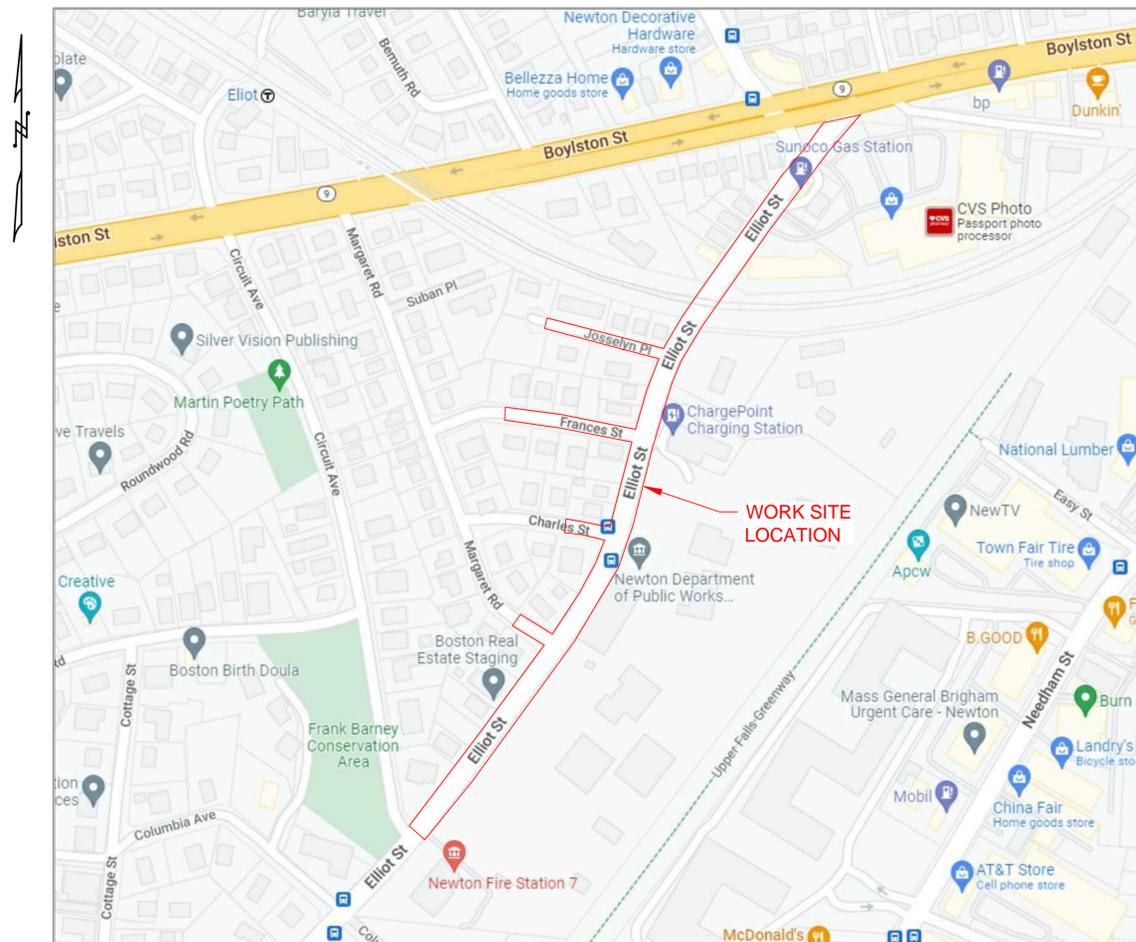


# CIRE101214 PROGRAM - MAIN & SERVICE REPLACEMENT

## 10/8/6/4" CI-LP, 6" PL-LP, 4" BS-LP & 4/3" CS-LP TO 8/4/2" PL-22#

### 3-144 ELLIOT ST, NEWTON, MA.

#### W.O. NO.: 1444162



LOCUS  
SCALE: NTS

INDEX OF PAGES		
PAGE	DRAWING NO.	TITLE
1	CIR-NEW-1444162 G-001	COVER PAGE
2	CIR-NEW-1444162 G-002	CONSTRUCTION NOTES AND BOM
3	CIR-NEW-1444162 C-001	PROPOSED INSTALLATION PLAN OVERVIEW
4	CIR-NEW-1444162 C-002	PROPOSED INSTALLATION PLAN
5	CIR-NEW-1444162 C-003	PROPOSED INSTALLATION PLAN
6	CIR-NEW-1444162 C-004	PROPOSED INSTALLATION PLAN
7	CIR-NEW-1444162 C-005	PROPOSED INSTALLATION PLAN
8	CIR-NEW-1444162 C-006	PROPOSED INSTALLATION PLAN
9	CIR-NEW-1444162 C-101	PROPOSED TIE-IN DETAILS
10	CIR-NEW-1444162 C-102	PROPOSED MBTA CROSSING DETAILS
11	CIR-NEW-1444162 C-201	STANDARD DETAILS
12	CIR-NEW-1444162 C-202	STANDARD DETAILS
13	CIR-NEW-1444162 C-203	STANDARD DETAILS

PROJECT SUMMARY TABLE					
PROPOSED INSTALLATION			PROPOSED ABANDONMENT		
LENGTH (FT)	SIZE (IN)	TYPE	LENGTH (FT)	SIZE (IN)	TYPE
1,850	8	PL-22#	1,840	10	CI-LP (1924)
630	4	PL-22#	10	8	CI-LP (1926)
335	2	PL-22#	270	6	CI-LP (1924/26)
			65	6	PL-LP (2010)
			135	4	CI-LP (1923)
			300	4	CS-LP (1961)
			110	4	BS-LP (1953)
			35	3	CS-LP (1961)
2,815		TOTAL INSTALLATION (FT)	2,765		TOTAL ABANDONMENT (FT)



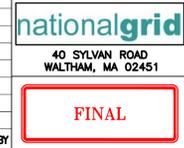
**NOTE TO CONTRACTOR:**  
BEFORE PERFORMING ANY WORK, THE CONTRACTOR SHALL CONTACT THE "DIG NUMBER" (PHONE 800-272-1000). FOR A MARK-OUT OF ALL UNDERGROUND UTILITIES, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE "DIG NUMBER" AND TO ASCERTAIN THE LOCATION OF ALL UNDERGROUND CONSTRUCTION IN THE AREA OF THE PROJECT.

THE CONTRACTOR SHALL CONDUCT TEST PITS TO VERIFY THE LOCATIONS OF UNDERGROUND UTILITIES WHERE POTENTIAL CONFLICTS MAY OCCUR OR WHERE DISCREPANCIES ARE PRESENT BETWEEN THE PLAN AND UNDERGROUND UTILITY MARK-OUTS.

THESE TEST PITS SHALL BE IN ADDITION TO THE SPECIFIED TEST PIT LOCATIONS AS DENOTED ON THE PLANS AND SHALL NOT BE LIMITED TO EXCAVATION SOLELY BUT INCLUDE ANY ADDITIONAL MEANS TO DETERMINING THE LOCATION OF UTILITIES IN QUESTION.



NO.	DESCRIPTION	DATE	DR.	BY	APP.
1	REVISED STEP 7, ADDED CATHODIC PROTECTION TO NOTES & DETAILS, REVISED BOM	07/01/2022	PL	REB	CC
0	ISSUED FOR CONSTRUCTION	06/24/2022	JRS	REB	CC



CIRE101214 PROGRAM, MAIN & SERVICE REPLACEMENT  
10/8/6/4" CI-LP, 6" PL-LP, 4" BS-LP & 4/3" CS-LP TO 8/4/2" PL-22#  
3-144 ELLIOT ST  
NEWTON, MASSACHUSETTS  
**COVER PAGE**

DWG SIZE	DESIGNER	ENGINEER	DATE	ASSET I.D.	W.O. NO.:
24"x36"	J.R. SMITH	C. CHEN	06/24/2022	XXXXXXXXXX	1444162

PAGE 1 OF 13

DRAWING NO.  
CIR-NEW-1444162 G-001

CONSTRUCTION NOTES	
<b>SCOPE OF WORK</b>	NATIONAL GRID WORK ORDER NUMBER 1444162: 3-144 ELLIOT ST, NEW AS PART OF THE CIRE101214 PROGRAM, LPP INTEGRITY MANAGEMENT RECOMMENDS THE RELAY OF: -> APRX 1840 FEET OF 10 NCH, LP CAST IRON (1924) AND APRX 10 FEET OF 8 NCH, LP CAST IRON (1926) WITH APRX 1850 FEET OF 8 NCH, 22 PSIG PLASTIC IN ELLIOT ST FROM THE EXST 24 NCH, 22 PSIG CAST IRON IN BOYLSTON ST TO THE NEW 6 NCH, 22 PSIG PLASTIC IN THE INTERSECTION OF CIRCUIT AV AND ELLIOT ST. -> APRX 35 FEET OF 3 NCH, LP COATED STEEL (1961) AND APRX 300 FEET OF 4 NCH, LP COATED STEEL (1961) BRANCHED SERVICE WITH APRX 335 FEET OF 2 NCH, 22 PSIG PLASTIC TO 497B BOYLSTON ST. -> APRX 110 FEET OF 4 NCH, LP BARE STEEL (1953) AND APRX 135 FEET OF 4 NCH, LP CAST IRON (1923) WITH APRX 245 FEET OF 4 NCH, 22 PSIG PLASTIC IN JOSSELYN PL FROM THE NEW 8 NCH, 22 PSIG PLASTIC IN ELLIOT ST TO THE END OF MAIN AT #16 JOSSELYN PL. -> APRX 220 FEET OF 6 NCH, LP CAST IRON (1924) AND APRX 65 FEET OF 6 NCH, LP PLASTIC (2010) WITH APRX 285 FEET OF 4 NCH, 22 PSIG PLASTIC IN FRANCES ST FROM THE NEW 8 NCH, 22 PSIG PLASTIC IN ELLIOT ST TO THE END OF MAIN AT #22 FRANCES ST. -> APRX 50 FEET OF 8 NCH, LP CAST IRON (1926) WITH APRX 50 FEET OF 4 NCH, 22 PSIG PLASTIC STUB IN CHARLES ST FROM THE NEW 6 NCH, 22 PSIG PLASTIC CAST IRON IN ELLIOT ST (CUT AND CAP THE EXST 6 NCH, LP CAST IRON IN CHARLES ST), AND -> INSTALL APRX 50 FEET OF 4 NCH, 22 PSIG PLASTIC STUB IN THE INTERSECTION OF ELLIOT ST AND MARGARET RD FROM THE NEW 8 NCH, 22 PSIG PLASTIC IN ELLIOT ST 2 MAIN CONNECTIONS. APPROXIMATELY 49 SERVICES ARE INCLUDED BASED ON AVAILABLE RECORDS AND MAPPING. TO BE FIELD CONFIRMED.
<b>GENERAL</b>	1 NO FIELD CHANGES SHALL BE MADE TO THIS DESIGN WITHOUT APPROVAL FROM THE ASSIGNED NATIONAL GRID ENGINEER: ENGINEER: NICHOLAS WOESSNER PHONE: (781) 409-1015 EMAIL: NICHOLAS.WOESSNER@NATIONALGRID.COM 2 NEW MAINS SHOULD BE INSTALLED IN ACCORDANCE WITH THE TYPICAL TRENCH DETAIL INCLUDED IN THESE DRAWINGS, UNLESS NOTED OTHERWISE. A 36 INCHES OF COVER FROM FINAL GRADE WHERE PRACTICAL. B STATE HIGHWAY MINIMUM COVER: 36 INCHES C DISTRIBUTION MAIN MINIMUM COVER: 24 INCHES D SAND PADDING IN ALL DIRECTIONS, 6 INCHES MINIMUM. E CAUTION TAPE SHALL BE INCLUDED ONE FOOT BELOW GRADE. 3 SERVICES SHOULD BE INSTALLED WITH 24 INCHES OF COVER. A MINIMUM IN PUBLIC ROW: 18 INCHES B MINIMUM IN PRIVATE PROPERTY: 12 INCHES C SAND PADDING IN ALL DIRECTIONS, 6 INCHES MINIMUM. D CAUTION TAPE SHALL BE INCLUDED ONE FOOT BELOW GRADE. 4 REFER TO CNST-6030 FOR SHALLOW MAINS. PRIOR TO INSTALLING GAS MAINS WITH LESS THAN 24 INCHES OF COVER, COMPLETE REQUEST FOR WAMER FORM AND CONTACT GAS PIPELINE SAFETY & COMPLIANCE FOR APPROVAL. A JENNIFER GILLIS - (617) 594-5157 (MA EXCLUDING CAPE AND WEBSTER) B LIEN GAUTHER - (617) 438-9069 (MA EXCLUDING CAPE AND WEBSTER) C IF A PROPOSED TOP TEE CONNECTION RESULTS IN A SHALLOW MAIN THAT CANNOT MEET THE WAMER CRITERIA, A FULL TEE CONNECTION IS AN ACCEPTABLE ALTERNATIVE. A SPHERICAL TEE IS ONLY ACCEPTABLE WITH APPROVAL FROM NATIONAL GRID STRATEGIC ASSET AND SYSTEM PLANNING. 5 ALL MAINS SHOULD BE INSTALLED WITH CLEARANCE OF 12 INCHES FROM OTHER FACILITIES. A DISTRIBUTION MINIMUM CLEARANCE: 6 INCHES B APPROPRIATE PROTECTIVE MEASURES SHALL BE USED TO PROTECT THE GAS FACILITY IF MINIMUMS CANNOT BE ATTAINED. APPROVAL IS REQUIRED BY GAS SYSTEMS ENGINEERING. 6 THE PIPE ALIGNMENT IS SHOWN FOR REFERENCE ONLY AS APPROXIMATELY 3 FEET FROM THE EXISTING MAIN (BASED ON AVAILABLE RECORD INFORMATION). THE ACTUAL ROUTE AND ALL VERTICAL AND HORIZONTAL OFFSETS ARE TO BE FIELD ROUTED WITHIN THE PUBLIC RIGHT-OF-WAY BASED ON THE ACTUAL LOCATION OF EXISTING UTILITIES. ADDITIONAL FITTINGS NOT SHOWN WILL BE REQUIRED. A ELBOWS SHOWN ARE ASSUMED TO BE 45 DEGREES IN MOST APPLICATIONS. 90 DEGREE ELBOWS MAY BE NEEDED BASED ON FIELD CONDITIONS. 7 VALVES DEPICTED IN THE DESIGN ARE THE MINIMUM REQUIRED FOR SECTIONALIZING, ISOLATION, CRITICAL VALVES, AND/OR TO ACCOMMODATE TIE-INS. ADDITIONAL FULL PORT VALVES MAY BE ADDED TO ACCOMMODATE CONSTRUCTION. A VALVES FOR BRANCHES AT INTERSECTIONS SHOULD BE FIELD LOCATED JUST OUTSIDE OF THE INTERSECTION WHERE EASILY ACCESSIBLE. PRIOR TO THE FIRST SERVICE. 8 ELECTROFUSION COUPLINGS MAY BE INTERCHANGED WITH BUTT FUSION WHERE APPLICABLE. 9 TIE-IN LOCATIONS MAY VARY UP TO 100 FEET OF THE PROPOSED LOCATION TO ACCOMMODATE CONSTRUCTION, EXCEPT FOR WHEN THE FOLLOWING CONDITIONS APPLY. A REGULATOR STATION WITHIN THE SCOPE OF THE JOB OR WITHIN 200 FEET OF THE TIE-IN LOCATION. B CHANGE TO THE NUMBER OF CONNECTIONS (ADDITIONAL ADDED FROM AN INTERSECTION OR OTHERWISE). C MATERIAL/SIZE CHANGE AT NEW LOCATION. 10 NOT ALL BYPASSES, GAUGES, PURGES AND OTHER MISCELLANEOUS FITTINGS ARE SHOWN. CONSTRUCTION SHALL INSTALL THESE FITTINGS AS NEEDED IN ACCORDANCE WITH THE APPROVED SOP. 11 WHEN CONNECTING NEW 'DEAD' MAIN TO NEW 'DEAD' MAIN, AS LONG AS THE CONNECTION BRANCH SIZE SHOWN IN THE DRAWINGS CAN BE ACHIEVED, THE FOLLOWING CONNECTION TYPES ARE ACCEPTED AND INTERCHANGEABLE: A INLINE TEE B PLASTIC HIGH VOLUME TAPPING TEE (2" BRANCH SIZE OR LESS) C PLASTIC BRANCH SADDLE (WITH MAIN CUTTER SIZE SHOWN IN NATIONAL GRID POLICIES) D STEEL THREE-WAY TEE (WITH MAIN CUTTER SIZE SHOWN IN NATIONAL GRID POLICIES) 12 THE LIVE MAIN CONNECTION DETAIL SHOWN IN THE DRAWINGS SHALL BE FOLLOWED. ANY CHANGES TO THE TIE-IN CONNECTION TYPE SHALL BE APPROVED BY THE NATIONAL GRID ENGINEER PRIOR TO CONSTRUCTION. 13 WHEN RELAYING A LOWER PRESSURE MAIN WITH A HIGHER PRESSURE MAIN, ALL SERVICES SHALL BE RELAYED OR INSERTED.

