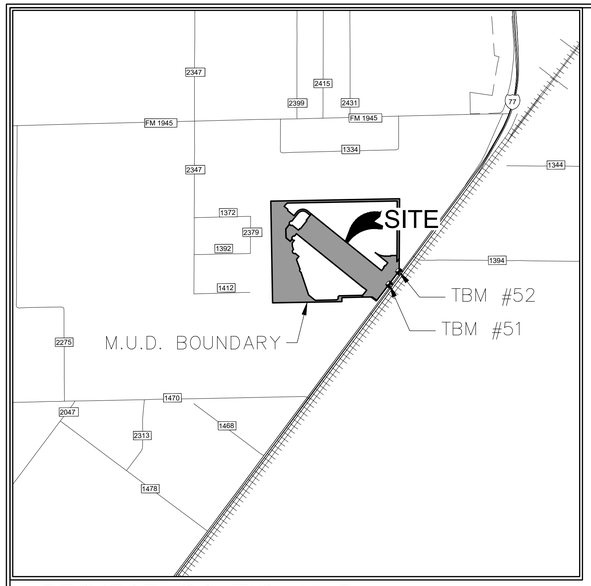
SINTON RANCH UNIT 1

MUNICIPAL UTILIY DISTRICT (MUD)

SINTON, TX

CIVIL SITE CONSTRUCTION PLANS



PROJECT LOCATION MAP SCALE: N.T.S.

PROJECT BENCHMARK

SITE TBM #1
SET TBM #51 MAG HMT TBM 51
N: 17252735.6098
E: 1293705.3406
ELEV: 55.812'

SITE TBM #2
SET TBM #52 MAG HMT TBM 52
N: 17253099.4518
E: 1293982.2963
ELEV: 55.869'

LEGAL DESCRIPTION

BEING A 102.492 ACRE TRACT SITUATED IN THE MALCOLM MCAULEY SURVEY, ABSTRACT NO. 1.3 SAN PATRICIO COUNTY, TEXAS, BEING A PORTION OF A CALLED 224.51 ACRE TRACT RECORDED IN DOCUMENT NO. 623871, OFFICIAL PUBLIC RECORDS, SAN PATRICIO COUNTY, TEXAS.

PROJECT DESCRIPTION

THIS PROJECT CONSISTS OF A 102.492 ACRE SINGLE FAMILY, RESIDENTIAL SUBDIVISION WITH 219 RESIDENTIAL LOTS, ASSOCIATED STREETS, GRADING, DRAINAGE, AND UTILITY IMPROVEMENTS.

LENNAR HOMES OF TEXAS & CONSTRUCTION, LTD
100 NE LOOP, SUITE 1155
SAN ANTONIO, TEXAS 78216

REQUIRED PERMITS	NUMBER
1. SAN PATRICIO COUNTY SUBDIVISION/DEVELOPMENT	#
2. SAN PATRICIO COUNTY FLOODPLAIN DEVELOPMENT	#

SEPTEMBER 2024

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER

9/12/2024

ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER OF RECORD. IN ACCEPTING THESE PLANS, THE COUNTY OF SAN PATRICIO MUST RELY UPON THE ADEQUACY OF THE WORK OF THE ENGINEER OF RECORD.

Joseph T. Sandoval, P.E.
Joseph T. Sandoval, P.E., License No. 110257

PREPARED BY:

HMT
ENGINEERING & SURVEYING

290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
HMTNB.COM
P(830)625-8555*F(830)625-8556
TBPELS FIRM F-10961
TBPELS FIRM 1053600

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SINTON RANCH UNIT 1
CIVIL SITE CONSTRUCTION PLANS

HMT # 337.087

DISTRICT ENGINEER: _____ DATE: _____

DISCLAIMER:

THE DISTRICT'S REVIEW OF THE PLANS IS LIMITED TO ASPECTS CONCERNING WATER, WASTEWATER, DRAINAGE, AND ROADS. THIS REVIEW DOES NOT ENCOMPASS AN ASSESSMENT OF THE OVERALL ADEQUACY OF THE DESIGN FOR THE FACILITIES. IN APPROVING THESE PLANS, THE DISTRICT RELIES SOLELY ON THE ADEQUACY OF THE WORK PERFORMED BY THE DESIGNER.

GENERAL NOTES:

1. THE MOST CURRENT EDITIONS OF THE CITY OF SAN ANTONIO STANDARD SPECIFICATIONS AND THE TEXAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND BRIDGES SHALL BE FOLLOWED FOR ALL CONSTRUCTION EXCEPT AS AMENDED BY THE COUNTY OF SAN PATRICIO STANDARD DETAILS.
2. ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER OF RECORD. IN ACCEPTING THESE PLANS, THE COUNTY OF SAN PATRICIO MUST RELY UPON THE ADEQUACY OF THE WORK OF THE ENGINEER IN RECORD.
3. PRIOR TO THE START OF CONSTRUCTION THE CONTRACTOR SHALL CONTACT THE COUNTY OF SAN PATRICIO TO SET A PRE-CONSTRUCTION MEETING. A 48-HOUR ADVANCED NOTIFICATION IS REQUIRED FOR ALL INSPECTION AND MEETING REQUESTS.
4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT ALL TEMPORARY AND PERMANENT TRAFFIC CONTROL DEVICES ARE PROPERLY INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE PLANS AND LATEST EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. IF THE NEED ARISES, ADDITIONAL TEMPORARY TRAFFIC CONTROL DEVICES MAY BE ORDERED BY THE ENGINEERING REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE.
5. DRAINAGE IMPROVEMENTS SUFFICIENT TO MITIGATE OFFSITE IMPACT OF CONSTRUCTION MUST BE COMPLETED AND IN PLACE PRIOR TO ADDING IMPERVIOUS COVER TO THE SITE.
6. A PORTION OF THE SUBDIVISION IS LOCATED WITHIN ANY SPECIAL FLOOD HAZARD AREA (100 YR. FLOOD), AS DEFINED BY THE SAN PATRICIO COUNTY, TEXAS, FIRM PANEL NUMBERS 48409C0245E AND 48409C0400E EFFECTIVE DATE NOVEMBER, 4, 2016, AS PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.
7. GAS UTILITIES ARE NOT INCLUDED IN THE CIVIL CONSTRUCTION PLANS. FINAL GAS UTILITY DESIGN SHALL BE APPROVED BY THE COUNTY FOR ANY WORK WITHIN PUBLIC RIGHT-OF-WAY, IF APPLICABLE.
8. THE ENGINEER OF RECORD ACKNOWLEDGES THAT ALL PROPOSED WATER AND WASTEWATER IMPROVEMENTS MUST COMPLY WITH TCEQ, COUNTY OF SAN PATRICIO, RINCON WATER CONNECTION POLICY, SOUND ENGINEERING JUDGEMENT AND ANY OTHER GOVERNING ENTITY ORDINANCES OR CODES.

NOTE TO CONTRACTOR:

BY THE ACT OF SUBMITTING A BID FOR THIS PROPOSED CONTRACT, THE BIDDER WARRANTS THAT THE BIDDER, AND ALL SUBCONTRACTORS AND MATERIAL SUPPLIERS HE INTENDS TO USE HAVE CAREFULLY AND THOROUGHLY REVIEWED THE DRAWINGS, SPECIFICATIONS AND ALL OTHER CONTRACT DOCUMENTS AND HAVE FOUND THEM COMPLETE AND FREE FROM ANY AMBIGUITIES AND SUFFICIENT FOR THE PURPOSE INTENDED. THE BIDDER FURTHER WARRANTS THAT TO THE BEST OF HIS OR HIS SUBCONTRACTORS' AND MATERIAL SUPPLIERS' KNOWLEDGE, ALL MATERIALS AND PRODUCTS SPECIFIED OR INDICATED HEREIN ARE ACCEPTABLE FOR ALL APPLICABLE CODES AND AUTHORITIES.

THE LOCATION OF ALL EXISTING UTILITIES SHOWN ON THESE PLANS HAS BEEN BASED UPON RECORD INFORMATION ONLY AND MAY NOT MATCH LOCATIONS AND/OR DEPTHS AS CONSTRUCTED. THE CONTRACTOR SHALL CONTACT EACH OF THE INDIVIDUAL UTILITIES FOR ASSISTANCE IN DETERMINING EXISTING UTILITY LOCATIONS AND DEPTHS PRIOR TO BEGINNING ANY CONSTRUCTION. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF ALL UTILITY CROSSINGS PRIOR TO BEGINNING ANY CONSTRUCTION.

ANY QUANTITIES PROVIDED BY HMT OR OWNER ON THE PLANS, OPINION OF PROBABLE COST, BID SUMMARIES, ETC. ARE FOR CURSORY USE ONLY. CONTRACTOR IS RESPONSIBLE FOR BIDDING SIGNED AND SEALED CONSTRUCTION PLANS. IF A DISCREPANCY EXIST, CONTRACTOR SHALL CONTACT ENGINEER IMMEDIATELY.

CONTRACTOR IS RESPONSIBLE FOR CONFIRMING THE LOCATION AND ELEVATION OF ALL DOWNSTREAM CONNECTION POINTS PRIOR TO CONSTRUCTION. IF A DISCREPANCY EXIST, CONTRACTOR SHALL CONTACT ENGINEER IMMEDIATELY.

CONTRACTOR SHALL INSTALL ALL GRAVITY SEWER, GRAVITY STORM SEWER, CURBS AND PAVEMENT FROM THE MOST DOWNSTREAM POINT OF CONNECTION. IF IMPROVEMENTS ARE CONSTRUCTED FROM UPSTREAM TO DOWNSTREAM, THEN THE CONTRACTOR WILL TAKE FULL RISK AND LIABILITY OF ANY ISSUES THAT MIGHT ARISE FROM FLOWLINE ELEVATION DISCREPANCIES, UTILITY CONFLICTS, ETC.

CONTRACTOR IS RESPONSIBLE FOR THE STOCKPILING OF ANY EXCESS DIRT. ALL BIDS FROM CONTRACTOR SHOULD ACCOUNT FOR THE REMOVAL AND PLACEMENT OF ALL EARTHWORK TO INCLUDE STOCKPILING, EXPORT, IMPORT, ETC. IF A LOCATION OF PLACEMENT OF EXCESS DIRT IS NOT SHOWN ON THE PLANS, THEN CONTRACTOR SHALL CONTACT ENGINEER IMMEDIATELY TO DETERMINE THE MOST SUITABLE STOCKPILE LOCATION.

Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\CDs\337.087_COVR.dwg User: joed Sep 12, 2024 - 11:45am

RINCON WATER SUPPLY GENERAL NOTES

1. PRIOR TO CONSTRUCTION, CONTRACTOR/DEVELOPER SHALL CONTACT ALL UNDERGROUND UTILITY LOCATOR ORGANIZATIONS SUCH AS BUT NOT LIMITED TO TEXAS 811 AND REQUEST THAT ALL UNDERGROUND UTILITY(S) BE LOCATED AND IDENTIFIED.
2. PRIOR TO CONSTRUCTION OF ANY WATER PIPELINE FOR RINCON WATER SUPPLY CORPORATION (RWSC), THE CONTRACTOR/DEVELOPER SHALL POT HOLE UTILITIES OR PIPELINES TO BE CROSSED WITH THE NEW WATER PIPELINE AND PROVIDE FIELD COVER AND DIAMETER OF UTILITIES TO OWNER.
3. NO ADDITIONAL MONIES SHALL BE PAID FOR ANY POTHOLING OR DEWATERING REQUIRED TO INSTALL THE WATER PIPELINE.
4. THE CONTRACTOR/DEVELOPER SHALL COORDINATE LINE CROSSINGS WITH PIPELINE OR UTILITY LINE OWNERS. NO ADDITIONAL COSTS WILL BE APPROVED FOR CROSSING UNDER EXISTING UTILITIES.
5. CONTRACTOR/DEVELOPER SHALL REPAIR ANY DAMAGE TO EXISTING UTILITIES, PIPELINES, FENCES, DRIVEWAYS, PAVEMENT, FARM LAND(S), ROADS, ETC. CAUSED DURING CONSTRUCTION TO PRE-CONSTRUCTION CONDITION WITH THE SAME MATERIALS AT NO ADDITIONAL COSTS TO OWNER.
6. EXCESS SPOIL SHALL NOT BE REMOVED FROM THE PROPERTY WITHOUT WRITTEN PERMISSION OF THE PROPERTY OWNER AND RWSC.
7. SWPPP CONTROLS SHALL BE INSTALLED PRIOR TO CONSTRUCTION.
8. CONTRACTOR/DEVELOPER IS RESPONSIBLE FOR STAKING OF THE PIPELINE LINE. STAKING MUST BE APPROVED BY RWSC.
9. ALL INSTALLATIONS OF PIPES, VALVES, FITTINGS, OR APPURTENANCES SHALL BE THOROUGHLY FLUSHED IN ACCORDANCE WITH AWWA STANDARDS TO REMOVE ALL AIR AND CONTAMINANTS PRIOR TO DISINFECTION. ALL WATER USED FOR FLUSHING AND DISINFECTION OF PIPES, VALVES, FITTINGS, OR APPURTENANCES SHALL BE METERED AND BILLED TO THE CONTRACTOR/DEVELOPER AT BULK WATER RATE.
10. THE WATER PIPELINE SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA STANDARDS. ANY FLUSHING OF HYPER CHLORINATED WATER SHALL BE DE-CHLORINATED IN THE SAME FASHION.
11. FOLLOWING DISINFECTION AND FLUSHING THE CONTRACTOR/DEVELOPER SHALL TEST THE INSTALLED WATER SYSTEM FOR MICROBIOLOGICAL CONTAMINATION AS PER 30TAC290.
12. ALL INSTALLATIONS SHALL BE INSPECTED AND APPROVED BY THE RWSC GENERAL MANAGER OR HIS DESIGNEE PRIOR TO BEING COVERED WITH BACKFILL.
13. ALL INSTALLATIONS OF PIPES, VALVES, FITTINGS, OR APPURTENANCES SHALL BE PRESSURE TESTED IN ACCORDANCE WITH AWWA STANDARDS PRIOR TO ACCEPTANCE. THE PRESSURE TEST SHALL BE WITNESSED BY THE RWSC GENERAL MANAGER OR HIS DESIGNATED EMPLOYEE.
14. ALL INSTALLATION OF PIPE OR APPURTENANCES SHALL INCLUDE A #14 COPPER OR COPPER CLAD STEEL INSULATED TRACE WIRE THAT TERMINATES ABOVE GROUND IN AN ACCEPTABLE WATERLINE MARKER/TRACE WIRE STATION.

SEQUENCE OF CONSTRUCTION

1. INSTALL EROSION CONTROLS PER APPROVED PLAN.
2. TEMPORARY CONTROLS TO BE INSPECTED AND MAINTAINED WEEKLY AND PRIOR TO ANTICIPATED RAINFALL EVENTS, AND AFTER RAINFALL EVENTS, AS NEEDED. CONTRACTOR/OWNER SHALL PROVIDE A CONTACT NAME AND NUMBER FOR EROSION CONTROL ISSUES.
3. CONDUCT DEMOLITION ACTIVITIES, IF APPLICABLE.
4. CONSTRUCT DRAINAGE IMPROVEMENTS, IF APPLICABLE.
5. CONSTRUCT CURB INLET PROTECTION AT THE TIME OF CURB INLET INSTALLATION.
6. CONSTRUCT DEVELOPMENT PER APPROVED PLANS.
7. INSTALL STREETSCAPE AND/OR LANDSCAPING IMPROVEMENTS.
8. CONTRACTOR TO VEGETATE ANY DISTURBED AREAS ONCE FINAL GRADING IS COMPLETE, AND ESTABLISH A MIN OF 70% VEGETATION PRIOR TO COMPLETION
9. REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.
10. TPDES REQUIREMENTS – DISTURBED AREAS ON WHICH CONSTRUCTION ACTIVITIES HAVE CEASED (TEMPORARY OR PERMANENTLY) SHALL BE STABILIZED WITHIN 14 DAYS UNLESS ACTIVITY WILL BEGIN AGAIN WITHIN 21 DAYS

NOTE TO CONTRACTOR:

1. ANY QUANTITIES PROVIDE BY HMT OR OWNER ON THE PLANS, OPINION OF PROBABLE COST, BID SUMMARIES, ETC. ARE FOR CURSORY USE ONLY. CONTRACTOR IS RESPONSIBLE FOR BIDDING SIGNED AND SEALED CONSTRUCTION PLANS. IF A DISCREPANCY EXIST, CONTRACTOR SHALL CONTACT ENGINEER IMMEDIATELY.
2. CONTRACTOR IS RESPONSIBLE FOR CONFIRMING THE LOCATION AND ELEVATION OF ALL DOWNSTREAM CONNECTION POINTS PRIOR TO CONSTRUCTION. IF A DISCREPANCY EXIST, CONTRACTOR SHALL CONTACT ENGINEER IMMEDIATELY.
3. CONTRACTOR SHALL INSTALL ALL GRAVITY SEWER, GRAVITY STORM SEWER, CURBS AND PAVEMENT FROM THE MOST DOWNSTREAM POINT OF CONNECTION. IF IMPROVEMENTS ARE CONSTRUCTED FROM UPSTREAM TO DOWNSTREAM, THEN THE CONTRACTOR WILL TAKE FULL RISK AND LIABILITY OF ANY ISSUES THAT MIGHT ARISE FROM FLOWLINE ELEVATION DISCREPANCIES, UTILITY CONFLICTS, ETC.
4. CONTRACTOR IS RESPONSIBLE FOR THE STOCKPILING OF ANY EXCESS DIRT. ALL BIDS FROM CONTRACTOR SHOULD ACCOUNT FOR THE REMOVAL AND PLACEMENT OF ALL EARTHWORK TO INCLUDE STOCKPILING, EXPORT, IMPORT, ETC. IF A LOCATION OF PLACEMENT OF EXCESS DIRT IS NOT SHOWN ON THE PLANS, THEN CONTRACTOR SHALL CONTACT ENGINEER IMMEDIATELY TO DETERMINE THE MOST SUITABLE STOCKPILE LOCATION.

MUNICIPAL UTILITY DISTRICT (MUD) NOTES:

1. THE DISTRICT ENGINEER, JONES-HEROY & ASSOCIATES, INC. (KEN HEROY, PH: 512/989-2200) SHALL BE CONTACTED 48 HOURS PRIOR TO:
   - 1.1. PRE-CONSTRUCTION MEETINGS;
   - 1.2. BEGINNING EACH PHASE OF CONSTRUCTION;
   - 1.3. TESTING OF WATER AND/OR WASTEWATER LINES; AND
   - 1.4. FINAL WALK-THROUGH OF FACILITIES.
2. THE DISTRICT OPERATION SHALL BE CONTACTED 48 HOURS PRIOR:
   - 2.1. PRE-CONSTRUCTION MEETINGS;
   - 2.2. BEGINNING EACH PHASE OF CONSTRUCTION;
   - 2.3. TESTING OF WATER AND/OR WASTEWATER LINES; AND,
   - 2.4. FINAL WALK-THROUGH OF FACILITIES.
3. THE DISTRICT'S REVIEW OF THE PLANS IS LIMITED TO ASPECTS CONCERNING WATER, WASTEWATER DRAINAGE, AND ROADS. THIS REVIEW DOES NOT ENCOMPASS AN ASSESMENT OF THE OVERALL ADEQUACY OF THE DESIGN FOR THE FACILITIES. IN APPROVING THESE PLANS, THE DISTRICT RELIES SOLEY ON THE ADEQUACY OF THE WORK PREFORMED BY THE DESIGN ENGINEER.

TCEQ WATER DISTRIBUTION SYSTEM GENERAL CONSTRUCTION NOTES

1. THIS WATER DISTRIBUTION SYSTEM MUST BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS 30 TEXAS ADMINISTRATIVE CODE (TAC) CHAPTER 290 SUBCHAPTER D. WHEN CONFLICTS ARE NOTED WITH LOCAL STANDARDS, THE MORE STRINGENT REQUIREMENT SHALL BE APPLIED. AT A MINIMUM, CONSTRUCTION FOR PUBLIC WATER SYSTEMS MUST ALWAYS MEET TCEQ'S "RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS."
2. ALL NEWLY INSTALLED PIPES AND RELATED PRODUCTS MUST CONFORM TO AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)/NSF INTERNATIONAL STANDARD 61 AND MUST BE CERTIFIED BY AN ORGANIZATION ACCREDITED BY ANSI [§290.44(A)(1)].
3. PLASTIC PIPE FOR USE IN PUBLIC WATER SYSTEMS MUST BEAR THE NSF INTERNATIONAL SEAL OF APPROVAL (NSF-PW) AND HAVE AN ASTM DESIGN PRESSURE RATING OF AT LEAST 150 PSI OR A STANDARD DIMENSION RATIO OF 26 OR LESS [§290.44(A)(2)].
4. NO PIPE WHICH HAS BEEN USED FOR ANY PURPOSE OTHER THAN THE CONVEYANCE OF DRINKING WATER SHALL BE ACCEPTED OR RELOCATED FOR USE IN ANY PUBLIC DRINKING WATER SUPPLY [§290.44(A)(3)].
5. ALL WATER LINE CROSSINGS OF WASTEWATER MAINS SHALL BE PERPENDICULAR [§290.44(E)(4)(B)].
6. WATER TRANSMISSION AND DISTRIBUTION LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. HOWEVER, THE TOP OF THE WATER LINE MUST BE LOCATED BELOW THE FROST LINE AND IN NO CASE SHALL THE TOP OF THE WATER LINE BE LESS THAN 24 INCHES BELOW GROUND SURFACE [§290.44(A)(4)].
7. THE MAXIMUM ALLOWABLE LEAD CONTENT OF PIPES, PIPE FITTINGS, PLUMBING FITTINGS, AND FIXTURES IS 0.25 PERCENT [§290.44(B)].
8. THE CONTRACTOR SHALL INSTALL APPROPRIATE AIR RELEASE DEVICES WITH VENT OPENINGS TO THE ATMOSPHERE COVERED WITH 16-MESH OR FINER, CORROSION RESISTANT SCREENING MATERIAL OR AN ACCEPTABLE EQUIVALENT [§290.44(D)(1)].
9. THE CONTRACTOR SHALL NOT PLACE THE PIPE IN WATER OR WHERE IT CAN BE FLOODED WITH WATER OR SEWAGE DURING ITS STORAGE OR INSTALLATION [§290.44(F)(1)].
10. WHEN WATERLINES ARE LAID UNDER ANY FLOWING OR INTERMITTENT STREAM OR SEMI-PERMANENT BODY OF WATER THE WATERLINE SHALL BE INSTALLED IN A SEPARATE WATERTIGHT PIPE ENCASEMENT. VALVES MUST BE PROVIDED ON EACH SIDE OF THE CROSSING WITH FACILITIES TO ALLOW THE UNDERWATER PORTION OF THE SYSTEM TO BE ISOLATED AND TESTED [§290.44(F)(2)].
11. PURSUANT TO 30 TAC §290.44(A)(5), THE HYDROSTATIC LEAKAGE RATE SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY THE MOST CURRENT AWWA FORMULAS FOR PVC PIPE, CAST IRON AND DUCTILE IRON PIPE. INCLUDE THE FORMULAS IN THE NOTES ON THE PLANS.
    - THE HYDROSTATIC LEAKAGE RATE FOR POLYVINYL CHLORIDE (PVC) PIPE AND APPURTENANCES SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY FORMULAS IN AMERICA WATER WORKS ASSOCIATION (AWWA) C-605 AS REQUIRED IN 30 TAC §290.44(A)(5). PLEASE ENSURE THAT THE FORMULA FOR THIS CALCULATION IS CORRECT AND MOST CURRENT FORMULA IS IN USE;

$$Q = \frac{L \times P}{148{,}000}$$

WHERE:

- Q = THE QUANTITY OF MAKEUP WATER IN GALLONS PER HOUR,
- L = THE LENGTH OF THE PIPE SECTION BEING TESTED, IN FEET,
- D = THE NOMINAL DIAMETER OF THE PIPE IN INCHES, AND
- P = THE AVERAGE TEST PRESSURE DURING THE HYDROSTATIC TEST IN POUNDS PER SQUARE INCH (PSI).

    - THE HYDROSTATIC LEAKAGE RATE FOR DUCTILE IRON (DI) PIPE AND APPURTENANCES SHALL NOT EXCEED THE AMOUNT ALLOWED OR RECOMMENDED BY FORMULAS IN AMERICA WATER WORKS ASSOCIATION (AWWA) C-600 AS REQUIRED IN 30 TAC §290.44(A)(5). PLEASE ENSURE THAT THE FORMULA FOR THIS CALCULATION IS CORRECT AND MOST CURRENT FORMULA IS IN USE;

$$Q = \frac{SD \times P}{148{,}000}$$

WHERE:

- L = THE QUANTITY OF MAKEUP WATER IN GALLONS PER HOUR,
- S = THE LENGTH OF THE PIPE SECTION BEING TESTED, IN FEET,
- D = THE NOMINAL DIAMETER OF THE PIPE IN INCHES, AND
- P = THE AVERAGE TEST PRESSURE DURING THE HYDROSTATIC TEST IN POUNDS PER SQUARE INCH (PSI).

12. THE CONTRACTOR SHALL MAINTAIN A MINIMUM SEPARATION DISTANCE IN ALL DIRECTIONS OF NINE FEET BETWEEN THE PROPOSED WATERLINE AND WASTEWATER COLLECTION FACILITIES INCLUDING MANHOLES. IF THIS DISTANCE CANNOT BE MAINTAINED, THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE PROJECT ENGINEER FOR FURTHER DIRECTION. SEPARATION DISTANCES, INSTALLATION METHODS, AND MATERIALS UTILIZED MUST MEET §290.44(E)(1)-(4).
13. THE SEPARATION DISTANCE FROM A POTABLE WATERLINE TO A WASTEWATER MAIN OR LATERAL MANHOLE OR CLEANOUT SHALL BE A MINIMUM OF NINE FEET. WHERE THE NINE-FOOT SEPARATION DISTANCE CANNOT BE ACHIEVED, THE POTABLE WATERLINE SHALL BE ENCASED IN A JOINT OF AT LEAST 150 PSI PRESSURE CLASS PIPE AT LEAST 18 FEET LONG AND TWO NOMINAL SIZES LARGER THAN THE NEW CONVEYANCE. THE SPACE AROUND THE CARRIER PIPE SHALL BE SUPPORTED AT FIVE-FOOT INTERVALS WITH SPACERS OR BE FILLED TO THE SPRINGLINE WITH WASHED SAND. THE ENCASEMENT PIPE SHALL BE CENTERED ON THE CROSSING AND BOTH ENDS SEALED WITH CEMENT GROUT OR MANUFACTURED SEALANT [§290.44(E)(5)].
14. FIRE HYDRANTS SHALL NOT BE INSTALLED WITHIN NINE FEET VERTICALLY OR HORIZONTALLY OF ANY WASTEWATER LINE, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE REGARDLESS OF CONSTRUCTION [§290.44(E)(6)].
15. SUCTION MAINS TO PUMPING EQUIPMENT SHALL NOT CROSS WASTEWATER MAINS, WASTEWATER LATERALS, OR WASTEWATER SERVICE LINES. RAW WATER SUPPLY LINES SHALL NOT BE INSTALLED WITHIN FIVE FEET OF ANY TILE OR CONCRETE WASTEWATER MAIN, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE [§290.44(E)(7)].
16. WATERLINES SHALL NOT BE INSTALLED CLOSER THAN TEN FEET TO SEPTIC TANK DRAINFIELDS [§290.44(E)(8)].
17. THE CONTRACTOR SHALL DISINFECT THE NEW WATERLINES IN ACCORDANCE WITH AWWA STANDARD C-651-14 OR MOST RECENT, THEN FLUSH AND SAMPLE THE LINES BEFORE BEING PLACED INTO SERVICE. SAMPLES SHALL BE COLLECTED FOR MICROBIOLOGICAL ANALYSIS TO CHECK THE EFFECTIVENESS OF THE DISINFECTION PROCEDURE WHICH SHALL BE REPEATED IF CONTAMINATION PERSISTS. A MINIMUM OF ONE SAMPLE FOR EACH 1,000 FEET OF COMPLETED WATERLINE WILL BE REQUIRED OR AT THE NEXT AVAILABLE SAMPLING POINT BEYOND 1,000 FEET AS DESIGNATED BY THE DESIGN ENGINEER [§290.44(F)(3)].
18. DECHLORINATION OF DISINFECTING WATER SHALL BE IN STRICT ACCORDANCE WITH CURRENT AWWA STANDARD C655-09 OR MOST RECENT.

UTILITIES

LOCATION AND DEPTH OF EXISTING UTILITIES SHOWN HERE ARE APPROXIMATE ONLY. ACTUAL LOCATIONS AND DEPTHS MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF ALL EXISTING UTILITIES ENCOUNTERED DURING CONSTRUCTION, INCLUDING THOSE NOT SHOWN ON THE DRAWINGS.
ANY EXISTING UTILITIES, ON OR OFF THE SITE, THAT ARE DAMAGED OR UNDERCUT BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED AS DIRECTED BY THE ENGINEER AND APPROVED BY THE RESPECTIVE UTILITY COMPANY AT THE CONTRACTOR'S EXPENSE.
CONTRACTOR SHALL NOTIFY APPROPRIATE UTILITY COMPANIES AND GOVERNMENTAL AGENCIES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION AT:

THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES 48 HOURS PRIOR TO EXCAVATION

RINCON WATER SUPPLY CORPORATION	(361) 528-3969
SPECTRUM CABLE	(855) 707-7328
CENTERPOINT ENERGY (GAS)	(800) 752-8036
AT&T	(830) 303-1333
TEXAS ONE CALL SYSTEM	(800) 245-4545
ENERGY TRANSFER (PETROLEUM PIPELINE) (GILBERT DE LA GARZA)	(512) 212-6134
FLINT HILLS RESOURCES	(361) 878-5486
KINDER MORGAN	(361) 438-3443

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY CONTRIBUTING ZONE PLAN GENERAL CONSTRUCTION NOTES

EDWARDS AQUIFER PROTECTION PROGRAM CONSTRUCTION NOTES – LEGAL DISCLAIMER

THE FOLLOWING/LISTED "CONSTRUCTION NOTES" ARE INTENDED TO BE ADVISORY IN NATURE ONLY AND DO NOT CONSTITUTE AN APPROVAL OR CONDITIONAL APPROVAL BY THE EXECUTIVE DIRECTOR (ED), NOR DO THEY CONSTITUTE A COMPREHENSIVE LISTING OF RULES OR CONDITIONS TO BE FOLLOWED DURING CONSTRUCTION. FURTHER ACTIONS MAY BE REQUIRED TO ACHIEVE COMPLIANCE WITH TCEQ REGULATIONS FOUND IN TITLE 30, TEXAS ADMINISTRATIVE CODE (TAC), CHAPTERS 213 AND 217, AS WELL AS LOCAL ORDINANCES AND REGULATIONS PROVIDING FOR THE PROTECTION OF WATER QUALITY. ADDITIONALLY, NOTHING CONTAINED IN THE FOLLOWING/LISTED "CONSTRUCTION NOTES" RESTRICTS THE POWERS OF THE ED, THE COMMISSION OR ANY OTHER GOVERNMENTAL ENTITY TO PREVENT, CORRECT, OR CURTAIL ACTIVITIES THAT RESULT OR MAY RESULT IN POLLUTION OF THE EDWARDS AQUIFER OR HYDROLOGICALLY CONNECTED SURFACE WATERS. THE HOLDER OF ANY EDWARDS AQUIFER PROTECTION PLAN CONTAINING "CONSTRUCTION NOTES" IS STILL RESPONSIBLE FOR COMPLIANCE WITH TITLE 30, TAC, CHAPTERS 213 OR ANY OTHER APPLICABLE TCEQ REGULATION, AS WELL AS ALL CONDITIONS OF AN EDWARDS AQUIFER PROTECTION PLAN THROUGH ALL PHASES OF PLAN IMPLEMENTATION. FAILURE TO COMPLY WITH ANY CONDITION OF THE ED'S APPROVAL, WHETHER OR NOT IN CONTRADICTION OF ANY "CONSTRUCTION NOTES," IS A VIOLATION OF TCEQ REGULATIONS AND ANY VIOLATION IS SUBJECT TO ADMINISTRATIVE RULES, ORDERS, AND PENALTIES AS PROVIDED UNDER TITLE 30, TAC § 213.10 (RELATING TO ENFORCEMENT). SUCH VIOLATIONS MAY ALSO BE SUBJECT TO CIVIL PENALTIES AND INJUNCTION. THE FOLLOWING/LISTED "CONSTRUCTION NOTES" IN NO WAY REPRESENT AN APPROVED EXCEPTION BY THE ED TO ANY PART OF TITLE 30 TAC, CHAPTERS 213 AND 217, OR ANY OTHER TCEQ APPLICABLE REGULATION

1. A WRITTEN NOTICE OF CONSTRUCTION MUST BE SUBMITTED TO THE TCEQ REGIONAL OFFICE AT LEAST 48 HOURS PRIOR TO THE START OF ANY GROUND DISTURBANCE OR CONSTRUCTION ACTIVITIES. THIS NOTICE MUST INCLUDE:
   - THE NAME OF THE APPROVED PROJECT;
   - THE ACTIVITY START DATE; AND
   - THE CONTACT INFORMATION OF THE PRIME CONTRACTOR.
2. ALL CONTRACTORS CONDUCTING REGULATED ACTIVITIES ASSOCIATED WITH THIS PROJECT SHOULD BE PROVIDED WITH COMPLETE COPIES OF THE APPROVED CONTRIBUTING ZONE PLAN (CZP) AND THE TCEQ LETTER INDICATING THE SPECIFIC CONDITIONS OF ITS APPROVAL. DURING THE COURSE OF THESE REGULATED ACTIVITIES, THE CONTRACTOR(S) SHOULD KEEP COPIES OF THE APPROVED PLAN AND APPROVAL LETTER ON-SITE.
3. NO HAZARDOUS SUBSTANCE STORAGE TANK SHALL BE INSTALLED WITHIN 150 FEET OF A WATER SUPPLY SOURCE, DISTRIBUTION SYSTEM, WELL, OR SENSITIVE FEATURE.
4. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY, ALL TEMPORARY EROSION AND SEDIMENTATION (E&S) CONTROL MEASURES MUST BE PROPERLY INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS. IF INSPECTIONS INDICATE A CONTROL HAS BEEN USED INAPPROPRIATELY, OR INCORRECTLY, THE APPLICANT MUST REPLACE OR MODIFY THE CONTROL FOR SITE SITUATIONS. THESE CONTROLS MUST REMAIN IN PLACE UNTIL THE DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.
5. ANY SEDIMENT THAT ESCAPES THE CONSTRUCTION SITE MUST BE COLLECTED AND PROPERLY DISPOSED OF BEFORE THE NEXT RAIN EVENT TO ENSURE IT IS NOT WASHED INTO SURFACE STREAMS, SENSITIVE FEATURES, ETC.
6. SEDIMENT MUST BE REMOVED FROM THE SEDIMENT TRAPS OR SEDIMENTATION BASINS WHEN IT OCCUPIES 50% OF THE BASIN'S DESIGN CAPACITY.
7. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS EXPOSED TO STORMWATER SHALL BE PREVENTED FROM BEING DISCHARGED OFFSITE.
8. ALL EXCAVATED MATERIAL THAT WILL BE STORED ON-SITE MUST HAVE PROPER E&S CONTROLS.
9. IF PORTIONS OF THE SITE WILL HAVE A CEASE IN CONSTRUCTION ACTIVITY LASTING LONGER THAN 14 DAYS, SOIL STABILIZATION IN THOSE AREAS SHALL BE INITIATED AS SOON AS POSSIBLE PRIOR TO THE 14TH DAY OF INACTIVITY. IF ACTIVITY WILL RESUME PRIOR TO THE 21ST DAY, STABILIZATION MEASURES ARE NOT REQUIRED. IF DROUGHT CONDITIONS OR INCLEMENT WEATHER PREVENT ACTION BY THE 14TH DAY, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS POSSIBLE.
10. THE FOLLOWING RECORDS SHOULD BE MAINTAINED AND MADE AVAILABLE TO THE TCEQ UPON REQUEST:
    - THE DATES WHEN MAJOR GRADING ACTIVITIES OCCUR;
    - THE DATES WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE; AND
    - THE DATES WHEN STABILIZATION MEASURES ARE INITIATED.
11. THE HOLDER OF ANY APPROVED CZP MUST NOTIFY THE APPROPRIATE REGIONAL OFFICE IN WRITING AND OBTAIN APPROVAL FROM THE EXECUTIVE DIRECTOR PRIOR TO INITIATING ANY OF THE FOLLOWING:
    - A. ANY PHYSICAL OR OPERATIONAL MODIFICATION OF ANY BEST MANAGEMENT PRACTICES (BMPS) OR STRUCTURE(S), INCLUDING BUT NOT LIMITED TO TEMPORARY OR PERMANENT PONDS, DAMS, BERMS, SILT FENCES, AND DIVERSIONARY STRUCTURES;
    - B. ANY CHANGE IN THE NATURE OR CHARACTER OF THE REGULATED ACTIVITY FROM THAT WHICH WAS ORIGINALLY APPROVED;
    - C. ANY CHANGE THAT WOULD SIGNIFICANTLY IMPACT THE ABILITY TO PREVENT POLLUTION OF THE EDWARDS AQUIFER; OR
    - D. ANY DEVELOPMENT OF LAND PREVIOUSLY IDENTIFIED AS UNDEVELOPED IN THE APPROVED CONTRIBUTING ZONE PLAN.

Austin Regional Office 12100 Park 35 Circle, Building A Austin, Texas 78753-1808 Phone (512) 339-2929 Fax (512) 339-3795	San Antonio Regional Office 14250 Judson Road San Antonio, Texas 78233-4480 Phone (210) 490-3096 Fax (210) 545-4329

THESE GENERAL CONSTRUCTION NOTES MUST BE INCLUDED ON THE CONSTRUCTION PLANS PROVIDED TO THE CONTRACTOR AND ALL SUBCONTRACTORS.

HMT ENGINEERING & SURVEYING
290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
Joseph T. Sandoval P.E.

9/12/2024

CONSTRUCTION NOTES 1 OF 2

SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C0.01

Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 lots)\Dbl\337.087_COVR.dwg User: joed Sep 12, 2024 - 11:45am

KINDER MORGAN

Guidelines for Design and Construction near Kinder Morgan Hazardous Liquid Operated Facilities

approved by KM's on-site representative. This is to adequately protect against stresses that may be caused by the settling of the pipeline.

- No blasting shall be allowed within 1000 feet of KM's facilities unless blasting notification is given to KM including complete Blasting Plan Data. A pre-blast meeting shall be conducted by the organization responsible for blasting.
  KM shall be indemnified and held harmless from any loss, cost of liability for personal injuries received, death caused or property damage suffered or sustained by any person resulting from any blasting operations undertaken within 500 feet of its facilities. The organization responsible for blasting shall be liable for any and all damages caused to KM's facilities as a result of their activities whether or not KM representatives are present. KM shall have a signed and executed Blasting Indemnification Agreement before authorized permission to blast can be given.

  No blasting shall be allowed within 300 feet of KM's facilities unless blasting notification is given to KM a minimum of one week before blasting. *(note: covered above)* KM shall review and analyze the blasting methods. A written blasting plan shall be provided by the organization responsible for blasting and agreed to in writing by KM in addition to meeting requirements for 500' and 1000' being met above. A written emergency plan shall be provided by the organization responsible for blasting. *(note: covered above)*

- **Any** contact with any KM facility, pipeline, valve set, etc. shall be reported immediately to KM. If repairs to the pipe are necessary, they will be made and inspected before the section is re-coated and the line is back-filled.

- KM personnel shall install all test leads on KM facilities.

- Burning of trash, brush, etc. is not permitted within the KM ROW.

Insurance Requirements

- All contractors, and their subcontractors, working on Company easements shall maintain the following types of insurance policies and minimum limits of coverage. All insurance certificates carried by Contractor and Grantee shall include the following statement: "Kinder Morgan and its affiliated or subsidiary companies are named as additional insured on all above policies (except Worker's Compensation) and waiver of subrogation in favor of Kinder Morgan and its affiliated or subsidiary companies, their respective directors, officers, agents and employees applies as required by written contract." **Contractor shall furnish Certificates of Insurance evidencing insurance coverage prior to commencement of work and shall provide thirty (30) days notice prior to the termination or cancellation of any policy.**

1. Statutory Coverage Workers' Compensation Insurance in accordance with the laws of the states where the work is to be performed. If Contractor performs work on the adjacent on navigable waterways Contractor shall furnish a certificate of insurance showing compliance with the provisions of the Federal Longshoreman's and Harbor Workers' Compensation Law.
2. Employer's Liability Insurance, with limits of not less than **$1,000,000** per occurrence and **$1,000,000** disease each employee.
3. Commercial General Liability Insurance with a combined single limit of not less than **$2,000,000** per occurrence and in the aggregate. All policies shall include coverage for blanket contractual liability assumed.
4. Comprehensive Automobile Liability Insurance with a combined single limit of not less than **$1,000,000.** If necessary, the policy shall be endorsed to provide contractual liability coverage.
5. If necessary Comprehensive Aircraft Liability Insurance with combined bodily injury, including passengers, and property damage liability single limits of not less than **$5,000,000** each occurrence.
6. Contractor's Pollution Liability Insurance this coverage shall be maintained in force for the full period of this agreement with available limits of not less than **$2,000,000** per occurrence.
7. Pollution Legal Liability Insurance this coverage must be maintained in a minimum amount of **$5,000,000** per occurrence.

KINDER MORGAN

Guidelines for Design and Construction near
Kinder Morgan Hazardous Liquid Operated Facilities

- AC Electrical lines must be installed in conduit and properly insulated.

- DOT approved pipeline markers shall be installed so as to indicate the route of the foreign pipeline across the KM ROW.

- No power poles, light standards, etc. shall be installed on KM easement

- No pipeline may be located within 50 feet (15 meters) of any private dwelling, or any industrial building or place of public assembly in which persons work, congregate, or assemble.

Construction

- Contractors shall be advised of KM's requirements and be contractually obligated to comply.

- The continued integrity of KM's pipelines and the safety of all individuals in the area of proposed work near KM's facilities are of the utmost importance. Therefore, contractor must meet with KM representatives prior to construction to provide and receive notification listings for appropriate area operations and emergency personnel. **KM's on-site representative will require discontinuation of any work that, in his opinion, endangers the operations or safety of personnel, pipelines or facilities.**

- The Contractor must expose all KM pipelines prior to crossing to determine the exact alignment and depth of the lines. A KM representative must be present. In the event of parallel lines, only one pipeline can be exposed at a time.

- KM will not allow pipelines to remain exposed overnight without consent of KM designated representative. Contractor may be required to backfill pipelines at the end of each day.

- A KM representative shall do all line locating. A KM representative shall be present for hydraulic excavation. The use of probing rods for pipeline locating shall be performed by KM representatives only, to prevent unnecessary damage to the pipeline coating.

- Notification shall be given to KM at least 72 hours before start of construction. A schedule of activities for the duration of the project must be made available at that time to facilitate the scheduling of Kinder Morgan, Inc.'s work site representative. Any Contractor schedule changes shall be provided to Kinder Morgan, Inc. immediately.

- Heavy equipment will not be allowed to operate directly over KM pipelines or in KM ROW unless written approval is obtained from **Kinder Morgan** (Company). Heavy equipment shall only be allowed to cross KM pipelines at locations designated by Kinder Morgan, Inc. Contractor shall comply with all precautionary measures required by KM to protect its pipelines. When inclement weather exists, provisions must be made to compensate for soil displacement due to subsidence of tires. Equipment excavating within ten (10) feet of KM Pipelines will have a plate guard installed over the teeth to protect the pipeline.

- Excavating or grading which might result in erosion or which could render the KM ROW inaccessible shall not be permitted unless the contractor/developer/owner agrees to restore the area to its original condition and provide protection to KM's facility.

- A KM representative shall be on-site to observe any construction activities within ten (10) feet of a KM pipeline or aboveground appurtenance. The contractor **shall not** work within this distance without a KM representative being on site. Only hand excavation shall be permitted within two (2) feet of KM pipelines, valves and fittings unless State requirements are more stringent. However, proceed with extreme caution when within three (3) feet of the pipe.

- A KM representative will monitor construction activity within 25 feet of KM facilities during and after the activities to verify the integrity of the pipeline and to ensure the scope and conditions agreed to have not changed. Monitoring means to conduct site inspections on a pre-determined frequency based on items such as: scope of work, duration of expected excavator work, type of equipment, potential impact on pipeline, complexity of work and/or number of excavators involved.

- Ripping is only allowed when the position of the pipe is known and not within ten (10) feet of KM facility unless company representative is present.

- Temporary support of any exposed KM pipeline by Contractor may be necessary if required by KM's on-site representative. Backfill below the exposed lines and 12" above the lines shall be replaced with sand or other selected material as approved by KM's on-site representative and thoroughly compacted in 12" lifts to 95% of standard proctor dry density minimum or as

KINDER MORGAN

Guidelines for Design and Construction near
Kinder Morgan Hazardous Liquid Operated Facilities

Name of Company: Kinder Morgan

The list of design, construction and contractor requirements, including but not limited to the following, for the design and installation of foreign utilities or improvements on KM right-of-way (ROW) are not intended nor do they waive or modify any rights KM may have under existing easements or ROW agreements. Reference existing easements and amendments for additional requirements. This list of requirements is applicable for KM facilities on easements only. Encroachments on fee property should be referred to the ROW Department.

Design

- KM shall be provided sufficient prior notice of planned activities involving excavation, blasting, or any type of construction on KM's ROW to determine and resolve any location, grade or encroachment problems and provide protection of our facilities and the public **before** the actual work is to take place.

- Encroaching entity shall provide KM with a set of drawings for review and a set of final construction drawings showing all aspects of the proposed facilities in the vicinity of KM's ROW. The encroaching entity shall also provide a set of as-built drawings showing the proposed facilities in the vicinity of KM's ROW.

- Only facilities shown on drawings reviewed by **Kinder Morgan** (Company) will be approved for installation on KM's ROW. All drawing revisions that effect facilities proposed to be placed on KM's ROW must be approved by KM in writing.

- KM shall approve the design of all permanent road crossings.

- Any repair to surface facilities following future pipeline maintenance or repair work by KM will be at the expense of the developer or landowner.

- The depth of cover over the KM pipelines shall not be reduced nor drainage altered without KM's written approval.

- Construction of any permanent structure, building(s) or obstructions within KM pipeline easement is **not** permitted.

- Planting of shrubs and trees is not permitted on KM pipeline easement.

- Irrigation equipment i.e. backflow prevent devices, meters, valves, valve boxes, etc. shall not be located on KM easement.

- Foreign line, gas, water, electric and sewer lines, etc., may cross perpendicular to KM's pipeline within the ROW, provided that a minimum of two (2) feet of vertical clearance is maintained between KM pipeline(s) and the foreign pipeline. Constant line elevations must be maintained across KM's entire ROW width, gravity drain lines are the only exception. Foreign line crossings below the KM pipeline must be evaluated by KM to ensure that a significant length of the KM line is not exposed and unsupported during construction. When installing underground utilities, the last line should be placed beneath all existing lines unless it is impractical or unreasonable to do so. Foreign line crossings above the KM pipeline with less than 2 feet of clearance must be evaluated by KM to ensure that additional support is not necessary to prevent settling on top of the KM hazardous liquids pipeline.

- A foreign pipeline shall cross KM facilities at as near a ninety-degree angle as possible. A foreign pipeline shall not run parallel to KM pipeline within KM easement without written permission of KM.

- The foreign utility should be advised that KM maintains cathodic protection on their pipelines. The foreign utility must coordinate their cathodic protection system with KM's. At the request of KM, foreign utilities shall install (or allow to be installed) cathodic protection test leads at all crossings for the purposes of monitoring cathodic protection. The KM Cathodic Protection (CP) technician and the foreign utility CP technician shall perform post construction CP interference testing. Interference issues shall be resolved by mutual agreement between foreign utility and KM. All costs associated with the correction of cathodic protection problems on KM pipeline as a result of the foreign utility crossing shall be borne by the foreign utility for a period of one year from date the foreign utility is put in service.

- The metallic foreign line shall be coated with a suitable pipe coating for a distance of at least 10 feet on either side of the crossing unless otherwise requested by the KM CP Technician.

FLINT HILLS resources

Foreign Line Crossings and Excavating around FHR pipelines guideline
Updated 01/08/2021

This document is CONFIDENTIAL and is provided solely for the recipient's use for planning purposes and is valid only on the date it was received from Flint Hills Resources, LC ("FHR")

This document provides general requirements for foreign line crossings and excavating around FHR pipelines. However, each project is unique and may need additional review and approval.

It is important to reach out to an FHR representative during the project planning phase to discuss details of the project and to allow appropriate time to review and gain the necessary approvals for the project.

- A verbal encroachment agreement is needed however, a written encroachment agreement may also be needed. Discuss with local FHR operations and/or an FHR Right of Way Agent during the planning phase of the project to determine if a written encroachment agreement will be needed.
- FHR pipeline depth, alignment, and direction shall be verified prior to excavating and/or execution of a foreign line crossing.
- Site holes are required for HDD/Bored crossings. If site holes are not practicable (i.e. the pipeline is deep) FHR approval is needed before crossing.
- An FHR representative must be on site for all excavation **(to include exposing the pipeline using hand tools, pot holing, and hydro excavation**), within 25ft of an FHR pipeline unless, otherwise agreed upon by FHR.
- Minimum clearance between the FHR pipeline and foreign line shall be 24inches or 1 ½ times the diameter of the foreign structure, whichever is greater.
- Foreign crossing shall cross as close to a 90-degree angle as possible, but not less than a 60-degree angle, without approval from the local FHR Asset Owner or designee.
- Electric, fiber optic, and communication mainline cable crossings shall be in conduit or innerduct and extend a minimum of 20ft beyond the outermost pipeline(s).
- Permanent and temporary road/parking lot/driveway or similar crossing require a loading review and approval to be performed by an FHR representative.
- Foreign lines that are 69 kV or greater and parallel within 1,000 feet of the pipeline for one mile or greater require FHR Corrosion review and approval.
- Foreign line crossings that are cathodically protected, steel, or steel cased, require FHR Corrosion review and approval.
- Removing and/or adding cover over FHR pipelines requires FHR review and approval.
- Backfilling an exposed FHR pipeline requires special care and shall be conducted under the direction of an FHR company representative.

In addition, the following activities require prior review and approval by FHR engineering or designee:

- Unsupported pipe spans greater than 20ft or open excavation paralleling an FHR pipeline in close proximity for a distance of 20 ft or greater.
- Deep foreign crossings (subject to FHR pipeline depth).
- Matting or soil to increase the material over the pipeline to supportweight of excavating equipment, trucks, etc...
- Vibratory compaction within 25ft of pipeline(s).
- Pile driving or guillotine pavement breaking practices that take place within 50ft of pipeline(s).
- Any blasting within 1000ft of an FHR pipeline (a blasting plan is required).

HMT ENGINEERING & SURVEYING
290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

CONSTRUCTION NOTES 2 OF 2

SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

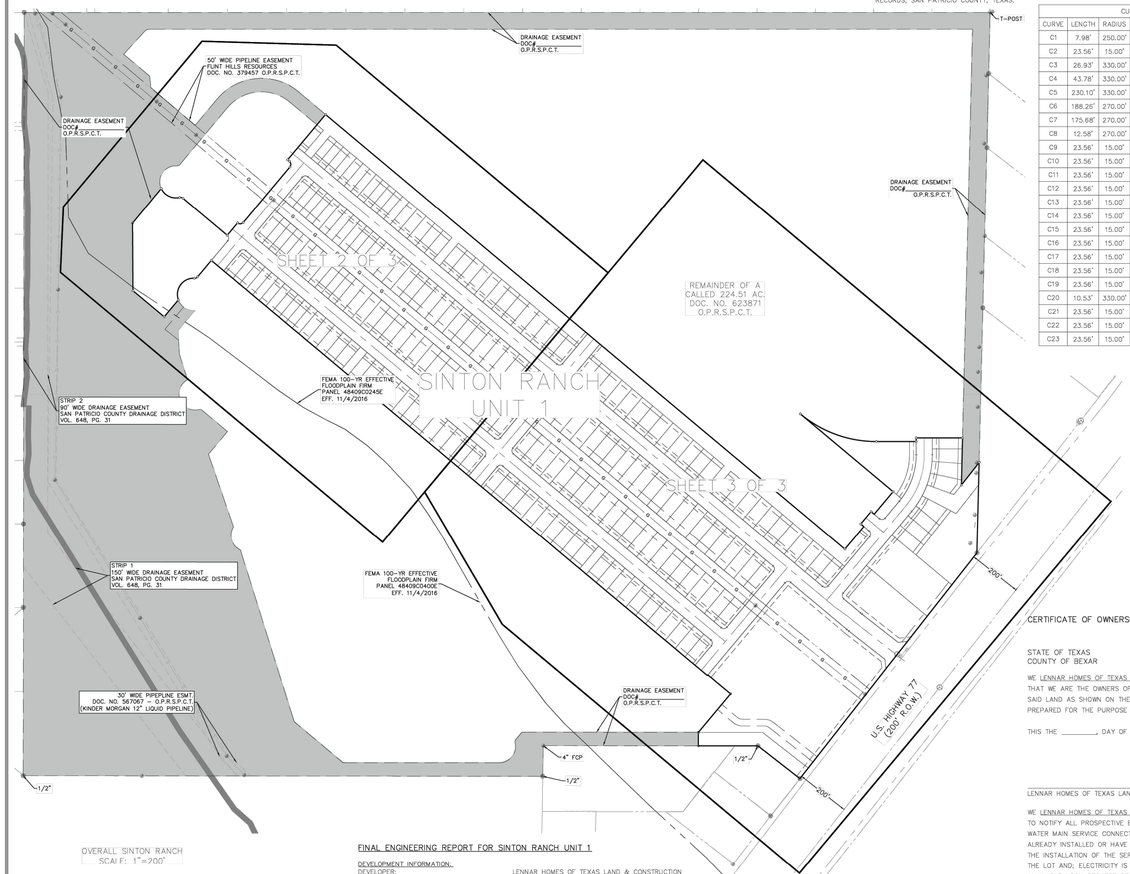
SHEET
C0.02

Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\C0s\337.087_C0VR.dwg User: joed Sep 12, 2024 - 11:45am

FINAL PLAT ESTABLISHING

SINTON RANCH UNIT 1

BEING A 108.78 ACRE TRACT SITUATED IN THE MALCOLM MCAULEY SURVEY, ABSTRACT NO. 13, SAN PATRICIO COUNTY, TEXAS, BEING A PORTION OF A CALLED 224.51 ACRE TRACT RECORDED IN DOCUMENT NO. 623871, OFFICIAL PUBLIC RECORDS, SAN PATRICIO COUNTY, TEXAS.



OVERALL SINTON RANCH
SCALE: 1"=200'

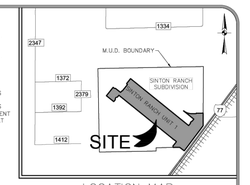
CURVE TABLE				
CURVE	LENGTH	RADIUS	CHORD LENGTH	CHORD BEARING
C1	7.98'	250.00'	7.98'	N52°01'57"W
C2	23.56'	15.00'	21.21'	N06°07'07"W
C3	26.93'	330.00'	26.92'	N36°32'37"E
C4	43.78'	330.00'	43.75'	N30°24'17"E
C5	230.10'	330.00'	225.46'	N18°54'23"E
C6	188.26'	270.00'	184.47'	N18°54'23"E
C7	175.68'	270.00'	172.60'	N17°34'18"E
C8	12.58'	270.00'	12.58'	N37°32'48"E
C9	23.56'	15.00'	21.21'	N83°52'53"E
C10	23.56'	15.00'	21.21'	N06°07'07"W
C11	23.56'	15.00'	21.21'	S83°52'53"W
C12	23.56'	15.00'	21.21'	N06°07'07"W
C13	23.56'	15.00'	21.21'	S83°52'53"W
C14	23.56'	15.00'	21.21'	N06°07'07"W
C15	23.56'	15.00'	21.21'	N83°52'53"E
C16	23.56'	15.00'	21.21'	S06°07'07"E
C17	23.56'	15.00'	21.21'	N83°52'53"E
C18	23.56'	15.00'	21.21'	S06°07'07"E
C19	23.56'	15.00'	21.21'	N83°52'53"E
C20	10.53'	330.00'	10.53'	S52°01'57"E
C21	23.56'	15.00'	21.21'	S83°52'53"W
C22	23.56'	15.00'	21.21'	N06°07'07"W
C23	23.56'	15.00'	21.21'	S83°52'53"W

CURVE TABLE				
CURVE	LENGTH	RADIUS	CHORD LENGTH	CHORD BEARING
C24	23.56'	15.00'	21.21'	N06°07'07"W
C25	23.56'	15.00'	21.21'	S83°52'53"W
C26	23.56'	15.00'	21.21'	S06°07'07"E
C27	23.56'	15.00'	21.21'	N83°52'53"E
C28	23.56'	15.00'	21.21'	S06°07'07"E
C29	23.56'	15.00'	21.21'	N83°52'53"E
C30	23.56'	15.00'	21.21'	S06°07'07"E
C31	13.91'	15.00'	13.42'	N65°26'47"E
C32	118.47'	60.00'	100.14'	S35°26'47"W
C33	13.91'	15.00'	13.42'	S77°41'01"E
C34	82.01'	60.00'	75.77'	S65°05'38"E
C35	20.19'	29.00'	19.79'	S71°03'50"E
C36	37.60'	54.00'	36.84'	S71°03'50"E
C37	35.87'	54.00'	35.22'	N71°58'40"W
C38	19.26'	29.00'	18.91'	N71°58'43"W
C39	2.20'	28.00'	2.20'	S55°11'55"E
C40	1.18'	28.00'	1.18'	N51°44'04"W

LINE TABLE		
LINE #	LENGTH	DIRECTION
L1	35.36'	S82°03'13"W
L2	35.36'	S07°56'47"E
L3	50.00'	N01°00'34"W
L4	3.43'	S38°52'53"W
L5	8.65'	N51°06'42"W
L6	13.80'	N01°04'08"W
L7	19.28'	N00°20'30"E
L8	15.00'	N51°07'07"W
L9	15.00'	S51°07'07"E
L10	21.37'	N01°04'08"W

LEGEND:

- ● = FND 5/8" IRON PIN W/ PLASTIC CAP STAMPED "HMT" (UNLESS NOTED OTHERWISE)
- ○ = SET 1/2" IRON PIN W/ PLASTIC CAP STAMPED "HMT"
- U.E. = UTILITY EASEMENT
- DRNG = DRAINAGE
- R.O.W. = RIGHT-OF-WAY
- M.P.R.S.P.C.T. = MAP AND PLAT RECORDS, SAN PATRICIO COUNTY, TEXAS
- O.P.R.S.P.C.T. = OFFICIAL PUBLIC RECORDS, SAN PATRICIO COUNTY, TEXAS
- TEMP. D.E. = TEMPORARY DRAINAGE EASEMENT TO EXPIRE UPON FUTURE PLAT RECORDATION
- ⊕ = FND BRASS DISK (TXDOT TYP I)
- FCP = FENCE CONTROL POST



LOCATION MAP
NOT TO SCALE

CERTIFICATION OF THE SURVEYOR

STATE OF TEXAS
COUNTY OF COMAL

I, DOROTHY J. TAYLOR, REGISTERED PROFESSIONAL LAND SURVEYOR NO. 6295, DO HEREBY STATE THAT THIS PLAT REPRESENTS AN ACTUAL SURVEY COMPLETED ON THE GROUND UNDER MY DIRECTION, TO THE BEST OF MY KNOWLEDGE AND ABILITY.

PRELIMINARY. THIS DOCUMENT SHALL NOT BE RECORDED FOR ANY PURPOSE.

DOROTHY J. TAYLOR
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 6295
290 S. CASTELL AVE., SUITE 100, NEW BRAUNFELS, TEXAS 78130

PLAT PREPARED **XXX X, XXXX**

HMT ENGINEERING & SURVEYING
290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPE FIRM F-10961
TBPLS FIRM 10153600

FINAL ENGINEERING REPORT FOR SINTON RANCH UNIT 1

DEVELOPMENT INFORMATION:

DEVELOPER:	LENNAR HOMES OF TEXAS LAND & CONSTRUCTION
DEVELOPMENT NAME:	SINTON RANCH
DEVELOPMENT PLAT NAME:	SINTON RANCH UNIT 1
DEVELOPMENT SIZE:	54.76 ACRES
RESIDENTIAL LOT TOTAL:	219 LOTS
DEVELOPMENT LOT TOTAL:	232 LOTS
MINIMUM LOT SIZE:	3520 SQ.FT. 0.08(ACRES)
MAXIMUM LOT SIZE:	6796 SQ.FT. 0.16(ACRES)
TOTAL LAND PURCHASED (BY DISTRICT):	115.21 ACRES

WATER SERVICE:

SINTON RANCH UNIT 1 WILL BE PROVIDED POTABLE WATER SERVICE BY RINCON WATER SUPPLY (RWSC). THE DEVELOPER AND RWSC HAVE REACHED AN AGREEMENT SUCH THAT RWSC HAS PROMISED TO PROVIDE SUFFICIENT POTABLE WATER TO THE SUBDIVISION FOR AT LEAST 30 YEARS. RWSC HAS PROVIDED DOCUMENTATION TO SUFFICIENTLY ESTABLISHED THE LONG-TERM QUALITY AND QUANTITY OF POTABLE WATER TO SERVE THE DEVELOPMENT.

THE SERVICE CONNECTIONS FOR EACH LOT WILL BE PAID FOR BY THE DEVELOPER AND EACH LOT WILL RECEIVE THE METER WHEN REQUESTED BY THE LOT OWNER FROM RWSC.

WASTEWATER SERVICE:

SINTON RANCH UNIT 1 WILL BE PROVIDED WASTEWATER BY ON-SITE WASTEWATER TREATMENT PLANT

PLAT NOTES:

1. THIS TRACT PARTIALLY LIES WITHIN SHADED ZONE "A" AND IS WITHIN A DESIGNATED 100 YEAR FLOOD PLAIN ACCORDING TO THE ADOPTED FLOOD MAPS OF THE CITY OF SINTON, AS DEFINED BY THE SAN PATRICIO COUNTY, TEXAS, FLOOD INSURANCE RATE MAP NUMBER 48409S0245E AND 48409C0400E. EFFECTIVE DATE NOVEMBER 4, 2016 AS PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.
2. ALL BEARINGS AND COORDINATES SHOWN HEREON ARE BASED UPON THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE (4204), NORTH AMERICAN DATUM 1983. GRID DISTANCES SHOWN HEREON ARE BASED UPON SURFACE MEASUREMENTS. TO CONVERT SURFACE DISTANCES TO GRID, APPLY A COMBINED SCALE FACTOR OF 1.00015.
3. MONUMENTS WERE FOUND OR SET AT EACH CORNER OF THE SURVEY BOUNDARY OF THE SUBDIVISION. MONUMENTS AND LOT MARKERS WILL BE SET WITH 1/2" IRON PINS WITH PLASTIC CAP STAMPED "HMT" IMMEDIATELY AFTER COMPLETION OF UTILITY INSTALLATION AND STREET CONSTRUCTION UNLESS NOTED OTHERWISE.
4. MINIMUM BUILDING SETBACKS SHALL BE IN ACCORDANCE WITH SAN PATRICIO COUNTY SUBDIVISION REGULATIONS.
5. THIS SUBDIVISION IS LOCATED IN THE SINTON INDEPENDENT SCHOOL DISTRICT.
6. RINCON W.S.C. WILL PROVIDE WATER SERVICE FOR THIS SUBDIVISION.
7. THIS PROPERTY IS LOCATED WITHIN THE CITY OF SINTON ETJ AND HAS THEREFORE NOT BEEN ASSIGNED A ZONING DISTRICT.
8. LOT 219, BLOCK 3 (H.O.A.), LOT 900, BLOCK 2 (UTILITY), LOT 901, BLOCK 2 (DRAINAGE), LOT 902, BLOCK 4 (DRAINAGE), LOT 903, BLOCK 5 (DRAIAGE), LOT 904, BLOCK 6 (UTILITY), LOT 905, BLOCK 7 (UTILITY), LOT 906 BLOCK 8 (DRAINAGE), LOT 907, BLOCK 9 (DRAINAGE), LOT 908, BLOCK 10 (UTILITY), LOT 909, BLOCK 1 (DRAINAGE), LOT 910, BLOCK 1 (OPEN SPACE), LOT 911, BLOCK 3 (DRAINAGE), WILL BE OWNED AND MAINTAINED BY THE SINTON RANCH MUNICIPAL UTILITY DISTRICT ITS SUCCESSORS AND/OR ASSIGNS.

CERTIFICATE OF OWNERSHIP AND DEDICATION

STATE OF TEXAS
COUNTY OF BEXAR

WE LENNAR HOMES OF TEXAS LAND & CONSTRUCTION DO HEREBY CERTIFY THAT WE ARE THE OWNERS OF THE PROPERTY SHOWN HEREON. WE HAVE HAD SAID LAND AS SHOWN ON THE FOREGOING MAP. THIS MAP HAS BEEN PREPARED FOR THE PURPOSE OF DESCRIPTION AND EDUCATION.

THIS THE _____, DAY OF _____, 20____.

_____
LENNAR HOMES OF TEXAS LAND & CONSTRUCTION – OWNER

WE LENNAR HOMES OF TEXAS LAND & CONSTRUCTION ARE HEREBY BOUND TO NOTIFY ALL PROSPECTIVE BUYERS OF LOTS IN SAID SUBDIVISION THAT ALL WATER MAIN SERVICE CONNECTIONS AND OSSF SERVICES IN WHICH WE HAVE ALREADY INSTALLED OR HAVE PROVIDED A FINANCIAL GUARANTEE TO COVER THE INSTALLATION OF THE SERVICES ARE INCLUDED IN THE TOTAL COST OF THE LOT AND; ELECTRICITY IS PROVIDED BY **AEP** AND WILL BE MADE AVAILABLE UPON REQUEST OF OWNER.

THIS THE _____, DAY OF _____, 20____.

_____
LENNAR HOMES OF TEXAS LAND & CONSTRUCTION – OWNER

STATE OF TEXAS
COUNTY OF BEXAR

BEFORE ME, THE UNDERSIGNED AUTHORITY, ON THIS DAY PERSONALLY APPEARED THE PERSONS WHOSE NAME IS SUBSCRIBED TO THE FOREGOING INSTRUMENT AND ACKNOWLEDGED TO ME THAT HE EXECUTED THE SAME AS THE ACT AND DEED OF SAID LANDS FOR THE PURPOSE AND CONSIDERATION THEREIN EXPRESSED, AND IN THE CAPACITY STATED.

GIVEN UNDER MY HAND AND SEAL OF OFFICE THIS THE _____, DAY OF _____, 20____.

_____
NOTARYS PUBLIC, BEXAR COUNTY, TEXAS

APPROVAL BY SAN PATRICIO COUNTY ENGINEER

STATE OF TEXAS
COUNTY OF SAN PATRICIO

THIS FINAL PLAT OF THE HEREIN DESCRIBED PROPERTY WAS APPROVED BY THE COUNTY ENGINEER OF SAN PATRICIO COUNTY, TEXAS, AND DO HEREBY STATE THAT TO THE BEST OF MY KNOWLEDGE, THE PLAT OF THIS SUBDIVISION COMPLIES WITH ALL EXISTING RULES AND REGULATIONS OF THIS OFFICE AS ADOPTED BY THE COMMISSIONER'S COURT.

THIS THE _____ DAY OF _____, 20____

_____
COUNTY ENGINEER, SAN PATRICIO COUNTY, TEXAS

CERTIFICATION OF COUNTY TAX ASSESSOR & COLLECTOR

STATE OF TEXAS
COUNTY OF SAN PATRICIO

THE UNDERSIGNED HEREBY CERTIFIES THAT ALL AD VALOREM TAXES OWED TO ALL OF THE TAXING UNITS REPRESENTED BY THE UNDERSIGNED ARE CURRENTLY PAID IN FULL FOR THE AREA INSIDE THE BOUNDARIES OF SINTON RANCH UNIT 1

THIS THE _____ DAY OF _____, 20____

_____
ASSESSOR AND COLLECTOR OF TAXES, SAN PATRICIO COUNTY, TEXAS

CERTIFICATION OF THE COUNTY CLERK

STATE OF TEXAS
COUNTY OF SAN PATRICIO

I, _____, CLERK OF THE COUNTY COURT, IN AND FOR SAN PATRICIO COUNTY TEXAS, DO HEREBY CERTIFY THAT THE FOREGOING INSTRUMENT DATE THE _____ DAY OF _____, 20____ AT _____ O'CLOCK _____ IN THE MAP RECORDS OF SAN PATRICIO COUNTY, TEXAS, IN ENVELOPE _____, TUBE _____

WITNESS MY HAND AND SEAL OF THE COUNTY COURT, IN AND FOR SAID COUNTY AT MY OFFICE, IN SINTON, TEXAS, THE DAY AND YEAR LAST WRITTEN.

_____
COUNTY CLERK, SAN PATRICIO COUNTY, TEXAS

_____
DEPUTY COUNTY CLERK, SAN PATRICIO COUNTY, TEXAS

CLERK'S FILE NO: _____

APPROVAL OF THE PLANNING & ZONING COMMISSION

APPROVED THIS THE _____ DAY OF _____, 20____
BY THE PLANNING AND ZONING COMMISSION OF THE CITY OF SINTON, TEXAS.

_____
CHAIRPERSON, PLANNING AND ZONING COMMISSION
SINTON, TEXAS

_____
SECRETARY, PLANNING AND ZONING COMMISSION
SINTON, TEXAS

APPROVAL BY THE SAN PATRICIO COUNTY COMMISSIONER'S COURT

STATE OF TEXAS
COUNTY OF SAN PATRICIO

THIS FINAL PLAT OF THE HEREIN DESCRIBED PROPERTY WAS APPROVED ON BEHALF OF SAN PATRICIO COUNTY, TEXAS

THIS THE _____ DAY OF _____, 20____

_____
COUNTY JUDGE, SAN PATRICIO COUNTY, TEXAS

_____
COMMISSIONER PRECINCT NO. 1, SAN PATRICIO TEXAS

APPROVAL BY SAN PATRICIO COUNTY FLOOD PLAIN MANAGER

STATE OF TEXAS
COUNTY OF SAN PATRICIO

THIS FINAL PLAT OF THE HEREIN DESCRIBED PROPERTY WAS APPROVED BY THE FLOOD PLAIN MANAGER OF SAN PATRICIO COUNTY, TEXAS

THIS THE _____ DAY OF _____, 20____

_____
FLOOD PLAIN MANAGER, SAN PATRICIO COUNTY, TEXAS

APPROVAL BY SAN PATRICIO COUNTY ENVIRONMENTAL DEPT.

STATE OF TEXAS
COUNTY OF SAN PATRICIO

THIS FINAL PLAT OF THE HEREIN DESCRIBED PROPERTY WAS APPROVED BY THE ENVIRONMENTAL DEPARTMENT OF SAN PATRICIO COUNTY, TEXAS

THIS THE _____ DAY OF _____, 20____

_____
ENVIRONMENTAL DEPARTMENT, SAN PATRICIO COUNTY, TEXAS

APPROVAL BY SAN PATRICIO COUNTY DRAINAGE DISTRICT

STATE OF TEXAS
COUNTY OF SAN PATRICIO

THIS FINAL PLAT OF THE HEREIN DESCRIBED PROPERTY WAS APPROVED BY THE ENVIRONMENTAL DEPARTMENT OF SAN PATRICIO COUNTY, TEXAS

THIS THE _____ DAY OF _____, 20____

_____
ENVIRONMENTAL DEPARTMENT, SAN PATRICIO COUNTY, TEXAS

SHEET 1 OF 3

FOR REFERENCE ONLY

HMT ENGINEERING & SURVEYING
290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPE FIRM F-10961
TBPLS FIRM 10153600

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

PLAT 1 OF 3

SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: **SEPTEMBER 2024**
DRAWN BY: **CAC**
DESIGNED BY: **WRC**
REVIEWED BY: **JTS**
HMT PROJECT NO.: **337.087**

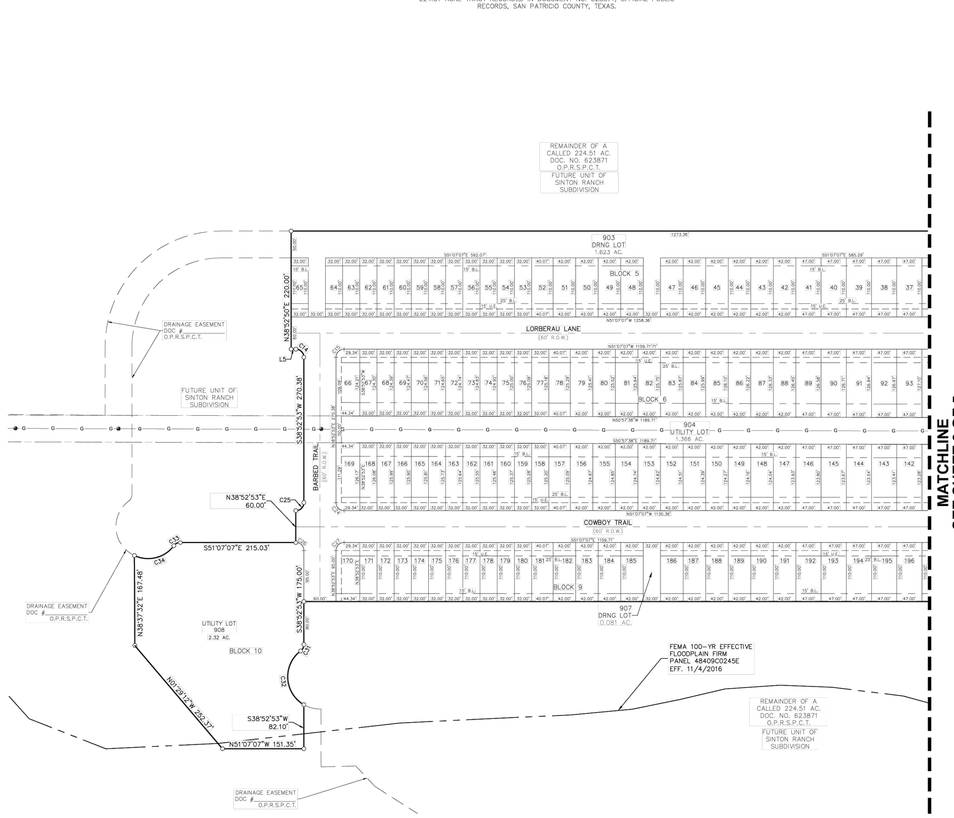
SHEET
C1.00

Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\C0s\337.087_PLAT.dwg User: psd Sep 12, 2024 - 11:45am
Drawing Name: I:\337 - Lennar Homes\087 - Sinton Ranch Unit 1\Plat\337.087_PLAT.dwg User: cadtec Sep 12, 2024 - 8:54am

FINAL PLAT ESTABLISHING

SINTON RANCH UNIT 1

BEING A 108.78 ACRE TRACT SITUATED IN THE MALCOLM MCAULEY SURVEY, ABSTRACT NO. 13, SAN PATRICIO COUNTY, TEXAS, BEING A PORTION OF A CALLED 224.51 ACRE TRACT RECORDED IN DOCUMENT NO. 623871, OFFICIAL PUBLIC RECORDS, SAN PATRICIO COUNTY, TEXAS.



