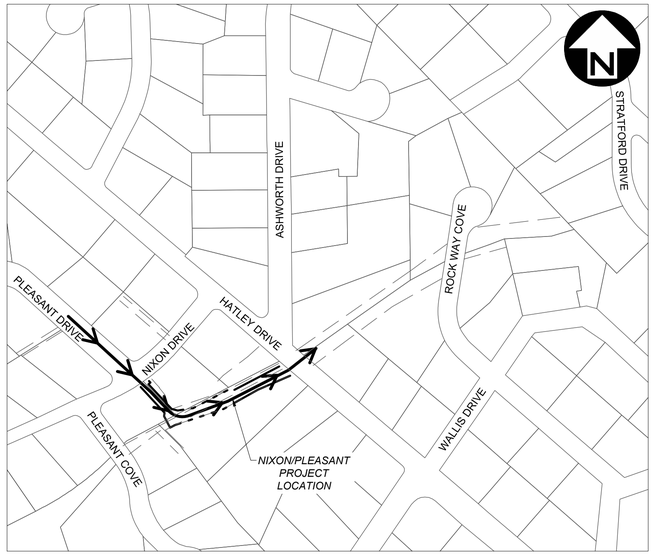
CITY OF ROLLINGWOOD, TEXAS

CITY OF ROLLINGWOOD
PROPOSED DRAINAGE IMPROVEMENTS
FOR PLEASANT DRIVE AND NIXON DRIVE

SHEET INDEX



LOCATION MAP
N.T.S.

MAYOR
GAVIN MASSINGILL

COUNCIL MEMBERS
SARA HUTSON
ALEC ROBINSON
BROOK BROWN
PHIL McDUFFEE
KEVIN GLASHEEN

CITY ADMINISTRATOR
ASHLEY WAYMAN

ROLLINGWOOD TEXAS

PREPARED & SUBMITTED FOR APPROVAL BY:

PRELIMINARY

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF ABE A. SALINAS III, P.E. LIC. # 105144 4/12/2023

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING OR PERMIT PURPOSES.

ABE A. SALINAS III, P.E. DATE

RECOMMENDED FOR APPROVAL BY:

MAYOR GAVIN MASSINGILL - CITY OF ROLLINGWOOD DATE

ASHLEY WAYMAN - CITY ADMINISTRATOR DATE

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PROGRESS SUBMITTAL - FOR REVIEW ONLY

CITY OF ROLLINGWOOD
PROPOSED DRAINAGE IMPROVEMENTS

GENERAL NOTES:

1. THE CONTRACTOR WILL NOTIFY THE OWNER'S REPRESENTATIVE FORTY-EIGHT (48) HOURS IN ADVANCE OF BEGINNING ANY CONSTRUCTION IN THE RIGHT OF WAY OR EASEMENTS.

2. THE INFORMATION SHOWN ON THESE DRAWINGS INDICATING TYPE AND LOCATION OF SURFACE, SUBSURFACE, AND AERIAL UTILITIES IS NOT GUARANTEED TO BE EXACT OR COMPLETE. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT TYPE AND LOCATION OF ALL UTILITIES AFFECTED BY THE CONSTRUCTION IN ORDER TO AVOID DAMAGING THOSE UTILITIES.

3. THE CONTRACTOR SHALL COORDINATE WITH OTHER CONTRACTORS AND UTILITIES IN THE VICINITY OF THIS PROJECT. THIS INCLUDES, BUT IS NOT LIMITED TO, GAS, WATER, WASTEWATER, ELECTRIC, TELEPHONE, CABLE TELEVISION, PETROLEUM PIPELINES, FIBER OPTIC, STREET, DRAINAGE, AND ANY OTHER WORK OCCURRING IN OR NEAR THE PROJECT SITE. ONCE THE CONTRACTOR BECOMES AWARE OF A POSSIBLE CONFLICT, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OWNER'S REPRESENTATIVE IMMEDIATELY, BUT NO LATER THAN TWENTY-FOUR (24) HOURS AFTER DISCOVERY.

4. SHOULD THE CONTRACTOR DAMAGE A UTILITY DURING THE COURSE OF THE WORK, THE CONTRACTOR SHALL IMMEDIATELY ARRANGE FOR REPAIR AND RESTORATION OF THE DAMAGED UTILITY. THE EXPENSE FOR THESE REPAIRS WILL BE AT THE CONTRACTOR'S SOLE EXPENSE.

5. ALL EXISTING STRUCTURES, FACILITIES, AND UTILITIES DAMAGED BY CONSTRUCTION SHALL BE REMOVED AND RESTORED WITH MATERIALS EQUAL TO OR BETTER THAN THE ORIGINAL. UNLESS OTHERWISE NOTED IN THE PLANS, THIS WILL NOT BE MEASURED AND PAID FOR DIRECTLY, BUT SHALL BE AT THE CONTRACTOR'S SOLE EXPENSE.

6. THE CONTRACTOR SHALL UNCOVER AND VERIFY THE DEPTHS AND HORIZONTAL LOCATION OF ALL EXISITNG WATER, WASTEWATER, AND GAS MAINS TO BE ALTERED OR SUBJECT TO DAMAGE OR INCONVENIENCE BY THIS PROJECT PRIOR TO COMMENCING CONSTRUCTION. NO SEPERATE PAY ITEM.

7. SLOPES OF ROADWAY CUTS AND EMBANKMENTS DAMAGED BY ANY OPERATION OF THE CONTRACTOR DURING THE EXECUTION OF THIS PROJECT SHALL BE REPAIRED AND RESTORED TO THE ORIGINAL PRE-CONSTRUCTION CONDITION. BACKFILL AND FILL PLACED DURING REMEDIAL GRADING SHALL BE COMPACTED TO AT LEAST 95% COMPACTION AND TO THE SATISFACTION OF THE ENGINEER AND GOVERNING AUTHORITIES.

8. THE SITE IS LOCATED IN THE EDWARD'S AQUIFER RECHARGE ZONE.

9. THE CONTRACTOR SHALL NOTIFY ALL RESIDENTS WITHIN THE CONSTRUCTION AREAS 48 HOURS PRIOR TO BEGINNING CONSTRUCTION OF THE PROJECT VIA DOOR FLYERS. THE FLYER IS TO CONSIST OF, BUT IS NOT LIMITED TO:
   A. CONSTRUCTION START DATE AND ESTIMATED COMPLETION DATE.
   B. DESCRIPTION OF CONSTRUCTION.
   C. TIME FRAME THE RESIDENT WILL BE WITHOUT WATER IF TEMPORARY SHUTDOWNS ARE REQUIRED, PROVIDED 48 HOURS IN ADVANCE OF WORK.
   D. CONTRACT0R'S CONTACT INFORMATION.
   E. CITY'S CONTACT INFORMATION.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ANY NECESSARY OFF--SITE LOCATIONS FOR STORAGE OF ALL EQUIPMENT AND MATERIALS REQUIRED FOR THE CONSTRUCTION OF THE PROJECT.

11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL OF ALL WASTE MATERIALS DURING CONSTRUCTION AND UPON COMPLETION. THIS WORK WILL BE DONE IN A TIMELY MANNER AS APPROVED BY THE ENGINEER. THIS WORK WILL NOT BE PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

12. BLASTING WITHIN THE PROJECT AREA WILL NOT BE ALLOWED.

13. THE CONTRACTOR SHALL BE PREPARED WITH ROCK EXCAVATION EQUIPMENT CAPABLE OF RIPPING THROUGH VERY HARD LIMESTONE SHOULD IT BE ENCOUNTERED FOR THE CONSTRUCTION SITE. BORING LOGS ARE PROVIDED IN THE GEOTECHNICAL REPORT FOR INFORMATIONAL PURPOSES ONLY. CONTRACTOR RESPONSIBLE FOR PERFORMING THEIR OWN TESTING IN THE FORM OF TEST PITS TO DETERMINE THE QUANTITIES OF THE DIFFERENT MATERIALS TO BE EXCAVATED, AS WELL AS THE PREFERRED METHODS AND EQUIPMENT FOR THIS SITE.

14. CONTRACTOR WILL MINIMIZE USE OF STREET PARKING BY THEIR EMPLOYEES AND SUBCONTRACTORS IN THE VICINITY OF THE CONSTRUCTION AREA.

15. ALL LOCATIONS USED FOR STORING CONSTRUCTION EQUIPMENT, MATERIALS, AND STOCKPILES OF ANY TYPE WITHIN THE CONSTRUCTION LIMITS SHALL BE APPROVED IN ADVANCE BY THE OWNER'S REPRESENTATIVE. USE OF THE AREA WITHIN THE CONSTRUCTION LIMITS FOR THESE PURPOSES WILL BE RESTRICTED TO THOSE LOCATIONS WHERE DRIVER SIGHT DISTANCE TO BUSINESSES AND SIDE STREET INTERSECTIONS IS NOT OBSTRUCTED AND AT OTHER LOCATIONS WHERE AN UNSIGHTLY APPEARANCE AS DETERMINED BY THE OWNER'S REPRESENTATIVE WILL NOT EXIST.

16. ALL SITE WORK MUST COMPLY WITH ENVIRONMENTAL REQUIREMENTS INCLUDING TCEQ, TPDES STANDARDS, CLEANWATER ACT, TPDES GENERAL PERMIT TXR150O00 (MS4), AND CITY OF ROLLINGWOOD REQUIREMENTS.

17. IF CULTURAL RESOURCES ARE ENCOUNTERED DURING CONSTRUCTION (ARCHAEOLOGICAL FINDS UNEARTHED) CONTRACTOR SHALL STOP WORK IN THAT AREA AND IMMEDIATELY CONTACT THE TEXAS HISTORICAL COMMISSION AT (512)463--6100.

18. THE CONTRACTOR SHALL FURNISH, INSTALL AND MAINTAIN BARRICADES, WARNING SIGNS, FLASHERS AND OTHER DEVICES OF THE TYPE AND SIZE AS INDICATED IN THE LATEST EDITION OF THE 'TEXAS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" OR AS DIRECTED BY THE ENGINEER.

19. THE CONTRACTOR SHALL ENSURE THAT ADEQUATE SAFETY PRECAUTIONS ARE MAINTAINED AT ALL TIMES REGARDING AREAS OF OPEN PIPE TRENCH. ALL PIPE TRENCHES SHALL BE COVERED AT ALL TIMES WHEN CONSTRUCTION IS NOT IN PROGRESS. THE TRENCH COVERING SHALL BE CAPABLE OF SUPPORTING TRAFFIC LOADS.

20. ALL TRENCH SAFETY CONSTRUCTION OPERATIONS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH OSHA SPECIFICATIONS, STATE OF TEXAS REQUIREMENTS, AND CONTRACT DOCUMENTS WHICH INCLUDE A TRENCH SAFETY PLAN AND A PAY ITEM FOR TRENCH SAFETY MEASURES.

21. THE CONTRACTOR SHALL ARRANGE THE OPERATION IN SUCH A MANNER AS TO AVOID UNNECESSARY INCONVENIENCE TO THE PUBLIC IN CONSTRUCTION AREAS..

22. CONTRACTOR SHALL NOTIFY THE CITY OF ROLLINGWOOD POLICE DEPARTMENT (512-328-1900) AND THE WESTLAKE FIRE DEPARTMENT (512-539-3400) OF THE CONSTRUCTION SCHEDULES AT LEAST TWO WEEKS IN ADVANCE OF PROPOSED CONSTRUCTION OPERATIONS. CONTRACTOR SHALL PROVIDE PERTINENT INFORMATION ABOUT LANE CLOSURES AND DETOURS AND ANY OTHER CONSTRUCTION RELATED ACTIVITY WHICH MAY INTERFERE WITH NORMAL SERVICES.

23. CONTRACTOR SHALL MAINTAIN THE JOB SITE IN A SAFE, NEAT AND WORKMAN-LIKE MANNER AT ALL TIMES. JOB SITE SAFETY SHALL NOT BE COMPROMISED ANY UNATTRACTIVE NUISANCE SHALL BE REMOVED OR CAMOUFLAGED BY CONTRACTOR WHEN DIRECTED BY THE OWNER OR ENGINEER. CONTRACTOR SHALL REMOVE OR CAMOUFLAGE ANY CHILD ATTRACTIVE NUISANCE.

24. ALL CONSTRUCTION EQUIPMENT INVOLVED IN ROADWAY WORK SHALL BE EQUIPPED WITH A PERMANENTLY- MOUNTED 360-DEGREE REVOLVING OR STROBE WARNING LIGHT AMBER LENS IN WORKING ORDER. THIS LIGHT SHALL HAVE A MINIMUM LENS HEIGHT OF 5" AND A DIAMETER OF 5". THIS LIGHT SHALL HAVE A MOUNTING HEIGHT OF NOT LESS THAN 6 FEET ABOVE ROADWAY SURFACE AND SHALL BE VISIBLE FROM ALL SIDES. THIS EQUIPMENT SHALL ALSO HAVE ATTACHED AT EACH SIDE OF THE REAR END OF THE VEHICLE AN APPROVED ORANGE WARNING FLAT MOUNTED, NOT LESS THAN 6 FEET ABOVE THE ROADWAY SURFACE.

25. EXCAVATION EXCEEDING THE STANDARD PLATING DETAIL SHALL HAVE MATERIAL ONSITE TO BACKFILL OR CONTRACTOR TO PROVIDE STRUCTURAL ENGINEERED PLATING PLANS TO THE CITY OF ROLLINGWOOD PUBLIC WORKS DEPARTMENT FOR APPROVAL PRIOR TO STARTING WORK.

26. OVERNIGHT PROTECTION OF WORK ZONE IN CITY OF ROLLINGWOOD R.O.W., REFER TO CITY OF AUSTIN STANDARD DETAIL 804S-4, 1 THRU 4 OF 9. IF PLATING IS NEEDED, REFER TO STANDARD DETAIL 804S-4, 7 OF 9.

27. CONTRACTOR SHALL PERFORM WORK ONLY DURING HOURS ALLOWED PER THE CURRENT ORDINANCES.

28. THE CONTRACTOR SHALL RE-ESTABLISH ANY PROPERTY MARKER, BENCHMARK, ETC. DISTURBED DURING CONSTRUCTION TO ITS ORIGINAL LOCATION AND ELEVATION. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE VERTICAL AND HORIZONTAL CONTROL SHOWN ON THE PLANS THROUGHOUT THE PROJECT, RE-ESTABLISH DISTURBED OR DESTROYED ITEMS BY REGISTERED LAND SURVEYOR IN THE STATE OF TEXAS AT NO ADDITIONAL COST TO THE CITY.

29. FENCES, GATES, GROUND SURFACES, CURBS, DRIVEWAYS, MAILBOXES, ETC. SHALL BE LEFT IN A CONDITION EQUAL TO OR BETTER THAN THAT FOUND.

30. LANDSCAPED AREAS SHALL BE LEFT UNDISTURBED AS MUCH AS POSSIBLE DURING CONSTRUCTION. ALL AREAS THAT HAVE BEEN DISTURBED DURING CONSTRUCTION SHALL BE RE-SODDED, RE-VEGETATED AND RESTORED TO ORIGINAL OR BETTER CONDITIONS. ALL NEW VEGETATION MUST BE OF THE SAME SPECIES AS ORIGINAL CONDITIONS.

31. ACCESS TO ALL SIDE STREETS AND DRIVEWAYS SHALL BE MAINTAINED AT ALL TIMES AT THE SOLE EXPENSES OF THE CONTRACTOR UNLESS OTHERWISE DIRECTED BY THE OWNER'S REPRESENTATIVE.

32. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH ALL PROPERTY OWNERS PRIOR TO ANY FENCE OR GATE REMOVAL FOR PET MANAGEMENT PURPOSES.

33. CONTRACTOR IS RESPONSIBLE FOR VERIFYING CONDITION OF ANY IRRIGATION LINES PRIOR TO CONSTRUCTION.

34. CONTRACTOR IS RESPONSIBLE FOR COORDINATING RELOCATION OF PRIVATE IRRIGATION LINES WITH ALL PROPERTY OWNERS PRIOR TO CONSTRUCTION.

35. SHOULD CONSTRUCTION IMPACT RESIDENTS RECEIVING SOLID WASTE COLLECTION SERVICES (GARBAGE COLLECTION, RECYCLING COLLECTION, ORGANICS COLLECTION, BRUSH COLLECTION, BULK-TRASH COLLECTION), CONTRACTOR SHALL NOTIFY PROGRESSIVE WASTE SERVICES AT 512-282-3508 TO JOINTLY COORDINATE A SERVICE DELIVERY PLAN IN ORDER TO MINIMIZE DISRUPTION OF ROUTINE SOLID WASTE COLLECTION SERVICES DURING CONSTRUCTION.

36. CONTRACTOR AGREES TO ABIDE BY THE LANDOWNERS WRITTEN CONDITIONS IN LANDOWNER AGREEMENTS INCLUDING THOSE RELATED TO PLACEMENT, COMPACTION, RESTORATION, AND EROSION CONTROL MEASURES OF THE SITE(S). IT IS THE CONTRACTORS RESPONSIBILITY TO OBTAIN WRITTEN APPROVAL FROM THE LANDOWNER(S) PRIOR TO PLACEMENT, AND THAT ANY COSTS THE CITY INCURS TO ADDRESS LEGITIMATE LANDOWNER CONCERNS WILL BE CONSIDERED AND MAY BE DEDUCTED FROM THE CONTRACTOR'S FINAL PAYMENT AS DETERMINED BY THE CITY. THE CITY RESERVES THE RIGHT TO REQUEST A COPY OF THE AGREEMENT BETWEEN THE LANDOWNER AND THE CONTRACTOR.

37. CONTRACTOR TO REPAIR OR REPLACE IN KIND, AT ITS OWN EXPENCE ANY STRUCTURES DAMAGED IN THE COURSE OF EXECUTING THE WORK.

STREET CONSTRUCTION SPECIAL NOTE:

ALL DAMAGE CAUSED DIRECTLY OR INDIRECTLY TO THE STREET SURFACE, SIDEWALK, DRIVEWAY, CURB & GUTTER, OR SUBSURFACE OUTSIDE OF THE PAVEMENT CUT AREA SHALL BE REGARDED AS A PART OF THE STREET CUT REPAIR. THIS INCLUDES ANY SCRAPES, GOUGES, CUTS, CRACKING, DEPRESSIONS, AND/OR ANY OTHER DAMAGE CAUSED BY THE CONTRACTOR DURING THE EXECUTION OF THE WORK. THESE REPAIR AREAS WILL BE INCLUDED IN THE TOTAL AREA OF RESTORATION. THESE AREAS SHALL BE SAW CUT IN STRAIGHT, NEAT LINES PARALLEL TO THE EXCAVATION OR UTILITY TRENCH AND TO THE NEXT EXISTING JOINT FOR SIDEWALKS AND CURB & GUTTER. ALL SUCH REPAIRS SHALL BE AT THE CONTRACTOR'S EXPENSE AND SHALL MEET ALL STANDARDS, AND SPECIFICATIONS.

PLAN NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING AND INSPECTING, ON A REGULAR BASIS, ALL EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES, INCLUDING SILT FENCES, CONSTRUCTION ENTRANCES, ROCK FILTER DAMS, ETC., DURING CONSTRUCTION/DEMOLITION AND INCLUDING THE REMOVAL AND PROPER DISPOSAL OF ANY ACCUMULATED SILT AND DEBRIS.

2. THE CONTRACTOR SHALL NOT BEGIN ANY WORK UNTIL TREE PROTECTION AND THE EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES SUCH AS SILT FENCE, CONSTRUCTION ENTRANCES, ROCK FILTER DAMS, ETC., HAVE BEEN INSTALLED.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING THE STREETS FREE OF MUD, DIRT, DEBRIS AND MATERIAL AT ALL TIMES AND SHALL CLEAN/SWEEP THE STREETS ON A REGULAR BASIS AND AT THE DIRECTION OF THE CITY.

4. INCREASED STORMWATER PEAK FLOWS DURING CONSTRUCTION MUST BE MITIGATED WITH TEMPORARY BEST MANAGEMENT PRACTICES TO PREVENT HARM TO NEIGHBORING PROPERTIES.

SCHEDULING

1. CONTRACTOR TO PROVIDE ENGINEER WITH AN UPDATED SCHEDULE WEEKLY. IF NO CHANGES ARE MADE TO THE SCHEDULE FROM THE LAST SUBMITTAL, THE CONTRACTOR IS TO NOTIFY THE ENGINEER OF NO CHANGES.

2. THE CONTRACTOR SHALL SUBMIT A DETAILED SCHEDULE OF CONSTRUCTION WHICH COMPLIES WITH THE FOLLOWING SEQUENCE:
   A. INSTALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS IMMEDIATELY PRIOR TO CONSTRUCTION.
   B. SET UP TEMPORARY TRAFFIC CONTROL AREAS.
   C. INSTALL UTILITIES, STRUCTURES, AND PERFORM GRADING AS INDICATED ON CONSTRUCTION PLANS.
   D. PERFORM STREET REC0NSTRUCTION IN AREAS AS NOTED. CONTRACTOR SHALL EXCAVATE AND INSTALL SECTIONS OF FLEXIBLE BASE MATERIAL AND HMAC UP TO THE TOP OF PROPOSED GRADE IN ONE DAY.
   E. REPAIR CURB AND GUTTER, SIDEWALK CURB RAMP AND OTHER FEATURES AS NOTED.
   F. COMMENCE RESTORATION AND REVEGETATION IMMEDIATELY UPON COMPLETION OF EACH PHASE OF THE PROJECT.

UTILITIES

1. AT LEAST 48 HOURS BEFORE BEGINNING ANY CONSTRUCTION IN PUBLIC R.O.W. OR PUBLIC EASEMENT, THE CONTRACTOR SHALL NOTIFY PUBLIC WORKS.

2. THE CONTRACTOR SHALL CONTACT THE ROLLINGWOOD AREA "ONE" CALL SYSTEM AT 1-800-344-8377 FOR EXISTING UTILITY LOCATIONS PRIOR TO ANY EXCAVATION IN ADVANCE OF CONSTRUCTION. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UTILITIES TO BE EXTENDED, TIED TO, OR ALTERED OR SUBJECT TO DAMAGE/INCONVENIENCE BY THE CONSTRUCTION OPERATIONS. THE CITY OF ROLLINGWOOD WATER AND WASTEWATER MAINTENANCE RESPONSIBILITY ENDS AT R.O.W./EASEMENT LINES.

3. ALL MATERIALS TESTS, INCLUDING SOIL DENSITY TESTS AND DETAILED SOIL ANALYSES, SHALL BE CONDUCTED BY AN INDEPENDENT LABORATORY AND FUNDED BY THE OWNER IN ACCORDANCE WITH CITY OF AUSTIN STANDARD SPECIFICATION ITEM 18045.04.

4. ALL MATERIAL USED ON THIS PROJECT MUST BE LISTED ON THE CITY OF AUSTIN STANDARD PRODUCTS LISTING.

5. SEWER SERVICES BROKEN BY CONTRACTOR DURING CONSTRUCTION SHALL BE REPLACED BY CONTRACTOR. REPLACEMENT LENGTH IS DEPENDENT ON EXTENT OF DAMAGE. REPLACEMENT PIPE SHALL BE 4" PVC (OR LARGER) SDR 26 AND ATTACHED TO EXISTING SERVICE WITH FLEXIBLE FERNCO CONNECTORS WITH STAINLESS STEEL CLAMPS OR APPROVED EQUAL, WITH NO SEPARATE PAY.

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION BETWEEN THEMSELF AND OTHER CONTRACTORS AND UTILITIES IN THE VICINITY OF THIS PROJECT. THIS INCLUDES, BUT IS NOT LIMITED TO GAS, WATER, WASTEWATER, ELECTRICAL, TELEPHONE, COMMUNICATIONS NETWORKS, CABLE TELEVISION, PETROLEUM PIPELINES, AND STREET AND POSSIBLE CONFLICT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE CONSTRUCTION INSPECTOR WITHIN TWENTY- FOUR (24) HOURS.

7. CONTRACTOR TO ACQUIRE ALL REQUIRED PERMITS.

CONSTRUCTION NOTES:

1. WHERE REMOVAL OF BASE AND PAVEMENT IS NECESSARY FOR THE PROJECT, ALL BASE AND PAVEMENT SHALL BE REPLACED IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS, CITY OF AUSTIN, STANDARD SPECIFICATIONS AND STANDARD DETAILS FOR CUT IN PUBLIC RIGHT-OF-WAY. ALL PAVEMENT CUTS SHALL BE SAW-CUT PRIOR TO PLACEMENT OF HMAC.

2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE, PRESERVE AND RESET STREET MARKERS AND TRAFFIC CONTROL SIGNS THAT ARE WITHIN THE CONSTRUCTION LIMITS, AS NECESSARY, TO THE LINE AND HEIGHT AS DESCRIBED IN THE LATEST EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES BEFORE AND DURING ALL CONSTRUCTION PHASES AND UPON THE COMPLETION OF CONSTRUCTION. SIGNS SHALL NOT BE LAID ON THE GROUND. NO PAYMENT WILL BE MADE FOR THIS WORK, BUT IT WILL BE CONSIDERED SUBSIDIARY TO OTHER BID ITEMS.

3. THE CONTRACTOR SHALL SCHEDULE HIS WORK TO MINIMIZE EXPOSURE OF SUBGRADE TO RAIN. IF SUBGRADE IS EXPOSED, CONTRACTOR SHALL UNDERTAKE EXTRA MEASURES TO ACCELERATE DRYING OF THE SUBGRADE INCLUDING PUMPING OF EXCESS WATER AND REWORKING OF THE SUBGRADE AT HIS OWN EXPENSE TO ALLOW THE WORK TO CONTINUE.

4. ALL RECONSTRUCTION PREPARATION WORK AND PAVING SHALL BE COMPLETED IN A MANNER SO AS TO PROVIDE A SMOOTH RIDING SURFACE FREE OF BUMPS, DIPS, AND RIPPLES AND A SMOOTH UNIFORM APPEARANCE. THE FINISHED SURFACE SHALL APPROXIMATE THE EXISTING PROFILE.

5. CONCRETE SHALL BE REPLACED NO LATER THAN FOUR (4) WORKING DAYS AFTER EXCAVATION OF THE SITE.

6. EXPANSION JOINTS SHALL BE PROVIDED AT THE TIE-IN OF NEW CURB AND GUTTER TO EXISTING CURB AND GUTTER AND AT OTHER LOCATIONS AS SHOWN ON THE PLANS OR AS INSTRUCTED BY THE ENGINEER.

7. CONTRACTOR SHALL TRIM SHRUBS AND TREES TO PROVIDE CONSTRUCTION CLEARANCE. ALL PRUNING PROPOSED TO BE APPROVED IN ADVANCE BY CITY OF ROLLINGWOOD.

8. SODDING FOR EROSION CONTROL SHALL BE APPLIED AS SPECIFIED IN THE PERMANENT EROSION CONTROL NOTES OVER AREAS DISTURBED BY CONSTRUCTION ACTIVITIES AS DESIGNATED BY THE ENGINEER. SODDING SHALL BE WATERED UNTIL A UNIFORM 1 /2" GROWTH IS ESTABLISHED. AT WHICH TIME THE PAYMENT WILL BE MADE, SUBJECT TO APPROVAL BY GENERAL PERMIT PROGRAM OFFICE. WATERING IS INCLUDED IN PAYMENT FOR SODDING.

9. CONTRACTOR'S EQUIPMENT SHALL NOT BE LEFT RUNNING WHEN LEFT UNATTENDED OR LEFT IN ONE LOCATION FOR MORE THAN FIVE (5) MINUTES WHILE ATTENDED.

REV NO.	BY	DATE	REVISION DESCRIPTION

100% SUBMITTAL

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CITY OF ROLLINGWOOD, TEXAS

CITY OF ROLLINGWOOD
PROPOSED DRAINAGE IMPROVEMENTS

GENERAL NOTES (1 OF 2)

ROLLINGWOOD TEXAS

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NOTES	NAME	DATE
SURVEY BY	####	####
DRAWN BY	AH	08/21
DESIGNED BY	LWM	08/21
CHECKED BY	GE	08/21
REVIEWED BY		

G002 | 2 OF 49

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CONSTRUCTION ACCESS AND SEQUENCING NOTES:

1. CHANNEL DEMOLITION AND CONSTRUCTION SHALL BE SEQUENCED FROM DOWNSTREAM TO UPSTREAM. EACH SEGMENT MUST BE ACCEPTED BY THE CITY PRIOR TO COMMENCING NEXT SEGMENT. THE CONTRACTOR SHALL SUBMIT AN ALTERNATE SEQUENCING PLAN FOR REVIEW AND ACCEPTANCE BY THE CITY IN WRITING.
2. EROSION CONTROL MEASURES MUST BE IN PLACE PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES.
3. NO MORE THAN (10) WORKING DAYS SHALL PASS BETWEEN COMPLETION OF DEMOLITION AND COMMENCEMENT OF PROPOSED CHANNEL ACTIVITIES.
4. CONTRACTOR SHALL REQUEST WRITTEN AUTHORIZATION FROM CITY PRIOR TO MOVING TO A NEW SEGMENT OF CONSTRUCTION. ALLOW FOR 3 DAYS FROM AUTHORIZATION REQUEST TO RECEIVE AUTHORIZATION TO PROCEED.
5. CARE OF WATER SHALL BE PROVIDED AT ALL TIMES SO AS NOT TO IMPEDE THE FLOW OF STORMWATER.
6. CONTRACTOR SHALL MAINTAIN DRAINAGE BETWEEN THE EXISTING CULVERT AND PROPOSED CULVERT AT 300 PLEASANT DURING ALL PHASES.
7. SUGGESTED POINTS OF ACCESS ARE SHOWN TO ASSIST THE CONTRACTOR WITH DEMOLITION AND MATERIAL ENTRY. LETTERS OF PERMISSION FOR THESE LOCATIONS ARE NOT INCLUDED WITH THE BID CONTRACT DOCUMENTS AND WILL BE COORDINATED WITH THE CITY.
8. CONTRACTOR SHALL NOTIFY PROPERTY OWNERS 48 HOURS PRIOR TO BEGINNING ANY CONSTRUCTION RELATED ACTIVITIES ON THEIR PROPERTY.
9. CONTRACTOR SHALL MAINTAIN UP-TO-DATE COPIES OF ALL RIGHT-OF-ENTRY FORMS ON THE PROJECT SITE.
10. UPON COMPLETION OF WORK ALL STAGING AREAS SHALL BE RESTORED TO THE ORIGINAL LINES, GRADES, CLEARED OF ALL BRUSH AND DEBRIS, AND REVEGETATED PER SPECIFICATION 609S UNLESS OTHERWISE SPECIFIED IN THE PLANS.
11. ALL TREES, SIGNS, WALKWAYS, UTILITIES AND OTHER PHYSICAL FEATURES (WHETHER SHOWN OR NOT SHOWN ON THE PLANS) SHALL BE PROTECTED DURING CONSTRUCTION UNLESS OTHERWISE DIRECTED BY THE CITY OR IN THESE PLANS.
12. CONTRACTOR IS RESPONSIBLE FOR PROTECTING PRIVATE PROPERTY FROM DAMAGES, ALL PRIVATE PROPERTY DAMAGED BY CONSTRUCTION ACTIVITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
13. CONTRACTOR MAY NEGOTIATE ADDITIONAL ACCESS AND/OR STORAGE WITH INDIVIDUAL PROPERTY OWNERS AT THEIR EXPENSE.
14. CONTRACTOR IS RESPONSIBLE FOR EXPENSES DUE TO NEGLIGENCE.
15. CONTRACTOR SHALL OBTAIN APPROVAL FROM THE CITY TO REMOVE TREES NOT IDENTIFIED FOR REMOVAL ON THE DEMOLITION PLAN.
16. NO CONSTRUCTION STORAGE OR STAGING SHALL OCCUR WITHIN THE FEMA FLOODPLAIN.

CONSTRUCTION SEQUENCING NOTES:

1. PHASE 1 CONSTRUCTION ACTIVITIES SHALL INCLUDE CHANNEL CONSTRUCTION PROGRESSING FROM STATION 1+00 TO 4+75 DOWNSTREAM TO UPSTREAM.
2. PHASE 2 CONSTRUCTION ACTIVITIES SHALL INCLUDE CONSTRUCTION OF THE STORM DRAIN IMPROVEMENTS PROGRESSING FROM STATION 10+00.00 TO 13+80.00 DOWNSTREAM TO UPSTREAM.
3. CONSTRUCTION SHALL BE SEQUENCED IN A MANNER THAT WILL NOT DISTURB OR DAMAGE PREVIOUSLY CONSTRUCTED WORK.

PHASE 1: CHANNEL IMPROVEMENTS

1. PHASE 1 CONSTRUCTION ACTIVITIES SHALL INCLUDE CHANNEL CONSTRUCTION PROGRESSING FROM STATION 1+00 TO 4+50 DOWNSTREAM TO UPSTREAM.
2. INSTALL TEMPORARY FENCING AT 303 NIXON DRIVE TO ENCLOSE BACKYARD PERIMETER AREA PRIOR TO BEGINNING CONSTRUCTION. TEMPORARY FENCING SHALL REMAIN IN PLACE THRU DURATION OF CONSTRUCTION UNTIL NEW FENCING IS IN PLACE AND BACKYARD PERIMETER IS SECURED.
3. COORDINATE AND RELOCATE EXISTING TREE HOUSE AND SHED LOCATED AT 303 NIXON DRIVE. RELOCATION ON PROPERTY TO BE COORDINATED WITH PROPERTY OWNER.
4. PERFORM DEMOLITION AND REMOVAL OF LARGE ROCK, CONCRETE RIPRAP AND OTHER DELETERIOUS MATERIALS FROM THE EXISTING CHANNEL LOCATED ALONG 303 NIXON DRIVE AND REPLACE WITH SELECT FILL COMPACTED TO 95% STANDARD PROCTOR DENSITY.
5. CONSTRUCT CHANNEL IMPROVEMENTS INCLUDING EXCAVATION, GRADING, ACTIVITIES AND ROCK BOULDER PLACEMENT. CONTRACTOR TO PROVIDE MATERIAL SAMPLES PRIOR TO SELECTION AND DELIVERY OF ROCK BOULDERS.
6. CONTRACTOR SHALL PROVIDE 48 HOURS NOTICE TO THE CITY PRIOR TO PLACEMENT OF ROCK BOULDERS IN THE CHANNEL.
7. PLACEMENT OF TOP SOIL AND LANDSCAPE PLANTINGS SHALL BE PERFORMED AS PART OF PHASE 3 FINAL WORK.
8. COMPLETE ALL WORK IN THIS PHASE BEFORE STARTING PHASE 2.

PHASE 2: PLEASANT DRIVE IMPROVEMENTS

1. CONSTRUCT ALL STORM DRAIN AND ROADWAY IMPROVEMENTS WITHIN THE WORK ZONE PER THE PLANS. ADJUST ANY VALVES AND MANHOLES TO MEET PROPOSED GROUND ELEVATIONS FOR UTILITIES WITHIN THE WORK ZONE PER THE UTILITY PLANS.
2. CONSTRUCT THE STORM DRAIN BOX IN PHASES TO MAINTAIN ACCESS TO ALL RESIDENTIAL PROPERTIES WITHIN THE WORK ZONE. COORDINATE ANY REQUIRED DRIVEWAY CLOSURES WITH THE RESIDENTS OF THE PROPERTY AT LEAST 48 HOURS IN ADVANCE.
3. CONSTRUCTION OF STORM DRAIN BOX SHALL PROGRESS FROM DOWNSTREAM TO UPSTREAM. IT IS WITH THE INTENTION OF AIDING WITH CONSTRUCTABILITY AND ACCESS THAT CAST-IN-PLACE BOX CULVERT IS PROPOSED FROM STATIONS 10+32 TO 11+23. ALTERNATIVELY, THE CONTRACTOR MAY SUBMIT A PLAN FOR THE USE OF A PRECAST BOX FOR THIS SEGMENT, SUBJECT TO APPROVAL BY THE ENGINEER. NO ADDITIONAL WORK DAYS WILL BE AWARDED FOR THIS SUBSTITUTION.
4. DUE TO THE OVERALL SIZE OF THE STORM DRAIN WITHIN PLEASANT DRIVE, SAFETY IS OF THE UTMOST IMPORTANCE. MAINTAIN BARRIERS AND SAFETY FENCING AROUND ANY OPEN EXCAVATIONS. MAKE SURE ALL TRENCHES ARE FILLED IN AT THE END OF THE WORK DAY.
5. MAINTAIN 3:1 MAX SIDE SLOPES AT THE END OF EACH WORK DAY FOR PAVEMENT DROP-OFFS GREATER THAN 2'.

PHASE 3: FINAL WORK

1. CONSTRUCT FINAL 2" LIFT OF THE TYPE D HOT MIX ASPHALTIC PAVEMENT SURFACE LAYER USING TXDOT TRAFFIC CONTROL DETAILS FOR SURFACING OPERATIONS STANDARD (7-1) AND TXDOT TCP MOBILE OPERATIONS STANDARD (3-1).
2. PERFORM ANY REMAINING FINAL GRADING AND PLACE TOPSOIL AND SEEDING AND/OR SODDING, AND LANDSCAPE PLANTINGS.
3. REMOVE ALL TEMPORARY SW3P DEVICES AND TREE PROTECTION, AS DIRECTED.
4. PERFORM FINAL CLEANUP.

Texas Commission on Environmental Quality
Water Pollution Abatement Plan
General Construction Notes

Edwards Aquifer Protection Program Construction Notes – Legal Disclaimer

The following/listed "construction notes" are intended to be advisory in nature only and do not constitute an approval or conditional approval by the Executive Director (ED), nor do they constitute a comprehensive listing of rules or conditions to be followed during construction. Further actions may be required to achieve compliance with TCEQ regulations found in Title 30, Texas Administrative Code (TAC), Chapters 213 and 217, as well as local ordinances and regulations providing for the protection of water quality. Additionally, nothing contained in the following/listed "construction notes" restricts the powers of the ED, the commission or any other governmental entity to prevent, correct, or curtail activities that result or may result in pollution of the Edwards Aquifer or hydrologically connected surface waters. The holder of any Edwards Aquifer Protection Plan containing "construction notes" is still responsible for compliance with Title 30, TAC, Chapters 213 or any other applicable TCEQ regulation, as well as all conditions of an Edwards Aquifer Protection Plan through all phases of plan implementation. Failure to comply with any condition of the ED's approval, whether or not in contradiction of any "construction notes," is a violation of TCEQ regulations and any violation is subject to administrative rules, orders, and penalties as provided under Title 30, TAC § 213.10 (relating to Enforcement). Such violations may also be subject to civil penalties and injunction. The following/listed "construction notes" in no way represent an approved exception by the ED to any part of Title 30 TAC, Chapters 213 and 217, or any other TCEQ applicable regulation

1. A written notice of construction must be submitted to the TCEQ regional office at least 48 hours prior to the start of any regulated activities. This notice must include:
   - the name of the approved project;
   - the activity start date; and
   - the contact information of the prime contractor.
2. All contractors conducting regulated activities associated with this project must be provided with complete copies of the approved Water Pollution Abatement Plan (WPAP) and the TCEQ letter indicating the specific conditions of its approval. During the course of these regulated activities, the contractors are required to keep on-site copies of the approved plan and approval letter.
3. If any sensitive feature(s) (caves, solution cavity, sink hole, etc.) is discovered during construction, all regulated activities near the sensitive feature must be suspended immediately. The appropriate TCEQ regional office must be immediately notified of any sensitive features encountered during construction. Construction activities may not be resumed until the TCEQ has reviewed and approved the appropriate protective measures in order to protect any sensitive feature and the Edwards Aquifer from potentially adverse impacts to water quality.
4. No temporary or permanent hazardous substance storage tank shall be installed within 150 feet of a water supply source, distribution system, well, or sensitive feature.
5. Prior to beginning any construction activity, all temporary erosion and sedimentation (E&S) control measures must be properly installed and maintained in accordance with the approved plans and manufacturers specifications. If inspections indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations. These controls must remain in place until the disturbed areas have been permanently stabilized.
6. Any sediment that escapes the construction site must be collected and properly disposed of before the next rain event to ensure it is not washed into surface streams, sensitive features, etc.
7. Sediment must be removed from the sediment traps or sedimentation basins not later than when it occupies 50% of the basin's design capacity.
8. Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from being discharged offsite.
9. All spoils (excavated material) generated from the project site must be stored on-site with proper E&S controls. For storage or disposal of spoils at another site on the Edwards Aquifer Recharge Zone, the owner of the site must receive approval of a water pollution abatement plan for the placement of fill material or mass grading prior to the placement of spoils at the other site.
10. If portions of the site will have a temporary or permanent cease in construction activity lasting longer than 14 days, soil stabilization in those areas shall be initiated as soon as possible prior to the 14th day of inactivity. If activity will resume prior to the 21st day, stabilization measures are not required. If drought conditions or inclement weather prevent action by the 14th day, stabilization measures shall be initiated as soon as possible.
11. The following records shall be maintained and made available to the TCEQ upon request:
    - the dates when major grading activities occur;
    - the dates when construction activities temporarily or permanently cease on a portion of the site; and
    - the dates when stabilization measures are initiated.
12. The holder of any approved Edward Aquifer protection plan must notify the appropriate regional office in writing and obtain approval from the executive director prior to initiating any of the following:
    A. any physical or operational modification of any water pollution abatement structure(s), including but not limited to ponds, dams, berms, sewage treatment plants, and diversionary structures;
    B. any change in the nature or character of the regulated activity from that which was originally approved or a change which would significantly impact the ability of the plan to prevent pollution of the Edwards Aquifer;
    C. any development of land previously identified as undeveloped in the original water pollution abatement plan.

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

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

REV NO.	BY	DATE	REVISION DESCRIPTION

100% SUBMITTAL

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF ABE A. SALINAS III, P.E. LIC. # 105144 4/12/2023

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING OR PERMIT PURPOSES.

CITY OF ROLLINGWOOD, TEXAS

CITY OF ROLLINGWOOD
PROPOSED DRAINAGE IMPROVEMENTS

GENERAL NOTES (2 OF 2)

ROLLINGWOOD TEXAS

K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
1120 S. Capital of Texas Highway
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Austin, Texas 78746
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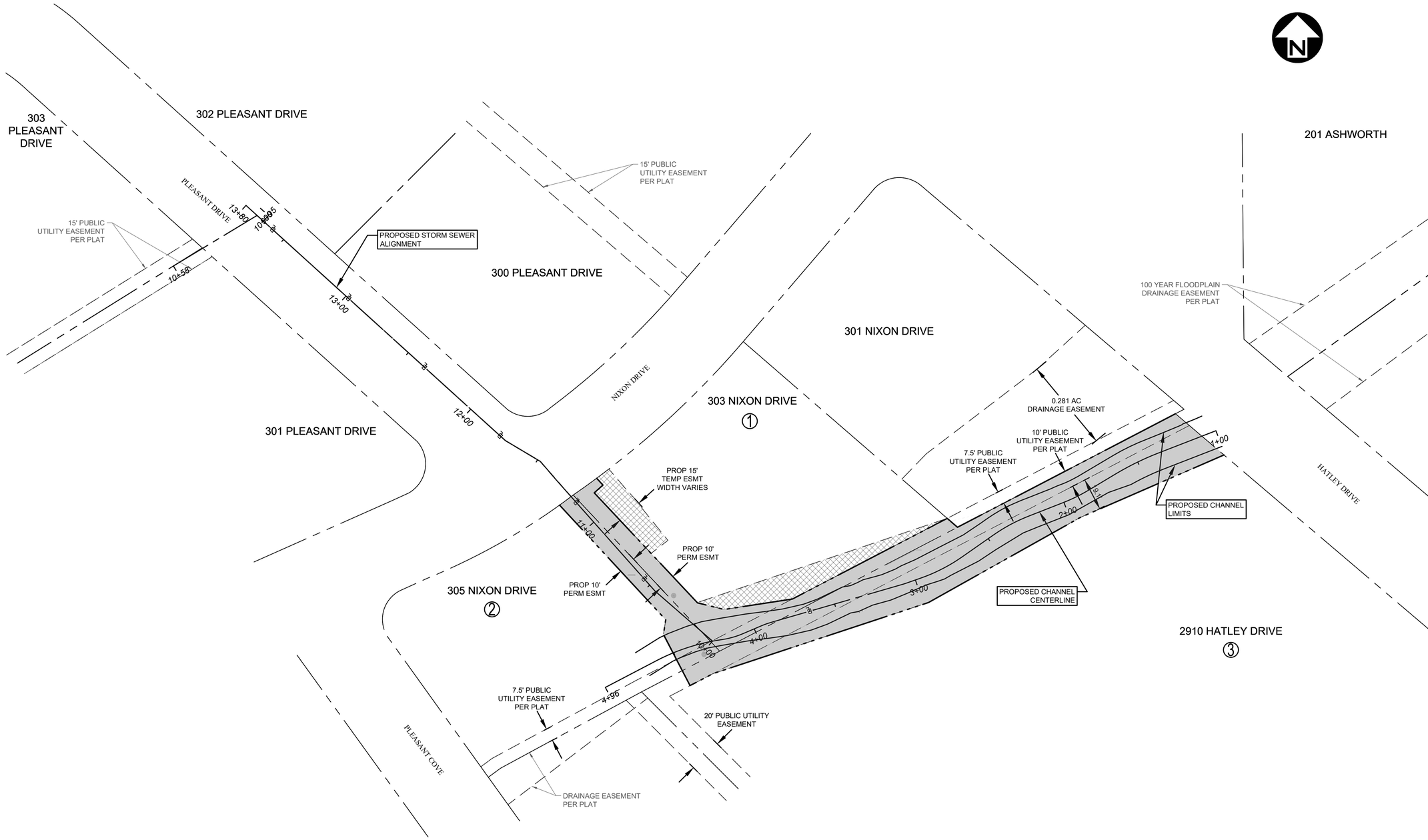
TBPE Firm #6535
www.kfriese.com

NOTES	NAME	DATE
SURVEY BY		
DRAWN BY	AH	08/21
DESIGNED BY	LWM	08/21
CHECKED BY	GE	08/21
REVIEWED BY		

G003 3 OF 49

X:\PROJECTS\0807_ROLLINGWOOD_NIXON-PLEASANT_DRAINAGE_IMPROVEMENTS\DGN\SHEETS\0807-G-GN-NOTES-1X.DWG, COA_22X34_LANDSCAPE, COA_ESD.STB
4/12/2023 5:15 PM
JUDY WILLIS



NOTE:

1. PROPERTY LINES AND EASEMENTS SHOWN ARE FROM THE CITY GIS DATABASE AND OTHER SOURCES. FOR INFORMATIONAL PURPOSES ONLY.
2. PROPOSED EASEMENT LOCATIONS ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY.

PROPERTY ID	PERM ESMT	TEMP ESMT
①	2,835 SF	2,139 SF
②	1,593 SF	0 SF
③	8,727 SF	0 SF

LEGEND
ALIGNMENT
PROPERTY LINE
EXIST EASEMENT
PERM DRAINAGE ESMT
TEMPORARY EASEMENT

0 30 60
HORIZONTAL SCALE IN FEET

REV NO.	BY	DATE	REVISION DESCRIPTION

CITY OF ROLLINGWOOD, TEXAS

CITY OF ROLLINGWOOD
PROPOSED DRAINAGE IMPROVEMENTS

EASEMENT LAYOUT

ROLLINGWOOD TEXAS

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SURVEY BY		
DRAWN BY	AH	08/21
DESIGNED BY	LWM	08/21
CHECKED BY	GE	08/21
REVIEWED BY	----	----

EXHIBIT

G003 | 4 OF 49

X:\PROJECTS\0807_ROLLINGWOOD_NIXON-PLEASANT_DRAINAGE_IMPROVEMENTS\DGN\SHEETS\0807-CS-GN-CTRL-PROPEASEMENT-BLDG.DWG, COA_22X34_LANDSCAPE, COA_ESD.STB
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JUDY WILLIG

CITY OF AUSTIN			TRAFFIC CONTROL PLAN	DEMOLITION SHEETS		DRAINAGE SHEETS					UTILITY SHEETS	SWPPP SHEETS		LANDSCAPE SHEETS				
ITEM NO.	BID ITEM DESCRIPTION	UNIT	8 (CT101)	9 (DP101)	10 (DP102)	15 (PLPR01)	16 (PLPR02)	17 (PLPR03)	19 (GD101)	20 GD(102)	21 (CV01)	37 (EV101)	38 (EV102)	40 (TP01)	41 (TP02)	42 (LL01)	43 (LL02)	TOTAL
1	MOBILIZATION	LS																1
2	INSURANCE & BOND	LS																1
101S-C	PREPARING RIGHT-OF-WAY	LS																1
801S-0	BARRICADES, SIGNS, AND TRAFFIC HANDLING	LS	1															1
*(1)	REMOVE CHAIN LINK FENCE	LF		116														116
*(1)	REMOVE 18" RCP AND CAP	LF		25														25
*(1)	REMOVE CINDERBLOCK WALL	LF		86														86
*(1)	REMOVE FOOT BRIDGE AND STAIRS	EA		1														1
*(1)	REMOVE EXT WOODEN FENCE	LF																0
*(1)	REMOVE, SALVAGE, RELOCATE SHED AT 303 NIXON DRIVE	EA		1														1
*(1)	REMOVE, SALVAGE, RELOCATE PLAYHOUSE AT 303 NIXON DRIVE	EA		1														1
*(1)	REMOVE MISCELLANEOUS CONCRETE, MASONRY AND ROCKWALLS	LF		303	18													321
*(1)	REMOVE ASPHALT PAVEMENT DRIVEWAYS	SY		36														36
*(1)	REMOVE CONCRETE RIPRAP	SY		15														15
104S-A	REMOVE CONCRETE CURB	LF		312														312
104S-C	REMOVE CONCRETE SIDEWALKS & DRIVEWAYS	SY		55														55
110S-B	STREET EXCAVATION (12" DEPTH)	CY		177														177
315S-A	SURFACE MILLING ASPHALTIC PAVEMENT (1.5" TO 2" DEPTH)	SY		562														562
120S-B	CHANNEL EXCAVATION	CY					612											612
132S-A	EMBANKMENT (FINAL) (ORD COMP) (TY A)	CY				0	0											0
160-6003 TxDOT	FURNISHING AND PLACING TOPSOIL (4")	SY					944											944
210S-A	FLEXIBLE BASE (8" COMP. DEPTH)	CY					148											148
340S-B-1	HOT MIX ASPHALTIC PAVEMENT, TYPE D (NO RAP, NO RAS, PG-64-22) (2" COMP. DEPTH)	SY					1092											1092
340S-B-2	HOT MIX ASPHALTIC PAVEMENT, TYPE C OR D LEVEL UP (20% MAX RAP, NO RAS) (2" COMP. DEPTH)	SY					530											530
340S-B-3	ASPHALTIC CONCRETE DRIVEWAY	SY					24											24
402-A	FLOWABLE FILL (LOW STRENGTH)	CY					4	8	X									12
411S	BOX CULVERT RESURFACING & REPAIR (HATLEY CULVERTS)	EA				1												1
401S-A	BOX CULVERT STRUCTURAL EXCAVATION & BACKFILL	CY				651												651
414S-C	CONCRETE RETAINING WALL, INCLUDING REINFORCEMENT (CHANNEL)	CY																0
430S-A	P.C. CONCRETE CURB AND GUTTER (EXCAVATION) (6 IN TO 8 IN HEIGHT)	LF					197											197
430S-C	P.C. CONCRETE CURB (EXCAVATION) (6 IN TO 8 IN HEIGHT)	LF							6									6
433S-A	PORTLAND CEMENT CONCRETE DRIVEWAYS (FLARED TYPE I)	SF					657											657
420-6051 TxDOT	CAST-IN-PLACE REINFORCED CONCRETE BOX CULVERT (5'X4)	LF					91											91
462-6006	PRECAST REINFORCED CONCRETE BOX (5'X2')	LF						54										54
462-6008	PRECAST REINFORCED CONCRETE BOX (5'X4')	LF					250											250
	REINFORCED CONCRETE BOX CONNECTION (5'X2')	EA																0
464-6005	REINFORCED CONCRETE PIPE (CL III) (24" DIA)	LF						76										76
506S-J2	JUNCTION BOX 8'X8'X6' W/ MH RISER	EA					1											1
506S-4	MINOR MANHOLE HEIGHT ADJUSTMENT	EA								1								1
508S-I10R	INLET TYPE I (COMPLETE) (10 FT)	EA					1											1
508S-I20R	INLET TYPE I (COMPLETE) (20 FT)	EA					3											3
508S-E	ENERGY DISSIPATORS, 48 IN. DIA. (AT OUTFALL OF 5'X4' RCB)	EA				3												3
508S-9	4-SIDED AREA INLET (4'X4')	EA					1											1
466-6243-1 TxDOT	CONC HEADWALL WITH FLARED WINGS, HW=X FT (CH-FW-0)	EA					2											2
466	CONC HEADWALL WITH FLARED WINGS, HW=X FT (SW-0)	EA					1											1
466	CONC HEADWALL WITH FLARED WINGS, HW=X FT (CH-FW-0)	EA																0
591S-B	DRY ROCK RIPRAP (D50 18")	CY				57												57
591S-F	CONCRETE RIPRAP (6" THICK)	SY				4												4
?	METAL FENCE (5' HIGH)	LF				170												170
?	METAL FENCE PEDESTIRAN GATE, 5 FOOT X 3 FOOT	EA				2												2
?	WOODEN FRAMED HOGWIRE FENCE	LF				21												21
?	CONCRETE CINDERBLOCK (CMU) WALL (2' HIGH)	SF				7												7
?	ROCK RIPRAP (18-INCH D50)	SY																0
423-6013 TxDOT	STONE VENEER (LIMESTONE)	SY							78									78
SS-1	GAS UTILITY ADJUSTMENT	EA					2											2
504S-32	ADJUST WATER VALVE BOXES TO GRADE	EA																0
101S-C1	6" WATER LINE REMOVAL	LF									232							232
101S-C2	WATER VALVES, REMOVE AND SALVAGE	EA									3							3
510-AR-1	8" WATERLINE, C-900 TYPE	LF									254							254
510-BR	WATER TIE-IN CONNECTION	EA									3							3
510-KR	FITTINGS, WATER	TON																0
	TREE REMOVAL	LS																0
*(2)	REMOVAL, TREE	IN																0
	LANDSCAPE WALL (LESS THAN 4 FEET TALL)	TON																0
	LANDSCAPE WALL, BOULDERS (4-6 FEET TALL)	TON																0
	LANDSCAPE WALL, STRUCTURAL CONCRETE	CY																0
	METAL FENCE (5' HIGH) W/ PEDESTRIAN GATES	LF																0
	PRIVACY WALL	FF																0
	DRAINAGE WALL VENEER	FF																0
	GRASS, NATIVE GRASS SEED	SF																0
	GRASS, NATIVE BUFFALO GRASS SOD	SF																0
	SHRUB, 1 GALLON	CY																0
	SHRUB, 5 GALLON	EA.																0
	SHRUB, 10 GALLON	EA.																0
	TREE PLANTINGS, X GALLON																	0
	MULCH, CRUSHED LIMESTONE (600 SQUARE FEET AT 4" THICK)	TON																0
701S-T	TEMPORARY FENCE, 4' HIGH, CHAIN LINK WIRE	LF										165						165
	CURB INLET GRAVEL FILTERS	EA																0
639S-0	ROCK FILTER DAMS (INSTALL/REMOVE) (TYPE 3)	LF										20	77					97
	CONSTRUCTION EXITS (INSTALL/REMOVE)	SY																0
	TEMPORARY SEDIMENT CONTROL FENCE	LF										177						177
602S-D	GRASS SODDING FOR EROSION CONTROL, OTHER APPROVED SODDING (BERMUDA, ST. AUGUSTINE, ETC.)	SY										192 LF (MS)						0
610S-0	TREE AND VEGETATION PROTECTION	LS																0
999-0	MATERIAL ADJUSTMENT ALLOWANCE	LS																0
	TRENCH EXCAVATION SAFETY PROTECTION	LF																0
	REMOVE AND RELOCATING IRRIGATION SYSTEM	LF																0
																		0
	TXDOT BID ITEMS																	0
	INLET (COMPL)																	0
	REMOVE STR (PIPE)																	0

To be updated with issued for bid set.