DESIGN CRITERIA	
1	DESIGN IN ACCORDANCE WITH THE FOLLOWING: A ENGO2001: DESIGN OF GAS SERVICES B ENGO4001: DESIGN OF DISTRIBUTION MAINS C ENGO4010: DESIGN REQUIREMENTS FOR INSTALLATION OF CASINGS
2	PROPOSED PIPING: A DESIGN CLASS LOCATION - 4 B NOMINAL SIZE - 2, 4, & 8 NCH C MATERIAL - MDPE D SYSTEM MAOP - 22 PSIG 3 PIPE SIZE DETERMINED BY NATIONAL GRID STRATEGIC ASSET AND SYSTEM PLANNING.
<b>SEQUENCE OF CONSTRUCTION</b>	
1	CONTRACTOR SHALL CALL DIGSAFE (DIAL 811 OR 888-344-7233) AT LEAST 72 HOURS PRIOR TO CONSTRUCTION. SATURDAYS, SUNDAYS, AND HOLIDAYS ARE EXCLUDED.
2	CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES AND STRUCTURES DEPICTED OR NOT DEPICTED ON THIS DESIGN PRIOR TO CONSTRUCTION.
3	INSTALL MAIN AS INDICATED IN SCOPE OF WORK
4	PRESSURE TEST (SEE PRESSURE TESTING SECTION)
5	MAKE CONNECTION(S) AS SHOWN IN TIE-IN DETAIL T-1
6	PURGE NEW MAIN INTO SERVICE
7	RELAY EXISTING LP SERVICES IN THEIR ENTIRETY WITH NEW 22PSIG PLASTIC SERVICES AND ENSURE ALL SERVICES ARE CORRECTLY FITTED WITH SERVICE REGULATORS IN ACCORDANCE WITH ENGO2001
8	COMPLETE CONNECTION(S) AS SHOWN IN TIE-IN DETAIL(S) T-2 & R-1
9	PURGE OLD MAIN OUT OF SERVICE AND ABANDON
10	PERFORM RESTORATION
<b>CODES &amp; STANDARDS</b>	
1	WORK SHALL CONFORM TO ALL LOCAL, STATE, AND FEDERAL CODES IN ADDITIONAL TO NATIONAL GRID GAS POLICIES AND WORK METHODS. WHERE ANY CONFLICTS OF CODES, STANDARDS AND REGULATIONS MAY EXIST, THE MORE STRINGENT CODE, STANDARD, OR REGULATION SHALL APPLY. 2 ALL REFERENCES SHALL BE IN ACCORDANCE WITH THE MOST CURRENT REVISION AVAILABLE AT THE TIME OF CONSTRUCTION. 3 FEDERAL & STATE A TITLE 49: PART 192 TRANSPORTATION OF NATURAL AND OTHER GAS BY PIPELINE: MINIMUM FEDERAL SAFETY STANDARDS B 220 CMR: DEPARTMENT OF PUBLIC UTILITIES 100.00 - 113.00: MASSACHUSETTS GAS DISTRIBUTION CODE C AMERICAN SOCIETY OF MECHANICAL ENGINEERS B31.8: GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS 4 CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH NATIONAL GRID GAS POLICIES AND WORK METHODS, INCLUDING BUT NOT LIMITED TO: A CNST01003: BACKFILL AND RESTORATION B CNST01005: PREPARATION OF GAS FACILITY/HISTORICAL RECORDS C CNST01008: COMMERCIALLY AVAILABLE SHORNG SYSTEMS D CNST02014: ENCAPSULATING CAST IRON JOINTS E CNST03001: SQUEEZE-OFF OPERATIONS F CNST03002: STOP-OFF OPERATIONS ON LOW PRESSURE MAINS G CNST03005: PURGING REQUIREMENTS FOR GAS PIPELINES a. CNST03006: PURGING OPERATIONS - DIRECT DISPLACEMENT b. CNST03007: PURGING OPERATIONS - COMPLETE INERT FILL c. CNST03008: PURGING OPERATIONS - SLUG METHOD H CNST03014: STOP OFF OPERATIONS FOR KLEISS EQUIPMENT I CNST04005: INSTALLING STEEL DISTRIBUTION MAINS J CNST04007: FIELD COLD BENDING OF LINE PIPE K CNST04008: INSTALLING PLASTIC MAINS L CNST04011: ABANDONMENT OF MAINS M CNST04012: GROUTING ABANDONED PEPLINES N CNST04030: RAISING MAIN AND SERVICE GATE BOXES O CNST05001: JOINING OF PLASTIC PIPE P CNST05011: INSTALLATION OF DRESSER 700 COUPLINGS Q CNST05010: GENERAL CONSTRUCTION REQUIREMENTS AND PIPE HANDLING R DAM01011: EXCAVATION AND EXCAVATION NOTIFICATION REQUIREMENTS FOR UNDERGROUND FACILITIES FOR MASSACHUSETTS AND RHODE ISLAND S DAM01015: LOCATE AND MARK-OUT REQUIREMENTS FOR UNDERGROUND GAS FACILITIES T DAM01016: LOCATE AND MARK-OUT OF UNDERGROUND FACILITIES U GCON02001: SYSTEM OPERATING PROCEDURE (SOP) V GEN01100: OPERATOR QUALIFICATION PLAN W GEN03002: PROCESSING GAS MAIN AND NEW SERVICE WORK PACKAGES X GEN03004: CHANGE CONTROL PROCEDURE FOR STANDARD CONSTRUCTION PROJECTS Y NR06002: SUPPLEMENTAL ODOORIZATION FOR NEW PIPING Z MANS030: INSTALLATION OF POLYETHYLENE PIPE AA MECH5010: JOINTS OTHER THAN WELDED BB 030018-CS: SPECIFICATION AND HANDLING OF TRAFFIC PLATES 5 SERVICE SPECIFIC CONSTRUCTION STANDARDS, GAS POLICIES AND WORK METHODS: A CMS03002: CUSTOMER METER AND SERVICE REGULATOR DESIGN AND INSTALLATION POLICY B CMS04002: PURGING PROCEDURES FOR CUSTOMER METER SERVICES C CNST03011: NO-INTERRUPT SERVICE TRANSFER D CNST06002: INSTALLING DISTRIBUTION SERVICES E CNST06003: INSTALLATION & MAINTENANCE POLICY FOR CURB VALVES ON SERVICE LINES WITH INSTALLED METER CAPACITIES OVER 1,000 SCFH THAT DON'T HAVE EXCESS FLOW VALVES F CNST06009: METERS/SERVICE RELOCATION GUIDELINE G CNST06020: COMPLETION AND PROCESSING OF GAS SERVICE RECORD CARDS H CNST06030: NOTIFICATION OF CUSTOMERS INVOLVED IN THE INTERRUPTION OF GAS SERVICE I CS-SERV001: TYPICAL 1/2" SERVICE OUTSIDE SETS J CS-SERV002: TYPICAL 1" SERVICE OUTSIDE SETS K CS-SERV003: TYPICAL 1-1/4" SERVICE OUTSIDE SETS L CS-SERV004: TYPICAL 2" SERVICE M CS-SERV005: EXCESS FLOW VALVE REQUIREMENTS ON HP SERVICES N CS-SERV008: TYPICAL 1/2" SERVICE INSIDE SETS O CS-SERV010: TYPICAL 1" SERVICE INSIDE SETS P HTAP-6010: NO-INTERRUPT 1 NCH CTS AND 1-1/4 NCH CTS SERVICE TRANSFER (NIST) LP TO 60 PSIG MAINS Q SERV-5075: RELOCATION OF METER SET ASSEMBLIES INSIDE TO OUTSIDE R SERV-6185: HOT TAPPING MD BRANCH SADDLES OFF 4N - 12N 60 PSIG MAOP LIVE PLASTIC GAS MAIN USING MCELROY HOT TAPPING TOOL S VALV8110: 1/2 NCH - 3 NCH POLYETHYLENE GAS SERVICE VALVE INSTALLATION 6 SEE TIE IN DETAILS FOR APPLICABLE MAIN CONNECTION REFERENCES. 7 SEE BILL OF MATERIAL FOR MATERIAL SPECIFICATION, STANDARD AND/OR APPLICABLE NATIONAL GRID "FITS" REFERENCE.

PRESSURE TESTING	
1	PRESSURE TEST MAIN IN ACCORDANCE WITH: A CNST04003: PRESSURE TESTING MAINS OPERATING BELOW 125 PSIG B TEST PRESSURE (MINIMUM): 90 PSIG C TEST DURATION BASED ON LENGTH AND DIAMETER IN ACCORDANCE WITH TABLE 1. D TEST MEDIUM: AIR AND/OR NITROGEN
2	PRESSURE TEST SERVICES IN ACCORDANCE WITH: A CNST06009: PRESSURE TESTING SERVICE LINES
<b>WELDING</b>	
1	NATIONAL GRID WELDING GAS POLICIES AND WORK METHODS INCLUDE: A CNST05002: WELDING POLICY B CNST05003: PIPE WELDING SAFETY C CNST05005: WELDING PROCEDURE SPECIFICATIONS D MS-030: WELDING FILLER MATERIALS
2	PRIOR TO THE START OF ANY WORK THE CONTRACTOR SHALL SUBMIT WELDER CERTIFICATION DOCUMENTS FOR EACH OF THE WELDERS EMPLOYED ON THIS PROJECT.
3	WELDING PROCEDURE SPECIFICATIONS REQUIRED: A BUTT WELDS (GROOVE): WPS-SMAW-E6010/7010 (LATEST REVISION) B FILLET WELDS (BRANCH): WPS-SMAW-E6010/7010 (LATEST REVISION) 4 10% (AT LEAST 1) OF WELDS IN EACH CATEGORY BELOW SHALL BE SUBJECT TO NON-DESTRUCTIVE EXAMINATION (NDE). A BUTT WELDS 2-INCH AND GREATER: 10% RADIOGRAPH B BUTT WELDS 2-INCHES: 10% MAGNETIC PARTICLE C FILLET WELDS: 10% MAGNETIC PARTICLE 5 NDE AND WELD MAP SHALL BE PROVIDED BY SKYTESTING. 6 SKYTESTING SCHEDULING CONTACT: WILLIAM (BL) CLARK CELL: 704-858-7794 EMAIL: WCLARK@SKYTESTING.COM
<b>CATHODIC PROTECTION</b>	
1	IF EXISTING TEST STATIONS, WIRES, AND/OR MAGNESIUM ANODES ARE DISTURBED OR DAMAGED, NOTIFY THE NATIONAL GRID CORROSION DEPARTMENT: BUTCH VINCENT - 617-438-5192 (MA) 2 24 HOUR NOTICE IS REQUIRED PRIOR TO INSTALLATION OF INSULATED FITTINGS TO ALLOW FOR ACCEPTANCE TESTING 3 NATIONAL GRID CORROSION GAS POLICIES AND WORK METHODS INCLUDE: A COR01100: CORROSION DESIGN CRITERIA B COR02001: APPLICATION OF COATING SYSTEMS C COR02020: INSPECTING EXPOSED STEEL PIPE FOR CORROSION D COR02021: INSPECTING EXPOSED CAST OR DUCTILE PIPING FOR GRAPHITIZATION E COR03001: TESTING OF PIPE COATING (JEEP TESTING) F COR04001: INSTALLATION OF MAGNESIUM ANODES G COR04003: INSTALLATION OF TEST STATIONS FOR CATHODIC PROTECTION H COR04004: INSTALLATION OF WIRE CONNECTIONS I COR04005: INSTALLATION OF INSULATING JOINTS FOR CATHODIC PROTECTION J 030031-CS: FACILITY COATING GUIDE 4 CORROSION DESIGN: INSTALL A 1-WIRE TEST STATION WITH 1-17# ANODE TO THE INSULATED ACTIVE STEEL MECHANICAL END CAP. INSTALL THE 9X9 TEST STATION IN AN ACCESSIBLE LOCATION. INSTALL A 1-WIRE TEST STATION WITH 1-17LB ANODE TO THE PROPOSED 50A SLEEVE. INSTALL THE 9X9 TEST STATION IN AN ACCESSIBLE LOCATION.
<b>ENVIRONMENTAL</b>	
1	WORK SHALL CONFORM TO THE NATIONAL GRID ENVIRONMENTAL POLICY.
2	ENVIRONMENTAL ENGINEERING CONTACT: JAMIE WALKER PHONE: (617) 551-1156 EMAIL: JAMIE.WALKER@NATIONALGRID.COM 3 CONTRACTOR SHALL REVIEW THE PROJECT WORK ORDER PACKAGE FOR ENVIRONMENTAL GUIDANCE FORMS, FOR EXAMPLE EG-301, FOR THE RESPECTIVE STATE. 4 WHEN SOILS OR LIQUIDS ARE ENCOUNTERED THAT ARE BELIEVED TO BE CONTAMINATED WITH OIL AND/OR HAZARDOUS MATERIAL, EXCAVATION WORK SHALL BE HALTED AND FIELD PERSONNEL SHALL NOTIFY THEIR IMMEDIATE SUPERVISOR. 5 NO EXCAVATED SOIL SHALL LEAVE THE WORK SITE UNTIL ENVIRONMENTAL HAS MADE A DETERMINATION FOR ITS PROPER DISPOSAL. 6 NATIONAL GRID ENVIRONMENTAL POLICIES AND PROCEDURES INCLUDE: A SHE02001: HANDLING CONTAMINATED MATERIALS AND PIPING B SHE02002: REMOVING MERCURY REGULATORS AND DEVICES C SHE02003: ENCOUNTERING CONTAMINATION WHILE EXCAVATING D EG303-NE: BEST MANAGEMENT PRACTICES E EG140: USED GAS PIPE MANAGEMENT 7 ENVIRONMENTAL REQUIREMENTS: N/A
<b>SAFETY</b>	
1	WORK SHALL CONFORM TO THE NATIONAL GRID EMPLOYEE SAFETY HANDBOOK AND OSHA REQUIREMENTS.
2	REQUIRED PPE SHALL BE WORN AND UTILIZED IN ACCORDANCE WITH THE CURRENT NATIONAL GRID SAFETY POLICY.
3	A NATIONAL GRID APPROVED CONTRACTOR HEALTH AND SAFETY PLAN (HASP) IS REQUIRED PRIOR TO CONSTRUCTION.
4	CONSTRUCTION SIGNING, DRUMS, BARRICADES, AND OTHER DEVICES SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.) PART VI AND SHALL BE MAINTAINED BY THE CONTRACTOR.
5	NATIONAL GRID SAFETY PROCEDURES COVER THE FOLLOWING CATEGORIES: A A- ADMINISTRATIVE; B- INSPECTIONS; C- WALKING WORKING SURFACES; D- MEANS OF EGRESS; E- MATERIAL HANDLING AND STORAGE; F- TOXIC AND HAZARDOUS SUBSTANCES; G- HAZARDOUS MATERIALS; H- PERSONAL PROTECTIVE EQUIPMENT; I- GENERAL ENVIRONMENTAL CONTROLS; J- ACCIDENT INVESTIGATION; K- MACHINERY AND GUARDING; L- WELDING/CUTTING/BRAZING; M- EXCAVATIONS; N- CONTRACTORS; FIRE PROTECTION; Q- FLEET AND ROADWAY SAFETY 6 GAS WORK METHODS SAFETY PROCEDURES INCLUDE: A SHE01001: GENERAL SAFETY REQUIREMENTS B SHE01002: SUPPLIED-AIR RESPIRATORS C SHE01003: USING AND MAINTAINING PORTABLE GAS MONITORS D SHE01004: USING AND MAINTAINING FLAME IONIZATION UNITS E SHE01005: DISSIPATING STATIC ELECTRICAL CHARGES ON PLASTIC PIPE F SHE01006: ENTERING GAS UTILITY VAULTS G SHE01008: USING AND MAINTAINING THE GAS-EXPLORER H SHE01009: DISSIPATING STATIC ELECTRICAL CHARGES ON PLASTIC PIPE I SHE01010: THE APPLICATION OF FORMAL PROCESS SAFETY ASSESSMENTS TO HIGHER-RISK GAS ACTIVITIES PERFORMED IN THE FIELD
<b>OTHER PERMITTING REQUIREMENTS</b>	
1	STREET OPENING PERMIT(S); ELLIOT ST, MARGARET ST, BOYLSTON ST, CHARLES ST, FRANCES ST, & JOSSELYN PL 2 GRANT OF LOCATION PERMIT REQUIRED: MARGARET ST 3 MASSDOT PERMIT REQUIRED: BOYLSTON ST 4 MBTA PERMIT REQUIRED: ELLIOT ST

