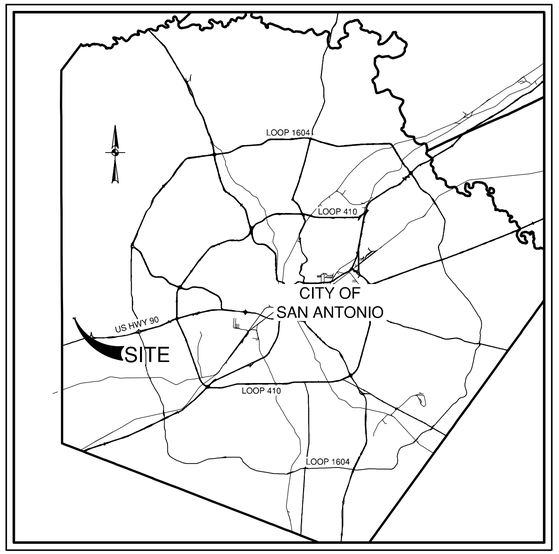
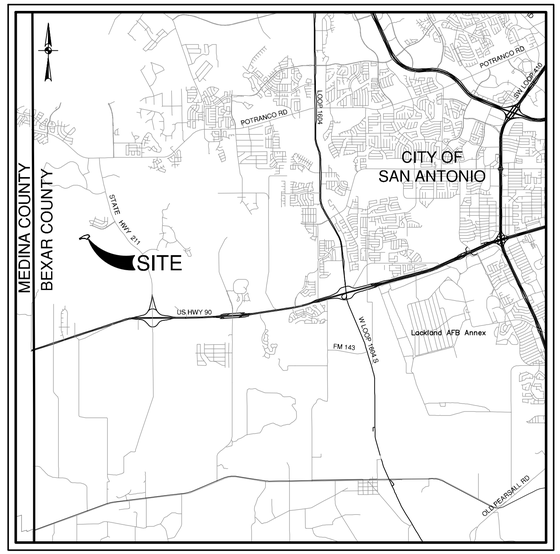
LADERA WATER PRODUCTION FACILITY

SITE GRADING / RETAINING WALLS

SAN ANTONIO, TEXAS
CIVIL CONSTRUCTION PLANS



VICINITY MAP
NOT-TO-SCALE



LOCATION MAP
NOT-TO-SCALE

SITE ADDRESS: 3528 MILLBROOK WAY
SAN ANTONIO, TX 78245

PREPARED FOR:

LENNAR HOMES OF TEXAS, INC
100 N.E. LOOP 410, SUITE 1155
SAN ANTONIO, TEXAS 78216

JULY 2024

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PAPE-DAWSON ENGINEERS
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TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STATE OF TEXAS
JASON T. DIAMOND
96532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

SHEET C0.00

PRELIMINARY

PD JOB NO. 6445-76 LADERA SITE GRADING / RETAINING WALLS

SAWS STANDARD GENERAL CONSTRUCTION NOTES ASSOCIATED WITH 2021 SAWS STANDARD SPECS

(UPDATED DECEMBER 14, 2021)

GENERAL CONSTRUCTION

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE APPROVED BY THE SAN ANTONIO WATER SYSTEM (SAWS) AND COMPLY WITH THE PLANS, SPECIFICATIONS, GENERAL CONDITIONS AND WITH THE FOLLOWING AS APPLICABLE:

A. CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) "DESIGN CRITERIA FOR DOMESTIC WASTEWATER SYSTEM", TEXAS ADMINISTRATIVE CODE (TAC) TITLE 30 PART 1 CHAPTER 217 AND "PUBLIC DRINKING WATER", TAC TITLE 30 PART 1 CHAPTER 290.
B. CURRENT TXDOT "STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND DRAINAGE."
C. CURRENT "SAN ANTONIO WATER SYSTEM STANDARD SPECIFICATIONS FOR WATER AND SANITARY SEWER CONSTRUCTION."
D. CURRENT CITY OF SAN ANTONIO "STANDARD SPECIFICATIONS FOR CONSTRUCTION."
E. CURRENT CITY OF SAN ANTONIO "UTILITY EXCAVATION CRITERIA MANUAL" (UECM).

2. THE CONTRACTOR SHALL OBTAIN SAWS STANDARD DETAILS FROM SAWS WEBSITE, HTTPS://APPS.SAWS.ORG/BUSINESS_CENTER/SPECS/CONSTSPECS/ UNLESS OTHERWISE NOTED WITHIN DESIGN PLANS.

3. THE CONTRACTOR IS TO NOTIFY AND MAKE ARRANGEMENTS WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT 210-233-3500 (DURING REGULAR SAWS WORKING HOURS) AND PROVIDE NOTIFICATION PROCEDURES THE CONTRACTOR WILL USE TO NOTIFY AFFECTED HOME RESIDENTS AND/OR PROPERTY OWNERS TWO (2) WEEKS PRIOR TO EXCAVATION. OUTSIDE OF REGULAR SAWS WORKING HOURS THE SAWS EOC SHOULD BE CONTACTED AT 210-704-7297.

4. IF NECESSARY, CONTRACTOR WILL COORDINATE USE OF SAWS PREMISES AT NO ADDITIONAL COST TO SUCH EFFORTS INCLUDE, BUT ARE NOT LIMITED TO, OBTAINING SECURITY IDENTIFICATION BADGES REQUIRED FOR ACCESS TO SAWS FACILITIES.

5. LOCATIONS AND DEPTHS OF EXISTING UTILITIES AND SERVICE LATERALS SHOWN ON THE PLANS ARE UNDERSTOOD TO BE APPROXIMATE. ACTUAL LOCATIONS AND DEPTHS MUST BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. IT SHALL BE THE CONTRACTORÍS RESPONSIBILITY TO LOCATE UTILITY SERVICE LINES AS REQUIRED FOR CONSTRUCTION AND TO PROTECT THEM DURING CONSTRUCTION AT NO COST TO SAWS.

6. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIES AND DRAINAGE STRUCTURES PRIOR TO CONSTRUCTION WHETHER SHOWN ON PLANS OR NOT. AS-BUILTS FOR SAWS INFRASTRUCTURE CAN BE OBTAINED AT WEBSITE BELOW. CONTRACTOR SHALL COORDINATE PHYSICAL LOCATES FOR SAWS INFRASTRUCTURE THROUGH THE SAWS INSPECTOR. PLEASE ALLOW UP TO 7 BUSINESS DAYS FOR LOCATES REQUESTING PIPE LOCATION MARKERS ON SAWS INFRASTRUCTURE. THE FOLLOWING CONTACT INFORMATION ARE SUPPLIED FOR VERIFICATION PURPOSES:

SAN ANTONIO WATER SYSTEM:
REQUEST AS-BUILTS:
HTTPS://WWW.SAWS.ORG/SERVICE/LOCATES-SERVICE/

COSA DRAINAGE 210-206-8433
COSA TRAFFIC SIGNAL OPERATIONS 210-207-7720
TEXAS STATEWIDE ONE CALL LOCATOR 1-800-545-6005 OR 811

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, SIDEWALKS, LANDSCAPING, AND STRUCTURES TO ITS ORIGINAL OR BETTER CONDITION AS A RESULT OF DAMAGES DONE BY THE PROJECTÍS CONSTRUCTION.

8. CONTRACTOR SHALL NOT MAKE USE OF DUMPSTERS OR WASTE BINS THAT ARE INTENDED TO SERVE RESIDENTS AND/OR BUSINESSES.

9. ALL WORK IN TEXAS DEPARTMENT OF TRANSPORTATION AND BEXAR COUNTY RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH RESPECTIVE CONSTRUCTION SPECIFICATIONS AND PERMIT.

10. THE CONTRACTOR SHALL COMPLY WITH CITY OF SAN ANTONIO OR OTHER GOVERNING MUNICIPALITYÍS TREE ORDINANCES WHEN EXCAVATING NEAR TREES.

11. ALL WORK WITHIN THE 100-YEAR FLOODPLAIN SHALL BE DONE IN ACCORDANCE WITH FLOODPLAIN DEVELOPMENT PERMIT.

12. ANY WORK COMPLETED WITHOUT PRIOR WRITTEN AUTHORIZATION WHICH IS NOT INCLUDED IN THESE PLANS AND SPECIFICATIONS WILL NOT BE COMPENSATED BY THE SAN ANTONIO WATER SYSTEM.

13. HOLIDAY WORK: CONTRACTORS WILL NOT BE ALLOWED TO PERFORM SAWS WORK ON SAWS RECOGNIZED HOLIDAYS.

WEEKEND WORK: CONTRACTORS ARE REQUIRED TO SUBMIT REQUEST TO THE SAWS INSPECTION CONSTRUCTION DEPARTMENT BY 12:00PM ON THE WEDNESDAY PRIOR TO THE WEEKEND BEING REQUESTED. REQUEST SHOULD BE SENT TO CONSTWORKREQ@SAWS.ORG.

ANY AND ALL SAWS UTILITY WORK INSTALLED WITHOUT WEEKEND APPROVAL WILL BE SUBJECT TO BE UNCOVERED FOR PROPER INSPECTION AT NO COST TO SAWS.

14. PRE-CON SITE VIDEO: BEFORE THE START OF ANY CONSTRUCTION. THE SITE MUST BE VIDEO RECORDED BY THE CONTRACTOR WITH ONE COPY SUBMITTED TO SAWS INSPECTIONS. A PRE-SITE VIDEO WILL PROVIDE ACCURATE DOCUMENTATION OF THE EXISTING CONDITIONS(NSPI).

15. POWER POLE BRACING: CONTRACTORS SHOULD BE ADVISED THAT THERE ARE EXISTING OVERHEAD UTILITY POLES ALONG THE PROJECT CORRIDOR. CONTRACTORS SHOULD FURTHER BE ADVISED THAT IF THE DISTANCE FROM THE OUTSIDE FACE OF A UTILITY TRENCH TO THE FACE OF A UTILITY POLE IS LESS THAN 5 FEET, SAID UTILITY POLE IS SUBJECT TO BRACING, BASED ON A DETERMINATION MADE BY UTILITY POLE OWNER. COSTS INCURRED BY CONTRACTOR FOR BRACING OF THESE UTILITY POLES IS SUBSIDIARY TO THAT RESPECTIVE UTILITY COMPANYÍS WORK. IT IS ADVISABLE FOR THE CONTRACTOR TO REVIEW THE CONSTRUCTION DOCUMENTS AND VISIT THE CONSTRUCTION SITE TO DETERMINE POTENTIAL IMPACTS.

16. CONSTRUCTION SEQUENCING: IT IS THE CONTRACTORÍSSOLE RESPONSIBILITY TO SCHEDULE SEQUENCING FOR REMOVAL AND INSTALLATION OF EXISTING AND PROPOSED SAWS UTILITIES IN CONJUNCTION WITH GENERAL PROJECT CONSTRUCTION. SEQUENCE OF CONSTRUCTION ACTIVITIES SHALL BE CONSIDERED IN ORDER TO MINIMIZE THE EXTENT AND DURATION OF DISTURBANCES.

17. CONTRACTOR SHALL COMPLY WITH APPLICABLE REGULATIONS INCLUDING, BUT NOT LIMITED TO, THOSE OVERSEEN BY THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA). OSHA INFORMATION AND RELATED MATERIALS MAY BE OBTAINED AT HTTPS://WWW.OSHA.GOV/ OR AT THE OSHA SAN ANTONIO OFFICE LOCATED AT FOUNTAINHEAD TOWER, SUITE 605 8200 W. INTERSTATE 10 SAN ANTONIO, TX 78230 WHICH IS ALSO REACHABLE BY PHONE AT (210) 472-5040.

18. TRENCH EXCAVATION SAFETY PROTECTION: CONTRACTOR AND/OR CONTRACTORÍS 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 AREAS IN ORDER TO IMPLEMENT CONTRACTORÍS TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES. THE CONTRACTORÍS IMPLEMENTATION OF THE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH, AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTORÍS INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

WATER

19. PRIOR TO TIE-INS, ANY SHUTDOWNS OF EXISTING MAINS OF ANY SIZE MUST BE COORDINATED WITH THE SAWS INSPECTION AND/OR SAWS PRODUCTION GROUPS AT LEAST TWO WEEKS OR MORE IN ADVANCE OF THE SHUTDOWN. THE CONTRACTOR MUST ALSO PROVIDE A SEQUENCE OF WORK AS RELATED TO THE TIE-INS; THIS IS AT NO ADDITIONAL COST TO SAWS OR THE PROJECT AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SEQUENCE THE WORK ACCORDINGLY.
SAWS PRODUCTION CONTROL CENTER 210-233-2016

20. ASBESTOS CEMENT (AC) PIPE, ALSO KNOWN AS TRANSITE PIPE WHICH IS KNOWN TO CONTAIN ASBESTOS-CONTAINING MATERIAL (ACM), MAYBE LOCATED WITHIN THE PROJECT LIMITS. SPECIAL WASTE MANAGEMENT PROCEDURES AND HEALTH AND SAFETY REQUIREMENTS WILL BE APPLICABLE WHEN REMOVAL AND/OR DISTURBANCE OF THIS PIPE OCCURS, PAYMENT FOR SUCH WORK IS TO BE MADE UNDER ITEM NO. 3000, "HANDLING ASBESTOS CEMENT PIPE".

AC PIPE REMOVED ON CONSTRUCTION PROJECTS FOR TIE-IN(S) SHOULD BE IN LENGTH OF 26 LINEAR FEET (LF). LENGTHS OF 13 LF SHOULD BE REMOVED WHERE AC PIPE IS BEING REMOVED AND CROSSING PIPES, CONDUITS, OR BOXES.

21. VALVE REMOVAL: WHERE THE CONTRACTOR IS TO ABANDON A WATER MAIN, THE CONTROL VALVE LOCATED ON THE ABANDONING BRANCH WILL BE REMOVED AND REPLACED WITH A CAP/PLUG. (NSPI)

22. DIVISION VALVES: DIVISION VALVES SHOWN ON PLANS OR NOT SHOWN ON PLANS BUT FOUND IN THE FIELD SHALL ONLY BE OPERATED BY SAWS DISTRIBUTION AND COLLECTION STAFF AND ONLY WITH PRIOR WRITTEN APPROVAL OF THE SAWS DIRECTOR OF PRODUCTION AND OPERATIONS AND PROPER COORDINATION WITH ALL SAWS DEPARTMENTS. CONTRACTOR SHALL PROVIDE WRITTEN NOTIFICATION TO THE INSPECTOR A MINIMUM OF TWO WEEKS IN ADVANCE TO START THE COORDINATION PROCESS AND WILL BE INFORMED BY THE INSPECTOR WHEN THE DIVISION VALVE WILL BE OPERATED BY THE SAWS DISTRIBUTION AND COLLECTION STAFF. THE DIVISION VALVE CAN ONLY BE OPERATED BY SAWS DISTRIBUTION AND COLLECTION STAFF MEMBER NOT THE INSPECTOR OR THE CONTRACTOR. OPERATION OF A DIVISION VALVE WITHOUT THE EXPRESS PRIOR WRITTEN APPROVAL OF THE SAWS DISTRIBUTION AND COLLECTION STAFF WILL CONSTITUTE A MATERIAL BREACH OF ANY WRITTEN SAWS CONTRACT OR PERMIT IN ADDITION TO SUBJECTING THE CONTRACTOR TO LIABILITY FOR ANY AND ALL FINES, FEES, OR OTHER DAMAGES, DIRECT OR CONSEQUENTIAL, THAT MAY ARISE FROM OR BE CAUSED BY THE OPERATION OF THE VALVE WITHOUT PRIOR WRITTEN PERMISSION. PLEASE BE INFORMED THAT THE APPROVAL OF THE OPERATION OR OPENING OR CLOSING OF A DIVISION VALVE CAN TAKE SEVERAL WEEKS FOR APPROVAL. DIVISION VALVES WILL ALSO HAVE A VALVE LID LABELED DIVISION VALVE AND A LOCKING MECHANISM INSTALLED WITH A THE LOCK AND KEY MECHANISM WILL BE PAID FOR BY THE CONTRACTOR BUT WILL BE INSTALLED BY SAWS DISTRIBUTION AND COLLECTION STAFF.

SEWER

23. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT NO SANITARY SEWER OVERFLOW (SSO) OCCURS AS A RESULT OF THEIR WORK. ALL CONTRACTOR PERSONNEL RESPONSIBLE FOR SSO PREVENTION AND CONTROL SHALL BE TRAINED ON PROPER RESPONSE. SHOULD AN SSO OCCUR, THE CONTRACTOR SHALL:

A. IDENTIFY THE SOURCE OF THE SSO AND NOTIFY SAWS EMERGENCY OPERATIONS CENTER IMMEDIATELY AT 210-704-SAWS (210-704-7297). PROVIDE THE ADDRESS OF THE SPILL AND AN ESTIMATED VOLUME OR FLOW.
B. ATTEMPT TO ELIMINATE THE SOURCE OF THE SSO.
C. CONTAIN SEWAGE FROM THE SSO TO THE EXTENT OF PREVENTING A POSSIBLE CONTAMINATION OF WATERWAYS.
D. CLEAN UP SPILL SITE (RETURN CONTAINED SEWAGE TO THE COLLECTION SYSTEM IF POSSIBLE) AND PROPERLY DISPOSE OF CONTAMINATED SOIL/MATERIALS.
E. CLEAN THE AFFECTED SEWER MAINS AND REMOVE ANY DEBRIS.
F. MEET ALL POST-SSO REQUIREMENTS AS PER THE EPA CONSENT DECREE, INCLUDING LINE

CLEANING AND TELEVISING THE AFFECTED SEWER MAINS (AT SAWS DIRECTION) WITHIN 24 HOURS. SHOULD THE CONTRACTOR FAIL TO ADDRESS AN SSO IMMEDIATELY AND TO SAWS SATISFACTION, THEY WILL BE RESPONSIBLE FOR ALL COSTS INCURRED BY SAWS, INCLUDING ANY FINES FROM EPA.

NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE FOR THIS WORK. ALL WORK SHALL BE DONE ACCORDING TO GUIDELINES SET BY THE TCEQ AND SAWS.

24. THE CONTRACTOR SHALL PROVIDE BYPASS PUMPING OF SEWAGE AROUND EACH SEGMENT OF PIPE TO BE REPLACED, IN ACCORDANCE WITH SAWS STANDARD SPECIFICATION ITEM NO. 865, "BYPASS PUMPING SMALL DIAMETER SANITARY SEWER MAINS" AND STANDARD SPECIFICATION ITEM NO. 864, "BYPASS PUMPING LARGE DIAMETER SANITARY SEWER MAINS" AS APPLICABLE. PAYMENT FOR SUCH WORK WILL BE MADE UNDER THE APPROPRIATE BID ITEM ASSOCIATED WITH SANITARY SEWER BYPASS PUMPING IN ACCORDANCE WITH SAWS STANDARD SPECIFICATIONS 865 AND 864.

25. PRIOR TO TIE-INS, ANY SHUTDOWNS OF EXISTING FORCE MAINS OF ANY SIZE MUST BE COORDINATED WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT 210-233-3500 AND/OR SAWS PRODUCTION GROUPS AT LEAST TWO WEEKS OR MORE IN ADVANCE OF THE SHUTDOWN. THE CONTRACTOR MUST ALSO PROVIDE A SEQUENCE OF WORK AS RELATED TO THE TIE-INS; THIS IS AT NO ADDITIONAL COST TO SAWS OR THE PROJECT AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SEQUENCE THE WORK ACCORDINGLY.
26. ELEVATIONS POSTED FOR TOP OF MANHOLES ARE FOR REFERENCE ONLY; IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE ALLOWANCES AND ADJUSTMENTS FOR TOP OF MANHOLES TO MATCH THE FINISHED GRADE OF THE PROJECTÍS IMPROVEMENTS(NSPI).

27. MANHOLE REMOVAL: WHERE EXISTING MANHOLES ARE TO BE REPLACED BY THE CONTRACTOR, THE EXISTING MANHOLESSHALL BE REMOVED. (NSPI)

28. SMART MANHOLE COVERS: THE CONTRACTOR SHALL NOTIFY SAWS EOC AT 210-704-SAWS (210-233-7297) AND EITHER AMERICA ESPINOZA AT 210-233-2934 OR JOSE A. MARTINEZ AT 210-233-3071 A MINIMUM OF 72 HOURS, NOT COUNTING WEEKENDS OR SAWS HOLIDAYS, BEFORE WORKING ON THE PIPE OR MANHOLE, IN ORDER TO HAVE SAWS REMOVE THE SMART COVER. ANY DAMAGE DONE TO THE SMART COVER WILL BE CHARGED TO THE CONTRACTOR THROUGH A CHANGE ORDER.

29. FLOW METERS IN MANHOLES: THE CONTRACTOR SHALL NOTIFY BOBBY JOHNSON AT 210-233-3493 OR ABEL BORUNDA AT 210-233-3704 A MINIMUM OF 72 HOURS, NOT COUNTING WEEKENDS OR SAWS HOLIDAYS, BEFORE WORKING ON THE PIPE OR MANHOLE, IN ORDER TO HAVE SAWS REMOVE THE FLOW METER IN THE MANHOLE. ANY DAMAGE DONE TO THE FLOW METER WILL BE CHARGED TO THE CONTRACTOR THROUGH A CHANGE ORDER.

NO.	REVISION	DATE

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

STATE OF TEXAS
JASON T. DIAMOND
96532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS
GENERAL CONSTRUCTION NOTES
SHEET 1

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C0.10

Date: Jul 16, 2024, 10:39am User ID: dlaughlin
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PRELIMINARY

STORM WATER PROTECTION AND EROSION CONTROL NOTES

1. CONTRACTOR SHALL INSTALL STORM WATER POLLUTION PREVENTION STRUCTURES INCLUDING BUT NOT LIMITED TO, SILT FENCING AND/OR ROCK BERMS IN ALL AREAS TO BE IMPACTED BY CURRENT AND ONGOING CONSTRUCTION AND MAINTAIN SUCH STRUCTURES UNTIL SUITABLE GROUNDCOVER/REVEGETATION IS ACCEPTED. ALL STORM WATER POLLUTION PREVENTION STRUCTURES SHALL BE CONSTRUCTED WITHIN THE COUNTY RIGHT-OF-WAY AND WATER LINE EASEMENTS. ANY FEATURES ON THE PLANS SHOWN OUTSIDE THESE AREAS ARE SHOWN FOR VISUAL CLARITY ONLY.

2. THE LOCATION OF ANY BEST MANAGEMENT PRACTICES (B.M.P.'S) SUCH AS SILT FENCING, ROCK BERMS, STABILIZED CONSTRUCTION ENTRANCE/EXIT, ETC. THAT MAY BE SHOWN ON THESE PLANS ARE SUBJECT TO FIELD VERIFICATION. CONTRACTOR SHALL ADJUST THE LOCATIONS OF B.M.P.'S TO BEST ACCOMMODATE THE CONDITIONS AND TOPOGRAPHY ENCOUNTERED DURING CONSTRUCTION. QUESTIONS REGARDING THE PLACEMENT AND/OR CHANGES CONCERNING B.M.P.'S SHALL BE REFERRED TO THE OWNER AND THE COUNTY. THE CONTRACTOR IS TO ENSURE THAT SEDIMENTATION AND EROSION WILL BE CONTAINED WITHIN THE PROJECT WORK AREAS AND KEPT OFF ROADWAYS AND ADJACENT PROPERTIES AND OUT OF DRAINAGE CHANNELS AND WATER COURSES.

CPS ENERGY NOTES

1. CALL CPS ENERGY LOCATOR AT 978-3500 48 HOURS BEFORE BEGINNING ANY EXCAVATION.

2. DUE TO FEDERAL REGULATION TITLE 49, PART 192.181, CPS ENERGY MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.

UNDERGROUND TELEPHONE/COMMUNICATION LINES NOTE

- THE EXISTENCE AND LOCATION OF UNDERGROUND CABLE AS SHOWN ON THESE PLANS HAS BEEN TAKEN FROM THE BEST INFORMATION AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. CONTRACTOR SHALL CONTACT THE TELEPHONE/COMMUNICATION COMPANY CABLE LOCATOR 48 HOURS PRIOR TO EXCAVATION AT 1-800-545-6005. CONTRACTOR SHALL PROTECT AND (AS NECESSARY) INSTALL SHORING FOR TELEPHONE COMPANY FACILITIES DURING CONSTRUCTION.

TREE PROTECTION NOTES

1. CONTRACTOR TO PROTECT ALL TREES WHEREVER POSSIBLE. DAMAGE TO TREES IDENTIFIED TO BE PROTECTED WILL BE MITIGATED AT THE CONTRACTOR'S SOLE EXPENSE. ALSO, ALL WORK IN PUBLIC RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH THE CONTROLLING ENTITIES STANDARDS, SPECIFICATIONS AND PERMIT REQUIREMENTS.

2. PROTECT EXISTING TREES SIX INCH (6") DIAMETER AND LARGER. ALL TREES TO BE PRESERVED AS PART OF THE PROJECT SHALL BE PROTECTED AGAINST INJURY OR DAMAGE, INCLUDING CUTTING, SOIL COMPACTION, BREAKING OR SKINNING OF ROOTS, TRUNKS, OR BRANCHES DURING CONSTRUCTION OPERATIONS BY FENCING AS DESCRIBED BELOW. THE TREE PROTECTION SHALL BE PLACED BEFORE ANY EXCAVATION OR GRADING IS BEGUN AND MAINTAINED FOR THE DURATION OF THE CONSTRUCTION WORK. PROTECTION WILL ENCOMPASS THE ROOT PROTECTION ZONE WHICH WILL BE AT MINIMUM ONE FOOT (1.0') RADIUS PER INCH DIAMETER OF THE TREE TRUNK AT 4.5' ABOVE GROUND. NO MATERIAL SHALL BE STORED OR CONSTRUCTION OPERATION SHALL BE CARRIED ON WITHIN THE TREE PROTECTION FENCING, UNLESS AUTHORIZED BY THE OWNER. THE PROTECTION SHALL REMAIN UNTIL ALL WORK IS COMPLETED.

3. NO CONSTRUCTION ACTIVITIES SHALL BE PERFORMED WITHIN 5' FROM THE TRUNK OF A TREE THAT IS PROTECTED. TRENCH SHORING WILL BE REQUIRED INSIDE OF A ROOT PROTECTION ZONE. THE ROOT PROTECTION ZONE IS CALCULATED AS A RADIUS FROM THE TREE TRUNK EQUAL TO ONE FOOT PER DIAMETER INCH OF THE TREE.

4. THIS PROJECT IS SUBJECT TO REGULATIONS ESTABLISHED BY THE CITY OF SAN ANTONIO TREE ORDINANCE.

GAS VALVES AND OVERHEAD POWER LINE NOTES

1. DUE TO FEDERAL REGULATION TITLE 49, PART 192.181, CPS ENERGY MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.

2. CONTRACTOR TO EXERCISE EXTREME CAUTION WHEN WORKING UNDER "HIGH VOLTAGE TRANSMISSION LINES". A WORKING HEIGHT OF 30' FROM GROUND ELEVATION WILL BE OBSERVED WHEN WORKING UNDER THE HIGH VOLTAGE LINE. COORDINATE ALL WORK WITH CPS ENERGY.

3. CALL CPS ENERGY LOCATOR AT 978-3500 48 HOURS BEFORE BEGINNING ANY EXCAVATION.

HAULING AND STORAGE

- HAULING AND/OR TEMPORARY STORAGE OF EQUIPMENT AND MATERIALS MAY BE NECESSARY, INCLUDING EXCAVATED MATERIAL AND SPOILS. CONTRACTOR SHALL INCLUDE IN HIS BID PRICE ALL COSTS ASSOCIATED WITH HAULING AND OFF-SITE STORAGE OF ALL MATERIALS AND/OR EQUIPMENT. ALSO REFER TO THE PROJECT SPECIFICATIONS.

EXISTING IMPROVEMENTS

- ALL EXISTING IMPROVEMENTS WITHIN THE PROJECT AREA, WHICH ARE NOT COVERED UNDER THE UNIT PRICE BID PROPOSAL, SHALL BE PROTECTED OR REMOVED AND REPLACED TO EXISTING CONDITION OR BETTER AT NO ADDITIONAL COST TO THE OWNER.

TRAFFIC CONTROL NOTE

- CONTRACTOR SHALL PREPARE AND SUBMIT A TRAFFIC CONTROL PLAN TO BEXAR COUNTY FOR REVIEW AND APPROVAL. NECESSARY TRAFFIC CONTROL, DETOUR ROUTING AROUND WORK ACTIVITIES, MAINTENANCE OF DETOUR SIGNS AND FLAGMEN ARE THE CONTRACTOR'S RESPONSIBILITY. UNLESS DIRECTED OTHERWISE, THE CONTRACTOR SHALL MAINTAIN AT LEAST ONE OPEN TRAFFIC LANE (MINIMUM 12 FEET WIDE), CONTROLLED WITH FLAGMEN, DURING WORKING HOURS. DURING ALL NON-WORKING HOURS A MINIMUM OF TWO TRAFFIC LANES (EACH A MINIMUM 12 FEET WIDE) SHALL BE OPEN TO TRAFFIC. CONTRACTOR WILL FURNISH AND MAINTAIN ALL REQUIRED TRAFFIC CONTROL DEVICES PER TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD), TO PROPERLY WARN, GUIDE AND CONTROL TRAFFIC AT ALL TIMES THROUGHOUT CONSTRUCTION.

NO.	REVISION	DATE

STATE OF TEXAS
JASON T. DIAMOND
96532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

PAPE-DAWSON ENGINEERS
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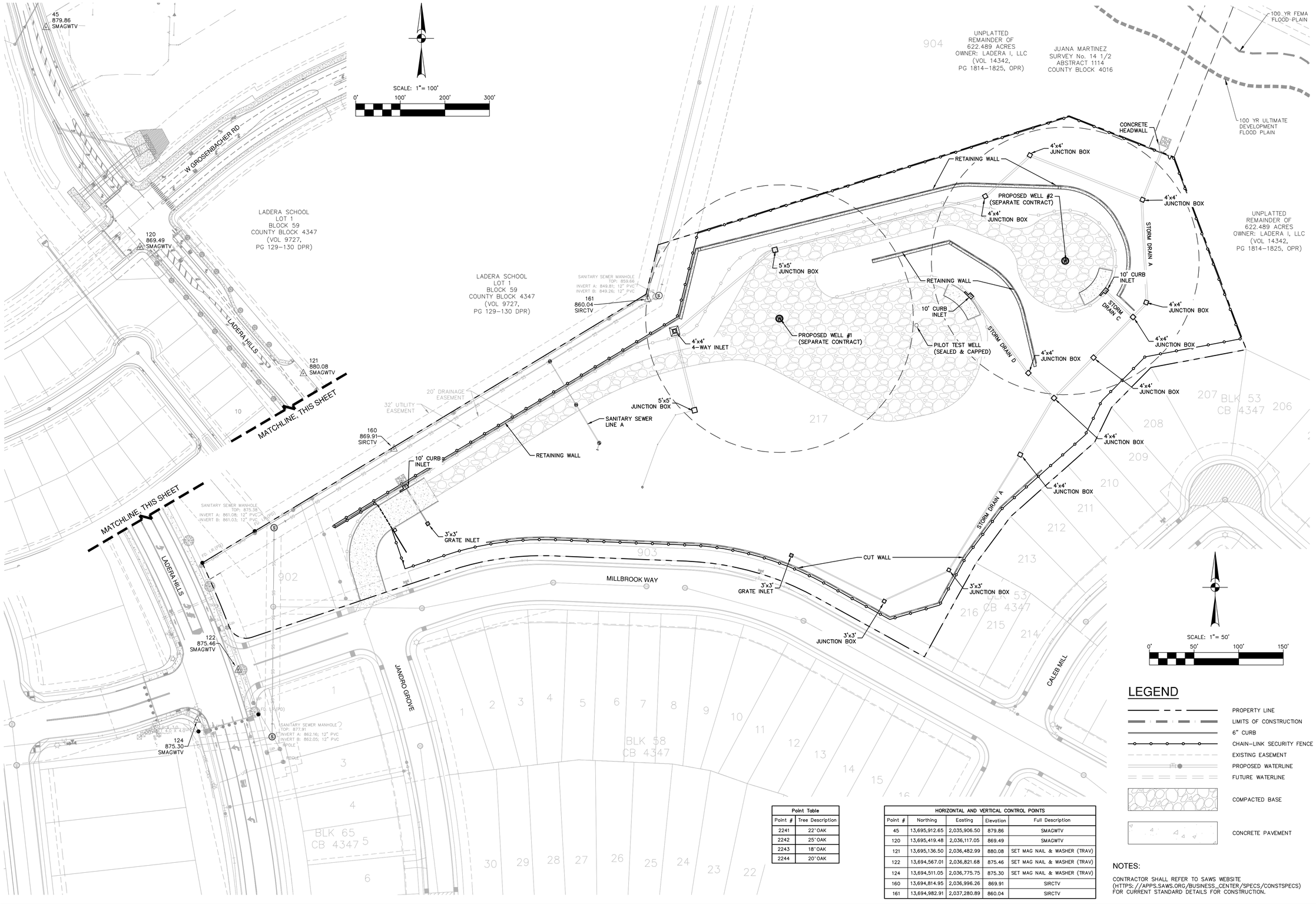
LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS
GENERAL CONSTRUCTION NOTES
SHEET 2

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C0.11



LEGEND

- PROPERTY LINE
- LIMITS OF CONSTRUCTION
- 6" CURB
- CHAIN–LINK SECURITY FENCE
- EXISTING EASEMENT
- PROPOSED WATERLINE
- FUTURE WATERLINE
- COMPACTED BASE
- CONCRETE PAVEMENT

Point Table	
Point #	Tree Description
2241	22" OAK
2242	25" OAK
2243	18" OAK
2244	20" OAK

HORIZONTAL AND VERTICAL CONTROL POINTS				
Point #	Northing	Easting	Elevation	Full Description
45	13,695,912.65	2,035,906.50	879.86	SMAGWTV
120	13,695,419.48	2,036,117.05	869.49	SMAGWTV
121	13,695,136.50	2,036,482.99	880.08	SET MAG NAIL & WASHER (TRAV)
122	13,694,567.01	2,036,821.68	875.46	SET MAG NAIL & WASHER (TRAV)
124	13,694,511.05	2,036,775.75	875.30	SET MAG NAIL & WASHER (TRAV)
160	13,694,814.95	2,036,996.26	869.91	SIRCTV
161	13,694,982.91	2,037,280.89	860.04	SIRCTV

NOTES:

CONTRACTOR SHALL REFER TO SAWS WEBSITE (HTTPS://APPS.SAWS.ORG/BUSINESS_CENTER/SPECS/CONSTSPECS) FOR CURRENT STANDARD DETAILS FOR CONSTRUCTION.

