PROMENADE AT SINGING OAKS



PROJECT LOCATION MAP SCALE: 1" = 500'

20285 STATE HWY 46 W
BULVERDE, TX 78163

CIVIL SITE CONSTRUCTION PLANS

PROMENADE AT SINGING OAKS
CIVIL SITE CONSTRUCTION PLANS
HMT # 643.001

PROJECT BENCHMARK

SITE TBM 'A'
BOX CUT SET ON BACK OF CURB
N: 13837411.9962'
E: 2152282.7359'
ELEV: 1182.000'

SITE TBM 'B'
BOX CUT SET ON BACK OF CURB
N: 13837569.2515'
E: 2152158.4854'
ELEV: 1182.240'

LEGAL DESCRIPTION

A TRACT OR PARCEL CONTAINING 3.8010 ACRES OR 165,570 SQUARE FEET OF LAND SITUATED IN THE PHILIP WAGNER SURVEY, ABSTRACT NO. 673, COMAL COUNTY, TEXAS, BEING OUT OF LOT 1, OF THE WARREN HILL SUBDIVISION, ACCORDING TO THE MAP OR PLAT THEREOF RECORDED IN VOLUME (VOL.) 12, PAGE (PG.) 312, OF THE PLAT RECORDS OF COMAL COUNTY, TEXAS (P.R.C.C.T.), AND BEING A PORTION OF A CALLED 3.995 ACRE TRACT DESCRIBED IN DEED TO H. E. BUTT GROCERY COMPANY, AS RECORDED IN DOCUMENT (DOC.) NO. 200006005660, OF THE OFFICIAL PUBLIC RECORDS OF COMAL COUNTY TEXAS (O.P.R.C.C.T.)

REQUIRED PERMITS	NUMBER
1. TEXAS WATER COMPANY	J51424
2. TxDOT	
DRIVEWAY	#
UIR	#
3. CITY OF BULVERDE	2025-411
4. TCEQ (CZP)	#

BULVERDE-46 PONDEROSA LLC

4545 POST OAK PLACE
SUITE 125
HOUSTON, TX 77027

APRIL 2026

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GENERAL NOTES:

1. THE MOST CURRENT EDITIONS OF THE CITY OF BULVERDE 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 BULVERDE STANDARD DETAILS.
2. ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER OF RECORD. IN ACCEPTING THESE PLANS, THE BULVERDE 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 BULVERDE 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. NO PORTION OF THE SITE IS LOCATED WITHIN ANY SPECIAL FLOOD HAZARD AREA (100 YR. FLOOD), AS DEFINED BY THE COMAL COUNTY, TEXAS, FIRM PANEL NUMBER 48091C0220F EFFECTIVE DATE SEPTEMBER 2, 2009, AS PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.
7. THIS SITE IS LOCATED WITHIN THE EDWARDS AQUIFER CONTRIBUTING ZONE.
8. 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.
9. THE ENGINEER OF RECORD ACKNOWLEDGES THAT ALL PROPOSED WATER AND WASTEWATER IMPROVEMENTS MUST COMPLY WITH TCEQ, BULVERDE, TEXAS WATER COMPANY, SOUND ENGINEERING JUDGEMENT AND ANY OTHER GOVERNING ENTITY ORDINANCES OR CODES.

STATE OF TEXAS
JOSHUA M. KELSEY
157476
LICENSED
PROFESSIONAL ENGINEER

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

04/27/2026
Joshua M. Kelsey, P.E., License No. 157476

PREPARED BY:

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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: M:_Projects\643 - MB&B\001 - Promenade at Singing Oaks Drainage\CDs\643.001_COVR.dwg User: michaelg Apr 27, 2026 - 12:34pm

TWC STANDARD CONSTRUCTION NOTES FOR PLANS (EFFECTIVE JULY 27TH, 2023)

GENERAL

1. SECTION 1 –INTRODUCTION

   A. SECTIONS OF THE TWC ENGINEERING DESIGN CRITERIA AND THE TWC STANDARD CONSTRUCTION NOTES FOR PLANS HAVE BEEN WRITTEN CONCURRENTLY. INFORMATION THAT APPLIES TO THE CONTRACTOR AND WORK PERFORMED ON–SITE IS LISTED IN THE TWC STANDARD CONSTRUCTION NOTES FOR PLANS. DURING DESIGN, BOTH DOCUMENTS SHOULD BE CHECKED FOR CLARITY.

   B. CONSTRUCTION OF DOMESTIC WATER PIPELINES AND APPURTENANCES ARE SUBJECT TO INSPECTION AND APPROVAL BY THE TEXAS WATER COMPANY (TWC) AND SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THIS DOCUMENT AND TWC'S STANDARD DRAWINGS AND TWC ENGINEERING DESIGN CRITERIA.

   C. ALL WATER DISTRIBUTION SYSTEMS, WATER MAIN EXTENSIONS, AND ALL APPURTENANT ITEMS SHALL BE DESIGNED IN ACCORDANCE WITH THESE STANDARDS, TWC STANDARD DETAILS AND TCEQ TITLE 30 CHAPTER 290 STANDARDS, WHICHEVER IS MOST STRINGENT. CONSULT TWC FOR CLARIFICATION OF SPECIFIC ITEMS.

   D. THE MOST RECENT TWC ENGINEERING DESIGN CRITERIA AND DETAILS SHALL APPLY TO ALL CONSTRUCTION REGARDLESS OF INFORMATION PROVIDED ON PLANS. CONTRACTORS ARE ENCOURAGED TO VERIFY CURRENT INFORMATION WITH TWC STAFF PRIOR TO THE BEGINNING OF CONSTRUCTION.

   E. CONTRACTORS ARE RESPONSIBLE FOR ALL SAFETY REQUIREMENTS (OSHA AND ANY OTHER AGENCIES THAT APPLY) ASSOCIATED WITH TRENCH CONSTRUCTION AND SHALL BE REQUIRED TO HAVE A TRENCH SAFETY PLAN PREPARED BY AN APPROVED PROFESSIONAL. UNLESS OTHERWISE NOTED IN THE CONSTRUCTION DOCUMENTS, THERE IS NO SEPARATE PAY ITEM FOR THIS REQUIREMENT FOR PROJECTS COMPLETED ON BEHALF OF TWC.

   F. IT IS THE INTENT OF THESE PLANS TO SHOW THE LOCATION OF EXISTING UNDERGROUND FACILITIES IN ACCORDANCE WITH EXISTING RECORDS. HOWEVER, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND VERIFY THE EXACT LOCATION OF ALL EXISTING UNDERGROUND FACILITIES PRIOR TO EXCAVATION. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY AND ALL DAMAGES TO EXISTING FACILITIES.

2. SECTION 2 –PLAN PREPARATION

   A. PLAN REVIEW

      a. ONE SET OF THE "APPROVED FOR CONSTRUCTION" PLANS MUST BE ON SITE AT ALL TIMES DURING CONSTRUCTION.

      b. ANY CHANGES TO THE PLANS DURING CONSTRUCTION MUST BE DOCUMENTED ON THE "APPROVED FOR CONSTRUCTION"PLANS AND DENOTED ON THE AS–BUILT PLANS.

      c. MINOR CHANGES MAY BE REVIEWED AND APPROVED ON SITE BY A REPRESENTATIVE OF TWC AND THE CHANGES ANNOTATED ON THE AS–BUILT PLANS.

      d. ALL MAJOR CHANGES DURING CONSTRUCTION SHALL BE SUBMITTED IN WRITING TO THE TWC ENGINEERING DEPARTMENT FOR FORMAL REVIEW AND APPROVAL. DETERMINATION AS TO WHETHER OR NOT AN RFI/SUBMITTAL IS REQUIRED SHALL BE DETERMINED ON A CASE BY CASE BASIS BY TWC PERSONNEL.

3. SECTION 3 –MANDATORY PRE–CONSTRUCTION MEETING

   A. NO LATER THAN ONE WEEK PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL CONDUCT A PRE–CONSTRUCTION MEETING WITH TWC, AT A LOCATION MUTUALLY DETERMINED.

   B. CONTRACTOR SHALL NOTIFY THE TWC CONSTRUCTION INSPECTION DEPARTMENT (830 312 4600) AT LEAST 72 HOURS PRIOR TO COMMENCING CONSTRUCTION.

   C. THE PURPOSE OF THE PRE–CONSTRUCTION MEETING IS TO REVIEW PROJECT STATUS AND COORDINATE SCHEDULED ACTIVITIES.

   D. NO CONSTRUCTION ACTIVITIES SHALL BEGIN UNTIL A PRECONSTRUCTION MEETING HAS BEEN HELD BETWEEN THE CONTRACTOR, ENGINEER OF RECORD, AND A REPRESENTATIVE OF TWC.

4. SECTION 4 –PROJECT CLEANLINESS

   A. CONSTRUCTION METHODS, MATERIAL AND DISPOSAL OF PRODUCTS SHALL ALSO BE SUBJECT TO CURRENT STANDARDS ESTABLISHED BY THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) AND ANY OTHER LOCAL, STATE OR FEDERAL AGENCIES HAVING AUTHORITY IN THEIR RESPECTIVE JURISDICTIONS.

   B. BOUNDARY FENCES OR OTHER IMPROVEMENTS REMOVED TO PERMIT CONSTRUCTION SHALL BE REPLACED IN THE SAME LOCATION AND IN SAME CONDITION AS GOOD OR BETTER THAN IN WHICH THEY WERE FOUND. UNLESS OTHERWISE STATED ON THE PLANS, NO COMPENSATION SHALL BE GIVEN TO THE CONTRACTOR FOR REMOVAL AND REPLACEMENT OF FENCES.

   C. THE CONTRACTOR IS RESPONSIBLE FOR KEEPING STREETS AND SIDEWALKS ADJACENT TO PROJECT FREE OF MUD AND DEBRIS FROM THE CONSTRUCTION.

   D. CONTRACTOR SHALL NOT PLACE FILL OR WASTE MATERIAL ON ANY PRIVATE PROPERTY WITHOUT PRIOR WRITTEN AGREEMENT WITH THE PROPERTY OWNER. A COPY OF ANY WRITTEN AGREEMENT BETWEEN PROPERTY OWNER AND CONTRACTOR SHALL BE FURNISHED TO TWC.

   E. NO EXCESS EXCAVATION MATERIAL SHALL BE DEPOSITED IN LOW AREAS OR ALONG NATURAL DRAINAGE WAY WITHOUT WRITTEN PERMISSION FROM THE ENGINEER.

   F. REMOVE AND DISPOSE OF TREES, STUMPS, BRUSH, ROOTS, VEGETATION, LOGS, RUBBISH AND OTHER OBJECTIONABLE MATTER WITHIN THE LIMITS OF AREA AFFECTED BY THE WORK, INCLUDING ALL AREAS TO BE RE GRADED. PROTECT TREES, SHRUBS, AND OTHER LANDSCAPE FEATURES SPECIFICALLY DESIGNATED FROM DAMAGE DURING CONSTRUCTION OPERATIONS.

5. SECTION 5 –PROJECT LAYOUT CONTROL AND SURFACE REPAIR

   A. CONTACTOR TO CONFIRM ACTUAL HORIZONTAL AND VERTICAL LOCATION OF EXISTING STRUCTURES, PIPING, PAVING, FENCING, UNDERGROUND UTILITIES AND ALL OTHER EXISTING FACILITIES PRIOR TO CONSTRUCTION.

   B. CONTRACTOR SHALL COORDINATE FOR ALL NECESSARY UTILITY LOCATES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.

   C. CONTRACTOR SHALL NOTIFY TEXAS DEPARTMENT OF TRANSPORTATION AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION ACTIVITY WITHIN THE STATE RIGHT OF WAY.

   D. NO UTILITY TRENCHES OR PITS ARE TO BE LEFT OPEN OVERNIGHT. CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING ADEQUATE SAFETY MEASURES ARE IN PLACE FOR BOTH HUMANS AND LIVESTOCK FOR ANY TRENCH LEFT OPEN OVERNIGHT. BACKFILLING WILL OCCUR DAILY AND AS SOON AS PRACTICAL FOLLOWING CONSTRUCTION OPERATIONS.

   E. CONTRACTOR SHALL NOT OPEN CUT ANY IMPROVED DRIVEWAY IN COUNTY OR STATE RIGHT OF WAY WITHOUT PRIOR WRITTEN APPROVAL OF THE AGENCY.

   F. FINE GRADE AREAS TO ACHIEVE FINAL CONTOURS INDICATED OR RESTORE EXISTING GRADES. REMOVE RUBBISH VEGETATION AND ROCKS OVER 1 ½" IN DIAMETER. ADJUST CONTOURS TO ACHIEVE POSITIVE DRAINAGE AWAY FROM STRUCTURES. PROVIDE UNIFORM ROUNDING AT TOP AND BOTTOM OF SLOPES AND OTHER BREAKS IN GRADE. CORRECT IRREGULARITIES AND AREAS WHERE WATER WILL STAND.

   G. ALL VEGETATED AREAS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITIONS THAN FOUND PRIOR TO THE BEGINNING OF CONSTRUCTION.

   H. BEFORE FINAL COMPLETION OF THE PROPOSED WORK, ALL ROADWAY, SLOPES, DITCHES AND BERMS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION.

6. SECTION 6 –CONTRACT CLOSE–OUT

   A. FINAL INSPECTION

      a. TWC WILL REQUIRE A FIELD FINAL INSPECTION ON ALL MAIN LINE CONSTRUCTION PROJECTS. TWC WILL VERIFY OPERATION OF VALVES, HYDRANTS AND SERVICES. METER BOXES, VALVE BOXES AND VAULTS, MUST BE SET TO GRADE AND WORK SITE MUST BE FREE OF DEBRIS, EXCESS MATERIAL, ETC.

      b. FIELD SET OF AS–BUILT DRAWINGS MUST BE PROVIDED AT THE FIELD FINAL INSPECTION.

      c. BACTERIOLOGICAL TEST SAMPLES MUST HAVE RETURNED FROM THE DESIGNATED LAB FREE FROM COLIFORM BACTERIA AND MEET THE SAME STANDARDS AS THE SOURCE WATER. THIS MUST BE NOTED ON THE TWC ACCEPTANCE FORM BY A WATER QUALITY TECHNICIAN. INSPECTOR WILL THEN PROVIDE THREE DIGITAL ACCEPTANCE FORMS TO BE SIGNED BY THE ENGINEER, CONTRACTOR AND TWC INSPECTOR. EACH PARTY SHALL RECEIVE A DATED COPY OF THE FORM.

      d. SEE SECTION 7B FOR FURTHER GUIDANCE ON DISINFECTION REQUIREMENTS.

   B. RECORD DRAWINGS

      a. CONTRACTOR SHALL PROVIDE A NEAT AS BUILT DRAWING WITHIN 30 DAYS OF JOB COMPLETION IN BOTH PAPER AND ELECTRONIC (.PDF) FORMAT TO TWC AND THE ENGINEER OF RECORD.

      b. ACCEPTANCE OF FACILITIES BY TWC WILL NOT BE AUTHORIZED UNTIL RECEIPT OF AN APPROVED SET OF RECORD DRAWINGS COMPLETED BY THE ENGINEER OF RECORD.

      c. SEE GENERAL SECTION 2A OF TWC ENGINEERING DESIGN CRITERIA.

   C. WARRANTY PERIOD

      a. THE WARRANTY PERIOD FOR ALL WORK COMPLETED SHALL BEGIN UPON WRITTEN ACCEPTANCE OF FACILITIES BY TWC. THE WARRANTY PERIOD AND REQUIREMENTS FOR BONDING SHALL BE OUTLINED IN THE CONTRACT.

7. SECTION 7 –LINE SEPARATION

   A. HORIZONTAL SEPARATION

      a. HORIZONTAL SEPARATION SHOULD BE IN ACCORDANCE WITH TCEQ REQUIREMENTS.

      b. JOINT TRENCHES OF WATER WITH OTHER UTILITIES SUCH AS ELECTRICAL, TELECOM, NATURAL GAS, FIBER OPTIC OR CABLE LINES ARE NOT PERMITTED.

   B. VERTICAL SEPARATION

      a. VERTICAL SEPARATION SHOULD BE IN ACCORDANCE WITH TCEQ REQUIREMENTS.

      b. AT ALL WATER MAIN CROSSINGS, ONE FULL LENGTH OF WATER PIPE SHALL BE CENTERED AT THE CROSSING SO BOTH JOINTS OF THE WATER PIPE WILL BE AS FAR FROM THE OTHER PIPELINES AS POSSIBLE.

      c. NATURAL OR PROPANE GAS LINE CROSSINGS SHALL BE ENCASED IN CONCRETE. THE CONCRETE ENCASEMENT SHALL EXTEND 12" ABOVE AND BELOW THE GAS LINE AND SHALL HAVE A MINIMUM SEPARATION OF 18"FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE.

      d. ALL OTHER UTILITIES SHALL BE LOCATED BELOW WATER MAINS UNLESS OTHERWISE APPROVED BY TWC. THIS INCLUDES SERVICE LINES FOR ALL OTHER UTILITIES.

   C. TYPICAL SECTION SHOWING ALL UTILITIES

      a. SEE GENERAL SECTION 7 OF TWC ENGINEERING DESIGN CRITERIA.

8. SECTION 8 –PIPE LAYING REQUIREMENTS

   A. IF APPLICABLE, DEWATERING SHALL BE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

   B. PIPE SHALL BE CONSTRUCTED OF MATERIALS SPECIFIED AND AS SHOWN ON THE DRAWINGS.

   C. EXCAVATION, TRENCHING AND BACKFILLING SHALL BE IN ACCORDANCE WITH TWC ENGINEERING DESIGN CRITERIA AND DETAILS.

      a. ALL DICL PIPE SHALL BE INSTALLED IN ACCORDANCE WITH STANDARDS SET FORTH IN THE DIPRA "INSTALLATION GUIDE FOR DUCTILE IRON PIPE"UNLESS SUCH STANDARDS CONFLICT WITH TWC STANDARDS IN WHICH CASE TWC STANDARDS SHALL APPLY.

      b. ALL PVC AND PVCO PIPE SHALL BE INSTALLED IN ACCORDANCE WITH STANDARDS SET FORTH IN THE UNI–BELL "HANDBOOK OF PVC PIPE DESIGN AND CONSTRUCTION"UNLESS SUCH STANDARDS CONFLICT WITH TWC STANDARDS IN WHICH CASE TWC STANDARDS SHALL APPLY.

   D. NO PIPE SHALL BE LAID WHEN THE TRENCH CONDITIONS OR THE WEATHER IS UNSUITABLE FOR SUCH WORK, EXCEPT BY PERMISSION OF TWC.

   E. EACH SECTION OF PIPE SHALL REST UPON THE PIPE BED FOR THE FULL–LENGTH BARREL, WITH RECESSES EXCAVATED TO ACCOMMODATE BELLS AND JOINTS. ANY PIPE WHICH HAS A GRADE OR JOINT DISTURBED AFTER LYING SHALL BE TAKEN UP AND RE–LAID.

   F. ANY SECTION OF PIPE ALREADY LAID WHICH IS FOUND TO BE DEFECTIVE OR DAMAGED SHALL BE REPLACED WITH NEW PIPE WITHOUT ADDITIONAL COST TO TWC.

   G. USE DUCTILE IRON FITTING WITH MECHANICAL JOINT AND RESTRAIN PER TWC ENGINEERING DESIGN CRITERIA ON ALL PIPE REGARDLESS OF PIPE MATERIAL UNLESS OTHERWISE INDICATED ON PLANS.

   H. CONTRACTOR SHALL CUT DUCTILE IRON PIPE ONLY AS NECESSARY TO COMPLY WITH ALIGNMENT SHOWN ON THE DRAWINGS.

9. SECTION 9 –TRENCH EXCAVATION

   A. ALL EXCAVATIONS SHALL BE OPEN CUT, WITH BANKS OF TRENCHES KEPT AS NEARLY VERTICAL AS POSSIBLE IN ACCORDANCE WITH OSHA REQUIREMENTS.

   B. WATER MAINS MAY BE OFFSET TO ONE SIDE OF A TRENCH BUT A MINIMUM OF 6"CLEARANCE MUST BE MAINTAINED BETWEEN THE TRENCH WALL AND THE WATER MAIN.

   C. SEE TRENCHING REQUIREMENTS BELOW:

TRENCHING REQUIREMENTS

PIPE DIAMETER (INCHES)	MINIMUM TRENCH WIDTH	MINIMUM TRENCH DEPTH
4"	16"	36"
6"	18"	42"
8"	20"	44"
12"	30"	52"
16"	36"	56"
>16"	DIAMETER + 24"	DIAMETER + 40"

   D. THE TRENCH FLOOR SHALL PROVIDE A UNIFORM BEARING FOR EACH FULL LENGTH OF PIPE SECTION. EXCAVATE BELL HOLES AFTER THE BEDDING HAS BEEN GRADED. PERFORM ALL EXCAVATIONS OF WHATEVER SUBSTANCE ENCOUNTERED TO THE DEPTHS SHOWN OR INDICATED ON THE DRAWINGS.

   E. WHEN APPROPRIATE, TWC WILL ALLOW CUT OR FILL TECHNIQUES TO BE USED TO LEVEL AN AREA FOR EXCAVATION.

10. SECTION 10 –BEDDING, BACKFILL, COMPACTION, AND FINAL GRADING

   A. FOR ALL WATER LINES CROSSING COUNTY OR STATE ROADWAYS, THE PROVISIONS FOR TRENCH COMPACTION AND BACKFILL AS ESTABLISHED BY THESE AGENCIES SHALL BE MET. WHERE THESE PROVISIONS AND THE TWC ENGINEERING DESIGN CRITERIA ARE IN CONFLICT, THE MORE STRINGENT STANDARD SHALL APPLY.

   B. BEDDING

      a. PIPE SHALL BE BEDDED WITH A MINIMUM OF 6"OF THE SAWS MODIFIED GRADE 5 BEDDING. SCREENING OF EXCAVATED TRENCH MATERIAL FOR BEDDING MAY BE ALLOWED USING A 1"OR 1–1/4"SCREEN UNDER NO CIRCUMSTANCE WILL ROCKS LARGER THAN 2"BE ALLOWED IN BEDDING.

      b. BEDDING OF ALL WATER MAINS SHALL ADHERE TO THE STANDARD BEDDING DETAILS BASED ON BOTH CURRENT AND PROPOSED USAGE OF THE AREA ABOVE THE PIPE, WHICHEVER IS MORE STRINGENT.

   C. BACKFILL

      a. WHEN, IN THE OPINION OF TWC, MATERIAL EXCAVATED FROM THE TRENCH IS UNSUITABLE BACKFILL OR WHEN IT IS REQUIRED BY THE JURISDICTIONAL AGENCY, SUITABLE BACKFILL SHALL BE FURNISHED AND PLACED BY THE CONTRACTOR.

      b. ALL UNSUITABLE MATERIAL AND EXCESS BACKFILL SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR CONCURRENTLY WITH THE INSTALLATION OF THE MAIN.

      c. BACKFILL SHALL NOT BE PLACED UNTIL THE PIPELINE HAS BEEN INSPECTED BY TWC. BACKFILL MATERIAL SHALL NOT BE DROPPED DIRECTLY UPON THE PIPELINE. THE BACKFILL MATERIAL SHALL BE DEPOSITED FROM ONE END OF THE TRENCH UNIFORMLY ON BOTH SIDES OF THE PIPE.

      d. BACKFILL FOR HAND TAMPING SHALL BE DEPOSITED IN LAYERS NOT TO EXCEED 4"THICKNESS AND FOR MECHANICAL TAMPING NOT TO EXCEED 6". CARE SHALL BE TAKEN NOT TO INJURE THE PIPE WHILE ENSURING THOROUGH CONSOLIDATION. WHERE APPROPRIATE, EXCESS MATERIAL SHALL BE HEAPED OVER THE TRENCH TO ALLOW FOR SETTLEMENT.

   D. COMPACTION

      a. SEE TWC STANDARD DETAIL FOR COMPACTION REQUIREMENTS.

   E. FINAL GRADING

      a. ALL STREETS ARE TO BE RESTORED TO THEIR ORIGINAL CONDITION WITH AT LEAST THE SAME AMOUNT OF PROPERLY COMPACTED SUB GRADE AND PAVEMENT.

      b. FINAL GRADING OF THE AREA SURROUNDING THE TRENCH EXCAVATION SITE SHALL NOT INTERRUPT THE NATURAL DRAINAGE COURSE OF THE SITE. THE AREA SHALL BE RELATIVELY FREE OF LARGE ROCKS AND OTHER DEBRIS THAT IS GREATER THAN THAT OF ORIGINAL CONDITIONS.

WATER NOTES

1. SECTION 1 –SYSTEM DESIGN AND FLOW CRITERIA

   A. LINE SIZING CRITERIA

      a. SEE WATER SECTION 1 OF TWC ENGINEERING DESIGN CRITERIA.

   B. MINIMUM LINE SIZE

      a. THE MINIMUM PIPE SIZE FOR DISTRIBUTION MAINS SHALL BE 4 INCHES, UNLESS OTHERWISE AUTHORIZED BY TWC. THE MINIMUM SIZE FOR DISTRIBUTION MAINS SERVING FIRE HYDRANTS AND FIRE HYDRANT BRANCHES SHALL BE 6 INCHES IN DIAMETER.

   C. WATER LINE ROUTING AND LOOPING

      a. CONTRACTOR SHALL ESTABLISH PIPE GRADES USING TOP OF FINISHED GRADE UNLESS OTHERWISE INDICATED ON PLANS.

      b. CONTRACTOR SHALL GRADE MAIN TO AVOID USE OF AIR VALVES.

      c. ALL ROAD CROSSING UNDER COMAL COUNTY ROADWAYS SHALL REQUIRE A SEPARATE PERMIT FROM THE COMAL COUNTY ENGINEER. CONTRACTOR IS RESPONSIBLE FOR AQUIRING ALL NECESSARY PERMITS AND SHALL CONSTRUCT ALL CROSSINGS IN ACCORDANCE WITH COMAL COUNTY STANDARDS.

      d. CONTRACTOR SHALL CONSTRUCT ALL CROSSINGS WITH SANITARY SEWER FACILITIES IN ACCORDANCE WITH THE MOST RECENT VERSION OF APPLICABLE TCEQ STANDARDS.

   D. WATER LINE EASEMENTS

      a. SEE WATER SECTION 1 OF TWC ENGINEERING DESIGN CRITERIA.

   E. DEPTH OF COVER

      a. COVER AS MEASURED FROM FINISHED GRADE TO TOP OF THE PIPELINE SHALL BE A MINIMUM OF 30 INCHES FOR PIPE DIAMETERS UP TO AND INCLUDING 12 INCHES. DEPTH OF COVER FOR PIPES 14 INCHES AND GREATER IN DIAMETER SHALL BE A MINIMUM OF 36 INCHES. EXCEPTIONS MUST BE APPROVED BY TWC AND MAY REQUIRE 4 INCHES OF CONCRETE ABOVE THE PIPING IN AREAS WHERE MINIMUM COVER CANNOT BE OBTAINED.

      b. DEPTH OF COVER AND TRENCH WIDTH REQUIREMENTS CAN BE FOUND IN THE STANDARD DETAIL FOR TRENCH CONSTRUCTION.

2. SECTION 2 –CONNECTION TO EXISTING WATER MAINS

   A. TAPPING SLEEVES AND VALVES

      a. TAPPING SLEEVES FOR SIZE–ON–SIZE CONNECTIONS ARE NOT ALLOWED.

      b. TAPPING SLEEVES SHALL HAVE AN OUTLET FLANGE PER ANSI B16.1.

      c. FOR TAPPING PVC AND PVCO PIPE, TAPPING SLEEVES SHOULD BE STAINLESS STEEL MANUFACTURED BY SMITH BLAIR OR POWERSEAL.

      d. FOR TAPPING DUCTILE IRON PIPE, USE THE MUELLER DUCTILE IRON TAPPING SLEEVE WITH EPOXY COATING.

      e. TAPPING VALVES SHALL BE MECHANICAL JOINT OUTLET, NON–RISING STEM, RESILIENT SEAT GATE VALVES MEETING THE APPLICABLE REQUIREMENTS OF AWWA C509 AND C550. TAPPING VALVES SHALL BE SPECIFICALLY DESIGNED FOR PRESSURE TAPPING WITH SUFFICIENT SEAT OPENING TO ALLOW FULL DIAMETER TAPS TO BE MADE.

   B. CONTRACTOR SHALL FOLLOW METHODS AND PROCEDURES OF SHUTDOWN AS DIRECTED BY THE TWC STAFF.

   C. CONTRACTOR SHALL NOTIFY CONSUMERS OF, AND COORDINATE ALL SHUTDOWNS WITH TWC, PER TWC GUIDELINES.

   D. ALL TAPS 2"AND LARGER MADE TO EXISTING WATER MAINS SHALL BE MADE BY A VENDOR APPROVED BY TWC ONLY.

   E. WATER MAINS SHALL BE TAPPED IN SUCH A MANNER AS TO AVOID DISTURBANCE OR DISRUPTION TO THE OPERATION OF THE MAIN IN SERVICE AND TO PROTECT THE POTABLE WATER SUPPLY FROM CONTAMINATION.

   F. IF APPLICABLE, THE CONTRACTOR SHALL DETERMINE THE OUTSIDE DIAMETER OF THE EXISTING MAIN BEFORE ORDERING THE SLEEVE.

   G. VALVES ON EXISTING MAINS SHALL ONLY BE OPERATED BY TWC PERSONNEL.

   H. WHEN SERVICE MUST BE INTERRUPTED TO EXISTING CUSTOMERS DURING CONSTRUCTION OF A TAP OR ADDITION OF APPURTENANCES:

      a. THE CONTRACTOR SHALL PROVIDE 3 DAYS'NOTICE TO TWC.

      b. THE CONTRACTOR OR DEVELOPER SHALL BE REQUIRED TO NOTIFY EXISTING CUSTOMERS AS DIRECTED BY TWC.

3. SECTION 3 –CROSS–CONNECTION CONTROL AND BACKFLOW PREVENTION

   A. SEE WATER SECTION 3 OF TWC ENGINEERING DESIGN CRITERIA.

4. SECTION 4 –FIRE PROTECTION STANDARDS

   A. FIRE FLOW

      a. SEE WATER SECTION 4 OF TWC ENGINEERING DESIGN CRITERIA.

   B. FIRE HYDRANT SPACING

      a. IN AREAS WHERE LOCAL MUNICIPAL CODES ARE ENFORCED FOR DEVELOPMENT, AND CONFLICT WITH THIS INFORMATION, THE MORE STRINGENT REQUIREMENT SHALL APPLY.

      b. RESIDENTIAL AREAS: FIRE HYDRANTS SHALL BE PLACED A MAXIMUM OF 1,000 FEET APART MEASURED ALONG THE RIGHTS–OF–WAY WITH A MAXIMUM SEPARATION OF 500 FEET TO THE LAST LOT.

      c. COMMERCIAL AND APARTMENT AREAS: FIRE HYDRANTS SHALL BE PLACED EVERY 500 FEET ALONG THE RIGHTS–OF–WAY WITH A MAXIMUM SEPARATION OF 250 FEET TO THE LAST LOT. THE REQUIRED FIRE FLOW SHALL BE DETERMINED BY TWC, OR LOCAL AGENCY REQUIREMENT, WHICHEVER IS GREATER.

      d. MANUFACTURING AND INDUSTRIAL AREAS: FIRE HYDRANTS SHALL BE PLACED EVERY 300 FEET ALONG THE RIGHTS–OF–WAY WITH A MAXIMUM SEPARATION OF 150 FEET TO THE LAST LOT. THE REQUIRED FIRE FLOW SHALL BE DETERMINED BY TWC, OR LOCAL AGENCY REQUIREMENT, WHICHEVER IS GREATER.

   C. FIRE HYDRANT LOCATION

      a. HYDRANTS SHALL BE LOCATED WITHIN ONE FOOT OF THE SIDE LOT LINES, BETWEEN ADJACENT PROPERTIES IN RESIDENTIAL AREAS, OR IN FRONT OF COMMERCIAL AND INDUSTRIAL PROPERTIES AS REQUIRED.

      b. HYDRANTS SHALL BE A MINIMUM OF 2 FEET FROM EDGE OF RIGHTS–OF–WAY OR CURB IN AREAS WITHOUT SIDEWALKS AND SHALL NOT OBSTRUCT SIDEWALKS.

      c. THE LOCATION OF NEW FIRE HYDRANTS SHALL BE IDENTIFIED WITH A BLUE REFLECTIVE PAVEMENT MARKER INSTALLED ON THE ROADWAY. THE REFLECTIVE MARKER SHALL BE LOCATED PERPENDICULAR TO THE HYDRANT, IN THE CENTER OF THE LANE CLOSEST TO THE HYDRANT.

      d. CONTRACTOR SHALL MAINTAIN MINIMUM 10 FEET CLEARANCE BETWEEN HYDRANTS AND DRIVEWAYS.

   D. FIRE HYDRANT REQUIREMENTS

      a. THE INTERIOR OF THE HYDRANT SHALL BE THOROUGHLY INSPECTED AND CLEANED OF ALL FOREIGN MATTER BEFORE BEING SET IN PLACE.

      b. FIRE HYDRANTS SHALL BE OF THE DRY BARREL, COMPRESSION TYPE AND SHALL COMPLY WITH AWWA C502 "STANDARD FOR DRY–BARREL FIRE HYDRANTS"AND BE MUELLER CENTURION 200 TO 250 CLASS OR CLOW MEDALLION FIRE HYDRANTS. USE EPDM FOR O–RINGS AND SEATS (RUBBERS).

      c. HYDRANT OPERATING NUT SHOULD OPEN LEFT.

      d. GASKETS SHALL BE FURNISHED IN ALL OUTLET CAPS. THE BARREL LENGTH SHALL BE AS REQUIRED TO ACCOMMODATE THE DEPTH OF THE MAIN.

      e. HYDRANTS SHALL BE INSTALLED AT LOCATIONS SHOWN ON THE DRAWINGS. IF ONE OR MORE HYDRANTS CANNOT BE INSTALLED AS SHOWN BECAUSE OF OBSTRUCTIONS, DRIVEWAYS, OR CHANGES, NEW LOCATIONS SHALL BE REQUESTED OF TWC OR THE FIRE DEPARTMENT HAVING JURISDICTION.

      f. EACH HYDRANT SHALL STAND PLUMB, WITH STEAMER CONNECTION FACING STREET AND THE 2.5"NOZZLES ON EACH SIDE AT A 90 DEGREE ANGLE TO THE STREET.

   E. STANDBY SERVICE LINES (FIRE LINES)

      a. STANDBY SERVICE LINES (FIRE LINES) SHALL BE DESIGNED WITH ADEQUATE CROSS–CONNECTION AND BACKFLOW PREVENTION MEASURES AS WELL AS A METHOD FOR DETERMINING WATER FLOW. SEE THE CROSS–CONNECTION CONTROL AND BACKFLOW PREVENTION PROGRAM FOR MORE INFORMATION.

      b. IT IS NOT NECESSARY TO INSTALL A METER ON A STANDBY SERVICE LINE. A DETECTOR CHECK IS REQUIRED. AN EFFICIENT WAY TO MEET BOTH CROSS CONNECTION AND BACKFLOW PREVENTION REQUIREMENTS WITH ONE DEVICE IS TO INSTALL A DOUBLE CHECK DETECTOR ASSEMBLY (DCDA) ON THE STANDBY SERVICE LINE. THE DCDA SHALL BE INSTALLED AS CLOSE AS POSSIBLE TO THE LOCATION OF CONNECTION TO THE PUBLIC MAIN AND SHALL BE ACCESSIBLE BY TWC PERSONNEL. DOUBLE CHECK VALVES, DOUBLE CHECK DETECTOR ASSEMBLIES, REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTERS, AND OTHER APPURTENANCES IF INSTALLED UNDERGROUND

      c. MUST HAVE A VAULT THAT MEETS THE STANDARDS OUTLINED IN THIS DOCUMENT. ALL UNDERGROUND INSTALLATIONS MUST BE REVIEWED AND APPROVED BY TWC.

      d. THE BACKFLOW PREVENTION DEVICE WITH FLOW DETECTION SHALL BE INSTALLED ON THE LINE AS CLOSE AS POSSIBLE TO WHERE THE FIRE LINE CROSSES THE PROPERTY LINE.

5. SECTION 5 –VAULTS

   A. CONTRACTOR SHALL PROVIDE TWC ENGINEERING STAFF WITH SPECIFIC INFORMATION ON ANY VAULT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.

   B. VAULTS SHALL BE CONSTRUCTED OF CONCRETE WITH DOUBLE SPRING LOADED, SKID RESISTANT, STEEL DOOR WITH AUTOMATIC HOLD OPEN FEATURE.

   C. VAULTS SHALL BE SIZED IN ORDER TO HOUSE THE APPURTENANCE WITH A MINIMUM 2'OF SPACING AROUND IT FOR ROUTINE MAINTENANCE AND INSPECTION.

   D. VAULTS SHALL BE SET 2" ABOVE FINISHED GRADE BUT SHOULD NOT EXCEED 6" ABOVE FINISHED GRADE WITHOUT TWC ENGINEERING STAFF APPROVAL.

   E. EACH END OF THE VAULT SHALL HAVE A CIRCULAR OPENING 2" LARGER IN DIAMETER THAN THE PIPE TO ALLOW FOR PIPE PENETRATION. THESE OPENINGS SHALL BE SEALED WITH LINK SEALS UPON INSERTION OF THE PIPING.

   F. FOR ELECTRONICALLY CONTROLLED VALVES, PROVIDE THE FOLLOWING VAULT DESIGN:

      a. THE VAULT FLOOR SHOULD BE CONCRETE.

      b. PROVIDE AN APPROPRIATELY–SIZED SUMP AND SUMP PUMP DRAINING WATER TO ABOVE FINISHED GRADE ON VAULT EXTERIOR.

   G. FOR HYDRAULICALLY CONTROLLED VALVES, PROVIDE THE FOLLOWING VAULT DESIGN:

      a. THE VAULT FLOOR SHALL CONSIST OF 1"–11/2" WASHED ROCK 12" THICK. THIS SAME WASHED ROCK WILL SERVE AS THE FOUNDATION AND THE BOTTOM 18"OF BACKFILL FOR THE VAULT.

      b. PROVIDE AN APPROPRIATELY–SIZED FRENCH DRAIN AROUND VAULT FOR PROPER DRAINAGE

   H. ALL VAULTS AND VAULT DOORS PLACED IN AREAS WHERE TRAFFIC MAY CROSS OVER IT MUST MEET H–20 LOAD STANDARDS.

6. SECTION 6 –WATER MAIN MATERIALS

   A. DUCTILE IRON PIPE, FITTINGS, AND GASKETS

      a. MECHANICAL JOINTS CONSISTING OF BELL, SOCKET, GLAND, GASKET, BOLTS AND NUTS SHALL CONFORM TO ANSI A21.11.

      b. ALL DUCTILE IRON PIPE AND FITTINGS SHOULD BE PRESSURE CLASS 350 UNLESS OTHERWISE APPROVED BY TWC AND SHALL CONFORM TO ANSI/AWWA A21.10/C110 OR A21.53/C153.

      c. PIPE AND FITTINGS SHALL HAVE AN EXTERIOR BITUMINOUS COATING IN ACCORDANCE WITH ANSI A21.51. PIPE AND FITTING INTERIOR SHALL HAVE A CEMENT MORTAR LINING WITH AN ASPHALTIC SEAL COAT CONFORMING TO ANSI/AWWA A21.4/C104.

      d. PIPE AND FITTINGS SHOULD BE DOMESTIC PRODUCTS. FOREIGN MANUFACTURING WILL NOT BE ACCEPTED.

      e. PIPE AND FITTING GASKETS, CONFORMING TO ANSI A21.11, SHALL BE MADE OF EPDM (ETHYLENE PROPYLENE DIENE MONOMER) OR SBR (STYRENE–BUTADIENE RUBBER).

   B. PVC AND PVCO PIPE

      a. PVC PIPE SHOULD BE SDR–21 ASTM D–2241 CLASS 200.

      b. PVCO PIPE SHOULD BE AWWA C909 PVCO PC235.

      c. ALL PVC AND PVCO PIPE FOR POTABLE WATER MAINS SHALL BE BLUE IN COLOR.

      d. ALL PVC AND PVCO PIPE AND FITTINGS SHALL BEAR THE APPROVAL SEAL OF THE NATIONAL SANITATION FOUNDATION (NSF) THAT WILL REMAIN LEGIBLE DURING NORMAL HANDLING, STORAGE, AND INSTALLATION.

      e. FITTINGS FOR PVC AND PVCO PIPE (4 INCHES THROUGH 8 INCHES) SHALL BE DUCTILE IRON MECHANICAL JOINT WITH A MINIMUM PRESSURE RATING OF 250 PSI AND SHALL CONFORM TO THE REQUIREMENTS OF ANSI/AWWA A21.10/C110 OR A21.53/C153.

   C. HDPE PIPE

      a. HDPE PIPE SHOULD BE IPS DR11 RATED TO 200 PSI, OR GREATER AS NEEDED BASED ON SPECIFIC PROJECT REQUIREMENTS. SEE WATER SECTION 6 OF TWC ENGINEERING DESIGN CRITERIA.

      b. HDPE PIPE AND FITTINGS SHOULD BE FUSED UNLESS OTHERWISE NOTED BY TWC.

7. SECTION 7 –WATER MAIN PIPE RESTRAINTS

   A. THRUST BLOCKING

      a. ALL TEE'S, CROSS'S AND ELBOWS MUST HAVE A CONCRETE THRUST BLOCK SUPPORT. THRUST BLOCKING SHALL BE CONSTRUCTED IN ACCORDANCE WITH TWC STANDARD DETAILS.

      b. THE CONCRETE MUST BE POURED WITH ADEQUATE CONTAINMENT IN PLACE TO AVOID LOSS OF CONCRETE FROM UNDER AND AT THE POINT OF THRUST ON THE FITTING.

      c. THE USE OF ROCKS, BRICKS, AND DRY BAGGED CEMENT ARE NOT CONSIDERED AS ADEQUATE THRUST BLOCKING AND ARE NOT PERMITTED.

   B. PVC AND PVCO PIPE JOINT AND FITTING RESTRAINTS

      a. ALL PVC AND PVCO PIPE JOINTS SHALL BE RESTRAINED WITH EXTERNAL BELL RESTRAINTS.

      b. ALL DUCTILE IRON FITTINGS ON PVC PIPE SHOULD BE RESTRAINED WITH RETAINER GLANDS, MEGALUG MANUFACTURED BY EBAA OR APPROVED EQUAL.

8. SECTION 8 –WATER MAIN VALVES

   A. GATE VALVES

      a. BURIED AND ABOVE–GROUND GATE VALVES SHALL BE OF THE RESILIENT SEAT TYPE MEETING THE REQUIREMENTS OF AWWA C509, AND COATED PER AWWA C550 AS MANUFACTURED BY THE MUELLER OR CLOW COMPANY.

      b. GATE VALVES SHALL HAVE NON–RISING STEMS AND SHALL OPEN WHEN THE NUT IS TURNED COUNTERCLOCKWISE.

      c. BURIED GATE VALVES SHALL BE FURNISHED WITH 2 INCH SQUARE AWWA OPERATING NUTS.

      d. ABOVE–GROUND GATE VALVES SHALL BE FURNISHED WITH A HANDWHEEL.

