

# CONTRACT 6

## WATER MAINS - ROUTE 6 SOUTH

### WATER SYSTEM CONSTRUCTION

#### EASTHAM, MASSACHUSETTS

OCTOBER 2014



VICINITY MAP  
1" = 2,000'

#### LIST OF DRAWINGS

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C-8	EXTENDED SERVICE		

#### TOWN ADMINISTRATOR

SHEILA VANDERHOEF

#### BOARD OF SELECTMEN

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

#### PUBLIC WORKS SUPERINTENDENT

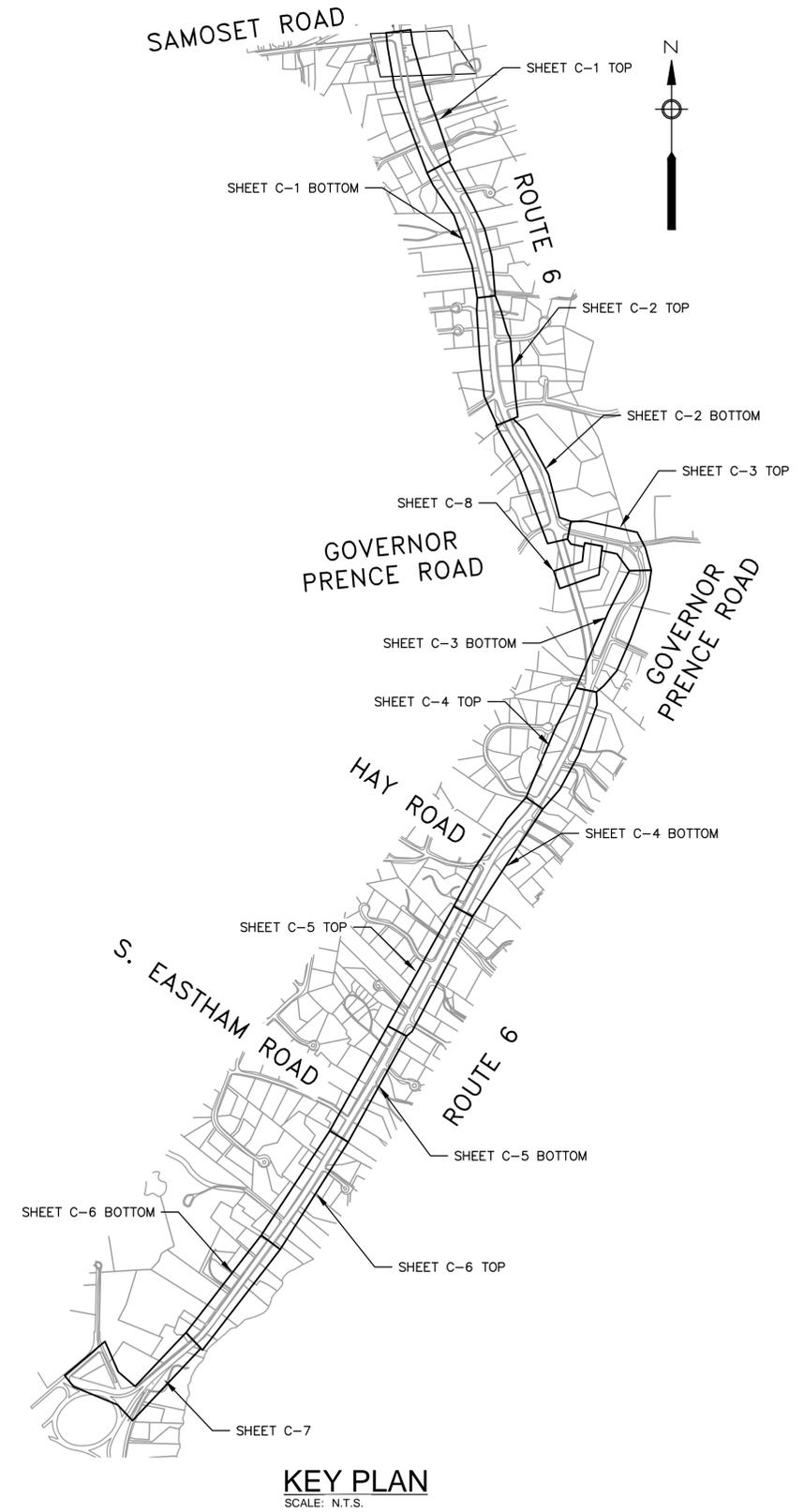
NEIL ANDRES, P.E.



PROGRESS PRINT  
NOT FOR CONSTRUCTION  
NOVEMBER 2014



TEMPORARY AND PERMANENT PAVEMENT SCHEDULE			
SHEET	STREET	TEMPORARY PAVEMENT	PERMANENT PAVEMENT
C-1	ROUTE 6 I		
C-2	ROUTE 6 II		
C-3	ROUTE 6 III		
C-4	GOVERNOR PRENCE ROAD		
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C-6	ROUTE 6 V		
C-7	ROUTE 6 VI		
C-8	EXTENDED SERVICE		



**KEY PLAN**  
SCALE: N.T.S.

Drawing file: I:\Eastham Water System\217-1401-06 Contract & Phase 1\MM01 CAD\06 CONTRACT WATER DESIGN I.dwg Plot Date: Nov 13, 2014 8:25am



Scale	AS NOTED	
Date	OCTOBER 2014	
Job No.	217-1403	
Designed by	GCS	
Drawn by	CSC	
Checked by	RJT	
Approved by	PCM	
MARK	DATE	DESCRIPTION

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

**CONTRACT 6**  
**WATER SYSTEM CONSTRUCTION**  
**EASTHAM, MASSACHUSETTS**

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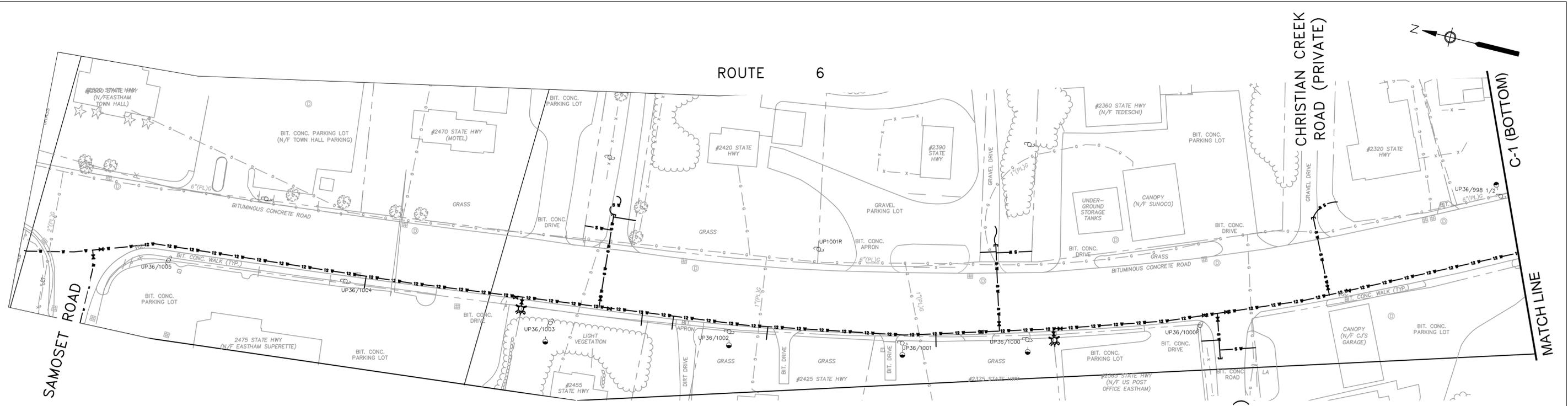
**PAVEMENT SCHEDULE AND SHEET LOCUS**

FOR REVIEW

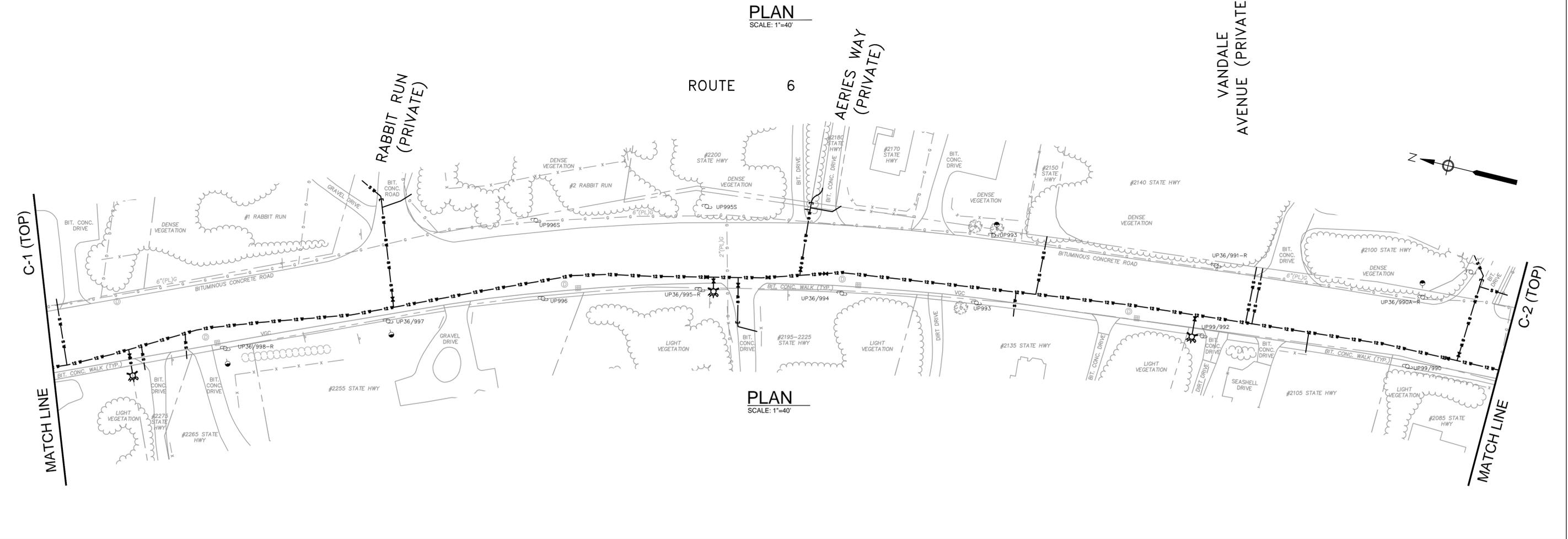
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**G-2**

Drawing file: I:\Eastham\217\Phase 1 - Eastham Water System\217-1401\_06 Contract 6 Phase 1\MM01 CAD\06 CONTRACT WATER DESIGN.dwg Plot Date: Nov 13, 2014 8:26am



PLAN  
SCALE: 1"=40'



