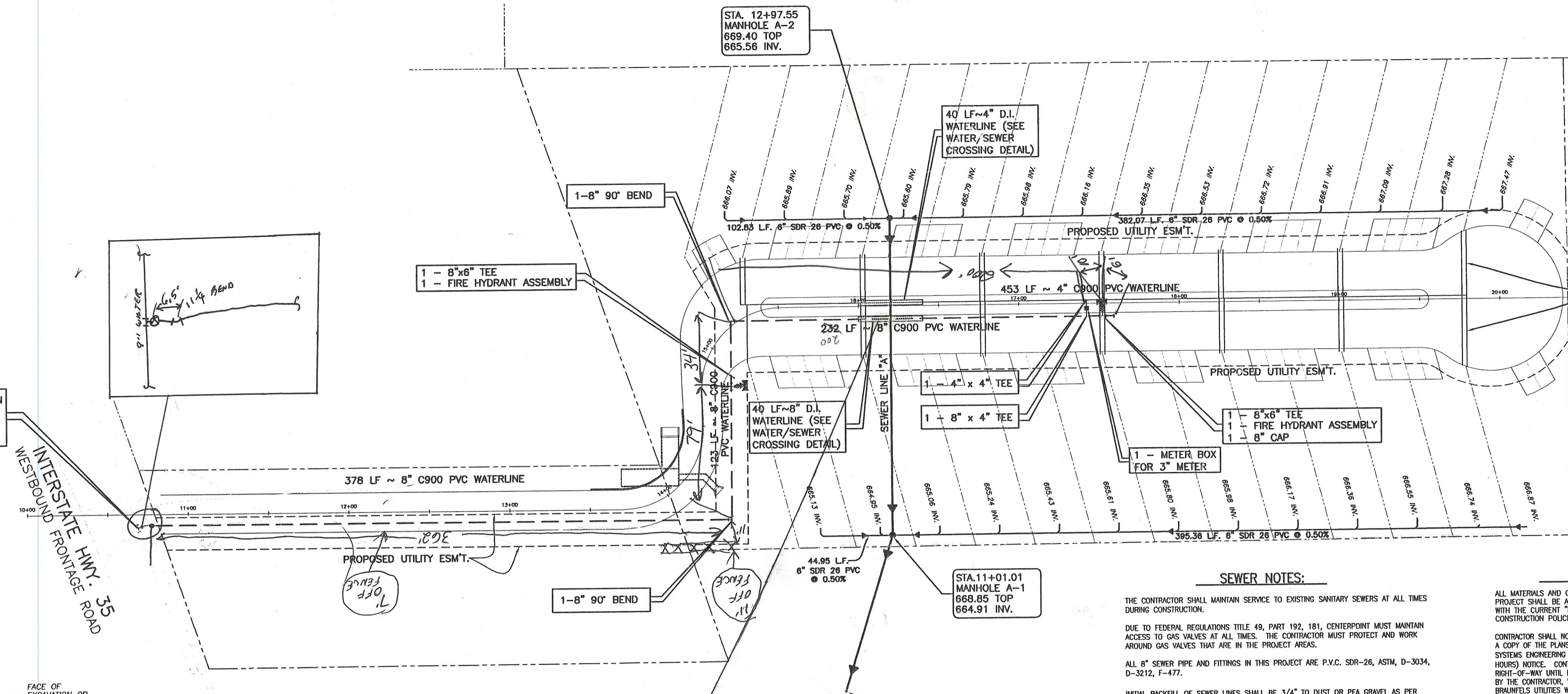
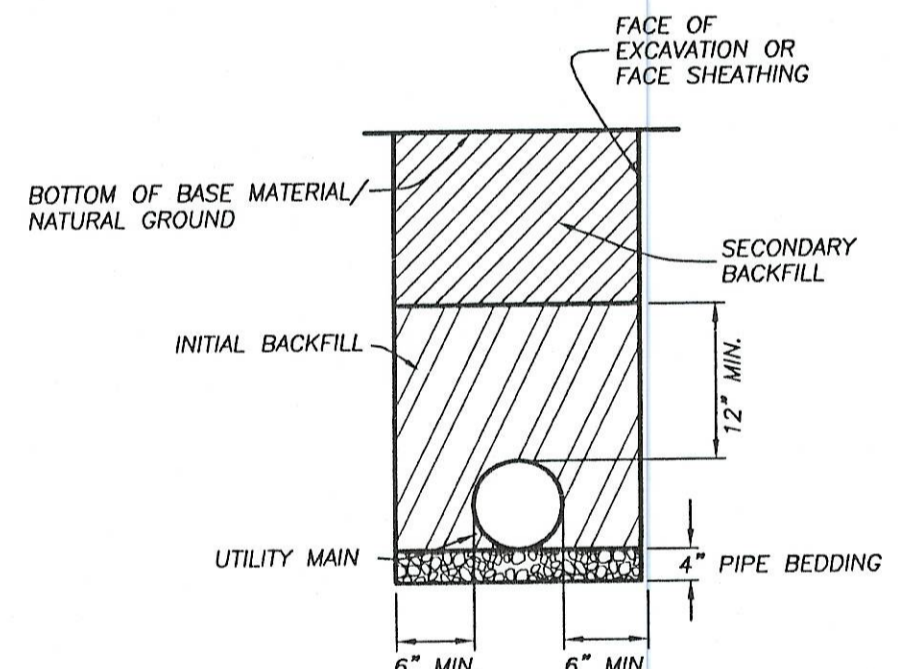


