TCEQ WATER DISTRIBUTION SYSTEM **GENERAL CONSTRUCTION NOTES**

Revised February 2019

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

$$Q = \frac{LD\sqrt{P}}{148.000}$$

WHERE:

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

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

$$L = \frac{SD\sqrt{P}}{148,000}$$

WHERE:

- L = THE QUANTITY OF MAKEUP WATER IN GALLONS PER HOUR,
- S = THE LENGTH OF THE PIPE SECTION BEING TESTED, IN FEET.
- D = THE NOMINAL DIAMETER OF THE PIPE IN INCHES, AND • P = THE AVERAGE TEST PRESSURE DURING THE HYDROSTATIC TEST IN
- POUNDS PER SQUARE INCH (PSI). 12. THE CONTRACTOR SHALL MAINTAIN A MINIMUM SEPARATION DISTANCE IN ALL DIRECTIONS OF NINE FEET BETWEEN THE PROPOSED WATERLINE AND WASTEWATER COLLECTION FACILITIES INCLUDING MANHOLES. IF THIS DISTANCE

CANNOT BE MAINTAINED. THE CONTRACTOR MUST IMMEDIATELY NOTIFY THE

PROJECT ENGINEER FOR FURTHER DIRECTION. SEPARATION DISTANCES,

INSTALLATION METHODS, AND MATERIALS UTILIZED MUST MEET

OR MANUFACTURED SEALANT [\$290.44(E)(5)].

\$290.44(E)(1)-(4). 13. THE SEPARATION DISTANCE FROM A POTABLE WATERLINE TO A WASTEWATER MAIN OR LATERAL MANHOLE OR CLEANOUT SHALL BE A MINIMUM OF NINE FEET. WHERE THE NINE-FOOT SEPARATION DISTANCE CANNOT BE ACHIEVED, THE POTABLE WATERLINE SHALL BE ENCASED IN A JOINT OF AT LEAST 150 PSI PRESSURE CLASS PIPE AT LEAST 18 FEET LONG AND TWO NOMINAL SIZES LARGER THAN THE NEW CONVEYANCE. THE SPACE AROUND THE CARRIER PIPE SHALL BE SUPPORTED AT FIVE-FOOT INTERVALS WITH SPACERS OR BE FILLED TO THE SPRINGLINE WITH WASHED SAND. THE ENCASEMENT PIPE SHALL BE

CENTERED ON THE CROSSING AND BOTH ENDS SEALED WITH CEMENT GROUT

- 14. FIRE HYDRANTS SHALL NOT BE INSTALLED WITHIN NINE FEET VERTICALLY OR HORIZONTALLY OF ANY WASTEWATER LINE, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE REGARDLESS OF CONSTRUCTION [\$290.44(E)(6)].
- 15. SUCTION MAINS TO PUMPING EQUIPMENT SHALL NOT CROSS WASTEWATER MAINS. WASTEWATER LATERALS, OR WASTEWATER SERVICE LINES. RAW WATER SUPPLY LINES SHALL NOT BE INSTALLED WITHIN FIVE FEET OF ANY TILE OR CONCRETE WASTEWATER MAIN, WASTEWATER LATERAL, OR WASTEWATER SERVICE LINE [§290.44(E)(7)].
- 16. WATERLINES SHALL NOT BE INSTALLED CLOSER THAN TEN FEET TO SEPTIC TANK DRAINFIELDS [\$290.44(E)(8)].
- 17. THE CONTRACTOR SHALL DISINFECT THE NEW WATERLINES IN ACCORDANCE WITH AWWA STANDARD C651-14 OR MOST RECENT, THEN FLUSH AND SAMPLE THE LINES BEFORE BEING PLACED INTO SERVICE, SAMPLES SHALL BE COLLECTED FOR MICROBIOLOGICAL ANALYSIS TO CHECK THE EFFECTIVENESS OF THE DISINFECTION PROCEDURE WHICH SHALL BE REPEATED IF CONTAMINATION PERSISTS, A MINIMUM OF ONE SAMPLE FOR FACH 1,000 FFFT OF COMPLETED WATERLINE WILL BE REQUIRED OR AT THE NEXT AVAILABLE SAMPLING POINT BEYOND 1,000 FEET AS DESIGNATED BY THE DESIGN ENGINEER [\$290.44(F)(3)].
- 18. DECHLORINATION OF DISINFECTING WATER SHALL BE IN STRICT ACCORDANCE WITH CURRENT AWWA STANDARD C655-09 OR MOST RECENT.

STANDARD NOTES

- TOPOGRAPHIC SURVEY WAS PERFORMED BY KERR SURVEYING, LLC IN JANUARY 2023. ELEVATIONS FOR TEMPORARY BENCHMARKS (TBMS) SHOWN ON THESE PLANS SHALL BE VERIFIED FOR CONSISTENCY AND PRECISION BETWEEN TBMS FOR EACH
- 2. GEOTECHNICAL INVESTIGATION WAS PERFORMED BY GESSNER ENGINEERING LLC IN MARCH 2023.
- SOME WORK MAY BE LOCATED WITHIN A FEMA-DESIGNATED FLOODWAY AND/OR 100-YEAR FLOODPLAIN. ANY REQUIRED FLOODPLAIN DEVELOPMENT PERMITS, NO-RISE CERTIFICATIONS OR LETTERS OF MAP CHANGE SHALL BE PROVIDED BY
- 4. THE CONTRACTOR SHALL ADHERE TO ALL APPLICABLE STANDARD DETAILS AND
- SPECIFICATIONS FOR PROPOSED IMPROVEMENTS. 5. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE BIDSET PLANS AND SPECS.
- 6. REVISIONS TO THESE ENGINEERING PLANS MUST BE AUTHORIZED BY BLEYL ENGINEERING PRIOR TO CONSTRUCTION. BLEYL ENGINEERING — (979) 268-1125 THE CONTRACTOR SHALL
- a. NOTIFY BLEYL ENGINEERING (979)-268-1125 AND ALL OTHER PERTINENT AGENCIES 48 HRS BEFORE STARTING WORK.
- THE CONTRACTOR SHALL NOTIFY THE OWNER AT LEAST 72 HOURS PRIOR TO COMMENCING WORK.
- c. NOTIFY ALL APPROPRIATE UTILITY COMPANIES 48 HOURS PRIOR TO ANY
- d. NOTIFY THE ENGINEER AND ALL PERTINENT AGENCIES OF ALL DESIRED FIELD CHANGES. THE ENGINEER'S APPROVAL MAY BE REQUIRED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SECURITY AND SAFETY PROVISIONS REQUIRED TO PROTECT INDIVIDUALS, EQUIPMENT, MATERIALS AND WORKMANSHIP NECESSARY FOR THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STORAGE OF MATERIALS IN SAFE AND WORKMANLIKE MANNER TO PREVENT INJURIES DURING AND AFTER WORKING HOURS UNTIL PROJECT COMPLETION.
- THE CONTRACTOR SHALL ADVISE THE ENGINEER OF ANY APPARENT OR SPECIAL NEEDS TO COMPLETE THE SCOPE OF WORK INCLUDED IN THIS PROJECT. THESE MAY INCLUDE THE NEED FOR OWNER PROVIDED SERVICES SUCH AS WATER, STAFF AVAILABILITY, ETC.
- 10. ACCURATE RECORDS SHOWING THE INSTALLED LOCATIONS OF ALL IMPROVEMENTS SHALL BE MAINTAINED DURING CONSTRUCTION.
- CONSTRUCTION PERIOD. SCHEDULING OF ACTIVITIES SHOULD EMPHASIZE ACCESSIBILITY TO THE PROJECT SITE. EXTENDED PERIODS OF RESTRICTED ACCESS MUST BE LIMITED.

11. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO MAINTAIN ACCESS DURING THE

- 12. CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE, AND LOCAL LAWS AND ALL UTILITY COMPANY REGULATIONS CONCERNING SAFETY AND HEALTH PRACTICES.
- 13. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE OSHA RULES AND REGULATIONS.
- 14. THE CONTRACTOR SHALL PROTECT EXISTING MONUMENTS. YARDS. PRIVATE UTILITIES. DRIVES, CURBS, MAIL BOXES, SIGNS, IMPROVEMENTS, CULVERTS, AND OWNER'S FACILITIES FROM DAMAGE DURING CONSTRUCTION. DAMAGE DONE TO THESE ITEMS SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL MOVE AND REPLACE SUCH MOVABLE ITEMS AS MAIL BOXES, TRAFFIC CONTROL, BUSINESS SIGNS, AND STREET SIGNS AS NECESSARY FOR CONSTRUCTION. FENCES OR STRUCTURES WHICH REQUIRE DISMANTLING OR REMOVAL SHALL BE RECONSTRUCTED OR REPLACED TO EQUAL OR BETTER THAN ORIGINAL CONDITION.
- 15. AT THE END OF ALL CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL RESTORE EXISTING FACILITY (I.E. PROPERTY) EQUAL TO OR BETTER THAN EXISTING SITE CONDITIONS PRIOR TO CONSTRUCTION. CLEAN-UP ACTIVITIES SHALL BE MAINTAINED THROUGHOUT THE CONTRACT PERIOD.
- 16. THE CONTRACTOR SHALL TAKE SPECIAL CARE TO ENSURE THAT SURFACE DRAINAGE IS NOT IMPEDED BY CONSTRUCTION WORK.
- 17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND PROTECTION OF CONSTRUCTION ACTIVITIES DURING THE CONTRACT PERIOD. THIS SHALL INCLUDE ANY EROSION CONTROL MEASURES AND RE-GRADING NECESSARY TO ACHIEVE THE LINES AND GRADES SET FORTH BY THESE PLANS.
- 18. CONTRACTOR SHALL PROVIDE AND INSTALL CONSTRUCTION FENCING AROUND SITE TO PREVENT NON-WORKERS FROM ACCESSING THE CONSTRUCTION AREA. EXISTING WOODEN FENCES MAY BE USED IN LIEU OF CONSTRUCTION FENCING WHERE THEY EXIST AND CAN PREVENT ACCESS TO THE CONSTRUCTION AREA.
- 19. CONTRACTOR SHALL COMPLY WITH STATE AND LOCAL REGULATIONS REGARDING STORM WATER POLLUTION PREVENTION. IT IS THE CONTRACTORS RESPONSIBILITY TO DEVELOP AND ENSURE THAT AN ADEQUATE STORM WATER POLLUTION PREVENTION PLAN IS IMPLEMENTED AND MAINTAINED. ALL SILT FROM THE CONSTRUCTION OF THE PROPOSED UTILITIES IS TO BE RETAINED ON SITE AND PREVENTED FROM BEING TRANSPORTED TO THE NATURAL DRAINAGE PATHWAYS. ALL SWPP DEVICES WILL BE PAID FOR BY THE CONTRACTOR AND WILL BE CONSIDERED INCIDENTAL TO THE PROPOSED UTILITY WORK. CONFORMANCE TO THESE REGULATORY REQUIREMENTS IS MANDATORY
- 20. ALL TESTING PROCEDURES USED ON THIS PROJECT SHALL CONFORM TO THE TCEQ, AWWA. NSF OR APPLICABLE STANDARDS. THE TESTING EXPENSE SHALL BE BORNE BY THE CONTRACTOR UNLESS OTHERWISE SPECIFIED.
- 21. THE CONTRACTOR SHOULD BE AWARE THAT THERE ARE OVERHEAD AND UNDERGROUND ELECTRICAL, TELEPHONE, ETC. LINES WITHIN THE PROJECT SITE. THE CONTRACTOR AND HIS PERSONNEL SHALL EXERCISE CARE AROUND THESE LINES TO PREVENT DAMAGE TO LINES AND INJURY TO THE PERSONNEL. ANY DAMAGE SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE.
- 22. ALL UNDERGROUND UTILITY LINES, SIZES, AND MATERIAL TYPES SHOWN ON THE PLANS ARE FOR THE PURPOSE OF MAKING THE CONTRACTOR AWARE THAT THEY EXIST. NEITHER THE OWNER. NOR THE ENGINEER GUARANTEES THE ACCURACY THEREOF. ALSO, THE LOCATIONS OF SOME EXISTING UTILITY LINES ARE NOT KNOWN AND THE CONTRACTOR SHALL VERIFY THE LOCATION, SIZE AND MATERIAL TYPES OF ALL UNDERGROUND UTILITIES PRIOR TO BEGINNING CONSTRUCTION. THE FINAL ALIGNMENT OF THE PROPOSED MAIN LINES ARE SUBJECT TO MODIFICATION PENDING THE ESTABLISHMENT OF EXISTING UTILITY LOCATIONS.
- 23. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES AT ALL "POINTS OF CROSSING" TO DETERMINE IF CONFLICTS EXIST BEFORE COMMENCING ANY CONSTRUCTION. NOTIFY THE ENGINEER AT ONCE OF ANY CONFLICTS.
- 24. THE LATEST TCEQ REGULATIONS MUST BE FOLLOWED FOR CROSSINGS OF SANITARY SEWER MAINS AND WATER MAINS. IT IS THE INTENT THAT THE MOST ECONOMICALLY ACCEPTABLE ALTERNATIVE BE ELECTED. ACCORDINGLY, FIELD VERIFICATION OF EXISTING UTILITY GRADES IS IMPERATIVE.
- 25. FINAL COVER OF INSTALLED LINES SHALL NOT BEGIN PRIOR TO OBSERVATION AND ACCEPTANCE BY THE OWNER OR ENGINEER. THE CONTRACTOR SHALL CONTACT THE OWNER BY 4:00 P.M. REGARDING THE SCHEDULING OF THESE MONITORING VISITS.
- 26. CONNECTIONS TO EXISTING LINES SHALL INCLUDE ALL REQUIRED FITTINGS, MATERIALS REQUIRED TO MAKE A SUCCESSFUL TIE IN MEETING ALL APPLICABLE
- 27. THE LOADING AND UNLOADING OF ALL MATERIALS AND EQUIPMENT SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDED PRACTICES AND SHALL AT ALL TIMES BE PERFORMED WITH CARE TO AVOID ANY DAMAGE TO THE MATERIAL. THE CONTRACTOR SHALL LOCATE AND PROVIDE THE NECESSARY STORAGE AREAS FOR MATERIALS AND EQUIPMENT.
- 28. ALL MATERIALS AND EQUIPMENT SHALL BE BOTH FURNISHED AND INSTALLED UNLESS OTHERWISE NOTED.
- 29. CONTRACTOR SHALL PROVIDE SHEETING, SHORING AND BRACING AS NECESSARY TO PROTECT WORKMEN AND EXISTING UTILITIES DURING ALL PHASES OF CONSTRUCTION AS PER OSHA REQUIREMENTS.
- 30. TRENCH SAFETY REQUIREMENTS SHALL BE IN ACCORDANCE WITH OSHA STANDARD 29 CFR PART 1926 P. THE CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTING AND MAINTAINING TRENCH SAFETY. COST FOR ANY TRENCH SAFETY SYSTEMS THAT REQUIRE AN ENGINEER'S SEAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE PERFORMED AT NO ADDITIONAL COST TO THE PROJECT.
- 31. IF AND WHERE DEWATERING IS NECESSARY, CONTRACTOR SHALL SUBMIT A DEWATERING PLAN TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION.

