

ROADWAY IMPROVEMENT PROJECT

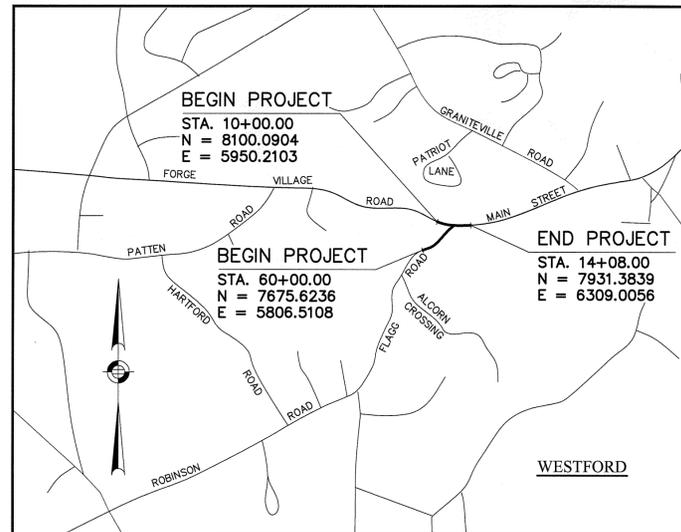
~ PREPARED FOR ~

TOWN OF WESTFORD

FORGE VILLAGE ROAD, MAIN STREET & FLAGG ROAD
WESTFORD, MASSACHUSETTS

INDEX TO PLAN SET

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DESIGN DESIGNATION

	FORGE VILLAGE RD/MAIN ST.	FLAGG ROAD
FUNCTIONAL CLASS	URBAN MINOR ARTERIALS	LOCAL ROAD
DESIGN SPEED	30 MPH	< 30 MPH
ADT (2001)	3,921*	NOT AVAILABLE

* SOURCE: PATTEN ROAD/FORGE VILLAGE ROAD/ROUTE 225 - WESTFORD TRAFFIC AND CIRCULATION STUDY PREPARED BY THE NORTHERN MIDDLESEX COUNCIL OF GOVERNMENTS (NMCOG).

FORGE VILLAGE/MAIN STREET: LENGTH OF PROJECT = 408.00 FEET = 0.077 MILE
FLAGG ROAD: LENGTH OF PROJECT = 455.38 FEET = 0.086 MILE

DATE: JUNE 15, 2012

QUALITY CONTROL CERTIFICATION		
GROUP	REVIEWED	DATE
PROJECT MANAGER	CLR	6-15-12
SURVEY		
ENVIRONMENTAL		
CIVIL	SKL	6-15-12
STRUCTURAL	RRR	6-15-12
ARCHITECTURAL		



CME Associates, Inc.

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50 Elm Street, Southbridge, MA 01550 www.cmeengineering.com

CME PROJECT #2007251

GENERAL SYMBOLS

EXISTING PROPOSED

		APPROXIMATE PROPERTY LINE
		APPROXIMATE SLOPE LIMITS
		CATCH BASIN
		CONSTRUCTION BASELINE 10+00 587.90' +25 N 13°08'04" W
		DRAINAGE MANHOLE
		DRAIN PIPE
		EASEMENT LINE (TYPE NOTED)
		EDGE OF PAVEMENT
		GAS MAIN (SIZE AS NOTED)
		GUARD RAIL (TYPE NOTED)
		GUY WIRE ANCHOR
		HIGHWAY / PROPERTY BOUND (TYPE NOTED)
		STONE WALL
		TREE (SIZE AND TYPE NOTED)
		TREE LINE
		UTILITY POLE
		WATER MAIN (SIZE AS NOTED)
		BOUNDARY POINT
		DRILL HOLE
		SPOT ELEVATIONS

SIGNING SYMBOLS

EXISTING PROPOSED

		SIGN AND POST
--	--	---------------

ENVIRONMENTAL SYMBOLS

SYMBOL	DEFINITION
	BORDERING VEGETATED WETLAND (BVW)
	HAYBALE BARRIER
	ORDINARY HIGH WATER
	SILT FENCE WITH COMPOST FILTER TUBE (STRAW WATTLES)

ABBREVIATIONS

GENERAL

ADT	AVERAGE DAILY TRAFFIC	N/F	NOW OR FORMERLY
APPROX.	APPROXIMATE	N.T.S.	NOT TO SCALE
BIT.	BITUMINOUS	OHW	ORDINARY HIGH WATER
BL	BASELINE	P.C.	POINT OF CURVATURE
B.O.	BY OTHERS	P.G.L.	PROFILE GRADE LINE
CEM.	CEMENT	P.I.	POINT OF INTERSECTION
CL	CENTERLINE	PL	PROPERTY LINE
CONC	CONCRETE	PROP.	PROPOSED
CONST.	CONSTRUCTION	P.T.	POINT OF TANGENCY
Δ	CENTRAL ANGLE	P.V.I.	POINT OF VERTICAL INTERSECTION
E	EASTING	P.V.C.	POINT OF VERTICAL CURVATURE
EASMNT.	EASEMENT	PVMT.	PAVEMENT
EOG	EDGE OF GRAVEL	P.V.T.	POINT OF VERTICAL TANGENCY
EOP	EDGE OF PAVEMENT	R	RADIUS
EOW	EDGE OF WATER	R.C.	REINFORCED CONCRETE
ELEV. OR EL	ELEVATION	R&D	REMOVE AND DISCARD
EXIST (OR EX.)	EXISTING	REM.	REMOVE
GD	GUARD	RET.	RETAIN
GWA	GUY WIRE ANCHOR	R&R	REMOVE AND RESET
HMA	HOT MIX ASPHALT	R&S	REMOVE AND STACK
IP	IRON PIN	RT.	RIGHT
L	LENGTH	S	SLOPE
LT.	LEFT	STA.	STATION
MAX.	MAXIMUM	T	TANGENT
MHB	MASSACHUSETTS HIGHWAY BOUND	TYP.	TYPICAL
MIN.	MINIMUM	WV	WATER VALVE
N	NORTHING	W WALL	WING WALL

UTILITIES

CB	CATCH BASIN	INV OR I	INVERT ELEVATION
CI	CAST IRON	LP	LIGHT POLE
D	DRAINAGE	LPDL	LIGHT POLE W/DOUBLE LIGHT
DI	DRAINAGE INLET	OH	OVERHEAD WIRE
EHH	ELECTRIC HANDHOLE	RIM OR TOP	RIM ELEVATION
EMH	ELECTRIC MANHOLE	UP	UTILITY POLE

GENERAL NOTES

- THE BEARINGS DEPICTED HEREON ARE BASED ON THE 1896 COUNTY LAYOUT.
- THE VERTICAL DATUM IS ASSUMED.
- OWNERSHIP AND DEED INFORMATION SHOWN HEREON WAS OBTAINED FROM THE TOWN OF WESTFORD ASSESSORS OFFICE AND WAS CURRENT AS OF OCTOBER, 2007.
- THE PROPERTY LINES SHOWN HEREON ARE APPROXIMATE ONLY AND ARE BASED UPON RECORD DEEDS, PLANS, AND ASSESSORS INFORMATION SUPPLIED FOR THIS PROJECT.
- FIELD SURVEY PROVIDED BY CME ASSOCIATES, INC. REFER TO PLAN "ROADWAY IMPROVEMENT PLAN PREPARED FOR TOWN OF WESTFORD FORGE VILLAGE ROAD, MAIN STREET & FLAGG ROAD WESTFORD, MASSACHUSETTS EXISTING CONDITIONS, SCALE: 1"=40', DATE: OCTOBER 22, 2007, LATEST REVISION".
- THE TERM "PROPOSED" (PROP.) MEANS WORK TO BE CONSTRUCTED HEREIN USING NEW MATERIALS OR WHERE APPLICABLE, REUSING EXISTING MATERIALS IDENTIFIED AS "REMOVE AND RESET" (R&R). ALL OTHER MATERIALS SHALL BE "REMOVED AND STACKED" (R&S) OR DISPOSED OF OFF SITE.
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT LOCATION OF ANY AND ALL EXISTING UTILITIES WITHIN THE PROJECT AREA PRIOR TO THE START OF CONSTRUCTION. CALL "DIG SAFE" 1-888-344-7233 AND ALL LOCAL UTILITIES 72 HOURS PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITY.
- SHOULD AN EXISTING UTILITY BE FOUND TO BE IN CONFLICT WITH THE PROPOSED WORK, THE LOCATION, SIZE AND TYPE SHALL BE ACCURATELY DETERMINED WITHOUT DELAY, BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.
- THE CONTRACTOR SHALL COORDINATE ALL ARRANGEMENTS FOR THE ALTERATION AND/OR ADJUSTMENT OF CABLE, ELECTRIC, GAS, WATER, TELEPHONE AND ANY OTHER PRIVATE UTILITIES THROUGH THE VARIOUS UTILITY COMPANIES AND TOWN UTILITY DEPARTMENTS.
- THE CONTRACTOR IS HEREBY NOTIFIED THAT ADDITIONAL WORK WITHIN THE PROJECT LIMITS MAY BE PERFORMED BY OTHERS. RELOCATION OF UTILITY POLES TO BE NON-PARTICIPATING WORK.
- TREES AND SHRUBS WITHIN THE LIMITS OF WORK NOT SCHEDULED FOR REMOVAL AS INDICATED ON THE PLANS SHALL ONLY BE TRIMMED OR REMOVED UPON APPROVAL OF THE ENGINEER.
- AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED, BY THE CONTRACTOR, TO THEIR ORIGINAL CONDITION, AT THE CONTRACTOR'S EXPENSE.
- THE CONTRACTOR SHALL PROVIDE EROSION PROTECTION AND SILTATION BARRIERS TO PROTECT ALL WORK IN WETLANDS AND IN THE WETLAND BUFFER ZONES. BARRIERS ARE TO BE PLACED AS SHOWN ON THE PLANS AND AS REQUIRED OR DIRECTED BY THE ENGINEER.
- ALL PROPOSED DRAINAGE STRUCTURE RIM ELEVATIONS AND PIPE INVERTS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL CONFORM TO ALL STANDARD REQUIREMENTS RELATED TO THE LATEST MASSDOT CONSTRUCTION AND TRAFFIC STANDARDS DETAILS.

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ROADWAY IMPROVEMENT PLAN
PREPARED FOR

TOWN OF WESTFORD
FORGE VILLAGE ROAD, MAIN STREET & FLAGG ROAD
WESTFORD, MASSACHUSETTS

SYMBOLS, ABBREVIATIONS
& GENERAL NOTES

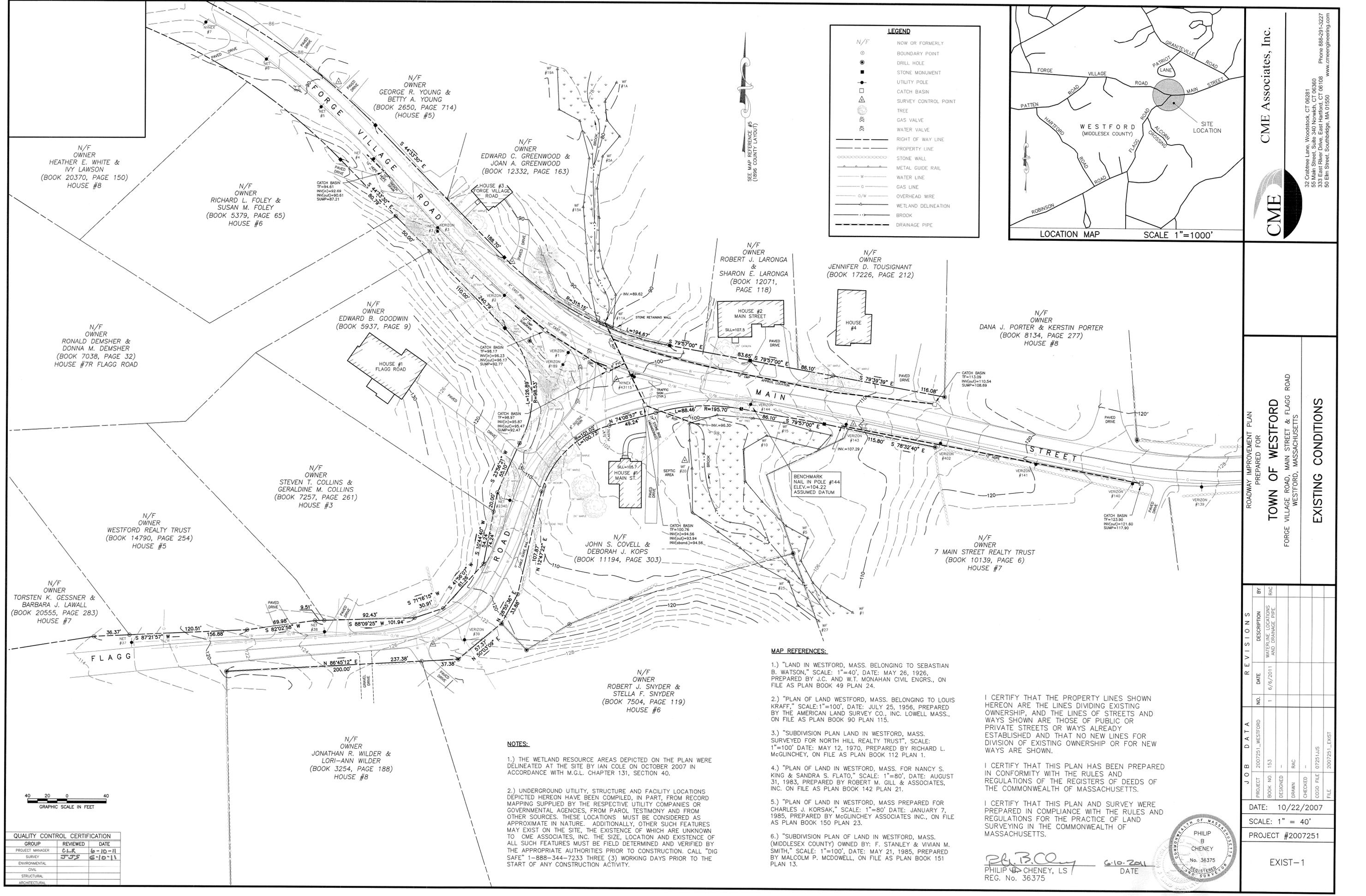
REVISIONS		BY	
NO.	DATE	NO.	DESCRIPTION

JOB DATA	
PROJECT	2007251_WESTFORD
BOOK NO.	153
DESIGNED	CLR
DRAWN	RAC
CHECKED	-
COGO FILE	07251JUS
FILE	2007251_GEN-NOTES

DATE: 06/15/2012

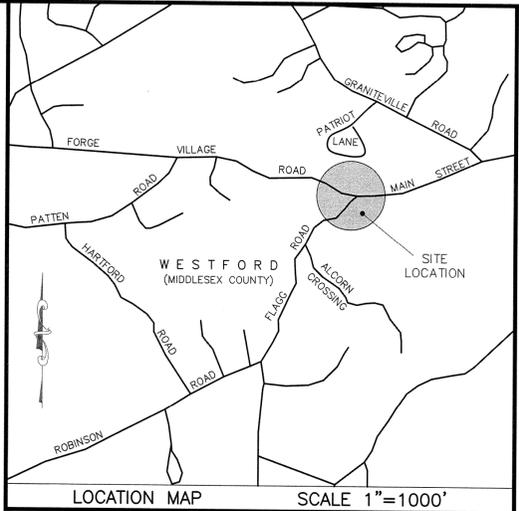
SCALE: AS SHOWN

PROJECT #2007251



LEGEND

N/F	NOW OR FORMERLY
○	BOUNDARY POINT
●	DRILL HOLE
■	STONE MONUMENT
○	UTILITY POLE
□	CATCH BASIN
○	SURVEY CONTROL POINT
○	TREE
○	GAS VALVE
○	WATER VALVE
---	RIGHT OF WAY LINE
---	PROPERTY LINE
---	STONE WALL
---	METAL GUIDE RAIL
---	WATER LINE
---	GAS LINE
○/W	OVERHEAD WIRE
---	WETLAND DELINEATION
---	BROOK
---	DRAINAGE PIPE



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N/F OWNER
HEATHER E. WHITE &
IVY LAWSON
(BOOK 20370, PAGE 150)
HOUSE #8

N/F OWNER
RICHARD L. FOLEY &
SUSAN M. FOLEY
(BOOK 5379, PAGE 65)
HOUSE #6

N/F OWNER
EDWARD C. GREENWOOD &
JOAN A. GREENWOOD
(BOOK 12332, PAGE 163)

N/F OWNER
ROBERT J. LARONGA &
SHARON E. LARONGA
(BOOK 12071, PAGE 118)

N/F OWNER
JENNIFER D. TOUSSIGNANT
(BOOK 17226, PAGE 212)

N/F OWNER
DANA J. PORTER & KERSTIN PORTER
(BOOK 8134, PAGE 277)
HOUSE #8

N/F OWNER
EDWARD B. GOODWIN
(BOOK 5937, PAGE 9)

N/F OWNER
RONALD DEMSHER &
DONNA M. DEMSHER
(BOOK 7038, PAGE 32)
HOUSE #7R FLAGG ROAD

N/F OWNER
STEVEN T. COLLINS &
GERALDINE M. COLLINS
(BOOK 7257, PAGE 261)
HOUSE #3

N/F OWNER
WESTFORD REALTY TRUST
(BOOK 14790, PAGE 254)
HOUSE #5

N/F OWNER
TORSTEN K. GESSNER &
BARBARA J. LAWALL
(BOOK 20555, PAGE 283)
HOUSE #7

N/F OWNER
JOHN S. COVELL &
DEBORAH J. KOPS
(BOOK 11194, PAGE 303)

N/F OWNER
7 MAIN STREET REALTY TRUST
(BOOK 10139, PAGE 6)
HOUSE #7

N/F OWNER
ROBERT J. SNYDER &
STELLA F. SNYDER
(BOOK 7504, PAGE 119)
HOUSE #6

N/F OWNER
JONATHAN R. WILDER &
LORI-ANN WILDER
(BOOK 3254, PAGE 188)
HOUSE #8

- NOTES:**
- 1.) THE WETLAND RESOURCE AREAS DEPICTED ON THE PLAN WERE DELINEATED AT THE SITE BY IAN COLE ON OCTOBER 2007 IN ACCORDANCE WITH M.G.L. CHAPTER 131, SECTION 40.
 - 2.) UNDERGROUND UTILITY, STRUCTURE AND FACILITY LOCATIONS DEPICTED HEREON HAVE BEEN COMPILED, IN PART, FROM RECORD MAPPING SUPPLIED BY THE RESPECTIVE UTILITY COMPANIES OR GOVERNMENTAL AGENCIES, FROM PAROL TESTIMONY AND FROM OTHER SOURCES. THESE LOCATIONS MUST BE CONSIDERED AS APPROXIMATE IN NATURE. ADDITIONALLY, OTHER SUCH FEATURES MAY EXIST ON THE SITE. THE SIZE, LOCATION AND EXISTENCE OF ALL SUCH FEATURES MUST BE FIELD DETERMINED AND VERIFIED BY THE APPROPRIATE AUTHORITIES PRIOR TO CONSTRUCTION. CALL "DIG SAFE" 1-888-344-7233 THREE (3) WORKING DAYS PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITY.

- MAP REFERENCES:**
- 1.) "LAND IN WESTFORD, MASS. BELONGING TO SEBASTIAN B. WATSON," SCALE: 1"=40', DATE: MAY 26, 1926, PREPARED BY J.C. AND W.T. MONAHAN CIVIL ENGRS., ON FILE AS PLAN BOOK 49 PLAN 24.
 - 2.) "PLAN OF LAND WESTFORD, MASS. BELONGING TO LOUIS KRAFF," SCALE: 1"=100', DATE: JULY 25, 1956, PREPARED BY THE AMERICAN LAND SURVEY CO., INC. LOWELL MASS., ON FILE AS PLAN BOOK 90 PLAN 115.
 - 3.) "SUBDIVISION PLAN LAND IN WESTFORD, MASS. SURVEYED FOR NORTH HILL REALTY TRUST", SCALE: 1"=100' DATE: MAY 12, 1970, PREPARED BY RICHARD L. MCGLINCHY, ON FILE AS PLAN BOOK 112 PLAN 1.
 - 4.) "PLAN OF LAND IN WESTFORD, MASS. FOR NANCY S. KING & SANDRA S. FLATO," SCALE: 1"=80' DATE: JANUARY 7, 1983, PREPARED BY ROBERT M. GILL & ASSOCIATES, INC. ON FILE AS PLAN BOOK 142 PLAN 21.
 - 5.) "PLAN OF LAND IN WESTFORD, MASS PREPARED FOR CHARLES J. KORSKAK," SCALE: 1"=80' DATE: JANUARY 7, 1985, PREPARED BY MCGLINCHY ASSOCIATES INC., ON FILE AS PLAN BOOK 150 PLAN 23.
 - 6.) "SUBDIVISION PLAN OF LAND IN WESTFORD, MASS. (MIDDLESEX COUNTY) OWNED BY: F. STANLEY & VIVIAN M. SMITH," SCALE: 1"=100', DATE: MAY 21, 1985, PREPARED BY MALCOLM P. MCDOWELL, ON FILE AS PLAN BOOK 151 PLAN 13.

