

# CONTRACT 4

## WATER MAINS - LANDFILL AREA, PRIVATE ROADS

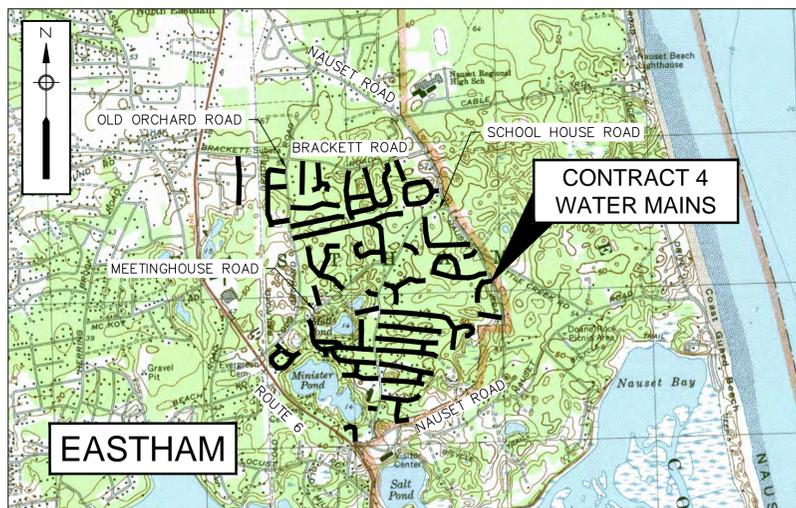
### WATER SYSTEM CONSTRUCTION

### EASTHAM, MASSACHUSETTS

APRIL 2015

LIST OF DRAWINGS

- |      |   |       |  |
|------|---|-------|--|
| G-1  | GENERAL NOTES AND LEGEND                                    | C-16  | CHESTER AVENUE AND FORREST AVENUE                  |
| G-2  | ROAD RESTORATION SCHEDULE AND KEY PLAN                      | C-17  | CANDLEWOOD DRIVE                                   |
| C-1  | SEAWARD WAY   | C-18  | CANDLEWOOD DRIVE AND TURTLE POND ROAD              |
| C-2  | DEXTER STREET AND CHATHAM STREET                            | C-19  | CESTARO WAY  |
| C-3  | SEASIDE DRIVE, CHESTER AVENUE, ACORN ROAD, AND BALLWIC ROAD | C-20  | FAIRVIEW AVENUE AND DOANE STREET                   |
| C-4  | THORNE ROAD   | C-21  | DEERFIELD LANE AND DOANE STREET                    |
| C-5  | THOREAU DRIVE   | C-22  | ALSTON AVENUE, MOLLS POND ROAD, AND BAYVIEW AVENUE |
| C-6  | ELDER ROAD, VESPER LANE, AND EMERSON ROAD                   | C-23  | ALSTON AVENUE AND MOLLS POND ROAD                  |
| C-7  | FOX RUN ROAD, FOX RUN LANE, AND HOYER LANE                  | C-24  | KNOWLES STREET, BAYVIEW AVENUE, AND CHIPMAN STREET |
| C-8  | HOLMES ROAD   | C-25  | SURREY DRIVE, OAK STREET, AND CHOKEBERRY DRIVE     |
| C-9  | SEASHELL LANE   | C-26  | REDBERRY LANE AND WILD GOOSE LANE                  |
| C-10 | ORCHARD DRIVE AND APPLE WAY                                 | C-27  | STARLIGHT LANE AND SHARON CIRCLE                   |
| C-11 | LUPIN WAY AND KETTLE HOLE ROAD                              | C-28  | PRESERVATION WAY AND LAURA LANE                    |
| C-12 | GLACIER HILLS ROAD  | CD-1  | CONSTRUCTION DETAILS I                             |
| C-13 | GLACIER HILLS ROAD, NORTHWOOD ROAD, AND DEEPWOOD DRIVE      | CD-2  | CONSTRUCTION DETAILS II                            |
| C-14 | ELDIA WAY AND WHIDAH LANE                                   | CD-3  | CONSTRUCTION DETAILS III                           |
| C-15 | SPINNAKER WAY, SELAH CIRCLE, AND DUCK MARSH LANE            | TMP-1 | POTENTIAL DETOUR ROUTES                            |
|      |   | TMP-2 | TRAFFIC DETAIL, SIGNS, AND NOTES                   |



VICINITY MAP  
1" = 2,000'

ENGINEERS PROJECT NUMBER

217-1401.03

DWSRF PROJECT NUMBER

4038

TOWN ADMINISTRATOR

SHEILA VANDERHOEF

BOARD OF SELECTMEN

LINDA BURT  
JOHN KNIGHT  
MARTIN McDONALD  
WALLACE ADAMS, II  
ELIZABETH GAWRON

PUBLIC WORKS SUPERINTENDENT

NEIL ANDRES, P.E.



**GENERAL NOTES:**

- BASE MAP INFORMATION FOUND ON THE DESIGN SHEETS ARE TAKEN FROM A GIS FLYOVER CONDUCTED IN 3/20/2012. RIGHT OF WAY AND PROPERTY LINE INFORMATION AND WETLAND LIMITS ARE TAKEN FROM MASSGIS AND IT IS APPROXIMATE ONLY. GAS INFORMATION IS TAKEN FROM NATIONAL GRID. COMMUNICATION UTILITY INFORMATION IS TAKEN FROM VERIZON. IT IS NOTED THAT ADDITIONAL UTILITY PIPES AND STRUCTURES MAY EXIST. DRAINAGE INFORMATION WAS TAKEN FROM DPW AND MASSDOT RECORD PLANS. MASSDOT LAYOUT INFORMATION WAS TAKEN FROM MASSDOT RECORD PLANS.
- IN AREAS WHERE CONSTRUCTION ACTIVITIES ARE ANTICIPATED TO OCCUR WITHIN PRIVATE PROPERTY, PROPERTY LINE LOCATIONS ARE TO BE REVIEWED WITH THE TOWN PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES.
- THE CONTRACTOR SHALL NOT STORE ANY APPARATUS, MATERIALS, SUPPLIES, OR EQUIPMENT ON DRAINAGE STRUCTURES, PRIVATE PROPERTY OR WITHIN 100 FEET OF WETLANDS, UNLESS DIRECTED TO DO SO BY THE CONTRACT DOCUMENTS.
- NORTH DIRECTION SHOWN IS APPROXIMATE.
- ALL EXISTING UTILITIES SHOWN ARE APPROXIMATE, THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES. CONTRACTOR SHALL NOTIFY DIG SAFE AT LEAST 72 HOURS IN ADVANCE, EXCLUDING WEEKENDS AND HOLIDAYS, PRIOR TO ANY EXCAVATION.
- CONTRACTOR SHALL VERIFY ALL INVERT INFORMATION PRIOR TO ANY EXCAVATIONS.
- DO NOT SCALE DRAWINGS UNLESS OTHERWISE NOTED. WRITTEN DIMENSIONS AND STATIONING SHALL PREVAIL. REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY.
- THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).
- THE CONTRACTOR SHALL RESTORE ALL PUBLIC AND PRIVATE PROPERTY TO ITS PRE-CONSTRUCTION CONDITION AT NO ADDITIONAL COST TO THE OWNER.
- ALL EXISTING UTILITY LINES ENCOUNTERED DURING CONSTRUCTION ARE TO REMAIN IN SERVICE. THE CONTRACTOR SHALL, AT NO ADDITIONAL COST TO THE TOWN, REPAIR ANY EXISTING SEWERS, STORM DRAIN LINES OR CULVERTS DAMAGED DURING CONSTRUCTION.
- IN THOSE INSTANCES WHERE POWER OR TELEPHONE POLE SUPPORT IS REQUIRED, THE CONTRACTOR SHALL PROVIDE A MINIMUM 48-HOUR NOTIFICATION TO THE RESPECTIVE UTILITY COMPANY. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR TEMPORARY BRACING OF UTILITIES.
- ALL STRUCTURES AND PIPELINES LOCATED ADJACENT TO THE TRENCH EXCAVATION SHALL BE PROTECTED AND FIRMLY SUPPORTED BY THE CONTRACTOR UNTIL THE TRENCH IS BACKFILLED. INJURY TO ANY SUCH STRUCTURE CAUSED BY, OR RESULTING FROM, THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. ALL UTILITIES REQUIRING REPAIR, RELOCATION OR ADJUSTMENT AS A RESULT OF THE PROJECT SHALL BE COORDINATED THROUGH THE RESPECTIVE UTILITY AND THE TOWN.
- THE CONTRACTOR SHALL TAKE SPECIAL CARE NOT TO DAMAGE TREES, BUSHES, PLANTS, FLOWERS, STONEWALLS, FENCES, ETC. WITHIN THE CONSTRUCTION AREA UNLESS THEY ARE NOTED TO BE REMOVED. CONTRACTOR SHALL REPLACE, AT NO COST TO OWNER, ALL DAMAGED ITEMS.
- CONTRACTOR SHALL REMOVE AND REPLACE, OR REPAIR, ALL CURBS, SIDEWALKS, BERMS, PAVEMENT AND OTHER ITEMS DAMAGED BY HIS CONSTRUCTION ACTIVITIES TO AT LEAST THEIR ORIGINAL CONDITION, AND TO THE SATISFACTION OF THE TOWN AND ENGINEER.
- ANY TRAFFIC SIGNAL EQUIPMENT (LIGHTS, CONDUITS, LOOP DETECTORS) DISTURBED SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AS DIRECTED BY THE TOWN AT THE CONTRACTOR'S EXPENSE.
- THE CONTRACTOR SHALL INSTALL AND MAINTAIN TRAFFIC CONTROL DEVICES AS NECESSARY AND IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND MASSDOT PERMIT REQUIREMENTS.
- THE CONTRACTOR SHALL BE REQUIRED TO FURNISH AND MAINTAIN A TELEPHONE NUMBER WHERE THE CONTRACTOR CAN BE REACHED 24 HOURS A DAY, 7 DAYS A WEEK.
- THE LOCATION AND LIMITS OF ALL ON-SITE WORK AND STORAGE AREAS SHALL BE REVIEWED/COORDINATED WITH, AND ACCEPTABLE TO THE TOWN. THE CONTRACTOR SHALL LIMIT HIS ACTIVITIES TO THESE AREA.
- THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR WORK IN ROADWAYS AND FOR BLASTING. THE CONTRACTOR IS RESPONSIBLE FOR CONFORMING TO ALL PERMITS AS AN INTEGRAL PART OF HIS WORK.
- THE CONTRACTOR SHALL HANDLE AND DISPOSE GROUNDWATER, WHERE ENCOUNTERED, IN AN APPROVED MANNER. DURING ANY DEWATERING (SEE DETAIL SHEET CD-2).
- IF ENCOUNTERED, THE CONTRACTOR SHALL HANDLE, STORE, REMOVE, TRANSPORT AND LEGALLY DISPOSE OF ANY ASBESTOS-CEMENT PIPE AND MATERIALS IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS. ASBESTOS NOTIFICATION FORMS SHALL BE COMPLETED AND SUBMITTED TO THE APPROPRIATE AGENCY/AGENCIES.

**WATER MAIN NOTES:**

- NEW WATER MAINS AND SERVICES SHALL BE INSTALLED AT THE MINIMUM DEPTH FROM FINISH GRADE TO TOP OF PIPE AS SHOWN ON THE DRAWINGS. WHERE NECESSARY, NEW WATER MAINS SHALL BE INSTALLED AT A GREATER DEPTH TO CLEAR OBSTACLES SHOWN ON THE DRAWINGS AT NO ADDITIONAL COST TO THE OWNER. MINIMUM CLEARANCES TO UTILITIES, AS SHOWN ON THE DRAWINGS SHALL BE MAINTAINED.
- MINIMUM COVER OVER THE PROPOSED WATER MAIN AND APPURTENANCES SHALL BE 4'-6" UNLESS OTHERWISE NOTED OR DIRECTED BY ENGINEER. ANY PIPE WITH LESS THAN 4'-0" COVER REQUIRES INSULATION.
- TEST PITS TO LOCATE EXISTING UTILITIES MAY BE ORDERED BY THE ENGINEER TO DETERMINE WHETHER TO RAISE OR LOWER THE PROPOSED WATER MAIN TO CLEAR EXISTING UTILITIES OR MEET EXISTING WATER MAINS.
- THE CONTRACTOR SHALL STAKE OUT ALL HYDRANT LOCATIONS AT LEAST 3 DAYS IN ADVANCE OF INSTALLATION. THE LOCATION OF ALL HYDRANTS SHALL BE VERIFIED BY THE FIRE DEPARTMENT, ENGINEER AND TOWN PRIOR TO EXCAVATION FOR INSTALLATION.
- ALL HYDRANT BRANCHES SHALL HAVE VALVES AS SHOWN ON THE HYDRANT DETAIL.
- ANY HYDRANT WHICH IS NOT IN SERVICE SHALL BE COVERED WITH A SECURELY FASTENED BURLAP BAG (OR EQUAL).
- ALL WATER MAIN CAPS WHICH WILL BE REMOVED IN SUBSEQUENT CONTRACTS SHALL BE MARKED WITH A VERTICAL OAK POST (OR EQUAL) APPROXIMATELY 18" BELOW FINISHED GRADE AND MARKED WITH BLUE MARKING SPRAY PAINT ON THE POST AND PAVED SURFACE.
- CORPORATIONS SHALL NOT BE OPENED TO THE PROPOSED WATER MAIN UNTIL SATISFACTORY PRESSURE TEST AND DISINFECTION RESULTS.
- WATER SERVICE SHALL NOT BE INTERRUPTED MORE THAN 4 HOURS WITHOUT PRIOR APPROVAL OF THE OWNER.
- THE CONTRACTOR SHALL NOT OPEN OR CLOSE ANY VALVES OR HYDRANTS WHICH HOLD WATER IN THE SYSTEM. THE OWNER WILL, ON 24 HOURS NOTICE FROM THE CONTRACTOR, OPEN AND/OR CLOSE ANY VALVES OR HYDRANTS REQUIRED FOR DRAINING OR ADMITTING WATER TO THE VARIOUS SECTIONS OF THE WATER MAINS.
- SOME WATER SERVICE CURB BOXES MAY NOT BE SHOWN ON THE DRAWINGS. THE ENGINEER WILL MARK THE LOCATION OF SUCH CURB BOXES, PROVIDED THE CONTRACTOR GIVES THE ENGINEER AT LEAST ONE WEEK ADVANCE NOTICE.
- OPEN TRENCHES MUST BE BACKFILLED AT THE END OF THE WORKDAY OR COVERED AND SECURED WITH STEEL PLATES, RAMPED AS APPROVED BY THE TOWN.
- THE CONTRACTOR IS REQUIRED TO NOTIFY AND COORDINATE WITH THE IMPACTED RESIDENTS ALL WATER MAIN SHUT DOWNS 24 HOURS IN ADVANCE.
- THE CONTRACTOR SHALL STAKE OUT ALL CURB STOP LOCATIONS AT LEAST 3 DAYS IN ADVANCE OF INSTALLATION. THE LOCATIONS OF ALL CURB STOPS SHALL BE VERIFIED BY ENGINEER AND PROPERTY OWNER PRIOR TO EXCAVATION FOR INSTALLATION.
- CURB STOPS SHALL BE LOCATED AT THE PROPERTY LINE AND CONNECTED TO THE PROPOSED WATER MAIN AS SHOWN ON THE DRAWINGS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. WATER SERVICE TUBING ON THE PRIVATE PROPERTY SIDE SHALL BE CAPPED 1'-0" FROM THE CURB BOX AND STAKED, UNLESS OTHERWISE NOTED ON THE PLANS.
- ALL VALVES, BENDS, PLUGS, CAPS, AND HYDRANTS SHALL BE RESTRAINED WITH "MEGA-LUG" (OR APPROVED EQUAL) MECHANICAL RESTRAINTS. CONCRETE THRUST BLOCKS SHALL BE USED AS DIRECTED BY ENGINEER.
- SLEEVES, NIPPLES, AND ACCESSORIES NECESSARY FOR CONNECTIONS BETWEEN EXISTING AND NEW PIPES MAY NOT BE SHOWN IN DETAIL. FURNISH AND INSTALL ITEMS NECESSARY FOR CONNECTING TO EXISTING MAINS AND AS INDICATED ON THE CONTRACT DOCUMENTS.
- EXCEPT WHERE OTHERWISE DIRECTED, 12" MINIMUM VERTICAL SEPARATION SHALL BE PROVIDED BETWEEN THE NEW MAIN AND OTHER UTILITIES WHERE THEY CROSS. WHERE NEW MAIN PASSES UNDER UTILITIES, IT SHALL CROSS WITHOUT THE USE OF BENDS UNLESS OTHERWISE NOTED ON THE PLANS.
- ALL HYDRANT LATERALS SHALL CROSS UNDER EXISTING UTILITIES AND WATER MAINS. HYDRANT EXTENSIONS SHALL BE INSTALLED, AS NECESSARY, AT NO ADDITIONAL COST TO THE OWNER.
- DRAINAGE ITEMS ON THE BID FORM AND ON SHEET CD-3 ARE PLACEHOLDERS FOR DAMAGED OR INSUFFICIENT DRAINAGE ENCOUNTERED ALONG THE WATER MAIN CORRIDOR. DRAINAGE ITEMS MAY OR MAY NOT BE USED. DRAINAGE SHALL ONLY BE INSTALLED AT THE DIRECTION OF THE ENGINEER AND OWNER.
- ALL STATIONING ON PLANS ARE FOR REFERENCE PURPOSES ONLY.
- PRIOR TO DEMOBILIZATION THE CONTRACTOR SHALL INSPECT EVERY VALVE, HYDRANT, AND CURB STOP WITH THE RESIDENT ENGINEER PRESENT TO INSURE PROPER OPERATION.
- ALL VALVES ALONG WATER MAIN STUBS LEFT FOR FUTURE CONNECTIONS SHALL BE CLOSED AFTER SUCCESSFUL TESTING AND DISINFECTION.

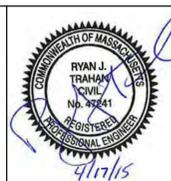
**COORDINATION NOTES:**

- THE CONTRACTOR IS REQUIRED TO PROVIDE A MINIMUM OF TWO CONSTRUCTION CREWS TO PERFORM PIPE INSTALLATION AND SERVICE CONNECTIONS.
- WATER WILL NOT BE AVAILABLE FOR FILLING, FLUSHING, PRESSURE TESTING AND DISINFECTION UNTIL SUMMER OF 2016. IT IS THE INTENT OF THIS CONTRACT TO INSTALL ALL PIPE, VALVES, HYDRANTS, AND FITTINGS, AND THEN PERFORM ALL THE REQUIRED TESTING IN 2016 BEFORE THE INSTALLATION OF WATER SERVICES.**
- THE ATTENTION OF THE BIDDERS IS DIRECTED TO THE FACT THAT THE WORK TO BE DONE UNDER THIS CONTRACT IS ONLY PART OF A PROGRAM OF CONSTRUCTION, THAT CONTRACTS HAVE BEEN LEFT FOR ADDITIONAL FACILITIES, AND THAT SUCCESSFUL OPERATION OF THE CONSTRUCTION IS DEPENDENT UPON THE COMPLETION OF THE WORK UNDER THIS CONTRACT AND OF THE WORK TO BE DONE BY OTHERS. IT IS ESSENTIAL THAT ALL PARTIES INTERESTED IN THIS PROJECT COOPERATE TO THE END THAT THE ENTIRE PROJECT WILL BE BROUGHT TO A SUCCESSFUL CONCLUSION AS RAPIDLY AS POSSIBLE, BUT THE OWNER CANNOT GUARANTEE THAT NO INTERFERENCE OR DELAY WILL BE CAUSED THEREBY. INTERFERENCE AND DELAY RESULTING FROM SUCH COOPERATION SHALL NOT BE THE BASIS OF CLAIMS AGAINST THE OWNER.
- THE CONTRACTOR FOR CONTRACT 4 SHALL COORDINATE ITS WORK WITH THE CONTRACTOR FOR CONTRACT 3. IN SOME INSTANCES, A STUB MAY NOT YET BE INSTALLED TO CONNECT TO FROM CONTRACT 3. IN THIS INSTANCE, THE CONTRACTOR FOR CONTRACT 4 SHALL TEMPORARILY CAP OR PLUG ITS WATER MAIN AT THE INDICATED BORDER OF CONTRACT 3/CONTRACT 4 AT NO ADDITIONAL EXPENSE TO THE OWNER.

**LEGEND:**

EXISTING		PROPOSED	
	HYDRANT		WATER MAIN
	DI CAP		POLYETHYLENE ENCASED WATER MAIN
	REDUCER		HYDRANT
	WATER VALVE		GATE VALVE
	WATER SHUTOFF		DI CAP/DI PLUG
	CATCH BASIN (CB)		COUPLING/SOLID SLEEVE
	DRAIN MANHOLE (DMH)		REDUCER
	GAS GATE / GAS SHUTOFF		CURB STOP
	EDGE OF STONE / SHELLS		FILTER SOCK
	CAPE COD BERM (CCB)		TEST PIT
	EDGE OF PAVEMENT (EP)		COVER EQUALS
	PROPERTY LINE		50-FT AND 100-FT ARBITRARY STATIONING
	FENCE		
	CORRUGATED METAL		
	CORRUGATED PLASTIC		
	COPPER		
	DUCTILE IRON		
	POLYETHYLENE		
	PLASTIC		
	POLYVINYL CHLORIDE		
	REINFORCED CONCRETE		
	HAND HOLE		
	CAPE COD BERM		
	BITUMINOUS CONCRETE CURB		
	DRAIN		
	GAS		
	WATER		
	DEPTH TO INVERT		
	UTILITY POLE (UP#)		
	GUY WIRE / GUY POLE		
	TELECOMMUNICATION MANHOLE		
	ELECTRIC TRANSFORMER		
	SEWER MANHOLE COVER		
	DRAIN LINE		
	ELECTRIC LINE		
	GAS LINE		
	COMMUNICATIONS LINE		
	WATER MAIN		
	STONEWALL		
	RIVERFRONT AREA		
	WETLANDS BUFFER ZONE		
	FEMA 100-YEAR FLOOD LINE		
	ESTIMATED/PRIORITY HABITAT LIMIT		
	OVERHEAD WIRE		
	EVERGREEN TREE		
	DECIDUOUS TREE		
	MAILBOX (MB)		
	SIGN		
	VEGETATION		
	PROPERTY CORNER		
	LIGHT POLE		
	LANDSCAPED AREA		
	GUARD RAIL		
	GRANITE BLOCK		
	RIPRAP		
	WETLAND		
	WETLAND FLAG		
	CONCRETE BOLLARD		
	TELEPHONE PEDESTAL		
	TRAFFIC SIGNAL LIGHT SUPPORT		
	SIGN		
	BUSH/HEDGES		
	BOUND		
	MASSDOT STATIONING		
	MASSDOT DOUBLE YELLOW CENTER LINE		
	MASSDOT SINGLE WHITE FOG LINE		
	MASSDOT DASHED WHITE LANE MARKER		
	MASSDOT SINGLE WHITE STOP LINE		
	MASSDOT SINGLE WHITE CROSSWALK		

EXISTING UNDERGROUND UTILITIES FOR ELECTRIC, TELEPHONE AND CABLE ARE ONLY SHOWN SCHEMATICALLY, BASED ON AVAILABLE INFORMATION PROVIDED TO THE TOWN. ADDITIONAL UTILITIES MAY EXIST. UTILITIES ARE PRESENT WITHIN THE RIGHT-OF-WAY AND PRIVATE PROPERTIES. TEST PITS AT UTILITIES AND PROPOSED WORK CROSSINGS ARE REQUIRED PRIOR TO EXCAVATION. CONTRACTOR SHALL INSTALL WATER MAIN, LATERALS, AND SERVICES UNDER EXISTING UNDERGROUND UTILITIES.



03/26/15	ISSUED FOR PERMITTING	Scale	N/A
04/17/15	ISSUED FOR BIDDING	Date	APRIL 2015
		Job No.	214-1401.04
		Designed by	TRG
		Drawn by	TRG
		Checked by	GCS
		Approved by	RJT

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

**CONTRACT 4**  
**WATER MAINS - WATER SYSTEM CONSTRUCTION**  
**EASTHAM, MASSACHUSETTS**

**GENERAL NOTES AND LEGEND**

FOR CONSTRUCTION

Sheet No.