PLAN  
SCALE: 1"=40'



Scale	1"=40'	
Date	OCTOBER 2014	
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CONTRACT 6  
WATER SYSTEM CONSTRUCTION  
EASTHAM, MASSACHUSETTS

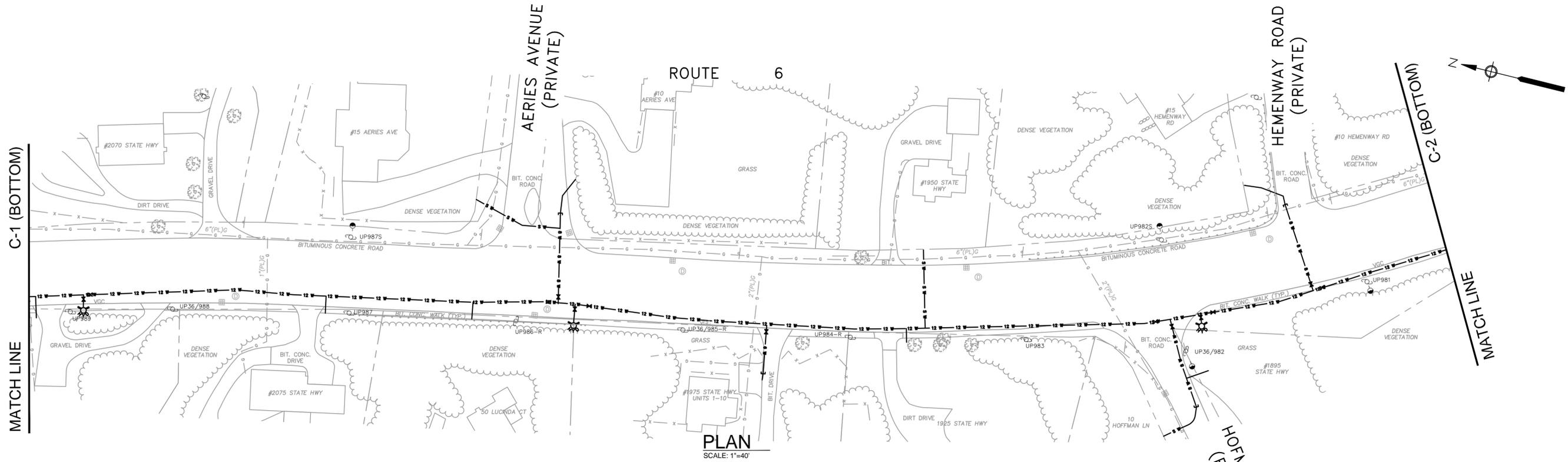
ROUTE 6 I

FOR REVIEW

Sheet No.

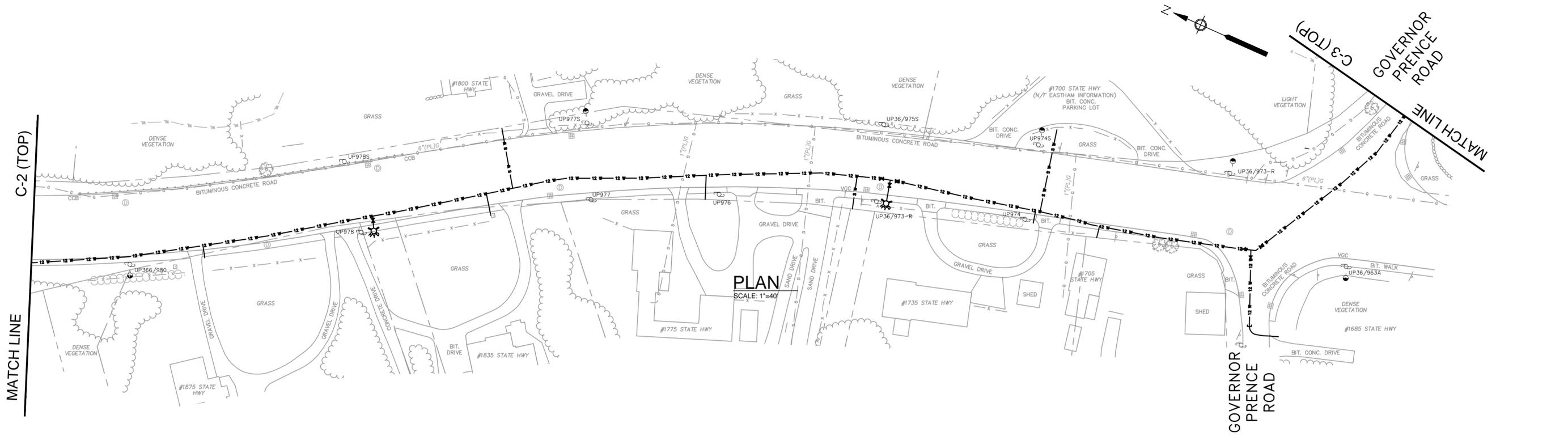
**C-1**

Drawing file: I:\Eastham Water System\217-1401\_06 Contract 6 Phase 1\MM01 CAD\06 CONTRACT WATER DESIGN\DWG Plot Date: Nov 13, 2014 8:28am



ROUTE 6

PLAN  
SCALE: 1"=40'



PLAN  
SCALE: 1"=40'



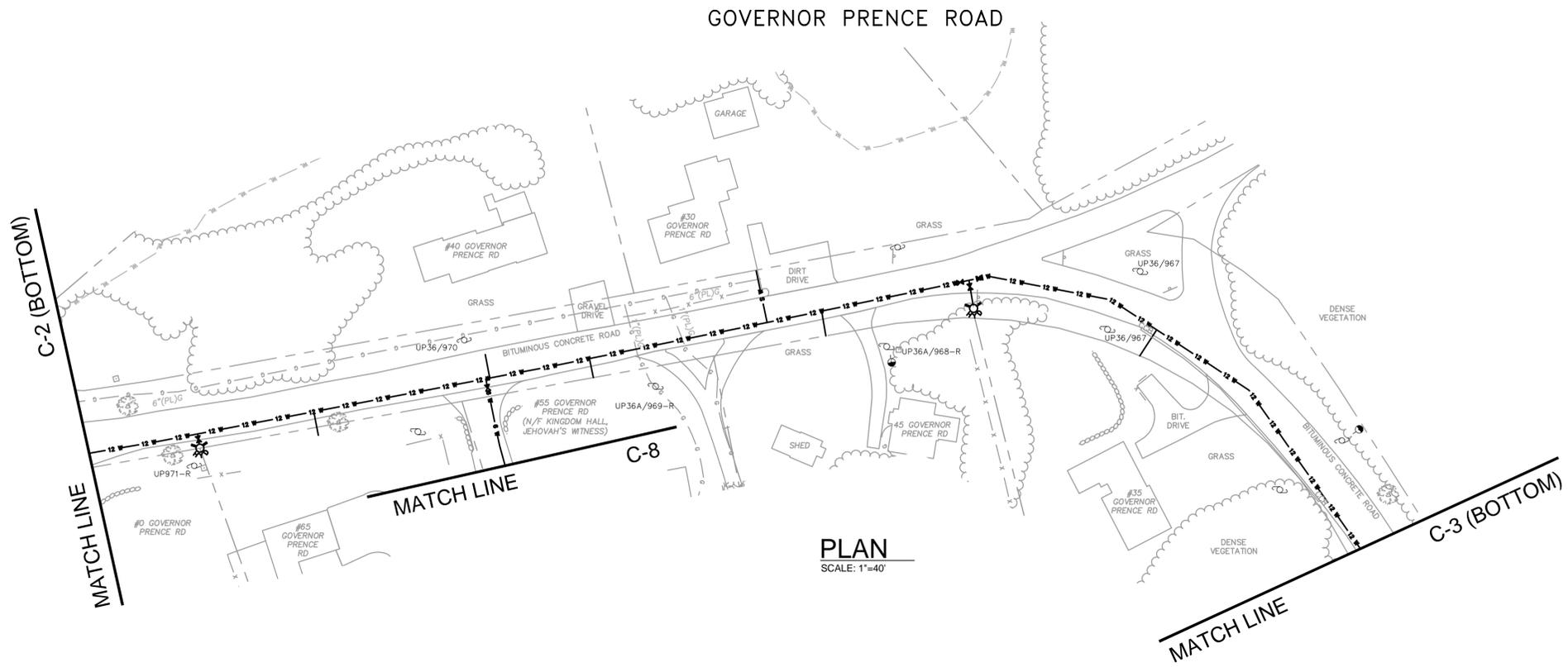
**Environmental Partners**  
GROUP  
*A partnership for engineering solutions.*

Scale	1"=40'	
Date	OCTOBER 2014	
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MARK	DATE	DESCRIPTION

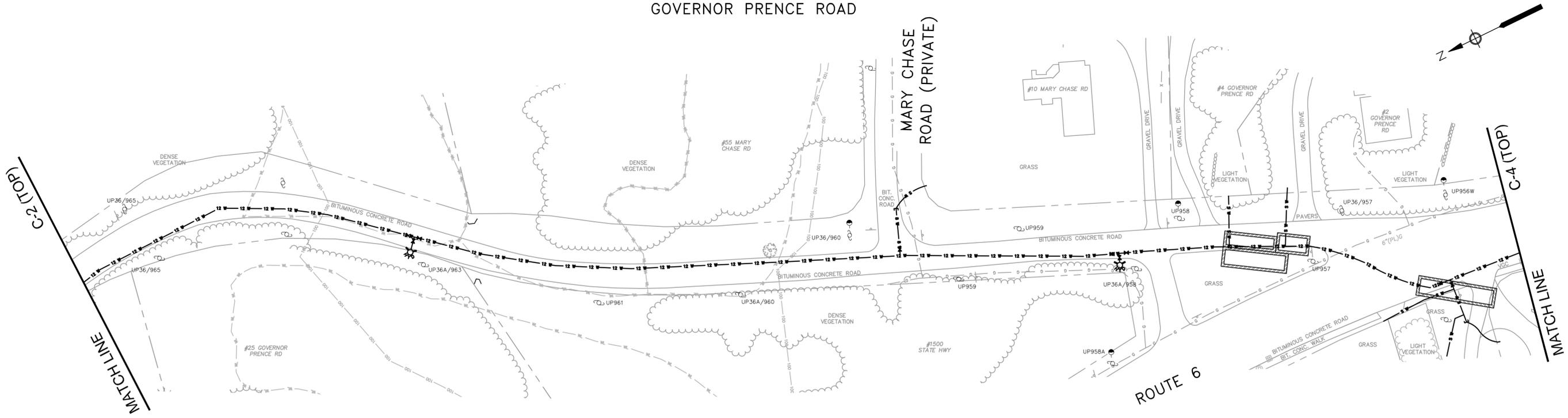
THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