   B. VALVE BOXES

      a. VALVE BOXES FOR ALL VALVES INSTALLED BELOW GROUND SHALL CONSIST OF A PVC RISER, AND A CAST IRON "LINCOLN HAT"BOX AND LID.

      b. VALVE BOX EXTENSIONS SHALL BE INSTALLED TO RESERVE A MINIMUM OF 50% OF THE ADJUSTMENT FOR A FUTURE EXTENSION.

      c. THE OPERATING NUT SHOULD NOT EXCEED 36 INCHES BELOW FINISHED GRADE. HOWEVER, IF CONDITIONS REQUIRE THAT THE OPERATING NUT EXCEEDS 36 INCHES, THEN AN EXTENSION, MECHANICALLY ATTACHED TO THE VALVE, SHALL BE ADDED, AND THE TOP OF THE EXTENSION SHALL NOT EXCEED 12 INCHES BELOW FINISHED GRADE.

   C. AIR RELEASE VALVES

      a. AIR RELEASE VALVES SHALL BE APCO #55 OR EQUIVALENT SUBJECT TO APPROVAL BY TWC.

      b. AIR RELEASE VALVES SHALL BE HOUSED IN AN 18"X24" OR LARGER CONCRETE METER BOX WITH A CAST IRON RING AND LID WITH THE WORD WATER CAST INTO THE LID.

      c. AIR RELEASE VALVE ASSEMBLIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH TWC STANDARD DETAILS.

   D. PRESSURE REDUCING VALVES (PRV)

      a. STEEL BRAIDED LINES FROM PRV TO REGULATOR MUST BE INSTALLED ON THE PILOT SYSTEM. SEE WATER SECTION 8 OF TWC ENGINEERING DESIGN CRITERIA.

9. SECTION 9 –PIPE AND VALVE LOCATING

   A. ELECTRONIC LOCATOR TAPE

      a. ALL BURIED WATER MAINS SHALL HAVE A SUITABLE ELECTRONIC LOCATOR TAPE BURIED OVER THE WATER MAIN APPROXIMATELY ONE FOOT ABOVE THE CROWN OF THE PIPE AT THE TOP OF THE BEDDING MATERIAL.

      b. THE TAPE SHALL BE CONTINUOUS BETWEEN VALVES.

      c. THE TAPE SHALL BE AT LEAST 4.5 MILS THICK, 6 INCH MINIMUM WIDTH AND MADE WITH AN ALUMINUM MATERIAL SANDWICHED BETWEEN 2 LAYERS OF POLYETHYLENE.

      d. THE TAPE SHALL HAVE IMPRINTED IN PERMANENT BLACK INK WITH 1 INCH LETTERS "CAUTION WATER MAIN BURIED BELOW" ON BLUE BACKGROUND.

   B. TRACER WIRE

      a. ALL BURIED WATER MAINS SHALL HAVE TRACER WIRE TAPED ON TOP OF THE WATER MAIN. SEE STANDARD DETAILS FOR INSTALLATION REQUIREMENTS.

      b. THE WIRE SHALL BE CONTINUOUS BETWEEN VALVES AND SECURED TO EACH VALVE WITH A TEST STATION. TEST STATION SHOULD BE SNAKEPIT ACCESS POINT MANUFACTURED BY COPPERHEAD INDUSTRIES.

      c. THE WIRE SHALL BE BLUE 12 GAUGE COPPER–CLAD MANUFACTURED BY COPPERHEAD INDUSTRIES, SEE TWC STANDARD DETAIL.

   C. VALVE AND LINE MARKERS

      a. ALL TWC CROSS–COUNTRY MAIN LINE VALVES WILL HAVE A 2"X 54"MARKER POST INSTALLED 12"BEHIND THE VALVE BOX, UNLESS OTHERWISE DIRECTED BY TWC. THE MARKER POST SHOULD BE BURIED AND CONCRETED INTO PLACE 18"DEEP AND PAINTED BLUE. 2"MARKER PIPE MUST BE FILLED WITH CONCRETE PER TWC STANDARD DETAIL.

10. SECTION 10 –SERVICE INSTALLATION REQUIREMENTS

   A. WATER SERVICES ARE ONLY ALLOWED ON WATER LINES 16" AND SMALLER.

   B. WATER METERS AND METER BOX INSTALLATION

      a. THE CONTRACTOR SHALL FURNISH ALL LABOR AND MATERIAL REQUIRED TO INSTALL THE SERVICES. THE METER WILL BE FURNISHED AND INSTALLED BY TWC. THE CONTRACTOR SHALL LEAVE THE PROPER SPACE BETWEEN THE ANGLE METER STOP OR VALVE IN THE METER BOX AND CONSUMER'S PIPING SO THE METER MAY BE EASILY INSTALLED IN THE SPACE PROVIDED.

      b. METER BOXES SHALL, WHERE POSSIBLE, BE SET SQUARE AND LEVEL 2" ABOVE THE FINISHED GRADE OF THE SURROUNDING AREA IN ORDER TO AVOID RUN–OFF WATER. THEY SHALL BE LOCATED AT THE EDGE OF PROPERTY OR ROW LINE AND 6"OUTSIDE THE BACK OF THE CURB OR SIDEWALK.

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01/30/2026



NOTES:

PROMENADE AT SINGING OAKS

20285 STATE HWY 46 W. BULVERDE, TX 78163

No.	DESCRIPTION	DATE
1	Issue for permit	9/2/2025

SCALE:

DRAWN BY: MG

CHK BY: JK

APP BY: ESP

DATE: JANUARY 2026

PROJECT NO.: 643.001

SHEET TITLE:

CONSTRUCTION NOTES (1 OF 2)

SHEET NUMBER:

C0.1

Drawing Name: M:_Projects\643 - MB&B\001 - Promenade at Singing Oaks Drainage\CDs\643.001_COVR.dwg User: michaelg Jan 30, 2026 - 12:19pm

TxDOT GENERAL NOTES (FEBRUARY 2, 2026)

1. THE DESIGN AND CONSTRUCTION SHALL PROVIDE FOR PRESERVATION OF ALL EXISTING FEATURES IN OR NEAR THE STATE RIGHT-OF-WAY BEING AFFECTED BY THE WIDENING. THIS INCLUDES, BUT IS NOT LIMITED TO, EXISTING DRIVEWAY GATE SET-BACKS, RELOCATION OF ELECTRONIC PRIVATE PROPERTY GATES, MAILBOX TURNOUTS, MAILBOXES AND SUPPORTS, CATTLE GUARDS, ROADWAY SIGNING, EXISTING RIP-RAP OR OTHER PERMANENT EROSION CONTROL FEATURES, DIVERSIONARY BERMS, SWALES, DITCHES, AMOUNT AND CONFIGURATION OF DRIVEWAY FLARES AND DRIVEWAY CENTERLINE PROFILE, GUARDRAIL AND END TREATMENTS, ETC. EXISTING DRIVEWAY CULVERTS AND SAFETY END TREATMENTS IF AFFECTED BY ROADWAY WIDENING SHALL BE RECONSTRUCTED TO PRESERVE EXISTING FRONT SLOPES. THE COORDINATION OF ITEMS THAT AFFECT EXISTING PRIVATE PROPERTY ACCESS, MAIL DELIVERY, ETC. IS THE RESPONSIBILITY OF THE DEVELOPER. THE WRITTEN CONCURRENCE OF ANY AFFECTED PROPERTY OWNERS FOR CONSTRUCTION AFFECTING THEIR DRIVEWAYS OR MAILBOX TURNOUTS SHALL BE OBTAINED BY THE DEVELOPER AND PROVIDED TO TXDOT PRIOR TO TXDOT DRIVEWAY PERMITS BEING ISSUED.

2. FOR WORK IN STATE RIGHT-OF-WAY, THE DEVELOPER SHALL BE RESPONSIBLE FOR COORDINATION OF, OBTAINING PERMITS FOR, AND COMPLYING WITH ANY AND ALL STATE AND FEDERAL REGULATORY AGENCIES AND ALL APPLICABLE LAWS, RULES, AND REGULATIONS PERTAINING TO THE REGULATION OF DRAINAGE, PRESERVATION OF CULTURAL RESOURCES, NATURAL RESOURCES, AND THE ENVIRONMENT. THE DEVELOPER SHALL BE RESPONSIBLE FOR DETERMINING IF THE PROJECT IS IN AN ENVIRONMENTALLY SENSITIVE AREA SUCH AS WITHIN THE RECHARGE OR CONTRIBUTING ZONE OF PROTECTED AQUIFERS, AND SHALL ACT IN ACCORDANCE WITH ALL RESOURCE AGENCY REGULATIONS.
   A. IF TXDOT HAS A CZP OR WPAP ON FILE WITH TCEQ, THE DEVELOPER SHALL BE RESPONSIBLE FOR AMENDING TXDOT'S PERMIT, OBTAINING TCEQ APPROVAL, AND PROVIDING TXDOT WITH THE APPROVED AMENDED PERMIT. THE AMENDED PERMIT SHALL ADDRESS THE RELOCATION OF TXDOT'S PERMANENT BMP'S, INCLUDING VEGETATIVE FILTER STRIPS THAT MAY BE IMPACTED BY WORK DONE WITHIN TXDOT ROW.
   B. IF TXDOT DOES NOT HAVE A CZP OR WPAP ON FILE WITH TCEQ, ANY PERMANENT BMP'S, INCLUDING VEGETATIVE FILTER STRIPS, THAT MAY BE REQUIRED IN ORDER TO TREAT ADDITIONAL IMPERVIOUS COVER PLACED IN TXDOT ROW SHALL BE LOCATED IN PRIVATE PROPERTY AND THE DEVELOPER WILL PROVIDE TXDOT WITH EVIDENCE OF TCEQ APPROVAL OF THE ADDITIONAL IMPERVIOUS COVER.
   C. THE DEVELOPER SHALL NOT OPERATE UNDER RESOURCE AGENCY ENVIRONMENTAL CLEARANCE OF A PREVIOUS OR ONGOING TXDOT PROJECT, BUT SHALL OBTAIN SEPARATE RESOURCE/ENVIRONMENTAL AGENCY CLEARANCE.

3. IF WASTE AREAS OR MATERIAL SOURCE AREAS RESULT FROM THIS PROJECT, THE CONTRACTOR SHALL FOLLOW ALL SPECIFICATIONS IN THE PLANS UNLESS SUPERSEDED BY THE REQUIREMENTS OF THE TEXAS AGGREGATE QUARRY AND PIT SAFETY ACT. IN ADDITION, IT IS REQUESTED THAT THESE AREAS NOT BE VISIBLE FROM ANY HIGHWAY ON THE STATE SYSTEM.
   A. ANY MATERIALS REMOVED AND NOT REUSED AND DETERMINED TO BE SALVAGEABLE SHALL BE STORED WITHIN THE PROJECT LIMITS AT AN APPROVED LOCATION OR DELIVERED UNDAMAGED TO THE STORAGE YARD AS DIRECTED. PROPERLY DISPOSE UNSALVAGEABLE MATERIALS IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS. DEFACE TRAFFIC SIGNS SO THAT THEY WILL NOT REAPPEAR IN PUBLIC AS SIGNS.

4. ANY TREES EXISTING WITHIN STATE RIGHT OF WAY ARE THE NATURAL RESOURCES OF THE STATE AND WILL BE PROTECTED. IN THE EVENT THAT TREES MUST BE REMOVED, TXDOT WRITTEN PERMISSION WILL BE RECEIVED IN ADVANCE AND WILL IDENTIFY THE SPECIFIC TREES BY SPECIES, DIAMETER AND LOCATION TO BE REMOVED. THE DEVELOPER WILL BE FINED FOR ANY UNPERMITTED REMOVAL OF TREES.
   A. IN THE EVENT THAT THERE ARE AREAS OF PUBLIC ROW DEDICATION OR RESERVATION RESULTING FROM THE PLATTING PROCESS, THE AREA WITHIN THE PUBLIC ROW DEDICATION DOES NOT PASS INTO TXDOT OWNERSHIP AS A RESULT OF PLATTING. HOWEVER, THE DEVELOPER WILL REMOVE ANY OLD FENCING, GATES, AND UNSIGHTLY VEGETATION WITHIN THE AREA OF THE ROW DEDICATION, LEAVING IT IN AN AESTHETICALLY PLEASING CONDITION. THE AREA OF ROW DEDICATION SHALL NOT BE MOWED OR OTHERWISE MAINTAINED BY TXDOT. PRIOR TO REMOVAL OF TREES IN THE AREA OF ROW DEDICATION, THE TREES SHALL FIRST BE EVALUATED IN ACCORDANCE WITH THE REQUIREMENTS OF LOCAL TREE PROTECTION ORDINANCES AND THE WRITTEN CONCURRENCE OF THE LOCAL JURISDICTION SHALL BE PROVIDED TO TXDOT.

5. THE DEVELOPER SHALL MAINTAIN AT THE PROJECT SITE, AND MAKE AVAILABLE UPON REQUEST, COPIES OF ALL APPROVED JOINT ENVIRONMENTAL PLANS AND PERMITS RELATING TO WORK IN STATE RIGHT OF WAY.

6. PRIOR TO BEGINNING GRADING ACTIVITY, THE CONTRACTOR WILL SET AND MAINTAIN ROADWAY STATIONING, CONTROL POINTS, MARKS, STAKES TO ESTABLISH LINES, SLOPES, GRADES AND CENTERLINES.

7. ANY SLOPES IN STATE RIGHT OF WAY WHICH BECOME STEEPER THAN 3:1 AS A RESULT OF THE WORK WILL BE TREATED WITH 4"THICK REINFORCED CONCRETE RIP-RAP AND BE PROTECTED BY INSTALLATION OF GUARDRAIL AND END TREATMENTS. THIS MAY REQUIRE ADDITIONAL RIP-RAP, GUARDRAIL, OR END TREATMENTS BEYOND THAT SHOWN IN THE PLANS.
   A. UNLESS OTHERWISE SHOWN ON THE PLANS, WHERE EXISTING CONCRETE RIP-RAP IS REMOVED, MODIFIED OR EXTENDED, THE PORTION TO BE REMOVED SHALL BE NEATLY SAW-CUT PRIOR TO REMOVAL AND THE NEW RIP-RAP SHALL BE FORMED TO MATCH THE EXISTING LINES AND GRADES OF THE EXISTING RIP-RAP AND SHALL BE DOWELED INTO THE EXISTING RIP-RAP WITH #3 BARS PLACED AT 12"ON CENTERS. THE DOWEL BARS SHALL BE EPOXIED IN PLACE WITH EPOXY MEETING TXDOT REQUIREMENTS, TO A MINIMUM EMBEDMENT LENGTH OF 9". THIS SHALL APPLY TO ANY TYPE OF CONCRETE RIP-RAP INCLUDING MOW STRIP FOR CABLE BARRIER AND GUARDRAIL SYSTEMS.

8. THE CONTRACTOR SHALL CONTACT THE APPROPRIATE TXDOT MAINTENANCE OFFICE A MINIMUM OF 48 HOURS PRIOR TO COMMENDING WORK IN STATE RIGHT OF WAY TO SCHEDULE A PRECONSTRUCTION MEETING.
   A. DUANE HOFFERICHTER (830) 609-0707 IN COMAL COUNTY (NEW BRAUNFELS)
   B. TRAVIS YOUNG (830) 303-0130 IN GUADALUPE COUNTY (SEGUIN)
   C. JASON PFEIL, (830) 393-3144 IN WILSON COUNTY (FLORESVILLE)

9. STATE RIGHT OF WAY SHALL NOT BE USED AS AN AREA FOR CONTRACTOR PARKING OR FOR STAGING THE RECEIPT OF MATERIALS OR EQUIPMENT.

10. TRAFFIC CONTROL AND CONSTRUCTION BARRICADES SHALL MEET THE REQUIREMENTS OF THE TEXAS MUTCD.

11. THE CONTRACTOR SHALL PROVIDE ADVANCE NOTIFICATION TO THE ENGINEER OF IMPENDING/UPCOMING LANE CLOSURES FOR ALL TEMPORARY AND/OR PERMANENT LANE, RAMP, CONNECTOR, FRONTAGE, SHOULDER, MEDIAN CROSSOVER, ETC. CLOSURES OR DETOURS.

12. ACCESS TO ADJOINING PROPERTY SHALL BE MAINTAINED AT ALL TIMES.

13. UNLESS OTHERWISE NOTED IN THE PLANS AND/OR AS DIRECTED BY THE AREA ENGINEER OR MAINTENANCE SUPERVISOR, DAILY LANE CLOSURES SHALL BE LIMITED ACCORDING TO THE FOLLOWING RESTRICTIONS:
   A. NIGHTTIME: MAINTENANCE SUPERVISOR AND/OR AREA ENGINEER APPROVAL REQUIRED (WITH UNIFORMED OFF DUTY LAW ENFORCEMENT OFFICERS).
   B. WEEKEND CLOSURES: MAINTENANCE SUPERVISOR AND/OR AREA ENGINEER APPROVAL REQUIRED.
   C. WEEKDAYS: LANE CLOSURES SHALL NOT BE PLACED BETWEEN 7:00 A.M. AND 9:00 A.M., AND 4:00 P.M AND 6:00 P.M.

14. NO LANE CLOSURES OR ROADWAY CLOSURES WILL BE PERMITTED FOR THE FOLLOWING KEY DATES AND/OR SPECIAL EVENTS:
   A. BETWEEN DECEMBER 15 AND JANUARY 1.
   B. WEDNESDAY BEFORE THANKSGIVING THRU THE SUNDAY AFTER THANKSGIVING
   C. SATURDAY AND SUNDAY BEFORE MEMORIAL DAY AND LABOR DAY
   D. SATURDAY OR SUNDAY WHEN JULY 4 FALLS ON A FRIDAY OR MONDAY.

15. AT NO TIME WILL THE ROADWAY TRAVEL WAY BE BLOCKED.

16. LANE CLOSURES WILL ONLY BE PERMITTED WITH 48-HOUR PRIOR APPROVAL OF THE TXDOT MAINTENANCE SUPERVISOR. LANE CLOSURES WILL BE PERMITTED ONLY BETWEEN 9: 00 A.M. AND 4: 00 P.M. MONDAY THROUGH FRIDAY.
   A. FOR LANE CLOSURES ON TWO-LANE TWO-WAY ROADWAYS, INCLUDING DURING PILOT CAR OPERATIONS, FLAGGERS SHALL BE PLACED AT THE BEGINNING AND END OF THE WORK ZONE AS WELL AS AT EACH INDIVIDUAL DRIVEWAY AND SIDE ROAD INTERSECTION WITHIN THE LIMITS OF THE WORK ZONE TO CONTROL, WARN, AND DIRECT SIDE ROAD AND DRIVEWAY TRAFFIC OF THE CHANGE IN TRAFFIC OPERATIONS. WHENEVER ONE WAY TRAFFIC CONTROL IS ACCOMPLISHED BY TRAFFIC SIGNALS WORK ZONE FLAGGERS WILL BE SIMILARLY STATIONED AT EACH INDIVIDUAL DRIVEWAY AND SIDE ROAD INTERSECTION WITHIN THE LIMITS OF THE WORK. ALL FLAGGERS SHALL BE IN CONSTANT RADIO CONTACT.

17. A MINIMUM 3:1(H:V) TEMPORARY SAFETY SLOPE OF STABLE COMPACTED MATERIAL SHALL BE REQUIRED ADJACENT TO THE STATE HIGHWAY EDGE OF PAVEMENT AT ALL TIMES DURING NON-WORKING HOURS.

18. ONLY ONE SIDE OF THE ROADWAY SHALL BE UNDER CONSTRUCTION AT A TIME. WORK SHALL BE COMPLETED, AND PAVEMENT EDGES BACKFILLED ON ONE SIDE OF THE ROAD BEFORE WORK MAY BEGIN ON THE OPPOSITE SIDE OF THE ROADWAY.

19. ALL MILLING, PAVING, AND SEAL COAT OPERATIONS SHALL PROCEED IN THE DIRECTION OF TRAFFIC.

20. ANY PAVEMENT EDGE DROP-OFFS BETWEEN 1 AND 2 INCHES IN HEIGHT SHALL HAVE CW 8-11 WARNING SIGNS. ANY PAVEMENT EDGE DROP-OFF 2 INCHES OR GREATER SHALL HAVE A 3:1 COMPACTED SAFETY SLOPE AND CW 8-9A OR CW 8-11 SIGNS PLUS CHANNELIZING DEVICES. PAVEMENT EDGES SHALL BE SHOULDERED UP WITH COMPACTED EMBANKMENT MATERIAL AND 4 INCHES OF TOPSOIL AS SOON AS POSSIBLE AFTER PAVING IS COMPLETED ON THE SIDE OF THE ROAD BEING WIDENED.

21. PROOF-ROLLING OF SUBGRADE IS REQUIRED AND SHALL BE WITNESSED BY TXDOT PRIOR TO PLACEMENT OF PAVEMENT STRUCTURE UNLESS OTHERWISE APPROVED BY THE TXDOT MAINTENANCE SUPERVISOR. THE REQUIREMENT FOR PROOF-ROLLING OF SUBGRADE IS NOT SUPERSEDED BY ANY OTHER REQUIREMENTS INCLUDING THOSE OF ANY GEOTECHNICAL REPORT.

22. ALL FLEXIBLE BASE SHALL HAVE A MINIMUM PLASTICITY INDEX OF 4.

23. ALL COURSES OF ASPHALT CONCRETE PAVEMENT (REGARDLESS OF TYPE) SHALL BE PLACED WITH ASPHALT PAVING EQUIPMENT MEETING THE REQUIREMENTS OF THE 2024 STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MAINTENANCE OF HIGHWAYS, STREETS, AND BRIDGES, ITEM 320, "EQUIPMENT FOR ASPHALT CONCRETE PAVEMENT", UNLESS OTHERWISE APPROVED BY THE MAINTENANCE SUPERVISOR.
   A. TACK COAT SHALL BE APPLIED IN ACCORDANCE WITH THE 2024 STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MAINTENANCE OF HIGHWAYS, STREETS, AND BRIDGES.

24. ALL SURFACE AGGREGATES SHALL MEET THE REQUIREMENTS OF TXDOT FRICTION CLASSIFICATION "B" AND SHALL MEET PG BINDER GRADE 70-22.

25. ALL SURFACE ASPHALT CONCRETE PAVEMENT SHALL BE UNDER-SEALED WITH A ONE COURSE SURFACE TREATMENT, UNLESS OTHERWISE DIRECTED.

26. ALL ASPHALTIC CONCRETE PAVEMENT USED IN BASE COURSES SHALL BE TYPE "A"OR "B"AND WILL MEET PG BINDER GRADE 64-22.

27. ALL PAVEMENT WIDENING INCLUDING SHOULDERS SHALL MATCH THE EXISTING PAVEMENT CROSS SLOPE.

28. ALL PAVEMENT MARKINGS SHALL BE TYPE I THERMOPLASTIC (100MIL) WITH UNDER-SEAL MEETING THE THE 2024 STANDARD SPECIFICATIONS ITEM 666, RETRO REFLECTORIZED PAVEMENT MARKINGS. THE CONTRACTOR SHALL PLACE GUIDE MARKS IN ACCORDANCE WITH ITEM 666 AND SHALL MAKE ARRANGEMENTS FOR TXDOT INSPECTION OF THE PAVEMENT MARKING LAYOUT PRIOR TO PLACEMENT OF STRIPING. EQUIPMENT USED FOR THE PLACEMENT OF STRIPING SHALL MEET THE PRODUCTION REQUIREMENTS OF ITEM 666 UNLESS OTHERWISE APPROVED IN ADVANCE BY THE TXDOT MAINTENANCE SUPERVISOR.

29. ALL MATERIALS AND CONSTRUCTION METHODS USED IN STATE RIGHT OF WAY SHALL MEET TXDOT SPECIFICATIONS. THIS SUPERSEDES ALL OTHER SPECIFICATIONS IN THE PLANS.

30. ALL PORTLAND CEMENT CONCRETE PAVEMENT IN STATE ROW SHALL MEET THE REQUIREMENTS OF THE 2024 STANDARD SPECIFICATION ITEM 360, CONCRETE PAVEMENT, AND SHALL BE BATCHED AT CONCRETE PLANTS HAVING A CURRENT APPROVED MIX DESIGN. CLASS P CONCRETE SHALL HAVE 7- AND 28-DAY COMPRESSIVE STRENGTH OF 3,200 PSI AND 4,400 PSI RESPECTIVELY.

31. WHEN WIDENING EXISTING CONCRETE PAVEMENTS, JOINTS IN THE NEW PAVEMENT SHALL MATCH JOINTS IN EXISTING PAVEMENT AND CURB.

32. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT TXDOT APPROVED MATERIALS, MIX DESIGNS, APPROVED SOURCES AND PRODUCTS ARE USED FOR ALL WORK IN STATE ROW. THE CONTRACTOR SHALL ARRANGE FOR THE SERVICES OF A QUALIFIED TESTING LABORATORY FOR ALL ITEMS REQUIRING TESTING AND SHALL NOTIFY TXDOT OF ANY DISCREPANCIES BETWEEN TEST RESULTS AND TXDOT SPECS IN A TIMELY MANNER. THE CONTRACTOR SHALL PROVIDE TO TXDOT INVOICES AND TESTING RESULTS AS SOON THEY ARE AVAILABLE. FAILURE TO DO THIS SHALL RESULT IN REJECTION OF THE WORK.

33. SAWING OF CONTRACTION/CONSTRUCTION JOINTS IN CONCRETE PAVEMENT SHALL BE ACCOMPLISHED AS SOON AS PERSONNEL CAN WALK ON THE CONCRETE WITHOUT DAMAGING THE SURFACE REGARDLESS OF TIME OF DAY OR WEATHER CONDITIONS. STAND-BY POWER DRIVEN CONCRETE SAWS SHALL BE PROVIDED DURING THE SAWING OPERATION. CURING COMPOUND SHALL BE RE-APPLIED TO THE SAWED JOINT IMMEDIATELY UPON SAWING THE JOINT.

34. GUARDRAIL SET'S SHALL BE TYPE 3 UNLESS OTHERWISE APPROVED BY THE TXDOT MAINTENANCE SUPERVISOR. GUARDRAIL MOWSTRIP PLACED ADJACENT TO OTHER CONCRETE RIP-RAP WILL BE SEPARATED BY A FORMED CONSTRUCTION JOINT.

35. ANY CONCRETE CURB TO BE REMOVED SHALL BE SAW-CUT AT THE LIMITS OF REMOVAL AND BE REMOVED ENTIRELY. SLICING THE TOP PORTION OF THE CURB OFF AND LEAVING REMAINING PORTION OF CURB IN PLACE IS UNACCEPTABLE.

36. ANY DAMAGE TO TXDOT FACILITIES SHALL BE REPAIRED AT NO EXPENSE TO TXDOT, AND TO TXDOT'S SATISFACTION.

37. SIDEWALKS PLACED IN THE HIGHWAY RIGHT-OF-WAY SHALL BE A MINIMUM WIDTH OF 5' OR COMPLY WITH THE MORE STRINGENT WIDTH AS REQUIRED BY CITY ORDINANCE AND SHALL MEET ALL OTHER REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT. PEDESTRIAN RAMPS SHALL BE PROVIDED AT STREET AND DRIVEWAY INTERSECTIONS AS SHOWN ON THE CURRENT STATE STANDARD FOR PEDESTRIAN FACILITIES. COLOR CONTRAST AND TEXTURING OF PEDESTRIAN RAMPS SHALL BE PLACED AT STREET INTERSECTION RAMPS ONLY AS SHOWN ON THE CURRENT STATE STANDARD FOR PEDESTRIAN FACILITIES. PEDESTRIAN RAMPS AT DRIVEWAY INTERSECTIONS WILL NOT RECEIVE ANY COLOR CONTRAST OR TEXTURING. METAL PLATING FOR SIDEWALK BRIDGES SHALL MATCH THE TYPICAL WIDTH OF THE APPROACH SIDEWALK. THIS MAY RESULT IN A WIDTH THAT IS GREATER THAN SHOWN IN THE STANDARD DETAILS INCLUDED IN THE PLANS.

38. THE CONTRACTOR SHALL USE BEST MANAGEMENT PRACTICES (BMP'S) TO MINIMIZE EROSION AND SEDIMENTATION IN THE STATE RIGHT OF WAY RESULTING FROM THE PROPOSED CONSTRUCTION. RE-VEGETATION OF DISTURBED AREAS SHALL BE COMPLETED IN ACCORDANCE WITH TXDOT STANDARD SPECIFICATIONS. PERMANENT VEGETATIVE COVER MUST ACHIEVE 70% COVERAGE PRIOR TO PROJECT ACCEPTANCE. SOIL RETENTION BLANKETS MAY BE REQUIRED TO PREVENT EROSION OF TOPSOIL PRIOR TO VEGETATION RE-ESTABLISHMENT.

39. PRIOR TO SEEDING OR RE-VEGETATION THE FRONT SLOPES SHALL BE SHOULDERED UP WITH TOPSOIL TO ELIMINATE ANY PAVEMENT EDGE DROP-OFF.

40. MUD TRACKED ONTO THE ROADWAY FROM THE SITE SHALL BE IMMEDIATELY REMOVED TO THE SATISFACTION OF TXDOT.

41. THE DEVELOPER/OWNER SHALL CLEAN OUT, TO THE STATE'S SATISFACTION, ANY DRAINAGE STRUCTURE OR STORM SEWER SYSTEM THAT BECOMES SILTED AS A RESULT OF THEIR OPERATIONS.

42. THE ADJUSTMENT OF ANY UTILITIES IN STATE RIGHT OF WAY OR ADJACENT PRIVATE EASEMENT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER/OWNER.

43. THE CONTRACTOR SHALL PLACE AND MAINTAIN EXISTING SIGNS ON TXDOT APPROVED TEMPORARY MOUNTS UNTIL PERMANENT SIGNS ARE PLACED.

44. THE FINAL PLACEMENT OF PERMANENT SIGNS SHALL BE COORDINATED PRIOR TO PLACEMENT WITH THE LOCAL TXDOT MAINTENANCE SUPERVISOR.

45. FOR WORK WITHIN THE STATE RIGHT OF WAY MATERIALS OR DEBRIS WITHIN THE CONSTRUCTION LIMITS AND NOT INCORPORATED IN THE FINISHED ROADWAY SECTION OF RIGHT OF WAY SHALL BE DISPOSED OF IN A MANNER ACCEPTABLE TO THE MAINTENANCE SUPERVISOR AT NO EXPENSE TO THE STATE. MATERIALS THAT ARE NOT DETERMINED TO BE SALVAGEABLE BY THE MAINTENANCE SUPERVISOR BECOME THE PROPERTY OF THE CONTRACTOR FOR PROPER DISPOSAL AT THEIR EXPENSE. MATERIALS DETERMINED TO BE SALVAGEABLE SHALL BE RETURNED TO THE STATE AND DELIVERED TO THE LOCATION AS DETERMINED BY THE MAINTENANCE SUPERVISOR.

46. REGARDLESS OF ERRORS AND OMISSIONS IN INFORMATION PROVIDED IN THE PLANS OR CROSS-SECTIONS, THE PERMITEE IS RESPONSIBLE FOR PROVIDING FOR POSITIVE DRAINAGE OUTFALLS WITHIN AND OFF THE LIMITS OF THE PROJECT.

47. KEEP THE SIGNALS IN OPERATION AT ALL TIMES EXCEPT WHEN NECESSARY FOR SPECIFIC INSTALLATION OPERATIONS, INCLUDING ANY MODIFICATIONS TO EXISTING SIGNAL HEADS TO MAINTAIN CLEAR VISIBILITY AT ALL TIMES. WHEN IT IS NECESSARY FOR A SIGNAL TO BE TURNED OFF, PROVIDE OFF DUTY POLICE OFFICERS TO CONTROL TRAFFIC UNTIL THE SIGNALS ARE BACK IN SATISFACTORY CONDITION.

48. FOR WORK IN CITY OF NEW BRAUNFELS, ALL TRAFFIC SIGNALS ON THE STATE HIGHWAY SYSTEM WITHIN THE NEW BRAUNFELS CITY LIMITS, WITH THE EXCEPTION OF SIGNALS ON IH 35, ARE THE RESPONSIBILITY OF THE CITY OF NEW BRAUNFELS AND THE CITY OF NEW BRAUNFELS WILL PERFORM CONSTRUCTION INSPECTION. CONTACT GARRY FORD, P.E. AT (830) 221-4645, 48 HOURS PRIOR TO THE NEED FOR ANY INSPECTIONS. ALSO WHEN NON- TRAFFIC SIGNAL WORK IS BEING PERFORMED WITHIN 400 FEET OF AN EXISTING SIGNALIZED INTERSECTION, FLASHING BEACON OR SCHOOL ZONE FLASHER OR OTHER TYPE OF SIGNAL, IF WITHIN THE CITY OF NEW BRAUNFELS AREA OF RESPONSIBILITY, CONTACT GARRY FORD, P.E. TO DETERMINE/VERIFY THE LOCATION OF LOOP DETECTORS, CONDUIT, GROUND-BOXES, ETC. FOR ALL OTHER LOCATIONS, CONTACT TXDOT REPRESENTATIVE JORGE RAMOS, AT (210) 731-5136. THE CONTRACTOR IS SHALL REPAIR OF REPLACE ANY SIGNAL EQUIPMENT DAMAGED BY CONSTRUCTION OPERATIONS. THE METHOD OF REPAIR OR REPLACEMENT SHALL BE PRE-APPROVED AND INSPECTED. DEPENDING ON THE TYPE AND EXTENT OF THE DAMAGE, THE ENGINEER RESERVES THE RIGHT TO PERFORM THE REPAIR OR REPLACEMENT WORK AND THE CONTRACTOR SHALL BE BILLED FOR THIS WORK. WHEN WORKING NEAR AERIAL ELECTRICAL LINES OR UTILITY POLES, COMPLY WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS.

49. FOR AREAS OTHER THAN CITY OF NEW BRAUNFELS WHEN NON- TRAFFIC SIGNAL WORK IS BEING PERFORMED WITHIN 400 FEET OF AN EXISTING SIGNALIZED INTERSECTION, FLASHING BEACON OR SCHOOL ZONE FLASHER OR OTHER TYPE OF SIGNAL, CONTACT TXDOT REPRESENTATIVE JORGE RAMOS (210) 731-5136. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY SIGNAL EQUIPMENT DAMAGED BY CONSTRUCTION OPERATIONS. THE METHOD OF REPAIR OR REPLACEMENT SHALL BE PRE-APPROVED AND INSPECTED. DEPENDING ON THE ON THE TYPE AND EXTENT OF THE DAMAGE, THE ENGINEER RESERVES THE RIGHT TO PERFORM THE REPAIR OR REPLACEMENT WORK AND THE CONTRACTOR SHALL BE BILLED FOR THIS WORK. WHEN WORKING NEAR AERIAL ELECTRICAL LINES OR UTILITY POLES, COMPLY WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS.

HMT ENGINEERING & SURVEYING
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HMTNB.COM
(830) 625-8555
TBPELS FIRM F-10961
TBPELS FIRM 10153600

MB&S
ARCHITECTS AND ENGINEERS
5300 HOLLISTER STREET,
SUITE 301 HOUSTON, TX 77040
TEL: 713 370 8750
TBPELS F-24553

04/27/2026

STATE OF TEXAS
JOSHUA M. KELSEY
157476
LICENSED PROFESSIONAL ENGINEER

NOTES:

PROMENADE AT SINGING OAKS

20285 STATE HWY 46 W. BULVERDE, TX 78163

No.	DESCRIPTION	DATE
1	Issue for permit	9/2/2025

SCALE:

DRAWN BY: MG

CHK BY: JK

APP BY: ESP

DATE: APRIL 2026

PROJECT NO.: 643.001

SHEET TITLE:

CONSTRUCTION NOTES (2 OF 2)

SHEET NUMBER:

C0.2

Drawing Name: M:_Projects\643 - MB&S\001 - Promenade at Singing Oaks Drainage\CDs\643.001_COVR.dwg User: michaelg Apr 27, 2026 - 12:27pm

PLAT OF: WARREN HILL

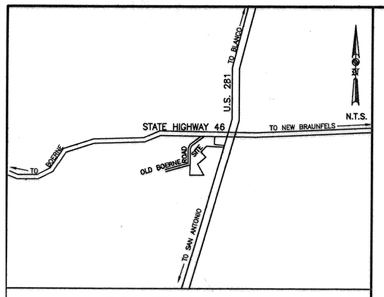
M.D.S. LAND SURVEYING CO.
7560 F.M. 1117
SEGUIN, TEXAS 78155
PHONE: (830) 303-2503

DATE PREPARED: 05-21-98
JOB # 98-4210

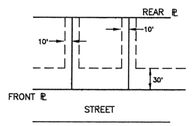
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Scale: 1" = 200'

LOCATION MAP

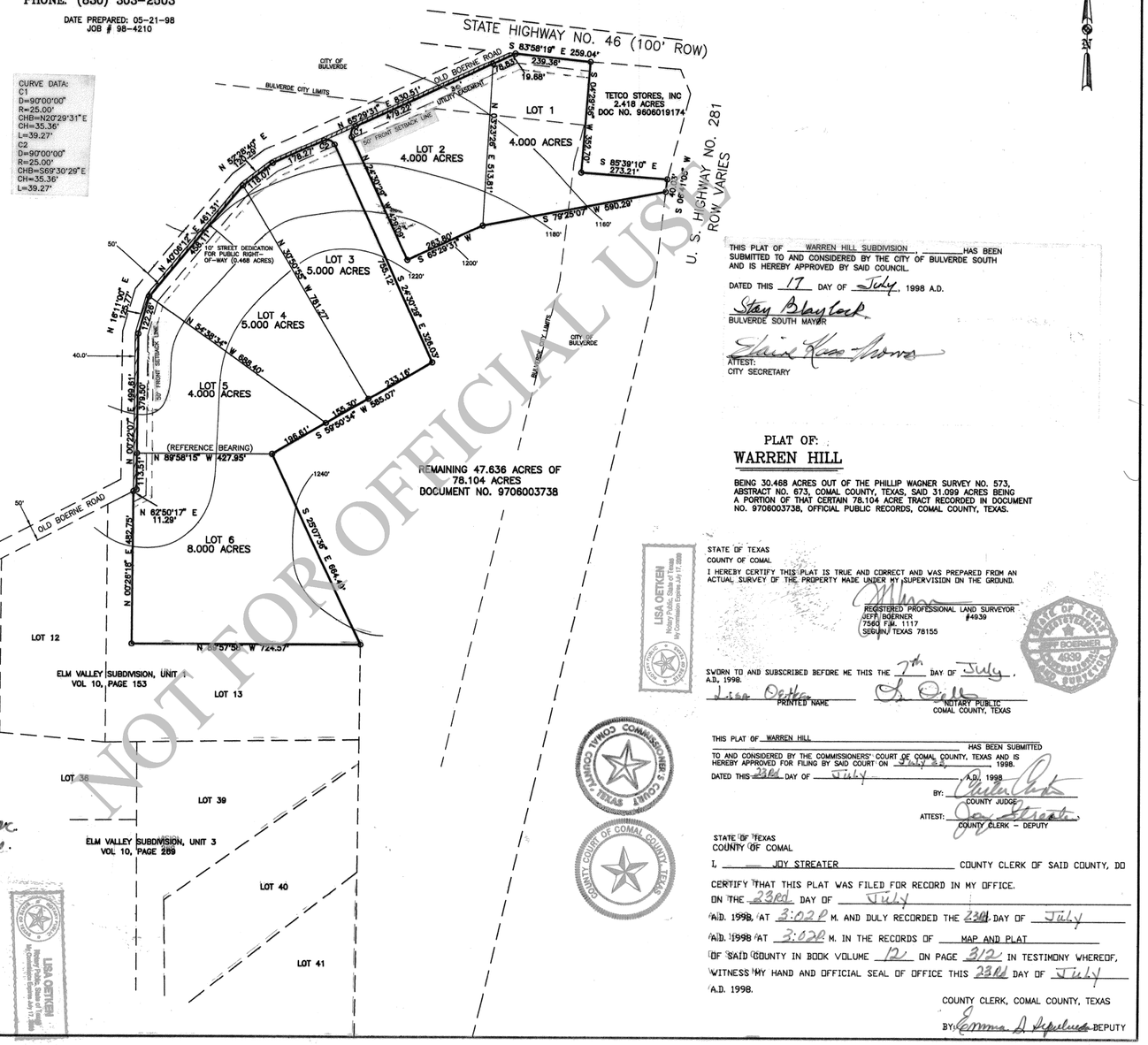


TYPICAL ELECTRIC EASEMENTS GRANTED AT ALL FRONT AND SIDE LOT LINES.



NOTES:
1. 1/2" IRON RODS SET AT ALL PROPERTY CORNERS.
2. THIS SUBDIVISION IS NOT IN THE 100 YEAR FLOOD ZONE ACCORDING TO FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO. 485463 0035 C, DATED SEPTEMBER 29, 1986.
3. THIS SUBDIVISION IS NOT LOCATED OVER THE EDWARDS AQUIFER RECHARGE ZONE AS SHOWN ON U.S.G.S. QUADRANGLE MAP "ANHALT".
4. WATER SOURCE IS PRIVATE WELLS.
5. SEWAGE FACILITIES SHALL BE PRIVATE SEPTIC SYSTEMS.
6. THERE IS 0.468 ACRE OF RIGHT-OF-WAY DEDICATED TO THE PUBLIC.
7. THIS PROPERTY DOES LIE WITHIN THE CITY LIMITS OF BULVERDE SOUTH AND IT'S E.T.J.
8. PROPERTY OWNERS ARE ADVISED THAT THEY ARE RESPONSIBLE FOR MAINTENANCE OF DEDICATED EASEMENTS ON THEIR PROPERTY AND MAY NOT UTILIZE THESE EASEMENTS FOR ANY PURPOSE DETRIMENTAL TO THEIR INTENDED USE (i.e., NO STRUCTURES, SEPTIC TANK FIELDS, ETC.). GRANTEES OF SAID DEDICATED EASEMENTS RESERVE THE RIGHT OF ACCESS TO SUCH EASEMENTS.
9. 30.000 ACRES, LOTS 1 THROUGH 6
10. COMAL COUNTY REQUIRES 25' SETBACK ALONG ALL STREETS.
11. FOR DEVELOPMENT DIRECTLY ADJACENT TO STATE RIGHT-OF-WAY, THE DEVELOPER SHALL BE RESPONSIBLE FOR ADEQUATE SET-BACK AND/OR SOUND ABATEMENT MEASURE FOR FUTURE NOISE MITIGATION.
12. OWNER/DEVELOPER IS RESPONSIBLE FOR PREVENTING ANY ADVERSE IMPACT TO THE EXISTING DRAINAGE SYSTEM WITHIN THE HIGHWAY RIGHT-OF-WAY.
13. THERE ARE NO EXISTING IMPROVEMENTS ON THESE LOTS.
14. THESE LOTS COMPLY WITH THE CITY OF BULVERDE AVERAGE LOT SIZE REQUIREMENTS.
15. ANY IMPROVEMENTS FOR MAILBOXES WILL BE THE RESPONSIBILITY OF THE DEVELOPER.