**G-1**

Drawing file: I:\Eastham\217-1401\04 Contract 4 Phase 1\WMA01 CAD\04a CONTRACT WATER DESIGN.dwg Plot Date: Apr 17, 2015 11:11am

ROAD RESTORATION SCHEDULE

SHEET	STREET	EXISTING ROAD SURFACE	PROPOSED ROAD SURFACE RESTORATION MATERIAL
C-1	SEAWARD WAY	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-2	DEXTER STREET (PRIVATE)	DIRT	12" PROCESSED GRAVEL
C-2	CHATHAM STREET (PRIVATE)	DIRT	12" PROCESSED GRAVEL
C-3	SEASIDE DRIVE	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-3	BALLWC ROAD (PRIVATE)	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-3	CHESTER AVENUE (PRIVATE)	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-3	ACORN ROAD (PRIVATE)	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-4	THORNE ROAD	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-5	THOREAU DRIVE	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-5, 6	ELDER ROAD (PRIVATE)	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-5, 6	VESPER LANE (PRIVATE)	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-6	EMERSON ROAD (PRIVATE)	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-7	FOX RUN ROAD (PRIVATE)	DIRT	12" PROCESSED GRAVEL
C-7	FOX RUN LANE (PRIVATE)	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-7	HOYE LANE (PRIVATE)	DIRT	12" PROCESSED GRAVEL
C-8	HOLMES ROAD (PRIVATE)	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-9	SEASHELL LANE (PRIVATE)	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-10	ORCHARD DRIVE (PRIVATE)	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-10	APPLE WAY (PRIVATE)	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-11	LUPIN WAY (PRIVATE)	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-11	KETTLE HOLE ROAD (PRIVATE)	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-12, 13	GLACIER HILLS ROAD (PRIVATE)	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-13	DEEPWOOD DRIVE (PRIVATE)	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-13	NORTHWOOD ROAD (PRIVATE)	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-14	ELDIA WAY (PRIVATE)	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-14	WHIDAH LANE (PRIVATE)	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-15	SPINNAKER WAY (PRIVATE)	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-15	SELAH CIRCLE (PRIVATE)	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-15	DUCK MARSH LANE (PRIVATE)	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-16	CHESTER AVENUE (PRIVATE)	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-16	FORREST AVENUE (PRIVATE)	DIRT	12" PROCESSED GRAVEL
C-17, 18	CANDLEWOOD DRIVE	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-17, 18	TURTLE POND ROAD (PRIVATE)	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-19	CESTARO WAY (PRIVATE)	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-20	FAIRVIEW AVENUE (PRIVATE)	DIRT	12" PROCESSED GRAVEL
C-20, 21	DOANE STREET (PRIVATE)	DIRT	12" PROCESSED GRAVEL
C-21	DEERFIELD LANE (PRIVATE)	DIRT	12" PROCESSED GRAVEL
C-22, 24	BAYVIEW AVENUE (PRIVATE)	DIRT	12" PROCESSED GRAVEL
C-22, 23	ALSTON AVENUE	BITUMINOUS CONCRETE PAVEMENT	2-1/2" BINDER, 1-1/2" TOP COURSE
C-22, 23	MOLLS POND ROAD (PRIVATE)	BITUMINOUS CONCRETE/ DIRT	3" PAVEMENT AND 12" PROCESSED GRAVEL
C-22, 24	KNOWLES STREET (PRIVATE)	DIRT	12" PROCESSED GRAVEL
C-24	CHIPMAN STREET (PRIVATE)	DIRT	12" PROCESSED GRAVEL
C-25	SURREY DRIVE (PRIVATE)	DIRT	12" PROCESSED GRAVEL
C-25	SECOND AVENUE (PRIVATE)	DIRT	12" PROCESSED GRAVEL
C-25	OAK STREET (PRIVATE)	DIRT	12" PROCESSED GRAVEL
C-25	CHOKEBERRY DRIVE (PRIVATE)	DIRT	12" PROCESSED GRAVEL
C-26	REDBERRY LANE (PRIVATE)	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-26	WILD GOOSE LANE (PRIVATE)	DIRT	12" PROCESSED GRAVEL
C-27	STARLIGHT LANE (PRIVATE)	BITUMINOUS CONCRETE PAVEMENT	1-1/2" BINDER, 1-1/2" TOP COURSE
C-27	SHARON CIRCLE (PRIVATE)	BITUMINOUS CONCRETE/	1-1/2" BINDER, 1-1/2" TOP COURSE
C-27 CONT.	SHARON CIRCLE (PRIVATE) CONT.	DIRT	12" PROCESSED GRAVEL
C-28	PRESERVATION WAY (PRIVATE)	BITUMINOUS CONCRETE	1-1/2" BINDER, 1-1/2" TOP COURSE
C-28	LAURA LANE (PRIVATE)	DIRT	12" PROCESSED GRAVEL

GENERAL RESTORATION NOTES:

1. ALL BINDER SHALL BE DENSE BINDER, ALL TOP COURSE SHALL BE MODIFIED TOP COURSE.
2. ALL GRASS AREAS DISTURBED SHALL BE RESTORED IN ACCORDANCE WITH THE LOAM AND SEED DETAIL, SHEET CD-2.
3. ALL DIRT/GRAVEL AREAS DISTURBED OUTSIDE THE RIGHT-OF-WAY SHALL BE RESTORED WITH A MINIMUM OF 6" OF PROCESSED GRAVEL TO MATCH EXISTING GRADE.
4. ALL RESTORATION WORK SHALL MATCH EXISTING GRADE AND DRAINAGE PATTERNS, UNLESS OTHERWISE NOTED.
5. TRENCH PAVEMENT SHALL BE PLACED WEEKLY OR IN ADVANCE OF SEVERE WEATHER AS INSTRUCTED BY ENGINEER.
6. PAVING ALONG PRIVATE DRIVES AND PARKING LOTS SHALL MATCH THE EXISTING PAVEMENT DEPTH (3" MIN.).
7. THE RESTORATION OF ALSTON AVENUE SHALL CONSIST OF 2.5" OF BASE COURSE AND 1.5" OF MODIFIED TOP COURSE.



KEY PLAN  
N.T.S.

Drawing file: I:\Eastham\217\Phase 1 - Eastham Water System\217-1401\_04 Contract 4 Phase 1\MM01 CAD\04a CONTRACT WATER DESIGN.dwg Plot Date: Apr 17, 2015 10:30am



MARK	DATE	DESCRIPTION	Scale	AS NOTED
	03/26/15	ISSUED FOR PERMITTING	Date	APRIL 2015
	04/17/15	ISSUED FOR BIDDING	Job No.	214-1401.04
			Designed by	TRG
			Drawn by	TRG
			Checked by	GCS
			Approved by	RJT

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

CONTRACT 4  
WATER MAINS - WATER SYSTEM CONSTRUCTION  
EASTHAM, MASSACHUSETTS

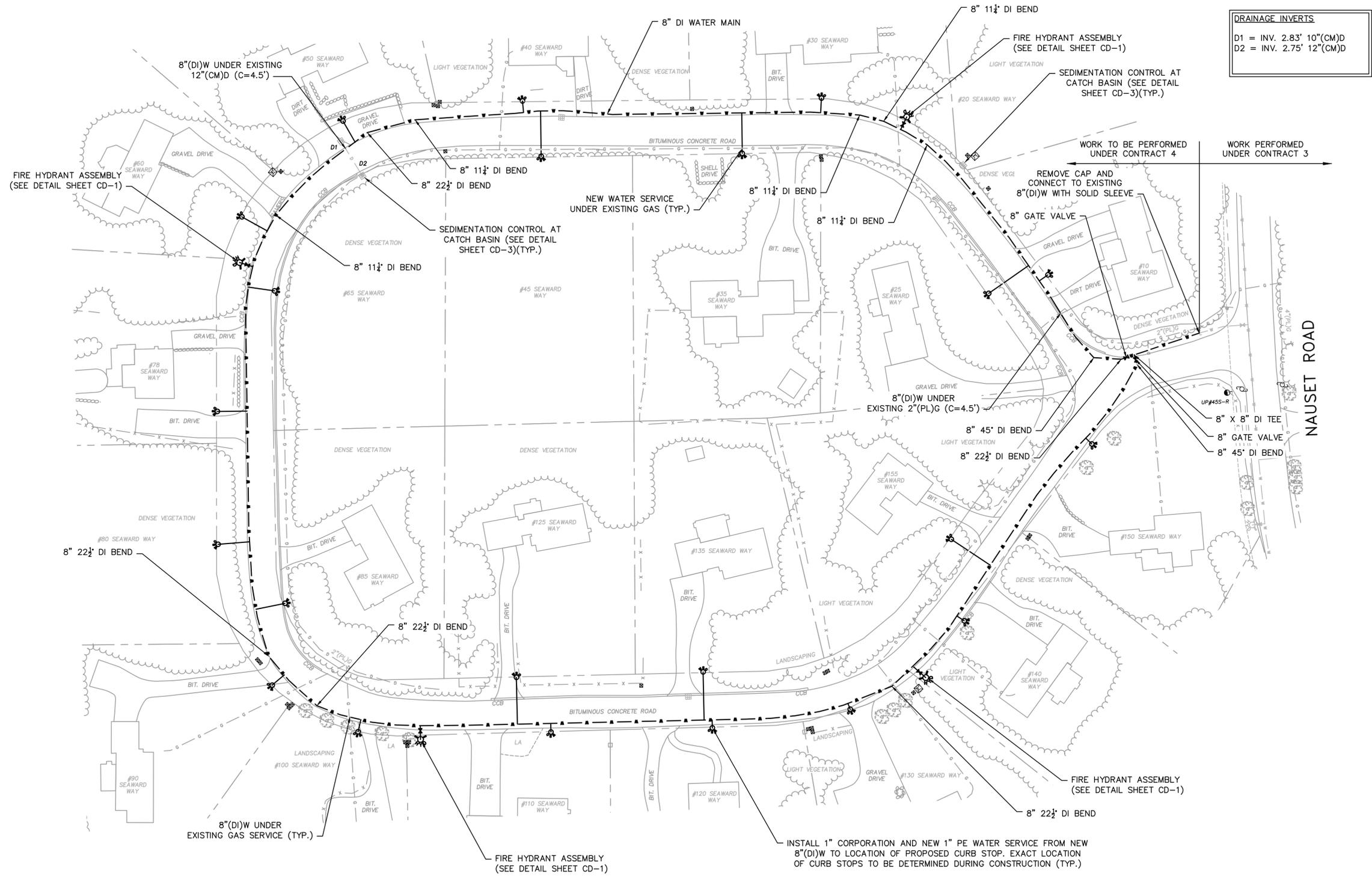
ROAD RESTORATION SCHEDULE  
AND KEY PLAN

FOR CONSTRUCTION

Sheet No.

**G-2**

SEAWARD WAY

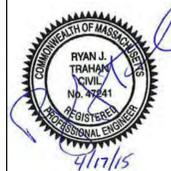


PLAN  
SCALE: 1"=40'

Drawing file: I:\Eastham\217\Phase 1 - Eastham Water System\217-1401\_04 Contract 4 Phase 1\MM01 CAD\04a CONTRACT WATER DESIGN.dwg Plot Date: Apr 17, 2015 10:09am



**Environmental Partners**  
A partnership for engineering solutions. GROUP



MARK	DATE	DESCRIPTION
▲	03/26/15	ISSUED FOR PERMITTING
▲	04/17/15	ISSUED FOR BIDDING

Scale	1"=40'
Date	APRIL 2015
Job No.	214-1401.04
Designed by	TRG
Drawn by	TRG
Checked by	GCS
Approved by	RJT

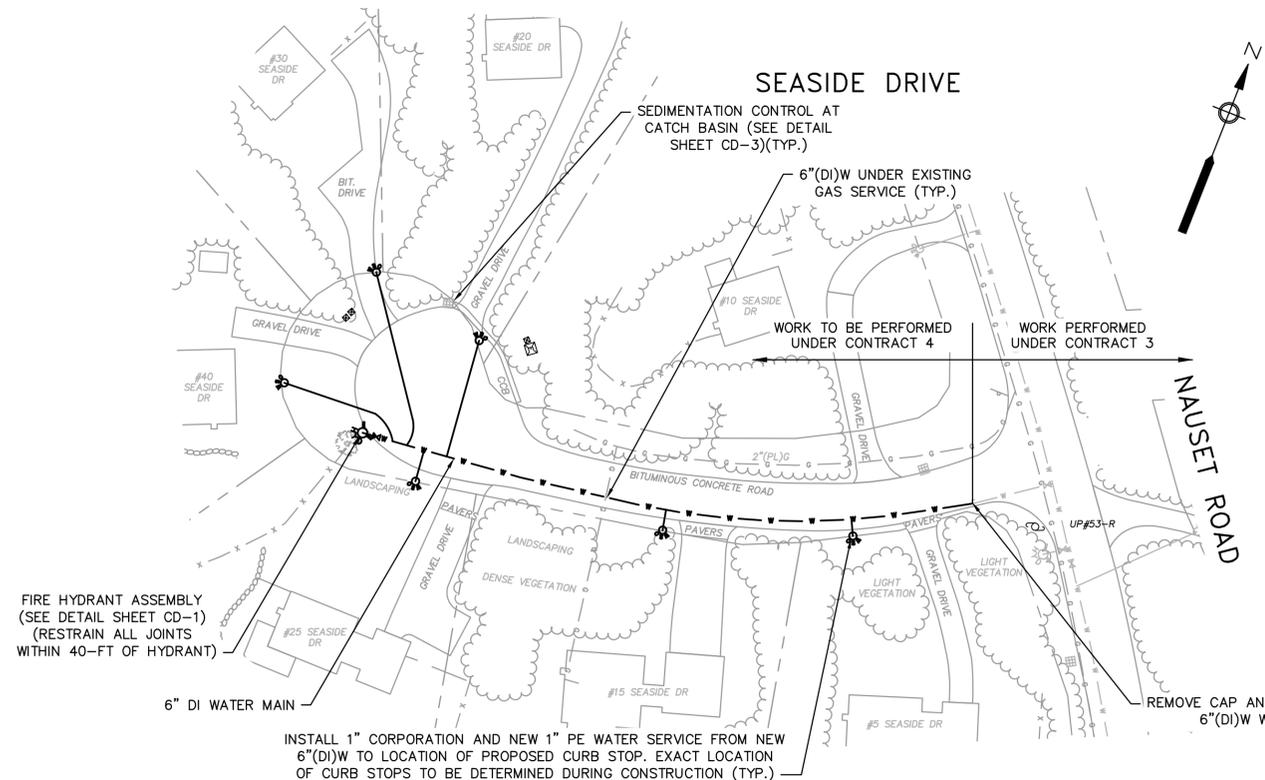
THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

CONTRACT 4  
WATER MAINS - WATER SYSTEM CONSTRUCTION  
EASTHAM, MASSACHUSETTS  
  
SEAWARD WAY

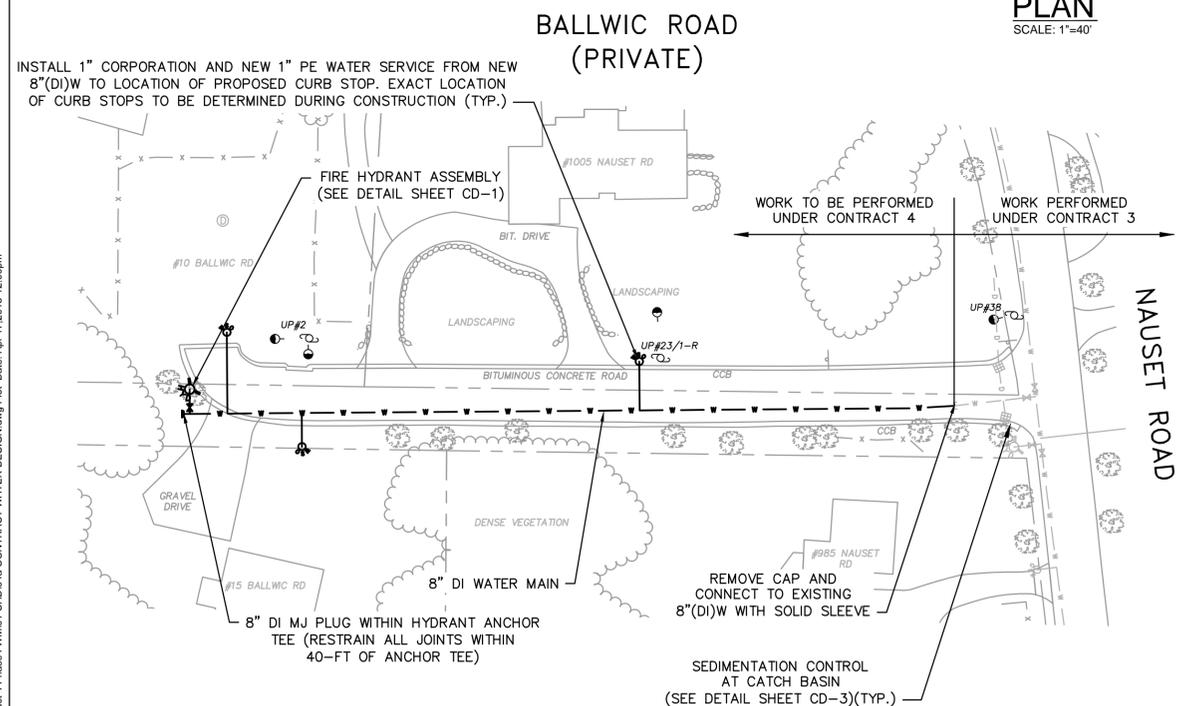
FOR CONSTRUCTION  
Sheet No.  
**C-1**



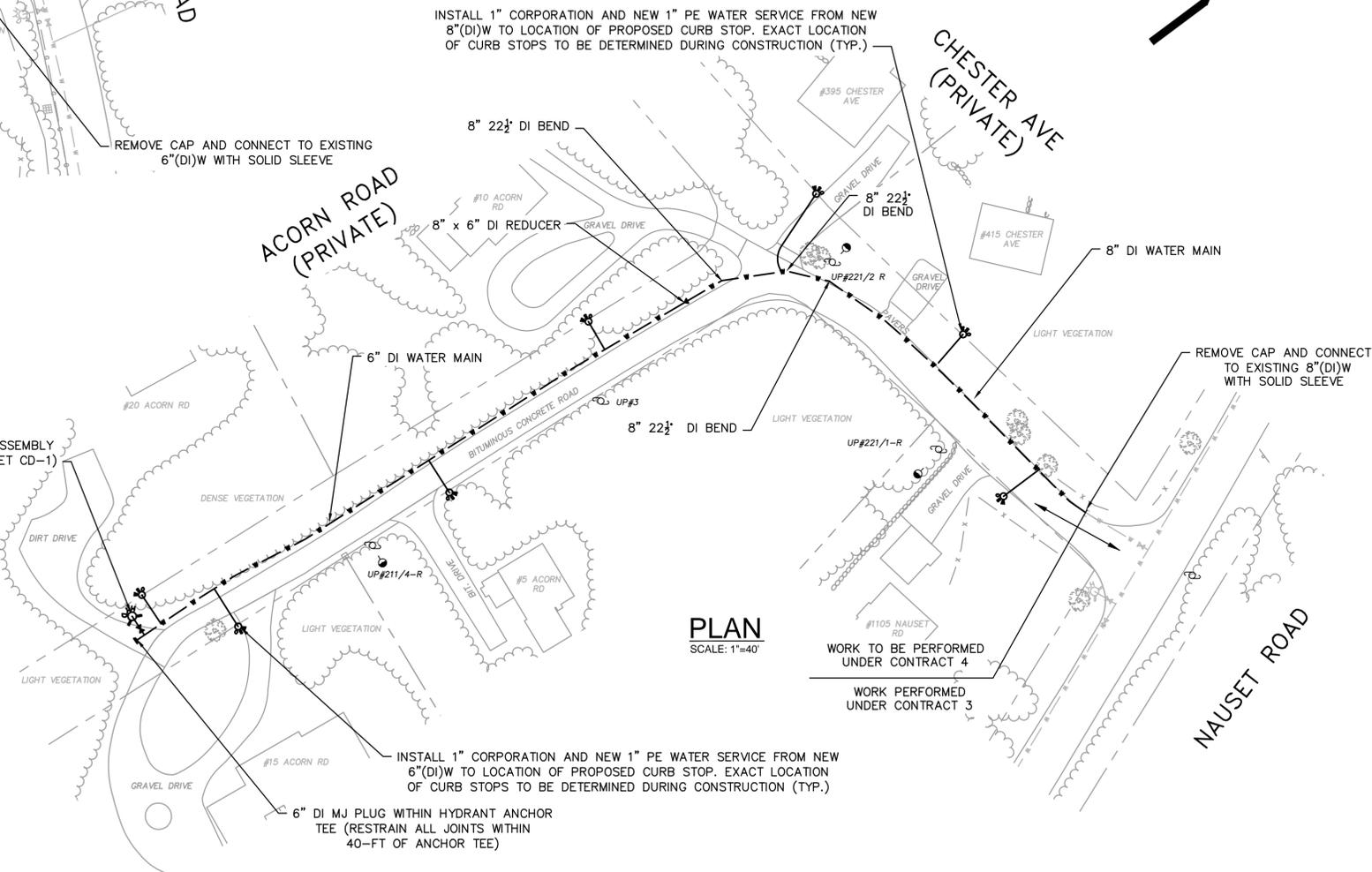
Drawing file: I:\Eastham\217-1401\04 Contract 4 Phase 1\WMA01 CAD\04a CONTRACT WATER DESIGN.dwg Plot Date: Apr 17, 2015 12:00pm



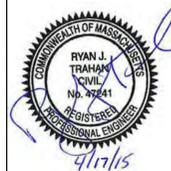
**PLAN**  
SCALE: 1"=40'



**PLAN**  
SCALE: 1"=40'



**PLAN**  
SCALE: 1"=40'



△	03/26/15	ISSUED FOR PERMITTING
△	04/17/15	ISSUED FOR BIDDING
MARK	DATE	DESCRIPTION

Scale	1"=40'
Date	APRIL 2015
Job No.	214-1401.04
Designed by	TRG
Drawn by	TRG
Checked by	GCS
Approved by	RJT

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

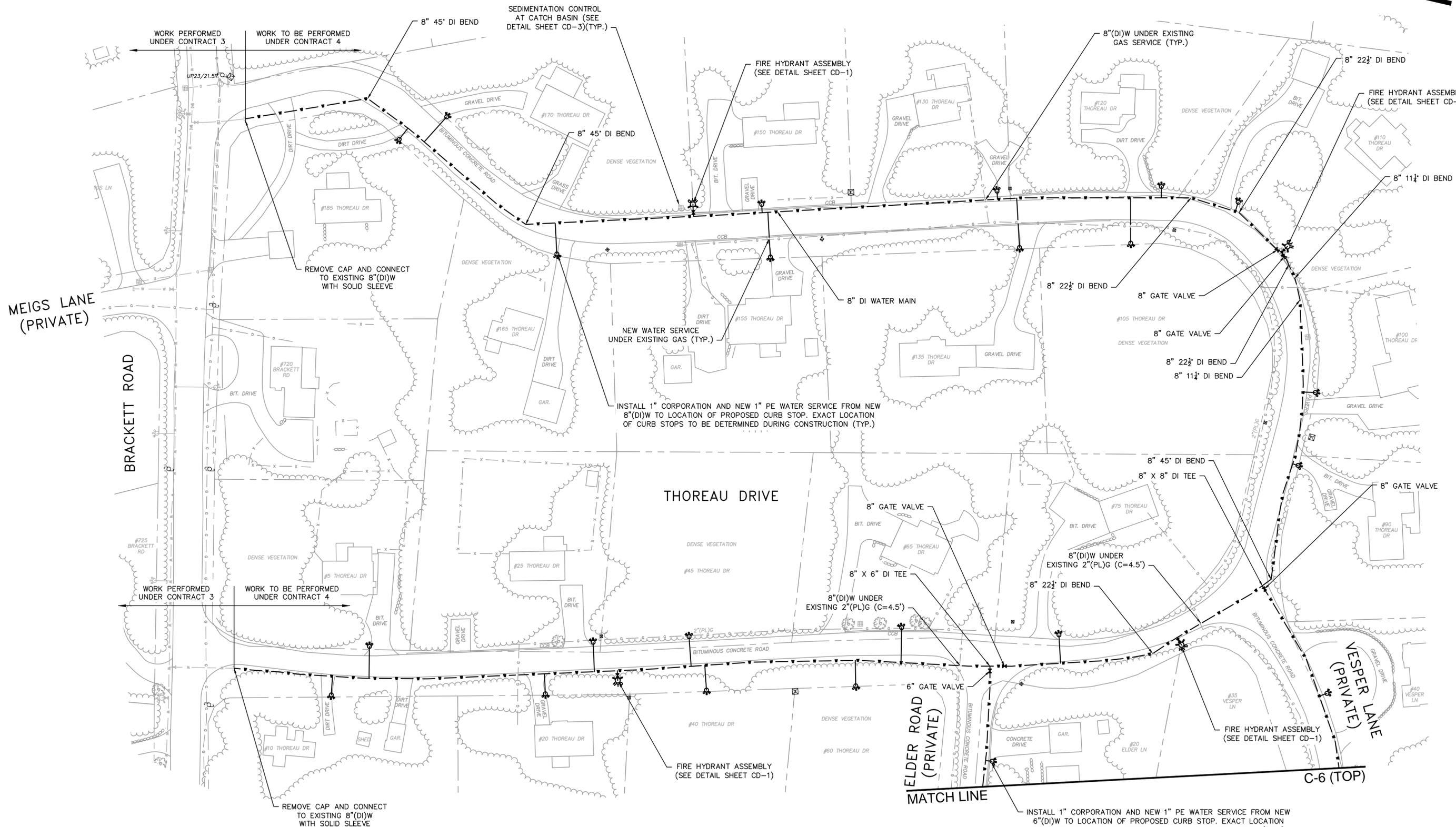
**CONTRACT 4**  
**WATER MAINS - WATER SYSTEM CONSTRUCTION**  
**EASTHAM, MASSACHUSETTS**  
 SEASIDE DRIVE, CHESTER AVENUE,  
 ACORN ROAD, AND BALLWIC ROAD

FOR CONSTRUCTION  
 Sheet No.  
**C-3**





THOREAU DRIVE

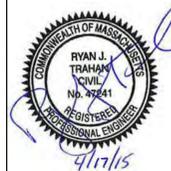


PLAN  
SCALE: 1"=40'

Drawing file: I:\Eastham\217-1401\Phase 1\WMA01 CAD\04a CONTRACT WATER DESIGN.dwg Plot Date: Apr 17, 2015 11:17am



**Environmental Partners**  
A partnership for engineering solutions. GROUP



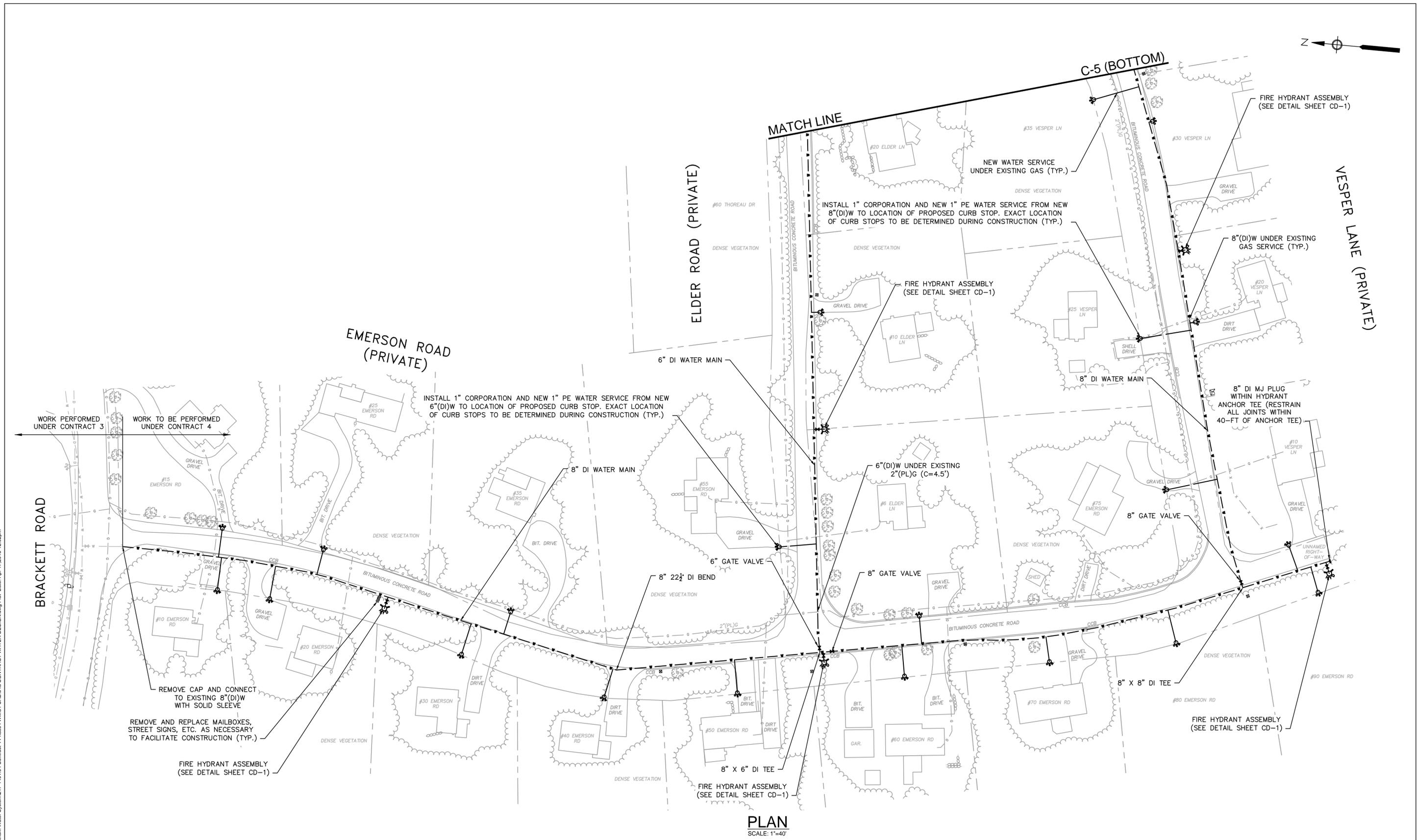
03/26/15	ISSUED FOR PERMITTING	Scale	1"=40'
04/17/15	ISSUED FOR BIDDING	Date	APRIL 2015
		Job No.	214-1401.04
		Designed by	TRG
		Drawn by	TRG
		Checked by	GCS
		Approved by	RJT

