

CONSTRUCTION PLANS FOR

WEST LOOP 281 (US 80 to SHOFNER) UTILITY RELOCATION

CITY OF LONGVIEW
GREGG COUNTY, TEXAS

CITY OF LONGVIEW

MAYOR

ANDY MACK

CITY COUNCIL

DISTRICT 1 - ED MOORE

DISTRICT 2 - NONA SNODDY

DISTRICT 3 - KASHA WILLIAMS

DISTRICT 4 - KRISTEN ISHIHARA

DISTRICT 5 - DAVID WRIGHT

DISTRICT 6 - STEVE PIRTLE

APPROVED BY:

ROLIN C. MCPHEE, P.E.
DIRECTOR OF PUBLIC WORKS
LONGVIEW, TEXAS

DATE

KEVIN CHUMBLEY, P.E.
PROJECT MANAGER
LONGVIEW, TEXAS

DATE

SEPTEMBER 2016



SUBMITTED BY WOOD ENGINEERING COMPANY INC.

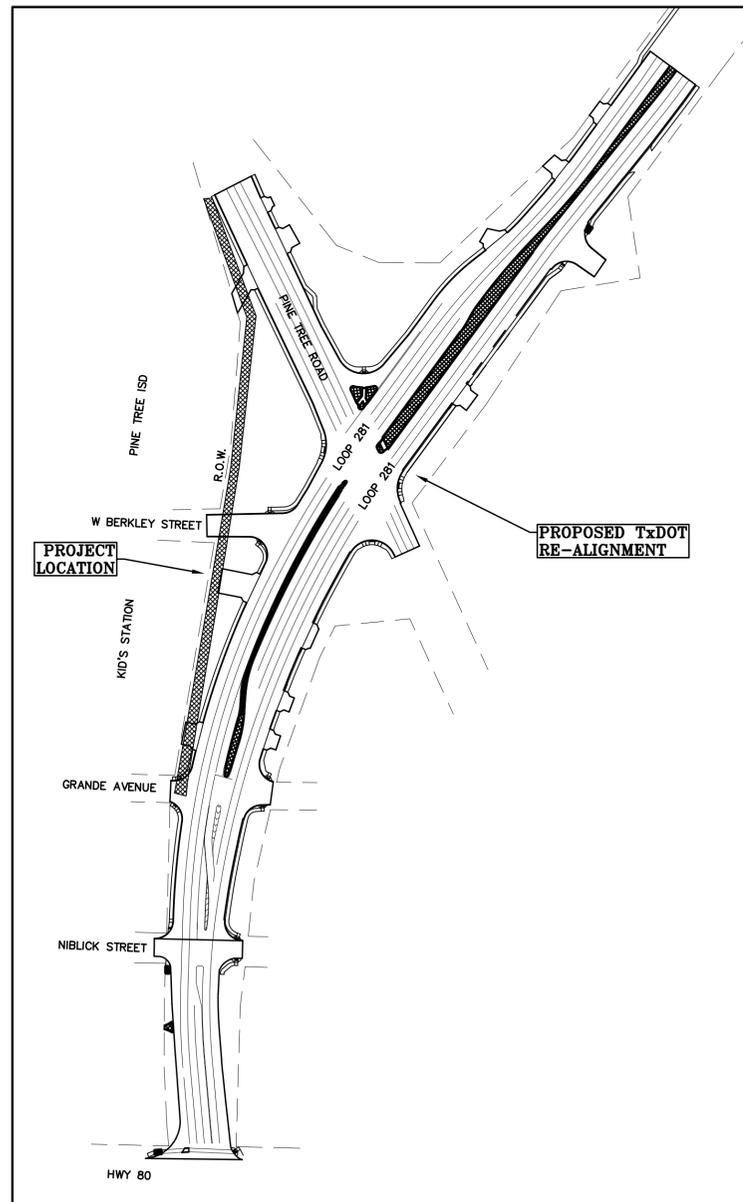
David B. Wood, P.E., R.P.L.S.



DAVID B. WOOD, P.E., R.P.L.S.
PROJECT ENGINEER AND LAND SURVEYOR

SEAL

DATE
9-6-2016



VICINITY MAP

1"=150'

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WOOD ENGINEERING COMPANY

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GENERAL NOTES:

- CONTRACTOR IS REQUIRED TO SUBMIT TRAFFIC CONTROL PLAN TO THE PROJECT ENGINEER FOR APPROVAL PRIOR TO THE BEGINNING OF ANY CONSTRUCTION WORK. THE TRAFFIC CONTROL PLAN SHALL BE IN ACCORDANCE WITH THE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (MUTCD) AND THE CONTRACTOR SHALL MAINTAIN AND CONTROL TRAFFIC IN ACCORDANCE WITH THIS APPROVED TRAFFIC CONTROL PLAN. EXCEPT WHEN STATED AS A SEPARATE BID ITEM IN THE PROPOSAL, TRAFFIC CONTROL SHALL BE SUBSIDIARY TO OTHER PROJECT BID ITEMS.
- THE CONTRACTOR IS ADVISED THERE ARE NUMEROUS BURIED UTILITIES IN THE VICINITY OF CONSTRUCTION INCLUDING BUT NOT LIMITED TO WATER, SANITARY SEWER, STORM SEWER, GAS, TELEPHONE, ELECTRIC, OIL RELATED, CABLE TV, AND COMMUNICATIONS LINES. ALL UTILITIES SHOWN ON THE PLANS HAVE NOT BEEN FIELD VERIFIED. THE LOCATIONS OF KNOWN UTILITIES AS SHOWN ARE APPROXIMATE AND OTHER UNKNOWN UTILITIES, WHICH ARE NOT SHOWN ON THIS SET OF PLANS MAY EXIST IN THE VICINITY OF THE PROJECT. THE CONTRACTOR SHALL TAKE EVERY EFFORT TO CONTACT APPLICABLE UTILITY OWNERS FOR FIELD LOCATION, UNCOVER, AND VERIFY EXISTING KNOWN AND UNKNOWN UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL FIELD VERIFY ALL CROSSINGS AND CONNECTIONS TO EXISTING UTILITIES PRIOR TO CONSTRUCTION. ALL CONFLICTS SHALL BE REPORTED TO THE PROJECT ENGINEER IMMEDIATELY. THE PRE-CONSTRUCTION CONTACT LIST PROVIDED IN THIS SHEET IS A LIST OF POSSIBLE SOURCES FOR UTILITY INFORMATION BUT IS BY NO MEANS ALL INCLUSIVE. ALL DAMAGED UTILITIES, KNOWN OR UNKNOWN PRIOR TO CONSTRUCTION, SHALL BE IMMEDIATELY REPAIRED AT THE CONTRACTOR'S EXPENSE, NO EXCEPTIONS.
- CONTRACTOR SHALL GIVE WRITTEN NOTICE OF PLANNED CONSTRUCTION ACTIVITIES TO AFFECTED OWNERS 48 HOURS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY CITY OF LONGVIEW 48 HOURS PRIOR TO BEGINNING CONSTRUCTION AT 237-1240.
- CONTRACTOR SHALL PROVIDE TRENCH SAFETY SYSTEMS CONFORMING TO O.S.H.A. STANDARDS, CHAPTER 27, SECTION 1926.650 SUBSECTION P "EXCAVATIONS, TRENCHING, AND SHORING".
- GUIDELINES SET FORTH IN PART 4 OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES SHALL BE USED DURING CONSTRUCTION. COST FOR ALL REQUIRED TRAFFIC CONTROL MEASURES SHALL BE INCLUDED IN THE BID PROPOSAL AS A LUMP SUM LINE ITEM AND SHALL BE INCLUSIVE FOR THE ENTIRE PROJECT.
- ALL AREAS REQUIRING FILL SHALL BE CLEARED AND GRUBBED TO STABILIZED SUBGRADE, MOISTURE CONDITIONED, AND COMPACTED TO MINIMUM 95% DENSITY PER A.S.T.M. D-698 (STANDARD PROCTOR) TO -1% TO +3% OF OPTIMUM MOISTURE CONTENT PRIOR TO PLACING FILL. FILL SHALL BE PLACED IN 8 INCH LOOSE LIFTS, MOISTURE CONDITIONED, AND COMPACTED TO -1% TO +3% OF OPTIMUM MOISTURE CONTENT.
- ALL SANITARY SEWER, STORM SEWER, WATER MAIN, WATER SERVICE, AND SANITARY SEWER SERVICE TRENCHES UNDER PAVEMENT OR WITHIN THE R.O.W. SHALL BE BACKFILLED WITH STRUCTURAL FILL IN 8 INCH LOOSE LIFTS AND COMPACTED TO 95% A.S.T.M. D-698 (STANDARD PROCTOR). ALL OTHER TRENCHES MAY BE BACKFILLED IN 8 INCH LOOSE LIFTS AND COMPACTED TO 90% A.S.T.M. D-698 (STANDARD PROCTOR).
- THE CONTRACTOR SHALL REMOVE ALL EXCESS SOILS AND SPOILS INCLUDING BUT NOT LIMITED TO DISCARDED CONCRETE, ASPHALT, AND CLEARING AND GRUBBING REFUSE. THE REMOVAL OF ALL SUCH MATERIALS AND SPOILS FROM THE SITE SHALL BE AT NO ADDITIONAL EXPENSE TO THE OWNER AND ALL SUCH SPOILS AND REFUSES MUST BE DISPOSED IN A PERMITTED FACILITY, OR USED AS FILL IN APPROVED AREAS.
- ALL ITEMS DESIGNATED FOR REMOVAL FROM THE SITE SHALL BE TRANSPORTED AND DISPOSED OF AT A PERMITTED FACILITY AT NO ADDITIONAL COST TO THE OWNER.
- OVERHEAD LINES MAY EXIST ON THE PROPERTY. WE HAVE NOT ATTEMPTED TO MARK ALL OVERHEAD LINES SINCE THEY ARE CLEARLY VISIBLE. THE CONTRACTOR SHALL LOCATE ALL POWER LINES PRIOR TO CONSTRUCTION AND TEXAS LAW SECTION 752, HEALTH AND SAFETY CODE FORBIDS ALL ACTIVITIES WITHIN SIX FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES. CONTRACTORS AND UTILITY OWNERS ARE LEGALLY RESPONSIBLE FOR THE SAFETY OF CONSTRUCTION WORKERS UNDER THIS LAW. THIS LAW CARRIES BOTH CRIMINAL AND CIVIL LIABILITY. SWEPCO MAY BE CONTACTED TO MAKE ARRANGEMENTS FOR RELOCATING OR TURNING OFF LINES WHICH MAY BE LOCATED IN THE CONSTRUCTION AREA. CONTACT INFORMATION IS PROVIDED IN THE PRE-CONSTRUCTION CONTACT LIST PROVIDED ON THIS SHEET.
- CONTRACTOR SHALL GRADE THE SITE SUCH THAT ALL AREAS WITHIN THE R.O.W. HAVE A MAXIMUM SLOPE OF 3:1. SLOPES IN EXCESS OF 3:1 SHALL BE STABILIZED WITH EROSION CONTROL MATTING AND SEEDING.
- ALL AREAS WITHIN THE PROPOSED R.O.W., DRAINAGE EASEMENTS, AND UTILITY EASEMENTS SHALL BE CLEARED AND GRUBBED. USABLE CUT MATERIAL SHALL BE STOCKPILED FOR PLACEMENT IN LOW AREAS AS STRUCTURAL FILL. ALL STRUCTURAL FILL SHALL BE APPROVED AS SUCH BY THE PROJECT ENGINEER PRIOR TO PLACEMENT.
- ALL EXISTING FENCING AND SODDED AREAS OUTSIDE OF THE CONSTRUCTION AREA DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED AT NO ADDITIONAL COST.
- SAW-CUTS ARE REQUIRED AT ALL ASPHALT AND CONCRETE PAVEMENT, CONCRETE CURB AND GUTTER, SIDEWALKS, AND DRIVEWAYS DISTURBED BY CONSTRUCTION AND SHALL BE SUBSIDIARY TO BID ITEMS RELATING TO THE REMOVAL ALL SUCH STRUCTURES.
- CONCRETE FOR PAVEMENT STRUCTURES SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4400 P.S.I.. ALL OTHER TYPES OF CONCRETE USED SHALL HAVE A MINIMUM 28-DAY STRENGTH OF 3500 P.S.I. COMPRESSIVE STRENGTH UNLESS OTHERWISE APPROVED BY THE PROJECT ENGINEER. CONCRETE STRENGTH SHALL BE VERIFIED BY LABORATORY COMPRESSIVE TESTS, AS SUCH, A MINIMUM OF THREE CONCRETE CYLINDERS SHALL BE CAST IN THE FIELD FOR EACH WORK DAY CONCRETE IS PLACED.
- ALL WORKMANSHIP AND CONSTRUCTION MATERIAL QUALITY SHALL BE SUBJECT TO THE PROJECT ENGINEER AND CITY OF LONGVIEW PROJECT REPRESENTATIVE'S APPROVAL. ANY WORKMANSHIP OR MATERIAL DEEMED UNACCEPTABLE BY WRITTEN CORRESPONDENCE WITH THE CONTRACTOR SHALL BE REMOVED AND REPLACED TO PROJECT SPECIFICATIONS AT NO ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR SHALL KEEP DIRT, MUD, AND CONSTRUCTION DEBRIS OFF PUBLIC STREETS AND IN THE CONSTRUCTION AREA AS MUCH AS POSSIBLE. ALL DIRT, MUD, OR CONSTRUCTION DEBRIS SHALL BE REMOVED IN REASONABLE TIME UPON BEING NOTICED BY THE CONTRACTOR OR NOTIFIED BY THE PROJECT ENGINEER.