BILL OF MATERIALS						
Item	SIZE (IN.)	QTY	UOM	DESCRIPTION	SPECIFICATION	SAP ID NUMBER
<b>GAS MAIN</b>						
1	2	335	FT	PIPE, PLASTIC, MDPE, PE 2708, SDR 11, 250' COIL	CS-FIT001	9340876
2	4	630	FT	PIPE, PLASTIC, MDPE, PE 2708, SDR 11.5, 40' STICK	CS-FIT001	9340857
3	8	1850	FT	PIPE, PLASTIC, MDPE, PE 2708, SDR 13.5, 40' STICK	CS-FIT001	9340862
4	8	6	EA	TEE, PLASTIC, BUTT FUSE, MDPE, SDR 13.5	CS-FIT012	9342070
5	8x8	1	EA	TEE, TDW, 3-WAY, FLANGED TOP, FLAT BOTTOM	HTAP-6055-MA	9308511
6	2	1	EA	VALVE, PLASTIC, FULL PORT BALL, MDPE, SDR 11	VALV-6020	9341784
7	2	1	EA	ROADWAY VALVE BOX WITH COVER	VALV-6020	9339890
8	4	4	EA	VALVE, PLASTIC, FULL PORT BALL, MDPE, SDR 11.5	VALV-6020	9341709
9	4	4	EA	ROADWAY VALVE BOX WITH COVER	VALV-6020	9339892
10	8	3	EA	VALVE, PLASTIC, FULL PORT BALL, MDPE, SDR 13.5	VALV-6020	9386594
11	8	3	EA	ROADWAY VALVE BOX WITH COVER	VALV-6020	9307586
12	4x2	1	EA	REDUCER, PLASTIC, BUTT FUSE, MDPE, SDR 11.5 X 11	CS-FIT013	9384553
13	6x4	5	EA	REDUCER, PLASTIC, BUTT FUSE, MDPE, SDR 11.5	CS-FIT013	9342678
14	8x6	6	EA	REDUCER, PLASTIC, BUTT FUSE, MDPE, SDR 13.5 X 11.5	CS-FIT013	9342616
15	8	1	EA	ELBOW, PLASTIC, 45 DEGREE, BUTT FUSE, MDPE, SDR 13.5	CS-FIT011	9341402
16	2	A/R	EA	COUPLING, PLASTIC, ELECTROFUSION, HDPE	CS-FIT015	9314594
17	4	A/R	EA	COUPLING, PLASTIC, ELECTROFUSION, HDPE	CS-FIT015	9314593
18	6	1	EA	COUPLING, PLASTIC, ELECTROFUSION, HDPE	CS-FIT015	9314592
19	8	5	EA	COUPLING, PLASTIC, ELECTROFUSION, HDPE	CS-FIT015	9314591
20	24	1	EA	DRESSER STYLE 50A SPLIT SLEEVE, INSULATED	FITS-6026	9342325
21	2	1	EA	CAP, PLASTIC, BUTT FUSE, MDPE, SDR 11	CS-FIT010	9339540
22	4	4	EA	CAP, PLASTIC, BUTT FUSE, MDPE, SDR 11.5	CS-FIT010	9339534
23	8	1	EA	CAP, PLASTIC, BUTT FUSE, MDPE, SDR 13.5	CS-FIT010	9339559
24	6	2	EA	CAP, BOLTED, SELF-RESTRAINING, R.S. CAST IRON, INSULATING	FITS-6024	9315169
25	10	4	EA	CAP, BOLTED, NON-RESTRAINING, O.S. CAST IRON, INSULATING	FITS-6014	9339572
26	10	4	EA	CAP, BOLTED, NON-RESTRAINING, R.S. CAST IRON, INSULATING	FITS-6014	9339558
27	8	1	EA	TRANSITION FITTING, PLASTIC TO STEEL, MDPE SDR 13.5 X SCH. 40 WELD END	FITS-6022	9339396
<b>GENERAL</b>						
G1	12 AWG	2815	FT	TRACER WIRE, DIRECT BURY, COPPER, 12 AWG	CNST-6061	9315005
G2	6	2815	FT	YELLOW CAUTION TAPE - GAS MAIN - 6" WIDE	CNST-6060	9341904
<b>PRESSURE TEST/PURGE (TEMPORARY)</b>						
P1	2	1	EA	TEE, SERVICE, PLASTIC, HDPE, EF, 1" IPS OUTLET	CS-MAIN004	9322653
P2	4	4	EA	TEE, SERVICE, PLASTIC, HDPE, EF, 1" IPS OUTLET	CS-MAIN004	9322620
P3	8	3	EA	TEE, SERVICE, PLASTIC, HDPE, EF, 1" IPS OUTLET	CS-MAIN004	9323497
P4	8	2	EA	CAP, PLASTIC, BUTT FUSE, MDPE, SDR 13.5	CS-FIT010	9339559
P5	1	8	EA	COUPLING, PLASTIC, ELECTROFUSION, HDPE, IPS X CTS	FITS-6022	9341488
P6	1	8	EA	RISER, ANODELESS, 1" CTS MDPE X 3/4" IPS STEEL OUTLET	CS-MAIN004	9344366
P7	1	8	EA	END CAP, PERMASERT, CTS	FITS-6022	9312356
<b>CATHODIC PROTECTION</b>						
C1	N/A	3	EA	CP TEST BOX W/O COVER, ROADWAY AREAS	030026-CS	9339391
C2	N/A	3	EA	CP TEST BOX COVER, ROADWAY AREAS	030026-CS	9339797
C3	N/A	A/R	EA	WIRE, NO. 8, 7 STRAND	030026-CS	9307539
C4	N/A	3	EA	ANODE, MAGNESIUM 17LBS	030024-CS	9311183

\*MATERIAL QUANTITIES SPECIFIED REPRESENT MINIMUM QUANTITIES ONLY. FINAL QUANTITIES MAY CHANGE SUBJECT TO MEETING NATIONAL GRID STANDARDS AND DESIGN/SPEC REQUIREMENTS.

**REFERENCE DRAWINGS**  
1 LOCATION OF IDENTIFIED UNDERGROUND UTILITIES ARE AN APPROXIMATE BASED ON AVAILABLE RECORD AND FIELD INFORMATION IN ACCORDANCE WITH CIVASCE 38-02. ADDITIONAL UTILITIES MAY EXIST WHICH ARE NOT IDENTIFIED ON THESE PLANS. ALL EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR FOR SERVICE, SIZE, INVERT ELEVATIONS, LOCATIONS, ETC.



215 GREENFIELD PARKWAY  
SUITE 102  
LIVERPOOL, N.Y. 13088



SIGN & DATE

NO.	DESCRIPTION	DATE	DR BY	CHK BY	APP BY
1	REVISED STEP 7, ADDED CATHODIC PROTECTION TO NOTES & DETAILS, REVISED BOM	07/01/2022	PL	REB	CC
0	ISSUED FOR CONSTRUCTION	06/24/2022	JRS	REB	CC



40 SYLVAN ROAD  
WALTHAM, MA 02451

FINAL

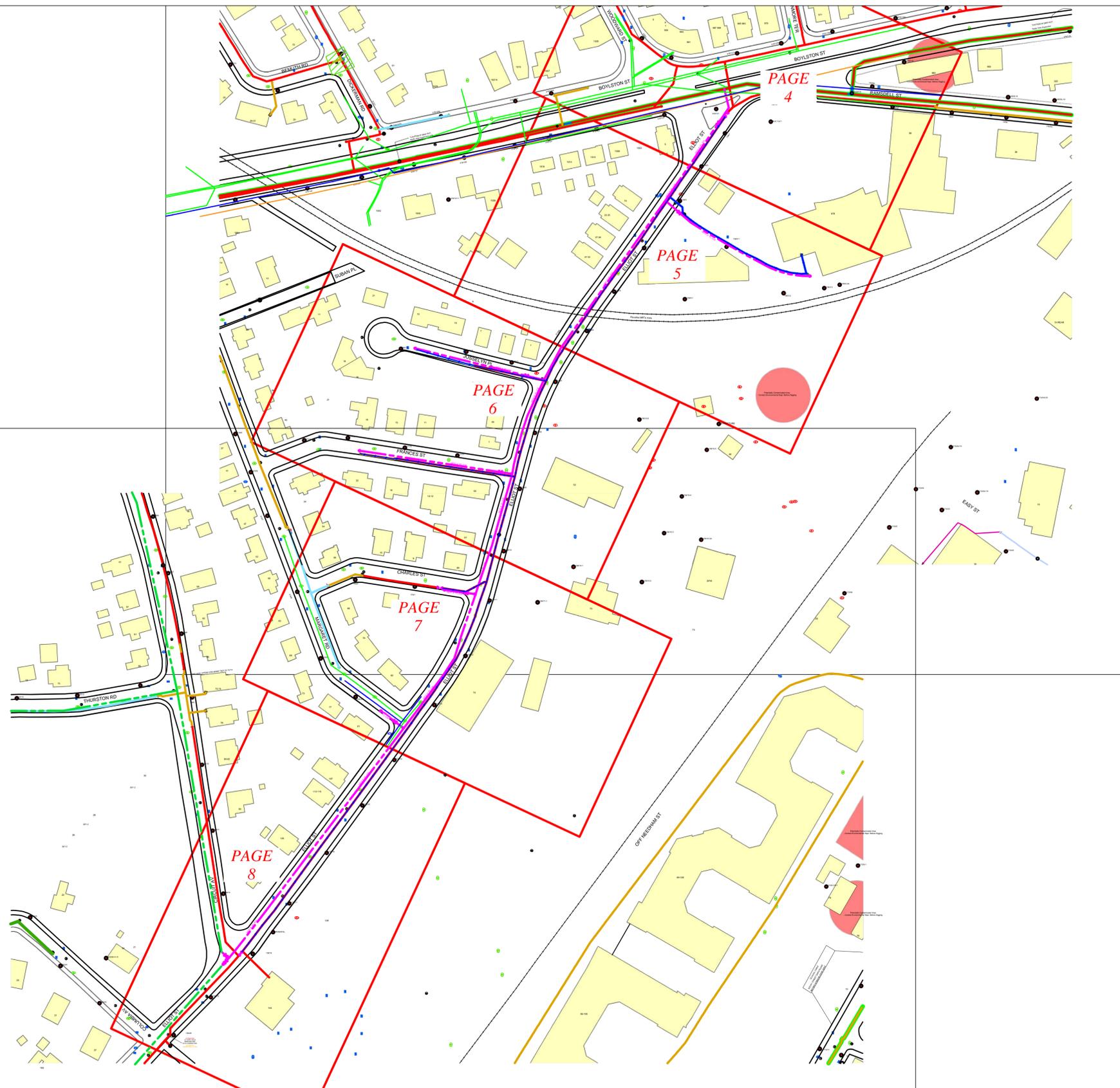
CIRE101214 PROGRAM, MAIN & SERVICE REPLACEMENT  
10/8/6/4" CI-LP, 6" PL-LP, 4" BS-LP & 4/3" CS-LP TO 8/4/2" PL-22#  
3-144 ELLIOT ST  
NEWTON, MASSACHUSETTS

**CONSTRUCTION NOTES AND BILL OF MATERIALS**

DWG SIZE	DESIGNER	ENGINEER	DATE	ASSET I.D.	W.O. NO.:
24"x36"	J.R. SMITH	C. CHEN	06/24/2022	XXXXXXXXXX	1444162

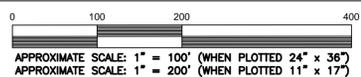
PAGE 2 OF 13

DRAWING NO.  
CIR-NEW-1444162 G-002



**LEGEND:**

	EP/CURB		SANITARY MH
	PROPOSED GAS MAIN		DRAINAGE MH
	GAS MAIN BY OTHER WO		POLE
	ABANDONED GAS MAIN		CATCH BASIN
	CRITICAL DISTRIBUTION		HYDRANT
	EXISTING BS LP MAIN		EXISTING GAS VALVE
	EXISTING BS HP MAIN		EXISTING CAP
	EXISTING CI LP MAIN		EXISTING REDUCER
	EXISTING CS LP MAIN		NEW GAS VALVE
	EXISTING CS HP MAIN		NEW CAP
	EXISTING PL LP MAIN		NEW REDUCER
	EXISTING PL HP MAIN		BOM ITEM#
	WATER MAIN		TIE-IN#
	SANITARY		PAGE #
	DRAINAGE		
	TELECOM		



NO.	DESCRIPTION	DATE	DR.	BY	APP.
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0	ISSUED FOR CONSTRUCTION	06/24/2022	JRS	REB	CC



**FINAL**

CIRE101214 PROGRAM, MAIN & SERVICE REPLACEMENT  
 10/8/6/4" CI-LP, 6" PL-LP, 4" BS-LP & 4/3" CS-LP TO 8/4/2" PL-22#  
 3-144 ELLIOT ST  
 NEWTON, MASSACHUSETTS

**PROPOSED INSTALLATION PLAN OVERVIEW**

DWG SIZE	DESIGNER	ENGINEER	DATE	ASSET I.D.	W.O. NO.:
24"x36"	J.R. SMITH	C. CHEN	06/24/2022	XXXXXXXXXX	1444162

PAGE 3 OF 13

DRAWING NO.

CIR-NEW-1444162 C-001

NOTE: THIS PROJECT INVOLVES REPLACING LP GAS MAIN WITH 22 PSIG GAS MAIN.

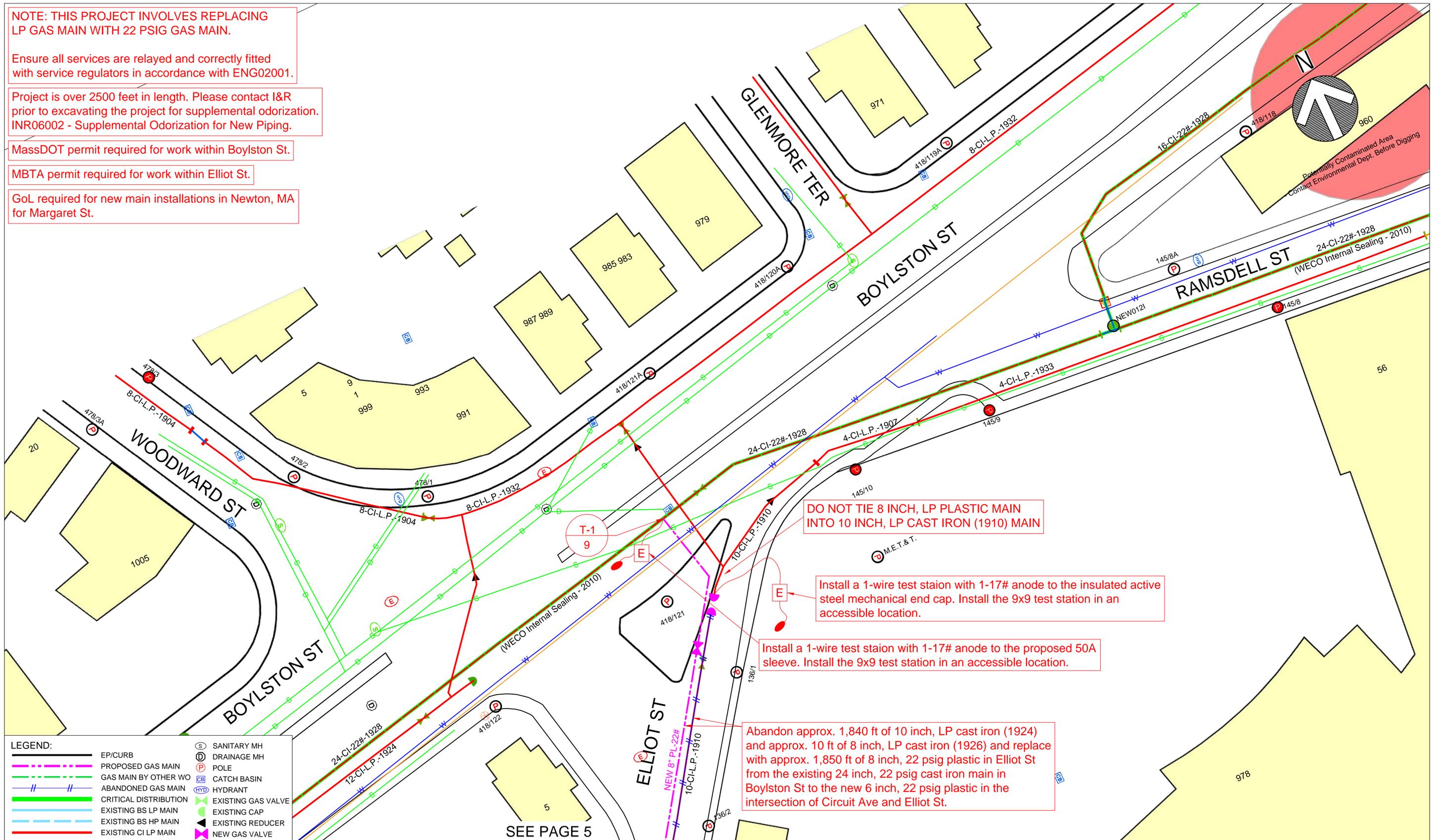
Ensure all services are relayed and correctly fitted with service regulators in accordance with ENG02001.

Project is over 2500 feet in length. Please contact I&R prior to excavating the project for supplemental odorization. INR06002 - Supplemental Odorization for New Piping.

MassDOT permit required for work within Boylston St.

MBTA permit required for work within Elliot St.

GoL required for new main installations in Newton, MA for Margaret St.



**LEGEND:**

EP/CURB	⑤ SANITARY MH
PROPOSED GAS MAIN	⑥ DRAINAGE MH
GAS MAIN BY OTHER WO	Ⓟ POLE
ABANDONED GAS MAIN	Ⓛ CATCH BASIN
CRITICAL DISTRIBUTION	Ⓜ HYDRANT
EXISTING BS LP MAIN	Ⓜ EXISTING GAS VALVE
EXISTING BS HP MAIN	Ⓜ EXISTING CAP
EXISTING CI LP MAIN	Ⓜ EXISTING REDUCER
EXISTING CS LP MAIN	Ⓜ NEW GAS VALVE
EXISTING CS HP MAIN	Ⓜ NEW CAP
EXISTING PL LP MAIN	Ⓜ NEW REDUCER
EXISTING PL HP MAIN	Ⓜ BOM ITEM#
W WATER MAIN	Ⓜ TIE-IN#
S SANITARY	4 PAGE #
D DRAINAGE	
TELECOM	

**TRC**  
215 GREENFIELD PARKWAY  
SUITE 102  
LIVERPOOL, N.Y. 13088

APPROXIMATE SCALE: 1" = 20' (WHEN PLOTTED 24" x 36")  
APPROXIMATE SCALE: 1" = 40' (WHEN PLOTTED 11" x 17")



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0	ISSUED FOR CONSTRUCTION	06/24/2022	JRS	REB	CC

**nationalgrid**  
40 SYLVAN ROAD  
WALTHAM, MA 02451

**FINAL**

CIRE101214 PROGRAM, MAIN & SERVICE REPLACEMENT  
10/8/6/4" CI-LP, 6" PL-LP, 4" BS-LP & 4/3" CS-LP TO 8/4/2" PL-22#  
3-144 ELLIOT ST  
NEWTON, MASSACHUSETTS

**PROPOSED INSTALLATION PLAN**

DWG SIZE	DESIGNER	ENGINEER	DATE	ASSET I.D.	W.O. NO.:
24"x36"	J.R. SMITH	C. CHEN	06/24/2022	XXXXXXXXXX	1444162

PAGE 4 OF 13

DRAWING NO.  
CIR-NEW-1444162 C-002

NOTE: THIS PROJECT INVOLVES REPLACING LP GAS MAIN WITH 22 PSIG GAS MAIN.