CURVE DATA:
C1
D=90°00'00"
R=25.00'
CHB=N20°29'31"E
CH=35.36'
L=39.27'
C2
D=90°00'00"
R=25.00'
CHB=S69°30'29"E
CH=35.36'
L=39.27'



NOT FOR OFFICIAL USE

STATE OF TEXAS
COUNTY OF COMAL
THE OWNER OF THE LAND SHOWN ON THIS PLAT, IN PERSON OR THROUGH A DULY AUTHORIZED AGENT DEDICATES TO THE USE OF THE PUBLIC FOREVER ALL STREETS, ALLEYS, PARKS, WATER COURSES, DRAINS, EASEMENTS AND PUBLIC PLACES THEREIN SHOWN FOR THE PURPOSE AND CONSIDERATION THEREIN EXPRESSED.

KATHY CILISKE, PRESIDENT
LOST OWL PROPERTIES
1402 CHESTNUT GROVE LANE
KINGWOOD, TEXAS 77345

LOST OWL PROPERTIES, INC.
by: Kathleen B. Ciliske, Pres.
OWNER

STATE OF TEXAS
COUNTY OF
BEFORE ME, THE UNDERSIGNED AUTHORITY ON THIS DAY PERSONALLY APPEARED Kathy Ciliske, President AND Lost Owl Prop., KNOWN TO ME TO BE THE PERSON WHOSE NAME IS SUBSCRIBED TO THE FOREGOING INSTRUMENT, AND ACKNOWLEDGED TO ME THAT HE EXECUTED THE SAME FOR THE PURPOSES AND CONSIDERATIONS THEREIN EXPRESSED AND IN THE CAPACITY THEREIN STATED.

GIVEN UNDER MY HAND AND SEAL OF OFFICE THIS 8th DAY OF July, A.D. 1998.

Lisa Oetken
PRINTED NAME

NOTARY PUBLIC
COMAL COUNTY, TEXAS

LISA OETKEN
Notary Public, State of Texas
My Commission Expires July 17, 2001

THIS PLAT OF WARREN HILL SUBDIVISION HAS BEEN SUBMITTED TO AND CONSIDERED BY THE CITY OF BULVERDE SOUTH AND IS HEREBY APPROVED BY SAID COUNCIL.

DATED THIS 17 DAY OF July, 1998 A.D.

Stacy Blaylock
BULVERDE SOUTH MAYOR

ATTEST:
CITY SECRETARY

PLAT OF:
WARREN HILL

BEING 30.468 ACRES OUT OF THE PHILLIP WAGNER SURVEY NO. 573, ABSTRACT NO. 673, COMAL COUNTY, TEXAS, SAID 31.099 ACRES BEING A PORTION OF THAT CERTAIN 78.104 ACRE TRACT RECORDED IN DOCUMENT NO. 9706003738, OFFICIAL PUBLIC RECORDS, COMAL COUNTY, TEXAS.

STATE OF TEXAS
COUNTY OF COMAL
I HEREBY CERTIFY THIS PLAT IS TRUE AND CORRECT AND WAS PREPARED FROM AN ACTUAL SURVEY OF THE PROPERTY MADE UNDER MY SUPERVISION ON THE GROUND.

REGISTERED PROFESSIONAL LAND SURVEYOR
JEFF BOERNER #4939
7560 F.M. 1117
SEGUIN, TEXAS 78155

LISA OETKEN
Notary Public, State of Texas
My Commission Expires July 17, 2001

STATE OF TEXAS
JEFF BOERNER
4939
REGISTERED PROFESSIONAL LAND SURVEYOR

SWORN TO AND SUBSCRIBED BEFORE ME THIS THE 7th DAY OF July, A.D. 1998.

Lisa Oetken
PRINTED NAME

NOTARY PUBLIC
COMAL COUNTY, TEXAS

THIS PLAT OF WARREN HILL HAS BEEN SUBMITTED TO AND CONSIDERED BY THE COMMISSIONERS' COURT OF COMAL COUNTY, TEXAS AND IS HEREBY APPROVED FOR FILING BY SAID COURT ON July 22, 1998.

DATED THIS 23rd DAY OF July, A.D. 1998

BY: COUNTY JUDGE

ATTEST: COUNTY CLERK - DEPUTY

COMMISSIONER'S COURT COMAL COUNTY, TEXAS

COUNTY COURT OF COMAL COUNTY, TEXAS

STATE OF TEXAS
COUNTY OF COMAL
I, JOY STREATER COUNTY CLERK OF SAID COUNTY, DO CERTIFY THAT THIS PLAT WAS FILED FOR RECORD IN MY OFFICE, ON THE 23rd DAY OF July A.D. 1998, AT 3:02P M. AND DULY RECORDED THE 23rd DAY OF July A.D. 1998 AT 3:02P M. IN THE RECORDS OF MAP AND PLAT OF SAID COUNTY IN BOOK VOLUME 12 ON PAGE 312 IN TESTIMONY WHEREOF, WITNESS MY HAND AND OFFICIAL SEAL OF OFFICE THIS 23rd DAY OF July A.D. 1998.

COUNTY CLERK, COMAL COUNTY, TEXAS
BY: Emma D. Aguilera DEPUTY

PLAT FOR REFERENCE ONLY

HMT ENGINEERING & SURVEYING
290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
HMTNB.COM
(830) 625-8555
TBPELS FIRM F-10961
TBPELS FIRM 10153600

MB&S
ARCHITECTS AND ENGINEERS
5300 HOLLISTER STREET,
SUITE 301 HOUSTON, TX 77040
TEL: 713 370 8750
TBPELS F-24553

01/30/2026

STATE OF TEXAS
JOSHUA M. KELSEY
157476
LICENSED PROFESSIONAL ENGINEER

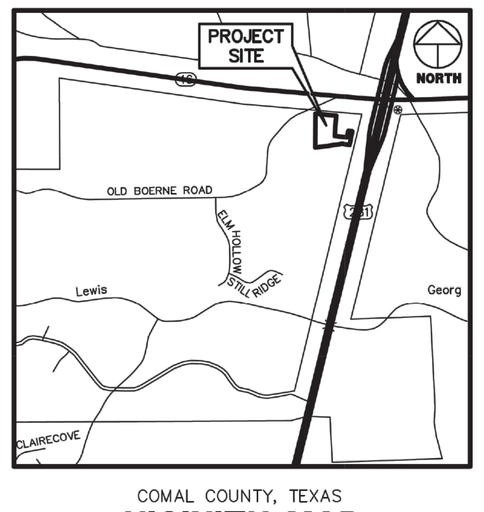
NOTES:

PROMENADE AT SINGING OAKS
20285 STATE HWY 46 W. BULVERDE, TX 78163

No.	DESCRIPTION	DATE
1	Issue for permit	9/2/2025

SCALE:
DRAWN BY: MG
CHK BY: JK
APP BY: ESP
DATE: JANUARY 2026
PROJECT NO.: 643.001
SHEET TITLE: **PLAT**
SHEET NUMBER: **C0.3**

Drawing Name: M:_Projects\643 - MB&S\001 - Promenade at Singing Oaks Drainage\Cts\643.001_COVR.dwg User: michaelg Jan 30, 2026 - 12:19pm



COMAL COUNTY, TEXAS

VICINITY MAP

SCALE: 1' = 2,000'

NORTH

GRAPHIC SCALE: 1" = 30'

30 0 30 60 90 Feet

SITUATED IN THE PHILLIP WAGNER SURVEY, ABSTRACT NO. 673 COMAL COUNTY, TEXAS

CURVE CHART					
CURVE	RADIUS	DELTA	LENGTH	BEARING	CHORD
C1	10,068.00'	0°56'47"	166.31'	S 85°11'07" E	166.31'
C2	183.02'	13°16'53"	42.42'	S 79°05'48" E	42.33'
C3	217.00'	13°44'11"	52.02'	S 79°19'22" E	51.90'

LINE TABLE		
LINE	BEARING	DISTANCE
L1	N 65°00'10" E	16.94'
L2	S 86°16'27" E	33.53'
L3	S 06°11'44" W	40.03'

TEMPORARY BENCHMARK "A" ELEVATION – 1174.83'

TEMPORARY BENCHMARK "A" IS A BOX CUT SET ON THE BACK OF A CURB IN THE TRACTOR SUPPLY PARKING LOT. THE BENCHMARK IS LOCATED AT THE EAST END OF THE PARKING LOT, AND IS APPROXIMATELY 187' SOUTHWEST OF THE NORTHEASTERLY ENTRANCE OF SAID PARKING LOT (SHOWN HEREON)

TEMPORARY BENCHMARK "B" ELEVATION – 1182.24'

TEMPORARY BENCHMARK "B" IS A BOX CUT SET ON THE BACK OF A CURB OF THE TRACTOR SUPPLY PARKING LOT, THE BENCHMARK IS LOCATED AT THE NORTH END OF THE PARKING LOT, 10' SOUTHEAST OF A POWER-POLE. (SHOWN HEREON)

TREE TABLE		
POINT	SIZE	TYPE
7501	19"	LIVE OAK
7502	11"	LIVE LIVE OAK
7503	36"	LIVE OAK
7504	22"	LIVE OAK
7505	21"	LIVE OAK
7506	13"	LIVE OAK
7507	14"	LIVE OAK
7508	15"	LIVE OAK
7509	11"	LIVE OAK
7510	9"	LIVE OAK
7511	14"	LIVE OAK
7512	19"	LIVE OAK
7513	10"	LIVE OAK
7514	16"	LIVE OAK
7515	16"	LIVE OAK
7516	12"	CEDAR
7517	11"	LIVE OAK
7518	6"	LIVE OAK
7519	7"	LIVE OAK
7520	12"	LIVE OAK
7521	7"	LIVE OAK
7522	12"	LIVE OAK
7523	18"	LIVE OAK
7524	9"	LIVE OAK
7525	19"	LIVE OAK
7526	17"	LIVE OAK
7527	16"	LIVE OAK
7528	13"	LIVE OAK
7529	7"	LIVE OAK
7530	7"	LIVE OAK
7531	10"	LIVE OAK
7532	7"	LIVE OAK
7533	12"	LIVE OAK
7534	7"	LIVE OAK
7535	13"	LIVE OAK
7536	7"	LIVE OAK
7537	30"	LIVE OAK
7538	11"	CEDAR
7539	11"	CEDAR
7540	13"	LIVE OAK
7541	7"	ELM
7542	28"	LIVE OAK
7543	9"	LIVE OAK
7544	18"	LIVE OAK
7545	6"	LIVE OAK
7546	12"	LIVE OAK
7547	8"	LIVE OAK
7548	7"	LIVE OAK
7549	6"	LIVE OAK
7550	15"	LIVE OAK

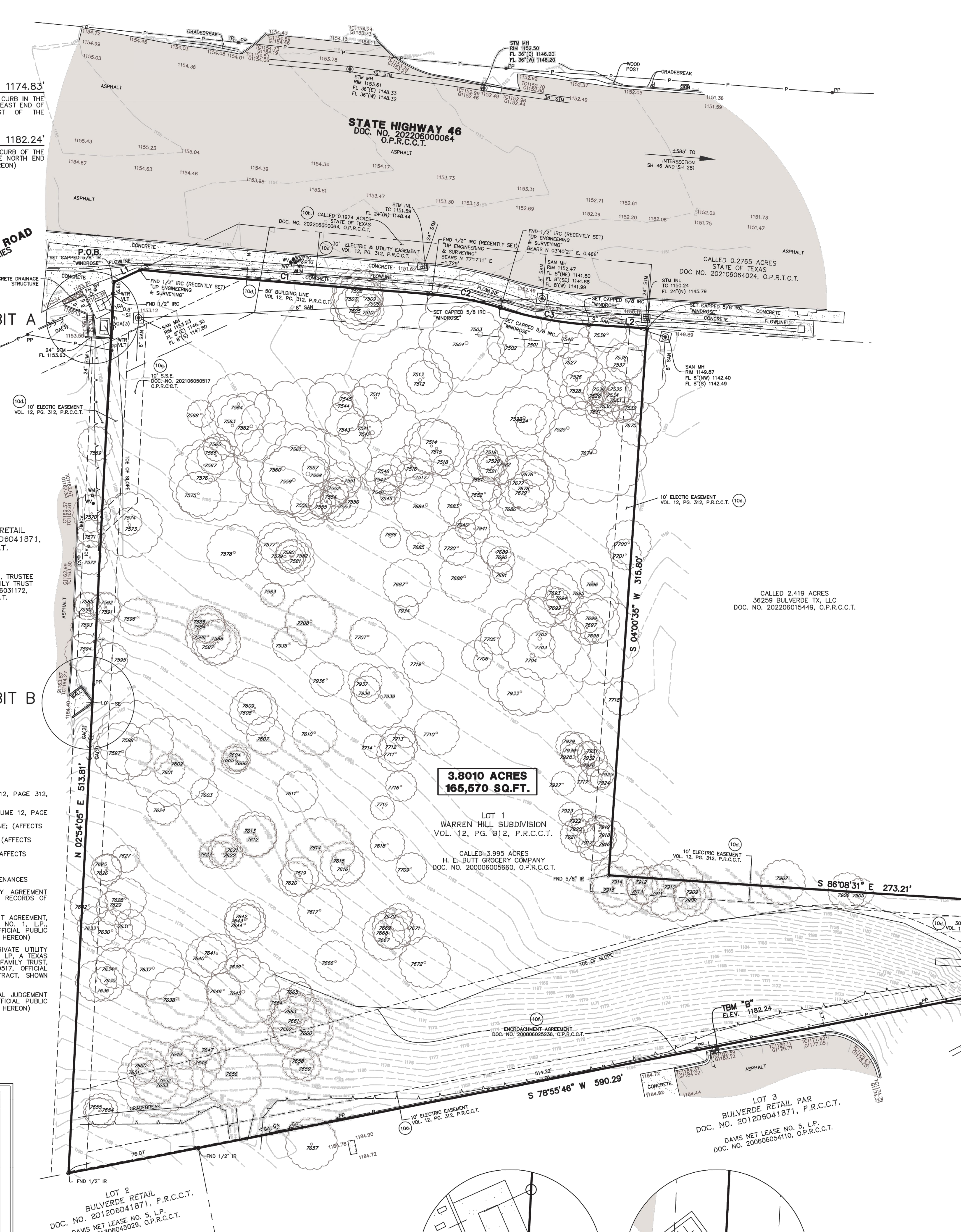
TREE TABLE		
POINT	SIZE	TYPE
7551	11"	LIVE OAK
7552	8"	LIVE OAK
7553	11"	LIVE OAK
7554	11"	LIVE OAK
7555	8"	LIVE OAK
7556	12"	CEDAR
7557	8"	LIVE OAK
7558	27"	LIVE OAK
7559	20"	LIVE OAK
7560	27"	LIVE OAK
7561	40"	LIVE OAK
7562	20"	LIVE OAK
7563	18"	LIVE OAK
7564	18"	LIVE OAK
7565	8"	LIVE OAK
7566	11"	LIVE OAK
7567	11"	LIVE OAK
7568	8"	LIVE OAK
7569	10"	LIVE OAK
7570	11"	LIVE OAK
7571	8"	LIVE OAK
7572	10"	LIVE OAK
7573	19"	LIVE OAK
7574	8"	LIVE OAK
7575	13"	CEDAR
7576	24"	LIVE OAK
7577	12"	LIVE OAK
7578	16"	LIVE OAK
7579	17"	CEDAR
7580	9"	LIVE OAK
7581	7"	LIVE OAK
7582	10"	LIVE OAK
7583	7"	LIVE OAK
7584	10"	LIVE OAK
7585	11"	LIVE OAK
7586	13"	LIVE OAK
7587	13"	CEDAR
7588	13"	CEDAR
7589	7"	LIVE OAK
7590	8"	LIVE OAK
7591	9"	LIVE OAK
7592	8"	LIVE OAK
7593	9"	LIVE OAK
7594	11"	LIVE OAK
7595	9"	LIVE OAK
7596	11"	LIVE OAK
7597	17"	LIVE OAK
7598	22"	LIVE OAK
7601	9"	LIVE OAK
7602	26"	LIVE OAK

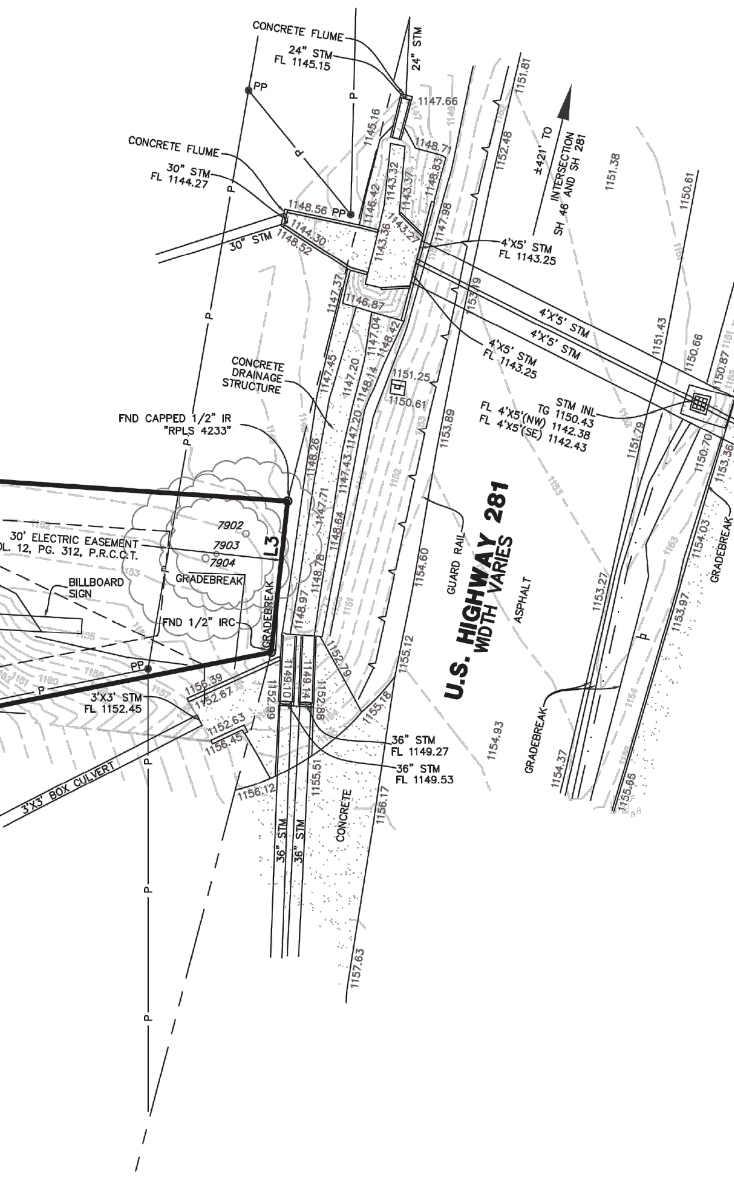
TREE TABLE		
POINT	SIZE	TYPE
7603	8"	LIVE OAK
7604	8"	LIVE OAK
7605	8"	LIVE OAK
7606	6"	LIVE OAK
7607	11"	LIVE OAK
7608	14"	CEDAR
7609	10"	CEDAR
7610	13"	CEDAR
7611	12"	LIVE OAK
7612	12"	LIVE OAK
7613	13"	LIVE OAK
7614	20"	LIVE OAK
7615	13"	CEDAR
7616	10"	LIVE OAK
7617	13"	CEDAR
7618	10"	LIVE OAK
7619	11"	CEDAR
7620	10"	LIVE OAK
7621	10"	CEDAR
7622	7"	LIVE OAK
7623	8"	LIVE OAK
7624	10"	LIVE OAK
7625	8"	LIVE OAK
7626	9"	LIVE OAK
7627	8"	LIVE OAK
7628	12"	CEDAR
7629	10"	LIVE OAK
7630	12"	CEDAR
7631	9"	LIVE OAK
7632	11"	CEDAR
7633	12"	LIVE OAK
7634	12"	CEDAR
7635	10"	LIVE OAK
7636	12"	CEDAR
7637	18"	LIVE OAK
7638	18"	LIVE OAK
7639	10"	CEDAR
7640	12"	CEDAR
7641	12"	LIVE OAK
7642	8"	LIVE OAK
7643	12"	LIVE OAK
7644	12"	CEDAR
7645	21"	LIVE OAK
7646	10"	CEDAR
7647	10"	CEDAR
7648	16"	LIVE OAK
7649	8"	LIVE OAK
7650	10"	LIVE OAK
7651	8"	LIVE OAK
7652	22"	LIVE OAK

TREE TABLE		
POINT	SIZE	TYPE
7653	13"	CEDAR
7654	8"	LIVE OAK
7655	10"	LIVE OAK
7656	17"	CEDAR
7657	15"	LIVE OAK
7658	9"	LIVE OAK
7659	9"	LIVE OAK
7660	19"	LIVE OAK
7661	17"	CEDAR
7662	12"	CEDAR
7663	11"	CEDAR
7664	17"	CEDAR
7665	7"	LIVE OAK
7666	12"	LIVE OAK
7667	14"	LIVE OAK
7668	9"	LIVE OAK
7669	12"	LIVE OAK
7670	8"	LIVE OAK
7671	10"	LIVE OAK
7672	15"	LIVE OAK
7674	30"	LIVE OAK
7675	13"	LIVE OAK
7676	8"	LIVE OAK
7677	16"	LIVE OAK
7678	22"	LIVE OAK
7679	12"	CEDAR
7680	17"	LIVE OAK
7681	14"	CEDAR
7682	10"	LIVE OAK
7683	13"	CEDAR
7684	19"	CEDAR
7685	7"	LIVE OAK
7686	6"	LIVE OAK
7687	14"	CEDAR
7688	15"	CEDAR
7689	9"	LIVE OAK
7690	8"	LIVE OAK
7691	6"	LIVE OAK
7692	12"	CEDAR
7693	16"	CEDAR
7694	8"	LIVE OAK
7695	21"	LIVE OAK
7696	7"	LIVE OAK
7697	10"	CEDAR
7698	26"	LIVE OAK
7699	13"	CEDAR
7700	13"	CEDAR
7701	9"	LIVE OAK
7702	24"	LIVE OAK
7703	8"	LIVE OAK

TREE TABLE		
POINT	SIZE	TYPE
7704	34"	LIVE OAK
7705	10"	LIVE OAK
7706	9"	LIVE OAK
7707	11"	LIVE OAK
7708	15"	LIVE OAK
7709	9"	LIVE OAK
7710	13"	LIVE OAK
7711	11"	LIVE OAK
7712	11"	CEDAR
7713	6"	LIVE OAK
7714	7"	LIVE OAK
7715	7"	LIVE OAK
7716	9"	LIVE OAK
7717	7"	LIVE OAK
7718	10"	CEDAR
7719	12"	CEDAR
7720	11"	CEDAR
7902	20"	LIVE OAK MS
7903	15"	LIVE OAK MS
7904	22"	CEDAR
7905	8"	LIVE OAK MS
7906	11"	LIVE OAK MS
7907	13"	LIVE OAK MS
7908	11"	CEDAR
7909	8"	LIVE OAK
7910	18"	LIVE OAK TWIN
7911	15"	LIVE OAK TWIN
7912	11"	LIVE OAK
7913	9"	LIVE OAK
7914	18"	LIVE OAK TWIN
7915	12"	LIVE OAK
7916	14"	LIVE OAK MS
7917	11"	LIVE OAK
7918	9"	LIVE OAK
7919	9"	LIVE OAK
7920	10"	CEADR
7921	10"	LIVE OAK
7922	7"	LIVE OAK
7923	7"	LIVE OAK
7924	6"	LIVE OAK
7925	8"	LIVE OAK
7926	8"	LIVE OAK
7927	7"	LIVE OAK
7928	7"	LIVE OAK
7929	8"	LIVE OAK
7930	10"	LIVE OAK TWIN
7931	7"	LIVE OAK
7932	8"	LIVE OAK
7933	14"	LIVE OAK MS
7934	7"	LIVE OAK

TREE TABLE		
POINT	SIZE	TYPE
7935	10"	LIVE OAK TWIN
7936	10"	LIVE OAK
7937	10"	LIVE OAK TWIN
7938	8"	LIVE OAK
7939	18"	CREDAR
7940	6"	LIVE OAK
7941	9"	LIVE OAK





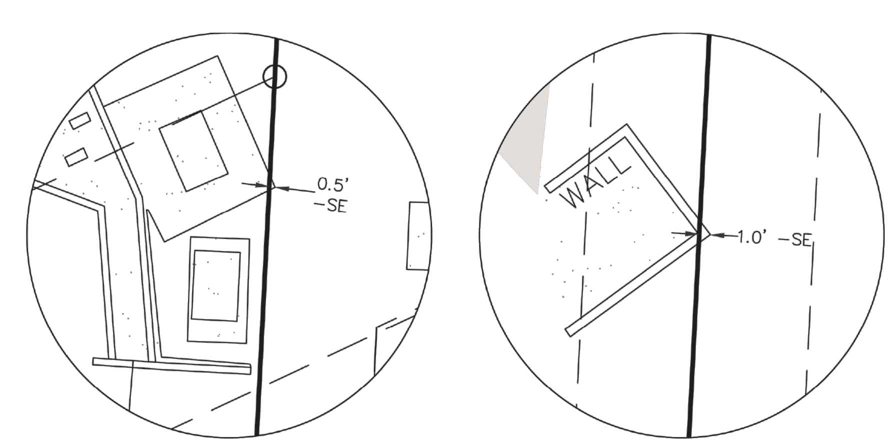


EXHIBIT A

EXHIBIT B

TBM "A" ELEV. 1174.83

SCHEDULE 'B' NOTES

1B. THE FOLLOWING RESTRICTIVE COVENANTS OF RECORD UNDER VOLUME 12, PAGE 312, MAP RECORDS OF COMAL COUNTY, TEXAS.

10d. MATTERS SET FORTH AND DELINEATED ON THE PLAT RECORDED IN VOLUME 12, PAGE 312, MAP RECORDS OF COMAL COUNTY, TEXAS.
1. 50 FOOT WIDE BUILDING SETBACK LINE ALONG THE NORTH LOT LINE; (AFFECTS SUBJECT TRAC, SHOWN HEREON)
2. 30 FOOT WIDE ELECTRIC EASEMENT ALONG THE NORTH LOT LINE; (AFFECTS SUBJECT TRACT, SHOWN HEREON)
3. 10 FOOT WIDE ELECTRIC EASEMENT ALONG THE SIDE LOT LINES. (AFFECTS SUBJECT TRACT, SHOWN HEREON)

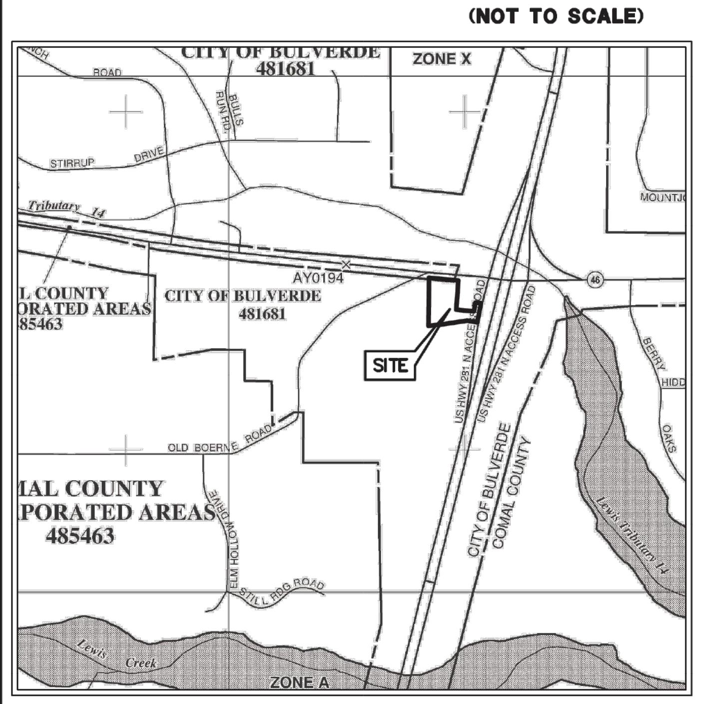
10e. GRANTED TO: COMAL POWER COMPANY
PURPOSE: ELECTRIC TRANSMISSION AND DISTRIBUTING LINE AND APPURTENANCES
RECORDING DATE: JULY 9, 1926
RECORDING NO: VOLUME 52, PAGES 555 AND 568; AFFECTED BY AGREEMENT DOCUMENT RECORDED IN VOLUME 163, PAGE 174, ALL OF THE DEED RECORDS OF COMAL COUNTY, TEXAS. (BLANKET IN NATURE, NOT PLOTTABLE)

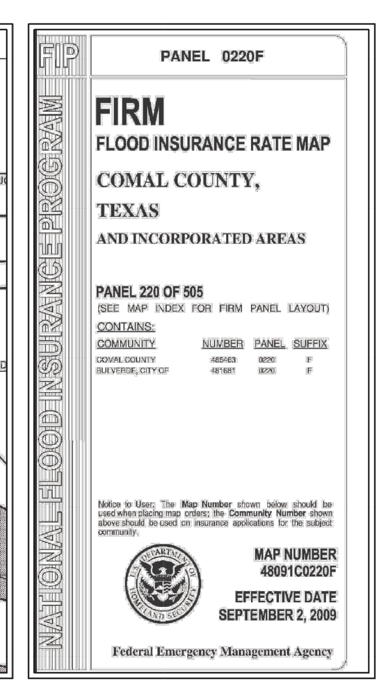
10f. TERMS, CONDITIONS AND PROVISIONS OF THAT CERTAIN ENCROACHMENT AGREEMENT, BY AND AMONG HEB GROCERY COMPANY, LP, DAVIS NET LEASE NO. 1, L.P., RECORDED ON JUNE 27, 2008 IN DOCUMENT NO. 200806025236, OFFICIAL PUBLIC RECORDS OF COMAL COUNTY, TEXAS. (AFFECTS SUBJECT TRACT, SHOWN HEREON)

10g. TERMS, CONDITIONS, PROVISIONS AND EASEMENTS SET FORTH IN PRIVATE UTILITY EASEMENT AND GROSS ACCESS EASEMENT, BY AND BETWEEN H-E-B-, LP, A TEXAS LIMITED PARTNERSHIP, AND MERRIL S. GREENE, TRUSTEE OF THE BULL FAMILY TRUST, RECORDED ON SEPTEMBER 27, 2021 IN DOCUMENT NO. 202106050517, OFFICIAL PUBLIC RECORDS OF COMAL COUNTY, TEXAS. (AFFECTS SUBJECT TRACT, SHOWN HEREON)

10h. TERMS, CONDITIONS AND PROVISIONS OF THAT CERTAIN AGREED FINAL JUDGEMENT RECORDED JANUARY 3, 2022 IN DOCUMENT NO. 202206000064, OFFICIAL PUBLIC RECORDS OF COMAL COUNTY, TEXAS. (AFFECTS SUBJECT TRACT, SHOWN HEREON)

FLOOD INFORMATION
(NOT TO SCALE)





DESCRIPTION

A TRACT OR PARCEL CONTAINING 3.8010 ACRES OR 165,570 SQUARE FEET OF LAND SITUATED IN THE PHILIP WAGNER SURVEY, ABSTRACT NO. 673, COMAL COUNTY, TEXAS, BEING OUT OF LOT 1, OF THE WARREN HILL SUBDIVISION, ACCORDING TO THE MAP OR PLAT THEREOF RECORDED IN VOLUME (VOL.) 12, PAGE (PG.) 312, OF THE PLAT RECORDS OF COMAL COUNTY, TEXAS (P.R.C.C.T.), AND BEING A PORTION OF A CALLED 3.995 ACRE TRACT DESCRIBED IN DEED TO H. E. BUTT GROCERY COMPANY, AS RECORDED IN DOCUMENT (DOC.) NO. 200006005660, OF THE OFFICIAL PUBLIC RECORDS OF COMAL COUNTY TEXAS (O.P.R.C.C.T.), WITH SAID 3.8010 ACRE TRACT BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS, WITH ALL BEARINGS BASED ON THE TEXAS COORDINATE SYSTEM OF 1983, SOUTH CENTRAL ZONE (4204):

BEGINNING AT A CAPPED 5/8 INCH IRON ROD STAMPED "WINDROSE" SET ON THE SOUTHEAST RIGHT-OF-WAY (R.O.W.) LINE OF OLD BOERNE ROAD (R.O.W. VARIES), BEING THE MOST WESTERLY NORTHWEST CORNER OF SAID LOT 1 AND OF SAID CALLED 3.995 ACRE TRACT AND THE POINT OF BEGINNING OF THE HEREIN DESCRIBED TRACT;

THENCE, NORTH 65 DEG. 00 MIN. 10 SEC. EAST, WITH THE COMMON LINE OF SAID LOT 1 AND THE SOUTHEAST R.O.W. LINE OF SAID OLD BOERNE ROAD, A DISTANCE OF 16.94 FEET TO A CAPPED 5/8 INCH IRON ROD STAMPED "WINDROSE" SET AT THE INTERSECTION OF THE SOUTHEAST R.O.W. LINE OF SAID OLD BOERNE ROAD AND THE SOUTH R.O.W. LINE OF STATE HIGHWAY NO. 46 (R.O.W. VARIES), BEING THE SOUTHWEST CORNER OF A CALLED 0.1974 ACRE R.O.W. TRACT, AS RECORDED IN DOC. NO. 202206000064, O.P.R.C.C.T., BEING THE MOST NORTHERLY NORTHWEST CORNER OF THE HEREIN DESCRIBED TRACT, AND BEING THE BEGINNING OF A NON-TANGENT CURVE TO THE LEFT;

THENCE THROUGH AND ACROSS SAID LOT 1, WITH THE SOUTH LINE OF SAID 0.1974 ACRE TRACT, BEING THE SOUTH R.O.W. LINE OF SAID SATE HIGHWAY NO. 46, THE FOLLOWING FOUR (4) COURSES AND DISTANCES;

1. WITH SAID CURVE TO THE LEFT, HAVING A RADIUS OF 10,068.00 FEET, A CENTRAL ANGLE OF 00 DEG. 56 MIN. 47 SEC., AN ARC LENGTH OF 166.31 FEET, AND A CHORD BEARING AND DISTANCE OF SOUTH 85 DEG. 11 MIN. 07 SEC. EAST, – 166.31 FEET TO A CAPPED 5/8 INCH IRON ROD STAMPED "WINDROSE" SET FOR A POINT OF REVERSE CURVATURE;
2. WITH SAID CURVE TO THE RIGHT, HAVING A RADIUS OF 183.02 FEET, A CENTRAL ANGLE OF 13 DEG. 16 MIN. 53 SEC., AN ARC LENGTH OF 42.42 FEET, AND A CHORD BEARING AND DISTANCE OF SOUTH 79 DEG. 05 MIN. 48 SEC. EAST, – 42.33 FEET TO A CAPPED 5/8 INCH IRON ROD STAMPED "WINDROSE" SET FOR A POINT OF REVERSE CURVATURE;
3. WITH SAID CURVE TO THE LEFT, HAVING A RADIUS OF 217.00 FEET, A CENTRAL ANGLE OF 13 DEG. 44 MIN. 11 SEC., AN ARC LENGTH OF 52.02 FEET, AND A CHORD BEARING AND DISTANCE OF SOUTH 79 DEG. 19 MIN. 22 SEC. EAST, – 51.90 FEET TO A CAPPED 5/8 INCH IRON ROD STAMPED "WINDROSE" SET FOR AN ANGLE POINT;
4. SOUTH 86 DEG. 16 MIN. 27 SEC. EAST, A DISTANCE OF 33.53 FEET TO A CAPPED 5/8 INCH IRON ROD STAMPED "WINDROSE" SET FOR THE SOUTHEAST CORNER OF SAID 0.1974 ACRE TRACT, BEING THE SOUTHWEST CORNER OF A CALLED 0.2765 ACRE R.O.W. TRACT, AS RECORDED IN DOC. NO. 202106064024, O.P.R.C.C.T., BEING ON THE COMMON LINE OF SAID LOT 1 AND OF A CALLED 2.419 ACRE TRACT DESCRIBED TO 36259 BULVERDE TX, L.L.C., AS RECORDED IN DOC. NO. 202206015449, O.P.R.C.C.T. AND BEING THE NORTHEAST CORNER OF THE HEREIN DESCRIBED TRACT;

THENCE, SOUTH 04 DEG. 00 MIN. 35 SEC. WEST, WITH THE COMMON LINE OF SAID LOT 1 AND OF SAID 2.419 ACRE TRACT, A DISTANCE OF 315.80 FEET TO A 5/8 INCH IRON ROD FOUND FOR THE SOUTHWEST CORNER OF SAID 2.419 ACRE TRACT AND AN ANGLE POINT OF THE HEREIN DESCRIBED TRACT;

THENCE, SOUTH 86 DEG. 08 MIN. 31 SEC. EAST, WITH THE COMMON LINE OF SAID LOT 1 AND OF SAID 2.419 ACRE TRACT, A DISTANCE OF 273.21 FEET TO A CAPPED 1/2 INCH IRON ROD STAMPED "RPLS 4233" SET ON THE WEST R.O.W. LINE OF U.S. HIGHWAY 281 (R.O.W. VARIES), BEING THE SOUTHEAST CORNER OF SAID 2.419 ACRE TRACT AND THE MOST EASTERLY NORTHEAST CORNER OF THE HEREIN DESCRIBED TRACT;

THENCE, SOUTH 06 DEG. 11 MIN. 44 SEC. WEST, WITH THE COMMON LINE OF SAID LOT 1 AND THE WEST R.O.W. LINE OF SAID U.S. HIGHWAY 281, A DISTANCE OF 40.03 FEET TO A CAPPED 1/2 INCH IRON ROD FOUND FOR THE NORTHEAST CORNER OF LOT 3 OF THE BULVERDE RETAIL SUBDIVISION, ACCORDING TO THE MAP OR PLAT THEREOF RECORDED IN DOC. NO. 201206041871, P.R.C.C.T., DESCRIBED IN DEED TO DAVIS NET LEASE NO. 5, L.P., AS RECORDED IN DOC. NO. 200606054110, O.P.R.C.C.T., AND BEING THE MOST SOUTHERLY SOUTHEAST CORNER OF THE HEREIN DESCRIBED TRACT;

THENCE, SOUTH 78 DEG. 55 MIN. 46 SEC. WEST, WITH THE COMMON LINE OF SAID LOT 1, WARREN HILL, AND OF SAID LOT 3, BULVERDE RETAIL, AT A DISTANCE OF 514.22 FEET PASSING A 1/2 INCH IRON ROD FOUND FOR THE COMMON NORTH CORNER OF SAID LOT 3 AND OF LOT 2, OF SAID BULVERDE RETAIL SUBDIVISION, CONTINUING WITH THE COMMON LINE OF SAID LOT 1, WARREN HILL, AND OF SAID LOT 2, BULVERDE RETAIL, FOR A TOTAL DISTANCE OF 590.29 FEET TO A 1/2 INCH IRON ROD FOUND FOR THE SOUTHEAST CORNER OF LOT 1 OF SAID BULVERDE RETAIL SUBDIVSION, BEING THE SOUTHWEST CORNER OF THE HEREIN DESCRIBED TRACT;

THENCE, NORTH 02 DEG. 54 MIN. 05 SEC. EAST, WITH THE COMMON LINE OF SAID LOT 1, WARREN HILL, AND OF SAID LOT 1, BULVERDE RETAIL, A DISTANCE OF 513.81 FEET TO THE POINT OF BEGINNING AND CONTAINING 3.8010 ACRES OR 165,570 SQUARE FEET OF LAND, AS SHOWN ON JOB NO. 60065-CAT6-CAT1A, PREPARED BY WINDROSE LAND SERVICES.