ABBREVIATIONS

RCP REINFORCED CONCRETE PIPE	AC ACRES
CMP CORRUGATED METAL PIPE	SF SQUARE FEET
HW HEADWALL OR HEADWATER F&I FURNISH AND INSTALL	SY SQUARE YARDS
EX. EXISTING	CY CUBIC YARDS
PRO./PROP. PROPOSED	CF CUBIC FEET
CONC. CONCRETE	CFS CUBIC FEET PER SECOND
ASPH. ASPHALTIC CONCRETE COURSE	PVC POINT OF VERTICAL CURVATURE (CURVES) OR
HMAC HOT MIX ASPHALTIC CONCRETE	PVC POLYVINYL CHLORIDE (MATERIAL)
WBF WOOD BOARD FENCE	PVT POINT OF VERTICAL TANGENCY (CURVES)
BTEL BURIED TELEPHONE	E.O.P. EDGE OF PAVEMENT
IRS IRON ROD SET	B.O.C. BACK OR CURB
IRF IRON ROD FOUND	T.O.C. TOP OF CURB
DR DEED RECORD	EL OR ELEV. ELEVATION
CCOF GREGG COUNTY CLERK FILE	
RD ROAD	
FL/ E FLOW LINE ELEVATION	
CL/ C CENTER LINE	
PL/ P PROPERTY LINE	
TSB TRAFFIC SIGNAL BOX	
GV GAS VALVE	
EG EXISTING GRADE	
FG FINISH GRADE	
SP SERVICE POLE	
PP POWER POLE	
CTV CABLE TELEVISION	
PVMT PAVEMENT	
OC&R OPEN CUT AND REPAIR	
R&R REMOVE AND REPLACE	

CAST IN PLACE REINFORCED CONCRETE

- ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH ACI 318-89 "BUILDING REQUIREMENTS FOR REINFORCED CONCRETE".
- MILD STEEL REINFORCING BARS SHALL CONFORM TO ASTM A-615. NUMBER 3 BARS MAY BE GRADE 40 OR GRADE 60, NUMBER 4 BARS AND LARGER SHALL BE GRADE 60.
- MILD STEEL REINFORCEMENT AND ACCESSORIES SHALL BE DETAILED AND FABRICATED IN ACCORDANCE WITH ACI SP-66.
- PORTLAND CEMENT SHALL BE A SINGLE BRAND CONFORMING TO ASTM C-150, TYPE 1, UNLESS OTHERWISE APPROVED.
- NORMAL WEIGHT AGGREGATES SHALL CONFORM TO ASTM C-33. ALL CONCRETE SHALL USE NORMAL WEIGHT AGGREGATES, UNLESS NOTED OTHERWISE.
- ALL ADDITIVES FOR AIR-ENTRAINMENT, WATER REDUCTION, AND SET CONTROL SHALL BE USED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. THE USE OF CALCIUM CHLORIDE IS PROHIBITED.
- MIXES SHALL BE DESIGNED TO PROVIDE A COMPRESSIVE STRENGTH OF 3500 PSI AT 28 DAYS. CONCRETE FOR SLABS AND BEAMS SHALL HAVE A 4 INCH SLUMP, AND SHALL BE VIBRATED. CONCRETE FOR PIERS SHALL HAVE A MINIMUM 7 INCH SLUMP, AND SHALL BE VERIFIED BY FIELD TEST PRIOR TO PLACEMENT.
- CONCRETE SHALL REACH 75% OF SPECIFIED STRENGTH BEFORE CONSTRUCTION LOADS ARE APPLIED UNLESS SPECIFICALLY APPROVED IN WRITING BY THE PROJECT ENGINEER. CONCRETE COMPRESSIVE STRENGTH SHALL BE VERIFIED BY 7 DAY AND 28 DAY TESTS, PROVIDED BY THE CONTRACTOR. THE TEST RESULTS SHALL BE FORWARDED TO THE ENGINEER FOR REVIEW.
- THE MAXIMUM SIZE OF COARSE AGGREGATE SHALL BE 1 INCH.
- CONCRETE SLUMPS SHALL BE AS FOLLOWS:
CONCRETE CONTAINING SUPER PLASTICIZER.....8" MAX
ALL OTHER CONCRETE.....4" MAX
- MILD STEEL SHALL BE PLACED AND SECURED IN ACCORDANCE WITH CRSI "RECOMMENDED PRACTICE FOR PLACING REINFORCING BARS".
- CONCRETE PROTECTION FOR REINFORCEMENT SHALL BE AS FOLLOWS:
GRADE BEAMS.....1 1/2" TOP
2" SIDES
3" BOTTOM
SLABS.....1 1/2" TOP AND BOTTOM
FOOTINGS.....3" SIDE AND BOTTOM
- REINFORCING BARS SHALL BE CONTACT LAP SPLICED IN ACCORDANCE WITH ACI 318-89, UNLESS SHOWN OTHERWISE. BARS LARGER THAN NUMBER 11 SHALL BE MECHANICALLY SPLICED WITH APPROVED DEVICES. ALL SPLICES SHALL BE STAGGERED ONE FULL LAP LENGTH.
- WELDING OF MILD STEEL REINFORCEMENT SHALL CONFORM TO THE AMERICAN WELDING SOCIETY "STRUCTURAL WELDING CODE"- "MILD REINFORCING STEEL", AWS D-1.4.
- THE TESTING LABORATORY SHALL BE NOTIFIED AFTER THE MILD STEEL REINFORCEMENT AND EMBEDS ARE POSITIONED PRIOR TO EACH CONCRETE PLACEMENT. NO CONCRETE SHALL BE PLACED UNTIL THESE ITEMS ARE CHECKED AND APPROVED BY THE TESTING LABORATORY AND THE CONTRACTOR'S QUALITY CONTROL REPRESENTATIVE.
- EACH AREA OF CONCRETE WORK SHALL BE FINISHED AND CURED IN ACCORDANCE WITH THE SPECIFICATIONS. CHAMFERS SHALL BE PROVIDED IN ACCORDANCE WITH THE DRAWINGS.
- CONCRETE EXPOSED TO WEATHER SHALL BE AIR-ENTRAINED. AIR CONTENT SHALL BE 4 1/2% PLUS OR MINUS 1 1/2%.
- ALL SAWED CONTROL JOINTS SHALL BE CONSTRUCTED AS SOON AS POSSIBLE AFTER FINISHING THE SLAB, WITHOUT DISLOGGING THE AGGREGATE. ALL SAW CUTS SHALL BE MADE WITHIN 8 HOURS OF THE CONCRETE PLACEMENT.

WATER MAIN NOTES:

- NEW AND REPAIRED WATER MAINS SHALL BE DISINFECTED PER 30 TEXAS ADMINISTRATIVE CODE (T.A.C.) 290 SUBCHAPTER F AND A.W.W.A. C-601 AND C-651. ALL NEW WATER MAINS SHALL BE DISINFECTED PRIOR TO BEING PLACED INTO SERVICE. ALL EXISTING WATER MAINS TAKEN OUT OF SERVICE FOR INSPECTING, REPAIR, OR ANY OTHER ACTIVITY WHICH MIGHT LEAD TO CONTAMINATION SHALL BE DISINFECTED PRIOR TO BEING RETURNED TO SERVICE.
- ALL WATER MAIN PIPE SHALL CONFORM TO A.W.W.A. C-900 AND SHALL BE CLASS 150 P.S.I. DR-18 FOR SIZES 4 INCHES TO 12 INCHES.
- PVC WATER MAINS SHALL BE LINED WITH 14 GAUGE TRACEABLE WIRE. COST RELATED TO INSTALLATION OF SAID TRACEABLE WIRE SHALL BE SUBSIDIARY TO RELEVANT BID ITEMS.
- WATER MAIN AND VALVE FITTINGS SHALL BE DUCTILE IRON AND MECHANICAL JOINT.
- CONTRACTOR SHALL CONSTRUCT CONCRETE THRUST BLOCKING AT ALL BENDS, TURNS AND VALVES PER DETAIL. CONCRETE THRUST BLOCKING SHALL BE SUBSIDIARY TO BID ITEMS.
- WATER MAIN AND WATER SERVICE TRENCHES SHALL BE BACKFILLED WITH SELECT FILL PLACED IN 8 INCH LOOSE LIFTS AND MECHANICALLY COMPACTED TO 95% A.S.T.M. D-698 (STANDARD PROCTOR) TO WITHIN -1% TO +3% OF OPTIMUM MOISTURE CONTENT. SELECT FILL SHALL CONSIST OF HOMOGENEOUS SOILS FREE OF ORGANIC MATTER AND DEBRIS WITH A PLASTICITY INDEX OF LESS THAN 16 AND WITH A MAXIMUM LIQUID LIMIT OF 36.
- ALL FIRE HYDRANTS SHALL BE LOCATED 2 +/- FEET FROM THE R.O.W. AND SHALL HAVE A MINIMUM OF FOUR FEET OF COVER TO THE WATER MAIN AND CONCRETE THRUST BLOCKING PER DETAIL.
- MAINTAIN A MINIMUM OF 18 INCHES OF CLEAR DISTANCE BETWEEN WATER MAINS AND WATER SERVICES AND ALL OTHER UTILITIES UNLESS NOTED OTHERWISE.
- ALL WATER MAINS WITHIN STREET R.O.W. SHALL HAVE A MINIMUM OF 4 FEET OF COVER BELOW THE TOP OF CURB. WATER MAINS IN EASEMENT SHALL HAVE A MINIMUM OF 5 FEET OF COVER BELOW NATURAL GRADE.
- WATER SERVICE SHALL BE MAINTAINED TO ALL RESIDENCE AT ALL TIMES. SHOULD SERVICE NEED TO BE INTERRUPTED, THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FROM THE PROJECT ENGINEER AND EACH SERVICE OUTAGE MUST BE SCHEDULED 48HRS IN ADVANCE.
- CONTRACTOR IS CAUTIONED THAT EXISTING STORM SEWER LOCATIONS WILL NEED TO BE CONSIDERED WHEN CONSTRUCTING WATER MAINS AND WATER SERVICES.
- ALL WATER MAINS SHALL BE INSTALLED ACCORDING TO T.A.C. 30 290.44 AND PRESSURE TESTED PER PROJECT SPECIFICATIONS AT NO ADDITIONAL COST TO THE OWNER.
- ALL WATER MAIN LAID IN PLACE SHALL HAVE 6" OF IMPORTED COMPACTED SAND, AND INSTALLED WITH COPPER TRACER WIRE PER DETAILS.