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

**CONTRACT 4**  
**WATER MAINS - WATER SYSTEM CONSTRUCTION**  
EASTHAM, MASSACHUSETTS

THOREAU DRIVE

FOR CONSTRUCTION  
Sheet No.  
**C-5**



**PLAN**  
SCALE: 1"=40'

Drawing file: I:\Eastham\217\Phase 1 - Eastham Water System\217-1401\_04 Contract 4 Phase 1\WM01 CAD\04a CONTRACT WATER DESIGN.dwg Plot Date: Apr 17, 2015 12:02pm



**Environmental Partners**  
A partnership for engineering solutions. **GROUP**



MARK	DATE	DESCRIPTION
△	03/26/15	ISSUED FOR PERMITTING
△	04/17/15	ISSUED FOR BIDDING

Scale	1"=40'
Date	APRIL 2015
Job No.	214-1401.04
Designed by	TRG
Drawn by	TRG
Checked by	GCS
Approved by	RJT

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

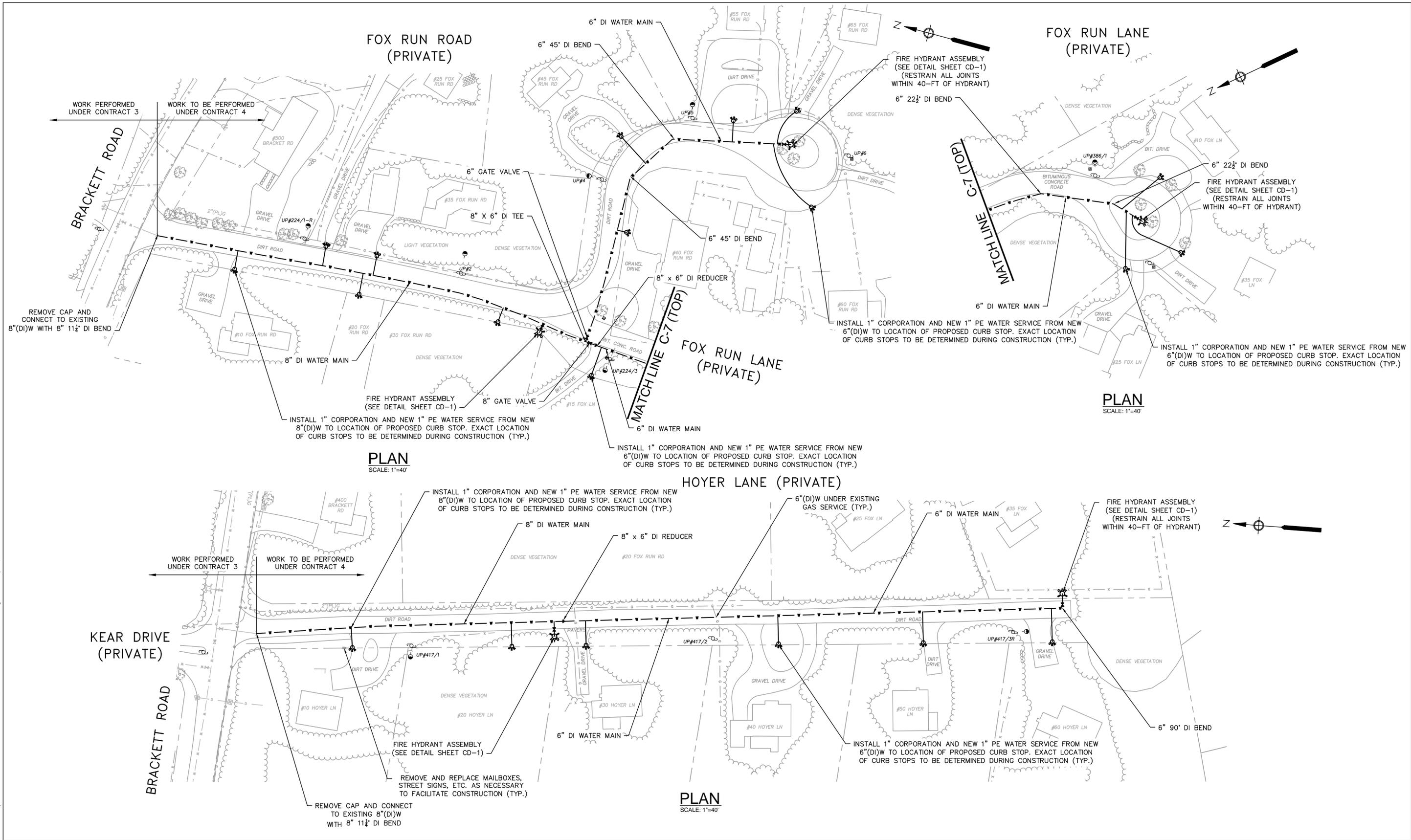
**CONTRACT 4**  
**WATER MAINS - WATER SYSTEM CONSTRUCTION**  
**EASTHAM, MASSACHUSETTS**

**ELDER ROAD, VESPER LANE,**  
**AND EMERSON ROAD**

FOR CONSTRUCTION

Sheet No.

**C-6**



**PLAN**  
SCALE: 1"=40'

**PLAN**  
SCALE: 1"=40'

**PLAN**  
SCALE: 1"=40'

Drawing file: I:\Eastham\217-1401\Contract 4 Phase 1\WM01 CAD\04a CONTRACT WATER DESIGN.dwg Plot Date: Apr 17, 2015 11:45am



**Environmental Partners**  
A partnership for engineering solutions. GROUP



03/26/15	ISSUED FOR PERMITTING	
04/17/15	ISSUED FOR BIDDING	
MARK	DATE	DESCRIPTION

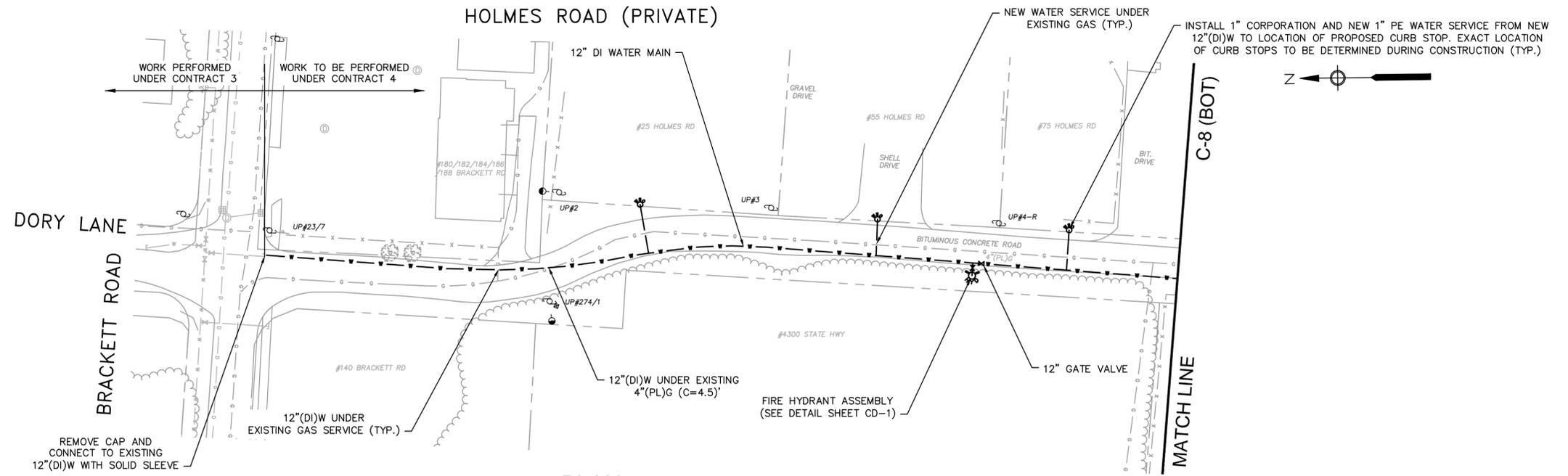
Scale	1"=40'
Date	APRIL 2015
Job No.	214-1401.04
Designed by	TRG
Drawn by	TRG
Checked by	GCS
Approved by	RJT

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

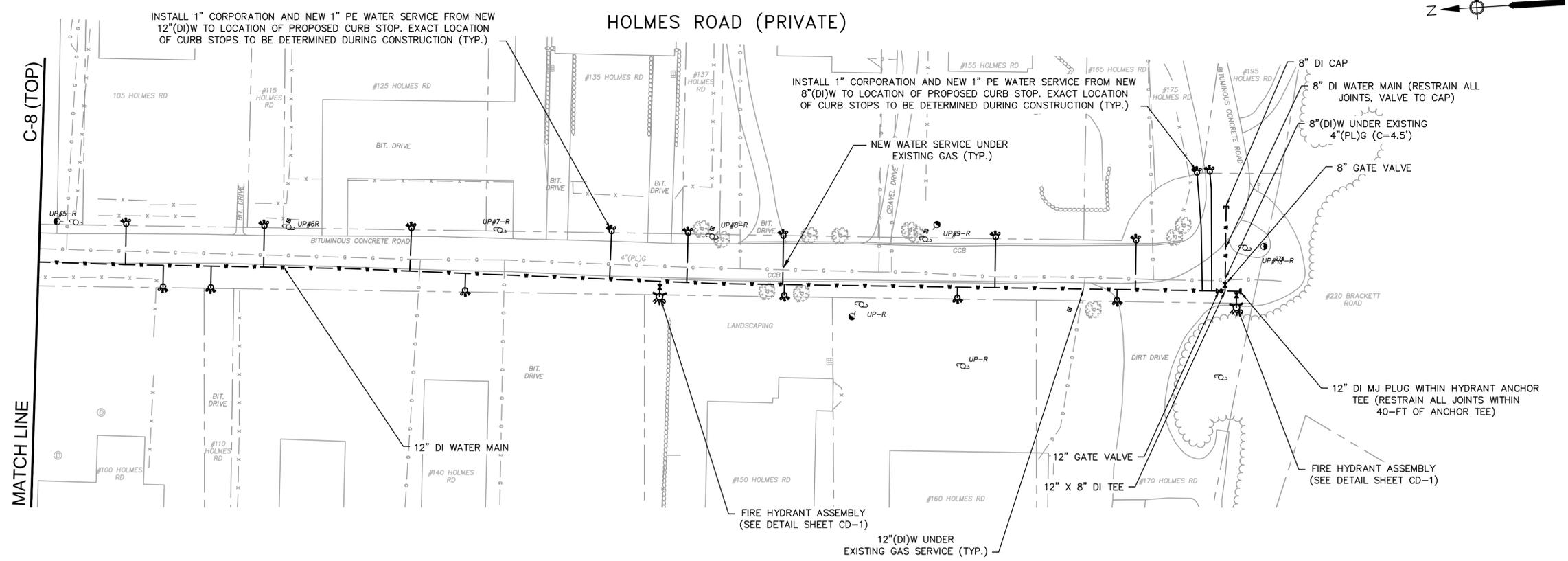
**CONTRACT 4**  
**WATER MAINS - WATER SYSTEM CONSTRUCTION**  
**EASTHAM, MASSACHUSETTS**

**FOX RUN ROAD, FOX RUN LANE, AND HOYER LANE**

FOR CONSTRUCTION  
Sheet No.  
**C-7**



**PLAN**  
SCALE: 1"=40'

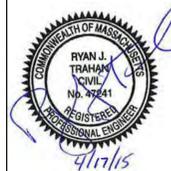


**PLAN**  
SCALE: 1"=40'

Drawing file: I:\Eastham\217\Phase 1 - Eastham Water System\217-1401\_04 Contract 4 Phase 1\WM01 CAD\04a CONTRACT WATER DESIGN.dwg Plot Date: Apr 17, 2015 12:07pm



**Environmental Partners**  
A partnership for engineering solutions. GROUP

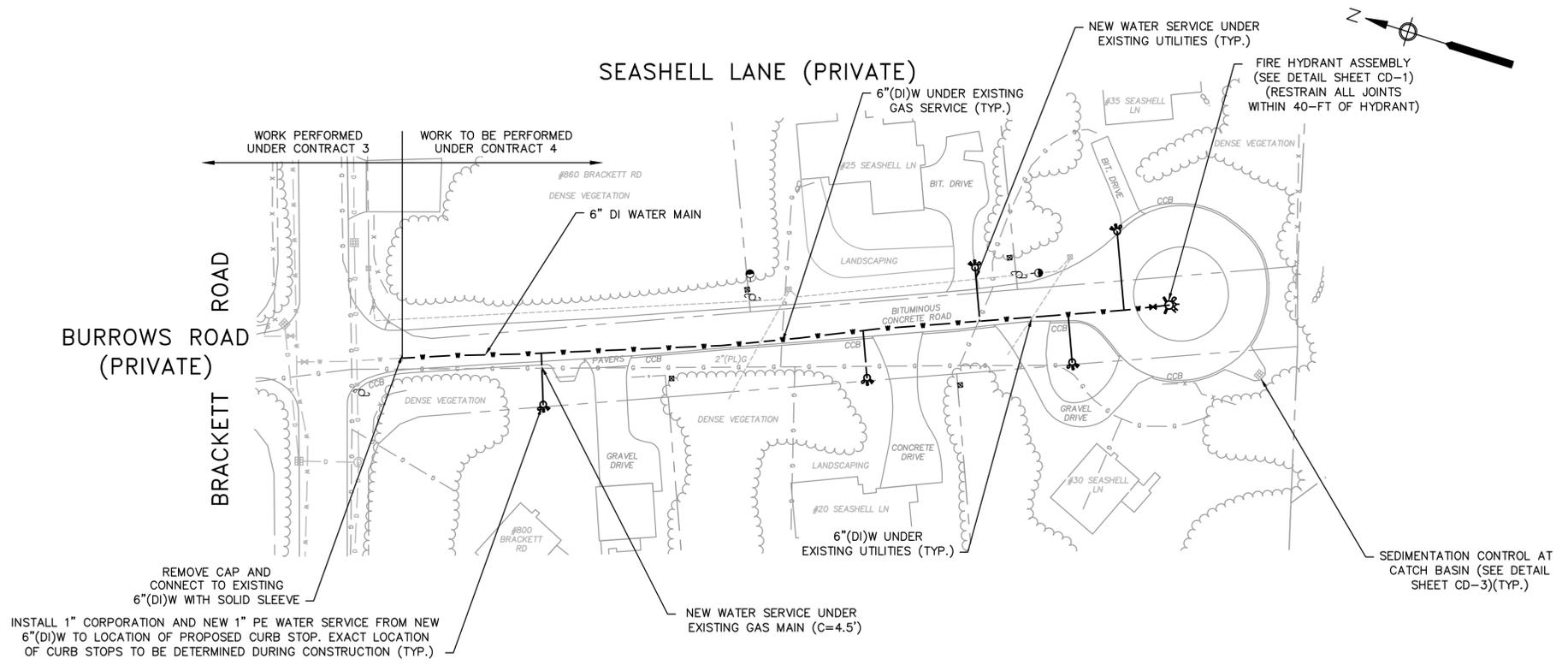


MARK	DATE	DESCRIPTION	Scale	1"=40'
△	03/26/15	ISSUED FOR PERMITTING	Date	APRIL 2015
△	04/17/15	ISSUED FOR BIDDING	Job No.	214-1401.04
			Designed by	TRG
			Drawn by	TRG
			Checked by	GCS
			Approved by	RJT

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

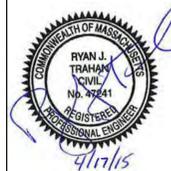
**CONTRACT 4**  
**WATER MAINS - WATER SYSTEM CONSTRUCTION**  
**EASTHAM, MASSACHUSETTS**  
  
**HOLMES ROAD**

FOR CONSTRUCTION  
Sheet No.  
**C-8**



**PLAN**  
SCALE: 1"=40'

Drawing file: I:\Eastham Water System\217-1401\_04 Contract 4 Phase 1\MM01 CAD\04a CONTRACT WATER DESIGN.dwg Plot Date: Apr 17, 2015 12:11pm



▲	03/26/15	ISSUED FOR PERMITTING	Scale	1"=40'
▲	04/17/15	ISSUED FOR BIDDING	Date	APRIL 2015
			Job No.	214-1401.04
			Designed by	TRG
			Drawn by	TRG
			Checked by	GCS
			Approved by	RJT
MARK	DATE	DESCRIPTION		

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

**CONTRACT 4**  
**WATER MAINS - WATER SYSTEM CONSTRUCTION**  
**EASTHAM, MASSACHUSETTS**

---

**SEASHELL LANE**

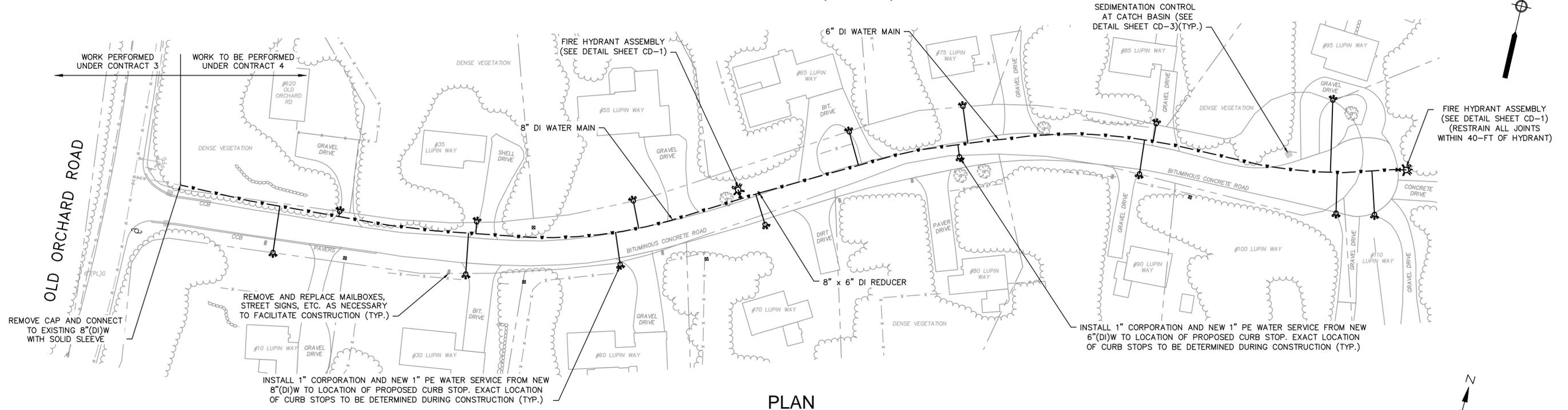
FOR CONSTRUCTION

Sheet No.

**C-9**

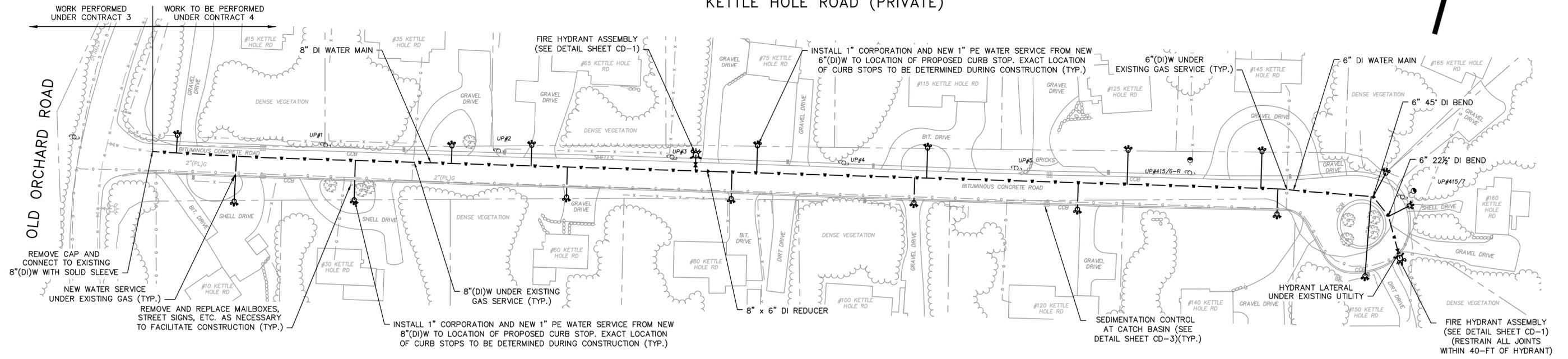


LUPIN WAY (PRIVATE)



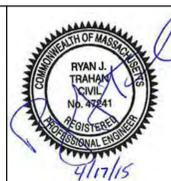
PLAN  
SCALE: 1"=40'

KETTLE HOLE ROAD (PRIVATE)



PLAN  
SCALE: 1"=40'

Drawing file: I:\Eastham\217-1401\04 Contract 4 Phase 1\WMA01 CAD\04a CONTRACT WATER DESIGN.dwg Plot Date: Apr 17, 2015 12:22pm



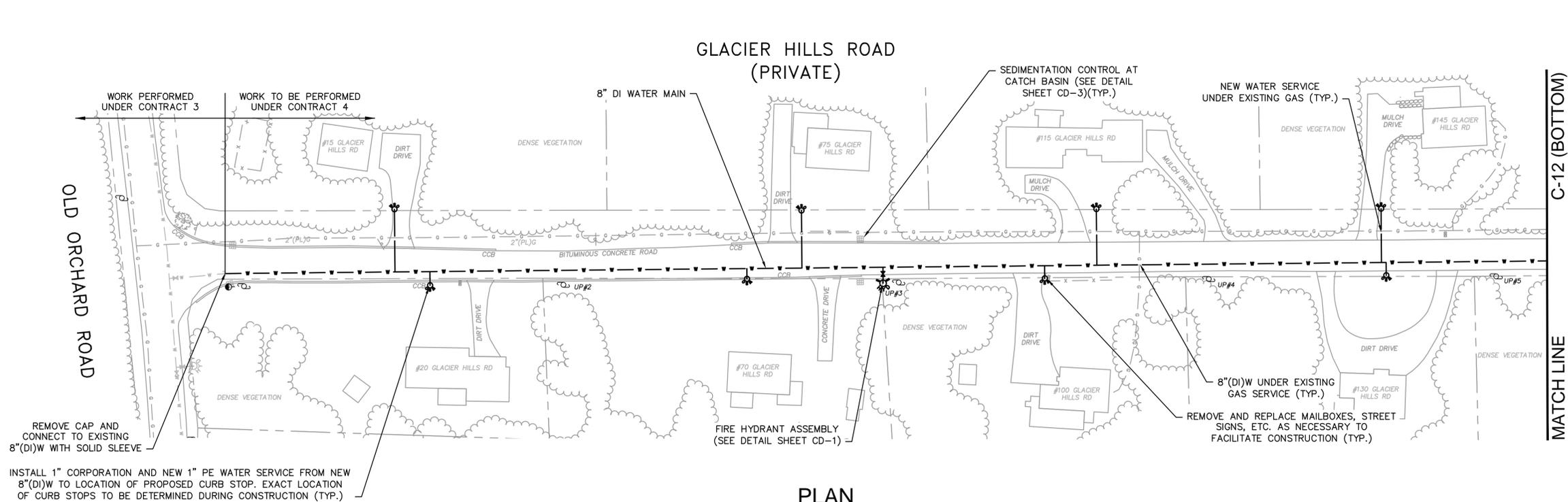
△	03/26/15	ISSUED FOR PERMITTING
△	04/17/15	ISSUED FOR BIDDING
MARK	DATE	DESCRIPTION

Scale	1"=40'
Date	APRIL 2015
Job No.	214-1401.04
Designed by	TRG
Drawn by	TRG
Checked by	GCS
Approved by	RJT

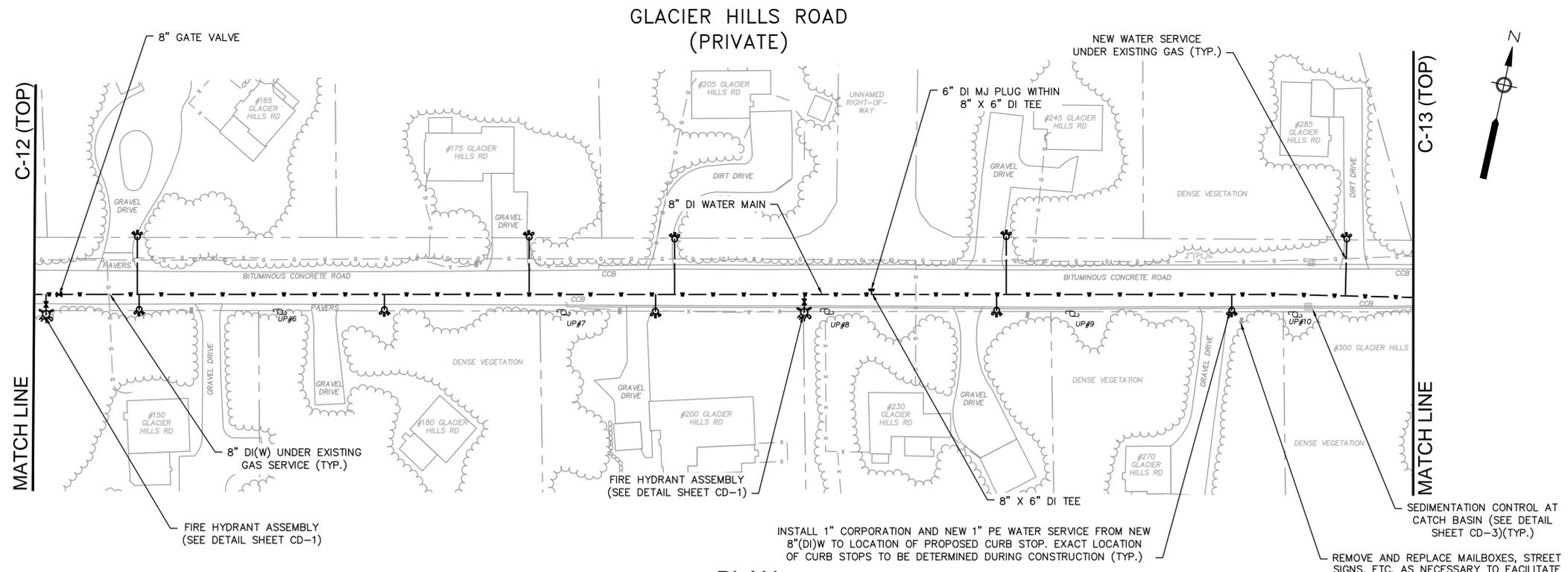
THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