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CITY OF ROLLINGWOOD, TEXAS

CITY OF ROLLINGWOOD
PROPOSED DRAINAGE IMPROVEMENTS

ESTIMATED QUANTITIES

ROLLINGWOOD TEXAS

K·FRIESE + ASSOCIATES
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NOTES	NAME	DATE
SURVEY BY		
DRAWN BY	AH	08/21
DESIGNED BY	LWM	08/21
CHECKED BY	GE	08/21
REVIEWED BY		

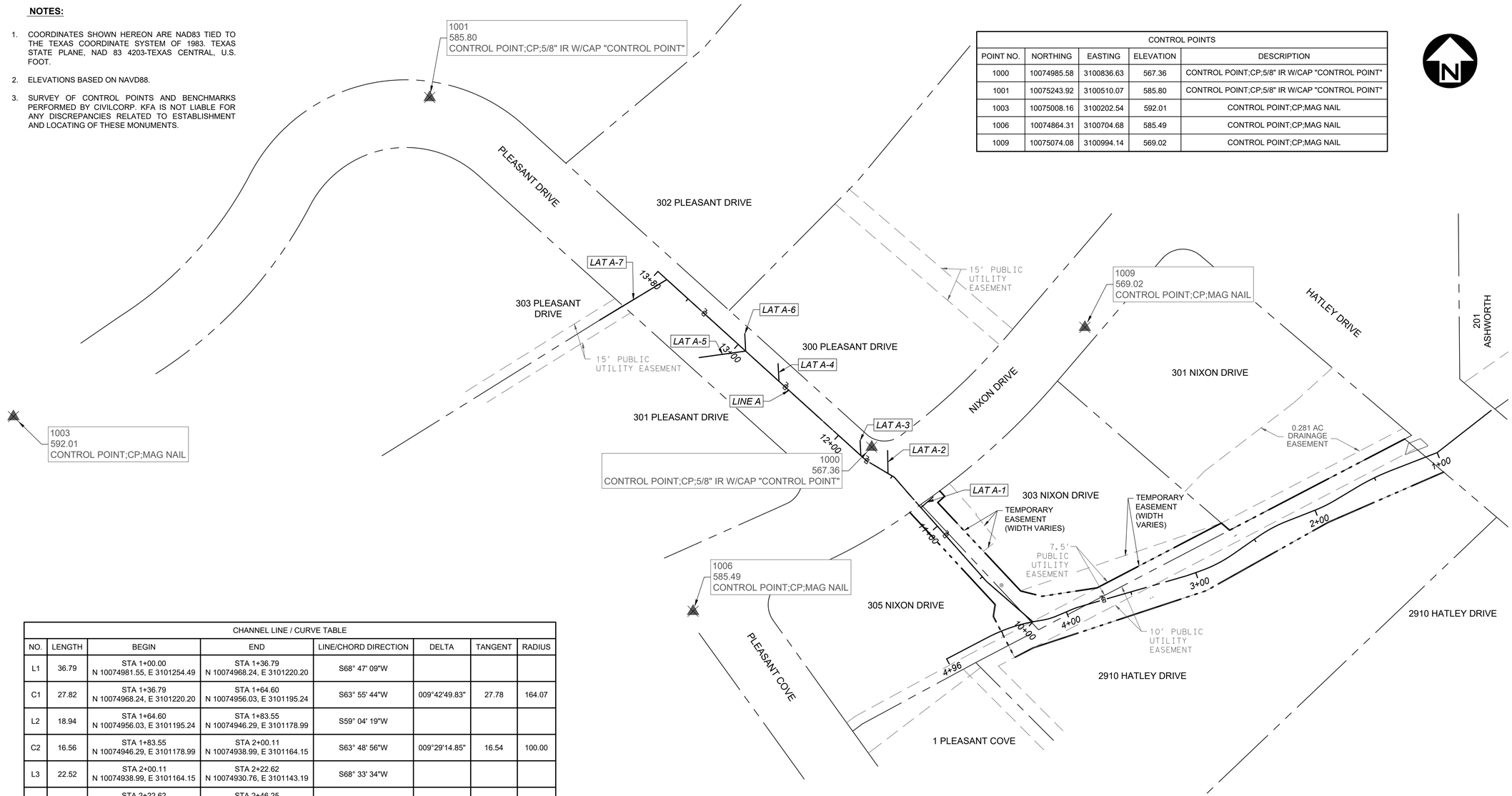
G005 | 5 OF 49

X:\PROJECTS\5907_ROLLINGWOOD_NIXON-PLEASANT_DRAINAGE_IMPROVEMENTS\DGN\SHEETS\5907-G-CALC-DWG, COA_22X34_LANDSCAPE, COA_ESD.STB
4/12/2023 5:16 PM
JUDY WILLIG

NOTES:

1. COORDINATES SHOWN HEREON ARE NAD83 TIED TO THE TEXAS COORDINATE SYSTEM OF 1983. TEXAS STATE PLANE, NAD 83 4203-TEXAS CENTRAL, U.S. FOOT.
2. ELEVATIONS BASED ON NAVD88.
3. SURVEY OF CONTROL POINTS AND BENCHMARKS PERFORMED BY CIVILCORP. KFA IS NOT LIABLE FOR ANY DISCREPANCIES RELATED TO ESTABLISHMENT AND LOCATING OF THESE MONUMENTS.

CONTROL POINTS				
POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
1000	10074985.58	3100836.63	567.36	CONTROL POINT;CP;5/8" IR W/CAP "CONTROL POINT"
1001	10075243.92	3100510.07	585.80	CONTROL POINT;CP;5/8" IR W/CAP "CONTROL POINT"
1003	10075008.16	3100202.54	592.01	CONTROL POINT;CP;MAG NAIL
1006	10074864.31	3100704.68	585.49	CONTROL POINT;CP;MAG NAIL
1009	10075074.08	3100994.14	569.02	CONTROL POINT;CP;MAG NAIL



CHANNEL LINE / CURVE TABLE							
NO.	LENGTH	BEGIN	END	LINE/CHORD DIRECTION	DELTA	TANGENT	RADIUS
L1	36.79	STA 1+00.00 N 10074981.55, E 3101254.49	STA 1+36.79 N 10074968.24, E 3101220.20	S68° 47' 09"W			
C1	27.82	STA 1+36.79 N 10074968.24, E 3101220.20	STA 1+64.60 N 10074956.03, E 3101195.24	S63° 55' 44"W	009°42'49.83"	27.78	164.07
L2	18.94	STA 1+64.60 N 10074956.03, E 3101195.24	STA 1+83.55 N 10074946.29, E 3101178.99	S59° 04' 19"W			
C2	16.56	STA 1+83.55 N 10074946.29, E 3101178.99	STA 2+00.11 N 10074938.99, E 3101164.15	S63° 48' 56"W	009°29'14.85"	16.54	100.00
L3	22.52	STA 2+00.11 N 10074938.99, E 3101164.15	STA 2+22.62 N 10074930.76, E 3101143.19	S68° 33' 34"W			
C3	23.63	STA 2+22.62 N 10074930.76, E 3101143.19	STA 2+46.25 N 10074919.62, E 3101122.41	S61° 47' 22"W	013°32'22.81"	23.58	100.00
L4	22.77	STA 2+46.25 N 10074919.62, E 3101122.41	STA 2+69.02 N 10074906.56, E 3101103.76	S55° 01' 11"W			
C4	27.05	STA 2+69.02 N 10074906.56, E 3101103.76	STA 2+96.07 N 10074894.22, E 3101079.78	S62° 46' 04"W	015°29'47.19"	26.96	100.00
L5	9.35	STA 2+96.07 N 10074894.22, E 3101079.78	STA 3+05.42 N 10074891.10, E 3101070.97	S70° 30' 58"W			
C5	2.33	STA 3+05.42 N 10074891.10, E 3101070.97	STA 3+07.75 N 10074890.39, E 3101068.74	S72° 11' 14"W	003°20'32.65"	2.33	40.00
L6	81.75	STA 3+07.75 N 10074890.39, E 3101068.74	STA 3+89.50 N 10074867.66, E 3100990.22	S73° 51' 31"W			
C6	6.08	STA 3+89.50 N 10074867.66, E 3100990.22	STA 3+95.59 N 10074865.62, E 3100984.49	S70° 22' 27"W	006°58'08.39"	6.08	50.00
L7	11.80	STA 3+95.59 N 10074865.62, E 3100984.49	STA 4+07.38 N 10074860.99, E 3100973.64	S66° 53' 22"W			
C7	13.03	STA 4+07.38 N 10074860.99, E 3100973.64	STA 4+20.41 N 10074857.49, E 3100961.13	S74° 21' 23"W	014°56'01.52"	13.00	50.00
C8	41.02	STA 4+20.41 N 10074857.49, E 3100961.13	STA 4+61.44 N 10074844.94, E 3100922.28	S72° 05' 50"W	019°27'06.98"	40.83	120.83
L8	34.13	STA 4+61.44 N 10074844.94, E 3100922.28	STA 4+95.57 N 10074829.11, E 3100892.04	S62° 22' 17"W			

LEGEND	
ALIGNMENT	
PROPERTY LINE	
EXIST EASEMENT	
SURVEY CONTROL POINT	▲
PERM DRAINAGE ESMT	
TEMPORARY EASEMENT	

STORM DRAIN LINE / CURVE TABLE							
NO.	LENGTH	BEGIN	END	LINE/CHORD DIRECTION	DELTA	TANGENT	RADIUS
L1	45.26	STA 10+00.00 N 10074856.57, E 3100955.66	STA 10+45.26 N 10074886.31, E 3100921.55	N48° 55' 35"W			
L2	79.08	STA 10+45.26 N 10074886.31, E 3100921.55	STA 11+24.34 N 10074945.42, E 3100869.01	N41° 38' 00"W			
L3	23.78	STA 11+24.34 N 10074945.42, E 3100869.01	STA 11+48.12 N 10074963.34, E 3100853.39	N41° 03' 46"W			
L4	24.11	STA 11+48.12 N 10074963.34, E 3100853.39	STA 11+72.22 N 10074975.67, E 3100832.67	N59° 14' 13"W			
L5	10.68	STA 11+72.22 N 10074975.67, E 3100832.67	STA 11+82.90 N 10074982.85, E 3100824.76	N47° 47' 09"W			
L6	76.40	STA 11+82.90 N 10074982.85, E 3100824.76	STA 12+59.30 N 10075034.19, E 3100768.18	N47° 47' 09"W			
L7	33.25	STA 12+59.30 N 10075034.19, E 3100768.18	STA 12+92.56 N 10075056.51, E 3100743.54	N47° 49' 07"W			
L8	78.68	STA 12+92.56 N 10075056.51, E 3100743.54	STA 13+71.24 N 10075109.39, E 3100685.28	N47° 46' 18"W			
L9	8.89	STA 13+71.24 N 10075109.39, E 3100685.28	STA 13+80.13 N 10075115.37, E 3100678.69	N47° 47' 09"W			

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CITY OF ROLLINGWOOD, TEXAS

CITY OF ROLLINGWOOD
PROPOSED DRAINAGE IMPROVEMENTS

HORIZONTAL CONTROL LAYOUT SHEET

ROLLINGWOOD TEXAS

K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
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P - 512.338.1704 F - 512.338.1784
TBPE Firm #6535
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NOTES	NAME	DATE
SURVEY BY		
DRAWN BY	AH	08/21
DESIGNED BY	LWM	08/21
CHECKED BY	GE	08/21
REVIEWED BY	---	---

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HORIZONTAL SCALE IN FEET

G006 | 6 OF 49

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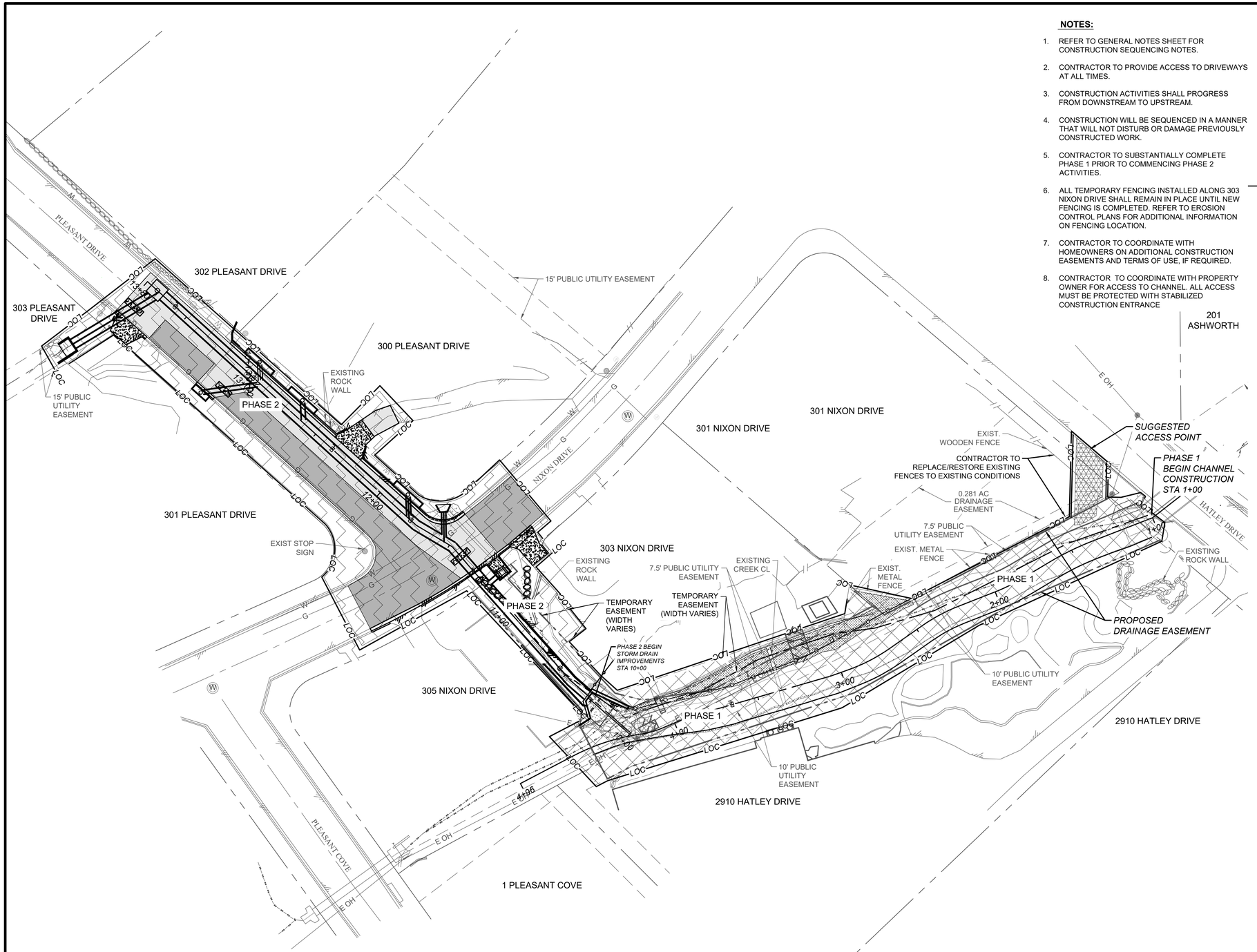

NOTES:

1. REFER TO GENERAL NOTES SHEET FOR CONSTRUCTION SEQUENCING NOTES.
2. CONTRACTOR TO PROVIDE ACCESS TO DRIVEWAYS AT ALL TIMES.
3. CONSTRUCTION ACTIVITIES SHALL PROGRESS FROM DOWNSTREAM TO UPSTREAM.
4. CONSTRUCTION WILL BE SEQUENCED IN A MANNER THAT WILL NOT DISTURB OR DAMAGE PREVIOUSLY CONSTRUCTED WORK.
5. CONTRACTOR TO SUBSTANTIALLY COMPLETE PHASE 1 PRIOR TO COMMENCING PHASE 2 ACTIVITIES.
6. ALL TEMPORARY FENCING INSTALLED ALONG 303 NIXON DRIVE SHALL REMAIN IN PLACE UNTIL NEW FENCING IS COMPLETED. REFER TO EROSION CONTROL PLANS FOR ADDITIONAL INFORMATION ON FENCING LOCATION.
7. CONTRACTOR TO COORDINATE WITH HOMEOWNERS ON ADDITIONAL CONSTRUCTION EASEMENTS AND TERMS OF USE, IF REQUIRED.
8. CONTRACTOR TO COORDINATE WITH PROPERTY OWNER FOR ACCESS TO CHANNEL. ALL ACCESS MUST BE PROTECTED WITH STABILIZED CONSTRUCTION ENTRANCE

LEGEND

- CENTERLINE
- PROPERTY LINE
- EXIST EASEMENT
- PROP EASEMENT
- EDGE OF ASPHALT
- EDGE OF CONCRETE
- GUTTER
- CONCRETE PAVEMENT
- DRAINAGE FLOW LINE
- WOOD FENCE
- FENCE LINE
- PAVED PARKING / DRIVEWAY
- WW — WASTEWATER LINE
- W — WATER LINE
- ROCK WALL
- EXISTING RCP PIPE
- G — NATURAL GAS LINE
- E OH — ELECTRIC OVERHEAD
- E UG — ELECTRIC UNDERGROUND
- GUY WIRE
- WATER METER
- WATER VALVE
- SPRINKLER VALVE
- WASTEWATER MANHOLE
- CLEANOUT
- FIRE HYDRANT
- POWER POLE
- ELECTRIC JUNCTION BOX
- SIGN
- MAILBOX
- TREE
- TREE TO BE REMOVED
- EXISTING CHANNEL CL

LEGEND

- CONSTRUCTION AREA
- CONSTRUCTION PHASE 1
- CONSTRUCTION PHASE 2
- STABILIZED CONSTRUCTION ENTRANCE
- TEMPORARY EASEMENT

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CITY OF ROLLINGWOOD, TEXAS

PROPOSED DRAINAGE IMPROVEMENTS
NIXON/PLEASANT DRAINAGE IMPROVEMENTS

CONSTRUCTION ACCESS AND SEQUENCING

ROLLINGWOOD TEXAS

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HORIZONTAL SCALE IN FEET

CA101 | 7 OF 49

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NOTES:

1. ALL PROPERTY OWNERS ADJACENT TO CONSTRUCTION MUST HAVE ACCESS TO THEIR PROPERTY AT ALL TIMES.
2. MACHINERY, VEHICLES AND OTHER EQUIPMENT OPERATE WITHIN THE LIMITS OF CONSTRUCTION AND SHALL NOT BE STORED IN ROAD OR BLOCK TRAFFIC WHEN AVOIDABLE.
3. ALL TRAFFIC CONTROL SHALL BE IN CONFORMANCE WITH CITY OF AUSTIN STANDARDS (PER STANDARD 804S-2)

LEGEND

- CONSTRUCTION AREA
- DRUMS OR 42" CONES @ 15' C-C
- WATER FILLED BARRIER
- X — TEMPORARY TRAFFIC SPACING
- TYPE I BARRICADE
- TYPE III BARRICADE
- FLAGGER
- TEMPORARY TRAFFIC SIGN
- TRAFFIC FLOW DEPICTION
- TEMPORARY PAVEMENT MARKING
- MESSAGE BOARD
- ARROW BOARD

SEE COA STANDARD DETAIL 804S-1 SERIES FOR MORE DETAILS

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CITY OF ROLLINGWOOD, TEXAS

PROPOSED DRAINAGE IMPROVEMENTS
NIXON/PLEASANT DRAINAGE IMPROVEMENTS

TRAFFIC CONTROL PLAN

ROLLINGWOOD TEXAS

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HORIZONTAL SCALE IN FEET

CT101 | 8 OF 49

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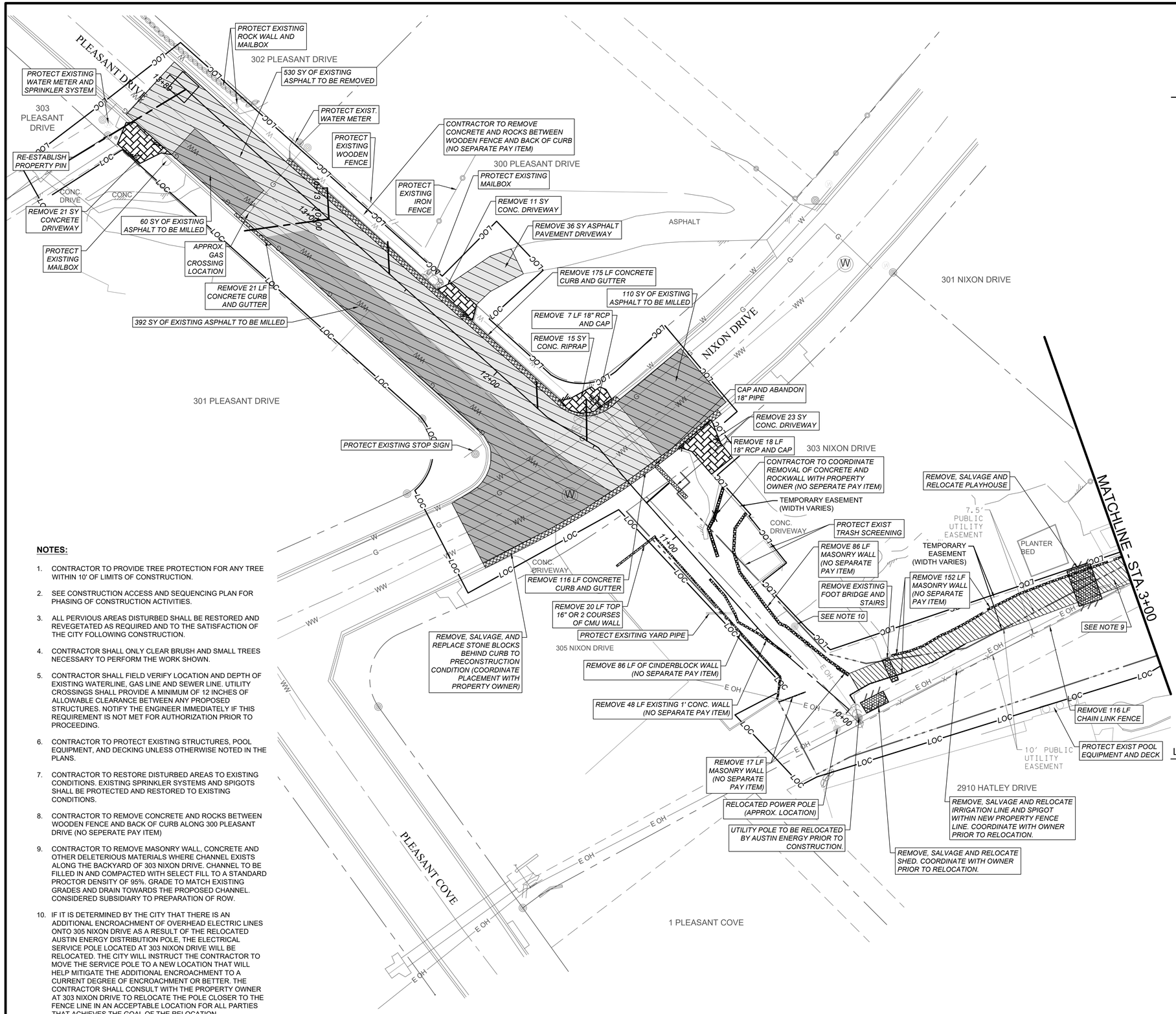

NOTES:

1. CONTRACTOR TO PROVIDE TREE PROTECTION FOR ANY TREE WITHIN 10' OF LIMITS OF CONSTRUCTION.
2. SEE CONSTRUCTION ACCESS AND SEQUENCING PLAN FOR PHASING OF CONSTRUCTION ACTIVITIES.
3. ALL PERVIOUS AREAS DISTURBED SHALL BE RESTORED AND REVEGETATED AS REQUIRED AND TO THE SATISFACTION OF THE CITY FOLLOWING CONSTRUCTION.
4. CONTRACTOR SHALL ONLY CLEAR BRUSH AND SMALL TREES NECESSARY TO PERFORM THE WORK SHOWN.
5. CONTRACTOR SHALL FIELD VERIFY LOCATION AND DEPTH OF EXISTING WATERLINE, GAS LINE AND SEWER LINE. UTILITY CROSSINGS SHALL PROVIDE A MINIMUM OF 12 INCHES OF ALLOWABLE CLEARANCE BETWEEN ANY PROPOSED STRUCTURES. NOTIFY THE ENGINEER IMMEDIATELY IF THIS REQUIREMENT IS NOT MET FOR AUTHORIZATION PRIOR TO PROCEEDING.
6. CONTRACTOR TO PROTECT EXISTING STRUCTURES, POOL EQUIPMENT, AND DECKING UNLESS OTHERWISE NOTED IN THE PLANS.
7. CONTRACTOR TO RESTORE DISTURBED AREAS TO EXISTING CONDITIONS. EXISTING SPRINKLER SYSTEMS AND SPIGOTS SHALL BE PROTECTED AND RESTORED TO EXISTING CONDITIONS.
8. CONTRACTOR TO REMOVE CONCRETE AND ROCKS BETWEEN WOODEN FENCE AND BACK OF CURB ALONG 300 PLEASANT DRIVE (NO SEPERATE PAY ITEM)
9. CONTRACTOR TO REMOVE MASONRY WALL, CONCRETE AND OTHER DELETERIOUS MATERIALS WHERE CHANNEL EXISTS ALONG THE BACKYARD OF 303 NIXON DRIVE. CHANNEL TO BE FILLED IN AND COMPACTED WITH SELECT FILL TO A STANDARD PROCTOR DENSITY OF 95%. GRADE TO MATCH EXISTING GRADES AND DRAIN TOWARDS THE PROPOSED CHANNEL. CONSIDERED SUBSIDIARY TO PREPARATION OF ROW.
10. IF IT IS DETERMINED BY THE CITY THAT THERE IS AN ADDITIONAL ENCROACHMENT OF OVERHEAD ELECTRIC LINES ONTO 305 NIXON DRIVE AS A RESULT OF THE RELOCATED AUSTIN ENERGY DISTRIBUTION POLE, THE ELECTRICAL SERVICE POLE LOCATED AT 303 NIXON DRIVE WILL BE RELOCATED. THE CITY WILL INSTRUCT THE CONTRACTOR TO MOVE THE SERVICE POLE TO A NEW LOCATION THAT WILL HELP MITIGATE THE ADDITIONAL ENCROACHMENT TO A CURRENT DEGREE OF ENCROACHMENT OR BETTER. THE CONTRACTOR SHALL CONSULT WITH THE PROPERTY OWNER AT 303 NIXON DRIVE TO RELOCATE THE POLE CLOSER TO THE FENCE LINE IN AN ACCEPTABLE LOCATION FOR ALL PARTIES THAT ACHIEVES THE GOAL OF THE RELOCATION.

LEGEND

- CENTERLINE
- PROPERTY LINE
- EXIST EASEMENT
- PROP EASEMENT
- EDGE OF ASPHALT
- EDGE OF CONCRETE
- GUTTER
- CONCRETE PAVEMENT
- DRAINAGE FLOW LINE
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- SPRINKLER VALVE
- WASTEWATER MANHOLE
- CLEANOUT
- FIRE HYDRANT
- POWER POLE
- ELECTRIC JUNCTION BOX
- SIGN
- MAILBOX
- TREE
- TREE TO BE REMOVED
- EXISTING CHANNEL CL

LEGEND

- DEMO FULL PAVEMENT DEPTH
- PAVEMENT MILLING
- DEMOLISH CURB & GUTTER
- DEMOLISH CONCRETE
- CLEAR & GRUB VEGETATION
- TO BE REMOVED
- REMOVE CHAIN LINK FENCE
- CHAIN LINK FENCE
- ALIGNMENT LINE

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CITY OF ROLLINGWOOD, TEXAS
PUBLIC WORKS DEPARTMENT

PROPOSED DRAINAGE IMPROVEMENTS
NIXON/PLEASANT DRAINAGE IMPROVEMENTS

DEMOLITION AND PROTECTION PLAN

ROLLINGWOOD TEXAS

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REVIEWED BY		

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HORIZONTAL SCALE IN FEET

DP101 | 9 OF 49

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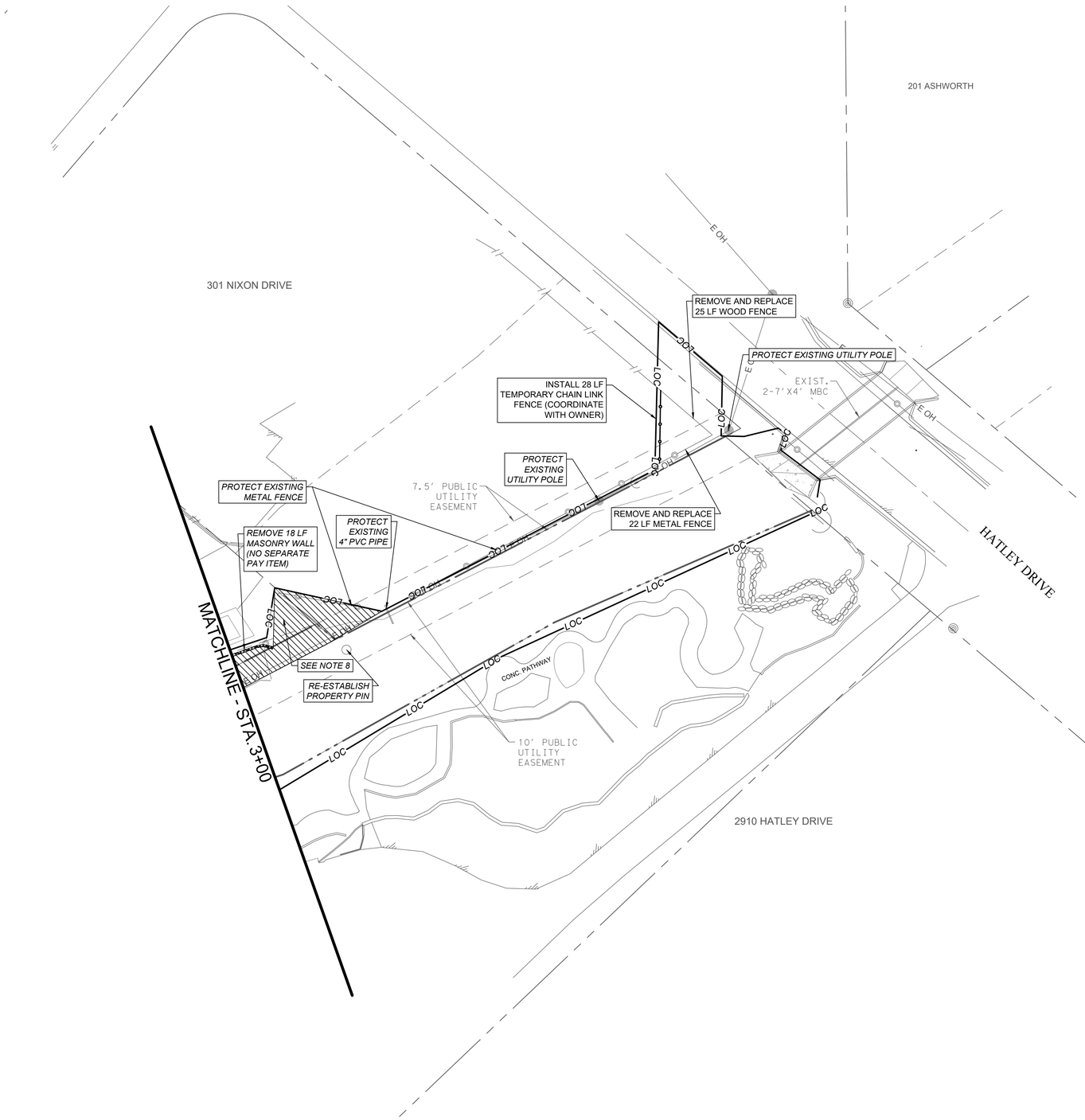

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LEGEND

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- POWER POLE
- ELECTRIC JUNCTION BOX
- SIGN
- MAILBOX
- TREE
- TREE TO BE REMOVED
- EXISTING CHANNEL CL

LEGEND

- LIMITS OF DEMO & GRADING
- DEMOLISH PAVEMENT
- DEMOLISH CURB & GUTTER
- DEMOLISH CONCRETE
- CLEAR & GRUB VEGETATION
- REMOVE CHAIN LINK FENCE
- ALIGNMENT LINE

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CITY OF ROLLINGWOOD, TEXAS
PUBLIC WORKS DEPARTMENT

PROPOSED DRAINAGE IMPROVEMENTS NIXON/PLEASANT DRAINAGE IMPROVEMENTS

DEMOLITION AND PROTECTION PLAN

ROLLINGWOOD TEXAS

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CHECKED BY	GE	08/21
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HORIZONTAL SCALE IN FEET

DP102 | 10 OF 49

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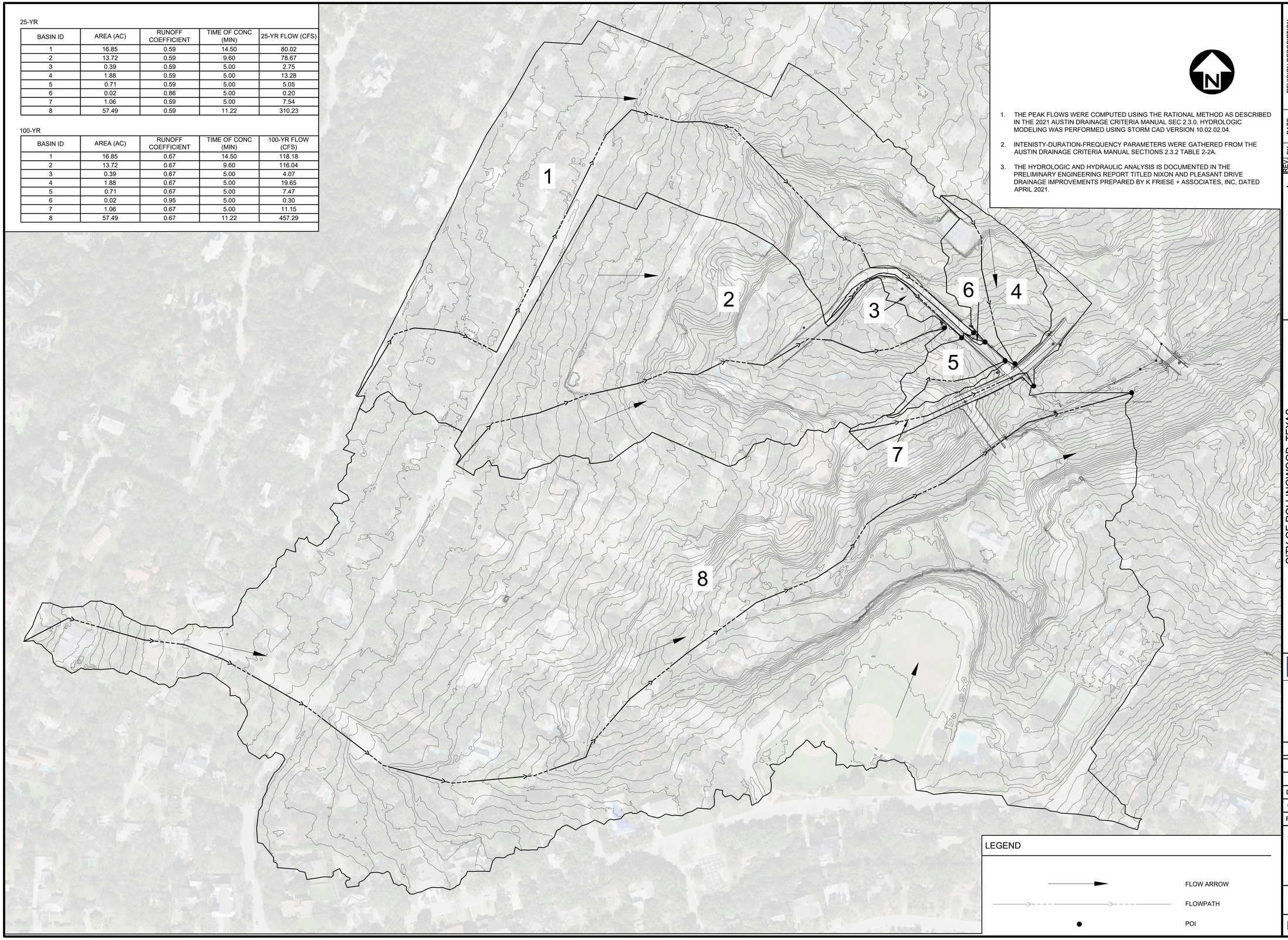
25-YR

BASIN ID	AREA (AC)	RUNOFF COEFFICIENT	TIME OF CONC (MIN)	25-YR FLOW (CFS)
1	16.85	0.59	14.50	80.02
2	13.72	0.59	9.60	78.67
3	0.39	0.59	5.00	2.75
4	1.88	0.59	5.00	13.28
5	0.71	0.59	5.00	5.05
6	0.02	0.86	5.00	0.20
7	1.06	0.59	5.00	7.54
8	57.49	0.59	11.22	310.23

100-YR

BASIN ID	AREA (AC)	RUNOFF COEFFICIENT	TIME OF CONC (MIN)	100-YR FLOW (CFS)
1	16.85	0.67	14.50	118.18
2	13.72	0.67	9.60	116.04
3	0.39	0.67	5.00	4.07
4	1.88	0.67	5.00	19.65
5	0.71	0.67	5.00	7.47
6	0.02	0.95	5.00	0.30
7	1.06	0.67	5.00	11.15
8	57.49	0.67	11.22	457.29



1. THE PEAK FLOWS WERE COMPUTED USING THE RATIONAL METHOD AS DESCRIBED IN THE 2021 AUSTIN DRAINAGE CRITERIA MANUAL SEC 2.3.0. HYDROLOGIC MODELING WAS PERFORMED USING STORM CAD VERSION 10.02.02.04.
2. INTENISTY-DURATION-FREQUENCY PARAMETERS WERE GATHERED FROM THE AUSTIN DRAINAGE CRITERIA MANUAL SECTIONS 2.3.2 TABLE 2-2A.
3. THE HYDROLOGIC AND HYDRAULIC ANALYSIS IS DOCUMENTED IN THE PRELIMINARY ENGINEERING REPORT TITLED NIXON AND PLEASANT DRIVE DRAINAGE IMPROVEMENTS PREPARED BY K FRIESE + ASSOCIATES, INC, DATED APRIL 2021.

LEGEND

FLOW ARROW

FLOWPATH

POI

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CITY OF ROLLINGWOOD, TEXAS

CITY OF ROLLINGWOOD
PROPOSED DRAINAGE IMPROVEMENTS

PROPOSED DRAINAGE AREA MAP

ROLLINGWOOD TEXAS

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HORIZONTAL SCALE IN FEET

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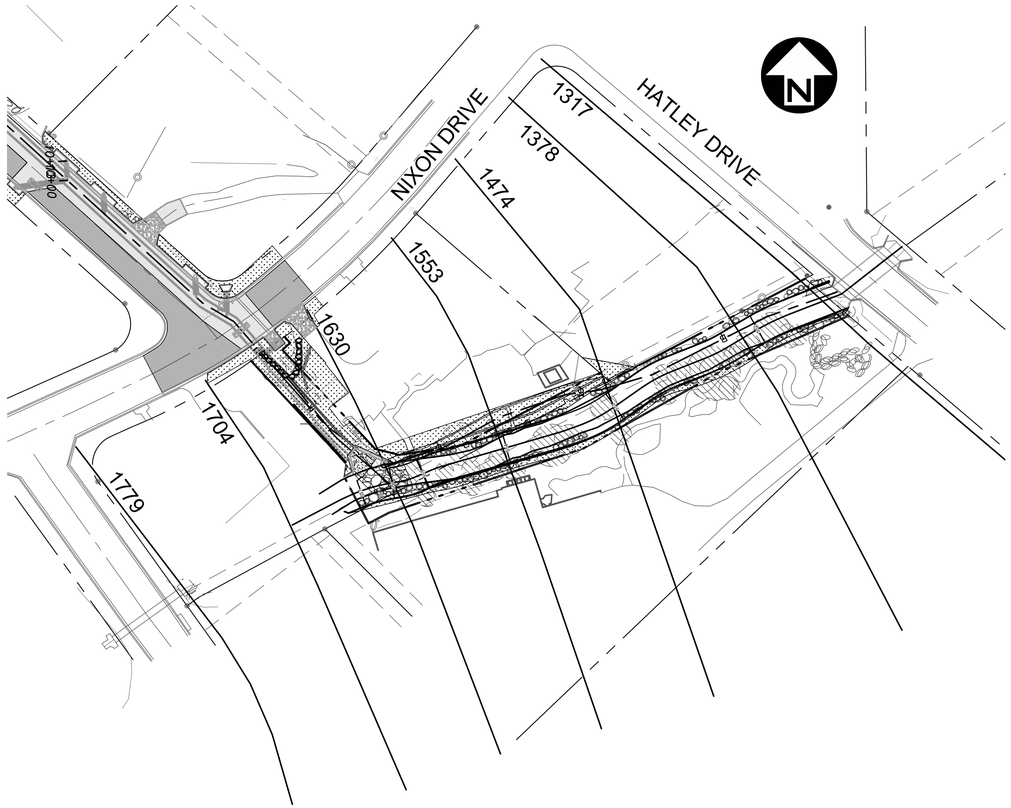
HEC-RAS CALCULATIONS

EXISTING CONDITIONS													PROPOSED CONDITIONS											
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Ch Depth	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Ch Depth	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)		(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)					(cfs)	(ft)	(ft)		(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach 1	1779	25-year	444	561.95	565.37	3.42	565.37	566.27	0.011482	8.53	62.92	42.46	0.91	Reach 1	1779	25-year	444	561.95	565.37	3.42	565.37	566.27	0.011482	8.53	62.92	42.46	0.91
Reach 1	1779	100-year	600	561.95	565.91	3.96	565.91	566.73	0.008598	8.34	89.24	49.95	0.82	Reach 1	1779	100-year	600	561.95	565.91	3.96	565.91	566.73	0.008598	8.34	89.24	49.95	0.82
Reach 1	1704	25-year	444	559.06	562.27	3.21	562.27	563.24	0.000145	8.01	60.06	36.5	1	Reach 1	1704	25-year	444	559.06	562.27	3.21	562.27	563.24	0.000145	8.01	60.06	36.5	1
Reach 1	1704	100-year	600	559.06	562.70	3.64	562.7	563.87	0.000137	8.85	77.27	43.72	1	Reach 1	1704	100-year	600	559.06	562.7	3.64	562.7	563.87	0.000137	8.85	77.27	43.72	1
Reach 1	1630	25-year	783	556.62	560.04	3.42	560.04	560.86	0.013948	9.12	145.69	95.54	1.02	Reach 1	1630	25-year	783	555.64	559.45	3.81	559.45	560.39	0.007517	8.49	138.34	83.76	0.81
Reach 1	1630	100-year	1031	556.62	560.46	3.84	560.46	561.31	0.012422	9.54	187.56	103.63	0.99	Reach 1	1630	100-year	1031	555.64	559.88	4.24	559.88	560.93	0.007558	9.23	176.56	92.46	0.83
Reach 1	1553	25-year	783	554.39	559.09	4.7		559.36	0.002295	4.73	244.99	107.61	0.44	Reach 1	1553	25-year	783	554.15	559.06	4.91		559.33	0.001762	5.02	269.81	106.61	0.4
Reach 1	1553	100-year	1031	554.39	559.78	5.39		560.06	0.001989	4.95	326.82	128.31	0.42	Reach 1	1553	100-year	1031	554.15	559.75	5.60		560.03	0.0017	5.3	351.03	125.44	0.4
Reach 1	1474	25-year	783	552.93	559.12	6.19		559.21	0.000767	3.49	392.52	104.87	0.27	Reach 1	1474	25-year	783	553.03	559.1	6.07		559.21	0.000514	3.45	403.65	104.74	0.25
Reach 1	1474	100-year	1031	552.93	559.80	6.87		559.92	0.00081	3.89	465.37	108.75	0.28	Reach 1	1474	100-year	1031	553.03	559.77	6.74		559.92	0.000566	3.89	476	108.62	0.27
Reach 1	1378	25-year	783	552.24	559.13	6.89		559.17	0.000155	1.8	671.8	140.45	0.13	Reach 1	1378	25-year	783	552.06	559.13	7.07		559.16	0.000154	2.13	682.52	140.36	0.14
Reach 1	1378	100-year	1031	552.24	559.82	7.58		559.86	0.000183	2.09	770.13	146.84	0.14	Reach 1	1378	100-year	1031	552.06	559.81	7.75		559.86	0.000184	2.49	780.58	146.74	0.16
Reach 1	1317	25-year	783	551.58	559.00	7.42	555.82	559.14	0.000853	3.16	304.36	108.77	0.27	Reach 1	1317	25-year	783	551.75	559.02	7.27	555.14	559.14	0.000505	2.84	330.96	108.99	0.24
Reach 1	1317	100-year	1031	551.58	559.66	8.08	556.54	559.83	0.000842	3.46	380.2	118.31	0.28	Reach 1	1317	100-year	1031	551.75	559.69	7.94	555.79	559.83	0.000519	3.17	406.94	118.58	0.25
Reach 1	1284		Culvert											Reach 1	1284		Culvert										

NOTE: THE EXISTING 2-7'x4' MULTIPLE BOX CULVERT AT HATLEY DRIVE IS CURRENTLY UNDERSIZED RESULTING IN A BACKWATER CONDITION THROUGH THE CHANNEL. THEREFORE, CHANNEL IMPROVEMENTS CONTAINED IN THIS PLAN SET PRODUCE A NEGLIGIBLE IMPACT AT THE UPSTREAM FACE OF CULVERT DUE TO THE EXISTING CULVERT CAPACITY. A FUTURE PROJECT MAY IMPROVE THE DOWNSTREAM CULVERT SIZE WHICH WOULD IMPROVE THE CHANNEL TAILWATER CONDITION AND LOWER WSELs WITHIN THE CHANNEL. SEE THE PRELIMINARY ENGINEERING REPORT FOR NIXON AND PLEASANT DRIVE DRAINAGE IMPROVEMENTS PREPARED BY K. FRIESE + ASSOCIATES FOR MORE INFORMATION.