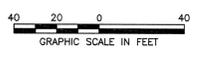
I CERTIFY THAT THE PROPERTY LINES SHOWN HEREON ARE THE LINES DIVIDING EXISTING OWNERSHIP, AND THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW LINES FOR DIVISION OF EXISTING OWNERSHIP OR FOR NEW WAYS ARE SHOWN.

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMITY WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS.

I CERTIFY THAT THIS PLAN AND SURVEY WERE PREPARED IN COMPLIANCE WITH THE RULES AND REGULATIONS FOR THE PRACTICE OF LAND SURVEYING IN THE COMMONWEALTH OF MASSACHUSETTS.



PHILIP B. CHENEY, L.S.
REG. No. 36375
DATE 6-10-2011



QUALITY CONTROL CERTIFICATION

GROUP	REVIEWED	DATE
PROJECT MANAGER	CLR	6-10-11
SURVEY	SSS	6-10-11
ENVIRONMENTAL		
CIVIL		
STRUCTURAL		
ARCHITECTURAL		

ROADWAY IMPROVEMENT PLAN
 PREPARED FOR
TOWN OF WESTFORD
 FORGE VILLAGE ROAD, MAIN STREET & FLAGG ROAD
 WESTFORD, MASSACHUSETTS

EXISTING CONDITIONS

REVISIONS		DATE	DESCRIPTION	BY	RAC
NO.	1	6/6/2011	WATERLINE LOCATIONS AND DRAINAGE PIPE		

JOB DATA		PROJECT	BOOK NO.	DESIGNED	DRAWN	CHECKED	COO FILE	FILE
PROJECT	200725 L WESTFORD	153					07251JJS	200725 L EXIST

DATE: 10/22/2007
 SCALE: 1" = 40'
 PROJECT #2007251

EXIST-1

N/F
RICHARD L. FOLEY &
SUSAN M. FOLEY
(BOOK 5379, PAGE 65)
HOUSE #6

N/F
RONALD DEMSHER &
DONNA M. DEMSHER
(BOOK 7038, PAGE 32)
HOUSE #7R FLAGG ROAD

N/F
EDWARD B. GOODWIN
(BOOK 5937, PAGE 9)

HOUSE #1
FLAGG ROAD

N/F
EDWARD C. GREENWOOD &
JOAN A. GREENWOOD
(BOOK 12332, PAGE 163)

N/F
ROBERT J. LARONGA &
SHARON E. LARONGA
(BOOK 12071, PAGE 118)

N/F
JENNIFER D. TOUSIGNANT
(BOOK 17226, PAGE 212)

N/F
7 MAIN STREET REALTY TRUST
(BOOK 10139, PAGE 6)
HOUSE #7

N/F
ROBERT J. SNYDER &
STELLA F. SNYDER
(BOOK 7504, PAGE 119)
HOUSE #6

CURVE DATA

FORGE VILLAGE ROAD/MAIN STREET CURVE NO. 1			
STATION	NORTHING	EASTING	
P.C.	10+68	8052.4297	5998.7123
P.I.	11+85.57	7970.0263	6082.5702
P.T.	12+95.86	7950.2484	6198.4637
Δ	34°48'51"	T	117.57'
R	375.00'	L	227.86'

CURVE DATA

FLAGG ROAD CURVE NO. 1			
STATION	NORTHING	EASTING	
P.C.	60+76.78	7681.1307	5883.0890
P.I.	61+64.49	7687.4225	5970.5791
P.T.	62+32.35	7769.9220	6000.3771
Δ	66°01'39"	T	87.72'
R	135.00'	L	155.57'

FLAGG ROAD CURVE NO. 2			
STATION	NORTHING	EASTING	
P.C.	63+07.83	7840.9130	6026.0184
P.I.	63+41.96	7873.0178	6037.6143
P.T.	63+74.47	7894.7730	6063.9182
Δ	30°32'52"	T	34.14'
R	125.00'	L	66.65'

FLAGG ROAD CURVE NO. 3			
STATION	NORTHING	EASTING	
P.C.	63+74.47	7894.7730	6063.9182
P.I.	63+90.08	7904.7217	6075.9471
P.T.	64+05.19	7918.8384	6082.6093
Δ	25°08'33"	T	15.61'
R	70.00'	L	30.72'

STA. 12+03.24 (FORGE VILLAGE ROAD/MAIN STREET) =
STA. 64+69.38 (FLAGG ROAD) =
N/F STEVEN T. COLLINS & GERALDINE M. COLLINS
(BOOK 7257, PAGE 261)
HOUSE #3

BEGIN PROJECT
SAWCUT
BEGIN FULL DEPTH PAVEMENT
MATCH EXISTING
STA. 60+00
N = 7875.8236
E = 5806.5108

PC = 60+76.78

APPROX. BORING LOCATIONS (TYP.)

BEGIN GRAN. VERT. CURB

PROP SAWCUT AND HMA DRIVEWAY

RELOCATE POLE (B.O.)

RELOCATE POLE (B.O.)

187.5' STEEL W BEAM HIGHWAY GUARD-WEATHERING STEEL AND WOOD POSTS AND BLOCKS

PROVIDE SILT FENCE AND STRAW WATTLES (TYP.)

N/F JOHN S. COVELL & DEBORAH J. KOPS
(BOOK 11194, PAGE 303)

NOTES:

- ALL CATCHBASINS SHALL HAVE 4" DEEP SUMPS AND HOODS.
- ALL CATCHBASINS SHALL HAVE INLET SEDIMENT CONTROL DEVICES DURING CONSTRUCTION.
- ALL DRAINAGE STRUCTURES AND PIPES CALLED OUT FOR REMOVAL SHALL BE EXCAVATED AND PROPERLY DISPOSED BY THE CONTRACTOR.
- SOIL BORINGS PERFORMED BY GEOSearch AND WITNESSED BY THE TOWN OF WESTFORD ON JULY 11, 2011. BORING LOCATIONS ARE APPROXIMATE.
- PAYMENT FOR PIPE, EXCEPT FOR PIPES INSTALLED IN THE SAME LOCATION, SHALL BE PAID FOR UNDER ITEM 141 TRENCH EXCAVATION A AND ITEM 142 TRENCH EXCAVATION B, AS APPROPRIATE, WHICH SHALL INCLUDE COMPACTED BACKFILL TO SUBGRADE AND PIPE DISPOSAL.

QUALITY CONTROL CERTIFICATION		
GROUP	REVIEWED	DATE
PROJECT MANAGER		
SURVEY		
ENVIRONMENTAL		
CIVIL		
STRUCTURAL		
ARCHITECTURAL		

CONSTRUCTION PLAN

TOWN OF WESTFORD
FORGE VILLAGE ROAD, MAIN STREET & FLAGG ROAD
WESTFORD, MASSACHUSETTS

ROADWAY IMPROVEMENT PLAN
PREPARED FOR

JOB DATA		REVISIONS	
NO.	DESCRIPTION	DATE	BY
PROJECT 2007251 - WESTFORD			
BOOK NO. 153			
DESIGNED CLR			
DRAWN BAC			
CHECKED -			
CADD FILE 07251.JUS			
FILE 2007251_P&P			

DATE: 06/15/2012
SCALE: 1" = 20'
PROJECT #2007251

SHEET 5

CME Associates, Inc.

CME

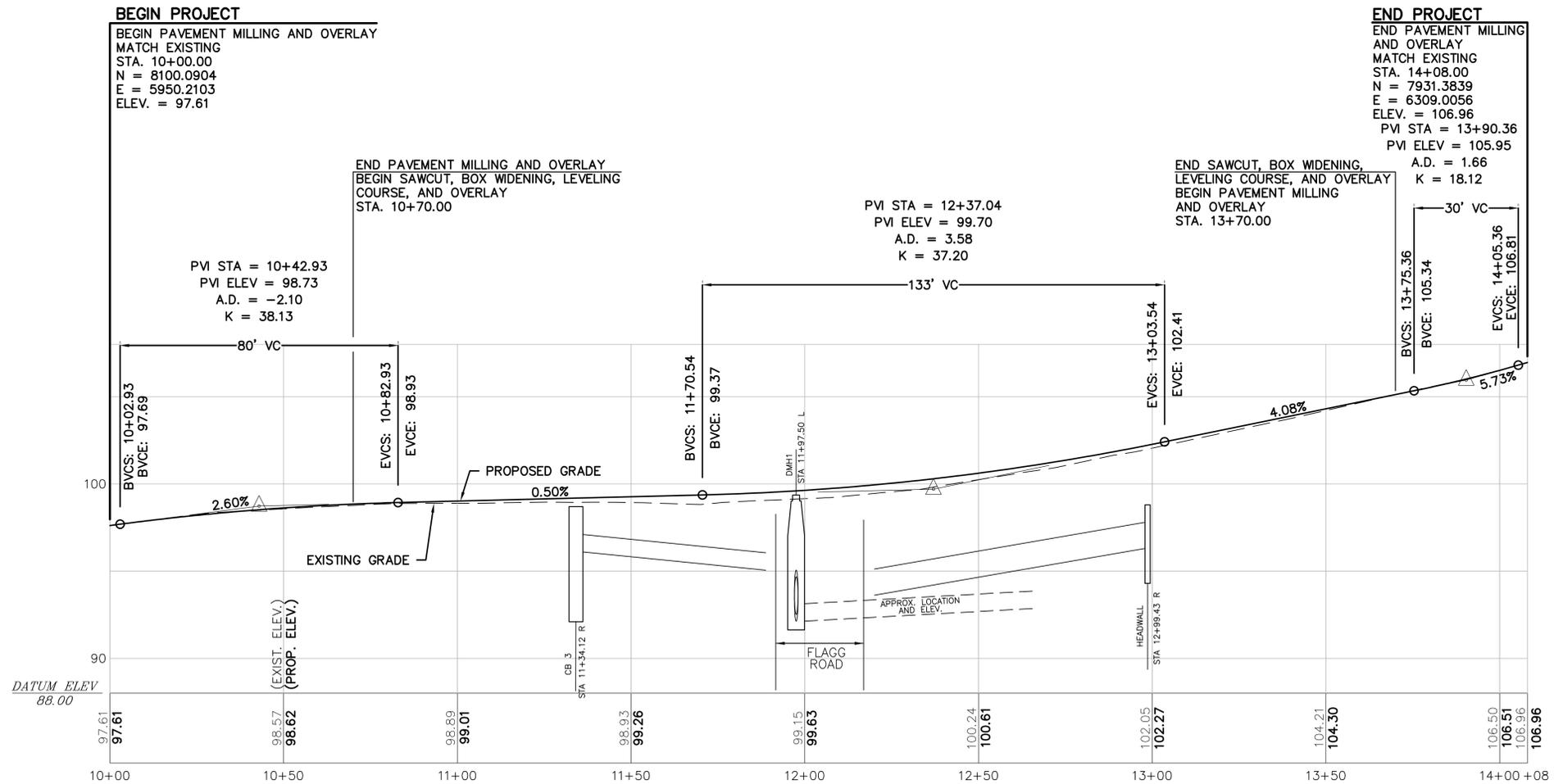
32 Crabtree Lane, Woodstock, CT 06281
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50 Elm Street, Southbridge, MA 01550
Phone 866-291-3227
www.cmeengineering.com

BEGIN PROJECT

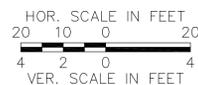
BEGIN PAVEMENT MILLING AND OVERLAY
MATCH EXISTING
STA. 10+00.00
N = 8100.0904
E = 5950.2103
ELEV. = 97.61

END PROJECT

END PAVEMENT MILLING AND OVERLAY
MATCH EXISTING
STA. 14+08.00
N = 7931.3839
E = 6309.0056
ELEV. = 106.96
PVI STA = 13+90.36
PVI ELEV = 105.95



FORGE VILLAGE ROAD/MAIN STREET PROFILE



QUALITY CONTROL CERTIFICATION		
GROUP	REVIEWED	DATE
PROJECT MANAGER		
SURVEY		
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CIVIL		
STRUCTURAL		
ARCHITECTURAL		

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TOWN OF WESTFORD
FORGE VILLAGE ROAD, MAIN STREET & FLAGG ROAD
WESTFORD, MASSACHUSETTS

PROFILE
FORGE VILLAGE ROAD/MAIN STREET

JOB DATA				REVISIONS			
PROJECT	BOOK NO.	DESIGNED	DRAWN	CHECKED	NO.	DATE	DESCRIPTION
2007251-WESTFORD	153	CLR	RAC	-			
FILE							

DATE: 06/15/2012
SCALE: AS SHOWN
PROJECT #2007251

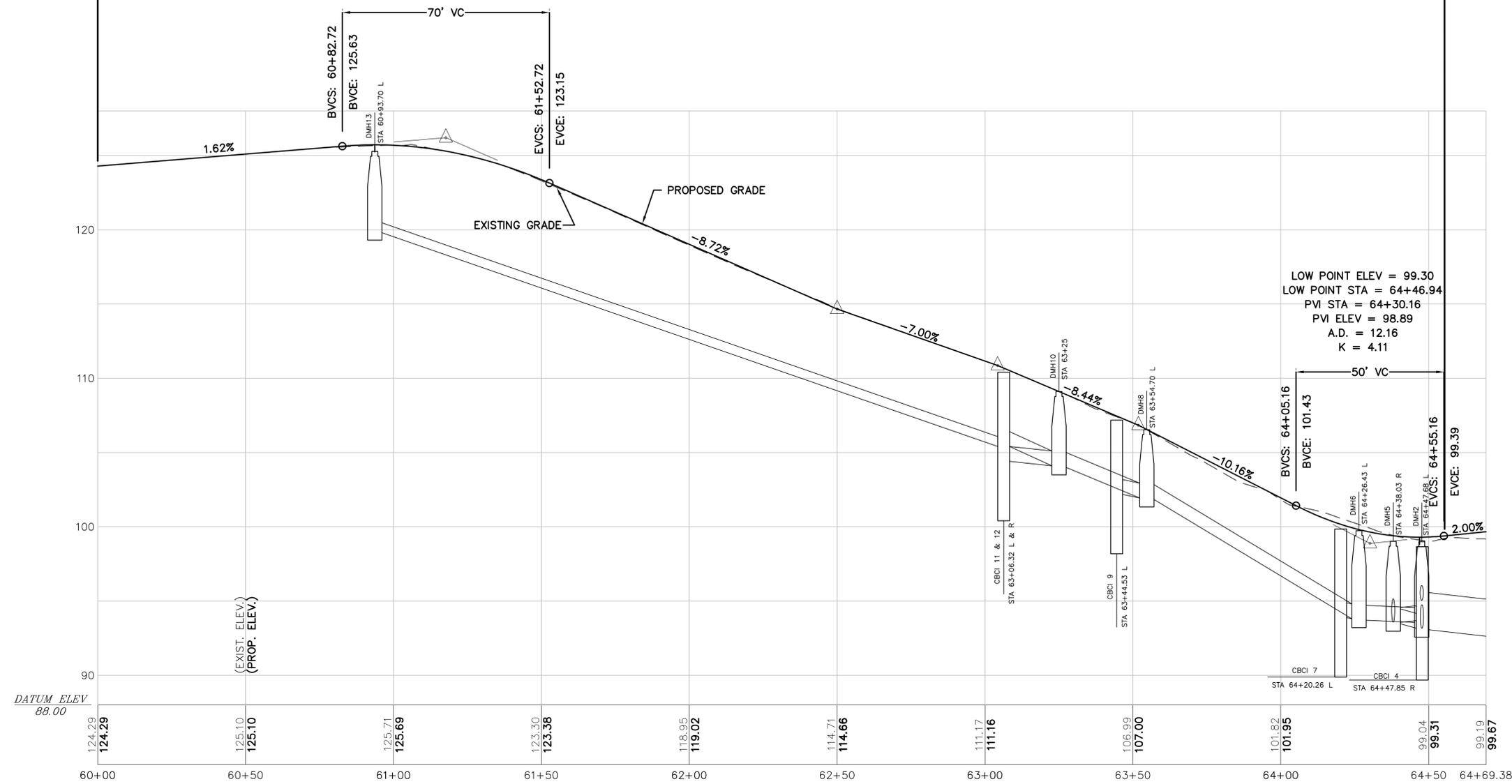
SHEET 6

BEGIN PROJECT
 BEGIN FULL DEPTH PAVEMENT
 MATCH EXISTING
 STA. 60+00.00
 N = 7675.6236
 E = 5806.5108
 ELEV. = 124.29

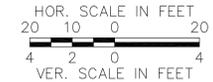
END FULL DEPTH PAVEMENT
 MATCH EXISTING
 STA. 64+55.38
 N = 7964.2236
 E = 6104.0284
 ELEV. = 99.39

HIGH POINT ELEV = 125.72
 HIGH POINT STA = 60+93.70
 PVI STA = 61+17.72
 PVI ELEV = 126.20
 A.D. = -10.35
 K = 6.76

LOW POINT ELEV = 99.30
 LOW POINT STA = 64+46.94
 PVI STA = 64+30.16
 PVI ELEV = 98.89
 A.D. = 12.16
 K = 4.11



FLAG ROAD PROFILE



DATUM ELEV
88.00

QUALITY CONTROL CERTIFICATION		
GROUP	REVIEWED	DATE
PROJECT MANAGER		
SURVEY		
ENVIRONMENTAL		
CIVIL		
STRUCTURAL		
ARCHITECTURAL		

JOB DATA				REVISIONS			
PROJECT	NO.	DATE	BY	NO.	DATE	DESCRIPTION	BY
2007251-WESTFORD							
BOOK NO.	153						
DESIGNED	CLR						
DRAWN	RAC						
CHECKED	-						
CADD FILE	07251-IJUS						
FILE	2007251_P&P						

DATE: 06/15/2012
 SCALE: AS SHOWN
 PROJECT #2007251

N/F
RICHARD L. FOLEY &
SUSAN M. FOLEY
(BOOK 5379, PAGE 65)
HOUSE #6

N/F
RONALD DEMSHER &
DONNA M. DEMSHER
(BOOK 7038, PAGE 32)
HOUSE #7R FLAGG ROAD

N/F
EDWARD B. GOODWIN
(BOOK 5937, PAGE 9)

HOUSE #1
FLAGG ROAD

N/F
EDWARD C. GREENWOOD &
JOAN A. GREENWOOD
(BOOK 12332, PAGE 163)

PERFORM TEST PIT TO LOCATE
EXISTING PIPE PRIOR TO WALL
CONSTRUCTION. REPLACE
68"-12" CMP. MATCH EXISTING
INVERTS. FINAL LENGTH TO BE
DETERMINED IN THE FIELD ONCE
PIPE IS EXPOSED AND REVIEWED
BY TOWN ENGINEER.

N/F
ROBERT J. LARONGA
&
SHARON E. LARONGA
(BOOK 12071,
PAGE 118)

HOUSE #2
MAIN STREET

HOUSE #4

N/F
JENNIFER D. TOUSIGNANT
(BOOK 17226, PAGE 212)

ADJ. AND INSTALL HOOD
CATCH BASIN
TF=98.17
INV(in)=96.23
INV(out)=96.17
SUMP=92.77

PERFORM TEST PITS AT UTILITY
CROSSINGS PRIOR TO
INSTALLATION OF ALL STORM
DRAINAGE. CONFLICTS TO BE
REVIEWED BY TOWN ENGINEER.