CONTRACT 6  
WATER SYSTEM CONSTRUCTION  
EASTHAM, MASSACHUSETTS  
  
ROUTE 6 II

FOR REVIEW  
Sheet No.  
**C-2**



PLAN  
SCALE: 1"=40'



PLAN  
SCALE: 1"=40'

Drawing file: I:\Eastham\Water\System217-1401\_06 Contract 6 Phase 1\MM01 CAD\06 CONTRACT WATER DESIGN.dwg Plot Date: Nov 13, 2014 8:29am



Scale	1"=40'	
Date	OCTOBER 2014	
Job No.	217-1403	
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MARK	DATE	DESCRIPTION

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CONTRACT 6  
WATER SYSTEM CONSTRUCTION  
EASTHAM, MASSACHUSETTS

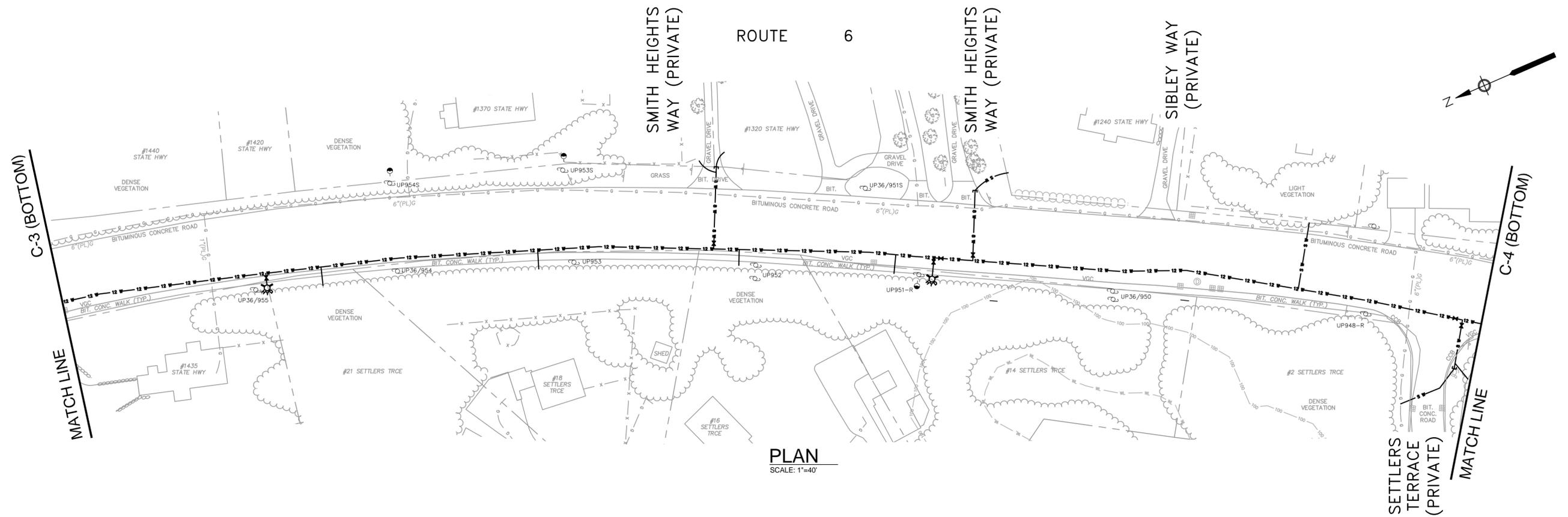
GOVERNOR PRENCE ROAD

FOR REVIEW

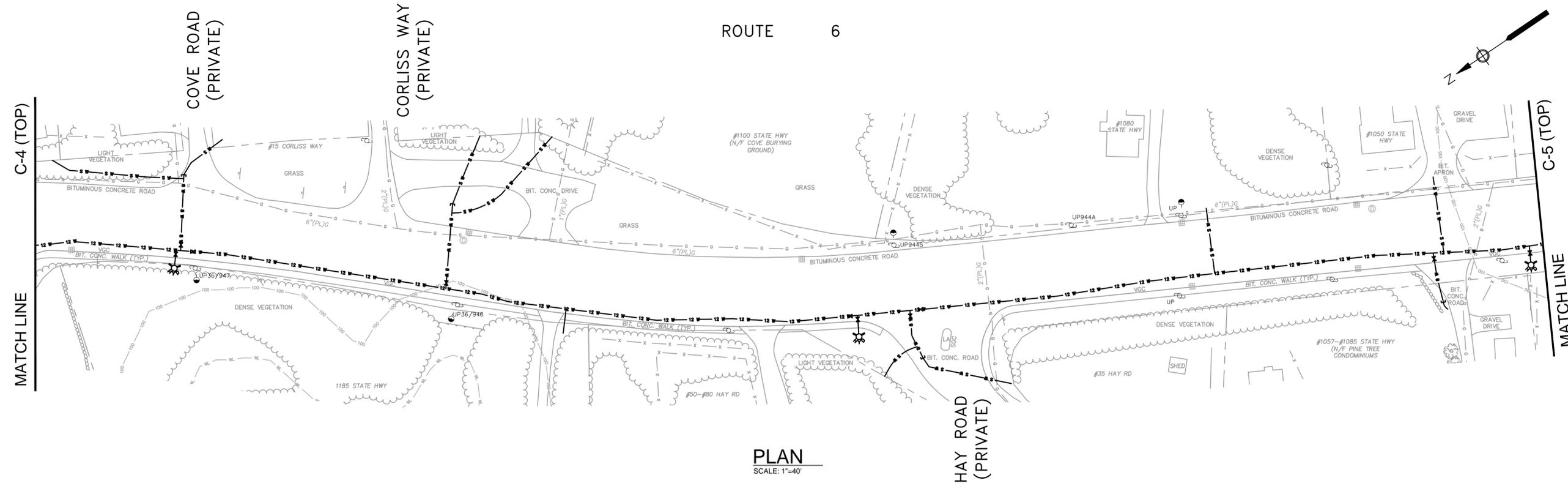
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C-3

Drawing file: I:\Eastham\217-1401\_06 Contract 6 Phase I - Eastham Water System\217-1401\_06 Contract 6 Phase I\WM01 CAD\06 CONTRACT WATER DESIGN.dwg Plot Date: Nov 13, 2014 8:31am



PLAN  
SCALE: 1"=40'



PLAN  
SCALE: 1"=40'



Scale	1"=40'	
Date	OCTOBER 2014	
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Approved by	PCM	
MARK	DATE	DESCRIPTION

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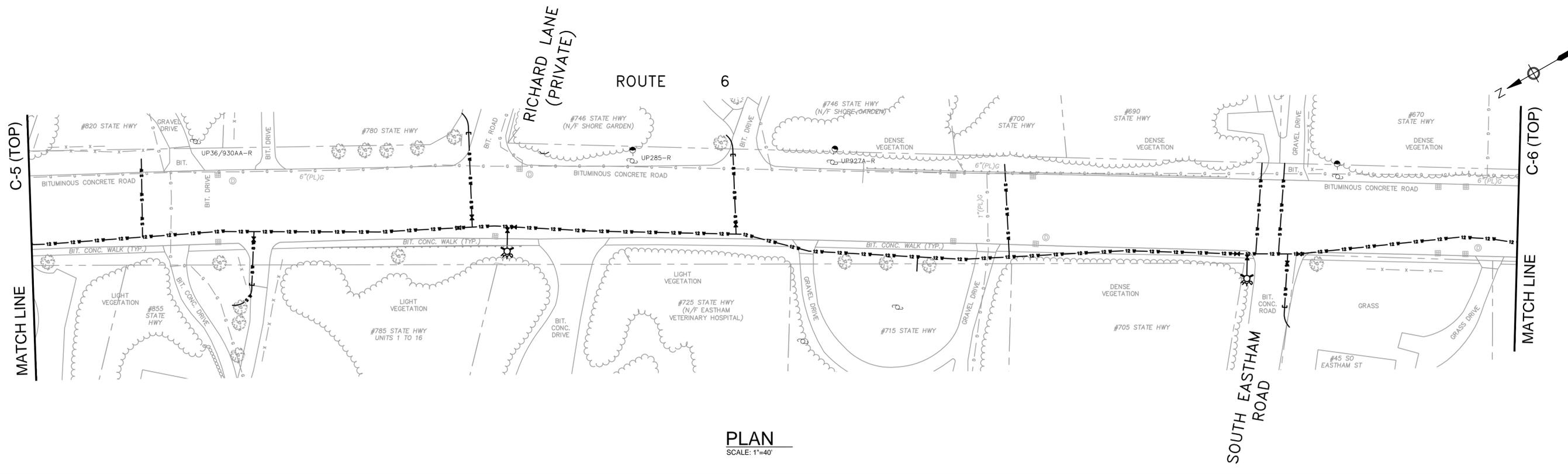
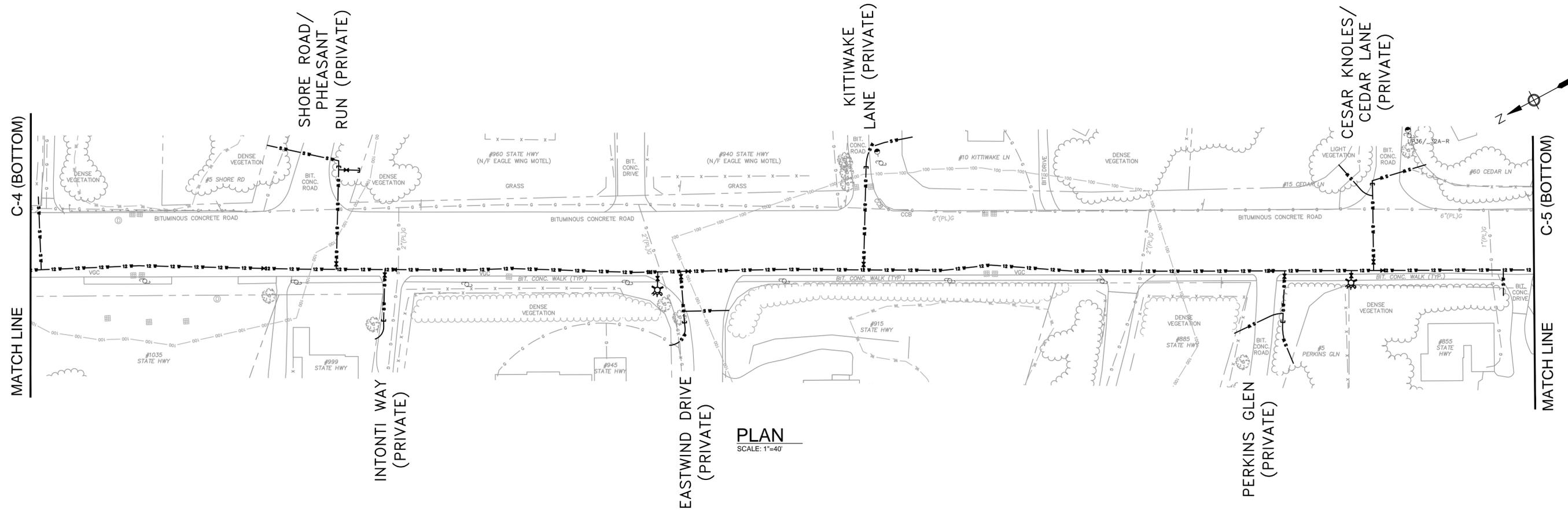
CONTRACT 6  
WATER SYSTEM CONSTRUCTION  
EASTHAM, MASSACHUSETTS

ROUTE 6 III

FOR REVIEW

Sheet No.