CONTRACT 4  
WATER MAINS - WATER SYSTEM CONSTRUCTION  
EASTHAM, MASSACHUSETTS  
LUPIN WAY AND KETTLE HOLE ROAD

FOR CONSTRUCTION  
Sheet No.  
**C-11**



PLAN  
SCALE: 1"=40'

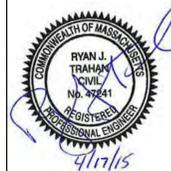


PLAN  
SCALE: 1"=40'

Drawing file: I:\Eastham\2177\Phase 1 - Eastham Water System\217-1401\_04 Contract 4 Phase 1\MM01 CAD04a CONTRACT WATER DESIGN.dwg Plot Date: Apr 17, 2015 12:28pm



**Environmental Partners**  
A partnership for engineering solutions. GROUP



MARK	DATE	DESCRIPTION	Scale	1"=40'
△	03/26/15	ISSUED FOR PERMITTING	Date	APRIL 2015
△	04/17/15	ISSUED FOR BIDDING	Job No.	214-1401.04
			Designed by	TRG
			Drawn by	TRG
			Checked by	GCS
			Approved by	RJT

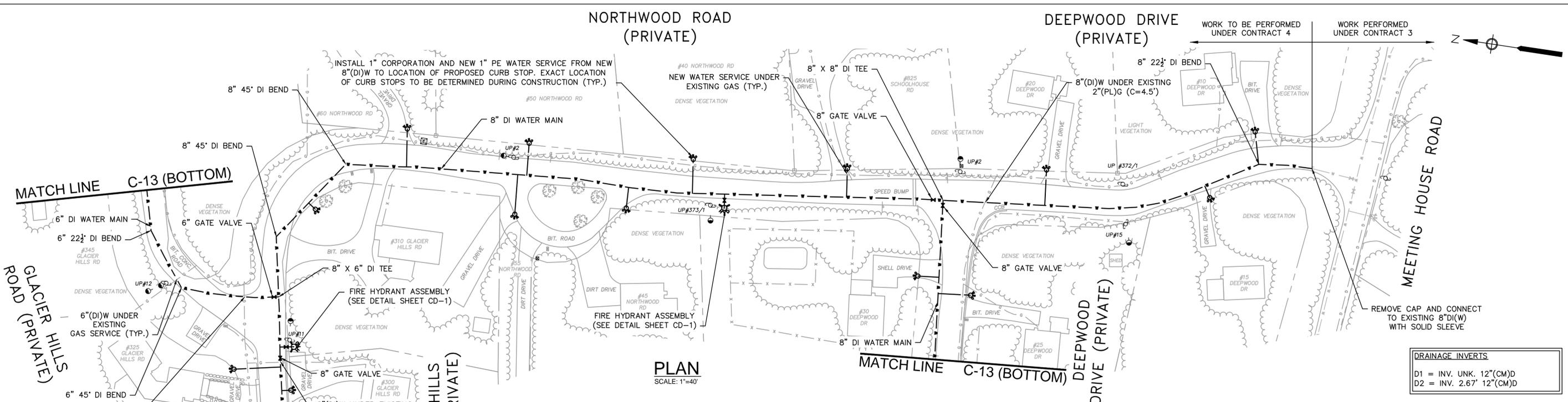
THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

**CONTRACT 4**  
**WATER MAINS - WATER SYSTEM CONSTRUCTION**  
**EASTHAM, MASSACHUSETTS**

GLACIER HILLS ROAD

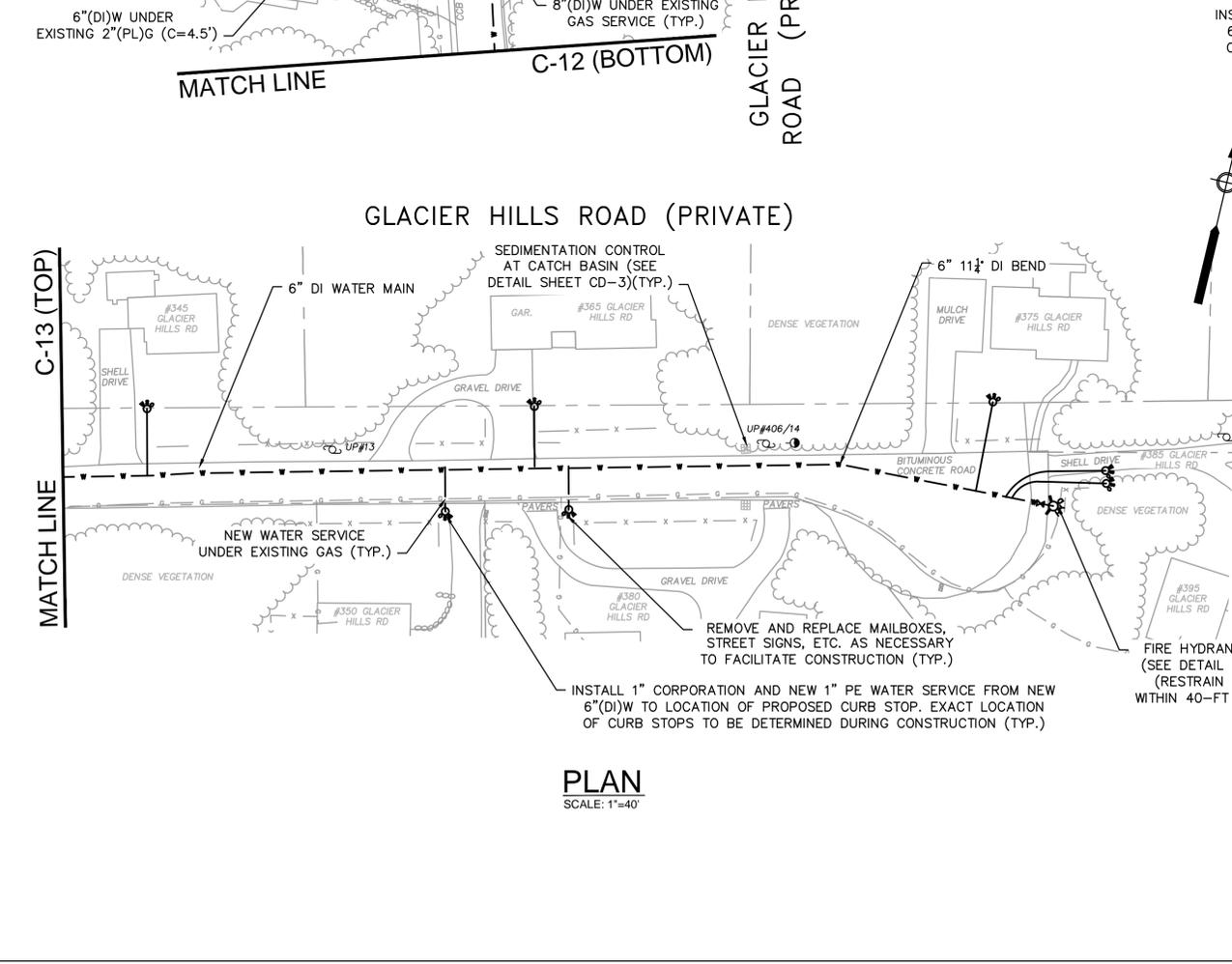
FOR CONSTRUCTION  
Sheet No.  
**C-12**

Drawing file: I:\Eastham\217-1401\04 Contract 4 Phase 1\WMA01 CAD\04a CONTRACT WATER DESIGN.dwg Plot Date: Apr 17, 2015 12:31 pm

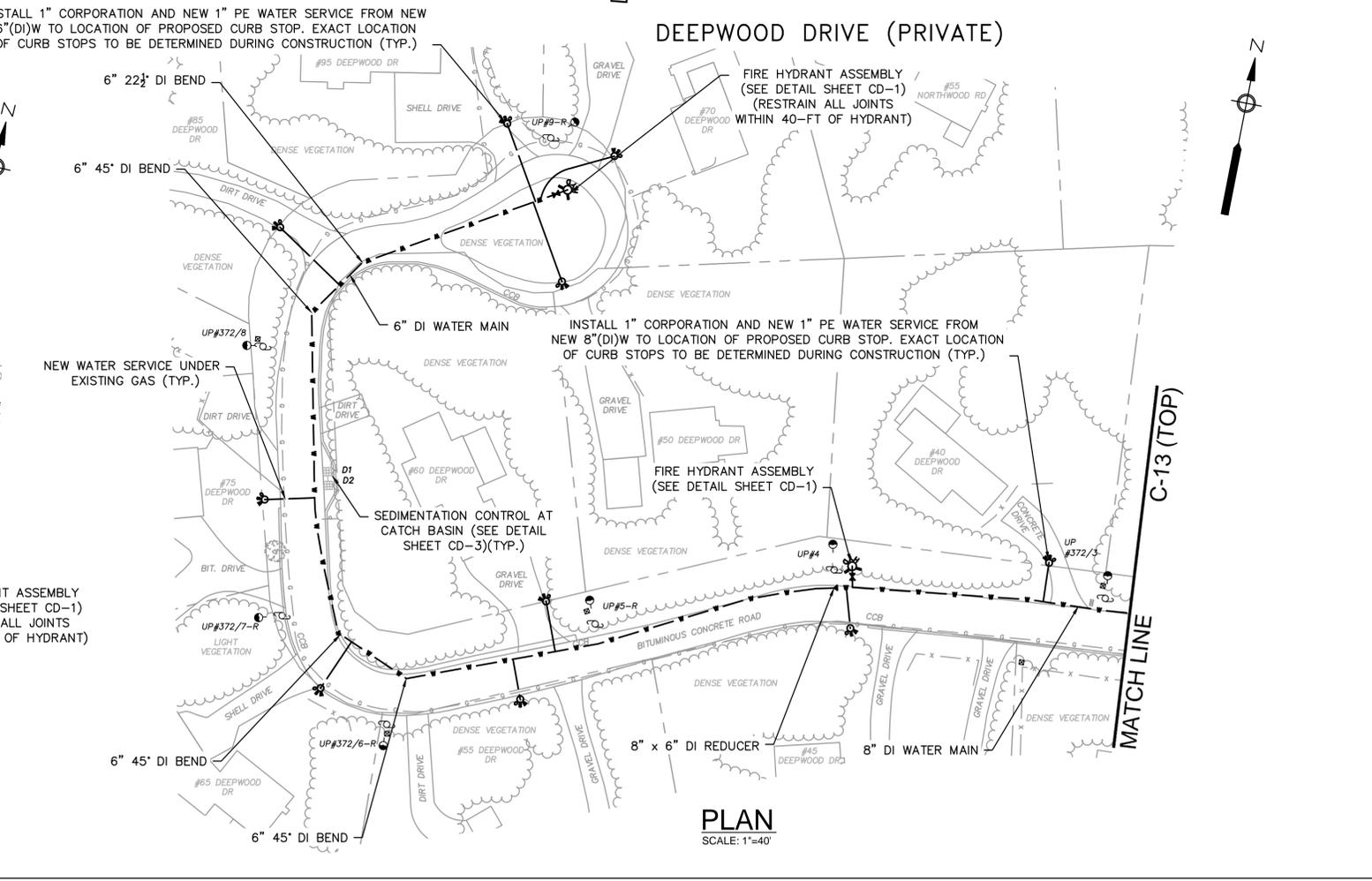


**PLAN**  
SCALE: 1"=40'

DRAINAGE INVERTS	
D1	= INV. UNK. 12"(CM)D
D2	= INV. 2.67' 12"(CM)D



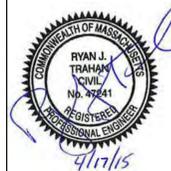
**PLAN**  
SCALE: 1"=40'



**PLAN**  
SCALE: 1"=40'



**Environmental Partners**  
A partnership for engineering solutions. GROUP



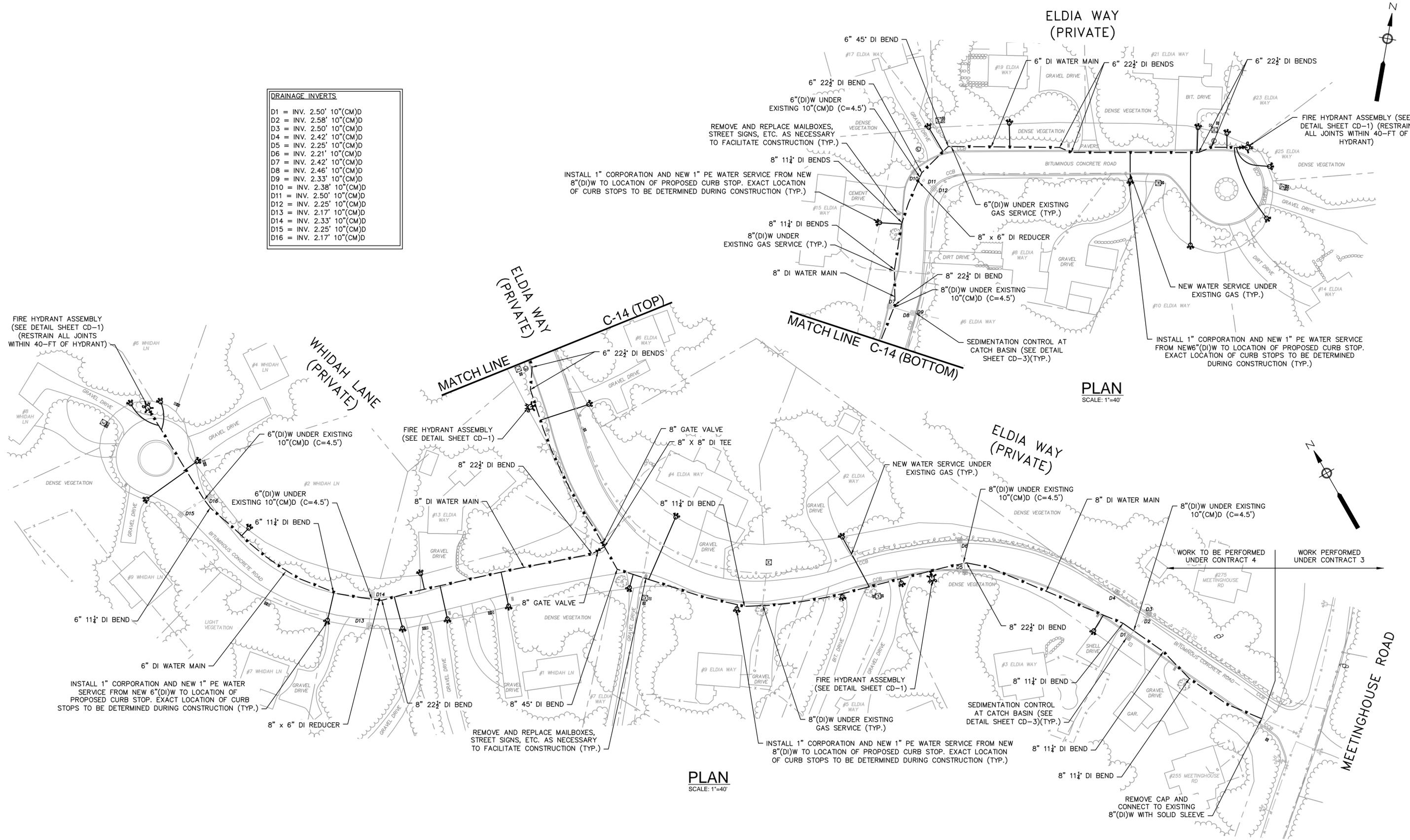
03/26/15	ISSUED FOR PERMITTING	Scale	1"=40'
04/17/15	ISSUED FOR BIDDING	Date	APRIL 2015
		Job No.	214-1401.04
		Designed by	TRG
		Drawn by	TRG
		Checked by	GCS
		Approved by	RJT
MARK	DATE	DESCRIPTION	

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

**CONTRACT 4**  
**WATER MAINS - WATER SYSTEM CONSTRUCTION**  
EASTHAM, MASSACHUSETTS  
GLACIER HILLS ROAD, NORTHWOOD ROAD, AND DEEPWOOD DRIVE

FOR CONSTRUCTION  
Sheet No.  
**C-13**

DRAINAGE INVERTS	
D1	= INV. 2.50' 10"(CM)D
D2	= INV. 2.58' 10"(CM)D
D3	= INV. 2.50' 10"(CM)D
D4	= INV. 2.42' 10"(CM)D
D5	= INV. 2.25' 10"(CM)D
D6	= INV. 2.21' 10"(CM)D
D7	= INV. 2.42' 10"(CM)D
D8	= INV. 2.46' 10"(CM)D
D9	= INV. 2.33' 10"(CM)D
D10	= INV. 2.38' 10"(CM)D
D11	= INV. 2.50' 10"(CM)D
D12	= INV. 2.25' 10"(CM)D
D13	= INV. 2.17' 10"(CM)D
D14	= INV. 2.33' 10"(CM)D
D15	= INV. 2.25' 10"(CM)D
D16	= INV. 2.17' 10"(CM)D



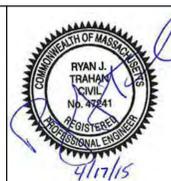
PLAN  
SCALE: 1"=40'

PLAN  
SCALE: 1"=40'

Drawing file: I:\Eastham\217\Phase 1 - Eastham Water System\217-1401\_04 Contract 4 Phase 1\WMO1 CAD\04a CONTRACT WATER DESIGN.dwg Plot Date: Apr 17, 2015 12:33pm



**Environmental Partners**  
A partnership for engineering solutions. GROUP



▲	03/26/15	ISSUED FOR PERMITTING	Scale	1"=40'
▲	04/17/15	ISSUED FOR BIDDING	Date	APRIL 2015
			Job No.	214-1401.04
			Designed by	TRG
			Drawn by	TRG
			Checked by	GCS
			Approved by	RJT
MARK	DATE	DESCRIPTION		

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

**CONTRACT 4**  
**WATER MAINS - WATER SYSTEM CONSTRUCTION**  
**EASTHAM, MASSACHUSETTS**

ELDIA WAY AND WHIDAH LANE

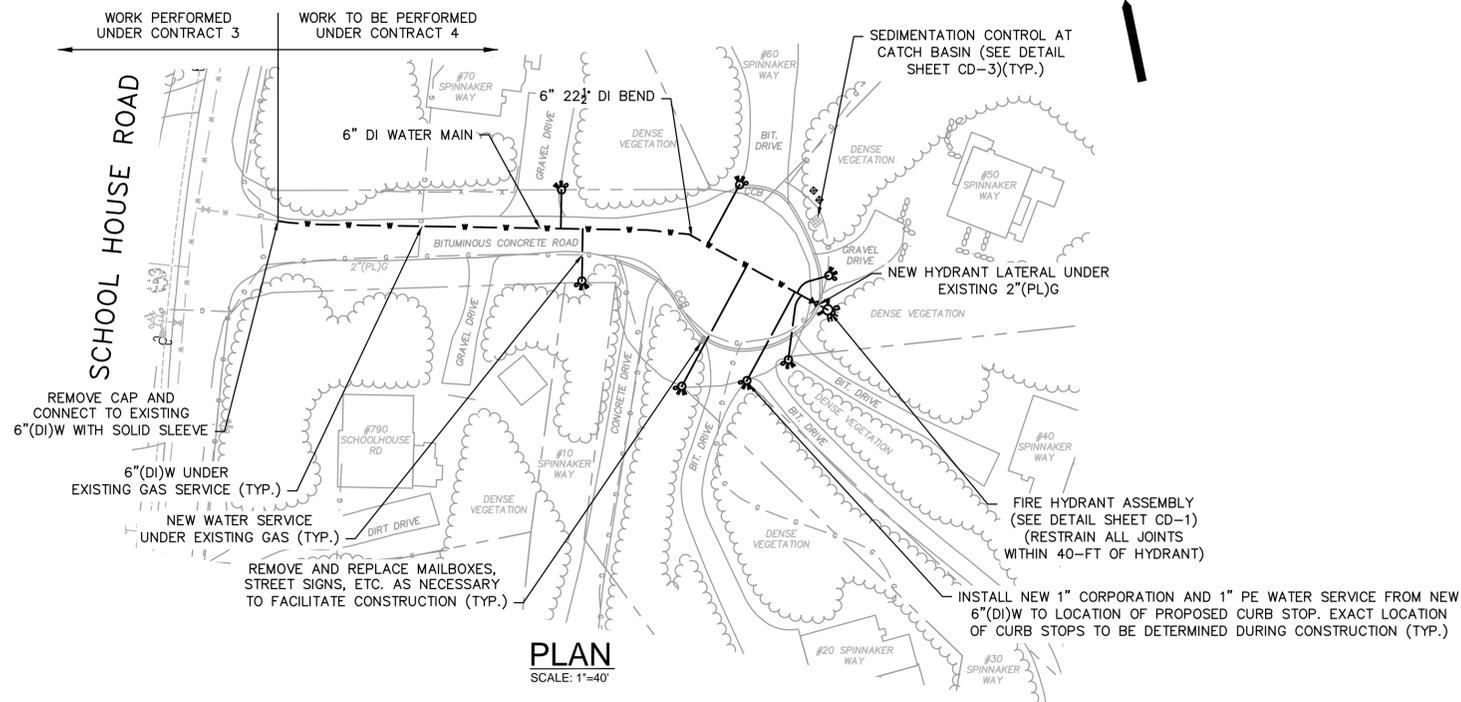
FOR CONSTRUCTION

Sheet No.

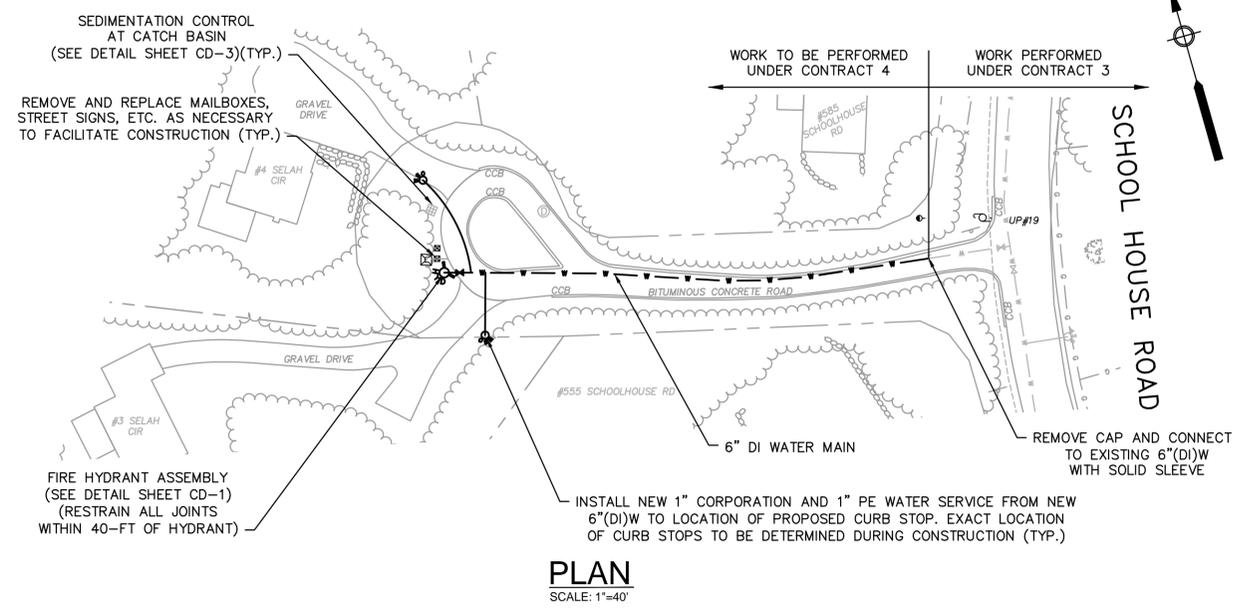
**C-14**



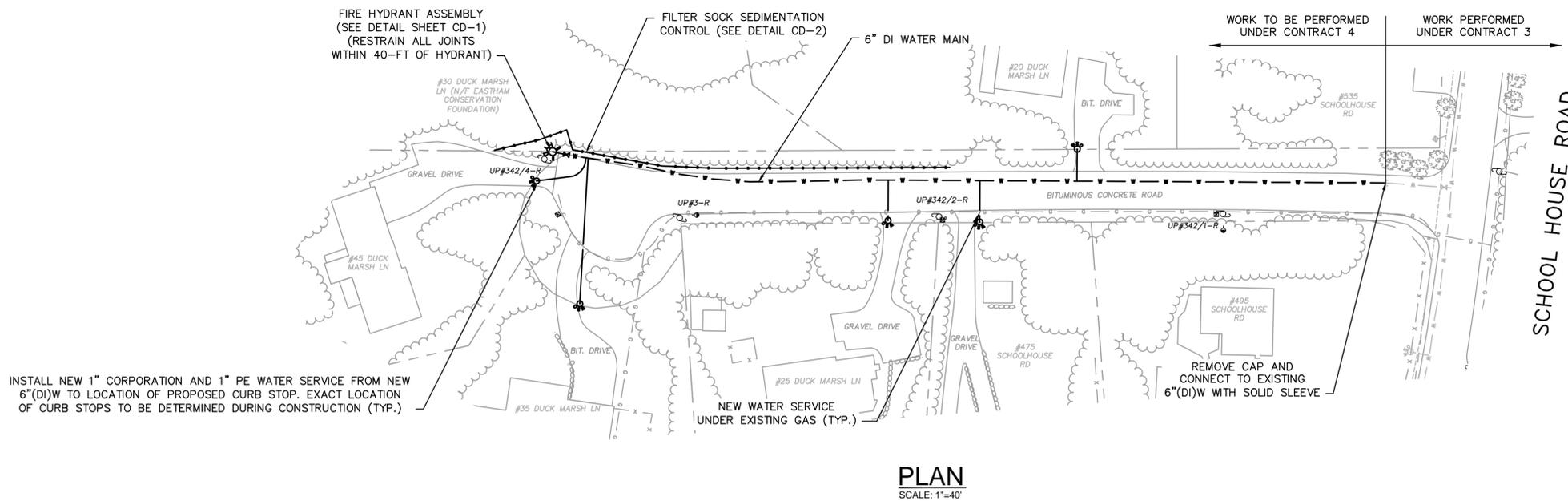
SPINNAKER WAY (PRIVATE)



