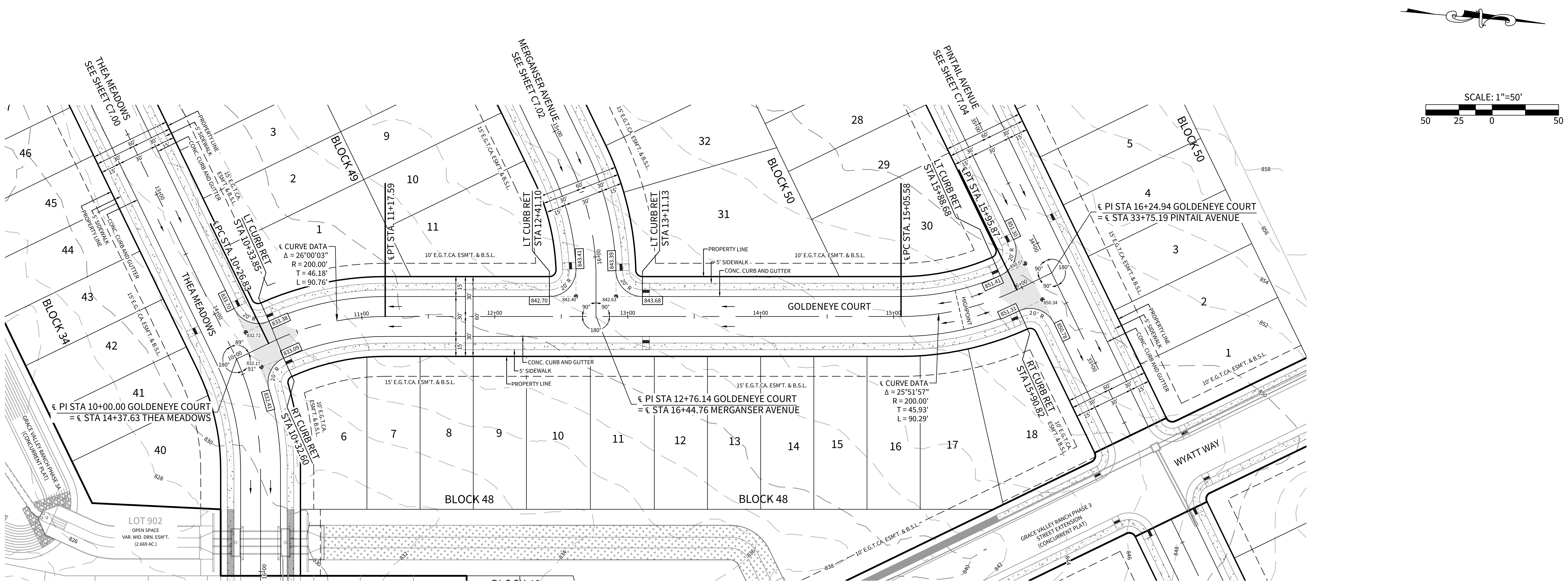
KYLE M. HUDEK
138753
10/01/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C7.00


SCALE: 1"=50'
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THEA MEADOWS
SEE SHEET C7.00
MERGANSER AVENUE
SEE SHEET C7.02
PINTAIL AVENUE
SEE SHEET C7.04
BLOCK 49
BLOCK 50
BLOCK 34
BLOCK 48
BLOCK 48
GOLDENEYE COURT
THEA MEADOWS
WYATT WAY
LT CURB RET
STA 10+33.85
LPC STA 10+26.83
PT STA 11+17.59
LT CURB RET
STA 12+41.10
LT CURB RET
STA 13+11.13
PC STA 15+05.58
LT CURB RET
STA 15+88.68
PT STA 15+95.87
RT CURB RET
STA 10+32.60
RT CURB RET
STA 15+90.82
CURVE DATA
Δ = 26°00'03"
R = 200.00'
T = 46.18'
L = 90.76'
CURVE DATA
Δ = 25°51'57"
R = 200.00'
T = 45.93'
L = 90.29'
PI STA 10+00.00 GOLDENEYE COURT
= STA 14+37.63 THEA MEADOWS
PI STA 12+76.14 GOLDENEYE COURT
= STA 16+44.76 MERGANSER AVENUE
PI STA 16+24.94 GOLDENEYE COURT
= STA 33+75.19 PINTAIL AVENUE
10' E.G.T.CA. ESM'T. & B.S.L.
15' E.G.T.CA. ESM'T. & B.S.L.
PROPERTY LINE
5' SIDEWALK
CONC. CURB AND GUTTER
LOT 902
OPEN SPACE
VAR. WD. DRN. ESM'T.
(2.669 AC.)
GRACE VALLEY RANCH PHASE 3A
(CONCURRENT PLAT)
GRACE VALLEY RANCH PHASE 3
STREET EXTENSION
(CONCURRENT PLAT)
11+00
12+00
13+00
14+00
15+00
842.70
843.68
851.41
850.34
46
45
44
43
42
41
40
3
2
1
9
10
11
32
31
28
29
30
5
4
3
2
1
6
7
8
9
10
11
12
13
14
15
16
17
18

LEGEND

▨	- SIDEWALK CONSTRUCTED WITH INFRASTRUCTURE
☐	- STREET WASHOUT (SEE DETAIL SHEETC7.06)
———	- STREET CENTERLINE
— —	- EXISTING CONTOURS
XXX.XX	- TOP OF CURB SPOT ELEVATION
▨	- DRIVEWAY
⊕XXX.XX	- PAVEMENT ELEVATION

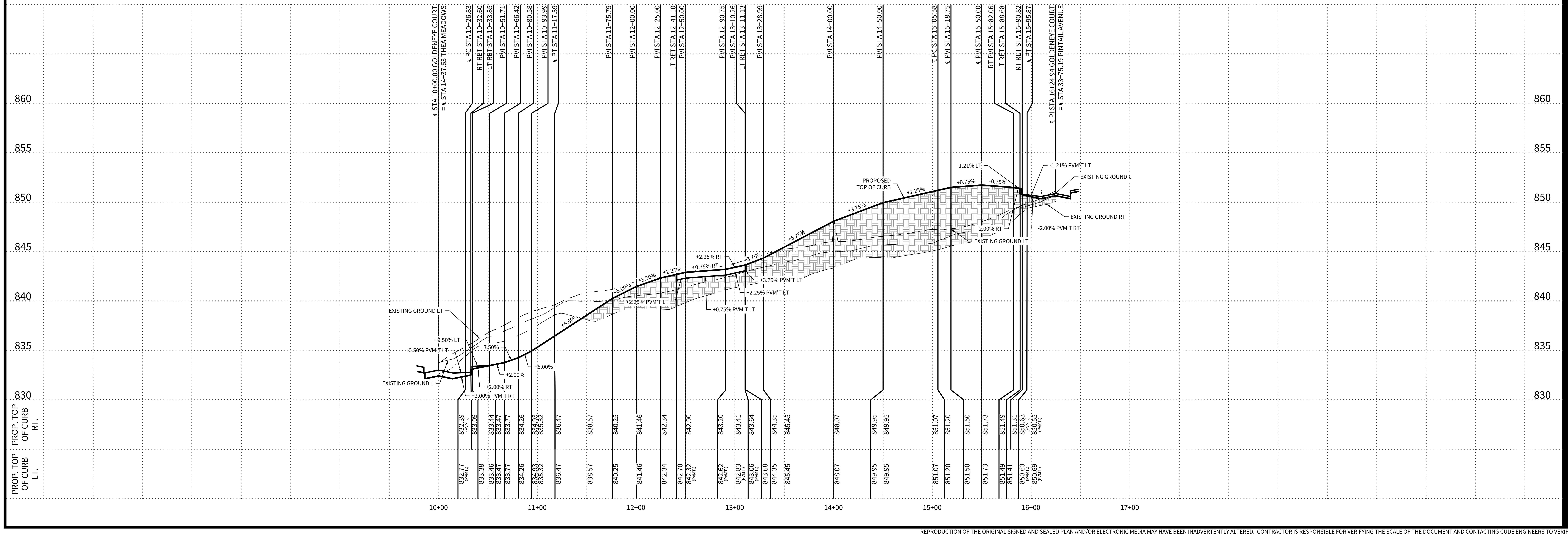
COSA TYPE "III" WHEEL CHAIR RAMPS ARE INDICATED THUS
" ▭ " UNLESS OTHERWISE NOTED.

(SEE DETAIL SHEET C7.07) FOR ADA RAMPS AT SIDEWALK INTERSECTIONS .
DETECTABLE WARNING PAVER WITH TRUNCATED DOMES ONLY.

GOLDENEYE COURT

STA. 10+00.00 TO STA. 16+24.94

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


PI STA 10+00.00 GOLDENEYE COURT
= STA 14+37.63 THEA MEADOWS
PC STA 10+26.83
RT RET STA 10+32.60
LT RET STA 10+33.85
PVI STA 10+51.71
PVI STA 10+66.42
PVI STA 10+80.58
PVI STA 10+93.99
PT STA 11+17.59
PVI STA 11+75.79
PVI STA 12+00.00
PVI STA 12+25.00
LT RET STA 12+41.10
PVI STA 12+50.00
PVI STA 12+90.75
PVI STA 13+10.26
LT RET STA 13+11.13
PVI STA 13+28.99
PVI STA 14+00.00
PVI STA 14+50.00
PC STA 15+05.58
PVI STA 15+18.75
PVI STA 15+50.00
RT PVI STA 15+82.06
LT RET STA 15+88.68
RT RET STA 15+90.82
PT STA 15+95.87
PI STA 16+24.94 GOLDENEYE COURT
= STA 33+75.19 PINTAIL AVENUE
860
855
850
845
840
835
830
PROPOSED
TOP OF CURB
EXISTING GROUND LT
EXISTING GROUND ℄
EXISTING GROUND RT
+0.50% LT
+0.50% PVM'T LT
+3.50%
+2.00%
+5.00%
+2.00% RT
+2.00% PVM'T RT
+6.50%
+5.00%
+3.50%
+2.25%
+2.25% PVM'T LT
+2.25% RT
+0.75% RT
+0.75% PVM'T LT
+3.75%
+3.75% PVM'T LT
+2.25% PVM'T LT
+5.25%
+3.75%
+2.25%
+0.75%
-0.75%
-1.21% LT
-1.21% PVM'T LT
-2.00% RT
-2.00% PVM'T RT
PROP. TOP OF CURB RT.
832.39 (PVMT.)
833.09
833.44
833.47
833.77
834.26
834.93
835.32
836.47
838.57
840.25
841.46
842.34
842.90
843.20
843.41
843.64
844.35
845.45
848.07
849.95
849.95
851.07
851.20
851.50
851.73
851.49
851.31
850.63 (PVMT.)
850.55 (PVMT.)
PROP. TOP OF CURB LT.
832.77 (PVMT.)
833.38
833.46
833.47
833.77
834.26
834.93
835.32
836.47
838.57
840.25
841.46
842.34
842.70
842.32 (PVMT.)
842.62 (PVMT.)
842.83 (PVMT.)
843.06 (PVMT.)
843.68
844.35
845.45
848.07
849.95
849.95
851.07
851.20
851.50
851.73
851.49
851.41
850.63 (PVMT.)
850.69 (PVMT.)
10+00
11+00
12+00
13+00
14+00
15+00
16+00
17+00

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GRACE VALLEY RANCH
PHASE 3B

STREET PLAN & PROFILE -
GOLDENEYE COURT

DATE
09/26/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS

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KYLE M. HUDEK
138753
10/01/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C7.01

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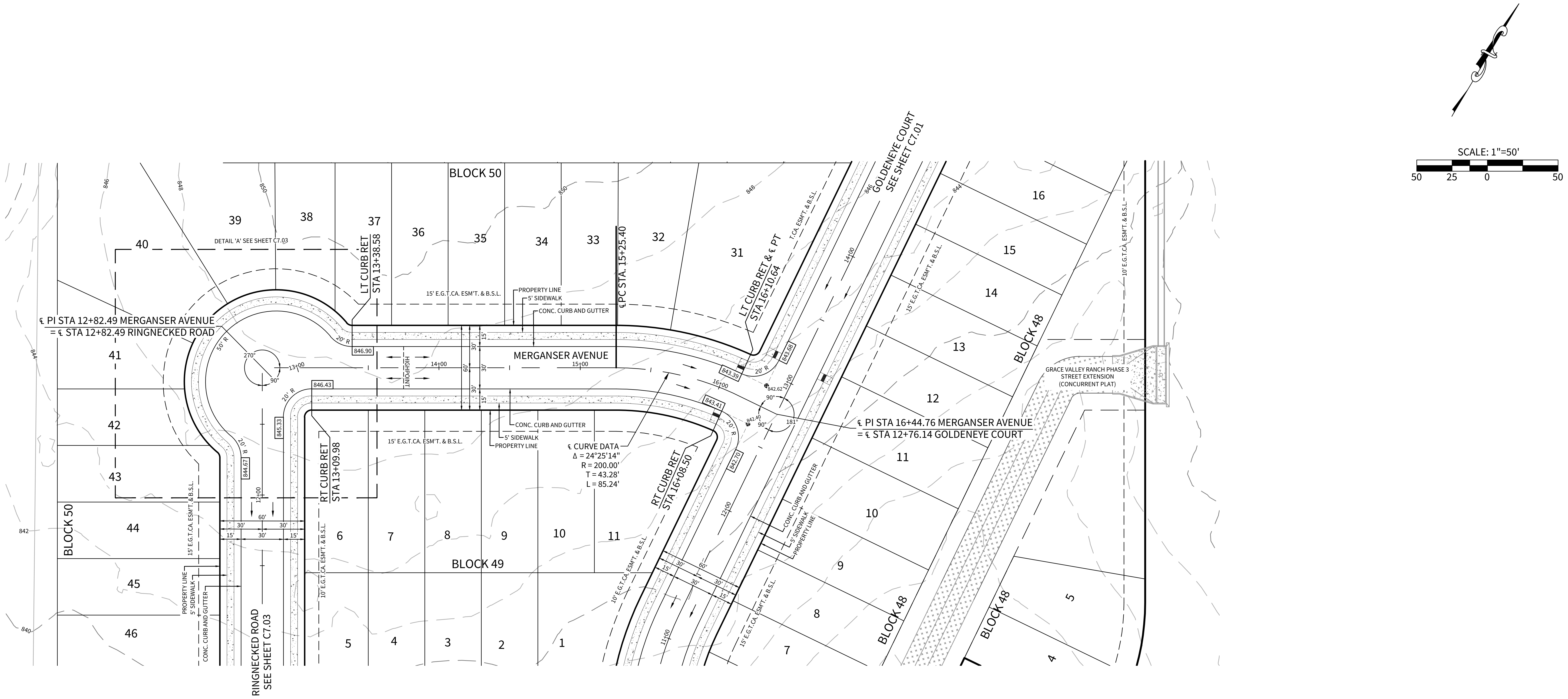
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BLOCK 50
BLOCK 49
BLOCK 48
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1
DETAIL 'A' SEE SHEET C7.03
LT CURB RET STA 13+38.58
℄ PC STA. 15+25.40
LT CURB RET & ℄ PT STA 16+10.64
GOLDENEYE COURT SEE SHEET C7.01
℄ PI STA 12+82.49 MERGANSER AVENUE = ℄ STA 12+82.49 RINGNECKED ROAD
MERGANSER AVENUE
15' E.G.T.CA. ESMT. & B.S.L.
PROPERTY LINE
5' SIDEWALK
CONC. CURB AND GUTTER
℄ CURVE DATA
Δ = 24°25'14"
R = 200.00'
T = 43.28'
L = 85.24'
RT CURB RET STA 13+09.98
RT CURB RET STA 16+08.50
℄ PI STA 16+44.76 MERGANSER AVENUE = ℄ STA 12+76.14 GOLDENEYE COURT
GRACE VALLEY RANCH PHASE 3 STREET EXTENSION (CONCURRENT PLAT)
10' E.G.T.CA. ESMT. & B.S.L.
RINGNECKED ROAD SEE SHEET C7.03
846.90
846.43
846.33
843.41
843.50
13+00
14+00
15+00
16+00

LEGEND

▨	- SIDEWALK CONSTRUCTED WITH INFRASTRUCTURE
☐	- STREET WASHOUT (SEE DETAIL SHEETC7.06)
———	- STREET CENTERLINE
— —	- EXISTING CONTOURS
XXX.XX	- TOP OF CURB SPOT ELEVATION
▨	- DRIVEWAY
⊕XXX.XX	- PAVEMENT ELEVATION

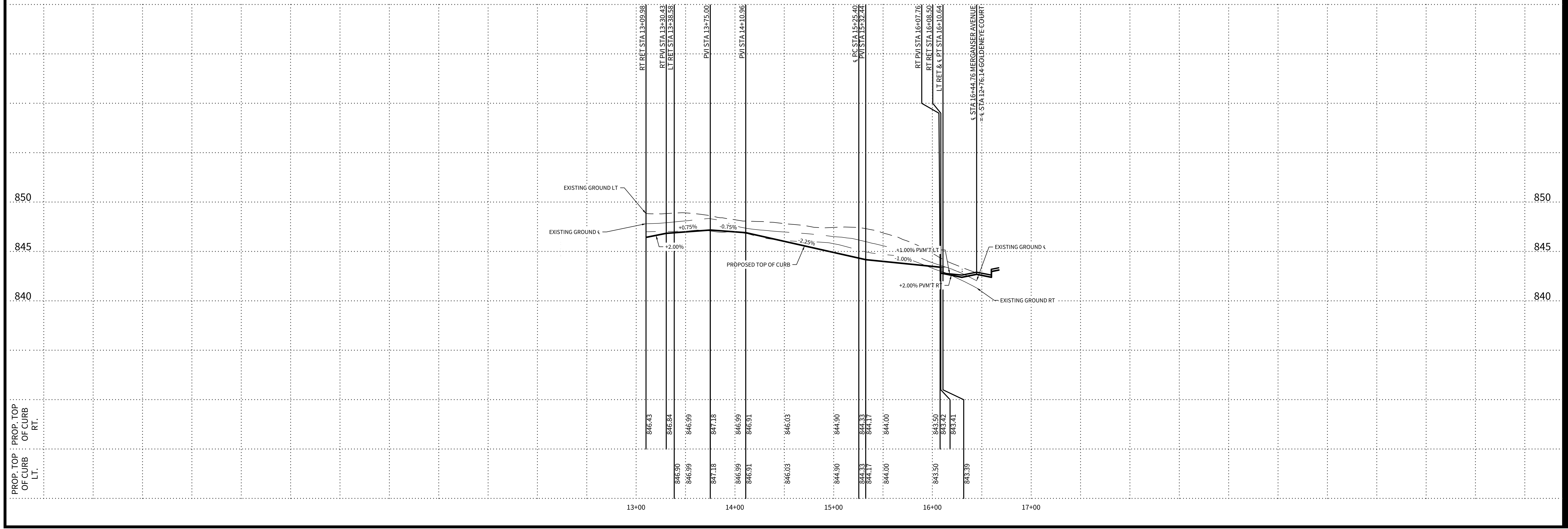
COSA TYPE "III" WHEEL CHAIR RAMPS ARE INDICATED THUS
" ▯ " UNLESS OTHERWISE NOTED.

(SEE DETAIL SHEET C7.07) FOR ADA RAMPS AT SIDEWALK INTERSECTIONS .
DETECTABLE WARNING PAVER WITH TRUNCATED DOMES ONLY.

MERGANSER AVENUE

STA. 12+82.49 TO STA. 16+44.76

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


RT RET STA 13+09.98
RT PVI STA 13+30.43
LT RET STA 13+38.58
PVI STA 13+75.00
PVI STA 14+10.96
℄ PC STA 15+25.40
PVI STA 15+32.42
RT PVI STA 16+07.76
RT RET STA 16+08.50
LT RET & ℄ PT STA 16+10.64
℄ STA 16+44.76 MERGANSER AVENUE = ℄ STA 12+76.14 GOLDENEYE COURT
850
845
840
EXISTING GROUND LT
EXISTING GROUND ℄
+0.75%
-0.75%
+2.00%
-2.25%
PROPOSED TOP OF CURB
+1.00% PVM'T LT
-1.00%
+2.00% PVM'T RT
EXISTING GROUND ℄
EXISTING GROUND RT
PROP. TOP OF CURB RT.
846.43
846.84
846.99
847.18
846.99
846.91
846.03
844.90
844.33
844.17
844.00
843.50
843.42
843.41
PROP. TOP OF CURB LT.
846.90
846.99
847.18
846.99
846.91
846.03
844.90
844.33
844.17
844.00
843.50
843.39
13+00
14+00
15+00
16+00
17+00

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

GRACE VALLEY RANCH PHASE 3B

STREET PLAN & PROFILE - MERGANSER AVENUE

DATE
08/05/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS
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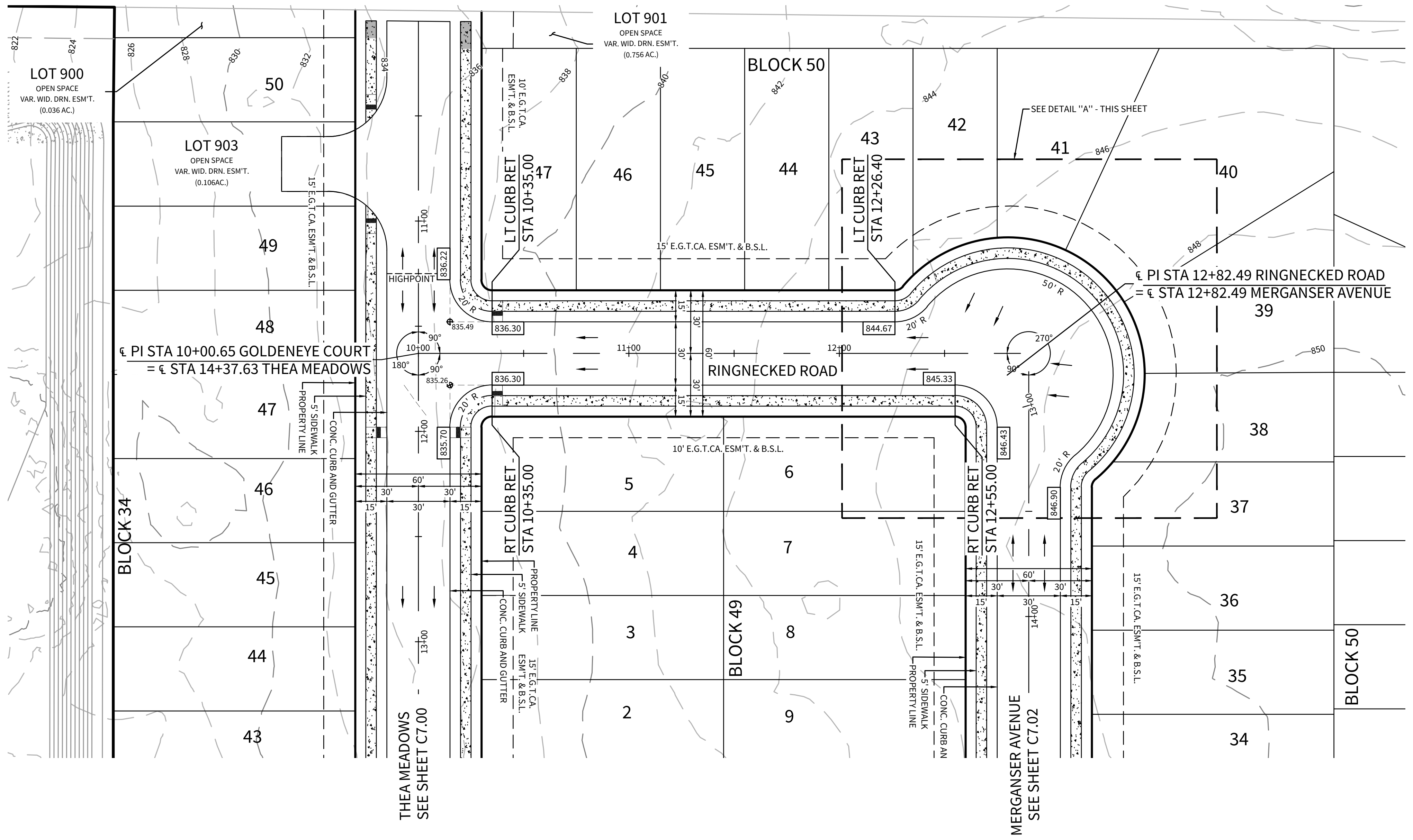
KYLE M. HUDEK
138753
08/12/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

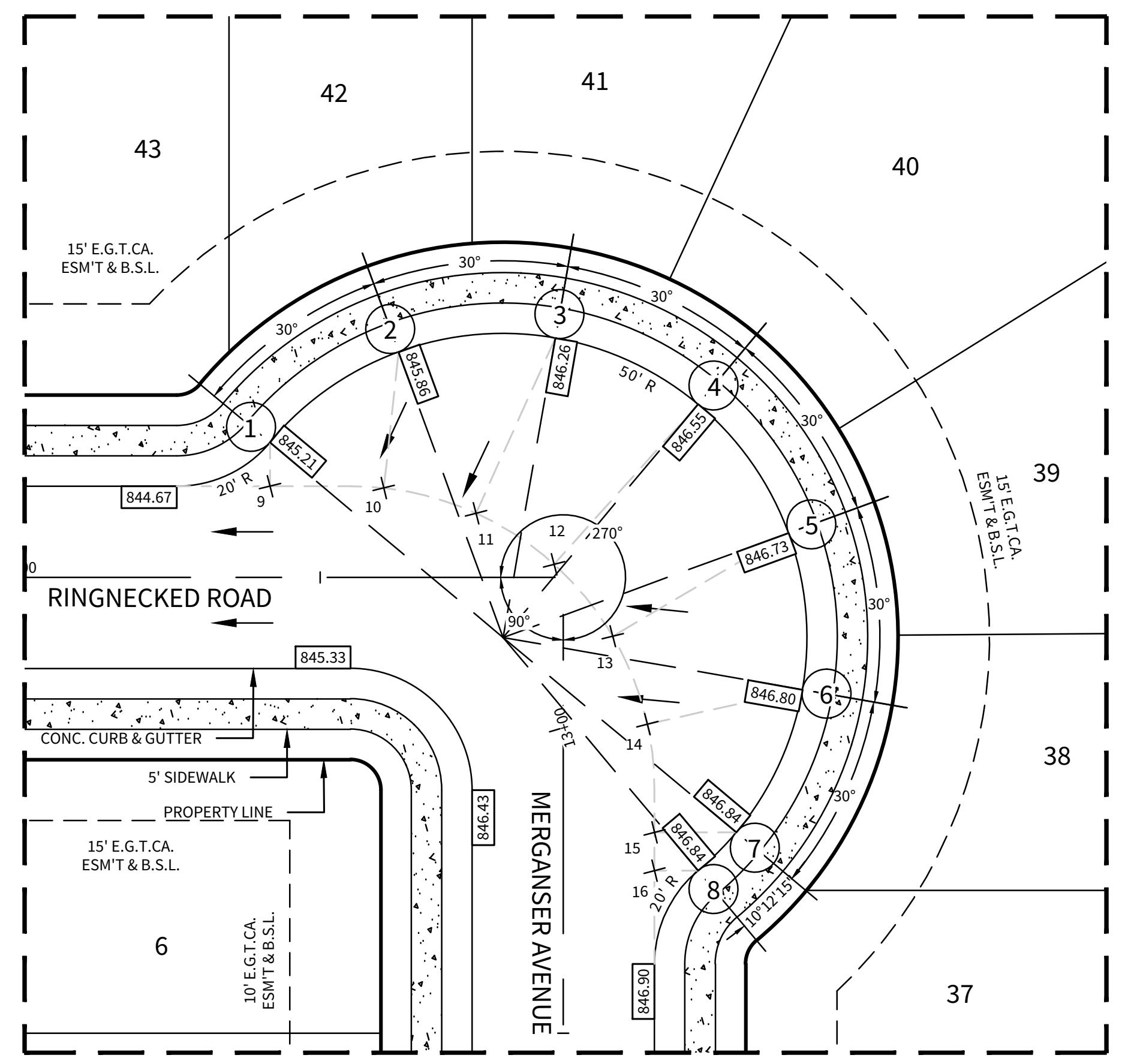
C7.02

P:\03346\010\2-DWG\4-Plans\C7.02_STPP MERSANGER AVENUE.dwg 2024/08/05 12:32pm msandoval

SCALE: 1"=50'
50 25 0 50


LOT 900
OPEN SPACE
VAR. WID. DRN. ESM'T.
LOT 901
OPEN SPACE
VAR. WID. DRN. ESM'T.
LOT 903
OPEN SPACE
VAR. WID. DRN. ESM'T.
BLOCK 50
BLOCK 34
BLOCK 49
BLOCK 50
SEE DETAIL "A" - THIS SHEET
LT CURB RET STA 10+35.00
LT CURB RET STA 12+26.40
RT CURB RET STA 10+35.00
RT CURB RET STA 12+55.00
℄ PI STA 12+82.49 RINGNECKED ROAD
= ℄ STA 12+82.49 MERGANSER AVENUE
℄ PI STA 10+00.65 GOLDENEYE COURT
= ℄ STA 14+37.63 THEA MEADOWS
RINGNECKED ROAD
15' E.G.T.CA. ESM'T. & B.S.L.
10' E.G.T.CA. ESM'T. & B.S.L.
5' SIDEWALK
CONC. CURB AND GUTTER
PROPERTY LINE
HIGHPOINT
836.30
844.67
845.33
THEA MEADOWS
SEE SHEET C7.00
MERGANSER AVENUE
SEE SHEET C7.02

RINGNECKED ROAD KNUCKLE-SAC	
POINT	PAVEMENT ELEVATION
9	844.49
10	844.83
11	845.05
12	845.27
13	845.48
14	845.70
15	845.99
16	846.12


43
42
41
40
39
38
37
6
RINGNECKED ROAD
MERGANSER AVENUE
15' E.G.T.CA. ESM'T & B.S.L.
CONC. CURB & GUTTER
5' SIDEWALK
PROPERTY LINE
844.67
845.33
50' R
30' R
270°

DETAIL "A"
SCALE: 1" = 30'

LEGEND

- ▨ - SIDEWALK CONSTRUCTED WITH INFRASTRUCTURE
- ▭ - STREET WASHOUT (SEE DETAIL SHEETC7.06)
- ——— - STREET CENTERLINE
- —— —— - EXISTING CONTOURS
- XXX.XX - TOP OF CURB SPOT ELEVATION
- ▨ - DRIVEWAY
- ⊕XXX.XX - PAVEMENT ELEVATION

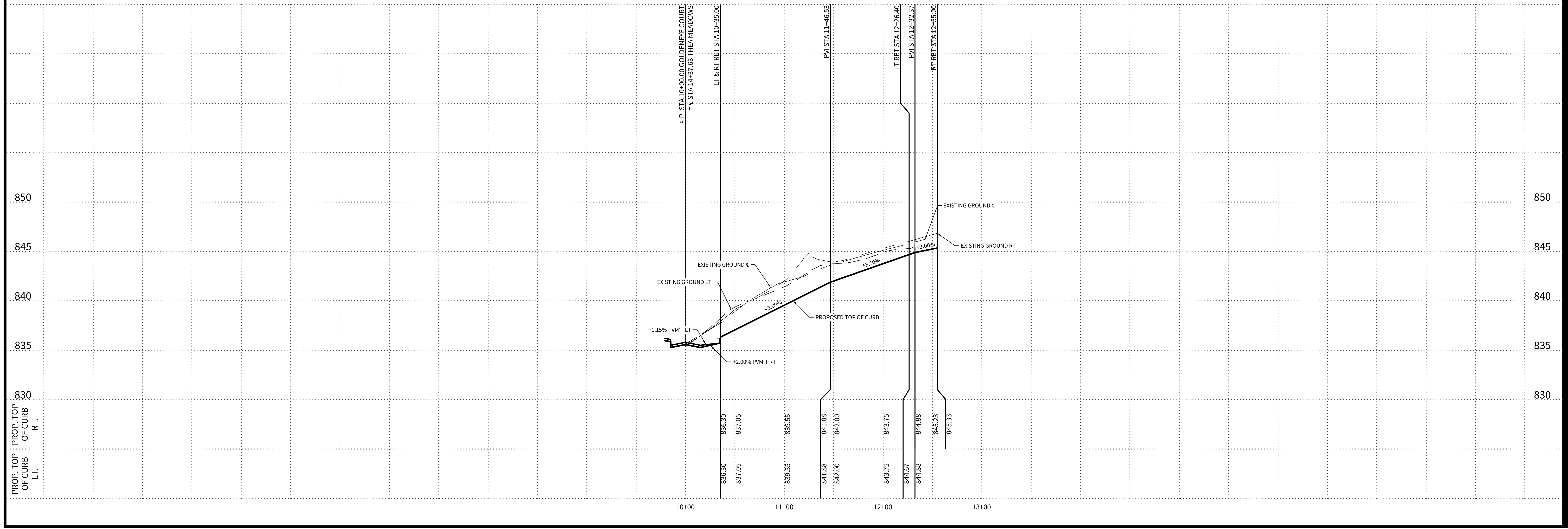
COSA TYPE "III" WHEEL CHAIR RAMPS ARE INDICATED THUS
" ▭ " UNLESS OTHERWISE NOTED.

(SEE DETAIL SHEET C7.07) FOR ADA RAMPS AT SIDEWALK INTERSECTIONS .
DETECTABLE WARNING PAVER WITH TRUNCATED DOMES ONLY.