**C-4**



Drawing file: I:\Eastham 217\Phase 1 - Eastham Water System\217-1401\_06 Contract 6 Phase 1\MM01 CAD\06 CONTRACT WATER DESIGN.dwg Plot Date: Nov 13, 2014 8:33am



Scale	1"=40'	
Date	OCTOBER 2014	
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MARK	DATE	DESCRIPTION

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CONTRACT 6  
WATER SYSTEM CONSTRUCTION  
EASTHAM, MASSACHUSETTS

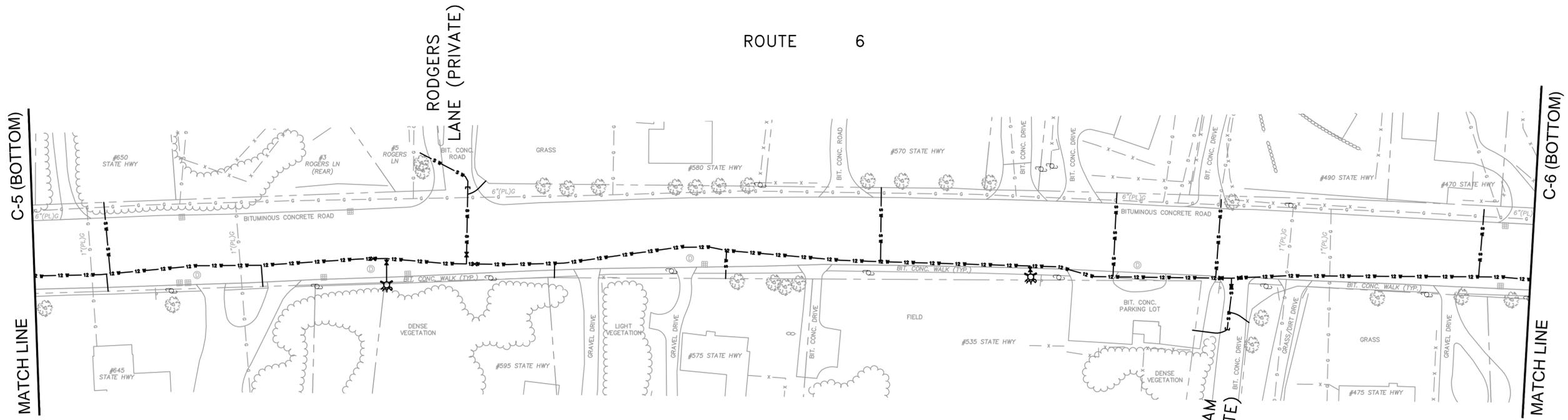
ROUTE 6 IV

FOR REVIEW

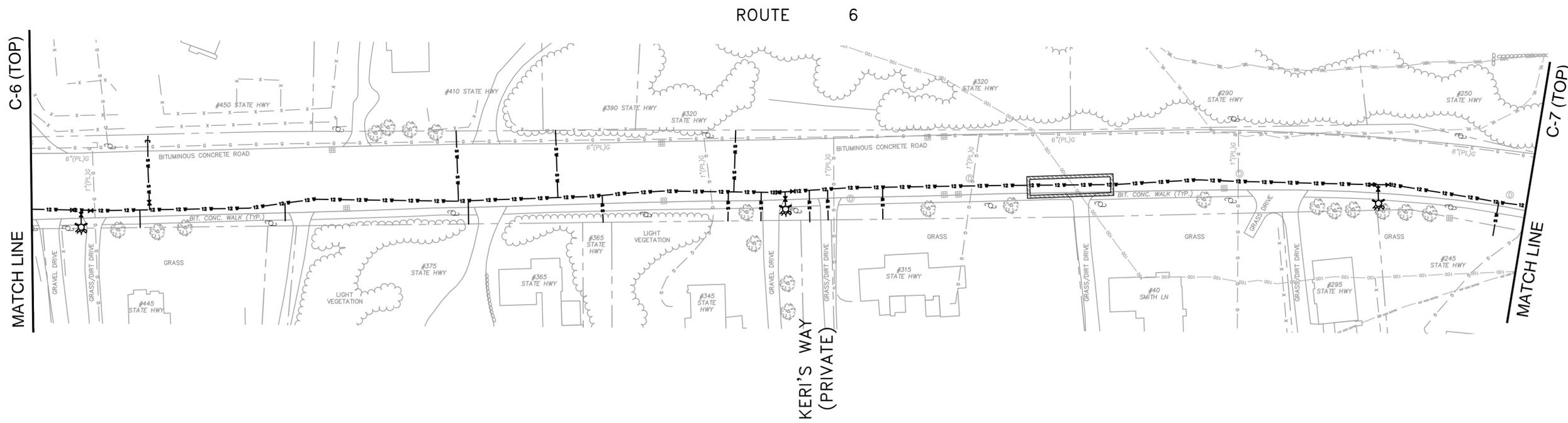
Sheet No.

**C-5**

Drawing file: I:\Eastham 217\Phase 1 - Eastham Water System\217-1401\_06 Contract 6 Phase 1\MM01 CAD\06 CONTRACT WATER DESIGN.dwg Plot Date: Nov 13, 2014 8:34am



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



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



MARK	DATE	DESCRIPTION

Scale	1"=40'
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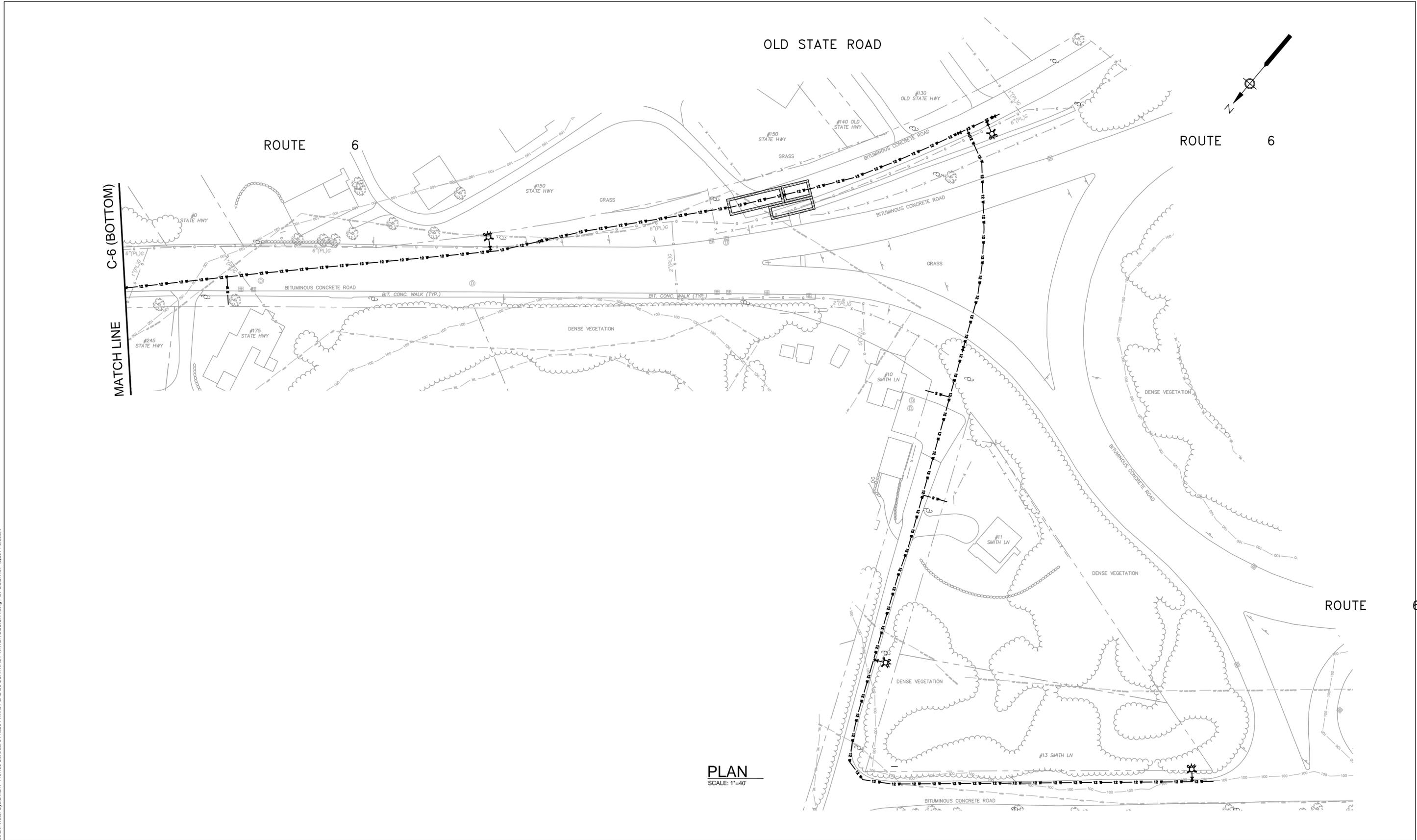
THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

**CONTRACT 6**  
**WATER SYSTEM CONSTRUCTION**  
**EASTHAM, MASSACHUSETTS**

ROUTE 6 V

FOR REVIEW
Sheet No.
<b>C-6</b>

Drawing file: I:\Eastham\217-1401\_06 Contract 6 Phase 1\MM01 CAD\06 CONTRACT WATER DESIGN I.dwg Plot Date: Nov 13, 2014 8:35am