Ensure all services are relayed and correctly fitted with service regulators in accordance with ENG02001.

Project is over 2500 feet in length. Please contact I&R prior to excavating the project for supplemental odorization. INR06002 - Supplemental Odorization for New Piping.

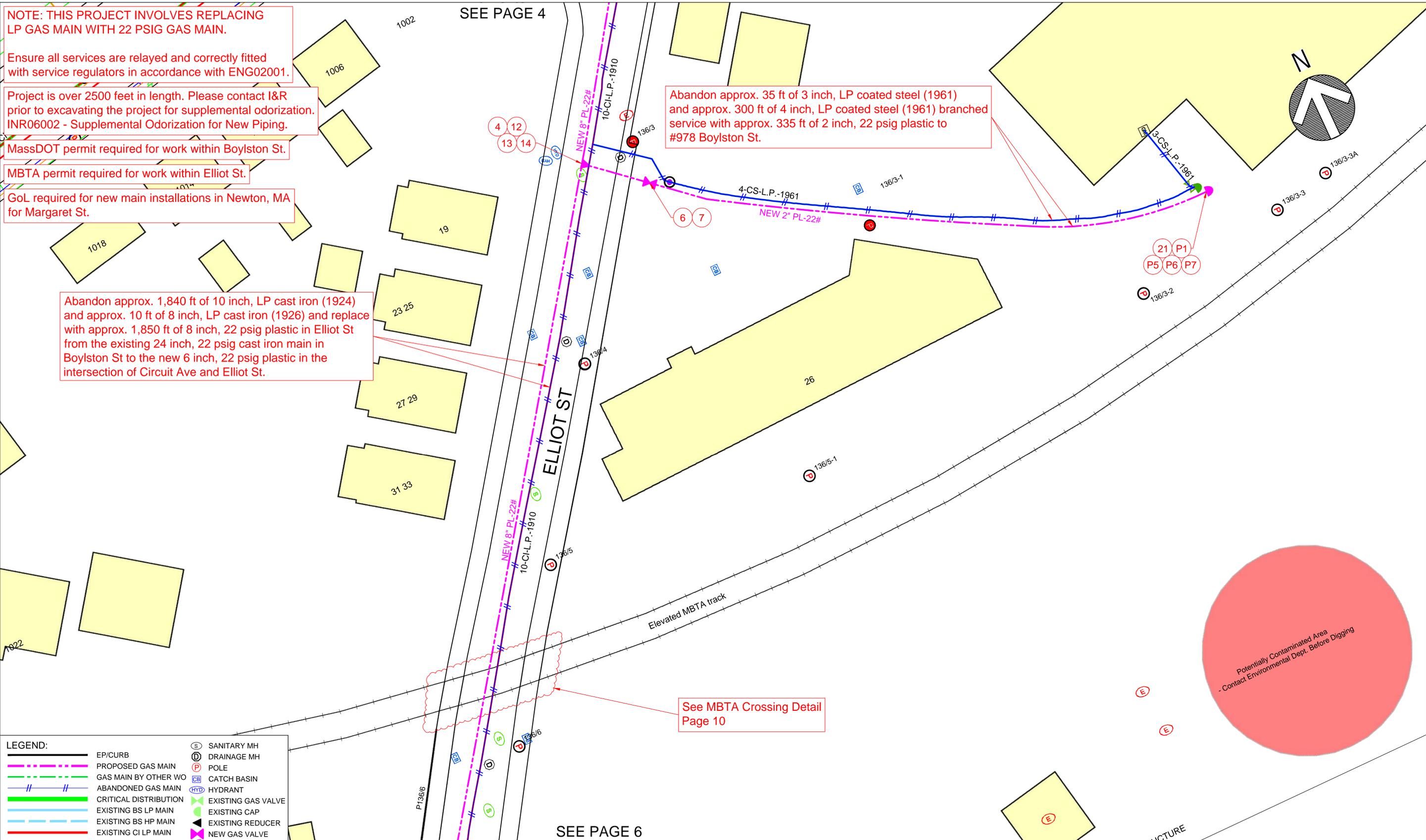
MassDOT permit required for work within Boylston St.

MBTA permit required for work within Elliot St.

GoL required for new main installations in Newton, MA for Margaret St.

Abandon approx. 1,840 ft of 10 inch, LP cast iron (1924) and approx. 10 ft of 8 inch, LP cast iron (1926) and replace with approx. 1,850 ft of 8 inch, 22 psig plastic in Elliot St from the existing 24 inch, 22 psig cast iron main in Boylston St to the new 6 inch, 22 psig plastic in the intersection of Circuit Ave and Elliot St.

Abandon approx. 35 ft of 3 inch, LP coated steel (1961) and approx. 300 ft of 4 inch, LP coated steel (1961) branched service with approx. 335 ft of 2 inch, 22 psig plastic to #978 Boylston St.

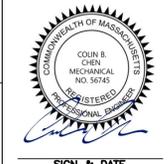


**LEGEND:**

EP/CURB	SANITARY MH
PROPOSED GAS MAIN	DRAINAGE MH
GAS MAIN BY OTHER WO	POLE
ABANDONED GAS MAIN	CATCH BASIN
CRITICAL DISTRIBUTION	HYDRANT
EXISTING BS LP MAIN	EXISTING GAS VALVE
EXISTING BS HP MAIN	EXISTING CAP
EXISTING CI LP MAIN	EXISTING REDUCER
EXISTING CS LP MAIN	NEW GAS VALVE
EXISTING CS HP MAIN	NEW CAP
EXISTING PL LP MAIN	NEW REDUCER
EXISTING PL HP MAIN	BOM ITEM#
WATER MAIN	TIE-IN#
SANITARY	PAGE #
DRAINAGE	
TELECOM	

**TRC**  
215 GREENFIELD PARKWAY  
SUITE 102  
LIVERPOOL, N.Y. 13088

APPROXIMATE SCALE: 1" = 20' (WHEN PLOTTED 24" x 36")  
APPROXIMATE SCALE: 1" = 40' (WHEN PLOTTED 11" x 17")



SEE PAGE 6

NO.	DESCRIPTION	DATE	DR.BY	CHK.BY	APP.BY
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0	ISSUED FOR CONSTRUCTION	06/24/2022	JRS	REB	CC

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40 SYLVAN ROAD  
WALTHAM, MA 02451

**FINAL**

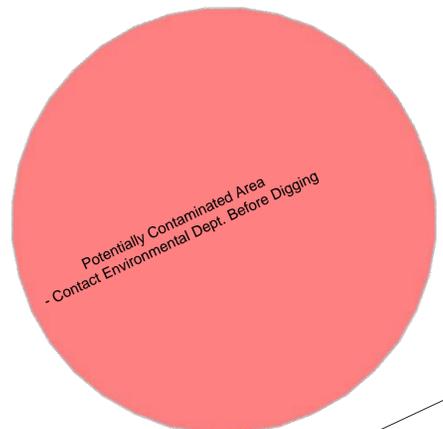
CIRE101214 PROGRAM, MAIN & SERVICE REPLACEMENT  
10/8/6/4" CI-LP, 6" PL-LP, 4" BS-LP & 4/3" CS-LP TO 8/4/2" PL-22#  
3-144 ELLIOT ST  
NEWTON, MASSACHUSETTS

**PROPOSED INSTALLATION PLAN**

DWG SIZE	DESIGNER	ENGINEER	DATE	ASSET I.D.	W.O. NO.:
24"x36"	J.R. SMITH	C. CHEN	06/24/2022	XXXXXXXXXX	1444162

PAGE 5 OF 13

DRAWING NO.  
CIR-NEW-1444162 C-003



See MBTA Crossing Detail Page 10

NOTE: THIS PROJECT INVOLVES REPLACING LP GAS MAIN WITH 22 PSIG GAS MAIN.

Ensure all services are relayed and correctly fitted with service regulators in accordance with ENG02001.

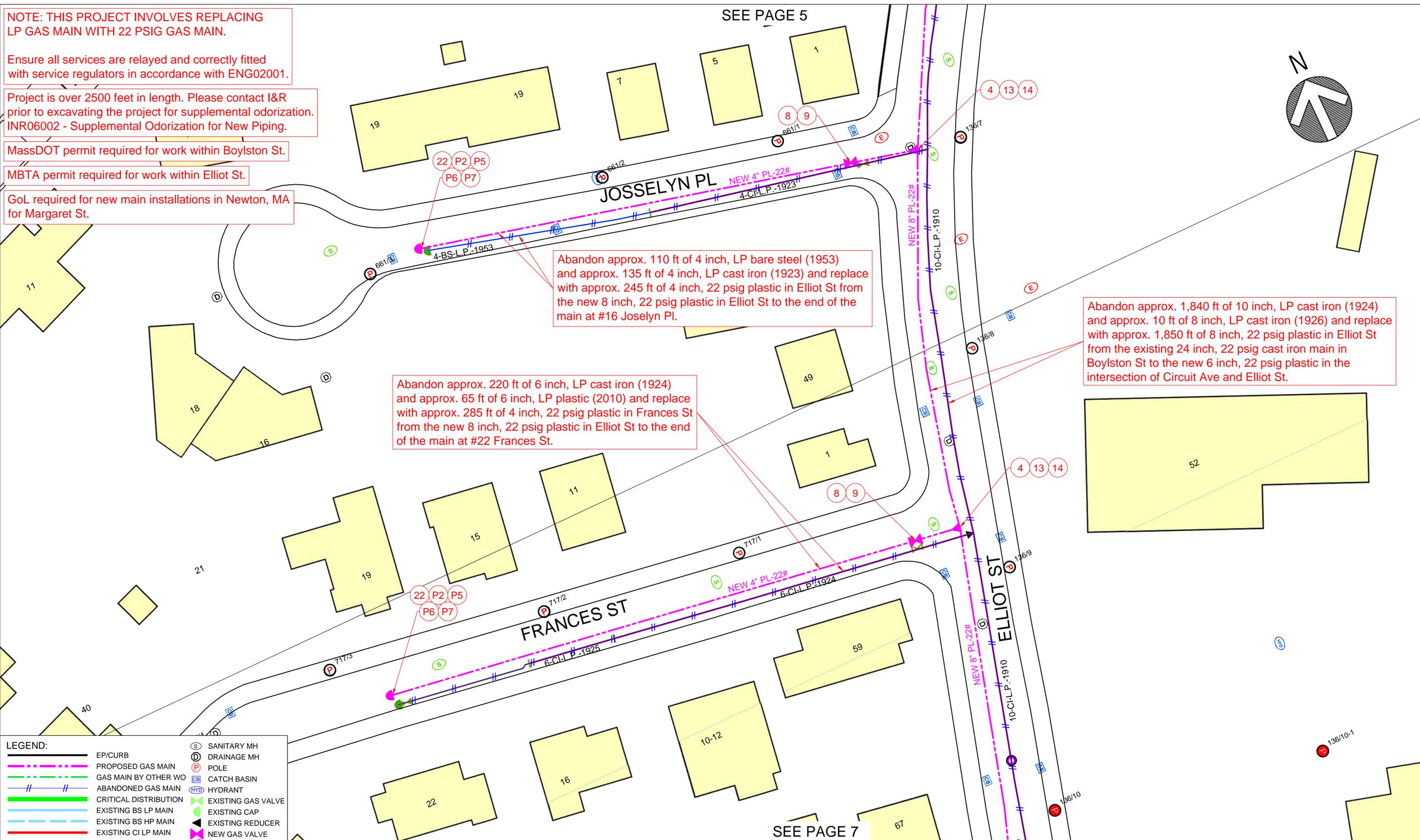
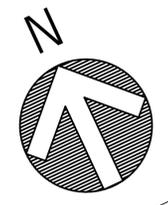
Project is over 2500 feet in length. Please contact I&R prior to excavating the project for supplemental odorization. INR06002 - Supplemental Odorization for New Piping.

MassDOT permit required for work within Boylston St.

MBTA permit required for work within Elliot St.

GoL required for new main installations in Newton, MA for Margaret St.

SEE PAGE 5



Abandon approx. 110 ft of 4 inch, LP bare steel (1953) and approx. 135 ft of 4 inch, LP cast iron (1923) and replace with approx. 245 ft of 4 inch, 22 psig plastic in Elliot St from the new 8 inch, 22 psig plastic in Elliot St to the end of the main at #16 Joselyn Pl.

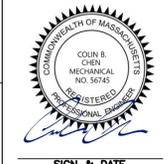
Abandon approx. 220 ft of 6 inch, LP cast iron (1924) and approx. 65 ft of 6 inch, LP plastic (2010) and replace with approx. 285 ft of 4 inch, 22 psig plastic in Frances St from the new 8 inch, 22 psig plastic in Elliot St to the end of the main at #22 Frances St.

Abandon approx. 1,840 ft of 10 inch, LP cast iron (1924) and approx. 10 ft of 8 inch, LP cast iron (1926) and replace with approx. 1,850 ft of 8 inch, 22 psig plastic in Elliot St from the existing 24 inch, 22 psig cast iron main in Boylston St to the new 6 inch, 22 psig plastic in the intersection of Circuit Ave and Elliot St.

**LEGEND:**

	EP/CURB		SANITARY MH
	PROPOSED GAS MAIN		DRAINAGE MH
	GAS MAIN BY OTHER WO		POLE
	ABANDONED GAS MAIN		CATCH BASIN
	CRITICAL DISTRIBUTION		HYDRANT
	EXISTING BS LP MAIN		EXISTING GAS VALVE
	EXISTING BS HP MAIN		EXISTING CAP
	EXISTING CI LP MAIN		EXISTING REDUCER
	EXISTING CS LP MAIN		NEW GAS VALVE
	EXISTING CS HP MAIN		NEW CAP
	EXISTING PL LP MAIN		NEW REDUCER
	EXISTING PL HP MAIN		BOM ITEM#
	WATER MAIN		TIE-IN#
	SANITARY		PAGE #
	DRAINAGE		
	TELECOM		

APPROXIMATE SCALE: 1" = 20' (WHEN PLOTTED 24" x 36")  
 APPROXIMATE SCALE: 1" = 40' (WHEN PLOTTED 11" x 17")



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1	REVISED STEP 7, ADDED CATHODIC PROTECTION TO NOTES & DETAILS, REVISED BOM	07/01/2022	PL	REB	CC
0	ISSUED FOR CONSTRUCTION	06/24/2022	JRS	REB	CC

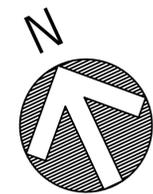
**FINAL**

CIRE101214 PROGRAM, MAIN & SERVICE REPLACEMENT  
 10/8/6/4" CI-LP, 6" PL-LP, 4" BS-LP & 4/3" CS-LP TO 8/4/2" PL-22#  
 3-144 ELLIOT ST  
 NEWTON, MASSACHUSETTS  
**PROPOSED INSTALLATION PLAN**

DWG SIZE	DESIGNER	ENGINEER	DATE	ASSET I.D.	W.O. NO.:
24"x36"	J.R. SMITH	C. CHEN	06/24/2022	XXXXXXXXXX	1444162

PAGE 6 OF 13  
 DRAWING NO.  
 CIR-NEW-1444162 C-004

SEE PAGE 6



Abandon approx. 50 ft of 6 inch, LP cast iron (1926) and replace with approx. 50 ft of 4 inch, 22 psig plastic stub in Charles St from the new 6 inch, 22 psig plastic main in Elliot St.

Install a 1-wire test station with 1-17# anode to the insulated active steel mechanical end cap. Install the 9x9 test station in an accessible location.

Abandon approx. 1,840 ft of 10 inch, LP cast iron (1924) and approx. 10 ft of 8 inch, LP cast iron (1926) and replace with approx. 1,850 ft of 8 inch, 22 psig plastic in Elliot St from the existing 24 inch, 22 psig cast iron main in Boylston St to the new 6 inch, 22 psig plastic in the intersection of Circuit Ave and Elliot St.

Install approx. 50 ft of 4 inch, 22 psig plastic stub in the intersection of Elliot St and Margaret Rd from the new 8 inch, 22 psig plastic main in Elliot St.

NOTE: THIS PROJECT INVOLVES REPLACING LP GAS MAIN WITH 22 PSIG GAS MAIN.