RINGNECKED ROAD

STA. 10+00.00 TO STA. 12+82.49

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



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P:(210) 681.2951 F: (210)523.7112

GRACE VALLEY RANCH PHASE 3B

STREET PLAN & PROFILE - RINGNECKED ROAD

DATE
09/26/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS
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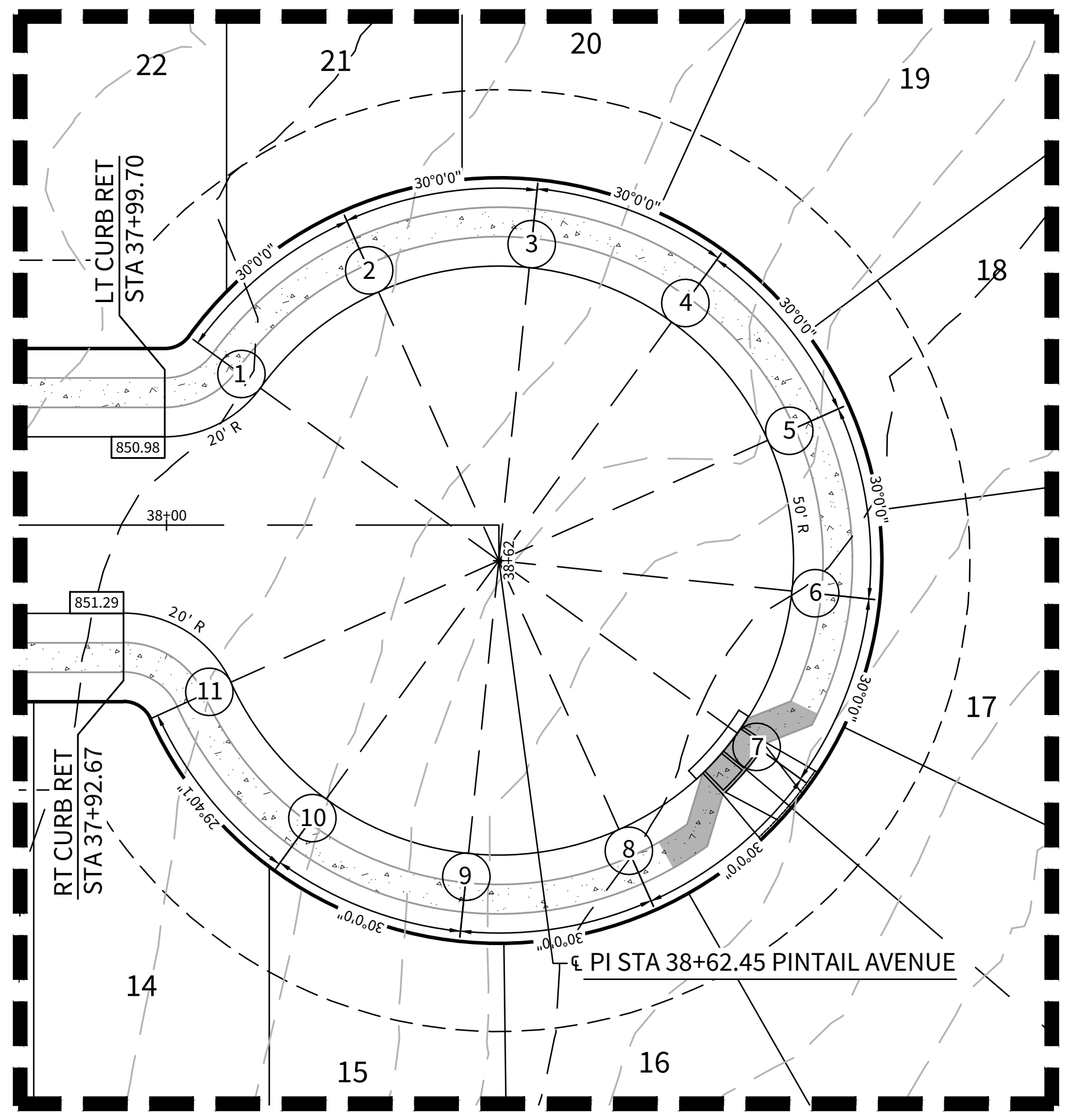
KYLE M. HUDEK
138753
10/01/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

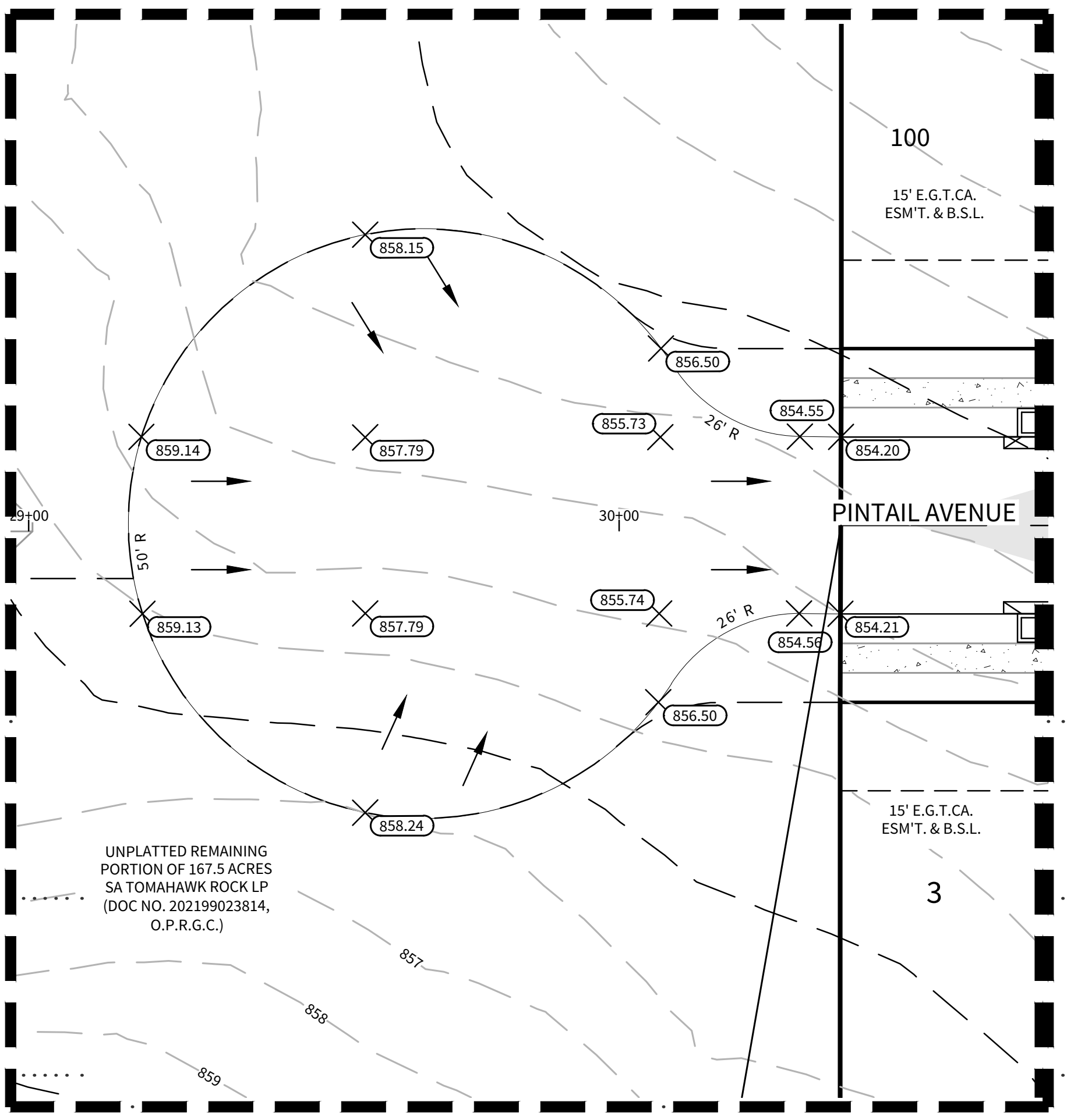
C7.03



22
21
20
19
18
17
16
15
14
1
2
3
4
5
6
7
8
9
10
11
LT CURB RET
STA 37+99.70
RT CURB RET
STA 37+92.67
850.98
851.29
38+00
50' R
20' R
PI STA 38+62.45 PINTAIL AVENUE

DETAIL "B"
SCALE: 1" = 30'

DETAIL "C"
SCALE: 1" = 30'



100
3
15' E.G.T.CA. ESM'T. & B.S.L.
854.55
854.20
854.21
854.50
858.15
856.50
855.73
859.24
857.79
30+00
855.74
859.13
857.79
856.50
856.24
26' R
50' R
PINTAIL AVENUE
UNPLATTED REMAINING PORTION OF 167.5 ACRES SA TOMAHAWK ROCK LP (DOC NO. 202199023814, O.P.R.G.C.)
857
858
859

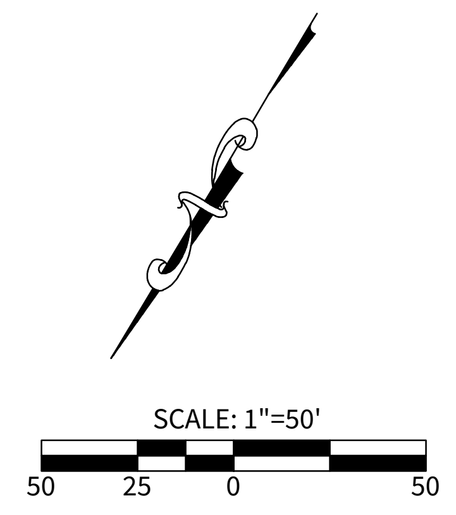
PINTAIL AVENUE CUL-DE-SAC	
POINT	TOP OF CURB ELEVATION
1	850.66
2	850.31
3	849.96
4	849.61
5	849.27
6	848.92
7	848.59
8	848.97
9	849.55
10	850.13
11	850.70

LEGEND

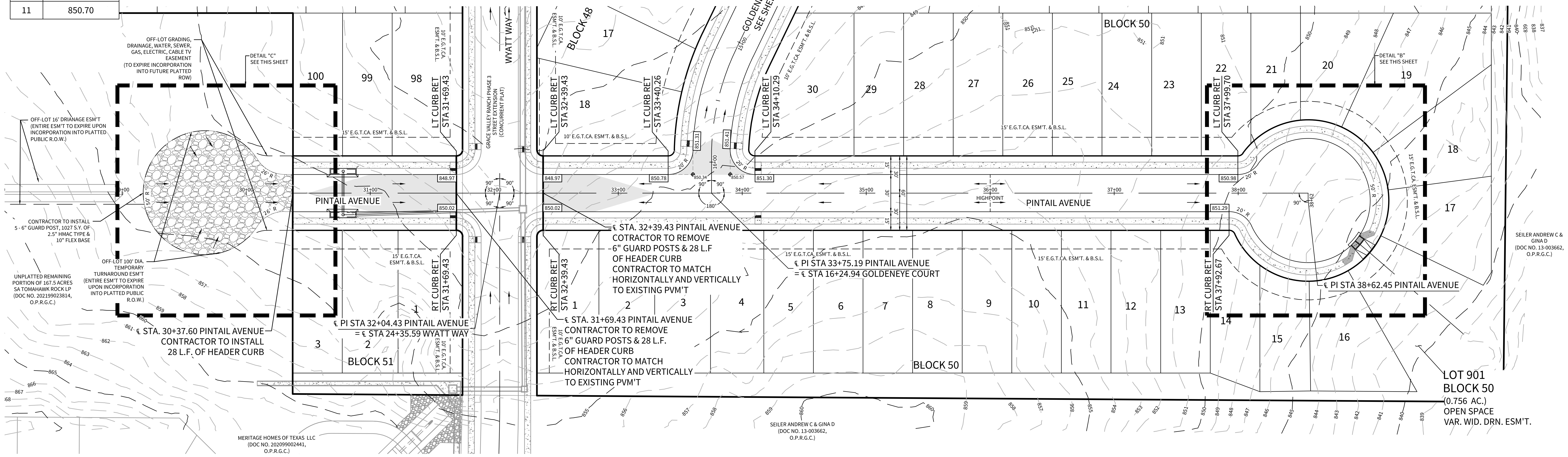
▨	- SIDEWALK CONSTRUCTED WITH INFRASTRUCTURE
▨	- STREET WASHOUT (SEE DETAIL SHEETC7.06)
———	- STREET CENTERLINE
— —	- EXISTING CONTOURS
XXX.XX	- TOP OF CURB SPOT ELEVATION
▨	- DRIVEWAY
⊕XXX.XX	- PAVEMENT ELEVATION

COSA TYPE "III" WHEEL CHAIR RAMPS ARE INDICATED THUS
" ⊐⊏ " UNLESS OTHERWISE NOTED.

(SEE DETAIL SHEET C7.07) FOR ADA RAMPS AT SIDEWALK INTERSECTIONS .
DETECTABLE WARNING PAVER WITH TRUNCATED DOMES ONLY.



SCALE: 1"=50'
50
25
0
50

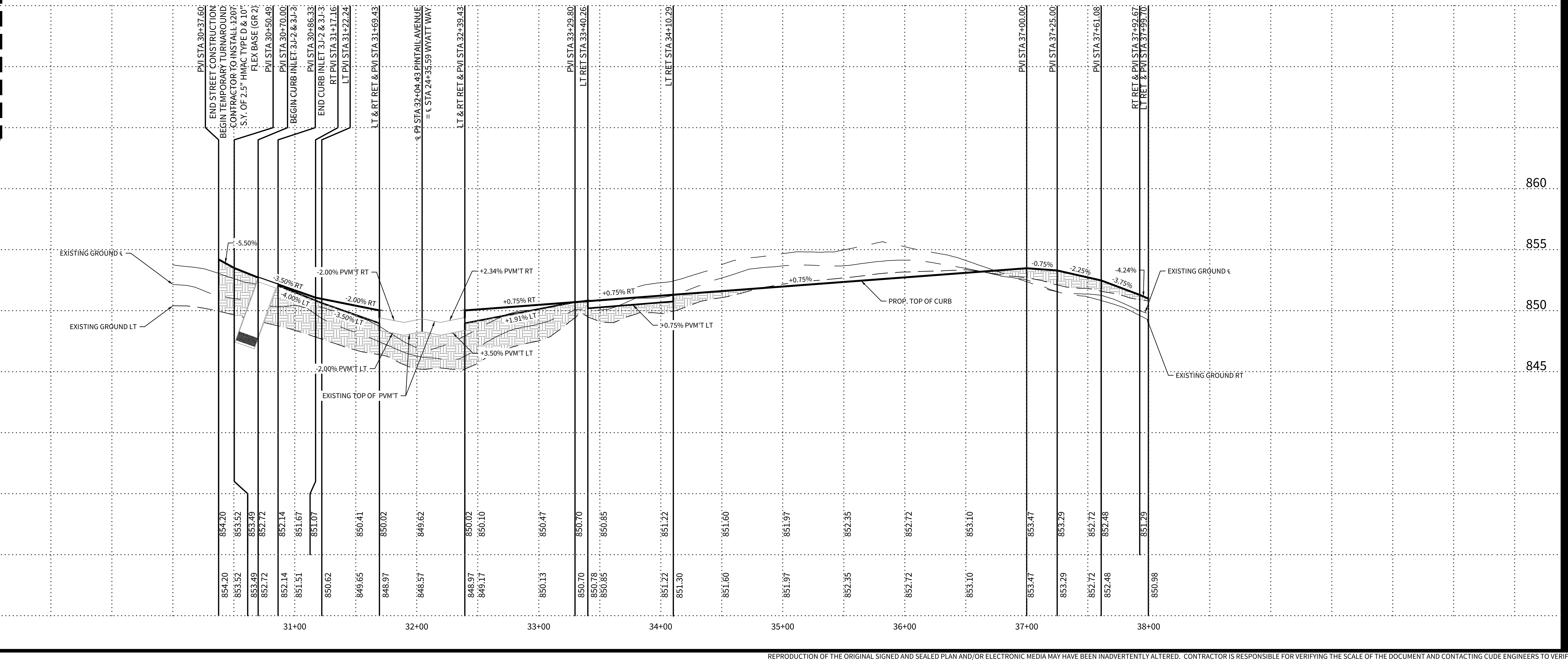


OFF-LOT GRADING, DRAINAGE, WATER, SEWER, GAS, ELECTRIC, CABLE TV EASEMENT (TO EXPIRE INCORPORATION INTO FUTURE PLATTED ROW)
DETAIL "C" SEE THIS SHEET
OFF-LOT 16' DRIANAGE ESM'T (ENTIRE ESM'T TO EXPIRE UPON INCORPORATION INTO PLATTED PUBLIC R.O.W.)
CONTRACTOR TO INSTALL 5 - 6" GUARD POST, 1027 S.Y. OF 2.5" HMAC TYPE & 10" FLEX BASE
OFF-LOT 100' DIA. TEMPORARY TURNAROUND ESM'T (ENTIRE ESM'T TO EXPIRE UPON INCORPORATION INTO PLATTED PUBLIC R.O.W.)
UNPLATTED REMAINING PORTION OF 167.5 ACRES SA TOMAHAWK ROCK LP (DOC NO. 202199023814, O.P.R.G.C.)
℄ STA. 30+37.60 PINTAIL AVENUE CONTRACTOR TO INSTALL 28 L.F. OF HEADER CURB
℄ PI STA 32+04.43 PINTAIL AVENUE = ℄ STA 24+35.59 WYATT WAY
MERITAGE HOMES OF TEXAS LLC (DOC NO. 202099002441, O.P.R.G.C.)
100
99
98
1
2
3
BLOCK 51
LT CURB RET STA 31+69.43
RT CURB RET STA 31+69.43
10' E.G.T.CA. ESM'T. & B.S.L.
15' E.G.T.CA. ESM'T. & B.S.L.
WYATT WAY
GRACE VALLEY RANCH PHASE 3 STREET EXTENSION (CONCURRENT PLAT)
PINTAIL AVENUE
848.97
850.02
30+00
31+00
32+00
33+00
34+00
35+00
36+00 HIGHPOINT
37+00
38+00
90°
180°
20' R
26' R
50' R
BLOCK 48
17
18
LT CURB RET STA 32+39.43
RT CURB RET STA 32+39.43
LT CURB RET STA 33+40.26
LT CURB RET STA 34+10.29
GOLDENEYE COURT SEE SHEET C7.01
850.78
850.34
850.57
851.30
16+00
℄ STA. 32+39.43 PINTAIL AVENUE COTRACTOR TO REMOVE 6" GUARD POSTS & 28 L.F OF HEADER CURB CONTRACTOR TO MATCH HORIZONTALLY AND VERTICALLY TO EXISTING PVM'T
℄ STA. 31+69.43 PINTAIL AVENUE CONTRACTOR TO REMOVE 6" GUARD POSTS & 28 L.F. OF HEADER CURB CONTRACTOR TO MATCH HORIZONTALLY AND VERTICALLY TO EXISTING PVM'T
℄ PI STA 33+75.19 PINTAIL AVENUE = ℄ STA 16+24.94 GOLDENEYE COURT
15' E.G.T.CA. ESM'T. & B.S.L.
15' 30' 30' 15' 60'
BLOCK 50
30
29
28
27
26
25
24
23
22
21
20
19
18
17
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
LT CURB RET STA 37+99.70
RT CURB RET STA 37+92.67
850.98
851.29
DETAIL "B" SEE THIS SHEET
℄ PI STA 38+62.45 PINTAIL AVENUE
SEILER ANDREW C & GINA D (DOC NO. 13-003662, O.P.R.G.C.)
LOT 901 BLOCK 50 (0.756 AC.) OPEN SPACE VAR. WID. DRN. ESM'T.
855
856
857
858
859
860

PINTAIL AVENUE

STA. 30+37.60 TO STA. 38+62.45

HORIZONTAL SCALE: 1" = 50'



PVI STA 30+37.60
END STREET CONSTRUCTION
BEGIN TEMPORARY TURNAROUND
CONTRACTOR TO INSTALL 1207 S.Y. OF 2.5" HMAC TYPE D & 10" FLEX BASE (GR 2)
PVI STA 30+50.49
PVI STA 30+70.00
BEGIN CURB INLET 3J-2 & 3J-3
PVI STA 30+86.33
END CURB INLET 3J-2 & 3J-3
RT PVI STA 31+17.16
LT PVI STA 31+22.24
LT & RT RET & PVI STA 31+69.43
℄ PI STA 32+04.43 PINTAIL AVENUE = ℄ STA 24+35.59 WYATT WAY
LT & RT RET & PVI STA 32+39.43
PVI STA 33+29.80
LT RET STA 33+40.26
LT RET STA 34+10.29
PVI STA 37+00.00
PVI STA 37+25.00
PVI STA 37+61.08
RT RET & PVI STA 37+92.67
LT RET & PVI STA 37+99.70
860
855
850
845
840
EXISTING GROUND ℄
EXISTING GROUND LT
-5.50%
-3.50% RT
-4.00% LT
-2.00% PVM'T RT
-2.00% RT
-3.50% LT
-2.00% PVM'T LT
EXISTING TOP OF PVM'T
+2.34% PVM'T RT
+0.75% RT
+1.91% LT
+3.50% PVM'T LT
+0.75% RT
+0.75% PVM'T LT
+0.75%
PROP. TOP OF CURB
-0.75%
-2.25%
-4.24%
-3.75%
EXISTING GROUND ℄
EXISTING GROUND RT
854.20
853.52
853.49
852.72
852.14
851.67
851.07
850.41
850.02
849.62
850.02
850.10
850.47
850.70
850.85
851.22
851.60
851.97
852.35
852.72
853.10
853.47
853.29
852.72
852.48
851.29
854.20
853.52
853.49
852.72
852.14
851.51
850.62
849.65
848.97
848.57
848.97
849.17
850.13
850.70
850.78
850.85
851.22
851.30
851.60
851.97
852.35
852.72
853.10
853.47
853.29
852.72
852.48
850.98
31+00
32+00
33+00
34+00
35+00
36+00
37+00
38+00

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GRACE VALLEY RANCH
PHASE 3B

STREET PLAN & PROFILE -
PINTAIL AVENUE

DATE
11/27/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS
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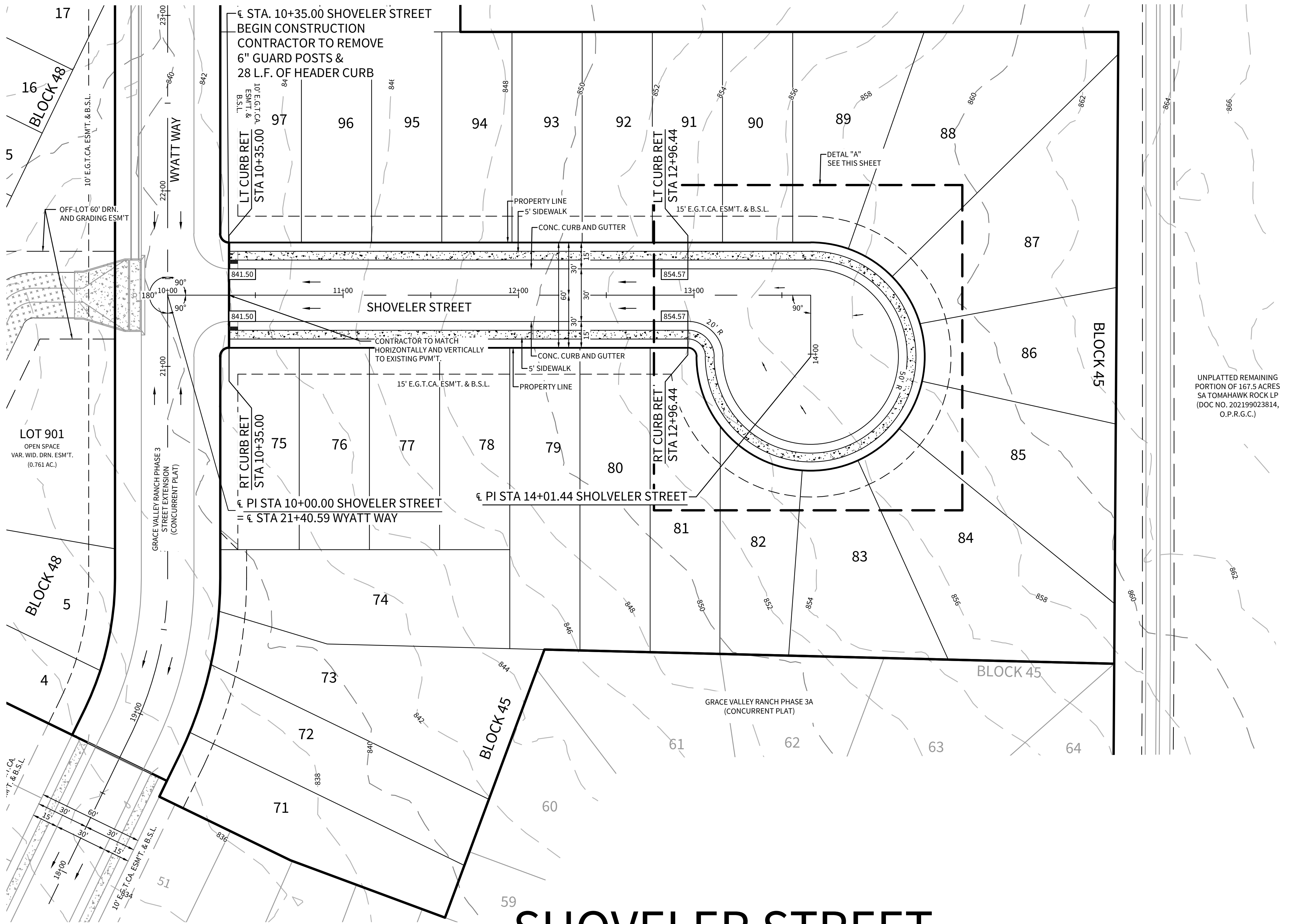
KYLE M. HUDEK
138753
11/27/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C7.04


℄ STA. 10+35.00 SHOVELER STREET BEGIN CONSTRUCTION CONTRACTOR TO REMOVE 6" GUARD POSTS & 28 L.F. OF HEADER CURB
WYATT WAY
SHOVELER STREET
LT CURB RET STA 10+35.00
RT CURB RET STA 10+35.00
LT CURB RET STA 12+96.44
RT CURB RET STA 12+96.44
DETAIL "A" SEE THIS SHEET
CONTRACTOR TO MATCH HORIZONTALLY AND VERTICALLY TO EXISTING PVM'T.
PROPERTY LINE
5' SIDEWALK
CONC. CURB AND GUTTER
15' E.G.T.CA. ESM'T. & B.S.L.
OFF-LOT 60' DRN. AND GRADING ESM'T
PI STA 10+00.00 SHOVELER STREET = ℄ STA 21+40.59 WYATT WAY
℄ PI STA 14+01.44 SHOLVELER STREET
LOT 901 OPEN SPACE VAR. WID. DRN. ESM'T. (0.761 AC.)
GRACE VALLEY RANCH PHASE 3 STREET EXTENSION (CONCURRENT PLAT)
GRACE VALLEY RANCH PHASE 3A (CONCURRENT PLAT)
BLOCK 48
BLOCK 45
UNPLATTED REMAINING PORTION OF 167.5 ACRES SA TOMAHAWK ROCK LP (DOC NO. 202199023814, O.P.R.G.C.)
841.50
854.57
17
16
5
4
97
96
95
94
93
92
91
90
89
88
87
86
85
84
83
82
81
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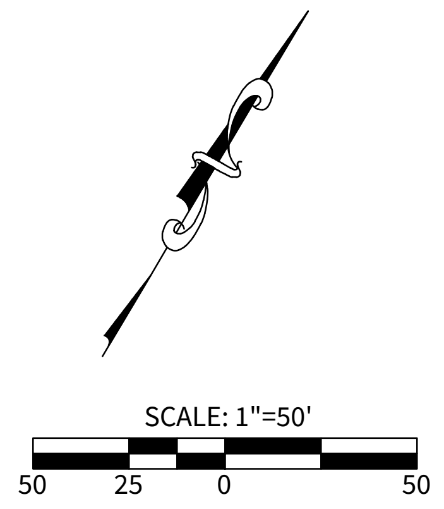
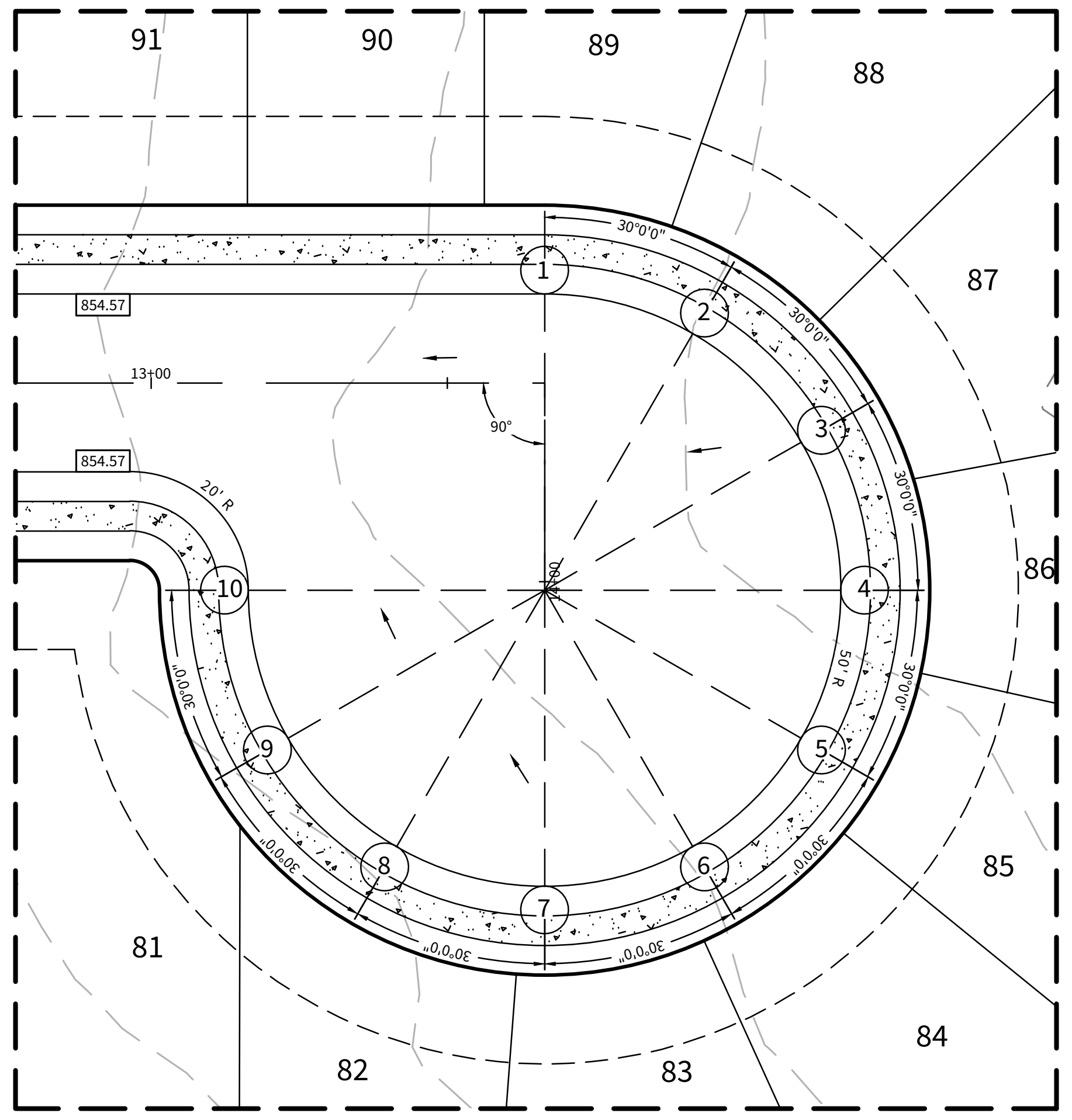
79
78
77
76
75
74
73
72
71
60
61
62
63
64
59
51


SCALE: 1"=50'
50
25
0
50

SHOVELER STREET CUL-DE-SAC	
POINT	TOP OF CURB ELEVATION
1	857.61
2	858.74
3	859.88
4	861.02
5	860.12
6	859.23
7	858.33
8	857.44
9	856.54
10	855.64


91
90
89
88
87
86
85
84
83
82
81
854.57
13+00
1
2
3
4
5
6
7
8
9
10

DETAIL "A"

SCALE: 1" = 30'

LEGEND

- ▨ - SIDEWALK CONSTRUCTED WITH INFRASTRUCTURE
- ☐ - STREET WASHOUT (SEE DETAIL SHEETC7.06)
- —— - STREET CENTERLINE
- – – - EXISTING CONTOURS
- XXX.XX - TOP OF CURB SPOT ELEVATION
- ▨ - DRIVEWAY
- ⊕XXX.XX - PAVEMENT ELEVATION

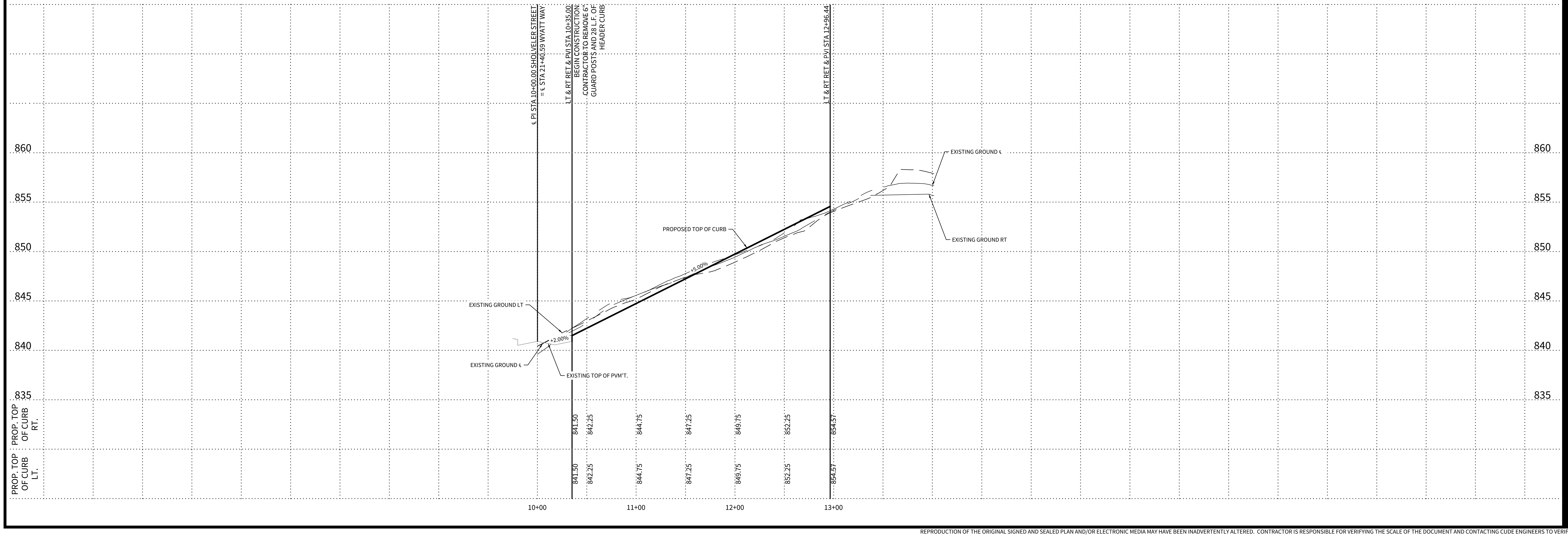
COSA TYPE "III" WHEEL CHAIR RAMPS ARE INDICATED THUS " " UNLESS OTHERWISE NOTED.