32. CONTRACTOR SHALL INSTALL ALL EROSION/SEDIMENT CONTROL FEATURES SHOWN ON THE EROSION CONTROL WORKMAP PRIOR TO GRADING OR OTHER CONSTRUCTION ACTIVITIES CONTRACTOR SHALL ADHERE TO ALL TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM REQUIREMENTS FOR CONSTRUCTION SITES, INCLUDING INSTALLATION, MAINTENANCE, AND REMOVAL OF ALL NECESSARY STORMWATER POLLUTION PROTECTION MEASURES AND NOTICES. CONTRACTOR SHALL NOTIFY THE TCEQ, MS4, AND PUBLIC AS REQUIRED AND CREATE, UPDATE, AND MAINTAIN A STORMWATER POLLUTION PREVENTION PLAN AS REQUIRED, INCLUDING REQUIRED

- 33. THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS IN A MANNER SUCH THAT TRUCKS AND OTHER VEHICLES DO NOT CREATE A DIRT NUISANCE OR SAFETY HAZARD IN ANY STREETS, PUBLIC OR PRIVATE. CLEAN UP OF STREETS SHALL BE DONE DAILY AT NO ADDITIONAL COST TO THE PROJECT.
- 34. ALL PIPES AND STRUCTURES SHALL BE INSTALLED TO MANUFACTURER SPECIFICATIONS, INCLUDING MAXIMUM BENDING RADIUS, JOINT DEFLECTION, FITTINGS,
- 35. NO EXCAVATIONS SHALL BE LEFT OPEN OVERNIGHT. ALL EXCAVATIONS WHICH CANNOT BE BACKFILLED OVERNIGHT SHALL BE COVERED WITH STEEL SHEETING WHEN IN PAVED AREAS. FOR NON-PAVED AREAS STEEL SHEETING, WOOD PLANKING OR OTHER MATERIAL WHICH IS APPROVED BY THE CITY MAY BE USED. COMPLETELY CORDON OFF THE EXCAVATION AREA WITH PLASTIC CONSTRUCTION FENCING APPROVED BY THE CITY. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION AND SAFETY OF EXCAVATION AREAS.
- 36. IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO VERIFY AND DETERMINE THE DEPTH, LOCATION, ELEVATION, ALIGNMENT AND EXISTENCE OF ALL SURFACE OR UNDERGROUND UTILITIES AND STRUCTURES IN AND AROUND THE VICINITY OF THE WORK TO BE PERFORMED PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE OWNER IN WRITING OF ANY CONFLICTS FOUND PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL ALLOW AMPLE TIME TO THE OWNER TO DETERMINE A RESOLUTION TO THE CONFLICT. NO ADDITIONAL PAYMENT SHALL BE MADE FOR DELAYS DUE TO SUCH CONFLICTS OR WORK DONE WITHOUT DETERMINING THE ACTUAL LOCATION OF UTILITIES OR OBJECTS.
- 37. EXISTING PAVEMENT, CURB, SIDEWALK, DRIVEWAY, AND LANDSCAPED AREAS DAMAGED DURING CONSTRUCTION BY THE CONTRACTOR SHALL BE REPLACED BY THE CONTRACTOR TO ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE. ALL AREAS WHERE EXISTING VEGETATION AND GRASS HAS BEEN REMOVED OR SIGNIFICANTLY REDUCED BY CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL ADEQUATELY APPLY REVEGETATIVE COVERINGS OVER THE AREA WITHIN 14 CALENDAR DAYS AFTER LAST DISTURBANCE AND THEN WATER THE AREAS UNTIL GROWTH IS WELL ESTABLISHED AND THE SITE IS PROVISIONALLY ACCEPTED BY THE CITY'S PROJECT MANAGER. REVEGETATIVE COVERINGS FOR DISTURBED AREAS SHALL BE:

a. FOR LANDSCAPED YARDS, APPLY BLOCK SOD:

- FOR NATURAL VEGETATION AND OTHER GRASSY AREAS APPLY HYDROMULCH. 38. ALL CONSTRUCTION STAKING FOR THE IMPROVEMENTS REQUIRED ON THIS PROJECT WILL BE PROVIDED BY CONTRACTOR. CONTRACTOR SHALL USE A TEXAS REGISTERED PROFESSIONAL LAND SURVEYOR TO PERFORM THE CONSTRUCTION STAKING AND TO VERIFY THE LOCATIONS OF ALL POTENTIAL ALIGNMENT CONFLICTS SPECIFICALLY CALLED FOR ON THE PLANS. CONSTRUCTION STAKING SHALL BE CONSIDERED INCIDENTAL AND CONTRACTOR SHALL INCLUDE COSTS IN RELATED ITEMS OF WORK. CONTRACTOR SHALL USE GRADE CONTROL TO ENSURE FLOW LINES AND INVERTS ARE INSTALLED AT GRADES AND ELEVATIONS SHOWN.
- 39. ALL TRENCHING AND BACKFILLING SHALL BE PERFORMED PER THE SPECIFICATIONS. TESTING WILL BE PERFORMED BY A CERTIFIED LABORATORY AT THE OWNER'S EXPENSE, TO VERIFY PROPER BEDDING AND BACKFILL. ANY WORK THAT DOES NOT PASS TESTING SHALL BE REPLACED AND RETESTED AT CONTRACTOR'S EXPENSE. STRUCTURAL AREAS SHALL INCLUDE ALL SIDEWALKS AND SHALL EXTEND 5' BEYOND THE CURB LINES OF ALL STREETS, ALLEYS AND PARKING AREAS.
- 40. UNLESS OTHERWISE NOTED, ALL WATER, GAS AND SEWER LINE TIE-INS AND CONNECTIONS SHALL BE CONSIDERED SUBSIDIARY TO THEIR REQUIRED COMPONENTS AS LISTED IN THE BID TABS. NO SEPARATE PAYMENT WILL BE MADE FOR APPURTENANCES NECESSARY TO INSTALL SEWER LINE ITEMS ACCORDING TO
- 41. UNLESS OTHERWISE NOTED, CONTRACTOR SHALL ONLY BE COMPENSATED FOR THE PIPE, FITTINGS, CLEANOUTS, MANHOLES, AND OTHER APPURTENANCES THAT ARE ACTUALLY INSTALLED FOR THE UTILITY LINES AND OTHER IMPROVEMENTS REQUIRED. FOR THIS PROJECT. REFER TO APPLICABLE TECHNICAL SPECIFICATION SECTIONS FOR SPECIFIC INFORMATION ON MEASUREMENT AND PAYMENT, ELIMINATION/ADDITION OF FITTINGS AND RELATED RESTRAINED JOINT PIPE LENGTHS, LAYING SCHEDULES, AND OTHER IMPORTANT REQUIREMENTS ON THE SEWER LINES AND OTHER IMPROVEMENTS ON THIS PROJECT.
- 42. UNLESS SPECIFICALLY STATED, AND OTHERWISE PROVIDED FOR ON THE BID FORM, ALL WORK DESCRIBED IN THESE STANDARD NOTES SHALL BE CONSIDERED INCIDENTAL TO THE ITEMS OF WORK LISTED ON THE BID PROPOSAL FORM AND NO SEPARATE PAYMENT WILL BE MADE TO THE CONTRACTOR FOR SUCH WORK.
- 43. ANY REQUIRED CHANGES TO THE DRAWINGS RESULTING FROM THE ACCEPTANCE OF ALTERNATES AND/OR SUBSTITUTIONS ARE THE RESPONSIBILITY OF THE CONTRACTOR

GRADING NOTES

- 1. GENERAL CONTRACTOR AND ALL SUBCONTRACTORS SHALL VERIFY THE SUITABILITY OF ALL EXISTING AND PROPOSED SITE CONDITIONS INCLUDING GRADES AND DIMENSIONS BEFORE STARTING CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES.
- 2. BEFORE STARTING CONSTRUCTION, CONTRACTOR SHALL VERIFY BENCHMARK ELEVATION AND NOTIFY ENGINEER IF ANY DISCREPANCY AND/OR CONFLICT IS
- 3. CONTRACTOR SHALL ENSURE THERE IS POSITIVE DRAINAGE FROM THE PROPOSED BUILDINGS AND NO PONDING IN PAYED AREAS, AND SHALL NOTIFY ENGINEER IF ANY GRADING DISCREPANCIES ARE FOUND IN THE EXISTING AND PROPOSED GRADES PRIOR TO PLACEMENT OF PAVEMENT OR UTILITIES.
- 4. CONTRACTOR SHALL PROTECT ALL MANHOLE COVERS, VALVE COVERS, VAULT LIDS, FIRE HYDRANTS, POWER POLES, GUY WIRES, AND TELEPHONE BOXES THAT ARE TO REMAIN IN PLACE AND UNDISTURBED DURING CONSTRUCTION.
- 5. ALL EXISTING CONCRETE PAVING, SIDEWALK, AND CURB DEMOLITION SHALL BE REMOVED AND DISPOSED OF BY CONTRACTOR. DISPOSAL SHALL BE AT AN APPROVED OFF-SITE, LAWFUL LOCATION, UNLESS DIRECTED OTHERWISE BY THE

STREET NOTES

- 1. FILL AREAS ON PLANS SHALL BE FILLED IN LAYERS NOT EXCEEDING 8" IN DEPTH AND EACH COMPACTED TO NOT LESS THAN 95% STANDARD PROCTOR DENSITY PRIOR TO INSTALLATION OF WATER LINE AND FILL AREA SHALL BE SEEDED AND FERTILIZED WITHIN 10 WORKING DAYS.
- 2. EXISTING PAVEMENTS, CURBS, DRIVEWAYS, AND SIDEWALKS DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED TO CITY OF BRYAN STANDARDS, WITH LATEST ADDENDA AND AMENDMENTS THERETO.
- 3. CONDITION OF THE ROAD AND/OR RIGHT-OF-WAY UPON COMPLETION OF JOB SHALL BE AS GOOD AS OR BETTER THAN PRIOR TO STARTING WORK.
- 4. ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION AND ANY DRAINAGE DITCH OR STRUCTURE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO SATISFACTION OF THE OWNING AUTHORITY.
- 5. CONTRACTOR TO TAKE NECESSARY PRECAUTIONS TO PROTECT ROOT SYSTEMS OF SHRUBS, PLANTS AND TREES ALONG AREAS OF EXCAVATION.
- 6. CONTRACTOR SHALL COMPLY WITH OSHA REGULATIONS AND STATE OF TEXAS LAWS CONCERNING EXCAVATION, TRENCHING AND SHORING.
- THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY DAMAGES TO EXISTING WATER, WASTEWATER, STORM SEWER AND TRAFFIC SIGNAL CONDUITS, ALL DAMAGES SHALL BE REPAIRED IN ACCORDANCE WITH THE CITY OF BRYAN STANDARDS, AT NO
- 8. DOUBLE REFLECTORIZED BLUE TRAFFIC MARKERS SHALL BE PLACED 6-INCHES OFFSET OF THE CENTERLINE OF ALL FIRE HYDRANT LOCATIONS BY THE PAVING CONTRACTOR. HYDRANTS LOCATED AT INTERSECTIONS SHALL HAVE A BUTTON PLACED ON EACH STREET.
- THE CONSTRUCTION TRAFFIC CONTROL SIGNS, DEVICES AND BARRICADES ON THESE DRAWINGS CONSTITUTE MINIMUM REQUIREMENTS AND ARE NOT INTENDED TO COVER SPECIAL CIRCUMSTANCES OR OTHER CONDITIONS THAT MAY ARISE DUE TO UNFORESEEN FIELD CONDITIONS. THE CONTRACTOR SHALL PLACE AND MAINTAIN SUFFICIENT ADDITIONAL SIGNS, BARRICADES, AND WARNING DEVICES TO WARN THE PUBLIC AND PROVIDE FOR THE SAFE MOVEMENT OF TRAFFIC AND THE CONSTRUCTION ZONE SAFETY. WHERE PROJECT REQUIREMENTS ARE NOT FULLY SATISFIED BY THE STANDARDS SHOWN HEREON. THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" SHALL GOVERN. ALL TEMPORARY AND PERMANENT TRAFFIC CONTROL DEVICES MARKINGS, STRIPING AND SIGNAGE REQUIRED FOR THIS PROJECT SHALL BE INCLUDED IN THE APPROPRIATE LUMP SUM BID ITEM. ANY CHANGES TO TRAFFIC CONTROL DEEMED NECESSARY DUE TO FIELD CONDITIONS SHALL BE PERFORMED AT NO ADDITIONAL COST TO THE PROJECT.

<u>STORM NOTES</u>

- ALL SEWER UNDER PROPOSED OR FUTURE PAVEMENT AND TO A POINT ONE (1) FOOT BACK OF ALL PROPOSED OR FUTURE CURBS SHALL BE BACKFILLED WITH 1-1/2 SACK CEMENT/C.Y. STABLIZED SAND TO WITHIN ONE (1) FOOT OF SUBGRADE. THE REMAINING DEPTH OF TRENCH SHALL BE BACKFILLED WITH SUITABLE EARTH MATERIAL.
- ALL TRENCH BACKFILL SHALL BE IN 8" LIFTS, WITH TESTS TAKEN AT 100 FOOT INTERVALS IN EACH LIFT, AND MECHANICALLY COMPACTED TO A DENSITY OF NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR COMPACTION TEST (ASTM D-698/AASHTO T99).
- ALL DITCHES SHALL BE GRADED TO PROPOSED ELEVATIONS TO ENSURE PROPER DRAINAGE. ALL OUTFALLS SHALL BE PROPERLY BACKFILLED AND COMPACTED. ALL DISTURBED AREA SHALL BE REGRADED, SEEDED, AND FERTILIZED.

WATER NOTES

- WATER LINES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST CITY OF BRYAN CONSTRUCTION STANDARDS, STANDARD SPECIFICATION, AND CONSTRUCTION DETAILS.
- 2. ALL MAIN LINE FITTINGS SHALL BE DI.

NOTED ON PLANS.

- 3. NOT MORE THAN 300 FEET OF TRENCH SHALL BE OPENED IN ADVANCE OF THE PIPE INSTALLATION AND THE PIPE SHALL BE LAID IN ALL OPENED DITCH BE THE END OF THE WORK DAY. A TEST TYPE PLUG SHALL BE INSTALLED IN THE OPEN ENDS OF ALL PIPES AT THE END OF EACH DAY.
- 4. CONCRETE THRUST BLOCKS SHALL BE PROVIDED AS NECESSARY TO PREVENT PIPE MOVEMENT.
- 5. ALL WATER LINE AND SEWER LINE CROSSINGS SHALL BE CONSTRUCTED PER TCEQ REGULATIONS.
- 6. ALL WATER VALVES SHALL BE SUPPLIED AND INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF AWWA C-500 AND SHALL BE OF THE RESILIENT SEAT
- 7. ALL WATER LINES TO BE DISINFECTED IN CONFORMANCE WITH AWWA C-651 AND THE TEXAS STATE DEPARTMENT OF HEALTH. AT LEAST ONE BACTERIOLOGICAL SAMPLE SHALL BE COLLECTED FOR EVERY 1,000 LINEAR FEET OF WATER LINE AND SHALL BE REPEATED IF CONTAMINATION PERSISTS.
- 8. ALL BELOW GRADE VALVES SHALL BE CASKETED, HUB-END GATE VALVES WITH A CAST IRON BOX, EXCEPT WHERE FLANGES ARE CALLED OUT ON THE PLANS.
- 9. 4" THRU 12" FITTINGS SHALL BE CEMENT MORTAR LINED COMPACT DUCTILE IRON PRESSURE FITTINGS PER ANSI A21.53. OR PUSH ON FITTINGS PER ANSI A21.10 PRESSURE RATED AT 250 PSIG. 10. HYDROSTATIC TESTING: ALL WATER PIPE SHALL BE TESTED FOR LEAKAGE IN
- ACCORDANCE WITH THE LATEST CITY OF BRYAN STANDARD CONSTRUCTION SPECIFICATIONS. TESTS ARE TO BE PERFORMED ON THE ENTIRE FOOTAGE OF WATER PIPE LINE INCLUDED IN THE PROJECT. 11. ALL WATER LINES TO HAVE 4' MINIMUM COVER TO FINISHED GRADE AND

MINIMUM 12" CLEARANCE TO OTHER UTILITIES AT CROSSING UNLESS OTHERWISE

12. CONTRACTOR SHALL KEEP WATER PIPE CLEAN AND CAPPED (OR OTHERWISE EFFECTIVELY COVERED) OPEN PIPE ENDS TO EXCLUDE INSECTS, ANIMALS OR OTHER SOURCES OF CONTAMINATION FROM UNFINISHED PIPE LINES AT TIMES WHEN CONSTRUCTION IS NOT IN PROGRESS.



