DEVELOPER: PULTE HOMES OF TEXAS 1311 BROADFIELD BLVD, SUITE 100 HOUSTON, TEXAS 77084 (281) 749-8000

SHEET NO. SHEET TITLE

COVER SHEET

GENERAL NOTES

DRAINAGE LAYOUT

WATER & SANITARY LAYOUT

DRAINAGE CALCULATIONS

LOT GRADING LAYOUT

LOST WAGON DRIVE

SANITARY SEWER DETAILS

STORM SEWER DETAILS

RETAINING WALL DETAILS

HIGH MESA LANE

WATER DETAILS

PAVING DETAILS

LANDSCAPE PLAN

TITLE SHEET

STORM WATER POLLUTION PREVENTION PLAN LAYOUT

STORM WATER POLLUTION PREVENTION PLAN DETAILS

TRAFFIC SIGNAGE & PAVEMENT MARKINGS LAYOUT

RED RIVER DRIVE (STA 13+00 TO 19+00)

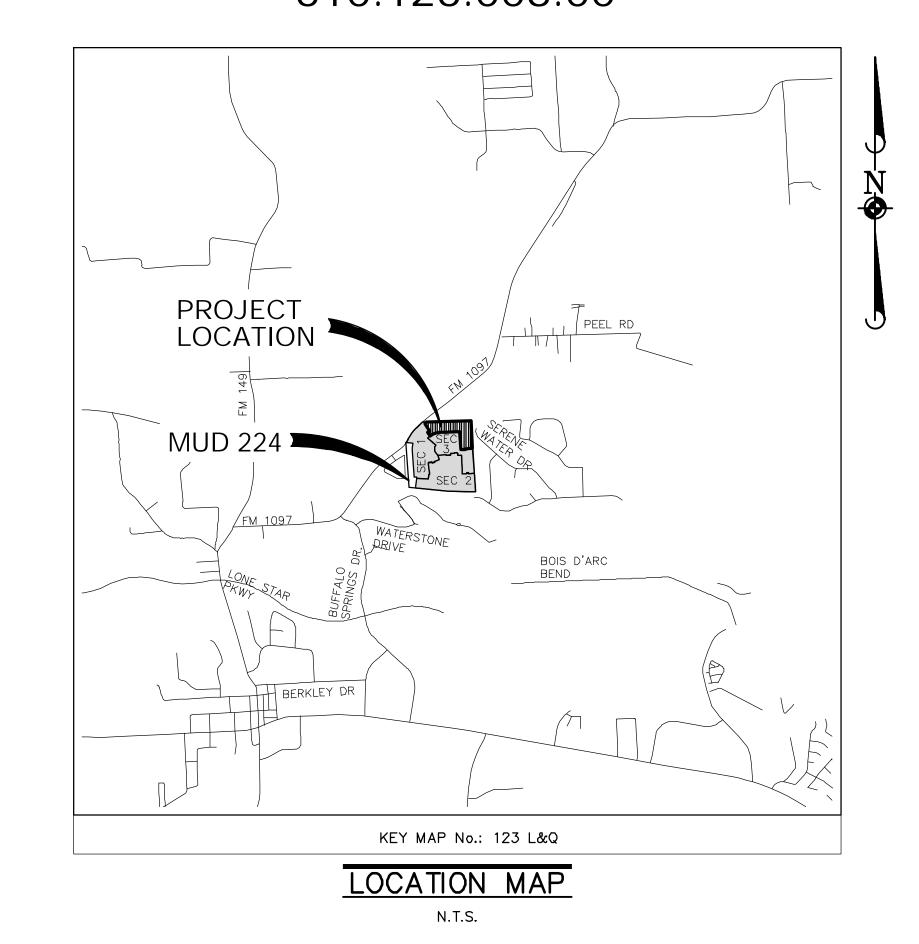
RED RIVER DRIVE (STA 19+00 TO 24+15)

CONSTRUCTION OF WATER, SANITARY, DRAINAGE AND PAVING FACILITIES FOR

# MONTGOMERY BEND SEC 4

DEVELOPMENT No. 2203 MONTGOMERY COUNTY MUNICIPAL UTILITY DISTRICT NO. 224

> CITY OF MONTGOMERY MONTGOMERY COUNTY, TX 610.126.008.00



ONE-CALL NOTIFICATION SYSTEM CALL BEFORE YOU DIG!!! (713) 223-4567 (In Houston)

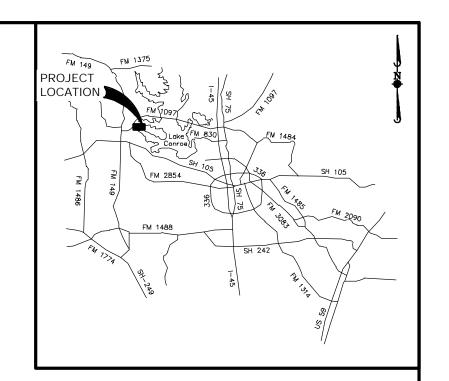
(New Statewide Number Outside Houston) 1-800-344-8317

48 HOUR NOTICE:

CONTRACTOR SHALL NOTIFY KATHERINE VU THE CITY OF MONTGOMERY ENGINEER AND OPERATOR AT 713-789-1900 BEFORE STARTING WORK ON THIS PROJECT.

ELEVATION LAND SOLUTIONS IS NOT RESPONSIBLE FOR THE SAFETY OF ANY PARTY AT OR ON THE CONSTRUCTION SITE. SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND ANY OTHER PERSON OR ENTITY PERFORMING WORK OR SERVICES. NEITHER THE OWNER NOR ENGINEER ASSUMES ANY RESPONSIBILITY FOR THE JOB SITE SAFETY OF PERSONS ENGAGED IN THE WORK OR THE MEANS OR METHODS OF CONSTRUCTION.





MONTGOMERY COUNTY AREA VICINITY MAP

**BENCHMARK:** 

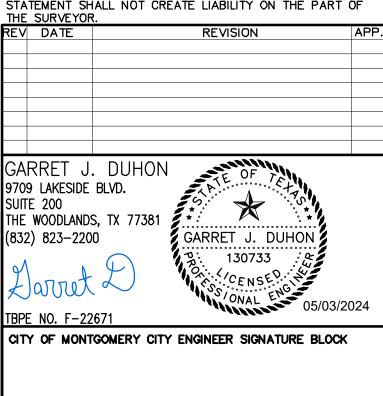
SOURCE BENCHMARK: ELEVATIONS SHOWN HEREON ARE BASED ON NATIONAL GEODETIC SURVEY MONUMENT DESIGNATION HGCSD 81, PID No HAVING PUBLISHED INFORMATION AS FOLLOWS:

LATITUDE: 30° 21' 12.45392" NORTH LONGITUDE: 095° 34' 45.02514" WEST ORTHO HEIGHT: 212.4 FT. (64.74 METERS) HORIZONTAL DATUM: NAD83 (2011) VERTICAL DATUM: NAVD88

**FLOODPLAIN INFORMATION:** 

EMERGENCY MANAGEMENT AGENCY'S FLOOD INSURANCE RATE MAPS FOR MONTGOMERY COUNTY, DATED AUGUST 18, 2014, THE SUBJECT TRACT IS SITUATED WITHIN: UNSHADED ZONE "X"; DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 100-YEAR FLOOD PLAIN.

THIS FLOOD STATEMENT DOES NOT IMPLY THAT THE PROPERTY OR STRUCTURES THEREON WILL BE FREE FROM FLOODING OR FLOOD DAMAGE. ON RARE OCCASIONS FLOODS CAN AND WILL OCCUR AND FLOOD HEIGHTS MAY BE INCREASED BY MAN-MADE OR NATURAL CAUSES. THIS FLOOD STATEMENT SHALL NOT CREATE LIABILITY ON THE PART OF



CITY OF MONTGOMERY CITY ENGINEER SIGNATURE VALID FOR ONE (1) YEAR

DATE

PM: GJD DFT: MAQ DSN: GMC DATE:MAY 2024

SHEET 1 OF 19

#### GENERAL CONSTRUCTION NOTES

- 1. MATERIALS, CONSTRUCTION, AND TESTING TO BE IN ACCORDANCE WITH THE SPECIFICATIONS INDICATED IN THE PLANS AND CONTRACTS AND ARE TO BE INCLUDED IN ALL SETS OF CONSTRUCTION DRAWINGS.
- 2. CONTRACTOR TO OBTAIN ALL DEVELOPMENT AND CONSTRUCTION PERMITS REQUIRED BY CITY OF MONTGOMERY, TEXAS AT HIS EXPENSE PRIOR TO COMMENCEMENT OF WORK, WHERE APPLICABLE.
- 3. CONTRACTOR SHALL GIVE NOTICE TO ALL AUTHORIZED INSPECTORS, SUPERINTENDENTS, OR PERSONS IN CHARGE OF PRIVATE AND PUBLIC UTILITIES OR RAILROADS AFFECTED BY HIS OPERATIONS 48 HOURS PRIOR TO COMMENCEMENT OF WORK LOCATED IN STREET RIGHT OF WAYS AND EASEMENTS.
- 4. ALL EXISTING UNDERGROUND UTILITIES ARE AN APPROXIMATE LOCATION ONLY AND ARE NOT GUARANTEED TO BE COMPLETED OR DEFINITE BUT WERE OBTAINED FROM THE BEST INFORMATION AVAILABLE. CONTRACTOR HAS SOLE RESPONSIBILITY FOR FIELD VERIFICATION TO DETERMINE EXACT LOCATIONS AND DEPTHS FOR ALL EXISTING FACILITIES SHOWN ON DRAWINGS BEFORE COMMENCING ANY WORK. THE CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF THEIR CONSTRUCTION ACTIVITIES WITH THE UTILITY COMPANIES AS TO THE RELOCATION OF THEIR FACILITIES, IF NEEDED. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ANY AND ALL DAMAGES CAUSED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ALL UNDERGROUND
- 5. THE LOCATION OF ALL UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL REQUEST THE EXACT LOCATION OF THESE FACILITIES BY CALLING THE UTILITY COMPANY, AT LEAST 48 HOURS BEFORE COMMENCING WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE WHICH OCCURS DUE TO HIS FAILURE TO REQUEST THE LOCATION AND PRESERVATION OF THESE UNDERGROUND FACILITIES. ANY DAMAGE TO EXISTING FACILITIES INCURRED AS A RESULT OF CONSTRUCTION OPERATIONS WILL BE REPAIRED BY THE CONTRACTOR AT HIS OWN EXPENSE.
- 6. TEXAS LAW ARTICLE 1436C, PROHIBITS ALL ACTIVITIES IN WHICH PERSONS OR EQUIPMENT MAY COME WITHIN 6 FEET OF ENERGIZED OVERHEAD POWER LINES. FEDERAL REGULATION TITLE 29, PART 1910.130(1) AND PART 1926.440(A)(15) REQUIRE A MINIMUM CLEARANCE OF 10 FEET FROM THESE FACILITIES. THE ABOVE LAWS CARRY BOTH CRIMINAL AND CIVIL LIABILITIES, WITH CONTRACTORS AND OWNERS BEING LEGALLY RESPONSIBLE FOR THE SAFETY OF WORKERS UNDER THESE LAWS. IF THE CONTRACTOR OR THE OWNER MUST WORK NEAR ENERGIZED OVERHEAD POWER LINES, CALL THE COMPANY FOR THE LINES TO BE DEENERGIZED AND/OR MOVED AT YOUR EXPENSE.
- 7. CONSTRUCTION SHALL COMPLY WITH THE LATEST REVISIONS OF OSHA REGULATIONS AND STATE OF TEXAS LAW CONCERNING TRENCHING AND SHORING. CONTRACTOR SHALL PROVIDE A TRENCH SAFETY SYSTEM TO MEET AS A MINIMUM, THE REQUIREMENTS OF OSHA SAFETY AND HEALTH REGULATION, PART 1926, SUB-PART B, AS PUBLISHED IN THE FEDERAL REGISTER, VOLUME 54, NO. 209, DATED OCTOBER 31, 1989.
- 8. DETAILS PRESENTED IN THESE PLANS DO NOT EXTEND TO OR INCLUDE DESIGNED OR SYSTEMS PERTAINING TO THE SAFETY OF THE CONTRACTOR OR ITS EMPLOYEES, AGENTS, OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE CONSTRUCTION CONTRACTOR SHALL PREPARE OR OBTAIN THE APPROPRIATE SAFETY SYSTEMS, INCLUDING THE PLANS AND SPECIFICATIONS REQUIRED BY CHAPTER 756, SUBCHAPTER "C" OF THE TEXAS HEALTH AND SAFETY CODE.
- 9. CONTRACTOR SHALL COVER OPEN EXCAVATIONS WITH ANCHORED STEEL PLATES DURING NON-WORKING HOURS, ALONG EXISTING ROADWAYS AND TRAFFIC AREAS.
- 10. ADEQUATE DRAINAGE MUST BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION AND ANY DRAINAGE DITCH OR STRUCTURE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THE SATISFACTION OF THE PROJECT ENGINEER. ALL CONSTRUCTION RUNOFF SHALL COMPLY WITH STORM WATER MANAGEMENT FOR CONSTRUCTION ACTIVITIES AND THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) REQUIREMENTS.
- 11. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE FLAGMEN, SIGNING, STRIPING AND WARNING TRAFFIC CONTROL DEVICES, ETC. DURING CONSTRUCTION IN ACCORDANCE WITH THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES". CONTRACTOR SHALL MAINTAIN AT LEAST ONE LANE OF TRAFFIC IN EACH DIRECTION DURING WORKING HOURS AND PROVIDE ALL WEATHER DETOURS AROUND CONSTRUCTION SITE, PROVIDE PUBLIC NOTIFICATION, AND USE UNIFORMED POLICE OFFICERS TO CONTROL TRAFFIC, ESPECIALLY IN HEAVY TRAFFIC LOCATIONS.
- 12. EXISTING PAVEMENT, CURBS, SIDEWALKS, AND DRIVEWAYS DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED TO CITY OF MONTGOMERY STANDARDS. ALL ASPHALT AND CONCRETE DRIVEWAYS EXCAVATED DURING CONSTRUCTION SHALL BE BACKFILLED WITH CEMENT STABILIZED SAND (CSS) AND RETURNED TO EXISTING CONDITIONS OR BETTER. ALL STATE AND COUNTY HIGHWAY PAVEMENT AND RAILROAD RIGHT-OF-WAYS TO BE BORED ACCORDING TO THE RULES, REGULATIONS, AND REQUIREMENTS FOR APPROVAL AND ACCEPTANCE BY SAID AGENCIES.
- 13. EXISTING ROADS AND/OR RIGHT OF WAYS DISTURBED DURING CONSTRUCTION SHALL BE AS GOOD OR BETTER THAN THE CONDITION PRIOR TO STARTING WORK, UPON COMPLETION OF THE PROJECT.
- 14. AFTER DISTURBED AREAS HAVE BEEN COMPLETED TO THE LINES, GRADES, AND CROSS SECTIONS SHOWN ON THE PLANS, SEEDING SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS TO ESTABLISH ADEQUATE VEGETATION COVERAGE TO ELIMINATE EROSION. IF NOT, ACTIVITY MUST BE PERFORMED WITHIN THE DISTURBED CONSTRUCTION AREA. AFTER 14 DAYS OF INACTIVITY, THE AREA MUST BE HYDROMULCHED TO AVOID EROSION. IF NO PROVISION FOR PLANTING GRASS IS INCLUDED IN THE PLANS OR SPECIFICATIONS, THE MINIMUM REQUIREMENT FOR THIS ITEM SHALL BE IN ACCORDANCE WITH THE TEXAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR "SODDING OR SEEDING FOR EROSION CONTROL".
- 15. ALL TRENCHES, INCLUDING TRENCHES FOR LEADS AND STUBS UNDER PAVEMENT AND TO A POINT ONE (1) FOOT BEHIND BACK OF CURB SHALL BE BACKFILLED WITH CEMENT STABILIZED SAND AS PER CITY OF MONTGOMERY SPECIFICATIONS TO A POINT IMMEDIATELY BELOW THE SUBGRADE. TRENCHES OTHER THAN UNDER PAVEMENT, SHALL BE BACKFILLED WITH SUITABLE EARTH MATERIAL IN 6 INCH LAYERS AND MECHANICALLY COMPACTED TO A DENSITY OF NOT LESS THAN 95 PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR COMPACTION TEST (ASTM DESIGNATION D-698/AASHTO T99). MOISTURE CONTENT OF BACKFILL SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CEMENT
- STABILIZED SAND SPECIFICATIONS, ATTACHED DETAILS IN PLANS ARE SPECIFIC FOR BEDDING AND BACKFILL. 16. CONTRACTOR IS TO INCLUDE PRICE OF ALL BEDDING AND BACKFILL OF PIPES REQUIRED, IN PRICE PER LINEAR FOOT OF PIPE.
- 17. CONTRACTOR IS TO INCLUDE SPREADING AND COMPACTION OF SPOILS INCIDENTAL TO CONSTRUCTION OF ALL UNDERGROUND UTILITIES IN PRICE PER LINEAR FOOT OF PIPE. 18. CONTRACTOR TO REMOVE EXISTING PLUGS AND CONNECT TO EXISTING UTILITY LINES AS INDICATED ON
- 19. UNLESS OTHERWISE NOTED IN PLANS, WHERE MANHOLES ARE LOCATED WITHIN THE UTILITY EASEMENT, THE
- CONTRACTOR SHALL SET RIM ELEVATIONS TWO INCHES ABOVE FINISHED GROUND ELEVATIONS. 20. WHEN TRENCH CONDITIONS REQUIRE THE USE OF WELL POINTS. THIS IS TO BE REQUESTED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.
- 21. CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING THE MUD, DIRT, AND DEBRIS DEPOSITED ON EXISTING PAVEMENT DUE TO HIS CONSTRUCTION ACTIVITY DAILY. ALL EXISTING STREETS AND ADJACENT PAVEMENT AREAS IMPACTED BY CONSTRUCTION ACTIVITIES SHALL BE CLEANED USING A STREET SWEEPER. THIS ACTIVITY WILL BE INCIDENTAL TO ALL OTHER ITEMS.
- 22. THE CONTRACTOR SHALL REMOVE ALL NON-PERMANENT SIGNS FROM THE ROW AND/OR EASEMENT LIMITS, AND RETURN THEM TO THE SIGN OWNER FOR THEM TO HAVE PLACED AT THEIR EXPENSE ON PROPERTY OTHER THAN THAT STATED ABOVE UNLESS OTHERWISE SPECIFIED.
- 23. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RELOCATING OR REPLACING ALL EXISTING FENCES INSIDE THE WORK ZONE, TO EXISTING OR BETTER CONDITIONS, EXCEPT FOR THOSE THAT FALL WITHIN A ROAD RIGHT OF
- 24. THE CONTRACTOR IS RESPONSIBLE FOR RELOCATING ALL EXISTING IRRIGATION OUTSIDE OF THE RIGHT OF WAY AND/OR EASEMENT UNLESS OTHERWISE SPECIFIED ON THE PLANS.
- 25. ALL EQUIPMENT SHALL BE REMOVED FROM THE PROJECT SITE ONCE THE PROJECT IS COMPLETED, AS WELL AS, ALL REMAINING DEBRIS WITHIN THE PROJECT SHALL BE REMOVED AND PROPERLY DISPOSED OF AT AN APPROVED DISPOSAL SITE.
- 26. CONTRACTOR SHALL BE RESPONSIBLE FOR MARKING ALL UTILITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL DAMAGE TO UTILITIES, PAVEMENT, OR OTHER INFRASTRUCTURE AS A RESULT OF ANY WORK.

#### GRADING NOTES

- 1. BEFORE STARTING CONSTRUCTION, CONTRACTOR SHALL VERIFY BENCHMARK ELEVATION AND NOTIFY ENGINEER IF ANY DISCREPANCY AND/OR CONFLICT IS FOUND.
- 2. 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.
- 3. AREAS THAT ARE TO RECEIVE FILL SHALL BE PREPARED AS FOLLOWS (NO SEPARATE PAY):
- a. AREAS THAT ARE TO RECEIVE FILL WILL BE STRIPPED TO A DEPTH OF 6". STRIPPINGS SHALL BE STOCKPILED AND THEN SPREAD EVENLY ON SURFACE OF FILLED AREAS.
- b. PRIOR TO PLACEMENT OF FILL ON STRIPPED AREAS, THE CONTRACTOR SHALL PROOF ROLL USING A PNEUMATIC ROLLER (12 TON OR APPROVED EQUAL) (NO SEPARATE PAY). SHOULD SOFT UNSTABLE AREAS APPEAR IN THE LOTS, THE CONTRACTOR SHALL REMOVE UNSUITABLE MATERIAL AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL REPLACE THIS WITH A SUITABLE MATERIAL COMPACTED AS REQUIRED.
- 4. ALL AREAS REQUIRING FILL SHALL BE FILLED 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). FINISH SURFACE SHALL BE LEFT LEVEL, SMOOTHED AND FINE GRADED.
- 5. FINAL PAYMENT SHALL BE CONTINGENT ON THE ENGINEER'S VERIFICATION THAT LOT GRADING IS IN ACCORDANCE WITH THE GRADING PLAN, AND THAT SOIL COMPACTION TESTS WERE PERFORMED AS REQUIRED.
- 6. CONTRACTOR SHALL ENSURE THERE IS POSITIVE DRAINAGE FROM THE PROPOSED BUILDINGS AND NO PONDING IN PAVED AREAS, AND SHALL NOTIFY ENGINEER IF ANY GRADING DISCREPANCIES ARE FOUND IN THE EXISTING AND PROPOSED GRADES PRIOR TO PLACEMENT OF PAVEMENT OR UTILITIES.
- 7. 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.
- 8. 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 OWNER
- 9. EXISTING DRAINAGE SWALES: ALL EXISTING DRAINAGE SWALES SHALL BE FILLED AS SHOWN WITH MATERIAL FROM EXISTING ADJACENT SPOIL BANKS IN MAXIMUM 8: LOOSE LIFTS AND COMPACTED TO 95% PROCTOR DENSITY AS PER AASHTO TEST METHOD T-99
- 10. EXISTING DRAINAGE SWALES: ALL EXISTING DRAINAGE SWALES UNDER PROPSED CONCRETE PAVEMENT SHALL BE CLEANED, MUCKED OUT AND SCARIFIED TO A MINIMUM DEPTH OF 6"AND FILLED AS SPECIFIED ABOVE IN FILL NOTE NO. 9NO SEPARATE PAY.
- 11. ROADWAY EMBANKEMENT: STRIP 6" OF VEGETATION FROM AREA TO BE FILLED AND RE-COMPACT SOIL TO 95% PROCTOR DENSITY, PLACE FILL MATERIAL AS SPECIFIED IN FILL NOTE NO. 9

#### STORM SEWER NOTES

- 1. STORM SEWER AND LEADS SHALL BE REINFORCED CONCRETE PIPE, ASTM C-76, CLASS III, WITH O-RING RUBBER GASKET JOINT, AND SHALL BE INSTALLED, BEDDED AND BACKFILLED IN ACCORDANCE WITH THE SPECIFICATIONS INDICATED IN THE PLANS AND CONTRACTS.
- 2. ALL PROPOSED PIPE STUB OUTS FROM MANHOLES OR INLETS ARE TO BE PLUGGED WITH 8 INCH BRICK WALLS UNLESS OTHERWISE NOTED.
- 3. ALL BOX CULVERTS INSTALLED SHALL BE PLACED ON A MINIMUM OF 6 INCHES OF CEMENT STABILIZED SAND (CEMENT STABILIZED SAND SHALL BE 2 SACK CEMENT PER TON). FOR INSTALLATION OF PRE-CAST CONCRETE BOX CULVERTS IN POOR SOIL CONDITIONS, A 7 INCH REINFORCED CONCRETE SLAB SHALL BE INSTALLED. FOR INSTALLATION OF MONOLITHIC REINFORCED CONCRETE BOX CULVERTS IN POOR SOIL CONDITIONS, A 4 INCH THICK CLASS "C" CONCRETE SEAL SLAB SHALL BE INSTALLED, PRIOR TO CONSTRUCTION OF BOX CULVERTS.
- 4. STORM SEWER MANHOLES, INLETS, AND JUNCTION BOXES SHALL BE STANDARD PRE-CAST, UNLESS OTHERWISE NOTED.
- 5. ALL INLETS TO BE TYPE "C" UNLESS OTHERWISE STATED ON PLANS
- 6. ALL STORM SEWER LEADS SHALL BE 24 INCH MINIMUM UNLESS OTHERWISE INDICATED.
- 7. GRADE DROP ON LEADS BETWEEN INLETS TO BE A MINIMUM OF 0.20 FOOT. GRADE DROP BETWEEN INLET AND MANHOLES TO BE 0.20 FOOT UNLESS OTHERWISE SHOWN.
- 8. WHEN MANHOLE FRAME AND COVER IS REQUIRED, USE VULCAN FOUNDRY V-1418-Z FRAME AND COVER (OR EQUAL), UNLESS OTHERWISE INDICATED ON THE PLANS.
- 9. FOR ADJUSTMENT OF MANHOLE LIDS USE STANDARD CONCRETE RINGS.
- 10. CONCRETE USED FOR ALL POURED-IN-PLACE MANHOLES, INLETS, WINGWALLS, HEADWALLS AND OTHER APPURTENANCES TO BE CLASS "A" CONCRETE WITH 3,000 P.S.I STRENGTH AT 28 DAYS.
- 11. ALL EXPOSED CORNERS TO BE CHAMFERED 3/4".
- 12. ALL STORM SEWER PIPES UNDER OR WITHIN 1' OF PAVEMENT SHALL BE BACKFILLED WITH COMPACTED CEMENT STABILIZED SAND (2.0 SACKS PER TON OF SAND) TO THE BOTTOM OF 6" STABILIZED SUBGRADE.