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



MARK	DATE	DESCRIPTION

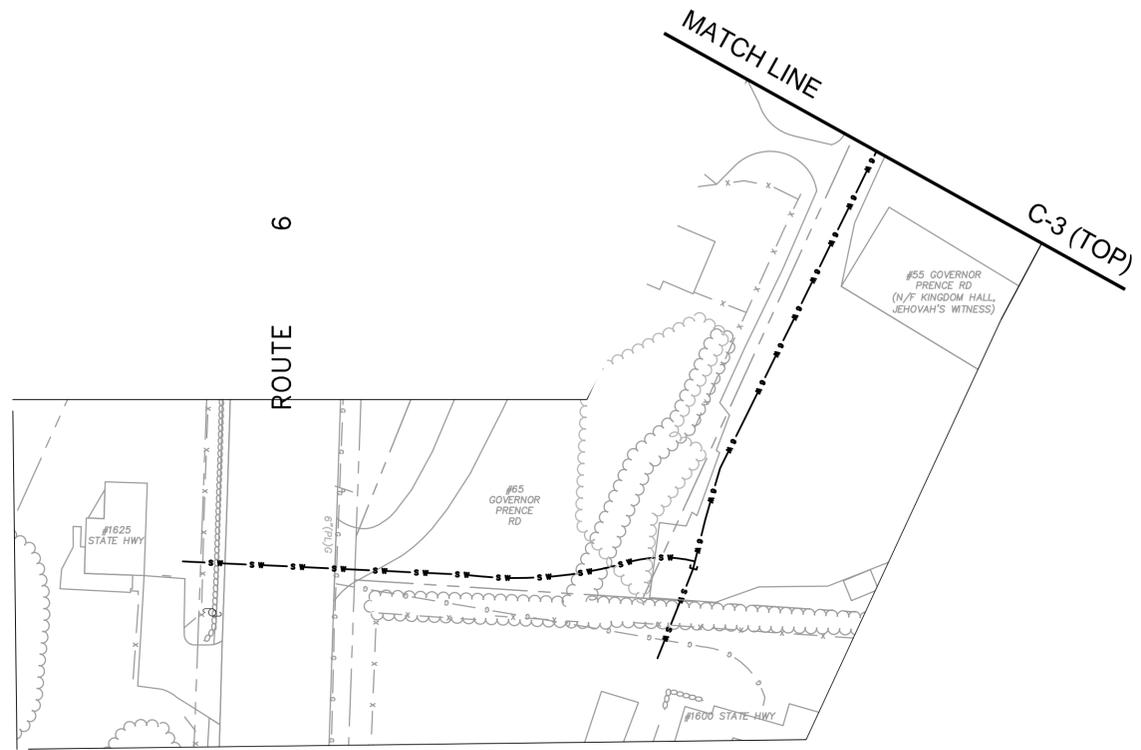
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Date	OCTOBER 2014
Job No.	217-1403
Designed by	GCS
Drawn by	CSC
Checked by	RJT
Approved by	PCM

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

**CONTRACT 6**  
**WATER SYSTEM CONSTRUCTION**  
**EASTHAM, MASSACHUSETTS**

ROUTE 6 VI

FOR REVIEW
Sheet No.
C-7



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

Drawing file: I:\Eastham Water System\217-1401-06 Contract 6 Phase 1\MM01 CAD\06 CONTRACT WATER DESIGN I.dwg Plot Date: Nov 13, 2014 8:38am



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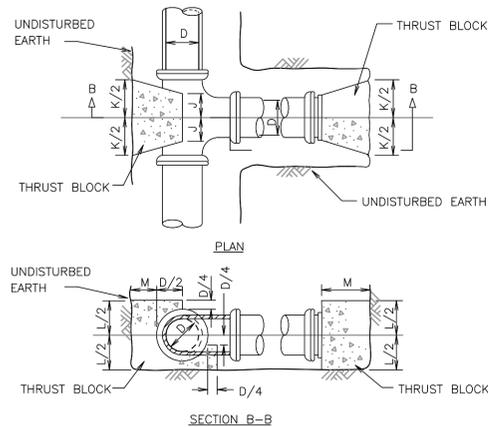
**CONTRACT 6**  
**WATER SYSTEM CONSTRUCTION**  
**EASTHAM, MASSACHUSETTS**

**EXTENDED SERVICE**

FOR REVIEW

Sheet No.

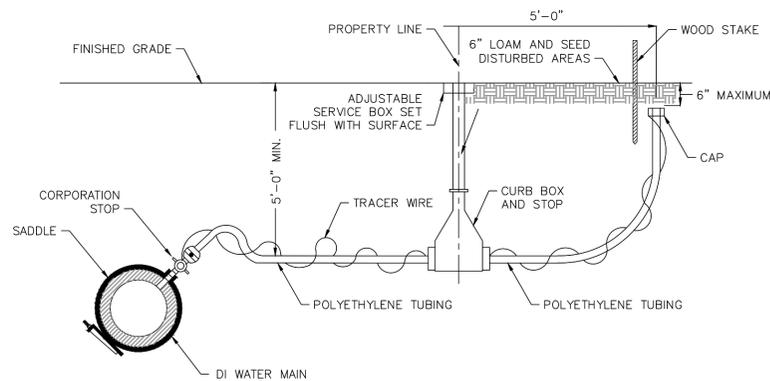
**C-8**



- NOTES:**
1. ALL CONCRETE SHALL BE 3000 PSI @ 28 DAYS (CLASS 'A' CONCRETE).
  2. DIMENSIONS SHOWN ARE MINIMUM AND ARE BASED UPON SOIL PRESSURE OF 1500 PSF AND TOTAL PRESSURE OF 250 PSI. TOTAL PRESSURE IS WORKING PRESSURE PLUS SURGE PRESSURE.
  3. THRUST BLOCKS SHALL BEAR AGAINST UNDISTURBED EARTH.

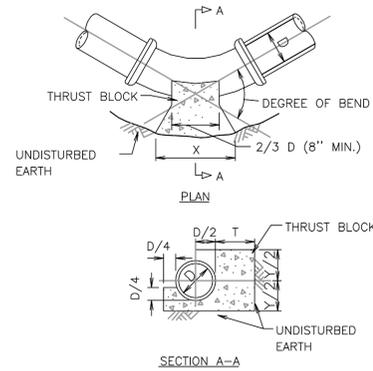
TABLE OF DIMENSIONS							
D (in)	4	6	8	10	12	14	16
J (in)	6	6	7	9	10	12	22
K (in)	16	16	20	26	32	36	64
L (in)	16	16	21	24	29	34	61
M (in)	11	11	14	16	19	22	39

**CONCRETE THRUST BLOCK DETAIL AT TEE / PLUG**  
SCALE: N.T.S.



- NOTES:**
1. ALL 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.

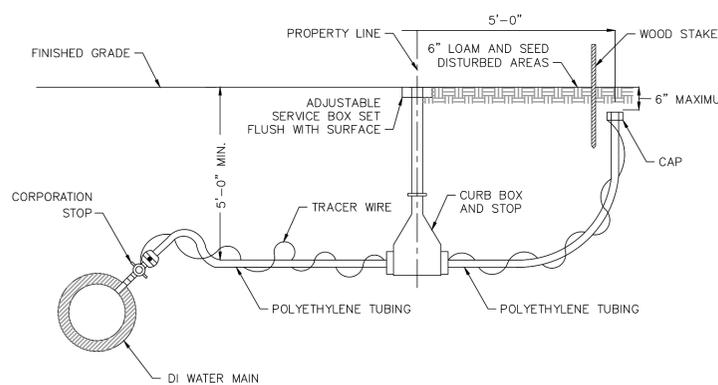
**TYPICAL SERVICE CONNECTION PVC WATER MAINS**  
SCALE: N.T.S.



- NOTES:**
1. ALL CONCRETE SHALL BE 3000 P.S.I. @ 28 DAYS (CLASS "A" CONCRETE)
  2. DIMENSIONS SHOWN ARE MINIMUM AND ARE BASED UPON SOIL PRESSURE OF 1500 P.S.F. AND TOTAL PRESSURE OF 250 P.S.I. TOTAL PRESSURE IS WORKING PRESSURE PLUS SURGE PRESSURE.
  3. THRUST BLOCKS SHALL BEAR AGAINST UNDISTURBED EARTH.

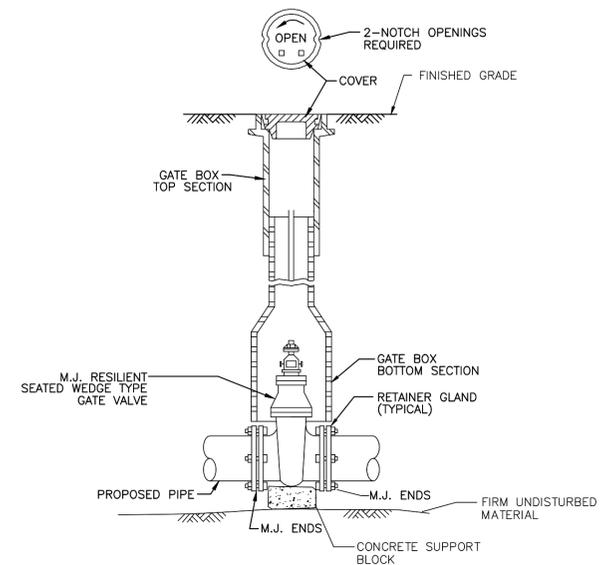
TABLE OF DIMENSIONS																
DIMENSION	90° BEND				45° BEND				22 1/2° BEND				11 1/4° BEND			
D (in.)	4	6	8	10	4	6	8	10	4	6	8	10	4	6	8	10
X (in.)	35	35	50	56	72	80	142	24	24	35	45	51	60	107	28	28
Y (in.)	20	20	24	32	35	40	71	16	19	21	27	33	59	13	13	16
T (in.)	11	11	14	16	19	22	39	11	14	16	19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

**CONCRETE THRUST BLOCK DETAIL AT BEND**  
SCALE: N.T.S.

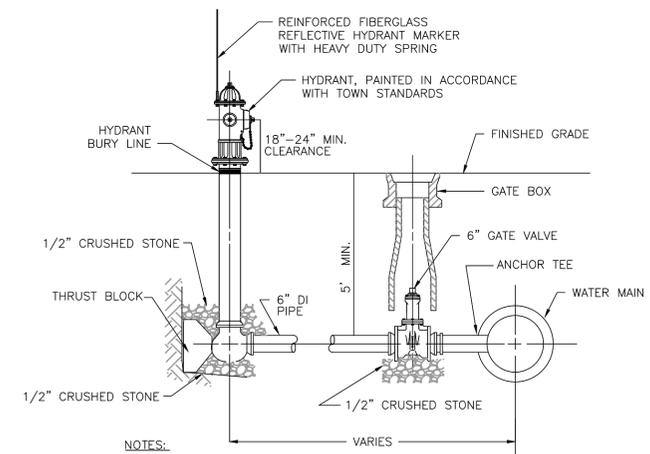


- NOTES:**
1. ALL JOINTS SHALL BE COMPRESSION TYPE.
  2. PE OR COPPER TUBING SHALL BE BACKFILLED WITH SAND BY HAND TO 1-FOOT ABOVE TUBING.
  3. CORPORATION STOPS LARGER THAN ONE INCH SHALL HAVE A SADDLE.
  4. WATER SERVICES SHALL BE INSULATED IN AREAS WHERE CONNECTION TO EXISTING WATER SERVICE IS LESS THAN 4 FEET.