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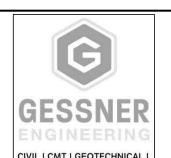


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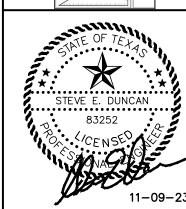
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No: Date: Issue Notes:
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2 11-09-23 REVISION 1: CITY COMMENTS

|Drawn By: Checked By: Patterson Project No.: Building Inventory No.: lot Date:

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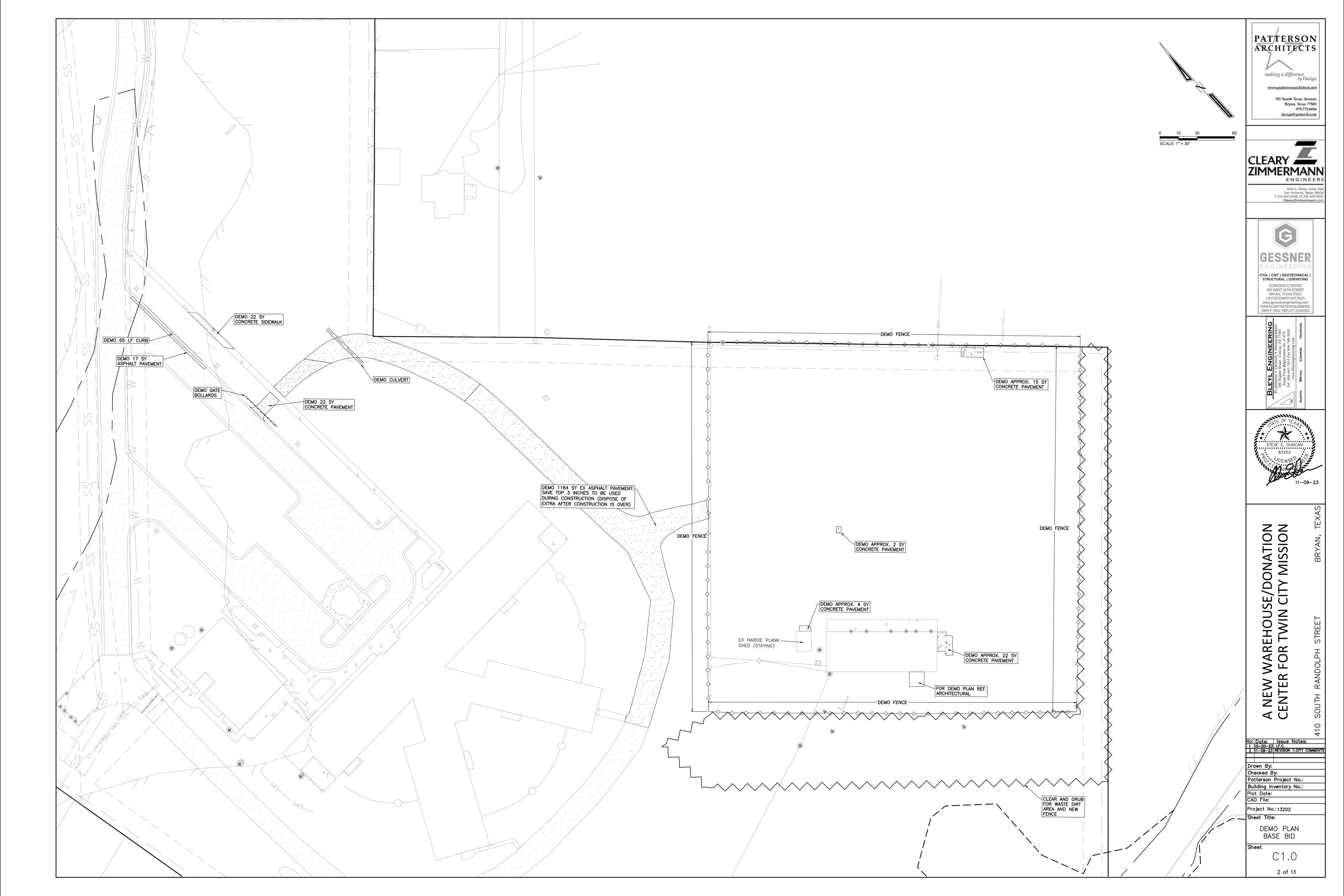
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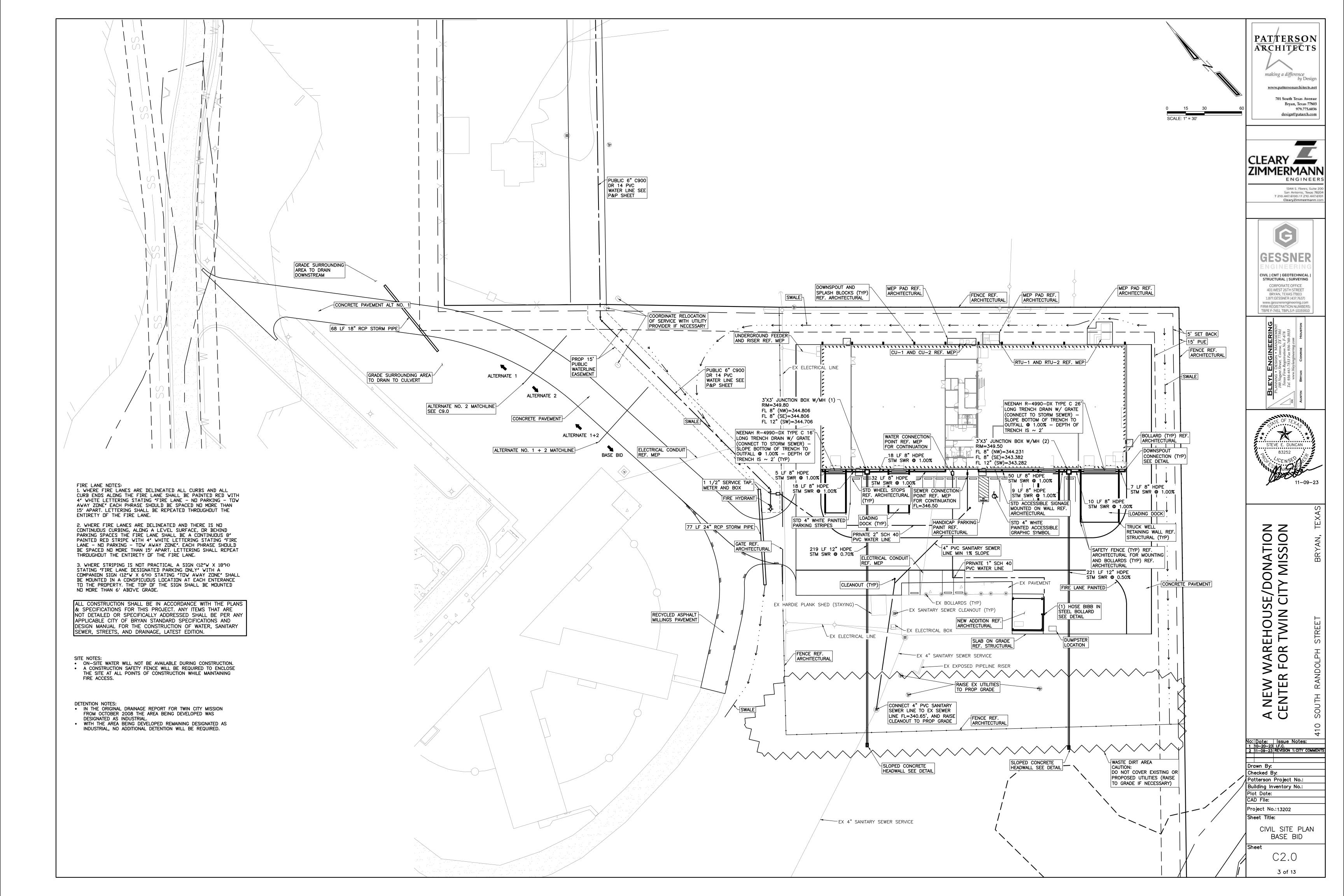
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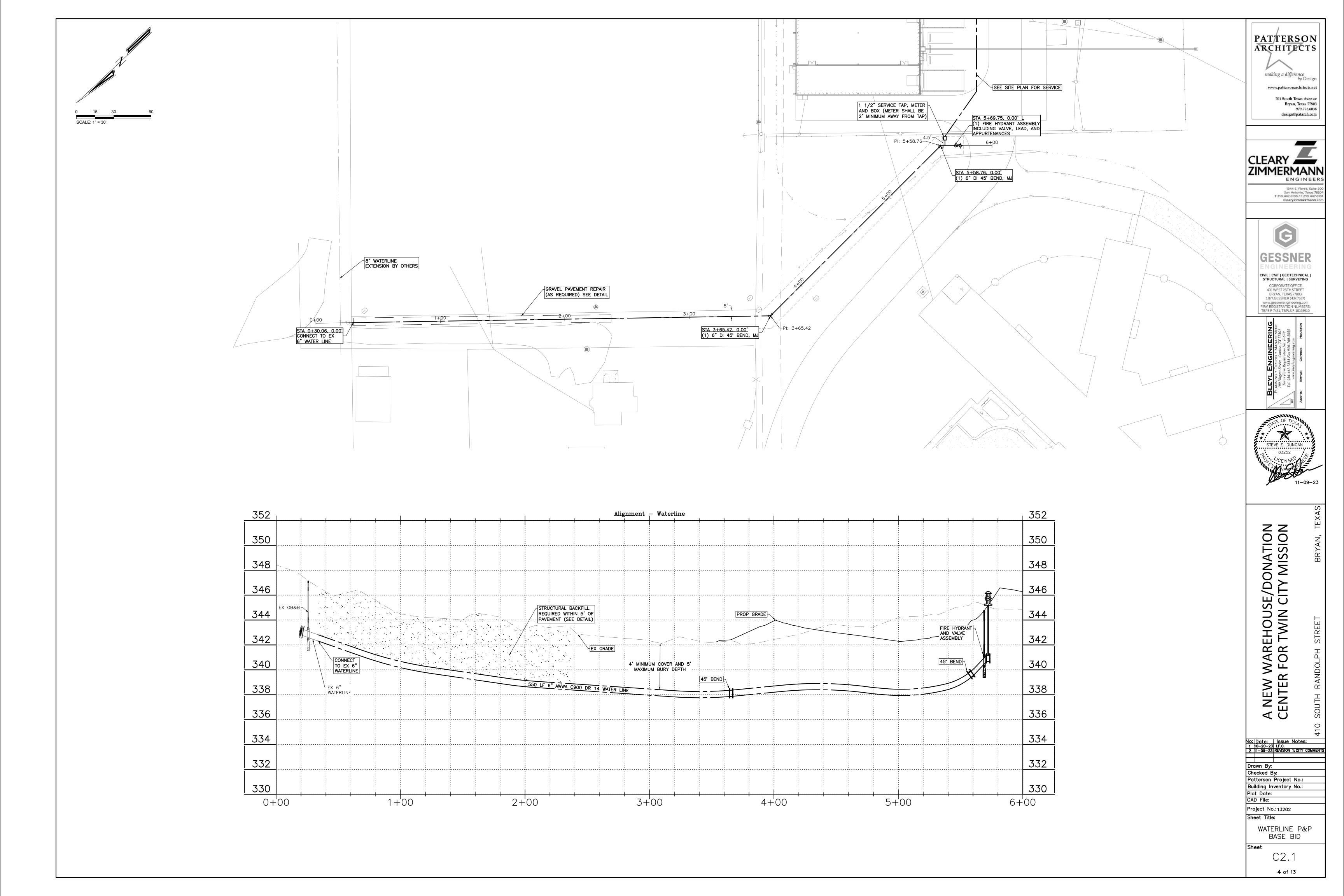
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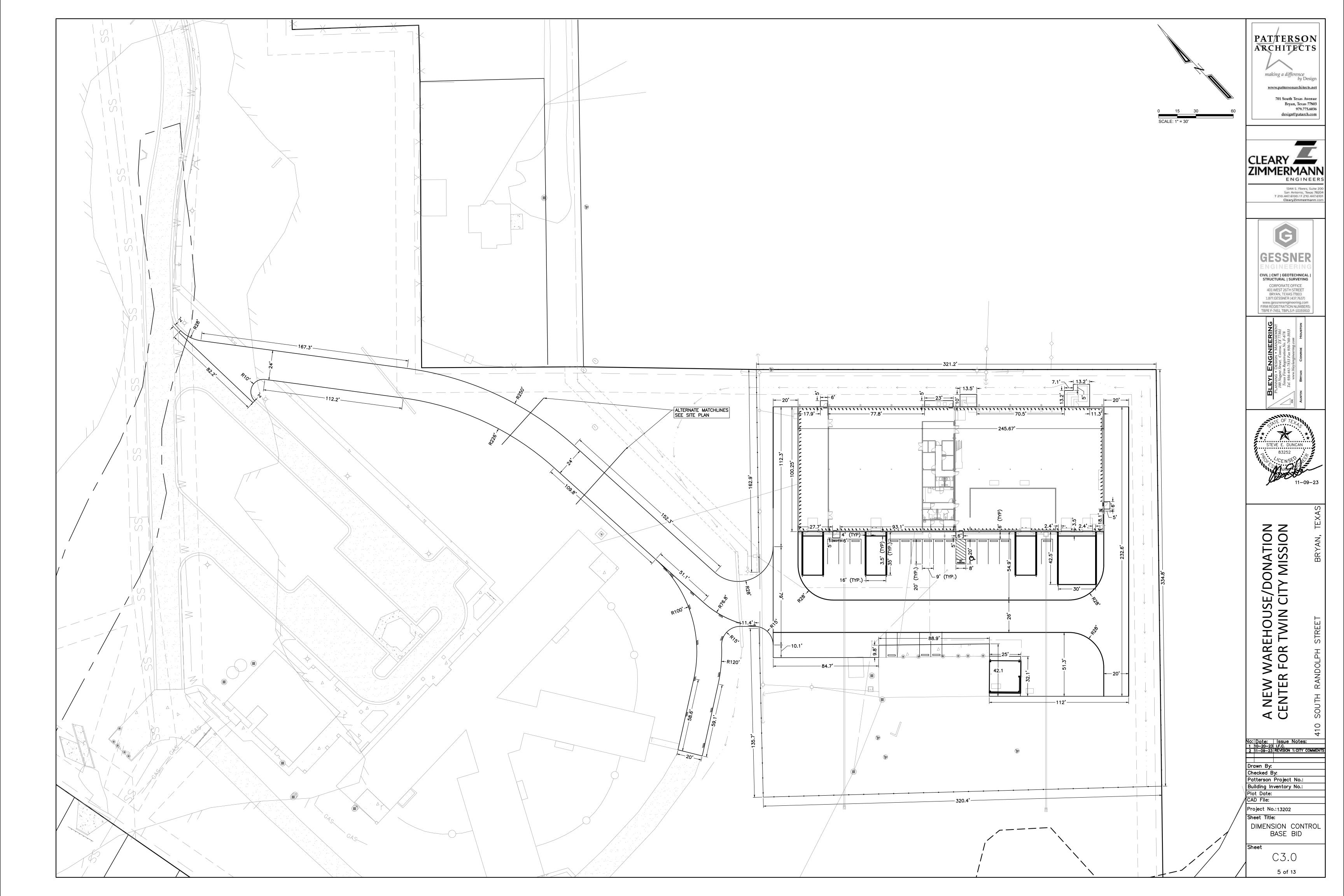
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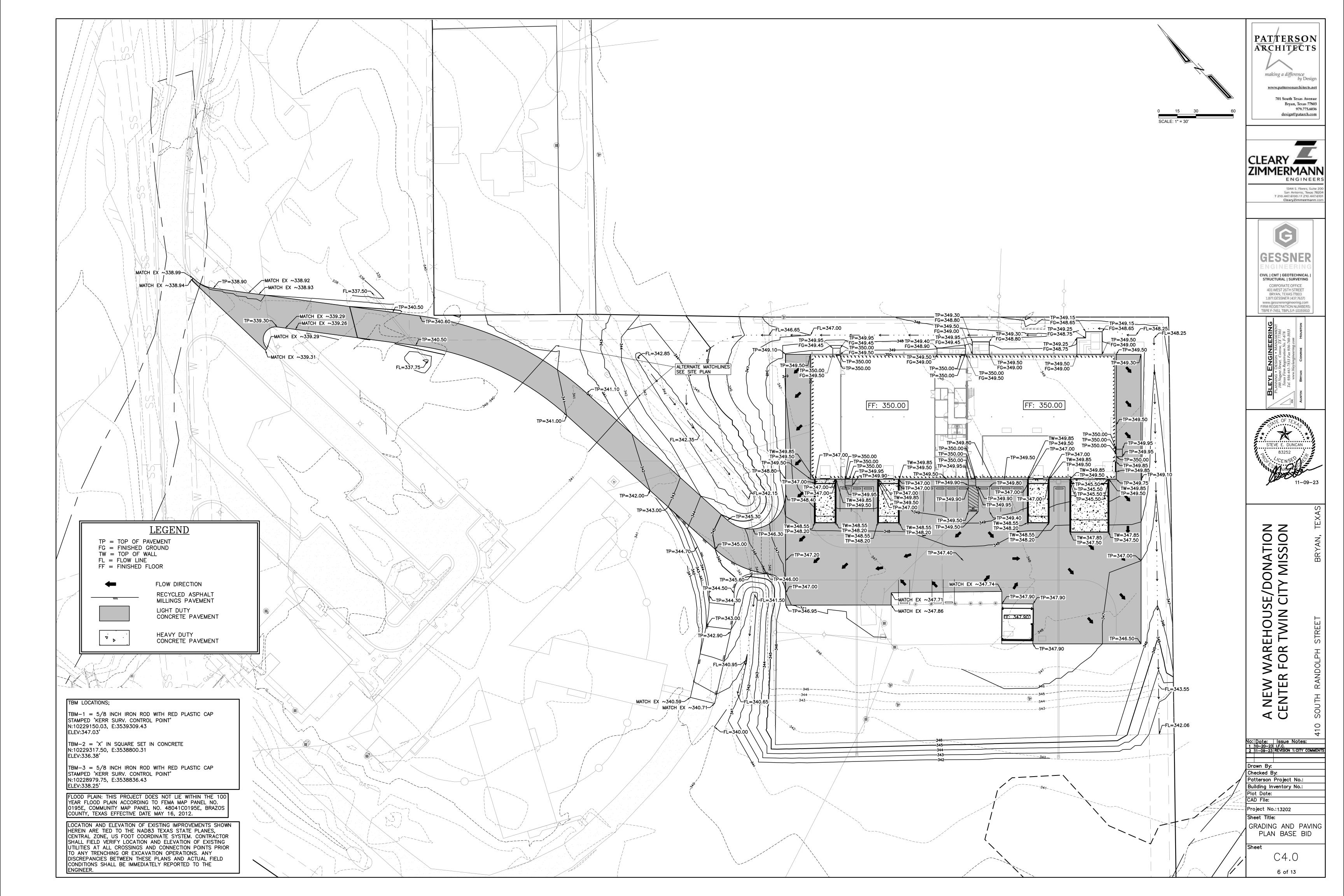
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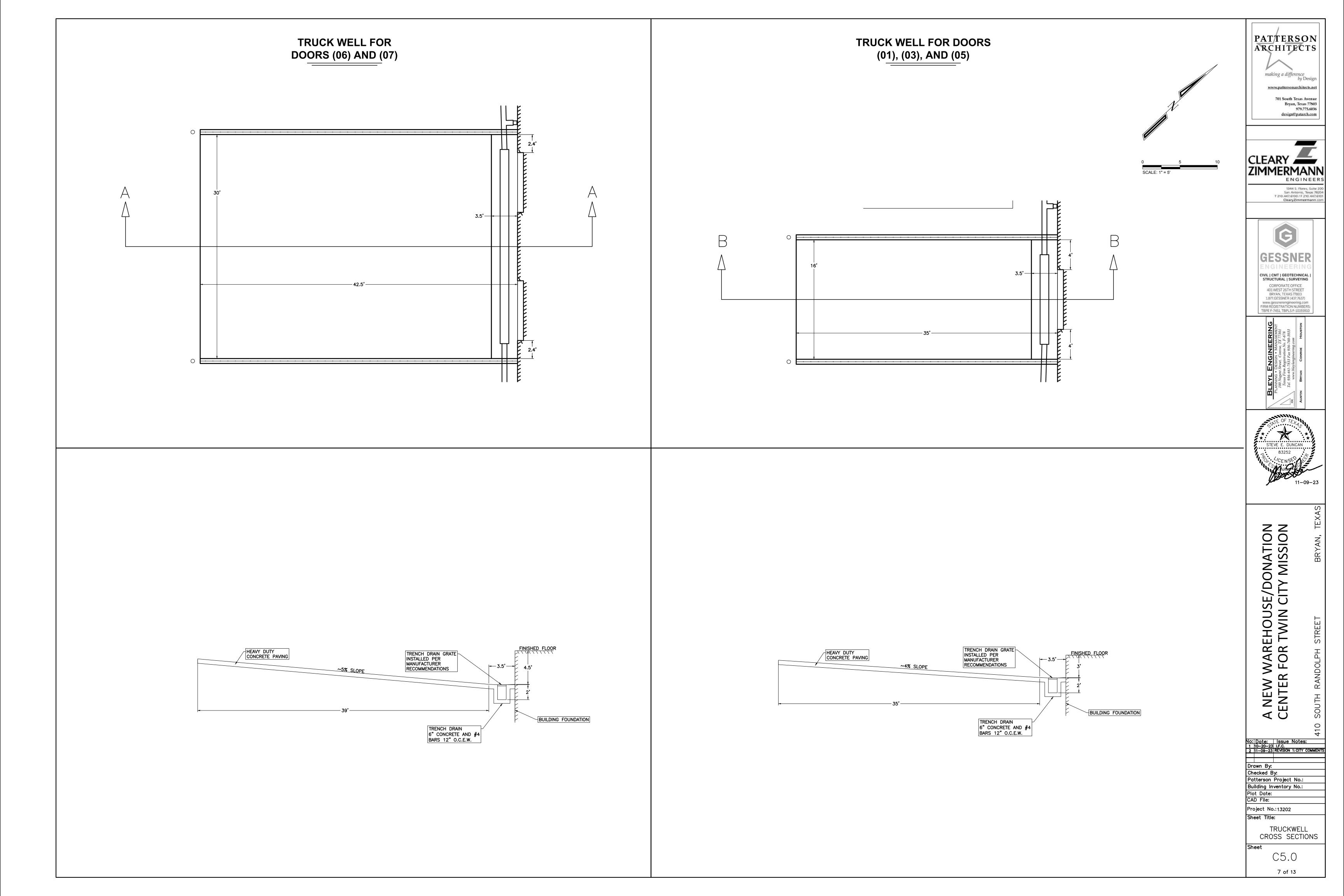