### CITY OF MONTGOMERY GENERAL CONSTRUCTION NOTES:

- 1. CONTRACTOR SHALL CONTACT CITY OF MONTGOMERY CITY ENGINEER, KATHERINE VU AT (713) 789-1900 A MINIMUM OF 48 HOURS PRIOR TO COMMENCING CONSTRUCTION.
- 2. CONTRACTOR SHALL CONTACT CITY OF MONTGOMERY DIRECTOR OF PUBLIC WORKS, MIKE MUCKLEROY AT (936) 597-6434 A MINIMUM OF 48 HOURS PRIOR TO COMMENCING CONSTRUCTION TO SET UP AN INSPECTION TO VERIFY CITY'S FACILITIES.
- 3. CONTRACTOR TO CONTACT CITY OF MONTGOMERY UTILITY OPERATOR. JACOB WILLIAMS OF H20 INNOVATIONS AT (281) 353-9809 A MINIMUM OF 48 HOURS PRIOR TO COMMENCING CONSTRUCTION TO SET UP AN INSPECTION TO VERIFY CITY'S FACILITIES.
- 4. THE CITY UTILITY OPERATOR AND PUBLIC WORKS FOREMAN SHALL BE NOTIFIED 24 HOURS IN ADVANCE TO WITNESS AND INSPECT ANY SANITARY SEWER LINE CONNECTION. NO SANITARY SEWER LINES SHALL BE BACKFILLED BEFORE THE CITY'S UTILITY OPERATOR OR PUBLIC WORKS FOREMAN HAS INSPECT THE CONNECTION.
- 5. CONTRACTOR SHALL CONTACT THE CITY'S OPERATOR OR PUBLIC WORKS FOREMAN TO OPERATE ANY VALVES. AT NO TIME IS THE CONTRACTOR OR CONTRACTOR'S REPRESENTATIVE TO OPERATE ANY PART OF THE CITY OF MONTGOMERY WATER SYSTEM.
- 6. THE OWNER OR CONTRACTOR SHALL INSTALL AND TEST APPROPRIATE BACKFLOW PREVENTION, PER THE CITY OF MONTGOMERY RULES & REGULATIONS.
- 7. ALL TAPS TO THE CITY'S SYSTEM SHALL BE MADE BY THE CITY'S OPERATOR AT THE OWNERS EXPENSE
- 8. IF THE ELECTRICAL UTILITY PROVIDER STANDARDS CONFLICT WITH THE APPROVED LAYOUT BY THE CITY AND/OR CITY STANDARDS, A VARIANCE MUST BE RECEIVED FROM THE CITY COUNCIL.

## <u>CITY OF MONTGOMERY ORDINANCE NOTES:</u>

1. REMAINING TREE COVERAGE MUST COMPLY WITH ALL APPLICABLE CITY OF MONTGOMERY ORDINANCES. A TREE PRESERVATION PLAN SHOWING COMPLIANCE WITH CANOPY COVERAGE REQUIREMENTS WILL BE SUBMITTED WITH THE CONSTRUCTION PLANS FOR THE DEVELOPMENT.

#### SANITARY SEWER NOTES:

- 1. ALL SANITARY SEWER MUST BE IN COMPLIANCE OF TCEQ CHAPTER 217.
- 2. SANITARY SEWERS SHALL BE CONSTRUCTED AND TESTED IN COMPLIANCE OF THE TCEQ REQUIREMENTS, UNLESS OTHERWISE SPECIFIED.
- 3. BACKFILL AND BEDDING FOR SANITARY SEWER MUST MEET THE MINIMUM REQUIREMENTS OF ASTM D-2321 AND IN ACCORDANCE WITH THE SPECIFICATIONS AND DETAILS FOUND IN THIS PLAN SET AND IN THE CONTRACTS.
- 4. SANITARY SEWER PIPE SHALL BE PVC SDR 26 OR PVC SDR 35 (WITH APPROVAL), IN ACCORDANCE WITH ASTM SPECIFICATIONS D-3034, FOR 4" THROUGH 15" AND ASTM F-879 FOR 18" THROUGH 27", UNLESS OTHERWISE SPECIFIED. MINIMUM SIZE SANITARY SEWER MAIN IS 6", SDR 35 MAY BE USED WHEN DEPTH IS MORE THAN 3 FEET AND LESS THAN 6 FEET.
- 5. SEWER LINES SHALL BE LOCATED ON THE OPPOSITE SIDE OF THE STREET FROM WHERE WATER IS LOCATED.
- 6. CONTRACTOR SHALL PROVIDE A MINIMUM HORIZONTAL CLEARANCE OF 9' (NINE FEET) BETWEEN WATER LINES AND SANITARY SEWER MANHOLES AND LINES PER TCEQ CHAPTER 290.
- 7. CONTRACTOR SHALL PROVIDE 24-INCHES OF CLEARANCE AT ALL SANITARY SEWERS CROSSING WATER LINES.
- 8. NO SEWER PIPE SHALL BE LAID ON AN UNSTABLE FOUNDATION. SELECTED MATERIAL SHALL BE USED AND/OR WET SAND CONSTRUCTION DETAILS, WHICHEVER APPLIES IN THE OPINION OF THE ENGINEER. NO PIPE SHALL BE COVERED WITHOUT APPROVAL OF THE ENGINEER OR HIS REPRESENTATIVE. SANITARY SEWERS CONSTRUCTED IN WET SAND SHALL HAVE A SPECIAL PROCEDURE.
- 9. WHEN THE NATURAL GROUND LEVEL AROUND MANHOLE LIES BELOW THE 100 YEAR FLOODPLAIN ELEVATION, THE MANHOLE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATION AND DETAILS FOUND IN THE PLAN SET AND IN THE CONTRACTS, FOR A SEALED AND VENTED MANHOLE
- 10. A DEFLECTION TEST SHALL BE PERFORMED AFTER THE BACKFILL HAS BEEN IN PLACE A MINIMUM OF 30 DAYS. THIS TEST SHALL BE DONE BY PULLING A HAND LINE WITH AN ATTACHED MANDREL FROM MANHOLE TO MANHOLE. THE MANDREL SHALL HAVE AN OUTSIDE DIAMETER THAT IS AT LEAST 95% OF THE ORIGINAL INSIDE DIAMETER OF THE PIPE MANDREL TO BE MANUFACTURED WITH A MINIMUM OF SEVEN (7) RUNNERS, WITH EACH RUNNER BEING A MINIMUM OF 5 INCHES LONG. ANY PIPE NOT MEETING TEST REQUIREMENTS TO BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE. THE TEST SHALL BE PERFORMED WITHOUT MECHANICAL PULLING DEVICES.
- 11. WHERE A SEWER LINE HAS LESS THAN (2) FEET OF COVER, PROVIDE CEMENT STABILIZED SAND BACKFILL MATERIAL.
- 12. WHEN MANHOLE FRAME AND COVER IS REQUIRED, USE VULCAN FOUNDRY V-1418-2 FRAME AND COVER (OR EQUAL), UNLESS OTHERWISE INDICATED ON THE PLANS.
- 13. CONTRACTOR SHALL KEEP RECORD OF LOCATION OF ALL STACKS, STUBS, SEWER LEADS, ETC. THE AS-BUILT DRAWINGS MUST SHOW THE EXACT LOCATION.
- 14. IF SANITARY SERVICE LEADS ARE INSTALLED DURING CONSTRUCTION OF MAIN LINE, ALL LEADS TO HAVE A MINIMUM SLOPE OF 0.70% OR GREATER. ALL PVC LEADS TO BE THE SAME MATERIAL AS MAIN LINE, ALL DOUBLE SERVICE LEADS TO HAVE WYE LOCATED ON THE END OF THE LEAD. ALL SINGLE SERVICE LEADS TO BE 6 INCH. AND ALL DOUBLE SERVICE LEADS TO BE 6 INCH. IF AN 8 INCH LEAD IS REQUIRED, LEADS MUST HAVE A MINIMUM SLOPE OF 0.44%
- 15. BYPASSING (DISCHARGING) OF RAW SEWAGE ON THE SURFACE OR TO ADJOINING WATERWAYS IS STRICTLY PROHIBITED.
- 16. CONTRACTOR SHALL PERFORM BYPASS PUMPING AS REQUIRED. THERE SHALL BE NO SEPARATE PAYMENT FOR BYPASS PUMPING PERFORMED ON THIS PROJECT.
- 17. CONTRACTOR TO VERIFY LOCATIONS OF EXISTING WATERLINES DURING CONSTRUCTION. IF THE REQUIRED SEPARATION DISTANCE BETWEEN PARALLEL WATER AND SEWER LINES, AS DETAILED IN TECHNICAL SPECIFICATION SECTION 33 31 13, CANNOT BE MAINTAINED, CONTRACTOR TO RELOCATE WATERLINE AS DIRECTED BY THE ENGINEER.
- 18. WHERE A WET CONNECTION TO AN EXISTING 6" OR 8" LINE IS TO BE MADE BY CUTTING THE EXISTING LINE, DR18 C-900 PVC PIPE SHALL BE USED TO REPLACE THE SECTION OF OLD ONE REMOVED AND SHALL BE COUPLED TO THE EXISTING ONE WITH A SOUND D.L. SLEEVE, SEPARATE COMPENSATION WILL BE MADE FOR THE REQUIRED DUCTILE IRON FITTINGS. THE BID PRICE FOR WET CONNECTION TO AN EXISTING ONE SHALL INCLUDE LABOR, TOOLS, PIPE, AND MISCELLANEOUS FITTINGS FOR SMALL DIAMETER PIPE NOT OTHERWISE PROVIDED FOR IN THE BID PROPOSAL.
- 19. ALL PENETRATIONS INTO A SANITARY SEWER MANHOLE, INCLUDING SERVICE LEADS SHALL BE SERVED BY AN INVERT. ALL INVERTS SHALL EXTEND ALL THE WAY TO THE WALLS OF THE MANHOLE.
- 20. INSTALLATION OF GRAVITY SANITARY SEWER PIPE AND FORCE MAIN BY TRENCHLESS CONSTRUCTION SHALL MEET ASTM, ANSI, AND AWWA STANDARDS. IF THERE IS A CONFLICT IN STANDARDS THE MOST STRINGENT SHALL GOVERN.
- 21. ALL SANITARY SEWER PIPES UNDER OR WITHIN 1' OF PAVEMENT SHALL BE BACKFILLED WITH COMPACTED CEMENT STABILIZED SAND (2.D SACKS PER TON OF SAND) TO THE BOTTOM OF 6" STABILIZED SUBGRADE.
- 22. THE PROPOSED CONNECTION OF THE SANITARY SEWER LINE TO THE SANITARY SEWER MANHOLE SHALL BE BY MEANS OF CORE AND BOOT AT SPECIFIED FLOWLINE. THE OPENING IN THE SIDE OF THE MANHOLE SHALL NOT BE MORE THAN 3-INCHES NOR LESS THAN 1-INCH IN DIAMETER THAN THE OUTSIDE DIAMETER FOR THE PROPOSED. PIPE. THE PROPOSED PIPE SHALL NOT PRODUCE MORE THAN 3-INCHES PAST THE INSIDE FACE OF THE MANHOLE WALL. FILL THE ENTIRE VOID AROUND THE EXISTING MANHOLE WITH CEMENT-SAND, CONNECTION TO EXISTING PUBLIC SANITARY SEWER MANHOLE SHALL BE COMPLETED BY THE CITY OF MONTGOMERY AT THE OWNER'S EXPENSE.

#### WATER CONSTRUCTION NOTES:

- CONTRACTOR SHALL PROVIDE ADEQUATE THRUST BLOCKING TO WITHSTAND TEST PRESSURE AS SPECIFIED IN THE SPECIFICATIONS INDICATED IN THE PLANS AND CONTRACTS FOR WATER MAIN CONSTRUCTION AND MATERIALS.
- 2. ALL NEWLY INSTALLED PIPES AND RELATED PRODUCTS MUST CONFORM TO AMERICAN NATIONAL STANDARDS INSTITUTE/NSF INTERNATIONAL (ANSI/NSF) STANDARD 61 AND MUST BE CERTIFIED BY AN ORGANIZATION ACCREDITED BY ANSI.
- 3. ALL PLASTIC PIPES FOR USE IN PUBLIC WATER SYSTEMS MUST ALSO BEAR THE NSF INTERNATIONAL SEAL OF APPROVAL (NSF-PW) AND HAVE AN ASTM DESIGN PRESSURE RATING OF AT LEAST 150 POUNDS PER SQUARE INCH (PSI) OR A STANDARD DIMENSION RATIO OF 26 OR LESS.
- 4. PRIOR TO INSTALLATION OF WATER METER, WATER METER LEAD OR UNMETERED FIRE SPRINKLER LINE, THE CONTRACTOR SHALL CONTACT THE PROVIDER.
- 5. PRIOR TO WATER MAIN CONSTRUCTION, THE CONTRACTOR SHALL CONTACT THE CITY ENGINEER NO LESS THAN 48 HOURS IN ADVANCE AND COMPLY WITH ALL REQUIREMENTS NECESSARY FOR APPROVAL OF THE WATER MAIN CONSTRUCTION.
- 6. ALL WATER LINE AND SEWER LINE CROSSINGS SHALL BE CONSTRUCTED PER TCEQ REGULATIONS.
- 7. TWELVE-INCH (12") AND SMALLER MAINS SHALL HAVE A MINIMUM COVER OF FOUR FEET (4') FROM THE TOP OF CURB OR FIVE FEET (5') FROM THE MEAN ELEVATION OF THE BOTTOM OF THE NEARBY DITCH AND NEARBY RIGHT-OF-WAY ELEVATION FOR OPEN DITCH SECTIONS.
- 8. MAINS LARGER THAN TWELVE-INCHES (12") SHALL HAVE A MINIMUM COVER OF FIVE FEET (5') FROM THE TOP OF THE CURB OR SIX FEET (6') FROM THE MEAN ELEVATION FOR OPEN DITCH SECTIONS.
- 9. ALL WATER MAINS SHALL BE HYDROSTATICALLY TESTED BEFORE BACTERIOLOGICAL TESTING IN ACCORDANCE WITH AWWA STANDARD C-600 FOR DI PIPE OR C-605 FOR PVC AS REQUIRED IN 30 TAC 290-44 (A) (5).
- 10. ALL WATER PIPING SHALL BE DISINFECTED AND BACTERIOLOGICALLY TESTED PRIOR TO USE IN ACCORDANCE WITH AWWA STANDARD C-651.

11. ALL WATER MAINS 4" AND LARGER SHALL BE C-900 (SDR-18), UNLESS OTHERWISE NOTED IN PLANS.

- 12. THE INSTALLATION OF ALL WATER LINES SHALL EXTEND ALONG THE ENTIRE LENGTH OF THE PROPERTY TO BE SERVED. WATER LINES THAT DEAD END SHALL EXTEND TO THE PROJECT LIMITS FOR FUTURE
- 13. 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 TYPE.
- 14. THE USE OF PIPES AND PIPE FITTINGS THAT CONTAIN MORE THAN 0.25% LEAD OR SOLDERS AND FLUX THAT CONTAINS MORE THAN 0.2% LEAD IS PROHIBITED.
- 15. WATER MAINS CROSSING OR WITHIN 1' OF PAVEMENT SHALL HAVE A BANK SAND ENVELOPE OF 12" AND THE REMAINING TRENCH FILLED WITH COMPACTED CEMENT STABILIZED SAND (2.0 SACK PER TON SAND) TO BOTTOM OF 6" STABILIZED SUBGRADE.



## STANDARD SYMBOLS

EXISTING		<u>PROPOSE</u> [
FM	STORM SEWER (24" & LESS) STORM SEWER (GREATER THAN 24") SANITARY SEWER SANITARY FORCE MAIN WATERLINE CURB AND GUTTER PROPERTY LINE/PLAT BOUNDARY EASEMENT LINE BUILDING SETBACK LINE TOP OF BANK/DITCH	FM -
44	TOE/FL OF DITCH  1 FOOT CONTOURS SANITARY STACK SANITARY RISER MANHOLE AREA INLET CURB INLET GATE VALVE & BOX FLUSH VALVE/FIRE HYDRANT BLOW-OFF & BOX SANITARY SERVICE WYE	55 0 0 0 0 0 0 0 0
44.44 40.40	SIGN PAVEMENT HIGH POINT STREET LIGHT  TOP OF CURB ELEVATION FLOWLINE ELEVATION	55.55 50.50
WATE	R LINE-SANITARY SEWER CROSSING B	ILUCK —

# **ABBREVIATIONS**

BOC

CONC

**ELEV** 

**ESMT** 

LEFT

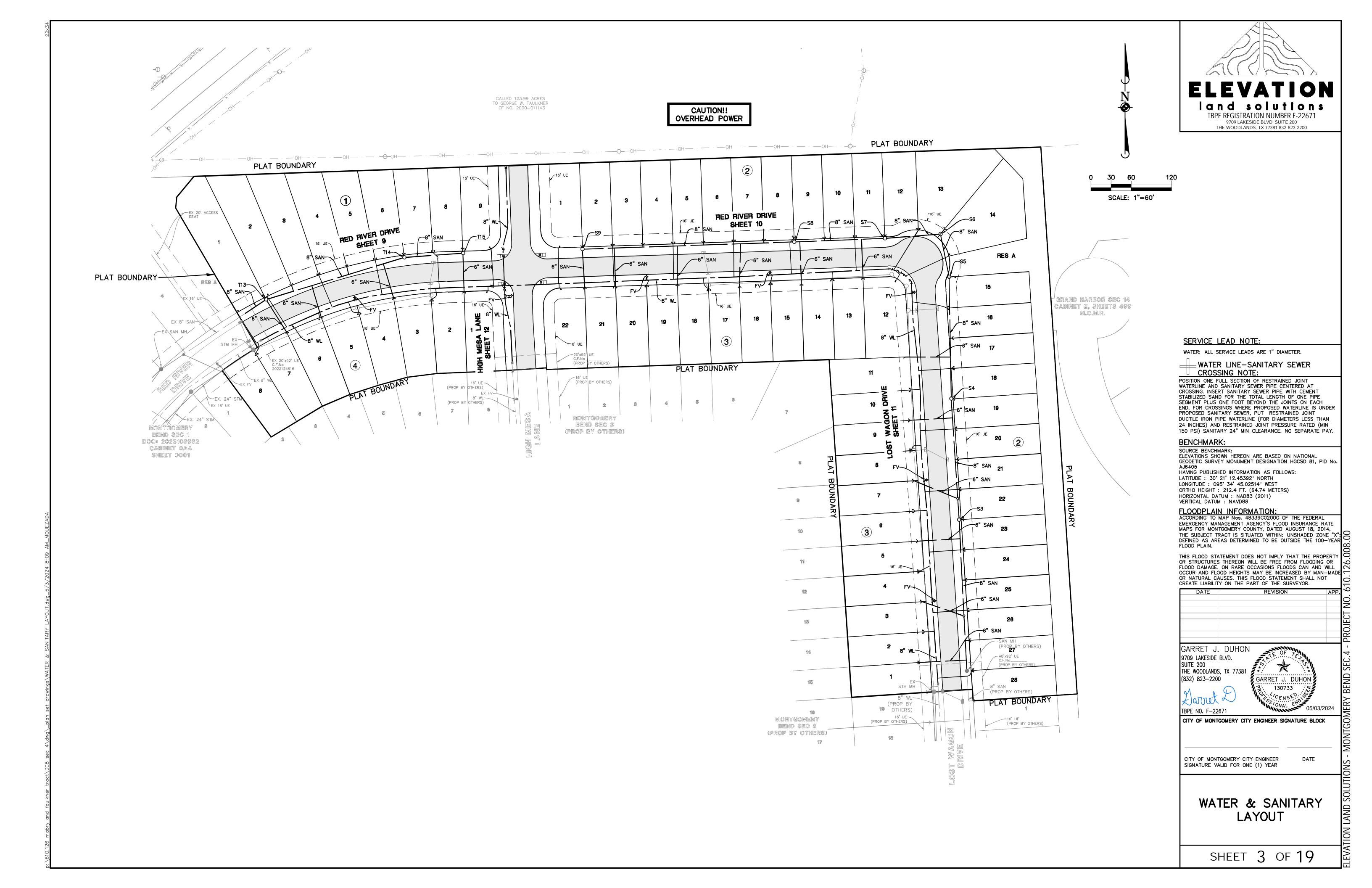
EX

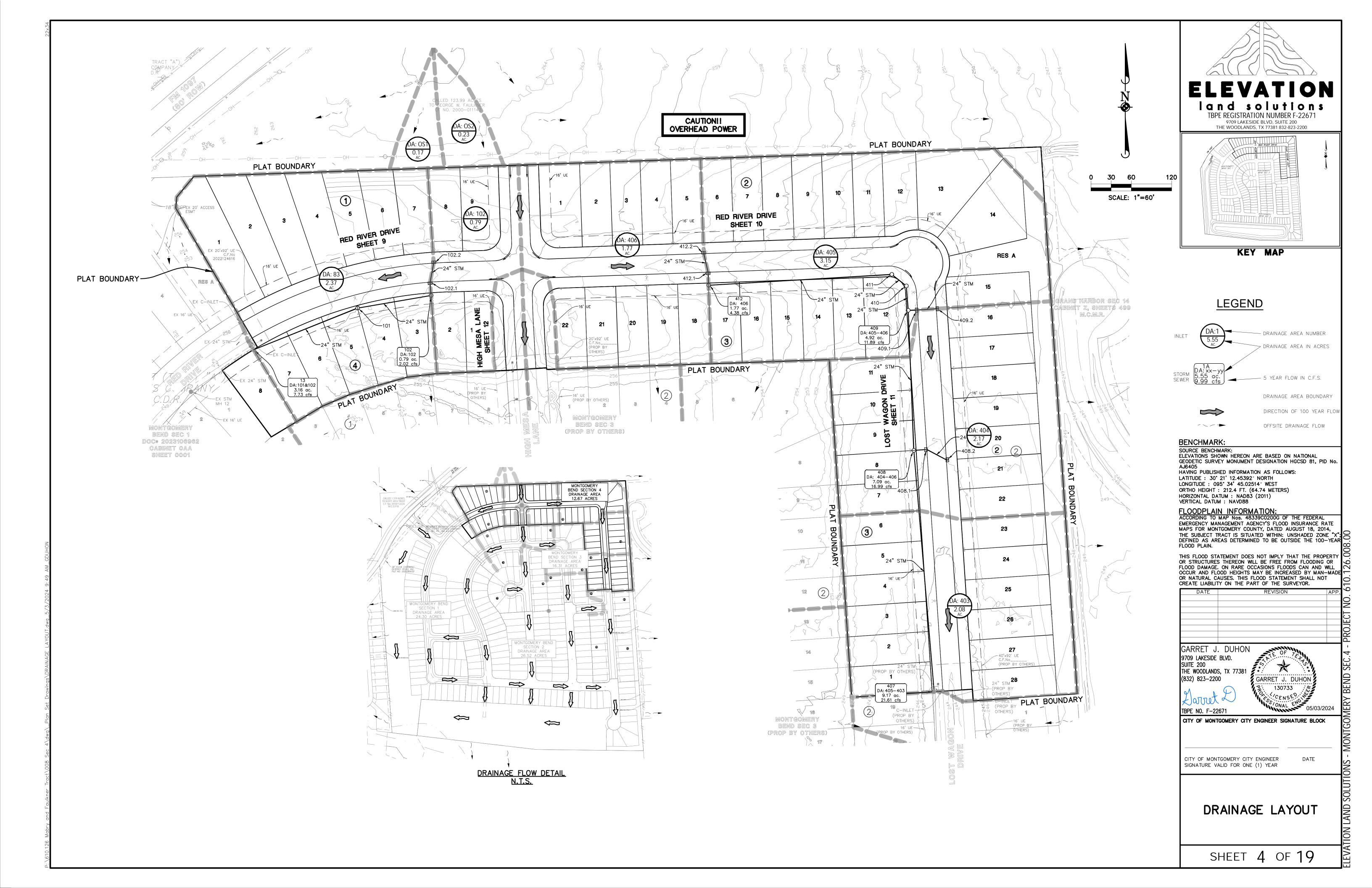
**ADJACENT** BACK TO BACK PΤ POINT OF TANGENCY BACK OF CURB PVC POINT OF VERTICAL CURVATURE POINT OF VERTICAL INTERSECTION CENTERLINE POINT OF VERTICAL TANGENCY PVT CLEARANCE PVMT PAVEMENT CONCRETE PAE PUBLIC ACCESS EASEMENT CUBIC YARD PUE PUBLIC UTILITY EASEMENT DRAINAGE EASEMENT RADIUS EDGE TO EDGE RIGHT-OF-WAY ELEVATION RCP REINFORCED CONCRETE PIPE **EASEMENT** RT RIGHT EXISTING SANITARY FLOW LINE FORCE MAIN SQUARE FEET STATION STA FLUSH VALVE STM STORM GATE VALVE SQUARE YARDS LINEAR FEET TEMP TEMPORARY TOP OF CURB MAXIMUM TYP TYPICAL MANHOLE UTILITY EASEMENT MINIMUM UE WATERLINE PC POINT OF CURVATURE WATERLINE EASEMENT POINT OF COMPOUND CURVE WATER SURFACE ELEVATION POINT OF INTERSECTION WSE

> GARRET J. DUHON 9709 LAKESIDE BLVD. SUITE 200 X THE WOODLANDS, TX 77381 (832) 823-2200 GARRET J. DUHON 130733 CENSE TBPE NO. F-22671 CITY OF MONTGOMERY CITY ENGINEER SIGNATURE BLOCK CITY OF MONTGOMERY CITY ENGINEER DATE SIGNATURE VALID FOR ONE (1) YEAR

