

CONSTRUCTION NOTES

SCOPE OF WORK

NATIONAL GRID WORK ORDER NUMBER 1399914:
 BRIGHTON ST, MERRILL AVE, AND HAMILTON RD
 AS PART OF THE GRTHREPA PROGRAM, STRATEGIC ASSET & SYSTEM PLANNING RECOMMENDS THE FOLLOWING:
 RELAY 105 FEET OF 2 INCH, 25 PSIG WROUGHT IRON (1930) AND 115 FEET OF 2 INCH, 25 PSIG COATED STEEL (1964) - (MBEL0033) AND INSTALL 770 FEET OF 4 INCH PL 25 PSIG MAIN IN BRIGHTON ST AND BLANCHARD RD, FROM EXISTING 2 INCH PL 25 PSIG MAIN NEAR HITTINGER ST TO COLBY ST.
 INSTALL 1,000 FEET OF 4 INCH PL 25# MAIN IN COLBY ST AND MERRILL ST, FROM BLANCHARD RD TO HAMILTON RD. ABANDON 1,000 FEET OF 4 INCH CI LP MAIN IN COLBY ST AND MERRILL ST.
 NOTE: THIS PROJECT INVOLVES REPLACING LP GAS MAIN WITH 25 PSIG GAS MAIN. ENSURE THAT ALL SERVICES ARE FITTED APPROPRIATELY WITH SERVICE REGULATORS PRIOR TO TRANSFERRING OVER FROM THE LP TO 25 PSIG SYSTEM.
 2 MAIN CONNECTIONS / CUT OFFS

GENERAL

- NO FIELD CHANGES SHALL BE MADE TO THIS DESIGN WITHOUT APPROVAL FROM THE ASSIGNED NATIONAL GRID ENGINEER:
 ENGINEER: PATRICK MCLAUGHLIN
 PHONE: (857)-208-2237
 EMAIL: PATRICK.MCLAUGHLIN@NATIONALGRID.COM
- CONTRACTOR SHALL CALL DIGSAFE (DIAL 811 OR 888-344-7233) AT LEAST 72 HOURS PRIOR TO CONSTRUCTION. SATURDAYS, SUNDAYS, AND HOLIDAYS ARE EXCLUDED.
- CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES AND STRUCTURES DEPICTED OR NOT DEPICTED ON THIS DESIGN PRIOR TO CONSTRUCTION.
- NEW MAINS SHOULD BE INSTALLED IN ACCORDANCE WITH THE TYPICAL TRENCH DETAIL INCLUDED IN THESE DRAWINGS, UNLESS NOTED OTHERWISE.
 - 36 INCHES OF COVER FROM FINAL GRADE WHERE PRACTICAL.
 - STATE HIGHWAY MINIMUM COVER: 36 INCHES
 - DISTRIBUTION MAIN MINIMUM COVER: 24 INCHES
 - SAND PADDING IN ALL DIRECTIONS, 6 INCHES MINIMUM.
 - CAUTION TAPE SHALL BE INCLUDED ONE FOOT BELOW GRADE.
- SERVICES SHOULD BE INSTALLED WITH 24 INCHES OF COVER.
 - MINIMUM IN PUBLIC ROW: 18 INCHES
 - MINIMUM IN PRIVATE PROPERTY: 12 INCHES
 - SAND PADDING IN ALL DIRECTIONS, 6 INCHES MINIMUM.
 - CAUTION TAPE SHALL BE INCLUDED ONE FOOT BELOW GRADE.
- REFER TO CNST-6030 FOR SHALLOW MAINS. PRIOR TO INSTALLING GAS MAINS WITH LESS THAN 24 INCHES OF COVER, COMPLETE REQUEST FOR WAIVER FORM AND CONTACT GAS PIPELINE SAFETY & COMPLIANCE FOR APPROVAL:
 - JENNIFER GILLIS - (617) 594-5157 (MA EXCLUDING CAPE AND WEBSTER)
 - LIEN GAUTHIER - (617) 438-9069 (MA EXCLUDING CAPE AND WEBSTER)
 - JIM FITZPATRICK - (617) 212-6315 (CAPE ONLY)
 - JACEN FERNANDES - (617) 908-0938 (CAPE ONLY)
 - ERIC KOHBERGER - (617) 719-2060 (WEBSTER ONLY)
- IF A PROPOSED TOP TEE CONNECTION RESULTS IN A SHALLOW MAIN THAT CANNOT MEET THE WAIVER 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.
- ALL MAINS SHOULD BE INSTALLED WITH CLEARANCE OF 12 INCHES FROM OTHER FACILITIES.
 - DISTRIBUTION MINIMUM CLEARANCE: 6 INCHES
 - APPROPRIATE PROTECTIVE MEASURES SHALL BE USED TO PROTECT THE GAS FACILITY IF MINIMUMS CANNOT BE ATTAINED. APPROVAL IS REQUIRED BY GAS SYSTEMS ENGINEERING.
- 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.
 - ELBOWS SHOWN ARE ASSUMED TO BE 45 DEGREES IN MOST APPLICATIONS. 90 DEGREE ELBOWS MAY BE NEEDED BASED ON FIELD CONDITIONS.
- 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.
 - VALVES FOR BRANCHES AT INTERSECTIONS SHOULD BE FIELD LOCATED JUST OUTSIDE OF THE INTERSECTION WHERE EASILY ACCESSIBLE, PRIOR TO THE FIRST SERVICE.

- ELECTROFUSION COUPLINGS MAY BE INTERCHANGED WITH BUTT FUSION WHERE APPLICABLE.
- TIE-IN LOCATIONS MAY VARY UP TO 100 FEET OF THE PROPOSED LOCATION TO ACCOMMODATE CONSTRUCTION, EXCEPT FOR WHEN THE FOLLOWING CONDITIONS APPLY:
 - REGULATOR STATION WITHIN THE SCOPE OF THE JOB OR WITHIN 200 FEET OF THE TIE-IN LOCATION.
 - CHANGE TO THE NUMBER OF CONNECTIONS (ADDITIONAL ADDED FROM AN INTERSECTION OR OTHERWISE).
 - MATERIAL/SIZE CHANGE AT NEW LOCATION.
- NOT ALL BYPASSES, GAUGES, PURGES AND OTHER MISCELLANEOUS FITTINGS ARE SHOWN. CONSTRUCTION SHALL INSTALL THESE FITTINGS AS NEEDED IN ACCORDANCE WITH THE APPROVED SOP.
- 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:
 - INLINE TEE
 - PLASTIC HIGH VOLUME TAPPING TEE (2" BRANCH SIZE OR LESS)
 - PLASTIC BRANCH SADDLE (WITH MAIN CUTTER SIZE SHOWN IN NATIONAL GRID POLICIES)
 - STEEL THREE-WAY TEE (WITH MAIN CUTTER SIZE SHOWN IN NATIONAL GRID POLICIES)
- 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.
- ALL CUSTOMER SERVICES WITHIN THE SCOPE OF MAIN TO BE ABANDONED SHALL BE TRANSFERRED OR RELAYED BY THE CONTRACTOR TO THE NEW MAIN PRIOR TO ABANDONMENT. WHEN RELAYING A LOWER PRESSURE MAIN WITH A HIGHER PRESSURE MAIN, ALL SERVICES SHALL BE RELAYED OR INSERTED.

SEQUENCE OF CONSTRUCTION

- CONTRACTOR SHALL CALL DIGSAFE (DIAL 811 OR 888-344-7233) AT LEAST 72 HOURS PRIOR TO CONSTRUCTION. SATURDAYS, SUNDAYS, AND HOLIDAYS ARE EXCLUDED.
- CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES AND STRUCTURES DEPICTED OR NOT DEPICTED ON THIS DESIGN PRIOR TO CONSTRUCTION.
- INSTALL MAIN AS INDICATED IN SCOPE OF WORK
- PRESSURE TEST (SEE PRESSURE TESTING SECTION)
- MAKE 25 PSIG CONNECTION AT LOCATION 1
- PURGE NEW 25 PSIG MAIN INTO SERVICE
- TRANSFER/ RELAY ANY EXISTING 25 PSIG SERVICES TO NEW 25 PSIG MAIN
- REPLACE ANY EXISTING LP SERVICES TO NEW 25 PSIG MAIN
- MAKE 25 PSIG DISCONNECTION AT LOCATION 1
- PURGE OLD 25 PSIG GAS MAIN OUT OF SERVICE AND ABANDON
- MAKE LP DISCONNECTION AT LOCATION 2
- PURGE OLD LP GAS MAIN OUT OF SERVICE AND ABANDON
- PERFORM RESTORATION

DESIGN CRITERIA

- DESIGN IN ACCORDANCE WITH THE FOLLOWING:
 - ENG02001 : DESIGN OF GAS SERVICES
 - ENG04001: DESIGN OF DISTRIBUTION MAINS
- PROPOSED PIPING:
 - DESIGN CLASS LOCATION - 4
 - NOMINAL SIZE – 4 INCH
 - MATERIAL – MDPE
 - SYSTEM MAOP – 25 PSIG.
- PIPE SIZE DETERMINED BY NATIONAL GRID STRATEGIC ASSET AND SYSTEM PLANNING.

CODES & STANDARDS

- 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.
- ALL REFERENCES SHALL BE IN ACCORDANCE WITH THE MOST CURRENT REVISION AVAILABLE AT THE TIME OF CONSTRUCTION.
- FEDERAL & STATE
 - TITLE 49: PART 192 TRANSPORTATION OF NATURAL AND OTHER GAS BY PIPELINE: MINIMUM FEDERAL SAFETY STANDARDS
 - 220 CMR: DEPARTMENT OF PUBLIC UTILITIES
 - 100.00 - 113.00: MASSACHUSETTS GAS DISTRIBUTION CODE
 - AMERICAN SOCIETY OF MECHANICAL ENGINEERS

- B31.8: GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS
- CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH NATIONAL GRID GAS POLICIES AND WORK METHODS, INCLUDING BUT NOT LIMITED TO:
 - CNST01003: BACKFILL AND RESTORATION
 - CNST01005: PREPARATION OF GAS FACILITY HISTORICAL RECORDS
 - CNST01006: COMMERCIALY AVAILABLE SHORING SYSTEMS
 - CNST02014: ENCAPSULATING CAST IRON JOINTS
 - CNST03001: SQUEEZE-OFF OPERATIONS
 - CNST03002: STOP-OFF OPERATIONS ON LOW PRESSURE MAINS
 - CNST03005: PURGING REQUIREMENTS FOR GAS PIPELINES
 - CNST03006: PURGING OPERATIONS – DIRECT DISPLACEMENT
 - CNST03007: PURGING OPERATIONS – COMPLETE INERT FILL
 - CNST03008: PURGING OPERATIONS – SLUG METHOD
 - CNST03014: STOP OFF OPERATIONS FOR KLEISS EQUIPMENT
 - CNST04005: INSTALLING STEEL DISTRIBUTION MAINS
 - CNST04007: FIELD COLD BENDING OF LINE PIPE
 - CNST04008: INSTALLING PLASTIC MAINS
 - CNST04011: ABANDONMENT OF MAINS
 - CNST04012: GROUTING ABANDONED PIPELINES
 - CNST04030: RAISING MAIN AND SERVICE GATE BOXES
 - CNST05001: JOINING OF PLASTIC PIPE
 - CNST05011: INSTALLATION OF DRESSER 700 COUPLINGS
 - CNST5010: GENERAL CONSTRUCTION REQUIREMENTS AND PIPE HANDLING
 - DAM01011: EXCAVATION AND EXCAVATION NOTIFICATION REQUIREMENTS FOR UNDERGROUND FACILITIES FOR MASSACHUSETTS AND RHODE ISLAND
 - DAM01015: LOCATE AND MARK-OUT REQUIREMENTS FOR UNDERGROUND GAS FACILITIES
 - DAM01016: LOCATE AND MARK-OUT OF UNDERGROUND FACILITIES
 - GCON02001: SYSTEM OPERATING PROCEDURE (SOP)
 - GEN01100: OPERATOR QUALIFICATION PLAN
 - GEN03002: PROCESSING GAS MAIN AND NEW SERVICE WORK PACKAGES
 - GEN03004: CHANGE CONTROL PROCEDURE FOR STANDARD CONSTRUCTION PROJECTS
 - MAIN5030: INSTALLATION OF POLYETHYLENE PIPE
 - MECH5010: JOINTS OTHER THAN WELDED
- 030018-CS: SPECIFICATION AND HANDLING OF TRAFFIC PLATES
- SERVICE SPECIFIC CONSTRUCTION STANDARDS, GAS POLICIES AND WORK METHODS:
 - CMS03002: CUSTOMER METER AND SERVICE REGULATOR DESIGN AND INSTALLATION POLICY
 - CMS04002: PURGING PROCEDURES FOR CUSTOMER METER SERVICES
 - CNST03011: NO-INTERRUPT SERVICE TRANSFER
 - CNST06002: INSTALLING DISTRIBUTION SERVICES
 - 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
 - CNST06009: METER/SERVICE RELOCATION GUIDELINE
 - CNST06020: COMPLETION AND PROCESSING OF GAS SERVICE RECORD CARDS
 - CNST06030: NOTIFICATION OF CUSTOMERS INVOLVED IN THE INTERRUPTION OF GAS SERVICE
 - CS-SERV001: TYPICAL 1/2" SERVICE OUTSIDE SETS
 - CS-SERV002: TYPICAL 1" SERVICE OUTSIDE SETS
 - CS-SERV003: TYPICAL 1-1/4" SERVICE OUTSIDE SETS
 - CS-SERV004: TYPICAL 2" SERVICE
 - CS-SERV005: EXCESS FLOW VALVE REQUIREMENTS ON HP SERVICES
 - CS-SERV009: TYPICAL 1/2" SERVICE INSIDE SETS
 - CS-SERV010: TYPICAL 1" SERVICE INSIDE SETS
 - HTAP-6010: NO-INTERRUPT 1 INCH CTS AND 1-1/4 INCH CTS SERVICE TRANSFER (NIST) LP TO 60 PSIG MAINS
 - SERV-5075: RELOCATION OF METER SET ASSEMBLIES INSIDE TO OUTSIDE
 - SERV-6185: HOT TAPPING MD BRANCH SADDLES OFF 4IN - 12IN 60 PSIG MAOP LIVE PLASTIC GAS MAIN USING MCELROY HOT TAPPING TOOL
 - VALV6110: 1/2 INCH - 3 INCH POLYETHYLENE GAS SERVICE VALVE INSTALLATION
- SEE TIE IN DETAILS FOR APPLICABLE MAIN CONNECTION REFERENCES.
- SEE BILL OF MATERIAL FOR MATERIAL SPECIFICATION, STANDARD AND/OR APPLICABLE NATIONAL GRID "FITS" REFERENCE.
 - FOR THIS PROJECT, GRADE B, X42, X52 AND EQUIVALENT ARE ACCEPTABLE STEEL MATERIAL STRENGTHS IF APPLICABLE. ALTERNATES TO THE BOM ARE ALLOWED WITHIN THIS RANGE BASED ON MATERIAL AVAILABILITY.