(SEE DETAIL SHEET C7.07) FOR ADA RAMPS AT SIDEWALK INTERSECTIONS . DETECTABLE WARNING PAVER WITH TRUNCATED DOMES ONLY.

SHOVELER STREET

STA. 10+35.00 TO STA. 14+01.44

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



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GRACE VALLEY RANCH PHASE 3B

STREET PLAN & PROFILE - SHOVELER STREET

DATE
09/24/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS
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KYLE M. HUDEK
138753
10/01/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C7.05

STREET PAVEMENT DESIGN OPTIONS (TTL, INC. - 00220903168.00)

1. PAVEMENT SECTION REQUIRED IS TO BE DETERMINED BY GEOTECHNICAL ENGINEER ON-SITE.

SUBGRADE NOTES (*):

- THE SUBGRADE WILL BE PROOF ROLLED TO IDENTIFY SOFT AREAS BEFORE STABILIZATION.
- THE SUBGRADE PLASTICITY INDEX VALUE IS EXPECTED TO BE GREATER THAN 20. SUBGRADE STABILIZATION IS NEEDED.
- ALL FILL UNDER ROADWAY TO BE MAX PI 35.
- UNDERCUT SOFT, WEAK, AND UNSTABLE SOILS BY EXCAVATING BELOW SUBGRADE LEVEL TO EXPOSE STABLE SOILS. THE EXCAVATED SOIL CAN BE USED TO RESTORE THE EXCAVATION SUBGRADE, PROVIDED THAT THE SOILS ARE RELATIVELY FREE AND CLEAN OF DELETERIOUS MATERIAL AND MATERIALS EXCEEDING 3 INCHES IN MAXIMUM DIMENSION. THE EXCAVATED SOIL, OR IMPORTED FILL SOIL, SHALL BE PLACED IN MAXIMUM 6-INCH COMPACTED LIFTS. EACH LIFT OF SOIL SHALL BE MOISTURE CONDITIONED BETWEEN PLUS OR MINUS THREE (±3) PERCENTAGE POINTS OF THE OPTIMUM MOISTURE CONTENT AND COMPACTED TO AT LEAST 95 PERCENT OF THE MAXIMUM DRY DENSITY DETERMINED IN ACCORDANCE WITH THE STANDARD COMPACTION EFFORT (ASTM D 698). IF UNDERCUTTING DEEPER THAN ABOUT 3 FEET IS NEEDED, CONTACT FSG.
- SOIL SUBGRADE AREAS REQUIRING FILL PLACEMENT SHOULD BE SCARIFIED TO A DEPTH OF ABOUT EIGHT (8) INCHES AND MOISTURE CONDITIONED BETWEEN PLUS OR MINUS TWO (±2) POINTS OF THE OPTIMUM MOISTURE CONTENT. THE MOISTURE CONDITIONED SUBGRADE SHOULD THEN BE COMPACTED TO AT LEAST 95 PERCENT OF THE MAXIMUM DRY DENSITY DETERMINED IN ACCORDANCE WITH ASTM D 698. THE SUBGRADE SHOULD BE MOISTURE CONDITIONED JUST PRIOR TO FILL PLACEMENT SO THE SUBGRADE MAINTAINS ITS COMPACTION MOISTURE LEVELS AND DOES NOT DRY OUT.
- ANY FILL 5' OR GREATER IN THICKNESS IS TO BE COMPACTED TO D1557.
- ON-SITE SOILS (GENERAL FILL), SELECT FILL OR GRANULAR FILL SOIL SHOULD BE PLACED TO ACHIEVE THE DESIRED ELEVATION.

GENERAL NOTES (**)

- INPUT PARAMETERS ARE SHOWN IN TABLE NO. 6. PLEASE CALL US TO PROVIDE PAVEMENT RECOMMENDATIONS, IF NEEDED, FOR DIFFERENT INPUT VALUES.
- IF REPETITIVE TRUCK OR HEAVY TRUCK TRAFFIC IS ANTICIPATED, PLEASE CONTACT US FOR REVISED PAVEMENT RECOMMENDATIONS.
- PAVEMENT SECTION RECOMMENDATIONS ARE BASED ON A CBR VALUE OF 1.8. THE PAVEMENT RECOMMENDATIONS PRESENTED ABOVE ARE NOT BASED ON THE SHRINK / SWELL CHARACTERISTICS OF THE UNDERLYING SOILS. IF WATER IS ALLOWED TO GET UNDERNEATH THE ASPHALT / CONCRETE OR IF MOISTURE CONTENT OF THE BASE OR SUBGRADE CHANGES SIGNIFICANTLY, THEN PAVEMENT DISTRESS WILL OCCUR. MOISTURE PENETRATION UNDERNEATH THE ASPHALT PAVEMENT SURFACE WILL BE REDUCED BY USING DEEPER CURBS; CURBS EXTENDING A MINIMUM OF 3 INCHES INTO SUBGRADE.
- THE PAVEMENT CAN EXPERIENCE CRACKING AND DEFORMATION DUE TO SHRINKAGE AND SWELLING CHARACTERISTICS OF THE SOILS AS DESCRIBED IN THE VERTICAL MOVEMENTS SECTION OF THIS REPORT.

SUBGRADE VERIFICATION:

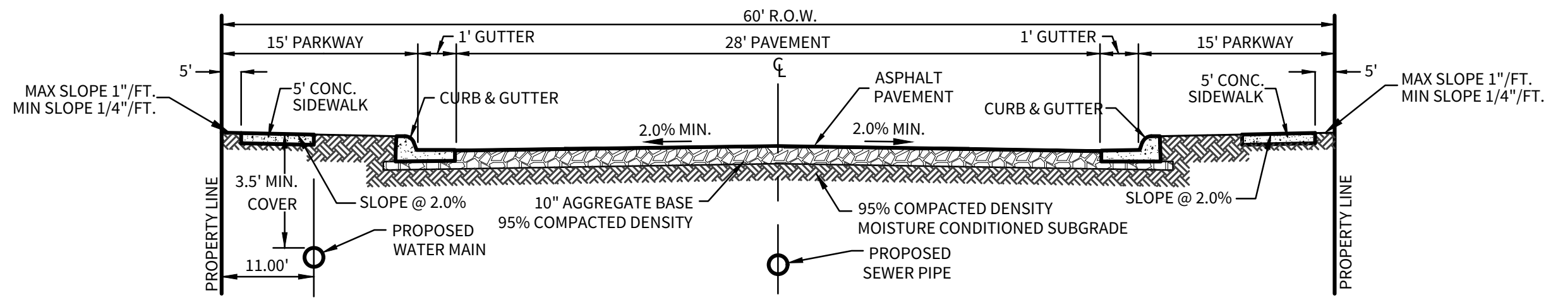
- AT THE TIME OF CONSTRUCTION, THE FINAL PAVEMENT SUBGRADE WILL BE OBSERVED AND VERIFIED BY A REPRESENTATIVE OF TTL, INC.

PRIME COAT:

- THE PRIME COAT SHOULD CONSIST OF SEALING THE BASE WITH AN OIL SUCH AS MC-30 OR AE-P ASPHALT CEMENT. THE PRIME COAT SHOULD BE APPLIED AT A RATE NOT OT EXCEED 0.35 GALLONS PER SQUARE YARD WITH MATERIALS WHICH MEET TXDOT ITEM 300. THE PRIME COAT WILL HELP TO MINIMIZE PENETRATION OF RAINFALL AND OTHER MOISTURE THAT PENETRATES THE BASE.

TACK COAT:

- THE ASPHALTIC MATERIAL USED FOR TACK COAT SHALL MEET THE REQUIREMENTS FOR “ASPHALT CEMENT”, “CUT-BACK ASPHALT” OR “EMULSIFIED ASPHALT” IN ITEM NO. 300, “ASPHALTS, OILS AND EMULSIONS” OF THE TEXAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS. THE ASPHALTIC MATERIAL USED FOR TACK COAT SHALL BE THE TYPE OR GRADE SHOWN IN THE REFERRING SPECIFICATION, OR ON THE PLANS, OR AS DIRECTED/APPROVED BY THE ENGINEER.

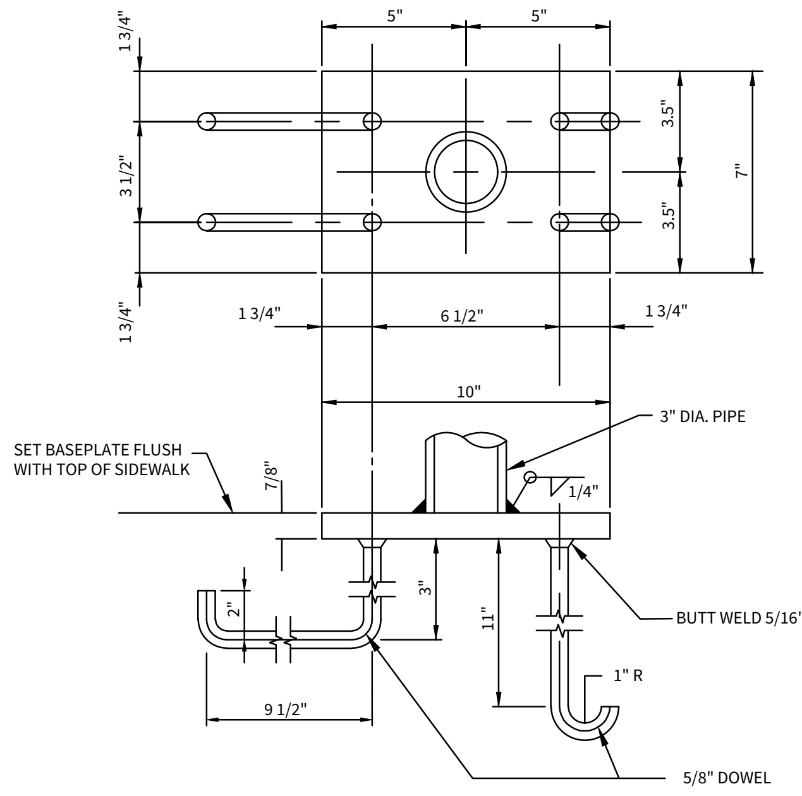

60' R.O.W.
15' PARKWAY
1' GUTTER
28' PAVEMENT
1' GUTTER
15' PARKWAY
5'
5'
MAX SLOPE 1"/FT.
MIN SLOPE 1/4"/FT.
5' CONC. SIDEWALK
CURB & GUTTER
ASPHALT PAVEMENT
CURB & GUTTER
5' CONC. SIDEWALK
MAX SLOPE 1"/FT.
MIN SLOPE 1/4"/FT.
2.0% MIN.
2.0% MIN.
3.5' MIN. COVER
SLOPE @ 2.0%
10" AGGREGATE BASE 95% COMPACTED DENSITY
95% COMPACTED DENSITY MOISTURE CONDITIONED SUBGRADE
SLOPE @ 2.0%
PROPOSED WATER MAIN
11.00'
PROPOSED SEWER PIPE
PROPERTY LINE
PROPERTY LINE

LOCAL "A" STREET CROSS-SECTION

N.T.S.

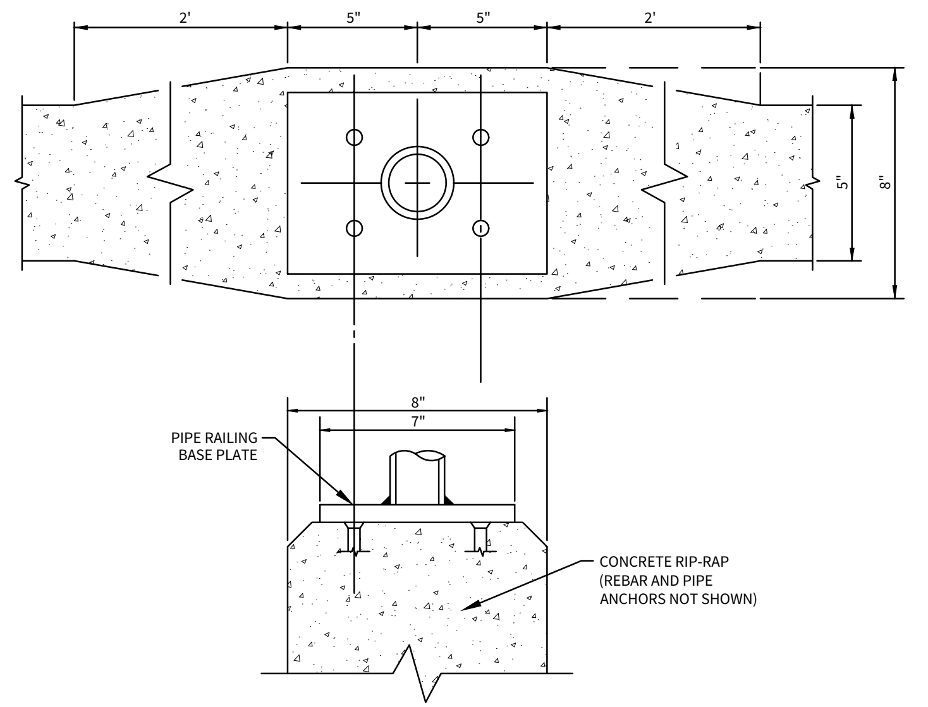
STREET TYPE	HMAC TYPE "D"	LIME STABILIZED SUBGRADE	FLEX BASE (TY A GR 2)	STRUCTURAL NUMBER
LOCAL "A"	2.5"	---	10"	2.50

STREET PAVEMENT DESIGN


5"
5"
1 3/4"
3 1/2"
1 3/4"
3.5"
3.5"
7"
1 3/4"
6 1/2"
1 3/4"
10"
3" DIA. PIPE
SET BASEPLATE FLUSH WITH TOP OF SIDEWALK
7/8"
1/4"
2"
3"
11"
BUTT WELD 5/16" THICK
1" R
9 1/2"
5/8" DOWEL

PIPE ANCHORAGE DETAILS

N.T.S.

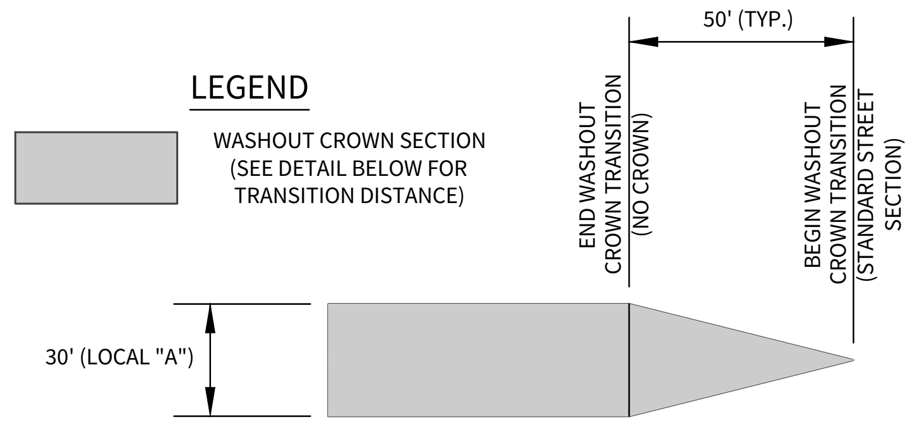

2'
5"
5"
2'
5"
8"
8"
7"
PIPE RAILING BASE PLATE
CONCRETE RIP-RAP (REBAR AND PIPE ANCHORS NOT SHOWN)

CONCRETE RIP-RAP AT PIPE RAILING BASE PLATE DETAIL

N.T.S.

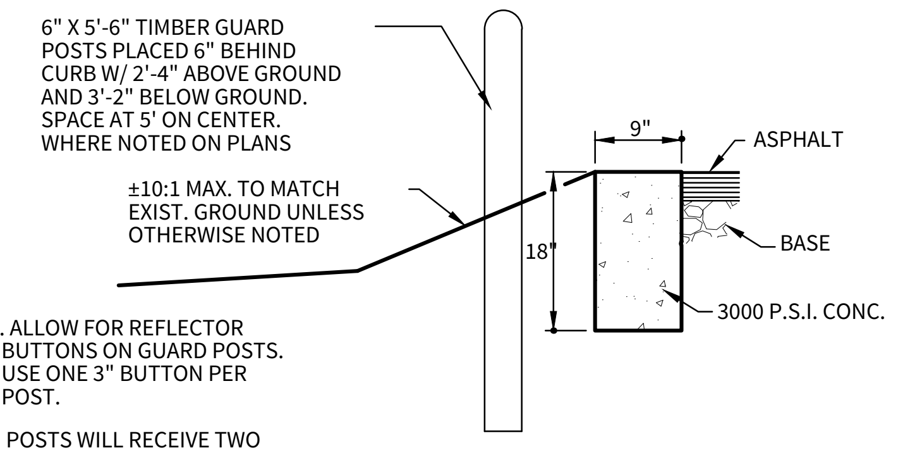
NOTES:

1) CONTRACTOR TO FLARE CONCRETE RIP-RAP TO 8" AT PROPOSED PIPE RAILING BASE PLATE LOCATIONS.


LEGEND
WASHOUT CROWN SECTION (SEE DETAIL BELOW FOR TRANSITION DISTANCE)
50' (TYP.)
END WASHOUT CROWN TRANSITION (NO CROWN)
BEGIN WASHOUT CROWN TRANSITION (STANDARD STREET SECTION)
30' (LOCAL "A")

WASHOUT CROWN TRANSITION DETAIL

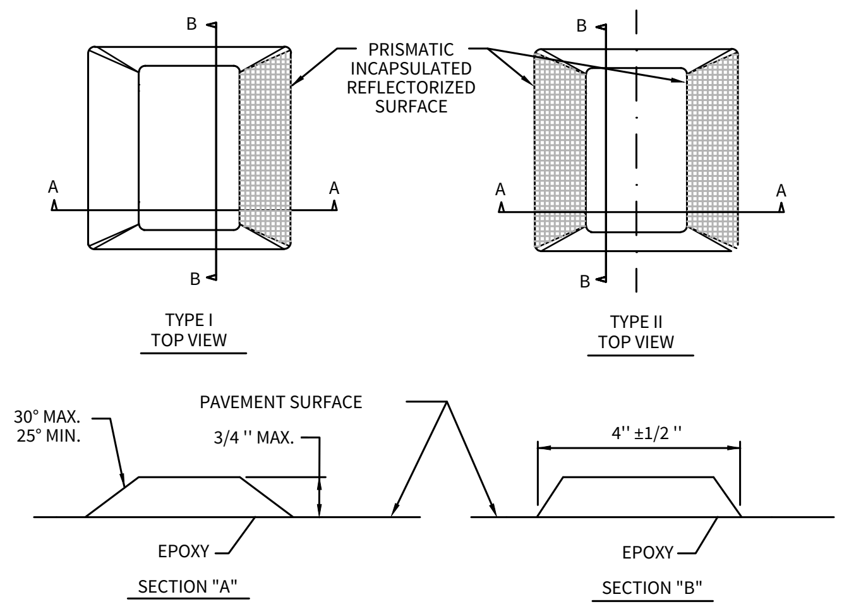
N.T.S.


6" X 5'-6" TIMBER GUARD POSTS PLACED 6" BEHIND CURB W/ 2'-4" ABOVE GROUND AND 3'-2" BELOW GROUND. SPACE AT 5' ON CENTER. WHERE NOTED ON PLANS
±10:1 MAX. TO MATCH EXIST. GROUND UNLESS OTHERWISE NOTED
9"
ASPHALT
18"
BASE
3000 P.S.I. CONC.

1. ALLOW FOR REFLECTOR BUTTONS ON GUARD POSTS. USE ONE 3" BUTTON PER POST.
2. POSTS WILL RECEIVE TWO COATS OF ALUMINUM PAINT.

HEADER CURB DETAIL

N.T.S.


B
B
A
A
PRISMATIC INCAPSULATED REFLECTORIZED SURFACE
B
B
A
A
TYPE I TOP VIEW
TYPE II TOP VIEW
30° MAX. 25° MIN.
PAVEMENT SURFACE
3/4 '' MAX.
4'' ±1/2 ''
EPOXY
SECTION "A"
EPOXY
SECTION "B"

1) REFLECTORIZED BLUE - FIRE HYDRANT

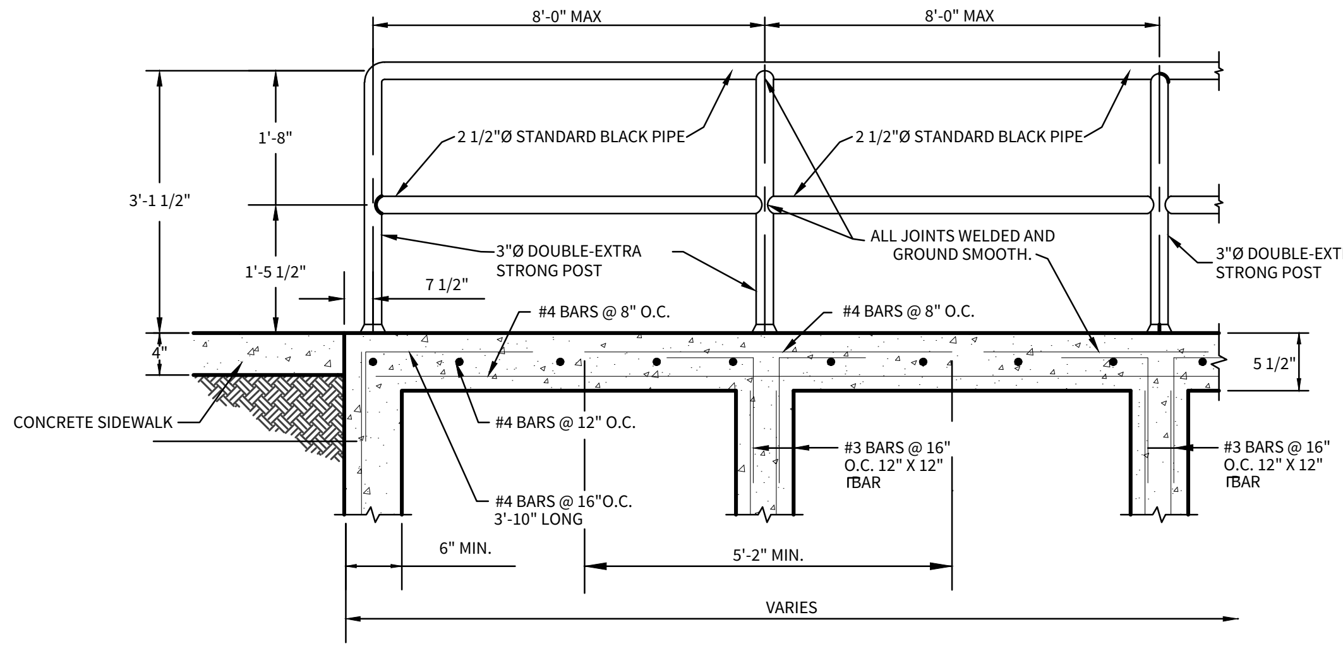
2) ADHENSIVE SHALL BE APPLIED IN SUFFICIENT TO ENSURE THE FOLLOWING:
   a) 100 PERCENT OF THE BONDING AREA OF RAISED PAVEMENT MARKERS SHALL BE IN CONTACT WITH THE ADHESIVE.
   b) RAISED PAVEMENT MARKERS SHALL NOT BE IN CONTACT WITH THE PAVEMENT SURFACE, BUT SHALL BE SEATED ON A CONTINUOUS LAYER OF ADHESIVE.
   c) BITUMINOUS ADHESIVE FOR MARKERS ON BITUMIOUS PAVEMENTS. EPOXY ADHENSIVE FOR MARKERS ON PORTLAND CEMENT CONCRETE PAVEMENTS. EPOXY ADHESIVE SHALL BE MACHINE MIXED.

3) RAISED PAVEMENT MARKERS SHALL BE FREE OF RUST, SCALE, DIRT, OIL, GREASE, MOISTURE, OR CONTAMINATES WHICH MIGHT ADVERSELY AFFECT THE ADHESIVE BOND. ADHESIVE OR ANY OTHER MATERIAL THAT IMPAIRS THE FUNCTIONAL REFLECTIVITY WILL NOT BE ACCEPTABLE.

4) PLACEMENT OF RAISED PAVEMENT MARKERS SHALL BE 4 FEET OFF STREET CENTELINE TOWARD ITEM MARKED.

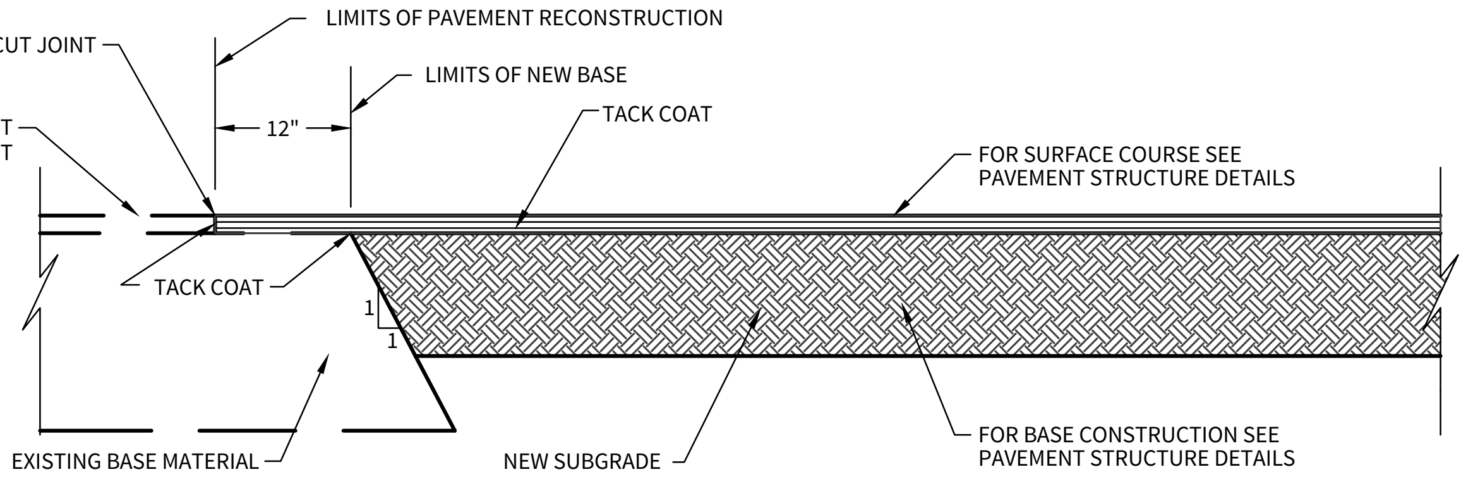
PAVEMENT REFLECTORS DETAIL

N.T.S.


8'-0" MAX
8'-0" MAX
2 1/2"Ø STANDARD BLACK PIPE
2 1/2"Ø STANDARD BLACK PIPE
1'-8"
3'-1 1/2"
1'-5 1/2"
7 1/2"
3"Ø DOUBLE-EXTRA STRONG POST
ALL JOINTS WELDED AND GROUND SMOOTH.
3"Ø DOUBLE-EXTRA STRONG POST
#4 BARS @ 8" O.C.
#4 BARS @ 8" O.C.
4"
5 1/2"
CONCRETE SIDEWALK
#4 BARS @ 12" O.C.
#3 BARS @ 16" O.C. 12" X 12" ΓBAR
#3 BARS @ 16" O.C. 12" X 12" ΓBAR
#4 BARS @ 16"O.C. 3'-10" LONG
6" MIN.
5'-2" MIN.
VARIES

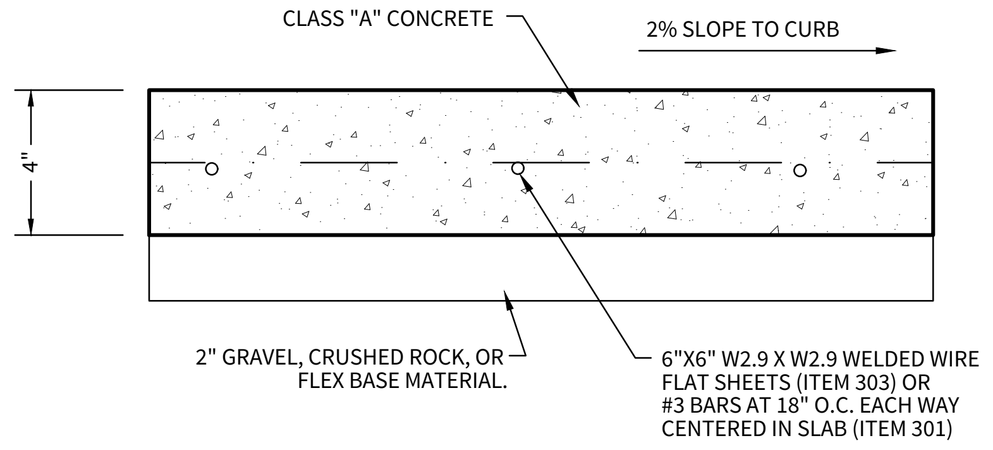
TYPICAL SIDEWALK BRIDGE SECTION AND SIDEWALK PIPE RAILING

N.T.S.


LIMITS OF PAVEMENT RECONSTRUCTION
SAW-CUT JOINT
LIMITS OF NEW BASE
2" EXISTING ASPHALT PAVEMENT
12"
TACK COAT
FOR SURFACE COURSE SEE PAVEMENT STRUCTURE DETAILS
TACK COAT
1
1
EXISTING BASE MATERIAL
NEW SUBGRADE
FOR BASE CONSTRUCTION SEE PAVEMENT STRUCTURE DETAILS

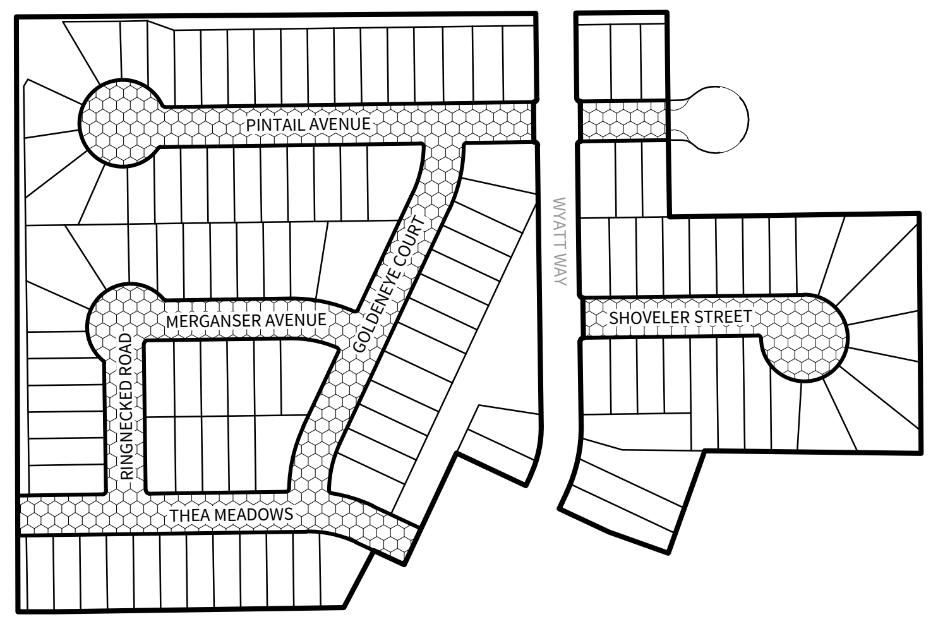
PAVEMENT JUNCTION DETAILS

N.T.S.