> > SHEET 2 OF 19

GENERAL NOTES





Outfall and Tailwater Conditions Intensity Coefficients for: Project: Montgomery Bend Intensity (I) =  $\frac{b}{(d+T_c)^e} * C_f$ Montgomery County Outside Houston ETJ Job Number: 610.126.007.00 Flowline 100-yr HGL Last Updated: 5/3/2024 100-yr Design By: MQ/GC 5-yr b 56.68 Outfall\_1 220.47 b 54.09 Jurisdiction: Montgomery County Outside Houston ETJ Outfall\_2 220.85 226.00 228.05 d 8.34 d 4.46  $Upstream Tc = 15 + 10 * (Ac^{0.1761})$ Storm Year 1: 5-yr e 0.5857 Outfall\_3 221.14 e 0.7051 Extreme Event Ponding Limit: 1.00 226 228.05 Storm Year 2: 100-yr Cf 1.00 Outfall\_4 221.54 226 228.05 Cf 1.25 Storm Year 3: TP 101 - Method 1 TP 101 - Method 2 Intensity & Flow Pipe and Road Properties 100-yr Hydraulic Grade Line .⊆ ooff Coe ð (ft.) (ft.) (Pass/Fail) 16.00 5.09 0.86 **239.26** 238.76 14 1.17 0.00 1.17 0.55 0.55 0.64 4.54 2.92 9.71 6.25 25.28 0.56 25.84 0.93 0.02 0.03 232.91 232.05 PASS 1.99 | 0.08 | 0.13 | 232.91 | 232.05 | 240.26 | PASS onghorn Run Drive None 1.63 0.55 0.55 0.90 1.28 0.03 0.01 236.17 236.10 2.74 0.14 0.05 236.17 236.10 240.63 PASS 21 10.12 3.22 239.63 239.13 4.48 4.01 9.60 8.60 25.90 0.18 26.08 0.07 1.63 0.00 PASS None Prairie Ridge Lane 7.20 244.08 243.22 0.00 0.00 4.49 0.00 9.61 0.00 25.83 0.20 26.03 0.00 0.00 0.00 0.00 0.00 22.62 None 2.84 0.02 245.22 245.01 250.86 PASS mber Falls Drive Sec 3 9.60 0.21 249.86 249.36 243.22 243.01 10 0.54 1.57 2.11 **0.55** 0.14 0.30 4.47 1.33 9.57 26.03 0.63 26.65 0.42 0.00 0.00 | 245.22 | 245.01 None 3.06 4.41 1.32 9.46 26.65 0.37 27.03 0.90 0.02 0.03 245.01 243.16 249.04 PASS 247.54 0.14 0.3 2.83 0.42 0.00 | 0.01 | 245.01 | 243.16 | Amber Falls Drive Sec 1 23.73 7.55 1.85 248.04 243.01 241.16 2.11 2.11 None 0.14 0.3 2.81 0.42 27.45 17 5.58 0.85 238.20 237.35 2.11 1.31 9.39 None 16 17.52 5.58 1.32 **245.91** 245.41 237.35 236.03 11 **1.85** | **2.11** | 3.96 | **0.55** | 0.33 | 1.3 4.34 5.75 9.32 12.36 27.45 0.66 28.11 1.83 0.06 0.14 239.35 238.03 3.93 0.30 0.66 239.35 238.03 246.91 PASS None 5.42 **0.55** 0.39 2.1 4.29 9.15 9.21 19.67 0.25 | 236.73 | 235.80 | 17.52 5.58 0.93 244.44 243.94 234.73 233.80 1.46 3.96 28.11 0.46 28.57 2.91 0.16 6.26 | 0.76 | 1.18 | 236.98 | 235.80 | 245.44 | PASS 2.14 14 38.91 7.93 0.94 **243.59** 243.09 1.76 233.30 232.36 5.42 5.42 0.39 2.1 4.25 9.07 9.14 19.50 28.57 0.22 28.79 1.85 0.05 | 0.05 | 235.80 | 234.86 | PASS 3.97 0.23 0.24 235.80 234.86 244.59 PASS Amber Falls Drive Sec 2 104 None 15 4.23 12.78 9.10 27.50 **1.60 5.42** 7.02 **0.55** 0.43 3.0 28.79 0.24 29.03 14 116 38.91 7.93 | 1.05 | **241.58** | 241.08 3.56 230.60 229.55 13 2.60 0.10 0.11 233.10 232.05 5.60 0.45 0.52 233.10 232.05 242.58 PASS None Red River Drive Sec 4 102 101 249.15 247.81 0.00 1.04 0.55 0.55 0.6 25.07 0.23 25.30 1.79 | 0.06 | 0.07 | 251.15 | 249.81 | 257.96 | PASS 24.88 7.92 1.34 2.57 4.56 2.63 9.75 5.63 None 0.55 0.6 25.09 1.04 4.53 2.62 9.71 5.60 25.30 0.35 25.65 0.83 0.01 0.02 247.24 245.19 PASS 1.78 | 0.06 | 0.10 | 247.24 | 245.19 | 255.51 | PASS 13 167 7.99 2.05 254.51 254.01 0.83 245.24 243.19 101 24 None 4.40 8.73 9.44 18.74 242.36 241.01 None Red River Drive Sec 1 2.77 0.15 1.76 0.55 2.0 4.38 8.69 9.40 18.65 12 11 22.62 7.20 2.47 **248.85** 248.35 239.59 237.12 3.58 3.58 0.57 27.59 0.36 | 241.59 | 239.12 | 5.94 | 0.68 | 1.68 | 241.59 | 239.12 | 249.85 | PASS 0.50 4.33 10.80 9.30 23.20 11 22.62 7.20 1.24 245.29 244.79 3.58 4.50 **0.55** 0.55 2.5 27.59 0.29 27.88 3.44 0.23 0.28 | 237.36 | 236.12 | 1.30 | 238.35 | 237.05 | 246.29 | PASS 0.58 235.36 234.12 10 31.77 6.47 0.70 242.75 242.25 233.62 232.92 4-REC 1.53 4.50 6.03 **0.55** 0.55 3.3 4.30 | 14.39 | 9.25 | 30.93 27.88 0.30 28.18 2.93 0.12 | 0.14 | 236.12 | 235.42 | 6.30 | 0.57 | 0.66 | 237.05 | 236.38 | 243.75 | PASS None 32.17 0.55 241.42 240.92 232.92 232.29 0.13 0.40 0.55 4.6 4.41 20.55 9.46 44.08 7.31 1.35 239.88 2.07 231.79 230.44 6.03 8.40 **0.55** 0.51 27.15 2.91 0.09 0.21 None 29.83 4.22 0.30 239.86 239.36 228.37 228.07 10.03 **0.55** 0.55 6.0 4.37 26.51 9.37 56.92 27.15 0.59 27.75 3.75 0.16 0.24 8.05 0.73 234.75 | 233.66 | 240.86 | PASS 27.09 27.75 0.53 28.27 0.72 233.66 232.94 241.12 PASS 7 2.53 10.95 13.48 0.55 0.55 7.4 4.32 32.26 9.27 69.31 4.79 239.62 227.57 227.25 3.35 0.10 0.16 | 231.07 | 230.75 | 7.20 0.47 0.32 240.12 23.20 239.21 227.25 227.19 31.93 9.18 68.66 28.27 0.11 28.38 23.66 4.68 0.06 239.71 **13.48** 13.48 4.26 31.87 9.17 68.52 0.55 7.4 28.38 3.31 0.10 0.17 | 230.69 | 230.36 | 7.12 | 0.46 | 0.77 | 232.80 | 232.03 | 240.67 | PASS 23.53 44.99 4.68 0.33 **239.67** 239.17 227.19 226.86 28.97 4.21 37.70 9.07 81.14 28.97 0.58 29.55 47.19 4.90 0.37 **238.70** 238.20 226.86 226.49 **13.48** 16.13 0.55 8.9 3.92 0.14 0.24 230.36 229.99 8.43 | 0.65 | 1.11 | 232.03 | 230.92 | 239.70 | PASS 33.95 24.32 24.32 0.51 12.5 4.17 52.60 8.98 113.29 29.55 0.20 29.76 4.19 0.13 0.09 229.99 229.81 9.02 0.62 0.44 230.92 230.48 239.32 PASS 71.82 5.72 0.18 **238.32** 237.82 225.99 225.81 41.47 4.15 52.41 8.95 112.90 29.76 0.52 30.28 4.17 | 0.13 | 0.21 | 229.81 | 229.49 | 1.1 5.11 0.32 **238.25** 237.75 225.81 225.49 24.32 24.32 0.51 12.5 8.98 0.62 0.99 230.48 229.49 239.25 PASS 48.66 30.28 0.22 30.50 Outfall\_1 220.61 220.47 0.51 | 12.5 | 4.11 | 51.90 | 8.87 | 111.89 | 4.13 0.13 0.09 226.09 226.00 8.90 | 0.61 | 0.41 | 228.46 | 228.05 | 235.63 | PASS 47.65 64.24 5.11 0.14 234.63 234.13 210 6.15 25.23 0.91 | 0.02 | 0.00 | 244.58 | 244.56 | reen Wren Ct Sec 3 9.60 3.06 0.02 248.76 248.26 1.96 | 0.07 | 0.01 | 244.58 | 244.56 | 249.76 | None 4.53 3.11 9.69 6.67 208 2.12 | 0.09 | 0.08 | 230.29 | 229.53 | 239.31 | PASS onghorn Drive Sec 2 22.62 7.20 0.95 **238.31** 237.81 228.29 227.34 25.39 0.22 | 25.61 | 0.99 | 0.02 | 0.02 | 230.29 | 229.34 | PASS None 207 203 20.49 6.52 0.17 **238.61** 1.17 0.00 4.54 2.94 9.71 6.30 25.28 | 0.05 | 25.33 | 0.94 | 0.02 | 0.00 | 233.78 | 233.61 | 2.01 | 0.08 | 0.02 | 233.78 | 233.61 | 239.61 | PASS onghorn Drive Sec 2 238.11 None 6.46 247.62 247.02 **206** | **0.21** | **0.00** | 0.21 | **0.55** | 0.55 | 0.1 | | 4.81 | 0.56 | 10.27 | 1.20 | | 22.60 | 0.19 | 22.79 | 0.46 | 0.01 | 0.00 | 248.87 | 248.27 | PASS 0.97 | 0.03 | 0.02 | 248.87 | 248.27 | 250.62 | PASS 5.26 0.60 **249.62** 249.12 None Rear Lot Storm Sec3 **205** | **0.13** | **0.21** | 0.34 | **0.55** | 0.55 | 0.2 | 4.79 | 0.90 | 10.23 | 1.93 | 22.79 | 0.19 | 22.98 | 0.74 | 0.02 | 0.01 | 248.27 | 247.67 PASS 205 6.46 5.26 0.60 **249.15** 248.65 247.02 246.42 1.57 | 0.09 | 0.05 | 248.27 | 247.67 | 250.15 | PASS None 211 9.15 igh Mesa Lane Sec 3 209 206 **250.12** 249.62 240.68 239.82 1.01 0.55 0.6 25.02 0.15 25.16 0.81 0.01 0.01 | 242.68 | 241.82 | 0.04 | 242.68 | 241.82 | 251.12 | None 4.54 5.41 9.71 11.58 25.09 239.82 238.04 0.55 1.2 25.29 0.30 25.59 3.69 0.26 0.38 241.82 240.04 249.70 PASS 205 7.99 1.78 **248.70** 248.20 1.72 0.06 | 0.08 | 241.82 | 240.04 | None 0.16 0.54 239.27 235.54 3.73 246.46 245.96 4.51 9.02 9.65 19.33 25.59 0.75 26.34 6.15 | 0.73 | 2.48 | 239.27 | 235.54 | 247.46 | PASS igh Mesa Lane Sec 2 205 204 23.73 7.55 1.00 237.27 233.54 **2.49** | 3.61 | **0.55** | 0.55 | 2.0 2.87 PASS None 201 4.40 15.05 9.43 32.28 6.17 0.55 0.55 3.4 0.34 27.14 3.07 0.22 235.04 233.57 PASS 204 203 38.91 7.93 1.47 **242.38** 241.88 4.73 232.54 231.07 3.61 26.80 0.13 6.58 | 0.62 | 1.01 | 235.04 | 233.57 | 243.38 | PASS None 4.37 | 20.78 | 9.37 | 44.61 0.55 4.7 27.14 0.15 27.29 2.94 0.10 0.07 229.34 228.82 6.31 0.45 0.32 229.53 229.21 239.50 PASS 203 202 56.60 8.01 0.52 **238.50** 238.00 226.34 225.82 8.58 8.58 PASS None 6.29 | 0.44 | 0.72 | 229.21 | 228.49 | 238.61 | PASS 202 201 29.83 4.22 0.33 **237.61** 237.11 225.82 225.49 8.58 8.58 0.55 4.7 4.35 20.72 9.35 44.48 27.29 0.64 27.94 2.93 | 0.10 | 0.16 | 228.82 | 228.49 | 14.65 6.22 0.43 0.29 228.34 228.05 235.60 PASS 0.55 4.7 4.30 20.46 9.24 43.96 27.94 0.27 28.20 2.89 0.09 0.06 226.06 226.00 201 Outfall 2 29.83 4.22 0.14 **234.60** 234.10 220.99 220.85 8.58 8.58 14.14 **1.10** | **0.00** | **1.10** | **0.55** | **0.55** | **0.6** | **4.55** | **2.77** | **9.74** | **5.94** | 25.17 | 0.18 | 25.35 | 0.88 | 0.02 | 0.01 | 230.66 | 229.62 | 1.89 0.07 0.06 230.66 230.04 239.01 PASS 311 1.2 0.013 24.78 7.89 1.04 **238.01** 237.51 228.66 | 227.62 | PASS onghorn Drive Sec 2 303 None **1.13** | **0.00** | **1.13** | **0.55** | **0.55** | **0.6** 25.22 0.07 25.28 310 22.62 7.20 0.28 **237.82** 237.32 4.54 2.85 9.73 6.10 0.91 | 0.02 | 0.00 | 232.64 | 232.36 | 1.94 | 0.07 | 0.02 | 232.64 | 232.36 | 238.82 | PASS onghorn Drive Sec 2 None 308 307 4.55 0.55 4.55 2.68 9.75 5.73 25.10 0.15 25.26 0.85 0.01 | 0.01 | 247.00 | 246.83 | 1.82 0.06 0.03 | 247.00 | 246.83 | 253.30 | Iver Buckle Lane Sec 3 14.31 0.17 **252.30** 251.80 245.00 244.83 0.00 1.06 0.55 None 0.01 0.03 244.74 242.83 0.55 0.6 5.71 PASS 307 306 22.62 7.20 1.91 **251.53** 251.03 2.00 242.74 240.83 1.06 4.54 2.67 9.72 25.26 0.44 25.70 0.85 1.82 | 0.06 | 0.12 | 244.74 | 242.83 | 252.53 | PASS None 3.30 **0.55** 0.55 1.8 4.42 8.09 9.48 17.36 26.53 1.24 27.76 0.13 | 0.46 | 240.83 | 239.22 | 5.52 0.59 2.11 241.33 239.22 248.90 PASS 15.18 4.83 **247.90** 247.40 238.83 237.22 2.58 306 1.61 1.06 2.18 4.31 | 11.17 | 9.27 | 24.01 27.76 0.56 28.32 0.17 | 237.06 | 235.43 | PASS ver Buckle Lane Sec 2 305 304 34.32 6.99 1.63 **245.96** 245.46 1.70 234.56 232.93 3.30 4.67 **0.55** 0.55 2.6 2.28 0.07 4.89 0.34 0.80 237.06 235.43 246.96 PASS None 304 1.89 **242.36** 241.86 2.72 231.23 229.34 4.67 6.23 0.55 3.4 4.27 | 14.75 | 9.18 | 31.70 28.32 0.44 28.76 3.00 0.13 0.27 | 233.73 | 231.84 | 6.46 0.60 1.25 233.73 231.84 243.36 PASS 303 38.91 7.93 0.55 None 303 302 34.66 4.90 0.19 **238.14** 237.64 226.62 226.43 8.46 8.46 0.55 4.7 4.23 19.86 9.10 42.72 28.76 0.23 28.99 2.81 0.09 0.06 229.62 229.43 PASS 6.04 | 0.41 | 0.28 | 230.04 | 229.76 | 239.14 | PASS 8.06 4.21 | 19.77 | 9.07 | 42.54 302 29.83 4.22 0.33 **237.52** 237.02 226.43 226.10 8.46 0.55 4.7 28.99 0.64 29.63 2.80 | 0.09 | 0.14 | 229.43 | 229.10 | 6.02 | 0.41 | 0.66 | 229.76 | 229.10 | 238.52 | PASS 301 12.71 0.55 4.7 4.16 19.53 8.97 42.07 1.55 0.02 0.01 226.01 226.00 301 Outfall 3 64.24 5.11 0.14 **234.85** 234.35 221.28 221.14 **8.46** 8.46 29.63 0.22 29.85 3.35 | 0.09 | 0.06 | 228.11 | 228.05 | 235.85 | PASS None iniper Creek Dr Sec 3 412 406 9.60 3.06 0.02 **245.27** 244.77 6.60 239.85 239.83 .30 0.00 1.30 0.55 0.55 0.7 4.52 3.26 9.68 6.98 25.47 | 0.05 | 25.53 | 1.04 | 0.02 | 0.00 | 241.85 | 241.83 | 2.22 | 0.10 | 0.01 | 241.85 | 241.83 | 246.27 | PASS None 402.3 0.00 4.78 0.66 10.21 22.83 0.00 0.80 | 0.02 | 0.03 | 229.43 | 229.27 | 231.90 | PASS 402.2 3.32 1.88 0.16 **230.90** 230.40 227.93 227.77 0.25 **0.55** 0.55 0.1 1.42 1.45 24.28 0.38 0.01 | 229.43 | 229.27 | None PASS 402.2 402.1 9.60 3.06 0.05 **232.17** 231.67 225.98 225.93 0.25 0.25 0.55 0.1 4.63 0.64 9.91 1.37 24.28 0.15 24.43 0.20 | 0.00 | 0.00 | 227.98 | 227.93 | 0.44 | 0.00 | 0.00 | 228.62 | 228.62 | 233.17 | PASS None 0.18 0.013 402.1 9.60 225.93 225.90 0.25 0.55 0.1 4.62 0.64 9.88 1.37 24.43 0.09 24.52 0.20 | 0.00 | 0.00 | 227.93 | 227.93 | 0.44 | 0.00 | 0.00 | 228.62 | 228.62 | 233.76 | PASS None 402 3.06 0.03 **232.76** 232.26 1.97 0.25 ed River Drive Sec 4 412 411 246.89 243.53 1.77 0.55 4.38 9.57 0.04 2.99 | 0.17 | 0.47 | 252.42 | 251.95 | 255.67 | PASS 411 410 25.09 242.53 242.19 0.55 1.0 4.41 4.33 9.47 9.29 26.63 0.06 26.69 0.04 2.96 | 0.17 | 0.05 | 251.95 | 251.90 | 251.06 | FAIL 7.99 0.34 **250.06** 249.56 1.38 None 9.28 410 20.86 249.83 242.19 241.88 0.55 4.33 9.45 26.69 0.09 26.78 1.38 0.04 0.01 244.19 243.88 2.95 0.17 0.06 251.90 251.84 250.83 None 409 408 241.88 240.11 .15 | 1.77 | 4.92 | 0.55 | 0.55 | 2.7 | 4.36 11.89 9.36 25.53 27.24 0.52 27.76 3.79 | 0.28 | 0.57 | 243.88 | 242.11 | PASS 8.13 | 1.27 | 2.65 | 251.84 | 249.19 | 250.59 | 208 20.86 6.64 1.77 **249.59** 249.09 50 4.68 407 246.81 7.09 **0.55** 0.55 4.31 9.27 36.44 27.76 0.56 2.02 239.30 11.60 249.19 | 239.85 | 248.31 408 6.36 247.31 240.11 237.30 16.96 0.94 28.70 5.40 2.60 9.34 50 16.46 407 4.24 21.54 9.11 46.35 ost Wagon Drive Sec 3 406 155 39.34 8.01 1.42 **245.82** 245.32 2.15 236.80 235.38 **403** | **2.08** | **7.09** | 9.17 | **0.55** | 0.55 | 5.0 | 28.70 0.32 29.03 4.39 0.28 0.43 239.30 237.88 PASS 9.44 | 1.28 | 1.97 | 239.85 | 237.88 | 246.82 | PASS 50 7.00 0.55 5.8 4.21 24.45 9.06 52.62 29.03 0.51 29.54 0.33 10.47 3.46 0.13 236.23 234.49 7.44 | 0.62 | 1.52 | 236.62 | 235.10 | 246.41 | 406 7.95 1.74 245.41 244.91 233.23 231.49 None 405 404 56.20 7.95 1.30 **240.99** 240.49 2.33 231.49 230.19 **2.82** | **10.47** | 13.29 | **0.55** | 0.55 | 7.3 4.17 | 30.74 | 8.98 | 66.20 29.54 0.38 29.92 4.35 0.21 0.39 234.49 233.19 PASS 9.37 | 0.99 | 1.81 | 235.10 | 233.29 | 241.99 | PASS 50 10.00 404 4.14 | 30.52 | 8.92 | 65.76 4.32 0.21 0.20 230.95 230.76 403 22.12 3.13 0.10 **236.96** 236.46 227.86 227.76 13.29 13.29 0.55 7.3 29.92 | 0.50 | 30.42 | PASS 9.30 | 0.97 | 0.91 | 233.29 | 232.37 | 237.96 | PASS 50 43.64 403 47.16 **2.05** | **13.29** | 15.34 | **0.55** | 0.55 | 8.4 4.10 | 34.91 | 8.85 | 75.27 30.42 0.52 30.95 4.94 0.27 0.57 230.76 229.71 PASS 10.65 | 1.27 | 2.67 | 232.37 | 229.71 | 235.43 | PASS ost Wagon Drive Sec 2 6.67 1.05 234.43 233.93 227.76 226.71 50 28.10 402 96.36 7.67 0.51 **233.94** 233.44 **1.82** | **15.59** | 17.41 | **0.55** | 0.55 | 9.6 4.06 | 39.24 | 8.77 | 84.68 30.95 | 0.25 | 31.20 | 3.12 0.07 0.09 227.93 227.42 PASS 6.74 | 0.35 | 0.40 | 228.62 | 228.22 | 234.94 | PASS 401 0.45 0.013 223.93 223.42 None 124.37 7.82 0.32 **229.52** 229.02 **34** | **1.24** | **17.41** | 18.65 | **0.55** | 0.55 | 10.3 | 4.05 | 41.85 | 8.73 | 90.34 | 31.20 | 0.17 | 31.37 | 2.63 | 0.05 | 0.04 | 226.36 | 226.00 | PASS 5.68 0.21 0.17 228.22 228.05 230.52 PASS