NO.	REVISION	DATE

STATE OF TEXAS
JASON T. DIAMOND
96532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS

OVERALL SITE PLAN

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C1.00

Date: Jul 16, 2024, 10:42am User ID: dlaughlin
File: P:\6445\Civil\Design\Con\Sheets\site work construction sheets\SP-SWC-644576.dwg

PRELIMINARY

LEGEND

- PROPERTY LINE
- EXISTING EASEMENT
- 730 EXISTING CONTOUR MAJOR
- EXISTING CONTOUR MINOR

HORIZONTAL AND VERTICAL CONTROL POINTS

Point #	Northing	Easting	Elevation	Full Description
45	13,695,912.65	2,035,906.50	879.86	SMAGWTV
120	13,695,419.48	2,036,117.05	869.49	SMAGWTV
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PRELIMINARY

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2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS

EXISTING CONDITIONS PLAN

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C1.01

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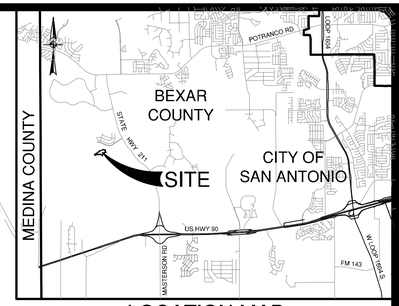

LOCATION MAP
NOT-TO-SCALE

SCALE: 1" = 200'
0' 200' 400' 600'

LEGEND
- PROPERTY LINE
- EXISTING EASEMENT
- OHE OHE EXISTING OVERHEAD ELECTRIC
- CHAIN-LINK SECURITY FENCE

NO.	REVISION	DATE

STATE OF TEXAS
JASON T. DIAMOND
96532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

PAPE-DAWSON ENGINEERS
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LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS

GENERAL ACCESS PLAN

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C1.02

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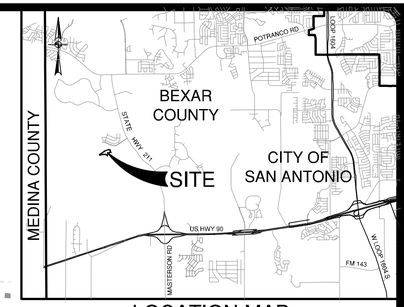

LOCATION MAP
NOT–TO–SCALE

LEGEND

- PROJECT LIMITS
- 910 EXISTING GRADE
- FLOW ARROW (EXISTING)
- FLOW ARROW (PROPOSED)
- TP – TP – TP – TREE PROTECTION
- SILT FENCE
- ROCK BERM
- GRATE INLET PROTECTION
- GRAVEL FILTER BAGS
- TREE SAVE AREA
- COMPACTED BASE
- STABILIZED CONSTRUCTION ENTRANCE/EXIT (FIELD LOCATE)
- CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA (FIELD LOCATE)
- EXCESS CUT/SPOILS AREA
- CONCRETE TRUCK WASH–OUT PIT (FIELD LOCATE)

GENERAL NOTES

1. DO NOT DISTURB VEGETATED AREAS (TREES, GRASS, WEEDS, BRUSH, ETC.) ANY MORE THAN NECESSARY FOR CONSTRUCTION.

2. CONSTRUCTION ENTRANCE/EXIT LOCATION, CONCRETE WASH–OUT PIT, AND CONSTRUCTION EQUIPMENT AND MATERIAL STORAGE YARD TO BE DETERMINED IN THE FIELD.

3. STORM WATER POLLUTION PREVENTION CONTROLS MAY NEED TO BE MODIFIED IN THE FIELD TO ACCOMPLISH THE DESIRED EFFECT. ALL MODIFICATIONS ARE TO BE NOTED ON THIS EXHIBIT AND SIGNED AND DATED BY THE RESPONSIBLE PARTY.

4. RESTRICT ENTRY/EXIT TO THE PROJECT SITE TO DESIGNATED LOCATIONS BY USE OF ADEQUATE FENCING, IF NECESSARY.

5. ALL STORM WATER POLLUTION PREVENTION CONTROLS ARE TO BE MAINTAINED AND IN WORKING CONDITIONS AT ALL TIMES.

6. FOR A COMPLETE LISTING OF TEMPORARY STORM WATER POLLUTION PREVENTION CONTROLS REFER TO THE TPDES STORM WATER POLLUTION PREVENTION PLAN.

7. STORM WATER POLLUTION PREVENTION STRUCTURES SHOULD BE CONSTRUCTED WITHIN THE SITE BOUNDARIES. SOME OF THESE FEATURES MAY BE SHOWN OUTSIDE THE SITE BOUNDARIES ON THIS PLAN FOR VISUAL CLARITY.

8. AS SOON AS PRACTICAL, ALL DISTURBED SOIL THAT WILL NOT BE COVERED BY IMPERVIOUS COVER SUCH AS PARKWAY AREAS, EASEMENT AREAS, EMBANKMENT SLOPES, ETC. WILL BE STABILIZED PER APPLICABLE PROJECT SPECIFICATIONS.

9. BEST MANAGEMENT PRACTICES MAY BE INSTALLED IN STAGES TO COINCIDE WITH THE DISTURBANCE OF UPGRADIENT AREAS.

10. BEST MANAGEMENT PRACTICES MAY BE REMOVED IN STAGES ONCE THE WATERSHED FOR THAT PORTION CONTROLLED BY THE BEST MANAGEMENT PRACTICES HAS BEEN STABILIZED IN ACCORDANCE WITH TPDES REQUIREMENTS.

11. UPON COMPLETION OF THE PROJECT, INCLUDING SITE STABILIZATION, AND BEFORE FINAL PAYMENT IS ISSUED, CONTRACTOR SHALL REMOVE ALL SEDIMENT AND EROSION CONTROL MEASURES, PAYING SPECIAL ATTENTION TO ROCK BERMS IN DRAINAGE FEATURES.

12. WHERE VEGETATED FILTER STRIPS ARE INDICATED, CONTRACTOR SHALL VERIFY THAT SUFFICIENT VEGETATION EXISTS, OTHERWISE CONTRACTOR SHALL PLACE SILT FENCING IN LIEU OF VEGETATED FILTER STRIP.

SWP3 MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION

THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE TPDES–STORM WATER POLLUTION PREVENTION PLAN (SWP3) REGULATIONS.

THIS SHEET HAS BEEN PREPARED FOR PURPOSES OF THE SWP3 ONLY. ALL OTHER CIVIL ENGINEERING RELATED INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SHEET IN THE CIVIL IMPROVEMENT PLANS.

EXHIBIT 2

DATE
NO. REVISION

STATE OF TEXAS
JASON T. DIAMOND
96532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

PAPE-DAWSON ENGINEERS
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2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS
STORM WATER POLLUTION PREVENTION PLAN

PLAT NO. ---
JOB NO. 6445–76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C2.00

Date: Jul 16, 2024, 10:47am User ID: alaughlin
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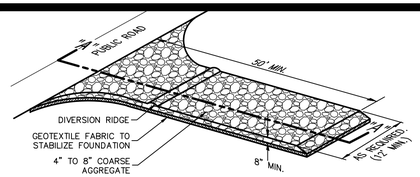
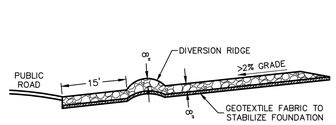
PRELIMINARY



SCHEMATIC OF TEMPORARY CONSTRUCTION ENTRANCE/EXIT



SECTION "A-A" OF A CONSTRUCTION ENTRANCE/EXIT

MATERIALS
1. THE AGGREGATE SHOULD CONSIST OF 4–INCH TO 8–INCH WASHED STONE OVER A STABLE FOUNDATION AS SPECIFIED IN THE PLAN.

2. THE AGGREGATE SHOULD BE PLACED WITH A MINIMUM THICKNESS OF 8–INCHES.

3. THE GEOTEXTILE FABRIC SHOULD BE DESIGNED SPECIFICALLY FOR USE AS A SOIL FILTRATION MEDIA WITH AN APPROXIMATE WEIGHT OF 6 OZ/YD², A MULLEN BURST RATING OF 140 LB/IN², AND AN EQUIVALENT OPENING SIZE GREATER THAN A NUMBER 50 SIEVE.

4. IF A WASHING FACILITY IS REQUIRED, A LEVEL AREA WITH A MINIMUM OF 4–INCH DIAMETER WASHED STONE OR COMMERCIAL ROCK SHOULD BE INCLUDED IN THE PLANS. DIVERT WASTEWATER TO A SEDIMENT TRAP OR BASIN.

INSTALLATION
1. AVOID CURVES ON PUBLIC ROADS AND STEEP SLOPES. REMOVE VEGETATION AND OTHER OBJECTIONABLE MATERIAL FROM THE FOUNDATION AREA. GRADE CROWN FOUNDATION FOR POSITIVE DRAINAGE.

2. THE MINIMUM WIDTH OF THE ENTRANCE/EXIT SHOULD BE 12 FEET OR THE FULL WIDTH OF EXIT ROADWAY, WHICHEVER IS GREATER.

3. THE CONSTRUCTION ENTRANCE SHOULD BE AT LEAST 50 FEET LONG.

4. IF THE SLOPE TOWARD THE ROAD EXCEEDS 2%, CONSTRUCT A RIDGE, 6–INCHES TO 8–INCHES HIGH WITH 3:1 (H:V) SIDE SLOPES, ACROSS THE FOUNDATION APPROXIMATELY 15 FEET FROM THE ENTRANCE TO DIVERT RUNOFF AWAY FROM THE PUBLIC ROAD.

5. PLACE GEOTEXTILE FABRIC AND GRADE FOUNDATION TO IMPROVE STABILITY, ESPECIALLY WHERE WET CONDITIONS ARE ANTICIPATED.

6. PLACE STONE TO DIMENSIONS AND GRADE SHOWN ON PLANS. LEAVE SURFACE SMOOTH AND SLOPE FOR DRAINAGE.

7. DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE STONE PAD TO A SEDIMENT TRAP OR BASIN.

8. INSTALL PIPE UNDER PAD AS NEEDED TO MAINTAIN PROPER PUBLIC ROAD DRAINAGE.

COMMON TROUBLE POINTS
1. INADEQUATE RUNOFF CONTROL–SEDIMENT WASHES ONTO PUBLIC ROAD.

2. STONE TOO SMALL OR GEOTEXTILE FABRIC ABSENT, RESULTS IN MUDDY CONDITION AS STONE IS PRESSED INTO SOIL.

3. PAD TOO SHORT FOR HEAVY CONSTRUCTION TRAFFIC–EXTEND PAD BEYOND THE MINIMUM 50–FOOT LENGTH AS NECESSARY.

4. PAD NOT FLARED SUFFICIENTLY AT ROAD SURFACE, RESULTS IN MUD BEING TRACKED ON TO ROAD AND POSSIBLE DAMAGE TO ROAD.

5. UNSTABLE FOUNDATION – USE GEOTEXTILE FABRIC UNDER PAD AND/OR IMPROVE FOUNDATION DRAINAGE.

INSPECTION AND MAINTENANCE GUIDELINES
1. THE ENTRANCE SHOULD BE MAINTAINED IN A CONDITION, WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

2. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS–OF–WAY SHOULD BE REMOVED IMMEDIATELY BY CONTRACTOR.

3. WHEN NECESSARY, WHEELS SHOULD BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT–OF–WAY.

4. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

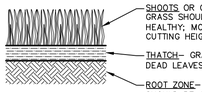
5. ALL SEDIMENT SHOULD BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATER COURSE BY USING APPROVED METHODS.

STABILIZED CONSTRUCTION ENTRANCE/EXIT DETAIL

NOT–TO–SCALE

LAY SOD IN A STAGGERED PATTERN. BUTT THE STRIPS TIGHTLY AGAINST EACH OTHER. DO NOT LEAVE SPACES AND DO NOT OVERLAP. A SHARPENED MASON'S TROWEL IS A HANDY TOOL FOR TUCKING DOWN THE ENDS AND TRIMMING PIECES.

BUTTING – ANGLED ENDS CAUSED BY THE AUTOMATIC SOD CUTTER MUST BE MATCHED CORRECTLY.

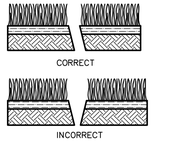


APPEARANCE OF GOOD SOD

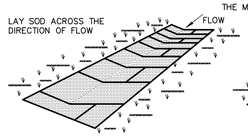
NOTES:
1. ROLL SOD IMMEDIATELY TO ACHIEVE FIRM CONTACT WITH THE SOIL.

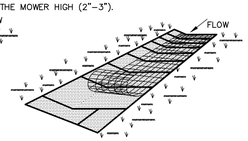
2. WATER TO A DEPTH OF 4" AS NEEDED. WATER WELL AS SOON AS THE SOD IS LAID.

3. MOW WHEN THE SOD IS ESTABLISHED – IN 2–3 WEEKS. SET THE MOWER HIGH (2"–3").

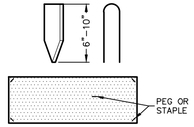


SOD INSTALLATION





IN CRITICAL AREAS, SECURE SOD WITH NETTING. USE STAPLES.



USE PEGS OR STAPLES TO FASTEN SOD FIRMLY – AT THE ENDS OF STRIPS AND IN THE CENTER, OR EVERY 3–4 FEET IF THE STRIPS ARE LONG. WHEN READY TO MOW, DRIVE PEGS OR STAPLES FLUSH WITH THE GROUND.

MATERIALS
1. SOD SHOULD BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4" INCH (± 1/4" INCH) AT THE TIME OF CUTTING. THIS THICKNESS SHOULD EXCLUDE SHOOT GROWTH AND THATCH.

2. PIECES OF SOD SHOULD BE CUT TO THE SUPPLIER'S STANDARD WIDTH AND LENGTH, WITH A MAXIMUM ALLOWABLE DEVIATION IN ANY DIMENSION OF 5% TORN OR UNEVEN PADS SHOULD NOT BE ACCEPTABLE.

3. STANDARD SIZE SECTIONS OF SOD SHOULD BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED FROM A FIRM GRASP ON ONE END OF THE SECTION.

4. SOD SHOULD BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS.

SITE PREPARATION
1. PRIOR TO SOIL PREPARATION, AREAS TO BE SODDED SHOULD BE BROUGHT TO FINAL GRADE IN ACCORDANCE WITH THE APPROVED PLAN.

2. THE SURFACE SHOULD BE CLEARED OF ALL TRASH, DEBRIS AND OF ALL ROOTS, BRUSH, WIRE, GRADE STAKES AND OTHER OBJECTS THAT WOULD INTERFERE WITH PLANTING, FERTILIZING OR MAINTENANCE OPERATIONS.

3. FERTILIZE ACCORDING TO SOIL TESTS. FERTILIZER NEEDS CAN BE DETERMINED BY A SOIL TESTING LABORATORY OR REGIONAL RECOMMENDATIONS CAN BE MADE BY COUNTY AGRICULTURAL EXTENSION AGENTS. FERTILIZER SHOULD BE WORKED INTO THE SOIL TO A DEPTH OF 3 INCHES WITH A DISC, SPRINGTOOTH HARROW OR OTHER SUITABLE EQUIPMENT. ON SLOPING LAND, THE FINAL HARROWING OR DISCING OPERATION SHOULD BE ON THE CONTOUR.

INSTALLATION IN CHANNELS
1. SOD STRIPS IN WATERWAYS SHOULD BE LAID PERPENDICULAR TO THE DIRECTION OF FLOW. CARE SHOULD BE TAKEN TO BUTT ENDS OF STRIPS TIGHTLY (SEE FIGURE ABOVE).

2. AFTER ROLLING OR TAMPING, SOD SHOULD BE PEGGED OR STAPLED TO RESIST WASHOUT DURING THE ESTABLISHMENT PERIOD. MESH OR OTHER NETTING MAY BE PEGGED OVER THE SOD FOR EXTRA PROTECTION IN CRITICAL AREAS.

GENERAL INSTALLATION (VA. DEPT. OF CONSERVATION, 1992)

1. SOD SHOULD NOT BE CUT OR LAID IN EXCESSIVELY WET OR DRY WEATHER. SOD ALSO SHOULD NOT BE LAID ON SOIL SURFACES THAT ARE FROZEN.

2. DURING PERIODS OF HIGH TEMPERATURE, THE SOIL SHOULD BE LIGHTLY IRRIGATED IMMEDIATELY PRIOR TO LAYING THE SOD, TO COOL THE SOIL AND REDUCE ROOT BURNING AND DIEBACK.

3. THE FIRST ROW OF SOD SHOULD BE LAID IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO AND BUTTING TIGHTLY AGAINST EACH OTHER. LATERAL JOINTS SHOULD BE STAGGERED TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. CARE SHOULD BE EXERCISED TO ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE DRYING OF THE ROOTS (SEE FIGURE ABOVE).

4. ON SLOPES 3:1 OR GREATER, OR WHEREVER EROSION MAY BE A PROBLEM, SOD SHOULD BE LAID WITH STAGGERED JOINTS AND SECURED BY STAPLING OR OTHER APPROVED METHODS. SOD SHOULD BE INSTALLED WITH THE LENGTH PERPENDICULAR TO THE SLOPE (ON CONTOUR).

5. AS SODDING OF CLEARLY DEFINED AREAS IS COMPLETED, SOD SHOULD BE ROLLED OR TAMPED TO PROVIDE FIRM CONTACT BETWEEN ROOTS AND SOIL.

6. AFTER ROLLING, SOD SHOULD BE IRRIGATED TO A DEPTH SUFFICIENT THAT THE UNDERSIDE OF THE SOD PAD AND THE SOIL 4 INCHES BELOW THE SOD IS THOROUGHLY WET.

7. UNTIL SUCH TIME A GOOD ROOT SYSTEM BECOMES DEVELOPED, IN THE ABSENCE OF ADEQUATE RAINFALL, WATERING SHOULD BE PERFORMED AS OFTEN AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF AT LEAST 4 INCHES.

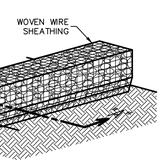
8. THE FIRST MOWING SHOULD NOT BE ATTEMPTED UNTIL THE SOD IS FIRMLY ROOTED, USUALLY 2–3 WEEKS. NOT MORE THAN ONE THIRD OF THE GRASS LEAF SHOULD BE REMOVED AT ANY ONE CUTTING.

INSPECTION AND MAINTENANCE GUIDELINES
1. SOD SHOULD BE INSPECTED WEEKLY AND AFTER EACH RAIN EVENT TO LOCATE AND REPAIR ANY DAMAGE.

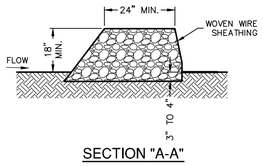
2. DAMAGE FROM STORMS OR NORMAL CONSTRUCTION ACTIVITIES SUCH AS TIRE RUTS OR DISTURBANCE OF SWALE STABILIZATION SHOULD BE REPAIRED AS SOON AS PRACTICAL.

SOD INSTALLATION DETAIL

NOT–TO–SCALE



ISOMETRIC PLAN VIEW



SECTION "A-A"

ROCK BERMS
THE PURPOSE OF A ROCK BERM IS TO SERVE AS A CHECK DAM IN AREAS OF CONCENTRATED FLOW, TO INTERCEPT SEDIMENT–LADEN RUNOFF, DETAIN THE SEDIMENT AND RELEASE THE WATER IN SHEET FLOW. THE ROCK BERM SHOULD BE USED WHEN THE CONTRIBUTING DRAINAGE AREA IS LESS THAN 5 ACRES. ROCK BERMS ARE USED IN AREAS WHERE THE VOLUME OF RUNOFF IS TOO GREAT FOR A SILT FENCE TO CONTAIN. THEY ARE LESS EFFECTIVE FOR SEDIMENT REMOVAL THAN SILT FENCES, PARTICULARLY FOR FINE PARTICLES, BUT ARE ABLE TO WITHSTAND HIGHER FLOWS THAN A SILT FENCE. AS SUCH, ROCK BERMS ARE OFTEN USED IN AREAS OF CHANNEL FLOWS (DITCHES, GULLIES, ETC.). ROCK BERMS ARE MOST EFFECTIVE AT REDUCING BED LOAD IN CHANNELS AND SHOULD NOT BE SUBSTITUTED FOR OTHER EROSION AND SEDIMENT CONTROL MEASURES FARTHER UP THE WATERSHED.

INSPECTION AND MAINTENANCE GUIDELINES
1. INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL BY THE RESPONSIBLE PARTY. FOR INSTALLATIONS IN STREAMBEDS, ADDITIONAL DAILY INSPECTIONS SHOULD BE MADE.

2. REMOVE SEDIMENT AND OTHER DEBRIS WHEN BUILDUP REACHES 6 INCHES AND DISPOSE OF THE ACCUMULATED SILT IN AN APPROVED MANNER THAT WILL NOT CAUSE ANY ADDITIONAL SILTATION.

3. REPAIR ANY LOOSE WIRE SHEATHING.

4. THE BERM SHOULD BE RESHAPED AS NEEDED DURING INSPECTION.

5. THE BERM SHOULD BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.

6. THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.

MATERIALS
1. THE BERM STRUCTURE SHOULD BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM OPENING OF 1 INCH AND A MINIMUM WIRE DIAMETER OF 20 GAUGE GALVANIZED AND SHOULD BE SECURED WITH SHOAT RINGS.

2. CLEAN, OPEN GRADED 3–INCH TO 5–INCH DIAMETER ROCK SHOULD BE USED, EXCEPT IN AREAS WHERE HIGH VELOCITIES OR LARGE VOLUMES OF FLOW ARE EXPECTED, WHERE 5–INCH TO 8–INCH DIAMETER ROCKS MAY BE USED.

INSTALLATION
1. LAY OUT THE WOVEN WIRE SHEATHING PERPENDICULAR TO THE FLOW LINE. THE SHEATHING SHOULD BE 20 GAUGE WOVEN WIRE MESH WITH 1 INCH OPENINGS.

2. BERM SHOULD HAVE A TOP WIDTH OF 2 FEET MINIMUM WITH SIDE SLOPES BEING 2:1 (H:V) OR FLATTER.

3. PLACE THE ROCK ALONG THE SHEATHING AS SHOWN IN THE DIAGRAM TO A HEIGHT NOT LESS THAN 18".

4. WRAP THE WIRE SHEATHING AROUND THE ROCK AND SECURE WITH TIE WIRE SO THAT THE ENDS OF THE SHEATHING OVERLAP AT LEAST 2 INCHES, AND THE BERM RETAINS ITS SHAPE WHEN WALKED UPON.

5. BERM SHOULD BE BUILT ALONG THE CONTOUR AT ZERO PERCENT GRADE OR AS NEAR AS POSSIBLE.

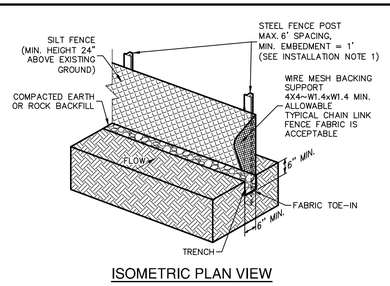
6. THE ENDS OF THE BERM SHOULD BE TIED INTO EXISTING UPSLOPE GRADE AND THE BERM SHOULD BE BURIED IN A TRENCH APPROXIMATELY 3 TO 4 INCHES DEEP TO PREVENT FAILURE OF THE CONTROL.

COMMON TROUBLE POINTS
1. INSUFFICIENT BERM HEIGHT OR LENGTH (RUNOFF QUICKLY ESCAPES OVER THE TOP OR AROUND THE SIDES OF BERM).

2. BERM NOT INSTALLED PERPENDICULAR TO FLOW LINE (RUNOFF ESCAPING AROUND ONE SIDE).

ROCK BERM DETAIL

NOT–TO–SCALE



ISOMETRIC PLAN VIEW

SILT FENCE
A SILT FENCE IS A BARRIER CONSISTING OF GEOTEXTILE FABRIC SUPPORTED BY METAL POSTS TO PREVENT SOIL AND SEDIMENT LOSS FROM A SITE. WHEN PROPERLY USED, SILT FENCES CAN BE HIGHLY EFFECTIVE AT CONTROLLING SEDIMENT FROM DISTURBED AREAS. THEY CAUSE RUNOFF TO POND, ALLOWING HEAVIER SOLIDS TO SETTLE OUT. IF NOT PROPERLY INSTALLED, SILT FENCES ARE NOT LIKELY TO BE EFFECTIVE.

THE PURPOSE OF A SILT FENCE IS TO INTERCEPT AND DETAIN WATER–BORN SEDIMENT FROM UNPROTECTED AREAS OF A LIMITED EXTENT. SILT FENCE IS USED DURING THE PERIOD OF CONSTRUCTION NEAR THE PERIMETER OF A DISTURBED AREA TO INTERCEPT SEDIMENT WHILE ALLOWING WATER TO PERCOLATE THROUGH. THIS FENCE SHOULD REMAIN IN PLACE UNTIL THE DISTURBED AREA IS PERMANENTLY STABILIZED. SILT FENCE SHOULD NOT BE USED WHERE THERE IS A CONCENTRATION OF WATER IN A CHANNEL OR DRAINAGE WAY. IF CONCENTRATED FLOW OCCURS AFTER INSTALLATION, CORRECTIVE ACTION MUST BE TAKEN SUCH AS PLACING A ROCK BERM IN THE AREAS OF CONCENTRATED FLOW.

SILT FENCING WITHIN THE SITE MAY BE TEMPORARILY MOVED DURING THE DAY TO ALLOW CONSTRUCTION ACTIVITY PROVIDED IT IS REPLACED AND PROPERLY ANCHORED TO THE GROUND AT THE END OF THE DAY. SILT FENCES ON THE PERIMETER OF THE SITE OR AROUND DRAINAGE WAYS SHOULD NOT BE MOVED AT ANY TIME.

MATERIALS
1. SILT FENCE MATERIAL SHOULD BE POLYPROPYLENE, POLYETHYLENE; OR POLYAMIDE WOVEN OR NONWOVEN FABRIC. THE FABRIC SHOULD BE 36 INCHES, WITH A MINIMUM UNIT WEIGHT OF 4.5 OZ/YD. MULLEN BURST STRENGTH EXCEEDING 190 LB/IN2, ULTRAVIOLET STABILITY EXCEEDING 70%, AND MINIMUM APPARENT OPENING SIZE OF U.S. SIEVE NUMBER 30.

2. FENCE POSTS SHOULD BE MADE OF HOT ROLLED STEEL, AT LEAST 4 FEET LONG WITH TEE OR Y–BAR CROSS SECTION, SURFACE PAINTED OR GALVANIZED, MINIMUM WEIGHT 1.25 LB/FT, AND BRINDELL HARDNESS EXCEEDING 140.

3. WOVEN WIRE BACKING TO SUPPORT THE FABRIC SHOULD BE GALVANIZED 2" X 4" WELDED WIRE, 12 GAUGE MINIMUM.

INSTALLATION
1. STEEL POSTS, WHICH SUPPORT THE SILT FENCE, SHOULD BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POSTS MUST BE EMBEDDED A MINIMUM OF 1–FOOT DEEP AND SPACED NOT MORE THAN 8 FEET ON CENTER. WHERE WATER CONCENTRATES, THE MAXIMUM SPACING SHOULD BE 6 FEET.

2. LAY OUT FENCING DOWN–SLOPE OF DISTURBED AREA, FOLLOWING THE CONTOUR AS CLOSELY AS POSSIBLE. THE FENCE SHOULD BE SITED SO THAT THE MAXIMUM DRAINAGE AREA IS ¼ ACRE/100 FEET OF FENCE.

3. THE TOE OF THE SILT FENCE SHOULD BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWN–SLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (E.G., PAVEMENT OR ROCK OUTCROP), WEIGHT FABRIC FLAP WITH 3 INCHES OF PEA GRAVEL ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.

4. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.

5. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POST. THERE SHOULD BE A 3–FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.

6. SILT FENCE SHOULD BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

COMMON TROUBLE POINTS
1. FENCE NOT INSTALLED ALONG THE CONTOUR CAUSING WATER TO CONCENTRATE AND FLOW OVER THE FENCE.

2. FABRIC NOT SEATED SECURELY TO GROUND (RUNOFF PASSING UNDER FENCE).

3. FENCE NOT INSTALLED PERPENDICULAR TO FLOW LINE (RUNOFF ESCAPING AROUND SIDES).

4. FENCE TREATING TOO LARGE AN AREA, OR EXCESSIVE CHANNEL FLOW (RUNOFF OVERTOPS OR COLLAPSES FENCE).

INSPECTION AND MAINTENANCE GUIDELINES
1. INSPECT ALL FENCING WEEKLY, AND AFTER RAINFALL.

2. REMOVE SEDIMENT WHEN BUILDUP REACHES 6 INCHES.

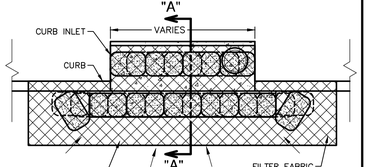
3. REPLACE TORN FABRIC OR INSTALL A SECOND LINE OF FENCING PARALLEL TO THE TORN SECTION.

4. REPLACE OR REPAIR SECTIONS CRUSHED OR COLLAPSED IN THE COURSE OF CONSTRUCTION ACTIVITY. IF A SECTION OF FENCE IS OBSTRUCTING VEHICULAR ACCESS, CONSIDER RELOCATING IT TO A SPOT WHERE IT WILL PROVIDE EQUAL PROTECTION, BUT WILL NOT OBSTRUCT VEHICLES. A TRIANGULAR FILTER DIKE MAY BE PREFERABLE TO A SILT FENCE AT COMMON VEHICLE ACCESS POINTS.

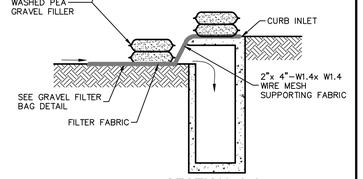
5. WHEN CONSTRUCTION IS COMPLETE, THE SEDIMENT SHOULD BE DISPOSED OF IN A MANNER THAT WILL NOT CAUSE ADDITIONAL SILTATION AND THE PRIOR LOCATION OF THE SILT FENCE SHOULD BE REVEGETATED. THE FENCE ITSELF SHOULD BE DISPOSED OF IN AN APPROVED LANDFILL.

SILT FENCE DETAIL

NOT–TO–SCALE



PLAN VIEW



SECTION "A-A"

GENERAL NOTES
1. CONTRACTOR TO INSTALL 2"x4"–W1.4xW1.4 WIRE MESH SUPPORTING FILTER FABRIC OVER THE INLET OPENING. FABRIC MUST BE SECURED TO WIRE BACKING WITH CLIPS OR WIRE TIES AT THIS LOCATION. SAND BAGS FILLED WITH WASHED PEA GRAVEL SHOULD BE PLACED ON TOP OF WIRE MESH ON TOP OF THE INLET AS SHOWN ON THIS DETAIL TO HOLD WIRE MESH IN PLACE. SANDBAGS FILLED WITH WASHED PEA GRAVEL SHOULD ALSO BE PLACED ALONG THE GUTTER AS SHOWN ON THIS DETAIL TO HOLD WIRE MESH IN PLACE. SAND BAGS TO BE STACKED TO FORM A CONTINUOUS BARRIER AROUND INLETS.

2. THE BAGS SHOULD BE TIGHTLY ABUTTED AGAINST EACH OTHER TO PREVENT RUNOFF FROM FLOWING BETWEEN THE BAGS.

INSPECTION AND MAINTENANCE GUIDELINES
1. INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL. REPAIR OR REPLACEMENT SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.

2. REMOVE SEDIMENT WHEN BUILDUP REACHES A DEPTH OF 3 INCHES. REMOVED SEDIMENT SHOULD BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.

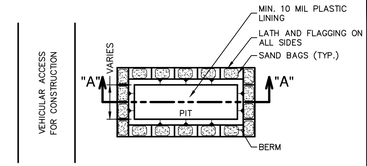
3. CHECK PLACEMENT OF DEVICE TO PREVENT GAPS BETWEEN DEVICE AND CURB.

4. INSPECT FILTER FABRIC AND PATCH OR REPLACE IF TORN OR MISSING.

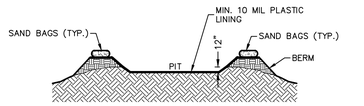
5. STRUCTURES SHOULD BE REMOVED AND THE AREA STABILIZED ONLY AFTER THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

BAGGED GRAVEL CURB INLET PROTECTION DETAIL

NOT–TO–SCALE



PLAN VIEW



SECTION "A-A"

GENERAL NOTES
1. DETAIL ABOVE ILLUSTRATES MINIMUM DIMENSIONS. PIT CAN BE INCREASED IN SIZE DEPENDING ON EXPECTED FREQUENCY OF USE.

2. WASHOUT PIT SHALL BE LOCATED IN AN AREA EASILY ACCESSIBLE TO CONSTRUCTION TRAFFIC.

3. WASHOUT PIT SHALL NOT BE LOCATED IN AREAS SUBJECT TO INUNDATION FROM STORM WATER RUNOFF.

4. LOCATE WASHOUT AREA AT LEAST 50 FEET FROM SENSITIVE FEATURES, STORM DRAINS, OPEN DITCHES OR WATER BODIES.

5. TEMPORARY CONCRETE WASHOUT FACILITY SHOULD BE CONSTRUCTED WITH SUFFICIENT QUANTITY AND VOLUME TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS.

MATERIALS
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.

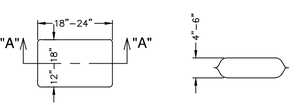
MAINTENANCE
1. WHEN TEMPORARY CONCRETE WASHOUT FACILITIES ARE NO LONGER REQUIRED FOR THE WORK, THE HARDENED CONCRETE SHOULD BE REMOVED AND DISPOSED OF.

2. MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF.

3. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCES CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE BACKFILLED AND REPAIRED.

CONCRETE TRUCK WASHOUT PIT DETAIL

NOT–TO–SCALE



PLAN VIEW

SECTION "A-A"

NOTES:
1. THE FILTER BAG MATERIAL SHALL BE MADE OF POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE WOVEN FABRIC, MIN. UNIT WEIGHT OF 4 OUNCES/SY, HAVE A MULLEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRAVIOLET STABILITY EXCEEDING 70%.

2. THE FILTER BAG SHALL BE FILLED WITH CLEAN, MEDIUM WASHED PEA GRAVEL TO COARSE GRAVEL (0.31 TO 0.75 INCH DIAMETER).

3. SAND SHALL NOT BE USED TO FILL THE FILTER BAGS.

GRAVEL FILTER BAG DETAIL

NOT–TO–SCALE

THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE TPDES–STORM WATER POLLUTION PREVENTION PLAN (SWP3) REGULATIONS.

THIS SHEET HAS BEEN PREPARED FOR PURPOSES OF THE SWP3 ONLY. ALL OTHER CIVIL ENGINEERING RELATED INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SHEET IN THE CIVIL IMPROVEMENT PLANS.