REVISION DESCRIPTION

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CITY OF ROLLINGWOOD, TEXAS

PROPOSED DRAINAGE IMPROVEMENTS
NIXON/PLEASANT DRAINAGE IMPROVEMENTS

CHANNEL HYDRAULIC CALCULATIONS

ROLLINGWOOD TEXAS

K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
1120 S. Capital of Texas Highway
CityView 2, Suite 100
Austin, Texas 78746
P - 512.338.1704 F - 512.338.1784
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NOTES	NAME	DATE
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DESIGNED BY	LWM	08/21
CHECKED BY	GE	08/21
REVIEWED BY	PS	09/21

0 20 40
HORIZONTAL SCALE IN FEET

25-YR CALCULATIONS

Label	Type	Profile Type	Curb Opening Length (ft)	Longitudinal Slope (Inlet) (ft/ft)	Road Cross Slope (ft/ft)	Spread Manning's N	Depression (ft)	25-Yr Discharge (cfs)	Flow (Total Bypass to Inlet) (cfs)	Flow (Captured) (cfs)	Flow (Bypass) (cfs)	Bypass To	Spread / Top Width (ft)	Depth (Gutter) (in)
Area Inlet A1	Area	On Grade	4	0.017	0.02	0.013	0	7.5	26.6	34.1	0	Outfall	22.7	5.4
Curb Inlet A2	Curb	On Grade	20	0.012	0.015	0.013	0	5.1	29.1	19.6	14.6	A1	29	5.2
Curb Inlet A3	Curb	On Grade	20	0.021	0.02	0.013	0	0.2	53.7	24.8	29.1	A2	25.9	6.2
Curb Inlet A4	Curb	On Grade	10	0.03	0.019	0.013	0	2.8	16.3	7.4	11.7	A1	16.9	3.9
Curb Inlet A5	Curb	On Grade	20	0.019	0.015	0.013	0	80	0	27.7	53.7	A3	36.8	6.6

	Elevation (Invert) (ft)	Rise (ft)	Span (ft)	Flow (Captured) (cfs)	Flow (Bypass) (cfs)	Inlet Depth (ft)
Headwall A2	563.5	2	2	13.3	0	2
Headwall A3	571	2	5	62.3	16.3	3

25-YR CALCULATIONS

Link Start Node	Invert (Start) (ft)	Link Stop Node	Invert (Stop) (ft)	Depth (In) (ft)	Hydraulic Grade Line (In) (ft)	Loss (ft)	Depth (Out) (ft)	Hydraulic Grade Line (Out) (ft)	Velocity (ft/s)	Diameter (in)	Rise (ft)	Span (ft)	Length (ft)	Slope (Calculated) (ft/ft)	Friction Slope (ft/ft)	Manning's N Value	Flow (cfs)	Capacity (Design) (cfs)
Headwall A-3	571	JPB	568.7	1.7	572.7	0.91	0.88	569.5	16.8		2	5	52.3	0.045	0.017	0.013	62.3	194.5
Inlet A5	564.4	Junction A5	563.2	1.8	566.2	0.83	1.34	564.6	14.9	24			29.9	0.038	0.028	0.013	27.7	44.4
Inlet A4	566.8	Junction A5	564.1	1	567.7	0.89	1.56	565.6	13.2	24			37.3	0.074	0.026	0.013	7.4	61.3
Inlet A3	563.9	Junction A4	563.2	1.8	565.7	0.66	1.3	564.5	16.3	24			13.2	0.052	0.05	0.013	24.8	51.7
Inlet A2	562	Junction A3	561.3	2	564	0.1	2.63	563.9	15.7	24			14	0.056	0.007	0.013	19.6	53.5
Headwall A2	561.3	Junction A2	560.7	2.4	563.7	0.07	2.95	563.6	4.2	24			20.3	0.031	0.003	0.013	13.3	40.1
Area Inlet	562	Junction A1	561.3	2	564	0.36	1.69	563	18.5	24			15	0.054	0.029	0.013	40.6	52.8
JPB	563.7	Junction STA. 11+72.22	560.3	1.7	565.4	0.08	2.95	563.5	16.9		4	5	200	0.017	0.001	0.013	127	377.3
Junction STA. 11+72.22	560.3	Junction STA. 11+48.12	559.9	2.7	564.4	0.05	3.43	562.7	16.9		4	5	24.11	0.017	0.003	0.013	136	377.3
Junction STA. 11+48.12	559.9	Junction STA 11+11.85	558.8	2.8	562.7	0.22	3.59	562.3	19.3		4	5	36.27	0.017	0.006	0.013	136	442.1
Junction STA 11+11.85	558.8	Junction STA 10+45.26	556.5	3.4	562.1	2.17	3.97	560.4	21.2		4	5	66.51	0.042	0.033	0.013	174.9	455.8
Junction STA 10+45.26	556.5	Headwall A1	556.4	3.4	559.8	0.07	3.13	559.5	12.3		4	5	12.72	0.008	0.006	0.013	174.8	217.4

100-YR CALCULATIONS

Label	Type	Profile Type	Curb Opening Length (ft)	Longitudinal Slope (Inlet) (ft/ft)	Road Cross Slope (ft/ft)	Spread Manning's N	Depression (ft)	100-Yr Discharge (cfs)	Flow (Total Bypassed to Inlet) (cfs)	Flow (Captured) (cfs)	Flow (Bypass) (cfs)	Bypass To	Spread / Top Width (ft)	Depth (Gutter) (in)
Area Inlet A1	Area	On Grade	4	0.017	0.02	0.013	0	11.2	74.1	50	35.2	Outfall	32	7.7
Curb Inlet A2	Curb	On Grade	20	0.012	0.015	0.013	0	7.5	55.6	26.8	36.2	A1	36.5	6.6
Curb Inlet A3	Curb	On Grade	20	0.021	0.02	0.013	0	0.3	86.8	31.5	55.6	A2	31	7.4
Curb Inlet A4	Curb	On Grade	10	0.03	0.019	0.013	0	4.1	44.6	11.5	37.2	A1	24.1	5.5
Curb Inlet A5	Curb	On Grade	20	0.019	0.015	0.013	0	120.2	0	33.4	86.8	A3	42.6	7.7

	Elevation (Invert) (ft)	Rise (ft)	Span (ft)	Flow (Captured) (cfs)	Flow (Bypass) (cfs)	Inlet Depth (ft)
Headwall A2	563.5	2	2	19.65	0	3.3
Headwall A3	571	2	5	71.4	44.59	3.53

100-YR CALCULATIONS

Link Start Node	Invert (Start) (ft)	Link Stop Node	Invert (Stop) (ft)	Depth (In) (ft)	Hydraulic Grade Line (In) (ft)	Loss (ft)	Depth (Out) (ft)	Hydraulic Grade Line (Out) (ft)	Velocity (ft/s)	Diameter (in)	Rise (ft)	Span (ft)	Length (ft)	Slope (Calculated) (ft/ft)	Friction Slope (ft/ft)	Manning's N Value	Flow (cfs)	Capacity (Design) (cfs)
Headwall A-3	571	JPB	568.7	1.9	572.9	0.87	0.98	569.6	17.6		2	5	52.3	0.045	0.017	0.013	71.4	194.5
Inlet A5	564.4	Junction A5	563.2	1.9	566.3	0.91	1.51	564.7	15.5	24			29.9	0.038	0.03	0.013	33.4	44.4
Inlet A4	566.8	Junction A5	564.1	1.2	568	0.75	1.85	566	15	24			37.3	0.074	0.022	0.013	11.5	61.3
Inlet A3	563.9	Junction A4	563.2	1.9	656.8	0.27	2.08	565.3	17.3	24			13.2	0.052	0.02	0.013	31.5	51.7
Inlet A2	562	Junction A3	561.3	2.2	564.2	0.2	2.74	564	8.5	24			14	0.056	0.014	0.013	26.8	53.5
Headwall A2	561.3	Junction A2	560.7	2.2	563.5	0.15	2.65	563.3	6.3	24			20.3	0.031	0.008	0.013	19.7	40.1
Area Inlet	562	Junction A1	561.3	2.2	564.2	0.85	1.99	563.3	18.9	24			15	0.054	0.069	0.013	59.5	52.8
JPB	563.7	Junction STA. 11+72.22	560.3	1.9	565.6	0.06	3.67	564	10.6		4	5	200	0.017	0.001	0.013	155.4	377.3
Junction STA. 11+72.22	560.3	Junction STA. 11+48.12	559.9	3.1	563.4	0.07	3.32	563.2	15.8		4	5	24.1	0.017	0.004	0.013	168.6	377.3
Junction STA. 11+48.12	559.9	Junction STA 11+11.85	558.8	3.3	563.2	0.16	4.09	563.5	17.7		4	5	36.3	0.017	0.005	0.013	168.6	359.1
Junction STA 11+11.85	558.8	Junction STA 10+45.26	556.5	4	562.7	2.14	4.16	560.6	22.7		4	5	66.5	0.042	0.032	0.013	225.7	455.8
Junction STA 10+45.26	556.5	Headwall A1	556.4	4	560.4	0.1	3.98	560.3	11.3		4	5	12.7	0.008	0.008	0.013	225.5	217.4

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CITY OF ROLLINGWOOD, TEXAS

CITY OF ROLLINGWOOD
PROPOSED DRAINAGE IMPROVEMENTS

HYDRAULIC CALCULATIONS

ROLLINGWOOD TEXAS

K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
1120 S. Capital of Texas Highway
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Austin, Texas 78746
P - 512.338.1704 F - 512.338.1784
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NOTES	NAME	DATE
SURVEY BY		
DRAWN BY	AH	08/21
DESIGNED BY	LWM	08/21
CHECKED BY	GE	08/21
REVIEWED BY	----	----

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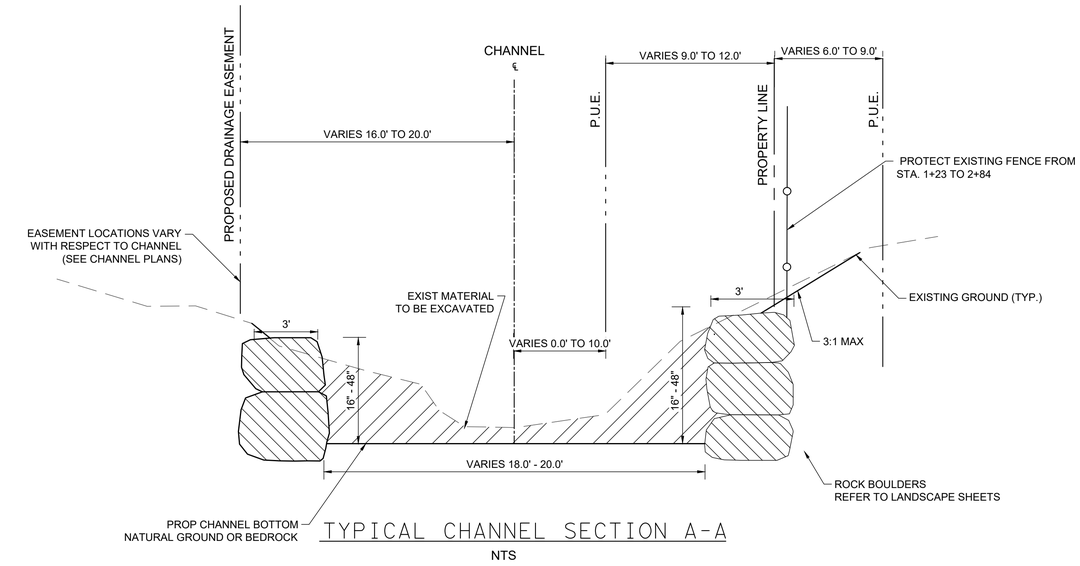
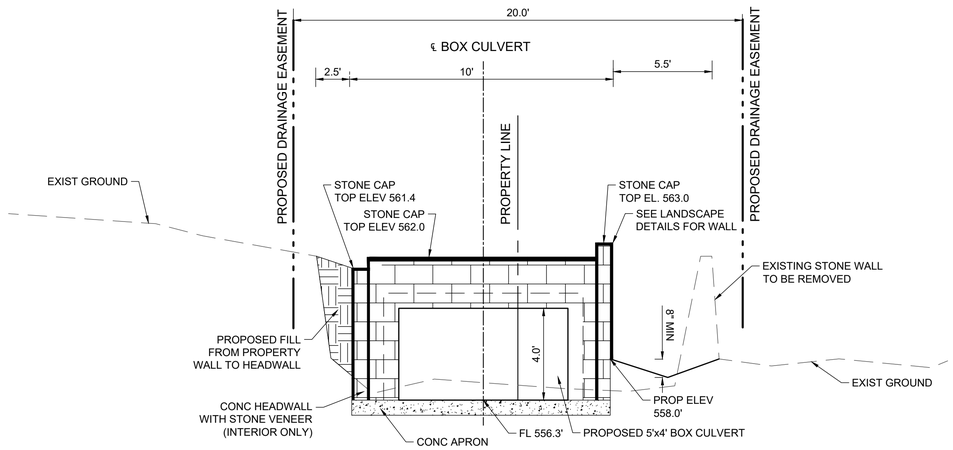


TYPICAL CHANNEL SECTION A-A

NTS

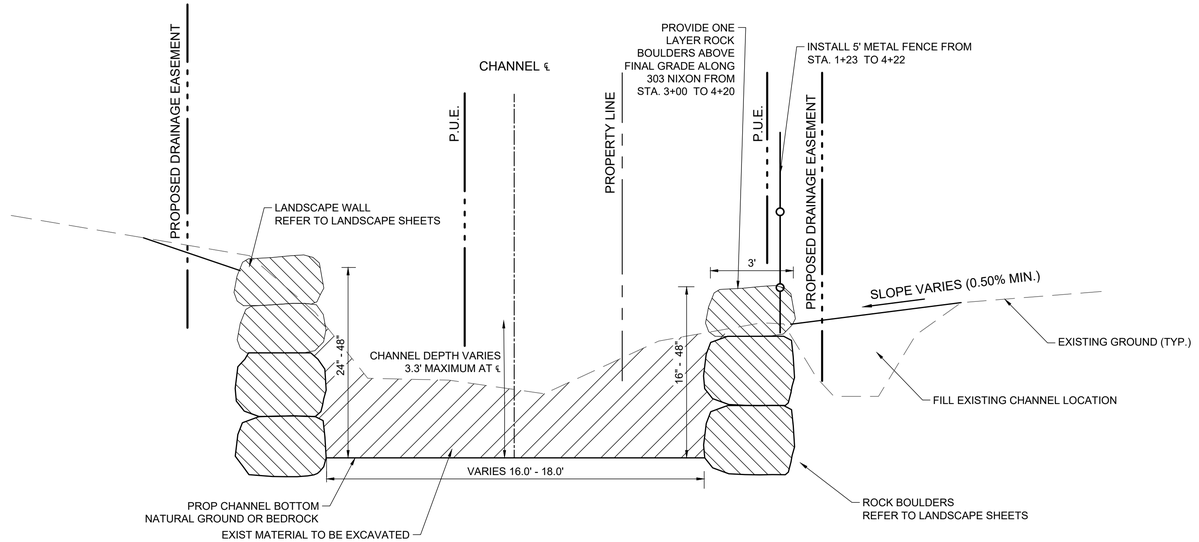
BEGIN CHANNEL TO STA. 2+40.00



TYPICAL CHANNEL SECTION C-C

NTS

BOX CULVERT TO CHANNEL



TYPICAL CHANNEL SECTION B-B

NTS

STA. 2+40.00 TO 4+20.00

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CITY OF ROLLINGWOOD, TEXAS

PROPOSED DRAINAGE IMPROVEMENTS
NIXON/PLEASANT DRAINAGE IMPROVEMENTS

CHANNEL TYPICAL SECTIONS

ROLLINGWOOD TEXAS

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DESIGNED BY	###	#####
CHECKED BY	##	#####
REVIEWED BY	----	----

0 20 40
HORIZONTAL SCALE IN FEET

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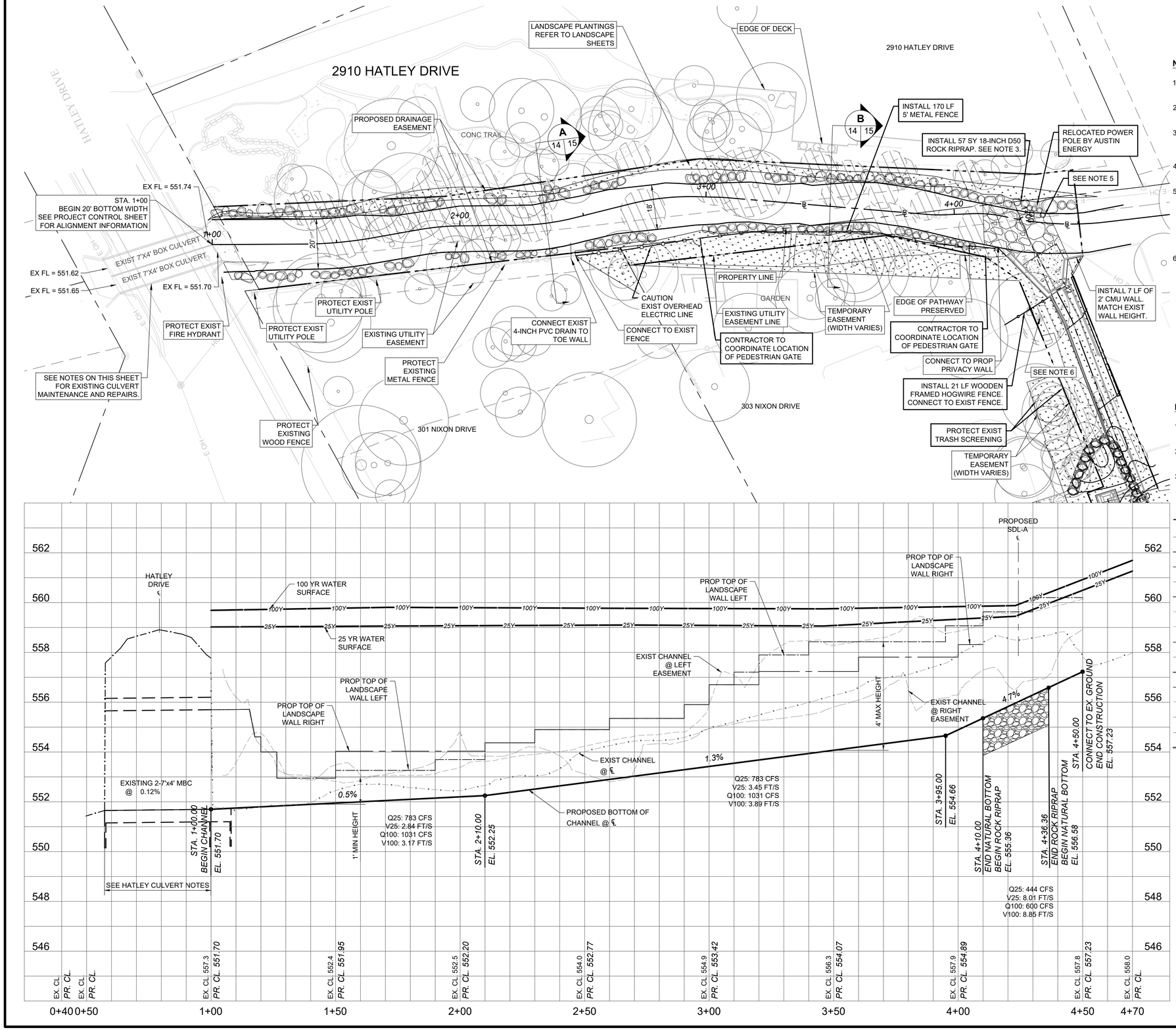

NOTES:

1. COORDINATE RAINWATER CONNECTION TO CHANNEL IMPROVEMENTS WITH PROPERTY OWNER AT 301 NIXON DRIVE.
2. SEE LANDSCAPE SHEETS FOR LANDSCAPE WALL AND BOULDER PLACEMENT.
3. PLACEMENT OF ROCK RIPRAP SHALL HAVE A MINIMUM THICKNESS OF 36 INCHES OR TO THE DEPTH OF BEDROCK. COORDINATE WITH ENGINEER IF BEDROCK IS EXPOSED PRIOR TO ROCK PLACEMENT.
4. ALL PRESERVED TREES/CANOPY SHALL BE PROTECTED IN ACCORDANCE WITH TREE PROTECTION TABLE.
5. PROTECT THE RELOCATED ELECTRIC POWER POLE AND GUY WIRE BY INSTALLING ROCK BOULDERS AROUND THE BASE OF THE POLE. THE ROCK BOULDERS SHOULD BE AT LEAST ONE FOOT IN DIAMETER AND SHOULD BE PLACED AROUND THE BASE OF THE POLE, ENSURING THAT THE GUY WIRE IS NOT DISTURBED. THE ROCK BOULDERS SHOULD BE POSITIONED SLIGHTLY BELOW GROUND LEVEL AND TRANSITION TO NATURAL GROUND.
6. IF IT IS DETERMINED BY THE CITY THAT THERE IS AN ADDITIONAL ENCROACHMENT OF OVERHEAD ELECTRIC LINES ONTO 305 NIXON DRIVE AS A RESULT OF THE RELOCATED AUSTIN ENERGY DISTRIBUTION POLE, THE ELECTRICAL SERVICE POLE LOCATED AT 303 NIXON DRIVE WILL BE RELOCATED. THE CITY WILL INSTRUCT THE CONTRACTOR TO MOVE THE SERVICE POLE TO A NEW LOCATION THAT WILL HELP MITIGATE THE ADDITIONAL ENCROACHMENT TO A CURRENT DEGREE OF ENCROACHMENT OR BETTER. THE CONTRACTOR SHALL CONSULT WITH THE PROPERTY OWNER AT 303 NIXON DRIVE TO RELOCATE THE POLE CLOSER TO THE FENCE LINE IN AN ACCEPTABLE LOCATION FOR ALL PARTIES THAT ACHIEVES THE GOAL OF THE RELOCATION.

HATLEY CULVERT NOTES:

1. WASH OUT THE SURFACE INSIDE OF BOX CULVERT. REMOVE ANY DEBRIS, DIRT, VEGETATION AND LOOSE MATERIALS.
2. SMOOTH BOTTOM SURFACE OF CULVERT TO ALLOW FOR POSITIVE DRAINAGE FREE OF PONDING WATER WITHIN THE BOX CULVERT.
3. COVER EXPOSED REBAR WITH AN EPOXY GROUT, AS APPROVED BY THE ENGINEER.

LEGEND

- CENTERLINE
- RIGHT OF WAY LINE
- PROPERTY LINE
- EXISTING EASEMENT LINE
- PROPOSED EASEMENT LINE
- EXISTING DITCH EDGE
- EXISTING WOOD FENCE
- 600 EXISTING MAJOR CONTOURS
- 599 EXISTING MINOR CONTOURS
- 600 PROPOSED MAJOR CONTOURS
- 599 PROPOSED MINOR CONTOURS
- E OH EXISTING ELECTRIC OVERHEAD
- EXISTING FENCE LINE
- PROPOSED CHAIN LINK FENCE
- PROPOSED STORM DRAIN
- TREE
- TREE TO BE REMOVED
- STONE RIPRAP
- LANDSCAPE PLANTING

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CITY OF ROLLINGWOOD, TEXAS

PROPOSED DRAINAGE IMPROVEMENTS
NIXON/PLEASANT DRAINAGE IMPROVEMENTS

CHANNEL PLAN AND PROFILE STA. 1+00.00 TO END

ROLLINGWOOD TEXAS

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0 20 40
HORIZONTAL SCALE IN FEET
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VERTICAL SCALE IN FEET

PLPR01 | 15 OF 49

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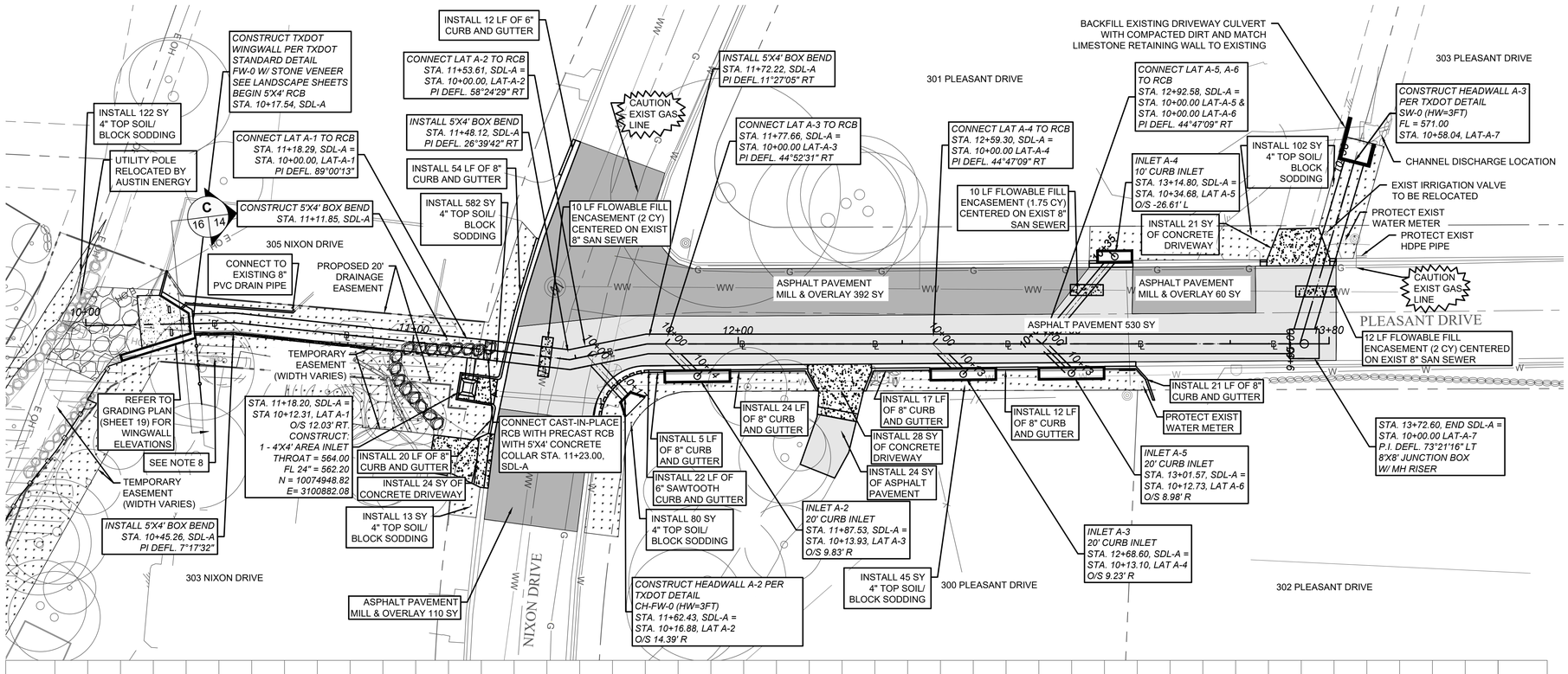

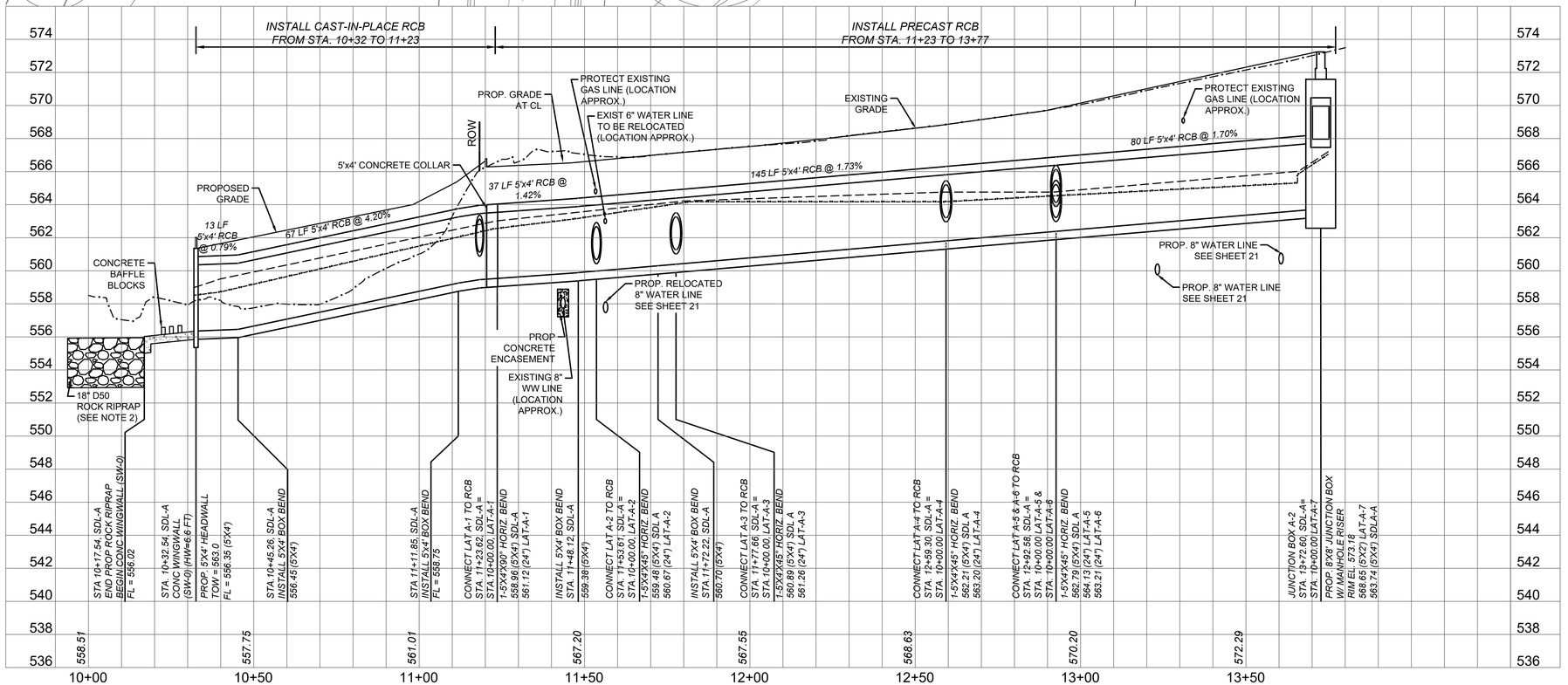

NOTES:

1. SEE LANDSCAPE SHEETS FOR LANDSCAPE WALL AND BOULDER PLACEMENT.
2. PLACEMENT OF ROCK RIPRAP SHALL HAVE A MINIMUM THICKNESS OF 36 INCHES OR TO THE DEPTH OF BEDROCK. COORDINATE WITH ENGINEER IF BEDROCK IS EXPOSED PRIOR TO ROCK PLACEMENT.
3. ALL PRESERVED TREE/CANOPY SHALL BE PROTECTED IN ACCORDANCE WITH TREE PROTECTION TABLE.
4. CONTRACTOR/INSPECTOR TO FIELD VERIFY EXISTING GRASS AND NEW BLOCK SODDING SHALL MATCH EXISTING TYPE. COORDINATE PLACEMENT OF GRASS AND LANDSCAPE FEATURES WITH PROPERTY OWNERS.
5. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING OPERATION OF ALL EXISTING UTILITIES AFFECTED BY PROPOSED CONSTRUCTION.
7. LOCATIONS OF EXISTING UTILITIES SHOWN ARE APPROXIMATE AND BASED ON AVAILABLE DRAWINGS AND FIELD SURVEY. CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
8. IF IT IS DETERMINED BY THE CITY THAT THERE IS AN ADDITIONAL ENCROACHMENT OF OVERHEAD ELECTRIC LINES ONTO 305 NIXON DRIVE AS A RESULT OF THE RELOCATED AUSTIN ENERGY DISTRIBUTION POLE, THE ELECTRICAL SERVICE POLE LOCATED AT 303 NIXON DRIVE WILL BE RELOCATED. THE CITY WILL INSTRUCT THE CONTRACTOR TO MOVE THE SERVICE POLE TO A NEW LOCATION THAT WILL HELP MITIGATE THE ADDITIONAL ENCROACHMENT TO A CURRENT DEGREE OF ENCROACHMENT OR BETTER. THE CONTRACTOR SHALL CONSULT WITH THE PROPERTY OWNER AT 303 NIXON DRIVE TO RELOCATE THE POLE CLOSER TO THE FENCE LINE IN AN ACCEPTABLE LOCATION FOR ALL PARTIES THAT ACHIEVES THE GOAL OF THE RELOCATION.

LEGEND	
25 YEAR HGL	
100 YEAR HGL	
TREE	

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CITY OF ROLLINGWOOD, TEXAS
PUBLIC WORKS DEPARTMENT

PROPOSED DRAINAGE IMPROVEMENTS NIXON/PLEASANT DRAINAGE IMPROVEMENTS

STORM SEWER PLAN & PROFILE STA. 10+00.00 TO STA. 12+67.58

ROLLINGWOOD TEXAS

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REVIEWED BY		

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HORIZONTAL SCALE IN FEET
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VERTICAL SCALE IN FEET

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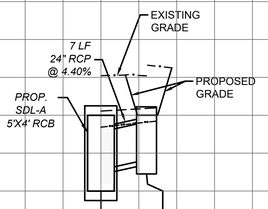
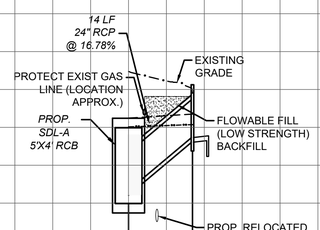
JUDY WILLIG

LAT-A1



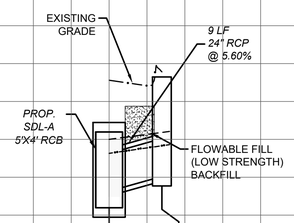
STA. 10+00.00 LAT-A-1 =
STA. 11+24.34, SDL-A
561.12 (24") LAT-A-1
560.00 (5'X4') SDL-A
STA. 11+18.20, SDL-A
PROP. 48"X48" AREA INLET
TOP 564.44
THROAT 564.00
561.65 (24") LAT-A-1
566.08

LAT-A2



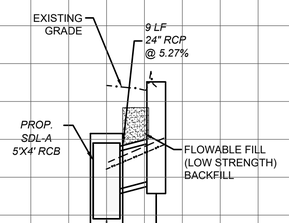
STA. 10+00.00 LAT-A-2 =
STA. 11+53.61, SDL-A
560.67 (24") LAT-A-2
560.28 (5'X4') SDL-A
STA. 11+62.43, SDL-A
PROP. HEADWALL A-2
TOP 566.25
563.50 (24") LAT-A-2
567.15

LAT-A3



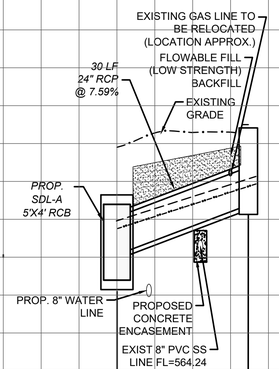
STA. 10+00.00 LAT-A-3 =
STA. 11+77.66, SDL-A
561.26 (24") LAT-A-3
560.89 (5'X4') SDL-A
STA. 11+87.53, SDL-A
PROP. 20' CURB INLET
TOP 567.29
562.04 (24") LAT-A-3
567.09

LAT-A4



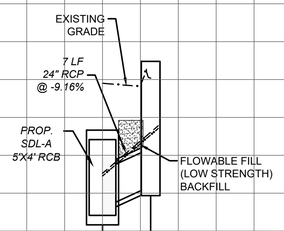
STA. 10+00.00 LAT-A-4 =
STA. 12+59.30, SDL-A
563.20 (24") LAT-A-4
562.21 (5'X4') SDL-A
STA. 12+68.60, SDL-A
PROP. 10' CURB INLET
TOP 569.03
563.89 (24") LAT-A-4
568.83

LAT-A5



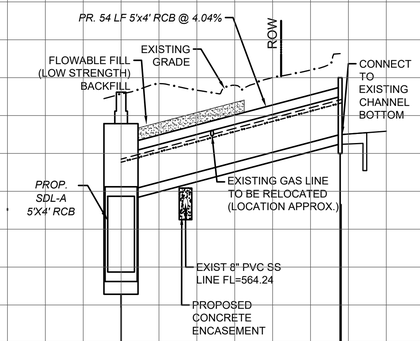
STA. 10+00.00 LAT-A-5 =
STA. 12+92.58, SDL-A
564.13 (24") LAT-A-5
562.79 (5'X4') SDL-A
STA. 13+14.80, SDL-A
PROP. 20' CURB INLET
TOP 570.83
566.76 (24") LAT-A-5
569.91

LAT-A6



STA. 10+00.00 LAT-A-6 =
STA. 12+92.58, SDL-A
563.21 (24") LAT-A-6
562.79 (5'X4') SDL-A
STA. 13+01.57, SDL-A
PROP. 20' CURB INLET
TOP 570.96
FL(IN): 564.37 (24") LAT-A-6
569.91

LAT-A7



STA. 10+00.00 LAT-A-7 =
STA. 13+71.24 SDL-A
PROP. 8'X8' JUNCTION BOX
TOP 571.52
567.96 (5'X2') LAT-A-7
563.74 (5'X4') SDL-A
STA. 10+57.81 LAT-A-7
PROP. 5'X2' HEADWALL A-3
RIM EL. 574.00
571.00 (5'X2') LAT-A-7
573.24

LEGEND	
25 YEAR HGL	----------
100 YEAR HGL	– – – –

REV NO.	BY	DATE	REVISION DESCRIPTION

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CITY OF ROLLINGWOOD, TEXAS
PUBLIC WORKS DEPARTMENT

PROPOSED DRAINAGE IMPROVEMENTS
NIXON/PLEASANT DRAINAGE IMPROVEMENTS

STORM SEWER LATERAL PROFILES

ROLLINGWOOD TEXAS

K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
1120 S. Capital of Texas Highway
CityView 2, Suite 100
Austin, Texas 78746
P - 512.338.1704 F - 512.338.1784
TBPE Firm #6535
www.kfriese.com

NOTES	NAME	DATE
SURVEY BY		
DRAWN BY	##	#####
DESIGNED BY	###	#####
CHECKED BY	##	#####
REVIEWED BY		

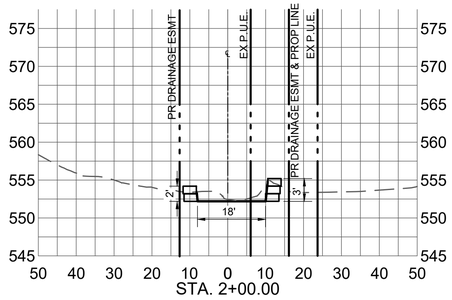
0 20 40
HORIZONTAL SCALE IN FEET
0 4 8
VERTICAL SCALE IN FEET

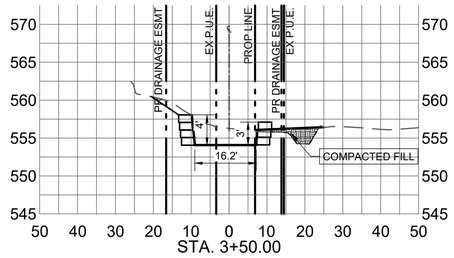
PLPR03 | 17 OF 49

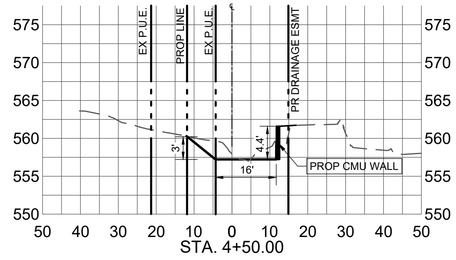
X:\PROJECTS\0807_ROLLINGWOOD_NIXON-PLEASANT_DRAINAGE_IMPROVEMENTS\DGN\SHEETS\0807-C-SD-PLPR.DWG, COA: 22X34_LANDSCAPE_COA_ESD.STB
4/12/2023 5:18 PM
JUDY WILLIS

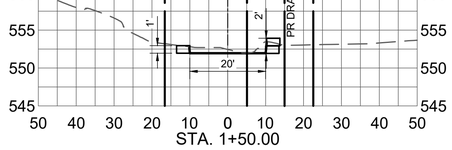
NOTES:

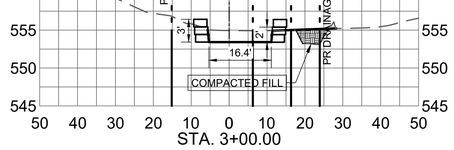
1. CROSS-SECTIONS ARE SHOWN ALONG THE BASELINE LOOKING UPSTREAM.
2. EXISTING GROUND FOR CROSS-SECTIONS WERE GENERATED FROM CIVILCORP SURVEY DATA.
3. ELEVATION CALLOUTS AT THE LIMITS OF THE EXCAVATION ARE TO THE ACCURACY OF THE SURVEY DATA. CONTRACTOR TO HOLD THE OFFSET IN THE EVENT OF A DISCREPANCY.
4. APPARENT ROW OR EASEMENT LIMITS ARE SHOWN FOR INFORMATIONAL PURPOSES AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR.

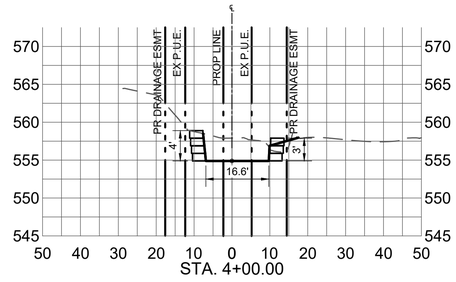


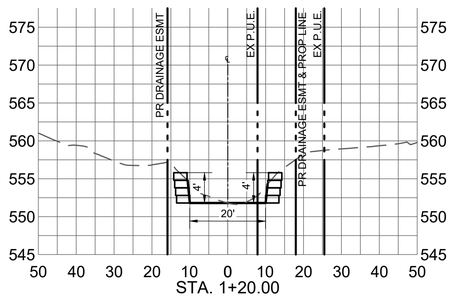


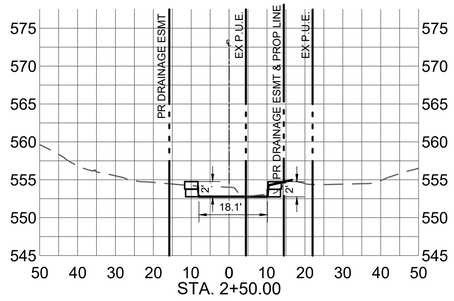












REV NO.	BY	DATE	REVISION DESCRIPTION

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CITY OF ROLLINGWOOD, TEXAS

PROPOSED DRAINAGE IMPROVEMENTS
NIXON/PLEASANT DRAINAGE IMPROVEMENTS

CHANNEL CROSS SECTIONS

ROLLINGWOOD TEXAS

K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
1120 S. Capital of Texas Highway
CityView 2, Suite 100
Austin, Texas 78746
P - 512.338.1704 F - 512.338.1784
TBPE Firm #6535
www.kfriese.com

NOTES	NAME	DATE
SURVEY BY		
DRAWN BY	##	######
DESIGNED BY	###	######
CHECKED BY	##	######
REVIEWED BY	----	----

0 20 40
HORIZONTAL SCALE IN FEET
0 10 20
VERTICAL SCALE IN FEET

SECT02 | 18 OF 49

4/12/2023 5:19 PM
JUDY WILLIS
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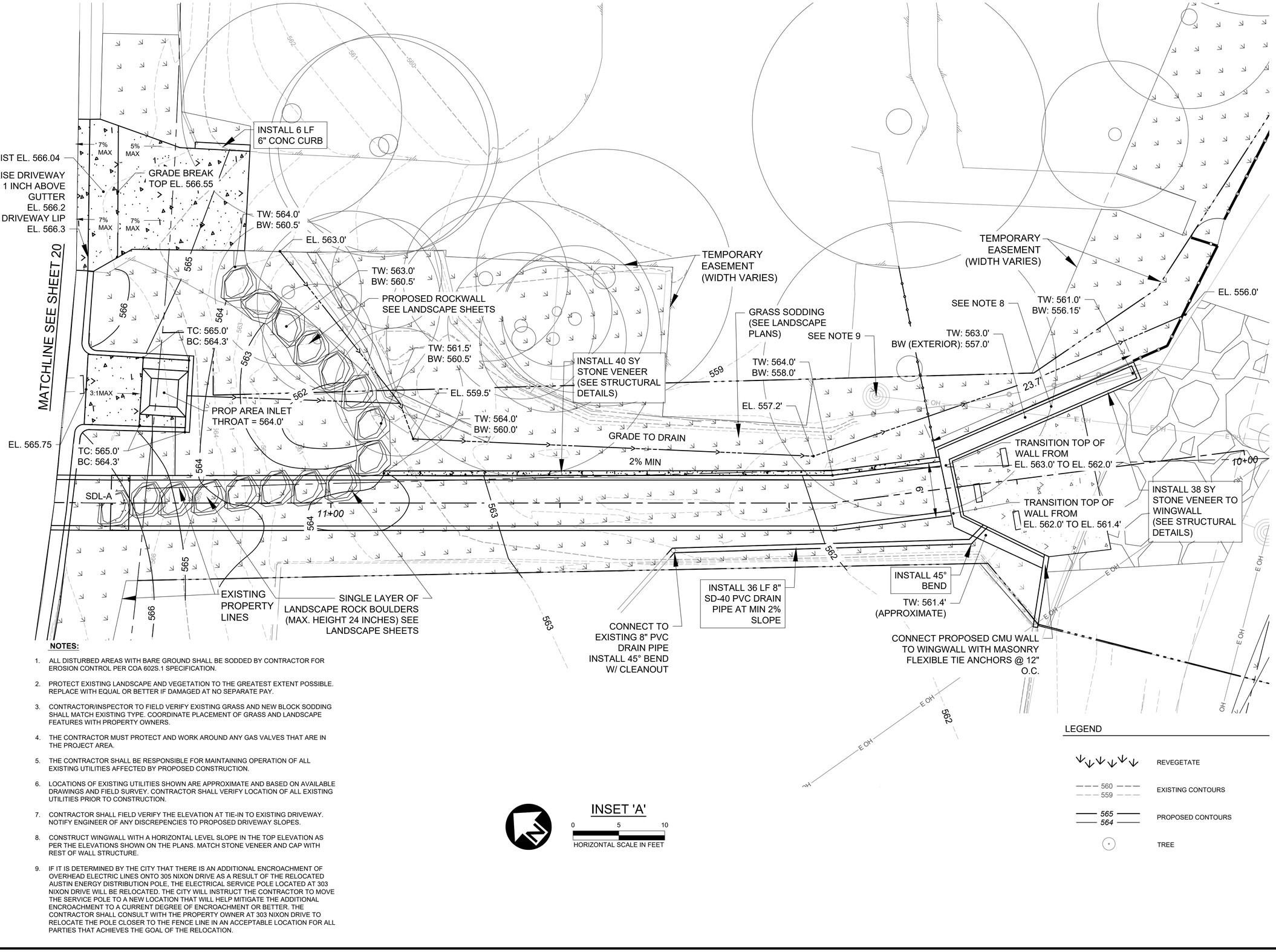

NOTES:

1. ALL DISTURBED AREAS WITH BARE GROUND SHALL BE SODDED BY CONTRACTOR FOR EROSION CONTROL PER COA 602S.1 SPECIFICATION.
2. PROTECT EXISTING LANDSCAPE AND VEGETATION TO THE GREATEST EXTENT POSSIBLE. REPLACE WITH EQUAL OR BETTER IF DAMAGED AT NO SEPARATE PAY.
3. CONTRACTOR/INSPECTOR TO FIELD VERIFY EXISTING GRASS AND NEW BLOCK SODDING SHALL MATCH EXISTING TYPE. COORDINATE PLACEMENT OF GRASS AND LANDSCAPE FEATURES WITH PROPERTY OWNERS.
4. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING OPERATION OF ALL EXISTING UTILITIES AFFECTED BY PROPOSED CONSTRUCTION.
6. LOCATIONS OF EXISTING UTILITIES SHOWN ARE APPROXIMATE AND BASED ON AVAILABLE DRAWINGS AND FIELD SURVEY. CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
7. CONTRACTOR SHALL FIELD VERIFY THE ELEVATION AT TIE-IN TO EXISTING DRIVEWAY. NOTIFY ENGINEER OF ANY DISCREPENCIES TO PROPOSED DRIVEWAY SLOPES.
8. CONSTRUCT WINGWALL WITH A HORIZONTAL LEVEL SLOPE IN THE TOP ELEVATION AS PER THE ELEVATIONS SHOWN ON THE PLANS. MATCH STONE VENEER AND CAP WITH REST OF WALL STRUCTURE.
9. IF IT IS DETERMINED BY THE CITY THAT THERE IS AN ADDITIONAL ENCROACHMENT OF OVERHEAD ELECTRIC LINES ONTO 305 NIXON DRIVE AS A RESULT OF THE RELOCATED AUSTIN ENERGY DISTRIBUTION POLE, THE ELECTRICAL SERVICE POLE LOCATED AT 303 NIXON DRIVE WILL BE RELOCATED. THE CITY WILL INSTRUCT THE CONTRACTOR TO MOVE THE SERVICE POLE TO A NEW LOCATION THAT WILL HELP MITIGATE THE ADDITIONAL ENCROACHMENT TO A CURRENT DEGREE OF ENCROACHMENT OR BETTER. THE CONTRACTOR SHALL CONSULT WITH THE PROPERTY OWNER AT 303 NIXON DRIVE TO RELOCATE THE POLE CLOSER TO THE FENCE LINE IN AN ACCEPTABLE LOCATION FOR ALL PARTIES THAT ACHIEVES THE GOAL OF THE RELOCATION.

REV NO.	BY	DATE	REVISION DESCRIPTION

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CITY OF ROLLINGWOOD, TEXAS

PROPOSED DRAINAGE IMPROVEMENTS
NIXON/PLEASANT DRAINAGE IMPROVEMENTS

GRADING PLAN

ROLLINGWOOD TEXAS

K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
1120 S. Capital of Texas Highway
CityView 2, Suite 100
Austin, Texas 78746
P - 512.338.1704 F - 512.338.1784
TBPE Firm #6535
www.kfriese.com

NOTES	NAME	DATE
SURVEY BY		
DRAWN BY	AH	08/21
DESIGNED BY	LWM	08/21
CHECKED BY	GE	08/21
REVIEWED BY	----	----

0 5 10
HORIZONTAL SCALE IN FEET

GD101 | 19 OF 49

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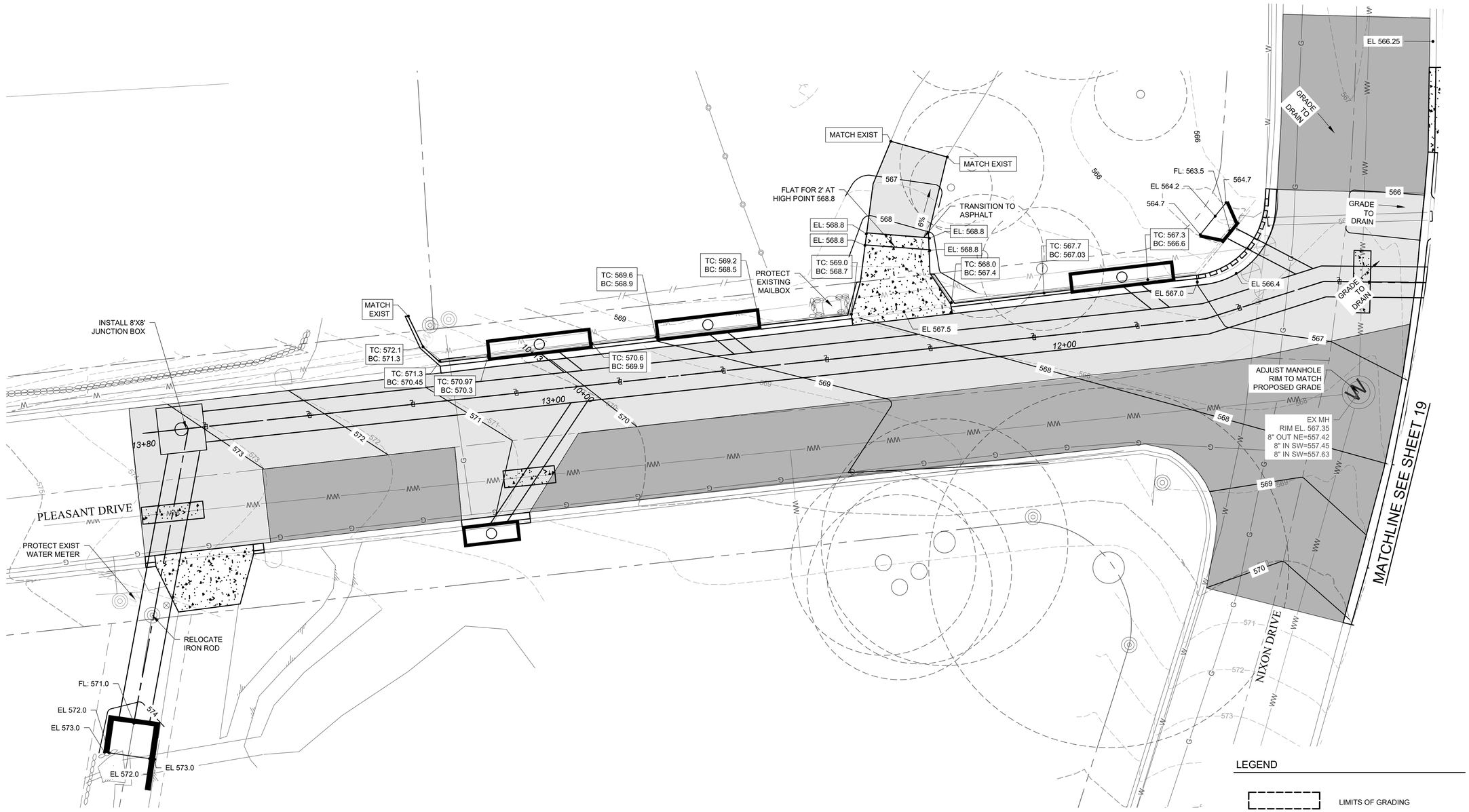
JUDY WILLIG



INSET 'B'

0 10 20

HORIZONTAL SCALE IN FEET

NOTES:

1. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.
2. THE CONCTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING OPERATION OF ALL EXISTING UTILITIES AFFECTED BY PROPOSED CONSTRUCTION.
3. LOCATIONS OF EXISTING UTILITIES SHOWN ARE APPROXIMATE AND BASED ON AVAILABLE DRAWINGS AND FIELD SURVEY. CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
4. ALL CALLOUTS ARE TO THE TOP OF PAVEMENT UNLESS OTHERWISE NOTED.