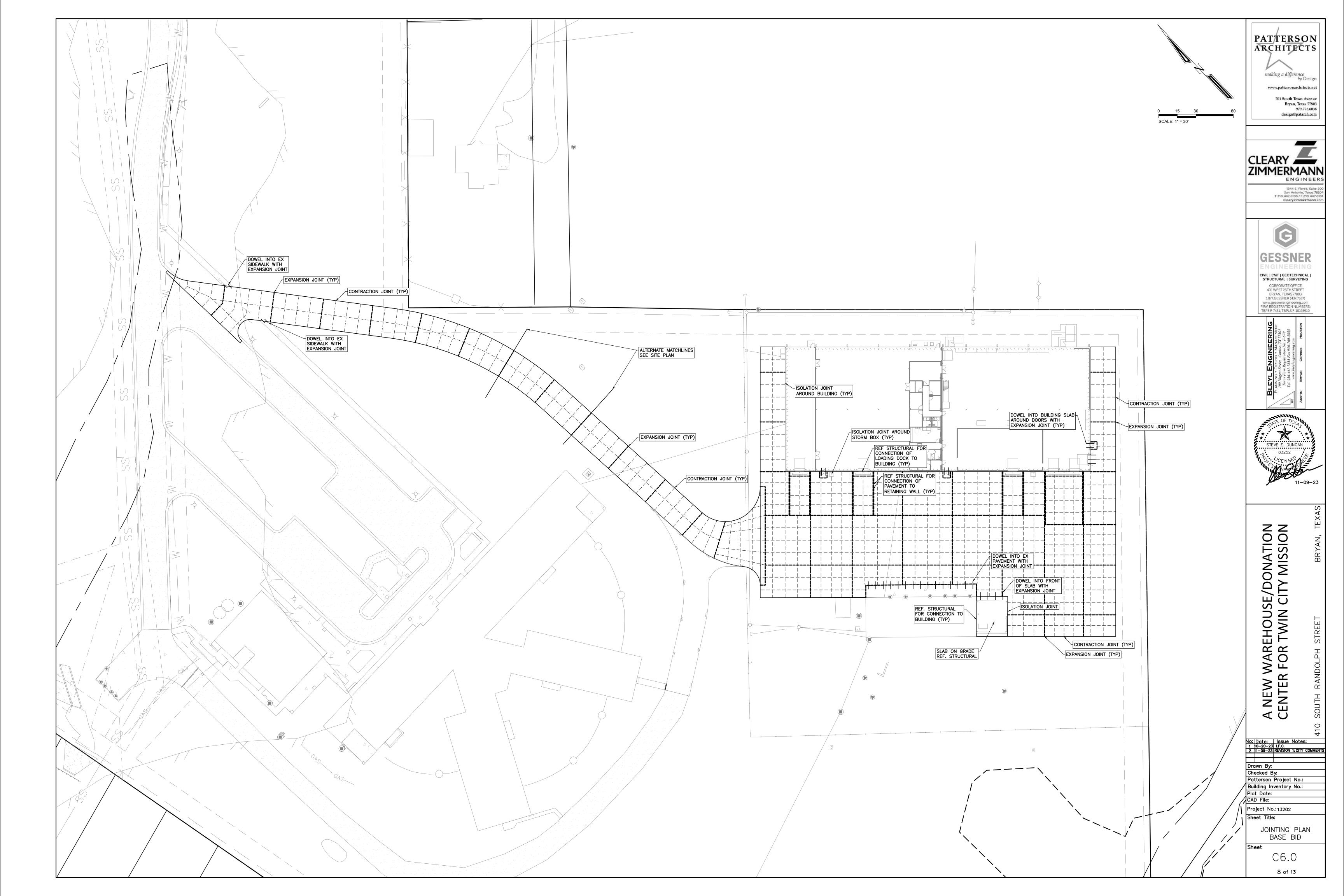


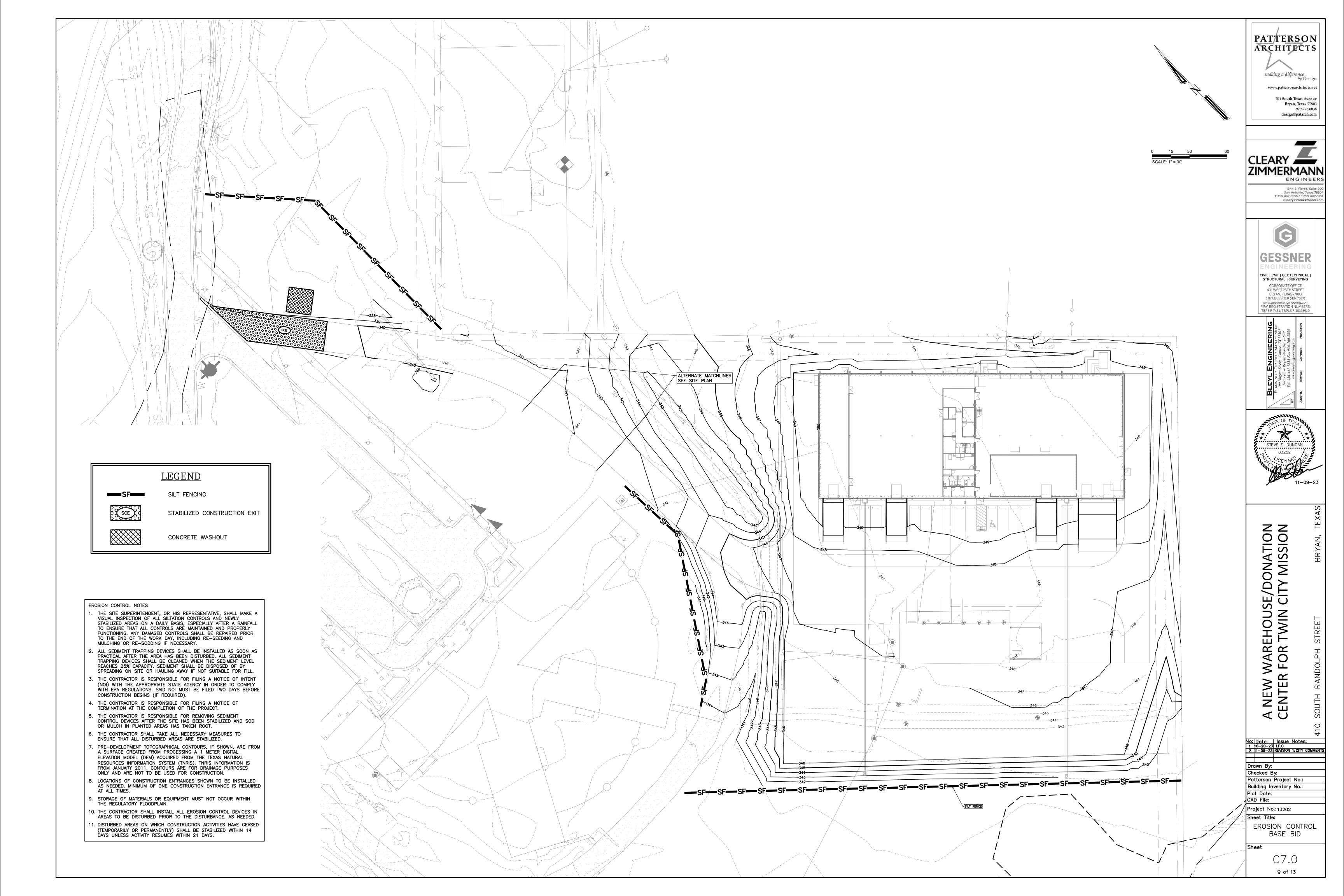


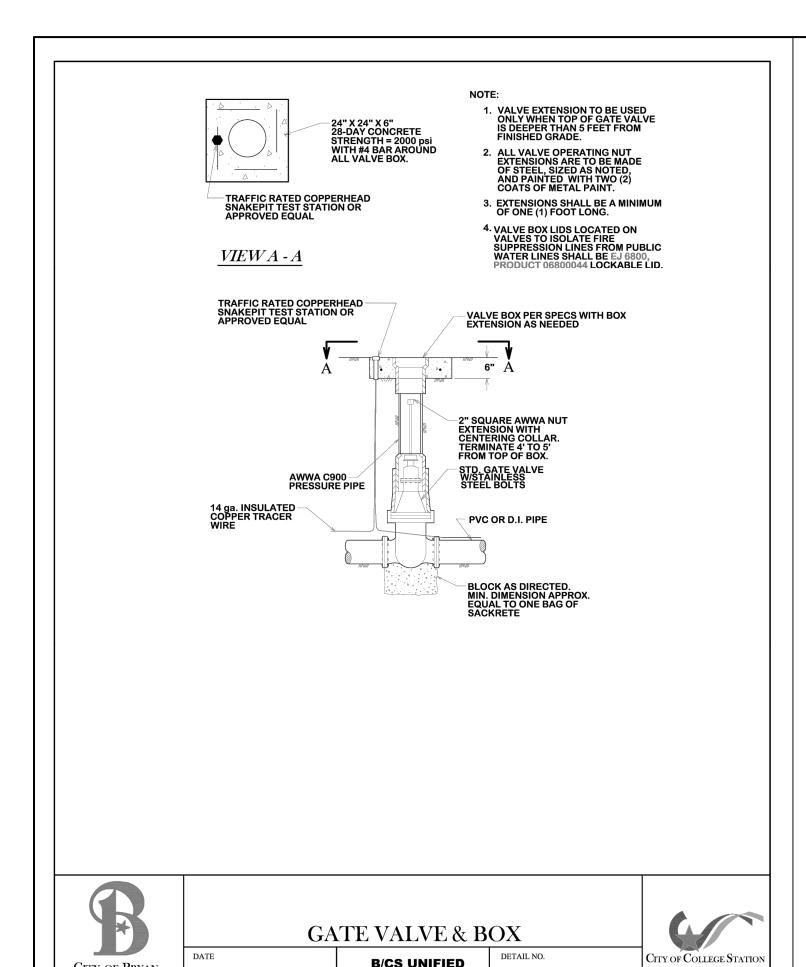




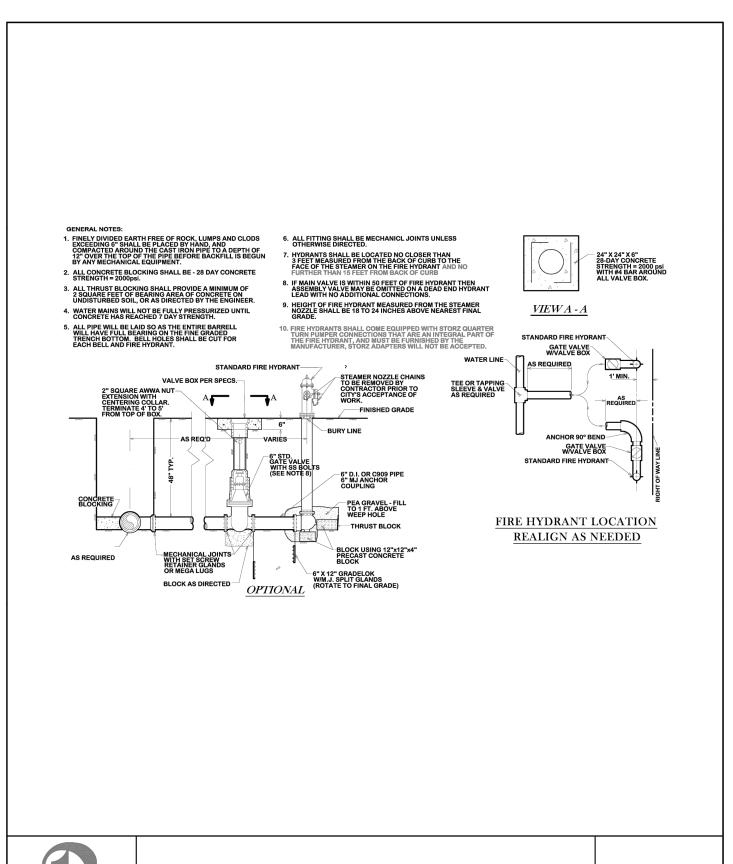








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CITY OF BRYAN
The Good Life, Texas Style."

AUG. 2012

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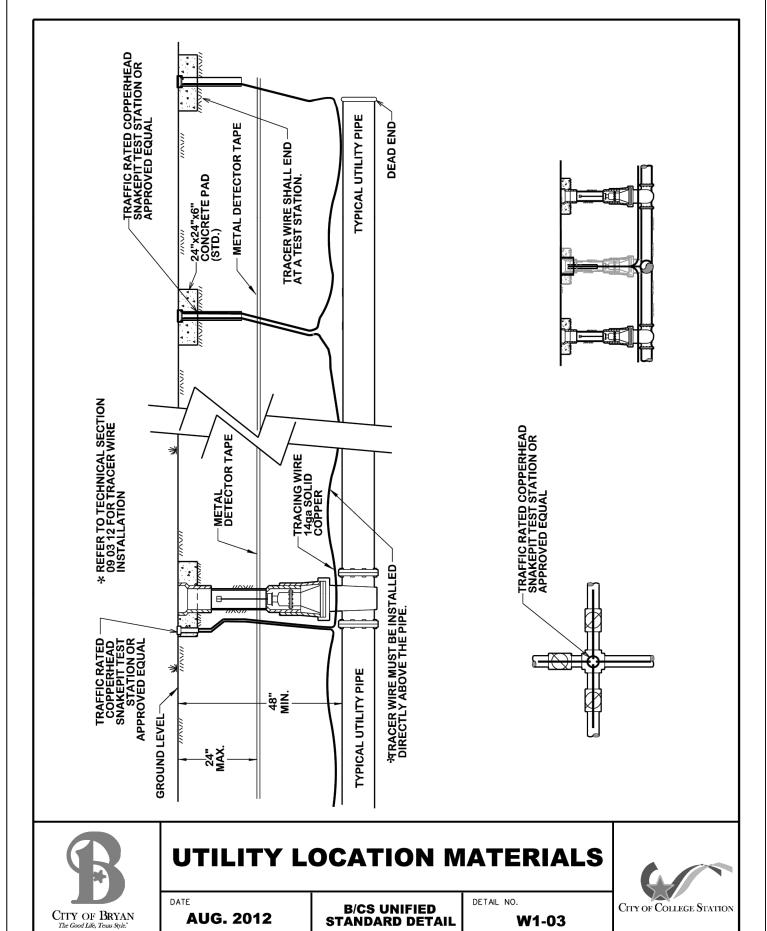