SELAH CIRCLE (PRIVATE)



DUCK MARSH LANE (PRIVATE)



Drawing file: I:\Eastham\217\Phase 1 - Eastham Water System\217-1401\_04 Contract 4 Phase 1\WM01 CAD04a CONTRACT WATER DESIGN.dwg Plot Date: Apr 17, 2015 12:55 pm



**Environmental Partners**  
A partnership for engineering solutions. GROUP



MARK	DATE	DESCRIPTION	Scale	1"=40'
	03/26/15	ISSUED FOR PERMITTING	Date	APRIL 2015
	04/17/15	ISSUED FOR BIDDING	Job No.	214-1401.04
			Designed by	TRG
			Drawn by	TRG
			Checked by	GCS
			Approved by	RJT

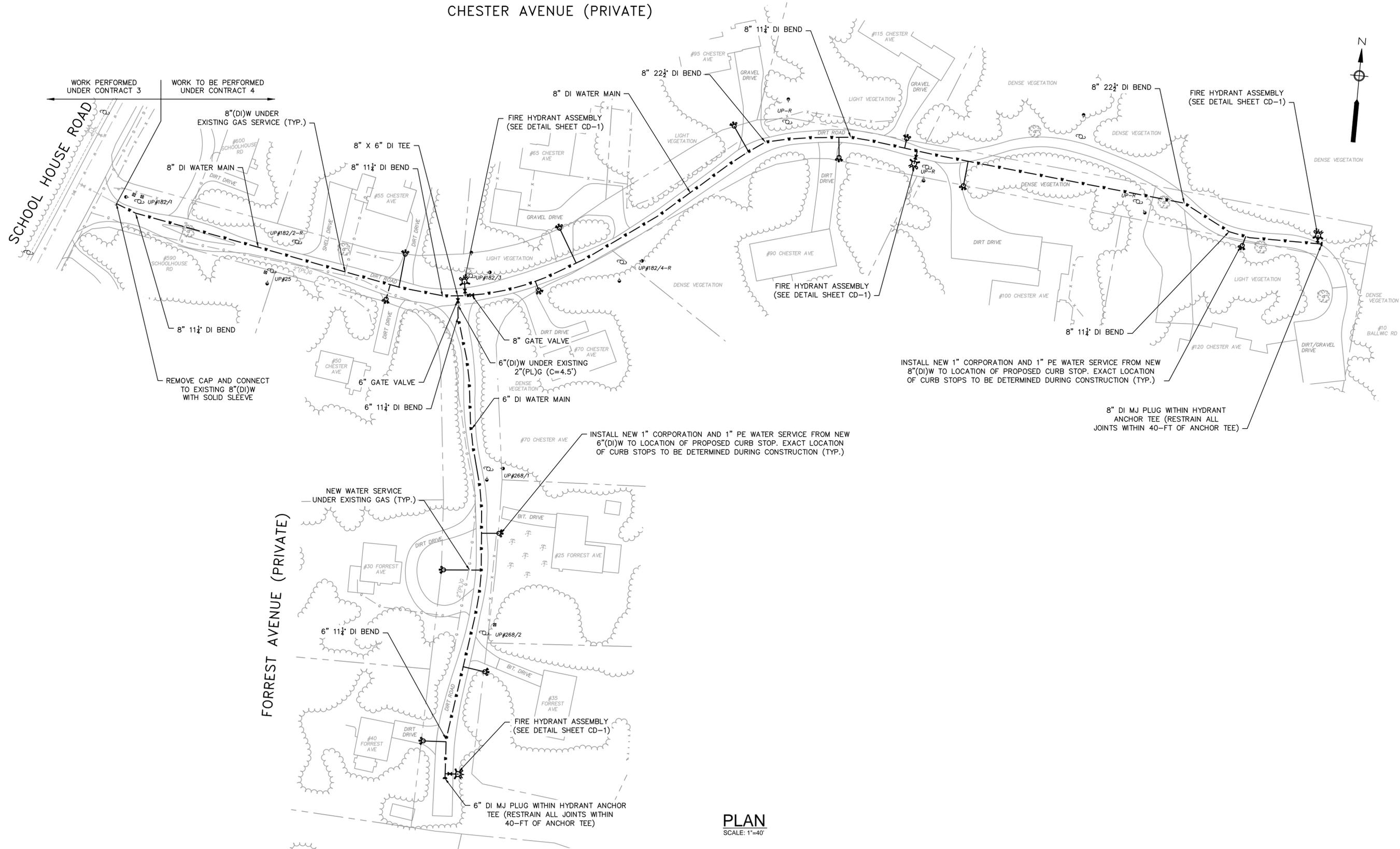
THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

**CONTRACT 4**  
**WATER MAINS - WATER SYSTEM CONSTRUCTION**  
**EASTHAM, MASSACHUSETTS**

SPINNAKER WAY, SELAH CIRCLE,  
AND DUCK MARSH LANE

FOR CONSTRUCTION  
Sheet No.  
**C-15**

CHESTER AVENUE (PRIVATE)



PLAN  
SCALE: 1"=40'

Drawing file: I:\Eastham\217\Phase 1 - Eastham Water System\217-1401\_04 Contract 4 Phase 1\WMA01 CAD\04a CONTRACT WATER DESIGN.dwg Plot Date: Apr 17, 2015 2:33 pm



**Environmental Partners**  
A partnership for engineering solutions. GROUP



MARK	DATE	DESCRIPTION
△	03/26/15	ISSUED FOR PERMITTING
△	04/17/15	ISSUED FOR BIDDING

Scale	1"=40'
Date	APRIL 2015
Job No.	214-1401.04
Designed by	TRG
Drawn by	TRG
Checked by	GCS
Approved by	RJT

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

**CONTRACT 4**  
**WATER MAINS - WATER SYSTEM CONSTRUCTION**  
EASTHAM, MASSACHUSETTS

CHESTER AVENUE AND FORREST AVENUE

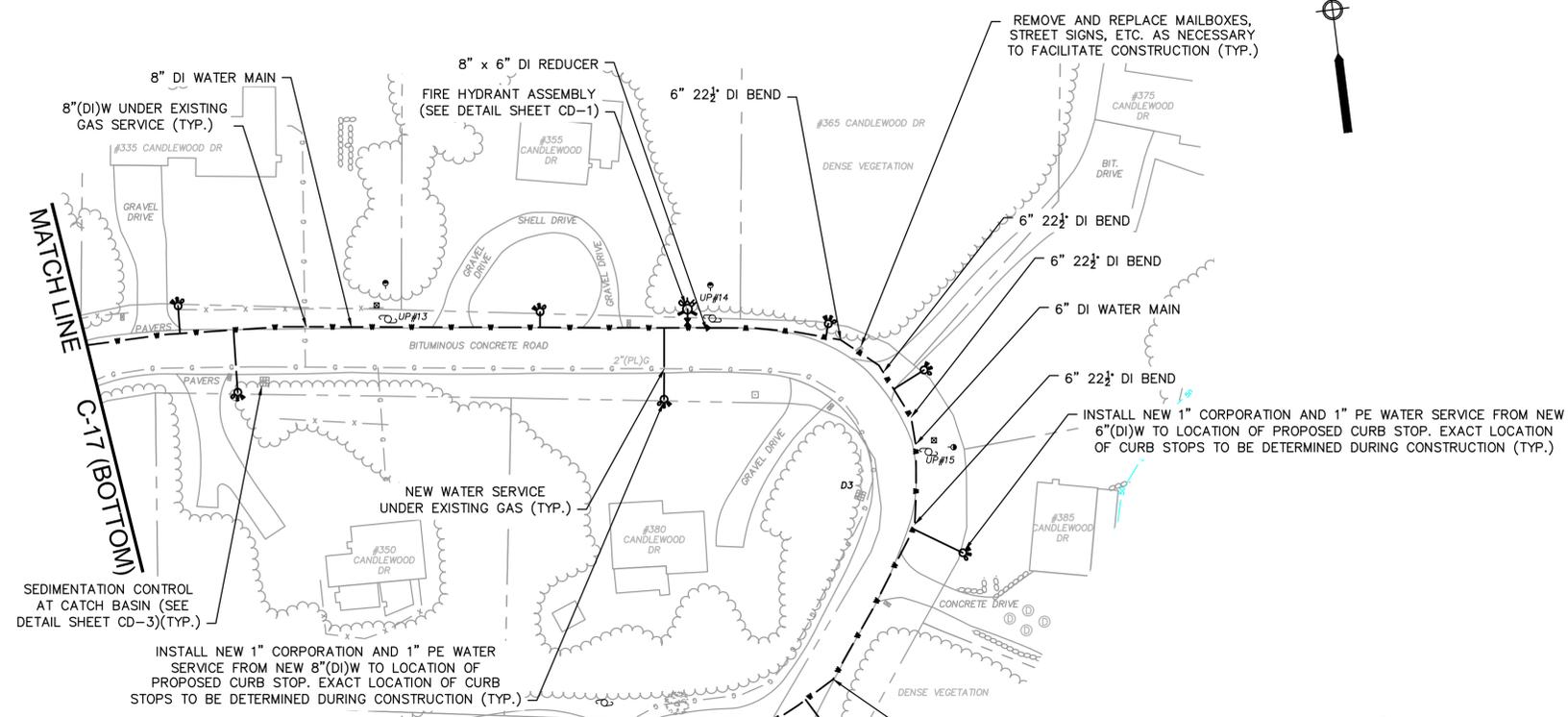
FOR CONSTRUCTION  
Sheet No.  
**C-16**



CANDLEWOOD DRIVE

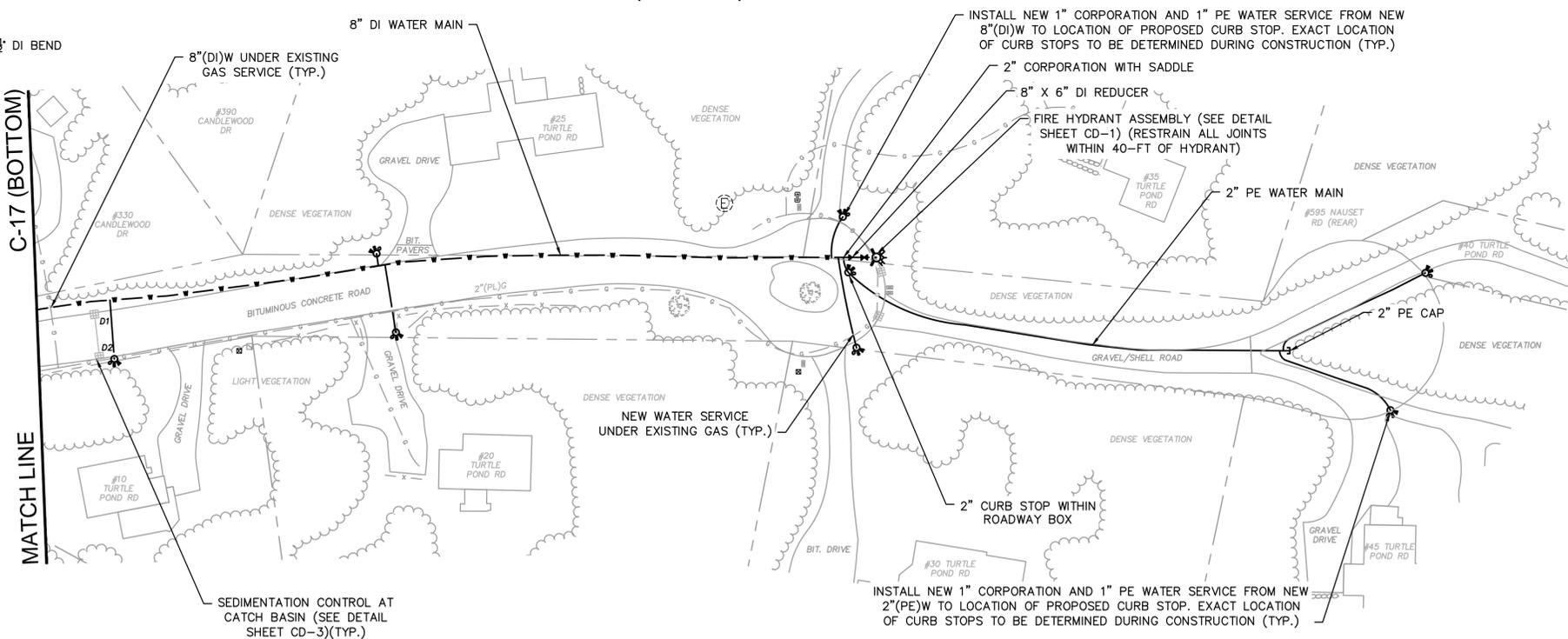


DRAINAGE INVERTS	
D1	= INV. 2.33' 10"(CM)D
D2	= INV. 2.00' 10"(CM)D
D3	= INV. 2.83' 12"(CM)D



PLAN  
SCALE: 1"=40'

TURTLE POND ROAD (PRIVATE)



PLAN  
SCALE: 1"=40'

Drawing file: I:\Eastham\217\Phase 1 - Eastham Water System\217-1401\_04 Contract 4 Phase 1\WM01 CAD04a CONTRACT WATER DESIGN.dwg Plot Date: Apr 17, 2015 1:13pm

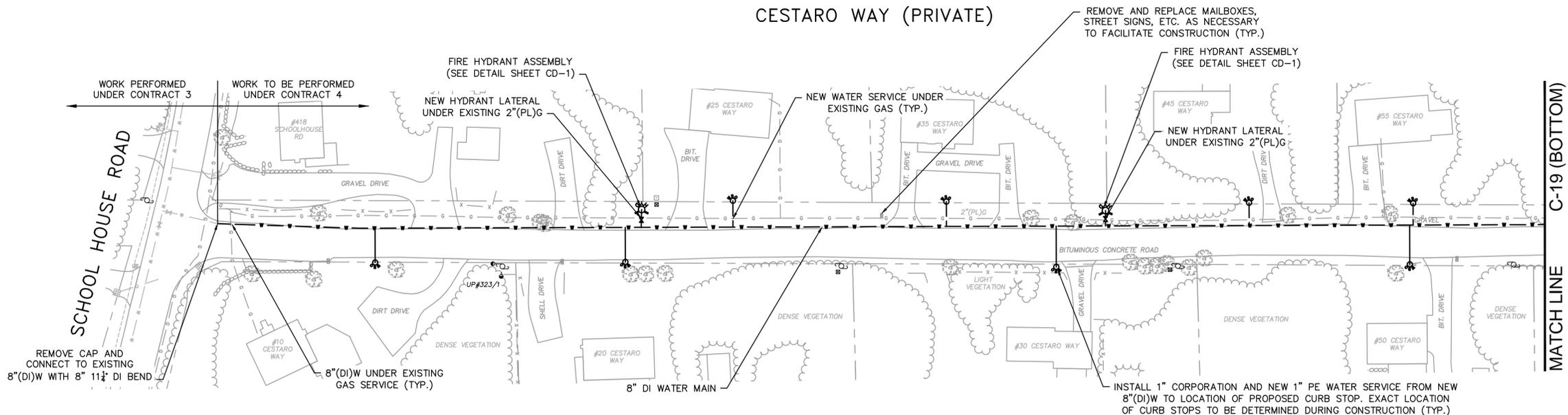


▲	03/26/15	ISSUED FOR PERMITTING	Scale	1"=40'
▲	04/17/15	ISSUED FOR BIDDING	Date	APRIL 2015
			Job No.	214-1401.04
			Designed by	TRG
			Drawn by	TRG
			Checked by	GCS
			Approved by	RJT
MARK	DATE	DESCRIPTION		

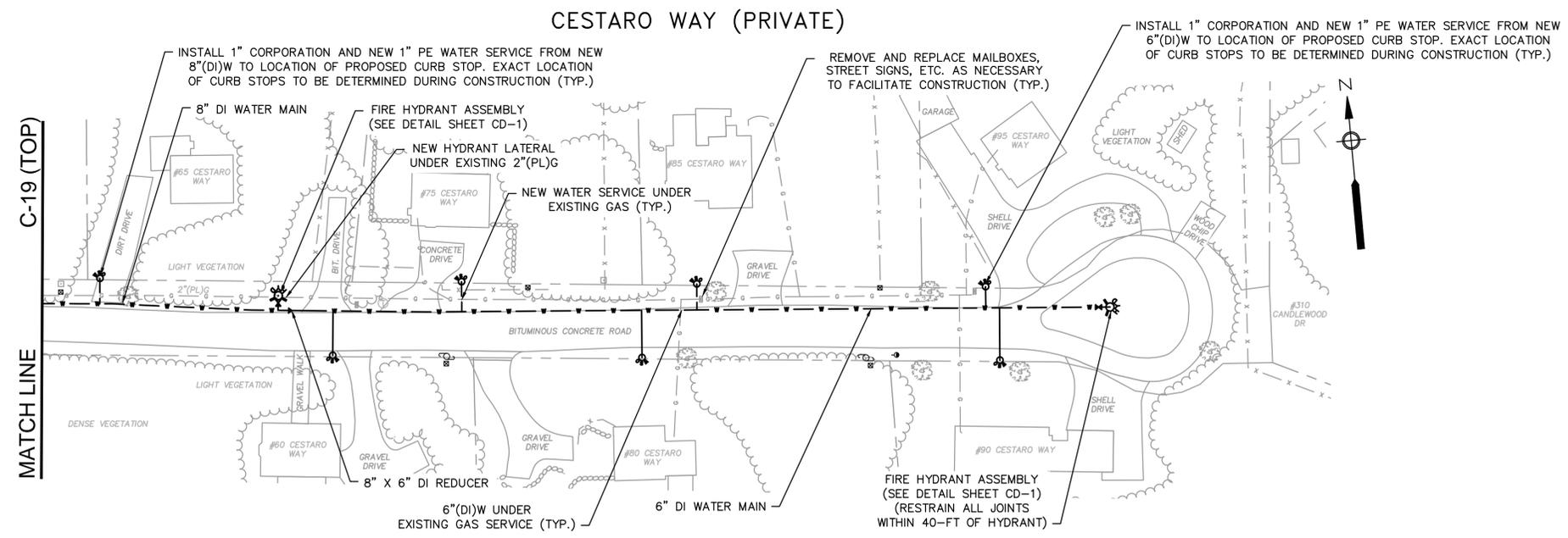
THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

CONTRACT 4  
WATER MAINS - WATER SYSTEM CONSTRUCTION  
EASTHAM, MASSACHUSETTS  
CANDLEWOOD DRIVE AND TURTLE POND ROAD

FOR CONSTRUCTION  
Sheet No.  
**C-18**



**PLAN**  
SCALE: 1"=40'

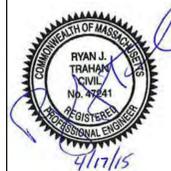


**PLAN**  
SCALE: 1"=40'

Drawing file: I:\Eastham\217\Phase 1 - Eastham Water System\217-1401\_04 Contract 4 Phase 1\MM01 CAD\04a CONTRACT WATER DESIGN.dwg Plot Date: Apr 17, 2015 1:16pm



**Environmental Partners**  
A partnership for engineering solutions. **GROUP**



MARK	DATE	DESCRIPTION
▲	03/26/15	ISSUED FOR PERMITTING
▲	04/17/15	ISSUED FOR BIDDING

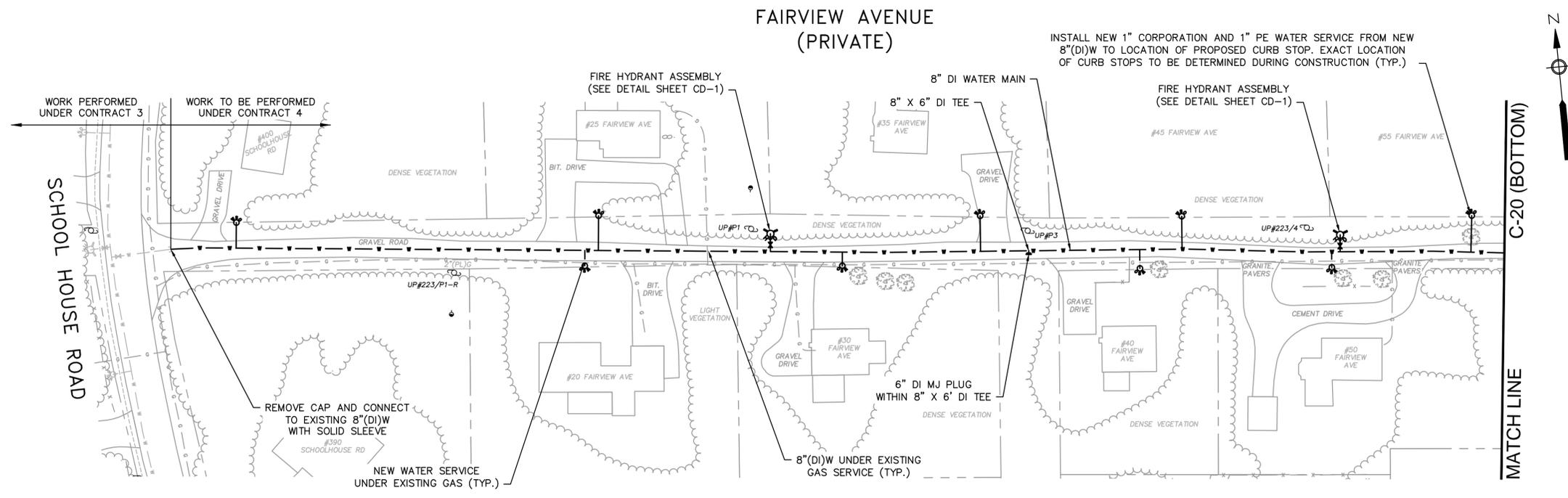
Scale	1"=40'
Date	APRIL 2015
Job No.	214-1401.04
Designed by	TRG
Drawn by	TRG
Checked by	GCS
Approved by	RJT

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

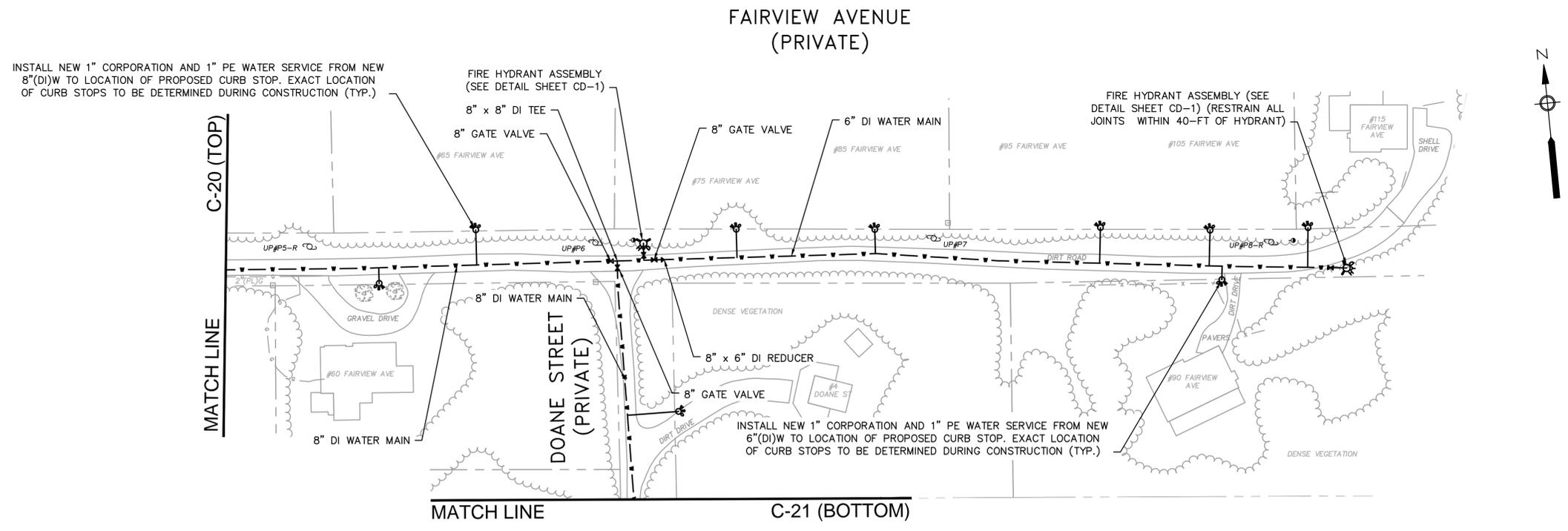
**CONTRACT 4**  
**WATER MAINS - WATER SYSTEM CONSTRUCTION**  
**EASTHAM, MASSACHUSETTS**

CESTARO WAY

FOR CONSTRUCTION  
Sheet No.  
**C-19**

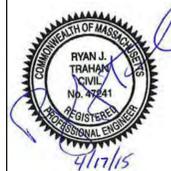


PLAN  
SCALE: 1"=40'



PLAN  
SCALE: 1"=40'

Drawing file: I:\Eastham\217\Phase 1 - Eastham Water System\217-1401\_04 Contract 4 Phase 1\MM01 CAD\04a CONTRACT WATER DESIGN.dwg Plot Date: Apr 17, 2015 2:37pm



MARK	DATE	DESCRIPTION
△	03/26/15	ISSUED FOR PERMITTING
△	04/17/15	ISSUED FOR BIDDING

Scale	1"=40'
Date	APRIL 2015
Job No.	214-1401.04
Designed by	TRG
Drawn by	TRG
Checked by	GCS
Approved by	RJT

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

CONTRACT 4  
WATER MAINS - WATER SYSTEM CONSTRUCTION  
EASTHAM, MASSACHUSETTS

FAIRVIEW AVENUE AND DOANE STREET

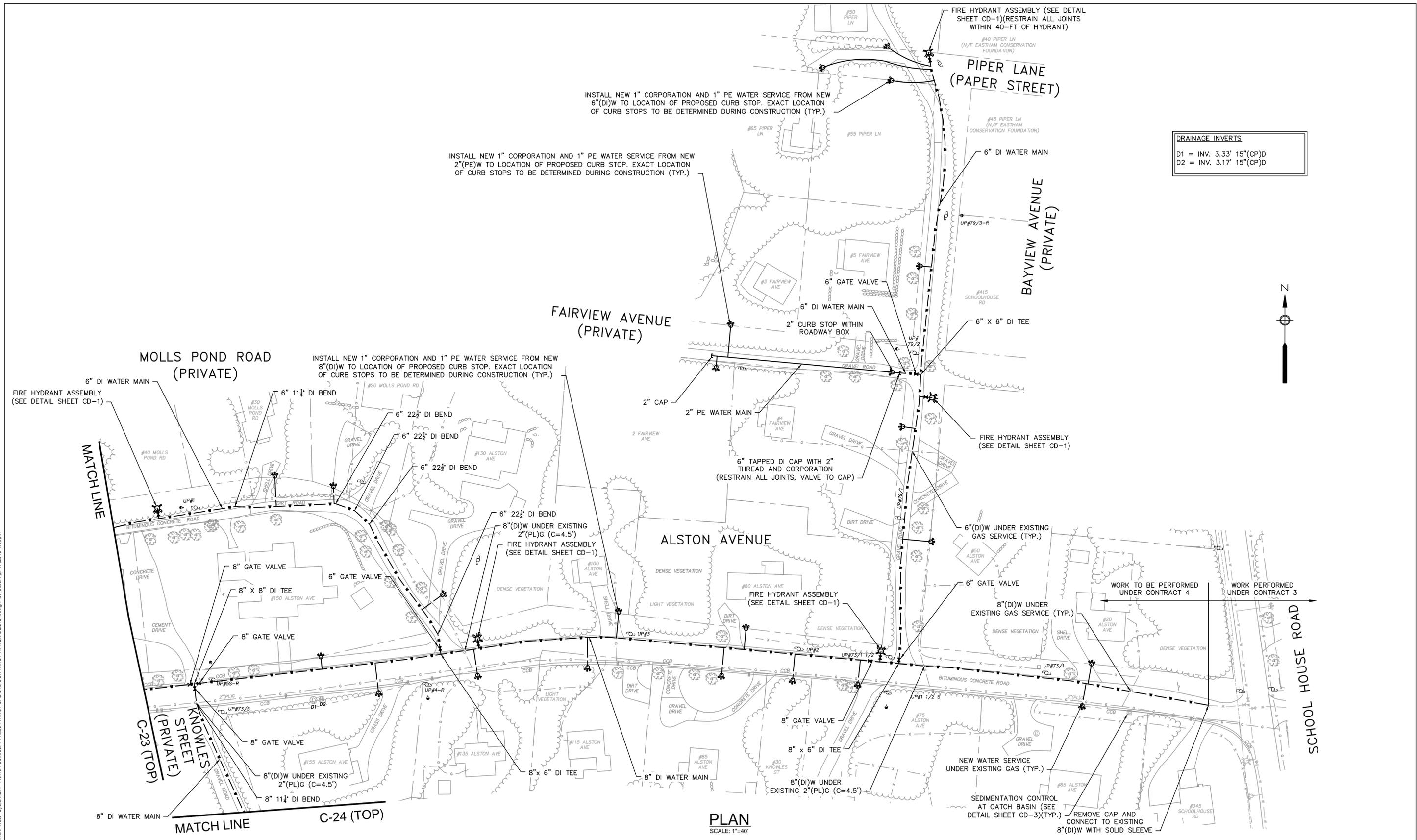
FOR CONSTRUCTION

Sheet No.