SANITARY SEWER NOTES:

- EXCEPT WHEN TESTING IS INCLUDED IN THE PROPOSAL A SEPARATE BID ITEM, TESTS FOR SANITARY SEWER MAINS SHALL BE SUBSIDIARY TO THE RELEVANT BID ITEMS.
- TESTS FOR SANITARY SEWERS SHALL MEET THE LATEST OF ALL APPLICABLE LOCAL, STATE, AND FEDERAL GOVERNMENT REGULATORY REQUIREMENTS. AT THE MINIMUM, ALL TESTS REQUIREMENTS IN RULES §217.57 (TESTING REQUIREMENTS FOR INSTALLATION OF GRAVITY COLLECTION SYSTEM PIPES) AND §217.58 (TESTING REQUIREMENTS FOR MANHOLES) OF THE CURRENT (AT TIME OF INSTALLATION) CHAPTER 217 - 30 TAC, (TEXAS COMMISSION ON ENVIRONMENTAL QUALITY, DESIGN CRITERIA FOR DOMESTIC SEWERAGE SYSTEMS) ARE REQUIRED. THE CURRENT REQUIREMENTS SAID RULES §217.57 AND §217.57 MAY BE FOUND THE WEBSITE OF THE TCEQ OR REQUESTED FROM THE ENGINEER.
- TEXAS COMMISSION ON ENVIRONMENTAL QUALITY, DESIGN CRITERIA FOR DOMESTIC SEWERAGE SYSTEMS, CHAPTER 217 REQUIRES DEFLECTION TESTING OF ALL FLEXIBLE AND SEMI-RIGID PIPE. THE TEST SHALL BE CONDUCTED AFTER THE FINAL BACKFILL HAS BEEN IN PLACE AT LEAST 30 DAYS AND SHALL BE IN THE PRESENCE OF THE ENGINEER OF RECORD OR HIS REPRESENTATIVE. NO PIPE MAY EXCEED A DEFLECTION OF 5% AND SHALL BE VERIFIED BY THE USE OF A MANDREL. THE TEST SHALL BE RUN PER SAID CODE SECTION AND WITHOUT THE AID OF MECHANICAL PULLING DEVICE AND USING A RIGID SANDREL WITH AT LEAST 95% OF THE PIPE BEING TESTED DIAMETER.
- TEXAS COMMISSION ON ENVIRONMENTAL QUALITY, DESIGN CRITERIA FOR DOMESTIC SEWERAGE SYSTEMS, CHAPTER 217 REQUIRES A LOW PRESSURE AIR TEST PER A.S.T.M. C-828 OR A.S.T.M. C-924.
- SANITARY SEWER MANHOLE LIDS OUTSIDE OF PAVEMENT SHALL BE ADJUSTED AS SHOWN IN THE PLAN/PROFILE. MANHOLE LIDS IN PAVEMENT SHALL BE ADJUSTED FLUSH WITH SURROUNDING PAVEMENT. SELECT FILL SHALL BE PLACED ADJACENT TO THE MANHOLE RING AND COVER AND SLOPED AWAY. THIS SHALL BE CONSIDERED SUBSIDIARY TO MANHOLE CONSTRUCTION AND INCLUDED IN THE UNIT BID PRICE FOR THE MANHOLE.
- WHEN A NEW SEWER MAIN CROSSES AN EXISTING WATER MAIN THE SEWER MAIN SHALL BE CONSTRUCTED OF PVC A.W.W.A. C-900 CLASS 150 P.S.I. DR 18 PRESSURE RATED PIPE OR DUCTILE IRON PIPE FOR A DISTANCE OF 9 FEET ON EITHER SIDE OF THE WATER MAIN CROSSING. SEWER MAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH 30 T.A.C. CHAPTERS 290 AND 217.
- ALL SANITARY SEWER MAINS LAID IN PLACE SHALL HAVE DIAMETER AS SHOWN ON THE PLANS AND BE PVC SDR 26 OR APPROVED EQUAL. ALL SANITARY SEWER SERVICES SHALL BE 4 INCH DIAMETER PVC SDR 26 OR APPROVED EQUAL.
- SEWER SERVICE SHALL BE MAINTAINED TO ALL RESIDENCES AT ALL TIMES. SHOULD SEWER SERVICE NEED TO BE INTERRUPTED FOR ANY REASON, THE CONTRACTOR SHALL FIRST RECEIVE WRITTEN APPROVAL FROM THE PROJECT ENGINEER.
- THE CONTRACTOR IS CAUTIONED THAT EXISTING STORM SEWER AND OTHER UTILITY LOCATIONS SHOULD BE CONSIDERED WHEN CONSTRUCTING PROPOSED UTILITIES.
- SANITARY SEWER MANHOLE TO BE ABANDONED SHALL HAVE INCOMING AND OUTGOING MAINS SEALED WITH CONCRETE PLUGS. UNLESS OTHERWISE DIRECTED BY ENGINEER, ABANDONMENT OF EXISTING MANHOLES SHALL BE ACCORDING TO DETAILS: "ABANDONMENT OF EXISTING MANHOLES".
- ALL LAID IN PLACE SANITARY SEWER SHALL BE PLACED ON 6" MINIMUM BEDDING SAND AND ALL JOINTS SHALL HAVE BELL HOLES.
- ALL NEW SANITARY SEWER LINES SHALL BE CONSTRUCTED TO FLOW AT A MINIMUM FLOW OF 2.0FPS AND MAXIMUM OF 10.0FPS. TO ATTAIN THESE REQUIREMENTS 6" LINES SHALL HAVE MINIMUM SLOPE OF 0.50% AND MAXIMUM SLOPE OF 12% AND 8" LINES SHALL HAVE MINIMUM SLOPE OF 0.33% AND MAXIMUM SLOPE OF 8%. COORDINATE ANY VARIATION WITH THE ENGINEER.

PRE-CONSTRUCTION CONTACT LIST

ALL PROPERTY OWNERS SHALL HAVE 48 HOUR WRITTEN NOTICE PRIOR TO CONSTRUCTION ACTIVITIES. PROPERTY OWNER CONTACT INFORMATION IS PROVIDED IN THE SPECIAL PROVISIONS LOCATED IN THE CONTRACT AND SPECIFICATION BOOK.

48 HOURS NOTICE REQUIRED PRIOR TO CONSTRUCTION

- CITY OF LONGVIEW (903) 237-1000
 LONE STAR NOTIFICATION CENTER/ TEXAS811 (811 OR 1-800-344-8377)
 OR DIRECT TEXAS811 (1-800-344-8377 OR eLOCATE: <http://tickets.digitess.org/>)
 CENTERPOINT ENERGY: (903) 759-8919 OR (800) 259-5544 (EMERGENCY)
 AEP/SWEPCO: (888) 216-3523
 ATMOS ENERGY: (800) 817-8090 OR LOCAL (903) 242-4821 (LARRY MORRIS)
 (903) 242-4830 (LOCAL OFFICE)
 ENBRIDGE: (877) 799-2650 OR (888) 650-8099 (EMERGENCY)
 LOCAL (903) 248-0471 (SCOTT FIELDS)
 VOYAGEUR PIPELINE (CONTACT ENBRIDGE)
 BLUEKNIGHT ENERGY PARTNER (BKEP): LOCAL OFFICE (903) 758-5892 PATRICK WISDOM
 SEMPIPE (CONTACT BKEP)
 SPRINT TELEPHONE: (800) 521-0579
 WCI TELEPHONE: (800) 344-8377
 AT&T TELEPHONE: (800) 252-1133
 SOUTHWESTERN BELL TELEPHONE DBA AT&T: (903) 237-3486 (WAYNE PRINCE)
 SUN PIPELINE CO.-MID-VALLEY: (903) 295-0546
 GULF SOUTH PIPELINE: (800) 850-0051 OR LOCAL (903) 238-8539 (BENNIE ELDER)
 (903) 753-7208
 KOCH GATEWAY PIPELINE-UNITED GAS (CONTACT GULF SOUTH PIPELINE)
 XTO ENERGY (800) 681-7980

B. Wood, PE, RPLS
 4-6-2016

UTILITY REQUIREMENTS FOR CONSTRUCTION IN STATE R.O.W.

INSTALLATION OF UTILITY LINES WITHIN STATE RIGHT-OF-WAYS SHALL CONFORM TO THE REQUIREMENTS OF THE TEXAS ADMINISTRATIVE CODE, TITLE 43, PART 1, CHAPTER 21, SUBCHAPTER C AND OTHER REQUIREMENTS OF THE STATE IN ADDITION TO CONTRACT REQUIREMENTS OUTLINED ELSEWHERE IN THE CONTRACT DOCUMENTS. THE FOLLOWING IS A MODIFIED SUMMARY OF REQUIREMENTS FOR SANITARY SEWER AND WATER UTILITIES PER REQUIREMENTS OF THE TxDOT TYLER DISTRICT MAINTENANCE OFFICE

