

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION

WESTFORD BOSTON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	1	132
PROJECT FILE NO. 609035			

TITLE SHEET & INDEX

PLAN AND PROFILE OF
BOSTON ROAD

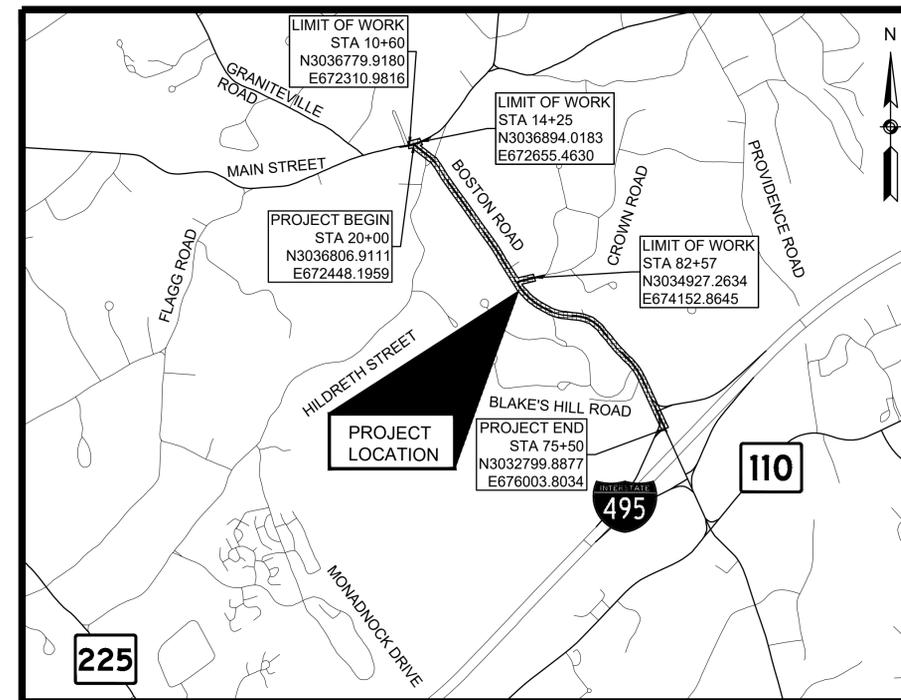
IN THE TOWN OF
WESTFORD
MIDDLESEX COUNTY

FEDERAL AID PROJECT NO. -

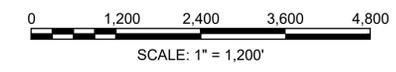
100% SUBMITTAL

THESE PLANS ARE SUPPLEMENTED BY THE OCTOBER 2017 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK.

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	BOSTON ROAD	MAIN STREET	CROWN ROAD
DESIGN SPEED	40 MPH	35 MPH	20 MPH
ADT (2018)	17,679 VPD		
ADT (2028)	20,925 VPD		
K	9.6%		
D	68.5% NB		
T (PEAK HOUR)	1.1%		
T (AVERAGE DAY)	2.4%		
DHV	2,015 VPH		
DDHV	1,379 VPH		
FUNCTIONAL CLASSIFICATION	URBAN MINOR ARTERIAL	URBAN MINOR ARTERIAL	LOCAL



LENGTH OF PROJECT = 5,550 FEET = 1.051 MILES

	11/3/2023	100% SUBMITTAL	2
	10/29/2021	75% SUBMITTAL	1
	10/22/2019	25% SUBMITTAL	0
	DATE	DESCRIPTION	REV #



282 Merrimack St
2nd Floor
Lawrence, MA 01843
978-794-1792



311 Main Street
2nd Floor
Worcester, MA 01608
508-868-5104



APPROVED

CHIEF ENGINEER

DATE

www.TheEngineeringCorp.com

GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		JERSEY BARRIER
		CATCH BASIN OR GUTTER INLET
		CATCH BASIN OR GUTTER INLET W/ CURB INLET
		CATCH BASIN OR GUTTER INLET W/ CURB INLET
		FLAG POLE
		GAS PUMP
		MAIL BOX
		POST SQUARE
		POST CIRCULAR
		WELL
		ELECTRIC HANDHOLE
		FENCE GATE POST
		GAS GATE
		BORING HOLE
		MONITORING WELL
		TEST PIT
		HYDRANT
		LIGHT POLE
		COUNTY BOUND
		GPS POINT
		CABLE MANHOLE
		DRAINAGE MANHOLE
		ELECTRIC MANHOLE
		GAS MANHOLE
		MISC MANHOLE
		SEWER MANHOLE
		TELEPHONE MANHOLE
		WATER MANHOLE
		MASSACHUSETTS HIGHWAY BOUND
		MONUMENT
		STONE BOUND
		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
		TROLLEY POLE OR GUY POLE
		TRANSMISSION POLE
		UTILITY POLE W/ FIREBOX
		UTILITY POLE W/ DOUBLE LIGHT
		UTILITY POLE W / 1 LIGHT
		UTILITY POLE
		UTILITY POLE
		BUSH
		TREE
		STUMP
		SWAMP / MARSH
		WATER GATE
		WATER SHUTOFF/CURB STOP
		PARKING METER
		OVERHEAD CABLE/WIRE
		CURBING
		CONTOURS (ON-THE-GROUND SURVEY DATA)
		CONTOURS (PHOTOGRAMMETRIC DATA)
		UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)
		BALANCED STONE WALL
		GUARD RAIL - STEEL POSTS
		GUARD RAIL - WOOD POSTS
		CHAIN LINK OR METAL FENCE
		WOOD FENCE
		SEDIMENT CONTROL BARRIER
		TREE LINE
		EDGE OF PAVEMENT
		SAWCUT LINE
		TOP OR BOTTOM OF SLOPE
		LIMIT OF EDGE OF MICROMILLING AND OVERLAY
		BANK OF RIVER OR STREAM
		BORDER OF WETLAND
		100 FT WETLAND BUFFER
		200 FT RIVERFRONT BUFFER
		STATE HIGHWAY LAYOUT
		TOWN OR CITY LAYOUT
		COUNTY LAYOUT
		RAILROAD SIDELINE
		TOWN OR CITY BOUNDARY LINE
		PROPERTY LINE OR APPROXIMATE PROPERTY LINE
		EASEMENT

TRAFFIC SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		CONTROLLER CABINET, FOUNDATION
		CONTROLLER CABINET, FOUNDATION, CONC. PAD
		MAST ARM FOUNDATION (SCALE OF BLOCK = DIAMETER IN INCHES)
		MAST ARM (LENGTH NOTED)
		EMERGENCY PREEMPTION CONFIRMATION STROBE LIGHT
		VEHICULAR SIGNAL HEAD
		PEDESTRIAN SIGNAL HEAD
		MAST ARM OR TS POLE MOUNTED SIGN
		EMERGENCY PRE-EMPTION RECEIVER
		EMERGENCY PRE-EMPTION CONFIRMATION STROBE
		PEDESTRIAN PUSH BUTTON
		YAGI ANTENNA
		BICYCLE WIRE LOOP DETECTOR (SIZE AS NOTED)
		WIRE LOOP DETECTOR (SIZE AND TYPE NOTED)
		TRAFFIC SIGN (1 POST)
		TRAFFIC SIGN (2 POST)
		PULL BOX 12"x12" (OR AS NOTED)
		ELECTRIC HANDHOLE 12"x24" (OR AS NOTED)
		TRAFFIC SIGNAL CONDUIT

PAVEMENT MARKINGS SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		PAVEMENT ARROW - WHITE
		LEGEND "ONLY" - WHITE
		BIKE LANE LEGEND - WHITE
		STOP LINE
		CROSSWALK
		SOLID WHITE LINE
		SOLID YELLOW LINE
		BROKEN WHITE LINE
		6" DOTTED WHITE LINE (3' LINE W/ 9" GAP)
		6" DOTTED WHITE LINE EXTENSION (2' LINE W/ 6' GAP)
		6" DOTTED YELLOW LINE EXTENSION (2' LINE W/ 6' GAP)
		DOUBLE YELLOW LINE
		12" YELLOW GORE LINE (3:1, 10' O.C.)

- GENERAL NOTES:**
- EXISTING CONDITIONS INFORMATION COMPILED FROM SURVEY BY TEC, INC IN JUNE 2017 AND NOVEMBER 2017 AND SUPPLEMENTED BY HANCOCK SURVEY ASSOCIATES, INC IN MAY 2022. HORIZONTAL DATUM = NAD83 (MASSACHUSETTS STATE PLANE COORDINATES) VERTICAL DATUM = NAVD88
 - ALL EXISTING STATE, COUNTY, AND TOWN LOCATION LINES HAVE BEEN ESTABLISHED FROM AN ACTUAL ON-THE-GROUND SURVEY. ALL PRIVATE PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND THEIR EXACT LOCATION ARE NOT GUARANTEED.
 - THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL CONTACT DIGSAFE (1-888-DIGSAFE) A MINIMUM OF 72 BUSINESS HOURS PRIOR TO ANY CONSTRUCTION TO VERIFY THE LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
 - WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.
 - ALL PRIVATELY OWNED UTILITY STRUCTURES (GAS GATES, ELECTRIC / TELEPHONE MANHOLES, ETC.) SHALL BE ADJUSTED TO FINISHED GRADE BY THE PRIVATE UTILITY COMPANY, UNLESS DIRECTED OTHERWISE. THE CONTRACTOR SHALL COORDINATE WITH PRIVATE UTILITY COMPANIES FOR THE ALTERATION AND ADJUSTMENT, AS NECESSARY.
 - THE TERM "PROPOSED" (PROP) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE AND RESET" (R&R), AS APPROVED BY THE ENGINEER.
 - THE TERM "MEET EXIST" MEANS TO MEET BOTH THE EXISTING ALIGNMENT AND ELEVATION.
 - ALL EXISTING TREES WITHIN THE PROJECT LIMITS SHALL BE RETAINED AND PROTECTED WITH TREE PROTECTION UNLESS INDICATED OTHERWISE ON THE DRAWINGS. ALL PROVIDED DIMENSIONS REFER TO THE DIAMETER AT BRESTA HEIGHT.
 - DETECTABLE WARNING PANELS ARE REQUIRED ON ALL PROPOSED PEDESTRIAN CURB RAMPS AND SHALL BE INSTALLED IN ACCORDANCE WITH MASSDOT CONSTRUCTION STANDARDS.
 - 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 CONTRACTORS EXPENSE.
 - ALL EXISTING GRANITE CURB AND EDGING THAT MEETS SPECIFICATIONS SHALL BE REUSED IN THE PROPOSED WORK, AS APPROVED BY THE ENGINEER.
 - IN AREAS OF EXISTING ROADWAY / SIDEWALK WHERE LOAM AND SEED IS PROPOSED, THE CONTRACTOR SHALL REMOVE EXISTING ROADWAY / SIDEWALK AND SUBBASE AND REPLACE WITH SUITABLE EXCAVATED MATERIAL AND PROPOSED 4" LOAM AND SEED TO MEET FINAL GRADE UNLESS OTHERWISE INDICATED ON THE PLANS.

ABBREVIATIONS

GENERAL	DESCRIPTION
AADT	ANNUAL AVERAGE DAILY TRAFFIC
ABAN	ABANDON
ADJ	ADJUST
APPROX.	APPROXIMATE
A.C.	ASPHALT CONCRETE
ACCM PIPE	ASPHALT COATED CORRUGATED METAL PIPE
AP	ANGLE POINT
BIT.	BITUMINOUS
BC	BOTTOM OF CURB
BD.	BOUND
BL	BASELINE
BLDG	BUILDING
BM	BENCHMARK
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BR.	BRIDGE
CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CC	CEMENT CONCRETE
CCB	CAPE COD BERM
CCM	CEMENT CONCRETE MASONRY
CEM	CEMENT
CI	CURB INLET
CIP	CAST IRON PIPE
CLF	CHAIN LINK FENCE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CSP	CORRUGATED STEEL PIPE
CO.	COUNTY
CONC	CONCRETE
CONT	CONTINUOUS
CONST	CONSTRUCTION
CR GR	CROWN GRADE
DHV	DESIGN HOURLY VOLUME
DI	DROP INLET
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DW	STEADY DON'T WALK - PORTLAND ORANGE
DWY	DRIVEWAY
ELEV (or EL.)	ELEVATION
EMB	EMBANKMENT
EOP (or EP)	EDGE OF PAVEMENT
EXIST (or EX)	EXISTING
EXC	EXCAVATION
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FDN.	FOUNDATION
FLDSTN	FIELDSTONE
GAR	GARAGE
GC	GRANITE CURB
GD	GROUND
GG	GAS GATE
GI	GUTTER INLET
GIP	GALVANIZED IRON PIPE
GRAN	GRANITE
GRAV	GRAVEL
GRD	GUARD
HDW	HEADWALL
HMA	HOT MIX ASPHALT
HOR	HORIZONTAL
HYD	HYDRANT
INV	INVERT
JCT	JUNCTION
L	LENGTH OF CURVE
LB	LEACH BASIN
LOG	LIMIT OF GRADING
LP	LIGHT POLE
L&S	LOAM AND SEED
LT	LEFT
MAX	MAXIMUM
MB	MAILBOX
MH	MANHOLE
MHB	MASSACHUSETTS HIGHWAY BOUND
MIN	MINIMUM
NIC	NOT IN CONTRACT
NO.	NUMBER
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
PCMS	PORTABLE CHANGEABLE MESSAGE SIGN
PERP	PERPENDICULAR
P.G.L.	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
POC	POINT ON CURVE
POT	POINT ON TANGENT
PRC	POINT OF REVERSE CURVATURE
PROJ	PROJECT
PROP	PROPOSED

ABBREVIATIONS (cont.)

GENERAL	DESCRIPTION
PSB	PLANTABLE SOIL BORROW
PT	POINT OF TANGENCY
PUE	PROPOSED UTILITY EASEMENT
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PVMT	PAVEMENT
PWW	PAVED WATERWAY
R	RADIUS OF CURVATURE
R&D	REMOVE AND DISPOSE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDWY	ROADWAY
REM	REMOVE
RET	RETAIN
RET WALL	RETAINING WALL
ROW	RIGHT OF WAY
RR	RAILROAD
RRFB	RECTANGULAR RAPID FLASHING BEACON
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
RT	RIGHT
SB	STONE BOUND
SHLD	SHOULDER
SMH	SEWER MANHOLE
ST	STREET
STA	STATION
SSD	STOPPING SIGHT DISTANCE
SHLO	STATE HIGHWAY LAYOUT LINE
SW	SIDEWALK
T	TANGENT DISTANCE OF CURVE/TRUCK %
TAN	TANGENT
TEMP	TEMPORARY
TC	TOP OF CURB
TOS	TOP OF SLOPE
TYP	TYPICAL
UP	UTILITY POLE
VAR	VARIES
VERT	VERTICAL
VC	VERTICAL CURVE
WCR	WHEEL CHAIR RAMP
WG	WATER GATE
WIP	WROUGHT IRON PIPE
WM	WATER METER/WATER MAIN
X-SECT	CROSS SECTION

TRAFFIC SIGNAL ABBREVIATIONS

CAB.	CABINET
CCVE	CLOSED CIRCUIT VIDEO EQUIPMENT
DW	STEADY DON'T WALK
FDW	FLASHING DON'T WALK
FR	FLASHING CIRCULAR RED
FRL	FLASHING RED LEFT ARROW
FRR	FLASHING RED RIGHT ARROW
FY	FLASHING CIRCULAR YELLOW
FYL	FLASHING YELLOW LEFT ARROW
FYR	FLASHING YELLOW RIGHT ARROW
G	STEADY CIRCULAR GREEN
GL	STEADY GREEN LEFT ARROW
GR	STEADY GREEN RIGHT ARROW
GSL	STEADY GREEN SLASH LEFT ARROW
GSR	STEADY GREEN SLASH RIGHT ARROW
GV	STEADY GREEN VERTICAL ARROW
OL	OVERLAP
PED	PEDESTRIAN
PTZ	PAN, TILT, ZOOM
R	STEADY CIRCULAR RED
RL	STEADY RED LEFT ARROW
RR	STEADY RED RIGHT ARROW
TR SIG	TRAFFIC SIGNAL
TSC	TRAFFIC SIGNAL CONDUIT
W	STEADY WALKING PERSON
Y	STEADY CIRCULAR YELLOW
YL	STEADY YELLOW LEFT ARROW

WESTFORD BOSTON ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	2	132

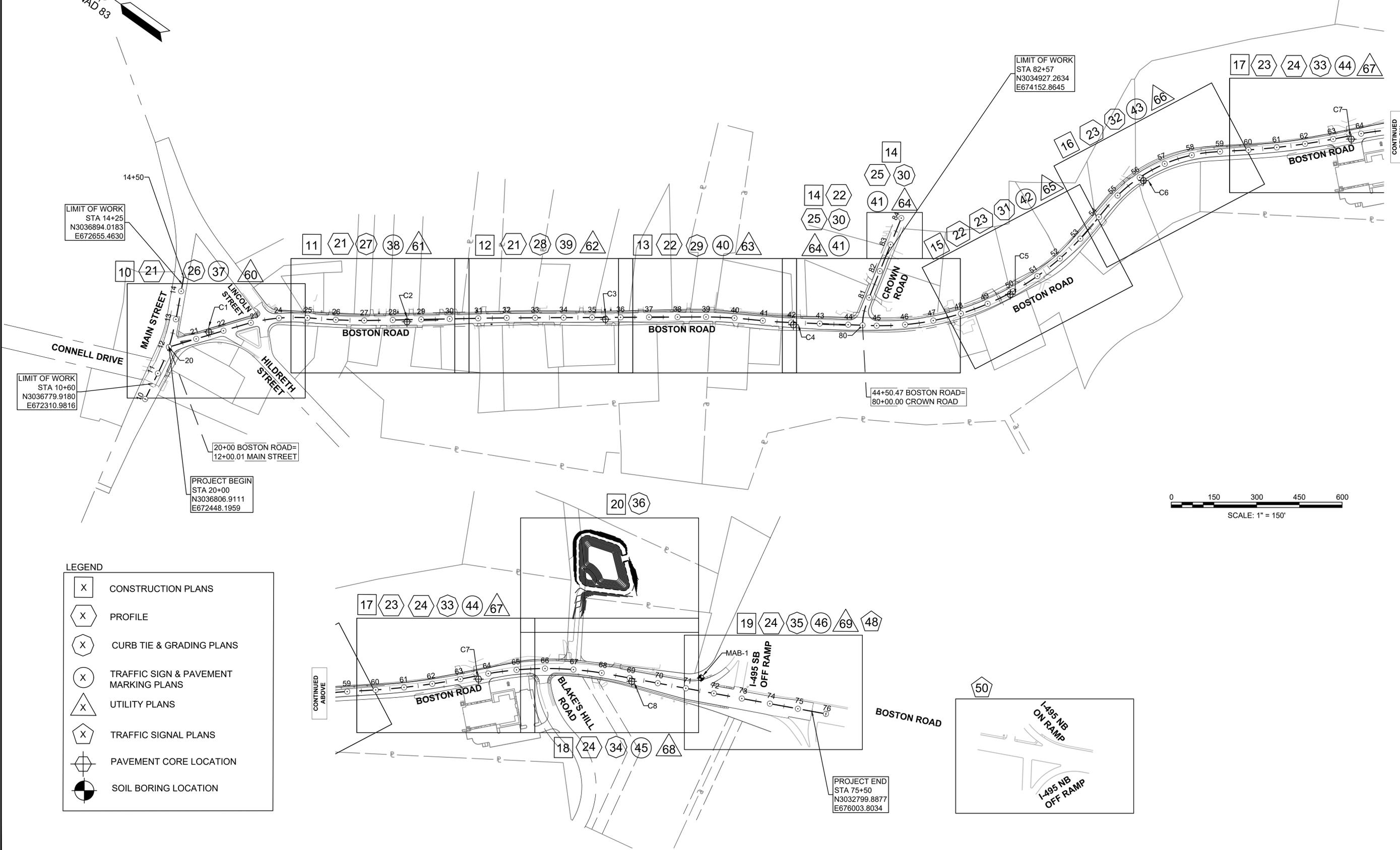
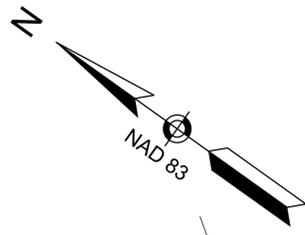
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LEGEND, ABBREVIATIONS & GENERAL NOTES

**WESTFORD
BOSTON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	3	132
PROJECT FILE NO.		609035	

KEY PLAN



LIMIT OF WORK
STA 14+25
N3036894.0183
E672655.4630

LIMIT OF WORK
STA 10+60
N3036779.9180
E672310.9816

20+00 BOSTON ROAD=
12+00.01 MAIN STREET

PROJECT BEGIN
STA 20+00
N3036806.9111
E672448.1959

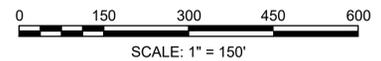
44+50.47 BOSTON ROAD=
80+00.00 CROWN ROAD

LIMIT OF WORK
STA 82+57
N3034927.2634
E674152.8645

PROJECT END
STA 75+50
N3032799.8877
E676003.8034

LEGEND

- CONSTRUCTION PLANS
- PROFILE
- CURB TIE & GRADING PLANS
- TRAFFIC SIGN & PAVEMENT MARKING PLANS
- UTILITY PLANS
- TRAFFIC SIGNAL PLANS
- PAVEMENT CORE LOCATION
- SOIL BORING LOCATION



CONTINUED BELOW

CONTINUED ABOVE

**WESTFORD
BOSTON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	4	132
PROJECT FILE NO.		609035	

BORING LOGS

BORING NOTES:

1. LOCATION OF BORINGS SHOWN ON THE PLAN THUS:  MAB-XX
2. BORINGS TAKEN FOR THE PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY, BUT DO NOT NECESSARILY SHOW THE NATURE OF THE MATERIALS TO ENCOUNTERED DURING CONSTRUCTION.
3. WATER LEVELS SHOWN ON THE BORING LOGS WERE OBSERVED AT THE TIME OF TAKING BORING AND DO NOT NECESSARILY SHOW THE TRUE GROUND WATER LEVEL.
4. FIGURES TO THE LEFT OF COLUMNS INDICATE DEPTH BELOW SURFACE AT BORING POINT.
5. FIGURES IN COLUMNS INDICATE NUMBER OF BLOWS PRODUCED BY A 30" FALL OF 140 POUND MASS HAMMER REQUIRED TO DRIVE 1 3/8" I.D. SPOON 1 FOOT.
6. BORING SAMPLES TAKEN ON SEPTEMBER 25, 2023.
7. BORING CONTRACTOR: CRAWFORD DRILLING SERVICES, LLC

 The Engineering Corp., Inc.		Project: Boston Road Location: Westford, MA Project No.: T0713.00		Log of Boring MAB-1 Ground Elevation: 258.5' Datum: NAVD 1988			
		Drilling Method: Drive and Wash Sampling Method: Split Spoon Drilling Company: Crawford Drilling Services Foreman: R. Blakeny Date Started: 9/25/2023 Date Finished: 9/25/2023 Logged By: D. Nader		Groundwater Readings Depth Ref. Pt. Depth Stab. Date Time to Water of Casing of Hole Time Not Encountered			
Depth (ft)	Sample Information				Stratum	Geologic Description	Remarks
	Sample No.	Depth (ft)	Spoon Blows per 6 in	Pen/Rec (in)			
0	S-1	0 - 2	3 10 13 20	24/18		S-1a (0 to 0.8'): Medium dense, brown, fine to coarse SAND, little silt, trace gravel. Moist. Topsoil. S-1b (0.8 to 2'): Medium dense, tan, fine to coarse SAND, little gravel, trace silt. Moist.	
2	S-2	2 - 3.2	22 42 50/2"	14/10		S-2 (2 to 3.2'): V. dense, tan, fine to coarse SAND, little gravel, trace silt. Moist.	
4	S-3	4 - 4.8	35 50/4"	10/8	GLACIAL TILL	S-3 (4 to 4.8'): V. dense, brown, fine to coarse SAND, some gravel, trace silt. Moist.	
9.1	S-9	9 - 9.1	50/1"	1/0		C-1 (9.1-10.5'): Hard, moderately weathered, moderately fractured, blue-gray, fine to coarse grained GNEISS, thin bedding with moderate to steep joints and fractures. RQD = 35.7%	Water loss observed between 9.1 and 12 feet. Excess water loss stopped deeper than 12 feet.
10.5	C-1	9.1 - 10.5		14/17		C-2a (10.5-12.1'): Hard, slightly weathered, slightly fractured, blue-gray, fine to coarse grained GNEISS, thin bedding with close to moderate joints. RQD = 57.3%	
12.1	C-2	10.5 - 15	50/54		BEDROCK	C-2b (12.1-15'): Very hard, very slightly weathered, sound, light gray, coarse grained GNEISS, close shallow to vertical joints and shears. RQD = 57.5%	
15	C-3	15 - 19	48/48			C-3 (15-19'): Very hard, very slightly weathered, sound, light gray with pink hues, coarse grained GNEISS, close shallow to vertical joints and shears. RQD = 53.1%	
19						Boring terminated at 19 feet.	

