

**TESTING (CONT.)**

- 3.2 BACTERIAL TEST (BAC-T):
- 3.2.1 BACTERIAL SAMPLE IS REQUIRED FOR EACH 1,200 FEET OF WATER MAIN, OR CLOSER DEPENDING ON FIRE HYDRANT LOCATIONS, OR PORTION THEREOF. ALSO DEAD ENDS ARE SUBJECT TO TESTING, SUCH AS CUL-DE-SAC. THE FORM NEEDS TO BE LABELED "CONSTRUCTION" OR "SPECIAL." BOTH FORM AND SAMPLE ARE TESTED AT A LABORATORY APPROVED BY TCEQ. PAYMENT SHALL BE EXPECTED AT TIME OF SAMPLING. SAMPLINGS SHALL ONLY BE CONDUCTED ON TUESDAYS AND THURSDAYS WITH FORTY-EIGHT (48) HOUR NOTIFICATION TO THE CITY OF FRIENDSWOOD ENGINEERING DEPARTMENT AT (281) 993-3411.
- 4. SECTION 02500 - GRAVITY SANITARY SEWERS:
  - 4.1 LOW PRESSURE AIR TEST - THE PIPE SHALL UNDERGO A LOW PRESSURE AIR TEST WHICH SHALL CONFORM TO ASTM C828 AND ASTM C494. THE PRESSURE SHALL BE FIVE (5) PSI FOR A DURATION AS DETERMINED BY THE LENGTH AND NOMINAL I.D. OF THE PIPE BEING TESTED.
  - 4.2 MANDREL DEFLECTION TEST - FLEXIBLE AND SEMI-RIGID PIPE DIAMETER DEFLECTION TEST SHALL BE DONE NO SOONER THAN THIRTY (30) DAYS AFTER FINAL BACKFILL. RUN TEST WITH A MANDREL HAVING A DIAMETER EQUAL TO 95% OF THE INSIDE NOMINAL DIAMETER OF THE PIPE BEING TESTED. MANDREL SHALL BE NINE (9) INCH WITH STEEL PROVING RING 2 1/2 INCH RING WIDTH. TO PASS, MANDREL SHALL PASS FREELY THROUGH THE PIPE, PULLED BY ONE (1) WORKER. NO MECHANICAL MEANS SHALL BE ALLOWED TO PULL THE MANDREL.
- 5. SECTION 02720 - LIME-STABILIZED SUBGRADE:
  - 5.1 LIME
    - 5.1.1 PERCENT LIME DETERMINATION TEST SHALL BE TAKEN BY A CERTIFIED TESTING LABORATORY IN ACCORDANCE WITH ASTM C977-92, BUT SHALL NOT BE LESS THAN 6%.
    - 5.1.2 THE PERCENT LIME USED SHALL BRING THE SOIL TO A P.I. OF NOT MORE THAN 15.
    - 5.1.3 HYDRATED LIME SHALL BE SAMPLED AND TAKEN AT THE DISTRIBUTION AREA OF THE TANKER TRUCK AND TESTED.
  - 5.2. SUBGRADE
    - 5.2.1. ALL SUBGRADE SHALL MEET THE FOLLOWING REQUIREMENTS WHEN TEST DRY BY LABORATORY SIEVES:
      - MINIMUM PASSING 1 1/4 INCH SIEVE - 100%
      - MINIMUM PASSING 3/4 INCH SIEVE - 85%
      - MINIMUM PASSING #4 SIEVE - 60%
    - 5.2.2. ALL SUBGRADE SHALL PASS A DENSITY TEST OF NOT LESS THAN 95% STANDARD PROCTOR. METHOD OF TESTING AS PER ASTM D698. TEST TO BE TAKEN EVERY 200 FEET AS MEASURED ALONG CENTERLINE OF THE ROADWAY AT VARYING DISTANCES FROM CENTERLINE OF THE ROADWAY, OR AS DIRECTED BY THE CITY.
    - 5.2.3. THICKNESS TESTS SHALL BE TAKEN AT EVERY 200 FEET AS MEASURED ALONG THE CENTERLINE OF THE ROADWAY.
    - 5.2.4. IF A SINGLE STORM EVENT PRODUCES ONE (1) INCH OR MORE OF RAINFALL, CONTRACTOR SHALL RETEST THE SUBGRADE FOR DENSITY. THE INTERVAL FOR DENSITY RETESTS SHALL BE NOT LESS THAN 500 FEET AS MEASURED ALONG THE CENTERLINE OF THE ROADWAY.
- 6. SECTION 02805 - CONCRETE PAVING:
  - 6.1 THE CONCRETE PAVEMENT WILL BE TESTED FOR DEPTHS IN ACCORDANCE WITH ASTM C174 TEST. THICKNESS SHALL NOT BE DEFICIENT BY MORE THAN 1/4 INCH.
- 7. SECTION 03300 - STRUCTURAL CONCRETE:
  - 7.1 THE SLUMP, WHEN PLACING CONCRETE, SHALL NOT BE GREATER THAN FIVE (5) INCHES. THIS TEST SHALL BE TAKEN FOR EVERY 100 CUBIC YARDS OF CONCRETE, BUT MAY BE TAKEN MORE FREQUENTLY IF THE CONSISTENCY OF THE CONCRETE APPEARS TO VARY PER THE TESTING LABORATORY TECHNICIAN OR THE CITY PROJECT MANAGER.
  - 7.2 TEMPERATURE OF THE CONCRETE WILL BE TAKEN AS DIRECTED BY THE CITY PROJECT MANAGER AND SHALL BE LESS THAN 90° F.
  - 7.3 THERE SHALL BE CYLINDERS TAKEN BY THE TESTING LABORATORY TECHNICIAN, IN ACCORDANCE WITH ASTM C31 TEST, NUMBERING FOUR (4) CYLINDERS PER 150 CUBIC YARDS OF PAVING OR PART THEREOF FOR EACH DAYS PLACEMENT. TWO (2) CYLINDERS SHALL BE TESTED AT SEVEN (7) DAYS AND TWO (2) CYLINDERS SHALL BE TESTED AT TWENTY-EIGHT (28) DAYS TO ASSURE THE MINIMUM DESIGN STRENGTH IS ACHIEVED.