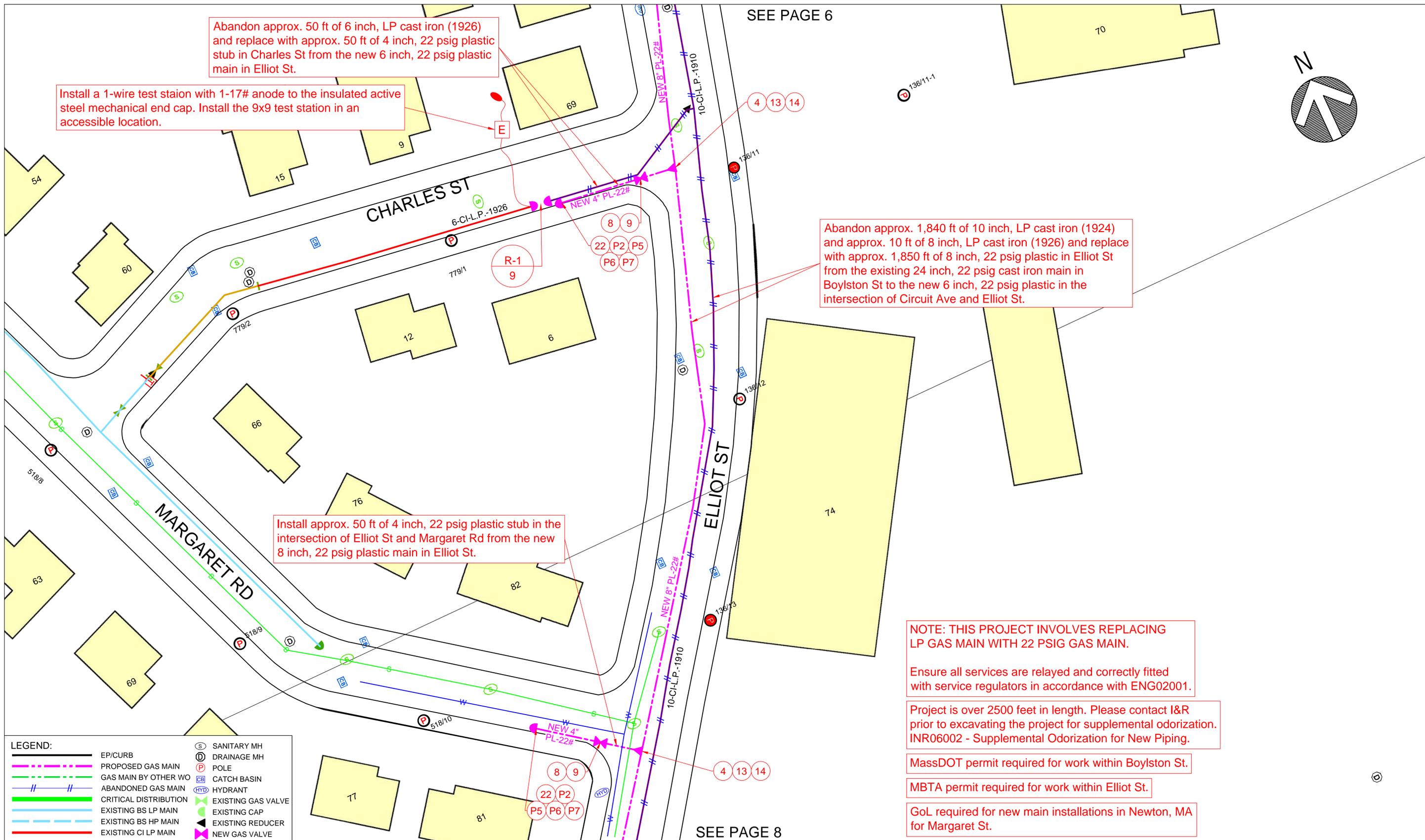
Ensure all services are relayed and correctly fitted with service regulators in accordance with ENG02001.

Project is over 2500 feet in length. Please contact I&R prior to excavating the project for supplemental odorization. INR06002 - Supplemental Odorization for New Piping.

MassDOT permit required for work within Boylston St.

MBTA permit required for work within Elliot St.

GoL required for new main installations in Newton, MA for Margaret St.

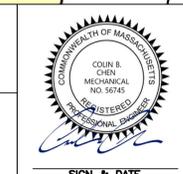


**LEGEND:**

	EP/CURB		SANITARY MH
	PROPOSED GAS MAIN		DRAINAGE MH
	GAS MAIN BY OTHER WO		POLE
	ABANDONED GAS MAIN		CATCH BASIN
	CRITICAL DISTRIBUTION		HYDRANT
	EXISTING BS LP MAIN		EXISTING GAS VALVE
	EXISTING BS HP MAIN		EXISTING CAP
	EXISTING CI LP MAIN		EXISTING REDUCER
	EXISTING CS LP MAIN		NEW GAS VALVE
	EXISTING CS HP MAIN		NEW CAP
	EXISTING PL LP MAIN		NEW REDUCER
	EXISTING PL HP MAIN		BOM ITEM#
	WATER MAIN		TIE-IN#
	SANITARY		PAGE #
	DRAINAGE		
	TELECOM		

215 GREENFIELD PARKWAY  
SUITE 102  
LIVERPOOL, N.Y. 13088

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APPROXIMATE SCALE: 1" = 40' (WHEN PLOTTED 11" x 17")



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40 SYLVAN ROAD  
WALTHAM, MA 02451

**FINAL**

CIRE101214 PROGRAM, MAIN & SERVICE REPLACEMENT  
10/8/6/4" CI-LP, 6" PL-LP, 4" BS-LP & 4/3" CS-LP TO 8/4/2" PL-22#  
3-144 ELLIOT ST  
NEWTON, MASSACHUSETTS

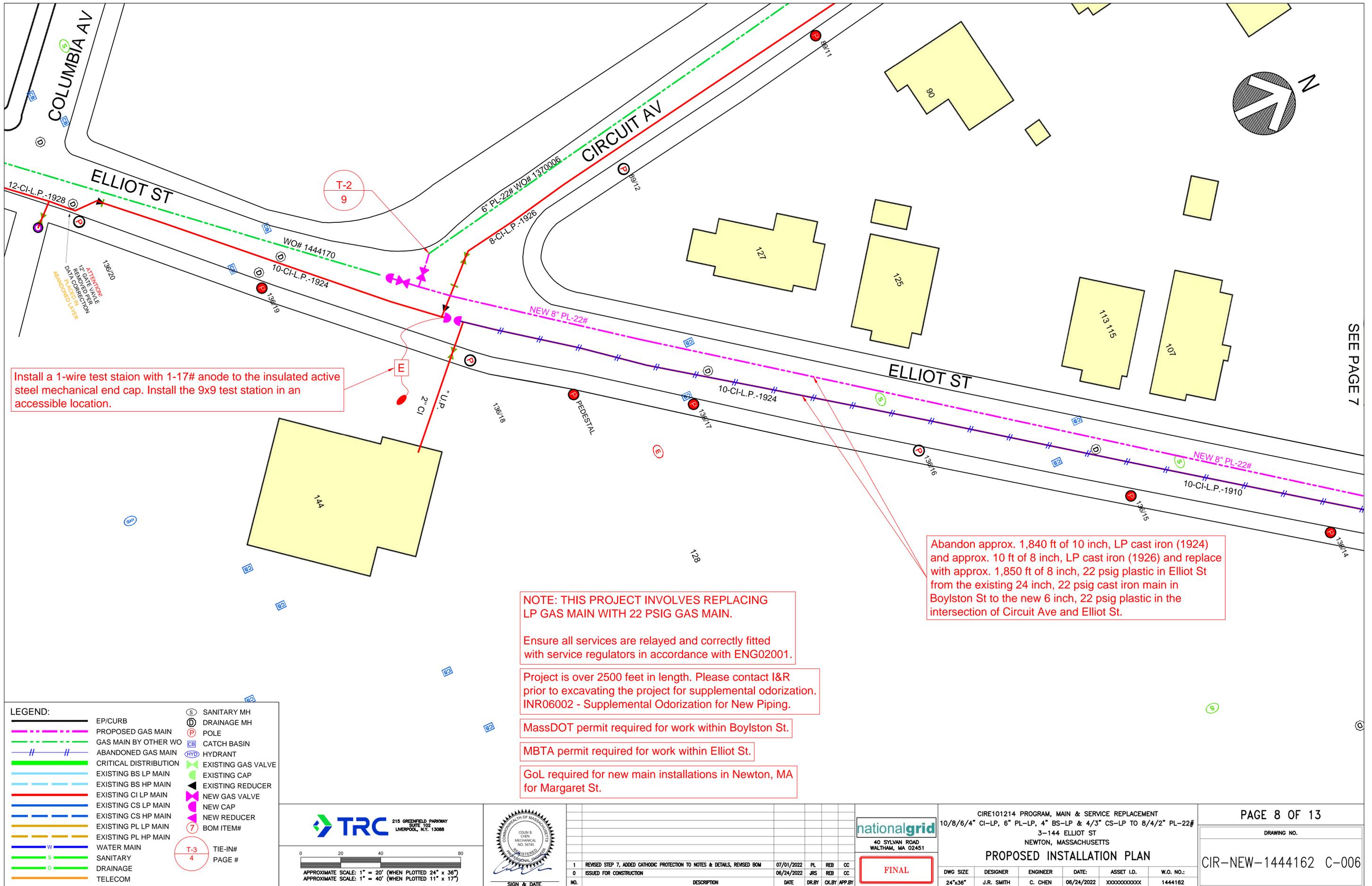
**PROPOSED INSTALLATION PLAN**

DWG SIZE	DESIGNER	ENGINEER	DATE	ASSET I.D.	W.O. NO.:
24"x36"	J.R. SMITH	C. CHEN	06/24/2022	XXXXXXXXXX	1444162

PAGE 7 OF 13

DRAWING NO.  
CIR-NEW-1444162 C-005

SEE PAGE 8



SEE PAGE 7

Install a 1-wire test station with 1-17# anode to the insulated active steel mechanical end cap. Install the 9x9 test station in an accessible location.

Abandon approx. 1,840 ft of 10 inch, LP cast iron (1924) and approx. 10 ft of 8 inch, LP cast iron (1926) and replace with approx. 1,850 ft of 8 inch, 22 psig plastic in Elliot St from the existing 24 inch, 22 psig cast iron main in Boylston St to the new 6 inch, 22 psig plastic in the intersection of Circuit Ave and Elliot St.

NOTE: THIS PROJECT INVOLVES REPLACING LP GAS MAIN WITH 22 PSIG GAS MAIN.  
Ensure all services are relayed and correctly fitted with service regulators in accordance with ENG02001.

Project is over 2500 feet in length. Please contact I&R prior to excavating the project for supplemental odorization. INR06002 - Supplemental Odorization for New Piping.

MassDOT permit required for work within Boylston St.

MBTA permit required for work within Elliot St.

GoL required for new main installations in Newton, MA for Margaret St.

**LEGEND:**

EP/CURB	Ⓢ SANITARY MH
PROPOSED GAS MAIN	Ⓣ DRAINAGE MH
GAS MAIN BY OTHER WO	Ⓟ POLE
ABANDONED GAS MAIN	Ⓛ CATCH BASIN
CRITICAL DISTRIBUTION	Ⓜ HYDRANT
EXISTING BS LP MAIN	Ⓛ EXISTING GAS VALVE
EXISTING BS HP MAIN	Ⓛ EXISTING CAP
EXISTING CI LP MAIN	Ⓛ EXISTING REDUCER
EXISTING CS LP MAIN	Ⓛ NEW GAS VALVE
EXISTING CS HP MAIN	Ⓛ NEW CAP
EXISTING PL LP MAIN	Ⓛ NEW REDUCER
EXISTING PL HP MAIN	Ⓛ BOM ITEM#
W WATER MAIN	Ⓛ TIE-IN#
S SANITARY	Ⓛ PAGE #
D DRAINAGE	
TELECOM	

**TRC** 215 GREENFIELD PARKWAY SUITE 102 LIVERPOOL, N.Y. 13088

0 20 40 80  
APPROXIMATE SCALE: 1" = 20' (WHEN PLOTTED 24" x 36")  
APPROXIMATE SCALE: 1" = 40' (WHEN PLOTTED 11" x 17")



NO.	DESCRIPTION	DATE	DR.	BY	APP.
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0	ISSUED FOR CONSTRUCTION	06/24/2022	JRS	REB	CC

**nationalgrid**  
40 SYLVAN ROAD WALTHAM, MA 02451

**FINAL**

CIRE101214 PROGRAM, MAIN & SERVICE REPLACEMENT  
10/8/6/4" CI-LP, 6" PL-LP, 4" BS-LP & 4/3" CS-LP TO 8/4/2" PL-22#  
3-144 ELLIOT ST  
NEWTON, MASSACHUSETTS

**PROPOSED INSTALLATION PLAN**

DWG SIZE	DESIGNER	ENGINEER	DATE	ASSET I.D.	W.O. NO.:
24"x36"	J.R. SMITH	C. CHEN	06/24/2022	XXXXXXXXXX	1444162

PAGE 8 OF 13

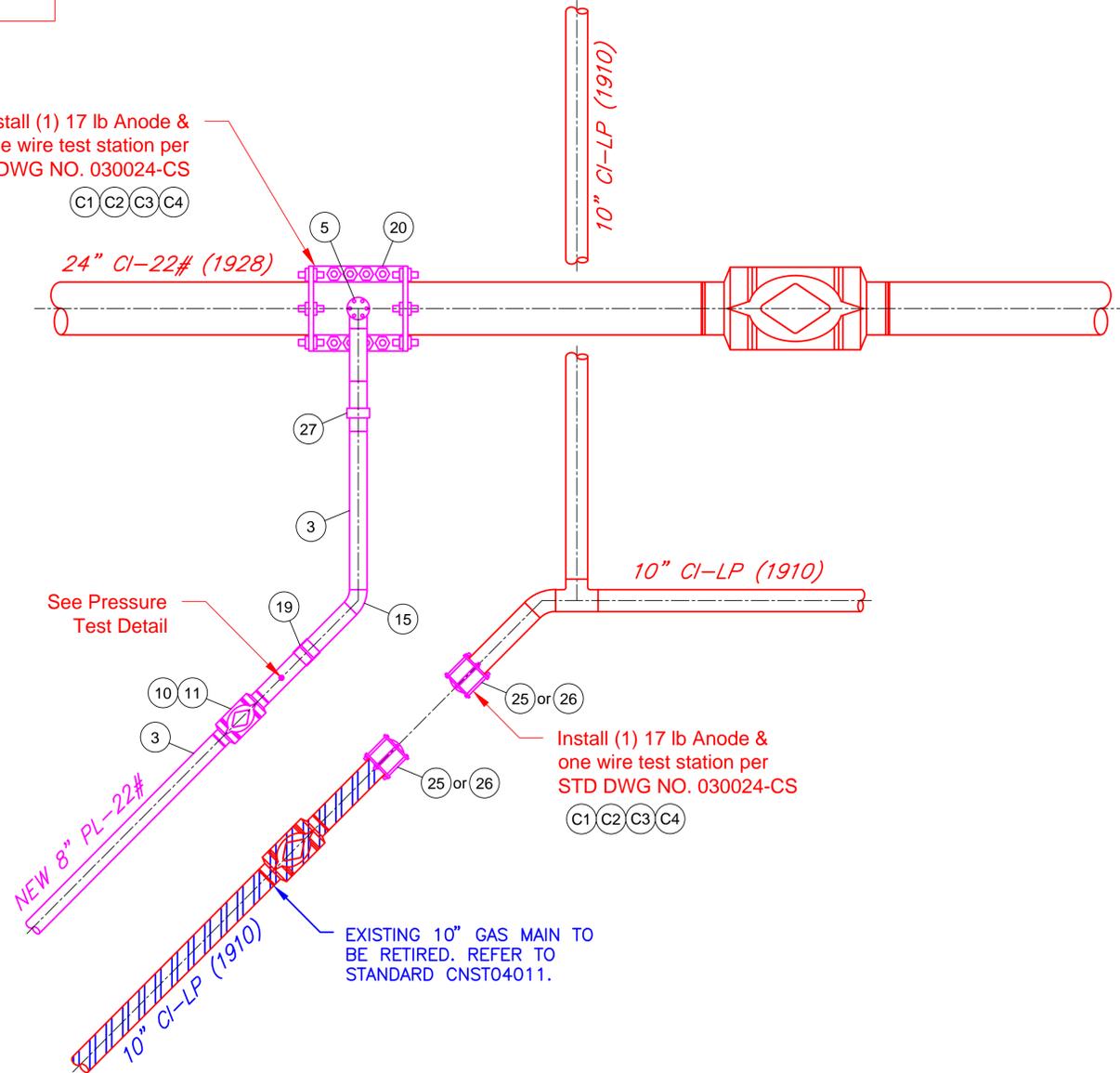
DRAWING NO.  
CIR-NEW-1444162 C-006

USE EXISTING VALVE FOR ISOLATION AND SQUEEZE-OFF IN ACCORDANCE WITH CNST03001 - OR - STOP-OFF IN ACCORDANCE WITH CNST03002

DO NOT TIE 8" PL-22# INTO 10" CI-LP

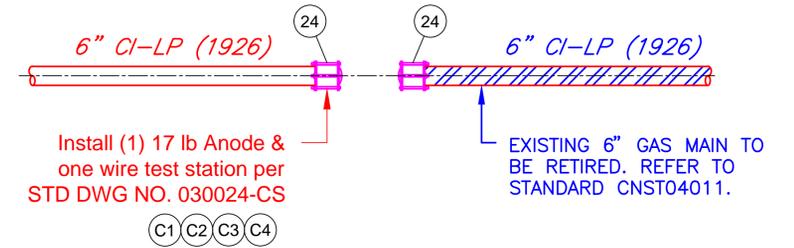
Install (1) 17 lb Anode & one wire test station per STD DWG NO. 030024-CS

(C1)(C2)(C3)(C4)



Tie-In Detail T-1  
Scale: 1" = 3'-0"