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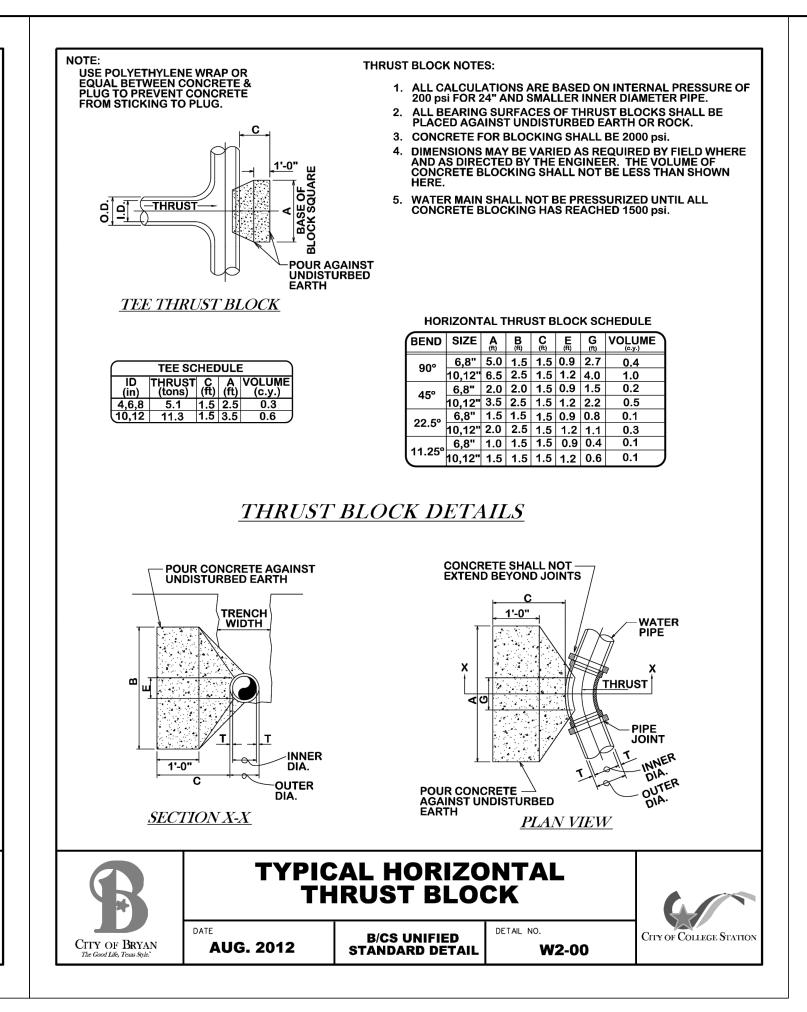
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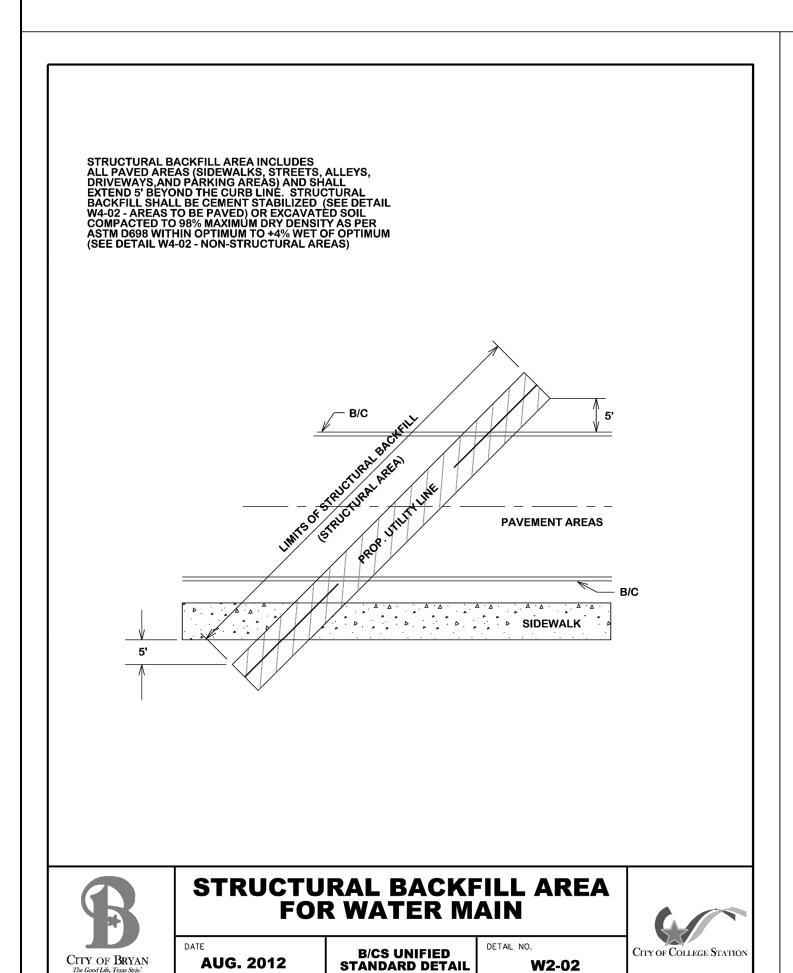
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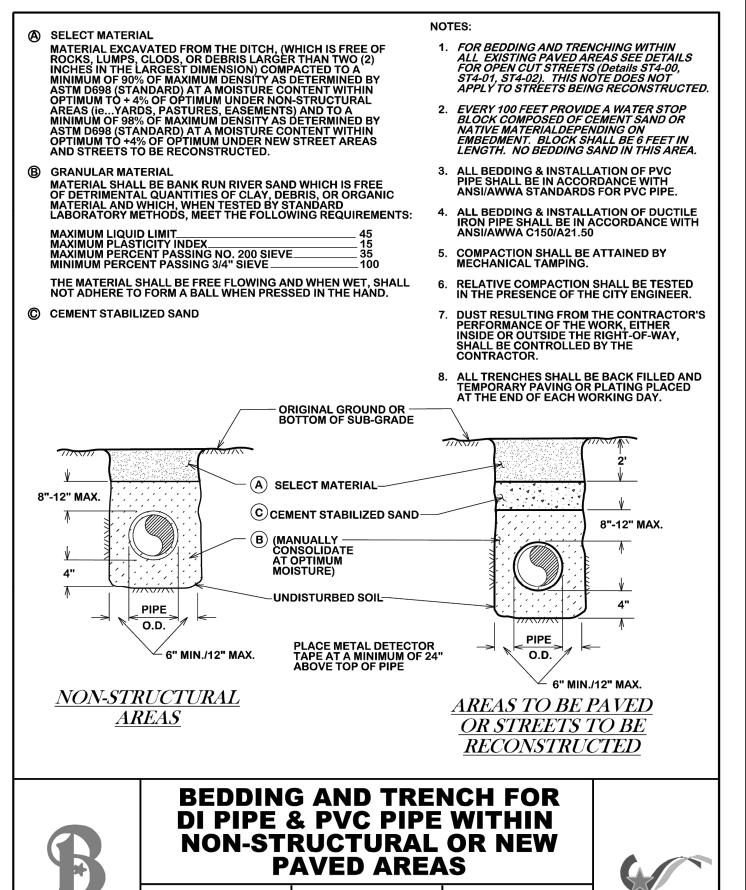
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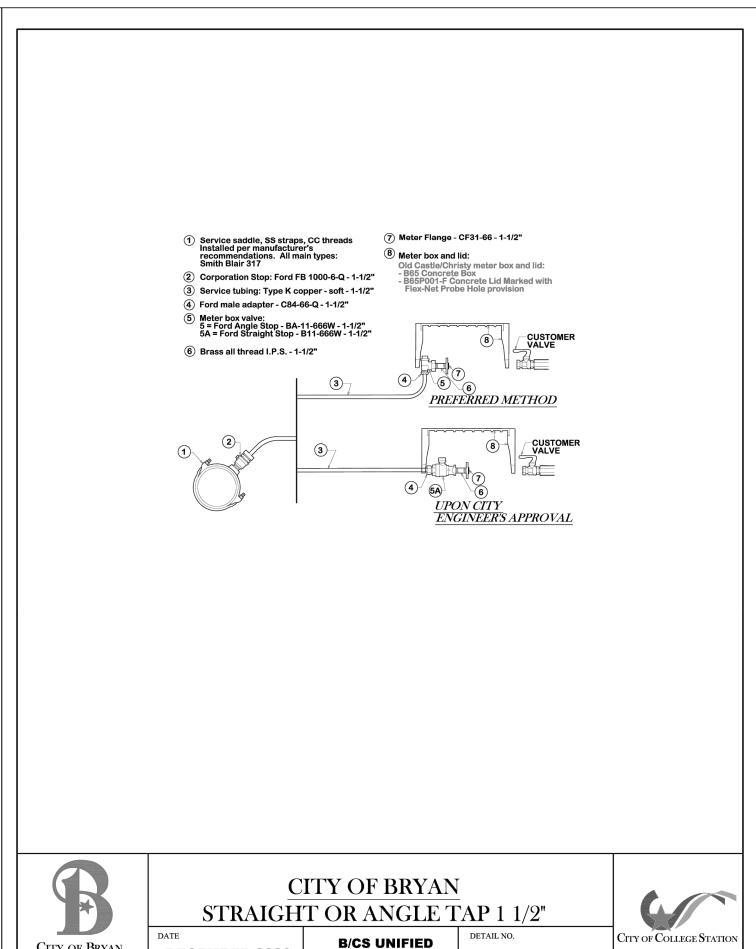