LEGEND

- LIMITS OF GRADING
- 560 / 559 — EXISTING CONTOURS
- 565 / 564 — PROPOSED CONTOURS
- PAVEMENT MILL & OVERLAY
- PAVEMENT FULL DEPTH REPAIR
- TREE
- TREE TO BE REMOVED
- TC — TOP OF CURB
- BC — BOTTOM OF CURB

REV NO.	BY	DATE	REVISION DESCRIPTION

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CITY OF ROLLINGWOOD, TEXAS

PROPOSED DRAINAGE IMPROVEMENTS
NIXON/PLEASANT DRAINAGE IMPROVEMENTS

GRADING PLAN

NOTES	NAME	DATE
SURVEY BY		
DRAWN BY	AH	08/21
DESIGNED BY	LWM	08/21
CHECKED BY	GE	08/21
REVIEWED BY	----	----

0 10 20

HORIZONTAL SCALE IN FEET

GD102 | 20 OF 49

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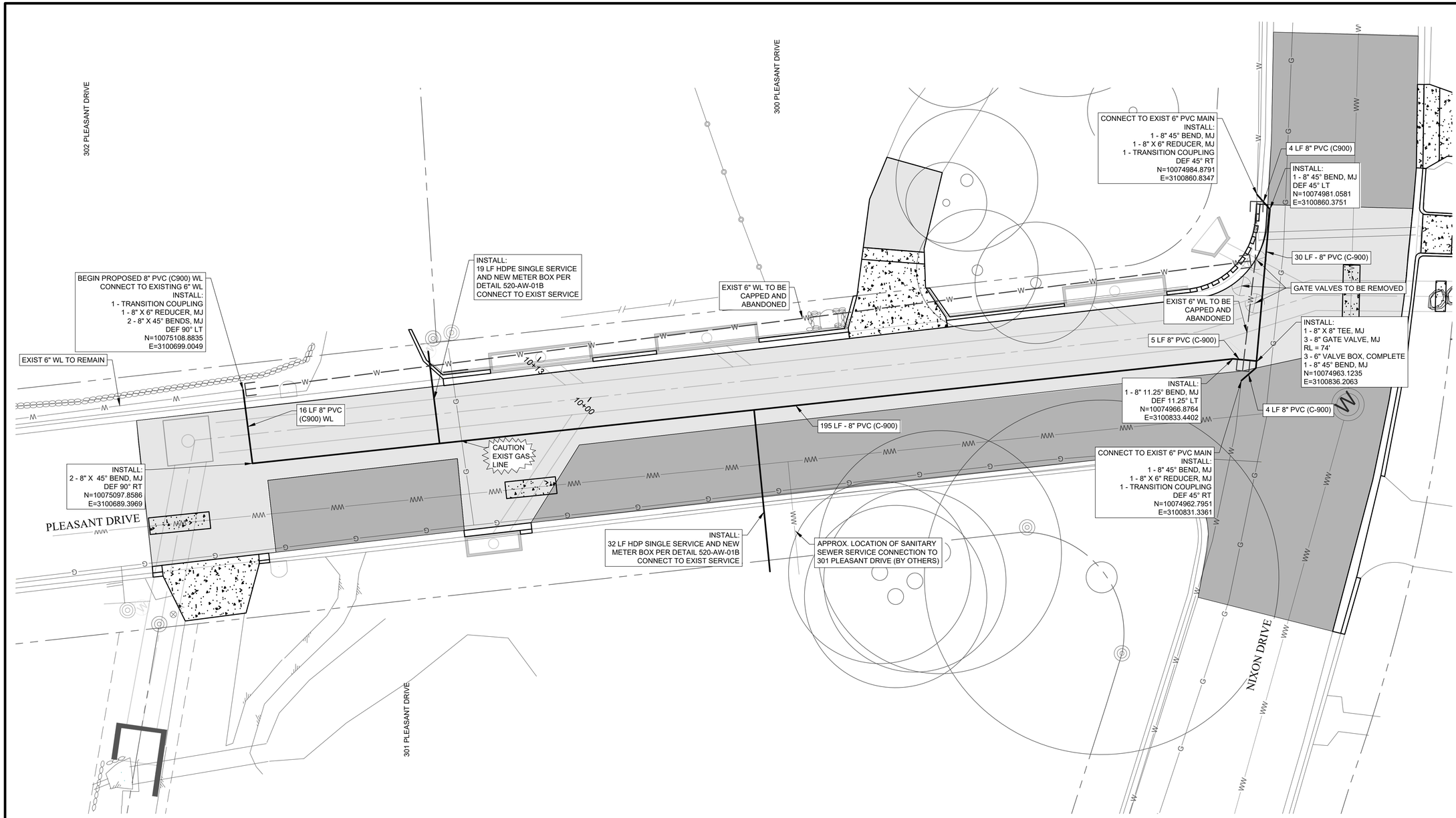
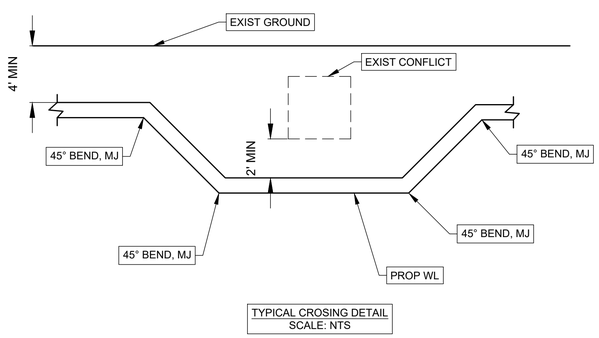
JUDY WILLIG





TYPICAL CROSING DETAIL
SCALE: NTS

0 10 20
HORIZONTAL SCALE IN FEET

NOTES:

1. CONTRACTOR SHALL ENSURE WATER SERVICE TO PROPERTIES IS MAINTAINED THROUGHOUT CONSTRUCTION. ALL SERVICE DISRUPTIONS REQUIRE 48-HOURS NOTICE.
2. ALL PROPOSED WATER PIPE SHALL HAVE RESTRAINED JOINTS.
3. LOCATIONS OF THE EXISTING UTILITIES ARE APPROXIMATE. CONTRACTOR MUST FIELD VERIFY THE LOCATONS AND DEPTHS OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION, AND SHALL NOTIFY THE ENGINEER IMMEDIATELY IF DISCREPANCIES ARE FOUND.
4. IF ANY SERVICE DISRUPTIONS ARE REQUIRED, THE CONTRACTOR SHALL NOTIFY THE CITY WITH 48 HOURS NOTICE. CONTRACTOR SHALL OBTAIN WRITTEN AUTHORITY FROM THE CITY OF ROLLINGWOOD FOR ANY OUTAGES. SERVICE DISRUPTIONS OUTSIDE THE HOURS OF 8AM TO 5PM WILL NOT BE PERMITTED.

LEGEND

- WATERLINE ABANDONED
- TREE
- TREE TO BE REMOVED

REV NO.	BY	DATE	REVISION DESCRIPTION

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CITY OF ROLLINGWOOD, TEXAS

PROPOSED DRAINAGE IMPROVEMENTS
NIXON/PLEASANT DRAINAGE IMPROVEMENTS

WATER LINE RELOCATION PLAN

ROLLINGWOOD TEXAS

K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
1120 S. Capital of Texas Highway
CityView 2, Suite 100
Austin, Texas 78746
P - 512.338.1704 F - 512.338.1784
TBPE Firm #6535
www.kfriese.com

NOTES	NAME	DATE
SURVEY BY		
DRAWN BY	AH	08/21
DESIGNED BY	LWM	08/21
CHECKED BY	GE	08/21
REVIEWED BY	----	----

0 10 20
HORIZONTAL SCALE IN FEET

CV01 | 21 OF 49

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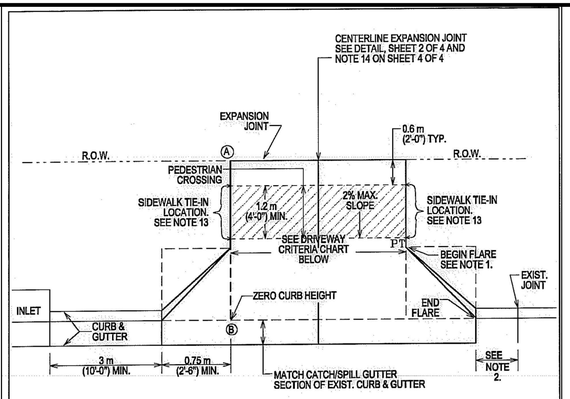
4/12/2023 5:20 PM
JUDY WILLIG



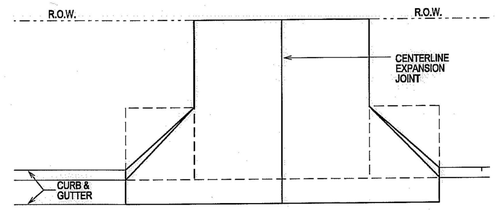
PLAN

NOTE: ALL DRIVEWAYS SHALL BE SLOPED TOWARDS THE STREET FROM THE R.O.W. LINE. ELEVATION OF POINT Ⓐ ABOVE POINT Ⓑ IS, TYPICALLY, A MINIMUM OF 150 mm (6") PLUS 20 mm/m (¼" RISE/FOOT) OVER DISTANCE "X" IN METERS (FEET).

DRIVEWAY CRITERIA	WIDTH METERS (FEET)		
USE	MIN.	*OPT.	MAX.
SINGLE FAMILY	3.66 (12)	5.50 (18)	11.80 (25)
DUPLEX	4.56 (15)	5.50 (18)	11.80 (25)
TOWN HOME	4.56 (15)	5.50 (16)	11.80 (25)

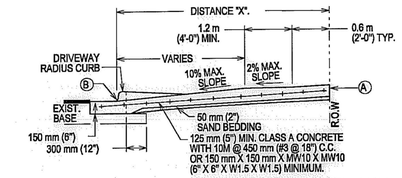
*OPTIMUM

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	FLARED TYPE I DRIVEWAY (1 & 2 FAMILY RESIDENTIAL USE ONLY)	STANDARD NO.
ADOPTED 10-19-09	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	433S-1A 1 OF 4

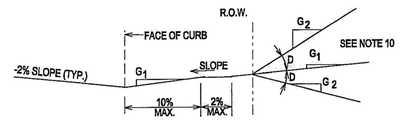


PLAN

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	FLARED TYPE I DRIVEWAY (1 & 2 FAMILY RESIDENTIAL USE ONLY)	STANDARD NO.
ADOPTED 10-19-09	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	433S-1A 2 OF 4



CROSS SECTION



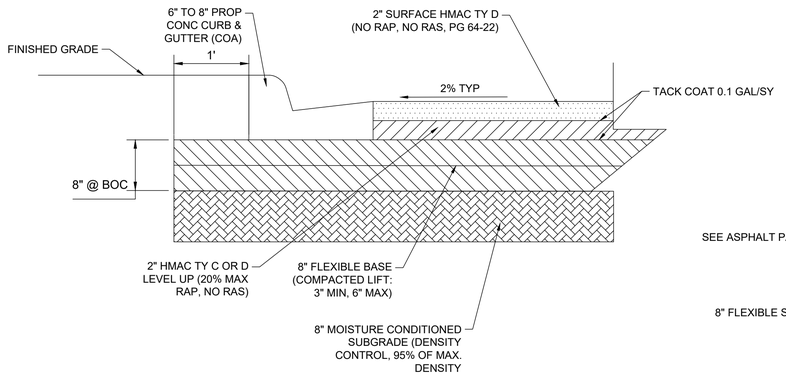
ALLOWABLE GRADES

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	FLARED TYPE I DRIVEWAY (1 & 2 FAMILY RESIDENTIAL USE ONLY)	STANDARD NO.
ADOPTED 10-19-09	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	433S-1A 3 OF 4

NOTES:

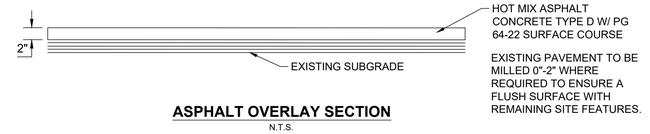
1. "ZERO" CURB AT BEGINNING OF FLARE OR SIDEWALK EDGE, WHICHEVER IS ENCOUNTERED FIRST. THE DRIVEWAY EDGE SHALL BE SMOOTHLY TRANSITIONED INTO THE SIDEWALK BEGINNING AT THE END OF FLARE.
2. IF DIMENSION IS LESS THAN 1.5 METERS (5 FEET), REMOVE CURB AND GUTTER TO EXISTING JOINT AND POUR MONOLITHICALLY WITH THE DRIVEWAY.
3. IF THE BASE MATERIAL UNDER AND BEHIND THE CURB IS OVER-EXCAVATED WHERE THE CURB AND GUTTER WAS REMOVED, BACKFILL WITH CONCRETE MONOLITHICALLY WITH THE DRIVEWAY.
4. ALL DRIVEWAYS MUST BE CONSTRUCTED WITHIN THE STREET FRONTAGE OF THE SUBJECT PROPERTY AS DETERMINED BY EXTENDING THE SIDE PROPERTY LINES TO THE CURB.
5. DRIVEWAYS SHALL NOT EXCEED 70% OF A LOTS' STREET FRONTAGE.
6. TYPE I DRIVEWAYS ARE TO BE LOCATED NO CLOSER TO THE CORNER OF INTER-SECTING RIGHTS-OF-WAY THAN 60% OF PARCEL FRONTAGE OR 15 METERS (60 FEET); WHICHEVER IS LESS.
7. DRIVEWAYS SHALL NOT BE CONSTRUCTED WITHIN THE CURB RETURN OF A STREET INTERSECTION.
8. SINGLE FAMILY LOTS LIMITED TO ONE DRIVEWAY EXCEPT FOR APPROVED SEMICIRCULAR DRIVES.
9. WHEN TWO DRIVEWAYS ARE USED (ONE PER UNIT; TWO MAXIMUM) FOR DUPLEXES AND TOWN HOMES, SINGLE FAMILY STANDARDS SHALL APPLY.
10. WHILE THE PROPERTY OWNER REMAINS RESPONSIBLE FOR GRADE BREAKS WITHIN PRIVATE PROPERTY, THE FIRE DEPARTMENT SHOULD BE CONSULTED WHERE THE DRIVEWAY IS ESSENTIAL TO EMERGENCY VEHICLE ACCESS AND "G2" IS GREATER THAN 15%. "G1" PLUS "D" SHOULD NOT EXCEED 15%.
11. SEE TRANSPORTATION MANUAL SECTION 5 FOR OTHER DRIVEWAY REQUIREMENTS.
12. USE 12 mm (½") ASPHALT BOARD, OR OTHER APPROVED MATERIAL, FOR CURB AND GUTTER EXPANSION JOINTS.
13. THE SIDEWALK, REGARDLESS OF ITS LOCATION WITH RESPECT TO THE CURB OR PROPERTY LINE, SHALL BE CONNECTED TO THE DRIVEWAY AT THESE LOCATIONS.
14. PLACE AN EXPANSION JOINT DOWN THE CENTER OF ALL DRIVEWAYS.
15. WATER METER BOXES AND WASTEWATER CLEAN OUTS ARE PROHIBITED FROM BEING LOCATED IN DRIVEWAY AREAS.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS	FLARED TYPE I DRIVEWAY (1 & 2 FAMILY RESIDENTIAL USE ONLY)	STANDARD NO.
ADOPTED 10-19-09	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	433S-1A 4 OF 4

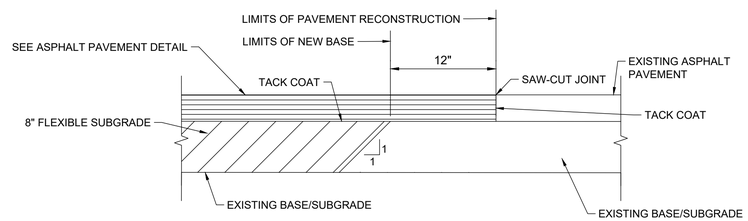


NOTE: IF SOFT SPOTS ARE ENCOUNTERED AT A 8" DEPTH, THE CONTRACTOR SHALL TREAT THE EXISTING SUBGRADE WITH SACKS OF CEMENT, OR EXCAVATE FURTHER TO ACHIEVE A NON-YIELDING SUBGRADE. THIS SHALL BE CONSIDERED SUBSIDIARY TO THE PAVEMENT REPAIR ITEMS.

ASPHALT PAVEMENT REPAIR DETAIL



ASPHALT OVERLAY SECTION
N.T.S.



ASPHALT JUNCTION DETAIL
N.T.S.

REV NO.	BY	DATE	REVISION DESCRIPTION

100% SUBMITTAL

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CITY OF ROLLINGWOOD, TEXAS

CITY OF ROLLINGWOOD
NIXON/PLEASANT DRAINAGE IMPROVEMENTS

PAVING DETAILS
1 OF 2

ROLLINGWOOD TEXAS

K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
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Austin, Texas 78746
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TBPE Firm #6535
www.kfriese.com

NOTES	NAME	DATE
SURVEY BY		
DRAWN BY	AH	08/21
DESIGNED BY	LWM	08/21
CHECKED BY	GE	08/21
REVIEWED BY	PS	09/21

PV501 | 22 OF 49

X:\PROJECTS\9800_ROLLINGWOOD_NIXON-PLEASANT_DRAINAGE_IMPROVEMENTS\DGN\SHEETS\9800-C-PV_DET101.DWG, COA_22X34_LANDSCAPE, COA_ESD.STB

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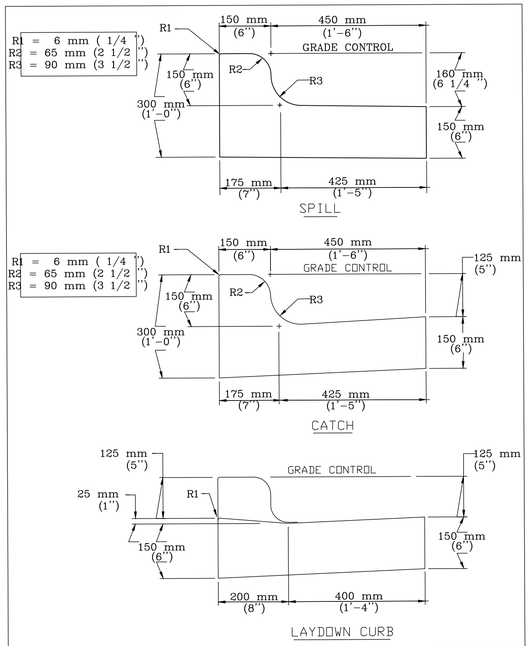
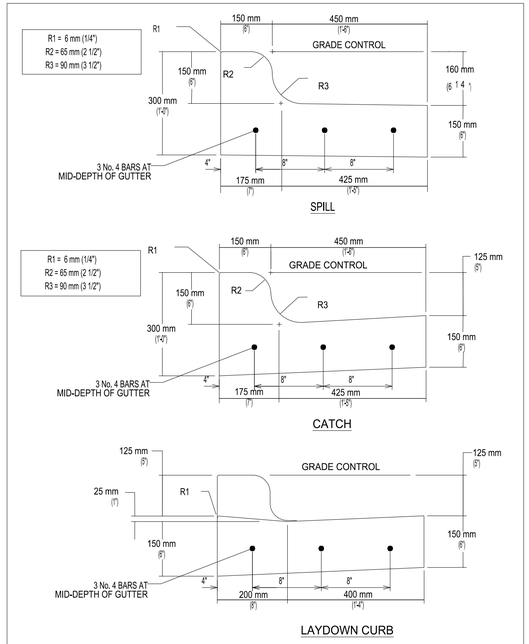
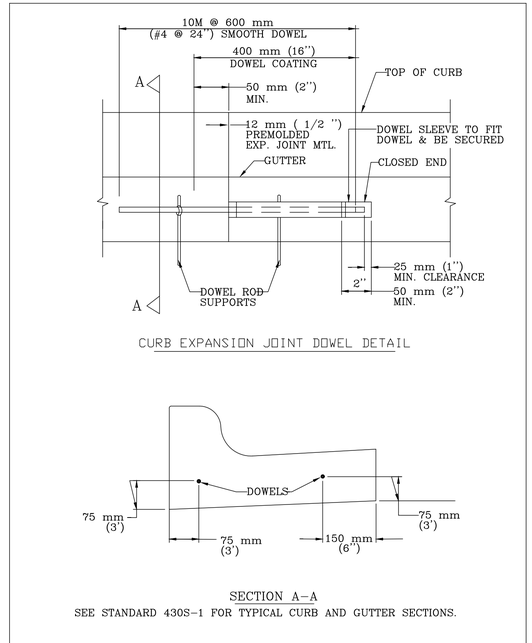


CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION		CURB AND GUTTER SECTION	
RECORD COPY SIGNED BY LINO RIVERA	9/29/99	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 430S-1
ADOPTED			

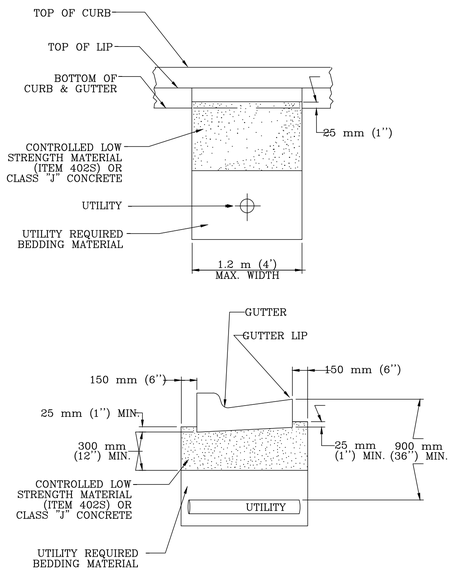


CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS		REINFORCED CURB AND GUTTER SECTION	
RECORD COPY SIGNED BY SAM ANGOORI	*01/04/10*	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 430S-2
ADOPTED			



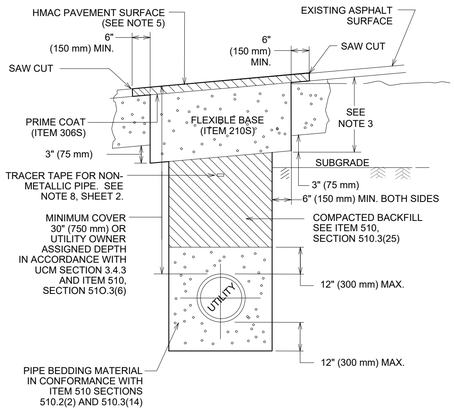
SEE STANDARD 430S–1 FOR TYPICAL CURB AND GUTTER SECTIONS.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION		CURB EXPANSION JOINT DOWEL DETAIL	
RECORD COPY SIGNED BY LINO RIVERA	*9/29/99*	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 430S-3
ADOPTED			



CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION		CONCRETE BACKFILL UNDER CURB & GUTTER	
RECORD COPY SIGNED BY LINO RIVERA	*9/29/99*	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 430S–4
ADOPTED			

TRENCH REPAIR IN ASPHALTIC SURFACE OVER FLEXIBLE BASE
(UCM SECTION 5.8.0)



CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS		FLEXIBLE BASE WITH ASPHALT SURFACE TRENCH REPAIR-EXISTING PAVEMENT	
RECORD COPY SIGNED BY KERI JUAREZ	01/04/11	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 1100S-2 1 OF 2
ADOPTED			

NOTES:

1. THE EXISTING PAVING SURFACE SHALL BE SAW CUT IN A STRAIGHT LINE, A MINIMUM OF 12" (300 mm) WIDER THAN UNDISTURBED SIDES OF THE TRENCH AND SYMMETRICAL ABOUT THE CENTER LINE OF THE EXCAVATION.
2. IF EXCAVATION AREA IS OPEN FOR TEMPORARY PUBLIC USE, THE SURFACE SHALL BE MAINTAINED LEVEL WITH ADJACENT RIDING SURFACE WITH COLD MIX AC OR TEMPORARY HMAC. TEMPORARY MIX SHALL BE PLACED OVER FLEXIBLE BASE.
3. ROAD BASE SHALL BE REPLACED IN KIND WITH BASE THICKNESS EQUAL TO EXISTING BASE THICKNESS PLUS 3" (75 mm), BUT IN NO CASE LESS THAN 12" (300 mm).
4. DAMAGED PAVEMENT OUTSIDE THE TRENCH CUT SHALL BE REMOVED AND REPLACED WITH A BASE THICKNESS OF 10" (250 mm) OR A THICKNESS MATCHING EXISTING, WHICHEVER IS GREATER.
5. REPLACEMENT AC SURFACE LAYER SHALL BE OF THE TYPE AND THICKNESS BASED ON FUNCTIONAL CLASSIFICATION.
   a) MIN. 2" (50 mm) HMAC TYPE "D" FOR TRENCH REPAIR IN LOCAL/RESIDENTIAL STREETS.
   b) MIN. 3" (75 mm) HMAC TYPE "C" FOR TRENCH REPAIR IN COLLECTOR/ARTERIAL STREETS.
   SEE ITEM 340S, SECTION 340S.4.
6. CLASS "J" PC CONCRETE (ITEM 403S) OR CONTROLLED LOW STRENGTH MATERIAL (CLSM) MAY BE SUBSTITUTED IN THESE REPAIRS FOR THE FLEXIBLE BASE AND COMPACTED BACKFILL. PC CONCRETE GREATER THAN A 2 SACK MIX WILL NOT BE ALLOWED.
7. TACK COAT ALL EXPOSED EDGES AND SURFACES (SPEC ITEM 307S).
8. AS PER CITY OF AUSTIN STANDARD SPECIFICATION 510, SECTION 510.2(8)(K)5, FOR ALL NON-METALLIC PIPE, DIRECTLY ABOVE THE CENTERLINE OF THE PIPE AND A MINIMUM OF 12" (300 mm) BELOW THE SUBGRADE, OR A MINIMUM OF 18" (450 mm) BELOW. FINISHED GRADE ON AREAS OUTSIDE THE LIMITS OF PAVEMENT, SHALL BE PLACED INDUCTIVE TRACER TAPE IN ACCORDANCE WITH THE MANUFACTURER'S RE-QUIREMENTS. THE TAPE SHALL BE ENCASED IN A PROTECTIVE, INERT, PLASTIC JACKET AND COLOR CODED IN ACCORDANCE WITH APWA UNIFORM COLOR CODE.

CITY OF AUSTIN DEPARTMENT OF PUBLIC WORKS		FLEXIBLE BASE WITH ASPHALT SURFACE TRENCH REPAIR-EXISTING PAVEMENT	
RECORD COPY SIGNED BY KERI JUAREZ	01/04/11	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 1100S-2 2 OF 2
ADOPTED			

REV NO.	BY	DATE	REVISION DESCRIPTION

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CITY OF ROLLINGWOOD, TEXAS

CITY OF ROLLINGWOOD
NIXON/PLEASANT DRAINAGE IMPROVEMENTS

PAVING DETAILS
2 OF 2

ROLLINGWOOD
TEXAS

K·FRIESE + ASSOCIATES
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CityView 2, Suite 100
Austin, Texas 78746
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TBPE Firm #6535
www.kfriese.com

NOTES	NAME	DATE
SURVEY BY		
DRAWN BY	AH	08/21
DESIGNED BY	LWM	08/21
CHECKED BY	GE	08/21
REVIEWED BY	PS	09/21

X:\PROJECTS\9807_ROLLINGWOOD_NIXON-PLEASANT_DRAINAGE_IMPROVEMENTS\DGN\SHEETS\9807-C-PV_DET101.DWG, COA_22X34_LANDSCAPE, COA_ESD.STB
4/12/2023 5:20 PM
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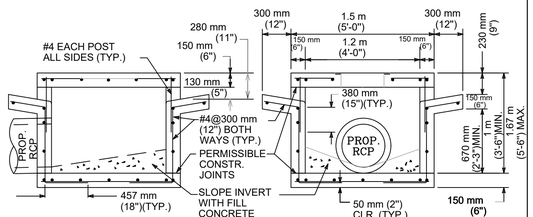
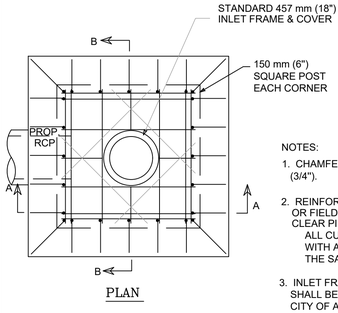


ELEVATION–SECTION A–A ELEVATION–SECTION B–B

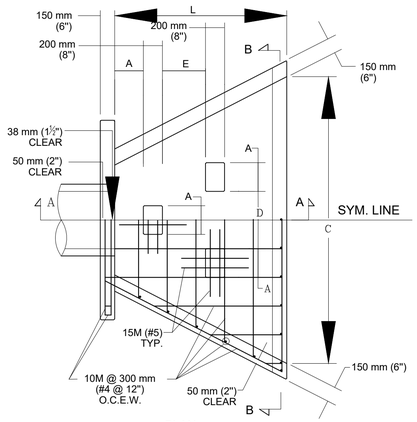


PLAN

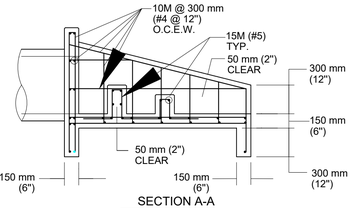
NOTES:

1. CHAMFER ALL EXPOSED EDGES 20 mm (3/4").
2. REINFORCING STEEL SHALL BE CUT OR FIELD-BENT AS REQUIRED TO CLEAR PIPE AND INLET FRAME OPENING. ALL CUT STEEL SHALL BE REPLACED WITH ADDITIONAL DIAGONAL BARS OF THE SAME DIAMETER.
3. INLET FRAME AND COVER SHALL BE IN ACCORDANCE WITH CITY OF AUSTIN STANDARD 503S-1.
4. CONCRETE COVERAGE OF STEEL SHALL BE 50 mm (2") MIN. AT ALL SURFACES.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	4-SIDED AREA INLET	
RECORD COPY SIGNED BY ARTHUR C. ROMERO 08/18/2010 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-9

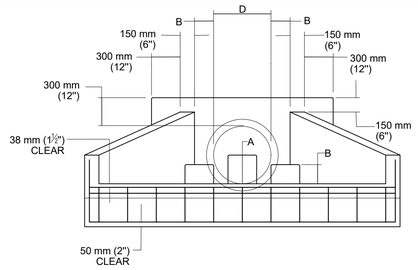


PLAN



SECTION A-A

CITY OF AUSTIN DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW	STANDARD HEADWALL AND ENERGY DISSIPATORS	
RECORD COPY SIGNED BY BILL GARDNER 08/20/07 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-13 1 OF 2



SECTION B-B

NOTES:

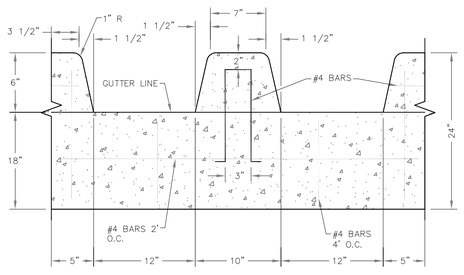
1. ALL CONCRETE SHALL BE TYPE "C" AS PER SPEC. 403S, CONCRETE FOR STURCTURES.
2. CHAMFER ALL EXTERNAL VISIBLE CORNERS.
3. DISSIPATOR BLOCKS REQUIRED ON DISCHARGE HEADWALLS ONLY.

D	457 mm (18")	533 mm (21")	610 mm (24")	685 mm (27")	765 mm (30")	838 mm (33")	914 mm (36")	1.067 m (42")	1.219 m (48")	1.372 m (54")	1.524 m (60")
A	225 mm (9")	250 mm (10")	300 mm (12")	350 mm (14")	375 mm (15")	400 mm (16")	450 mm (18")	525 mm (21")	600 mm (24")	675 mm (27")	750 mm (30")
B	150 mm (6")	175 mm (7")	200 mm (8")	225 mm (9")	250 mm (10")	275 mm (11")	300 mm (12")	350 mm (14")	400 mm (16")	450 mm (18")	500 mm (20")
C	2.29 m (90")	2.67 m (105")	3.05 m (120")	343 m (135")	3.81 m (150")	4.19 m (165")	4.57 m (180")	5.33 m (210")	6.10 m (240")	6.86 m (270")	7.62 m (300")
L	1.37 m (54")	1.60 m (63")	1.83 m (72")	2.06 m (81")	2.29 m (90")	2.51 m (99")	2.74 m (108")	3.20 m (126")	3.66 m (144")	4.11 m (162")	4.57 m (180")
E	300 mm (12")	350 mm (14")	400 mm (16")	450 mm (18")	500 mm (20")	550 mm (22")	600 mm (24")	700 mm (28")	800m (32")	900 mm (36")	1000 mm (40")

DIMENSIONS IN MILLIMETERS, METERS AND (INCHES).

DISCHARGE VELOCITIES GREATER THAN 3 METERS/SECOND (10 fps) REQUIRE ROCK OUTLET PROTECTION.

CITY OF AUSTIN DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW	STANDARD HEADWALL AND ENERGY DISSIPATORS	
RECORD COPY SIGNED BY BILL GARDNER 08/20/07 ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-13 2 OF 2



SAW TOOTH CURB DETAIL

NOTES:

1. CURB AND GUTTER SHALL BE CLASS A, 3000 PSI CONCRETE UNLESS SPECIFIED OTHERWISE IN THE CONSTRUCTION DOCUMENTS.
2. CONTRACTOR MAY INSTALL 4" TYPE B HMAC IN LIEU OF 4" FLEX BASE.
3. EXPANSION JOINT EVERY 40'. SEE SPECIFICATIONS FOR DETAILS.
4. SAW CUT CURB MAY BE USED FOR DRAINAGE WHERE SIDEWALKS ARE NOT PROPOSED WITHIN A RESIDENTIAL SUBDIVISION OR WITHIN PRIVATE PROPERTY. SAW CUT CURB CAN ONLY BE INSTALLED WITHIN THE RIGHT–OF–WAY ON A CASE BY CASE BASIS AS APPROVED BY THE CITY ENGINEER.

DATE ISSUED:	JUNE 1, 2013		TITLE
REVISION	DATE	BY	SAW TOOTH CURB DETAIL
1ST REVISION	11/01/18	MS	
			SCALE: N.T.S.
			DRAWING No. CRB–6

REV NO.	BY	DATE	REVISION DESCRIPTION

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CITY OF ROLLINGWOOD, TEXAS

CITY OF ROLLINGWOOD
NIXON/PLEASANT DRAINAGE IMPROVEMENTS

DRAINAGE DETAILS
1 OF 12

ROLLINGWOOD TEXAS

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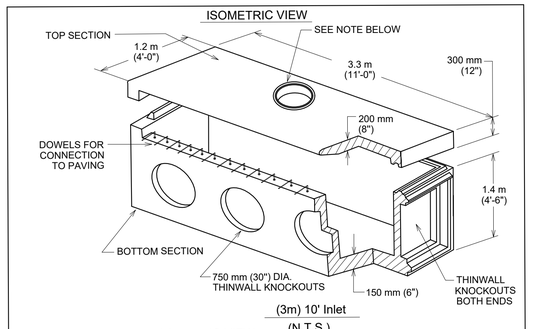
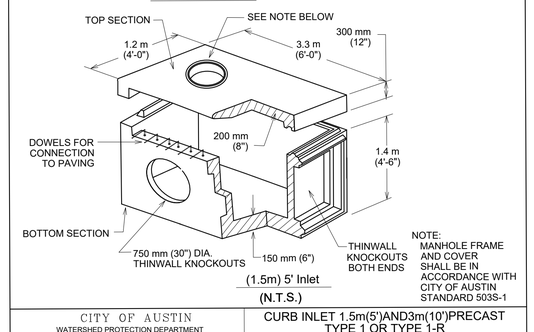
DRAWN BY	AH	08/21
DESIGNED BY	LWM	08/21
CHECKED BY	GE	08/21
REVIEWED BY	PS	09/21

SD501 | 24 OF 49

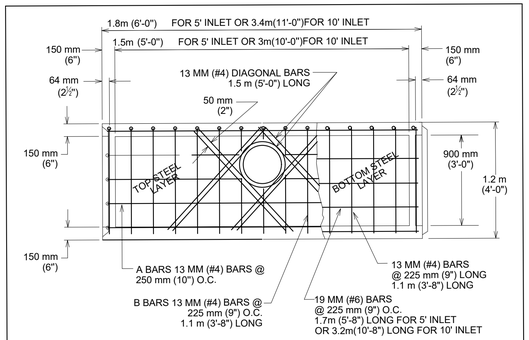


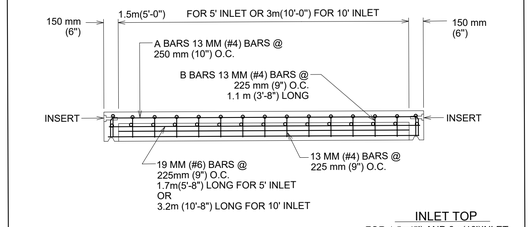
(3m) 10' Inlet
(N.T.S.)



(1.5m) 5' Inlet
(N.T.S.)

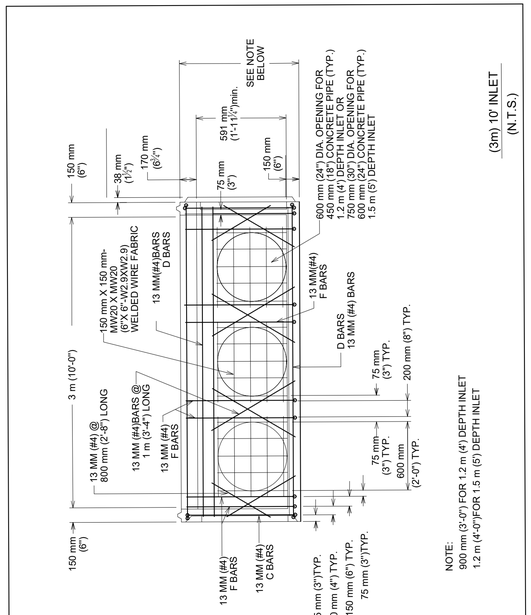
CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	CURB INLET 1.5m(5')AND3m(10')PRECAST TYPE 1 OR TYPE 1-R	
ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-4
		1 OF 7





INLET TOP
FOR 1.5m(5') AND 3m(10')INLET
(N.T.S.)

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	CURB INLET 1.5m(5')AND3m(10')PRECAST TYPE 1 OR TYPE 1-R	
ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-4
		2 OF 7

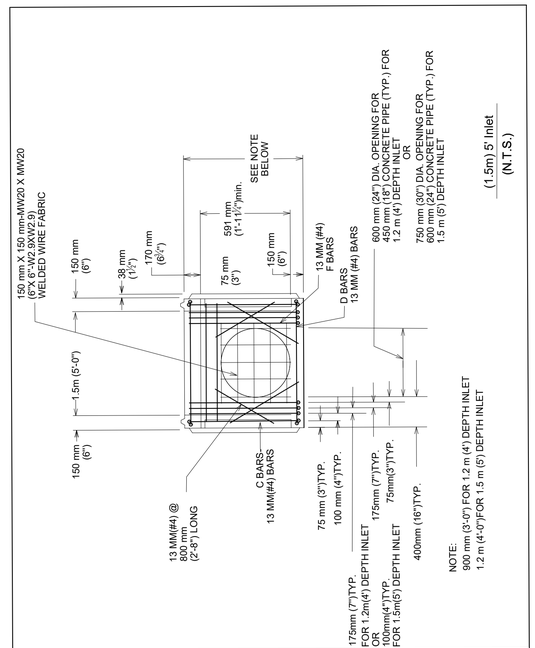


(3m) 10' INLET
(N.T.S.)

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	CURB INLET 1.5m(5')AND3m(10')PRECAST TYPE 1 OR TYPE 1-R	
ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-4
		3 OF 7

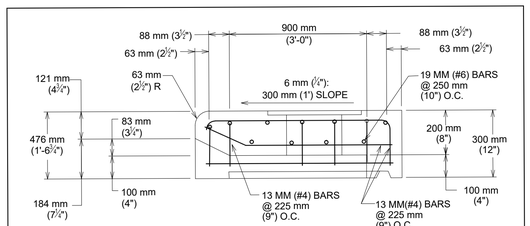
NOTES:

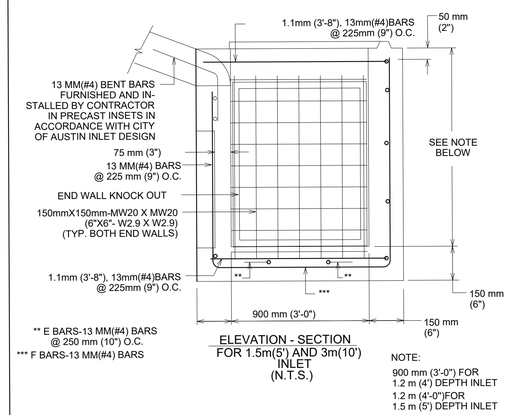
1. CONCRETE CURB AND GUTTER SECTION (DETAIL 430S-2)
   a. REFER TO GRADING PLAN SHEET FOR LOCATIONS WITH 8-INCH CURB HEIGHTS.
   b. GUTTER WIDTH TO MATCH EXISTING WIDTHS.



(1.5m) 5' Inlet
(N.T.S.)

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	CURB INLET 1.5m(5')AND3m(10')PRECAST TYPE 1 OR TYPE 1-R	
ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-4
		4 OF 7



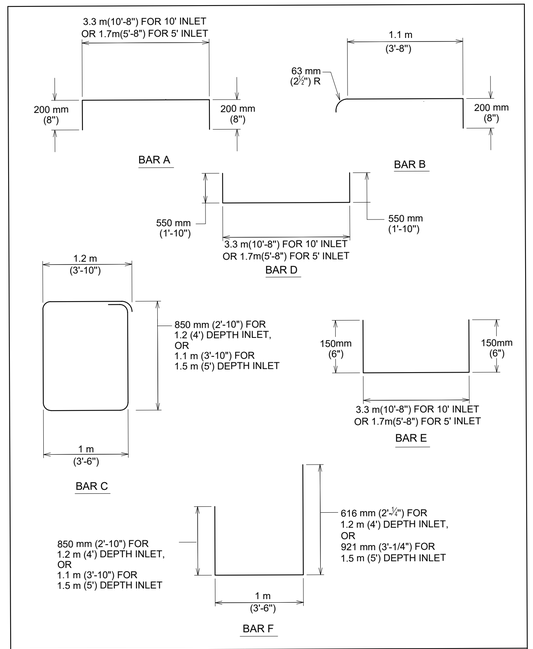


** E BARS-13 MM(#4) BARS @ 250 mm (10") O.C.
*** F BARS-13 MM(#4) BARS

ELEVATION - SECTION
FOR 1.5m(5') AND 3m(10') INLET
(N.T.S.)

NOTE:
900 mm (3'-0") FOR 1.2 m (4') DEPTH INLET
1.2 m (4'-0")FOR 1.5 m (5') DEPTH INLET

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	CURB INLET 1.5m(5')AND3m(10')PRECAST TYPE 1 OR TYPE 1-R	
ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-4
		5 OF 7



CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	CURB INLET 1.5m(5')AND3m(10')PRECAST TYPE 1 OR TYPE 1-R	
ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-4
		6 OF 7

REV NO.	BY	DATE	REVISION DESCRIPTION

100% SUBMITTAL

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CITY OF ROLLINGWOOD, TEXAS

CITY OF ROLLINGWOOD
NIXON/PLEASANT DRAINAGE IMPROVEMENTS

DRAINAGE DETAILS
2 OF 12

ROLLINGWOOD TEXAS

K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
1120 S. Capital of Texas Highway
CityView 2, Suite 100
Austin, Texas 78746
P - 512.338.1704 F - 512.338.1784
TBPE Firm #6535
www.kfriese.com

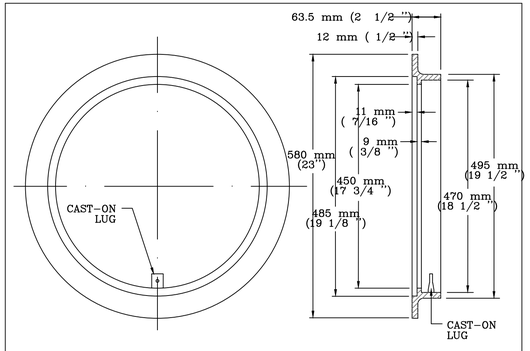
NOTES	NAME	DATE
SURVEY BY		
DRAWN BY	AH	08/21
DESIGNED BY	LWM	08/21
CHECKED BY	GE	08/21
REVIEWED BY	PS	09/21

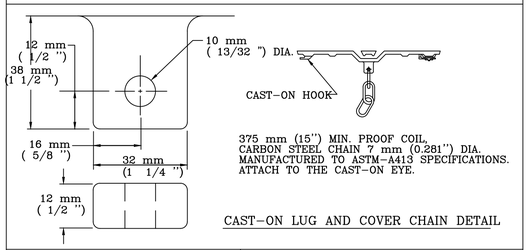
2/27/2023 2:41 PM
JUDY WILLIS
X:\PROJECTS\0807_ROLLINGWOOD_NIXON-PLEASANT_DRAINAGE_IMPROVEMENTS\DGN\SHEETS\0807-C-SCP-DET.DWG, COA_22X34_LANDSCAPE, COA_ESD.STB

SD502 | 25 OF 49

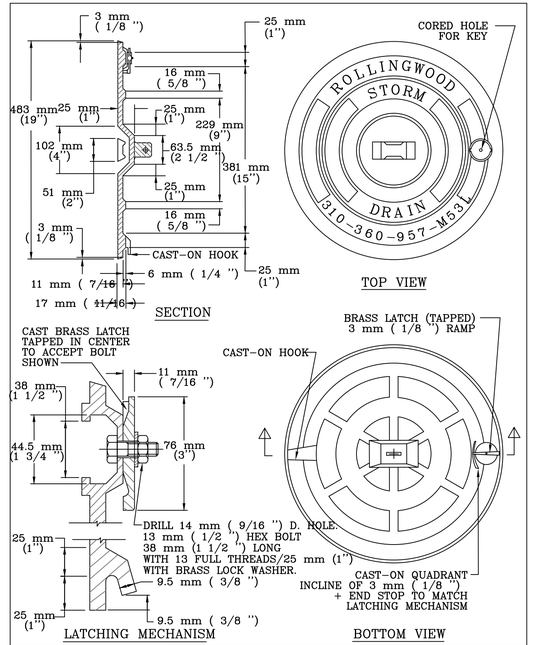
NOTES:
1. ALL CONCRETE SHALL BE CLASS "A" AS PER ITEM 403S.
2. ALL REINFORCING STEEL SHALL BE GRADE 60
3. DIMENSIONS RELATING TO REINFORCING STEEL ARE TO CENTERS OF BARS.
4. IN AREAS OF CONFLICT BETWEEN REINFORCING STEEL, PIPES AND MANHOLE FRAME, THE REINFORCEMENT SHALL BE BENT OR ADJUSTED TO CLEAR AS DIRECTED BY THE ENGINEER.
5. PAYMENT FOR INLET AT THE CONTRACT PRICE SHALL INCLUDE THE TRANSITION CURB, IN ACCORDANCE WITH CITY OF AUSTIN STANDARD INLET DESIGN.
6. INVERT OF INLET SHALL BE SLOPED 1:20 WITH FILL CONCRETE BY CONTRACTOR, SHAPED AS "V" SECTION
7. THIS STANDARD COMPLIES WITH THE CITY OF AUSTIN STANDARD SPECIFICATIONS ITEM NO. 508S.
8. WHEN PLACING PRECAST INLETS IN SERIES TO CREATE A 15'-0" OR 20'-0" CURB INLET, THE CONNECTION BETWEEN INLET BOXES SHALL BE SOIL TIGHT AND FULLY CONVEY THE PEAK DESIGN FLOW FROM THE UPSTREAM INLET(S). THE 1:20 INVERT SLOPE DESCRIBED IN NOTE 6 OF THIS DETAIL SHALL EXTEND FROM THE MOST DOWNSTREAM POINT TO THE MOST UPSTREAM OF THE CONNECTED INLET BOXES. AT NO TIME CAN MORE THAN 20-LF OF CURB OPENING BE CONNECTED TO A MAIN STORM DRAIN LINE WITH ONE LATERAL STORM DRAIN CONNECTION.

CITY OF AUSTIN WATERSHED PROTECTION DEPARTMENT	CURB INLET 1.5m(5')AND3m(10')PRECAST TYPE 1 OR TYPE 1-R	
ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 508S-4 7 OF 7

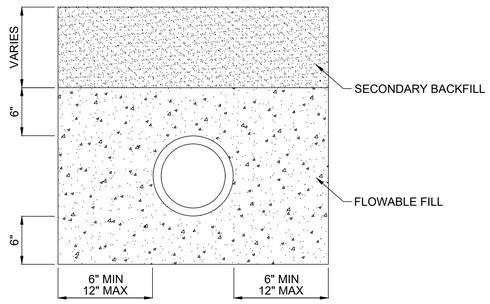




CITY OF AUSTIN DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW	457 mm (18'') COVER AND FRAME	
RECORD COPY SIGNED BY GEORGE E. OSWALD *2/14/02* ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 503S-1 1 OF 2



CITY OF AUSTIN DEPARTMENT OF WATERSHED PROTECTION AND DEVELOPMENT REVIEW	457 mm (18'') COVER AND FRAME	
RECORD COPY SIGNED BY GEORGE E. OSWALD *2/14/02* ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 503S-1 2 OF 2



FLOWABLE FILL ENCASEMENT DETAIL
N.T.S.

APPLICABLE AS INDICATED BY CALLOUTS ON THE PLAN SET

REV NO.	BY	DATE	REVISION DESCRIPTION

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CITY OF ROLLINGWOOD, TEXAS

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NIXON/PLEASANT DRAINAGE IMPROVEMENTS

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NOTES	NAME	DATE
SURVEY BY		
DRAWN BY	AH	08/21
DESIGNED BY	LWM	08/21
CHECKED BY	GE	08/21
REVIEWED BY	PS	09/21

SD503 | 26 OF 49

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

Dimensions					Variable Reinforcing				Estimated Quantities per ft of wing length (2~wings) (3)	
					Bars J1		Bars J2			
Maximum Wingwall Height Hw	W	X	Y	Z	Size	Spa	Size	Spa	Reinf (Lb/Ft)	Conc (CY/Ft)
2'-6"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	33.73	0.248
3'-0"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	37.07	0.261
3'-6"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	37.74	0.273
4'-0"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	38.41	0.285
4'-6"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	41.75	0.330
5'-0"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.09	0.343
5'-6"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.75	0.355
6'-0"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	46.42	0.367
7'-0"	3'-8"	1'-9"	1'-3"	7"	#4	1'-0"	#4	1'-0"	52.77	0.414
8'-0"	4'-2"	2'-0"	1'-6"	8"	#5	1'-0"	#4	1'-0"	60.19	0.486
9'-0"	4'-8"	2'-3"	1'-9"	8"	#4	6"	#4	6"	81.49	0.535
10'-0"	5'-2"	2'-6"	2'-0"	8"	#5	6"	#4	6"	97.25	0.584
11'-0"	5'-8"	2'-9"	2'-3"	8"	#6	6"	#5	6"	133.65	0.634
12'-0"	6'-2"	3'-0"	2'-6"	9"	#7	6"	#5	6"	162.29	0.721
13'-0"	6'-8"	3'-3"	2'-9"	11"	#7	6"	#5	6"	178.80	0.856
14'-0"	7'-2"	3'-6"	3'-0"	1'-0"	#8	6"	#5	6"	216.78	0.959
15'-0"	7'-8"	4'-0"	3'-0"	1'-1"	#9	6"	#6	6"	283.06	1.068
16'-0"	8'-2"	4'-6"	3'-0"	1'-3"	#9	6"	#6	6"	297.02	1.234

TABLE OF WINGWALL REINFORCING
(2~wings)

Bar	Size	No.	Spa
D	#5	~	1'-0"
E	#4	~	1'-0"
F	#4	~	1'-0"
G	#6	4	~
M	#4	4	~
P	#4	~	1'-0"
R	#5	6	~
V	#4	~	1'-0"

TABLE OF ESTIMATED CULVERT TOEWALL QUANTITIES

Bar	Size	No.	Spa
L	#4	~	1'-6"
Q	#4	1	~
Reinf (Lb/Ft)			2.45
Conc (CY/Ft)			0.037

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

Hw = H + T + C - 0.250'
A = (Hw - 0.333') (SL)
B = (A) tangent (30°)
Lw = (A) ÷ cosine (30°)

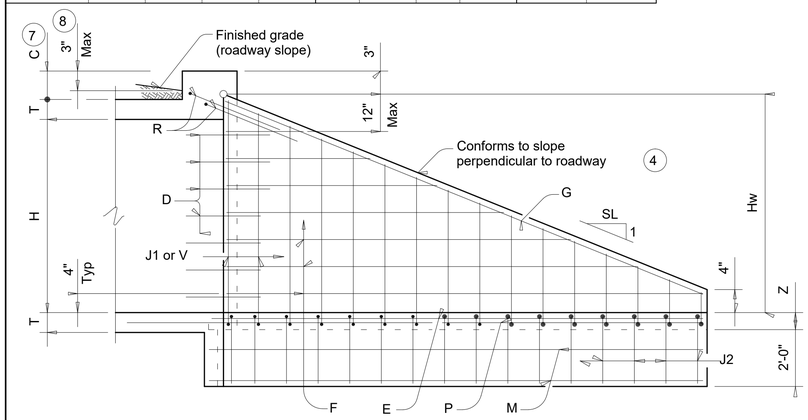
For cast-in-place culverts:
Ltw = (N) (S) + (N + 1) (U)

For precast culverts:
Ltw = (N) (2U + S) + (N - 1) (0.5')

Total wingwall area (two wings ~ SF) = (Hw + 0.333') (Lw)

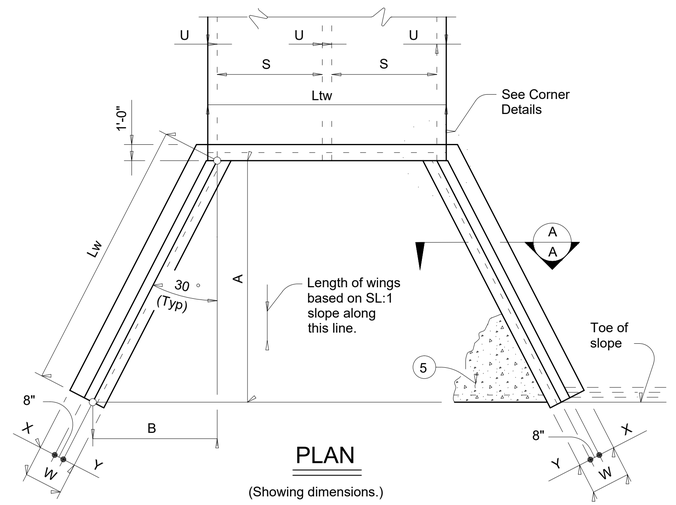
Hw = Height of wingwall
SL:1 = Side slope ratio (horizontal:1 vertical)
Lw = Length of wingwall
Ltw = Culvert toewall length
N = Number of culvert spans

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



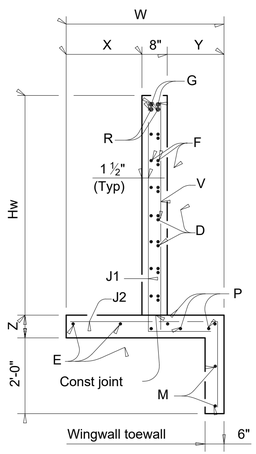
INSIDE ELEVATION

(Showing reinforcing. Culvert and culvert toewall reinforcing not shown for clarity.)