STOP-OFF IN ACCORDANCE WITH CNST03002



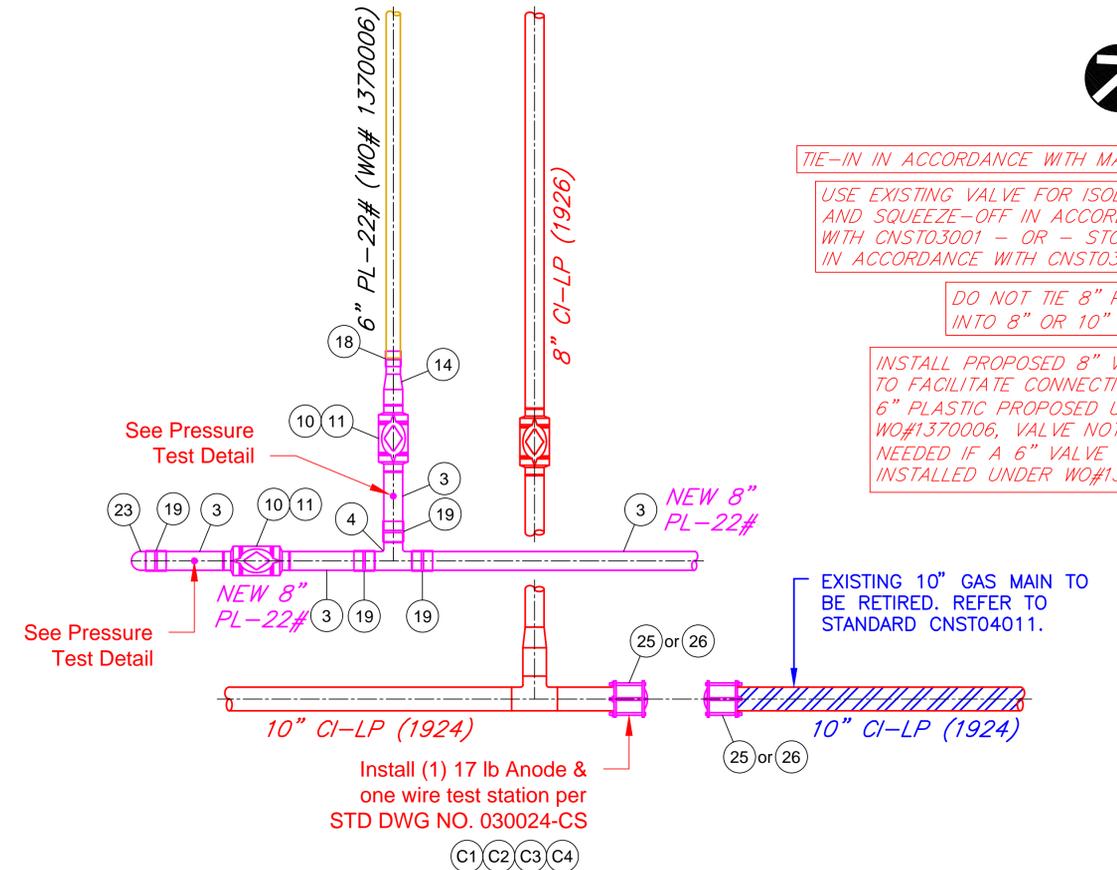
Retirement Detail R-1  
Scale: 1" = 3'-0"

TIE-IN IN ACCORDANCE WITH MAIN6115

USE EXISTING VALVE FOR ISOLATION AND SQUEEZE-OFF IN ACCORDANCE WITH CNST03001 - OR - STOP-OFF IN ACCORDANCE WITH CNST03002

DO NOT TIE 8" PL-22# INTO 8" OR 10" CI-LP

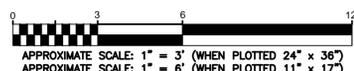
INSTALL PROPOSED 8" VALVE TO FACILITATE CONNECTION TO 6" PLASTIC PROPOSED UNDER WO#1370006, VALVE NOT NEEDED IF A 6" VALVE IS INSTALLED UNDER WO#1370006.



Tie-In Detail T-2  
Scale: 1" = 3'-0"

LEGEND:

	PROPOSED GAS MAIN		CENTERLINE
	ABANDONED GAS MAIN		BILL OF MATERIALS ITEM NUMBER
	EXISTING BS GAS MAIN		
	EXISTING CI GAS MAIN		
	EXISTING CS GAS MAIN		
	EXISTING PL GAS MAIN		



NO.	DESCRIPTION	DATE	DR.	BY	APP.
1	REVISED STEP 7, ADDED CATHODIC PROTECTION TO NOTES & DETAILS, REVISED BOM	07/01/2022	PL	REB	CC
0	ISSUED FOR CONSTRUCTION	06/24/2022	JRS	REB	CC

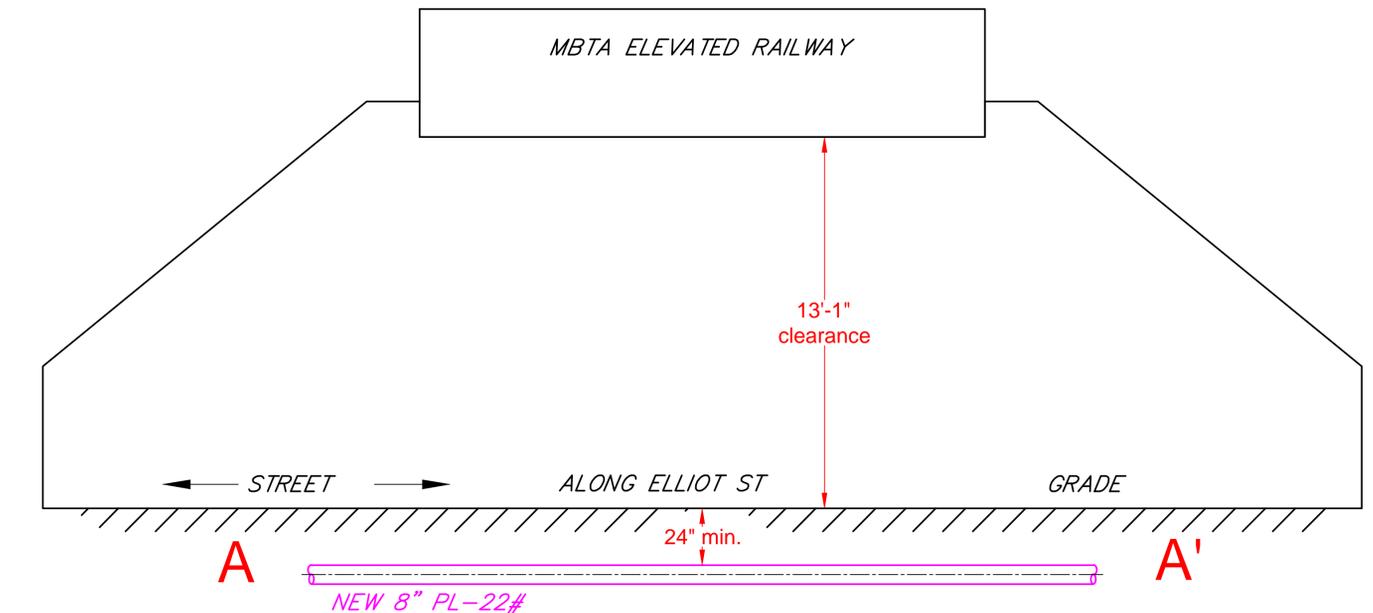
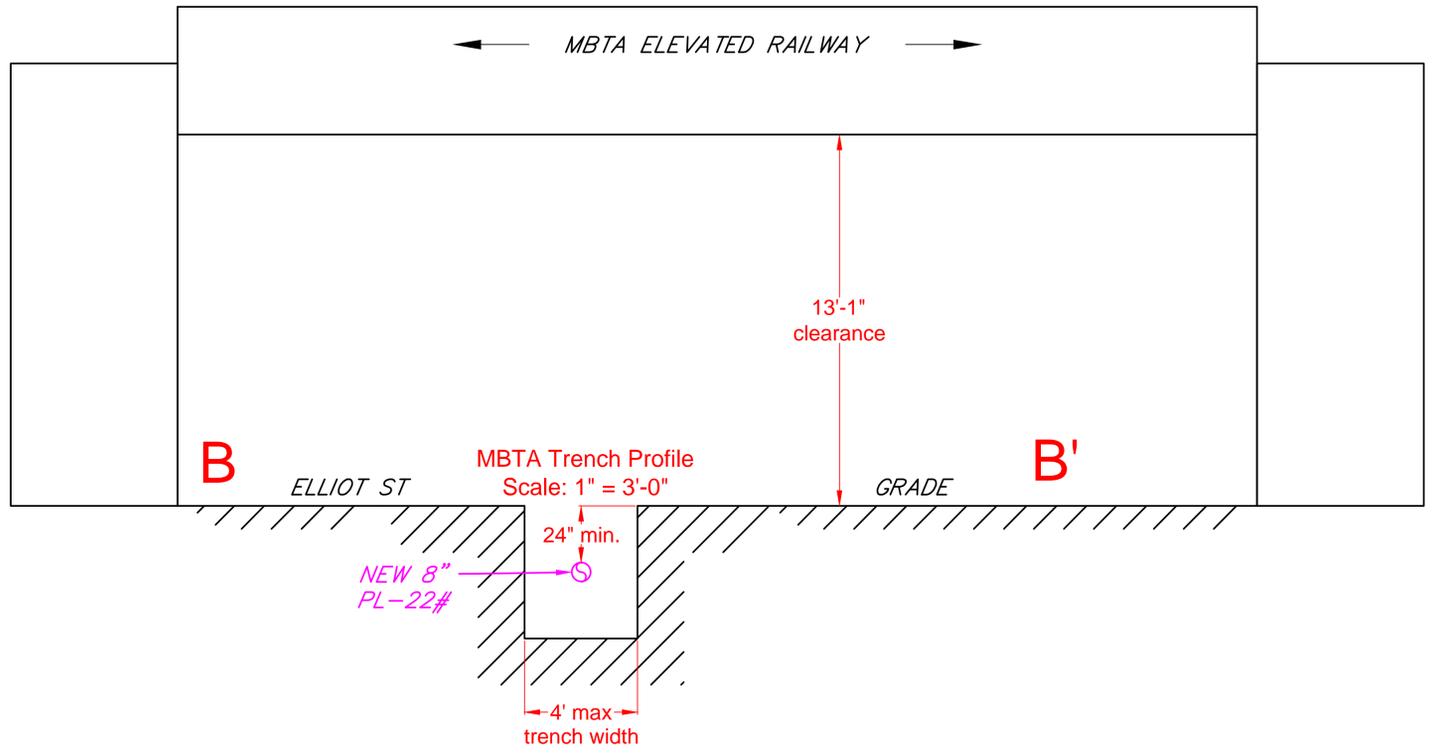
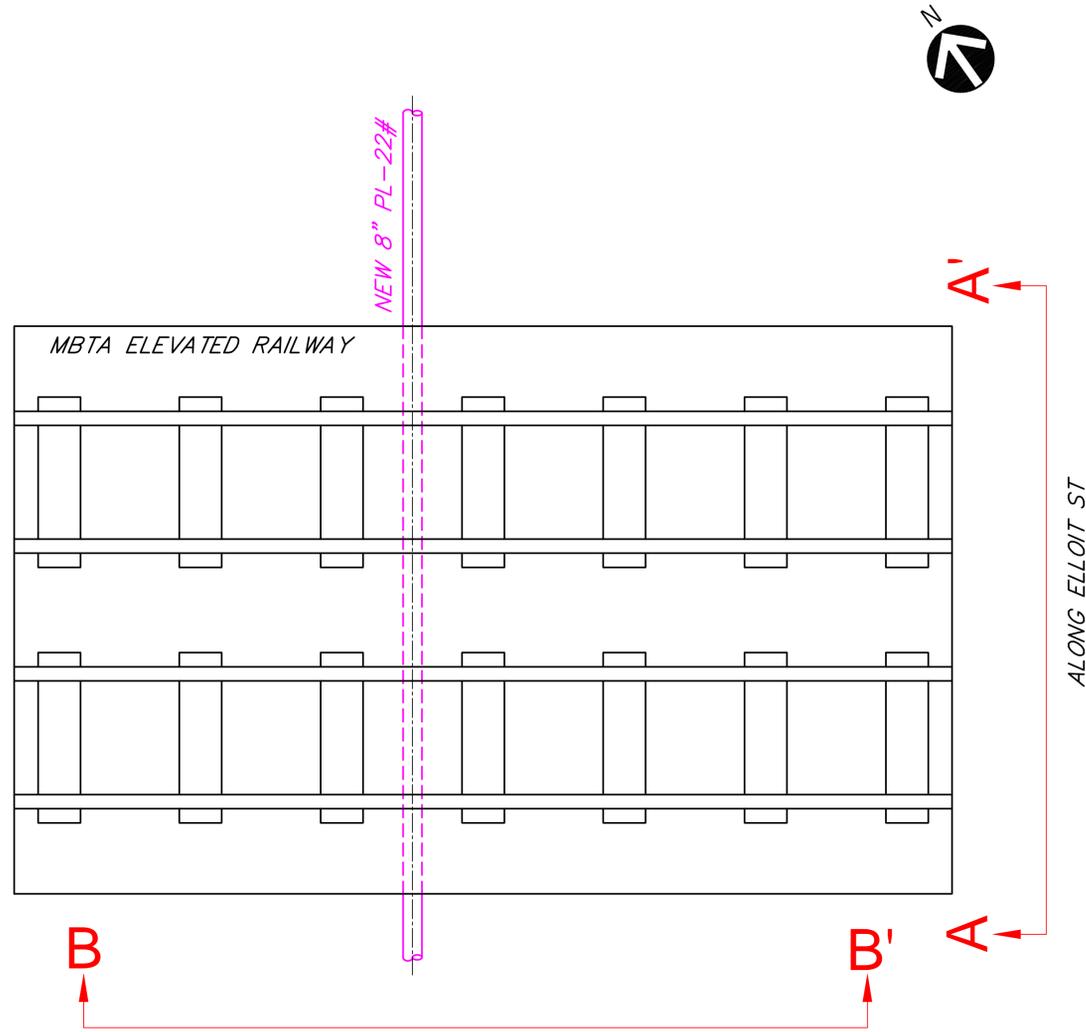


40 SYLVAN ROAD  
WALTHAM, MA 02451

CIRE101214 PROGRAM, MAIN & SERVICE REPLACEMENT  
10/8/6/4" CI-LP, 6" PL-LP, 4" BS-LP & 4/3" CS-LP TO 8/4/2" PL-22#  
3-144 ELLIOT ST  
NEWTON, MASSACHUSETTS

PROPOSED TIE-IN DETAILS

DWG SIZE	DESIGNER	ENGINEER	DATE	ASSET I.D.	W.O. NO.:
24"x36"	J.R. SMITH	C. CHEN	06/24/2022	XXXXXXXXXX	1444162



Detail D-1  
 MBTA TRACK  
 CROSS-SECTION A-A'  
 (GAS CROSSING UNDER TRACK)  
 Scale: 1" = 3'-0"

MBTA TRACK  
 CROSS-SECTION A-A'

Sheeting design shall be stamped by a Professional Engineer licensed in Massachusetts

**LEGEND:**

	PROPOSED GAS MAIN		CENTERLINE
	ABANDONED GAS MAIN		BILL OF MATERIALS ITEM NUMBER
	EXISTING BS GAS MAIN		
	EXISTING CI GAS MAIN		
	EXISTING CS GAS MAIN		
	EXISTING PL GAS MAIN		

APPROXIMATE SCALE: 1" = 3' (WHEN PLOTTED 24" x 36")  
 APPROXIMATE SCALE: 1" = 6' (WHEN PLOTTED 11" x 17")



NO.	DESCRIPTION	DATE	DR.	CK.	APP.
1	REVISED STEP 7, ADDED CATHODIC PROTECTION TO NOTES & DETAILS, REVISED BOM	07/01/2022	PL	REB	CC
0	ISSUED FOR CONSTRUCTION	06/24/2022	JRS	REB	CC