PRESSURE TESTING

- PRESSURE TEST MAIN IN ACCORDANCE WITH:
 - CNST04003: PRESSURE TESTING MAINS OPERATING BELOW 125 PSIG
 - TEST PRESSURE (MINIMUM): 90 PSIG
 - TEST DURATION BASED ON LENGTH AND DIAMETER IN ACCORDANCE WITH TABLE 1.
 - TEST MEDIUM: AIR AND/OR NITROGEN
- PRESSURE TEST SERVICES IN ACCORDANCE WITH:
 - CNST06008 : PRESSURE TESTING SERVICE LINES

CATHODIC PROTECTION

- 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)
- 24 HOUR NOTICE IS REQUIRED PRIOR TO INSTALLATION OF INSULATED FITTINGS TO ALLOW FOR ACCEPTANCE TESTING.
- NATIONAL GRID CORROSION GAS POLICIES AND WORK METHODS INCLUDE:
 - COR01100: CORROSION DESIGN CRITERIA
 - COR02001: APPLICATION OF COATING SYSTEMS
 - COR02020: INSPECTING EXPOSED STEEL PIPE FOR CORROSION
 - COR02021: INSPECTING EXPOSED CAST OR DUCTILE PIPING FOR GRAPHITIZATION
 - COR03001: TESTING OF PIPE COATING (JEEP TESTING)
 - COR04001: INSTALLATION OF MAGNESIUM ANODES
 - COR04003: INSTALLATION OF TEST STATIONS FOR CATHODIC PROTECTION
 - COR04004: INSTALLATION OF WIRE CONNECTIONS
 - COR04005: INSTALLATION OF INSULATING JOINTS FOR CATHODIC PROTECTION
 - 030031-CS: FACILITY COATING GUIDE
- CORROSION DESIGN: N/A

ENVIRONMENTAL

- WORK SHALL CONFORM TO THE NATIONAL GRID ENVIRONMENTAL POLICY.
- ENVIRONMENTAL ENGINEERING CONTACT:
 JAIME WALKER
 PHONE: (978) 551-1156
 EMAIL: JAIME.WALKER@NATIONALGRID.COM
- CONTRACTOR SHALL REVIEW THE PROJECT WORK ORDER PACKAGE FOR ENVIRONMENTAL GUIDANCE FORMS, FOR EXAMPLE EG-301, FOR THE RESPECTIVE STATE.
- WHEN SOILS OR LIQUIDS ARE ENCOUNTERED THAT ARE BELIEVED TO BE CONTAMINATED WITH OIL AND/OR HAZARDOUS MATERIAL, EXCAVATION WORK SHALL BE HAULTED AND FIELD PERSONNEL SHALL NOTIFY THEIR IMMEDIATE SUPERVISOR.
- NO EXCAVATED SOIL SHALL LEAVE THE WORK SITE UNTIL ENVIRONMENTAL HAS MADE A DETERMINATION FOR ITS PROPER DISPOSAL.
- NATIONAL GRID ENVIRONMENT POLICIES AND PROCEDURES INCLUDE:
 - SHE02001: HANDLING CONTAMINATED MATERIALS AND PIPING
 - SHE02002: REMOVING MERCURY REGULATORS AND DEVICES
 - SHE02003: ENCOUNTERING CONTAMINATION WHILE EXCAVATING
 - EG303-NE: BEST MANAGEMENT PRACTICES
 - EG140: USED GAS PIPE MANAGEMENT
- ENVIRONMENTAL REQUIREMENTS: PROPOSED WORK IS LOCATED WITHIN 100 FEET OF WETLANDS AND/OR BODIES OF WATER / WITHIN 200 FEET OF A RIVER OR A STREAM (*25 FEET IN BOSTON, BROCKTON, CAMBRIDGE, CHELSEA, EVERETT, FALL RIVER, LAWRENCE, LOWELL, MALDEN, NEW BEDFORD, SOMERVILLE, SPRINGFIELD, WINTHROP OR WORCHESTER) WITHIN A FLOODPLAIN.
 POTENTIALLY CONTAMINATED SITES LOCATED WITHIN PROJECT SCOPE. CONTACT ENVIRONMENTAL DEPARTMENT BEFORE DIGGING. CONDUCT SOIL TESTING TO DETERMINE THE PRESENCE OF ANY HYDROCARBONS WITHIN THE PROJECT SCOPE. CONTACT ENGINEERING DEPARTMENT IF TESTING CONFIRMS THE PRESENCE OF ANY HYDROCARBONS FOR POTENTIAL MAIN MATERIAL CHANGES.

SAFETY

- WORK SHALL CONFORM TO THE NATIONAL GRID EMPLOYEE SAFETY HANDBOOK AND OSHA REQUIREMENTS.
- REQUIRED PPE SHALL BE WORN AND UTILIZED IN ACCORDANCE WITH THE CURRENT NATIONAL GRID SAFETY POLICY.
- A NATIONAL GRID APPROVED CONTRACTOR HEALTH AND SAFETY PLAN (HASP) IS REQUIRED PRIOR TO CONSTRUCTION.

- 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.
- NATIONAL GRID SAFETY PROCEDURES COVER THE FOLLOWING CATEGORIES:
 - 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
- GAS WORK METHODS SAFETY PROCEDURES INCLUDE:
 - SHE01001: GENERAL SAFETY REQUIREMENTS
 - SHE01002: SUPPLIED-AIR RESPIRATORS
 - SHE01003: USING AND MAINTAINING PORTABLE GAS MONITORS
 - SHE01004: USING AND MAINTAINING FLAME IONIZATION UNITS
 - SHE01005: DISSIPATING STATIC ELECTRICAL CHARGES ON PLASTIC PIPE
 - SHE01006: ENTERING GAS UTILITY VAULTS
 - SHE01008: USING AND MAINTAINING THE GAS-EXPLORER
 - SHE01009: DISSIPATING STATIC ELECTRICAL CHARGES ON PLASTIC PIPE
 - SHE01010: THE APPLICATION OF FORMAL PROCESS SAFETY ASSESSMENTS TO HIGHER-RISK GAS ACTIVITIES PERFORMED IN THE FIELD

OTHER PERMITTING REQUIREMENTS

- STREET OPENING PERMIT
- GRANT OF LOCATION

UTILITIES OWNER INFORMATION


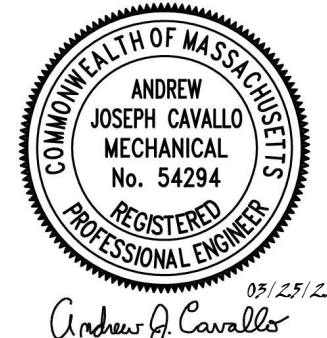


- CITY OF CAMBRIDGE
- TOWN OF BELMONT

REFERENCE DRAWINGS

- LOCATION OF IDENTIFIED UNDERGROUND UTILITIES ARE AN APPROXIMATE BASED ON AVAILABLE RECORD AND FIELD INFORMATION IN ACCORDANCE WITH C/IASCE 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.

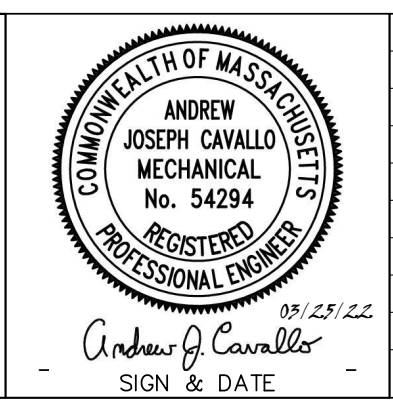
DESIGN CONSULTANT

- BL COMPANIES
 ANDREW J. CAVALLO, P.E.
 PHONE: (781) 619-9515

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			0	ISSUED FOR CONSTRUCTION	03/24/22	GG	LA	AC															
NO.	DESCRIPTION	DATE	DR.BY	CK.BY	APP.BY																		
DWG SIZE 22"x34"	DESIGNER G.GATWOOD	ENGINEER A. CAVALLO	DATE: 03/24/22	ASSET I.D. DISTRIBUTION	W.O. NO.: 1399914	DRAWING NO. BEL-1399914-02	SHEET NO. G-002																

BILL OF MATERIALS								
Work Order #	Town Code	ITEM	QTY	UOM	DESCRIPTION	SIZE (IN.)	NATIONAL GRID REFERENCE	SAP ID NUMBER
1399914	BEL	1	1,770	FT	PIPE, PLASTIC, MDPE, SDR 11.5	4	120026-MS	9340857
1399914	BEL	2	1	EA	ELBOW, PLASTIC, 90 DEGREE, MDPE	4	CS-FIT011	9341397
1399914	BEL	3	2	EA	ELBOW, PLASTIC, 45 DEGREE, MDPE	4	CS-FIT011	9341400
1399914	BEL	4	1	EA	COUPLING, PLASTIC ELECTROFUSION	4	CS-FIT015	9314593
1399914	BEL	5	3	EA	VALVE, BALL, MDPE, FULL PORT	4	VALV6020	9341709
1399914	BEL	6	3	EA	VALVE, BOX ASSEMBLY (FOR FULL PORT 4" VALVE)	4	VALV6020	9339892
1399914	BEL	7	1	EA	TEE, SERVICE, ELECTROFUSION	2 x 2	CS-FIT015	9314590
1399914	BEL	8	1	EA	REDUCER, PLASTIC, MDPE	4 x 2	CS-FIT013	9384553
1399914	BEL	9	2	EA	CAP, PLASTIC, ELECTROFUSION	2	CS-FIT015	9393634
1399914	BEL	10	2	EA	CAP, MDPE, BUTT FUSION	2	CS-FIT010	9339540
1399914	BEL	11	2	EA	COUPLING, PLASTIC ELECTROFUSION	2	CS-FIT015	9314594
1399914	BEL	12	10	FT	PIPE, PLASTIC, MDPE, SDR 11.5	6	120026-MS	9384339
1399914	BEL	13	2	EA	COUPLING, PLASTIC ELECTROFUSION	6	CS-FIT015	9314592
1399914	BEL	14	2	EA	CAP, PLASTIC, ELECTROFUSION	6	CS-FIT015	9393581
1399914	BEL	15	2	EA	CAP, MDPE, BUTT FUSION	6	CS-FIT010	9339733
1399914	BEL	16	10	FT	PIPE, PLASTIC, MDPE, SDR 11 (10' STICKS)	2	120026-MS	9322709
1399914	BEL	17	2	EA	CAP, MDPE, BUTT FUSION	4	CS-FIT010	9339534
1399914	BEL	18	1	EA	TEE, PLASTIC, FULL, MDPE	4	CS-FIT012	9342523
1399914	BEL	19	A/R	EA	FRP SHIELD, TYPE 240	4	N/A	NON-STOCK
GENERAL								
1399914	BEL	G1	A/R	FT	TRACER WIRE		CNST6061	9315005
1399914	BEL	G2	A/R	ROLL	YELLOW CAUTION TAPE - GAS MAIN - 6" WIDE	6	CNST6060	9341904
PRESSURE TESTING (TEMPORARY)								
1399914	BEL	P1	A/R	EA	CAP, MDPE, BUTT FUSION	2	CS-FIT010	9339540
1399914	BEL	P2	A/R	EA	CAP, MDPE, BUTT FUSION	4	CS-FIT010	9339534
1399914	BEL	P3	A/R	EA	CAP, MDPE, BUTT FUSION	6	CS-FIT010	9339733

*ACTUAL LENGTH/QUANTITY OF PIPE AND FITTINGS MAY VARY DUE TO FIELD CONDITIONS. ADDITIONAL MATERIALS MAY NOT BE REFERENCED ABOVE THAT ARE INCLUDED IN THE BOM OF NATIONAL GRID CONSTRUCTIONS STANDARDS REFERENCED IN THIS DESIGN PACKAGE.



NO.	DESCRIPTION	DATE	DR. BY	CK. BY	APP. BY
0	ISSUED FOR CONSTRUCTION	03/24/22	GG	LA	AC

BOSTON GAS COMPANY
d/b/a
nationalgrid
40 SYLVAN ROAD
WALTHAM, MA 02451

IFC

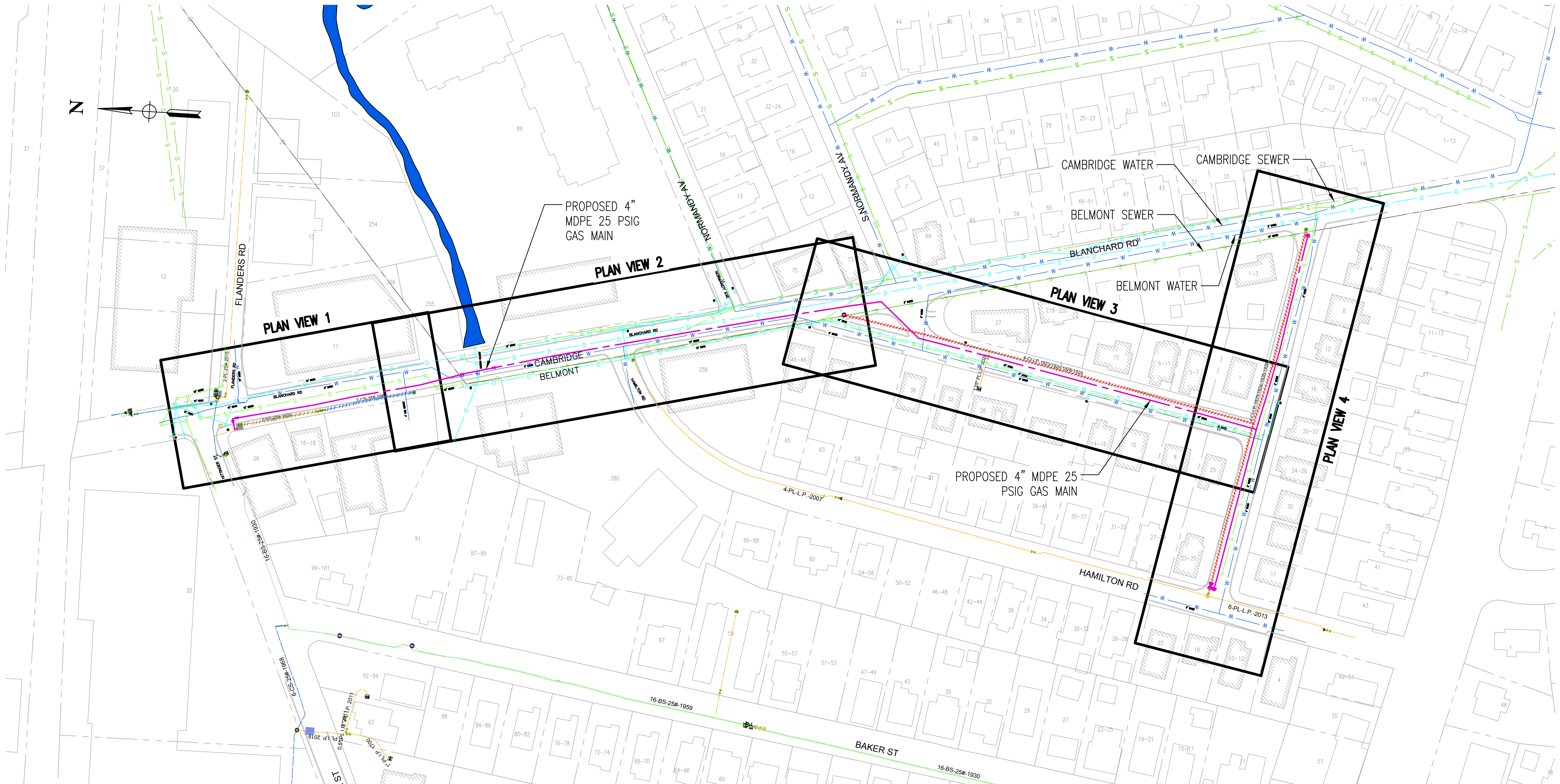
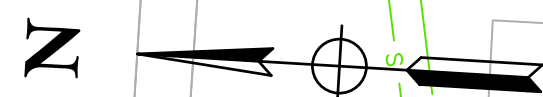
PROPOSED GAS MAIN INSTALLATION
4" MDPE (LP TO 25 PSIG)
BRIGHTON ST AND COLBY ST AND MERRILL AVE
BELMONT, MA

BILL OF MATERIALS

DWG SIZE	DESIGNER	ENGINEER	DATE:	ASSET I.D.	W.O. NO.:
22"X34"	G.GATWOOD	A. CAVALLO	03/24/22	DISTRIBUTION	1399914

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DRAWING NO.	SHEET NO.
BEL-1399914-03	G-003



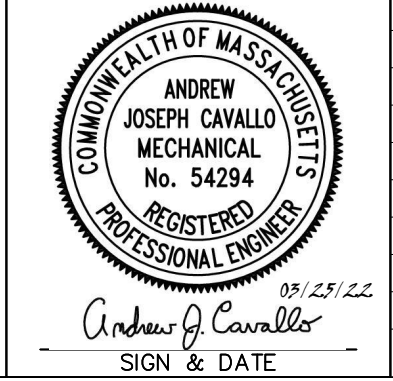
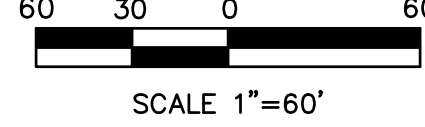
PROPOSED 4" MDPE 25 PSIG GAS MAIN

PROPOSED 4" MDPE 25 PSIG GAS MAIN

DRAWING LEGEND

- EXISTING BS 25 PSIG GAS MAIN
- EXISTING CS 25 PSIG GAS MAIN
- - - EXISTING BS 25 PSIG GAS MAIN
- - - EXISTING CS 25 PSIG GAS MAIN
- EXISTING CI LP GAS MAIN
- - - EXISTING WI 25 PSIG GAS MAIN
- EXISTING PE LP GAS MAIN
- - - PROPOSED MDPE 25# GAS MAIN
- - - EXISTING MDPE 25# GAS MAIN
- - - EXISTING CI LP GAS MAIN (TO BE ABANDONED)
- - - EXISTING PL 25# GAS MAIN (TO BE ABANDONED)
- - - EXISTING WI 25# GAS MAIN (TO BE ABANDONED)
- - - EXISTING CS 25# GAS MAIN (TO BE ABANDONED)
- EXISTING DRAIN MANHOLE
- EXISTING CATCH BASIN
- - - EXISTING PL 25# GAS MAIN (TO BE ABANDONED)
- - - EXISTING WI 25# GAS MAIN (TO BE ABANDONED)
- - - EXISTING CS 25# GAS MAIN (TO BE ABANDONED)
- ◀▶ PROPOSED VALVE
- ▶◀ PROPOSED REDUCER
- PROPOSED END CAP
- D EXISTING DRAINAGE
- S EXISTING SEWER
- W EXISTING WATER MAIN
- EXISTING SEWER MANHOLE