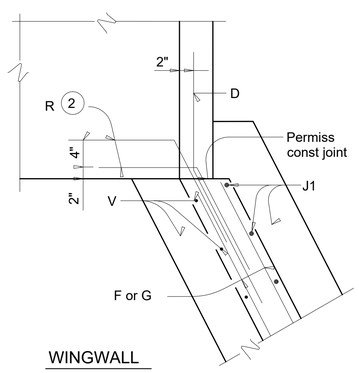


PLAN

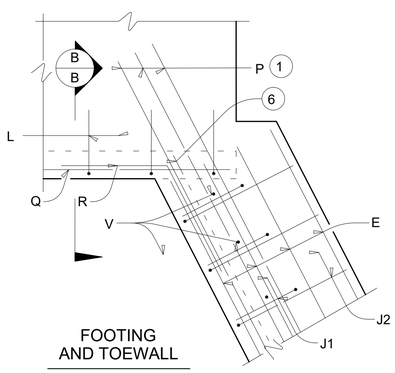
(Showing dimensions.)



SECTION A-A



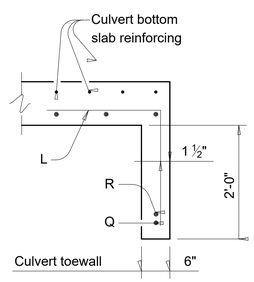
WINGWALL



FOOTING AND TOEWALL

CORNER DETAILS

(Culvert and culvert toewall reinforcing not shown for clarity.)



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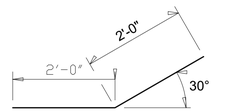
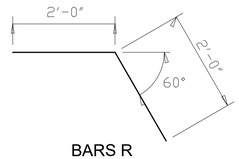
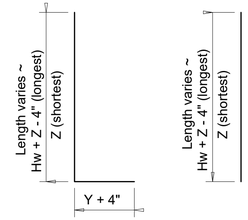


BARS D

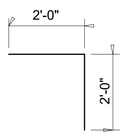


BARS R

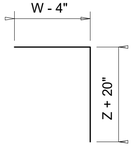


BARS J1

BARS V



BARS L



BARS J2

(1) Extend Bars P 3'-0" minimum into bottom slab of box culvert.

(2) Adjust as necessary to maintain 1 1#2" clear cover and 4" minimum between bars.

(3) Quantities shown are based on an average wing height for two wings (one structure end). To determine total quantities for two wings, multiply the tabulated values by Lw.

(4) Recommended values of side slope are: 2:1, 3:1, 4:1, and 6:1.

(5) When shown elsewhere on the plans, construct 5" deep concrete riprap. Payment for riprap is as required by Item 432, "Riprap". Unless otherwise shown on the plans or directed by the Engineer, provide a 6" wide by 1'-6" deep reinforced concrete toewall along all edges of the riprap adjacent to natural ground; reinforce the toewall by extending typical riprap reinforcing into the toewall; and extend construction joints or grooved joints oriented in the direction of flow across the full distance of the riprap at intervals of approximately 20'. When such riprap is provided, the culvert toewall shown in SECTION B-B will not be required.

(6) At Contractor's option, culvert toewall may be ended flush with wingwall toewall. Adjust reinforcing as needed.

(7) 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-0, refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.

(8) For vehicle safety, the following requirements must be met:
- For structures without bridge rail, construct curbs no more than 3" above finished grade.
- For structures with bridge rail, construct curbs flush with finished grade.

Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

MATERIAL NOTES:
Provide Class C concrete (f'c=3,600 psi).
Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel if required elsewhere in the plans.
In riprap concrete synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing unless noted otherwise.

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
When structure is founded on solid rock, depth of toewalls for culverts and wingwalls may be reduced or eliminated as directed by the Engineer.
See Box Culvert Supplement (BCS) standard sheet for additional dimensions and information.
The quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for Contractor's information only.

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

Texas Department of Transportation — Bridge Division Standard

CONCRETE WINGWALLS
WITH FLARED WINGS FOR 0° SKEW BOX CULVERTS

FW-0

FILE: fw-0stde-20.dgn	DN: GAF	CK: CAT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.
				27 OF 49

DATE:
FILE:

DATE:
FILE:

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

Dimensions					Variable Reinforcing				Estimated Quantities per ft of wing length (2~wings) (3)	
					Bars J1		Bars J2			
Maximum Wingwall HeightHw	W	X	Y	Z	Size	Spa	Size	Spa	Reinf (Lb/Ft)	Conc (CY/Ft)
2'-6"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	33.73	0.248
3'-0"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	37.07	0.261
3'-6"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	37.74	0.273
4'-0"	2'-5"	1'-0"	9"	7"	#4	1'-0"	#4	1'-0"	38.41	0.285
4'-6"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	41.75	0.330
5'-0"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.09	0.343
5'-6"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	45.75	0.355
6'-0"	3'-2"	1'-6"	1'-0"	7"	#4	1'-0"	#4	1'-0"	46.42	0.367
7'-0"	3'-8"	1'-9"	1'-3"	7"	#4	1'-0"	#4	1'-0"	52.77	0.414
8'-0"	4'-2"	2'-0"	1'-6"	8"	#5	1'-0"	#4	1'-0"	60.19	0.486
9'-0"	4'-8"	2'-3"	1'-9"	8"	#4	6"	#4	6"	81.49	0.535
10'-0"	5'-2"	2'-6"	2'-0"	8"	#5	6"	#4	6"	97.25	0.584
11'-0"	5'-8"	2'-9"	2'-3"	8"	#6	6"	#5	6"	133.65	0.634
12'-0"	6'-2"	3'-0"	2'-6"	9"	#7	6"	#5	6"	162.29	0.721
13'-0"	6'-8"	3'-3"	2'-9"	11"	#7	6"	#5	6"	178.80	0.856
14'-0"	7'-2"	3'-6"	3'-0"	1'-0"	#8	6"	#5	6"	216.78	0.959
15'-0"	7'-8"	4'-0"	3'-0"	1'-1"	#9	6"	#6	6"	283.06	1.068
16'-0"	8'-2"	4'-6"	3'-0"	1'-3"	#9	6"	#6	6"	297.02	1.234

TABLE OF WINGWALL REINFORCING
(2~wings)

Bar	Size	No.	Spa
D	#5	~	1'-0"
E	#4	~	1'-0"
F	#4		1'-0"
G	#6	4	~
M	#4	4	~
P	#4	~	1'-0"
R	#5	6	~
V	#4	~	1'-0"

TABLE OF ESTIMATED CULVERT TOEWALL QUANTITIES

Bar	Size	No.	Spa
L	#4	~	1'-6"
Q	#4	1	~
Reinf (Lb/Ft)			2.45
Conc (CY/Ft)			0.037

WING DIMENSION FORMULAS:

(All values are in feet.)

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

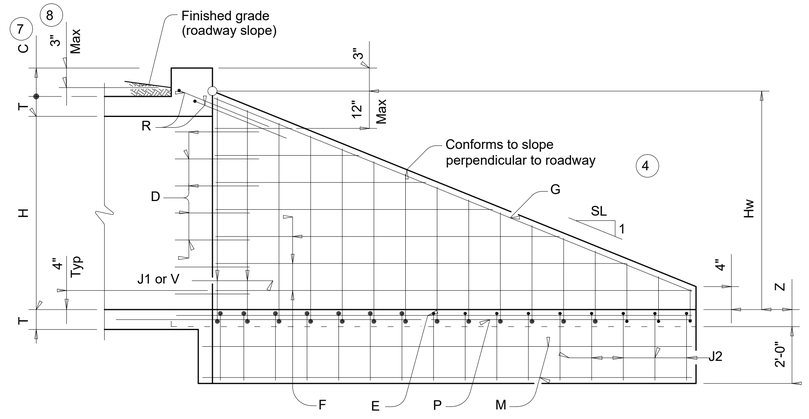
For cast-in-place culverts:
Ltw = (N) (S) + (N + 1) (U)

For precast culverts:
Ltw = (N) (2U + S) + (N - 1) (0.5')

Total Wingwall Area (two wings ~ SF) = (Hw + 0.333') (Lw)

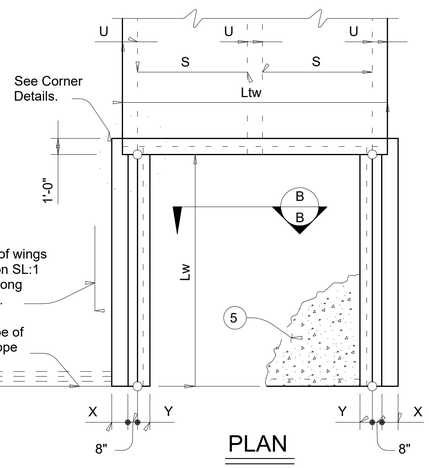
Hw = Height of wingwall
SL:1 = Side slope ratio (horizontal:1 vertical)
Lw = Length of wingwall
Ltw = Culvert toewall length
N = Number of culvert spans

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



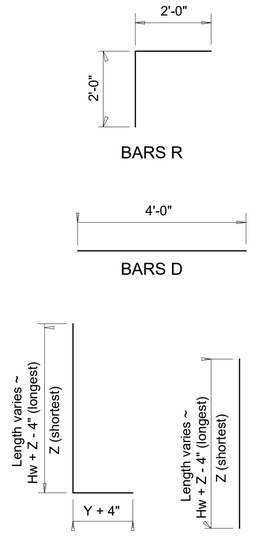
INSIDE ELEVATION

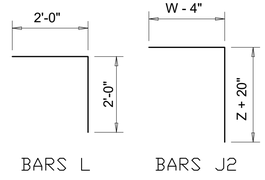
(Showing reinforcing. Culvert and culvert toewall reinforcing not shown for clarity.)

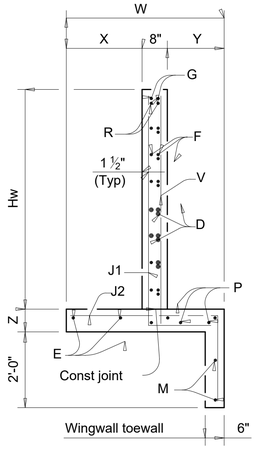


PLAN

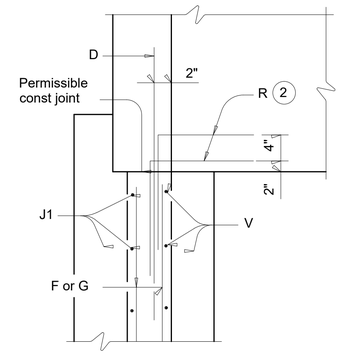
(Showing dimensions.)



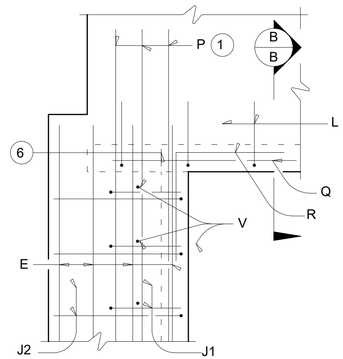




SECTION A-A

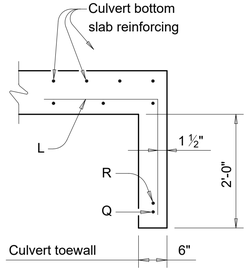


WINGWALL



FOOTING AND TOEWALL

CORNER DETAILS



SECTION B-B (5)

1. Extend Bars P 3'-0" minimum into bottom slab of box culvert.
2. Adjust as necessary to maintain 1 1#2" clear cover and 4" minimum between bars.
3. Quantities shown are based on an average wing height for two wings (one structure end). To determine total quantities for two wings, multiply the tabulated values by Lw.
4. Recommended values of side slope are: 2:1, 3:1, 4:1, and 6:1.
5. When shown elsewhere on the plans, construct 5" deep concrete riprap. Payment for riprap is as required by Item 432, "Riprap". Unless otherwise shown on the plans or directed by the Engineer, provide a 6" wide by 1'-6" deep reinforced concrete toewall along all edges of the riprap adjacent to natural ground; reinforce the toewall by extending typical riprap reinforcing into the toewall; and extend construction joints or grooved joints oriented in the direction of flow across the full distance of the riprap at intervals of approximately 20'. When such riprap is provided, the culvert toewall shown in SECTION B-B will not be required.
6. At Contractor's option, culvert toewall may be ended flush with wingwall toewall. Adjust reinforcing as needed.
7. 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-0, refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.
8. For vehicle safety, the following requirements must be met:
   - For structures without bridge rail, construct curbs no more than 3" above finished grade.
   - For structures with bridge rail, construct curbs flush with finished grade.

   Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

MATERIAL NOTES:

Provide Class C concrete (f'c=3,600 psi).
Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel if required elsewhere in the plans.
In riprap concrete, synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing unless noted otherwise.

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.
When structure is founded on solid rock, depth of toewalls for culverts and wingwalls may be reduced or eliminated as directed by the Engineer.
See Box Culvert Supplement (BCS) standard sheet for additional dimensions and information.
The quantities for concrete and reinforcing steel resulting from the formulas given on this sheet are for Contractor's information only.

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

Texas Department of Transportation

Bridge Division Standard

CONCRETE WINGWALLS
WITH STRAIGHT WINGS FOR 0° SKEW BOX CULVERTS

SW-O

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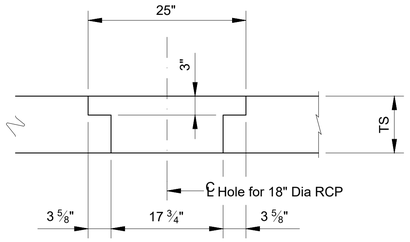
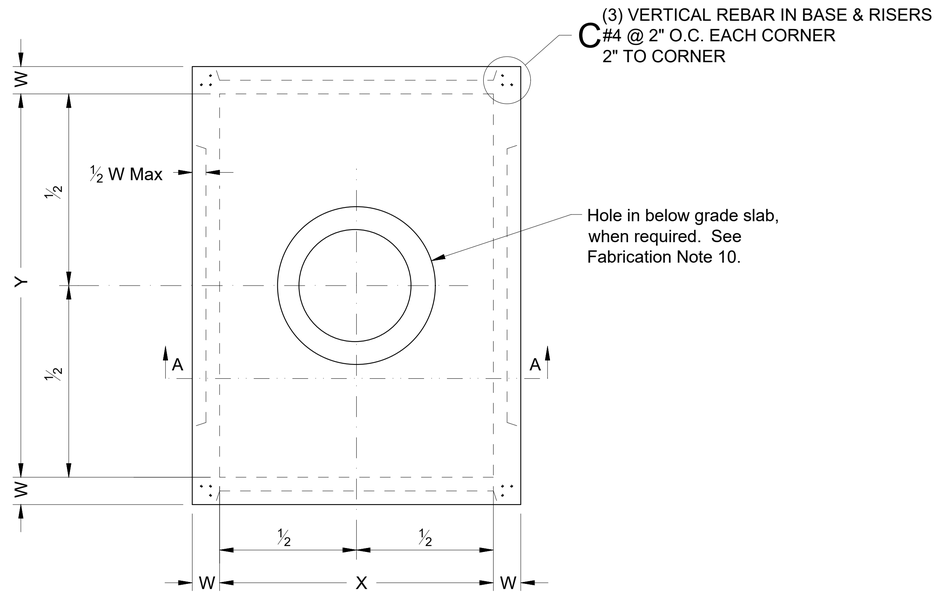
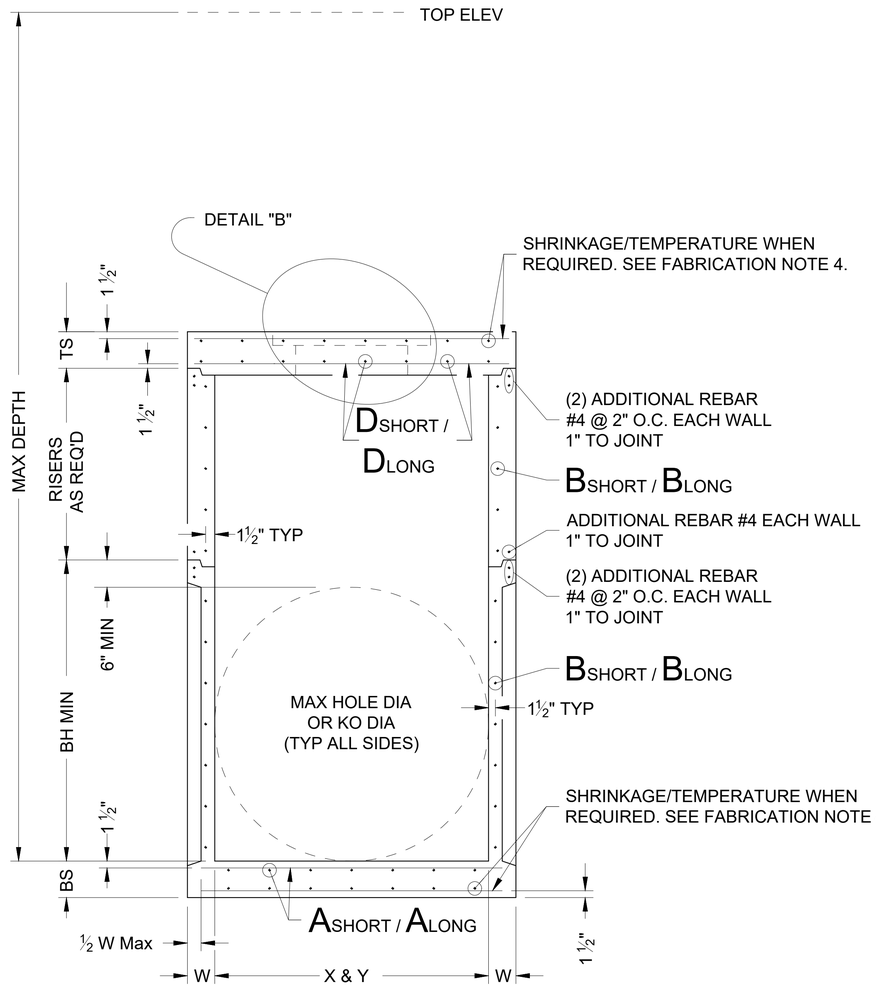


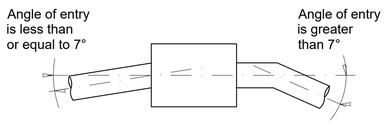
DETAIL "B"



PLAN VIEW



SECTION A-A



PIPE CONNECTION DETAIL

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

FABRICATION NOTES:

1. Provide Class "H" concrete in accordance with Item 421 and having a minimum compressive strength of 5,000 psi.
2. Provide Grade 60 reinforcing steel or equivalent area of WWR.
3. Provide typical clear cover of 1 ½" to reinforcing steel at interior or exterior walls.
4. Walls or slabs with a thickness of 8" or greater require shrinkage and temperature reinforcing steel. Provide steel area = 0.11 in²/ft each way.
5. No substitution is allowed for vertical and horizontal #4 bars in corners.
6. Manufacture base and risers to nearest 3" increment.
7. Design tongue and groove joints for full closure on both shoulders. Minimum spigot depth is ¾".
8. Provide lifting devices in conformance with Manufacturer's recommendations.
9. See sheet PDD for sizes, dimensions, and reinforcing steel not shown.
10. Provide hole in below grade slab only when PJB is installed with inlet type POD.

INSTALLATION NOTES:

1. Inverts (benching) to be provided by Contractor. Concrete or mortar used for invert is subsidiary to junction box.
2. Seal tongue and groove joints with preformed or bulk mastic in conformance with Manufacturer's recommendations. Tongue and groove joints may be grouted no more than 1" between each section, or ⅓ the joint depth, whichever is greater.
3. Do not grout rubber gasket joints without Manufacturer's recommendation.
4. For rigid pipe, cut hole in thin wall panel (KO) 4" Max, 2" Min larger than pipe OD.
5. For flexible pipe, consult boot/seal Manufacturer's specification for placement tolerance and hole size. Center pipe in hole and install boot/seal per Manufacturer's specification.

GENERAL NOTES:

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

Cover dimensions are clear dimensions, unless noted otherwise.

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

PRECAST JUNCTION BOX

PJB

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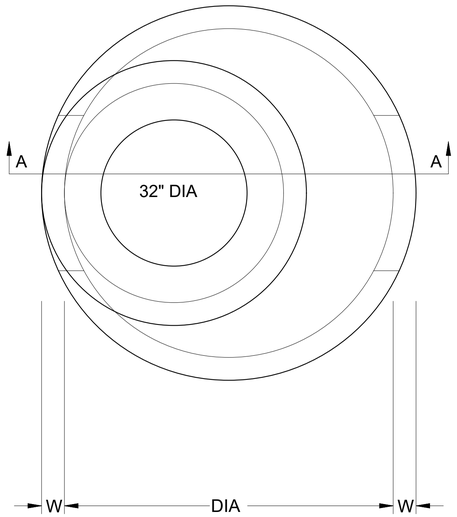
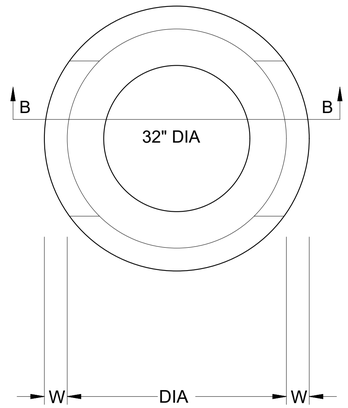
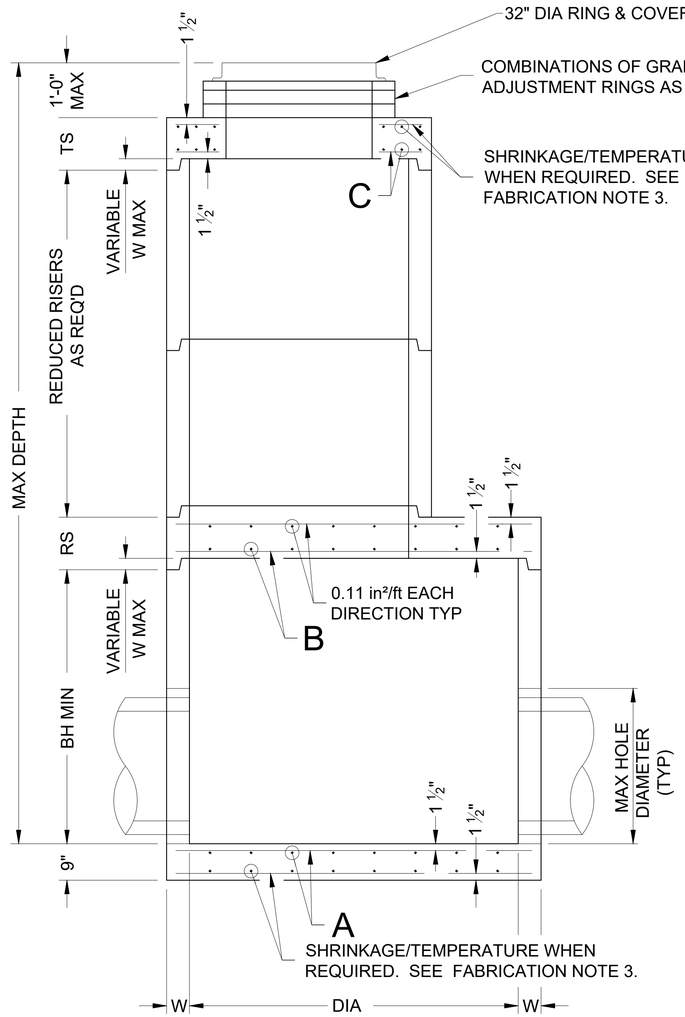


PLAN VIEW "A"

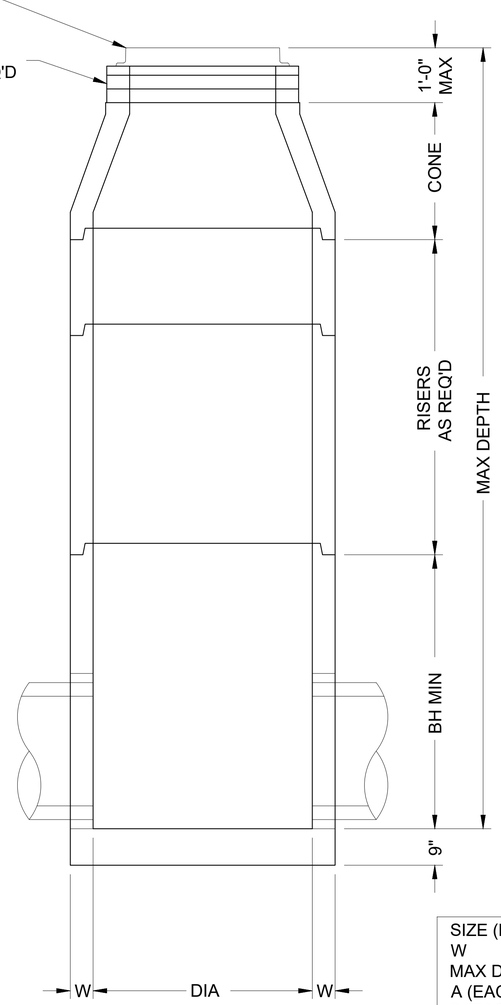


PLAN VIEW "B"



SECTION A-A

ROUND REDUCED RISER OPTION
SHOWING FLAT SLAB TOP



SECTION B-B

ROUND RISER OPTION
SHOWING CONE

FABRICATION NOTES:

1. Provide Class "H" concrete in accordance with Item 421 and having a minimum compressive strength of 5,000 psi.
2. Provide Grade 60 reinforcing steel or equivalent area of WWR. Provide circumferential reinforcing steel in vertical walls of base, riser and cone in accordance with ASTM C478.
3. Slabs with a thickness of 8" or greater require shrinkage and temperature reinforcing steel. Provide steel area = 0.11 in²/ft each way.
4. Manufacture base and risers to nearest 3" increment.
5. Design tongue and groove joints for full closure on both shoulders. Minimum spigot depth is ¾".
6. Provide lifting devices in conformance with Manufacturer's recommendations.
7. Provide cast iron solid cover, unless noted otherwise elsewhere in the plans.

INSTALLATION NOTES:

1. Cones may be concentric or eccentric. Reduction cones are acceptable. See Manufacturer for cone dimensions.
2. Inverts (benching) to be provided by Contractor. Concrete or mortar used for invert is subsidiary to this item.
3. Seal tongue and groove joints with preformed or bulk mastic in conformance with Manufacturer's recommendations. Tongue and groove joints may be grouted no more than 1" between each section, or ½ the joint depth, whichever is greater.
4. Do not grout rubber gasket joints without Manufacturer's recommendation.
5. Initial installation of grade adjustment rings is limited to 1'-0" Max as shown.
6. Grade adjustment rings may be increased to 2'-0" Max when future construction affects final grade of structure. Make adjustments greater than 2'-0" with additional risers. Adjustments may be made up to the Max depth shown. Structure must be evaluated if Max depth will be exceeded.

GENERAL NOTES:

1. Designed according to ASTM C478.
2. Payment for manhole is per Item 465, "Junction Boxes, Manholes, and Inlets" by type and size.
3. Pipe OD + placement tolerance must be equal or less than Max hole diameter. For rigid pipe, placement tolerance is 4" Max, 2" Min. For flexible pipe, consult boot/seal manufacturer's specification for placement tolerance.

Cover dimensions are clear dimensions, unless noted otherwise.

SIZE (DIA)	48 in	60 in	72 in
W	5 in	6 in	7 in
MAX DEPTH	25 ft	25 ft	25 ft
A (EACH WAY)	0.22 in²/ft	0.30 in²/ft	0.45 in²/ft
B (EACH WAY)	N/A	0.37 in²/ft	0.62 in²/ft
C (EACH WAY)	0.24 in²/ft	0.46 in²/ft	0.46 in²/ft
BH MIN	12 in	36 in	36 in
TS	9 in	9 in	9 in
RS	N/A	9 in	12 in
REDUCED RISER DIA	N/A	48 in	48/60 in
MAX HOLE DIA	32 in	40 in	54 in

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

PRECAST ROUND MANHOLE

PRM

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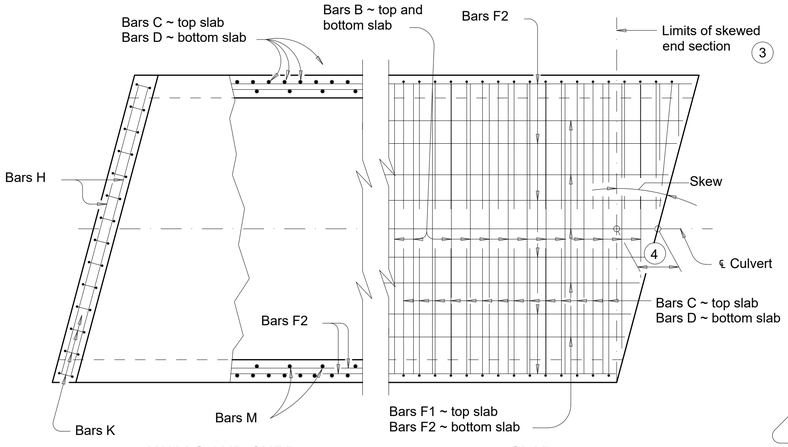
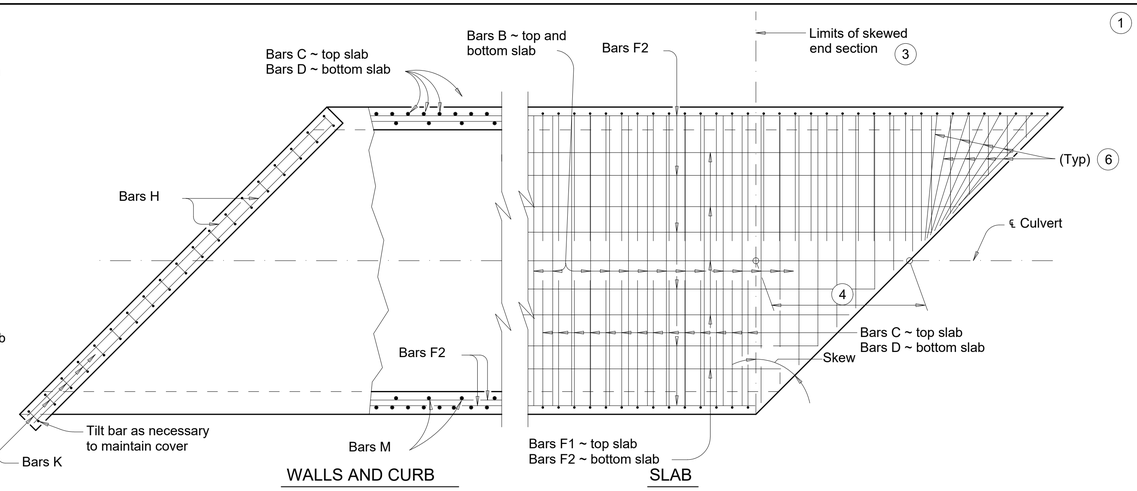
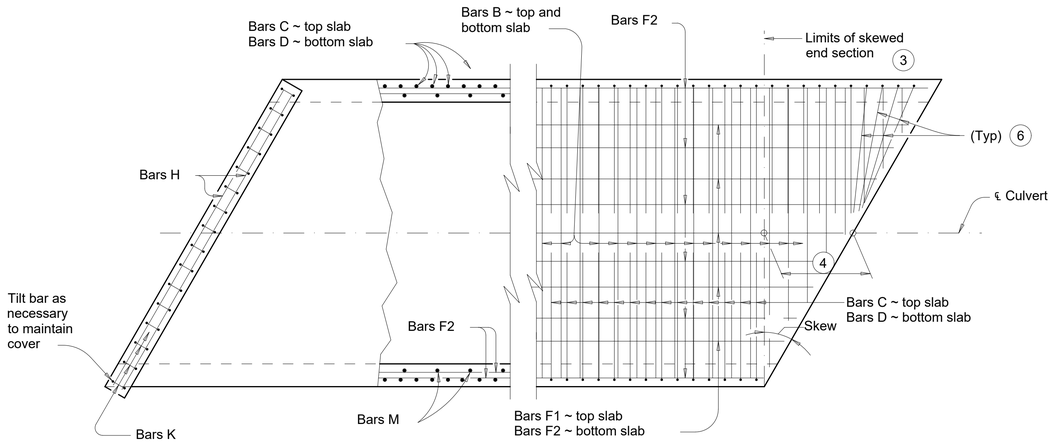


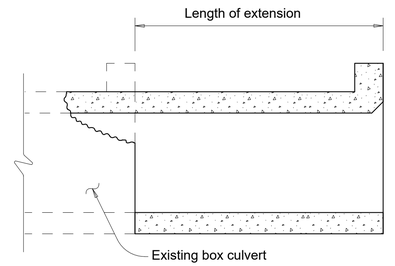
PLAN OF SKEWED ENDS ~ FROM 0° TO 15° (7)



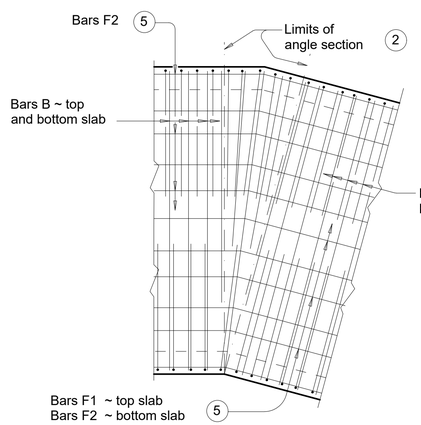
PLAN OF SKEWED ENDS ~ OVER 30° TO 45°



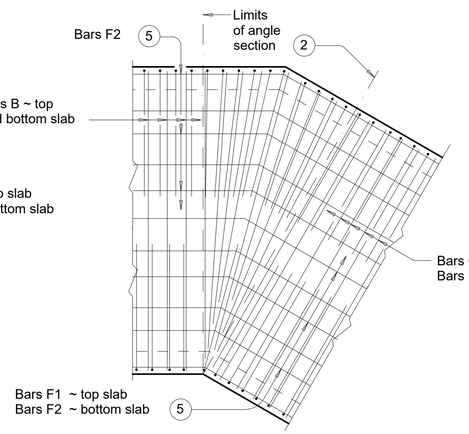
PLAN OF SKEWED ENDS ~ OVER 15° TO 30°



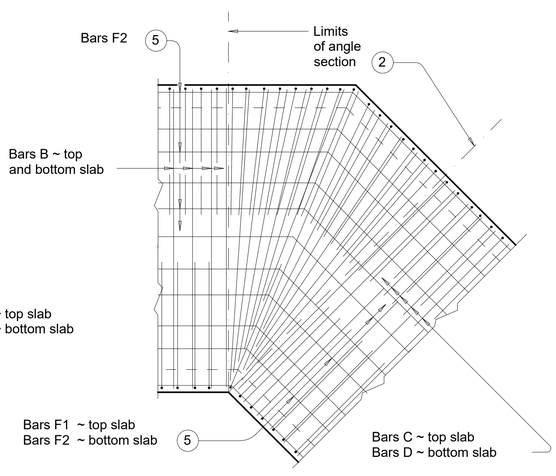
LENGTHENING DETAIL (1)



PLAN OF ANGLE SECTION ~ FROM 0° TO 15°



PLAN OF ANGLE SECTION ~ OVER 15° TO 30°



PLAN OF ANGLE SECTION ~ OVER 30° TO 45°

(1) For skewed box culverts with less than 2'-0" of fill, break back the top slab to provide a 1'-10" minimum lap of the existing longitudinal bars with the longitudinal bars in the extension.

For non-skewed box culverts with less than 2'-0" of fill and for skewed or non-skewed culverts with a fill depth of 2'-0" or greater, break back the top slab to provide a 1'-10" minimum lap of the existing longitudinal bars with the longitudinal bars in the extension. Alternatively, if the box is non-skewed, embed #6 anchor bars with a Type III, C, D , E, or F anchor adhesive into the existing walls, top and bottom slab at 1'-6" center-to-center spacing. Minimum embedment depth is 8". Anchor adhesive chosen must be able to achieve a basic bond strength in tension, Nba, of 26.4 kips. Submit signed and sealed calculations or the manufacturer's published literature showing the proposed anchor adhesive's ability to develop this load to the Engineer for approval prior to use. Anchor installation, including hole size, drilling, and clean out, must be in accordance with Item 450, "Railing." Test adhesive anchors in accordance with Item 450.3.3, "Tests." Test 3 anchors per 100 anchors installed.

Break back wings and apron as necessary to install the extension. Clean and extend the exposed wingwall and apron reinforcing into the extension. When lengthening existing box culverts with dimensions different than current standard dimensions, form horizontal and vertical transitions as directed by the Engineer. Match bottom slabs to maintain an uninterrupted flow line. Field bend existing and new reinforcing into transitions and maintain specified cover requirements. For top slabs of culverts with overlay, with 1-to-2 course surface treatment, or with the top slab as the final riding surface, adjust the "H" dimension to provide a smooth riding surface.

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

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

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

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

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

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

CONSTRUCTION NOTES:

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

MATERIAL NOTES:

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

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.

Refer to Single Box Culverts Cast-in-Place (SCC) standard sheets for details of straight sections of culvert.

For skewed sections and angle sections, refer to Single Box Culverts Cast-in-Place (SCC) standard sheets for slab and wall dimensions, bar sizes, maximum bar spacing, and any other details not shown.

For skewed ends with curbs, adjust length of Bars H, number of Bars K, curb concrete volume, and reinforcing steel weight by dividing the values shown on the culvert Single Box Culverts Cast-In-Place (SCC) standard sheets by the cosine of the skew angle.

Cover dimensions are clear dimensions, unless noted otherwise.

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

SINGLE BOX CULVERTS CAST-IN-PLACE MISCELLANEOUS DETAILS

SCC-MD

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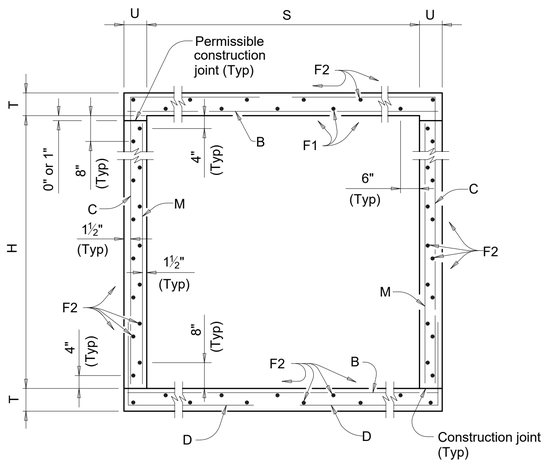
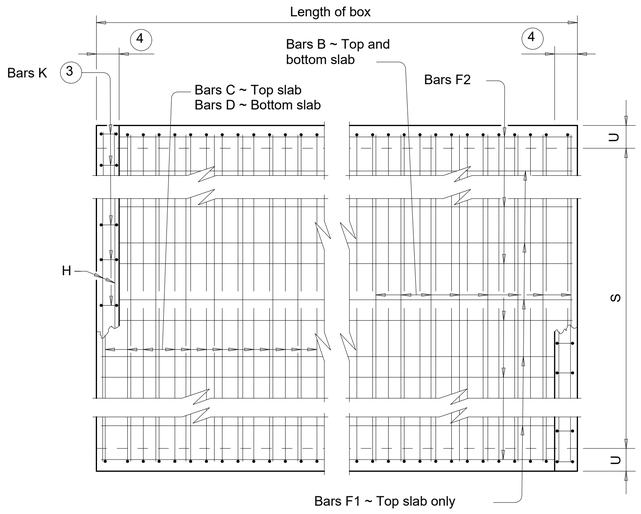
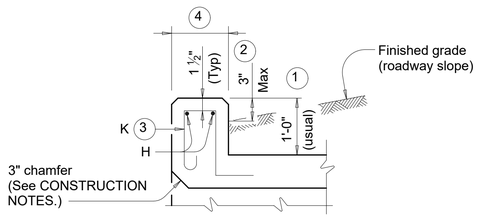


TYPICAL SECTION



PLAN OF REINF STEEL



SECTION THRU CURB

1. 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-0", refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Rail Anchorage Curb (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.

2. For vehicle safety, the following requirements must be met:
   · For structures without bridge rail, construct curbs no more than 3" above finished grade.
   · For structures with bridge rail, construct curbs flush with finished grade.
   Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

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

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

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

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

CONSTRUCTION NOTES:

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

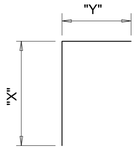
MATERIAL NOTES:

Provide Grade 60 reinforcing steel.
Provide galvanized reinforcing steel if required elsewhere in the plans.
Provide Class C concrete (f'c = 3,600 psi) for culvert barrel and curb, with the following exceptions: provide Class S concrete (f'c = 4,000 psi) for top slabs of:
· culverts with overlay,
· culverts with 1-to-2 course surface treatment, or
· culverts with the top slab as the final riding surface.
Provide bar laps, where required, as follows:
· Uncoated or galvanized ~ #4 = 1'-8" Min
· Uncoated or galvanized ~ #5 = 2'-1" Min
· Uncoated or galvanized ~ #6 = 2'-6" Min

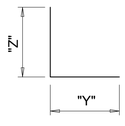
GENERAL NOTES:

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

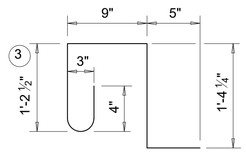
Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.



BARS C



BARS D



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

HL93 LOADING SHEET 1 OF 2

Texas Department of Transportation — Bridge Division Standard

SINGLE BOX CULVERTS CAST-IN-PLACE
0' TO 30' FILL

SCC-5 & 6

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FILE:

SECTION DIMENSIONS				(5) FILL HEIGHT	BILLS OF REINFORCING STEEL (For Box Length = 40 feet)																											QUANTITIES					
					Bars B					Bars C							Bars D							Bars M ~ #4				Bars F1 ~ #4 at 18" Spa			Bars F2 ~ #4 at 18" Spa			Bars H 4 ~ #4		Bars K		Per Foot of Barrel		Curb		Total	
S	H	T	U		No.	Size	Spa	Length	Weight	No.	Size	Spa	Length	Weight	" X "	" Y "	No.	Size	Spa	Length	Weight	" Y "	" Z "	No.	Spa	Length	Weight	No.	Length	Wt	No.	Length	Weight	Length	Wt	No.	Wt	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)
5' - 0"	2' - 0"	8"	7"	26'	108	#6	9"	5' - 11"	960	108	#5	9"	6' - 3"	704	2' - 6"	3' - 9"	108	#5	9"	6' - 5"	723	3' - 9"	2' - 8"	108	9"	2' - 0"	144	4	39' - 9"	106	22	39' - 9"	584	5' - 11"	16	14	39	0.391	80.5	0.5	55	16.1	3,276
5' - 0"	2' - 0"	9"	7"	30'	108	#6	9"	5' - 11"	960	108	#5	9"	6' - 4"	713	2' - 7"	3' - 9"	108	#5	9"	6' - 6"	732	3' - 9"	2' - 9"	108	9"	2' - 0"	144	4	39' - 9"	106	22	39' - 9"	584	5' - 11"	16	14	39	0.429	81.0	0.5	55	17.6	3,294
5' - 0"	3' - 0"	8"	7"	26'	108	#6	9"	5' - 11"	960	108	#5	9"	7' - 3"	817	3' - 6"	3' - 9"	108	#5	9"	6' - 5"	723	3' - 9"	2' - 8"	108	9"	3' - 0"	216	4	39' - 9"	106	26	39' - 9"	690	5' - 11"	16	14	39	0.434	87.8	0.5	55	17.8	3,567
5' - 0"	3' - 0"	9"	7"	30'	108	#6	9"	5' - 11"	960	108	#5	9"	7' - 4"	826	3' - 7"	3' - 9"	108	#5	9"	6' - 6"	732	3' - 9"	2' - 9"	108	9"	3' - 0"	216	4	39' - 9"	106	26	39' - 9"	690	5' - 11"	16	14	39	0.472	88.3	0.5	55	19.3	3,585
5' - 0"	4' - 0"	8"	7"	26'	108	#6	9"	5' - 11"	960	108	#5	9"	8' - 3"	929	4' - 6"	3' - 9"	108	#5	9"	6' - 5"	723	3' - 9"	2' - 8"	108	9"	4' - 0"	289	4	39' - 9"	106	26	39' - 9"	690	5' - 11"	16	14	39	0.477	92.4	0.5	55	19.5	3,752
5' - 0"	4' - 0"	9"	7"	30'	108	#6	9"	5' - 11"	960	108	#5	9"	8' - 4"	939	4' - 7"	3' - 9"	108	#5	9"	6' - 6"	732	3' - 9"	2' - 9"	108	9"	4' - 0"	289	4	39' - 9"	106	26	39' - 9"	690	5' - 11"	16	14	39	0.515	92.9	0.5	55	21.1	3,771
5' - 0"	5' - 0"	8"	7"	26'	108	#6	9"	5' - 11"	960	108	#5	9"	9' - 3"	1,042	5' - 6"	3' - 9"	108	#5	9"	6' - 5"	723	3' - 9"	2' - 8"	108	9"	5' - 0"	361	4	39' - 9"	106	30	39' - 9"	797	5' - 11"	16	14	39	0.521	99.7	0.5	55	21.3	4,044
5' - 0"	5' - 0"	9"	7"	30'	108	#6	9"	5' - 11"	960	108	#5	9"	9' - 4"	1,051	5' - 7"	3' - 9"	108	#5	9"	6' - 6"	732	3' - 9"	2' - 9"	108	9"	5' - 0"	361	4	39' - 9"	106	30	39' - 9"	797	5' - 11"	16	14	39	0.559	100.2	0.5	55	22.8	4,062
6' - 0"	2' - 0"	8"	7"	20'	108	#6	9"	6' - 11"	1,122	108	#5	9"	6' - 7"	742	2' - 6"	4' - 1"	108	#5	9"	6' - 9"	760	4' - 1"	2' - 8"	108	9"	2' - 0"	144	5	39' - 9"	133	25	39' - 9"	664	6' - 11"	18	16	45	0.440	89.1	0.5	63	18.1	3,628
6' - 0"	2' - 0"	9"	7"	26'	108	#6	9"	6' - 11"	1,122	162	#5	6"	6' - 8"	1,126	2' - 7"	4' - 1"	162	#5	6"	6' - 10"	1,155	4' - 1"	2' - 9"	108	9"	2' - 0"	144	5	39' - 9"	133	25	39' - 9"	664	6' - 11"	18	16	45	0.485	108.6	0.5	63	19.9	4,407
6' - 0"	2' - 0"	10"	8"	30'	108	#6	9"	7' - 1"	1,149	162	#5	6"	6' - 10"	1,155	2' - 8"	4' - 2"	162	#5	6"	7' - 0"	1,183	4' - 2"	2' - 10"	82	12"	2' - 0"	110	5	39' - 9"	133	25	39' - 9"	664	7' - 1"	19	18	50	0.551	109.9	0.5	69	22.6	4,463
6' - 0"	3' - 0"	8"	7"	20'	108	#6	9"	6' - 11"	1,122	108	#5	9"	7' - 7"	854	3' - 6"	4' - 1"	108	#5	9"	6' - 9"	760	4' - 1"	2' - 8"	108	9"	3' - 0"	216	5	39' - 9"	133	29	39' - 9"	770	6' - 11"	18	16	45	0.484	96.4	0.5	63	19.9	3,918
6' - 0"	3' - 0"	9"	7"	26'	108	#6	9"	6' - 11"	1,122	162	#5	6"	7' - 8"	1,295	3' - 7"	4' - 1"	162	#5	6"	6' - 10"	1,155	4' - 1"	2' - 9"	108	9"	3' - 0"	216	5	39' - 9"	133	29	39' - 9"	770	6' - 11"	18	16	45	0.528	117.3	0.5	63	21.6	4,754
6' - 0"	3' - 0"	10"	8"	30'	108	#6	9"	7' - 1"	1,149	162	#5	6"	7' - 10"	1,324	3' - 8"	4' - 2"	162	#5	6"	7' - 0"	1,183	4' - 2"	2' - 10"	82	12"	3' - 0"	164	5	39' - 9"	133	29	39' - 9"	770	7' - 1"	19	18	50	0.601	118.1	0.5	69	24.6	4,792
6' - 0"	4' - 0"	8"	7"	20'	108	#6	9"	6' - 11"	1,122	108	#5	9"	8' - 7"	967	4' - 6"	4' - 1"	108	#5	9"	6' - 9"	760	4' - 1"	2' - 8"	108	9"	4' - 0"	289	5	39' - 9"	133	29	39' - 9"	770	6' - 11"	18	16	45	0.527	101.0	0.5	63	21.6	4,104
6' - 0"	4' - 0"	9"	7"	26'	108	#6	9"	6' - 11"	1,122	162	#5	6"	8' - 8"	1,464	4' - 7"	4' - 1"	162	#5	6"	6' - 10"	1,155	4' - 1"	2' - 9"	108	9"	4' - 0"	289	5	39' - 9"	133	29	39' - 9"	770	6' - 11"	18	16	45	0.571	123.3	0.5	63	23.4	4,996
6' - 0"	4' - 0"	10"	8"	30'	108	#6	9"	7' - 1"	1,149	162	#5	6"	8' - 10"	1,493	4' - 8"	4' - 2"	162	#5	6"	7' - 0"	1,183	4' - 2"	2' - 10"	82	12"	4' - 0"	219	5	39' - 9"	133	29	39' - 9"	770	7' - 1"	19	18	50	0.650	123.7	0.5	69	26.5	5,016
6' - 0"	5' - 0"	8"	7"	20'	108	#6	9"	6' - 11"	1,122	108	#5	9"	9' - 7"	1,080	5' - 6"	4' - 1"	108	#5	9"	6' - 9"	760	4' - 1"	2' - 8"	108	9"	5' - 0"	361	5	39' - 9"	133	33	39' - 9"	876	6' - 11"	18	16	45	0.570	108.3	0.5	63	23.3	4,395
6' - 0"	5' - 0"	9"	7"	26'	108	#6	9"	6' - 11"	1,122	162	#5	6"	9' - 8"	1,633	5' - 7"	4' - 1"	162	#5	6"	6' - 10"	1,155	4' - 1"	2' - 9"	108	9"	5' - 0"	361	5	39' - 9"	133	33	39' - 9"	876	6' - 11"	18	16	45	0.614	132.0	0.5	63	25.1	5,343
6' - 0"	5' - 0"	10"	8"	30'	108	#6	9"	7' - 1"	1,149	162	#5	6"	9' - 10"	1,661	5' - 8"	4' - 2"	162	#5	6"	7' - 0"	1,183	4' - 2"	2' - 10"	82	12"	5' - 0"	274	5	39' - 9"	133	33	39' - 9"	876	7' - 1"	19	18	50	0.700	131.9	0.5	69	28.5	5,345
6' - 0"	6' - 0"	8"	7"	20'	108	#6	9"	6' - 11"	1,122	108	#5	9"	10' - 7"	1,192	6' - 6"	4' - 1"	108	#5	9"	6' - 9"	760	4' - 1"	2' - 8"	108	9"	6' - 0"	433	5	39' - 9"	133	37	39' - 9"	982	6' - 11"	18	16	45	0.613	115.6	0.5	63	25.0	4,685
6' - 0"	6' - 0"	9"	7"	26'	108	#6	9"	6' - 11"	1,122	162	#5	6"	10' - 8"	1,802	6' - 7"	4' - 1"	162	#5	6"	6' - 10"	1,155	4' - 1"	2' - 9"	108	9"	6' - 0"	433	5	39' - 9"	133	37	39' - 9"	982	6' - 11"	18	16	45	0.657	140.7	0.5	63	26.8	5,690
6' - 0"	6' - 0"	10"	8"	30'	108	#6	9"	7' - 1"	1,149	162	#5	6"	10' - 10"	1,830	6' - 8"	4' - 2"	162	#5	6"	7' - 0"	1,183	4' - 2"	2' - 10"	82	12"	6' - 0"	329	5	39' - 9"	133	37	39' - 9"	982	7' - 1"	19	18	50	0.749	140.2	0.5	69	30.5	5,675

(5) For direct traffic culverts (fill height ≤ 2 ft.), identify the required box size and select the option with the minimum fill height.