CLASS "A" CONCRETE
2% SLOPE TO CURB
4"
2" GRAVEL, CRUSHED ROCK, OR FLEX BASE MATERIAL.
6"X6" W2.9 X W2.9 WELDED WIRE FLAT SHEETS (ITEM 303) OR #3 BARS AT 18" O.C. EACH WAY CENTERED IN SLAB (ITEM 301)

CONCRETE SIDEWALK

N.T.S.


PINTAIL AVENUE
GOLDENEYE COURT
MERGANSER AVENUE
RINGNECKED ROAD
THEA MEADOWS
WYATT WAY
SHOVELER STREET

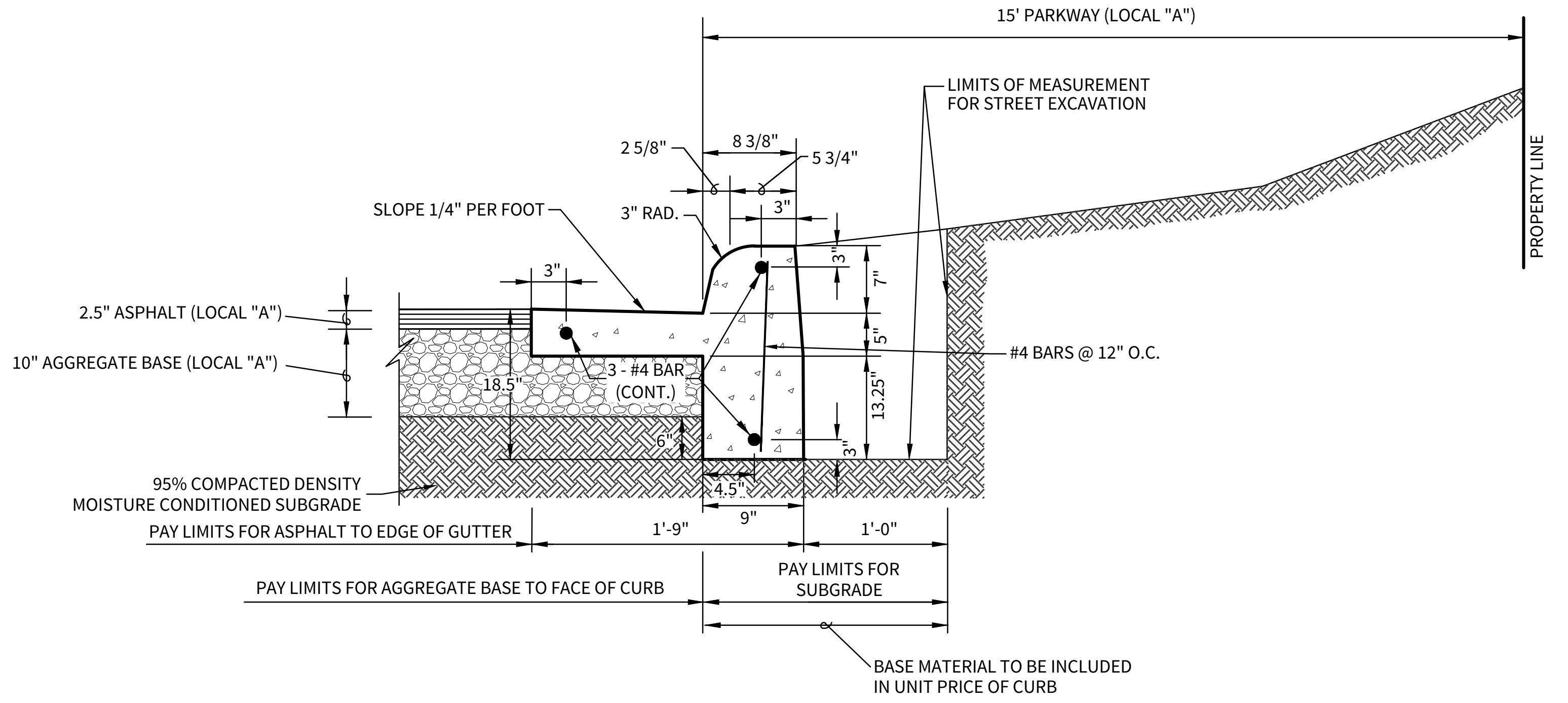
PAVEMENT DESIGN SCHEMATIC N.T.S.

NOTE:
REFERENCE GEOTECHNICAL REPORT TTL. INC NO. 00200903122.01 FOR BORING INFORMATION AND CBR LOCATIONS.

LEGEND:

⬡	LOCAL "A"	
	PINTAIL AVENUE	STA. 11+35.58 - 16+56.25
	GOLDENEYE COURT	STA. 10+00.00 - 14+50.78
	SHOVELLER STREET	STA. 10+00.00 - 13+32.02
	MERGANSER AVENUE	STA. 10+00.00 - 12+44.79
	RINGNECKED ROAD	STA. 10+00.00 - 18+72.23
	THEA MEADOWS	STA. 16+03.21 - 23+68.25

DETAILS ON THIS DRAWING ARE NOT TO SCALE


15' PARKWAY (LOCAL "A")
LIMITS OF MEASUREMENT FOR STREET EXCAVATION
2 5/8"
8 3/8"
5 3/4"
SLOPE 1/4" PER FOOT
3" RAD.
3"
3"
3"
7"
5"
13.25"
3"
2.5" ASPHALT (LOCAL "A")
10" AGGREGATE BASE (LOCAL "A")
18.5"
3 - #4 BAR (CONT.)
6"
#4 BARS @ 12" O.C.
4.5"
9"
95% COMPACTED DENSITY MOISTURE CONDITIONED SUBGRADE
PAY LIMITS FOR ASPHALT TO EDGE OF GUTTER
1'-9"
1'-0"
PAY LIMITS FOR AGGREGATE BASE TO FACE OF CURB
PAY LIMITS FOR SUBGRADE
BASE MATERIAL TO BE INCLUDED IN UNIT PRICE OF CURB
PROPERTY LINE

LOCAL "A" - CURB & GUTTER DETAIL

N.T.S.

CUDEENGINEERS.COM

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

GRACE VALLEY RANCH
PHASE 3B

STANDARD STREET DETAILS

DATE
08/05/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS
1.
2.
3.
4.
5.
6.
7.
8.
9.

KYLE M. HUDEK
138753
08/12/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C7.06

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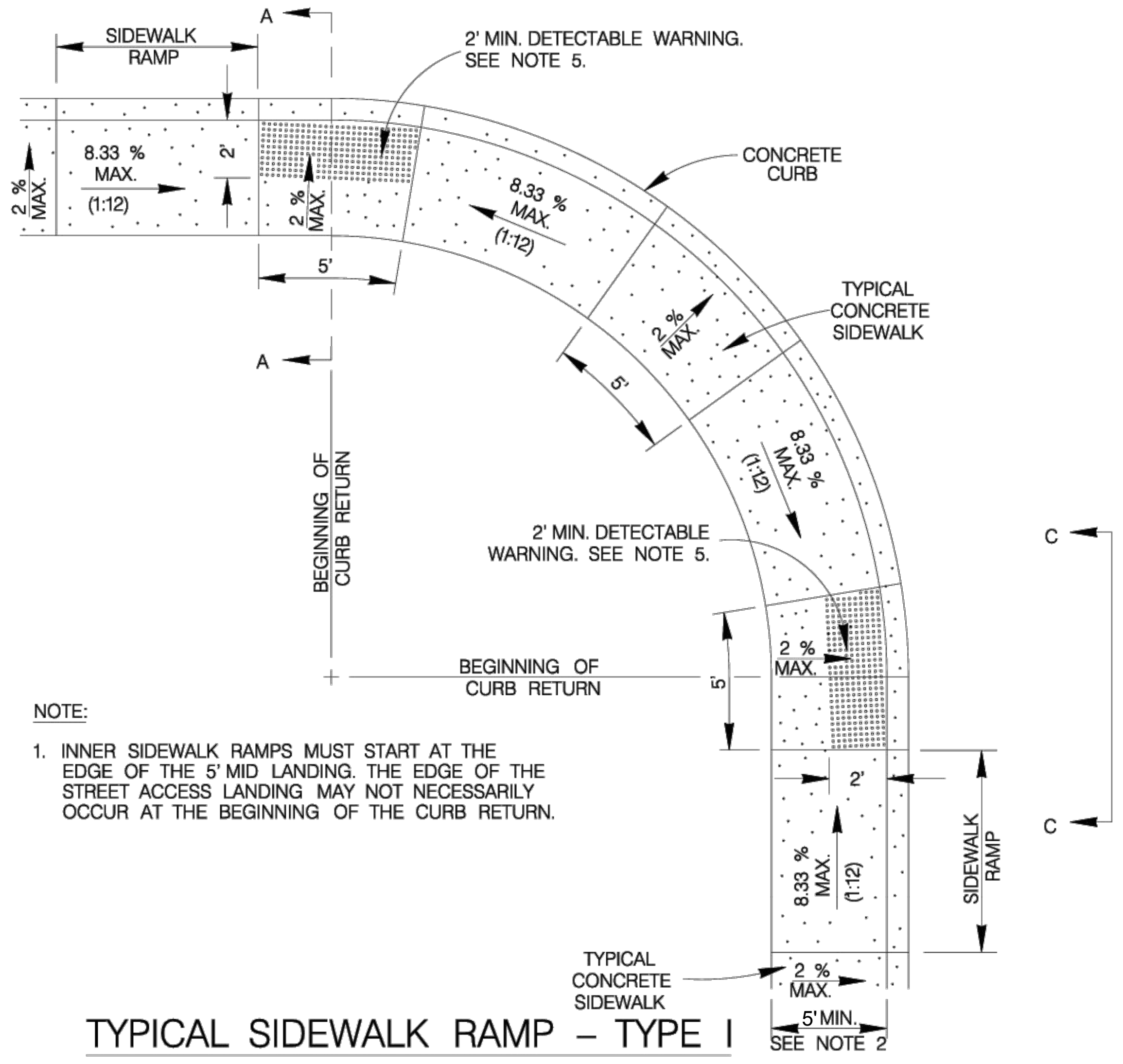

SIDEWALK RAMP
A
2' MIN. DETECTABLE WARNING. SEE NOTE 5.
CONCRETE CURB
8.33 % MAX. (1:12)
2 % MAX.
2'
5'
TYPICAL CONCRETE SIDEWALK
BEGINNING OF CURB RETURN
2' MIN. DETECTABLE WARNING. SEE NOTE 5.
C
SIDEWALK RAMP
5' MIN. SEE NOTE 2

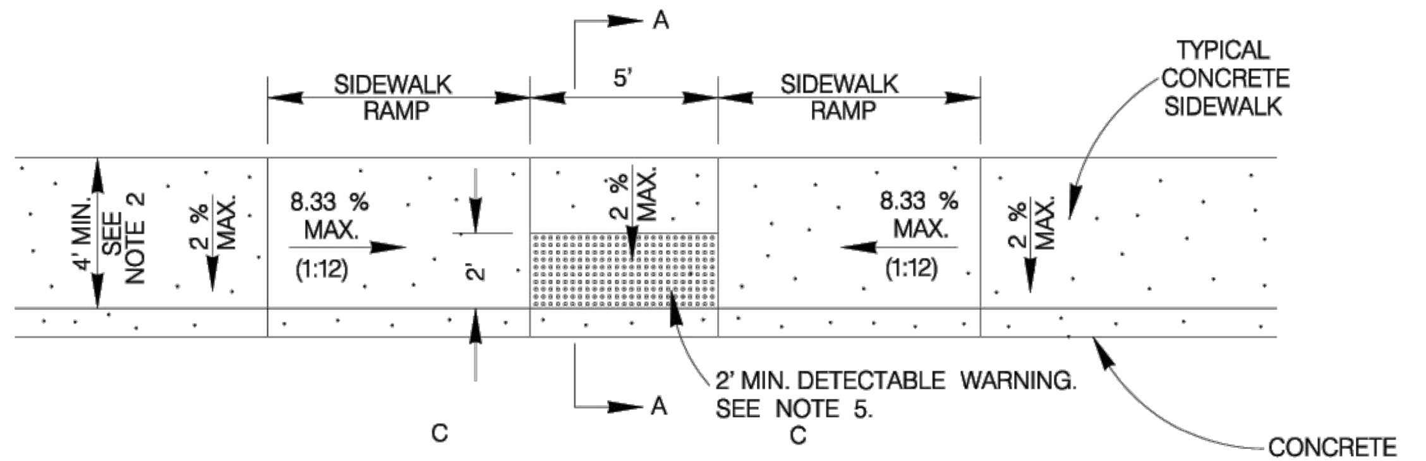
NOTE:

1. INNER SIDEWALK RAMPS MUST START AT THE EDGE OF THE 5' MID LANDING. THE EDGE OF THE STREET ACCESS LANDING MAY NOT NECESSARILY OCCUR AT THE BEGINNING OF THE CURB RETURN.

TYPICAL SIDEWALK RAMP – TYPE I

SIDEWALK ABUTS THE CURB

SCALE : 1" = 10'

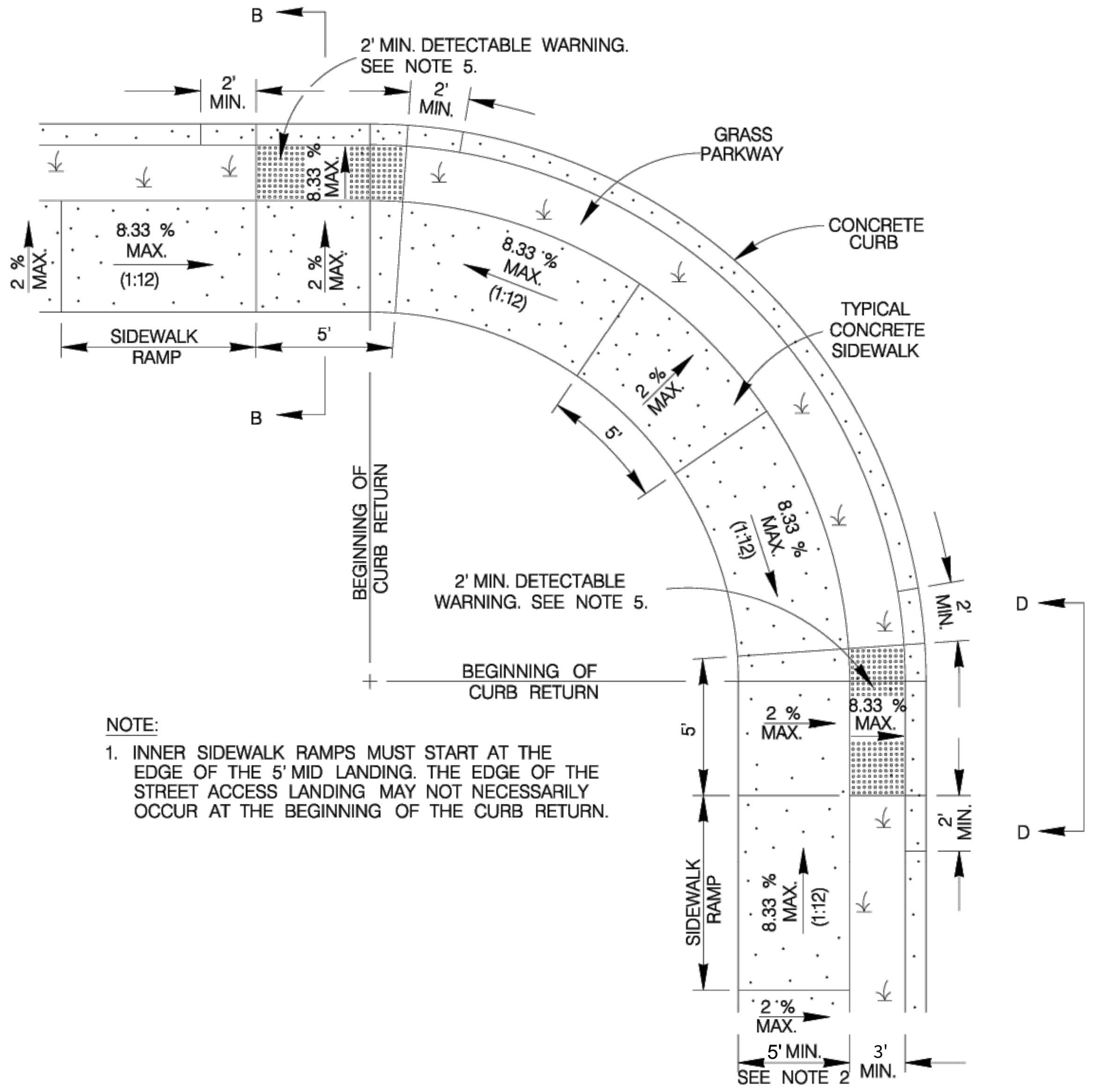

A
SIDEWALK RAMP
5'
SIDEWALK RAMP
TYPICAL CONCRETE SIDEWALK
4' MIN. SEE NOTE 2
2 % MAX.
8.33 % MAX. (1:12)
2'
2' MIN. DETECTABLE WARNING. SEE NOTE 5.
CONCRETE CURB
C

TYPICAL SIDEWALK RAMP – TYPE II

USED AT TEE INTERSECTIONS WHERE SIDEWALK ABUTS CURB
SCALE : 1" = 10'

GENERAL NOTES

1. WHEN POSSIBLE SIDEWALKS SHOULD BE PLACED NEXT TO THE PROPERTY LINE, ALLOWING A MININMUM OF 1 FOOT BUFFER. DEVIATION OF THE PATHWAY FROM A STRAIGHT LINE IS ENCOURAGED TO AVOID TREES OR OTHER OBSTRUCTIONS.
2. FOR LOCAL TYPE "A" STREETS, SIDEWALKS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 5' AND IF SEPARATED FROM THE CURB, THE SIDEWALK SHALL BE LOCATED A MINIMUM OF 3' FROM THE BACK OF CURB.
3. FOR OTHER THAN LOCAL TYPE "A" STREETS, SIDEWALKS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 5' AND SEPARATED A MINIMUM OF 3' FROM THE BACK OF CURB OR AS AN OPTION, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 6' WHEN LOCATED AT THE BACK OF CURB.
4. SIDEWALK RAMP LENGTHS PRESENTED IN TABLE 1 ARE GUIDELINES ONLY. SIDEWALK RAMP LENGTHS SHALL BE OF SUFFICIENT LENGTH TO MAINTAIN 8.33% (1:12) MAXIMUM SLOPE.
5. ALL CURB–RAMPS OR LANDINGS ABUTTING THE CROSSWALK SHALL HAVE A DETECTABLE WARNING 24 INCHES DEEP (IN THE DIRECTION OF PEDESTRIAN TRAVEL) AND EXTENDING THE FULL WIDTH OF THE CURB RAMP OR LANDING. THE DETECTABLE WARNING SHALL CONSIST OF RAISED TRUNCATED DOMES, ALIGNED IN A GRID PATTERN WITH A DIAMETER OF A NOMINAL 0.9 INCHES (23 MM), A HEIGHT OF NOMINAL 0.2 INCHES (5 MM) AND A CENTER–TO–CENTER SPACING OF NOMINAL 2.35 INCHES (60 MM). THE TRUNCATED DOMES MUST COMPLY WITH PROWAG.
6. DETECTABLE WARNINGS SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT–ON–DARK, OR DARK–ON–LIGHT. THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE.
7. SIDEWALK RAMP TYPE V SHALL BE USED ONLY WHERE THERE IS SIGNIFICANT RESTRICTION WITHIN THE PARKWAY TO CONSTRUCT TYPE I OR TYPE III RAMPS.
8. CONSTRUCTION OF ALL WHEELCHAIR RAMPS TO BE INCLUDED UNDER ITEMS "500 – CONCRETE CURB, GUTTER, AND CONCRETE CURB AND GUTTER" AND / OR "502 – CONCRETE SIDEWALKS". RAMP SURFACE SHALL BE BRUSH FINISHED.
9. THESE DETAILS ARE FOR REFERENCE ONLY. ACTUAL LOCATIONS OF WHEELCHAIR RAMPS TO BE SHOWN ON CONSTRUCTION PLANS. CITY CONSTRUCTION INSPECTOR CAN ADJUST LOCATIONS FOR SAFETY OR UTILITY CLEARANCE.
10. SIDEWALKS LESS THAN 5 FEET IN WIDTH SHALL BE PROVIDED WITH A PASSING SPACE AT A MAXIMUM SPACING OF 200 FEET.
11. WHEELCHAIR RAMP SHALL BE CONSTRUCTED WITH 4" CLASS "A" CONCRETE AND 2" MINIMUM GRAVEL, CRUSHED ROCK OR FLEXIBLE BASE MATERIAL.
12. REINFORCING STEEL SHALL BE #3 BARS AT 18" O.C.E.W. OR 6" x 6" – W2.9 x W2.9 WIRE MESH.
13. SIDEWALK GRADES SHALL NOT EXCEED THE GRADE ESTABLISHED FOR THE ADJACENT ROADWAY, ANY SIDEWALK CONSTRUCTION THAT DEVIATES FROM THE NATURAL GRADE OF THE ROADWAY TO CREATE A GRADE STEEPER THAN THE EXISTING ROADWAY WILL REQUIRE RAMPS, HANDRAILS AND RESTING PLATFORMS TO BE CONSTRUCTED IN ACCORDANCE WITH ADA AND TAS STANDARDS.
14. SIDEWALK CROSS GRADE SHALL HAVE A MAXIMUM SLOPE OF 2%. LANDINGS SHALL HAVE A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.
15. THE CHANGE OF GRADE BETWEEN ADJACENT SURFACES SHALL BE LESS THAN 11%. THE CHANGE OF GRADE SHALL BE DEFINED AS THE ALGEBRAIC DIFFERENCE OF THE ADJACENT SURFACE SLOPES. IN THE CASE OF A STREET ACCESS RAMP DESIGNED AT THE 8.33% MAXIMUM SLOPE, THE ADJACENT PAVEMENT CROSS SLOPE SHALL BE LESS THAN 2.67% (I.E. 8.33–(–2.67) = 11). IN ADDITION, THE ADJACENT PAVEMENT CROSS SLOPE SHALL BE LESS THAN OR EQUAL TO 5%.
16. IF THE CHANGE OF GRADE BETWEEN ADJACENT SURFACES IS GREATER THAN OR EQUAL TO 11%, A LEVELING STRIP, 2 FEET IN LENGTH, SHALL BE PROVIDED TO TRANSITION THE ADJACENT SURFACES.
17. ADA COMPLIANCE IN ALTERATIONS INCLUDE ONLY THAT WORK WITHIN THE LIMITS, BOUNDARIES OR SCOPE OF A PLANNED PROJECT.

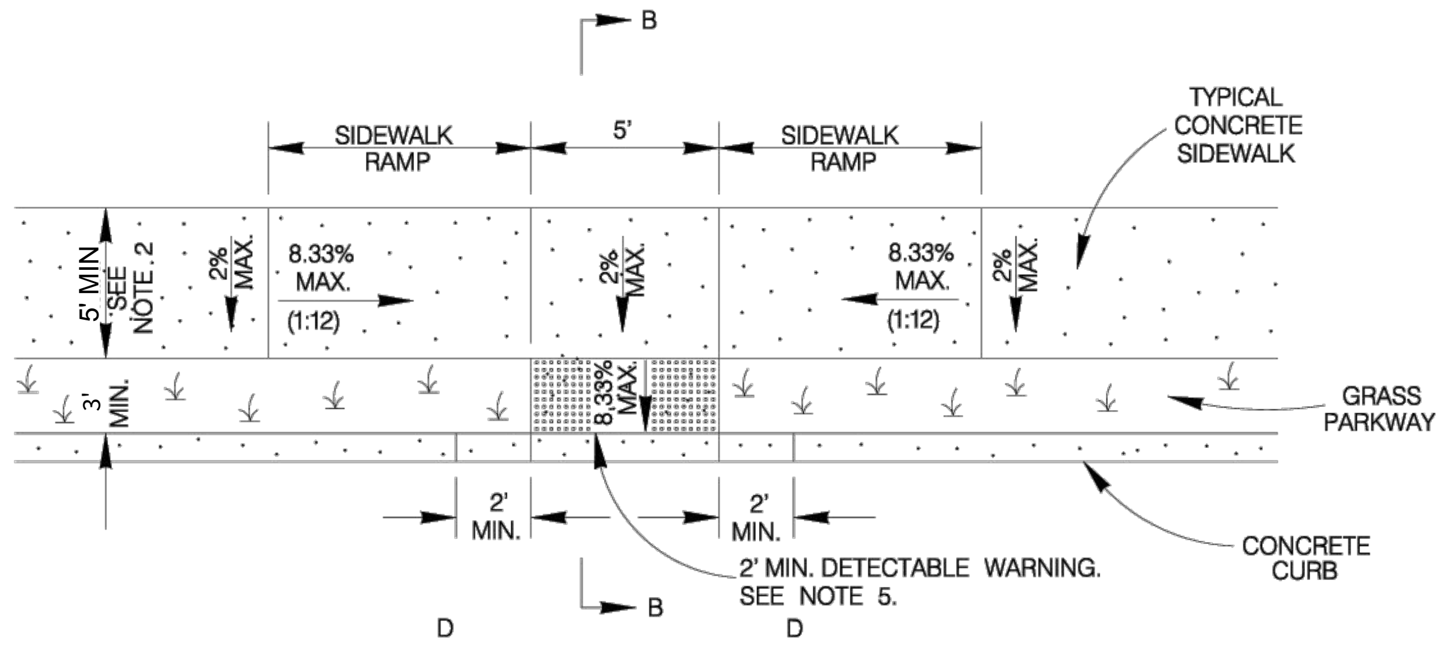

B
2' MIN.
2' MIN. DETECTABLE WARNING. SEE NOTE 5.
GRASS PARKWAY
CONCRETE CURB
TYPICAL CONCRETE SIDEWALK
8.33 % MAX. (1:12)
2 % MAX.
SIDEWALK RAMP
5'
BEGINNING OF CURB RETURN
2' MIN. DETECTABLE WARNING. SEE NOTE 5.
D
5' MIN. SEE NOTE 2
3' MIN.

NOTE:

1. INNER SIDEWALK RAMPS MUST START AT THE EDGE OF THE 5' MID LANDING. THE EDGE OF THE STREET ACCESS LANDING MAY NOT NECESSARILY OCCUR AT THE BEGINNING OF THE CURB RETURN.

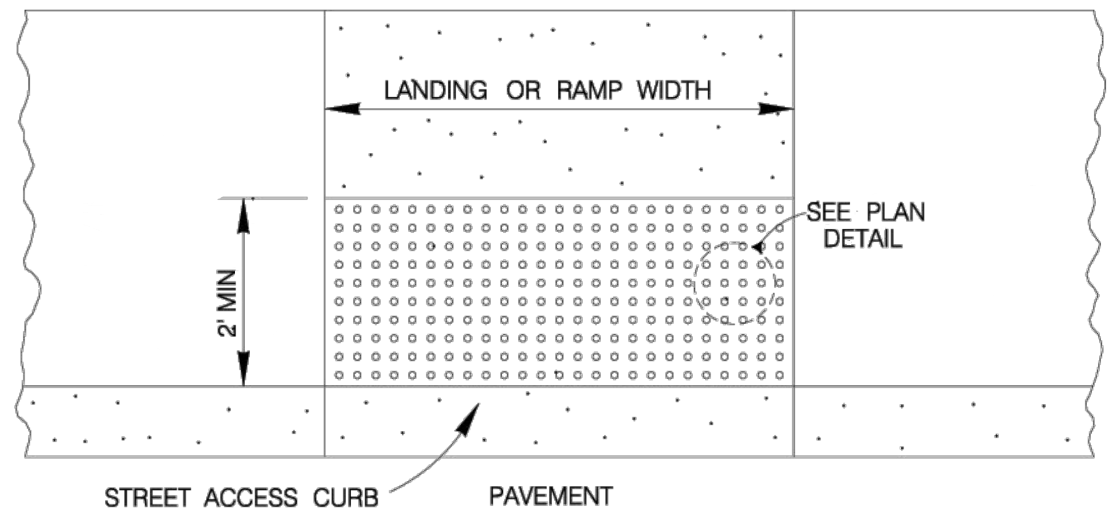
TYPICAL SIDEWALK RAMP – TYPE III

SIDEWALK SEPARATED FROM CURB
SCALE : 1" = 10'


B
SIDEWALK RAMP
5'
SIDEWALK RAMP
TYPICAL CONCRETE SIDEWALK
5' MIN. SEE NOTE 2
2% MAX.
8.33% MAX. (1:12)
3' MIN.
GRASS PARKWAY
2' MIN.
2' MIN. DETECTABLE WARNING. SEE NOTE 5.
CONCRETE CURB
D

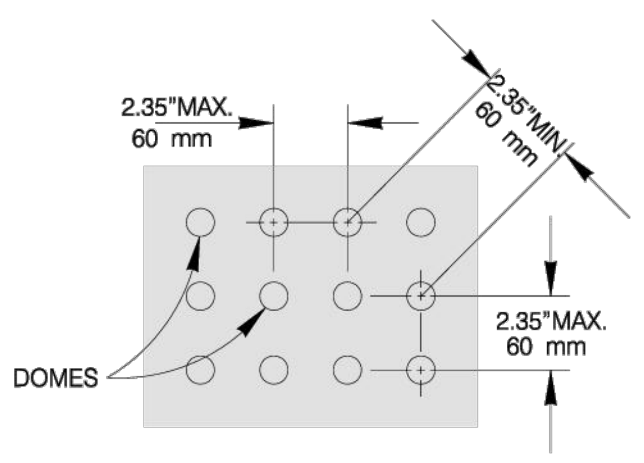
TYPICAL SIDEWALK RAMP – TYPE IV

USED AT TEE INTERSECTIONS WHERE SIDEWALK IS SEPARATED FROM CURB
SCALE : 1" = 10'


LANDING OR RAMP WIDTH
SEE PLAN DETAIL
2' MIN
STREET ACCESS CURB
PAVEMENT

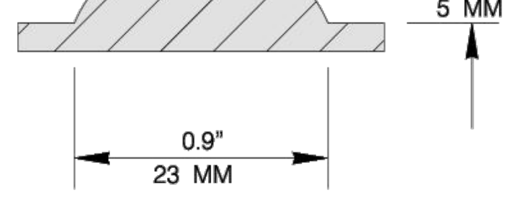
DETECTABLE WARNING SURFACE

SCALE : 1" = 4'


2.35"MAX. 60 mm
2.35"MIN. 60 mm
2.35"MAX. 60 mm
DOMES

PLAN DETAIL

NO SCALE

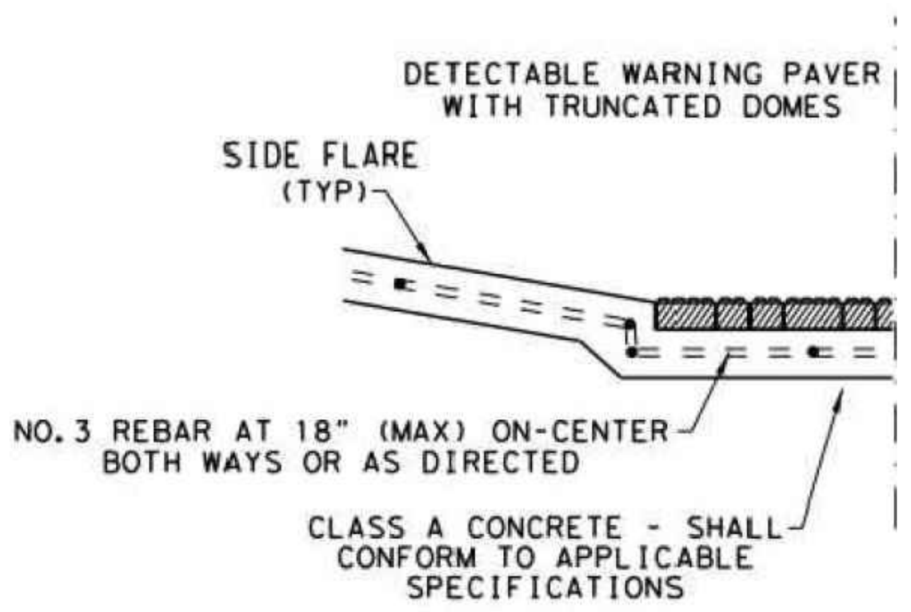

0.5" 13 MM
0.2" 5 MM
0.9" 23 MM

DOME SECTION

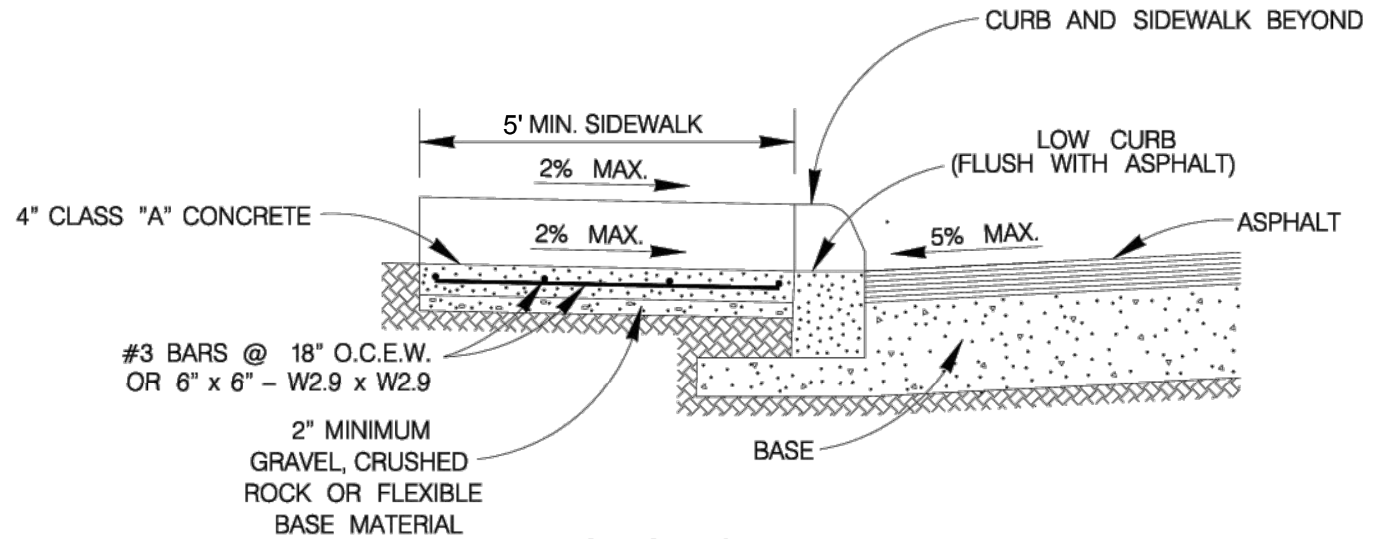
NO SCALE

NOTE:

STAMPED CONCRETE TRUNCATED DOMES WILL NOT BE ALLOWED TO BE USED FOR DETECTABLE WARNING ON WHEELCHAIR RAMPS. CONTRACTOR MUST SUBMIT TRUNCATED DOME INFORMATION THAT IS TO BE USED ON WHEELCHAIR RAMPS TO THE PROJECT MANAGER FOR APPROVAL AT LEAST 30 DAYS PRIOR TO INSTALLATION.