PLAN OVERVIEW



BOSTON GAS COMPANY
d/b/a
nationalgrid
40 SYLVAN ROAD
WALTHAM, MA 02451

PROPOSED GAS MAIN INSTALLATION
4" MDPE (LP TO 25 PSIG)
BRIGHTON ST AND COLBY ST AND MERRILL AVE
BELMONT, MA

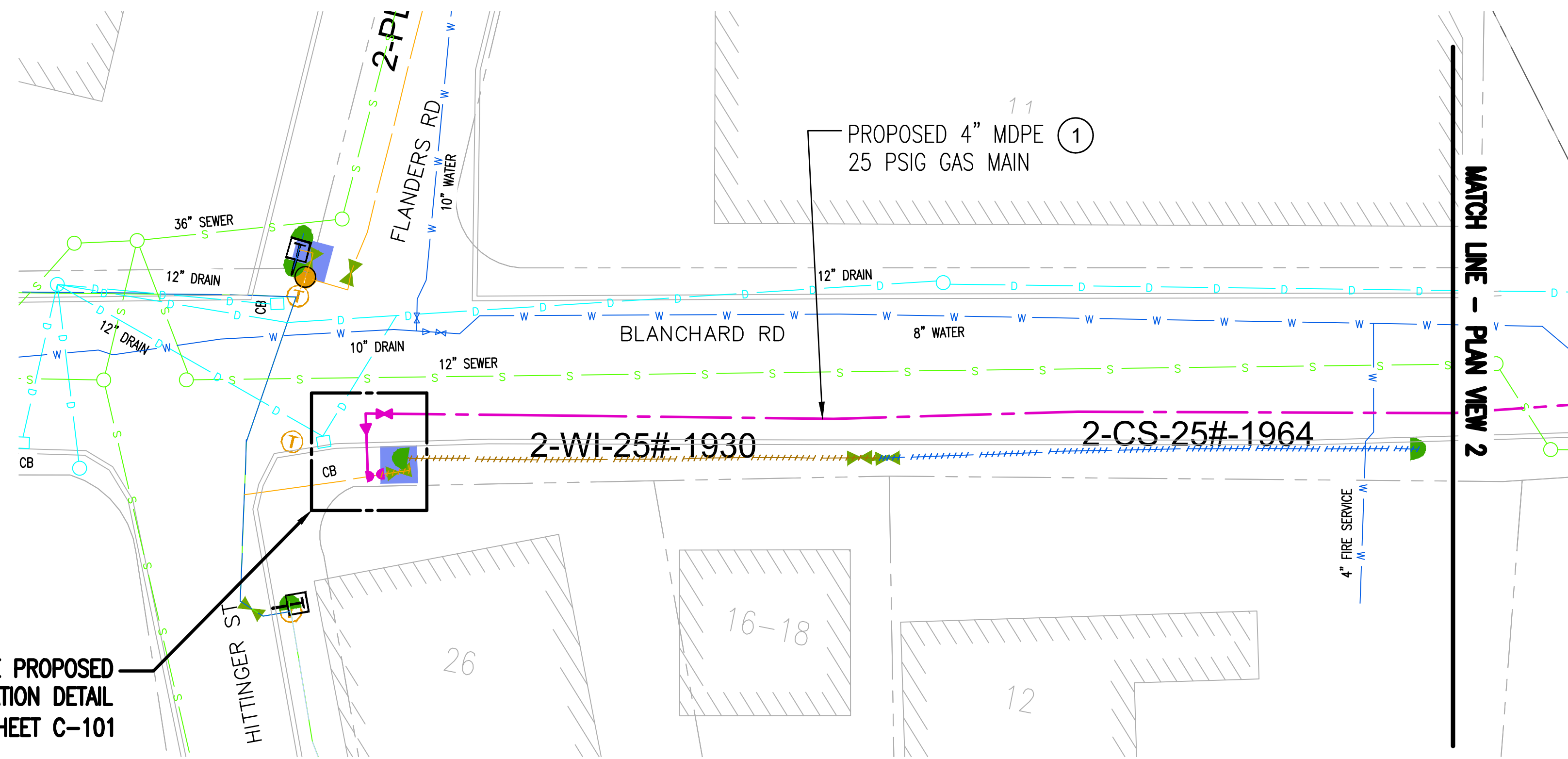
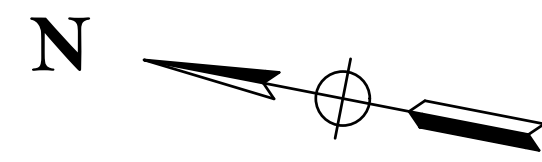
PROPOSED INSTALLATION PLAN OVERVIEW

DWG SIZE	DESIGNER	ENGINEER	DATE:	ASSET I.D.	W.O. NO.:
22"X34"	G.GATWOOD	A. CAVALLO	03/24/22	DISTRIBUTION	1399914

PAGE 4 OF 10	
DRAWING NO.	SHEET NO.
BEL-1399914-04	C-001

NO.	ISSUED FOR CONSTRUCTION	DATE	DR.BY	CK.BY	APP.BY
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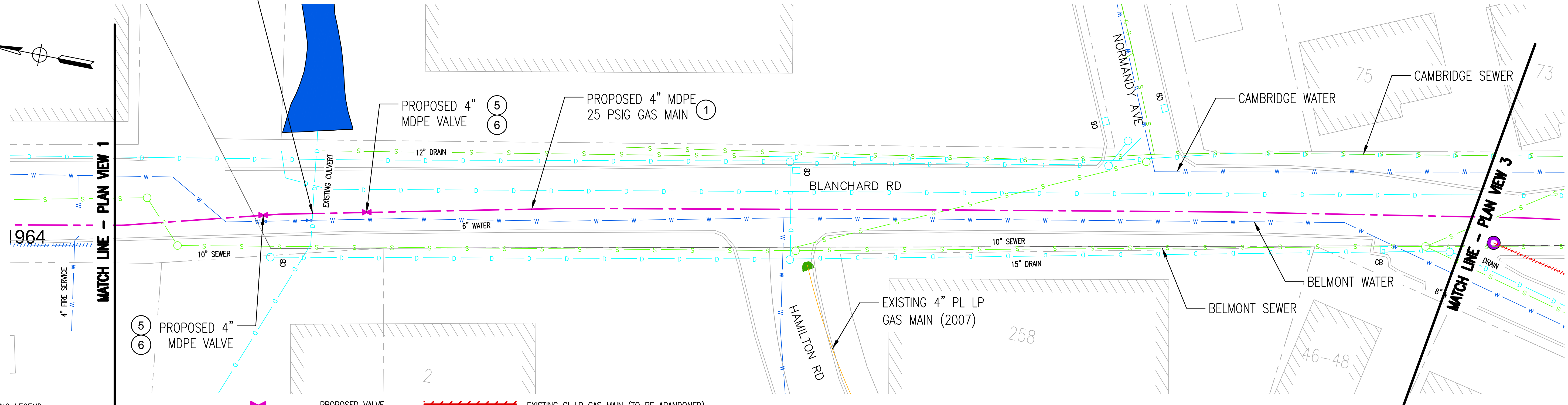
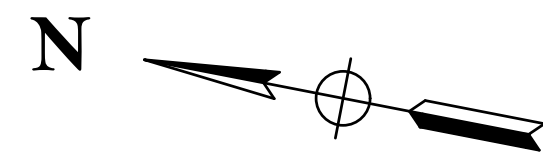




SEE PROPOSED LOCATION DETAIL #1 SHEET C-101

PLAN VIEW 1
SCALE 1"=20'

FIELD INVESTIGATIONS SUGGEST SUFFICIENT COVER IS AVAILABLE TO INSTALL THE PROPOSED 4 INCH, 25 PSIG PLASTIC MAIN ABOVE THE EXISTING CULVERT STRUCTURE. THE PROPOSED 4 INCH PL 25 PSIG MAIN SHALL HAVE TYPE 240 FRP SHIELDS INSTALLED AROUND MAIN FOR DURATION OF CULVERT CROSSING. CONTACT ENGINEERING FOR A DESIGN REVISION IF INSUFFICIENT COVER IS ENCOUNTERED DURING CONSTRUCTION.



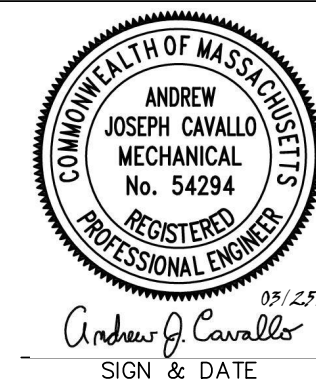
PLAN VIEW 2
SCALE 1"=20'

DRAWING LEGEND

- EXISTING CS 25 PSIG GAS MAIN
- EXISTING CS 25 PSIG GAS MAIN
- EXISTING CI LP GAS MAIN
- EXISTING WI 25 PSIG GAS MAIN
- EXISTING PE LP GAS MAIN
- PROPOSED MDPE 25# GAS MAIN
- EXISTING MDPE 25# GAS MAIN

- PROPOSED VALVE
- PROPOSED REDUCER
- PROPOSED END CAP
- EXISTING DRAINAGE
- EXISTING SEWER
- EXISTING WATER MAIN
- EXISTING SEWER MANHOLE
- EXISTING DRAIN MANHOLE
- EXISTING CATCH BASIN

- EXISTING CI LP GAS MAIN (TO BE ABANDONED)
- EXISTING PL 25# GAS MAIN (TO BE ABANDONED)
- EXISTING WI 25# GAS MAIN (TO BE ABANDONED)
- EXISTING CS 25# GAS MAIN (TO BE ABANDONED)



NO.	DESCRIPTION	DATE	DR. BY	CK. BY	APP. BY
0	ISSUED FOR CONSTRUCTION	03/24/22	GG	LA	AC

BOSTON GAS COMPANY
d/b/a
nationalgrid
40 SYLVAN ROAD
WALTHAM, MA 02451

IFC

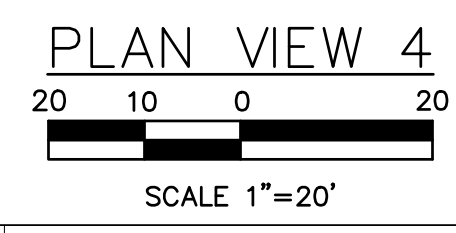
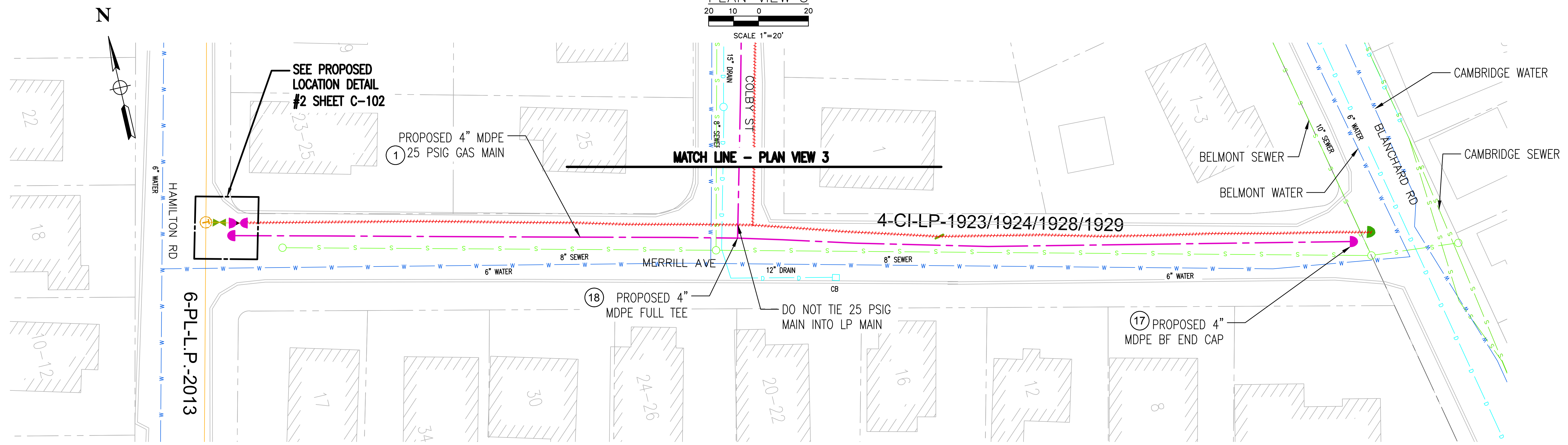
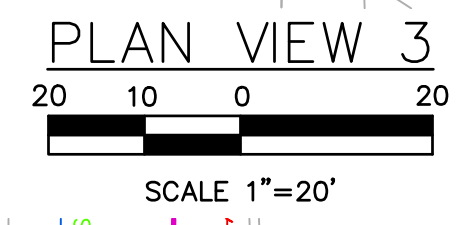
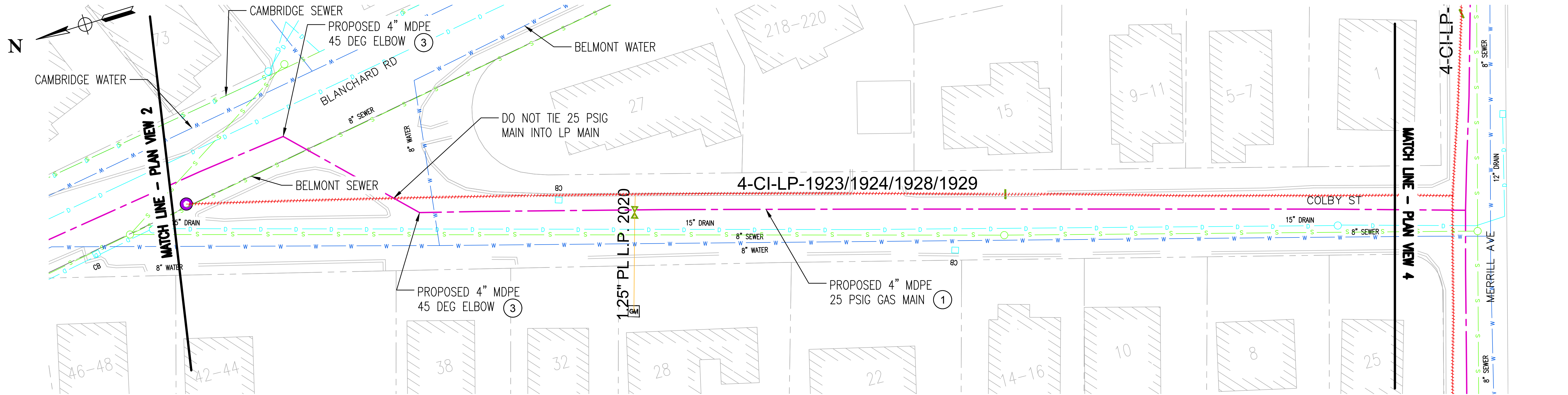
PROPOSED GAS MAIN INSTALLATION
4" MDPE (LP TO 25 PSIG)
BRIGHTON ST AND COLBY ST AND MERRILL AVE
BELMONT, MA

PROPOSED INSTALLATION PLAN SHEET 1 OF 2

DWG SIZE	DESIGNER	ENGINEER	DATE	ASSET I.D.	W.O. NO.:
22"X34"	G.GATWOOD	A. CAVALLO	03/24/22	DISTRIBUTION	1399914

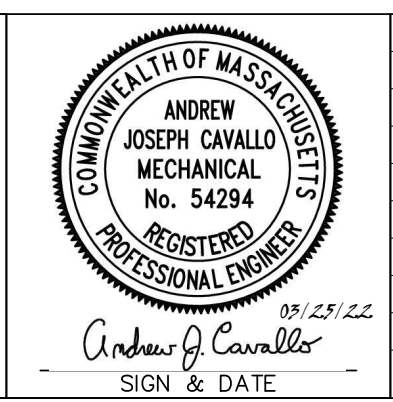
PAGE 5 OF 10

DRAWING NO.	SHEET NO.
BEL-1399914-05	C-002



- DRAWING LEGEND**
- EXISTING CI LP GAS MAIN
 - EXISTING PE LP GAS MAIN
 - - - PROPOSED MDPE 25# GAS MAIN
 - PROPOSED END CAP
 - D - D - EXISTING DRAINAGE
 - S - S - EXISTING SEWER