EXHIBIT 3

NO.	REVISION	DATE

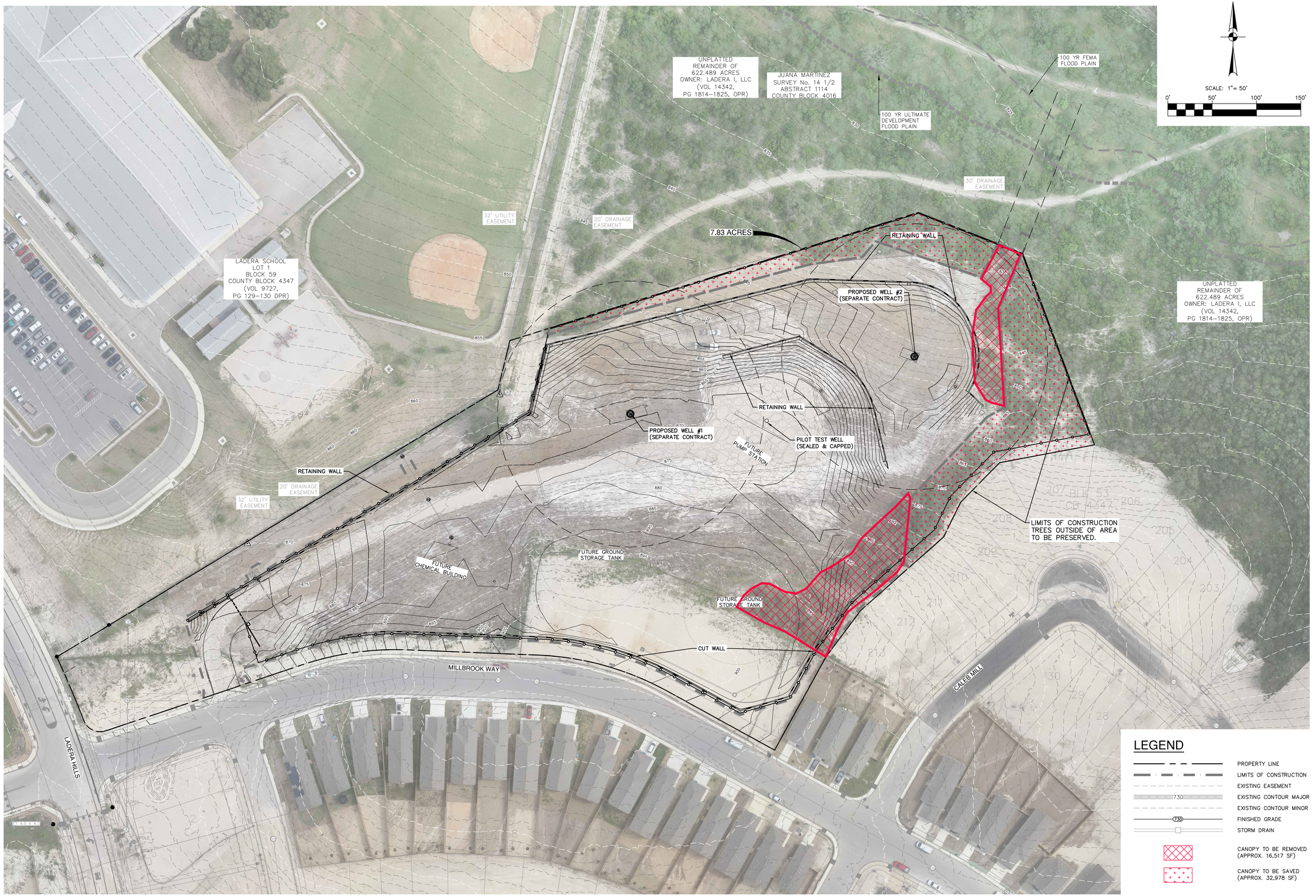
STATE OF TEXAS
JASON T. DIAMOND
96532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS
STORM WATER POLLUTION PREVENTION PLAN DETAILS

PLAT NO.	---
JOB NO.	6445–76
DATE	JULY 2024
DESIGNER	BL
CHECKED RG	DRAWN AL
SHEET	C2.10

PRELIMINARY



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LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS

TREE PRESERVATION PLAN SHEET 1

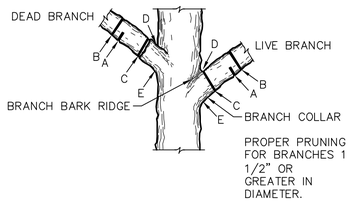
PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C3.00

Date: Jul 16, 2024, 10:48am User ID: claughlin
File: P:\6445\76\Design\Civil\Sheets\site work construction sheets\TP-SWC-6445?6.dwg

PRELIMINARY

TREE PRESERVATION GENERAL NOTES

1. ALL TREES SHALL REMAIN UNLESS NOTED ON THE CITY OF SAN ANTONIO APPROVED PLANS.
2. NO UTILITY EXCAVATION WORK SHALL BEGIN IN AREAS WHERE TREE PRESERVATION AND TREATMENT MEASURES HAVE NOT BEEN COMPLETED AND APPROVED.
3. THE CONTRACTOR SHALL AVOID CUTTING ROOTS LARGER THAN ONE INCH IN DIAMETER WHEN EXCAVATING NEAR EXISTING TREES. EXCAVATION IN VICINITY OF TREES SHALL PROCEED WITH CAUTION. THE CONTRACTOR SHALL CONTACT THE CITY INSPECTOR FOR GUIDANCE.
4. EXPOSED ROOTS SHALL BE COVERED AT THE END OF THE DAY USING TECHNIQUES SUCH AS COVERING WITH SOIL, MULCH OR WET BURLAP.
5. NO EQUIPMENT, VEHICLES OR MATERIALS SHALL OPERATE OR BE STORED WITHIN THE ROOT PROTECTION ZONE OF ANY TREE NEAR THE PROJECT. ROOT PROTECTION ZONE IS ONE FOOT RADIUS PER DIAMETER INCH OF THE TRUNK OF THE TREE. A TEN INCH TREE SHALL REQUIRE A TEN FOOT ROOT PROTECTION ZONE. ROOTS OR BRANCHES IN CONFLICT WITH THE CONSTRUCTION SHALL BE CUT CLEANLY ACCORDING TO PROPER PRUNING METHODS. ALL WOUNDS TO OAK TREES SHALL BE PAINTED WITHIN 20 MINUTES TO PREVENT THE SPREAD OF OAK WILT.
6. THE CITY ARBORIST, 207-0278, SHALL APPROVE ANY TREE REMOVED.
7. TREES, TREE LIMBS, BUSHES AND SHRUBS LOCATED IN THE PERMANENT EASEMENTS WHICH INTERFERE WITH PROPOSED CONSTRUCTION ACTIVITIES MAY BE NEATLY TRIMMED BY THE CONTRACTOR ONLY AFTER APPROVAL FROM THE CITY INSPECTOR.
8. TREES THAT ARE DAMAGED OR LOST DUE TO THE CONTRACTOR'S NEGLIGENCE DURING CONSTRUCTION SHALL BE MITIGATED TO THE CITY'S SATISFACTION.
9. SAPLINGS, SHRUBS OR BUSHES TO BE REMOVED FROM THE PROTECTED ROOT ZONE AREA OF PROTECTED TREES SHALL BE REMOVED BY HAND AS DESIGNATED BY THE INSPECTOR.
10. ALL DEBRIS GENERATED BY THE PRUNING OR TRIMMING OF THE TREES AND/OR BUSHES SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF PROPERLY.
11. TREES MUST BE MAINTAINED IN GOOD HEALTH THROUGHOUT THE CONSTRUCTION PROCESS. MAINTENANCE MY INCLUDE WATERING THE ROOT PROTECTION ZONE AND/OR WASHING FOLIAGE.
12. NO WIRES, NAILS OR OTHER MATERIALS MAY BE ATTACHED TO PROTECTED TREES.
13. PRIOR TO START OF WORK, CALL 207-1111 TO SCHEDULE A PRE-CONSTRUCTION & FENCING INSPECTION (PER SECTION 35-477 OF THE UDC, SUBSECTION TREE PERMITS (5)(C)).
14. FAILURE TO SCHEDULE A FENCING INSPECTION PRIOR TO START OF WORK MAY RESULT IN A STOP WORK ORDER OR A PENALTY OF $2,000 OR BOTH (PER SECTION 35-523 OF THE UDC, SUBSECTION (K)(2), THE BARRIER SHALL BE IN PLACE BEFORE ANY SITE WORK IS INITIATED AND MAINTAINED THROUGHOUT THE CONSTRUCTION PROCESS).



PROPER PRUNING FOR BRANCHES 1 1/2" OR GREATER IN DIAMETER.

NOTE: DO NOT CUT FROM D TO E

A. FIRST CUT – TO PREVENT THE BARK FROM BEING PEELED WHEN THE BRANCH FALLS.

B. SECOND CUT – TO REDUCE THE WEIGHT OF BRANCH.

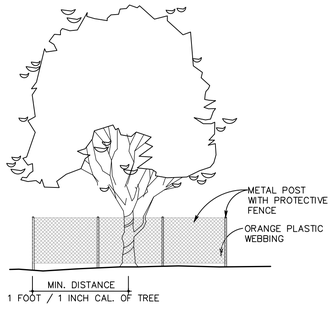
C. FINAL CUT – ALLOW FOR HEALING COLLAR BUT NO STUBS

D. BRANCH RIDGES – INDENT PROPERLY BRANCH RIDGES WHICH ARE SITE FOR DECAY.

FOR OAKS ONLY: PAINT ALL WOUNDS OR CUTS WITH PRUNING PAINT WITHIN 20 MIN. TO PREVENT THE SPREAD OF OAK WILT.

TREE PRUNING DETAIL

N.T.S.



TREE PROTECTION DETAIL
EXISTING TREES

N.T.S.

TREE PRESERVATION NOTES

1. ALL TREES TO REMAIN ON SITE REQUIRE PROTECTIVE FENCING, PRUNING, WATERING, AND FERTILIZATION AS DIRECTED BY A QUALIFIED ARBORIST.
2. PROTECTIVE FENCING CONSISTS OF 4'-0" HIGH FENCE.
3. FENCE TO EXTEND FROM TRUNK ONE FOOT FOR EVERY CALIPER INCH OF TREE (MINIMUM). THE OPTIMUM DISTANCE IS TO INSTALL FENCE DIRECTLY BENEATH DRIPLINE OF TREE TO REMAIN AS SHOWN.
4. DURING CONSTRUCTION, NO EXCESS SOIL, FILL MATERIAL, EQUIPMENT, LIQUIDS, OR CONSTRUCTION DEBRIS SHALL BE PLACED WITHIN THE PROTECTIVE FENCING, NOR SHALL ANY SOIL BE REMOVED FROM WITHIN THE FENCING.
5. ALL TREE PROTECTION MUST BE IN PLACE BEFORE CONSTRUCTION BEGINS.
6. INSTALL 4" MINIMUM DEPTH OF SHREDDED MULCH BENEATH THE DRIPLINE OF THE TREE.

TREE PROTECTION NOTES

1. NO UTILITY OR STREET EXCAVATION WORK SHALL BEGIN IN AREAS WHERE TREE PRESERVATION AND TREATMENT MEASURES HAVE NOT BEEN COMPLETED AND APPROVED.
2. TREE PROTECTION FENCING SHALL BE REQUIRED. TREE PROTECTION FENCING SHALL BE INSTALLED, MAINTAINED AND REPAIRED BY THE CONTRACTOR DURING SITE CONSTRUCTION. DURING CONSTRUCTION ACTIVITY, AT LEAST A SIX-INCH LAYER OF COARSE MULCH SHALL BE PLACED AND MAINTAINED OVER THE ROOT PROTECTION ZONE (NO SEPARATE PAY ITEM).
3. THE CONTRACTOR SHALL AVOID CUTTING ROOTS LARGER THAN ONE INCH IN DIAMETER WHEN EXCAVATING NEAR EXISTING TREES. EXCAVATION IN THE VICINITY OF TREES SHALL PROCEED WITH CAUTION. THE CONTRACTOR SHALL CONTACT THE CITY INSPECTOR FOR GUIDANCE.
4. ROOTS WILL BE CUT WITH A ROCK SAW OR BY HAND, NOT BY AN EXCAVATOR OR OTHER ROAD CONSTRUCTION EQUIPMENT.
5. ALL CURB AND SIDEWALK WORK SHALL USE ALTERNATIVE CONSTRUCTION METHODS TO MINIMIZE EXTENSIVE ROOT DAMAGE TO TREES (REFER TO DETAILS).
6. EXPOSED ROOTS SHALL BE COVERED AT THE END OF THE DAY USING TECHNIQUES SUCH AS COVERING WITH SOIL, MULCH, OR WET BURLAP.
7. NO EQUIPMENT, VEHICLES OR MATERIALS SHALL OPERATE OR BE STORED WITHIN THE ROOT PROTECTION ZONE OF ANY TREE NEAR THE PROJECT. ROOT PROTECTION ZONE IS 1 FOOT OF RADIUS PER INCH OF TREE'S DIAMETER. A 10-INCH DIAMETER TREE WOULD HAVE A 10 FOOT RADIUS ROOT PROTECTION ZONE AROUND THE TREE. ROOTS OR BRANCHES IN CONFLICT WITH THE CONSTRUCTION SHALL BE CUT CLEANLY ACCORDING TO PROPER PRUNING METHODS. OAK WOUNDS SHALL BE PAINTED OVER WITHIN 30 MINUTES TO PREVENT OAK WILT.
8. SAPLINGS, SHRUBS OR BUSHES TO BE CLEARED FROM THE PROTECTED ROOT ZONE AREA OF A LARGE TREE SHALL BE REMOVED BY HAND AS DESIGNATED BY THE INSPECTOR.
9. NO WIRES, NAILS OR OTHER MATERIAL MAY BE ATTACHED TO PROTECTED TREES.
10. TREES, TREE LIMBS, BUSHES AND SHRUBS LOCATED IN THE CITY STREET OR ALLEY RIGHT-OF-WAY OR PERMANENT EASEMENTS WHICH INTERFERE WITH PROPOSED CONSTRUCTION ACTIVITIES SHALL BE PROPERLY PRUNED FOLLOWING THE ANSI A-300 STANDARDS FOR PRUNING. ALL TREE PRUNING SHALL BE COMPLETED BY A CITY OF SAN ANTONIO TREE MAINTENANCE LICENSED CONTRACTOR (ARTICLE 21-171, CITY CODE) ONLY AFTER APPROVAL FROM THE CAPITAL PROJECTS MANAGEMENT THROUGH THE INSPECTOR.
11. NO EXCESSIVE TREE TRIMMING WILL BE PERMITTED.
12. ALL DEBRIS GENERATED BY THE PRUNING AND TRIMMING OF THE TREES AND / OR BUSHES SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF PROPERLY (NO SEPARATE PAY ITEM).
13. TREES MUST BE MAINTAINED IN GOOD HEALTH THROUGHOUT THE CONSTRUCTION PROCESS. MAINTENANCE MAY INCLUDE, BUT NOT LIMITED TO: WATERING THE ROOT PROTECTION ZONE, WASHING FOLIAGE, FERTILIZATION, PRUNING, ADDITIONAL MULCH APPLICATIONS AND OTHER MAINTENANCE AS NEEDED ON THE PROJECT.
14. ANY TREE REMOVAL SHALL BE APPROVED BY THE CITY ARBORIST. (207-0278).
15. TREES WHICH ARE DAMAGED OR LOST DUE TO THE CONTRACTOR'S NEGLIGENCE DURING CONSTRUCTION SHALL BE MITIGATED TO THE CITY'S SATISFACTION.
16. TREE PLANTING FOR MITIGATION OR ENHANCEMENT: ALL PLANTED TREES SHALL BE MAINTAINED IN A HEALTHY CONDITION AT ALL TIMES. THIS INCLUDES IRRIGATION, FERTILIZING, PRUNING AND OTHER MAINTENANCE AS NEEDED ON THE PROJECT. TREES THAT DIE WITHIN TWELVE (12) MONTHS SHALL BE REPLACED WITH A TREE OF EQUAL SIZE AND SPECIES.

NO.	REVISION	DATE

STATE OF TEXAS
JASON T. DIAMOND
98532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

PAPE-DAWSON ENGINEERS
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2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS

TREE PRESERVATION PLAN SHEET 2

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C3.10

Date: Jul 16, 2024, 10:48am User ID: dloughlin
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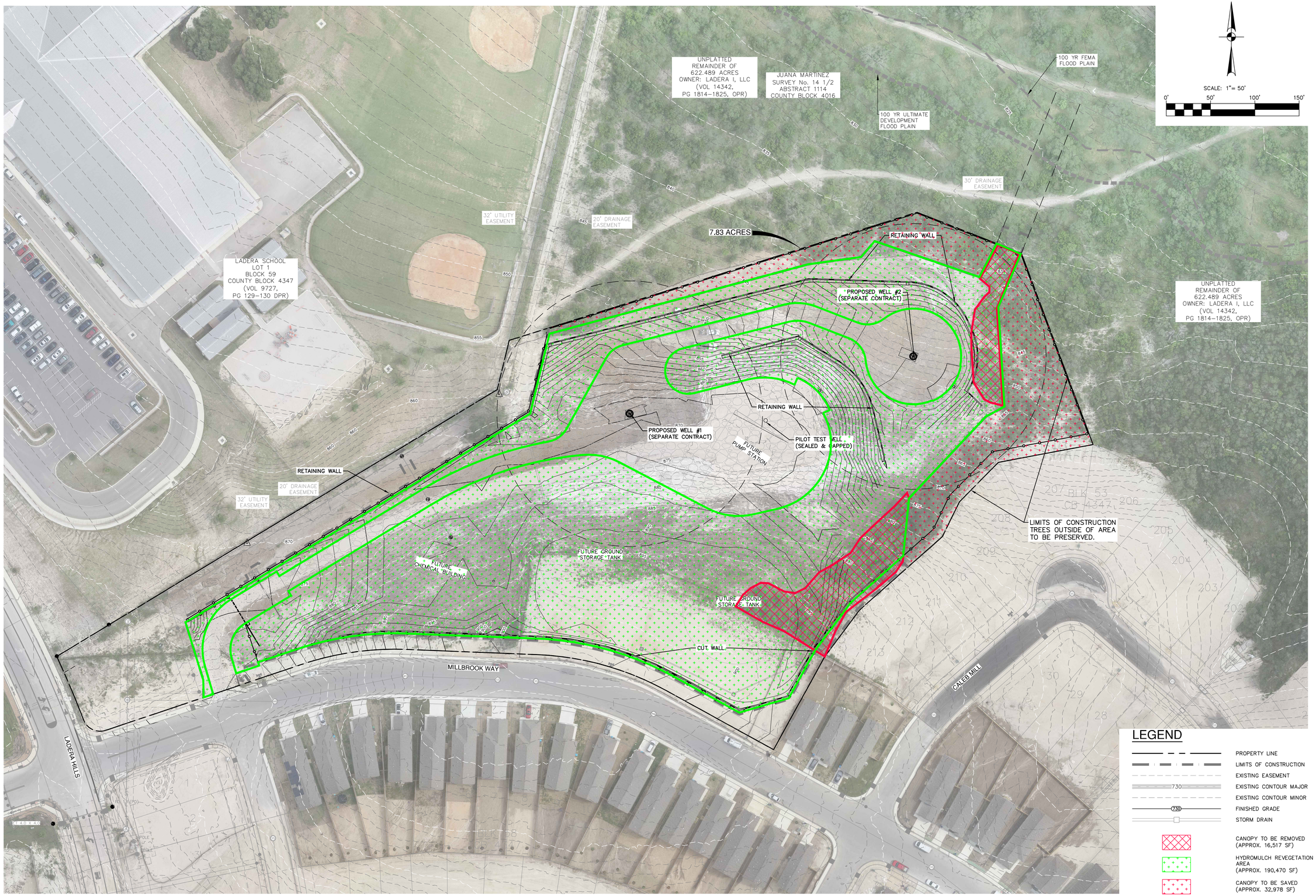
PRELIMINARY



PRELIMINARY

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SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS

REVEGETATION PLAN

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C3.11

Date: Jul 16, 2024, 10:50am User ID: dloughlin
File: P:\6445\76\Design\Civil\Sheets\site work construction sheets\WP-SWC-644576.dwg

C4.02

C4.01

C4.03

UNPLATTED
REMAINDER OF
622.489 ACRES
OWNER: LADERA I, LLC
(VOL 14342,
PG 1814–1825, OPR)

JUANA MARTINEZ
SURVEY No. 14 1/2
ABSTRACT 1114
COUNTY BLOCK 4016

100 YR FEMA
FLOOD PLAIN

100 YR ULTIMATE
DEVELOPMENT
FLOOD PLAIN

SCALE: 1" = 50'
0' 50' 100' 150'

30' DRAINAGE
EASEMENT

32' UTILITY
EASEMENT

20' DRAINAGE
EASEMENT

LADERA SCHOOL
LOT 1
BLOCK 59
COUNTY BLOCK 4347
(VOL 9727,
PG 129–130 DPR)

CHAINLINK
SECURITY FENCE

RETAINING WALL

PROPOSED WELL #2
(SEPARATE CONTRACT)

GUARD RAIL

PROPOSED WELL #1
(SEPARATE CONTRACT)

PILOT TEST WELL
(SEALED & CAPPED)

CUT WALL

MILLBROOK WAY

LADERA HILLS
70' ROW

JANDRO GROVE

CALEB MILL

SANITARY SEWER MANHOLE
TOP: 859.66
INVERT A: 849.81; 12" PVC
INVERT B: 849.26; 12" PVC

SANITARY SEWER MANHOLE
TOP: 875.58
INVERT A: 861.08; 12" PVC
INVERT B: 861.03; 12" PVC

SANITARY SEWER MANHOLE
TOP: 877.91
INVERT A: 862.16; 12" PVC
INVERT B: 862.05; 12" PVC

1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 1040 1050 1091 1131

902 903 904

BLK 58
CB 4347

BLK 53
CB 4347

207 206 205 204 203 202 208 209 210 211 212 213 214 215 216 217

LEGEND

- PROPERTY LINE
- EXISTING EASEMENT
- CHAINLINK SECURITY FENCE
- VEHICULAR GUARD RAIL
- STORM DRAIN
- COMPACTED BASE
- CONCRETE PAVEMENT

DATE

NO. REVISION

STATE OF TEXAS
JASON T. DIAMOND
96532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS

OVERALL DIMENSIONAL CONTROL PLAN

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C4.00

Date: Jul 16, 2024, 10:51am User ID: alaughlin
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PRELIMINARY

LADERA SCHOOL
LOT 1
BLOCK 59
COUNTY BLOCK 4347
(VOL 9727,
PG 129-130 DPR)

32' UTILITY EASEMENT

20' DRAINAGE EASEMENT

CHAINLINK SECURITY FENCE

RETAINING WALL

GUARD RAIL

20.0'

TEMPORARY COMPACTED BASE

SANITARY SEWER LINE A

ELECTRIC SLIDE GATE

PROPOSED 3' MAN GATE

CUT WALL

CHAINLINK SECURITY FENCE

TIE TO EXISTING CONCRETE APPROACH

MILLBROOK WAY

903

R414.6'

R394.6'

R73.3'

R68.3'

R65.0'

R35.0'

160
869.91
SIRCTV

161
860.04
SIRCTV

1044
1045
1
2011
1135
1134
1133
3001
1089
3002
1088
3003
1079
1086
1078
1077
1076
1092
1132
1084
1024
2017
1085
1041
1042
1090
1130
1083
1082
1080
1081

MATCHLINE SEE SHEET C4.02

SCALE: 1"= 20'
0' 20' 40' 60'

LEGEND

- PROPERTY LINE
- EXISTING EASEMENT
- CHAINLINK SECURITY FENCE
- VEHICULAR GUARD RAIL
- RETAINING WALL
- STORM DRAIN
- COMPACTED BASE

NO.	REVISION	DATE

STATE OF TEXAS
JASON T. DIAMOND
98532
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7-16-24

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LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS

DIMENSIONAL CONTROL PLAN SHEET 1

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C4.01

Date: Jul 16, 2024, 10:52am User ID: claughlin
File: P:\6445\76\Design\Civil\Sheets\site work construction sheets\GC-SWC-644576.dwg

PRELIMINARY

UNPLATTED
REMAINDER OF
622.489 ACRES
OWNER: LADERA I, LLC
(VOL 14342,
PG 1814–1825, OPR)

20' DRAINAGE EASEMENT

32' UTILITY EASEMENT

30' DRAINAGE EASEMENT

CHAINLINK SECURITY FENCE

PROPOSED 3' MAN GATE

STORM DRAIN B

RETAINING WALL

CONCRETE SWALE (SEE DETAILS, SHEET C6.10)

GUARD RAIL

TEMPORARY COMPACTED BASE

STORM DRAIN A

STORM DRAIN C

STORM DRAIN D

PROPOSED WELL #2 (SEPARATE CONTRACT)

PROPOSED WELL #1 (SEPARATE CONTRACT)

PILOT TEST WELL (SEALED & CAPPED)

MATCHLINE SEE SHEET C4.01

MATCHLINE SEE SHEET C4.03

SCALE: 1"= 20'

0' 20' 40' 60'

LEGEND

- PROPERTY LINE
- EXISTING EASEMENT
- CHAINLINK SECURITY FENCE
- VEHICULAR GUARD RAIL
- RETAINING WALL
- STORM DRAIN
- COMPACTED BASE

NO.	REVISION	DATE

STATE OF TEXAS
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LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS

DIMENSIONAL CONTROL PLAN SHEET 2

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C4.02

Date: Jul 16, 2024, 10:52am User ID: claughlin
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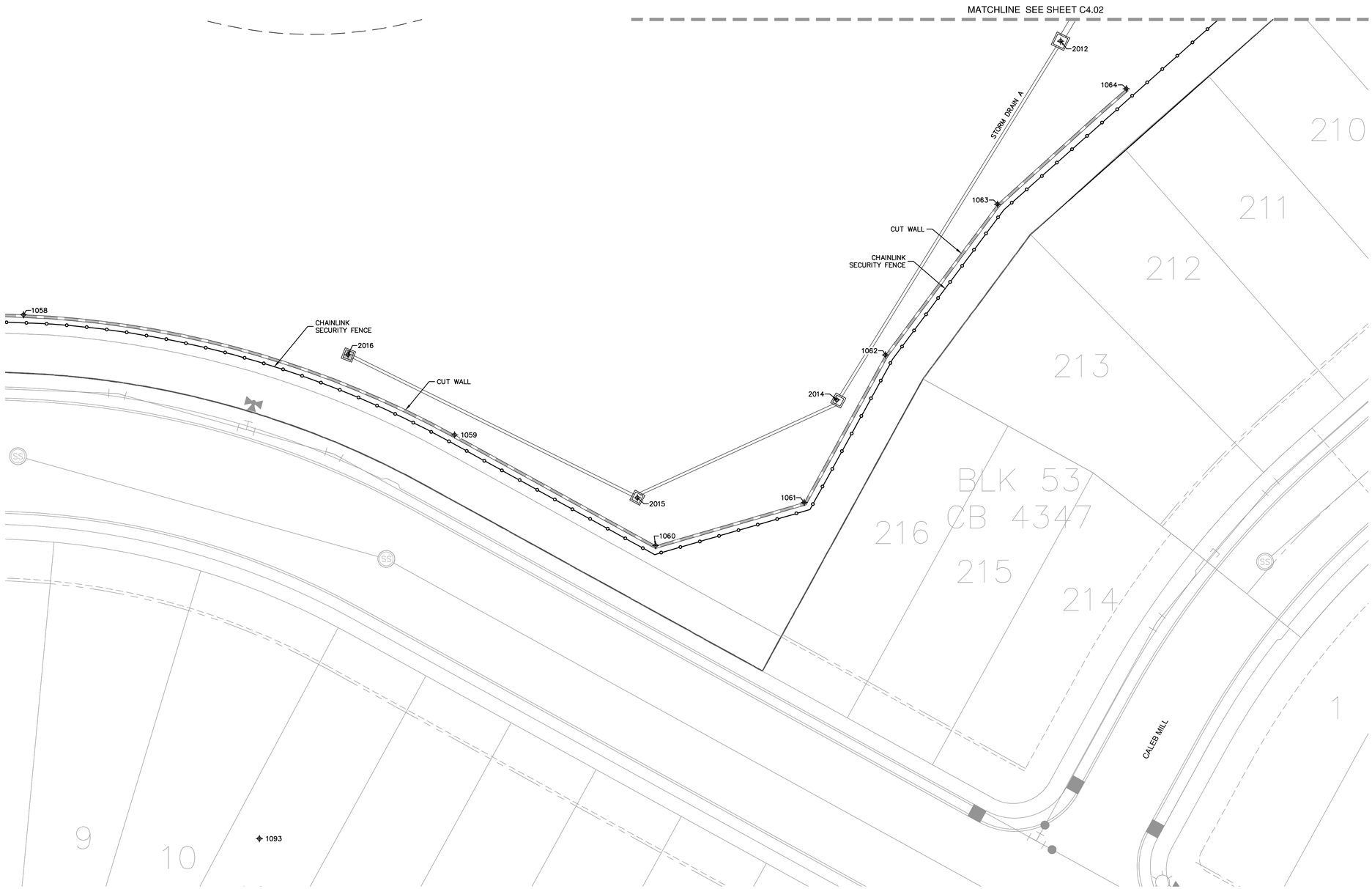
PRELIMINARY



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LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS

DIMENSIONAL CONTROL PLAN SHEET 3

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C4.03

Date: Jul 16, 2024, 10:53am User ID: alaughlin
File: P:\6445\76\Design\Civil\Sheets\Site work construction sheets\DC-SWG-644576.dwg

PRELIMINARY

POINTS			
POINT #	NORTHING	EASTING	DESCRIPTION
1001	13694687.18	2036781.43	BOUNDARY CORNER
1002	13694988.40	2037278.77	BOUNDARY CORNER
1003	13695043.90	2037292.29	BOUNDARY CORNER
1004	13695188.51	2037752.78	BOUNDARY CORNER
1005	13695142.24	2037870.62	BOUNDARY CORNER
1006	13694926.35	2037951.52	BOUNDARY CORNER
1007	13694906.22	2037844.54	BOUNDARY CORNER
1008	13694861.55	2037800.48	BOUNDARY CORNER
1009	13694822.54	2037781.49	BOUNDARY CORNER
1010	13694739.09	2037687.39	BOUNDARY CORNER
1011	13694687.01	2037648.61	BOUNDARY CORNER
1012	13694581.89	2037590.73	BOUNDARY CORNER
1013	13694648.51	2037469.76	BOUNDARY CORNER
1014	13694689.17	2037323.73	BOUNDARY CORNER
1015	13694695.06	2037176.03	BOUNDARY CORNER
1016	13694678.07	2037057.57	BOUNDARY CORNER
1017	13694603.70	2036836.72	BOUNDARY CORNER
1018	13694615.50	2036811.66	BOUNDARY CORNER
1019	13694680.59	2037008.67	SECURITY FENCE
1020	13694724.40	2036993.92	SECURITY FENCE
1021	13694751.34	2036977.60	SECURITY FENCE
1022	13694729.42	2036928.39	SECURITY FENCE
1023	13694962.79	2037313.70	SECURITY FENCE
1024	13694750.73	2036972.13	GUARD RAIL
1025	13695056.77	2037336.60	SECURITY FENCE
1026	13695187.45	2037752.75	SECURITY FENCE
1027	13695141.47	2037869.84	SECURITY FENCE
1028	13694938.52	2037945.89	SECURITY FENCE
1029	13694918.24	2037838.14	SECURITY FENCE
1030	13694869.16	2037789.73	SECURITY FENCE
1031	13694830.56	2037770.94	SECURITY FENCE
1032	13694747.92	2037677.76	SECURITY FENCE
1033	13694694.06	2037637.65	SECURITY FENCE
1034	13694640.00	2037607.88	SECURITY FENCE
1035	13694623.79	2037551.96	SECURITY FENCE
1036	13694664.27	2037478.44	SECURITY FENCE
1037	13694706.84	2037334.46	SECURITY FENCE
1038	13694713.04	2037176.74	SECURITY FENCE
1039	13694695.13	2037051.84	SECURITY FENCE
1040	13694754.12	2036975.92	SECURITY FENCE
1041	13694710.50	2037099.77	CUT WALL
1042	13694716.04	2037176.86	CUT WALL
1043	13694365.32	2037162.88	RADIUS POINT
1044	13694728.06	2036930.97	RETAINING WALL
1045	13694961.19	2037315.89	RETAINING WALL
1046	13695039.11	2037334.87	RETAINING WALL
1047	13695110.36	2037620.51	RETAINING WALL
1048	13695109.38	2037743.73	RETAINING WALL
1049	13694969.87	2037825.66	RETAINING WALL
1050	13694726.43	2036930.20	SECURITY FENCE
1051	13695027.04	2037753.60	WALL RADIUS POINT
1052	13695026.56	2037532.18	RETAINING WALL
1053	13695048.25	2037618.70	RETAINING WALL
1054	13695020.37	2037663.79	RETAINING WALL
1055	13694966.29	2037702.66	RETAINING WALL

POINTS			
POINT #	NORTHING	EASTING	DESCRIPTION
1056	13694911.08	2037715.56	RETAINING WALL
1057	13694946.54	2037618.14	WALL RADIUS POINT
1058	13694710.15	2037324.57	CUT WALL
1059	13694666.90	2037479.89	CUT WALL
1060	13694627.02	2037552.32	CUT WALL
1061	13694642.53	2037605.86	CUT WALL
1062	13694695.69	2037635.13	CUT WALL
1063	13694749.90	2037675.49	CUT WALL
1064	13694791.53	2037721.88	CUT WALL
1065	13694359.43	2037310.58	WALL RADIUS POINT
1066	13695000.70	2037618.11	6" CURB
1067	13694990.38	2037635.15	6" CURB/CURB INLET
1068	13694982.62	2037642.94	6" CURB/CURB INLET
1069	13694965.62	2037653.34	6" CURB
1070	13694940.60	2037593.35	CURB RADIUS POINT
1071	13695014.53	2037801.41	6" CURB
1072	13694996.17	2037793.75	6" CURB/CURB INLET
1073	13694987.64	2037786.82	6" CURB/CURB INLET
1074	13694976.39	2037770.42	6" CURB
1075	13695025.78	2037748.60	CURB RADIUS POINT
1076	13694760.85	2037043.01	CONCRETE/COMPACTED BASE DRIVE
1077	13694766.17	2037003.54	6" CURB/CURB INLET
1078	13694771.87	2037012.95	6" CURB/CURB INLET
1079	13694782.23	2037030.06	CONCRETE DRIVE/6" CURB
1080	13694654.41	2036987.30	CONCRETE DRIVE
1081	13694644.83	2036958.87	CONCRETE DRIVE
1082	13694676.47	2036949.39	CONCRETE DRIVE/6" CURB
1083	13694685.07	2036978.13	CONCRETE DRIVE/6" CURB
1084	13694750.70	2036977.99	CONCRETE DRIVE/6" CURB
1085	13694725.04	2036993.53	CONCRETE DRIVE/6" CURB
1086	13694777.96	2037032.65	CONCRETE/COMPACTED BASE DRIVE
1087	13694985.93	2037808.86	RETAINING WALL
1088	13694859.05	2037205.14	COMPACTED BASE DRIVE
1089	13694876.15	2037194.78	COMPACTED BASE DRIVE
1090	13694695.10	2037011.66	DRIVE RADIUS POINT
1091	13694688.17	2037006.11	3' MAN GATE
1092	13694756.57	2037045.60	CONCRETE DRIVE/6" CURB
1093	13694521.54	2037409.56	DRIVE RADIUS POINT
1094	13694914.63	2037375.24	COMPACTED BASE DRIVE
1095	13694906.39	2037416.48	COMPACTED BASE DRIVE
1096	13694854.20	2037516.42	COMPACTED BASE DRIVE
1097	13694847.57	2037567.90	COMPACTED BASE DRIVE
1098	13694853.88	2037595.40	COMPACTED BASE DRIVE
1099	13694912.19	2037653.85	COMPACTED BASE DRIVE
1100	13694999.78	2037562.09	COMPACTED BASE DRIVE
1101	13694984.37	2037500.62	COMPACTED BASE DRIVE
1102	13695034.80	2037487.97	COMPACTED BASE DRIVE
1103	13695065.05	2037608.59	COMPACTED BASE DRIVE
1104	13695063.68	2037630.92	COMPACTED BASE DRIVE
1105	13695046.38	2037675.72	COMPACTED BASE DRIVE
1106	13695021.03	2037694.81	COMPACTED BASE DRIVE
1107	13695068.26	2037715.26	COMPACTED BASE DRIVE
1108	13695063.88	2037685.94	COMPACTED BASE DRIVE
1109	13695082.34	2037638.12	COMPACTED BASE DRIVE
1110	13695084.45	2037603.73	COMPACTED BASE DRIVE