GENERAL NOTES

1. SURVEYOR DID NOT ABSTRACT SUBJECT PROPERTY. THIS SURVEY WAS PREPARED WITH INFORMATION CONTAINED IN TITLE COMMITMENT GF NO. SAT-41-4000412401241-DB OF ALAMO TITLE INSURANCE, EFFECTIVE DATE OF MAY 21, 2024, ISSUED DATE OF JUNE 3, 2024, AND IS SUBJECT TO THE LIMITATIONS OF THAT COMMITMENT.
2. BEARINGS WERE BASED ON THE TEXAS COORDINATE SYSTEM OF 1983, SOUTH CENTRAL ZONE (4204). ALL DISTANCES SHOWN HEREON ARE SURFACE DISTANCES AND MAY BE BROUGHT TO GRID BY APPLYING THE FOLLOWING SCALE FACTOR: 0.99984312.
3. ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), FLOOD INSURANCE RATE MAP (FIRM) FOR COMAL COUNTY, TEXAS, MAP NO. 48091C0220F REVISED/DATED SEPTEMBER 2, 2009, THE SUBJECT TRACT APPEARS TO LIE WITHIN UNSHADED ZONE "X". THIS DETERMINATION WAS DONE BY GRAPHIC PLOTTING AND IS APPROXIMATE ONLY, AND HAS NOT BEEN FIELD VERIFIED. THIS FLOOD STATEMENT DOES NOT IMPLY THAT THE PROPERTY OR STRUCTURES THEREON WILL BE FREE FROM FLOODING OR FLOOD DAMAGE. ON RARE OCCASIONS FLOODS CAN AND WILL OCCUR AND FLOOD HEIGHTS MAY BE INCREASED BY MAN-MADE OR NATURAL CAUSES. THIS FLOOD STATEMENT SHALL NOT CREATE LIABILITY ON THE PART OF WINDROSE LAND SERVICES.
4. READILY VISIBLE IMPROVEMENTS AND UTILITIES WERE LOCATED WITH THIS SURVEY, NO SUBSURFACE PROBING, EXCAVATION OR EXPLORATION WAS PERFORMED BY WINDROSE LAND SERVICES.
5. ENVIRONMENTAL AND DRAINAGE ISSUES ARE BEYOND THE SCOPE OF THIS SURVEY.
6. THE SQUARE FOOTAGE TOTALS SHOWN HEREON ARE BASED ON THE MATHEMATICAL CLOSURE OF THE COURSES AND DISTANCES REFLECTED ON THE SURVEY. IT DOES NOT INCLUDE THE TOLERANCES THAT MAY BE PRESENT DUE TO THE POSITIONAL ACCURACY OF THE BOUNDARY MONUMENTATION.
7. FENCES SHOWN HEREON WITH DIMENSIONAL TIES ARE SHOWN WHERE THEY ARE PHYSICALLY MEASURED. THE FENCE MAY MEANDER BETWEEN MEASURED LOCATIONS.
8. THE WORD "CERTIFY" OR "CERTIFICATE" AS SHOWN AND USED HEREON MEANS AN EXPRESSION OF PROFESSIONAL OPINION REGARDING THE FACTS OF THE SURVEY AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE EXPRESSED OR IMPLIED.
9. ELEVATIONS SHOWN TO THE NEAREST TENTH ARE NATURAL GROUND SURFACE ELEVATIONS AND ELEVATIONS SHOWN TO THE NEAREST HUNDREDTH ARE SOLID SURFACE ELEVATIONS.
10. THERE WERE NO UTILITY PLANS THAT AFFECT THE SUBJECT PROPERTY AT THE TIME OF THIS SURVEY. OTHER UTILITY PLANS OR INFORMATION MAY EXIST NOT KNOWN TO THIS COMPANY.
11. SURVEYOR DID NOT PHYSICALLY ENTER MANHOLES. UNDERGROUND PIPE SIZES WERE DETERMINED BY A "MEASURE DOWN" METHOD FROM TOP OF MANHOLE RIM OR TOP OF GRATE OR TOP OF CURB AND WERE COMPARED WITH UTILITY PLANS WHERE POSSIBLE.
12. SURVEYOR HAS CONTACTED DIGTESS FOR LOCATION OF BURIED UTILITY AND FIBER OPTIC LINES PRIOR TO THIS SURVEY. SURVEYOR CANNOT CERTIFY OR GUARANTY THE ACCURACY OR COMPLETENESS OF THIS REQUEST. OTHER UNDERGROUND UTILITY LINES MAY EXIST NOT KNOWN TO THIS COMPANY. IT IS THE CONTRACTORS RESPONSIBILITY TO CONTACT DIGTESS OR OTHER UTILITY NOTIFICATION SERVICES FOR LOCATION OF UNDERGROUND UTILITIES, PRIOR TO CONSTRUCTION.
13. ELEVATIONS HEREON ARE BASED UPON A NGS OPUS SOLUTION DERIVED FROM ON-SITE STATIC GPS OBSERVATIONS CONDUCTED AT THE TIME OF SURVEY. ACCORDING TO THE NGS OPUS REPORT, THE FOLLOWING CORS STATIONS WERE USED DG5765 TXJC JOHNSON CITY CORS ARP, DG5767 TXSM SAN MARCOS CORS ARP, DJ7862 TXBO BOERNE CORS ARP; THE NEAREST NGS PUBLISHED CONTROL POINT IS PID AY0194, DESIGNATION F 1004. (NAVD88, COMPUTED USING GEOID18)

LEGEND

* SOME OF THESE ELEMENTS MAY NOT BE USED ON THIS SURVEY

BO	– BOLLARD	PLM	– PIPELINE MARKER
(handicap symbol)	– HANDICAP	WLM	– WATERLINE MARKER
GM	– GAS METER	UCS	– UNDERGROUND CABLE SIGN
GV	– GAS VALVE	CTL	– CATHODIC TEST LEAD
FH	– FIRE HYDRANT	MW	– MONITORING WELL
WM	– WATER METER	P	– PIN FLAG/PAINT MARK
WV	– WATER VALVE	TC	– TOP OF CURB
ICV	– IRRIGATION CONTROL VALVE	G	– GUTTER
(symbol)	– GRATE INLET	TG	– TOP OF GRATE
(symbol)	– GRATE INLET	FL	– FLOW LINE
(symbol)	– MANHOLE	HB	– HIGHBANK
CO	– CLEANOUT	SAN	– SANITARY SEWER
TP	– TELEPHONE PEDESTAL	STM	– STORM SEWER
EB	– ELECTRIC BOX	CMP	– CORRUGATED METAL PIPE
EM	– ELECTRIC METER	CPP	– CORRUGATED PLASTIC PIPE
TSB	– TRAFFIC SIGNAL BOX	RCP	– REINFORCED CONCRETE PIPE
LP	– LIGHT POLE	TEL	– TELEPHONE
TLP	– TRAFFIC LIGHT POLE	ELC	– ELECTRIC
GL	– GROUND/SPOT LIGHT	WTR	– WATER
PP	– POWER POLE	UG	– UNDERGROUND
PP/T	– POWER POLE W/TRANSFORMER	FND	– FOUND
PP/LT	– POWER POLE W/LIGHT	O.P.R.C.C.T.	– OFFICIAL PUBLIC RECORDS COMAL COUNTY, TEXAS
PP/CT	– POWER POLE W/CONDUIT	D.R.C.C.T.	– DEED RECORDS COMAL COUNTY, TEXAS
MP	– METER POLE	P.R.C.C.T.	– PLAT RECORDS COMAL COUNTY, TEXAS
SP	– SERVICE POLE	D.P.R.C.C.T.	– DEED AND PLAT RECORDS COMAL COUNTY, TEXAS
GA	– GUY ANCHOR	IP	– IRON PIPE
—P—	– OVERHEAD POWER LINE	IR	– IRON ROD
—x—	– BARBED WIRE FENCE	NO.	– NUMBER
—c—	– WROUGHT IRON FENCE	PG.	– PAGE
—//—	– WOOD FENCE	R.O.W.	– RIGHT-OF-WAY
—o—	– CHAINLINK FENCE	SQ. FT.	– SQUARE FEET
GP	– GATE POST	VOL.	– VOLUME
(P)	– PER PLANS	F.C.	– FILM CODE
APPROX.	– APPROXIMATE	B.L.	– BUILDING LINE
(symbol)	– HIGHBANK	U.E.	– UTILITY EASEMENT
(symbol)	– SIGN	P.O.B.	– POINT OF BEGINNING
PTG	– PIPE TO GROUND	P.O.C.	– POINT OF COMMENCEMENT
MS	– MULTI-STEM	N.T.S.	– NOT TO SCALE
VLT	– VAULT	(symbol)	– TREE/SHRUB

SURVEYOR'S CERTIFICATION

TO: H-E-B, LP, A TEXAS LIMITED PARTNERSHIP
ALAMO TITLE INSURANCE
BULVERDE-46/PONDEROSA, LLC
MOODY BANK

I DO HEREBY CERTIFY TO THE ABOVE LISTED THAT THIS SURVEY WAS THIS DAY MADE ON THE GROUND AND WAS PERFORMED UNDER MY SUPERVISION. THAT THIS PLAT CORRECTLY REPRESENTS THE PROPERTY LEGALLY DESCRIBED HEREON, THAT THE FACTS FOUND AT THE TIME OF THIS SURVEY SHOW THE IMPROVEMENTS AND THAT THERE ARE NO VISIBLE ENCROACHMENTS APPARENT ON THE GROUND, EXCEPT AS SHOWN. THIS SURVEY SUBSTANTIALLY CONFORMS TO THE CURRENT TEXAS SOCIETY OF PROFESSIONAL SURVEYORS STANDARDS AND SPECIFICATIONS FOR A CATEGORY 1A, CONDITION II AND A CATEGORY 6, CONDITION II TOPOGRPAHIC SURVEY, TO THE BEST OF MY KNOWLEDGE.

STATE OF TEXAS REGISTERED C. PAUL JONES SR. 5480 PROFESSIONAL LAND SURVEYOR

C. PAUL JONES SR.
Registered Professional Land Surveyor
Texas Registration No. 5480

2-6-2025
DATE

WINDROSE
LAND SURVEYING | PLATTING
9360 CORPORATE DRIVE, STE 102 | SELMA, TX 78154 | 210.634.1565
FIRM REGISTRATION NO. 10108800 | WINDROSESERVICES.COM

STANDARD LAND TITLE SURVEY
AND TOPOGRAPHIC SURVEY OF
3.8010 ACRES / 165,570 SQ. FT.
ALL OF LOT 1 OF WARREN HILL SUBDIVISION
SITUATED IN THE
PHILLIP WAGNER SURVEY, ABSTRACT NO. 673
COMAL COUNTY, TEXAS

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FIELDED BY: TB	CHECKED BY: CJ	JOB NO. 60065
DRAWN BY: CRP	DATE: OCTOBER 2024	SHEET NO. 1 OF 1

REVISIONS		
DATE	REASON	BY
2-18-2025	CLIENT COMMENTS	JW
11-18-2025	ADDITIONAL TOPO	CRP

SURVEY FOR REFERENCE ONLY

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TBPELS FIRM F-10961
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MB&B ARCHITECTS AND ENGINEERS
5300 HOLLISTER STREET,
SUITE 301 HOUSTON, TX 77040
TEL: 713 370 8750
TBPELS F-24553

01/30/2026

STATE OF TEXAS JOSHUA M. KELSEY 157476 LICENSED PROFESSIONAL ENGINEER

NOTES:

PROMENADE AT SINGING OAKS

20285 STATE HWY 46 W. BULVERDE, TX 78163

No.	DESCRIPTION	DATE
1	Issue for permit	9/2/2025

SCALE:

DRAWN BY: MG

CHK BY: JK

APP BY: ESP

DATE: JANUARY 2026

PROJECT NO.: 643.001

SHEET TITLE:

TOPOGRAPHIC SURVEY

SHEET NUMBER:

C0.4

Drawing Name: M:_Projects\643 – MB&B\001 – Promenade at Singing Oaks Drainage\CDs\643.001_COVR.dwg User: michaelg Jan 30, 2026 – 12:19pm



0 20 40 80
SCALE: 1" = 40'

DRAINAGE MAP

- SITE PROPERTY LINE
- ADJACENT PROPERTY LINE
- BUILDING SETBACK LINE
- EASEMENT
- 700 EXISTING CONTOUR
- 700 PROPOSED CONTOUR
- DRAINAGE AREA
- TC TIME OF CONCENTRATION
- DRAINAGE FLOW DIRECTION
- POC POINT OF CONCENTRATION
- DA / ACRES DRAINAGE AREA LABEL

Existing Conditions Offsite/Onsite Acreage Breakdown

Area ID	Total Area (ac)	Onsite Area (ac)	Onsite Impervious Cover (ac)	Offsite Area (ac)	Offsite Impervious Cover (ac)
OS-A	0.50	0.48	0.00	0.02	0.02
OS-B1	0.64	0.00	0.00	0.64	0.02
OS-B2	0.15	0.00	0.00	0.15	0.00
OS-B3	0.07	0.00	0.00	0.07	0.05
OS-B4	0.01	0.00	0.00	0.01	0.01
OS-B5	0.31	0.00	0.00	0.31	0.07
EX-B6	3.32	3.32	0.13	0.00	0.00

Table 1 - Existing Hydrology Calculations

DA	POC	ACREAGE	CN	Tc Lag	Q2 (cfs)	Q5 (cfs)	Q10 (cfs)	Q25 (cfs)	Q100 (cfs)
OS-A	POC A	0.49	0.0	3.00	1.00	1.70	2.30	3.20	5.10
OS-B1	POC B1	0.64	80.0	3.00	1.50	2.30	3.10	4.40	6.80
OS-B2	POC B2	0.15	84.0	3.54	0.40	0.60	0.80	1.10	1.60
OS-B3	POC-B3	0.07	93.2	3.00	0.20	0.30	0.40	0.60	0.80
OS-B4	POC-B4	0.01	98.0	3.00	0.00	0.10	0.10	0.10	0.10
OS-B5	POC-B5	0.31	87.0	4.59	0.90	1.30	1.60	2.20	3.30
EX-B6	POC-B	3.32	77.5	3.00	7.00	11.20	15.40	22.00	34.50
POC B Combined	POC-B	-	-	-	10.10	15.80	21.40	30.30	47.10

Table 2 Existing Rational Method Calculations (for Hydraulic Analysis)

Point of Concentration	Area ID	Area (ac)	T_c (min)	C-Value	I_2 (in/hr)	I_5 (in/hr)	I_{10} (in/hr)	I_{25} (in/hr)	I_{100} (in/hr)	Q_2 (cfs)	Q_5 (cfs)	Q_{10} (cfs)	Q_{25} (cfs)	Q_{100} (cfs)
POC A	OS-A	0.50	5	0.53	6.34	7.96	9.31	11.22	14.26	1.67	2.10	2.46	2.96	3.76
POC B1	OS-B1	0.64	5	0.97	6.34	7.96	9.31	11.22	14.26	2.14	2.69	3.15	3.80	4.82
POC B2	OS-B2	0.15	6	0.00	5.98	7.53	8.81	10.64	13.53	0.48	0.60	0.70	0.85	1.08
POC B3	OS-B3	0.07	5	0.84	6.34	7.96	9.31	11.22	14.26	0.37	0.47	0.55	0.66	0.84
POC-B4	OS-B4	0.01	5	0.97	6.34	7.96	9.31	11.22	14.26	0.06	0.08	0.09	0.11	0.14
POC B	OS-B5	0.31	8	0.62	5.45	6.87	8.05	9.74	12.37	1.05	1.32	1.55	1.88	2.38
POC B	EX-B6	3.32	5	0.54	6.34	7.96	9.31	11.22	14.26	11.27	14.15	16.54	19.94	25.34

INTENSITIES FROM TABLE 3.3 2019 BULVERDE SDDCM

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03/10/2026

STATE OF TEXAS
JOSHUA M. KELSEY
157476
LICENSED
PROFESSIONAL ENGINEER

NOTES:

PROMENADE AT SINGING OAKS

20285 STATE HWY 46 W. BULVERDE, TX 78163

No.	DESCRIPTION	DATE
1	Issue for permit	9/2/2025

SCALE:

DRAWN BY: MG

CHK BY: JK

APP BY: ESP

DATE: MARCH 2026

PROJECT NO.: 643.001

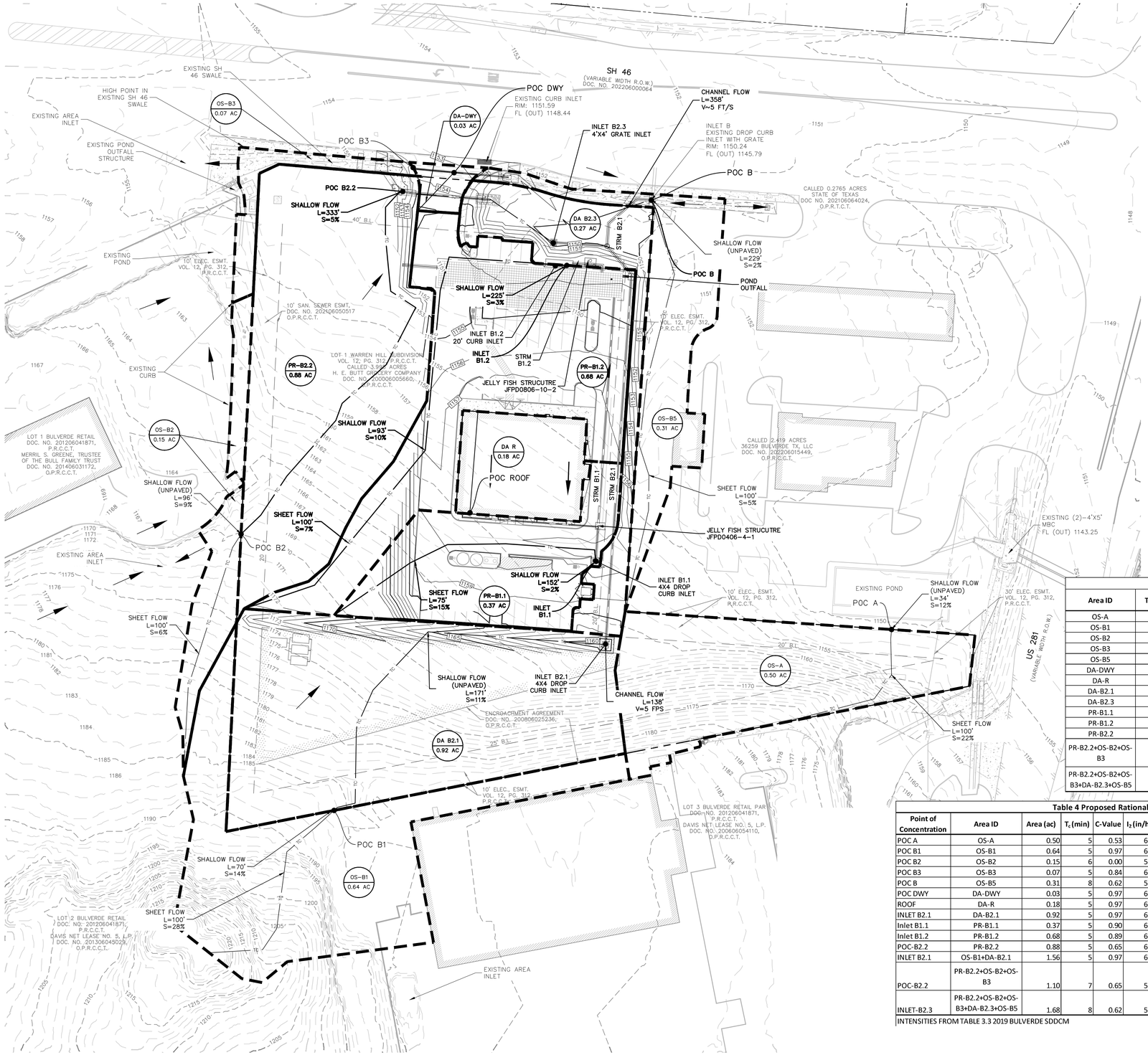
SHEET TITLE:

EXISTING DRAINAGE AREA MAP

SHEET NUMBER:

C1.0

Drawing Name: M:_projects\643 - mb&b\001 - promenade at singing oaks drainage\CDs\643.001_DRNG.dwg User: jbthuds Mar 10, 2026 - 3:31pm



0 20 40 80

SCALE: 1" = 40'

DRAINAGE MAP

- SITE PROPERTY LINE
- ADJACENT PROPERTY LINE
- BUILDING SETBACK LINE
- EASEMENT
- 700 EXISTING CONTOUR
- 700 PROPOSED CONTOUR
- DRAINAGE AREA
- TC TIME OF CONCENTRATION
- DRAINAGE FLOW DIRECTION
- POC POINT OF CONCENTRATION
- DA / ACRES DRAINAGE AREA LABEL

Proposed Conditions Offsite/Onsite Acreage Breakdown

Area ID	Total Area (ac)	Onsite Area (ac)	Onsite Impervious Cover (ac)	Offsite Area (ac)	Offsite Impervious Cover (ac)
OS-A	0.50	0.48	0.00	0.02	0.02
OS-B1	0.64	0.00	0.00	0.64	0.02
OS-B2	0.15	0.00	0.00	0.15	0.00
OS-B3	0.07	0.00	0.00	0.07	0.05
OS-B5	0.31	0.00	0.00	0.31	0.07
DA-DWY	0.03	0.02	0.02	0.01	0.01
DA-R	0.18	0.18	0.18	0	0
DA-B2.1	0.92	0.92	0	0	0
DA-B2.3	0.27	0.27	0	0	0
PR-B1.1	0.37	0.37	0.31	0	0
PR-B1.2	0.68	0.68	0.55	0	0
PR-B2.2	0.88	0.88	0	0	0
PR-B2.2+OS-B2+OS-B3	1.10	0.88	0	0.22	0.05
PR-B2.2+OS-B2+OS-B3+DA-B2.3+OS-B5	1.68	1.15	0	0.53	0.12

Table 4 Proposed Rational Method Calculations (for Hydraulic Analysis)

Point of Concentration	Area ID	Area (ac)	T_c (min)	C-Value	I_2 (in/hr)	I_5 (in/hr)	I_{10} (in/hr)	I_{25} (in/hr)	I_{100} (in/hr)	Q_2 (cfs)	Q_5 (cfs)	Q_{10} (cfs)	Q_{25} (cfs)	Q_{100} (cfs)
POC A	OS-A	0.50	5	0.53	6.34	7.96	9.31	11.22	14.26	1.67	2.10	2.46	2.96	3.76
POC B1	OS-B1	0.64	5	0.97	6.34	7.96	9.31	11.22	14.26	2.14	2.69	3.15	3.80	4.82
POC B2	OS-B2	0.15	6	0.00	5.98	7.53	8.81	10.64	13.53	0.48	0.60	0.70	0.85	1.08
POC B3	OS-B3	0.07	5	0.84	6.34	7.96	9.31	11.22	14.26	0.37	0.47	0.55	0.66	0.84
POC B	OS-B5	0.31	8	0.62	5.45	6.87	8.05	9.74	12.37	1.05	1.32	1.55	1.88	2.38
POC DWY	DA-DWY	0.03	5	0.97	6.34	7.96	9.31	11.22	14.26	0.18	0.23	0.27	0.33	0.41
ROOF	DA-R	0.18	5	0.97	6.34	7.96	9.31	11.22	14.26	1.11	1.39	1.63	1.96	2.49
INLET B2.1	DA-B2.1	0.92	5	0.97	6.34	7.96	9.31	11.22	14.26	3.06	3.84	4.50	5.42	6.89
Inlet B1.1	PR-B1.1	0.37	5	0.90	6.34	7.96	9.31	11.22	14.26	2.11	2.65	3.10	3.74	4.75
Inlet B1.2	PR-B1.2	0.68	5	0.89	6.34	7.96	9.31	11.22	14.26	3.82	4.79	5.61	6.76	8.59
POC-B2.2	PR-B2.2	0.88	5	0.65	6.34	7.96	9.31	11.22	14.26	3.63	4.55	5.33	6.42	8.16
INLET B2.1	OS-B1+DA-B2.1	1.56	5	0.97	6.34	7.96	9.31	11.22	14.26	5.24	6.58	7.70	9.27	11.79
POC-B2.2	PR-B2.2+OS-B2+OS-B3	1.10	7	0.65	5.70	7.17	8.40	10.16	12.91	4.05	5.10	5.97	7.22	9.17
INLET-B2.3	PR-B2.2+OS-B2+OS-B3+DA-B2.3+OS-B5	1.68	8	0.62	5.45	6.87	8.05	9.74	12.37	5.71	7.20	8.43	10.21	12.96

INTENSITIES FROM TABLE 3.3 2019 BULVERDE SDDCM

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04/27/2026

STATE OF TEXAS
JOSHUA M. KELSEY
157476
LICENSED
PROFESSIONAL ENGINEER

NOTES:

PROMENADE AT SINGING OAKS

20285 STATE HWY 46 W. BULVERDE, TX 78163

No.	DESCRIPTION	DATE
1	Issue for permit	9/2/2025

SCALE:

DRAWN BY: MG

CHK BY: JK

APP BY: ESP

DATE: APRIL 2026

PROJECT NO.: 643.001

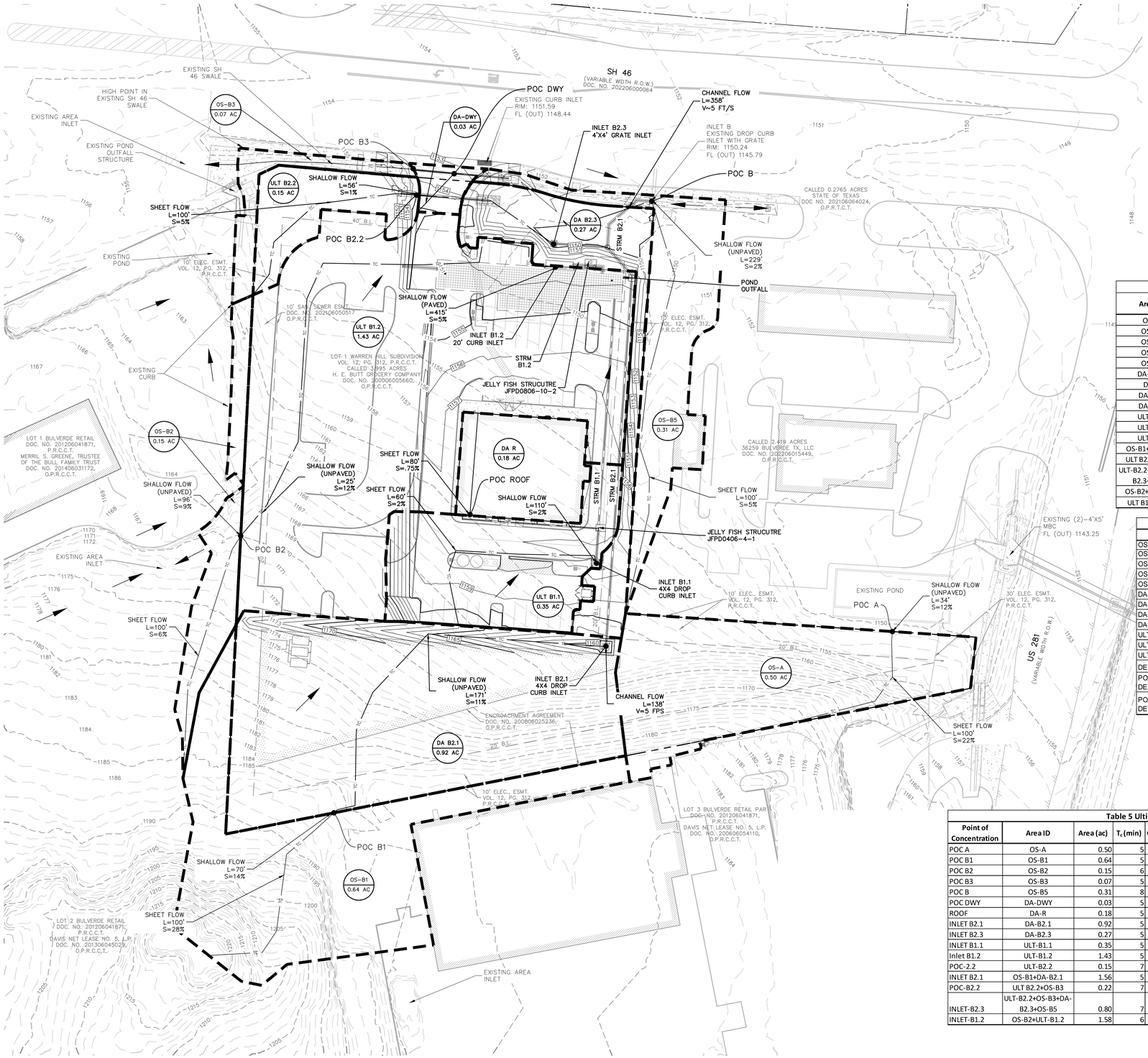
SHEET TITLE:

PROPOSED SUB DRAINAGE AREA MAP

SHEET NUMBER:

C1.1

Drawing Name: M:_Projects\643 - MB&B\001 - Promenade at Singing Oaks Drainage\CDs\643.001_DRNG.dwg User: mcheeg Apr 27, 2026 - 12:27pm



0 20 40 80
SCALE: 1" = 40'

DRAINAGE MAP

- SITE PROPERTY LINE
- ADJACENT PROPERTY LINE
- BUILDING SETBACK LINE
- EASEMENT
- 700 EXISTING CONTOUR
- 700 PROPOSED CONTOUR
- DRAINAGE AREA
- TC TIME OF CONCENTRATION
- DRAINAGE FLOW DIRECTION
- POC POINT OF CONCENTRATION
- DA / ACRES DRAINAGE AREA LABEL

Ultimate Conditions Offsite/Onsite Acreage Breakdown

Area ID	Total Area (ac)	Onsite Area (ac)	Onsite Impervious Cover (ac)	Offsite Area (ac)	Offsite Impervious Cover (ac)
OS-A	0.50	0.48	0.00	0.02	0.02
OS-B1	0.64	0.00	0.00	0.64	0.02
OS-B2	0.15	0.00	0.00	0.15	0.00
OS-B3	0.07	0.00	0.00	0.07	0.05
OS-B5	0.31	0.00	0.00	0.31	0.07
DA-DWY	0.03	0.02	0.02	0.01	0.01
DA-R	0.18	0.18	0.18	0	0
DA-B2.1	0.92	0.92	0	0	0
DA-B2.3	0.27	0.27	0	0	0
ULT-B1.1	0.35	0.35	0.35	0	0
ULT-B1.2	1.43	1.43	1.33	0	0
ULT-B2.2	0.15	0.15	0	0	0
OS-B1+DA-B2.1	1.56	0.92	0.00	0.64	0.02
ULT B2.2+OS-B3	0.22	0.15	0.00	0.07	0.05
ULT-B2.2+OS-B3+DA-B2.3+OS-B5	0.80	0.42	0.00	0.38	0.12
OS-B2+ULT-B1.2	1.58	1.43	1.33	0.15	0.00
ULT B1.1+DA-R	0.53	0.53	0.53	0	0

Table 2 - Ultimate Hydrology Calculations (SCS)

DA	POC	ACREAGE	CN	Tc Lag	Q2 (cfs)	Q5 (cfs)	Q10 (cfs)	Q25 (cfs)	Q100 (cfs)
OS-A	POC A	0.49	0.0	3.00	1.00	1.70	2.30	3.20	5.10
OS-B1	POC B1	0.64	80.0	3.00	1.50	2.30	3.10	4.40	6.80
OS-B2	POC B2	0.15	84.0	3.54	0.40	0.60	0.80	1.10	1.60
OS-B3	POC-B3	0.07	93.2	3.00	0.20	0.30	0.40	0.60	0.80
OS-B5	POC-B5	0.31	87.0	4.59	0.90	1.30	1.60	2.20	3.30
DA-DWY	POC-DWY	0.03	98.0	3.00	0.10	0.20	0.20	0.30	0.40
DA-R	POC-ROOF	0.18	98.0	3.00	0.70	0.90	1.10	1.40	2.10
DA-B2.1	INLET B2.1	0.92	80.5	3.00	2.20	3.40	4.60	6.40	9.90
DA-B2.3	INLET B2.3	0.27	81.5	3.00	0.70	1.00	1.40	1.90	2.90
ULT-B1.1	INLET B1.1	0.35	98.0	3.00	1.30	1.70	2.20	2.80	4.10
ULT-B1.2	INLET B1.2	1.43	97.0	3.00	5.30	7.10	8.80	11.50	16.70
ULT-B2.2	POC-B2.2	0.15	84.0	3.94	0.40	0.60	0.80	1.10	1.60
DETENTION	-	-	-	-	4.50	5.60	6.60	12.90	19.10
POC B W/O DETENTION	POC B				13.50	19.30	24.90	33.60	50.00
POC B WITH DETENTION	POC B	-	-	-	10.10	14.00	17.80	28.10	43.20

Point of Concentration	Δ_2 (cfs)	Δ_5 (cfs)	Δ_{10} (cfs)	Δ_{25} (cfs)	Δ_{100} (cfs)
A	0.00	0.00	0.00	0.00	0.00
B (W/O DETENTION)	3.40	3.50	3.50	3.30	2.90
B (WITH DETENTION)	0.00	-1.80	-3.60	-2.20	-3.90

Table 5 Ultimate Rational Method Calculations (for Hydraulic Analysis)

Point of Concentration	Area ID	Area (ac)	T_c (min)	C-Value	I_2 (in/hr)	I_5 (in/hr)	I_{10} (in/hr)	I_{25} (in/hr)	I_{100} (in/hr)	Q_2 (cfs)	Q_5 (cfs)	Q_{10} (cfs)	Q_{25} (cfs)	Q_{100} (cfs)
POC A	OS-A	0.50	5	0.53	6.34	7.96	9.31	11.22	14.26	1.67	2.10	2.46	2.96	3.76
POC B1	OS-B1	0.64	5	0.97	6.34	7.96	9.31	11.22	14.26	2.14	2.69	3.15	3.80	4.82
POC B2	OS-B2	0.15	6	0.00	5.98	7.53	8.81	10.64	13.53	0.48	0.60	0.70	0.85	1.08
POC B3	OS-B3	0.07	5	0.84	6.34	7.96	9.31	11.22	14.26	0.37	0.47	0.55	0.66	0.84
POC B	OS-B5	0.31	8	0.62	5.45	6.87	8.05	9.74	12.37	1.05	1.32	1.55	1.88	2.38
POC DWY	DA-DWY	0.03	5	0.97	6.34	7.96	9.31	11.22	14.26	0.18	0.23	0.27	0.33	0.41
ROOF	DA-R	0.18	5	0.97	6.34	7.96	9.31	11.22	14.26	1.11	1.39	1.63	1.96	2.49
INLET B2.1	DA-B2.1	0.92	5	0.97	6.34	7.96	9.31	11.22	14.26	3.06	3.84	4.50	5.42	6.89
INLET B2.3	DA-B2.3	0.27	5	0.97	6.34	7.96	9.31	11.22	14.26	0.90	1.13	1.32	1.59	2.03
INLET B1.1	ULT-B1.1	0.35	5	0.97	6.34	7.96	9.31	11.22	14.26	2.15	2.70	3.16	3.81	4.84
Inlet B1.2	ULT-B1.2	1.43	5	0.97	6.34	7.96	9.31	11.22	14.26	8.52	10.69	12.50	15.07	19.15
POC-2.2	ULT-B2.2	0.15	7	0.53	5.70	7.17	8.40	10.16	12.91	0.45	0.57	0.67	0.81	1.03
INLET B2.1	OS-B1+DA-B2.1	1.56	5	0.97	6.34	7.96	9.31	11.22	14.26	5.24	6.58	7.70	9.27	11.79
POC-B2.2	ULT B2.2+OS-B3	0.22	7	0.97	5.70	7.17	8.40	10.16	12.91	1.22	1.53	1.79	2.17	2.75
INLET-B2.3	ULT-B2.2+OS-B3+DA-B2.3+OS-B5	0.80	7	0.59	5.70	7.17	8.40	10.16	12.91	2.71	3.41	4.00	4.83	6.14
INLET-B1.2	OS-B2+ULT-B1.2	1.58	6	0.90	5.98	7.53	8.81	10.64	13.53	8.51	10.71	12.53	15.14	19.25

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04/27/2026

STATE OF TEXAS
JOSHUA M. KELSEY
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NOTES:

PROMENADE AT SINGING OAKS
20285 STATE HWY 46 W. BULVERDE, TX 78163

No.	DESCRIPTION	DATE
1	Issue for permit	9/2/2025

SCALE:

DRAWN BY: MG

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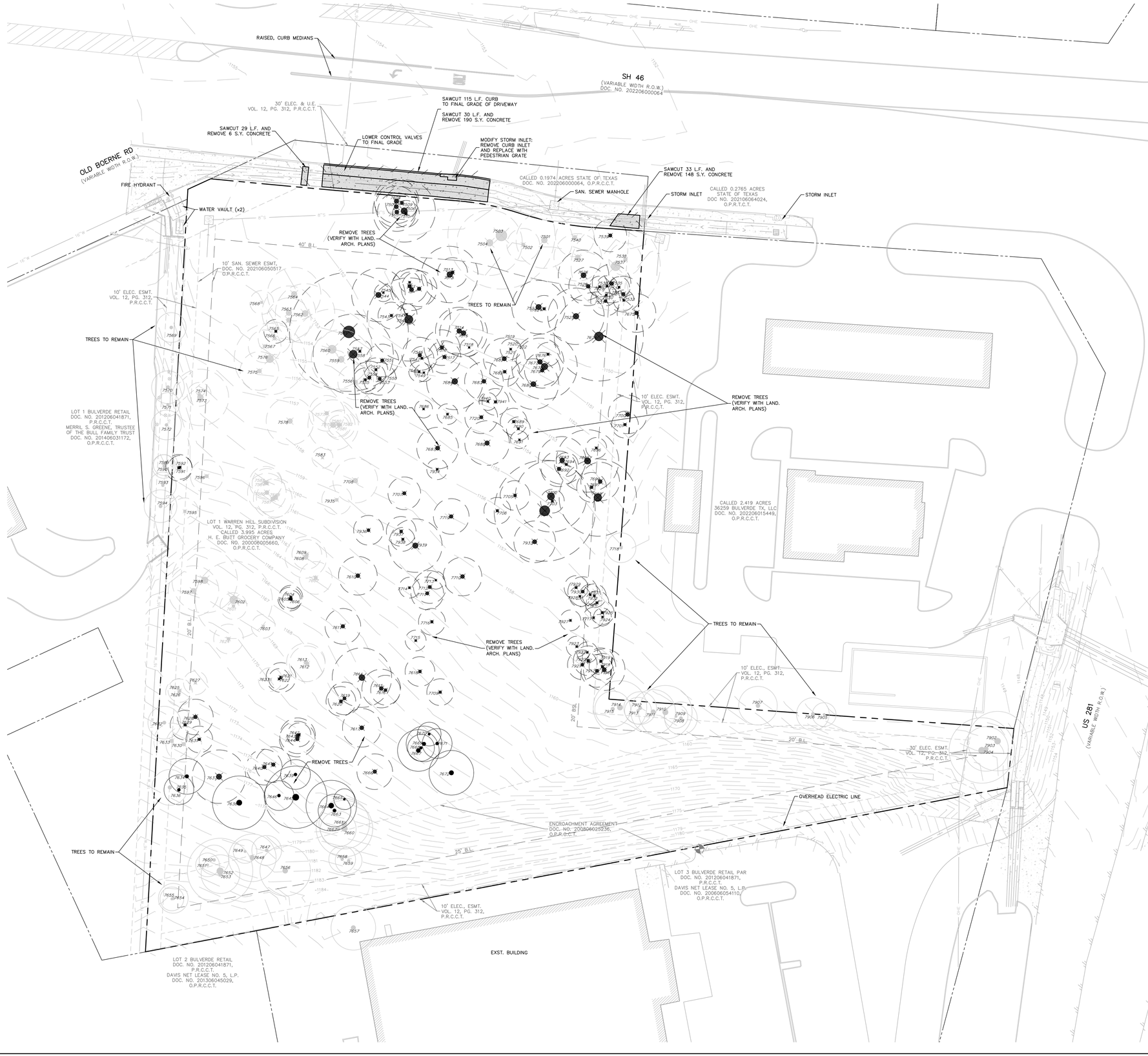
SHEET TITLE:

ULTIMATE DRAINAGE AREA MAP

SHEET NUMBER:

C1.2

Drawing Name: M:_projects\643 - mb&s\001 - promenade at singing oaks drainage\CDs\643.001_DRNG.dwg User: joshuak Apr 27, 2026 - 4:31pm



EXISTING CONDITIONS AND DEMOLITION PLAN

- SITE PROPERTY LINE
- ADJOINING PROPERTY LINE
- EASEMENT
- BUILDING SETBACK LINE
- EXISTING CONTOUR
- EDGE OF ASPHLAT
- CONCRETE
- SAWCUT PAVEMENT
- WATER LINE
- FIRE HYDRANT
- WATER VALVE
- WATER METER
- SANITARY SEWER LINE
- SANITARY SEWER MANHOLE
- OVERHEAD ELECTRIC LINE
- ELECTRIC POLE
- GUY ANCHOR
- STORM DRAIN MANHOLE
- TREE TO REMAIN REFLANDSCAPE PLANS
- TREE MARKED FOR DEMOLITION REF LANDSCAPE PLANS

NOTE:
1) TOPOGRAPHIC SURVEY SCALED BY 0.99984312
2) FOR TREE DESCRIPTIONS AND SIZES, SEE TOPOGRAPHIC SURVEY (C0.4)
3) BEFORE REMOVING ANY TREE, VERIFY TREES MARKED FOR DEMOLITION WITH LANDSCAPE ARCHITECT PLANS

REFER TO 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
HMTNB.COM
(830) 625-8555
TBPELS FIRM F-10961
TBPELS FIRM 10153600

MB&S
ARCHITECTS AND ENGINEERS
5300 HOLLISTER STREET,
SUITE 301 HOUSTON, TX 77040
TEL: 713 370 8750
TBPELS F-24553

04/27/2026

STATE OF TEXAS
JOSHUA M. KELSEY
157476
LICENSED
PROFESSIONAL ENGINEER

NOTES:

PROMENADE AT SINGING OAKS

20285 STATE HWY 46 W. BULVERDE, TX 78163

No.	DESCRIPTION	DATE
1	Issue for permit	9/2/2025

SCALE:

DRAWN BY: MG

CHK BY: JK

APP BY: ESP

DATE: APRIL 2026

PROJECT NO.: 643.001

SHEET TITLE:

EXISTING CONDITIONS AND DEMOLITION PLAN

SHEET NUMBER:

C2.0

Drawing Name: M:_Projects\643 - MB&S\001 - Promenade at Singing Oaks Drainage\Cds\643.001_DEMO.dwg User: mshuerg Apr 27, 2026 - 12:28pm



EROSION CONTROL PLAN

- SITE PROPERTY LINE
- ADJACENT PROPERTY LINE
- EASEMENT
- 700 EXISTING CONTOUR
- 700 PROPOSED CONTOUR
- TP TREE PROTECTION
- SF SILT FENCE
- LOC LIMITS OF CONSTRUCTION (2.1 ACRES OF DISTURBED AREA)
- STABILIZED CONSTRUCTION EXIT
- RB ROCK BERM
- INLET PROTECTION

SEQUENCE OF CONSTRUCTION

1. INSTALL EROSION CONTROLS PER APPROVED PLAN.
2. TEMPORARY CONTROLS TO BE INSPECTED AND MAINTAINED WEEKLY AND PRIOR TO 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, CONTRACTOR TO VEGETATE ANY DISTURBED AREAS ONCE FINAL GRADING IS COMPLETE, AND ESTABLISH A MIN. OF 70% VEGETATION PRIOR TO COMPLETION. PER TPDES 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:

1. VERIFY TREE PROTECTION MEASURES – LOCATION AND DETAILS – WITH LANDSCAPE ARCHITECT PLANS

REFER TO 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.

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01/30/2026

STATE OF TEXAS
JOSHUA M. KELSEY
157476
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PROFESSIONAL ENGINEER

NOTES:

PROMENADE AT SINGING OAKS

20285 STATE HWY 46 W. BULVERDE, TX 78163

No.	DESCRIPTION	DATE
1	Issue for permit	9/2/2025

SCALE:

DRAWN BY: MG

CHK BY: JK

APP BY: ESP

DATE: JANUARY 2026

PROJECT NO.: 643.001

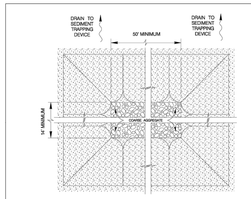
SHEET TITLE:

EROSION CONTROL PLAN

SHEET NUMBER:

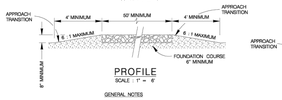
C3.0

Drawing Name: M:_Projects\643 - MB&B\00 - Promenade at Singing Oaks Drainage\CDs\643.001_EROS.dwg User: michaelg Jan 30, 2026 - 12:21pm



PLAN

SCALE : 1" = 6'



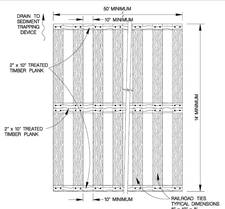
PROFILE

SCALE : 1" = 6'

GENERAL NOTES

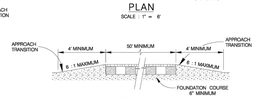
1. THE LENGTH OF THE TYPE 1 CONSTRUCTION EXIT SHALL BE AS INDICATED ON THE PLANS, BUT NOT LESS THAN 50'.
2. THE COARSE AGGREGATE SHOULD BE OPEN GRADED WITH A SIZE OF 4" TO 8".
3. THE APPROACH TRANSITIONS SHOULD BE NO STEEPER THAN 6 :1 AND CONSTRUCTED AS DIRECTED BY THE ENGINEER.
4. THE CONSTRUCTION EXIT 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



PLAN

SCALE : 1" = 6'



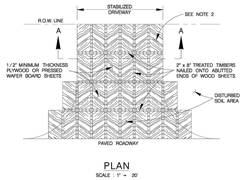
PROFILE

SCALE : 1" = 6'

GENERAL NOTES

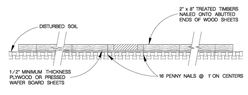
1. THE LENGTH OF THE TYPE 2 CONSTRUCTION EXIT SHALL BE AS INDICATED ON THE PLANS, BUT NOT LESS THAN 50'.
2. THE TREATED TIMBER PLANKS SHALL BE ATTACHED TO THE RAILROAD TIES WITH 1/2" x 6" MIN LAG BOLTS. OTHER FASTENERS MAY BE USED AS APPROVED BY THE ENGINEER.
3. THE TREATED TIMBER PLANKS SHALL BE #2 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



PLAN

SCALE : 1" = 20'



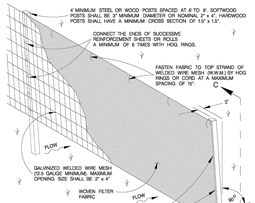
SECTION A–A

SCALE : 1" = 2'

GENERAL NOTES

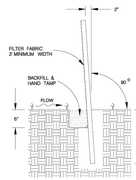
1. THE LENGTH OF THE TYPE 3 CONSTRUCTION EXIT SHALL BE AS INDICATED ON THE PLANS,OR AS DIRECTED BY THE ENGINEER.
2. THE TYPE 3 CONSTRUCTION EXIT MAY BE CONSTRUCTED FROM OPEN GRADED CRUSHED STONE WITH A SIZE OF 2 TO 4 INCHES SPREAD A MINIMUM OF 4 INCHES THICK TO THE LIMITS SHOWN ON THE PLANS.
3. THE TREATED 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



ISOMETRIC VIEW

SCALE : 1" = 2'



SECTION C–C

SCALE : 1" = 2'

SEDIMENT CONTROL FENCE USAGE GUIDELINES

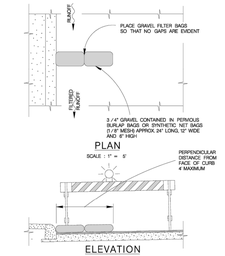
A SEDIMENT CONTROL FENCE MAY BE CONSTRUCTED NEAR THE DOWNSTREAM PERIMETER OF A DISTURBED AREA ALONG A CONTOUR TO INTERCEPT SEDIMENT FROM OVERLAND RUN-OFF. A 2 YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE TO BE FILTERED.