GARRET J. DUHON
9709 LAKESIDE BLVD.
SUITE 200
THE WOODLANDS, TX 77381
(832) B23-2200

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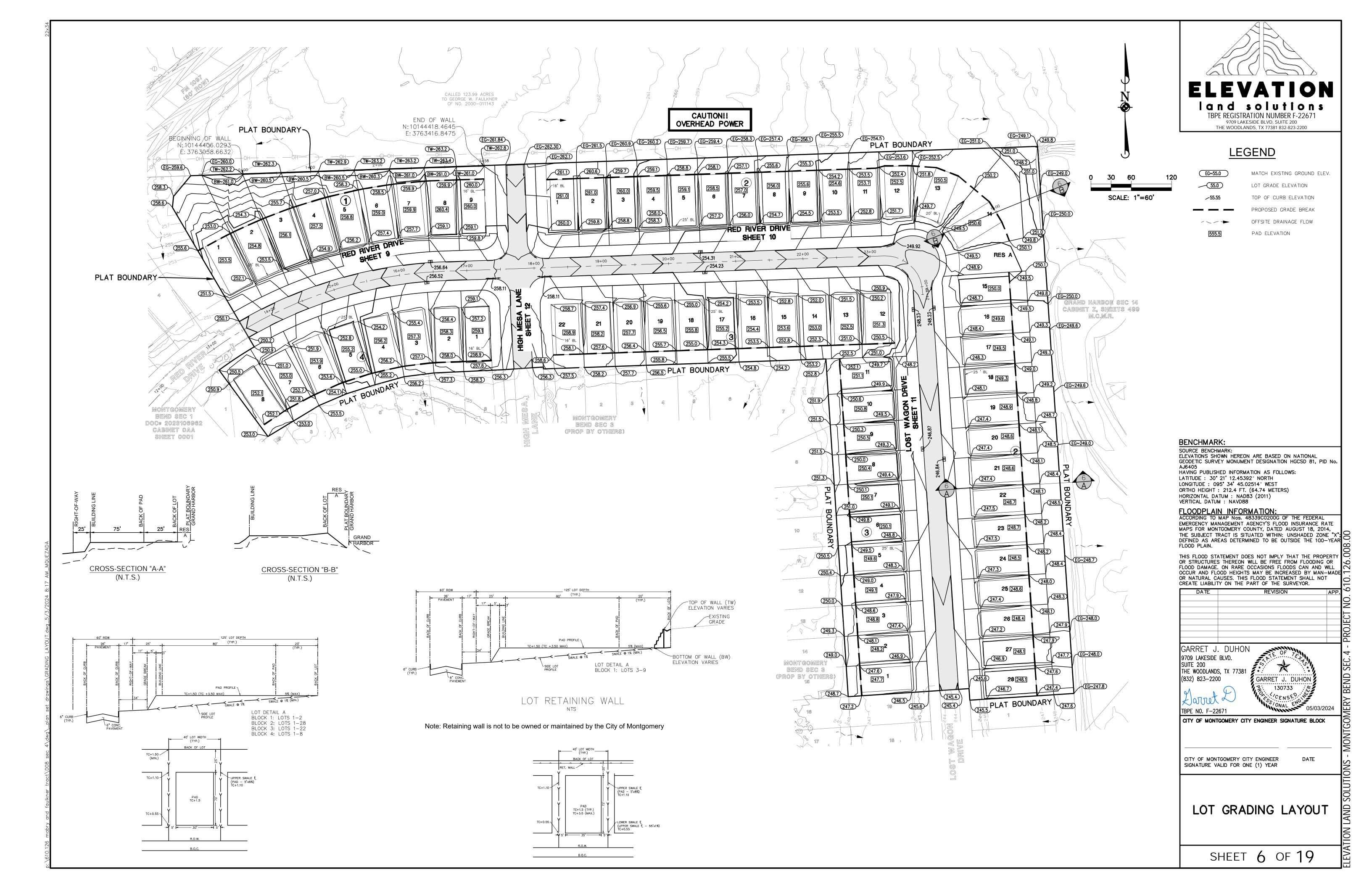
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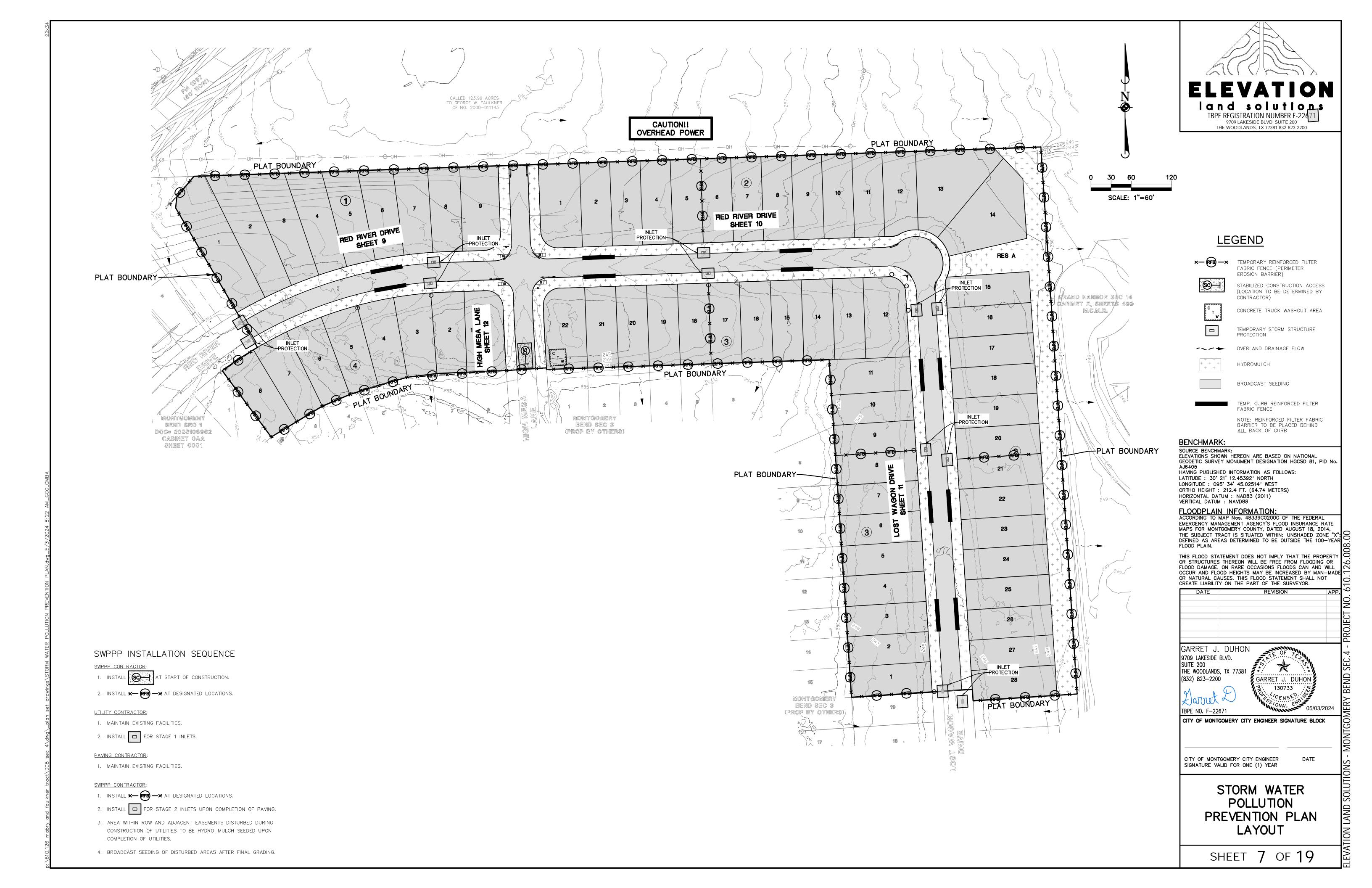
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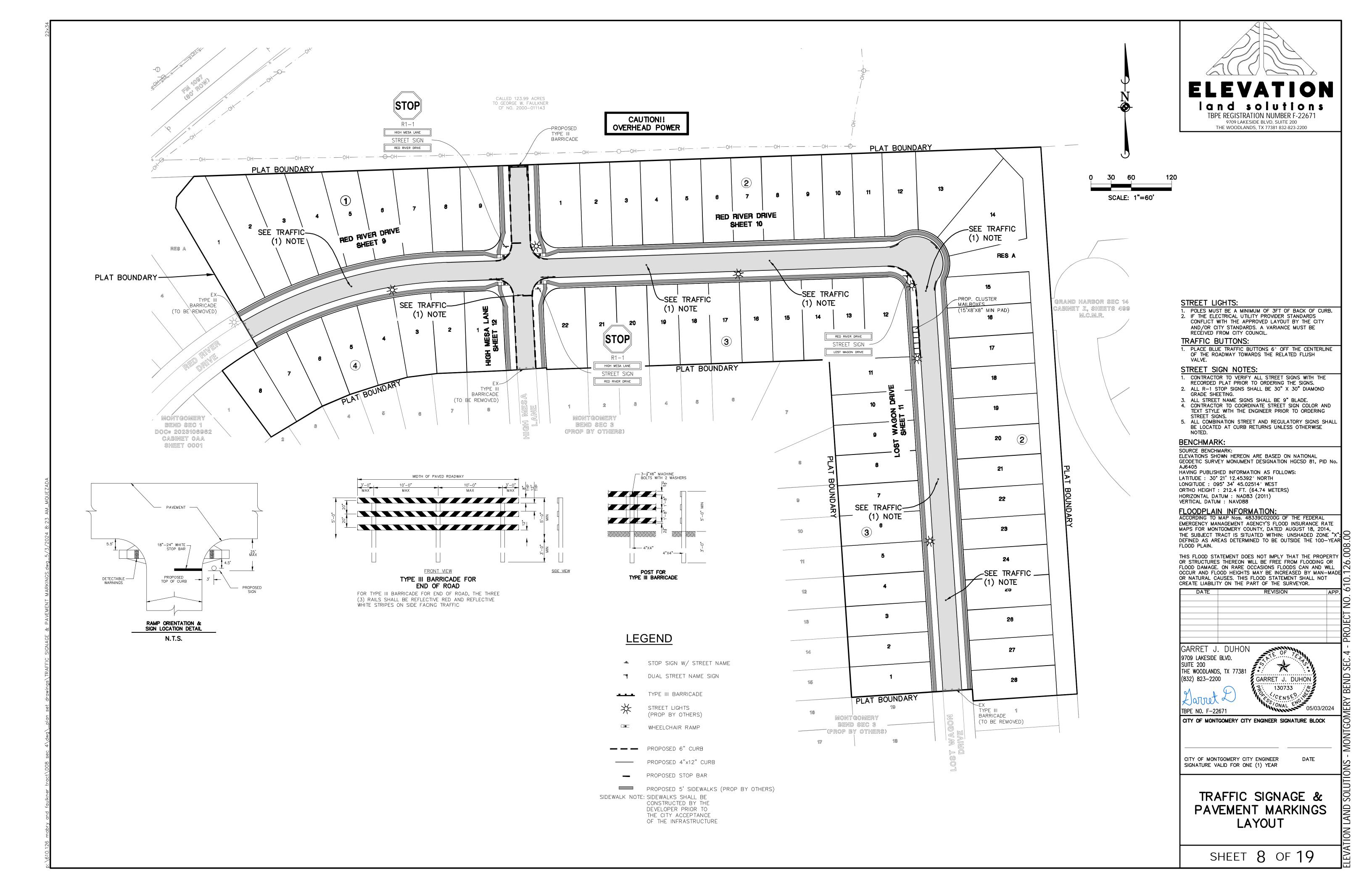
CITY OF MONTGOMERY CITY ENGINEER

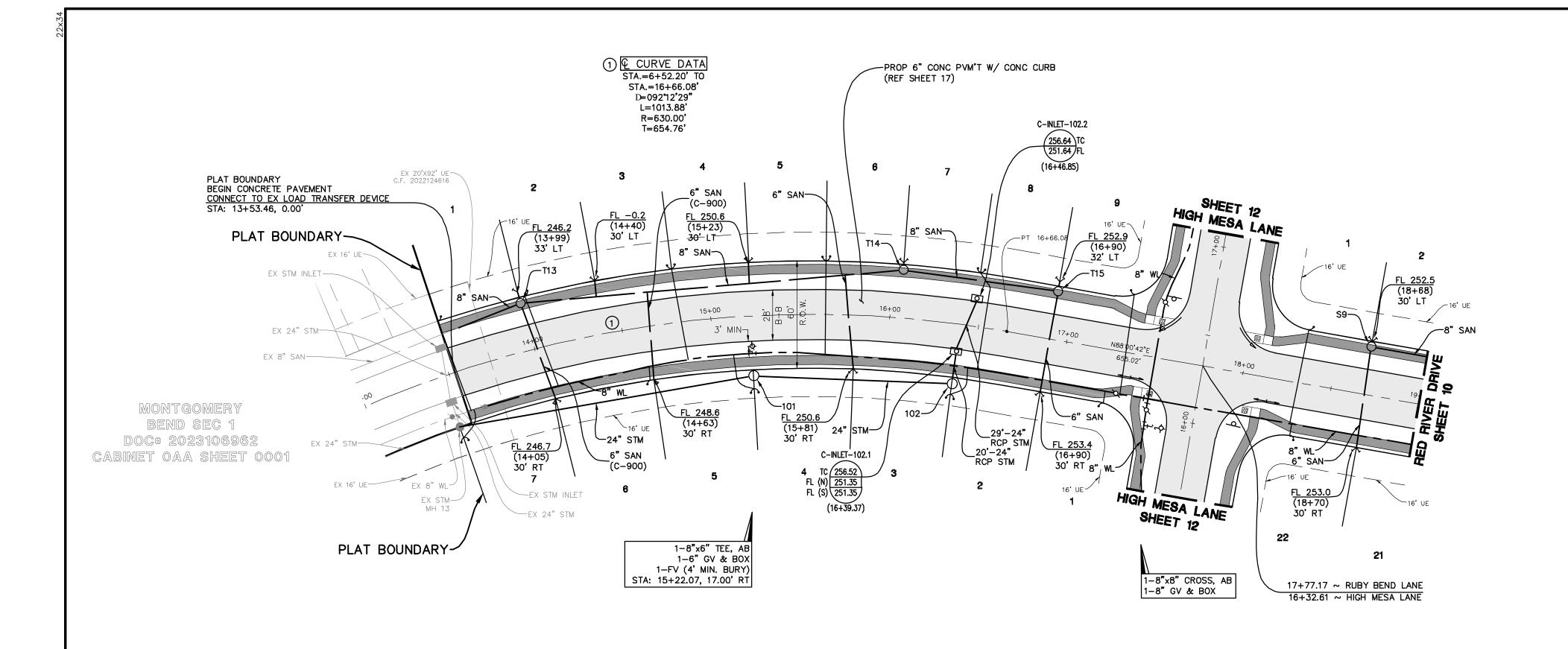
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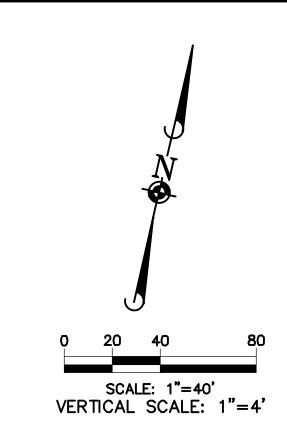
SHEET 5 OF 19

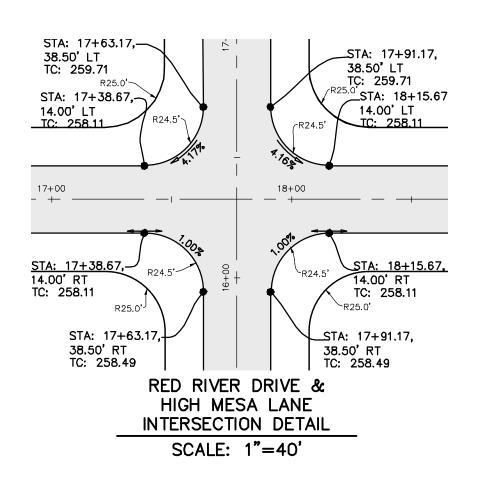






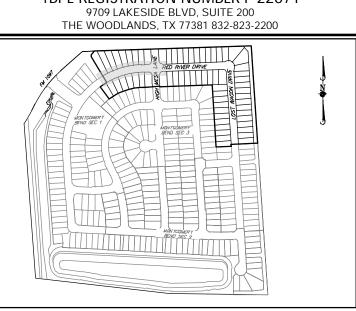






Station	Elevation	Grade Percent (%)	Location
17+26.88	257.56		PCI
17+36.88	257.71'	1.46%	
17+46.88	257.82'	1.13%	
17+56.88	257.90'	0.80%	1
17+66.88	257.95'	0.48%	
17+76.88	257.96	0.15%	Crest
17+86.88	257.95'	-0.05%	
17+96.88	257.90'	-0.17%	
18+06.88	257.81'	-0.50%	
18+16.88	257.70'	-0.83%	
18+24.67	257.97'	-1.29%	PVT





KEY MAP

# WATER LINE—SANITARY SEWER CROSSING NOTE:

POSITION ONE FULL SECTION OF RESTRAINED JOINT WATERLINE AND SANITARY SEWER PIPE CENTERED AT CROSSING. INSERT SANITARY SEWER PIPE WITH CEMENT STABILIZED SAND FOR THE TOTAL LENGTH OF ONE PIPE SEGMENT PLUS ONE FOOT BEYOND THE JOINTS ON EACH END. FOR CROSSINGS WHERE PROPOSED WATERLINE IS UNDER PROPOSED SANITARY SEWER, PUT RESTRAINED JOINT DUCTILE IRON PIPE WATERLINE (FOR DIAMETERS LESS THAN 24 INCHES) AND RESTRAINED JOINT PRESSURE RATED (MIN 150 PSI) SANITARY 24" MIN CLEARANCE. NO SEPARATE PAY.

#### FILL NOTES:

- 1) EXISTING DRAINAGE SWALES: ALL EXISTING DRAINAGE SWALES SHALL BE FILLED AS SHOWN WITH MATERIAL FROM EXISTING ADJACENT SPOIL BANKS IN MAXIMUM 8" LOOSE LIFTS AND COMPACTED TO 95% PROCTOR DENSITY AS PER AASHTO TEST METHOD T-99.
- 2) EXISTING DRAINAGE SWALES: ALL EXISTING DRAINAGE SWALES UNDER PROPOSED CONCRETE PAVEMENT SHALL E CLEANED, MUCKED OUT AND SCARIFIED TO A MINIMUM DEPTH OF 6" AND FILLED AS SPECIFIED ABOVE IN FILL NOTE NO. 1 NO SEPARATE PAY.
- 3) ROADWAY EMBANKMENT: STRIP 3" OF VEGETATION FROM AREA TO BE FILLED AND RE—COMPACT SOIL TO 95% PROCTOR DENSITY. PLACE FILL MATERIAL AS SPECIFIED IN FILL NOTE NO. 1

#### **BENCHMARK:**

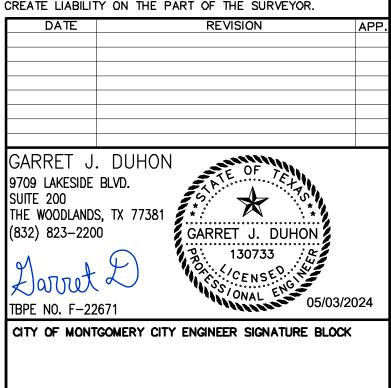
SOURCE BENCHMARK: ELEVATIONS SHOWN HEREON ARE BASED ON NATIONAL GEODETIC SURVEY MONUMENT DESIGNATION HGCSD 81, PID No AJ6405

HAVING PUBLISHED INFORMATION AS FOLLOWS: LATITUDE: 30° 21' 12.45392" NORTH LONGITUDE: 095° 34' 45.02514" WEST ORTHO HEIGHT: 212.4 FT. (64.74 METERS) HORIZONTAL DATUM: NAD83 (2011) VERTICAL DATUM: NAVD88

# FLOODPLAIN INFORMATION: ACCORDING TO MAP Nos. 48339C0200G OF THE FEDERAL

EMERGENCY MANAGEMENT AGENCY'S FLOOD INSURANCE RATE MAPS FOR MONTGOMERY COUNTY, DATED AUGUST 18, 2014, THE SUBJECT TRACT IS SITUATED WITHIN: UNSHADED ZONE "X"; DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 100—YEAR FLOOD PLAIN.

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RED RIVER DRIVE

(STA 13+00 TO 19+00)

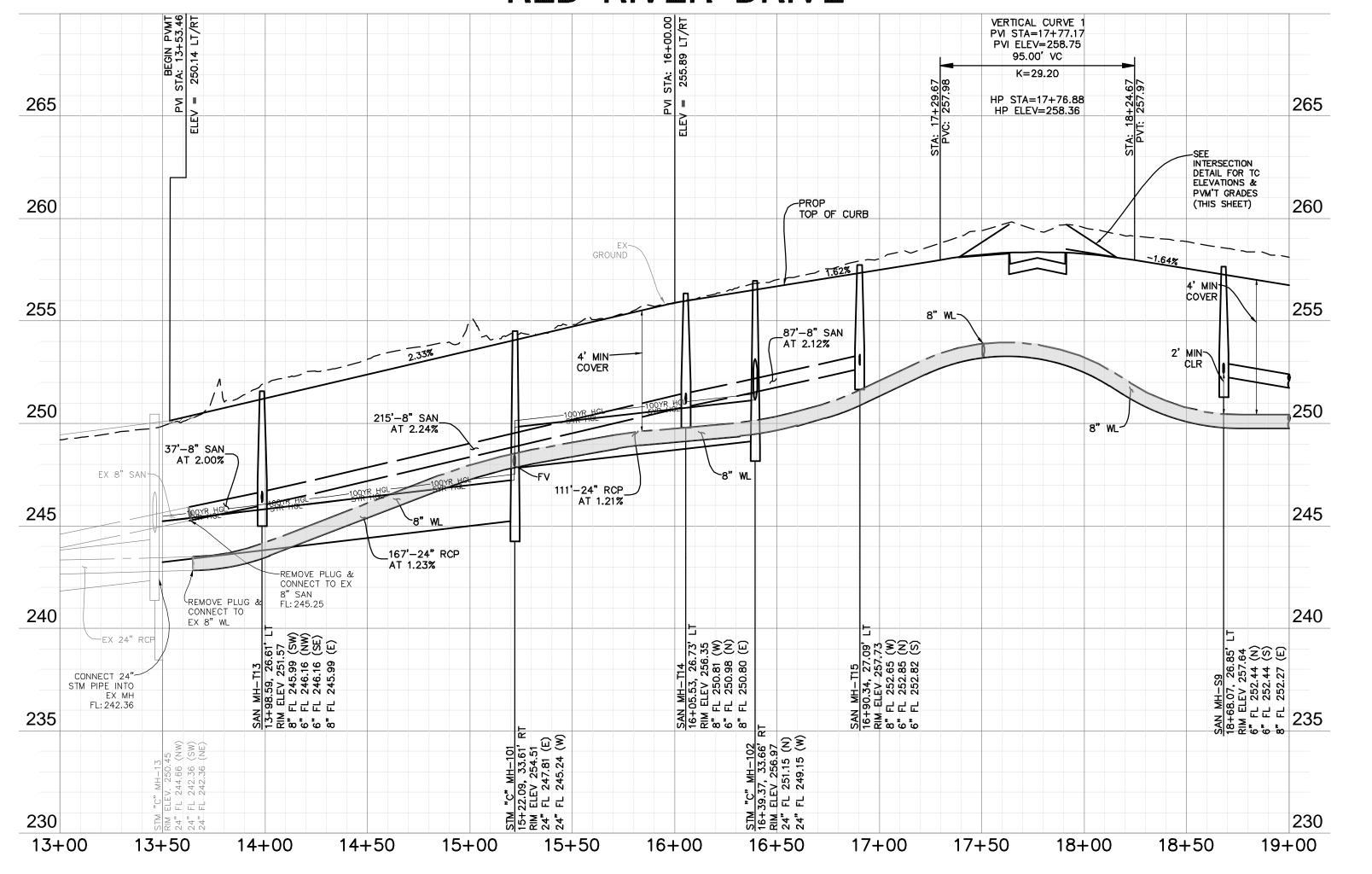
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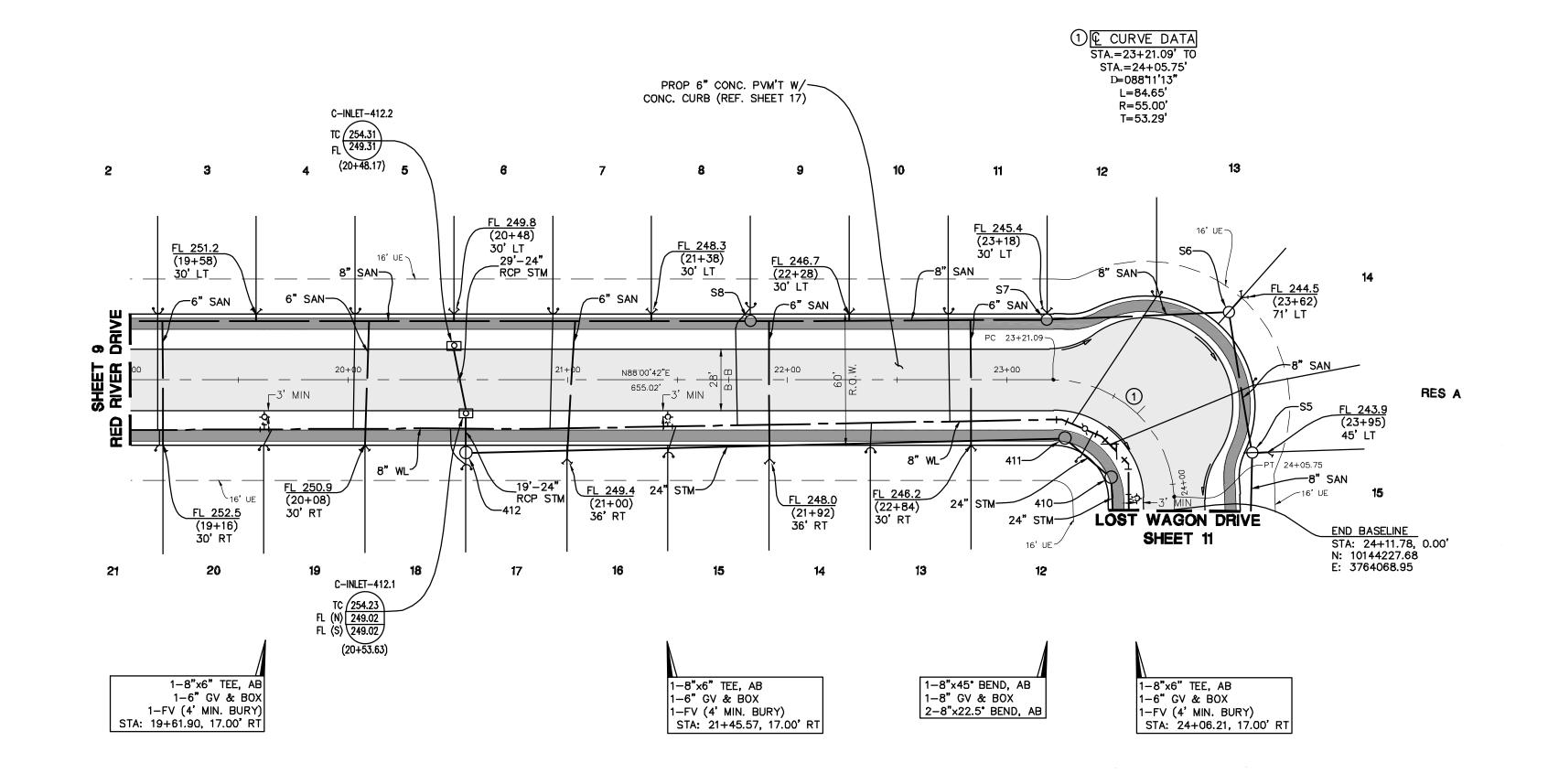
CITY OF MONTGOMERY CITY ENGINEER

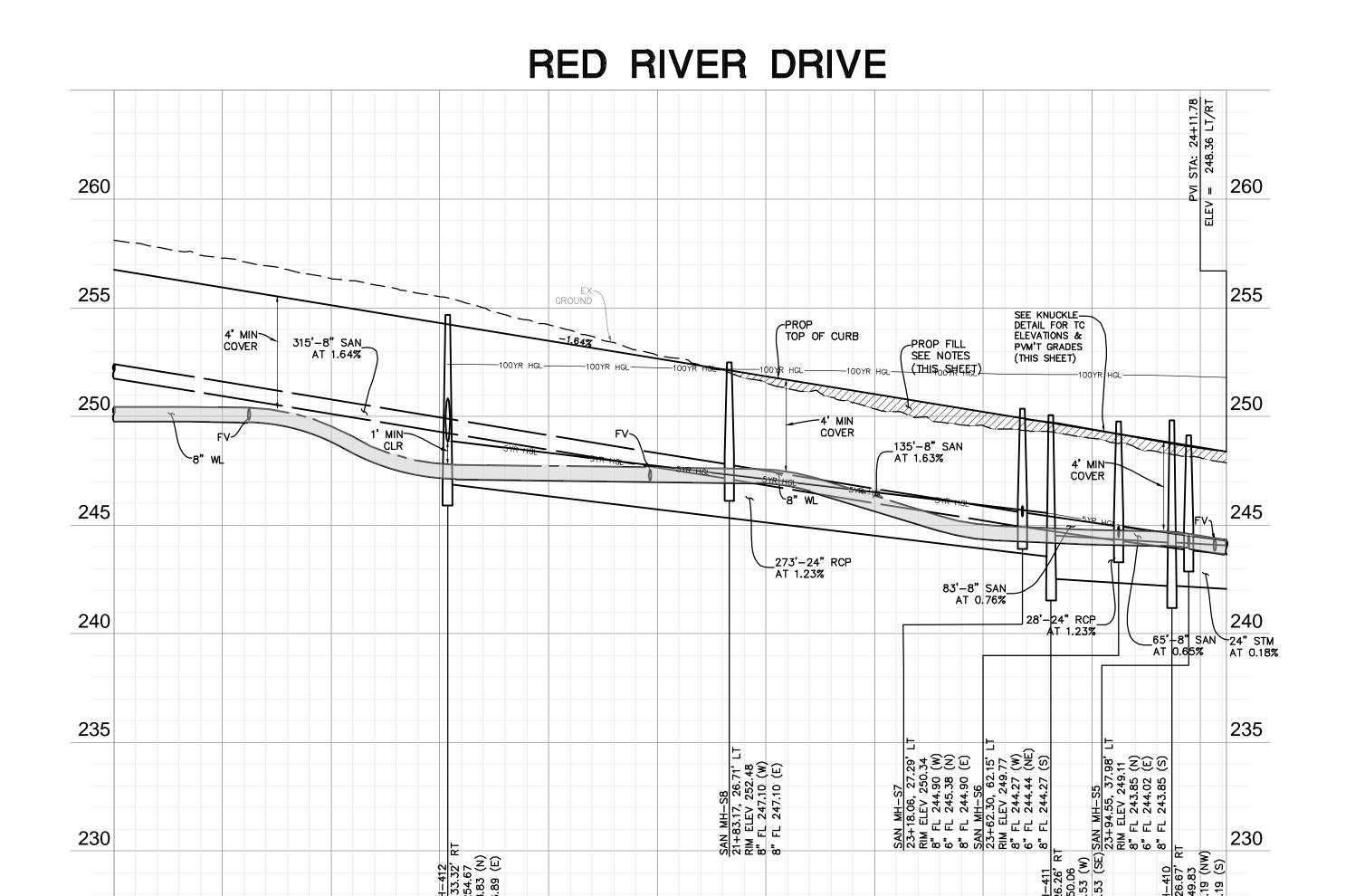
SIGNATURE VALID FOR ONE (1) YEAR

SHEET **9** OF **19** 

# RED RIVER DRIVE







21+50

22+00

22+50

23+00

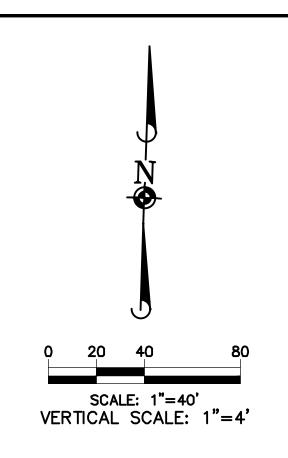
23+50

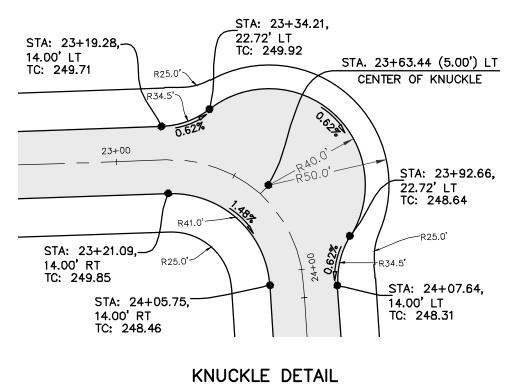
20+50

19+50

20+00

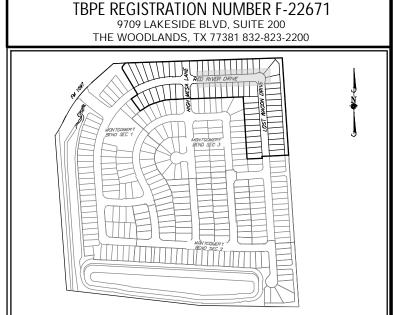
24+15





SCALE: 1"=40'





KEY MAP

#### WATER LINE-SANITARY SEWER CROSSING NOTE:

POSITION ONE FULL SECTION OF RESTRAINED JOINT WATERLINE AND SANITARY SEWER PIPE CENTERED AT CROSSING. INSERT SANITARY SEWER PIPE WITH CEMENT STABILIZED SAND FOR THE TOTAL LENGTH OF ONE PIPE SEGMENT PLUS ONE FOOT BEYOND THE JOINTS ON EACH END. FOR CROSSINGS WHERE PROPOSED WATERLINE IS UNDER PROPOSED SANITARY SEWER, PUT RESTRAINED JOINT DUCTILE IRON PIPE WATERLINE (FOR DIAMETERS LESS THAN 24 INCHES) AND RESTRAINED JOINT PRESSURE RATED (MIN 150 PSI) SANITARY 24" MIN CLEARANCE. NO SEPARATE PAY.