POINTS			
POINT #	NORTHING	EASTING	DESCRIPTION
1111	13695038.52	2037420.57	COMPACTED BASE DRIVE
1112	13695024.05	2037401.67	COMPACTED BASE DRIVE
1113	13694944.50	2037357.23	COMPACTED BASE DRIVE
1114	13694929.61	2037336.34	COMPACTED BASE DRIVE
1115	13694839.91	2037381.76	DRIVE RADIUS POINT
1116	13694920.68	2037551.14	DRIVE RADIUS POINT
1117	13694927.41	2037580.35	DRIVE RADIUS POINT
1118	13695009.58	2037494.29	DRIVE RADIUS POINT
1119	13695029.16	2037617.59	DRIVE RADIUS POINT
1120	13695018.39	2037664.92	DRIVE RADIUS POINT
1121	13695091.87	2037696.74	DRIVE RADIUS POINT
1122	13695009.42	2037427.86	DRIVE RADIUS POINT
1123	13694959.14	2037331.04	DRIVE RADIUS POINT
1124	13694986.83	2037612.40	CONCRETE PAVEMENT/6" CURB
1125	13694959.85	2037639.49	CONCRETE PAVEMENT/6" CURB
1126	13695017.65	2037786.74	CONCRETE PAVEMENT
1127	13694990.11	2037764.36	CONCRETE PAVEMENT/6" CURB
1128	13695143.66	2037864.26	MAN GATE
1129	13695142.57	2037867.05	MAN GATE
1130	13694688.70	2036943.71	GUARD RAIL
1131	13695143.10	2037865.71	3' MAN GATE
1132	13694756.07	2036980.58	GUARD RAIL
1133	13694923.14	2037256.44	GUARD RAIL
1134	13694931.54	2037276.57	GUARD RAIL
1135	13694942.03	2037318.40	GUARD RAIL
1136	13694957.34	2037338.39	GUARD RAIL
1137	13695010.60	2037368.15	GUARD RAIL
1138	13695040.62	2037407.35	GUARD RAIL
1139	13695089.54	2037602.45	GUARD RAIL
1140	13695090.66	2037627.24	GUARD RAIL
1141	13695077.43	2037711.58	GUARD RAIL
1142	13695079.18	2037727.95	GUARD RAIL
1143	13694969.62	2037737.49	GUARD RAIL
1144	13694984.50	2037487.79	GUARD RAIL
1145	13695006.80	2037576.75	GUARD RAIL
1146	13694926.78	2037660.18	GUARD RAIL
1147	13694916.35	2037658.02	GUARD RAIL
1148	13695112.56	2037640.98	RETAINING WALL
1149	13695066.80	2037809.06	RETAINING WALL
1150	13695056.97	2037813.77	RETAINING WALL

POINTS			
POINT #	NORTHING	EASTING	DESCRIPTION
2001	13695147.89	2037856.22	CONCRETE HEADWALL
2002	13695094.44	2037835.10	4'x4' JUNCTION BOX
2003	13694979.11	2037839.49	4'x4' JUNCTION BOX
2004	13694962.70	2037824.47	4'x4' JUNCTION BOX
2005	13694917.34	2037780.30	4'x4' JUNCTION BOX
2006	13694871.95	2037736.09	4'x4' JUNCTION BOX
2007	13695038.03	2037336.77	WALL INLET
2008	13694900.05	2037707.13	4'x4' JUNCTION BOX
2009	13695038.16	2037423.23	4'x4' JUNCTION BOX
2010	13694858.09	2037333.08	5'x5' JUNCTION BOX
2011	13694947.07	2037310.77	4'x4' 4-WAY INLET
2012	13694808.65	2037698.22	4'x4' JUNCTION BOX
2013	13695098.13	2037659.00	4'x4' JUNCTION BOX
2014	13694679.51	2037617.59	3'x3' JUNCTION BOX
2015	13694644.20	2037545.69	3'x3' JUNCTION BOX
2016	13694695.71	2037441.46	3'x3' GRATE INLET
2017	13694731.18	2037034.08	3'x3' GRATE INLET
2021	13695107.93	2037742.11	WALL INLET
2022	13695045.62	2037620.26	WALL INLET
2023	13695144.22	2037708.89	4'x4' JUNCTION BOX

POINTS			
POINT #	NORTHING	EASTING	DESCRIPTION
3001	13694913.12	2037171.06	DROP MANHOLE
3002	13694864.45	2037200.44	DROP MANHOLE
3003	13694821.65	2037226.27	DROP MANHOLE

NO.	REVISION	DATE

STATE OF TEXAS
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96532
LICENSED
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Jason T. Diamond
7-16-24

PAPE-DAWSON ENGINEERS
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TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

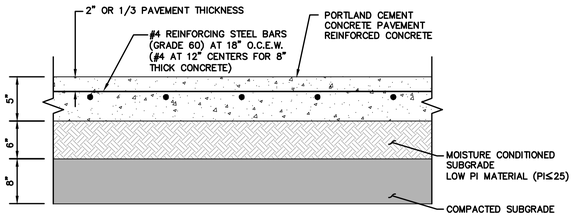
LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS

DIMENSIONAL CONTROL POINT TABLES

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C4.10

Date: Jul 16, 2024, 10:54am User ID: dloughlin
File: P:\6445\76\Design\Civil\Sheets\site work construction sheets\DC-SWC-644576.dwg

PRELIMINARY

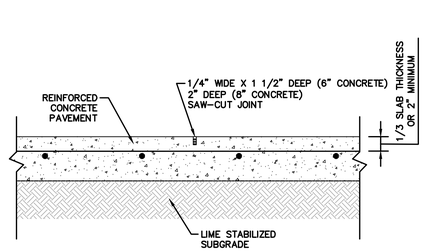


PAVEMENT MATERIALS	DRIVE AREA (IN.)
PORTLAND CEMENT CONCRETE (IN.)	5
MOISTURE CONDITIONED SUBGRADE	6

C4.20 A — CONCRETE PAVEMENT SECTION

N.T.S.

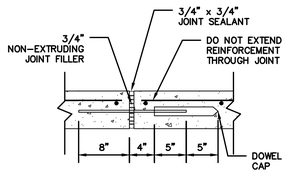
REFERENCE GEOTECHNICAL ENGINEERING REPORT PREPARED BY INTERTEK PSI, PROJECT NO. 0312-3095, DATED JULY 1, 2024 LADERA WATER PRODUCTION FACILITY, MILBROOK WAY AND JANDRO GROV, BEXAR COUNTY, TEXAS.



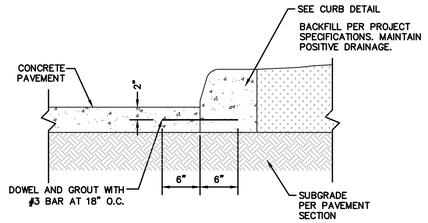
NOTES:
1. SAWED CONTROL JOINTS SHALL BE CUT PER THE GEOTECHNICAL REPORT OTHERWISE IN A 12'-6" X 12'-6" GRID PATTERN.
2. THE SAW CUTS SHOULD BE PLANNED BASED ON FEATURES SUCH AS INLETS, MANHOLES, VALVES, ETC. THE SAW CUTS ARE RECOMMENDED TO BE MADE THE SAME DAY.

C4.20 B — SAWCUT CONTROL JOINT DETAIL

N.T.S.



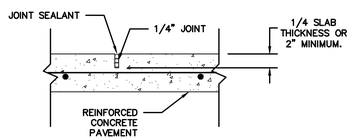
NOTE: IN THIS LOCALE, DRYING SHRINKAGE OF CONCRETE TYPICALLY SIGNIFICANTLY EXCEEDS ANTICIPATED EXPANSION DUE TO THERMAL EFFECTS. AS A RESULT, THE NEED FOR EXPANSION JOINTS IS ELIMINATED PROVIDED ALL JOINTS (INCLUDING SAWCUTS) ARE SEALED. CONSTRUCTION OF AN UNNECESSARY JOINT MAY ALSO BECOME A MAINTENANCE PROBLEM. ALL JOINTS SHOULD BE SEALED. IF ALL JOINTS, INCLUDING SAWCUTS, ARE NOT SEALED THEN EXPANSION JOINTS SHOULD BE INSTALLED



C4.20 G — CONCRETE CURB TO CONCRETE PAVEMENT DETAIL

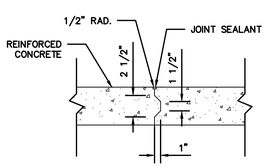
N.T.S.

EXPANSION JOINT



NOTE: CONTRACTION JOINT MAY BE SAWED, HAND FORMED, OR CREATED BY USE OF PREMOLDED JOINT FILLER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT CONCRETE PAVEMENT MEETS ALL FINISHING REQUIREMENTS AFTER INSTALLATION OF CONTRACTION JOINT.

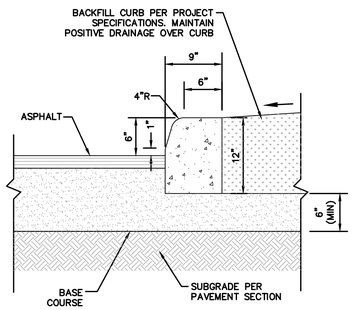
CONTRACTION JOINT



LONGITUDINAL JOINT

C4.20 E — CONCRETE JOINT DETAILS

N.T.S.



C4.20 H — 6" CONCRETE CURB

N.T.S.

PRELIMINARY

NO.	REVISION	DATE

STATE OF TEXAS
JASON T. DIAMOND
96532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS
CIVIL DETAILS SHEET 1

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C4.20

Date: Jul 16, 2024, 10:54am User ID: dloughlin
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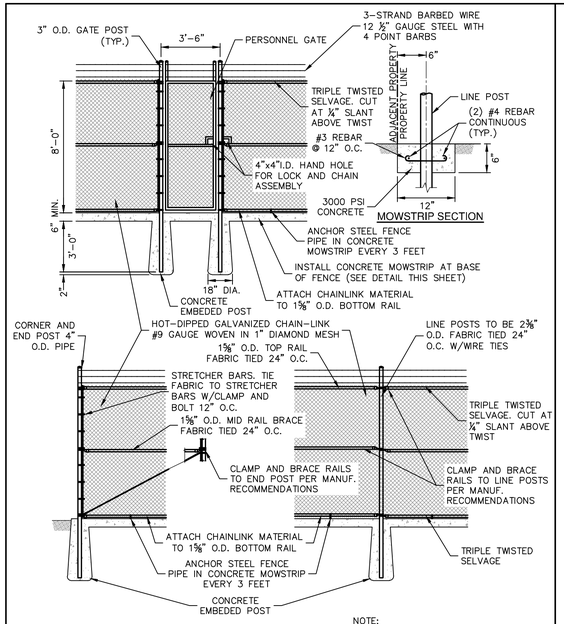
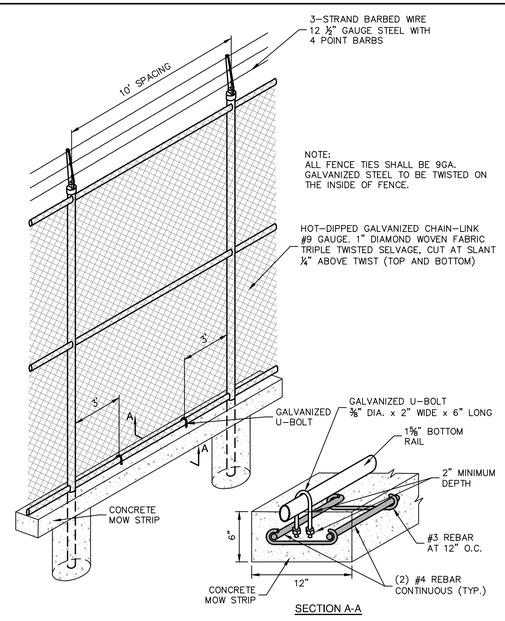
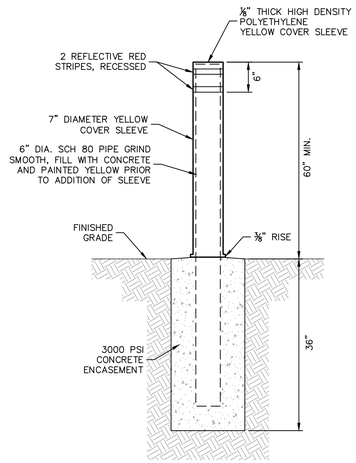


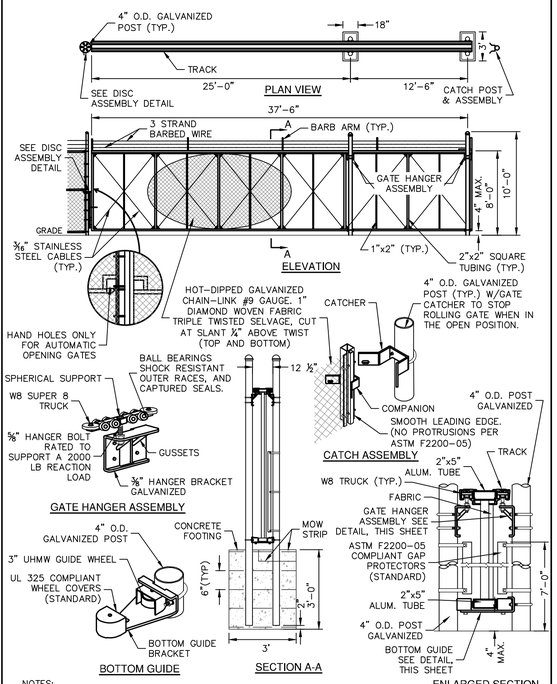
FENCE DETAILS
NTS



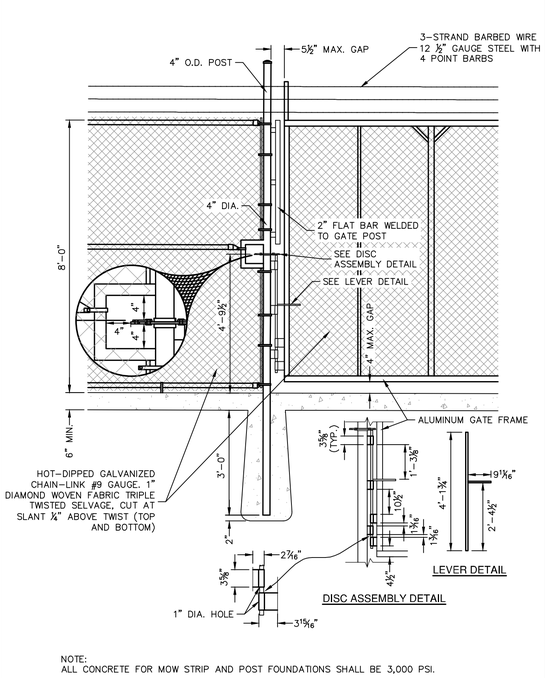
FENCE DETAILS
NTS



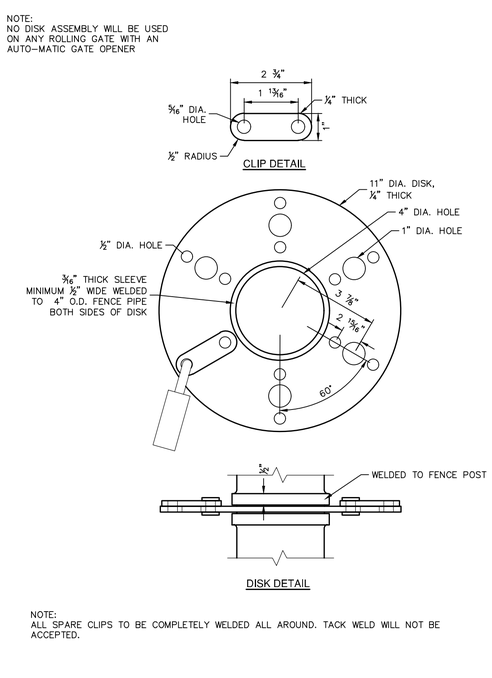
PIPE BOLLARD DETAIL
NTS



HEAVY DUTY CANTILEVER SLIDE GATE
NTS



HEAVY DUTY CANTILEVER SLIDE GATE
NTS



HEAVY DUTY CANTILEVER SLIDE GATE-DISK DETAIL
NTS

NO.	REVISION	DATE

STATE OF TEXAS
JASON T. DIAMOND
96532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS
CIVIL DETAILS SHEET 2

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C4.21

Date: Jul 16, 2024, 10:54am User ID: alaughlin
File: P:\6445\Y06\Design\Civil\Streets\Site work construction sheets\SP-SWG-6445Y6-DT.dwg

PRELIMINARY

SCALE: 1"= 40'

0' 40' 80' 120'

LEGEND

- PROPERTY LINE
- EXISTING FENCE
- EXISTING EASEMENT
- EXISTING CONTOUR MAJOR
- EXISTING CONTOUR MINOR
- PROPOSED CONTOUR MAJOR
- PROPOSED CONTOUR MINOR
- EXISTING OVERHEAD ELECTRIC
- PROPOSED UNDERGROUND ELECTRIC
- CHAIN–LINK SECURITY FENCE
- VEHICULAR GUARD RAIL
- 6" CURB
- STORM DRAIN
- SANITARY SEWER
- PROPOSED CONCRETE PAVEMENT
- COMPACTED BASE

C5.01 C5.02 C5.03 C5.04

CONCRETE HEADWALL
4'x4' JUNCTION BOX
STORM DRAIN B
STORM DRAIN A
STORM DRAIN C
STORM DRAIN D
STORM DRAIN E
5'x5' JUNCTION BOX
10' CURB INLET
FUTURE WELL #1
FUTURE WELL #2
PILOT TEST WELL (SEALED & CAPPED)
4'x4' 4–WAY INLET
PROPOSED SANITARY SEWER
3'x3' GRATE INLET
3'x3' JUNCTION BOX
MILLBROOK WAY
JANDRO GROVE
LADERA HILLS
CALEB MILL
BLK 58 CB 4347

CAUTION!!

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TRENCH EXCAVATION SAFETY PROTECTION

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NO.	REVISION	DATE

STATE OF TEXAS
JASON T. DIAMOND
98532
LICENSED
PROFESSIONAL ENGINEER

Jason T. Diamond
7-16-24

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LADERA WATER PRODUCTION FACILITY

SITE GRADING / RETAINING WALLS

SAN ANTONIO, TEXAS

OVERALL GRADING PLAN

PLAT NO. ---
JOB NO. 6445–76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C5.00

Date: Jul 16, 2024, 10:55am User ID: claughlin
File: P:\64\45\76\Design\Civil\Sheets\site work construction sheets\GP-SWC-644576.dwg

PRELIMINARY

SCALE: 1" = 20'

0' 20' 40' 60'

LEGEND

- PROPERTY LINE
- EXISTING FENCE
- EXISTING EASEMENT
- EXISTING CONTOUR MAJOR
- EXISTING CONTOUR MINOR
- PROPOSED CONTOUR MAJOR
- PROPOSED CONTOUR MINOR
- EXISTING OVERHEAD ELECTRIC
- CHAIN-LINK SECURITY FENCE
- VEHICULAR GUARD RAIL
- 6" CURB
- COMPACTED BASE
- PROPOSED CONCRETE PAVEMENT
- TREE SAVE AREA
- PROPOSED SPOT ELEVATION
- FLOW ARROW

WALL NOTE:

SUBMIT DETAILED DESIGN DRAWINGS FOR WALL, SHOWING COMPLIANCE WITH GEOTECHNICAL ENGINEER RECOMMENDATIONS AND ELEVATIONS PROVIDED ON THIS SHEET. DRAWINGS MUST BE SIGNED AND SEALED BY A LICENSED ENGINEER FROM THE STATE OF TEXAS.

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NO.	REVISION	DATE

STATE OF TEXAS
JASON T. DIAMOND
96532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS

GRADING PLAN SHEET 1

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C5.01

Date: Jul 16, 2024, 10:56am User ID: dlaughlin
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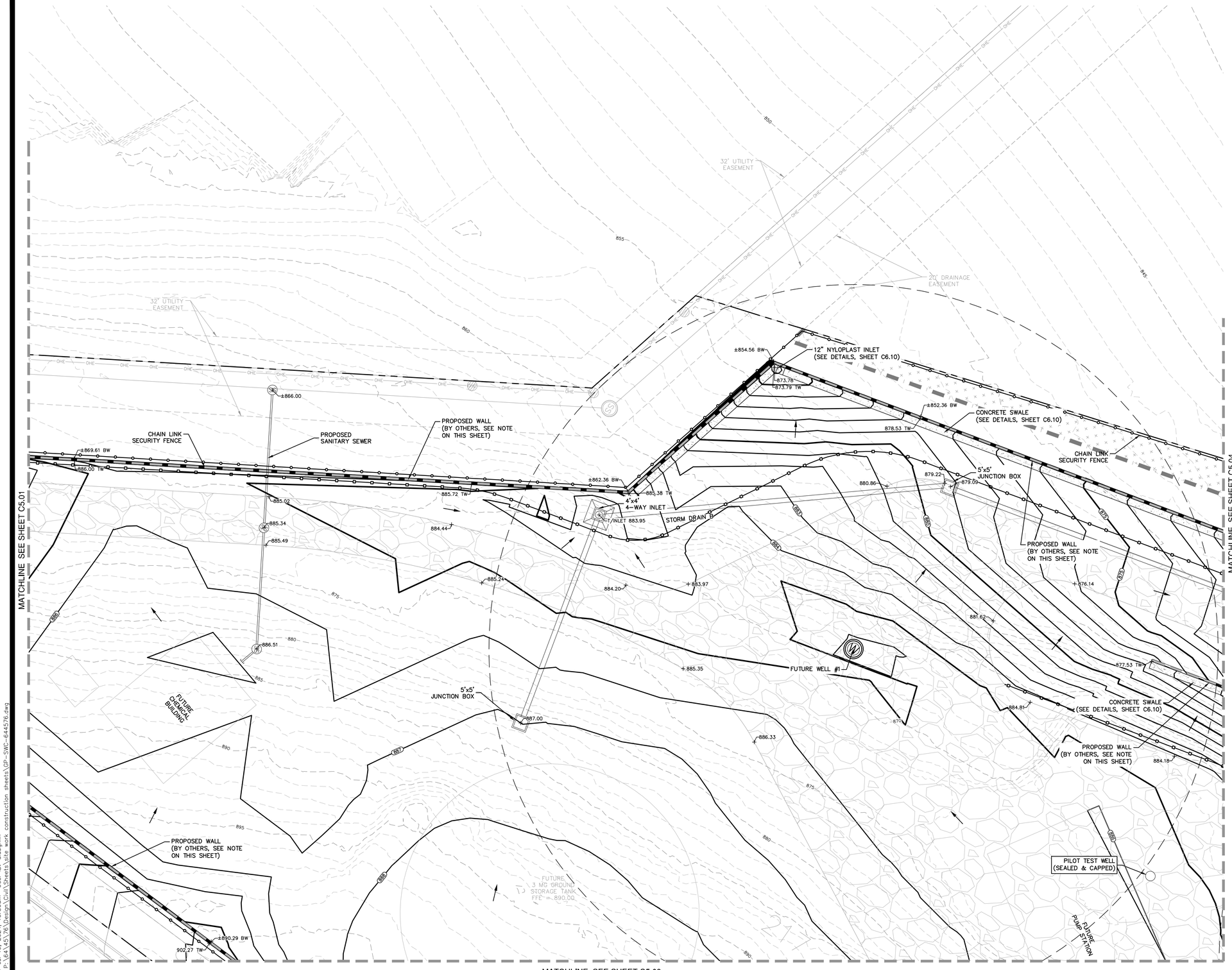
PRELIMINARY



SCALE: 1" = 20'

0' 20' 40' 60'

LEGEND

- PROPERTY LINE
- EXISTING FENCE
- EXISTING EASEMENT
- EXISTING CONTOUR MAJOR
- EXISTING CONTOUR MINOR
- PROPOSED CONTOUR MAJOR
- PROPOSED CONTOUR MINOR
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NO.	REVISION	DATE

STATE OF TEXAS
JASON T. DIAMOND
96532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS
GRADING PLAN SHEET 2

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C5.02

Date: Jul 16, 2024, 10:56am User ID: alaughlin
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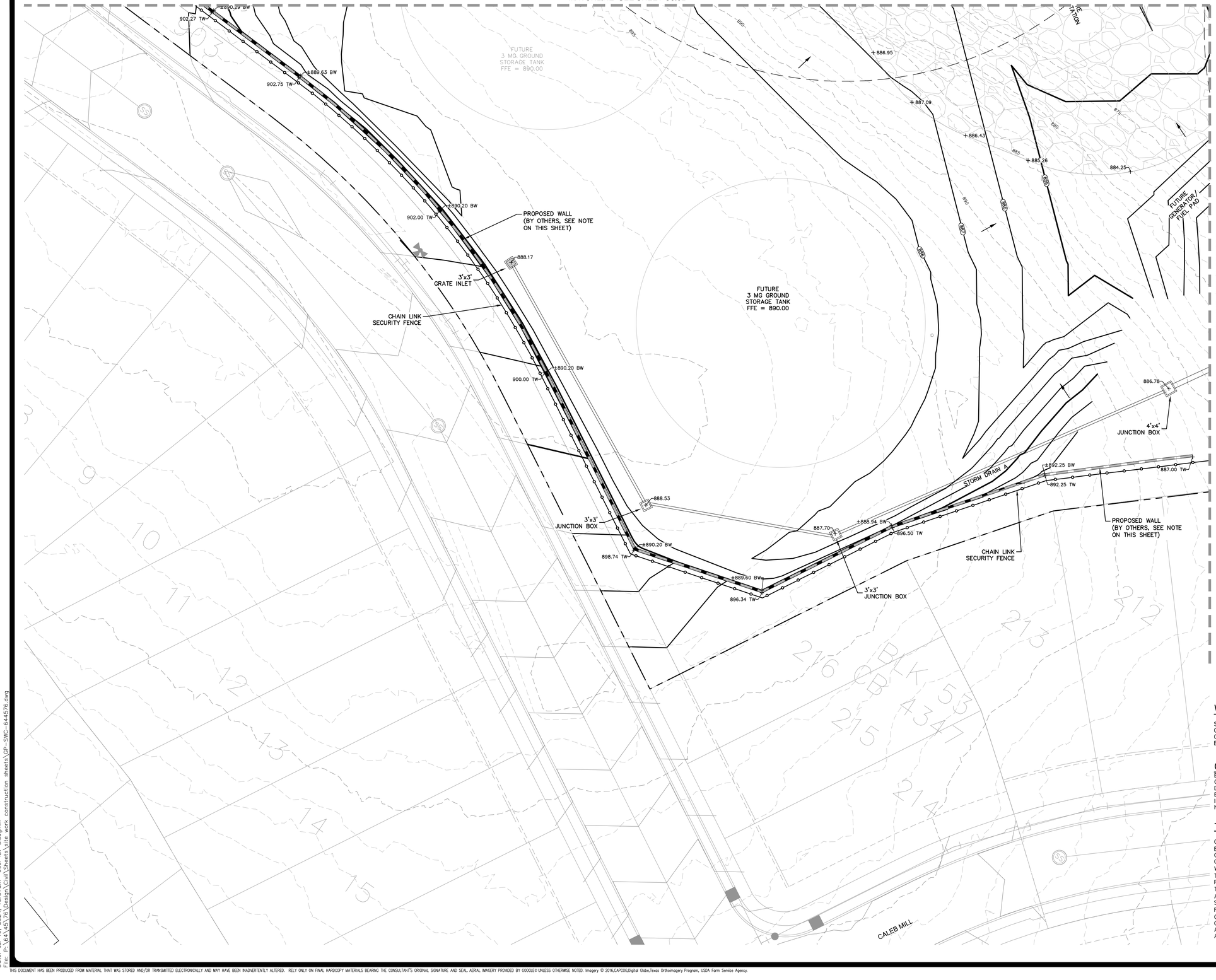
PRELIMINARY

MATCHLINE SEE SHEET C5.02



SCALE: 1" = 20'

0' 20' 40' 60'

LEGEND

- PROPERTY LINE
- EXISTING FENCE
- EXISTING EASEMENT
- EXISTING CONTOUR MAJOR
- EXISTING CONTOUR MINOR
- PROPOSED CONTOUR MAJOR
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NO.	REVISION	DATE

STATE OF TEXAS
JASON T. DIAMOND
96532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

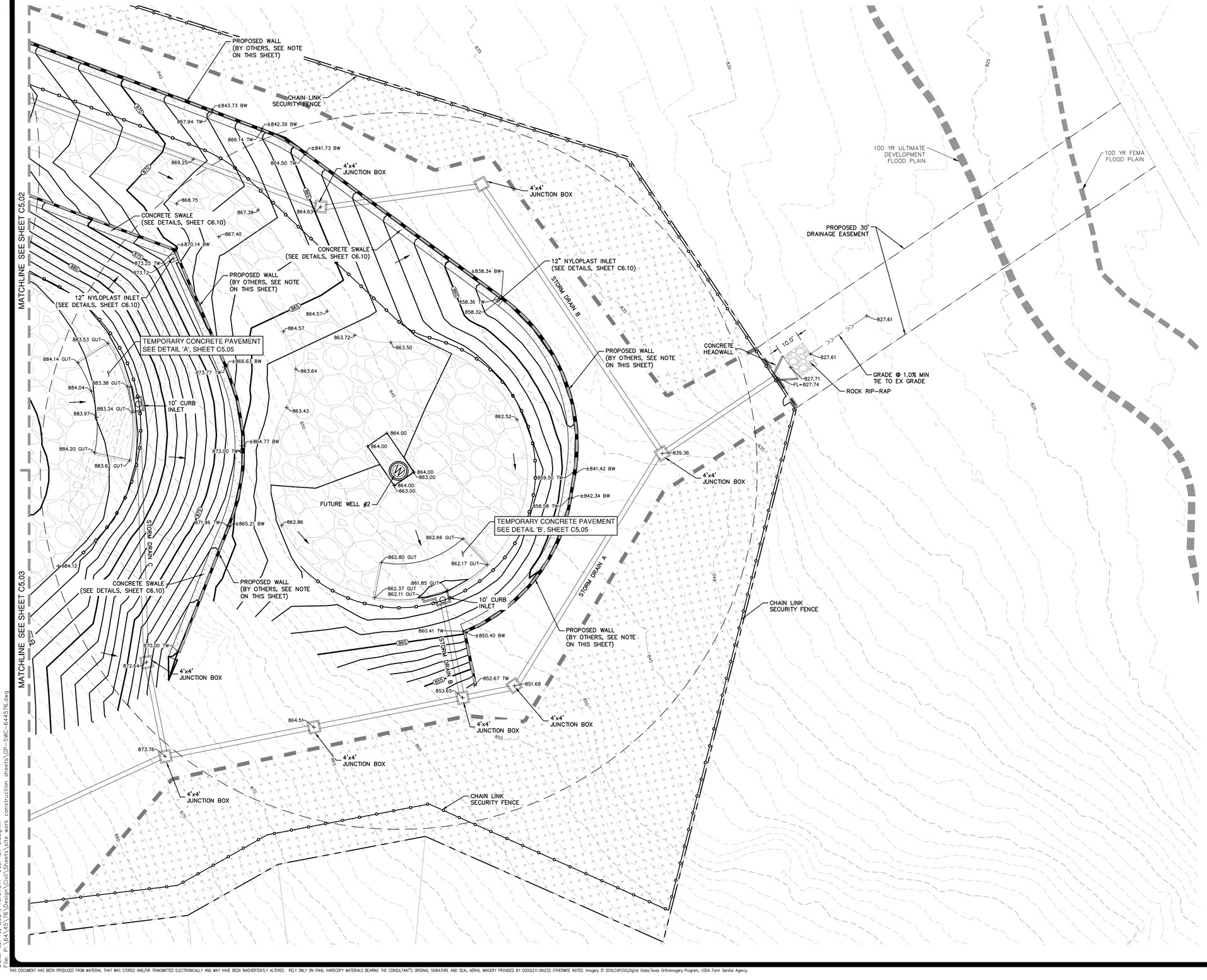
LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS

GRADING PLAN SHEET 3

PLAT NO. ---
JOB NO. 6445–76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C5.03

Date: Jul 16, 2024, 10:57am User ID: claughlin
File: P:\6445\06\Design\Civil\Streets\site work construction sheets\GP-SWC-644576.dwg

PRELIMINARY



SCALE: 1" = 20'

0' 20' 40' 60'

LEGEND

- PROPERTY LINE
- EXISTING FENCE
- EXISTING EASEMENT
- EXISTING CONTOUR MAJOR
- EXISTING CONTOUR MINOR
- PROPOSED CONTOUR MAJOR
- PROPOSED CONTOUR MINOR
- EXISTING OVERHEAD ELECTRIC
- CHAIN-LINK SECURITY FENCE
- VEHICULAR GUARD RAIL
- 6" CURB
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STATE OF TEXAS
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96532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

PAPE-DAWSON ENGINEERS
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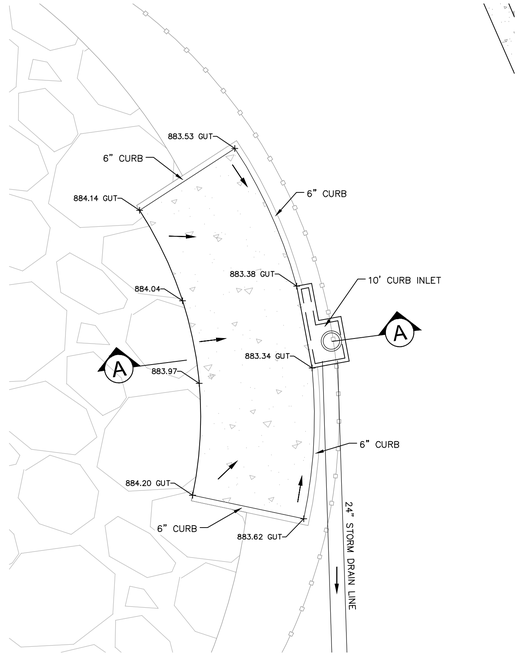
LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS

GRADING PLAN SHEET 4

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C5.04

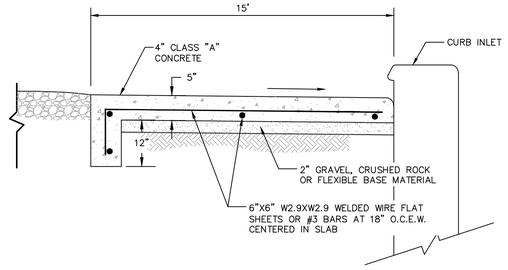
PRELIMINARY

Date: Jul 16, 2024, 10:57am User ID: claughlin
File: P:\6445\76\Design\Civil\Sheets\site work construction sheets\GP-SWC-644576.dwg

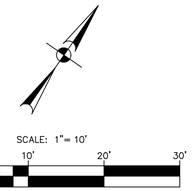


DETAIL 'A'
TEMPORARY CONCRETE
PAVEMENT @ CURB INLET
SCALE: 1"=10'

DETAIL 'B'
TEMPORARY CONCRETE
PAVEMENT @ CURB INLET
SCALE: 1"=10'



SECTION "A - A"
NOT-TO-SCALE



LEGEND

- PROPERTY LINE
- EXISTING FENCE
- EXISTING EASEMENT
- EXISTING OVERHEAD ELECTRIC
- CHAIN-LINK SECURITY FENCE
- VEHICULAR GUARD RAIL
- 6" CURB
- COMPACTED BASE
- PROPOSED CONCRETE PAVEMENT
- 745.00 PROPOSED SPOT ELEVATION
- FLOW ARROW

CAUTION!!