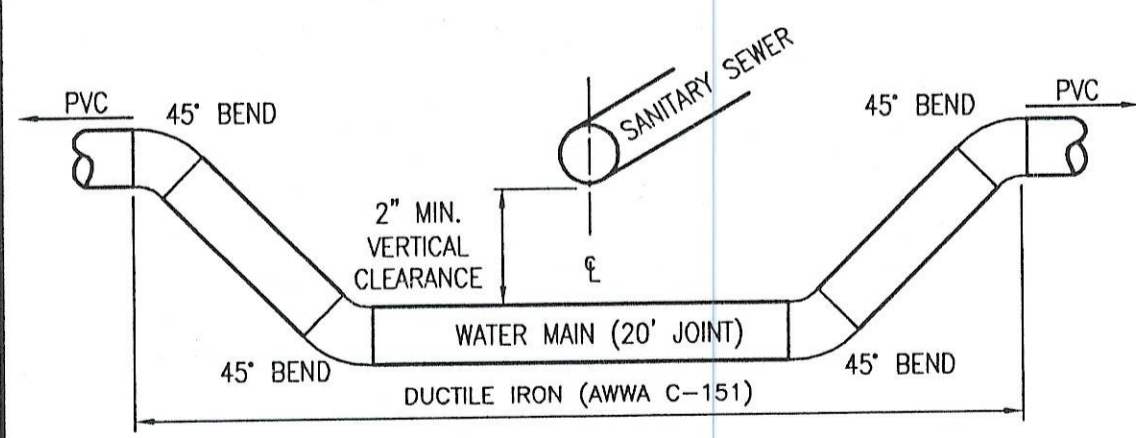
SCALE: 1" = 40'