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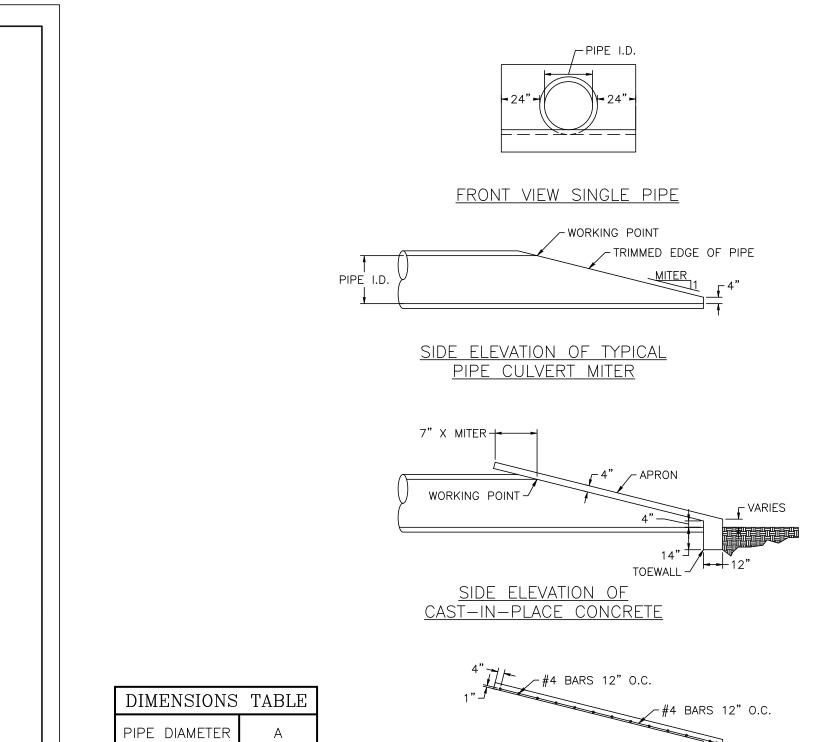
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STANDARD DETAIL

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DECEMBER 2020



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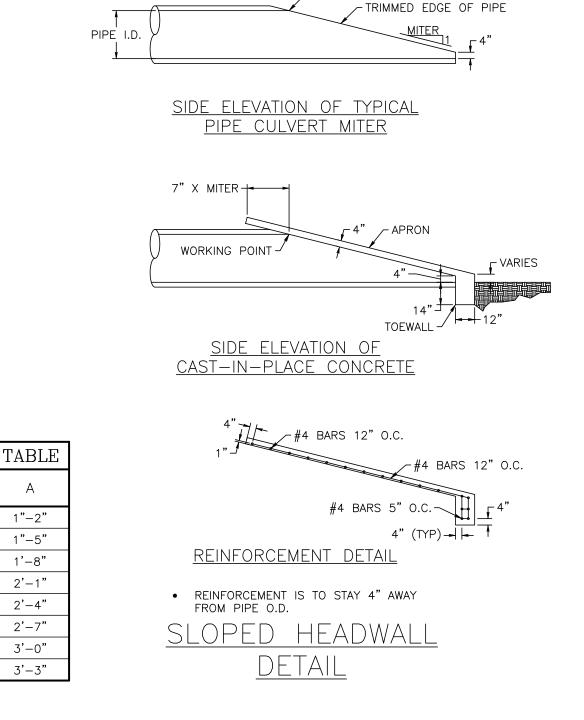
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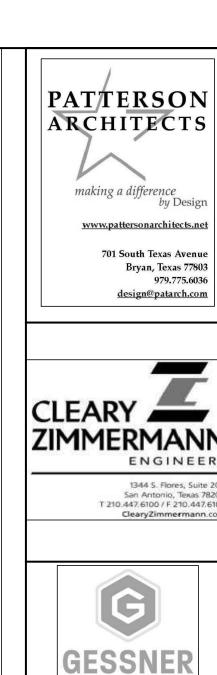
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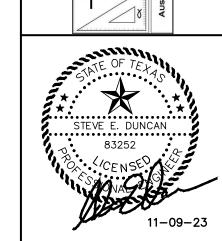
36"

48"

60"







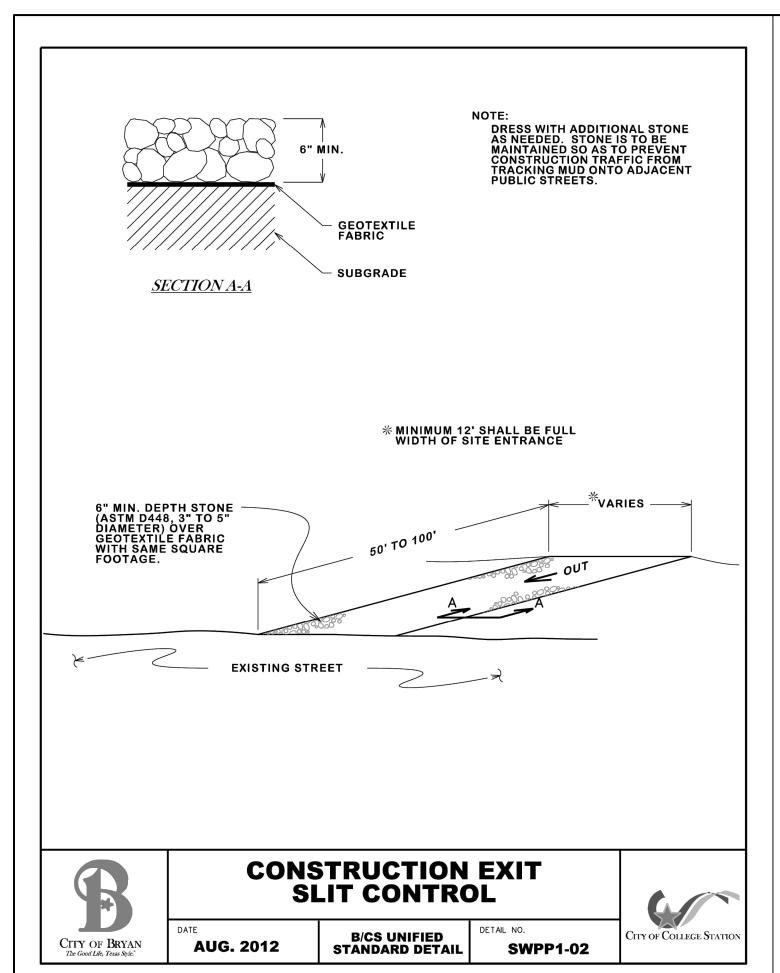
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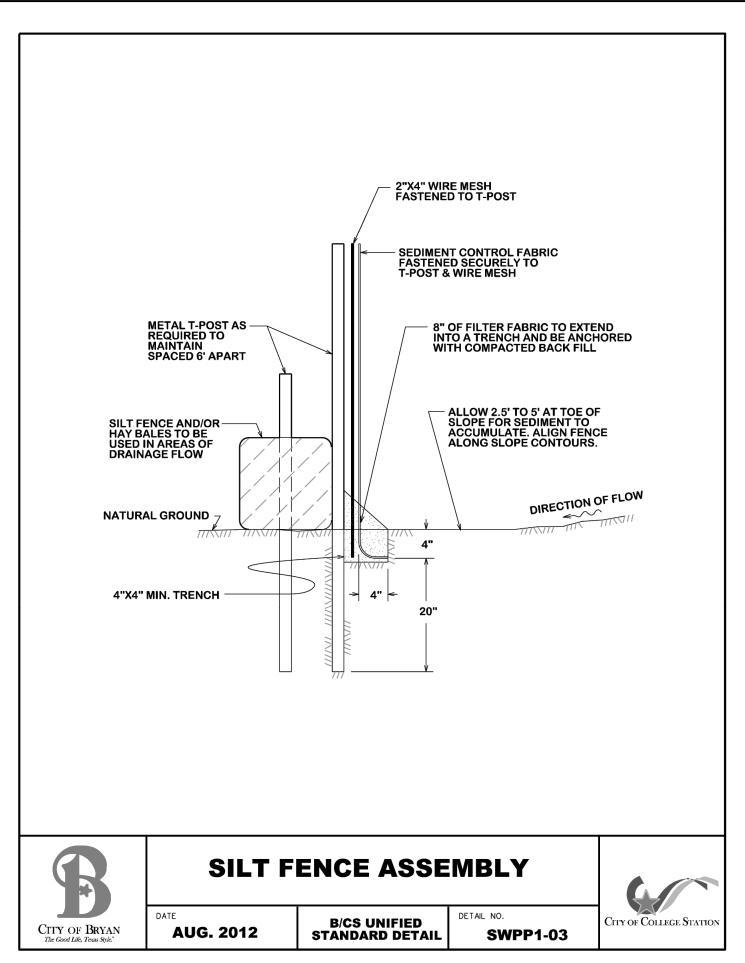
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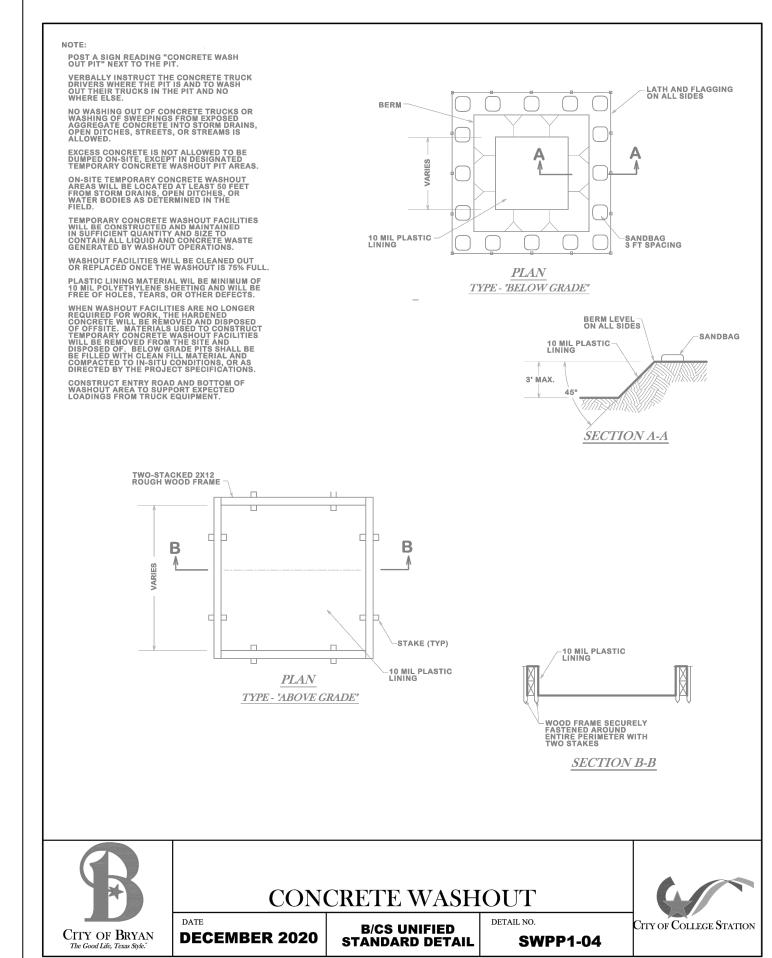
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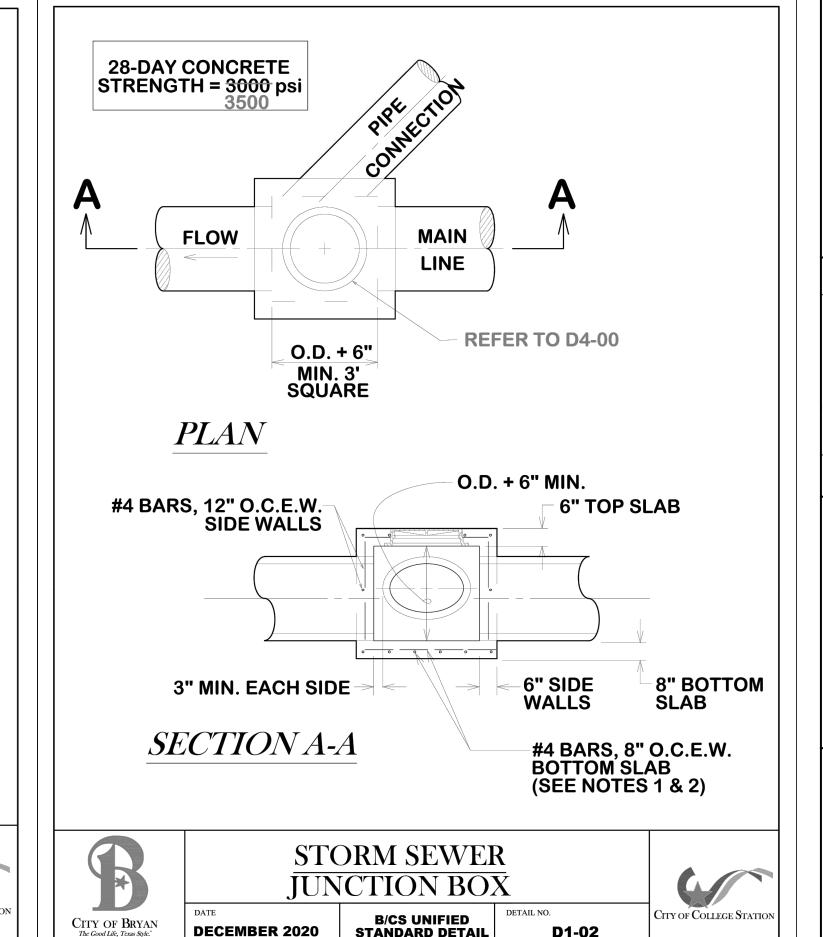
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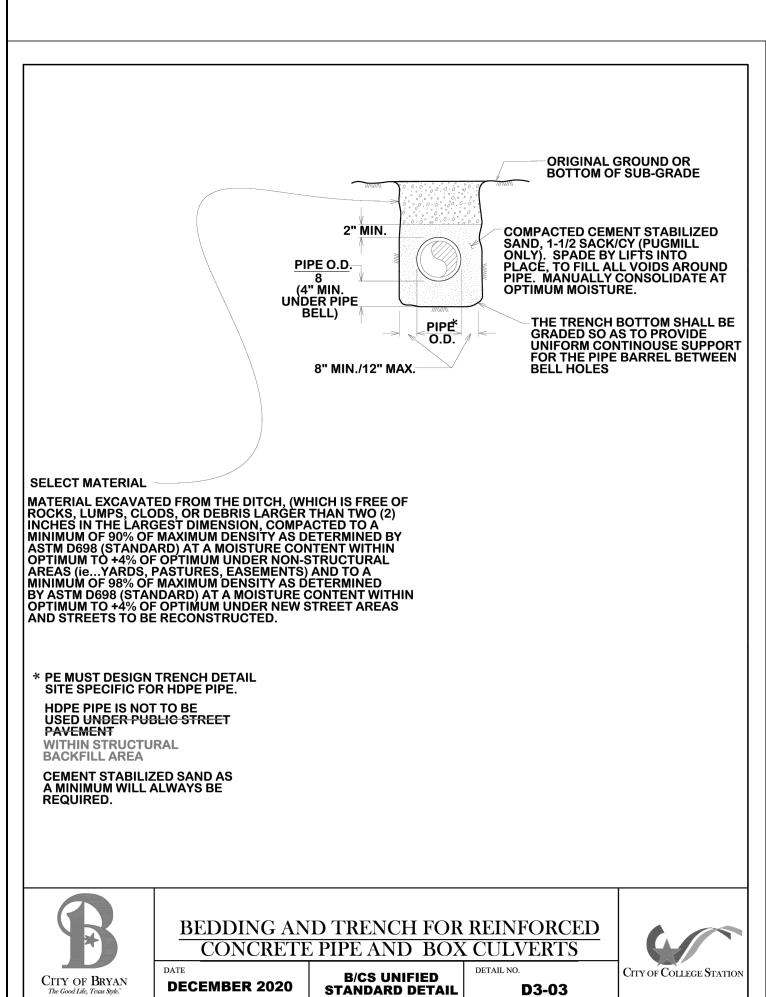