0 50 100 200
HORIZONTAL SCALE: 1:100

LEGEND:
- ● = FND 5/8" IRON PIN W/ PLASTIC CAP STAMPED "HMT" (UNLESS NOTED OTHERWISE)
- ○ = SET 1/2" IRON PIN W/ PLASTIC CAP STAMPED "HMT"
- U.E. = UTILITY EASEMENT
- DRNG = DRAINAGE
- R.O.W. = RIGHT-OF-WAY
- M.P.R.S.P.C.T. = MAP AND PLAT RECORDS, SAN PATRICIO COUNTY, TEXAS
- O.P.R.S.P.C.T. = OFFICIAL PUBLIC RECORDS, SAN PATRICIO COUNTY, TEXAS
- TEMP. D.E. = TEMPORARY DRAINAGE EASEMENT TO EXPIRE UPON FUTURE PLAT RECORDATION
- ⊕ = FND BRASS DISK (TXDOT TYP II)
- FCP = FENCE CONTROL POST

PLAT PREPARED XXX X, XXXX

HMT ENGINEERING & SURVEYING
290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPE FIRM F-10961
TBPLS FIRM 10153600

SHEET 2 OF 3

FOR REFERENCE ONLY

HMT ENGINEERING & SURVEYING
290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

PLAT 2 OF 3

SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: **SEPTEMBER 2024**
DRAWN BY: **CAC**
DESIGNED BY: **WRC**
REVIEWED BY: **JTS**
HMT PROJECT NO.: 337.087

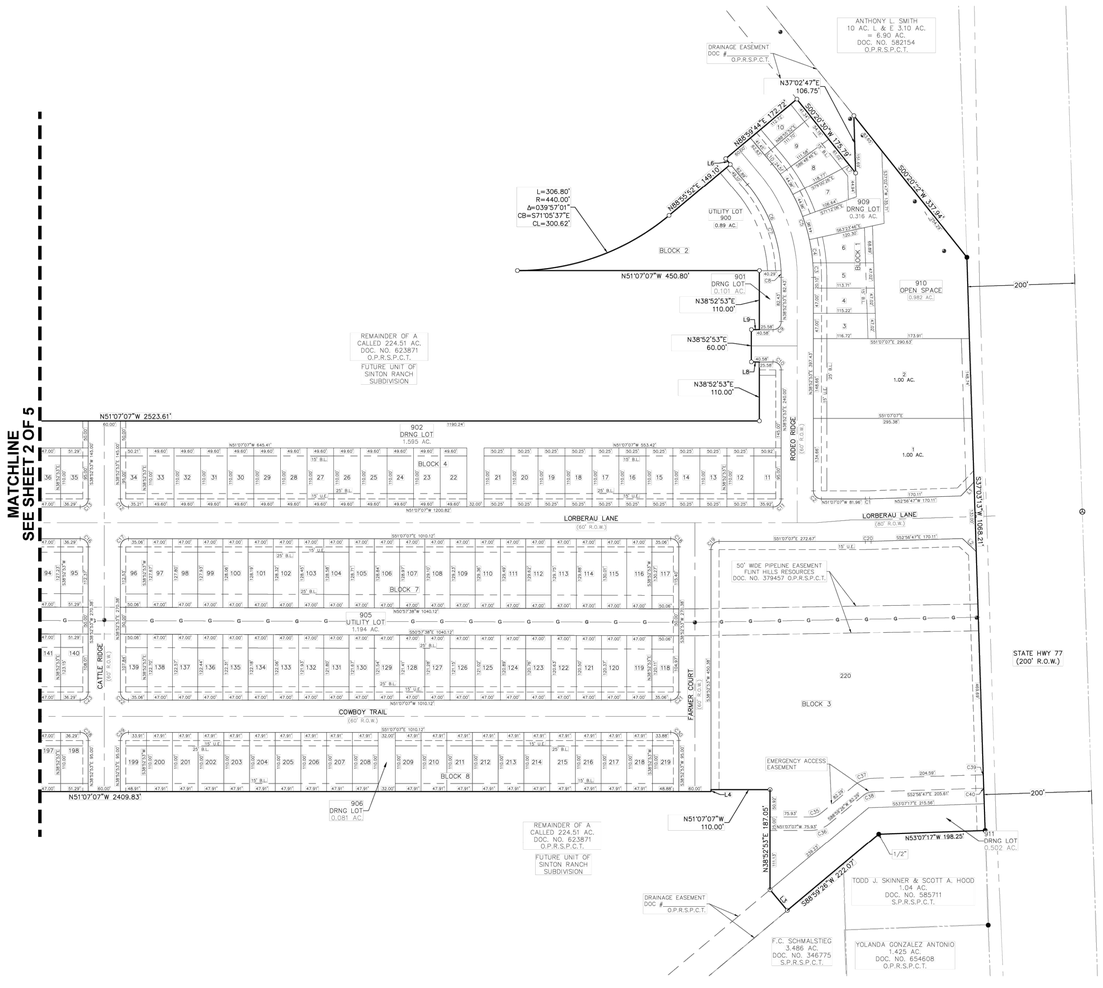
SHEET
C1.01

Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\CIDs\337.087_PLAT.dwg User: jsed Sep 12, 2024 - 11:45am
Drawing Name: I:\337 - Lennar Homes\087 - Sinton Ranch Unit 1\Plat\337.087_PLAT.dwg User: cortbc Sep 12, 2024 - 8:05am

FINAL PLAT ESTABLISHING

SINTON RANCH UNIT 1

BEING A 108.78 ACRE TRACT SITUATED IN THE MALCOLM MCAULEY SURVEY, ABSTRACT NO. 13, SAN PATRICIO COUNTY, TEXAS, BEING A PORTION OF A CALLED 224.51 ACRE TRACT RECORDED IN DOCUMENT NO. 623871, OFFICIAL PUBLIC RECORDS, SAN PATRICIO COUNTY, TEXAS.



0 50 100 200
HORIZONTAL SCALE: 1:100

LEGEND:
- ● = FND 5/8" IRON PIN W/ PLASTIC CAP STAMPED "HMT" (UNLESS NOTED OTHERWISE)
- ○ = SET 1/2" IRON PIN W/ PLASTIC CAP STAMPED "HMT"
- U.E. = UTILITY EASEMENT
- DRNG = DRAINAGE
- R.O.W. = RIGHT-OF-WAY
- M.P.R.S.P.C.T. = MAP AND PLAT RECORDS, SAN PATRICIO COUNTY, TEXAS
- O.P.R.S.P.C.T. = OFFICIAL PUBLIC RECORDS, SAN PATRICIO COUNTY, TEXAS
- TEMP. D.E. = TEMPORARY DRAINAGE EASEMENT TO EXPIRE UPON FUTURE PLAT RECORDATION
- ⊕ = FND BRASS DISK (TXDOT TYP II)
- FCP = FENCE CONTROL POST

PLAT PREPARED **XXX X, XXXX**

HMT ENGINEERING & SURVEYING
290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPE FIRM F-10961
TBPLS FIRM 10153600

SHEET 3 OF 3

FOR REFERENCE ONLY

HMT ENGINEERING & SURVEYING
290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPE FIRM F-10961
TBPLS FIRM 10153600

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

PLAT 3 OF 3

SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: **SEPTEMBER 2024**
DRAWN BY: **CAC**
DESIGNED BY: **WRC**
REVIEWED BY: **JTS**
HMT PROJECT NO.: **337.087**

SHEET
C1.02

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Drawing Name: T:\337 - Lennar Homes\087 - Sinton Ranch Unit 1\Plat\337.087_PLAT.dwg User: corbtc Sep 12, 2024 - 8:05am

LEGEND

700	EXISTING CONTOURS
700	PROPOSED CONTOURS
B.L.	BUILDING SETBACK LINE
U.E.	UTILITY EASEMENT
D.E.	DRAINAGE EASEMENT
	DRAINAGE AREA
TC TC	TIME OF CONCENTRATION
A–1	POINT OF CONCENTRATION
	DRAINAGE FLOW DIRECTION
DA / ACRES	DRAINAGE AREA LABEL

0 750 1500 3000

HORIZONTAL SCALE: 1:1500

EX 14
6098.06
AC.

EX 11
1025.06
AC.

EX 12
757.30
AC.

EX 13
1025.25
AC.

PR 2
14167.04
AC.

EX 10
4889.40
AC.

EX 15
296.03
AC.

J–1

J–2

J–3

J–4–5

J–6

SITE

ZONE A

FEMA 100–YR
EFFECTIVE FLOODPLAIN
FIRM PANEL
48409C0245E
EFF. 11/4/2016

FEMA 100–YR
EFFECTIVE FLOODPLAIN
FIRM PANEL
48409C0400E
EFF. 11/4/2016

290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600

HMT
ENGINEERING & SURVEYING

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

OVERALL WATERSHED MAP

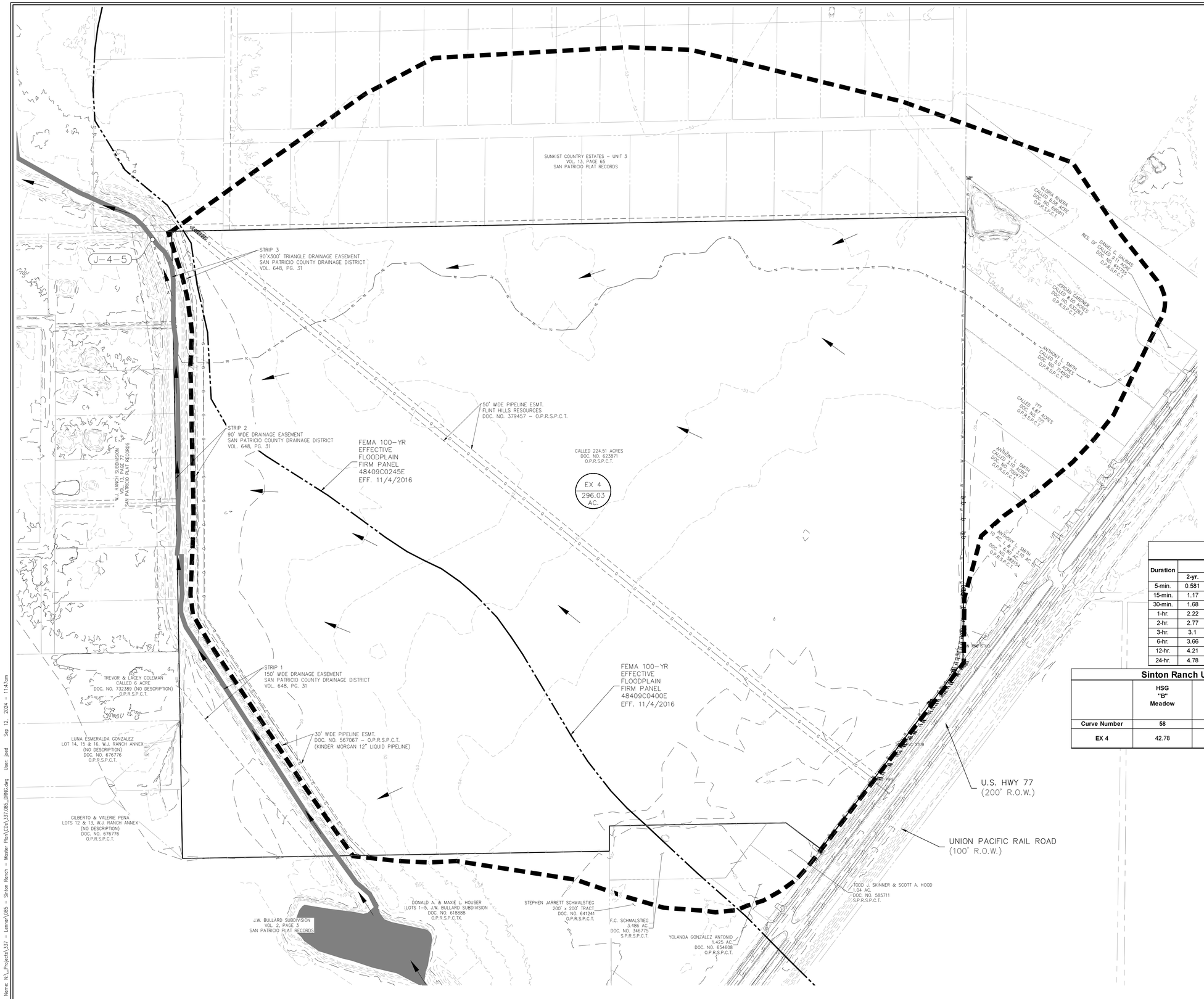
SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: WRC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C2.00

Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\CDs\337.087_DRNG_OVERALL-WATERSHED.dwg User: joed Sep 12, 2024 - 11:46am



LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- B.L. BUILDING SETBACK LINE
- U.E. UTILITY EASEMENT
- D.E. DRAINAGE EASEMENT
- DRAINAGE AREA
- TC TC TIME OF CONCENTRATION
- 100–YR EFFECTIVE FLOODPLAIN
- A–1 POINT OF CONCENTRATION
- DRAINAGE FLOW DIRECTION
- DA / ACRES DRAINAGE AREA LABEL
- JURISDICTIONAL WATERS

0 100 200 400
HORIZONTAL SCALE: 1:200

EX 4	296.03	Acres
Sheet Flow		
Length	100	Feet
Slope	0.80%	
Surface Description	Range (natual)	
Manning's Roughness Coefficient (n)	0.13	
2-Yr, 24-hr Rainfall (P_2)	4.78	Inches
Time (T_t)	**10.31**	Minutes
Shallow Flow		
Length	4951	Feet
Slope	0.10%	
Surface	Unpaved	
Value	16.1345	
Time (T_t)	**164.21**	Minutes
Channel Flow		
Length	0.00	Feet
Estimated Velocity	4	Feet/Second
Time (T_t)	**0.0**	Minutes
Time of Concentration (T_c)	**174.52**	Minutes
Lag Time	**104.71**	Minutes

Depth-Duration-Frequency Values
(NOAA Atlas 14, Volume 11, Version 2: Sinton, Texas)

Duration	Depth of Precipitation (inches) by Recurrence Interval							
	2-yr.	5-yr.	10-yr.	25-yr.	50-yr.	100-yr.	200-yr.	500-yr.
5-min.	0.581	0.713	0.824	0.979	1.1	1.23	1.35	1.53
15-min.	1.17	1.43	1.65	1.96	2.2	2.44	2.7	3.04
30-min.	1.68	2.04	2.35	2.78	3.11	3.45	3.81	4.31
1-hr.	2.22	2.72	3.15	3.74	4.2	4.68	5.21	5.95
2-hr.	2.77	3.48	4.09	4.96	5.65	6.39	7.22	8.41
3-hr.	3.1	3.94	4.69	5.76	6.64	7.59	8.65	10.2
6-hr.	3.66	4.75	5.73	7.18	8.37	9.7	11.2	13.4
12-hr.	4.21	5.55	6.78	8.6	10.1	11.8	13.8	16.7
24-hr.	4.78	6.38	7.86	10.1	11.9	14	16.4	19.9

Sinton Ranch Ultimate Existing Conditions CN's

	HSG "B" Meadow	HSG "C" Meadow	HSG "D" Meadow	HSG "C" Commercial	Total Area	Curve Number
Curve Number	58	71	78	94	acres	
EX 4	42.78	229.17	6.21	17.87	296.03	70.66

HMS Junction Node/Point of Concentration	Flow Type	2-Yr (cfs)	10-Yr (cfs)	25-Yr (cfs)	100-Yr (cfs)
J-4-5	Existing	1670.1	3909	5682.6	8886.4
	Proposed	1669.3	3904.1	5674.0	8869.2
	Delta	-0.8	-4.9	-8.6	-17.2

HMT ENGINEERING & SURVEYING
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TBPELS FIRM F-10961
TBPELS FIRM 10153600

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
Joseph T. Sandoval P.E.

9/12/2024

EXISTING DRAINAGE AREA MAP

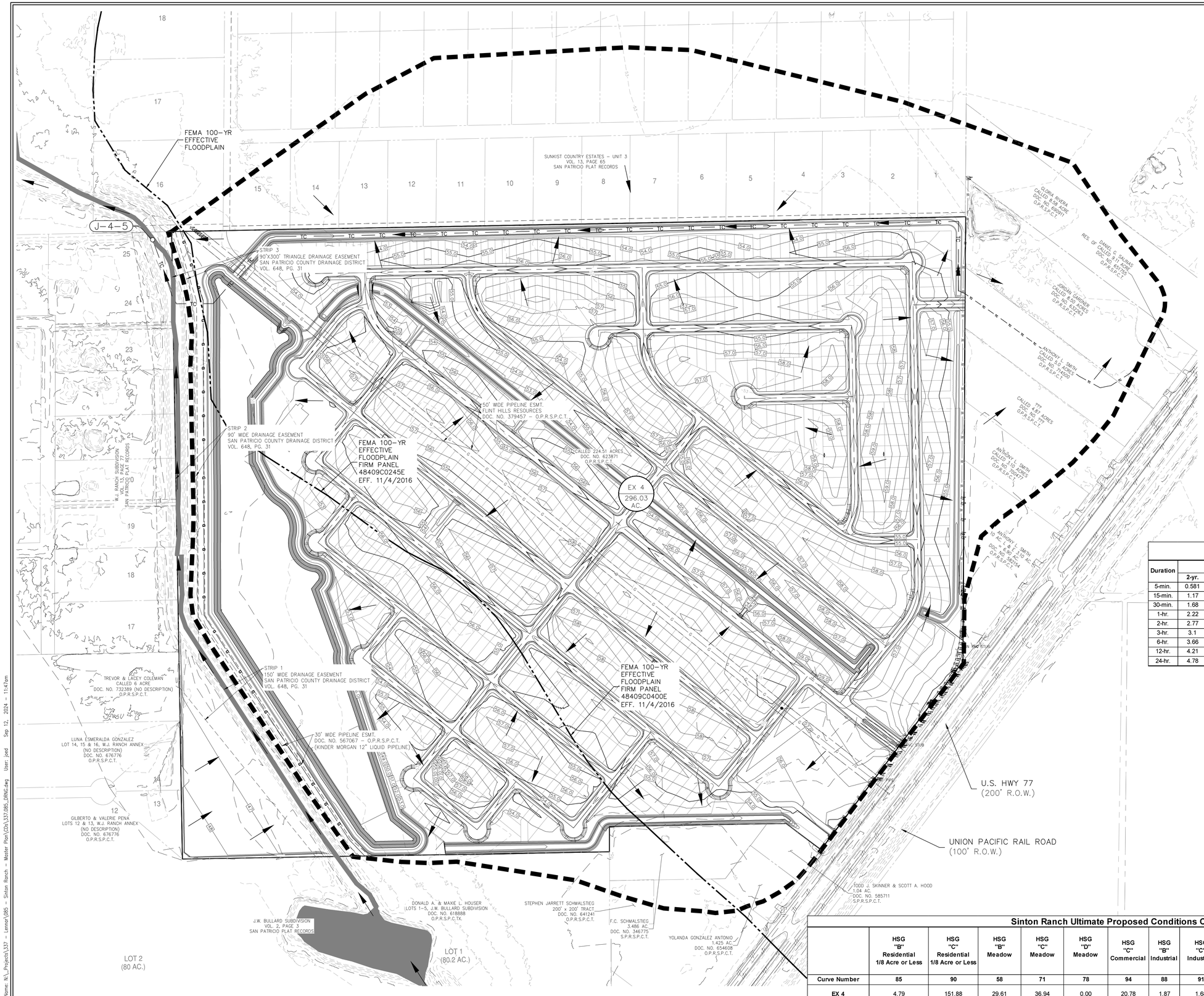
SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: WRC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C2.01

Drawing Name: N:_Projects\337 – Lennar\085 – Sinton Ranch – Master Plan\(25)\337.085_DRNG.dwg User: joed Sep 12, 2024 – 11:47am


FEMA 100-YR EFFECTIVE FLOODPLAIN
SUNKIST COUNTRY ESTATES - UNIT 3
VOL. 13, PAGE 65
SAN PATRICIO PLAT RECORDS
J-4-5
STRIP 3
90'X300' TRIANGLE DRAINAGE EASEMENT
SAN PATRICIO COUNTY DRAINAGE DISTRICT
VOL. 648, PG. 31
STRIP 2
90' WIDE DRAINAGE EASEMENT
SAN PATRICIO COUNTY DRAINAGE DISTRICT
VOL. 648, PG. 31
STRIP 1
150' WIDE DRAINAGE EASEMENT
SAN PATRICIO COUNTY DRAINAGE DISTRICT
VOL. 648, PG. 31
50' WIDE PIPELINE ESMT.
FLINT HILLS RESOURCES
DOC. NO. 379457 - O.P.R.S.P.C.T.
30' WIDE PIPELINE ESMT.
DOC. NO. 567067 - O.P.R.S.P.C.T.
(KINDER MORGAN 12" LIQUID PIPELINE)
FEMA 100-YR EFFECTIVE FLOODPLAIN FIRM PANEL 48409C0245E EFF. 11/4/2016
FEMA 100-YR EFFECTIVE FLOODPLAIN FIRM PANEL 48409C0400E EFF. 11/4/2016
EX 4
296.03 AC.
CALLED 224.51 ACRES
DOC. NO. 623871
O.P.R.S.P.C.T.
GLORIA RIVERA
CALLED 8.50 ACRES
DOC. NO. 699911
O.P.R.S.P.C.T.
RES. OF DANIEL C. SALINAS
CALLED 6.97 ACRES
DOC. NO. 672525
O.P.R.S.P.C.T.
JORDAN GARDNER
CALLED 5.0 ACRES
DOC. NO. 672523
O.P.R.S.P.C.T.
ANTHONY L. SMITH
CALLED 5.0 ACRES
DOC. NO. 714500
O.P.R.S.P.C.T.
RES.
CALLED 4.81 ACRES
DOC. NO. 714499
O.P.R.S.P.C.T.
ANTHONY L. SMITH
CALLED 10 ACRES
DOC. NO. 704273
O.P.R.S.P.C.T.
ANTHONY L. SMITH
10 ACRES ± 6.90 AC.
DOC. NO. 963434
O.P.R.S.P.C.T.
U.S. HWY 77
(200' R.O.W.)
UNION PACIFIC RAIL ROAD
(100' R.O.W.)
TODD J. SKINNER & SCOTT A. HOOD
1.04 AC.
DOC. NO. 585711
O.P.R.S.P.C.T.
TREVOR & LACEY COLEMAN
CALLED 6 ACRE
DOC. NO. 732389 (NO DESCRIPTION)
O.P.R.S.P.C.T.
LUNA ESMERALDA GONZALEZ
LOT 14, 15 & 16, W.J. RANCH ANNEX
(NO DESCRIPTION)
DOC. NO. 676776
O.P.R.S.P.C.T.
GILBERTO & VALERIE PENA
LOTS 12 & 13, W.J. RANCH ANNEX
(NO DESCRIPTION)
DOC. NO. 676776
O.P.R.S.P.C.T.
W.J. RANCH SUBDIVISION
VOL. 2, PAGE 31
SAN PATRICIO PLAT RECORDS
J.W. BULLARD SUBDIVISION
VOL. 2, PAGE 3
SAN PATRICIO PLAT RECORDS
DONALD A. & MAXIE L. HOUSER
(LOTS 1-5, J.W. BULLARD SUBDIVISION
DOC. NO. 618888
O.P.R.S.P.C.TX.
STEPHEN JARRETT SCHMALSTIEG
200' x 200' TRACT
DOC. NO. 641241
O.P.R.S.P.C.T.
F.C. SCHMALSTIEG
3.486 AC.
DOC. NO. 346775
S.P.R.S.P.C.T.
YOLANDA GONZALEZ, ANTONIO
1.425 AC.
DOC. NO. 654608
O.P.R.S.P.C.T.
LOT 2
(80 AC.)
LOT 1
(80.2 AC.)
TC
CR5
CR6
CR7
CR8
CR9
CR10
CR11
CR12
CR13
CR14
CR15
CR16
CR17
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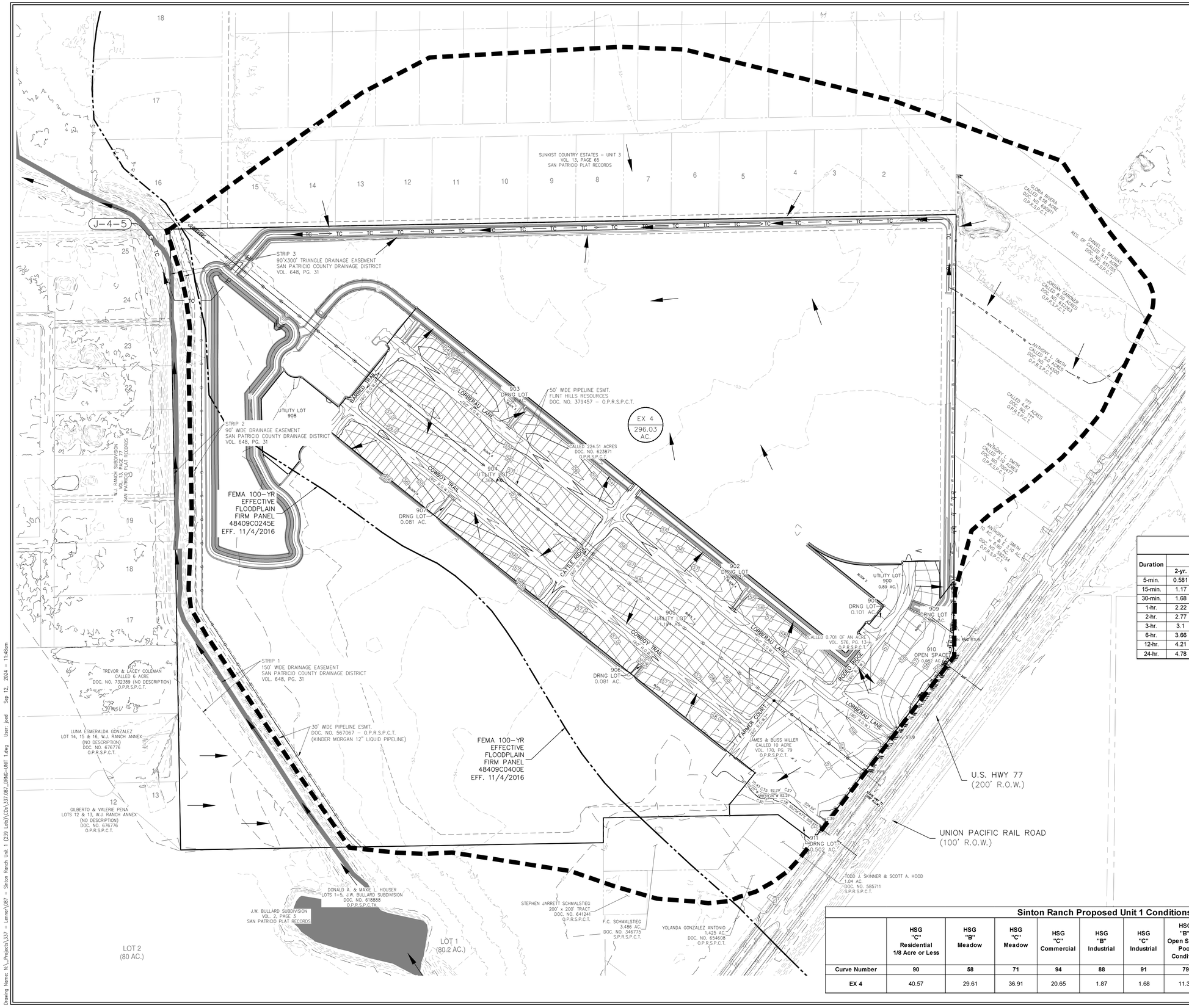
CR44



LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- B.L. BUILDING SETBACK LINE
- U.E. UTILITY EASEMENT
- D.E. DRAINAGE EASEMENT
- DRAINAGE AREA
- TC TC TIME OF CONCENTRATION
- 100-YR EFFECTIVE FLOODPLAIN
- A-1 POINT OF CONCENTRATION
- DRAINAGE FLOW DIRECTION
- DA / ACRES DRAINAGE AREA LABEL
- JURISDICTIONAL WATERS

0 100 200 400
HORIZONTAL SCALE: 1:200

EX 4	296.03	Acres
Sheet Flow		
Length	100	Feet
Slope	0.80%	
Surface Description	Range (natual)	
Manning's Roughness Coefficient (n)	0.13	
2-Yr, 24-hr Rainfall (P_2)	4.78	Inches
Time (T_t)	**10.31**	Minutes
Shallow Flow		
Length	898.2	Feet
Slope	0.0970%	
Surface	Unpaved	
Value	16.1345	
Time (T_t)	**29.79**	Minutes
Channel Flow		
Length	3967.00	Feet
Estimated Velocity	4	Feet/Second
Time (T_t)	**16.5**	Minutes
Time of Concentration (T_c)	**56.63**	Minutes
Lag Time	**33.98**	Minutes

Depth-Duration-Frequency Values
(NOAA Atlass 14, Volume 11, Version 2: Sinton, Texas)

Duration	Depth of Precipitation (inches) by Recurrence Interval							
	2-yr.	5-yr.	10-yr.	25-yr.	50-yr.	100-yr.	200-yr.	500-yr.
5-min.	0.581	0.713	0.824	0.979	1.1	1.23	1.35	1.53
15-min.	1.17	1.43	1.65	1.96	2.2	2.44	2.7	3.04
30-min.	1.68	2.04	2.35	2.78	3.11	3.45	3.81	4.31
1-hr.	2.22	2.72	3.15	3.74	4.2	4.68	5.21	5.95
2-hr.	2.77	3.48	4.09	4.96	5.65	6.39	7.22	8.41
3-hr.	3.1	3.94	4.69	5.76	6.64	7.59	8.65	10.2
6-hr.	3.66	4.75	5.73	7.18	8.37	9.7	11.2	13.4
12-hr.	4.21	5.55	6.78	8.6	10.1	11.8	13.8	16.7
24-hr.	4.78	6.38	7.86	10.1	11.9	14	16.4	19.9

Sinton Ranch Proposed Unit 1 Conditions CN's

	HSG "C" Residential 1/8 Acre or Less	HSG "B" Meadow	HSG "C" Meadow	HSG "C" Commercial	HSG "B" Industrial	HSG "C" Industrial	HSG "B" Open Space Poor Condition	HSG "C" Open Space Poor Condition	HSG "D" Open Space Poor Condition	HSG "C" Impervious	Total Area	Curve Number
Curve Number	90	58	71	94	88	91	79	86	89	98	acres	
EX 4	40.57	29.61	36.91	20.65	1.87	1.68	11.31	147.09	6.21	0.14	296.03	82.23

290 S. CASTELL AVE., STE. 100
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HMT ENGINEERING & SURVEYING

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

PROPOSED UNIT 1 DRAINAGE AREA MAP

SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: WRC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C2.03

Drawing Name: N:_Projects\337 – Lennar\087 – Sinton Ranch Unit 1 (249 Lots)\Civil\337.087_DRNG-UNIT 1.dwg User: jsed Sep 12, 2024 - 11:48am

Table 1 - Ultimate Conditions Sub-Drainage Hydrology Calculations

Drainage Area	Point of Concentration	Description	Drainage Area (ac)	T_c	Q_2 (cfs)	Q_{10} (cfs)	Q_{25} (cfs)	Q_{100} (cfs)
OS 1	OS 1	Offsite Flow into Central Channel	9.17	105.40	14.80	24.41	28.98	36.26
OS 2	OS 2	Offsite Flow into Central Channel	9.01	22.88	24.93	40.80	48.39	60.36
A1	A1	Inlet Sizing	2.36	13.34	7.66	12.71	15.12	18.91
A2	A2	Sheet Flows Into Central Channel (C Lots)	3.04	13.91	9.87	16.37	19.47	24.36
A3	A3	Inlet Sizing	5.62	16.83	17.37	28.42	33.71	42.05
A4	A4	Sheet Flows Into Central Channel (C Lots)	3.19	14.30	10.36	17.18	20.43	25.57
A1-4	A1-4	Rodeo Ridge Culvert R.C.P. Sizing	14.21	13.33	48.27	80.04	95.22	119.15
B1	B1	Unit 1 Inlet Sizing	3.90	17.77	10.79	17.66	20.94	26.13
B2	B2	Unit 2 Inlet Sizing	5.25	13.88	17.05	28.27	33.62	42.08
B3	B3	Unit 2 & Residential C Lots	2.50	17.26	6.92	11.32	13.43	16.75
B4	B4	Sheet Flows Into Central Channel (C Lots)	6.02	16.60	16.66	27.26	32.33	40.33
B5	B5	Unit 1 Inlet & Lorberau Trail Channel A Sizing	2.48	10.00	8.05	13.35	15.88	19.88
A1-4 + B1-5	A1-4 + B1-5	Central Channel Sizing			95.09	155.58	184.53	230.19
B6	B6	Unit 1 Inlet Sizing	5.35	14.29	17.37	28.80	34.27	42.88
B7	B7	Unit 1 Inlet & Channel Sizing	3.25	11.21	10.55	17.50	20.82	26.05
B8	B8	Unit 1 Inlet Sizing & Street Capacity	3.31	18.13	9.16	14.99	17.78	22.17
B6-8	B6-8	Central Channel Sizing			32.96	53.93	63.96	79.79
A1-4 + B1-5 + (B6-8)/2	A1-4 + B1-5 + (B6-8)/2	Lorberau Lane (Central Channel) Culvert Sizing			111.57	182.54	216.51	270.08
A1-4 + B1-5 + B6-8	A1-4 + B1-5 + B6-8	Central Channel Sizing			128.05	209.50	248.49	309.98
B9	B9	Unit 1 Inlet & Lorberau Trail Channel B Sizing	2.85	13.02	9.25	15.34	18.25	22.84
B10	B10	Unit 1 Inlet & Lorberau Trail Channel C Sizing	2.67	13.14	8.67	14.38	17.10	21.40
B11	B11	Sheet Flows Into Central Channel (C Lots)	7.43	20.55	20.56	33.64	39.90	49.78
B12	B12	Unit 2 Inlet Sizing	6.03	15.21	16.69	27.30	32.38	40.40
B9 + B11-12	B9 + B11-12	Central Channel Sizing	16.31	17.54	45.14	73.85	87.59	109.27
A1-4 + B1-5 + B6-8 + B9 + B11-12	A1-4 + B1-5 + B6-8 + B9 + B11-12	Central Channel Sizing			173.18	283.35	336.08	419.24
B9-12	B9-B12	Central Channel Sizing	18.98	19.41	52.53	85.94	101.93	127.15
A1-4 + B1-5 + B6-8 + B9-12	A1-4 + B1-5 + B6-8 + B9-12	Lorberau Lane (Central Channel) Future Culvert Sizing			180.57	295.44	350.42	437.13
D1	D1	Unit 1 Inlet & Cowboy Trail Channel A Sizing	6.19	17.45	17.13	28.03	33.24	41.47
E1	E1	Unit 1 Inlet & Cowboy Trail Channel B Sizing	7.61	15.83	21.06	34.46	40.87	50.98

***This table show only necessary calculations for stormwater infrastructure to be constructed in Unit 1 and sized for Ultimate Conditions.**

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290 S. CASTELL AVE., STE. 100
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TBPELS FIRM F-10961
TBPELS FIRM 10153600

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

PROPOSED ULTIMATE SUB-DRAINAGE AREA MAP

SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

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C2.04

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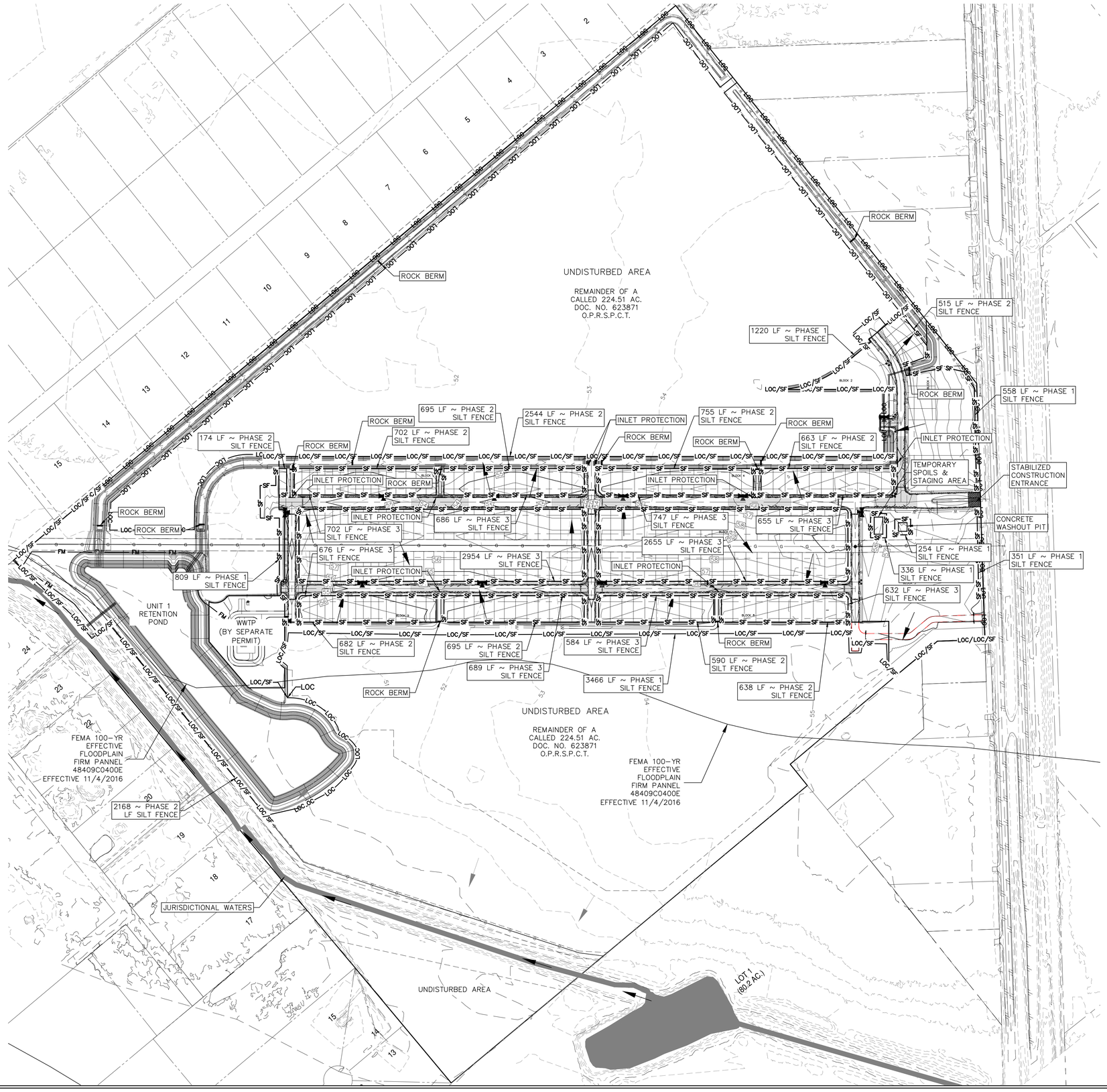

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- B.L. BUILDING SETBACK LINE
- U.E. UTILITY EASEMENT
- D.E. DRAINAGE EASEMENT
- DRAINAGE FLOW DIRECTION
- SF SF SILT FENCE
- LOC LOC LIMIT OF CONSTRUCTION
- STABILIZED CONSTRUCTION ENTRANCE
- FILTER DIKE CURB INLET PROTECTION
- ROCK BERM (TYPE 2)
- JURISDICTIONAL WATERS

SILT FENCE PHASING:

PHASE 1: EROSION INFRASTRUCTURE AND PROPERTY BOUNDARY
PHASE 2: DRAINAGE INFRASTRUCTURE
PHASE 3: FUTURE LOTS

NOTE:

1. PER TPDES REQUIREMENTS, DISTURBED AREAS ON WHICH CONSTRUCTION ACTIVITIES HAVE CEASED (TEMPORARILY OR PERMANENT) SHALL BE STABILIZED WITHIN 14 DAYS UNLESS ACTIVITY RESUMES WITHIN 21 DAYS. SEEDING DOES NOT CONSTITUTE AS STABILIZATION.
2. SILT FENCE AT PROPERTY LINE MAY BE SHOWN GRAPHICALLY OFFSET FROM PROPERTY LINE TO AVOID OVERLAP OF LINEWORK. CONTRACTOR SHALL NOT INSTALL EROSION CONTROL MEASURES BEYOND LIMITS OF CONSTRUCTION REGARDLESS OF GRAPHIC REPRESENTATION.
3. CONTRACTOR SHALL REFER TO THE GEOTECHNICAL ENGINEERING REPORT FOR THE LOCATION AND DEPTH OF THE GROUNDWATER TABLE FROM THE SURFACE THROUGHOUT THE SITE.

THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR WILL AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE INCURRED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, STRUCTURES OR FACILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES 24-HOURS PRIOR TO COMMENCING CONSTRUCTION.

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JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

EROSION CONTROL PLAN

SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C3.00

Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\CDs\337.087_ER05.dwg User: joed Sep 12, 2024 - 1:45pm

CONCRETE WASHOUT AREAS

THE PURPOSE OF CONCRETE WASHOUT AREAS IS TO PREVENT OR REDUCE THE DISCHARGE OF POLLUTANTS TO STORMWATER FROM CONCRETE WASTE BY CONDUCTING WASHOUT OFFSITE, PERFORMING ONSITE WASHOUT IN A DESIGNATED AREA, AND TRAINING EMPLOYEES AND SUBCONTRACTORS.

THE FOLLOWING STEPS WILL HELP REDUCE STORMWATER POLLUTION FROM CONCRETE WASTES:

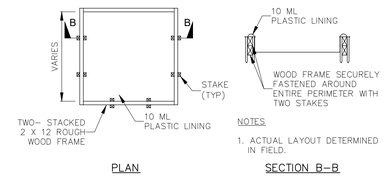
- INCORPORATE REQUIREMENTS FOR CONCRETE WASTE MANAGEMENT INTO MATERIAL SUPPLIER AND SUBCONTRACTOR AGREEMENTS.
- AVOID MIXING EXCESS AMOUNTS OF FRESH CONCRETE.
- PERFORM WASHOUT OF CONCRETE TRUCKS IN DESIGNATED AREAS ONLY.
- DO NOT WASH OUT CONCRETE TRUCKS INTO STORM DRAINS, OPEN DITCHES, STREETS, OR STREAMS.
- DO NOT ALLOW EXCESS CONCRETE TO BE DUMPED ONSITE, EXCEPT IN DESIGNATED AREAS.

FOR ONSITE WASHOUT:

- LOCATE WASHOUT AREA AT LEAST 50 FEET FROM SENSITIVE FEATURES, STORM DRAINS, OPEN DITCHES, OR WATER BODIES. DO NOT ALLOW RUNOFF FROM THIS AREA BY CONSTRUCTING A TEMPORARY PIT OR BERMED AREA LARGE ENOUGH FOR LIQUID AND SOLID WASTE.
- WASH OUT WASTES INTO THE TEMPORARY PIT WHERE THE CONCRETE CAN SET, BE BROKEN UP, AND THEN DISPOSED PROPERLY.

BELOW GRADE CONCRETE WASHOUT FACILITIES ARE TYPICAL. THESE CONSIST OF A LINED EXCAVATION SUFFICIENTLY LARGE TO HOLD EXPECTED VOLUME OF WASHOUT MATERIAL. ABOVE GRADE FACILITIES ARE USED IF EXCAVATION IS NOT PRACTICAL. TEMPORARY CONCRETE WASHOUT FACILITY (TYPE ABOVE GRADE) SHOULD BE CONSTRUCTED AS SHOWN ON THE DETAILS AT THE END OF THIS SECTION, WITH SUFFICIENT QUANTITY AND VOLUME TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS. PLASTIC LINING MATERIAL SHOULD BE A MINIMUM OF 10 MIL IN POLYETHYLENE SHEETING AND SHOULD BE FREE OF HOLES, TEARS, OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.

WHEN TEMPORARY CONCRETE WASHOUT FACILITIES ARE NO LONGER REQUIRED FOR THE WORK, THE HARDENED CONCRETE SHOULD BE REMOVED AND DISPOSED OF. MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCE CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE BACKFILLED AND REPAIRED.



PLAN

SECTION B–B

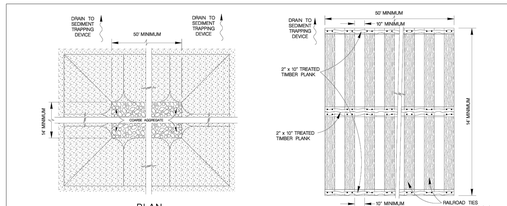
NOTES

1. ACTUAL LAYOUT DETERMINED IN FIELD.

CONCRETE WASHOUT PIT DETAIL

TYPE "ABOVE GRADE"

NOT TO SCALE


DRAIN TO SEDIMENT TRAPPING DEVICE
DRAIN TO SEDIMENT TRAPPING DEVICE
50' MINIMUM
14' MINIMUM
CRUSHED STONE
PLAN
SCALE : 1" = 6'
APPROACH TRANSITION
4' MINIMUM
50' MINIMUM
4' MINIMUM
APPROACH TRANSITION
6 : 1 MAXIMUM
6 : 1 MAXIMUM
6" MINIMUM
FOUNDATION COURSE 6" MINIMUM
PROFILE
SCALE : 1" = 6'
GENERAL NOTES
1. THE LENGTH OF THE TYPE 1 CONSTRUCTION EXIT SHALL BE AS INDICATED ON THE PLANS, BUT NOT LESS THAN 50'.
2. THE COARSE AGGREGATE SHOULD BE OPEN GRADED WITH A SIZE OF 4" TO 8".
3. THE APPROACH TRANSITIONS SHOULD BE NO STEEPER THAN 6 : 1 AND CONSTRUCTED AS DIRECTED BY THE ENGINEER.
4. THE CONSTRUCTION EXIT FOUNDATION COURSE SHALL BE FLEXIBLE BASE, BITUMINOUS CONCRETE, PORTLAND CEMENT CONCRETE OR OTHER MATERIAL, AS APPROVED BY THE ENGINEER.
5. THE CONSTRUCTION EXIT SHALL BE GRADED TO ALLOW DRAINAGE TO A SEDIMENT TRAPPING DEVICE.
6. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.
CONSTRUCTION EXIT – TYPE 1
DRAIN TO SEDIMENT TRAPPING DEVICE
50' MINIMUM
10' MINIMUM
2" x 10" TREATED TIMBER PLANK
2" x 10" TREATED TIMBER PLANK
14' MINIMUM
10' MINIMUM
RAILROAD TIES TYPICAL DIMENSIONS 8" X 10" x 8'
PLAN
SCALE : 1" = 6'
APPROACH TRANSITION
4' MINIMUM
50' MINIMUM
4' MINIMUM
APPROACH TRANSITION
6 : 1 MAXIMUM
6 : 1 MAXIMUM
FOUNDATION COURSE 6" MINIMUM
PROFILE
SCALE : 1" = 6'
GENERAL NOTES
1. THE LENGTH OF THE TYPE 2 CONSTRUCTION EXIT SHALL BE AS INDICATED ON THE PLANS, BUT NOT LESS THAN 50'.
2. THE TREATED TIMBER PLANKS SHALL BE ATTACHED TO THE RAILROAD TIES WITH 1-1/2" x 6" MIN. LAG BOLTS. OTHER FASTENERS MAY BE USED AS APPROVED BY THE ENGINEER.
3. THE TREATED TIMBER PLANKS SHALL BE #2 GRADE MIN. AND SHOULD BE FREE FROM LARGE AND LOOSE KNOTS.
4. THE APPROACH TRANSITIONS SHOULD BE NO STEEPER THAN 6 : 1 AND CONSTRUCTED AS DIRECTED BY THE ENGINEER.
5. THE CONSTRUCTION EXIT FOUNDATION COURSE SHALL BE FLEXIBLE BASE, BITUMINOUS CONCRETE, PORTLAND CEMENT CONCRETE OR OTHER MATERIAL, AS APPROVED BY THE ENGINEER.
6. THE CONSTRUCTION EXIT SHOULD BE GRADED TO ALLOW DRAINAGE TO A SEDIMENT TRAPPING DEVICE.
7. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.
CONSTRUCTION EXIT – TYPE 2
STABILIZED DRIVEWAY
SEE NOTE 2
R.O.W. LINE
A
A
1/2" MINIMUM THICKNESS PLYWOOD OR PRESSED WAFER BOARD SHEETS
2" x 6" TREATED TIMBERS NAILED ONTO ABUTTED ENDS OF WOOD SHEETS
DISTURBED SOIL AREA
PAVED ROADWAY
PLAN
SCALE : 1" = 20'
DISTURBED SOIL
2" x 6" TREATED TIMBERS NAILED ONTO ABUTTED ENDS OF WOOD SHEETS
1/2" MINIMUM THICKNESS PLYWOOD OR PRESSED WAFER BOARD SHEETS
16 PENNY NAILS @ 1' O/N CENTERS
SECTION A–A
SCALE : 1" = 2'
GENERAL NOTES
1. THE LENGTH OF THE TYPE 3 CONSTRUCTION EXIT SHALL BE AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
2. THE TYPE 3 CONSTRUCTION EXIT MAY BE CONSTRUCTED FROM OPEN GRADED CRUSHED STONE WITH A SIZE OF 3 TO 4 INCHES SPREAD A MINIMUM OF 4 INCHES THICK TO THE LIMITS SHOWN ON THE PLANS.
3. THE TREATED TIMBER PLANKS SHALL BE #2 GRADE MIN. AND SHOULD BE FREE FROM LARGE AND LOOSE KNOTS.
4. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.
CONSTRUCTION EXIT – TYPE 3
4' MINIMUM STEEL OR WOOD POSTS SPACED AT 6' TO 8'. SOFTWOOD POSTS SHALL BE 3" MINIMUM DIAMETER OR NOMINAL 2" x 4". HARDWOOD POSTS SHALL HAVE A MINIMUM CROSS SECTION OF 1.5" x 1.5".
CONNECT THE ENDS OF SUCCESSIVE REINFORCEMENT SHEETS OR ROLLS A MINIMUM OF 6 TIMES WITH HOG RINGS.
FASTEN FABRIC TO TOP STRAND OF WELDED WIRE MESH (6"W X 6"L) BY HOG RINGS OR CORD AT A MAXIMUM SPACING OF 16".
C
2'
FLOW
GALVANIZED WELDED WIRE MESH (12.5 GAUGE MINIMUM, MAXIMUM OPENING SIZE SHALL BE 2" x 4"
WOVEN FILTER FABRIC
FLOW
90°
ATTACH THE W.W.M. AND FABRIC ON END POSTS USING 4 EVENLY SPACED STAPLES FOR WOODEN POSTS (OR 4 "J-CLIPS OR BEAN VERTICAL POCKETS FOR STEEL POSTS).
PLACE 4" TO 6" 0F FABRIC AGAINST THE TRENCH SIDE AND APPROXIMATELY 2" ACROSS TRENCH BOTTOM IN UPSTREAM DIRECTION. MINIMUM TRENCH SIZE SHALL BE 6" SQUARE. BACKFILL AND HAND TAMP.
C
ISOMETRIC VIEW
SCALE : 1" = 2'
2'
FILTER FABRIC 2' MINIMUM WIDTH
BACKFILL & HAND TAMP
90°
FLOW
6"
EMBED POSTS 18" MINIMUM OR ANCHOR IF IN ROCK
SECTION C–C
SCALE : 1" = 2'
SEDIMENT CONTROL FENCE USAGE GUIDELINES
A SEDIMENT CONTROL FENCE MAY BE CONSTRUCTED NEAR THE DOWNSTREAM PERIMETER OF A DISTURBED AREA ALONG A CONTOUR TO INTERCEPT SEDIMENT FROM OVERLAND RUN-OFF IN A 2 YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE TO BE FILTERED.
SEDIMENT CONTROL FENCE SHOULD BE SIZED TO FILTER A MAXIMUM FLOW THRU RATE OF 100 GPM / FT SQUARED. SEDIMENT CONTROL FENCE IS NOT RECOMMENDED TO CONTROL EROSION FROM A DRAINAGE AREA LARGER THAN 2 ACRES.
GENERAL NOTES
1. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.
TEMPORARY SEDIMENT CONTROL FENCE
RUNOFF
PLACE GRAVEL FILTER BAGS SO THAT NO GAPS ARE EVIDENT
FILTERED RUNOFF
3/4" GRAVEL CONTAINED IN PERVIOUS BURLAP BAGS OR SYNTHETIC NET BAGS 1/2" MESH) APPROX 24" LONG, 12" WIDE AND 9" HIGH
PLAN
SCALE : 1" = 5'
PERPENDICULAR DISTANCE FROM CURB TO CURB 4' MAXIMUM
ELEVATION
SCALE : 1" = 5'
NOTE: STANDALE GRAVEL FILTER BAGS WITH TYPE A BARRICADES MOUNTED WITH TYPE "A" FLASHING WARNING LIGHT. SEE BARRICADE CONSTRUCTION SIGN DETAILS. PLACE FLASHING LIGHT FACING AWAY FROM GUTTER, FLUSH WITH OUTSIDE EDGE OF SAG CONFIGURATION.
GRAVEL FILTER BAGS
3/4" GRAVEL CONTAINED IN PERVIOUS SYNTHETIC NET BAGS 1/2" MESH) APPROX 24" LONG, 12" WIDE AND 9" HIGH
G
INSTALL END BLOCKS / SAGS WHEN CURB INLET IS IN PLACE OR AROUND ENTIRE PERIMETER AS EXPLAINED IN SPECIFICATIONS
OVERFLOW
2" x 4" TREATED WOOD STUD
RUNOFF
PAVEMENT
FILTERED RUNOFF
2' MAX.
CONCRETE BLOCKS (8" x 8" x 16")
2" x 4" TREATED WOOD STUD EXTENDED INTO CONCRETE BLOCKS
G
PLACE GRAVEL FILTER BAGS SO THAT NO GAPS ARE EVIDENT
VARIES WITH INLET LENGTH
PLAN
SCALE : 1" = 5'
NOTE: GRAVEL FILTERS CAN BE USED ON PAVEMENT OR BARE GROUND.
SECTION G–G
SCALE : 1" = 5'
CURB INLET GRAVEL FILTER

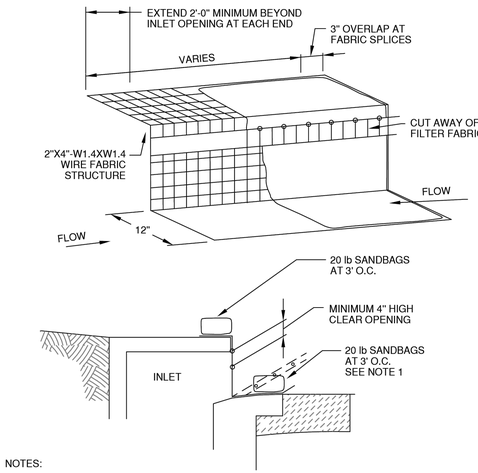
JANUARY 2005

CITY OF SAN ANTONIO

CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TEMPORARY EROSION, SEDIMENT & WATER POLLUTION CONTROL MEASURES STANDARDS 1

%	SUBMITTAL	PROJECT NO.		DATE
DRAWN BY: V. VASQUEZ	DSGN. BY:	CHKD. BY:	SHEET NO.	OF

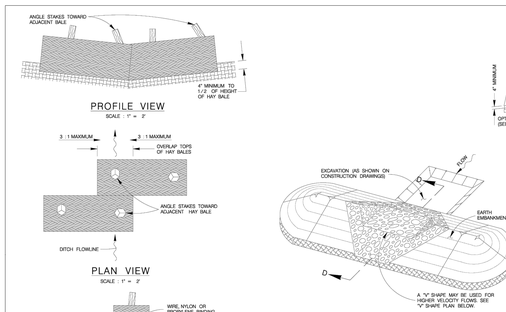


NOTES:

1. WHERE MINIMUM CLEARANCES CAUSE TRAFFIC TO DRIVE IN THE GUTTER, THE CONTRACTOR MAY SUBSTITUTE A 1" X 4" BOARD SECURED WITH CONCRETE NAILS 3' O.C. NAILED INTO THE GUTTER IN LIEU OF SANDBAGS TO HOLD THE FILTER DIKE IN PLACE. UPON REMOVAL, CLEAN ANY DIRT/DEBRIS FROM NAILING LOCATIONS, APPLY CHEMICAL SANDING AGENT AND APPLY NON-SHRINK GROUT FLUSH WITH SURFACE OF GUTTER.
2. A SECTION OF FILTER FABRIC SHALL BE REMOVED AS SHOWN ON THIS DETAIL OR AS DIRECTED BY THE ENGINEER OR DESIGNATED REPRESENTATIVE. FABRIC MUST BE SECURED TO WIRE BACKING WITH CLIPS OR HOG RINGS AT THIS LOCATION.
3. DAILY INSPECTION SHALL BE MADE BY THE CONTRACTOR AND SILT ACCUMULATION MUST BE REMOVED WHEN DEPTH REACHES 2".
4. CONTRACTOR SHALL MONITOR THE PERFORMANCE OF INLET PROTECTION DURING EACH RAINFALL EVENT AND IMMEDIATELY REMOVE THE INLET PROTECTIONS IF THE STORM-WATER BEGINS TO OVER-TOP THE CURB.
5. INLET PROTECTIONS SHALL BE REMOVED AS SOON AS THE SOURCE OF SEDIMENT IS STABILIZED.

NBU
NEW BRAUNFELS UTILITIES
WATER SYSTEMS ENGINEERING

DRAWN BY: H Shadrock	STANDARD DRAWING:	
APPROVED BY:	**FILTER DIKE CURB INLET PROTECTION**	
UPDATED: 4-29-03	SCALE: N.T.S.	SHEET: 1 OF 1
DRAWING NO. 505		



BALED HAY USAGE GUIDELINES

A BALED HAY INSTALLATION MAY BE CONSTRUCTED NEAR THE DOWNSTREAM PERIMETER OF A DISTURBED AREA ALONG A CONTOUR TO INTERCEPT SEDIMENT FROM OVERLAND RUNOFF IN A TWO YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE TO BE FILTERED. THE INSTALLATION SHOULD BE SIZED TO FILTER A MAXIMUM FLOW THRU RATE OF 3 GPM / FT SQUARED OF CROSS SECTIONAL AREA. BALED HAY MAY BE USED AT THE FOLLOWING LOCATIONS:

1. WHERE THE RUNOFF APPROACHING THE BALED HAY FLOWS OVER DISTURBED SOIL FOR LESS THAN 100' IF THE SLOPE OF THE DISTURBED SOIL EXCEEDS 10 % THE LENGTH OF SLOPE UPSTREAM OF THE BALED HAY SHOULD BE LESS THAN 50'.
2. WHERE THE INSTALLATION WILL BE REQUIRED FOR LESS THAN 3 MONTHS.
3. WHERE THE CONTRIBUTING DRAINAGE AREA IS LESS THAN 1/2 ACRE.

FOR BALED HAY INSTALLATIONS IN SMALL DITCHES, THE FOLLOWING ADDITIONAL CONDITIONAL CONSIDERATIONS APPLY:

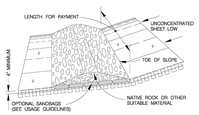
1. THE DITCH SIDESLOPES SHOULD BE GRADED AS FLAT AS POSSIBLE TO MAXIMIZE THE DRAINAGE FLOW RATE THRU THE HAY.
2. THE DITCH SHOULD BE GRADED LARGE ENOUGH TO CONTAIN THE OVERLAPPING DRAINAGE WHEN SEDIMENT HAS FILLED TO THE TOP OF THE BALED HAY.

BALES SHOULD BE REPLACED USUALLY EVERY 2 MONTHS OR MORE OFTEN DURING WET WEATHER WHEN LOSS OF STRUCTURAL INTEGRITY IS ACCELERATED.

GENERAL NOTES

1. HAY BALES SHALL BE A MINIMUM OF 30" IN LENGTH AND WEIGH A MINIMUM OF 50 LBS.
2. HAY BALES SHALL BE BOUND BY EITHER WIRE OR NYLON OR POLYPROPYLENE STRING. THE BALES SHALL BE COMPOSED ENTIRELY OF VEGETABLE MATTER.
3. HAY BALES SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 4" AND, WHERE POSSIBLE, ONE-HALF THE HEIGHT OF THE BALE.
4. HAY BALES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES. THE BALES SHALL BE PLACED WITH BINDINGS PARALLEL TO THE GROUND.
5. HAY BALES SHALL BE SECURELY ANCHORED IN PLACE WITH 3 / 8" DIA REBAR OR 2" x 2" WOOD STAKES DRIVEN THROUGH THE BALES. THE FIRST STAKE SHALL BE ANGLED TOWARDS THE PREVIOUSLY LAID BALE TO FORCE THE BALES TOGETHER.
6. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

BALED HAY FOR EROSION CONTROL

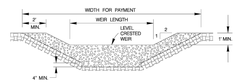


TYPE 1 FILTER DAM AT TOE OF SLOPE

SCALE : 1" = 10'

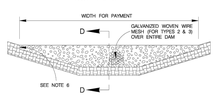
TYPE 1 & 2 FILTER DAM AT SEDIMENT TRAP

SCALE : 1" = 10'



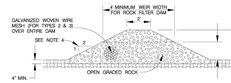
PROFILE OF TYPE 1 & 2 FILTER DAM AT SEDIMENT TRAP

SCALE : 1" = 6'



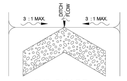
TYPE 1, 2 & 3 FILTER DAM AT CHANNEL SECTIONS

SCALE : 1" = 6'



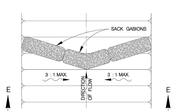
SECTION D–D

SCALE : 1" = 6'



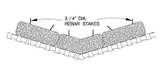
"V" SHAPE PLAN VIEW

NOT TO SCALE



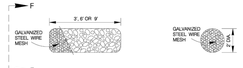
PLAN VIEW

SCALE : 1" = 10'



SECTION E–E

SCALE : 1" = 10'



TYPE 4 SACK GABION DETAIL

SCALE : 1" = 6'

SECTION F–F

SCALE : 1" = 6'

TYPE 4 FILTER DAM AT DITCHES & SMALLER CHANNELS PLAN VIEW

ROCK FILTER DAMS

ROCK FILTER DAM USAGE GUIDELINES

ROCK FILTER DAMS SHOULD BE CONSTRUCTED DOWNSTREAM FROM DISTURBED AREAS TO INTERCEPT SEDIMENT FROM OVERLAND RUNOFF AND / OR CONCENTRATED FLOW. THE DAMS SHOULD BE SIZED TO FILTER A MAXIMUM FLOW THRU RATE OF 60 GPM / FT SQUARED OF CROSS SECTIONAL AREA. A 2 YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE.

TYPE 1 (18" HIGH, WITH NO WIRE MESH):

TYPE 1 MAY BE USED AT THE TOE OF SLOPES AROUND INLETS IN SMALL DITCHES AND AT ONE OR SMALL OUTLETS. THIS TYPE OF DAM IS RECOMMENDED TO CONTROL EROSION FROM A DRAINAGE AREA OF 5 ACRES OR LESS. TYPE 1 MAY NOT BE USED IN CONCENTRATED HIGH VELOCITY FLOWS (APPROXIMATELY 8 FT./ SEC. OR MORE) IN WHICH AGGREGATE WASH OUT MAY OCCUR. SANDBAGS MAY BE USED AT THE EMBEDDED FOUNDATION (4" DEEP TRENCH) TO INCREASE THE EFFICIENCY OF LOW FLOWS IF CALLED FOR ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

TYPE 2 (36" HIGH, WITH WIRE MESH):

TYPE 2 MAY BE USED IN DITCHES AND AT DIKE OR SWALE OUTLETS.

TYPE 3 (36" HIGH, WITH WIRE MESH):

TYPE 3 MAY BE USED IN STREAM FLOW AND SHOULD BE SECURED TO THE STREAM BED.

TYPE 4 (SACK GABIONS):

TYPE 4 MAY BE USED IN DITCHES AND SMALLER CHANNELS TO FORM AN EROSION CONTROL DAM.

GENERAL NOTES

1. IF SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER FILTER DAMS SHOULD BE PLACED ON THE MESH TO THE HEIGHT AND SLOPES SPECIFIED IN ROADWAY DITCHES AND / OR DOWNSTREAM AT DRAINAGE STRUCTURES AND IN ROADWAY DITCHES AND CHANNELS TO COLLECT SEDIMENT.
2. MATERIALS (AGGREGATE, WIRE MESH, SANDBAGS, ETC.) SHALL BE AS INDICATED BY THE SPECIFICATION FOR ROCK FILTER DAMS FOR EROSION AND SEDIMENTATION CONTROL.
3. THE ROCK FILTER DAM DIMENSIONS SHALL BE AS INDICATED ON THE STORM WATER POLLUTION PREVENTION PLANS.
4. SIDE SLOPES SHOULD BE 1 : 1 OR FLATTER. DAMS WITHIN THE SAFETY ZONE SHALL HAVE SIDE SLOPES OF 6 :1 OR FLATTER.
5. MAINTAIN A MINIMUM OF 1' BETWEEN TOP OF ROCK FILTER DAM WEIR AND TOP OF EMBANKMENT FOR FILTER DAMS AT SEDIMENT TRAPS.
6. FILTER DAMS SHOULD BE EMBEDDED A MINIMUM OF 4" INTO THE EXISTING GROUND.
7. THE SEDIMENT TRAP FOR PONDING OF SEDIMENT LADEN RUNOFF SHALL BE OF THE DIMENSIONS SHOWN ON THE PLANS.
8. ROCK FILTER DAM TYPES 2 & 3 SHALL BE SECURED WITH 20 GAUGE GALVANIZED WOVEN WIRE MESH WITH 1" DIAMETER HEXAGONAL OPENINGS. THE AGGREGATE SHALL BE PLACED ON THE MESH TO THE HEIGHT AND SLOPES SPECIFIED. THE MESH SHALL BE FOLDED AT THE UPSTREAM SIDE OVER THE AGGREGATE AND TIGHTLY FASTENED TO THE OPPOSITE SIDE OF THE DAM WITH WIRE TIES OR HOG RINGS. SAGS IN STREAM USE, THE MESH SHOULD BE SECURED OR STAKED TO THE STREAM BED PRIOR TO AGGREGATE PLACEMENT.
9. SACK GABIONS SHOULD BE STAKED DOWN WITH 3 /4" DIA REBAR STAKES.
10. FLOW OUTLET SHOULD BE ONTO A STABILIZED AREA (VEGETATION, ROCK, ETC.).
11. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

JANUARY 2005

CITY OF SAN ANTONIO

CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TEMPORARY EROSION, SEDIMENT & WATER POLLUTION CONTROL MEASURES STANDARDS 2

%	SUBMITTAL	PROJECT NO.		DATE
DRAWN BY: V. VASQUEZ	DSGN. BY:	CHKD. BY:	SHEET NO.	OF

SEQUENCE OF CONSTRUCTION

1. INSTALL EROSION CONTROLS PER APPROVED PLAN.
2. TEMPORARY CONTROLS TO BE INSPECTED AND MAINTAINED WEEKLY AND PRIOR TO ANTICIPATED RAINFALL EVENTS, AND AFTER RAINFALL EVENTS, AS NEEDED. CONTRACTOR/OWNER SHALL PROVIDE A CONTACT NAME AND NUMBER FOR EROSION CONTROL ISSUES.
3. CONDUCT DEMOLITION ACTIVITIES, IF APPLICABLE.
4. CONSTRUCT DRAINAGE IMPROVEMENTS, IF APPLICABLE.
5. CONSTRUCT CURB INLET PROTECTION AT THE TIME OF CURB INLET INSTALLATION.
6. CONSTRUCT DEVELOPMENT PER APPROVED PLANS.
7. INSTALL STREETSCAPE AND/OR LANDSCAPING IMPROVEMENTS.
8. CONTRACTOR TO VEGETATE ANY DISTURBED AREAS ONCE FINAL GRADING IS COMPLETE, AND ESTABLISH A MIN OF 70% VEGETATION PRIOR TO COMPLETION. PER TPDES REQUIREMENTS, DISTURBED AREAS ON WHICH CONSTRUCTION ACTIVITIES HAVE CEASED (TEMPORARILY OR PERMANENTLY) SHALL BE STABILIZED WITHIN 14 DAYS UNLESS ACTIVITY RESUMES WITHIN 21 DAYS. SEEDING DOES NOT CONSTITUTE AS STABILIZATION.
9. REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.

NOTE:

CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DISTURBED AREAS ON WHICH CONSTRUCTION ACTIVITIES HAVE CEASED (TEMPORARILY OR PERMANENT) AND SHALL BE STABILIZED WITHIN 14 DAYS UNLESS ACTIVITY RESUMES IN 21 DAYS, PER TPDES REQUIREMENTS.

THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR WILL AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE INCURRED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, STRUCTURES OR FACILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES 24–HOURS PRIOR TO COMMENCING CONSTRUCTION.

HMT
ENGINEERING & SURVEYING
290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

EROSION CONTROL DETAILS 1 OF 2

SINTON RANCH UNIT 1

SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: **SEPTEMBER 2024**

DRAWN BY: **CAC**

DESIGNED BY: **WRC**

REVIEWED BY: **JTS**

HMT PROJECT NO.: **337.087**

SHEET

C3.01

Drawing Name: N:_Projects\337 – Lennar\087 – Sinton Ranch Unit 1 (239 Lots)\03a\337.087_ENG5.dwg User: jpod Sep 12, 2024 – 11:50am

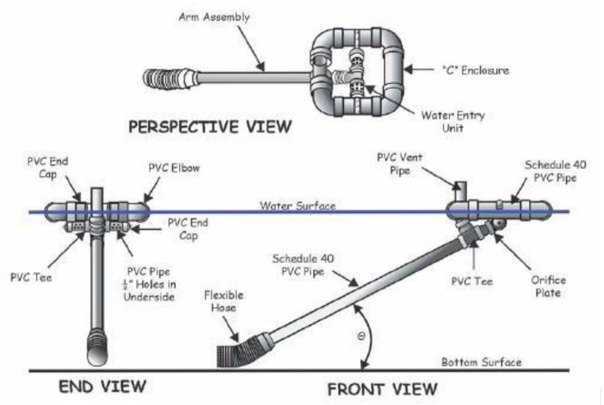
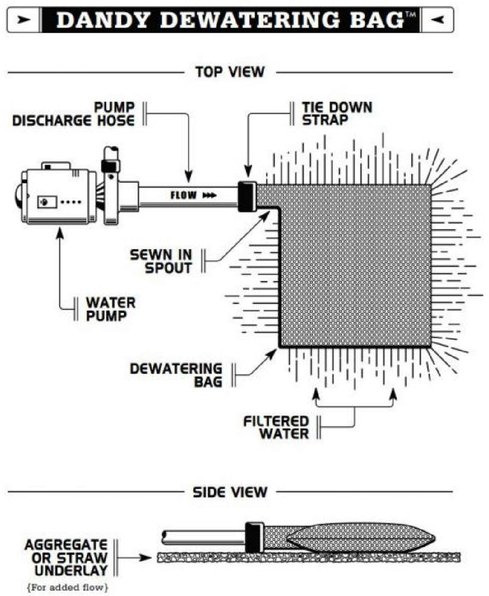


Figure 6.64a Schematic of a skimmer, from Pennsylvania Erosion and Sediment Pollution Control Manual, March, 2000.

NOTE:

CONTRACTOR SHALL USE THIS DEWATERING SKIMMER & SEDIMENT BAG CONFIGURATION FOR ALL DEWATERING.