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

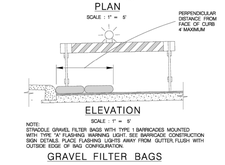
1. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

TEMPORARY SEDIMENT CONTROL FENCE



PLAN

SCALE : 1" = 5'

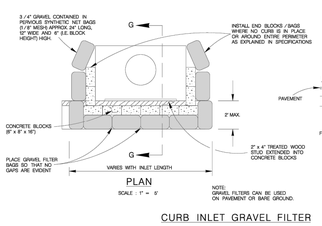


ELEVATION

SCALE : 1" = 5'

NOTE:
STRADDLE GRAVEL FILTER BAGS WITH TYPE 1 BARRICADES MOUNTED TO THE CURB FACE AND PLACED AT EACH END OF CURB INLET CONSTRUCTION SIGN. DETAILS, PLACE FLASHING LIGHTS AWAY FROM GUTTER, FLUSH WITH OUTSIDE EDGE OF BAG CONFIGURATION.

GRAVEL FILTER BAGS

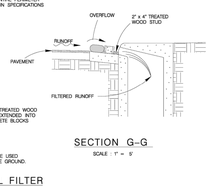


PLAN

SCALE : 1" = 5'

NOTE:
GRAVEL FILTERS CAN BE USED ON PAVEMENT OR BARE GROUND.

CURB INLET GRAVEL FILTER



SECTION G–G

SCALE : 1" = 5'

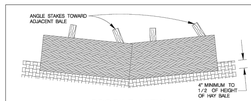
JANUARY 2005

CITY OF SAN ANTONIO

CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

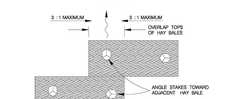
TEMPORARY EROSION, SEDIMENT & WATER POLLUTION CONTROL MEASURES STANDARDS 1

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



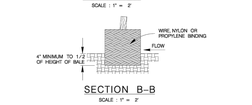
PROFILE VIEW

SCALE : 1" = 2'



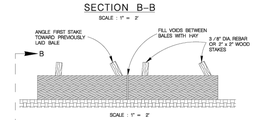
PLAN VIEW

SCALE : 1" = 2'



SECTION B–B

SCALE : 1" = 2'



SCALE : 1" = 2'

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. A TWO YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE TO BE FILTERED. BALED HAY SHOULD NOT BE USED TO FILTER A MAXIMUM FLOW THRU RATE OF 5 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 CONSIDERATIONS APPLY:

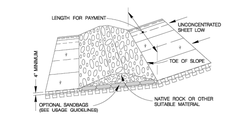
1. THE DITCH SIDESLOPES SHOULD BE GRADED AS FLAT AS POSSIBLE TO MAXIMIZE THE DRAINAGE FLOW RATE THRU THE HAY.
2. THE DITCH SHOULD BE GRADED LARGE ENOUGH TO CONTAIN THE OVERLAPPING DRAINAGE WHEN SEDIMENT HAS FILLED TO THE TOP OF THE BALED HAY.

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

GENERAL NOTES

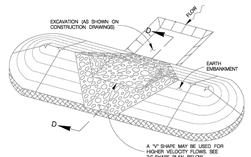
1. HAY BALES SHALL BE A MINIMUM OF 30" IN LENGTH AND WIDTH A MINIMUM OF 50 LBS.
2. HAY BALES SHALL BE BOUND BY EITHER WIRE OR NYLON OR POLYPROPYLENE STRING. THE BALES SHALL BE COMPOSED ENTIRELY OF VEGETABLE MATTER.
3. HAY BALES SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 4" AND, WHERE POSSIBLE, ONE-HALF 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 /4" 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



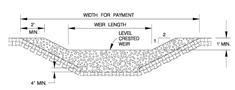
TYPE 1 FILTER DAM AT TOE OF SLOPE

SCALE : 1" = 10'



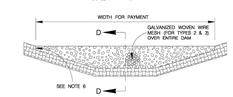
TYPE 1 & 2 FILTER DAM AT SEDIMENT TRAP

SCALE : 1" = 10'



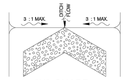
PROFILE OF TYPE 1 & 2 FILTER DAM AT SEDIMENT TRAP

SCALE : 1" = 6'



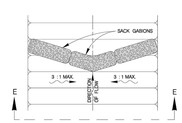
TYPE 1, 2 & 3 FILTER DAM AT CHANNEL SECTIONS

SCALE : 1" = 6'



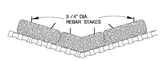
"V" SHAPE PLAN VIEW

NOT TO SCALE



PLAN VIEW

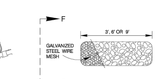
SCALE : 1" = 10'



SECTION E–E

SCALE : 1" = 10'

TYPE 4 FILTER DAM AT DITCHES & SMALLER CHANNELS PLAN VIEW



TYPE 4 SACK GABION DETAIL

SCALE : 1" = 6'



SECTION F–F

SCALE : 1" = 6'



SECTION D–D

SCALE : 1" = 6'

ROCK FILTER DAM USAGE GUIDELINES

ROCK FILTER DAMS SHOULD BE CONSTRUCTED DOWNSTREAM FROM DISTURBED AREAS TO INTERCEPT SEDIMENT FROM OVERLOAD RUNOFF AND /OR CONCENTRATED FLOW. THE DAMS SHOULD BE SIZED TO FILTER A MAXIMUM FLOW THRU RATE OF 65 GPM /FT SQUARED OF CROSS SECTIONAL AREA. A 2 YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE.

TYPE 1 (36" 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 24" DEEP MIN.) FOR BETTER FILTERING EFFICIENCY OF LOW FLOWS. 9" CALLED FOR ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

TYPE 2 (24" HIGH WITH WIRE MESH) :

TYPE 2 MAY BE USED IN DITCHES AND AT ONE OR SMALL 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 NEAR THE TOE OF SLOPES WHERE EROSION IS ANTICIPATED UPSTREAM 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 3 :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 STEEL WIRE MESH WITH 2 INCH 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 SECURED TO THE DAM ON THE DOWNSTREAM SIDE USING WIRE TIES OR HOG RINGS. THE SPREAD OF 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.

ROCK FILTER DAMS

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: S.VASQUEZ	DSGN BY:	CHKD. BY:	SHEET NO.: OF

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:

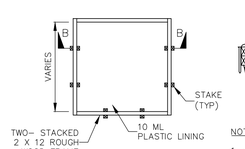
- INCORPORATE REQUIREMENTS FOR CONCRETE WASTE MANAGEMENT INTO MATERIAL SUPPLIER AND SUBCONTRACTOR AGREEMENTS.
- AVOID MIXING EXCESS AMOUNTS OF FRESH CONCRETE.
- PERFORM WASHOUT OF CONCRETE TRUCKS IN DESIGNATED AREAS ONLY.
- DO NOT WASH OUT CONCRETE TRUCKS INTO STORM DRAINS, OPEN DITCHES, STREETS, OR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



NOTES

1. ACTUAL LAYOUT DETERMINED IN FIELD.

PLAN

SECTION B–B

CONCRETE WASHOUT PIT DETAIL

TYPE "ABOVE GRADE"

NOT TO SCALE

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TEL: 713 370 8750
TBPELS F-24553

01/30/2026

STATE OF TEXAS
JOSHUA M. KELSEY
157476
LICENSED PROFESSIONAL ENGINEER

NOTES:

PROMENADE AT SINGING OAKS

20285 STATE HWY 46 W. BULVERDE, TX 78163

No.	DESCRIPTION	DATE
1	Issue for permit	9/2/2025

SCALE:

DRAWN BY: MG

CHK BY: JK

APP BY: ESP

DATE: JANUARY 2026

PROJECT NO.: 643.001

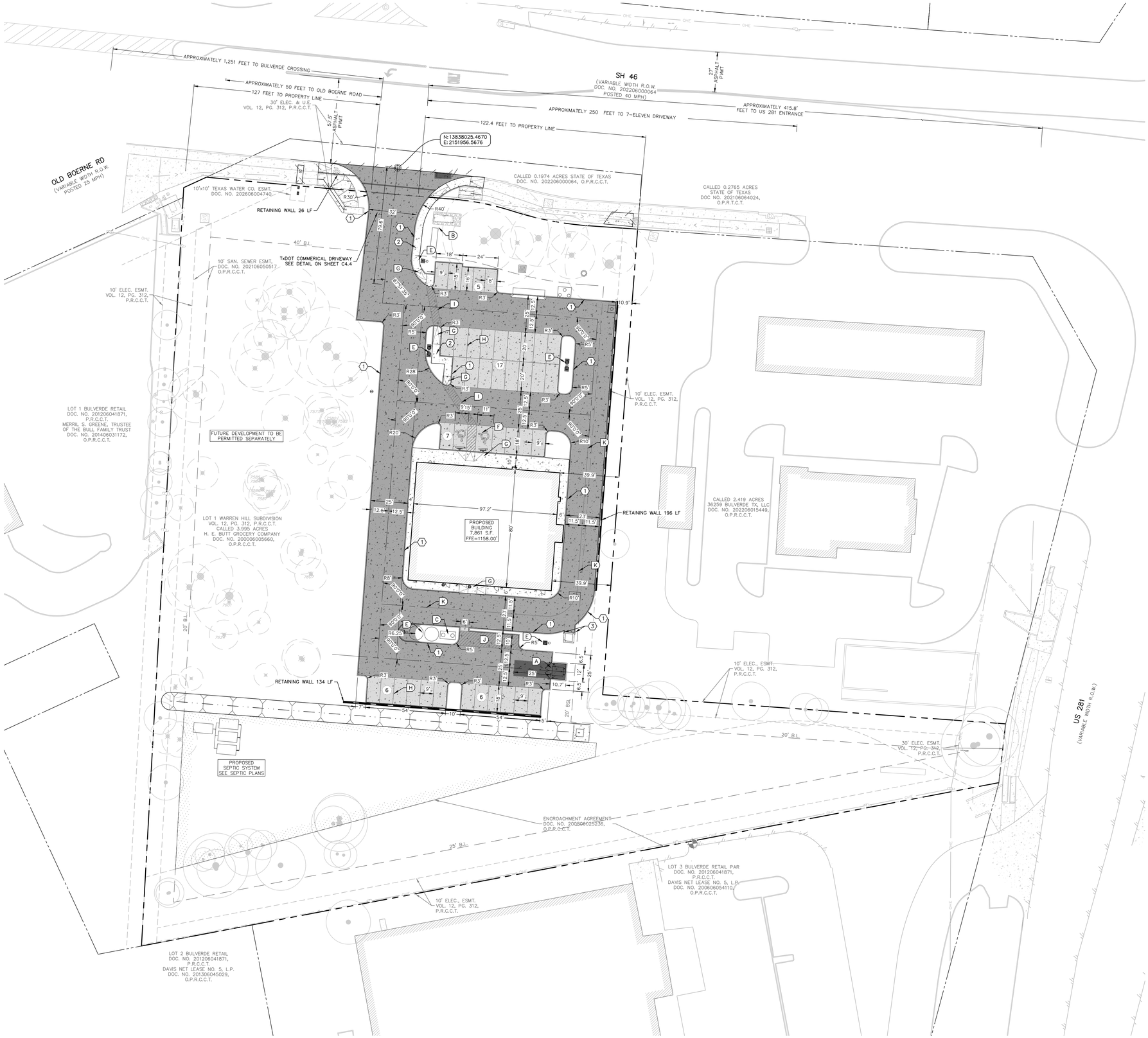
SHEET TITLE:

EROSION CONTROL DETAILS

SHEET NUMBER:

C3.1

Drawing Name: M:_Projects\643 – MB&B\001 – Promenade at Singing Oaks Drainage\CDs\643.001_ERDS.dwg User: michaelg Jan 30, 2026 - 12:21pm



SITE PLAN

- SITE PROPERTY LINE
- ADJACENT PROPERTY LINE
- EASEMENT
- BUILDING SETBACK LINE
- EXISTING SANITARY SEWER MANHOLE
- PROPOSED CLEANOUT (SEE MEP PLANS)
- BACKFLOW
- WATER METER
- FIRE HYDRANT
- GATE VALVE
- OHE — OVERHEAD ELECTRIC LINE
- LIGHT POLE (SEE MEP PLANS)
- UTILITY POLE
- GUY ANCHOR
- LIGHT DUTY PAVEMENT
- HEAVY DUTY PAVEMENT
- DUMPSTER PAD PAVEMENT
- RETAINING WALL

KEYNOTES

1. 6" MONOLITHIC CURB (REF: DETAIL A1, SHEET C4.2)
2. CONCRETE SIDEWALK (REF: DETAIL A2, SHEET C4.2)
3. 2:1 CURB TRANSITION (REF: DETAIL A3, SHEET C4.2)

- A DUMPSTER ENCLOSURE (REF: DETAIL IN ARCH. PLANS)
- B MONUMENT SIGN (REF: SIGN PLANS)
- C GREASE TRAP (REF: MEP PLANS)
- E LIGHT POLE (REF: MEP PLANS)
- F ADA STALL WITH WHEEL STOP AND ACCESSIBLE SIGN (REF: DETAILS IN ARCH. PLANS)
- G ACCESSIBLE RAMP (REF: DETAIL IN ARCH. PLANS AND CIVIL GRADING PLAN SHEET C5.0)
- H PARKING STALL MARKING (REF: DETAIL IN ARCH. PLANS)
- I PEDESTRIAN ACCESS STRIPING 2" MAX CROSS SLOPE
- J TRUCK LOADING AREA CROSS STRIPING
- K PAVEMENT STRIPING: CENTERLINE OF DRIVE AISLE

PARKING TABLE	
TOTAL SPACES PROVIDED	41
ADA ACCESSIBLE SPACES PROVIDED	2

REFER TO 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.

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04/27/2026

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20285 STATE HWY 46 W. BULVERDE, TX 78163

No.	DESCRIPTION	DATE
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SCALE:

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APP BY: ESP

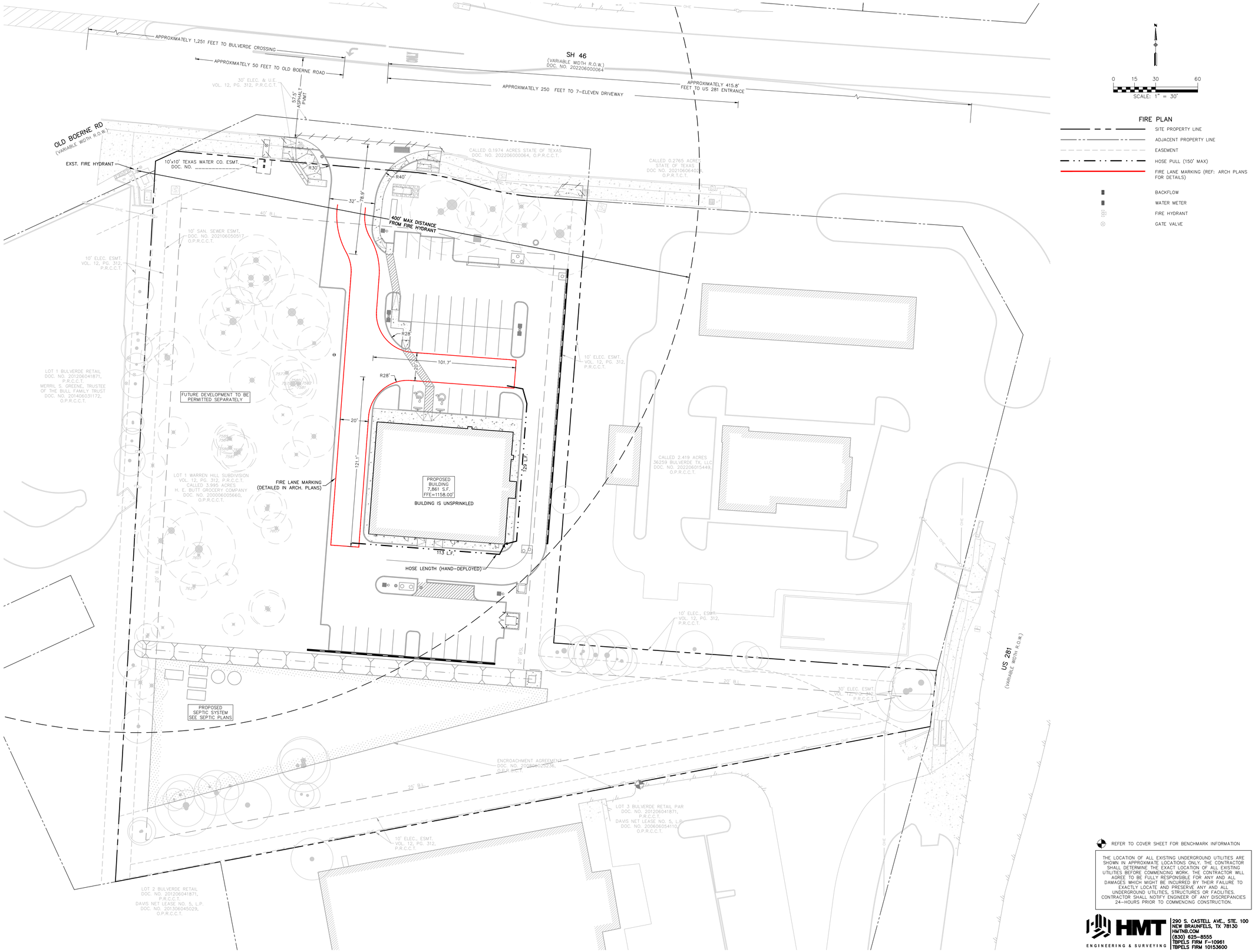
DATE: APRIL 2026

PROJECT NO.: 643.001

SHEET TITLE: **SITE PLAN**

SHEET NUMBER: **C4.0**

Drawing Name: M:_Projects\643 - MB&B\001 - Promenade at Singing Oaks Drainage\Civil\643-001_SITE.dwg User: michaelg Apr 27, 2026 - 12:28pm



REFER TO COVER SHEET FOR BENCHMARK INFORMATION

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01/30/2026

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SCALE:

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APP BY: ESP

DATE: JANUARY 2026

PROJECT NO.: 643.001

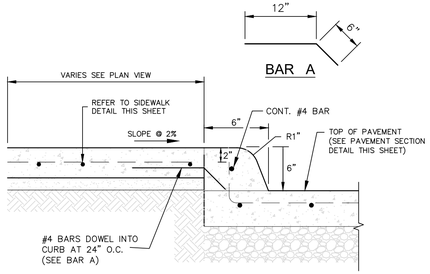
SHEET TITLE:

FIRE SITE PROTECTION PLAN

SHEET NUMBER:

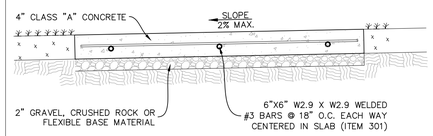
C4.1

Drawing Name: M:_Projects\643 - MB&B\001 - Promenade at Singing Oaks Drainage\Cits\643.001_FIRE.dwg User: michaelg Jan 30, 2026 - 12:21pm



6" MONOLITHIC CURB
N.T.S.

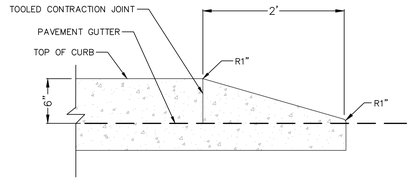
A1



REFER TO SITE PLAN FOR SIDEWALK WIDTH.

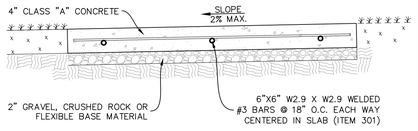
CONCRETE SIDEWALK SECTION
N.T.S.

A2



2:1 CURB TRANSITION DETAIL
N.T.S.

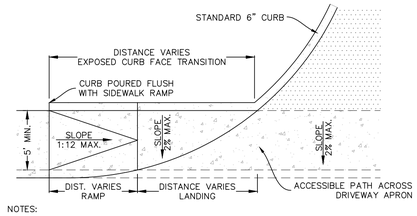
A3



REFER TO SITE PLAN FOR SIDEWALK WIDTH.

CONCRETE SIDEWALK SECTION
N.T.S.

A4

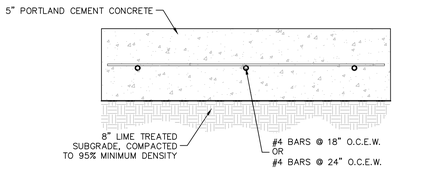


NOTES:

1. REFER TO THE SITE PLAN & GRADING PLAN SHEETS FOR LAYOUT INFORMATION AND SPOT GRADES.
2. ALL RAMPS SHALL BE TAS/ADA COMPLIANT FOR NEW SIDEWALK IMPROVEMENTS.
3. ALL RAMPS WHICH CROSS DRIVEWAYS SHALL BE BROOM FINISH.
4. CONCRETE SHALL MEET CITY OF SAN ANTONIO REQUIREMENTS FOR TYPICAL COMMERCIAL DRIVEWAY APRONS AND SIDEWALKS FOR ALL WORK WITHIN PUBLIC RIGHT-OF-WAY.
5. SIDEWALKS SHALL BE A MINIMUM WIDTH OF 6' WHEN THEY ABUT A CURB.

CURB RETURN WITH SIDEWALK
N.T.S.

A5

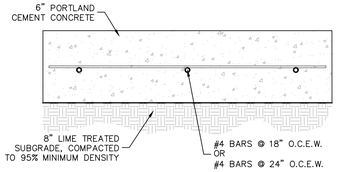


REFER TO SITE PLAN FOR LOCATION OF CONCRETE PAVEMENT.

REFERENCE GEOTECH REPORT
PREPARED BY: THE MURILLO COMPANY
REPORT NO. GEO3842024
DATED: NOVEMBER 2024

LIGHT DUTY CONCRETE PAVEMENT SECTION
N.T.S.

B1

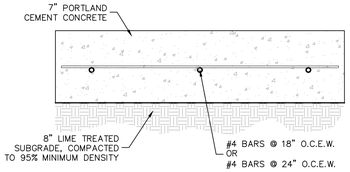


REFER TO SITE PLAN FOR LOCATION OF CONCRETE PAVEMENT.

REFERENCE GEOTECH REPORT
PREPARED BY: THE MURILLO COMPANY
REPORT NO. GEO3842024
DATED: NOVEMBER 2024

HEAVY DUTY CONCRETE PAVEMENT SECTION
N.T.S.

B2

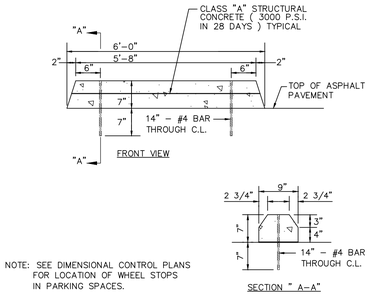


REFER TO SITE PLAN FOR LOCATION OF CONCRETE PAVEMENT.

REFERENCE GEOTECH REPORT
PREPARED BY: THE MURILLO COMPANY
REPORT NO. GEO3842024
DATED: NOVEMBER 2024

DUMPSTER PAD CONCRETE PAVEMENT SECTION
N.T.S.

B3



NOTE: SEE DIMENSIONAL CONTROL PLANS FOR LOCATION OF WHEEL STOPS IN PARKING SPACES.

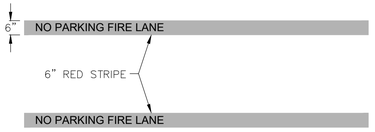
WHEEL STOP DETAIL
N.T.S.

B4

FIRE LANE NOTES:

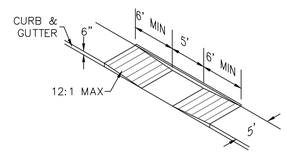
STRIPING – THE TOP FACE OF ROAD CURBS SHALL BE PAINTED UTILIZING RED TRAFFIC PAINT.

A. IF NO CURBS ARE PRESENT, A SIX INCH (6") WIDE STRIPE 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 12 FEET APART, ALONG THE LENGTH OF THE FIRE LANES. SEE ILLUSTRATION BELOW.



FIRE LANE DETAIL
N.T.S.

B5



NOTES:

GROUND SURFACES ALONG ACCESSIBLE ROUTES MUST BE STABLE, FIRM AND SLIP RESISTANT.

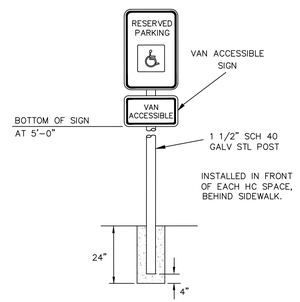
THE LEAST POSSIBLE SLOPE SHALL BE USED FOR ANY RAMP. THE MAXIMUM SLOPE OF A RAMP IN NEW CONSTRUCTION SHALL BE 1:12. THE MAXIMUM RISE FOR ANY RUN SHALL BE 30 IN (760 MM)
(PER TAS 4.8.2)

DETECTABLE WARNINGS SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9 IN (23 MM), A HEIGHT OF NOMINAL 0.2 IN (5 MM) AND A CENTER-TO-CENTER SPACING OF NOMINAL 2.35 IN (60 MM) (PER TAS 4.29.2) OR ¼" X ½" WIDE GROOVES @ 2'-0" O.C. ON SLOPING SURFACE OF CURB RAMP.

DETECTABLE WARNINGS SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT.
(PER TAS 4.29.2).

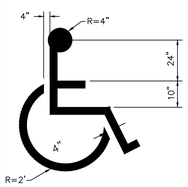
ACCESSIBLE SIDEWALK RAMPS
N.T.S.

C1



ACCESSIBLE PARKING SIGN
N.T.S.

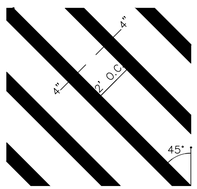
C2



HANDICAP PARKING STALL SYMBOL

NOTE: SYMBOL SHALL BE PAINTED IN CENTER OF PARKING STALL.

NOTE:
ALL TRAFFIC FLOW ARROWS AND STRIPING TO BE SOLID WHITE REFLECTIVE PAINT AS PER DIMENSIONS.



STRIPING DETAIL

HANDICAP PARKING STRIPING
N.T.S.

C3

N.T.S.

C4

N.T.S.

C5

N.T.S.

D1

N.T.S.

D2

N.T.S.

D3

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NOTES:

PROMENADE AT SINGING OAKS

20285 STATE HWY 46 W. BULVERDE, TX 78163

No.	DESCRIPTION	DATE
1	Issue for permit	9/2/2025

SCALE:

DRAWN BY: MG

CHK BY: JK

APP BY: ESP

DATE: JANUARY 2026

PROJECT NO.: 643.001

SHEET TITLE:

CIVIL DETAILS

SHEET NUMBER:

C4.2

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TBPELS FIRM 10153600

Drawing Name: M:_Projects\643 - MB&S\001 - Promenade at Singing Oaks Drainage\Cds\643.001_SITE_DETL.dwg User: mshuang Jan 30, 2026 - 12:21pm

I. OVERALL NOTES

1. CONSTRUCTION DOCUMENTS CONSIST OF THESE DRAWINGS. ANY CONFLICT WITHIN THESE DRAWINGS SHALL BE REPORTED IMMEDIATELY TO THE ARCHITECT AND TO THE STRUCTURAL ENGINEER.
2. GENERAL NOTES ARE AN INTEGRAL PART OF THE CONSTRUCTION DOCUMENTS AND DESCRIBE CONDITIONS THAT APPLY GENERALLY THROUGHOUT THE DRAWINGS.
3. PLANS, SECTIONS, AND DETAILS ARE NOT TO BE SCALED FOR DETERMINATION OF QUANTITIES, LENGTHS, OR FIT OF MATERIALS.
4. CONTRACTOR TO VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS OF JOB SITE. ANY VARIATION FROM DIMENSIONS OR DETAILS AS SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE REPORTED TO THE ARCHITECT AND THE STRUCTURAL ENGINEER.
5. CONSTRUCTION METHODS, ERECTION PROCEDURES, AND SAFETY PRECAUTIONS ARE THE RESPONSIBILITY OF THE CONTRACTOR. STRUCTURAL DRAWINGS REPRESENT THE FINISHED STATE OF STRUCTURAL ELEMENTS. CONTRACTOR TO PROVIDE TEMPORARY BRACING FOR ACCURATE PLUMBING AND TO RESIST ALL WIND, SOIL BACKFILL, AND CONSTRUCTION LOADS. ENGINEERED STRUCTURAL DESIGN FOR TEMPORARY BRACING, FORMWORK, SOIL RETENTION, AND SHORING ARE TO BE PROVIDED BY THE CONTRACTOR.
6. CONTRACTOR SHALL BE FAMILIAR WITH THE PROVISIONS AND CONSTRUCTION REQUIREMENTS OF THE 2021 IBC.
7. ALL CONSTRUCTION SHALL CONFORM TO CURRENT CITY OF BULVERDE, TX APPROVED CODES.
8. ALL CONSTRUCTION PROCEDURES SHALL CONFORM TO LOCAL CODES AND OSHA GUIDELINES.

II. DESIGN DATA

1. THE STRUCTURAL SYSTEMS OF THE NEW RETAINING WALL HAVE BEEN DESIGNED IN ACCORDANCE WITH THE 2021 INTERNATIONAL BUILDING CODE (IBC) AS ADOPTED AND AMENDED BY THE CITY OF BULVERDE, TX.

III. SPECIAL INSPECTION NOTES

THE CONTRACTOR WILL PROVIDE QUALIFIED PERSONNEL TO PERFORM THE FOLLOWING SPECIAL INSPECTIONS OR TESTING (AND THOSE REQUIRED BY THE BUILDING OFFICIAL) AND REPORT THE FINDINGS TO THE STRUCTURAL ENGINEER AND BUILDING OFFICIAL. THIS DOES NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY TO PERFORM THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL NOTIFY THE INSPECTOR 24 HOURS IN ADVANCE OF ALL INSPECTIONS.

ITEM	SCOPE
1. SOILS AND FOUNDATIONS	
A. SHALLOW FOUNDATIONS	VERIFY ANTICIPATED BEARING STRATA, CHECK SIZES, DEPTHS AND DEBRIS REMOVAL*
B. CONTROLLED STRUCTURAL FILL	VERIFY THAT PLACED FILL MEETS MATERIAL AND COMPACTION REQUIREMENTS. *SEE CAST-IN-PLACE CONCRETE FOR CONCRETE OPERATIONS.
2. CAST-IN-PLACE CONCRETE	
A. MIX DESIGN	VERIFY THE REQUIREMENTS COMPLY WITH CONTRACT DOCUMENTS.
B. MATERIAL CERTIFICATION	VERIFY THE REQUIREMENTS COMPLY WITH CONTRACT DOCUMENTS.
C. REINFORCEMENT INSTALLATION	CHECK SIZES, SPACING, CLEARANCES AND GENERAL ARRANGEMENT.
D. FORMWORK GEOMETRY	CHECK FORMWORK TO VERIFY MEMBER SIZES.
E. CONCRETE PLACEMENT	VERIFY WATER-CEMENT RATIO, TEMPERATURE AND SLUMP DURING PLACEMENT. OBSERVE PLACEMENT, VIBRATION AND FINISHING.
F. EVALUATION OF CONCRETE	VERIFY THAT CONCRETE CYLINDERS ARE STRENGTH MADE AND TESTED. REVIEW TEST RESULTS.
G. CURING AND PROTECTION	VERIFY THAT CONCRETE IS PROPERLY CURED AND PROTECTED.
H. EMBEDDED ITEMS	VERIFY THE REQUIREMENTS COMPLY WITH CONTRACT DOCUMENTS.

IV. FOUNDATION NOTES

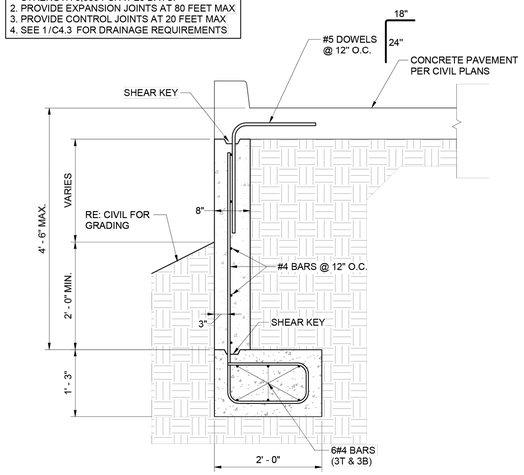
1. ALL LOOSE SOIL, DEBRIS OR MUD SHALL BE REMOVED FROM THE BOTTOM OF THE GRADE BEAMS BEFORE POURING.
2. EXCAVATIONS FOR FOOTINGS SHALL BE NEAT AND CLEAN OF ALL LOOSE SOIL OR MUD BEFORE POURING.
3. FOOTINGS SHALL BE POURED IMMEDIATELY UPON COMPLETION OF EXCAVATION AND CLEANING OF FOOTING BEARING SURFACE.
4. SITEWORK'S SOIL PREPARATION AND COMPACTION SHALL BE IN CONFORMANCE WITH THE RECOMMENDATIONS FROM THE GEOTECHNICAL REPORT.
5. SPREAD FOOTING DESIGN BASED ON ALLOWABLE BEARING PRESSURE OF 1,600 PSF FOR DEAD LOADS AND 2,400 PSF FOR TOTAL LOAD.
6. FOUNDATION DESIGN AND CONSTRUCTION REQUIREMENTS ARE BASED ON THE GEOTECHNICAL INVESTIGATION REPORT No. GEO3842024 BY THE MURILLO COMPANY GEOTECHNICAL CONSULTANTS, DATED NOVEMBER 2024. THE CONTRACTOR SHALL OBTAIN A COPY OF THIS REPORT AND SHALL COMPLY WITH ITS RECOMMENDATIONS.

V. CONCRETE NOTES

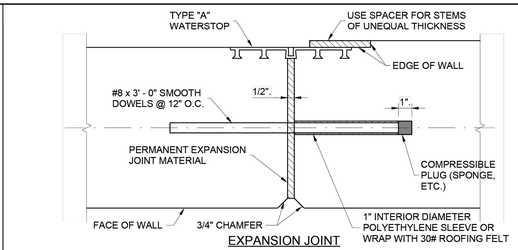
1. ALL REINFORCED CONCRETE MATERIALS SHALL BE PROPORTIONED, FABRICATED, DELIVERED, AND PLACED IN ACCORDANCE WITH ACI STANDARD 318, "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" LATEST EDITION, INCLUDING LATEST SUPPLEMENT.
2. ALL CONCRETE SHALL HAVE SAND AND GRAVEL AGGREGATE TYPE 1 PORTLAND CEMENT, AND SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3,000 PSI.
3. ALL MIXING, TRANSPORTING, PLACING AND CURING CONCRETE SHALL BE DONE IN ACCORDANCE WITH THE RECOMMENDATION OF THE LATEST EDITIONS OF THE AMERICAN CONCRETE INSTITUTE, ACI 318, ACI 309, ACI 305 AND ACI 308. MAXIMUM FREE FALL FOR CONCRETE TO BE 3'-0".
4. CONCRETE SHALL NOT BE PLACED IN FREEZING OR RAINY WEATHER.
5. ALL CONCRETE EXPOSED TO WEATHER SHALL BE AIR ENTRAINED.
6. REINFORCING STEEL SHALL BE ASTM A706 GRADE 60 WITH A305 DEFORMATIONS, DETAILED, FABRICATED AND INSTALLED PER ACI "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCING CONCRETE," ACI-315 LATEST REVISION. NO. 3 BARS MAY BE GRADE 40.
7. REINFORCING STEEL MINIMUM COVERAGE ON REBAR CHAIRS U.N.O. SHALL BE:
   FOOTINGS 3" BOT., 3" SIDES & 2" TOP
   WALLS 3" AGAINST EARTH, 2" AT EXPOSED FACE
8. CONTINUOUS REINFORCEMENT FOR HORIZONTAL AND VERTICAL BARS IN FOOTINGS AND WALLS SHALL HAVE MINIMUM LAP AT SPLICES AS FOLLOWS (UNLESS OTHERWISE NOTED):
   No. 4 BARS...25"
   No. 5 BARS...35"
   No. 6 BARS...42"
9. CHAMFER ALL EXPOSED EDGES 3/4" AT 45 DEGREES.
10. EXCAVATION FOR FOOTINGS SHALL BE FREE OF ALL LOOSE MATERIALS AND WATER.
11. UNDERGROUND UTILITIES OR OBSTRUCTIONS ENCOUNTERED SHALL BE REMOVED.
12. THE GENERAL CONTRACTOR SHALL EXAMINE THE MECHANICAL AND ELECTRICAL SCOPE FOR REQUIRED MECHANICAL AND ELECTRICAL WORK TO BE PLACED IN CONCRETE. THIS CONTRACTOR SHALL NOTIFY AND RECEIVE PERMISSION FROM THE STRUCTURAL ENGINEER FOR THE PLACING OF SLEEVES, PIPES OR OTHER MATERIALS.
13. THE ENGINEER SHALL NOT BE LIABLE FOR ANY FOUNDATION REVISION OR CHANGES FROM THE ARCHITECT, CONTRACTOR OR OWNER WITHOUT WRITTEN APPROVAL FROM THE ENGINEER.
14. FRESHLY DEPOSITED CONCRETE SHALL BE PROTECTED FROM PREMATURE DRYING AND EXCESSIVE HOT OR COLD TEMPERATURES FOR THE PERIOD OF TIME NECESSARY FOR THE HYDRATION OF THE CEMENT AND PROPER HARDENING OF THE CONCRETE. THIS SHALL BE A MINIMUM OF SEVEN DAYS AFTER THE CONCRETE IS POURED.
15. CURE ALL CONCRETE IMMEDIATELY AFTER FINISHING WITH SIKA OR EQUAL APPROVED CHEMICAL CURING COMPOUND. PRODUCT SELECTION DEPENDING ON THE SEASON IN WHICH THE CONCRETE IS BEING POURED.
16. ALL CONCRETE, INCLUDING FOOTINGS, SHALL BE CONSOLIDATED BY VIBRATION, SPADING, OR RODDING, SO THAT THE CONCRETE IS THOROUGHLY WORKED AROUND THE REINFORCEMENT, EMBEDDED ITEMS, AND INTO THE CORNERS OF FORMS, ELIMINATING ALL AIR OR STONE POCKETS WHICH MAY CAUSE HONEYCOMBING. CARE SHALL BE TAKEN NOT TO OVER VIBRATE AND CAUSE SEGREGATION.
17. MAXIMUM AMOUNT OF FLY ASH TO BE 20% OF CEMENT WEIGHT. FLY ASH NOT TO BE SUBSTITUTED TO REDUCE MINIMUM CEMENT RATIO.
18. PROVIDE TESTING AND INSPECTIONS FOR THE FOLLOWING:
   A. CONCRETE DESIGN MIX
   B. 28 DAY CYLINDER TEST
   C. THIRD PARTY FOUNDATION AND WALL INSPECTION

13 GENERAL NOTES
C4.3 N.T.S.

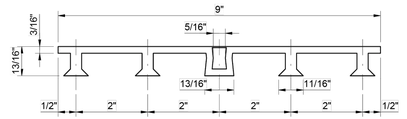
RETAINING WALL NOTES:
1. ALL CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH 3,000 PSI AT 28 DAYS.
2. PROVIDE EXPANSION JOINTS AT 80 FEET MAX
3. PROVIDE CONTROL JOINTS AT 20 FEET MAX
4. SEE 1/C4.3 FOR DRAINAGE REQUIREMENTS



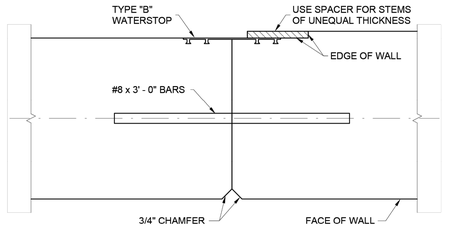
7 SECTION AT EAST RETAINING WALL
C4.3 N.T.S.



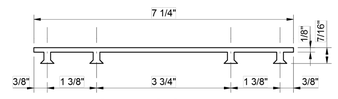
EXPANSION JOINT



PVC WATERSTOP TYPE "A"



CONSTRUCTION JOINT



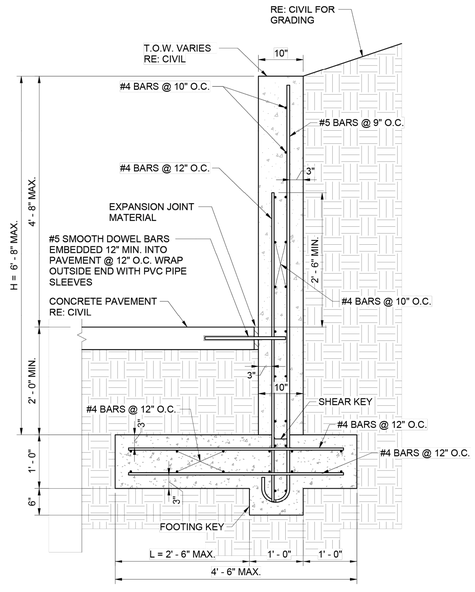
PVC WATERSTOP TYPE "B"

NOTES:
1. PROVIDE EXPANSION JOINTS AT 80 FEET MAX.
2. PROVIDE CONTROL JOINTS AT 20 FEET MAX.