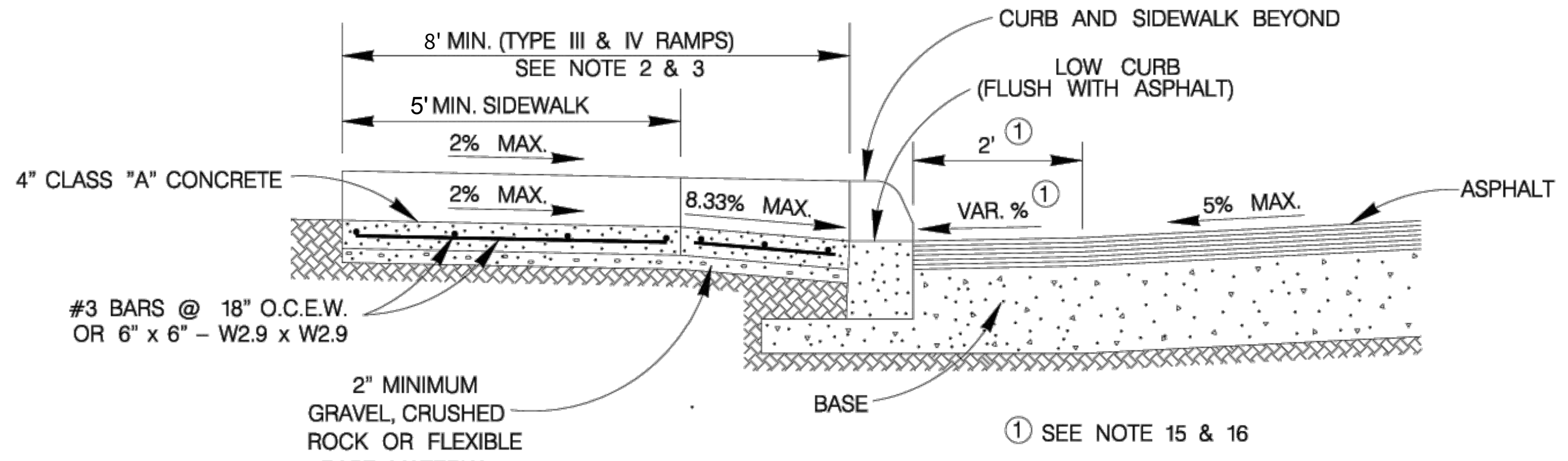

DETECTABLE WARNING PAVER WITH TRUNCATED DOMES
SIDE FLARE (TYP)
NO. 3 REBAR AT 18" (MAX) ON-CENTER BOTH WAYS OR AS DIRECTED
CLASS A CONCRETE - SHALL CONFORM TO APPLICABLE SPECIFICATIONS

SECTION VIEW DETAIL CURB RAMP AT DETECTIBLE WARNINGS


CURB AND SIDEWALK BEYOND
5' MIN. SIDEWALK
2% MAX.
LOW CURB (FLUSH WITH ASPHALT)
4" CLASS "A" CONCRETE
2% MAX.
5% MAX.
ASPHALT
#3 BARS @ 18" O.C.E.W. OR 6" x 6" – W2.9 x W2.9
2" MINIMUM GRAVEL, CRUSHED ROCK OR FLEXIBLE BASE MATERIAL
BASE

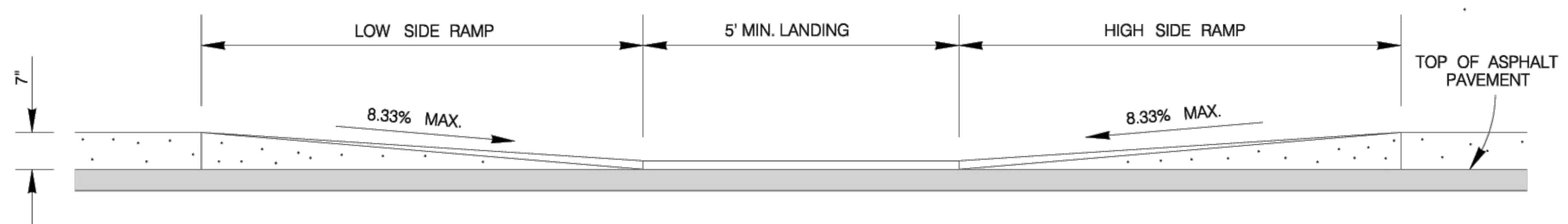
SECTION A–A

SCALE : 1" = 4'


8' MIN. (TYPE III & IV RAMPS) SEE NOTE 2 & 3
CURB AND SIDEWALK BEYOND
5' MIN. SIDEWALK
LOW CURB (FLUSH WITH ASPHALT)
2% MAX.
2' ①
4" CLASS "A" CONCRETE
2% MAX.
8.33% MAX.
VAR. % ①
5% MAX.
ASPHALT
#3 BARS @ 18" O.C.E.W. OR 6" x 6" – W2.9 x W2.9
2" MINIMUM GRAVEL, CRUSHED ROCK OR FLEXIBLE BASE MATERIAL
BASE
① SEE NOTE 15 & 16

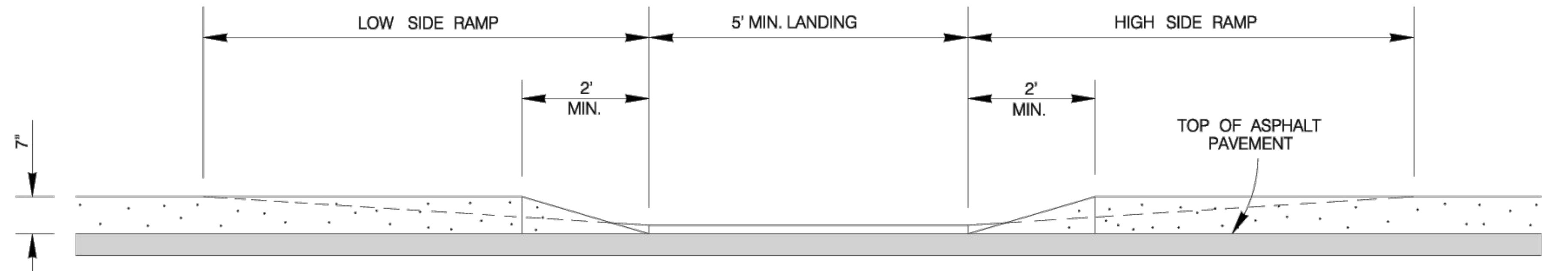
SECTION B–B

SCALE : 1" = 4'


LOW SIDE RAMP
5' MIN. LANDING
HIGH SIDE RAMP
7"
8.33% MAX.
8.33% MAX.
TOP OF ASPHALT PAVEMENT

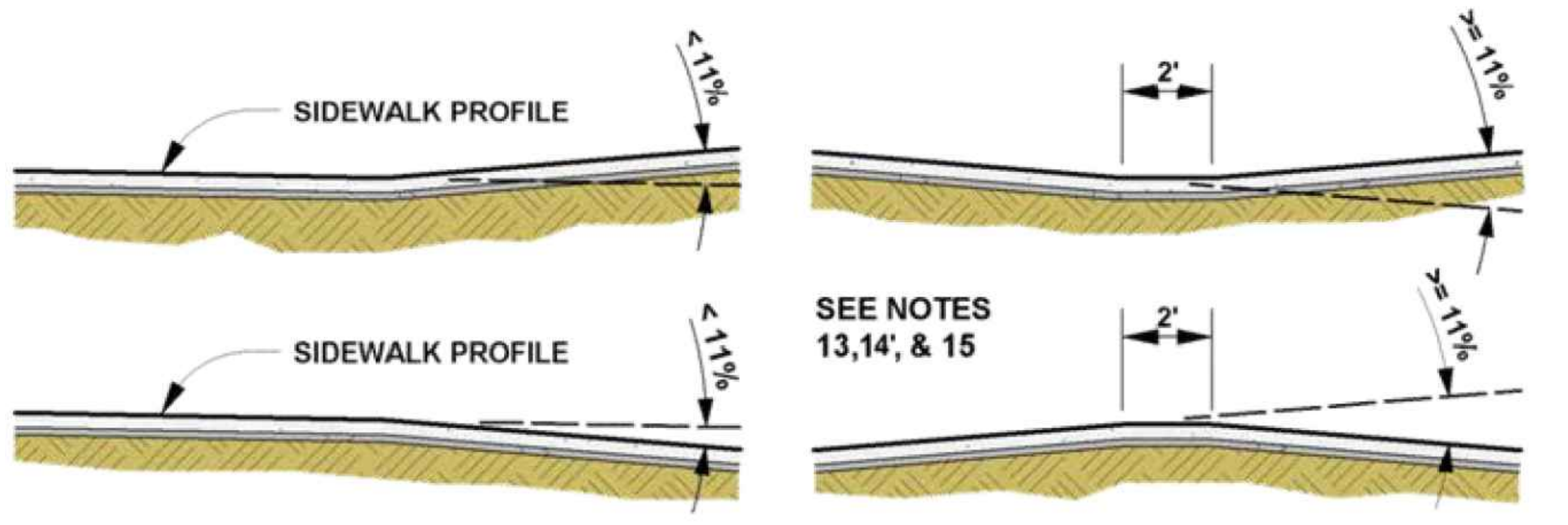
SECTION C–C

CURB PROFILE WHERE SIDEWALK ABUTS CURB
SCALE : 1" = 4'


LOW SIDE RAMP
5' MIN. LANDING
HIGH SIDE RAMP
2' MIN.
2' MIN.
7"
TOP OF ASPHALT PAVEMENT

SECTION D–D

CURB PROFILE WHERE SIDEWALK IS SEPARATED FROM CURB
SCALE : 1" = 4'


SIDEWALK PROFILE
< 11%
2'
>= 11%
SIDEWALK PROFILE
< 11%
SEE NOTES 13,14', & 15
2'
>= 11%

SIDEWALK PROFILES AND GRADE REQUIREMENTS

TABLE 1 (SEE NOTE 4)		
GUTTER SLOPE	SIDEWALK RAMP LENGTH (1:12)	
	LOW SIDE	HIGH SIDE
1%	5'–6"	7'–2"
2%	5'–0"	8'–4"
3%	4'–6"	10'–0"
4%	4'–2"	12'–6"
5%	3'–10"	16'–8"

CUDEENGINEERS.COM

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

GRACE VALLEY RANCH
PHASE 3B

ADA RAMP STANDARDS

DATE
08/05/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS
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8.
9.

KYLE M. HUDEK
138753
08/12/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C7.07

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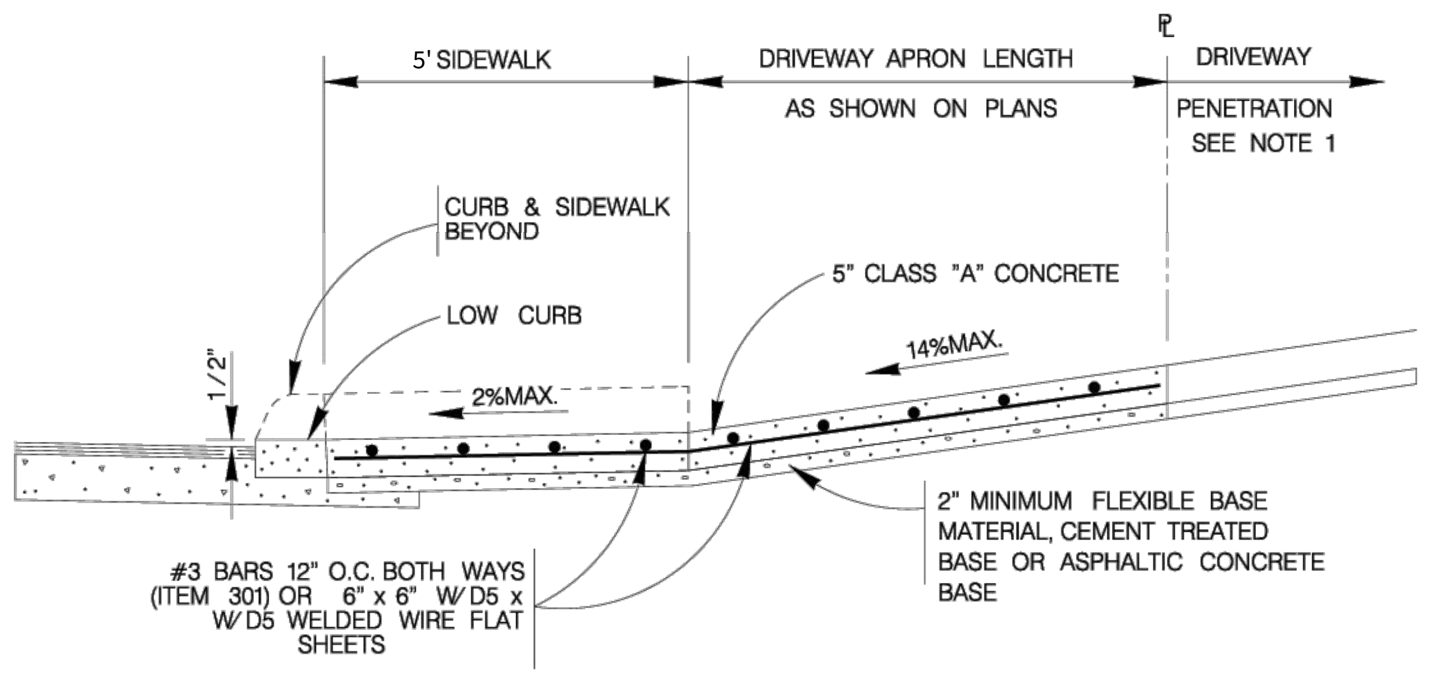
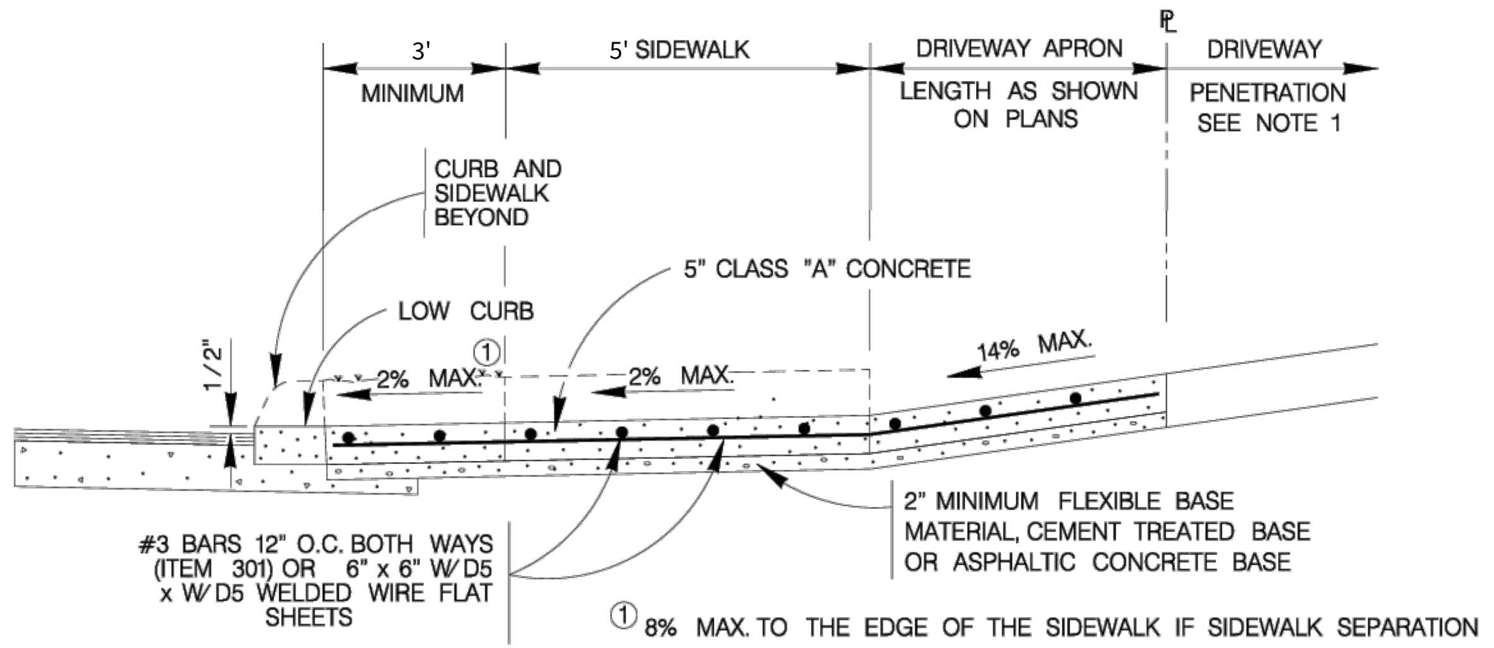

5' SIDEWALK
DRIVEWAY APRON LENGTH AS SHOWN ON PLANS
℞ DRIVEWAY PENETRATION SEE NOTE 1
CURB & SIDEWALK BEYOND
LOW CURB
5" CLASS "A" CONCRETE
14%MAX.
2%MAX.
1/2"
2" MINIMUM FLEXIBLE BASE MATERIAL, CEMENT TREATED BASE OR ASPHALTIC CONCRETE BASE
#3 BARS 12" O.C. BOTH WAYS (ITEM 301) OR 6" x 6" W/D5 x W/D5 WELDED WIRE FLAT SHEETS

TYPICAL RESIDENTIAL DRIVEWAY SECTION

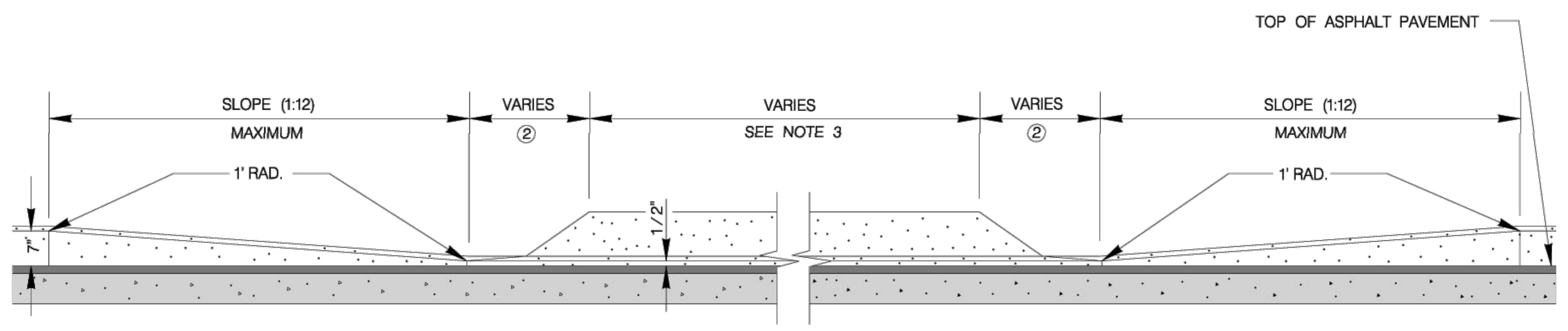
WITH SIDEWALK ABUTTING CURB


3' MINIMUM
5' SIDEWALK
DRIVEWAY APRON LENGTH AS SHOWN ON PLANS
℞ DRIVEWAY PENETRATION SEE NOTE 1
CURB AND SIDEWALK BEYOND
LOW CURB
5" CLASS "A" CONCRETE
①
2% MAX.
2% MAX.
14% MAX.
1/2"
2" MINIMUM FLEXIBLE BASE MATERIAL, CEMENT TREATED BASE OR ASPHALTIC CONCRETE BASE
#3 BARS 12" O.C. BOTH WAYS (ITEM 301) OR 6" x 6" W/D5 x W/D5 WELDED WIRE FLAT SHEETS

① 8% MAX. TO THE EDGE OF THE SIDEWALK IF SIDEWALK SEPARATION IS 4' OR GREATER.

TYPICAL RESIDENTIAL DRIVEWAY SECTION

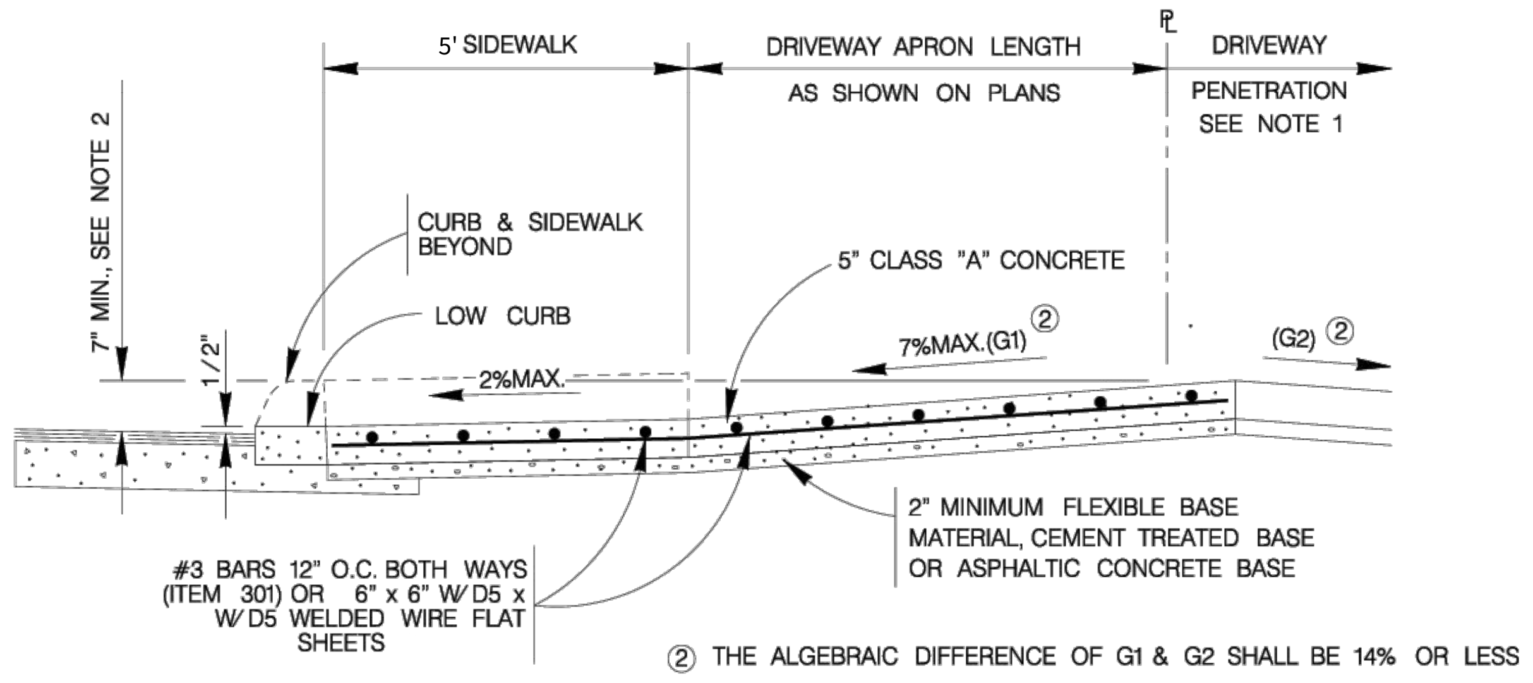
WITH SIDEWALK SEPARATED FROM CURB


TOP OF ASPHALT PAVEMENT
SLOPE (1:12) MAXIMUM
VARIES ②
VARIES SEE NOTE 3
VARIES ②
SLOPE (1:12) MAXIMUM
1' RAD.
1' RAD.
7"
1/2"

② RESIDENTIAL : 2' MAXIMUM;
COMMERCIAL: SEE PLAN VIEW

CURB PROFILE AT DRIVEWAY

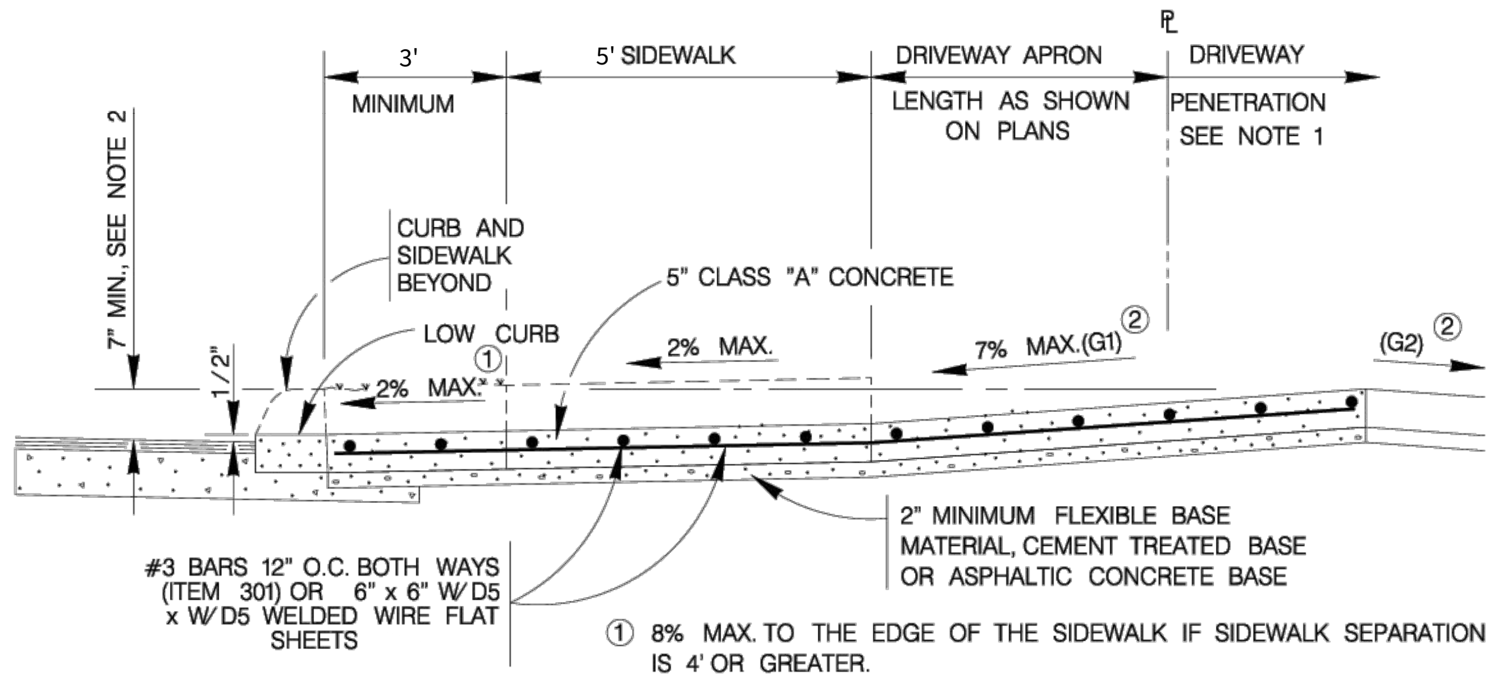
WITH SIDEWALK ABUTTING CURB


5' SIDEWALK
DRIVEWAY APRON LENGTH AS SHOWN ON PLANS
℞ DRIVEWAY PENETRATION SEE NOTE 1
7" MIN. SEE NOTE 2
CURB & SIDEWALK BEYOND
LOW CURB
5" CLASS "A" CONCRETE
7%MAX.(G1) ②
(G2) ②
2%MAX.
1/2"
2" MINIMUM FLEXIBLE BASE MATERIAL, CEMENT TREATED BASE OR ASPHALTIC CONCRETE BASE
#3 BARS 12" O.C. BOTH WAYS (ITEM 301) OR 6" x 6" W/D5 x W/D5 WELDED WIRE FLAT SHEETS

② THE ALGEBRAIC DIFFERENCE OF G1 & G2 SHALL BE 14% OR LESS

TYPICAL RESIDENTIAL DRIVEWAY SECTION

WHERE PROPERTY IS LOWER THAN STREET & SIDEWALK IS ABUTTING CURB

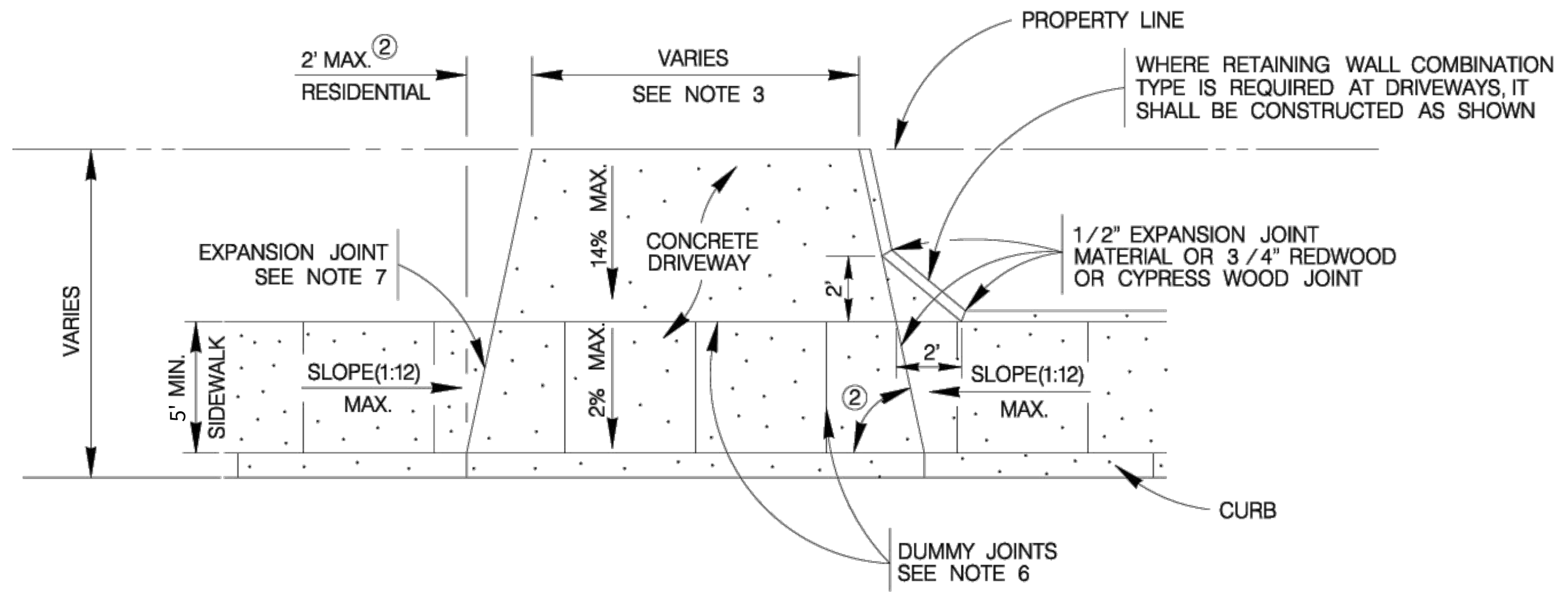

3' MINIMUM
5' SIDEWALK
DRIVEWAY APRON LENGTH AS SHOWN ON PLANS
℞ DRIVEWAY PENETRATION SEE NOTE 1
7" MIN. SEE NOTE 2
CURB AND SIDEWALK BEYOND
LOW CURB
5" CLASS "A" CONCRETE
①
2% MAX.
2% MAX.
7% MAX.(G1) ②
(G2) ②
1/2"
2" MINIMUM FLEXIBLE BASE MATERIAL, CEMENT TREATED BASE OR ASPHALTIC CONCRETE BASE
#3 BARS 12" O.C. BOTH WAYS (ITEM 301) OR 6" x 6" W/D5 x W/D5 WELDED WIRE FLAT SHEETS

① 8% MAX. TO THE EDGE OF THE SIDEWALK IF SIDEWALK SEPARATION IS 4' OR GREATER.