PROJECT: BOSTON RD. PAVEMENT CORES PROJECT NO: 18.268.NH
 WESTFORD, MA CONTRACTOR:
 CLIENT: THE ENGINEERING CORPORATION
 WEATHER: DATE: 11-02-18

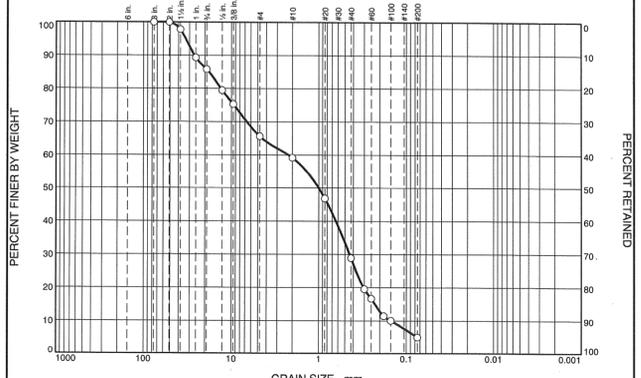
ASPHALT THICKNESS REPORT

Miller Engineering and Testing was on site on this date, at the request of our client, to obtain bituminous asphalt cores. Samples were taken to full depth. Test cores were returned to our laboratory and each pavement layer was measured for depth. The following are the results:

Laboratory Number:

Core #	Core Section 1 (in.)	Core Section 2 (in.)	Total Core Thickness (in.)
C1	9.098	-	9.098
C2	4.075	5.163	9.238
C3	5.756	-	5.756
C4	3.994	2.860	6.854
C5	3.347	2.168	5.514
C6	4.475	-	4.475
C7	5.127	-	5.127
C8	2.245	3.676	5.924

GRAINSIZE DISTRIBUTION REPORT - AGGREGATE GRADING



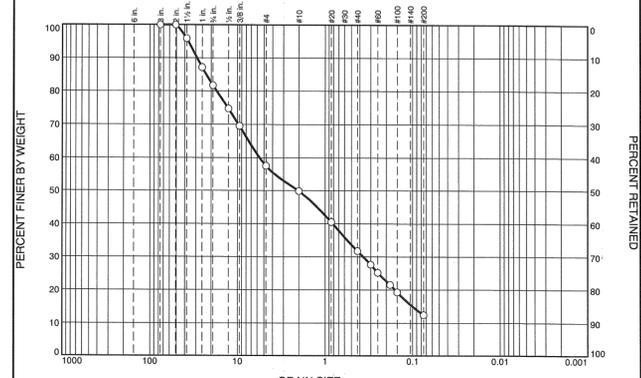
% +3"		% Gravel		% Sand				% Fines	
Coarse	Fine	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay	
0	14	7	30	24			5		

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3"	100		
2"	100		
1.5"	98		
1"	89		
.75"	86		
.5"	80		
.375"	75		
#4	66		
#10	59		
#20	47		
#40	29		
#50	20		
#60	17		
#80	11		
#100	10		
#200	5.1		

Material Description: SAMPLE OBTAINED DIRECTLY BELOW ASPHALT.
 Atterberg Limits: PL=, LL=, PI=
 Coefficients: D₉₀= 26.3527, D₈₅= 17.8810, D₆₀= 2.2107, D₅₀= 0.9969, D₃₀= 0.4407, D₁₅= 0.2259, D₁₀= 0.1488, C_u= 14.86, C_c= 0.39
 Classification: AASHTO=
 USCS=
 Remarks: SAMPLE CONTAINS ASPHALT.
 Source of Sample: C-1 Sample Number: L180501A Date: 11-7-18
 Client: BOSTON ROAD PAVEMENT CORES
 Project No: 18.268.NH Figure L180501A

Tested By: DM/BM

GRAINSIZE DISTRIBUTION REPORT - AGGREGATE GRADING



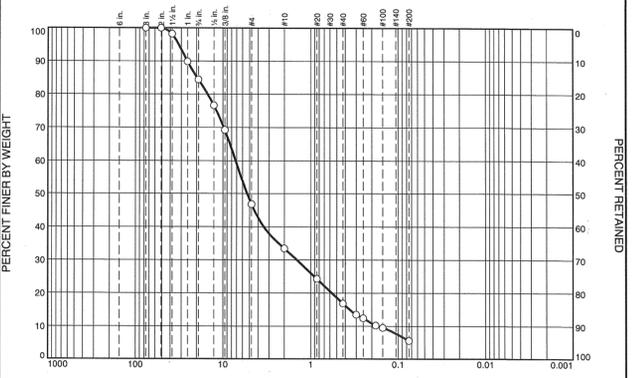
% +3"		% Gravel		% Sand				% Fines	
Coarse	Fine	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay	
0	18	24	8	18			12		

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3"	100		
2"	100		
1.5"	96		
1"	87		
.75"	82		
.5"	75		
.375"	70		
#4	58		
#10	50		
#20	41		
#40	32		
#50	28		
#60	25		
#80	22		
#100	19		
#200	12		

Material Description: SAMPLE OBTAINED DIRECTLY BELOW ASPHALT.
 Atterberg Limits: PL=, LL=, PI=
 Coefficients: D₉₀= 28.9522, D₈₅= 22.7755, D₆₀= 5.5951, D₅₀= 2.0332, D₃₀= 0.3641, D₁₅= 0.0997, D₁₀=, C_u=, C_c=
 Classification: AASHTO=
 USCS=
 Remarks: SAMPLE CONTAINS ASPHALT.
 Source of Sample: C-2 Sample Number: L180501B Date: 11-7-18
 Client: BOSTON ROAD PAVEMENT CORES
 Project No: 18.268.NH Figure L180501B

Tested By: DM/BM

GRAINSIZE DISTRIBUTION REPORT - AGGREGATE GRADING



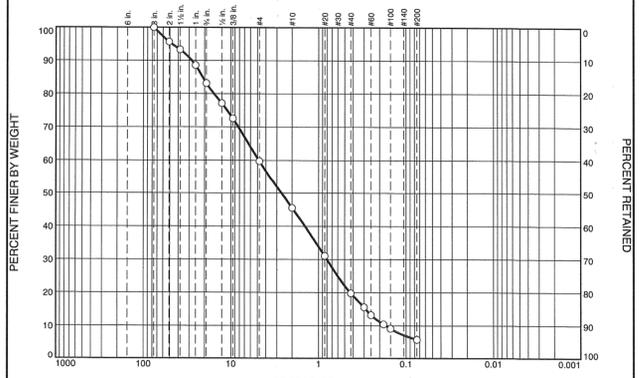
% +3"		% Gravel		% Sand				% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay			
0	16	37	14	16			11	6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3"	100		
2"	100		
1.5"	98		
1"	90		
.75"	84		
.5"	77		
.375"	69		
#4	47		
#10	33		
#20	24		
#40	17		
#50	14		
#60	12		
#80	10		
#100	10		
#200	5.6		

Material Description: SAMPLE OBTAINED DIRECTLY BELOW ASPHALT.
 Atterberg Limits: PL=, LL=, PI=
 Coefficients: D₉₀= 25.5501, D₈₅= 19.6554, D₆₀= 7.1775, D₅₀= 5.3365, D₃₀= 1.4337, D₁₅= 0.3562, D₁₀= 0.1704, C_u= 42.13, C_c= 1.69
 Classification: AASHTO=
 USCS=
 Remarks: SAMPLE CONTAINS ASPHALT.
 Source of Sample: C-3 Sample Number: L180501C Date: 11-7-18
 Client: BOSTON ROAD PAVEMENT CORES
 Project No: 18.268.NH Figure L180501C

Tested By: DM/BM

GRAINSIZE DISTRIBUTION REPORT - AGGREGATE GRADING



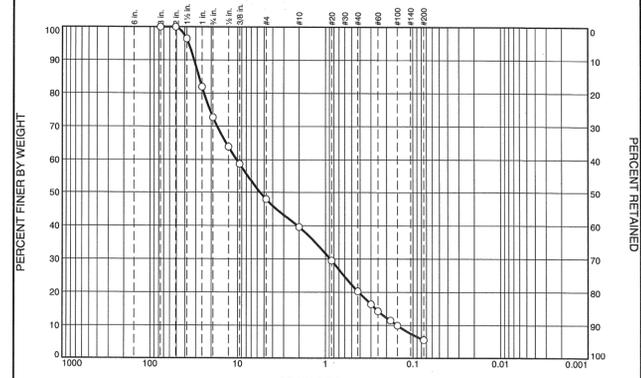
% +3"		% Gravel		% Sand				% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay			
0	17	23	14	26			14	6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3"	100		
2"	96		
1.5"	93		
1"	89		
.75"	83		
.5"	77		
.375"	73		
#4	60		
#10	46		
#20	31		
#40	20		
#50	16		
#60	13		
#80	10		
#100	9		
#200	5.8		

Material Description: SAMPLE OBTAINED DIRECTLY BELOW ASPHALT.
 Atterberg Limits: PL=, LL=, PI=
 Coefficients: D₉₀= 27.8507, D₈₅= 21.0071, D₆₀= 4.8075, D₅₀= 2.6438, D₃₀= 0.7996, D₁₅= 0.2875, D₁₀= 0.1693, C_u= 28.39, C_c= 0.79
 Classification: AASHTO=
 USCS=
 Remarks: SAMPLE CONTAINS ASPHALT.
 Source of Sample: C-4 Sample Number: L180501D Date: 11-7-18
 Client: BOSTON ROAD PAVEMENT CORES
 Project No: 18.268.NH Figure L180501D

Tested By: DM/BM

GRAINSIZE DISTRIBUTION REPORT - AGGREGATE GRADING



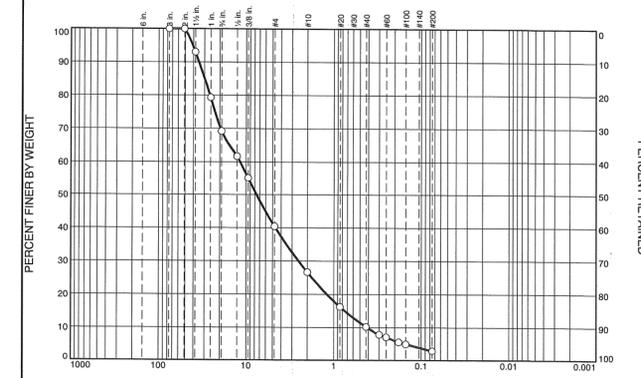
% +3"		% Gravel		% Sand				% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay			
0	27	25	8	20			14	6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3"	100		
2"	100		
1.5"	100		
1"	82		
.75"	73		
.5"	64		
.375"	59		
#4	48		
#10	40		
#20	30		
#40	20		
#50	16		
#60	14		
#80	11		
#100	10		
#200	5.6		

Material Description: SAMPLE OBTAINED DIRECTLY BELOW ASPHALT.
 Atterberg Limits: PL=, LL=, PI=
 Coefficients: D₉₀= 31.1914, D₈₅= 27.4852, D₆₀= 10.2311, D₅₀= 5.5285, D₃₀= 0.8788, D₁₅= 0.2664, D₁₀= 0.1509, C_u= 67.82, C_c= 0.50
 Classification: AASHTO=
 USCS=
 Remarks: SAMPLE CONTAINS ASPHALT.
 Source of Sample: C-6 Sample Number: L180501E Date: 11-7-18
 Client: BOSTON ROAD PAVEMENT CORES
 Project No: 18.268.NH Figure L180501E

Tested By: DM/BM

GRAINSIZE DISTRIBUTION REPORT - AGGREGATE GRADING



% +3"		% Gravel		% Sand				% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay			
0	31	29	13	17			3		

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3"	100		
2"	100		
1.5"	93		
1"	79		
.75"	69		
.5"	62		
.375"	55		
#4	40		
#10	27		
#20	16		
#40	10		
#50	8		
#60	7		
#80	6		
#100	5		
#200	2.9		

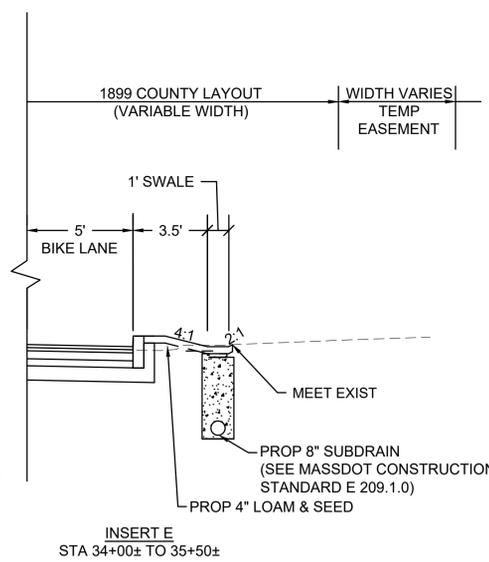
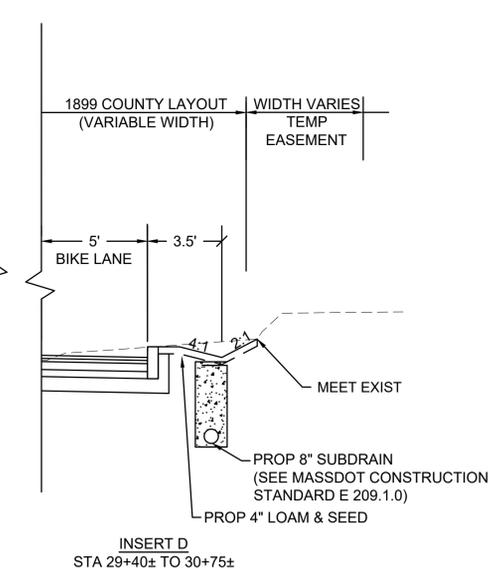
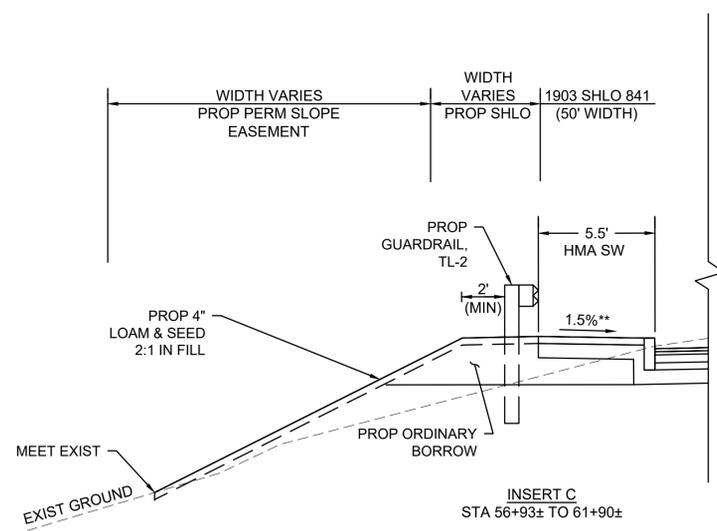
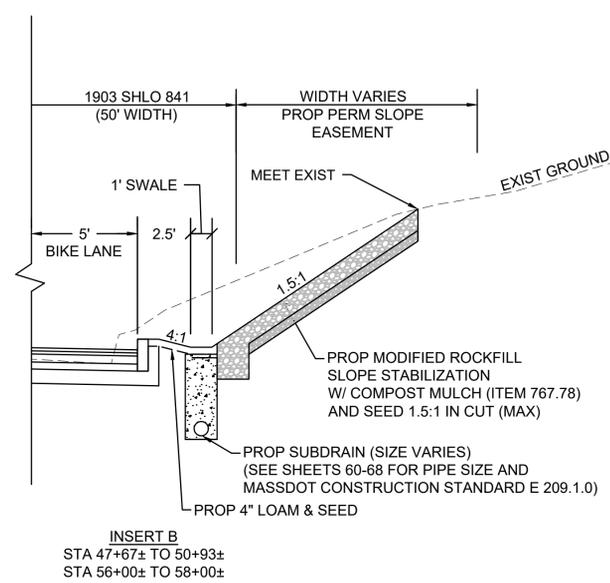
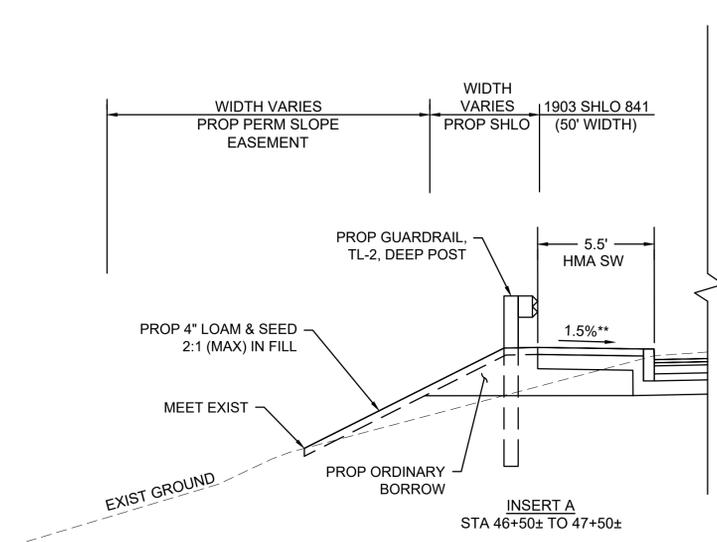
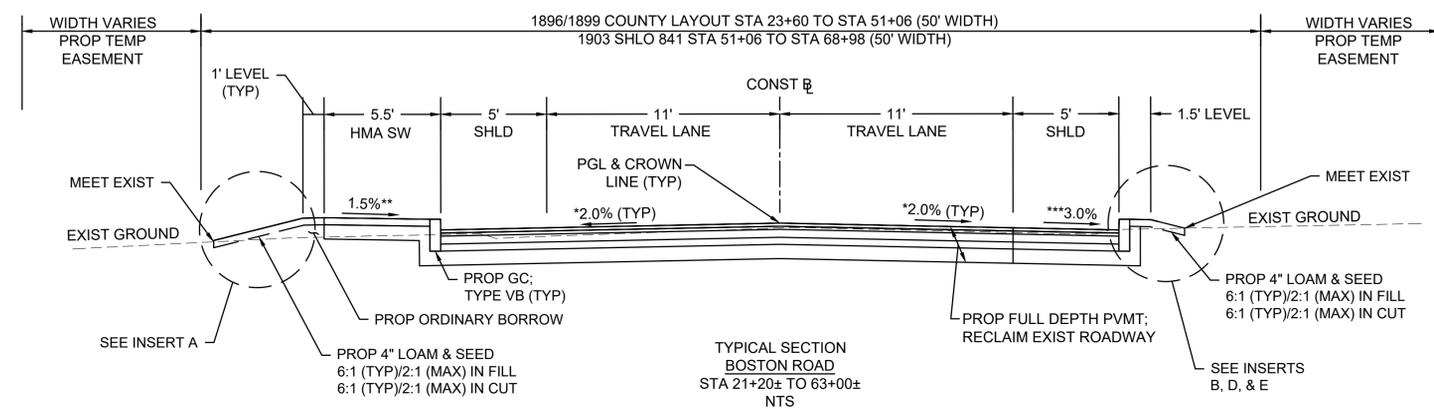
Material Description: SAMPLE OBTAINED DIRECTLY BELOW ASPHALT.
 Atterberg Limits: PL=, LL=, PI=
 Coefficients: D₉₀= 34.5400, D₈₅= 29.7075, D₆₀= 11.6849, D₅₀= 7.6154, D₃₀= 2.5172, D₁₅= 0.7467, D₁₀= 0.4119, C_u= 28.37, C_c= 1.32
 Classification: AASHTO=
 USCS= GW
 Remarks: SAMPLE CONTAINS ASPHALT.
 Source of Sample: C-8 Sample Number: L180501F Date: 11-7-18
 Client: BOSTON ROAD PAVEMENT CORES
 Project No: 18.268.NH Figure L180501F

Tested By: DM/BM

**WESTFORD
BOSTON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	6	132
PROJECT FILE NO.		609035	

TYPICAL SECTIONS AND PAVEMENT NOTES - 1 OF 4



* SEE SHEET 7 FOR LOCATIONS OF SUPERELEVATION / METHOD OF BANKING
 ** TOLERANCE FOR CONSTRUCTION = ±0.5%
 *** 3.0% BETWEEN STA 21+00 TO STA 41+50

PAVEMENT NOTES

PROPOSED FULL DEPTH RECLAMATION - BOSTON ROAD

SURFACE: 1 1/4" SUPERPAVE SURFACE COURSE - 12.5 POLYMER (SSC - 12.5 - P) OVER 1 1/4" SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC - 12.5)
BASE: 4 1/2" SUPERPAVE BASE COURSE 37.5 (SBC - 37.5) OVER
SUBBASE: 4" RECLAIMED PAVEMENT BORROW FOR SUB-BASE (STABILIZED) OVER 8" RECLAIMED PAVEMENT BORROW FOR SUB-BASE
NOTE: RECLAIM DEPTH SHALL BE 14"±2" OR AS REQUIRED TO MEET LINES AND GRADES. EXISTING PAVEMENT SHALL BE MILLED 4 FROM STA 20+27 TO STA 31+50 PRIOR TO RECLAIMING.

PROPOSED FULL DEPTH PAVEMENT CONSTRUCTION - CROWN ROAD

SURFACE: 1 1/4" SUPERPAVE SURFACE COURSE - 12.5 POLYMER (SSC - 12.5 - P) OVER
BASE: 2 1/2" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC - 12.5) OVER
SUBBASE: 12" GRAVEL BORROW, TYPE b OVER VARIABLE DEPTH SPECIAL BORROW OVER EXISTING SUBBASE MATERIAL

PROPOSED RESURFACING OVERLAY

SURFACE: 1 1/4" SUPERPAVE SURFACE COURSE - 12.5 POLYMER (SSC - 12.5 - P) OVER 1 1/4" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC - 12.5) OVER 3 1/2" MAX DEPTH FINE PAVEMENT MILLING
SUBBASE: EXISTING SUBBASE MATERIAL
NOTES: VARIABLE DEPTH PAVEMENT FINE MILLING AS REQUIRED TO MEET PROPOSED LINES AND GRADES.

PROPOSED PERMANENT PAVEMENT TRENCH PATCH

SURFACE: VARIABLE DEPTH SUPERPAVE INTERMEDIATE COURSE - 19.0 (SIC - 19.0) (ITEM 451.) (COMPACTED IN 3" MAX. LIFTS TO MATCH EXISTING PAVEMENT THICKNESS)
BASE: 8" GRAVEL BORROW, TYPE b
SUBBASE: EXISTING MATERIAL SUITABLE FOR RE-USE (SEE VARIOUS TRENCH DETAILS)

PROPOSED TEMPORARY PAVEMENT TRENCH PATCH

SURFACE: 2" TEMPORARY ASPHALT PATCHING (ITEM 472.)
SUBBASE: EXISTING MATERIAL SUITABLE FOR RE-USE (SEE VARIOUS TRENCH DETAILS)

PROPOSED HMA SIDEWALK

SURFACE: 1 1/4" SUPERPAVE SURFACE COURSE - 9.5 (SSC - 9.5) OVER 1 1/4" SUPERPAVE SURFACE COURSE - 12.5 (SSC - 12.5) OVER
NOTE: 8" GRAVEL BORROW, TYPE b

PROPOSED CEMENT CONCRETE SIDEWALKS & PEDESTRIAN CURB RAMPS

SURFACE: 4" CEMENT CONCRETE (4000 PSI, 3/4", 610)
BASE: 8" GRAVEL BORROW, TYPE b

PROPOSED CEMENT CONCRETE SIDEWALK THROUGH DRIVEWAY

SURFACE: 6" CEMENT CONCRETE (4000 PSI, 3/4", 610)
BASE: 8" GRAVEL BORROW, TYPE b

PROPOSED HMA DRIVEWAY (RESIDENTIAL)

SURFACE: 1 1/2" SUPERPAVE SURFACE COURSE - 9.5 (SSC - 9.5) OVER 2 1/2" SUPERPAVE SURFACE COURSE - 12.5 (SSC - 12.5) OVER
BASE: 8" SUITABLE EXISTING GRAVEL; ADD GRAVEL BORROW, TYPE b AS REQUIRED

PROPOSED HMA DRIVEWAY (COMMERCIAL/MUNICIPAL)

SURFACE: 1 1/2" SUPERPAVE SURFACE COURSE - 12.5 (SSC - 12.5) OVER 2 1/2" SUPERPAVE SURFACE COURSE - 12.5 (SSC - 12.5) OVER
BASE: 8" SUITABLE EXISTING GRAVEL; ADD GRAVEL BORROW, TYPE b AS REQUIRED

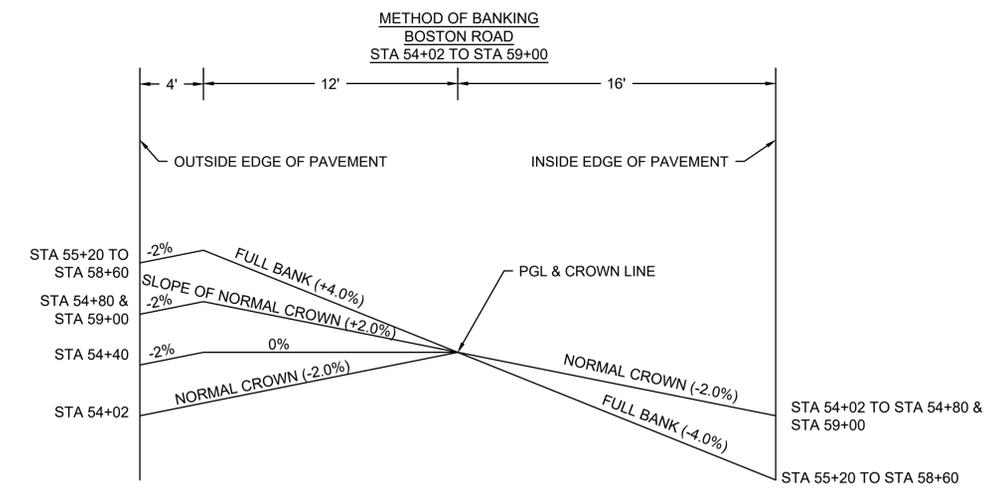
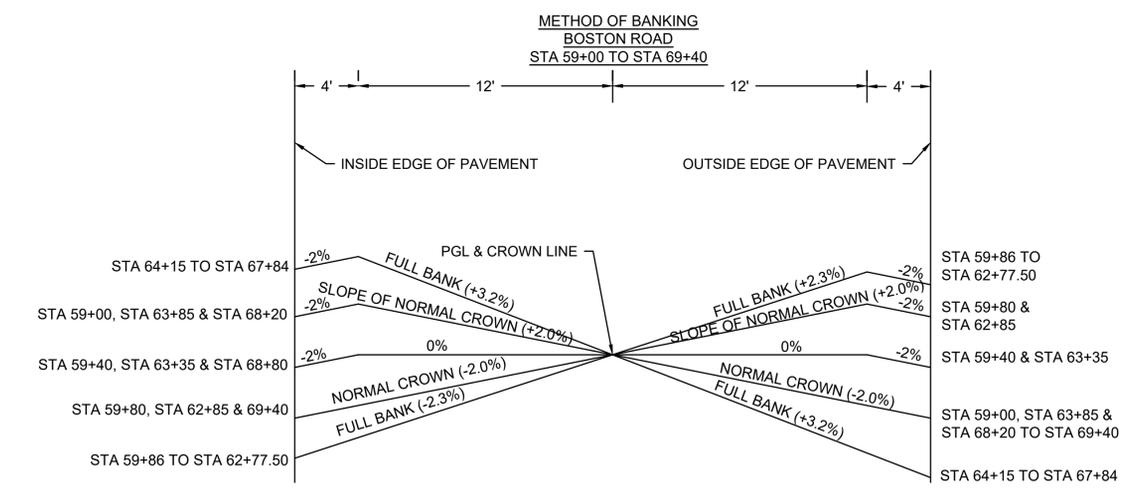
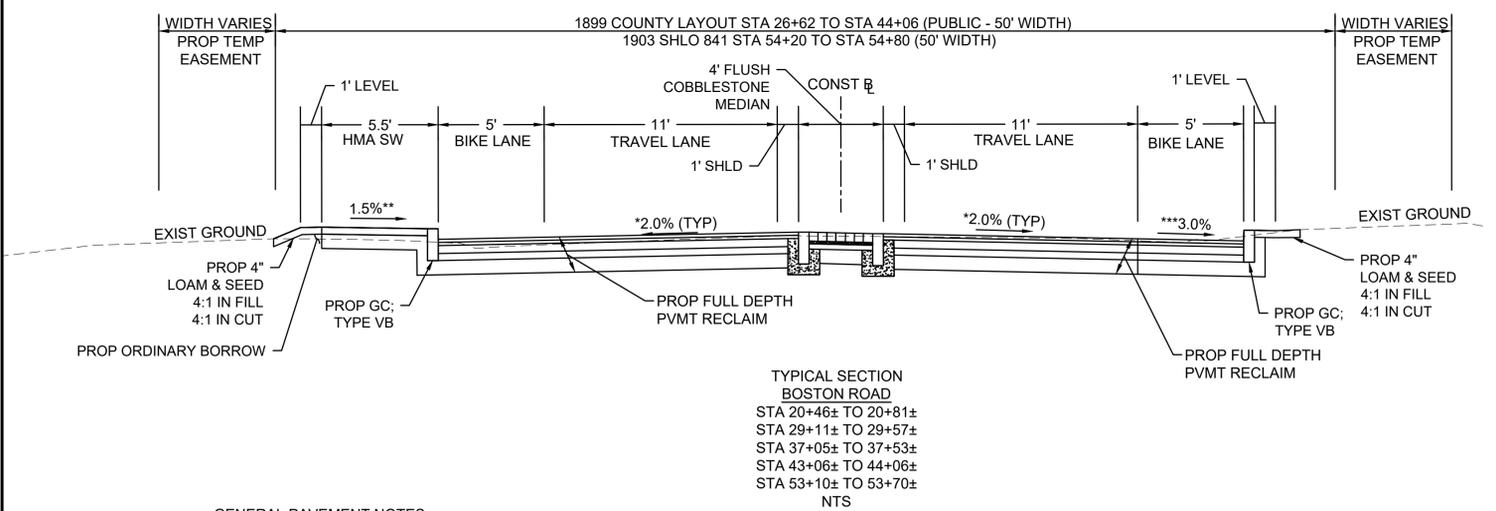
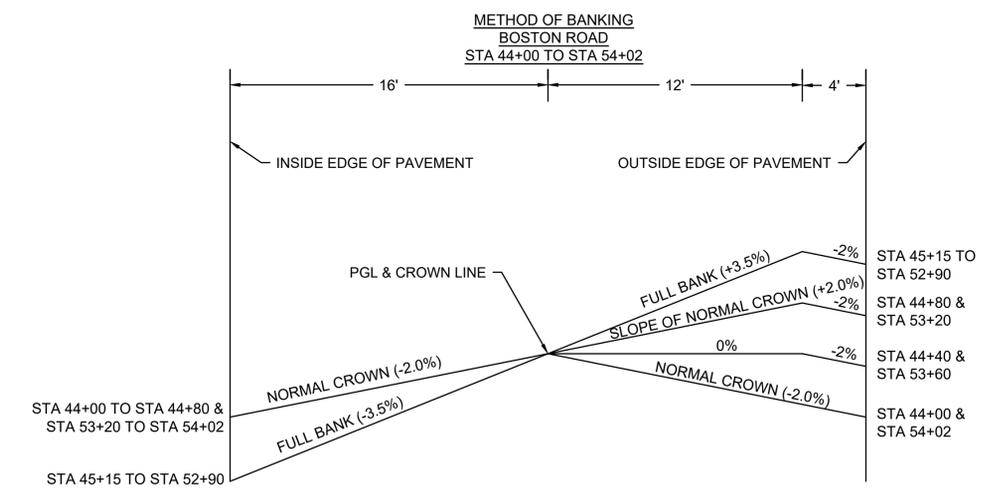
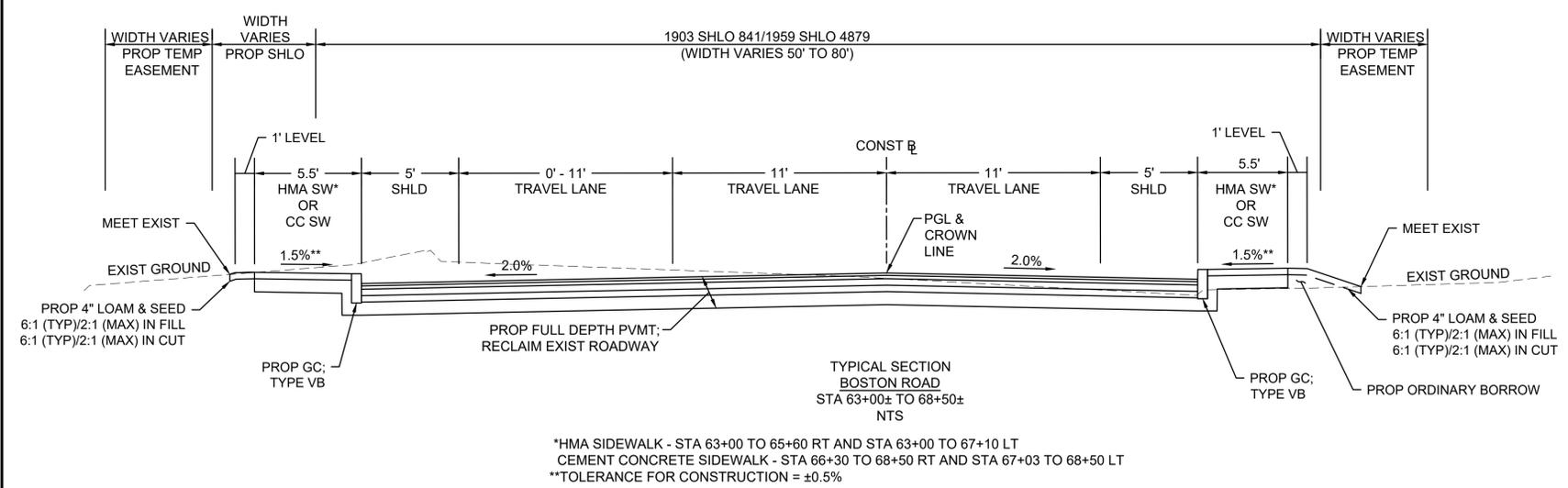
PROPOSED GRAVEL DRIVEWAY