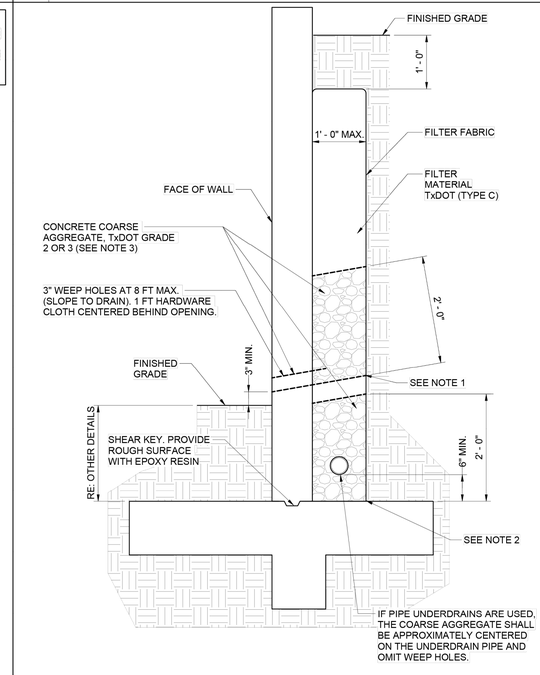
3 CONSTRUCTION EXPANSION JOINT WATERSTOP DETAIL
C4.3 N.T.S.

FOOTING SCHEDULE	
WALL HEIGHT "H" (ft)	TOE LENGTH "L" (ft)
<=3	1.00
4 TO 5	1.50
5 TO 6	2.00
6 TO 6.67	2.50

RETAINING WALL NOTES:
1. ALL CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH 3,000 PSI AT 28 DAYS.
2. PROVIDE EXPANSION JOINTS AT 80 FEET MAX
3. PROVIDE CONTROL JOINTS AT 20 FEET MAX
4. SEE 1 /C4.3 FOR DRAINAGE REQUIREMENTS



5 SECTION AT SOUTH RETAINING WALL
C4.3 N.T.S.



NOTES:
1. STOP COARSE AGGREGATE AT THIS LEVEL WHEN WEEP HOLES ARE USED.
2. USE COARSE AGGREGATE TO HERE WITH FILTER MATERIAL ABOVE WHEN UNDERDRAINS ARE USED.
3. CRUSHED BLAST FURNACE SLAG, RECYCLED CRUSHED HYDRAULIC CEMENT CONCRETE OR COMBINATION THERE OF MAY NOT BE USED.

1 RETAINING WALL DRAINAGE DETAILS
C4.3 N.T.S.

MB&B
ARCHITECTS AND ENGINEERS
5300 HOLLISTER STREET, SUITE 402 HOUSTON, TX 77040
TEL: 713 370 8750
TBPELS F-24553

STATE OF TEXAS
E. HENRY BARRETO
105874
LICENSED
PROFESSIONAL ENGINEER
12/19/2025

NOTES:

PROMENADE AT SINGING OAKS
20285 STATE HWY 46 W.,
BULVERDE, TX 78163

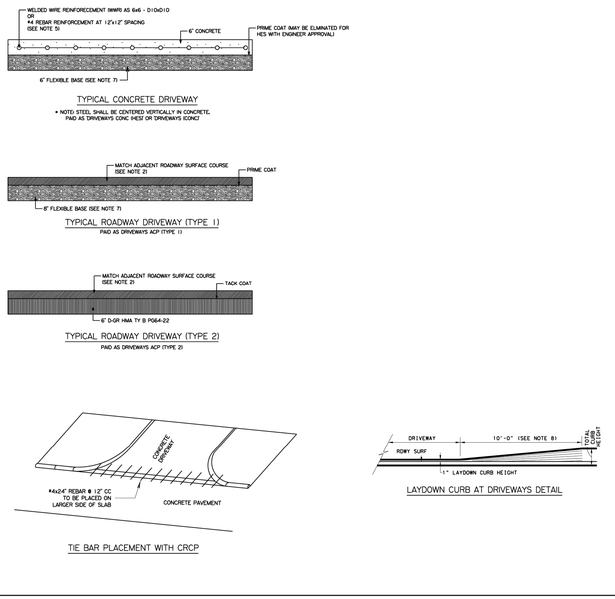
No	DESCRIPTION	DATE
	Issue for Permit	12/19/2025

SCALE: N.T.S.
DRAWN BY: CV
CHK BY: EHBC
APP BY: EHBC
DATE: 12/19/2025
PROJECT NO.: 24242

SHEET TITLE:
RETAINING WALL DETAILS

SHEET NUMBER:
C4.3

Drawing Name: M:_Projects\0443 – MB&B\001 – Promenade at Singing Oaks Drainage\CDs\0443.001_SITE_DETL.dwg User: michong Apr 27, 2026 – 12:28pm



NOTES:

1. USE CLASS A CONCRETE UNLESS OTHERWISE NOTED.
2. DENSE GRADED HMA MAY BE USED WHEN APPROVED BY THE ENGINEER IF THE ROADWAY SURFACE COURSE IS A PERFORMANCE MIX.
3. REFER TO PLAN SHEETS FOR GEOMETRIC DESIGN DETAILS.
4. FOR CONCRETE DRIVEWAYS, PROVIDE EXPANSION JOINT 20 FT C-C FOR WIDTH OR LENGTH OVER 25 FT.
5. FIBER REINFORCEMENT IS NOT ALLOWED.
6. MACHINE LAID HMA IS REQUIRED UNLESS OTHERWISE APPROVED BY THE ENGINEER.
7. FURNISH BASE MEETING THE REQUIREMENTS FOR ANY TYPE OF GRADE IN ACCORDANCE WITH ITEM 247, FLEXIBLE BASE. COMPRESSIVE STRENGTHS ARE WAIVED. BASE IS SUBSIDIARY TO THE ITEM.
8. WHERE SIDEWALK IS PRESENT, SLOPE AND LENGTH OF CURB TRANSITION SHOULD MATCH THE SIDEWALK AND MEET ADA REQUIREMENTS.
9. IF ROOTS ARE ENCOUNTERED VERIFY WITH THE ENGINEER PRIOR TO ACCMODATING OR REMOVING 2 IN. DIAMETER OR LARGER ROOTS. ROOT REMOVAL MUST BE IN ACCORDANCE WITH ITEM 752.4.2. ROOTS MAY REMAIN IN THE BASE. FOR IMPROVEMENTS WITHIN 6 IN. OF A ROOT, THE CONCRETE THICKNESS MAY BE REDUCED BY 1 IN. AND THE BASE INCREASED BY 1 IN. TO MINIMIZE THE IMPACT TO THE ROOTS. ADJUST BASE AND SURFACE PROFILE TO PROVIDE 6 - 1 IN. BASE CUSHION AROUND THE ROOTS. THE SURFACE PROFILE MAY BE ADJUSTED TO THE EXTENT ALLOWED BY ADA. THIS WORK IS SUBSIDIARY.

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San Antonio District

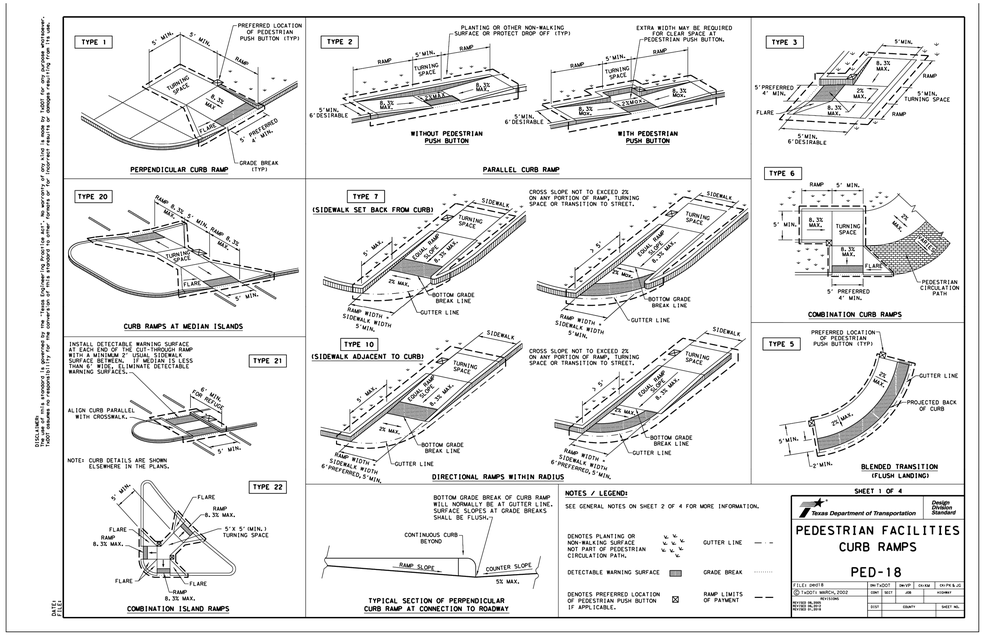
DRIVEWAY DETAILS

San Antonio District Standard

Sheet (1 of 1)

FILE: tcp1-4-18.dgn	DN:	CK:	DW:	CK:
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS				
2-94 4-98				
8-95 2-12	DIST	COUNTY		SHEET NO.
1-97 2-18				

DISTRICT FILE(S)



NOTES / LEGEND:

SEE GENERAL NOTES ON SHEET 2 OF 4 FOR MORE INFORMATION.

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

DETECTABLE WARNING SURFACE

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON IF APPLICABLE.

GUTTER LINE

GRADE BREAK

RAMP LIMITS OF PAYMENT

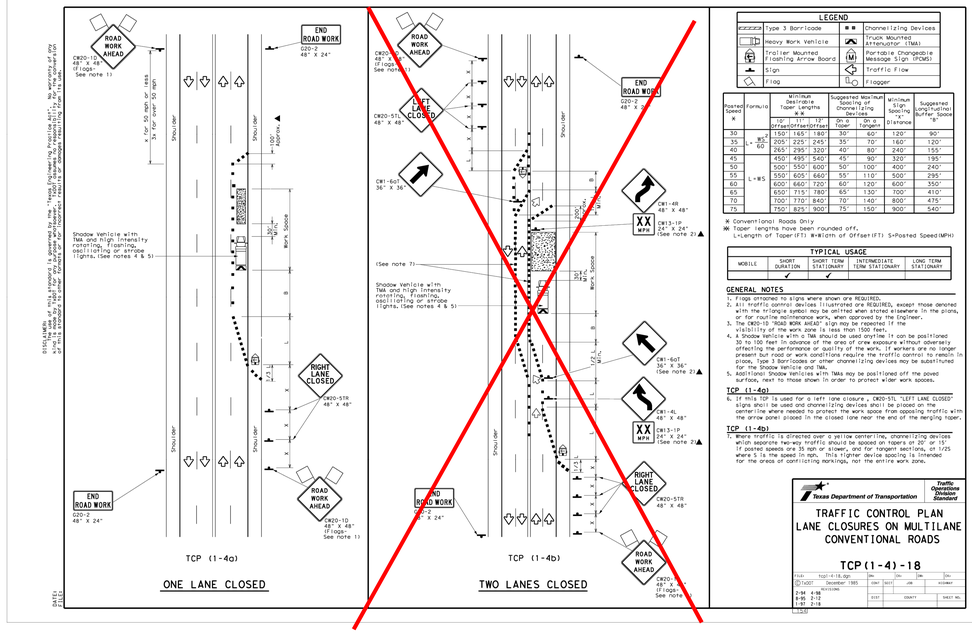
SHEET 1 OF 4

Texas Department of Transportation — Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DN:TxDOT	CK:	DW:TP	CK:KM	CK:FB & JS
©TxDOT: MARCH, 2002	CONT	SECT	JOB		HIGHWAY
REVISIONS					
REVISED IN 2010	DIST		COUNTY		SHEET NO.
REVISED IN 2014					



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

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

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

GENERAL NOTES

1. Flags attached to signs where shown are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. The CW20-1D "ROAD WORK AHEAD" sign may be repeated if the visibility of the work zone is less than 1500 feet.
4. Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights, if used, may be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
5. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.

TCP (1-4a)

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

TCP (1-4b)

7. Where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20' or 10' if posted speeds are 35 mph or slower, and for tangent sections, at 1/2S where S is the speed in mph. This tighter device spacing is intended for the areas of conflicting markings, not the entire work zone.

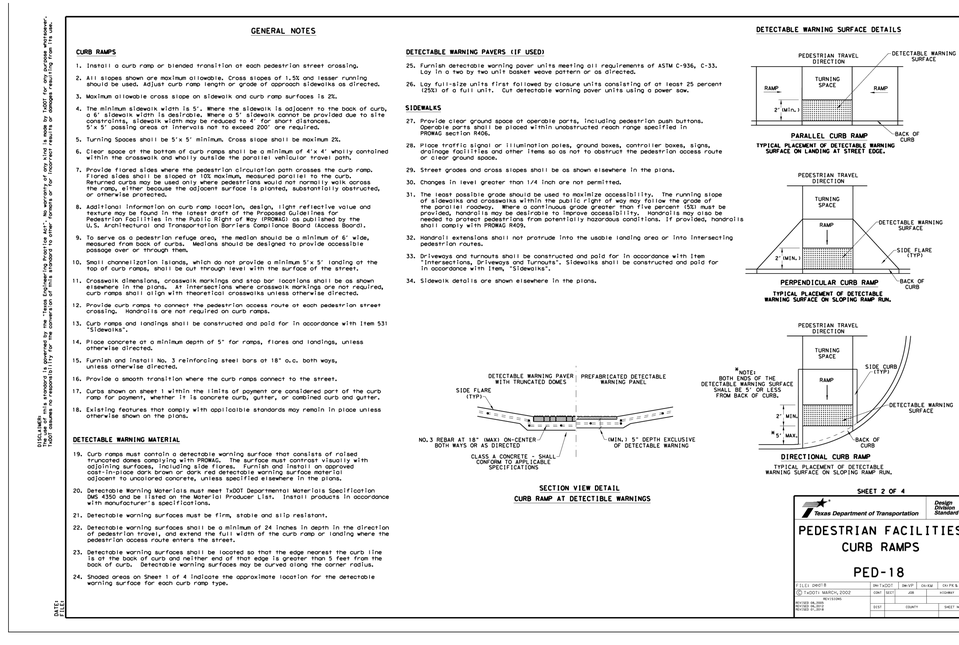
Texas Department of Transportation — Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

TCP(1-4)-18

FILE: tcp1-4-18.dgn	DN:	CK:	DW:	CK:
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS				
2-94 4-98				
8-95 2-12	DIST	COUNTY		SHEET NO.
1-97 2-18				

DISTRICT FILE(S)


DISCLAIMER: "The standard is governed by the "Texas Engineering Practice Act". No portion of this item is to be used for any purpose inconsistent with this standard or for incorrect results or damages resulting from its use."
GENERAL NOTES
CURB RAMPS
1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable. Cross slopes of 1.5% and lesser running should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
3. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
4. The minimum sidewalk width is 5'. Where the sidewalk is adjacent to the back of curb, a 4' sidewalk width is desirable. Where a 5' sidewalk cannot be provided due to site constraints, sidewalk width may be reduced to 4' for short distances. 5'x 5' passing areas at intervals not to exceed 200' are required.
5. Turning Spaces shall be 5'x 5' minimum. Cross slope shall be maximum 2%.
6. Clear space at the bottom of curb ramps shall be a minimum of 4'x 4' wholly contained within the crosswalk and wholly outside the parallel vehicular travel path.
7. Provide flared sides where the pedestrian circulation path crosses the curb ramp. Flared sides shall be sloped at 10% maximum, measured parallel to the curb. Returned curbs may be used only where pedestrians would not normally walk across the ramp, either because the adjacent surface is planted, substantially obstructed, or otherwise protected.
8. Additional information on curb ramp location, design, light reflective value and texture may be found in the latest draft of the Proposed Guidelines for Pedestrian Facilities in the Public Right of Way (PROWAG) as published by the U.S. Architectural and Transportation Barriers Compliance Board (Access Board).
9. To serve as a pedestrian refuge area, the median should be a minimum of 6' wide, measured from back of curbs. Medians should be designed to provide accessible passage over or through them.
10. Small channelization islands, which do not provide a minimum 5'x 5' landing at the top of curb ramps, shall be cut through level with the surface of the street.
11. 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 align with theoretical crosswalks unless otherwise directed.
12. Provide curb ramps to connect the pedestrian access route at each pedestrian street crossing. Handrails are not required on curb ramps.
13. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 "Sidewalks".
14. Place concrete at a minimum depth of 5" for ramps, flares and landings, unless otherwise directed.
15. Furnish and Install No. 3 reinforcing steel bars at 18" o.c. both ways, unless otherwise directed.
16. Provide a smooth transition where the curb ramps connect to the street.
17. Curbs shown on sheet 1 within the limits of payment are considered part of the curb ramp for payment, whether it's concrete curb, gutter, or combined curb and gutter.
18. Existing features that comply with applicable standards may remain in place unless otherwise shown on the plans.

DETECTABLE WARNING MATERIAL

19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes aligned in a square grid pattern. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install in accordance with cast-in-place dark brown or dark red detectable warning surface material adjacent to uncolored concrete, unless specified elsewhere in the plans.
20. Detectable Warning Materials must meet TxDOT Departmental Materials Specification DMS 4350 and be listed on the Material Producer List. Install products in accordance with manufacturer's specifications.
21. Detectable warning surfaces must be firm, stable and slip resistant.
22. Detectable warning surfaces shall be a minimum of 24 inches 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.
23. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb and neither end of that edge is greater than 5 feet from the back of curb. Detectable warning surfaces may be curved along the corner radius.
24. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.

DETECTABLE WARNING PAVERS (IF USED)

25. 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.
26. Lay full-size units first followed by closure units consisting of at least 25 percent (25%) of a full unit. Cut detectable warning paver units using a power saw.

SIDEWALKS

27. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within unobstructed reach range specified in PROWAG section R406.
28. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
29. Street grades and cross slopes shall be as shown elsewhere in the plans.
30. Changes in level greater than 1/4 inch are not permitted.
31. The least possible grade should be used to maximize accessibility. The running slope of a sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than five percent (5%) must be provided, handrails may be desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with PROWAG R409.
32. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
33. Driveways and curb cuts shall be constructed and paid for in accordance with Item "Intersections, Driveways and Turnouts". Sidewalks shall be constructed and paid for in accordance with Item, "Sidewalks".
34. Sidewalk details are shown elsewhere in the plans.

DETECTABLE WARNING SURFACE DETAILS

PARALLEL CURB RAMP
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON LANDING AT STREET EDGE.
PERPENDICULAR CURB RAMP
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.
DIRECTIONAL CURB RAMP
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.
DETECTABLE WARNING PAVER WITH TRUNCATED DOMES
PREFABRICATED DETECTABLE WARNING PANEL
SIDE FLARE (TYP.)
NO.3 REBAR AT 18" (MAX) ON-CENTER BOTH WAYS OR AS DIRECTED
MIN. 2 5" DEPTH EXCLUSIVE OF DETECTABLE WARNING
CLASS A CONCRETE - SHALL CONFORM TO APPLICABLE SPECIFICATIONS
SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS
*NOTE: BOTH ENDS OF THE DETECTABLE WARNING SURFACE SHALL BE 2" MIN. LESS FROM BACK OF CURB.

SHEET 2 OF 4

Texas Department of Transportation — Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DN:TxDOT	CK:	DW:TP	CK:KM	CK:FB & JS
©TxDOT: MARCH, 2002	CONT	SECT	JOB		HIGHWAY
REVISIONS					
REVISED IN 2010	DIST		COUNTY		SHEET NO.
REVISED IN 2014					

HMT ENGINEERING & SURVEYING
290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
HMTNB.COM
(830) 625-8555
TBPELS FIRM F-10961
TBPELS FIRM 10153600

MB&S
ARCHITECTS AND ENGINEERS
5300 HOLLISTER STREET,
SUITE 301 HOUSTON, TX 77040
TEL: 713 370 8750
TBPELS F-24553

04/27/2026

STATE OF TEXAS
JOSHUA M. KELSEY
157476
LICENSED
PROFESSIONAL ENGINEER

NOTES:

PROMENADE AT SINGING OAKS

20285 STATE HWY 46 W. BULVERDE, TX 78163

No.	DESCRIPTION	DATE
1	Issue for permit	9/2/2025

SCALE:

DRAWN BY: MG

CHK BY: JK

APP BY: ESP

DATE: APRIL 2026

PROJECT NO.: 643.001

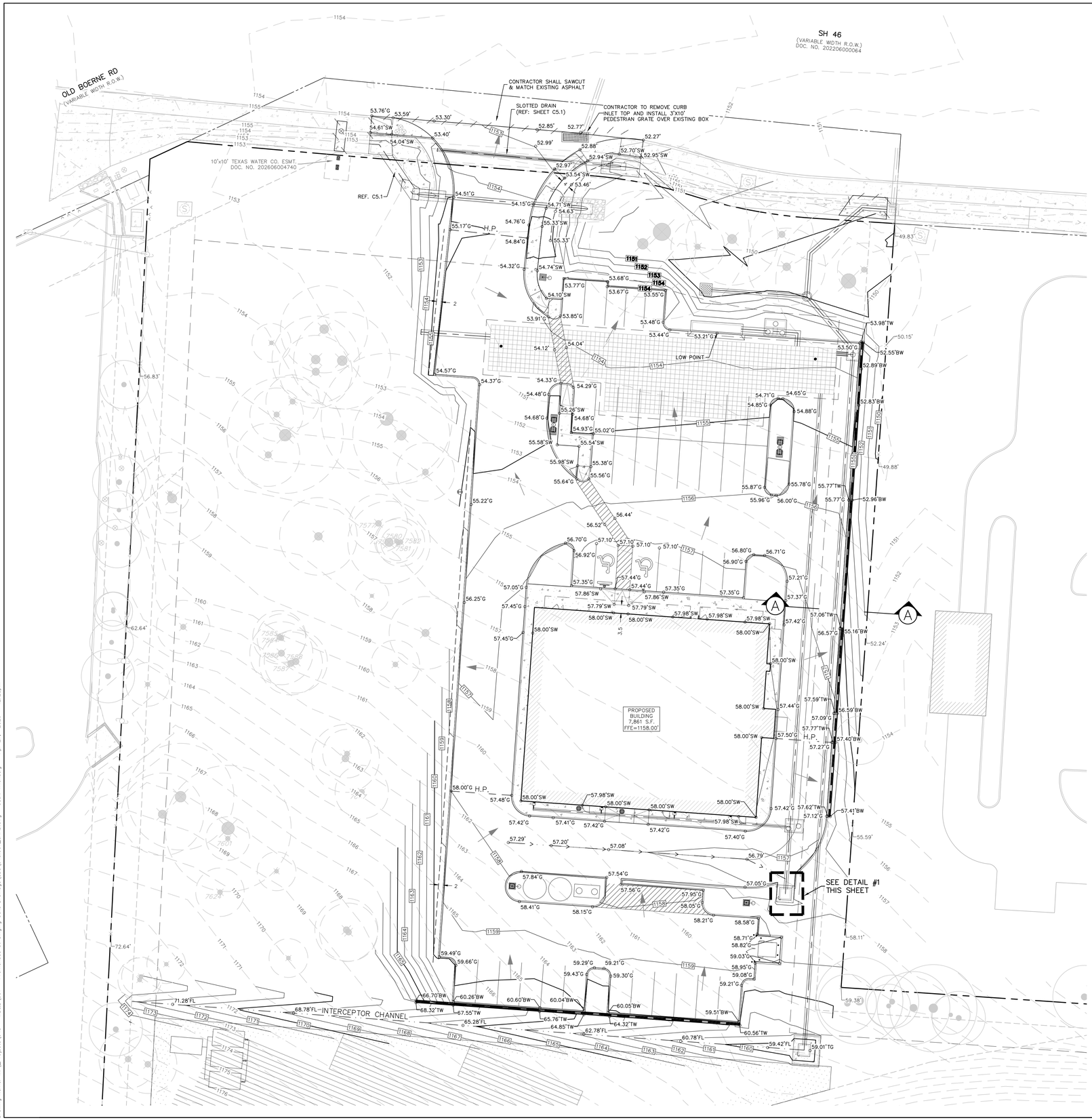
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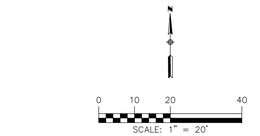
STANDARD TxDOT DETAILS

SHEET NUMBER:

C4.4

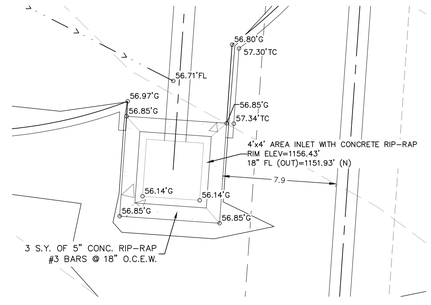
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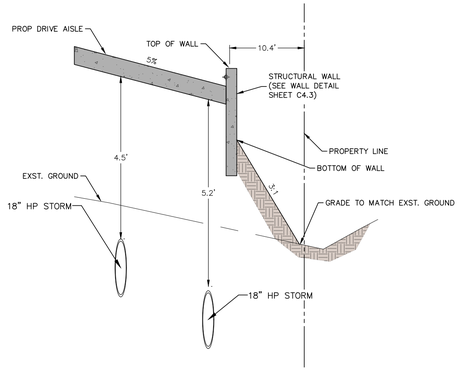


GRADING PLAN

	SITE PROPERTY LINE
	ADJACENT PROPERTY LINE
	EASEMENT
700	EXISTING CONTOUR
700	PROPOSED CONTOUR
	FLOWLINE
H.P.	HIGHPOINT
G	GUTTER
SW	SIDEWALK
TC	TOP OF CURB
TG	TOP OF GRATE
BW	BOTTOM OF WALL
TW	TOP OF WALL
FL	FLOWLINE



1 AREA INLET DETAIL
SCALE: 1"=5'



2 SECTION A-A
N.T.S.

REFER TO COVER SHEET FOR BENCHMARK INFORMATION

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TBPELS F-24553

04/27/2026

STATE OF TEXAS
JOSHUA M. KELSEY
157476
LICENSED
PROFESSIONAL ENGINEER

NOTES:

PROMENADE AT SINGING OAKS

20285 STATE HWY 46 W. BULVERDE, TX 78163

No.	DESCRIPTION	DATE
1	Issue for permit	9/2/2025

SCALE:

DRAWN BY: MG

CHK BY: JK

APP BY: ESP

DATE: APRIL 2026

PROJECT NO.: 643.001

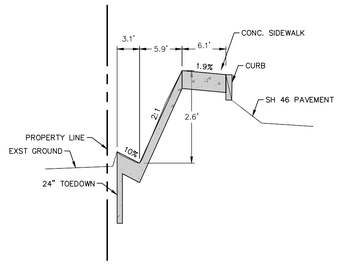
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GRADING PLAN

SHEET NUMBER:

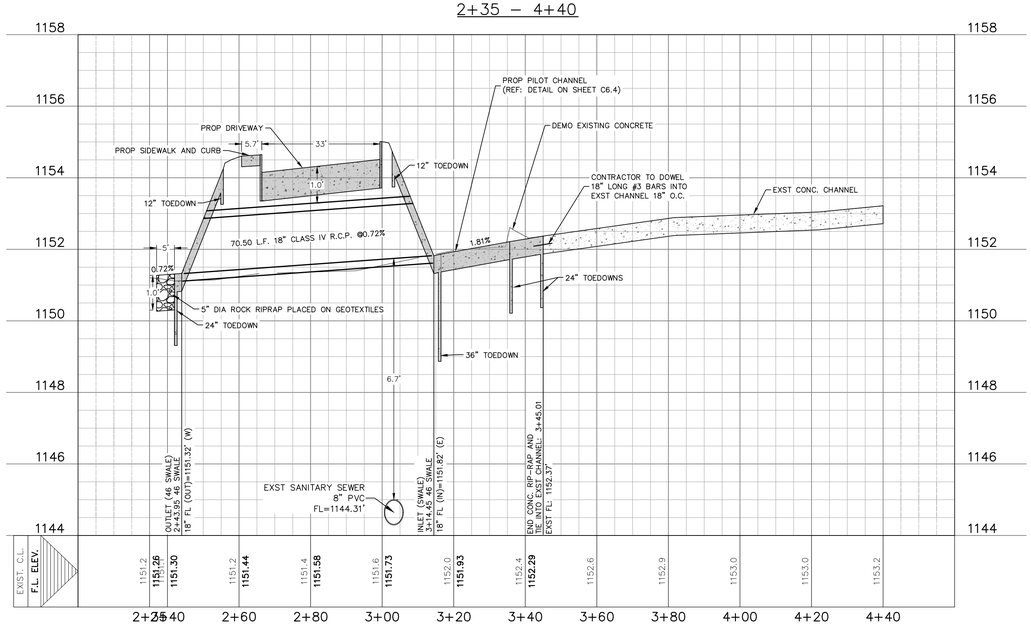
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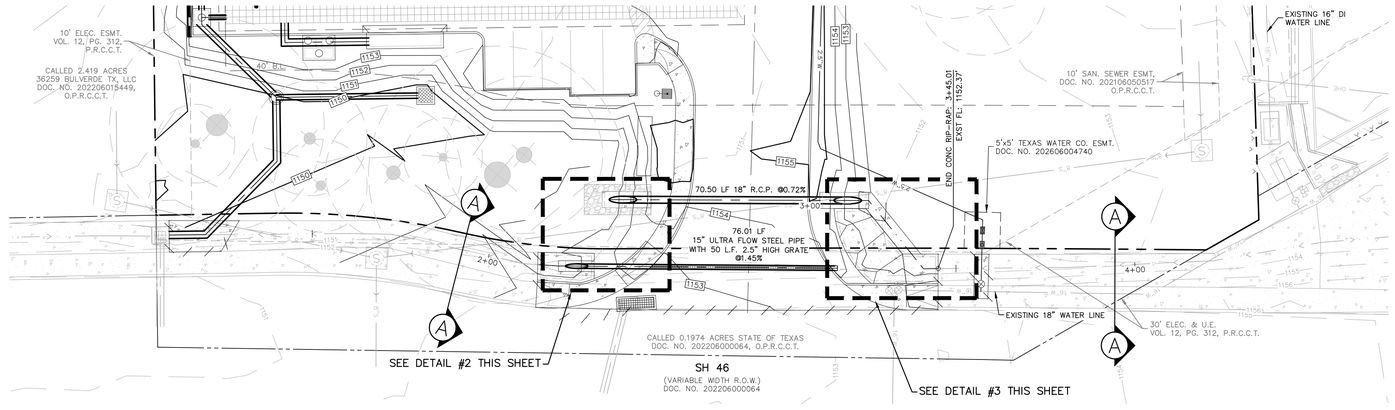
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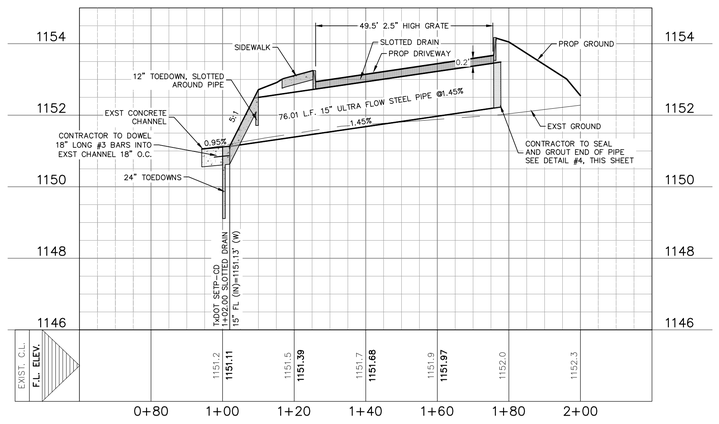
1 SECTION A–A
N.T.S.

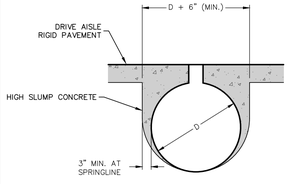
46 SWALE
2+35 – 4+40





SLOTTED DRAIN
0+80 – 2+00

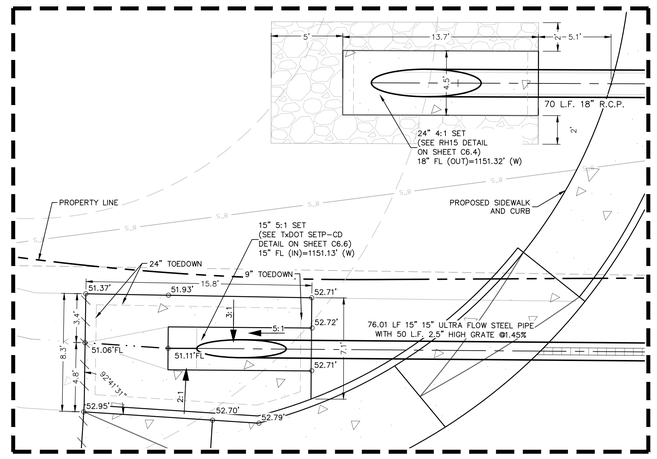




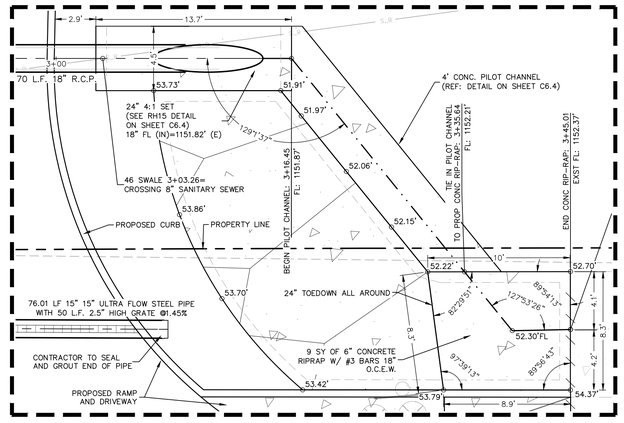
4 SLOTTED DRAIN
TRENCH DETAIL
SCALE: N.T.S.

STORM PLAN

- SITE PROPERTY LINE
- ADJACENT PROPERTY LINE
- EASEMENT
- STORM DRAIN
- 6"S — PROPOSED SANITARY SEWER LINE
- 8"S — EXISTING SEWER LINE
- EXISTING SANITARY SEWER MANHOLE
- PROPOSED CLEANOUT (SEE MEP PLANS)
- 2.5"W — PROPOSED WATER LINE
- 18"W — EXISTING 18" WATER LINE
- 16"W — EXISTING 16" WATER LINE
- OHE — OVERHEAD ELECTRIC LINE
- LIGHT POLE (SEE MEP PLANS)



2 CULVERT OUTFALL
SCALE: 1"=5'



3 CULVERT INLET
SCALE: 1"=5'

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04/27/2026

STATE OF TEXAS
JOSHUA M. KELSEY
157476
LICENSED
PROFESSIONAL ENGINEER

NOTES:

PROMENADE AT SINGING OAKS
20285 STATE HWY 46 W. BULVERDE, TX 78163

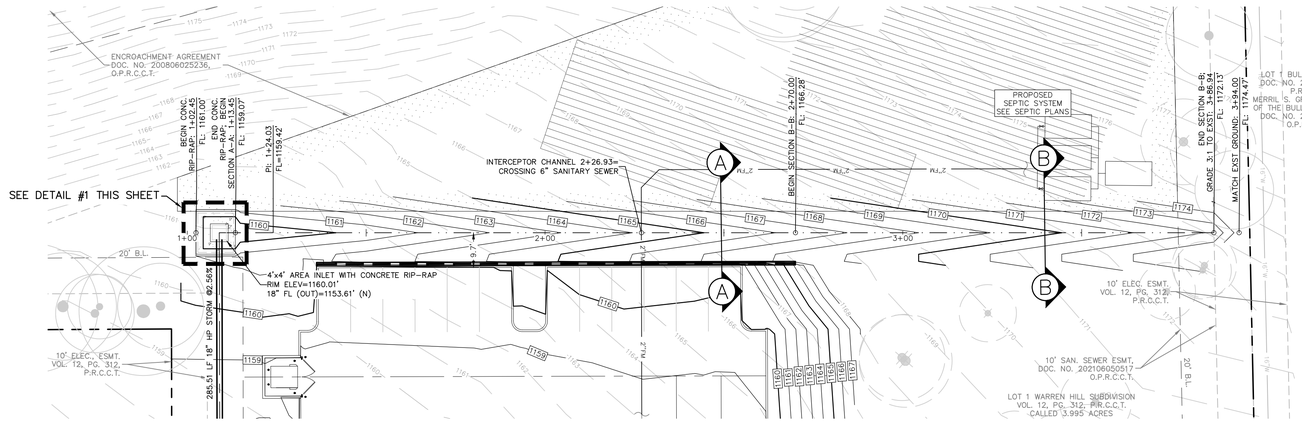
No.	DESCRIPTION	DATE
1	Issue for permit	9/2/2025

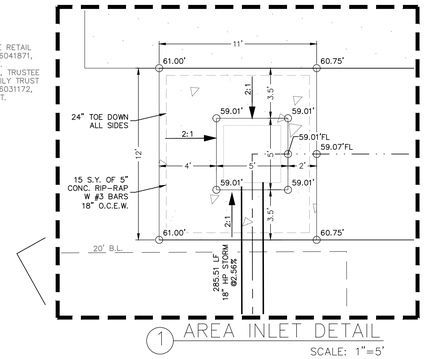
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DRAWN BY: MG
CHK BY: JK
APP BY: ESP
DATE: APRIL 2026
PROJECT NO.: 643.001
SHEET TITLE:

SH 46 SWALE (PLAN & PROFILE)

SHEET NUMBER:
C5.1

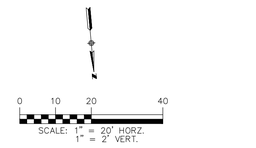
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1 AREA INLET DETAIL

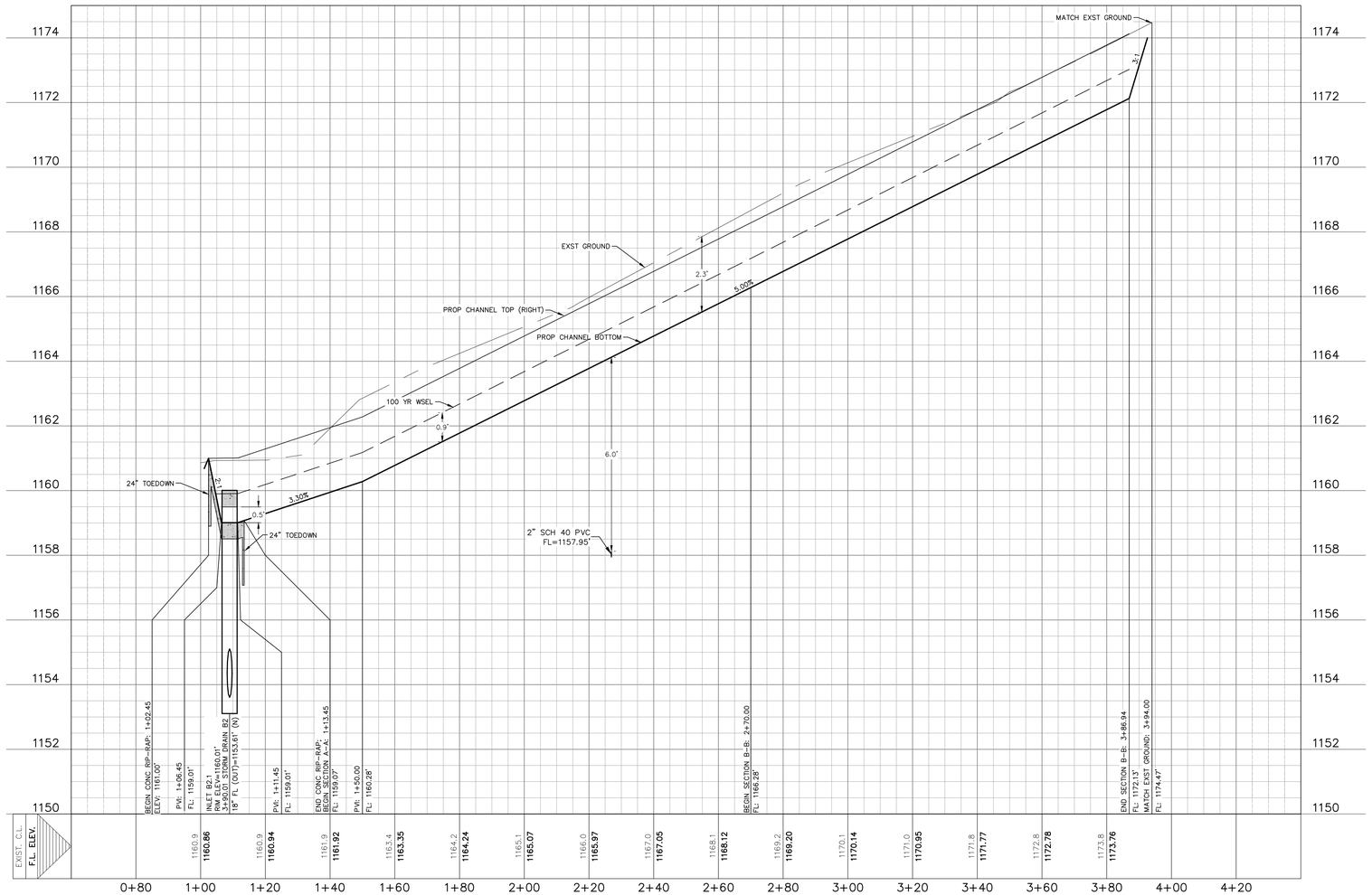
SCALE: 1"=5'

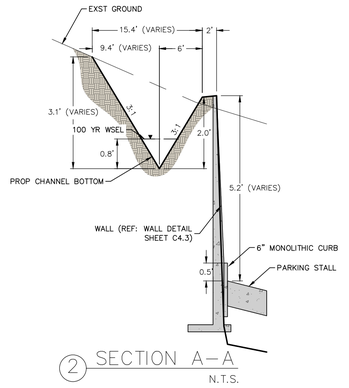


STORM PLAN

- SITE PROPERTY LINE
- ADJACENT PROPERTY LINE
- EASEMENT
- STORM DRAIN
- 6"S PROPOSED SANITARY SEWER LINE
- 8"S EXISTING SEWER LINE
- EXISTING SANITARY SEWER MANHOLE
- PROPOSED CLEANOUT (SEE MEP PLANS)
- 2.5"W PROPOSED WATER LINE
- 18"W EXISTING 18" WATER LINE
- 16"W EXISTING 16" WATER LINE
- OHE OVERHEAD ELECTRIC LINE
- LIGHT POLE (SEE MEP PLANS)

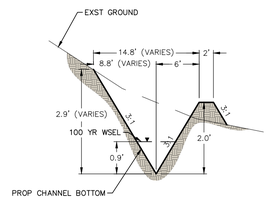
INTERCEPTOR CHANNEL
0+80 – 4+20





2 SECTION A–A

N.T.S.