- - - EXISTING CI LP GAS MAIN (TO BE ABANDONED)
- W - W - EXISTING WATER MAIN
- EXISTING HYDRANT
- EXISTING SEWER MANHOLE
- EXISTING DRAIN MANHOLE
- EXISTING CATCH BASIN



NO.	ISSUED FOR CONSTRUCTION	DATE	DR. BY	CK. BY	APP. BY
0	ISSUED FOR CONSTRUCTION	03/24/22	GG	LA	AC

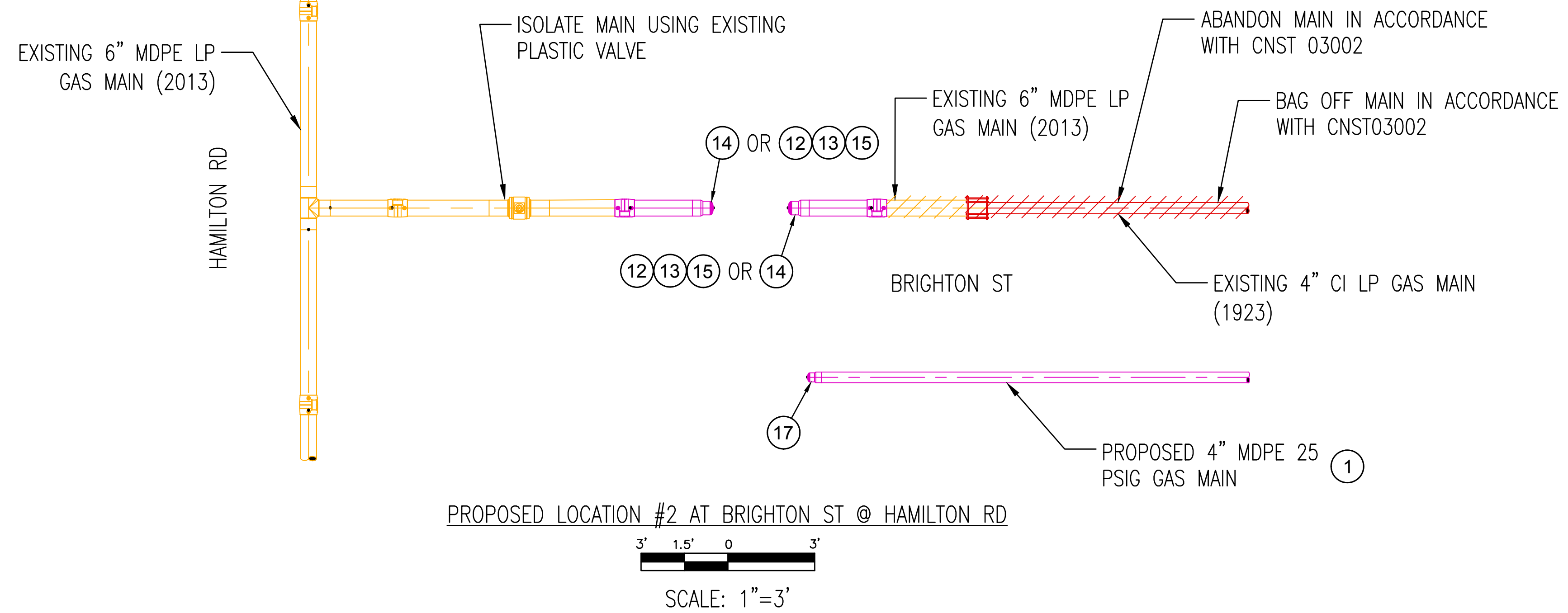
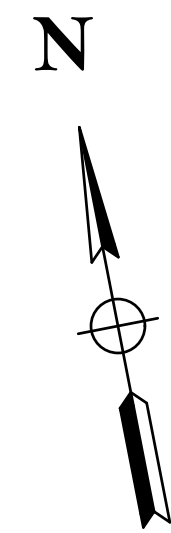
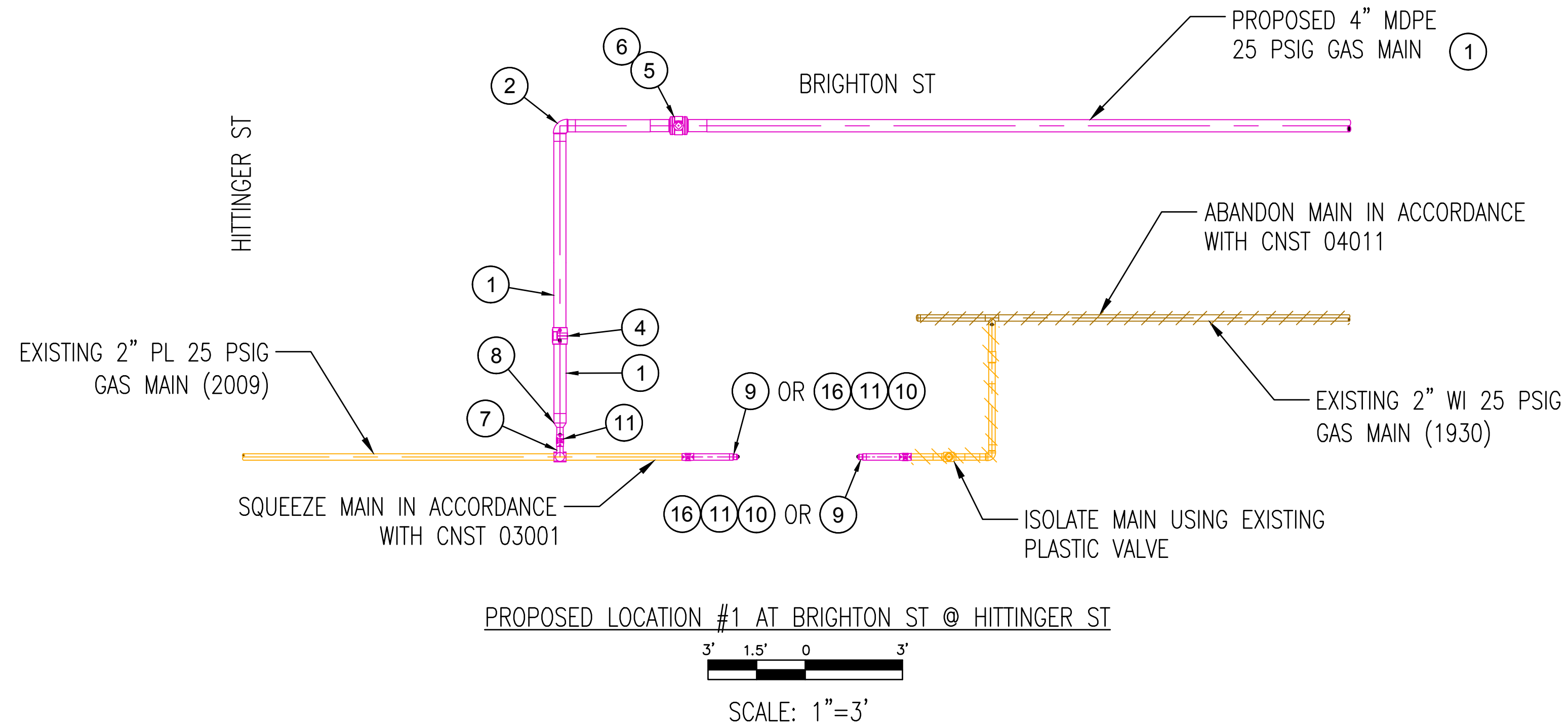
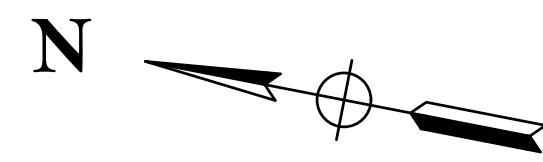
BOSTON GAS COMPANY
d/b/a
nationalgrid
40 SYLVAN ROAD
WALTHAM, MA 02451
IFC

PROPOSED GAS MAIN INSTALLATION
4" MDPE (LP TO 25 PSIG)
BRIGHTON ST AND COLBY ST AND MERRILL AVE
BELMONT, MA
PROPOSED INSTALLATION PLAN SHEET 2 OF 2

DWG SIZE	DESIGNER	ENGINEER	DATE:	ASSET I.D.	W.O. NO.:
22"X34"	G.GATWOOD	A. CAVALLO	03/24/22	DISTRIBUTION	1399914

PAGE 6 OF 10

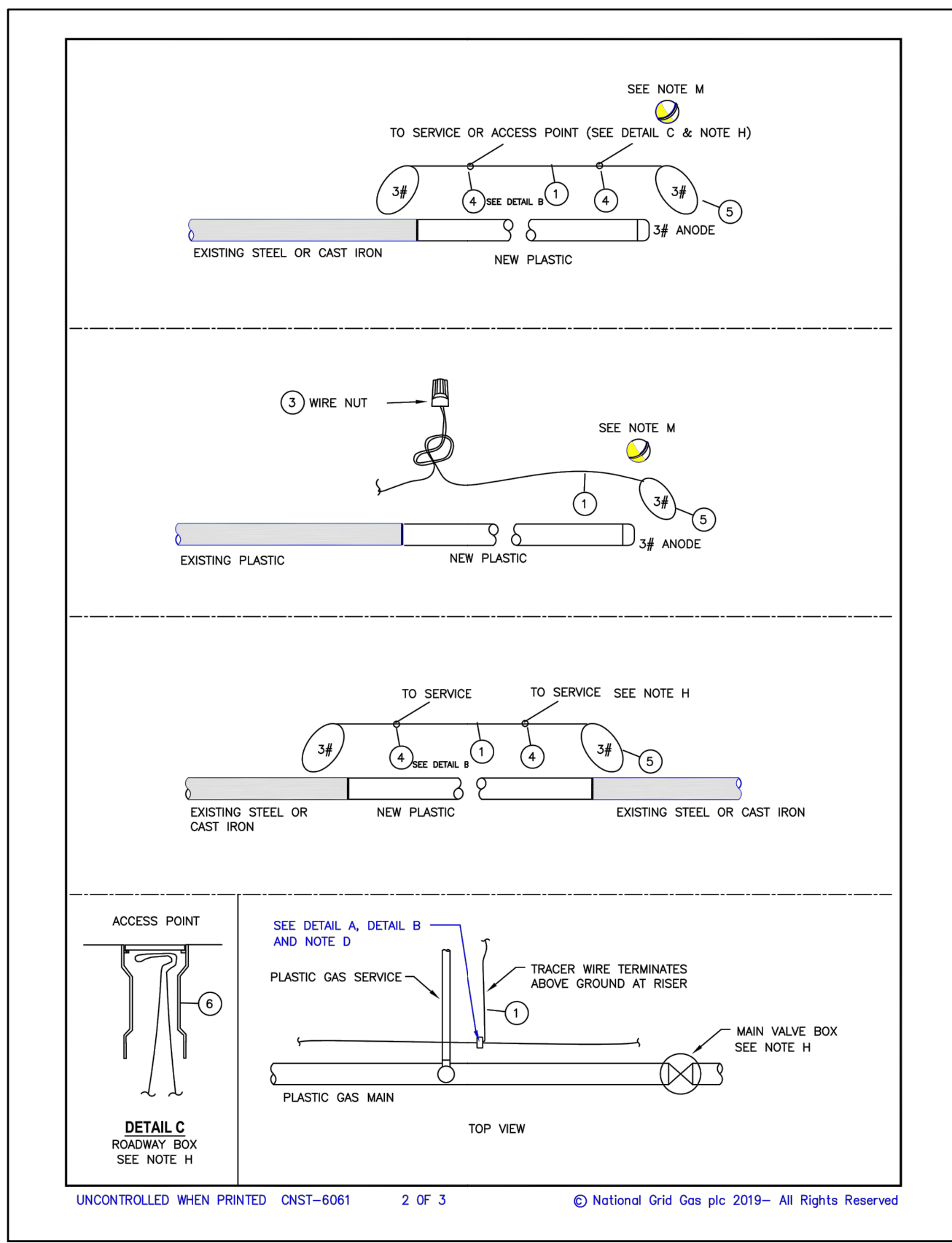
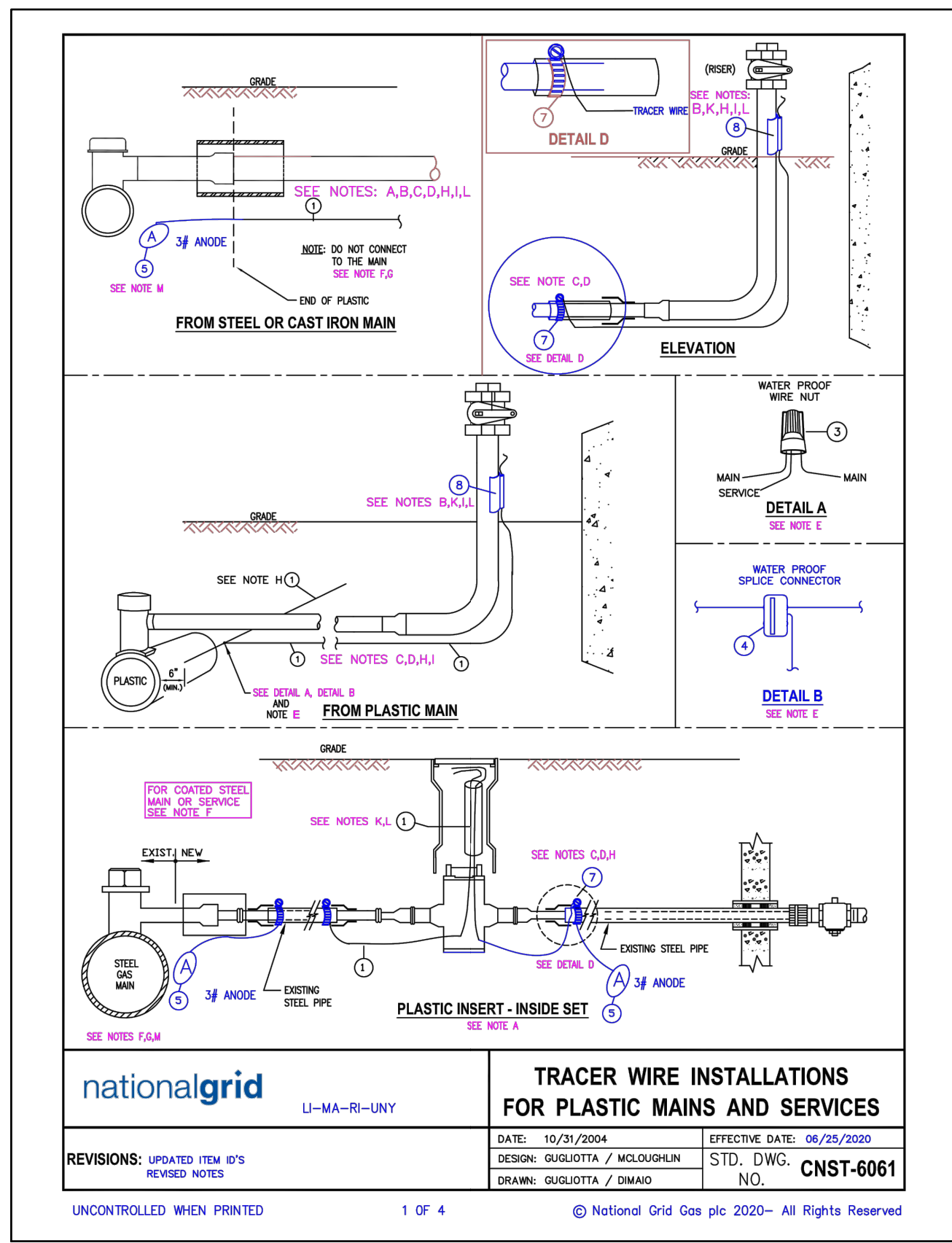
DRAWING NO.	SHEET NO.
BEL-1399914-06	C-003



DRAWING LEGEND

- EXISTING WI GAS MAIN
- EXISTING PE GAS MAIN
- PROPOSED MDPE GAS MAIN
- EXISTING CI GAS MAIN
- - - - - EXISTING CI GAS MAIN TO BE ABANDONED
- - - - - EXISTING PE GAS MAIN TO BE ABANDONED
- - - - - EXISTING WI GAS MAIN TO BE ABANDONED