HL93 LOADING SHEET 2 OF 2

Texas Department of Transportation

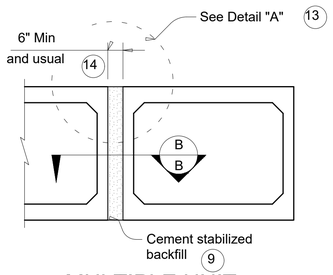
Bridge Division Standard

SINGLE BOX CULVERTS CAST-IN-PLACE
0' TO 30' FILL

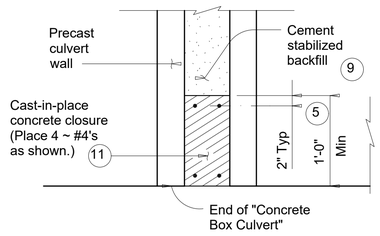
SCC-5 & 6

FILE: scc56ste-21.dgn	DN: TBE	CK: BMP	DW: TxDOT	CK: TxDOT	
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY	
REVISIONS					
04/2021 Updated X values.	DIST	COUNTY		SHEET NO.	
				33 OF 49	

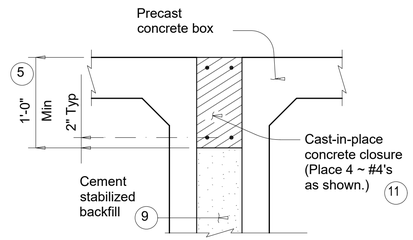
DATE:
FILE:



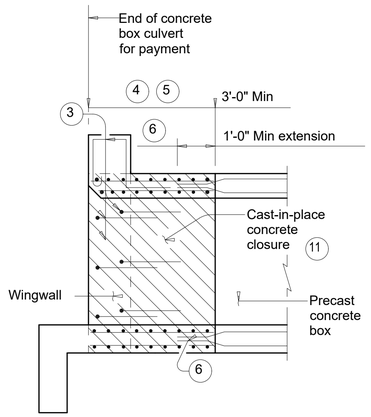
MULTIPLE UNIT PLACEMENT



SECTION B-B

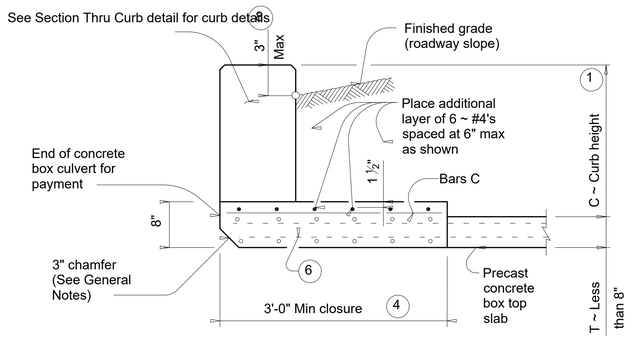


DETAIL "A" 13

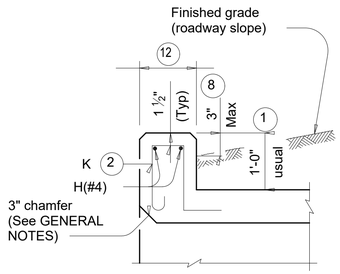


WINGWALL CONNECTION

(Also applies to safety end treatment.)

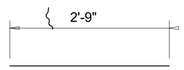


SECTION THRU TOP SLABS LESS THAN 8"

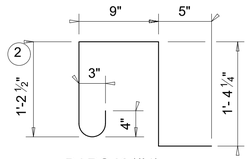


SECTION THRU CURB

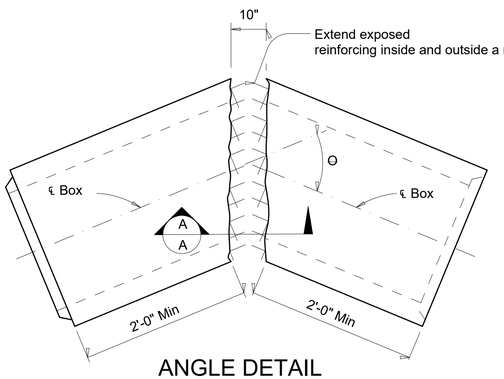
QUANTITIES PER FOOT OF CURB (10)	
Reinforcing Steel	4.12 Lb
Concrete	0.037 CY



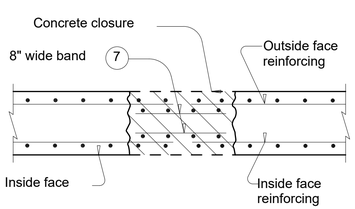
BARS C (#4)
(Spa = 1'-0" Max)



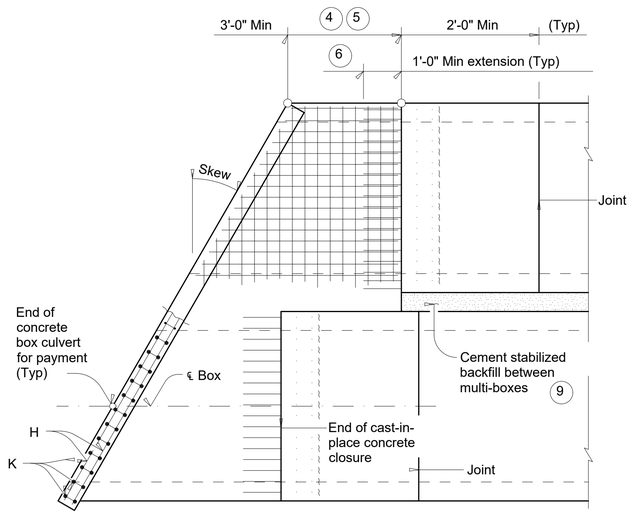
BARS K (#4)
(Spa = 1'-0" Max)
(Length = 4'-2")



ANGLE DETAIL



SECTION A-A



PLAN OF SKEWED ENDS

(Showing multi-box placement.)

1. 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail, bicycle rail, or curbs taller than 1'-0, refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.
2. For curbs less than 1'-0" high, tilt Bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, Bars K may be omitted.
3. Extend curb, wingwall, or safety end treatment reinforcing into concrete closure. Bend or trim, as necessary, any reinforcing that does not fit into closure area.
4. Provide a 3'-0" Min cast-in-place concrete closure. Break back boxes in the field or cast boxes short. Provide bands of reinforcing in the closure that are the same size and spacing as in the precast box section. Provide #4 longitudinal reinforcement spaced at 12 inches Max within the closure. Except where shown otherwise, construct the cast-in-place closure flush with the inside and outside faces of the precast box section.
5. For multiple unit placements, adjust the length of the closure for the interior walls as necessary. Provide a 3'-0" Min cast-in-place closure in the top slab, bottom slab, and exterior wall. See Section B-B detail when interior walls are cast full length.
6. Extend precast box reinforcing a minimum of 1'-0" into concrete closure (Typ).
7. Place bands of reinforcing matching the inside and outside face reinforcing in the gaps of the top and bottom slabs. Place a band matching the outside face reinforcing of the wall in the gaps of the walls (placed in the outside face only). Tack weld the bands to the exposed reinforcing at each point of contact.
8. For vehicle safety, the following requirements must be met:
   - For structures without bridge rail, construct curbs no more than 3" above finished grade.
   - For structures with bridge rail, construct curbs flush with finished grade.

   Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
9. Cement stabilized backfill between boxes is considered part of the box culvert for payment.
10. All curb concrete and reinforcing is considered part of the box culvert for payment.
11. Any additional concrete and reinforcing required for the closures will be considered subsidiary to the box culvert for payment.
12. 1'-0" typical. 2'-3" when the Box Culvert Rail Mounting Details (RAC) standard sheet is referred to elsewhere in the plans.
13. For multiple unit placement with overlay, with 1 to 2 course surface treatment, or with the top slab as the final riding surface, provide wall closure as shown in Detail "A".
14. This dimension may be increased with approval of the Engineer to allow the precast boxes to be tunneled or jacked in accordance with Item 476, "Jacking, Boring, or Tunneling Pipe or Box". No payment will be made for any additional material in the gap between adjacent boxes.

MATERIAL NOTES:

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

GENERAL NOTES:

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

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

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

BOX CULVERTS PRECAST MISCELLANEOUS DETAILS

SCP-MD

FILE: scpmdsts-20.dgn	DN: GAF	CK: LMW	DW: BWH/TxDOT	CK: GAF
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.
				34 OF 49

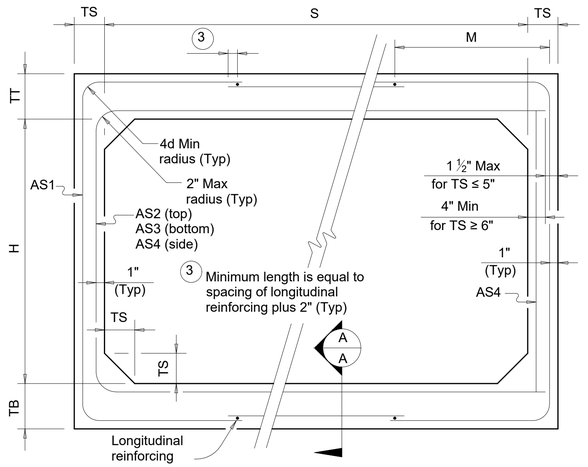
DATE:
FILE:

BOX DATA

SECTION DIMENSIONS					Fill Height	M (Min)	REINFORCING (sq. in. / ft.) (2)							(1) Lift Weight
S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)	(ft.)	(in.)	AS1	AS2	AS3	AS4	AS5	AS7	AS8	(tons)
5	2	8	7	6	< 2	-	0.19	0.27	0.18	0.14	0.19	0.19	0.17	6.0
5	2	6	6	6	2 < 3	44	0.22	0.20	0.16	0.14	-	-	-	5.1
5	2	6	6	6	3 - 5	44	0.16	0.14	0.14	0.14	-	-	-	5.1
5	2	6	6	6	10	36	0.15	0.14	0.14	0.14	-	-	-	5.1
5	2	6	6	6	15	36	0.20	0.18	0.18	0.14	-	-	-	5.1
5	2	6	6	6	20	36	0.26	0.23	0.24	0.14	-	-	-	5.1
5	2	6	6	6	25	36	0.33	0.29	0.29	0.14	-	-	-	5.1
5	2	6	6	6	30	36	0.39	0.34	0.35	0.14	-	-	-	5.1
5	3	8	7	6	< 2	-	0.19	0.31	0.21	0.14	0.19	0.19	0.17	6.6
5	3	6	6	6	2 < 3	45	0.18	0.24	0.19	0.14	-	-	-	5.7
5	3	6	6	6	3 - 5	36	0.14	0.17	0.16	0.14	-	-	-	5.7
5	3	6	6	6	10	36	0.14	0.16	0.17	0.14	-	-	-	5.7
5	3	6	6	6	15	35	0.16	0.21	0.22	0.14	-	-	-	5.7
5	3	6	6	6	20	35	0.21	0.27	0.28	0.14	-	-	-	5.7
5	3	6	6	6	25	35	0.26	0.34	0.34	0.14	-	-	-	5.7
5	3	6	6	6	30	35	0.31	0.41	0.41	0.14	-	-	-	5.7
5	4	8	7	6	< 2	-	0.19	0.33	0.24	0.14	0.19	0.19	0.17	7.2
5	4	6	6	6	2 < 3	45	0.16	0.27	0.22	0.14	-	-	-	6.3
5	4	6	6	6	3 - 5	45	0.14	0.19	0.18	0.14	-	-	-	6.3
5	4	6	6	6	10	36	0.14	0.18	0.18	0.14	-	-	-	6.3
5	4	6	6	6	15	35	0.14	0.23	0.24	0.14	-	-	-	6.3
5	4	6	6	6	20	35	0.17	0.30	0.31	0.14	-	-	-	6.3
5	4	6	6	6	25	35	0.21	0.37	0.38	0.14	-	-	-	6.3
5	4	6	6	6	30	35	0.25	0.44	0.45	0.14	-	-	-	6.3
5	5	8	7	6	< 2	-	0.19	0.35	0.26	0.14	0.19	0.19	0.17	7.8
5	5	6	6	6	2 < 3	45	0.14	0.29	0.24	0.14	-	-	-	6.9
5	5	6	6	6	3 - 5	45	0.14	0.21	0.20	0.14	-	-	-	6.9
5	5	6	6	6	10	45	0.14	0.19	0.20	0.14	-	-	-	6.9
5	5	6	6	6	15	36	0.14	0.24	0.25	0.14	-	-	-	6.9
5	5	6	6	6	20	35	0.15	0.31	0.32	0.14	-	-	-	6.9
5	5	6	6	6	25	35	0.18	0.38	0.39	0.14	-	-	-	6.9
5	5	6	6	6	30	35	0.21	0.46	0.47	0.14	-	-	-	6.9

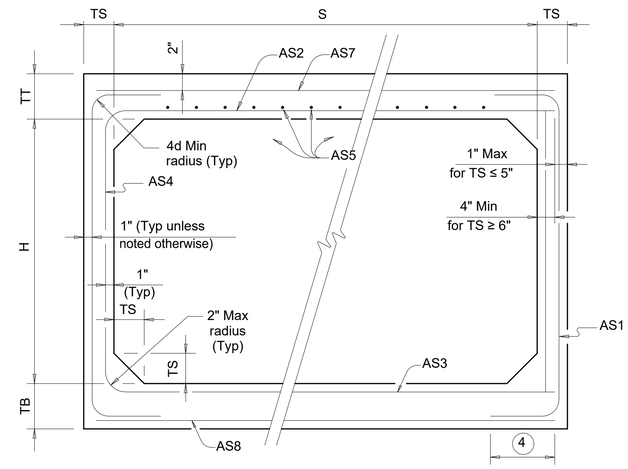
(1) For box length = 8'-0"

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



CORNER OPTION "A" CORNER OPTION "B"

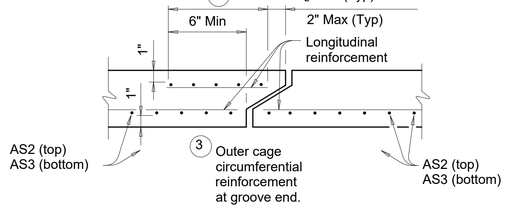
FILL HEIGHT 2 FT AND GREATER



CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT LESS THAN 2 FT

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



SECTION A-A

(Showing top and bottom slab joint reinforcement.)

MATERIAL NOTES:

Provide 0.03 sq. in./ft. minimum longitudinal reinforcement at each face in slabs and walls. This minimum requirement may be met by the transverse wires when wire mesh reinforcement is used.

Provide Class H concrete (f`c = 5,000 psi).

GENERAL NOTES:

Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.

See Box Culverts Precast Miscellaneous Details (SCP-MD) standard sheet for details and notes not shown.

In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Submit shop plans for alternate designs in accordance with Item "Precast Concrete Structural Members (Fabrication)".

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

SINGLE BOX CULVERTS PRECAST

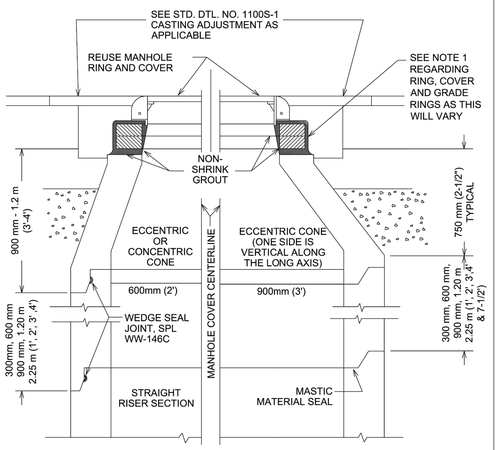
5'-0" SPAN

SCP-5

FILE: scp05sts-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.
				35 OF 49

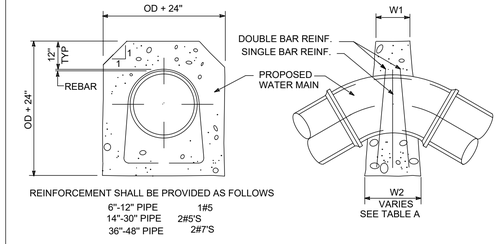
WASTEWATER MANHOLE

STORM DRAIN MANHOLE



1. SEE "MINOR MANHOLE HEIGHT ADJUSTMENT" STANDARDS 506S-4 AND 506S-4A FOR ADDITIONAL INFORMATION.
2. MANHOLE SECTIONS TEMPORARILY REMOVED FOR ROADWAY CONSTRUCTION MAY BE REUSED ONLY WITH WRITTEN APPROVAL OF THE INSPECTOR. WEDGE SEALS SHALL NOT BE REUSED.
3. ANY COMBINATION OF REMOVING THE GRADE RINGS, AND/OR THE MANHOLE CONE, AND/OR THE STRAIGHT RISER SECTION OF THE MANHOLE SHALL BE ACCEPTABLE TO TEMPORARILY LOWER THE MANHOLE GRADE FOR RECONSTRUCTION.
4. WHILE THE MANHOLE IS TEMPORARILY LOWERED, A SHEET OF STEEL SUITABLE TO SUPPORT ALL IMPOSED LOADS SHALL BE USED TO COVER THE OPENING. STEEL SHALL BE PLACED SO THE SHEET WILL NOT MOVE UNDER ANY & ALL TRAFFIC CONDITIONS.
5. SUB-GRADE AND BASE MATERIALS SHALL BE COMPACTED TO 95% AND 100% DENSITIES, RESPECTIVELY, COMPACTION SHALL BE BY MECHANICAL TAMPING TO THE DENSITIES SPECIFIED, SEE STD. DTL. NO .1100S-1.

CITY OF AUSTIN AUSTIN WATER UTILITY		MAJOR MANHOLE ADJUSTMENT	
RECORD COPY SIGNED BY KATHI L FLOWERS	08/31/2011	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 506S-2



REINFORCEMENT SHALL BE PROVIDED AS FOLLOWS

6"-12" PIPE	1#5
14"-30" PIPE	2#5'S
36"-48" PIPE	2#7'S

VERTICAL DOWN BEND

TABLE A
UPWARD THRUST GRAVITY BLOCKS

PIPE DIA.	MIN. TOP WIDTH W1	ANGLE (degrees)	BOTTOM WIDTH-W2 (in)
6"	6"	0-5	NOTE 2
		5-15	24
		15-25	48
		≯ 25	NOTE 1
8"	6"	0-5	NOTE 2
		5-9	30
		9-15	36
		≯ 15	NOTE 1
12"	6"	0-5	NOTE 2
		5-15	48
		≯ 15	NOTE 1
16"	12"	0-5	NOTE 2
		5-10	60
		10-15	96
		≯ 15	NOTE 1
24" THRU 36" DIA.		≯ 5.0	NOTE 1
42" THRU 48" DIA.		≯ 3.0	NOTE 1

NOTES:

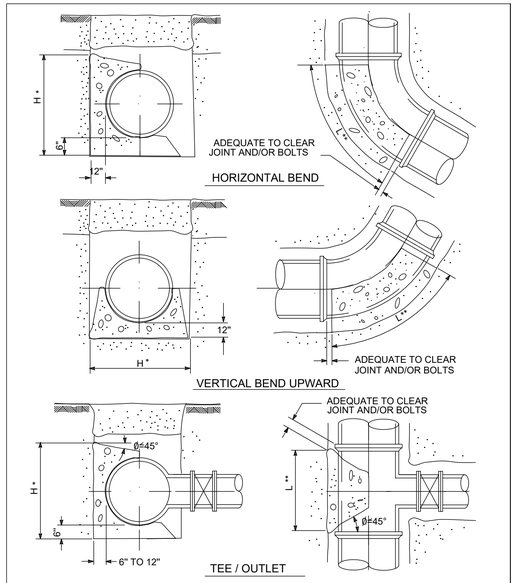
1- FOR ANGLES GREATER THAN THOSE INDICATED RESTRAINED JOINTS SHALL BE INSTALLED

2- FOR JOINT DEFLECTIONS LESS THAN 5 DEGREES, NO HORIZONTAL OR VERTICAL THRUST RESTRAINT IS REQUIRED FOR PIPES LESS THAN 42" IN DIAMETER.

THRUST BLOCK DESIGN AS FOLLOWS
A. PRESSURE OF 150 P.S.I. (ACTUAL IF HIGHER) + 50 % SURGE ALLOWANCE
B. MAXIMIM SOIL BEARING SEE TABLE BELOW

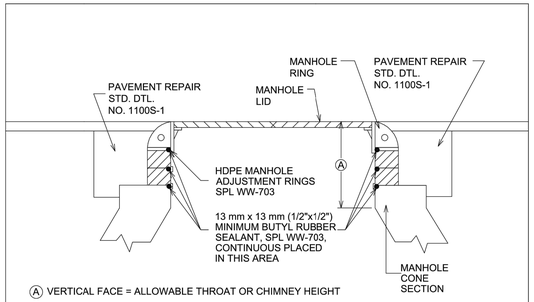
SOIL TYPES	PRESSURE
LOOSE OR SPONGY SOIL	1500 Lb/Sq.Ft.
UNDISTURBED SOIL, CALICHE	2000 Lb/Sq.Ft.
LIMESTONE ROCK	4000 Lb/Sq.Ft.

CITY OF AUSTIN WATER AND WASTEWATER UTILITY		CONCRETE THRUST BLOCKING	
RECORD COPY SIGNED BY JAMES E. THOMPSON	2/11/86	ADOPTED: 2/11/86	STANDARD NO. 510-6
		SCALE: N.T.S.	
APPROVED	DATE	INITIAL:	1 OF 2

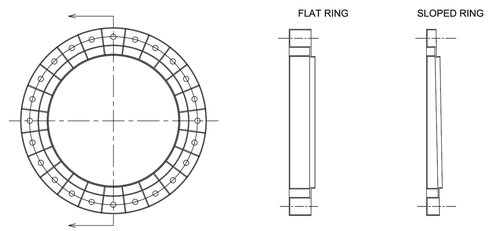


* THE DIMENSION FOR "H" MUST BE GREATER THAN DIAMETER OF THE PIPE
** LENGTH "L" ALONG THE BEND MUST BE GREATER THAN "H" AND LESS THAN 2 TIMES "H"

CITY OF AUSTIN WATER AND WASTEWATER UTILITY		CONCRETE THRUST BLOCKING	
RECORD COPY SIGNED BY JAMES E. THOMPSON	2/11/86	ADOPTED: 2/11/86	STANDARD NO. 510-6
		SCALE: N.T.S.	
APPROVED	DATE	INITIAL:	2 OF 2

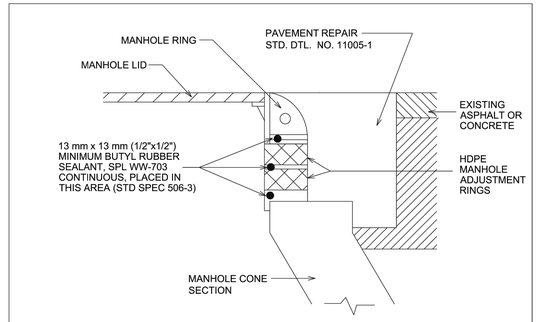


Ⓐ VERTICAL FACE = ALLOWABLE THROAT OR CHIMNEY HEIGHT
NEW CONSTRUCTION = 525mm (21") Max.
EXISTING CONSTRUCTION = 675mm (27") Max.



NOTE:
1. HDPE RINGS ONLY IN PAVED AREAS

CITY OF AUSTIN AUSTIN WATER UTILITY		MINOR MANHOLE HEIGHT ADJUSTMENT (HDPE RINGS)	
RECORD COPY SIGNED BY KATHI L FLOWERS	08/31/2011	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 506S-4A 1 OF 3



CITY OF AUSTIN AUSTIN WATER UTILITY		MINOR MANHOLE HEIGHT ADJUSTMENT (HDPE RINGS)	
RECORD COPY SIGNED BY KATHI L FLOWERS	08/31/2011	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 506S-4A 2 OF 3

INSTALLATION INSTRUCTIONS
HDPE MANHOLE ADJUSTMENT RINGS
(FOR NEW CONSTRUCTION AND REHABILITATION)

1. REMOVE EXISTING CASTING AND RINGS OR COVER PLATE TO EXPOSE CONCRETE. MANHOLE SURFACE MUST BE CLEAN AND LEVEL ±6 mm (1/4"). NOTE: IF TOP OF CONCRETE STRUCTURE IS IN VERY POOR CONDITION OR IRREGULAR, THE FIRST RING CAN BE PRESSED FULLY INTO A HEAVY BED OF MORTAR ALLOWING IT AND SUBSEQUENT RINGS TO BE POSITIONED WITHOUT WOBBLE OR POINT-LOADING.
2. POSITION STRAIGHT AND LEVEL TO DETERMINE HEIGHT ADJUSTMENT REQUIRED. CONFIRM BEFORE PLACING RINGS.
3. COMBINE VARIOUS RING HEIGHTS, IN BOTH FLAT AND SLOPE, TO REACH DESIRED ADJUSTMENT. PLACE RINGS WITH INNER POCKET OPENING UP (OUTER POCKET OPENING WITH HOLES DOWN). THE INTERLOCKING LIP (MALE TONGUE) EXTENDS DOWN INTO THE STRUCTURE OF LOWER RING. MULTIPLE SLOPE RINGS CAN BE ADDED AND ROTATED TO ACHIEVE DESIRED GRADE MATCH WITHIN 6 mm (1/4"). NOTE: SLOPE RINGS ARE TAPERED TO PROVIDE 2% GRADE COMPENSATION. IF REQUIRED, HDPE SHIMS (MAX. 6 mm (1/2") PER RING MAY BE USED TO MATCH GRADE EXACTLY.
4. DRY STACK RINGS WITHOUT SEALANT TO ACHIEVE DESIRED VERTICAL AND SLOPE ADJUSTMENT. IF SLOPE RINGS ARE USED, MARK INNER FACE OF STOCK WITH PAINT OR MARKER TO MAINTAIN ALIGNMENT WHEN RE-STACKING.
5. REMOVE THE RINGS AND PLACE NEARBY IN UPSIDE-DOWN ORDER (THIS ALLOWS FOR EASY RE-ASSEMBLY IN THE CORRECT ORDER). APPLY A CONTINUOUS BEAD OF APPROVED RUBBER BUTYL SEALANT (SPL WW-703) TO THE FLAT SURFACE OF THE FIRST RING ON THE SIDE OF THE MALE TONGUE THAT WILL REST AGAINST THE CONE OPENING (MALE TONGUE DOWN). APPLY SEALANT TO AFFECT A SEAL BETWEEN THE INTERLOCKING LIP AND THE CONCRETE SURFACE IT RESTS ON.
6. APPLY 13 mm (1/2") CONTINUOUS BEAD OF APPROVED BUTYL RUBBER SEALANT (SPL WW-703) TO THE NEXT RING. THE SEALANT MUST BE APPLIED DIRECTLY INTO THE INTERLOCKING LIP (MALE TONGUE) AND THE BOTTOM OF THE RING, FAVORING THE SIDE OF THE LIP TO ASSURE A SEAL. PLACE THIS RING WITH THE INTERLOCKING LIP (MALE TONGUE) FACING DOWN ON TOP OF THE LOWER RING PREVIOUSLY INSTALLED. PRESS THE RING IN PLACE TO SET AND DISPERSE SEALANT. REMEMBER TO RE-ASSEMBLE THE RINGS USING ALIGNMENT MARKS TO POSITION SLOPE RING(S) CORRECTLY.
7. REPEAT #6 ON ALL PRE-ASSEMBLED RINGS TO REACH DESIRED HEIGHT AND SLOPE ADJUSTMENT.
8. APPLY 13 mm (1/2") CONTINUOUS BEAD OF APPROVED BUTYL RUBBER SEALANT (SPL WW-703), TO THE TOP OF THE UPPER RING.
9. POSITION CASTING ON RING(S). PRESS THE CASTING FRAME IN PLACE TO SET AND DISPERSE SEALANT.
10. BACKFILL TO RESTORE TO STD. DETAIL 1100S-1.
11. RING MANUFACTURER MUST BE LISTED ON SPL WW-703.
12. FOR USE IN PAVED AREAS ONLY.

CITY OF AUSTIN AUSTIN WATER UTILITY		MINOR MANHOLE HEIGHT ADJUSTMENT (HDPE RINGS)	
RECORD COPY SIGNED BY KATHI L FLOWERS	08/31/2011	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 506S-4A 3 OF 3

REV. NO.	BY	DATE	REVISION DESCRIPTION

100% SUBMITTAL

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF ABE A. SALINAS III, P.E. LIC. # 105144 4/12/2023

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING OR PERMIT PURPOSES.

CITY OF ROLLINGWOOD, TEXAS

CITY OF ROLLINGWOOD
NIXON/PLEASANT DRAINAGE IMPROVEMENTS

WATER LINE DETAILS
1 OF 2

ROLLINGWOOD TEXAS

K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
1120 S. Capital of Texas Highway
CityView 2, Suite 100
Austin, Texas 78746
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TBPE Firm #6535
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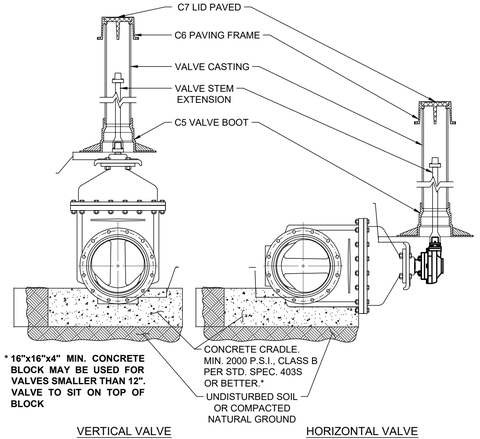
NOTES	NAME	DATE
SURVEY BY		
DRAWN BY	AH	08/21
DESIGNED BY	LWM	08/21
CHECKED BY	GE	08/21
REVIEWED BY	PS	09/21

WA501 | 36 OF 49



VERTICAL VALVE

HORIZONTAL VALVE

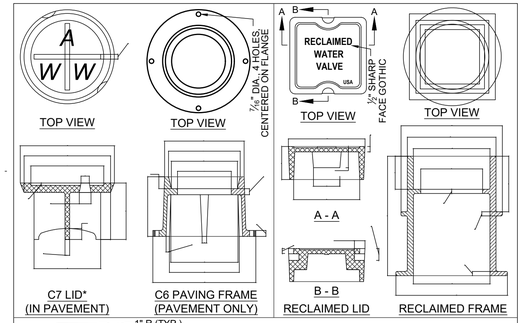
ONLY TO BE USED WHEN CALLED OUT ON THE DRAWINGS.

NOTES:

1. WELD SOCKET 2½" x 2" DEEP TO 1" SCH. 40 CARBON STEEL ROUND STEM EXTENSION, FITTED ON OPERATING NUT. [SCH. 80 FOR LENGTHS OVER 10'.]
2. VALVE CASTING SHALL BE 6" DI PIPE WITH BELL OR COLLAR CENTERED OVER VALVE BOOT.
3. NUT AT TOP OF VALVE EXTENSION ROD SHALL BE SQUARE 2" LONG WELDED TO TOP OF ROD.
4. VALVE STEM EXTENSIONS ARE REQUIRED ON ALL VALVES THAT EXCEED 3' DEEP FROM FINISHED GRADE. VALVE EXTENSIONS SHALL BE PLACED SUCH THAT THE EXTENSION NUT IS BETWEEN 12" AND 18" FROM FINISHED GRADE.

RECLAIMED WATER: ALL RECLAIMED PVC PIPE SHALL BE MANUFACTURED PURPLE PIPE. HDPE PIPE SHALL BE MANUFACTURED WITH PURPLE STRIPES. ALL OTHER PIPE AND APPURTENANCES SHALL BE MANUFACTURED PURPLE IF AVAILABLE. ALL PIPE AND FITTINGS THAT ARE NOT AVAILABLE FROM THE MANUFACTURER IN PURPLE SHALL BE PAINTED PURPLE PER SPL WW-3C. ALL BURIED DI AND CI PIPE AND FITTINGS SHALL ALSO BE WRAPPED IN PURPLE POLYETHYLENE PER SPL WW-27D. ALL COVERS SHALL HAVE **"RECLAIMED WATER"** CAST INTO THEM.

CITY OF AUSTIN AUSTIN WATER	TYPICAL GATE VALVE 4" - 16"	
RECORD COPY SIGNED BY KATHI L FLOWERS *05/18/2016* ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-01 1 OF 4



NOTES:

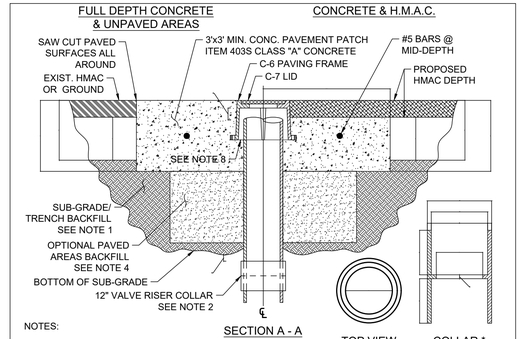
1. MATERIAL SHALL BE GRAY CAST IRON, ASTM A48, GRADE 30B.
2. THE MANUFACTURER'S IDENTIFICATION AND CASTING NUMBER, AND THE COUNTRY WHERE CAST, SHALL BE DISTINCTLY CAST ONTO EACH LID, FRAME, COLLAR AND BASE.
3. DRAFT AND SHRINKAGE ALLOWANCE SHALL BE IN ACCORDANCE WITH NORMAL FOUNDRY PRACTICE.
4. CASTING FINISH BY MANUFACTURER SHALL INCLUDE REMOVAL OF FINS AND FLASHING, AND PAINT WITH BLACK ASPHALT COATING.

WEIGHTS:

C7 LID: 13 LBS
RECLAIMED LID: 15 LBS
C6 FRAME: 23 LBS
RECLAIMED FRAME: 33 LBS
C5 BASE: 78 LBS

* LETTERING SHALL BE 1 ½" 2 PICK BAR SLOTS REQUIRED

CITY OF AUSTIN AUSTIN WATER	TYPICAL GATE VALVE 4" - 16"	
RECORD COPY SIGNED BY KATHI L FLOWERS *05/18/2016* ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-01 2 OF 4



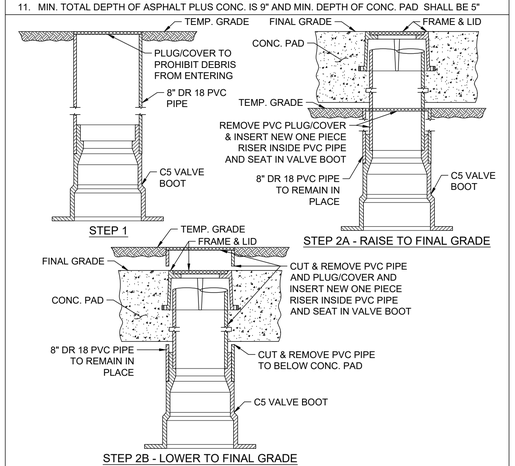
NOTES:

1. SUB-GRADE/TRENCH BACKFILL SHALL BE COMPACTED AS PER ITEM 201S, SUB-GRADE PREPARATION.
2. TO ADJUST VALVE CASTINGS TO FINAL GRADE, REMOVE RISER PIPE BELOW SUB-GRADE AND INSTALL APPROPRIATE LENGTH OF NEW RISER PIPE TO ACHIEVE FINAL GRADE. CONNECT THE TWO PIECES OF RISER PIPE WITH A 6" COLLAR MIN. 12" LENGTH APPROXIMATELY CENTERED ON THE JOINT WITH THE TOP OF SLEEVE LOCATED ½" - 18" BELOW SUB-GRADE. THE INSIDE "LIP" OF COLLAR TO BE PAINTED WITH FLUORESCENT WHITE PAINT OR COVERED WITH FLUORESCENT WHITE TAPE. ALTERNATE: FOR OPTIONAL SINGLE PIECE RISER INSTALLATION SEE SHEET 4 OF 4.
3. CLEAN VALVE BOX OF ALL DEBRIS DOWN TO THE NUT OF THE VALVE; NUT SHALL OPERATE WITH NO OBSTRUCTION.
4. WHERE CASTINGS TO BE REMOVED REQUIRE EXCAVATION GREATER THAN 20" DEEP, CONTRACTOR MAY ELECT TO FILL EXCAVATION WITH CONTROLLED LOW STRENGTH MATERIAL (SPEC. ITEM 402S) TO THE UNDERSIDE OF THE CONCRETE. PAVEMENT PATCH IN LIEU OF COMPACTED BACKFILL.
5. REINFORCING STEEL SHALL MEET SPEC. ITEM 406S.7.
6. NO MORE THAN 2 SECTIONS OF PIPE SHALL BE USED FROM VALVE TO FINAL GRADE.
7. BELL AND SPIGOT IS ACCEPTABLE FOR DEPTH OVER 18'.

CITY OF AUSTIN AUSTIN WATER	TYPICAL GATE VALVE 4" - 16"	
RECORD COPY SIGNED BY KATHI L FLOWERS *05/18/2016* ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-01 3 OF 4

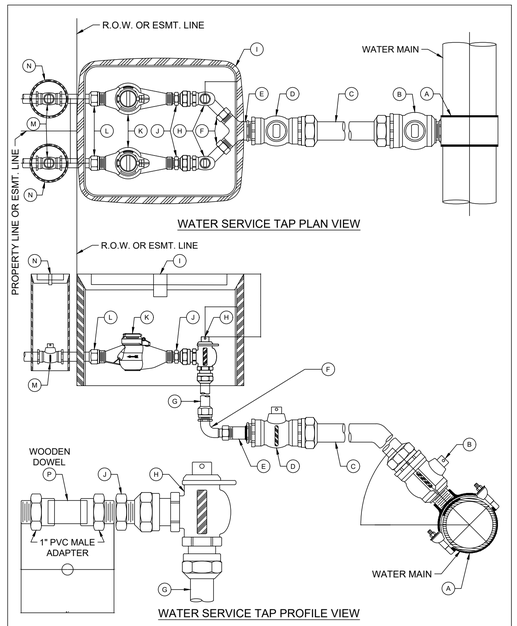
NOTES (CON'T):

8. PAVING FRAME SHALL BE FLUSH WITH THE CONC. PAD AND PLACED ½" - 2" ABOVE RISER PIPE (FRAME SHALL NOT REST ON RISER.)
9. IN UNPAVED AREAS, INSTALL ONE DELINEATOR STAKE IMMEDIATELY ADJACENT TO THE EDGE OF THE CONCRETE PAD. DELINEATOR SHALL BE BLUE FOR POTABLE WATER AND PURPLE FOR RECLAIMED WATER AND SHALL EXTEND AT LEAST 60" ABOVE GROUND. DELINEATORS SHALL HAVE 2" WIDE, WHITE IN COLOR, TYPE I REFLECTIVE TAPE MOUNTED DIAGONALLY AT 12" SPACING ON BOTH SIDES.
10. VALVE SHALL TYPICALLY BE CENTERED IN CONCRETE DIAMOND BUT MAY BE OFFSET WITH A MIN. OF 12" FROM CENTER OF VALVE LID TO EDGE OF CONCRETE IN ALL DIRECTIONS.
11. MIN. TOTAL DEPTH OF ASPHALT PLUS CONC. IS 9" AND MIN. DEPTH OF CONC. PAD SHALL BE 5"



OPTIONAL ONE PIECE VALVE CASTING INSTALLATION

CITY OF AUSTIN AUSTIN WATER	TYPICAL GATE VALVE 4" - 16"	
RECORD COPY SIGNED BY KATHI L FLOWERS *05/18/2016* ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 511-AW-01 4 OF 4



CITY OF AUSTIN AUSTIN WATER	WATER SERVICE & METER INSTALLATION - 1" & SMALLER METERS	
DRAFT - NOTICE OF RULE ADOPTION ONLY JEFF A. KYLE *08/16/2019* ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520-AW-01B 1 OF 2

MATERIALS LIST:

A. 2" SERVICE CLAMP, SPL WW-264
B. 2" CORPORATION STOP, SPL WW-68
C. 2" HDPE WATER SERVICE TUBING, SPL WW-65
D. 2" BALL VALVE, SPL WW-68
E. SINGLE SERVICE: 2" MIP X 1" COPPER FLARE FITTING, SPL WW-68 OR DOUBLE SERVICE: 2" MIP X 1" COPPER FLARE WYE, SPL WW-68
F. 1" SWIVEL NUT x 1" COMPRESSION 90° BEND, SPL WW-68
G. 1" HDPE WATER SERVICE TUBING, SPL WW-65
H. 1" ANGLE METER STOP, SPL WW-68
I. METER BOX AND LID, SPL WW-145A; FOR DUAL 1" METERS: USE TWO SINGLE METER BOXES

MATERIALS TO BE INSTALLED BY PLUMBER:

J. BRASS METER BUSHING - SIZE AS NEEDED TO CONNECT ANGLE METER STOP TO METER
K. WATER METER PURCHASED FROM AUSTIN WATER
L. BRASS WATER METER COUPLING MALE IPT x SWIVEL COUPLING NUT: ⅝" AND ¾" METERS: 8 ½" LONG x ¾" DIA. 1" METERS: 8 ½" LONG x 1" DIA.
M. PROPERTY OWNER'S CUT OFF VALVE, SPL WW-276
N. PROPERTY OWNER'S CUT OFF VALVE BOX AND LID
O. TEMPORARY METER SPACER (REQUIRED TO ASSURE METER WILL FIT APPROPRIATELY)
P. 1" WOODEN DOWEL (SHOW ADDRESS ON DOWEL USING WATERPROOF MARKER)

NOTES:

1. SERVICE CLAMP SHALL BE WRAPPED COMPLETELY WITH 8 MIL. POLYETHYLENE FILM, SPL WW-27D.
2. BRANCH CONNECTIONS AND ALL ANGLE METER STOPS MUST BE INSTALLED PRIOR TO ANY METER INSTALLATION.
3. TOP OF METER BOXES SHOULD BE 4" ABOVE GROUND.
4. PIPING AND TUBING IN STREET RIGHT-OF-WAY SHALL BE BEDDED IN GRANULAR MATERIALS AS REQUIRED BY SECTION 510.3 (14) OF THE CITY OF AUSTIN STANDARD SPECIFICATIONS; BACKFILL ABOVE GRANULAR BEDDING AS REQUIRED BY SECTION 510.3 (25).
5. METER BOX MUST BE BEHIND CURB NEXT TO PROPERTY LINE OR EASEMENT AND OUT OF VEHICULAR TRAFFIC AREA AND SIDEWALK.
6. BALL VALVE "D" SHALL NOT BE LOCATED UNDER SIDEWALK, CURB, OR PAVEMENT, AND NOT BE LOCATED MORE THAN 36" BELOW FINAL GRADE.
7. METER SIZES TO BE SHOWN ON PLANS.
8. METER BOX CUT OUTS SHALL NOT EXCEED TWO TIMES THE PIPE DIAMETER.
9. INSTALL METALLIC TRACER TAPE, SPL WW-597, MINIMUM 1' ABOVE TUBING FROM SERVICE CLAMP "A" TO BALL VALVE "D".
10. TUBING SHALL BE PLACED IN A STRAIGHT ALIGNMENT AND ALLOWED TO RELAX AND "SNAKE" LOOSELY IN THE TRENCH. TUBING BEHIND CURB AND GUTTER SHALL BE INSTALLED WITH A MINIMUM 2' DEPTH OF COVER.
11. 1" TUBING, WHEN BENT, SHALL HAVE A RADIUS NO SMALLER THAN 3'. 2" TUBING, WHEN BENT, SHALL HAVE A RADIUS NO SMALLER THAN 5'. BRASS FITTINGS SHALL NOT BE CONNECTED TO A BENT SECTION OF TUBING.
12. SOLID, TUBULAR STAINLESS STEEL INSERT STIFFENERS FOR HDPE TUBING SHALL BE USED AT ALL COMPRESSION FITTINGS. INSERT STIFFENERS SHALL BE FROM THE SAME MANUFACTURER AS THE COMPRESSION FITTING USED.
13. FOR RECLAIMED WATER SERVICES AND METERS, ALL RECLAIMED TUBING SHALL BE MANUFACTURED SOLID PURPLE, SPL WW-65A. ALL APPURTENANCES SHALL BE MANUFACTURED PURPLE IF AVAILABLE. ALL FITTINGS THAT ARE NOT AVAILABLE FROM THE MANUFACTURER IN PURPLE SHALL BE PAINTED PURPLE PER SPL WW-3C. ALL METER BOX LIDS SHALL BE PURPLE AND HAVE **"RECLAIMED WATER"** CAST INTO THEM, SPL WW-145A.

CITY OF AUSTIN AUSTIN WATER	WATER SERVICE & METER INSTALLATION - 1" & SMALLER METERS	
DRAFT - NOTICE OF RULE ADOPTION ONLY JEFF A. KYLE *08/16/2019* ADOPTED	THE ARCHITECT/ENGINEER ASSUMES RESPONSIBILITY FOR APPROPRIATE USE OF THIS STANDARD.	STANDARD NO. 520-AW-01B 2 OF 2

REV NO.	BY	DATE	REVISION DESCRIPTION

100% SUBMITTAL

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF ABE A. SALINAS III, P.E. LIC. # 105144 4/12/2023

IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING OR PERMIT PURPOSES.

CITY OF ROLLINGWOOD, TEXAS

CITY OF ROLLINGWOOD
NIXON/PLEASANT DRAINAGE IMPROVEMENTS

WATER LINE DETAILS
2 OF 2

ROLLINGWOOD TEXAS

K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
1120 S. Capital of Texas Highway
CityView 2, Suite 100
Austin, Texas 78746
P - 512.338.1704 F - 512.338.1784
TBPE Firm #6535
www.kfriese.com

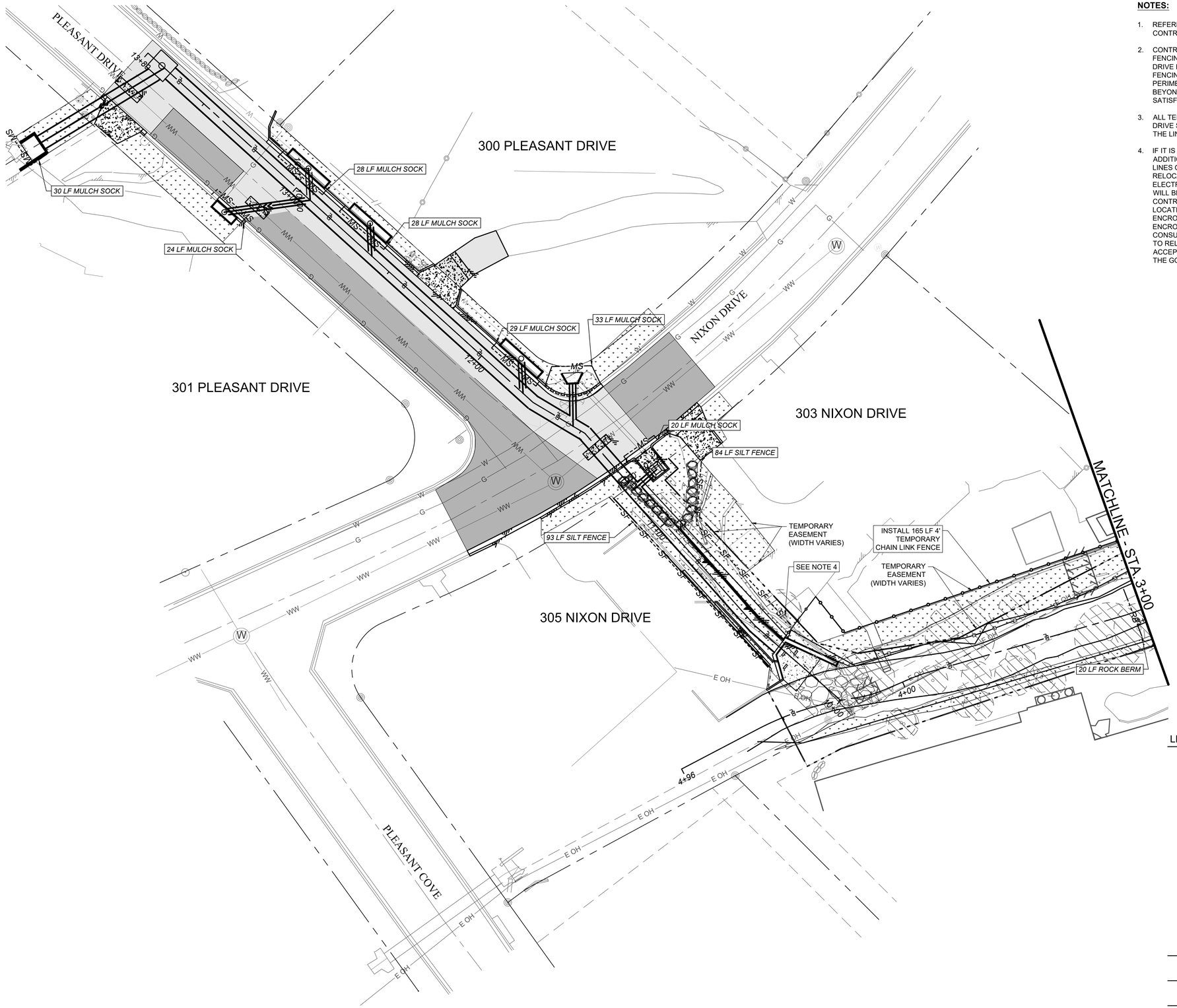
NOTES	NAME	DATE
SURVEY BY		
DRAWN BY	AH	08/21
DESIGNED BY	LWM	08/21
CHECKED BY	GE	08/21
REVIEWED BY	PS	09/21

X:\PROJECTS\9907_ROLLINGWOOD_NIXON-PLEASANT_DRAINAGE_IMPROVEMENTS\DGN\SHEETS\9907-CVWA-DET01.DWG, COA_22X34_LANDSCAPE, COA_ESD.STB

4/12/2023 5:21 PM

JUDY WILLIG

WA502 | 37 OF 49



NOTES:

1. REFERENCE LANDSCAPE SHEETS FOR PERMANENT EROSION CONTROLS.
2. CONTRACTOR SHALL INSTALL TEMPORARY CHAIN LINK FENCING ALONG THE OF THE WORK AREA AT 303 NIXON DRIVE FOR THE DURATION OF THE PROJECT OR UNTIL NEW FENCING HAS BEEN INSTALLED TO SECURE THE BACKYARD PERIMETER AREA. ANY AREAS OR STRUCTURES DISTURBED BEYOND THESE LIMITS SHALL BE RESTORED TO THE SATISFACTION AND WITH NO ADDITIONAL COST TO THE CITY.
3. ALL TEMPORARY FENCING INSTALLED ALONG 303 NIXON DRIVE SHALL INCLUDE A 4' GATE. GATE COST IS INCLUDED IN THE LINEAR FOOT COST OF THE TEMPORARY FENCING.
4. IF IT IS DETERMINED BY THE CITY THAT THERE IS AN ADDITIONAL ENCROACHMENT OF OVERHEAD ELECTRIC LINES ONTO 305 NIXON DRIVE AS A RESULT OF THE RELOCATED AUSTIN ENERGY DISTRIBUTION POLE, THE ELECTRICAL SERVICE POLE LOCATED AT 303 NIXON DRIVE WILL BE RELOCATED. THE CITY WILL INSTRUCT THE CONTRACTOR TO MOVE THE SERVICE POLE TO A NEW LOCATION THAT WILL HELP MITIGATE THE ADDITIONAL ENCROACHMENT TO A CURRENT DEGREE OF ENCROACHMENT OR BETTER. THE CONTRACTOR SHALL CONSULT WITH THE PROPERTY OWNER AT 303 NIXON DRIVE TO RELOCATE THE POLE CLOSER TO THE FENCE LINE IN AN ACCEPTABLE LOCATION FOR ALL PARTIES THAT ACHIEVES THE GOAL OF THE RELOCATION.