CATCH BASIN
TF=98.97
INV(in)=95.87
INV(out)=95.47
SUMP=92.47

DO NOT DISTURB
SEPTIC SYSTEM
OR DRIVEWAY TO
REMAIN

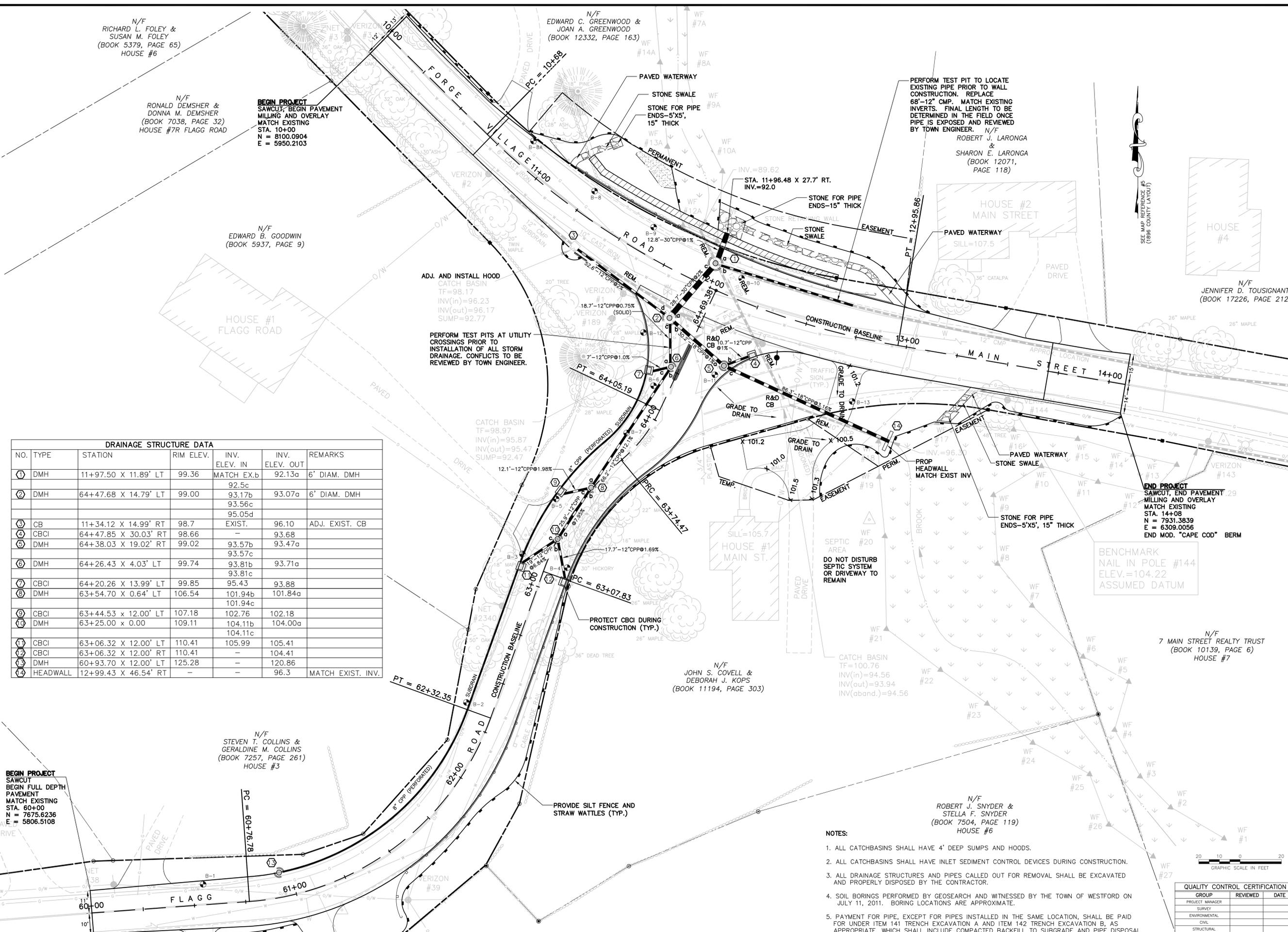
BENCHMARK
NAIL IN POLE #144
ELEV.=104.22
ASSUMED DATUM

N/F
7 MAIN STREET REALTY TRUST
(BOOK 10139, PAGE 6)
HOUSE #7

N/F
JOHN S. COVELL &
DEBORAH J. KOPS
(BOOK 11194, PAGE 303)

N/F
STEVEN T. COLLINS &
GERALDINE M. COLLINS
(BOOK 7257, PAGE 261)
HOUSE #3

BEGIN PROJECT
SAWCUT
BEGIN FULL DEPTH
PAVEMENT
MATCH EXISTING
STA. 60+00
N = 7875.8236
E = 5806.5108



DRAINAGE STRUCTURE DATA						
NO.	TYPE	STATION	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
1	DMH	11+97.50 X 11.89' LT	99.36	MATCH EX.b	92.13a	6" DIAM. DMH
2	DMH	64+47.68 X 14.79' LT	99.00	92.5c	93.07a	6" DIAM. DMH
				93.56c		
				95.05d		
3	CB	11+34.12 X 14.99' RT	98.7	EXIST.	96.10	ADJ. EXIST. CB
4	CBCI	64+47.85 X 30.03' RT	98.66	-	93.68	
5	DMH	64+38.03 X 19.02' RT	99.02	93.57b	93.47a	
				93.57c		
6	DMH	64+26.43 X 4.03' LT	99.74	93.81b	93.71a	
				93.81c		
7	CBCI	64+20.26 X 13.99' LT	99.85	95.43	93.88	
8	DMH	63+54.70 X 0.64' LT	106.54	101.94b	101.84a	
				101.94c		
9	CBCI	63+44.53 X 12.00' LT	107.18	102.76	102.18	
10	DMH	63+25.00 X 0.00	109.11	104.11b	104.00a	
				104.11c		
11	CBCI	63+06.32 X 12.00' LT	110.41	105.99	105.41	
12	CBCI	63+06.32 X 12.00' RT	110.41	-	104.41	
13	DMH	60+93.70 X 12.00' LT	125.28	-	120.86	
14	HEADWALL	12+99.43 X 46.54' RT	-	-	96.3	MATCH EXIST. INV.

- NOTES:
- ALL CATCHBASINS SHALL HAVE 4' DEEP SUMPS AND HOODS.
 - ALL CATCHBASINS SHALL HAVE INLET SEDIMENT CONTROL DEVICES DURING CONSTRUCTION.
 - ALL DRAINAGE STRUCTURES AND PIPES CALLED OUT FOR REMOVAL SHALL BE EXCAVATED AND PROPERLY DISPOSED BY THE CONTRACTOR.
 - SOIL BORINGS PERFORMED BY GEOSearch AND WITNESSED BY THE TOWN OF WESTFORD ON JULY 11, 2011. BORING LOCATIONS ARE APPROXIMATE.
 - PAYMENT FOR PIPE, EXCEPT FOR PIPES INSTALLED IN THE SAME LOCATION, SHALL BE PAID FOR UNDER ITEM 141 TRENCH EXCAVATION A AND ITEM 142 TRENCH EXCAVATION B, AS APPROPRIATE, WHICH SHALL INCLUDE COMPACTED BACKFILL TO SUBGRADE AND PIPE DISPOSAL.

QUALITY CONTROL CERTIFICATION		
GROUP	REVIEWED	DATE
PROJECT MANAGER		
SURVEY		
ENVIRONMENTAL		
CIVIL		
STRUCTURAL		
ARCHITECTURAL		

CME Associates, Inc.

32 Crabtree Lane, Woodstock, CT 06281
333 East River Drive, East Hartford, CT 06108
50 Elm Street, Southbridge, MA 01550
Phone 866-291-3227
www.cmeengineering.com

ROADWAY IMPROVEMENT PLAN
PREPARED FOR
TOWN OF WESTFORD
FORGE VILLAGE ROAD, MAIN STREET & FLAGG ROAD
WESTFORD, MASSACHUSETTS

DRAINAGE PLAN

JOB DATA		REVISIONS	
PROJECT	NO.	DATE	DESCRIPTION
2007251 - WESTFORD	153		
DESIGNED	CLR		
DRAWN	BAC		
CHECKED	-		
CADD FILE	07251_IJUS		
FILE	2007251_P&P		

DATE: 06/15/2012
SCALE: 1" = 20'
PROJECT #2007251

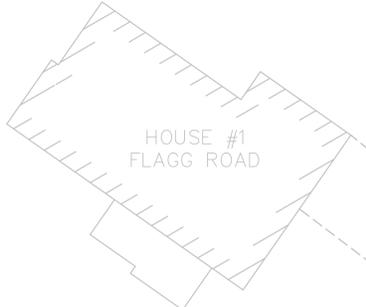
SHEET 8

N/F
RICHARD L. FOLEY &
SUSAN M. FOLEY
(BOOK 5379, PAGE 65)
HOUSE #6

N/F
RONALD DEMSHER &
DONNA M. DEMSHER
(BOOK 7038, PAGE 32)
HOUSE #7R FLAGG ROAD

BEGIN PROJECT AND
PAVEMENT MARKINGS
STA. 10+00
MATCH EXISTING

N/F
EDWARD B. GOODWIN
(BOOK 5937, PAGE 9)



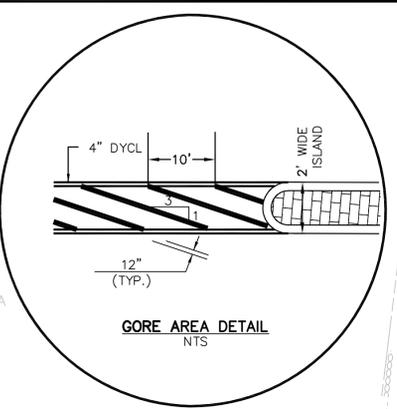
SUMMARY OF NEW SIGNS

IDENTIFICATION NUMBER	SIZE OF SIGN			SYMBOL	NUMBER OF SIGNS REQUIRED	TOTAL AREA REQUIRED
	WIDTH	HEIGHT	AREA			
R1-1	30"	30"	6.25 ft ²	LEGEND WHITE BACKGROUND RED	1	6.25 ft ²
W1-5	30"	30"	6.25 ft ²	LEGEND BLACK BACKGROUND YELLOW	1	6.25 ft ²
W3-1	30"	30"	6.25 ft ²	SYMBOL RED BACKGROUND YELLOW	1	6.25 ft ²
W13-1P	18"	18"	2.25 ft ²	SYMBOL RED BACKGROUND YELLOW	1	2.25 ft ²

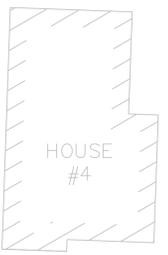
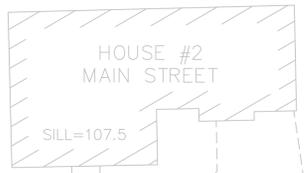
N/F
STEVEN T. COLLINS &
GERALDINE M. COLLINS
(BOOK 7257, PAGE 261)
HOUSE #3

BEGIN PROJECT AND
PAVEMENT MARKINGS
STA. 60+00
MATCH EXISTING

N/F
EDWARD C. GREENWOOD &
JOAN A. GREENWOOD
(BOOK 12332, PAGE 163)



N/F
ROBERT J. LARONGA &
SHARON E. LARONGA
(BOOK 12071, PAGE 118)



N/F
JENNIFER D. TOUSIGNANT
(BOOK 17226, PAGE 212)

R&R HISTORIC
DISTRICT SIGN.
NEW LOCATION
SHALL BE FIELD
VERIFIED AND
APPROVED BY THE
HIGHWAY
DEPARTMENT PRIOR
TO INSTALLATION.

SEE
(GORE AREA DETAIL)

PROVIDE STREET SIGN BRACKET
TO BE PLACED ABOVE STOP SIGN.
R&S STREET SIGNS FROM
UTILITY POLE.

END PROJECT AND
PAVEMENT MARKINGS
STA. 14+08
MATCH EXISTING

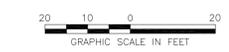
N/F
7 MAIN STREET REALTY TRUST
(BOOK 10139, PAGE 6)
HOUSE #7

N/F
JOHN S. COVELL &
DEBORAH J. KOPS
(BOOK 11194, PAGE 303)

- NOTES:
- 1). ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC.
 - 2). THE CONTRACTOR SHALL ERADICATE ALL EXISTING MARKINGS THAT ARE NO LONGER APPLICABLE WITH NO ADDITIONAL COMPENSATION AS DIRECTED BY THE ENGINEER.
 - 3). ALL EXISTING SIGNS DESIGNATED AS R&S SHALL BE DELIVERED TO WESTFORD HIGHWAY FACILITY, 28 NORTH STREET, WESTFORD, CONTACT RICHARD BARRETT.
 - 4). THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING AND INSTALLING ALL SIGN POSTS. ONCE THE POSTS ARE INSTALLED, THE TOWN WILL FURNISH AND INSTALL THE ACTUAL SIGN PANELS. ALL SIGN LOCATIONS SHALL BE FIELD VERIFIED AND APPROVED BY THE HIGHWAY DEPARTMENT PRIOR TO INSTALLATION.
 - 5). ALL SIGNS AND POSTS SHALL BE IN ACCORDANCE WITH THE CURRENT "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS."

N/F
ROBERT J. SNYDER &
STELLA F. SNYDER
(BOOK 7504, PAGE 119)
HOUSE #6

- LEGEND
- SWEL = 4" SOLID WHITE EDGE LINE
 - DYCL = 4" SOLID DOUBLE YELLOW CENTERLINE
 - SL = 12" WHITE STOP LINE



QUALITY CONTROL CERTIFICATION		
GROUP	REVIEWED	DATE
PROJECT MANAGER		
SURVEY		
ENVIRONMENTAL		
CIVIL		
STRUCTURAL		
ARCHITECTURAL		

CME Associates, Inc.

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50 Elm Street, Southbridge, MA 01550
Phone 866-291-3227
www.cmeengineering.com

ROADWAY IMPROVEMENT PLAN
PREPARED FOR
TOWN OF WESTFORD
FORGE VILLAGE ROAD, MAIN STREET & FLAGG ROAD
WESTFORD, MASSACHUSETTS

PAVEMENT MARKINGS AND SIGNING PLAN

JOB DATA		REVISIONS	
PROJECT	NO.	DATE	DESCRIPTION
2007251-WESTFORD			
BOOK NO. 153			
DESIGNED CLR			
DRAWN BAC			
CHECKED -			
COORD FILE 07251-JUS			
FILE 2007251_PAVT-MRK			

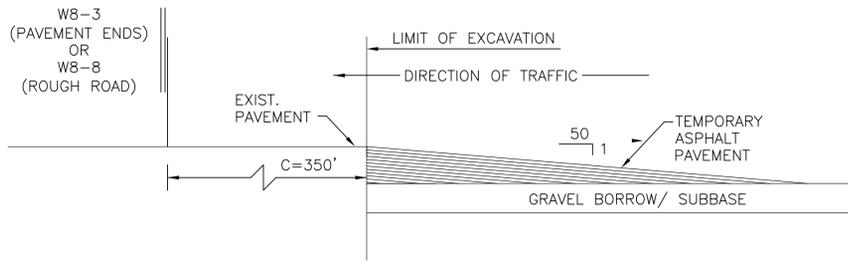
DATE: 06/15/2012
SCALE: 1" = 20'
PROJECT #2007251

NOTES:

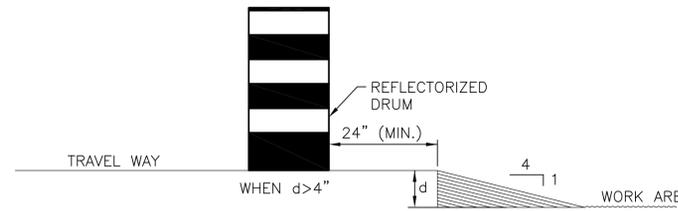
1. ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND ALL REVISIONS.
2. ALL SIGN LEGENDS, BORDERS AND MOUNTING SHALL BE IN ACCORDANCE WITH THE MUTCD.
3. TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
4. TEMPORARY CONSTRUCTION SIGNING, BARRICADES AND ALL OTHER NECESSARY WORK ZONE TRAFFIC CONTROL DEVICES SHALL BE REMOVED FROM THE HIGHWAY OR COVERED WHEN THEY ARE NOT REQUIRED FOR CONTROL OF TRAFFIC.
5. SIGNS AND SIGN SUPPORTS LOCATED ON OR NEAR THE TRAVELED WAY, AND REFLECTORIZED PLASTIC DRUMS WITH LIGHTING DEVICES MOUNTED ON THEM, MUST PASS THE CRITERIA SET FORTH IN NCHRP REPORT 350, "RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE EVALUATION OF HIGHWAY FEATURES."
6. NEIGHBORING RESIDENTS AND BUSINESSES SHALL HAVE ACCESS TO AND EGRESS FROM THEIR PROPERTIES DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR SECURING AN AREA FOR MATERIAL STORAGE AND EQUIPMENT. CONTRACTORS SHALL NOTIFY EACH ABUTTER AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OF ACCESS, SUCH AS CONDUIT INSTALLATION, EXISTING PAVEMENT EXCAVATION, TEMPORARY DRIVEWAY PAVEMENT PLACEMENT AND SIMILAR OPERATIONS.
7. THE FIRST THREE PLASTIC DRUMS OF A TAPER SHALL BE MOUNTED WITH TYPE A LIGHTS.
8. DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
9. MAXIMUM SPACING OF TRAFFIC DEVICES IN A TAPER (DRUMS OR CONES) IS EQUAL IN FEET TO THE SPEED LIMIT IN MPH.
10. MINIMUM LANE WIDTH IS TO BE 11 FEET UNLESS OTHERWISE SHOWN. MINIMUM LANE WIDTH TO BE MEASURED FROM THE EDGE OF DRUMS OR MEDIAN BARRIER.
11. ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS.

LEGEND:

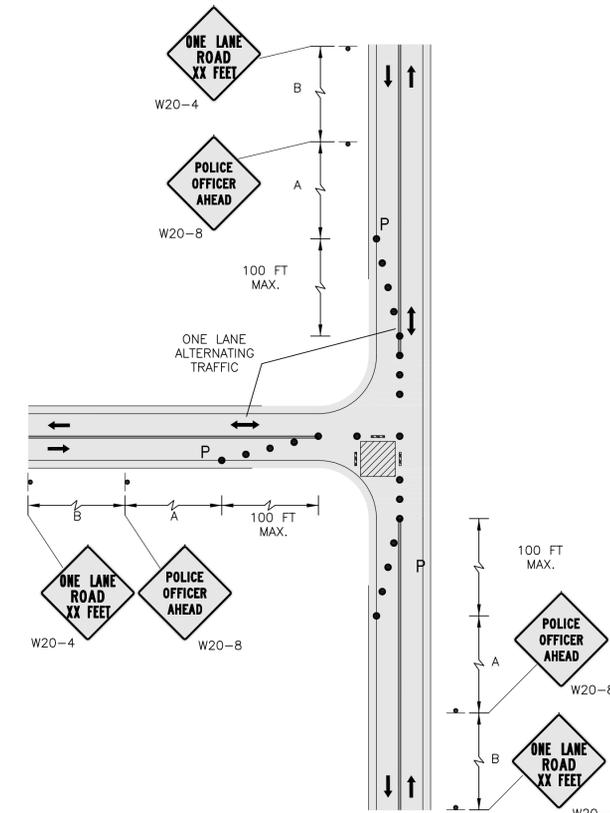
- REFLECTORIZED PLASTIC DRUM
- ▨ WORK ZONE
- 🚚 WORK VEHICLE
- P/F POLICE/FLAGGER DETAIL
- ➔ DIRECTION OF TRAFFIC
- 🚛 TRUCK MOUNTED ATTENUATOR
- ▬ TYPE III BARRICADE
- ▭ MEDIAN BARRIER
- ➔ TRAFFIC OR PEDESTRIAN SIGNAL
- ⚡ FLASHING ARROW PANEL
- ⊠ MEDIAN BARRIER WITH WARNING LIGHTS
- SIGN
- ⚡ FLASHING ARROW PANEL



LONGITUDINAL DROP-OFF DETAIL
N.T.S.

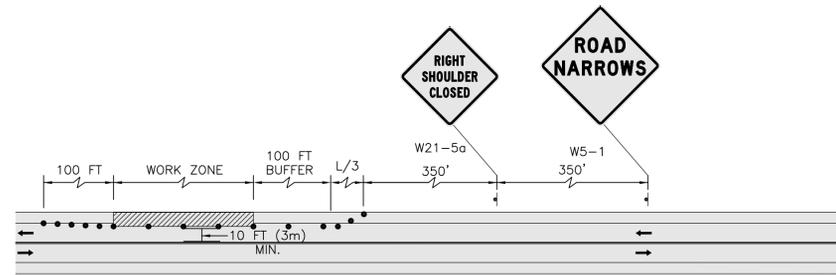


LATERAL DROP-OFF DETAIL
N.T.S.



NOTE: A=B=350 FT

SINGLE LANE APPROACH ONE QUADRANT CLOSURE
N.T.S.