**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: \\E:\erham\217\Phase 1 - Eastham Water System\217-1401\_06 Contract 6 Phase 1\W001 CAD\06 CONTRACT WATER DESIGN I.dwg Plot Date: Nov 13, 2014 8:38am



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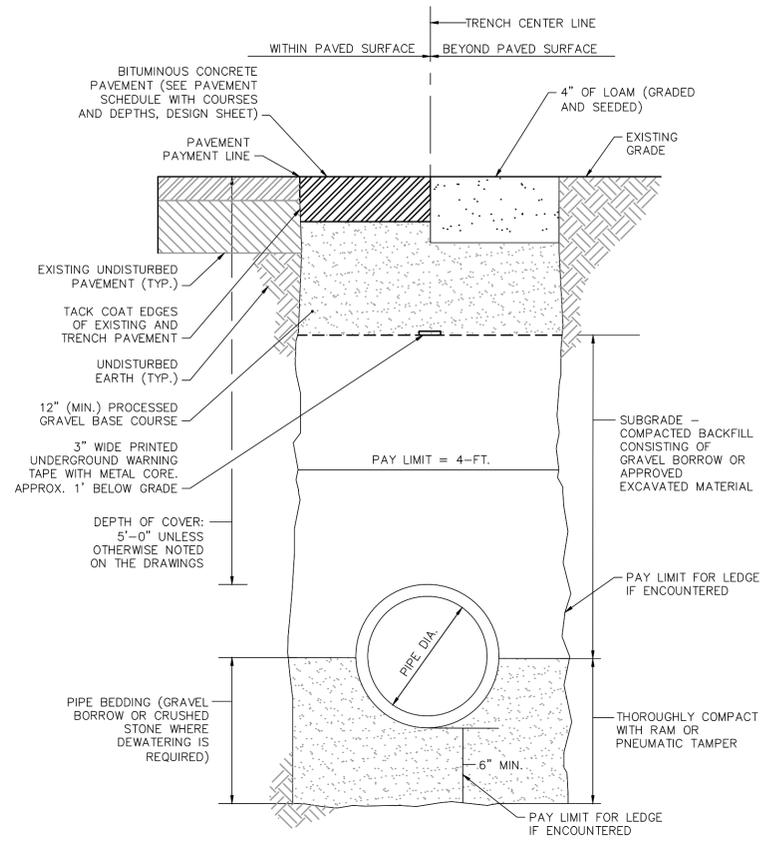
CONTRACT 6  
WATER SYSTEM CONSTRUCTION  
EASTHAM, MASSACHUSETTS

CONSTRUCTION DETAILS I

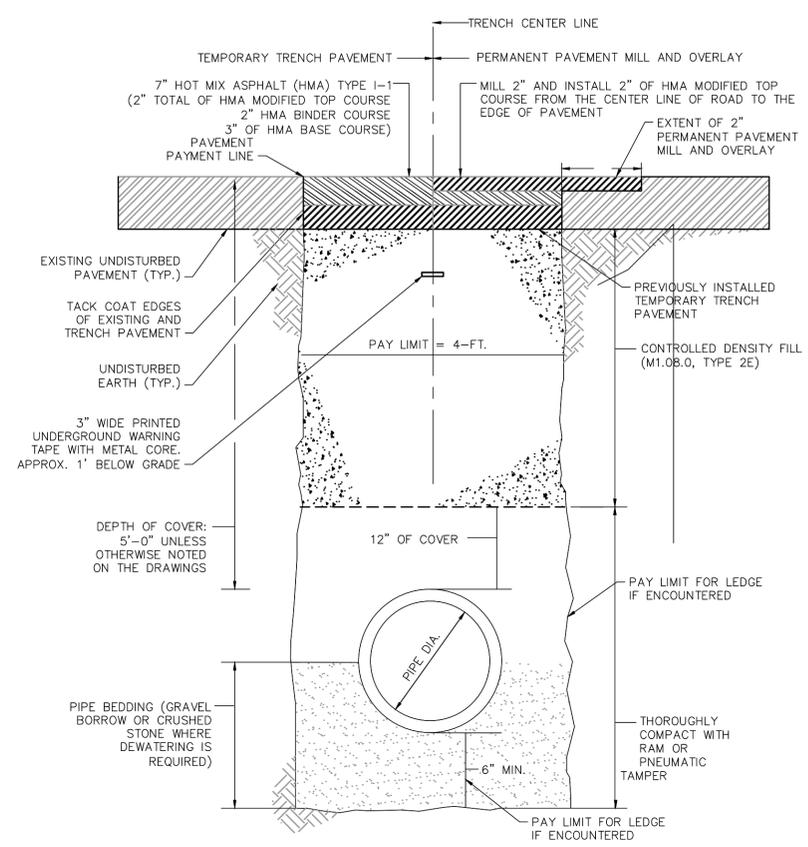
FOR REVIEW

Sheet No.

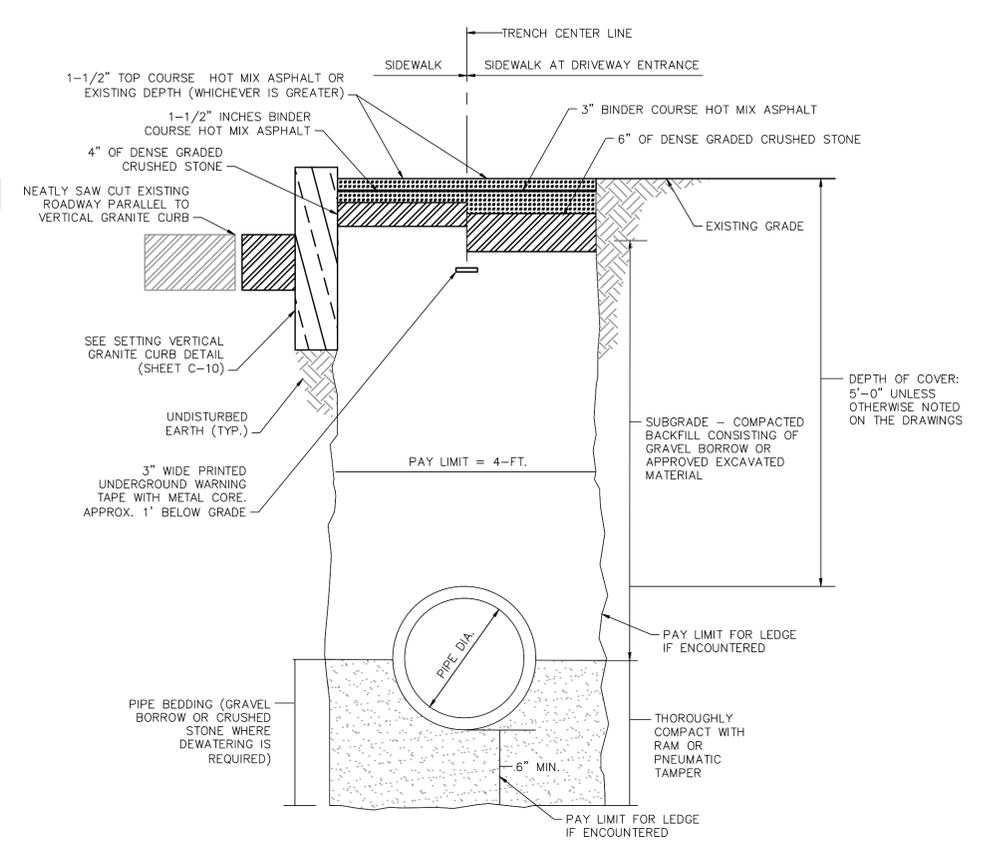
CD-1



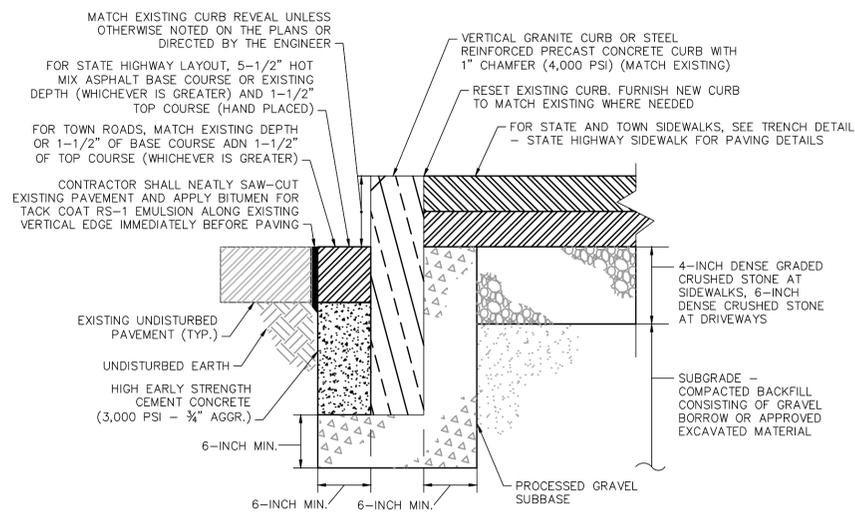
**TRENCH DETAIL 1 - TOWN RIGHT-OF-WAY AND PRIVATE WAYS**  
SCALE: N.T.S.



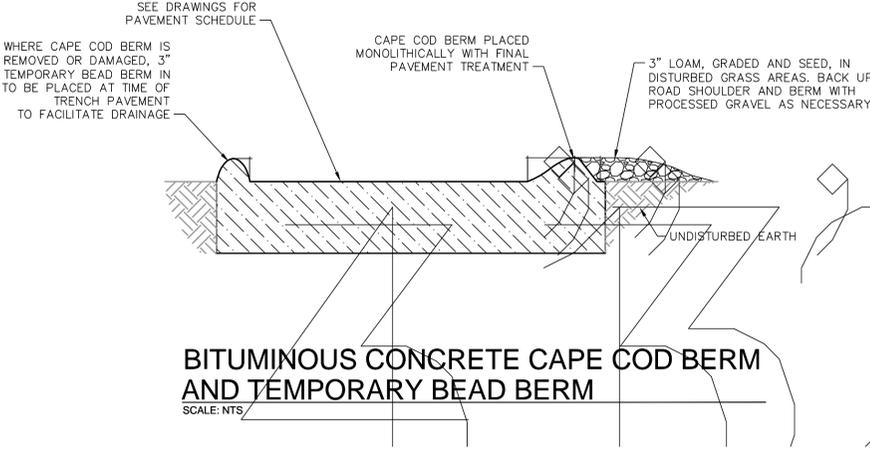
**TRENCH DETAIL 2 - STATE HIGHWAY LAYOUT (WITHIN TRAVEL LANE)**  
SCALE: N.T.S.