- ENCASEMENT:** ENCASEMENT SHALL BE PROVIDED WITHIN THE LIMITS OF THE RIGHT-OF-WAY OF ALL ROADWAYS. (SEE PARAGRAPH 2). (NOTE: CITY OF LONGVIEW REQUIRES STEEL ENCASEMENT OF ALL SEWER AND WATER MAIN ROADWAY CROSSINGS. INSTALLATION OF UTILITY MAIN LINE ROADWAY CROSSINGS EXCEPT OTHERWISE DIRECTED SHALL BE BY DRY BORE METHOD. SEE CONSTRUCTION DETAILS IN PLAN SHEET 7.
- PLASTIC LINES:** PLASTIC LINES MAY BE USED PROVIDED THEY HAVE AT LEAST 30' OF COVER. WHERE PLASTIC PIPE IS INSTALLED LONGITUDINALLY, A METAL WIRE SHALL BE CONCURRENTLY INSTALLED OR OTHER MEANS SHALL BE PROVIDED FOR DETECTION PURPOSES. CASING EXCEEDING 4" IN DIAMETER SHALL BE STEEL (NOTE: FOR SERVICE LINES IN THIS PROJECT, THE DIAMETER OF THE ENCASEMENT PIPE SHALL BE AT MINIMUM 1" GREATER THAN THE CARRIER PIPE BEING ENCASED).
- DEPTH:** THE MINIMUM DEPTH OF COVER WITHIN THE RIGHT-OF-WAY AND UNDER HIGHWAY DITCHES SHALL BE 30' OR 18" BENEATH THE BOTTOM OF THE PAVEMENT STRUCTURE, WHICHEVER IS GREATER. (NOTE: CITY OF LONGVIEW REQUIRES A MINIMUM COVER OF 42").
- LOCATION:** LONGITUDINAL LINES MAY BE PLACED BY PLOWING OR OPEN TRENCH METHOD AND SHALL BE LOCATED A MAXIMUM OF 5' FROM THE RIGHT-OF-WAY LINE TO PROVIDE SPACE FOR FUTURE HIGHWAY CONSTRUCTION OR FUTURE UTILITY INSTALLATIONS.
- ABANDONMENT:** ALL ABANDONED LINES SHALL BE REMOVED FROM STATE RIGHT-OF-WAY.
- BORES:** ALL CASINGS OR LINES TO BE PLACED LATITUDINAL (CROSSING A HIGHWAY) TO STATE ROADWAYS, GREATER THAN 8" IN DIAMETER, SHALL BE DIRECTIONAL OR DRY BORED. THE STATE RESERVES THE RIGHT TO REQUIRE ANY LINE OR BORE SMALLER THAN 8" IN DIAMETER TO BE DIRECTIONAL OR DRY BORED DUE TO SOIL TYPES THAT MAY BE CONDUCTIVE TO EROSION OR SETTLEMENT. NEW UTILITY LINES CROSSING THE HIGHWAY SHALL BE INSTALLED AT APPROXIMATELY 90° TO THE CENTER LINE OF THE HIGHWAY.
- SERVICE LINES:** SERVICE LINES CROSSING HIGHWAY BY BORE BE PLACED IN A HIGH-DENSITY POLYETHYLENE (HDPE) ENCASEMENT PIPE WITHOUT JOINTS (ROLLED PIPE). [INSTALLATION LONG SIDE SEWER AND WATER SERVICES (SERVICES CROSSING ROADS) EXCEPT OTHERWISE DIRECTED SHALL BE BY WET BORE METHOD. ALL LONG SIDE POTABLE WATER SERVICES CROSSING STATE HIGHWAYS SHALL BE ENCASED IN A H.D.P.E. ROLLED PIPE WITH THE ENCASEMENT PIPE BEING AT LEAST 1" GREATER IN DIAMETER THAN THE CARRIER PIPE. ALL SANITARY SEWER SERVICE CROSSINGS SHALL BE ENCASED IN STEEL PIPES. SEE SERVICE ROAD BORE DETAILS SHOWN IN CONSTRUCTION DETAILS IN PLAN SHEET 6.
- NON-POTABLE WATER CONTROL FACILITIES:** MINIMUM DEPTH OF COVER SHALL BE 30". ALL NON-POTABLE WATER CONTROL LINES CROSSING UNDER PAVED HIGHWAYS WITHIN RIGHT-OF-WAY MUST BE PLACED IN A STEEL ENCASEMENT PIPE.
- ALL EXCAVATIONS WITHIN THE RIGHT-OF-WAY AND NOT UNDER SURFACING SHALL BE BACKFILLED BY TAMPING IN 6" HORIZONTAL LAYERS OR BY PONDING. ALL SURPLUS MATERIAL SHALL BE REMOVED FROM THE RIGHT-OF-WAY AND THE EXCAVATION FINISHED FLUSH WITH SURROUNDING NATURAL GROUND. ANY SETTLEMENT OCCURRING AFTER INITIAL INSTALLATION IN THE EXCAVATED AREA DUE TO CONSTRUCTION OPERATIONS SHALL BE BACKFILLED WITH SELECT MATERIAL AS SOON AS POSSIBLE. ALL DISTURBED SOIL AREAS SHALL RECEIVE ADEQUATE RE-VEGETATION AS DESCRIBED BELOW IN PARAGRAPH 3.
- HIGHWAY CROSSING UNDER SURFACED ROADS, SURFACED CROSSROADS AND SURFACED DRIVEWAYS WITHIN THE RIGHT-OF-WAY SHALL BE PLACED BY BORING. BORING SHALL EXTEND FROM CROWN LINE TO CROWN LINE.
- WHERE EXCAVATION OR BACKFILLING OPERATIONS DISTURB SOIL OR SODDING, SUCH AREAS SHALL BE RESTORED TO THE ORIGINAL STATE OR BETTER CONDITION. AFTER BACK FILLING, MULCH SODDING, BLOCK SODDING, OR THE ESTABLISHMENT OF VEGETATION THROUGH SEEDING SHALL OCCUR ON ALL SLOPES 3 TO 1 OR FLATTER. BROADCAST SEEDING SHOULD BE LIMITED TO FLAT AREAS WHICH HAVE CLAY OR TIGHT SOIL TEXTURE ONLY. THIS APPLICATION METHOD IS NOT RECOMMENDED FOR ANY SLOPED AREA OR ANY AREA WHOSE PREDOMINANT SOIL TEXTURE IS LOOSE OR SANDY. WHERE SLOPES ARE GREATER THAN 3 TO 1, BLOCK SODDING OR USE OF A SOIL RETENTION BLANKET IS RECOMMENDED. IF A SOIL RETENTION BLANKET IS USED, THE APPLICATION OF SEED UNDER SPECIFICATION ITEM 164 OF THE TEXAS STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND BRIDGES BY THE BROADCAST METHOD IS RECOMMENDED.
- OPERATIONS ALONG HIGHWAYS SHALL BE PERFORMED IN SUCH MANNER THAT ALL EXCAVATED MATERIAL, ALL OPERATING EQUIPMENT, AS WELL AS PARKED VEHICLES, ARE KEPT OFF THE PAVEMENT AT ALL TIMES. ANY VEHICLES REQUIRED TO REMAIN ON THE ROADWAY, INCLUDING SHOULDERS, ARE TO BE PROPERLY BARRICADED ACCORDING TO THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
- ALL BORE PITS OR OPEN EXCAVATION SHALL BE CLOSED THE SAME DAY THEY ARE OPENED IF AT ALL POSSIBLE. ANY LEFT OPEN OVERNIGHT SHALL BE BARRICADED AS REQUIRED BY THE TEXAS MUTCD.
- PROPER TRAFFIC CONTROL MEASURES SHALL BE MAINTAINED FOR DURATION OF CONSTRUCTION AS PRESCRIBED BY THE TxDOT PERSONNEL. (REFERENCE TEXAS MUTCD). THE CONTRACTOR SHALL PROVIDE BARRICADES AND WARNING SIGNS, AND FLAGGERS WHEN APPLICABLE.
- CONSTRUCTION OPERATIONS SHALL BE SUSPENDED DURING WET CONDITIONS, WHEN IN THE STATE'S OPINION, DAMAGE TO THE RIGHT-OF-WAY COULD OCCUR OR WHEN SAFETY TO THE TRAVELING PUBLIC IS AN ISSUE.
- THE CONTRACTOR SHALL SECURE A COPY OF AN EXECUTED PERMIT AND BE FULLY AWARE OF THE REQUIREMENTS CONTAINED THEREIN BEFORE A JOB BEGINS. A COPY OF THE FULLY EXECUTED PERMIT SHALL BE LOCATED AT ALL TIMES ON THE JOB UNTIL FINAL COMPLETION.
- ANY EXCAVATION IN CLOSE PROXIMITY TO THE CURB AND GUTTER SHALL NOT BE PERFORMED UNTIL THE TEXAS DEPARTMENT OF TRANSPORTATION MAINTENANCE SUPERVISOR HAS BEEN CONTACTED TO DETERMINE IF SHORING IS REQUIRED.
- THE UTILITY SHALL NOT CUT INTO THE PAVEMENT OR CONCRETE RIPRAP WITHOUT WRITTEN PERMISSION FROM THE DEPARTMENT.
- WATER METERS SHALL NOT BE PLACED ON STATE RIGHT-OF-WAY. COSTS TO REPAIR DAMAGES TO INSTALLATIONS ON HIGHWAY RIGHT-OF-WAY THAT ARE NOT IN ACCORDANCE WITH TxDOT REQUIREMENTS SHALL BE THE RESPONSIBILITY OF THE GRANTEE.
- MANHOLES SHALL BE INSTALLED FLUSH WITH THE GROUND. MANHOLES SERVING SEWER LINES UP TO 12" SHALL HAVE A MAXIMUM INSIDE DIAMETER OF 48 INCHES. FOR LINES LARGER THAN 12 INCHES, THE MANHOLE INSIDE DIAMETER MAY BE INCREASED AN EQUAL AMOUNT, UP TO A MAXIMUM DIAMETER OF 60". MANHOLE LIDS MUST WEIGH AT LEAST 175 POUNDS. (NOTE: ALL MATERIALS MUST COMPLY WITH CITY OF LONGVIEW'S CURRENT APPROVED MATERIALS LIST).

STORM WATER POLLUTION CONTROL:

- THE CONSTRUCTION ACTIVITY INCLUDED IN THIS PLAN WILL INCLUDE:
A. CLEARING AND GRUBBING
B. ROUGH GRADING
C. FINAL GRADING
- SHOULD DUST CONTROL FROM THE CONSTRUCTION SITE BECOME A PROBLEM, THE CONTRACTOR SHALL EMPLOY DUST CONTROL MEASURES AT NO ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR SHALL ENSURE STORM WATER EXITING THE SITE IS FILTERED AND COLLECTED IN AN EXISTING STREET AND STORM SEWER MAINTAINED BY THE CITY OF LONGVIEW, TEXAS.
- THE CONTRACTOR SHALL PROVIDE EROSION PROTECTION AROUND THE WORK AREA PERIMETER.
- ALL DISTURBED AREAS WHICH WILL NOT BE RE-DISTURBED FOR A MINIMUM OF 21 DAYS, MUST BE STABILIZED BY THE CONTRACTOR WITH VEGETATION TO CONTROL EROSION.
- THE CONTRACTOR SHALL REMOVE ALL EXCESS SOIL FROM CONSTRUCTION VEHICLES PRIOR TO EXITING THE SITE.
- THE CONTRACTOR SHALL TAKE MEASURES TO AVOID DUST GENERATION AT THE SITE.
- THE CONTRACTOR MUST COMPLY WITH FEDERAL, STATE, AND LOCAL REGULATIONS REGARDING EROSION AND SEDIMENT CONTROL.

Date	Revision	By

Designed	MB
Checked	DBW
Drawn	MB/SP
Approved	DBW

WOOD ENGINEERING COMPANY
 CIVIL - STRUCTURAL - SURVEYING
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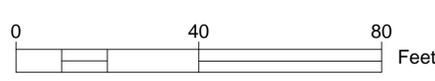
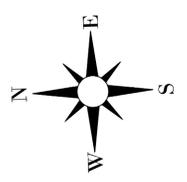
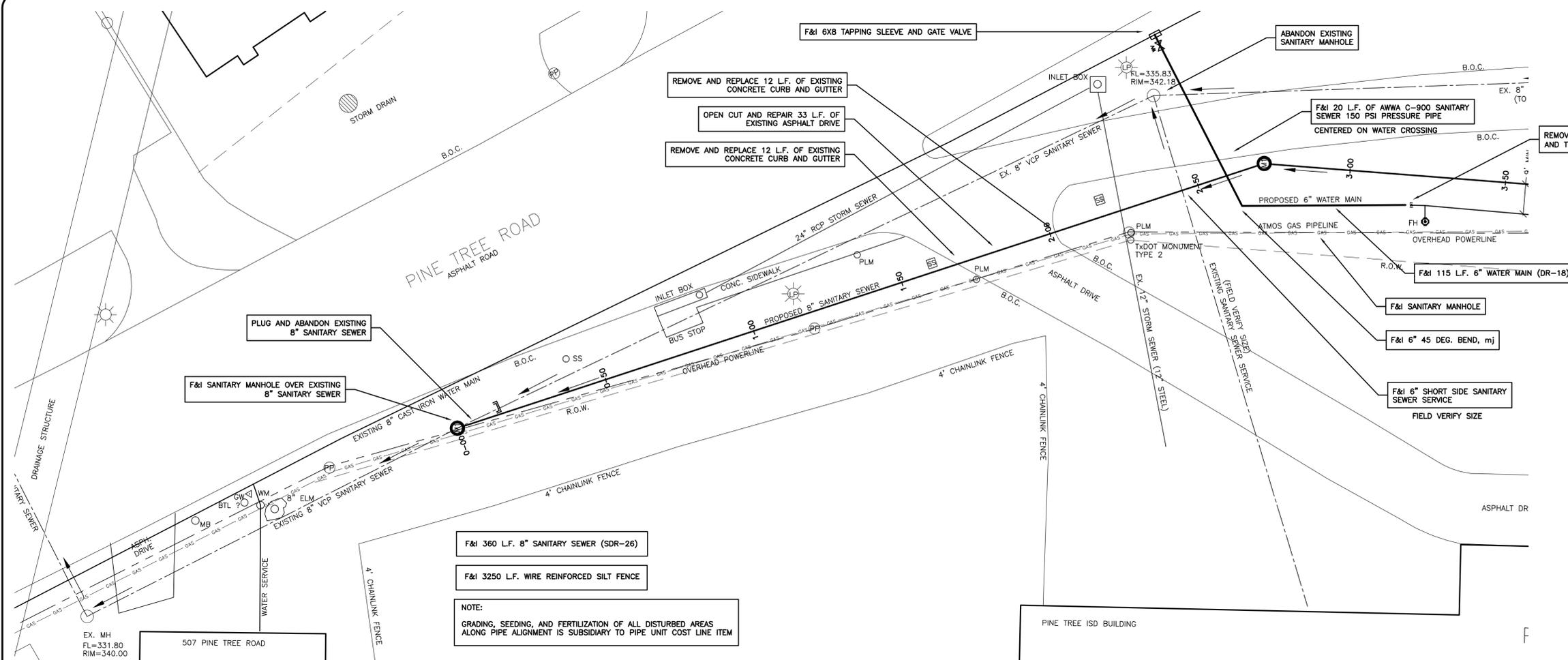
Real East Texas
CITY OF LONGVIEW

WEST LOOP 281 (US 80 to SHOFNER)
 UTILITY RELOCATION
 CITY OF LONGVIEW, GREGG COUNTY, TEXAS
 CONSTRUCTION NOTES



Scale	Project No.:
Date:	WEC 12-08016
AUGUST 2016	

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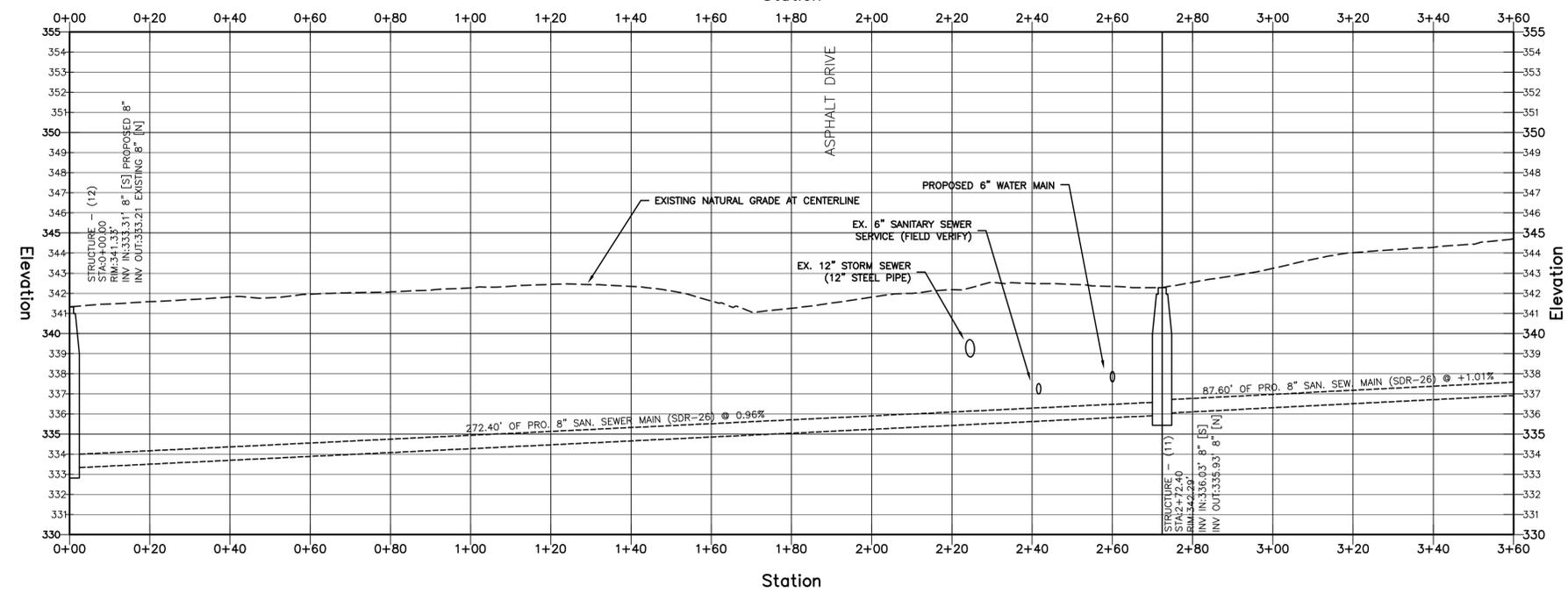


WARNING
BURIED UTILITIES, PIPELINES AND OVERHEAD POWER LINES EXIST IN THE VICINITY OF CONSTRUCTION. CONTRACTOR SHALL COORDINATE WITH OWNERS FOR FIELD LOCATION PRIOR TO CONSTRUCTION ACTIVITIES.