**C-20**



Drawing file: I:\Eastham\217\Phase 1 - Eastham Water System\217-1401\_04 Contract 4 Phase 1\WMA01 CAD\04a CONTRACT WATER DESIGN.dwg Plot Date: Apr 17, 2015 1:33pm

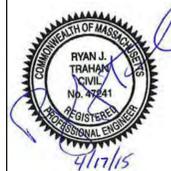


DRAINAGE INVERTS	
D1	= INV. 3.33' 15"(CP)D
D2	= INV. 3.17' 15"(CP)D

**PLAN**  
SCALE: 1"=40'



**Environmental Partners**  
A partnership for engineering solutions. **GROUP**



MARK	DATE	DESCRIPTION
▲	03/26/15	ISSUED FOR PERMITTING
▲	04/17/15	ISSUED FOR BIDDING

Scale	1"=40'
Date	APRIL 2015
Job No.	214-1401.04
Designed by	TRG
Drawn by	TRG
Checked by	GCS
Approved by	RJT

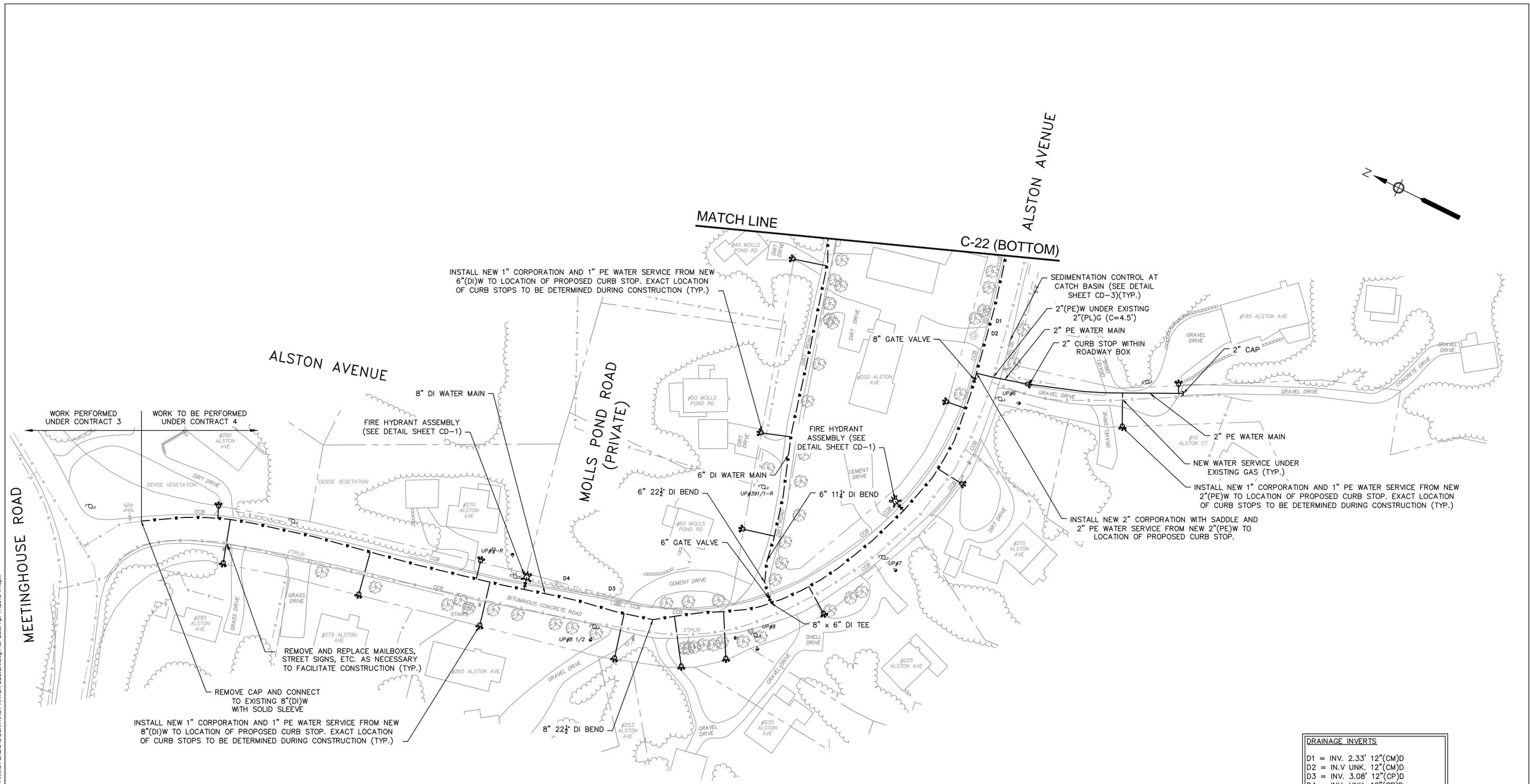
THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

**CONTRACT 4**  
**WATER MAINS - WATER SYSTEM CONSTRUCTION**  
**EASTHAM, MASSACHUSETTS**

**ALSTON AVENUE, MOLLS POND ROAD, AND BAYVIEW AVENUE**

FOR CONSTRUCTION  
Sheet No. **C-22**

Drawing file: I:\Eastham\217\Phase 1 - Eastham Water System\217-1401\_04 Contract 4 Phase 1\MM01 CAD\04a CONTRACT WATER DESIGN.dwg Plot Date: Apr 17, 2015 1:40pm

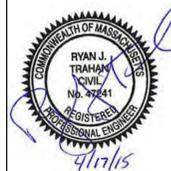


**PLAN**  
SCALE: 1"=40'

DRAINAGE INVERTS	
D1	= INV. 2.33' 12"(CM)D
D2	= INV. UNK. 12"(CM)D
D3	= INV. 3.08' 12"(CP)D
D4	= INV. UNK. 12"(CP)D



**Environmental Partners**  
A partnership for engineering solutions. GROUP



MARK	DATE	DESCRIPTION
△	03/26/15	ISSUED FOR PERMITTING
△	04/17/15	ISSUED FOR BIDDING

Scale	1"=40'
Date	APRIL 2015
Job No.	214-1401.04
Designed by	TRG
Drawn by	TRG
Checked by	GCS
Approved by	RJT

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

**CONTRACT 4**  
**WATER MAINS - WATER SYSTEM CONSTRUCTION**  
**EASTHAM, MASSACHUSETTS**

**ALSTON AVENUE AND MOLLS POND ROAD**

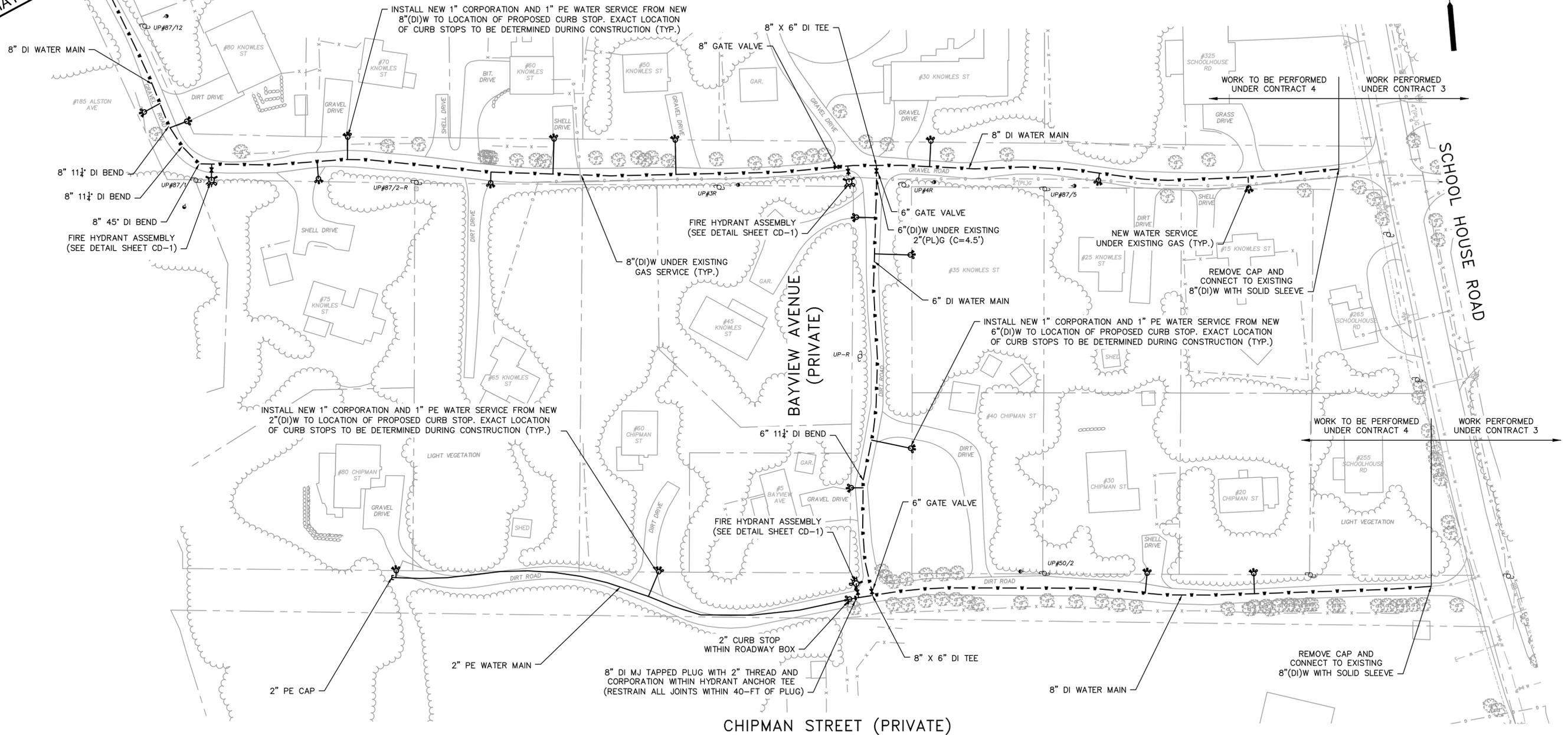
FOR CONSTRUCTION

Sheet No.

**C-23**

MATCH LINE C-22 (BOTTOM)

KNOWLES STREET (PRIVATE)

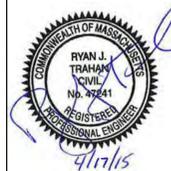


PLAN  
SCALE: 1"=40'

Drawing file: I:\Eastham\217-Phase 1 - Eastham Water System\217-1401\_04 Contract 4 Phase 1\MM01 CAD\04a CONTRACT WATER DESIGN.dwg Plot Date: Apr 17, 2015 1:48pm



**Environmental Partners**  
A partnership for engineering solutions. GROUP



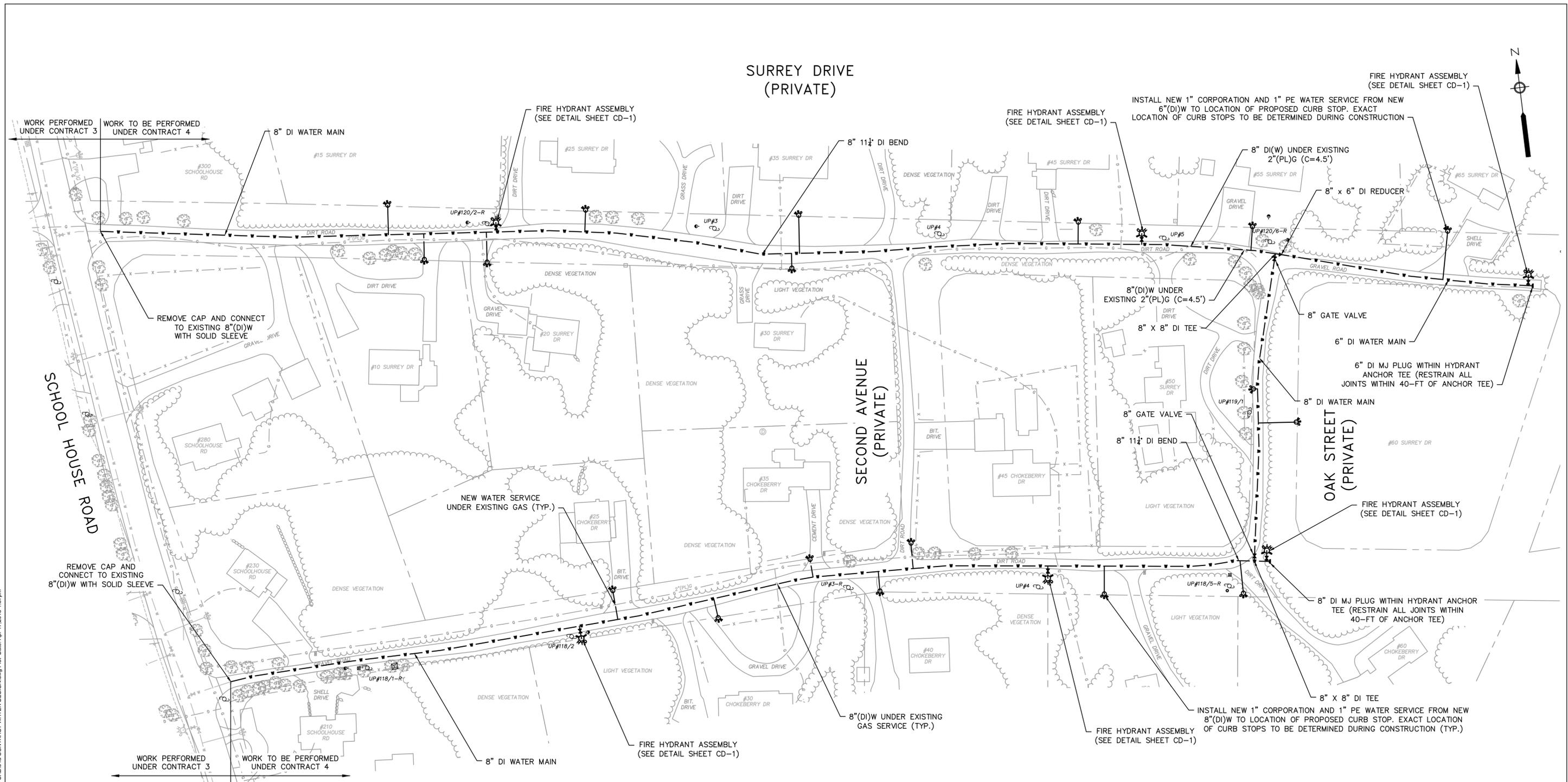
▲	03/26/15	ISSUED FOR PERMITTING	Scale	1"=40'
▲	04/17/15	ISSUED FOR BIDDING	Date	APRIL 2015
			Job No.	214-1401.04
			Designed by	TRG
			Drawn by	TRG
			Checked by	GCS
			Approved by	RJT
MARK	DATE	DESCRIPTION		

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

**CONTRACT 4**  
**WATER MAINS - WATER SYSTEM CONSTRUCTION**  
**EASTHAM, MASSACHUSETTS**

KNOWLES STREET, BAYVIEW AVENUE,  
AND CHIPMAN STREET

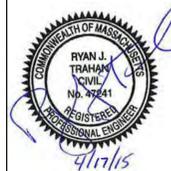
FOR CONSTRUCTION  
Sheet No.  
**C-24**



**PLAN**  
SCALE: 1"=40'



**Environmental Partners GROUP**  
A partnership for engineering solutions.



03/26/15	ISSUED FOR PERMITTING	Scale	1"=40'
04/17/15	ISSUED FOR BIDDING	Date	APRIL 2015
		Job No.	214-1401.04
		Designed by	TRG
		Drawn by	TRG
		Checked by	GCS
		Approved by	RJT
MARK	DATE	DESCRIPTION	

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

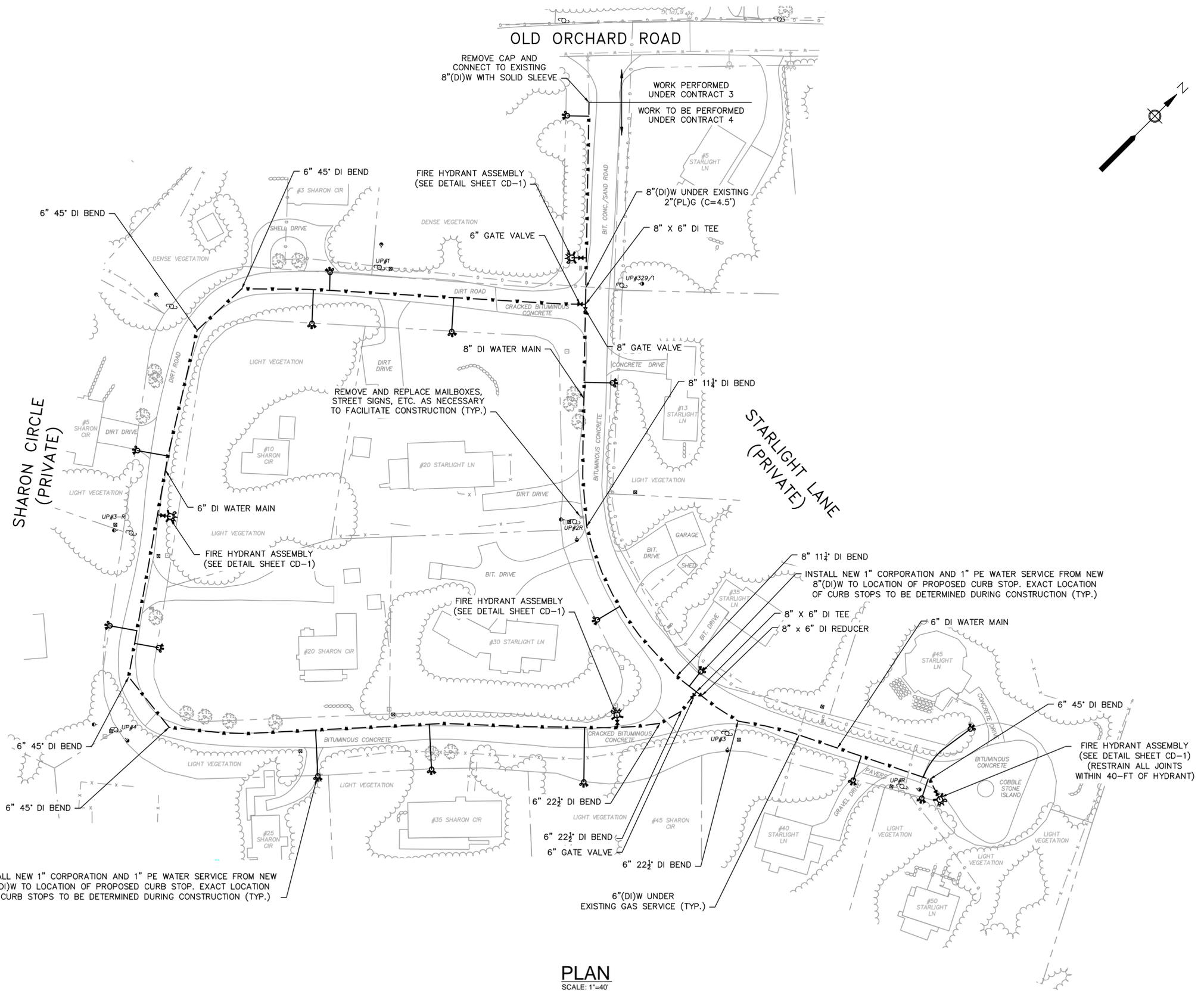
**CONTRACT 4**  
**WATER MAINS - WATER SYSTEM CONSTRUCTION**  
**EASTHAM, MASSACHUSETTS**

**SURREY DRIVE, OAK STREET, AND CHOKEBERRY DRIVE**

FOR CONSTRUCTION  
Sheet No.  
**C-25**

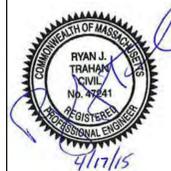
Drawing file: I:\Eastham\217-1401\04 Contract 4 Phase 1\WMA01 CAD\04a CONTRACT WATER DESIGN.dwg Plot Date: Apr 17, 2015 - 1:57pm





PLAN  
SCALE: 1"=40'

Drawing file: I:\Eastham\217\Phase 1 - Eastham Water System\217-1401\_04 Contract 4 Phase 1\WMA01 CAD\04a CONTRACT WATER DESIGN.dwg Plot Date: Apr 17, 2015 2:07pm



MARK	DATE	DESCRIPTION
△	03/26/15	ISSUED FOR PERMITTING
△	04/17/15	ISSUED FOR BIDDING

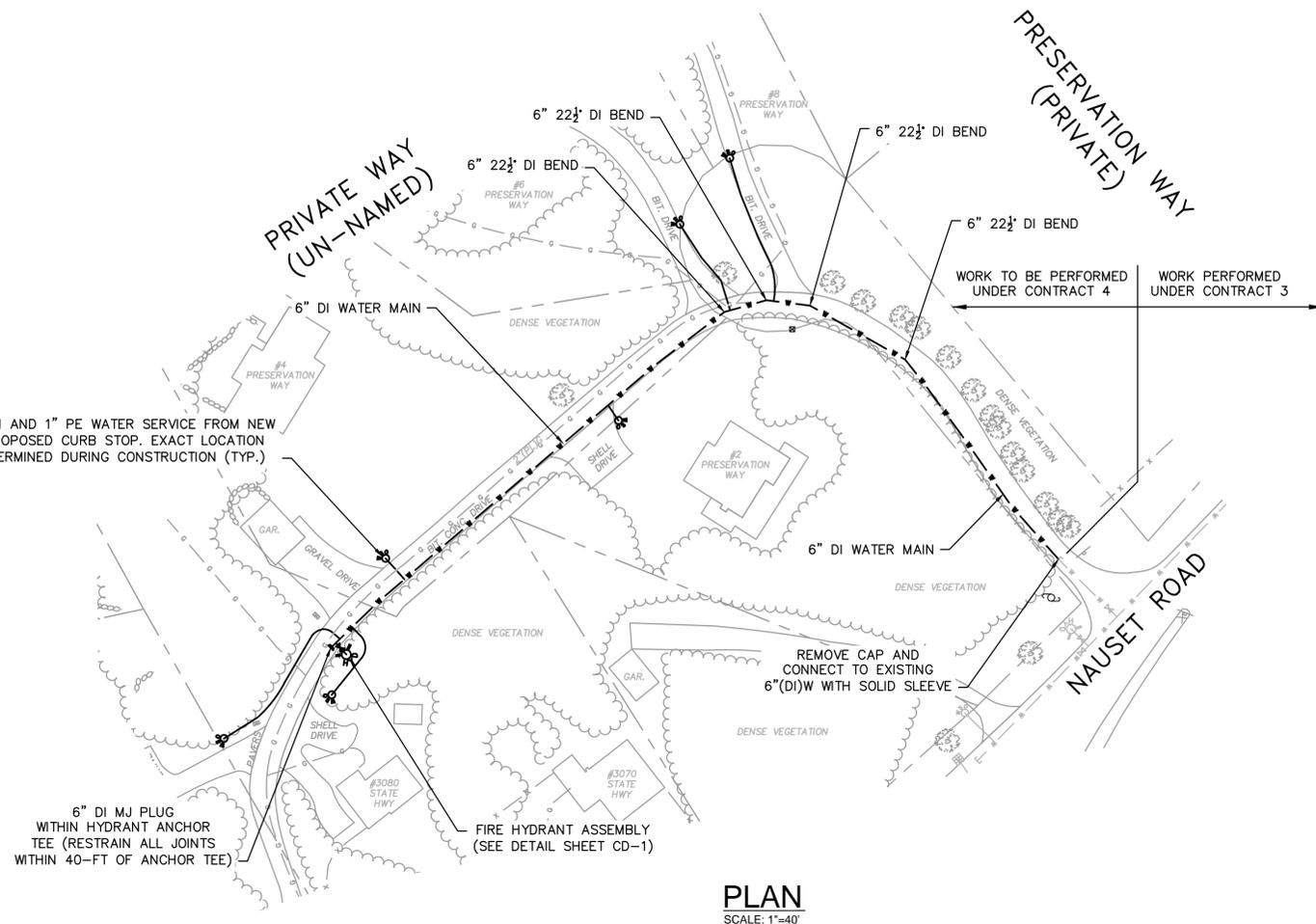
Scale	1"=40'
Date	APRIL 2015
Job No.	214-1401.04
Designed by	TRG
Drawn by	TRG
Checked by	GCS
Approved by	RJT