		BOSTON GAS COMPANY d/b/a 				PROPOSED GAS MAIN INSTALLATION 4" MDPE (LP TO 25 PSIG) BRIGHTON ST AND COLBY ST AND MERRILL AVE BELMONT, MA				PAGE 7 OF 10																			
				PROPOSED LOCATION DETAIL SHEET 1 OF 1				DRAWING NO. BEL-1399914-07	SHEET NO. C-101																				
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">NO.</th> <th style="width: 45%;">DESCRIPTION</th> <th style="width: 10%;">DATE</th> <th style="width: 5%;">DR. BY</th> <th style="width: 5%;">CK. BY</th> <th style="width: 5%;">APP. BY</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">0</td> <td>ISSUED FOR CONSTRUCTION</td> <td style="text-align: center;">03/24/22</td> <td style="text-align: center;">GG</td> <td style="text-align: center;">LA</td> <td style="text-align: center;">AC</td> </tr> </tbody> </table>		NO.	DESCRIPTION	DATE	DR. BY	CK. BY	APP. BY	0	ISSUED FOR CONSTRUCTION	03/24/22	GG	LA	AC	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">DWG SIZE</th> <th style="width: 10%;">DESIGNER</th> <th style="width: 10%;">ENGINEER</th> <th style="width: 10%;">DATE</th> <th style="width: 10%;">ASSET I.D.</th> <th style="width: 10%;">W.O. NO.:</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">22"X34"</td> <td style="text-align: center;">G.GATWOOD</td> <td style="text-align: center;">A. CAVALLO</td> <td style="text-align: center;">03/24/22</td> <td style="text-align: center;">DISTRIBUTION</td> <td style="text-align: center;">1399914</td> </tr> </tbody> </table>		DWG SIZE	DESIGNER	ENGINEER	DATE	ASSET I.D.	W.O. NO.:	22"X34"	G.GATWOOD	A. CAVALLO	03/24/22	DISTRIBUTION	1399914		
NO.	DESCRIPTION	DATE	DR. BY	CK. BY	APP. BY																								
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DWG SIZE	DESIGNER	ENGINEER	DATE	ASSET I.D.	W.O. NO.:																								
22"X34"	G.GATWOOD	A. CAVALLO	03/24/22	DISTRIBUTION	1399914																								



NO.	ITEM	LI/RY/ MASS	LNY/RI
8	TRACER WIRE SNAP, 2" (represents steel size)	9386134	9386134
8	TRACER WIRE SNAP, 1 1/2" (represents steel size)	9386156	9386156
8	TRACER WIRE SNAP, 1" (represents steel size)	9386150	9386150
8	TRACER WIRE SNAP, 3/4" (represents steel size)	9385568	9385568
7	CLAMP, STAINLESS	9331708	9307973
6	VALVE BOX, ROADWAY	9339890	9312344 LNY 9311208 RI
5	ANODE, 3 LB MAGNESIUM	9315645	9315645
4	WIRE SPLICE CONNECTOR, WATERPROOF	9306036	9306036
3	WIRE NUT, PLASTIC, WATERPROOF	9331644	9314631
2	WIRE, DIRECTIONAL DRILL, STAINLESS, STRANDED 10 AWG	9314197	9314197
1	TRACER WIRE, DIRECT BURY, COPPER, 12 AWG	9315005	9315005

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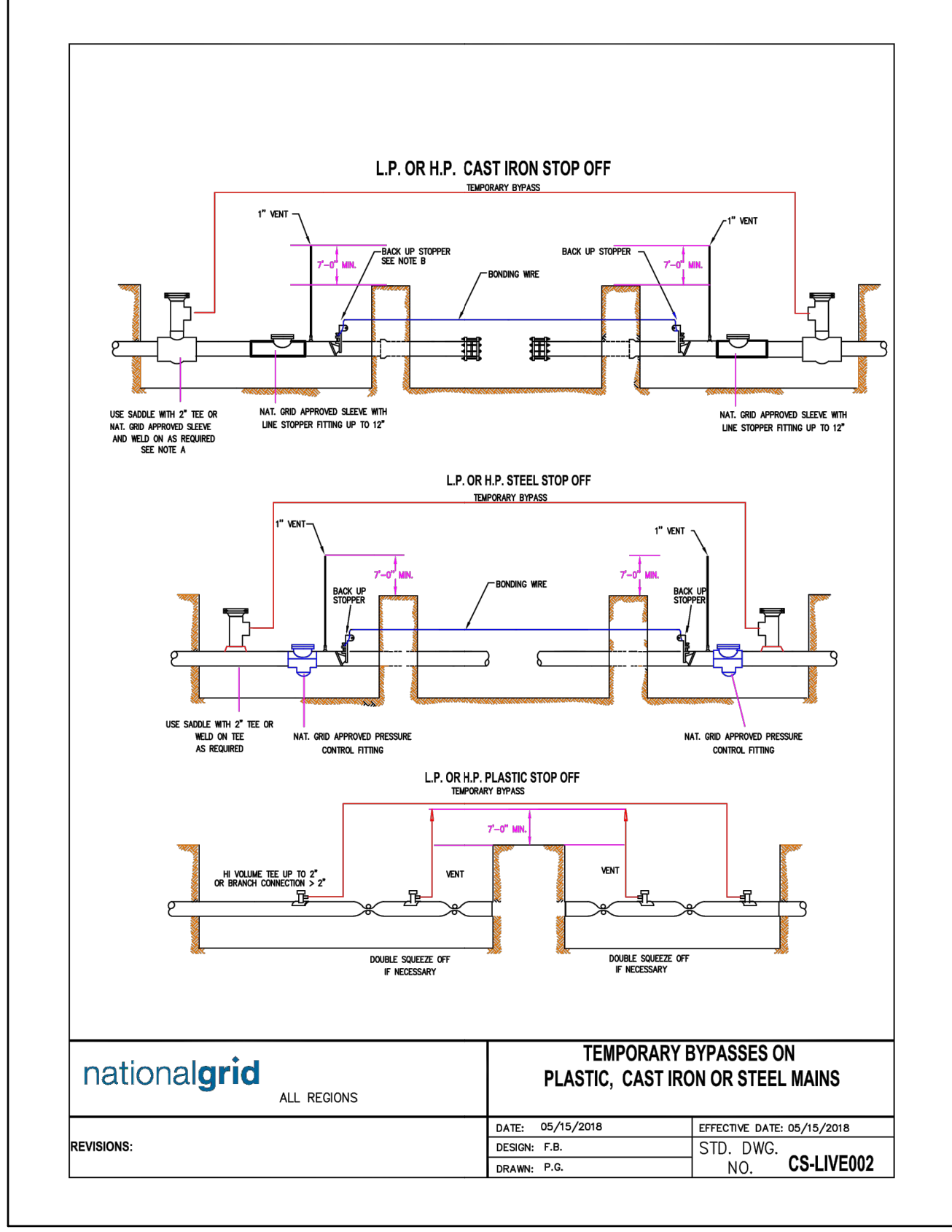
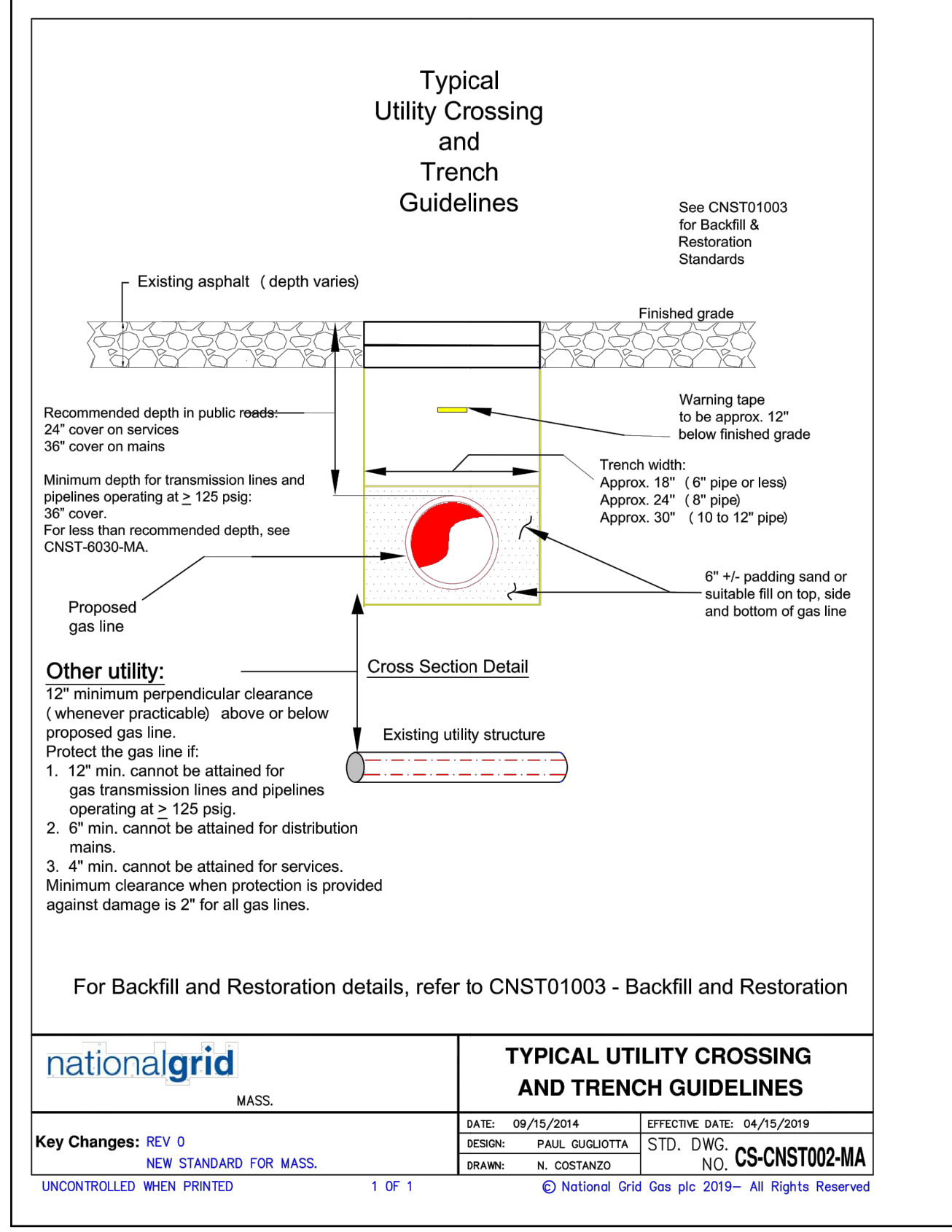
K. Tracer wire installed in boxes should allow enough wire to extend 18" to 24" above grade.

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.



NOTES:

A. FOR BYPASSES ON THE LP SYSTEM ONLY SCREW TEES AND BAGHOLES MAY BE TAPPED DIRECTLY INTO THE MAIN.

B. BACK UP STOPPERS WILL BE REQUIRED IF INSUFFICIENT STOP OFF CAN BE ACHIEVED OR IF WELDING BETWEEN THE STOPPERS WILL BE REQUIRED.

C. STOP OFF CAN BE PERFORMED USING MUELLER, T.D. WILLIAMSON, KJESS, BAGS, OR OTHER APPROVED STOP OFF SYSTEMS.

SHT. 2 OF 2 CS-LIVE002

NOTE: THE ENGINEER OF RECORD HAS REVIEWED THE PROVIDED NATIONAL GRID STANDARD DETAILS AND DETERMINED THEIR APPLICABILITY TO THE WORK IN THIS PACKAGE. THE ENGINEER OF RECORD DOES NOT CERTIFY THE ACCURACY OF ANY REFERENCED STANDARDS OR PROCEDURES NOT DIRECTLY RELATED TO THE WORK DESCRIBED IN THIS PLAN SET.

Architecture Engineering Environmental Land Surveying

Companies

COMMONWEALTH OF MASSACHUSETTS
 ANDREW JOSEPH CAVALLLO
 MECHANICAL
 No. 54294
 REGISTERED PROFESSIONAL ENGINEER

09/25/22
 Andrew J. Cavalllo
 SIGN & DATE

NO.	ISSUED FOR CONSTRUCTION	DATE	DR.BY	CK.BY	APP.BY
0	ISSUED FOR CONSTRUCTION	03/24/22	GG	LA	AC

BOSTON GAS COMPANY
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 40 SYLVAN ROAD
 WALTHAM, MA 02451