**PRIVATE UTILITY NOTES:**

AT&T TEXAS/SWBT FACILITIES:

- 1. THE LOCATION OF AT&T TEXAS/SWBT FACILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK. CONTRACTOR AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND UTILITIES.
- 2. THE CONTRACTOR SHALL CALL (800) 344-8377 A MINIMUM OF FORTY-EIGHT (48) HOURS PRIOR TO CONSTRUCTION TO HAVE UNDERGROUND LINES FIELD LOCATED.
- 3. WHEN EXCAVATING WITHIN EIGHTEEN (18) INCHES OF AT&T TEXAS/SWBT FACILITIES, ALL EXCAVATIONS MUST BE ACCOMPLISHED USING NON-MECHANIZED EXCAVATION PROCEDURES. WHEN BORING THE CONTRACTOR SHALL EXPOSE THE AT&T TEXAS/SWBT FACILITIES.
- 4. WHEN AT&T TEXAS/SWBT FACILITIES ARE EXPOSED, THE CONTRACTOR WILL PROVIDE SUPPORT TO THE CONDUIT DUCTS OR CABLES. WHEN EXCAVATING NEAR TELEPHONE POLES THE CONTRACTOR SHALL BRACE THE POLE FOR SUPPORT.
- 5. THE PRESENCE OR ABSENCE OF AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES SHOWN ON THESE PLANS DOES NOT MEAN THAT THERE ARE NO DIRECT BURIED CABLES OR OTHER CABLES IN CONDUIT.
- 6. PLEASE CONTACT AT&T TEXAS DAMAGE PREVENTION MANAGER MR. ROOSEVELT LEE JR. AT (713) 567-4452 OR EMAIL HIM AT RL7259@ATT.COM, IF THERE ARE ANY QUESTIONS ABOUT BORING OR EXCAVATING NEAR DUT AT&T TEXAS/SWBT FACILITIES.