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

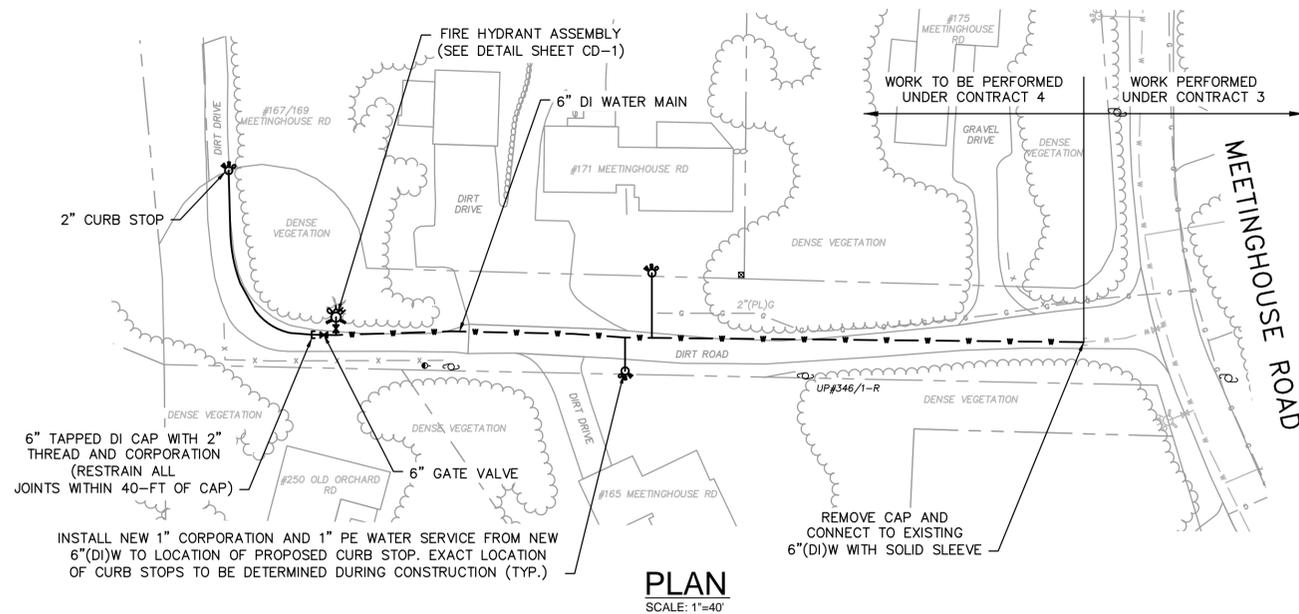
**CONTRACT 4**  
**WATER MAINS - WATER SYSTEM CONSTRUCTION**  
**EASTHAM, MASSACHUSETTS**

STARLIGHT LANE AND SHARON CIRCLE

FOR CONSTRUCTION  
Sheet No.  
**C-27**



LAURA LANE (PRIVATE)



PLAN  
SCALE: 1"=40'

Drawing file: I:\Eastham Water System\217-1401\_04 Contract 4 Phase 1\WM01 CAD04a CONTRACT WATER DESIGN.dwg Plot Date: Apr 17, 2015 3:11pm



**Environmental Partners**  
A partnership for engineering solutions. GROUP



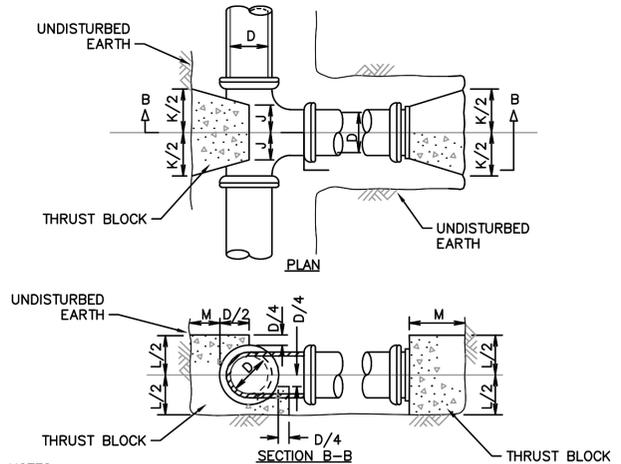
MARK	DATE	DESCRIPTION
▲	03/26/15	ISSUED FOR PERMITTING
▲	04/17/15	ISSUED FOR BIDDING

Scale	1"=40'
Date	APRIL 2015
Job No.	214-1401.04
Designed by	TRG
Drawn by	TRG
Checked by	GCS
Approved by	RJT

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

CONTRACT 4  
WATER MAINS - WATER SYSTEM CONSTRUCTION  
EASTHAM, MASSACHUSETTS  
PRESERVATION WAY AND LAURA LANE

FOR CONSTRUCTION  
Sheet No.  
**C-28**

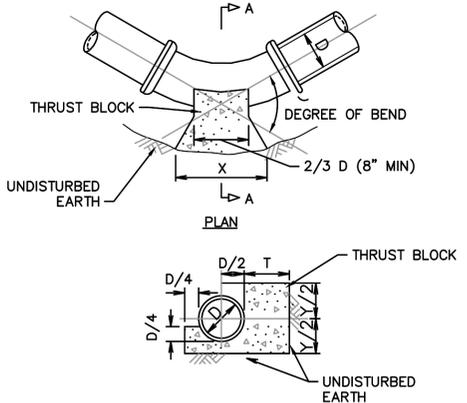


- NOTES:**
1. ALL CONCRETE SHALL BE 3000 PSI @ 28 DAYS (CLASS 'A' CONCRETE).
  2. DIMENSIONS SHOWN ARE MINIMUM AND ARE BASED UPON SOIL BEARING CAPACITY OF 1500 PSF AND TOTAL PRESSURE OF 250 PSI. TOTAL PRESSURE IS PIPELINE TEST PRESSURE PLUS SURGE PRESSURE.
  3. THRUST BLOCKS SHALL BEAR AGAINST UNDISTURBED EARTH.
  4. ALL VALVES, BENDS, PLUGS, CAPS, AND HYDRANTS SHALL BE RESTRAINED WITH "MEGA-LUGS" (OR APPROVED EQUAL) MECHANICAL RESTRAINTS. CONCRETE THRUST BLOCKS SHALL BE USED AS DIRECTED BY THE ENGINEER.

TABLE OF DIMENSIONS							
D (in.)	4	6	8	10	12	14	16
J (in.)	6	6	7	9	10	12	22
K (in.)	16	16	20	26	32	36	64
L (in.)	16	16	21	24	29	34	61
M (in.)	11	11	14	16	19	22	39

**CONCRETE THRUST BLOCK DETAIL AT TEE / PLUG**

SCALE: N.T.S.

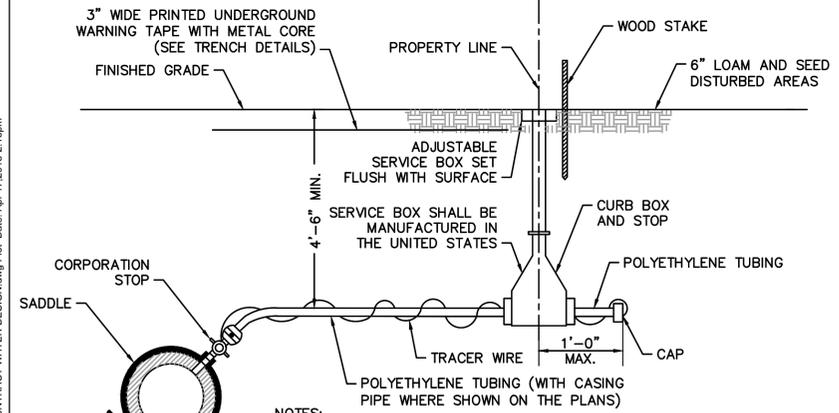


- NOTES:**
1. ALL CONCRETE SHALL BE 3000 PSI @ 28 DAYS (CLASS 'A' CONCRETE).
  2. DIMENSIONS SHOWN ARE MINIMUM AND ARE BASED UPON SOIL BEARING CAPACITY OF 1500 PSF AND TOTAL PRESSURE OF 250 PSI. TOTAL PRESSURE IS PIPELINE TEST PRESSURE PLUS SURGE PRESSURE.
  3. THRUST BLOCKS SHALL BEAR AGAINST UNDISTURBED EARTH.
  4. ALL VALVES, BENDS, PLUGS, CAPS, AND HYDRANTS SHALL BE RESTRAINED WITH "MEGA-LUGS" (OR APPROVED EQUAL) MECHANICAL RESTRAINTS. CONCRETE THRUST BLOCKS SHALL BE USED AS DIRECTED BY THE ENGINEER.

TABLE OF DIMENSIONS																												
DIMENSION	90° BEND				45° BEND				22 1/2° BEND				11 1/4° BEND															
D (in.)	4	6	8	10	12	14	16	4	6	8	10	12	14	16	4	6	8	10	12	14	16							
X (in.)	35	35	50	56	72	80	142	24	24	35	45	51	60	107	28	28	30	32	37	42	74	12	12	19	21	27	33	59
Y (in.)	20	20	24	32	35	40	71	16	16	19	21	27	33	59	13	13	13	16	19	22	39	8	8	9	12	13	16	28
T (in.)	11	11	14	16	19	22	39	11	11	14	16	19	22	39	11	11	13	16	19	22	39	11	11	13	16	19	22	39

**CONCRETE THRUST BLOCK DETAIL AT BEND**

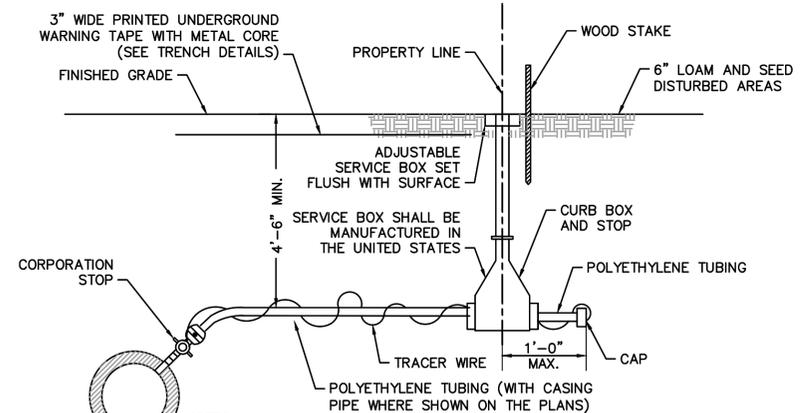
SCALE: N.T.S.



- NOTES:**
1. ALL JOINTS SHALL BE COMPRESSION TYPE.
  2. POLYETHYLENE TUBING SHALL BE BACKFILLED WITH SAND BY HAND TO 1-FOOT ABOVE TUBING.
  3. CORPORATION STOPS SHALL HAVE A SADDLE.
  4. WATER SERVICES SHALL BE INSULATED IN AREAS WHERE CONNECTION TO EXISTING WATER SERVICE IS LESS THAN 4 FEET.
  5. ALL WATER SERVICE PLUMBING MATERIALS SHALL BE "LEAD FREE" IN ACCORDANCE WITH SECTION 1417 OF THE SAFE DRINKING WATER ACT AND SECTION 9 OF NSF STANDARD 61.

**TYPICAL SERVICE CONNECTION HDPE WATER MAINS**

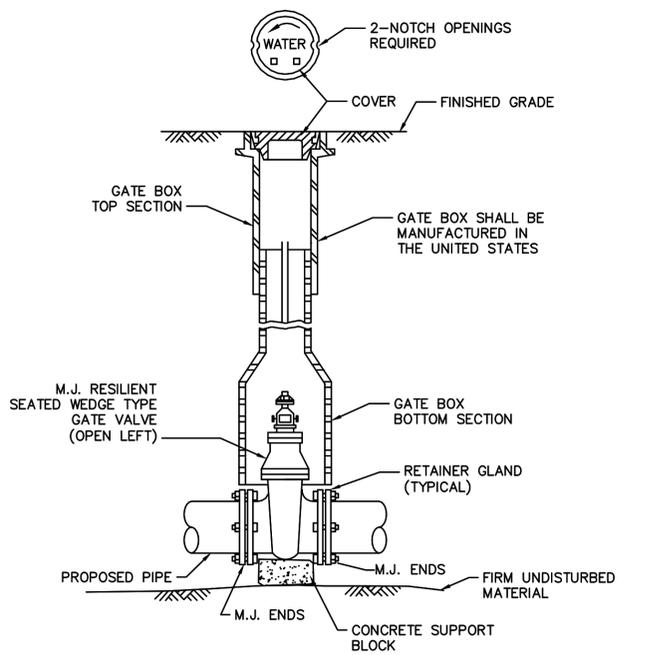
SCALE: N.T.S.



- NOTES:**
1. ALL JOINTS SHALL BE COMPRESSION TYPE.
  2. POLYETHYLENE TUBING SHALL BE BACKFILLED WITH SAND BY HAND TO 1-FOOT ABOVE TUBING.
  3. CORPORATION STOPS LARGER THAN ONE INCH SHALL HAVE A SADDLE.
  4. WATER SERVICES SHALL BE INSULATED IN AREAS WHERE CONNECTION TO EXISTING WATER SERVICE IS LESS THAN 4 FEET.
  5. ALL WATER SERVICE PLUMBING MATERIALS SHALL BE "LEAD FREE" IN ACCORDANCE WITH SECTION 1417 OF THE SAFE DRINKING WATER ACT AND SECTION 9 OF NSF STANDARD 61.

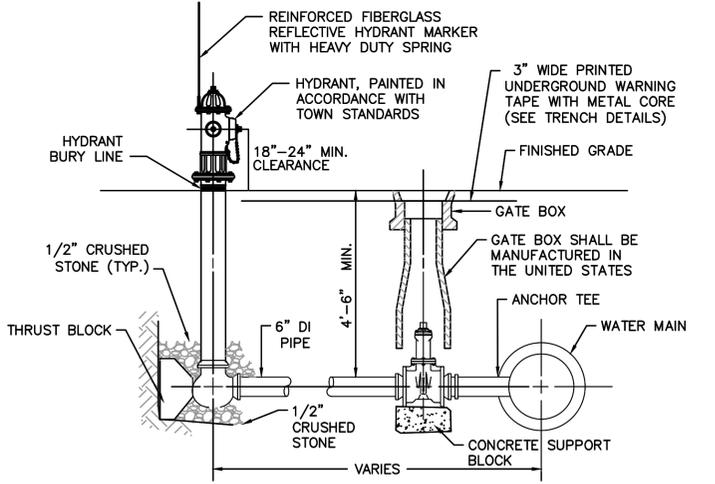
**TYPICAL SERVICE CONNECTION DUCTILE IRON WATER MAINS**

SCALE: N.T.S.



**GATE VALVE AND VALVE BOX DETAIL**

SCALE: N.T.S.

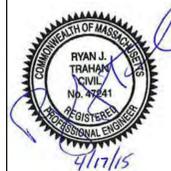


- NOTES:**
1. ALL HYDRANT, VALVE AND TEE JOINTS TO BE RESTRAINED MECHANICAL JOINTS.
  2. DEPTH OF HYDRANT BURY SHALL SUIT INSTALLED DEPTH OF COVER OVER WATER MAIN. INSTALL RISERS AS NECESSARY AT NO ADDITIONAL COST TO THE OWNER.

**FIRE HYDRANT ASSEMBLY DETAIL**

SCALE: N.T.S.

Drawing file: I:\Eastham\Water System\217-1401\_04 Contract 4 Phase 1\WM01 CAD\04a CONTRACT WATER DESIGN.dwg Plot Date: Apr 17, 2015 2:16pm



MARK	DATE	DESCRIPTION	Scale	AS NOTED
	03/26/15	ISSUED FOR PERMITTING	Date	APRIL 2015
	04/17/15	ISSUED FOR BIDDING	Job No.	214-1401.04
			Designed by	TRG
			Drawn by	TRG
			Checked by	GCS
			Approved by	RJT

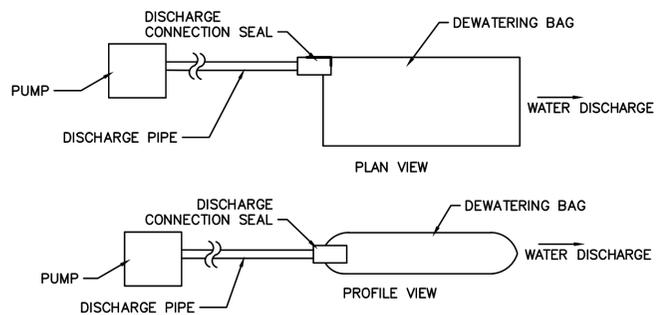
THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

CONTRACT 4  
WATER MAINS - WATER SYSTEM CONSTRUCTION  
EASTHAM, MASSACHUSETTS

CONSTRUCTION DETAILS I

FOR CONSTRUCTION  
Sheet No.

CD-1

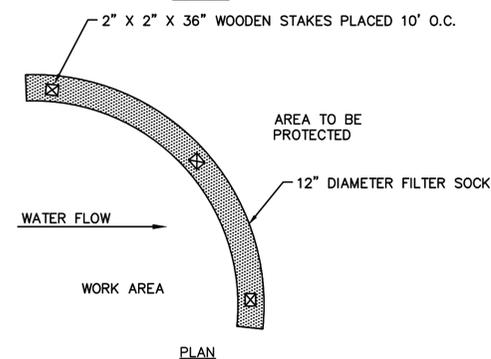
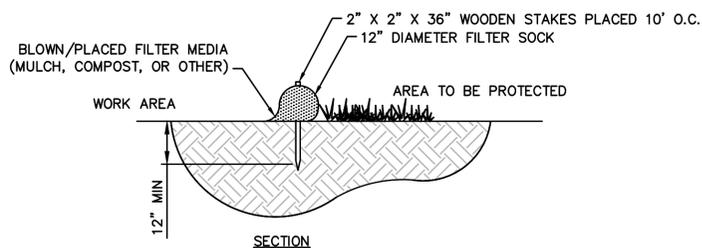


**NOTES:**

1. CONTRACTOR SHALL USE STONE AROUND THE SUCTION END TO MINIMIZE DISCHARGE OF TRENCH MATERIALS. THE DISCHARGE WATER SHALL PASS THROUGH FILTER FABRIC.
2. DEWATERING BAG SIZE AND QUANTITY SHALL BE AS NEEDED TO ADEQUATELY FILTER ALL PUMP EFFLUENT FROM DEWATERING ACTIVITIES. CONTRACTOR SHALL PROVIDE A REDUNDANT BAG ON SITE AT ALL TIMES.
3. EACH BAG SHALL HANDLE A 2", 3", OR 4" DISCHARGE HOSE.
4. DISCHARGE HOSES CAN BE PLACED ALONG ANY EDGE BY MAKING A SMALL INCISION INTO THE FABRIC, INSERTING THE HOSE, AND THEN CLAMPING THE FABRIC TO THE HOSE VIA WIRE, TIES, CLAMP, ROPE OR SIMILAR TO CREATE A GOOD SEAL.
5. CONTRACTOR SHALL AVOID DISCHARGING MULTIPLE PIPES INTO ONE BAG.

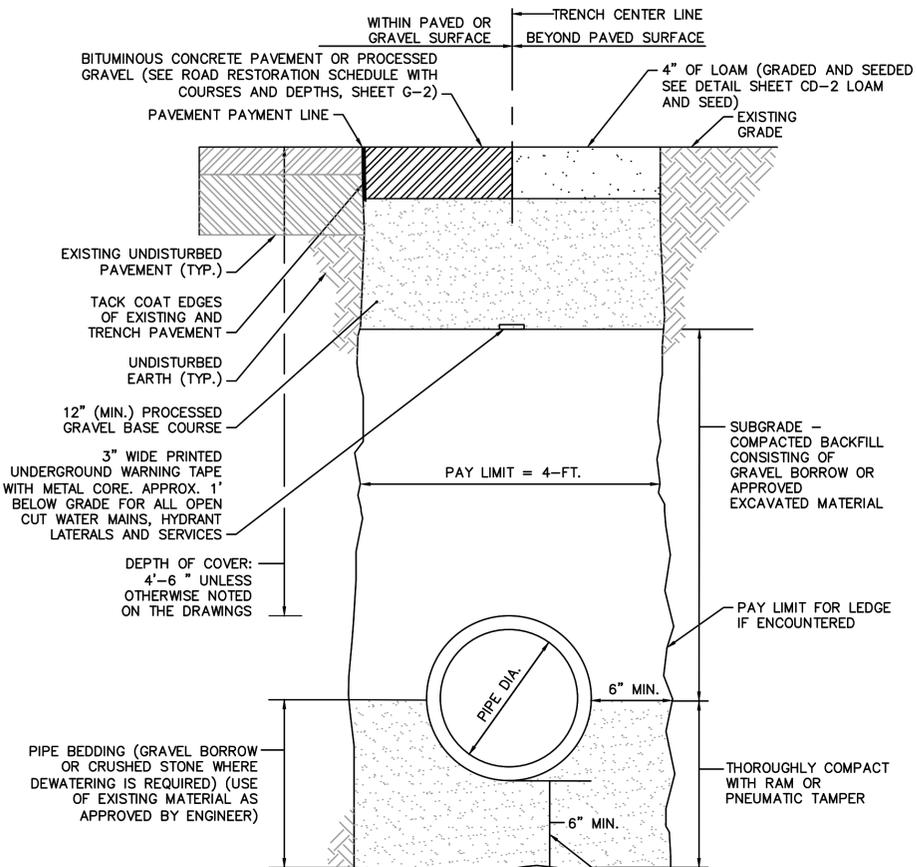
**DEWATERING BAGS**

SCALE: N.T.S.



**12" DIAMETER FILTER SOCK**

SCALE: N.T.S.

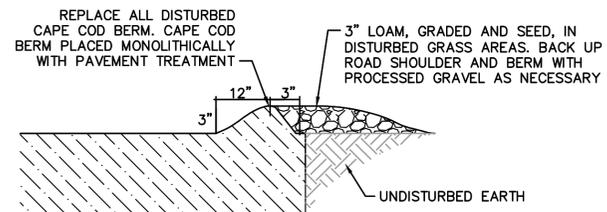


**NOTES:**

1. SEE STANDARD PAVEMENT CONSTRUCTION NOTES (THIS SHEET)
2. SEE PAVEMENT SCHEDULE SHEET G-2
3. APPLY BITUMEN FOR TACK COAT RS-1 EMULSION ON EDGES OF EXISTING PAVEMENT PRIOR TO PAVEMENT PATCH

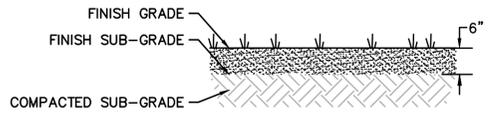
**TRENCH DETAIL 1 - TOWN RIGHT-OF-WAY AND PRIVATE WAYS**

SCALE: N.T.S.



**BITUMINOUS CONCRETE CAPE COD BERM**

SCALE: N.T.S.

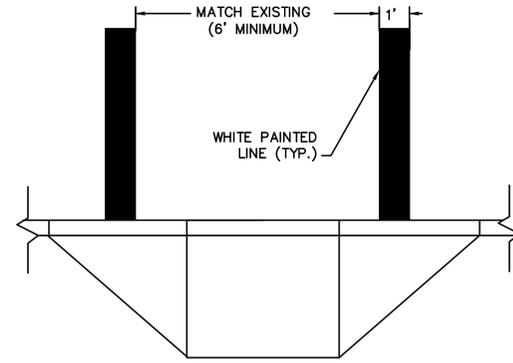


**NOTES:**

1. SEED MIX SHALL BE NEW ENGLAND CONSERVATION SEED MIX, FREE OF FERTILIZERS.
2. LOAM SHALL BE NATIVE TO CAPE COD AND OF LOW NITROGEN CONTENT.
3. INSTALL CURLEX CL EROSION CONTROL BLANKET AS MANUFACTURED BY AMERICAN EXCELSIOR COMPANY (OR APPROVED EQUAL) ON ALL LOAM AND SEEDED SLOPES 3:1 OR STEEPER.

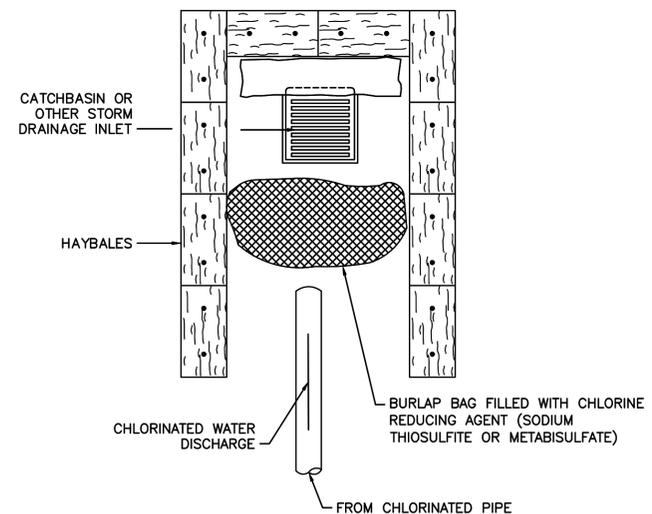
**LOAM AND SEED (DISTURBED AREAS)**

SCALE: N.T.S.



**CROSSWALK DETAIL**

SCALE: N.T.S.



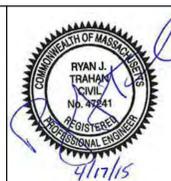
**DECHLORINATION DETAIL**

SCALE: N.T.S.

**STANDARD PAVEMENT CONSTRUCTION NOTES:**

1. PAVEMENT INSTALLED BEYOND PAYMENT LINE MUST BE PRE-APPROVED BY THE ENGINEER.
2. THE FINISHED SURFACE OF THE MIXTURE, AFTER COMPACTION, SHALL BE TRUE TO THE ESTABLISHED LINE AND GRADE OF THE EXISTING PAVEMENT.
3. THE BINDER COURSE SHALL BE PLACED BY NORMAL CONSTRUCTION PRACTICES. THE TOP COURSE SHALL BE MACHINE LAID UTILIZING A SIDEWALK BOX SPREADER OR EQUAL; NO HAND WORK IS ALLOWED.
4. ALL EDGES WHERE EXISTING AND PROPOSED PAVEMENT MEET SHALL BE COATED WITH BITUMEN FOR TACK COAT RS-1 EMULSION.