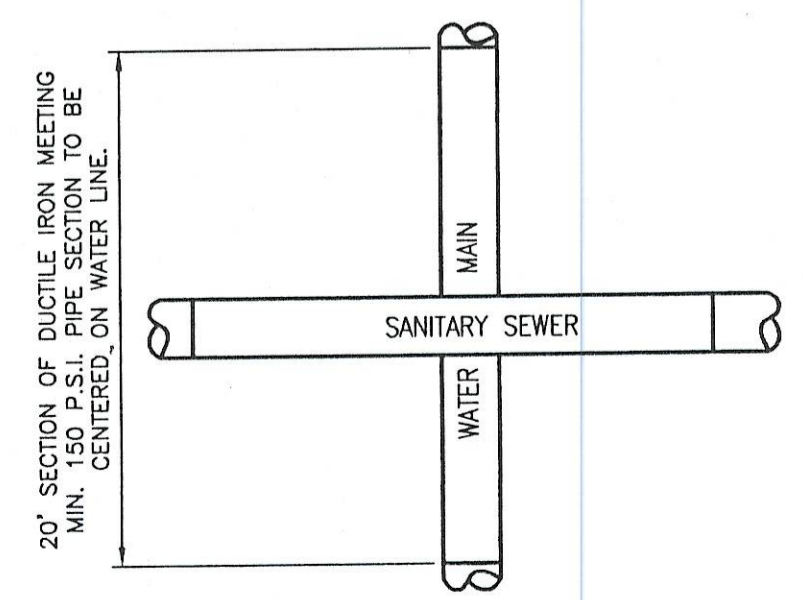
- 1 - TAP EXISTING 8" WATER MAIN w/ 8" x 8" TAPPING SLEEVE
- 1 - 8" GATE VALVE AND BOX
- 1 - 8" 28.5" BEND



**SANITARY SEWER MAIN TRENCH DETAIL**  
SCALE: =N.T.S.



**VERTICAL**



**PLAN**

**WATER/SEWER CROSSING DETAIL**  
SCALE: =N.T.S.

"SEWER" PRIVATE

- LEGEND**
- PROPERTY LINE
  - CHAINLINK FENCE
  - WIRE FENCE
  - PROP. SEWER WYE w/CLEANOUT INVERT ELEV.
  - PROP. SANITARY SEWER SERVICE LINE
  - PROP. SANITARY SEWER MAIN
  - EXIST. SANITARY SEWER w/ MANHOLE
  - PROP. FIRE HYDRANT
  - PROP. GATE VALVE
  - EXIST. WATER MAIN w/FIRE HYDRANT
  - EXIST. POWER POLE w/GUY WIRE
  - EXIST. UNDERGROUND TELEPHONE
  - EXIST. OVERHEAD ELECTRIC, TELEPHONE & CABLE

**WATER NOTES**

ALL PVC 4", 6" & 8" WATER MAINS SHALL BE C900 PIPE. ALL DUCTILE IRON PIPE SHALL MEET AWWA C-151 SPECIFICATIONS. ALL WATER MAINS SHALL HAVE A MINIMUM COVER OF 42" FROM FINISH GRADES.

WATER LINES AND SERVICES ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE NBU WATER LINE SPECIFICATIONS.

FOR UTILITY CONSTRUCTION, ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE APPROVED BY THE NEW BRAUNFELS UTILITIES AND COMPLY WITH THE CURRENT NEW BRAUNFELS UTILITIES POLICY. CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

THE STREET CONTRACTOR, AT NO SEPARATE PAYMENT, SHALL LOCATE A CITY OF NEW BRAUNFELS FIRE DEPARTMENT BLUE REFLECTOR IN THE MIDDLE OF THE STREET OPPOSITE ALL FIRE HYDRANTS.

WATER MAINS SHALL HAVE A MINIMUM OF 42 INCHES OF COVER.

INITIAL BACKFILL OF WATER LINES SHALL BE 3/4" TO DUST OR PEA GRAVEL AS PER N.B.U. SPECIFICATIONS.

SECONDARY BACKFILL OF WATER LINES SHALL GENERALLY CONSIST OF MATERIAL REMOVED FROM THE TRENCH AND SHALL BE FREE FROM BRUSH, DEBRIS AND TRASH, OR STONES HAVING ANY DIMENSION LARGER THAN 6 INCHES AT THE LARGEST DIMENSION SHALL BE USED AS THE SECONDARY BACKFILL.