② THE ALGEBRAIC DIFFERENCE OF G1 & G2 SHALL BE 14% OR LESS

TYPICAL RESIDENTIAL DRIVEWAY SECTION

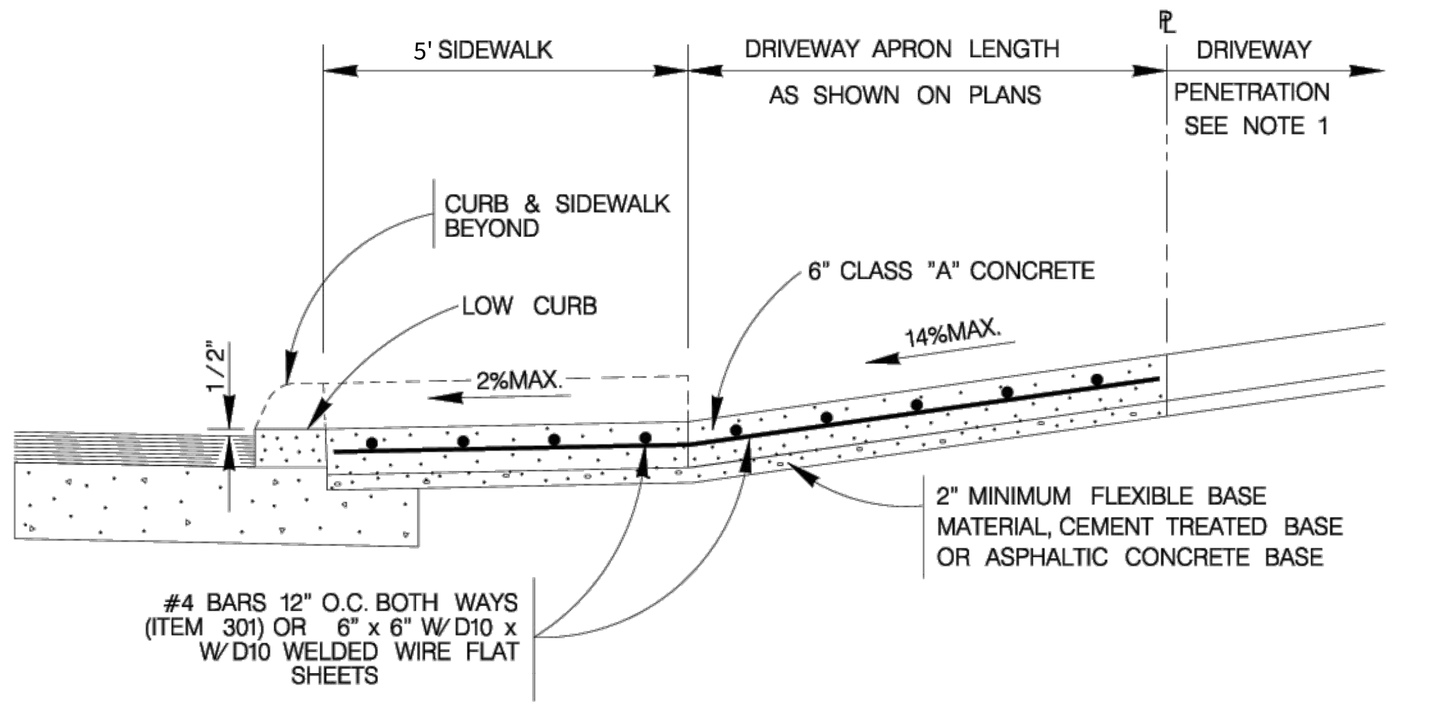
WHERE PROPERTY IS LOWER THAN STREET & SIDEWALK IS SEPARATED FROM CURB


2' MAX.② RESIDENTIAL
VARIES SEE NOTE 3
PROPERTY LINE
WHERE RETAINING WALL COMBINATION TYPE IS REQUIRED AT DRIVEWAYS, IT SHALL BE CONSTRUCTED AS SHOWN
EXPANSION JOINT SEE NOTE 7
CONCRETE DRIVEWAY
14% MAX.
2% MAX.
1/2" EXPANSION JOINT MATERIAL OR 3/4" REDWOOD OR CYPRESS WOOD JOINT
2'
2'
VARIES
5' MIN. SIDEWALK
SLOPE(1:12) MAX.
SLOPE(1:12) MAX.
②
DUMMY JOINTS SEE NOTE 6
CURB

② 45° FOR COMMERCIAL DRIVEWAY

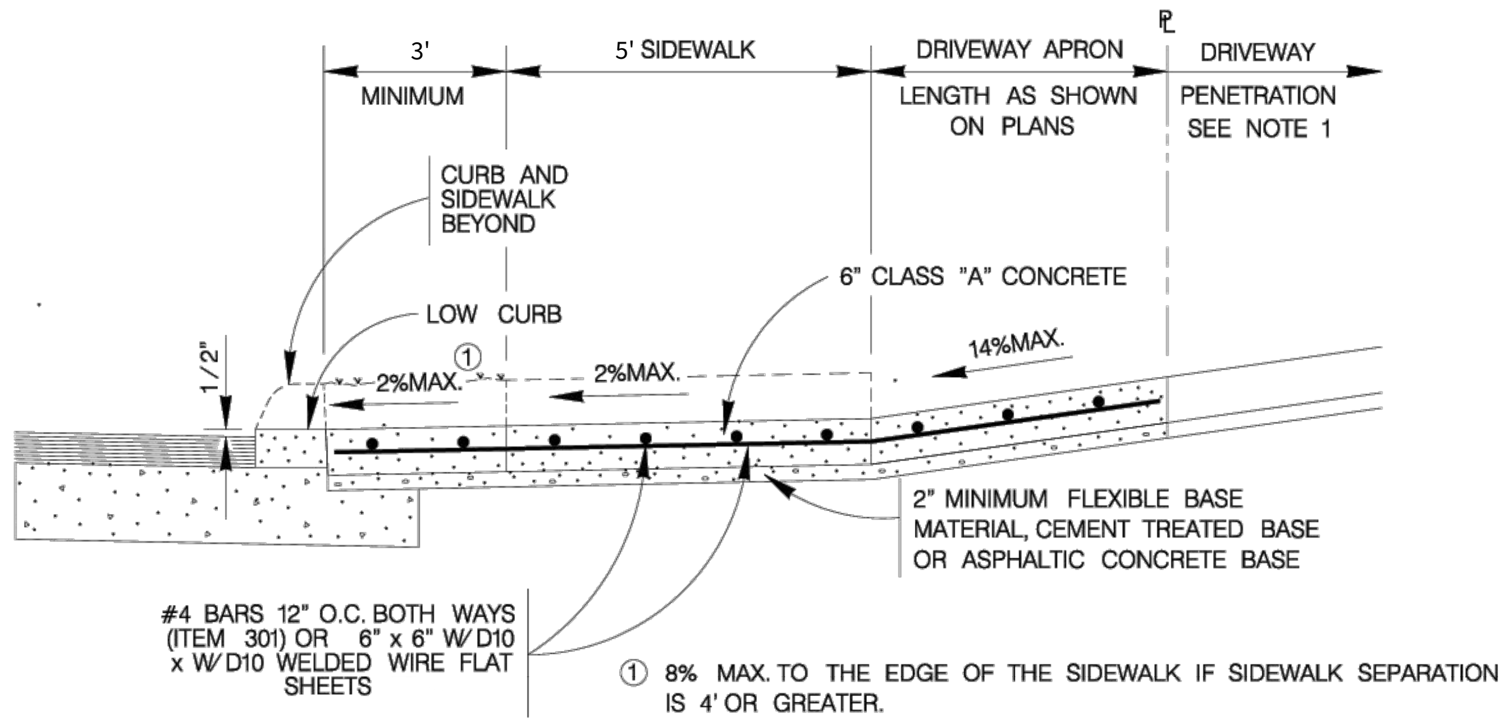
TYPICAL DRIVEWAY PLAN VIEW

WITH SIDEWALK ABUTTING CURB


5' SIDEWALK
DRIVEWAY APRON LENGTH AS SHOWN ON PLANS
℞ DRIVEWAY PENETRATION SEE NOTE 1
CURB & SIDEWALK BEYOND
LOW CURB
6" CLASS "A" CONCRETE
14%MAX.
2%MAX.
1/2"
2" MINIMUM FLEXIBLE BASE MATERIAL, CEMENT TREATED BASE OR ASPHALTIC CONCRETE BASE
#4 BARS 12" O.C. BOTH WAYS (ITEM 301) OR 6" x 6" W/D10 x W/D10 WELDED WIRE FLAT SHEETS

TYPICAL COMMERCIAL DRIVEWAY SECTION

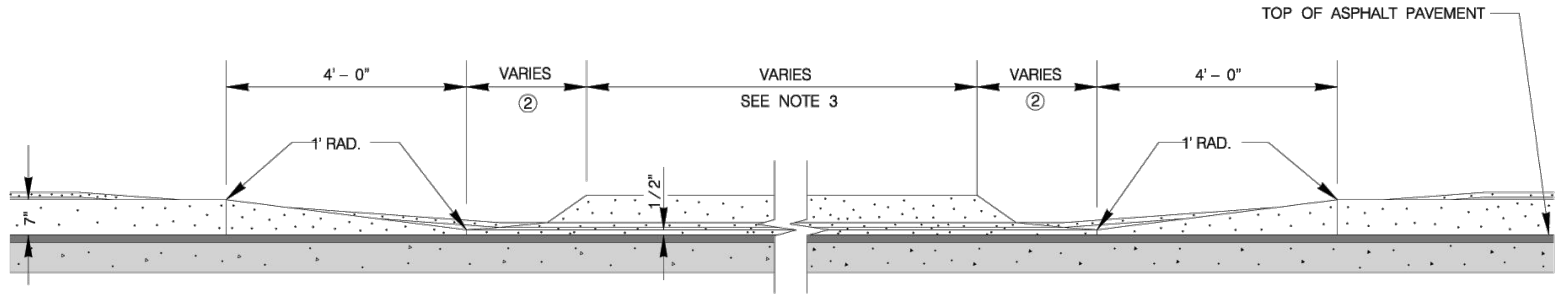
WITH SIDEWALK ABUTTING CURB


3' MINIMUM
5' SIDEWALK
DRIVEWAY APRON LENGTH AS SHOWN ON PLANS
℞ DRIVEWAY PENETRATION SEE NOTE 1
CURB AND SIDEWALK BEYOND
LOW CURB
6" CLASS "A" CONCRETE
①
2%MAX.
2%MAX.
14%MAX.
1/2"
2" MINIMUM FLEXIBLE BASE MATERIAL, CEMENT TREATED BASE OR ASPHALTIC CONCRETE BASE
#4 BARS 12" O.C. BOTH WAYS (ITEM 301) OR 6" x 6" W/D10 x W/D10 WELDED WIRE FLAT SHEETS

① 8% MAX. TO THE EDGE OF THE SIDEWALK IF SIDEWALK SEPARATION IS 4' OR GREATER.

TYPICAL COMMERCIAL DRIVEWAY SECTION

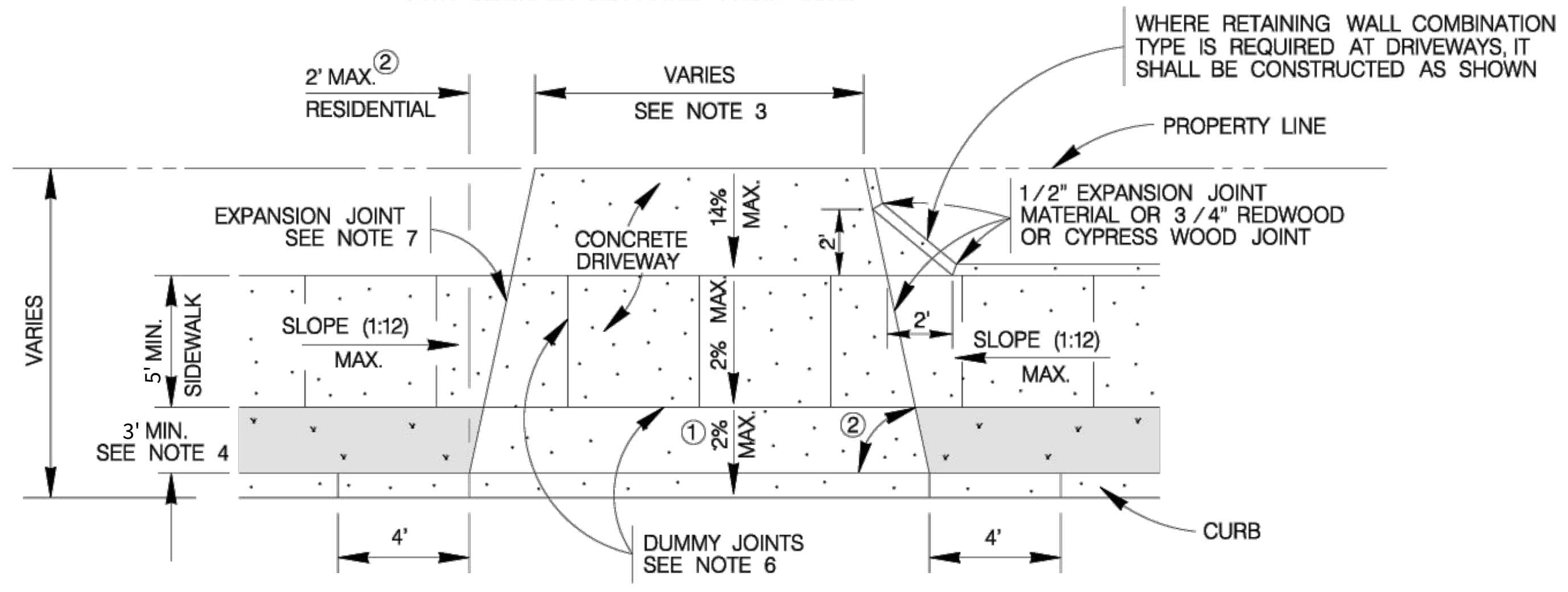
WITH SIDEWALK SEPARATED FROM CURB


TOP OF ASPHALT PAVEMENT
4' – 0"
VARIES ②
VARIES SEE NOTE 3
VARIES ②
4' – 0"
1' RAD.
1' RAD.
7"
1/2"

② RESIDENTIAL : 2' MAXIMUM;
COMMERCIAL: SEE PLAN VIEW

CURB PROFILE AT DRIVEWAY

WITH SIDEWALK SEPARATED FROM CURB


WHERE RETAINING WALL COMBINATION TYPE IS REQUIRED AT DRIVEWAYS, IT SHALL BE CONSTRUCTED AS SHOWN
2' MAX.② RESIDENTIAL
VARIES SEE NOTE 3
PROPERTY LINE
EXPANSION JOINT SEE NOTE 7
CONCRETE DRIVEWAY
14% MAX.
2% MAX.
2% MAX.
1/2" EXPANSION JOINT MATERIAL OR 3/4" REDWOOD OR CYPRESS WOOD JOINT
2'
2'
VARIES
5' MIN. SIDEWALK
SLOPE (1:12) MAX.
SLOPE (1:12) MAX.
3' MIN. SEE NOTE 4
①
②
4'
4'
DUMMY JOINTS SEE NOTE 6
CURB

① 8% MAX. TO THE EDGE OF THE SIDEWALK IF SIDEWALK SEPARATION IS 4' OR GREATER.

② 45° FOR COMMERCIAL DRIVEWAY

TYPICAL DRIVEWAY PLAN VIEW

WITH SIDEWALK SEPARATED FROM CURB

CONCRETE DRIVEWAY NOTES

1. DRIVEWAY PENETRATION REFERS TO A PORTION OF THE DRIVEWAY THAT MAY BE NECESSARY TO RECONSTRUCT WITHIN PRIVATE PROPERTY TO COMPLY WITH A MAXIMUM DRIVEWAY SLOPE. THIS PORTION OF THE DRIVEWAY SHALL BE PAID FOR UNDER THE FOLLOWING ITEMS AS MAY APPLY:
   A.) CONCRETE DRIVEWAY PAID FOR UNDER ITEM NO. 503.1 OR 503.2.
   B.) ASPHALTIC CONCRETE DRIVEWAY PAID FOR UNDER ITEM NO. 503.4 AND SHALL INCLUDE A MINIMUM OF 1" ASPHALT TYPE 'D' & 6" FLEXIBLE BASE
   C.) GRAVEL DRIVEWAY PAID FOR UNDER ITEM NO. 503.5 AND SHALL INCLUDE A MINIMUM OF 6" FLEXIBLE BASE

2. 7" MINIMUM HEIGHT WILL NOT NECESSARILY OCCUR AT THE PROPERTY LINE. IT MAY OCCUR WITHIN THE RIGHT OF WAY OR WITHIN THE DRIVEWAY PENETRATION ON PRIVATE PROPERTY.

3. THE PROPOSED DRIVEWAY SHOULD MATCH THE EXISTING WIDTH AT THE PROPERTY LINE BUT UNLESS AUTHORIZED BY THE CITY TRAFFIC ENGINEER, THE WIDTH SHALL BE WITHIN THE FOLLOWING VALUES:

TYPE	MINIMUM	MAXIMUM
RESIDENTIAL	10'	20'
COMMERCIAL – ONE WAY	12'	20'
COMMERCIAL – TWO WAY	24'	30'

4. FOR LOCAL TYPE "A" STREETS, SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 5' AND IF SEPARATED FROM THE CURB, THE SIDEWALK SHALL BE LOCATED A MINIMUM OF 3' FROM THE BACK OF CURB.

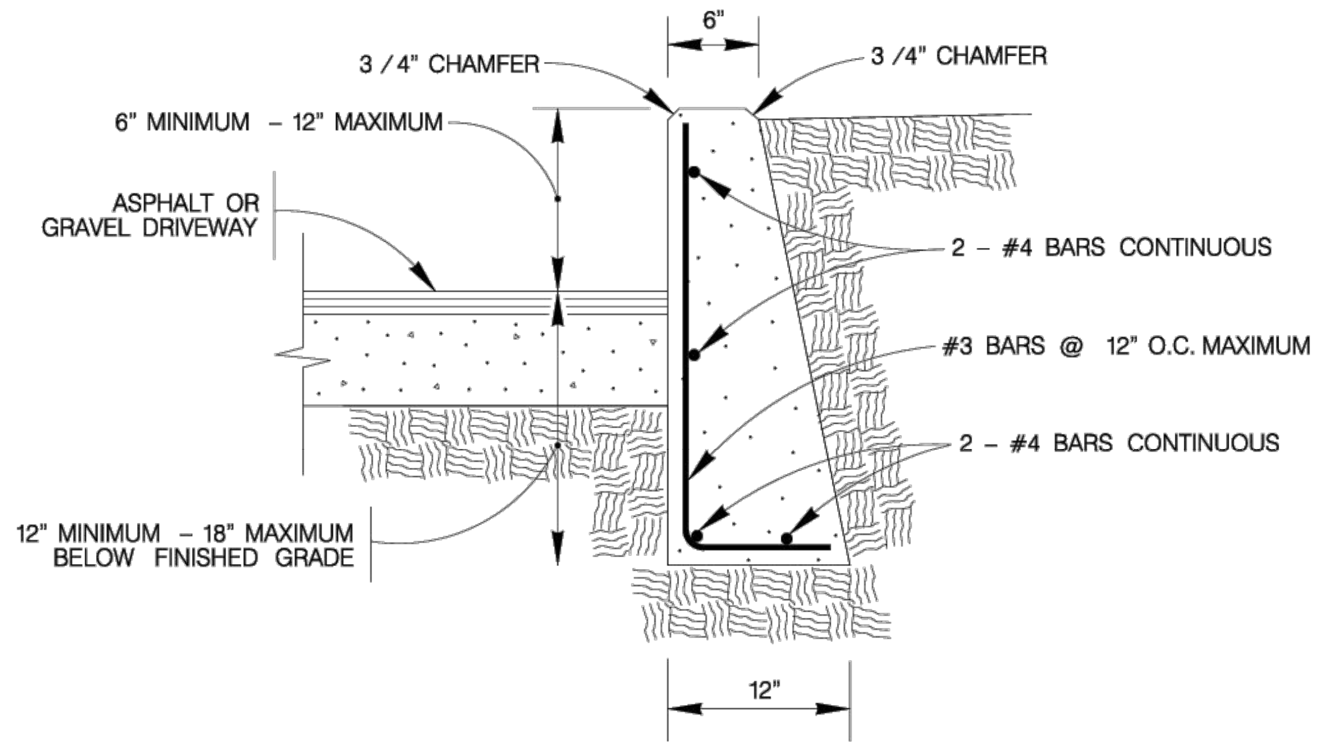
5. FOR OTHER THAN LOCAL TYPE "A" STREETS, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 5' AND SEPARATED A MINIMUM OF 3' FROM THE BACK OF CURB OR, AS AN OPTION, THE SIDEWALK SHALL HAVE A MINIMUM WIDTH OF 6' WHEN LOCATED AT THE BACK OF CURB.

6. DUMMY JOINTS PARALLEL TO THE CURB SHALL BE PLACED WHERE THE SIDEWALK MEETS THE DRIVEWAY. DUMMY JOINTS PERPENDICULAR TO THE CURB, AND WITHIN THE BOUNDARIES OF THE PARALLEL DUMMY JOINTS, SHALL BE PLACED AT INTERVALS EQUAL TO THE WIDTH OF THE SIDEWALK.

7. A MINIMUM OF TWO ROUND AND SMOOTH DOWEL BARS 3/8" IN DIAMETER AND 18" IN LENGTH SHALL BE SPACED 18" APART AT EACH EXPANSION JOINT.

8. SIDEWALK RAMP LENGTHS SHALL BE OF SUFFICIENT LENGTH TO MAINTAIN 8.33% (1:12) MAXIMUM SLOPE. WHERE SIDEWALKS CROSS DRIVEWAYS, SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.

9. SIDEWALK RAMP SURFACE SHALL BE BRUSH FINISHED.


6"
3/4" CHAMFER
3/4" CHAMFER
6" MINIMUM – 12" MAXIMUM
ASPHALT OR GRAVEL DRIVEWAY
2 – #4 BARS CONTINUOUS
#3 BARS @ 12" O.C. MAXIMUM
2 – #4 BARS CONTINUOUS
12" MINIMUM – 18" MAXIMUM BELOW FINISHED GRADE
12"

NOTE:
1. COST OF REINFORCEMENT TO BE INCLUDED IN UNIT COST OF ITEM 307.1.
2. CONCRETE RETAINING WALL COMBINATION TYPE SHALL BE USED FOR CONCRETE DRIVEWAYS.

DRIVEWAY – CONCRETE RETAINING WALL

ON COMPACTED SUBGRADE

CUDEENGINEERS.COM

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

GRACE VALLEY RANCH
PHASE 3B

TYPICAL CONCRETE DRIVEWAY STANDARDS

DATE
08/05/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS
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KYLE M. HUDEK
138753
08/12/2024
K Hudek

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C7.08

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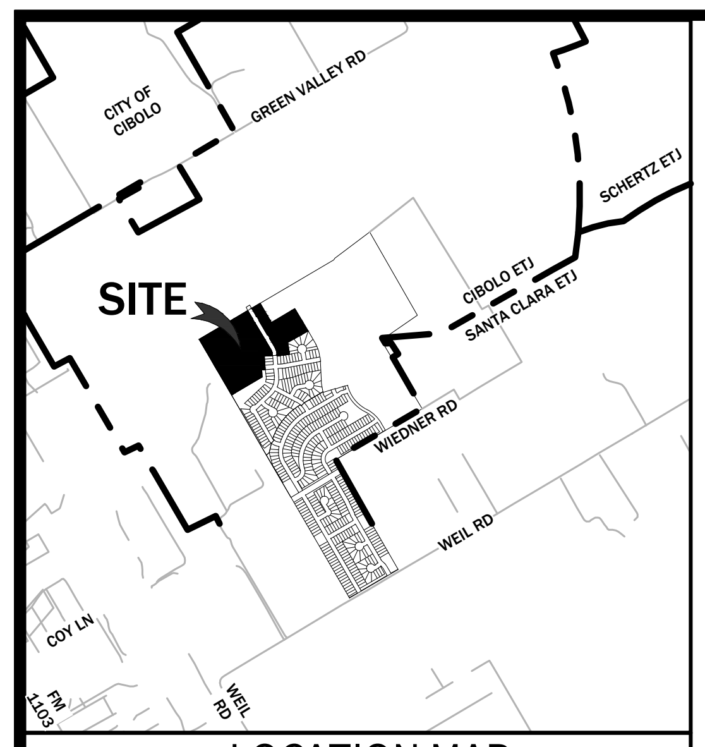

CITY OF CIBOLO
GREEN VALLEY RD
SCHERTZ ETJ
SITE
CIBOLO ETJ
SANTA CLARA ETJ
WIEDNER RD
WEIL RD
COY LN
FM 1103
WEIL RD

LOCATION MAP
N.T.S.

NOTE:

CONTRACTOR TO COORDINATE SIGN PLACEMENT WITH SIDEWALK/ADA RAMP CONSTRUCTION TO AVOID ANY POSSIBLE CONFLICTS.

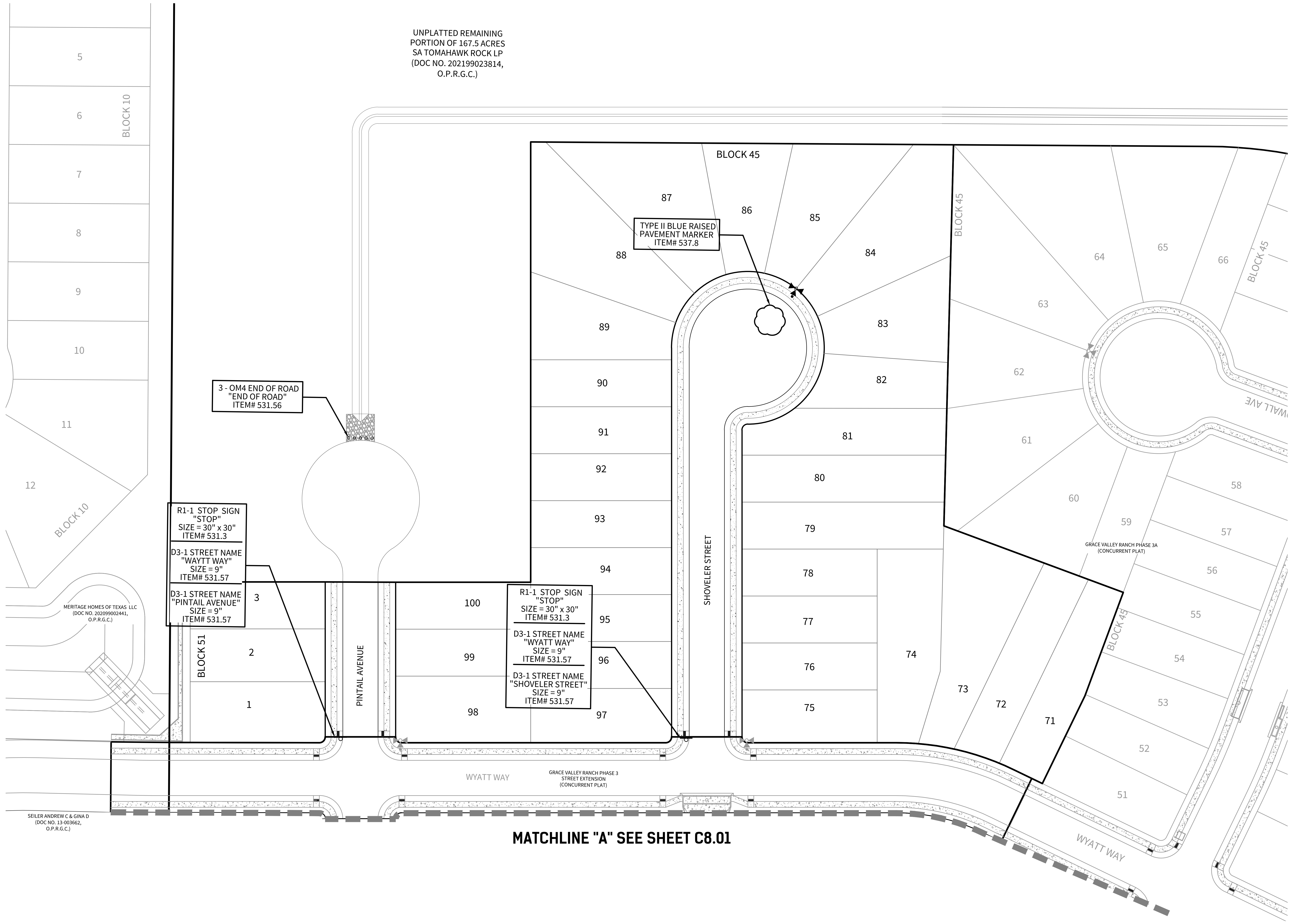
DEVELOPER:

LENNAR HOMES OF TEXAS LAND AND
CONSTRUCTION, LTD.
CONTACT PERSON: RICHARD MOTT
100 NE LOOP 410, SUITE 1155
SAN ANTONIO, TX 78216
TEL: (210) 403-6200

CIVIL ENGINEER:

CUDE ENGINEERS
CONTACT PERSON: CHRIS CHAFFEE, P.E.
4122 POND HILL ROAD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951
FAX: (210) 523-7112

SCALE: 1"=50'
50 25 0 50


UNPLATTED REMAINING
PORTION OF 167.5 ACRES
SA TOMAHAWK ROCK LP
(DOC NO. 202199023814,
O.P.R.G.C.)
BLOCK 10
5
6
7
8
9
10
11
12
BLOCK 10
BLOCK 45
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86
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73
72
71
100
99
98
BLOCK 45
64
65
66
BLOCK 45
63
62
61
60
59
58
57
56
55
54
53
52
51
BLOCK 45
WALL AVE
GRACE VALLEY RANCH PHASE 3A
(CONCURRENT PLAT)
TYPE II BLUE RAISED
PAVEMENT MARKER
ITEM# 537.8
3 - OM4 END OF ROAD
"END OF ROAD"
ITEM# 531.56
R1-1 STOP SIGN
"STOP"
SIZE = 30" x 30"
ITEM# 531.3
D3-1 STREET NAME
"WAYTT WAY"
SIZE = 9"
ITEM# 531.57
D3-1 STREET NAME
"PINTAIL AVENUE"
SIZE = 9"
ITEM# 531.57
R1-1 STOP SIGN
"STOP"
SIZE = 30" x 30"
ITEM# 531.3
D3-1 STREET NAME
"WYATT WAY"
SIZE = 9"
ITEM# 531.57
D3-1 STREET NAME
"SHOVELER STREET"
SIZE = 9"
ITEM# 531.57
MERITAGE HOMES OF TEXAS LLC
(DOC NO. 202099002441,
O.P.R.G.C.)
BLOCK 51
3
2
1
PINTAIL AVENUE
SHOVELER STREET
WYATT WAY
GRACE VALLEY RANCH PHASE 3
STREET EXTENSION
(CONCURRENT PLAT)
SEILER ANDREW C & GINA D
(DOC NO. 13-003662,
O.P.R.G.C.)
WYATT WAY

MATCHLINE "A" SEE SHEET C8.01

CUDEENGINEERS.COM

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

GRACE VALLEY RANCH
PHASE 3B

TRAFFIC SIGNAGE PLAN

DATE
08/05/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS
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KYLE M. HUDEK
138753
08/12/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C8.00

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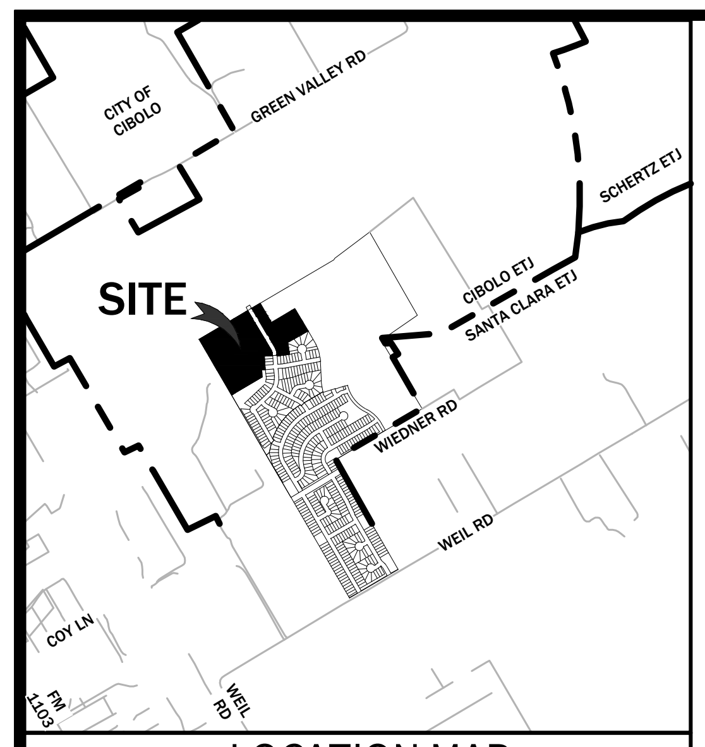

CITY OF CIBOLO
GREEN VALLEY RD
SCHERTZ ETJ
SITE
CIBOLO ETJ
SANTA CLARA ETJ
WIEDNER RD
WEIL RD
COY LN
FM 1103
WEIL RD

LOCATION MAP

N.T.S.