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- NOTE NO. 1 NO SEPARATE PAY. 3) ROADWAY EMBANKMENT: STRIP 3" OF VEGETATION FROM AREA TO BE FILLED AND RE-COMPACT SOIL TO 95% PROCTOR DENSITY. PLACE FILL MATERIAL AS SPECIFIED IN FILL NOTE NO. 1

#### BENCHMARK:

SOURCE BENCHMARK: ELEVATIONS SHOWN HEREON ARE BASED ON NATIONAL GEODETIC SURVEY MONUMENT DESIGNATION HGCSD 81, PID No

HAVING PUBLISHED INFORMATION AS FOLLOWS: LATITUDE: 30° 21' 12.45392" NORTH LONGITUDE: 095° 34' 45.02514" WEST ORTHO HEIGHT: 212.4 FT. (64.74 METERS) HORIZONTAL DATUM: NAD83 (2011) VERTICAL DATUM : NAVD88

FLOODPLAIN INFORMATION:
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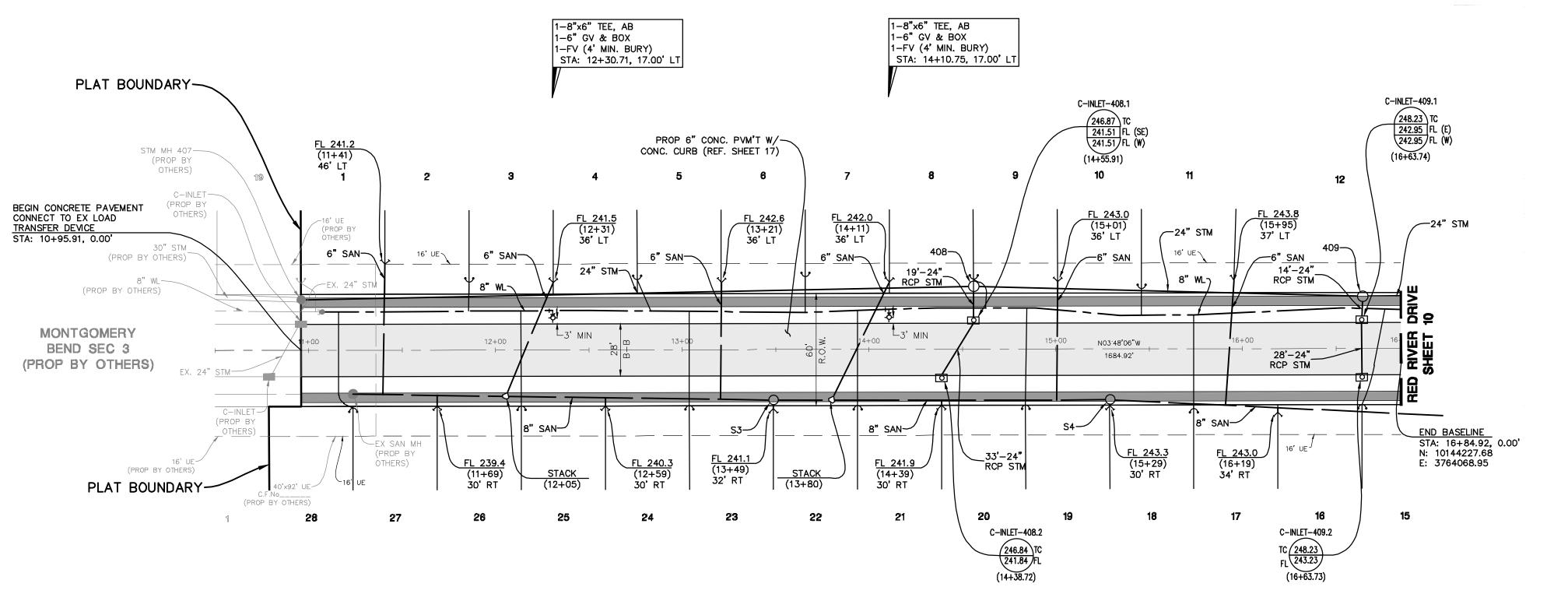
GARRET J. DUHON 9709 LAKESIDE BLVD. SUITE 200 THE WOODLANDS, TX 7738 (832) 823-2200 TBPE NO. F-22671 CITY OF MONTGOMERY CITY ENGINEER SIGNATURE BLOCK

CITY OF MONTGOMERY CITY ENGINEER SIGNATURE VALID FOR ONE (1) YEAR

RED RIVER DRIVE (STA 19+00 TO 24+15)

DATE

SHEET 10 OF 19



SAN MH-S. 13+48.61, RIM ELEV 2 8" FL 240. 6" FL 241. 8" FL 241.

13+50

14+00

14+50

15+00

255

250

(PROP BY-OTHERS

30" RCP

(PROP BY—

OTHERS

230

10+50

PROP FILL SEE NOTES

0.63%

225'-8" SAN AT 0.43%

TIE INTO

PROP SAN MH FL: 238.83

-REMOVE PLUG &

EX 8" WL

TIE INTO

PROP STM MH

FL: 237.27

11+50

12+00

88 88 85

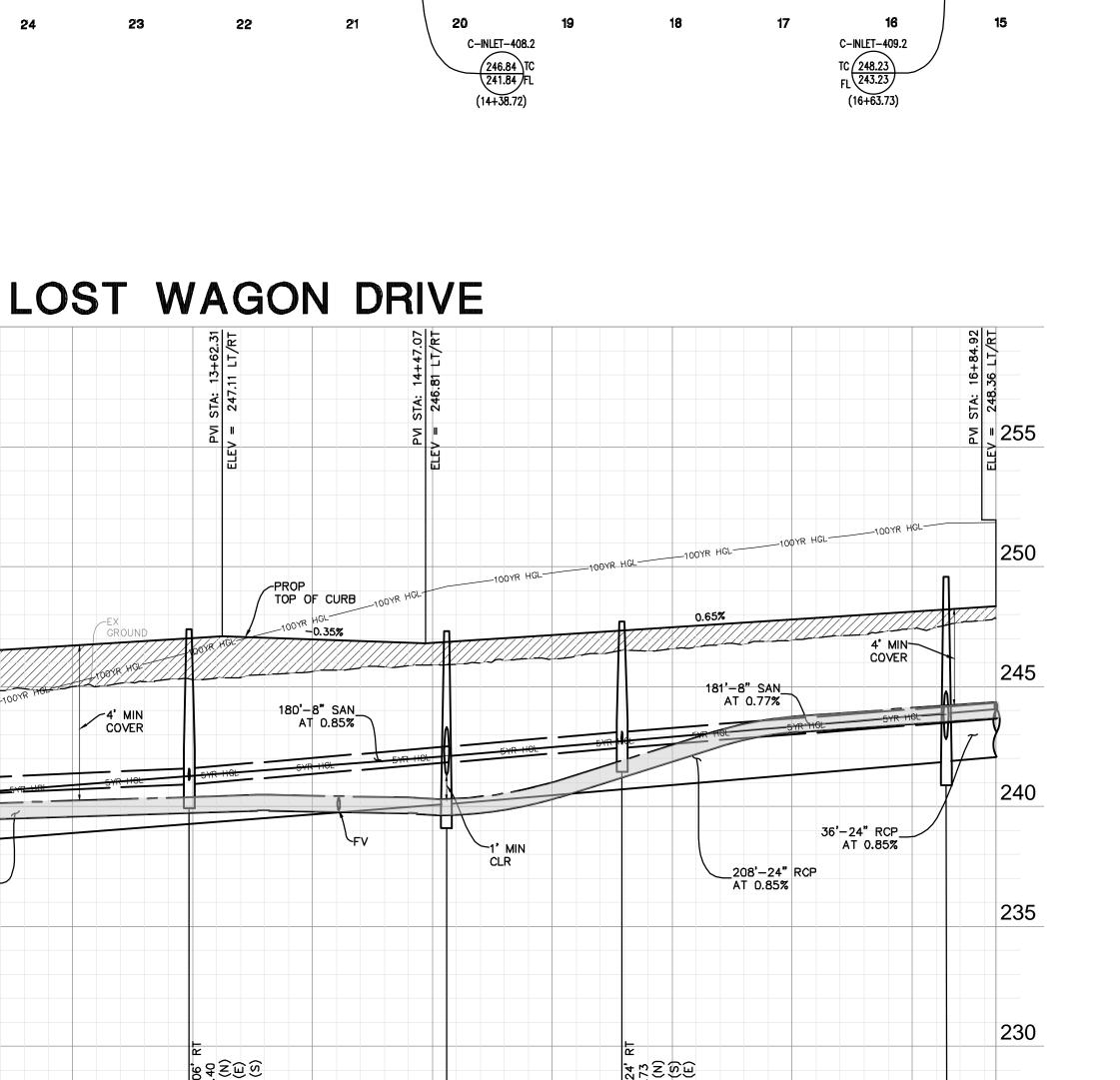
11+00

360'-24" RCP\_\_ AT 0.78%

12+50

13+00

(THIS SHEET)



SAN MH-S. 15+29.02, RIM ELEV 2 8" FL 242. 8" FL 242. 6" FL 242.

15+50

16+00

# 15 H H H H H H

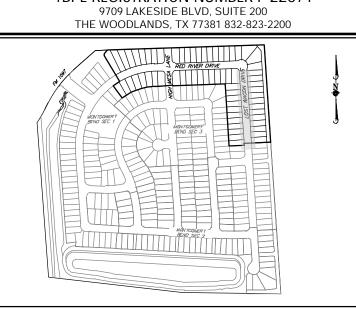
16+50 16+85



SCALE: 1"=40'

VERTICAL SCALE: 1"=4"





KEY MAP

#### WATER LINE-SANITARY SEWER CROSSING NOTE:

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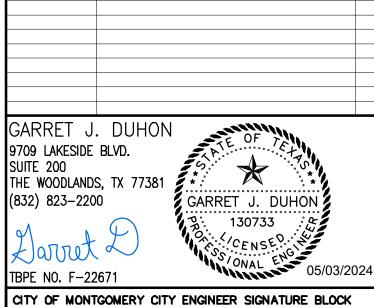
#### SOURCE BENCHMARK:

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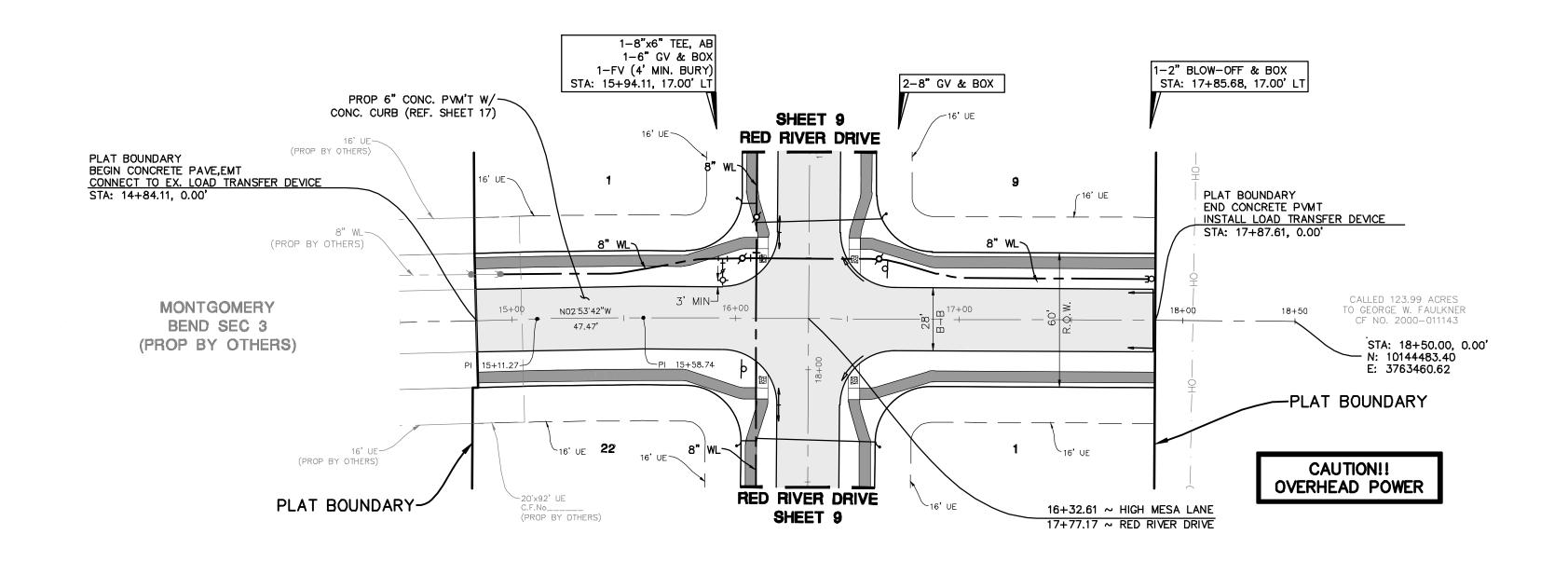


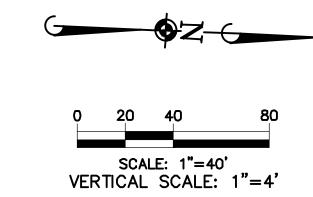
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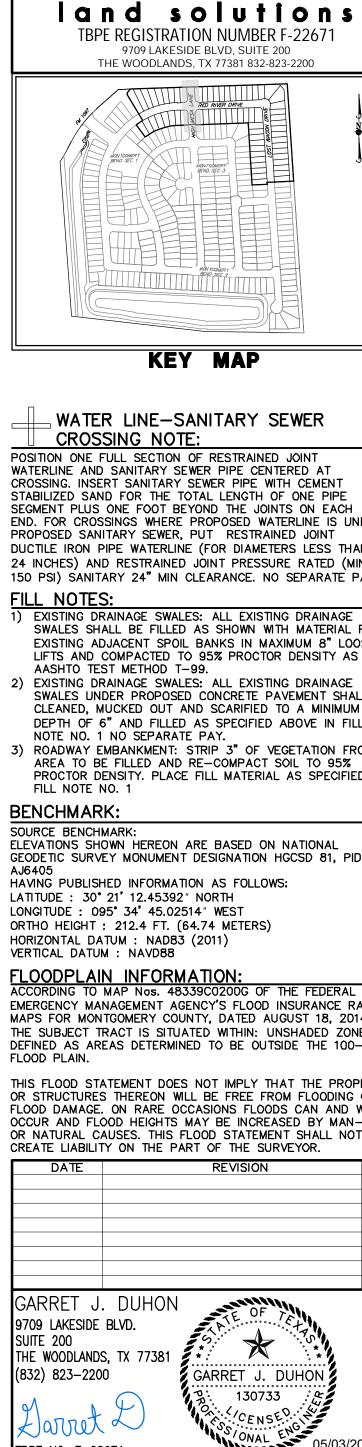
CITY OF MONTGOMERY CITY ENGINEER SIGNATURE VALID FOR ONE (1) YEAR

LOST WAGON DRIVE

SHEET 11 OF 19







#### KEY MAP

# WATER LINE-SANITARY SEWER

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EMERGENCY MANAGEMENT AGENCY'S FLOOD INSURANCE RATE MAPS FOR MONTGOMERY COUNTY, DATED AUGUST 18, 2014, THE SUBJECT TRACT IS SITUATED WITHIN: UNSHADED ZONE "X";
DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 100-YEAR

THIS FLOOD STATEMENT DOES NOT IMPLY THAT THE PROPERTY OR STRUCTURES THEREON WILL BE FREE FROM FLOODING OR FLOOD DAMAGE. ON RARE OCCASIONS FLOODS CAN AND WILL OCCUR AND FLOOD HEIGHTS MAY BE INCREASED BY MAN-MADE OR NATURAL CAUSES. THIS FLOOD STATEMENT SHALL NOT CREATE LIABILITY ON THE PART OF THE SURVEYOR.