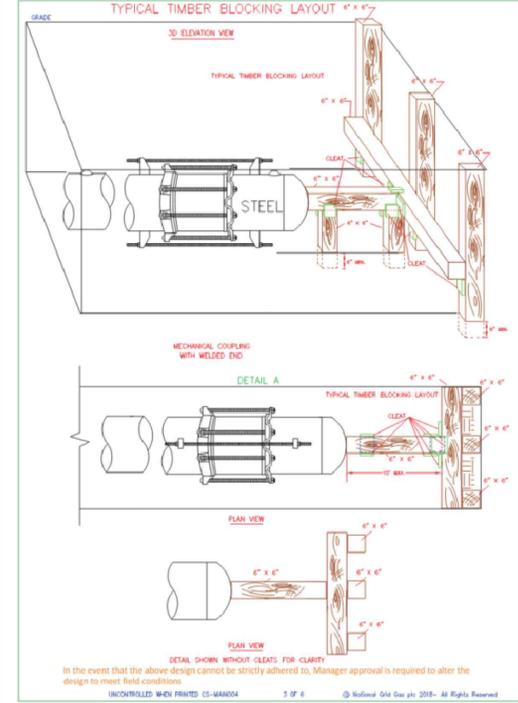
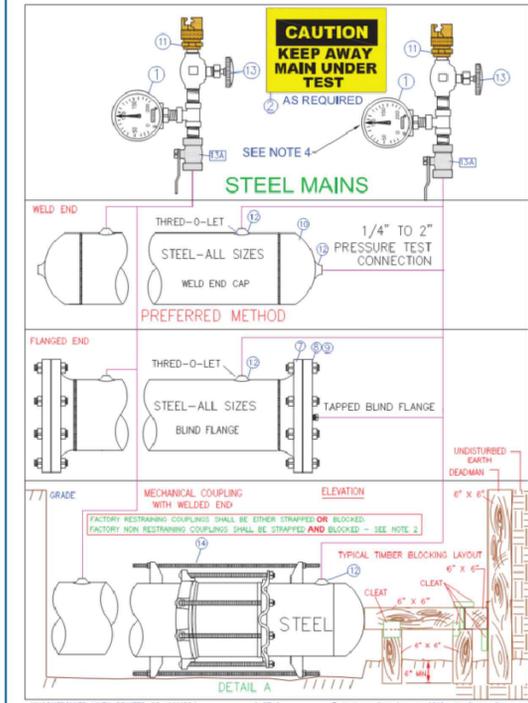
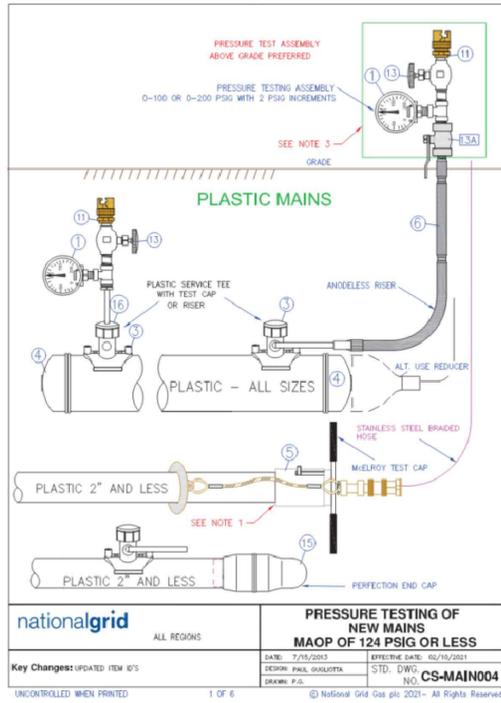
40 SYLVAN ROAD  
 WALTHAM, MA 02451

**FINAL**

CIRE101214 PROGRAM, MAIN & SERVICE REPLACEMENT  
 10/8/6/4" CI-LP, 6" PL-LP, 4" BS-LP & 4/3" CS-LP TO 8/4/2" PL-22#  
 3-144 ELLIOT ST  
 NEWTON, MASSACHUSETTS

**PROPOSED MBTA CROSSING DETAILS**

DWG SIZE	DESIGNER	ENGINEER	DATE	ASSET I.D.	W.O. NO.:
24"x36"	J.R. SMITH	C. CHEN	06/24/2022	XXXXXXXXXX	1444162



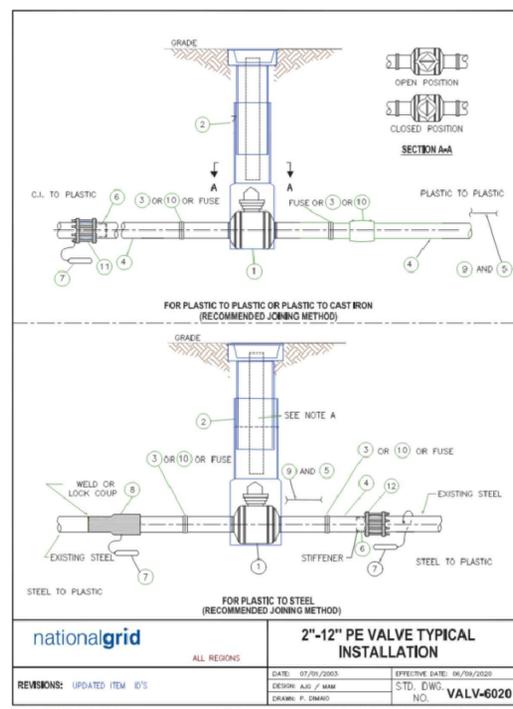
NOTES:

- INSTALL PER MECHLODY MANUFACTURER'S INSTRUCTIONS.
- WHEN USING MECHANICAL COUPLINGS (AS SHOWN IN DETAIL A), NON-RESTRAINING COUPLINGS SHALL BE STRAPPED AND THE ENDS SHALL BE BLOCKED PER APPROVED STANDARD DRAWINGS. RESTRAINING COUPLINGS MUST BE EITHER STRAPPED OR BLOCKED. WHEN USING RESTRAINING COUPLINGS, STRAPPING NUTS SHOULD BE HAND TIGHT.
- ON EXISTING STEEL SYSTEMS, REFER TO THE TABLE BELOW FOR THE MINIMUM SAFE EMBEDMENT DISTANCE FROM THE EXCAVATION WALL. IF A BURIED, UNSTRAPPED COUPLING EXISTS AT A DISTANCE LESS THAN THE MINIMUM SAFE EMBEDMENT DISTANCE FROM THE WALL, THEN BLOCKING IS REQUIRED FOR THE PRESSURE TEST. IF AN ALL WELDED SYSTEM CAN NOT BE CONFIRMED, THE WELDED OR FLANGED ENDS SHALL BE BLOCKED.
- REFER TO CONSTRUCTION STANDARD FITS-6025 AND FITS-6015 FOR LIST OF COUPLINGS.
- IT IS RECOMMENDED THAT THE GAUGE ASSEMBLY BE ABOVE GRADE TO PREVENT PERSONNEL FROM ENTERING THE TRENCH WHILE THE PRESSURE TEST IS UNDERWAY.
- ONE PRESSURE TEST GAUGE AT EACH PIPE END IS RECOMMENDED TO VERIFY THE PRESSURE. ALL GAUGES SHALL BE 0-100 OR 0-200 PSIG RANGE (2 PSIG INCREMENTS RECOMMENDED IN NY STATE ONLY).
- REFER TO CSD104003 - PRESSURE TESTING OF MAINS OPERATING BELOW 725 PSIG FOR TESTING AND DESIGN REQUIREMENTS.

PIPE SIZE (INCHES)	MINIMUM SAFE EMBEDMENT DISTANCE FROM EXCAVATION WALL (FEET)
2	2
3	2
4	2
6	2
8	2
10	2
12	2
14	2
16	2
18	2
20	2
24	2
30	2
36	2
42	2
48	2
54	2
60	2
72	2
84	2
96	2
108	2
120	2

ITEM	DESCRIPTION	SUPPLIER ID	SUPPLIER
1	PRESSURE GAUGE 6" OR 0-200 PSIG - 2 PSIG INCREMENTS	834885	NON STOCK
	0-200 PSIG STAINLESS STEEL 1/2" NPT 3/4" DIA.	830896	NON STOCK
	0-200 PSIG STAINLESS STEEL 1/2" NPT 3/4" DIA.	830896	NON STOCK
2	WELD END CAP	833249	NON STOCK
3	MECHANICAL COUPLING WITH WELDED END	834251	NON STOCK
4	MECHANICAL COUPLING WITH WELDED END	834251	NON STOCK
5	MECHANICAL COUPLING WITH WELDED END	834251	NON STOCK
6	MECHANICAL COUPLING WITH WELDED END	834251	NON STOCK
7	MECHANICAL COUPLING WITH WELDED END	834251	NON STOCK
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100	MECHANICAL COUPLING WITH WELDED END	834251	NON STOCK

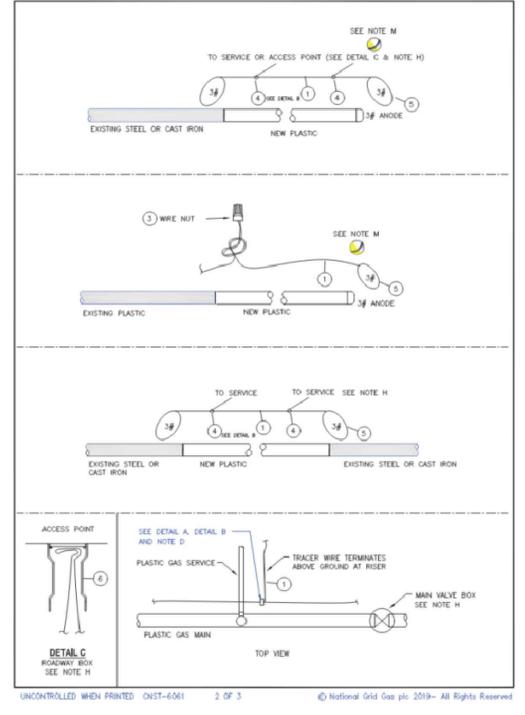
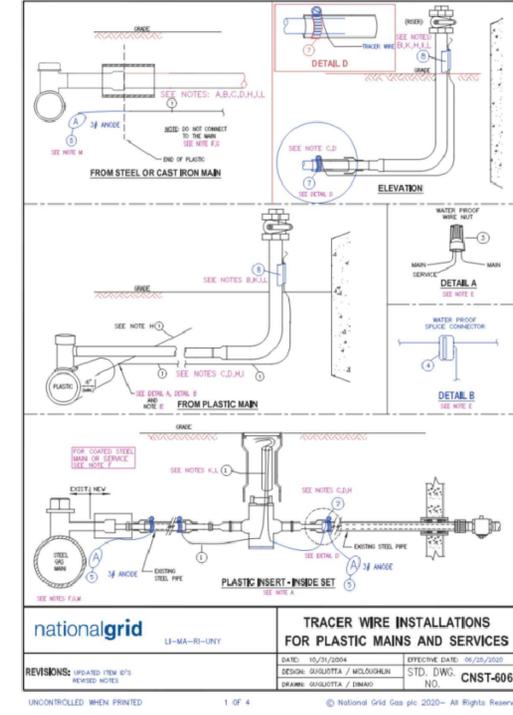
ITEM	DESCRIPTION	ORACLE ITEM ID	PEOPLESOFT ITEM
4	CAP END PLASTIC MEDIUM DENSITY YELLOW BUTT FUSE	8339540	NON STOCK
	2" SDR11	8339541	NON STOCK
	3" SDR11	8339542	NON STOCK
	4" SDR11	8339543	NON STOCK
	6" SDR11	8339544	NON STOCK
	8" SDR11	8339545	NON STOCK
	10" SDR11	8339546	NON STOCK
	12" SDR11	8339547	NON STOCK
	14" SDR11	8339548	NON STOCK
	16" SDR11	8339549	NON STOCK
	18" SDR11	8339550	NON STOCK
	20" SDR11	8339551	NON STOCK
	24" SDR11	8339552	NON STOCK
	30" SDR11	8339553	NON STOCK
	36" SDR11	8339554	NON STOCK
	42" SDR11	8339555	NON STOCK
	48" SDR11	8339556	NON STOCK
	54" SDR11	8339557	NON STOCK
	60" SDR11	8339558	NON STOCK
	72" SDR11	8339559	NON STOCK
	84" SDR11	8339560	NON STOCK
	96" SDR11	8339561	NON STOCK
	108" SDR11	8339562	NON STOCK
	120" SDR11	8339563	NON STOCK
	144" SDR11	8339564	NON STOCK
	168" SDR11	8339565	NON STOCK
	192" SDR11	8339566	NON STOCK
	216" SDR11	8339567	NON STOCK
	240" SDR11	8339568	NON STOCK
	264" SDR11	8339569	NON STOCK
	288" SDR11	8339570	NON STOCK
	312" SDR11	8339571	NON STOCK
	336" SDR11	8339572	NON STOCK
	360" SDR11	8339573	NON STOCK
	384" SDR11	8339574	NON STOCK
	408" SDR11	8339575	NON STOCK
	432" SDR11	8339576	NON STOCK
	456" SDR11	8339577	NON STOCK
	480" SDR11	8339578	NON STOCK
	504" SDR11	8339579	NON STOCK
	528" SDR11	8339580	NON STOCK
	552" SDR11	8339581	NON STOCK
	576" SDR11	8339582	NON STOCK
	600" SDR11	8339583	NON STOCK
	624" SDR11	8339584	NON STOCK
	648" SDR11	8339585	NON STOCK
	672" SDR11	8339586	NON STOCK
	696" SDR11	8339587	NON STOCK
	720" SDR11	8339588	NON STOCK
	744" SDR11	8339589	NON STOCK
	768" SDR11	8339590	NON STOCK
	792" SDR11	8339591	NON STOCK
	816" SDR11	8339592	NON STOCK
	840" SDR11	8339593	NON STOCK
	864" SDR11	8339594	NON STOCK
	888" SDR11	8339595	NON STOCK
	912" SDR11	8339596	NON STOCK
	936" SDR11	8339597	NON STOCK
	960" SDR11	8339598	NON STOCK
	984" SDR11	8339599	NON STOCK
	1008" SDR11	8339600	NON STOCK
	1032" SDR11	8339601	NON STOCK
	1056" SDR11	8339602	NON STOCK
	1080" SDR11	8339603	NON STOCK
	1104" SDR11	8339604	NON STOCK
	1128" SDR11	8339605	NON STOCK
	1152" SDR11	8339606	NON STOCK
	1176" SDR11	8339607	NON STOCK
	1200" SDR11	8339608	NON STOCK
	1224" SDR11	8339609	NON STOCK
	1248" SDR11	8339610	NON STOCK
	1272" SDR11	8339611	NON STOCK
	1296" SDR11	8339612	NON STOCK
	1320" SDR11	8339613	NON STOCK
	1344" SDR11	8339614	NON STOCK
	1368" SDR11	8339615	NON STOCK
	1392" SDR11	8339616	NON STOCK
	1416" SDR11	8339617	NON STOCK
	1440" SDR11	8339618	NON STOCK
	1464" SDR11	8339619	NON STOCK
	1488" SDR11	8339620	NON STOCK
	1512" SDR11	8339621	NON STOCK
	1536" SDR11	8339622	NON STOCK
	1560" SDR11	8339623	NON STOCK
	1584" SDR11	8339624	NON STOCK
	1608" SDR11	8339625	NON STOCK
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	1656" SDR11	8339627	NON STOCK
	1680" SDR11	8339628	NON STOCK
	1704" SDR11	8339629	NON STOCK
	1728" SDR11	8339630	NON STOCK
	1752" SDR11	8339631	NON STOCK
	1776" SDR11	8339632	NON STOCK
	1800" SDR11	8339633	NON STOCK
	1824" SDR11	8339634	NON STOCK
	1848" SDR11	8339635	NON STOCK
	1872" SDR11	8339636	NON STOCK
	1896" SDR11	8339637	NON STOCK
	1920" SDR11	8339638	NON STOCK
	1944" SDR11	8339639	NON STOCK
	1968" SDR11	8339640	NON STOCK
	1992" SDR11	8339641	NON STOCK
	2016" SDR11	8339642	NON STOCK
	2040" SDR11	8339643	NON STOCK
	2064" SDR11	8339644	NON STOCK
	2088" SDR11	8339645	NON STOCK
	2112" SDR11	8339646	NON STOCK
	2136" SDR11	8339647	NON STOCK
	2160" SDR11	8339648	NON STOCK
	2184" SDR11	8339649	NON STOCK
	2208" SDR11	8339650	NON STOCK
	2232" SDR11	8339651	NON STOCK
	2256" SDR11	8339652	NON STOCK
	2280" SDR11	8339653	NON STOCK
	2304" SDR11	8339654	NON STOCK



NOTES:  
 A. IN ANY LI REGION, INSTALL A LENGTH OF 2" DIAMETER PE OR SMALLER TUBING IN THE VALVE BOX TO IDENTIFY THE VALVE AS PLASTIC.  
 B. INSTALL TRACER WIRE OR BALL MARKERS AS REQUIRED IN YOUR REGION FOR PE INSTALLATIONS.  
 C. NOT USED ON THE ONLY LI 8" & 12" PSI GAS SYSTEM.  
 D. REFER TO REGIONAL STANDARDS FOR MATERIALS NOT GIVEN BELOW.