LEGEND

- LIMITS OF CONSTRUCTION
- MS MULCH SOCK
- TEMP CHAIN LINK FENCE
- SF SILT FENCE
- TP TREE PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE
- RB ROCK BERM
- TREE
- TREE TO BE REMOVED

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CITY OF ROLLINGWOOD, TEXAS

PROPOSED DRAINAGE IMPROVEMENTS
NIXON/PLEASANT DRAINAGE IMPROVEMENTS

EROSION CONTROL PLAN

ROLLINGWOOD TEXAS

K·FRIESE + ASSOCIATES
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Austin, Texas 78746
P - 512.338.1704 F - 512.338.1784
TBPE Firm #6535
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SURVEY BY		
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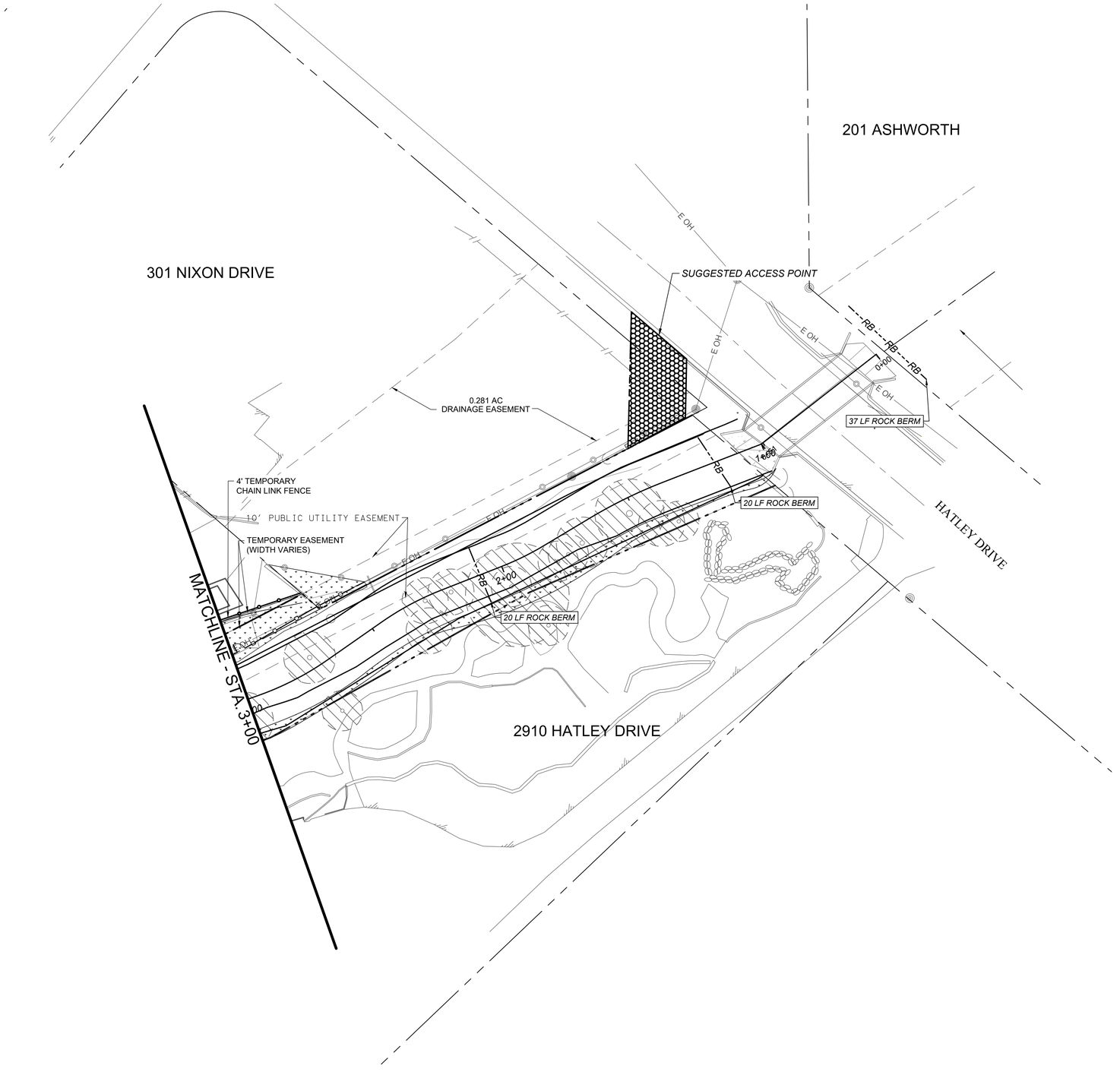
DESIGNED BY	LWM	08/21
CHECKED BY	GE	08/21
REVIEWED BY	PS	09/21

0 20 40
HORIZONTAL SCALE IN FEET

EV101 | 38 OF 49

X:\PROJECTS\9307_ROLLINGWOOD_NIXON-PLEASANT_DRAINAGE_IMPROVEMENTS\DESIGN\SHEETS\9307-CE-PLAN.DWG, COA_22X34_LANDSCAPE_COA_ESD.STB
4/12/2023 5:21 PM
JUDY WILLIG



NOTES:

1. ROCK FILTER BERM SHALL BE EMBEDDED AND SECURED TO THE CHANNEL FLOOR TO PREVENT IT FROM WASHING AWAY DURING STORM EVENTS.
2. SIDE SLOPES OF ROCK FILTER BERM SHALL NOT EXCEED 4:1.

LEGEND

	LIMITS OF CONSTRUCTION
—--MS---MS—	MULCH SOCK
—--SF---SF—	SILT FENCE
—TP—TP—TP—	TREE PROTECTION
	STABILIZED CONSTRUCTION ENTRANCE
—--RB---RB—	ROCK BERM
	TREE
	TREE TO BE REMOVED

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CITY OF ROLLINGWOOD, TEXAS

PROPOSED DRAINAGE IMPROVEMENTS
NIXON/PLEASANT DRAINAGE IMPROVEMENTS

EROSION CONTROL PLAN

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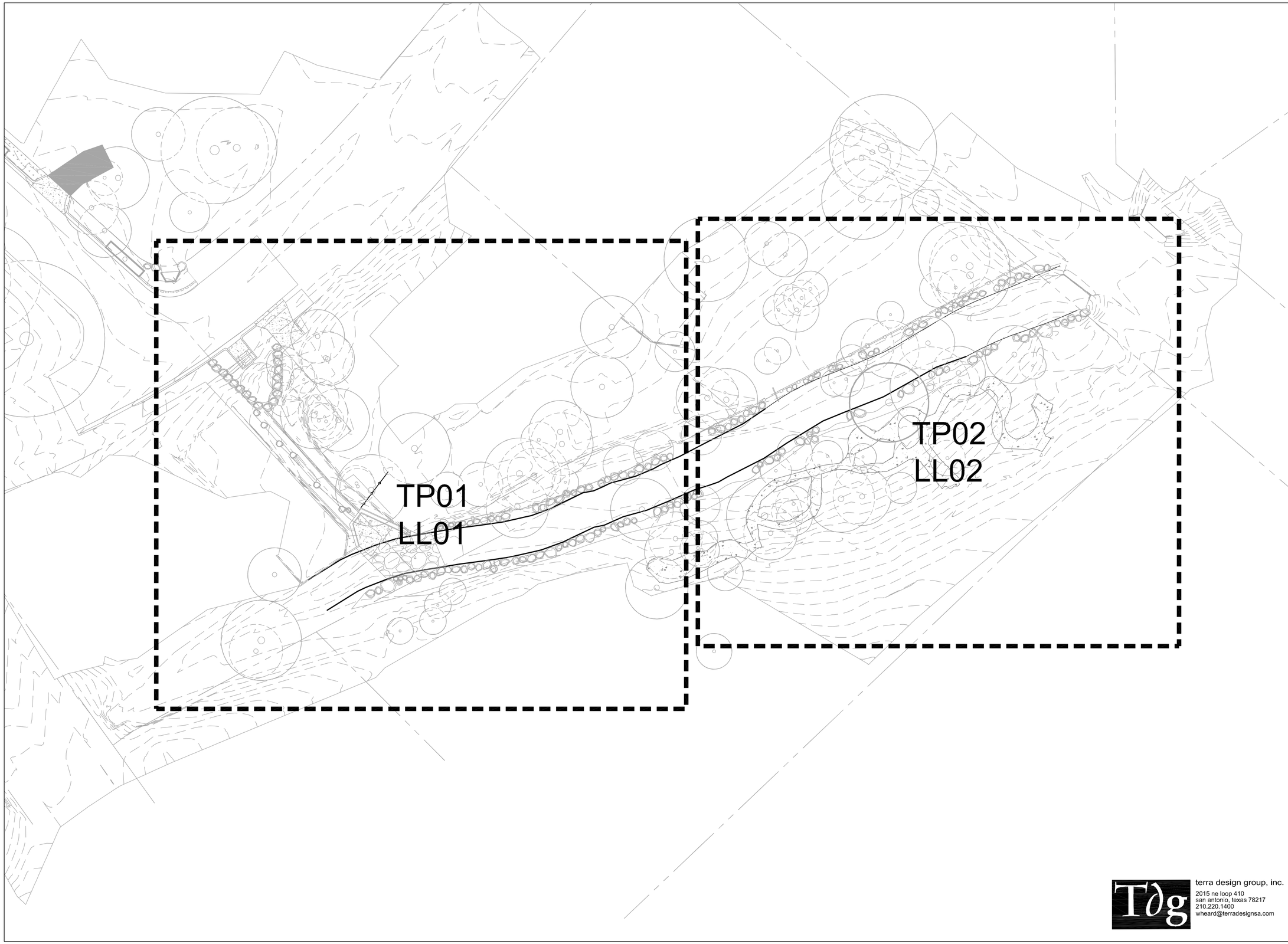
0 20 40
HORIZONTAL SCALE IN FEET



REV NO.	BY	DATE	REVISION DESCRIPTION

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REGISTERED LANDSCAPE ARCHITECT
WALTER H. HEARD
629
STATE OF TEXAS

3.17.23

CITY OF ROLLINGWOOD, TEXAS
PUBLIC WORKS
DEPARTMENT

PROPOSED DRAINAGE IMPROVEMENTS
NIXON/PLEASANT DRAINAGE IMPROVEMENTS

OVERALL TREE PRESERVATION AND LANDSCAPE LAYOUT

ROLLINGWOOD TEXAS

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DRAWN BY		
DESIGNED BY		
CHECKED BY		
REVIEWED BY		

0' 10' 20' NORTH

terra design group, inc.
2015 ne loop 410
san antonio, texas 78217
210.220.1400
wheard@terradesignsa.com

OL01 | 1 OF 1

P:\K FRIESE\NIXON DRIVE AND PLEASANT DRIVE DRAINAGE IMPROVEMENTS\LA\PLANS\BASE NIXON PLEASANT DRAINAGE 3.1.23.DWG, ---, TDG MONO FULL.CTB
3/17/2023 1:42 PM
LOGAN HEARD

TREE INVENTORY

	Species	Significant Trees 6" - 23.99" Removed	Significant Trees 6" - 23.99" Saved	Protection Level
75458	Oak		8	Preserve
75459	Oak		10	Preserve
75460	Oak		6	Preserve
75461	Oak		6	Preserve
75462	Hackberry	6		Remove
75463	Oak		7	Preserve
75464	Oak		10	Preserve
75465	Oak		14	Preserve
75466	Oak		6	Preserve
75467	Oak		8	Preserve
75468	Oak		8	Preserve
75469	Oak		8	Preserve
75470	Oak		15	Preserve
75471	Oak	8		Remove
75472	Oak	10		Remove
75473	Oak	8		Remove
75474	Oak	6		Remove
75475	Hackberry	6		Remove
75476	Hackberry		8	Preserve
75477	Hackberry		8	Preserve
75478	Oak		16	Preserve
75479	Oak		12	Preserve
75480	Oak		10	Preserve
75518	Oak		12	Preserve
75711	Chinaberry	6		Remove
75712	Chinaberry	6		Remove
75713	Chinaberry	6		Remove
75714	Hackberry	8		Remove
75715	Chinaberry	6		Remove
75716	Chinaberry	6		Remove
75718	Chinaberry	6		Remove
75719	Chinaberry	6		Remove
75720	Chinaberry	6		Remove
75721	Chinaberry	6		Remove
75722	Oak		6	Preserve
75723	Chinaberry		6	Preserve
75725	Chinaberry		6	Preserve
75726	Chinaberry		6	Preserve
75727	Cedar	14		Remove
75728	Oak		16	Preserve
75729	Oak		16	Preserve
75734	Oak		6	Preserve
75736	Oak	12		Remove
75993	Oak		14	Preserve
75994	Chinaberry	14		Remove
75995	Chinaberry	10		Remove
75996	Oak		14	Preserve
75997	Oak		12	Preserve
75998	Oak		12	Preserve
75999	Oak		8	Preserve
76000	Oak		8	Preserve
76001	Oak		8	Preserve
76002	Chinaberry		8	Preserve
76006	Hackberry		12	Preserve
76007	Oak		17	Preserve
76008	Cedar		6	Preserve
76009	Cedar		8	Preserve
76010	Cedar		8	Preserve
76011	Oak		7	Preserve
76012	Chinaberry	7		Remove
76013	Chinaberry	9		Remove
76014	Chinaberry		14	Preserve
76015	Hackberry		14	Preserve
76016	Cedar		6	Preserve
76027	Oak		16	Preserve
76028	Oak		18	Preserve
76029	Oak		18	Preserve
76030	Oak		8	Preserve
76031	Oak		8	Preserve
76032	Oak		6	Preserve
76040	Oak		8	Preserve
76041	Cedar	8		Remove
76042	Cedar	8		Remove
76043	Cedar	9		Remove
76044	Hackberry	8		Remove
76045	Hackberry		7	Preserve
76046	Tallow		6	Preserve
76047	Tallow		6	Preserve
76048	Tallow		15	Preserve
76049	Tallow		13	Preserve
76050	Tallow		7	Preserve
76051	Tallow		7	Preserve
76052	Tallow	7		Remove
76053	Cedar	7		Remove
76054	Tallow	7		Remove
76055	Tallow	7		Remove
76056	Tallow	9		Remove
76057	Oak		18	Preserve
76058	Tallow		18	Preserve
76059	Tallow		19	Preserve
76060	Oak		8	Preserve
76061	Oak		9	Preserve
76062	Oak		12	Preserve
76063	Oak		12	Preserve
76064	Tallow	12		Remove
76065	Tallow	8		Remove
76066	Tallow	7		Remove
76067	Oak		13	Preserve
76069	Oak		6	Preserve
76070	Oak		13	Preserve
76071	Oak		12	Preserve
76072	Oak		7	Preserve
76073	Oak		8	Preserve
76074	Oak		6	Preserve
Sub. Tot. Inches=		269	714	
Total inches by category=			983	
Preservation percentage=			73%	
Mitigation required=		1 to 1	0	

MATCHLINE (THIS SHEET)

MATCHLINE (THIS SHEET)

MATCHLINE

TREE 50458 PRESERVE
TREE 50460 PRESERVE
TREE 50717 PRESERVE
TREE 50715 PRESERVE
TREE 50716 PRESERVE
TREE 75473 TO BE REMOVED (TBR)
TREE 75458 PRESERVE
TREE 75462 TBR
TREE 75459 PRESERVE
TREE 75460 PRESERVE
TREE 75461 PRESERVE
TREE 75463 PRESERVE
TREE 75464 PRESERVE
TREE 75469 PRESERVE
TREE 75466 PRESERVE
TREE 75465 PRESERVE
TREE 75467 PRESERVE
TREE 75468 PRESERVE
TREE 75470 PRESERVE
TREE 75472 TBR
TREE 75471 TBR
TREE 75474 TBR
TREE 75475 TBR
TREE 75735 PRESERVE
TREE 75476 PRESERVE
TREE 75477 PRESERVE
TREE 75478 PRESERVE
TREE 75735 PRESERVE
TREE 75735 PRESERVE
TREE 75730 PRESERVE
TREE 75731 PRESERVE
TREE 75737 PRESERVE
TREE 75728 PRESERVE
TREE 75518 PRESERVE
TREE 75729 PRESERVE
TREE 75734 PRESERVE
TREE 75995 TBR
TREE 75994 TBR
TREE 75994 PRESERVE
TREE 75727 TBR
TREE 75713 TBR
TREE 75712 TBR
TREE 75715 TBR
TREE 75719 TBR
TREE 75736 TBR
TREE 75711 TBR
TREE 75714 TBR
TREE 75721 TBR
TREE 75718 TBR
TREE 75716 TBR
TREE 75720 TBR
TREE 75723 PRESERVE
TREE 75725 PRESERVE
TREE 75726 PRESERVE
TREE 75996 PRESERVE

TREE PRESERVATION NOTES:

1. TREES TO BE REMOVED AS SHOWN ARE TO BE REMOVED TO 6" BELOW FINISH GRADE.
2. CONTRACTOR TO IDENTIFY TREES FOR REMOVAL FOR REVIEW AND APPROVAL BY OWNER AND OWNER'S REPRESENTATIVE.
3. CONTRACTOR IS ENCOURAGED TO VISIT THE SITE PRIOR TO BID AS ADDITIONAL TREES, PARTICULARLY UNDERSTORY TREES NOT IDENTIFIED IN THE TREE SURVEY, MAY BE REQUIRED REMOVAL TO CONSTRUCT THE IMPROVEMENTS. CONTRACTOR IS REQUIRED TO REMOVE ALL TREES AS NECESSARY TO CONSTRUCT THE IMPROVEMENTS.

REV NO.	BY	DATE	REVISION DESCRIPTION

100% SUBMITTAL

REGISTERED LANDSCAPE ARCHITECT
WALTER H. HEARD
629
STATE OF TEXAS
3.17.23

CITY OF ROLLINGWOOD, TEXAS
PUBLIC WORKS
DEPARTMENT

PROPOSED DRAINAGE IMPROVEMENTS
NIXON/PLEASANT DRAINAGE IMPROVEMENTS

TREE PRESERVATION

ROLLINGWOOD TEXAS

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NOTES	NAME	DATE
SURVEY BY		
DRAWN BY		
DESIGNED BY		
CHECKED BY		
REVIEWED BY		

0' 5' 10' NORTH

terra design group, inc.
2015 ne loop 410
san antonio, texas 78217
210.220.1400
wheard@terradesignsa.com

TP01 | 1 OF 1

P:\K FRIESE\NIXON DRIVE AND PLEASANT DRIVE DRAINAGE IMPROVEMENTS\LAPL\PLANS\BASE NIXON PLEASANT DRAINAGE 3.1.23.DWG, ---, TDG MONO FULL.CTB
3/17/2023 3:16 PM
LOGAN HEARD

TREE INVENTORY

	Species	Significant Trees 6" - 23.99"		Protection Level
		Removed	Saved	
75458	Oak		8	Preserve
75459	Oak		10	Preserve
75460	Oak		6	Preserve
75461	Oak		6	Preserve
75462	Hackberry	6		Remove
75463	Oak		7	Preserve
75464	Oak		10	Preserve
75465	Oak		14	Preserve
75466	Oak		6	Preserve
75467	Oak		8	Preserve
75468	Oak		8	Preserve
75469	Oak		8	Preserve
75470	Oak		15	Preserve
75471	Oak	8		Remove
75472	Oak	10		Remove
75473	Oak	8		Remove
75474	Oak	6		Remove
75475	Hackberry	6		Remove
75476	Hackberry		8	Preserve
75477	Hackberry		8	Preserve
75478	Oak		16	Preserve
75479	Oak		12	Preserve
75480	Oak		10	Preserve
75518	Oak		12	Preserve
75711	Chinaberry	6		Remove
75712	Chinaberry	6		Remove
75713	Chinaberry	6		Remove
75714	Hackberry	8		Remove
75715	Chinaberry	6		Remove
75716	Chinaberry	6		Remove
75718	Chinaberry	6		Remove
75719	Chinaberry	6		Remove
75720	Chinaberry	6		Remove
75721	Chinaberry	6		Remove
75722	Oak		6	Preserve
75723	Chinaberry		6	Preserve
75725	Chinaberry		6	Preserve
75726	Chinaberry		6	Preserve
75727	Cedar	14		Remove
75728	Oak		16	Preserve
75729	Oak		16	Preserve
75734	Oak		6	Preserve
75736	Oak	12		Remove
75993	Oak		14	Preserve
75994	Chinaberry	14		Remove
75995	Chinaberry	10		Remove
75996	Oak		14	Preserve
75997	Oak		12	Preserve
75998	Oak		12	Preserve
75999	Oak		8	Preserve
76000	Oak		8	Preserve
76001	Oak		8	Preserve
76002	Chinaberry		8	Preserve
76006	Hackberry		12	Preserve
76007	Oak		17	Preserve
76008	Cedar		6	Preserve
76009	Cedar		8	Preserve
76010	Cedar		8	Preserve
76011	Oak		7	Preserve
76012	Chinaberry	7		Remove
76013	Chinaberry	9		Remove
76014	Chinaberry		14	Preserve
76015	Hackberry		14	Preserve
76016	Cedar		6	Preserve
76027	Oak		16	Preserve
76028	Oak		18	Preserve
76029	Oak		18	Preserve
76030	Oak		8	Preserve
76031	Oak		8	Preserve
76032	Oak		6	Preserve
76040	Oak		8	Preserve
76041	Cedar	8		Remove
76042	Cedar	8		Remove
76043	Cedar	9		Remove
76044	Hackberry	8		Remove
76045	Hackberry		7	Preserve
76046	Tallow		6	Preserve
76047	Tallow		6	Preserve
76048	Tallow		15	Preserve
76049	Tallow		13	Preserve
76050	Tallow		7	Preserve
76051	Tallow		7	Preserve
76052	Tallow	7		Remove
76053	Cedar	7		Remove
76054	Tallow	7		Remove
76055	Tallow	7		Remove
76056	Tallow	9		Remove
76057	Oak		18	Preserve
76058	Tallow		18	Preserve
76059	Tallow		19	Preserve
76060	Oak		8	Preserve
76061	Oak		9	Preserve
76062	Oak		12	Preserve
76063	Oak		12	Preserve
76064	Tallow	12		Remove
76065	Tallow	8		Remove
76066	Tallow	7		Remove
76067	Oak		13	Preserve
76069	Oak		6	Preserve
76070	Oak		13	Preserve
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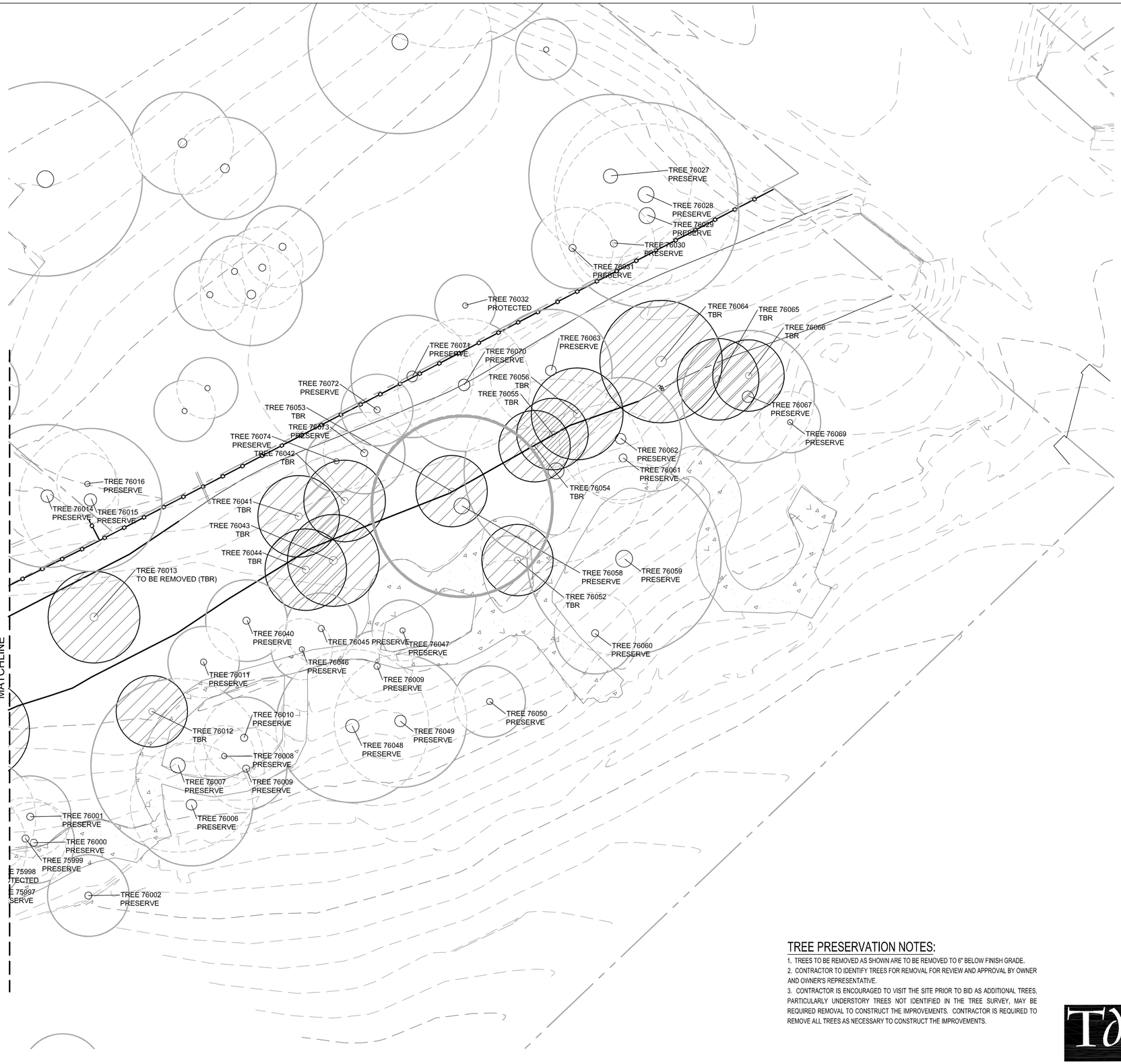

TREE PRESERVATION NOTES:

1. TREES TO BE REMOVED AS SHOWN ARE TO BE REMOVED TO 6" BELOW FINISH GRADE.
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REGISTERED LANDSCAPE ARCHITECT
WALTER H. HEARD
6629
STATE OF TEXAS

3.17.23

CITY OF ROLLINGWOOD, TEXAS
PUBLIC WORKS
DEPARTMENT

PROPOSED DRAINAGE IMPROVEMENTS
NIXON/PLEASANT DRAINAGE IMPROVEMENTS

TREE PRESERVATION

ROLLINGWOOD TEXAS

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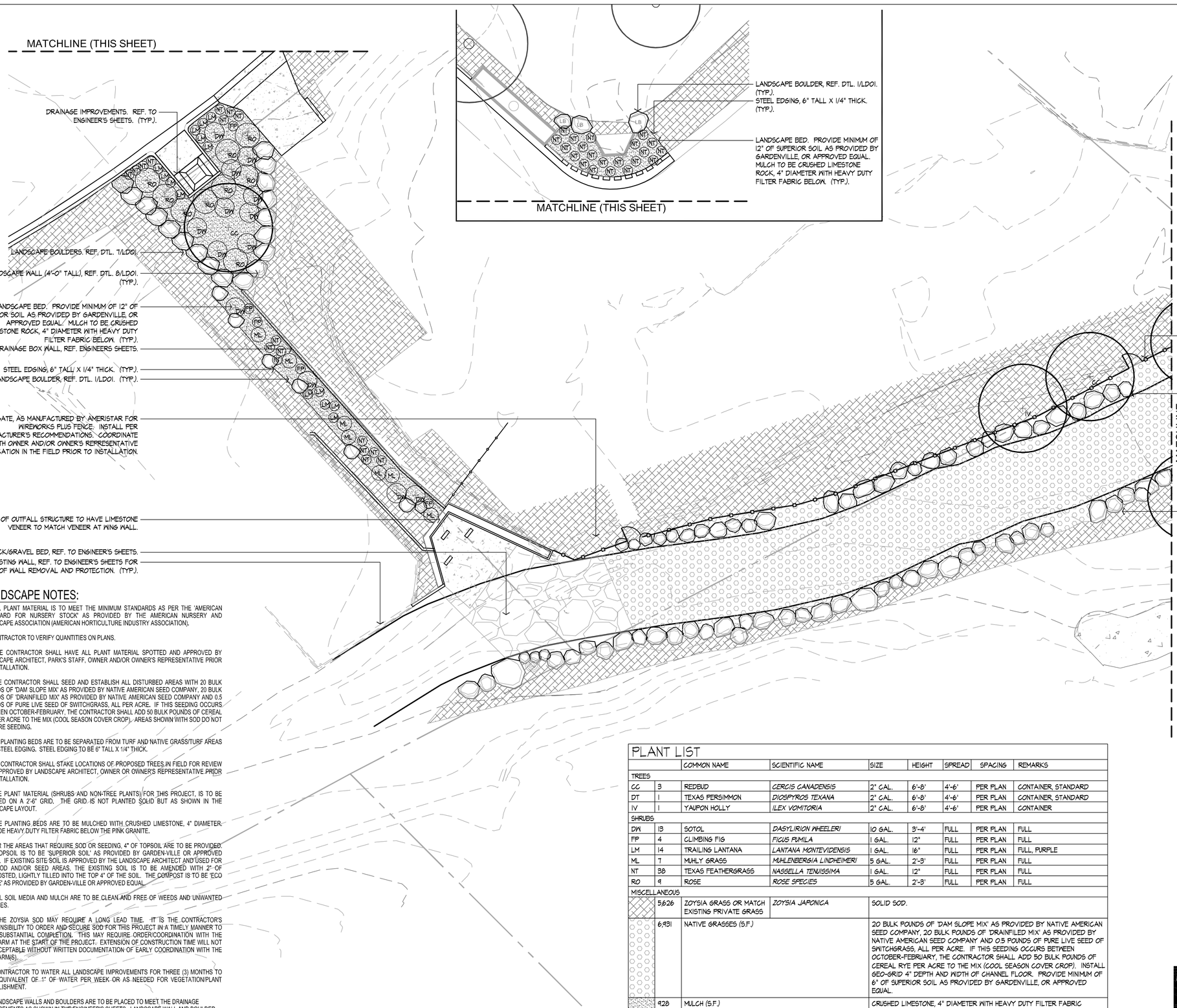
DRAWN BY		
DESIGNED BY		
CHECKED BY		
REVIEWED BY		

0' 5' 10' NORTH

TP02 | 1 OF 1

P:\K FRIESE\NIXON DRIVE AND PLEASANT DRIVE DRAINAGE IMPROVEMENTS\LSLAP\PLANS\BASE NIXON PLEASANT DRAINAGE 3.1.23.DWG, ---, TDG MONO FULL.CTB
3/17/2023 3:17 PM
LOGAN HEARD



LANDSCAPE NOTES:

1. ALL PLANT MATERIAL IS TO MEET THE MINIMUM STANDARDS AS PER THE 'AMERICAN STANDARD FOR NURSERY STOCK' AS PROVIDED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION (AMERICAN HORTICULTURE INDUSTRY ASSOCIATION).

2. CONTRACTOR TO VERIFY QUANTITIES ON PLANS.

3. THE CONTRACTOR SHALL HAVE ALL PLANT MATERIAL SPOTTED AND APPROVED BY LANDSCAPE ARCHITECT, PARK'S STAFF, OWNER AND/OR OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.

4. THE CONTRACTOR SHALL SEED AND ESTABLISH ALL DISTURBED AREAS WITH 20 BULK POUNDS OF 'DAM SLOPE MIX' AS PROVIDED BY NATIVE AMERICAN SEED COMPANY, 20 BULK POUNDS OF 'DRAINFILED MIX' AS PROVIDED BY NATIVE AMERICAN SEED COMPANY AND 0.5 POUNDS OF PURE LIVE SEED OF SWITCHGRASS, ALL PER ACRE. IF THIS SEEDING OCCURS BETWEEN OCTOBER-FEBRUARY, THE CONTRACTOR SHALL ADD 50 BULK POUNDS OF CEREAL RYE PER ACRE TO THE MIX (COOL SEASON COVER CROP). AREAS SHOWN WITH SOD DO NOT REQUIRE SEEDING.

5. ALL PLANTING BEDS ARE TO BE SEPARATED FROM TURF AND NATIVE GRASS/TURF AREAS WITH STEEL EDGING. STEEL EDGING TO BE 6" TALL X 1/4" THICK.

6. THE CONTRACTOR SHALL STAKE LOCATIONS OF PROPOSED TREES IN FIELD FOR REVIEW AND APPROVED BY LANDSCAPE ARCHITECT, OWNER OR OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.

7. THE PLANT MATERIAL (SHRUBS AND NON-TREE PLANTS) FOR THIS PROJECT, IS TO BE PLANTED ON A 2'-6" GRID. THE GRID IS NOT PLANTED SOLID BUT AS SHOWN IN THE LANDSCAPE LAYOUT.

8. THE PLANTING BEDS ARE TO BE MULCHED WITH CRUSHED LIMESTONE, 4" DIAMETER. PROVIDE HEAVY DUTY FILTER FABRIC BELOW THE PINK GRANITE.

9. FOR THE AREAS THAT REQUIRE SOD OR SEEDING, 4" OF TOPSOIL ARE TO BE PROVIDED. THE TOPSOIL IS TO BE 'SUPERIOR SOIL' AS PROVIDED BY GARDEN-VILLE OR APPROVED EQUAL. IF EXISTING SITE SOIL IS APPROVED BY THE LANDSCAPE ARCHITECT AND USED FOR THE SOD AND/OR SEED AREAS, THE EXISTING SOIL IS TO BE AMENDED WITH 2" OF COMPOSTED, LIGHTLY TILLED INTO THE TOP 4" OF THE SOIL. THE COMPOST IS TO BE 'ECO THRIVE' AS PROVIDED BY GARDEN-VILLE OR APPROVED EQUAL.

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11. THE ZOYSIA SOD MAY REQUIRE A LONG LEAD TIME. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ORDER AND SECURE SOD FOR THIS PROJECT IN A TIMELY MANNER TO MEET SUBSTANTIAL COMPLETION. THIS MAY REQUIRE ORDER/COORDINATION WITH THE SOD FARM AT THE START OF THE PROJECT. EXTENSION OF CONSTRUCTION TIME WILL NOT BE ACCEPTABLE WITHOUT WRITTEN DOCUMENTATION OF EARLY COORDINATION WITH THE SOD FARM(S).

12. CONTRACTOR TO WATER ALL LANDSCAPE IMPROVEMENTS FOR THREE (3) MONTHS TO THE EQUIVALENT OF 1" OF WATER PER WEEK OR AS NEEDED FOR VEGETATION/PLANT ESTABLISHMENT.

13. LANDSCAPE WALLS AND BOULDERS ARE TO BE PLACED TO MEET THE DRAINAGE REQUIREMENTS AS SHOWN IN THE ENGINEER'S SHEETS. LANDSCAPE WALL AND BOULDER ALIGNMENTS MAY BE MODIFIED WITH COORDINATION WITH THE OWNER'S REPRESENTATIVE AS NECESSARY TO MEET THE ENGINEER'S DRAINAGE REQUIREMENTS.

PLANT LIST

		COMMON NAME	SCIENTIFIC NAME	SIZE	HEIGHT	SPREAD	SPACING	REMARKS
TREES								
CC	3	REDBUD	*CERCIS CANADENSIS*	2" CAL.	6'-8'	4'-6'	PER PLAN	CONTAINER, STANDARD
DT	1	TEXAS PERSIMMON	*DIOSPYROS TEXANA*	2" CAL.	6'-8'	4'-6'	PER PLAN	CONTAINER, STANDARD
IV	1	YAUPON HOLLY	*ILEX VOMITORIA*	2" CAL.	6'-8'	4'-6'	PER PLAN	CONTAINER
SHRUBS								
DY	13	SOTOL	*DASYLIRION WHEELERI*	10 GAL.	3'-4'	FULL	PER PLAN	FULL
FP	4	CLIMBING FIG	*FICUS PUMILA*	1 GAL.	12"	FULL	PER PLAN	FULL
LM	14	TRAILING LANTANA	*LANTANA MONTEVIDENSIS*	1 GAL.	16"	FULL	PER PLAN	FULL, PURPLE
ML	7	MUHLY GRASS	*MUHLENBERGIA LINDHEIMERI*	5 GAL.	2'-3'	FULL	PER PLAN	FULL
NT	38	TEXAS FEATHERGRASS	*NASSELLA TENUISSIMA*	1 GAL.	12"	FULL	PER PLAN	FULL
RO	9	ROSE	*ROSE SPECIES*	5 GAL.	2'-3'	FULL	PER PLAN	FULL
MISCELLANEOUS								
	5626	ZOYSIA GRASS OR MATCH EXISTING PRIVATE GRASS	*ZOYSIA JAPONICA*	SOLID SOD.				
	6931	NATIVE GRASSES (S.F.)		20 BULK POUNDS OF 'DAM SLOPE MIX' AS PROVIDED BY NATIVE AMERICAN SEED COMPANY, 20 BULK POUNDS OF 'DRAINFILED MIX' AS PROVIDED BY NATIVE AMERICAN SEED COMPANY AND 0.5 POUNDS OF PURE LIVE SEED OF SWITCHGRASS, ALL PER ACRE. IF THIS SEEDING OCCURS BETWEEN OCTOBER-FEBRUARY, THE CONTRACTOR SHALL ADD 50 BULK POUNDS OF CEREAL RYE PER ACRE TO THE MIX (COOL SEASON COVER CROP). INSTALL GEO-GRID 4" DEPTH AND WIDTH OF CHANNEL FLOOR. PROVIDE MINIMUM OF 6" OF SUPERIOR SOIL AS PROVIDED BY GARDENVILLE, OR APPROVED EQUAL.				
	928	MULCH (S.F.)		CRUSHED LIMESTONE, 4" DIAMETER WITH HEAVY DUTY FILTER FABRIC BELOW.				

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REV NO.	BY	DATE	REVISION DESCRIPTION

100% SUBMITTAL

REGISTERED LANDSCAPE ARCHITECT
WALTER H. HEARD
629
STATE OF TEXAS
3.17.23

CITY OF ROLLINGWOOD, TEXAS
PUBLIC WORKS DEPARTMENT

PROPOSED DRAINAGE IMPROVEMENTS
NIXON/PLEASANT DRAINAGE IMPROVEMENTS

LANDSCAPE LAYOUT

ROLLINGWOOD TEXAS

K·FRIESE + ASSOCIATES
PUBLIC PROJECT ENGINEERING
1120 S. Capital of Texas Highway
CityView 2, Suite 100
Austin, Texas 78746
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TBPE Firm #6535
www.kfriese.com

NOTES	NAME	DATE
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DRAWN BY		
DESIGNED BY		
CHECKED BY		
REVIEWED BY		

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LL01 | 1 OF 1

LOGAN HEARD

P:\K FRIESE\NIXON DRIVE AND PLEASANT DRIVE DRAINAGE IMPROVEMENTS\LAPL PLANS\BASE NIXON PLEASANT DRAINAGE 3.1.23.DWG, ---, TDG MONO FULL CTB

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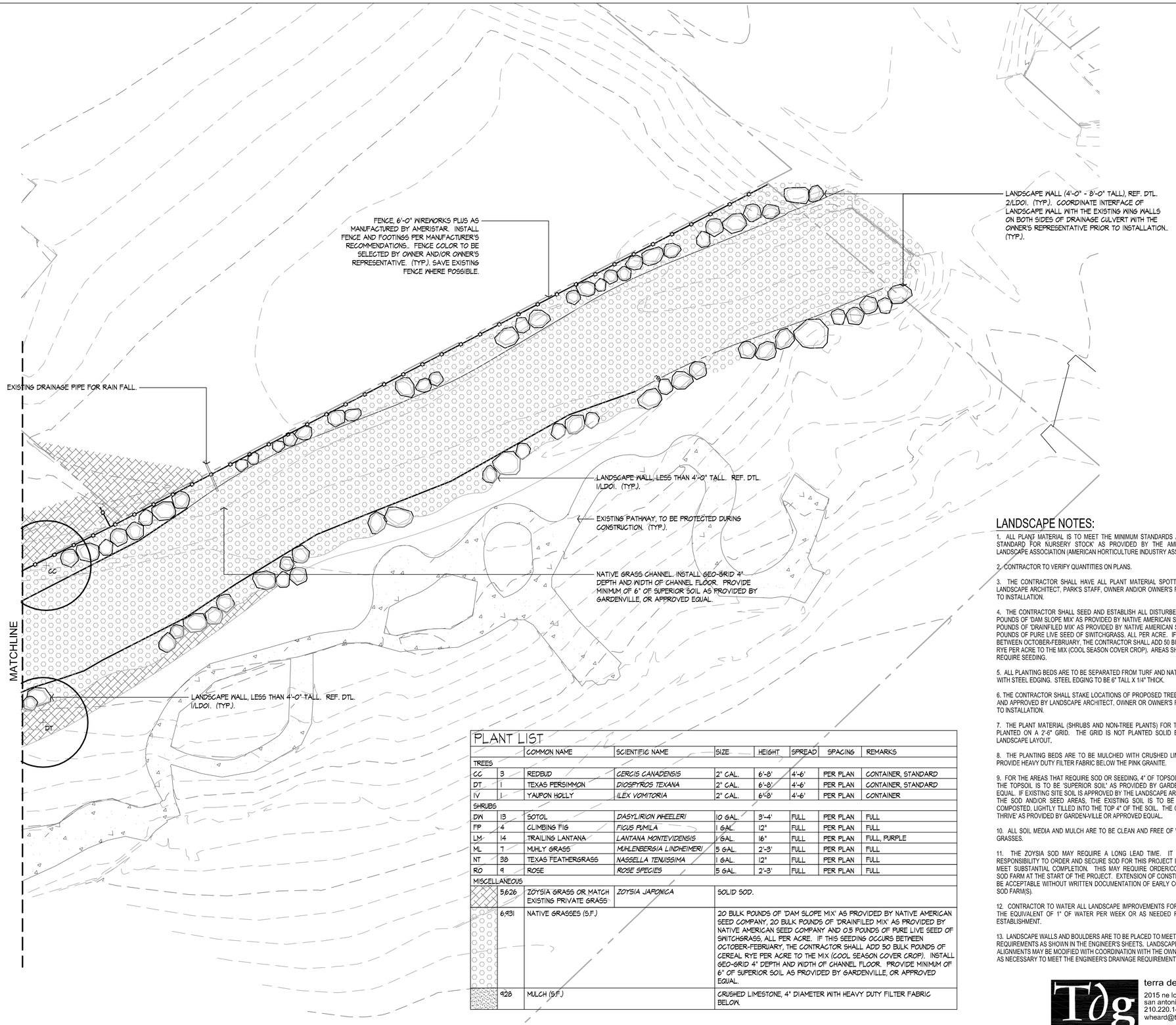

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REGISTERED LANDSCAPE ARCHITECT
WALTER H. HEARD
629
STATE OF TEXAS

3.17.23

Walter H. Heard

CITY OF ROLLINGWOOD, TEXAS
PUBLIC WORKS
DEPARTMENT

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NIXON/PLEASANT DRAINAGE IMPROVEMENTS

LANDSCAPE LAYOUT

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NOTES	NAME	DATE
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P:\K FRIESE\NIXON DRIVE AND PLEASANT DRIVE DRAINAGE IMPROVEMENTS\LAPLANS\BASE NIXON PLEASANT DRAINAGE 3.1.23.DWG, ---, TDG MONO FULL.CTB
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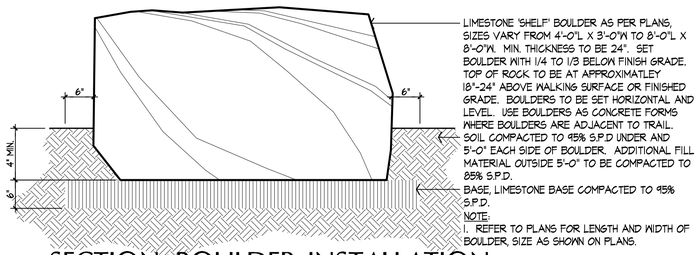
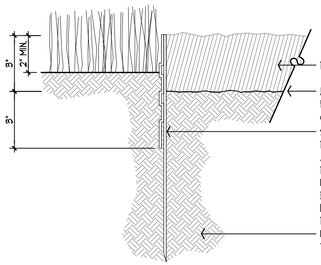
LOGAN HEARD



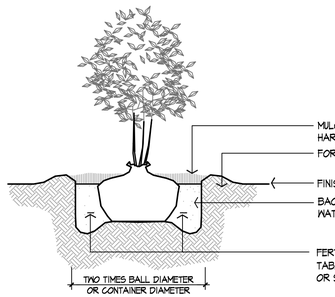
LIMESTONE 'SHELF' BOULDER AS PER PLANS, SIZES VARY FROM 4'-0"L X 3'-0"W TO 6'-0"L X 8'-0"W. MIN. THICKNESS TO BE 24". SET BOULDER WITH 1/4 TO 1/3 BELOW FINISH GRADE. TOP OF ROCK TO BE AT APPROXIMATLEY 18"-24" ABOVE WALKING SURFACE OR FINISHED GRADE. BOULDERS TO BE SET HORIZONTAL AND LEVEL. USE BOULDERS AS CONCRETE FORMS WHERE BOULDERS ARE ADJACENT TO TRAIL.
SOIL COMPACTED TO 95% S.P.D UNDER AND 5'-0" EACH SIDE OF BOULDER. ADDITIONAL FILL MATERIAL OUTSIDE 5'-0" TO BE COMPACTED TO 85% S.P.D.
BASE, LIMESTONE BASE COMPACTED TO 95% S.P.D.
NOTE:
1. REFER TO PLANS FOR LENGTH AND WIDTH OF BOULDER, SIZE AS SHOWN ON PLANS.

7 SECTION: BOULDER INSTALLATION
Scale: 3/4" = 1'- 0"



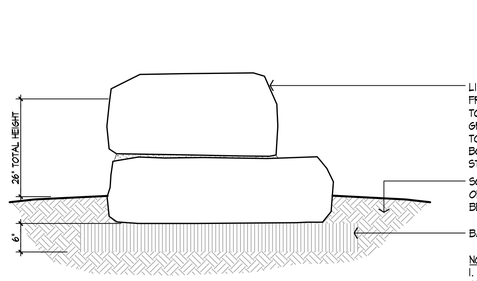
MULCH, AS PER THE PLANS.
WEED BARRIER. LANDMASTER POLYPRO 310 BY KELLER MATERIALS' OR APPROVED EQUAL.
STEEL EDGING, 6" TALL X 1/4" THICK AS MANUFACTURED BY COLMET OR APPROVED EQUAL. INSTALL PER MANUFACTURER'S RECOMMENDATIONS, UTILIZE ALL STAKE INSERTS. COR-TEN EDGING OF THE SAME SPECIFICATIONS IS AN ACCEPTABLE ALTERNATIVE MATERIAL.
UNDISTURBED SOIL OR FILL COMPACTED TO 95% S.P.D.

4 SECTION: STEEL EDGING
Scale: 3"=1'-0"



MULCH, 3" THICK, SHREDDED NATIVE HARDWOOD.
FORM SAUCER WITH 3" CONTINUOUS RIM
FINISH GRADE
BACKFILL WITH SPECIFIED PLANTING MIX WATER AND TAMP TO REMOVE AIR POCKETS
FERTILIZER TABLETS 21 GRAM AGRIFORM TABLETS 20-10-5. (1) TABLET PER 5 GAL. OR SMALLER CONT.

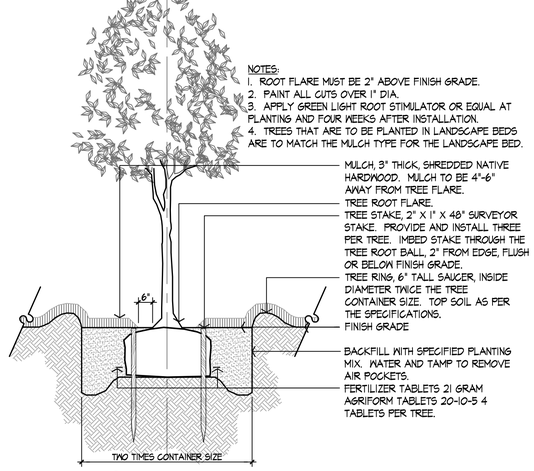
5 SECTION: SHRUB PLANTING
Scale: Not To Scale



LIMESTONE BOULDER WALL AS PER PLANS, SIZES VARY FROM 4'-0"L X 3'-0"W TO 6'-0"L X 6'-0"W. MIN. THICKNESS TO BE 24". SET BOULDER WITH 1/4 TO 1/3 BELOW FINISH GRADE. TOP OF ROCK TO BE AT APPROXIMATELY 26" TOTAL HEIGHT ABOVE SURFACE OR FINISHED GRADE. BOULDERS TO BE SET HORIZONTAL AND LEVEL. USE HIGH STRENGTH GROUT TO JOIN BOULDERS.
SOIL COMPACTED TO 95% S.P.D UNDER AND 5'-0" EACH SIDE OF BOULDER. ADDITIONAL FILL MATERIAL OUTSIDE 5'-0" TO BE COMPACTED TO 85% S.P.D.
BASE, LIMESTONE BASE COMPACTED TO 95% S.P.D.

NOTE:
1. REFER TO PLANS FOR LENGTH AND WIDTH OF BOULDER, SIZE AS SHOWN ON PLANS.
2. BOULDER WALL TO BE MAXIMUM TWO COURSES.
3. TOP OF BOULDER WALL TO BE LEVEL AND STAIR STEP AS NECESSARY TO KEEP BOULDER WALL AT +/- 6" OF FINISH TRAIL ELEVATION.
4. FILL ALL VOIDS BETWEEN BOULDERS WITH HIGH STRENGTH GROUT.

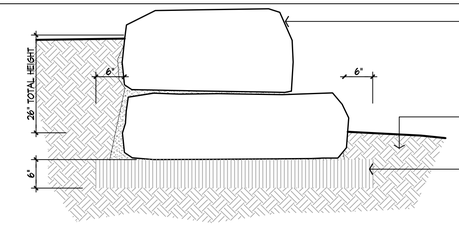
8 SECTION: LANDSCAPE BOULDER
Scale: 3/4" = 1'- 0"



NOTES:
1. ROOT FLARE MUST BE 2" ABOVE FINISH GRADE.
2. PAINT ALL CUTS OVER 1" DIA.
3. APPLY GREEN LIGHT ROOT STIMULATOR OR EQUAL AT PLANTING AND FOUR WEEKS AFTER INSTALLATION.
4. TREES THAT ARE TO BE PLANTED IN LANDSCAPE BEDS ARE TO MATCH THE MULCH TYPE FOR THE LANDSCAPE BED.

MULCH, 3" THICK, SHREDDED NATIVE HARDWOOD. MULCH TO BE 4"-6" AWAY FROM TREE FLARE.
TREE ROOT FLARE.
TREE STAKE, 2" X 1" X 48" SURVEYOR STAKE. PROVIDE AND INSTALL THREE PER TREE. IMBED STAKE THROUGH THE TREE ROOT BALL, 2" FROM EDGE, FLUSH OR BELOW FINISH GRADE.
TREE RING, 6" TALL SAUCER, INSIDE DIAMETER TWICE THE TREE CONTAINER SIZE. TOP SOIL AS PER THE SPECIFICATIONS.
FINISH GRADE
BACKFILL WITH SPECIFIED PLANTING MIX WATER AND TAMP TO REMOVE AIR POCKETS.
FERTILIZER TABLETS 21 GRAM AGRIFORM TABLETS 20-10-5 4 TABLETS PER TREE.

6 SECTION: TREE PLANTING
Scale: N.T.S.



LIMESTONE 'SHELF' BOULDER AS PER PLANS, SIZES VARY FROM 4'-0"L X 3'-0"W TO 6'-0"L X 6'-0"W. MIN. THICKNESS TO BE 24". SET BOULDER WITH 1/4 TO 1/3 BELOW FINISH GRADE. TOP OF ROCK TO BE AT APPROXIMATELY 26" TOTAL HEIGHT ABOVE SURFACE OR FINISHED GRADE. BOULDERS TO BE SET HORIZONTAL AND LEVEL.
SOIL COMPACTED TO 95% S.P.D UNDER AND 5'-0" EACH SIDE OF BOULDER. ADDITIONAL FILL MATERIAL OUTSIDE 5'-0" TO BE COMPACTED TO 85% S.P.D.
BASE, LIMESTONE BASE COMPACTED TO 95% S.P.D.