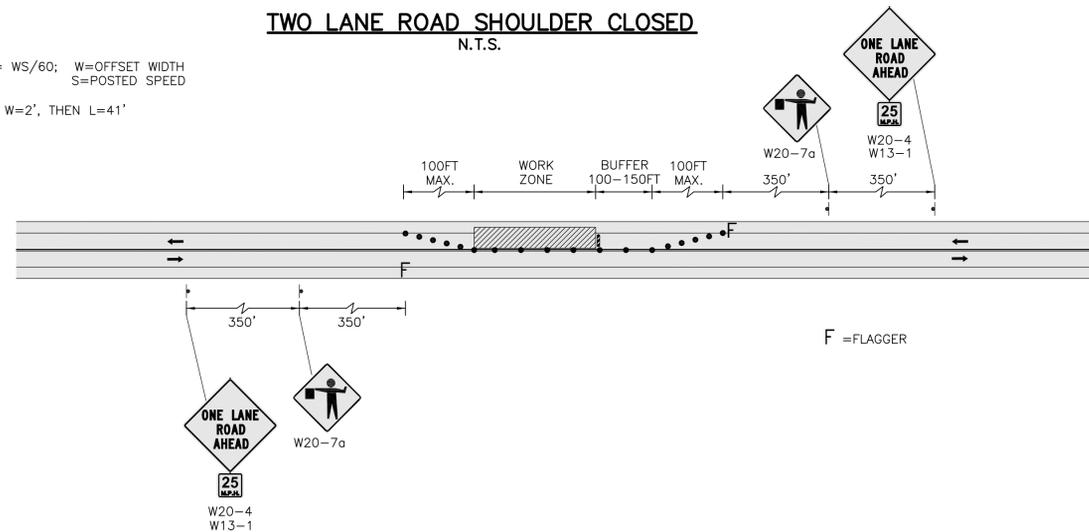


MAXIMUM DRUM SPACING IN A TAPER (DRUMS OR CONES) IS EQUAL IN FEET TO THE SPEED LIMIT IN MPH.

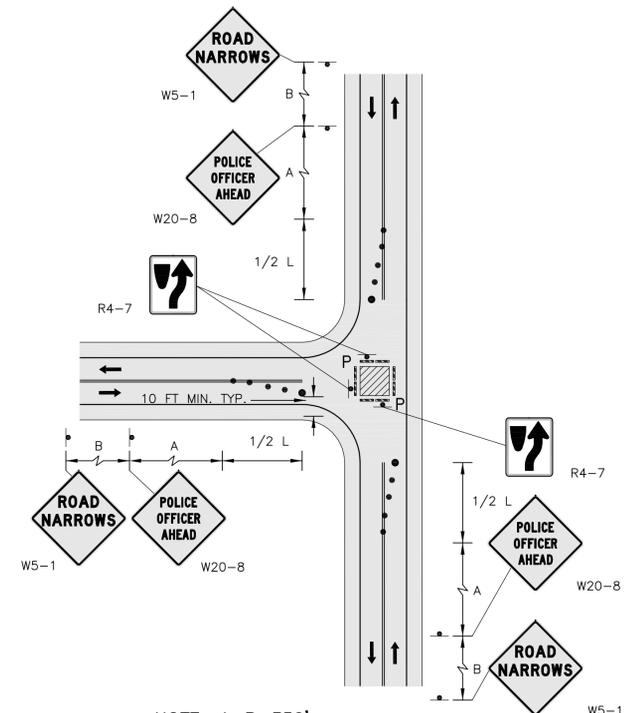
$L = WS^2/60$; W=OFFSET WIDTH
S=POSTED SPEED, 30MPH

IF W=2', THEN L=30'

TWO LANE ROAD SHOULDER CLOSED
N.T.S.



LANE AND SHOULDER CLOSURE
N.T.S.

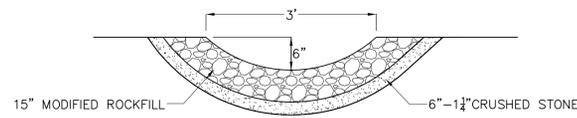


NOTE: A=B=350'
L=30'

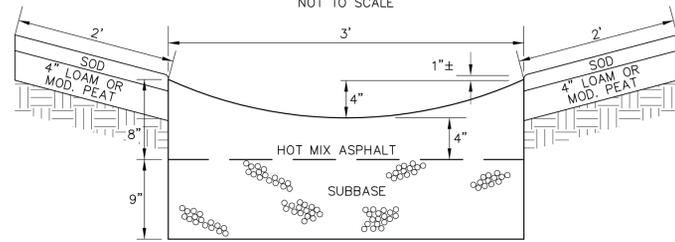
SINGLE LANE APPROACH CENTER CLOSURE
N.T.S.

REVISIONS		JOB DATA	
NO.	DATE	NO.	DESCRIPTION
		PROJECT	2007251_WESTFORD
		BOOK NO.	153
		DESIGNED	CLR
		DRAWN	RAC
		CHECKED	-
		COORD FILE	07251JUS
		FILE	2007251_TTCP

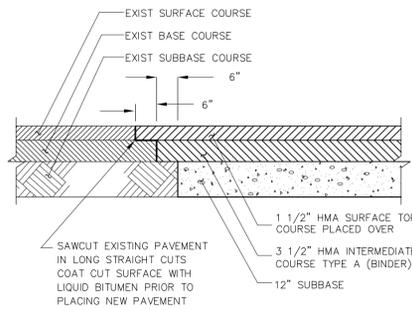
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SCALE: 1" = 20'
PROJECT #2007251



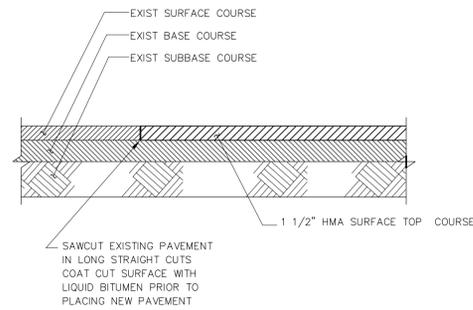
STONE SWALE
NOT TO SCALE



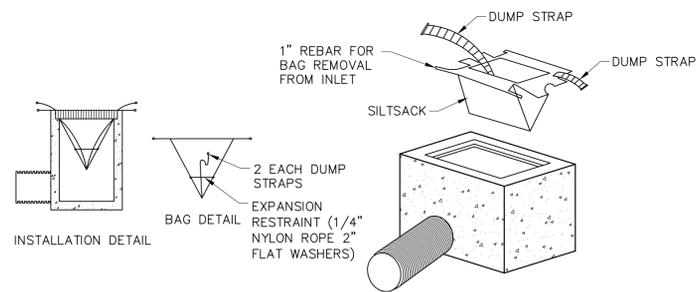
PAVED WATERWAY
NOT TO SCALE



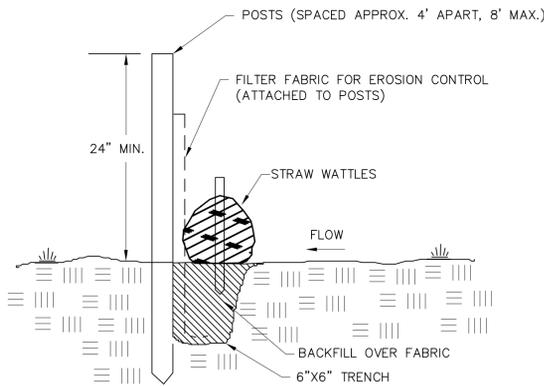
MEET EXISTING PAVEMENT-FULL DEPTH PAVEMENT
NOT TO SCALE



MEET EXISTING PAVEMENT-OVERLAY
NOT TO SCALE

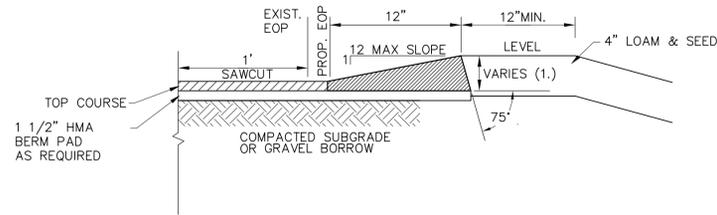


INLET SEDIMENT CONTROL DEVICE
NOT TO SCALE



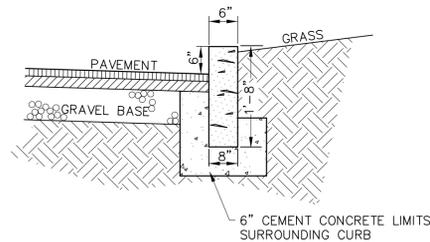
NOTE:
1. IN AREAS OF SIGNIFICANT ROCKS OR ROOTS, TRENCHING OF THE SILT FENCE WILL NOT BE REQUIRED.

SILT FENCE & STRAW WATTLES
NOT TO SCALE

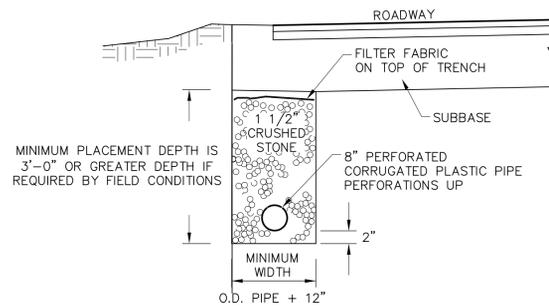


MODIFIED "CAPE COD" BERM
NOT TO SCALE

NOTE:
1. THIS DIMENSION VARIES WITH THE THICKNESS OF THE TOP COURSE AND SLOPE OF BINDER

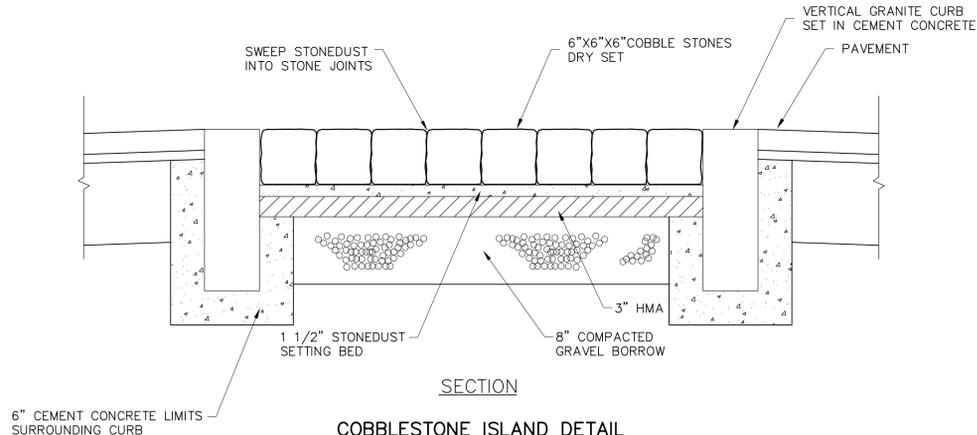


GRANITE VERTICAL CURB
NOT TO SCALE



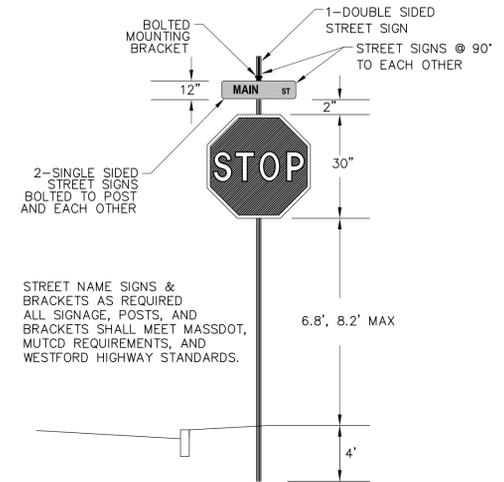
NOTE:
1. SUBBASE (AND SPECIAL BORROW WHERE REQUIRED) SHALL INTERSECT CRUSHED STONE FOR SUBDRAIN
2. DETAIL PER TOWN OF WESTFORD HIGHWAY DEPARTMENT.

SUBDRAIN
NOT TO SCALE



SECTION

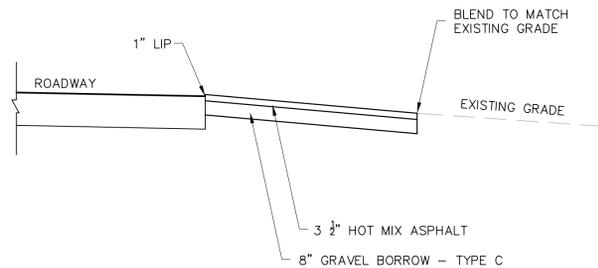
COBBLESTONE ISLAND DETAIL
NOT TO SCALE



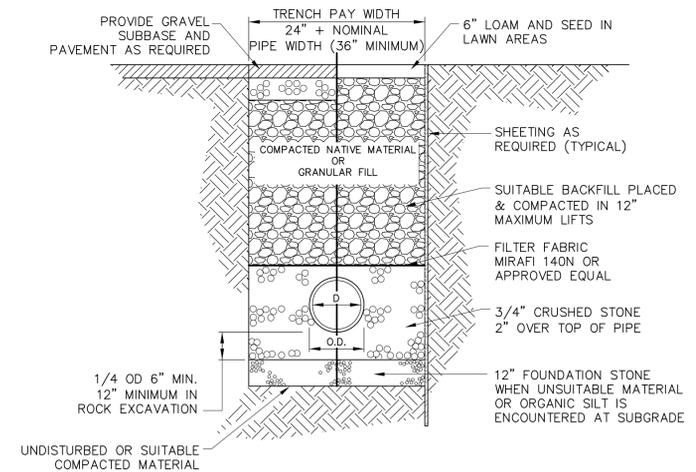
STREET SIGNS DETAIL
NOT TO SCALE

HMA DRIVEWAYS:

SURFACE: 3 1/2" HOT MIX ASPHALT (PLACE IN TWO LIFTS):
1 1/2" HMA SURFACE COURSE-TOP COURSE OVER
2" HMA INTERMEDIATE COURSE-BINDER COURSE OVER.
BASE: 8" GRAVEL BORROW - TYPE C



HOT MIX ASPHALT DRIVEWAY TYPICAL SECTION
NOT TO SCALE



TRENCH SECTION FOR STORM DRAINAGE PIPE
NOT TO SCALE

NOTE: PROVIDE TRACER TAPE ABOVE ALL PIPES

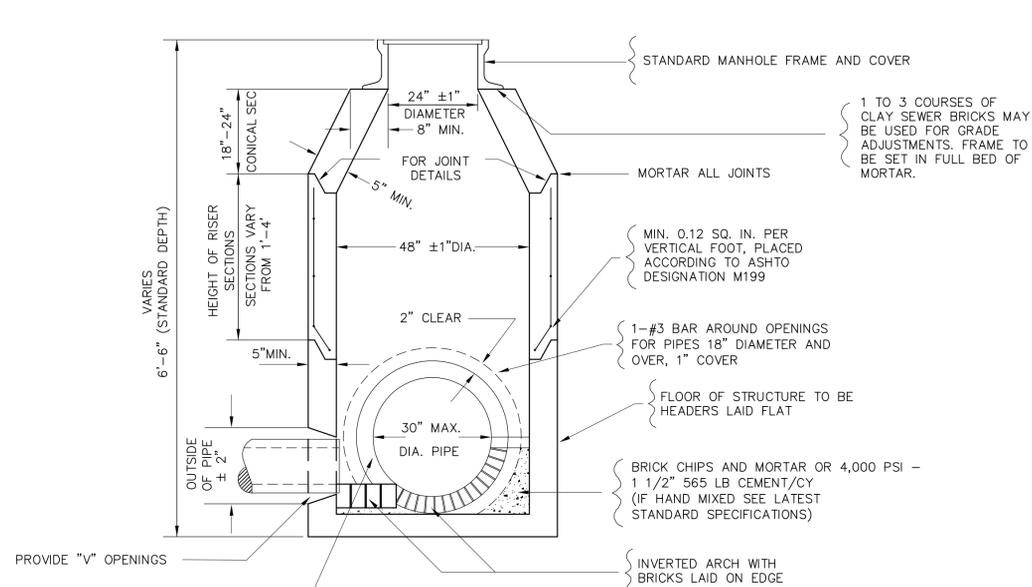


JOB DATA		REVISIONS	
PROJECT	DATE	NO.	DESCRIPTION
2007251_WESTFORD	06/15/2012		
BOOK NO. 153			
DESIGNED CLR			
DRAWN RAC			
CHECKED			
COGO FILE 07251JUS			
FILE 2007251_CONS-DETAILS			

DATE: 06/15/2012

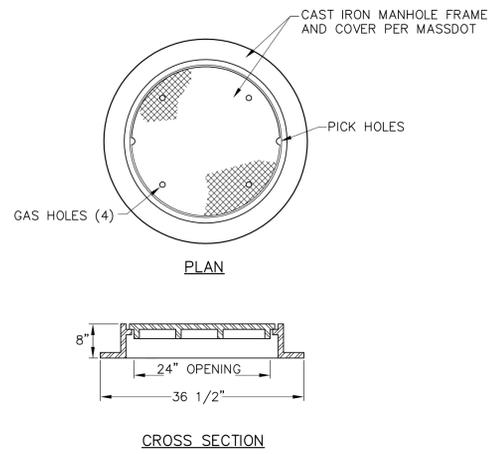
SCALE: AS SHOWN

PROJECT #2007251



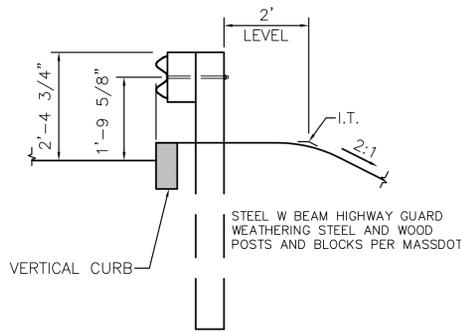
PRECAST CONCRETE MANHOLES
NOT TO SCALE

NOTE: BRICK SHALL BE SOUND, HARD, AND UNIFORMLY BURNED BRICK, REGULAR AND UNIFORM IN SHAPE AND SIZE, OF COMPACT TEXTURE, AND SATISFACTORY TO THE ENGINEER. BRICKS SHALL COMPLY WITH ASTM C32, FOR GRADE SS, HARD BRICK, EXCEPT THAT THE MEAN OF FIVE TESTS FOR ABSORPTION SHALL NOT EXCEED 8 PERCENT BY WEIGHT.

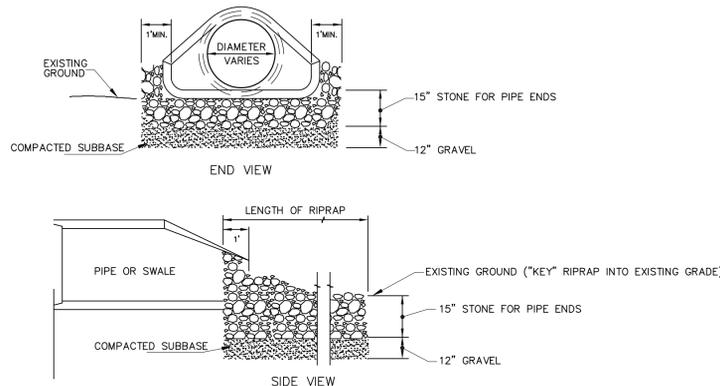


STANDARD FRAME AND COVER
NOT TO SCALE

NOTE: CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF FRAME AND COVER SHOWING CASTING FOR APPROVAL.
DRAINAGE MANHOLE SHALL HAVE "DRAINAGE" OR "STORM" IMPRINTED ON COVER.
FRAME AND COVER CASTING SHALL BE MADE IN USA.