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TRENCH EXCAVATION SAFETY PROTECTION

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PRELIMINARY

NO.	REVISION	DATE

STATE OF TEXAS
JASON T. DIAMOND
96532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS
TEMPORARY CONCRETE PAVEMENT DETAIL

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C5.05

Date: Jul 16, 2024, 10:59am User ID: claughlin
File: P:\6445\76\Design\Civil\Sheets\site work construction sheets\CP-SWC-644576-DT.dwg

SCALE: 1"= 50'

0' 50' 100' 150'

LEGEND

- PROPERTY LINE
- EXISTING EASEMENT
- 730 EXISTING CONTOUR MAJOR
- EXISTING CONTOUR MINOR
- 730 PROPOSED CONTOUR MAJOR
- PROPOSED CONTOUR MINOR
- OHE OHE EXISTING OVERHEAD ELECTRIC
- CHAIN-LINK SECURITY FENCE
- 6" CURB
- PROPOSED DRAINAGE PIPING
- PROPOSED SANITARY SEWER
- EXISTING SANITARY SEWER
- TREE SAVE AREA
- PROPOSED CONCRETE PAVEMENT
- COMPACTED BASE

LADERA SCHOOL
LOT 1
BLOCK 59
COUNTY BLOCK 4347
(VOL 9727,
PG 129-130 DPR)

UNPLATTED
REMAINDER OF
622.489 ACRES
OWNER: LADERA I, LLC
(VOL 14342,
PG 1814-1825, OPR)

JUANA MARTINEZ
SURVEY No. 14 1/2
ABSTRACT 1114
COUNTY BLOCK 4016

UNPLATTED
REMAINDER OF
622.489 ACRES
OWNER: LADERA I, LLC
(VOL 14342,
PG 1814-1825, OPR)

100 YR FEMA FLOOD PLAIN

100 YR ULTIMATE DEVELOPMENT FLOOD PLAIN

30' DRAINAGE EASEMENT

20' DRAINAGE EASEMENT

32' UTILITY EASEMENT

CONCRETE HEADWALL

4'x4' JUNCTION BOX

STORM DRAIN B

PROPOSED WELL #2 (SEPARATE CONTRACT)

5'x5' JUNCTION BOX

STORM DRAIN A

10' CURB INLET

STORM DRAIN D

PROPOSED WELL #1 (SEPARATE CONTRACT)

PILOT TEST WELL (SEALED & CAPPED)

4'x4' 4-WAY INLET

STORM DRAIN C

SANITARY SEWER LINE A

STORM DRAIN E

3'x3' GRATE INLET

MILLBROOK WAY

3'x3' JUNCTION BOX

LADERA HILLS

JANDRO GROVE

CALEB MILL

BLK 65 CB 4347

BLK 58 CB 4347

BLK 53 CB 4347

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NO.	REVISION	DATE

STATE OF TEXAS
JASON T. DIAMOND
96532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

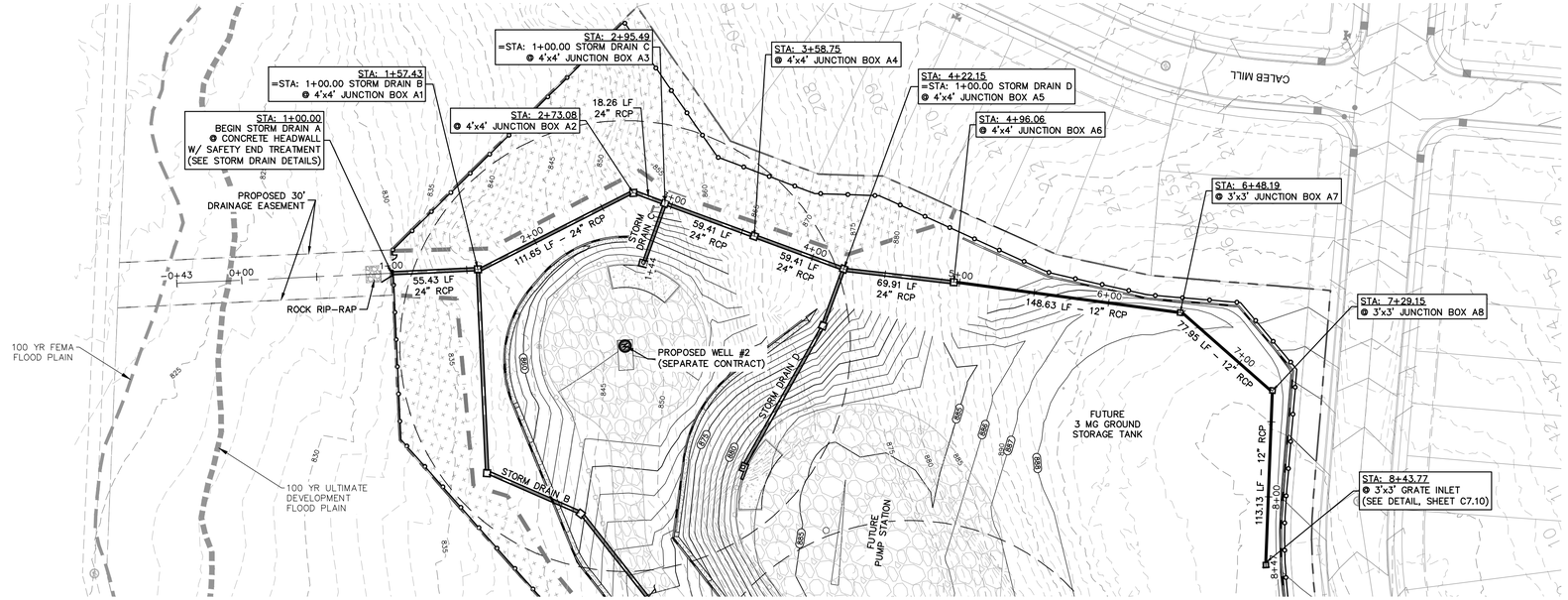
LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS

OVERALL STORM DRAINAGE PLAN

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C6.00

Date: Jul 16, 2024, 11:00am User ID: claughlin
File: P:\6445\76\Design\Civil\Sheets\site work construction sheets\SD-SWC-644576-OA.dwg

PRELIMINARY



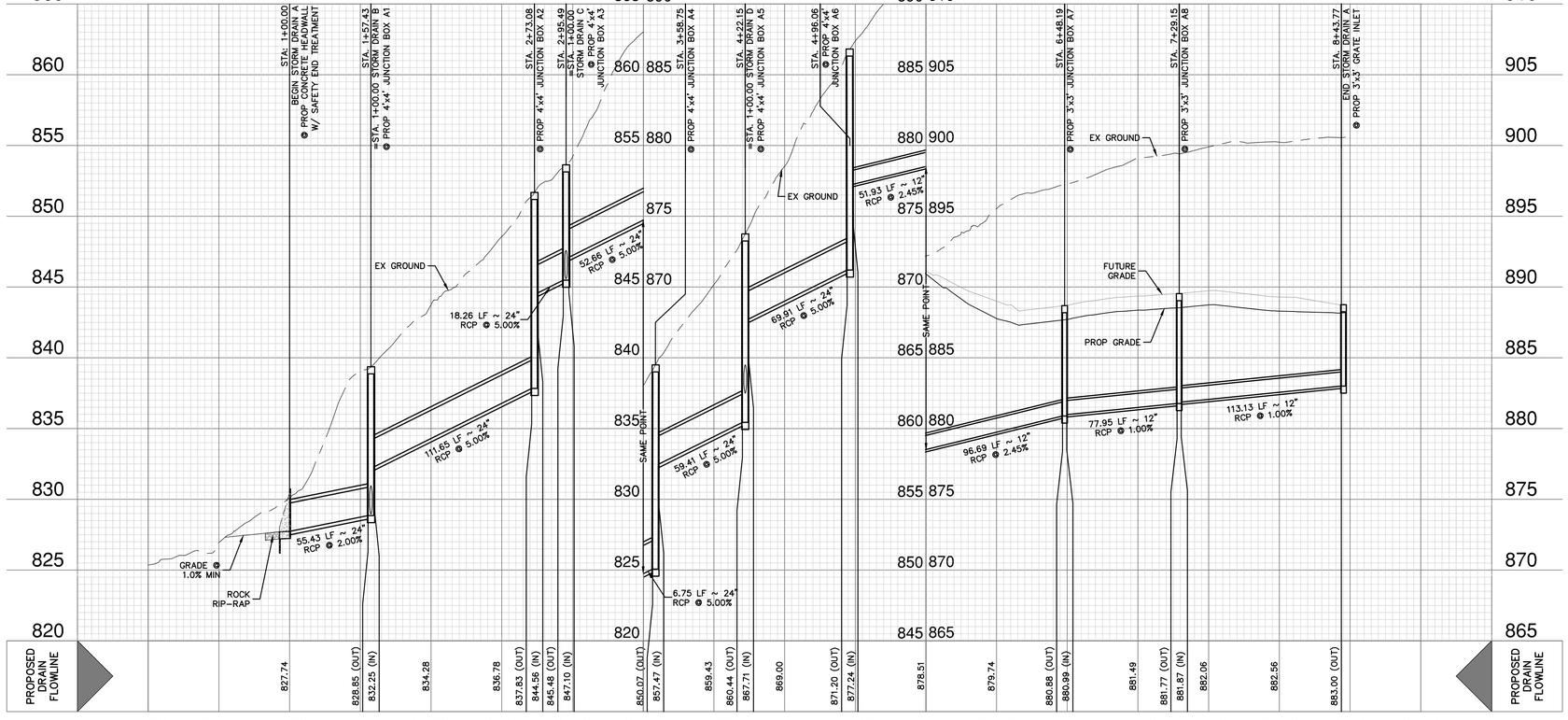
SCALE: 1"= 50'

0' 50' 100' 150'

LEGEND

- PROPERTY LINE
- EXISTING EASEMENT
- 730 EXISTING CONTOUR MAJOR
- EXISTING CONTOUR MINOR
- 730 PROPOSED CONTOUR MAJOR
- PROPOSED CONTOUR MINOR
- OHE OHE EXISTING OVERHEAD ELECTRIC
- E E PROPOSED UNDERGROUND ELECTRIC
- CHAIN-LINK SECURITY FENCE
- 6" CURB
- PROPOSED DRAINAGE PIPING
- PROPOSED PIPING
- FUTURE PIPING
- TREE SAVE AREA
- PROPOSED CONCRETE PAVEMENT
- COMPACTED BASE

STORM DRAIN LINE A



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

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NO. | REVISION | DATE

STATE OF TEXAS
JASON T. DIAMOND
96532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS

STORM DRAIN A PLAN & PROFILE

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C6.01

Date: Jul 16, 2024, 11:01am User ID: dlaughlin
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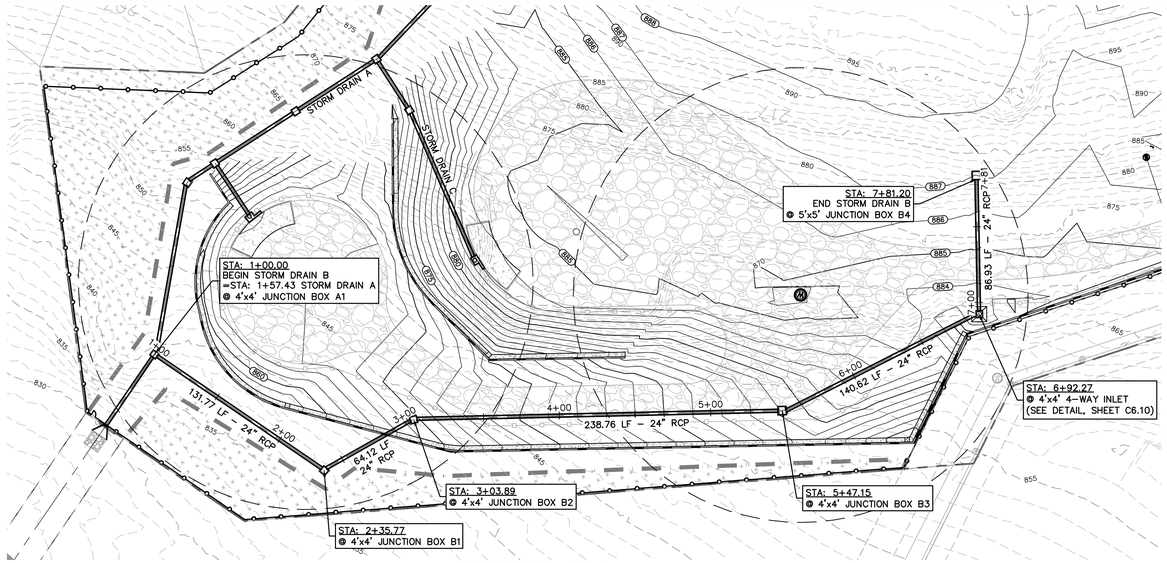
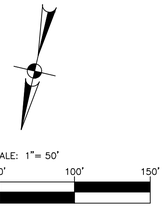
PRELIMINARY

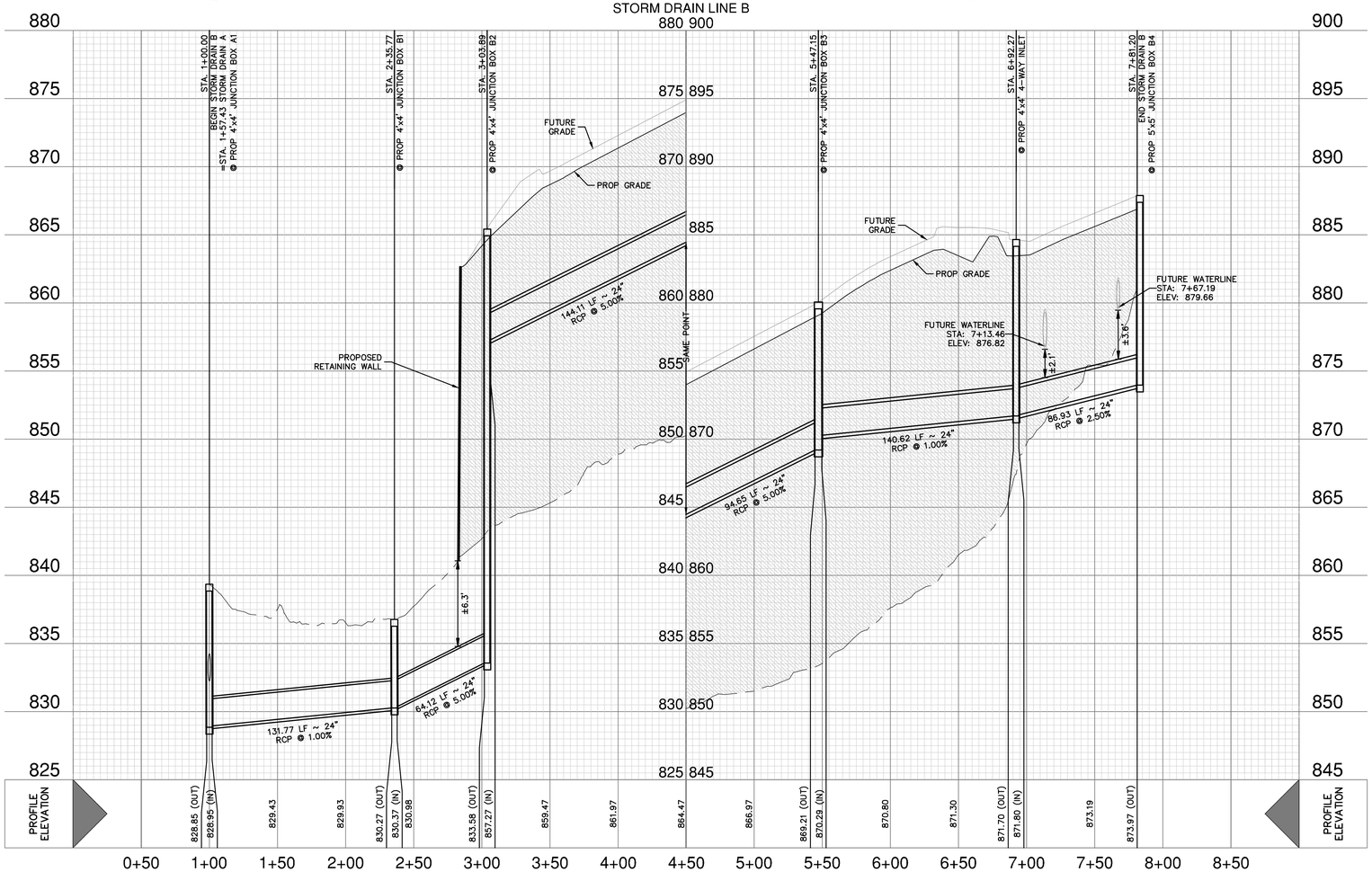




LEGEND

- PROPERTY LINE
- EXISTING EASEMENT
- EXISTING CONTOUR MAJOR
- EXISTING CONTOUR MINOR
- PROPOSED CONTOUR MAJOR
- PROPOSED CONTOUR MINOR
- EXISTING OVERHEAD ELECTRIC
- PROPOSED UNDERGROUND ELECTRIC
- CHAIN-LINK SECURITY FENCE
- 6" CURB
- PROPOSED DRAINAGE PIPING
- PROPOSED PIPING
- FUTURE PIPING
- TREE SAVE AREA
- PROPOSED CONCRETE PAVEMENT
- COMPACTED BASE

STORM DRAIN LINE B



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

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PRELIMINARY

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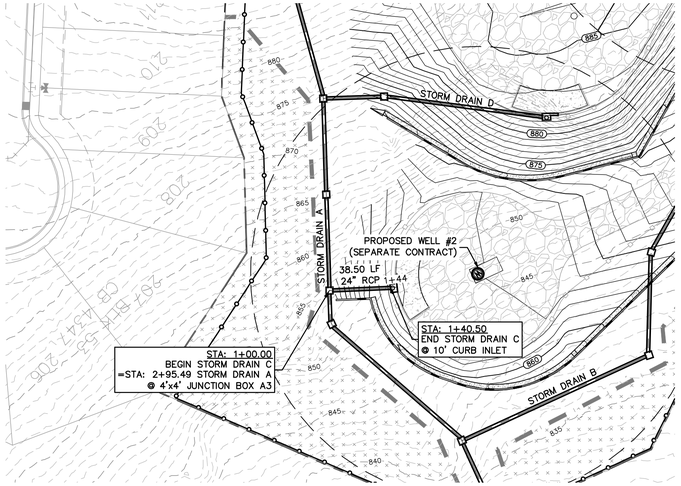
STATE OF TEXAS
JASON T. DIAMOND
96532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

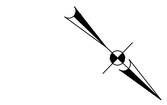
PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS

STORM DRAIN B PLAN & PROFILE

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C6.02





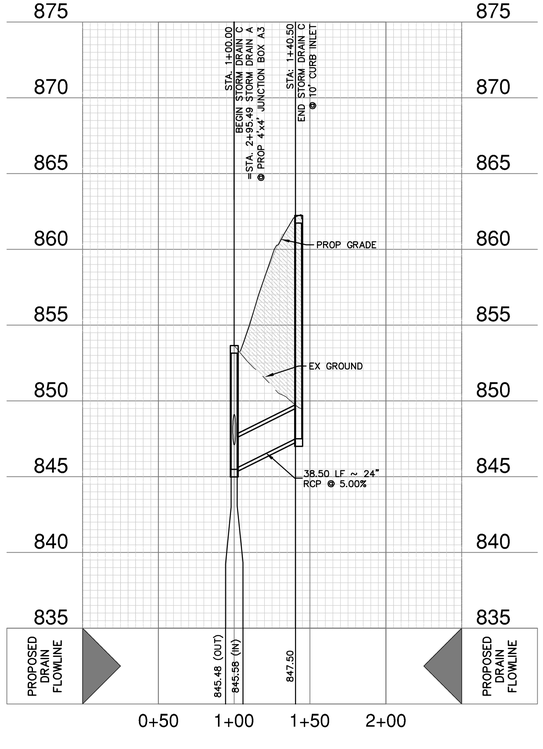
SCALE: 1"= 50'

0' 50' 100' 150'

LEGEND

- PROPERTY LINE
- EXISTING EASEMENT
- EXISTING CONTOUR MAJOR
- EXISTING CONTOUR MINOR
- PROPOSED CONTOUR MAJOR
- PROPOSED CONTOUR MINOR
- EXISTING OVERHEAD ELECTRIC
- PROPOSED UNDERGROUND ELECTRIC
- CHAIN-LINK SECURITY FENCE
- 6" CURB
- PROPOSED DRAINAGE PIPING
- PROPOSED PIPING
- FUTURE PIPING
- TREE SAVE AREA
- PROPOSED CONCRETE PAVEMENT
- COMPACTED BASE

STORM DRAIN LINE C



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

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STATE OF TEXAS
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96532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS

STORM DRAIN C PLAN & PROFILE

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C6.03

PRELIMINARY

Date: Jul 16, 2024, 11:02am User ID: dlaughlin
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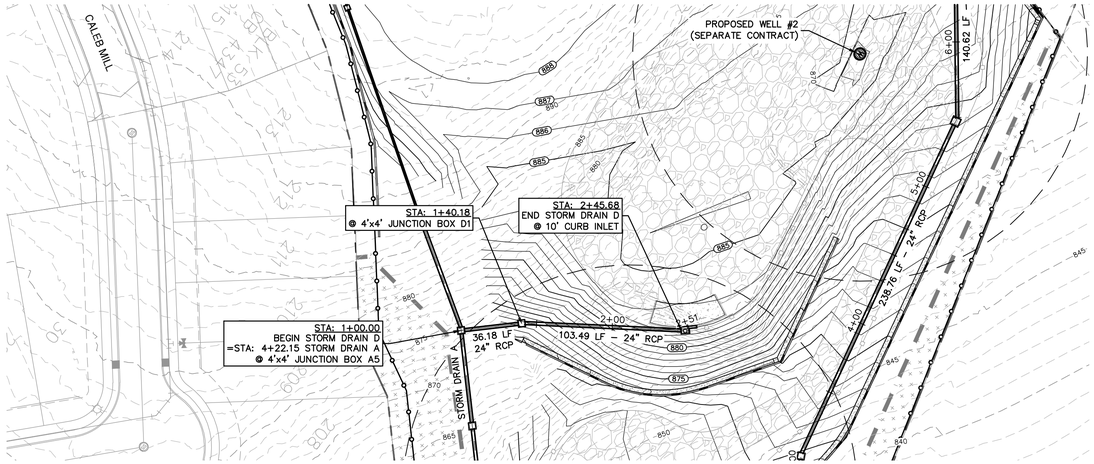

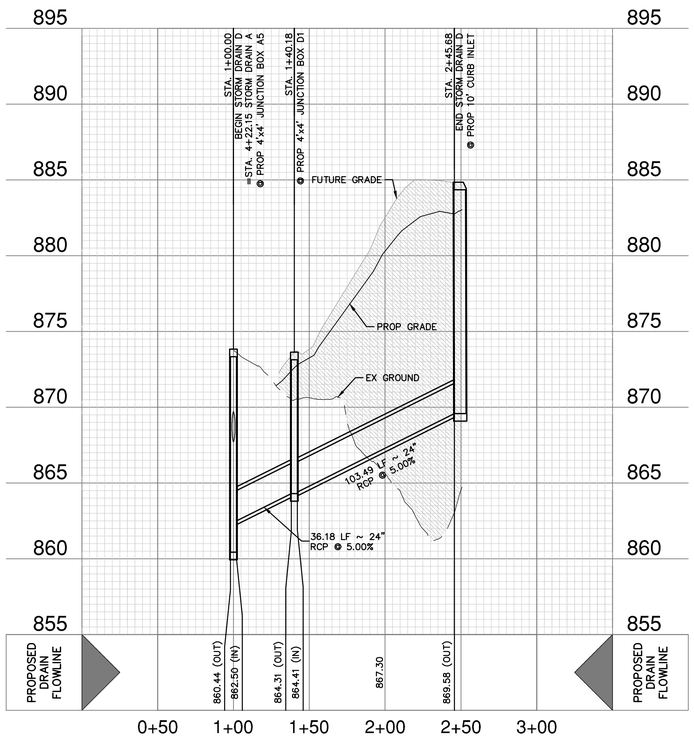

SCALE: 1"= 50'

0' 50' 100' 150'

LEGEND

- PROPERTY LINE
- EXISTING EASEMENT
- 730 EXISTING CONTOUR MAJOR
- EXISTING CONTOUR MINOR
- 730 PROPOSED CONTOUR MAJOR
- PROPOSED CONTOUR MINOR
- OHE OHE EXISTING OVERHEAD ELECTRIC
- E E PROPOSED UNDERGROUND ELECTRIC
- CHAIN-LINK SECURITY FENCE
- 6" CURB
- PROPOSED DRAINAGE PIPING
- PROPOSED PIPING
- FUTURE PIPING
- TREE SAVE AREA
- PROPOSED CONCRETE PAVEMENT
- COMPACTED BASE

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

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96532
LICENSED
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7-16-24

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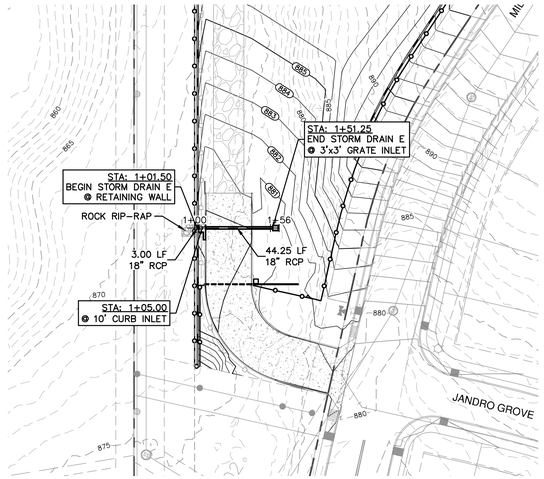
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS
STORM DRAIN D PLAN & PROFILE

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C6.04

PRELIMINARY



SCALE: 1"= 50'

0' 50' 100' 150'

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- PROPERTY LINE
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- PROPOSED DRAINAGE PIPING
- PROPOSED PIPING
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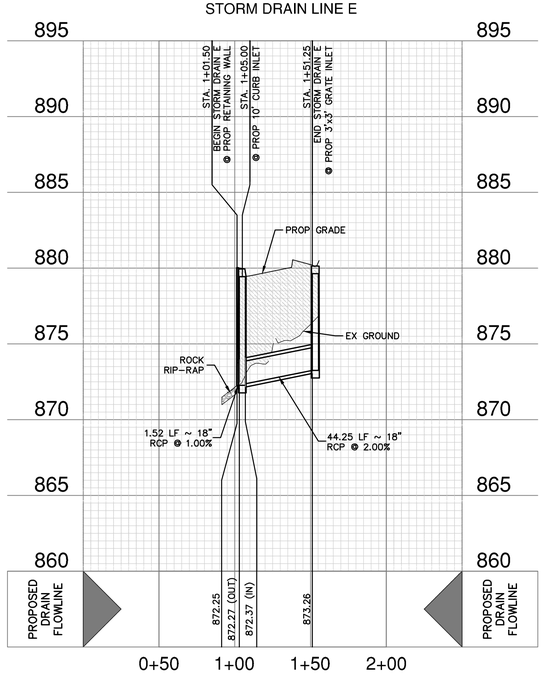
- PROPOSED CONCRETE PAVEMENT
- COMPACTED BASE

STORM DRAIN LINE E



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VERTICAL SCALE: 1" = 5'

CAUTION!!

EXISTING UTILITIES ARE LOCATED WITHIN THE LIMITS OF THE CONSTRUCTION OF THIS PROJECT. THE CONTRACTOR SHALL EXERCISE EXTRA CARE IN DIGGING ANY TRENCH FOR PROPOSED UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING, VERIFYING THE EXACT LOCATION AND IDENTIFYING ANY AREAS OF CONFLICTS WITH EXISTING UTILITIES AND WILL NOTIFY THE ENGINEER IMMEDIATELY IF CONFLICTS ARE FOUND.

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

PRELIMINARY

NO.	REVISION	DATE

STATE OF TEXAS
JASON T. DIAMOND
96532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS

STORM DRAIN E PLAN & PROFILE

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C6.05

Date: Jul 16, 2024, 11:03am User ID: aloughlin
File: P:\6445\06\Design\Civil\Streets\site work construction sheets\SD-SWR-644576-PP.dwg

ALL CONCRETE SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 4500 psi.

REINFORCING STEEL SHALL COMPLY WITH ASTM A615 GRADE 60, A706 GRADE 60 OR A497 GRADE 70. BAR BENDING AND PLACEMENT SHALL COMPLY WITH THE LATEST ACI STANDARDS

STANDARD STRUCTURAL DESIGN IS BASED ON AASHTO HS 20 WHEEL LOADING

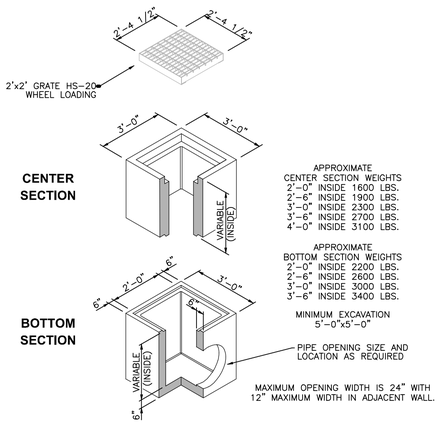
WATER TABLE IS AT 3'-0" BELOW GRADE FOR STANDARD STRUCTURAL DESIGN

THE STANDARD DESIGN IS BASED ON THE TOP AT GRADE AND THE BASE AT 8'-0" MAX. BELOW GRADE.

THE STRUCTURE SHALL BE PLACED ON A COMPACTED GRANULAR BASE TO INSURE UNIFORM DISTRIBUTION OF SOIL PRESSURES.

SPECIAL DESIGNS BASED ON OTHER LOADINGS OR DEEPER INSTALLATION DEPTHS ARE AVAILABLE ON REQUEST.

KNOCKOUTS OR PIPE OPENINGS OR CAN BE PROVIDED IN THE SIZE AND LOCATIONS REQUIRED.



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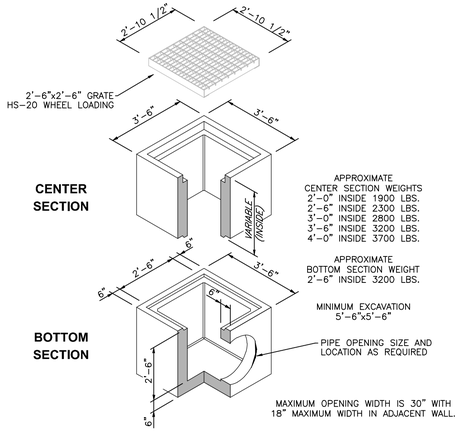

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WATER TABLE IS AT 3'-0" BELOW GRADE FOR STANDARD STRUCTURAL DESIGN

THE STANDARD DESIGN IS BASED ON THE TOP AT GRADE AND THE BASE AT 13'-0" MAX. BELOW GRADE.

THE STRUCTURE SHALL BE PLACED ON A COMPACTED GRANULAR BASE TO INSURE UNIFORM DISTRIBUTION OF SOIL PRESSURES.

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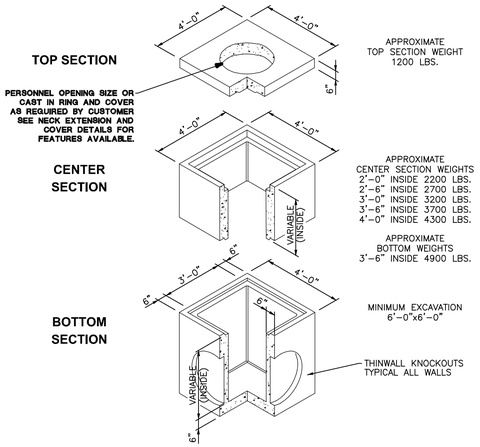
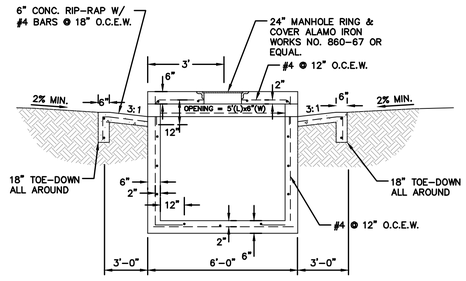
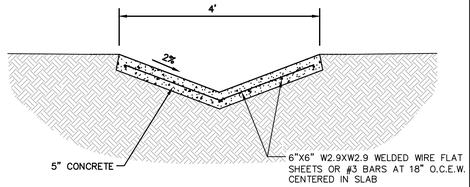
KNOCKOUTS OR PIPE OPENINGS CAN BE PROVIDED IN THE SIZE AND LOCATIONS REQUIRED.