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JOSEPH T. SANDOVAL
110257
LICENSED
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EROSION CONTROL DETAILS 2 OF 2

SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: **SEPTEMBER 2024**
DRAWN BY: **CAC**
DESIGNED BY: **WRC**
REVIEWED BY: **JTS**
HMT PROJECT NO.: **337.087**

SHEET
C3.02

Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\CIDs\337.087_EROS.dwg User: joed Sep 12, 2024 - 11:50am

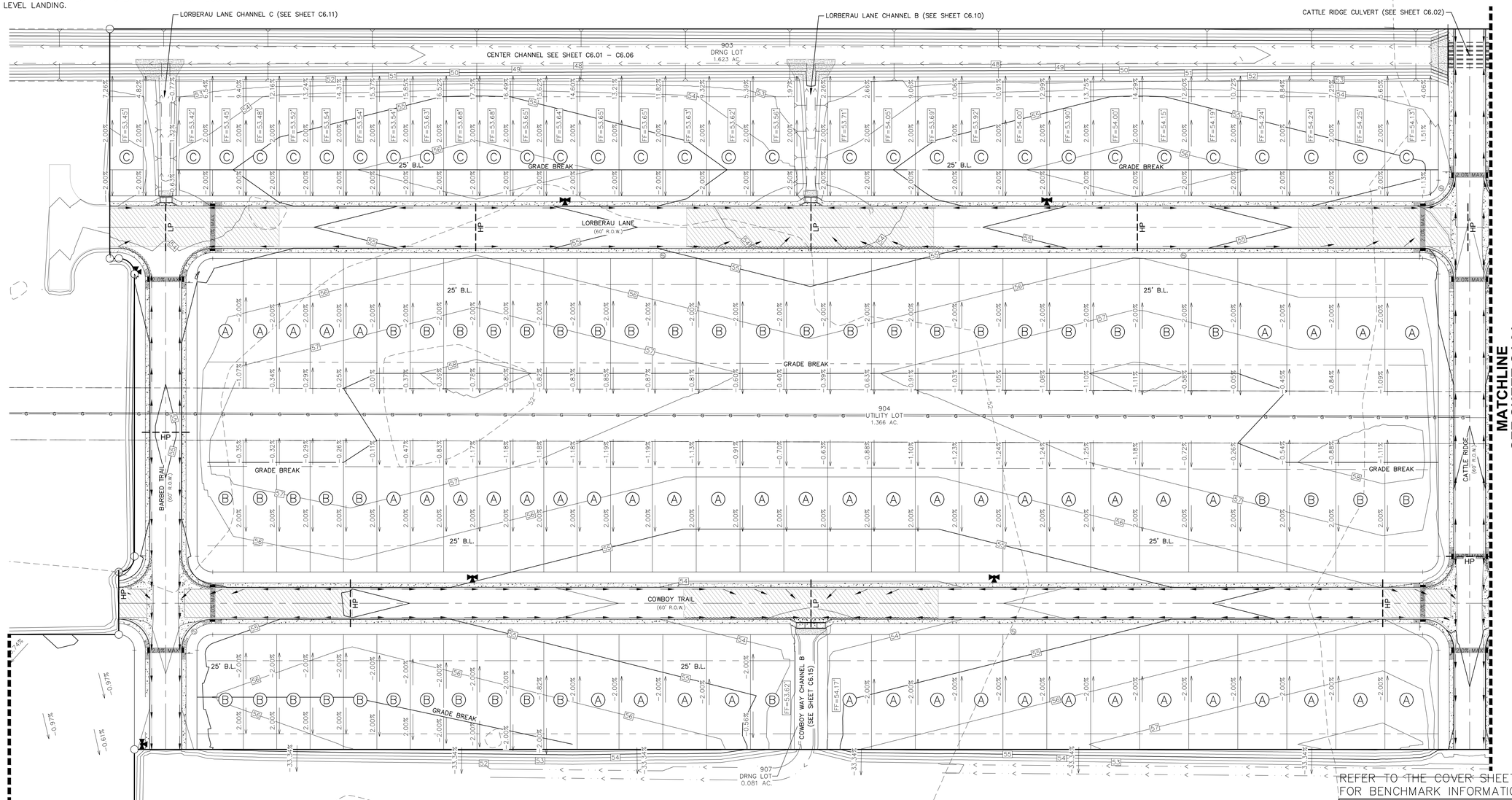
NOTES:

1. DRAINAGE IMPROVEMENTS SUFFICIENT TO MITIGATE OFFSITE IMPACT OF CONSTRUCTION MUST BE COMPLETED AND IN PLACE PRIOR TO ADDING IMPERVIOUS COVER TO THE SITE.
2. ALL FINISHED FLOOR ELEVATIONS SHALL MEET THE FOLLOWING REQUIREMENTS:HUD DETAILS SHOWN ON SHEET C4.03.
3. WHEN POSSIBLE, CONTRACTOR SHALL PHASE GRADING SO AS TO EXPOSE THE MINIMUM AMOUNT OF AREA TO SOIL EROSION FOR THE SHORTEST PERIOD OF TIME.
4. FOR ANY LOTS ADJACENT TO A DRAINAGE STRUCTURE, HOME BUILDER TO ENSURE FINISHED FLOOR HAS A MINIMUM ELEVATION AS LABELED OR AS PER NOTE 2 ABOVE, WHICHEVER IS GREATER.
5. STRIPPING OF VEGETATION FROM PROJECT SITES SHALL BE PHASED SO AS TO EXPOSE THE MINIMUM AMOUNT OF AREA TO SOIL EROSION FOR THE SHORTEST POSSIBLE PERIOD OF TIME.
6. PER TPDES REQUIREMENTS, DISTURBED AREAS ON WHICH CONSTRUCTION ACTIVITIES HAVE CEASED (TEMPORARILY OR PERMANENTLY) SHALL BE STABILIZED WITHIN 14 DAYS UNLESS ACTIVITY RESUMES WITHIN 21 DAYS. SEEDING AND/OR HYDROMULCH DOES NOT CONSTITUTE STABILIZATION, MINIMUM 70 PERCENT VEGETATIVE COVER OF DISTURBED AREAS IS REQUIRED.
7. ALL SIDEWALKS SHALL HAVE A MAX RUNNING SLOPE OF 5%.
8. ALL SIDEWALKS SHALL HAVE A MAX CROSS SLOPE OF 2%.
9. RAMPS SHALL NOT EXCEED 8.33%. RAMPS LONGER THAN 6' REQUIRE HANDRAILS. RAMPS LONGER THAT 30' REQUIRE A LEVEL LANDING.

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- B.L. BUILDING SETBACK LINE
- U.E. UTILITY EASEMENT
- D.E. DRAINAGE EASEMENT
- (A) LOT GRADING SEE DETAILS SHEET **C4.03**
- DRAINAGE FLOW DIRECTION
- FF=XXX.X' MINIMUM FINISHED FLOOR ELEVATION

0 25 50 100
SCALE: 1" = 50'



REFER TO THE COVER SHEET FOR BENCHMARK INFORMATION.

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JOSEPH T. SANDOVAL
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PROFESSIONAL ENGINEER
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9/12/2024

GRADING PLAN 1 OF 3

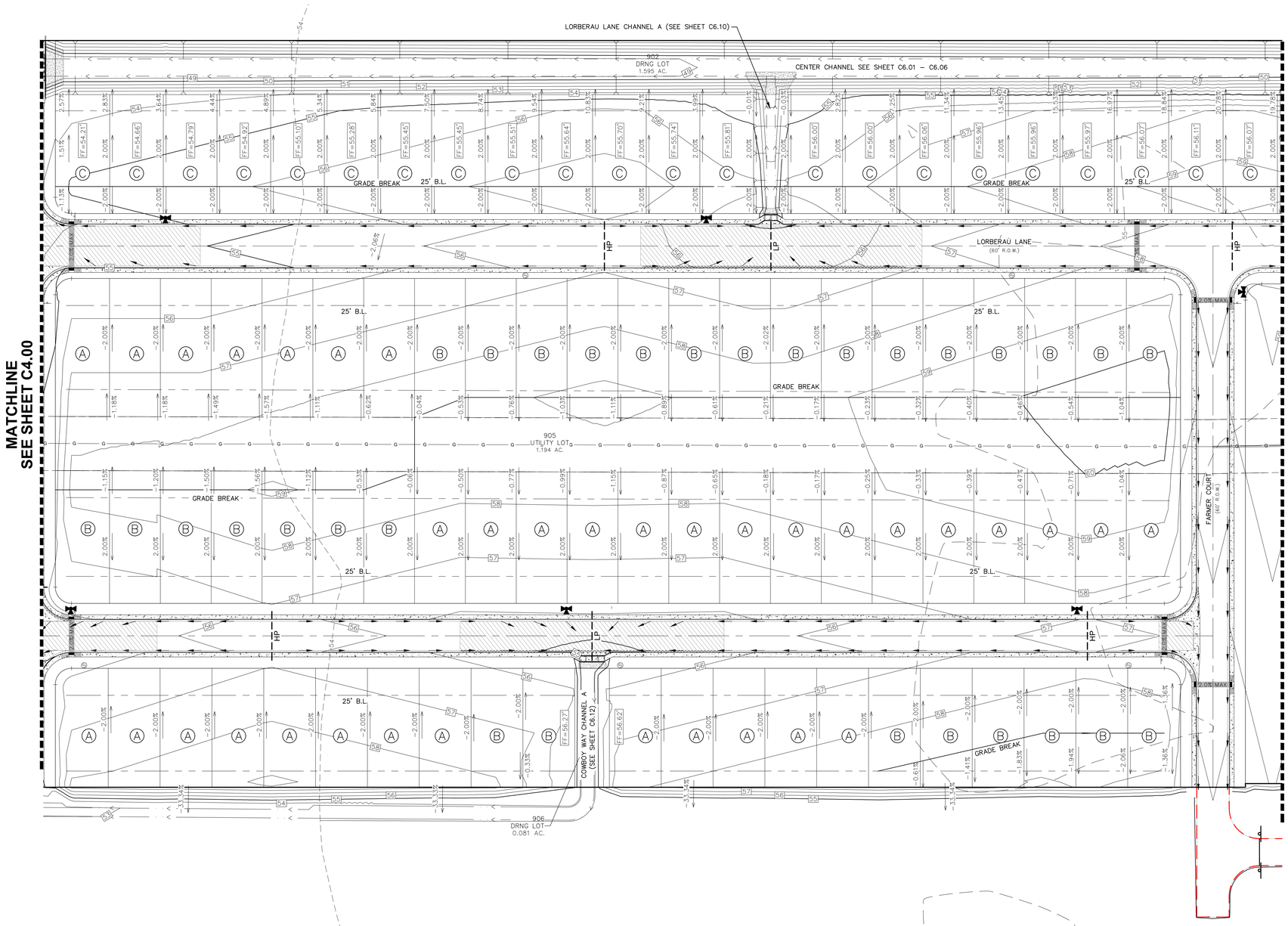
SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: **SEPTEMBER 2024**
DRAWN BY: **CAC**
DESIGNED BY: **WRC**
REVIEWED BY: **JTS**
HMT PROJECT NO.: **337.087**

SHEET
C4.00

Drawing Name: N:_Projects\337 – Lennar\087 – Sinton Ranch Unit 1 (239 Lots)\(20s)\337.087_GRAD.dwg User: joed Sep 12, 2024 - 11:52am



MATCHLINE
SEE SHEET C4.00

MATCHLINE
SEE SHEET C4.02

LEGEND

700	EXISTING CONTOURS
700	PROPOSED CONTOURS
B.L.	BUILDING SETBACK LINE
U.E.	UTILITY EASEMENT
D.E.	DRAINAGE EASEMENT
A	LOT GRADING SEE DETAILS SHEET **C4.03**
	DRAINAGE FLOW DIRECTION
FF=XXX.X	MINIMUM FINISHED FLOOR ELEVATION

0 25 50 100
SCALE: 1" = 50'

NOTES:

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4. FOR ANY LOTS ADJACENT TO A DRAINAGE STRUCTURE, HOME BUILDER TO ENSURE FINISHED FLOOR HAS A MINIMUM ELEVATION AS LABELED OR AS PER NOTE 2 ABOVE, WHICHEVER IS GREATER.
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6. PER TPDES REQUIREMENTS, DISTURBED AREAS ON WHICH CONSTRUCTION ACTIVITIES HAVE CEASED (TEMPORARILY OR PERMANENTLY) SHALL BE STABILIZED WITHIN 14 DAYS UNLESS ACTIVITY RESUMES WITHIN 21 DAYS. SEEDING AND/OR HYDROMULCH DOES NOT CONSTITUTE STABILIZATION, MINIMUM 70 PERCENT VEGETATIVE COVER OF DISTURBED AREAS IS REQUIRED.
7. ALL SIDEWALKS SHALL HAVE A MAX RUNNING SLOPE OF 5%.
8. ALL SIDEWALKS SHALL HAVE A MAX CROSS SLOPE OF 2%.
9. RAMPS SHALL NOT EXCEED 8.33% RAMPS LONGER THAN 6' REQUIRE HANDRAILS. RAMPS LONGER THAT 30' REQUIRE A LEVEL LANDING.

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STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

GRADING PLAN 2 OF 3

SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

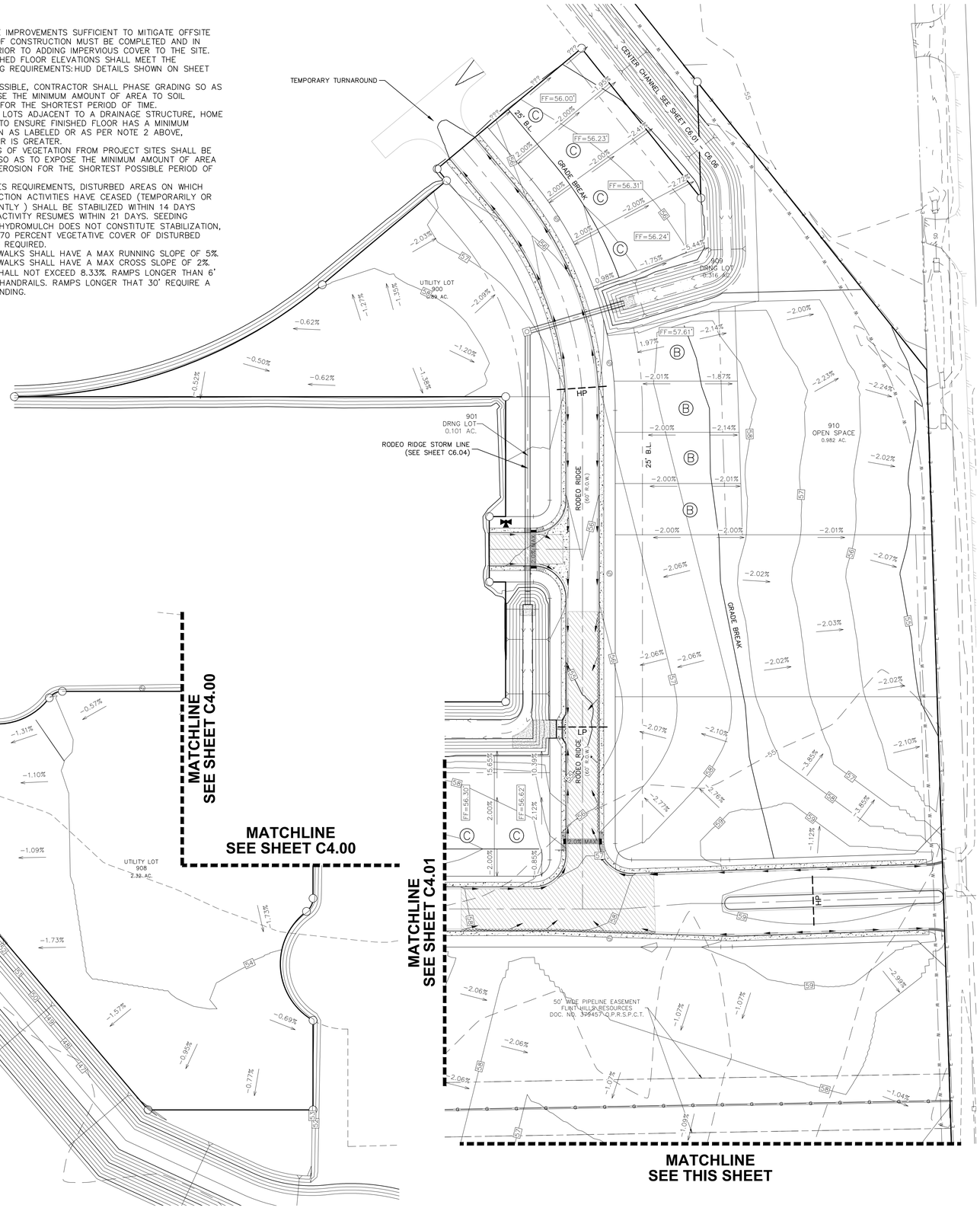
DATE: **SEPTEMBER 2024**
DRAWN BY: **CAC**
DESIGNED BY: **WRC**
REVIEWED BY: **JTS**
HMT PROJECT NO.: **337.087**

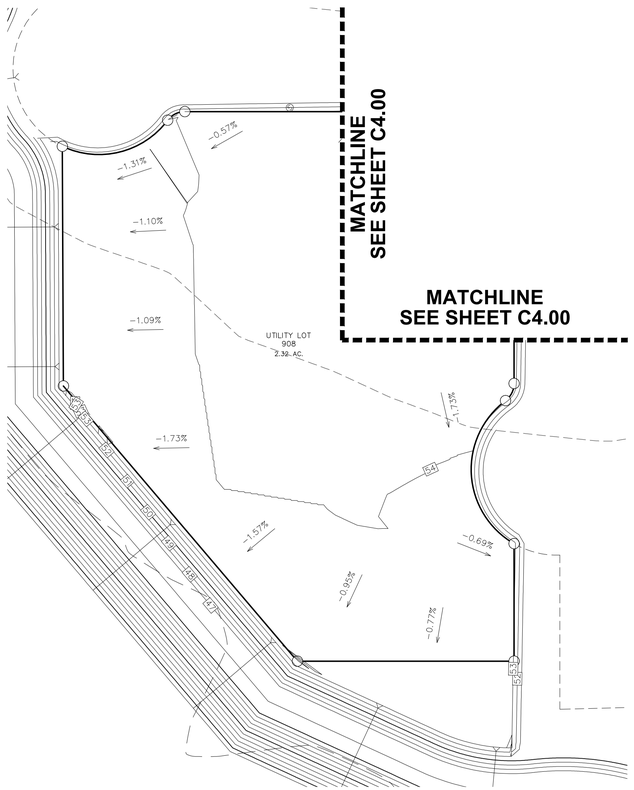
SHEET
C4.01

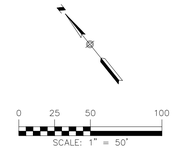
Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\Cds\337.087_GR40.dwg User: joed Sep 12, 2024 - 11:52am

NOTES:

1. DRAINAGE IMPROVEMENTS SUFFICIENT TO MITIGATE OFFSITE IMPACT OF CONSTRUCTION MUST BE COMPLETED AND IN PLACE PRIOR TO ADDING IMPERVIOUS COVER TO THE SITE.
2. ALL FINISHED FLOOR ELEVATIONS SHALL MEET THE FOLLOWING REQUIREMENTS: HUD DETAILS SHOWN ON SHEET C4.03.
3. WHEN POSSIBLE, CONTRACTOR SHALL PHASE GRADING SO AS TO EXPOSE THE MINIMUM AMOUNT OF AREA TO SOIL EROSION FOR THE SHORTEST PERIOD OF TIME.
4. FOR ANY LOTS ADJACENT TO A DRAINAGE STRUCTURE, HOME BUILDER TO ENSURE FINISHED FLOOR HAS A MINIMUM ELEVATION AS LABELED OR AS PER NOTE 2 ABOVE, WHICHEVER IS GREATER.
5. STRIPPING OF VEGETATION FROM PROJECT SITES SHALL BE PHASED SO AS TO EXPOSE THE MINIMUM AMOUNT OF AREA TO SOIL EROSION FOR THE SHORTEST POSSIBLE PERIOD OF TIME.
6. PER TPDES REQUIREMENTS, DISTURBED AREAS ON WHICH CONSTRUCTION ACTIVITIES HAVE CEASED (TEMPORARILY OR PERMANENTLY) SHALL BE STABILIZED WITHIN 14 DAYS UNLESS ACTIVITY RESUMES WITHIN 21 DAYS. SEEDING AND/OR HYDROMULCH DOES NOT CONSTITUTE STABILIZATION, MINIMUM 70 PERCENT VEGETATIVE COVER OF DISTURBED AREAS IS REQUIRED.
7. ALL SIDEWALKS SHALL HAVE A MAX RUNNING SLOPE OF 5%.
8. ALL SIDEWALKS SHALL HAVE A MAX CROSS SLOPE OF 2%.
9. RAMPS SHALL NOT EXCEED 8.33%. RAMPS LONGER THAN 6' REQUIRE HANDRAILS. RAMPS LONGER THAT 30' REQUIRE A LEVEL LANDING.







LEGEND

700	EXISTING CONTOURS
700	PROPOSED CONTOURS
B.L.	BUILDING SETBACK LINE
U.E.	UTILITY EASEMENT
D.E.	DRAINAGE EASEMENT
A	LOT GRADING SEE DETAILS SHEET **C4.03**
	DRAINAGE FLOW DIRECTION
FF=XXX.X'	MINIMUM FINISHED FLOOR ELEVATION

REFER TO THE COVER SHEET FOR BENCHMARK INFORMATION.

THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR WILL AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE INCURRED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, STRUCTURES OR FACILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES 24-HOURS PRIOR TO COMMENCING CONSTRUCTION.

HMT ENGINEERING & SURVEYING
290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

GRADING PLAN 3 OF 3

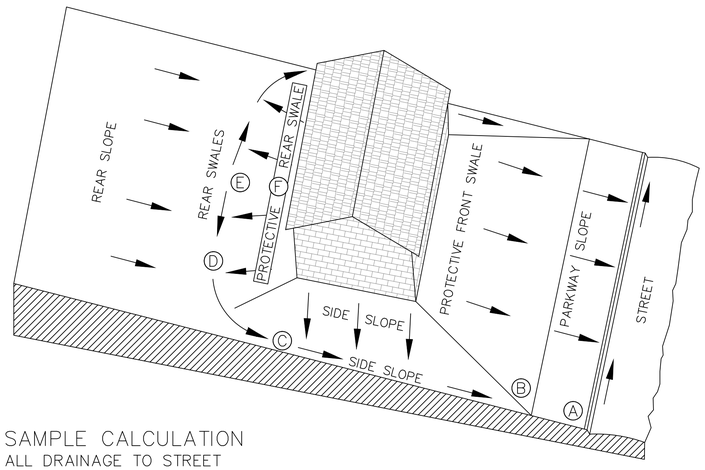
SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: **SEPTEMBER 2024**
DRAWN BY: **CAC**
DESIGNED BY: **WRC**
REVIEWED BY: **JTS**
HMT PROJECT NO.: **337.087**

SHEET
C4.02

Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\CDs\337.087_GR40.dwg User: joed Sep 12, 2024 - 11:52am



SAMPLE CALCULATION
ALL DRAINAGE TO STREET

SAMPLE COMPUTATION OF GRADING CONTROL LINE AF FOR A 60' WIDE LOT WITH A 25' BUILDING LINE, 0.5% STREET, WITH 60' BUILDING DEPTH AND 2% SWALES.				RESULTS OF 1% SWALES	
A	CURB–TOP ON LOT LINE EXTENSION AT HIGH LOT CORNER				
$\overline{AB}$	PARKWAY SLOPE: 15' GRASS AND WALK AT 1/4"/FT. (2%)	4"	(0.3')	2"	(0.2')
$\overline{BC}$	SIDE SWALE: 85' GRASS AT 1/4"/FT. (2%)	21"	(1.8')	11"	(0.9')
$\overline{CD}$	SWALE TURN WITH 10' RADIUS:16' GRASS AT 1/4"/FT. (2%)	4"	(0.3')	2"	(0.2')
$\overline{DE}$**	REAR SWALE: 13' GRASS AT 1/4"/FT. (2%)	3"	(0.3')	2"	(0.2')
$\overline{EF}$*	PROTECTIVE REAR SLOPE UP FROM HIGH POINT OF SWALES	3"	(0.3')	3"	(0.3')
SUB–TOTAL $\overline{AF}$ FROM CURB TOP TO GROUND AT REAL BLDG WALL		35"	(3.0')	20"	(1.7')
MINIMUM RISE FROM CURB TOP TO SLAB FLOOR: 35" + 8"		43"	(3.6')	28"	(2.3')
MINIMUM RISE FOR WOOD FLOOR USING 8" JOISTS: 35" + 9"		54"	(4.5')	39"	(3.3')

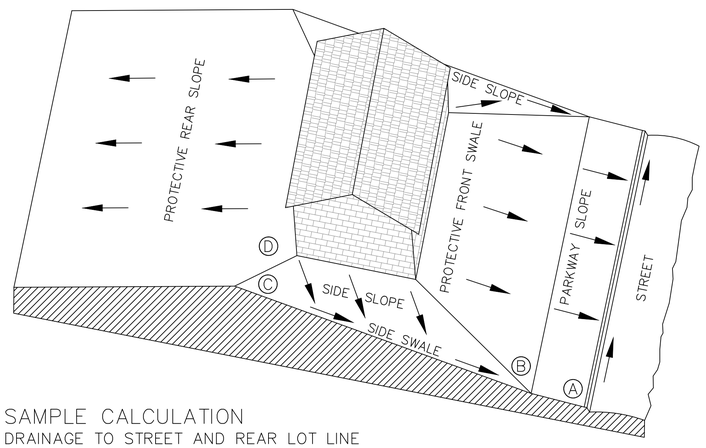
CALCULATIONS FOR 2% SWALES

15 x 0.25" = 3¾"
85 x 0.25" = 21¼"
16 x 0.25" = 4"
13 x 0.25" = 3¼"
10 x 0.25" = 2½"
34¾"

CALCULATIONS USE 0.25" PER FOOT GRADIENT FOR A 2% SWALE.

* WHERE THERE IS A HIGH BANK NEARBY OR A LONG SLOPE TOWARD HOUSE, A MINIMUM 6" PROTECTIVE SLOPE IS REQUIRED.

** LENGTH $\overline{DE}$ = [1/2(LOT WIDTH – (2x SWALE TURN RADIUS))] – [LOT WIDTH x (STREET GRADIENT x SWALE GRADIENT)]



SAMPLE CALCULATION
DRAINAGE TO STREET AND REAR LOT LINE

SAMPLE COMPUTATION OF GRADING CONTROL LINE AF FOR A 60' WIDE LOT WITH A 25' BUILDING LINE, 0.5% STREET, WITH 60' BUILDING DEPTH AND 2% SWALES.				RESULTS OF 1% SWALES	
A	CURB–TOP ON LOT LINE EXTENSION AT HIGH LOT CORNER				
$\overline{AB}$	PARKWAY SLOPE: 15' GRASS AND WALK AT 1/4"/FT. (2%)	4"	(0.3')	2"	(0.2')
$\overline{BC}$	SIDE SWALE: 85' GRASS AT 1/4"/FT. (2%)	21"	(1.8')	11"	(0.9')
$\overline{CD}$*	PROTECTIVE SIDE SLOPE @ REAR BLDG. WALL EXTENSION	3"	(0.3')	3"	(0.3')
SUB–TOTAL $\overline{AD}$ FROM CURB TOP TO GROUND AT REAL BLDG WALL		27"	(2.4')	16"	(1.4')
MINIMUM RISE FROM CURB TOP TO SLAB FLOOR: 27" + 8"		35"	(2.9')	24"	(2.0')
MINIMUM RISE FOR WOOD FLOOR USING 8" JOISTS: 35" + 9"		46"	(3.8')	35"	(2.9')

CALCULATIONS FOR 2% SWALES

15 x 0.25" = 3¾"
85 x 0.25" = 21¼"
6 x 0.25" = 1½"
26½"

CALCULATIONS USE 0.25" PER FOOT GRADIENT FOR A 2% SWALE.

* WHERE THERE IS A HIGH BANK NEARBY OR A LONG SLOPE TOWARD HOUSE, A MINIMUM 6" PROTECTIVE SLOPE IS REQUIRED.

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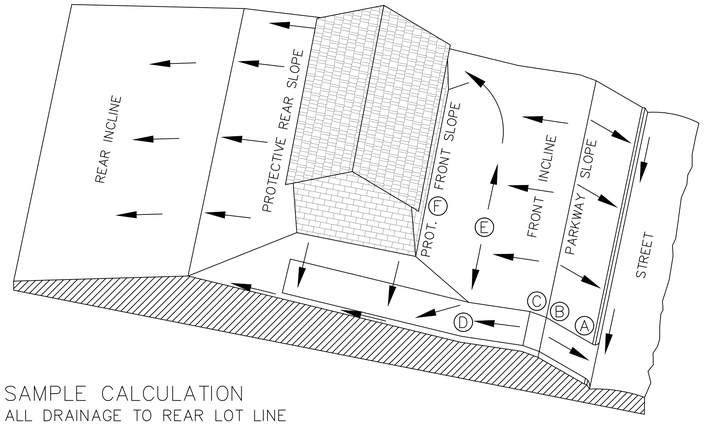


SAMPLE CALCULATION
ALL DRAINAGE TO REAR LOT LINE

SAMPLE COMPUTATION OF GRADING CONTROL LINE $\overline{AF}$ FOR A 60' WIDE LOT WITH A 25' BUILDING LINE, 13.5% DRIVEWAY, AND 16' FRONT SWALE $\overline{DE}$ AT 2.0%.				RESULTS OF 1% SWALES	
A	CURB–TOP HIGH SIDE OF DRIVE NEAR LOW LOT CORNER				
$\overline{AB}$	PARKWAY SLOPE: 15' GRASS AND WALK AT 1/4"/FT. (2%)	4"	(0.3')	2"	(0.2')
$\overline{BC}$	DRIVEWAY GRADE CHANGE: 4' VERTICAL CURVE FROM UP–GRADE DRIVE IN STREET TO DOWN–GRADE DRIVE ON LOT	0"	(0.0')	0"	(0.0')
$\overline{CD}$	DRIVEWAY DOWN–GRADE TO POINT 10 FEET OUT FROM FRONT OF BUILDING: –11' AT 1⅝"/FT (13.5%)	–18"	(–1.5')	–18"	(–1.5')
$\overline{DE}$	FRONT SWALE: 16' GRASS AT 1/4"/FT. (2%)	4"	(0.3')	2"	(0.2')
$\overline{EF}$*	PROT. FRONT SLOPE UP FROM HIGH POINT OF SWALES	3"	(0.3')	3"	(0.3')
SUB–TOTAL $\overline{AF}$ FROM CURB TOP TO GROUND AT FRONT BLDG WALL		–7"	(–1.0')	–11"	(1.3')
MINIMUM RISE FROM CURB TOP TO SLAB FLOOR: –7" + 8"		1"	(–0.3')	–3"	(0.7')
MINIMUM RISE FOR WOOD FLOOR USING 8" JOISTS: –7" + 19"		12"	(–0.6')	8"	(0.3')

CALCULATIONS FOR SWALES

15 x 0.25" = 3¾"
0 x 0.25" = 0"
–11 x 1.625" = –17⅞"
16 x 0.25" = 4"
10 x 0.25" = 2½"
–7½"

CALCULATION:

USE 0.25" PER FOOT GRADIENT FOR A 2% SWALE.

USE 1.625" PER FOOT GRADIENT FOR A 13.5% SWALE.

* WHERE THERE IS A HIGH BANK NEARBY OR A LONG SLOPE TOWARD HOUSE, A MINIMUM 6" PROTECTIVE SLOPE IS REQUIRED.

LOT TYPE Ⓐ

LOT TYPE Ⓑ

LOT TYPE Ⓒ

GENERAL SPECIFICATIONS FOR SITE PREPARATION

GENERAL DESCRIPTION
THIS ITEM SHALL CONSIST OF ALL CLEARING AND 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.

SCARIFYING THE AREA TO BE FILLED
ALL ORGANIC MATTER SHALL BE REMOVED FROM THE SURFACE UPON WHICH THE FILL IS TO BE PLACED, AND SURFACE SHALL 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.

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 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 THD–TEX–113–E COMPACTION PROCEDURE. ALL AREAS EXCEEDING (6") SIX INCHES IN DEPTH, MUST MEET WITH FHA/HUD HANDBOOK 4140.30 SPECIFICATIONS FOR LAND DEVELOPMENTS ON CONTROLLED EARTHWORK, DATASHEET 79G.

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

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 THE 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 THE DEMONSTRATED CAPABILITY.

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.

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).

COMPACTION OF SLOPES
THE FACES OF FILL SLOPES SHALL BE COMPACTED. COMPACTING OPERATIONS SHALL BE CONTINUED UNTIL THE SLOPE FACES ARE STABLE BUT NOT TO DENSE FOR PLANTING ON THE SLOPES. COMPACTION OF THE SLOPE FACE 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.

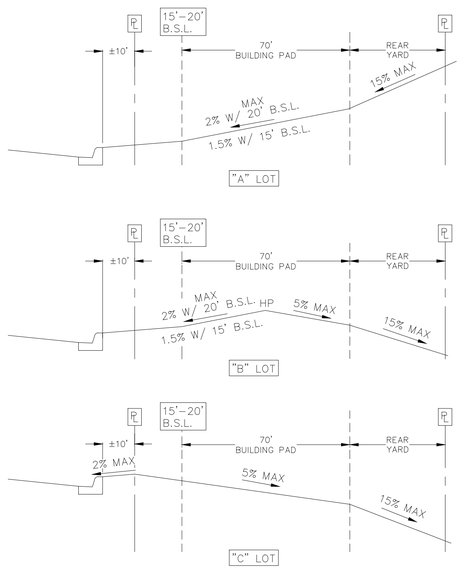
DENSITY TEST
FIELD DENSITY TESTS SHALL BE PERFORMED ON ALL LAYERS OF FILL WHEN THE FILL IS BEING PLACED AS DIRECTED BY THE GEOTECHNICAL ENGINEER. THE MAXIMUM FILL HEIGHT BETWEEN DENSITY TESTING SHALL BE TWELVE INCHES (12"). ALL TESTING SHALL BE REQUESTED BY THE CONTRACTOR TO MEET THE CONTRACTOR'S CONSTRUCTION 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 APPROXIMATED DESIRED TIME OF TESTING. WHEN THESE TEST 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 A GEO–TECHNICAL ENGINEER OR STAFF.

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 8–12 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 AT A MAXIMUM OF EACH TWELVE INCHES (12") 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 TEST RESULTS.

CUT/FILL LOTS
AREAS INVOLVING CUT ON THE 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. FIELD DENSITY TESTS SHALL BE REQUIRED ON EACH CUT/FILL LOT FOR THE PURPOSE OF DETERMINING UNIFORMITY OF THE AREA SUPPORTING THE PROPOSED STRUCTURES.

HUD 79–G
HUD 79–G REQUIREMENT FOR FILL MATERIAL OF 6 INCHES AND MORE WILL BE CONDUCTED. ALL CUT AREAS WILL ALSO MEET THE REQUIREMENTS FOR HUD 79–G COMPACTION TESTING. IN ADDITION, ENGINEERS MUST PROVIDE VERIFICATION OF ALL AREAS WHICH DO NOT REQUIRE HUD 79–G. AFTER SITE GRADING IS COMPLETED, GEO–TECHNICAL ENGINEER SHALL PROVIDE THE CONTRACTOR AND OWNER A 79–G LETTER.

DRAINAGE NOTE
FINISHED FLOOR ELEVATIONS
THE ELEVATION OF THE LOWEST FLOOR SHALL BE AT LEAST 10 INCHES ABOVE THE FINISHED GRADE OF THE SURROUNDING GROUND, WHICH SHALL BE SLOPED IN A FASHION SO AS TO DIRECT STORMWATER AWAY FROM THE STRUCTURE. PROPERTIES ADJACENT TO STORMWATER CONVEYANCE STRUCTURES MUST HAVE FLOOR SLAB ELEVATION OR BOTTOM OF FLOOR JOISTS A MINIMUM OF ONE FOOT ABOVE THE 100–YEAR WATER FLOW ELEVATION IN THE STRUCTURE. DRIVEWAYS SERVING HOUSES ON THE DOWNHILL SIDE OF THE STREET SHALL HAVE A PROPERLY SIZED CROSS SWALE PREVENTING RUNOFF FROM ENTERING THE GARAGE.



LENNAR LOT GRADING STANDARDS

HMT ENGINEERING & SURVEYING
290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

GRADING DETAILS

SINTON RANCH UNIT 1
SINTON, TEXAS

REVISION DATE	REVISION DESCRIPTION	NO.

DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C4.03

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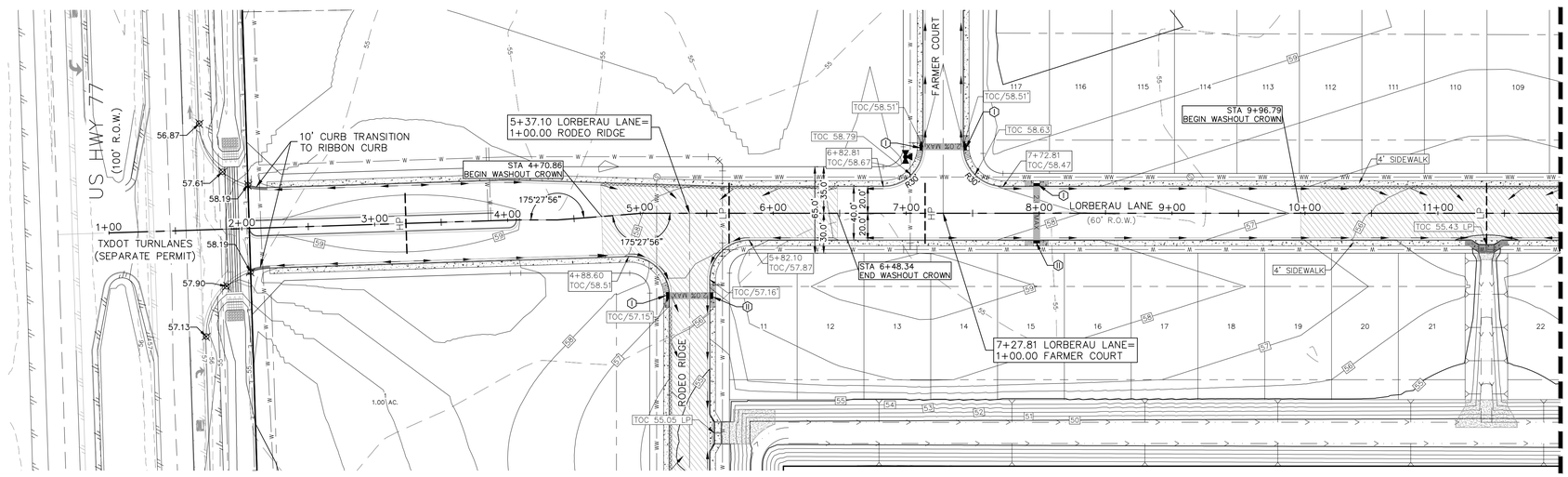
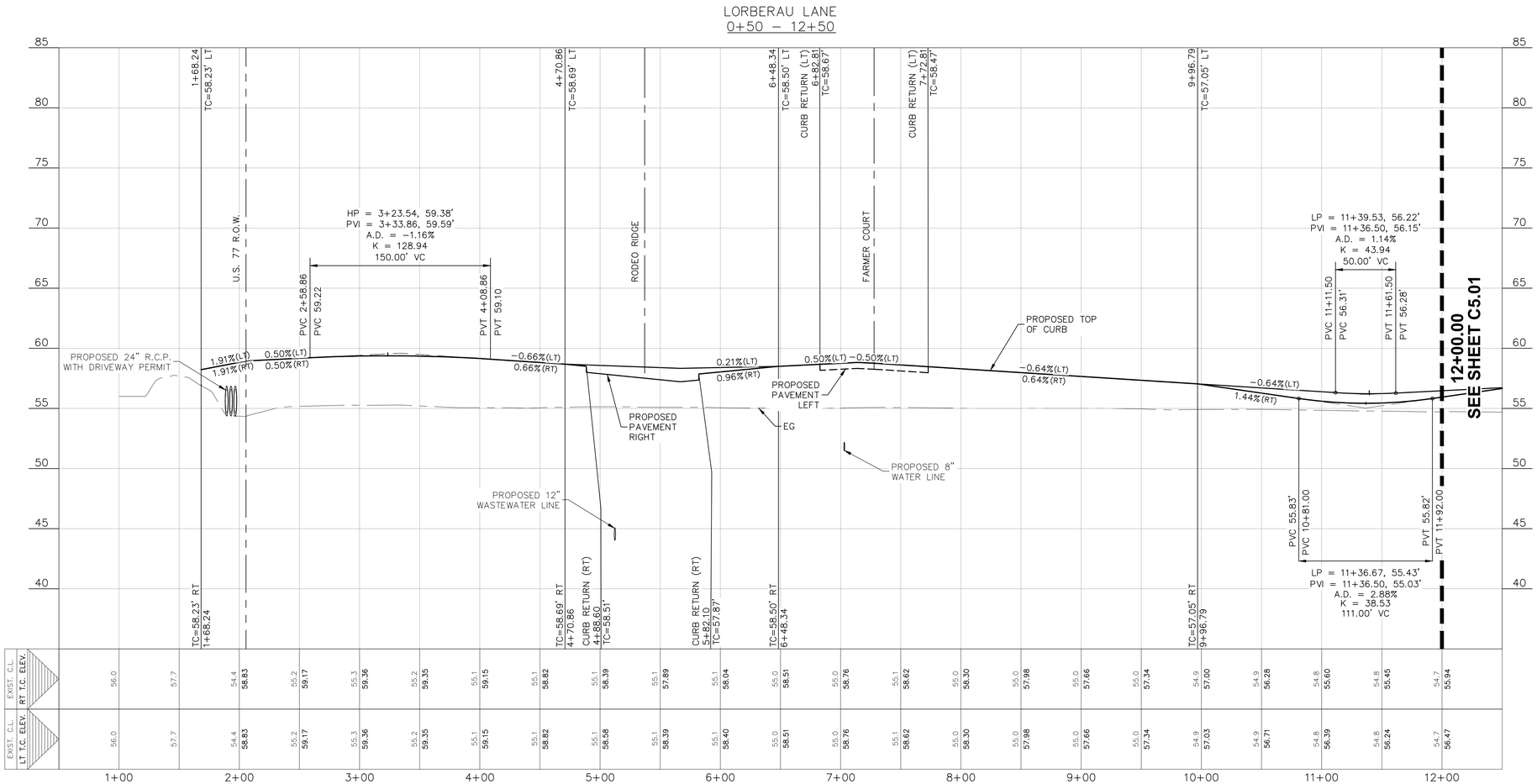


LEGEND

- 700 — EXISTING CONTOURS
- 700 — PROPOSED CONTOURS
- B.L. — BUILDING SETBACK LINE
- U.E. — UTILITY EASEMENT
- D.E. — DRAINAGE EASEMENT
- A.D.A. RAMP
- FLOW ARROW
- WASHOUT CROWN AREAS
- SPILL CURB
- EXISTING GROUND CENTER (EG CTR)
- PROPOSED TOP OF CURB (PR TC)
- 2.0% MAX — ACCESSIBLE CROSSING AREA CONTRACTOR TO ENSURE MAX 2% CROSS SLOPE IN THESE AREAS
- SIDEWALK RAMP TYPE TO BE CONSTRUCTED AT TIME OF STREET CONSTRUCTION (SEE DETAIL SHEET C5.11)
- SIDEWALK TO BE CONSTRUCTED BY SITE DEVELOPMENT CONTRACTOR

NOTES

1. LOCAL STREETS WERE DESIGNED TO POSTED SPEED LIMIT OF 25 MPH.
2. IN WASHOUT CROWN AREAS, THE CURB ON THE HIGH SIDE OF THE STREET SHOULD BE SPILL CURB AS DESIGNATED ON THE PLANS.
3. CONTRACTOR TO CONSTRUCT SIDEWALK RAMPS WITH STREETS.
4. CONTRACTOR TO ENSURE POSITIVE DRAINAGE AWAY FROM STREET STUB OUT ENDS SO THAT NO "PONDING" OF WATER OCCURS.



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HMT ENGINEERING & SURVEYING

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

LORBERAU LANE PLAN & PROFILE 1 OF 3

SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

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C5.00

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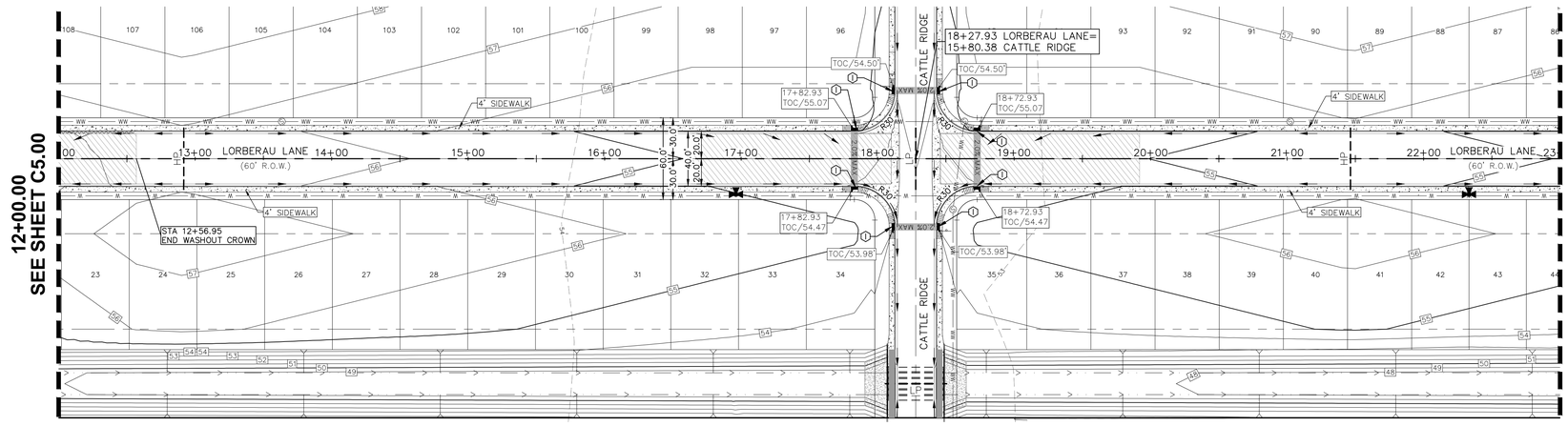

LEGEND

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- PROPOSED CONTOURS
- B.L. BUILDING SETBACK LINE
- U.E. UTILITY EASEMENT
- D.E. DRAINAGE EASEMENT
- A.D.A. RAMP
- FLOW ARROW
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- PROPOSED TOP OF CURB (PR TC)
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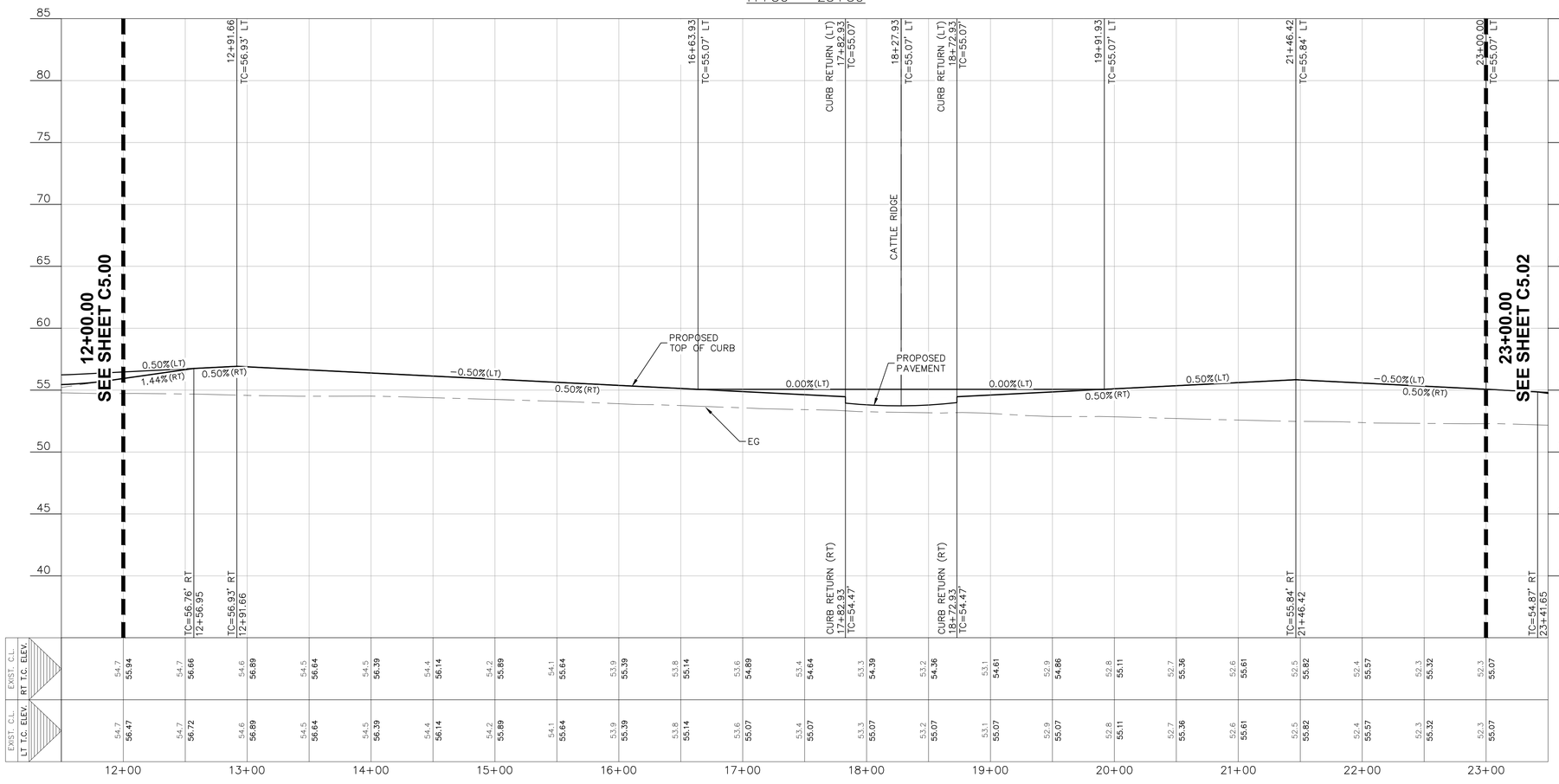
4. CONTRACTOR TO ENSURE POSITIVE DRAINAGE AWAY FROM STREET STUB OUT ENDS SO THAT NO "PONDING" OF WATER OCCURS.

LORBERAU LANE
11+50 – 23+50



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TBPELS FIRM F-10961
TBPELS FIRM 10153600

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED PROFESSIONAL ENGINEER
P.E.

9/12/2024

LORBERAU LANE PLAN & PROFILE 2 OF 3

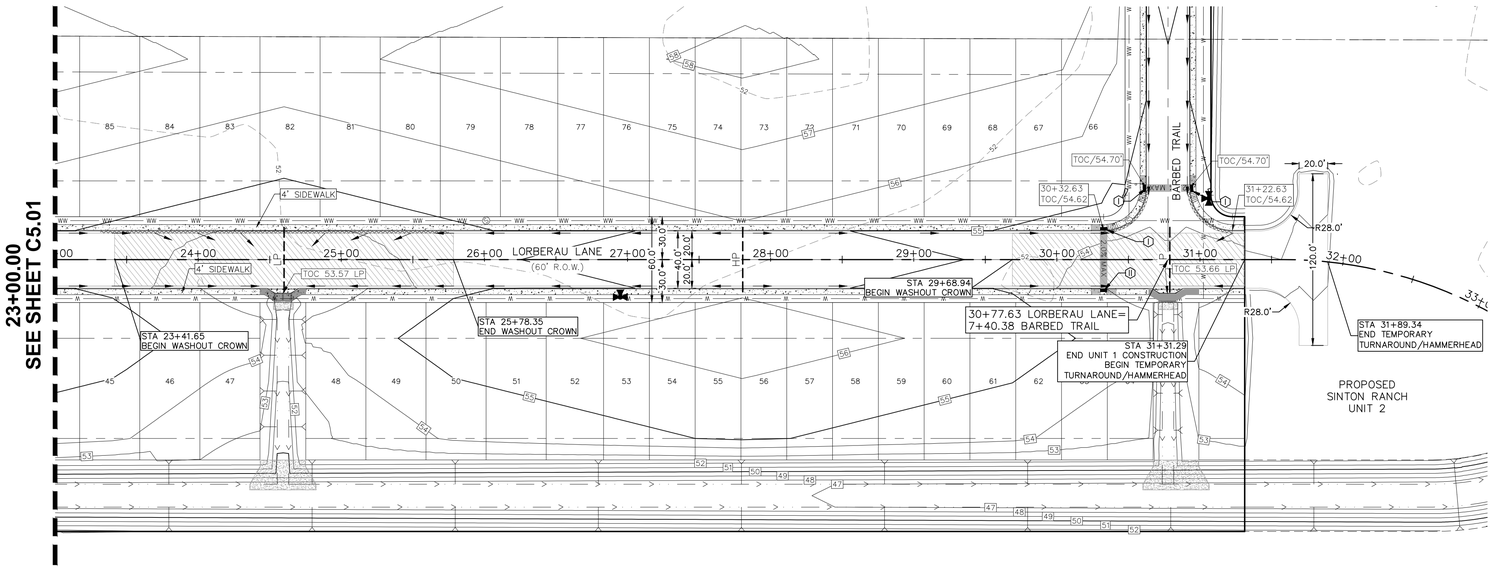
SINTON RANCH UNIT 1
SINTON, TEXAS

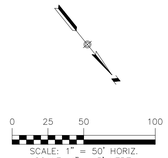
NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C5.01

Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\03a\337.087_ST-LORBERAU LANE P&P.dwg User: joed Sep 12, 2024 - 11:55am





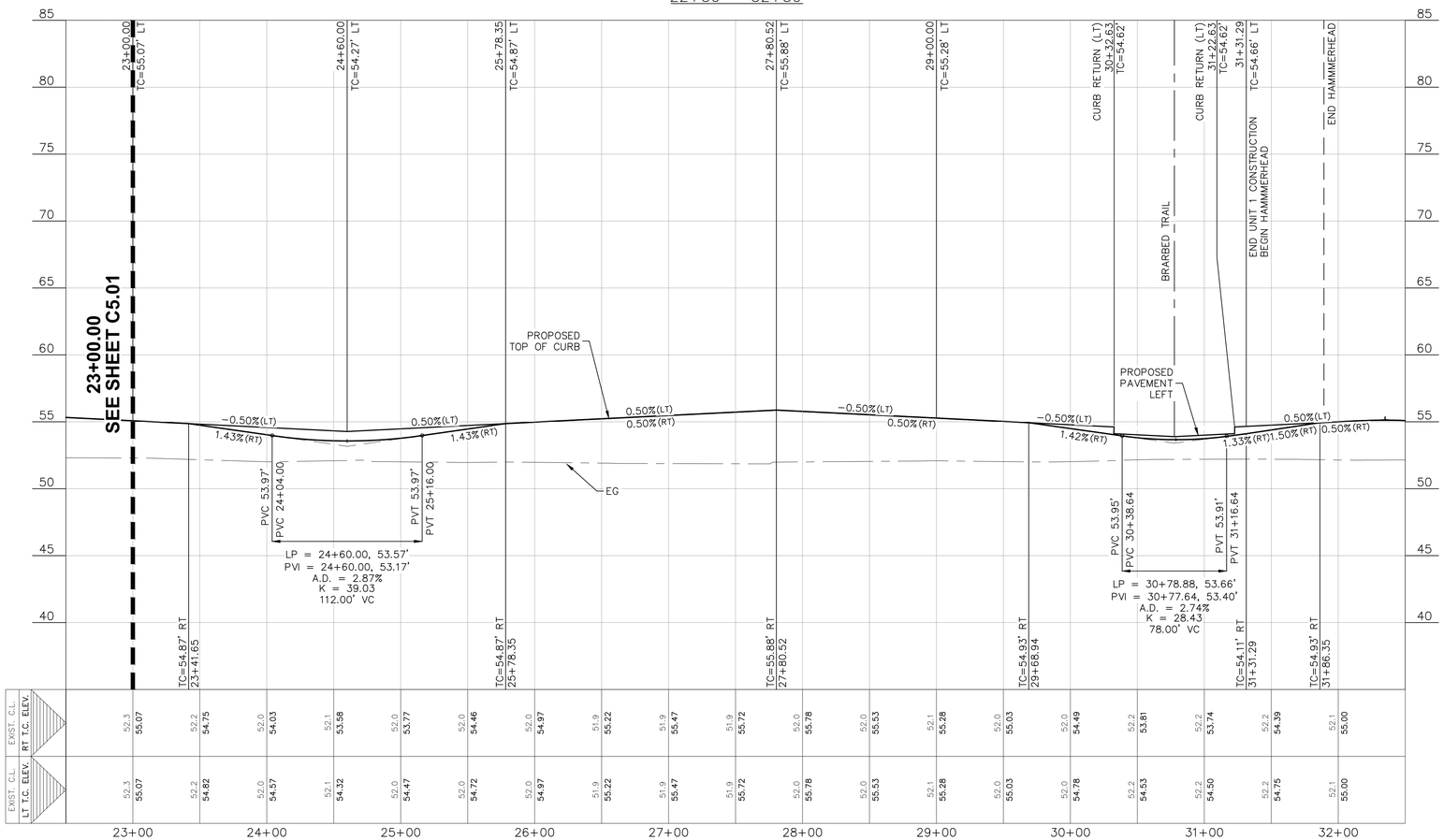
LEGEND

- 700 — EXISTING CONTOURS
- 700 — PROPOSED CONTOURS
- B.L. — BUILDING SETBACK LINE
- U.E. — UTILITY EASEMENT
- D.E. — DRAINAGE EASEMENT
- A.D.A. RAMP
- FLOW ARROW
- WASHOUT CROWN AREAS
- SPILL CURB
- EXISTING GROUND CENTER (EG CTR)
- PROPOSED TOP OF CURB (PR TC)
- 2.0% MAX — ACCESSIBLE CROSSING AREA CONTRACTOR TO ENSURE MAX 2% CROSS SLOPE IN THESE AREAS
- ① — SIDEWALK RAMP TYPE TO BE CONSTRUCTED AT TIME OF STREET CONSTRUCTION (SEE DETAIL SHEET C5.11)
- SIDEWALK TO BE CONSTRUCTED BY SITE DEVELOPMENT CONTRACTOR

NOTES

1. LOCAL STREETS WERE DESIGNED TO POSTED SPEED LIMIT OF 25 MPH.
2. IN WASHOUT CROWN AREAS, THE CURB ON THE HIGH SIDE OF THE STREET SHOULD BE SPILL CURB AS DESIGNED ON THE PLANS.
3. CONTRACTOR TO CONSTRUCT SIDEWALK RAMPS WITH STREETS.
4. CONTRACTOR TO ENSURE POSITIVE DRAINAGE AWAY FROM STREET STUB OUT ENDS SO THAT NO "PONDING" OF WATER OCCURS.

LORBERAU LANE
22+50 – 32+50



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290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600
HMT ENGINEERING & SURVEYING

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

LORBERAU LANE PLAN & PROFILE 3 OF 3

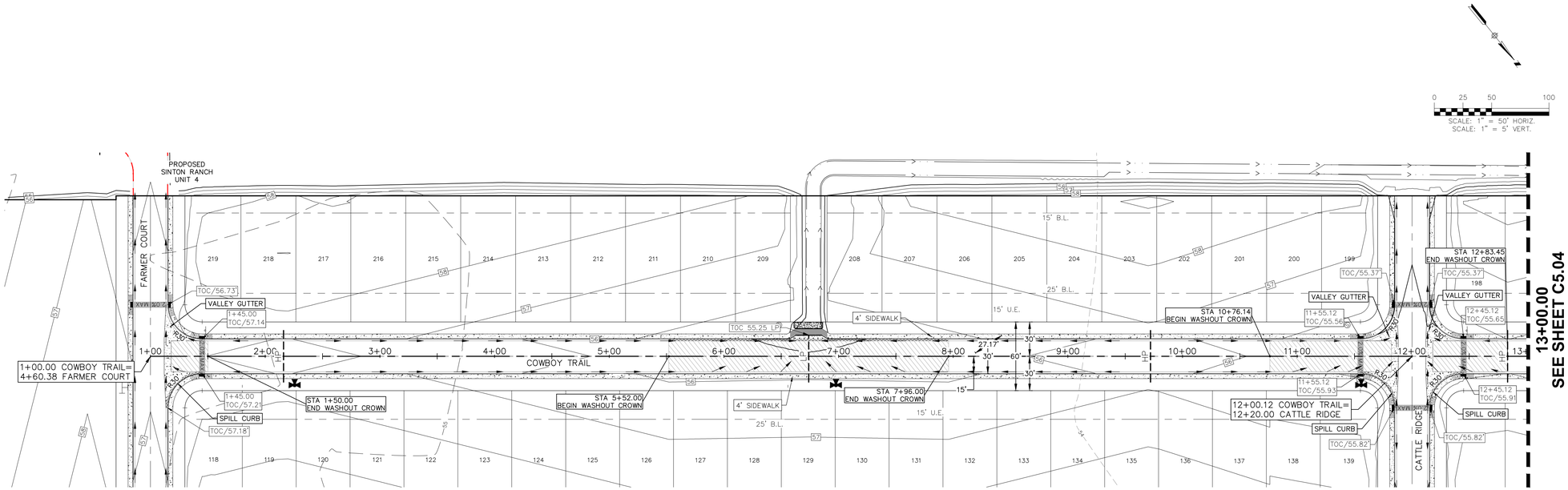
SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C5.02

Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 lots)\02a\337.087_ST-LORBERAU LANE P&P.dwg User: joed Sep 12, 2024 - 11:55am



LEGEND

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- 700 — PROPOSED CONTOURS
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- D.E. — DRAINAGE EASEMENT
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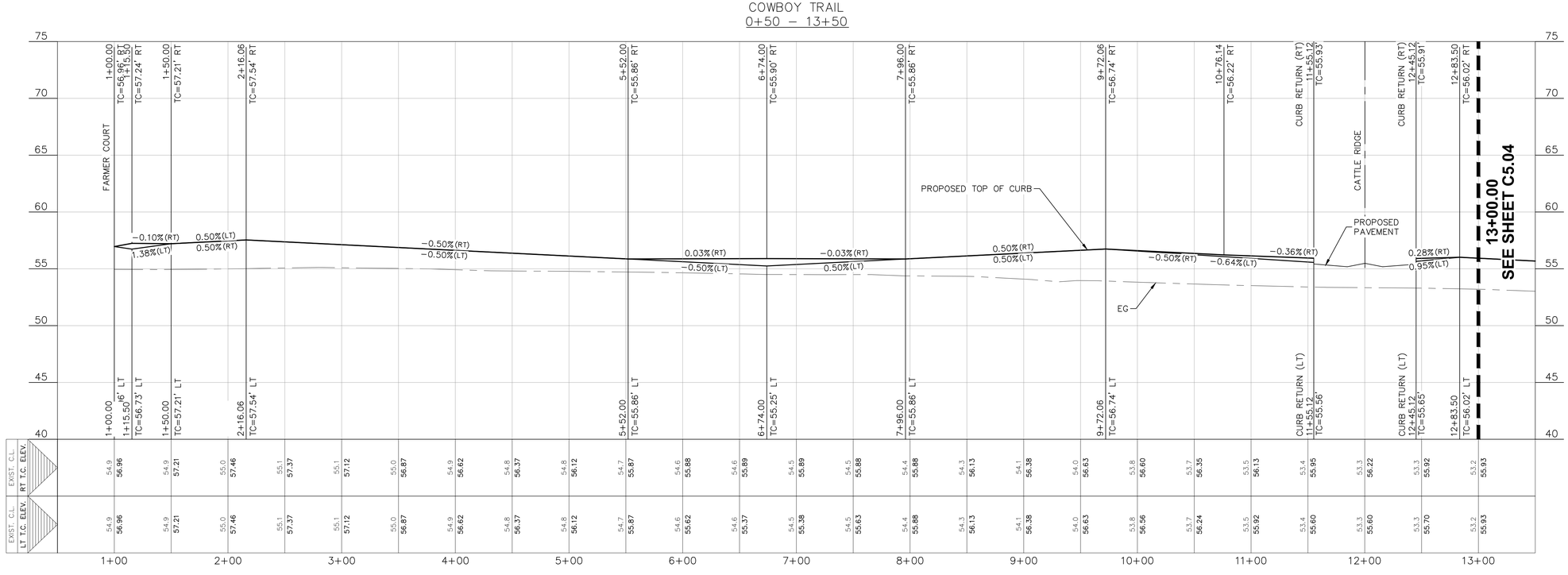
COWBOY TRAIL
0+50 – 13+50



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LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

COWBOY TRAIL PLAN & PROFILE 1 OF 2

SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C5.03

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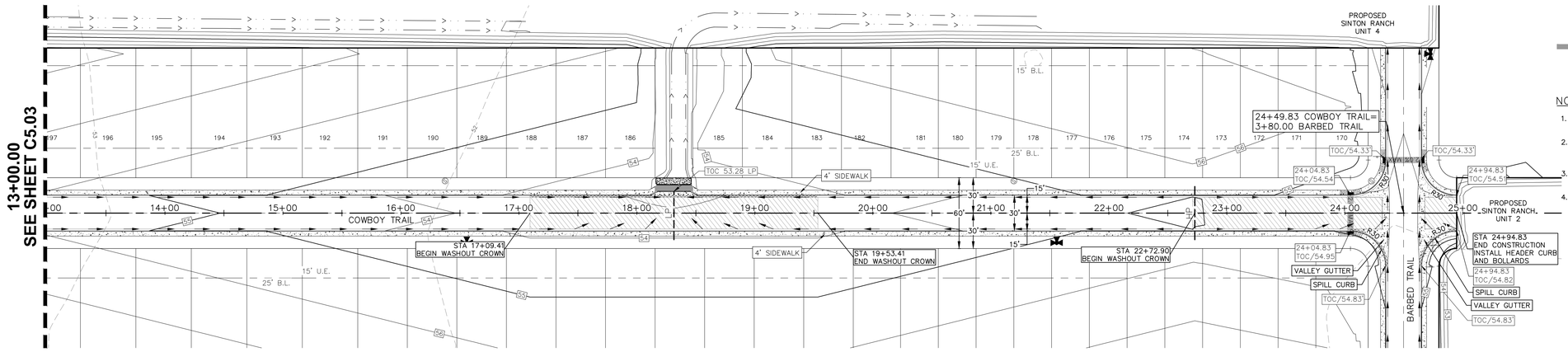

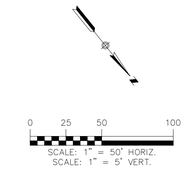

LEGEND

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- PROPOSED CONTOURS
- B.L. BUILDING SETBACK LINE
- U.E. UTILITY EASEMENT
- D.E. DRAINAGE EASEMENT
- A.D.A. RAMP
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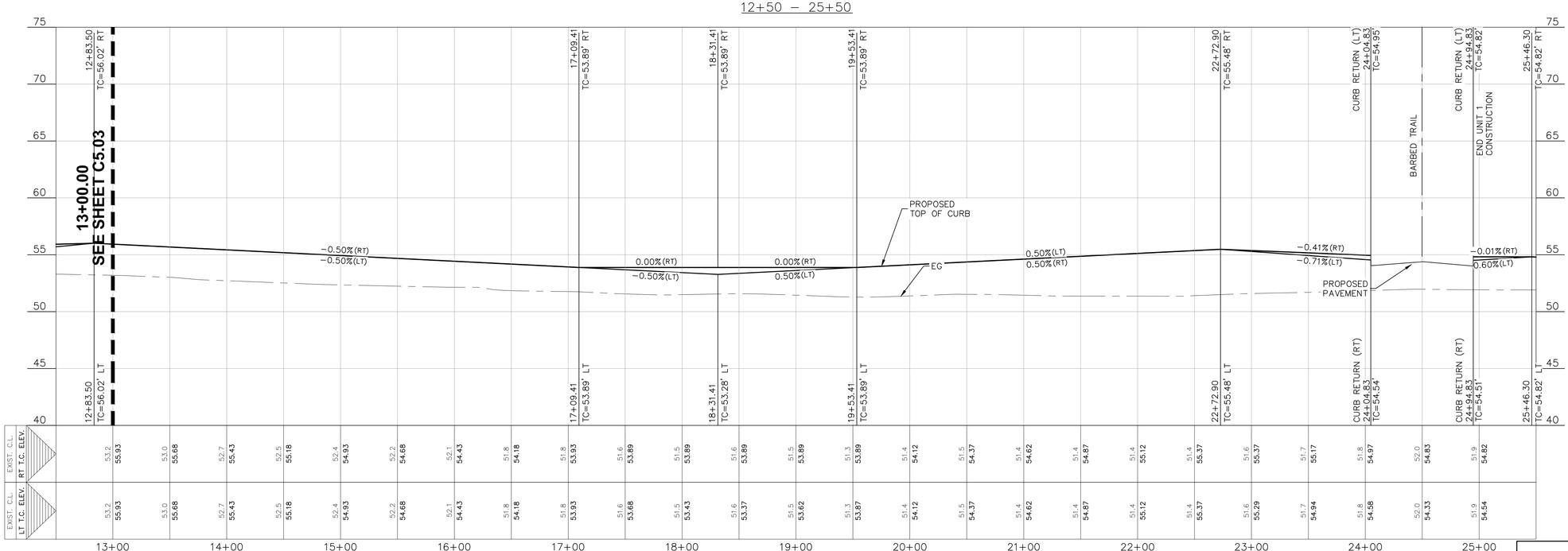
COWBOY TRAIL
12+50 – 25+50



	13+00	14+00	15+00	16+00	17+00	18+00	19+00	20+00	21+00	22+00	23+00	24+00	25+00
EXIST. C.L. RT T.C. ELEV.	53.2 55.93	53.0 55.68	52.7 55.43	52.5 55.18	52.4 54.93	52.2 54.68	52.1 54.43	51.8 54.18	51.8 53.93	51.6 53.89	51.5 53.89	51.6 53.89	51.5 53.89
EXIST. C.L. LT T.C. ELEV.	53.2 55.93	53.0 55.68	52.7 55.43	52.5 55.18	52.4 54.93	52.2 54.68	52.1 54.43	51.8 54.18	51.8 53.93	51.6 53.68	51.5 53.43	51.6 53.37	51.5 53.62

	13+00	14+00	15+00	16+00	17+00	18+00	19+00	20+00	21+00	22+00	23+00	24+00	25+00
EXIST. C.L. RT T.C. ELEV.	51.3 53.89	51.4 54.12	51.5 54.37	51.4 54.62	51.4 54.87	51.4 55.12	51.4 55.37	51.6 55.37	51.6 55.29	51.7 55.17	51.8 54.97	52.0 54.83	51.9 54.82
EXIST. C.L. LT T.C. ELEV.	51.3 53.87	51.4 54.12	51.5 54.37	51.4 54.62	51.4 54.87	51.4 55.12	51.4 55.37	51.6 55.37	51.6 55.29	51.7 54.94	51.8 54.58	52.0 54.33	51.9 54.54

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HMT ENGINEERING & SURVEYING
290 S. CASTELL AVE., STE. 100
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TBPELS FIRM F-10961
TBPELS FIRM 10153600

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

COWBOY TRAIL PLAN & PROFILE 2 OF 2

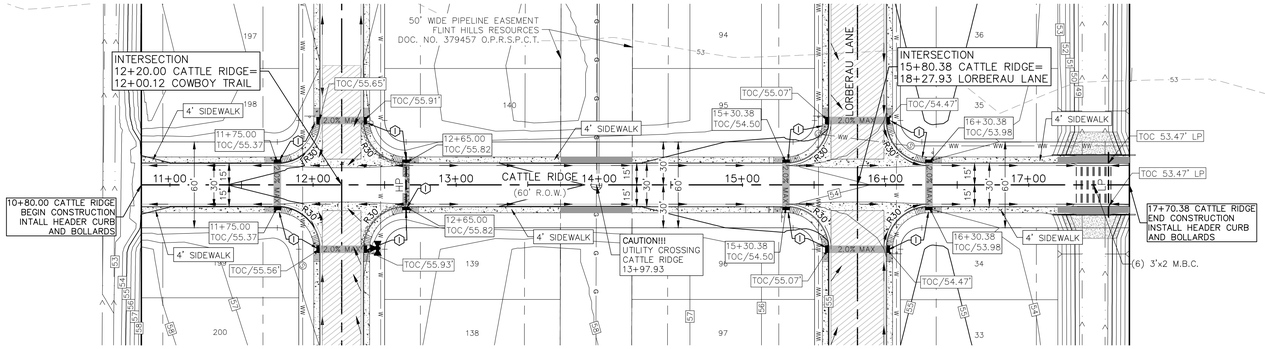
SINTON RANCH UNIT 1
SINTON, TEXAS

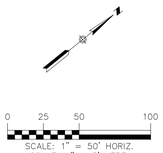
NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C5.04

Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\CDs\337.087_ST-COWBOY TRAIL P&P.dwg User: jped Sep 12, 2024 - 2:13pm





LEGEND

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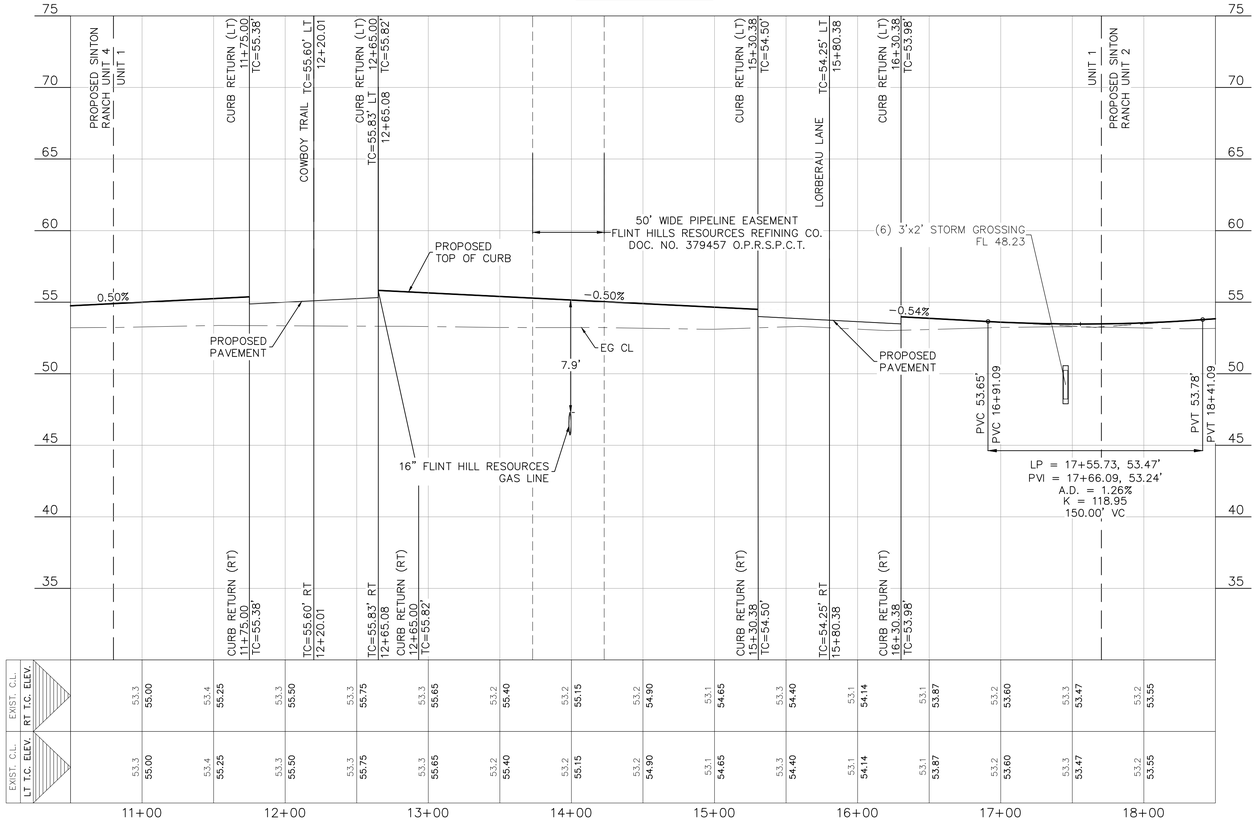
CATTLE RIDGE
10+50 – 18+50



290 S. CASTELL AVE., STE. 100
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HMT ENGINEERING & SURVEYING

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

CATTLE RIDGE
PLAN & PROFILE

SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: **SEPTEMBER 2024**
DRAWN BY: **CAC**
DESIGNED BY: **WRC**
REVIEWED BY: **JTS**
HMT PROJECT NO.: **337.087**

SHEET
C5.05

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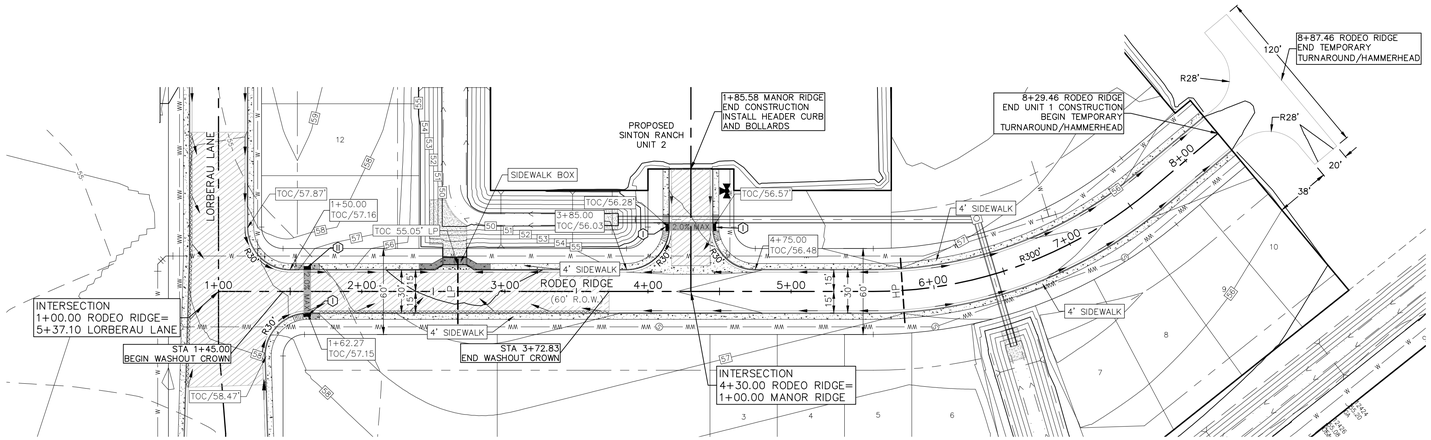

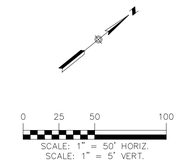

LEGEND

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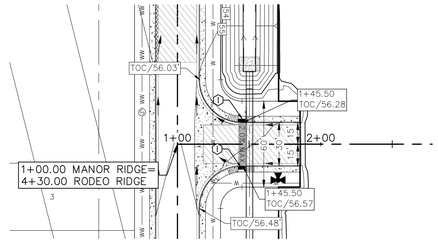
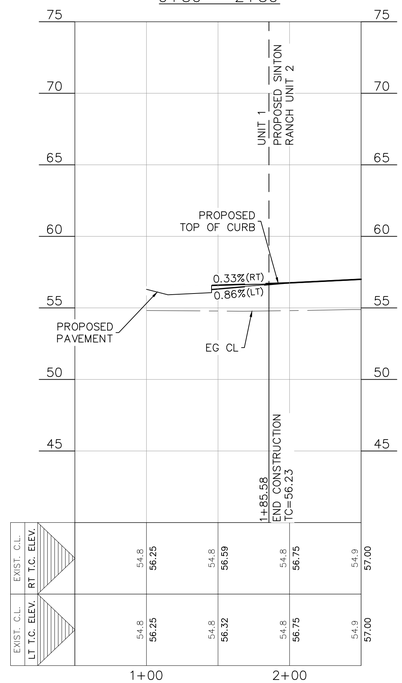
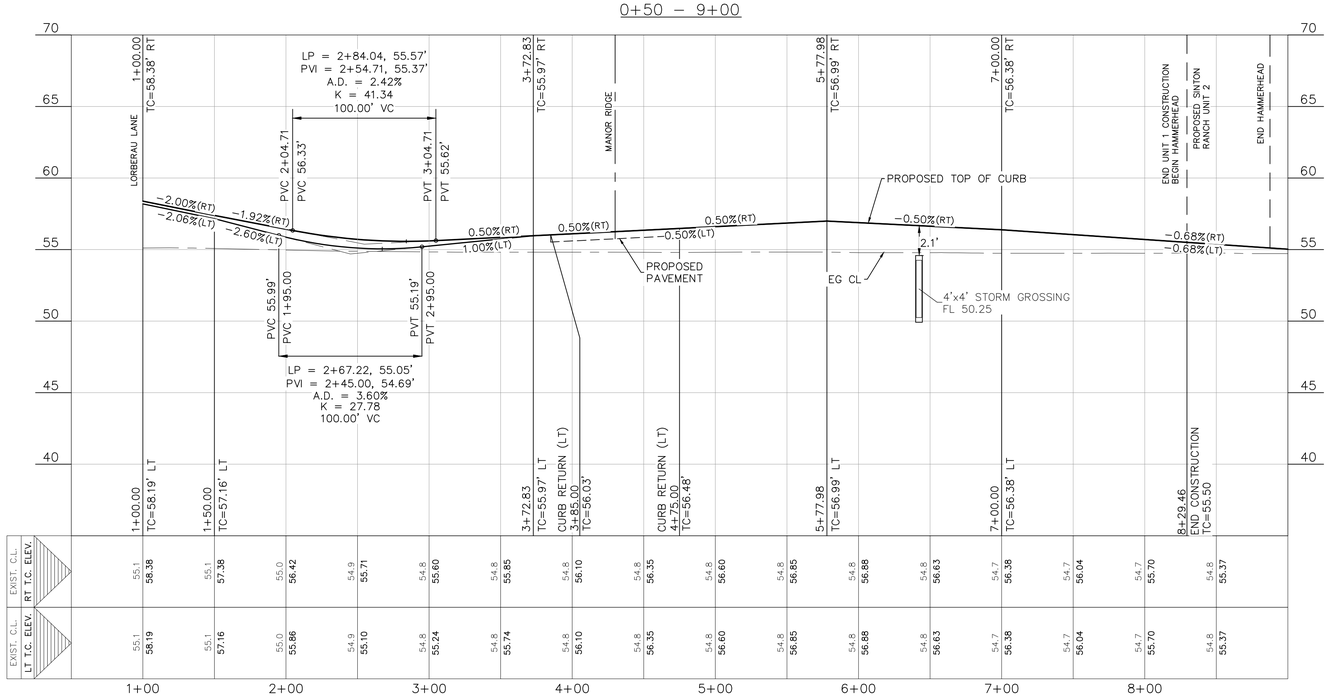


MANOR RIDGE
0+50 – 2+50



RODEO RIDGE
0+50 – 9+00



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STATE OF TEXAS
JOSEPH T. SANDOVAL
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LICENSED PROFESSIONAL ENGINEER
P.E.