	SAP ID	SAP ID	SAP ID
1	UNY AND RI LP TO 100 PSIG HD	LI ONLY 89 AND 124 PSIG HD	LI, NYC AND NE LP TO 60 PSIG MEDIUM DENSITY
	9311203 12" DR 11 FULL PORT W/ GEAR OPERATOR RI ONLY	9341706 8" RED PORT DR 9	9341704 12" FULL PORT DR 13.5
	9307909 12" DR 13.5 FULL PORT W/ GEAR OPERATOR UNY ONLY	9341705 6" RED PORT DR 9	9386584 8" FULL PORT DR 13.5
	9311173 8" DR 11 FULL PORT RI ONLY	9341700 4" RED PORT DR 9	9323002 6" FULL PORT DR 11.5
	9315189 8" DR 13.5 FULL PORT UNY ONLY	9341699 2" FULL PORT DR 9	9341709 4" FULL PORT DR 11.5
	9312116 8" DR 11 FULL PORT RI ONLY		9323299 3" FULL PORT DR 11
	9312058 4" DR 11 FULL PORT RI ONLY		9341784 2" FULL PORT DR 11
	9386561 3" DR 11 FULL PORT RI ONLY		9341408 8" RED PORT DR 13.5
	9312060 2" DR 11 FULL PORT RI ONLY		9341707 6" RED PORT DR 11.5
	9311146 2" DR 11 FULL PORT WITH PERMASERT ENDS		9341693 4" RED PORT DR 11.5
			9341756 3" RED PORT DR 11
			100 PSIG HIGH DENSITY (NE ONLY)
		9323610 4" RED PORT DR 11	
		9323611 6" RED PORT DR 11	
		9323612 8" RED PORT DR 11	
		9312060 2" FULL PORT DR 11	
		9312059 4" FULL PORT DR 11	
		9312115 6" FULL PORT DR 11	
2	ROADWAY VALVE BOX WITH COVER	ROADWAY VALVE BOX BELOW TO MATCH SIZED VALVE GIVEN	ROADWAY VALVE BOX BELOW TO MATCH SIZED VALVE GIVEN
	SEE DWG FITS 6386 (FOR 12" VALVE)	9341706 8" RED PORT	9382626 FOR 12" FULL PORT
	9311206 (FOR 2" THRU 8" VALVE)	9341705 6" RED PORT	9382626 FOR 8" FULL PORT
	9341700 4" RED PORT	9338993 FOR 6" FULL PORT	
	9341699 2" FULL PORT	9338992 FOR 4" FULL PORT	
		9338990 FOR 3" FULL PORT	
		9338989 FOR 2" FULL PORT	
		9338989 FOR 8" RED PORT	
		9338992 FOR 6" RED PORT	
		9338991 FOR 4" RED PORT	
		9338991 FOR 3" RED PORT	
3	COUPLING ELECTROFUSE		
4	PLASTIC PIPE		
5	BURIAL TAPE		
6	INSERT STIFFENER (SEE NOTE C)		
7	ANODE: 17 LB		
8	TRANSITION FITTING STL TO PE		
9	TRACER WIRE OR (BALL MARKER IF USED IN REGION)		
10	COUPLING 2" PERFECTION PERMASERT (SEE NOTE C)		
11	COUPLING PE TO C, LOCKING INSULATING, MECHANICAL		
12	COUPLING PE TO STL, LOCKING, NON-INSULATING MECHANICAL (SEE NOTE C)		
No.	ITEM		

UNCONTROLLED WHEN PRINTED  
 Effective Date: 06/09/2020  
 2 OF 2  
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 VALV-6020



NO.	ITEM	SAP ITEM ID
8	TRACER WIRE SNAP, 2" (represents steel size)	9386134
8	TRACER WIRE SNAP, 1" (represents steel size)	9386156
8	TRACER WIRE SNAP, 1/2" (represents steel size)	9386150
7	CLAMP, STAINLESS	9385568
6	VALVE BOX, ROADWAY	9331708
5	ANODE: 3 LB MAGNESIUM	9338990
4	WIRE SPLICE CONNECTOR, WATERPROOF	9315445
3	WIRE NUT, PLASTIC, WATERPROOF	9331644
2	WIRE, DIRECTIONAL DRILL, STAINLESS, STRANDED 10 AWG	9314187
1	TRACER WIRE, DIRECT BURY, COPPER, 12 AWG	9315005

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 Effective Date: 06/25/2020  
 4 OF 4  
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 CNST-6061

**A. Inside sets:** Terminate tracer wire in the curb valve box. Allow enough wire to extend 18" to 24" above grade.

**B. Outside Sets:** Tracer wire should be extended approximately 18" above grade at riser. Connect tracer wire to the riser using a "tracer snap", item #8. If the appropriate tracer snap is not available, wrap or tie the tracer wire to the riser. Do not permanently attach tracer wire to the riser. Tracer wire should not exceed 6" above the point where it is secured to the riser.

**C. Partially tubed services:** When the abandoned portion of an existing steel service pipe is used as a sleeve for the new plastic, all cut sections of the steel pipe to be inserted with plastic, shall be connected using a section of tracer wire to maintain continuity. If the existing service is coated steel, see [Installation of Test Stations for Cathodic Protection \(C030026-CS\)](#) and [Installation of Test Stations for Cathodic Protection \(C030026-CS\)](#) or contact corrosion department for more guidance.

**D. Thermite welding of tracer wire to abandoned steel service** is only acceptable prior to insertion of the plastic tubing. See [Installation of Test Stations for Cathodic Protection \(C030026-CS\)](#).

**E. Plastic Mains:** The service tracer wire shall be connected to the plastic main tracer wire using item #3 detail A or item #4 (detail B - preferred) in accordance with [Installing Wire Connections \(C0304001\)](#).

**F. Coated Steel Mains:** Do not connect the tracer wire to the steel main. See [Installation of Test Stations for Cathodic Protection \(C030026-CS\)](#) and [Installation of Test Stations for Cathodic Protection \(C0304001\)](#) or contact corrosion department for more guidance.

**G. Cast Iron or Bare steel Mains:** Do not connect the tracer wire to the main. It is required in LI and MA, and suggested in all other areas to terminate the tracing wire with a 3# anode.

**Tracer Wire Installation Notes**

**H.** Install tracer wire in close proximity to the plastic pipe. Approximately 4" to 6" away from the pipe. LI & MA - Above or alongside, UNY - alongside, RI - Under or alongside. Exception: For trenchless pipe installations, the minimum clearance is waived.

**I.** Maintain separation of approximately 4" from service riser. Do not permanently connect the tracer wire to the riser.

**J.** For horizontal directional drill installations, use stainless wire, item #2.

K. Tracer wire installed in boxes should allow enough wire to extend 18" to 24" above grade.

L. Verification: upon completion, the installer shall verify the location of the main or service using the tracer wire and locating device and perform a mark out using the conductive method.

M. LI and MA: Required to terminate the tracing wire with a 3# anode. This is to ground the tracer wire and increase signal strength when locating. This practice is recommended in all areas where signal strength is an issue.

**Regional Notes**

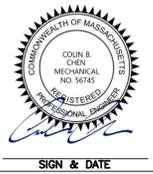
NYC ONLY: refer to [Installation of Marker Tapes and EMS Pipeline Locators for Mains and Services \(CNST6060-NYC\)](#) for installation of electronic marker ball in place of tracer wire.

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 Effective Date: 06/25/2020  
 4 OF 4  
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 CNST-6061

**TRC** 215 GREENFIELD PARKWAY  
 SUITE 102  
 LIVERPOOL, N.Y. 13088

NOT TO SCALE

SIGN & DATE



NO.	DESCRIPTION	DATE	DR BY	CHK BY	APP BY
1	REVISED STEP 7, ADDED CATHODIC PROTECTION TO NOTES & DETAILS, REVISED BOM	07/01/2022	PL	REB	CC
0	ISSUED FOR CONSTRUCTION	06/24/2022	JRS	REB	CC

**nationalgrid**  
 40 SYLVAN ROAD  
 WALTHAM, MA 02451

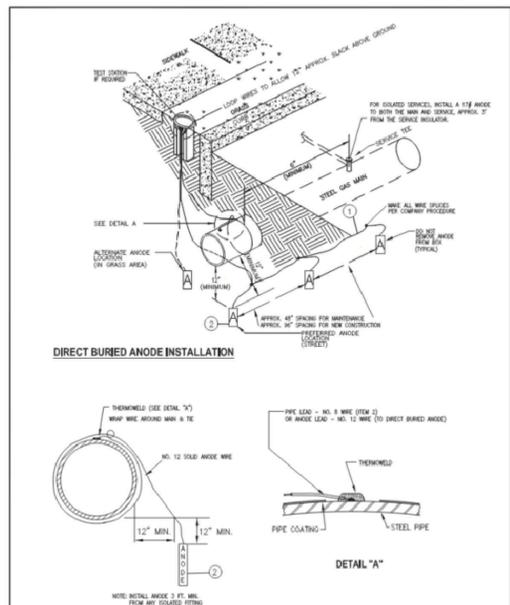
**FINAL**

CIRE101214 PROGRAM, MAIN & SERVICE REPLACEMENT  
 10/8/6/4" CI-LP, 6" PL-LP, 4" BS-LP & 4/3" CS-LP TO 8/4/2" PL-22#  
 3-144 ELLIOT ST  
 NEWTON, MASSACHUSETTS  
**STANDARD DETAILS**

DWG SIZE	DESIGNER	ENGINEER	DATE	ASSET I.D.	W.O. NO.:
24"x36"	J.R. SMITH	C. CHEN	06/24/2022	XXXXXXXXXX	1444162

PAGE 12 OF 13

DRAWING NO.  
 CIR-NEW-1444162 C-202



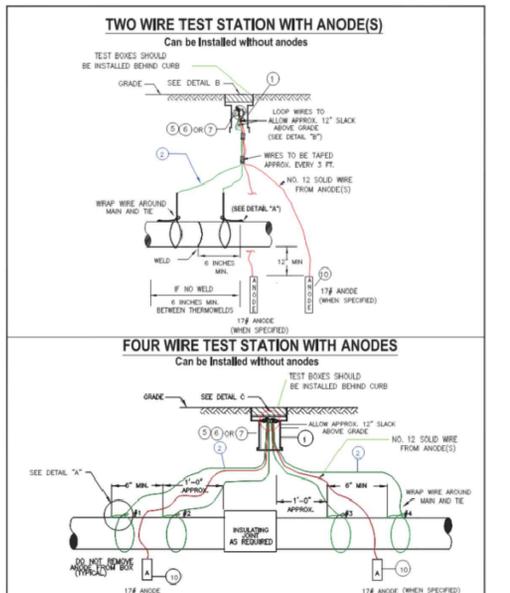
**MATERIAL LIST**

Description	Down State NY SAP Item I.D.	Upstate NY SAP Item I.D.	New England SAP Item I.D.	Rhode Island SAP Item I.D.	MATERIAL NOTES
1. CABLE NO. 8 - 1/2"	9334425	9311214	9334425	9311214	Upstate and RI cable has 19 strands
2. ANODE, MAGNESIUM 17 LB	9311183	9311183	9311183	9311183	
3. ANODE, MAGNESIUM 3 LB	9315645	9315645	9315645	9315645	Use on Tracer wire and all isolated fittings
4. ANODE, MAGNESIUM SPIKE 3 LB	9308624	9308624	9308624	9308624	Use on Service Risers ONLY
* CLAMP, GROUNDING 1/2" - 1" DIA.	9386544	9386544	9386544	9386544	Grounding clamp for attaching spike anode lead wire to service riser
* CLAMP, GROUNDING 1-1/4" - 2" DIA.	9386559	9386559	9386559	9386559	Grounding clamp for attaching spike anode lead wire to service riser

\* Spike Anode Ground Clamp

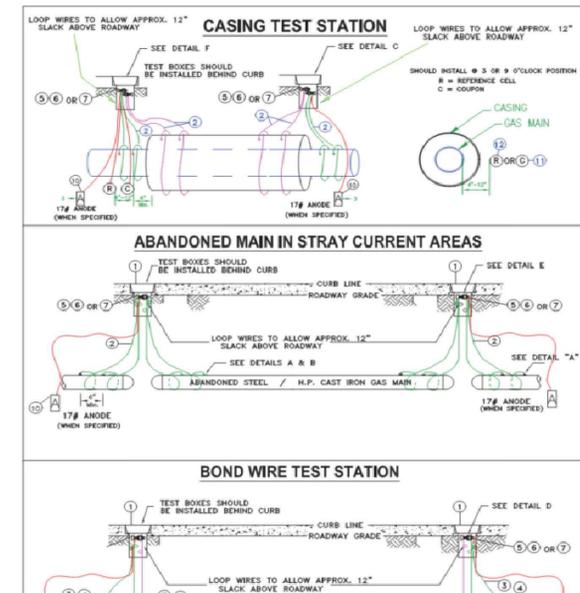
**INSTALLATION OF MAGNESIUM ANODES**

DATE: 07/25/2010 EFFECTIVE DATE: 06/19/2020  
 REGION: PS STD. DWG. NO. 030024-CS  
 APPROVAL: PS

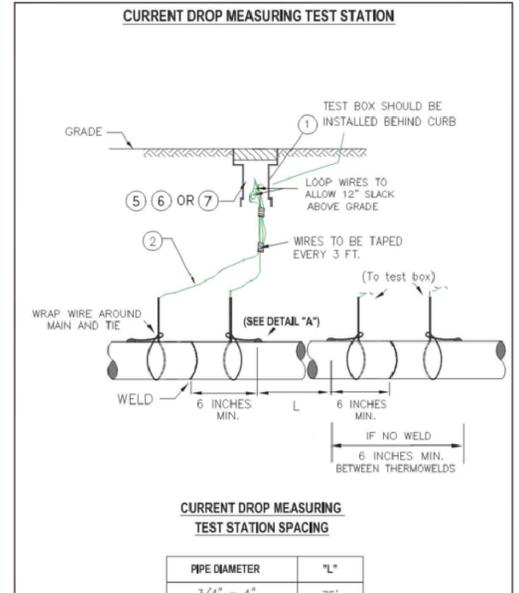


**INSTALLATION OF TEST STATIONS FOR CATHODIC PROTECTION**

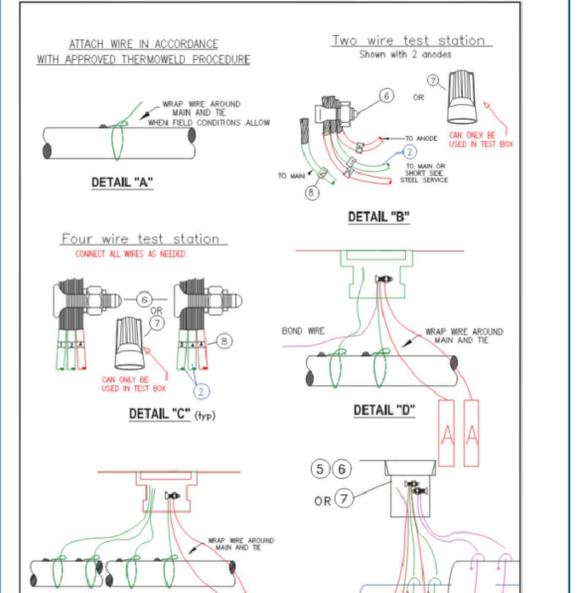
DATE: 07/25/2010 EFFECTIVE DATE: 06/19/2020  
 REGION: PS STD. DWG. NO. 030026-CS  
 APPROVAL: PS



SHT. 2 OF 5 030026-CS



SHT. 3 OF 5 030026-CS



SHT. 4 OF 5 030026-CS

**MATERIAL LIST**

Description	Down State NY SAP Item I.D.	Upstate NY SAP Item I.D.	New England SAP Item I.D.	Rhode Island SAP Item I.D.	MATERIAL NOTES
1. TEST BOX WITH COVER	9339892	9312291	9339892	9339892	NON LOCKING COVER. DISCARD FOOT PIECE.
TEST BOX 9" SQUARE HEAVY DUTY	9339391	9312291	9339391	9339391	WEIGHS 95 LBS. STREET USE, WITHOUT COVER
COVER FOR 9" SQUARE BOX	9339797	9312291	9339797	9339797	NON-LOCKING COVER
2. WIRE, NO. 8, 7 STRAND	9307539	9307539	9307539	9307539	TEST WIRE ONLY, NOT FOR GROUND BEDS, UPSTATE AND RI WIRE HAS 19 STRANDS
3. WIRE, NO. 6, 7 STRAND	9311795	9311795	9311795	9311795	BOND WIRE ONLY, NOT FOR GROUND BEDS
4. WIRE 10 - 19 STRAND 400 V - 1C	9334171	NON STOCK	9334171	NON STOCK	USE IN STRAY CURRENT AREAS
5. TAPE PVC - 1/2" WIDE	9334056	9315670	9334056	9315670	NOT FOR PIPE COATING
6. CONNECTOR, SPLIT BOLT, TYPE 6	9331578	9316630	9331578	NON STOCK	USE WITH NO. 6 CABLE
7. CONNECTOR, SPLIT BOLT, TYPE 1/01	9331612		9331612		USE WITH 1/0 CABLE
8. CONNECTOR, TWIST-ON WIRE NUT	9330683	9314631	9330683	9314631	
9. TAG ADHESIVE	9307918	9307918	9307918	9307918	LABEL WITH #1 (N) OR (E), CONSECUTIVELY TO (S) OR (W)
NUMBER 1	9307896	9307896	9307896	9307896	SEE DETAILS "B" AND "C"
NUMBER 3	9307895	9307895	9307895	9307895	
NUMBER 4	9307894	9307894	9307894	9307894	
LETTER A	9307893	9307893	9307893	9307893	USE TO LABEL ANODES
10. GROUNDING CELL	NON STOCK	9315642	NON STOCK	NON STOCK	AS SPECIFIED BY CORROSION ENGINEERING
11. ANODE MAGNESIUM 17LB	9311183	9311183	9311183	9311183	SATURATE WITH WATER BEFORE BACKFILL. ANODE MAY BE INSTALLED VERTICALLY OR HORIZONTALLY.
12. COUPON	9386100	By Corrosion	9386100	By Corrosion	MC MILLER OR EQUAL
REFERENCE CELL	9385758	By Corrosion	9385758	By Corrosion	BORN MFGR INC OR EQUAL

SHT. 5 OF 5 030026-CS

**TRC** 215 GREENFIELD PARKWAY SUITE 102 LIVERPOOL, N.Y. 13088

NOT TO SCALE



NO.	REVISION	DESCRIPTION	DATE	DR.	BY	APP.
1	REVISED STEP 7, ADDED CATHODIC PROTECTION TO NOTES & DETAILS, REVISED BOM		07/01/2022	PL	REB	CC
0	ISSUED FOR CONSTRUCTION		06/24/2022	JRS	REB	CC

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40 SYLVAN ROAD WALTHAM, MA 02451

**FINAL**

CIRE101214 PROGRAM, MAIN & SERVICE REPLACEMENT  
 10/8/6/4" CI-LP, 6" PL-LP, 4" BS-LP & 4/3" CS-LP TO 8/4/2" PL-22#  
 3-144 ELLIOT ST  
 NEWTON, MASSACHUSETTS  
**STANDARD DETAILS**

DWG SIZE	DESIGNER	ENGINEER	DATE	ASSET I.D.	W.O. NO.:
24"x36"	J.R. SMITH	C. CHEN	06/24/2022	XXXXXXXXXX	1444162

PAGE 13 OF 13

DRAWING NO. CIR-NEW-1444162 C-203