SURFACE: 8" DENSE GRADED CRUSHED STONE (COMPACTED IN 4" (MAX) LIFTS)
SUBBASE: SUITABLE EXISTING MATERIAL

**WESTFORD
BOSTON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	7	132
PROJECT FILE NO.		609035	

TYPICAL SECTIONS AND PAVEMENT NOTES - 2 OF 4



GENERAL PAVEMENT NOTES:

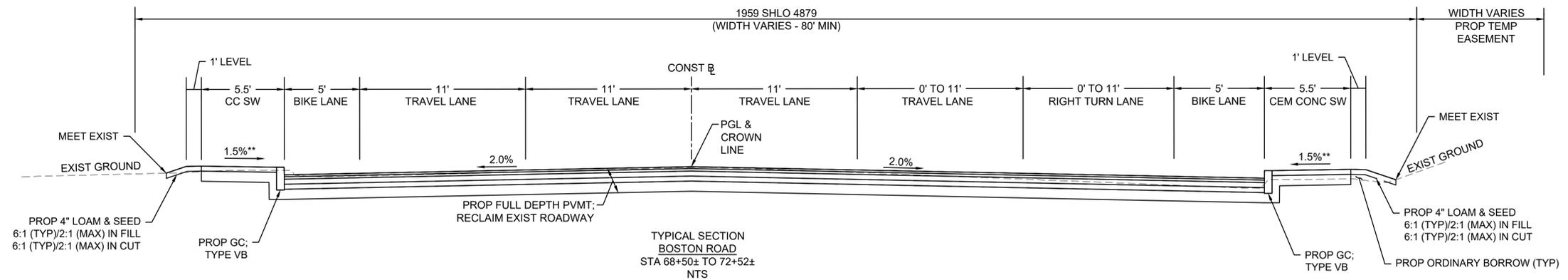
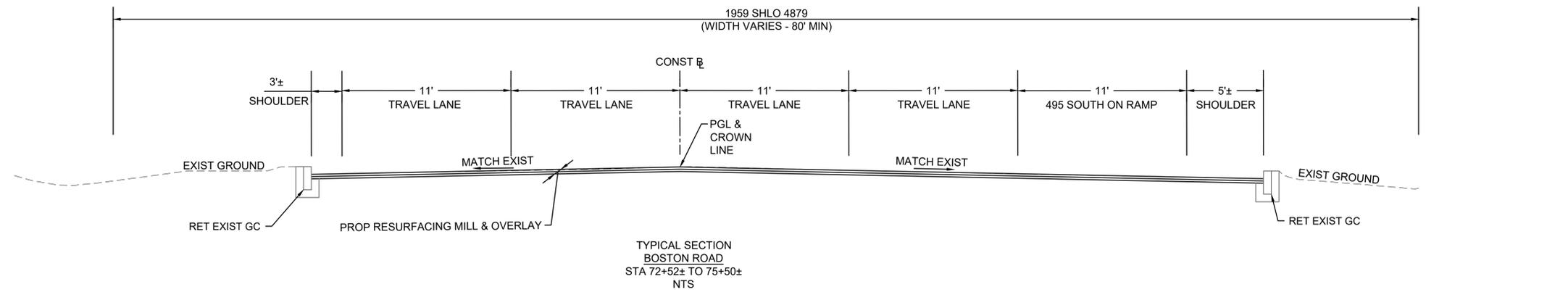
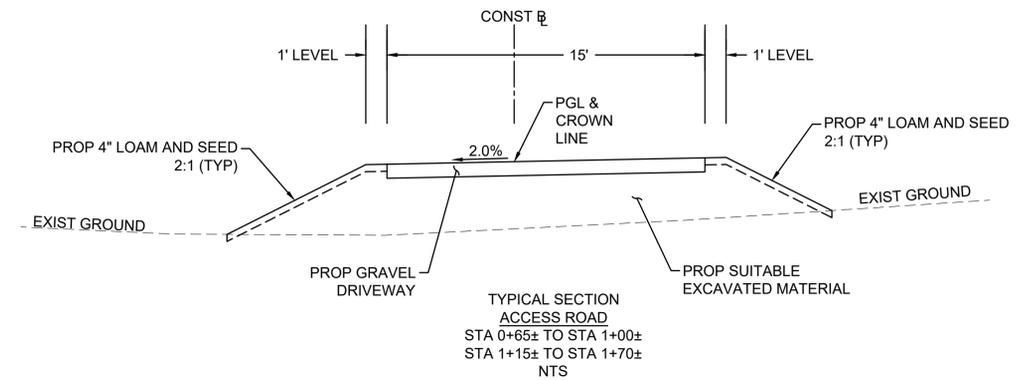
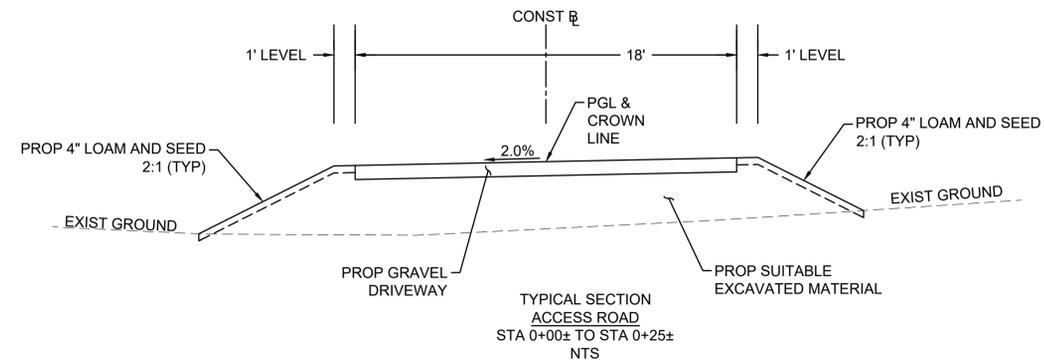
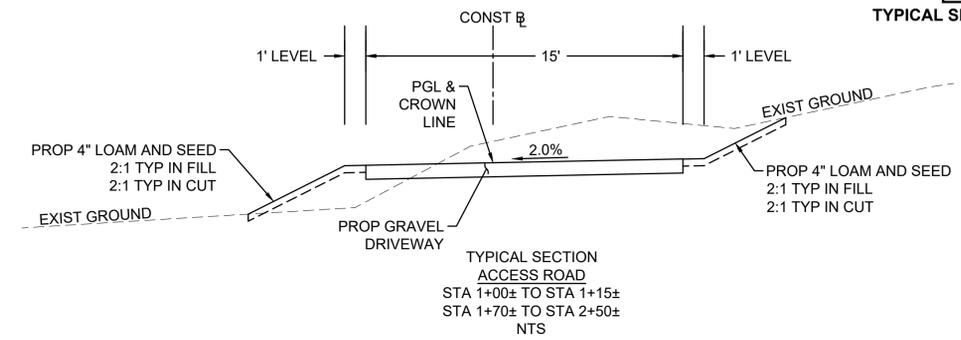
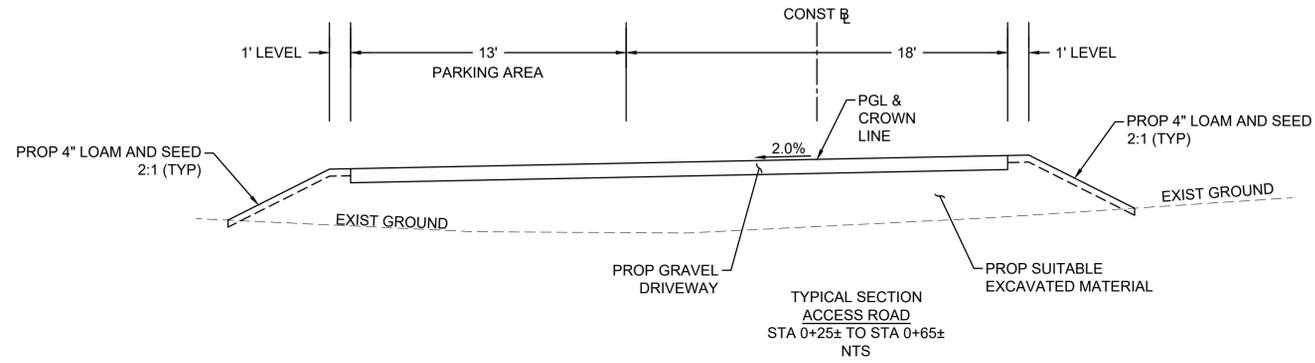
- ASPHALT EMULSION FOR TACK COAT SHALL BE APPLIED BETWEEN ALL ASPHALT SURFACES AND HMA JOINT ADHESIVE SHALL BE APPLIED ON SAWCUT JOINTS BEFORE PAVING. HMA JOINT ADHESIVE SHALL BE APPLIED TO ALL COLD JOINTS (LONGITUDINAL AND TRANSVERSE) BEFORE PAVING SURFACE COURSE. ASPHALT EMULSION FOR TACK COAT SHALL BE APPLIED IN ACCORDANCE WITH SUBSECTION 450.43. ALL SURFACES SHALL BE CLEAN OF ALL ORGANICS, DEBRIS, AND SAND PRIOR TO PAVING.
- HMA FOR WALKS AND DRIVEWAYS SHALL BE IN ACCORDANCE WITH SECTION 702.
- ALL GRAVEL BORROW MEETING SPECIFICATION SHALL BE RETAINED IN PLACE, COMPACTED, AND LEVELED AS REQUIRED.
- PROPOSED GRAVEL BORROW MAY BE SUBSTITUTED WITH RECLAIMED PAVEMENT BORROW. GRAVEL BORROW SHALL BE IMPORTED AFTER ALL RECLAIMED PAVEMENT BORROW IS EMPLOYED.
- PROPOSED DENSE GRADED CRUSHED STONE MAY BE SUBSTITUTED WITH ASPHALT STABILIZED RECLAIMED PAVEMENT BORROW.
- ALL HMA SHALL BE IN ACCORDANCE WITH SECTION 450 HMA PAVEMENT AND SECTION M3 ASPHALTIC MATERIALS.
- SUB-BASE SHALL BE 12" COMPACTED THICKNESS.
- ALL ROADWAY EMBANKMENT SHALL BE COMPACTED TO NOT LESS THAN 95% OF MAXIMUM DRY DENSITY.
- THE ENTIRE SUB-BASE SURFACE SHALL BE STABILIZED WITH EMULSIFIED LIQUID ASPHALT FOR DENSITY AND DUST CONTROL PRIOR TO PAVING HMA BASE COURSE.
- ALL UTILITY AND DRAINAGE STRUCTURES SHALL BE LOWERED BENEATH RECLAMATION DEPTH PER SECTION 403.
- AREAS OF WIDENING WITHIN THE RECLAIM AREA (I.E. STA 28+00 TO STA 31+00) SHALL BE EXCAVATED TO A DEPTH OF 20" BELOW FINISH GRADE PRIOR TO ADJACENT RECLAIMING PROCESS. ONCE RECLAIMING HAS PROCEEDED, EXCESS MATERIAL WILL NEED TO BE EXCAVATED AND PLACED IN THE WIDENED AREAS FOR BLENDING AND COMPACTION.

**WESTFORD
BOSTON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	8	132
PROJECT FILE NO.		609035	

TYPICAL SECTIONS AND PAVEMENT NOTES - 3 OF 4

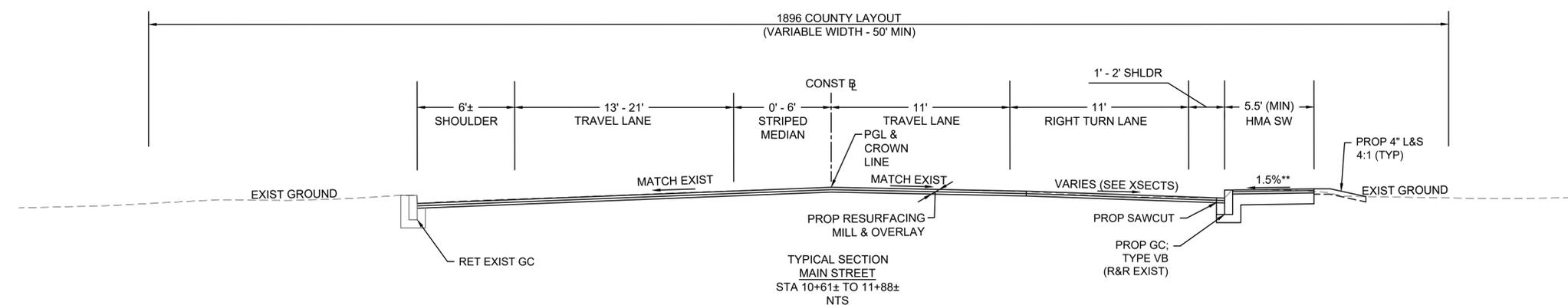
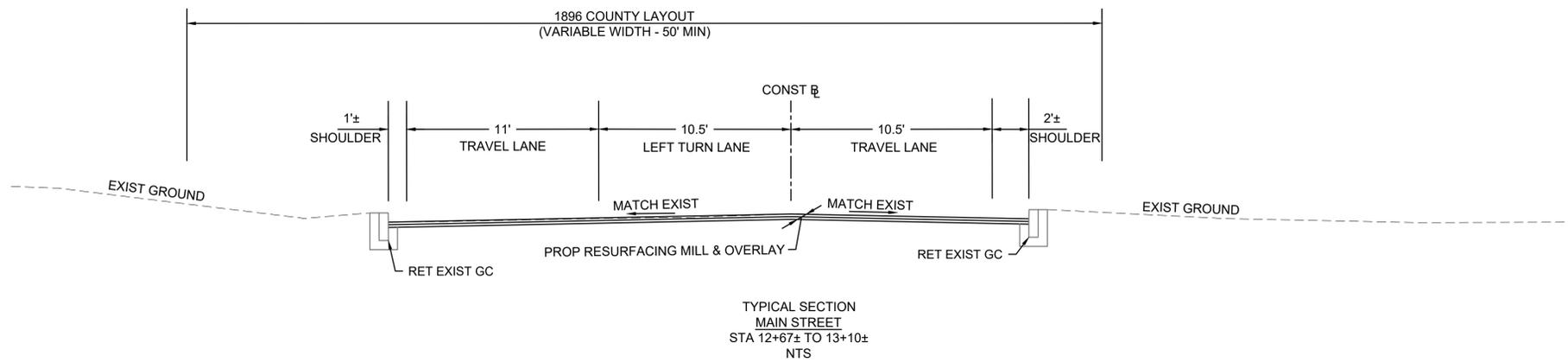
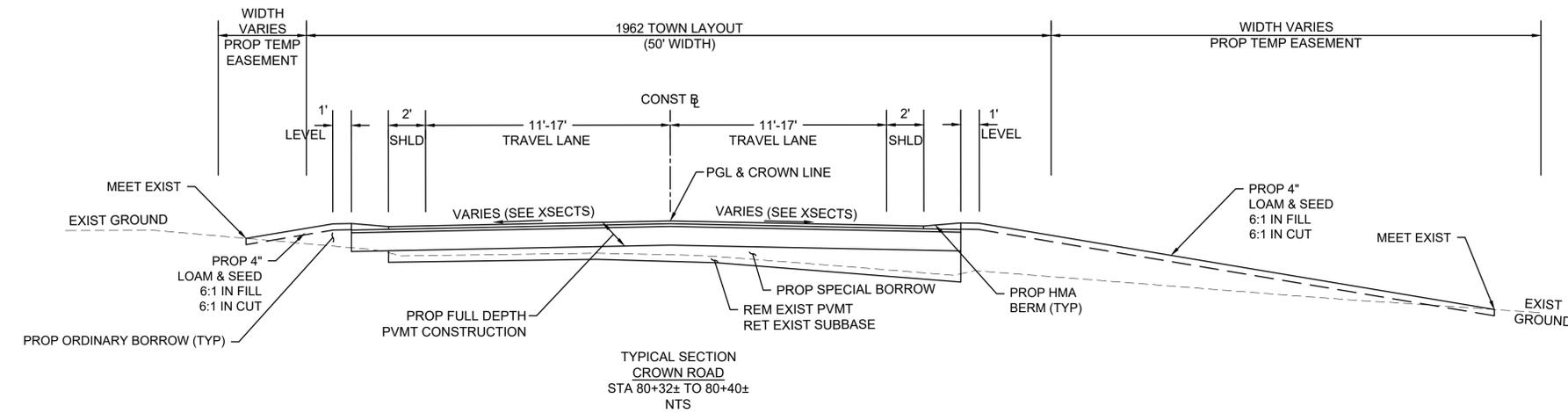
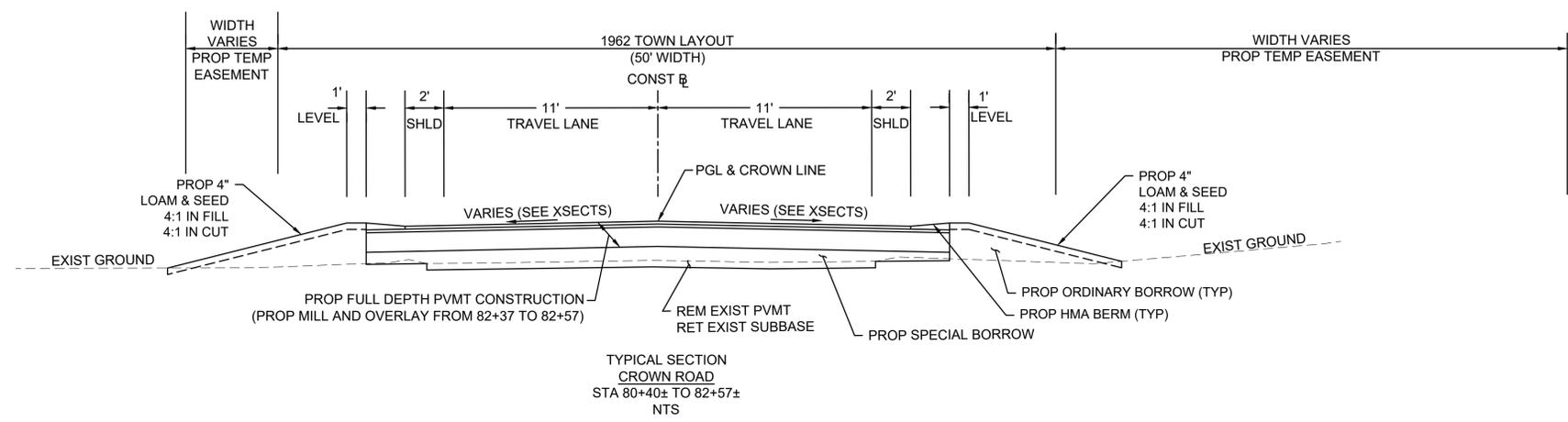
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**WESTFORD
BOSTON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	8	132
PROJECT FILE NO.		609035	

TYPICAL SECTIONS AND PAVEMENT NOTES - 4 OF 4

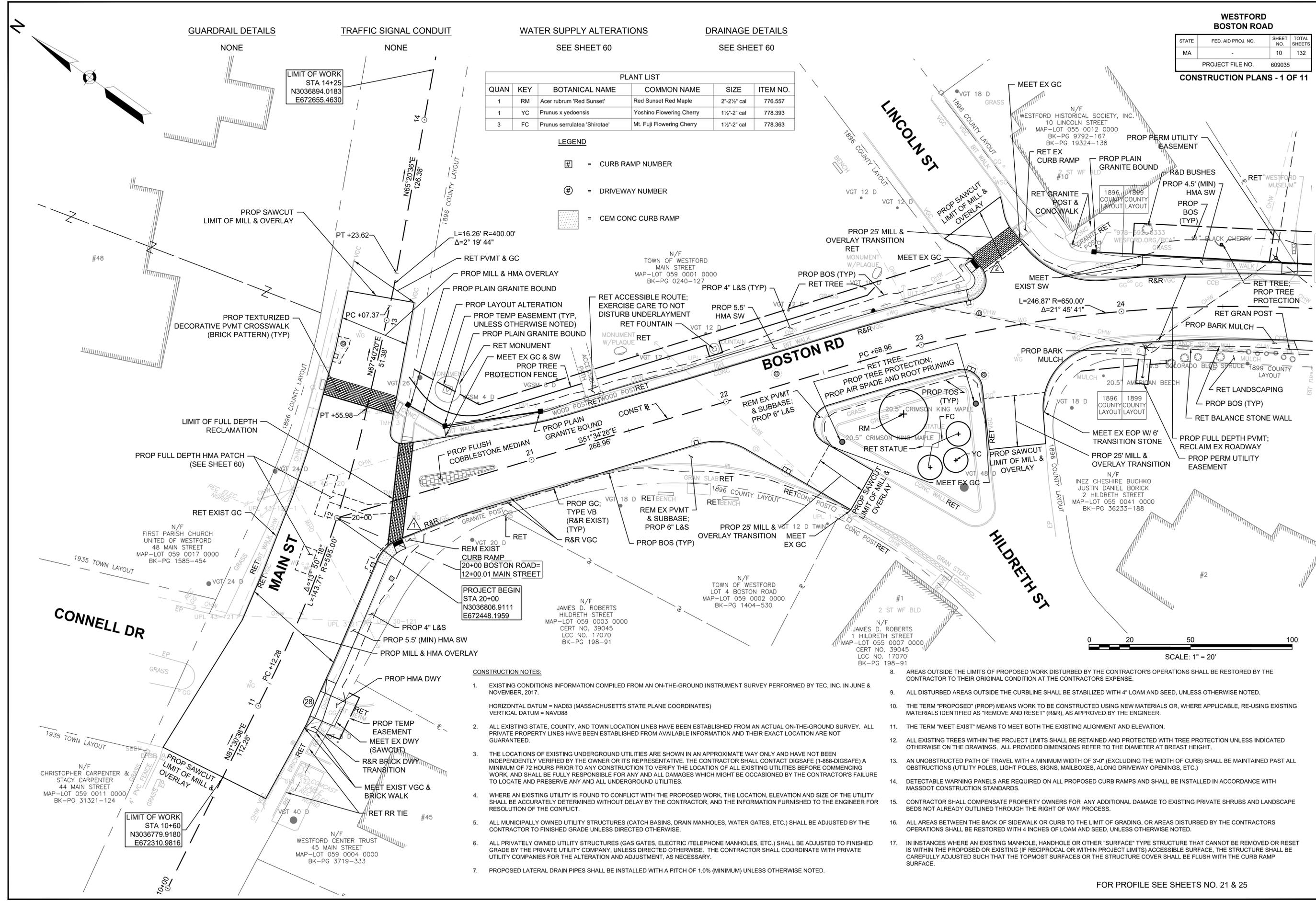


**TOLERANCE FOR CONSTRUCTION = ±0.5%

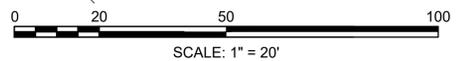
PLANT LIST

QUAN	KEY	BOTANICAL NAME	COMMON NAME	SIZE	ITEM NO.
1	RM	Acer rubrum 'Red Sunset'	Red Sunset Red Maple	2"-2 1/2" cal	776.557
1	YC	Prunus x yedoensis	Yoshino Flowering Cherry	1 1/2"-2" cal	778.393
3	FC	Prunus serrulata 'Shirotae'	Mt. Fuji Flowering Cherry	1 1/2"-2" cal	778.363

- LEGEND**
- [#] = CURB RAMP NUMBER
 - [⊕] = DRIVEWAY NUMBER
 - [Stippled Box] = CEM CONC CURB RAMP



- CONSTRUCTION NOTES:**
- EXISTING CONDITIONS INFORMATION COMPILED FROM AN ON-THE-GROUND INSTRUMENT SURVEY PERFORMED BY TEC, INC. IN JUNE & NOVEMBER, 2017.
HORIZONTAL DATUM = NAD83 (MASSACHUSETTS STATE PLANE COORDINATES)
VERTICAL DATUM = NAVD88
 - ALL EXISTING STATE, COUNTY, AND TOWN LOCATION LINES HAVE BEEN ESTABLISHED FROM AN ACTUAL ON-THE-GROUND SURVEY. ALL PRIVATE PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND THEIR EXACT LOCATION ARE NOT GUARANTEED.
 - THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL CONTACT DIGSAFE (1-888-DIGSAFE) A MINIMUM OF 72 HOURS PRIOR TO ANY CONSTRUCTION TO VERIFY THE LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
 - WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.
 - ALL MUNICIPALLY OWNED UTILITY STRUCTURES (CATCH BASINS, DRAIN MANHOLES, WATER GATES, ETC.) SHALL BE ADJUSTED BY THE CONTRACTOR TO FINISHED GRADE UNLESS DIRECTED OTHERWISE.
 - ALL PRIVATELY OWNED UTILITY STRUCTURES (GAS GATES, ELECTRIC /TELEPHONE MANHOLES, ETC.) SHALL BE ADJUSTED TO FINISHED GRADE BY THE PRIVATE UTILITY COMPANY, UNLESS DIRECTED OTHERWISE. THE CONTRACTOR SHALL COORDINATE WITH PRIVATE UTILITY COMPANIES FOR THE ALTERATION AND ADJUSTMENT, AS NECESSARY.
 - PROPOSED LATERAL DRAIN PIPES SHALL BE INSTALLED WITH A PITCH OF 1.0% (MINIMUM) UNLESS OTHERWISE NOTED.