DEVELOPER:

LENNAR HOMES OF TEXAS LAND AND
CONSTRUCTION, LTD.
CONTACT PERSON: RICHARD MOTT
100 NE LOOP 410, SUITE 1155
SAN ANTONIO, TX 78216
TEL: (210) 403-6200

CIVIL ENGINEER:

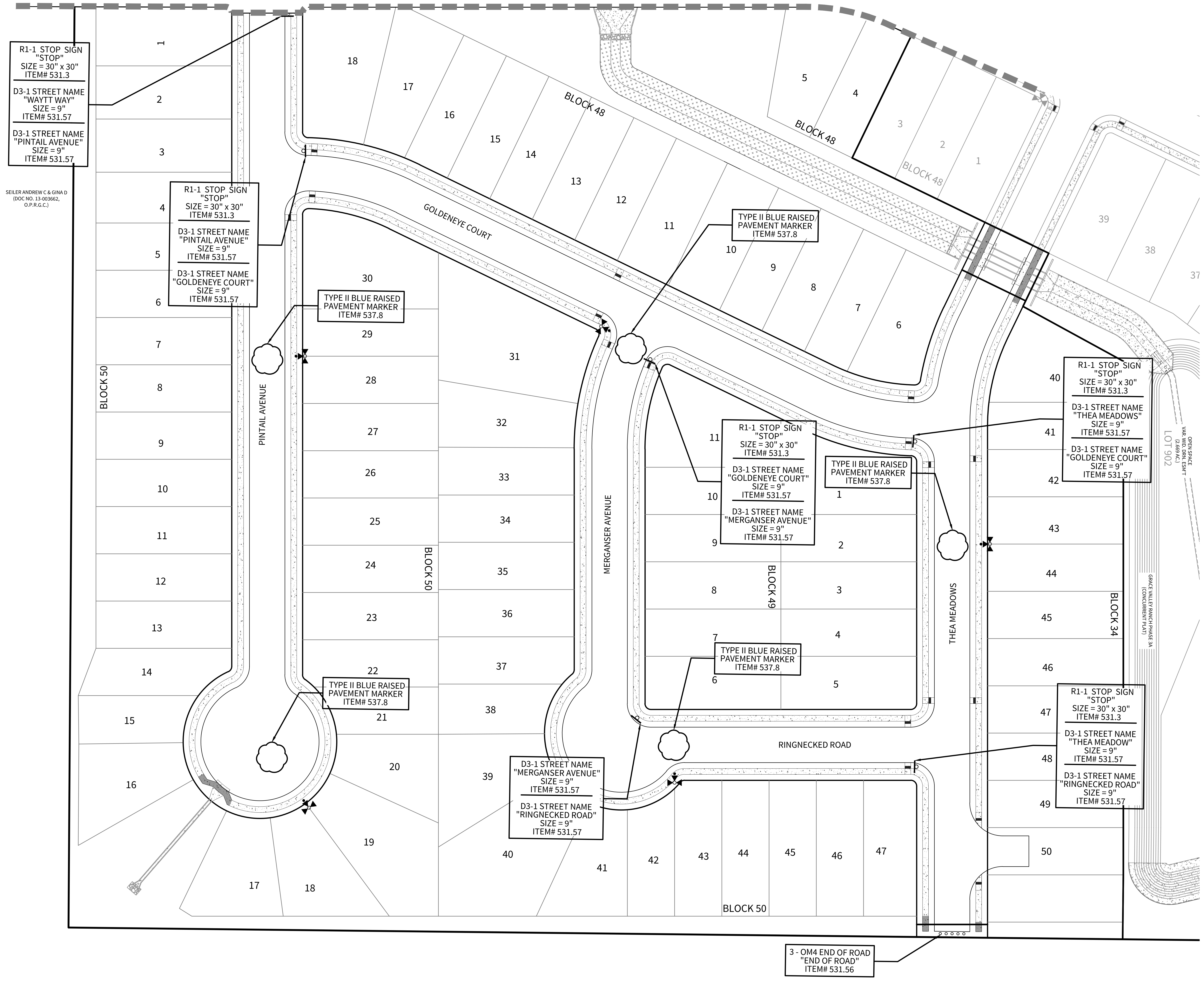
CUDE ENGINEERS
CONTACT PERSON: CHRIS CHAFFEE, P.E.
4122 POND HILL ROAD, SUITE 101
SAN ANTONIO, TX 78231
TEL: (210) 681-2951
FAX: (210) 523-7112

NOTE:

CONTRACTOR TO COORDINATE SIGN PLACEMENT WITH SIDEWALK/ADA RAMP CONSTRUCTION TO AVOID ANY POSSIBLE CONFLICTS.

SCALE: 1"=50'
50 25 0 50

MATCHLINE "A" SEE SHEET C8.00


R1-1 STOP SIGN "STOP" SIZE = 30" x 30" ITEM# 531.3
D3-1 STREET NAME "WAYTT WAY" SIZE = 9" ITEM# 531.57
D3-1 STREET NAME "PINTAIL AVENUE" SIZE = 9" ITEM# 531.57
SEILER ANDREW C & GINA D (DOC NO. 13-03662, O.P.R.G.C.)
R1-1 STOP SIGN "STOP" SIZE = 30" x 30" ITEM# 531.3
D3-1 STREET NAME "PINTAIL AVENUE" SIZE = 9" ITEM# 531.57
D3-1 STREET NAME "GOLDENEYE COURT" SIZE = 9" ITEM# 531.57
TYPE II BLUE RAISED PAVEMENT MARKER ITEM# 537.8
TYPE II BLUE RAISED PAVEMENT MARKER ITEM# 537.8
TYPE II BLUE RAISED PAVEMENT MARKER ITEM# 537.8
R1-1 STOP SIGN "STOP" SIZE = 30" x 30" ITEM# 531.3
D3-1 STREET NAME "GOLDENEYE COURT" SIZE = 9" ITEM# 531.57
D3-1 STREET NAME "MERGANSER AVENUE" SIZE = 9" ITEM# 531.57
TYPE II BLUE RAISED PAVEMENT MARKER ITEM# 537.8
R1-1 STOP SIGN "STOP" SIZE = 30" x 30" ITEM# 531.3
D3-1 STREET NAME "THEA MEADOWS" SIZE = 9" ITEM# 531.57
D3-1 STREET NAME "GOLDENEYE COURT" SIZE = 9" ITEM# 531.57
TYPE II BLUE RAISED PAVEMENT MARKER ITEM# 537.8
TYPE II BLUE RAISED PAVEMENT MARKER ITEM# 537.8
D3-1 STREET NAME "MERGANSER AVENUE" SIZE = 9" ITEM# 531.57
D3-1 STREET NAME "RINGNECKED ROAD" SIZE = 9" ITEM# 531.57
R1-1 STOP SIGN "STOP" SIZE = 30" x 30" ITEM# 531.3
D3-1 STREET NAME "THEA MEADOW" SIZE = 9" ITEM# 531.57
D3-1 STREET NAME "RINGNECKED ROAD" SIZE = 9" ITEM# 531.57
3 - OM4 END OF ROAD "END OF ROAD" ITEM# 531.56
PINTAIL AVENUE
GOLDENEYE COURT
MERGANSER AVENUE
THEA MEADOWS
RINGNECKED ROAD
BLOCK 48
BLOCK 48
BLOCK 48
BLOCK 49
BLOCK 50
BLOCK 50
BLOCK 50
BLOCK 34
LOT 902
OPEN SPACE
GRACE VALLEY RANCH PHASE 3A

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San Antonio, Texas 78231
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GRACE VALLEY RANCH PHASE 3B

TRAFFIC SIGNAGE PLAN

DATE
08/05/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS
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KYLE M. HUDEK
138753
08/12/2024

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TBPE No. 455
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SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

SM RD SGN ASSM TY XXXXX(X)XX(X-XXXX)

Post Type

FRP = Fiberglass Reinforced Plastic Pipe (see SMD(FRP))
TWT = Thin-Walled Tubing (see SMD(TWT))
10BWG = 10 BWG Tubing (see SMD(SLIP-1) to (SLIP-3))
S80 = Schedule 80 Pipe (see SMD(SLIP-1) to (SLIP-3))

Number of Posts (1 or 2)

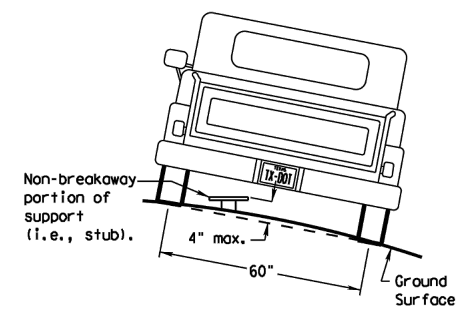
Anchor Type

UA = Universal Anchor - Concreted (see SMD(FRP) and (TWT))
UB = Universal Anchor - Bolted down (see SMD(FRP) and (TWT))
WS = Wedge Anchor Steel - (see SMD(TWT))
WP = Wedge Anchor Plastic (see SMD(TWT))
SA = Slipbase - Concreted (see SMD(SLIP-1) to (SLIP-3))
SB = Slipbase - Bolted Down (see SMD(SLIP-1) to (SLIP-3))

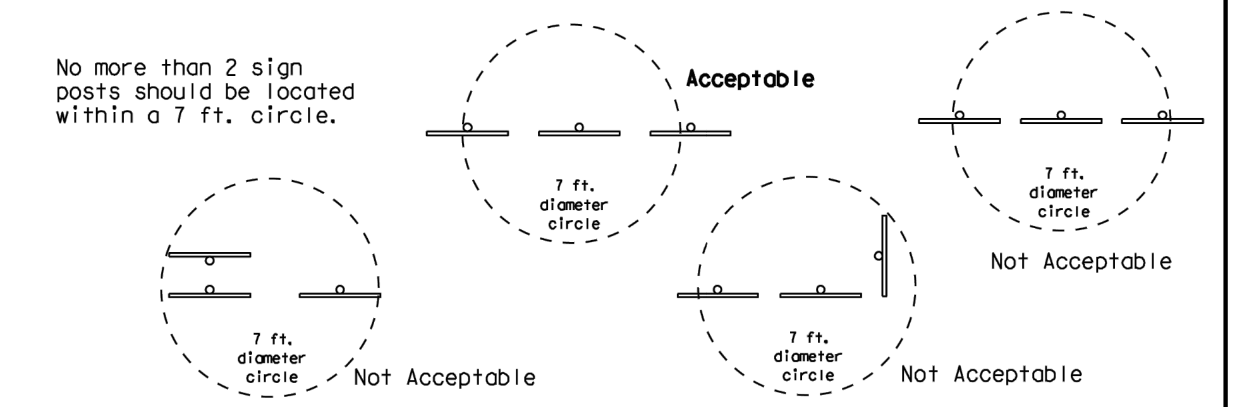
Sign Mounting Designation

P = Prefab. "Plain" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))
T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))
U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))
IF REQUIRED
1EXT or 2EXT = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))
BM = Extruded Wind Beam (see SMD(SLIP-1) to (SLIP-3))
WC = 1.12 #/ft Wing Channel (see SMD(SLIP-1) to (SLIP-3))
EXAL = Extruded Aluminum Sign Panels (see SMD(SLIP-3))

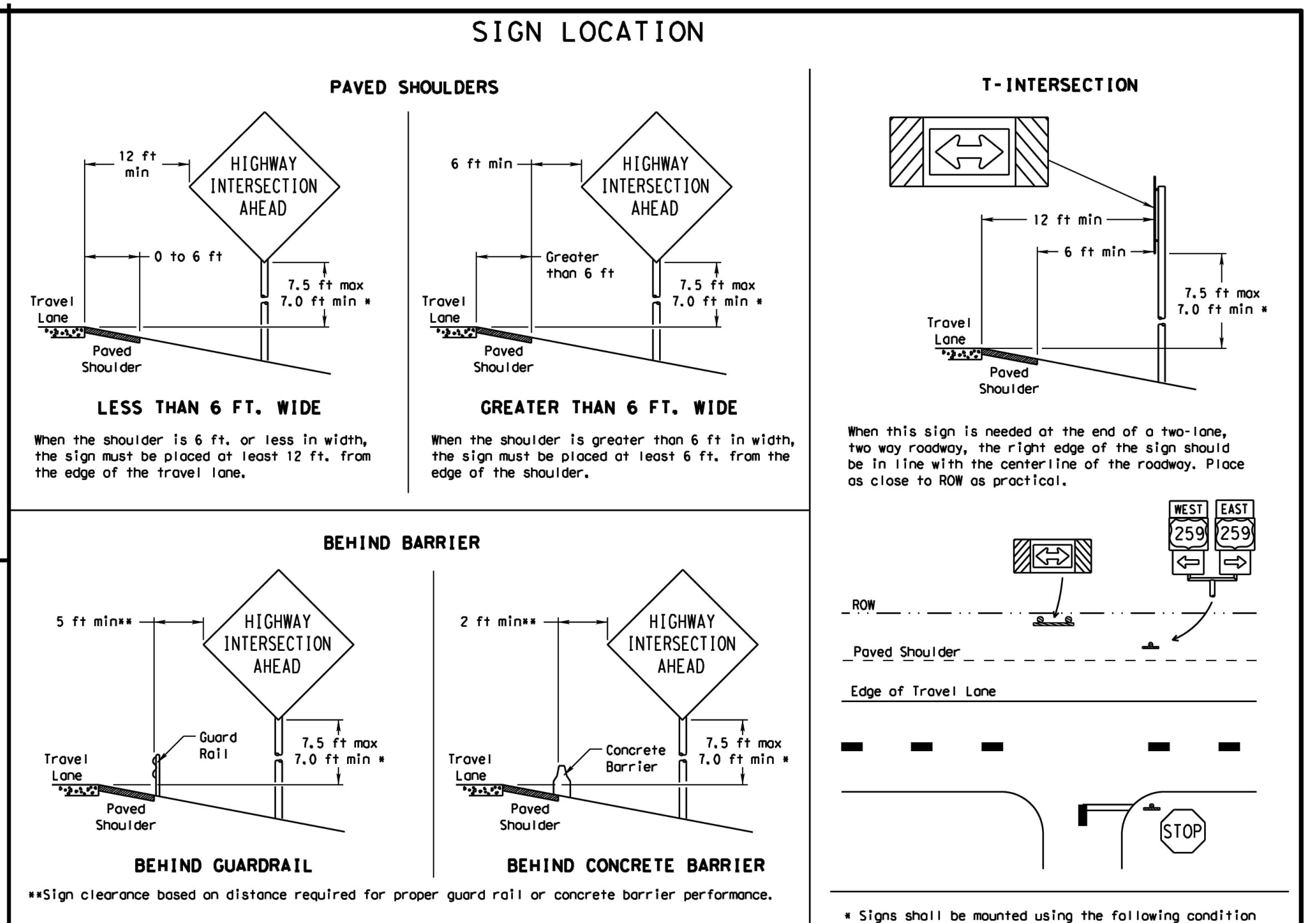
REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT


Non-breakaway portion of support (i.e., stub)
4" max.
60"
Ground Surface

To avoid vehicle undercarriage snagging, any substantial remains of a breakaway support, when it is broken away, should not project more than 4 inches above a 60-inch chord (i.e., typical space between wheel paths).


No more than 2 sign posts should be located within a 7 ft. circle.
Acceptable
7 ft. diameter circle
Not Acceptable
7 ft. diameter circle
Not Acceptable
7 ft. diameter circle
Not Acceptable

SIGN LOCATION


PAVED SHOULDERS
HIGHWAY INTERSECTION AHEAD
12 ft min
0 to 6 ft
7.5 ft max
7.0 ft min *
Travel Lane
Paved Shoulder
LESS THAN 6 FT. WIDE
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.
6 ft min
Greater than 6 ft
GREATER THAN 6 FT. WIDE
When the shoulder is greater than 6 ft in width, the sign must be placed at least 6 ft. from the edge of the shoulder.
T-INTERSECTION
12 ft min
6 ft min
When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.
WEST 259
EAST 259
ROW
Paved Shoulder
Edge of Travel Lane
STOP
BEHIND BARRIER
5 ft min**
Guard Rail
2 ft min**
Concrete Barrier
BEHIND GUARDRAIL
BEHIND CONCRETE BARRIER
**Sign clearance based on deflection distance required for proper guard rail or concrete barrier performance.

* Signs shall be mounted using the following condition that results in the greatest sign elevation:

(1) a minimum of 7 to a maximum of 7.5 feet above the edge of the travel lane or

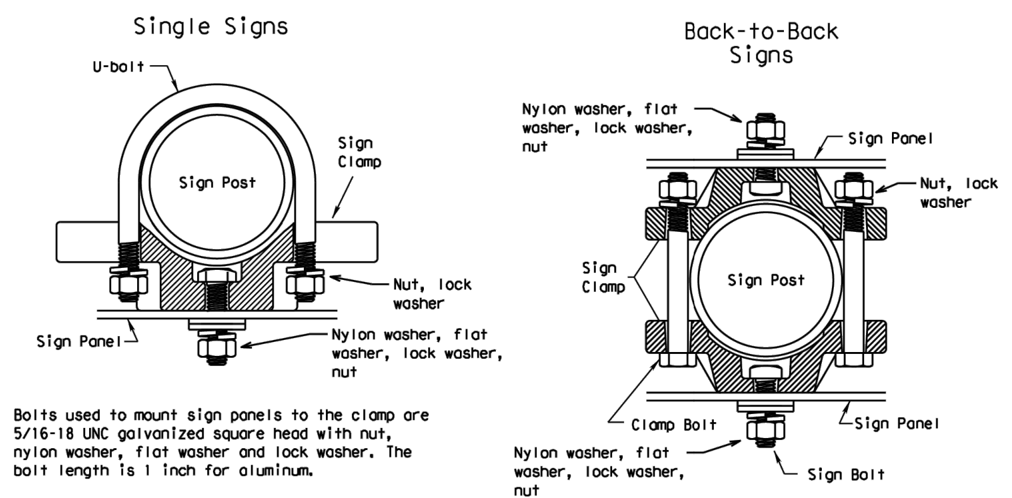
(2) a minimum of 7 to a maximum of 7.5 feet above the grade at the base of the support when sign is installed on the backslope.

The maximum values may be increased when directed by the Engineer.

See the Traffic Operations Division website for detailed drawings of sign clamps, Triangular Slipbase System components and Wedge Anchor System components.

The website address is:
http://www.txdot.gov/publications/traffic.htm

TYPICAL SIGN ATTACHMENT DETAIL


Single Signs
U-bolt
Sign Clamp
Sign Post
Nut, lock washer
Sign Panel
Nylon washer, flat washer, lock washer, nut
Back-to-Back Signs
Nylon washer, flat washer, lock washer, nut
Sign Panel
Nut, lock washer
Sign Clamp
Sign Post
Clamp Bolt
Sign Panel
Sign Bolt

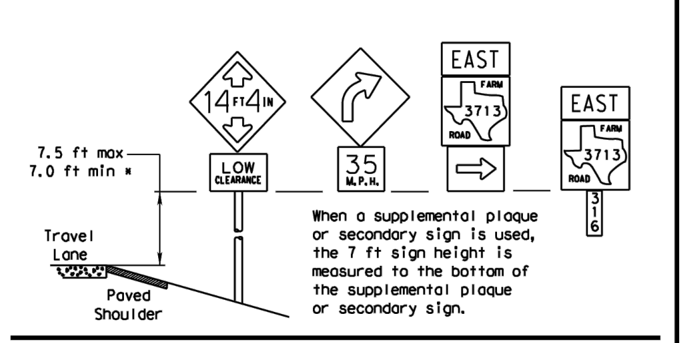
Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

When two sign clamps are used to mount signs back-to-back, use a 5/16-18 UNC galvanized hex head per ASTM A307 with nut and helical-spring lock washer. The approximate bolt lengths for various post sizes and sign clamp types are given in the table at right. The bolt length may need to be adjusted depending upon field conditions.

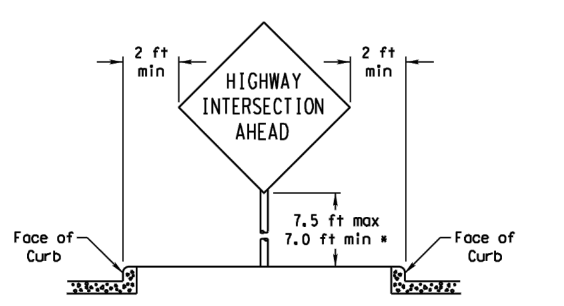
Sign clamps may be either the specific size clamp or the universal clamp.

Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES

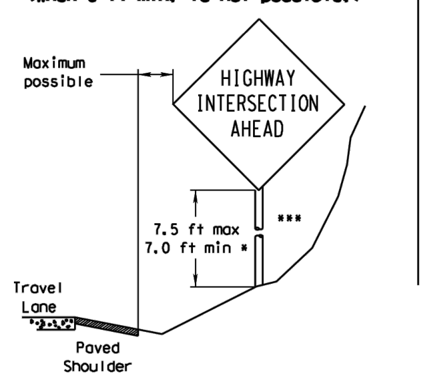

7.5 ft max
7.0 ft min *
Travel Lane
Paved Shoulder
LOW CLEARANCE
35 M.P.H.
EAST
ROAD 3713
316
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND


2 ft min
HIGHWAY INTERSECTION AHEAD
7.5 ft max
7.0 ft min *
Face of Curb

RESTRICTED RIGHT-OF-WAY

(When 6 ft min. is not possible.)


Maximum possible
HIGHWAY INTERSECTION AHEAD
7.5 ft max
7.0 ft min *
***
Travel Lane
Paved Shoulder

Right-of-way restrictions may be created by rocks, water, vegetation, forest, buildings, a narrow island, or other factors.

In situations where a lateral restriction prevents the minimum horizontal clearance from the edge of the travel lane, signs should be placed as far from the travel lane as practical.

*** Post may be shorter if protected by guardrail or if Engineer determines the post could not be hit due to extreme slope.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD(GEN)-08

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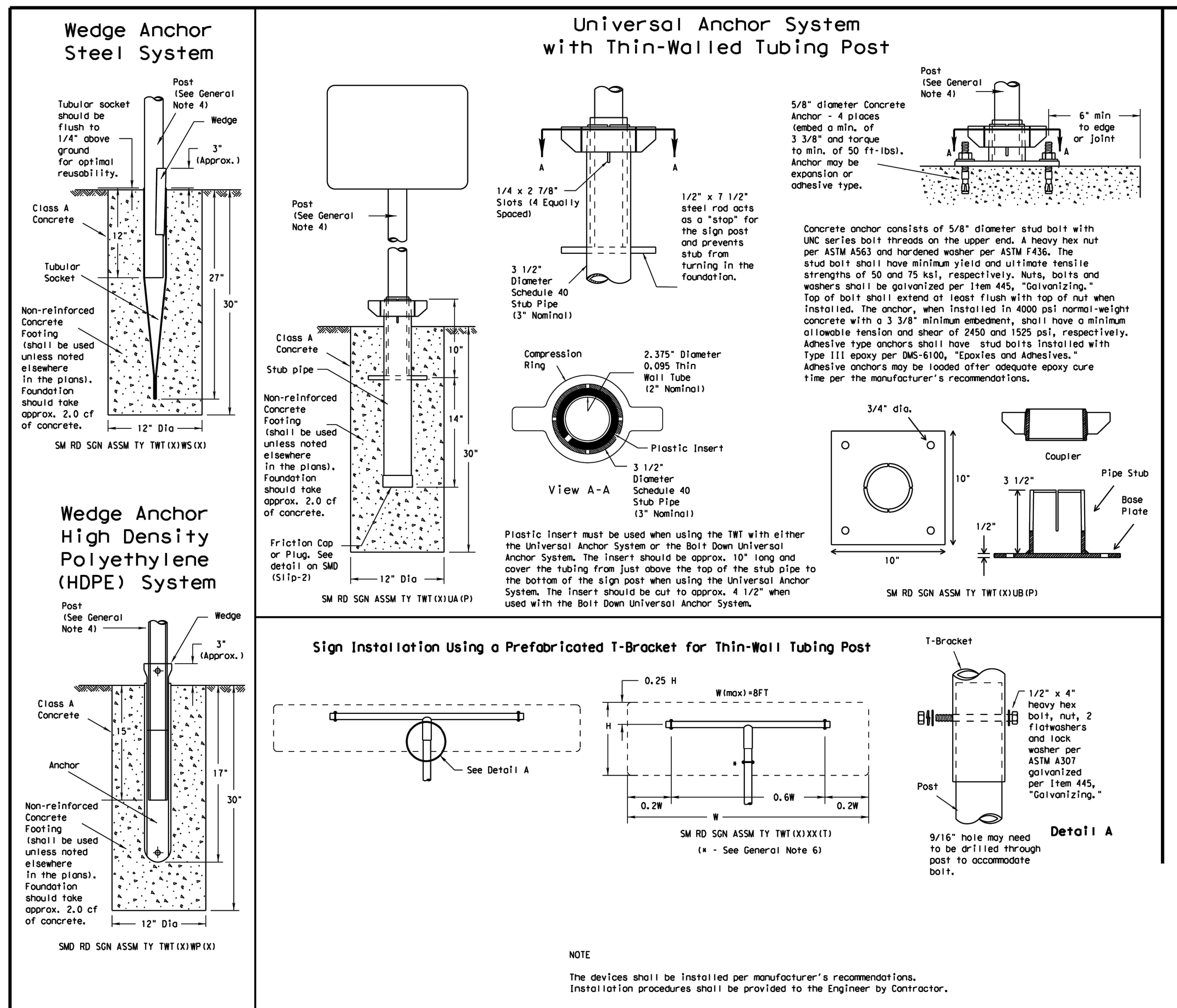
Wedge Anchor Steel System

Wedge Anchor High Density Polyethylene (HDPE) System

Universal Anchor System with Thin-Walled Tubing Post

Sign Installation Using a Prefabricated T-Bracket for Thin-Wall Tubing Post


Tubular socket should be flush to 1/4" above ground for optimal reusability
Post (See General Note 4)
Wedge
3" (Approx.)
Class A Concrete
Tubular Socket
Non-reinforced Footing (shall be used unless noted elsewhere in the plans). Foundation should take approx. 2.0 cf of concrete.
12" Dia
27"
30"
SM RD SGN ASSM TY TWT(X)WS(X)
Anchor
17"
SMD RD SGN ASSM TY TWT(X)WP(X)
Stub pipe
Friction Cap or Plug. See detail on SMD (Slip-2)
SM RD SGN ASSM TY TWT(X)UA(P)
1/4 x 2 7/8" Slots (4 Equally Spaced)
1/2" x 7 1/2" steel rod acts as a "stop" for the sign post and prevents stub from turning in the foundation.
3 1/2" Diameter Schedule 40 Stub Pipe (3" Nominal)
Compression Ring
2.375" Diameter 0.095 Thin Wall Tube (2" Nominal)
Plastic Insert
View A-A
5/8" diameter Concrete Anchor - 4 places (embed a min. of 3 3/8" and torque to min. of 50 ft-lbs). Anchor may be expansion or adhesive type.
6" min to edge or joint
3/4" dia.
10"
Coupler
Pipe Stub
Base Plate
3 1/2"
1/2"
SM RD SGN ASSM TY TWT(X)UB(P)
T-Bracket
0.25 H
W(max)=8FT
See Detail A
0.2W
0.6W
SM RD SGN ASSM TY TWT(X)XX(T)
(* - See General Note 6)
1/2" x 4" heavy hex bolt, nut, 2 flatwashers and lock washer per ASTM A307 galvanized per Item 445, "Galvanizing."
9/16" hole may need to be drilled through post to accommodate bolt.
Detail A

NOTE

The devices shall be installed per manufacturer's recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

1. The Wedge Anchor System and the Universal Anchor System with thin wall tubing post may be used to support up to 10 square feet of sign area.
2. The tubular socket, wedge and prefabricated T-bracket shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to the approval of the TxDOT Traffic Standards Engineer.
3. Except for posts (13 BWG Tubing), clamps, nuts and bolts, all components shall be prequalified. A list of prequalified vendors may be obtained from the Material Producer List web page. The website address is: http://www.txdot.gov/business/producer list.htm
4. Material used as post with this system shall conform to the following specifications:
   13 BWG Tubing (2.375" outside diameter) (TWT)
   0.095" nominal wall thickness
   Seamless or electric-resistance welded steel tubing
   Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
   Other steels may be used if they meet the following:
   55,000 PSI minimum yield strength
   70,000 PSI minimum tensile strength
   18% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of .083" to .099"
   Outside diameter (uncoated) shall be within the range of 2.369" to 2.381"
   Galvanization per ASTM 123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
5. Sign blanks shall be the sizes and shapes shown on the plans.
6. Additional sign clamp required on the "T-bracket" post for 24" high signs. Place clamp at least 3" above bottom of sign when possible.
7. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
8. See the Traffic Operations Division website for detailed drawings of sign clamps and Wedge Anchor System components. The website address is: http://www.txdot.gov/publications/traffic.htm

WEDGE ANCHOR SYSTEM INSTALLATION PROCEDURE

1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Place concrete into hole until it is approximately flush with the ground. Concrete shall be Class A.
3. Insert tubular socket into concrete until top of socket is approximaely 1/4 " above the concrete footing.
4. Plumb the socket. Allow a minimum 4 days for concrete to set, unless otherwise directed by Engineer..
5. Attach the sign to the sign post.
6. Insert the sign post into socket and align sign face with roadway.
7. Drive the wedge into the socket to secure post. This will leave approximately 3 inches of the wedge exposed.

UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURE

1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. Insert base post in hole to depths shown and backfill hole with concrete.
3. Level and plumb the base post using a torpedo level and allow concrete adequate time to set. The bottom of the slots provided in the stub pipe shall remain above the top of the concrete foundation.
4. Attach the sign to the sign post.
5. Install plastic insert around bottom of post.
6. Insert sign post into base post. Lower until the post comes to rest on steel rod.
7. Seat compression ring using a hammer. Typically, the top of compression ring will be approximately level with top of stub post when optimally installed.
8. Check sign post by hand to ensure it is unable to turn. If loose, increase the tightening of the compression ring.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS WEDGE & UNIVERSAL ANCHOR WITH THIN WALL TUBING POST

SMD(TWT)-08

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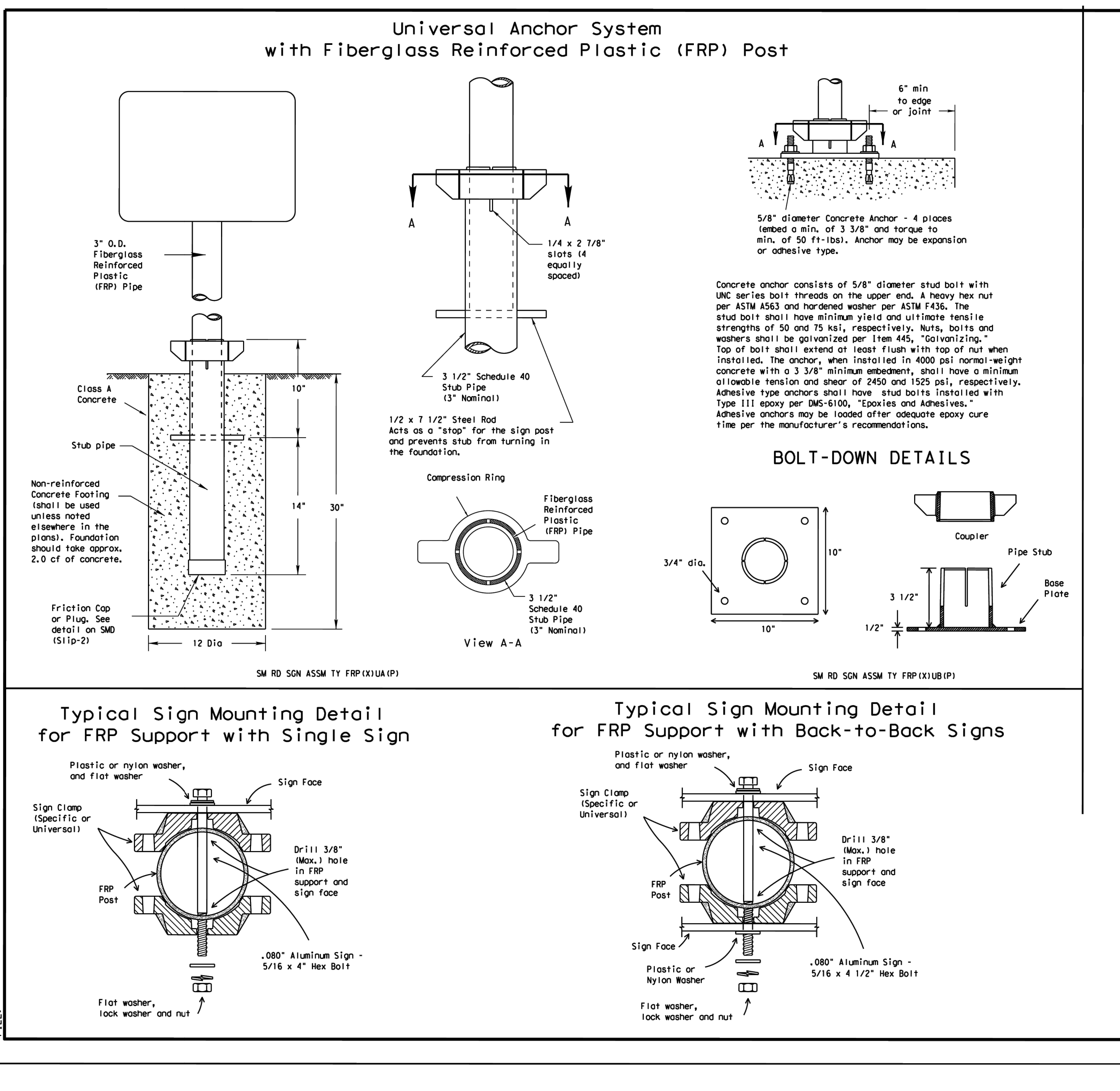
Universal Anchor System with Fiberglass Reinforced Plastic (FRP) Post

BOLT-DOWN DETAILS

Typical Sign Mounting Detail for FRP Support with Single Sign

Typical Sign Mounting Detail for FRP Support with Back-to-Back Signs


3" O.D. Fiberglass Reinforced Plastic (FRP) Pipe
Class A Concrete
Stub pipe
Non-reinforced Concrete Footing (shall be used unless noted elsewhere in the plans). Foundation should take approx. 2.0 cf of concrete.
Friction Cap or Plug. See detail on SMD (Slip-2)
10"
14"
30"
12 Dia
SM RD SGN ASSM TY FRP(X)UA(P)
1/4 x 2 7/8" slots (4 equally spaced)
3 1/2" Schedule 40 Stub Pipe (3" Nominal)
1/2 x 7 1/2" Steel Rod Acts as a "stop" for the sign post and prevents stub from turning in the foundation.
Compression Ring
Fiberglass Reinforced Plastic (FRP) Pipe
3 1/2" Schedule 40 Stub Pipe (3" Nominal)
View A-A
6" min to edge or joint
5/8" diameter Concrete Anchor - 4 places (embed a min. of 3 3/8" and torque to min. of 50 ft-lbs). Anchor may be expansion or adhesive type.
3/4" dia.
10"
Coupler
Pipe Stub
Base Plate
SM RD SGN ASSM TY FRP(X)UB(P)
Plastic or nylon washer, and flat washer
Sign Face
Sign Clamp (Specific or Universal)
Drill 3/8" (Max.) hole in FRP support and sign face
FRP Post
.080" Aluminum Sign - 5/16 x 4" Hex Bolt
.080" Aluminum Sign - 5/16 x 4 1/2" Hex Bolt
Plastic or Nylon Washer
Flat washer, lock washer and nut

GENERAL NOTES:

1. FRP sign supports for a single type sign support may be used for signs up to and including 16 square feet. Dual post installation may be used for signs up to and including 32 square feet.
2. All nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing."
3. See the Traffic Operations Division website for detailed drawings of sign clamps. The website address is: http://www.txdot.gov/publications/traffic.htm

FRP POST REQUIREMENTS

1. Materials shall conform to the requirements of Departmental Material Specification DMS-4410 and will be furnished in a yellow or gray color as specified elsewhere in the plans.
2. Thickness of FRP sign support is 0.125" + 0.031", - 0.0".
3. FRP sign supports are prequalified by the Traffic Operations Division. Prequalification procedures are obtained by writing:

Texas Department of Transportation
Traffic Operations Division
125 East 11th Street
Austin, Texas 78701-2483

UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURES

1. Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
3. Insert base post in foundation hole to depths shown and fill hole with concrete. Cut base post from bottom and ensure a minimum of 18" embedment if installed in solid rock.
4. Level and plumb the base post with coupler using a torpedo level and let concrete set a minimum of 4 days, unless otherwise directed by Engineer. Bottom of base post slots shall be above the concrete footing.
5. Attach sign to FRP post.
6. Insert sign post into base post. Lower until the post comes to rest on the steel rod.
7. Use hammer to ensure the coupler is firmly seated. Top of coupler should be level with top of base post in most instances.
8. Check sign to ensure there is no twist. If loose, increase the tightening of coupler.