TYPICAL 4-WAY INLET DETAIL

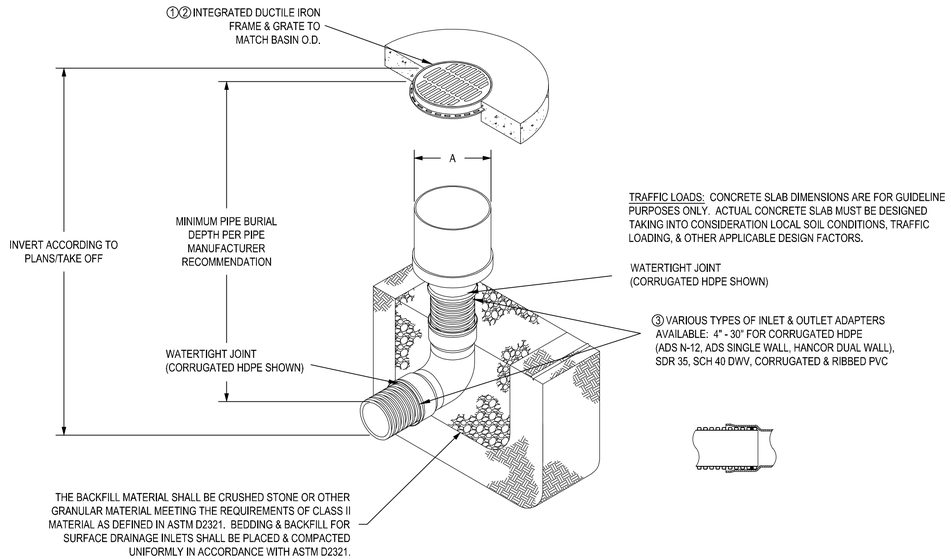
NOT-TO-SCALE



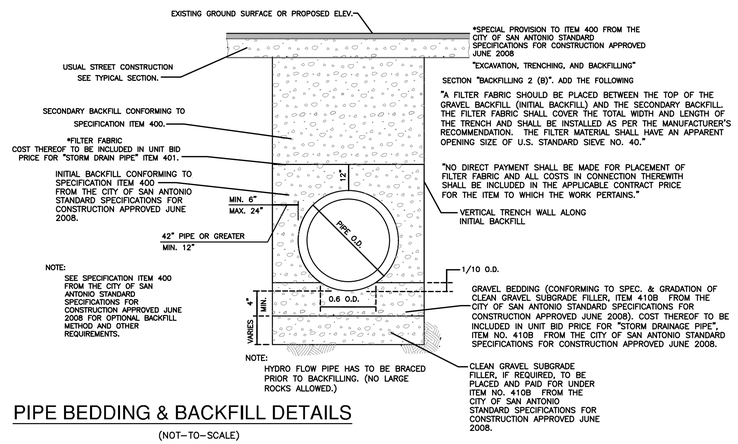
CONCRETE SWALE AT RETAINING WALL

NOT-TO-SCALE

NYLOPLAST INLINE DRAIN



① - 8" - 30" GRATES/SOLID COVERS SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05, WITH THE EXCEPTION OF THE 8" - 15" BRONZE GRATES
② - 12" - 30" FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
③ - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS & HANCOR DUAL WALL) & SDR 35 PVC
4 - GRATES SHALL MEET H-10 LOAD RATING FOR 12" - 24" PED
5 - GRATES SHALL MEET H-20 LOAD RATING FOR 30" PED & 12" - 30" STD & SOLID
6 - ALL BRONZE GRATES, DROP IN GRATES, & 8" & 10" PED/STD GRATES & SOLID COVERS ARE RATED FOR LIGHT DUTY APPLICATIONS ONLY
7 - DOME GRATES HAVE NO LOAD RATING



PIPE BEDDING & BACKFILL DETAILS

(NOT-TO-SCALE)

NO.	REVISION	DATE

STATE OF TEXAS
JASON T. DIAMOND
98532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

PAPE-DAWSON ENGINEERS
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LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS
STORM DRAIN DETAILS SHEET 1

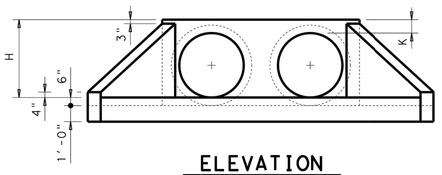
PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C6.10

Date: Jul 16, 2024, 11:03am User ID: dloughlin
File: P:\6445\VOL1\06\Design\Civil\Streets\site work construction sheets\SD-SWC-644576-DT.dwg

PRELIMINARY

TABLE OF VARIABLE DIMENSIONS AND QUANTITIES FOR ONE HEADWALL (4)

SLOPE	DIA OF PIPE, D	Values for one Pipe W	X	Y	L	Reinf (Lbs)	Conc (CY) (1)	Values to be added for each addt'l Pipe X and W	Reinf (Lbs)	Conc (CY) (1)
2:1	12"	4'- 7 ½"	2'- 6"	2'-10"	3'- 3 ¼"	84	0.6	1'- 9"	20	0.2
	15"	5'- 5 ¾"	2'- 9 ½"	3'- 4"	3'-10 ¼"	99	0.7	2'- 2"	24	0.3
	18"	6'- 4 ¼"	3'- 1"	3'-10"	4'- 5"	120	0.9	2'- 8"	32	0.3
	21"	7'- 2 ¾"	3'- 4 ½"	4'- 4"	5'- 0"	137	1.1	3'- 1"	43	0.4
	24"	8'- 2 ½"	3'- 9 ½"	4'-10"	5'- 7"	158	1.3	3'- 7"	50	0.5
	27"	9'- 1"	4'- 1"	5'- 4"	6'- 2"	173	1.5	3'-11"	56	0.6
	30"	9'-11 ½"	4'- 4 ½"	5'-10"	6'- 8 ¾"	197	1.7	4'- 4"	65	0.8
	33"	10'-10"	4'- 8"	6'- 4"	7'- 3 ¾"	216	2.0	4'- 8"	71	0.9
	36"	11'- 8 ¼"	4'-11 ½"	6'-10"	7'-10 ¾"	241	2.2	5'- 1"	81	1.0
	42"	13'- 5 ¼"	5'- 6 ½"	7'-10"	9'- 0 ½"	290	2.8	5'-10"	97	1.3
	48"	15'- 9"	6'- 1 ½"	9'- 4"	10'- 9 ¼"	350	3.8	6'- 7"	117	1.7
	54"	17'- 5 ¾"	6'- 8 ½"	10'- 4"	11'-11 ¼"	415	4.5	7'- 6"	151	2.1
	60"	19'- 2 ¾"	7'- 3 ½"	11'- 4"	13'- 1"	469	5.3	8'- 3"	174	2.5
	66"	20'-11 ½"	7'-10 ½"	12'- 4"	14'- 3"	530	6.2	8'- 9"	194	2.9
	72"	22'- 8 ½"	8'- 5 ½"	13'- 4"	15'- 4 ¾"	587	7.1	9'- 4"	213	3.3
3:1	12"	6'- 3"	2'- 6"	4'- 3"	4'-11"	114	0.8	1'- 9"	22	0.2
	15"	7'- 5"	2'- 9 ½"	5'- 0"	5'- 9 ¼"	133	1.1	2'- 2"	28	0.3
	18"	8'- 6 ¾"	3'- 1"	5'- 9"	6'- 7 ¾"	166	1.3	2'- 8"	37	0.5
	21"	9'- 8 ¾"	3'- 4 ½"	6'- 6"	7'- 6"	189	1.6	3'- 1"	48	0.6
	24"	11'- 0"	3'- 9 ½"	7'- 3"	8'- 4 ½"	221	2.0	3'- 7"	58	0.7
	27"	12'- 2"	4'- 1"	8'- 0"	9'- 2 ¾"	245	2.3	3'-11"	67	0.8
	30"	13'- 4"	4'- 4 ½"	8'- 9"	10'- 1 ¼"	287	2.7	4'- 4"	77	1.0
	33"	14'- 5 ¾"	4'- 8"	9'- 6"	10'-11 ¾"	310	3.1	4'- 8"	84	1.2
	36"	15'- 7 ¾"	4'-11 ½"	10'- 3"	11'-10"	343	3.5	5'- 1"	96	1.4
	42"	17'-11 ½"	5'- 6 ½"	11'- 9"	13'- 6 ¾"	424	4.5	5'-10"	119	1.7
	48"	21'- 1 ¾"	6'- 1 ½"	14'- 0"	16'- 2"	527	6.1	6'- 7"	146	2.3
	54"	23'- 5 ½"	6'- 8 ½"	15'- 6"	17'-10 ¾"	618	7.3	7'- 6"	186	2.9
	60"	25'- 9 ¼"	7'- 3 ½"	17'- 0"	19'- 7 ½"	707	8.7	8'- 3"	219	3.4
	66"	28'- 1"	7'-10 ½"	18'- 6"	21'- 4 ¼"	797	10.1	8'- 9"	242	3.9
	72"	30'- 4 ¾"	8'- 5 ½"	20'- 0"	23'- 1 ¼"	910	11.7	9'- 4"	272	4.4
4:1	12"	7'-10 ¾"	2'- 6"	5'- 8"	6'- 6 ½"	144	1.1	1'- 9"	24	0.3
	15"	9'- 4"	2'- 9 ½"	6'- 8"	7'- 8 ½"	177	1.5	2'- 2"	32	0.4
	18"	10'- 9 ½"	3'- 1"	7'- 8"	8'-10 ¼"	217	1.9	2'- 8"	42	0.5
	21"	12'- 2 ¾"	3'- 4 ½"	8'- 8"	10'- 0"	254	2.3	3'- 1"	57	0.7
	24"	13'- 9 ½"	3'- 9 ½"	9'- 8"	11'- 2"	295	2.8	3'- 7"	67	0.9
	27"	15'- 3"	4'- 1"	10'- 8"	12'- 3 ¾"	328	3.3	3'-11"	77	1.0
	30"	16'- 8 ¼"	4'- 4 ½"	11'- 8"	13'- 5 ¾"	379	3.8	4'- 4"	89	1.3
	33"	18'- 1 ¾"	4'- 8"	12'- 8"	14'- 7 ½"	417	4.5	4'- 8"	101	1.4
	36"	19'- 7"	4'-11 ½"	13'- 8"	15'- 9 ¼"	464	5.1	5'-1"	115	1.7
	42"	22'- 5 ¾"	5'- 6 ½"	15'- 8"	18'- 1"	575	6.5	5'-10"	141	2.1
	48"	26'- 6 ¼"	6'- 1 ½"	18'- 8"	21'- 6 ¾"	720	8.9	6'- 7"	175	2.8
	54"	29'- 5"	6'- 8 ½"	20'- 8"	23'-10 ¼"	863	10.7	7'- 6"	226	3.6
	60"	32'- 3 ¾"	7'- 3 ½"	22'- 8"	26'- 2"	984	12.7	8'- 3"	264	4.3
	66"	35'- 2 ½"	7'-10 ½"	24'- 8"	28'- 5 ¾"	1126	14.9	8'- 9"	300	4.9
	72"	38'- 1 ¼"	8'- 5 ½"	26'- 8"	30'- 9 ½"	1283	17.3	9'- 4"	334	5.6
6:1	12"	11'- 2"	2'- 6"	8'- 6"	9'- 9 ¾"	220	1.9	1'- 9"	28	0.4
	15"	13'- 2 ¼"	2'- 9 ½"	10'- 0"	11'- 6 ½"	264	2.5	2'- 2"	37	0.5
	18"	15'- 2 ½"	3'- 1"	11'- 6"	13'- 3 ¼"	326	3.2	2'- 8"	50	0.7
	21"	17'- 2 ¾"	3'- 4 ½"	13'- 0"	15'- 0 ¼"	381	3.9	3'- 1"	69	0.9
	24"	19'- 4 ½"	3'- 9 ½"	14'- 6"	16'- 9"	447	4.8	3'- 7"	80	1.2
	27"	21'- 4 ¾"	4'- 1"	16'- 0"	18'- 5 ¾"	506	5.7	3'-11"	96	1.4
	30"	23'- 5 ¼"	4'- 4 ½"	17'- 6"	20'- 2 ½"	587	6.7	4'- 4"	110	1.7
	33"	25'- 5 ½"	4'- 8"	19'- 0"	21'-11 ¼"	667	7.8	4'- 8"	127	2.0
	36"	27'- 5 ¾"	4'-11 ½"	20'- 6"	23'- 8"	727	9.0	5'- 1"	144	2.3
	42"	31'- 6 ¼"	5'- 6 ½"	23'- 6"	27'- 1 ½"	914	11.5	5'-10"	179	3.0
	48"	37'- 3 ½"	6'- 1 ½"	28'- 0"	32'- 4"	1181	15.9	6'- 7"	231	4.0
	54"	41'- 4 ¼"	6'- 8 ½"	31'- 0"	35'- 9 ½"	1412	19.2	7'- 6"	300	5.0
	60"	45'- 4 ¾"	7'- 3 ½"	34'- 0"	39'- 3"	1619	22.9	8'- 3"	353	6.0



ELEVATION

Showing dimensions

(1) Quantities shown are for concrete pipe and will increase slightly for metal pipe installations.

(2) For vehicle safety, curbs shall project no more than 3" above finished grade. Curb heights shall be reduced, if necessary, to meet these requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

(3) Provide a 1'-0" footing as shown where required to maintain 4" Min cover for pipes.

(4) Quantities shown are for one structure end only (one headwall).

(5) Min Length = $6" + 3" \times \left(\frac{12 \times H - 7}{12 \times L}\right)$

Max Length = $12 \times H - 3" \times \left(\frac{12 \times H - 7}{12 \times L}\right) - 1"$

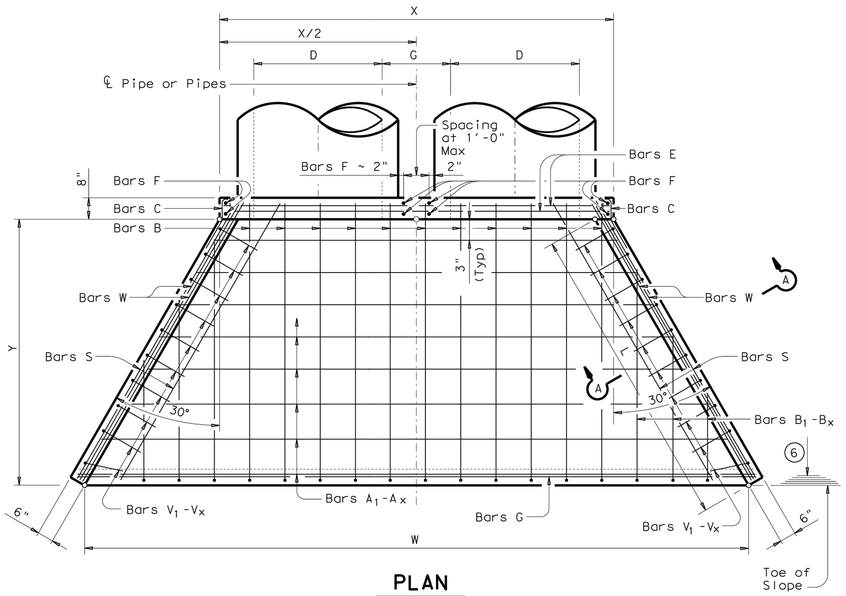
(6) Lengths of wings based on SL:1 Slope along this line.

TABLE OF REINFORCING STEEL (4)

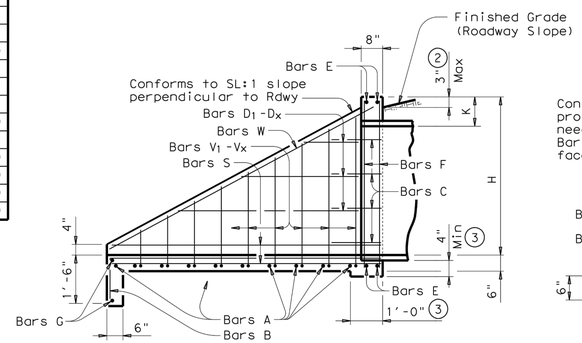
Bar	Size	Spa	No.
A	# 4	1'-0"	~
B	# 3	1'-6"	~
C	# 4	1'-0"	~
D	# 3	1'-0"	~
E	# 5	~	4
F	# 5	~	~
G	# 3	~	2
S	# 4	~	6
V	# 4	1'-0"	~
W	# 5	~	4

TABLE OF CONSTANT DIMENSIONS

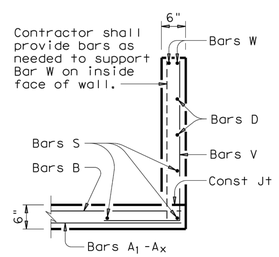
DIA OF PIPE, D	G	K	H
12"	9"	1'- 0"	2'- 0"
15"	11"	1'- 0"	2'- 3"
18"	1'- 2"	1'- 0"	2'- 6"
21"	1'- 4"	1'- 0"	2'- 9"
24"	1'- 7"	1'- 0"	3'- 0"
27"	1'- 8"	1'- 0"	3'- 3"
30"	1'-10"	1'- 0"	3'- 6"
33"	1'-11"	1'- 0"	3'- 9"
36"	2'- 1"	1'- 0"	4'- 0"
42"	2'- 4"	1'- 0"	4'- 6"
48"	2'- 7"	1'- 3"	5'- 3"
54"	3'- 0"	1'- 3"	5'- 9"
60"	3'- 3"	1'- 3"	6'- 3"
66"	3'- 3"	1'- 3"	6'- 9"
72"	3'- 4"	1'- 3"	7'- 3"



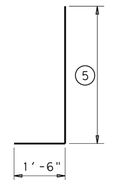
PLAN



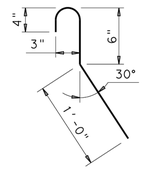
TYPICAL WING ELEVATION



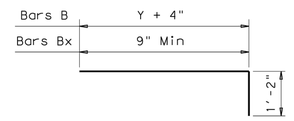
SECTION A-B



BARS V



BARS C
(2'-0" long)



BARS B & B1 -Bx

GENERAL NOTES:

Designed according to AASHTO LRFD Specifications.

Reinforcing steel shall be placed with the center of the outside layer of bars 2" from the surface of the concrete.

All reinforcing steel shall be Grade 60.

All concrete shall be Class "C" and shall have a minimum compressive strength of 3600 psi.

No bridge rails of any type may be mounted directly to these culvert headwalls.

Texas Department of Transportation | Bridge Division Standard

CONCRETE HEADWALLS WITH FLARED WINGS FOR 0° SKEW PIPE CULVERTS

CH-FW-0

FILE: chfw00se.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: GAF
©TxDOT February 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

DATE:
FILE:

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NO.	REVISION	DATE

STATE OF TEXAS
JASON T. DIAMOND
98532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

PAPE-DAWSON ENGINEERS
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LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS
STORM DRAIN DETAILS SHEET 2

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
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SHEET C6.11

Date: Jul 16, 2024, 11:03am User ID: dloughlin
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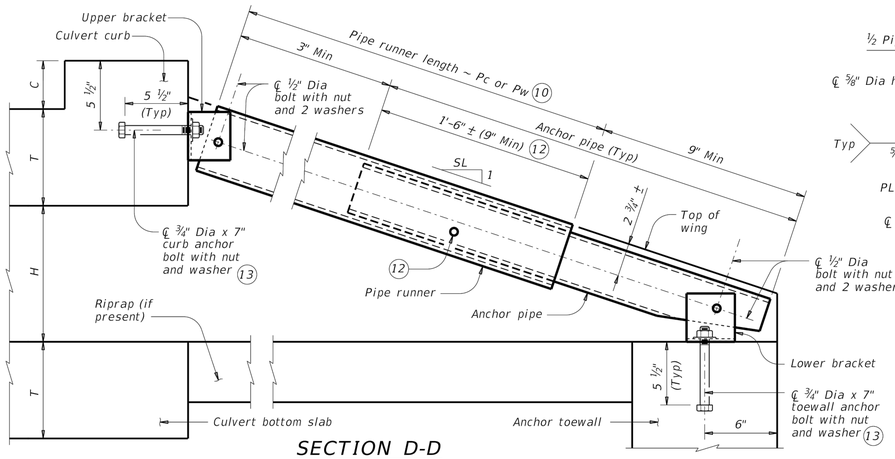
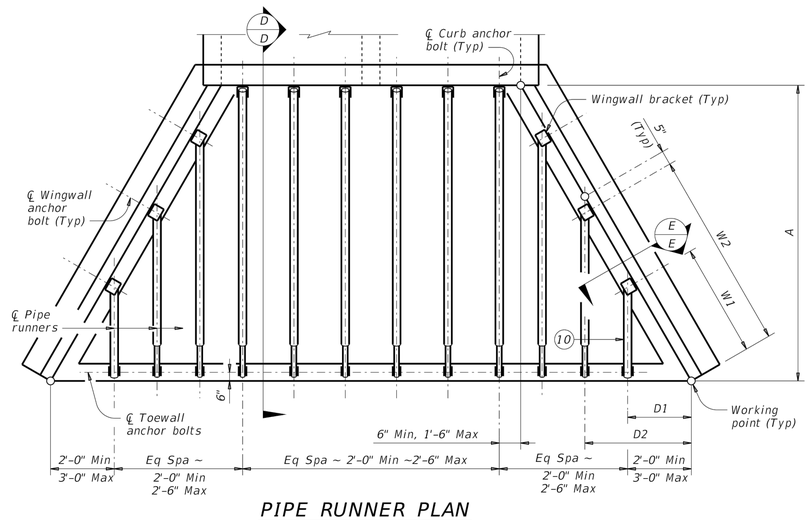
PRELIMINARY



SECTION D-D

(Showing curb pipe runner. Except for upper bracket, wingwall pipe runners are similar.)

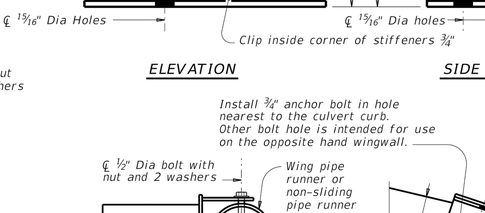


PIPE RUNNER PLAN

Note: Pipe diameter required for curb pipe runner is also used for wingwall pipe runner.

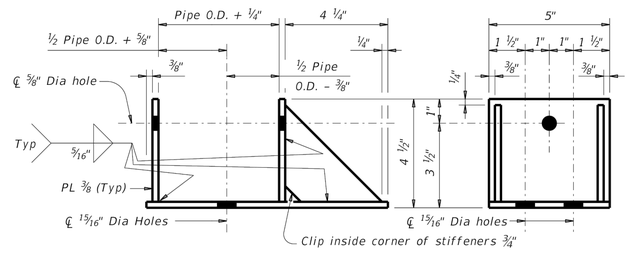
PIPE RUNNER DETAILS

ANCHOR PIPE DETAILS

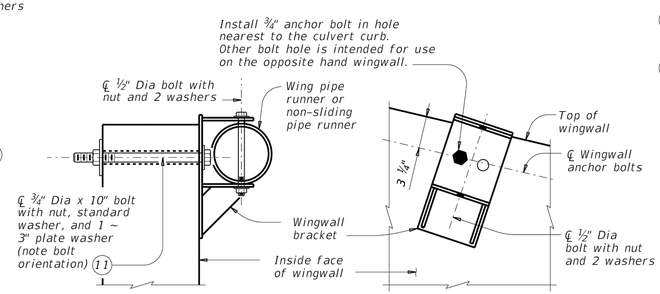


Note: Pipe size is the same as required for curb pipe runner. Adjust the corresponding lower bracket accordingly.

NON-SLIDING PIPE RUNNER DETAILS



ELEVATION — SIDE VIEW

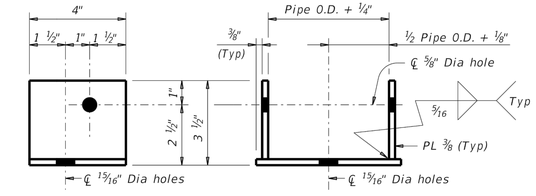


SECTION E-E (Showing installed bracket.)

ELEVATION (Showing installed bracket normal to wall. Pipe not shown for clarity.)

Note: Match wingwall bracket to the upper curb bracket size.

WINGWALL BRACKET DETAILS



SIDE VIEW — ELEVATION

Note: Match upper and lower brackets, except for the brackets used with non-sliding pipe runners, to the required pipe diameters as shown in the table.

UPPER AND LOWER BRACKET DETAILS

MAXIMUM PIPE RUNNER LENGTHS AND REQUIRED PIPE RUNNER SIZES

Maximum Pipe Runner Length (Pc or Pw)	Required Pipe Runner Size			Required Anchor Pipe Size		
	Pipe Size	Pipe O.D.	Pipe I.D.	Pipe Size	Pipe O.D.	Pipe I.D.
9'-4"	3" STD	3.500"	3.068"	2" STD	2.375"	2.067"
19'-0"	4" STD	4.500"	4.026"	3" STD	3.500"	3.068"
33'-6"	5" STD	5.563"	5.047"	4" STD	4.500"	4.026"

(10) If pipe runner length (Pw) is 1'-9" or less replace the normal pipe runner and anchor pipe with a single non-sliding pipe runner. See Non-Sliding Pipe Runner Details for additional information.

(11) At Contractor's option, ⅞" diameter hole may be formed or cored drilled. Percussion drilling is not permitted. Adjust placement of reinforcing steel as necessary to avoid bolt holes.

(12) After installation of pipe runner, use the ½" inspection hole to ensure that the lap of the anchor pipe with the pipe runner is adequate.

(13) At Contractor's option, an adhesive anchor may be used. Provide ¾" Dia adhesive anchors that meet the requirements of ASTM A307 Gr A fully threaded rods. Embed threaded rods into curb, wingwalls, and toewall using a Type III, Class C, D, E, or F anchor adhesive. Minimum embedment depth is 5 ½". Provide anchor adhesive able to achieve a basic bond strength in tension, Nba, of 20 kips. Submit signed and sealed calculations or the manufacturer's published literature showing the proposed anchor adhesive's ability to develop this load to the Engineer for approval prior to use.

PIPE RUNNER DIMENSION CALCULATIONS:

Wn = (2.000) (Dn) – (0.416')
Pwn = (Dn) (K2) – (2.063')
Pw1 Non-Sliding Pipe Runner (If required) = (D1) (K2) – (0.563')
Pc = (A) (K1) – (1.688')

Wn = Distance from working point to centerline anchor bolt measured along bottom inside face of wing (feet)
Dn = Distance from working point to centerline pipe runner measured along outside face of anchor toewall (feet)
Pw = Wingwall pipe runner length (feet)
Pc = Curb pipe runner length (feet)
K = Constant values for use in formulas

Slope SL:1	K1	K2
3:1	~ 1.054	~ 1.826
4:1	~ 1.031	~ 1.785
6:1	~ 1.014	~ 1.756

n = Wing pipe runner number

SHEET 2 OF 3

Texas Department of Transportation — Bridge Division Standard

SAFETY END TREATMENT WITH FLARED WINGS
FOR 0° SKEW BOX CULVERTS TYPE I ~ CROSS DRAINAGE
SETB-FW-0

FILE: CD-SETB-FW0-20.dgn	DN: GAF	CK: CAT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020 REVISIONS	CONT	SECT	JOB	HIGHWAY
	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.

DATE: FILE:

Date: Jul 16, 2024, 11:03am User ID: dloughlin
File: P:\04\45\76\Design\Civil\Sheets\site work construction sheets\SD-SWC-644576-DT.dwg

PRELIMINARY

NO.	REVISION	DATE

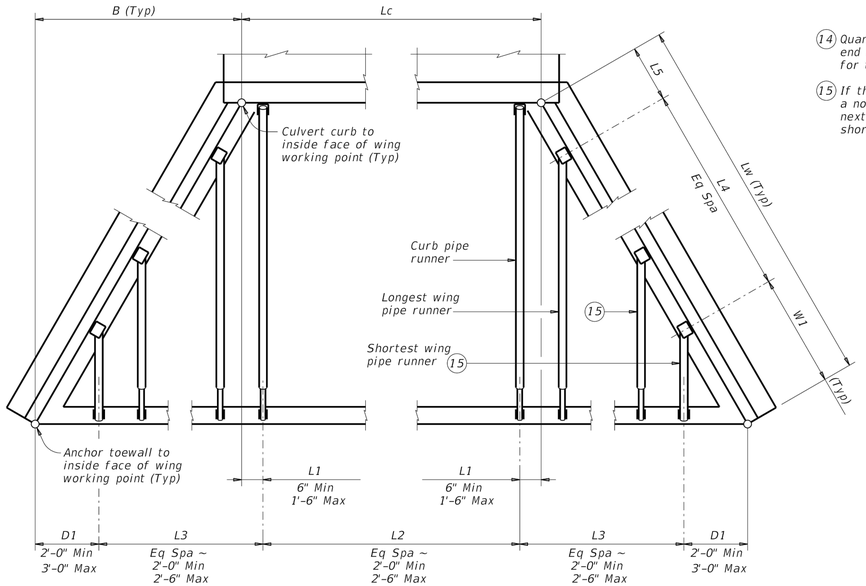
STATE OF TEXAS
JASON T. DIAMOND
96532
LICENSED PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS
STORM DRAIN DETAILS SHEET 3

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C6.12

Culvert Station and/or Creek name followed by applicable end (Lt, Rt or Both) (14)	Lc (Ft)	L1 (Ft)	L2			D1 (Ft)	L3			W1 (Ft)	L4			L5 (Ft)	Curb Pipe Runner (Pc)		Longest Wing Pipe Runner (Pw) (Ft)	Shortest Wing Pipe Runner (Pw) (Ft)	Non-Sliding Wing Pipe Runner (if applicable) (Ft)	Curb, Wing, and/or Non-Sliding Pipe Runners		3'-0" Anchor Pipe	
			No. Spa	Spa at (Ft)	Overall Length (Ft)		No. Spa	Spa at (Ft)	Overall Length (Ft)		No. Spa	Spa at (Ft)	Overall Length (Ft)		No.	Length (Ft)				Size (3",4" or 5")	Total Length (14) (Ft)	Size (2",3" or 4")	Total Length (14) (Ft)



PIPE RUNNER LAYOUT

(14) Quantities shown are for one structure end if Lt or Rt. Quantities shown are for two structure ends if Both.

(15) If the outermost wing pipe runner is a non-sliding pipe runner, consider the next outermost wing pipe runner as the shortest.

SPECIAL NOTE:

This tabular sheet is to be filled out by the culvert specifier and provides information for the construction details and quantities of pipe runners.

An Excel 2010 spreadsheet to assist in completing this table can be downloaded from the Bridge Standards (English) web page on the TxDOT web site. The completed sheet must be signed, sealed, and dated by a licensed Professional Engineer.

Note that the tabular quantities are given for estimating purposes only. It is likely that these quantities will change due to field conditions. Therefore, all dimensions must be verified by the Contractor in the field prior to fabrication of the safety end treatment components.

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.

DATE:
FILE:

SHEET 3 OF 3

Texas Department of Transportation | Bridge Division Standard

SAFETY END TREATMENT WITH FLARED WINGS

FOR 0° SKEW BOX CULVERTS TYPE I ~ CROSS DRAINAGE

SETB-FW-0

FILE: CD-SETB-FW0-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

NO.	REVISION	DATE

STATE OF TEXAS
JASON T. DIAMOND
98532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS
STORM DRAIN DETAILS SHEET 4

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C6.13

Date: Jul 16, 2024, 11:03am User ID: dlaughlin
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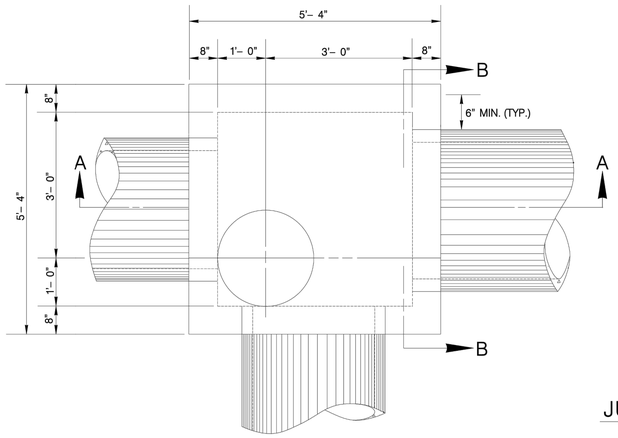
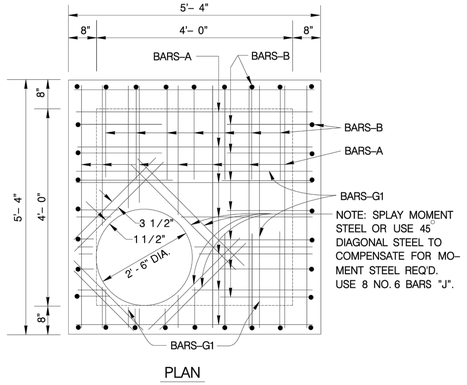
PRELIMINARY



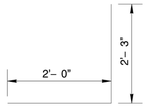
PLAN



PLAN

JUNCTION BOX TOP SLAB SHOWING STEEL

BARS–B



BARS–C

SCHEDULE FOR REINFORCING STEEL

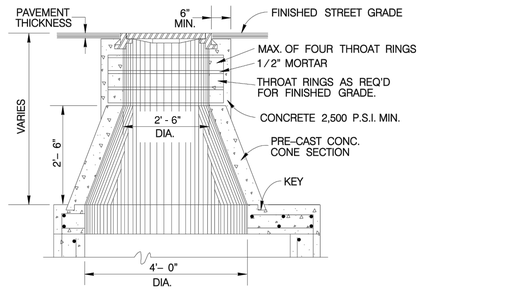
A= 4' X 4' X 4' J.B. NO. 1 & 4

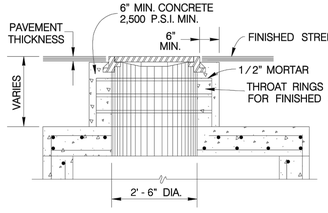
SHAPE	BAR	NO.	SIZE	SPACING	LENGTH	WEIGHT
STRAIGHT	A	16	4	9" O.C.	5'– 1"	54
⌜	B	32	5	8" O.C.	6'– 10"	228
⌞	C	32	5	8" O.C.	4'– 3"	142
STRAIGHT	D	16	4	9" O.C.	5'– 1"	54
STRAIGHT	E	16	3	12" O.C.	3'–11"	24
STRAIGHT	G	16	4	12" O.C.	5'–1"	54
STRAIGHT	G_1	8	4	AS SHOWN	5'–1"	27
STRAIGHT	H	20	3	12" O.C.	4'–5"	33
STRAIGHT	J	8	6	3 1/2"	2'– 10"	34
					TOTAL	650 LBS.

CLASS "A" CONCRETE– 3.43 CU. YDS.
(DOES NOT EXCLUDE MANHOLE OPENINGS OR PIPE OPENING)

* NOTE: BAR SIZE AND SPACING BASED ON SPANS AS SHOWN – ANY REVISIONS TO THESE SPANS SHALL INCLUDE A RE–DESIGN ON STEEL REQD.

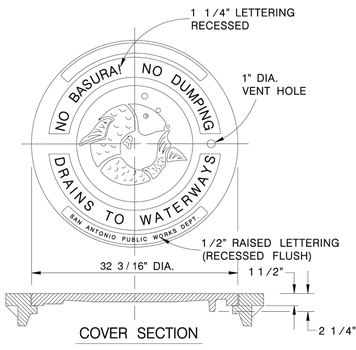
1. CONCRETE FOR STRUCTURE SHALL BE CLASS "A," 3,000 P.S.I. AT 28 DAYS.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
3. REINFORCING STEEL SHALL BE NEW BILLET STEEL, INTERMEDIATE GRADE, ASTM. A–15. THE DEFORMATION SHALL CONFORM TO ASTM. A–305.
4. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
5. ALL BARS INTERCEPTING MANHOLE OPENING AND REINFORCED CONCRETE PIPE SHALL BE FIELD–CUT.
6. WHERE LAPPING OF BARS IS REQUIRED, A MINIMUM LAP OF 33 DIAMETERS SHALL BE USED.
7. INVERT OF JUNCTION BOX TO BE SHAPED WITH CONCRETE FILL (2,500 P.S.I. MIN.) TO EFFECT DRAINAGE TO OUTLET PIPE. COST SUBSIDIARY TO CLASS "A" CONCRETE (JUNCTION BOXES).
8. PAYMENT FOR ALL EXCAVATION, BACKFILLING, CONCRETE, REINFORCING STEEL, VERTICAL STACK, RING AND COVER SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 – "STORM SEWER JUNCTION BOXES AND INLETS".





VARIATION OF VERTICAL STACK

VERTICAL STACK DESIGN SHALL BE GOVERNED BY THE DEPTH OF THE TOP OF THE JUNCTION BOX BELOW THE FINISHED STREET GRADE.



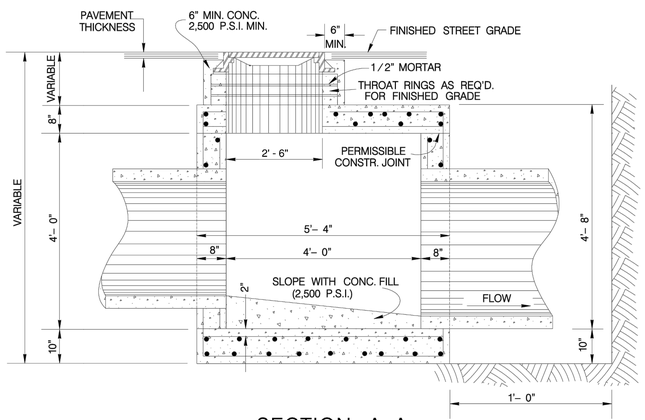
COVER SECTION

MANHOLE LID & RING DETAIL

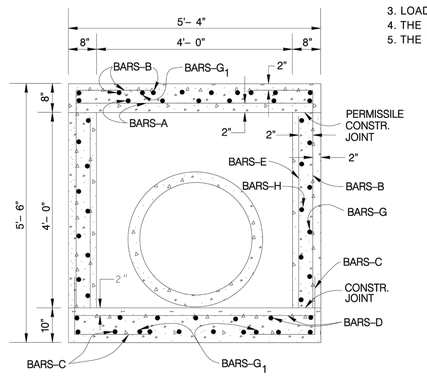
SCALE: 1 : 16

NOTES FOR MANHOLE LID AND RING

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

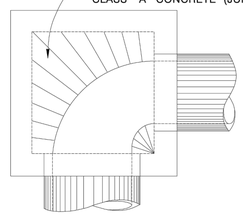


SECTION A–A



SECTION B–B

FILL TO SPRING LINE OF PIPE WITH 2,500 P.S.I. CONCRETE NON–PAY ITEM. COST SUBSIDIARY TO CLASS "A" CONCRETE (JUNCTION BOX).