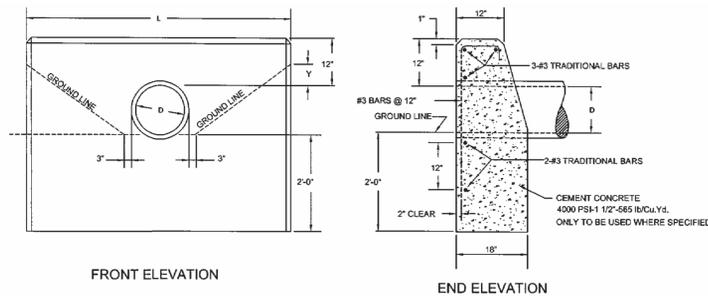


STEEL W BEAM HIGHWAY GUARD
NOT TO SCALE



STONE FOR PIPE ENDS
NOT TO SCALE

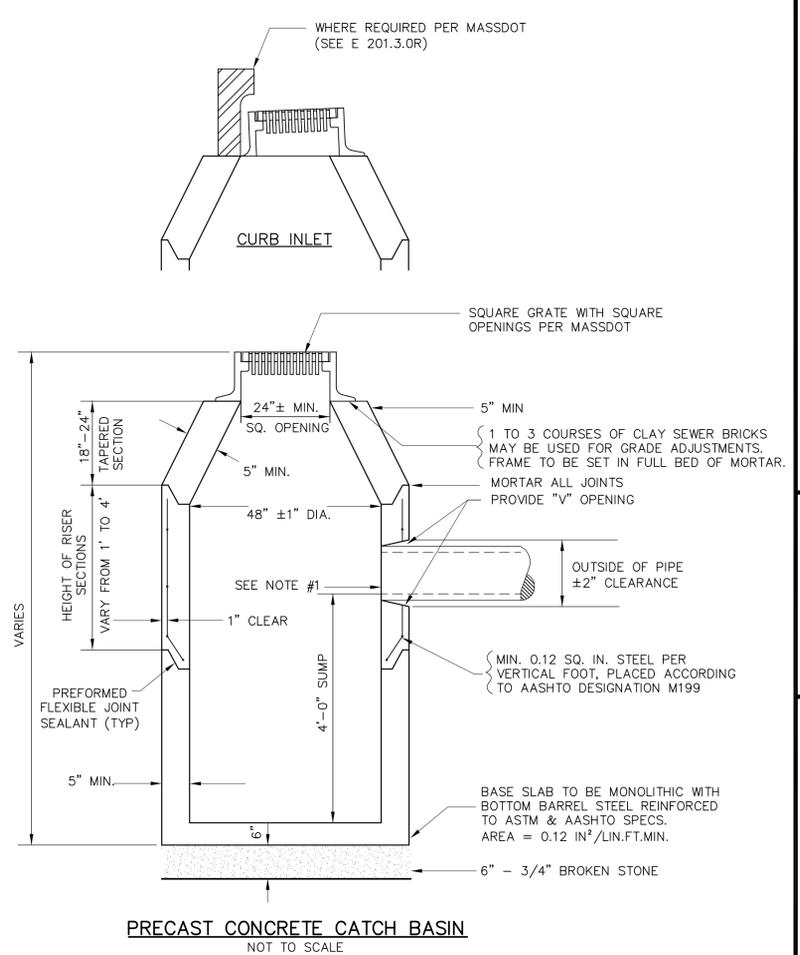
STONE FOR PIPE ENDS SHALL BE SOUND, DURABLE ROCK WHICH IS ANGULAR IN SHAPE, ROUNDED STONES, BOULDERS, SANDSTONE OR SIMILAR STONE OR RELATIVELY THIN SLABS WILL NOT BE ACCEPTABLE. EACH STONE SHALL HAVE A MASS OF NOT LESS THAN 55 LBS, NOT MORE THAN 120 LBS, AND AT LEAST 75% OF THE VOLUME SHALL CONSIST OF STONES HAVING A MASS OF NOT LESS THAN 80 LBS. EACH. THE REMAINDER OF THE STONES SHALL BE SO GRADED THAT WHEN PLACED WITH THE LARGER STONES THE ENTIRE MASS WILL BE COMPACT.



NOTES:

- FOR DESCRIPTIONS, MATERIALS AND CONSTRUCTION METHODS, SEE LATEST STANDARD SPECIFICATIONS.
- ALL CONCRETE DIMENSIONS SHOWN ARE MINIMUM.

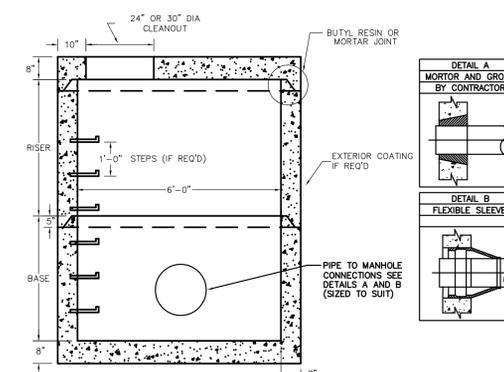
CONCRETE & FIELD STONE MASONRY PIPE END
FOR 8" TO 30" PIPE
NOT TO SCALE



PRECAST CONCRETE CATCH BASIN
NOT TO SCALE

NOTES:

- FACE OF PIPE SHALL BE FLUSH OR NOT TO PROJECT MORE THAN 4" FROM FACE OF WALL ALONG CENTERLINE OF PIPE.
- FOR DESCRIPTION, MATERIALS, AND CONSTRUCTION METHODS SEE MASSACHUSETTS HIGHWAY DEPARTMENT "STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES" AND CONSTRUCTION STANDARDS AND THE CONTRACT DOCUMENT SPECIFICATIONS.
- WHEN A CURB INLET IS INSTALLED, THE OPENING IS TO BE 24" ±1" X 27" ±1".
- ALL CATCH BASINS SHALL INCLUDE A CATCH BASIN HOOD FOR THE OUTLET PIPE.
- CATCH BASIN AND ALL APPURTENANCES SHALL MEET H-20 LOADING.
- BRICK SHALL BE SOUND, HARD, AND UNIFORMLY BURNED BRICK, REGULAR AND UNIFORM IN SHAPE AND SIZE, OF COMPACT TEXTURE, AND SATISFACTORY TO THE ENGINEER. BRICKS SHALL COMPLY WITH ASTM C32, FOR GRADE SS, HARD BRICK, EXCEPT THAT THE MEAN OF FIVE TESTS FOR ABSORPTION SHALL NOT EXCEED 8 PERCENT BY WEIGHT.

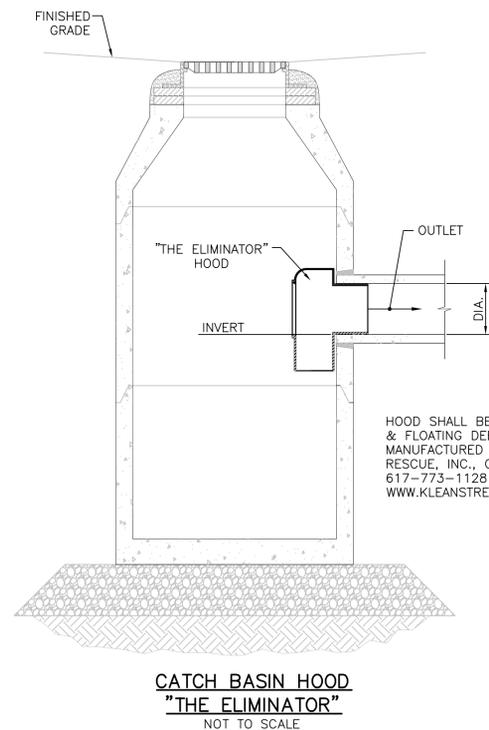


RISER SECTION			FLAT TOP		
HEIGHT	ITEM NO	WEIGHT	HEIGHT	ITEM NO	WEIGHT
2'-0"	MH-24CS6ID	3,570#	1'-0"	MH-F16ID	3,940#
3'-0"	MH-36CS6ID	5,354#			
4'-0"	MH-48CS6ID	7,139#			
5'-0"	MH-60CS6ID	8,923#			
6'-0"	MH-72CS6ID	10,708#			

BASE SECTION		
HEIGHT	ITEM NO	WEIGHT
2'-0"	MH-24SB6ID	6,357#
3'-0"	MH-36SB6ID	8,142#
4'-0"	MH-48SB6ID	9,926#
5'-0"	MH-60SB6ID	11,711#
6'-0"	MH-72SB6ID	13,496#

NOTES:

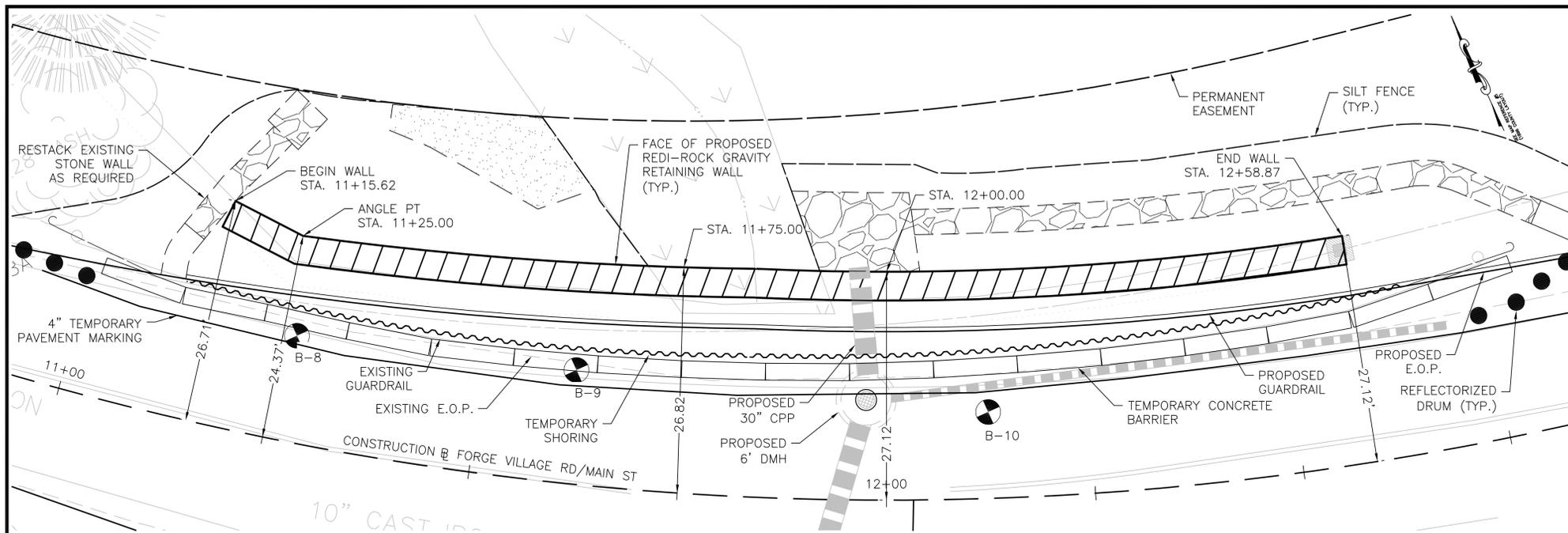
- CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
- REINFORCED STEEL CONFORMS TO LATEST ASTM A185 SPEC. #18 SQ. IN./LINEAL FT. AND 0.18 SQ. IN. (BOTH WAYS) BASE BOTTOM.
- H-20 DESIGN LOADING PER AASHTO HS-20-44; ASTM C478 SPEC FOR "PRECAST REINFORCED CONCRETE MANHOLE SECTIONS".
- BUTYL RESIN SECTION JOINT CONFORMS TO LATEST ASTM C990 SPECIFICATION.
- STEEL REINFORCED COPOLYMER POLYPROPYLENE PLASTIC STEP CONFORMS TO LATEST ASTM C478 SPEC.



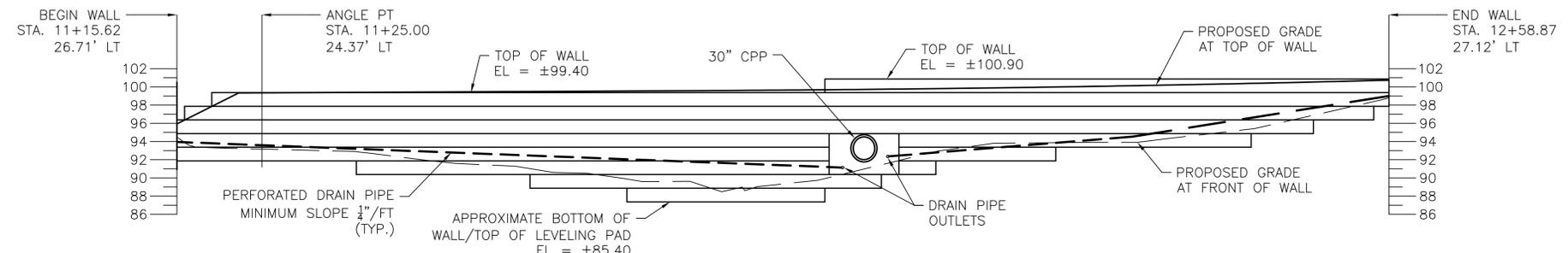
CATCH BASIN HOOD
"THE ELIMINATOR"
NOT TO SCALE

JOB DATA		REVISIONS	
PROJECT	BOOK NO.	NO.	DESCRIPTION
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DESIGNED	CLR		
DRAWN	RAC		
CHECKED			
COGO FILE	07251JUS		
FILE	2007251_CONS-DETAILS		

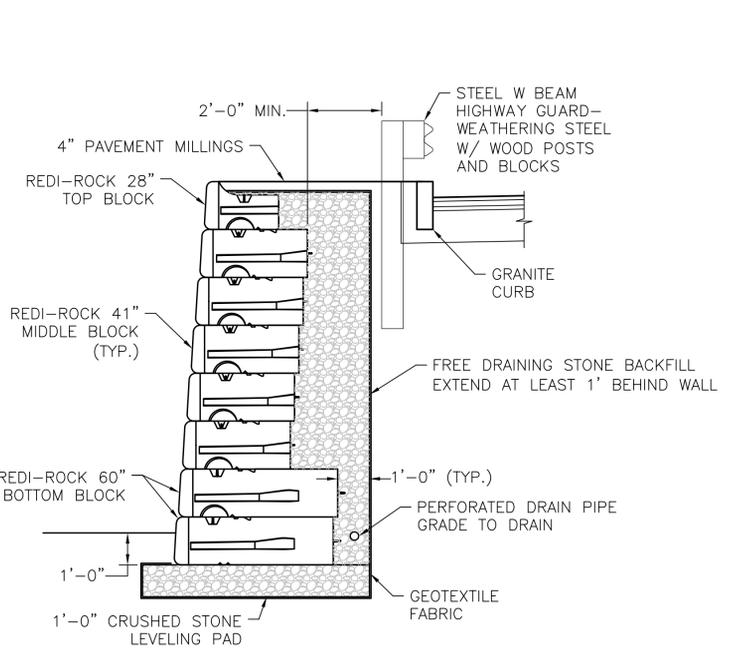
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PROJECT #2007251



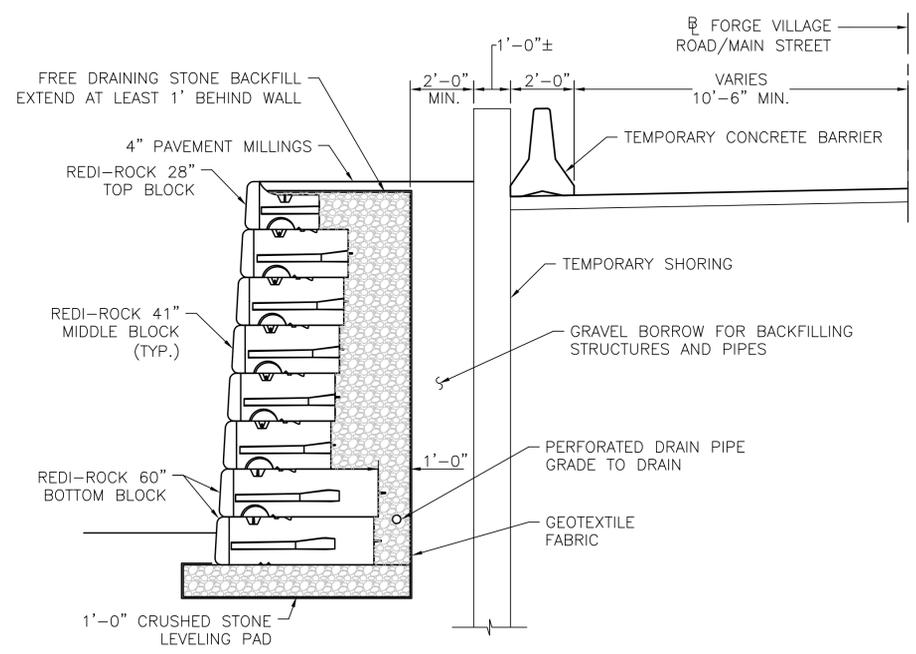
RETAINING WALL PLAN
SCALE: 1/8" = 1'-0"



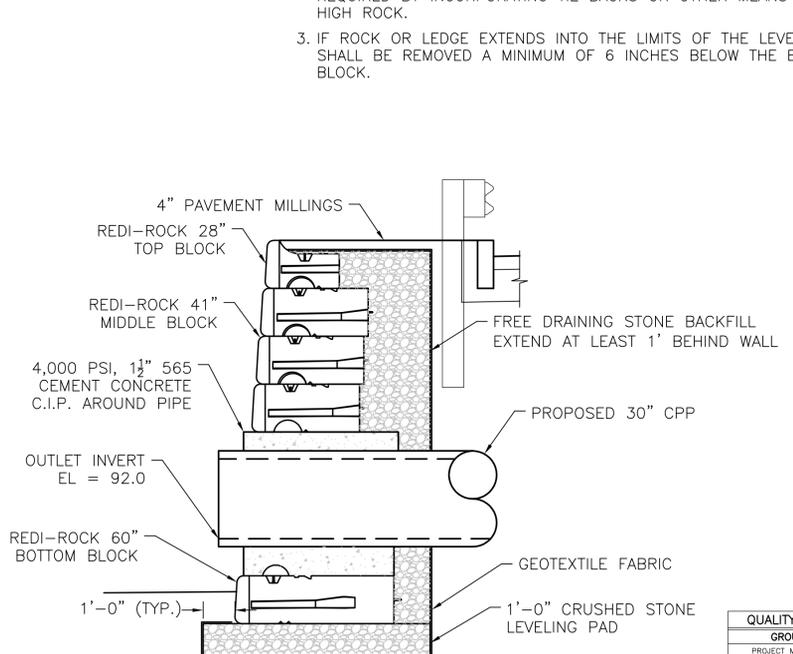
RETAINING WALL ELEVATION (DEVELOPED)
SCALE: 1/8" = 1'-0"



TYPICAL RETAINING WALL SECTION
SCALE: 3/8" = 1'-0"



TYPICAL STAGE CONSTRUCTION SECTION
SCALE: 3/8" = 1'-0"



SECTION AT PIPE PENETRATION
SCALE: 3/8" = 1'-0"

GENERAL NOTES:

1. REMOVAL OF THE EXISTING STACKED STONE RETAINING WALL SHALL BE PAID FOR UNDER THE ITEM "CLASS B ROCK EXCAVATION".
2. THE HORIZONTAL PAY LIMITS FOR THE ITEM "BRIDGE EXCAVATION" SHALL BE FROM THE BACK OF THE EXISTING STACKED STONE RETAINING WALL TO THE FRONT FACE OF THE TEMPORARY SHORING.

PREFABRICATED MODULAR WALL SYSTEM NOTES:

1. WALL LAYOUT AND BLOCK SIZES SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL DESIGN, LAYOUT AND CONSTRUCTION OF THE WALL. CONTRACTOR SHALL SUBMIT PLANS AND CALCULATIONS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER IN THE STATE OF MASSACHUSETTS PRIOR TO THE START OF CONSTRUCTION.
2. CONTRACTOR SHALL COORDINATE WITH TOWN ON FINAL TEXTURE AND COLOR OF THE BLOCKS.
3. THE ALLOWABLE SOIL BEARING PRESSURE SHALL BE 3 KSF PER AASHTO STANDARD SPECIFICATIONS. CONTRACTOR SHALL VERIFY FOUNDATION SOILS AS BEING COMPETENT PER THE DESIGN STANDARDS AND PARAMETERS. DO NOT OVER EXCAVATE UNLESS REQUIRED TO REMOVE UNSUITABLE SOIL.
4. MINIMUM DEPTH OF WALL BELOW FINISH GRADE SHALL BE 12" UNLESS SHOWN DIFFERENTLY.
5. NATIVE FOUNDATION SOIL SHALL BE COMPACTED TO 95% OF STANDARD PROCTOR OR 90% OF MODIFIED PROCTOR PRIOR TO PLACEMENT OF THE LEVELING PAD.
6. LEVELING PAD SHALL BE CRUSHED STONE AND HAVE A MINIMUM DEPTH OF 12". PAD DIMENSIONS SHALL EXTEND BEYOND THE BLOCKS IN ALL DIRECTIONS TO A DISTANCE AT LEAST EQUAL TO THE DEPTH OF THE PAD OR AS REQUIRED BY THE BLOCK MANUFACTURER.
7. FOLLOW SPECIAL PROVISIONS AND APPLICABLE PROVISIONS OF THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND WRITTEN SPECIFICATIONS. MANUFACTURER'S REPRESENTATIVE SHALL BE ON SITE DURING INSTALLATION OF THE WALL.