BOLT DOWN SIGN SUPPORT

1. Position base plate with coupler on existing concrete.
2. Drill holes into concrete and insert the 5/8" diameter bolts with wedge anchors, and tighten nuts.
3. Attach sign to FRP post.
4. Insert bottom of sign post into pipe stub.
5. Use hammer to ensure the coupler is firmly seated. Top of coupler should be level with top of base post in most instances.
6. Check sign to ensure there is no twist. If loose, increase the tightening of coupler.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS UNIVERSAL ANCHOR SYSTEM WITH FRP POST

SMD(FRP)-08

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GRACE VALLEY RANCH PHASE 3B

TXDOT SIGN MOUNTING DETAILS

DATE
08/05/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

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KYLE M. HUDEK
138753
08/12/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C8.02

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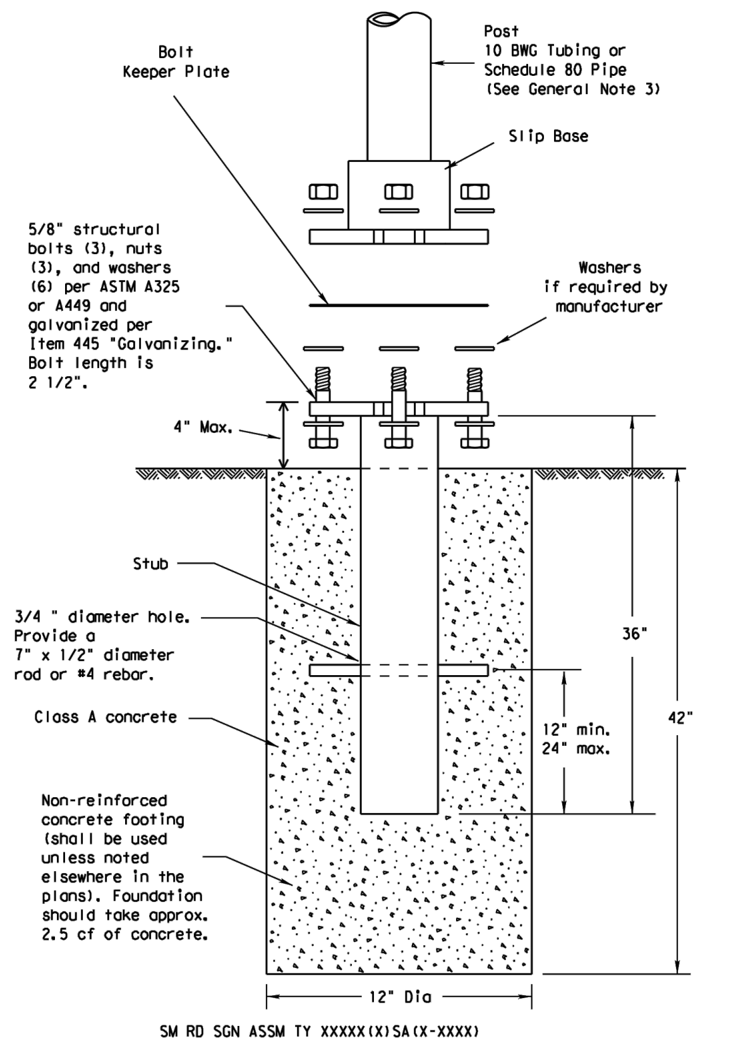
TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS


Post
10 BWG Tubing or Schedule 80 Pipe (See General Note 3)
Bolt Keeper Plate
Slip Base
5/8" structural bolts (3), nuts (3), and washers (6) per ASTM A325 or A449 and galvanized per Item 445 "Galvanizing." Bolt length is 2 1/2".
Washers if required by manufacturer
4" Max.
Stub
3/4 " diameter hole. Provide a 7" x 1/2" diameter rod or #4 rebar.
Class A concrete
Non-reinforced concrete footing (shall be used unless noted elsewhere in the plans). Foundation should take approx. 2.5 cf of concrete.
36"
42"
12" min. 24" max.
12" Dia

SM RD SGN ASSM TY XXXXX(X)SA(X-XXXX)

NOTE

There are various devices approved for the Triangular Slipbase System. Please reference the Material Producer List for approved slip base systems. http://www.txdot.gov/business/producer_list.htm The devices shall be installed per manufacturers' recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

1. Slip base shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   10 BWG Tubing (2.875" outside diameter)
     0.134" nominal wall thickness
     Seamless or electric-resistance welded steel tubing or pipe
     Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
     Other steels may be used if they meet the following:
       55,000 PSI minimum yield strength
       70,000 PSI minimum tensile strength
       20% minimum elongation in 2"
     Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"
     Outside diameter (uncoated) shall be within the range of 2.867" to 2.883"
     Galvanization per ASTM A123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
   Schedule 80 Pipe (2.875" outside diameter)
     0.276" nominal wall thickness
     Steel tubing per ASTM A500 Gr C
     Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
       46,000 PSI minimum yield strength
       62,000 PSI minimum tensile strength
       21% minimum elongation in 2"
     Wall thickness (uncoated) shall be within the range of 0.248" to 0.304"
     Outside diameter (uncoated) shall be within the range of 2.855" to 2.895"
     Galvanization per ASTM A123
3. See the Traffic Operations Division website for detailed drawings of sign clamps and Texas Universal Triangular Slipbase System components. The website address is:
   http://www.txdot.gov/publications/traffic.htm
4. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

ASSEMBLY PROCEDURE

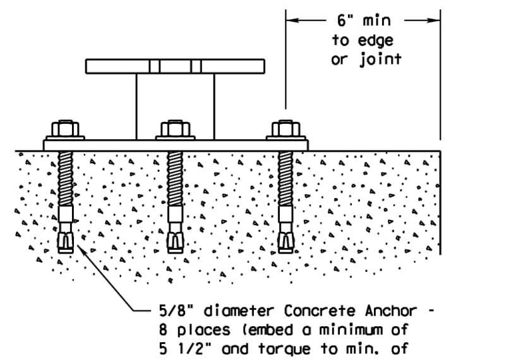
Foundation

1. Prepare 12-inch diameter by 42-inch deep hole. If solid rock is encountered, the depth of the foundation may be reduced such that it is embedded a minimum of 18 inches into the solid rock.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor-driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
3. Push the pipe end of the slip base stub into the center of the concrete. Rotate the stub back and forth while pushing it down into the concrete to assure good contact between the concrete and stub. Continue to work the stub into the concrete until it is between 2 to 4 inches above the ground.
4. Plumb the stub. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
5. The triangular slipbase system is multidirectional and is designed to release when struck from any direction.

Support

1. Cut support so that the bottom of the sign will be 7 to 7.5 feet above the edge of the travelway (i.e., edge of the closest lane) when slip plate is below the edge of pavement or 7 to 7.5 feet above slip plate when the slip plate is above the edge of the travelway. The cut shall be plumb and straight.
2. Attach sign to support using connections shown. When multiple signs are installed on the same support, ensure the minimum clearance between each sign is maintained. See SMD(SLIP-2) for clearances based on sign types.

CONCRETE ANCHOR


6" min to edge or joint
5/8" diameter Concrete Anchor - 8 places (embed a minimum of 5 1/2" and torque to min. of 50 ft-lbs). Anchor may be expansion or adhesive type.

SM RD SGN ASSM TY XXXXX(X)SB(X-XXXX)

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. Heavy hex nut per ASTM A563, and hardened washer per ASTM F436. The stud bolt shall have a minimum yield and ultimate tensile strength of 50 and 75 KSI, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations. Top of bolt shall extend at least flush with top of the nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 5 1/2" minimum embedment, shall have a minimum allowable tension and shear of 3900 and 3100 psi, respectively.

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Traffic Operations Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

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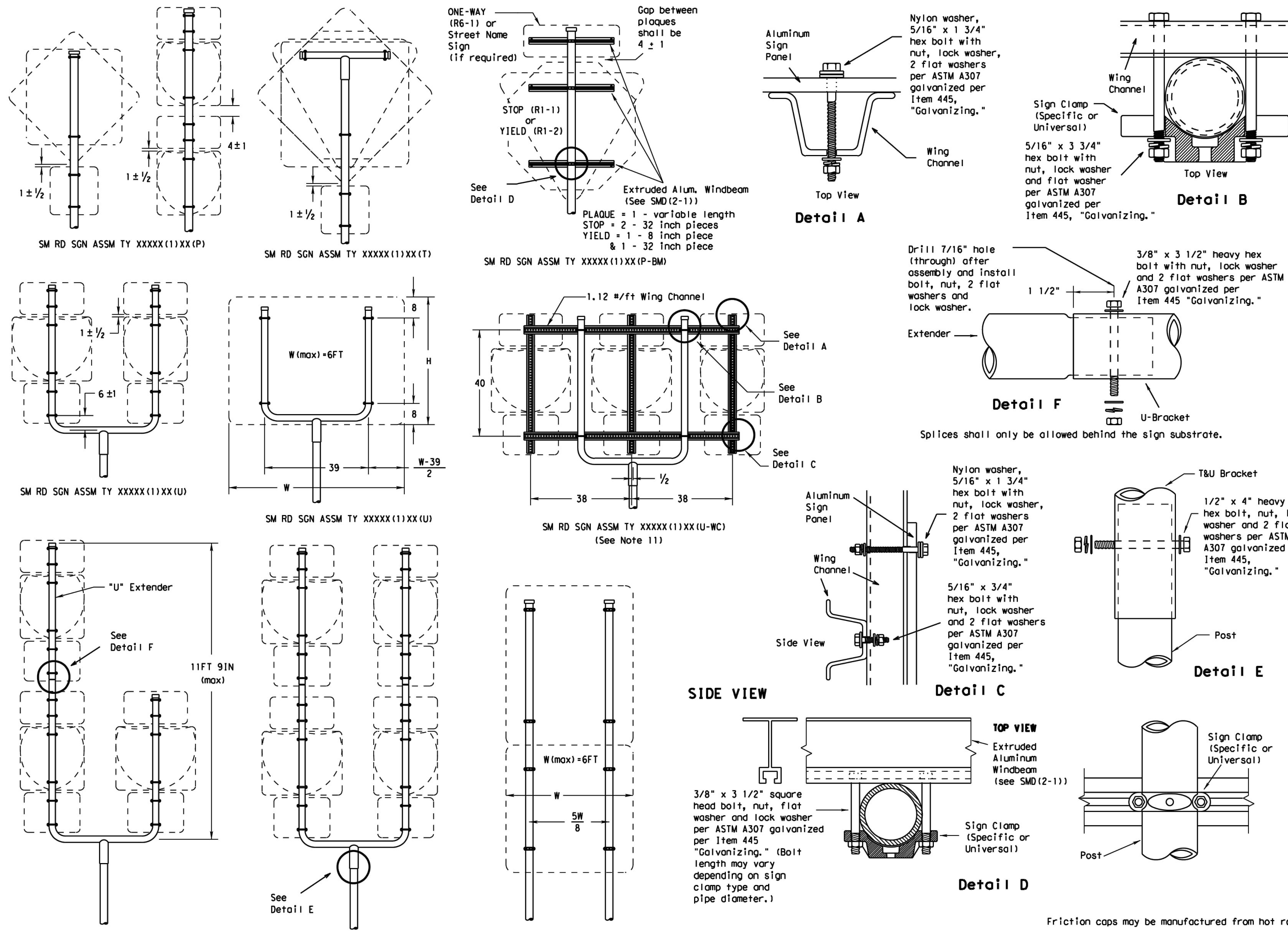
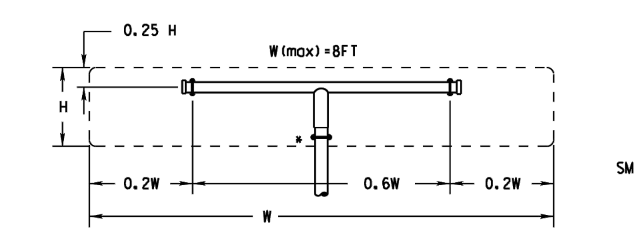
DATE:
FILE:

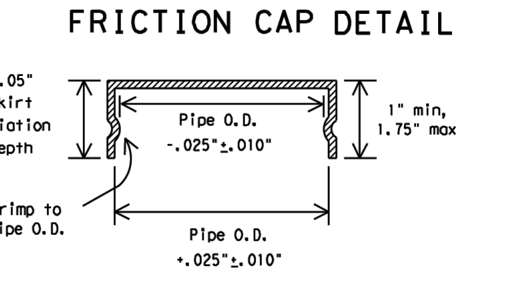

SM RD SGN ASSM TY XXXXX(1)XX(P)
SM RD SGN ASSM TY XXXXX(1)XX(T)
SM RD SGN ASSM TY XXXXX(1)XX(P-BM)
SM RD SGN ASSM TY XXXXX(1)XX(U)
SM RD SGN ASSM TY XXXXX(1)XX(U-WC)
SM RD SGN ASSM TY S80(1)XX(U-1EXT)
SM RD SGN ASSM TY S80(1)XX(U-2EXT)
SM RD SGN ASSYM TY XXXXX(2)XX(P)
Detail A
Detail B
Detail C
Detail D
Detail E
Detail F
SIDE VIEW
TOP VIEW


0.25 H
W(max)=8FT
0.2W
0.6W
0.2W

SM RD SGN ASSM TY XXXXX(1)XX(T)
(* - See Note 12)

All dimensions are in english unless detailed otherwise.

FRICTION CAP DETAIL


±.05" Skirt Variation Depth
Pipe O.D. -.025"±.010"
1" min, 1.75" max
Rolled Crimp to engage pipe O.D.
Pipe O.D. +.025"±.010"

Friction caps may be manufactured from hot rolled or cold rolled steel sheets. The minimum sheet metal thickness shall be 24 gauge for all cap sizes.

The rim edges shall be reasonably straight and smooth. Caps shall be sized and formed in such a manner as to produce a drive-on friction fit and have no tendency to rock when seated on the pipe. The depth shall be sufficient to give positive protection against entrance of rainwater. They shall be free of sharp creases or indentations and show no evidence of metal fracture.

Caps shall have an electrodeposited coating of zinc in accordance with the requirements of ASTM B633 Class FE/ZN 8.

GENERAL NOTES:

1.

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
5. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
10. Additional route markers may be added vertically, provided the total sign area does not exceed the maximum allowable amount per Note 1.
11. Additional sign clamp required on the "T-bracket" post for 24 inch height signs. Place the clamp 3 inches above bottom of sign when possible.
12. Post open ends shall be fitted with Friction Caps.
13. Sign blanks shall be the sizes and shapes shown on the plans.

REQUIRED SUPPORT		
	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

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Traffic Operations Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM

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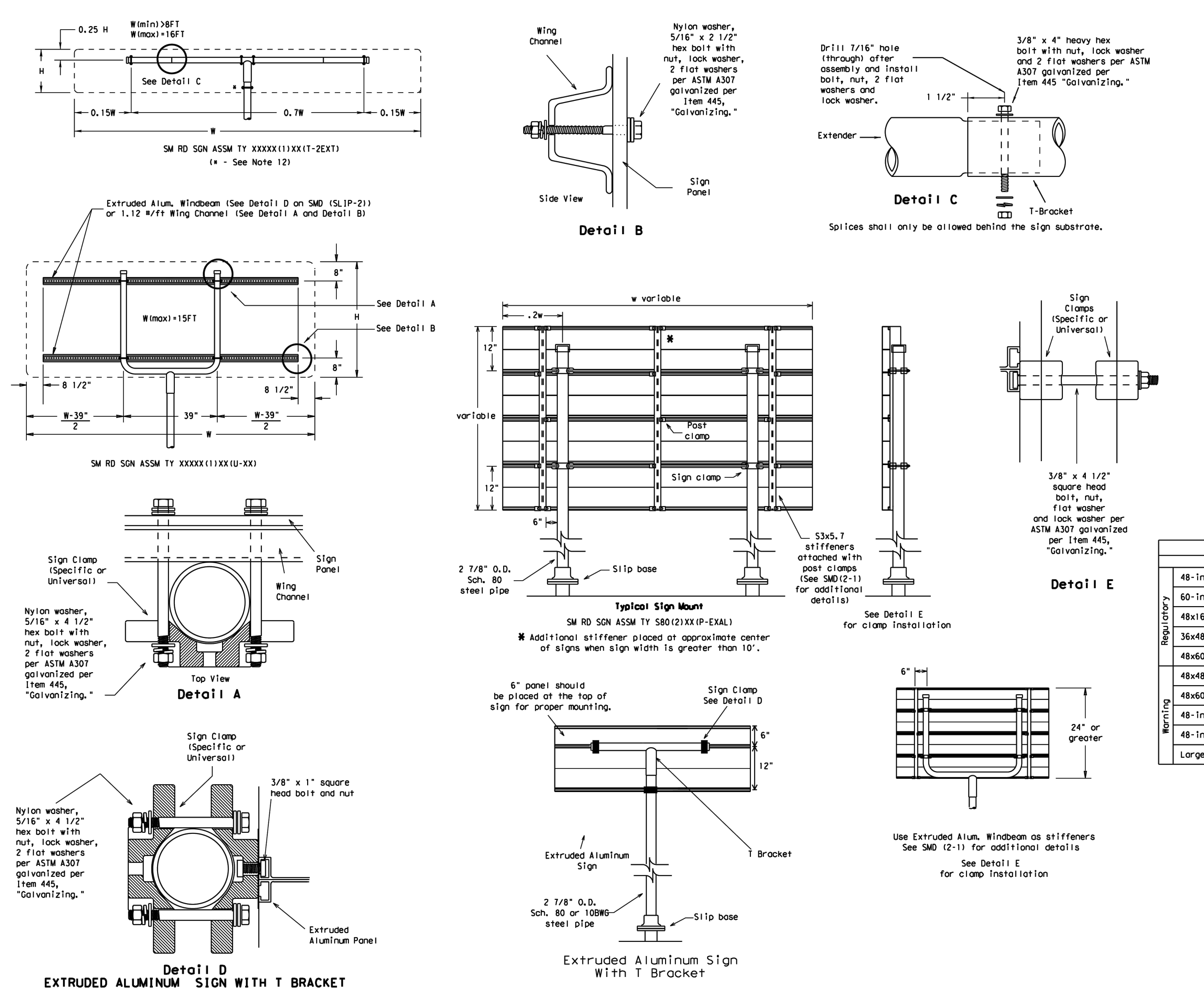
W(min)=8FT
W(max)=16FT
0.25 H
See Detail C
0.15W
0.7W
0.15W
Extruded Alum. Windbeam (See Detail D on SMD (SLIP-2)) or 1.12 #/ft Wing Channel (See Detail A and Detail B)
W(max)=15FT
See Detail A
See Detail B
Detail A
Detail B
Detail C
Detail D
Detail E
Splices shall only be allowed behind the sign substrate.
Typical Sign Mount
Extruded Aluminum Sign With T Bracket
EXTRUDED ALUMINUM SIGN WITH T BRACKET

SM RD SGN ASSM TY XXXXX(1)XX(T-2EXT)
(* - See Note 12)

SM RD SGN ASSM TY XXXXX(1)XX(U-XX)

SM RD SGN ASSM TY S80(2)XX(P-EXAL)

✱ Additional stiffener placed at approximate center of signs when sign width is greater than 10'.

GENERAL NOTES:

1.

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
5. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
10. Sign blanks shall be the sizes and shapes shown on the plans.
11. Additional sign clamp required on the "T-bracket" post for 24 inch high signs. Place the clamp 3 inches above bottom of sign when possible.
12. Post open ends shall be fitted with Friction Caps.

REQUIRED SUPPORT		
	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

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Traffic Operations Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM

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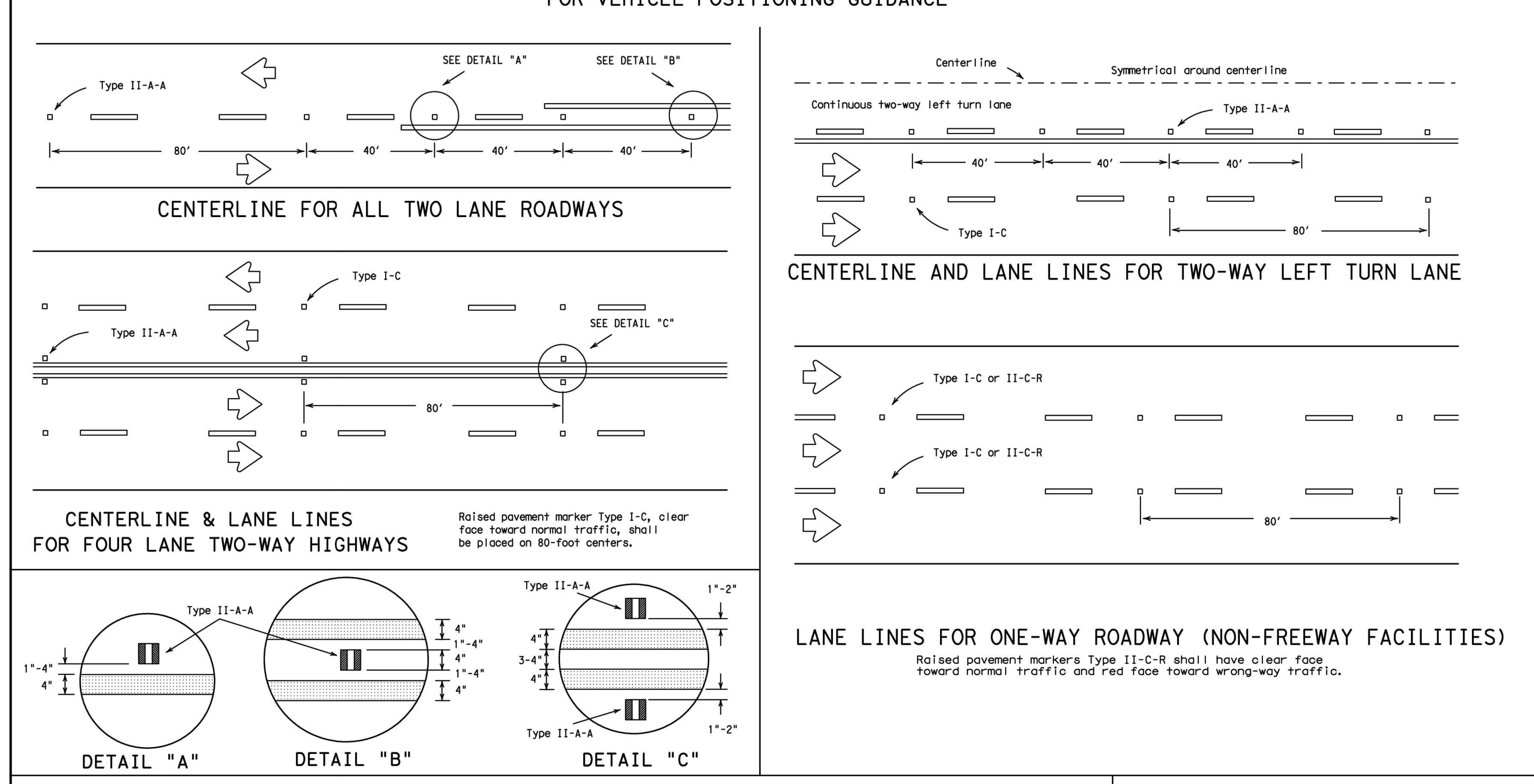
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE


Type II-A-A
Type I-C
Type I-C or II-C-R
SEE DETAIL "A"
SEE DETAIL "B"
SEE DETAIL "C"
80'
40'
Centerline
Symmetrical around centerline
Continuous two-way left turn lane
DETAIL "A"
DETAIL "B"
DETAIL "C"

CENTERLINE FOR ALL TWO LANE ROADWAYS

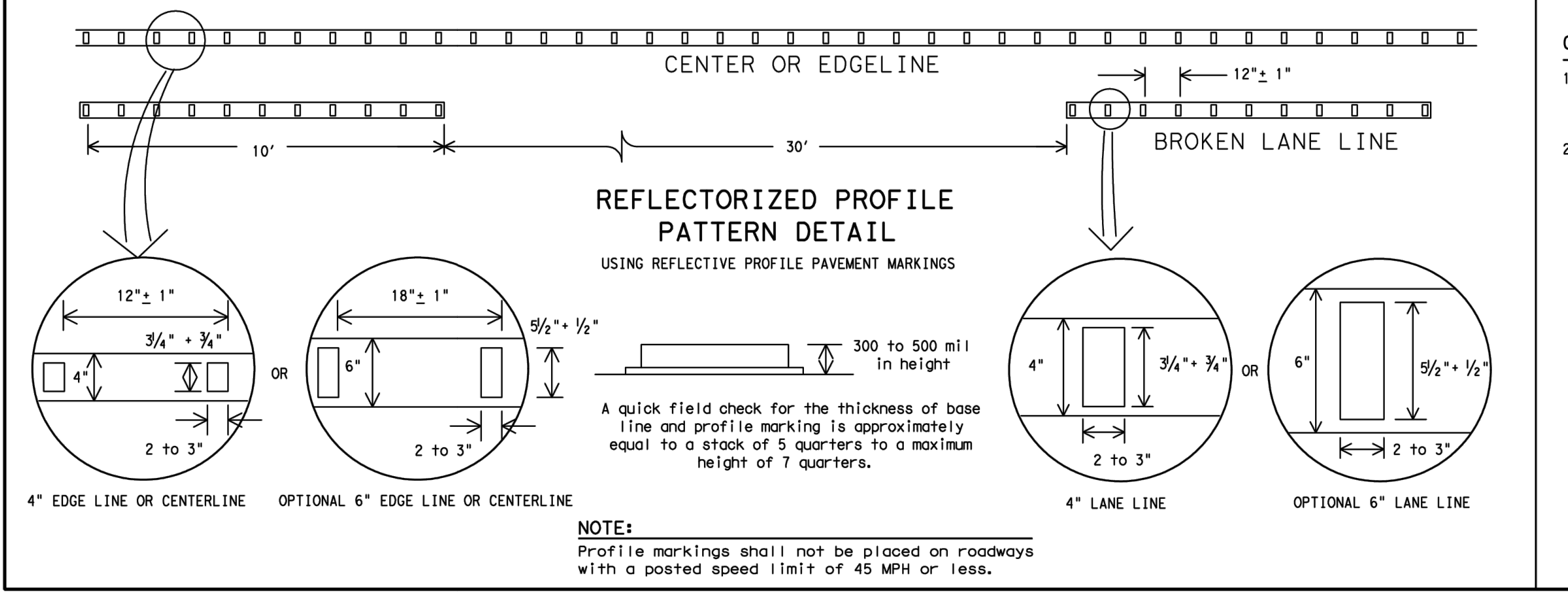
CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE

CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY HIGHWAYS

Raised pavement marker Type I-C, clear face toward normal traffic, shall be placed on 80-foot centers.

LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.


CENTER OR EDGELINE
BROKEN LANE LINE
10'
30'
12"± 1"
18"± 1"
3¼" + ¾"
5½" + ½"
4"
6"
2 to 3"
300 to 500 mil in height
OR

REFLECTORIZED PROFILE PATTERN DETAIL
USING REFLECTIVE PROFILE PAVEMENT MARKINGS

A quick field check for the thickness of base line and profile marking is approximately equal to a stack of 5 quarters to a maximum height of 7 quarters.

4" EDGE LINE OR CENTERLINE

OPTIONAL 6" EDGE LINE OR CENTERLINE

4" LANE LINE

OPTIONAL 6" LANE LINE

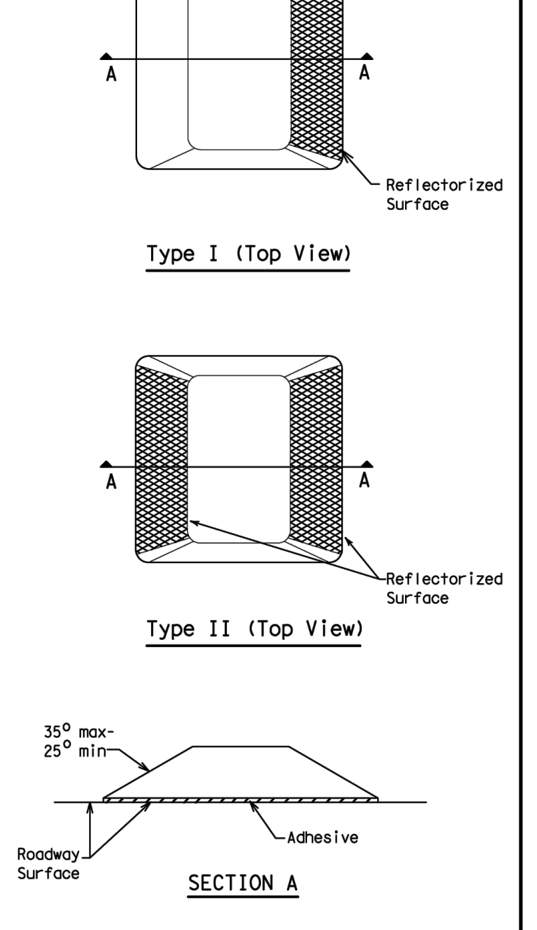
NOTE:
Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

1. All raised pavement markers placed in broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.

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.


A
Reflectorized Surface
35° max-
25° min
Adhesive
Roadway Surface

Type I (Top View)

Type II (Top View)

SECTION A

RAISED PAVEMENT MARKERS

Texas Department of Transportation
Traffic Operations Division

POSITION GUIDANCE USING RAISED MARKERS REFLECTORIZED PROFILE MARKINGS

PM(2)-12

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4-92 2-10
5-00 2-12
8-00
2-08

22B

CUDEENGINEERS.COM

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

GRACE VALLEY RANCH
PHASE 3B

TXDOT SIGN MOUNTING DETAILS

DATE
08/05/2024

PROJECT NO.
03346.010

DRAWN BY
M.A.S./R.B.

CHECKED BY
K.M.H.

REVISIONS
1.
2.
3.
4.
5.
6.
7.
8.
9.

KYLE M. HUDEK
138753
08/12/2024

CUDE ENGINEERS
TBPE No. 455
TBPLS No. 10048500

C8.03

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