

PROJECT TYPICAL DETAILS

Stantec
 Stantec Consulting Services Inc.
 521 E. Morehead St
 Suite 425
 Charlotte, NC 28202
 Tel. (704) 329-0900
 Fax. (704) 329-0905
 www.stantec.com
 License No. F-0672

PROJECT REFERENCE NO. **W-5710X**
 SHEET NO. **UC-3H**

DESIGNED BY: **TK**
 DRAWN BY: **TK**
 CHECKED BY: **XMD**
 APPROVED BY:
 REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151

UTILITY CONSTRUCTION PLANS ONLY

SEAL
 034415
 03/10/2025

1 Glenwood Avenue
 Raleigh, NC 27603
 Tel: 919.789.9977
 Fax: 919.789.9591
 License: F-0453

UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



NO. DESCRIPTION:

- NON-CORROSIVE FASTENER FOR TRACER WIRE (TYP.) 1/2" MAX. FROM TOP OF CONE.
- #12 GAUGE SOLID COPPER TRACER WIRES WITH 30 MILS GREEN HOPE INSULATION (TYP.).
- GRAVITY SEWER MAIN.
- SEWER SADDLE TAP.
- VALVE BOX ASSEMBLY (SEE CLTV STD. DETAIL).
- NO SPLICE.
- SEWER MANHOLE.
- 6" WIDE BUTYL RUBBER JOINT SEALANT.
- 1/4" OR 3/8" SDR9 PEX TUBING CONDUIT.
- ANODE.
- NOTCH CUT INTO CONCRETE.
- 1" PVC CONDUIT.
- MULTIPLE TRACER WIRES.
- 6" WIDE BUTYL RUBBER JOINT WRAP.

NOTES FOR GRAVITY SEWER MAIN (SECTION VIEW):

- ALL VERTICAL WIRES AT MANHOLES SHALL BE PLACED IN 1 INCH ID PVC ELECTRICAL CONDUIT. EXTEND CONDUIT UP AND TURN INTO NOTCH. TURN IN CONDUIT 1/2" BELOW GRADE FOR ALL MANHOLES. NEED 12" SO THE CONDUIT IS NOT IN ASPHALT IN ROADWAYS.
- 1/2" MAX. DEEP NOTCH IN CONCRETE (SIDE OF MANHOLE). ADD NOTCH IN TOP OF CONE FOR WIRE BETWEEN FRAME AND CONE. COVER NOTCH AND CONDUIT WITH 6" WIDE BUTYL RUBBER JOINT WRAP.
- COIL AND SECURE WIRE TO FASTENERS. LEAVE ENOUGH FREE WIRE TO EXTEND A MIN. OF 24".
- WRAP EACH TRACER WIRE WITH 30 MILS GREEN HOPE INSULATION.
- FOR GRAVITY MAIN AND OR LATERAL INSTALLATIONS LESS THAN 10'. THE TRACING WIRE SHALL BE ATTACHED TO THE PIPE. TRACER WIRE SHALL BE LAID FLAT AND SECURELY AFFIXED TO THE PIPE AT 10' INTERVALS USING ZIP TIES OR DUCT TAPE FOR GRAVITY MAIN AND OR LATERAL INSTALLATION DEEPER THAN 10'. THE TRACING WIRE SHALL BE ATTACHED TO THE PIPE AND PLACED AT A DEPTH OF 4" DIRECTLY ABOVE THE SOWER PIPE. THE WIRE SHALL BE PROTECTED FROM DAMAGE DURING THE EXECUTION OF THE WORK. NO BREAKS OR CUTS IN THE TRACER WIRE OR INSULATION SHALL BE PERMITTED.
- WHERE LATERAL TAPS ARE MADE BY SERVICE SADDLES, THE TRACER WIRE SHALL NOT BE PLACED BETWEEN THE SADDLE AND MAIN.
- SPLICES IN THE PRIMARY TRACER WIRE ALONG THE SEWER MAIN SHALL INCLUDE 2' OF SLACK WIRE ON EACH SIDE OF EACH SPLICE.
- FOR INSTALLING A NEW LATERAL ON AN EXISTING MAIN WITH TRACER WIRE, ONLY SPLICE TO EXISTING WIRE WITH 2' OF SLACK ON NEW LATERAL.