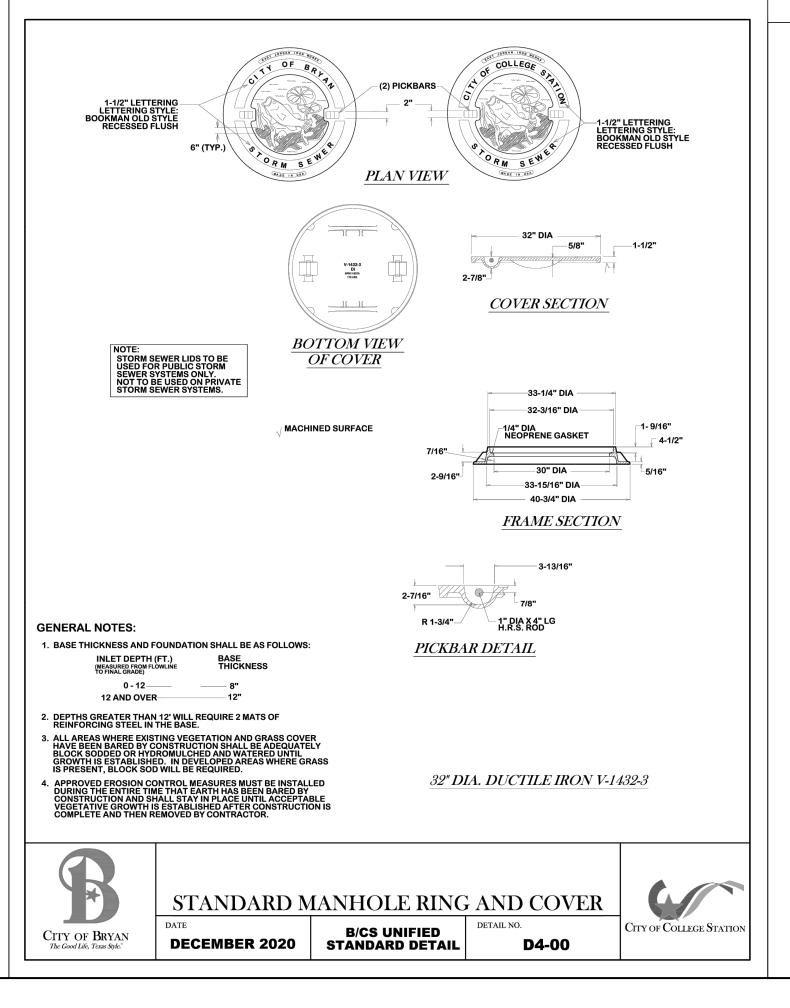


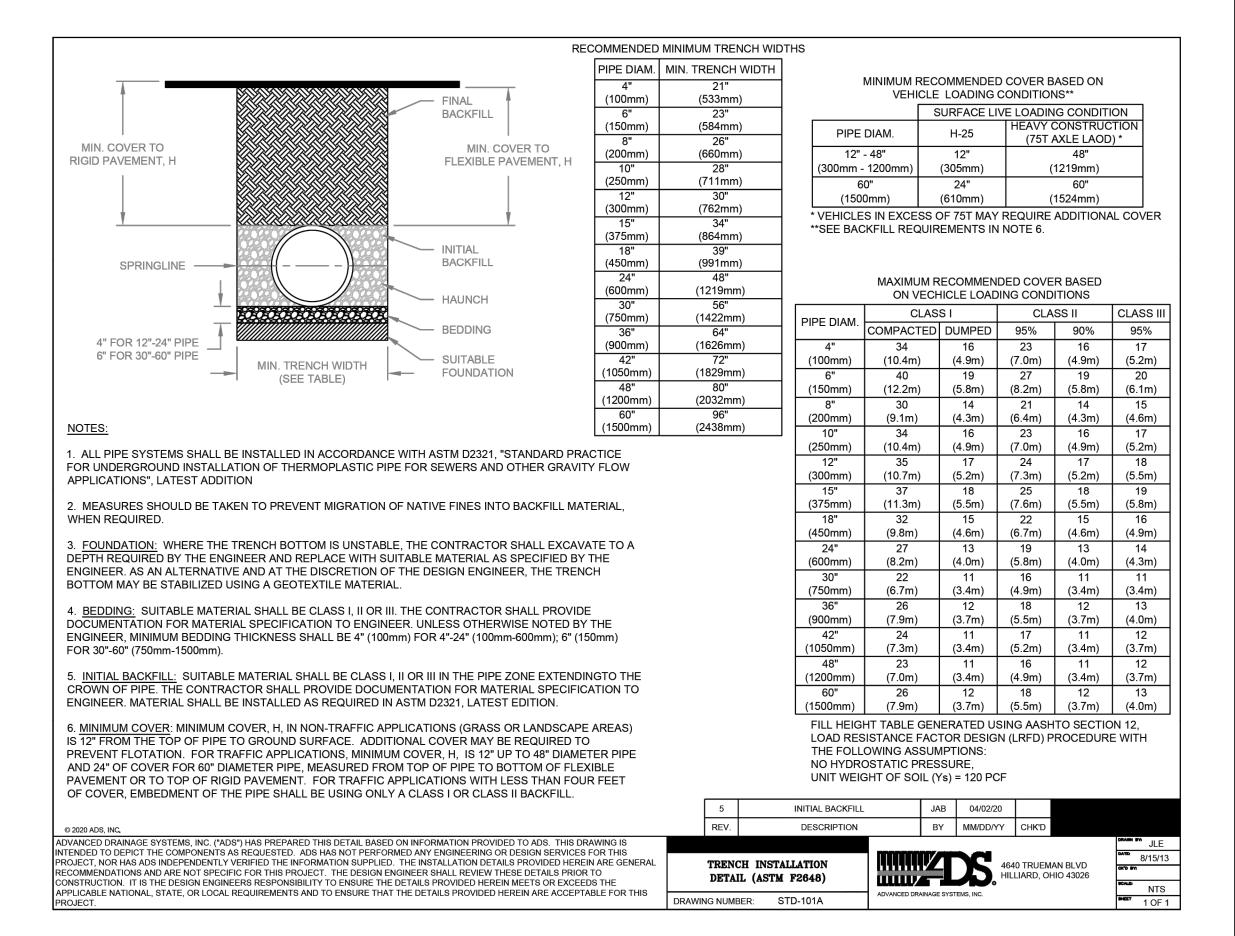


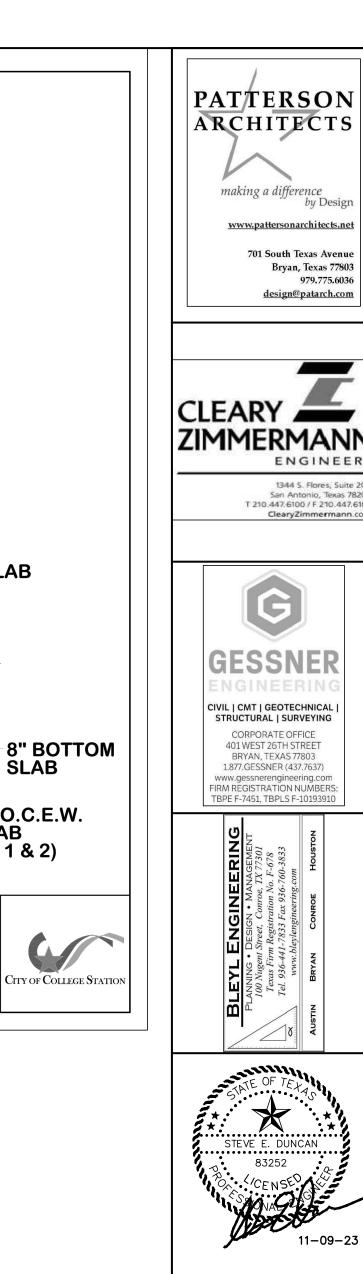
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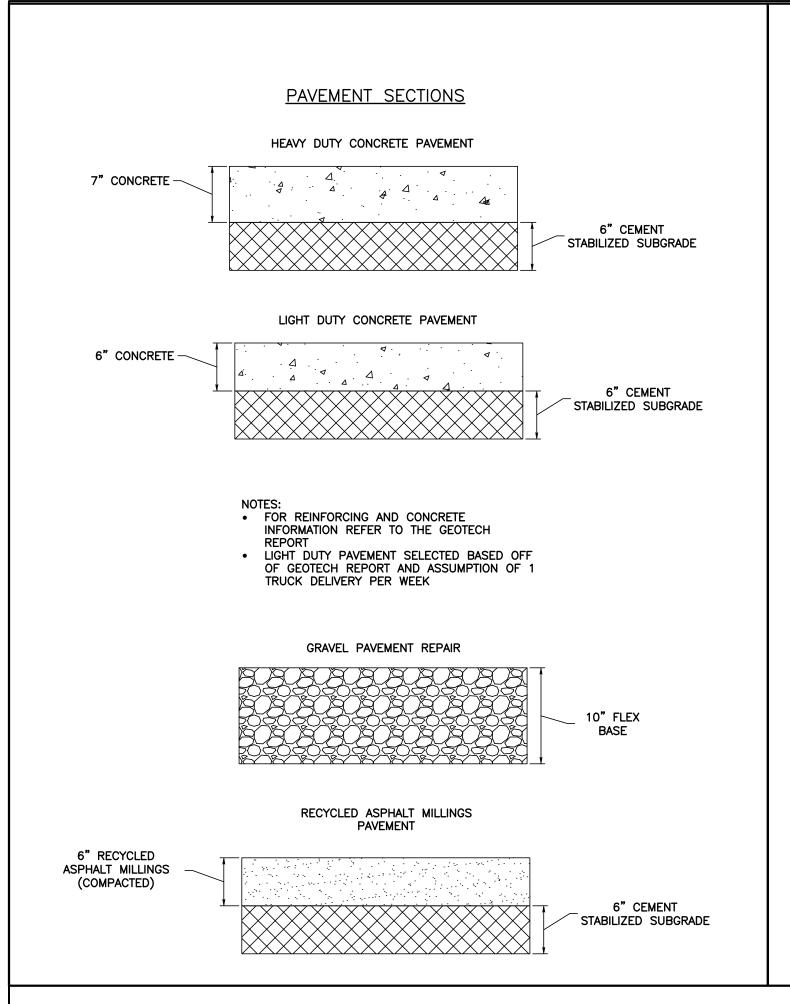
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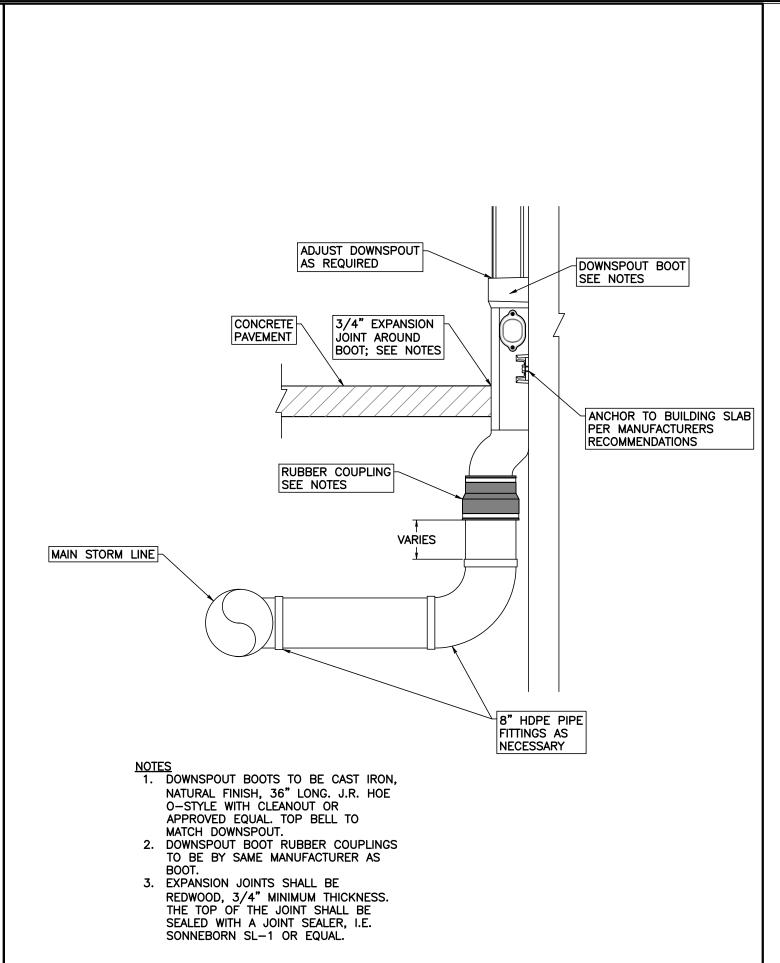
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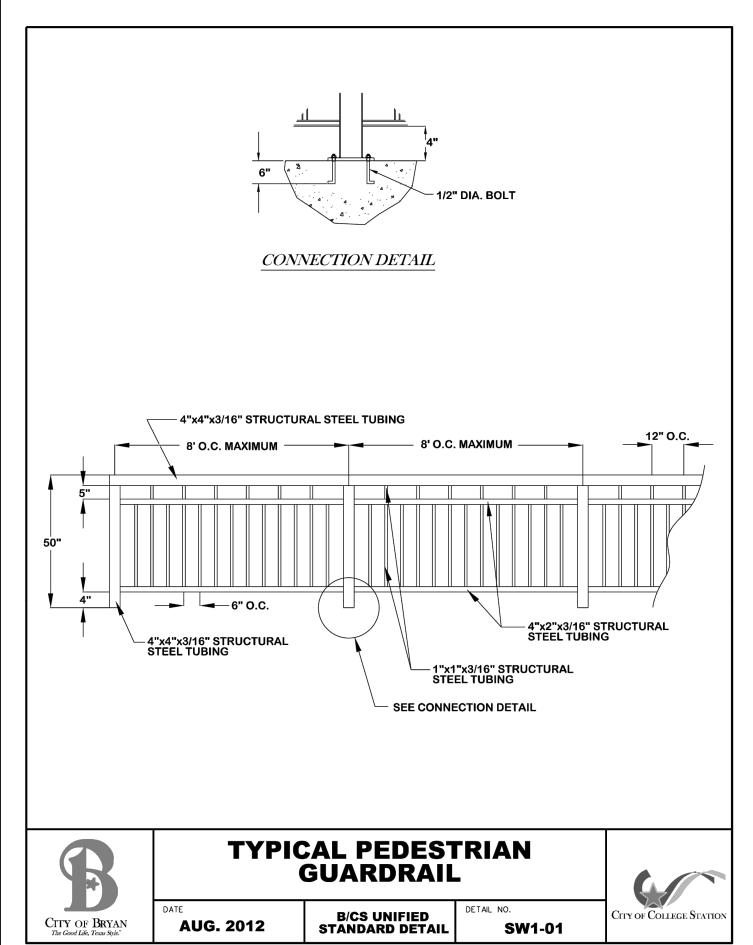
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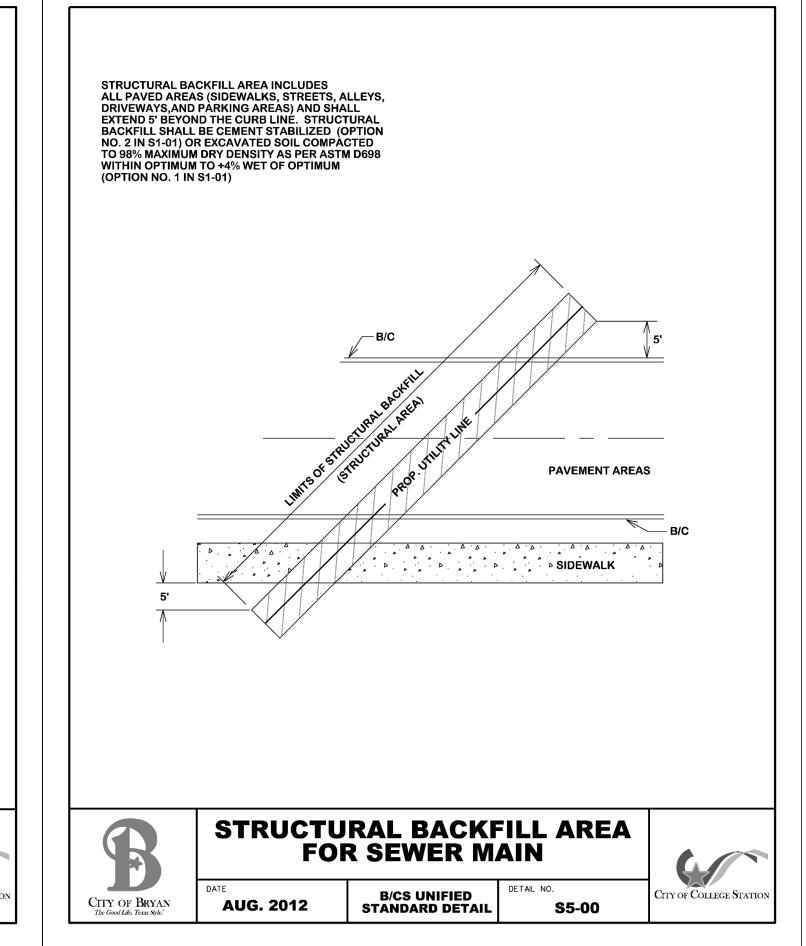