9/12/2024

RODEO RIDGE PLAN & PROFILE

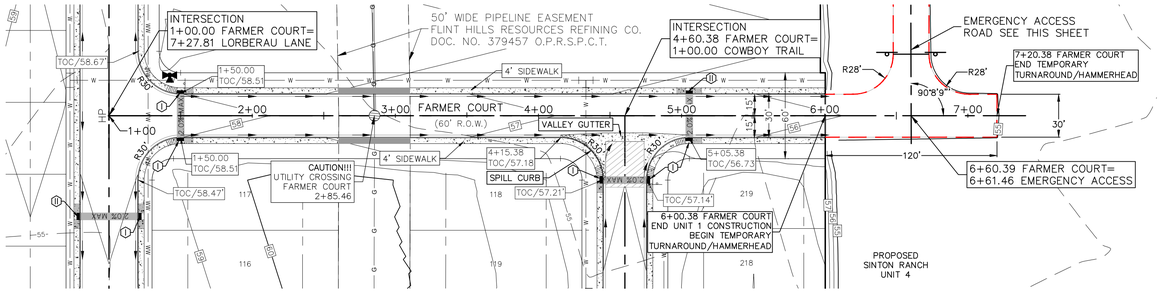
SINTON RANCH UNIT 1
SINTON, TEXAS

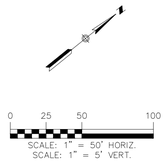
NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C5.06

Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\CDs\337.087_ST_CATTLE R - RODEO R - FARMER C P&P.dwg User: jsed Sep 12, 2024 - 4:51pm





LEGEND

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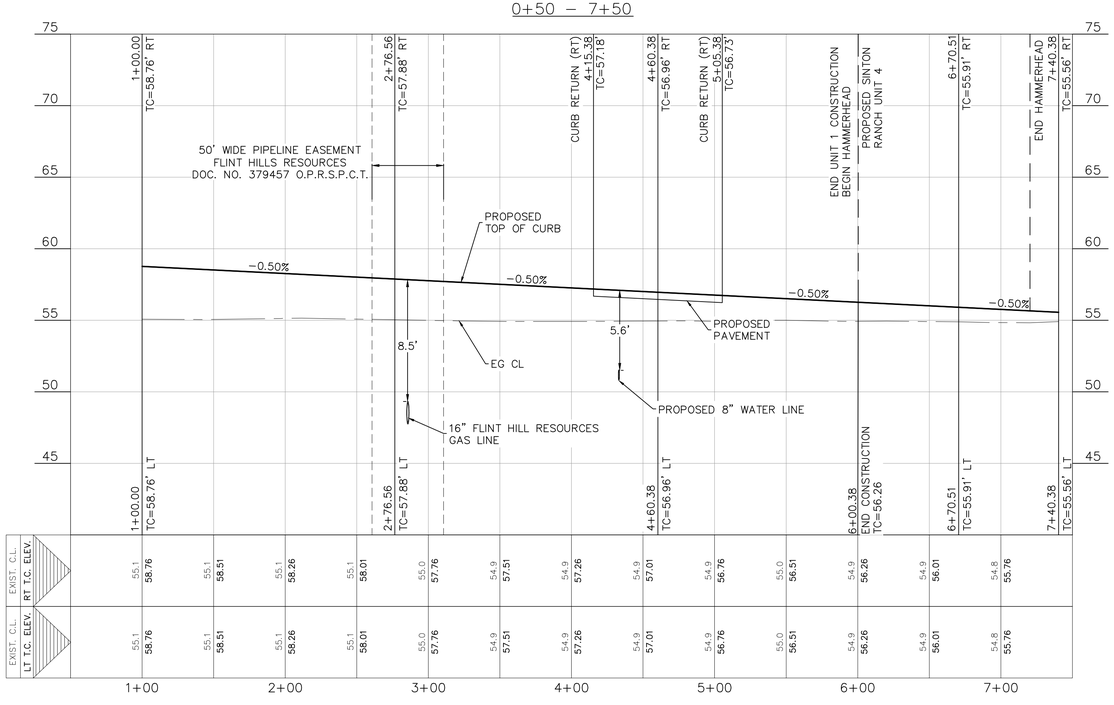
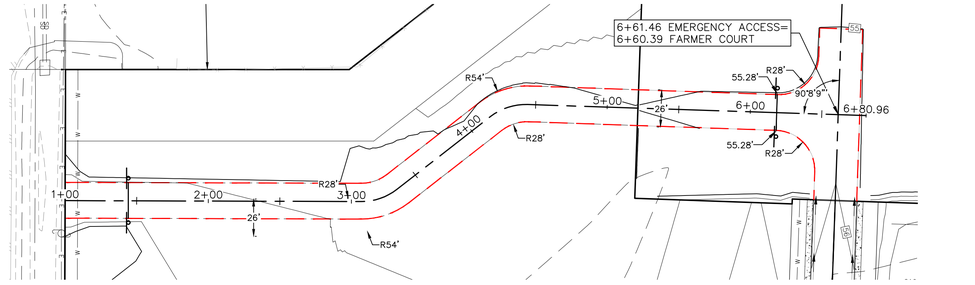
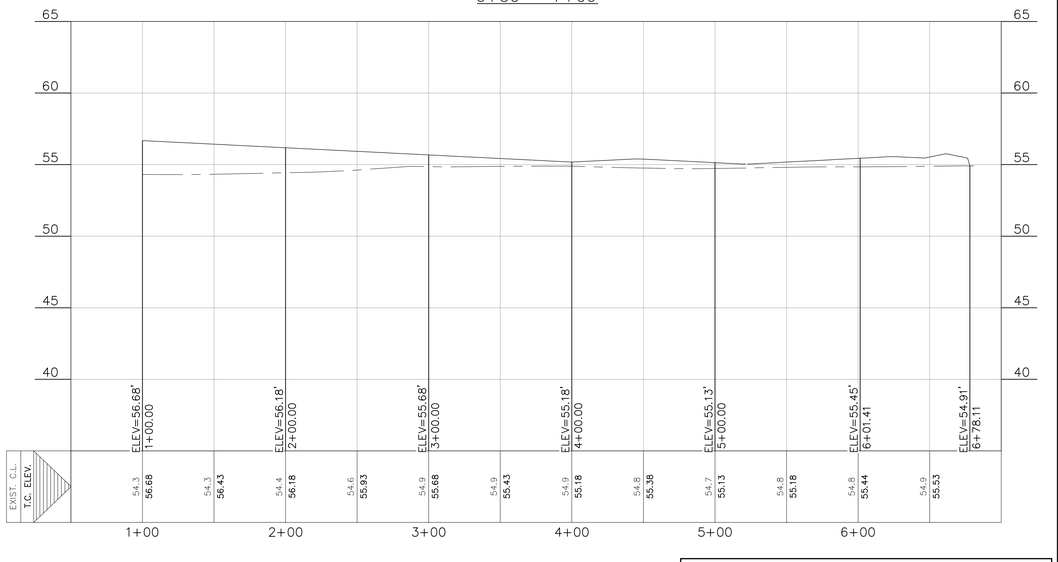
FARMER COURT
0+50 – 7+50





EMERGENCY ACCESS
0+50 – 7+00



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HMT ENGINEERING & SURVEYING
290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

FARMER COURT PLAN & PROFILE

SINTON RANCH UNIT 1

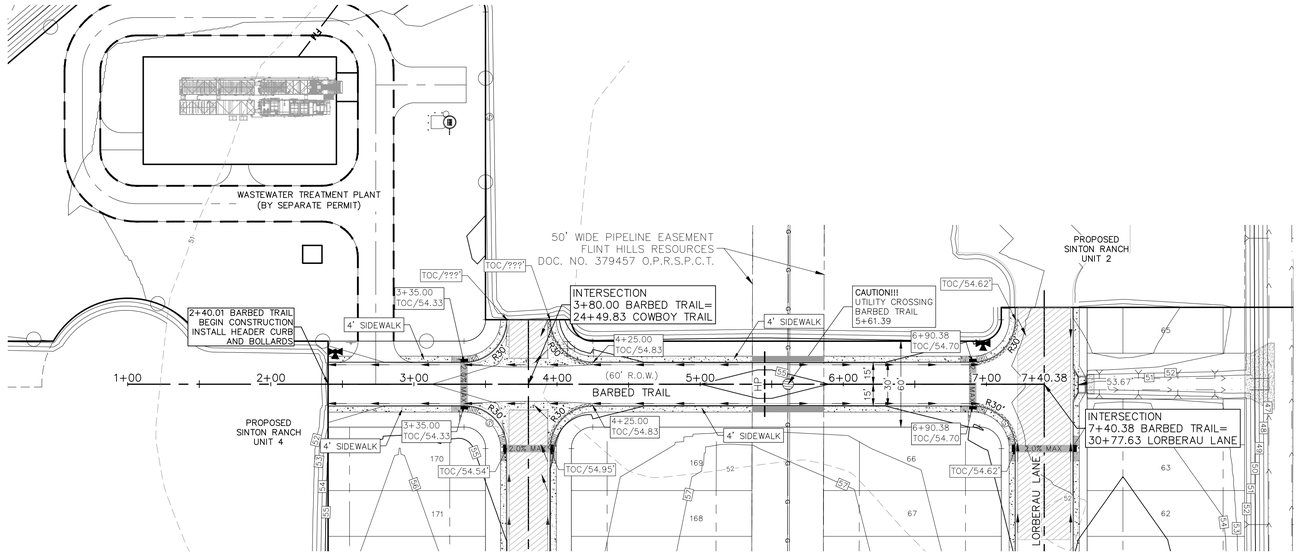
SINTON, TEXAS

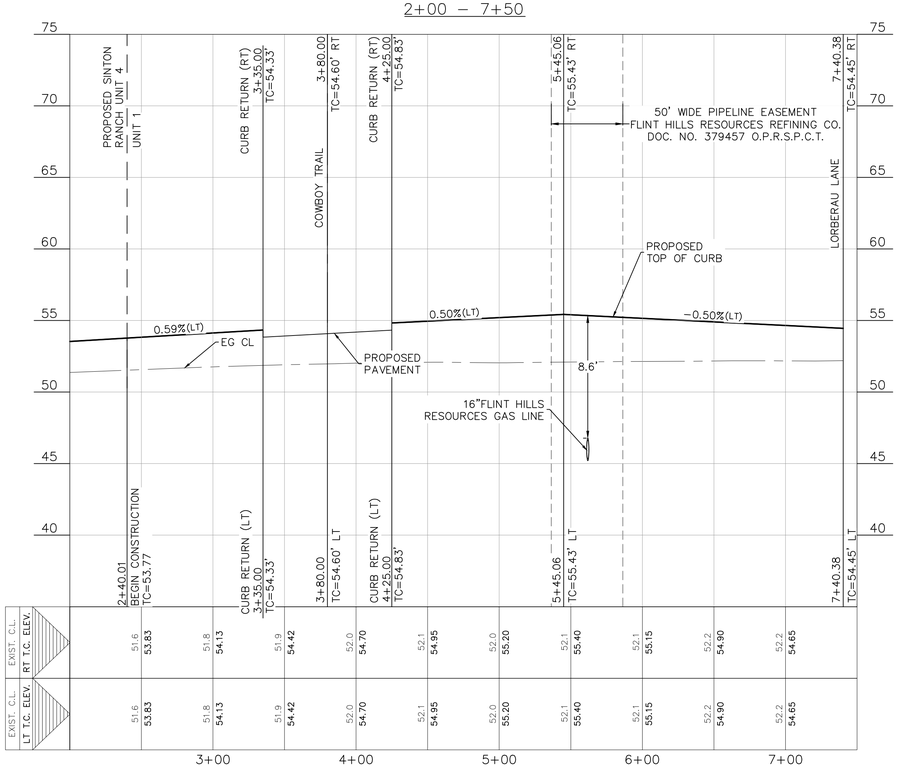
NO.	REVISION DESCRIPTION	REVISION DATE

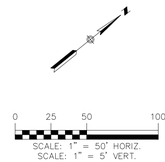
DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C5.07

Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\03s\337.087_ST-CATTLE R - RODEO R - FARMER C P&P.dwg User: joed Sep 12, 2024 - 11:59am







LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- B.L. BUILDING SETBACK LINE
- U.E. UTILITY EASEMENT
- D.E. DRAINAGE EASEMENT
- A.D.A. RAMP
- FLOW ARROW
- WASHOUT CROWN AREAS
- SPILL CURB
- EXISTING GROUND CENTER (EG CTR)
- PROPOSED TOP OF CURB (PR TC)
- 2.0% MAX — ACCESSIBLE CROSSING AREA CONTRACTOR TO ENSURE MAX 2% CROSS SLOPE IN THESE AREAS
- SIDEWALK RAMP TYPE TO BE CONSTRUCTED AT TIME OF STREET CONSTRUCTION (SEE DETAIL SHEET C5.11)
- SIDEWALK TO BE CONSTRUCTED BY SITE DEVELOPMENT CONTRACTOR

NOTES

1. LOCAL STREETS WERE DESIGNED TO POSTED SPEED LIMIT OF 25 MPH.
2. IN WASHOUT CROWN AREAS, THE CURB ON THE HIGH SIDE OF THE STREET SHOULD BE SPILL CURB AS DESIGNATED ON THE PLANS.
3. CONTRACTOR TO CONSTRUCT SIDEWALK RAMPS WITH STREETS.
4. CONTRACTOR TO ENSURE POSITIVE DRAINAGE AWAY FROM STREET STUB OUT ENDS SO THAT NO "PONDING" OF WATER OCCURS.

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HMT ENGINEERING & SURVEYING

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
Joseph T. Sandoval P.E.

9/12/2024

BARBED TRAIL PLAN & PROFILE

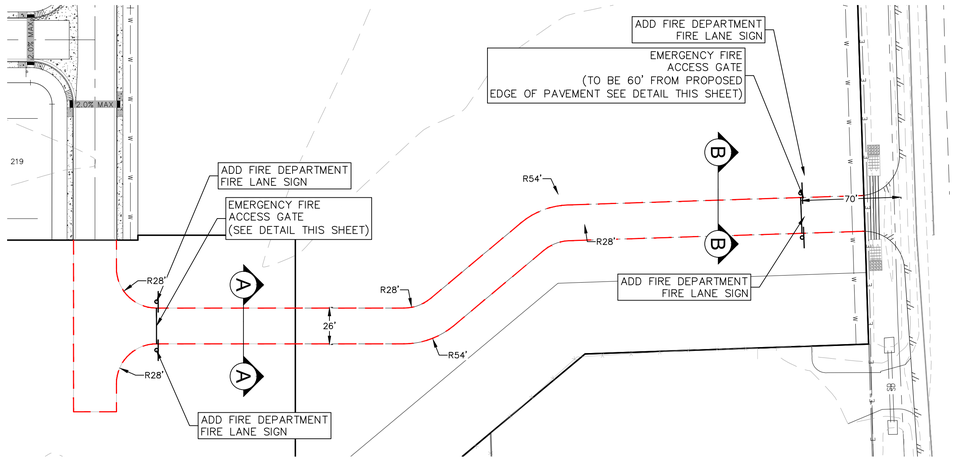
SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

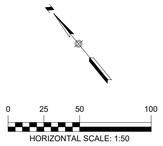
DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

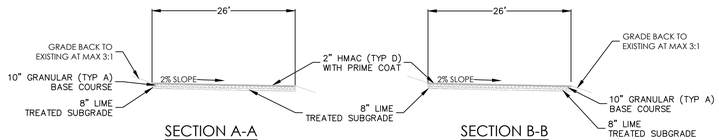
SHEET
C5.08

Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\CDs\337.087_ST-CATTLE R - RODEO R - FARMER C P&P.dwg User: jsed Sep 12, 2024 - 11:59am



EMERGENCY FIRE ACCESS ROAD DETAIL





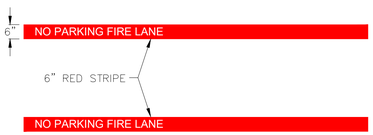
SECTION A-A
26' EMERGENCY ACCESS ROAD
CROSS SECTION (1:10)

SECTION B-B
26' EMERGENCY ACCESS ROAD
CROSS SECTION (1:10)

FIRE LANE NOTES:

STRIPING – THE TOP FACE OF ROAD CURBS SHALL BE PAINTED UTILIZING RED TRAFFIC PAINT.

A. IF NO CURBS ARE PRESENT, A SIX INCH (6") WIDE STRIPE PAINTED OF TRAFFIC RED PAINT SHALL BE PAINTED ON THE DRIVING SURFACE TO SHOW THE BOUNDARIES OF THE LANE.
B. THE WORDS "NO PARKING FIRE LANE" SHALL BE SPACED AT A MAXIMUM OF 25 FEET APART, ALONG THE LENGTH OF THE FIRE LANES. SEE ILLUSTRATION BELOW.



1 FIRE LANE DETAIL
N.T.S.

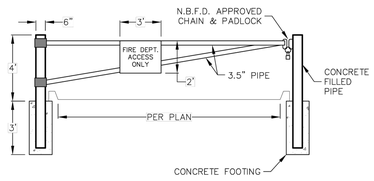
FIRE DEPARTMENT
FIRE LANE SIGNS

STANDARD FIRE LANE SIGN DETAIL

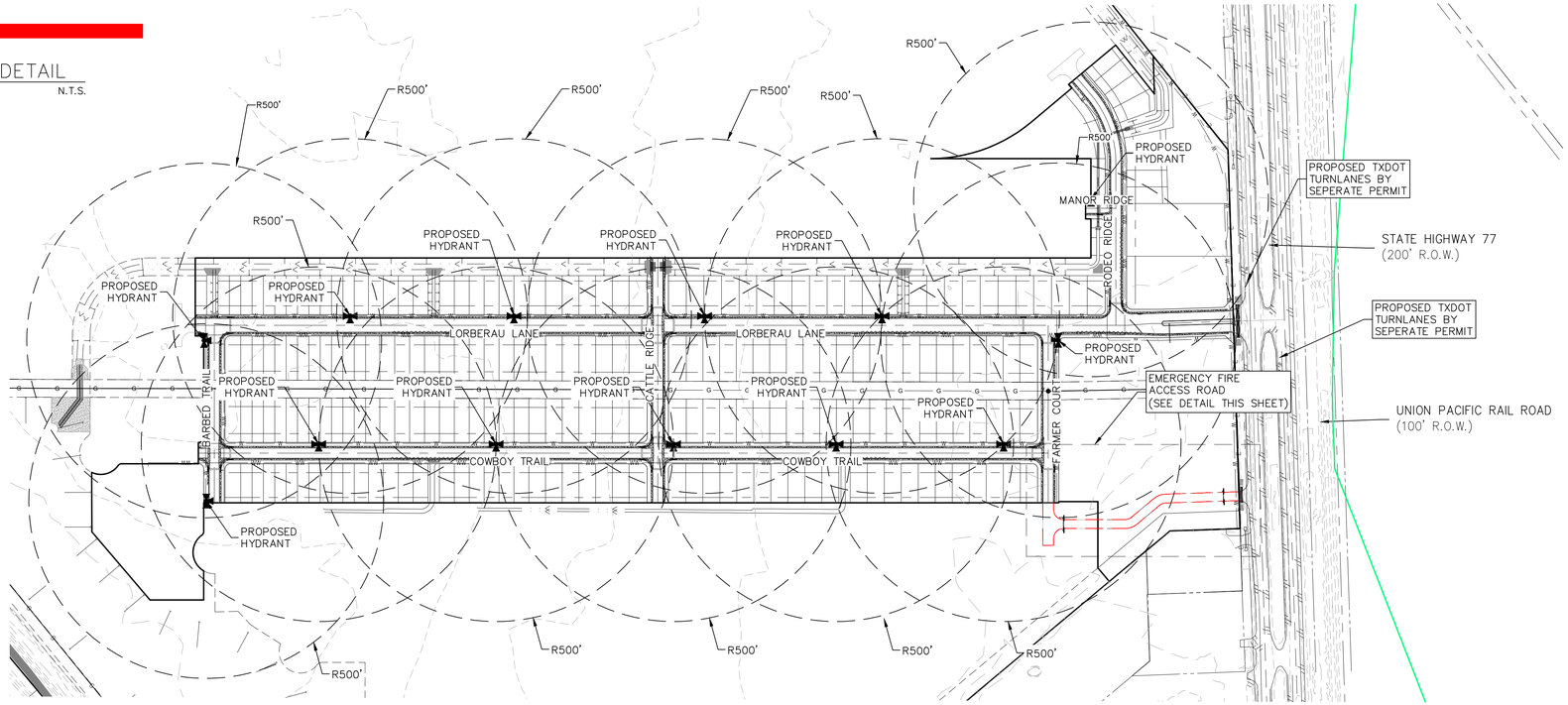
UNIVERSAL SYMBOL FIRE LANE SIGN DETAIL

1. THE SIGN PLATE SHALL BE A MINIMUM OF 12" X 18" WITH A THICKNESS OF .080 ALUMINUM CONSTRUCTION.

2. THE SIGN FACE SHALL HAVE A WHITE REFLECTIVE BACKGROUND WITH A RED LEGEND. USE THE STANDARD 3M SCOTCHLITE SIGN FACE NUMBER R7-32 OR EQUIVALENT, WITH RED SCREEN PRINTED LETTERING AS SHOWN ABOVE.



SCALE: N.T.S. FIRE DEPT. ACCESS GATE



LEGEND

FIRE HYDRANT

FIRE LANE

SIGNAGE NOTES

INSTALLATION

THE CONTRACTOR SHALL FURNISH AND INSTALL ALL REGULATORY, WARNING AND STREET NAME SIGNS AND SIGN MOUNTS IN ACCORDANCE WITH APPROVED ENGINEERING PLANS.

MOUNTING

THE WEDGE ANCHOR STEEL SYSTEM AND THIN–WALLED TUBING POST SHALL BE USED FOR SIGNS WITH UP TO 10 SQUARE FEET OF SIGN AREA. MATERIALS AND INSTALLATION SHOULD FOLLOW THE TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) TRAFFIC STANDARDS SMD (GEN) – 08 AND SMD (TWT) – 08.

THE TRIANGULAR SLIP BASE SYSTEM AND 10 BWG TUBING POST SHALL BE USED FOR SIGNS THAT HAVE 10 TO 16 SQUARE FEET OF SIGN AREA. MATERIALS AND INSTALLATION SHOULD FOLLOW THE TXDOT TRAFFIC STANDARDS SMD (GEN) – 08 AND SMD (SLIP–1–3)– 08.

OBJECT MARKERS MATERIALS AND INSTALLATION SHOULD FOLLOW THE TXDOT TRAFFIC STANDARDS D & OM (1 – 5) – 10.

NOTES

1. LOCAL STREETS WERE DESIGNED TO POSTED SPEED LIMIT OF 25 MPH.
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STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

FIRE PROTECTION PLAN

SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: **SEPTEMBER 2024**
DRAWN BY: **CAC**
DESIGNED BY: **WRC**
REVIEWED BY: **JTS**
HMT PROJECT NO.: **337.087**

SHEET
C5.09

Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\CDs\337.087_ST-SIGNAGE.dwg User: jped Sep 12, 2024 - 12:01pm

SIGNAGE NOTES

INSTALLATION

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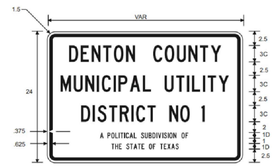
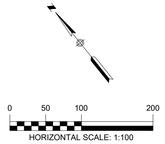


DETAIL: TYPICAL TEXAS UTILITY–DISTRICT SIGN

NOTE

THE PROPOSED SIGN ONCE INSTALLED WILL READ: SAN PATRICO COUNTY MUNICIPAL UTILITY DISTRICT NO 1



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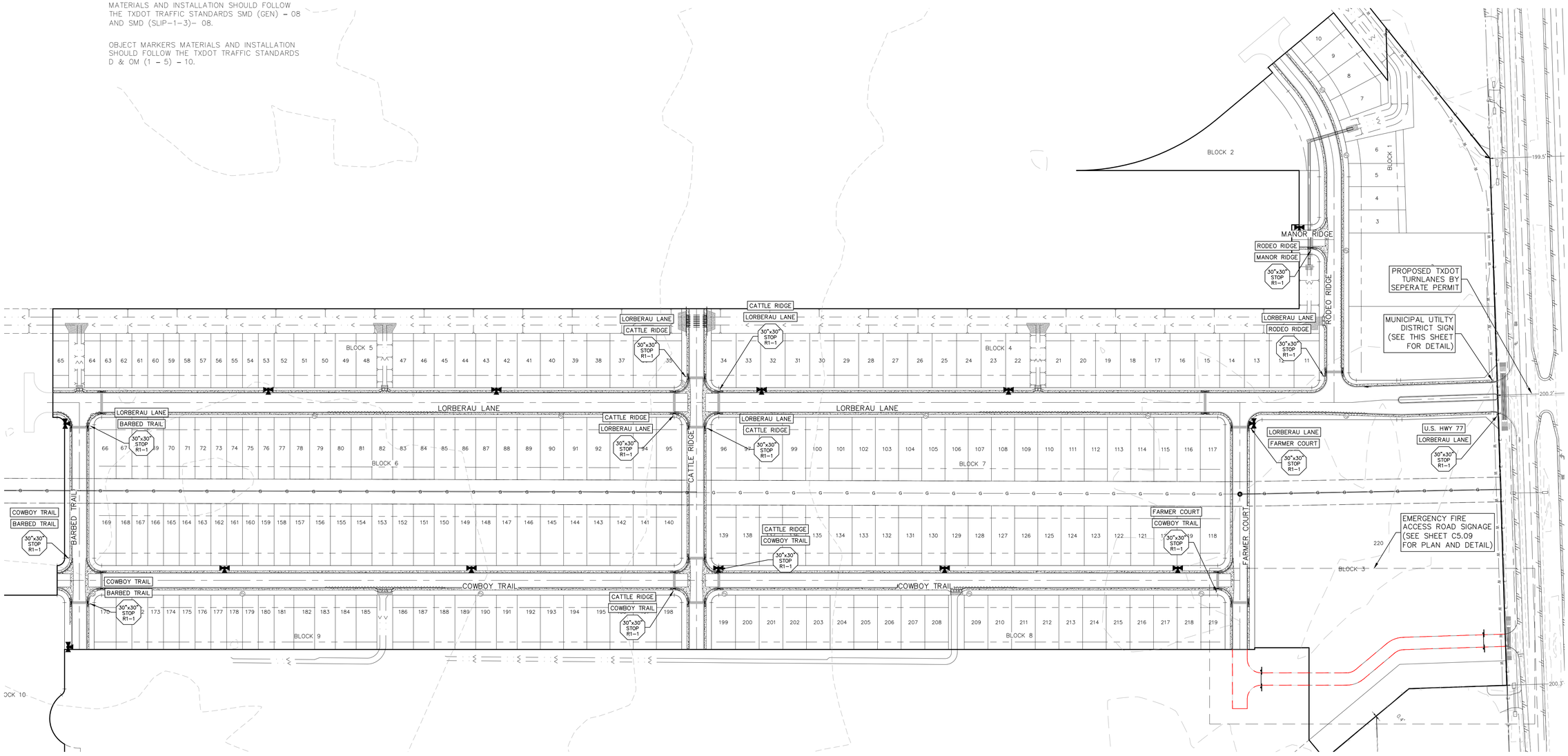

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290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600

HMT ENGINEERING & SURVEYING

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

SIGNAGE PLAN

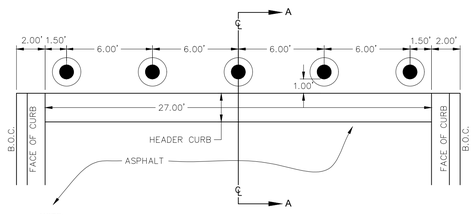
SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: **SEPTEMBER 2024**
DRAWN BY: **CAC**
DESIGNED BY: **WRC**
REVIEWED BY: **JTS**
HMT PROJECT NO.: **337.087**

SHEET
C5.10

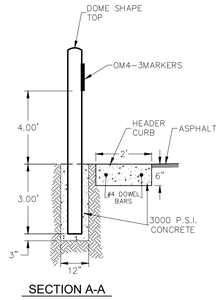
Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\CDs\337.087_ST-SIGNAGE.dwg User: jped Sep 12, 2024 - 12:01pm



NOTE:
POST SHALL BE 6" IN DIAMETER AND PRESSURE TREATED

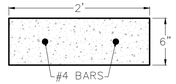
POST SHALL BE CENTERED AND EQUALLY SPACED AT 6' ON CENTER (MIN.)

PLAN



SECTION A-A

BOLLARD DETAIL
NOT TO SCALE



1. MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM TO THE CITY OF NEW BRAUNFELS STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. SMOOTH BARS SHALL BE PLACED AT EACH EXPANSION JOINT.
3. EXPANSION JOINTS SHALL BE INSTALLED AT INTERVALS NOT TO EXCEED 40 FEET.

RIBBON CURB DETAIL
NOT TO SCALE

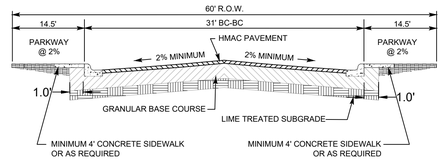
FLEXIBLE PAVEMENTS		
PAVEMENT MATERIAL	LOCAL	COLLECTOR
TYPE "D" HMAC	2"	4"
PRIME COAT	YES	YES
GRANULAR "TYPE A" BASE COURSE	10"	18"
LIME TREATED SUBGRADE	8"	8"
TENSAR TRIAX TX5 GEOGRID	NO	NO

NOTE:

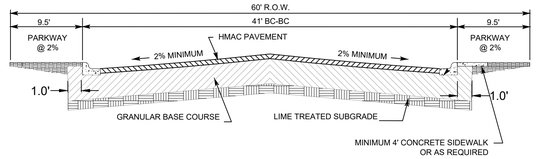
1. ALL PAVEMENT CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE TO THE "PAVEMENT DESIGN AND PRELIMINARY FOUNDATIONS REPORT", BY VOSS FARMS RESIDENTIAL DEVELOPMENT, LP, DATED APRIL 13, 2022.
2. ALL PAVEMENT SECTIONS SHOWN ON THE ABOVE TABLE SHALL SUPERCEDE ANY STANDARD DETAILS WITH RESPECT TO DEPTH OF MATERIALS ASSOCIATED WITH THIS PROJECT.
3. THE SUBGRADE SHOULD BE STABILIZED USING LIME IN ACCORDANCE WITH THE GEOTECHNICAL REPORT IN ORDER TO ACHIEVE THE FOLLOWING:
   3.1. PLASTICITY INDEX OF 35 OR LESS
   3.2. PH OF 12.4 OR GREATER
4. THE SUBGRADE SOILS SHOULD BE TESTED FOR SOLUBLE SULPHATE CONTENT PRIOR TO INSTALLATION OF THE LIME OR CEMENT.

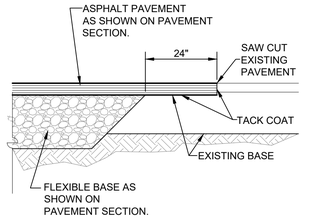
TYPICAL PAVEMENT SECTION

LOCAL STREET PAVEMENT SECTION (60' R-O-W)
NOT TO SCALE



COLLECTOR STREET PAVEMENT SECTION (60' R-O-W)
NOT TO SCALE





NEW PAVEMENT TO EXISTING
NOT TO SCALE

290 S. CASTELL AVE., STE. 100
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9/12/2024

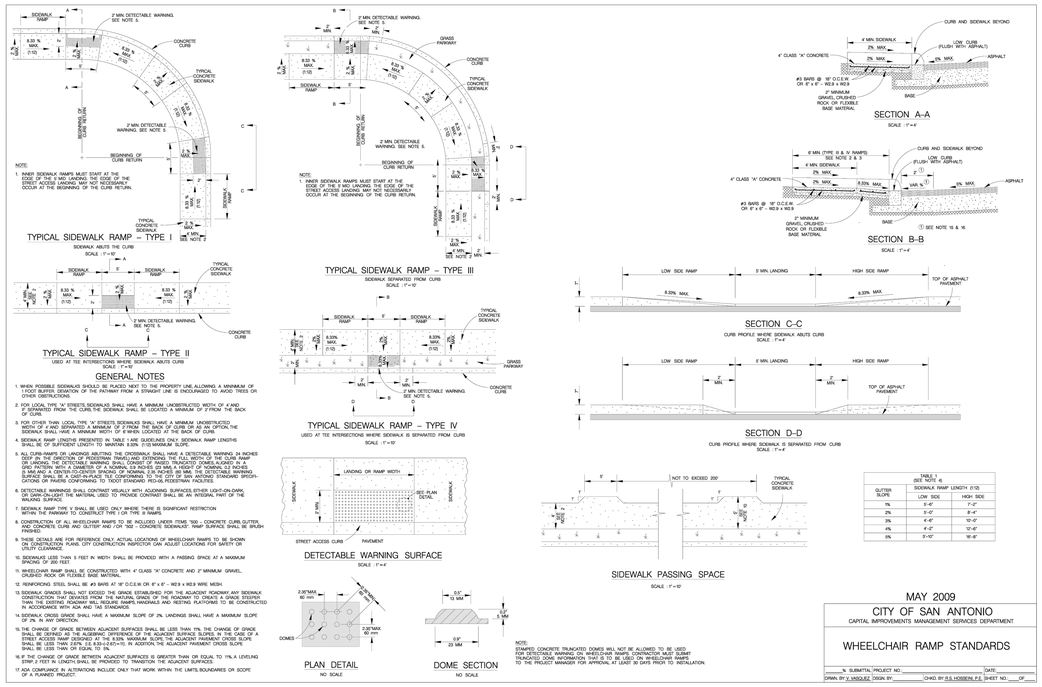
STREET DETAILS 1 OF 3

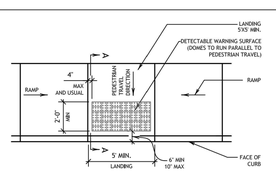
SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

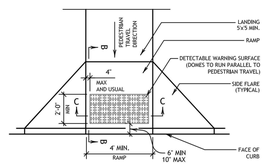
DATE: **SEPTEMBER 2024**
DRAWN BY: **CAC**
DESIGNED BY: **WRC**
REVIEWED BY: **JTS**
HMT PROJECT NO.: **337.087**

SHEET
C5.11

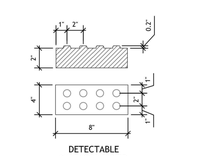




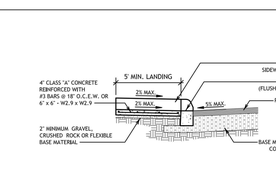
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON LANDING AT STREET EDGE.



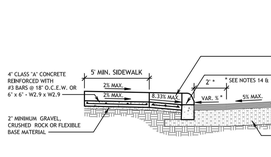
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.



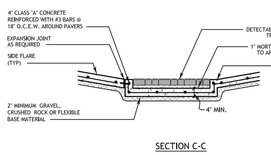
DETECTABLE WARNING PAVER



SECTION A-A



SECTION B-B



SECTION C-C

CURB RAMP NOTES

1. ALL SLOPES ARE MAXIMUM ALLOWABLE. THE LEAST POSSIBLE SLOPE THAT WILL STILL DRAIN PROPERLY SHOULD BE USED. ADJUST CURB RAMP LENGTH OR GRADE OF APPROACH SIDEWALKS AS DIRECTED.
2. THESE DETAILS ARE FOR REFERENCE ONLY. ACTUAL LOCATIONS OF CURB RAMPS ARE TO BE SHOWN ON THE CONSTRUCTION PLANS. ALL ACCESSIBLE WALK WAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS SET FORTH IN THE AMERICAN'S WITH DISABILITIES ACT (ADA) AND TEXAS ACCESSIBILITY STANDARDS (TAS). CITY ENGINEER OR BUILDING OFFICIAL MAY ADJUST LOCATIONS FOR SAFETY OR UTILITY CLEARANCE.
3. THE MINIMUM STANDARD SIDEWALKS SHALL BE PROVIDED IN ACCORDANCE WITH SECTION 118-49 OF THE NEW BRAUNFELS CODE OF ORDINANCES AND MAINTAIN A MINIMUM UNOBSTRUCTED WIDTH OF 3' (36").
4. ALL LANDINGS WHERE REQUIRED SHALL BE 5'X 5' (60"X60") MINIMUM WITH A MAXIMUM 2% SLOPE IN ANY DIRECTION.
5. RAMP LENGTHS SHALL BE SUFFICIENT TO MAINTAIN A MAXIMUM SLOPE OF 8.33% (1:12). MAXIMUM ALLOWABLE CROSS SLOPE ON SIDEWALK AND CURB RAMP SURFACES IS 2% (1:50).
6. SIDEWALK GRADES SHALL NOT EXCEED THE GRADE ESTABLISHED FOR THE ADJACENT ROADWAY. ANY SIDEWALK CONSTRUCTION THAT DEVIATES FROM THE GRADE OF THE NATURAL GRADE OF THE ROADWAY TO CREATE A GRADE STEEPER THAN THE EXISTING ROADWAY WILL REQUIRE RAMPS, HANDRAILS, AND LANDINGS IN ACCORDANCE WITH CURRENT ADA AND TAS REQUIREMENTS.
7. PROVIDE FLARED RAMP SIDES WITH A MAXIMUM SLOPE OF 10% (1:10) MEASURED ALONG THE CURB LINE. CURB RETURNS MAY BE USED IN-LIEU OF SIDE FLARES IN AREAS NOT NORMALLY WALKED ACROSS BY PEDESTRIANS, BECAUSE THE ADJACENT SURFACE IS VEGETATION OR OTHER NON-WALKING SURFACE OR WHERE THE SIDE APPROACH IS SUBSTANTIALLY OBSTRUCTED.
8. MANEUVERING SPACE AT THE BOTTOM OF CURB RAMPS SHALL BE A MINIMUM OF 4'X 4' (48"X48") WHOLLY CONTAINED WITHIN THE CROSSWALK AND WHOLLY OUTSIDE THE PARALLEL VEHICULAR TRAVEL PATH.
9. CROSSWALK DIMENSIONS, CROSSWALK MARKINGS AND STOP BAR LOCATIONS SHALL BE AS SHOWN ELSEWHERE IN THE PLANS. AT INTERSECTIONS WHERE CROSSWALK MARKINGS ARE NOT REQUIRED, CURB RAMPS SHALL BE ALIGNED WITH THEORETICAL CROSSWALKS, OR AS DIRECTED BY THE CITY ENGINEER OR BUILDING OFFICIAL.
10. EXISTING FEATURES THAT COMPLY WITH CURRENT TAS REQUIREMENTS MAY REMAIN IN PLACE UNLESS OTHERWISE SHOWN ON THE PLANS.
11. HANDRAILS ARE NOT REQUIRED ON CURB RAMPS. PROVIDE CURB RAMPS WHEREVER AN ACCESSIBLE ROUTE CROSSES (PENETRATES) A CURB.
12. SEPARATE CURB RAMP AND LANDINGS FROM ADJACENT SIDEWALK AND ANY OTHER ELEMENTS WITH PRE-MOLD OR BOARD JOINT OF 1/2" UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER OR BUILDING OFFICIAL.
13. PROVIDE A SMOOTH TRANSITION WHERE THE CURB RAMPS CONNECT TO THE STREET.
14. 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 DEPICTED 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%.
15. 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.
16. ADA RAMP SHALL BE CONSTRUCTED WITH 4" CLASS 'A' CONCRETE WITH 2" MINIMUM GRAVEL,CRUSHED ROCK OR FLEXIBLE BASE MATERIAL. REINFORCING STEEL SHALL BE #3 BARS AT 18" O.C.E.W. OR 6"X6" - W2.9 X W2.9 WIRE MESH.
17. THE EXTENTS OF ADA COMPLIANCE IN ALTERATIONS SHALL BE WITHIN THE LIMITS, BOUNDARIES OR SCOPE OF A PLANNED PROJECT AND AS DETERMINED BY THE CITY BUILDING OFFICIAL.

DETECTABLE WARNING NOTES

1. CURB RAMPS OR LANDINGS ABUTTING THE CROSSWALK MUST HAVE A DETECTABLE WARNING SURFACE THAT CONSISTS OF RAISED TRUNCATED DOMES COMPLYING WITH SECTION 4.29 OF THE TEXAS ACCESSIBILITY STANDARDS (TAS). THE SURFACE MUST CONTRAST VISUALLY WITH ADJOINING SURFACES, INCLUDING SIDE FLARES. FURNISH DARK BROWN OR DARK RED DETECTABLE WARNING SURFACE ADJACENT TO UNCOLORED CONCRETE, UNLESS SPECIFIED ELSEWHERE IN THE PLANS.
2. DETECTABLE WARNING SURFACES MUST BE SLIP RESISTANT AND NOT ALLOW WATER TO ACCUMULATE.
3. ALIGN TRUNCATED DOMES IN THE DIRECTION OF PEDESTRIAN TRAVEL WHEN ENTERING THE STREET.
4. DETECTABLE WARNING SURFACES SHALL BE A MINIMUM OF 24" IN DEPTH IN THE DIRECTION OF PEDESTRIAN TRAVEL, AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR LANDING WHERE THE PEDESTRIAN ACCESS ROUTE ENTERS THE STREET.
5. DETECTABLE WARNING SURFACES SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS A MINIMUM OF 6" AND A MAXIMUM OF 10" FROM THE EXTENSION OF THE FACE OF CURB. DETECTABLE WARNING SURFACES MAY BE CURVED ALONG THE CORNER RADIUS.
7. WITHIN CITY RIGHT OF WAY AND WHERE APPLICABLE FURNISH DETECTABLE WARNING PAVER UNITS MEETING ALL REQUIREMENTS OF ASTM C-936, C-33. LAY IN A TWO BY TWO UNIT BASKET WEAVE PATTERN OR AS DIRECTED.
8. LAY FULL-SIZE UNITS FIRST FOLLOWED BY CLOSURE UNITS CONSISTING OF AT LEAST 25 PERCENT OF A FULL UNIT. CUT DETECTABLE WARNING PAVER UNITS USING A POWER SAW.

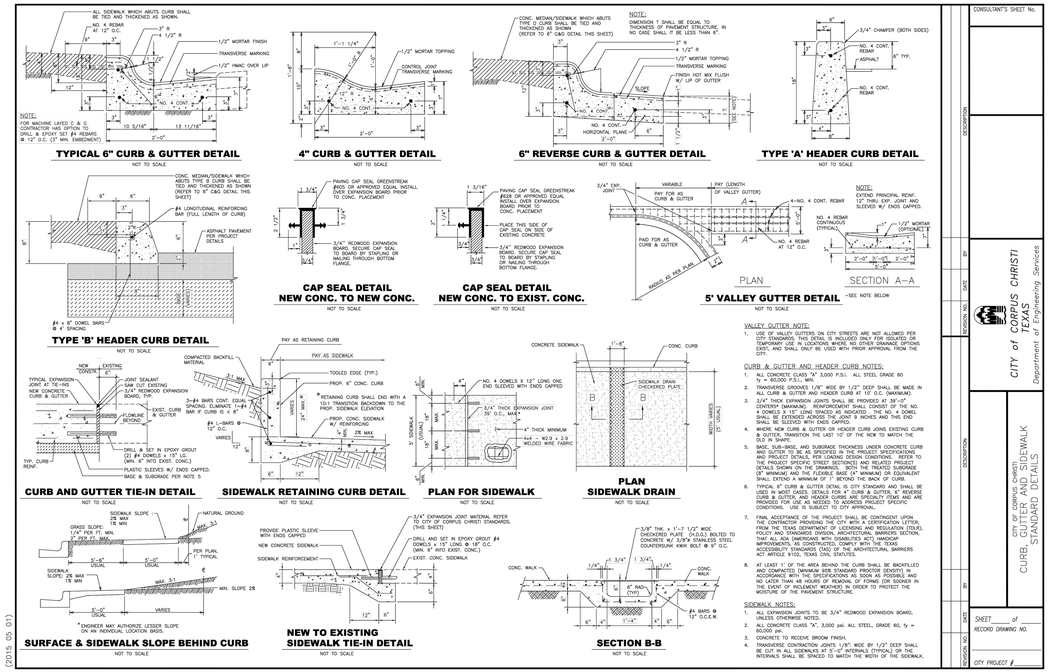
City of New Braunfels

ENGINEERING DIVISION
424-S. CASTELL AVE.
NEW BRAUNFELS, TEXAS 78130
PHONE: 830 221 4020
FAX: 830.626 3600

ADA RAMP STANDARDS

APPROVED DATE: 7/5/2011	DWG. NO.:	SCALE: AS NOTED
DRAWN BY: AM	CONTACT: JK	SHEET: 1 OF 1

Drawing Name: N:_Projects\337 – Lennar\087 – Sinton Ranch Unit 1 (239 lots)\Cbx\337.087_STRM-DETL.dwg User: joed Sep 12, 2024 – 12:01pm


ALL SIDEWALK WHICH ABUTS CURB SHALL BE TIED AND THICKENED AS SHOWN.
NO. 4 REBAR AT 12" O.C.
3" R
#4 x 12" R
1/2" MORTAR FINISH
TRANSVERSE MARKING
1/2" HMAC OVER LIP
NOTE: FOR MACHINE LAYED C & G, CONTRACTOR MAY USE SPIRALS IN EPOXY SET #4 REBARS @ 12" O.C. (3" MIN. EMBEDMENT)
TYPICAL 6" CURB & GUTTER DETAIL
NOT TO SCALE
1/2" MORTAR TOPPING
CONTROL JOINT TRANSVERSE MARKING
4" CURB & GUTTER DETAIL
NOT TO SCALE
CONC. MEDIAN/SIDEWALK WHICH ABUTS TYPE 2 CURB SHALL BE TIED AND THICKENED AS SHOWN (REFER TO 6" C&G DETAIL THIS SHEET)
NOTE: DIMENSION 'I' SHALL BE EQUAL TO THICKNESS OF PAVEMENT STRUCTURE, IN NO CASE SHALL IT BE LESS THAN 8".
3" R
4 1/2" R
1/2" MORTAR TOPPING
TRANSVERSE MARKING
FINISH HOT MIX FLUSH W/ LIP OF GUTTER
SLOPE
HORIZONTAL PLANE
6" REVERSE CURB & GUTTER DETAIL
NOT TO SCALE
3/4" CHAMFER (BOTH SIDES)
NO. 4 CONT. REBAR
6" TYP.
ASPHALT
NO. 4 CONT. REBAR
TYPE 'A' HEADER CURB DETAIL
NOT TO SCALE
CONC. MEDIAN/SIDEWALK WHICH ABUTS TYPE B CURB SHALL BE TIED AND THICKENED AS SHOWN (REFER TO 6" C&G DETAIL THIS SHEET)
#4 LONGITUDINAL REINFORCING BAR (FULL LENGTH OF CURB)
ASPHALT PAVEMENT PER PROJECT DETAILS
#4 x 8" DOWEL BARS @ 4' SPACING
TYPE 'B' HEADER CURB DETAIL
NOT TO SCALE
PAVING CAP SEAL GREENSTREAM #635 OR APPROVED EQUAL INSTALL OVER EXPANSION BOARD PRIOR TO CONC. PLACEMENT
3/4" REDWOOD EXPANSION BOARD. SECURE CAP SEAL TO BOARD BY STAPLING OR NAILING THROUGH BOTTOM FLANGE.
CAP SEAL DETAIL
NEW CONC. TO NEW CONC.
NOT TO SCALE
PAVING CAP SEAL GREENSTREAM #635 OR APPROVED EQUAL INSTALL OVER EXPANSION BOARD PRIOR TO CONC. PLACEMENT
PLACE THIS SIDE OF CAP SEAL ON SIDE OF EXISTING CONCRETE
3/4" REDWOOD EXPANSION BOARD. SECURE CAP SEAL TO BOARD BY STAPLING OR NAILING THROUGH BOTTOM FLANGE.
CAP SEAL DETAIL
NEW CONC. TO EXIST. CONC.
NOT TO SCALE
3/4" EXP. JOINT
VARIABLE
PAY (LENGTH OF VALLEY GUTTER)
PAY FOR AS CURB & GUTTER
PAID FOR AS CURB & GUTTER
RADIUS AS PER PLAN
4-NO. 4 CONT. REBAR
NO. 4 REBAR CONTINUOUS (TYPICAL)
NO. 4 REBAR AT 12" O.C.
PLAN
NOTE: EXTEND PRINCIPAL REINF. THRU EXP. JOINT AND SLEEVED W/ ENDS CAPPED.
1" 1/2" MORTAR (OPTIONAL)
2'-0" 2'-0"
SECTION A-A
5' VALLEY GUTTER DETAIL
NOT TO SCALE
SEE NOTE BELOW
VALLEY GUTTER NOTE:
1. USE OF VALLEY GUTTERS ON CITY STREETS ARE NOT ALLOWED PER CITY STANDARDS. VALLEY GUTTERS MAY BE CONSIDERED ON A TEMPORARY USE IN LOCATIONS WHERE NO OTHER DRAINAGE OPTIONS EXIST, AND SHALL ONLY BE USED WITH PRIOR APPROVAL FROM THE CITY.
CURB & GUTTER AND HEADER CURB NOTES:
1. ALL CONCRETE CLASS "A" 3,000 P.S.I. ALL STEEL, GRADE 60 fy = 60,000 P.S.I., MIN.
2. TRANSVERSE GROOVES 1/8" WIDE BY 1/2" DEEP SHALL BE MADE IN THE TOP OF THE CURB AT INTERVALS OF 10'-0" (MAXIMUM).
3. 3/4" THICK EXPANSION JOINTS SHALL BE PROVIDED AT 30'-0" CENTERS* (MAXIMUM). REINFORCEMENT SHALL CONSIST OF THE NO. 4 DOWELS X 15" LONG SPACED AS INDICATED - THE NO. 4 DOWEL SHALL BE EXTENDED ACROSS THE JOINT 9 INCHES AND THIS END SHALL BE SLEEVED WITH ENDS CAPPED.
4. WHERE NEW CURB & GUTTER OR HEADER CURB JOINS EXISTING CURB & GUTTER, PROVIDE THE LAST 10' OF THE NEW TO MATCH THE OLD IN SHAPE.
5. BASE, SUB-BASE, AND SUBGRADE THICKNESS UNDER CONCRETE CURB AND GUTTER SHALL BE SPECIFIED IN THE PROJECT SPECIFICATION TO AND PROJECT SPECIFIC STREET SECTION(S) AND RELATED PROJECT DETAILS SHOWN ON THE DRAWINGS. BOTH THE TREATED SUBGRADE (8" MINIMUM) AND THE FLEXIBLE BASE (4" MINIMUM) OR EQUIVALENT SHALL EXTEND A MINIMUM OF 1' BEYOND THE BACK OF CURB.
6. TYPICAL 6" CURB & GUTTER DETAIL IS CITY STANDARD AND SHALL BE USED ON ALL PROJECTS UNLESS OTHERWISE NOTED. OTHER TYPES OF CURB & GUTTER AND HEADER CURBS ARE SPECIALTY ITEMS AND ARE PROVIDED FOR USE AS NEEDED TO ADDRESS PROJECT SPECIFIC CONDITIONS. USE IS SUBJECT TO CITY APPROVAL.
7. FINAL ACCEPTANCE OF THE PROJECT SHALL BE CONTINGENT UPON THE CONTRACTOR PROVIDING THE CITY WITH A CERTIFICATION LETTER, FROM THE TEXAS DEPARTMENT OF LICENSING AND REGULATION (TDLR), THAT ALL CURB RAMPS CONSTRUCTED AS PART OF THIS CONSTRUCTION, THAT ALL ADA (AMERICANS WITH DISABILITIES ACT) HANDICAP IMPROVEMENTS, AS CONSTRUCTED, COMPLY WITH THE TEXAS ACCESSIBILITY STANDARDS (TAS) AND THE ARCHITECTURAL BARRIERS ACT ARTICLE 9102, TEXAS CIVIL STATUTES.
8. AT LEAST 1' OF THE AREA BEHIND THE CURB SHALL BE BACKFILLED AND COMPACTED (MINIMUM 93% STANDARD PROCTOR DENSITY) IN ACCORDANCE WITH ITEM 132 "EMBANKMENT" OF TXDOT SPECIFICATIONS, NO LATER THAN 48 HOURS OF REMOVAL OF FORMS (OR SOONER IN THE EVENT OF INCLEMENT WEATHER) IN ORDER TO PROTECT THE MOISTURE OF THE PAVEMENT STRUCTURE.
SIDEWALK NOTES:
1. ALL EXPANSION JOINTS TO BE 3/4" REDWOOD EXPANSION BOARD, UNLESS OTHERWISE NOTED.
2. ALL CONCRETE CLASS "A", 3,000 psi. ALL STEEL, GRADE 60, fy = 60,000 psi.
3. CONCRETE TO RECEIVE BROOM FINISH.
4. TRANSVERSE CONTRACTION JOINTS 1/8" WIDE BY 1/2" DEEP SHALL BE CUT IN ALL SIDEWALKS AT 5'-0" INTERVALS (TYPICAL) OR THE INTERVALS SHALL BE SPACED TO MATCH THE WIDTH OF THE SIDEWALK.
CONSULTANT'S SHEET No.
DESCRIPTION
BY
DATE
REVISION NO.
CITY of CORPUS CHRISTI
TEXAS
Department of Engineering Services
CITY OF CORPUS CHRISTI
CURB, GUTTER AND SIDEWALK
STANDARD DETAILS
SHEET ____ of ____
RECORD DRAWING NO.
CITY PROJECT # _____
PAY AS RETAINING CURB
PAY AS SIDEWALK
NEW EXISTING CONCRETE
TOOLED EDGE (TYP.)
PROP. 6" CONC. CURB
TYPICAL EXPANSION JOINT AT TIE-IN
JOINT SEALANT
3/4" REDWOOD EXPANSION BOARD, TYP.
SAW CUT EXISTING CURB & GUTTER
FLOWLINE
EXIST. CURB & GUTTER
PROP. CONC. SIDEWALK W/ REINFORCING
#4 L-BARS @ 12" O.C.
DRILL & SET IN EPOXY GROUT (12) #4 DOWELS x 15" LG. (MIN. 6" INTO EXIST. CONC.)
TYP. CURB-REINF.
PLASTIC SLEEVES W/ ENDS CAPPED.
BASE & SUBGRADE PER NOTE 5
CURB AND GUTTER TIE-IN DETAIL
NOT TO SCALE
COMPACTED BACKFILL MATERIAL
3:1 MAX
* RETAINING CURB SHALL END WITH A 10:1 TRANSITION BACKDOWN TO THE PROP. SIDEWALK ELEVATION
PROP. CONC. SIDEWALK W/ REINFORCING
#4 x 2'-0" LONG @ 2'-0" O.C. MAX.*
2% MAX
VARIES
SIDEWALK RETAINING CURB DETAIL
NOT TO SCALE
CONCRETE SIDEWALK
CONC. CURB
1'-6"
NO. 4 DOWELS X 12" LONG ONE END SLEEVED WITH ENDS CAPPED
3/4" THICK EXPANSION JOINT 30'-0" O.C. MAX.*
4" THICK MINIMUM
6x6 - W2.9 x 2.9 WELDED WIRE FABRIC
SIDEWALK
MIN.
EXPANSION JOINT
SIDEWALK
PLAN FOR SIDEWALK
NOT TO SCALE
CONCRETE SIDEWALK
CONC. CURB
SIDEWALK DRAIN CHECKERED PLATE
B
B
WIDTH VARIES (5' USUAL)
PLAN
SIDEWALK DRAIN
NOT TO SCALE
SIDEWALK SLOPE
NATURAL GROUND
2% MAX
1% MIN
GRASS SLOPE, 1/4" PER FT. MIN. TO 1/2" PER FT. MAX.
PER PLAN, 1" TYPICAL
8'-0" USUAL
3:1 MAX
MIN. SLOPE 2%
VARIES
* ENGINEER MAY AUTHORIZE LESSER SLOPE ON AN INDIVIDUAL LOCATION BASIS.
SURFACE & SIDEWALK SLOPE BEHIND CURB
NOT TO SCALE
PROVIDE PLASTIC SLEEVE WITH ENDS CAPPED
NEW CONCRETE SIDEWALK
SIDEWALK REINFORCEMENT
3/4" EXPANSION JOINT MATERIAL REFER TO CITY OF CORPUS CHRISTI STANDARDS. (THIS SHEET)
DRILL AND SET IN EPOXY GROUT #4 DOWELS x 15" LONG @ 18" O.C. (MIN. 6" INTO EXIST. CONC.)
EXIST. CONC. SIDEWALK
12"
6"
NEW TO EXISTING SIDEWALK TIE-IN DETAIL
NOT TO SCALE
3/8" THK. x 1'-1 1/2" WIDE STAINLESS STEEL PLATE BOLTED TO CONCRETE W/ 3/16" STAINLESS STEEL COUNTERSUNK 4X4X BOLT @ 9" O.C.
CONC. WALK
1/4"
3/4"
1 3/4"
6" RAD. (TYP.)
#4 BARS @ 12" O.C.E.W.
3"
3'-4"
4"
6"
SECTION B-B
NOT TO SCALE
(2015 05 01)
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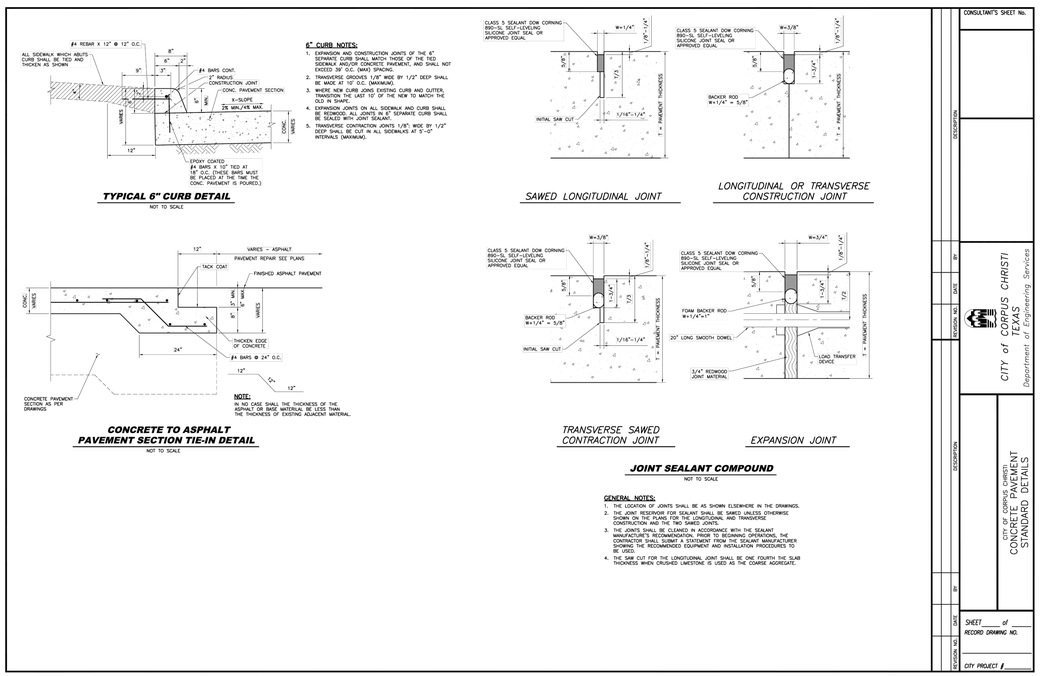
#4 REBAR x 12" @ 12" O.C.
ALL SIDEWALK WHICH ABUTS CURB SHALL BE TIED AND THICKEN AS SHOWN
#4 BARS CONT.
CONSTRUCTION JOINT
CONC. PAVEMENT SECTION
X-SLOPE
2% MIN./4% MAX.
VARIES
EPOXY COATED #4 BARS X 18" TIED AT 18" O.C. (THESE BARS MUST BE PLACED AT THE TIME THE CONC. PAVEMENT IS POURED.)
TYPICAL 6" CURB DETAIL
NOT TO SCALE
6" CURB NOTES:
1. EXPANSION AND CONSTRUCTION JOINTS OF THE 6" CURB SHALL BE CONSTRUCTED TO MATCH THE SIDEWALK AND/OR CONCRETE PAVEMENT, AND SHALL NOT EXCEED 39' O.C. (MAX) SPACING.
2. TRANSVERSE GROOVES 1/8" WIDE BY 1/2" DEEP SHALL BE MADE AT 10' O.C. (MAXIMUM).
3. WHERE NEW CURB JOINS EXISTING CURB AND GUTTER, TRANSITION THE LAST 10' OF THE NEW TO MATCH THE OLD IN SHAPE.
4. EXPANSION JOINTS ON ALL SIDEWALK AND CURB SHALL BE 3/4" THICK. EXPANSION JOINTS SEPARATE CURB SHALL BE SEALED WITH JOINT SEALANT.
5. TRANSVERSE CONTRACTION JOINTS 1/8" WIDE BY 1/2" DEEP SHALL BE CUT IN ALL SIDEWALKS AT 5'-0" INTERVALS (MAXIMUM).
CLASS S SEALANT DOW CORNING 890-SL SELF-LEVELING SILICONE JOINT SEAL OR APPROVED EQUAL
W=1/4"
1/4"-1/2"
3/4"
INITIAL SAW CUT
1/3
1/3
1/3
T = PAVEMENT THICKNESS
1/16"-1/4"
SAWED LONGITUDINAL JOINT
CLASS S SEALANT DOW CORNING 890-SL SELF-LEVELING SILICONE JOINT SEAL OR APPROVED EQUAL
W=3/8"
1/4"-1/2"
BACKER ROD W=1/4" x 5/8"
LONGITUDINAL OR TRANSVERSE CONSTRUCTION JOINT
CONC. VARIES
12"
VARIES - ASPHALT PAVEMENT REPAIR SEE PLANS
TACK COAT
FINISHED ASPHALT PAVEMENT
MIN. 5"
6" MAX.
VARIES
THICKEN EDGE OF CONCRETE
24"
#4 BARS @ 24" O.C.
12"
12"
CONCRETE PAVEMENT SECTION AS PER DRAWINGS
CONCRETE TO ASPHALT PAVEMENT SECTION TIE-IN DETAIL
NOT TO SCALE
NOTE: IN NO CASE SHALL THE THICKNESS OF THE ASPHALT OR BASE MATERIAL BE LESS THAN THE THICKNESS OF EXISTING ADJACENT MATERIAL.
CLASS S SEALANT DOW CORNING 890-SL SELF-LEVELING SILICONE JOINT SEAL OR APPROVED EQUAL
W=3/4"
1/4"-1/2"
BACKER ROD W=1/4" x 5/8"
INITIAL SAW CUT
1/16"-1/4"
1-3/4"
1/2
T = PAVEMENT THICKNESS
TRANSVERSE SAWED CONTRACTION JOINT
CLASS S SEALANT DOW CORNING 890-SL SELF-LEVELING SILICONE JOINT SEAL OR APPROVED EQUAL
W=3/4"
1/8"-1/4"
FOAM BACKER ROD W=1/4"x1"
20" LONG SMOOTH DOWEL
LOAD TRANSFER DEVICE
3/4" REDWOOD JOINT MATERIAL
EXPANSION JOINT
JOINT SEALANT COMPOUND
NOT TO SCALE
GENERAL NOTES:
1. THE LOCATION OF JOINTS SHALL BE AS SHOWN ELSEWHERE IN THE DRAWINGS.
2. THE JOINT RECESS FOR SEALANT SHALL BE SAWED UNLESS OTHERWISE SHOWN ON THE PLANS FOR THE LONGITUDINAL AND TRANSVERSE CONSTRUCTION AND THE TWO SAWED JOINTS.
3. THE JOINTS SHALL BE CLEANED IN ACCORDANCE WITH THE SEALANT MANUFACTURER'S RECOMMENDATIONS. IF NOT OTHERWISE SPECIFIED, THE NONPRIMER SEALANT SHALL HAVE A CONTRACTOR TO BE SUBMITTED BY THE MANUFACTURER SHOWING THE RECOMMENDED EQUIPMENT AND INSTALLATION PROCEDURES TO BE USED.
4. THE SAW CUT FOR THE LONGITUDINAL JOINT SHALL BE ONE FOURTH THE SLAB THICKNESS WHEN CRUSHED LIMESTONE IS USED AS THE COARSE AGGREGATE.
CONSULTANT'S SHEET No.
DESCRIPTION
BY
DATE
REVISION NO.
CITY of CORPUS CHRISTI
TEXAS
Department of Engineering Services
CITY OF CORPUS CHRISTI
CONCRETE PAVEMENT
STANDARD DETAILS
SHEET ____ of ____
RECORD DRAWING NO.
CITY PROJECT # _____
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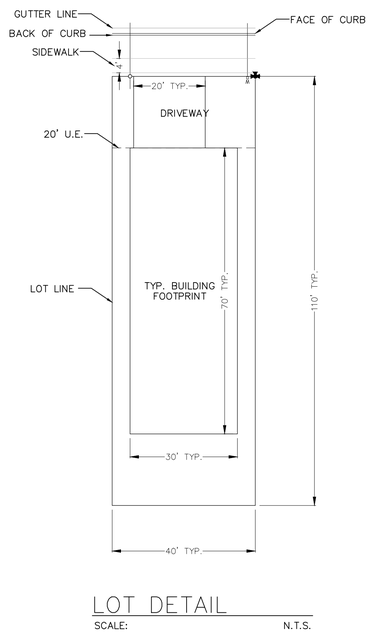

LOT DETAIL

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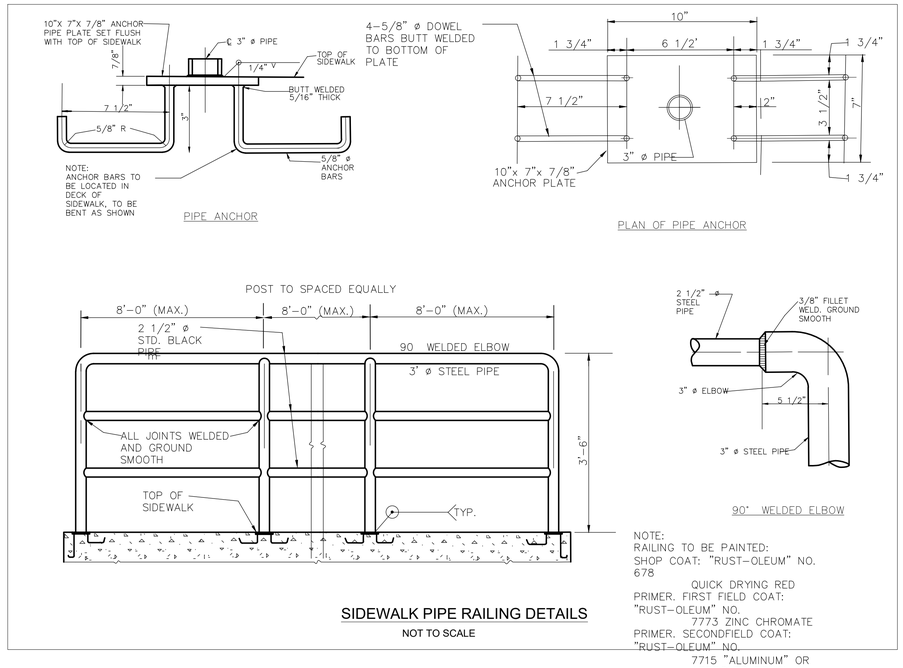


NOTE:
RAILING TO BE PAINTED:
SHOP COAT: "RUST-OLEUM" NO. 678
QUICK DRYING RED PRIMER. FIRST FIELD COAT: "RUST-OLEUM" NO. 7773 ZINC CHROMATE PRIMER. SECONDFIELD COAT: "RUST-OLEUM" NO. 7715 "ALUMINUM" OR APPROVED EQUAL.