WARNING
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LEGEND	
SW	SIDEWALK
FL	FLOW OR FLOWLINE
IRCS	IRON ROD SET
IRCS	IRON ROD FOUND
IPF	IRON PIPE FOUND
IRCF	IRON ROD WITH CAP
CO	CLEAN OUT
WV	WATER VALVE
PP	POWER POLE
LP	LIGHT POLE
MB	MAILBOX
SS	STREET SIGN
FD	FIRE HYDRANT
USP	UTILITY SERVICE POLE
G	GAS METER
AW	ANCHOR GUY WIRE
FFE	FINISHED FLOOR ELEVATION
CB	CATCH BASIN
CLF	CHAIN LINK FENCE
WBF	WOOD BOARD FENCE
P	PLUG
F&I	FURNISH AND INSTALL
M	SANITARY SEWER MANHOLE
SM	STORM SEWER MANHOLE
TCM	TELEPHONE CABLE MANHOLE
U.E.L.	U.E.L. MANHOLE
OS	OPTIC FIBER SIGN (ATTENTION)
— GAS —	EXISTING GAS LINE
— W —	EXISTING WATER LINE
— — —	EXISTING SANITARY SEWER LINE
— U.E.L. —	UNDERGROUND ELECTRIC LINE
— O.E. —	EXISTING OVERHEAD UTILITIES
— W —	PROPOSED WATER LINE
— S —	PROPOSED SEWER LINE
M	WATER METER

Profile View of Proposed Sanitary Sewer Station



- NOTES**
- CONTRACTOR SHALL FURNISH AND INSTALL TEMPORARY STREET REPAIR AT NO ADDITIONAL COST.
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D.B. Wood 9-6-2016
PE, RPLS

Date	Revision	By

Designed	MB
Checked	DBW
Drawn	MB/SP
Approved	DBW

WOOD ENGINEERING COMPANY
CIVIL - STRUCTURAL - SURVEYING
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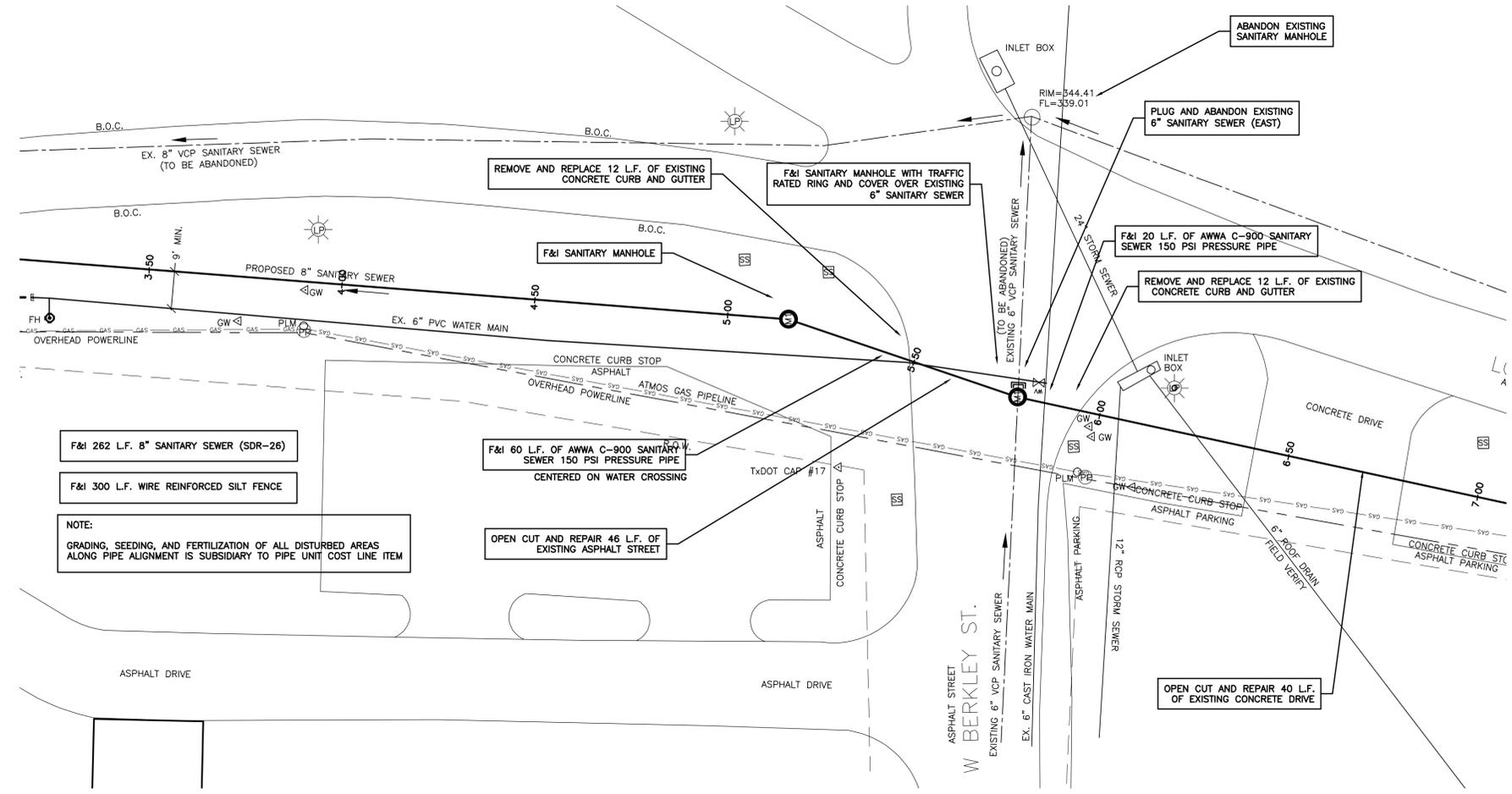
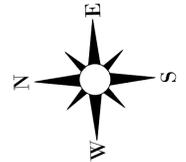
Real East Texas
CITY OF LONGVIEW

WEST LOOP 281 (US 80 to SHOFNER)
UTILITY RELOCATION
CITY OF LONGVIEW, GREGG COUNTY, TEXAS
LOOP 281 - PINE TREE ROAD
PROPOSED 8" SANITARY SEWER MAIN
STA. 0+00 TO STA. 5+00

STATE OF TEXAS
DAVID BRIAN WOOD
83858
LICENSED PROFESSIONAL ENGINEER

Scale
Hor: 1"=20'
Vert: 1"=5'
Date:
AUGUST 2016

Project No.:
WEC 12-08016
Sheet: 3 of 7



F&I 262 L.F. 8" SANITARY SEWER (SDR-26)
 F&I 300 L.F. WIRE REINFORCED SILT FENCE

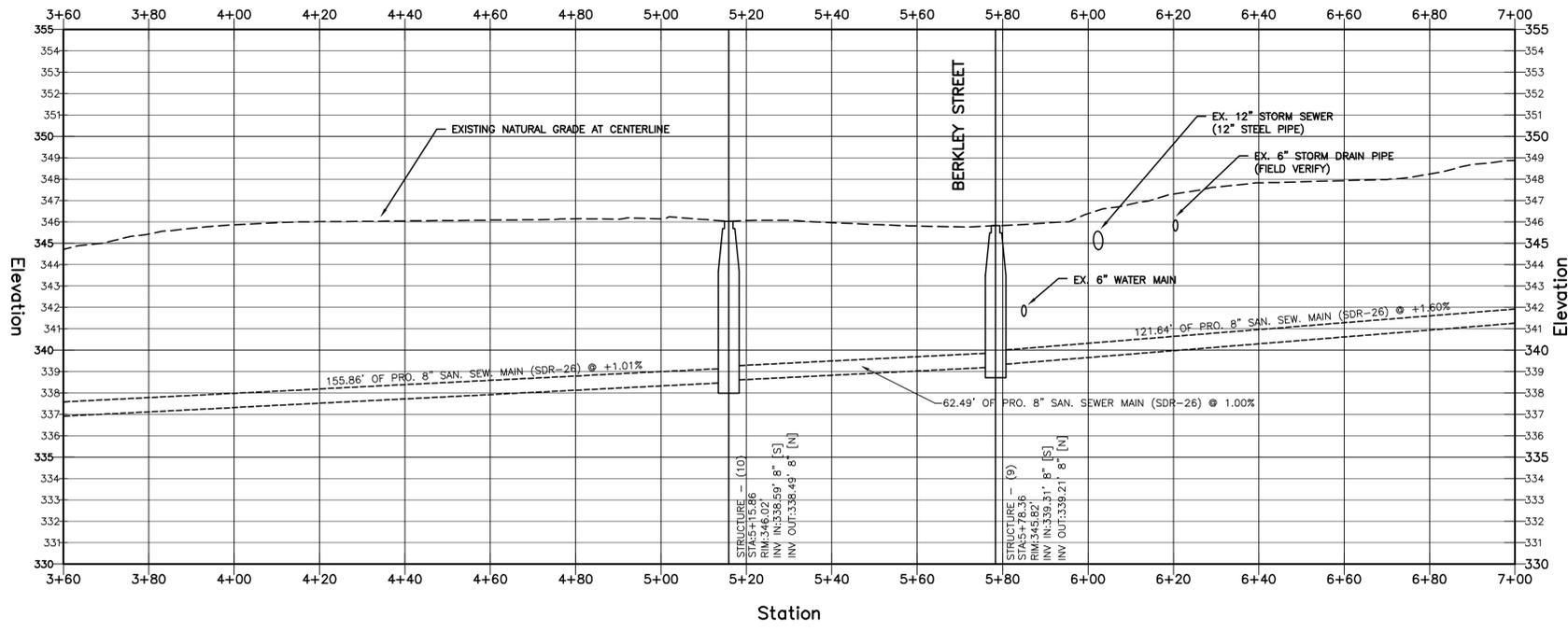
NOTE:
 GRADING, SEEDING, AND FERTILIZATION OF ALL DISTURBED AREAS ALONG PIPE ALIGNMENT IS SUBSIDIARY TO PIPE UNIT COST LINE ITEM

F&I 60 L.F. OF AWWA C-900 SANITARY SEWER 150 PSI PRESSURE PIPE CENTERED ON WATER CROSSING

OPEN CUT AND REPAIR 46 L.F. OF EXISTING ASPHALT STREET

OPEN CUT AND REPAIR 40 L.F. OF EXISTING CONCRETE DRIVE

Profile View of Proposed Sanitary Sewer



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D. B. Wood, PE, RPLS
 4-6-2016

Date	Revision	By

Designed	MB
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Drawn	MB/SP
Approved	DBW

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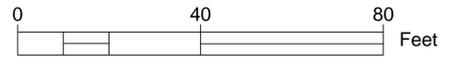
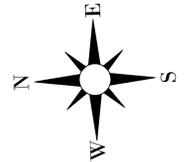
Real East Texas
CITY OF LONGVIEW

WEST LOOP 281 (US 80 to SHOFNER)
 UTILITY RELOCATION
 CITY OF LONGVIEW, GREGG COUNTY, TEXAS
 LOOP 281 - PINE TREE ROAD
 PROPOSED 8" SANITARY SEWER MAIN
 STA. 5+00 TO STA. 8+50