FOR WATER MAINS CONSTRUCTED BENEATH PAVEMENT, SECONDARY TRENCH BACKFILL SHOULD BE PLACED IN THIN, LOOSE LIFTS NOT EXCEEDING 8 INCHES. MOISTURE CONDITIONED TO WITHIN 10 TO 3 PERCENT OF OPTIMUM MOISTURE CONTENT AND COMPACTED TO A AT LEAST 95 PERCENT OF MAXIMUM DRY DENSITY (ASTM D 698). IF CLEAN ROCK FILL USED IN INITIAL BACKFILL, IT SHOULD BE COMPACTED TO AT LEAST 70 PERCENT OF MAXIMUM RELATIVE DENSITY (ASTM D 4253 AND 4254). THE PLACEMENT AND COMPACTION OF BACKFILL SHOULD BE OBSERVED AND TESTED BY THE OWNER'S GEOTECHNICAL ENGINEER.

THE STREET CONTRACTOR, AT NO SEPARATE PAYMENT, SHALL LOCATE A CITY OF NEW BRAUNFELS FIRE DEPARTMENT-TYPE BLUE REFLECTOR IN THE MIDDLE OF THE DRIVE OPPOSITE ALL FIRE HYDRANTS.

ALL DOMESTIC PIPE FITTINGS SHALL BE APPROVED FOR INSTALLATION WITH THE PIPING MATERIAL. INSTALLED AND SHALL CONFORM TO THE PIPE STANDARD OF THE 2000 INTERNATIONAL PLUMBING CODE.

**TRAFFIC CONTROL NOTES:**

BARRICADES AND WARNING SIGNS SHALL CONFORM TO THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AND SHALL BE LOCATED TO PROVIDE MAXIMUM PROTECTION TO THE PUBLIC AS WELL AS CONSTRUCTION PERSONNEL AND EQUIPMENT WHILE PROVIDING CONTINUOUS TRAFFIC FLOW AT ALL TIMES DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL DEVICES DURING CONSTRUCTION.

THE CONTRACTOR IS FULLY RESPONSIBLE FOR THE TRAFFIC CONTROL AND WILL BE RESPONSIBLE FOR FURNISHING ALL TRAFFIC CONTROL DEVICES, AND FLAGGERS. THE CONSTRUCTION METHODS SHALL BE CONDUCTED TO PROVIDE THE LEAST POSSIBLE INTERFERENCE TO TRAFFIC SO AS TO PERMIT THE CONTINUOUS MOVEMENT OF TRAFFIC AT ALL TIMES. THE CONTRACTOR SHALL CLEAN UP AND REMOVE FROM THE WORK AREA ANY LOOSE MATERIAL RESULTING FROM CONTRACT OPERATIONS AT THE END OF EACH WORK DAY.

**UTILITY COMPANY NOTIFICATION:**

CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES 48 HOURS PRIOR TO EXCAVATION:

NEW BRAUNFELS UTILITIES (Sewer, Water, Electric)	(830)629-8400
TIMWARNER CABLE	(830)825-3408
CENTERPOINT	(830)643-6434
SOUTHWESTERN BELL TELEPHONE	(830)303-1333
TEXAS ONE CALL	(1800)545-6005

**SEWER NOTES:**

THE CONTRACTOR SHALL MAINTAIN SERVICE TO EXISTING SANITARY SEWERS AT ALL TIMES DURING CONSTRUCTION.

DUE TO FEDERAL REGULATIONS TITLE 49, PART 192, 181, CENTERPOINT MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND GAS VALVES THAT ARE IN THE PROJECT AREAS.

ALL 8" SEWER PIPE AND FITTINGS IN THIS PROJECT ARE P.V.C. SDR-26, ASTM, D-3034, D-3212, F-477.

INITIAL BACKFILL OF SEWER LINES SHALL BE 3/4" TO DUST OR PEA GRAVEL AS PER N.B.U. SPECIFICATIONS.

SECONDARY BACKFILL OF SEWER LINES SHALL GENERALLY CONSIST OF MATERIALS REMOVED FROM THE TRENCH AND SHALL BE FREE FROM BRUSH, DEBRIS AND TRASH, NO ROCKS OR STONES HAVING ANY DIMENSION LARGER THAN 6 INCHES AT THE LARGEST DIMENSION.

ALL SEWER PIPES SHALL HAVE COMPRESSION OR MECHANICAL JOINTS AS PER 31 TAC 313.5(c)(2)(i).