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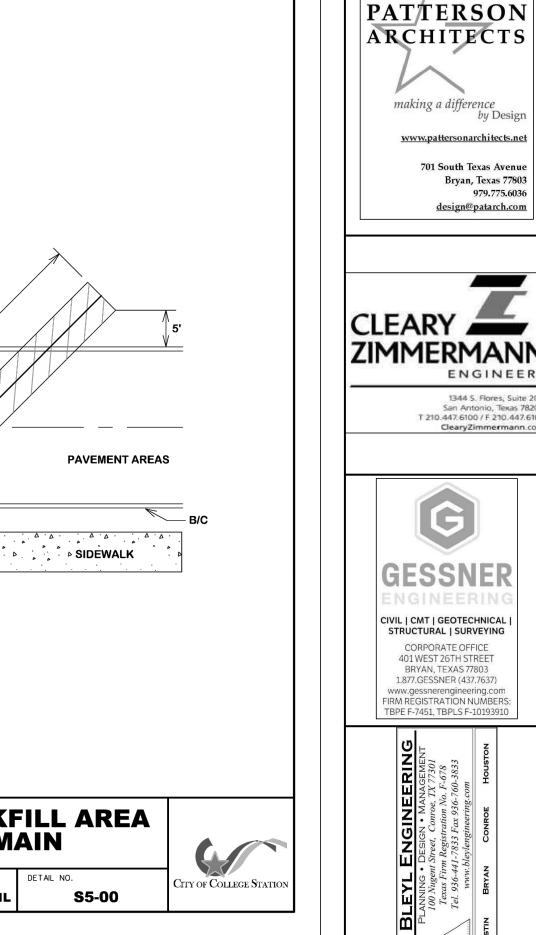
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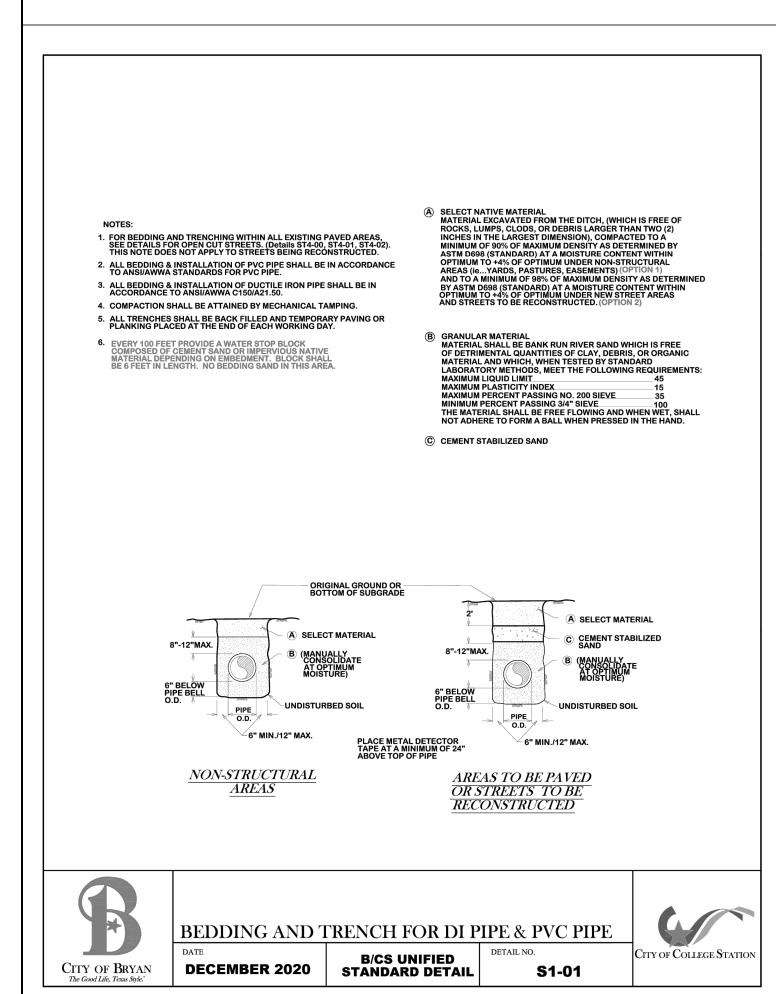


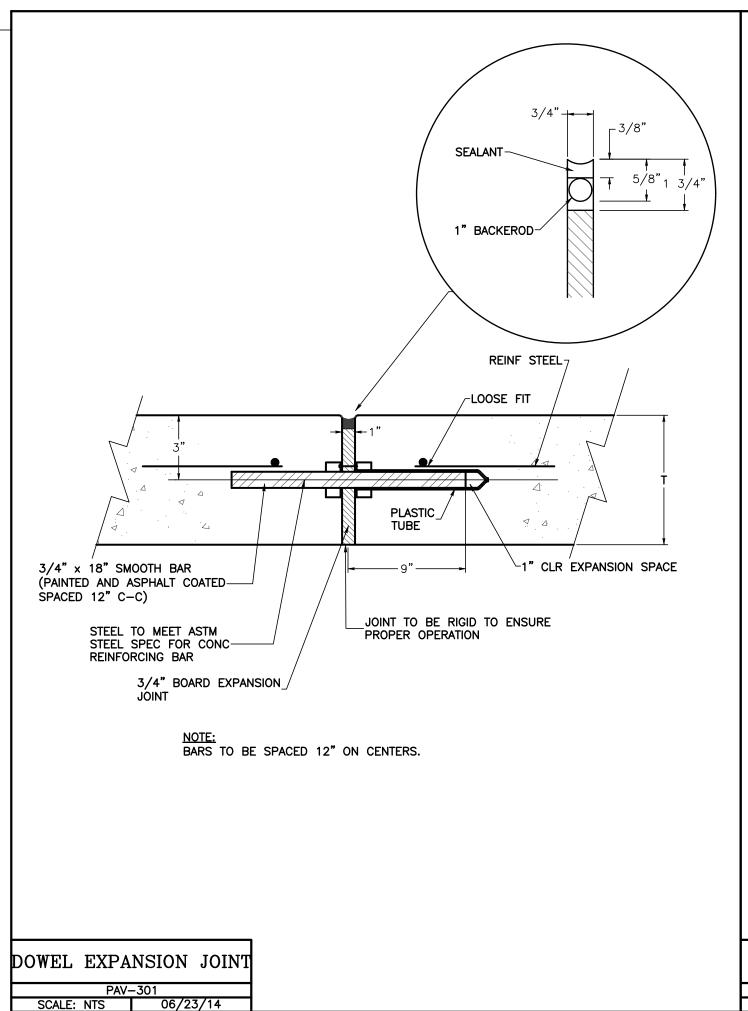


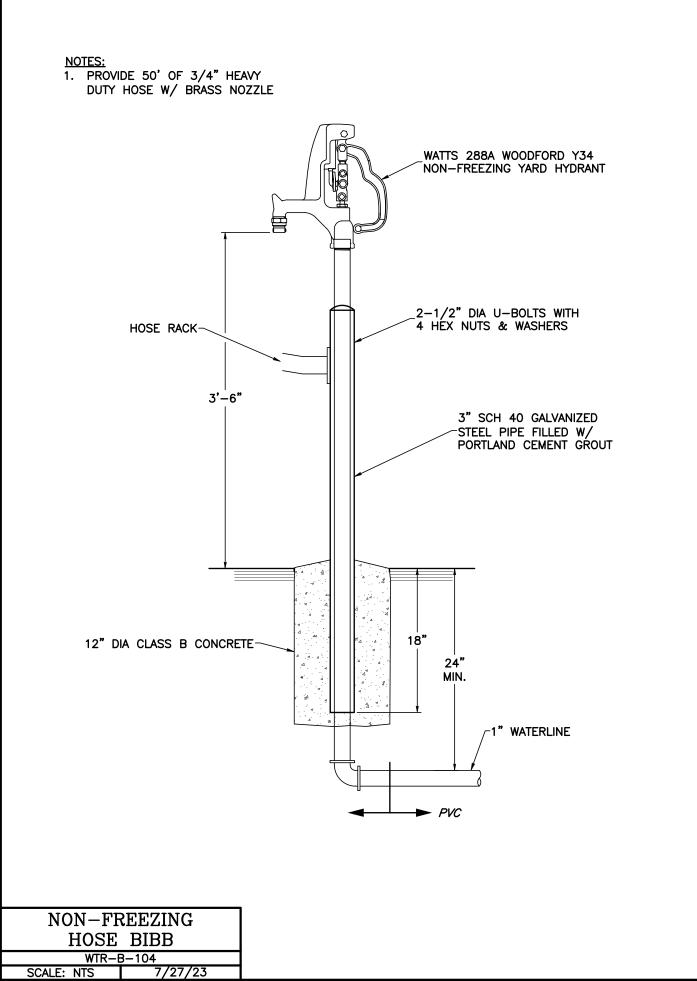


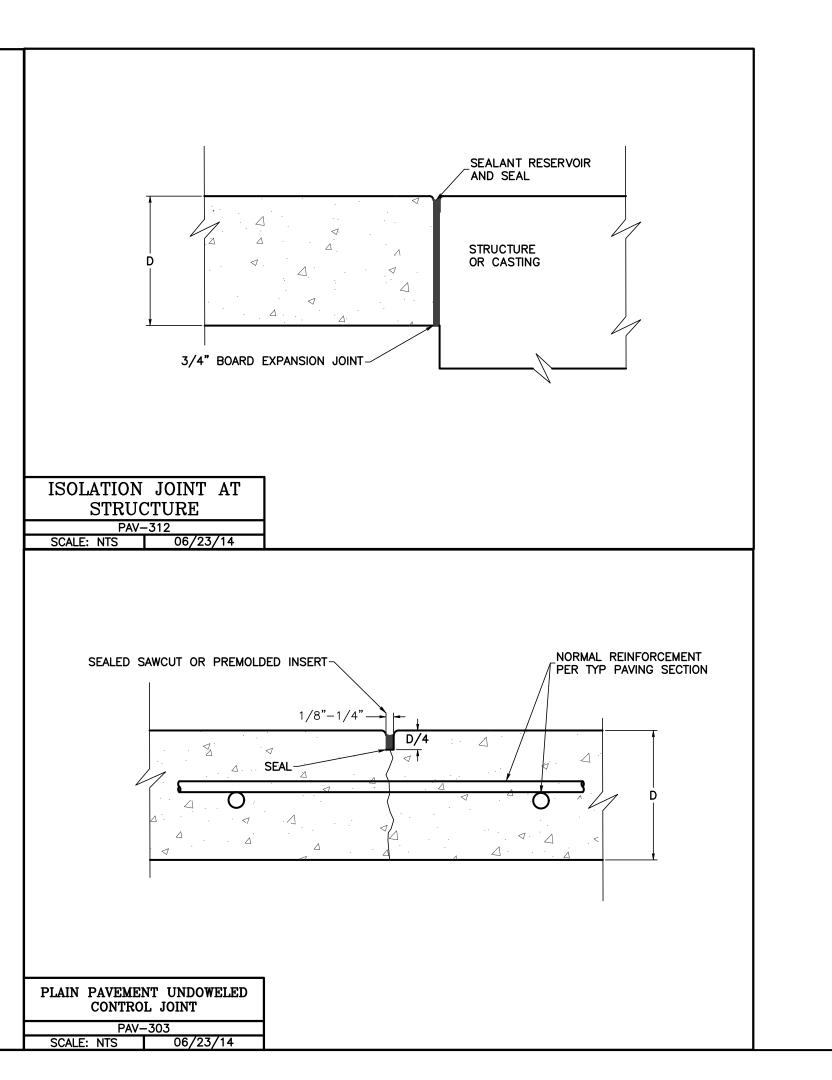


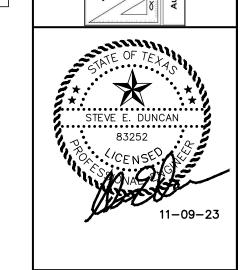












701 South Texas Avenue Bryan, Texas 77803

design@patarch.com

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