STATE OF TEXAS
DAVID BRIAN WOOD
 83858
 LICENSED PROFESSIONAL ENGINEER

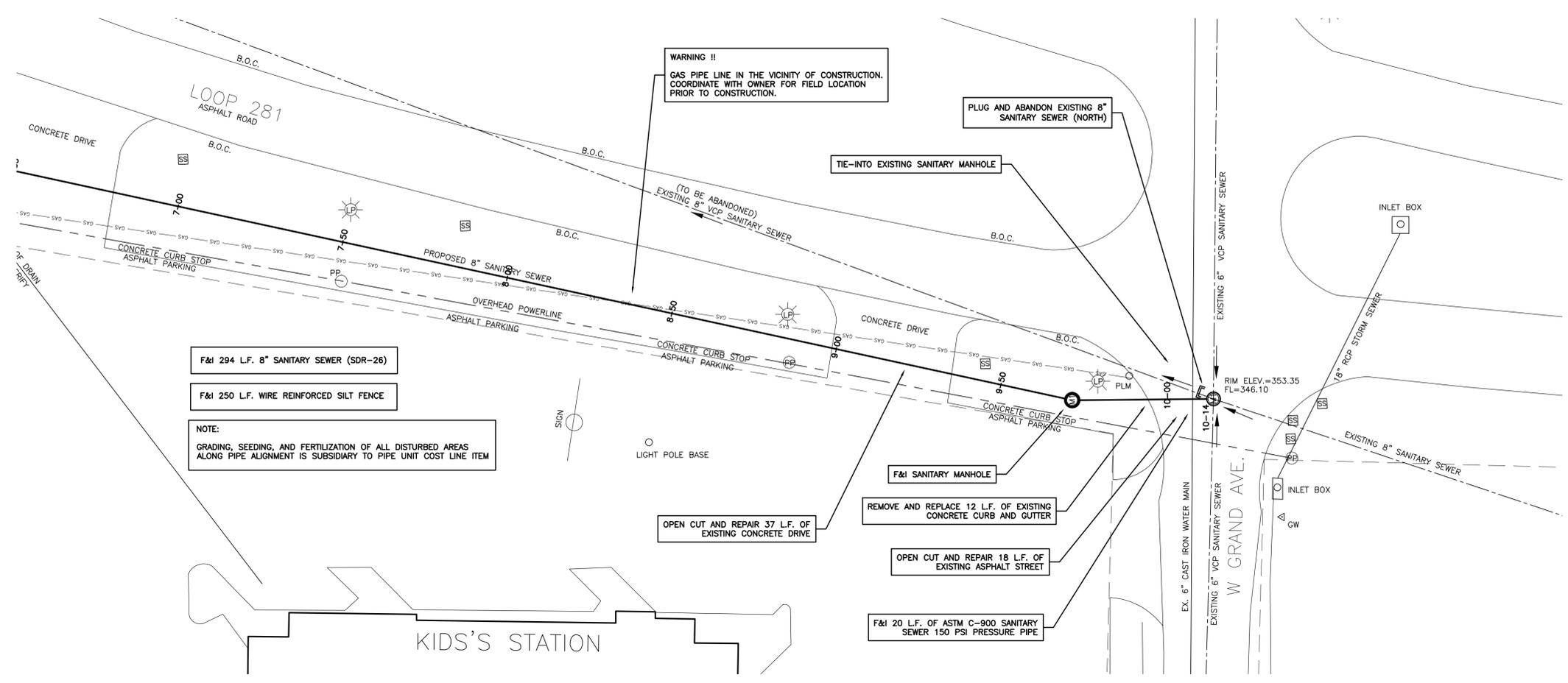
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 Sheet: 4 of 7



WARNING
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F&I 294 L.F. 8" SANITARY SEWER (SDR-26)

F&I 250 L.F. WIRE REINFORCED SILT FENCE

NOTE:
GRADING, SEEDING, AND FERTILIZATION OF ALL DISTURBED AREAS ALONG PIPE ALIGNMENT IS SUBSIDIARY TO PIPE UNIT COST LINE ITEM

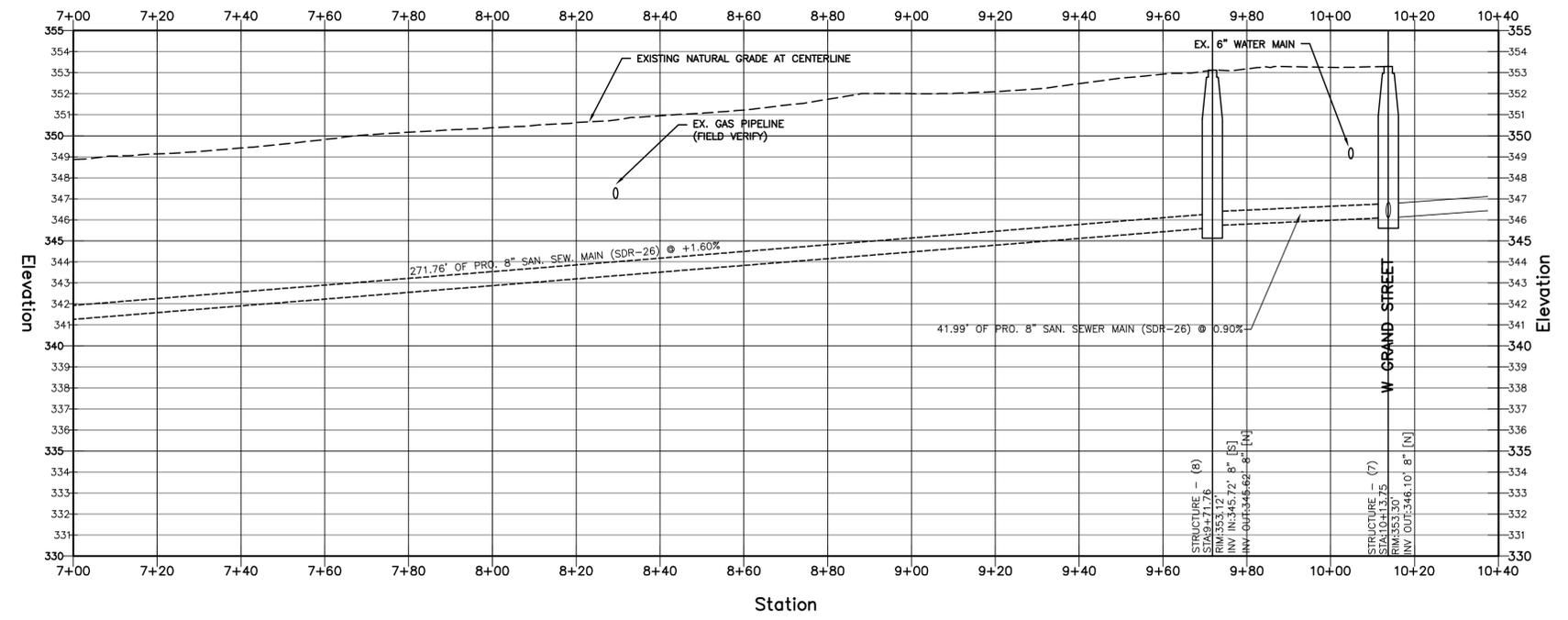
OPEN CUT AND REPAIR 37 L.F. OF EXISTING CONCRETE DRIVE

REMOVE AND REPLACE 12 L.F. OF EXISTING CONCRETE CURB AND GUTTER

OPEN CUT AND REPAIR 18 L.F. OF EXISTING ASPHALT STREET

F&I 20 L.F. OF ASTM C-900 SANITARY SEWER 150 PSI PRESSURE PIPE

Profile View of Proposed Sanitary Sewer Station



- LEGEND**
- SW SIDEWALK
 - FL FLOW OR FLOWLINE
 - IRCS IRON ROD SET
 - IRCS IRON ROD FOUND
 - IPF IRON PIPE FOUND
 - IRCF IRON ROD WITH CAP
 - CO CLEAN OUT
 - WV WATER VALVE
 - PP POWER POLE
 - LP LIGHT POLE
 - MB MAILBOX
 - SS STREET SIGN
 - FF FIRE HYDRANT
 - US UTILITY SERVICE POLE
 - GM GAS METER
 - AW ANCHOR GUY WIRE
 - FFE FINISHED FLOOR ELEVATION
 - CB CATCH BASIN
 - CLF CHAIN LINK FENCE
 - WBF WOOD BOARD FENCE
 - P PLUG
 - F&I FURNISH AND INSTALL
 - SM SANITARY SEWER MANHOLE
 - STM STORM SEWER MANHOLE
 - TCM TELEPHONE CABLE MANHOLE
 - U.E.L. U.E.L. MANHOLE
 - OS OPTIC FIBER SIGN (ATTENTION)
 - GAS— EXISTING GAS LINE
 - W— EXISTING WATER LINE
 - SS— EXISTING SANITARY SEWER LINE
 - U.E.L.— UNDERGROUND ELECTRIC LINE
 - O.E.— EXISTING OVERHEAD UTILITIES
 - W— PROPOSED WATER LINE
 - SS— PROPOSED SEWER LINE
 - (M) WATER METER
- NOTES**
1. CONTRACTOR SHALL FURNISH AND INSTALL TEMPORARY STREET REPAIR AT NO ADDITIONAL COST.
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D.B. Wood 9-6-2016
PE, RPLS

Date	Revision	By

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Approved	DBW

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LOOP 281 - PINE TREE ROAD
PROPOSED 8" SANITARY SEWER MAIN
STA. 5+00 TO STA. 8+50



Scale
Hori: 1"=20'
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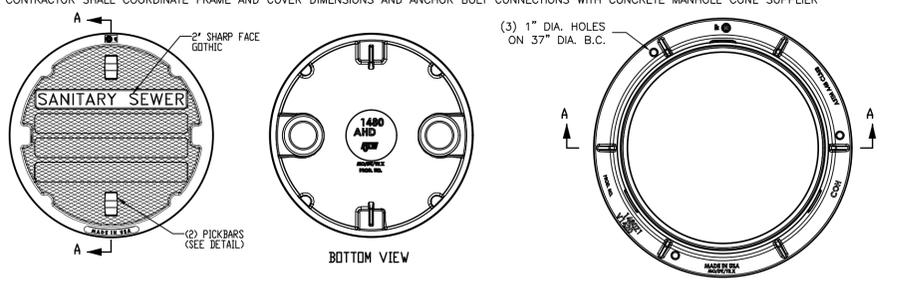
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Sheet: 5 of 7

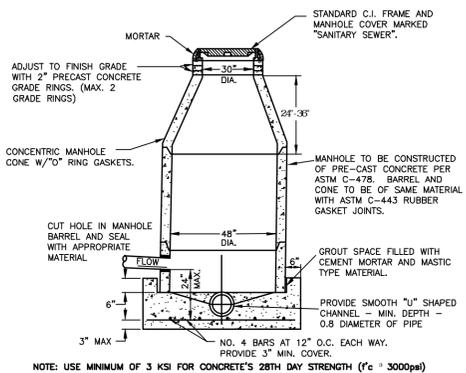
MANHOLE FRAME AND COVER NOTES:

- RING AND COVER FOR SANITARY SEWER MANHOLES SHALL BE PER DETAIL ON THIS SHEET. RING AND COVER MUST BE ONE OF THE TYPES LISTED IN THE CITY OF LONGVIEW APPROVED WATER PRODUCT LIST OR APPROVED EQUALS. APPROVED MANHOLE RINGS AND COVERS LISTED ON SAID APPROVED LIST ARE:
 - 30" 175 AND 210 POUND CAST IRON - SANITARY SEWER RINGS/LIDS AND EXTENSION WITH ACCEPTABLE BRANDS BEING:
 - A) STAR
 - B) SIGMA
 - C) EAST JORDAN IRON WORKS/B&H; V1420/1480
 - AND D) ACCUCAST
- CONTRACTOR SHALL COORDINATE FRAME AND COVER DIMENSIONS AND ANCHOR BOLT CONNECTIONS WITH CONCRETE MANHOLE CONE SUPPLIER

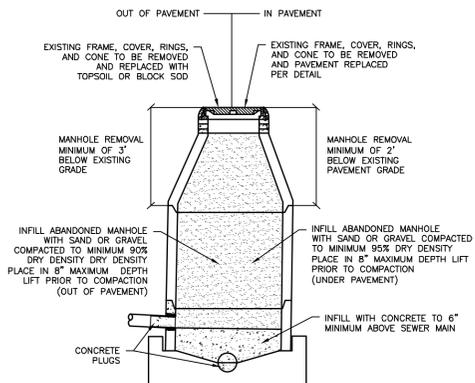


MANHOLE COVER DETAILS

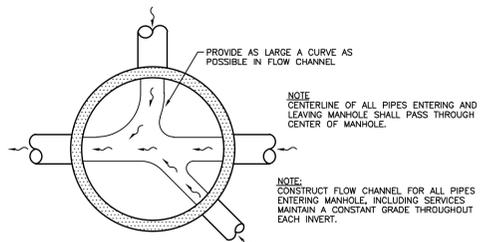
TYP. MANHOLE RING AND COVER FOR SANITARY SEWER MAHOLES



SANITARY SEWER STANDARD MANHOLE NOT TO SCALE



ABANDONMENT OF EXISTING MANHOLE IN/OUT OF PAVEMENT



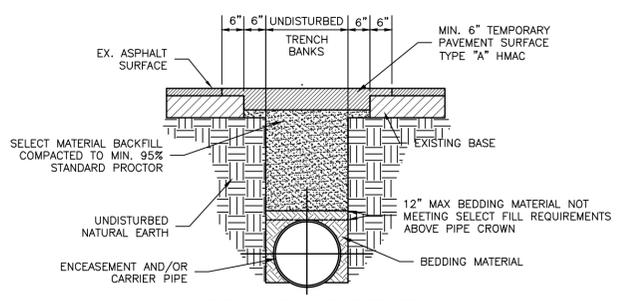
MANHOLE BOTTOM DETAIL N.T.S.