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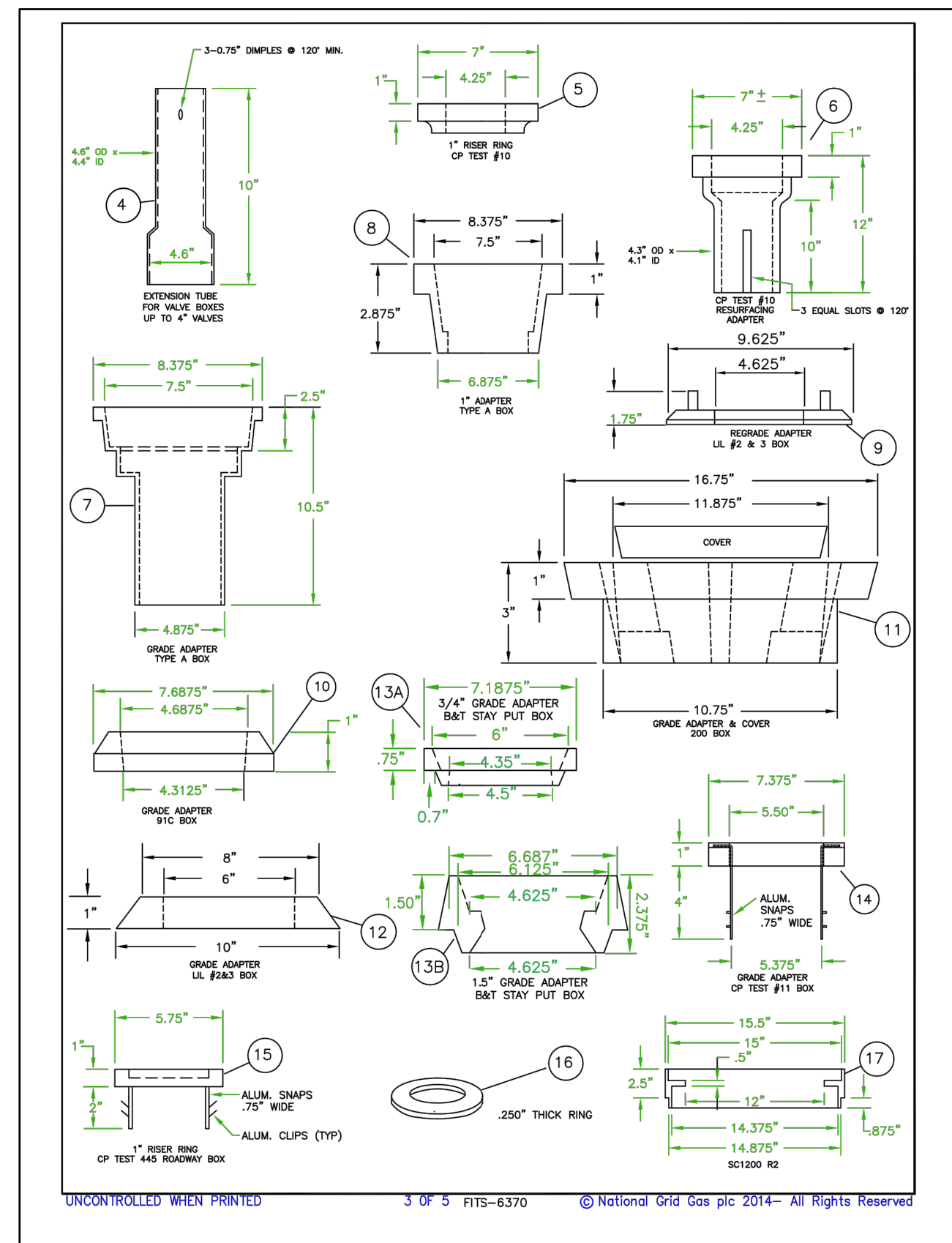
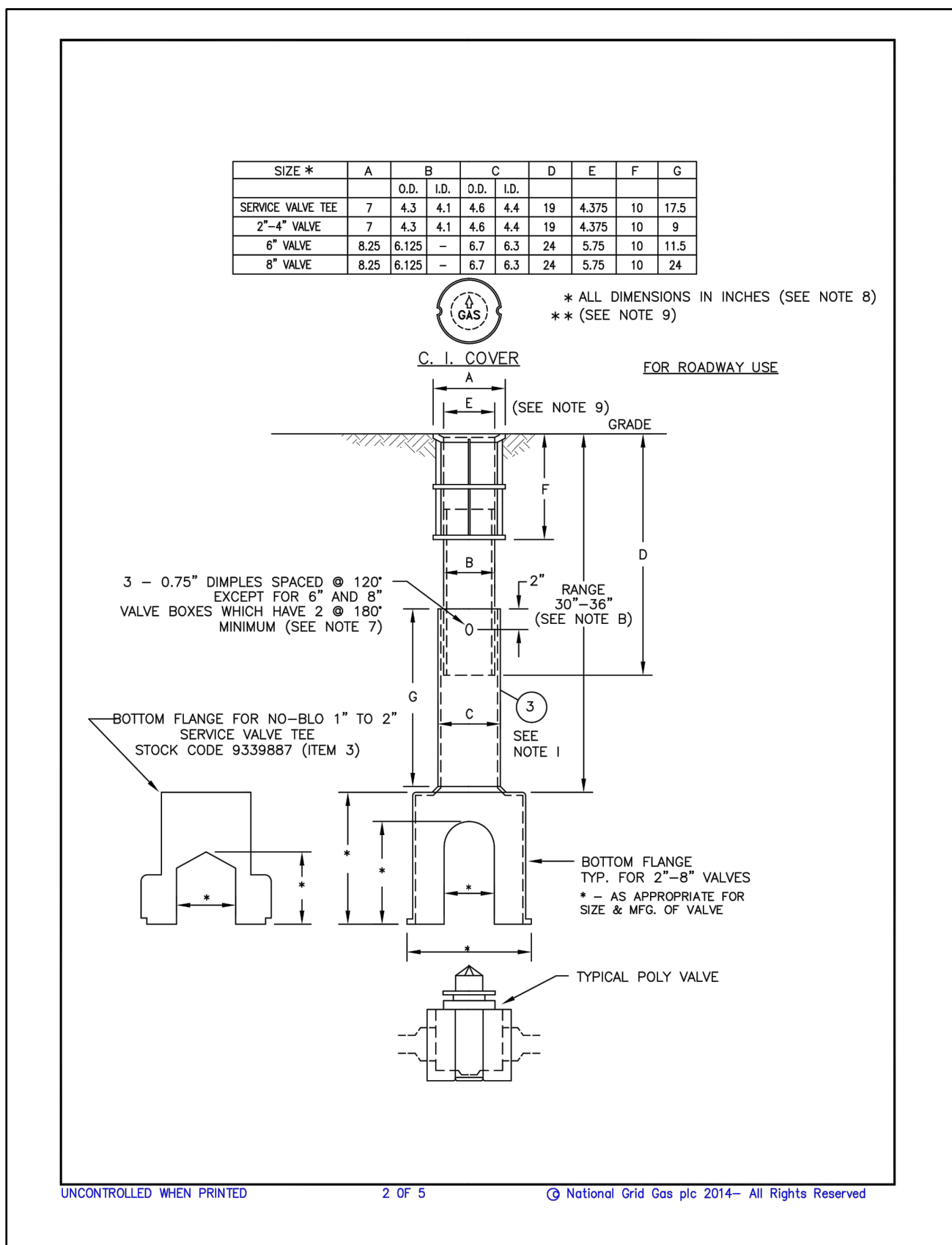
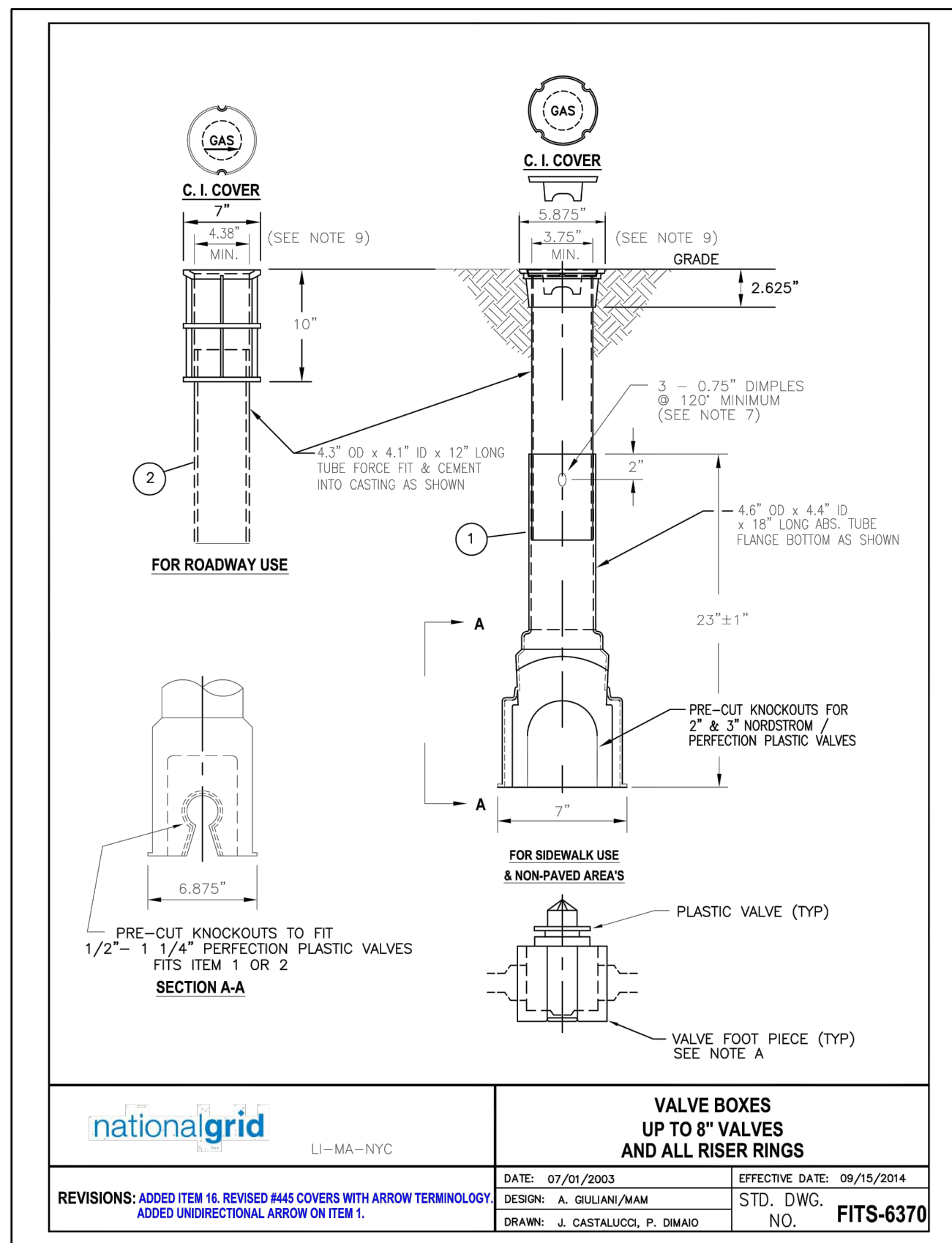
PROPOSED GAS MAIN INSTALLATION
 4" MDPE (LP TO 25 PSIG)
 BRIGHTON ST AND COLBY ST AND MERRILL AVE
 BELMONT, MA

MISCELLANEOUS DETAIL 1 OF 3

DWG SIZE	DESIGNER	ENGINEER	DATE:	ASSET I.D.	W.O. NO.:
22"x34"	G.GATWOOD	A. CAVALLLO	03/24/22	DISTRIBUTION	1399914

PAGE 8 OF 10

DRAWING NO.	SHEET NO.
BEL-1399914-08	C-201



INSTALLATION NOTES:

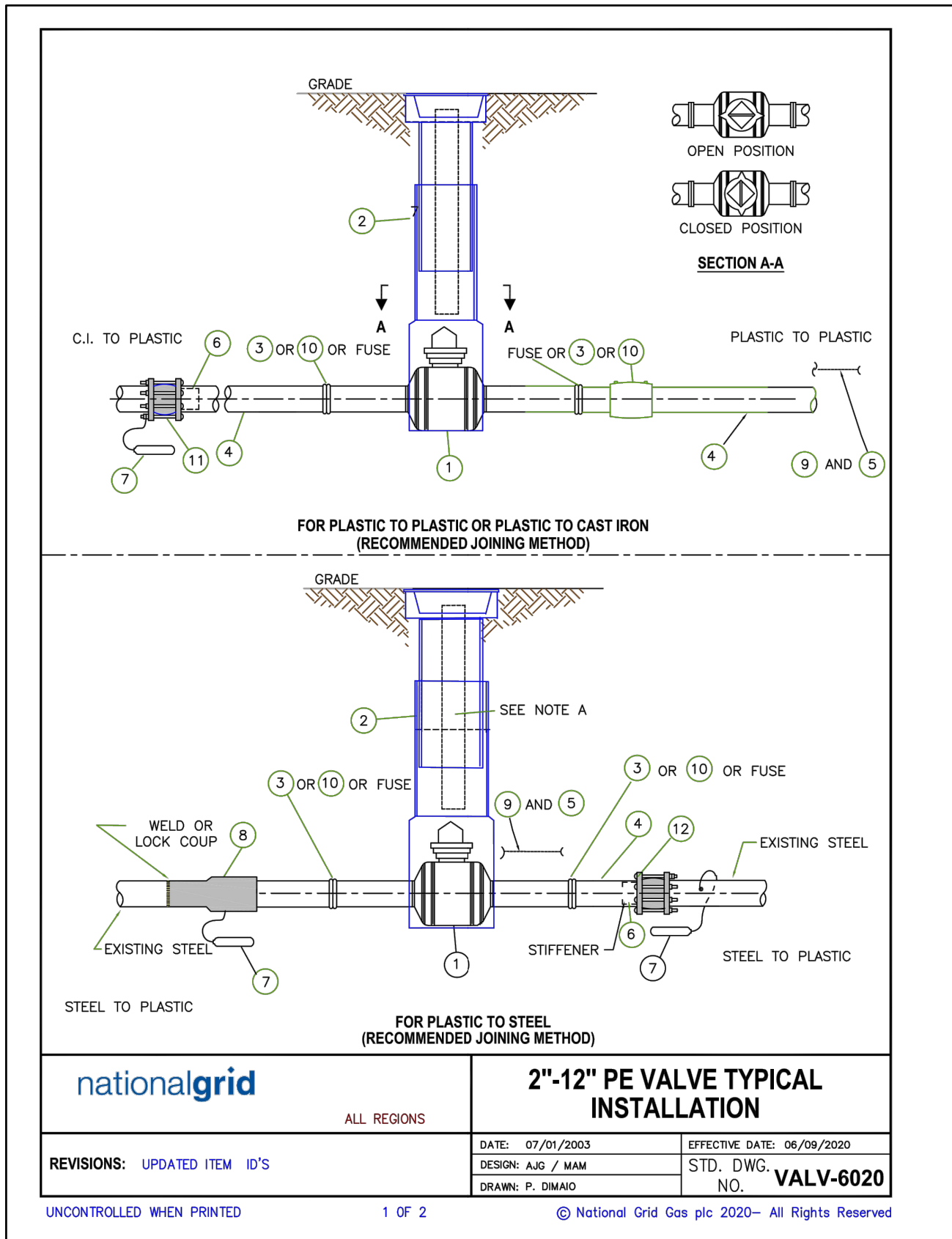
- VALVE FOOT PIECE TO BE INSTALLED AROUND THE VALVE THEN INSERTED INTO THE BOTTOM FLANGE OF THE VALVE BOX.
- THE RANGE OF THE VALVE BOX FROM TOP OF GRADE TO TOP OF VALVE IS 24" TO 38". FOR DEEPER VALVES USE EXTENSION TUBE STOCK CODE 00308023.
- THESE BOXES CAN ALSO BE USED WITH THE APPROPRIATE SIZE STEEL VALVE. IF USED WITH A STEEL VALVE THE VALVE FOOT PIECE IS NOT TO BE USED; HOWEVER, PRIOR TO BACKFILLING INSTALL THE LOWER PORTION OF THE VALVE KEY ON THE VALVE OPERATING NUT, THEN PLACE THE LOWER SECTION OF THE BOX ON THE VALVE. WHEN THE BOTTOM SECTION IS BACKFILLED TO WITHIN 6" FROM ITS TOP REMOVE THE VALVE KEY & INSTALL THE TOP SECTION OF THE BOX.
- ITEM 2 SHALL ONLY BE USED IN SIDEWALK AND NON-PAVED, NON TRAFFIC AREA EXCEPT DRIVEWAYS.
- USE ITEM 1 ON MAIN LINE VALVES INSTALLED IN PAVED AND NON PAVED AREAS.
- AFTER INSTALLATION OF MAIN LINE VALVE & BOX NOTIFY GSO OF COMPLETION.

MANUFACTURING NOTES:

- ALL TOPS & BOTTOMS SHALL BE INTERCHANGEABLE.
- THE TOP OF THE BOX ASSEMBLY SHALL BE FABRICATED SO AS TO FIT INSIDE THE BOTTOM SECTION.
- MATERIAL SHALL CONFORM TO ASTM SPECIFICATIONS FOR GREY CAST IRON CASTINGS, DESIGNATED A48, CLASS 25.
- COVER SHALL CREATE A TIGHT FIT WITH TOP OF CASTING TO PREVENT RATTLING. FOR CODES 00308054 & 00308055 COVER SHALL BE OF VENTED DESIGN. FOR OTHER STOCK CODES THE COVER SHALL INCLUDE A DIRECTIONAL ARROW. THIS SHALL BE DESIGNED TO ALLOW THE ARROW TO BE POSITIONED AT 60 INTERVALS.
- ALL SURFACES SHALL BE COVERED WITH ONE COAT OF FLINTKOTE HYDALT PROTECTIVE COATING, C-13-E OR APPROVED EQUAL.
- THE PLASTIC USED FOR THE TUBES SHALL BE PROTECTED FROM UV RAYS & HAVE THE PROPER INHIBITORS TO PREVENT FROM BRITTLINESS AT ZERO DEGREES.
- DIMPLES SHALL BE FORMED SO AS TO EXERT ENOUGH PRESSURE ON INNER TUBE TO SUPPORT ENTIRE ASSEMBLY IN EXTENDED POSITION.
- DIMENSIONAL TOLERANCES: MANUFACTURE SHALL ADHERE TO THE FOLLOWING DIMENSIONAL TOLERANCES ALL PLASTIC TUBING SHALL BE +/- 0.015" TO THOSE SHOWN ON THE DRAWING. ALL CASTINGS SHALL BE MANUFACTURED TO WITHIN +/- 0.002" TO THE DIMENSIONS SHOWN ON THE DRAWING.
- DIMENSIONS SHALL BE CONSISTENT THROUGHOUT THE CASTING.
- TOP SECTION OF VALVE BOX SHALL HAVE THE PLASTIC TUBE FORCED FIT AND CEMENTED INTO THE CASTING. THIS JOINT SHALL BE CAPABLE OF WITHSTANDING A PULL OUT FORCE OF 20 POUNDS.
- MANUFACTURER SHALL SUBMIT SAMPLES TO THE ENGINEER FOR APPROVAL PRIOR TO BID ACCEPTANCE.
- STREET BOXES SHALL BE DESIGNED TO HANDLE TO AN H-20 ROADWAY LOADING.
- TOP FLANGE OF ROADWAY BOX SHALL BE FLAT AND WIDE ENOUGH TO ACCOMMODATE A 3/8" METAL NUMBER STAMP EMBEDDED INTO THE CASTING BY CHD IN THE FIELD.
- THE VALVE FOOT PIECE SHALL BE DESIGNED TO FIT THE FOLLOWING MANUFACTURER'S VALVES:
1/2" - 1 1/4" PERFECTION UNIVERSAL FOOT PC FOR BOTH MFG.
2" - NORDSTROM OR PERFECTION VALVE FOR 2" CP FOR BOTH MFG.
4" - 8" NORDSTROM

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Effective Date 09/15/2014 FITS-6370