FOR SEWER LINES LESS THAN 24" IN DIAMETER, SELECT INITIAL BACKFILL MATERIAL SHALL BE PLACED IN TWO LIFTS.

- EACH SIDE AND UNDER THE SHOULDERS OF THE PIPE TO THE MIDPOINT OR SPRING LINE OF THE PIPE.
- THE SECOND LIFT SHALL BE PLACED TO A DEPTH AS SHOWN ON THE PIPE BACKFILL DETAIL FOR PIPES LARGER THAN 24", 12" MAXIMUM LIFTS SHALL BE USED.

ALL MANHOLES MUST BE WATER TIGHT, EITHER MONOLITHIC, CAST-IN-PLACE CONCRETE STRUCTURES OR PREFABRICATED MANHOLES SPECIFICALLY APPROVED BY NBU. THE MANHOLES SHALL HAVE WATER TIGHT RINGS AND COVERS. WHEREVER THEY ARE WITHIN THE 100-YEAR FLOODPLAIN, THE MANHOLE COVERS SHALL BE BOLTED. EVERY FOURTH MANHOLE IN SEQUENCE SHALL HAVE AN ALTERNATE MEANS OF VENTING. 31 TAC 313.5(c)(1) AND 31 TAC 317.2(c)(5)(f).

ALL MANHOLES SHALL BE CONSTRUCTED SO THAT THE TOP OF THE RING IS SURROUNDING GROUND EXCEPT WHEN LOCATED IN PAVED AREAS. IN PAVED AREAS, THE MANHOLE RING SHALL BE FLUSH WITH PAVEMENT.

ALL NEW MANHOLES ARE TO HAVE COVERS WITH 32" OPENINGS.

SEWER PIPE CONNECTIONS TO PRE-CAST MANHOLES WILL BE COMPRESSION JOINTS OR MECHANICAL "BOOT TYPE" JOINT AS APPROVED BY N.B.U.

SEWER LINES SHALL BE TESTED FROM MANHOLE TO MANHOLE.

IN AREAS WHERE A NEW SANITARY SEWER MANHOLE IS TO BE CONSTRUCTED OVER AN EXISTING SANITARY SEWER SYSTEM, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO TEST THE EXISTING MANHOLES BEFORE CONSTRUCTION. AFTER THE PROPOSED MANHOLE(S) HAS BEEN BUILT, THE CONTRACTOR SHALL RE-TEST THE EXISTING SYSTEM TO THE SATISFACTION OF THE CONSTRUCTION INSPECTOR. (NO SEPARATE PAY ITEM).

AFTER CONSTRUCTION, TESTING WILL BE DONE BY T.V. CAMERA BY THE CONTRACTOR AND OBSERVED BY INSPECTOR OF WATER SYSTEMS ENGINEERING PERSONNEL. AS THE CAMERA IS RUN THROUGH THE LINES, ANY ANOMALIES FOUND IN THE LINE, SUCH AS BROKEN PIPE OR MISALIGNED JOINTS, MUST BE REPLACED BY THE CONTRACTOR AT HIS EXPENSE. CONTRACTOR TO PROVIDE TV TAPES TO CONSTRUCTION INSPECTOR FOR REVIEW PRIOR TO FINAL INSPECTION OF THE PROJECT.

WATER JETTING THE BACKFILL WITHIN A STREET WILL NOT BE PERMITTED. SANITARY SEWER TRENCHES SUBJECT TO TRAFFIC SHALL CONFORM TO NBU CONNECTION/CONSTRUCTION POLICIES WATER-SEWER VOLUME ONE.

NO TESTING WILL BE PERFORMED PRIOR TO 30 DAYS FROM COMPLETE INSTALLATION OF THE SANITARY SEWER LINES. THE FOLLOWING SEQUENCE WILL BE STRICTLY ADHERED TO:

- PULL MANDREL
- PERFORM AIR TEST

WHERE REQUIRED, CONCRETE ENCASUREMENT SHALL BE PLACED AS SHOWN ON THE STANDARD DETAIL SHEET.