GENERAL NOTES FOR MANHOLE CONSTRUCTION

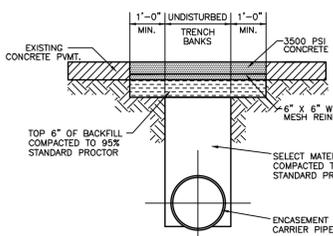
- CONSTRUCT MANHOLE FLUSH WITH FINISHED GRADE ON STREET AND HIGHWAY RIGHT-OF-WAYS UNLESS OTHERWISE INDICATED ON PLANS.
- TOP ELEVATION OF MANHOLE CONSTRUCTED IN DRAINAGE DITCHES SHALL BE AT LEAST 1.0' ABOVE DRAIN FLOWLINE.
- TOP OF MANHOLE TO BE NO MORE THAN 3" ABOVE EXISTING GROUND IN DEVELOPED AREAS AND ON STREET R.O.W. UNLESS OTHERWISE DIRECTED BY THE ENGINEER. MOUND DIRT AROUND RAISED MANHOLES AT 6:1 SLOPE.
- PRECAST RISERS, CONES, FLAT TOP SLABS, REDUCING FLAT SLABS, FLOORS, GRADE RINGS, AND RINGS AND COVERS SHALL BE MANUFACTURED ACCORDING TO THE MOST RECENT A.S.T.M. C-478 SPECIFICATIONS UNLESS OTHERWISE SPECIFIED BY ENGINEER.

- DROP MANHOLE NOTES:**
- ALL PIPE FOR DROPS SHALL BE PVC SDR 26 UNLESS OTHERWISE STATED BY THE ENGINEER
 - ALL FITTINGS SHALL HAVE PUSH-ON JOINTS AS SHOWN.

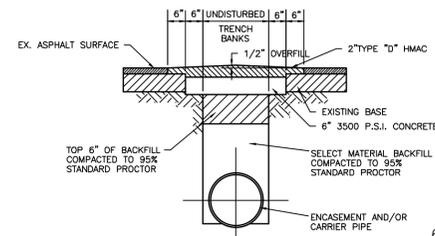
DROP MANHOLE N.T.S.



OPEN CUT AND REPAIR (ASPHALT SURFACE - TEMPORARY REPAIR) SCALE: N.T.S.



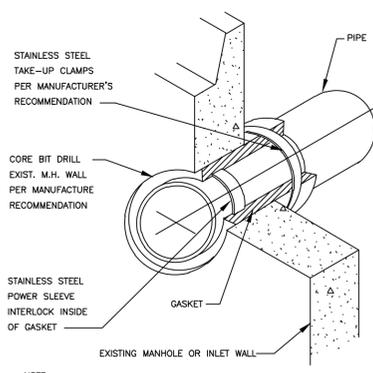
OPEN-CUT REPAIR DETAIL CONCRETE PAVEMENT N.T.S.



OPEN-CUT REPAIR DETAIL ASPHALT SURFACE N.T.S.

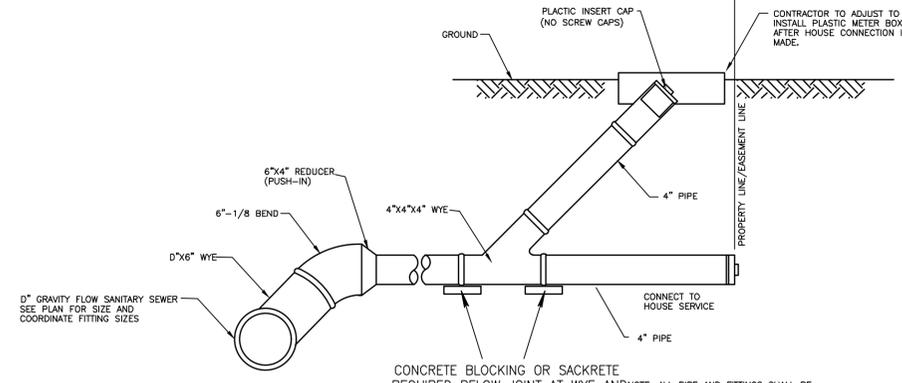
NOTE ON STREET REPAIRS

- TEMPORARY STREET REPAIR SHALL BE SUBSIDIARY TO PERMANENT PAVEMENT REPAIR.
- CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL STREET REPAIRS UNTIL PROJECT CLOSEOUT IS ATTAINED. RE-PATCH ANY AND ALL STREET REPAIRS AT NO ADDITIONAL COST WHEN NECESSARY TO MAINTAIN FUNCTIONALITY.
- FINISH STREET REPAIRS PROVIDING SMOOTH TRANSITIONS TO MATCH EXISTING GRADES AND FINISHES.

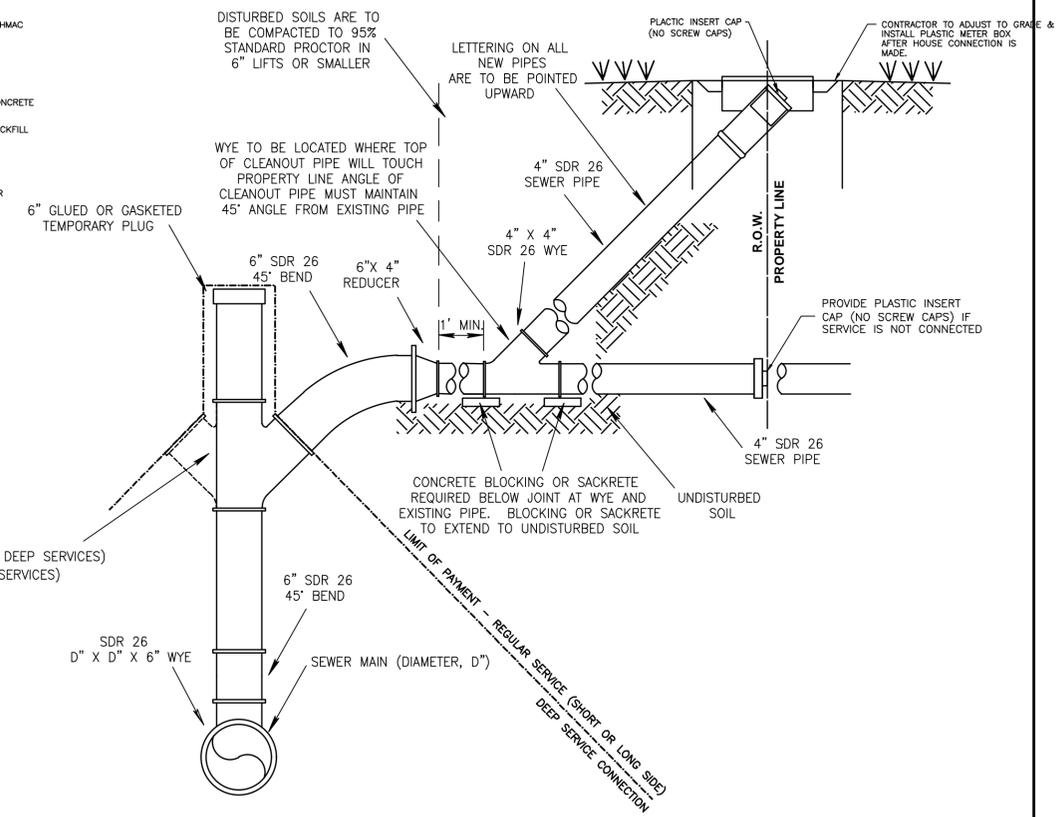


- NOTE:**
- USE PRESS SEAL GASKET CORP. PSX RESILIENT CONNECTOR MEETING ASTM C-923 OR APPROVED EQUAL.
 - IF PIPE ENTRANCE IS THROUGH GROUT MATERIAL REMOVE AND REPLACE ALL GROUT MATERIAL TO OBTAIN A GOOD BOND. USE NON-SHRINK GROUT.
 - WHERE MANHOLE WALL CANNOT BE CORE BIT DRILLED ADEQUATELY TO INSURE RESILIENT CONNECTION, (SUCH AS AT THE MANHOLE BASE) INSTALL A 24" JOINT OF PIPE WITH 18" OF CONC. CRADLE IN LIEU OF THE PSX RESILIENT.

DETAIL FOR A TIE INTO EXISTING MANHOLE/ INLET BOX N.T.S.



TYPICAL SEWER SERVICE CONNECTION



TYPICAL DEEP SEWER SERVICE DETAIL

SEWER SERVICE NOTES:

- PAYMENT FOR SEWER SERVICES SHALL INCLUDE MATERIAL, LABOR, AND EQUIPMENT NECESSARY TO FURNISH AND INSTALL THE COMPLETE SERVICE ASSEMBLY.
- GRADING WORK ASSOCIATED WITH SEWER SERVICES SHALL BE SUBSIDIARY FOR BID ITEM(S) FOR SERVICE INSTALLATION.
- DEEP SEWER SERVICES ARE REQUIRED AT DEPTHS 15' OR GREATER OR WHERE THE SEWER SERVICE LATERAL SLOPE EXCEEDS 8.0% FOR 4" OR 6.0% FOR 6" SERVICES. OTHERWISE, DEEP SERVICES MAY ONLY BE USED IF DIRECTED BY THE ENGINEER.
- DEEP SERVICES MAY REQUIRE MULTIPLE 6"x6" WYES TO COLLECT MULTIPLE SEWER SERVICES IN ONE DEEP SERVICE CONNECTION. ADDITIONAL FITTINGS REQUIRED SHALL BE SUBSIDIARY TO BID ITEM(S) RELATED TO THE PERTINENT DEEP SERVICE CONNECTION.
- THE CONNECTION OF MORE THAN TWO (2) SERVICES IN ONE DEEP SERVICE CONNECTION MUST BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION OF EACH RELEVANT DEEP SERVICE CONNECTION.
- FURNISH FITTINGS NECESSARY FOR SEWER SERVICES CONNECTED TO PIPES WITH D = 8" AT NO ADDITIONAL COST. FITTINGS SHOWN FOR TYPICAL SERVICES ARE FOR D=8" (TYPICAL)
- CITY OF LONGVIEW REQUIRES A MINIMUM OF 4.00' DEPTH FOR SEWER LATERALS
- SDR-26 PIPE REQUIRES BEVELING OF END TO BE INSTALLED IN SDR-26 GASKETED WYE