NOTE:
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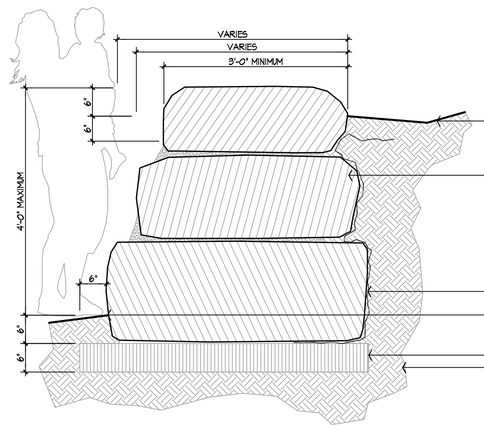
3. TOP OF BOULDER WALL TO BE LEVEL AND STAIR STEP AS NECESSARY TO KEEP BOULDER WALL AT +/- 6" OF FINISH TRAIL ELEVATION.
4. FILL ALL VOIDS BETWEEN BOULDERS WITH HIGH STRENGTH GROUT TO PREVENT SOIL FROM PASSING THROUGH.

1 SECTION: LANDSCAPE BOULDER
Scale: 3/4" = 1'- 0"



NOTES:
1. MULTIPLE COURSES OF BOULDERS MAY BE REQUIRED. REF. TO GRADING PLANS FOR REQUIRED WALL HEIGHTS.
2. BOULDERS TO BE SET LEVEL AND HORIZONTAL.

FINISH GRADE. SLOPE AWAY FROM WALL FOR POSITIVE DRAINAGE AWAY FROM AND AROUND WALL. COORDINATE GRADING WITH OWNER'S REPRESENTATIVE IN FIELD. ESTABLISH VEGETATION.
LIMESTONE BOULDERS. BOULDERS TO BE LUEDERS LIMESTONE SHELF BOULDER, SIZED APPROXIMATELY 24" TALL X 3'-0" WIDE X 6'-0" LONG. MINIMUM SIZE TO BE 18" TALL X 3'-0" WIDE X 4'-6" LONG. CAREFULLY STACK AND PLACE BOULDERS IN A TIGHT STAGGERED BOND. BANTER BOULDER COURSES BACK 3"-6" EACH COURSE. MAXIMUM NUMBER OF COURSES TO BE THREE (3), INCREASE BOULDER THICKNESS AS REQUIRED. CHINK BETWEEN BOULDERS AS NECESSARY AND GROUT ALL VOID SPACES.
FILTER FABRIC, HEAVY DUTY.
FINISH GRADE, REF. TO GRADING PLANS. BOTTOM BOULDER COURSE TO BE MINIMUM 6" BELOW FINISH GRADE.
BASE, LIMESTONE BASE COMPACTED TO 95% S.P.D.
UNDISTURBED SOIL OR FILL COMPACTED TO 95% S.P.D.

NOTES:
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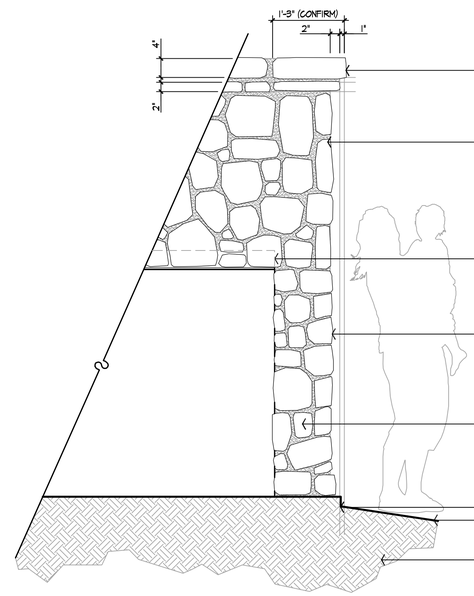
2 SECTION: LANDSCAPE WALL (LESS THAN 4'-0")
Scale: 3/4" = 1'- 0"



NOTES:
1. COORDINATE, IN THE FIELD, WITH OWNER'S REPRESENTATIVE IF WEEP/DRAINAGE HOLES ARE NECESSARY FOR DRAINAGE.
2. REF. TO ENGINEER'S SHEETS FOR WALL HEIGHT.
3. REF. TO ENGINEER'S SHEETS FOR DRAINAGE BOX TYPE AND SIZE.

CAP, 4" AND 2" THICK LIMESTONE CAPS WITH OVERHANGS AS SHOWN.
BOX CULVERT WALL (BEHIND), REF. TO ENGINEER'S SHEETS.
LUG, STEEL ANGLE, 4" X 4" X 3/8" STEEL ATTACHED TO FACE OF CONCRETE DRAIN BOX WITH 1/2" X 4" ANCHOR BOLTS AND HIGH STRENGTH EPOXY. STONE TO CONCEAL LUG.
VENEER, RANDOM PATTERN LIMESTONE, 3" THICK, STONE VENEER TO BE 12"-24" IN SIZE. SET IN 3/4" THICK MORTAR BED. PROVIDE MOCK UP FOR APPROVAL PRIOR TO INSTALLATION. SET STONE WITH HIGH STRENGTH MORTAR. LIMESTONE AND GROUT COLORS TO BE SELECTED BY OWNER'S REPRESENTATIVE. TIE STONE TO CONCRETE WALLS WITH GALVANIZED MASONRY ANCHORS AT 12" O.C.E.W..
DRAINAGE BOX (BEHIND), REF. TO ENGINEER'S SHEETS.
LUG, REF. TO ENGINEER'S SHEETS.
FINISH GRADE. REF. TO PLANS FOR SITE GRADING. PROVIDE POSITIVE DRAINAGE, BOTH SIDES.
UNDISTURBED SOIL OR FILL COMPACTED TO 95% S.P.D.

3 ELEVATION: DRAINGE BOX WALL
Scale: 3/4" = 1'-0"

REV NO.	BY	DATE	REVISION DESCRIPTION

100% SUBMITTAL

REGISTERED LANDSCAPE ARCHITECT
WALTER H. HEARD
629
STATE OF TEXAS
3.17.23

CITY OF ROLLINGWOOD, TEXAS
PUBLIC WORKS DEPARTMENT

PROPOSED DRAINAGE IMPROVEMENTS
NIXON/PLEASANT DRAINAGE IMPROVEMENTS

LANDSCAPE DETAILS

ROLLINGWOOD TEXAS

K·FRIESE + ASSOCIATES
PLANNING • ARCHITECTURE • LANDSCAPE ARCHITECTURE
1120 S. Capital of Texas Highway
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Austin, Texas 78746
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DRAWN BY		
DESIGNED BY		
CHECKED BY		
REVIEWED BY		

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san antonio, texas 78217
210.220.1400
wheard@terradesignsa.com

LD01 | 1 OF 1

P:\K FRIESE\NIXON DRIVE AND PLEASANT DRIVE DRAINAGE IMPROVEMENTS\LAPL\PLANS\BASE NIXON PLEASANT DRAINAGE 3.1.23.DWG, ---, TDG MONO FULL.CTB
3/17/2023 1:44 PM
LOGAN HEARD

STRUCTURAL NOTES:

GENERAL NOTES:

1. DESIGN CODES/STANDARDS

   CONSTRUCTION SHALL CONFORM TO ALL APPLICABLE CODES, REGULATIONS AND GENERAL CONDITIONS OF THE CONTRACT DOCUMENTS. THE PROJECT HAS BEEN DESIGNED AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING:

   A. INTERNATIONAL BUILDING CODE (IBC), 2018 EDITION AS ADOPTED BY THE CITY.

   B. BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318-14) AND COMMENTARY (ACI 318R-14)

2. DESIGN LOADS
   THE STRUCTURAL DESIGN WAS PREPARED USING THE FOLLOWING DESIGN CRITERIA:

   LOAD COMBINATION
   REINF. CONCRETE — LOAD AND RESISTANT FACTOR DESIGN

   WIND LOADS:

RISK CATEGORY	II
BASIC WIND SPEED	115 MPH ULTIMATE
EXPOSURE CATEGORY	C
ENCLOSURE CLASSIFICATION	OPEN
MEAN ROOF HEIGHT	VARIES
GROUND SNOW LOAD	5 PSF

   SEISMIC LOAD:

IMPORTANCE FACTOR	1.0
SITE CLASS	C
Ss, S1	0.107g, 0.03g
SDS, SD1	0.086 sec, 0.034 sec
SEISMIC DESIGN CATEGORY	A

3. METHODS, PROCEDURES AND SEQUENCES OF CONSTRUCTION ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO MAINTAIN AND INSURE THE INTEGRITY OF THE STRUCTURE AT ALL STAGES OF CONSTRUCTION.

4. STRUCTURAL MEMBERS HAVE BEEN LOCATED AND DESIGNED TO ACCOMMODATE THE MECHANICAL EQUIPMENT AND OPENINGS SPECIFIED BY THE MECHANICAL CONSULTANT. ANY SUBSTITUTION RESULTING IN REVISIONS TO THE STRUCTURE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH UNINTECH CONSULTING ENGINEERS, INC.

5. THE GENERAL CONTRACTOR AND SUB-CONTRACTORS SHALL DETERMINE THE SCOPE OF THE STRUCTURAL WORK FROM THE CONTRACT DOCUMENTS TAKEN AS A WHOLE. THE STRUCTURAL DRAWINGS SHALL NOT BE CONSIDERED SEPARATELY FOR PURPOSES OF BIDDING THE STRUCTURAL WORK. DUE CONSIDERATION SHALL BE GIVEN TO OTHER STRUCTURAL WORK OR WORK RELATED TO THE STRUCTURE, INCLUDING NECESSARY COORDINATION DESCRIBED OR IMPLIED BY THE ARCHITECTURAL AND MECHANICAL DRAWINGS.

6. THE REPRODUCTIVE USE OF THE STRUCTURAL CONTRACT DOCUMENTS OR ELECTRONIC FILES AS STRUCTURAL SHOP DRAWING DOCUMENTS BY THE CONTRACTOR OR SUB-CONTRACTOR IS AT THEIR OWN RISK. UNINTECH CONSULTING ENGINEERS, INC. ASSUMES NO LIABILITY AS THE RESULT OF THE REPRODUCTIVE USE OF THE STRUCTURAL CONTRACT DOCUMENTS FOR SHOP DRAWINGS.

7. SCALES NOTED ON THE DRAWINGS ARE FOR GENERAL REFERENCE ONLY. NO DIMENSIONAL INFORMATION SHALL BE OBTAINED BY DIRECT SCALING OF THE DRAWINGS.

8. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF ALL RESULTING REVISIONS TO THE STRUCTURAL SYSTEM OR OTHER TRADES AS A RESULT OF ACCEPTANCE OF CONTRACTOR PROPOSED ALTERNATIVE OR SUBSTITUTIONS.

9. PRINCIPAL OPENINGS IN THE STRUCTURE ARE INDICATED ON THE CONTRACT DOCUMENTS. REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS FOR SLEEVES, CURBS, INSERTS, ETC. NOT HEREIN INDICATED. OPENINGS IN SLAB WITH A MAXIMUM SIDE DIMENSION OR DIAMETER OF 12 INCH OR LESS SHALL NOT REQUIRE ADDITIONAL FRAMING OR REINFORCEMENT, UNLESS NOTED OTHERWISE. THE LOCATION OF SLEEVES OR OPENINGS IN STRUCTURAL MEMBERS SHALL BE SUBMITTED TO UNINTECH CONSULTING ENGINEERS, INC. FOR REVIEW.

10. CONTRACTOR SHALL VERIFY ALL FIELD CONDITIONS WHICH WILL AFFECT THE FABRICATION OF COMPONENTS FOR NEW CONSTRUCTION PRIOR TO THE START OF CONSTRUCTION. THESE DOCUMENTS DO NOT INDICATE THE METHOD OF CONSTRUCTION. ANY DISCREPANCIES NOTED SHALL BE CONVEYED TO ARCHITECT AND ENGINEER PRIOR TO STARTING WORK. IGNORANCE OF CONDITIONS IS NOT A BASIS FOR A CLAIM OF ADDITIONAL COMPENSATION.

11. CONTRACTOR IS REQUIRED TO CORRECT AT HIS OWN EXPENSE ANY CONSTRUCTION DAMAGE, STRUCTURE DAMAGE OR OTHER OBJECTIONABLE CONDITIONS CAUSED BY HIS OPERATIONS.

12. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS (FABRICATION, MANUFACTURING, ERECTION AND SETTING DRAWINGS), SAMPLES, TEST REPORTS AND PRODUCT DATA RELATED TO STRUCTURAL DOCUMENTS FOR ENGINEERS REVIEW. NO WORK SHALL START UNTIL APPROVAL FROM ENGINEER.

13. A QUALIFIED INDEPENDENT TESTING LABORATORY SHALL PERFORM RETESTING WHEN WORK DOES NOT COMPLY WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

14. STRUCTURAL NOTES APPLY UNLESS OTHERWISE NOTED ON STRUCTURAL DRAWINGS. IN CASE OF CONFLICT, GREATER REQUIREMENTS GOVERN.

15. ALL UTILITIES CONNECTED TO BUILDING SHALL ALLOW FOR MOVEMENT DUE TO EXPANSIVE SUBGRADE. MOVEMENT CAN BE ACHIEVED BY USING SLEEVE JOINTS, BENDS, LOOPS AND OTHER SIMILAR DEVICES.

16. USE THE MANUFACTURER'S CERTIFIED DRAWINGS AND SPECIFICATIONS FOR THE EQUIPMENT ANCHORAGE AND DETAILS.

SUBGRADE AND BACKFILL:

1. THE SUBSURFACE INFORMATION AND THE FOUNDATION DESIGN AND CONSTRUCTION GUIDELINES ARE BASED ON A REPORT PREPARED BY RABA KISTNER, DATED SEPTEMBER 26, 2021 (REPORT NO. AAA20-086-00). THE CONTRACTOR SHALL PERFORM EXCAVATIONS AND PREPARATION OF THE SUBGRADE UNDER THE FOUNDATION IN ACCORDANCE WITH THE RECOMMENDATIONS CONTAINED IN THIS SECTION. CONTRACTOR SHALL BECOME FAMILIAR WITH THE GEOTECHNICAL REPORT.

   THE AREA OF PROPOSED CONSTRUCTION MAY CONTAIN VARIOUS BURIED UTILITIES OR OLD FOUNDATIONS. AS SUCH, ALL UTILITIES AND FOUNDATIONS SHOULD BE LOCATED PRIOR TO THE COMMENCEMENT OF ANY EARTHWORK. ALL FOUNDATIONS SHOULD BE REMOVED AS PART OF THE DEMOLITION ACTIVITIES ASSOCIATED WITH THE PROJECT. ANY UTILITIES NOT PLANNED TO REMAIN IN-PLACE SHOULD BE REMOVED AND BACKFILLED DURING THE EARTHWORK OPERATIONS.

2. BEFORE CONSTRUCTION STARTS, PERFORM ROUGH GRADING AND CUT SWALES SO THAT GROUNDS WILL DRAIN AWAY FROM THE STRUCTURE SITE. MAINTAIN DRAINAGE DURING ALL PHASES OF CONSTRUCTION SO THAT STORM WATER WILL DRAIN AWAY FROM THE SITE. KEEP EXCAVATIONS PUMPED FREE OF STORM WATER AT ALL TIMES.

CONCRETE:

1. CONCRETE IN THE FOLLOWING AREAS SHALL HAVE NATURAL SAND FINE AGGREGATE AND NORMAL WEIGHT COARSE AGGREGATE CONFORMING TO ASTM 33, TYPE I PORTLAND CEMENT CONFORMING TO ASTM C150, AND SHALL HAVE THE FOLLOWING CYLINDER COMPRESSIVE STRENGTH (fc') AT 28 DAYS:

   CONT. FOOTING.....4,000 PSI
   WALLS .....4,000 PSI

2. FLY ASH MAY BE USED AS A POZZ0LAN TO REPLACE A PORTION OF THE PORTLAND CEMENT IN A CONCRETE MIX SUBJECT TO THE APPROVAL OF THE GENERAL CONTRACTOR AND THE STRUCTURAL ENGINEER. FLY ASH, WHEN USED SHALL CONFORM TO ASTM C618, TYPE C OR F. CONCRETE MIXES USING FLY ASH SHALL BE PROPORTIONED TO ACCOUNT FOR THE PROPERTIES OF THE SPECIFIC FLY ASH USED AND TO ACCOUNT FOR THE SPECIFIC PROPERTIES OF THE FLY ASH CONCRETE THUS RESULTING. THE RATIO OF THE AMOUNT OF FLY ASH TO THE TOTAL AMOUNT OF FLY ASH AND CONCRETE IN THE MIX SHALL NOT EXCEED 25 PERCENT.

3. GROUT FOR BASE PLATES SHALL BE NON-SHRINKABLE, NON-METALLIC CONFORMING TO ASTM C827, AND SHALL HAVE A SPECIFIED COMPRESSIVE STRENGTH AT 28 DAYS OF 5,000 PSI. PREGROUTING OF BASE PLATES WILL NOT BE PERMITTED.

4. DETAILING OF CONCRETE REINFORCEMENT BARS AND ACCESSORIES SHALL CONFORM TO THE RECOMMENDATIONS OF ACI 315 "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT; AND ACI SP-66 " DETAILING MANUAL". PLACING OF REINFORCING BARS SHALL CONFORM TO THE RECOMMENDATIONS OF ACI315R "MANUAL OF ENGINEERING AND PLACING DRAWINGS FOR REINFORCED CONCRETE STRUCTURES: AND CRSI "MANUAL OF STANDARD PRACTICE".

5. MIXING, TRANSPORTING AND PLACING OF CONCRETE SHALL CONFORM TO ACI 301.

6. MINIMUM CONCRETE COVER PROTECTION FOR REINFORCEMENT BARS SHALL BE AS FOLLOWS: (SEE ACI 318, SECTION 20.6 FOR CONDITIONS NOT NOTED).

   CONCRETE EXPOSED TO WEATHER OR IN CONTACT WITH GROUND
   #5 BARS AND SMALLER.....1 1/2 INCHES
   #6 BARS AND LARGER.....2 INCHES
   CONCRETE CAST AGAINST EARTH &
   PERMANENTLY IN CONTACT WITH GROUND.....3 INCHES

   CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND
   SLAB & WALLS.....3/4 INCHES
   BEAMS.....1 1/2 INCHES

   PROVIDE STANDARD BAR CHAIRS AND SPACERS AS REQUIRED TO MAINTAIN CONCRETE PROTECTION SPECIFIED.

7. CONCRETE REINFORCEMENT BARS SHALL CONFORM TO ASTM A615, GRADE 60.

8. REINFORCEMENT BARS SHALL NOT BE TACK WELDED, HEATED OR CUT UNLESS INDICATED ON THE CONTRACT DOCUMENTS OR REVIEWED BY THE STRUCTURAL ENGINEER.

9. REINFORCEMENT DESIGNATED AS "CONTINUOUS" MAY BE SPLICED USING TYPE "B" SPLICES. REINFORCEMENT BAR SPLICE LENGTHS IN BEAMS WHICH ARE LOCATED AT THE CENTERLINE OF SUPPORT FOR BOTTOM BARS AND AT MIDSPAN FOR TOP BARS MAY BE 36 BAR DIAMETERS, UNLESS NOTED OTHERWISE. PROVIDE STANDARD ACI HOOKS FOR TOP AND BOTTOM BARS AT DISCONTINUOUS ENDS OF ALL GRADE BEAMS.

10. REINFORCEMENT BARS INDICATED ON THE CONTRACT DOCUMENTS AS MECHANICAL SPLICES SHALL BE MADE USING A MECHANICAL CONNECTION CAPABLE OF TRANSFERRING IN TENSION OR COMPRESSION, AS REQUIRED, A MINIMUM OF 125 PERCENT OF THE SPECIFIED YIELD STRENGTH OF THE REINFORCEMENT BARS SPLICED. THE MECHANICAL CONNECTOR TO BE USED SHALL BE SUBMITTED TO UNINTECH CONSULTING ENGINEERS, INC FOR APPROVAL.

11. HORIZONTAL FOOTING AND HORIZONTAL WALL REINFORCEMENT SHALL BE CONTINUOUS AND SHALL HAVE 90-DEGREE BENDS AND EXTENSIONS, OR CORNER BARS OF EQUIVALENT SIZE LAPPED 36 BAR DIAMETERS, AT CORNERS AND INTERSECTIONS.

CONCRETE MASONRY NOTES:

1. MASONRY CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH ACI 530 "BUILDING CODE REQUIREMENTS FOR CONCRETE MASONRY CONSTRUCTION" AND ACI 530.1 "SPECIFICATIONS FOR MASONRY STRUCTURES". REFER TO SHEET S-5.2 FOR TYPICAL DETAIL.

2. CONCRETE MASONRY CONSTRUCTION SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (F'm) OF 1,500 PSI ON THE NET CROSS SECTIONAL AREA AT 28 DAYS.

3. MASONRY UNITS SHALL BE GRADE N, TYPE 1, MEDIUM WEIGHT OR NORMAL WEIGHT HOLLOW CONCRETE UNITS MEETING FIRE RATING REQUIREMENTS AND CONFORMING TO THE REQUIREMENTS OF ASTM C90. MASONRY UNITS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 1,900 PSI ON THE NET AREA AT 28 DAYS, BUT NOT LESS THAT THE REQUIRED STRENGTH TO PRODUCE THE MINIMUM MASONRY STRENGTH (F'm). MASONRY UNITS SHALL NOT BE INSTALLED PRIOR TO ATTAINING THE REQUIRED 28 DAY STRENGTH.

4. MORTAR SHALL CONFORM TO THE REQUIREMENTS OF ASTM C270, TYPE M OR S. TYPE M MORTAR SHALL BE USED IN BELOW GRADE APPLICATIONS AND SHALL OBTAIN AN AVERAGE COMPRESSIVE STRENGTH OF 2,500 PSI AT 28 DAYS. TYPE S MORTAR MAY BE USED IN ABOVE GRADE APPLICATIONS AND SHALL OBTAIN AN AVERAGE COMPRESSIVE STRENGTH OF 1,800 PSI AT 28 DAYS. THE SAME MORTAR SHALL BE USED FOR WITHES OF CAVITY WALL CONSTRUCTIONS.

5. GROUT SHALL CONFORM TO ASTM C476 AND SHALL HAVE A COMPRESSIVE STRENGTH OF 2,000 PSI AT 28 DAYS.

6. REINFORCEMENT SHALL CONFORM TO THE STANDARDS SPECIFIED IN THE CONCRETE STRUCTURAL NOTES. REINFORCEMENT SHALL BE LAP SPLICED A MINIMUM OF 36 BAR DIAMETERS, UNLESS NOTED OTHERWISE.

7. PROVIDE 2-#5 CONTINUOUS IN BOND BEAMS UNLESS INDICATED OTHERWISE. PROVIDE CORNER BARS OF EQUIVALENT SIZE LAPPED AT CORNERS AND INTERSECTION OF WALLS. BOND BEAM REINFORCEMENT SHALL BE CONTINUOUS THROUGH CONTROL JOINT.

8. MASONRY CORES CONTAINING VERTICAL REINFORCEMENT SHALL BE GROUTED SOLID.

9. FOR LIFTS GREATER THAT 4 FEET, HIGH LIFT GROUTING TECHNIQUES SHALL BE UTILIZED.

10. PROVIDE 1-#5 VERTICAL AT ENDS, CORNERS AND INTERSECTIONS OF WALLS.

11. CELLS TO BE GROUTED SHALL BE CLEANED AND FREE OF EXCESS MORTAR AND FOREIGN MATERIALS.

12. IN CONCRETE SUPPORTING MASONRY WALLS, EMBED DOWELS TO MATCH SIZE AND LOCATION OF VERTICAL MASONRY REINFORCEMENT. EMBEDMENT DEPTH SHALL BE TO BOTTOM REINFORCEMENT OF CONCRETE. WHEN A FOUNDATION DOWEL DOES NOT LINE UP WITH A VERTICAL CELL TO BE REINFORCED, IT SHALL NOT BE BENT OVER, BUT SHALL BE GROUTED INTO THE CELL IN DIRECT VERTICAL ALIGNMENT, EVEN THOUGH IT IS ADJACENT TO VERTICAL WALL REINFORCING.

13. LINTELS SHALL BEAR ON MASONRY WALLS A MINIMUM OF 8" AT EACH END. FOR CMU WALLS, PROVIDE TWO GROUTED CORES EACH SIDE OF OPENING FULL HEIGHT OF WALL AND REINFORCE EACH OF THE TWO GROUTED CORES WITH 1-#5 VERTICAL EXTENDING FROM THE FOUNDATION TO THE POINT OF LATERAL SUPPORT FOR THE WALL ABOVE THE LINTEL LOCATION.

14. TEMPORARY SHORING OF LINTELS MUST BE PROVIDED UNTIL MASONRY HAS CURED. EDGES OF MASONRY OPENINGS SHALL NOT BE LOCATED CLOSER THAT 50% OF THE LINTEL SPAN FROM ENDS OR CORNERS OF WALLS OR MASONRY CONTROL JOINTS.

15. PROVIDE HORIZONTAL BOND BEAMS AT 4'-0" O.C., REINFORCE AS NOTED ABOVE, IN ALL MASONRY WALLS.

16. HORIZONTAL JOINT REINFORCEMENT SHALL BE USED IN THE MASONRY CONSTRUCTION. SUCH JOINT REINFORCEMENT SHALL BE PLACED AT 8" O.C. VERTICALLY IN WALLS BELOW GRADE AND AT 16 INCHES O.C. VERTICALLY IN WALLS THAT ARE ABOVE GRADE. HORIZONTAL JOINT REINFORCEMENT SHALL BE FABRICATED FROM GALVANIZED COLD-DRAWN STEEL WIRE CONFORMING TO ASTM A82. REINFORCEMENT SHALL CONSIST OF TWO OR MORE SMOOTH OR DEFORMED LONGITUDINAL WIRES NO. 9 GAGE OR LARGER, WELD CONNECTED WITH NO.12 GAGE OR LARGER CROSS WIRES. GALVANIZE COATING SHALL CONFORM TO ASTM A116 AND SHALL BE APPLIED AT A WEIGHT OF NOT LESS THAT 1.5 OUNCES PER SQUARE FOOT OF UNCOATED WIRE SURFACE. THE OUT TO OUT SPACING OF THE LONGITUDINAL WIRES SHOULD BE 1-5/8 INCHES LESS THAN THE WIDTH OF THE MASONRY UNIT. THE DISTANCE BETWEEN THE WELDED CONTACTS OF THE CROSS WIRES WITH EACH LONGITUDINAL WIRE SHOULD NOT EXCEED 6 INCHES AND 16 INCHES FOR SMOOTH AND DEFORMED LONGITUDINAL WIRES RESPECTIVELY. HORIZONTAL JOINT REINFORCEMENT SHALL BE DISCONTINUOUS THROUGH CONTROL JOINTS.

17. CONTROL JOINTS SHALL BE PLACED IN THE MASONRY CONSTRUCTION SUCH THAT THE PANEL LENGTH TO HEIGHT RATIO OF THE WALL DOES NOT EXCEED 1.5, AND THAT THE MAXIMUM PANEL LENGTH DOES NOT EXCEED 25 FEET. ADDITIONAL JOINTS SHALL BE PLACED WHERE ABRUPT CHANGES IN WALL SECTION OCCURS.

18. MASONRY CONSTRUCTION SHALL BE INSPECTED DURING VARIOUS WORK STAGES BY A QUALIFIED SPECIAL INSPECTOR. INSPECTION SHALL INCLUDE CHECKING FOR COMPLIANCE WITH CONTRACT DRAWINGS AND SPECIFICATIONS, INCLUDE, BUT NOT LIMITED TO RECORDING OF THE FOLLOWING:

   A. QUALITY AND TESTING OF MASONRY UNITS AND MATERIALS FOR
   B. PROPORTIONING, MIXING AND CONSISTENCY OF MORTAR AND GROUT.
   C. PROPORTIONING, MIXING AND CONSISTENCY OF MORTAR AND GROUT.
   D. CONDITION, GRADE, SIZE, SPACING AND PLACEMENT OF REINFORCING STEEL.
   E. INSPECTION OF GROUT SPACING IMMEDIATELY PRIOR TO CLOSING OF CLEANOUT.
   F. SIGNIFICANT OR UNUSUAL CONSTRUCTION LOADS ON MASONRY ELEMENTS.
   G. WHEN AMBIENT TEMPERATURE FALLS BELOW 40 DEGREES F OR RISES ABOVE 100 DEGREES F, A COMPLETE RECORD OF WEATHER CONDITIONS AND OF RECONDITIONING AND PROTECTION GIVEN TO MASONRY MATERIALS, AND PROTECTION AND CURING OF COMPLETE WORK, SHALL BE MAINTAINED.
   H. GENERAL PROGRESS OF WORK.

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CITY OF ROLLINGWOOD, TEXAS
PUBLIC WORKS
DEPARTMENT

PROPOSED DRAINAGE IMPROVEMENTS
NIXON/PLEASANT DRAINAGE IMPROVEMENTS

GENERAL NOTES

ROLLINGWOOD TEXAS

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NOTES	NAME	DATE
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\\SERVER90\JOBS - STRUCTURAL\VERTICAL-JOBS\22-2026 - ROLLINGWOOD-TERRADESIGN\DWGS\S1.00.DWG, ---, UCE-STRUCT STANDARD-FULL.CTB
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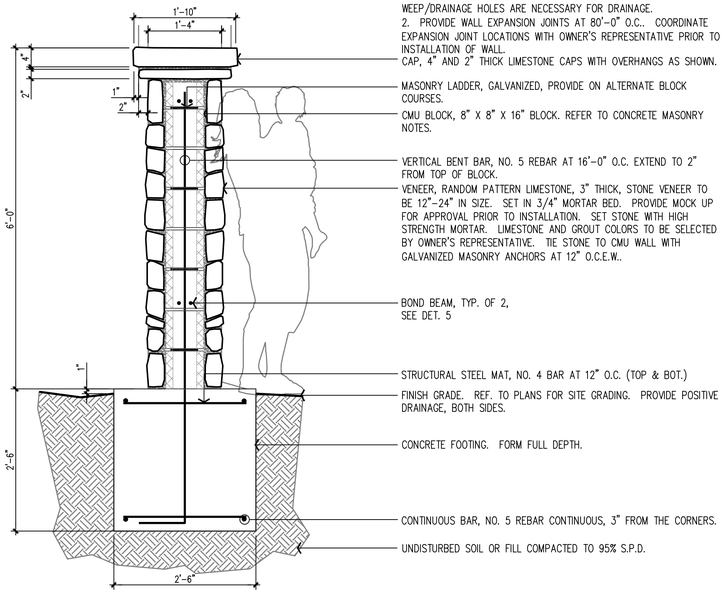
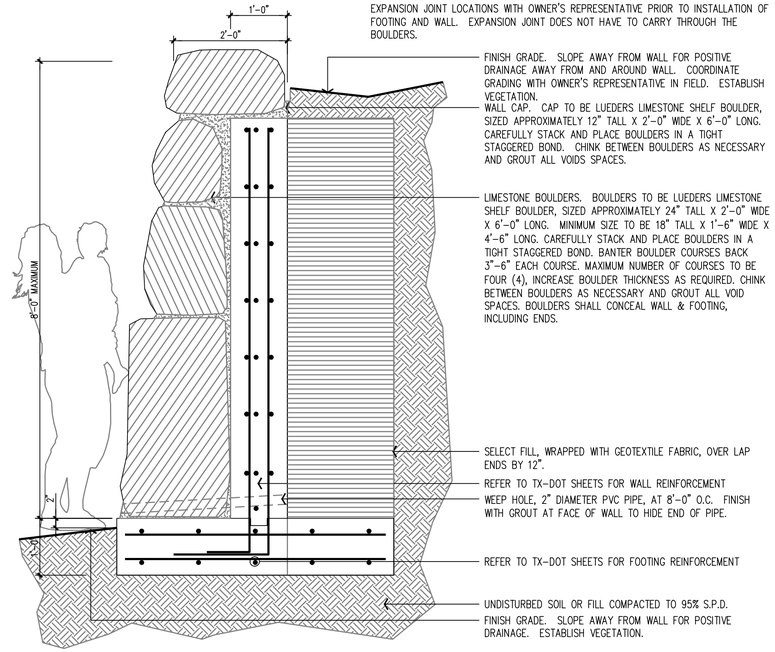


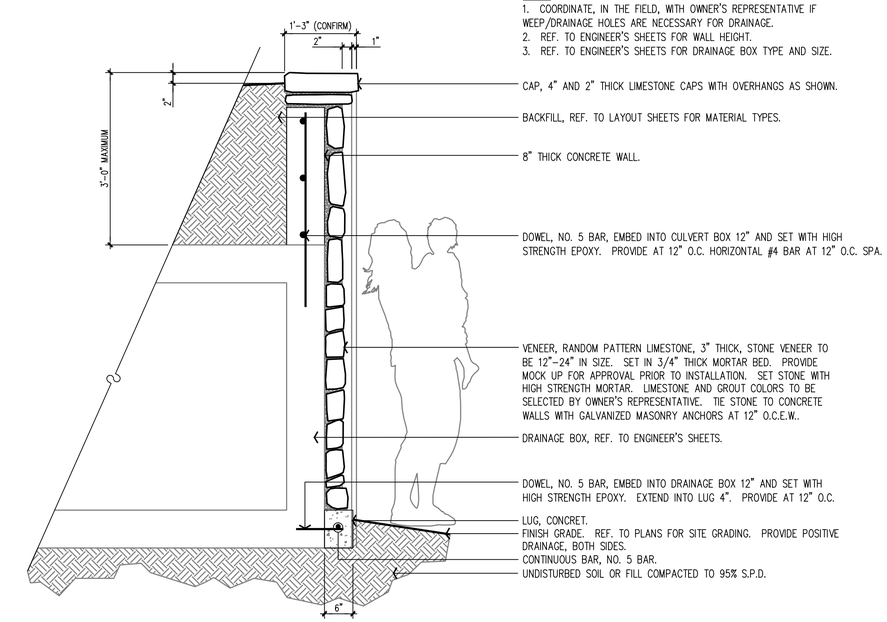
NOTES:
1. COORDINATE, IN THE FIELD, WITH OWNER'S REPRESENTATIVE IF WEEP/DRAINAGE HOLES ARE NECESSARY FOR DRAINAGE.
2. PROVIDE WALL EXPANSION JOINTS AT 80'-0" O.C.. COORDINATE EXPANSION JOINT LOCATIONS WITH OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION OF WALL.

1 SECTION : PRIVACY WALL
Scale: 3/4" = 1'-0"



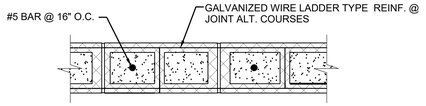
NOTES:
1. ACTUAL WIDTHS OF WALLS MAY VARY BASE ON FIELD CONDITIONS. MINIMUM WIDTH OF WALL CAP TO BE 24". COORDINATE WITH OWNER'S REPRESENTATIVE BOULDER LAYOUT IN FIELD PRIOR TO CONSTRUCTION.
2. FOOTING MAY VARY IF BEDROCK IS ENCOUNTERED, COORDINATE WITH OWNER'S REPRESENTATIVE.
3. PROVIDE FOOTING AND WALL EXPANSION JOINTS AT 80'-0" O.C.. COORDINATE EXPANSION JOINT LOCATIONS WITH OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION OF FOOTING AND WALL. EXPANSION JOINT DOES NOT HAVE TO CARRY THROUGH THE BOULDERS.

2 SECTION : LANDSCAPE WALL (4'-0" - 8'-0" TALL)
Scale: 3/4" = 1'-0"

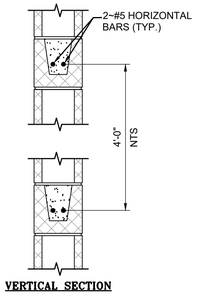


NOTES:
1. COORDINATE, IN THE FIELD, WITH OWNER'S REPRESENTATIVE IF WEEP/DRAINAGE HOLES ARE NECESSARY FOR DRAINAGE.
2. REF. TO ENGINEER'S SHEETS FOR WALL HEIGHT.
3. REF. TO ENGINEER'S SHEETS FOR DRAINAGE BOX TYPE AND SIZE.

3 SECTION : BOX CULVERT WALL
Scale: 3/4" = 1'-0"



4 PLAN-CMU JOINT REINF.
SCALE: NTS



VERTICAL SECTION

5 TYP. BOND BEAM
SCALE: NTS

CMU WALL VERT. REINFORCING SCHEDULE		
	HEIGHT	REINFORCING
EXTERIOR 8" WALLS	ALL HEIGHT	#5 @ 16" O.C.

NOTE: GROUT FILL ALL CELLS OF ALL CMU WALLS FULL HEIGHT

6 CMU WALL REINF. SCHEDULE
SCALE: NTS

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WALL DETAILS

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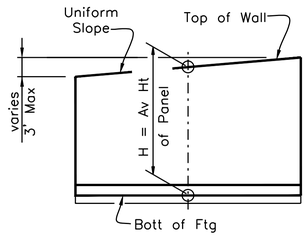
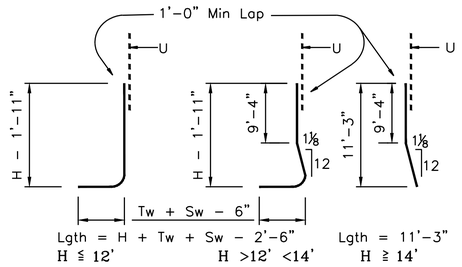
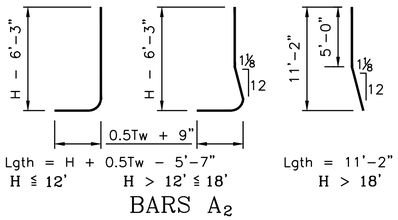
Wall Height "H"	PROPERTIES							REINFORCING STEEL FOR ONE 32' PANEL																										QUANTITY FOR ONE 32' PANEL		Wall Height "H"
	WALL DIMENSIONS						Max Soil Press	A_1 ~ 26 #5 at 15" c-c		A_2 ~ 25 #6 at 15" c-c		A_3 ~ 25 #7 at 15" c-c		A_4 ~ 26 #8 at 15" c-c		A_5 ~ 25 #9 at 15" c-c		A_6 ~ 25 #11 at 15" c-c		A_7 ~ 26 #11 at 15" c-c		B ~ 26 #5 at 15" c-c		C					D (#5) at 12" c-c		Dowel F at 12" c-c		H (#5) at 12" c-c		T (#5) at 12" c-c		U ~ 26 #5 at 15" c-c				
(Ft)	Fw	Tw	Sw	Hw	Ft	Kw	T/SF	Lgth	Wt	Lgth	Wt	Lgth	Wt	Lgth	Wt	Lgth	Wt	Lgth	Wt	Lgth	Wt	Lgth	Wt	Size	No	Spa	Lgth	Wt	No	Wt	No	Wt	No	Wt	No	Wt	Lgth	Wt	CONC (CY)	REINF (LB)	(Ft)
2	2'-0"	8"	1'-0"	4"	1'-0"	9"	0.26																	#4	26	15"	1'-10"	32	4	131	4	32	2	66	2	66	3'-4"	90	4.2	418	2
3	2'-7"	11"	1'-0"	8"	1'-0"	9"	0.34																	#4	26	15"	2'-3"	39	6	197	5	40	2	66	2	66	5'-4"	145	6.1	553	3
4	3'-2"	1'-1"	1'-0"	1'-1"	1'-0"	9"	0.42	3'-7"	97													3'-6"	95	#4	26	15"	2'-8"	46	8	263	6	48	3	99	2	66	7'-4"	199	8.0	913	4
5	3'-9"	1'-3"	1'-0"	1'-6"	1'-0"	9"	0.50	4'-9"	129													4'-6"	122	#4	26	15"	3'-0"	52	10	329	7	56	3	99	2	66	8'-4"	226	9.9	1079	5
6	4'-3"	1'-6"	1'-0"	1'-9"	1'-0"	9"	0.59	6'-0"	163													5'-6"	149	#4	26	15"	3'-4"	58	12	394	8	64	3	99	3	99	8'-4"	226	11.6	1253	6
7	4'-9"	1'-7"	1'-0"	2'-2"	1'-0"	9"	0.68	7'-1"	192													6'-6"	176	#4	26	15"	3'-8"	64	14	460	9	72	3	99	3	99	8'-4"	226	13.4	1388	7
8	5'-3"	1'-9"	1'-0"	2'-6"	1'-0"	9"	0.77	8'-3"	224	3'-4"	125											7'-6"	203	#4	38	10"	4'-0"	102	16	526	10	80	4	131	3	99	8'-4"	226	15.2	1715	8
9	5'-10"	2'-0"	1'-0"	2'-10"	1'-0"	9"	0.82	9'-6"	258	4'-5"	166											8'-6"	231	#6	38	10"	4'-4"	247	18	591	11	88	4	131	3	99	8'-4"	226	17.1	2037	9



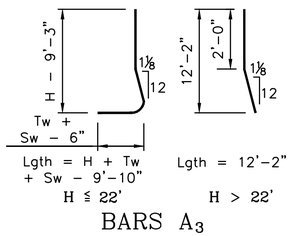
H DEFINITION



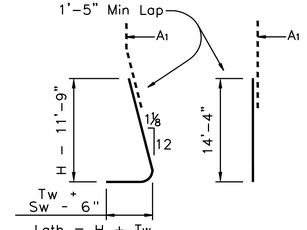
BARS A_1



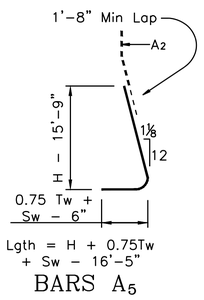
BARS A_2



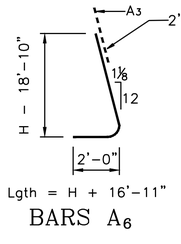
BARS A_3



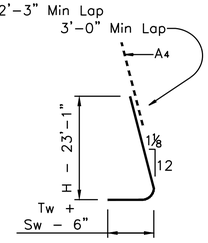
BARS A_4



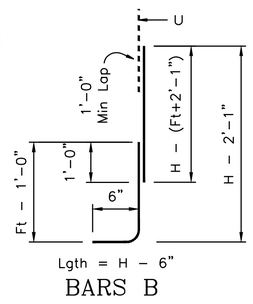
BARS A_5



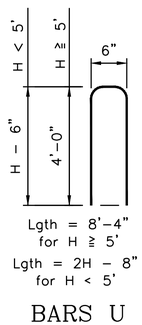
BARS A_6



BARS A_7



BARS B

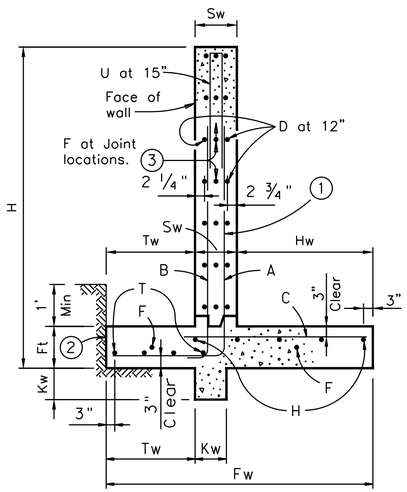


BARS U

① Place vertical bars inside of horizontal bars (Typ both faces).

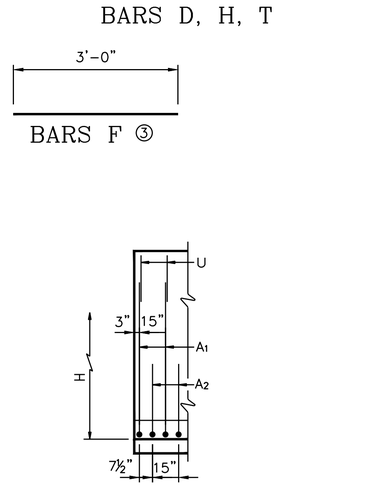
② Place footing toe against undisturbed soil.

③ See S2.02 for size.



H ≤ 12'

SECTIONS



BARS D, H, T

BARS F ③

H = 10'

PARTIAL WALL ELEVATIONS
(Showing vertical reinforcing pattern in back face)

GENERAL NOTES:

For notes and details not shown on this sheet see sheet S2.02.
Quantities are based on "H" being overage height of panel.
Retaining walls are designed to be coded as follows on Retaining wall Layout Sheets.

UNINTECH CONSULTING ENGINEERS, INC.
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2431 EAST EVANS ROAD
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terra design group, inc.
2015 ne loop 410
san antonio, texas 78217
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REVISION DESCRIPTION | DATE | REV NO | BY

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CITY OF ROLLINGWOOD, TEXAS
PUBLIC WORKS DEPARTMENT

PROPOSED DRAINAGE IMPROVEMENTS
NIXON/PLEASANT DRAINAGE IMPROVEMENTS

RETAINING WALLS

ROLLINGWOOD TEXAS

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PUBLIC PROJECT ENGINEERING
1120 S. Capitol of Texas Highway
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DRAWN BY		
DESIGNED BY		
CHECKED BY		
REVIEWED BY		

S2.01 | 3 OF 4

\\SERVER9\JOBS - STRUCTURAL\VERTICAL JOBS\22-026-T ROLLINGWOOD-TERRADESIGN\DWGS\S2.01.DWG -- UCE-STRUCT STANDARD-FULL.CTB
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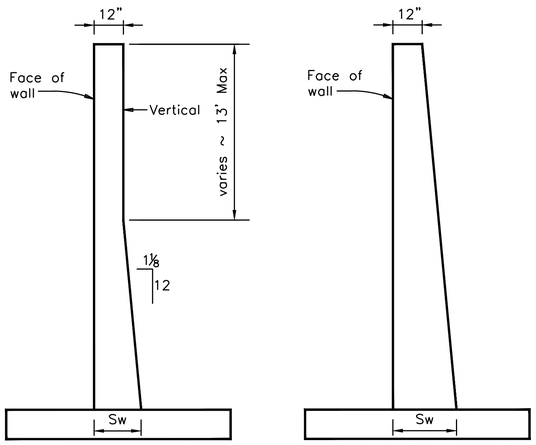
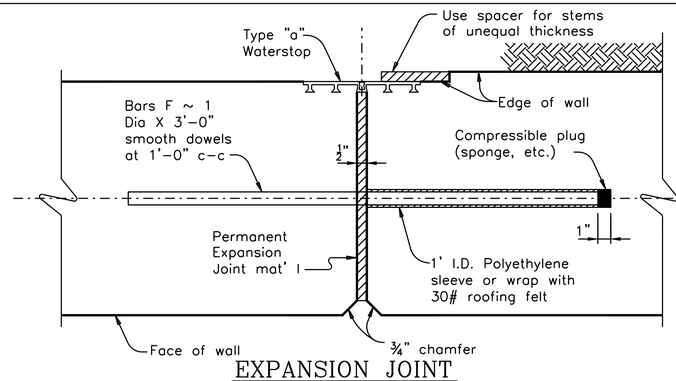


AS DETAILED
ALL HEIGHTS
(Basis for payment)

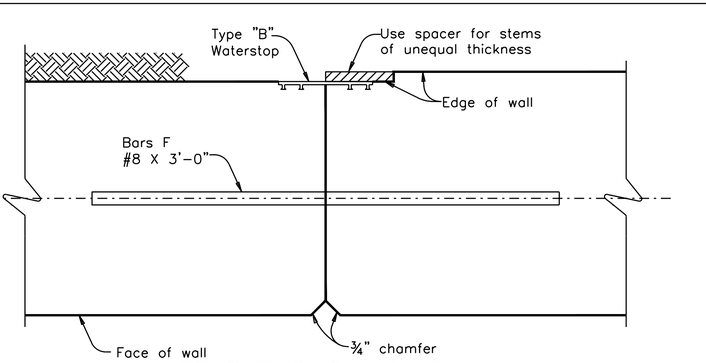
FRONT FACE VERTICAL
BACK FACE SLOPED

ALTERNATE STEM SLOPE DETAILS

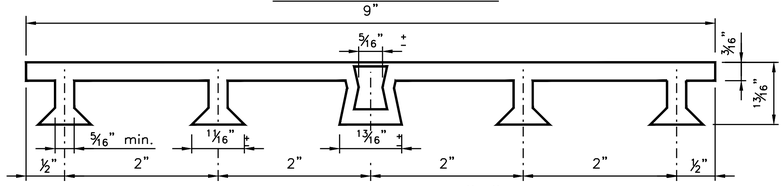
Walls with slopes other than those shown may be used after approval by the Engineer. Sw shall not be less than shown in Table on Sheet 1. No payment will be made for excess concrete due to changing of slope of wall stem.



EXPANSION JOINT

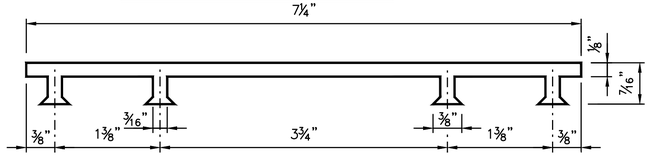


CONSTRUCTION JOINT

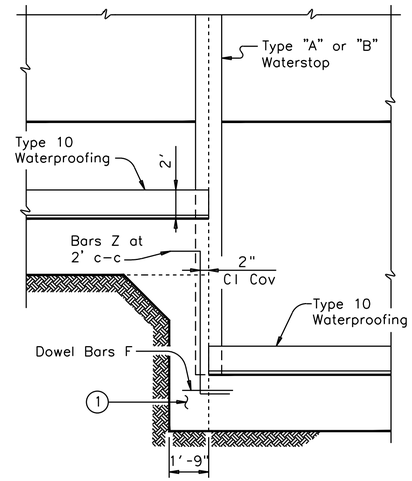


PVC WATERSTOP TYPE "A"

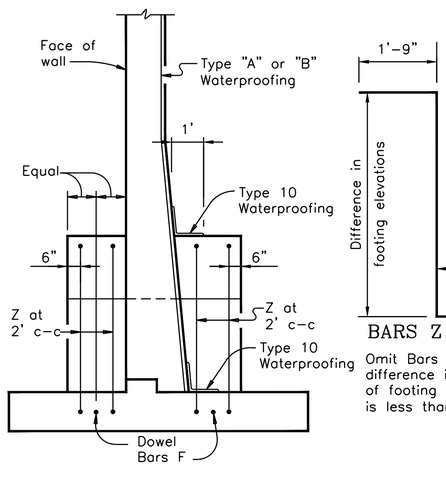
Note: Dimensions and shapes may vary slightly depending on manufacturer.



PVC WATERSTOP TYPE "B"



PARTIAL ELEVATION



PARTIAL SECTION

BARS Z (#5)

Omit Bars Z when difference in top of footing elevations is less than 6'.

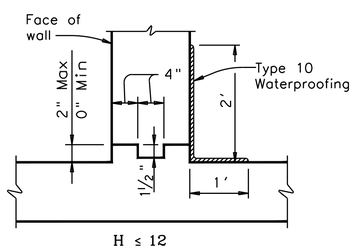
SHOWING WATERSTOP AT FOOTING JOINT

(1) Unreinforced Concrete when difference in top of footing elevations is less than 6'. Omit when Dowel Bars F can be placed between adjacent footings with 4" cover top and bottom.

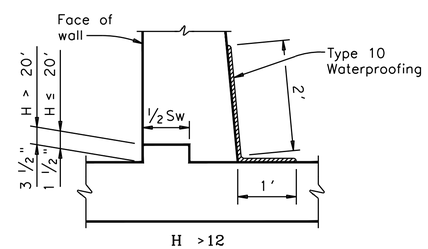
(2) Crushed blast furnace slag, recycled crushed hydraulic cement concrete or combination there of may not be used.

DRAINAGE DETAILS AND EXCAVATION DIAGRAM

Note A: Stop coarse aggregate at this level when weep holes are used.
Note B: Use coarse aggregate to here with filter material above when underdrains are used.



H ≤ 12



H >12

JOINT AND WATERSTOP DETAILS

GENERAL NOTES:

Walls are designed assuming unit weight of soil = 120 pcf, and coefficient of horizontal earth pressure = 0.33.

Walls are designed to provide a minimum factor of safety against sliding of 1.5. The undisturbed or compacted soil depth in front of walls, from bottom of Key up, shall not be less than Kw + Ft + 1'.

Retaining walls are detailed to be placed on grades up thru 10% with footing level, with no changes in reinforcing steel. Steeper grades can be accommodated by shortening Bars A1 and B and increasing length of legs of Bars U by the same amount. No change in Quantities will be involved.

Retaining walls may be placed on Horizontal Curves by adjusting lengths of footing Bars T and H. Minor revisions of Concrete Quantities may be required.

Designed in accordance with current AASHTO Standard and Interim Specifications.

REV NO.	BY	DATE	REVISION DESCRIPTION

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NIXON/PLEASANT DRAINAGE IMPROVEMENTS

RETAINING WALLS
MISCELLANEOUS DETAILS

ROLLINGWOOD TEXAS

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