3 SECTION B–B

N.T.S.

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04/27/2026

STATE OF TEXAS
JOSHUA M. KELSEY
157476
LICENSED
PROFESSIONAL ENGINEER

NOTES:

PROMENADE AT SINGING OAKS

20285 STATE HWY 46 W. BULVERDE, TX 78163

No.	DESCRIPTION	DATE
1	Issue for permit	9/2/2025

SCALE:

DRAWN BY: MG

CHK BY: JK

APP BY: ESP

DATE: APRIL 2026

PROJECT NO.: 643.001

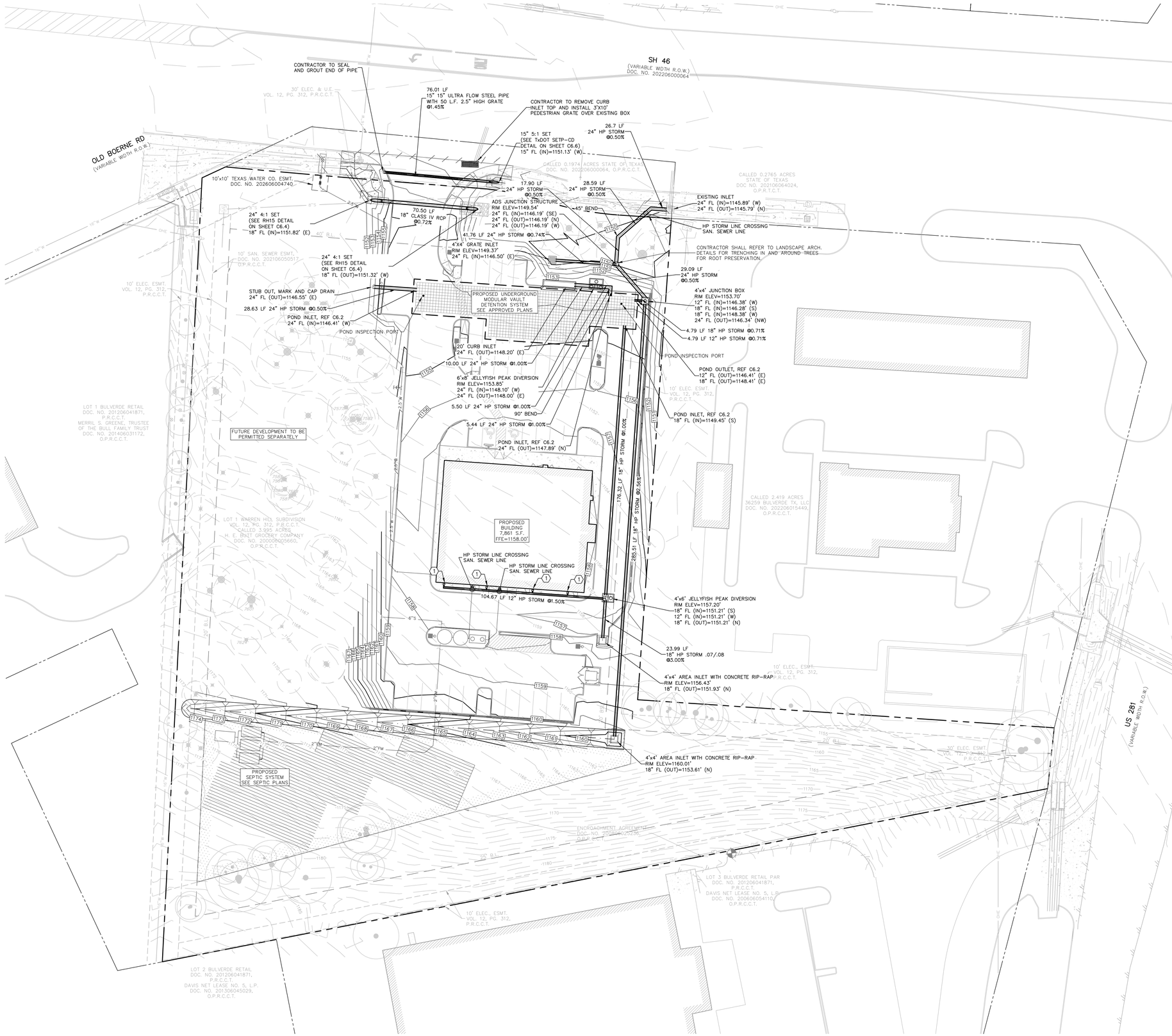
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INTERCEPTOR CHANNEL (PLAN & PROFILE)

SHEET NUMBER:

C5.2

Drawing Name: M:_Projects\643 - MB&B\001 - Promenade at Singing Oaks Drainage\CDs\643.001_STRM_SWALE-INTERCEPTOR CHANNEL.dwg User: mishaelg Apr 27, 2026 - 12:29pm



0 15 30 60
SCALE: 1" = 30'

STORM PLAN

- SITE PROPERTY LINE
- ADJACENT PROPERTY LINE
- EASEMENT
- STORM DRAIN
- 6"S — PROPOSED SANITARY SEWER LINE
- 8"S — EXISTING SEWER LINE
- EXISTING SANITARY SEWER MANHOLE
- PROPOSED CLEANOUT (SEE MEP PLANS)
- 2.5"W — PROPOSED WATER LINE
- 6"W — EXISTING WATER LINE
- OHE — OVERHEAD ELECTRIC LINE
- LIGHT POLE (SEE MEP PLANS)

KEYNOTES

1. EXTEND BUILDING ROOF DRAINS AND TIE INTO 12" HP-STORM LINE USING CONNECT-A-TEE; MINIMUM 1% SLOPE

NOTE:
1. ALL UTILITIES TO BE CONSTRUCTED PRIOR TO THE STREETS
2. NO VALVES, HYDRANTS, CLEANOUTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS.

THE ENGINEER OF RECORD CERTIFIES NO WATER FROM THE DETENTION WILL BACK UP INTO THE JELLYFISH STRUCTURES. THE 2 YEAR POND WATER SURFACE ELEVATION IS **1147.94'**. THE JELLYFISH STRUCTURE FLOW LINES WERE DESIGNED TO BE ABOVE THIS ELEVATION.

JOSHUA M. KELSEY, P.E. LICENSE NO. 157476

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04/27/2026

STATE OF TEXAS
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NOTES:

PROMENADE AT SINGING OAKS

20285 STATE HWY 46 W. BULVERDE, TX 78163

No.	DESCRIPTION	DATE
1	Issue for permit	9/2/2025

SCALE:

DRAWN BY: MG

CHK BY: JK

APP BY: ESP

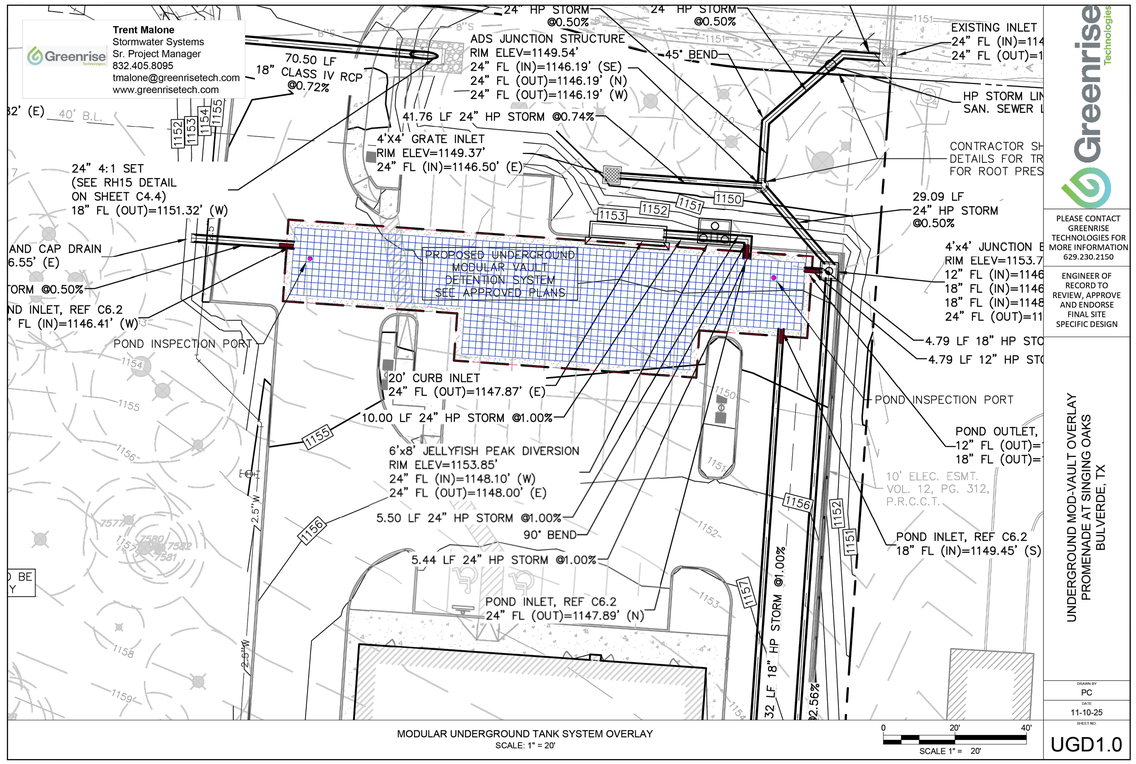
DATE: APRIL 2026

PROJECT NO.: 643.001

SHEET TITLE: **STORM PLAN**

SHEET NUMBER: **C6.0**

Drawing Name: M:_Projects\643 - MB&S\001 - Promenade at Singing Oaks Drainage\Civil\643.001_STRM.dwg User: michoelg Apr 27, 2026 - 12:32pm



MODULAR UNDERGROUND TANK SYSTEM OVERLAY
SCALE: 1" = 20'

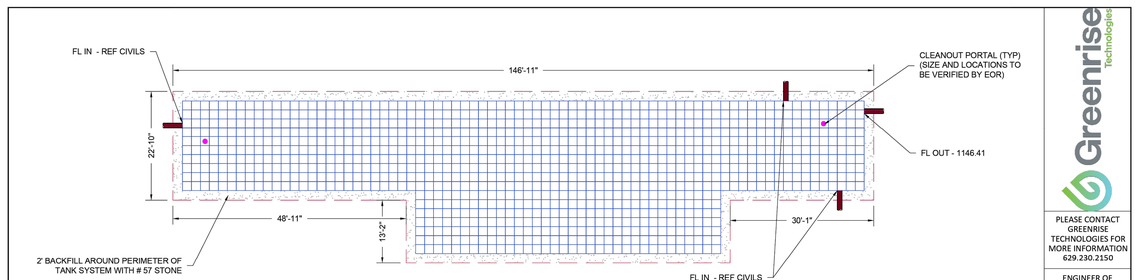
Greenrise Technologies

PLEASE CONTACT GREENRISE TECHNOLOGIES FOR MORE INFORMATION 629.230.2150

ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN

UNDERGROUND MOD-VAULT OVERLAY
PROMENADE AT SINGING OAKS
BULVERDE, TX

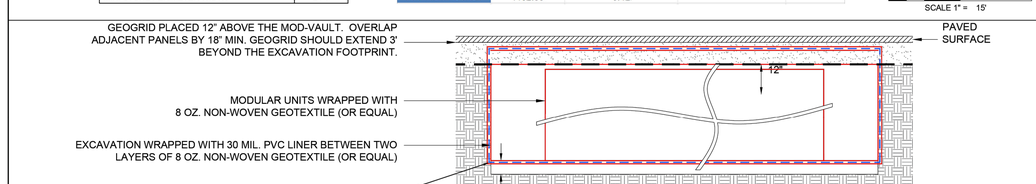
DRAWN BY: PC
DATE: 11-10-25
SHEET NO.: UGD1.0



LAYOUT SCALE	1" = 15'
MODULE TYPE	SD TRIPLE
TRAFFIC LOAD	HS-20
# OF MODULES	998
TOTAL SYSTEM STORAGE	19,709 CF
TANK STORAGE VOLUME	16,604 CF
STONE STORAGE VOLUME (40% VOID RATIO)	3,105 CF
TOP OF COVER STONE ELEV. (12")	1152.33
GEOGRID ELEV.	1152.33
TOP OF MODULAR TANK ELEV.	1151.33
TANK INVERT	1146.41
INVERT OF STONE BASE (3")	1146.16
MIN. STONE PERIMETER WIDTH	2 FT

	ELEVATION (FT)	DEPTH ABOVE INVERT (FT)	CUMULATIVE VOLUME (CF)	% OF TOTAL
BASE	1146.16	-0.25	0	0%
BOTTOM OF TANK (FL)	1146.41	0	0	0%
	1146.91	0.5	1,687	9%
	1147.41	1	3,375	17%
	1147.91	1.5	5,062	26%
	1148.41	2	6,750	34%
	1148.91	2.5	8,437	43%
	1149.41	3	10,124	51%
	1149.91	3.5	11,812	60%
	1150.41	4	13,499	68%
	1150.91	4.5	15,187	77%
TOP OF TANK	1151.33	4.92	16,604	84%
	1151.41	5	16,852	86%
	1151.91	5.5	18,405	93%
TOP OF ROCK	1152.33	5.92	19,709	100%
	1152.41	6		
MIN. FINAL GRADE	1152.83	6.42		

0 15' 30'
SCALE 1" = 15'



MODULAR TANK WRAP & EXCAVATION ENVELOPE DETAIL

Greenrise Technologies

PLEASE CONTACT GREENRISE TECHNOLOGIES FOR MORE INFORMATION 629.230.2150

ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN

UNDERGROUND MOD-VAULT LAYOUT
PROMENADE AT SINGING OAKS
BULVERDE, TX

DRAWN BY: PC
DATE: 11-10-25
SHEET NO.: UGD2.0

Pond Summary Table			
Storm Event	WSEL (FT)	Q (out) (CFS)	Maximum Storage Volume (AC-FT)
2 Year	1147.94	4.51	0.16
5 Year	1148.51	5.6	0.2
10 Year	1149.1	6.56	0.25
25 Year	1149.5	12.93	0.28
100 Year	1150.36	19.06	0.34

THE ENGINEER OF RECORD CERTIFIES NO WATER FROM THE DETENTION WILL BACK UP INTO THE JELLYFISH STRUCTURES. THE 2 YEAR POND WATER SURFACE ELEVATION IS **1147.94'**. THE JELLYFISH STRUCTURE FLOW LINES WERE DESIGNED TO BE ABOVE THIS ELEVATION.

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STATE OF TEXAS
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NOTES:

PROMENADE AT SINGING OAKS
20285 STATE HWY 46 W. BULVERDE, TX 78163

No.	DESCRIPTION	DATE
1	Issue for permit	9/2/2025

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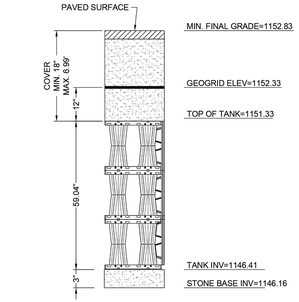
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UNDERGROUND DETENTION SYSTEM DETAILS (1 OF 3)

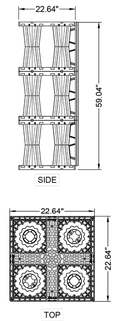
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Drawing Name: M:_projects\643 - mb&b\001 - promenade at singing oaks drainage\CDs\643.001_STRM_DETL.dwg User: joshuak Apr 27, 2026 - 11:46am



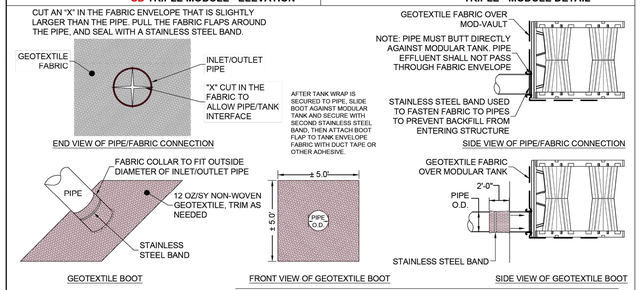
SD TRIPLE MODULE - ELEVATION



TRIPLE - MODULE DETAIL

MOD-VAULT QUANTITIES	
MODULE TYPE	SD TRIPLE
# OF SD TRIPLE MODULES	998
TOTAL SYSTEM STORAGE	19,709 CF
TANK STORAGE VOLUME	16,604 CF
STONE STORAGE VOLUME (40% VOID RATIO)	3,105 CF
STONE BED FOOTPRINT	4,242 SF
STONE QUANTITY	288 CY

*** Material supplier must be present at the pre-construction meeting and any subsequent meetings involving the installation or design of the underground detention system. Any deviations from the approved design or material specifications must be reviewed and approved by the material supplier prior to implementation.**



MODULAR TYPICAL TANK INLET/OUTLET W/ GEOTEXTILE PIPE BOOT DETAIL

Greenrise Technologies

PLEASE CONTACT GREENRISE TECHNOLOGIES FOR MORE INFORMATION 629.230.2150

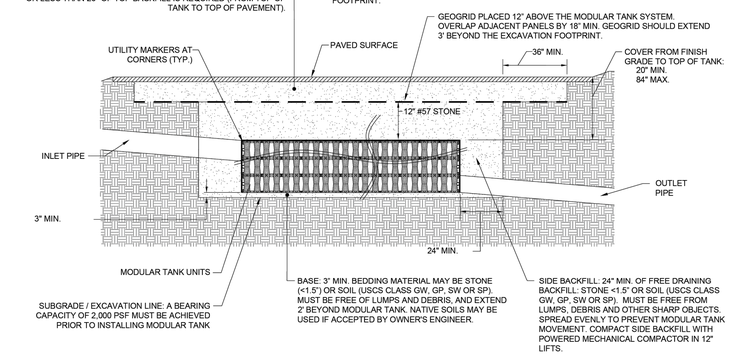
ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN

UNDERGROUND MOD-VAULT DETAILS
PROMENADE AT SINGING OAKS
BULVERDE, TX

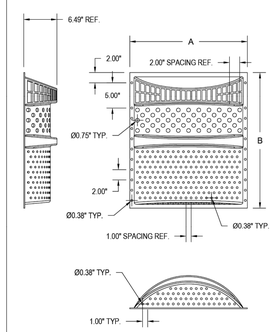
DRAWN BY: PC
DATE: 11-10-25
SHEET NO.: UGD3.0

TOTAL COVER: 20" MINIMUM AND 84" MAXIMUM. FIRST 12" MUST BE FREE DRAINING BACKFILL: STONE <1.5" OR SOIL (USCS CLASS GW, GP, SW OR SP). ADDITIONAL FILL MAY BE STRUCTURAL FILL : STONE OR SOIL (USCS CLASS SM, SP, SW, GM, GP OR GW) WITH MAX CLAY CONTENT<10%, MAX 25% PASSING NO. 200 SIEVE, AND MAX PLASTICITY INDEX OF 4. A MIN. 12" COVER MUST BE MAINTAINED BETWEEN BACKFILL EQUIPMENT AND THE TOP OF THE MODULAR TANK SYSTEM AT ALL TIMES. TOTAL HEIGHT OF TOP BACKFILL SHOULD NOT EXCEED 7'. CONTACT GREENRISE TECH IF MORE THAN 7' OR LESS THAN 20" OF TOP BACKFILL IS REQUIRED (FROM TOP OF TANK TO TOP OF PAVEMENT).

NOTES:
1. FOR COMPLETE MODULE DATA, SEE APPROPRIATE MODULAR TANK MODULE SHEET.
2. INSTALLATIONS PER THIS DETAIL MEET GUIDELINES OF HL-93 LOADING PER THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, CUSTOMARY U.S. UNITS, 7TH EDITION, 2014 WITH 2015 AND 2016 INTERIM REVISIONS.
3. PRE-TREATMENT STRUCTURES NOT SHOWN.
4. FOR INFILTRATION APPLICATIONS, GEOTEXTILE ENVELOPING MODULAR TANK SHALL BE M200 AND BASE SHALL BE 4" MIN. UNCOMPACTED FREE DRAINING BACKFILL TO PROVIDE A LEVEL BASE. SURFACE MUST BE SMOOTH, FREE OF LUMPS OR DEBRIS, AND EXTEND 2' BEYOND MOD-VAULT FOOTPRINT.



MODULAR TANK & H-20 LOADS - SECTION VIEW



SIZE	A	B
23" x 24"	23"	26.51"
28" x 30"	28"	33.15"
34" x 36"	34"	38.69"

±0.25" TOLERANCE ON DIMENSIONS

TRASHGUARD PLUS PRETREATMENT DETAIL

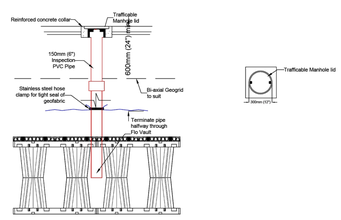
Greenrise Technologies

PLEASE CONTACT GREENRISE TECHNOLOGIES FOR MORE INFORMATION 629.230.2150

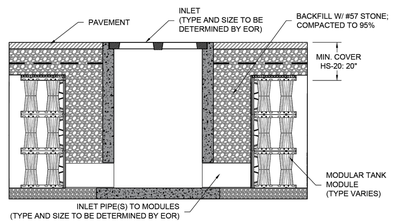
ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN

UNDERGROUND MOD-VAULT DETAILS
PROMENADE AT SINGING OAKS
BULVERDE, TX

Drawn by: PC
DATE: 11-10-25
SHEET NO.: UGD4.0



INSPECTION / MAINTENANCE PORT DETAIL



INLET IN SYSTEM DETAIL

MB&B ARCHITECTS AND ENGINEERS
5300 HOLLISTER STREET, SUITE 301 HOUSTON, TX 77040
TEL: 713 370 8750
TBPELS F-24553

04/27/2026

STATE OF TEXAS
JOSHUA M. KELSEY
157476
LICENSED
PROFESSIONAL ENGINEER

NOTES:

PROMENADE AT SINGING OAKS
20285 STATE HWY 46 W. BULVERDE, TX 78163

No.	DESCRIPTION	DATE
1	Issue for permit	9/2/2025

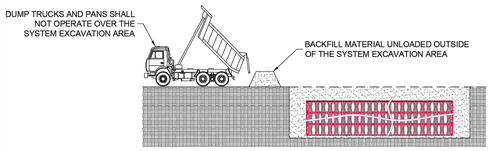
SCALE:
DRAWN BY: MG
CHK BY: JK
APP BY: ESP
DATE: APRIL 2026
PROJECT NO.: 643.001

SHEET TITLE:
UNDERGROUND DETENTION SYSTEM DETAILS (2 OF 3)

SHEET NUMBER:
C6.2

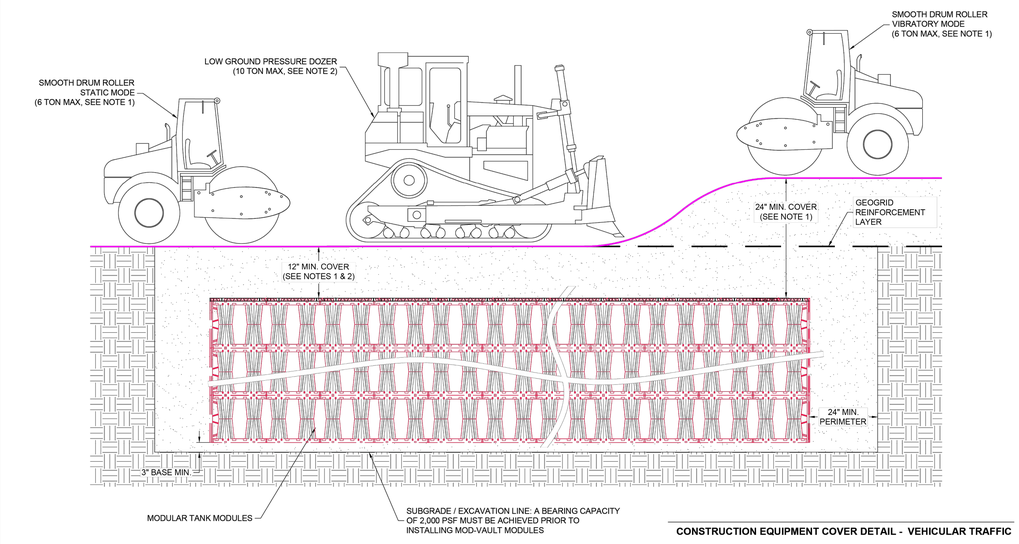
HMT ENGINEERING & SURVEYING
200 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
HMTNB.COM
(830) 625-8555
TBPELS FIRM F-10961
TBPELS FIRM 10153600

Drawing Name: M:_Projects\643 - MB&B\001 - Promenade at Singing Oaks Drainage\CDs\643.001_STRM_DETL.dwg User: michaelg Apr 27, 2026 - 12:29pm



DUMP TRUCK DETAIL (SEE NOTE 3)

NOTES:
1. FOLLOWING PLACEMENT OF SIDE BACKFILL, A UNIFORM 12" LIFT OF THE FREELY DRAINING MATERIAL SHALL BE PLACED OVER THE TANK MODULES AND LIGHTLY COMPACTED USING A WALK-BEHIND TRENCH ROLLER. ALTERNATELY, A ROLLER (MAXIMUM GROSS VEHICLE WEIGHT OF 6 TONS) MAY BE USED. ROLLER MUST REMAIN IN STATIC MODE UNTIL A MINIMUM OF 24" OF COVER HAS BEEN PLACED OVER THE MODULES. SHEEP FOOT ROLLERS SHOULD NOT BE USED.
2. ONLY LOW PRESSURE TIRE OR TRACK VEHICLES (LESS THAN 7 PSI AND OPERATING WEIGHT OF LESS THAN 20,000 LBS) SHALL BE OPERATED OVER THE SYSTEM DURING CONSTRUCTION.
3. DUMP TRUCKS AND PANS SHALL NOT BE OPERATED WITHIN THE SYSTEM AT ANY TIME. WHERE NECESSARY, THE HEAVY EQUIPMENT SHOULD UNLOAD IN AN AREA ADJACENT TO THE SYSTEM AND THE MATERIAL SHOULD BE MOVED OVER THE SYSTEM WITH TRACKED EQUIPMENT.
4. ENSURE THAT ALL UNRELATED CONSTRUCTION TRAFFIC IS KEPT AWAY FROM THE LIMITS OF EXCAVATION UNTIL THE PROJECT IS COMPLETE AND FINAL SURFACE MATERIALS ARE IN PLACE. NO NON-INSTALLATION RELATED LOADING SHOULD BE ALLOWED OVER THE SYSTEM UNTIL THE FINAL DESIGN SECTION HAS BEEN CONSTRUCTED (INCLUDING PAVEMENT).
5. SEE MODULAR TANK INSTALLATION GUIDE FOR ADDITIONAL INFORMATION.



CONSTRUCTION EQUIPMENT COVER DETAIL - VEHICULAR TRAFFIC

Greenrise Technologies

PLEASE CONTACT GREENRISE TECHNOLOGIES FOR MORE INFORMATION 629.230.2150

ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN

UNDERGROUND MODULAR CONSTRUCTION EQUIPMENT COVER DETAILS
PROMENADE AT SINGING OAKS
BULVERDE, TX

DRAWN BY: PC
DATE: 11-10-25
SHEET NO.: UGD5.0

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ARCHITECTS AND ENGINEERS
5300 HOLLISTER STREET,
SUITE 301 HOUSTON, TX 77040
TEL: 713 370 8750
TBPELS F-24553

04/27/2026

STATE OF TEXAS
JOSHUA M. KELSEY
157476
LICENSED
PROFESSIONAL ENGINEER

NOTES:

PROMENADE AT SINGING OAKS

20285 STATE HWY 46 W. BULVERDE, TX 78163

No.	DESCRIPTION	DATE
1	Issue for permit	9/2/2025

SCALE:

DRAWN BY: MG

CHK BY: JK

APP BY: ESP

DATE: APRIL 2026

PROJECT NO.: 643.001

SHEET TITLE:

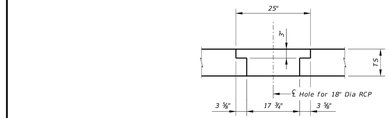
UNDERGROUND DETENTION SYSTEM DETAILS (3 OF 3)

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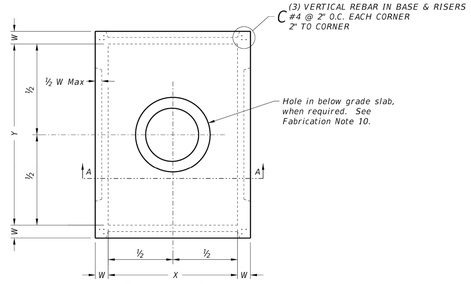
C6.3

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NEW BRAUNFELS, TX 78130
HMTNB.COM
(830) 625-8555
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TBPELS FIRM 10153600

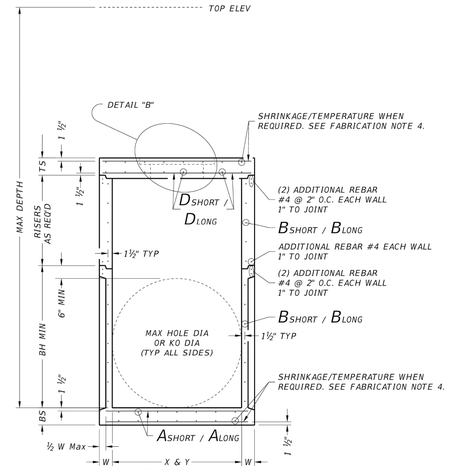
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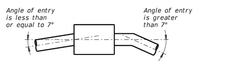
DETAIL "B"



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 ½" to reinforcing steel at interior or exterior walls.
4. Walls or slabs with a thickness of 8" or greater require shrinkage and temperature reinforcing steel. Provide steel area = 0.11 in²/ft each way.
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 POD.

INSTALLATION NOTES:

1. Inverts (benching) to be provided by Contractor. Concrete or mortar used for invert is subsidiary to junction box.
2. Seal 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 bootseal Manufacturer's specification for placement tolerance and hole size. Center pipe in hole and install bootseal 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.

HL93 LOADING

Texas Department of Transportation | Bridge Division Standard

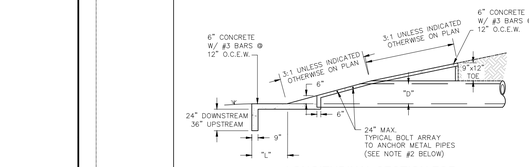
PRECAST JUNCTION BOX

PJB

FILE: prestd09-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

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

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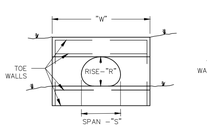
LONGITUDINAL SECTION FOR CIRCULAR & ARCH PIPES

NOT-TO-SCALE

DIMENSIONS FOR CIRCULAR (CMP AND RCP) PIPE CULVERT

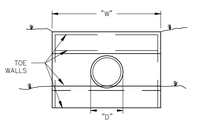
"D" INSIDE DIA. OF PIPE	"L"	"G"		SINGLE	DOUBLE	TRIPLE	QUADRUPLE
		CGM	RCP	"W"			
18"	2'-0"	1'-2"	0'-9"	4'-6"	7'-2"	9'-10"	12'-6"
21"	2'-6"	1'-3"	0'-10"	5'-3"	8'-4"	11'-4"	13'-8"
24"	3'-0"	1'-5"	0'-11"	6'-0"	9'-5"	12'-10"	16'-3"
30"	4'-0"	1'-8"	1'-1"	7'-6"	11'-8"	15'-10"	20'-0"
36"	5'-0"	1'-11"	1'-3"	9'-0"	13'-11"	18'-10"	23'-9"
42"	6'-0"	2'-2"	1'-5"	10'-6"	16'-2"	21'-10"	27'-6"
48"	7'-0"	2'-5"	1'-7"	12'-0"	18'-5"	24'-10"	31'-3"
54"	8'-0"	2'-10"	1'-11"	13'-6"	20'-10"	28'-2"	35'-6"
60"	9'-0"	3'-2"	2'-0"	15'-0"	23'-2"	31'-4"	39'-6"

"G" IS MEASURED BETWEEN THE OTHER SURFACES OF THE PIPES.



SINGLE C.M.P. ARCH PIPE CULVERT

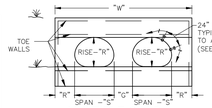
NOT-TO-SCALE



SINGLE CIRCULAR PIPE CULVERT

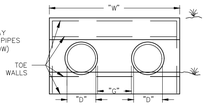
(CMP OR RCP)

NOT-TO-SCALE



MULTIPLE C.M.P. ARCH PIPE CULVERT

NOT-TO-SCALE



MULTIPLE CIRCULAR PIPE CULVERT

(CMP OR RCP)

NOT-TO-SCALE

DIMENSIONS FOR C.M.P. ARCH PIPE CULVERTS

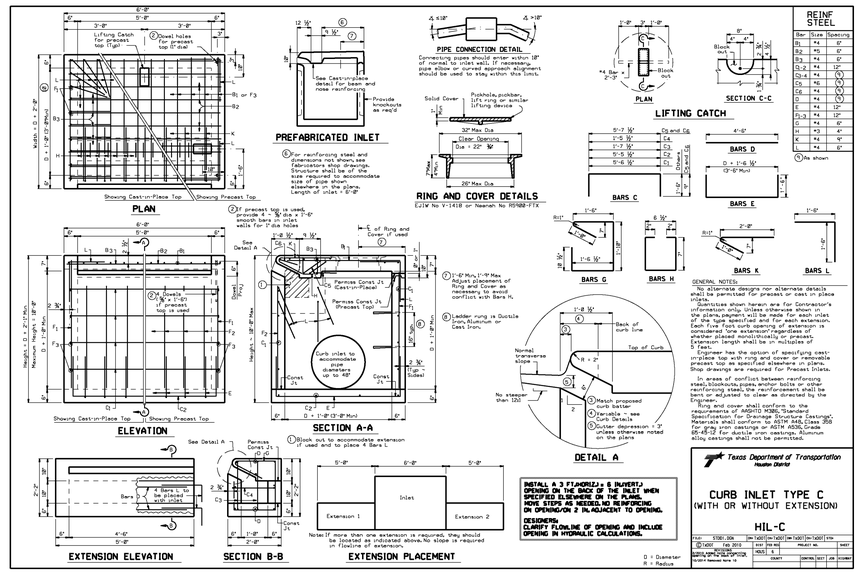
DESIGN SIZE	APPROX ARCH DIM.		"L"	"G"	SINGLE	DOUBLE	TRIPLE	QUADRUPLE
	RISE "R"	SPAN "S"			"W"			
2	21"	15"	2'-0"	1'-2"	4'-3"	7'-2"	10'-1"	13'-0"
3	28"	20"	3'-0"	1'-5"	5'-8"	9'-5"	13'-2"	16'-11"
4	35"	24"	4'-0"	1'-8"	6'-11"	11'-6"	16'-1"	20'-8"
5	42"	29"	5'-0"	1'-11"	8'-4"	13'-9"	19'-2"	24'-7"
6	49"	33"	6'-0"	2'-2"	9'-7"	15'-10"	22'-1"	28'-4"
7	57"	38"	7'-0"	2'-5"	11'-1"	18'-3"	25'-5"	32'-7"
8	64"	43"	8'-0"	2'-10"	12'-5"	20'-8"	28'-10"	37'-0"
9	71"	47"	9'-0"	3'-2"	13'-9"	22'-10"	31'-11"	41'-0"

BASED ON 2-2/3" X 1/2" CORRUGATION
"G" IS MEASURED BETWEEN THE OTHER SURFACES OF THE PIPES.

NOTES:

1. CONCRETE SHALL BE CLASS "A" 3000 PSI
2. ALL METAL PIPES (CIRCULAR AND/OR ARCH) SHALL HAVE 5/8" X 6" GALVANIZED BOLTS WITH 2 HEX NUTS AT 24" CENTERS TO ANCHOR THE PIPE TO THE CONCRETE. THIS WILL BE SUBSIDIARY TO THE RIPRAP HEADWALL.
3. FOR CONCRETE ARCH PIPES THE CMP ARCH PIPE CULVERT DIMENSIONS WILL HAVE TO BE ADJUSTED FOR THE PIPE WALL THICKNESS.
4. FOR PIPES LARGER THAN SHOWN, USE THE CLEAR DISTANCE BETWEEN PIPES SHOWN IN TXDOT ITEMS 460 AND/OR 464.
5. IF THE SIDES OF THE HEADWALL IS ADJACENT TO A RIPRAP SLOPE AND IF THE TOP OF THE HEADWALL IS ADJACENT TO THE ROADWAY FOUNDATION OR RIPRAP SLOPE, THE SIDE AND TOP TOE WALLS MAY BE ELIMINATED IF APPROVED BY THE ENGINEER.

RH-15 HEADWALL

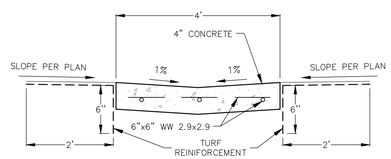


Texas Department of Transportation — Houston District

CURB INLET TYPE C
(WITH OR WITHOUT EXTENSION)

HIL-C

FILE:	STD01.DGN	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT	Feb 2013	DIST	PRS RD	PROJECT NO.	SHEET
REVISIONS		HOU	5		
		DIST	COUNTY	CONTROL	SECT	JOB	HIGHWAY



PILOT CHANNEL DETAIL

N.T.S.

MB&B
ARCHITECTS AND ENGINEERS
5300 HOLLISTER STREET,
SUITE 301 HOUSTON, TX 77040
TEL: 713 370 8750
TBPELS F-24553

04/27/2026

STATE OF TEXAS
JOSHUA M. KELSEY
157476
LICENSED
PROFESSIONAL ENGINEER

NOTES:

PROMENADE AT SINGING OAKS

2028S STATE HWY 46 W. BULVERDE, TX 78163

No.	DESCRIPTION	DATE
1	Issue for permit	9/2/2025

SCALE:

DRAWN BY: MG

CHK BY: JK

APP BY: ESP

DATE: APRIL 2026

PROJECT NO.: 643.001

SHEET TITLE:

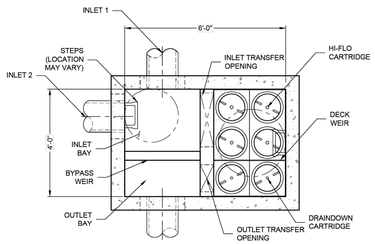
STORM DETAILS (1 OF 3)

SHEET NUMBER:

C6.4

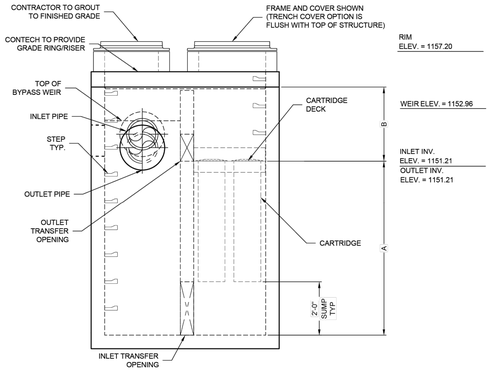
HMT ENGINEERING & SURVEYING
290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
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TBPELS FIRM F-10961
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Drawing Name: M:_Projects\643 - MB&B\001 - Promenade at Singing Oaks Drainage\Civil\643.001_STRM_DETL.dwg User: michaelg Apr 27, 2026 - 12:29pm



PLAN VIEW

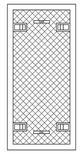
(TOP SLAB NOT SHOWN FOR CLARITY)



ELEVATION VIEW



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.



24" TRENCH COVER
N.T.S.

JELLYFISH DESIGN NOTES

JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD PEAK DIVERSION STYLE WITH PRECAST TOP SLAB IS SHOWN. ALTERNATE OFFLINE VAULT, CURB INLET OR SHALLOW PIPE INLET OPTIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD.

CARTRIDGE SELECTION

CARTRIDGE LENGTH	54"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"
FLOW RATE HIGH-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089
MAX. TREATMENT (CFS)	0.89
DECK TO INSIDE TOP (MIN) (B)	5'-0"

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	B1.1
WATER QUALITY FLOW RATE (cfs)	0.61
PEAK FLOW RATE (cfs)	
RETURN PERIOD OF PEAK FLOW (yrs)	
# OF CARTRIDGES REQUIRED (HF / DD)	3 / 1
CARTRIDGE LENGTH	54"

PIPE DATA:	I.E.	MATL	DIA	SLOPE %	HGL
INLET #1	1151.21'	HDPE	18"	*	*
INLET #2	1151.21'	HDPE	12"	*	*
OUTLET	1151.21'	HDPE	18"	*	*

SEE GENERAL NOTES 6-7 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.

RIM ELEVATION	1157.20'

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

GENERAL NOTES:
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION AND SITE SPECIFIC EARTH COVER REQUIREMENT. TYPICAL CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION AND SITE SPECIFIC EARTH COVER REQUIREMENT. TYPICAL CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
6. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-857, ASTM C-918, AND AASHTO LOAD FACTOR DESIGN METHOD.
7. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
8. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS RECOMMENDED TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE (WHERE APPLICABLE) AT EQUAL OR GREATER SLOPE.
9. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE.
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT).
D. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION.

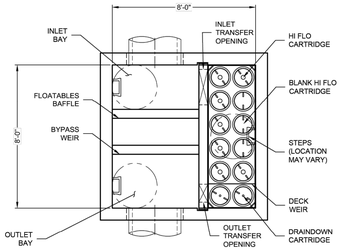
Jellyfish® Filter

THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING: U.S. PATENT NO. 8,287,726; 8,221,618; US 8,123,935; OTHER INTERNATIONAL PATENTS PENDING

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

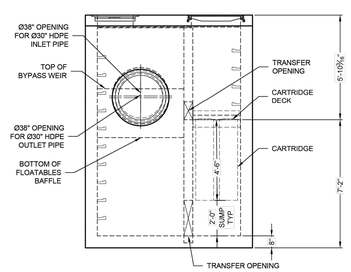
4' x 6' JELLYFISH - 749419 - 10
PROMENADE AT SINGIN OAKS
BULVERDE, TX
SITE DESIGNATION: B1.1

C:\USERS\JOHN.VIRGHTONE\DRIVE - THE QUIKRETE COMPANIES\DOCTOPS\STANDARD DETAILS\JFP0606-STL.DWG 11/15/2022 3:01 PM



PLAN VIEW

(TOP SLAB NOT SHOWN FOR CLARITY)



ELEVATION VIEW

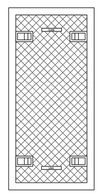
RIM
ELEV. = 1153.85'
TOP OF STRUCTURE
ELEV. = 1153.85'

WEIR ELEV. =1149.75'

INLET INV. ELEV. = 1148.10'
OUTLET INV. ELEV. = 1148.00'

STRUCTURE INV.
ELEV. = 1141.50'

BOTTOM OF STRUCTURE
ELEV. = 1140.83'



24" TRENCH COVER
(LENGTH VARIES)
N.T.S.