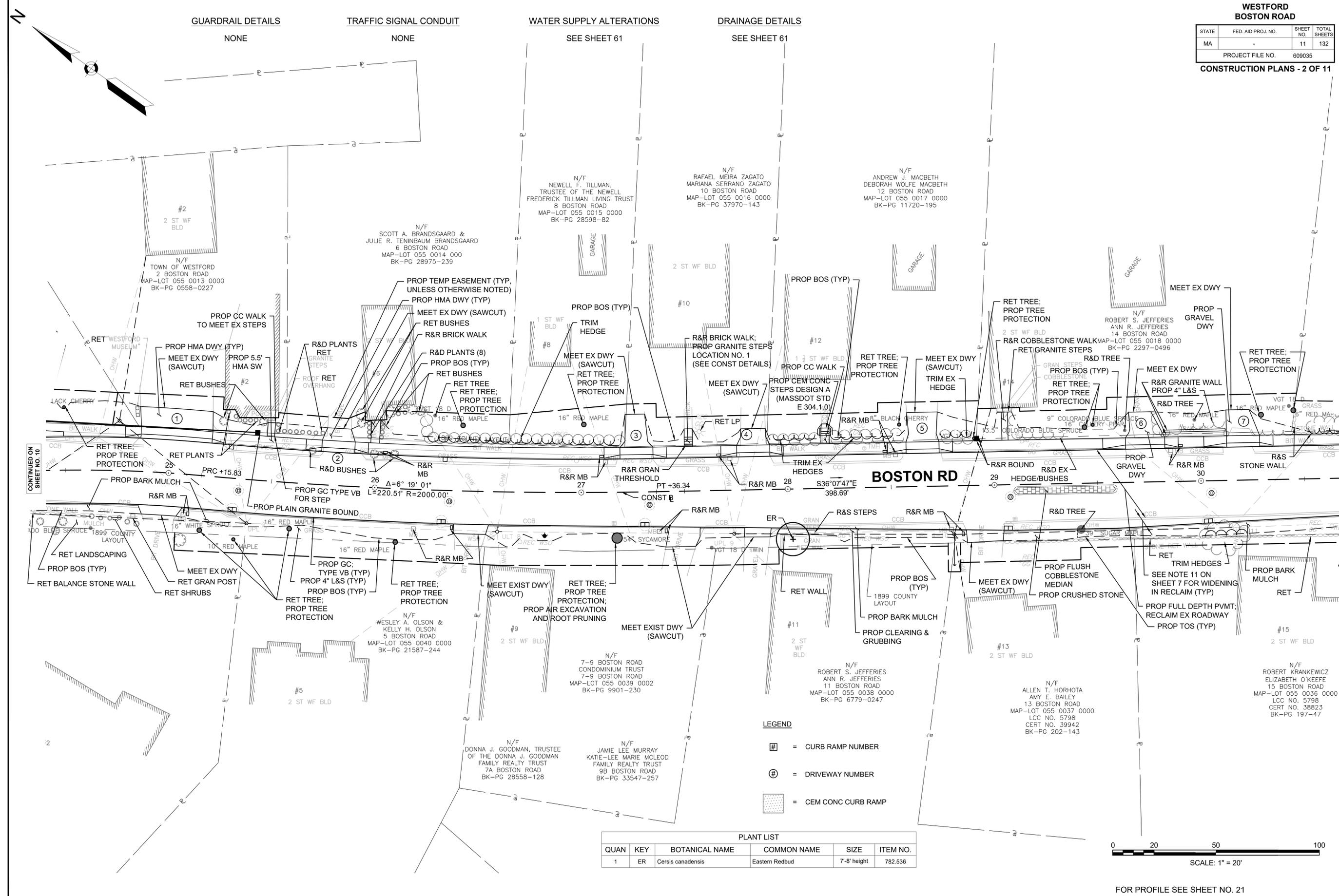


FOR PROFILE SEE SHEETS NO. 21 & 25

**WESTFORD
BOSTON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	11	132
PROJECT FILE NO. 609035			

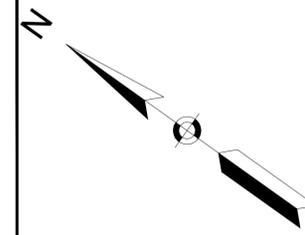
CONSTRUCTION PLANS - 2 OF 11



CONTINUED ON SHEET NO. 10

CONTINUED ON SHEET NO. 12

2



GUARDRAIL DETAILS

TRAFFIC SIGNAL CONDUIT

WATER SUPPLY ALTERATIONS

DRAINAGE DETAILS

NONE

NONE

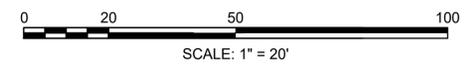
SEE SHEET 61

SEE SHEET 61

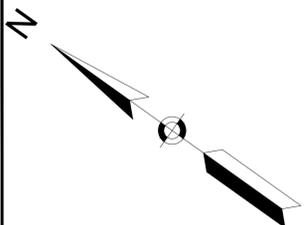
BOSTON RD

- LEGEND**
- # = CURB RAMP NUMBER
 - ⊕ = DRIVEWAY NUMBER
 - [Pattern] = CEM CONC CURB RAMP

QUAN	KEY	BOTANICAL NAME	COMMON NAME	SIZE	ITEM NO.
1	ER	Cercis canadensis	Eastern Redbud	7'-8" height	782.536



FOR PROFILE SEE SHEET NO. 21



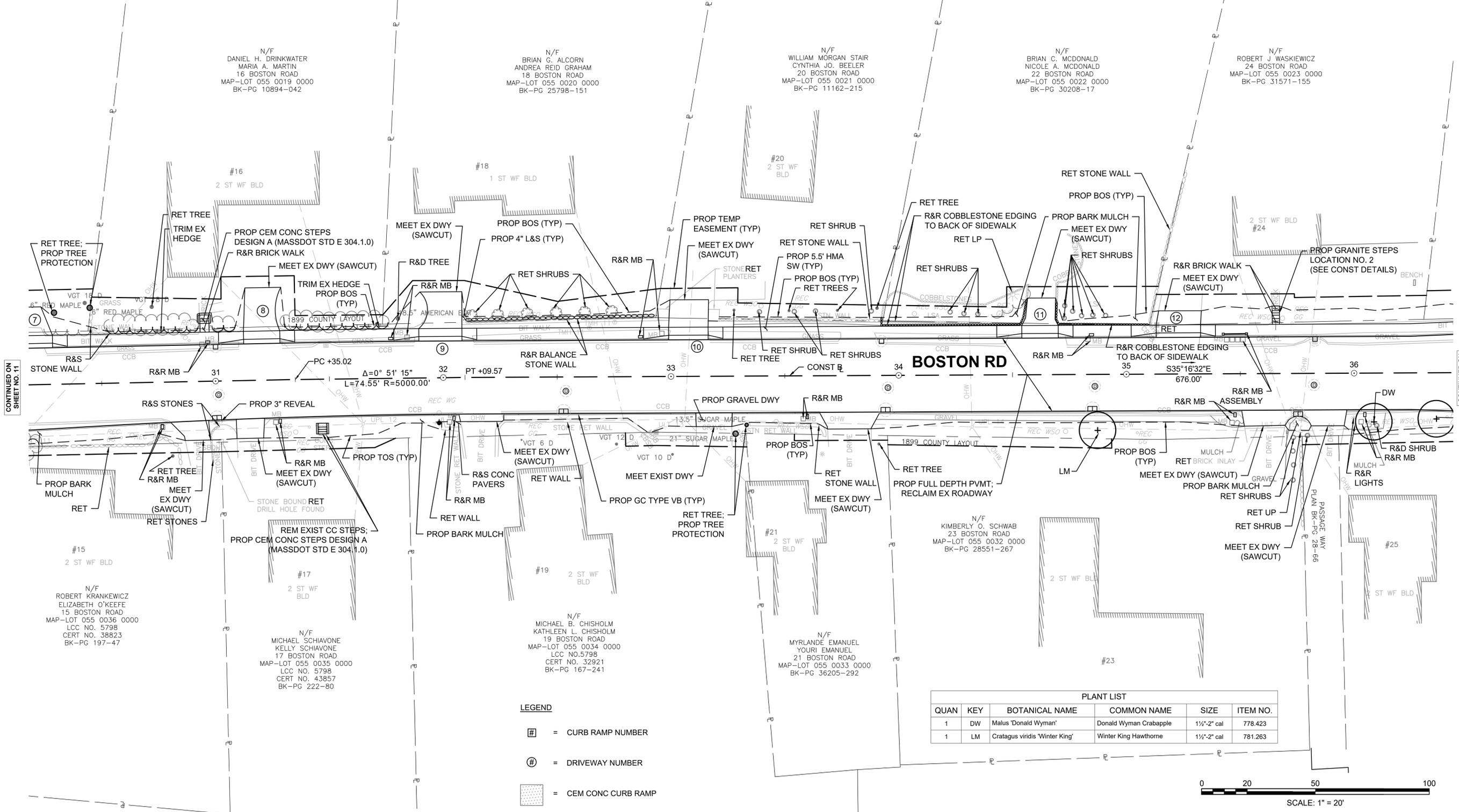
GUARDRAIL DETAILS NONE
 TRAFFIC SIGNAL CONDUIT NONE
 WATER SUPPLY ALTERATIONS SEE SHEET 62
 DRAINAGE DETAILS SEE SHEET 62

**WESTFORD
BOSTON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	12	132
PROJECT FILE NO. 609035			

CONSTRUCTION PLANS - 3 OF 11

NOTE:
 THE CONTRACTOR SHALL NOTE WELL OF THE EXISTING DOG FENCE WIRE WHICH RUNS BENEATH THE DRIVEWAY AT 18 BOSTON ROAD. DAMAGE TO THE FENCE WIRE DUE TO NEGLIGENCE BY THE CONTRACTOR SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.



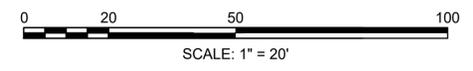
CONTINUED ON SHEET NO. 11

CONTINUED ON SHEET NO. 13

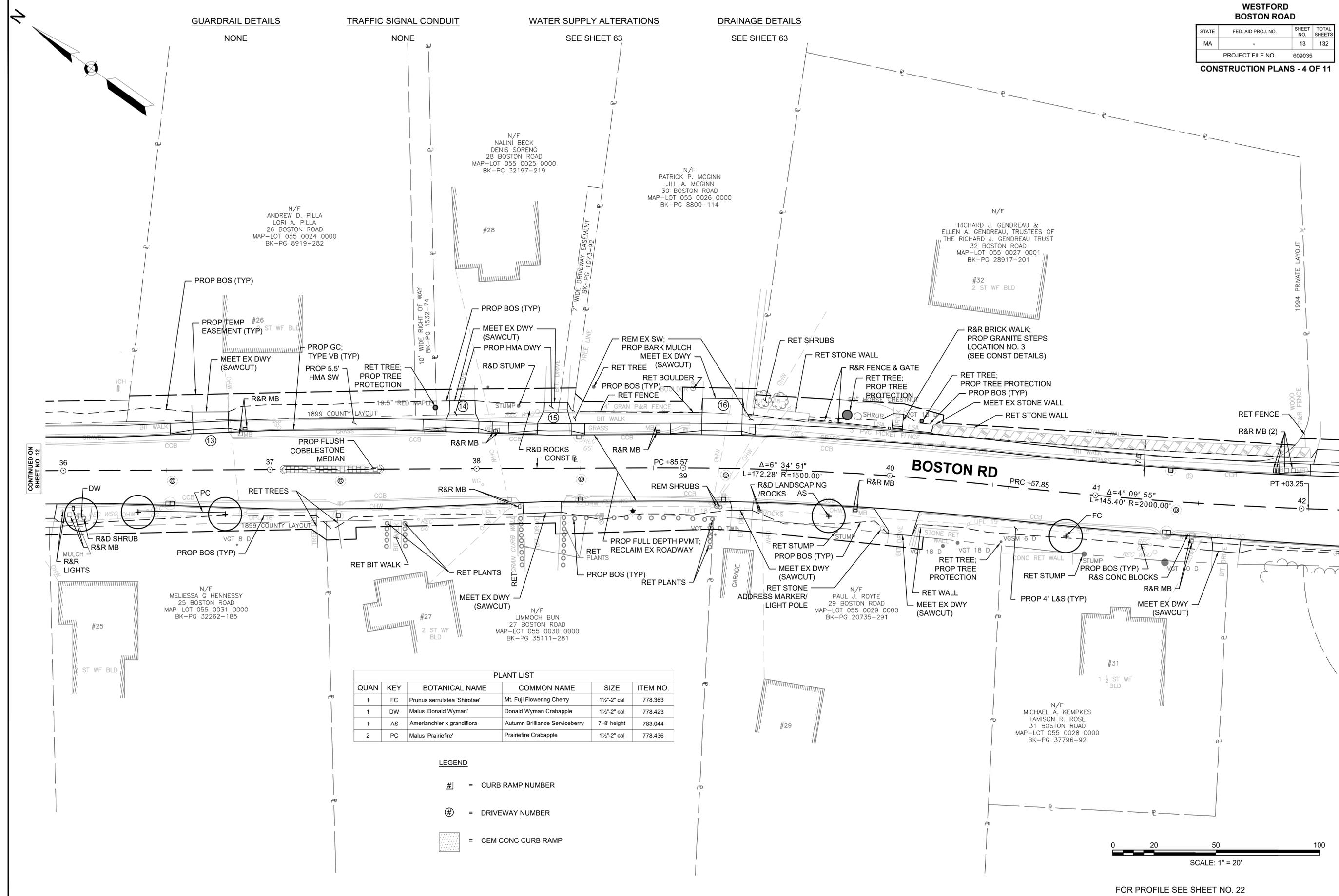
- LEGEND**
- = CURB RAMP NUMBER
 - = DRIVEWAY NUMBER
 - = CEM CONC CURB RAMP

PLANT LIST

QUAN	KEY	BOTANICAL NAME	COMMON NAME	SIZE	ITEM NO.
1	DW	Malus 'Donald Wyman'	Donald Wyman Crabapple	1 1/2"-2" cal	778.423
1	LM	Crataegus viridis 'Winter King'	Winter King Hawthorne	1 1/2"-2" cal	781.263



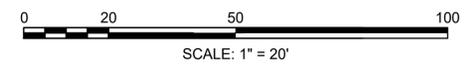
FOR PROFILE SEE SHEET NO. 21



PLANT LIST

QUAN	KEY	BOTANICAL NAME	COMMON NAME	SIZE	ITEM NO.
1	FC	Prunus serrulata 'Shirotae'	Mt. Fuji Flowering Cherry	1 1/2"-2" cal	778.363
1	DW	Malus 'Donald Wyman'	Donald Wyman Crabapple	1 1/2"-2" cal	778.423
1	AS	Amerlanchier x grandiflora	Autumn Brilliance Serviceberry	7'-8' height	783.044
2	PC	Malus 'Prairiefire'	Prairiefire Crabapple	1 1/2"-2" cal	778.436

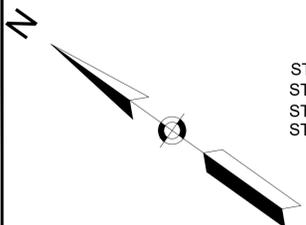
- LEGEND**
- = CURB RAMP NUMBER
 - = DRIVEWAY NUMBER
 - = CEM CONC CURB RAMP



FOR PROFILE SEE SHEET NO. 22

CONTINUED ON SHEET NO. 12

CONTINUED ON SHEET NO. 14



GUARDRAIL DETAILS
 STA 45+42 LT TO STA 45+52 LT TRAILING ANCHORAGE
 STA 45+52 LT TO STA 47+22 LT DEEP POST GUARDRAIL, TL-2
 STA 47+22 LT TO STA 47+40 LT GUARDRAIL, TL-2 (CURVED)
 STA 47+40 LT TO STA 47+45 LT TRAILING ANCHORAGE

- # = CURB RAMP NUMBER
- ⊕ = DRIVEWAY NUMBER
- [Pattern] = CEM CONC CURB RAMP

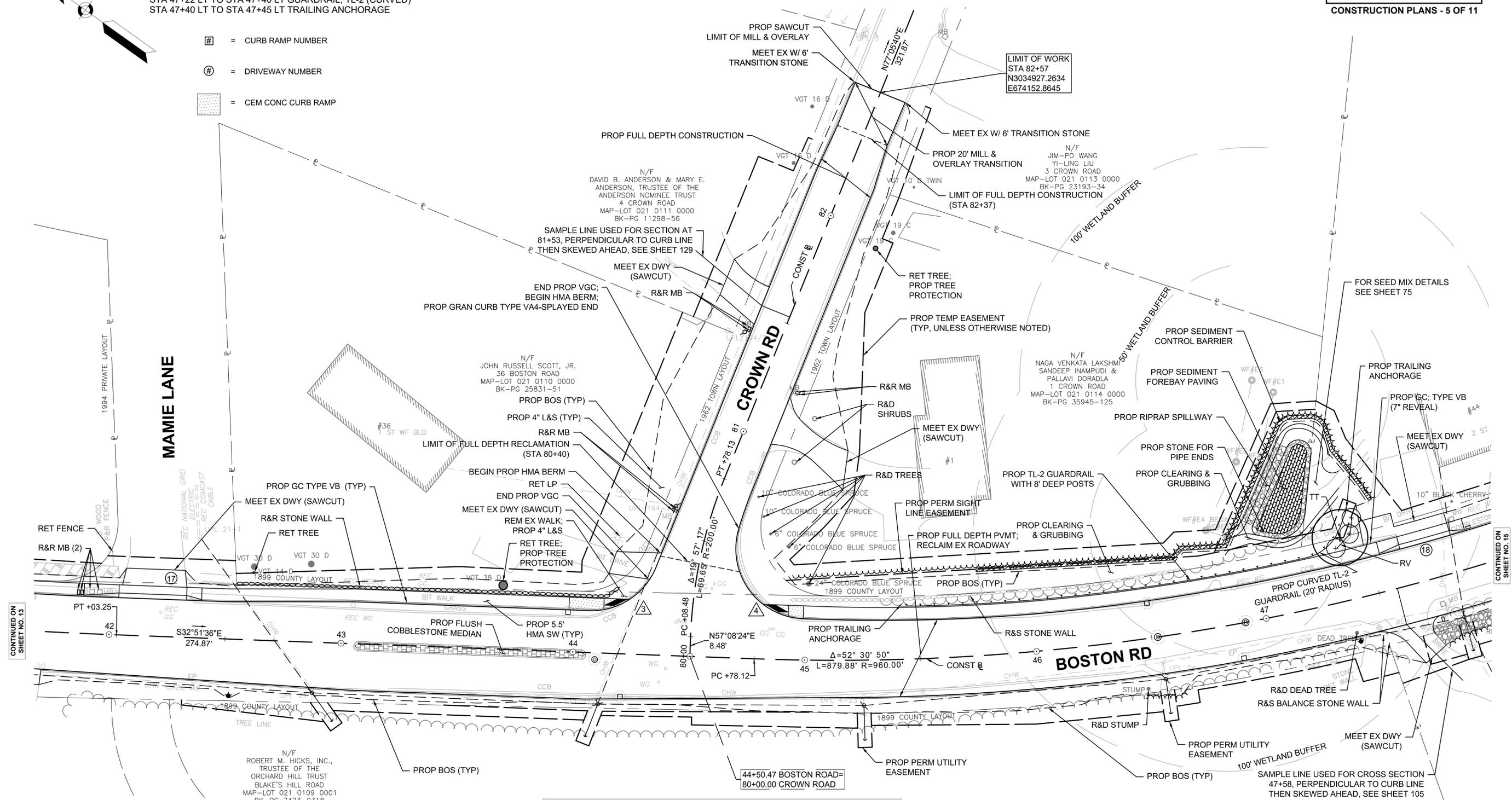
TRAFFIC SIGNAL CONDUIT
 NONE

WATER SUPPLY ALTERATIONS
 SEE SHEET 64

DRAINAGE DETAILS
 SEE SHEET 64

WESTFORD BOSTON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	14	132
PROJECT FILE NO. 609035			

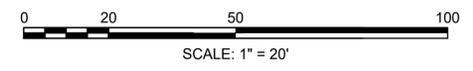
CONSTRUCTION PLANS - 5 OF 11



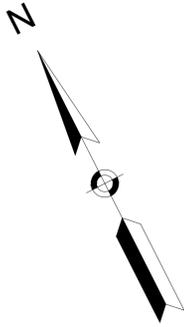
CONTINUED ON SHEET NO. 13

CONTINUED ON SHEET NO. 15

PLANT LIST					
QUAN	KEY	BOTANICAL NAME	COMMON NAME	SIZE	ITEM NO.
TREES					
1	TT	Liriodendron tulipifera	Tulip Tree	2"-2 1/2" cal	783.441
SHRUBS					
3	RV	Rhododendron viscosum	Swamp Azalea	2'-3' height	788.265



FOR PROFILE SEE SHEETS NO. 22 & 25



GUARDRAIL DETAILS
 STA 55+72 LT TO STA 55+82 LT TRAILING ANCHORAGE
 STA 55+82 LT TO STA 62+40 LT GUARDRAIL, TL-2

TRAFFIC SIGNAL CONDUIT
 NONE

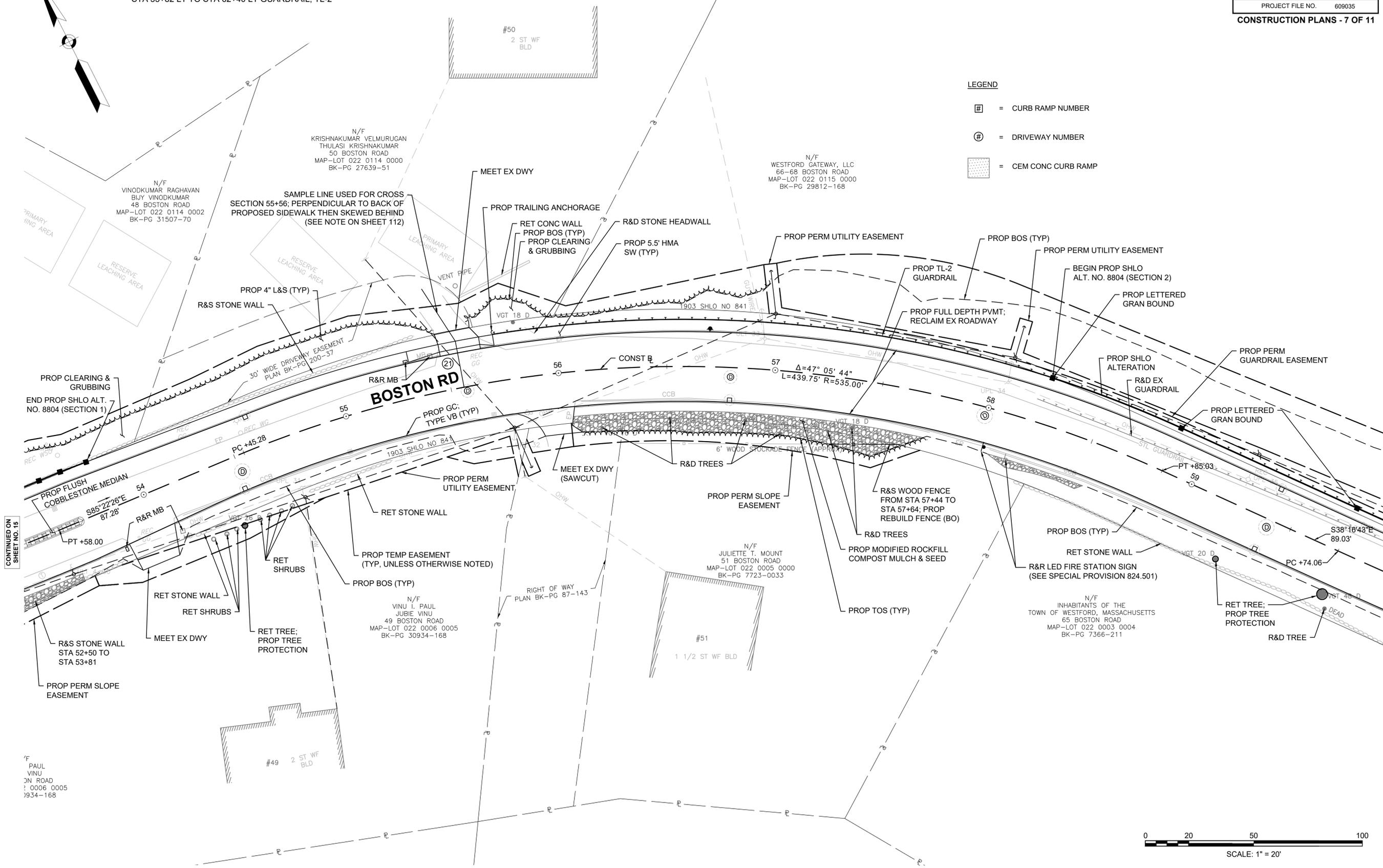
WATER SUPPLY ALTERATIONS
 SEE SHEET 66

DRAINAGE DETAILS
 SEE SHEET 66

WESTFORD BOSTON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	16	132
PROJECT FILE NO.		609035	

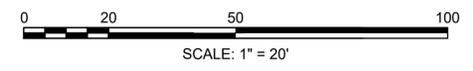
CONSTRUCTION PLANS - 7 OF 11

- LEGEND**
- # = CURB RAMP NUMBER
 - ⊕ = DRIVEWAY NUMBER
 - [Pattern] = CEM CONC CURB RAMP

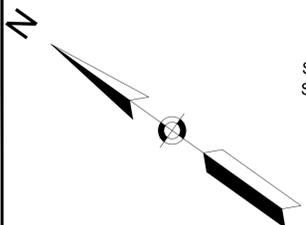


CONTINUED ON SHEET NO. 15

CONTINUED ON SHEET NO. 17



FOR PROFILE SEE SHEET NO. 23



GUARDRAIL DETAILS
 STA 55+82 LT TO STA 62+40 LT GUARDRAIL, TL-2
 STA 62+40 LT TO STA 62+65 LT TANGENT END TREATMENT, TL-2

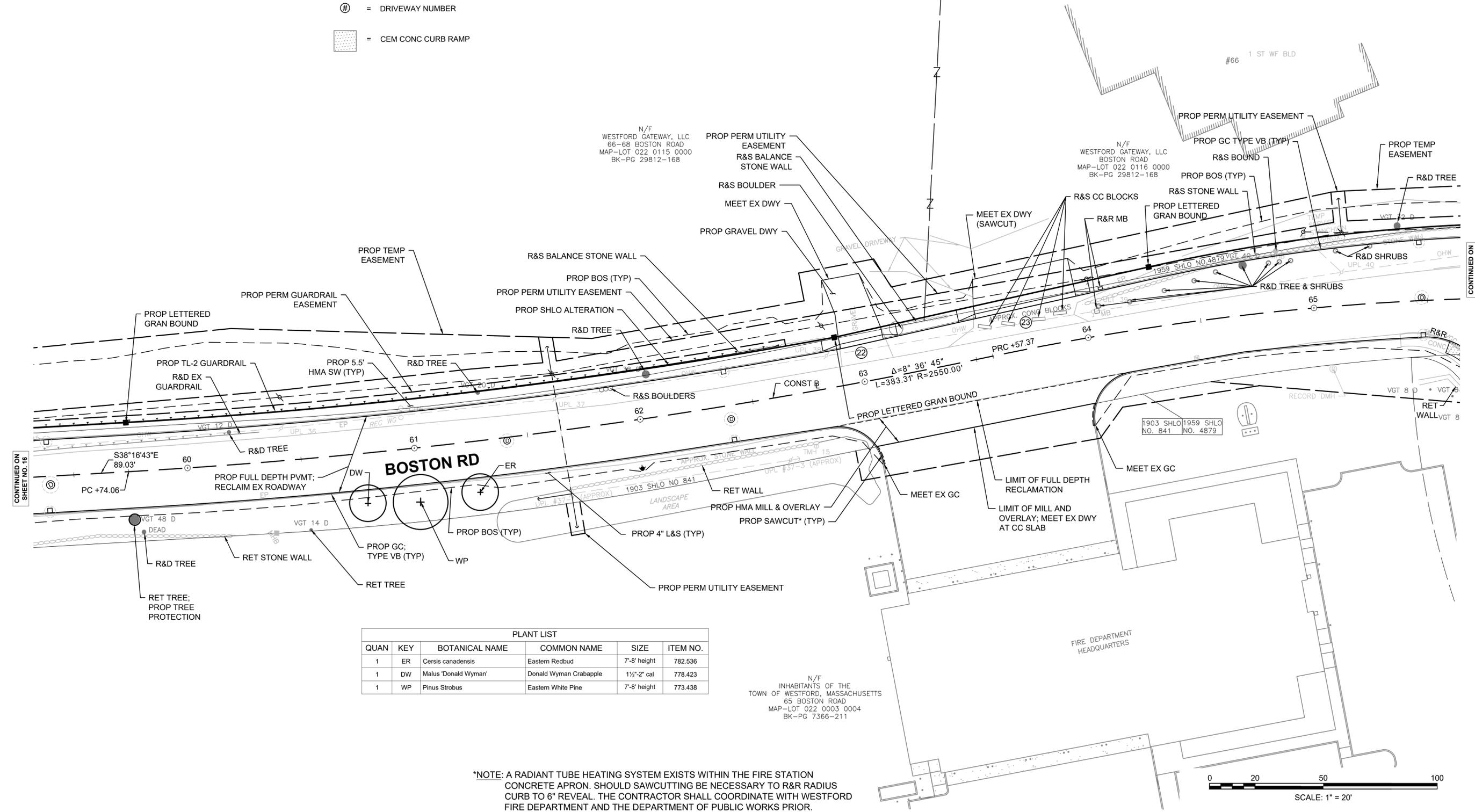
TRAFFIC SIGNAL CONDUIT
 NONE

WATER SUPPLY ALTERATIONS
 SEE SHEET 67

DRAINAGE DETAILS
 SEE SHEET 67

WESTFORD BOSTON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	17	132
PROJECT FILE NO.		609035	
CONSTRUCTION PLANS - 8 OF 11			

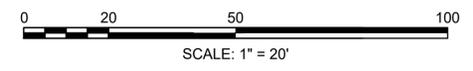
- LEGEND**
- # = CURB RAMP NUMBER
 - ⊕ = DRIVEWAY NUMBER
 - [Pattern] = CEM CONC CURB RAMP



PLANT LIST					
QUAN	KEY	BOTANICAL NAME	COMMON NAME	SIZE	ITEM NO.
1	ER	Cercis canadensis	Eastern Redbud	7'-8' height	782.536
1	DW	Malus 'Donald Wyman'	Donald Wyman Crabapple	1 1/2"-2" cal	778.423
1	WP	Pinus Strobus	Eastern White Pine	7'-8' height	773.438

N/F
 INHABITANTS OF THE
 TOWN OF WESTFORD, MASSACHUSETTS
 65 BOSTON ROAD
 MAP-LOT 022 0003 0004
 BK-PG 7366-211

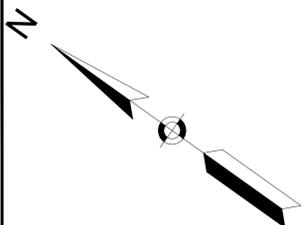
*NOTE: A RADIANT TUBE HEATING SYSTEM EXISTS WITHIN THE FIRE STATION CONCRETE APRON. SHOULD SAWCUTTING BE NECESSARY TO R&R RADIUS CURB TO 6" REVEAL. THE CONTRACTOR SHALL COORDINATE WITH WESTFORD FIRE DEPARTMENT AND THE DEPARTMENT OF PUBLIC WORKS PRIOR.