Drawing file: I:\Eastham 217\Phase 1 - Eastham Water System\217-1401\_04 Contract 4 Phase 1\MM01 CAD\04a CONTRACT WATER DESIGN.dwg Plot Date: Apr 17, 2015 2:17pm



△	03/26/15	ISSUED FOR PERMITTING	Scale	AS NOTED
△	04/17/15	ISSUED FOR BIDDING	Date	APRIL 2015
			Job No.	214-1401.04
			Designed by	TRG
			Drawn by	TRG
			Checked by	GCS
			Approved by	RJT

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

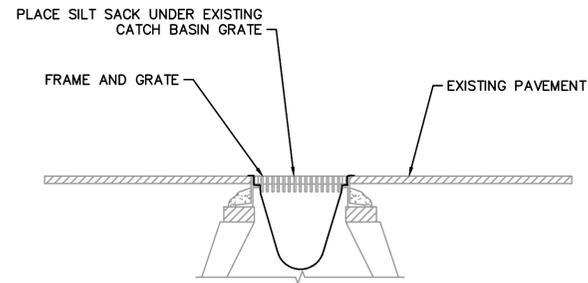
**CONTRACT 4**  
**WATER MAINS - WATER SYSTEM CONSTRUCTION**  
**EASTHAM, MASSACHUSETTS**

**CONSTRUCTION DETAILS II**

FOR CONSTRUCTION

Sheet No.

**CD-2**

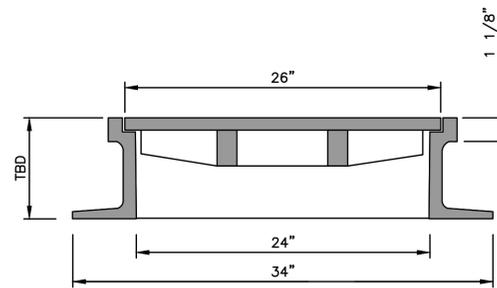


**NOTES:**

1. SILT SACKS SHALL BE INSPECTED WEEKLY AND ACCUMULATED SILT REMOVED TO ALLOW CATCH BASIN TO FUNCTION PROPERLY.
2. SILT SACK AS MANUFACTURED BY ACF ENVIRONMENTAL (800-448-3636) OR APPROVED EQUAL.

**SEDIMENTATION CONTROL AT CATCH BASINS SILT SACKS**

SCALE: N.T.S.

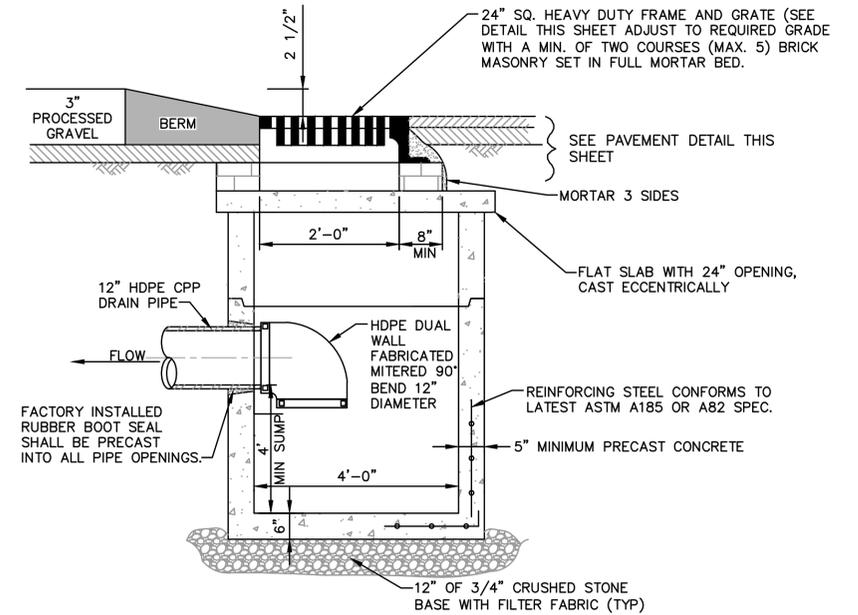


**NOTES:**

1. FRAME AND COVER SHALL BE LEBARON LC 268-1, OR APPROVED EQUAL.
2. EACH COVER SHALL READ DRAIN IN 3" LETTERING.
3. FRAME AND COVER SHALL BE SET IN FULL BED OF MORTAR.
4. FRAME HEIGHT TO BE DETERMINED BY CONTRACTOR.
5. SHALL ONLY BE USED AT THE DIRECTION OF THE ENGINEER.

**STANDARD LEACHING PIT FRAME AND COVER**

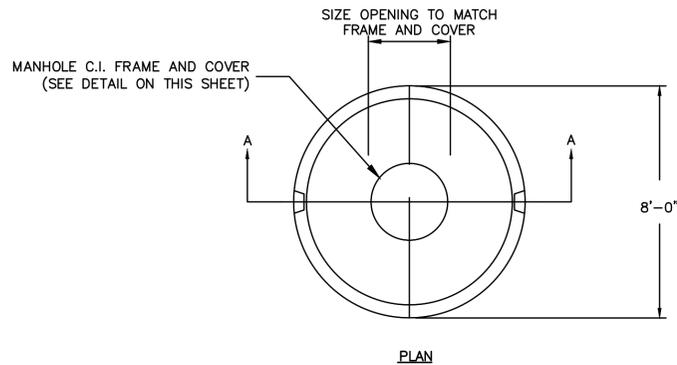
SCALE: N.T.S.



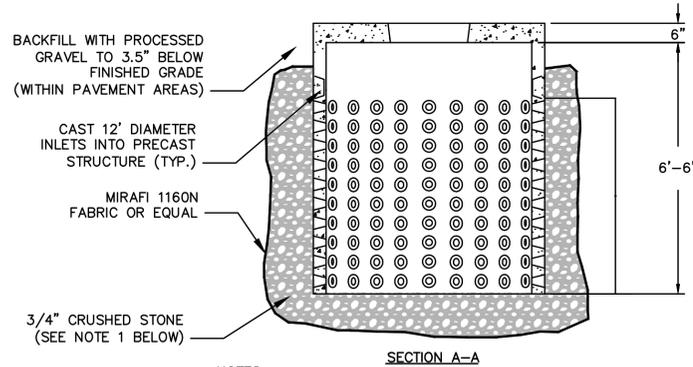
NOTE: CATCH BASIN SHALL BE RATED FOR HS-20 LOADING.

**STANDARD CATCH BASIN**

SCALE: N.T.S.



**PLAN**



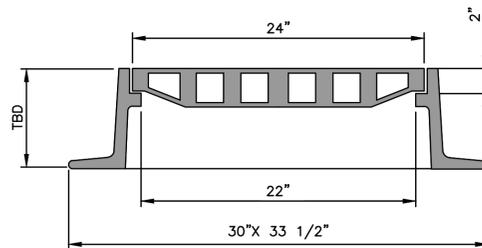
**SECTION A-A**

**NOTES:**

1. PIT SHALL HAVE A MINIMUM ONE FOOT 3/4" CRUSHED STONE ENVELOPE. BASE SHALL HAVE TWO FEET OF 3/4" CRUSHED STONE.
2. MIRAFI 1160N SHALL BE PLACED BETWEEN CRUSHED STONE AND NATIVE MATERIAL AS DIRECTED BY ENGINEER.
3. CONCRETE SHALL BE 4000 PSI.
4. DRAIN OPENING SHALL BE PRECAST INTO STRUCTURE.
5. PIT SHALL BE RATED FOR HS-20 LOADING.

**8' DIAMETER PRECAST CONCRETE LEACHING PIT**

SCALE: N.T.S.

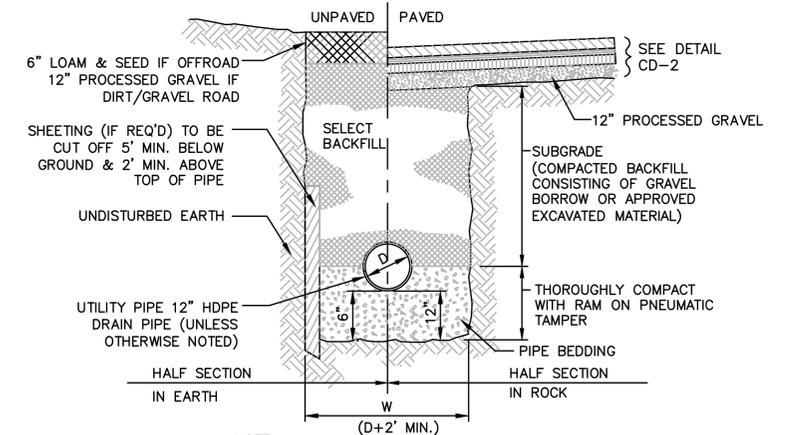


**NOTES:**

1. FRAME AND GRATE SHALL BE LEBARON LF 248-2, OR APPROVED EQUAL.
2. FRAME AND GRATE SHALL BE SET IN FULL BED OF MORTAR ON A MINIMUM OF TWO COURSES OF BRICK.
3. FRAME HEIGHT TO BE DETERMINED BY CONTRACTOR.

**STANDARD CATCH BASIN FRAME AND GRATE**

SCALE: N.T.S.



NOTE: ANY SHEETING DRIVEN BELOW MID-DIA. OF PIPE SHALL BE LEFT IN PLACE

**TYPICAL DRAIN UTILITY TRENCH**

SCALE: N.T.S.

DRAINAGE ITEMS ON THE BID FORM AND ON SHEET CD-3 ARE PLACEHOLDERS FOR DAMAGED OR INSUFFICIENT DRAINAGE ENCOUNTERED ALONG THE WATER MAIN CORRIDOR. DRAINAGE ITEMS MAY OR MAY NOT BE USED. DRAINAGE SHALL ONLY BE INSTALLED AT THE DIRECTION OF THE ENGINEER.

Drawing file: I:\Eastham Water System\217-1401\_04 Contract 4 Phase 1\WM01 CAD\04a CONTRACT WATER DESIGN.dwg Plot Date: Apr 17, 2015 2:22pm



△	03/26/15	ISSUED FOR PERMITTING	Scale	AS NOTED
△	04/17/15	ISSUED FOR BIDDING	Date	APRIL 2015
			Job No.	214-1401.04
			Designed by	TRG
			Drawn by	TRG
			Checked by	GCS
			Approved by	RJT

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

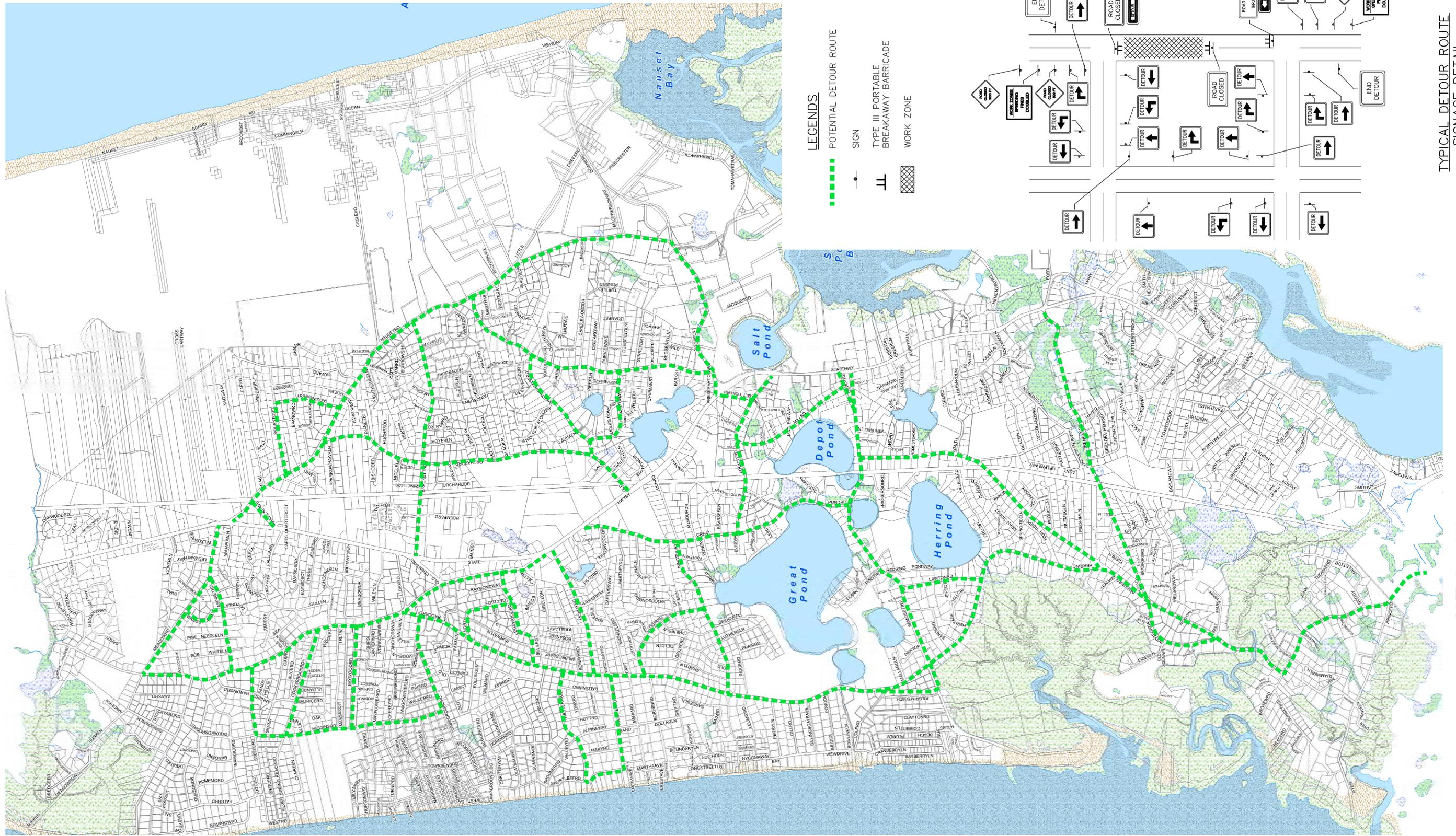
CONTRACT 4  
WATER MAINS - WATER SYSTEM CONSTRUCTION  
EASTHAM, MASSACHUSETTS

CONSTRUCTION DETAILS III

FOR CONSTRUCTION

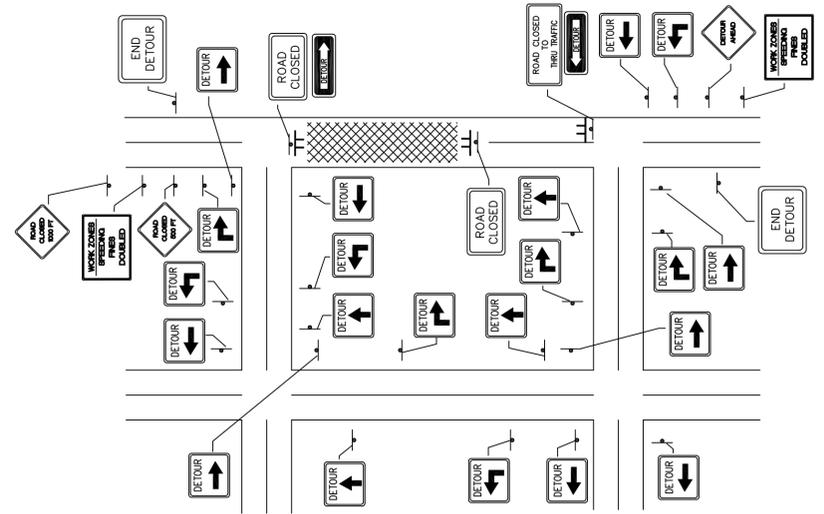
Sheet No.

**CD-3**



**LEGENDS**

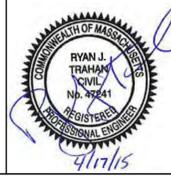
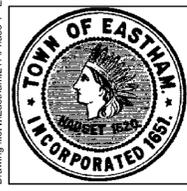
- - - - - POTENTIAL DETOUR ROUTE
- SIGN
- TYPE III PORTABLE BARRICADE
- WORK ZONE



TYPICAL DETOUR ROUTE SIGNAGE DETAIL  
NOT TO SCALE

POTENTIAL DETOUR ROUTE MAP  
NOT TO SCALE

Drawing file: I:\Eastham\217\Phase 1 - Eastham Water System\CAD Support File All Contracts\Contract Notes and Legend\CONT 4 TMP.dwg Plot Date: Apr 17 2015 3:58pm



▲	03/26/15	ISSUED FOR PERMITTING
▲	04/17/15	ISSUED FOR BIDDING
MARK	DATE	DESCRIPTION

Scale	AS NOTED
Date	APRIL 2015
Job No.	214-1401.04
Designed by	BLH
Drawn by	BLH
Checked by	RJT
Approved by	JDF

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

CONTRACT 4  
WATER MAINS - WATER SYSTEM CONSTRUCTION  
EASTHAM, MASSACHUSETTS

POTENTIAL DETOUR ROUTES

FOR CONSTRUCTION

Sheet No.

**TMP-1**

## SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN (IN)		TEXT	TEXT DIMENSIONS (IN)			COLOR	LEGEND	BORDER	UNIT AREA/EACH (S.F.)
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.				
G20-2	36	18	END ROAD WORK	1	1	1	ORANGE	BLACK	BLACK	4.50
M4-8a	24	18	END DETOUR	1	1	1	ORANGE	BLACK	BLACK	3.00
M4-9AL	30	24	DETOUR	1	1	1	ORANGE	BLACK	BLACK	5.00
M4-9AR	30	24	DETOUR	1	1	1	ORANGE	BLACK	BLACK	5.00
M4-9L	30	24	DETOUR	1	1	1	ORANGE	BLACK	BLACK	5.00
M4-9R	30	24	DETOUR	1	1	1	ORANGE	BLACK	BLACK	5.00
M4-9V	30	24	DETOUR	1	1	1	ORANGE	BLACK	BLACK	5.00
M4-10L	48	18	DETOUR	1	1	1	ORANGE	BLACK	BLACK	6.00
M4-10R	48	18	DETOUR	1	1	1	ORANGE	BLACK	BLACK	6.00
R2-10a	48	36	WORK ZONES SPEEDING FINES DOUBLED	2	2	2	WHITE	BLACK	BLACK	12.00
R11-2	48	30	ROAD CLOSED	1	1	1	WHITE	BLACK	BLACK	10.00
R11-3a	60	30	ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY	1	1	1	WHITE	BLACK	BLACK	12.50
R11-4	60	30	ROAD CLOSED TO THRU TRAFFIC	1	1	1	WHITE	BLACK	BLACK	12.50
W13-1	24	24	XX MPH	1	1	1	ORANGE	BLACK	BLACK	4.00
W20-1	36	36	ROAD WORK AHEAD	1	1	1	ORANGE	BLACK	BLACK	9.00
W20-2	36	36	DETOUR AHEAD	1	1	1	ORANGE	BLACK	BLACK	9.00
W20-3	36	36	ROAD CLOSED XX FT	1	1	1	ORANGE	BLACK	BLACK	9.00
W20-4	36	36	ONE LANE ROAD XX FT	1	1	1	ORANGE	BLACK	BLACK	9.00
W20-7b	36	36	POLICE OFFICER AHEAD	1	1	1	ORANGE	BLACK	BLACK	9.00

### TRAFFIC MANAGEMENT ALONG NON-STATE ROADWAYS

- CONSTRUCTION WILL BE LIMITED TO 7:00 A.M. TO 4:00 P.M. MONDAY THRU FRIDAY BUT SHALL BE COORDINATED AROUND OTHER CONSTRUCTION PROJECTS AND HEAVY SEASONAL TRAFFIC WHICH MAY FURTHER LIMIT CONSTRUCTION PERIODS IN ORDER TO RETAIN ADEQUATE CIRCULATION. THE CONTRACTOR MAY REQUEST PERMISSION FOR CONSTRUCTION ON SATURDAYS DURING OFF PEAK SEASONS. SUCH WORK SHALL ONLY OCCUR WITH PERMISSION FROM THE OWNER AND/OR ENGINEER.
- ONE LANE OF TRAVEL WILL BE MAINTAINED IN CONSTRUCTION LOCATIONS WHERE ADEQUATE WIDTH CAN BE PROVIDED FOR VEHICULAR ACCESS. (SEE TYPICAL LANE CLOSURE DETAIL.)
- ROAD CLOSURES ARE ANTICIPATED FOR LOCATIONS WHERE ADEQUATE WIDTH FOR ONE LANE OF TRAVEL CANNOT BE MAINTAINED DURING CONSTRUCTION. ROAD CLOSURE DETOUR ROUTES, AND PERIODS OF CLOSURES WILL BE SUBMITTED TO THE OWNER AND/OR ENGINEER FOR APPROVAL PRIOR TO IMPLEMENTATION.
- AT THE END OF EACH CONSTRUCTION DAY NO TRAFFIC CONTROL DEVICES SHALL REMAIN IN THE ROADWAY; ROADWAYS WILL BE PATCHED OR PLATED AND OPEN TO TRAVEL AT THE END OF EACH WORK WEEK, EXCAVATIONS WILL BE BACKFILLED, COMPACTED AND PAVED AND TEMPORARY PAVEMENT MARKINGS PROVIDED WHERE APPROPRIATE.
- THE CONTRACTOR MUST MAINTAIN ACCESS AND EGRESS AT ALL TIMES TO ALL PROPERTIES AND ROADWAYS ABUTTING THE WORK ZONE UNLESS OTHERWISE APPROVED BY THE OWNER AND/OR ENGINEER.
- THE TEMPORARY TRAFFIC CONTROL PLANS PRESENT ROADWAYS ELIGIBLE FOR DETOUR ROUTES (PUBLICLY OWNED AND PAVED) AS WELL AS TYPICAL SIGNAGE DETAILS. THE CONTRACTOR SHALL SUBMIT IN WRITING PROPOSED ROAD CLOSURES AND ANTICIPATED DETOUR ROUTES AND TRAFFIC MANAGEMENT BASED ON THE PROVIDED INFORMATION FOR APPROVAL BY THE OWNER AND/OR ENGINEER TWO WEEKS PRIOR TO IMPLEMENTATION.
- ALL DISTANCES MAY BE ADJUSTED TO FIT FIELD CONDITIONS, AS DIRECTED BY THE ENGINEER. MINIMUM DISTANCES HOWEVER SHOULD BE MAINTAINED WHERE INDICATED.
- MINIMUM LANE WIDTHS CONSIST OF THE CLEARANCE BETWEEN CHANNELIZING DEVICES SUCH AS DRUMS AND SHALL BE PROVIDED AT ALL TIMES.
- EXISTING PEDESTRIAN WALKWAYS WILL REMAIN OPEN AND CLEAR OF DEBRIS. IN LOCATIONS WHERE EXISTING PEDESTRIAN WALKWAYS HAVE BEEN IMPACTED BY CONSTRUCTION, THE ENTIRE WIDTH OF THE PEDESTRIAN WALKWAY IS TO BE RECONSTRUCTED IN KIND WITH A MINIMUM WIDTH OF 5 FEET EXCLUDING CURBING.
- MAXIMUM SPACING OF CHANNELIZING DEVICES IS EQUAL (IN FEET) TO THE SPEED LIMIT (MPH).
- CHANNELIZATION WILL BE ACCOMPLISHED THROUGH THE USE OF REFLECTORIZED PLASTIC DRUMS. PLASTIC DRUMS WITH ANY FORM OF LIGHTING DEVICE MOUNTED ON THEM MUST PASS THE CRITERIA AS SET FORTH IN NCHRP 350 "RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE EVALUATION OF HIGHWAY FEATURES."
- FLASHING WARNING LIGHTS AND/OR FLAGS MAY BE USED ON ADVANCE WARNING SIGNS AS DIRECTED BY THE ENGINEER. FLAGS SHALL BE A MINIMUM OF 16" X 16".
- ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORT.
- ALL TEMPORARY TRAFFIC CONTROL DEVICES AND ADVANCE WARNING SIGNS SHALL BE REMOVED IMMEDIATELY WHEN NO LONGER NEEDED.
- PAVEMENT MARKINGS CONFLICTING WITH TRAFFIC PATTERNS SHALL BE REMOVED FROM THE TRAVEL PATH WITHIN THE LIMITS OF PROPOSED TEMPORARY PAVEMENT MARKINGS AS REQUIRED. UPON COMPLETION OF THE STAGE OF CONSTRUCTION, TEMPORARY MARKINGS SHALL BE REMOVED AND PERMANENT PAVEMENT MARKINGS SHALL BE INSTALLED IN THEIR ORIGINAL LOCATION.

#### LEGEND:

	REFLECTORIZED PLASTIC DRUM
	SIGN
	WORK ZONE
	DIRECTION OF TRAFFIC
	TYPE III PORTABLE BREAKAWAY BARRICADE
	POLICE OFFICER

#### TAPER LENGTH

SPEED LIMIT	FORMULA
40 MPH OR LESS	L=WS/60
45 MPH OR MORE	L=WS

L = TAPER LENGTH IN FEET  
W = WIDTH OF OFFSET IN FEET  
S = POSTED SPEED OR OFF-PEAK 85TH PERCENTILE SPEED IN MPH

TYPICAL LANE CLOSURE DETAIL  
(2-LANE ROADWAY)  
NOT TO SCALE

- SEE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AND "STANDARD HIGHWAY SIGNS" BY FEDERAL HIGHWAY ADMINISTRATION (LATEST EDITIONS) FOR SPECIFICATIONS ON TEXT DIMENSION AND COLOR. (SEE ALSO THE "MASSACHUSETTS AMENDMENTS TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES", AND "GUIDE SIGN POLICY FOR SECONDARY STATE HIGHWAYS" (LATEST EDITIONS) BY THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION).
- SEE "STANDARD DETAILS AND DRAWINGS FOR THE DEVELOPMENT OF TEMPORARY TRAFFIC CONTROL PLANS" AND "STANDARD HIGHWAY SIGNS" BY THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION (LATEST EDITIONS) FOR SPECIFICATIONS ON TEXT DIMENSION AND COLOR.

Drawing file: I:\Eastham\217\Phase 1 - Eastham Water System\CAD Support File All Contracts\Contract Notes and Legend\CONT 4 TMP.dwg Plot Date: Apr 17, 2015 4:01 pm



**Environmental Partners**  
A partnership for engineering solutions. GROUP



MARK	DATE	DESCRIPTION	Scale	AS NOTED
△	03/26/15	ISSUED FOR PERMITTING		
△	04/17/15	ISSUED FOR BIDDING		
			Date	APRIL 2015
			Job No.	214-1401.04
			Designed by	BLH
			Drawn by	BLH
			Checked by	RJT
			Approved by	JDF

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

**CONTRACT 4**  
**WATER MAINS - WATER SYSTEM CONSTRUCTION**  
**EASTHAM, MASSACHUSETTS**

TRAFFIC DETAIL, SIGNS, AND NOTES

FOR CONSTRUCTION  
Sheet No.  
**TMP-2**