CENTERPOINT ENERGY EASEMENT:

NO APPROVAL TO USE, CROSS, OR OCCUPY CENTERPOINT FEE OF EASEMENT PROPERTY IS GIVEN. IF YOU NEED TO USE CENTERPOINT PROPERTY, PLEASE CONTACT CENTERPOINT ENERGY SURVEYING & RIGHT OF WAY DIVISION AT (713) 207-6248 OR (713) 207-5769.

CENTERPOINT ENERGY ELECTRIC FACILITIES:

- 1. **CAUTION - OVERHEAD ELECTRICAL LINES.** OVERHEAD LINES MAY EXIST ON THE PROPERTY. THE LOCATION OF OVERHEAD LINES HAS NOT BEEN DRAWN ON THESE DRAWINGS AS THE LINES ARE CLEARLY VISIBLE, BUT YOU SHOULD LOCATE THEM PRIOR TO BEGINNING CONSTRUCTION. TEXAS LAW, SECTION 752, HEALTH AND SAFETY CODE FORBIDS ACTIVITIES THAT OCCUR IN CLOSE PROXIMITY TO HIGH VOLTAGE LINES, SPECIFICALLY:
  - 1.1 ANY ACTIVITY WHERE PERSON OR THINGS MAY COME WITHIN SIX (6) FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES; AND
  - 1.2 OPERATING A CRANE, DERRICK, POWER SHOVEL, DRILLING RIG, PILE DRIVER, HOISTING EQUIPMENT, OR SIMILAR APPARATUS WITHIN TEN (10) FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES.
- 2. PARTIED RESPONSIBLE FOR THE WORK, INCLUDING CONTRACTORS ARE LEGALLY RESPONSIBLE FOR THE SAFETY OF CONSTRUCTION WORKERS UNDER THIS LAW. THIS LAW CARRIES BOTH CRIMINAL AND CIVIL LIABILITY. TO ARRANGE FOR LINES TO BE TURNED OFF OR REMOVED CALL CENTERPOINT ENERGY AT (713) 207-2222.

**PRIVATE UTILITY NOTES(CONT.):**

CENTERPOINT ENERGY GAS FACILITIES:

- 1. **CAUTION - UNDERGROUND GAS FACILITIES.** LOCATIONS OF CENTERPOINT ENERGY MAIN LINES (TO INCLUDE CENTERPOINT ENERGY, INTRASTATE PIPELINE, LLC WHERE APPLICABLE) ARE SHOWN IN APPROXIMATE LOCATION ONLY. SERVICE LINES ARE USUALLY NOT SHOWN. OUR SIGNATURE ON THESE PLANS ONLY INDICATES THAT OUR FACILITIES ARE SHOWN IN APPROXIMATE LOCATION. IT DOES NOT IMPLY THAT A CONFLICT ANALYSIS HAS BEEN MADE. THE CONTRACTOR SHALL CONTACT THE UTILITY COORDINATING COMMITTEE AT (800) 223-545-6001 OR 811 A MINIMUM OF FORTY-EIGHT (48) HOURS PRIOR TO CONSTRUCTION TO HAVE MAIN AND SERVICE LINES FIELD LOCATED.
- 2. WHEN CENTERPOINT ENERGY PIPE LINE MARKINGS ARE NOT VISIBLE CALL (713) 945-8037 (7:00 AM TO 4:30 PM) FOR STATUS OF LINE LOCATION REQUEST BEFORE EXCAVATION BEGINS.
- 3. WHEN EXCAVATING WITHIN EIGHTEEN (18) INCHES OF THE INDICATED LOCATION OF CENTERPOINT ENERGY FACILITIES, ALL EXCAVATION MUST BE ACCOMPLISHED USING NON-MECHANIZED EXCAVATION PROCEDURES.
- 4. WHEN CENTERPOINT ENERGY FACILITIES ARE EXPOSED, SUFFICIENT SUPPORT MUST BE PROVIDED TO THE FACILITIES TO PREVENT EXCESSIVE STRESS ON THE PIPING.
- 5. FOR EMERGENCIES REGARDING GAS LINES CALL (713) 659-3552 OR (713) 207-4200.
- 6. THE CONTRACTOR IS FULLY RESPONSIBLE FOR DAMAGES CAUSED BY THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND FACILITIES.