FOR PROFILE SEE SHEETS NO. 23 & 24

CONTINUED ON SHEET NO. 16

CONTINUED ON SHEET NO. 18



GUARDRAIL DETAILS
NONE

TRAFFIC SIGNAL CONDUIT
NONE

WATER SUPPLY ALTERATIONS
SEE SHEET 68

DRAINAGE DETAILS
SEE SHEET 68

WESTFORD BOSTON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	18	132
PROJECT FILE NO. 609035		CONSTRUCTION PLANS - 9 OF 11	

N/F
INHABITANTS OF THE
TOWN OF WESTFORD
BOSTON ROAD
MAP-LOT 022 0117 0002
BK-PG 4446-0228

PROP CLEARING & GRUBBING
N/F
WESTFORD GATEWAY, LLC
BOSTON ROAD
MAP-LOT 022 0116 0000
BK-PG 29812-168

PROP BOS (TYP)
PROP 4" L&S (TYP)
PROP ACCESS PATH BASELINE

PROP TEMP EASEMENT
N/F
NRT NEW ENGLAND LLC
70 BOSTON ROAD
MAP-LOT 022 0118 0000
BK-PG 37905-4

PROP BOS (TYP)
N/F
TOWN OF WESTFORD
BOSTON ROAD
MAP-LOT 022 0117 0016
BK-PG 5117-0304

R&D CONC WALL
N/F
WESTFORD GATEWAY, LLC
BOSTON ROAD
MAP-LOT 022 0116 0000
BK-PG 29812-168

PROP CLEARING & GRUBBING
R&D WOOD POST
PROP ACCESS ROAD BASELINE

- LEGEND**
- # = CURB RAMP NUMBER
 - ⊙ = DRIVEWAY NUMBER
 - [Pattern] = CEM CONC CURB RAMP

PROP PERM UTILITY EASEMENT
END PROP SHLO ALT. NO. 8804 (SECTION 2)
PROP 5.5' HMA SW
PROP 5.5' CC BLOCK

R&S "PEACE TRAIL"
CUB SCOUT
PACK 95"
R&D WOOD POST
PROP 5.5' HMA SW
PROP GRAVEL DWY

PROP PERM UTILITY EASEMENT
PROP BOS (TYP)
RET COLDWELL BANKERS'
PROP 5.5' CC SW

PROP TEMP EASEMENT
MEET EX DWY
PROP HMA DWY (TYP)

N/F
NRT NEW ENGLAND LLC
70 BOSTON ROAD
MAP-LOT 022 0118 0000
BK-PG 37905-4

PROP TEMP EASEMENT
R&D TREE

R&D SHRUBS

PROP LETTERED GRAN BOUND 66

R&S CC POSTS
25' RADIUS ROAD EASEMENT
PLAN BK-PG 131-65

R&R BOUND BEGIN CC SW (+10)

PROP PERM UTILITY EASEMENT
R&D TREE

PROP HMA DWY (TYP)
PROP CC SW THROUGH DWY

RET FENCE STA 68+74 TO STA 70+80
RET SHRUBS
BIT DRIVE
SHRUBS
PROP 5.5' CC SW
EP

REM EXIST BRUSH ADJACENT TO EXIST GUY
REM EXIST GUY

LIMIT OF FULL DEPTH RECLAMATION

R&R VGC
PROP BOS (TYP)

R&R BOUND BEGIN CC SW (+10)

PROP PERM UTILITY EASEMENT
R&D TREE

PROP HMA DWY (TYP)
PROP CC SW THROUGH DWY

PROP TEMP EASEMENT
MEET EX DWY

BOSTON RD

CONST B
PROP 5.5' CC SW

R&S CLF STA 70+80 TO STA 70+90

PROP SGE TYPE SB (R&R EXIST)
RET BOUND
MEET EX SGE

PROP SAWCUT LIMIT OF MILL & OVERLAY

RET TREE
RET STONE WALL
PROP 5' HMA SW
PROP 25' MILL & OVERLAY TRANSITION

PROP SGE TYPE SB (R&R EXIST)
MEET EX SGE & SW

PROP CC SW THROUGH DWY
PROP HMA DWY (TYP)

PROP FULL DEPTH PVMT. RECLAIM EX ROADWAY
MEET EX DWY

PROP TEMP EASEMENT

PROP GC TYPE VB (R&R EX) (TYP)

PROP 5.5' CC SW

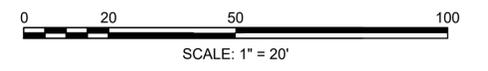
RESIDENTIAL ACCESS
1959 SHLO NO 4879

R&R VGC

BLAKE'S HILL RD
PUBLIC - 50' WIDE

JOES WAY

N/F
COTTAGES IN THE WOODS
CONDOMINIUM TRUST
LOT G-1 BOSTON ROAD
MAP-LOT 022 0003 0100
BK-PG 25988-158



FOR PROFILE SEE SHEET NO. 24

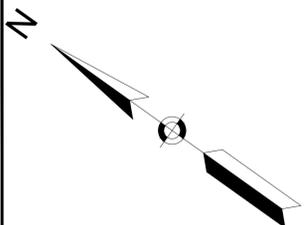
CONTINUED ON SHEET NO. 17

CONTINUED ON SHEET NO. 19

**WESTFORD
BOSTON ROAD**

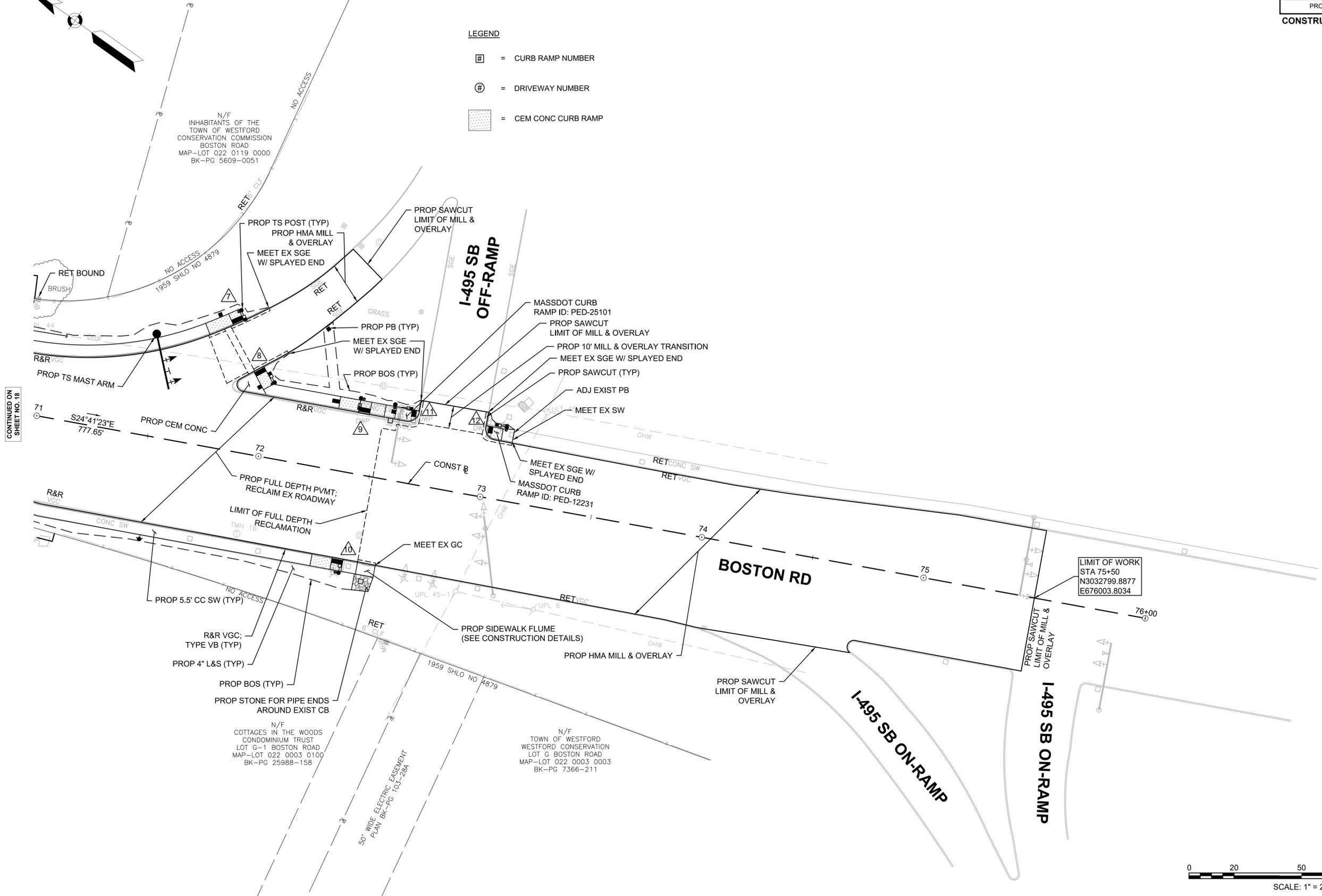
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	19	132
PROJECT FILE NO.		609035	

CONSTRUCTION PLANS - 10 OF 11



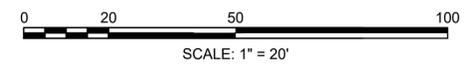
GUARDRAIL DETAILS NONE
 TRAFFIC SIGNAL CONDUIT SEE SHEET 48
 WATER SUPPLY ALTERATIONS SEE SHEET 69
 DRAINAGE DETAILS SEE SHEET 69

- LEGEND**
- # = CURB RAMP NUMBER
 - ⊕ = DRIVEWAY NUMBER
 - [Pattern] = CEM CONC CURB RAMP



CONTINUED ON SHEET NO. 18

LIMIT OF WORK
 STA 75+50
 N3032799.8877
 E676003.8034

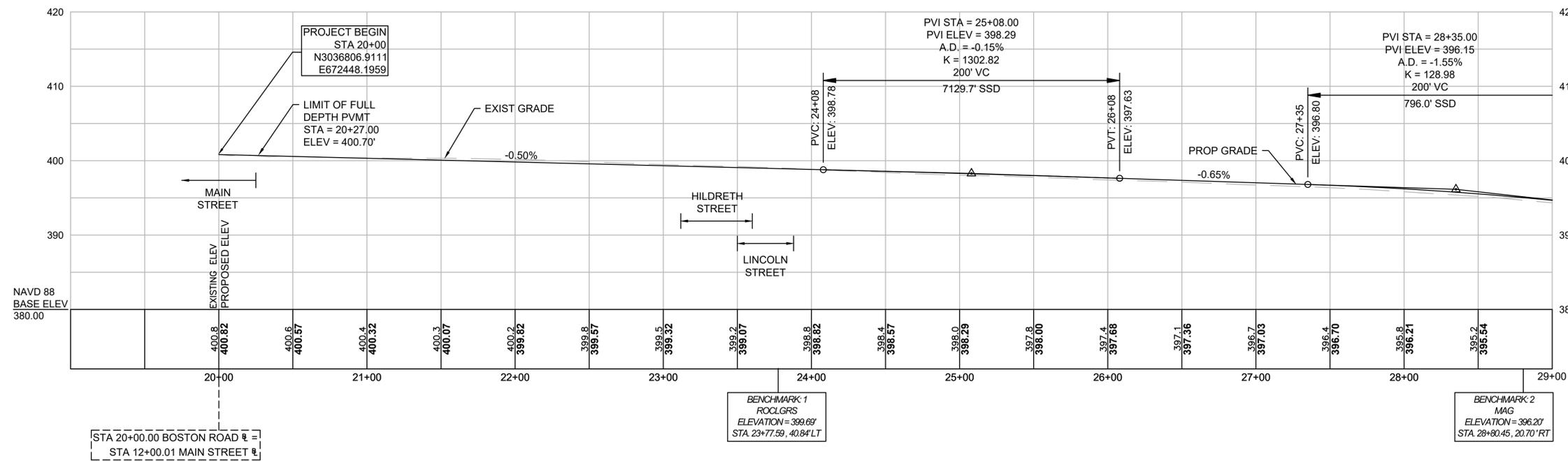


FOR PROFILE SEE SHEET NO. 24

**WESTFORD
BOSTON ROAD**

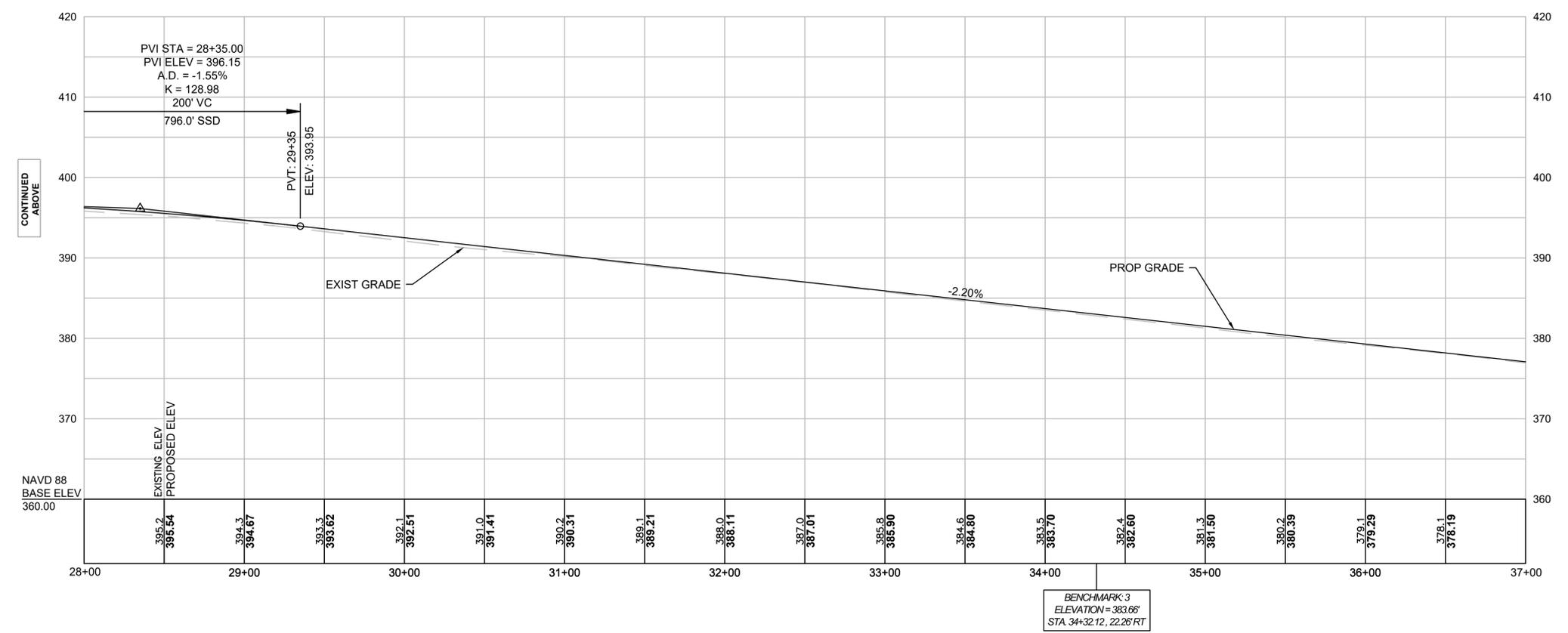
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	21	132
PROJECT FILE NO. 609035			

PROFILES - 1 OF 5



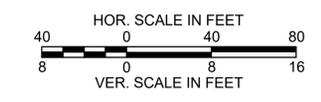
CONTINUED BELOW

BOSTON ROAD



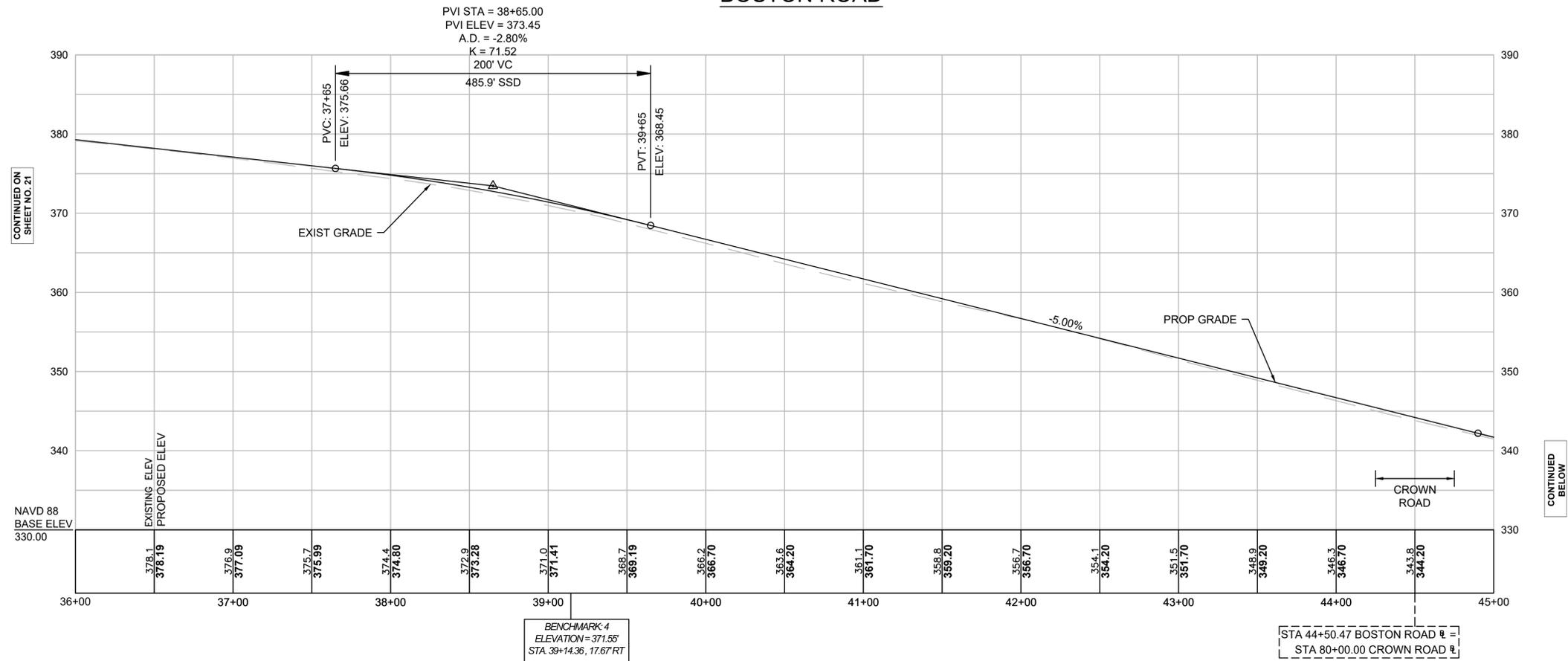
CONTINUED ABOVE

CONTINUED ON SHEET NO. 22



FOR CONSTRUCTION PLAN: SEE SHEETS 10-13

BOSTON ROAD



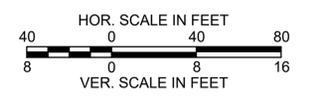
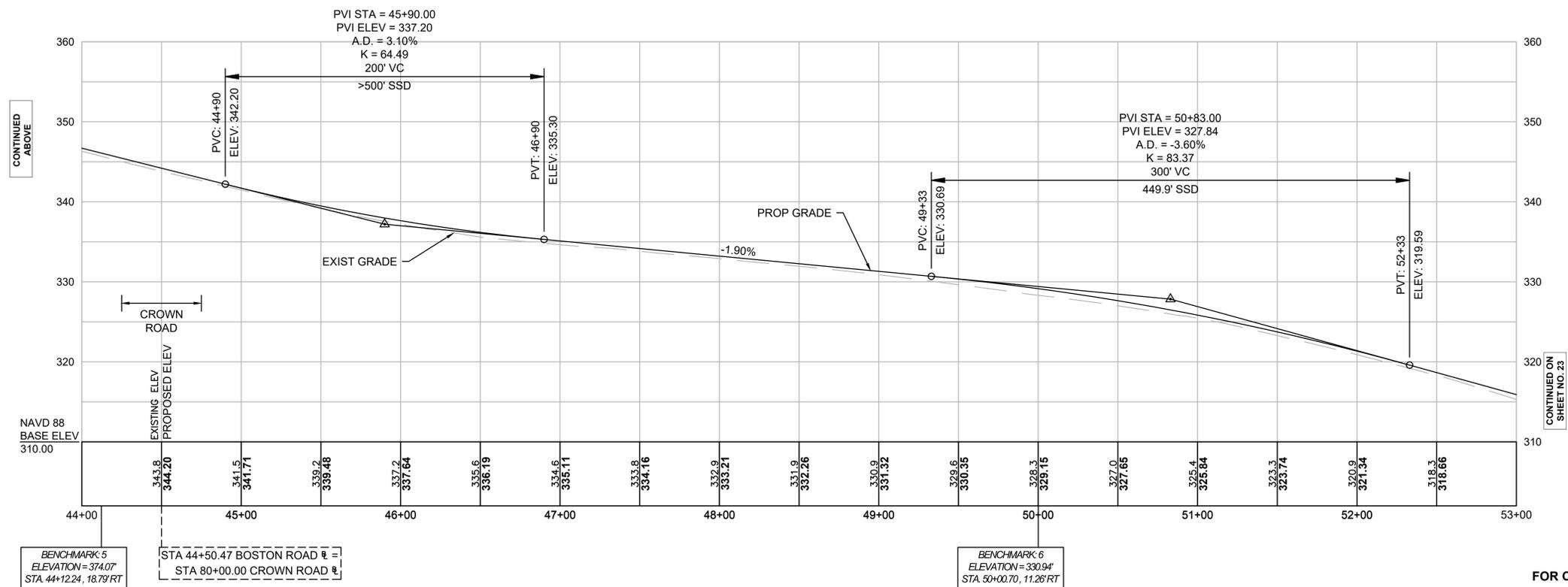
**WESTFORD
BOSTON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	22	132

PROJECT FILE NO. 609035

PROFILES - 2 OF 5

BOSTON ROAD



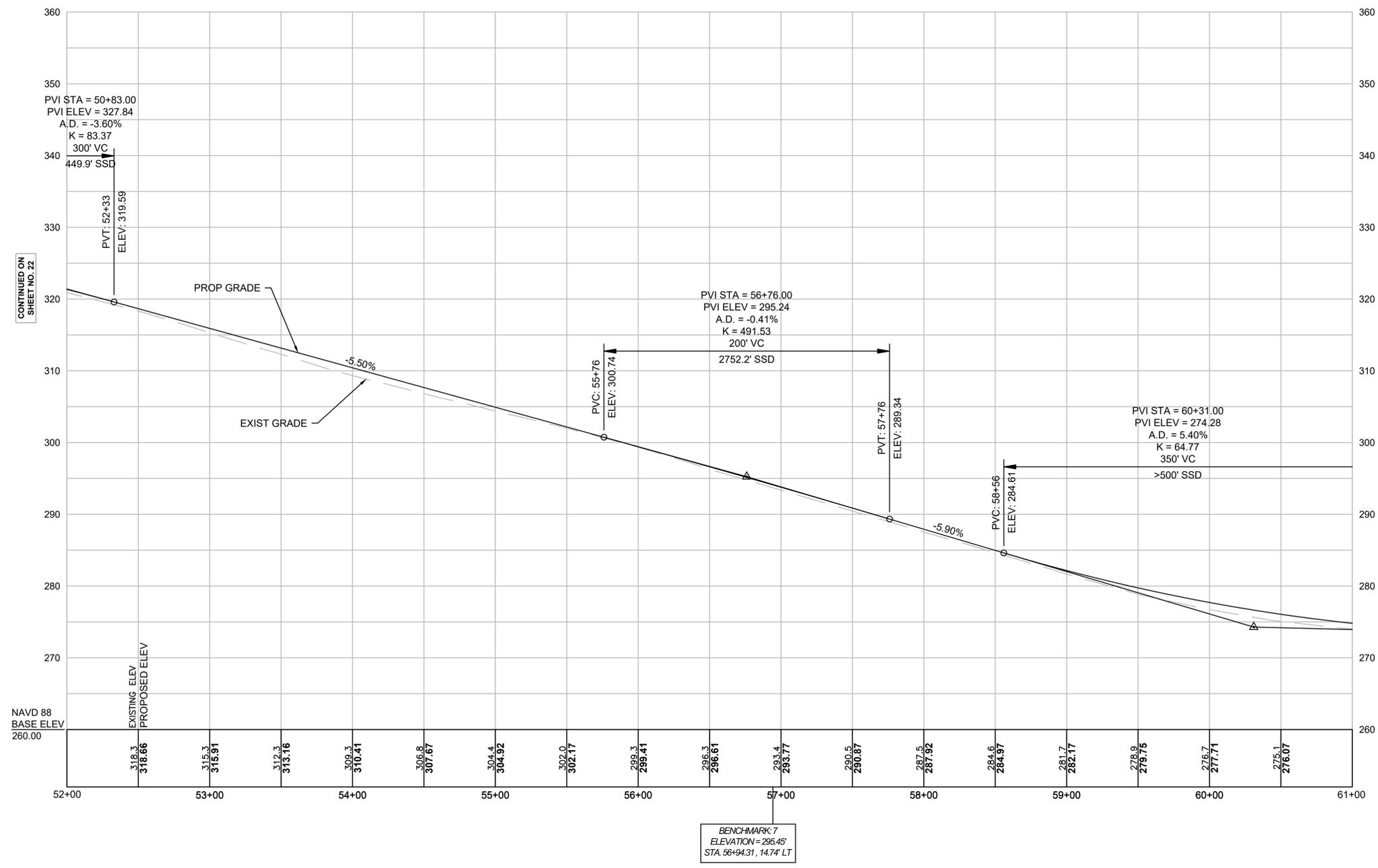
FOR CONSTRUCTION PLAN: SEE SHEETS 12-15

BOSTON ROAD

WESTFORD
BOSTON ROAD

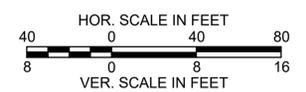
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	23	132
PROJECT FILE NO.		609035	