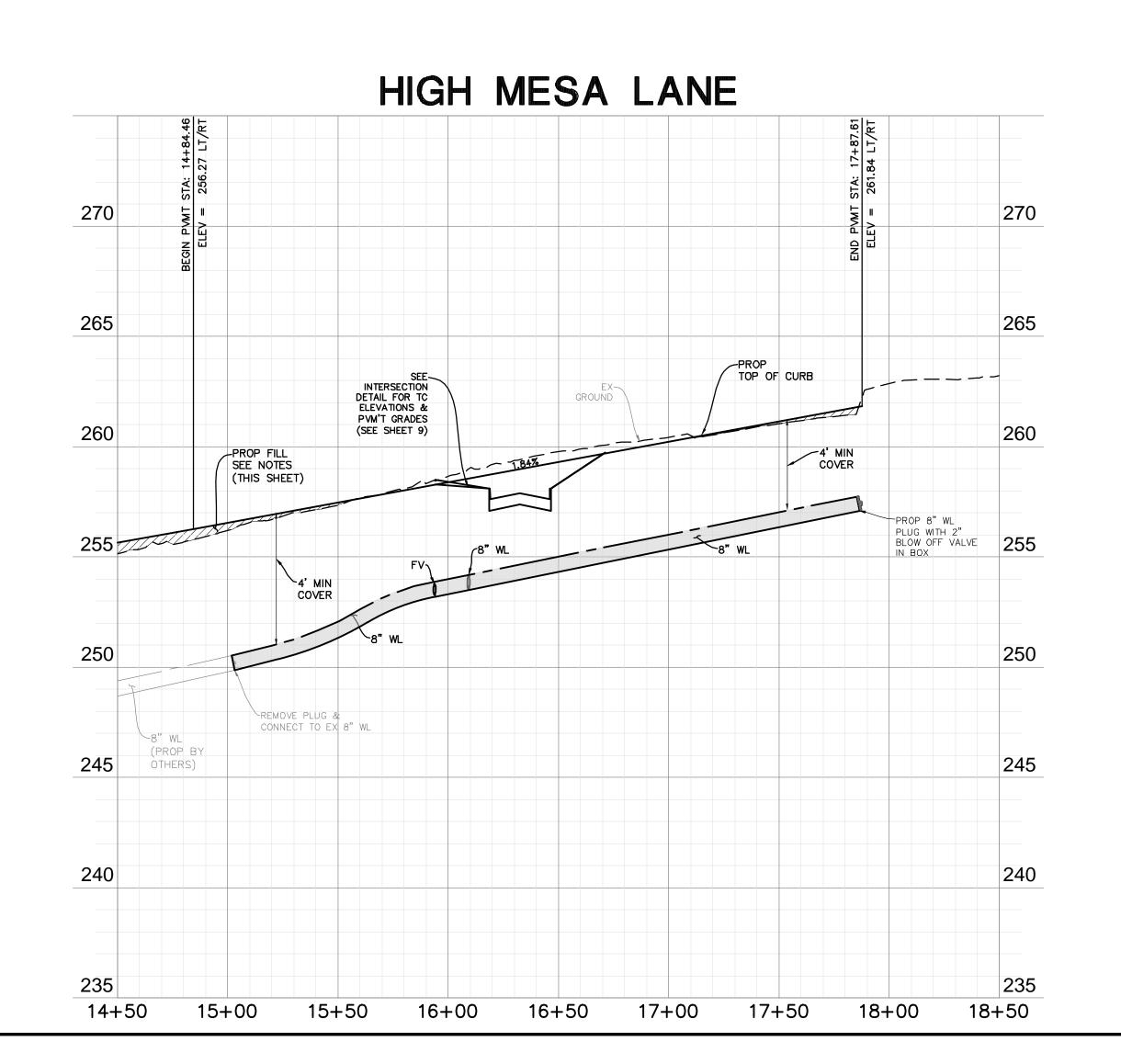
TBPE NO. F-22671 CITY OF MONTGOMERY CITY ENGINEER SIGNATURE BLOCK

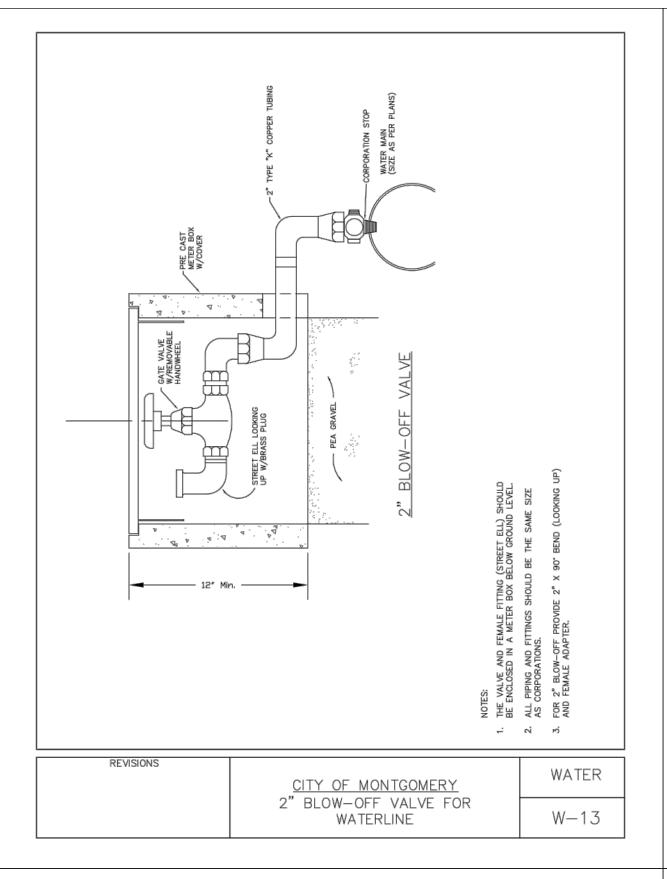
CITY OF MONTGOMERY CITY ENGINEER SIGNATURE VALID FOR ONE (1) YEAR

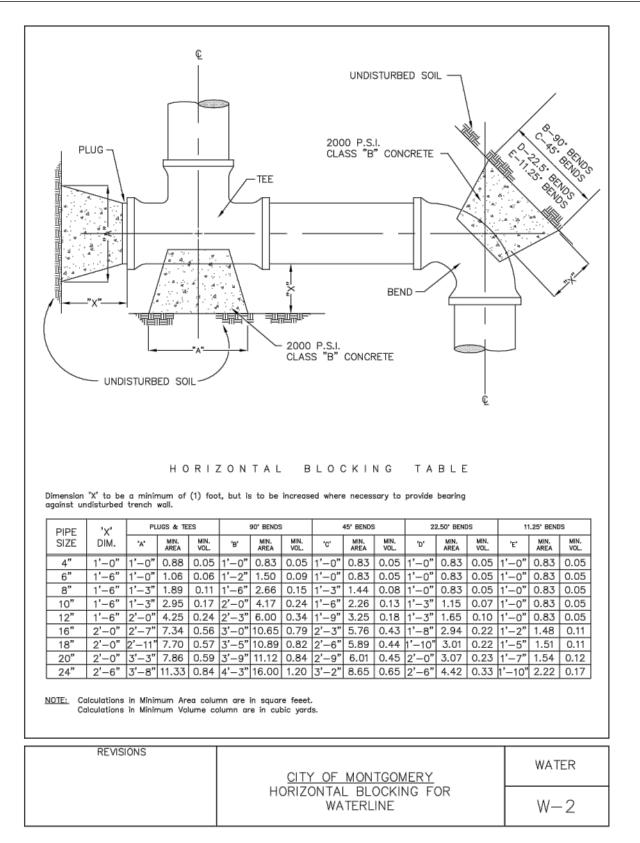
HIGH MESA LANE

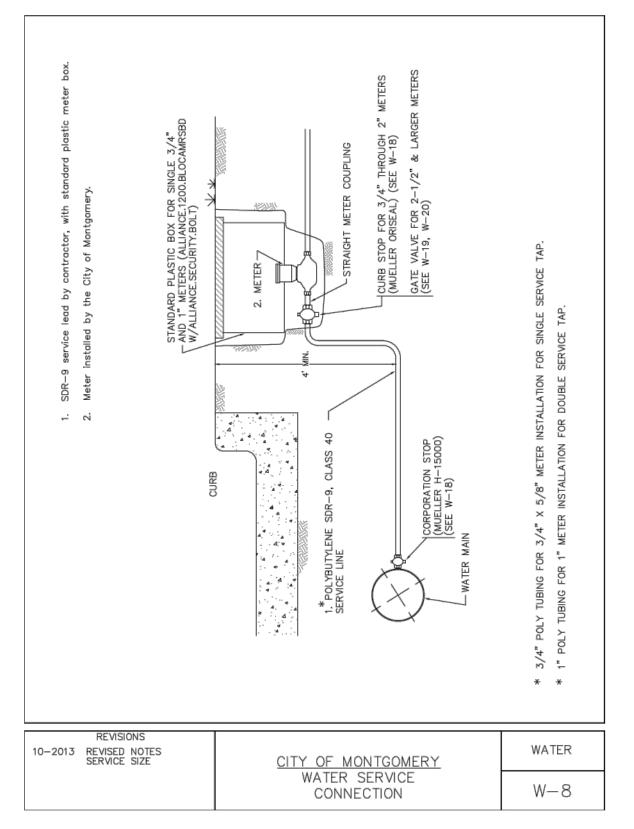
DATE

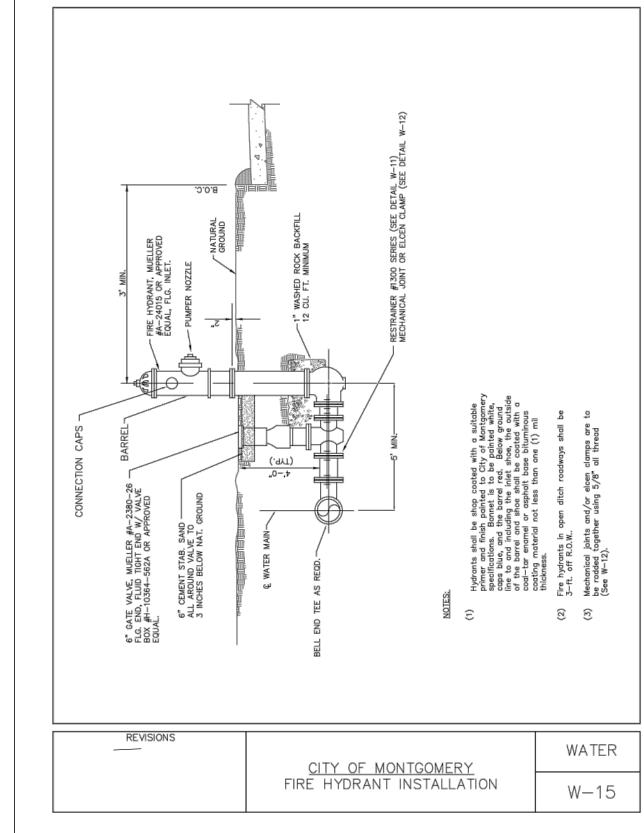
SHEET 12 OF 19

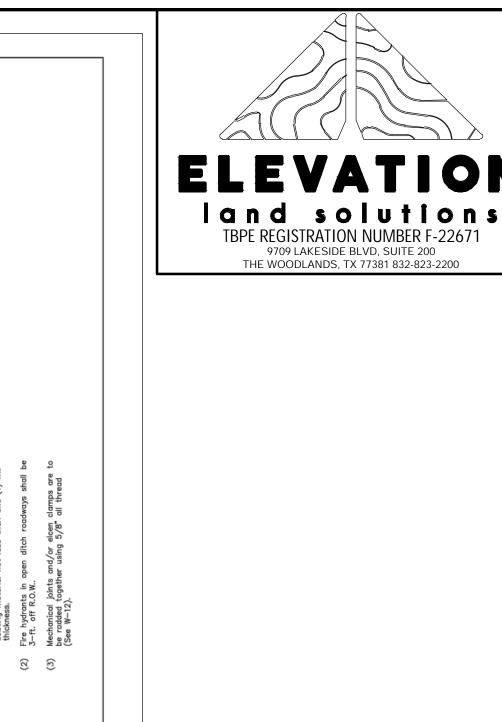


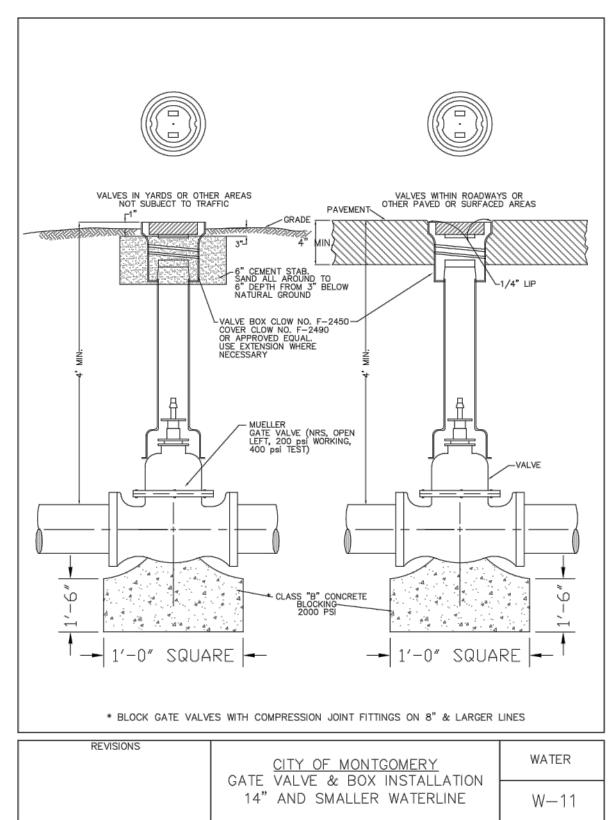


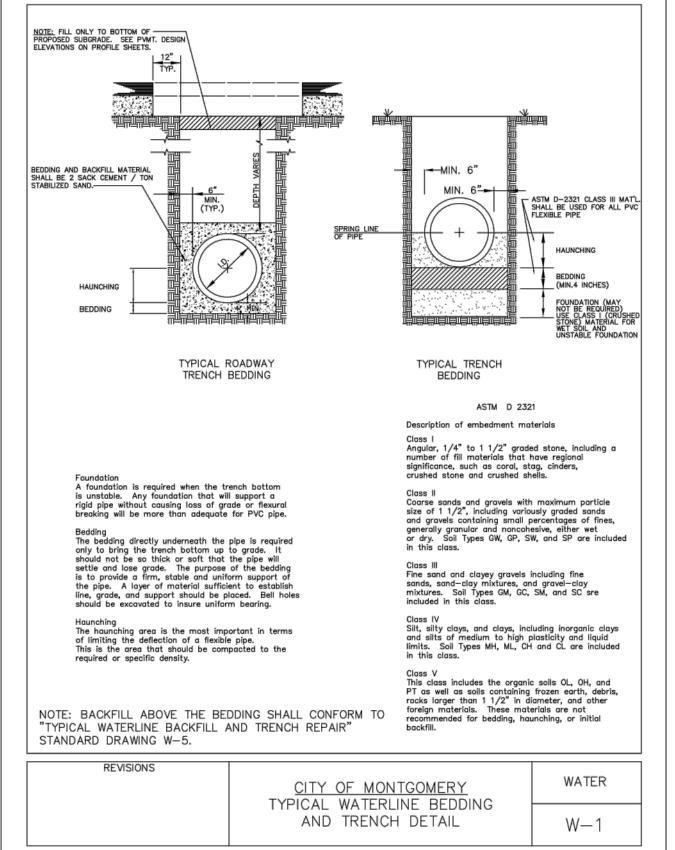


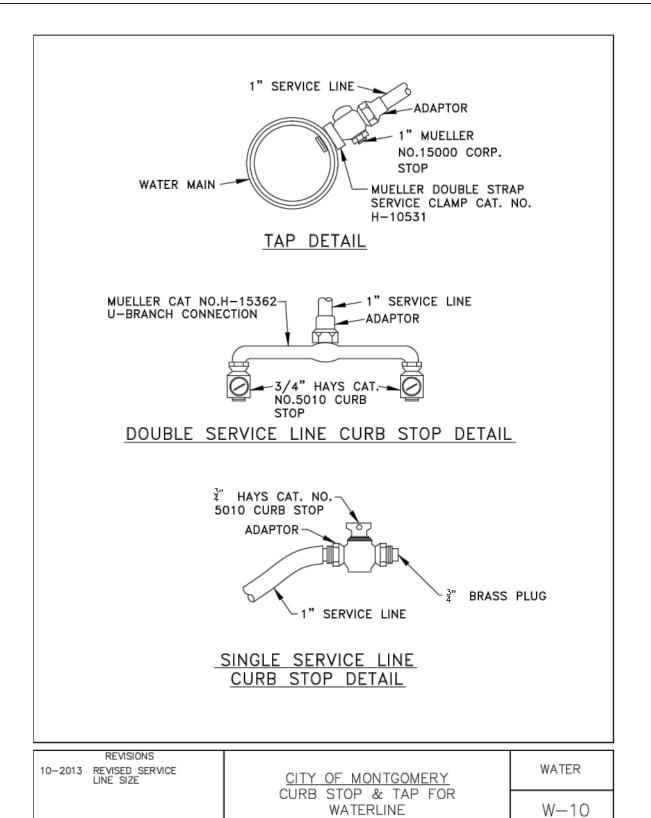


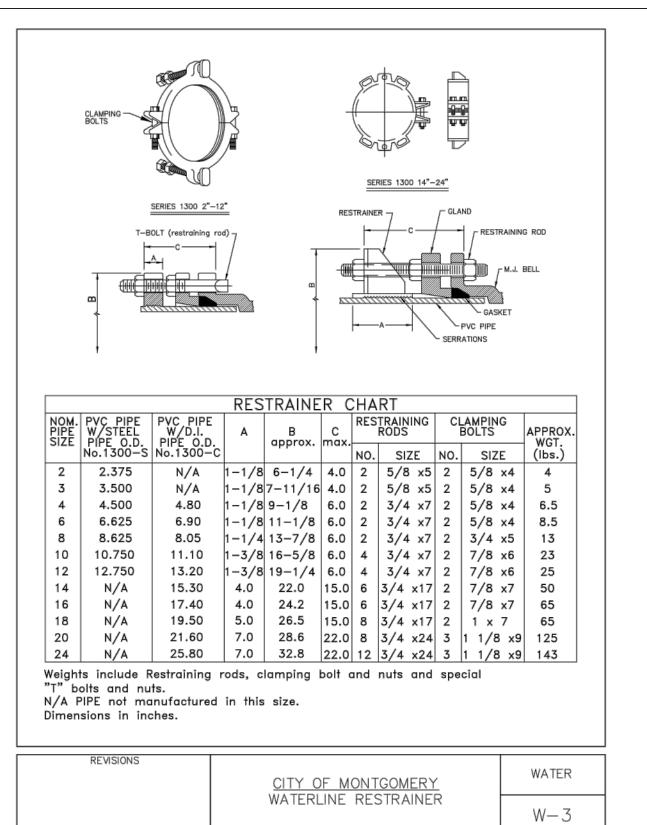


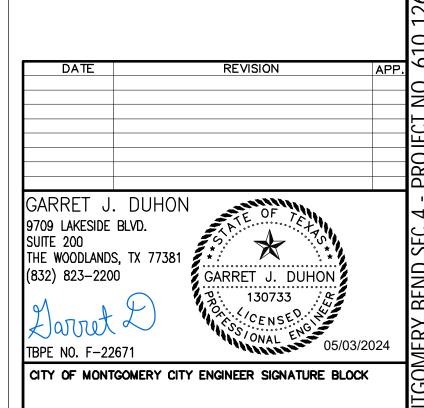












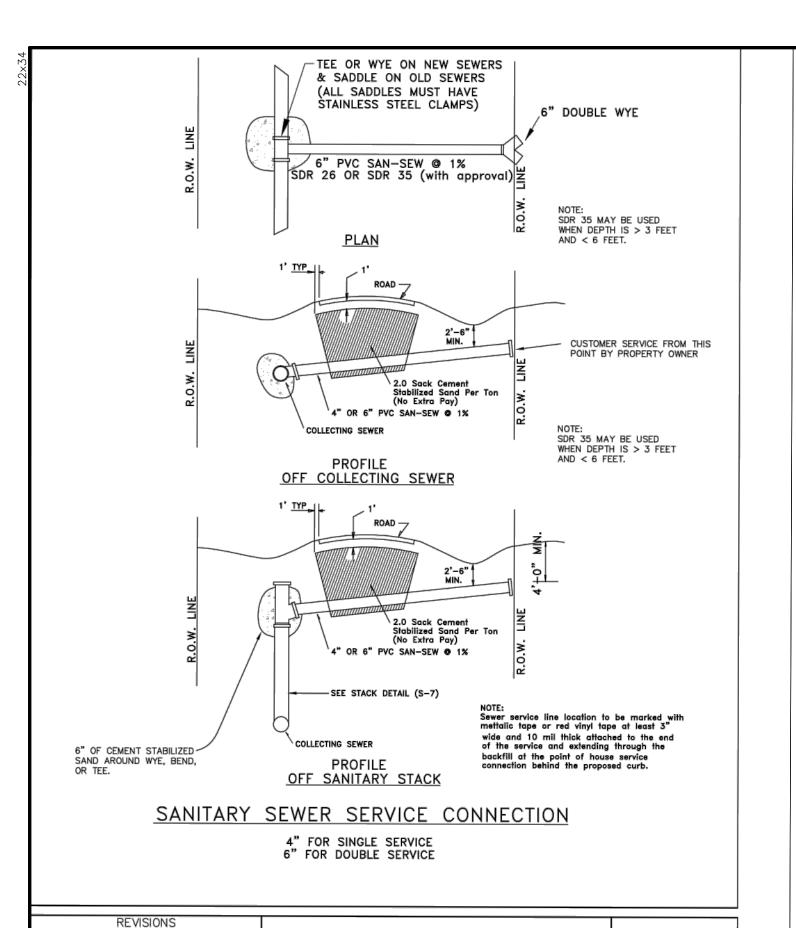
CITY OF MONTGOMERY CITY ENGINEER

SIGNATURE VALID FOR ONE (1) YEAR

WATER DETAILS

SHEET 13 OF 19

DATE



CITY OF MONTGOMERY

RESIDENTIAL SANITARY SEWER

SERVICE CONNECTION

SADDLES FOR FIELD CUT-IN CONNECTIONS

 $8 \times 4$ 

10 x 4 9.3

10.8

5.9

8 x 6

10 x 6

12 x 4

8 x 6

9.0

9.8

2.3

the size for which it was made.

1. Place saddle in position on pipe. Mark hole guide for cut in pipe using

4. Wipe clean and dry both the underside of the saddle and the mating surface

5. Apply primer to both mating surfaces. Check the PVC surfaces while still

6. While the surfaces are still wet with primer, liberally brush cement base

Immediately position the saddle over the hole in the pipe and draw down with stainless steel straps. The saddle must not be moved once it makes

CITY OF MONTGOMERY

TEE & WYE SADDLES FOR

PVC PIPE

wet with primer to see that the surfaces have been etched.

saddle as a template. Remove saddle from pipe.

3. The hole should be 1/2" outside the hole guide mark.

Auger a hole into pipe wall on hole guide mark.

on mating surface of saddle and pipe.

contact with the pipe.

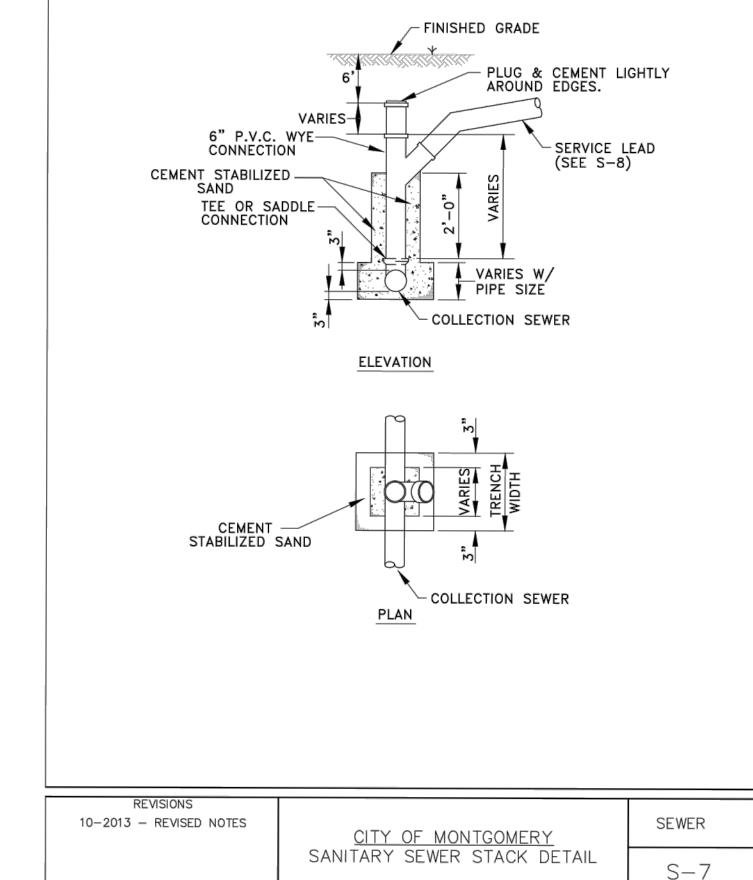
REVISIONS

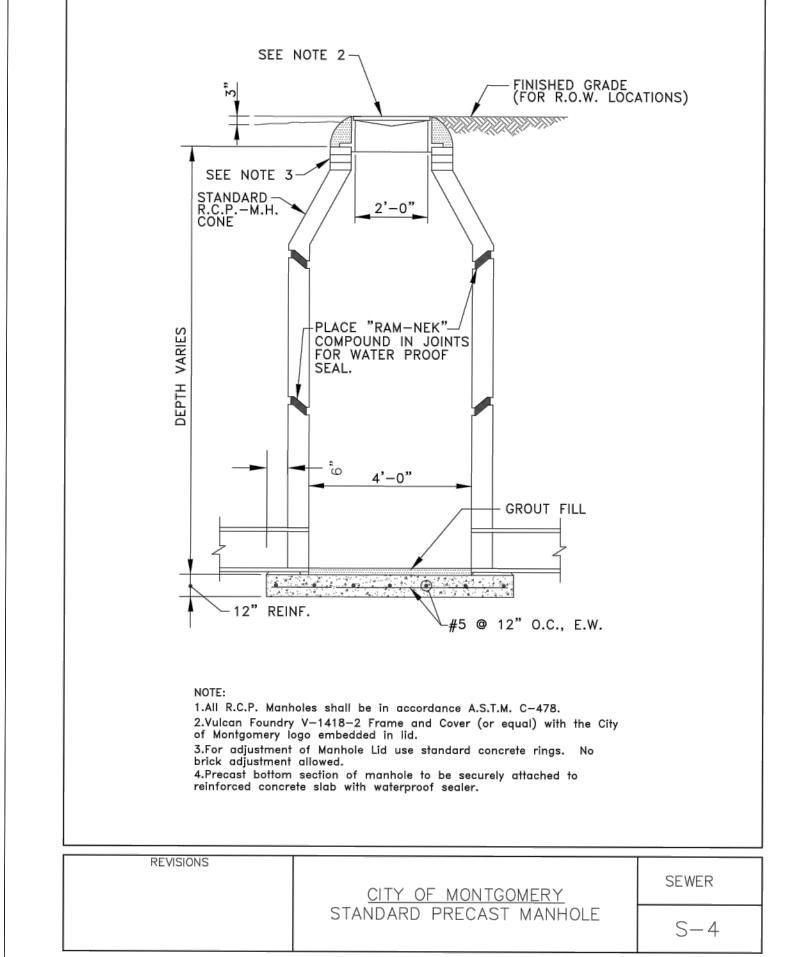
The base of the saddle is curved to fit

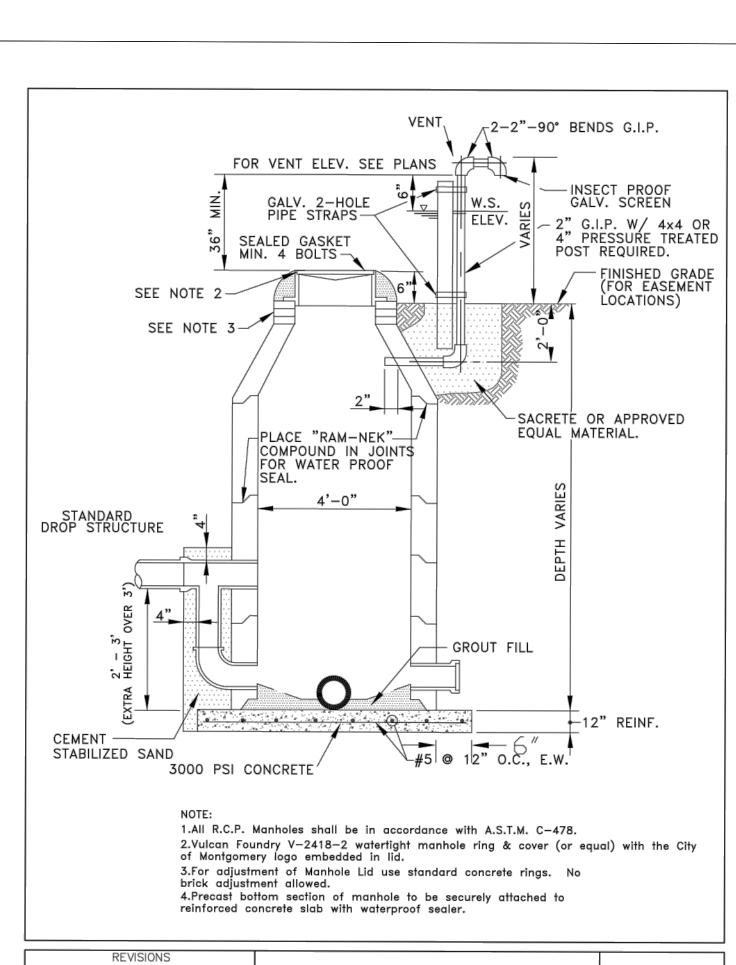
PROCEDURE FOR PLACING SADDLE CONNECTION

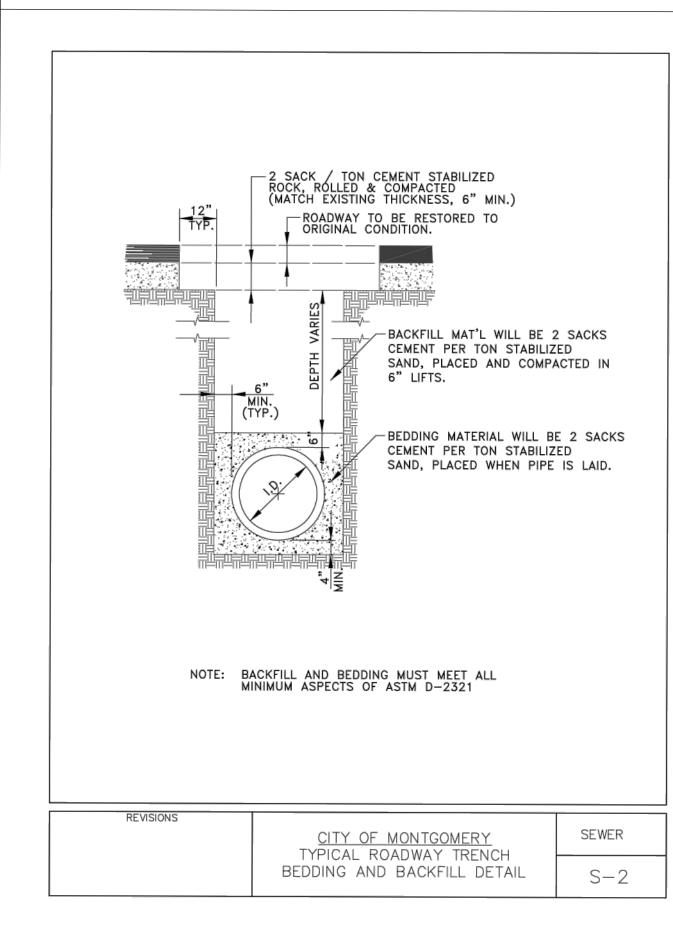
10-2013 REVISED SERVICE

GRADE & NOTES









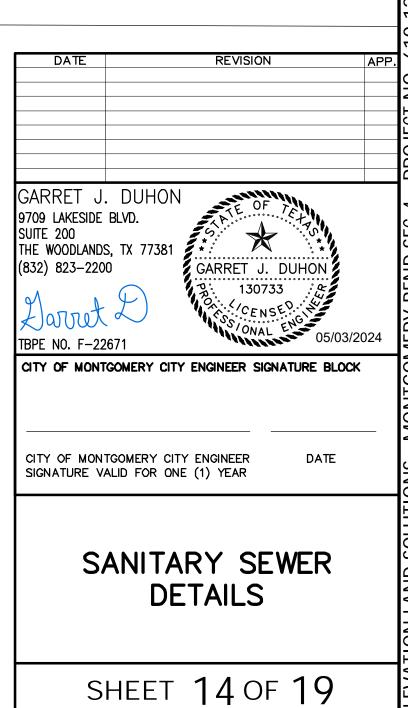
ELEVATION

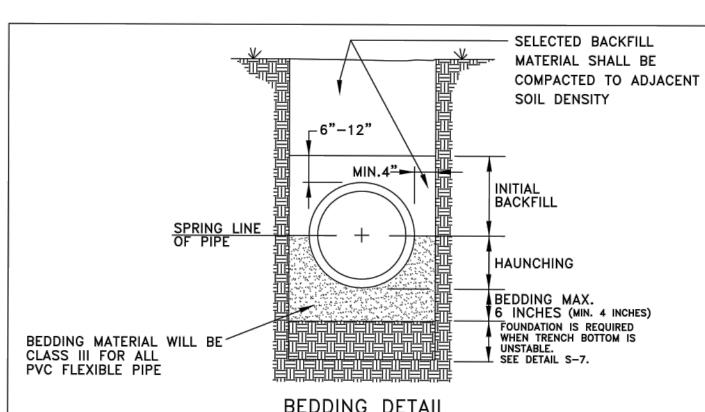
land solutions

TBPF REGISTRATION NUMBER F-22671

9709 LAKESIDE BLVD, SUITE 200

THE WOODLANDS, TX 77381 832-823-2200





### **BEDDING DETAIL** NOTE: BACKFILL AND BEDDING MUST MEET ALL MINIMUM ASPECTS OF ASTM D-2321

Foundation A foundation is required when the trench bottom is unstable. Any foundation that will support a rigid pipe without causing loss of grade or flexural breaking will be more than adequate for PVC pipes.

The bedding directly underneath the pipe is required only to bring the trench bottom up to grade. It should not be so thick or soft that the pipe will settle and lose grade. The purpose of the bedding is to provide a firm, stable and uniform support of the pipe. A layer of material sufficient to establish line, grade, and support should be placed. Bell holes should be excavated to insure uniform bearing.