HMT
ENGINEERING & SURVEYING
290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
Joseph T. Sandoval P.E.

9/12/2024

STREET DETAILS 2 OF 3

SINTON RANCH UNIT 1
SINTON, TEXAS

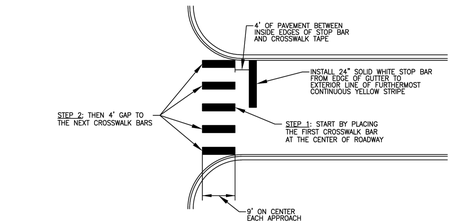
NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

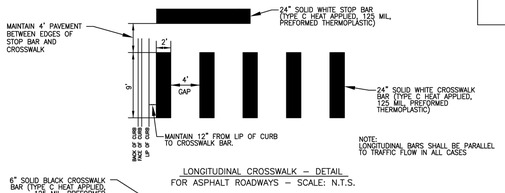
SHEET
C5.12

Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\CDs\337.087_STRM-DETL.dwg User: joed Sep 12, 2024 - 12:01pm

CROSSWALK PAVEMENT MARKINGS

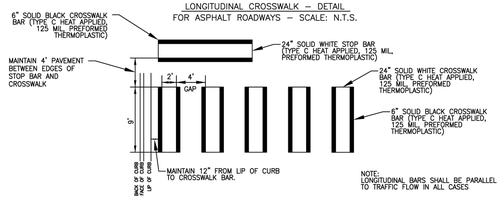


PLAN
SCALE: N.T.S.



NOTE:
LONGITUDINAL BARS SHALL BE PARALLEL TO TRAFFIC FLOW IN ALL CASES

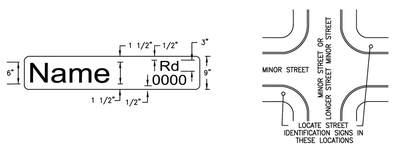
LONGITUDINAL CROSSWALK – DETAIL
FOR ASPHALT ROADWAYS – SCALE: N.T.S.



NOTE:
LONGITUDINAL BARS SHALL BE PARALLEL TO TRAFFIC FLOW IN ALL CASES

HIGH CONTRAST CROSSWALK – DETAIL
FOR CONCRETE ROADWAYS – SCALE: N.T.S.

STREET NAME BLADE SIGN



NOTES:

1. STREET NAME BLADE MATERIAL SHALL CONSIST OF EXTRUDED ALUMINUM. THE HEIGHT OF NAME BLADES SHALL BE 9" AND THE HEIGHT OF LETTERING SHALL BE 6". STREET NAME LEGEND SHALL CONSIST OF INITIAL CASE, FONT ON STREET NAME BLADES SHALL BE SERIES B. WHEN TWO STREET NAME BLADES WILL BE ON THE SAME ASSEMBLY, THESE TWO STREET NAME BLADES SHALL HAVE THE SAME WIDTH.
2. ANTI-GRAFFITI COATING ON FRONT OF THE SIGN PLAQUE IS APPLICABLE TO ALL SIGNS EXCEPT FOR NAME BLADES.
3. REPLACEMENT OF SIGNS SHALL MEET 2011 TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD), AND TXDOT STANDARDS. CROSSWALK BARS.

NOTES:

1. ALL STOP BAR AND CROSSWALK PAVEMENT MARKINGS SHALL BE 24" SOLID WHITE, TYPE C HEAT APPLIED, 125 MIL, PREFORMED THERMOPLASTIC. HIGH CONTRAST CROSSWALK INCLUDES 24" SOLID WHITE WITH 6" SOLID BLACK ON BOTH SIDES (TYPE C HEAT AP HEAT APPLIED, 125 MIL, PREFORMED THERMOPLASTIC).
2. CONTRACTOR SHALL PREMARK STRIPING LAYOUT FOR CITY APPROVAL PRIOR TO THE PLACEMENT OF ANY FINAL PAVEMENT MARKINGS.
3. THE PLACEMENT OF CROSSWALK BARS SHALL START BY PLACING THE FIRST CROSSWALK BAR AT THE CENTER OF THE ROADWAY, AND THEN 4' TO THE NEXT CROSSWALK BARS.
4. DO NOT STRIPE STREET WITH ROADWAY SURFACE TEMPERATURE LESS 55°F.
5. ALL CROSSWALK AND STOP BARS SHALL BE IN ACCORDANCE WITH THIS DETAIL AND THE 2011 TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD).

SCHOOL ZONE BAR – DETAIL
FOR ASPHALT ROADWAYS – SCALE: N.T.S.

HIGH CONTRAST SCHOOL ZONE BAR – DETAIL
FOR CONCRETE ROADWAYS – SCALE: N.T.S.

CONSULTANT'S SHEET NO.

APPROVED: CITY TRAFFIC ENGINEER
DATE:
DESIGN: [ ] HORZ. SCALE: NOTED
DRAWN: [ ] VERT. SCALE: NOTED
CHECK: [ ]
VERSION NO. 1.0 BY: [ ]

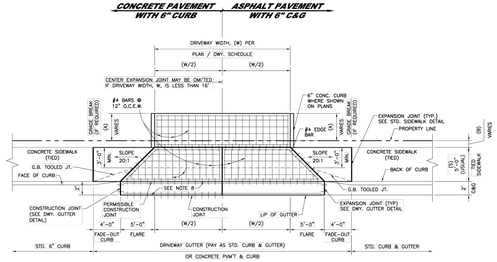
CITY of CORPUS CHRISTI TEXAS
Department of Engineering Services — Public Works — Traffic Engineering Division

CITY STANDARD SHEET
CROSSWALK PAVEMENT MARKINGS AND STREET NAME BLADE SIGN DETAILS

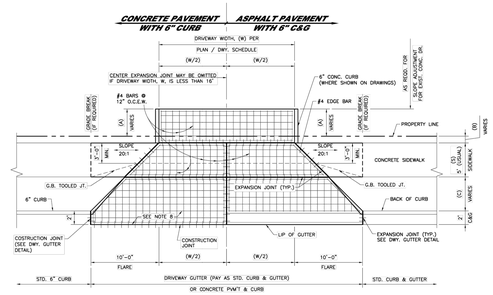
SHEET 1 of 1
RECORD DRAWING NO.
—
CITY PROJECT #

NO.	REVISION DESCRIPTION	DATE	BY

CONCRETE PAVEMENT WITH 6" CURB / ASPHALT PAVEMENT WITH 6" C&G

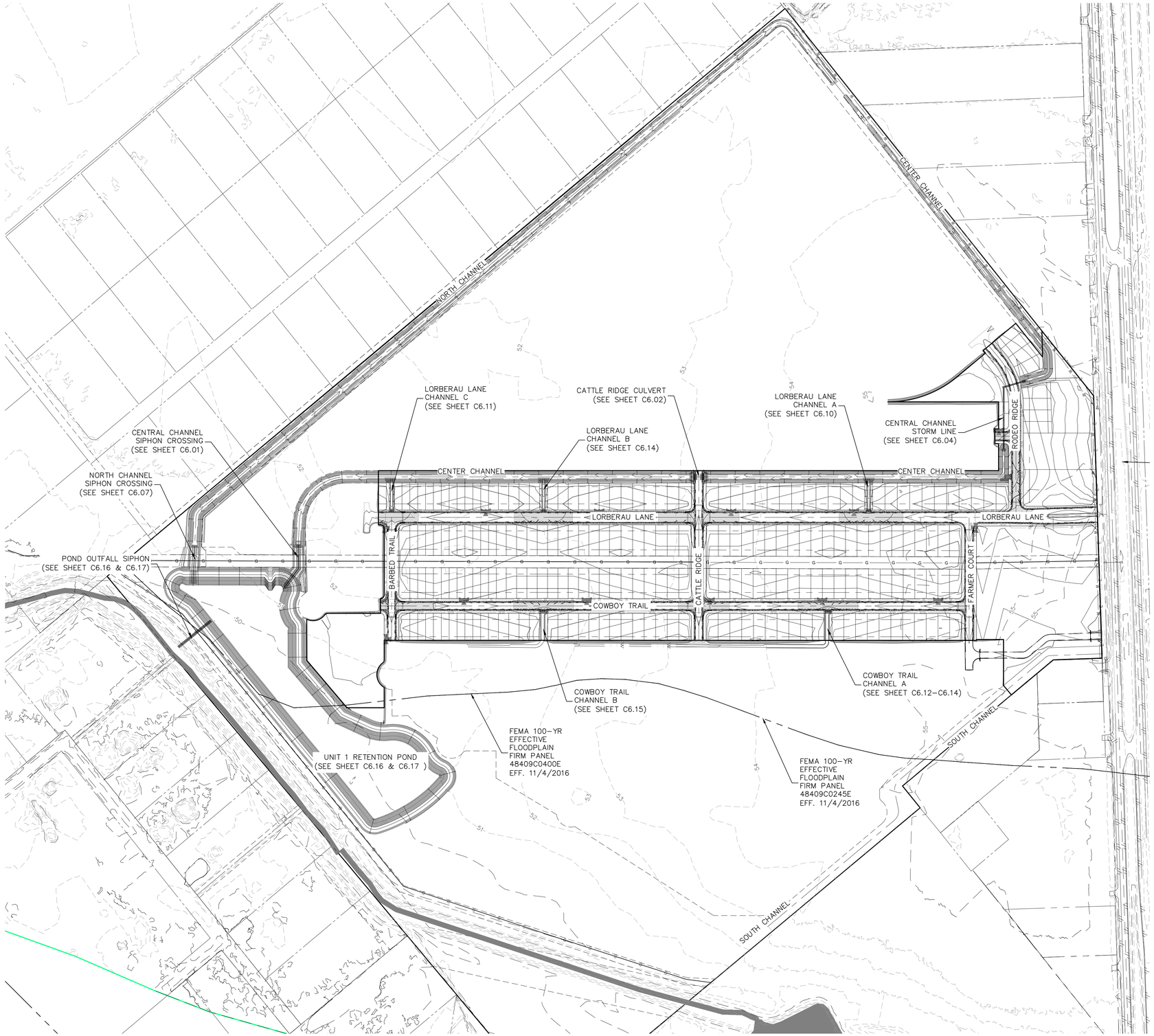


PLAN
DRIVEWAY WITH TIED SIDEWALK
NOT TO SCALE



PLAN
DRIVEWAY WITH DETACHED SIDEWALK
NOT TO SCALE

STATION	WIDTH 'W' (FT.)	DIMENSION 'C' (FT.)	DIMENSION 'S' (FT.)	DIMENSION 'B' (FT.)	DIMENSION 'A' (FT.)	DRIVEWAY (CONCRETE) (SY)	DRIVEWAY (CONCRETE) (PRIVATE) (SY)



LEGEND

700	EXISTING CONTOURS
700	PROPOSED CONTOURS
B.L.	BUILDING SETBACK LINE
U.E.	UTILITY EASEMENT
D.E.	DRAINAGE EASEMENT
S.B.C.	SINGLE BOX CULVERT
	PROPOSED STORM DRAIN LINE
	UTILITY CROSSING

0 100 200 400

SCALE: 1" = 200'

DRAINAGE FEATURES, DETENTION BASIN MAINTENANCE AND EQUIPMENT ACCESS REQUIREMENTS:

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HMT ENGINEERING & SURVEYING
290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
Joseph T. Sandoval P.E.

9/12/2024

OVERALL STORM

SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C6.00

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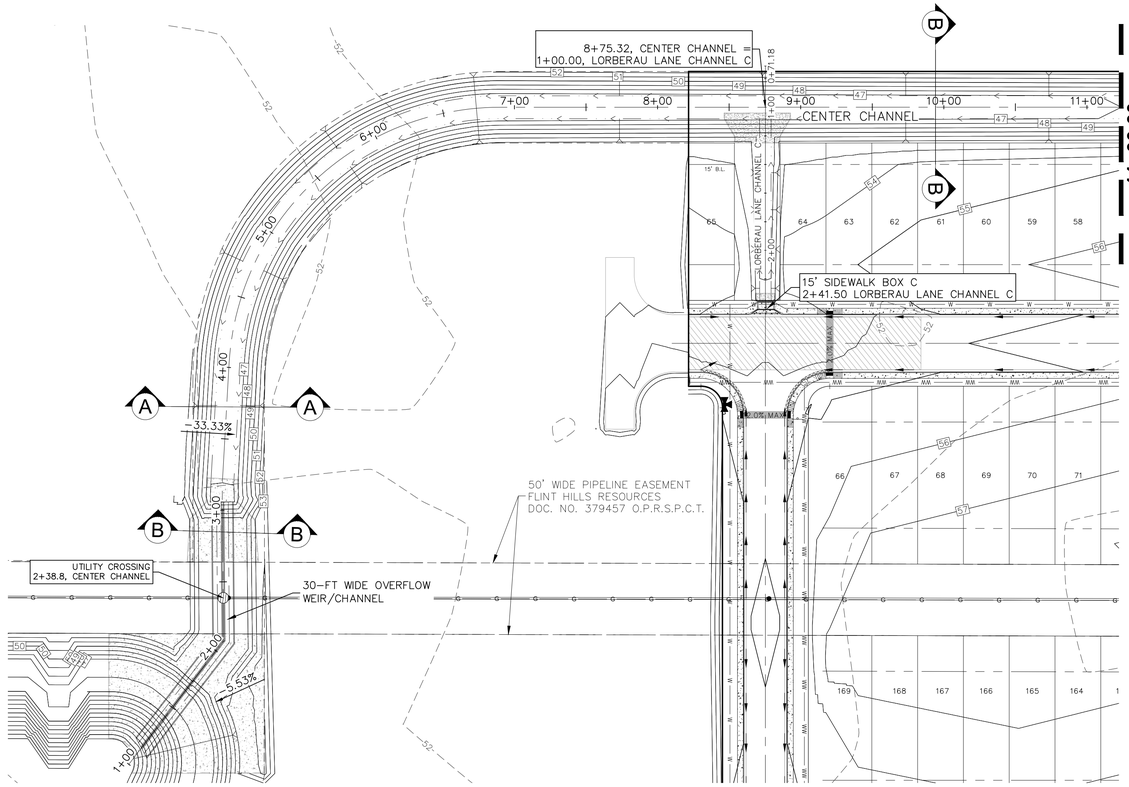
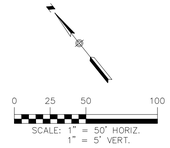
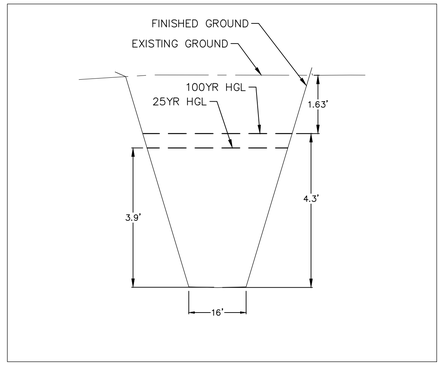




SECTION A–A



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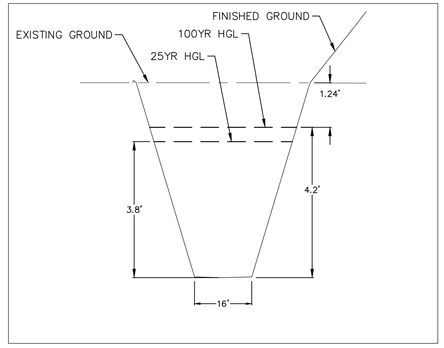

LEGEND

700	EXISTING CONTOURS
700	PROPOSED CONTOURS
B.L.	BUILDING SETBACK LINE
U.E.	UTILITY EASEMENT
D.E.	DRAINAGE EASEMENT
S.B.C.	SINGLE BOX CULVERT
M.B.C.	MULTIPLE BOX CULVERT
	PROPOSED STORM DRAIN LINE
	UTILITY CROSSING

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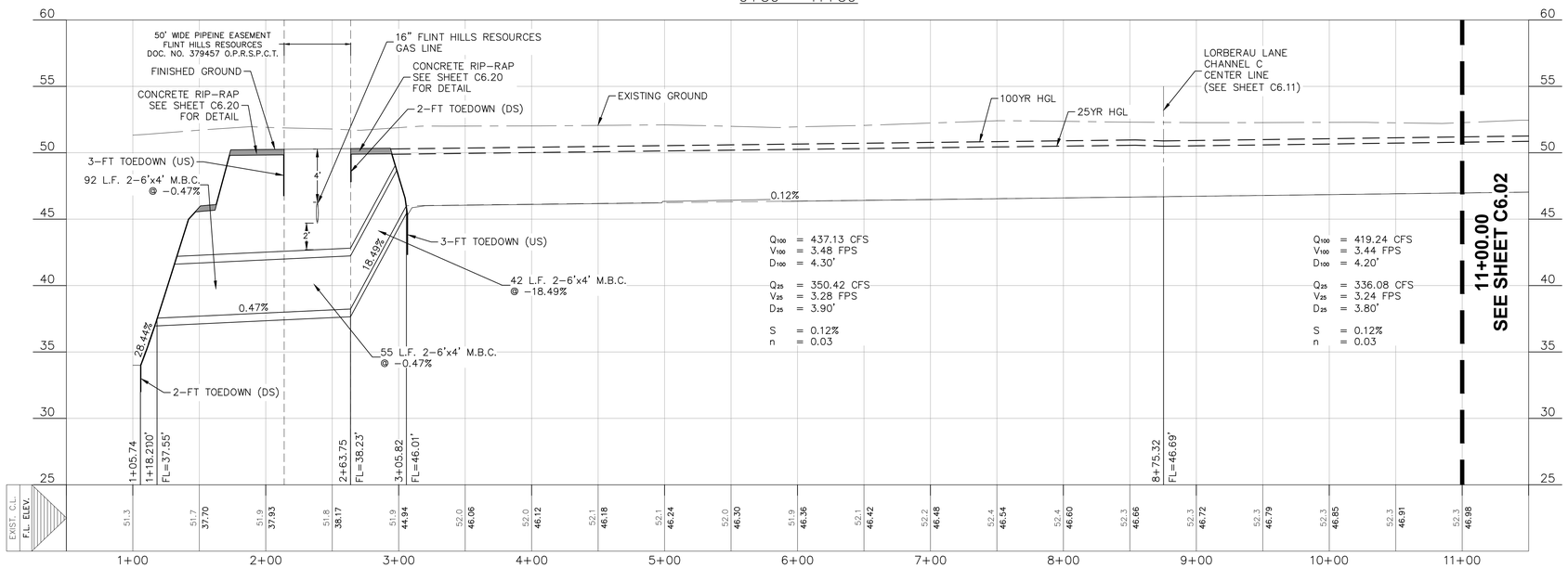
CENTER CHANNEL (1 OF 6)
0+50 – 11+50



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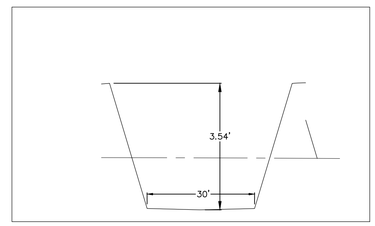

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TBPELS FIRM F-10961
TBPELS FIRM 10153600

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

CENTRAL CHANNEL PLAN & PROFILE 1 OF 6

SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C6.01

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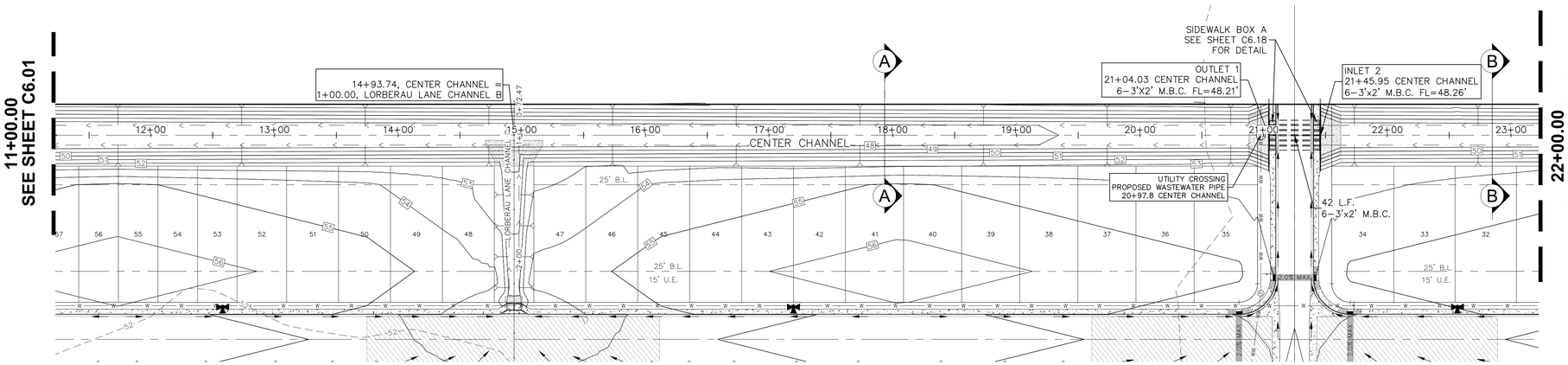
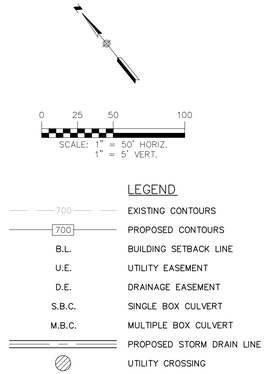
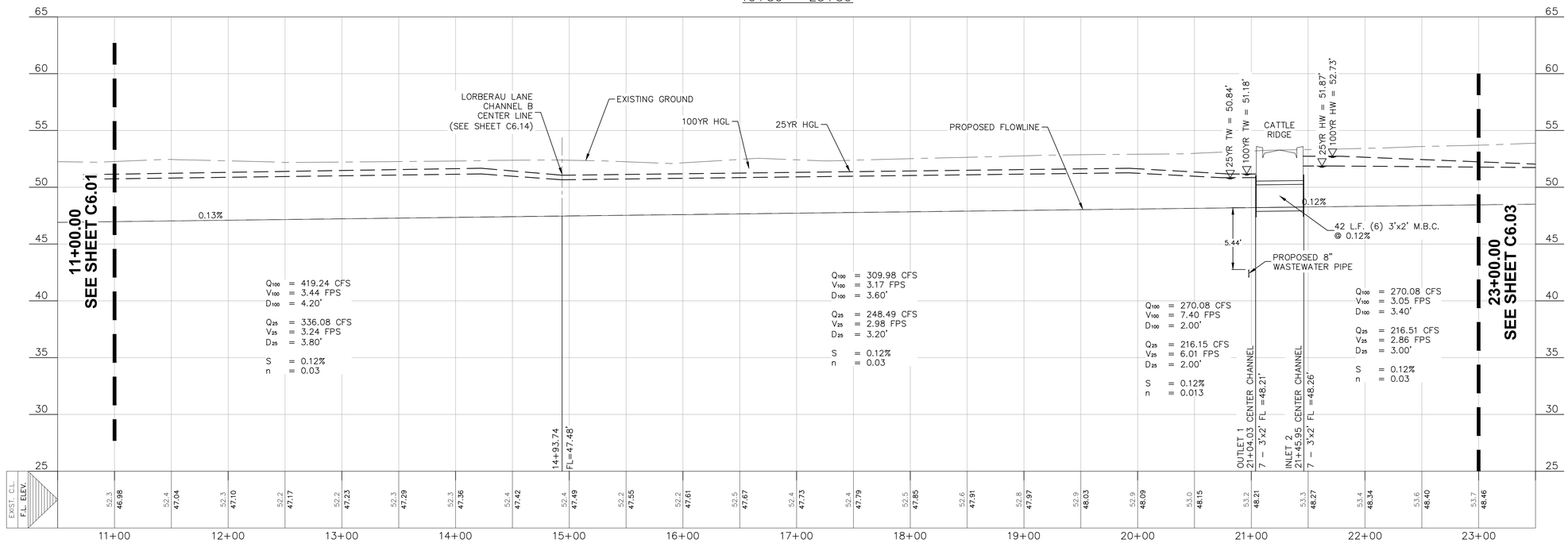




CENTER CHANNEL (2 OF 6)
10+50 – 23+50



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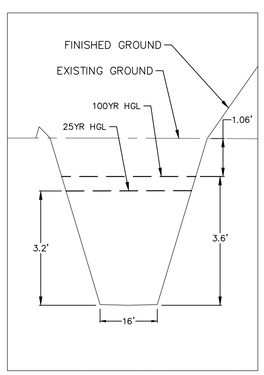

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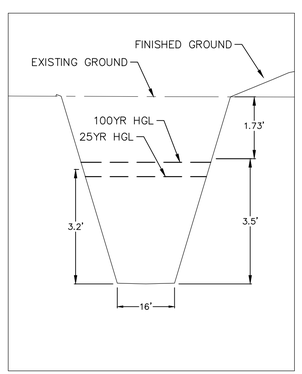

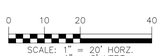

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JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

CENTRAL CHANNEL
PLAN & PROFILE SHEET 2 OF 6

SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C6.02

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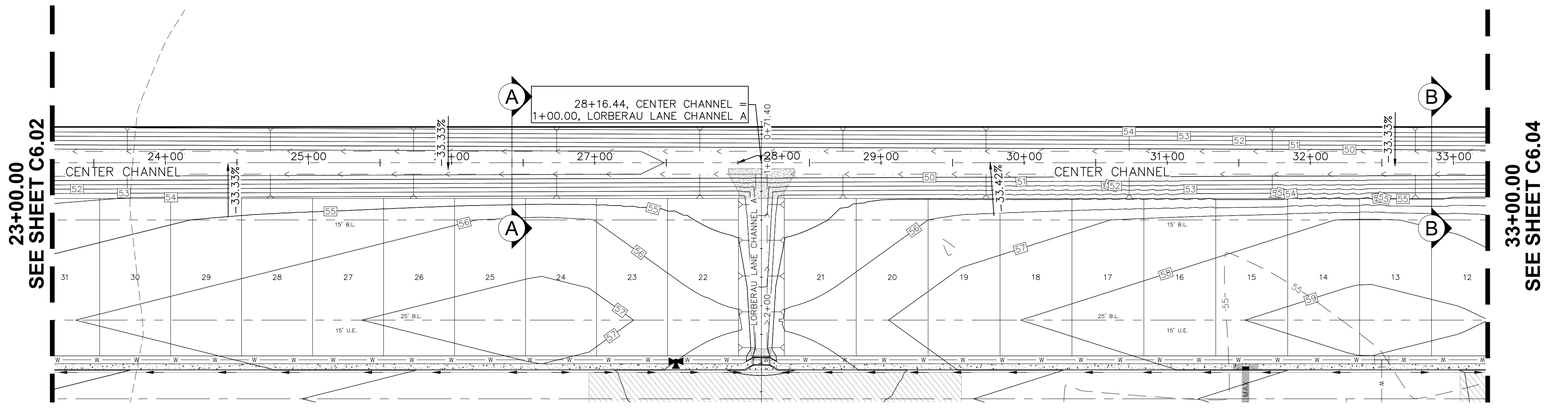

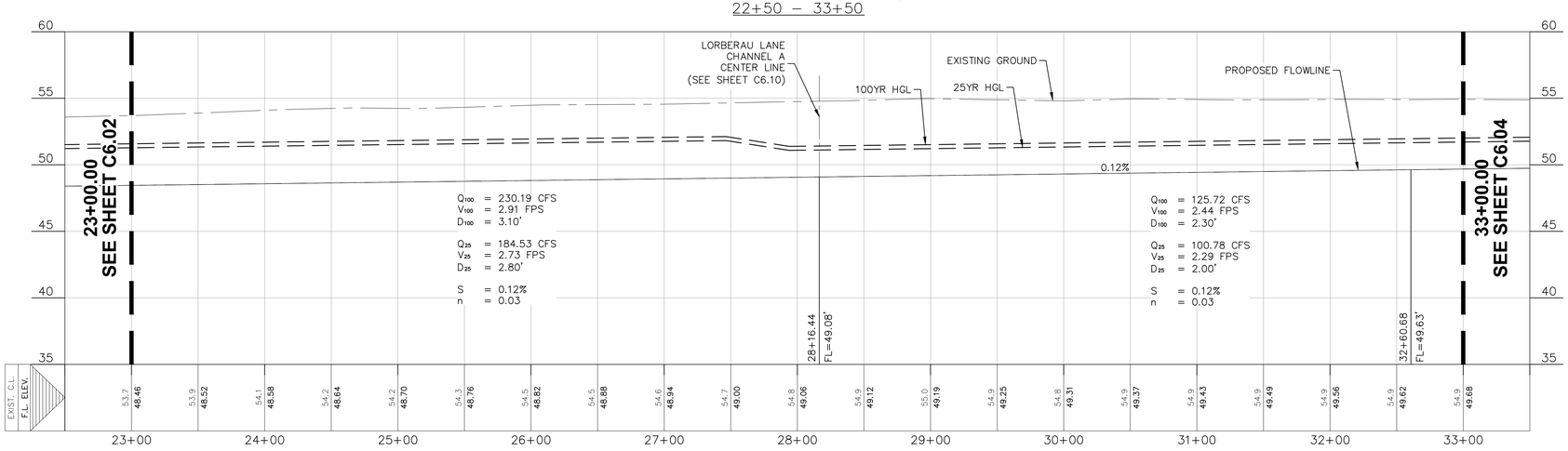

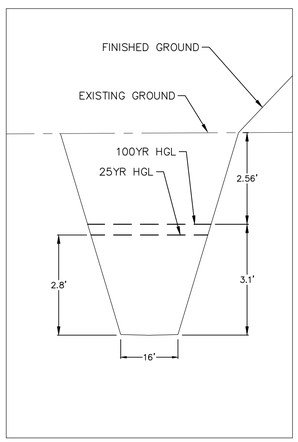

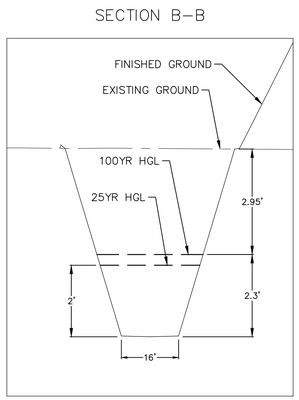

LEGEND

700	EXISTING CONTOURS
700	PROPOSED CONTOURS
B.L.	BUILDING SETBACK LINE
U.E.	UTILITY EASEMENT
D.E.	DRAINAGE EASEMENT
S.B.C.	SINGLE BOX CULVERT
M.B.C.	MULTIPLE BOX CULVERT
	PROPOSED STORM DRAIN LINE
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STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

CENTRAL CHANNEL PLAN & PROFILE 3 OF 6

SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C6.03

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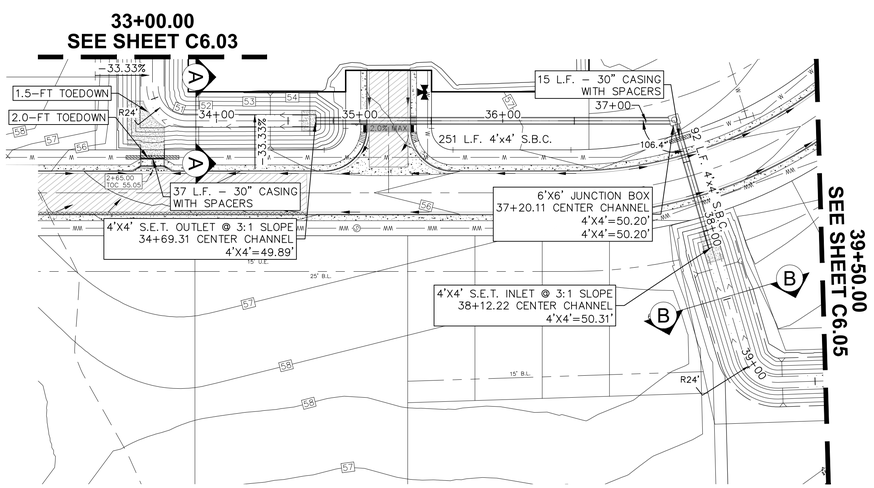

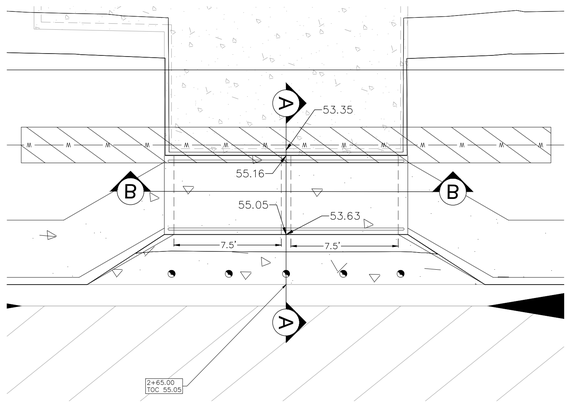

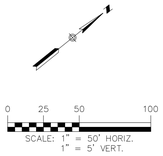

LEGEND

700	EXISTING CONTOURS
700	PROPOSED CONTOURS
B.L.	BUILDING SETBACK LINE
U.E.	UTILITY EASEMENT
D.E.	DRAINAGE EASEMENT
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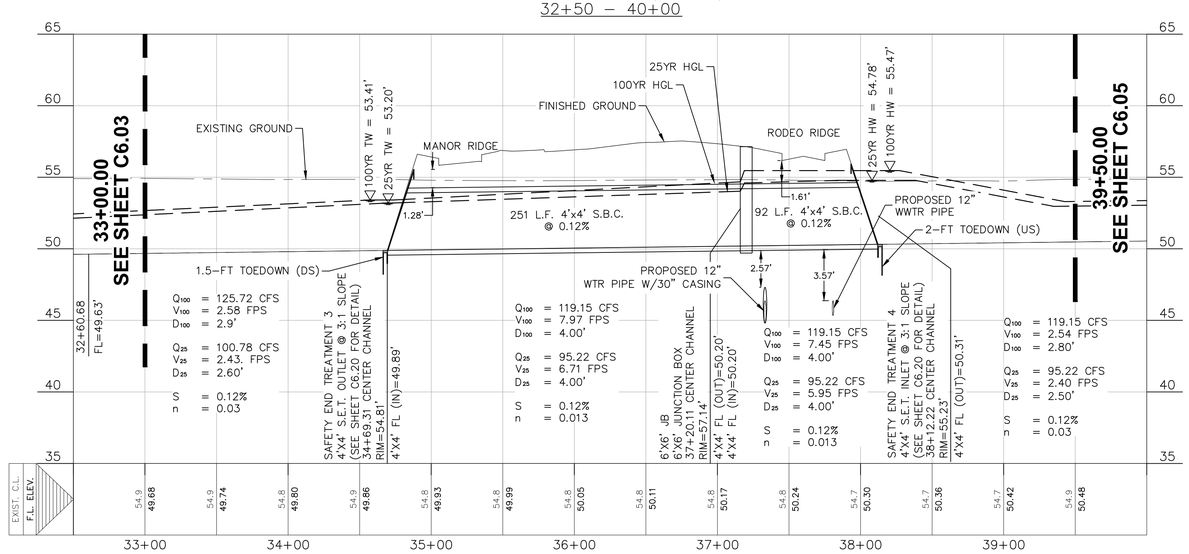
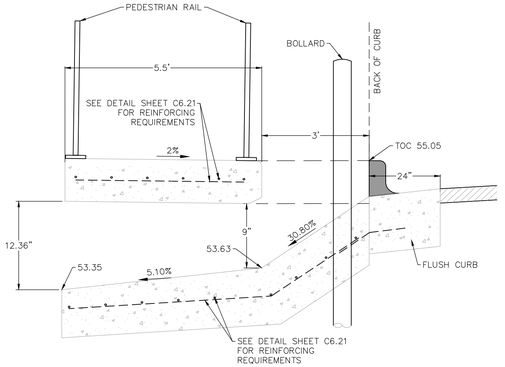
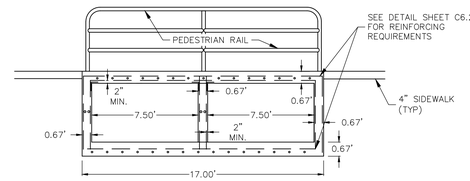
CENTER CHANNEL (4 OF 6)
32+50 – 40+00



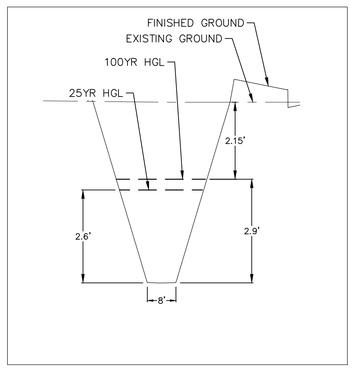


SIDEWALK BOX SECTION A-A
N.T.S.

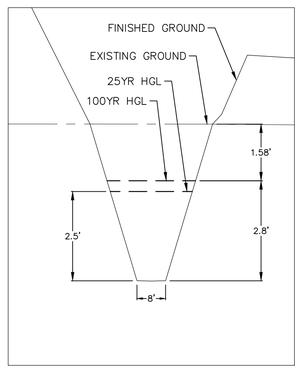


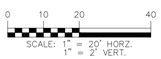
SIDEWALK BOX SECTION B-B
N.T.S.

SECTION A–A



SECTION B–B





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290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600
HMT ENGINEERING & SURVEYING

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

CENTRAL CHANNEL PLAN & PROFILE 4 OF 6

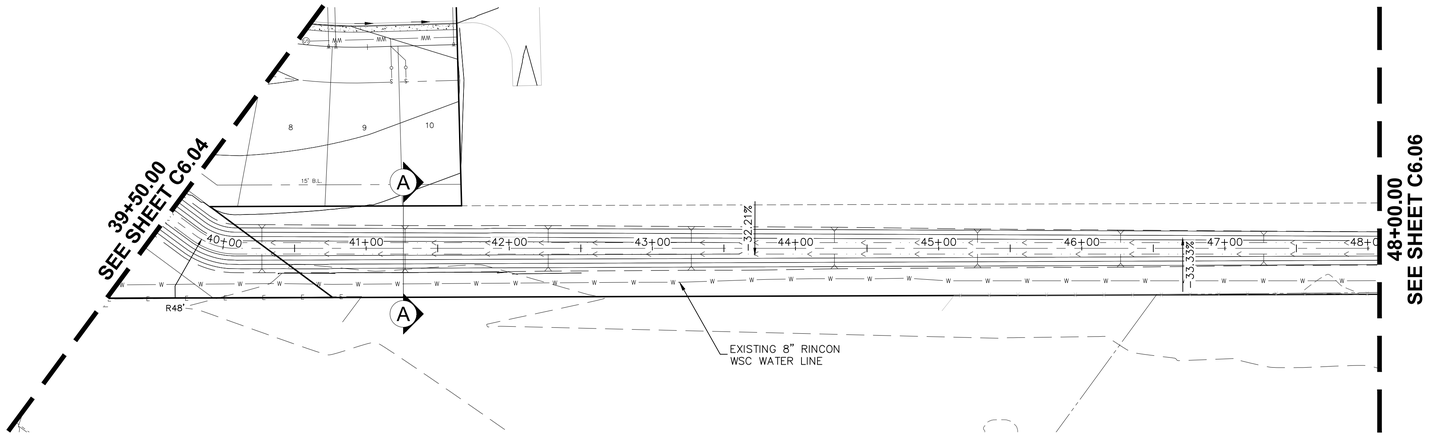
SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

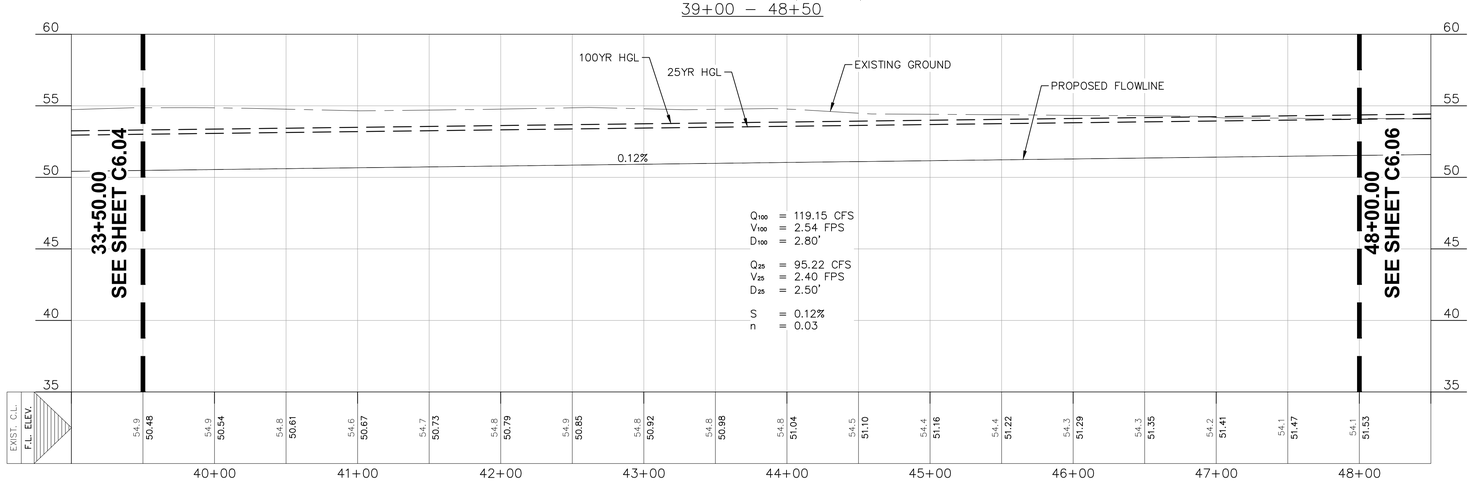
DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

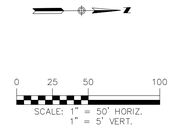
SHEET
C6.04

Drawing Name: C:\Users\wills\AppData\Local\Temp\AcPublish_31356\337.087_CENTRAL CHANNEL P&P.dwg User: wills Sep 12, 2024 - 4:27pm



CENTER CHANNEL (5 OF 6)
39+00 – 48+50





LEGEND

700	EXISTING CONTOURS
700	PROPOSED CONTOURS
B.L.	BUILDING SETBACK LINE
U.E.	UTILITY EASEMENT
D.E.	DRAINAGE EASEMENT
S.B.C.	SINGLE BOX CULVERT
M.B.C.	MULTIPLE BOX CULVERT
	PROPOSED STORM DRAIN LINE
	UTILITY CROSSING

DRAINAGE FEATURES, DETENTION BASIN MAINTENANCE AND EQUIPMENT ACCESS REQUIREMENTS:

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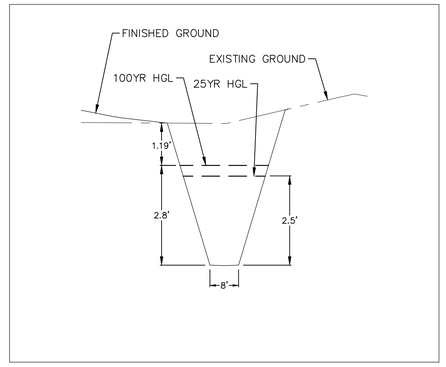
F. MAINTENANCE VEHICLE FOR POND ACCESS SHOULD BE A BOBCAT S175 SKID STEER LOADER OR VEHICLE OF EQUAL TO LESSER SIZE.

SECTION A–A



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290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600
HMT ENGINEERING & SURVEYING

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

CENTRAL CHANNEL PLAN & PROFILE 5 OF 6

SINTON RANCH UNIT 1

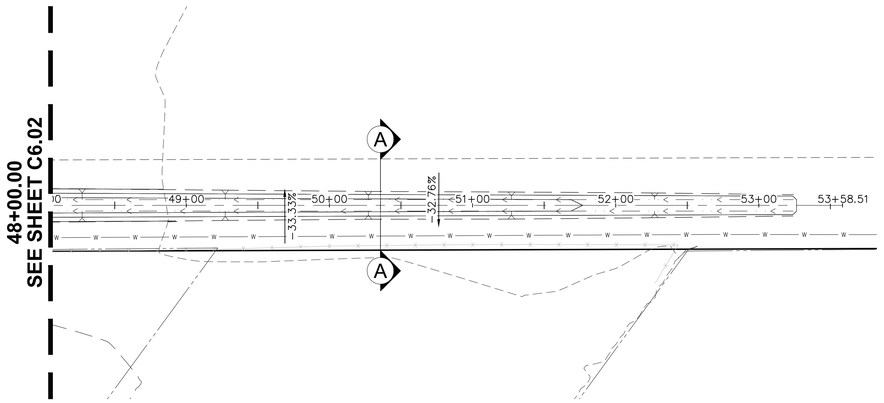
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

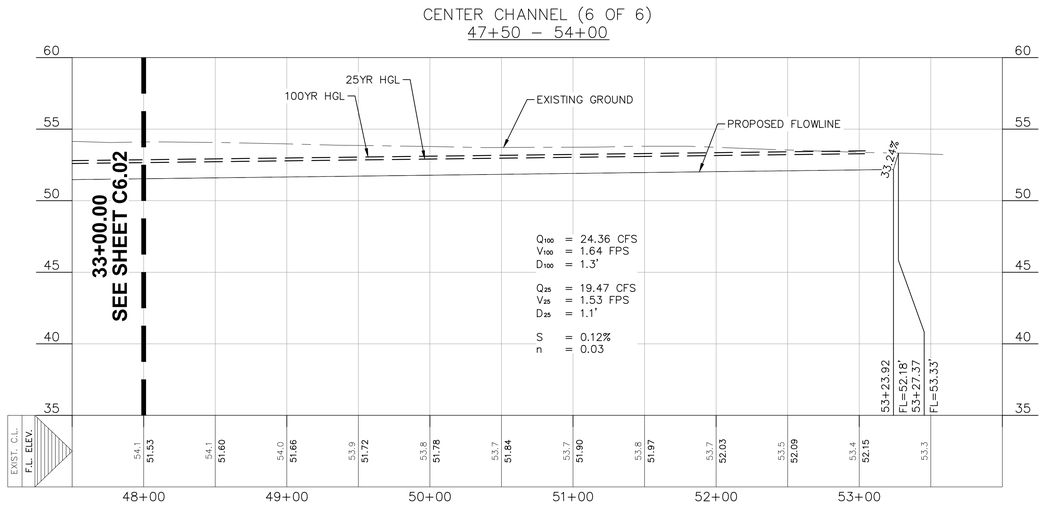
DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C6.05

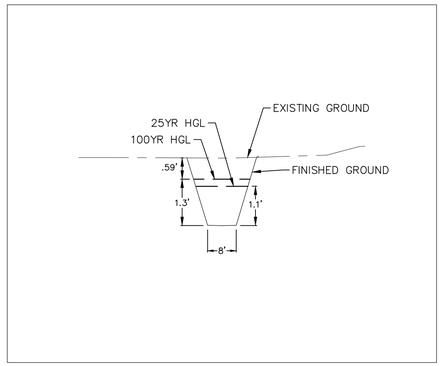
Drawing Name: C:\Users\wric\AppData\Local\Temp\AcPublish_31356\337.087_CENTRAL CHANNEL P&P.dwg User: wric Sep 12, 2024 - 4:27pm

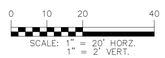


CENTER CHANNEL (6 OF 6)
47+50 – 54+00



SECTION A–A





LEGEND

700	EXISTING CONTOURS
700	PROPOSED CONTOURS
B.L.	BUILDING SETBACK LINE
U.E.	UTILITY EASEMENT
D.E.	DRAINAGE EASEMENT
S.B.C.	SINGLE BOX CULVERT
M.B.C.	MULTIPLE BOX CULVERT
	PROPOSED STORM DRAIN LINE
	UTILITY CROSSING

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HMT ENGINEERING & SURVEYING
290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

CENTRAL CHANNEL
PLAN & PROFILE 6 OF 6

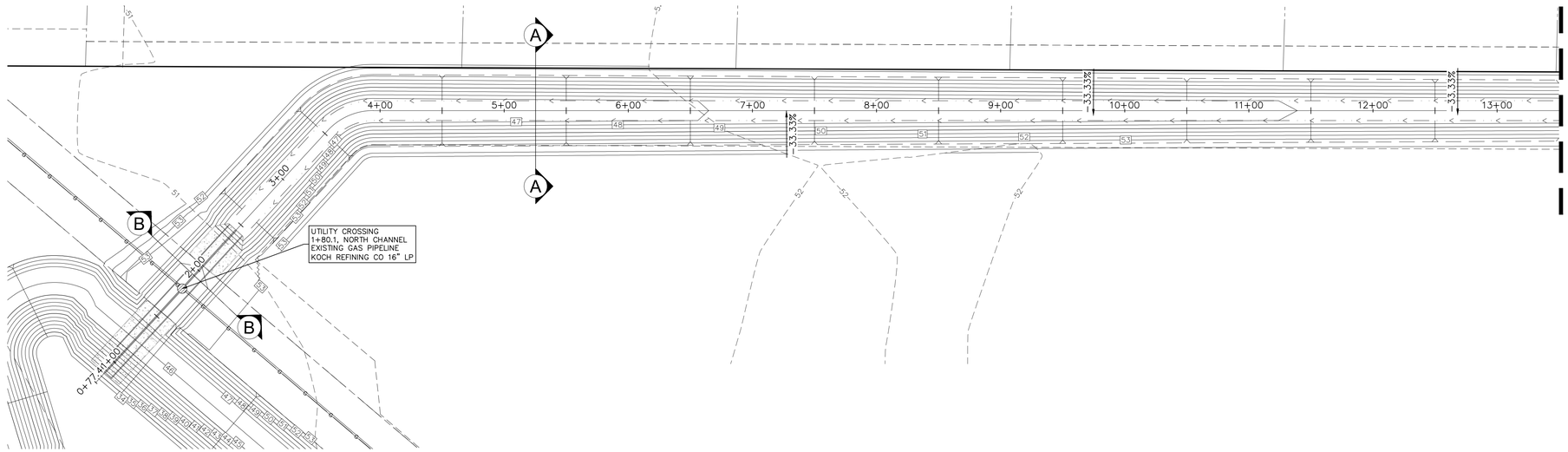
SINTON RANCH UNIT 1
SINTON, TEXAS

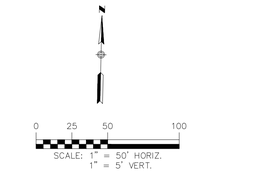
NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C6.06

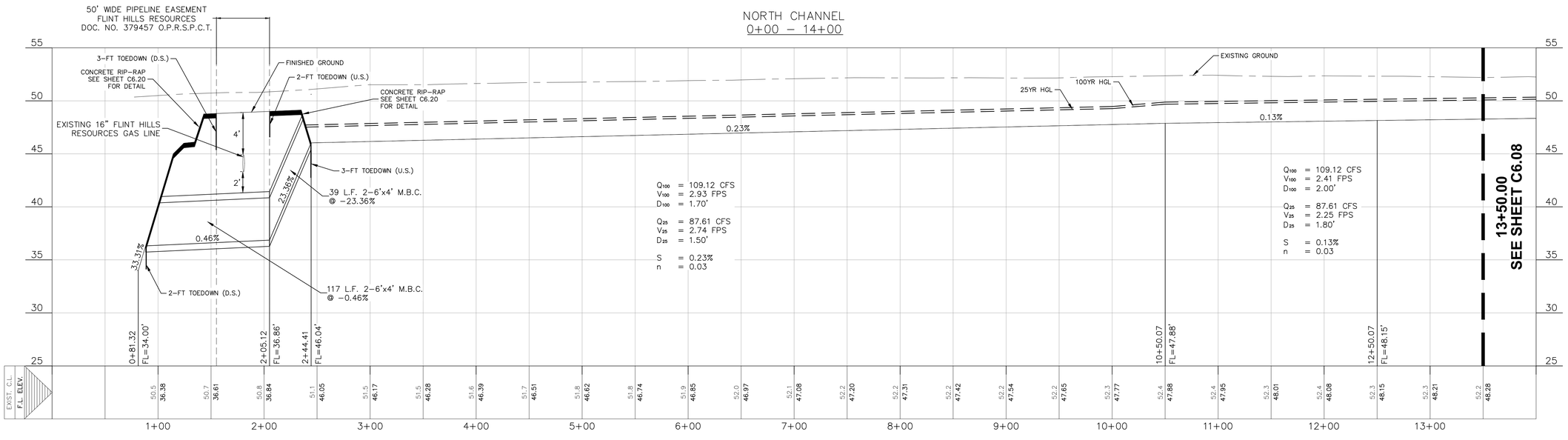
Drawing Name: C:\Users\wilic\AppData\Local\Temp\AcPublish_3136A\337.087_CENTRAL CHANNEL P&P.dwg User: wilic Sep 12, 2024 - 4:27pm





LEGEND

700	EXISTING CONTOURS
700	PROPOSED CONTOURS
B.L.	BUILDING SETBACK LINE
U.E.	UTILITY EASEMENT
D.E.	DRAINAGE EASEMENT
S.B.C.	SINGLE BOX CULVERT
	PROPOSED STORM DRAIN LINE
	UTILITY CROSSING



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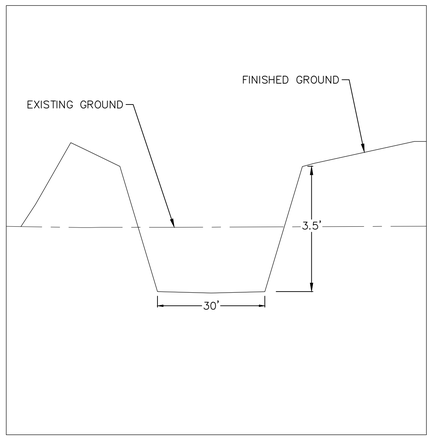
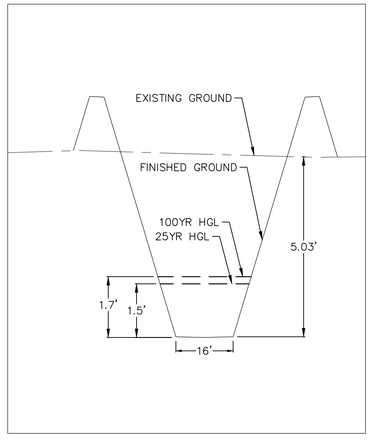
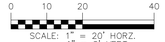


SECTION A–A





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290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600
HMT
ENGINEERING & SURVEYING

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

NORTH CHANNEL PLAN & PROFILE 1 OF 3

SINTON RANCH UNIT 1

SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C6.07

Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\03a\337.087_STRM-NORTH CHANNEL P&P.dwg User: jved Sep 12, 2024 - 4:35pm

DRAINAGE FEATURES, DETENTION BASIN MAINTENANCE AND EQUIPMENT ACCESS REQUIREMENTS:

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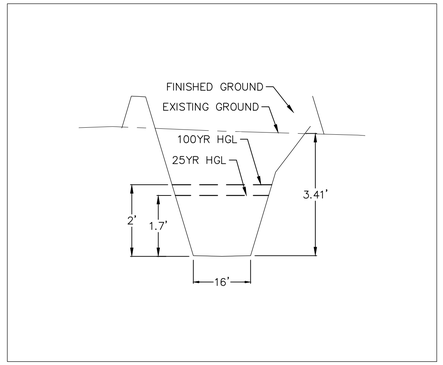
SECTION A–A



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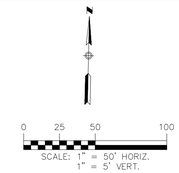
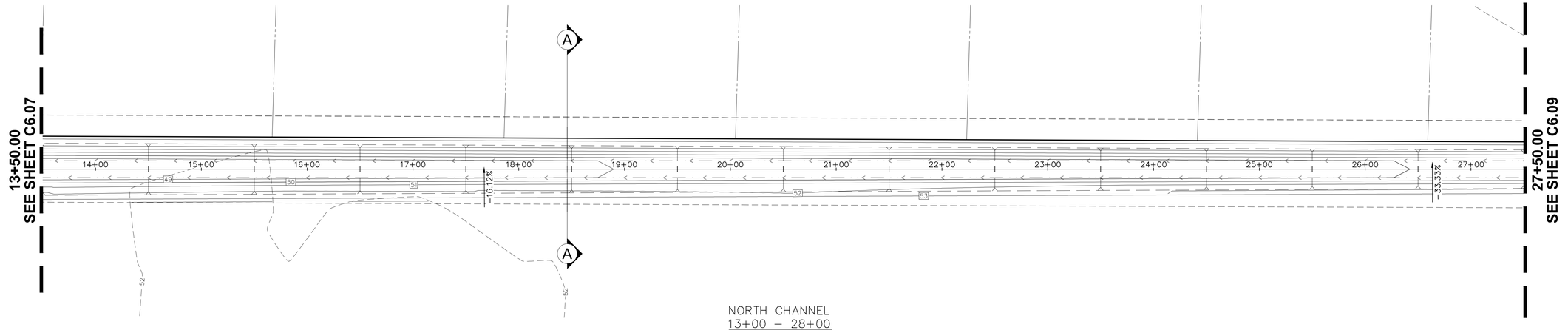
SCALE: 1" = 20' HORZ.
1" = 2' VERT.

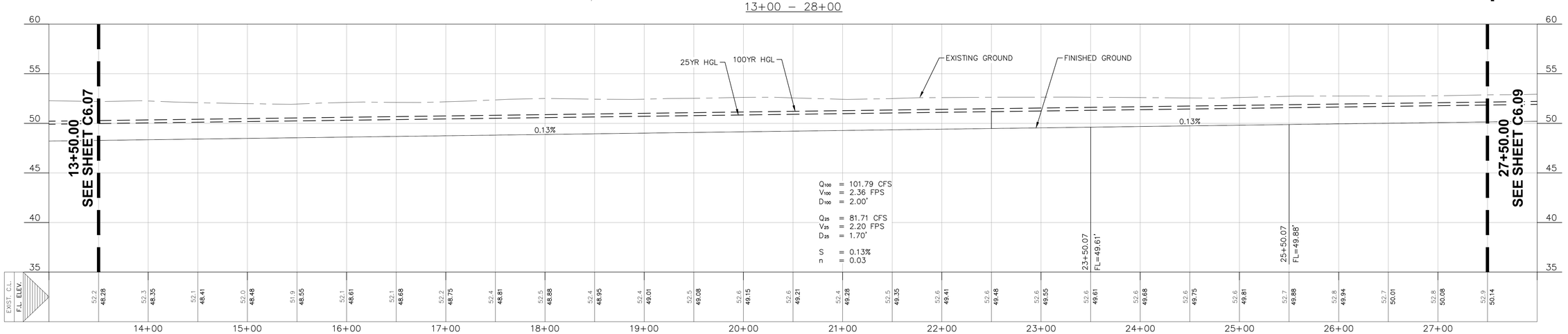


LEGEND

700	EXISTING CONTOURS
700	PROPOSED CONTOURS
B.L.	BUILDING SETBACK LINE
U.E.	UTILITY EASEMENT
D.E.	DRAINAGE EASEMENT
S.B.C.	SINGLE BOX CULVERT
	PROPOSED STORM DRAIN LINE
	UTILITY CROSSING



NORTH CHANNEL
13+00 – 28+00



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NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600

HMT ENGINEERING & SURVEYING

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

NORTH CHANNEL PLAN & PROFILE 2 OF 3

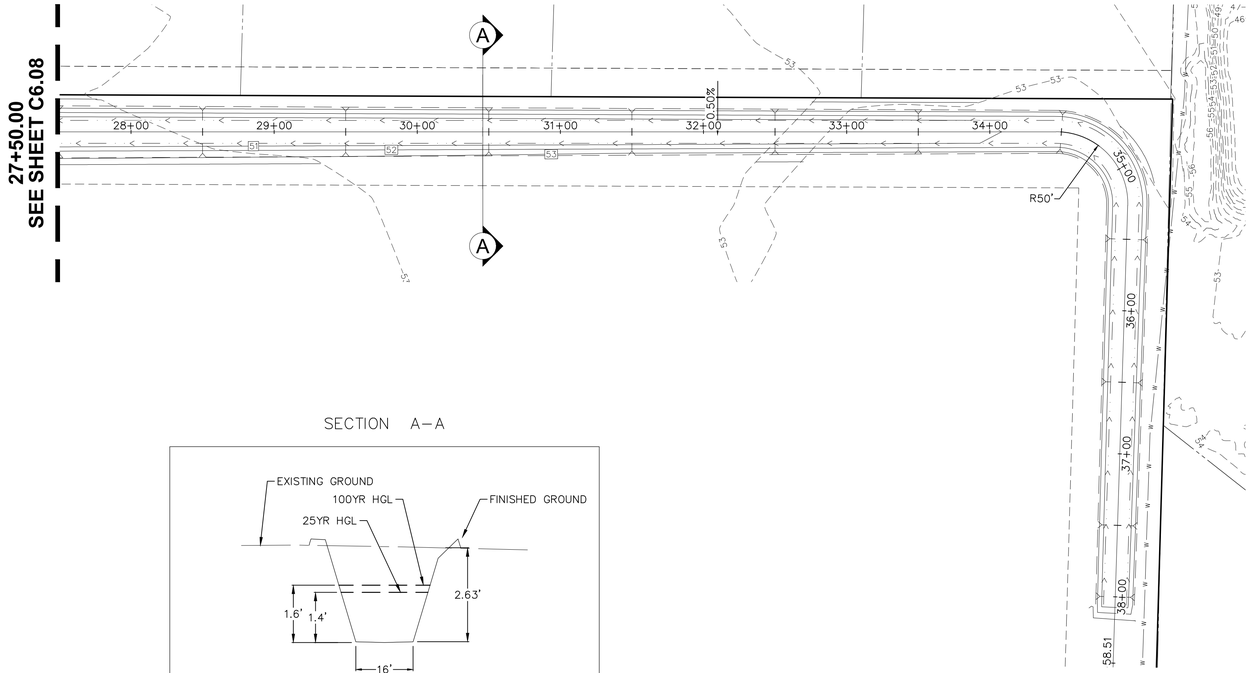
SINTON RANCH UNIT 1
SINTON, TEXAS

REVISION DATE	REVISION DESCRIPTION	NO.

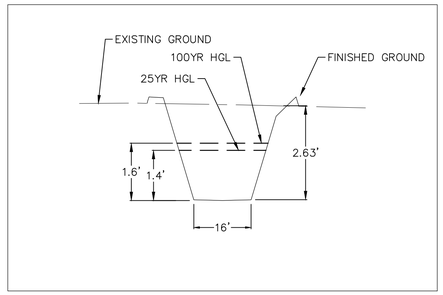
DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C6.08

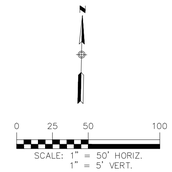
Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 lots)\03a\337.087_STRM-NORTH CHANNEL P&P.dwg User: joed Sep 12, 2024 - 12:07pm



SECTION A–A



0 10 20 40
SCALE: 1" = 20' HORZ.
1" = 2' VERT.



LEGEND

700	EXISTING CONTOURS
700	PROPOSED CONTOURS
B.L.	BUILDING SETBACK LINE
U.E.	UTILITY EASEMENT
D.E.	DRAINAGE EASEMENT
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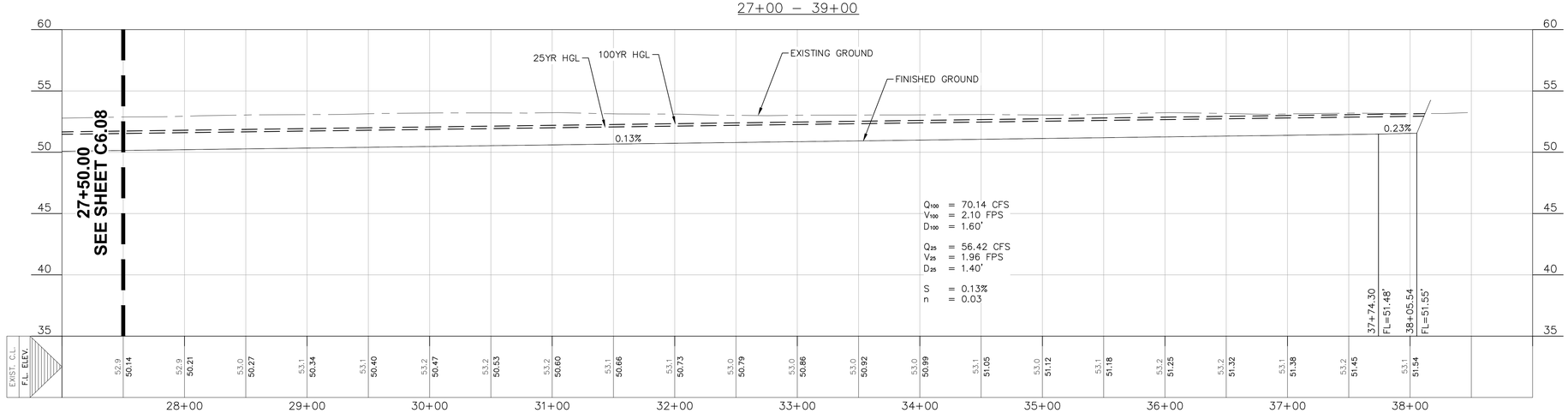
F. MAINTENANCE VEHICLE FOR POND ACCESS SHOULD BE A BOBCAT S175 SKID STEER LOADER OR VEHICLE OF EQUAL TO LESSER SIZE.

NORTH CHANNEL.
27+00 – 39+00



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290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600

HMT ENGINEERING & SURVEYING

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

NORTH CHANNEL PLAN & PROFILE 3 OF 3

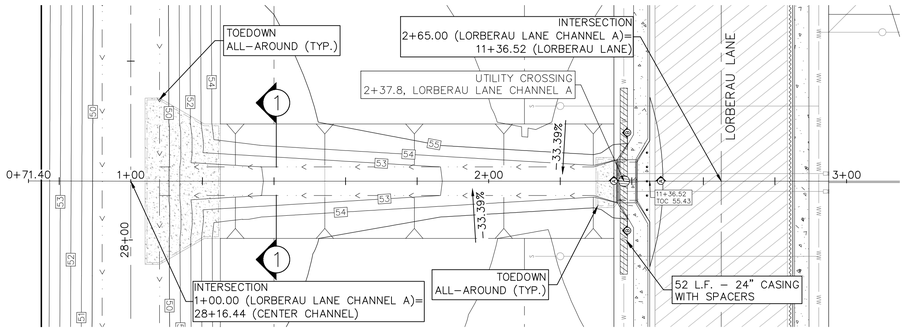
SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

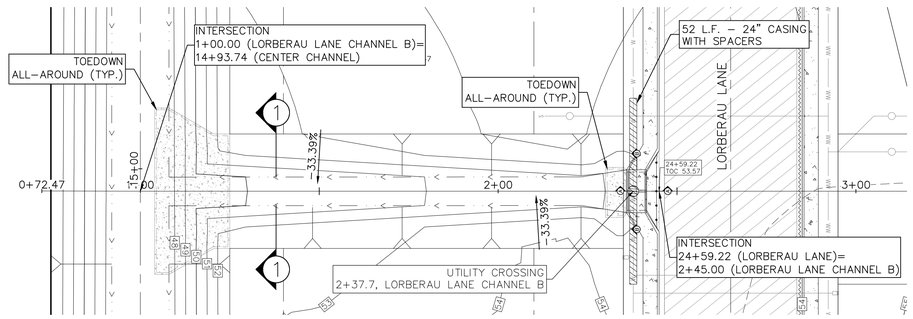
DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C6.09

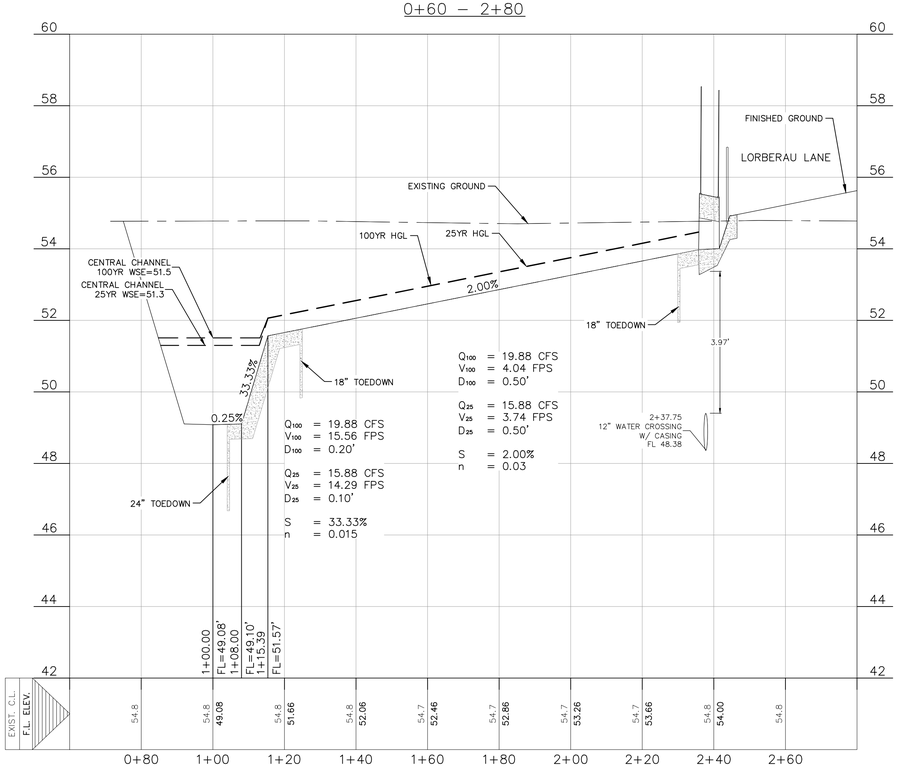
Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\02a\337.087_STRM-NORTH CHANNEL P&P.dwg User: joed Sep 12, 2024 - 12:07pm

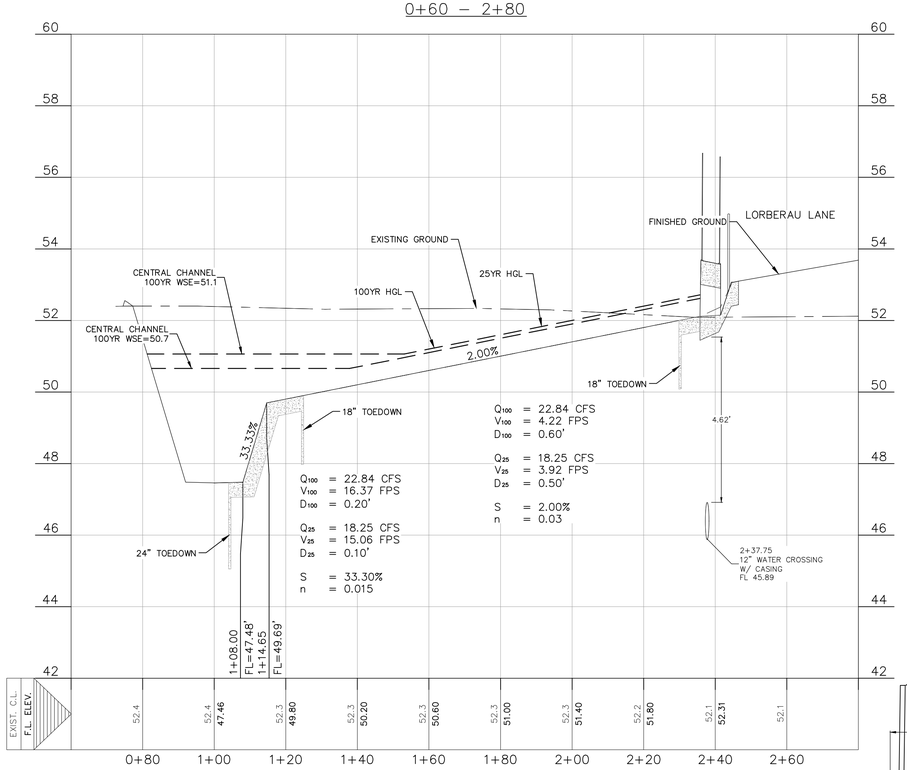


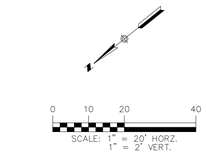
LORBERAU LANE CHANNEL A
0+60 - 2+80



LORBERAU LANE CHANNEL B
0+60 - 2+80







LEGEND

- 700 — EXISTING CONTOURS
- 700 — PROPOSED CONTOURS
- B.L. — BUILDING SETBACK LINE
- U.E. — UTILITY EASEMENT
- D.E. — DRAINAGE EASEMENT
- S.B.C. — SINGLE BOX CULVERT
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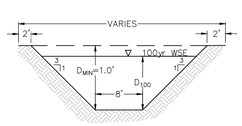
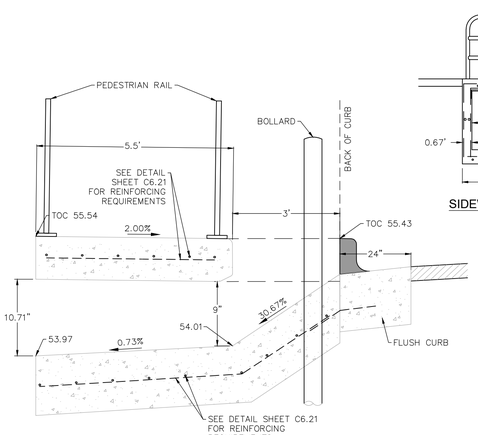
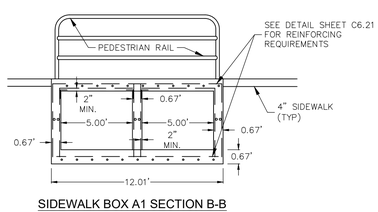


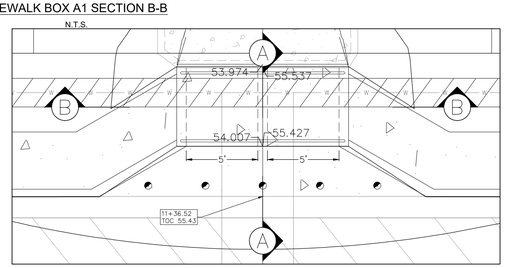
1 GRASSY SWALE
N.T.S.