D.B. Wood, PE, RPLS
9-6-2016

Date	Revision	By

Designed	MB
Checked	DBW
Drawn	MB/SP
Approved	DBW

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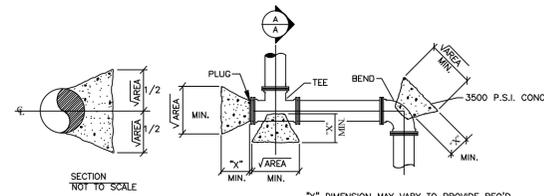
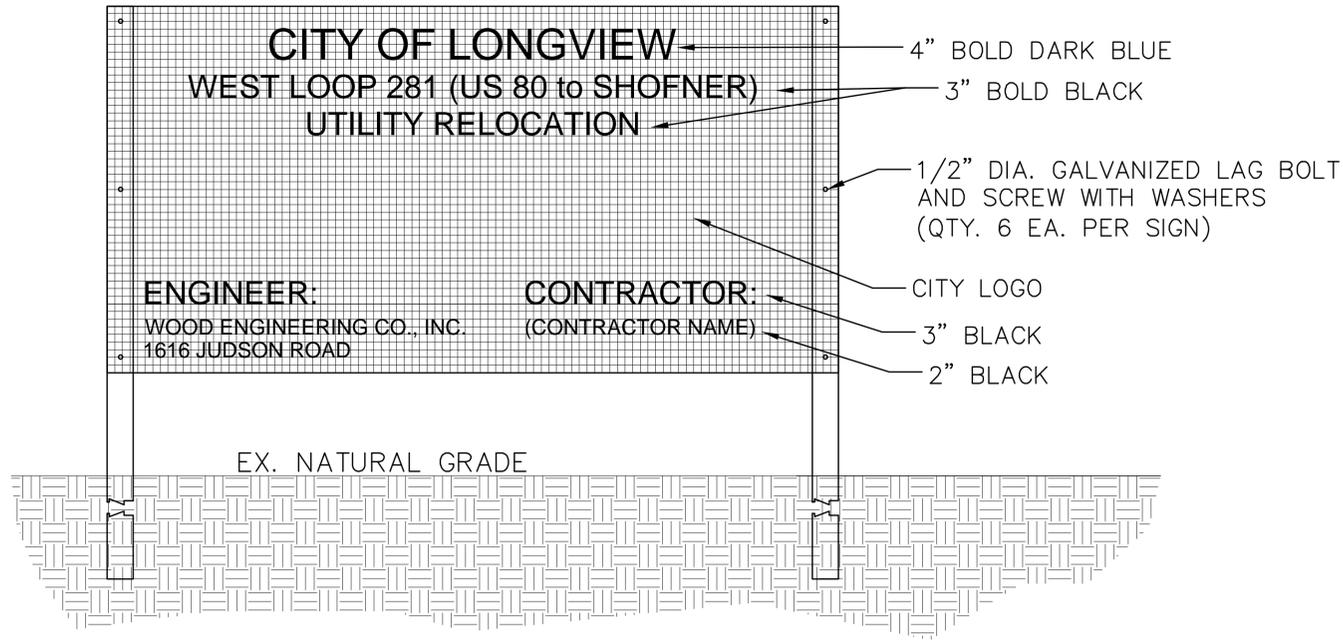
Real East Texas
CITY OF LONGVIEW

WEST LOOP 281 (US 80 to SHOFNER)
UTILITY RELOCATION
CITY OF LONGVIEW, GREGG COUNTY, TEXAS
CONSTRUCTION DETAILS

STATE OF TEXAS
DAVID BRIAN WOOD
83858
LICENSED PROFESSIONAL ENGINEER

Scale
Date: AUGUST 2016

Project No.: WEC 12-08016
Sheet: 6 of 7



HORIZONTAL BLOCKING TABLE

PIPE SIZE (IN)	DEPTH OF COVER TO TOP OF PIPE (FT)	TEST PRESSURE (PSI)	DEAD END AND TEE (SQ. FT)	90 BEND (SQ. FT)	45 BEND (SQ. FT)	22.5 BEND (SQ. FT)	11.25 BEND (SQ. FT)	5 DEFLECT. (SQ. FT)	"X" DIA. FT.
6	3.3	150	3.22	7.38	4.00	2.04	1.02	0.49	1.00
8	3.3	150	9.05	20.40	10.92	5.42	2.71	1.36	1.00
10	3.4	150	13.79	30.51	16.39	8.20	4.10	2.05	1.00
12	3.5	150	19.30	42.42	22.84	11.42	5.71	2.86	1.25
14	3.6	150	25.78	58.45	31.25	15.63	7.81	3.91	1.25

- NOTES:**
- THRUST BLOCK AREAS SHOWN ARE BASED ON TEST PRESSURES OF 150 P.S.I. AND 250 P.S.F. PER VERTICAL FOOT OF SOIL COVER MEASURED TO CENTERLINE OF PIPE.
 - MINIMUM AREAS SHOWN ARE IN SQUARE FEET AND ARE BASED UPON MIN 3.0 FEET OF COVER TO TOP OF PIPE.
 - BEARING MUST BE ON UNDISTURBED EARTH.
 - ADJUST THRUST BLOCK AREAS ACCORDINGLY IF PRESSURES, DEPTH OF COVER AND/OR SOIL BEARING VALUE VARIES.

TYPICAL BLOCKING DETAIL
N.T.S.

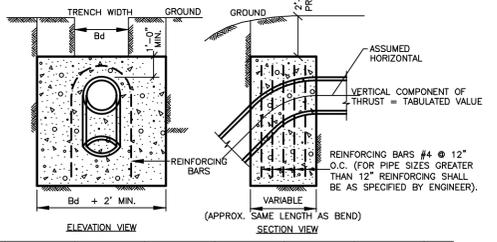
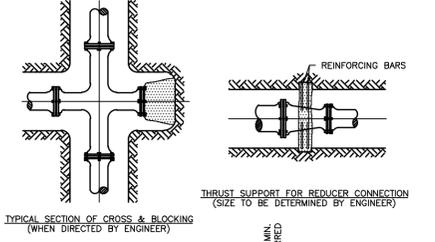
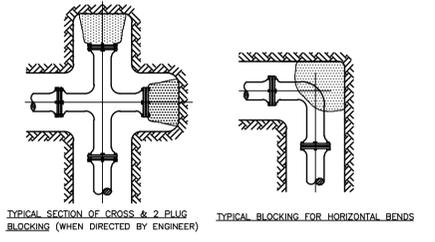
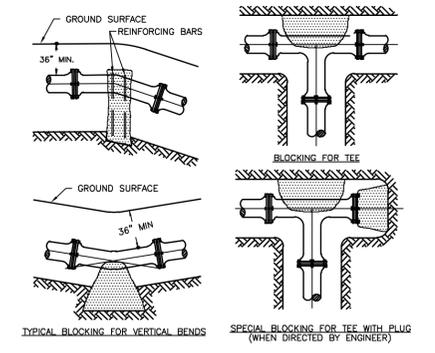
SPACING	SPACING < 6"		SPACING > 6"	
	OTHER	TOP	OTHER	TOP
#3	12.0	12.6	12.0	12.0
#4	12.0	15.8	12.0	13.4
#5	15.0	21.0	12.0	16.8
#6	19.3	27.0	15.4	21.5
#7	26.3	36.9	21.0	29.5
#8	34.6	48.4	27.7	38.8

TOP BARS ARE DEFINED AS REINFORCEMENT WITH 12" OR MORE OF FRESH CONCRETE BELOW

REINFORCING BAR LAP SPLICE

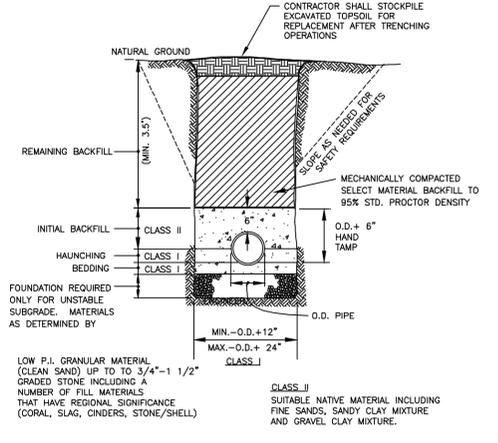
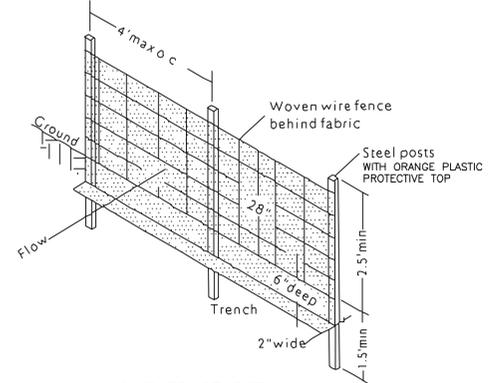
NOTES ON CONCRETE THRUST BLOCKING

- ALL BLOCKING SHALL BE AGAINST UNDISTURBED HAND DUG SOIL AND SHALL BE CONCRETE HAVING A MINIMUM 28 DAY STRENGTH OF 3500 LB. PER SQUARE INCH.
- THRUST CALCULATIONS TO BE BASED ON GREATER OF 150 PSI AND THRUST DUE TO WATER PRESSURE AT 100% OF TEST PRESSURE. $THRUST = 2 AP \sin 1/2 \phi$, WHERE A = AREA OF PIPE, P = WATER PRESSURE, ϕ = DEFLECTION ANGLE.
- VERTICAL UPLIFT BLOCKS SHALL BE DESIGNED ON THE BASIS OF 150 LBS. PER CU. FT. FOR CONCRETE AND SOIL AT 120 LBS. PER CU. FT. OVER THE AREA OF BLOCK.
- VERTICAL DOWN THRUST BLOCKS SHALL BE DESIGNED ON THE BASIS OF 2000 LB. PER SQ. FT. ALLOWABLE SOIL BEARING PRESSURE. DIMENSIONS MAY BE DECREASED WITH APPROVAL OF THE ENGINEER IF MEASURED SOIL CONDITIONS PERMIT. IN POOR SOIL CONDITIONS, BLOCK DIMENSIONS SHALL BE INCREASED IN PROPORTION TO ALLOWABLE BEARING VALUE.
- THRUST BLOCKS ON HORIZONTAL BENDS, TEES, CROSSES, AND REDUCERS SHALL BE SIZED BASED ON 2400 LBS. PER SQ. FT. OF BLOCKING SURFACE AREA IN CONTACT WITH UNDISTURBED SOIL. BLOCK DIMENSIONS MAY BE DECREASED WITH APPROVAL OF THE ENGINEER IF MEASURED SOIL CONDITIONS PERMIT. IN POOR SOIL CONDITIONS, BLOCK DIMENSIONS SHALL BE INCREASED IN PROPORTION TO THE ALLOWABLE BEARING VALUE.
- ALL CONCRETE BLOCKINGS SHALL HAVE A MINIMUM SOIL COVER OF 1 FT.
- ADDITIONAL REINFORCEMENT MAY BE REQUIRED FOR HORIZONTAL BLOCKING TO HANDLE UNUSUAL SHEAR LOADING CONDITIONS.
- ANCHOR COLLARS SHALL BE REINFORCED IN ACCORDANCE WITH REINFORCING BAR SCHEDULE FOR REDUCED BLOCKS PROVIDED ON THIS PAGE. STEEL ANCHOR RINGS SHALL BE IN ACCORDANCE WITH DIMENSIONS OF ANCHOR COLLAR.
- VOLUMES OF THRUST BLOCKS AS SHOWN HEREIN ARE NET VOLUMES OF CONCRETE TO BE FURNISHED.
- WALL THICKNESS, T IS ASSUMED HEREIN FOR ESTIMATING PURPOSES ONLY.
- FOUR CONCRETE FOR BLOCK AGAINST UNDISTURBED EARTH.
- DIMENSIONS MAY BE ADJUSTED AS REQUIRED BY FIELD CONDITIONS WHERE AND AS DIRECTED BY THE ENGINEER. THE VOLUME OF CONCRETE BLOCKING SHALL NOT BE LESS THAN THAT SHOWN HERE.
- USE POLYETHYLENE WRAP OR EQUAL BETWEEN CONCRETE AND BEND, TEE, OR PLUG TO PREVENT THE CONCRETE FROM STICKING TO PIPES, PLUGS, FITTINGS, AND BENDS.
- CONCRETE SHALL NOT EXTEND BEYOND JOINTS.



ID (IN)	SPACING (FT)	6\"/>									
		THRUST (TONS)	VOL. (CU. YD.)								

VERTICAL THRUST BLOCKING AT PIPE BENDS
N.T.S.



TYPICAL TRENCH WIDTH AND EARTH EMBEDMENT

NOTES:

- SIGN POSTS (TYP. 2) TO BE 4"x4"x12' WITH 4' BURIED.
- OBTAIN ENGINEERS APPROVAL FOR SIGN LOCATION.
- FURNISH NUMBER SIGN(S) AS SHOWN IN THE PROPOSAL.
- COST FOR PROJECT SIGNS WILL NOT BE PAID IF THE SIGN(S) IS (ARE) NOT ACCEPTABLE OR IS (ARE) NOT FURNISHED AT THE COMMENCEMENT OF CONSTRUCTION WORK.
- SIGN SHALL BE ON AN 8'X4'X3/4" TREATED PLYWOOD WITH A PLAIN WHITE BACKGROUND PAINT.
- THE CITY LOGO SHALL BE PAINTED GREEN, DARK BLUE, AND LIGHT BLUE COLORS REASONABLY SAME IN COLOR AND STYLE TO THE CITY LOGO.
- EXCEPT OTHERWISE LABELLED, ALL TEXT SHALL BE BLACK IN COLOR.
- FINISH SIGN WITH TWO COATS ENAMEL FINISH.

D.B. Wood, PE, RPLS
9-6-2016

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