The haunching area is the most important in terms of limiting the deflection of a flexible pipe. This is the area that should be compacted types MH, ML, CH, and CL are included in this class. to the required or specified density.

ASTM D-2321 DESCRIPTION OF EMBEDMENT MATERIALS

Angular, 1/4" to 1-1/2" graded stone, including a number of fill materials that have regional significance, such as coral, slag, cinders, crushed stone and crushed shells.

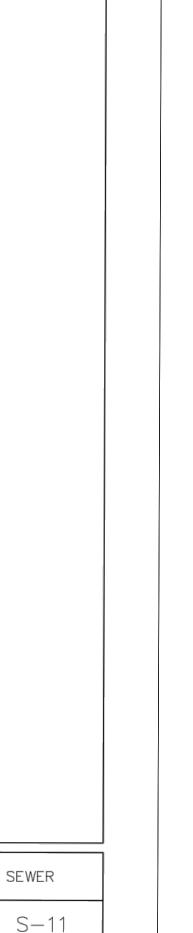
Class II Coarse sands and gravels with maximum particle size of 1-1/2", including variously graded sands, and gravels containing small percentages of fines, generally granular and noncohesive, either wet or dry. Soil types GW, GP, SW, and SP are included in this class.

Fine sand and clayey gravels, including fine sands and sand—clay mixtures, and gravel clay mixtures. Soil types GM, GC, SM and SC are included in this class.

Silt, silty clays, and clays, including inorganic clays and silts of medium to high plasticity and liquid limits. Soil

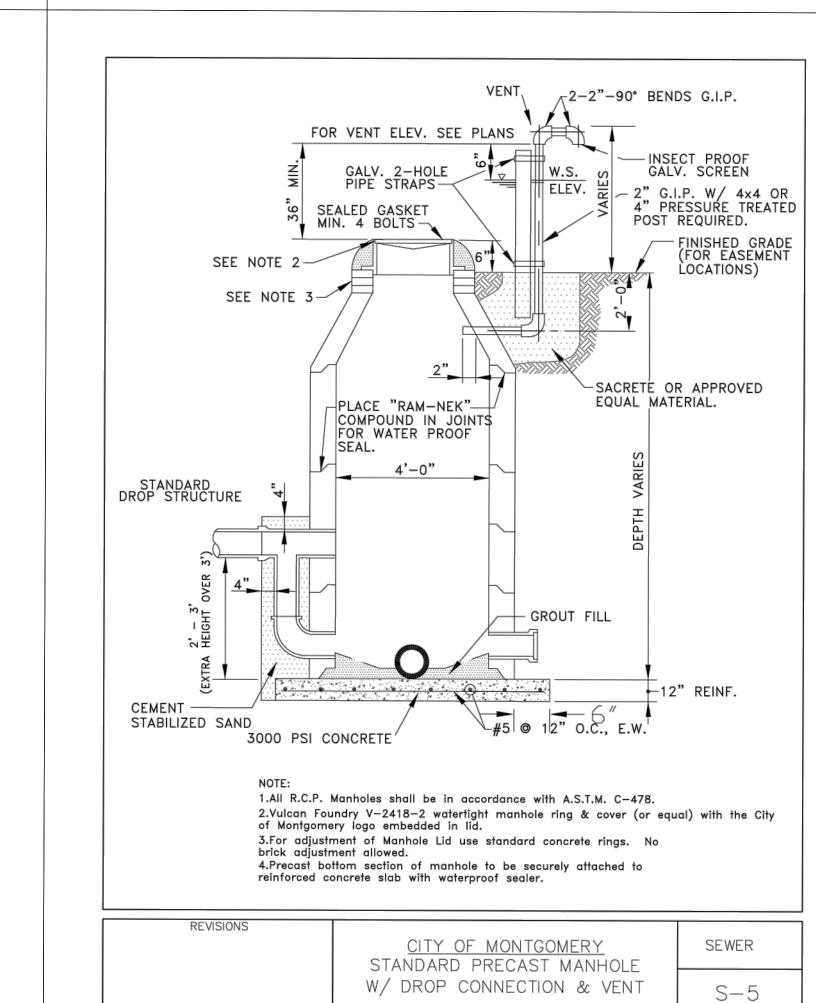
This class includes the organic soils OL, OH, and PT as well as soils containing frozen earth, debris, rocks larger than 1-1/2" in diameter, and other foreign materials. These materials are not recommended for bedding, haunching, or initial backfill.

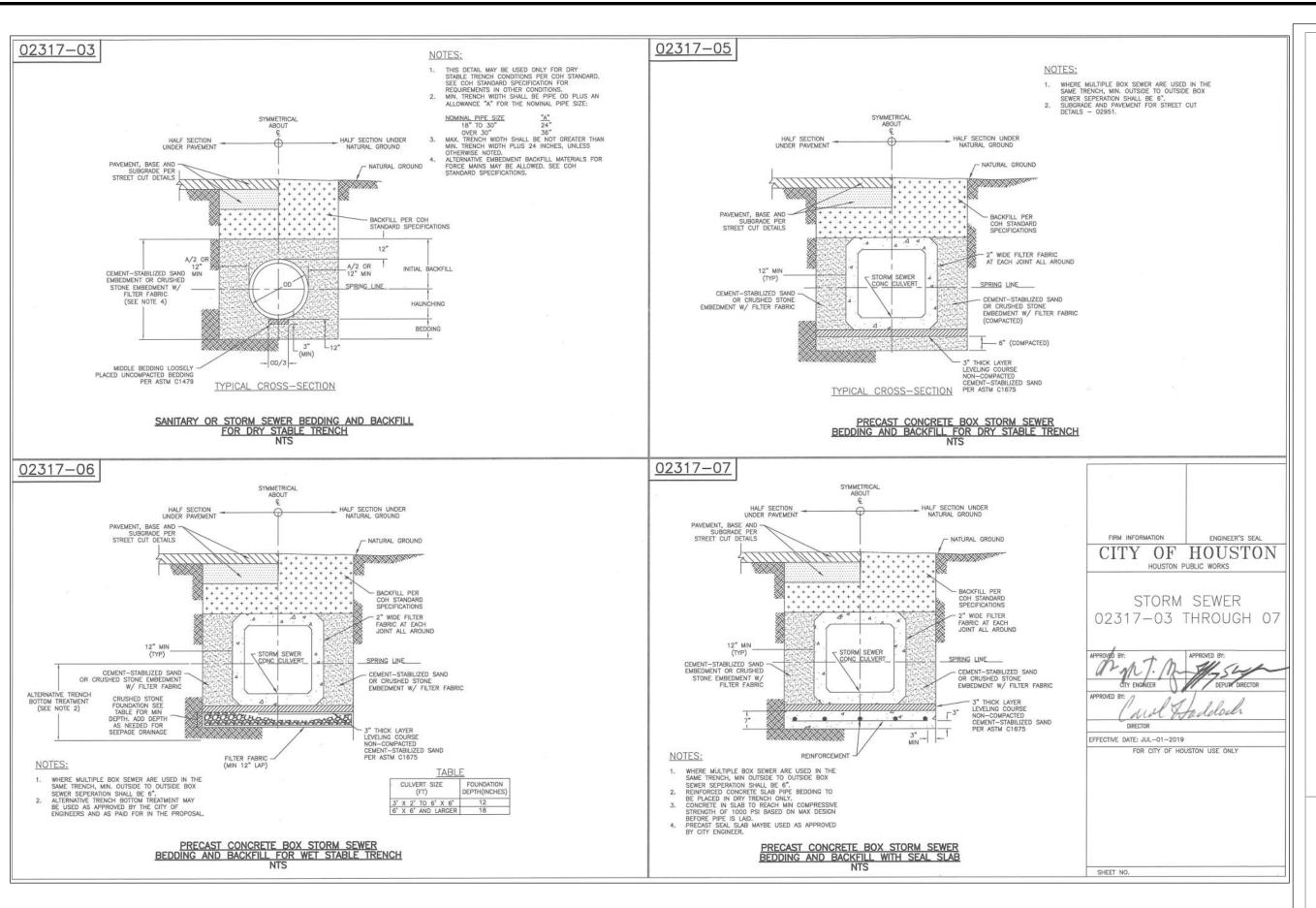
REVISIONS SEWER CITY OF MONTGOMERY TYPICAL SANITARY SEWER BEDDING AND TRENCH DETAIL S-1

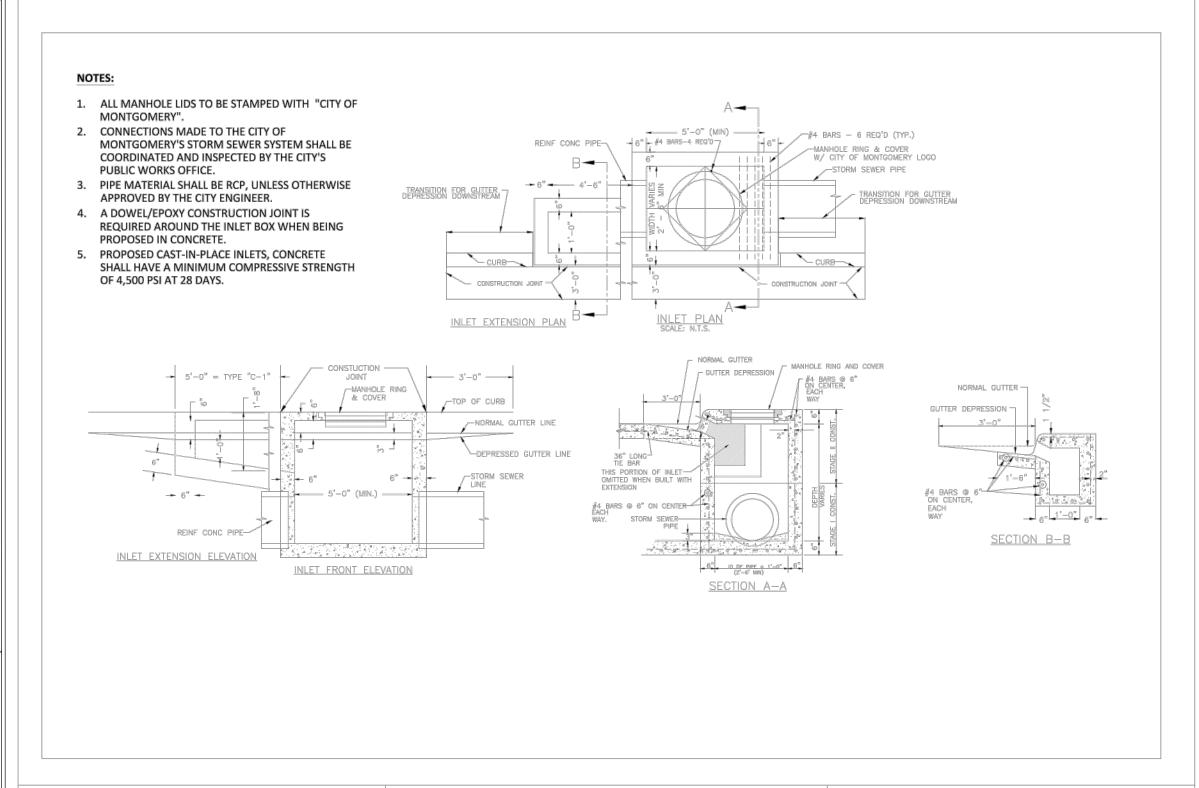


SEWER

S - 8







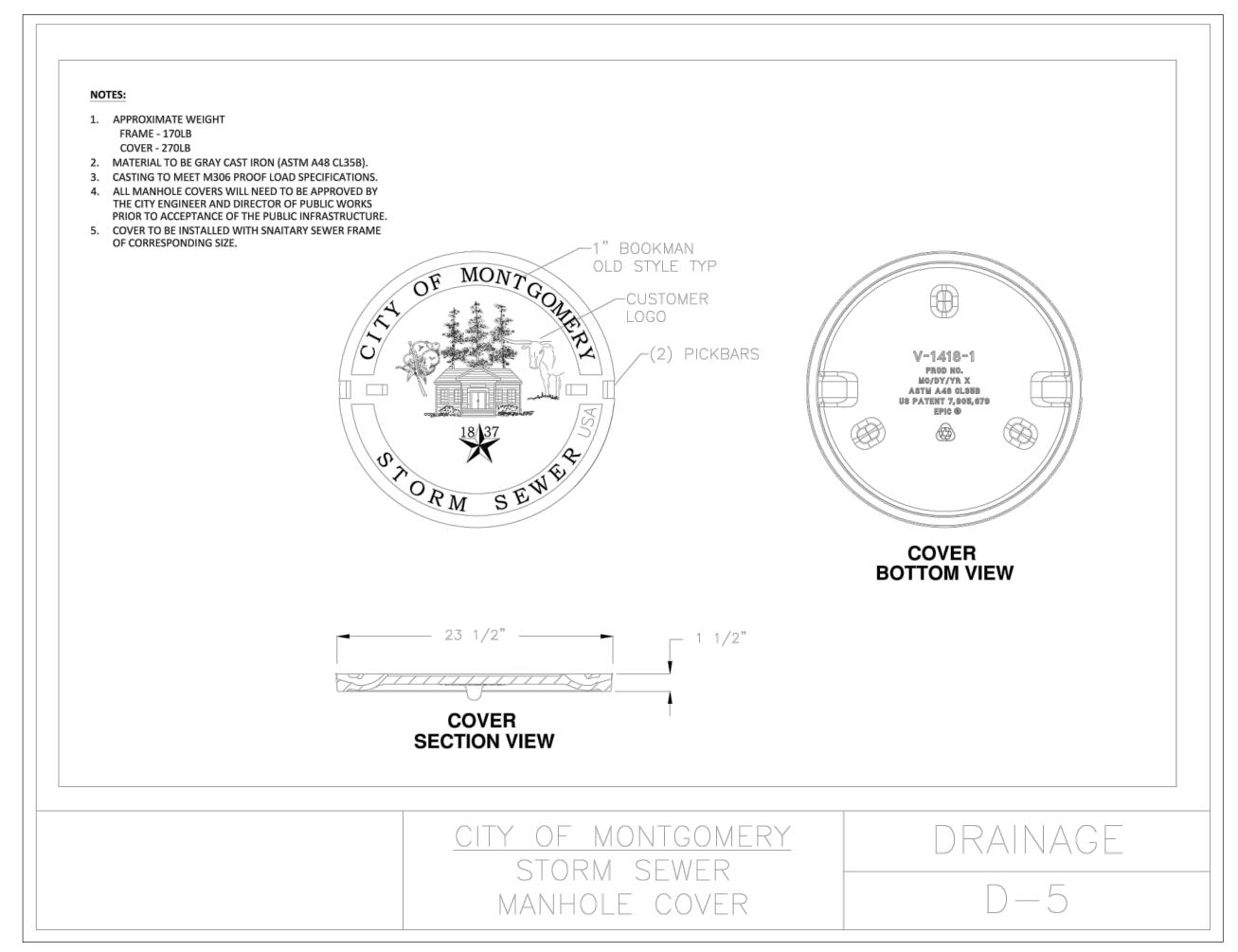
CITY OF MONTGOMERY

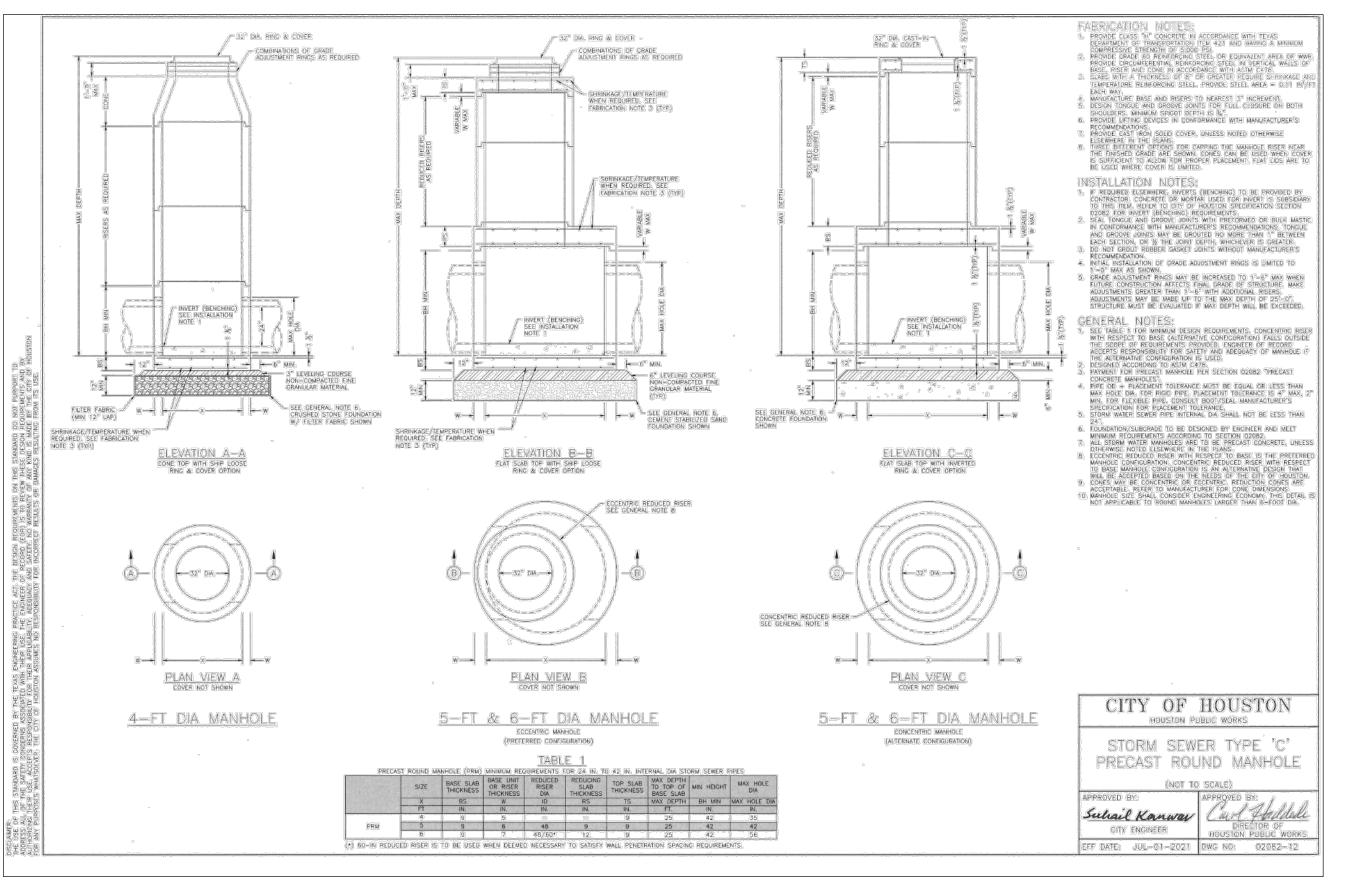
TYPE - C-1

STORM SEWER INLET

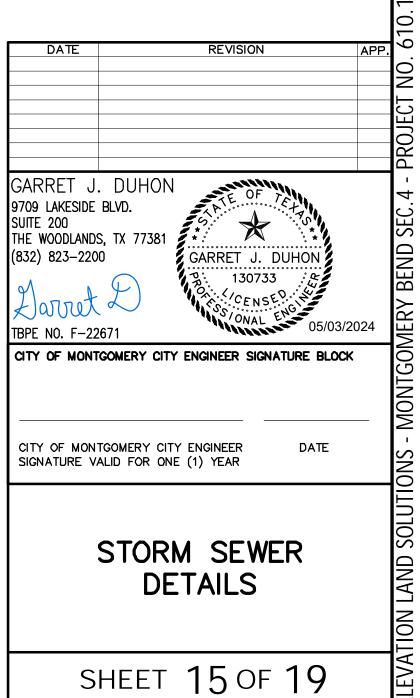
DRAINAGE

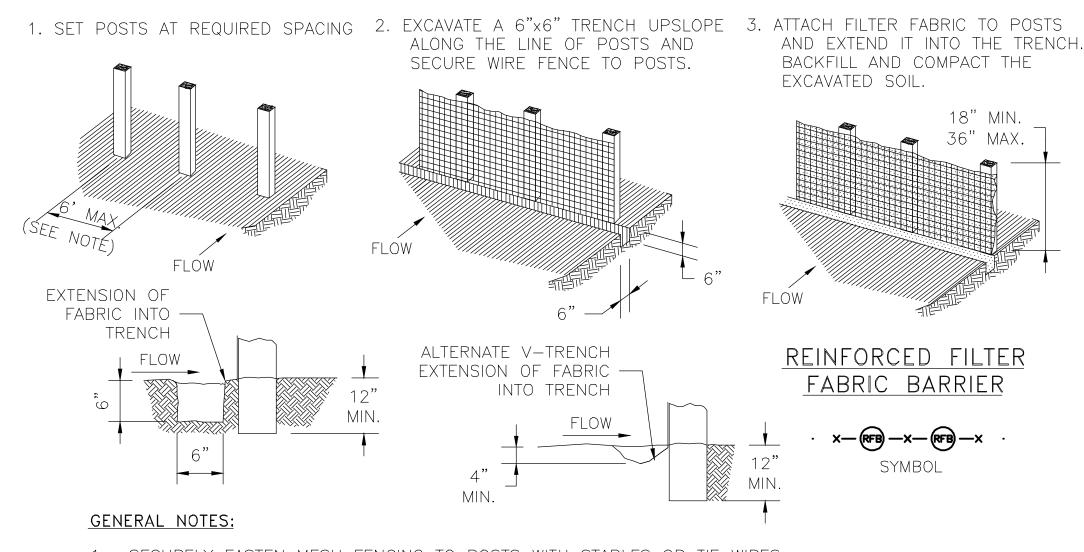
D-1



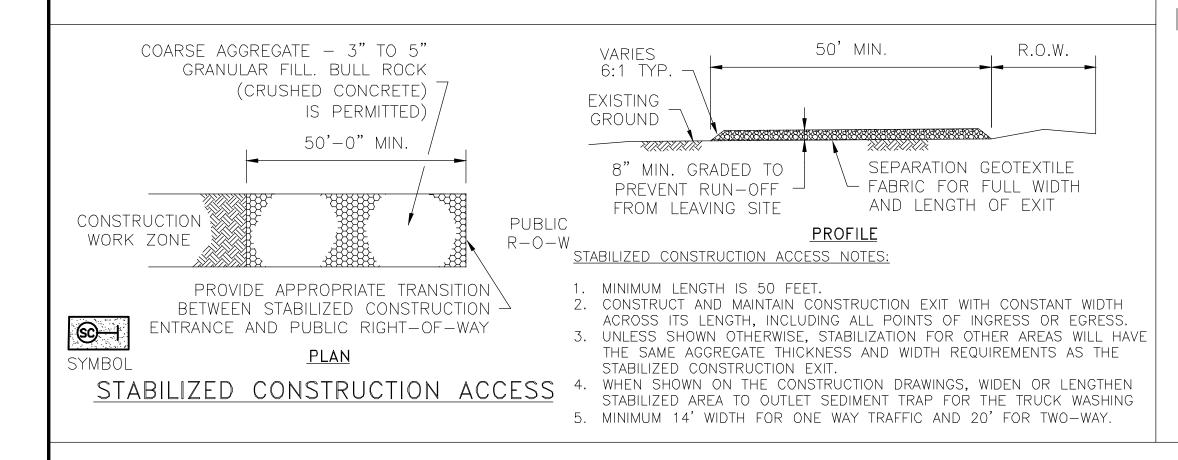


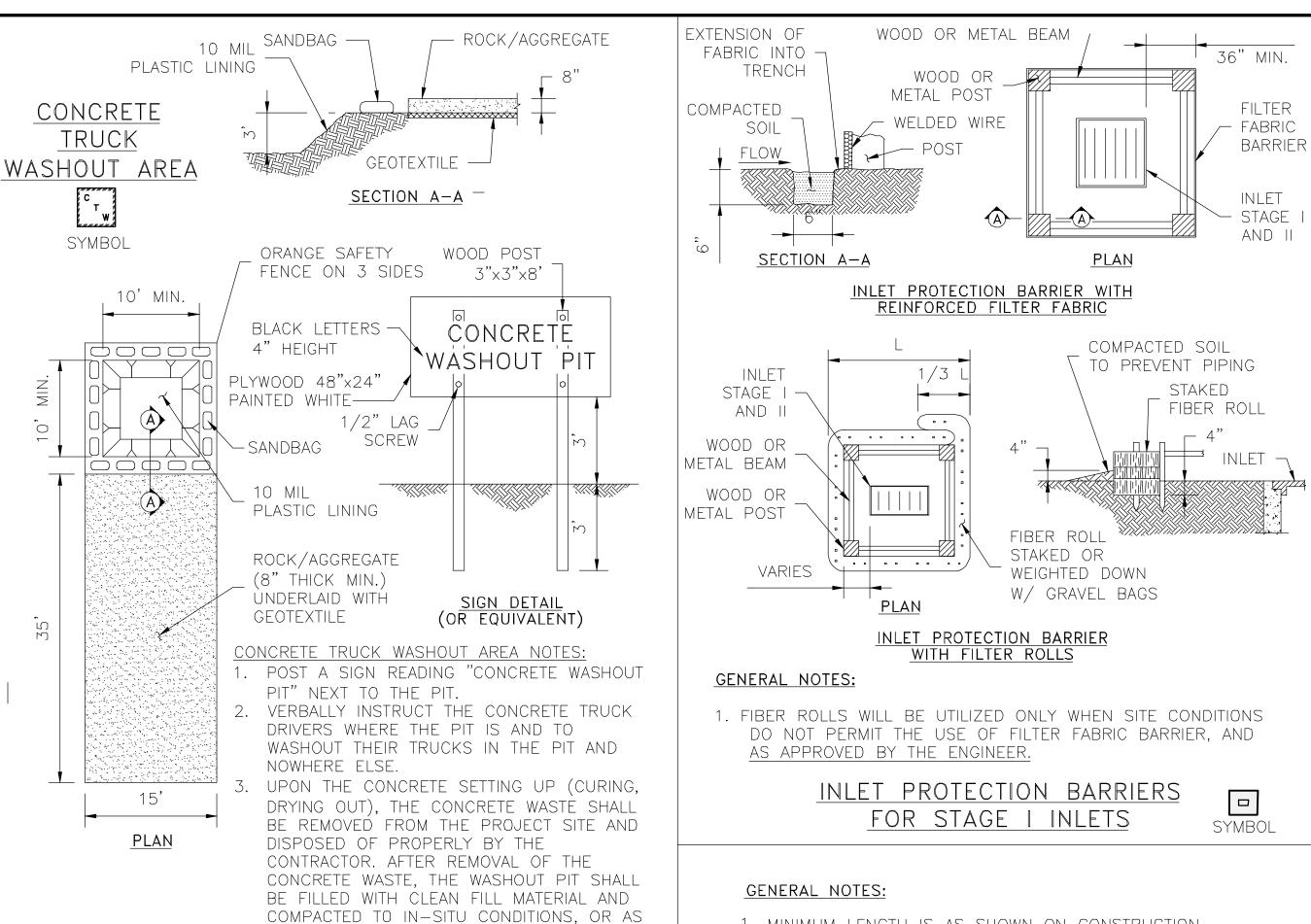






- 1. SECURELY FASTEN MESH FENCING TO POSTS WITH STAPLES OR TIE WIRES.
- 2. SECURELY FASTEN FILTER FABRIC TO MESH FENCING.
- 3. WHEN TWO SECTIONS OF FILTER FABRIC ADJOIN EACH OTHER, OVERLAP 6 INCHES AT A POST, FOLD
- TOGETHER, AND ATTACH TO A POST. 4. REMOVE SEDIMENT DEPOSITS WHEN SILT REACHES ONE-THIRD OF THE HEIGHT OF THE FENCE IN DEPTH.