TEMPORARY SHORING NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN, PROCUREMENT, INSTALLATION AND REMOVAL OF A TEMPORARY SHORING SYSTEM TO MAINTAIN AND SUPPORT THE EXISTING ROADWAY DURING THE CONSTRUCTION OF THE RETAINING WALL. PLANS AND CALCULATIONS OF THE TEMPORARY SHORING SYSTEM SHALL BE PREPARED AND SUBMITTED TO THE ENGINEER FOR APPROVAL. CONTRACTOR SHALL SUBMIT FOR REVIEW PLANS AND CALCULATIONS; SIGNED AND SEALED BY A PROFESSIONAL ENGINEER IN THE STATE OF MASSACHUSETTS PRIOR TO THE START OF CONSTRUCTION.

SUBSURFACE NOTES:

1. THE CONTRACTOR SHALL BE AWARE THAT A LIMITED SUBSURFACE INVESTIGATION HAS BEEN DONE AT THIS SITE. A SUMMARY OF THE INFORMATION IS INCLUDED IN THE PROJECT SPECIFICATIONS. BASED ON SOIL BORINGS TAKEN CLOSE TO THE EXISTING WALL, SHALLOW ROCK OR BOULDERS MAY BE PRESENT WITHIN THE WORK LIMITS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING METHODS OF SHORING AS REQUIRED BY INCORPORATING TIE BACKS OR OTHER MEANS TO ACCOUNT FOR HIGH ROCK.
3. IF ROCK OR LEDGE EXTENDS INTO THE LIMITS OF THE LEVELING PAD THE ROCK SHALL BE REMOVED A MINIMUM OF 6 INCHES BELOW THE BOTTOM COURSE OF BLOCK.

QUALITY CONTROL CERTIFICATION		
GROUP	REVIEWED	DATE
PROJECT MANAGER		
SURVEY		
ENVIRONMENTAL		
CIVIL		
STRUCTURAL		
ARCHITECTURAL		

CME Associates, Inc.



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50 Elm Street, Southbridge, MA 01550
Phone 866-291-3327
www.cmeengineering.com

ROADWAY IMPROVEMENT PLAN
PREPARED FOR
TOWN OF WESTFORD
FORGE VILLAGE ROAD, MAIN STREET & FLAGG ROAD
WESTFORD, MASSACHUSETTS

RETAINING WALL PLAN

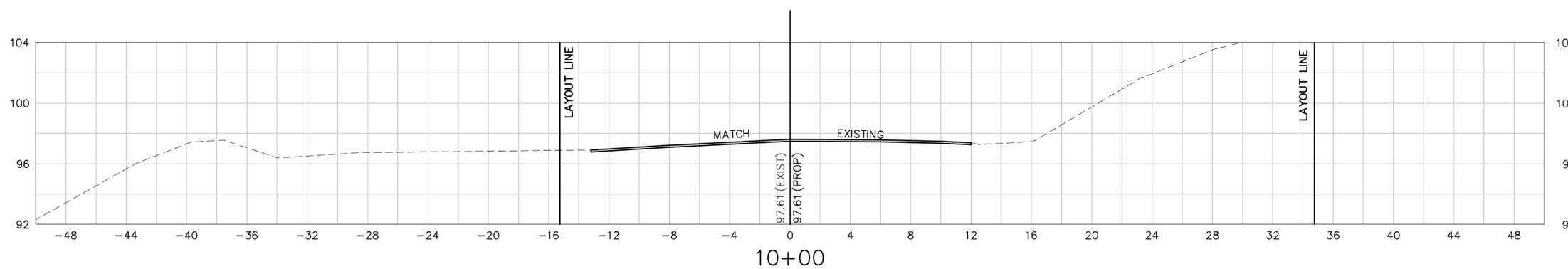
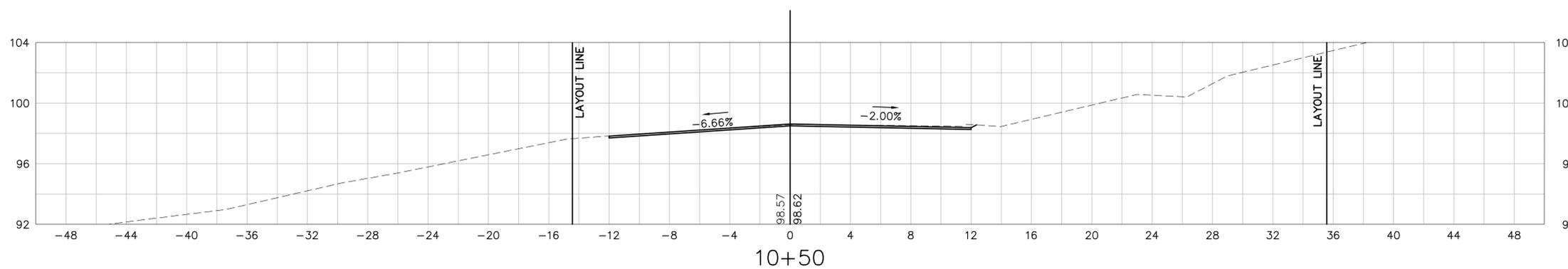
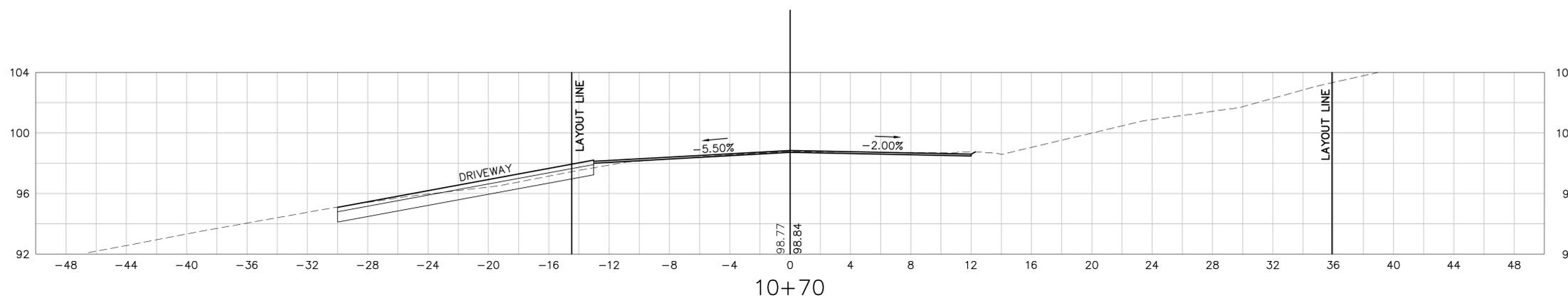
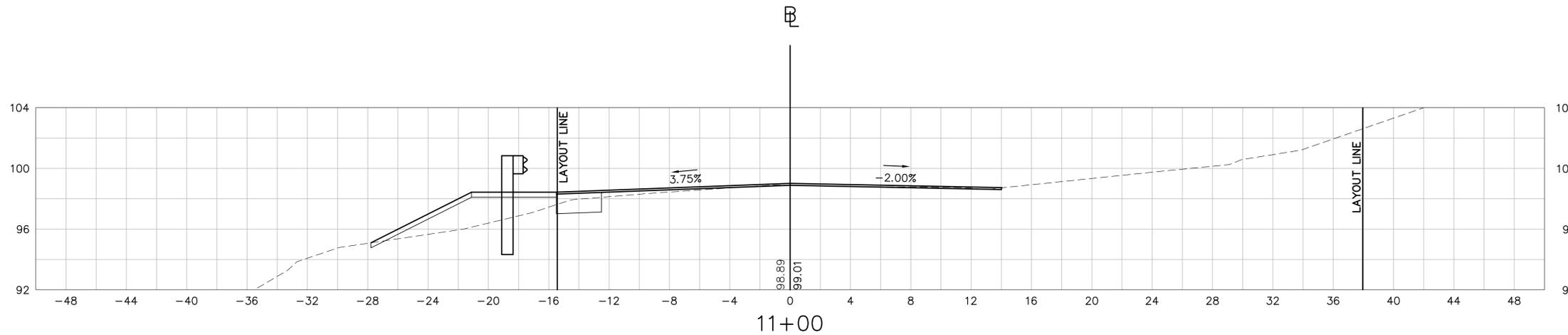
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		BOOK NO.	153
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		COGO FILE	07251JUS
		FILE	2007251_RET WALL

DATE: 06/15/2012
SCALE AS NOTED
PROJECT #2007251

QUALITY CONTROL CERTIFICATION

GROUP	REVIEWED	DATE
PROJECT MANAGER		
SURVEY		
ENVIRONMENTAL		
CIVIL		
STRUCTURAL		
ARCHITECTURAL		

SHEET 13

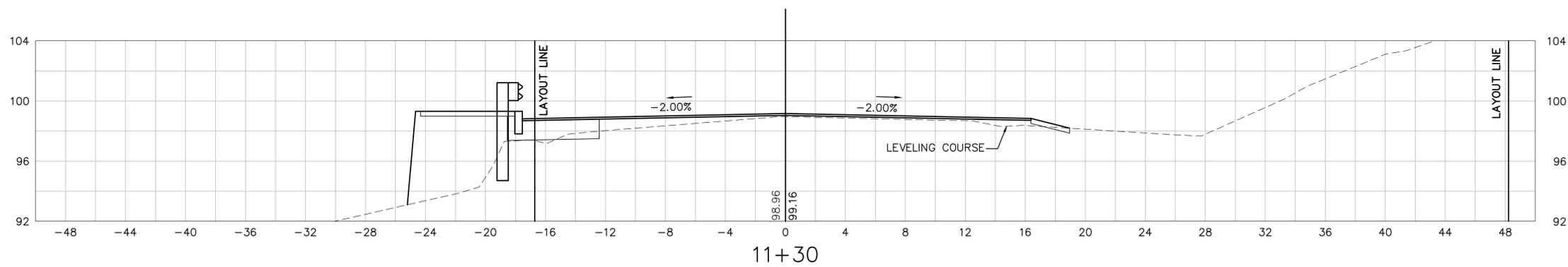
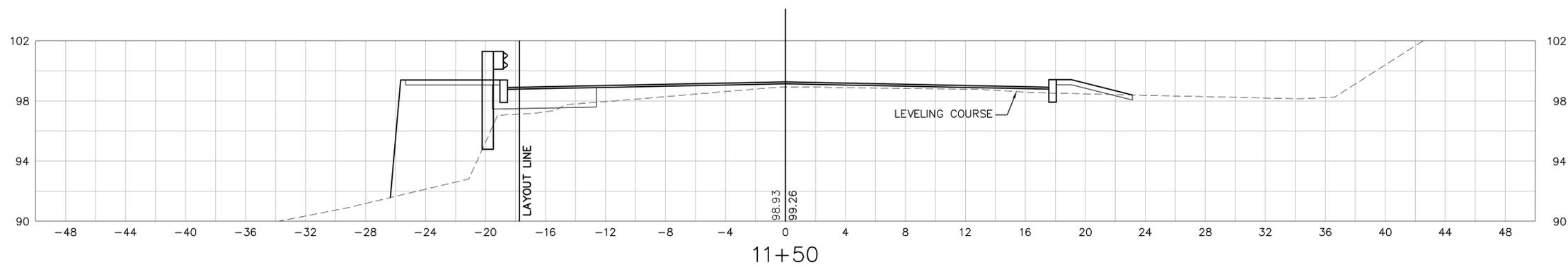
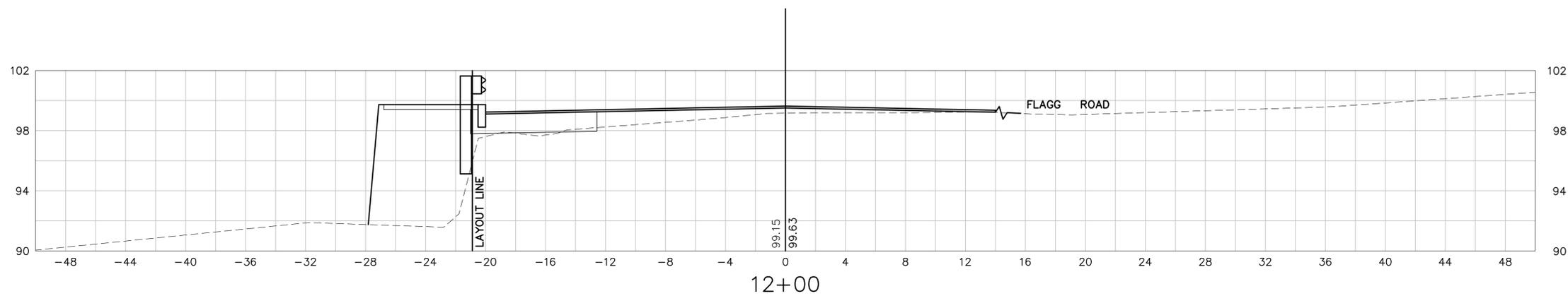
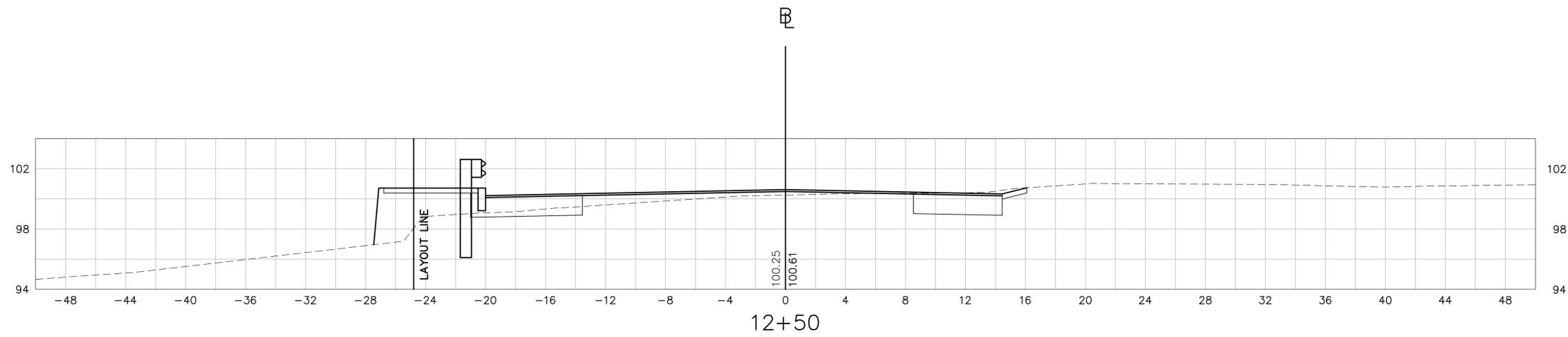


REFER TO EXHIBIT 18-25 "SHRINKAGE AND SWELL CRITERIA" IN THE MHD PROJECT DEVELOPMENT & DESIGN GUIDE, 2006 EDITION, FOR ESTIMATING EXCAVATION AND EMBANKMENT QUANTITIES.

ROADWAY IMPROVEMENT PLAN
 PREPARED FOR
TOWN OF WESTFORD
 FORGE VILLAGE ROAD, MAIN STREET & FLAGG ROAD
 WESTFORD, MASSACHUSETTS
CROSS SECTIONS FORGE VILLAGE/MAIN
STA. 10+00 - 11+00

JOB DATA		REVISIONS	
PROJECT	NO.	DATE	DESCRIPTION
2007251_WESTFORD			
BOOK NO. 153			
DESIGNED CLR			
DRAWN RAC			
CHECKED -			
COGO FILE 07251JUS			
FILE 2007251_XCS			

DATE: 06/15/2012
 SCALE: AS SHOWN
 PROJECT #2007251



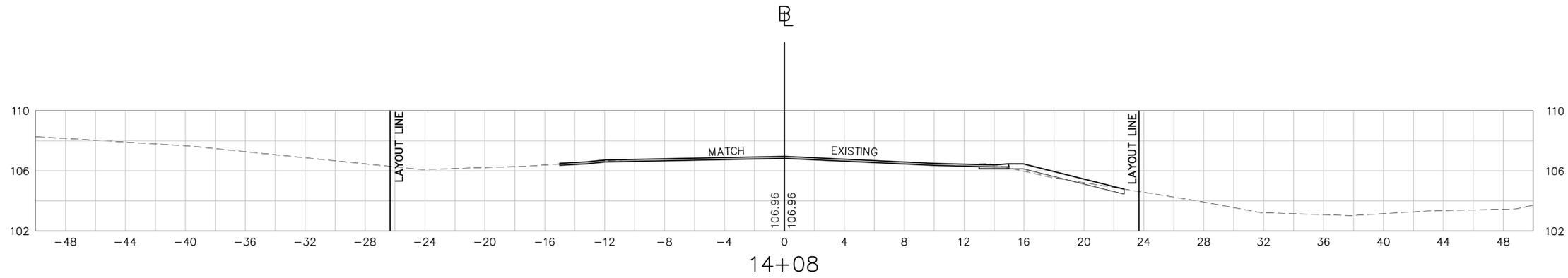
ROADWAY IMPROVEMENT PLAN
PREPARED FOR

TOWN OF WESTFORD
FORGE VILLAGE ROAD, MAIN STREET & FLAGG ROAD
WESTFORD, MASSACHUSETTS

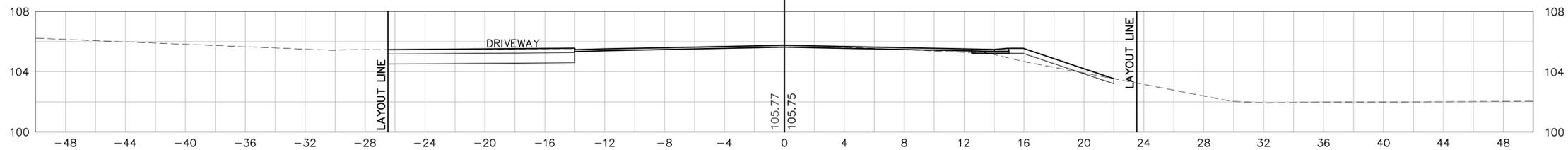
**CROSS SECTIONS FORGE VILLAGE/MAIN
STA. 11+30 - 12+50**

JOB DATA		REVISIONS	
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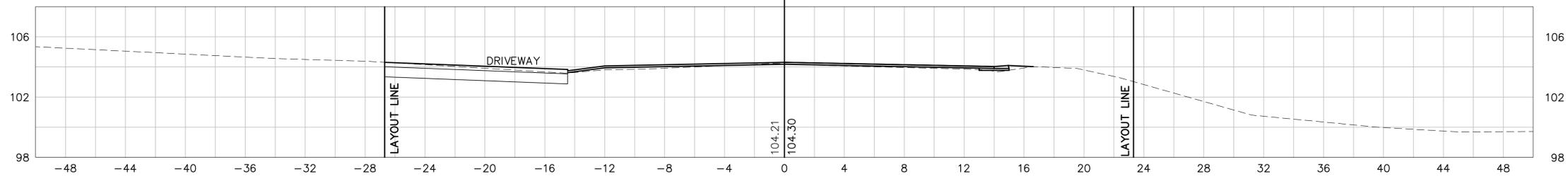
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PROJECT #2007251



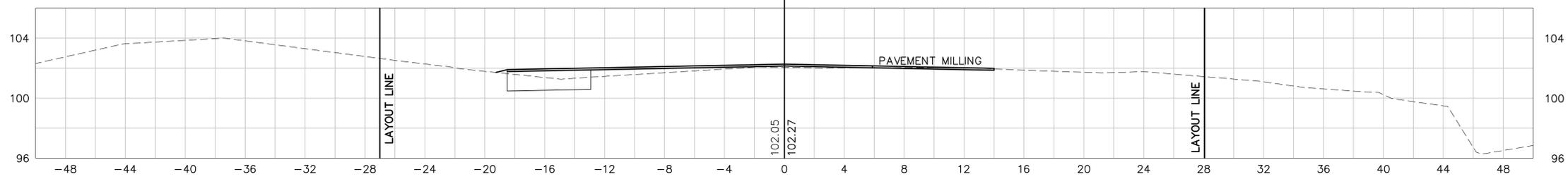
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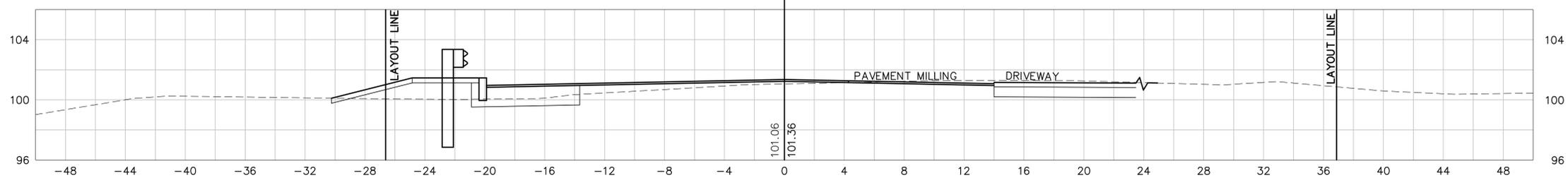
13+85