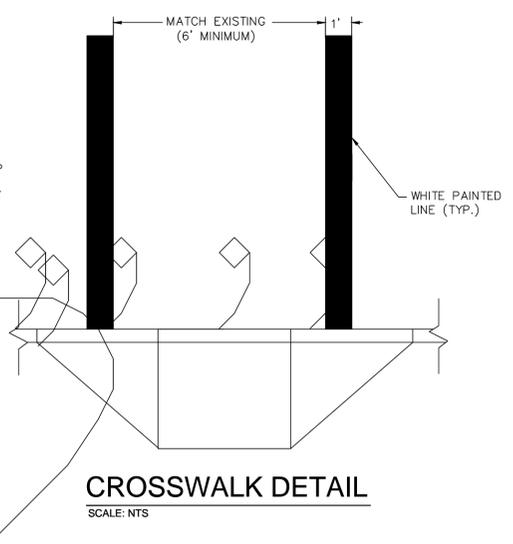
**TRENCH DETAIL 3 - STATE HIGHWAY LAYOUT (WITHIN SIDEWALK)**  
SCALE: N.T.S.



**SETTING VERTICAL GRANITE CURB DETAIL**  
SCALE: N.T.S.



**BITUMINOUS CONCRETE CAPE COD BERM AND TEMPORARY BEAD BERM**  
SCALE: N.T.S.



**CROSSWALK 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.

Drawing file: \\Eastham-Water-System\217-1401\_06 Contract 6 Phase 1\MM01 CAD\06 CONTRACT WATER DESIGN I.dwg Plot Date: Nov 13, 2014 8:37am



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CONTRACT 6  
WATER SYSTEM CONSTRUCTION  
EASTHAM, MASSACHUSETTS

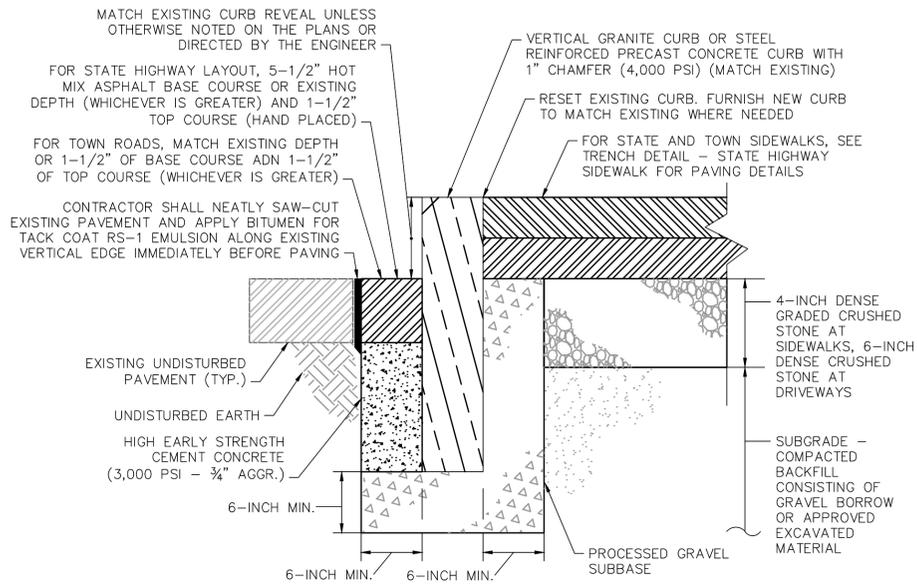
CONSTRUCTION DETAILS II

FOR REVIEW

Sheet No.

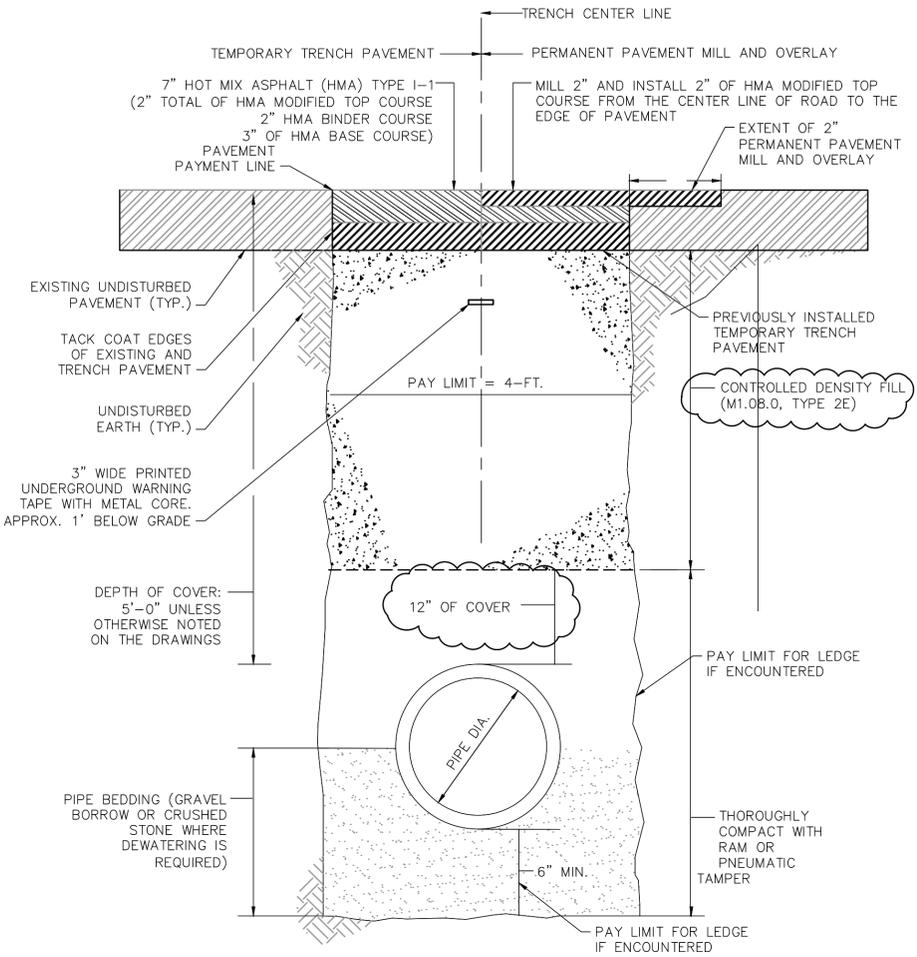
**CD-2**

Drawing file: \\Eastham\217\Phase 1 - Eastham Water System\217-1401\_06 Contract 6 Phase 1\MM01 CAD\06 CONTRACT WATER DESIGN I.dwg Plot Date: Nov 13, 2014 8:37am



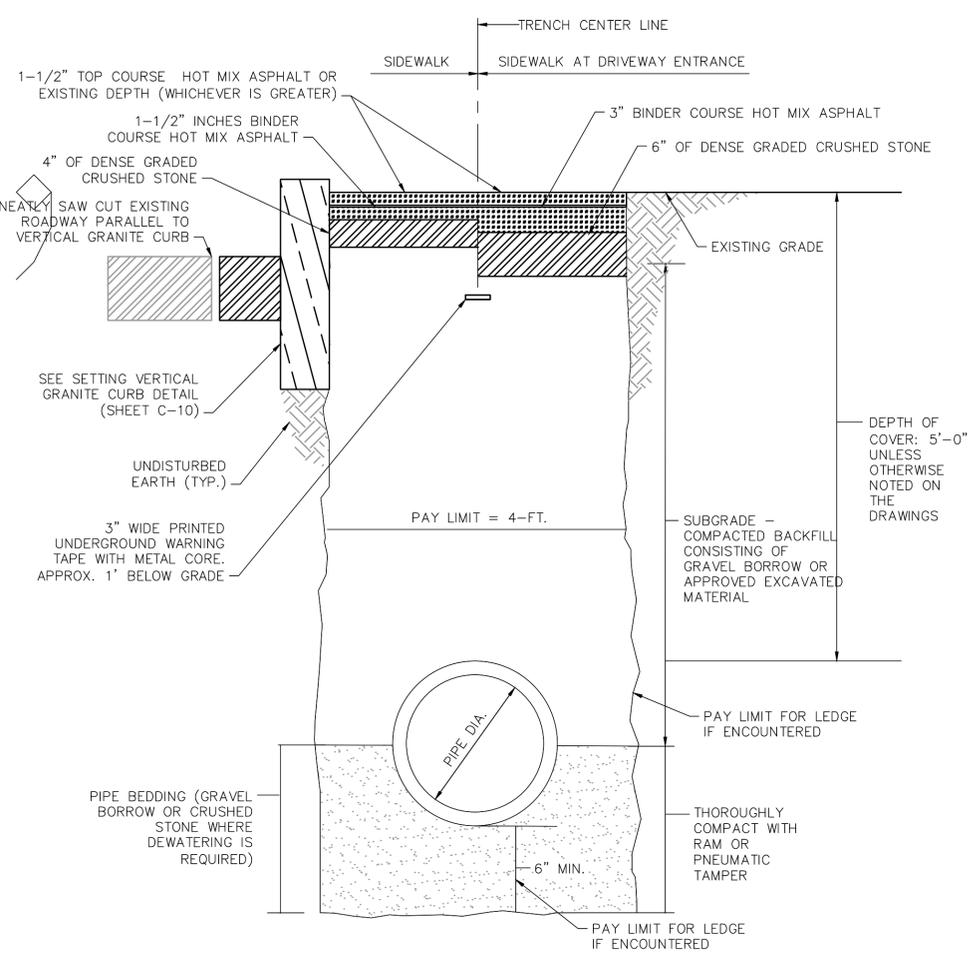
**SETTING VERTICAL GRANITE CURB DETAIL**

SCALE: NTS



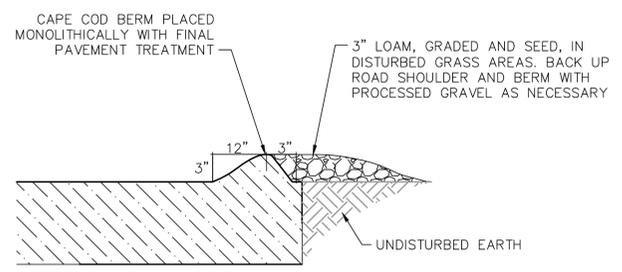
**TRENCH DETAIL 2 - STATE HIGHWAY LAYOUT (WITHIN TRAVEL LANE)**

SCALE: N.T.S.



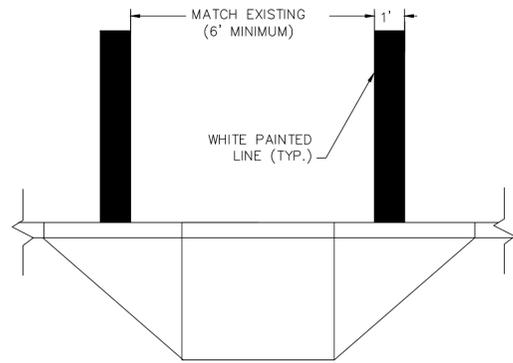
**TRENCH DETAIL 3 - STATE HIGHWAY LAYOUT (WITHIN SIDEWALK)**

SCALE: N.T.S.