JELLYFISH DESIGN NOTES

JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD PEAK DIVERSION STYLE WITH PRECAST TOP SLAB IS SHOWN. ALTERNATE OFFLINE VAULT AND/OR SHALLOW ORIENTATIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD

CARTRIDGE LENGTH	54"
OUTLET INVERT TO STRUCTURE INVERT (A)	6'-6"
FLOW RATE HI-FLO / DRAINDOWN (CFS) (PER CART)	0.178 / 0.089
MAX. TREATMENT (CFS)	1.96

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	6'X8' JFPD
WATER QUALITY FLOW RATE (cfs)	1.43
PEAK FLOW RATE (cfs)	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
# OF CARTRIDGES REQUIRED (HF / DD)	7/2
CARTRIDGE LENGTH	54"

PIPE DATA:	I.E.	MATL	DIA	SLOPE %	HGL
INLET #1	1148.10	HDPE	30"	*	*
INLET #2	*	*	*	*	*
OUTLET	1148.00	HDPE	30"	*	*

SEE GENERAL NOTES 6-7 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.

RIM ELEVATION	1153.85

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:
VAULT UPSIZED TO JFPD0808 TO ACCOMMODATE INLET AND OUTLET PIPES
* PER ENGINEER OF RECORD

GENERAL NOTES:
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4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' - 10', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
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8' x 6' JELLYFISH - 864635- 020
PROJECT NAME: PROMINADE AT SINGING OAKS
LOCATION: BULVERDE, TX
SITE DESIGNATION: 6'X8' JELLYFISH PEAK DIVERSION

C:\USERS\PATRICK.KIEFER\ONEDRIVE - THE QUIKRETE COMPANIES\DOCTOPS\NAMICS\65 - CONTECH - PROJECTS\864635\PRODUCTS\864635-20-JELLYFISHDRAWINGS\PROPOSAL\JFP0606-PRO.DWG 4/27/2026 11:06 AM

Drawing Name: M:_Projects\643 - MB&B\001 - Promenade at Singing Oaks Drainage\CDs\643.001_STRM_DETL.dwg User: michaelg Apr 27, 2026 - 12:29pm

Contech Engineered Solutions Calculations for Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: Promenade at Singing Oaks
Date Prepared: 4/22/2026

1. The Required Load Reduction for the total project:

Calculations from RG-348 — Page 3-29 Equation 3.3: $L_M = 27.3(A_N \times P)$
Pages 3-27 to 3-30

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	**Comal**	
Total project area included in plan * =	**3.80**	acres
Predevelopment impervious area within the limits of the plan * =	**0.13**	acres
Total post-development impervious area within the limits of the plan* =	**1.06**	acres
Total post-development impervious cover fraction * =	**0.28**	
P =	**33**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**835**	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	**12**	

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. = DA-R+PR-B1.1

Total drainage basin/outfall area =	**0.55**	acres
Predevelopment impervious area within drainage basin/outfall area =	**0.00**	acres
Post-development impervious area within drainage basin/outfall area =	**0.49**	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.89**	
$L_{M\ THIS\ BASIN}$ =	**440**	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	**JF**	abbreviation
Removal efficiency =	**80**	percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7:
LR = (BMP efficiency) x P x (A_C x 34.6 + A_P x 0.54)

A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	**0.55**	acres
A_I =	**0.49**	acres
A_P =	**0.06**	acres
L_R =	**482**	lbs.

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ =	**440**	lbs.
F =	**0.91**	

6. Calculate Treated Flow required by the BMP Type for this drainage basin / outfall area.

Offsite area draining to BMP =	**0.00**	acres
Offsite impervious cover draining to BMP =	**0.00**	acres
Calculations from RG-348		
Pages Section 3.2.22		
Rainfall Intensity =	**1.15**	inches per hour
Effective Area =	**0.44**	acres
Cartridge Length =	**54**	inches
Peak Treatment Flow Required =	**0.51**	cubic feet per second

7. Jellyfish
Designed as Required in RG-348
Section 3.2.22

Flow Through Jellyfish Size	Vault
Jellyfish Size for Flow-Based Configuration =	**JFPD0406-4-1**
Jellyfish Treatment Flow Rate =	**0.60** cfs

Contech Engineered Solutions Calculations for Texas Commission on Environmental Quality
TSS Removal Calculations

Project Name: Promenade at Singing Oaks
Date Prepared: 11/6/2025

1. The Required Load Reduction for the total project:

Calculations from RG-348 — Page 3-29 Equation 3.3: $L_M = 27.3(A_N \times P)$
Pages 3-27 to 3-30

$L_{M\ TOTAL\ PROJECT}$ = Required TSS removal resulting from the proposed development = 80% of increased load
A_N = Net increase in impervious area for the project
P = Average annual precipitation, inches

Site Data: Determine Required Load Removal Based on the Entire Project

County =	**Comal**	
Total project area included in plan * =	**3.80**	acres
Predevelopment impervious area within the limits of the plan * =	**0.13**	acres
Total post-development impervious area within the limits of the plan* =	**1.06**	acres
Total post-development impervious cover fraction * =	**0.28**	
P =	**33**	inches
$L_{M\ TOTAL\ PROJECT}$ =	**835**	lbs.
Number of drainage basins / outfalls areas leaving the plan area =	**12**	

2. Drainage Basin Parameters (This information should be provided for each basin):

Drainage Basin/Outfall Area No. = PR-B1.2

Total drainage basin/outfall area =	**0.68**	acres
Predevelopment impervious area within drainage basin/outfall area =	**0.00**	acres
Post-development impervious area within drainage basin/outfall area =	**0.55**	acres
Post-development impervious fraction within drainage basin/outfall area =	**0.81**	
$L_{M\ THIS\ BASIN}$ =	**494**	lbs.

3. Indicate the proposed BMP Code for this basin.

Proposed BMP =	**JF**	abbreviation
Removal efficiency =	**80**	percent

4. Calculate Maximum TSS Load Removed (L_R) for this Drainage Basin by the selected BMP Type.

RG-348 Page 3-33 Equation 3.7:
LR = (BMP efficiency) x P x (A_C x 34.6 + A_P x 0.54)

A_C = Total On-Site drainage area in the BMP catchment area
A_I = Impervious area proposed in the BMP catchment area
A_P = Pervious area remaining in the BMP catchment area
L_R = TSS Load removed from this catchment area by the proposed BMP

A_C =	**0.68**	acres
A_I =	**0.55**	acres
A_P =	**0.13**	acres
L_R =	**542**	lbs.

5. Calculate Fraction of Annual Runoff to Treat the drainage basin / outfall area

Desired $L_{M\ THIS\ BASIN}$ =	**494**	lbs.
F =	**0.91**	

6. Calculate Treated Flow required by the BMP Type for this drainage basin / outfall area.

Offsite area draining to BMP =	**0.00**	acres
Offsite impervious cover draining to BMP =	**0.00**	acres
Calculations from RG-348		
Pages Section 3.2.22		
Rainfall Intensity =	**1.15**	inches per hour
Effective Area =	**0.50**	acres
Cartridge Length =	**54**	inches
Peak Treatment Flow Required =	**0.58**	cubic feet per second

7. Jellyfish
Designed as Required in RG-348
Section 3.2.22

Flow Through Jellyfish Size	Vault
Jellyfish Size for Flow-Based Configuration =	**JFPD0406-3-1**
Jellyfish Treatment Flow Rate =	**0.62** cfs

MB&B ARCHITECTS AND ENGINEERS
5300 HOLLISTER STREET, SUITE 301 HOUSTON, TX 77040
TEL: 713 370 8750
TBPELS F-24553

04/27/2026

STATE OF TEXAS
JOSHUA M. KELSEY
157476
LICENSED
PROFESSIONAL ENGINEER

NOTES:

PROMENADE AT SINGING OAKS
20285 STATE HWY 46 W. BULVERDE, TX 78163

No.	DESCRIPTION	DATE
1	Issue for permit	9/2/2025

SCALE:

DRAWN BY: MG

CHK BY: JK

APP BY: ESP

DATE: APRIL 2026

PROJECT NO.: 643.001

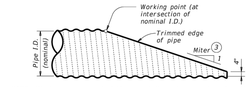
SHEET TITLE:

STORM DETAILS (2 OF 3)

SHEET NUMBER:

C6.5

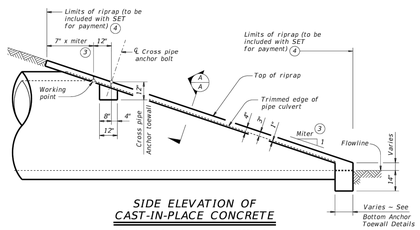
HMT ENGINEERING & SURVEYING
290 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 781.30
HMTNB.COM
(830) 625-8555
TBPELS FIRM F-10961
TBPELS FIRM 10153600



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.

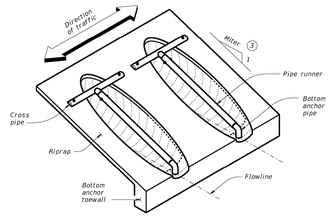
SIDE ELEVATION OF TYPICAL PIPE CULVERT MITER

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



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)



ISOMETRIC VIEW OF TYPICAL INSTALLATION

(Showing installation with no skew.)

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"	3' – 0"	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

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"

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	0.6	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

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

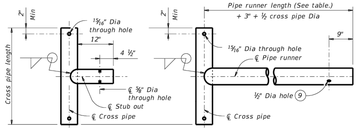
Texas Department of Transportation — Bridge Division Standard

SAFETY END TREATMENT

FOR 12" DIA TO 60" DIA PIPE CULVERTS
TYPE II – CROSS DRAINAGE

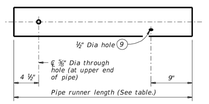
SETP-CD

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



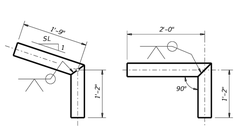
OPTION A1 OPTION A2

CROSS PIPE AND CONNECTIONS DETAILS



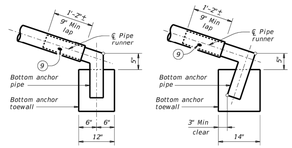
NOTE: The separate pipe runner shown is required when Cross Pipe Connection Option A1 is used.

PIPE RUNNER DETAILS



OPTION B1 OPTION B2

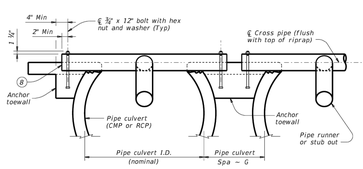
BOTTOM ANCHOR PIPE DETAILS ⑩



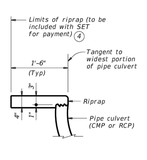
OPTION B1 OPTION B2

BOTTOM ANCHOR TOEWALL DETAILS

(Culvert and riprap not shown for clarity.)



SHOWING CROSS PIPE AND ANCHOR TOEWALL



SHOWING TYPICAL PIPE CULVERT AND RIPRAP

SECTION A-A

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

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

⑦ Note that actual slope of pipe runner may vary slightly from side slope of riprap and trimmed culvert pipe edge.

⑧ Ensure that riprap concrete does not flow into the cross pipe so as to permit disassembly of the bolted connection to allow cleanout access.

⑨ After installation, inspect the ½" hole to ensure that the lap of the pipe runner with the bottom anchor pipe is adequate.

⑩ At fabricator's option, a heat bend to a smooth 5" radius or a manufactured elbow (of the same material as the runner) may be substituted for the mitered and welded joint in the bottom anchor pipe.

MATERIAL NOTES:

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

Provide pipe runners, cross pipes, and anchor pipes conforming to the requirements of ASTM A53 (Type E or S, Gr B), ASTM A500 Gr B, or API 5L X52.

Provide ASTM A307 bolts and nuts.

Galvanize all steel components, except concrete reinforcing, after fabrication.

Repair galvanizing damaged during transport or construction in accordance with the specifications.

GENERAL NOTES:

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

Safety end treatments (SET) 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.

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

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

SHEET 2 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

FILE:	setpctse-20.dgn	DN: GAF	CK: CAT	DW: JRP	CK: GAF
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FILE:

MB&S
ARCHITECTS AND ENGINEERS
5300 HOLLISTER STREET,
SUITE 301 HOUSTON, TX 77040
TEL: 713 370 8750
TBPELS F-24553

04/27/2026

STATE OF TEXAS
JOSHUA M. KELSEY
157476
LICENSED
PROFESSIONAL ENGINEER

NOTES:

PROMENADE AT SINGING OAKS
20285 STATE HWY 46 W. BULVERDE, TX 78163

No.	DESCRIPTION	DATE
1	Issue for permit	9/2/2025

SCALE:
DRAWN BY: MG
CHK BY: JK
APP BY: ESP
DATE: APRIL 2026
PROJECT NO.: 643.001
SHEET TITLE:

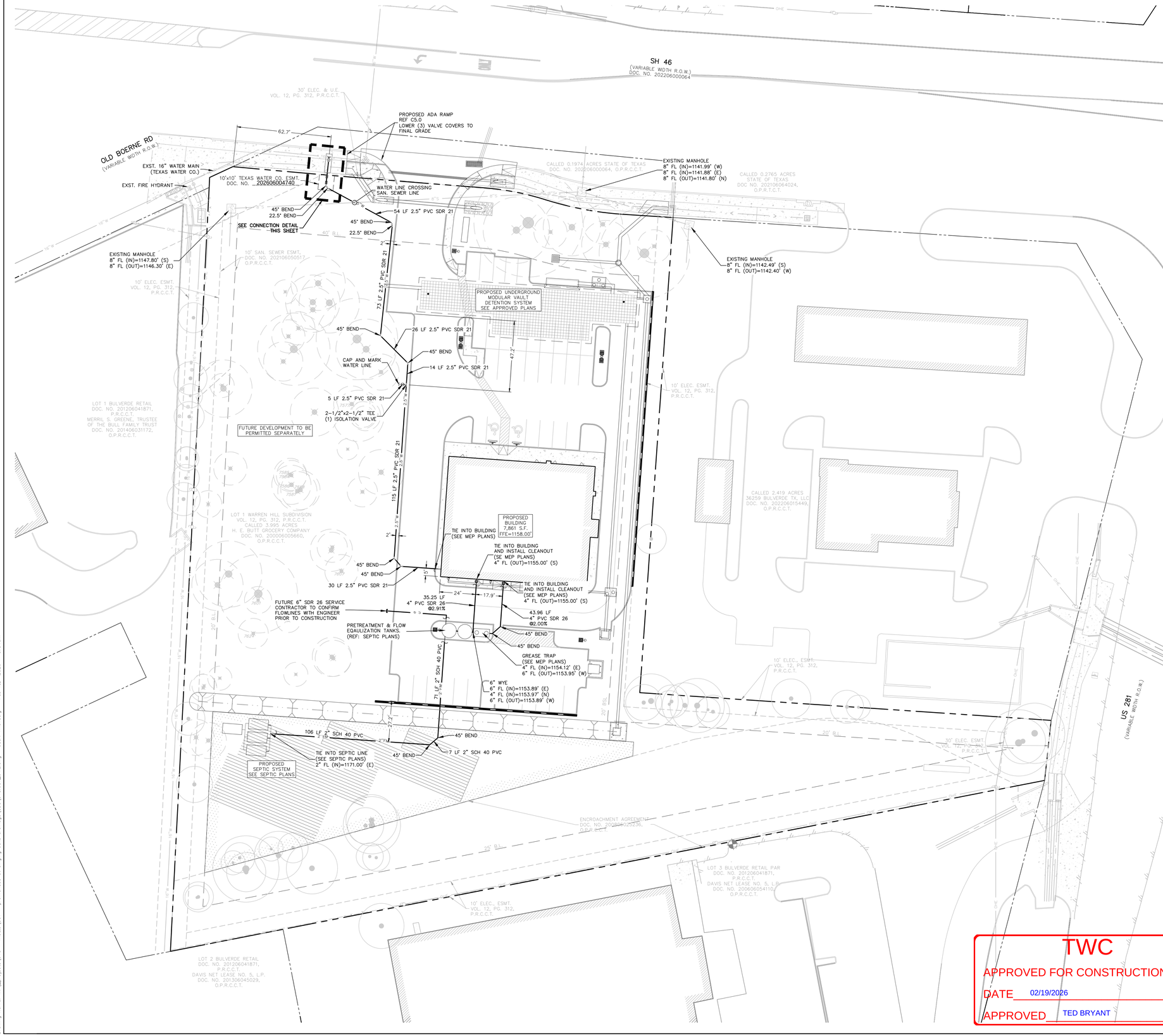
STORM DETAILS (3 OF 3)

SHEET NUMBER:

C6.6

HMT ENGINEERING & SURVEYING
200 S. CASTELL AVE., STE. 100
NEW BRAUNFELS, TX 78130
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(830) 625-8555
TBPELS FIRM F-10961
TBPELS FIRM 10153600

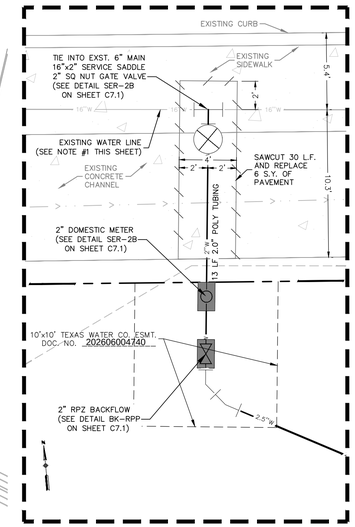
Drawing Name: M:_Projects\643 – MB&S\TxDOT – Promenade at Singing Oaks Drainage\02s\643.001_STRM_DETL.dwg User: michaelg Apr 27, 2026 – 12:29pm



0 15 30 60
SCALE: 1" = 30'

UTILITY PLAN

- SITE PROPERTY LINE
- ADJACENT PROPERTY LINE
- EASEMENT
- 6"S — PROPOSED SANITARY SEWER LINE
- 8"S — EXISTING SEWER LINE
- EXISTING SANITARY SEWER MANHOLE
- PROPOSED CLEANOUT (SEE MEP PLANS)
- 2.5"W — PROPOSED WATER LINE
- 6"W — EXISTING WATER LINE
- FITTING
- BACKFLOW
- WATER METER
- FIRE HYDRANT
- GATE VALVE
- OHE — OVERHEAD ELECTRIC LINE
- LIGHT POLE (SEE MEP PLANS)
- UTILITY POLE
- GUY ANCHOR



1 CONNECTION DETAIL
1"=5'

NOTE:
1. EXISTING WATER LINE DEPTH UNKNOWN. CONTRACTOR TO HAND DIG OR HYDRO EXCAVATE TO EXPOSE EXISTING WATER LINE. CONTRACTOR SHALL IMPLEMENT TEMPORARY TRAFFIC CONTROL WHEN WORKING IN THE R.O.W. (REF: SHEET C4.4)
2. ALL UTILITIES TO BE CONSTRUCTED PRIOR TO THE STREETS
3. NO VALVES, HYDRANTS, CLEANOUTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS.

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 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.

TWC
APPROVED FOR CONSTRUCTION
DATE 02/19/2026
APPROVED TED BRYANT

HMT
ENGINEERING & SURVEYING
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ARCHITECTS
AND ENGINEERS
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SUITE 301 HOUSTON, TX 77040
TEL: 713 370 8750
TBPELS F-24553

02/18/2026

STATE OF TEXAS
JOSHUA M. KELSEY
157476
LICENSED
PROFESSIONAL ENGINEER

NOTES:

PROMENADE AT SINGING OAKS

20285 STATE HWY 46 W. BULVERDE, TX 78163

No.	DESCRIPTION	DATE
1	Issue for permit	9/2/2025

SCALE:

DRAWN BY: MG

CHK BY: JK

APP BY: ESP

DATE: FEBRUARY 2026

PROJECT NO.: 643.001

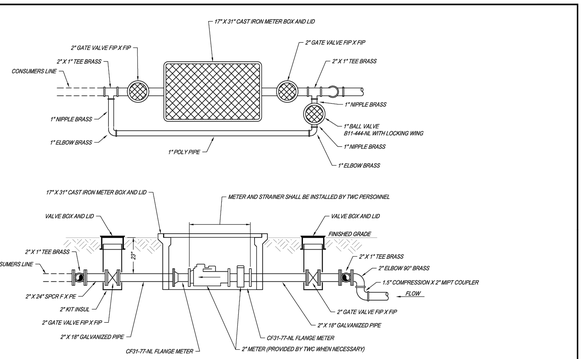
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UTILITY PLAN

SHEET NUMBER:

C7.0

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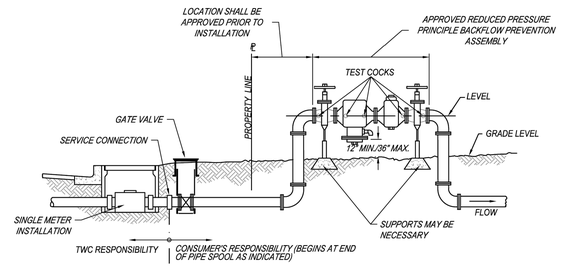
NOTES:
1. USE TRAFFIC RATED BOXES FOR METERS INSTALLED WITHIN DRIVEWAYS OR SIDEWALKS.
2. METER SUPPLIED BY TWC.

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February 15, 2024

2" SERVICE WITH BYPASS

SHEET NO.
SER-2B



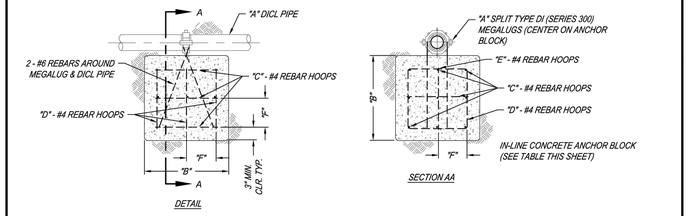
NOTES:
1. APPROVED ASSEMBLIES ARE REQUIRED TO HAVE RESILIENT SEATED SHUT-OFF VALVES AND TEST COCKS AS INTEGRAL PARTS OF THE ASSEMBLIES OTHERWISE THE APPROVAL IS VOIDED.
2. ASSEMBLY MUST BE ACCESSIBLE FOR TESTING AND MAINTENANCE.
3. PROTECTION FROM FREEZE DAMAGE WILL BE REQUIRED IN EXPOSED AREAS.
4. NO CONNECTIONS OR TEES WILL BE ALLOWED BETWEEN METER AND ASSEMBLY.
5. INSTALLATION AND OPERATION MUST COMPLY WITH STANDARDS SET FORTH BY A.W.W.A. AND ALL FEDERAL, STATE, AND LOCAL LAWS, RULES, REGULATIONS, ORDERS, CODES, AND ORDINANCES.
6. THE R.P.P. ASSEMBLY SHALL BE INSTALLED AS CLOSE TO THE METER AS PRACTICAL. ANY DEVIATION FROM THIS METHOD MUST BE APPROVED BY TWC PRIOR TO INSTALLATION.
7. IN NO CASE SHALL THIS ASSEMBLY BE INSTALLED BELOW GRADE WITHIN A VAULT OR IN A PIT.

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February 15, 2024

APPROVED REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTOR

SHEET NO.
BK-RPP



NOTES:
1. IN-LINE ANCHOR BLOCK SHALL BE POURED AGAINST UNDISTURBED GROUND.
2. APPLY TWO COATS OF SUPER TANK SOLUTION ON ALL METAL EXPOSED TO SOIL.
3. ANCHOR BLOCK SIZES ARE BASED ON 150 PSI WORKING PRESSURE (SAFETY FACTOR OF 1.5) AND 2000 LBS./SQ. FT. BEARING SOIL.
4. CONCRETE SHALL BE KEPT CLEAR OF FLANGES, NUTS, AND BOLTS.

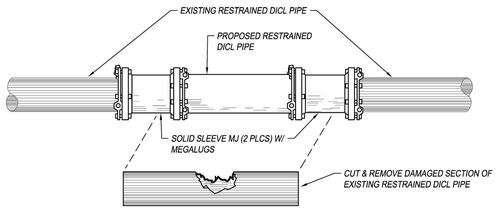
"A" NOMINAL SIZE (IN)	"B" LENGTH OF ONE SIDE OF ANCHOR BLOCK (IN)	"C" QUANTITY OF HORIZONTAL REBAR HOOPS	"D" QUANTITY OF REBAR HOOPS	"E" QUANITY OF VERTICAL REBAR HOOPS	"F" APPROX. CENTER DIS. BETWEEN REBARS (IN)
4"	30"	3	3	1	12"
6"	39"	4	4	2	11"
8"	45"	4	4	2	13"
10"	54"	5	5	3	12"
12"	60"	6	6	4	11"

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INLINE ANCHOR BLOCK

SHEET NO.
MAIN-LAB

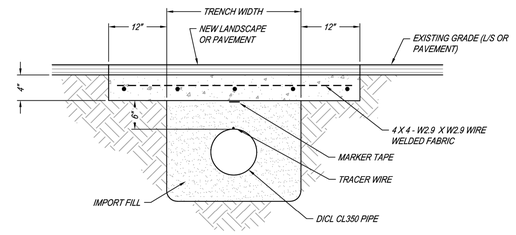


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RESTRAINED PIPE REPAIR

SHEET NO.
MAIN-RPR



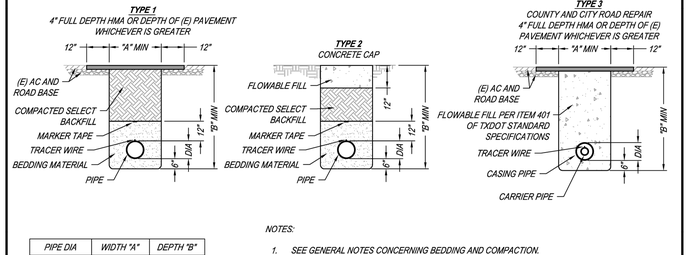
NOTE:
1. INSTALL CONCRETE CAP WHERE MAIN IS LESS THAN 30" COVER.

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CONCRETE CAP ON SHALLOW MAINS

SHEET NO.
MAIN-CC



PIPE DIA	WIDTH "A"	DEPTH "B"
4"	16"	36"
6"	18"	42"
8"	20"	44"
12"	30"	52"
16"	36"	56"
>16"	DIA + 24"	DIA + 40"

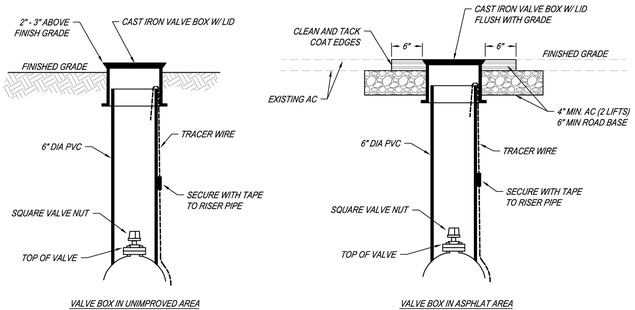
NOTES:
1. SEE GENERAL NOTES CONCERNING BEDDING AND COMPACTION.
2. ALL TRENCHES UNDER OR WITHIN 5 FEET OF PAVEMENT OR STRUCTURES SHALL BE FILLED IN MAXIMUM 6 INCH LIFTS, COMPACTED TO 95% STANDARD PROCTOR DENSITY. TRENCHES IN OTHER AREAS TO BE COMPACTED TO THE DENSITY OF THE ADJACENT UNDISTURBED SOIL.
3. ALL ASPHALT MATERIAL SHALL BE TYPE C GRADATION, USING AC-10 OIL AND SHALL BE COMPACTED TO AT LEAST 97% OF MAXIMUM DENSITY.
4. MARKER TAPE ATTACHED TO THE TOP OF PIPE WITH DUCT TAPE.
5. INSULATED 12 AWG SOLID DIRECT BURIAL RATED (30 MIL POLYETHYLENE JACKET MINIMUM) COPPER TRACER WIRE SHALL BE INSTALLED ABOVE AND ALONG ALL WATER LINES.
6. SEE TEST STATION DETAIL FOR TRACER WIRE TERMINATION.

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PIPE TRENCH DETAIL

SHEET NO.
MAIN-TRN



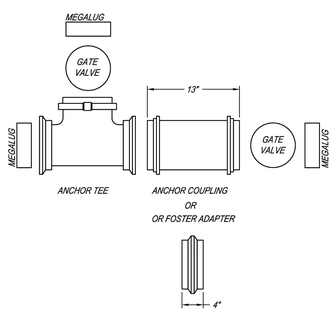
NOTES:
1. ALL ASPHALT MATERIAL SHALL BE TYPE C GRADATION, USING AC-10 OIL AND SHALL BE COMPACTED TO AT LEAST 97% OF MAXIMUM DENSITY.
2. VALVE BOX SHALL BE CENTERED ON VALVE.

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VALVE BOX INSTALLATION

SHEET NO.
MAIN-VB



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February 15, 2024

VALVE BANK INSTALLATION

SHEET NO.
MAIN-VBK

TWC
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DATE 02/19/2026
APPROVED TED BRYANT

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TBPELS F-24553

02/18/2026

STATE OF TEXAS
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157476
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PROFESSIONAL ENGINEER

NOTES:

PROMENADE AT SINGING OAKS
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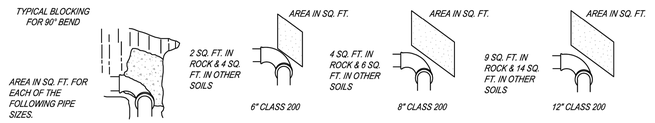
No.	DESCRIPTION	DATE
1	Issue for permit	9/2/2025

SCALE:
DRAWN BY: MG
CHK BY: JK
APP BY: ESP
DATE: FEBRUARY 2026
PROJECT NO.: 643.001

SHEET TITLE:
TEXAS WATER COMPANY DETAILS (1 OF 2)

SHEET NUMBER:
C7.1

Drawing Name: M:_projects\643 - mb&b\001 - promenade at singing oaks drainage\CDs\643.001_UTIL_DETL.dwg User: mlcseig Feb 18, 2026 - 9:56am



SQ. FT. OF BLOCKING REQUIRED FOR OTHER THAN ROCK EXCAVATION

PIPE SIZE	TEES & DEAD ENDS	90° BENDS	45° BENDS	22.5° BENDS
6"	3	4	2	1
8"	4	6	4	2
12"	10	14	8	4
16"	18	25	14	7

SQ. FT. OF BLOCKING REQUIRED FOR OTHER THAN ROCK EXCAVATION

PIPE SIZE	TEES & DEAD ENDS	90° BENDS	45° BENDS	22.5° BENDS
6"	2	2	1	1
8"	3	4	2	1
12"	6	9	5	2
16"	11	15	8	4

BLOCKING AREA FOR 200 PSI TESTS AND 175 PSI WORKING PRESSURE

ON BASIS OF 200 PSI WATER PRESSURE USED FOR TESTS, THE BLOCKING REQUIRED FOR TWO TYPES OF SOILS ARE NOTED BELOW. IN ONE CASE, A SOIL PRESSURE OF 5000 PSI IS USED FOR ROCK EXCAVATION AND FOR SOILS OTHER THAN ROCK A 3000 PSI BEARING SOIL PRESSURE IS USED. THE DISTRIBUTION ON SYSTEM IS DESIGNED TO OPERATE WITH A MAXIMUM WATER PRESSURE OF 175 PSI ALL CALCULATIONS APPLY TO ALL TYPES OF PIPE APPROVED FOR USE BY TWC AND MEETING TWC SPECIFICATIONS AND STANDARDS.

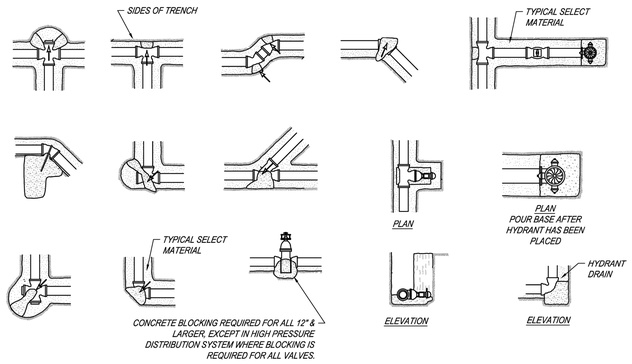
TRANSIT 2500 PSI CONCRETE MIX SHALL BE USED HOWEVER FOR SMALL VOLUME REQUIREMENTS CONCRETE MIXED AT JOB SITE WILL BE ACCEPTABLE ONLY IF A CONCRETE MIXER IS USED, ALL AGGREGATE SHALL BE CLEAN AND THE FIELD MIX SHALL BE IN THE RATIO OF 1:3:4 AND CONTAIN NOT LESS THAN 4 SACKS OF CEMENT PER CUBIC YARD.

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THRUST BLOCKING

February 15, 2024

SHEET NO. TB-HP



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1399 Sattler Road Canyon
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THRUST BLOCKING

February 15, 2024

SHEET NO. TB-STD

TWC
APPROVED FOR CONSTRUCTION
DATE 02/19/2026
APPROVED TED BRYANT

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TEL: 713 370 8750
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02/18/2026

STATE OF TEXAS
JOSHUA M. KELSEY
157476
LICENSED
PROFESSIONAL ENGINEER

NOTES:

PROMENADE AT SINGING OAKS
20285 STATE HWY 46 W, BULVERDE, TX 78163

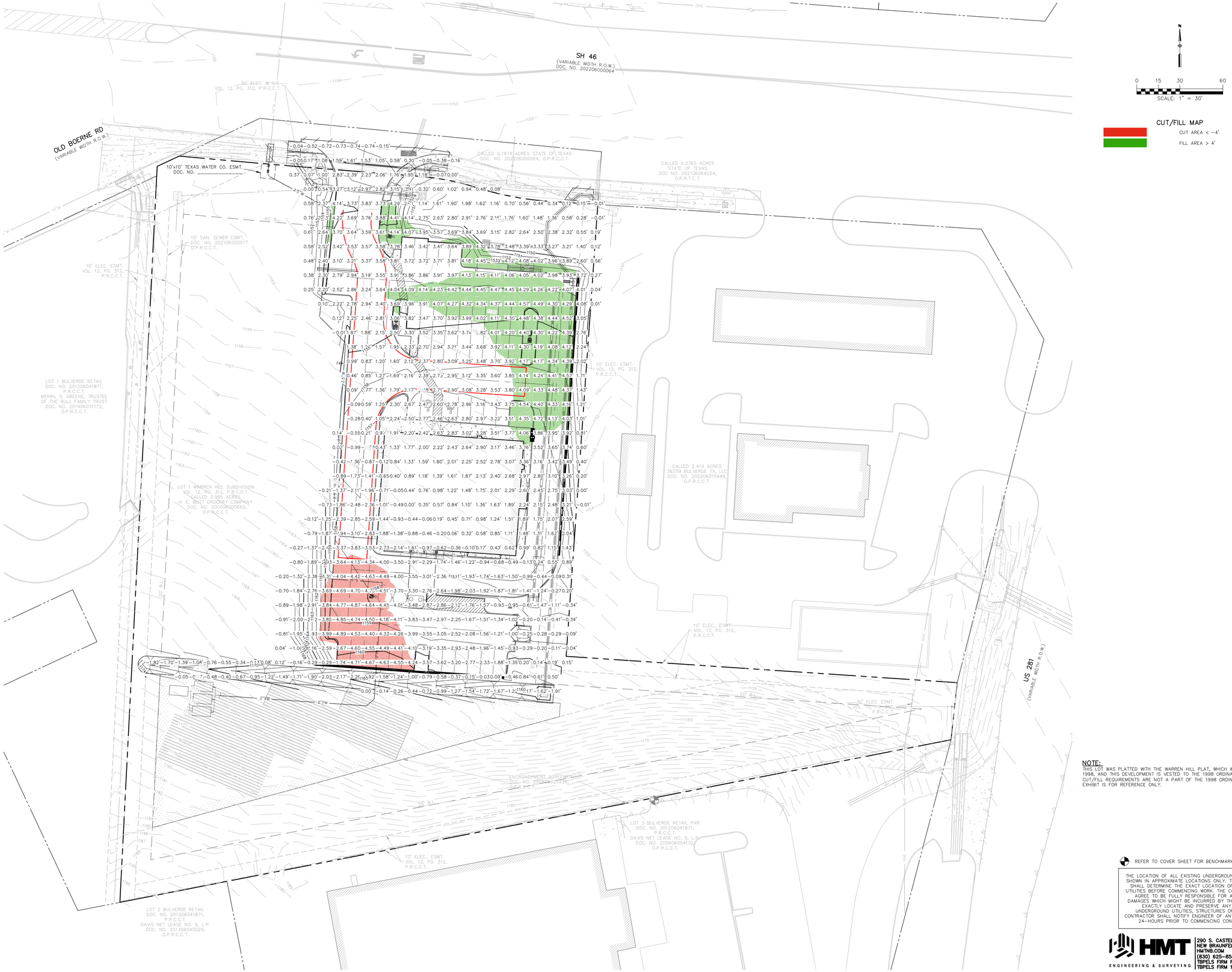
No.	DESCRIPTION	DATE
1	Issue for permit	9/2/2025

SCALE:
DRAWN BY: MG
CHK BY: JK
APP BY: ESP
DATE: FEBRUARY 2026
PROJECT NO.: 643.001

SHEET TITLE:
TEXAS WATER COMPANY DETAILS (2 OF 2)

SHEET NUMBER:
C7.2

Drawing Name: M:_projects\643 - mb&b\001 - promenade at singing oaks drainage\CDs\643.001_UTIL_DETL.dwg User: mishaelg Feb 18, 2026 - 9:50am



NOTE:
THIS LOT WAS PLATTED WITH THE WARREN HILL PLAT, WHICH WAS RECORDED IN 1998, AND THIS DEVELOPMENT IS VESTED TO THE 1998 ORDINANCE. THE CUT/FILL REQUIREMENTS ARE NOT A PART OF THE 1998 ORDINANCE AND THIS EXHIBIT IS FOR REFERENCE ONLY.

REFER TO 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.

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No.	DESCRIPTION	DATE
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SCALE:

DRAWN BY: MG

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APP BY: ESP

DATE: JANUARY 2026

PROJECT NO.: 643.001

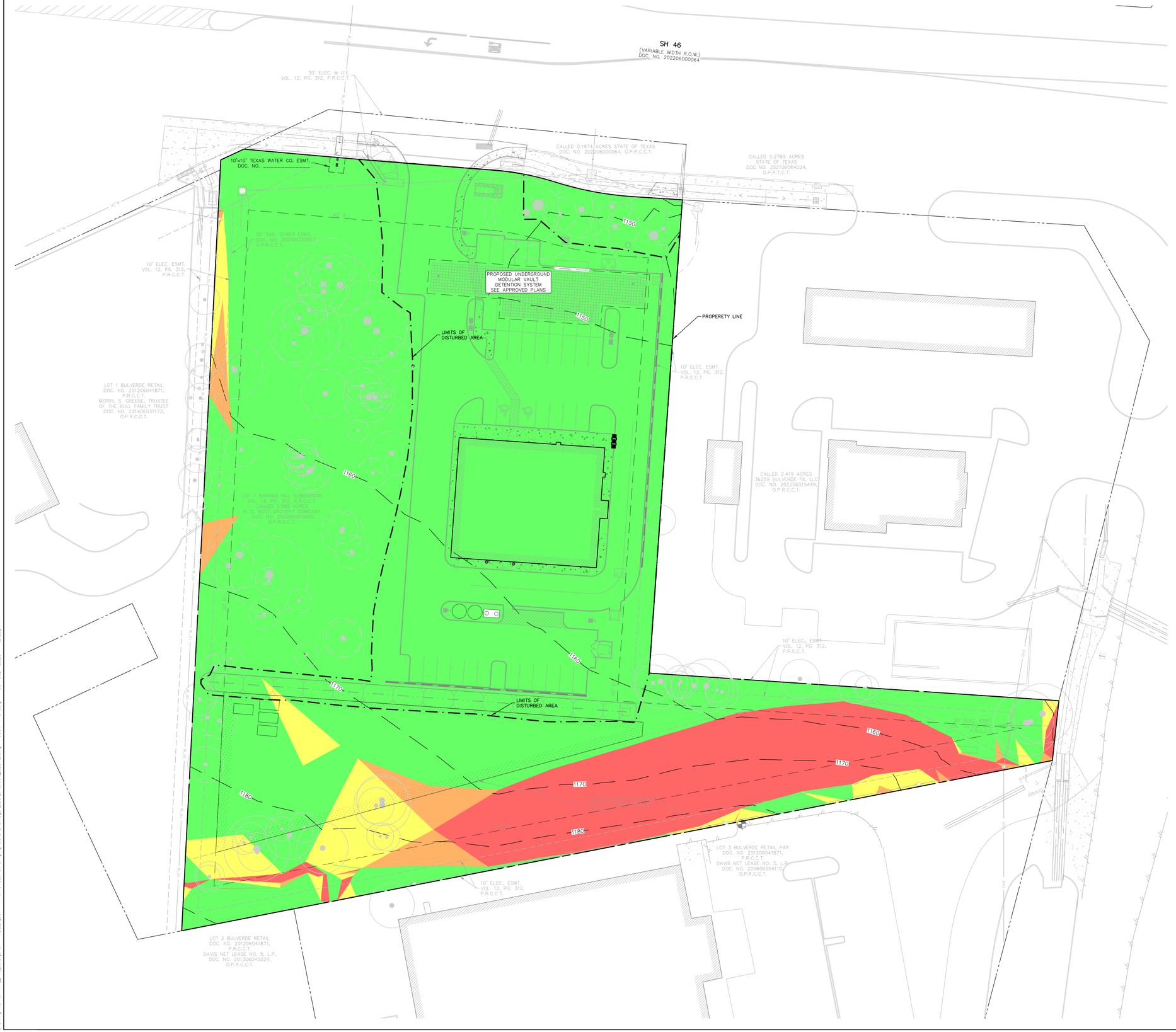
SHEET TITLE:

CUT AND FILL MAP

SHEET NUMBER:

C8.0

Drawing Name: M:_Projects\643 - MB&S\001 - Promenade at Singing Oaks Drainage\Civil\643.001_CUT_FILL.dwg User: mshoeg Jan 30, 2026 - 12:23pm



SLOPE MAP

EXISTING SLOPE	EXISTING AREA (ACRE)	DISTURBED AREA (ACRE/PERCENT)
0–15%	3.10	1.46 / 47.1%
15–20%	0.17	0.00 / 1.00%
20–25%	0.08	0.00 / 0.00%
25%+	0.44	0.00 / 0.00%

NOTE:

THIS SLOPE MAP IS BASED ON A TOPOGRAPHIC SURVEY PREPARED BY WINDROSE, FIRM REGISTRATION NO. 10108800, BY C. PAUL JONES SR., RPLS, TEXAS REGISTATION NO. 5480

THIS LOT WAS PLATTED WITH THE WARREN HILL PLAT, WHICH WAS RECORDED IN 1998, AND THIS DEVELOPMENT IS VESTED TO THE 1998 ORDINANCE. THE SLOPE REQUIREMENTS ARE NOT A PART OF THE 1998 ORDINANCE AND THIS EXHIBIT IS FOR REFERENCE ONLY.

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SHEET TITLE:

SLOPE MAP

SHEET NUMBER:

C8.1

Drawing Name: M:_Projects\643 - MB&B\001 - Promenade at Singing Oaks Drainage\Cdx\643.001_SLOPE.dwg User: mcharig Jan 30, 2026 - 12:25pm