No.	ITEM	N.G. CODE No.
18	PENTAGON KEY FOR ITEMS 88 AND 118 (NOT SHOWN)	9354644
17	2" REGRADE ADAPTER FOR 12" LOCKING BOX SC1200 R2	9384175
16	VALVE BOX ADAPTER RINGS, 1/4 INCH THICK X 7-5/8 INCH I.D. X 10-1/2 IN O.D. FLAT RING TO RAISE OLD LEGACY OBSOLETE LIL CO ROUND CASTINGS	9353359
15	ONE INCH GRADE ADAPTER & COVER FOR CP TEST #445 ROADWAY BOX - NH ONLY	9383913
	REPLACEMENT COVER FOR LIL #2 BOX - LI ONLY	9339829
	COVER MARKED "GAS" FOR 445 BOX (WITH UNIDIRECTIONAL ARROW)	9339826
	COVER MARKED "GAS" FOR 445 BOX (WITHOUT UNIDIRECTIONAL ARROW)	9383503
	COVER MARKED "GAS" FOR 4" STAY PUT BOX - NYC ONLY	9339759
	COVER MARKED "GAS" FOR #118 BOX	9339668
	COVER MARKED "GAS" FOR #10 BOX RESURFACE REPAIR SLEEVE RING	9339762
14	1" REGRADE ADAPTER WITH COVER FOR CP TEST # 118 BOX - SEE NOTE 8	9382811
13A	3/4" REGRADE ADAPTER FOR B&T STAY PUT SERVICE BOX WITH SLOTS NYC ONLY	9339800
13B	1 1/2" REGRADE ADAPTER FOR B&T STAY PUT SERVICE BOX WITH SLOTS NYC ONLY	9339725
12	1" REGRADE ADAPTER FRAME FOR THE LIL# 2 & 3 VALVE BOX	9339859
	COVER FOR ABOVE (NOT SHOWN) - LI ONLY	9339860
11B	COVER, REPLACEMENT, LOCKING, MARKED "GAS" FOR EXISTING LOCK TYPE 200 BOX, WITH PENTHEAD BOLT - LI ONLY (NOT SHOWN)	9384338
11A	COVER, REPLACEMENT, NON-LOCK, MARKED "GAS" FOR EXISTING NON-LOCK TYPE 200 BOX - LI ONLY (NOT SHOWN)	9339798
11	1" REGRADE ADAPTER FRAME & COVER FOR 200 VALVE BOX - LI ONLY	9339826
	2-1/2" REGRADE ADAPTER FOR 200 VALVE BOX, FITS EXISTING COVER. (NOT SHOWN) - LI ONLY	9339799
10	1" REGRADE ADAPTER & COVER FOR 91C BOX - LI ONLY	9339761
9	1 1/2" REGRADE ADAPTER FOR LIL 2&3 BOX - LI ONLY	9339758
8A	COVER, REPLACEMENT, LOCKING, MARKED "GAS" FOR 7-1/2" EXISTING TYPE "A" LOCK VALVE BOXES, WITH PENTHEAD BOLT - LI ONLY (NOT SHOWN)	9339760
8B	COVER, REPLACEMENT, MARKED "GAS" FOR 7-1/2" EXISTING TYPE "A" NON-LOCK VALVE BOXES AND ALL TYPE "A" ADAPTER RINGS - LI ONLY (NOT SHOWN)	9384430
8	1" REGRADE ADAPTER FOR TYPE "A" VALVE BOX, FITS EXISTING COVER - LI ONLY	9339827
7	2-3/4" REGRADE ADAPTER FOR TYPE "A" VALVE BOX, 2-1/2 IN MIN TO 8 IN MAX RISE, FITS EXISTING COVER - LI ONLY	9339763
6	1" REGRADE ADAPTER RING EXTENSION WITH 10" PLASTIC SKIRT TO REPAIR TOPS OF CP TEST #10 BOX	9381407
5	1" REGRADE ADAPTER FOR CP TEST #10 BOX	9339823
4	EXTENSION TUBE - FOR CP TEST #11 BOX	9362819
	EXTENSION TUBE - FOR CP TEST #10 BOX	9339824
	EXTENSION TUBE, FOR CP TEST #568 BOX, 18" LONG - (NOT SHOWN) - NE ONLY	9383199
	EXTENSION TUBE, FOR CP TEST #334 BOX, 24" LONG - (NOT SHOWN) - NE ONLY	9383198
	ROADWAY BOX ASSEMBLY AND COVER FOR 8" POLYVALVE CP TEST #118 OR APPVD EQUAL	9339993
	ROADWAY BOX ASSEMBLY AND COVER FOR 6" POLYVALVE CP TEST #118 OR APPVD EQUAL	9339882
	ROADWAY BOX ASSEMBLY AND COVER FOR 4" POLYVALVE CP TEST #118 OR APPVD EQUAL	9339891
	ROADWAY BOX ASSEMBLY AND COVER FOR 2" AND 3" POLYVALVES CP TEST #10 OR APPVD EQUAL	9339880
	ROADWAY BOX ASSEMBLY AND COVER FOR 1"-2" MUELLER SERVICE VALVE TEE CP TEST #10 OR APPVD EQUAL	9339887
2	ROADWAY SERVICE BOX AND COVER FOR 1/2" TO 1" PLASTIC VALVE NE ONLY CP TEST #10 OR APPVD EQUAL	9382767
	SIDEWALK VALVE BOX ASSEMBLY AND UNIDIRECTIONAL ARROW COVER FOR 1/2" TO 1" PLASTIC VALVES CP TEST #445 OR APPVD EQUAL	9339888
	SIDEWALK VALVE BOX ASSEMBLY AND UNIDIRECTIONAL ARROW COVER FOR 2" TO 3" PLASTIC VALVES CP TEST #445 OR APPROVED EQUAL	9339889



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Effective Date 06/09/2020 VALV-6020

ITEM	SAP ID		SAP ID		SAP ID	
	UNY AND RI	LI ONLY	99 AND 124 PSIG HD	LI, NYC AND NE	LI, NYC AND NE	LI, NYC AND NE
1	LP TO 100 PSIG HD			LP TO 60 PSIG MEDIUM DENSITY		
	9311203 12" DR 11 FULL PORT W/ GEAR OPERATOR RI ONLY	9341708 8" RED PORT DR 9	9341704 12" FULL PORT DR 13.5	9382694 8" FULL PORT DR 13.5		
	9307909 12" DR 13.5 FULL PORT W/ GEAR OPER UNY ONLY	9341700 4" RED PORT DR 9	9341699 2" FULL PORT DR 9	9320363 6" FULL PORT DR 11.5		
	9311173 8" DR 11 FULL PORT RI ONLY	9315189 8" DR 13.5 FULL PORT UNY ONLY		9341708 4" FULL PORT DR 11.5		
	9312116 8" DR 11 FULL PORT	9312058 4" DR 11 FULL PORT		9341784 2" FULL PORT DR 11		
	9320561 3" DR 11 FULL PORT RI ONLY	9312058 4" DR 11 FULL PORT		9341408 8" RED PORT DR 13.5		
	9312060 2" DR 11 FULL PORT	9311146 2" DR 11 FULL PORT WITH PERMASERT ENDS		9341757 6" RED PORT DR 11.5		
				9341693 4" RED PORT DR 11.5		
				9341756 3" RED PORT DR 11		
				100 PSIG HIGH DENSITY (NE ONLY)		
2	SELECT ROADWAY VALVE BOX BELOW TO MATCH SIZED VALVE GIVEN	SELECT ROADWAY VALVE BOX BELOW TO MATCH SIZED VALVE GIVEN	SELECT ROADWAY VALVE BOX BELOW TO MATCH SIZED VALVE GIVEN			
	SEE DWG FITS 6360 (FOR 12" VALVE) (FOR 2" THRU 8" VALVE)	9341708 8" RED PORT	9382626 FOR 12" FULL PORT			
		9341700 4" RED PORT	9339863 FOR 6" FULL PORT			
		9341699 2" FULL PORT	9339882 FOR 4" FULL PORT			
			9339890 FOR 3" FULL PORT			
			9339890 FOR 2" FULL PORT			
			9339893 FOR 8" RED PORT			
			9339882 FOR 6" RED PORT			
			9339891 FOR 4" RED PORT			
			9339891 FOR 3" RED PORT			
3	COUPLING ELECTROFUSE					
	PLASTIC PIPE					
	BURIAL TAPE					
	INSERT STIFFENER (SEE NOTE C)					
	ANODE, 17 LB					
	TRANSITION FITTING STL TO PE					
	TRACER WIRE OR (BALL MARKER IF USED IN REGION)					
	COUPLING 2" PERFECTION PERMASERT (SEE NOTE C)					
	COUPLING, PE TO CI LOCKING INSULATING, MECHANICAL					
	COUPLING, PE TO STL LOCKING, NON-INSULATING MECHANICAL (SEE NOTE C)					

NOTE: THE ENGINEER OF RECORD HAS REVIEWED THE PROVIDED NATIONAL GRID STANDARD DETAILS AND DETERMINED THEIR APPLICABILITY TO THE WORK IN THIS PACKAGE. THE ENGINEER OF RECORD DOES NOT CERTIFY THE ACCURACY OF ANY REFERENCED STANDARDS OR PROCEDURES NOT DIRECTLY RELATED TO THE WORK DESCRIBED IN THIS PLAN SET.

Architecture Engineering Environmental Land Surveying

COMMONWEALTH OF MASSACHUSETTS
ANDREW JOSEPH CAVALLO
MECHANICAL No. 54294
REGISTERED PROFESSIONAL ENGINEER
SIGN & DATE

NO.	ISSUED FOR CONSTRUCTION	DATE	DR.BY	CK.BY	APP.BY
0	ISSUED FOR CONSTRUCTION	03/24/22	GG	LA	AC

BOSTON GAS COMPANY
d/b/a
nationalgrid
40 SYLVAN ROAD
WALTHAM, MA 02451

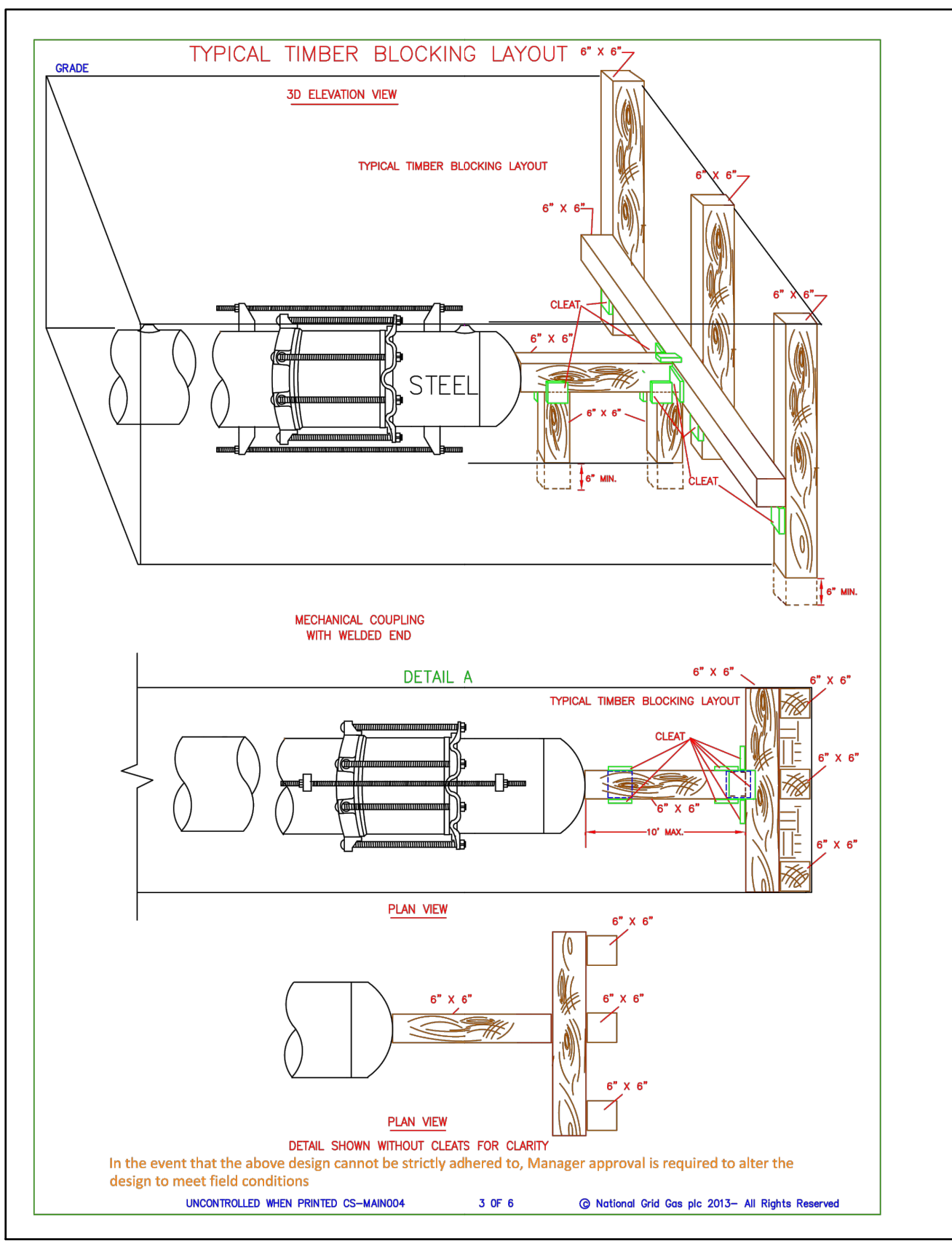
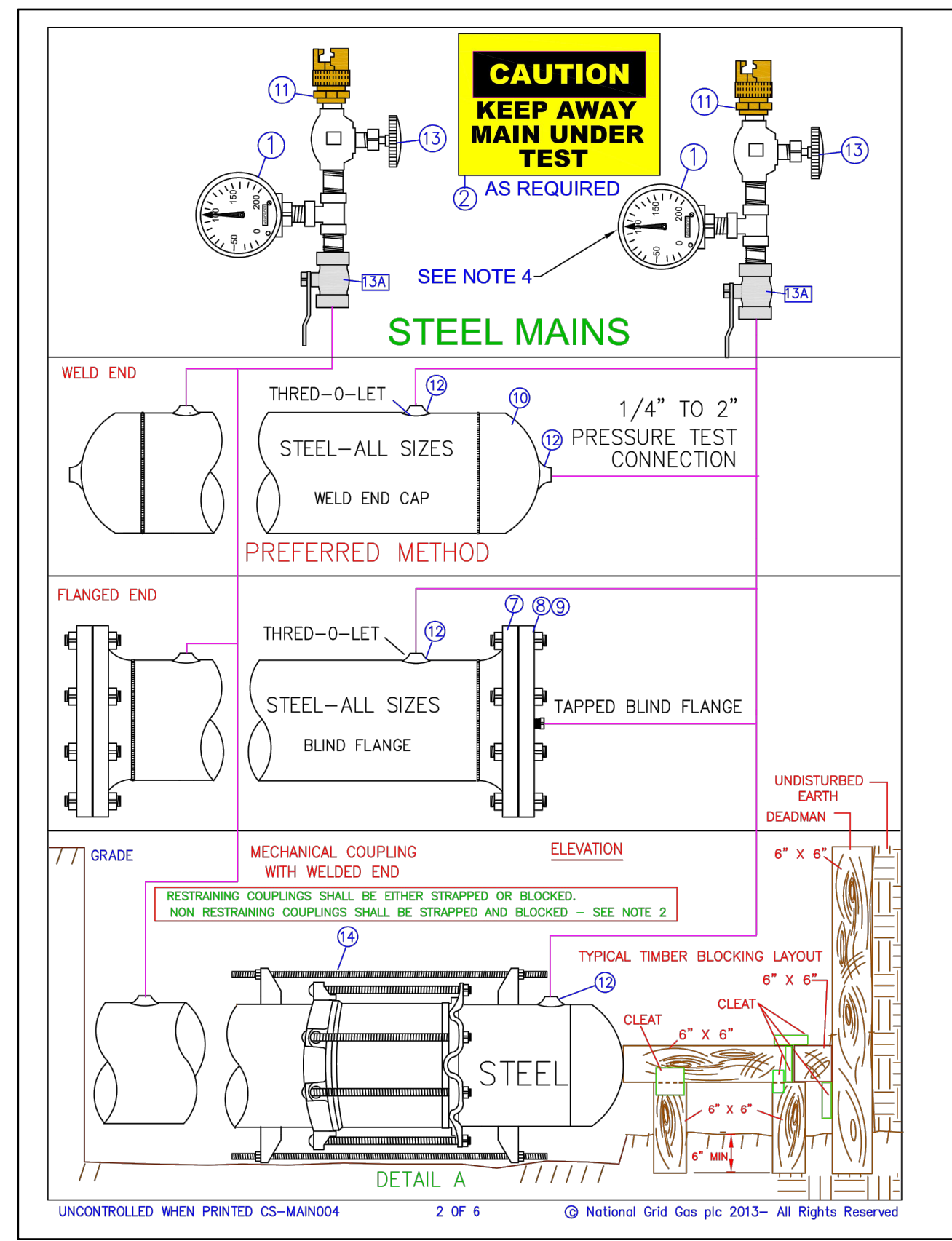
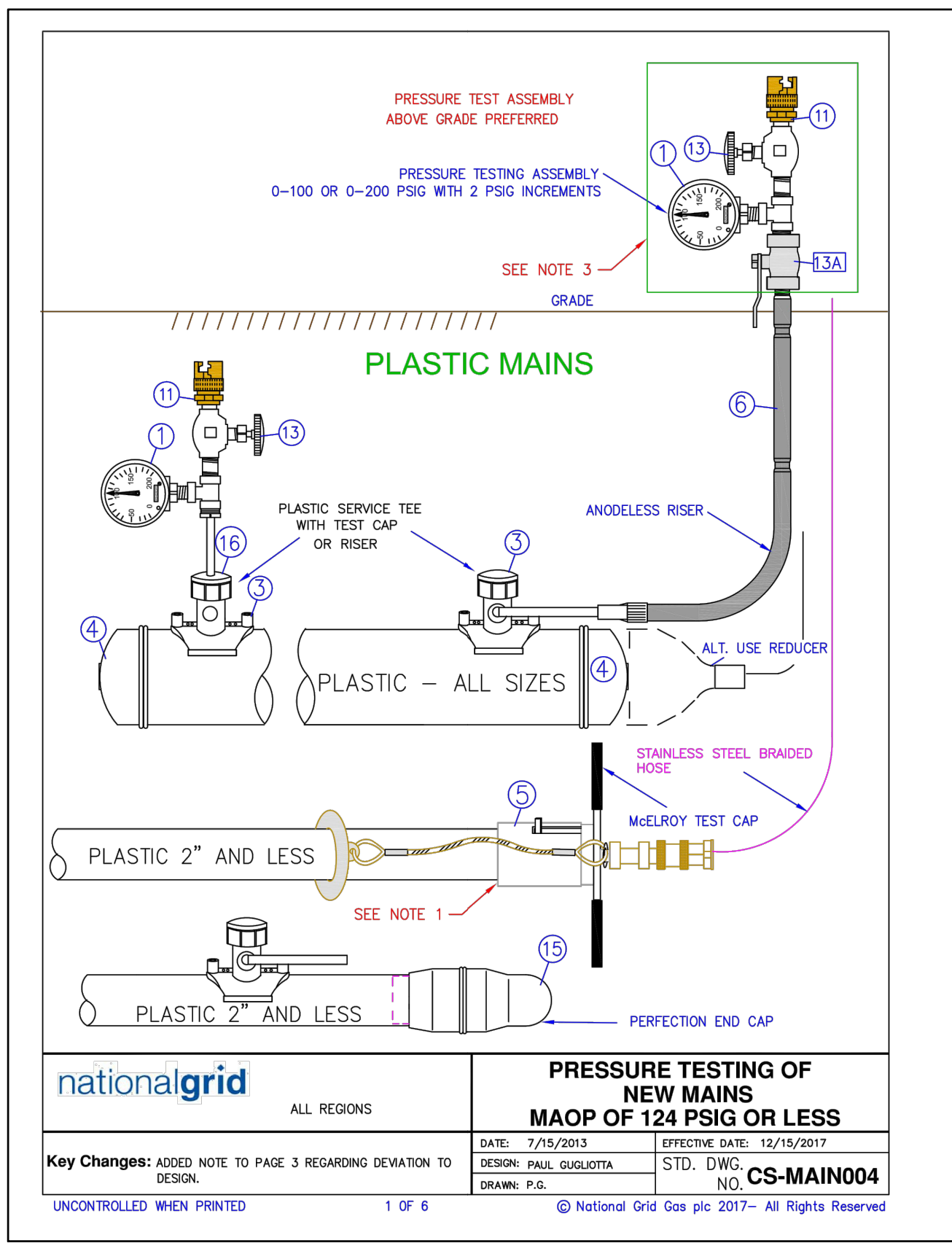
PROPOSED GAS MAIN INSTALLATION
4" MDPE (LP TO 25 PSIG)
BRIGHTON ST AND COLBY ST AND MERRILL AVE
BELMONT, MA