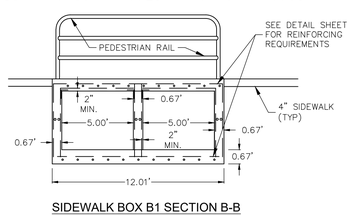
SIDEWALK BOX A1 SECTION A-A
N.T.S.



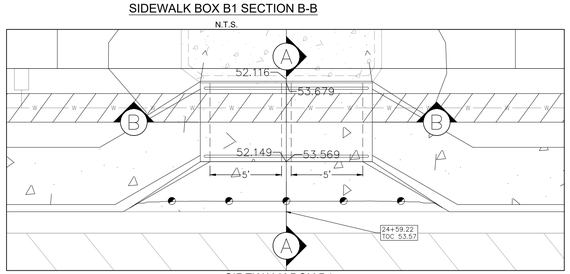
SIDEWALK BOX A1 SECTION B-B
N.T.S.



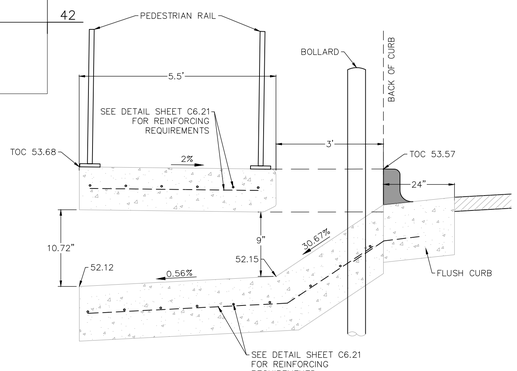
SIDEWALK BOX A1
SCALE : 1"=5'



SIDEWALK BOX B1 SECTION B-B
N.T.S.



SIDEWALK BOX B1
SCALE : 1"=5'



SIDEWALK BOX B1 SECTION A-A
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TBPELS FIRM F-10961
TBPELS FIRM 10153600

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
Joseph T. Sandoval P.E.

9/12/2024

LORBERAU LANE CHANNEL A & B PLAN & PROFILE

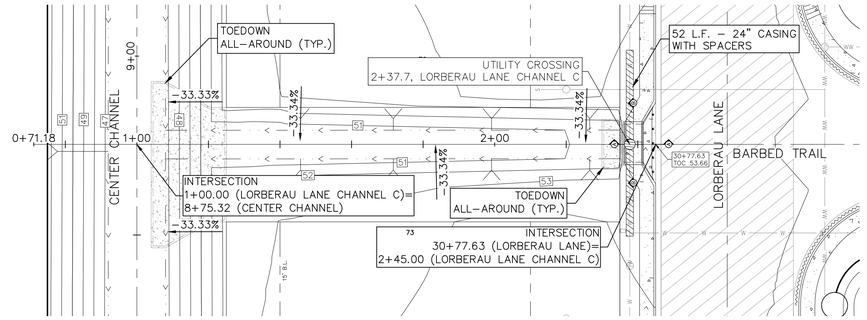
SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

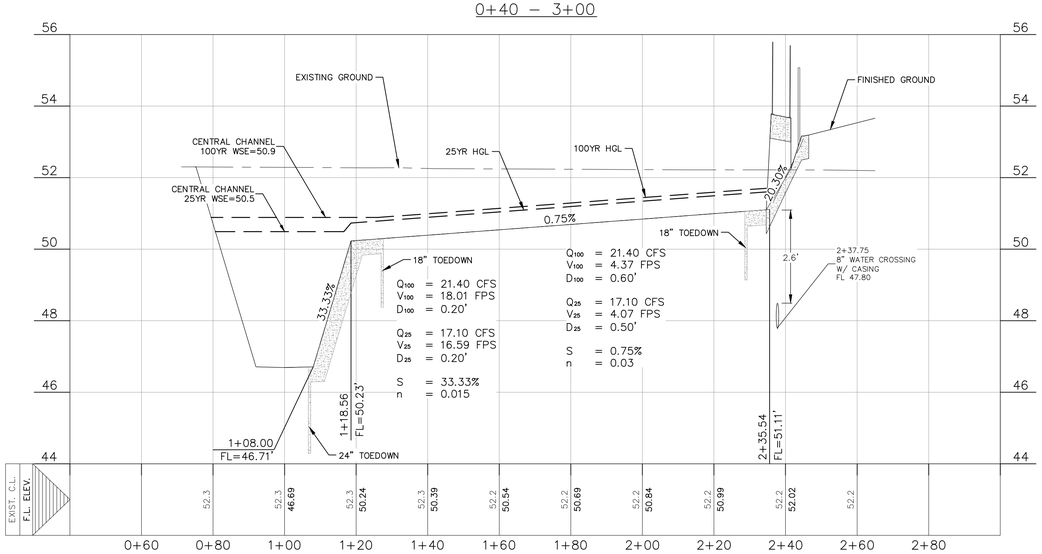
DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

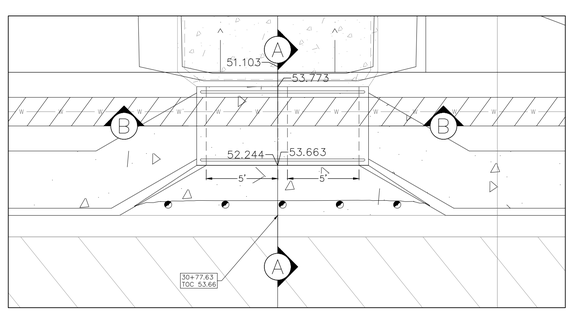
SHEET
C6.10

Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\CDs\337.087_STRM_CHANNELS A-B-C P&P.dwg User: jsed Sep 12, 2024 - 12:09pm



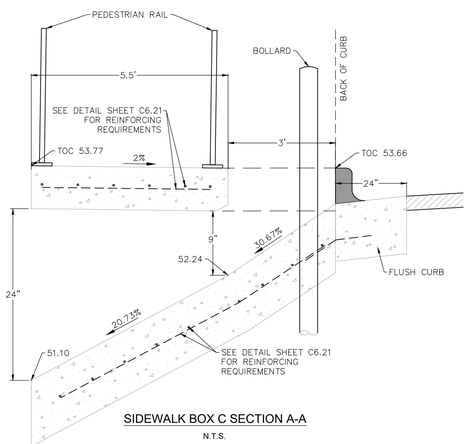
LORBERAU LANE CHANNEL C
0+40 – 3+00





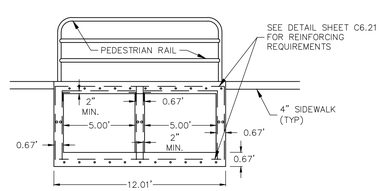
SIDEWALK BOX C

SCALE : 1"=5'



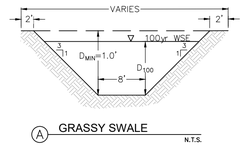
SIDEWALK BOX C SECTION A-A

N.T.S.



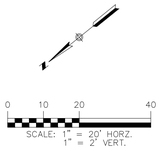
SIDEWALK BOX C SECTION B-B

N.T.S.



A GRASSY SWALE

N.T.S.



LEGEND

700	EXISTING CONTOURS
700	PROPOSED CONTOURS
B.L.	BUILDING SETBACK LINE
U.E.	UTILITY EASEMENT
D.E.	DRAINAGE EASEMENT
S.B.C.	SINGLE BOX CULVERT
	PROPOSED STORM DRAIN LINE
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NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600

HMT ENGINEERING & SURVEYING

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

LORBERAU LANE CHANNEL C
PLAN & PROFILE

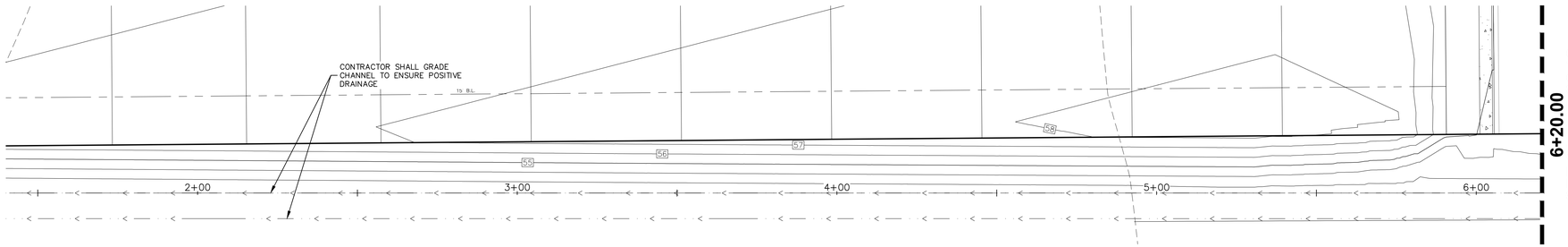
SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

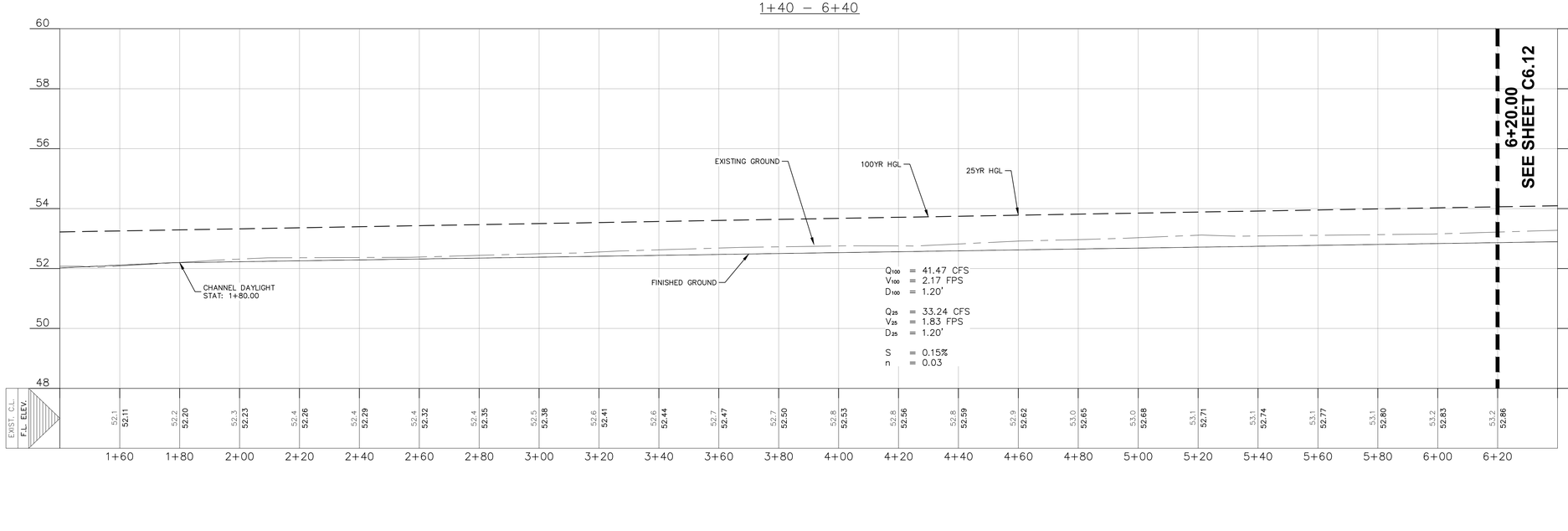
DATE: **SEPTEMBER 2024**
DRAWN BY: **CAC**
DESIGNED BY: **WRC**
REVIEWED BY: **JTS**
HMT PROJECT NO.: **337.087**

SHEET
C6.11

Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\CDs\337.087_STRM_CHANNELS_A-B-C_P&P.dwg User: jsed Sep 12, 2024 - 12:09pm



COWBOY TRAIL CHANNEL A 1 OF 3
1+40 – 6+40



0 10 20 40
SCALE: 1" = 20' HORZ.
1" = 2' VERT.

LEGEND

700	EXISTING CONTOURS
700	PROPOSED CONTOURS
B.L.	BUILDING SETBACK LINE
U.E.	UTILITY EASEMENT
D.E.	DRAINAGE EASEMENT
S.B.C.	SINGLE BOX CULVERT
	PROPOSED STORM DRAIN LINE
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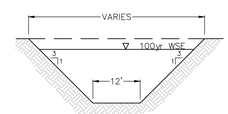

① GRASSY SWALE N.T.S.

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LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

COWBOY TRAIL CHANNEL A PLAN & PROFILE 1 OF 3

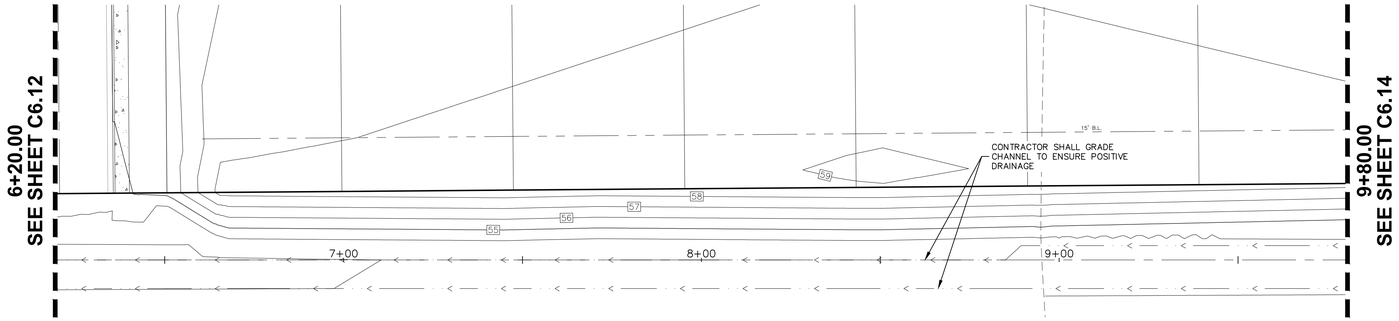
SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

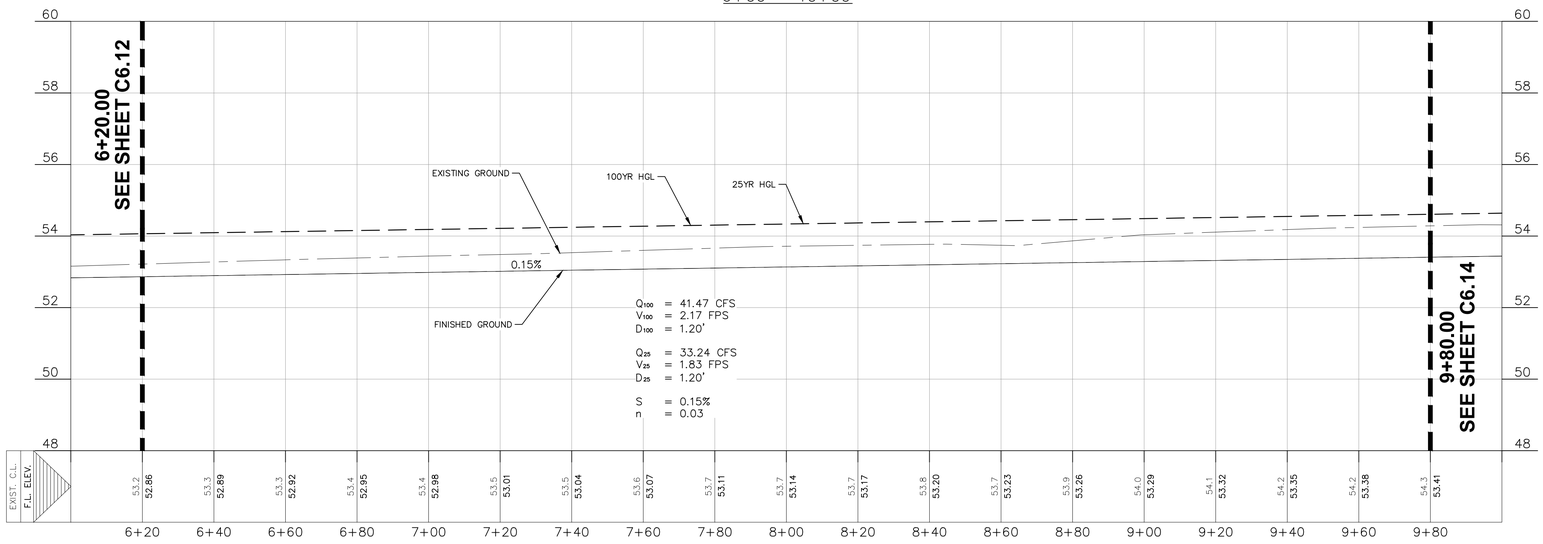
DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

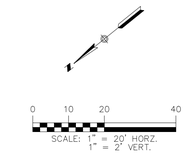
SHEET
C6.12

Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\CDs\337.087_STRM_CHANNELS A-B-C P&P.dwg User: komdend Sep 12, 2024 - 1:21pm



COWBOY TRAIL CHANNEL A 2 OF 3
6+00 – 10+00





LEGEND

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U.E.	UTILITY EASEMENT
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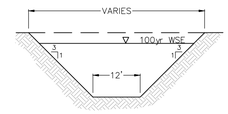

1 GRASSY SWALE
N.T.S.

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290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600
HMT ENGINEERING & SURVEYING

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

COWBOY TRAIL CHANNEL A PLAN & PROFILE 2 OF 3

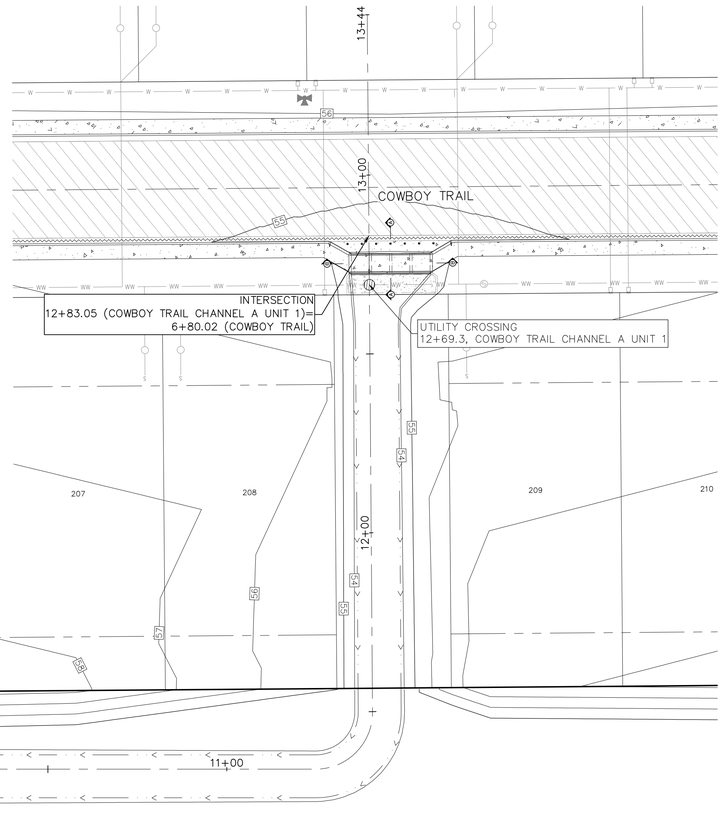
SINTON RANCH UNIT 1
SINTON, TEXAS

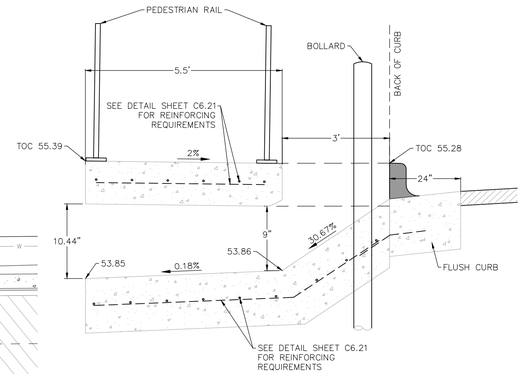
NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C6.13

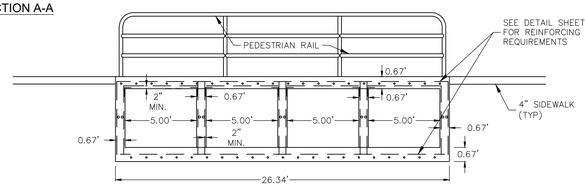
Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\CDs\337.087_STRM_CHANNELS A-B-C P&P.dwg User: komdend Sep 12, 2024 - 1:21pm





SIDEWALK BOX A1 SECTION A-A

N.T.S.



SIDEWALK BOX A1 SECTION B-B

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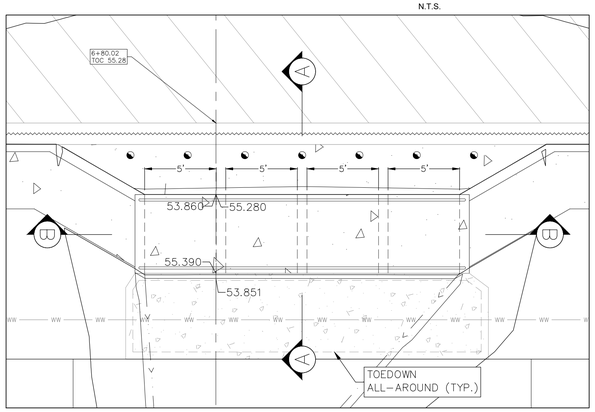


LEGEND

700	EXISTING CONTOURS
700	PROPOSED CONTOURS
B.L.	BUILDING SETBACK LINE
U.E.	UTILITY EASEMENT
D.E.	DRAINAGE EASEMENT
S.B.C.	SINGLE BOX CULVERT
	PROPOSED STORM DRAIN LINE
	UTILITY CROSSING

DRAINAGE FEATURES, DETENTION BASIN MAINTENANCE AND EQUIPMENT ACCESS REQUIREMENTS:

SILT SHALL BE REMOVED AND THE BASIN RETURNED TO ORIGINAL LINES AND GRADES WHEN STANDING WATER CONDITIONS OCCUR OR THE BASIN STORAGE VOLUME IS REDUCED BY MORE THAN 10%.

A. TO LIMIT EROSION, NO UNVEGETATED AREA SHALL EXCEED 10 SQ. FT. IN EXTENT.

B. ACCUMULATED PAPER, TRASH, AND DEBRIS SHALL BE REMOVED EVERY 6 MONTHS OR AS NECESSARY TO MAINTAIN PROPER OPERATION.

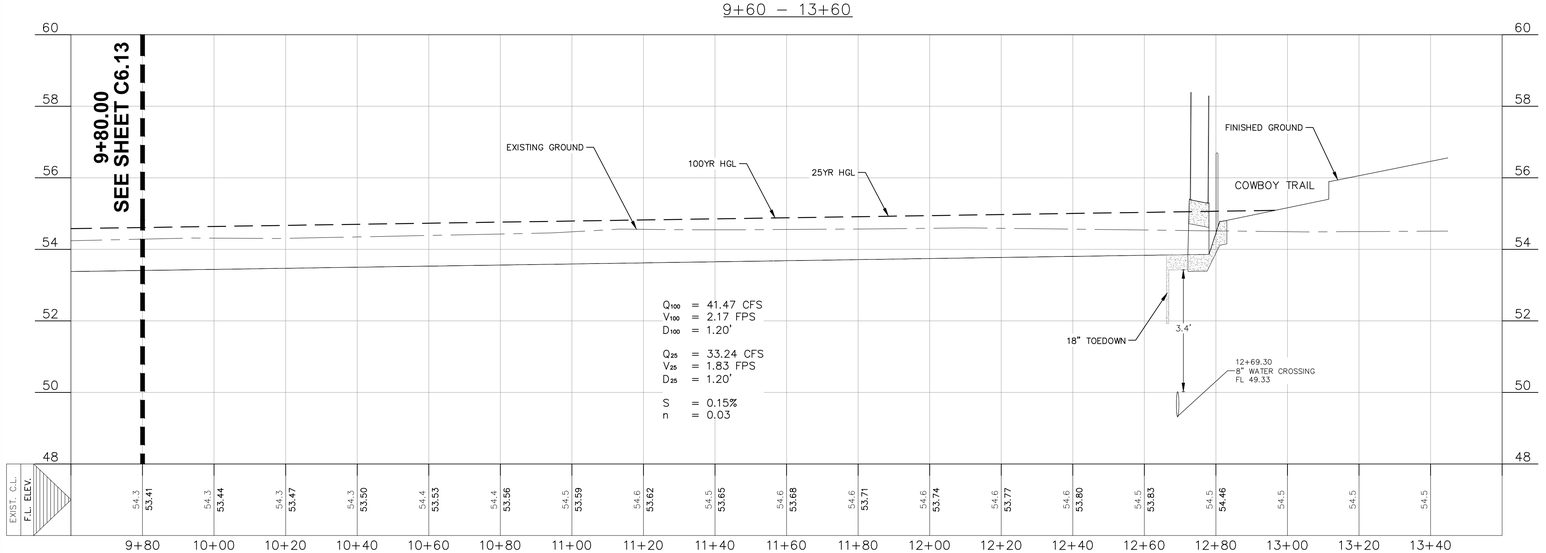
C. BASINS SHALL BE MOWED ANNUALLY BETWEEN THE MONTHS OF JUNE AND SEPTEMBER.

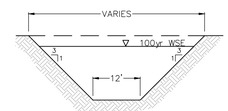
D. CORRECTIVE MAINTENANCE IS REQUIRED ANY TIME A BASIN DOES NOT DRAIN COMPLETELY WITHIN 60 HOURS OR CESSATION OF INFLOW (IE: NO STANDING WATER IS ALLOWED).

E. STRUCTURAL INTEGRITY OF BASINS SHALL BE MAINTAINED AT ALL TIMES.

F. MAINTENANCE VEHICLE FOR POND ACCESS SHOULD BE A BOBCAT S175 SKID STEER LOADER OR VEHICLE OF EQUAL TO LESSER SIZE.

COWBOY TRAIL CHANNEL A 3 OF 3
9+60 – 13+60





① GRASSY SWALE

N.T.S.

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P.E.

9/12/2024

COWBOY TRAIL CHANNEL A PLAN & PROFILE 3 OF 3

SINTON RANCH UNIT 1

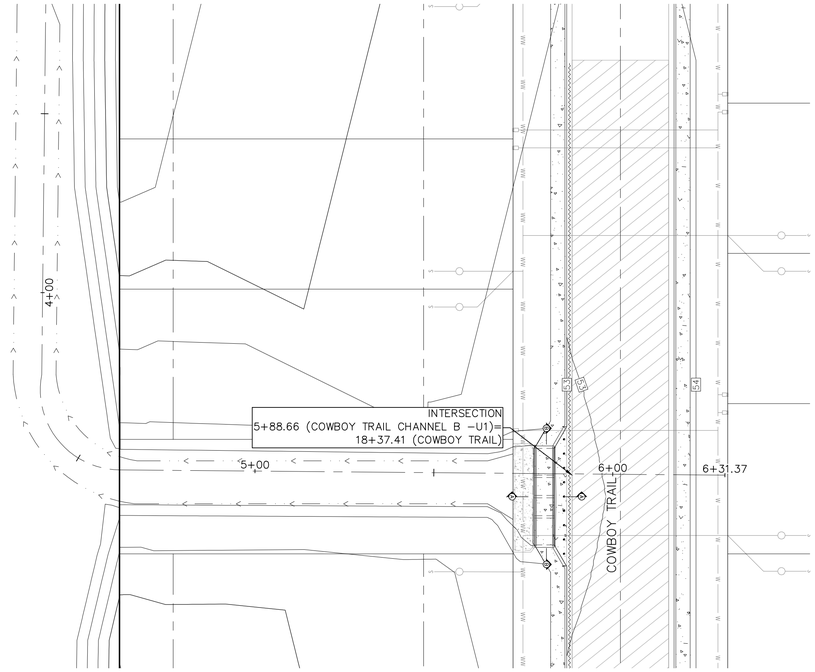
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C6.14

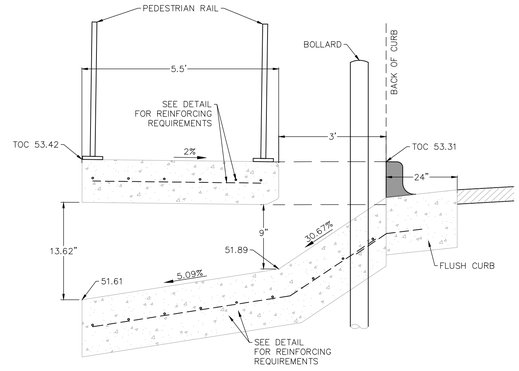
Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\CDs\337.087_STRM_CHANNELS A-B-C P&P.dwg User: komdend Sep 12, 2024 - 1:21pm



SCALE: 1" = 20' HORZ.
1" = 2' VERT.

LEGEND

700	EXISTING CONTOURS
700	PROPOSED CONTOURS
B.L.	BUILDING SETBACK LINE
U.E.	UTILITY EASEMENT
D.E.	DRAINAGE EASEMENT
S.B.C.	SINGLE BOX CULVERT
	PROPOSED STORM DRAIN LINE
	UTILITY CROSSING



SIDEWALK BOX A1 SECTION A-A
N.T.S.

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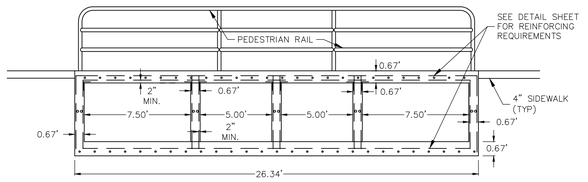
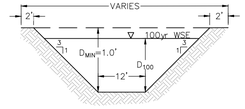
F. MAINTENANCE VEHICLE FOR POND ACCESS SHOULD BE A BOBCAT S175 SKID STEER LOADER OR VEHICLE OF EQUAL TO LESSER SIZE.

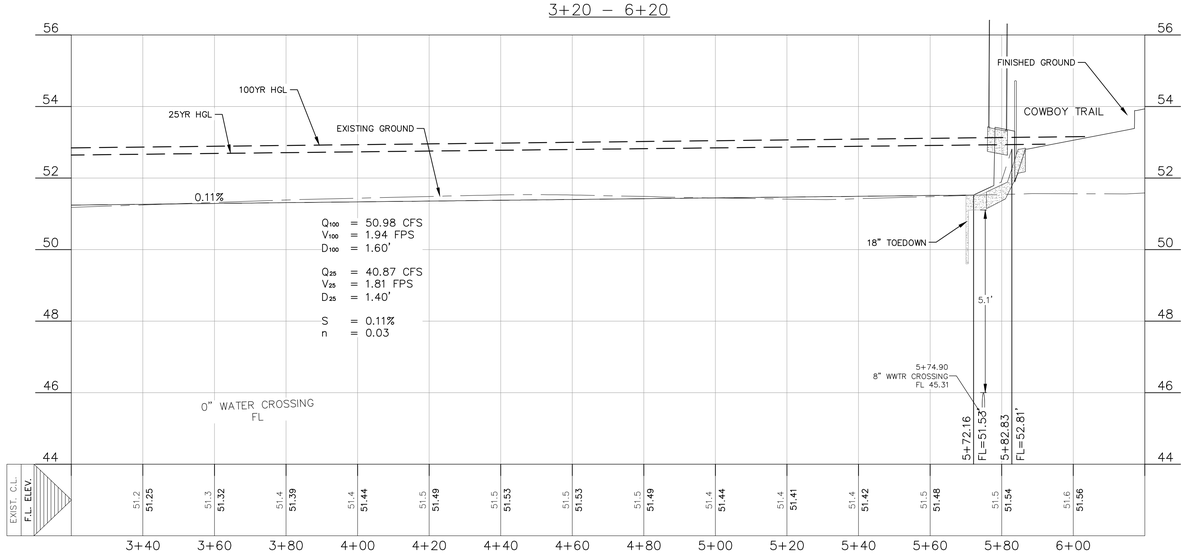


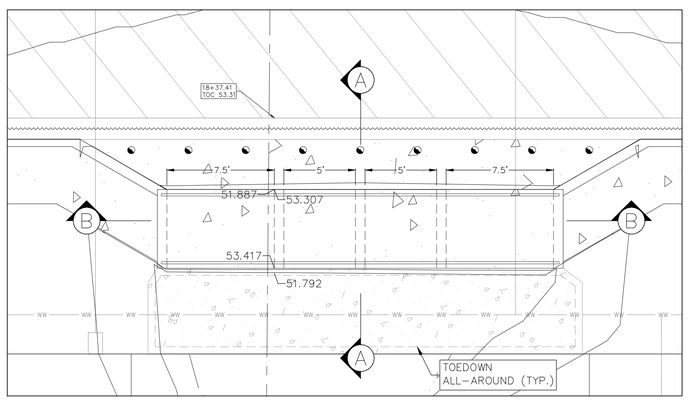
SIDEWALK BOX B2 SECTION B-B
N.T.S.



A GRASSY SWALE
N.T.S.

COWBOY TRAIL CHANNEL B
3+20 – 6+20





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JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

COWBOY TRAIL CHANNEL B PLAN & PROFILE

SINTON RANCH UNIT 1
SINTON, TEXAS

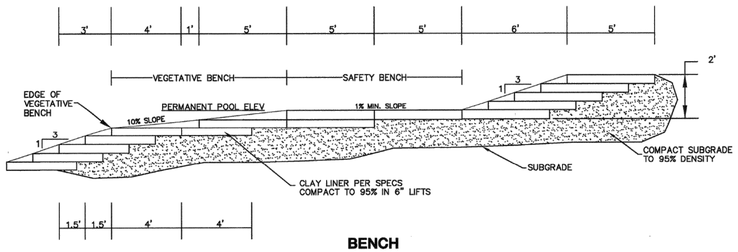
NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C6.15

Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\CDs\337.087_STRM_CHANNELS A-B-C P&P.dwg User: jced Sep 12, 2024 - 4:31pm

***** NOTE: THE PLANT SCHEDULE ON THIS SHEET IS A MINIMUM REQUIREMENT NECESSARY IN ORDER FOR THE WET POND TO MEET WATER QUALITY REQUIREMENTS. PRIOR TO CONSTRUCTION, A PLANTING SCHEDULE MUST BE PREPARED BY A LICENSED LANDSCAPE ARCHITECT. THE SCHEDULE MUST MEET THE MINIMUMS DESCRIBED ON THIS SHEET, HOWEVER ADDITIONAL/ALTERNATE PLANTS MAY BE INCLUDED FOR AESTHETICS.**



BENCH

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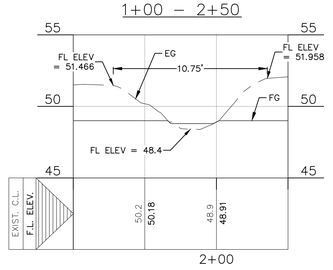
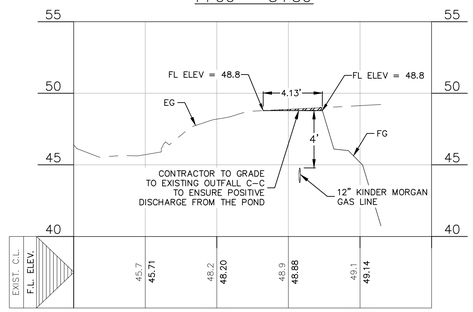
EXISTING OUTFALL SECTION C–C
1+00 – 2+50



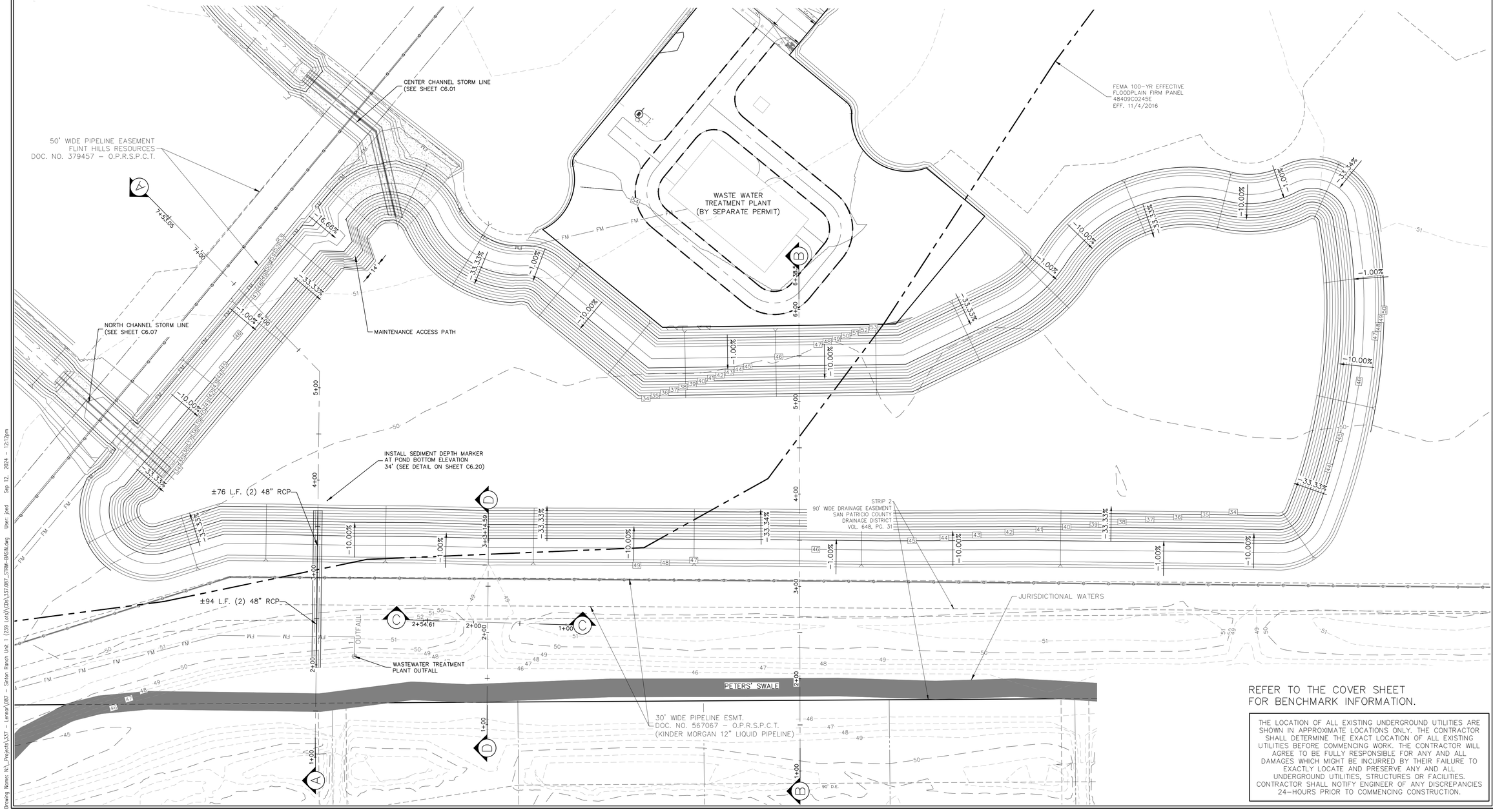
OUTFALL SECTION D–D
1+00 – 3+50



LEGEND

- 700 — EXISTING CONTOURS
- 700 — PROPOSED CONTOURS
- B.L. — BUILDING SETBACK LINE
- U.E. — UTILITY EASEMENT
- D.E. — DRAINAGE EASEMENT
- S.B.C. — SINGLE BOX CULVERT
- PROPOSED STORM DRAIN LINE
- UTILITY CROSSING

0 25 50 100
SCALE: 1" = 50'



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HMT ENGINEERING & SURVEYING

STATE OF TEXAS
JOSEPH T. SANDOVAL
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LICENSED PROFESSIONAL ENGINEER
P.E.

9/12/2024

OVERALL BASIN PLAN

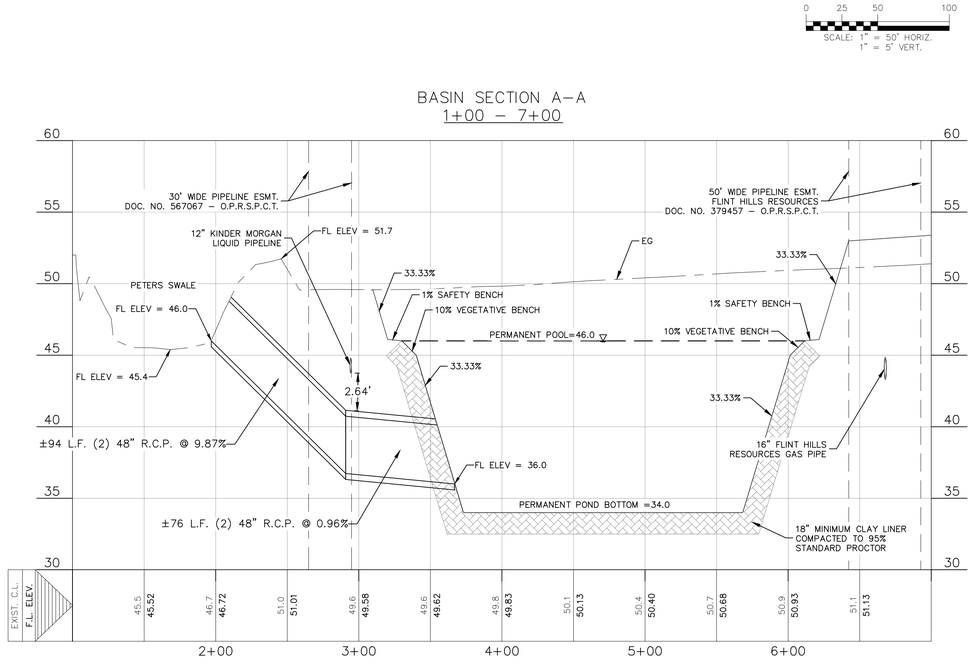
SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: **SEPTEMBER 2024**
DRAWN BY: **CAC**
DESIGNED BY: **WRC**
REVIEWED BY: **JTS**
HMT PROJECT NO.: **337.087**

SHEET
C6.16

Drawing Name: N:_Projects\337 – Lennar\087 – Sinton Ranch Unit 1 (249 Lots)\Cds\337.087_STRM–BASIN.dwg User: joed Sep 12, 2024 – 12:12pm



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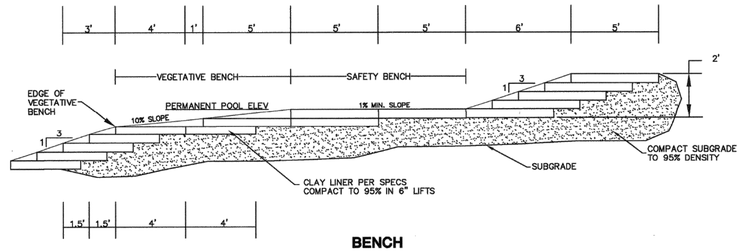
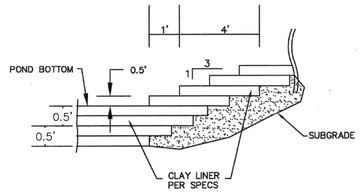


BENCH



AT POND BOTTOM

CLAY LINER

N.T.S.

CLAY LINER SPECIFICATIONS

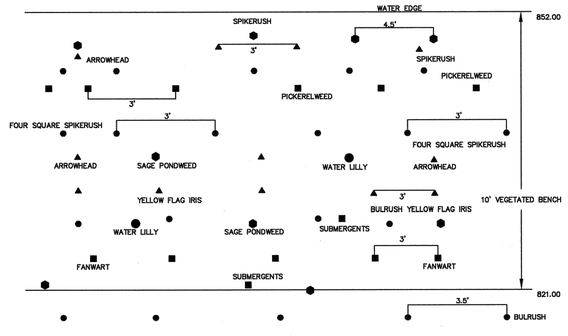
PROPERTY	TEST METHOD	UNIT	SPECIFICATION
PERMEABILITY	ASTM D–2434	CM/SEC	(DEPTH 0" TO 12") 1 X 10^–7
PLASTIC INDEX OF CLAY	ASTM D–423 & D–424	%	NOT LESS THAN 30
LIQUID LIMIT OF CLAY	ASTM D–2216	%	NOT LESS THAN 50
CLAY PARTICLES PASSING	ASTM D–422	%	NOT LESS THAN 60
CLAY COMPACTION	ASTM D–2216	%	95% OF STANDARD PROCTOR DENSITY

* REFER TO RECOMMENDATION IN GEOTECHNICAL REPORT. ANY DISCREPANCIES BETWEEN THIS SET OF PLANS AND THE GEOTECHNICAL REPORT WILL FOLLOW THE RECOMMENDATION(S) OF THE GEOTECHNICAL REPORT.

ARROWHEAD	WATER DEPTH	NOTES
SAGGITARIA LATIFOLIA ARROWHEAD	2" – 1'	2' HEIGHT, WILDLIFE VALUE, WHITE FLOWERS, PROVEN WATER QUALITY PERFORMER

THE FOLLOWING CATEGORY, AQUATICS, INCLUDES SUBMERGENTS AND FLOATING–LEAVED AQUATICS. SUBMERGENTS ARE ROOTED IN THE SEDIMENT OF THE POND, AND ARE COMPLETELY SUBMERGED IN THE WATER. FLOATING–LEAVED AQUATIC PLANTS ARE ROOTED IN THE SEDIMENT OF THE POND, AND HAVE LEAVES THAT FLOAT ON THE SURFACE OF THE WATER. THESE LEAVES SHADE THE WATER, WHICH LIMITS POTENTIAL ALGAE GROWTH. AT LEAST TWO OF THE FOLLOWING SPECIES SHALL BE USED AND SHOULD BE PLACED AT RANDOM LOCATIONS THROUGHOUT THE POND:

AQUATICS	WATER DEPTH	NOTES
1. CABOMBA CAROLINIANA FANWORT	1' – 4'	APPROXIMATELY 6' LENGTH UNDERWATER, SUBMERGENT
2. CERATOPHYLLUM SPP. COON–TAIL	1' – 4'	MAXIMUM 8' LENGTH, TOLERANT OF TURBIDITY AND WATER FLUCTUATION, WILDLIFE FOOD
3. NYMPHAEA ODORATA WATER LILY	6" – 2'	A NATIVE, RELIABLY HARDY, FLOATING–LEAVED AQUATIC WITH WHITE FLOWERS
4. POTOMAGETON PECTINATUS SAGO PONDWEED	8" – 3'	COLONIZES QUICKLY, VALUABLE TO FISH AND WILDLIFE; FLOATING–LEAVED AQUATIC



TYPICAL WET POND SPACING

N.T.S.

WET POND NOTES:

1. CONTRACTOR IS TO CONSTRUCT ALL POND EMBANKMENT SECTIONS AND LINERS PER THE GEOTECHNICAL ENGINEERING STUDY FOR WESTPOINTE VILLAGE AS PREPARED BY TERRACON ENGINEERING.
2. WETLAND PLANTS PROVIDED IN BARE–ROOT FORM SHALL BE EQUAL IN ROOT BALL SIZE TO THE LISTED MINIMUM CONTAINER SIZES.
3. ALL WETLAND PLANTS WHICH FULFILL THE MINIMUM LANDSCAPE REQUIREMENTS SHALL BE PROPAGATED OR HARVESTED FROM REGIONALLY ADAPTED STOCK (WHENEVER POSSIBLE). THESE ARE PLANT SPECIES OR GENOTYPES WHICH ARE NATIVE TO A RANGE OF WITHIN 250 MILES OF THE PROJECT SITE.
4. A MINIMUM OF 90% OF THE VEGETATION SHALL BE ALIVE AND VIABLE FOR ONE YEAR FOLLOWING INSTALLATION.
5. WETLAND PLANTS MUST BE INSTALLED AT WATER DEPTHS APPROPRIATE TO THE SPECIES. THE WATER DEPTHS NOTED IN THE TABLE ON THIS SHEET SHOW THE RANGE OF NATURAL ZONES IN WHICH THESE PLANTS CAN BE FOUND. PLANTING DEPTHS ARE USUALLY SHALLOWER DUE TO THE SMALL SIZE OF THE PLANTS AT THE TIME OF INSTALLATION. IF USING THE MINIMUM–SIZED PLANT MATERIAL, PLANTS SHALL BE INSTALLED AT THE SHALLOW WATER DEPTH LISTED.
6. CATTAILS (TYPHA SPP.) TEND TO INVADE ALMOST ALL WETLANDS AND AGGRESSIVELY COLONIZE THE SHALLOW WATER BENCH. THEREFORE CATTAILS SHALL NOT BE SPECIFIED ON THE PLANTING PLAN.
7. THE DESIGNER IS NOT LIMITED TO THE SPECIES DESCRIBED. ADDITIONAL SPECIES USED FOR AESTHETIC REASONS, ETC. ARE ENCOURAGED. PLANTS NOT INTENDED TO MEET MINIMUM REQUIREMENTS DO NOT NEED TO BE NATIVE OR REGIONALLY ADAPTED STOCK.
8. MICROBIAL INITIATION: A SUBSTANTIAL PORTION OF THE POLLUTANT REMOVAL IN WET PONDS IS DUE TO BIOLOGICAL PROCESSES THAT OCCUR IN THE SEDIMENT. BACTERIA IN THE POND SUBSTRATE REMOVE NUTRIENTS THROUGH A PROCESS OF DENITRIFICATION. THESE MICROBIAL PROCESSES REQUIRE AN ORGANIC FOOD SOURCE, SUCH AS DECAYING PLANT LITTER. BECAUSE IT IS THE SUPPLY OF ORGANIC CARBON THAT DETERMINES NUTRIENT REMOVAL – MORE THAN UPTAKE BY LIVING PLANTS – DENITRIFICATION CAN BE EXPECTED TO CONTINUE EVEN DURING COLD–WEATHER PLANT DORMANCY. IN MATURE PONDS WITH ABUNDANT VEGETATION, AQUATIC PLANTS SUPPLY THE NECESSARY LITTER LAYER AND AEROBIC ZONE FOR MICROBIAL ACTIVITY. HOWEVER, SINCE NEW PONDS LACK A SUFFICIENT SOURCE OF ORGANIC MATTER, AN APPROPRIATE AMOUNT OF CARBON (STRAW, HAY, LEAF CLIPPINGS, AND OTHER NON–WOODY MATERIAL) SHALL BE INSTALLED DURING CONSTRUCTION. AFTER THE POND LINER IS IN PLACE YET PRIOR TO ALLOWING THE POND TO BE FILLED, SPREAD A MINIMUM OF ONE INCH OF PLANT LITTER EVENLY ON THE SIDES OF THE POND (BELOW THE PERMANENT POOL LEVEL). TREAT THE ENTIRE SHALLOW WATER BENCH IN THIS MANNER AND ALL POND SLOPES (RANGING FROM 3:1 TO 10:1). CRIMP THE PLANT LITTER INTO THE POND SUBSTRATE TO PREVENT THE MATERIAL FROM BEING TRANSPORTED DOWNSTREAM AS THE POND FILLS.
9. ALGAE: HIGH NUTRIENT LOADS IN WET PONDS MAY CAUSE ALGAE BLOOMS TO OCCUR. PUNGENT ODOR IS OFTEN ASSOCIATED WITH THESE ALGAE BLOOMS. HOWEVER, TREATING WITH AN ALGAECIDE IS NOT RECOMMENDED BECAUSE BLOOMS ARE USUALLY SHORT LIVED AND ARE CONSIDERED DESIRABLE FOR NUTRIENT REMOVAL. THE USE OF SUBMERGENTS AND FLOATING–LEAFED AQUATICS CAN REDUCE THE EXTENT OF ALGAE BLOOMS BY REDUCING NUTRIENT LOADS AND SHADING THE WATER.
10. NUTRIA: WILDLIFE, SUCH AS NUTRIAS, HAS BEEN REPORTED TO DESTROY THE VEGETATED ELEMENT OF WET PONDS. EVALUATION OF THE POTENTIAL OF SUCH WILDLIFE INHABITING OR BEING ATTRACTED TO THE PROPOSED POND SITE IS REQUIRED. WHEN THERE IS A POTENTIAL FOR SUCH ACTIVITY, FENCING (SUCH AS CHAIN LINK) SHOULD BE PROVIDED.
11. MOSQUITO CONTROL: MOSQUITOES ARE PROBLEMS IN URBAN AREAS. STANDING WATER IN WET PONDS BECOMES IDEAL BREEDING LOCATIES. THE WET POND SHOULD BE STOCKED WITH THE FISH SPECIES GAMBUSIA AFFINIS TO SERVE AS A BIOLOGICAL CONTROL FOR MOSQUITOES. GAMBUSIA IS EFFECTIVE CONTROL FOR MOSQUITOES ELIMINATING THE NEED FOR CHEMICAL CONTROL. GAMBUSIA SHOULD BE STOCKED AT THE INITIAL DENISTY OF 200 INDIVIDUALS PER SURFACE ACRE.
12. DOMESTIC WATERFOWL: DOMESTIC WATERFOWL CAN DESTROY VEGETATION AND INCREASE POLLUTANT LOADING IN WET POND SYSTEMS IN ADDITION, WATERFOWL CAN BECOME NUISANCES TO PROPERTY OWNERS NEAR THE POND. FOR THESE REASONS, DOMESTIC WATERFOWL SHOULD NOT BE INTRODUCED INTO THESE SYSTEMS.
13. CARP AND GOLDFISH: CARP AND GOLDFISH ARE BOTTOM–FEEDERS THAT CAN CAUSE TURBIDITY AND OTHER PROBLEMS. THEY SHOULD NOT BE INTRODUCED INTO A WET POND.
14. INITIAL FILLING: WHILE THE POND IS IN CONSTRUCTION, IT IS INTENDED THAT NON POTABLE WATER, NOT POTABLE WATER, BE USED TO FILL UP THE POND.
15. UTILITY LINES: UTILITY LINES MAY NOT BE LOCATED WITHIN THE LIMITS OF THE MAXIMUM WATER SURFACE ELEVATION OF A WET POND.
16. HAZARDOUS MATERIAL TRAP: SPILLS OF HAZARDOUS LIQUIDS CAN SEVERELY DAMAGE OR KILL THE BIOTA OF A WET POND. THEREFORE, DEVELOPMENTS WHERE THE TRANSPORTATION, STORAGE, OR DISTRIBUTION OF HAZARDOUS MATERIALS IS ANTICIPATED SHOULD INCLUDE HAZARDOUS MATERIAL TRAPS IN THE DRAINAGE SYSTEM IMMEDIATELY UPSTREAM OF THE WET POND INLET.
17. AERATION AND RECIRCULATION UNIT (OPTIONAL): PRIVATELY MAINTAINED WET PONDS MAY INCLUDE SOME TYPE OF AERATION DEVICE (SUCH AS A FOUNTAIN) WHICH COULD ENHANCE THE DISSOLVED OXYGEN CONCENTRATION. INCREASED DISSOLVED OXYGEN PREVENTS THE POND FROM BECOMING ANAEROBIC, HENCE MINIMIZING PROBLEMS WITH ODOR FROM BACTERIAL DECOMPOSITION.

CONSTRUCTION NOTES:

1. PRIOR TO INITIALLY FILLING THE PERMANENT POOL, THE CLAY LINER WITHIN THE PERMANENT POOL SHALL BE KEEP MOIST UNTIL THE PERMANENT POOL VOLUME HAS BEEN REACHED TO PREVENT CRACKS FROM FORMING IN THE LINEAR.
2. ALL BACK FILL FOR THE INVERTED OUTFALL PIPE AND MAKE–UP WATER LINE SHALL BE OF CLAY MATCHING THE SPECIFICATIONS LISTED ON SHEET C14.3.
3. THE INVERTED OUTFALL PIPE SHALL HAVE WATER TIGHT JOINTS.
4. CONTRACTOR IS TO MONITOR THE SURFACE WATER ELEVATION OF THE PERMANENT POOL UNTIL CONSTRUCTION IS COMPLETE. THE CONTRACTOR SHALL CONTACT THE ENGINEER/OWNER IMMEDIATELY IF THE POND IS LOSING MORE THAN 1.5" OF WATER AT ANY GIVEN WEEK.

WETLAND PLANT LIST

INSTALL BULLRUSH IN CLUMPS, WITH INDIVIDUAL PLANTS SPACED APPROXIMATELY THREE TO FOUR FEET ON CENTER. AT LEAST TWO OF THE FOLLOWING SPECIES SHALL BE USED:

BULLRUSH	WATER DEPTH	NOTES
SCIRPUS VALIDUS BULLRUSH	1' – 3'	8' TALL EVERGREEN, RESISTS CATTAIL ENCROACHMENT
SCIRPUS CALIFORNICUS BULLRUSH	1' – 3'	8' TALL EVERGREEN, RESISTS CATTAIL ENCROACHMENT
SCIRPUS AMERICANUS THREE–SQUARE BULLRUSH	2' – 6"	2' TO 4' TALL, WITH 3 DISTINCT EDGES

INSTALL SPIKERUSH AT OR NEAR WATER'S EDGE, WITH INDIVIDUAL PLANTS SPACED APPROXIMATELY THREE TO SIX FEET ON CENTER. AT LEAST TWO OF THE FOLLOWING SPECIES SHALL BE USED:

SPIKEBRUSH	WATER DEPTH	NOTES
ELEOCHARIS MONTEVIDENSIS SPIKERUSH	0" – 6"	1' TALL, RHIZOMATOUS, REDUCES EROSION AT THE POND EDGE
ELEOCHARIS MACROSTACHYS SPIKERUSH	0" – 6"	1' TALL, RHIZOMATOUS, REDUCES EROSION AT THE POND EDGE
ELEOCHARIS QUADRANGULATA SPIKERUSH	3" – 1'	2' TO 2.5 TALL, RHIZOMATOUS, CAN ACCOMMODATE DEEPER WATER, 4–ANGLED

AT LEAST TWO SPECIES OF THE FOLLOWING MARSH SPECIES SHALL BE USED (ADDITIONAL SPECIES ARE ENCOURAGED). INSTALL IN CLUMPS IN SHALLOW WATER, WITH INDIVIDUAL PLANTS SPACED AT APPROXIMATELY THREE FEET ON CENTER.

MARSH DIVERSITY	WATER DEPTH	NOTES
1. CYPERUS OCHARCEUS FLATSEDGE	2" –6"	1' TO 2' TALL, CLUMP–FORMING, COMMON TO CENTRAL TEXAS
2. DICHROMENA COLORATA WHITE–TOPPED SEDGE	2" – 6"	1' TO 2' TALL, WHITE BRACTS DURING WARM SEASON
3. ECHINODORUS ROSTRATUS BURHEAD	3" – 1'	1' TO 2' TALL, ANNUAL, HEART–SHAPED LEAVES, FLOWER SIMILAR TO ARROWHEAD
4. ELEOCHARIS QUADRANGULATA FOUR–SQUARE SPIKEBRUSH	6" – 1'	1' TO 2' TALL, COLONIZES, INHABITS DEEPER WATER THAN SPIKEBRUSHES
5. IRIS PSEUDACORUS YELLOW FLAG IRIS	1' – 2'	3' TO 4' TALL, CAN BE INVASIVE, DENSE GROWTH, YELLOW FLOWERS
6. JUNCUS EFFUSUS SOFT RUSH	6" – 1'	3' TO 4' TALL, FORMS A TIGHT CLUMP, EVERGREEN, VERY ATTRACTIVE
7. JUSTICIA AMERICANA WATER–WILLOW	2" – 6"	3' TO 4' TALL, COMMON, WHITE FLOWERS, HERBACEOUS, COLONIZES
8. MARSILEA MACROPODA WATER CLOVER	2" – 6"	LOOKS LOKE FLOATING FOUR–LEAF CLOVER, ENDEMIC TO TEXAS
9. NAJAS QUADALUPENSIS WATER–NAIAD	1' – 4'	SUBMERGENT, VALUABLE TO FISH AND WILDLIFE
10. PONTEDERIA CORDATA PICKERELWEED	2" – 1'	3' TALL, COLONIZES, COSMOPOLITAN, PURPLE FLOWERS
11. RHYNCHOSPORA CORNICULATA HORNED–RUSH	2" – 6"	2' TO 3' TALL, BRASS–COLORED FLOWERS IN MAY

INSTALL ARROWHEAD IN CLUMPS IN SHALLOW WATER, WITH INDIVIDUAL PLANTS SPACED APPROXIMATELY THREE FEET ON CENTER.

290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600

HMT
ENGINEERING & SURVEYING

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

BASIN CROSS-SECTIONS

SINTON RANCH UNIT 1
SINTON, TEXAS

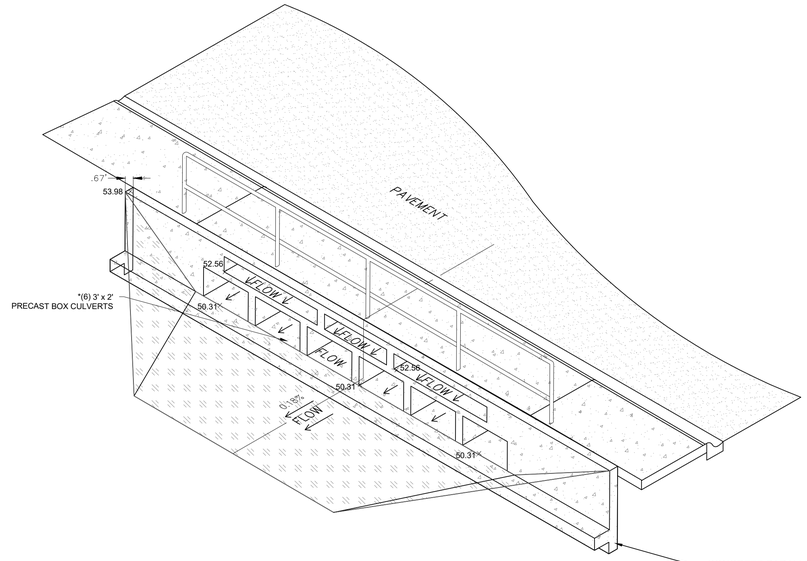
NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET

C6.17

Drawing Name: N:_Projects\337 – Lennar\087 – Sinton Ranch Unit 1 (239 Lots)\CDs\337.087_STRM-BASIN.dwg User: joed Sep 12, 2024 – 12:12pm



CATTLE RIDGE CULVERT DOWNSTREAM
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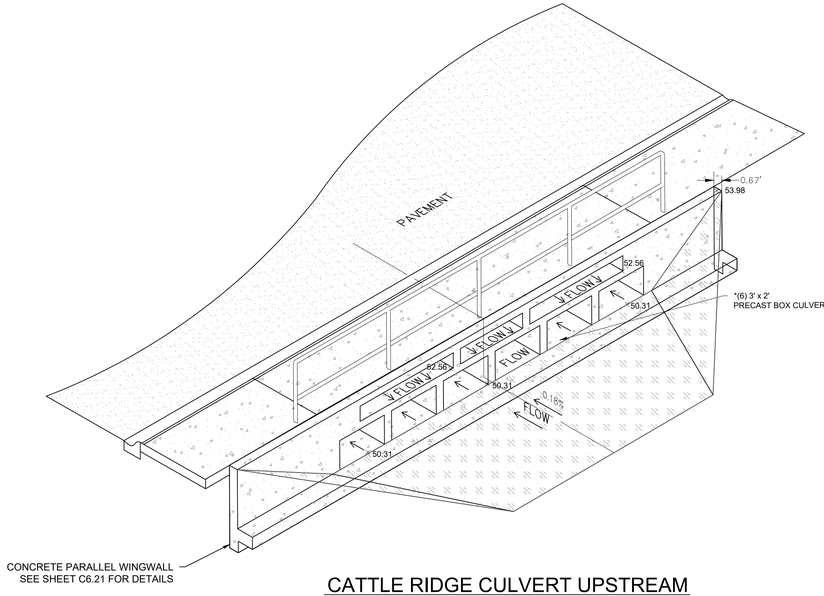

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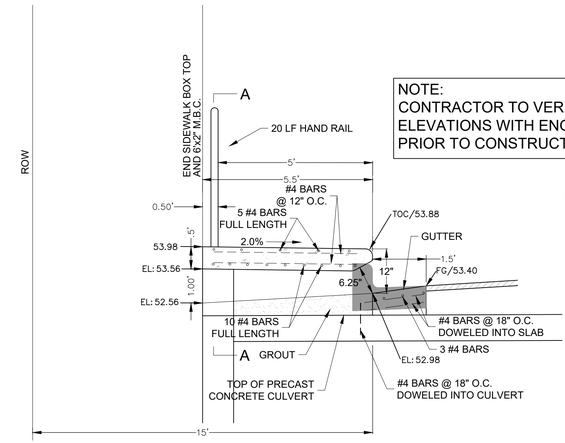
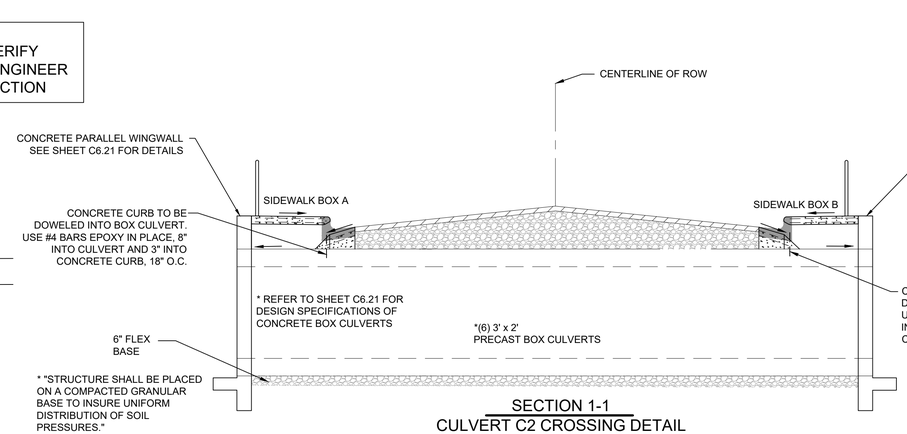
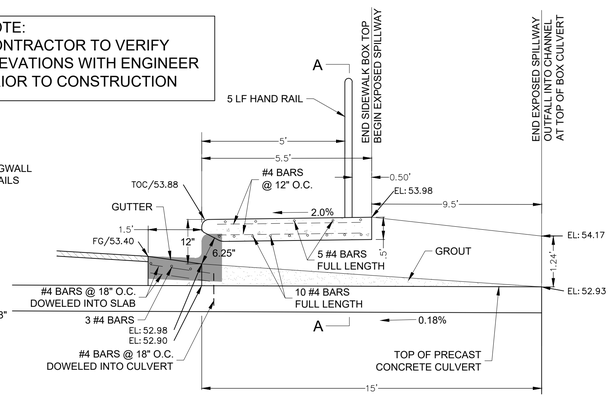


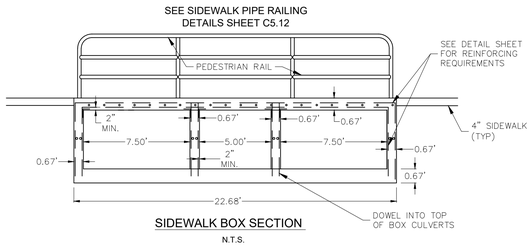
SIDE VIEW
SIDEWALK BOX A OUTLET DETAIL
N.T.S.



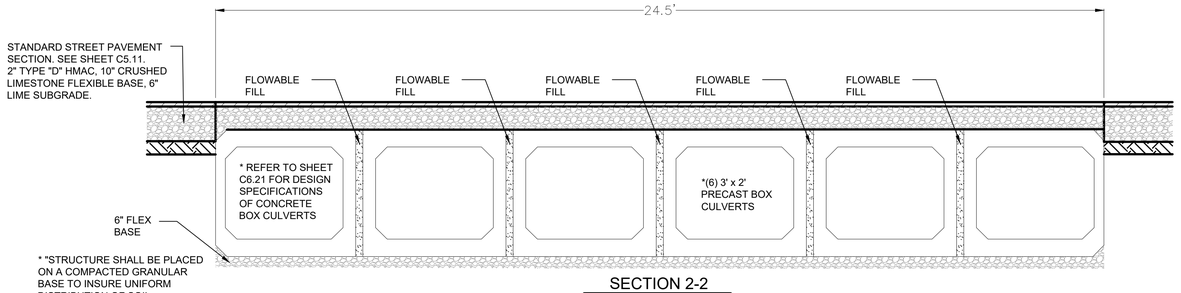
SECTION 1-1
CULVERT C2 CROSSING DETAIL
N.T.S.



SIDE VIEW
SIDEWALK BOX B INLET DETAIL
N.T.S.



SIDEWALK BOX SECTION
N.T.S.



SECTION 2-2
CATTLE RIDGE CULVERT CROSSING DETAIL
N.T.S.

UTILITY TRENCH COMPACTION

ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEO-TECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX-114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE CITY OF NEW BRAUNFELS STREET INSPECTOR. AT A MINIMUM, TESTS SHALL BE TAKEN EVERY 100LF FOR EACH LIFT. UPON COMPLETION OF TESTING THE GEO-TECHNICAL ENGINEER SHALL PROVIDE THE CITY OF NEW BRAUNFELS STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS.

DEEP TRENCH COMPACTION TESTING

CITY REQUIREMENTS FOR TESTING SHALL BE ADHERED TO, IN CASES WHERE TRENCH DEPTHS DO NOT ALLOW TECHNICIANS ACCESS, METHODS FOR TESTING SHALL BE PROPOSED AND APPROVED PRIOR TO CONSTRUCTION COMMENCING.

HMT ENGINEERING & SURVEYING
290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

STORM DETAILS 1 OF 4

SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C6.18

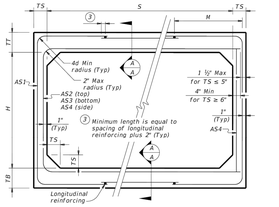
Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\Cds\337.087_STRM-DETL.dwg User: joed Sep 12, 2024 - 12:12pm

BOX DATA

SECTION DIMENSIONS						REINFORCING (sq. in. / ft.) ②								①
S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)	Fill Height (ft.)	M (Min) (in.)	AS1	AS2	AS3	AS4	AS5	AS7	AS8	Lift Weight (tons)
3	2	7	6	4	< 2	-	0.17	0.25	0.16	0.10	0.17	0.17	0.14	3.3
3	2	4	4	4	2 < 3	31	0.13	0.19	0.18	0.10	-	-	-	2.4
3	2	4	4	4	3 – 5	31	0.10	0.11	0.12	0.10	-	-	-	2.4
3	2	4	4	4	10	31	0.10	0.10	0.10	0.10	-	-	-	2.4
3	2	4	4	4	15	31	0.10	0.13	0.13	0.10	-	-	-	2.4
3	2	4	4	4	20	31	0.11	0.17	0.17	0.10	-	-	-	2.4
3	2	4	4	4	25	31	0.14	0.21	0.21	0.10	-	-	-	2.4
3	2	4	4	4	30	31	0.17	0.25	0.25	0.10	-	-	-	2.4
3	2	4	4	4	35	31	0.20	0.29	0.30	0.10	-	-	-	2.4
3	3	7	6	4	< 2	-	0.17	0.27	0.17	0.10	0.17	0.17	0.14	3.7
3	3	4	4	4	2 < 3	31	0.10	0.22	0.21	0.10	-	-	-	2.8
3	3	4	4	4	3 – 5	31	0.10	0.14	0.14	0.10	-	-	-	2.8
3	3	4	4	4	10	31	0.10	0.11	0.11	0.10	-	-	-	2.8
3	3	4	4	4	15	31	0.10	0.14	0.15	0.10	-	-	-	2.8
3	3	4	4	4	20	31	0.10	0.18	0.19	0.10	-	-	-	2.8
3	3	4	4	4	25	31	0.10	0.23	0.23	0.10	-	-	-	2.8
3	3	4	4	4	30	31	0.12	0.27	0.28	0.10	-	-	-	2.8
3	3	4	4	4	35	31	0.14	0.32	0.32	0.10	-	-	-	2.8

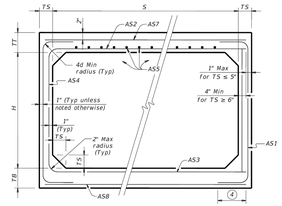
① For box length = 8'-0"

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



CORNER OPTION "A" CORNER OPTION "B"

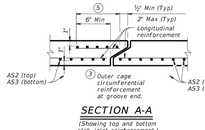
FILL HEIGHT 2 FT AND GREATER



CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT LESS THAN 2 FT

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



SECTION A-A

(Showing top and bottom slab joint reinforcement.)