**BITUMINOUS CONCRETE CAPE COD BERM**

SCALE: NTS



**CROSSWALK DETAIL**

SCALE: NTS

- 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.



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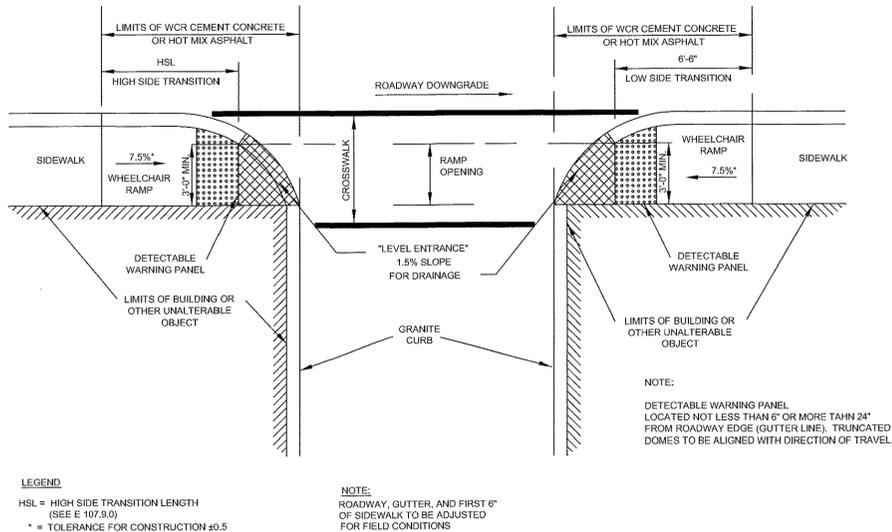
CONTRACT 6  
WATER SYSTEM CONSTRUCTION  
EASTHAM, MASSACHUSETTS

CONSTRUCTION DETAILS III

FOR REVIEW

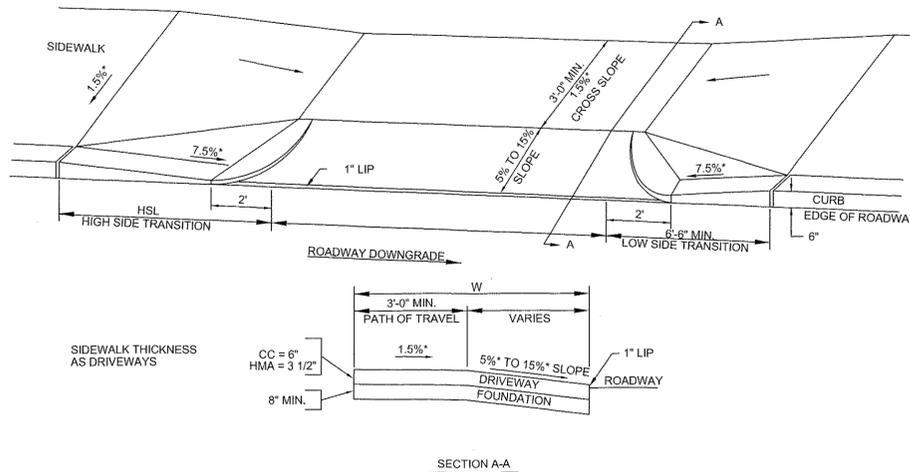
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CD-3



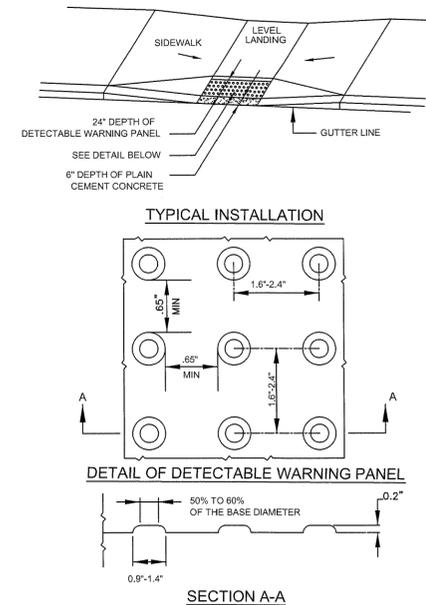
**WHEELCHAIR RAMP FOR ONE CONTINUOUS DIRECTION OF PEDESTRIAN TRAVEL**

SCALE: NTS



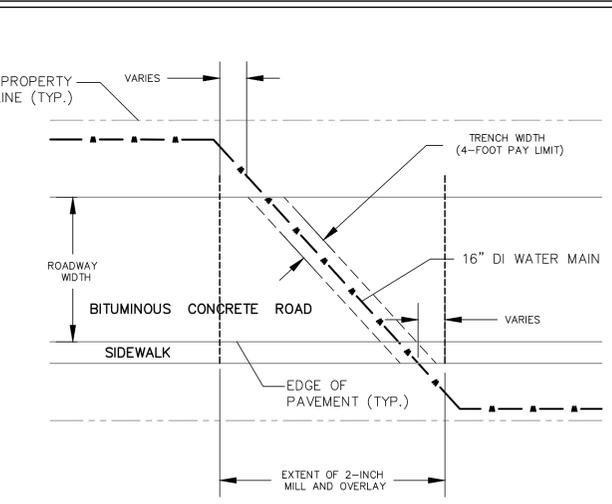
**SIDEWALK THROUGH DRIVEWAYS WITH CURB RETURNS - 2' CURB CORNERS**

SCALE: NTS



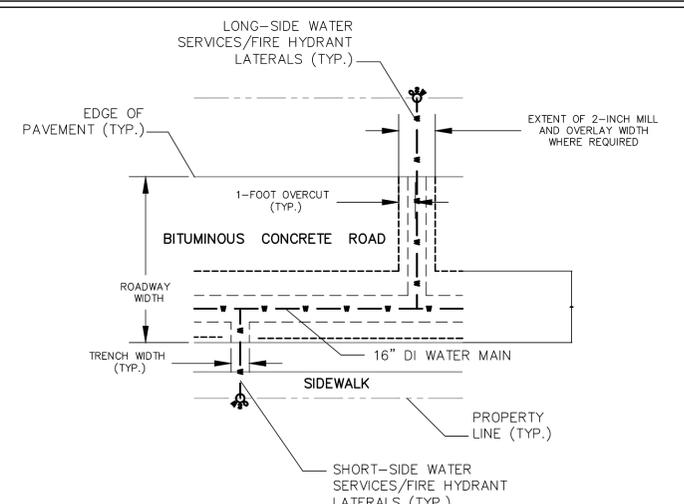
**DETECTABLE WARNING PANEL FOR WHEELCHAIR RAMPS**

SCALE: NTS



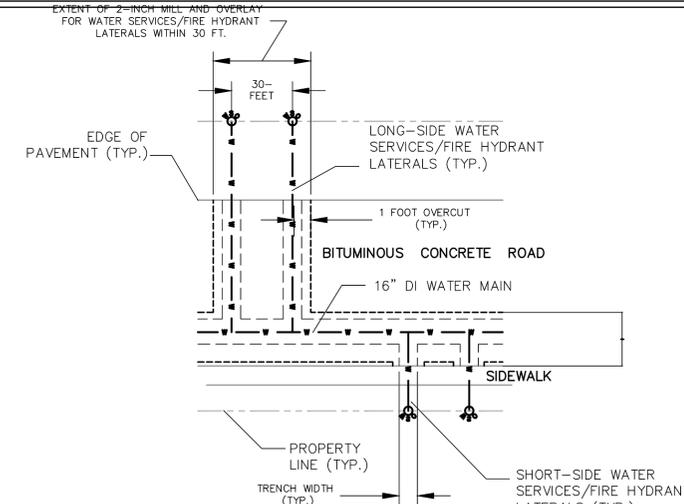
**WATER MAIN CROSSING STATE HIGHWAY TRAVEL LANE**

SCALE: NTS



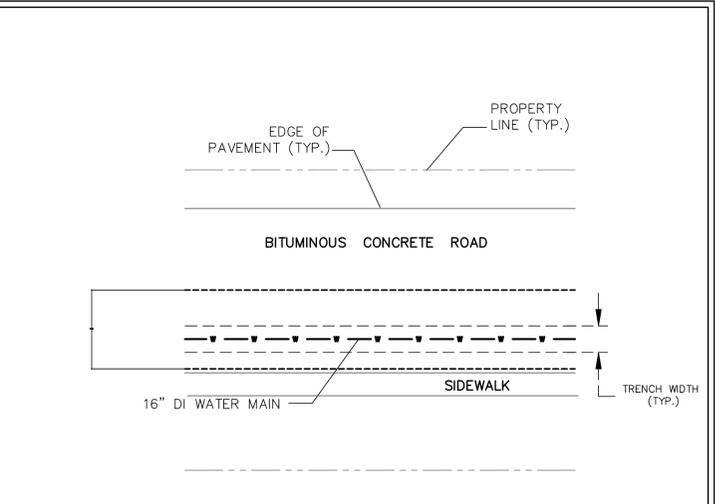
**SINGLE SHORT- AND LONG-SIDE WATER SERVICES AND HYDRANT LATERALS**

SCALE: NTS



**MULTIPLE SHORT- AND LONG-SIDE WATER SERVICES AND HYDRANT LATERALS WITHIN 30 FT**

SCALE: NTS



**WATER MAIN ALONG STATE HIGHWAY TRAVEL LANE**

SCALE: NTS

**PERMANENT PAVEMENT RESTORATION DETAILS  
WORK WITHIN STATE HIGHWAY LAYOUT TRAVEL LANES**

- PERMANENT PAVEMENT OVERLAY IN STATE HIGHWAY TRAVEL LANES NOTES:
1. REFER TO TRENCH DETAILS, SHEET G-2, FOR TRENCH DETAILS.
  2. LIMITS OF MILL & OVERLAY SHALL BE AT THE DISCRETION OF THE ENGINEER OR DOT INSPECTOR.
  3. MILL & OVERLAY 2" DEPTH FROM EDGE OF TRAVEL LANE TO EDGE OF SHOULDER.
  4. ALL PERMANENT PAVEMENT JOINTS WITHIN STATE TRAVEL LANES SHALL BE EITHER PERPENDICULAR OR PARALLEL TO TRAFFIC.

Drawing file: \\Eastham\Water System\217-1401\_06 Contract 6 Phase 1\MM01 CAD\06 CONTRACT WATER DESIGN\1.dwg Plot Date: Nov 13, 2014 8:38am



MARK	DATE	DESCRIPTION

Scale	1"=40'
Date	OCTOBER 2014
Job No.	217-1403
Designed by	GCS
Drawn by	CSC
Checked by	RJT
Approved by	PCM

CONTRACT 6  
WATER SYSTEM CONSTRUCTION  
EASTHAM, MASSACHUSETTS

CONSTRUCTION DETAILS IV

FOR REVIEW

Sheet No.

**CD-4**