NOTES FOR SERVICE CONNECTION (SECTION VIEW):

- SPLICE TO PRIMARY MAIN TRACER WIRE FOR SERVICE LATERAL. THE TRACER WIRE SHALL BE CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. WHERE SPLICES ARE NECESSITATED IN THE WIRE, THE SPLICES SHALL BE SECURELY BONDED TOGETHER WITH AN APPROVED INDUSTRIAL CONNECTOR TO PROVIDE ELECTRICAL CONTINUITY. CONNECTOR SHALL BE COPPER AND INSULATION SHALL BE REPAIRED TO SEAL OUT MOISTURE AND CORROSION AND SHALL BE INSTALLED IN A MANNER SO AS TO PREVENT ANY UNINSULATED WIRE EXPOSURE. (SEE CLTV STD. DETAIL).
- FASTEN TRACER WIRE TO PIPE WITH ZIP TIES OR DUCT TAPE AROUND THE CIRCUMFERENCE OF PIPE AT 10' INTERVALS (TYP.).
- ALL VERTICAL WIRE AT CLEANOUTS SHALL BE PLACED IN 1/4" OR 3/8" ID CONDUIT SDR 9 PEX TUBING - ASTM F876 (TYP.).
- EXTEND CONDUIT TO JUST ABOVE CLEANOUT PLUG. PROVIDE 24" NEUTLY COOLED WIRE IN BOX.
- THE CLEANOUT AT THE RIGHT OF WAY AND OR EASEMENT SHALL SERVE AS THE TEST POINT.
- SERVICE CONNECTIONS SHALL BE ALLOWED BETWEEN THE PRIMARY MAIN LINE TRACER WIRE AND THE LATERAL TRACER WIRE FOR NEW SEWER TAPS ON EXISTING MAINS VOID OF ANY TRACER WIRE. PROVIDE AN ANODE FOR THE TRACING WIRE TERMINATION AT THE POINT OF THE NEW TAP ON THE EXISTING SEWER MAIN. PLACE ANODE AT BOTTOM EDGE OF TRENCH AWAY FROM MAIN & LATERAL.
- PRIOR TO ACCEPTANCE, POST PUNCH LIST EACH WIRE SEGMENT SHALL PASS A CONDUCTIVITY TEST, ATTENDED BY THE ENGINEER OR ENGINEER'S REPRESENTATIVE.

NOTES FOR GRAVITY SEWER MAIN (PLAN VIEW):

- NOTCH ON TOP OF CONE (BETWEEN CONE AND FRAME) FOR TRACER WIRE.
- MULTIPLE COILED AND SECURED WIRES.
- FASTEN TRACER WIRE TO PIPE WITH ZIP TIES OR DUCT TAPE AROUND THE CIRCUMFERENCE OF PIPE OR AT 10' INTERVALS (TYP.).
- WRAP TRACER WIRE AROUND OUTSIDE OF MANHOLE.

NO SCALE
 VERSION 1.0
 DATE 04/2024
 DETAIL 11.5.2

NO. DESCRIPTION:

- 3 LAYERS OF HALF LAPPED VINYL TAPE.
- 3 LAYERS OF HALF LAPPED RUBBER TAPE.
- COPPER CRIMP CONNECTOR OR COPPER ALLOY SPLIT BOLT CONNECTOR.
- SOLID COPPER WITH 30 MILS GREEN HOPE INSULATION (AWG #12 TRACER WIRE).
- COPPER ALLOY SPLIT BOLT.
- COPPER ALLOY PRESSURE BAR.
- COPPER ALLOY HEX NUT.
- SOLID COPPER TRACER WIRES.