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

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

HL93 LOADING

Texas Department of Transportation — Bridge Division Standard

SINGLE BOX CULVERTS PRECAST 3'-0" SPAN

SCP-3

FILE: CD-SCP03-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

DISCLAIMER:
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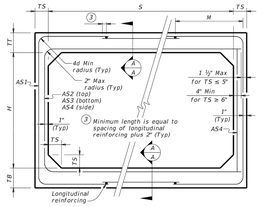
DATE:
FILE:

BOX DATA

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

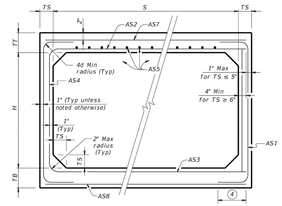
① For box length = 8'-0"

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



CORNER OPTION "A" CORNER OPTION "B"

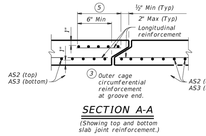
FILL HEIGHT 2 FT AND GREATER



CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT LESS THAN 2 FT

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



SECTION A-A

(Showing top and bottom slab joint reinforcement.)

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

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

HL93 LOADING

Texas Department of Transportation — Bridge Division Standard

SINGLE BOX CULVERTS PRECAST 6'-0" SPAN

SCP-6

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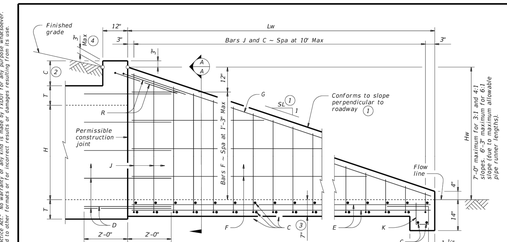
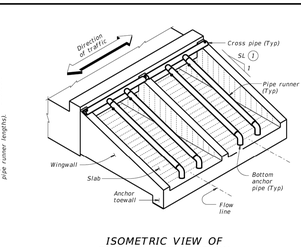


TYPICAL WINGWALL ELEVATION

(Pipe runners not shown for clarity.)



ISOMETRIC VIEW OF TYPICAL INSTALLATION

WING DIMENSION CALCULATIONS:

Hw = H + T + C – 0.250'
Lw = (Hw – 0.333') (SL)

For cast-in-place culverts:
Atw = (N) (S) + (N + 1) (U)
For precast culverts:
Atw = (N) (2U + S) + (N – 1) (0.500')

Total Wingwall Area (SF)
= (0.5) (Hw + 0.333') (Lw) (N + 1)

Total Concrete Volume (CY)
= ((Wingwall Area) (0.583') +
(Lw) (Atw) (0.583') +
(Atw) ((1.167') (1.167' – 0.583')) ÷ (27)

SPIDER RUNNER DIMENSION CALCULATIONS:

Pipe Runner Length
= (Lw) (4.1) – (1.917')
Total Reinforcing (Lb)
= (1.55) ((Lw) (Atw) +
(4.43) (Atw) +
(K2) (Hw) + 1) + (Lw)

C = Height of curb above top of top slab (feet)
Hw = Height of wingwall (feet)
K = Constant value for use in formulas

Slope	SL:1	K1	K2
3:1	~	1.054 ~	7.45
4:1	~	1.031 ~	8.49
6:1	~	1.014 ~	10.30

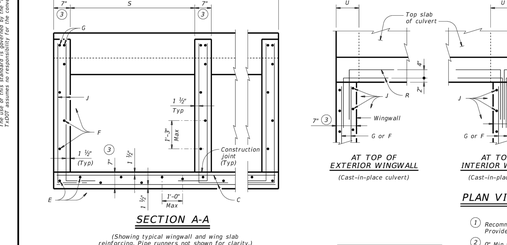
Atw = Anchor toewall length (feet)
Lw = Length of wingwall (feet)
N = Number of culvert barrels
SL:1 = Side slope ratio (horizontal : 1 vertical)

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

MATERIAL NOTES:
Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel if required elsewhere in the plans.
Adjust reinforcing as necessary to provide a minimum clear cover of 1 ½".
Provide Class "C" concrete (f'c = 3,600 psi).
Provide pipe runners, cross pipes, and anchor pipes meeting the requirements of ASTM A53 (Type E or S, Gr B), ASTM A500 Gr B, or API 5L(B).
Provide ASTM A307 bolts.
Galvanize all steel components, except the concrete reinforcing, unless required elsewhere in the plans, after fabrication.
Repair galvanizing damaged during transport or construction in accordance with the Item 445, "Galvanizing."

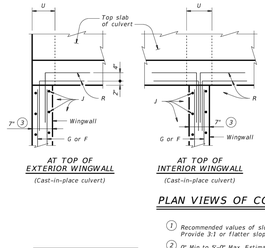
GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
The safety end treatments shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the pipe runners.
Pipe runners are designed for a traversing load of 1,800 pounds at yield as recommended by Research Report 280-1, "Safety Treatment of Roadside Cross-Drainage Structures", Texas Transportation Institute, March 1981.
The quantities for pipe runners, reinforcing steel, and concrete resulting from the formulas given herein are for Contractor's information only.
See the Box Culvert Supplement (BCS) standard sheet for additional dimensions and information.
Alternate design drawings bearing the seal of a professional engineer will be acceptable for precast construction of the safety end treatments.

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



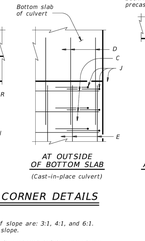
SECTION A-A

(Showing typical wingwall and wing slab reinforcing. Pipe runners not shown for clarity.)

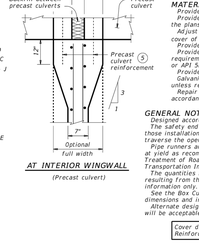


AT TOP OF EXTERIOR WINGWALL (Cast-in-place culvert)

AT TOP OF INTERIOR WINGWALL (Cast-in-place culvert)



AT OUTSIDE OF BOTTOM SLAB (Cast-in-place culvert)



AT INTERIOR WINGWALL (Precast culvert)

PLAN VIEWS OF CORNER DETAILS

① Recommended values of slope are: 3:1, 4:1, and 6:1. Provide 3:1 or flatter slope.

② 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures without railing and curbs taller than 1'-0", refer to the Extended Curb Details (ECD) standard sheet.

③ Wingwall and slab thicknesses may be the same as the adjacent culvert wall and slab thicknesses (7" minimum). If thicknesses greater than the minimum (7") are used, no changes will be made in quantities and no additional compensation will be allowed.

④ For vehicle safety, reduce curb height, if necessary, to provide a maximum 3" projection. No changes will be made in quantities and no additional compensation will be allowed for this work.

⑤ For culverts with C = 0", the precast culvert reinforcing may extend 1'-0" minimum into wingwall. Wingwall Bars D and R may be omitted. Otherwise, refer to the Wingwall Connection detail on the Box Culvert Precast Miscellaneous Details (SCP-MD) standard sheet.

TABLE OF REINFORCING BAR SIZES AND SPACING

Bar	Size	Spacing
C	#4	10" Max
D	#4	Match F and E
E	#4	1'-0" Max
F	#4	1'-3" Max
G	#6	As shown
J	#4	10" Max
K	#4	1'-0" Max
R	#4	As shown

BARS J BARS K (Length = 4'-3") BARS R

SHEET 1 OF 2

Texas Department of Transportation — Bridge Division Standard

SAFETY END TREATMENT FOR 0° SKEW BOX CULVERTS (MAXIMUM Hw = 7'-0") TYPE I ~ CROSS DRAINAGE

SETB-CD

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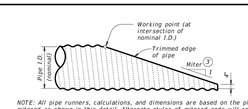
CROSS PIPE LENGTHS AND PIPE RUNNER LENGTHS ① ②

Nominal Culvert I.D.	Pipe Culvert Spa – G	Cross Pipe Length	Pipe Runner Length											
			3:1 Side Slope				4:1 Side Slope				6:1 Side Slope			
			0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew
24"	1'-7"	3'-5"	N/A	N/A	N/A	5'-10"	N/A	N/A	N/A	8'-1"	N/A	N/A	N/A	12'-9"
27"	1'-8"	3'-8"	N/A	N/A	5'-5"	6'-11"	N/A	N/A	7'-7"	9'-7"	N/A	N/A	11'-11"	14'-11"
30"	1'-10"	3'-11"	N/A	N/A	6'-4"	8'-0"	N/A	N/A	8'-9"	11'-0"	N/A	N/A	13'-8"	17'-0"
33"	1'-11"	4'-2"	6'-2"	6'-5"	7'-3"	9'-1"	8'-6"	8'-10"	10'-0"	12'-5"	13'-3"	13'-9"	15'-5"	19'-2"
36"	2'-1"	4'-5"	6'-11"	7'-3"	8'-2"	10'-2"	9'-6"	9'-11"	11'-2"	13'-10"	14'-9"	15'-3"	17'-2"	21'-3"
42"	2'-4"	4'-11"	8'-6"	8'-10"	9'-11"	12'-4"	11'-7"	12'-0"	13'-6"	16'-8"	17'-9"	18'-5"	20'-8"	25'-7"
48"	2'-7"	5'-5"	10'-1"	10'-5"	11'-9"	N/A	13'-7"	14'-2"	15'-10"	N/A	20'-9"	21'-6"	24'-2"	N/A
54"	2'-10"	5'-11"	11'-8"	12'-1"	N/A	N/A	15'-8"	16'-3"	N/A	N/A	23'-10"	24'-8"	N/A	N/A
60"	3'-3"	6'-5"	13'-3"	N/A	N/A	N/A	17'-9"	N/A	N/A	N/A	26'-10"	N/A	N/A	N/A



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

SIDE ELEVATION OF TYPICAL PIPE CULVERT MITER

(Showing corrugated metal pipe (CMP) culvert. Details of reinforced concrete pipe (RCP) culvert are similar.)

TYPICAL PIPE CULVERT MITERS ③

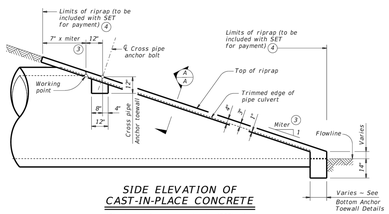
Side Slope	0° Skew	15° Skew	30° Skew	45° Skew
3:1	3:1	3.106:1	3.464:1	4.243:1
4:1	4:1	4.141:1	4.619:1	5.657:1
6:1	6:1	6.212:1	6.928:1	8.485:1

CONDITIONS WHERE PIPE RUNNERS ARE NOT REQUIRED ②

Nominal Culvert I.D.	Single Pipe Culvert	Multiple Pipe Culverts
12" thru 21"	Skews thru 45°	Skews thru 45°
24"	Skews thru 45°	Skews thru 30°
27"	Skews thru 30°	Skews thru 15°
30"	Skews thru 15°	Skews thru 15°
33"	Skews thru 15°	Always required
36"	Normal (no skew)	Always required
42" thru 60"	Always required	Always required

STANDARD PIPE SIZES AND MAX PIPE RUNNER LENGTHS ①

Pipe Size	Pipe O.D.	Pipe I.D.	Max Pipe Runner Length
2" STD	2.375"	2.067"	N/A
3" STD	3.500"	3.068"	10' – 0"
4" STD	4.500"	4.026"	19' – 8"
5" STD	5.563"	5.047"	34' – 2"



SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

(Showing reinforced concrete pipe (RCP) culvert. Details of corrugated metal pipe (CMP) culvert are similar. Pipe runners not shown for clarity.)

ESTIMATED CONCRETE RIPRAP QUANTITIES (CY) ⑤

Nominal Culvert I.D.	3:1 Side Slope				4:1 Side Slope				6:1 Side Slope			
	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew	0° Skew	15° Skew	30° Skew	45° Skew
12"	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.7	0.7	0.7	0.8
15"	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.9
18"	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.8	0.9	1.0
21"	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.9	0.9	0.9	1.0	1.2
24"	0.6	0.7	0.7	0.8	0.8	0.8	0.8	1.0	1.0	1.0	1.1	1.3
27"	0.7	0.7	0.8	0.9	0.8	0.9	0.9	1.1	1.1	1.1	1.2	1.4
30"	0.8	0.8	0.8	0.9	0.9	0.9	1.0	1.2	1.2	1.2	1.3	1.6
33"	0.8	0.8	0.9	1.0	1.0	1.0	1.1	1.3	1.3	1.4	1.5	1.7
36"	0.9	0.9	0.9	1.1	1.1	1.1	1.2	1.4	1.4	1.5	1.6	1.8
42"	1.0	1.0	1.1	1.3	1.2	1.3	1.3	1.6	1.6	1.7	1.8	2.1
48"	1.1	1.1	1.2	N/A	1.4	1.4	1.5	N/A	1.9	1.9	2.1	N/A
54"	1.3	1.3	N/A	N/A	1.6	1.6	N/A	N/A	2.1	2.1	N/A	N/A
60"	1.4	N/A	N/A	N/A	1.7	N/A	N/A	N/A	2.3	N/A	N/A	N/A

ISOMETRIC VIEW OF TYPICAL INSTALLATION

(Showing installation with no skew.)

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

② This standard allows for the placement of only one pipe runner across each culvert pipe opening. In order to limit the clear opening to be traversed by an errant vehicle, the following conditions must be met:

For 60" culvert pipes, the skew must not exceed 0°.
For 54" culvert pipes, the skew must not exceed 15°.
For 48" culvert pipes, the skew must not exceed 30°.
For all culvert pipe sizes 42" and less, the skew must not exceed 45°.

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

③ Miter = slope of mitered end of pipe culvert.

④ Riprap placed beyond the limits shown will be paid for as concrete riprap in accordance with Item 432, "Riprap."

⑤ Quantities shown are for one end of one reinforced concrete pipe (RCP) culvert. For multiple pipe culverts or for corrugated metal pipe (CMP) culverts, quantities will need to be adjusted. Riprap quantities are for Contractor's information only.

SHEET 1 OF 2

Texas Department of Transportation — Bridge Division Standard

SAFETY END TREATMENT FOR 12" DIA TO 60" DIA PIPE CULVERTS TYPE II ~ CROSS DRAINAGE

SETP-CD

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290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600
HMT ENGINEERING & SURVEYING

JOSEPH T. SANDOVAL
110257
LICENSED PROFESSIONAL ENGINEER
Joseph T. Sandoval P.E.
9/12/2024

STORM DETAILS 2 OF 4

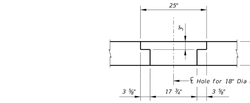
SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

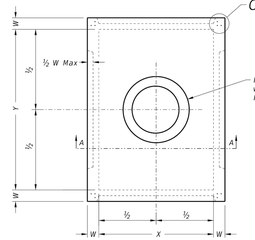
DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C6.19

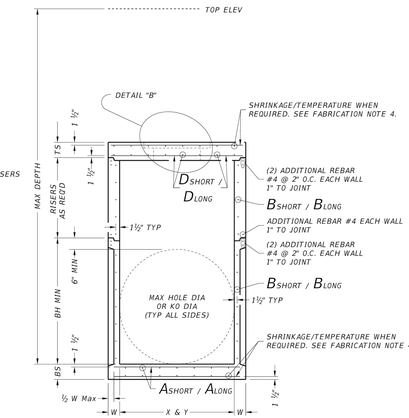
Drawing Name: N:_Projects\337 – Lennox\067 – Sinton Ranch Unit 1 (239 lots)\03a\337.067_STRM_DETL.dwg User: joed Sep 12, 2024 – 12:13pm



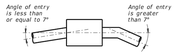
DETAIL "B"



PLAN VIEW



SECTION A-A



PIPE CONNECTION DETAIL

Connect pipes within 7° of normal to PJB wall. If necessary, use pipe elbow or curved approach alignment to stay within this limit.

FABRICATION NOTES:
1. Provide Class "H" concrete in accordance with Item 421 and having a minimum compressive strength of 5,000 psi.
2. Provide Grade 60 reinforcing steel or equivalent area of WWR.
3. Provide typical clear cover of 1" to reinforcing steel at interior or exterior walls.
4. Walls and slabs with thickness of 8" or greater require shrinkage and temperature reinforcing steel. Provide #4 @ max 18" c-c each face.
5. No substitution is allowed for vertical and horizontal #4 bars in corners.
6. Manufacture base and risers to nearest 3" increment.
7. Design tongue and groove joints for full closure on both shoulders. Minimum spigot depth is ¾".
8. Provide lifting devices in conformance with Manufacturer's recommendations.
9. See sheet PDD for sizes, dimensions, and reinforcing steel not shown.
10. Provide hole in below grade slab only when PJB is installed with inlet type PDD.

INSTALLATION NOTES:
1. Inverts (benching) to be provided by Contractor. Concrete or mortar used for invert is subsidiary to the junction box.
2. Use tongue and groove joints with preformed or bulk mastic in conformance with Manufacturer's recommendations. Tongue and groove joints may be grouted no more than 1" between each section, or ½ the joint depth, whichever is greater.
3. Do not grout rubber gasket joints without Manufacturer's recommendation.
4. For rigid pipe, cut hole in thin wall panel (KO) 4" Max. 2" Min larger than pipe OD.
5. For flexible pipe, consult boot/seal Manufacturer's specification for placement tolerance and hole size. Center pipe in hole and install boot/seal per Manufacturer's specification.

GENERAL NOTES:
1. Precast Junction Box consists of base slab, base unit, risers (as required), and below grade slab. See sheet PDD for sizes.
2. Designed according to ASTM C913.
3. Payment for junction box is per Item 465 "Junction Boxes, Manholes, and Inlets" by type and size.

Cover dimensions are clear dimensions, unless noted otherwise.

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PRECAST JUNCTION BOX

PJB

FILE: CD-PJB-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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DATE:
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Size	MAX DEPTH = 15 ft. to top of BASE SLAB										MAX DEPTH = 25 ft. to top of BASE SLAB											
	Base Slab			Base Unit or Riser Walls			Below Grade Slab (w/PJB) Reducing Slab (w/PB)				Base Slab			Base Unit or Riser Walls			Below Grade Slab (w/PJB) Reducing Slab (w/PB)					
	Short Span Mesh Steel Area	Long Span Mesh Steel Area	Thickness	Short Span Mesh Steel Area	Long Span Mesh Steel Area	Thickness	Rebford Riser Size	Short Span Mesh Steel Area	Long Span Mesh Steel Area	Thickness	Short Span Mesh Steel Area	Long Span Mesh Steel Area	Thickness	Short Span Mesh Steel Area	Long Span Mesh Steel Area	Thickness	Rebford Riser Size	Short Span Mesh Steel Area	Long Span Mesh Steel Area	Thickness	Min Height (See dim Note 3)	Max HOLE DIA (See dim Note 2)	Max KO DIA (See dim Note 2)
X x Y	Ashort	Along	BS	Bshort	Blong	W	RWS/RBL or 10	Dshort	Dlong	TS	Ashort	Along	BS	Bshort	Blong	W	RWS/RBL or 10	Dshort	Dlong	TS	BH MIN	HOLE DIA	KO DIA
ft.	in²/ft	in²/ft	in.	in²/ft	in²/ft	in.	ft. **	in²/ft	in²/ft	in.	in²/ft	in²/ft	in.	in²/ft	in²/ft	in.	ft. **	in²/ft	in²/ft	in.	ft.	in.	in.
Precast Junction Box (PJB)																							
3x3	0.23	0.23	6	0.19	0.19	6	N/A	0.37	0.37	9	0.29	0.29	6	0.24	0.24	6	N/A	0.37	0.37	9	3.5	36	36
4x4	0.29	0.29	6	0.24	0.24	6	N/A	0.41	0.41	9	0.47	0.47	6	0.38	0.38	6	N/A	0.41	0.41	9	4.5	48	48
3x5	0.29	0.18	6	0.19	0.35	6	N/A	0.48	0.48	9	0.39	0.18	6	0.23	0.59	6	N/A	0.48	0.48	9	3.5	36/60	36/60
5x5	0.36	0.18	6	0.22	0.34	6	N/A	0.42	0.42	9	0.53	0.26	6	0.39	0.59	6	N/A	0.42	0.42	9	4.5	48/60	48/60
5x5	0.36	0.36	6	0.34	0.34	6	N/A	0.43	0.43	9	0.62	0.62	6	0.59	0.59	6	N/A	0.43	0.43	9	5.5	60	60
5x6	0.27	0.27	9	0.34	0.45	6	N/A	0.48	0.48	9	0.47	0.45	9	0.38	0.54	8	N/A	0.48	0.48	9	5.5	60/72	60/72
6x6	0.27	0.27	9	0.45	0.45	6	N/A	0.56	0.56	9	0.52	0.52	9	0.54	0.54	8	N/A	0.56	0.56	9	6.5	72	72
8x8	0.46	0.46	9	0.51	0.51	8	N/A	0.45	0.45	12	0.87	0.87	9	0.59	0.59	10	N/A	0.45	0.45	12	8.5	96	72
Precast Base (PB)																							
3x3	0.23	0.23	6	0.19	0.19	6	N/A	N/A	N/A	N/A	0.29	0.29	6	0.24	0.24	6	N/A	N/A	N/A	N/A	3.5	36	36
4x4	0.29	0.29	6	0.24	0.24	6	N/A	N/A	N/A	N/A	0.47	0.47	6	0.38	0.38	6	N/A	N/A	N/A	N/A	4.5	48	48
3x5	0.29	0.18	6	0.19	0.35	6	3x3	0.30	0.34	9	0.39	0.18	6	0.23	0.59	6	3x3	0.40	0.40	9	3.5	36/60	36/60
4x5	0.36	0.18	6	0.22	0.34	6	3x3	0.30	0.30	9	0.53	0.26	6	0.39	0.59	6	3x3	0.46	0.37	9	4.5	48/60	48/60
4x5	0.36	0.18	6	0.22	0.34	6	4x4	0.30	0.30	9	0.53	0.26	6	0.39	0.59	6	4x4	0.39	0.39	9	4.5	48/60	48/60
4x5	0.36	0.18	6	0.22	0.34	6	48"	0.39	0.39	9	0.53	0.26	6	0.39	0.59	6	48"	0.47	0.47	9	4.5	48/60	48/60
4x5	0.36	0.18	6	0.22	0.34	6	3x5	0.33	0.40	9	0.53	0.26	6	0.39	0.59	6	3x5	0.48	0.48	9	4.5	48/60	48/60
5x5	0.36	0.36	6	0.34	0.34	6	3x3	0.34	0.34	9	0.62	0.62	6	0.59	0.59	6	3x3	0.53	0.53	9	5.5	60	60
5x5	0.36	0.36	6	0.34	0.34	6	4x4	0.36	0.36	9	0.62	0.62	6	0.59	0.59	6	4x4	0.64	0.64	9	5.5	60	60
5x5	0.38	0.38	6	0.34	0.34	6	48"	0.26	0.36	9	0.62	0.62	6	0.59	0.59	6	48"	0.64	0.64	9	5.5	60	60
5x5	0.36	0.36	6	0.34	0.34	6	3x5	0.34	0.40	9	0.62	0.62	6	0.59	0.59	6	3x5	0.53	0.53	9	5.5	60	60
5x6	0.31	0.31	9	0.34	0.45	6	3x3	0.34	0.34	9	0.47	0.45	9	0.38	0.54	8	3x3	0.61	0.50	9	5.5	60/72	60/72
5x6	0.27	0.27	9	0.34	0.45	6	4x4	0.36	0.45	9	0.47	0.45	9	0.38	0.54	8	4x4	0.74	0.57	9	5.5	60/72	60/72
5x6	0.29	0.29	9	0.34	0.45	6	48"	0.36	0.45	9	0.47	0.45	9	0.38	0.54	8	48"	0.74	0.57	9	5.5	60/72	60/72
5x6	0.29	0.29	9	0.34	0.45	6	3x5	0.45	0.45	9	0.47	0.45	9	0.38	0.54	8	3x5	0.61	0.61	9	5.5	60/72	60/72
6x6	0.29	0.29	9	0.45	0.45	6	3x3	0.41	0.41	9	0.52	0.52	9	0.54	0.54	8	3x3	0.74	0.74	9	6.5	72	72
6x6	0.27	0.27	9	0.45	0.45	6	4x4	0.45	0.45	9	0.52	0.52	9	0.54	0.54	8	4x4	0.87	0.87	9	6.5	72	72
6x6	0.29	0.29	9	0.45	0.45	6	48"	0.45	0.45	9	0.52	0.52	9	0.54	0.54	8	48"	0.87	0.87	9	6.5	72	72
6x6	0.29	0.29	9	0.45	0.45	6	3x5	0.45	0.45	9	0.52	0.52	9	0.54	0.54	8	3x5	0.87	0.87	9	6.5	72	72
8x8	0.52	0.52	9	0.51	0.51	8	3x3	0.61	0.61	12	0.91	0.91	9	0.70	0.70	10	3x3	0.85	0.85	12	8.5	96	72
8x8	0.52	0.52	9	0.51	0.51	8	4x4	0.70	0.70	12	0.87	0.87	9	0.70	0.70	10	4x4	1.01	1.01	12	8.5	96	72
8x8	0.52	0.52	9	0.51	0.51	8	48"	0.70	0.70	12	0.87	0.87	9	0.70	0.70	10	48"	1.01	1.01	12	8.5	96	72
8x8	0.52	0.52	9	0.51	0.51	8	3x5	0.70	0.85	12	0.87	0.87	9	0.70	0.70	10	3x5	1.01	1.01	12	8.5	96	72

** Unless otherwise indicated.

FABRICATION NOTES:
1. Maximum spacing of reinforcement is 8".
2. At manufacturer's option, provide cast or cored holes or thin wall panels (KO) to the maximum diameter shown for each. When no penetration is required, it is acceptable to provide a wall with no sectional reduction.

GENERAL NOTES:
1. Precast Junction Box consists of base slab, base unit, risers (as required), and below grade slab. See sheet PJB for details.
2. Precast Base consists of base slab, base unit, risers (as required), reducing slab (as required), and reduced risers (as required). See sheet PB for details.
3. Min Height shown is for stock base units. Use stock base units whenever practical. Smaller height base units can be used in special installation circumstances, when noted elsewhere in the plans. Absolute minimum height of base units is 2'-6".

HL93 LOADING

Texas Department of Transportation | Bridge Division Standard

DESIGN DATA FOR PRECAST BASE AND JUNCTION BOX

PDD

FILE: CD-PDD-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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DATE:
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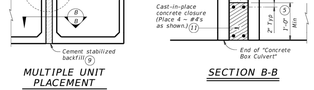
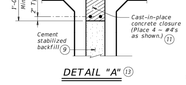
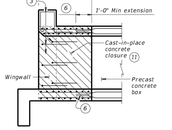


MULTIPLE UNIT PLACEMENT

SECTION B-B

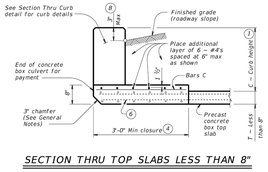


DETAIL "A" (11)

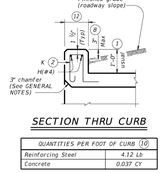


WINGWALL CONNECTION

(Also applies to safety end treatment.)

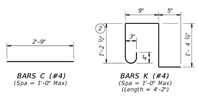


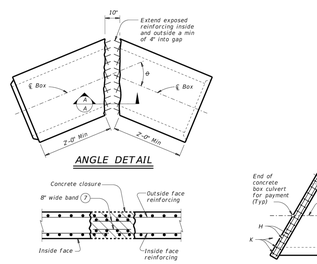
SECTION THRU TOP SLABS LESS THAN 8"



SECTION THRU CURB

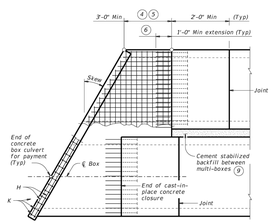
QUANTITIES PER FOOT OF CURB (10)	
Reinforcing Steel	4.12 Lb
Concrete	0.037 CY





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 TX31 or TX31LS bridge rail, refer to the Mounting Details for TX31 & TX31LS Rails (TX31-CM) standard sheet. Refer to the Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than TX31 or TX31LS.

(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 caps 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 (fc = 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

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BOX CULVERTS PRECAST MISCELLANEOUS DETAILS

SCP-MD

FILE: CD-SCP-MD-20.dgn	DN: GAF	CK: LRB	DW: BWH/TxDOT	CK: GAF
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REVISIONS	DIST	COUNTY		SHEET NO.

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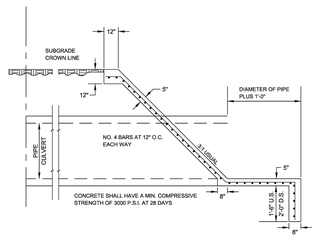
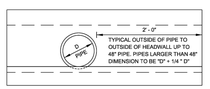
DATE:
FILE:

RIPRAP HEADWALL

HALF SECTION

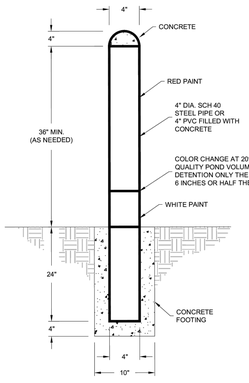


END VIEW



DATE APPROVED: 07/2008	DWG. NO: ST-023	SCALE: N.T.S.
DRAWN BY: RAS	SHEET: 1 OF 1	
FILENAME: RIPRAP HEADWALL		

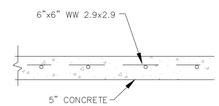
City of New Braunfels — ENGINEERING DEPARTMENT



NOTES

1. PLAN MUST CALL OUT ELEVATION OF THE POND AT SEDIMENT MARK LOCATION.
2. PLAN MUST CALL OUT THE ELEVATION THAT SEDIMENT MUST BE REMOVE FORM THE POND AND NOTED COLOR CHANGE MUST MATCH THAT ELEVATION.
3. SEDIMENT MARK MUST BE WITHIN WITH 10 FEET OF THE LOWEST OUT FLOW CONTROL DEVICE.
4. PAINT NEEDS TO BE UV RESISTANT. SEDIMENT MARKERS IN THE WET POND NEED TO BE DESIGN FOR UNDER WATER USE. (possible)

The City of San Marcos Engineering and Capital Improvements	CURRENT AS OF 1/1/2024	POND SEDIMENT MAKER	
RECORD COPY SIGNED BY	1/1/2022	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-PSM-SM
LAURIE MOYER, P.E.	ADOPTED		1 OF 1



1 CONCRETE RIP–RAP
N.T.S.

290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600

HMT ENGINEERING & SURVEYING

STATE OF TEXAS — JOSEPH T. SANDOVAL — 110257 — LICENSED PROFESSIONAL ENGINEER — Joseph T. Sandoval P.E.

9/12/2024

STORM DETAILS 3 OF 4

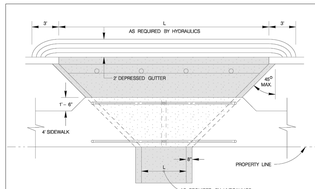
SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

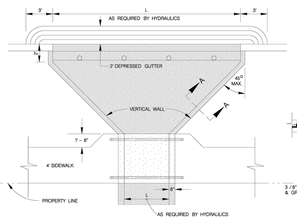
DATE: **SEPTEMBER 2024**
DRAWN BY: **CAC**
DESIGNED BY: **WRC**
REVIEWED BY: **JTS**
HMT PROJECT NO.: **337.087**

SHEET
C6.20

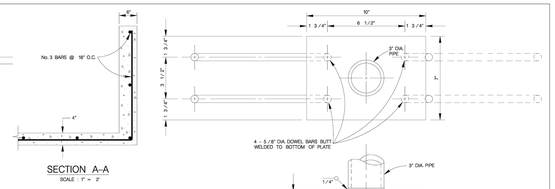
Drawing Name: N:_Projects\337 – Lennar\087 – Sinton Ranch Unit 1 (239 Lots)\C0s\337.087_STRM-DETL.dwg User: joed Sep 12, 2024 – 12:13pm



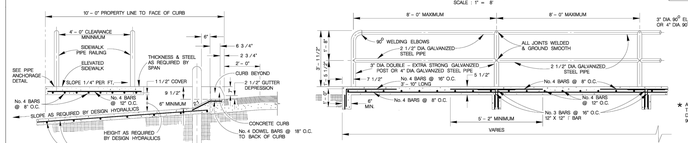
PLAN VIEW "A"
SCALE : 1" = 8'



PLAN VIEW "B"
SCALE : 1" = 8'

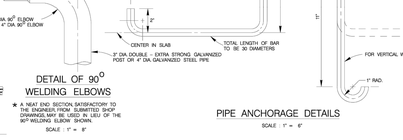


SECTION A–A
SCALE : 1" = 2'

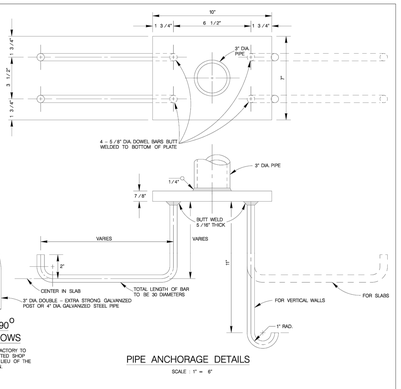


ELEVATED SIDEWALK & DROP CURB
DETAILS FOR DRAINAGE CHANNELS
SCALE : 1" = 4'

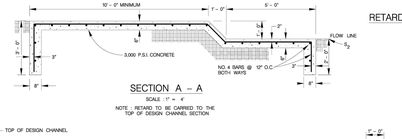
TYPICAL SIDEWALK BRIDGE &
SIDEWALK PIPE RAILING SECTION
SCALE : 1" = 4'



DETAIL OF 90° WELDING ELBOWS
★ A NEAT END SECTION SATISFACTORY TO THE ENGINEER FROM SUBMITTED SHOP DRAWINGS MAY BE USED IN LIEU OF THE 90° WELDING ELBOW SHOWN.
SCALE : 1" = 8'

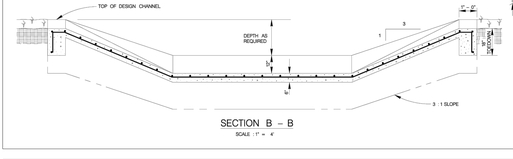


PIPE ANCHORAGE DETAILS
SCALE : 1" = 4'

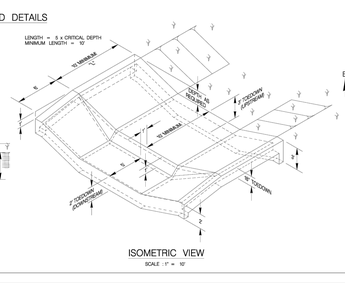


SECTION A – A
SCALE : 1" = 4'
NOTE : RETARD TO BE CARRIED TO THE TOP OF DESIGN CHANNEL SECTION

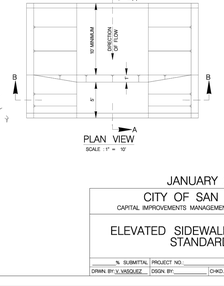
RETARD DETAILS



SECTION B – B
SCALE : 1" = 4'



ISOMETRIC VIEW
SCALE : 1" = 10'



PLAN VIEW
SCALE : 1" = 10'

JANUARY 2005

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

ELEVATED SIDEWALK & RETARD STANDARDS

% SUBMITTAL	PROJECT NO.:	DATE:
DRAWN BY: V. VASQUEZ	DSGN BY:	CHKD. BY:
		SHEET NO.: OF

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DATE:
FILE:

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

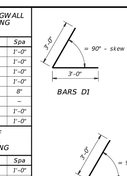
Maximum Wingwall Height He	Dimensions W	X	Y	Z	Variable Reinforcing Bars J1 Size	Bars J1 Spa	Bars J2 Size	Bars J2 Spa	Estimated Quantities per ft of He (2-wings) ④ Reinf (Lb/Ft)	Conc (CY/Ft)	Estimated Quantities per ft of He (1-Cellwall) Reinf (Lb/Ft)	Conc (CY/Ft)
2'-0"	2'-10"	10"	1'-0"	7"	#4	1'-0"	#4	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"	59.71	0.560	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"	85.55	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'-0"	2'-8"	1'-10"	8"	#5	1'-0"	#5	1'-0"	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'-3"	3'-5"	1'-3"	#8	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)

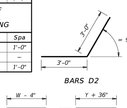
Bar	Size	No.	Spa
D1	#6	–	1'-0"
D2	#6	–	1'-0"
E1	#4	–	1'-0"
F	#4	–	1'-0"
G	#6	–	8"
M1	#4	4	–
P	#4	–	1'-0"
V	#4	–	1'-0"

TABLE OF TOEWALL REINFORCING

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



BARS D1



BARS D2

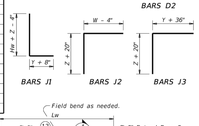
WING DIMENSION FORMULAS:
(All values are in feet.)

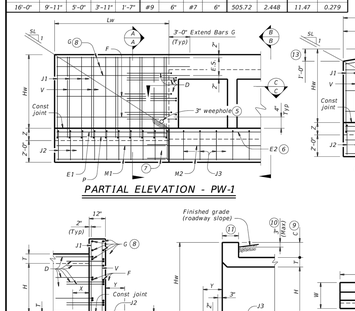
Hw = H + T + C
Lw = (Hw – T) (SL) + cosine (θ) for Type PW-1
= (Hw – 1') (SL) + cosine (θ) for Type PW-2 and Hw ≤ 4'
= (Hw – 0.5') (SL) + cosine (θ) for Type PW-2 and Hw < 4'

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

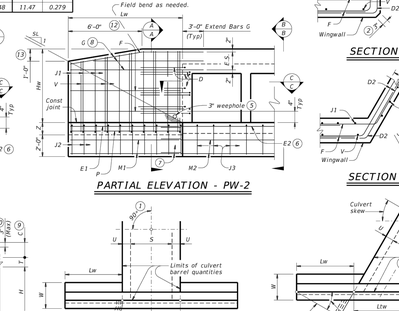
For precast culverts:
Ltw = ([N] (2 1/2 + S) + (N – 1) (0.5')) + cosine (θ)
Total Wingwall Area (two wings – SF)
= (2)(Hw)(Lw) for Type PW-1
= (2)(Hw)(Lw) – 6 SF for Type PW-2 and Hw ≥ 4'
= (2)(Hw)(Lw) – 1.5 SF for Type PW-2 and Hw < 4'

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

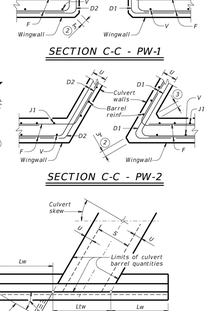




PARTIAL ELEVATION - PW-1

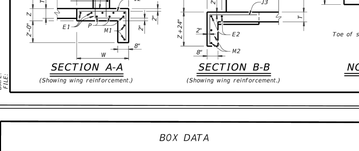


PARTIAL ELEVATION - PW-2



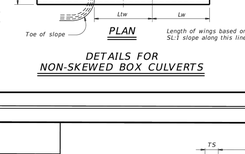
SECTION C-C - PW-1

SECTION C-C - PW-2



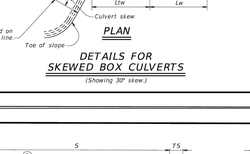
SECTION A-A
(Showing wing reinforcement.)

SECTION B-B
(Showing wing reinforcement.)



PLAN

DETAILS FOR NON-SKEWED BOX CULVERTS



PLAN

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

① Skew = 0°

② At discharge end, chamfer may be 3/4" 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 Texas Standard Specifications (TSCS) standard sheets for structures with T631 or T631LS bridge rail, refer to the Mounting Details (RAC) 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. Z'-3" when the Box Culvert Rail Mounting Details (RAC) standard sheet is referred to elsewhere in the plans.

⑫ Z'-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 footings 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

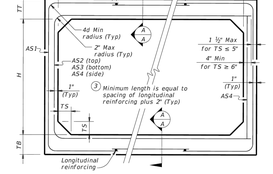
FILE: CD-PW-20.dgn	DN: GAF	CK: CAT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

BOX DATA

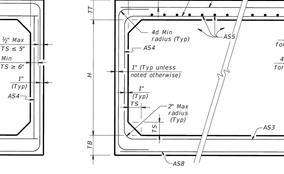
SECTION DIMENSIONS S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)	Fill Height (ft.)	M (Min) (in.)	REINFORCING (sq. in. / ft.) ② AS1	AS2	AS3	AS4	AS5	AS7	AS8	① Lift Weight (tons)
4	2	7.5	6	5	< 2	-	0.18	0.27	0.15	0.12	0.18	0.18	0.14	4.5
4	2	5	5	5	2 < 3	38	0.18	0.19	0.17	0.12	-	-	-	3.6
4	2	5	5	5	3 – 5	38	0.13	0.13	0.13	0.12	-	-	-	3.6
4	2	5	5	5	10	38	0.12	0.12	0.12	0.12	-	-	-	3.6
4	2	5	5	5	15	38	0.14	0.16	0.16	0.12	-	-	-	3.6
4	2	5	5	5	20	38	0.18	0.20	0.21	0.12	-	-	-	3.6
4	2	5	5	5	25	38	0.23	0.25	0.25	0.12	-	-	-	3.6
4	2	5	5	5	30	38	0.28	0.30	0.30	0.12	-	-	-	3.6
4	3	7.5	6	5	< 2	-	0.18	0.31	0.18	0.12	0.18	0.18	0.14	5.0
4	3	5	5	5	2 < 3	38	0.15	0.23	0.20	0.12	-	-	-	4.1
4	3	5	5	5	3 – 5	38	0.12	0.16	0.16	0.12	-	-	-	4.1
4	3	5	5	5	10	38	0.12	0.14	0.14	0.12	-	-	-	4.1
4	3	5	5	5	15	38	0.12	0.18	0.18	0.12	-	-	-	4.1
4	3	5	5	5	20	38	0.14	0.23	0.24	0.12	-	-	-	4.1
4	3	5	5	5	25	38	0.17	0.29	0.29	0.12	-	-	-	4.1
4	3	5	5	5	30	38	0.21	0.35	0.35	0.12	-	-	-	4.1
4	4	7.5	6	5	< 2	-	0.18	0.33	0.20	0.12	0.18	0.18	0.14	5.5
4	4	5	5	5	2 < 3	38	0.12	0.26	0.23	0.12	-	-	-	4.6
4	4	5	5	5	3 – 5	38	0.12	0.18	0.18	0.12	-	-	-	4.6
4	4	5	5	5	10	38	0.12	0.15	0.15	0.12	-	-	-	4.6
4	4	5	5	5	15	38	0.12	0.19	0.20	0.12	-	-	-	4.6
4	4	5	5	5	20	38	0.12	0.25	0.25	0.12	-	-	-	4.6
4	4	5	5	5	25	38	0.14	0.31	0.31	0.12	-	-	-	4.6
4	4	5	5	5	30	38	0.17	0.37	0.37	0.12	-	-	-	4.6

① For box length = 8'-0"

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

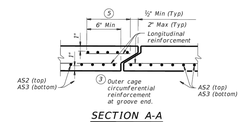


CORNER OPTION "A"



CORNER OPTION "B"

FILL HEIGHT 2 FT AND GREATER



SECTION A-A
(Showing top and bottom slab joint reinforcement.)

CORNER OPTION "A"

CORNER OPTION "B"

FILL HEIGHT LESS THAN 2 FT

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

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

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

HL93 LOADING

Texas Department of Transportation | Bridge Division Standard

SINGLE BOX CULVERTS
PRECAST
4'-0" SPAN

SCP-4

FILE: CD-SCP04-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TYPICAL CONCRETE CHANNEL
RIP-RAP STANDARDS

% SUBMITTAL	PROJECT NO.:	DATE:
DRAWN BY: V. VASQUEZ	DSGN BY:	CHKD. BY:
		SHEET NO.: OF

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DATE:
FILE:

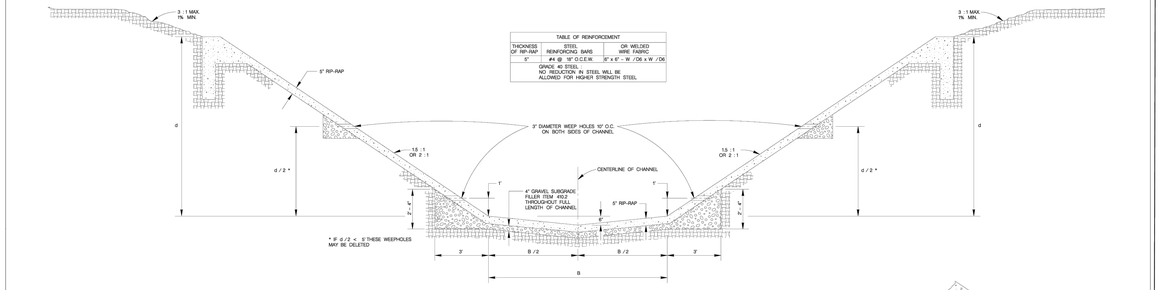
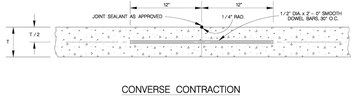
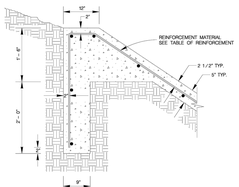


TABLE OF REINFORCEMENT		
THICKNESS OF RIP-RAP	STEEL REINFORCING BARS	OR WELDED WIRE FABRIC
5"	#4 @ 18" O.C.E.W. NO. REDUCTION IN STEEL WILL BE ALLOWED FOR HIGHER STRENGTH STEEL	6" x 6" – W 7.06 x W 7.06

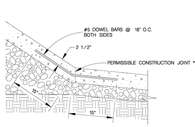
TYPICAL CHANNEL SECTION
LOOKING DOWNSTREAM
SCALE : 1" = 4'



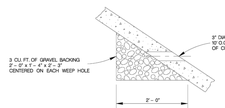
CONVERSE CONTRACTION
OR CONSTRUCTION JOINT
SCALE : 1" = 1'



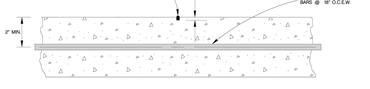
REINFORCEMENT DETAIL
TOE-DOWN
SCALE : 1" = 2'



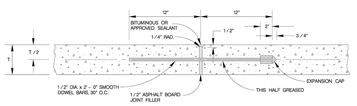
ALL SECTIONS
SCALE : 1" = 2'



WEEP HOLES DETAILS
FOR SIDE SLOPES
SCALE : 1" = 2'



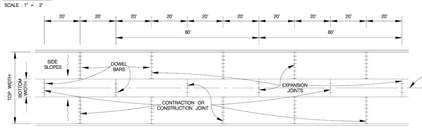
"SAW CUT" CONTRACTION JOINT
SCALE : 1" = 6"



TRANSVERSE EXPANSION JOINT
SCALE : 1" = 1'

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".



EXPANSION AND CONTRACTION JOINTS
FOR CONCRETE CHANNEL LINING
SCALE : 1" = 40'

290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600

HMT
ENGINEERING & SURVEYING

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
Joseph T. Sandoval P.E.

9/12/2024

STORM DETAILS 4 OF 4

SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C6.21

Drawing Name: N:_Projects\337 – Lennar\087 – Sinton Ranch Unit 1 (239 Lots)\02a\337.087_STRM_DETL.dwg User: joed Sep 12, 2024 – 12:13pm

UTILITY TRENCH COMPACTION

ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT/SIDEWALK SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEOTECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE. DETERMINE THE MAXIMUM LIFT THICKNESS BASED ON THE ABILITY OF THE COMPACTING OPERATION AND EQUIPMENT USED TO MEET THE REQUIRED DENSITY. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX-114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE STREET INSPECTOR. AT A MINIMUM, TESTS SHALL BE TAKEN EVERY 200 LF FOR EACH LIFT AND EVERY OTHER SERVICE LINE. UPON COMPLETION OF TESTING THE GEOTECHNICAL ENGINEER SHALL PROVIDE THE STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS. ADDITIONAL DENSITY TESTS MAY BE REQUESTED BY THE STREET INSPECTOR.

UTILITY NOTES:

1. ALL UTILITIES TO BE CONSTRUCTED PRIOR TO THE STREETS.
2. NO VALVES, HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS OR DRIVEWAYS.
3. POINT OF DELIVERY SHALL BE IN ACCORDANCE WITH RINCON CORPORATE TARIFF – ARTICLE III.
4. FIRE HYDRANTS ARE TO BE INSTALLED OUTSIDE OF THE SIDEWALK AND NO GREATER THAN 9 FEET FROM THE BACK OF CURB.
5. A MINIMUM #12 TRACE WIRE IS TO BE PLACED ON TOP OF ALL WATER LINE OR SERVICE LINE INSTALLATIONS.

DEVELOPER NOTES:

1. THE PROJECT DEVELOPER IS RESPONSIBLE FOR OBTAINING OF ALL EASEMENTS, RIGHTS OF WAY, PERMITS FOR CONSTRUCTION, OR ANY OTHER REQUIRED LOCAL, COUNTY, OR STATE PERMITS.
2. THE DEVELOPER IS RESPONSIBLE FOR PLATTING, SURVEYING, AND STAKING OF ALL LOTS AND UTILITIES IN HIS/HER SUBDIVISION.
3. THE DEVELOPER SHALL HAVE OR CAUSE TO HAVE ALL EXISTING UTILITIES LOCATED AND IDENTIFIED PRIOR TO COMMENCEMENT OF ANY EXCAVATION.

RINCON WATER SERVICE NOTE:

CUSTOMER SERVICE CONNECTIONS WITHIN THE DEVELOPMENT MUST HAVE A ONE–INCH TAP WITH A ONE–INCH POLYETHYLENE TUBING CONNECTING TO A ONE–INCH X 3/4–INCH ANGLE OR CURB STOP. MULTIPLE CONNECTIONS TO A SINGLE TAP ARE PROHIBITED AND EACH CUSTOMER SERVICE CONNECTION MUST BE ON ITS OWN TAP. CUSTOMER SERVICE CONNECTIONS MUST BE EQUIPPED WITH A WATER METER AS SPECIFIED BY RINCON AND EACH SERVICE CONNECTION MUST HAVE AN RPZ–TYPE OF BACKFLOW PREVENTION DEVICE AS SPECIFIED BY RINCON. DEVELOPER WILL BE RESPONSIBLE FOR ALL COSTS AND DAMAGES SUFFERED BY RINCON RESULTING FROM INSTALLATION OR USE OF CUSTOMER CONNECTIONS THAT DO NOT MEET THESE REQIREMENTS.

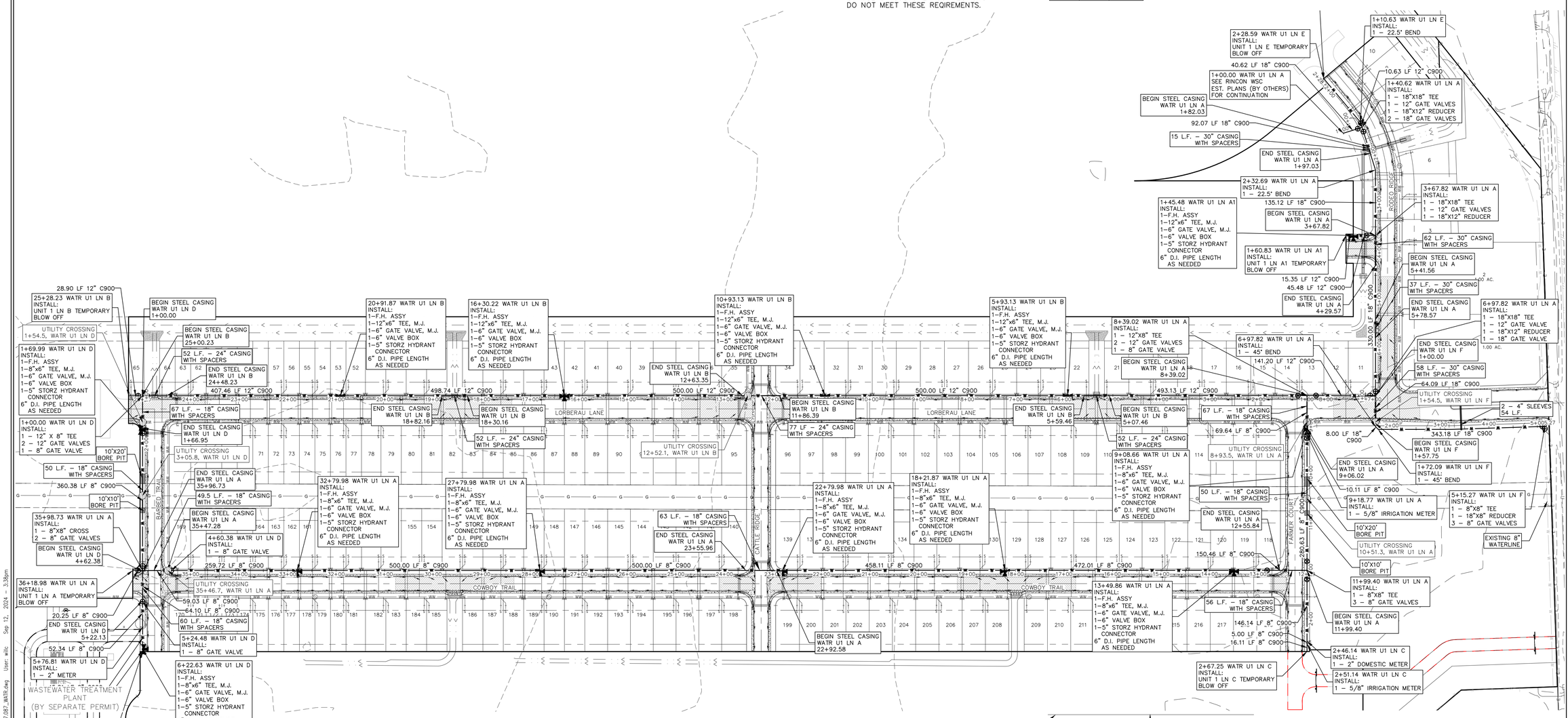
WATER STRUCTURE TOTALS			
PIPE SIZE	PIPE MATERIAL	PIPE LENGTH (LF)	FIRE HYDRANTS
0'-8"	PVC	3734.98	8
1"	PVC	3333.67	5

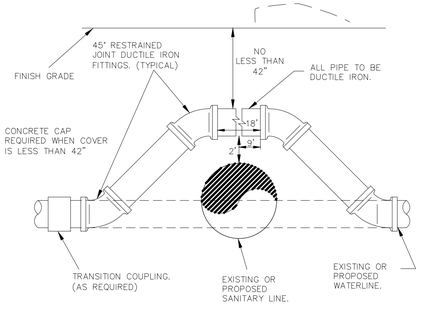
WATER METER TOTALS		
METER SIZE	DOMESTIC METER	IRRIGATION METER
3/4"	218	2
0'-2"	2	-

HORIZONTAL SCALE: 1:100

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- BUILDING SETBACK LINE
- UTILITY EASEMENT
- DRAINAGE EASEMENT
- EXISTING WATER LINE
- PROPOSED WATER LINE
- PROPOSED WATER SERVICE
- UTILITY CROSSING
- PROPOSED FIRE HYDRANT





Ⓐ WATERLINE ADJUSTMENT DETAIL
N.T.S

REFER TO THE COVER SHEET FOR BENCHMARK INFORMATION.

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HMT ENGINEERING & SURVEYING
290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED PROFESSIONAL ENGINEER
P.E.

9/12/2024

OVERALL WATER

SINTON RANCH UNIT 1

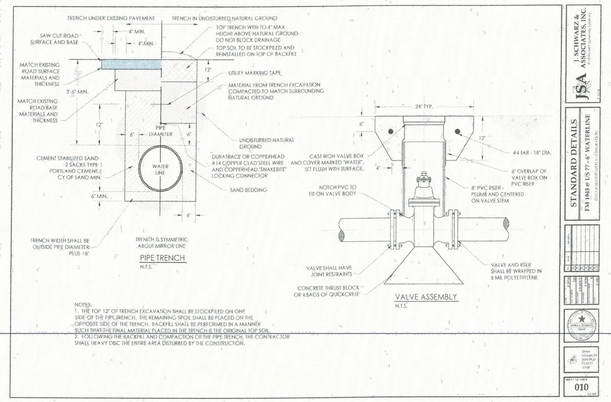
SINTON, TEXAS

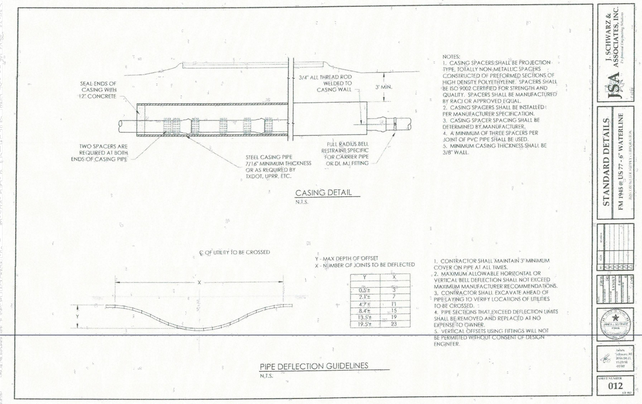
NO.	REVISION DESCRIPTION	REVISION DATE

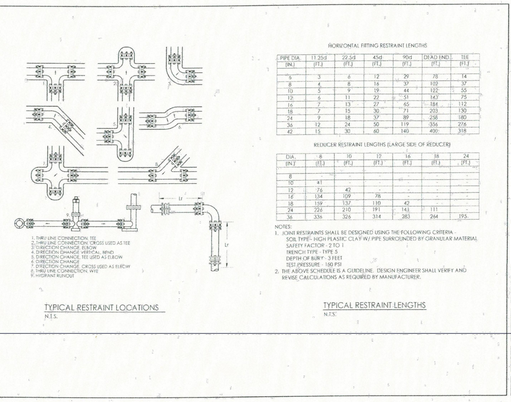
DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

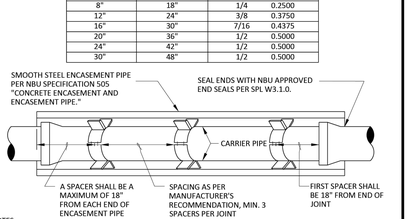
SHEET
C7.00

Drawing Name: N:_Projects\337 – Lennar\067 – Sinton Ranch Unit 1 (239 lots)\03a\337.067_WATR.dwg User: ellc Sep 12, 2024 – 3:38pm







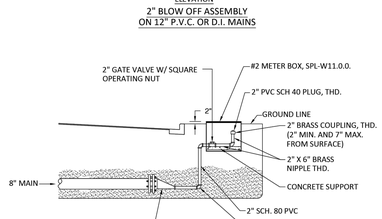


CARRIER PIPE (DIAMETER)	ENCASEMENT PIPE MIN. DIAMETER	MINIMUM ENCASEMENT PIPE THICKNESS (INCHES)
6"	16"	1/4 0.2500
8"	18"	1/4 0.2500
12"	24"	3/8 0.3750
16"	30"	7/16 0.4375
20"	36"	1/2 0.5000
24"	42"	1/2 0.5000
30"	48"	1/2 0.5000

NOTES:

1. CASING SPACER CONFIGURATION AND SPACING SHALL BE AS SHOWN ON MANUFACTURER'S DRAWINGS FOR SPECIFIC WORK; THESE MUST BE ACCEPTABLE TO NEW BRAUNFELS UTILITIES.
2. CASING SPACERS SHALL BE AS APPROVED ON NBU STANDARD PRODUCTS LIST ITEM W17.0.0.
3. ALL WATER MAIN AND FORCE MAIN CARRIER PIPE JOINTS INSIDE ENCASEMENT MUST BE RESTRAINED WITH APPROVED JOINT RESTRAINTS PER NBU SPL W9.2.0.
4. PROPOSED ENCASEMENT DIAMETERS SHALL BE AS SHOWN ON THE CONSTRUCTION PLANS, BUT IN NO CASE SHALL THE ENCASEMENT DIAMETER BE LESS THAN SHOWN IN THE TABLE ABOVE. CASING PIPE SHALL BE SIZED PER PROJECT CONDITIONS, CARRIER PIPE MATERIAL, AND JOINT RESTRAINT SYSTEM.

NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING | DRAWN BY: EWL | APPROVED BY: A. WILLARD | DRAWING DATE: 2/1/24 | STANDARD DRAWING: ENCASEMENT DETAIL WITH CASING SPACERS | UPDATED: | SCALE: N.T.S. | SHEET: 1 OF 1 | DRAWING NO: 420



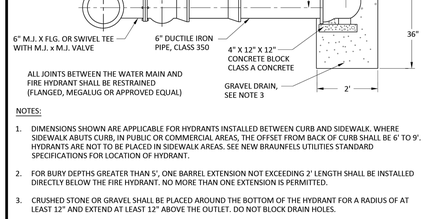
ELEVATION

2" BLOW OFF ASSEMBLY ON 12" P.V.C. OR D.I. MAINS

ELEVATION

2" BLOW OFF ASSEMBLY ON 8" P.V.C. OR D.I. MAINS

NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING | DRAWN BY: EWL | APPROVED BY: A. WILLARD | DRAWING DATE: 2/1/24 | STANDARD DRAWING: 2" BLOW OFF ASSEMBLY ON 8" & 12" P.V.C. OR D.I. MAINS | UPDATED: | SCALE: N.T.S. | SHEET: 1 OF 1 | DRAWING NO: 251

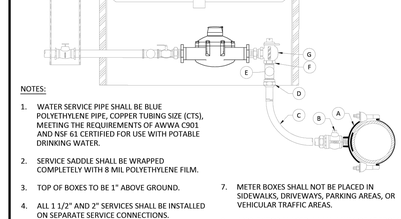


ALL JOINTS BETWEEN THE WATER MAIN AND FIRE HYDRANT SHALL BE RESTRAINED (FLANGED, MEGALUG OR APPROVED EQUAL)

NOTES:

1. DIMENSIONS SHOWN ARE APPLICABLE FOR HYDRANTS INSTALLED BETWEEN CURB AND SIDEWALK. WHERE SIDEWALK ABUTS CURB, IN PUBLIC OR COMMERCIAL AREAS, THE OFFSET FROM BACK OF CURB SHALL BE 6' TO 9'. HYDRANTS ARE NOT TO BE PLACED IN SIDEWALK AREAS. SEE NEW BRAUNFELS UTILITIES STANDARD SPECIFICATIONS FOR LOCATION OF HYDRANT.
2. FOR BURY DEPTHS GREATER THAN 5', ONE BARREL EXTENSION NOT EXCEEDING 2' LENGTH SHALL BE INSTALLED DIRECTLY BELOW THE FIRE HYDRANT. NO MORE THAN ONE EXTENSION IS PERMITTED.
3. CRUSHED STONE OR GRAVEL SHALL BE PLACED AROUND THE BOTTOM OF THE HYDRANT FOR A RADIUS OF AT LEAST 12" AND EXTEND AT LEAST 12" ABOVE THE OUTLET. DO NOT BLOCK DRAIN HOLES.
4. PROVIDE MINIMUM CLEARANCE TO OBSTRUCTIONS AROUND FIRE HYDRANT PER NBU STANDARD DETAIL 242.
5. FIRE HYDRANTS SHALL MEET THE REQUIREMENTS OF NBU SPL W7.0.0.
6. TEST STATION SHALL MEET THE REQUIREMENTS OF NBU SPL W18.1.0. MAX DISTANCE BETWEEN TEST KITS SHALL BE 600 LF. CONCRETE COLLAR SHALL HAVE 1' MINIMUM CLEARANCE TO FIRE HYDRANT ASSEMBLY.
7. PROVIDE THRUST RESTRAINT ON WATER MAIN IN BOTH DIRECTIONS FROM TEE. RESTRAINT LENGTH SHALL BE PER THRUST RESTRAINT CALCULATIONS WITH SAFETY FACTOR NOT LESS THAN 1.5.

NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING | DRAWN BY: EWL | APPROVED BY: A. WILLARD | DRAWING DATE: 2/1/24 | STANDARD DRAWING: STANDARD FIRE HYDRANT INSTALLATION WITH 5" STORZ CONNECTOR | UPDATED: | SCALE: N.T.S. | SHEET: 1 OF 1 | DRAWING NO: 240



NOTES:

1. WATER SERVICE PIPE SHALL BE BLUE POLYETHYLENE PIPE, COPPER TUBING SIZE (CTS), MEETING THE REQUIREMENTS OF AWWA C901 AND NSF 61 CERTIFIED FOR USE WITH POTABLE DRINKING WATER.
2. SERVICE SADDLE SHALL BE WRAPPED COMPLETELY WITH 8 MIL POLYETHYLENE FILM.
3. TOP OF BOXES TO BE 1" ABOVE GROUND.
4. ALL 1 1/2" AND 2" SERVICES SHALL BE INSTALLED ON SEPARATE SERVICE CONNECTIONS.
5. PIPING AND TUBING IN STREET RIGHT-OF-WAY SHALL BE BEDDED IN GRANULAR MATERIALS AS REQUIRED BY SPECIFICATIONS; BACKFILL ABOVE GRANULAR BEDDING AS REQUIRED BY SPECIFICATIONS.
6. METER BOX LOCATIONS SHALL BE AS PER DETAILS 402 THROUGH 409, UTILITY LAYOUTS.
7. METER BOXES SHALL NOT BE PLACED IN SIDEWALKS, DRIVEWAYS, PARKING AREAS, OR VEHICULAR TRAFFIC AREAS.
8. ANGLE STOP PLACED A MAXIMUM OF 4" FROM BACK OF BOX THAT FACES CURB.
9. SERVICES FOR NON-RESIDENTIAL CUSTOMERS OR IRRIGATION USES SHALL BE EQUIPPED WITH A REDUCED PRESSURE ZONE ASSEMBLY. THE BACKFLOW PREVENTION ASSEMBLY SHALL BE WITHIN 2 FEET OF THE WATER METER.

NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING | DRAWN BY: EWL | APPROVED BY: A. WILLARD | DRAWING DATE: 2/1/24 | STANDARD DRAWING: STANDARD INSTALLATION DETAIL FOR 1-1/2" & 2" METER INSTALLATION SHOWING OPTIONAL BYPASS | UPDATED: | SCALE: N.T.S. | SHEET: 1 OF 2 | DRAWING NO: 203

MATERIALS LIST

A. 2" SERVICE CLAMP PER SPL W2.2.1
B. 2" CORPORATION STOP MALE THREAD INLET BY COMPRESSION OUTLET
C. 2" AWWA C901 CTS SDR 9 WATER SERVICE PIPE PER SPL W1.5.5
D. 2" BRASS COUPLING - COMPRESSION TO MALE IPT
E. 2" BRASS TEE - FEMALE IPT
F. 2" BRASS CLOSE-NIPPLE
G. 2" ANGLE METER STOP, FEMALE IPT INLET & OUTLET
H. 2" BRASS NIPPLE
I. 2" BRASS ELBOW, FEMALE IPT
J. 2" LOCKABLE CURB STOP - FEMALE IPT INLET & OUTLET
K. 2" BRASS COUPLING - SERVICE TUBING TO MALE IPT
L. 2" METER BOX PER SPL W19.0.0
M. 2" BRASS UNION (2" X 1-1/2" BRASS ADAPTER- FOR 1-1/2" METER ONLY)
N. 2" WATER METER, LENGTH 15.25", PURCHASED FROM NBU
O. 2" SERVICE TUBING (PRIVATE PLUMBING PER CODE)
P. CUSTOMER CUT-OFF VALVE
Q. CUSTOMER VALVE BOX AND LID

NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING | DRAWN BY: EWL | APPROVED BY: A. WILLARD | DRAWING DATE: 2/1/24 | STANDARD DRAWING: STANDARD INSTALLATION DETAIL FOR 1-1/2" & 2" METER INSTALLATION SHOWING OPTIONAL BYPASS | UPDATED: | SCALE: N.T.S. | SHEET: 2 OF 2 | DRAWING NO: 203

REFER TO THE COVER SHEET FOR BENCHMARK INFORMATION.

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HMT ENGINEERING & SURVEYING
290 S. CASTELL AVE., STE. 100
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TBPELS FIRM F-10961
TBPELS FIRM 10153600

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

WATER DETAILS

SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C7.01

Appendix 7 - Typical Installation/Construction Diagrams

Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\CDs\337.087_WATR.dwg User: joed Sep 12, 2024 - 12:14pm

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 CONTRACTORS 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 EXCAVATIONS.

LEGEND

- 700 — EXISTING CONTOURS
- 700 — PROPOSED CONTOURS
- B.L. BUILDING SETBACK LINE
- U.E. UTILITY EASEMENT
- D.E. DRAINAGE EASEMENT
- EX WW — EX WW — EXISTING WASTEWATER LINE
- PROPOSED WASTEWATER MANHOLE
- WW — WW — PROPOSED WASTEWATER LINE
- PROPOSED WASTEWATER SERVICE
- UTILITY CROSSING

0 50 100 200
SCALE: 1" = 100'

UTILITY NOTES:

1. ALL UTILITIES TO BE CONSTRUCTED PRIOR TO THE STREETS.
2. NO VALVES, HYDRANTS, CLEANOUTS, ECT. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALK OR DRIVEWAYS.

CONTRACTOR TO REFER TO VERTICAL STACK CALCULATION SPREADSHEET PROVIDED ON SHEET C8.09.

UNIT 1 LN A STUB OUT
U1 MH A12
UTILITY CROSSING WWTR U1 LN A 37+89.56
U1 VENTED MH A11
U1 MH A10
MANOR RIDGE
RODEO RIDGE
WWTR U1 LN A
1.00 A
UNIT 1 LN C STUB OUT
WWTR U1 LN C (SEE SHEET C8.07)
UTILITY CROSSING WWTR U1 LN E 1+52.00
UTILITY CROSSING WWTR U1 LN C 1+54.95
U1 MH C1
LORBERAU LANE
UNIT 1 LN E STUB OUT
WWTR U1 LN E (SEE SHEET C8.07)
U1 MH A3
U1 VENTED MH A4
U1 MH A5
U1 MH A6
WWTR U1 LN A SEE SHEET C8.01 – C8.04
U1 VENTED MH A7
U1 MH A8
UTILITY CROSSING WWTR U1 LN A 30+21.67
U1 MH A9
CATTLE RIDGE
BARBED TRAIL
FARMER COURT
UTILITY CROSSING WWTR U1 LN A 5+22.54
UTILITY CROSSING WWTR U1 LN A 2+61.97
UTILITY CROSSING WWTR U1 LN A 3+68.47
U1 VENTED MH A1
CONNECT TO PROPOSED LIFT STATION (BY OTHERS) INSTALL: 12" CAP 0+90.00 WATR U1 LN A 12" FL (IN)=36.86' (NE)
WASTEWATER TREATMENT PLANT (BY SEPARATE PERMIT)
U1 DROP MH A2
U1 MH B1
U1 VENTED MH B2
WWTR U1 LN B SEE SHEET C8.05 – C8.06
U1 MH B3
U1 MH B4
U1 MH B5
COWBOY TRAIL
WWTR U1 LN D (SEE SHEET C8.07)
UNIT 1 LN D STUB OUT

REFER TO THE COVER SHEET FOR BENCHMARK INFORMATION.

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STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
Joseph T. Sandoval P.E.