CURVED DEFLECTOR DETAIL

JANUARY 2005

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

4'x4'x4' JUNCTION BOX STANDARDS

% SUBMITTAL	PROJECT NO.:	DATE:
DRWN. BY:	DSGN. BY:	CHKD. BY:	SHEET NO.: OF

NO. | REVISION | DATE

STATE OF TEXAS
JASON T. DIAMOND
96532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS

STORM DRAIN DETAILS SHEET 5

PLAT NO. ---
JOB NO. 6445–76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C6.14

Date: Jul 16, 2024, 11:04am User ID: aloughlin
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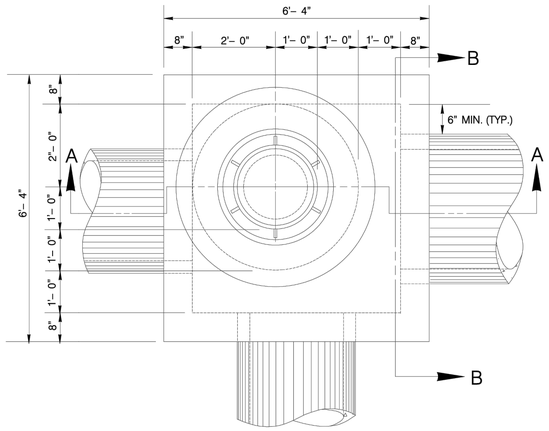
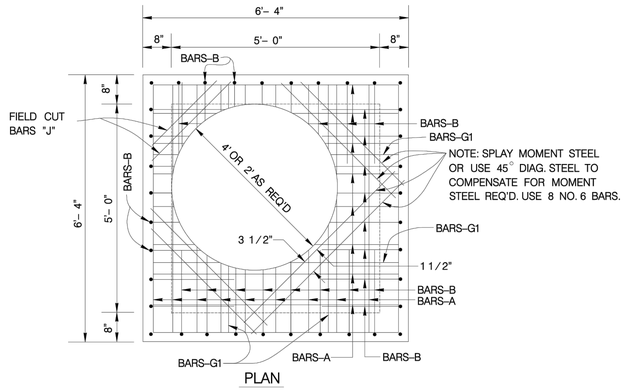
PRELIMINARY

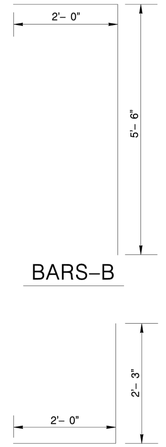


PLAN



PLAN

OF JUNCTION BOX TOP SLAB SHOWING STEEL



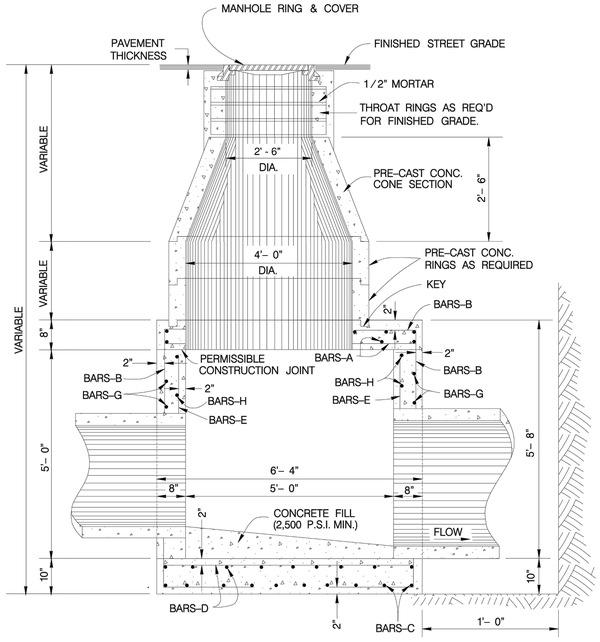
SCHEDULE FOR REINFORCING STEEL

SHAPE	BAR	NO.	SIZE	SPACING	LENGTH	WEIGHT
STRAIGHT	A	18	4	9" O.C.	6'– 1"	73
⌐	B	36	5	8" O.C.	7'– 6"	282
└	C	36	5	8" O.C.	4'– 3"	160
STRAIGHT	D	18	4	9" O.C.	6'– 1"	73
STRAIGHT	E	20	3	12" O.C.	4'– 11"	37
STRAIGHT	G	20	4	12" O.C.	6'– 1"	81
STRAIGHT	G_1	8	4	AS SHOWN	6'– 1"	33
STRAIGHT	H	24	3	12" O.C.	5'– 5"	49
STRAIGHT	J	8	6	3 1/2" O.C.	4'– 11"	59
					TOTAL	847 lbs.

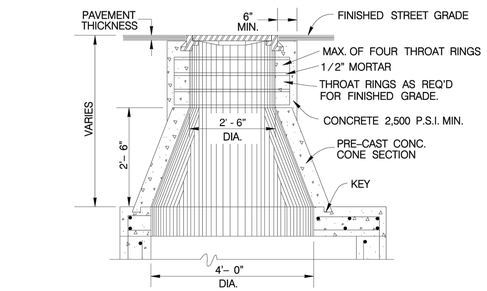
CLASS "A" CONCRETE – 5.03 CU. YDS.
(DOES NOT EXCLUDE MANHOLE OPENINGS OR PIPE OPENING)

* NOTE: BAR SIZE AND SPACING BASED ON SPANS AS SHOWN – ANY REVISIONS TO THESE SPANS SHALL INCLUDE A RE–DESIGN ON STEEL REQD.

1. CONCRETE FOR STRUCTURE SHALL BE CLASS "A" 3,000 P.S.I. AT 28 DAYS.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3⁄4".
3. REINFORCING STEEL SHALL BE NEW BILLET STEEL, INTERMEDIATE GRADE, ASTM A–15. THE DEFORMATION SHALL CONFORM TO ASTM A–305.
4. ALL DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTER OF BARS.
5. ALL BARS INTERCEPTING MANHOLE OPENING AND REINFORCED CONCRETE PIPE SHALL BE FIELD–CUT.
6. WHERE LAPPING OF BARS IS REQUIRED, A MINIMUM LAP OF 33 DIAMETERS SHALL BE USED.
7. INVERT OF JUNCTION BOX TO BE SHAPED WITH CONCRETE FILL (2,500 P.S.I. MIN.) TO EFFECT DRAINAGE TO OUTLET PIPE. COST SUBSIDIARY TO CLASS "A" CONCRETE (JUNCTION BOXES).
8. PAYMENT FOR ALL EXCAVATION, BACKFILLING, CONCRETE, REINFORCING STEEL, VERTICAL STACK, RING AND COVER SHALL BE INCLUDED IN THE UNIT COST OF ITEM 403 – "STORM SEWER JUNCTION BOXES AND INLETS".

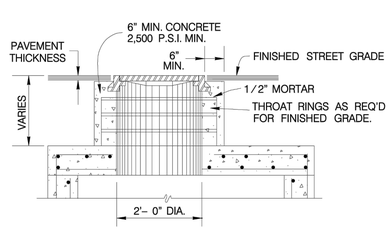


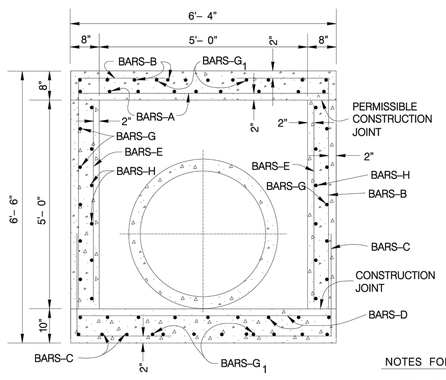
SECTION A–A



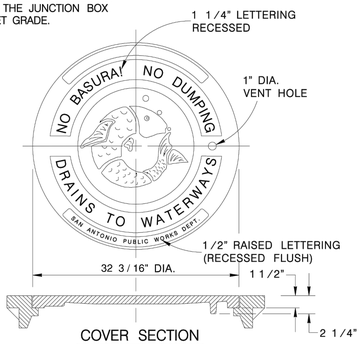
VARIATION OF VERTICAL STACK

VERTICAL STACK DESIGN SHALL BE GOVERNED BY THE DEPTH OF THE TOP OF THE JUNCTION BOX BELOW THE FINISHED STREET GRADE.





SECTION B–B



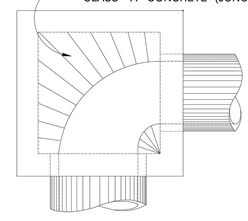
COVER SECTION

MANHOLE LID & RING DETAIL

SCALE: 1 : 16

NOTES FOR MANHOLE LID AND RING

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



CURVED DEFLECTOR DETAIL

JANUARY 2005

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

5'x5'x5' JUNCTION BOX STANDARDS

% SUBMITTAL	PROJECT NO.:	DATE:
DRWN. BY:	DSGN. BY:	CHKD. BY:	SHEET NO.: OF

DATE
NO. REVISION

STATE OF TEXAS
JASON T. DIAMOND
96532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

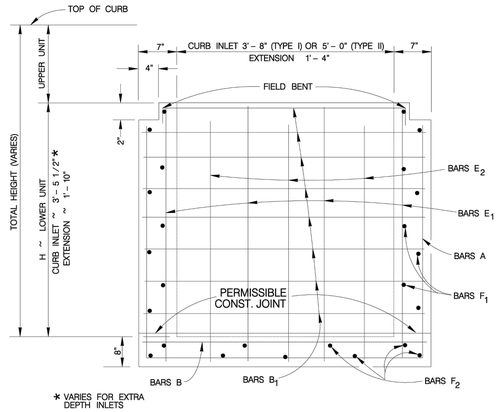
PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS
STORM DRAIN DETAILS SHEET 6

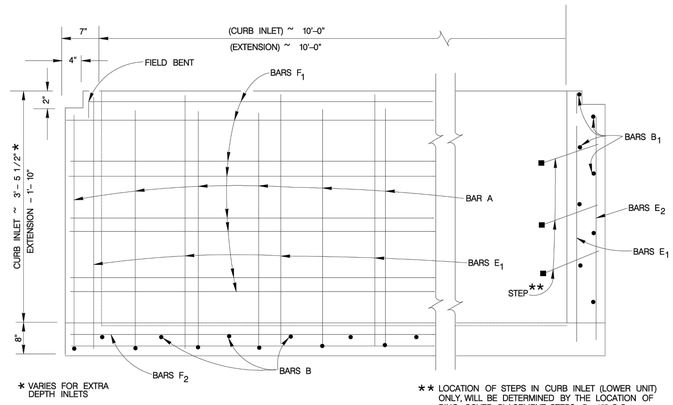
PLAT NO. ---
JOB NO. 6445–76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C6.15

Date: Jul 16, 2024, 11:04am User ID: dloughlin
File: P:\6445\06\Design\Civil\Streets\site work construction sheets\SD-SWC-644576-DT.dwg

PRELIMINARY



SECTION A–A



SECTION B–B

REINFORCING STEEL

LOWER UNIT 10' X 3'–8" (TYPE I)

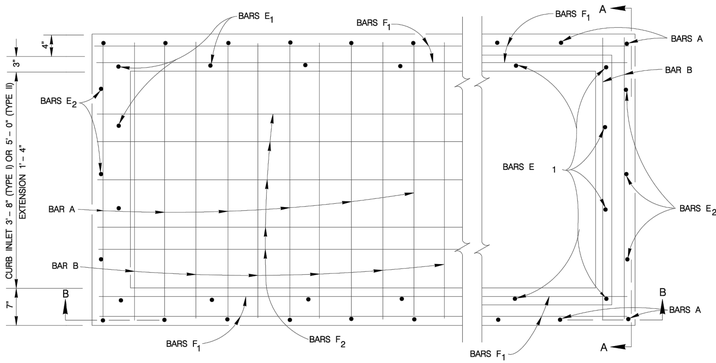
BAR	NO.	SIZE	SPAC.	LENGTH
A	12	#4	12"	VARIES
B	11	#4	12"	4'–6"
B_1	VARIES	#4	12"	4'–6"
E_1	20	#4	18"±	VARIES
E_2	6	#4	18"±	VARIES
F_1	VARIES	#4	12"±	10'–10"
F_2	9	#4	—	10'–10"

LOWER UNIT 10' X 5'–0" (TYPE II)

BAR	NO.	SIZE	SPAC.	LENGTH
A	12	#4	12"	VARIES
B	11	#4	12"	5'–10"
B_1	VARIES	#4	12"	5'–10"
E_1	22	#4	18"±	VARIES
E_2	8	#4	18"±	VARIES
F_1	VARIES	#4	12"±	10'–10"
F_2	11	#4	—	10'–10"

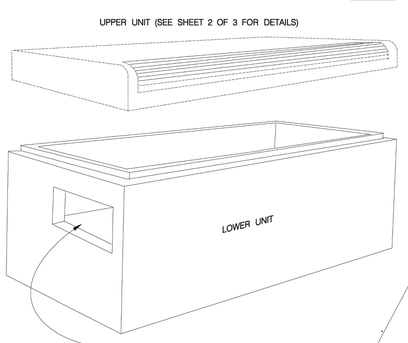
GENERAL NOTES

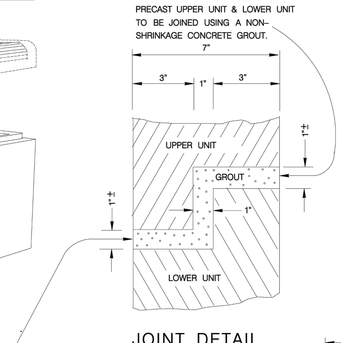
1. 5' INLETS AND 5' EXTENSIONS MUST BE IN ACCORDANCE WITH THE LATEST TXDOT CURB INLET TYPE "C" AND EXTENSION TYPE E (IL–C).
2. TYPE C–II INLET TO BE USED ONLY WHEN STORM DRAIN PIPE IS IN–LINE WITH CURB INLET AND APPROVED BY THE ENGINEER.
3. QUANTITIES SHOWN ARE FOR CONTRACTORS INFORMATION ONLY.
4. CONCRETE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



FLOOR STEEL WALL STEEL

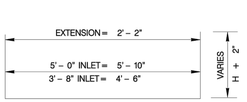
PLAN



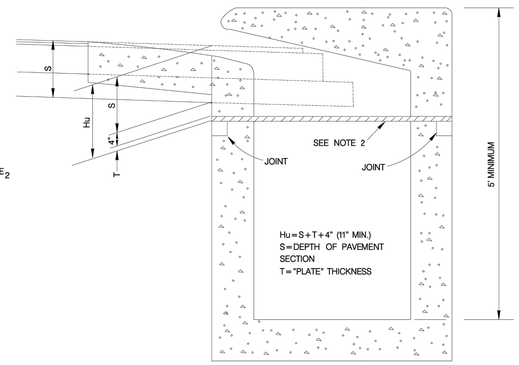


JOINT DETAIL

WHEN USING PRECAST UPPER UNIT, THIS SPACE IS FOR MAKING MINOR HORIZONTAL AND VERTICAL ADJUSTMENTS TO ACCOMODATE A FIT BETWEEN THE UPPER AND LOWER UNIT THAT ALLOWS FOR A MATCH LINE AND GRADE BETWEEN THE ROADWAY CURB AND THE UPPER UNIT OF THE INLET.



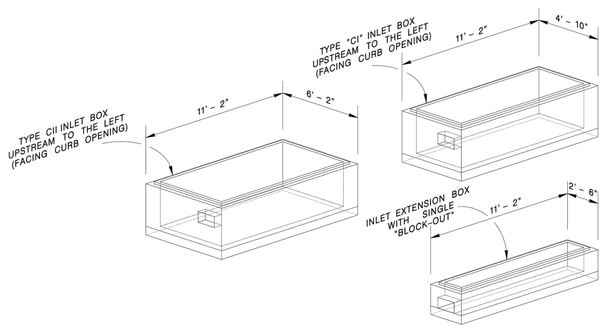
BARS A
(LOWER UNIT)



PHASE CONSTRUCTION

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

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



CONCRETE INLET BOX CONFIGURATIONS (LOWER UNITS)

MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TYPE "C" INLET (TYPE I & II) & INLET EXTENSION STANDARDS

SHEET 1 OF 3

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

DATE
NO. REVISION

STATE OF TEXAS
JASON T. DIAMOND
96532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS
STORM DRAIN DETAILS SHEET 7

PLAT NO. ---
JOB NO. 6445–76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C6.16

Date: Jul 16, 2024, 1:04pm User ID: dloughlin
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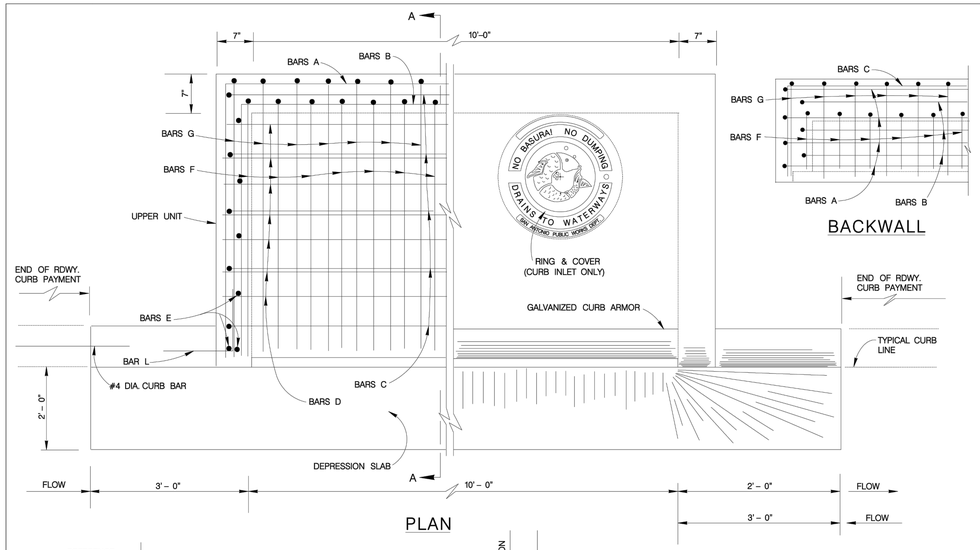
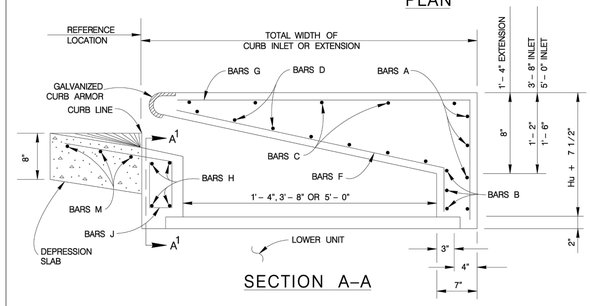
PRELIMINARY

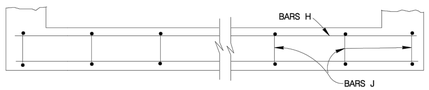


PLAN

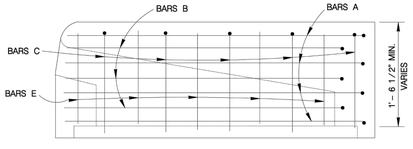
BACKWALL



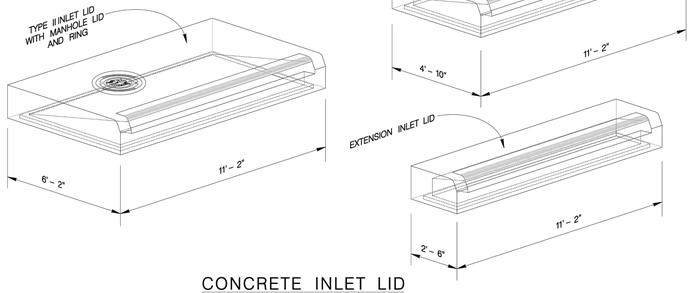
SECTION A–A



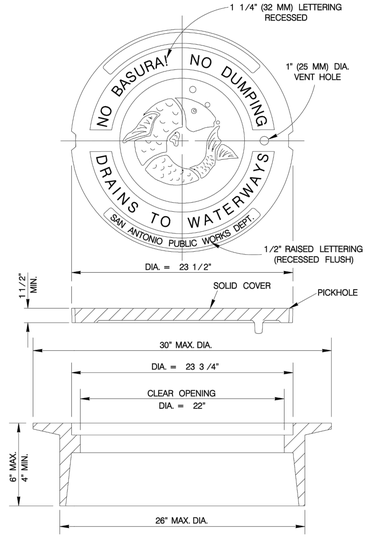
SECTION $A^1 - A^1$



END WALL



CONCRETE INLET LID CONFIGURATIONS (UPPER UNITS)

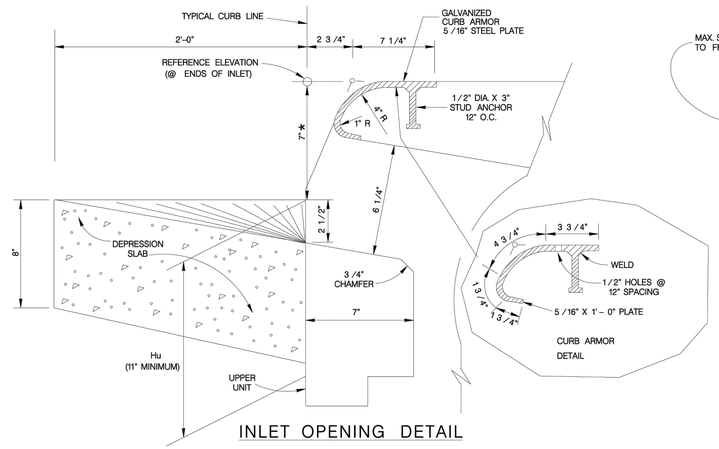


MANHOLE LID & RING DETAIL (ITEM 409)

NOTES FOR MANHOLE LID AND RING

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

SEE SHEET 1 OF 3 FOR GENERAL NOTES.



INLET OPENING DETAIL

REINFORCING STEEL (FOR Hu = 11")

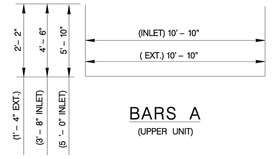
UPPER UNIT 10' X 3'-8" (TYPE I)					
BAR	NO.	SIZE	SPAC.	LENGTH	WEIGHT
A	4	#4	—	19'-10"	53
B	3	#4	—	18'-10"	38
C	5	#4	11"	13'-2"	44
D	7	#4	6"	10'-10"	51
E	12	#4	11"	1'-2"	9
F	21	#6	6"	4'-8"	147
G	22	#6	6"	5'-8"	187
H	4	#4	—	10'-10"	29
J	12	#4	12"	3'-6"	28
L	4	#4	—	2'-0"	5
M	3	#4	—	14'-8"	29
TOTAL WEIGHT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

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

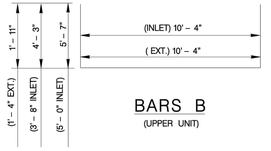
CLASS "A" CONCRETE QUANTITIES (FOR Hu = 11")

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

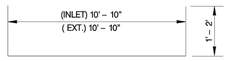
UPPER UNIT (ONLY)		C.Y.
10' X 3'-8"	CURB INLET	1.9
10' X 5'-0"	CURB INLET	2.7
10'	EXTENSION	1.0



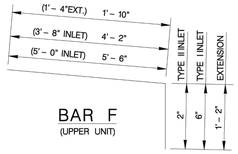
BARS A (UPPER UNIT)



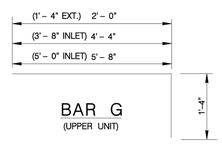
BARS B (UPPER UNIT)



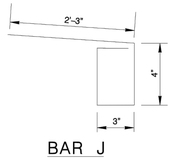
BAR C (UPPER UNIT)



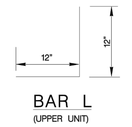
BAR F (UPPER UNIT)



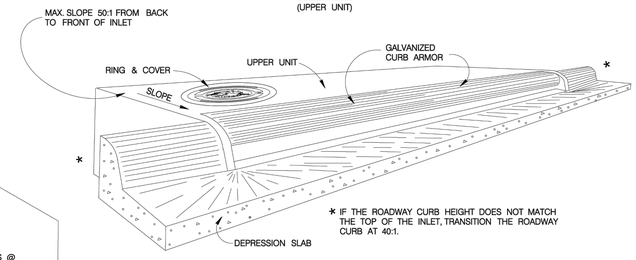
BAR G (UPPER UNIT)



BAR J (UPPER UNIT)



BAR L (UPPER UNIT)



MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TYPE "C" INLET (TYPE I & II) & INLET EXTENSION STANDARDS

SHEET 2 OF 3

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

NO.	REVISION	DATE

STATE OF TEXAS
JASON T. DIAMOND
98532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS

STORM DRAIN DETAILS SHEET 8

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C6.17

Date: Jul 16, 2024, 11:04am User ID: aloughlin
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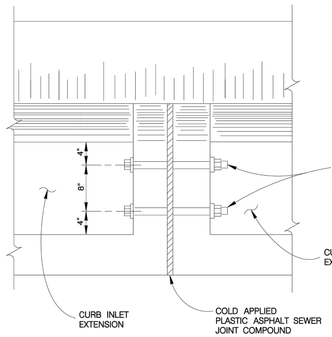
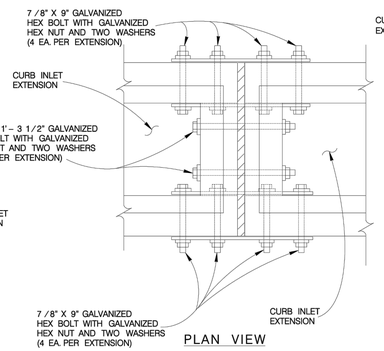
PRELIMINARY



PLAN VIEW



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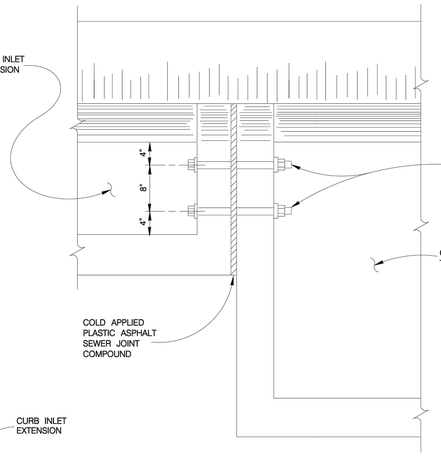
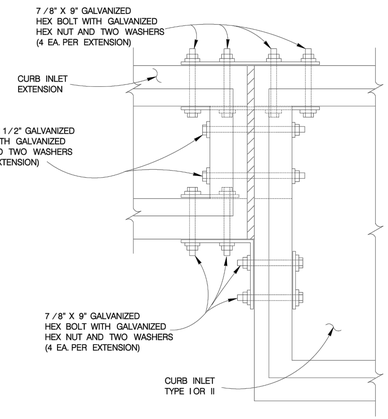


PLAN VIEW



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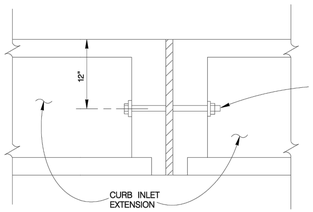
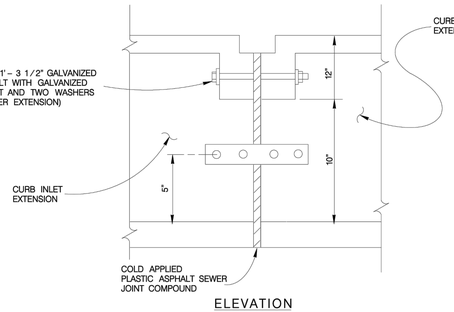


ELEVATION



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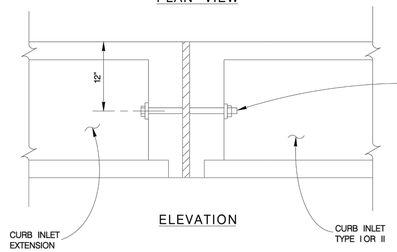
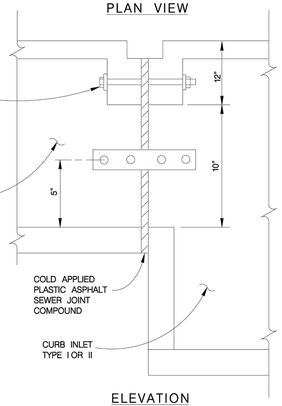


ELEVATION



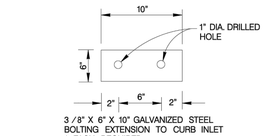
UPPER UNIT

LOWER UNIT

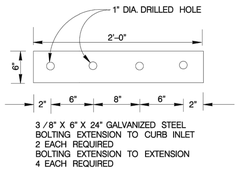
UPPER UNIT

LOWER UNIT

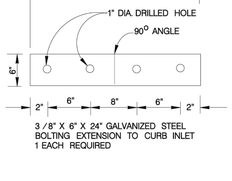
INLET BOLTING DETAILS
SHOWING EXTENSION TO EXTENSION



3/8" X 6" X 10" GALVANIZED STEEL BOLTING EXTENSION TO CURB INLET
2 EACH REQUIRED

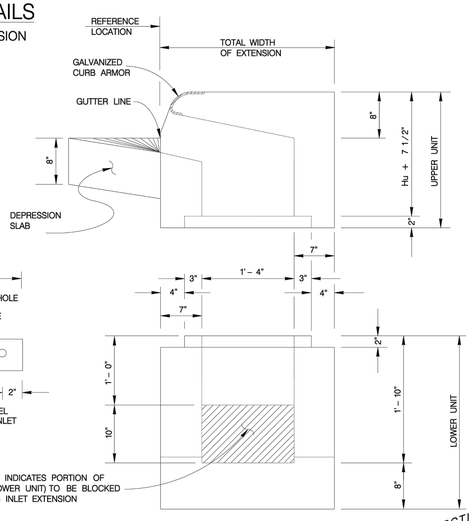


3/8" X 6" X 24" GALVANIZED STEEL BOLTING EXTENSION TO CURB INLET
2 EACH REQUIRED
BOLTING EXTENSION TO EXTENSION
4 EACH REQUIRED



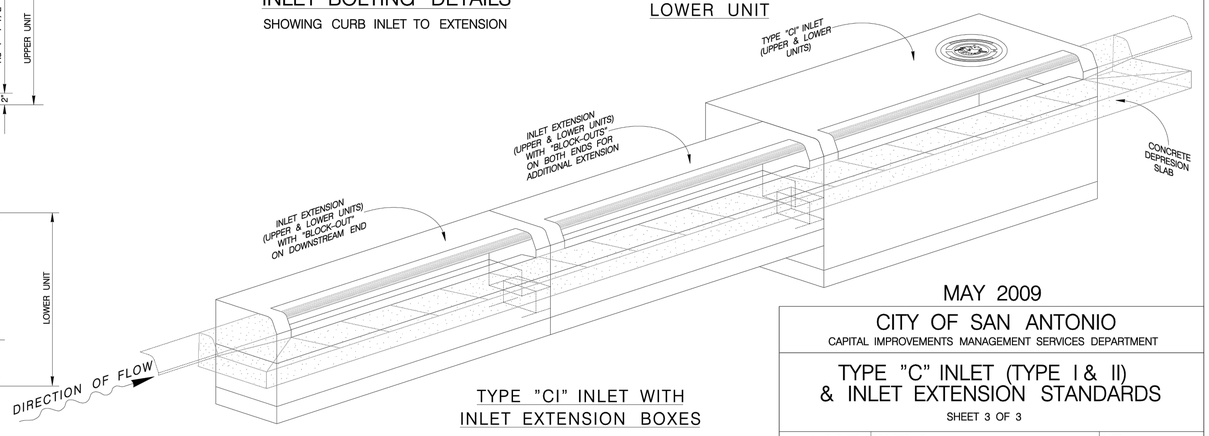
3/8" X 6" X 24" GALVANIZED STEEL BOLTING EXTENSION TO CURB INLET
1 EACH REQUIRED

PLATES



SECTION A-A CURB INLET EXTENSION TYPE E

INLET BOLTING DETAILS
SHOWING CURB INLET TO EXTENSION



TYPE "CI" INLET WITH INLET EXTENSION BOXES

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

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

GENERAL NOTES

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

MAY 2009

CITY OF SAN ANTONIO
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

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

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

NO.	REVISION	DATE

STATE OF TEXAS
JASON T. DIAMOND
96532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS
STORM DRAIN DETAILS SHEET 9

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C6.18

Date: Jul 16, 2024, 11:04am User ID: dlaughlin
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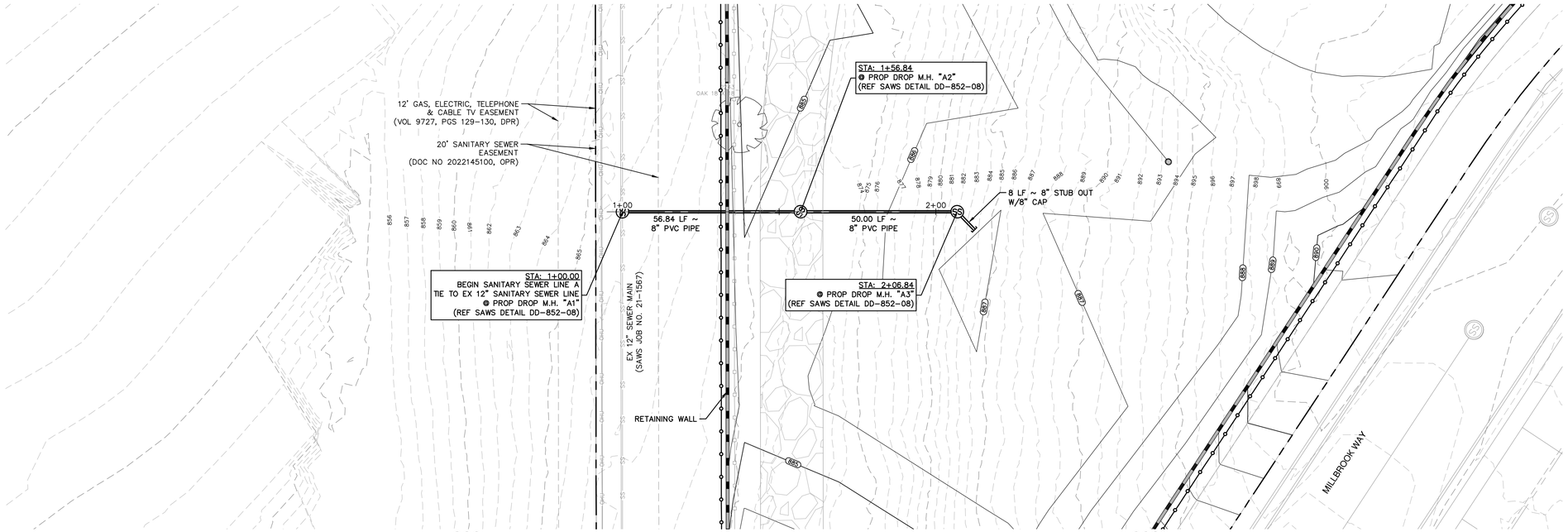
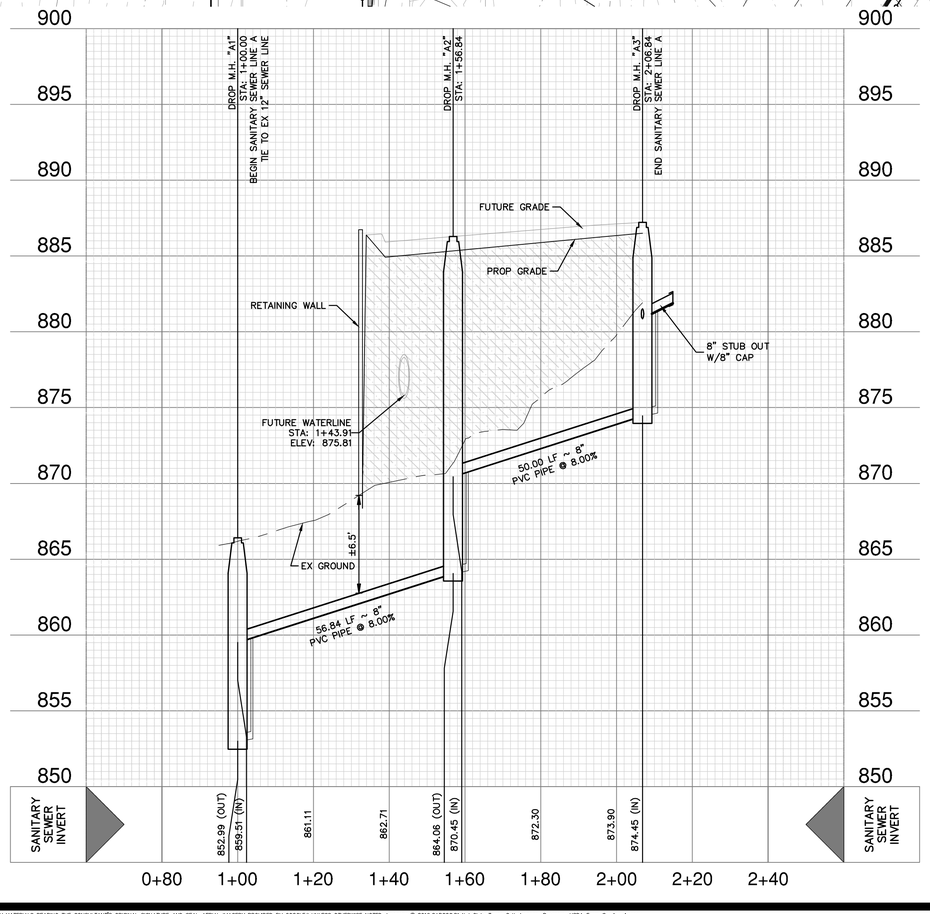
PRELIMINARY





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

NOTE:

CONTRACTOR SHALL REFER TO SAWS WEBSITE (HTTPS://APPS.SAWS.ORG/BUSINESS_CENTER/SPECS/CONSTSPECS) FOR CURRENT STANDARD DETAILS FOR CONSTRUCTION.