PROFILES - 3 OF 5



CONTINUED ON
SHEET NO. 22

CONTINUED ON
SHEET NO. 24



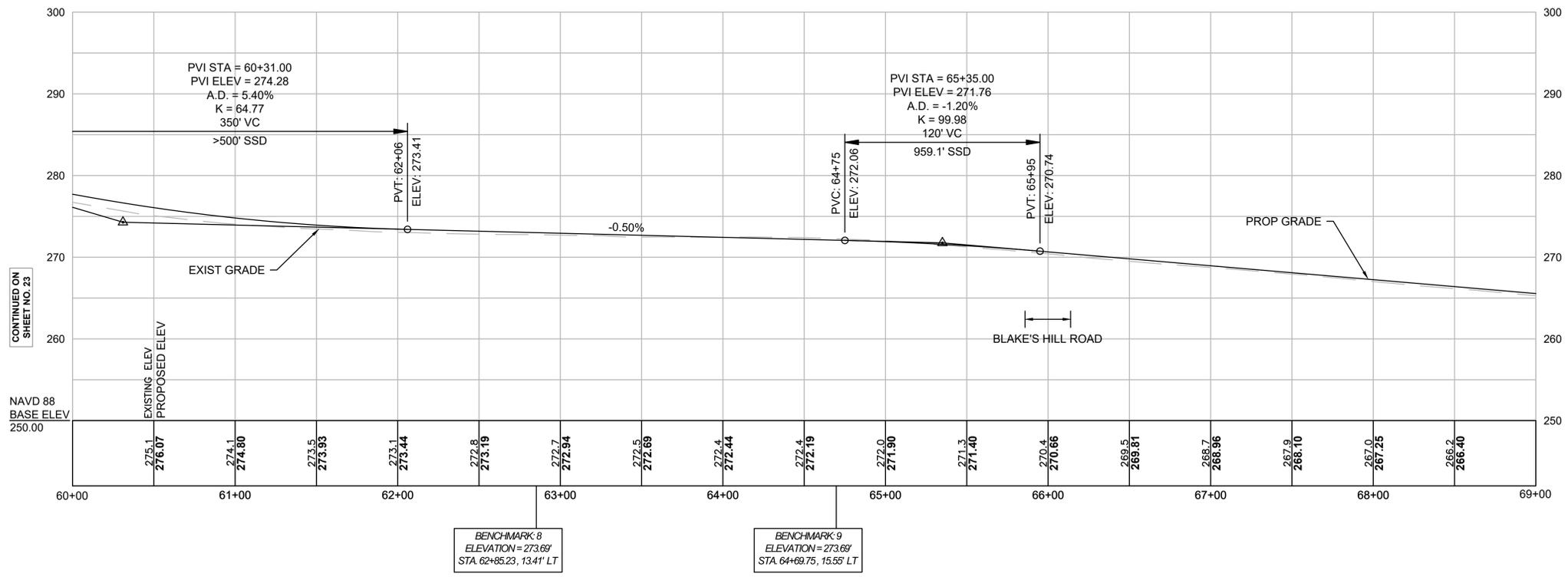
FOR CONSTRUCTION PLAN: SEE SHEETS 15-17

BOSTON ROAD

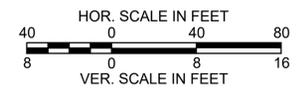
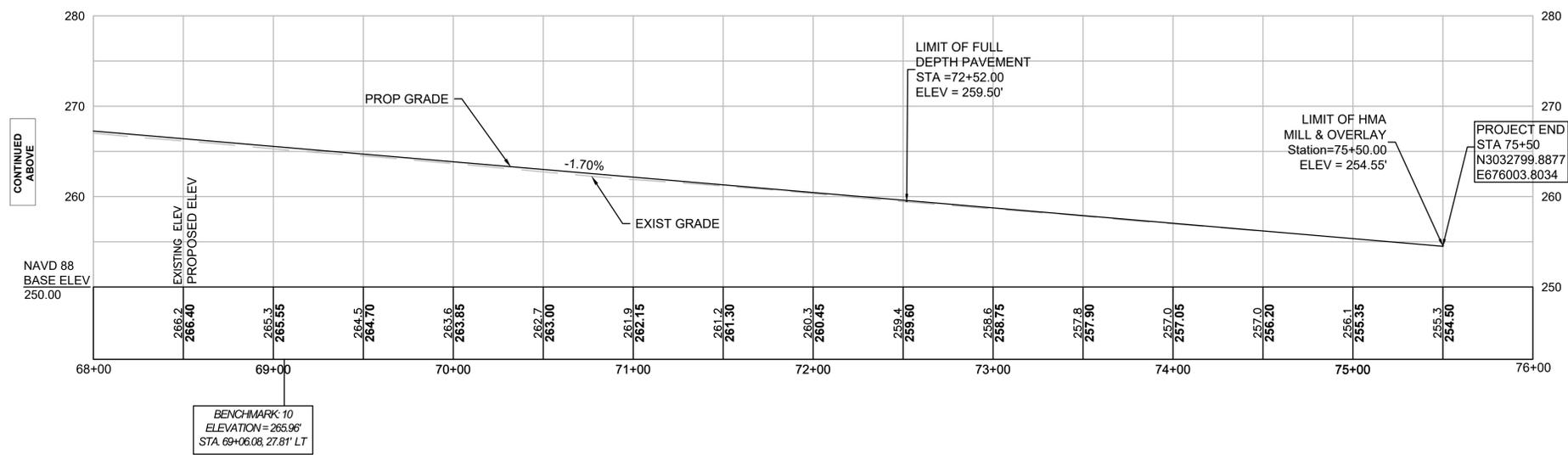
WESTFORD BOSTON ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	24	132
PROJECT FILE NO.		609035	

PROFILES - 4 OF 5



BOSTON ROAD



FOR CONSTRUCTION PLAN: SEE SHEETS 17-19

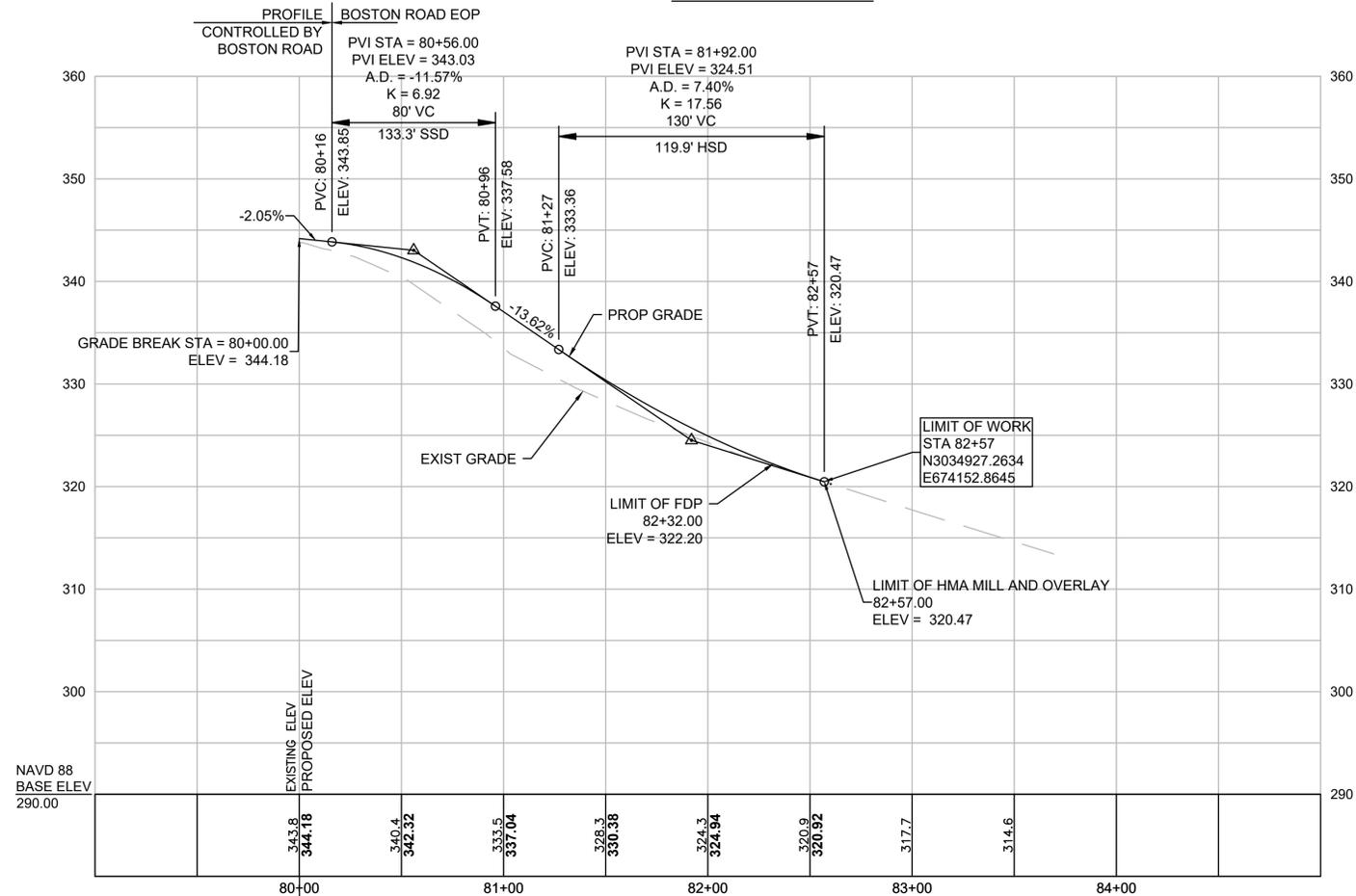
**WESTFORD
BOSTON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	25	132
PROJECT FILE NO. 609035			

PROFILES - 5 OF 5

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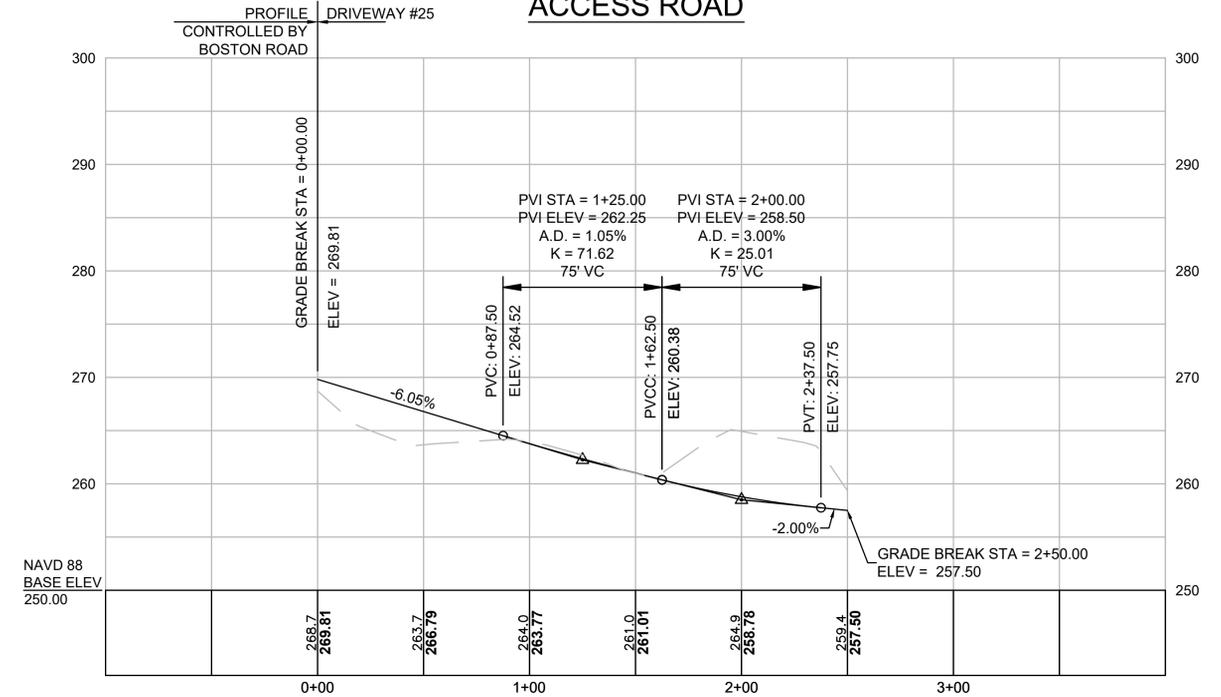
CROWN ROAD



FOR CONSTRUCTION PLAN: SEE SHEET 14

STA 80+00.00 CROWN ROAD
STA 44+50.47 BOSTON ROAD

ACCESS ROAD



FOR CONSTRUCTION PLAN: SEE SHEET 18

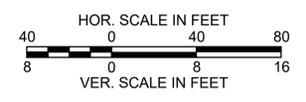
MAIN STREET



FOR CONSTRUCTION PLAN: SEE SHEET 10

STA 12+00.01 MAIN STREET
STA 20+00.00 BOSTON ROAD

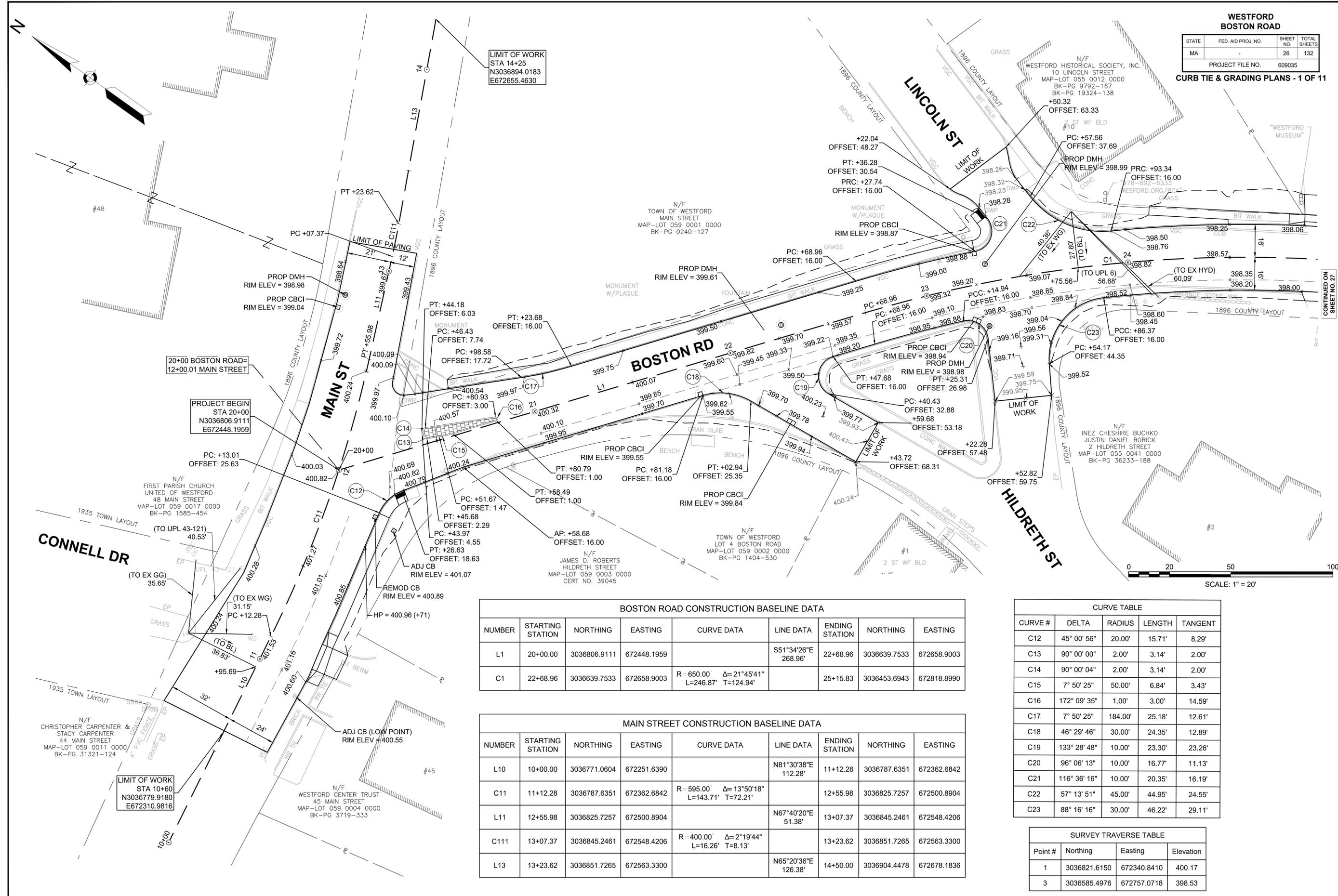
BENCHMARK: 11
MAG SET
ELEVATION = 401.42'
STA 12+06.11, 26.52' LT



**WESTFORD
BOSTON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	26	132
PROJECT FILE NO. 609035			

CURB TIE & GRADING PLANS - 1 OF 11



BOSTON ROAD CONSTRUCTION BASELINE DATA

NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	20+00.00	3036806.9111	672448.1959		S51°34'26"E 268.96'	22+68.96	3036639.7533	672658.9003
C1	22+68.96	3036639.7533	672658.9003	R= 650.00' Δ= 21°45'41" L=246.87' T=124.94'		25+15.83	3036453.6943	672818.8990

CURVE TABLE

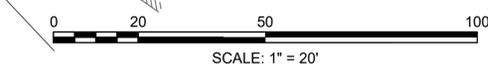
CURVE #	DELTA	RADIUS	LENGTH	TANGENT
C12	45° 00' 56"	20.00'	15.71'	8.29'
C13	90° 00' 00"	2.00'	3.14'	2.00'
C14	90° 00' 04"	2.00'	3.14'	2.00'
C15	7° 50' 25"	50.00'	6.84'	3.43'
C16	172° 09' 35"	1.00'	3.00'	14.58'
C17	7° 50' 25"	184.00'	25.18'	12.61'
C18	46° 29' 46"	30.00'	24.35'	12.89'
C19	133° 28' 48"	10.00'	23.30'	23.26'
C20	96° 06' 13"	10.00'	16.77'	11.13'
C21	116° 36' 16"	10.00'	20.35'	16.19'
C22	57° 13' 51"	45.00'	44.95'	24.55'
C23	88° 16' 16"	30.00'	46.22'	29.11'

MAIN STREET CONSTRUCTION BASELINE DATA

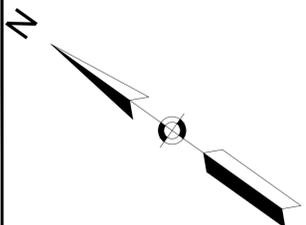
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L10	10+00.00	3036771.0604	672251.6390		N81°30'38"E 112.28'	11+12.28	3036787.6351	672362.6842
C11	11+12.28	3036787.6351	672362.6842	R= 595.00' Δ= 13°50'18" L=143.71' T=72.21'		12+55.98	3036825.7257	672500.8904
L11	12+55.98	3036825.7257	672500.8904		N67°40'20"E 51.38'	13+07.37	3036845.2461	672548.4206
C111	13+07.37	3036845.2461	672548.4206	R= 400.00' Δ= 2°19'44" L=16.26' T=8.13'		13+23.62	3036851.7265	672563.3300
L13	13+23.62	3036851.7265	672563.3300		N65°20'36"E 126.38'	14+50.00	3036904.4478	672678.1836

SURVEY TRAVERSE TABLE

Point #	Northing	Easting	Elevation
1	3036821.6150	672340.8410	400.17
3	3036585.4976	672757.0718	398.53



CONTINUED ON
SHEET NO. 27



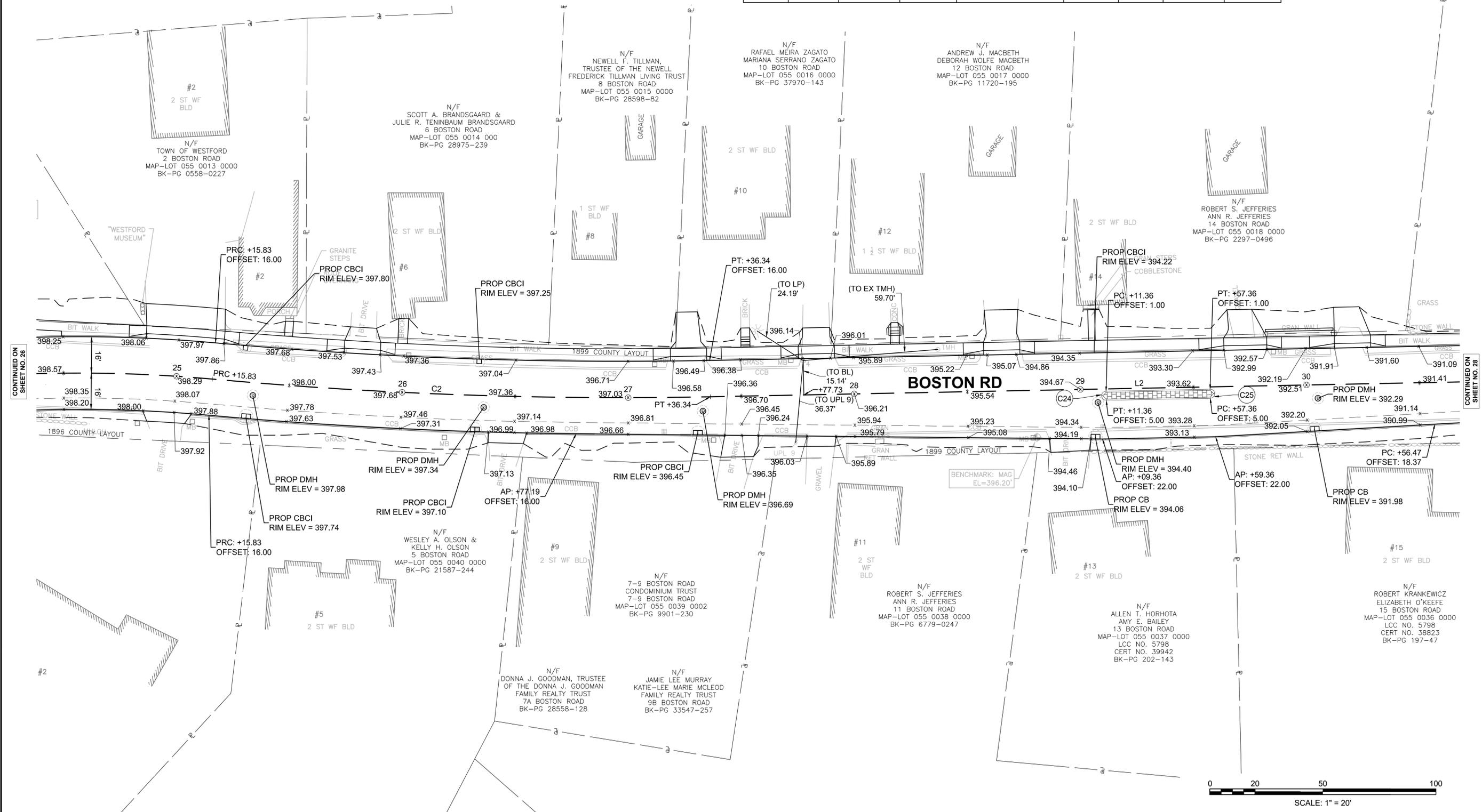
CURVE TABLE				
CURVE #	DELTA	RADIUS	LENGTH	TANGENT
C24	180° 00' 00"	2.00'	6.28'	INFINITY'
C25	180° 00' 00"	2.00'	6.28'	INFINITY'

SURVEY TRAVERSE TABLE			
Point #	Northing	Easting	Elevation
4	3036244.2904	672975.4762	395.73

BOSTON ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C1	22+68.96	3036639.7533	672658.9003	R=650.00' Δ=21°45'41" L=246.87' T=124.94'		25+15.83	3036453.6943	672818.8990
C2	25+15.83	3036453.6943	672818.8990	R=2000.00' Δ=6°19'01" L=220.51' T=110.36'		27+36.34	3036268.7966	672938.8411
L2	27+36.34	3036268.7966	672938.8411		S36°07'47"E 398.69'	31+35.02	3035946.7827	673173.9139

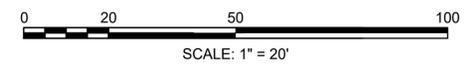
WESTFORD BOSTON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	27	132
PROJECT FILE NO.		609035	

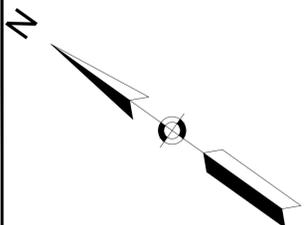
CURB TIE & GRADING PLANS - 2 OF 11



CONTINUED ON
SHEET NO. 26

CONTINUED ON
SHEET NO. 28





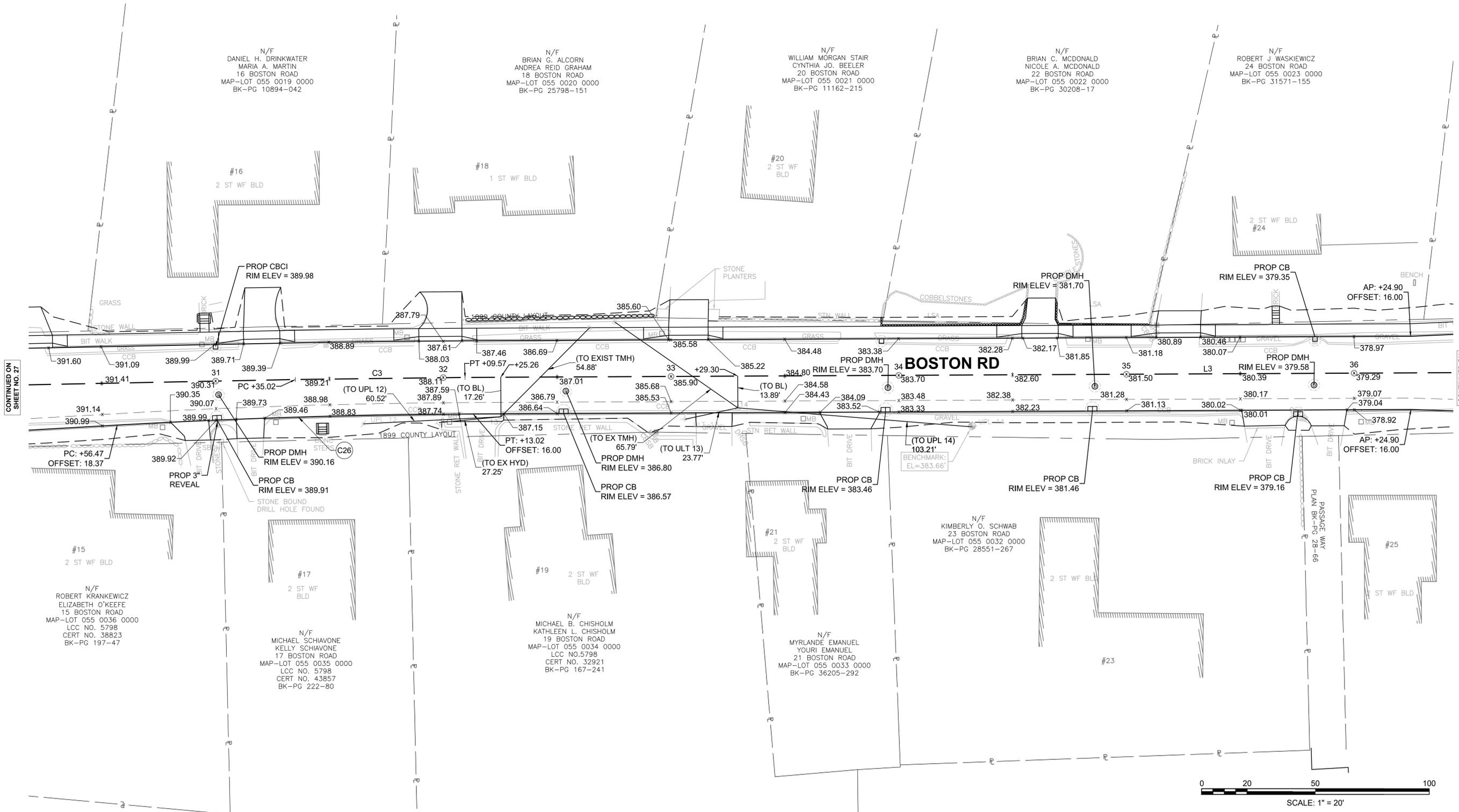
CURVE TABLE				
CURVE #	DELTA	RADIUS	LENGTH	TANGENT
C26	3° 00' 07"	2984.00'	156.34'	78.19'