13+50



13+00



12+75

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WESTFORD, MASSACHUSETTS

CROSS SECTIONS FORGE VILLAGE/MAIN
STA. 12+75 - 14+08

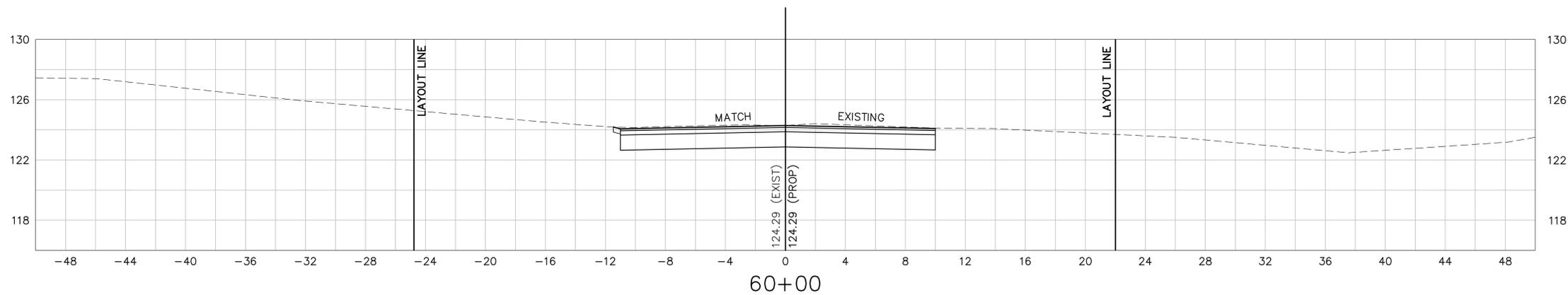
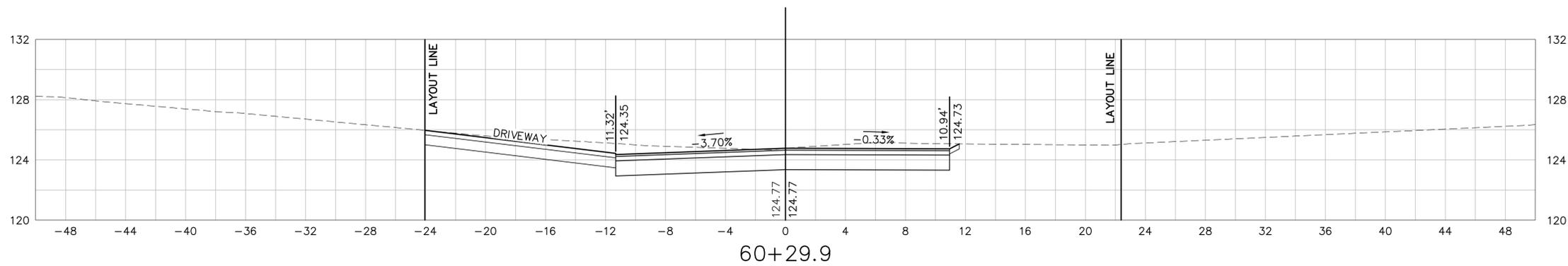
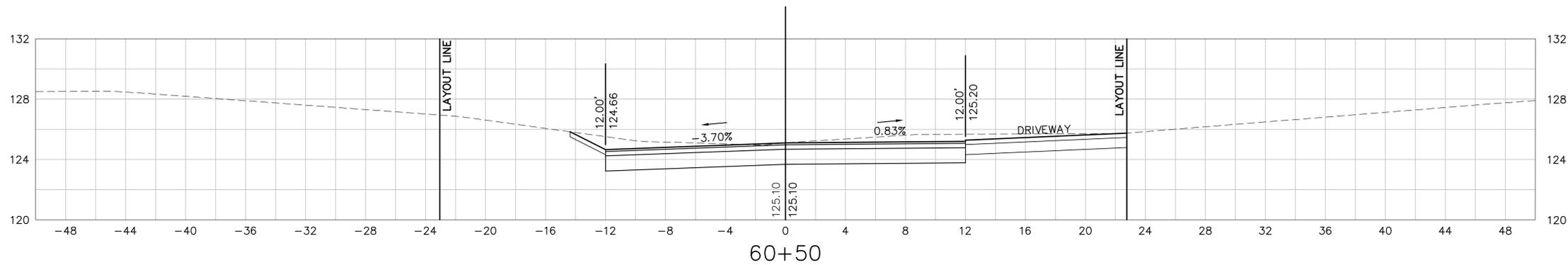
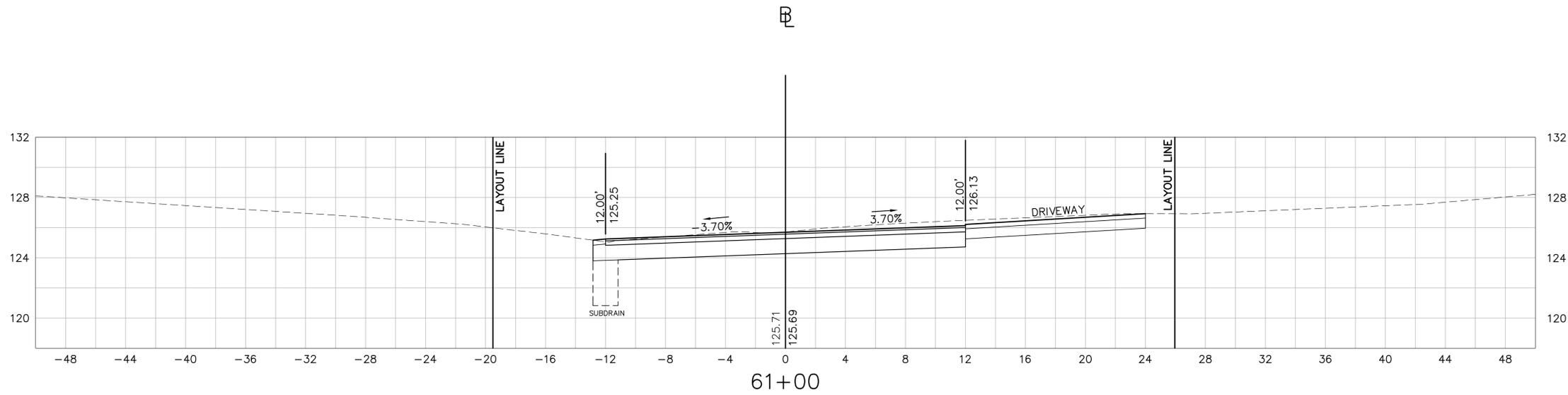
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BOOK NO.	153		
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COORD FILE	07251JUS		
FILE	2007251_XCS		

DATE: 06/15/2012

SCALE: AS SHOWN

PROJECT #2007251

SHEET 16



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ROADWAY IMPROVEMENT PLAN
PREPARED FOR

TOWN OF WESTFORD
FORGE VILLAGE ROAD, MAIN STREET & FLAGG ROAD
WESTFORD, MASSACHUSETTS
CROSS SECTIONS FLAGG ROAD
STA. 60+00 - 61+00

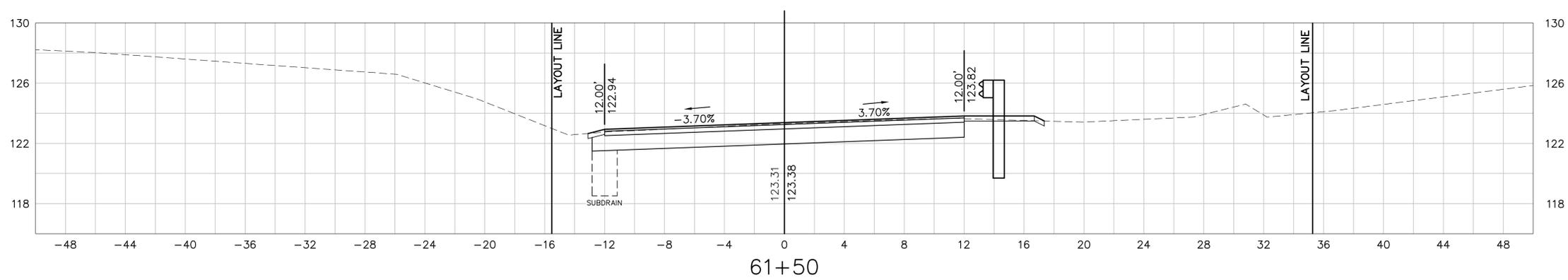
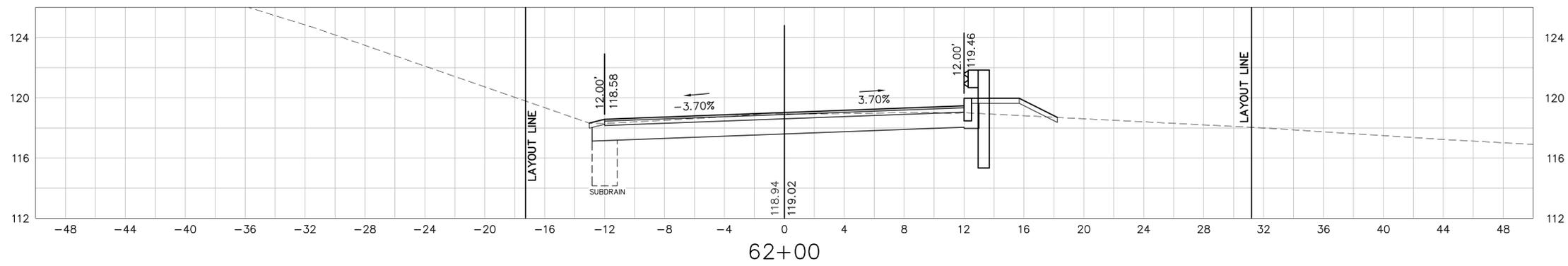
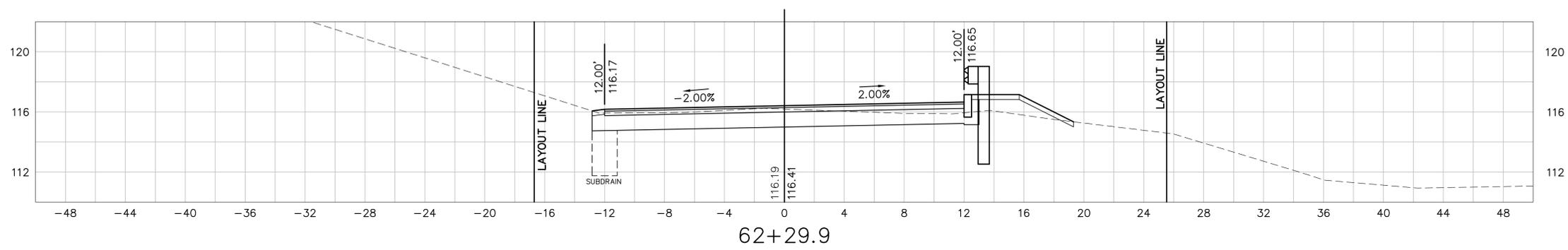
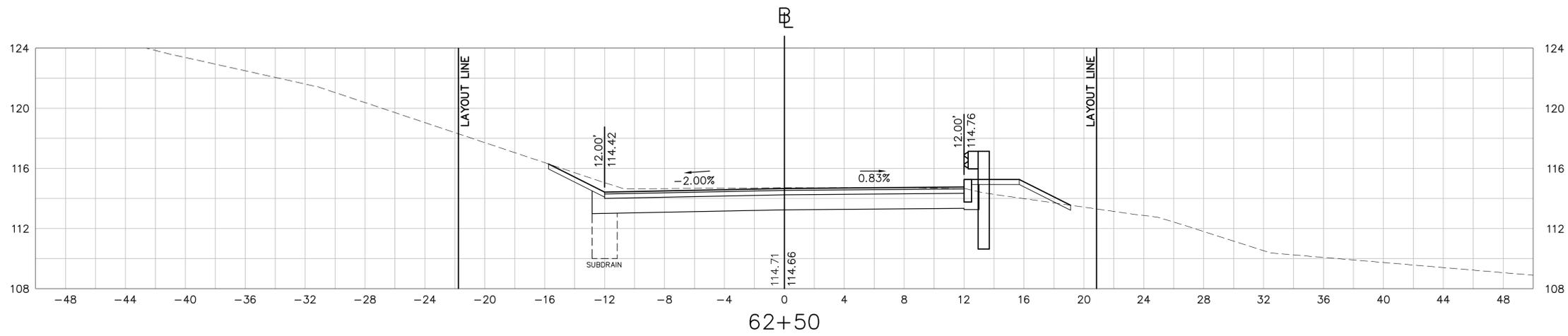
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SHEET 17



ROADWAY IMPROVEMENT PLAN
 PREPARED FOR

TOWN OF WESTFORD
 FORGE VILLAGE ROAD, MAIN STREET & FLAGG ROAD
 WESTFORD, MASSACHUSETTS

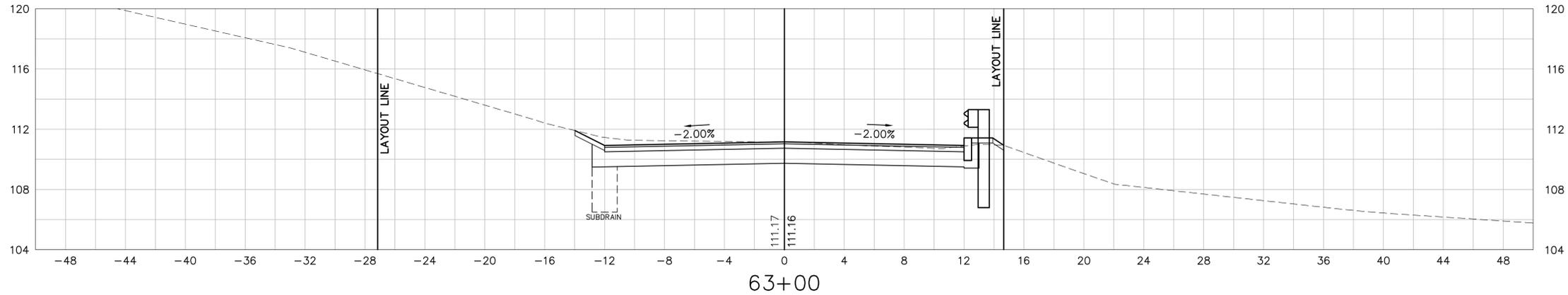
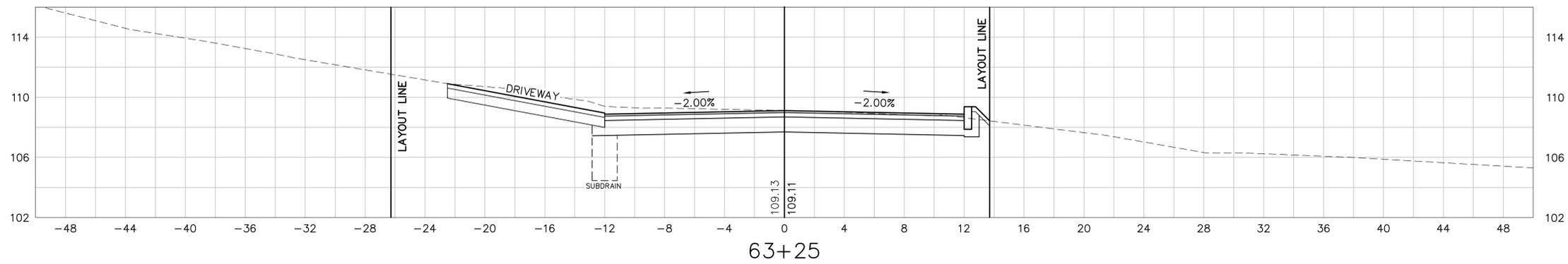
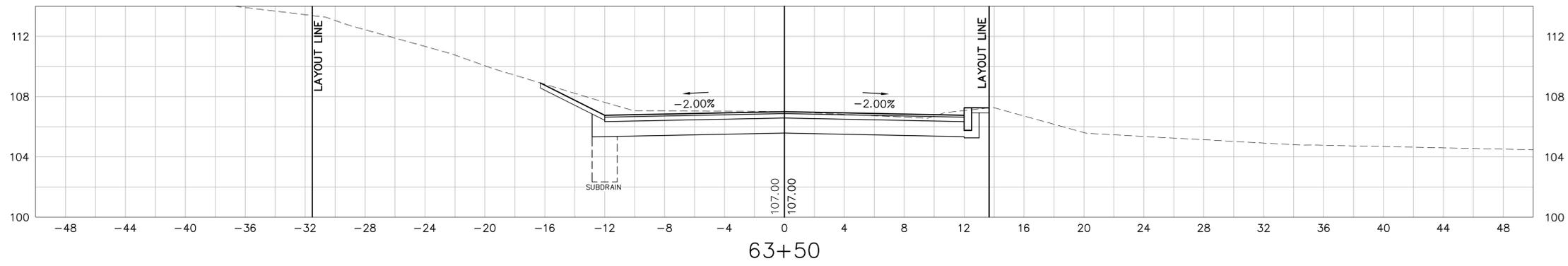
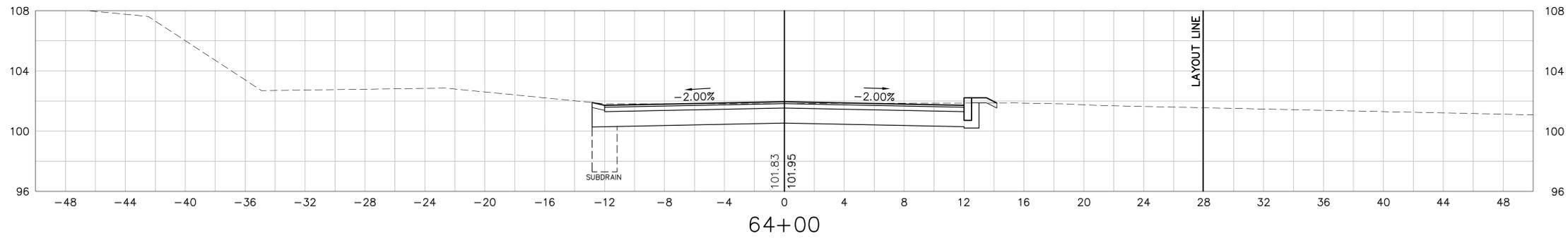
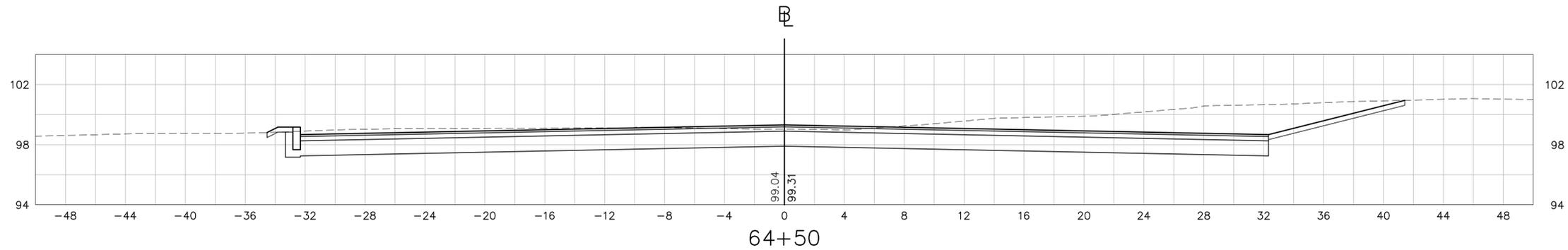
CROSS SECTIONS FLAGG ROAD
 STA. 61+50 - 62+50

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DRAWN RAC			
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COGO FILE 07251JUS			
FILE 2007251_XCS			

DATE: 06/15/2012

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ROADWAY IMPROVEMENT PLAN
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TOWN OF WESTFORD
 FORGE VILLAGE ROAD, MAIN STREET & FLAGG ROAD
 WESTFORD, MASSACHUSETTS
CROSS SECTIONS FLAGG ROAD
STA. 63+00 - 64+50

JOB DATA		REVISIONS	
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SCALE: AS SHOWN
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SHEET 19

WETLAND REPLICATION SPECIFICATIONS & GENERAL NOTES

REPLICATION SITE SELECTION

THE WETLAND REPLICATION AREA SELECTED IS PROPOSED NEAR THE BORDERING VEGETATED WETLAND. THE PROPOSED WETLAND REPLICATION IS 156 S.F. AND WILL CONSIST OF PLANTING (5) WETLAND SHRUBS. THE REPLICATION AREA SHOULD READILY TAKE BECAUSE IT IS LOCATED ADJACENT TO THE MAIN WETLAND AREA. IN ADDITION IT IS LOCATED ADJACENT TO THE NATURAL WETLAND AND THIS WILL AID IN REVEGETATION BY OPPORTUNISTIC NATIVE SPECIES.