A MINIMUM OF 3 FEET OF COVER IS TO BE MAINTAINED OVER THE SANITARY SEWER MAIN AND LATERALS AT SUBGRADE, OTHERWISE CONCRETE ENCASUREMENT WILL BE REQUIRED.

SANITARY SEWER MAIN CONNECTIONS MADE DIRECTLY TO EXISTING MANHOLES WILL REQUIRE SUCCESSFUL TESTING OF THE MANHOLE IN ACCORDANCE WITH NBU CONNECTION/CONSTRUCTION POLICIES WATER-SEWER VOLUME ONE.

TCEQ AND EPA REQUIRE EROSION AND SEDIMENTATION CONTROL FOR CONSTRUCTION OF SEWER COLLECTION SYSTEMS. DEVELOPER OR AUTHORIZED REPRESENTATIVE SHALL PROVIDE EROSION AND SEDIMENTATION CONTROL AS SHOWN ON THIS SHEET. ALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS SHALL BE REMOVED BY THE CONTRACTOR AT FINAL ACCEPTANCE OF THE PROJECT BY NBU WATER SYSTEMS.

ALL MANHOLES NOT WITHIN PAVED STREETS SHALL HAVE LOCKING CONCRETE COLLAR TO SECURE RING AND COVER TO MANHOLE CONE PER NBU DETAIL DRAWING 3329.

AS REQUIRED BY THE INTERNATIONAL PLUMBING 2000, CLEANOUTS SHALL BE PROVIDED NOT MORE THAN 100 FEET APART ALONG SEWER SERVICE LINES.

**GENERAL NOTES:**

ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THE PROJECT SHALL BE APPROVED BY NEW BRAUNFELS UTILITIES AND COMPLY WITH THE CURRENT "NEW BRAUNFELS UTILITIES WATER SYSTEMS CONNECTION/CONSTRUCTION POLICIES WATER SYSTEMS".

CONTRACTOR SHALL NOT PROCEED WITH ANY PIPE INSTALLATION WORK UNTIL THEY OBTAIN A COPY OF THE PLANS FROM THE CONSULTANT OR ENGINEER AND NOTIFY NBU WATER SYSTEMS ENGINEERING AT 830-629-8417 WITH AT LEAST THREE (3) WORKING DAYS (72 HOURS) NOTICE. CONTRACTOR SHALL NOT PROCEED WITH ANY WORK WITHIN 1:00T RIGHT-OF-WAY UNTIL RECEIPT OF TEXAS PERMIT FROM THE ENGINEER. WORK COMPLETED BY THE CONTRACTOR, WHICH HAS NOT RECEIVED A NOTICE TO PROCEED WITH NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING WILL BE SUBJECT TO REMOVAL AND REPLACEMENT BY AND AT THE EXPENSE OF THE CONTRACTOR.

THE DEVELOPER DEDICATES THE WATER/WASTEWATER MAINS UPON COMPLETION BY THE DEVELOPER AND ACCEPTANCE BY THE NEW BRAUNFELS UTILITIES WATER SYSTEMS. NEW WILL OWN AND MAINTAIN SAID WATER/WASTEWATER MAINS WHICH ARE LOCATED WITHIN SAID PARTICULAR SUBDIVISION. (AS APPLICABLE)

CONTRACTOR AGREES TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNERS AND THE ENGINEER AND HIS EMPLOYEES, PARTNERS, OFFICERS, DIRECTORS, OR CONSULTANTS HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF THE WORK ON THIS PROJECT, EXCEPTING FROM LIABILITY ARISING FROM SOLE NEGLIGENCE OF THE OWNER OR ENGINEER, ENGINEER'S DIRECTORS, OFFICERS, EMPLOYEES, OR CONSULTANTS.

CONTRACTOR AND / OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL OR BETTER CONDITION, ANY DAMAGES DONE TO EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, LANDSCAPING AND STRUCTURES, AND EXISTING UTILITIES (NOT ADJUSTED ON PLANS). COST OF RESTORATIONS, IF ANY, SHALL BE THE CONTRACTOR'S ENTIRE EXPENSE.