DIRECTED BY THE ENGINEER.

WATERWAY.

4. CONCRETE WASHOUT PITS SHALL NOT BE

5. CONSTRUCT ENTRY ROAD AND BOTTOM OF

LOADINGS FROM TRUCKS EQUIPMENT.

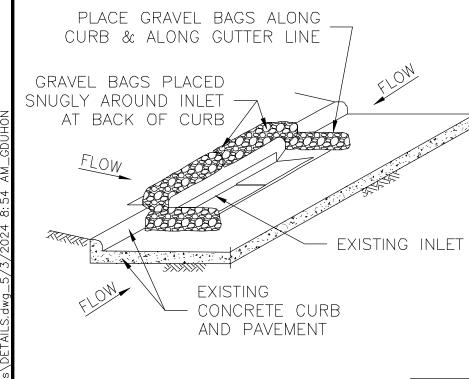
WASHOUT AREA TO SUPPORT EXPECTED

LOCATED DIRECTLY ADJACENT TO, NOR AT

ANY TIME DRAIN INTO THE STORM SEWER

SYSTEM OR ANY OTHER SWALE, DITCH, OR

- 1. MINIMUM LENGTH IS AS SHOWN ON CONSTRUCTION DRAWINGS OR 50 FEET, WHICHEVER IS MORE.
- 2. CONSTRUCT AND MAINTAIN CONSTRUCTION EXIT WITH CONSTANT WIDTH ACROSS ITS LENGTH, INCLUDING ALL POINTS OF INGRESS OR EGRESS.
- 3. UNLESS SHOWN ON THE CONSTRUCTION DRAWINGS, STABILIZATION FOR OTHER AREAS WILL HAVE THE SAME AGGREGATE THICKNESS AND WIDTH REQUIREMENTS AS THE STABILIZED CONSTRUCTION EXIT.
- 4. WHEN SHOWN ON THE CONSTRUCTION DRAWINGS, WIDEN OR LENGTHEN STABILIZED AREA TO
- OUTLET SEDIMENT TRAP FOR THE TRUCK WASHING
- 5. PROVIDE PERIODIC TOP DRESSING WITH ADDITIONAL
- 6. PERIODICALLY TURN AGGREGATE TO EXPOSE A CLEAN
- 7. MINIMUM 14' WIDTH FOR ONE WAY TRAFFIC AND 20'

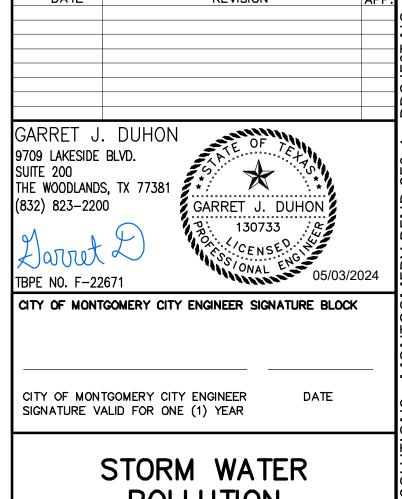


INLET PROTECTION BARRIERS IPB-II SYMBOL FOR STAGE II INLETS

#### **GENERAL NOTES:**

REMOVE SEDIMENT DEPOSIT WHEN THE SEDIMENT HAS ACCUMULATED TO ONE—THIRD THE HEIGHT OF THE BARRIER.

2. GRAVEL BAGS SHALL NOT BLOCK THROAT OF INLET UNLESS DIRECTED BY ENGINEER.



land solutions

TBPE REGISTRATION NUMBER F-22671

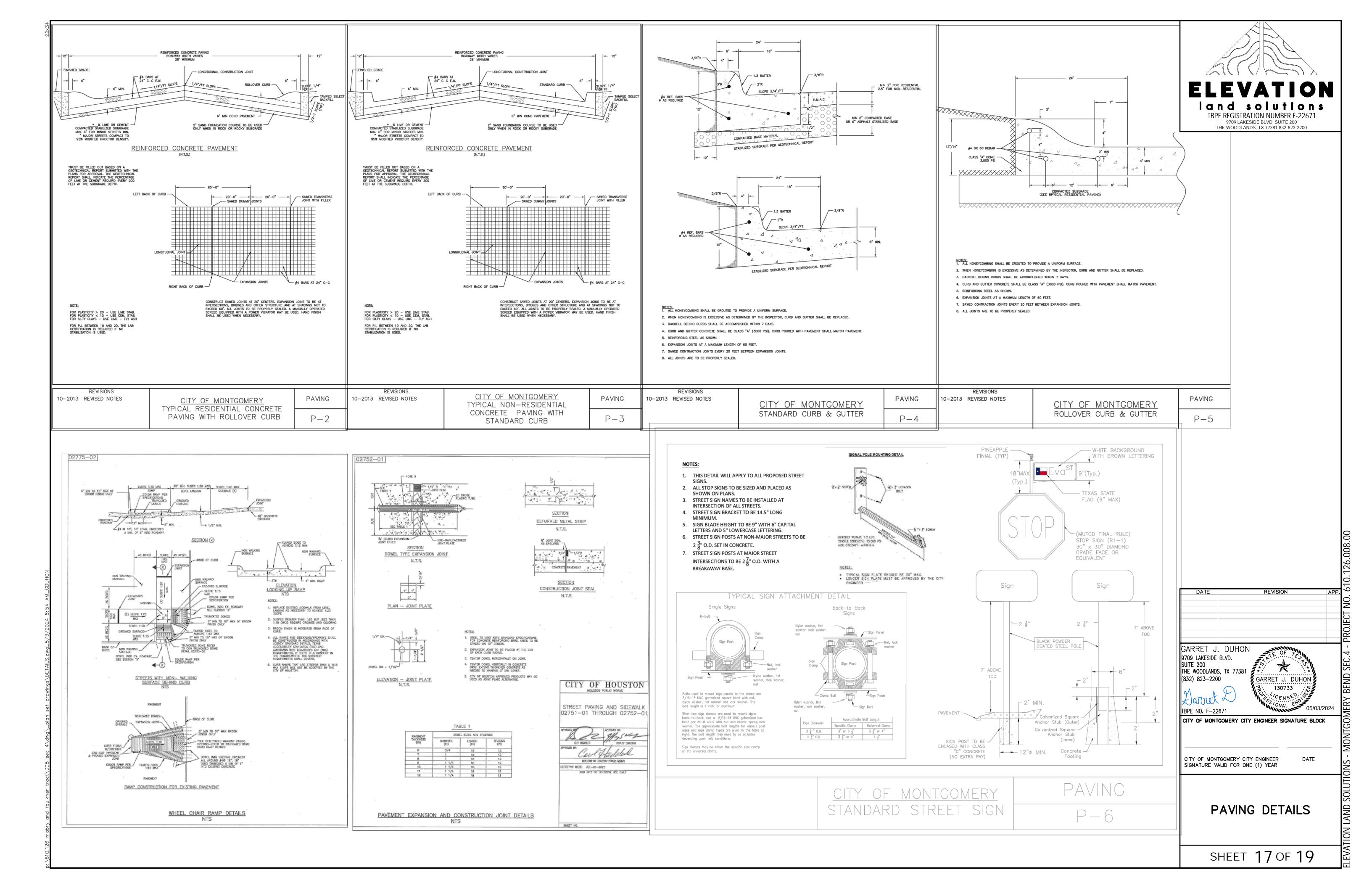
9709 LAKESIDE BLVD, SUITE 200

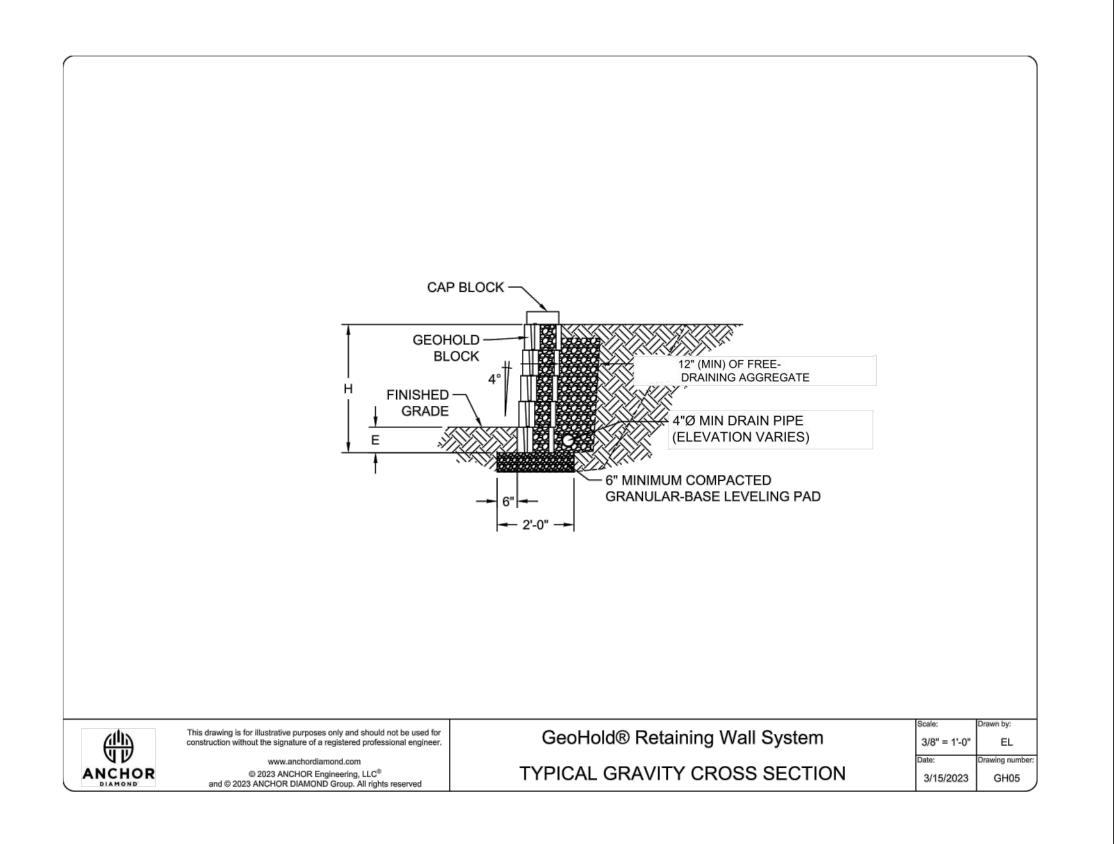
THE WOODLANDS, TX 77381 832-823-2200

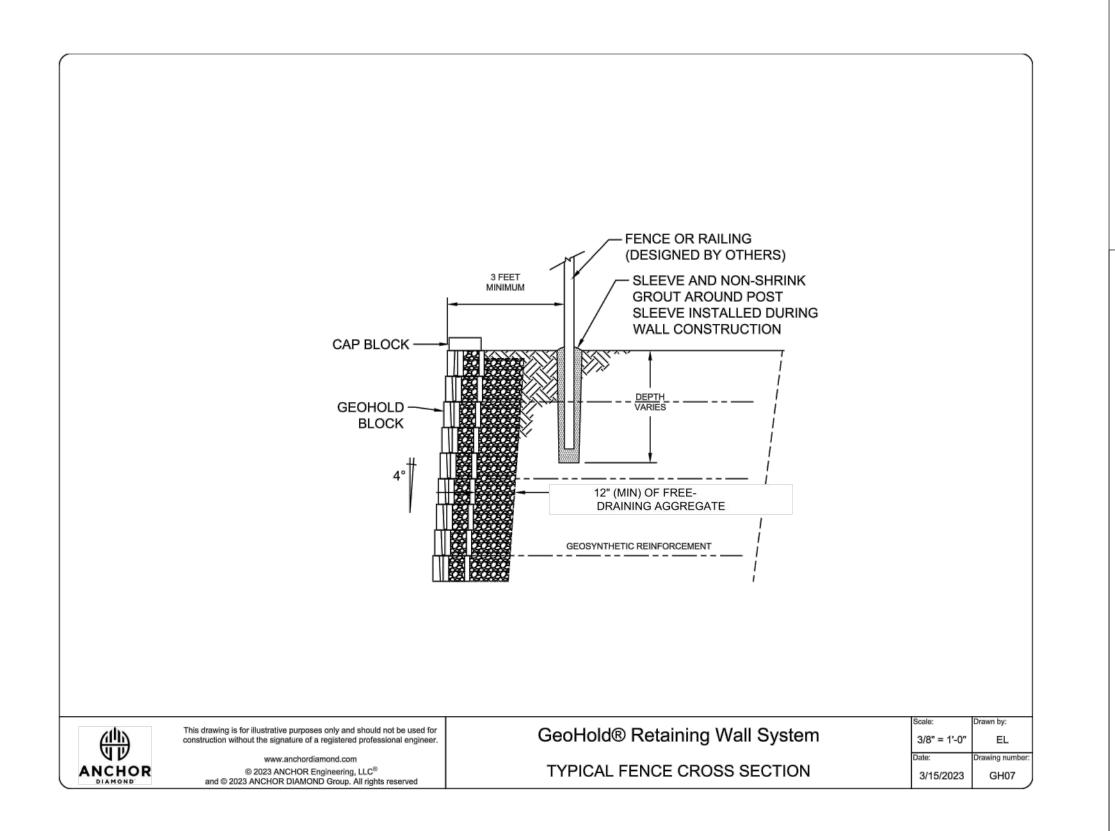
SHEET 16 OF 19

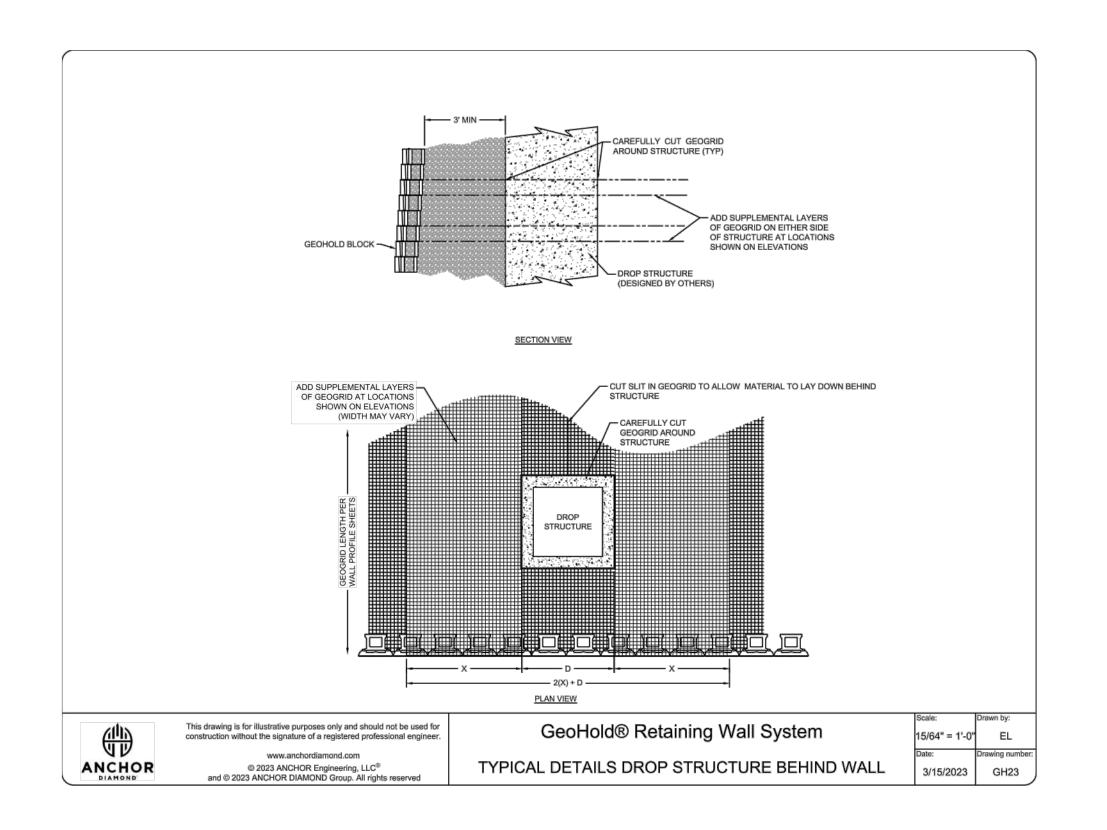
**DETAILS** 

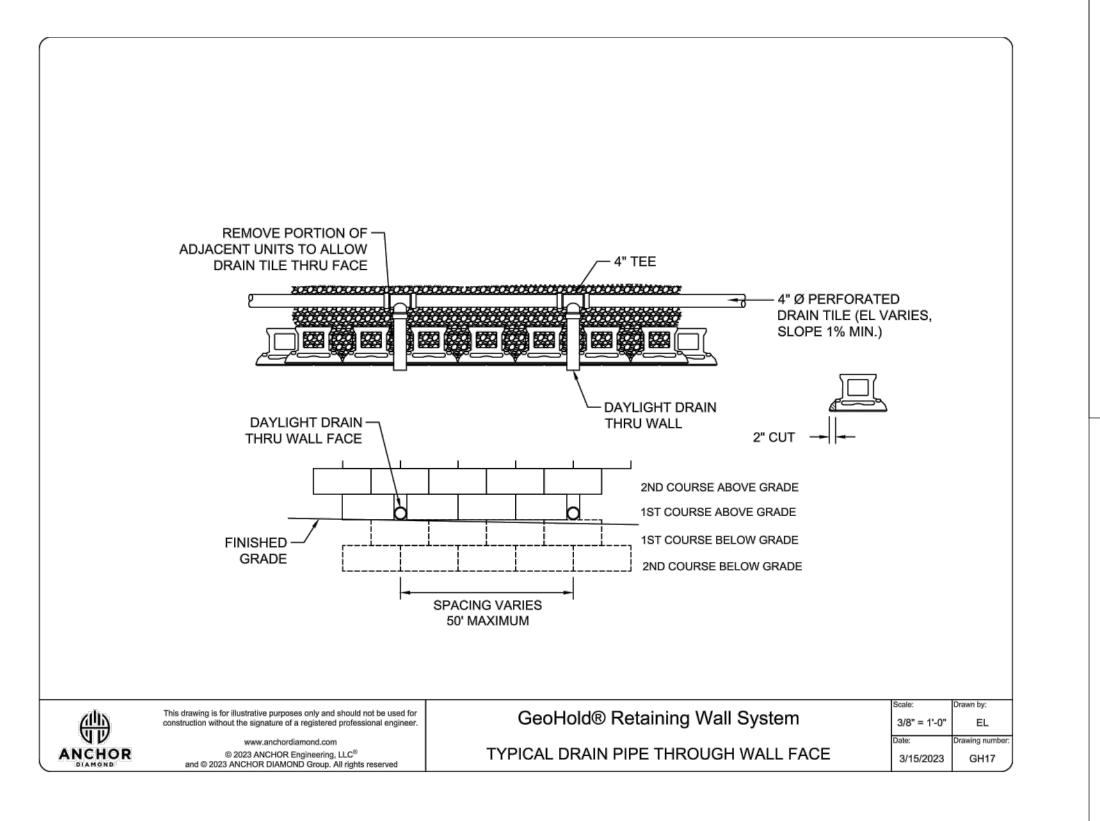
POLLUTION PREVENTION PLAN













TBPE REGISTRATION NUMBER F-22671 9709 LAKESIDE BLVD, SUITE 200 THE WOODLANDS, TX 77381 832-823-2200

Printed: 2 MAY 2024, 8:27PM

4650.00 lb

0.37

7009.00 lb

4650.00 lb

0.37 7009.00 lb

Montgomery Bend Section 3 Retaining Wall Design ELEVATION

Montgomery Bend Sec 3 Retaining Wall Garret J. Duhon, P.E. Project Title: 610.126.008.01 Project Descr: Retaining wall design to accommodate boundary grading condition

Project File: Montgomery Bend Sec 4 Retaining Wall Design File.ec6 Segmental Retaining Wall LIC#: KW-06019834, Build:20.23.05.25

3.33 ft Wall height (retained height) Backfill slope Level Backfill angle 0.0 deg 2.0 ft Embedment Soil data External Soil, Phi\_e External soil density (In situ) 95 pcf Internal Soil, Phi\_i 24 deg 95 pcf Internal soil density Wall Soil Friction Angle 0 deg K\_a(Horiz) 0.34 K\_AE(Horiz) 0.39 Dead load

Live load Seismic Factor, A

d\_seismic

Base length

Base Sliding Force (w/o Seismic)

Base Sliding (w/o Seismic) FS

Base Sliding Force (w/ Seismic)

Base Sliding (w/ Seismic) FS

Base Resisting Force (w/ Seismic)

Base Resisting Force (w/o Seismic)

Anchor Retaining Wall ICC ESR-1959[ Block depth Offset per block Batter angle

Wall weight 180.64 lb 188.70 lb 1.04 180.64 lb 188.70 lb 1.04 200.69 ft lb

0.00 in

Overturning Moment (w/o Seismic) Resisting Moment (w/o Seismic) 431.40 ft lb Overturning (w/o Seismic) FS 2.15 Overturning Moment (w/ Seismic) 200.69 ft lb 431.40 ft lb Resisting Moment (w/ Seismic) 2.15 Overturning (w/ Seismic) FS Applied Bearing Pressure (w/o Seismic)

Allowable Bearing Pressure (w/o Seismic) Bearing (w/o Seismic) FS Applied Bearing Pressure (w/ Seismic) Allowable Bearing Pressure (w/ Seismic) Bearing (w/ Seismic) FS Eccentricity of Vert. Force (w/o Seismic)

451.51 psf Factors of Safety 1,000.00 psf 2.21 1,000.00 psf Base Sliding 1.00 1.50 2.15 OK 2.00 2.21 OK Internal Sliding 1.50 40.68 OK 4.91 ft Effective Base Width (w/o Seismic) Eccentricity of Vert. Force (w Seismic) 0.05 ft Effective Base Width (w Seismic) 4.91 ft

(c) ENERCALC INC 1983-2023 Thumbnail

Valid through

tan(lambda\_u1)

Max\_1

Max\_2

1.10

1.10

1.10 40.68

3.58 deg alpha(u\_2)

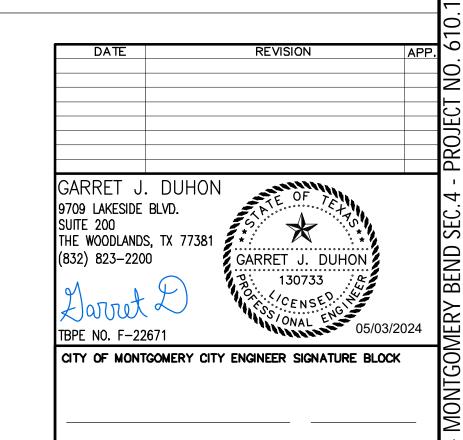
55.00 psf tan(lambda\_u2)

Acceptable Actual Status Acceptable Actual Status

1.04 OK

12.00 in

0.50 in



RETAINING WALL **DETAILS** 

DATE

CITY OF MONTGOMERY CITY ENGINEER

SIGNATURE VALID FOR ONE (1) YEAR

SHEET 18 OF 19

# Montgomery Bend Landscape Concept Plan

 - <b>®</b>	
May 2023	

			•	
		Acreage	NQ Acreage Qu	ualifying Acreage Notes for Usage
	а	1.04	0.52	0.52 CNP Pole Remove
	b	1.56	0	1.56 Rec Center
	С	0.15	0	0.15 Landscape
	d	0.18	0.04	0.14 Access Removed
	е	0.12	0.12	0 Lift Station
	f	5.02	5.02	0 Drng Channel
	g	0.13	0.13	0 Drainage & Utility
S1	h	1.22	1.01	0.21
	а	0.62	0.62	0 Drainage Swale
	b	9.93	9.93	0 Detention Pond
	С	0.07	0.07	0 Drainage Swale
	d	0.07	0.07	0 Drainage Swale
S2	е	0.05	0.05	0 Drainage Swale
	а	0.56		0.56
S3	b	0.1		0.1
	а	0.09		0.09
S4	b	0.57		0.57
•	•		·	

Reserves and Required Tree Canopy

**3.9** Gross Reserve Area 0.78 20% (Ac.)

# 33976.8 20% (sq. ft.)

	Tree Canopy Area Credit Calculation			
DBH	# of Ex. Trees	# of Prop Trees	150' Bonus	Canopy Credit
3"< D <8"	23	15	150%	59,400
8"< D <18"	0	0	150%	0
18"< D <24"	0	0	150%	0
D > 24"	0	0	150%	0
	Drovided Conony Credit			EQ 400

Provided Canopy Credit 59,400 33,977 Required Canopy

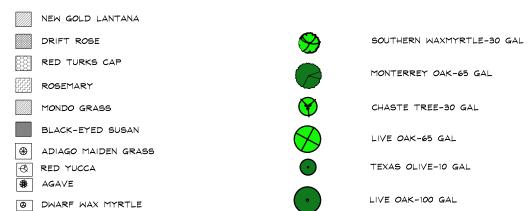
## PLANT SCHEDULE

 INDIAN GRASS BUTTERFLY IRIS

SWITCH GRASS

DWARF YAUPON HOLLY BLUE FESCUE GRASS

GULF COAST MUHLY GRASS



MONTERREY OAK-65 GAL CHASTE TREE-30 GAL TEXAS OLIVE-10 GAL LIVE OAK-100 GAL LOBLOLLY PINE-30 GAL LOBLOLLY PINE-45 GAL