NOTES:

- REMOVE MAINLINE (PRIMARY) TRACER WIRE INSULATION MATERIAL TO EXPOSE COPPER CORE WIRE.
- IN LINE SPLICES SHALL BE LIMITED TO THE GREATEST EXTENT POSSIBLE. TRACER WIRE SHALL BE AS CONTINUOUS AS POSSIBLE WITHOUT SPLICES.
- SPLICES SHALL INCLUDE 2' OF SLACK WIRE ON EACH SIDE OF EACH SPLICE (SEE DETAIL ON THIS SHEET).
- 4 WAY WIRE SPLICES ARE ACCEPTABLE. WHERE NEEDED FOR 2 LATERALS CLOSELY SPACED, TO REDUCE THE NUMBER OF SPLICES.
- THE CRIMPING TOOL USED TO COMPLETE THE CRIMP SHALL BE DESIGNED SPECIFICALLY FOR USE WITH THE CONNECTOR USED. GENERIC CRIMPING TOOLS ARE NOT ACCEPTABLE.

NO SCALE
 VERSION 1.0
 DATE 04/2024
 DETAIL 11.5.3

NO. DESCRIPTION:

- UPSTREAM MANHOLE. SEE TYPICAL SUCTION MANHOLE CROSS SECTION (THIS SHEET).
- BACK-UP PUMPS.
- LIGHT TOWER FOR PUMP WATCH OVERNIGHT.
- PRIMARY PUMPS.
- CHECK VALVE.
- MANIFOLD.
- DOWNSTREAM MANHOLE. SEE TYPICAL DISCHARGE MANHOLE CROSS SECTION (THIS SHEET).
- PIPE PLUG. ONE PLUG SHALL BE INSTALLED IN THE OUTGOING PIPE OF THE MANHOLE WHERE THE PLUGGING OCCURS AND THEN A SECOND PLUG INSTALLED IN THE NEXT DOWNSTREAM MANHOLE IN THE INCOMING PIPE.
- UPSTREAM PIPE WITH LIVE FLOW.
- FLUID LEVEL.
- PUMP.
- GAUGE.
- SUCTION PIPE.
- AIR GAUGE.
- STATIC SUCTION LIFT.
- SUBMERGENCE.
- DOWNSTREAM PIPE / PROJECT WORK AREA.
- DISCHARGE PIPE.

NO SCALE
 VERSION 1.0
 DATE 04/2024
 DETAIL 11.1

LEGEND / NOTE:

- IS = LAWN IRRIGATION SERVICE
- DS = DOMESTIC POTABLE WATER SERVICE
- FL = FIRE LINE SERVICE WITH DETECTOR METER
- FMCT = FACTORY MUTUAL COMPOUND TYPE / FIRE MAIN COMPOUND TYPE OR ULTRASONIC METER TYPE
- IS (with tap) = FOR 3/4" SERVICE. TAPPING SADDLE AND BALL CORPORATION STOP-OC (TAPER) THREAD.
- FL (with tap) = FOR 3/4" SERVICE. TAPPING SLEEVE AND TAPPING GATE VALVE (FL/MJ) FOR EXISTING WATER MAINS OR MJ TEE. FOSTER ADAPTOR, SERVICE GATE VALVE, (RESTRAINED) OR MJ TEE.
- IS (with tap) = GATE VALVE OR BALL VALVE - SEE METER DETAILS.
- IS (with tap) = PROPERTY LINE VALVE - FOR 3/4"-1" NOT REQUIRED, FOR 1 1/2"-2" BALL VALVE CURB STOP, OR FOR 3"-12" - OPEN LEFT MJ GATE VALVE (RESTRAINED).
- ALL PIPE SHALL BE RESTRAINED FROM MAIN TO PROPERTY LINE VALVE - 3/4"-2" SHALL BE TYPE K COPPER OR SDR 11 HOPE (NO JOINTS PERMITTED BETWEEN WATER MAIN AND METER). 3"-12" SHALL BE RESTRAINED JOINT DUCTILE IRON. SEE INDIVIDUAL METER DETAILS FOR SPECIFIC COMPONENT REQUIREMENTS.

NO SCALE
 VERSION 1.0
 DATE 04/2024
 DETAIL 11.1.4