THE CONTRACTOR SHALL AVOID CUTTING ROOTS LARGER THAN ONE INCH IN DIAMETER WHEN EXCAVATING IN EXISTING TREES. EXCAVATION IN VICINITY OF TREES SHALL PROCEED WITH CAUTION

CONTRACTOR SHALL PROCURE ALL PERMITS AND LICENSES, PAY ALL CHARGES, FEES AND TAXES AND GIVE ALL NOTICES NECESSARY AND INCIDENTAL TO THE DUE AND LAWFUL PROSECUTION OF THE WORK.

NO EXTRA PAYMENT SHALL BE ALLOWED FOR WORK CALLED FOR ON THE PLANS BUT NOT INCLUDED ON THE BID SCHEDULE. THIS INCIDENTAL WORK WILL BE REQUIRED AND SHALL BE INCLUDED UNDER THE PAY ITEM TO WHICH IT RELATES.

CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL WASTE MATERIALS UPON PROJECT COMPLETION. THE CONTRACTOR SHALL PERMANENTLY PLACE ANY WASTE MATERIALS IN THE 100-YEAR FLOOD PLAN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAN DEVELOPMENT PERMIT.

THE CONTRACTOR SHALL NOT PLACE ANY MATERIALS ON THE RECHARGE ZONE OF THE EDWARDS AQUIFER WITHOUT AN APPROVED WATER POLLUTION ABATEMENT PLAN FROM THE TCEQ AT 31 TAC 313.4 AND 31 TAC 313.9.

CONTRACTOR IS REQUIRED TO VERIFY PROJECT ELEVATIONS. THE TERM "MATCH EXISTING" SHALL BE UNDERSTOOD TO SIGNIFY BOTH HORIZONTAL AND VERTICAL ALIGNMENT.

THE LOCATION OF UTILITIES, EITHER UNDERGROUND OR OVERHEAD, SHOWN WITHIN THE RIGHT OF WAY ARE APPROXIMATE AND SHALL BE VERIFIED BY THE CONTRACTOR BEFORE BEGINNING CONSTRUCTION OPERATIONS.

OSHA REGULATIONS PROHIBIT OPERATIONS THAT WILL BRING PERSONS OR EQUIPMENT WITHIN 10 FEET OF AN ENERGIZED LINE. WHERE WORKMEN AND/OR EQUIPMENT HAVE TO WORK CLOSE TO AN ENERGIZED ELECTRICAL LINE, THE CONTRACTOR SHALL NOTIFY THE ELECTRICAL POWER COMPANY INVOLVED AND MAKE WHATEVER ADJUSTMENTS NECESSARY TO ENSURE THE SAFETY OF THOSE WORKMEN.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE UTILITY SERVICE LINES AS REQUIRED FOR CONSTRUCTION. UTILITY COMPANIES ARE ALSO PREVIOUSLY MENTIONED IN "UTILITY COMPANY NOTIFICATION".

DUE TO FEDERAL REGULATIONS TITLE 49, PART 192(G), GAS COMPANIES MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.

WHERE THE MINIMUM 9 FOOT SEPARATION DISTANCE BETWEEN SEWER LINES AND WATER LINES/MAINS CANNOT BE MAINTAINED, THE INSTALLATION OF SEWER LINES SHALL BE IN STRICT ACCORDANCE WITH TCEQ.

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

REVISIONS	DESCRIPTION

**OVERALL SEWER AND WATER LAYOUT**  
**WAYSIDE MOBILE HOME PARK**  
**NEW BRAUNFELS, TEXAS**

**THE Schultz Group, INC.**  
CONSULTING ENGINEERS & LAND SURVEYORS  
2461 LOOP 337 NEW BRAUNFELS, TEXAS 78130  
PHONE (830) 606-3913 FAX (830) 625-2204

DRAWN BY: RTS  
CHECKED BY: DDP  
DATE: JUNE 2004  
JOB NO.: 010304

C3