SURVEY TRAVERSE TABLE			
Point #	Northing	Easting	Elevation
13	3035863.4733	673212.3822	387.29
14	3035780.4857	673275.2222	384.59

BOSTON ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L2	27+36.34	3036268.7966	672938.8411		S36°07'47"E 398.69'	31+35.02	3035946.7827	673173.9139
C3	31+35.02	3035946.7827	673173.9139	R = 5000.00' Δ = 0°51'15" L = 74.55' T = 37.27'		32+09.57	3035886.2464	673217.4179
L3	32+09.57	3035886.2464	673217.4179		S35°16'32"E 676.00'	38+85.57	3035334.3717	673607.8128

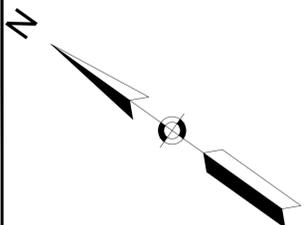
WESTFORD BOSTON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	28	132
PROJECT FILE NO.		609035	

CURB TIE & GRADING PLANS - 3 OF 11



CONTINUED ON SHEET NO. 27

CONTINUED ON SHEET NO. 29



CURVE TABLE				
CURVE #	DELTA	RADIUS	LENGTH	TANGENT
C29	180° 00' 04"	2.00'	6.28'	224965.60'
C30	180° 00' 00"	2.00'	6.28'	INFINITY'
C31	70° 02' 43"	30.00'	36.68'	21.02'
C32	104° 34' 52"	30.00'	54.76'	38.80'

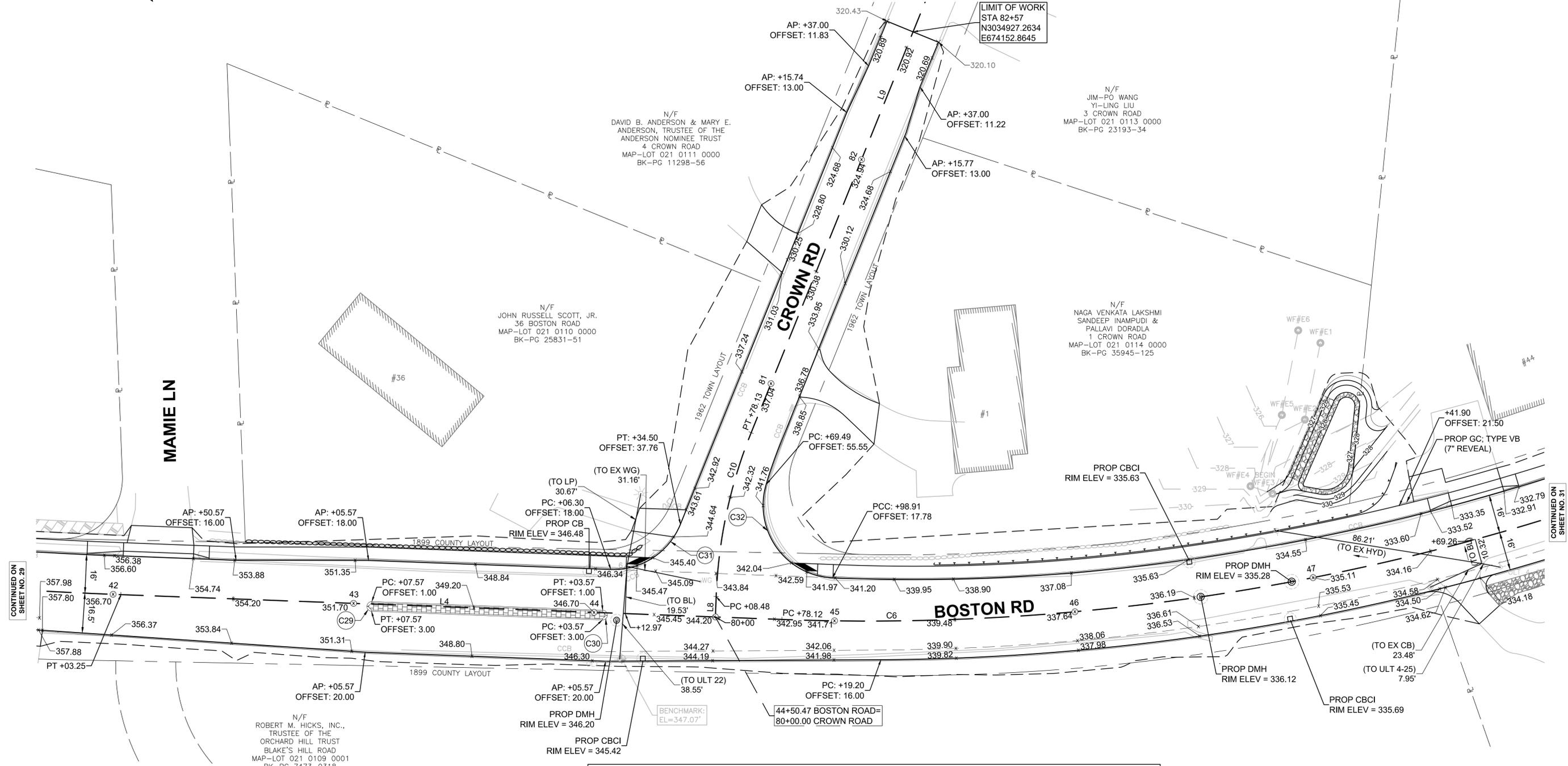
SURVEY TRAVERSE TABLE			
Point #	Northing	Easting	Elevation
6	3034897.8646	673903.5969	345.34
7	3034607.5517	674108.3037	333.74

BOSTON ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C5	40+57.85	3035188.3236	673699.0211	R=2000.00 Δ=4°09'55" L=145.40' T=72.73'		42+03.25	3035063.4301	673773.4060
L4	42+03.25	3035063.4301	673773.4060		S32°51'36"E 274.87'	44+78.12	3034832.5420	673922.5464
C6	44+78.12	3034832.5420	673922.5464	R=960.00' Δ=52°30'50" L=879.88' T=473.56'		53+58.00	3034396.5558	674651.5181

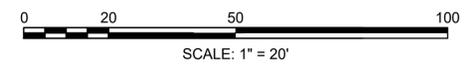
**WESTFORD
BOSTON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	30	132
PROJECT FILE NO.		609035	

CURB TIE & GRADING PLANS - 5 OF 11

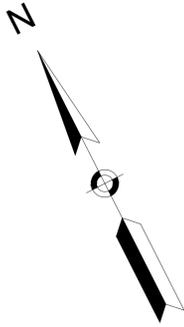


CROWN ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L8	80+00.00	3034855.7670	673907.5444		N57°08'24"E 8.48'	80+08.48	3034860.3657	673914.6637
C10	80+08.48	3034860.3657	673914.6637	R=200.00' Δ=19°57'17" L=69.65' T=35.18'		80+78.13	3034887.3142	673978.5132
L9	80+78.13	3034887.3142	673978.5132		N77°05'40"E 321.87'	84+00.00	3034959.2014	674292.2523



CONTINUED ON SHEET NO. 29

CONTINUED ON SHEET NO. 31



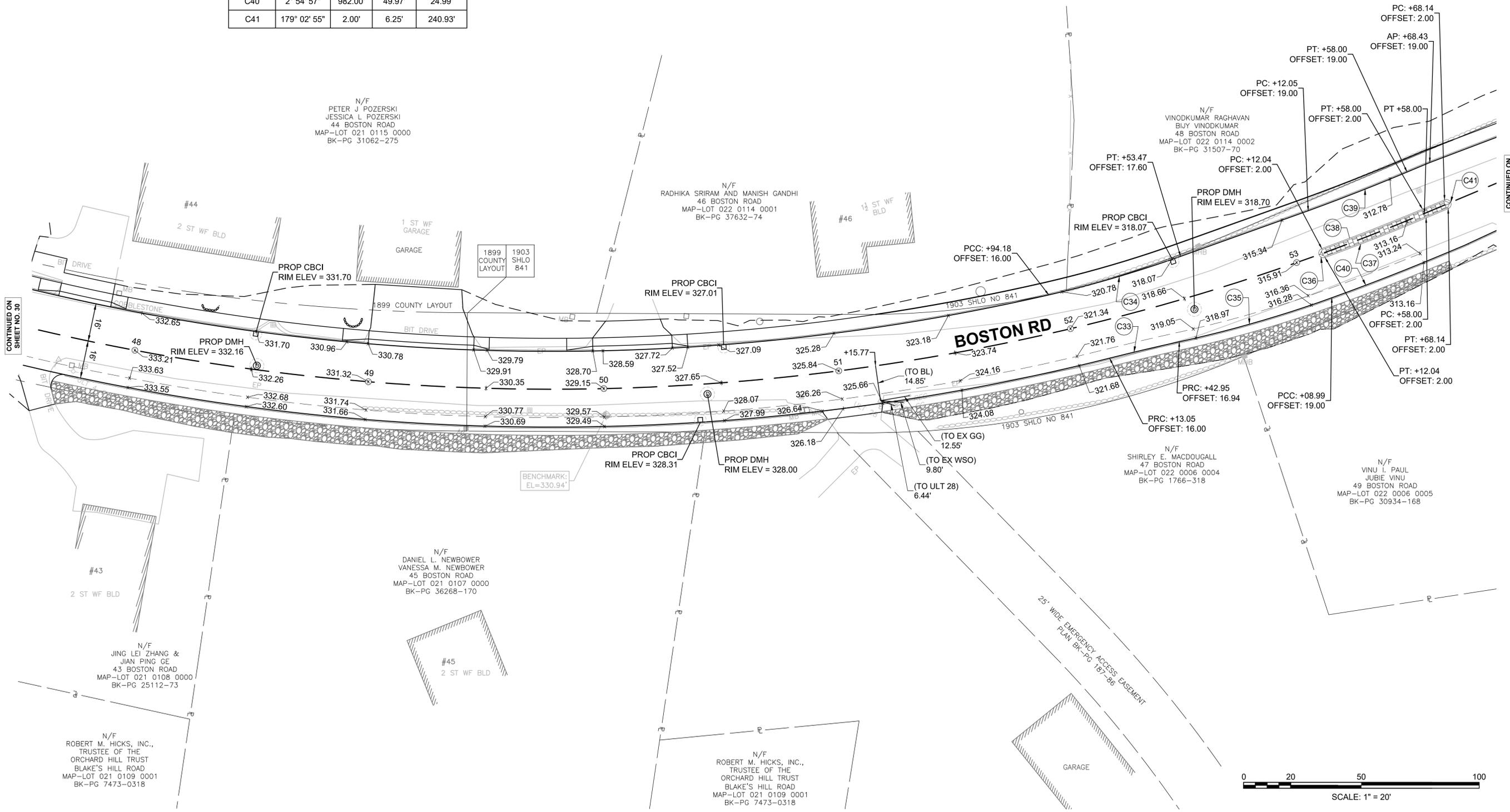
CURVE TABLE				
CURVE #	DELTA	RADIUS	LENGTH	TANGENT
C33	1° 44' 35"	1000.00'	30.42'	15.21'
C34	6° 40' 49"	500.00'	58.30'	29.18'
C35	7° 28' 42"	516.00'	67.35'	33.72'
C36	179° 08' 49"	2.00'	6.25'	268.41'
C37	2° 44' 04"	965.00'	46.05'	23.03'
C38	2° 44' 04"	961.00'	45.86'	22.94'
C39	2° 44' 00"	944.00'	45.04'	22.52'
C40	2° 54' 57"	982.00'	49.97'	24.99'
C41	179° 02' 55"	2.00'	6.25'	240.93'

SURVEY TRAVERSE TABLE			
Point #	Northing	Easting	Elevation
7	3034607.5517	674108.3037	333.74
8	3034432.1542	674410.2287	325.26

BOSTON ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C6	44+78.12	3034832.5420	673922.5464	R=960.00' Δ=52°30'50" L=879.88' T=473.56'		53+58.00	3034396.5558	674651.5181
L5	53+58.00	3034396.5558	674651.5181		S85°22'26"E 87.28'	54+45.28	3034389.5167	674738.5114

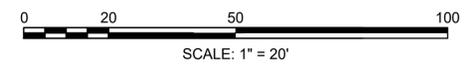
WESTFORD BOSTON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	31	132
PROJECT FILE NO.		609035	

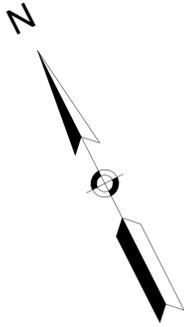
CURB TIE & GRADING PLANS - 6 OF 11



CONTINUED ON SHEET NO. 30

CONTINUED ON SHEET NO. 32





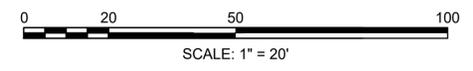
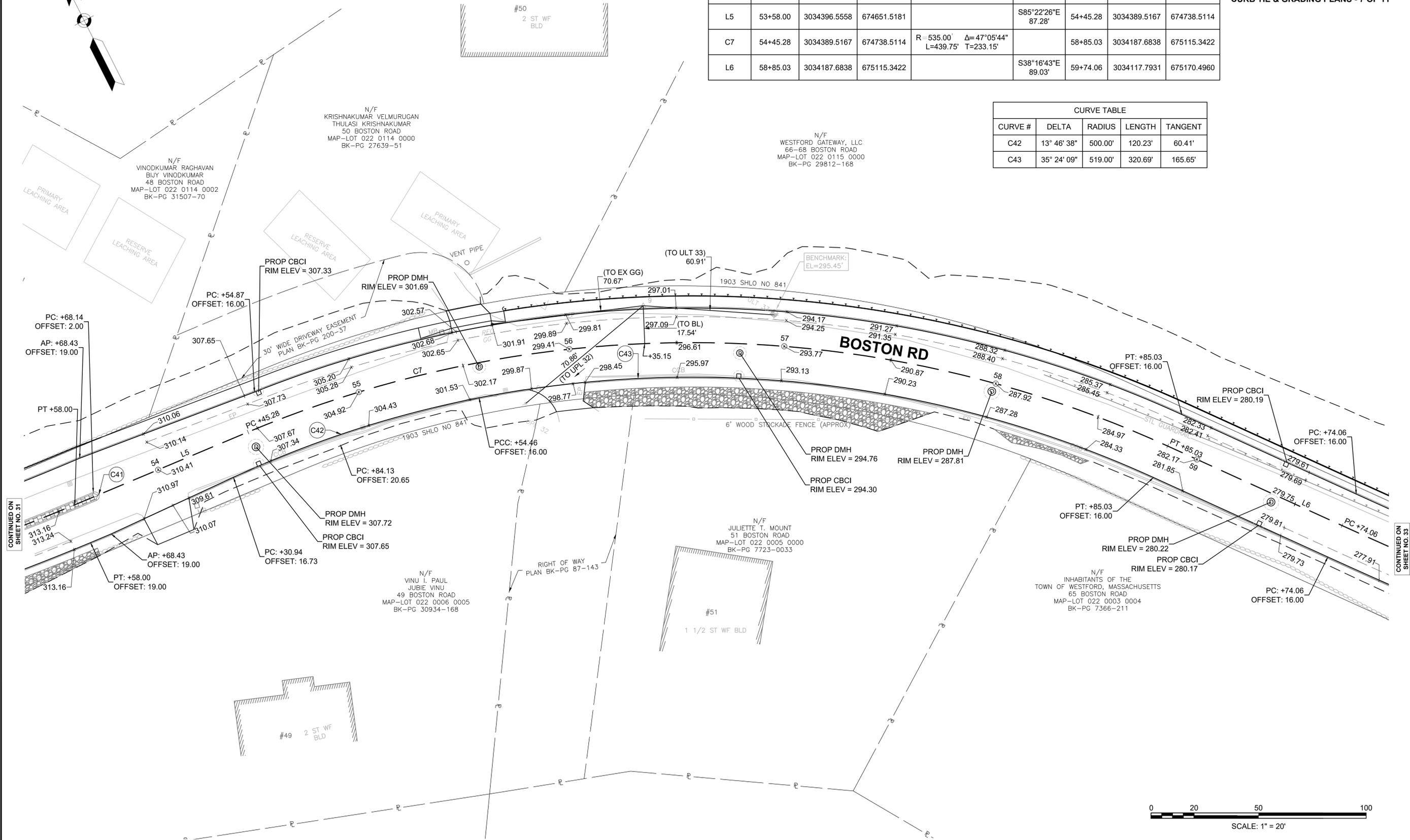
SURVEY TRAVERSE TABLE			
Point #	Northing	Easting	Elevation
9	3034357.1931	674928.5305	298.06

BOSTON ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L5	53+58.00	3034396.5558	674651.5181		S85°22'26"E 87.28'	54+45.28	3034389.5167	674738.5114
C7	54+45.28	3034389.5167	674738.5114	R=535.00' Δ=47°05'44" L=439.75' T=233.15'		58+85.03	3034187.6838	675115.3422
L6	58+85.03	3034187.6838	675115.3422		S38°16'43"E 89.03'	59+74.06	3034117.7931	675170.4960

WESTFORD BOSTON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	32	132
PROJECT FILE NO.		609035	

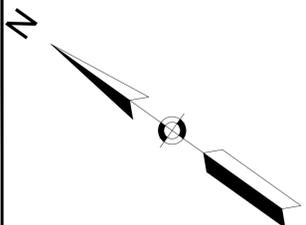
CURB TIE & GRADING PLANS - 7 OF 11

CURVE TABLE				
CURVE #	DELTA	RADIUS	LENGTH	TANGENT
C42	13° 46' 38"	500.00'	120.23'	60.41'
C43	35° 24' 09"	519.00'	320.69'	165.65'



CONTINUED ON
SHEET NO. 31

CONTINUED ON
SHEET NO. 33



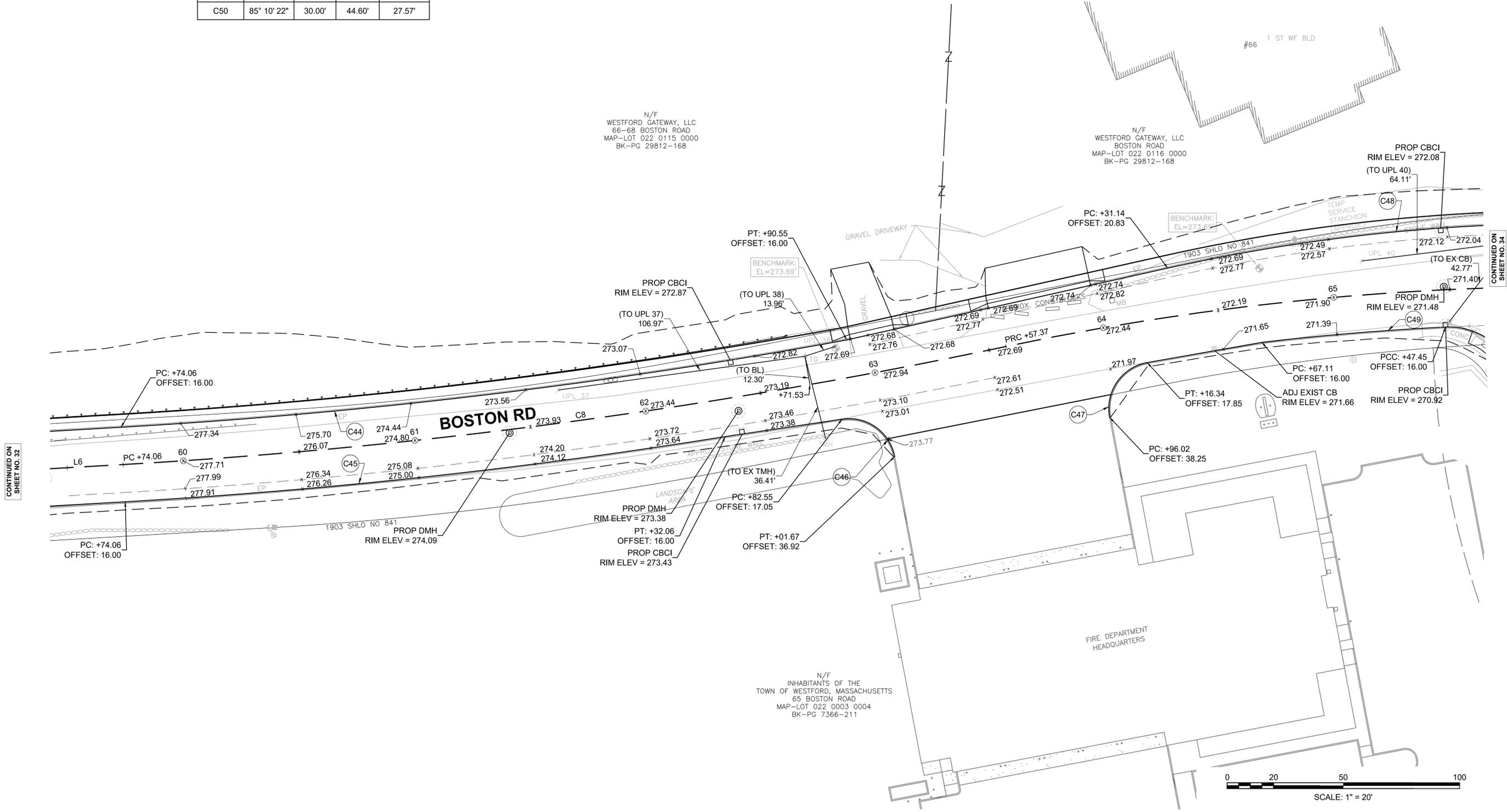
CURVE TABLE				
CURVE #	DELTA	RADIUS	LENGTH	TANGENT
C44	7° 06' 40"	2534.00'	314.50'	157.45'
C45	5° 47' 49"	2566.00'	259.62'	129.92'
C46	87° 40' 57"	20.00'	30.61'	19.21'
C47	90° 44' 20"	20.00'	31.67'	20.26'
C48	12° 04' 04"	800.00'	168.50'	84.56'
C49	3° 50' 10"	1184.00'	79.27'	39.65'
C50	85° 10' 22"	30.00'	44.60'	27.57'

SURVEY TRAVERSE TABLE			
Point #	Northing	Easting	Elevation
10	3033904.2304	675376.6615	272.36

BOSTON ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L6	58+85.03	3034187.6838	675115.3422		S38°16'43"E 89.03'	59+74.06	3034117.7931	675170.4960
C8	59+74.06	3034117.7931	675170.4960	R=2550.00' L=383.31' Δ=8°36'45" T=192.02'		63+57.37	3033835.8381	675429.6286
C9	63+57.37	3033835.8381	675429.6286	R=1200.00' L=464.98' Δ=22°12'05" T=235.45'		68+22.35	3033461.0155	675699.8631

WESTFORD BOSTON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	33	132
PROJECT FILE NO.		609035	

CURB TIE & GRADING PLANS - 8 OF 11



CONTINUED ON SHEET NO. 32

CONTINUED ON SHEET NO. 34

**WESTFORD
BOSTON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	35	132
PROJECT FILE NO.		609035	

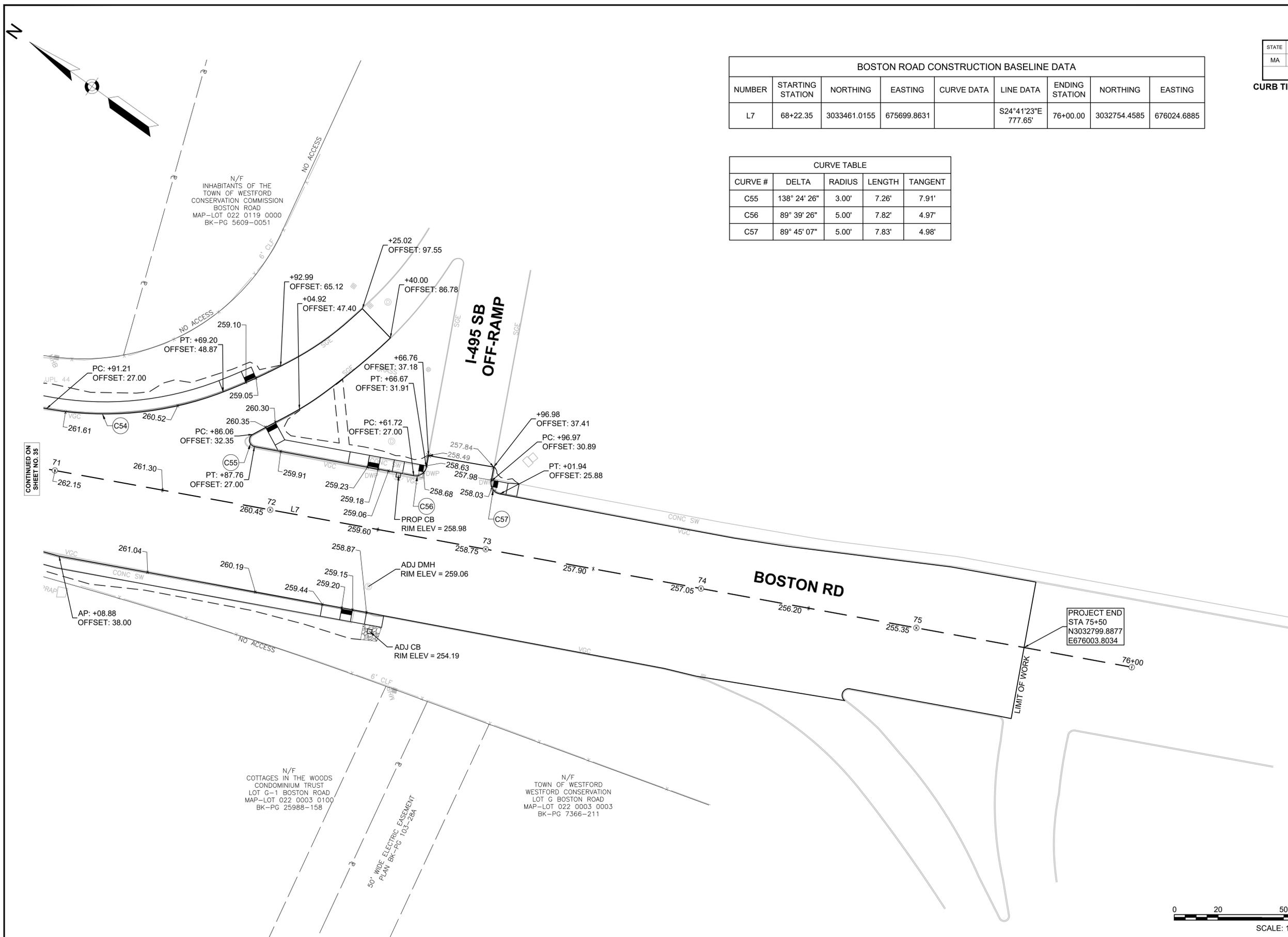
CURB TIE & GRADING PLANS - 10 OF 11

BOSTON ROAD CONSTRUCTION BASELINE DATA

NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L7	68+22.35	3033461.0155	675699.8631		S24°41'23"E 777.65'	76+00.00	3032754.4585	676024.6885

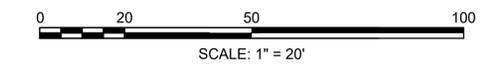
CURVE TABLE

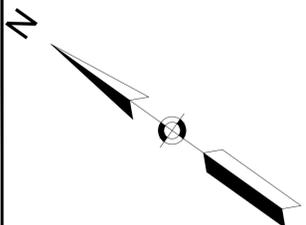
CURVE #	DELTA	RADIUS	LENGTH	TANGENT
C55	138° 24' 26"	3.00'	7.26'	7.91'
C56	89° 39' 26"	5.00'	7.82'	4.97'
C57	89° 45' 07"	5.00'	7.83'	4.98'



CONTINUED ON
SHEET NO. 35

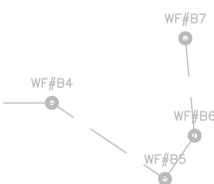
PROJECT END
STA 75+50
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E676003.8034