9/12/2024

OVERALL WASTEWATER

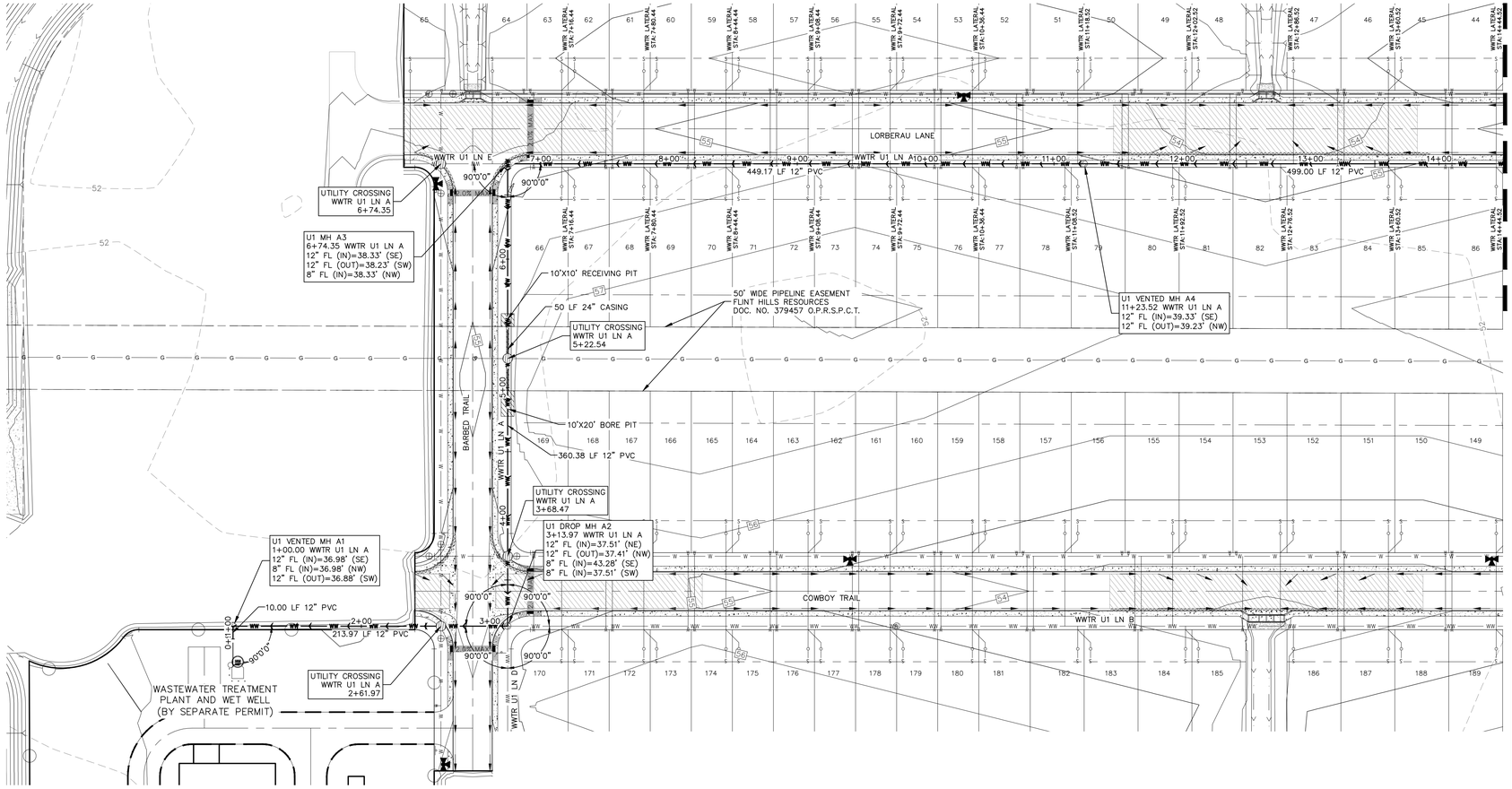
SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C8.00

Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\CD\337.087_WWTR.dwg User: ped Sep 12, 2024 - 12:16pm



LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- B.L. BUILDING SETBACK LINE
- U.E. UTILITY EASEMENT
- D.E. DRAINAGE EASEMENT
- EXISTING WASTEWATER LINE
- PROPOSED WASTEWATER MANHOLE
- PROPOSED WASTEWATER LINE
- PROPOSED WASTEWATER SERVICE
- UTILITY CROSSING

UTILITY NOTES:

1. ALL UTILITIES TO BE CONSTRUCTED PRIOR TO THE STREETS.
2. NO VALVES, HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS OR DRIVEWAYS.
3. POINT OF DELIVERY SHALL BE IN ACCORDANCE WITH RINCON CORPORATE TARIFF – ARTICLE III.
4. FIRE HYDRANTS ARE TO BE INSTALLED OUTSIDE OF THE SIDEWALK AND NO GREATER THAN 9 FEET FROM THE BACK OF CURB.

CONTRACTOR TO REFER TO VERTICAL STACK CALCULATION SPREADSHEET PROVIDED ON SHEET C8.09.

0 25 50 100
SCALE: 1" = 50' HORIZ.
SCALE: 1" = 5' VERT.

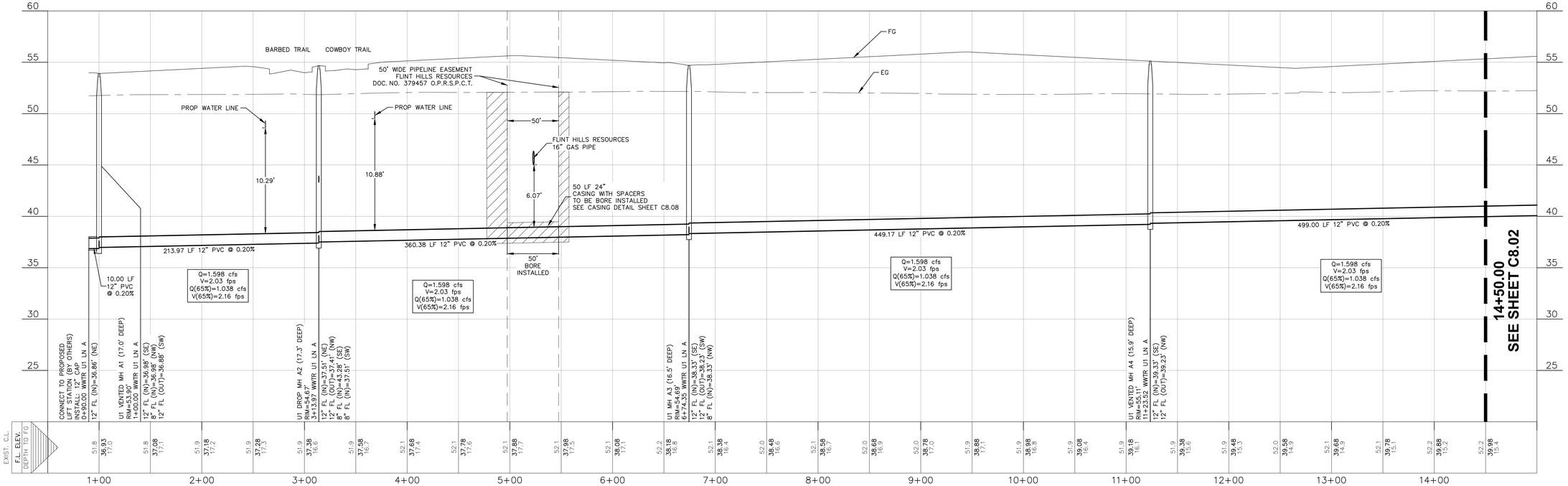
REFER TO THE COVER SHEET FOR BENCHMARK INFORMATION.

THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR WILL AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE INCURRED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, STRUCTURES OR FACILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES 24–HOURS PRIOR TO COMMENCING CONSTRUCTION.

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 CONTRACTORS 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 EXCAVATIONS.

WWTR U1 LN A
0+50 – 15+00



HMT ENGINEERING & SURVEYING
290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED PROFESSIONAL ENGINEER
P.E.

9/12/2024

WASTEWATER LN A PLAN & PROFILE 1 OF 4

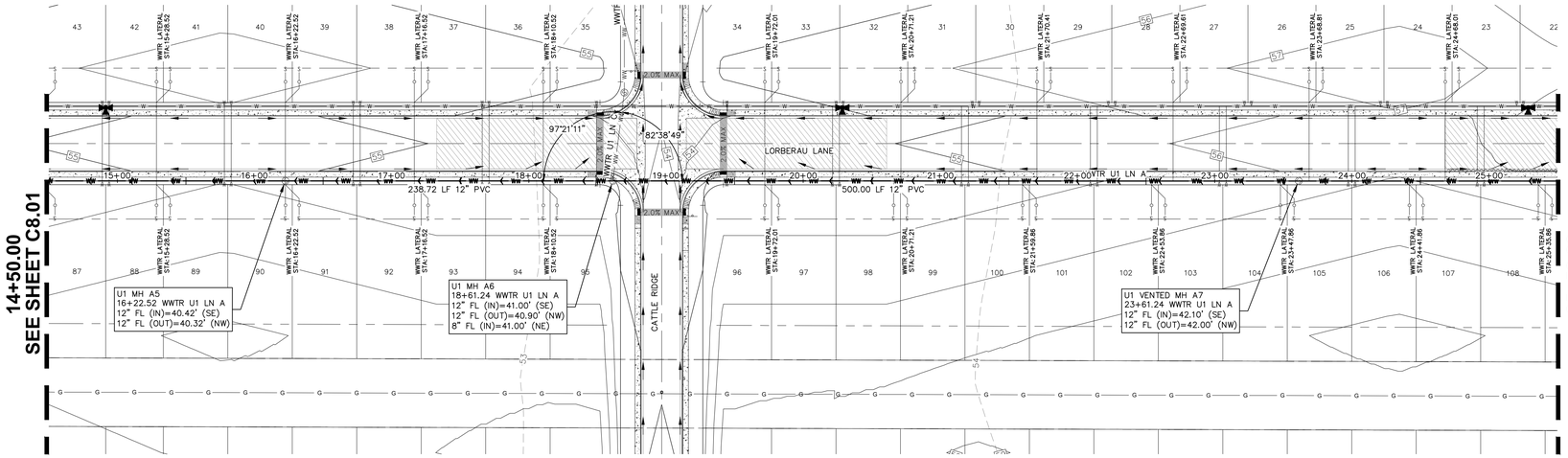
SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C8.01

Drawing Name: N:_Projects\337 – Lennar\087 – Sinton Ranch Unit 1 (239 Lots)\Cdn\337.087_WWTR.dwg User: ped Sep 12, 2024 – 12:16pm



LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- B.L. BUILDING SETBACK LINE
- U.E. UTILITY EASEMENT
- D.E. DRAINAGE EASEMENT
- EXISTING WASTEWATER LINE
- PROPOSED WASTEWATER MANHOLE
- PROPOSED WASTEWATER LINE
- PROPOSED WASTEWATER SERVICE
- UTILITY CROSSING

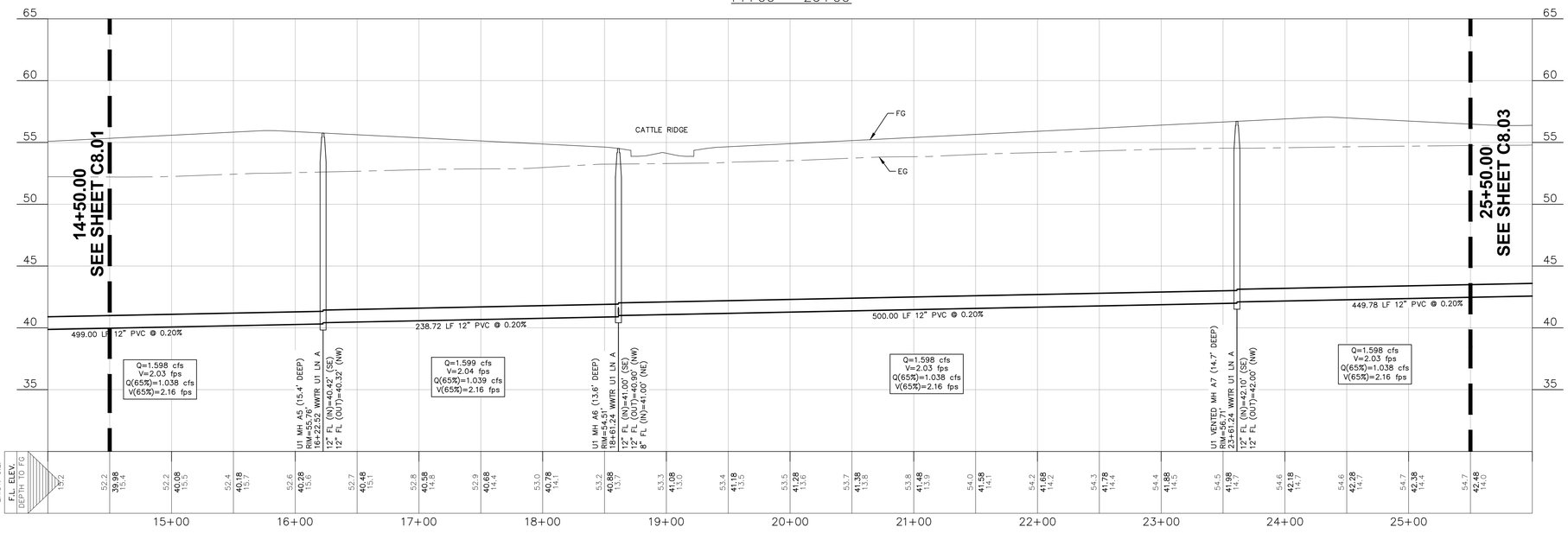
UTILITY NOTES:

1. ALL UTILITIES TO BE CONSTRUCTED PRIOR TO THE STREETS.
2. NO VALVES, HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS OR DRIVEWAYS.
3. POINT OF DELIVERY SHALL BE IN ACCORDANCE WITH RINCON CORPORATE TARIFF – ARTICLE III.
4. FIRE HYDRANTS ARE TO BE INSTALLED OUTSIDE OF THE SIDEWALK AND NO GREATER THAN 9 FEET FROM THE BACK OF CURB.

CONTRACTOR TO REFER TO VERTICAL STACK CALCULATION SPREADSHEET PROVIDED ON SHEET C8.09.

0 25 50 100
SCALE: 1" = 50' HORIZ.
SCALE: 1" = 5' VERT.

WWTR U1 LN A
14+00 – 26+00



TRENCH EXCAVATION SAFETY PROTECTION

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REFER TO THE COVER SHEET
FOR BENCHMARK INFORMATION.

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HMT ENGINEERING & SURVEYING
290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

WASTEWATER LN A PLAN & PROFILE 2 OF 4

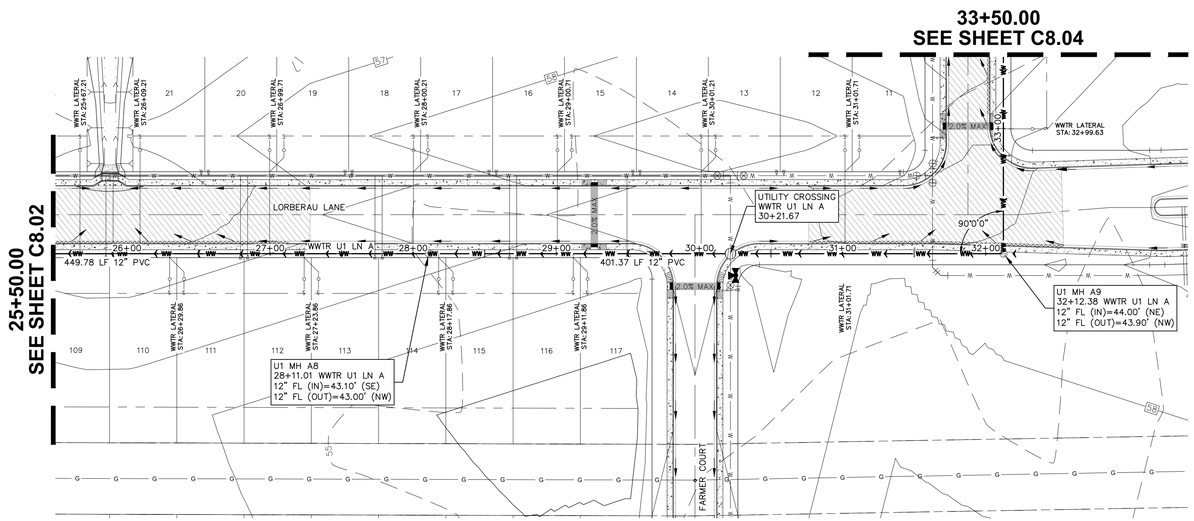
SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C8.02

Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 lots)\03a\337.087_WWTR.dwg User: joed Sep 12, 2024 - 12:16pm



LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- B.L. BUILDING SETBACK LINE
- U.E. UTILITY EASEMENT
- D.E. DRAINAGE EASEMENT
- EXISTING WASTEWATER LINE
- PROPOSED WASTEWATER MANHOLE
- PROPOSED WASTEWATER LINE
- PROPOSED WASTEWATER SERVICE
- UTILITY CROSSING

UTILITY NOTES:

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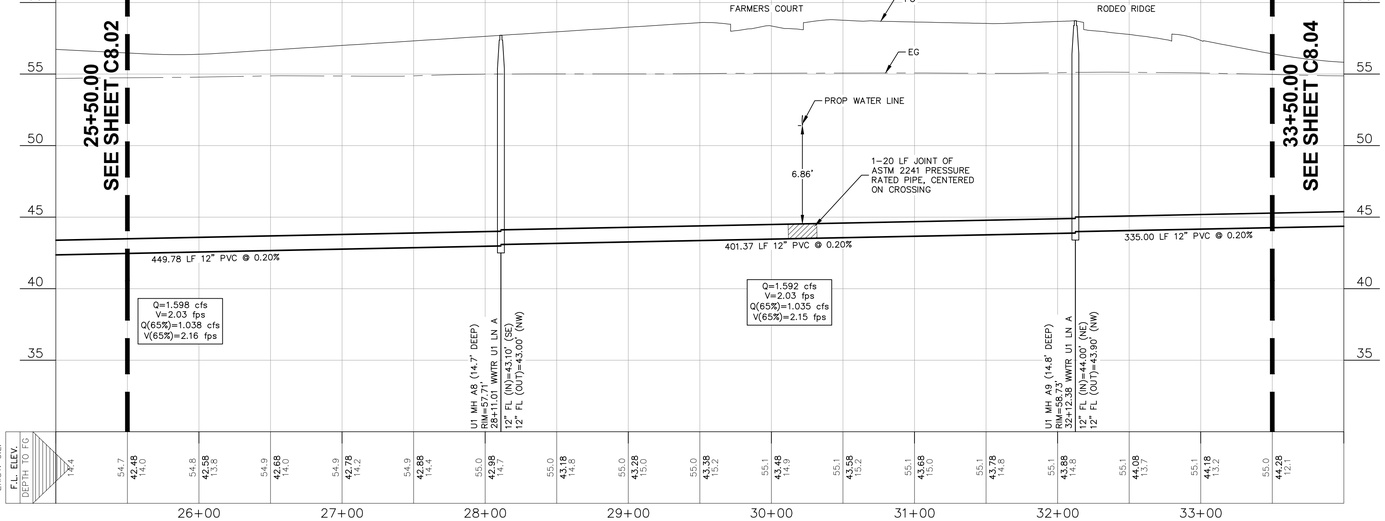
CONTRACTOR TO REFER TO VERTICAL STACK CALCULATION SPREADSHEET PROVIDED ON SHEET C8.09.

WWTR U1 LN A
25+00 – 34+00



TRENCH EXCAVATION SAFETY PROTECTION

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HMT ENGINEERING & SURVEYING
290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

WASTEWATER LN A PLAN & PROFILE 3 OF 4

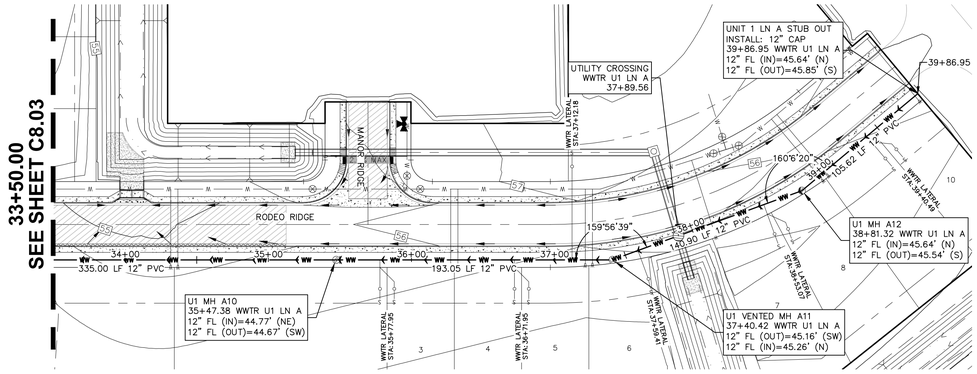
SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

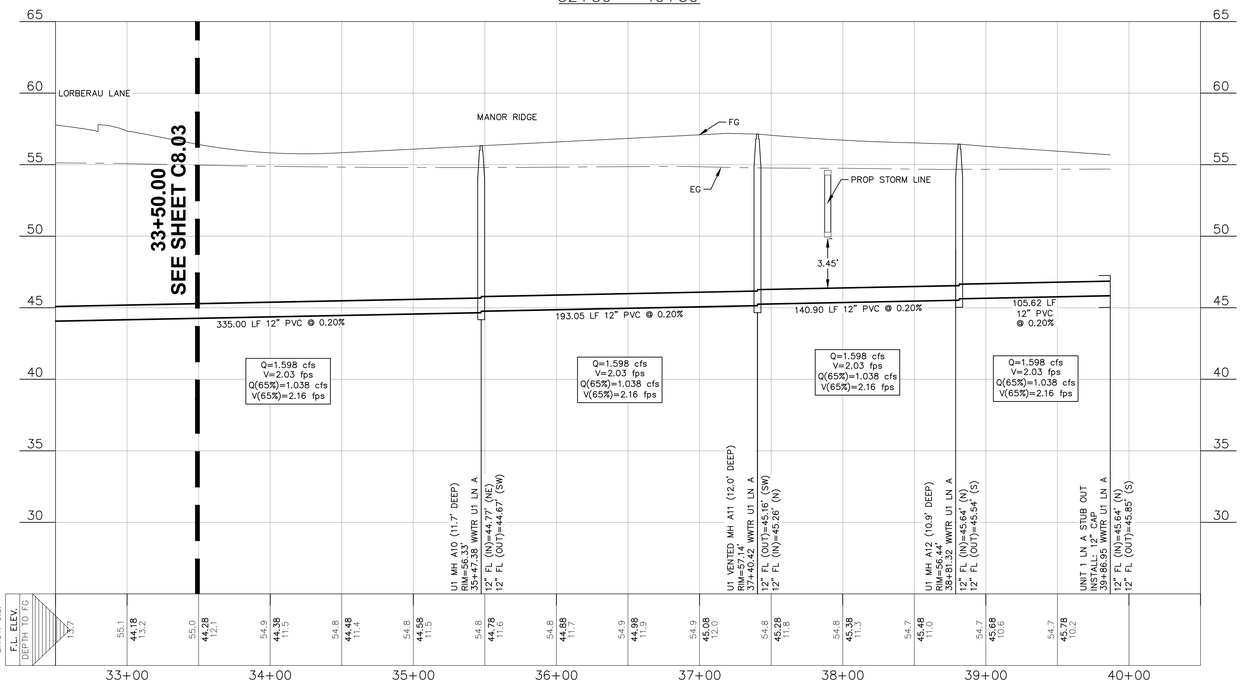
DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C8.03

Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\CDs\337.087_WWTR.dwg User: joed Sep 12, 2024 - 12:16pm



WWTR U1 LN A
32+50 – 40+50



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LEGEND

700	EXISTING CONTOURS
700	PROPOSED CONTOURS
B.L.	BUILDING SETBACK LINE
U.E.	UTILITY EASEMENT
D.E.	DRAINAGE EASEMENT
EX WW	EXISTING WASTEWATER LINE
	PROPOSED WASTEWATER MANHOLE
WW	PROPOSED WASTEWATER LINE
	PROPOSED WASTEWATER SERVICE
	UTILITY CROSSING

UTILITY NOTES:

1. ALL UTILITIES TO BE CONSTRUCTED PRIOR TO THE STREETS.
2. NO VALVES, HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS OR DRIVEWAYS.
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0 25 50 100
SCALE: 1" = 50' HORIZ.
SCALE: 1" = 5' VERT.

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290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600
HMT ENGINEERING & SURVEYING

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

WASTEWATER LN A PLAN & PROFILE 4 OF 4

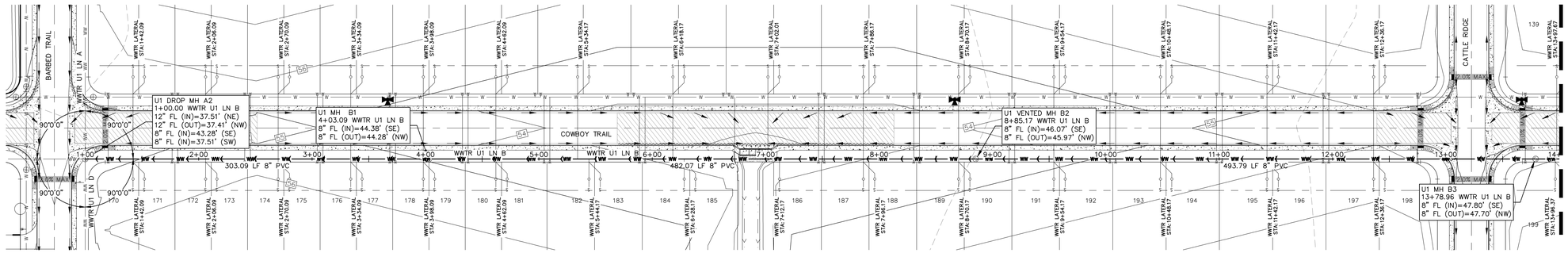
SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

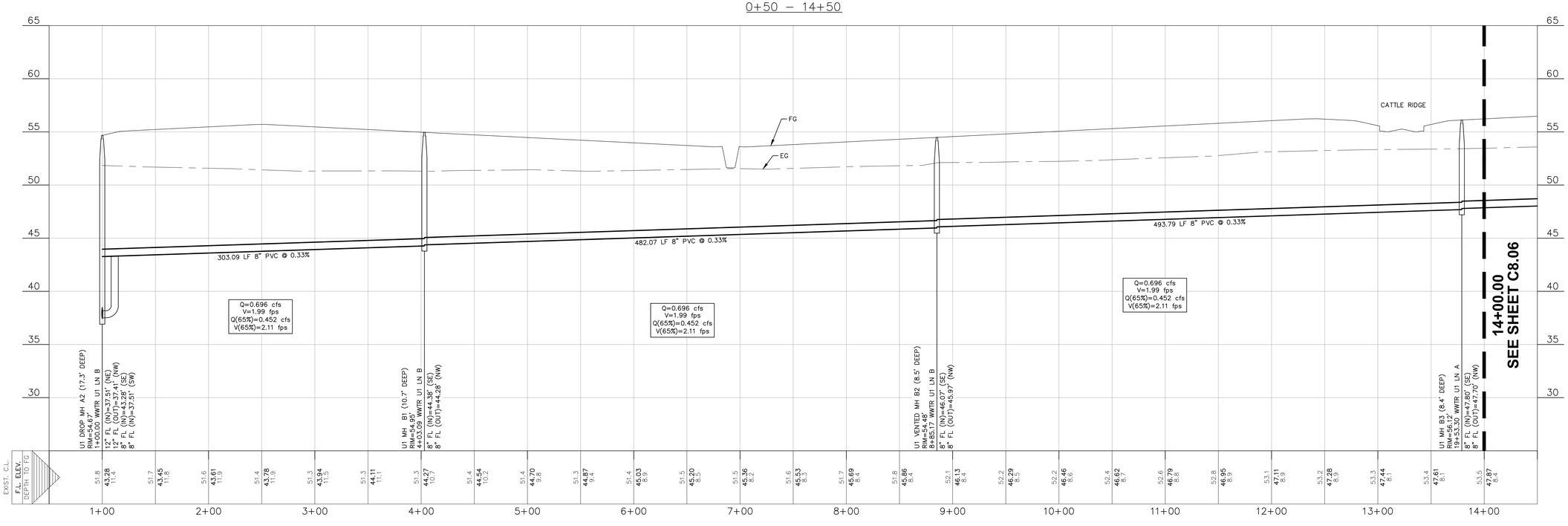
DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C8.04

Drawing Name: N:_Projects\337 - Lennar\067 - Sinton Ranch Unit 1 (239 Lots)\03a\337.067_WWTR.dwg User: jped Sep 12, 2024 - 12:17pm



WWTR U1 LN B
0+50 – 14+50



TRENCH EXCAVATION SAFETY PROTECTION

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LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- B.L. BUILDING SETBACK LINE
- U.E. UTILITY EASEMENT
- D.E. DRAINAGE EASEMENT
- EXISTING WASTEWATER LINE
- PROPOSED WASTEWATER MANHOLE
- PROPOSED WASTEWATER LINE
- PROPOSED WASTEWATER SERVICE
- UTILITY CROSSING

SCALE: 1" = 50' HORIZ.
SCALE: 1" = 5' VERT.

UTILITY NOTES:

1. ALL UTILITIES TO BE CONSTRUCTED PRIOR TO THE STREETS.

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HMT ENGINEERING & SURVEYING
290 S. CASTELL AVE., STE. 100
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TBPELS FIRM F-10961
TBPELS FIRM 10153600

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

WASTEWATER LINE B PLAN & PROFILE 1 OF 2

SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C8.05

Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\03a\337.087_WWTR.dwg User: joed Sep 12, 2024 - 12:17pm

TRENCH EXCAVATION SAFETY PROTECTION

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LEGEND

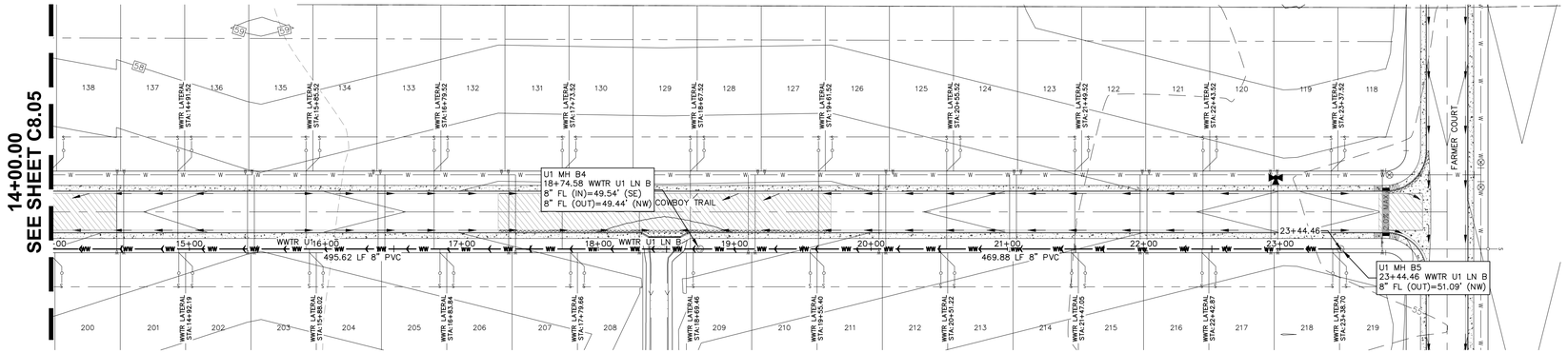
- 700 — EXISTING CONTOURS
- 700 — PROPOSED CONTOURS
- B.L. BUILDING SETBACK LINE
- U.E. UTILITY EASEMENT
- D.E. DRAINAGE EASEMENT
- EX WW — EX WW — EXISTING WASTEWATER LINE
- PROPOSED WASTEWATER MANHOLE
- WW — WW — PROPOSED WASTEWATER LINE
- PROPOSED WASTEWATER SERVICE
- UTILITY CROSSING

0 25 50 100
SCALE: 1" = 50' HORIZ.
SCALE: 1" = 5' VERT.

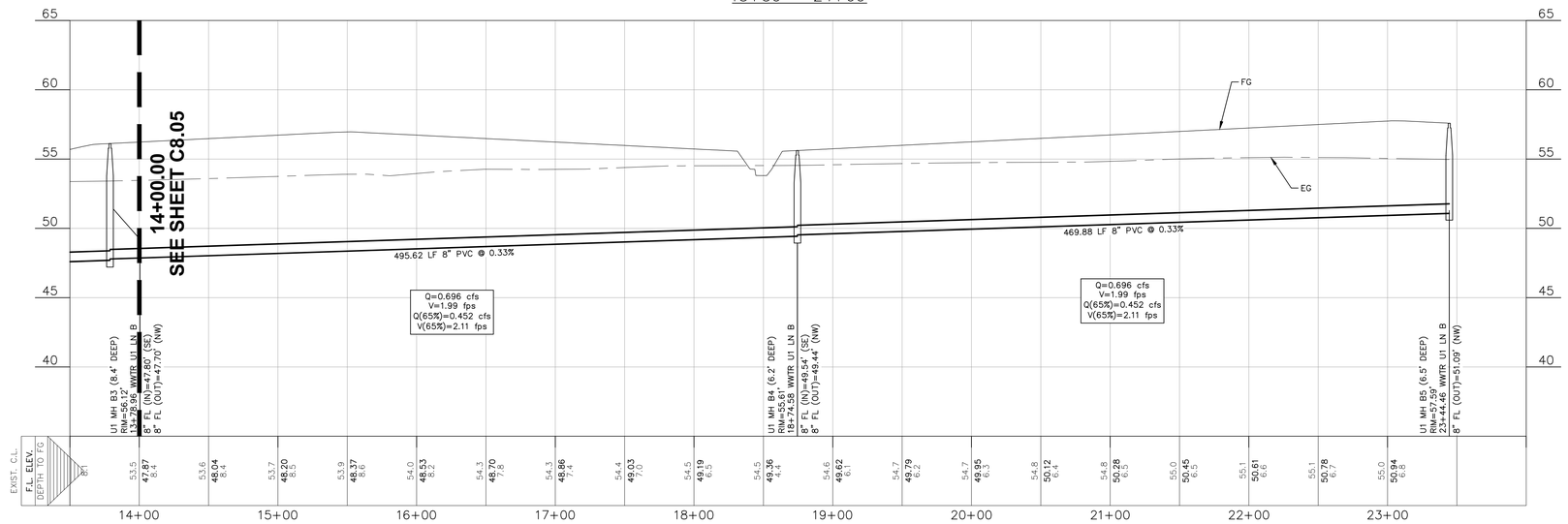
UTILITY NOTES:

1. ALL UTILITIES TO BE CONSTRUCTED PRIOR TO THE STREETS.

CONTRACTOR TO REFER TO VERTICAL STACK CALCULATION SPREADSHEET PROVIDED ON SHEET C8.09.



WWTR U1 LN B
13+50 – 24+00



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TBPELS FIRM 10153600

HMT ENGINEERING & SURVEYING

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
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P.E.

9/12/2024

WASTEWATER LN B PLAN & PROFILE 2 OF 2

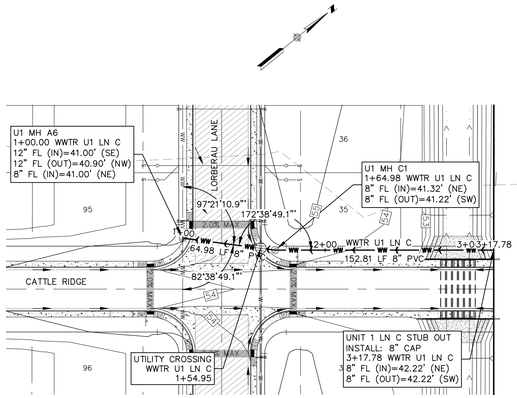
SINTON RANCH UNIT 1
SINTON, TEXAS

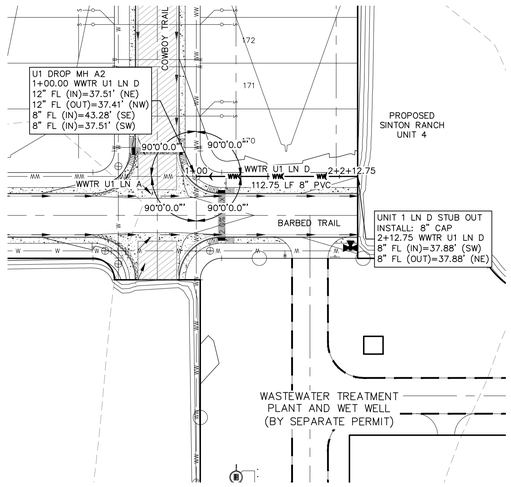
NO.	REVISION DESCRIPTION	REVISION DATE

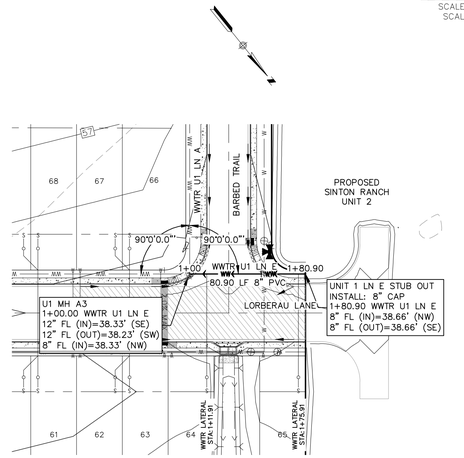
DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

SHEET
C8.06

Drawing Name: N:_Projects\337 - Lennox\087 - Sinton Ranch Unit 1 (239 Lots)\02a\337.087_WWTR.dwg User: joed Sep 12, 2024 - 12:17pm







0 25 50 100
SCALE: 1" = 50' HORIZ.
SCALE: 1" = 5' VERT.

LEGEND

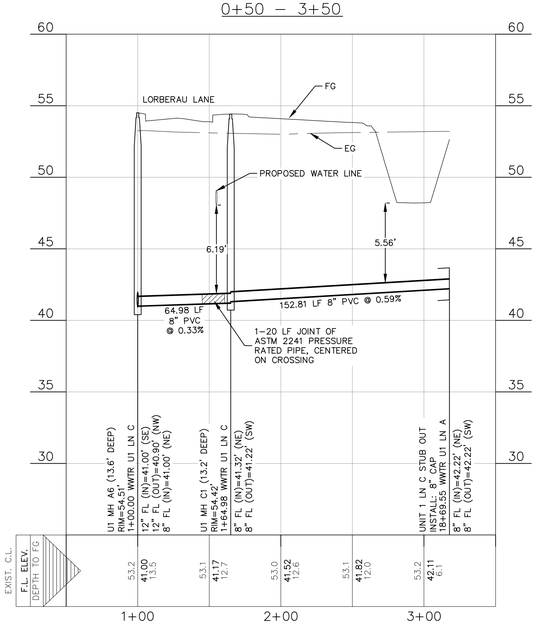
700	EXISTING CONTOURS
700	PROPOSED CONTOURS
B.L.	BUILDING SETBACK LINE
U.E.	UTILITY EASEMENT
D.E.	DRAINAGE EASEMENT
EX WW	EXISTING WASTEWATER LINE
	PROPOSED WASTEWATER MANHOLE
WW	PROPOSED WASTEWATER LINE
	PROPOSED WASTEWATER SERVICE
	UTILITY CROSSING

UTILITY NOTES:

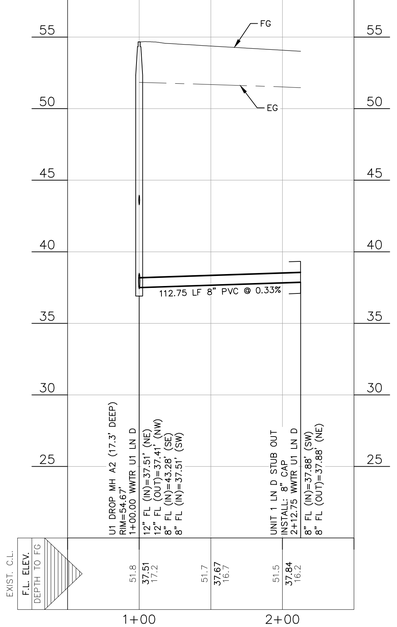
1. ALL UTILITIES TO BE CONSTRUCTED PRIOR TO THE STREETS.

CONTRACTOR TO REFER TO VERTICAL STACK CALCULATION SPREADSHEET PROVIDED ON SHEET C8.09.

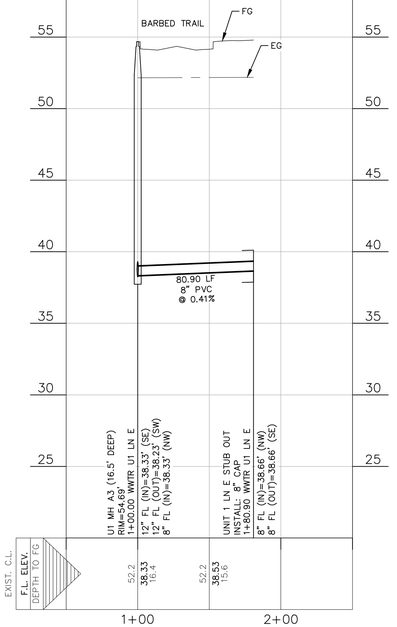
WWTR U1 LN C
0+50 – 3+50



WWTR U1 LN D
0+50 – 2+50



WWTR U1 LN E
0+50 – 2+50



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 CONTRACTORS 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 EXCAVATIONS.

REFER TO THE COVER SHEET
FOR BENCHMARK INFORMATION.

THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR WILL AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE INCURRED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES, STRUCTURES OR FACILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES 24-HOURS PRIOR TO COMMENCING CONSTRUCTION.

HMT ENGINEERING & SURVEYING
290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

WASTEWATER LN C, D & E PLAN & PROFILE

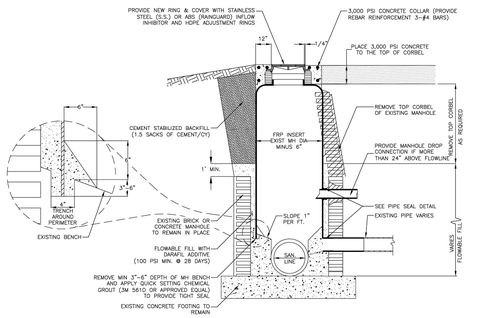
SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: SEPTEMBER 2024
DRAWN BY: CAC
DESIGNED BY: WRC
REVIEWED BY: JTS
HMT PROJECT NO.: 337.087

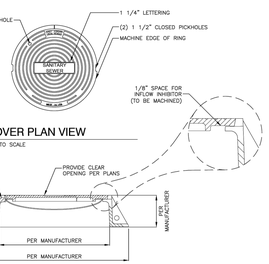
SHEET
C8.07

Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\C0x\337.087_WWTR.dwg User: joed Sep 12, 2024 - 12:17pm



FRP INSERT REHABILITATION OF EXISTING MANHOLE

NOT TO SCALE



COVER PLAN VIEW

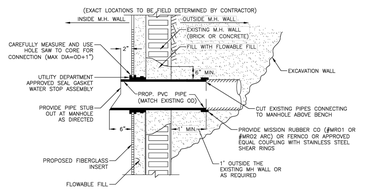
NOT TO SCALE

SECTION OF RING & COVER

NOT TO SCALE

FRP INSERT REHABILITATION OF EXISTING MANHOLE NOTES:

1. THE CONTRACTOR SHALL FIELD-VERIFY THE EXISTING MANHOLE DIAMETER, FLOW LINE, RIM ELEVATION, NUMBER OF LATERALS, LOCATIONS, SIZES, AND OTHER INFORMATION NEEDED TO REHABILITATE EACH MANHOLE.
2. PRIOR TO INSTALLING CONTROL OF FLOW OR INITIATING MANHOLE REPAIRS, THE CONTRACTOR SHALL PLACE BARRICADES AND SIGNS TO DIVERT TRAFFIC AND PEDESTRIANS PER THE APPROVED TRAFFIC CONTROL PLAN, AS REQUIRED.
3. THE CONTRACTOR SHALL PREPARE THE INTERIOR OF THE EXISTING FOUNDATION STRUCTURE BY REMOVING ALL DEFECTIVE GROUT AND DEBRIS/BLOCKAGES, MECHANICALLY ROUGHEN THE ENTIRE INVERT, AND CLEAN THE INTERIOR WITH A HIGH-PRESSURE WATER JET.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISPOSAL OF THE RESULTING SLUDGE AND DEBRIS AT AN APPROVED SITE, ACCORDING TO ALL PERTINENT WASTE DISPOSAL REGULATIONS.
5. THE CONTRACTOR SHALL USE QUICK-SETTING, NON-SHRINK CONCRETE GROUT TO SEAL AND RESHAPE THE BOTTOM SURFACE. PROPOSED MATERIALS TO BE USED TO THE ENGINEER FOR APPROVAL.
6. ALL EXPOSED METAL SURFACES SHALL BE PROTECTED WITH A COATING SYSTEM TO PREVENT CORROSION.
7. FRP INSERT SHALL COMPLY WITH ASTM D3753 WITH SINGLE PIECE MONOLITHIC BARREL AND CORBEL CONSTRUCTION WITHOUT SEAMS, JOINTS OR SECTIONS. WALL THICKNESS SHALL PROVIDE AN AASHTO H-20 LOAD RATING AND WALL STIFFNESS OF 36 PSI MIN.
8. CUT BOTTOM OF FRP INSERT TO FIT EVENLY ON BENCHES OR CHIP BENCHES OUT TO EVENLY SUPPORT INSERT.
9. SEAL ANNULAR SPACE AROUND EXIST LINES WITH JUTE ROPE AND CHEMICAL GROUT.



FRP INSERT PIPE SEAL DETAIL

NOT TO SCALE

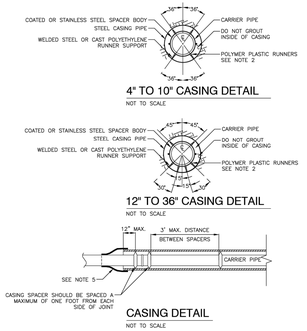
ROADWAY MANHOLE RING AND COVER:

1. THE CONTRACTOR SHALL PROVIDE STAINLESS STEEL (S.S.) INFLOW INHIBITOR WITH SS TETHER SECURED TO MANHOLE WALL, SUCH THAT THE INNER LID IS FLUSH WITH THE OUTER LID.
2. TRAFFIC SHALL BE RESTRICTED FROM MANHOLE FOR 48 HOURS AFTER THE PLACEMENT OF CONCRETE, AND COLLAR SHALL PROVIDE A SUFFICIENT, CLEAR OPENING TO ACCOMODATE THE SPECIFIED MANHOLE COVER.
3. MANHOLE COVERS SHALL BE TRAFFIC BEARING AND SHALL BE REQUIRED (40,000 LBS) AND MUST BE INSPECTED, PRIOR TO INSTALLATION, THE RESULTS OF THE TEST SHALL BE SUBMITTED TO THE CITY.
4. THE MANUFACTURING FACILITIES FOR ALL PROVIDED RING AND COVER ASSEMBLIES SHALL MEET OR EXCEED ALL EPA ENVIRONMENTAL STANDARDS AND OSHA SAFETY STANDARDS. THE CASTINGS SHALL BE MANUFACTURED FROM RECYCLED MATERIALS. THE CONTRACTOR SHALL PROVIDE CERTIFICATION.

CLEAR OPENING	MANUFACTURER (1)	MODEL NUMBER*	INFLOW INHIBITOR
24"	EAST JORDAN IRON WORKS	V-1168	REQUIRED ON ALL INSTALLATIONS PER CITY SPECIFICATIONS
	U.S. FOUNDRY	COVER- USI18538 FRAME- #8022247	
	NEENAH FOUNDRY	R-1930-24	
30" (2)	EAST JORDAN IRON WORKS	COVER- V1430 FRAME- V1420	
	U.S. FOUNDRY	COVER- #9210048 FRAME- #8021361	
	NEENAH FOUNDRY	DF-1274	

(1) OR APPROVED EQUAL (MADE IN THE USA)
(2) UNLESS NOTED IN THE PLANS, ALL COVERS SHALL BE 24" DIAMETER AND NOT INTENDED FOR MANNED ENTRY.

RING & COVER APPROVED LIST

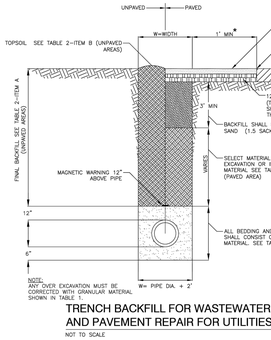


CASING DETAIL

NOT TO SCALE

CASING NOTES:

1. CASING DIAMETER, LENGTH, LOCATION, AND WALL THICKNESS SHALL BE PER PROJECT SPECIFIC REQUIREMENTS. (MINIMUM SCHEDULE 40)
2. ALL CARRIER PIPES IN INSTALLED CASINGS SHALL BE SUPPORTED BY BOLT-ON STYLE CASING SPACERS ("ADVANCED PRODUCTS" OR APPROVED EQUAL).
3. CASING SPACERS SHALL PROVIDE MECHANICALLY RESTRAINED JOINTS FOR FORCE MAINS ONLY OR CARRIER PIPES. "MEGALUG" PIPE JOINT RESTRAINTS OR APPROVED EQUAL SHALL BE USED.
4. CASING SPACERS SHALL BE SIZED TO SECURELY FASTEN TO THE CARRIER PIPE O.D. AND SHALL BE FURNISHED WITH A MINIMUM RUNNER HEIGHT TO MAINTAIN SEPARATION BETWEEN THE MAXIMUM O.D. OF THE CARRIER PIPE AND THE CASING WALL.
   A. POSITIONING OF THE SPACERS SHALL ENSURE THAT THE CARRIER PIPE IS CENTERED AND INSULATED THROUGHOUT ITS LENGTH.
   B. SPACERS AT EACH END SHALL NOT BE FURTHER THAN 12" FROM THE END OF THE CASING.
   C. CASING SPACERS SHALL BE INSTALLED IN THE CENTER OF THE PIPE SECTION. THE MAXIMUM SPACING OF THE CASING SPACERS SHALL BE 3 FEET.
5. THE TWO ENDS OF THE CASING PIPE SHALL BE SEALED WATERTIGHT WITH AN ADVANCED PRODUCTS SYSTEM, INC. MODEL AZ – ZIPPER, PSI MODEL C END SEAL, OR AN APPROVED EQUAL.



TRENCH BACKFILL FOR WASTEWATER LINES AND PAVEMENT REPAIR FOR UTILITIES

NOT TO SCALE

**NOTE:*

PER CITY ORD. 030040 ARTICLE III CUTS AND EXCAVATIONS, A PERMIT FROM CITY DEVELOPMENT SERVICES DEPARTMENT IS REQUIRED FOR ALL UTILITY STREET CUTS. THE INSTALLATION OF A UTILITY THAT CROSSES THE ROW AT A PERPENDICULAR OR NEAR PERPENDICULAR ANGLE AND HAS AN O.D. OF 6" OR LESS WILL NOT BE PERMITTED TO BE INSTALLED BY CUTTING THE ROAD SECTION.

ANY UTILITY RELATED STREET EXCAVATION/CUT SHALL INCLUDE REPAIR OF NOT ONLY THE IMPACTED TRENCH, BUT ALSO A FULL LANE OVERLAY/PAVEMENT REPAIR FOR PARALLEL CUTS OR 12' WIDE FOR PERPENDICULAR CUTS ON ASPHALT STREETS, AND FULL PANEL REPLACEMENT ON CONCRETE STREETS. A SITE SPECIFIC PAVEMENT CUT AND RESTORATION PLAN THAT INDICATES THE GENERAL NATURE OF THE PAVEMENT AND ROADWAY TO BE CUT AND RESTORED, THE EXISTING PAVEMENT SECTION (IF KNOWN), THE LOCATION AND APPROXIMATE AREA OF THE EXCAVATION/PAVEMENT REPAIR, INCLUDING THE APPROXIMATE LENGTH AND WIDTH OF THE PAVEMENT REPAIR IN RELATION TO THE ROADWAY TRAVEL LANE(S), MUST BE INCLUDED IN THE DRAWINGS/PERMIT APPLICATION.

GENERAL NOTES FOR BACKFILL

TABLE 1
BEDDING AND INITIAL BACKFILL
(BELOW PIPE TO 12" ABOVE PIPE)

ALL BEDDING AND INITIAL BACKFILL SHALL CONSIST OF THE FOLLOWING OR REFER TO DESIGN ENGINEER REQUIREMENTS: GRANULAR BACKFILL CONSISTING OF EITHER NATURAL SAND OR SANDY GRAVEL, OR MATERIAL PRODUCED BY CRUSHING OF NATURAL STONE OR GRAVEL;

(1) EXCAVATIONS <20 FT. DEEP AND ABOVE WATER TABLE: USE MATERIAL MEETING THE FOLLOWING CRITERIA.

MEETING REQUIREMENTS OF ASTM D2487 FOR:

SP	GP
SW	GW
SP–SM	GP–GM
SW–SM	GW–GM

AND IN ADDITION:
PASSING 1/2" SIEVE – 100%
PASSING #4 SIEVE – 30% MINIMUM
PLASTICITY INDEX (PI) – NP TO 10 MAX.

(2) IN DEEP EXCAVATIONS (>20') OR BELOW WATER TABLE, USE CRUSHED STONE OR CRUSHED GRAVEL MEETING GRADATION OF:

A. CONCRETE COARSE AGGREGATE; TxDOT ITEM 421; GRADE 2, 3, OR 4.

OR

B. CRUSHED LIMESTONE PER TxDOT ITEM 421' GRADE 2, 3, OR 4.

TABLE 2
FINAL BACKFILL
(GREATER THAN 12" ABOVE PIPE)

UNPAVED AREAS

A. FROM 12" ABOVE PIPE TO BOTTOM OF TOPSOIL BACKFILL SHALL BE APPROVED SELECT MATERIAL FROM THE EXCAVATION, OR IMPORTED MATERIAL; ALL TO BE FREE OF ROCKS, DEBRIS, OR ANY CLUMPS GREATER THAN 2" IN DIAMETER; LOOSE LIFTS TO BE PLACED 10" MAX.

COMPACT MATERIAL TO 95% STD. PROCTOR (D698).

MOISTURE TO BE ADJUSTED TO ± 3% OF OPTIMUM.

B. TOPSOIL TO BE PROVIDED EQUAL OR BETTER THAN EXISTING, AND MATCH EXISTING TOPSOIL DEPTH. COMPACT TO EXISTING ADJACENT TOP-SOIL THICKNESS. CONSTRUCTION TO BE PERFORMED BY "DOUBLE HANDLING" OF TOP SOIL SALVAGED TO BE PLACED ON TOP)

PAVED AREAS

A. FROM 12" ABOVE PIPE TO 3' BELOW BOTTOM OF ROAD BASE: BACKFILL SHALL BE SELECT MATERIAL FROM EXCAVATION OR IMPORTED MATERIAL IN EITHER CASE, ALL MATERIAL SHALL MEET THE FOLLOWING:

LL<35
PI 8–20
NO CLUMPS > 2" DIA.
MOISTURE ± 3 TO +4%
COMPACT MIN 95% D698 STD PROCTOR

LOOSE LIFTS OF 12" MAX OR IF SELECT MATERIAL FROM EXCAVATION DOES NOT MEET REQUIREMENTS, THEN USE CEMENT STABILIZED SAND SEE TABLE 2-ITEM B BELOW.

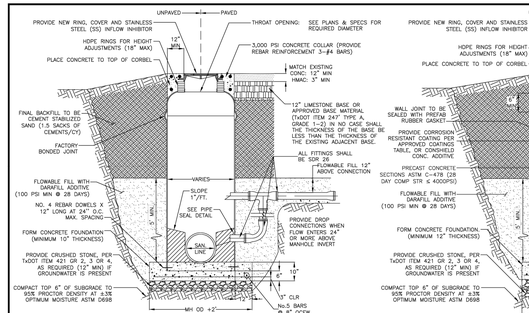
B. FROM 3' BELOW BOTTOM OF ROAD BASE TO BOTTOM OF ROAD BASE:

BACKFILL SHALL BE CEMENT STABILIZED SAND (1.5 SK/CY.) AND SHALL MEET THE FOLLOWING REQUIREMENTS:

SAND GRADATION:
% PASSING

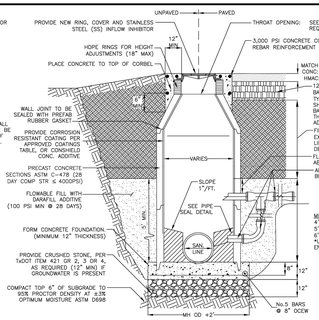
#4	55–100
#10	40–100
#40	25–100
#200	10–35
PI	NP–10

COMPACT TO 95% OF D588. MOISTURE TO BE ADJUSTED TO TO (+/–2%) OF OPTIMUM.



FIBERGLASS MANHOLE

NOT TO SCALE



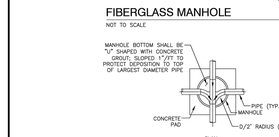
CONCRETE MANHOLE

NOT TO SCALE

MANHOLE REQUIREMENTS	
PIPE DIAMETER	MANHOLE DIAMETER
≤18"	4'
18"< TO ≤36"	5'
36"< TO ≤42"	6'

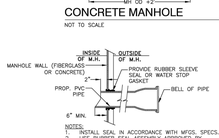
APPROVED COATINGS TABLE	
MANUFACTURER	MODEL NAME
JEFFCOAT	JEFFCOAT 325
RAVEN LINING SYSTEM	RAVEN 405
SHERWIN WILLIAMS	DURAPLATE 5800
CARBOLINE	PHENOLINE 309

NOTE: COAT ALL CONCRETE SURFACES INCLUDING BENCH & WALLS.



WASTEWATER MANHOLE (BOTTOM)

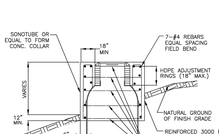
NOT TO SCALE



NOTES:
1. INSTALL SEAL IN ACCORDANCE WITH MFGS. SPECS.
2. USE RUBBER SEAL ASSEMBLY APPROVED BY UTILITY DEPARTMENT. (TPSHMA OR PIPECONX OR INSERT A TEE)

PIPE SEAL DETAIL

NOT TO SCALE

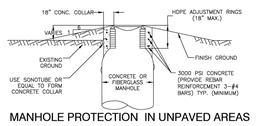


MANHOLE PROTECTION IN UNPAVED AREAS (CULTIVATED/SPECIAL)

NOT TO SCALE

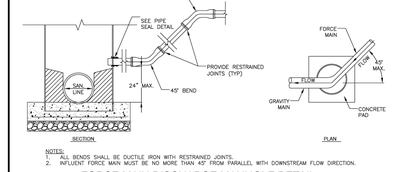
GENERAL WASTEWATER CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL VISIT THE SITE OF THE WORK AND EXAMINE LOCAL CONDITIONS TO BE ENCOUNTERED, IMPROVEMENTS TO BE PROTECTED, AND PERMITS AND FEES TO BE REQUIRED, ALONG WITH OTHER RESEARCH THAT IS NECESSARY TO ENSURE THAT THE CONTRACTOR THOROUGHLY UNDERSTANDS THE PROJECT AND IS FULLY AWARE OF ALL THE CONDITIONS AND CONSTRAINTS THAT MAY BE ENCOUNTERED DURING THE COURSE OF CONSTRUCTION.
2. THE CONTRACTOR SHALL ADHERE TO ALL TCEQ REGULATIONS PER 30 TAC CHAPTER 217 AND TRENCH SAFETY FOR EXCAVATIONS.
3. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRAFFIC CONTROL AND MUST ADHERE TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
4. ALL FIBERGLASS MANHOLES SHALL BE MONOLITHIC WITH 0.50" MINIMUM WALL THICKNESS. IF PROVIDED OR REQUIRED, FIBERGLASS BOTTOM SHALL BE DESIGNED TO WITHSTAND HYDROSTATIC HEAD PRESSURE UNDER ALL CONDITIONS.
5. ALL MANHOLES SHALL BE INSTALLED WITH A MINIMUM 24" DIAMETER PIPE) ABOVE THE FLOWLINE OF THE MANHOLE SHALL BE CORED AND SEALED WITH APPROVED SEAL GASKET WATER STOP ASSEMBLY.
6. FOR FIBERGLASS MANHOLES, THE MANHOLE FOUNDATION MAY BE PRECAST ON GROUND SURFACE. (PROCEDURE MUST BE SUBMITTED TO THE ENGINEERING SERVICES CONSTRUCTION ENGINEER FOR APPROVAL.)
7. THE CONTRACTOR SHALL PROVIDE PROTECTIVE COATING ON ALL EXPOSED CONCRETE SURFACES, INCLUDING CORBEL AREA, MANHOLE WALLS AND MANHOLE BENCH.
8. FOR FIBERGLASS MANHOLES WITH WATERTIGHT BOTTOM, ADHERE TO ALL MANUFACTURER REQUIREMENTS. FIBERGLASS BOTTOM AND BENCH MUST ALSO BE FACTORY INSTALLED.



MANHOLE PROTECTION IN UNPAVED AREAS (RESIDENTIAL)

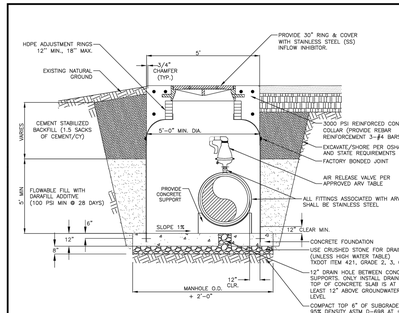
NOT TO SCALE



NOTES:
1. ALL BENDS SHALL BE DUCTILE IRON WITH RESTRAINED JOINTS.
2. INFLUENT FORCE MAIN MUST BE NO MORE THAN 45° FROM PARALLEL WITH DOWNSTREAM FLOW DIRECTION.

FORCE MAIN DISCHARGE MANHOLE DETAIL

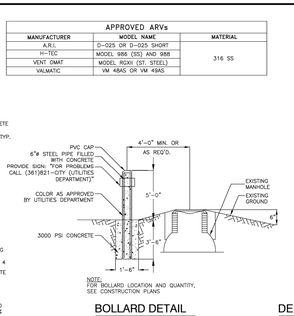
NOT TO SCALE



AIR RELEASE VALVE AND MANHOLE

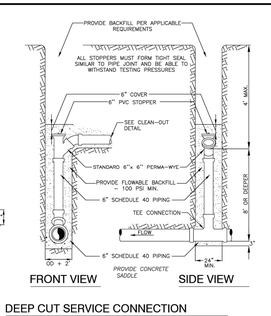
NOT TO SCALE

APPROVED ARVs		
MANUFACTURER	MODEL NAME	MATERIAL
A.R.I.	D-025 DR D-025 SHORT	.316 SS
H-TEC	MODEL 986 (SS) AND 988	
VENT GMAT	MODEL RGXI (ST. STEEL)	
VALMATIC	VM 48AS OR VM 49AS	



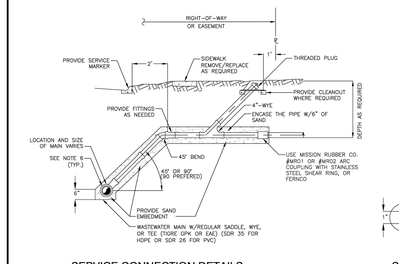
BOLLARD DETAIL

NOT TO SCALE



DEEP CUT SERVICE CONNECTION

NOT TO SCALE

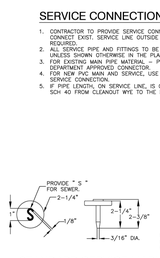


SERVICE CONNECTION DETAILS

NOT TO SCALE

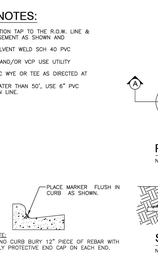
SERVICE CONNECTION NOTES:

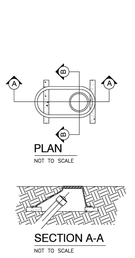
1. CONTRACTOR TO PROVIDE SERVICE CONNECTION TAP TO THE R.O.W. LINE & CONNECT EXIST. SERVICE LINE OUTSIDE EASEMENT AS SHOWN AND REQUIRED.
2. ALL SERVICE PIPE AND FITTINGS TO BE SOLVENT WELD SCH 40 PVC
3. SEE PLANS FOR SERVICE LINE SIZE, LOCATION, & PLANS.
4. FOR EXISTING MAIN PIPE MATERIAL OF PVC AND/OR VCP USE UTILITY DEPARTMENT APPROVED CONNECTOR.
5. FOR NEW PVC MAIN AND SERVICE, USE PVC WYE OR TEE AS DIRECTED AT SERVICE CONNECTION.
6. IF PIPE LENGTH, ON SERVICE LINE, IS GREATER THAN 50', USE 6" PVC SCH 40 FROM CLEANOUT WYE TO THE MAIN LINE.

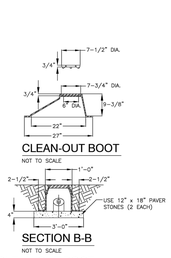


STANDARD SERVICE MARKER

BRASS – ONE REQUIRED EACH STREET TAP
NOT TO SCALE







CLEAN-OUT BOOT

NOT TO SCALE

SECTION A-A

NOT TO SCALE

SECTION B-B

NOT TO SCALE

Vertical Stack Calculation Spreadsheet

Sheet Number	WW Line	Single (1) Dual (2)	Lot Number	Long (L) Short (S)	Water Crossing	Adjusted Elevation (FG - 8')	WW Flowline Elevation	Single Vertcal Stack	Single Vertical Stack (Positive Only)
C8.01	A	1	64	L	YES	46.77	38.64	8.13	8.13
C8.01	A	1	63	L	YES	46.11	38.38	7.73	7.73
C8.01	A	2	62/61	L	YES	46.87	38.41	8.46	8.46
C8.01	A	2	60/59	L	YES	47.19	38.54	8.65	8.65
C8.01	A	2	58/57	L	YES	47.51	38.67	8.84	8.84
C8.01	A	2	56/55	L	YES	47.83	38.80	9.04	9.04
C8.01	A	2	54/53	L	YES	47.87	38.93	8.95	8.95
C8.01	A	2	52/51	L	YES	47.55	39.05	8.50	8.50
C8.01	A	2	50/49	L	YES	47.14	39.22	7.92	7.92
C8.01	A	2	48/47	L	YES	46.72	39.49	7.24	7.24
C8.01	A	1	46	L	YES	46.52	39.65	6.86	6.86
C8.01	A	2	45/44	L	YES	46.89	39.80	7.09	7.09
C8.01	A	2	43/42	L	YES	47.31	39.97	7.34	7.34
C8.01	A	2	65/66	S	NO	46.87	38.41	8.46	8.46
C8.01	A	2	67/68	S	NO	47.19	38.54	8.65	8.65
C8.01	A	2	69/70	S	NO	47.51	38.67	8.84	8.84
C8.01	A	2	71/72	S	NO	47.83	38.80	9.04	9.04
C8.01	A	2	73/74	S	NO	47.87	38.93	8.84	8.84
C8.01	A	2	75/76	S	NO	47.55	39.05	8.50	8.50
C8.01	A	2	77/78	S	NO	47.19	39.20	7.99	7.99
C8.01	A	2	79/80	S	NO	46.77	39.47	7.31	7.31
C8.01	A	2	81/82	S	NO	46.47	39.63	6.83	6.83
C8.01	A	2	83/84	S	NO	46.89	39.80	7.09	7.09
C8.01	A	2	85/86	S	NO	47.31	39.97	7.34	7.34
C8.02	A	2	41/40	L	YES	47.73	40.14	7.59	7.59
C8.02	A	2	39/38	L	YES	47.76	40.38	7.38	7.38
C8.02	A	2	37/36	L	YES	47.29	40.61	6.67	6.67
C8.02	A	2	35/34	L	YES	46.82	40.80	6.01	6.01
C8.02	A	2	33/32	L	YES	46.76	41.23	5.54	5.54
C8.02	A	2	31/30	L	YES	47.26	41.42	5.83	5.83
C8.02	A	2	29/28	L	YES	47.75	41.62	6.13	6.13
C8.02	A	2	27/26	L	YES	48.25	41.82	6.43	6.43
C8.02	A	2	25/24	L	YES	48.74	42.12	6.63	6.63
C8.02	A	2	23/22	L	YES	48.89	42.32	6.57	6.57
C8.02	A	2	87/88	S	NO	47.73	40.14	7.59	7.59
C8.02	A	2	89/90	S	NO	47.76	40.38	7.38	7.38
C8.02	A	2	91/92	S	NO	47.29	40.61	6.67	6.67
C8.02	A	2	93/94	S	NO	46.82	40.80	6.01	6.01
C8.02	A	2	95/96	S	NO	46.76	41.23	5.54	5.54
C8.02	A	2	97/98	S	NO	47.23	41.41	5.82	5.82
C8.02	A	2	99/100	S	NO	47.70	41.60	6.10	6.10
C8.02	A	2	101/102	S	NO	48.17	41.79	6.38	6.38
C8.02	A	2	103/104	S	NO	48.64	41.98	6.66	6.66
C8.02	A	2	105/106	S	NO	49.02	42.26	6.76	6.76
C8.02	A	2	107/108	S	NO	48.55	42.45	6.10	6.10
C8.03	A	1	21	L	YES	48.40	42.52	5.88	5.88
C8.03	A	1	20	L	YES	48.43	42.60	5.83	5.83
C8.03	A	2	19/18	L	YES	49.00	42.78	6.22	6.22
C8.03	A	2	17/16	L	YES	49.64	42.98	6.66	6.66
C8.03	A	2	15/14	L	YES	50.28	43.28	7.00	7.00
C8.03	A	2	13/12	L	YES	50.34	43.48	6.86	6.86
C8.03	A	2	11/10	L	YES	50.64	43.68	6.96	6.96
C8.03	A	1	1	S	NO	49.36	44.17	5.19	5.19
C8.03	A	2	109/110	S	NO	48.56	42.64	5.92	5.92
C8.03	A	2	111/112	S	NO	49.16	42.83	6.33	6.33
C8.03	A	2	113/114	S	NO	49.75	43.12	6.64	6.64
C8.03	A	1	115/116	S	NO	50.35	43.30	7.05	7.05
C8.04	A	2	2/3	S	NO	48.48	44.83	3.65	3.65
C8.04	A	2	4/5	S	NO	48.95	45.02	3.93	3.93
C8.04	A	2	6/7	S	NO	48.51	45.48	3.03	3.03
C8.04	A	2	8/9	S	NO	48.00	45.76	2.25	2.25
C8.04	A	1	EST	S	YES	49.15	45.10	4.05	4.05
C8.05	B	2	168/167	S	YES	47.18	43.42	3.76	3.76
C8.05	B	2	166/165	L	YES	47.50	43.63	3.87	3.87
C8.05	B	2	164/163	L	YES	47.62	43.84	3.77	3.77
C8.05	B	2	162/161	L	YES	47.30	44.06	3.24	3.24
C8.05	B	2	160/159	L	YES	46.98	44.27	2.71	2.71
C8.05	B	2	158/157	L	YES	46.66	44.58	2.08	2.08
C8.05	B	2	156/155	L	YES	46.30	44.82	1.48	1.48
C8.05	B	2	154/153	L	YES	45.88	45.09	0.78	0.78
C8.05	B	2	152/151	L	YES	43.73	45.37	-1.64	0.00
C8.05	B	2	150/149	L	YES	45.99	45.65	0.34	0.34
C8.05	B	2	148/147	L	YES	46.41	45.92	0.48	0.48
C8.05	B	2	146/145	L	YES	46.83	46.31	0.52	0.52
C8.05	B	2	144/143	L	YES	47.30	46.62	0.68	0.68
C8.05	B	2	142/141	L	YES	47.77	46.92	0.84	0.84
C8.05	B	2	140/139	L	YES	48.23	47.23	0.99	0.99
C8.05	B	2	138/137	L	YES	48.21	47.86	0.35	0.35
C8.05	B	2	169/170	S	NO	47.18	43.42	3.76	3.76
C8.05	B	2	171/172	S	NO	47.50	43.63	3.87	3.87
C8.05	B	2	173/174	S	NO	47.62	43.84	3.77	3.77
C8.05	B	2	175/176	S	NO	47.30	44.06	3.24	3.24
C8.05	B	2	177/178	S	NO	46.98	44.27	2.71	2.71
C8.05	B	2	179/180	S	NO	46.66	44.58	2.08	2.08
C8.05	B	2	181/182	S	NO	46.25	44.85	1.40	1.40
C8.05	B	2	183/184	S	NO	45.83	45.13	0.70	0.70
C8.05	B	1	185	S	NO	45.58	45.40	0.18	0.18
C8.05	B	2	186/187	S	NO	45.99	45.65	0.34	0.34
C8.05	B	2	188/189	S	NO	46.41	45.92	0.48	0.48
C8.05	B	2	190/191	S	NO	46.83	46.31	0.52	0.52
C8.05	B	2	182/193	S	NO	47.30	46.62	0.68	0.68
C8.05	B	2	194/195	S	NO	47.77	46.92	0.84	0.84
C8.05	B	2	196/197	S	NO	48.23	47.23	0.99	0.99
C8.05	B	2	198/199	S	NO	48.21	47.86	0.34	0.34
C8.06	B	2	136/135	L	YES	48.68	48.17	0.51	0.51
C8.06	B	2	134/133	L	YES	48.80	48.48	0.32	0.32
C8.06	B	2	132/131	L	YES	48.33	48.80	-0.47	0.00
C8.06	B	2	130/129	L	YES	47.86	49.11	-1.25	0.00
C8.06	B	2	128/127	L	YES	47.58	49.42	-1.84	0.00
C8.06	B	2	126/125	L	YES	48.05	49.83	-1.78	0.00
C8.06	B	2	124/123	L	YES	48.52	50.14	-1.62	0.00
C8.06	B	2	122/121	L	YES	48.99	50.45	-1.46	0.00
C8.06	B	2	120/119	L	YES	49.46	50.76	-1.30	0.00
C8.06	B	2	118/117	L	YES	49.62	51.07	-1.45	0.00
C8.06	B	2	200/201	S	NO	48.68	48.18	0.51	0.51
C8.06	B	2	202/203	S	NO	48.79	48.49	0.29	0.29
C8.06	B	2	204/205	S	NO	48.31	48.81	-0.50	0.00
C8.06	B	2	206/207	S	NO	47.83	49.13	-1.30	0.00
C8.06	B	1	208	S	NO	47.59	49.42	-1.83	0.00
C8.06	B	2	209/210	S	NO	48.02	49.81	-1.79	0.00
C8.06	B	2	211/212	S	NO	48.50	50.12	-1.62	0.00
C8.06	B	2	213/214	S	NO	48.98	50.44	-1.46	0.00
C8.06	B	2	215/216	S	NO	49.46	50.76	-1.30	0.00
C8.06	B	2	217/218	S	NO	49.61	51.07	-1.46	0.00
C8.07	E	1	63	L	YES	46.11	38.78	7.33	7.33
C8.07	E	1	64	L	YES	46.77	38.64	8.13	8.13
								Total VF	**491.75**

290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
TBPELS FIRM F-10961
TBPELS FIRM 10153600

HMT ENGINEERING & SURVEYING

STATE OF TEXAS
JOSEPH T. SANDOVAL
110257
LICENSED
PROFESSIONAL ENGINEER
P.E.

9/12/2024

WASTEWATER DETAILS
2 OF 2

SINTON RANCH UNIT 1
SINTON, TEXAS

NO.	REVISION DESCRIPTION	REVISION DATE

DATE: **SEPTEMBER 2024**
DRAWN BY: **CAC**
DESIGNED BY: **WRC**
REVIEWED BY: **JTS**
HMT PROJECT NO.: 337.087

SHEET
C8.09

Drawing Name: N:_Projects\337 - Lennar\087 - Sinton Ranch Unit 1 (239 Lots)\CDs\337.087_STRM-DETL.dwg User: joed Sep 12, 2024 - 12:18pm