HYDROLOGY

THE HYDROLOGY AT THE REPLICATION SITE IS CRITICAL IN CONTROLLING THE PLANT COMMUNITY THAT DEVELOPS, AND MANY OF THE ECOLOGICAL FUNCTIONS OF THE SITE. THERE WILL BE UNRESTRICTED HYDRAULIC CONNECTIONS BETWEEN THE REPLICATED WETLAND AND WATER SOURCE. THE REPLICATION AREA WILL BE EXCAVATED TO THE GROUNDWATER ELEVATION, AND SHALL BE FED BY THE INTERMITTENT STREAM FLOW. INITIAL EXCAVATION FOR THE REPLICATION AREA SHALL BE CONDUCTED AT THE SAME TIME AS THE WETLAND FILLING. FINISHED GRADES OF THE REPLICATION AREA SHALL BE ADJUSTED IN THE FIELD BY A QUALIFIED WETLAND SCIENTIST TO ASSURE PROPER HYDROLOGIC CONNECTION WITH ADJACENT WETLAND AND PROPER RELATION TO GROUNDWATER ELEVATIONS TO ASSURE THE AREA WILL PERMANENTLY FUNCTION AS WETLAND.

SOILS

AN IMPORTANT FACTOR IN THE SUCCESS OF A REPLICATION AREA IS THE PROPER USE OF SOILS EITHER TRANSLOCATED (I.E. THE RELOCATION AND REUSE OF HYDRIC SOILS FROM THE IMPACTED RESOURCE AREA TO THE PROPOSED REPLICATION AREA) FROM THE IMPACTED WETLAND OR SOIL AMENDMENTS BROUGHT FROM OFF-SITE.

SOIL TRANSLOCATION

SOIL TRANSLOCATION IS THE PREFERRED METHODOLOGY FOR OBTAINING REPLICATION SOILS. SINCE THIS IS NOT POSSIBLE BECAUSE THE SITE CONTAINS INVASIVE PLANT SPECIES COMPOSTED LEAF LITTER WILL BE MIXED WITH SOIL AS AN AMENDMENT. A WETLAND SCIENTIST, PRIOR TO THE USE AND INSTALLATION OF HYDRIC SOILS IN THE REPLICATION AREA, ALL EXCAVATION OF THE REPLICATION AREA TO APPROPRIATE SUBGRADE ELEVATIONS SHOULD BE COMPLETED. SOIL TAKEN FROM AREAS WHERE THE INVASIVE SPECIES ARE PRESENT SHOULD ALWAYS BE AVOIDED. A QUALIFIED SOIL SCIENTIST SHALL INSPECT THE EXCAVATED AREA.

SOIL AMENDMENTS

COMPOSTED LEAF LITTER IS TO BE MIXED WITH TOPSOIL AS AN AMENDMENT. THE OBJECTIVE IS TO OBTAIN APPROXIMATELY 50% ORGANIC MATERIAL/TOPSOIL. AFTER THE SOIL IS MANAGED FOR PROPER CONSISTENCY (E.G. LOOSE TO FRIABLE), THE SOIL CONSISTENCY SHOULD BE TESTED. IF THE PROPER CONSISTENCY HAS NOT BEEN ACHIEVED, FURTHER EFFORTS SHOULD BE UNDERTAKEN TO ACHIEVE PROPER CONSISTENCY. SURVEYING OF SUBGRADES AND FINISHED ELEVATIONS SHOULD BE CONDUCTED FREQUENTLY DURING CONSTRUCTION. TO SUPPLEMENT ORGANIC MATERIAL, IT IS RECOMMENDED THAT COURSE WOODY DEBRIS (E.G. LOGS) BE SCATTERED ON THE REPLICATION AREA IN BETWEEN PLANTINGS TO ADD STRUCTURE AND A LONG-TERM SOURCE OF DECAYING ORGANIC MATERIAL, TO COVER AT LEAST FIVE PERCENT OF THE AREA. SOILS TO BE USED AT THE MITIGATION SITE SHOULD BE USED IMMEDIATELY IF POSSIBLE AND STOCKPILED FOR AS LITTLE TIME AS POSSIBLE. WHILE STOCKPILED, THE SOILS SHOULD BE KEPT WET AND NOT BE ALLOWED TO DRY OUT. CONTAMINATION OF THESE SOILS SHOULD BE PREVENTED. THEY SHOULD BE TRANSPORTED IN VEHICLES THAT HAVE BEEN WASHED SO THAT NO EXOTIC/INVASIVE SEEDS FROM OTHER SITES GET MIXED IN WITH THEM.

PLANTING REQUIREMENTS

A QUALIFIED PROFESSIONAL WITH TRAINING IN WETLAND SCIENCE, SHALL OVERSEE PLANTING PROCEDURES. WETLAND PLANTS FROM THE EXISTING WETLAND SHOULD BE REMOVED IN PLUGS OR CLUMPS AND PROTECTED AGAINST DESICCATION. SHRUBS SHOULD BE ROOT PRUNED PRIOR TO TRANSPORTING. PLANTS SHOULD BE PLANTED WITHIN ONE DAY OF REMOVAL FROM EXISTING WETLAND OR AS SOON AS POSSIBLE AND PROPERLY PROTECTED (E.G. BURLAP), WATERED AND HANDLED. SHRUBS SHOULD BE PLANTED 8-10 FEET ON CENTER IN A RANDOM PATTERN. THE FOLLOWING IS A LIST OF ACCEPTABLE WETLAND PLANTS THAT MAY BE USED:

COMMON NAME	LATIN NAME
ARROW-WOOD	VIBURNUM DENTATUM
AZALEA, SWAMP	RHODODENDRON VISCOSUM
DOGWOOD, SILKY	CORNUS AMOMUM
DOGWOOD, GRAYSTEM	CORNUS FOEMINA RACEMOSA
WINTERBERRY, COMMON	ILEX VERTICILLATA
HIGH BUSH BLUEBERRY	VACCINIUM CORYMBOSUM

THESE ARE ALL PERENNIAL SPECIES THAT SHOULD ADAPT TO THE CONDITIONS ON SITE AND PROVIDE A GOOD BASIC WETLAND COMMUNITY. THE SPECIES WERE CHOSEN BECAUSE THERE NATIVE TO THE AREA AND SHALL READILY TAKE. SPECIES SELECTION AND DENSITY IS BASED ON AVAILABILITY. AS MENTIONED ABOVE (5) SMALL WETLAND SHRUB SPECIES SHALL BE PLANTED. IN ADDITION A NEW ENGLAND WETMIX WILL BE APPLIED TO THE WETLAND REPLICATION AREA TO INITIATE GROWTH. THE WETLAND SEED MIX CONTAINS A WIDE VARIETY OF NATIVE SEEDS THAT ARE SUITABLE FOR MOST WETLAND REPLICATION AND RESTORATION SITES THAT ARE NOT PERMANENTLY INUNDATED. ALL SPECIES ARE SUITABLE TO MOIST DISTURBED GROUND AS FOUND IN MOST WET MEADOWS, SCRUB SHRUB, OR FORESTED WETLAND RESTORATION AREAS. THE WETLAND SEED MIX CAN BE PURCHASED FROM NEW ENGLAND WETLAND PLANTS, INC. IN AMHERST, MA (413) 548-8000 WWW.NEWP.COM.

INVASIVE SPECIES

IF THE FOLLOWING INVASIVE SPECIES ARE FOUND GROWING IN REPLICATION AREAS, MEASURES SHOULD BE TAKEN TO ELIMINATE THEM AS SOON AS POSSIBLE BY HAND WEEDING. SOILS FROM EXISTING WETLANDS CONTAINING THESE SPECIES SHOULD NEVER BE USED IN REPLICATION AREAS.

- PURPLE LOOSESTRIPE (LYTHRUM SALICARIA)
- PHRAGMITES (PHRAGMITES AUSTRALIS)
- BUCKTHORN (RHAMNUS FRANGULA ALNUS)
- HONEYSUCKLES (LONICERA SPP.)
- GARLIC MUSTARD (ALLIARIA PETIOLATA)
- JAPANESE KNOTWEED (POLYGONUM CUSPIDATUM OR FALLOPIA JAPONICA)
- JAPANESE STILT GRASS (MICROSTEGIUM VIRGINEURUM)
- REED CANARY GRASS (PHALARIS ARUNDINACEA)
- BITTERSWEET NIGHTSHADE (CELASTRUS ORBICULATUS)
- BLACK SWALLOW-WORT (CYANANCHUM NIGRUM)
- PALE SWALLOW-WORT (CYANANCHUM ROSSICUM)

TRUCKS THAT HAVE PREVIOUSLY BEEN ON OTHER SITES SHOULD BE WASHED PRIOR TO INTRODUCTION TO THE REPLICATION SITE SO THAT MUD/DIRT WITH EXOTIC/INVASIVE SEEDS IS NOT INADVERTENTLY BROUGHT TO THE REPLICATION SITE.

TIMING OF PLANTINGS

ALL PLANTING SHOULD OCCUR AT THE BEGINNING OR END OF THE GROWING SEASON. FALL PLANTINGS SHOULD BE DONE BEFORE THE FIRST FROST. SHRUBS AND TREES, HOWEVER, MAY BE PLANTED UP TO NOVEMBER 15, WEATHER PERMITTING.

EROSION CONTROL

EROSION CONTROLS WILL BE PLACED ALONG THE BOUNDARY OF THE WETLAND REPLICATION AREA. UPON COMPLETION OF THE REPLICATION AREA, INSTALLATION OF EROSION FENCING AND STRAW WATTLES BETWEEN THE REPLICATION AREA AND THE ADJACENT UPLAND WILL BE PROVIDED TO PREVENT SILT FROM ENTERING THE REPLICATION AREA. PRIOR TO PERMANENT ESTABLISHMENT OF VEGETATION IN THE REPLICATION AREA, SOILS WILL BE TEMPORARILY STABILIZED TO PREVENT IMPACTS FROM EROSION BY MULCHING AND SEEDING WITH A WETLAND SEED MIXTURE UNTIL RE-ESTABLISHMENT OF WETLAND VEGETATION OCCURS. HYDRO SEEDING IS A VALUABLE EROSION CONTROL MEASURE AND MAY DISCOURAGE COLONIZATION BY INVASIVE SPECIES. ALL EMBANKMENT SLOPES ADJACENT TO WETLAND REPLICATION AREAS SHOULD HAVE SLOPES NO GREATER THAN 2H:1V UNLESS STABILIZED BY STRUCTURAL MEANS. BIOENGINEERING STABILIZATION METHODS ARE RECOMMENDED FOR SLOPE STABILIZATION. ORGANIC SOILS AND WETLAND VEGETATION SHOULD NOT BE PLACED IN THE REPLICATION AREA UNTIL THE WETLAND SCIENTIST HAS VERIFIED THAT THE FINAL EXCAVATED GRADE FOR THE REPLICATION AREA WILL ALLOW THE FINISHED GRADE OF THE REPLICATION SITE TO MEET THE DESIGN SPECIFICATIONS. FOLLOWING EXCAVATION WORK, FINAL GRADING AND LANDSCAPING SHOULD BE COMPLETED AS SOON AS POSSIBLE TO MINIMIZE EROSION. ALL EXPOSED SOIL WILL BE STABILIZED USING SEED-FREE MULCH OR OTHER APPROPRIATE EROSION CONTROL MEASURES IN THE EVENT THAT SEASONAL CONDITIONS RESULT IN A DELAY IN PLANTING. IF THE SITE IS EXCAVATED TO THE SUBGRADE IN THE FALL AND A DELAY IS INEVITABLE, CONSIDERATION SHOULD BE GIVEN TO STABILIZING THE SITE FOR WINTER, AND CONDUCTING FINAL GRADING IN THE SPRING. USE OF HYDRO SEEDING HAS BEEN FOUND TO STABILIZE A SITE QUICKLY AND MAY POSSIBLY HINDER GROWTH OF INVASIVE SPECIES. EROSION CONTROL MEASURES SUCH AS STRAW WATTLES AND SILT FENCES SHALL BE REMOVED AS SOON AS THE SITE IS STABLE TO ALLOW FOR PROPER HYDROLOGIC CONDITIONS.

MONITORING REQUIREMENTS

MONITORING IS CRITICAL IN WETLAND REPLICATION EFFORTS DUE TO THE COMPLEX ISSUES THAT CAN ARISE WHEN TRYING TO REPLACE THE SPECIFIC ECOLOGICAL CONDITIONS OF WETLANDS. MONITORING TO ENSURE THAT THE PROJECT IS BUILT ACCORDING TO THE DESIGN SPECIFICATIONS WILL ENSURE THAT THE MOST COMMON CAUSE OF FAILURE IS AVOIDED. A QUALIFIED WETLAND SCIENTIST SHALL BE ON-SITE TO MONITOR THE EXCAVATION, GRADING, AND PLANTING OF THE REPLICATION AREA. THE WETLAND SCIENTIST SHALL BE PRESENT DURING THE MOST IMPORTANT TASKS IN REPLICATION CONSTRUCTION INCLUDING:

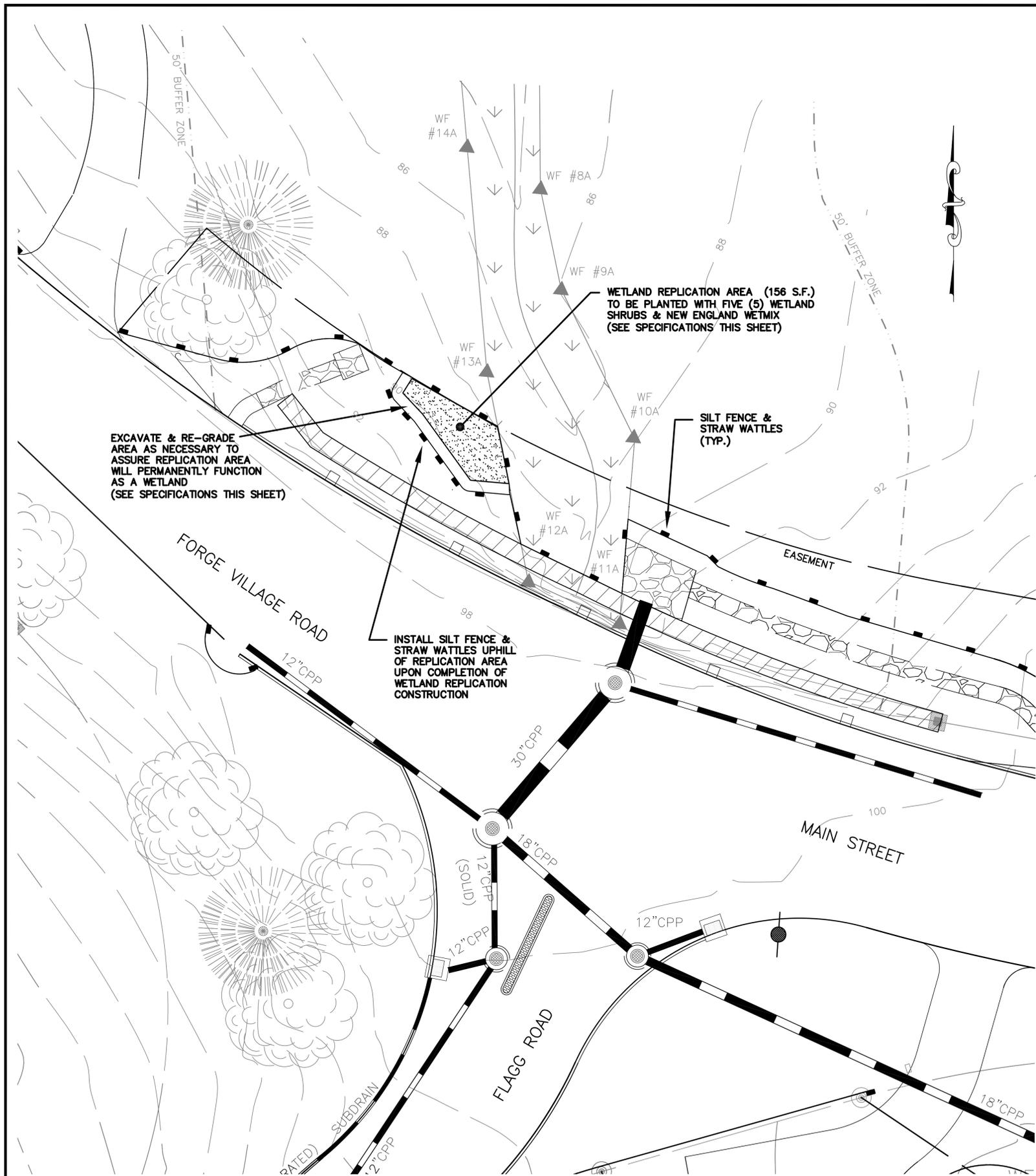
1. BEFORE EXCAVATION OR EROSION CONTROL INSTALLATION WORK BEGINS TO INSPECT SITE FLAGGING;
2. DURING EXCAVATION OF THE ALTERED AREA IF VEGETATION IS TO BE TRANSLOCATED TO THE REPLICATION AREA TO ENSURE SURVIVAL OF THE PLANTINGS;
3. BEFORE SOIL TRANSLOCATION OR ADDITION INTO THE REPLICATION AREA TO INSPECT EXCAVATED ELEVATIONS AND LIKELY POST-CONSTRUCTION GROUND WATER ELEVATIONS FOR THE REPLICATION AREA;
4. AFTER EACH STAGE OF GRADING WORK IS COMPLETED TO INSPECT FINISHED ELEVATIONS;
5. DURING PLANTING AND SEEDING AND AFTER THE FIRST MONTH OF THE GROWING SEASON TO INSPECT PROPAGATION TECHNIQUES.

GENERAL NOTES

1. ALL WETLAND REPLICATION WORK SHALL BE PERFORMED UNDER THE DIRECTION OF A QUALIFIED WETLAND SCIENTIST AND IN ACCORDANCE WITH THE ORDER OF CONDITIONS ISSUED BY THE WESTFORD CONSERVATION COMMISSION ON JULY 28, 2011 (MASSDEP FILE # 334-1512) AND THE SPECIFICATIONS AND PROCEDURES OUTLINED ON THIS SHEET.

2. ALL WORK, MATERIALS, ETC. REQUIRED TO CONSTRUCT THE WETLAND REPLICATION AREA SHALL BE INCLUDED IN THE BID PRICE.

3. THE TOWN OF WESTFORD SHALL BE RESPONSIBLE FOR THE LONG TERM MONITORING AND REPORTING REQUIRED FOR THE WETLAND REPLICATION AREA UPON FINAL PROJECT CLOSEOUT. MONITORING REQUIREMENTS CAN BE FOUND IN THE REPORT ENTITLED "WETLAND REPLICATION REPORT FOR FORGE VILLAGE ROAD & MAIN STREET, WESTFORD, MA" PREPARED BY NORSE ENVIRONMENTAL SERVICES, INC. DATED JUNE 2012. THE TOWN SHALL ALSO BE RESPONSIBLE FOR THE PREPARATION OF AN AS-BUILT PLAN AND FOR REQUESTING A CERTIFICATE OF COMPLIANCE WITH THE WESTFORD CONSERVATION COMMISSION.



WETLAND REPLICATION PLAN
SCALE: 1"=10'

TOWN OF WESTFORD, MASSACHUSETTS
ENGINEERING DEPARTMENT
28 North Street
Westford, Massachusetts 01886
(978) 692-5520

ROADWAY IMPROVEMENT PLAN
PREPARED FOR

TOWN OF WESTFORD
FORGE VILLAGE ROAD, MAIN STREET & FLAGG ROAD
WESTFORD, MASSACHUSETTS

BW REPLICATION PLAN

REVISIONS

JOB DATA

DATE: 06/15/2012
SCALE: AS SHOWN
PROJECT #2007251