COMCAST FACILITIES:

- 1. CONTACT MR. BILL LEDPARD AT (281) 802-1679 OR MR. MOHAMMAD WOHEIDY AT (713) 895-1213 BEFORE PROCEEDING WITH CONSTRUCTION WORK IN THE VICINITY OF COMCAST/TIME WARNER CABLE FACILITIES.
- 2. WHEN EXCAVATING WITHIN EIGHTEEN (18) INCHES OF THE INDICATED LOCATION OF UNDERGROUND FACILITY, ALL EXCAVATION MUST BE ACCOMPLISHED USING NON-MECHANIZED EXCAVATION PROCEDURES.

TEXAS-NEW MEXICO POWER COMPANY ELECTRIC FACILITIES:

- 1. **CAUTION - OVERHEAD ELECTRICAL LINES.** TEXAS LAW, ARTICLE 1436C, PROHIBITS ALL ACTIVITIES IN WHICH PERSONS OR EQUIPMENT MAY COME WITHIN SIX (6) FEET OF ENERGIZED OVERHEAD POWER LINES, AND FEDERAL REGULATIONS, TITLE 29, PART 1910.180(C) AND PART 1926.550(A)(15) REQUIRE A MINIMUM CLEARANCE OF TEN (10) FEET FROM THESE FACILITIES. ABOVE LAWS CARRY BOTH CRIMINAL AND CIVIL LIABILITIES. IF THE CONTRACTOR PERFORMS ANY WORK NEAR OVERHEAD POWER LINES THEY MUST CALL (281) 996-0453 FOR THE LINES TO BE DE-ENERGIZED AND/OR MOVED AT THEIR EXPENSE PRIOR TO PERFORMING WORK.
- 2. **NOTE:** LOCATION OF TEXAS-NEW MEXICO POWER COMPANY FACILITIES ARE APPROXIMATE AND HAVE NOT BEEN VERIFIED BY ACTUAL FIELD CHECK.
- 3. OVERHEAD LINES MAY EXIST ON THE PROPERTY. WE HAVE NOT ATTEMPTED TO MARK THOSE LINES HAS SINCE THEY ARE CLEARLY VISIBLE, BUT YOU SHOULD LOCATE THEM PRIOR TO BEGINNING CONSTRUCTION.
- 4. TEXAS LAW, SECTION 752, HEALTH AND SAFETY CODE FORBIDS ACTIVITIES WHICH PERSONS OR THINGS MAY COME WITHIN SIX (6) FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES.
- 5. CONTRACTORS ARE LEGALLY RESPONSIBLE FOR THE SAFETY OF CONSTRUCTION WORKERS UNDER THIS LAW. LAW CARRIES BOTH CRIMINAL AND CIVIL LIABILITY. TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED CALL TEXAS-NEW MEXICO POWER COMPANY AT (281) 996-0453.
- 6. CONTRACTOR TO NOTIFY THE "UNDERGROUND COORDINATING COMMITTEE" TELEPHONE (713) 223-4567 FORTY-EIGHT (48) HOURS BEFORE STARTING WORK IN STREET RIGHTS-OF-WAY OR EASEMENTS..

**GENERAL CONSTRUCTION NOTES (CONTINUED)**



**ENGINEERING DEPARTMENT**

FILE NAME: 3-GCN2-2022.DWG	DATE APPROVED: MARCH 30, 2022
SCALE: NTS	REVISED DATE: MARCH 2022

PROJECT NUMBER:	DATE SUBMITTED:	SHEET:
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