CAUTION!!

EXISTING UTILITIES ARE LOCATED WITHIN THE LIMITS OF THE CONSTRUCTION OF THIS PROJECT. THE CONTRACTOR SHALL EXERCISE EXTRA CARE IN DIGGING ANY TRENCH FOR PROPOSED UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING, VERIFYING THE EXACT LOCATION AND IDENTIFYING ANY AREAS OF CONFLICTS WITH EXISTING UTILITIES AND WILL NOTIFY THE ENGINEER IMMEDIATELY IF CONFLICTS ARE FOUND.

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

NO.	REVISION	DATE

STATE OF TEXAS
JASON T. DIAMOND
96532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

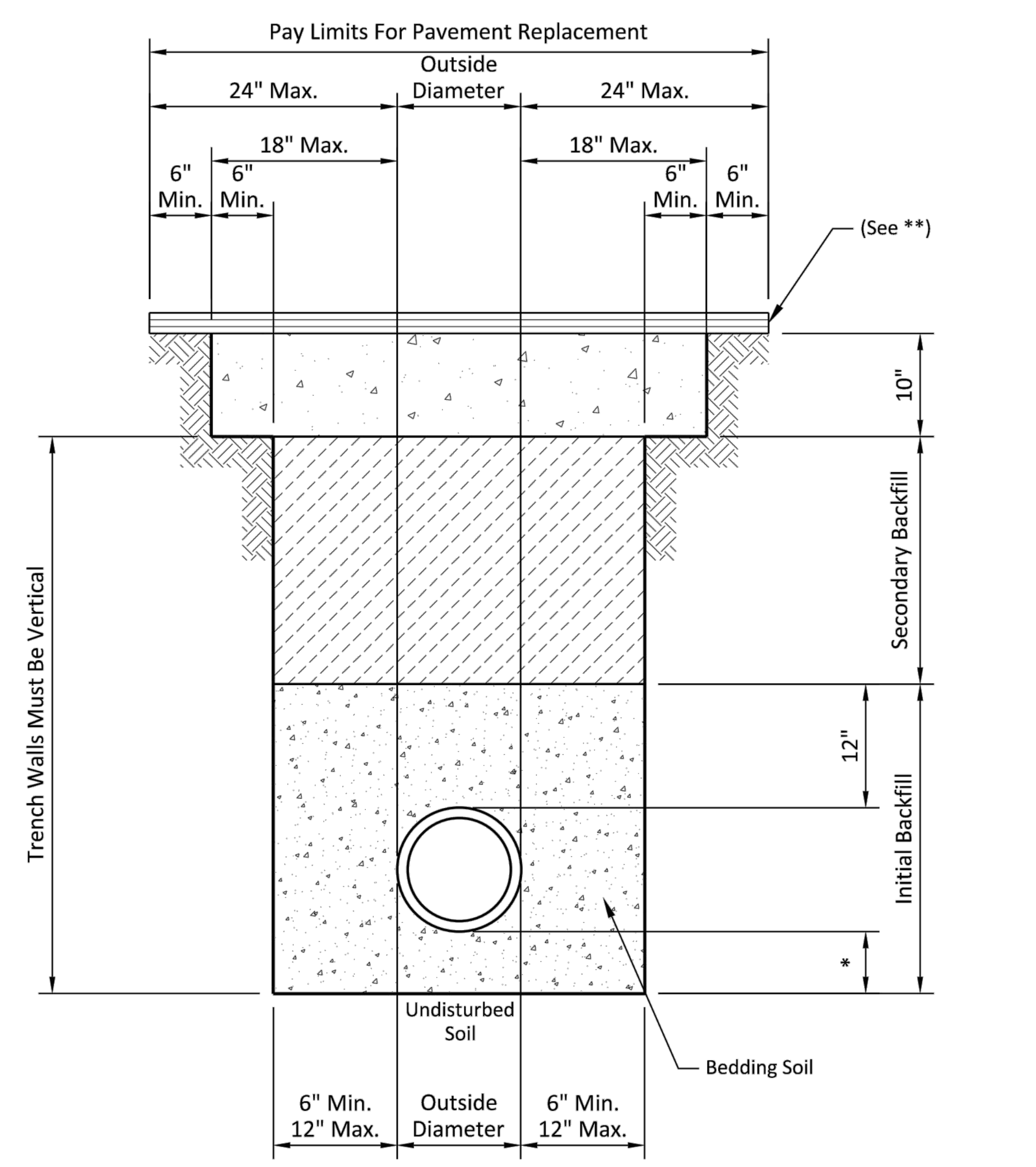
PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS

SANITARY SEWER LINE A PLAN & PROFILE

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C7.01

PRELIMINARY



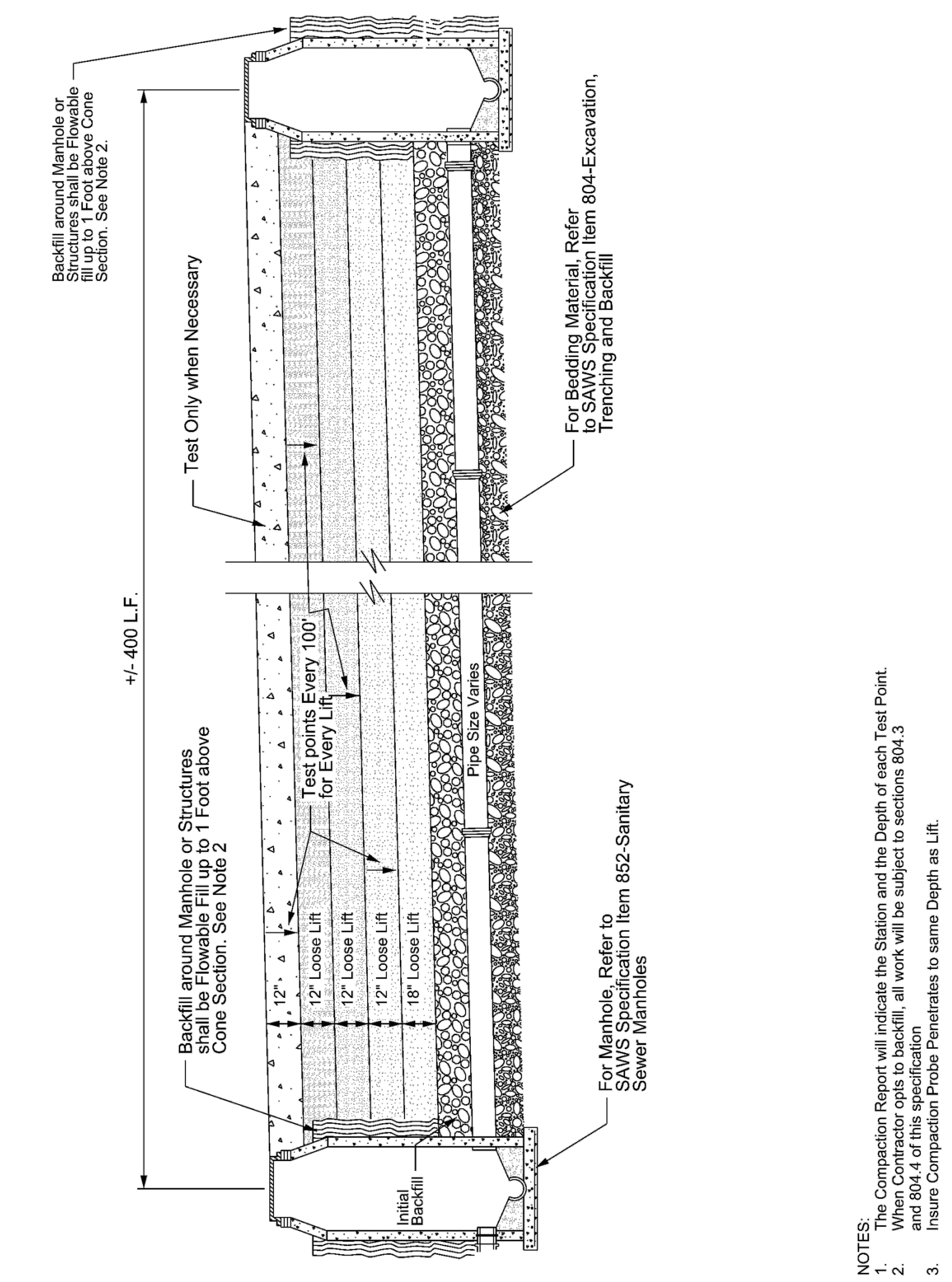
The Existing Material at the Bearing Level shall be Removed and Replaced to a Minimum Depth of 6-Inches or ½ of the Outside Diameter of the Pipe, whichever is greater, with Bedding Material.

In Areas of over Excavation, Encasement shall extend from Trench Wall. Pay Limits shall not Exceed 12" Max. as shown on Detail. Additional Encasement shall be incidental.

* Sewer Gravel 6" Min. or ½ O.D. of the Pipe, whichever is greater.
** Minimum 2" HMAC Type "D" for Trench Repair in Local/Residential Streets.
** Minimum 3" HMAC Type "C" for Trench Repair in Collector/Arterial Streets.

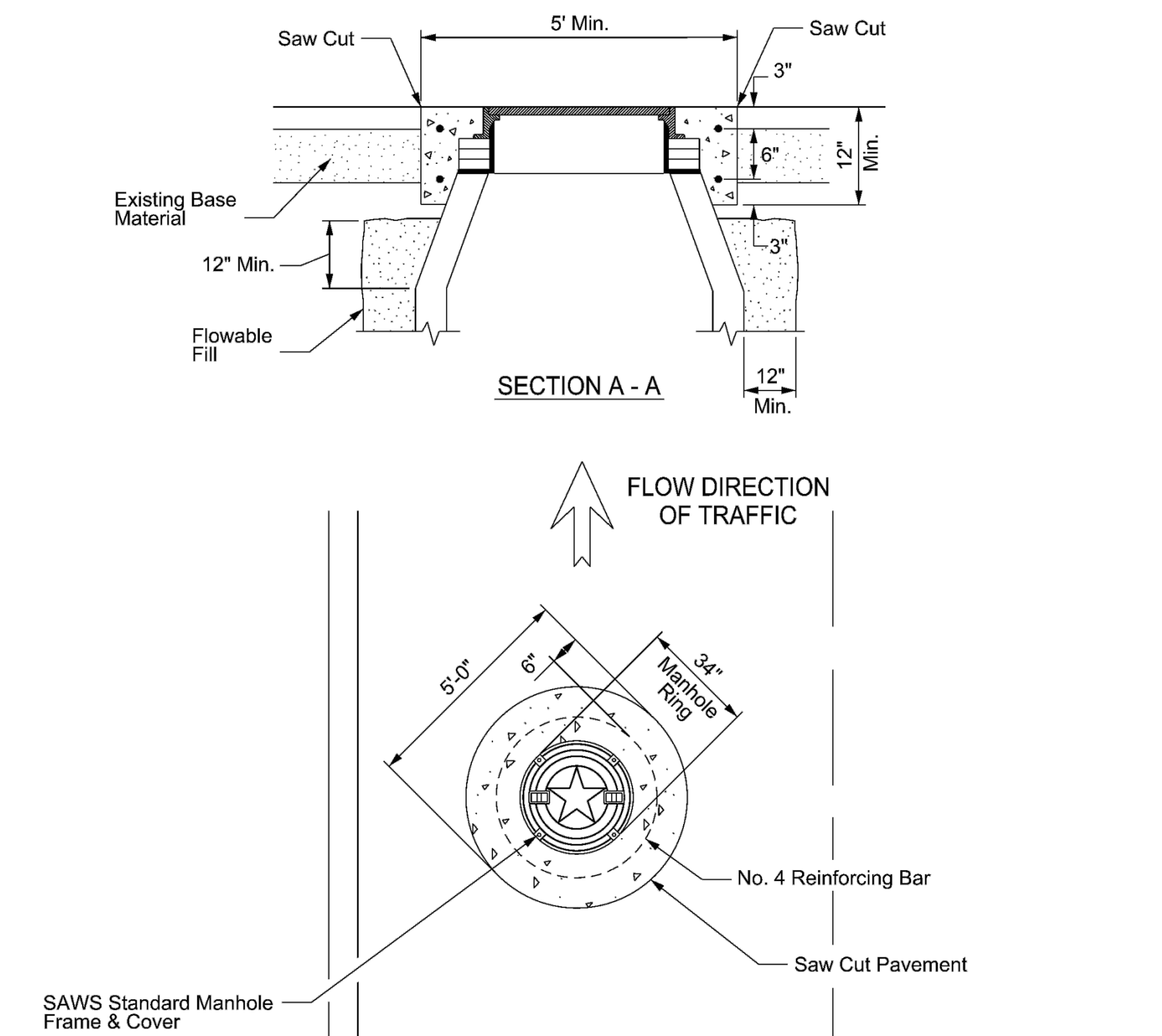
- Hot Mix Asphalt Concrete (HMAC)
- Asphalt Treated Base (A.T.B.)

PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	SANITARY SEWER PIPE LAID IN TRENCH	APPROVED MARCH 2008	REVISED AUG 2019
		DD-804-01	SHEET 1 OF 1



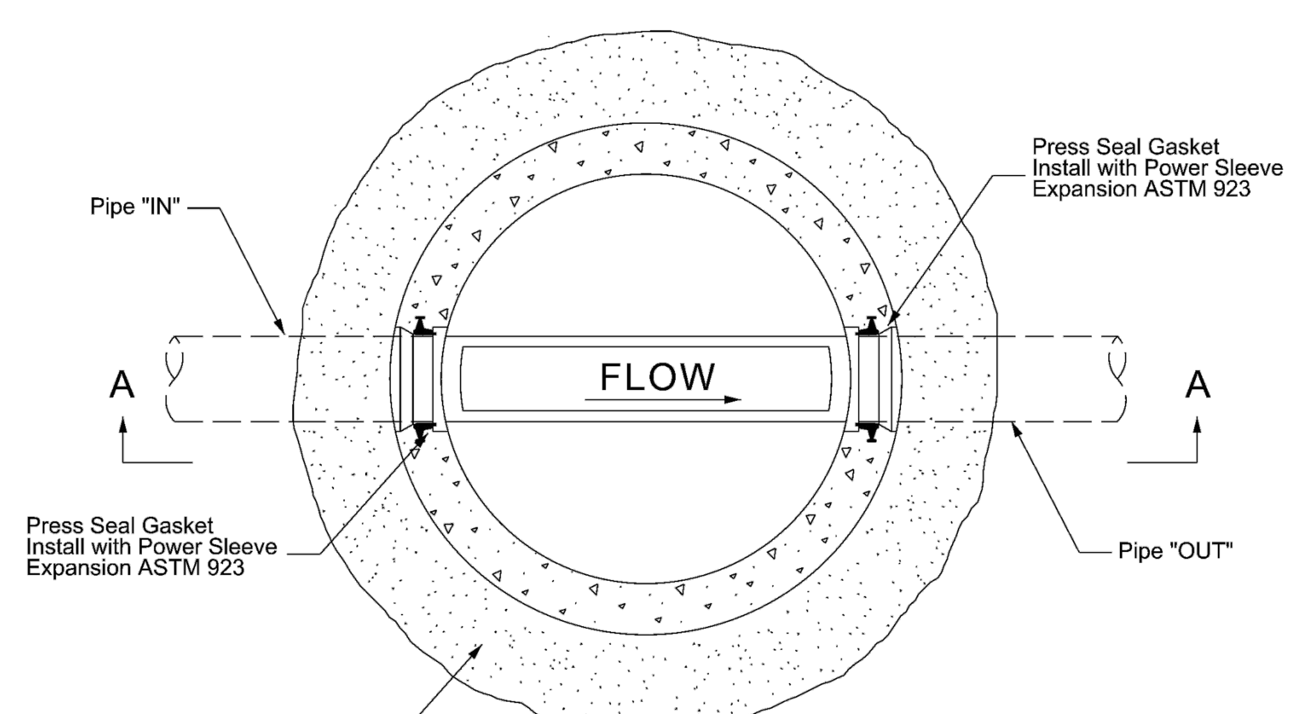
NOTES:
1. The Compaction Report will indicate the Station and the Depth of each Test Point.
2. When Contractor opts to backfill, all work will be subject to sections 804.3 and 804.4 of this specification.
3. Insure Compaction Probe Penetrates to same Depth as Lift.

PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	TRENCH COMPACTION DETAIL	APPROVED MARCH 2018	REVISED AUG 2019
		DD 804-02	SHEET 1 OF 1

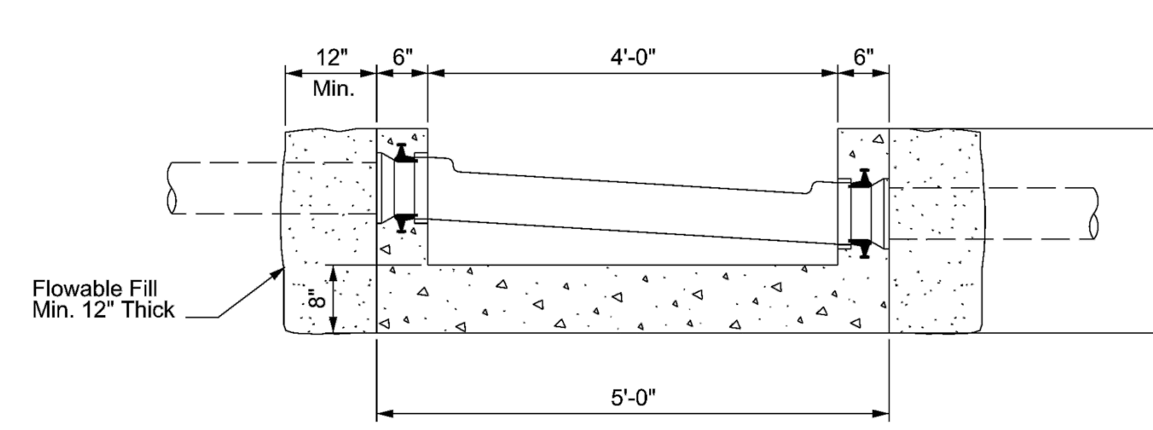


NOTE:
1. The Concrete Shall be 4000 PSI Minimum and Reinforced with No. 4 Bars as Shown.
2. The Concrete Shall Extend to Edge of Saw Cut Pavement.
3. Manhole Ring Encasement is Required on all Manholes.
4. Manhole Lid shall Open in the Direction of Traffic or Downstream in Parkway

PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	MANHOLE RING ENCASEMENT DETAIL	APPROVED AUGUST 2009	REVISED AUG 2019
		DD 852-03	SHEET 1 OF 2

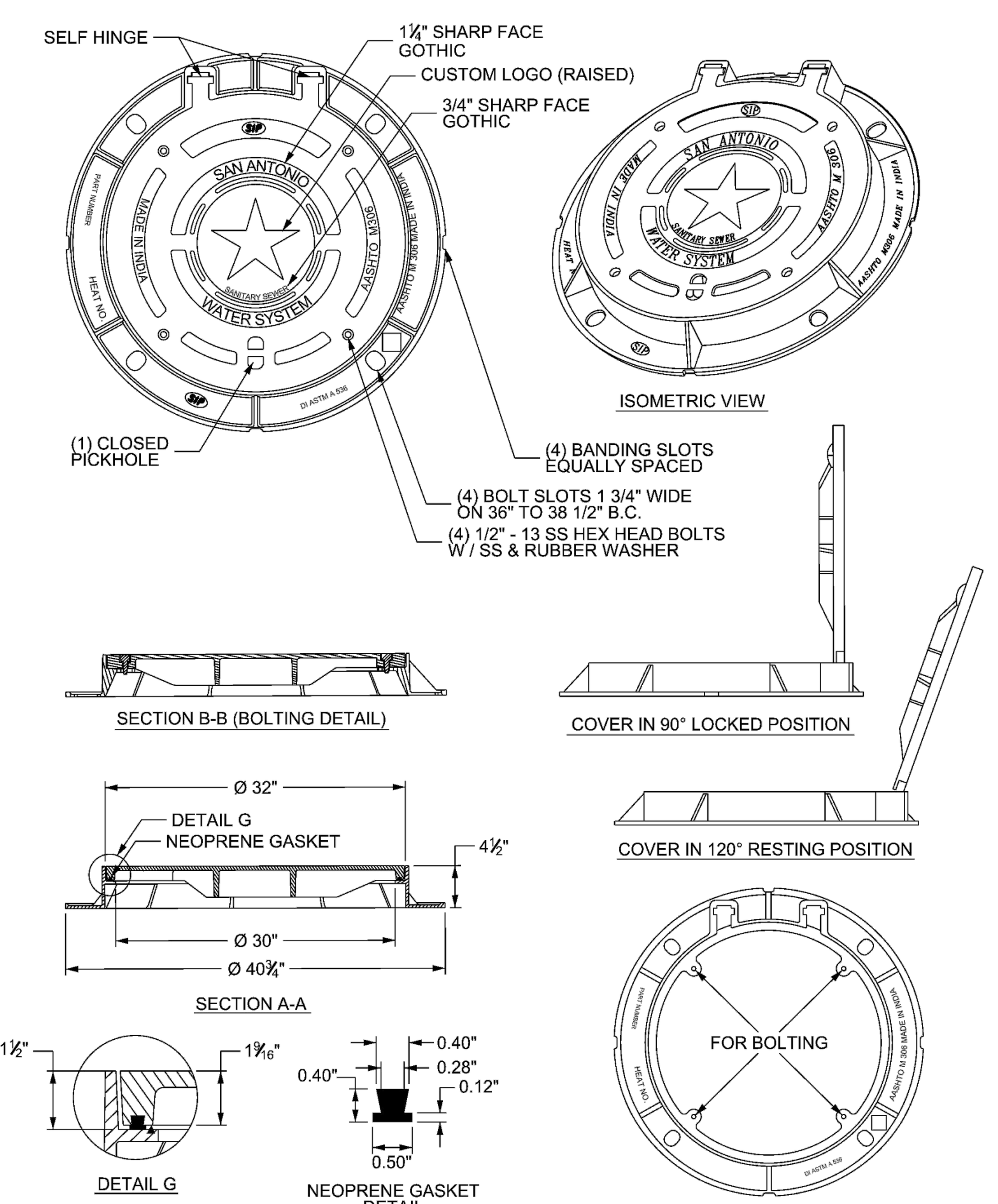


PLAN



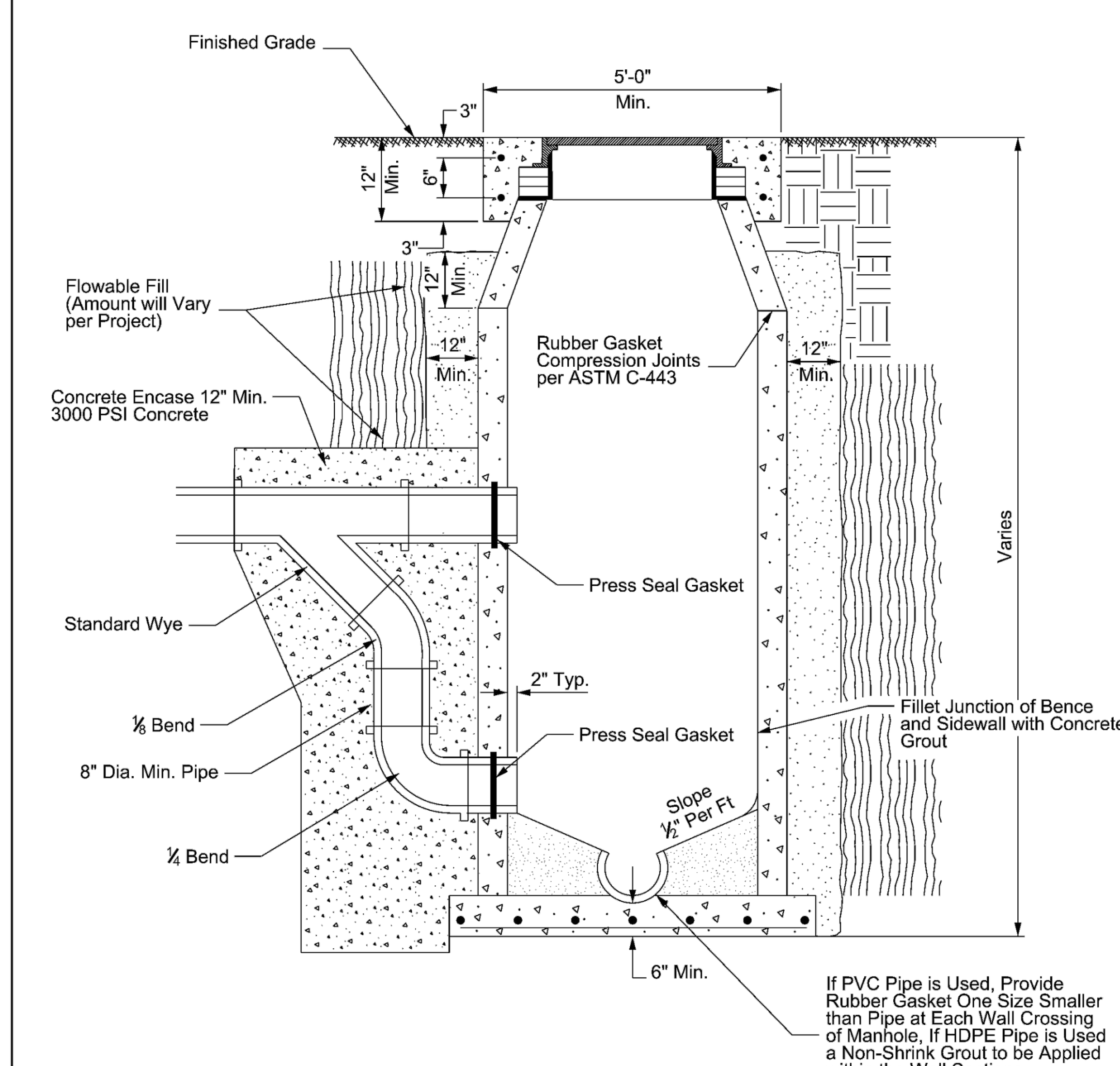
SECTION A-A

PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	PRECAST MANHOLE BASE STRAIGHT THROUGH	APPROVED MARCH 2008	REVISED AUG 2019
		DD-852-05	SHEET 1 OF 1



SIP Industries

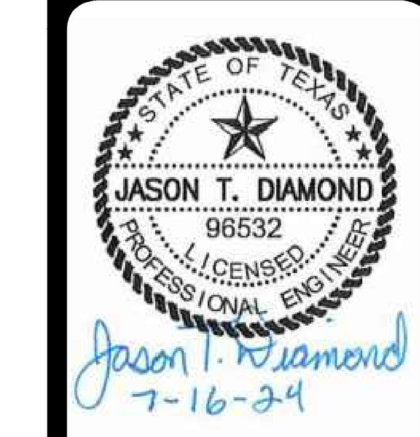
PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	30" MANHOLE RING AND COVER DETAIL	APPROVED	REVISED AUG 2019
		DD 852-07	SHEET 1 OF 5



NOTE: Price for Drop Fittings and Encasement to be Included with the Price of Manhole.

PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	DROP MANHOLE DETAIL	APPROVED MARCH 2008	REVISED AUG 2019
		DD-852-08	SHEET 1 OF 1

NO.	REVISION	DATE



PAPE-DAWSON ENGINEERS

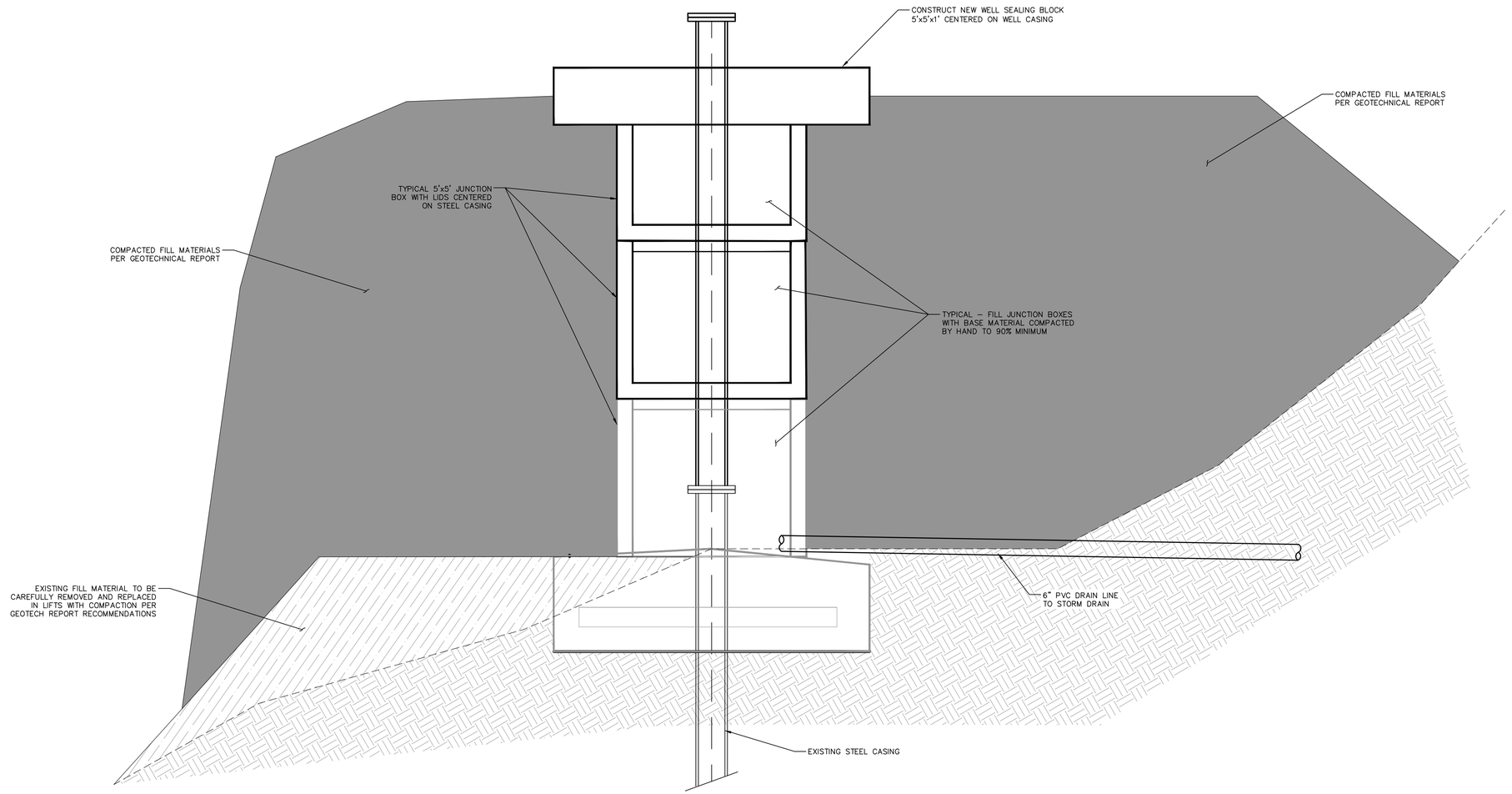
SAN ANTONIO I AUSTIN I HOUSTON I FORT WORTH I DALLAS
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS

SANITARY SEWER DETAILS SHEET 1

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C7.10

PRELIMINARY



LADERA PILOT WELL CASING EXTENSION DETAIL

SCALE: 1"=2'

NO.	REVISION	DATE

STATE OF TEXAS
JASON T. DIAMOND
98532
LICENSED
PROFESSIONAL ENGINEER
Jason T. Diamond
7-16-24

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
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LADERA WATER PRODUCTION FACILITY
SITE GRADING / RETAINING WALLS
SAN ANTONIO, TEXAS

PILOT WELL CASING EXTENSION DETAIL

PLAT NO. ---
JOB NO. 6445-76
DATE JULY 2024
DESIGNER BL
CHECKED RG DRAWN AL
SHEET C8.00

Date: Jul 16, 2024, 11:06am User ID: dloughlin
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PRELIMINARY