MISCELLANEOUS DETAIL 2 OF 3

DWG SIZE	DESIGNER	ENGINEER	DATE	ASSET I.D.	W.O. NO.:
22"X34"	G.GATWOOD	A. CAVALLO	03/24/22	DISTRIBUTION	1399914

PAGE 9 OF 10

DRAWING NO.	SHEET NO.
BEL-1399914-09	C-202



NOTES:

- INSTALL PER MCELROY MANUFACTURER'S INSTRUCTIONS.
- WHEN USING MECHANICAL COUPLINGS (AS SHOWN IN DETAIL A), NON-RESTRAINING COUPLING SHALL BE STRAPPED AND THE ENDS SHALL BE BLOCKED PER APPROVED STANDARD DRAWINGS. RESTRAINING COUPLINGS NEED TO 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 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.

PIPE SIZE (INCHES)	MINIMUM SAFE DISTANCE FROM THE EXCAVATION WALL (FEET)
2	5
3	5
4	12
6	24
8	41
10	41
12	41

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 RECD IN NY STATE ONLY). REFER TO CNSTD04003 "PRESSURE TESTING OF MAINS OPERATING BELOW 125 PSIG" FOR TESTING AND DESIGN REQUIREMENTS.

ITEM	DESCRIPTION	SAP ITEM ID	LI / MA / NYC	RI AND UNY
1	PRESSURE GAUGE 0-100 OR 0-200 PSIG - 3 PSI INCREMENTS	934865		
	0-200 PSIG STAINLESS STEEL 1/2" NPT 3-1/2" DIAL	935830		
	0-100 PSIG STAINLESS STEEL 1/2" NPT	933240		
2	TEE SERVICE - ELECTROFUSION YELLOW MD 1/2" CTS BUTT FUSE OUTLET			
	2" MAIN X 1/2" BUTT FUSE OUTLET	934217	2X1/2	NON STOCK
	4" MAIN X 1/2" BUTT FUSE OUTLET	934218	4X1/2	NON STOCK
	6" MAIN X 1/2" BUTT FUSE OUTLET	934219	6X1/2	NON STOCK
	8" MAIN X 1/2" BUTT FUSE OUTLET	934231	8X1/2	NON STOCK
	10" MAIN X 1/2" BUTT FUSE OUTLET	934232	10X1/2	NON STOCK
	12" MAIN X 1/2" BUTT FUSE OUTLET	934233	12X1/2	NON STOCK
	1 1/4" MAIN X 1/2" BUTT FUSE OUTLET	934234	1 1/4X1/2	NON STOCK
	2" MAIN X 1/2" BUTT FUSE OUTLET	934235	2X1/2	NON STOCK
	4" MAIN X 1/2" BUTT FUSE OUTLET	934236	4X1/2	NON STOCK
	6" MAIN X 1/2" BUTT FUSE OUTLET	934237	6X1/2	NON STOCK
	8" MAIN X 1/2" BUTT FUSE OUTLET	934238	8X1/2	NON STOCK
	10" MAIN X 1/2" BUTT FUSE OUTLET	934239	10X1/2	NON STOCK
	12" MAIN X 1/2" BUTT FUSE OUTLET	934240	12X1/2	NON STOCK
	1 1/4" MAIN X 1/2" BUTT FUSE OUTLET	934241	1 1/4X1/2	NON STOCK
	2" MAIN X 1/2" BUTT FUSE OUTLET	934242	2X1/2	NON STOCK
	4" MAIN X 1/2" BUTT FUSE OUTLET	934243	4X1/2	NON STOCK
	6" MAIN X 1/2" BUTT FUSE OUTLET	934244	6X1/2	NON STOCK
	8" MAIN X 1/2" BUTT FUSE OUTLET	934245	8X1/2	NON STOCK
	10" MAIN X 1/2" BUTT FUSE OUTLET	934246	10X1/2	NON STOCK
	12" MAIN X 1/2" BUTT FUSE OUTLET	934247	12X1/2	NON STOCK
	1 1/4" MAIN X 1/2" BUTT FUSE OUTLET	934248	1 1/4X1/2	NON STOCK
	2" MAIN X 1/2" BUTT FUSE OUTLET	934249	2X1/2	NON STOCK
	4" MAIN X 1/2" BUTT FUSE OUTLET	934250	4X1/2	NON STOCK
	6" MAIN X 1/2" BUTT FUSE OUTLET	934251	6X1/2	NON STOCK
	8" MAIN X 1/2" BUTT FUSE OUTLET	934252	8X1/2	NON STOCK
	10" MAIN X 1/2" BUTT FUSE OUTLET	934253	10X1/2	NON STOCK
	12" MAIN X 1/2" BUTT FUSE OUTLET	934254	12X1/2	NON STOCK
	1 1/4" MAIN X 1/2" BUTT FUSE OUTLET	934255	1 1/4X1/2	NON STOCK
	2" MAIN X 1/2" BUTT FUSE OUTLET	934256	2X1/2	NON STOCK
	4" MAIN X 1/2" BUTT FUSE OUTLET	934257	4X1/2	NON STOCK
	6" MAIN X 1/2" BUTT FUSE OUTLET	934258	6X1/2	NON STOCK
	8" MAIN X 1/2" BUTT FUSE OUTLET	934259	8X1/2	NON STOCK
	10" MAIN X 1/2" BUTT FUSE OUTLET	934260	10X1/2	NON STOCK
	12" MAIN X 1/2" BUTT FUSE OUTLET	934261	12X1/2	NON STOCK
	1 1/4" MAIN X 1/2" BUTT FUSE OUTLET	934262	1 1/4X1/2	NON STOCK
	2" MAIN X 1/2" BUTT FUSE OUTLET	934263	2X1/2	NON STOCK
	4" MAIN X 1/2" BUTT FUSE OUTLET	934264	4X1/2	NON STOCK
	6" MAIN X 1/2" BUTT FUSE OUTLET	934265	6X1/2	NON STOCK
	8" MAIN X 1/2" BUTT FUSE OUTLET	934266	8X1/2	NON STOCK
	10" MAIN X 1/2" BUTT FUSE OUTLET	934267	10X1/2	NON STOCK
	12" MAIN X 1/2" BUTT FUSE OUTLET	934268	12X1/2	NON STOCK
	1 1/4" MAIN X 1/2" BUTT FUSE OUTLET	934269	1 1/4X1/2	NON STOCK
	2" MAIN X 1/2" BUTT FUSE OUTLET	934270	2X1/2	NON STOCK
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	6" MAIN X 1/2" BUTT FUSE OUTLET	934272	6X1/2	NON STOCK
	8" MAIN X 1/2" BUTT FUSE OUTLET	934273	8X1/2	NON STOCK
	10" MAIN X 1/2" BUTT FUSE OUTLET	934274	10X1/2	NON STOCK
	12" MAIN X 1/2" BUTT FUSE OUTLET	934275	12X1/2	NON STOCK
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	2" MAIN X 1/2" BUTT FUSE OUTLET	934277	2X1/2	NON STOCK
	4" MAIN X 1/2" BUTT FUSE OUTLET	934278	4X1/2	NON STOCK
	6" MAIN X 1/2" BUTT FUSE OUTLET	934279	6X1/2	NON STOCK
	8" MAIN X 1/2" BUTT FUSE OUTLET	934280	8X1/2	NON STOCK
	10" MAIN X 1/2" BUTT FUSE OUTLET	934281	10X1/2	NON STOCK
	12" MAIN X 1/2" BUTT FUSE OUTLET	934282	12X1/2	NON STOCK
	1 1/4" MAIN X 1/2" BUTT FUSE OUTLET	934283	1 1/4X1/2	NON STOCK
	2" MAIN X 1/2" BUTT FUSE OUTLET	934284	2X1/2	NON STOCK
	4" MAIN X 1/2" BUTT FUSE OUTLET	934285	4X1/2	NON STOCK
	6" MAIN X 1/2" BUTT FUSE OUTLET	934286	6X1/2	NON STOCK
	8" MAIN X 1/2" BUTT FUSE OUTLET	934287	8X1/2	NON STOCK
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	6" MAIN X 1/2" BUTT FUSE OUTLET	934300	6X1/2	NON STOCK
	8" MAIN X 1/2" BUTT FUSE OUTLET	934301	8X1/2	NON STOCK
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	6" MAIN X 1/2" BUTT FUSE OUTLET	934307	6X1/2	NON STOCK
	8" MAIN X 1/2" BUTT FUSE OUTLET	934308	8X1/2	NON STOCK
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	8" MAIN X 1/2" BUTT FUSE OUTLET	934329	8X1/2	NON STOCK
	10" MAIN X 1/2" BUTT FUSE OUTLET	934330	10X1/2	NON STOCK
	12" MAIN X 1/2" BUTT FUSE OUTLET	934331	12X1/2	NON STOCK
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	12" MAIN X 1/2" BUTT FUSE OUTLET	934338	12X1/2	NON STOCK
	1 1/4" MAIN X 1/2" BUTT FUSE OUTLET	934339	1 1/4X1/2	NON STOCK
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	8" MAIN X 1/2" BUTT FUSE OUTLET	934343	8X1/2	NON STOCK
	10" MAIN X 1/2" BUTT FUSE OUTLET	934344	10X1/2	NON STOCK
	12" MAIN X 1/2" BUTT FUSE OUTLET	934345	12X1/2	NON STOCK
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	4" MAIN X 1/2" BUTT FUSE OUTLET	934348	4X1/2	NON STOCK
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	2" MAIN X 1/2" BUTT FUSE OUTLET	934354	2X1/2	NON STOCK
	4" MAIN X 1/2" BUTT FUSE OUTLET	934355	4X1/2	NON STOCK
	6" MAIN X 1/2" BUTT FUSE OUTLET	934356	6X1/2	NON STOCK
	8" MAIN X 1/2" BUTT FUSE OUTLET	934357	8X1/2	NON STOCK
	10" MAIN X 1/2" BUTT FUSE OUTLET	934358	10X1/2	NON STOCK
	12" MAIN X 1/2" BUTT FUSE OUTLET	934359	12X1/2	NON STOCK
	1 1/4" MAIN X 1/2" BUTT FUSE OUTLET	934360	1 1/4X1/2	NON STOCK
	2" MAIN X 1/2" BUTT FUSE OUTLET	934361	2X1/2	NON STOCK
	4" MAIN X 1/2" BUTT FUSE OUTLET	934362	4X1/2	NON STOCK
	6" MAIN X 1/2" BUTT FUSE OUTLET	934363	6X1/2	NON STOCK
	8" MAIN X 1/2" BUTT FUSE OUTLET	934364	8X1/2	NON STOCK
	10" MAIN X 1/2" BUTT FUSE OUTLET	934365	10X1/2	NON STOCK
	12" MAIN X 1/2" BUTT FUSE OUTLET	934366	12X1/2	NON STOCK
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	4" MAIN X 1/2" BUTT FUSE OUTLET	934369	4X1/2	NON STOCK
	6" MAIN X 1/2" BUTT FUSE OUTLET	934370	6X1/2	NON STOCK
	8" MAIN X 1/2" BUTT FUSE OUTLET	934371	8X1/2	NON STOCK
	10" MAIN X 1/2" BUTT FUSE OUTLET	934372	10X1/2	NON STOCK
	12" MAIN X 1/2" BUTT FUSE OUTLET	934373	12X1/2	NON STOCK
	1 1/4" MAIN X 1/2" BUTT FUSE OUTLET	934374	1 1/4X1/2	NON STOCK
	2" MAIN X 1/2" BUTT FUSE OUTLET	934375	2X1/2	NON STOCK
	4" MAIN X 1/2" BUTT FUSE OUTLET	934376	4X1/2	NON STOCK
	6" MAIN X 1/2" BUTT FUSE OUTLET	934377	6X1/2	NON STOCK
	8" MAIN X 1/2" BUTT FUSE OUTLET	934378	8X1/2	NON STOCK
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	12" MAIN X 1/2" BUTT FUSE OUTLET	934380	12X1/2	NON STOCK
	1 1/4" MAIN X 1/2" BUTT FUSE OUTLET	934381	1 1/4X1/2	NON STOCK
	2" MAIN X 1/2" BUTT FUSE OUTLET	934382	2X1/2	NON STOCK
	4" MAIN X 1/2" BUTT FUSE OUTLET	934383	4X1/2	NON STOCK
	6" MAIN X 1/2" BUTT FUSE OUTLET	934384	6X1/2	NON STOCK
	8" MAIN X 1/2" BUTT FUSE OUTLET	934385	8X1/2	NON STOCK
	10" MAIN X 1/2" BUTT FUSE OUTLET	934386	10X1/2	NON STOCK
	12" MAIN X 1/2" BUTT FUSE OUTLET	934387	12X1/2	NON STOCK
	1 1/4" MAIN X 1/2" BUTT FUSE OUTLET	934388	1 1/4X1/2	NON STOCK
	2" MAIN X 1/2" BUTT FUSE OUTLET	934389	2X1/2	NON STOCK
	4" MAIN X 1/2" BUTT FUSE OUTLET	934390	4X1/2	NON STOCK
	6" MAIN X 1/2" BUTT FUSE OUTLET	934391	6X1/2	NON STOCK
	8" MAIN X 1/2" BUTT FUSE OUTLET	934392	8X1/2	NON STOCK
	10" MAIN X 1/2" BUTT FUSE OUTLET	934393	10X1/2	NON STOCK
	12" MAIN X 1/2" BUTT FUSE OUTLET	934394	12X1/2	NON STOCK
	1 1/4" MAIN X 1/2" BUTT FUSE OUTLET	934395	1 1/4X1/2	NON STOCK
	2" MAIN X 1/2" BUTT FUSE OUTLET	934396	2X1/2	NON STOCK
	4			