N/F
TOWN OF WESTFORD
BOSTON ROAD
MAP-LOT 022 0117 0016
BK-PG 5117-0304

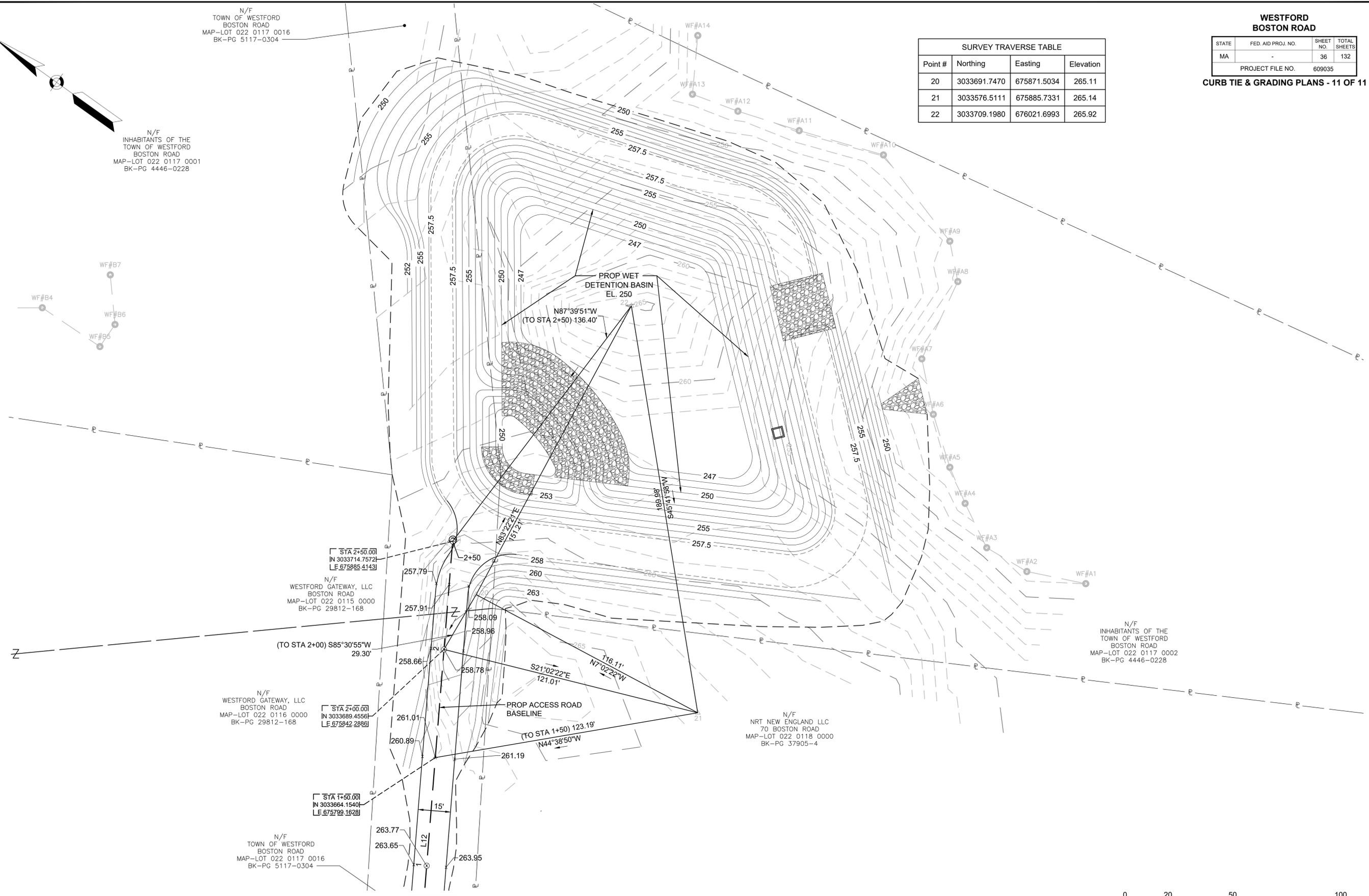
N/F
INHABITANTS OF THE
TOWN OF WESTFORD
BOSTON ROAD
MAP-LOT 022 0117 0001
BK-PG 4446-0228



SURVEY TRAVERSE TABLE			
Point #	Northing	Easting	Elevation
20	3033691.7470	675871.5034	265.11
21	3033576.5111	675885.7331	265.14
22	3033709.1980	676021.6993	265.92

WESTFORD BOSTON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	36	132
PROJECT FILE NO.		609035	

CURB TIE & GRADING PLANS - 11 OF 11



STA 2+50.00
N 3033714.7572
E 675885.4143

N/F
WESTFORD GATEWAY, LLC
BOSTON ROAD
MAP-LOT 022 0115 0000
BK-PG 29812-168

(TO STA 2+00) S85°30'55\"W
29.30'

N/F
WESTFORD GATEWAY, LLC
BOSTON ROAD
MAP-LOT 022 0116 0000
BK-PG 29812-168

STA 2+00.00
N 3033689.4569
E 675942.2968

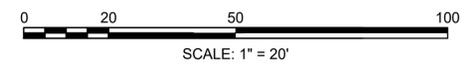
STA 1+50.00
N 3033864.1540
E 675799.1628

N/F
TOWN OF WESTFORD
BOSTON ROAD
MAP-LOT 022 0117 0016
BK-PG 5117-0304

N/F
NRT NEW ENGLAND LLC
70 BOSTON ROAD
MAP-LOT 022 0118 0000
BK-PG 37905-4

N/F
INHABITANTS OF THE
TOWN OF WESTFORD
BOSTON ROAD
MAP-LOT 022 0117 0002
BK-PG 4446-0228

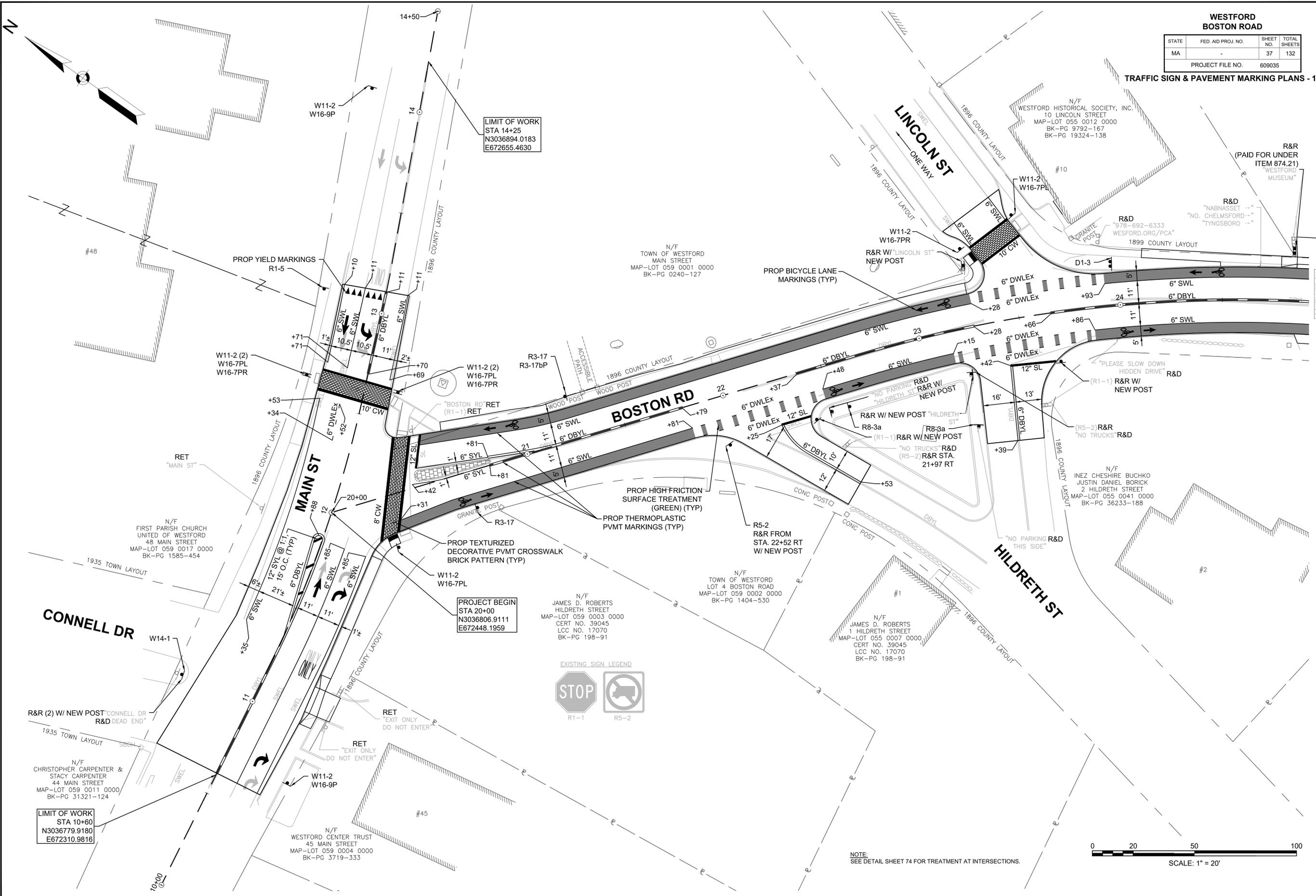
CONTINUED ON
SHEET NO. 34



**WESTFORD
BOSTON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	37	132
PROJECT FILE NO.		609035	

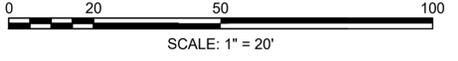
TRAFFIC SIGN & PAVEMENT MARKING PLANS - 1 OF 10



**LIMIT OF WORK
STA 14+25
N3036894.0183
E672655.4630**

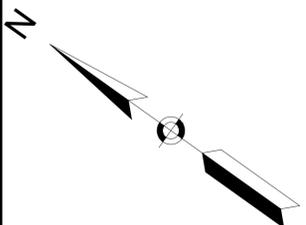
**PROJECT BEGIN
STA 20+00
N3036806.9111
E672448.1959**

**LIMIT OF WORK
STA 10+60
N3036779.9180
E672310.9816**



NOTE:
SEE DETAIL SHEET 74 FOR TREATMENT AT INTERSECTIONS.

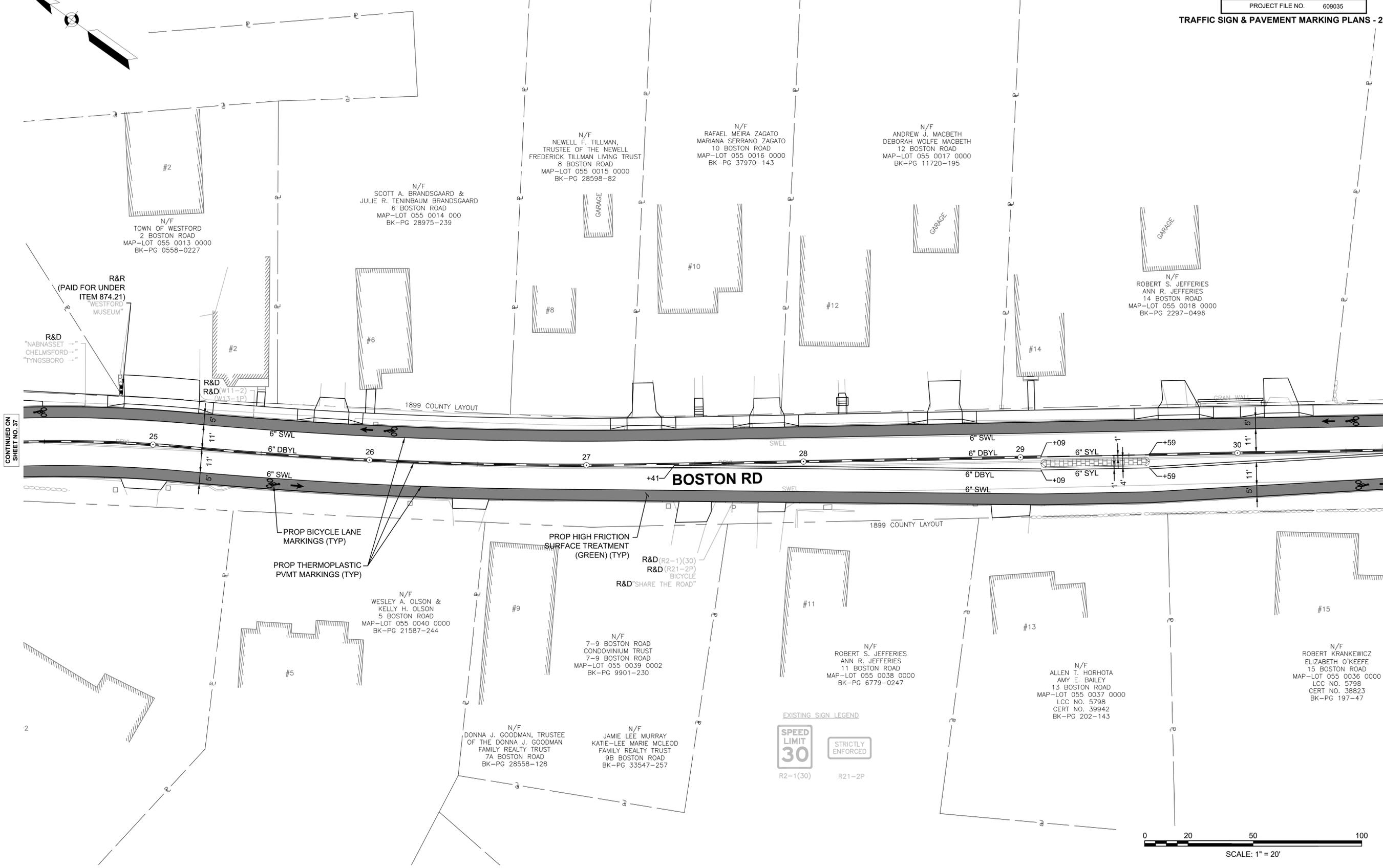
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SHEET NO. 38



**WESTFORD
BOSTON ROAD**

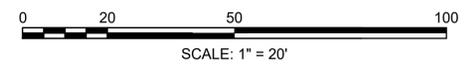
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	38	132
PROJECT FILE NO.		609035	

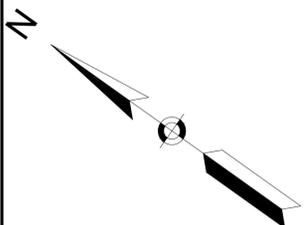
TRAFFIC SIGN & PAVEMENT MARKING PLANS - 2 OF 10



CONTINUED ON
SHEET NO. 37

CONTINUED ON
SHEET NO. 39

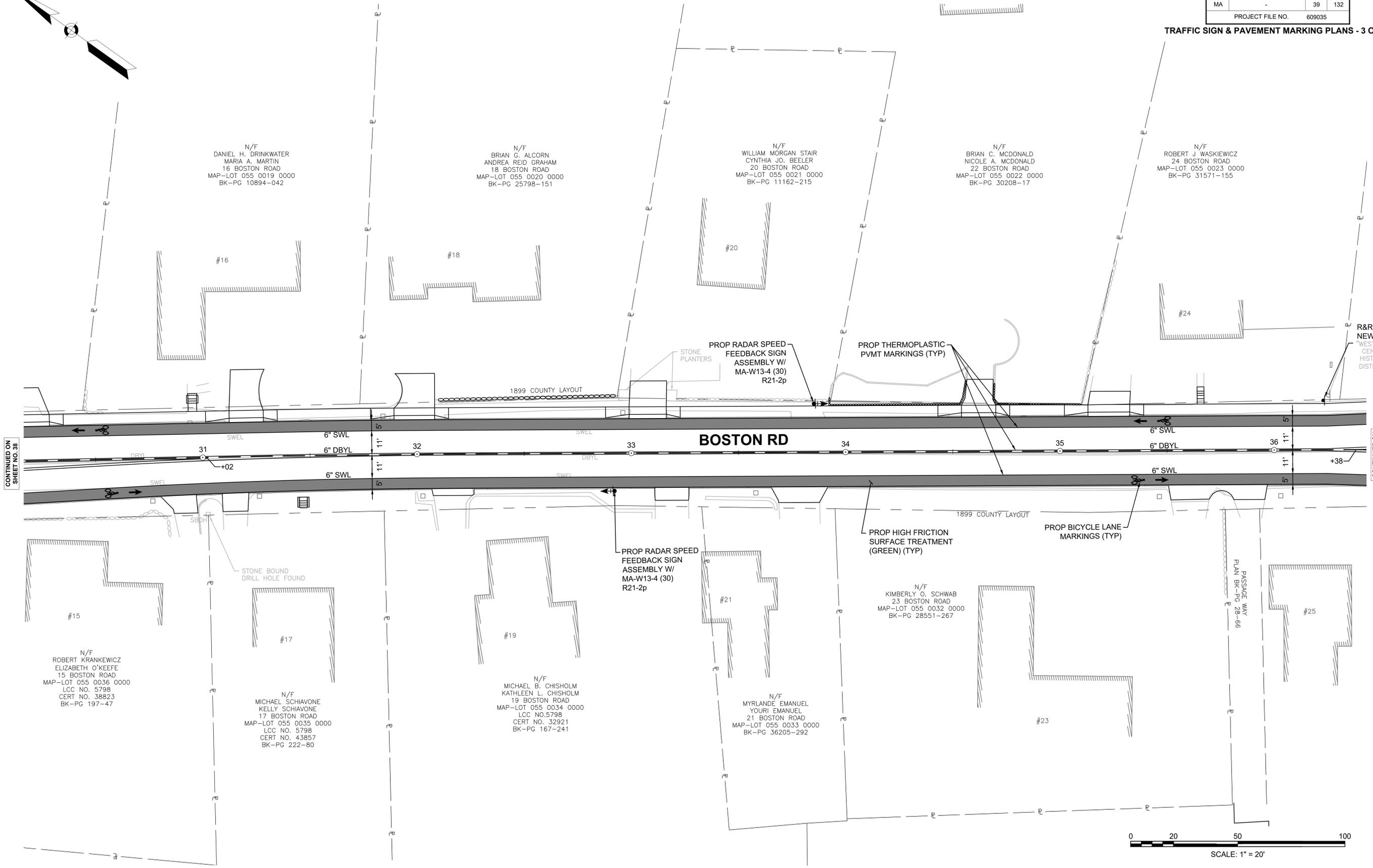




**WESTFORD
BOSTON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	39	132
PROJECT FILE NO.		609035	

TRAFFIC SIGN & PAVEMENT MARKING PLANS - 3 OF 10



N/F
DANIEL H. DRINKWATER
MARIA A. MARTIN
16 BOSTON ROAD
MAP-LOT 055 0019 0000
BK-PG 10894-042

N/F
BRIAN G. ALCORN
ANDREA REID GRAHAM
18 BOSTON ROAD
MAP-LOT 055 0020 0000
BK-PG 25798-151

N/F
WILLIAM MORGAN STAIR
CYNTHIA JO. BEELER
20 BOSTON ROAD
MAP-LOT 055 0021 0000
BK-PG 11162-215

N/F
BRIAN C. MCDONALD
NICOLE A. MCDONALD
22 BOSTON ROAD
MAP-LOT 055 0022 0000
BK-PG 30208-17

N/F
ROBERT J. WASKIEWICZ
24 BOSTON ROAD
MAP-LOT 055 0023 0000
BK-PG 31571-155

N/F
ROBERT KRANKIEWICZ
ELIZABETH O'KEEFE
15 BOSTON ROAD
MAP-LOT 055 0036 0000
LCC NO. 5798
CERT NO. 38823
BK-PG 197-47

N/F
MICHAEL SCHIAVONE
KELLY SCHIAVONE
17 BOSTON ROAD
MAP-LOT 055 0035 0000
LCC NO. 5798
CERT NO. 43857
BK-PG 222-80

N/F
MICHAEL B. CHISHOLM
KATHLEEN L. CHISHOLM
19 BOSTON ROAD
MAP-LOT 055 0034 0000
LCC NO. 5798
CERT NO. 32921
BK-PG 167-241

N/F
MYRLANDE EMANUEL
YOURI EMANUEL
21 BOSTON ROAD
MAP-LOT 055 0033 0000
BK-PG 36205-292

N/F
KIMBERLY O. SCHWAB
23 BOSTON ROAD
MAP-LOT 055 0032 0000
BK-PG 28551-267

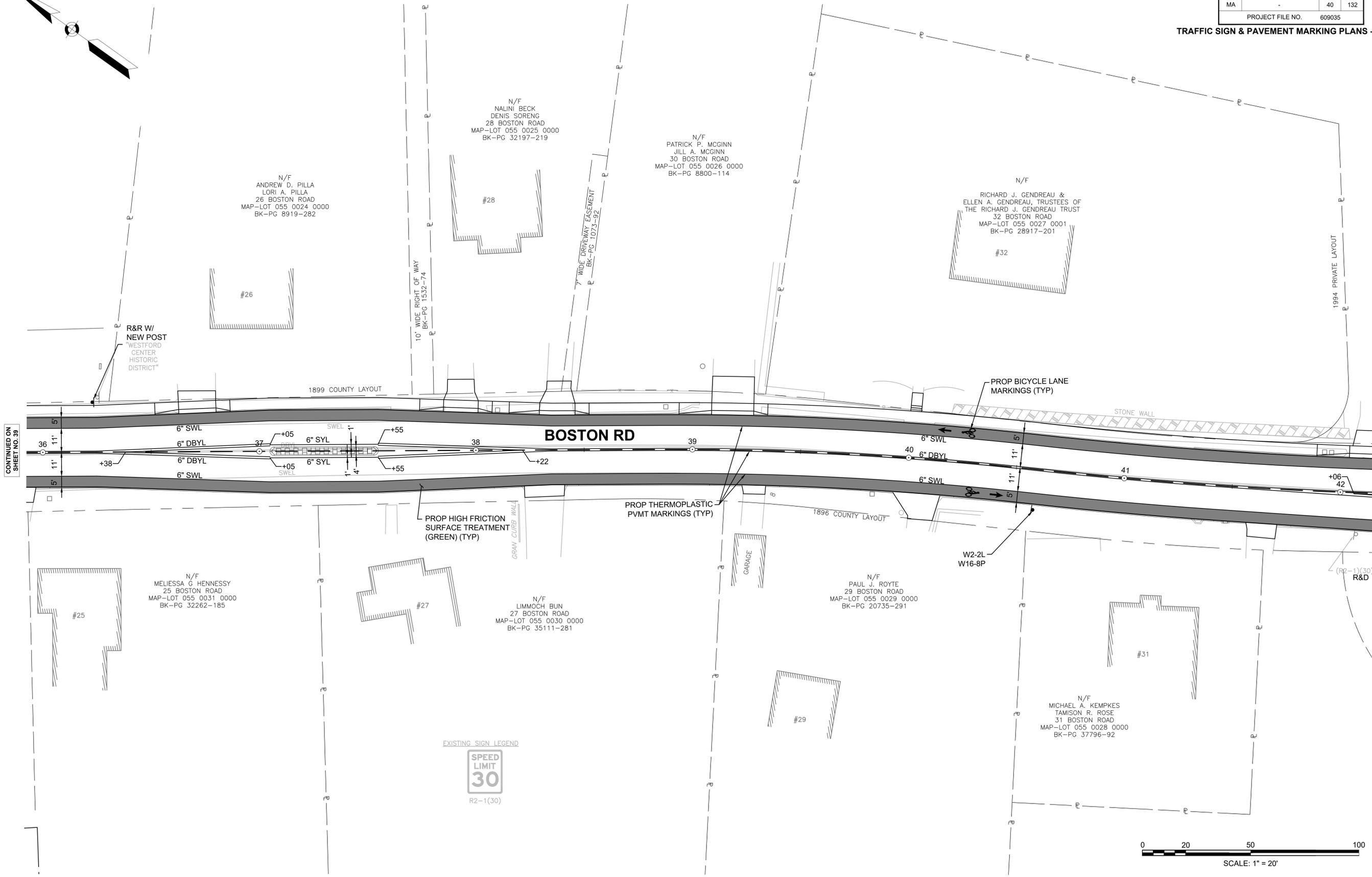
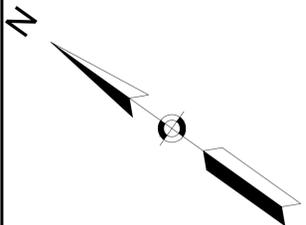
CONTINUED ON SHEET NO. 38

CONTINUED ON SHEET NO. 40

**WESTFORD
BOSTON ROAD**

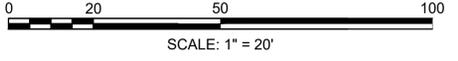
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	40	132
PROJECT FILE NO.		609035	

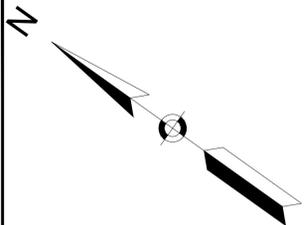
TRAFFIC SIGN & PAVEMENT MARKING PLANS - 4 OF 10



CONTINUED ON
SHEET NO. 39

CONTINUED ON
SHEET NO. 41



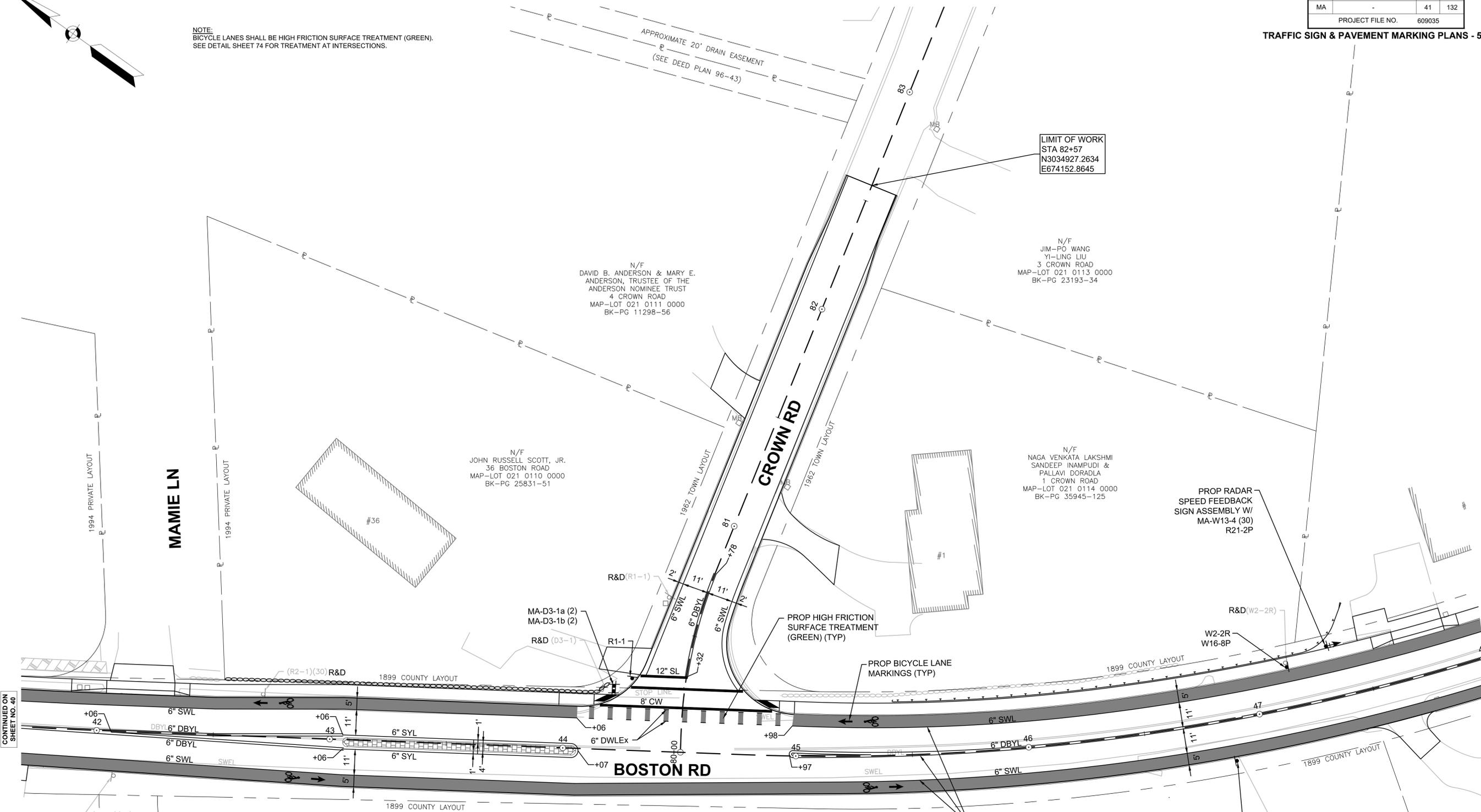


NOTE:
BICYCLE LANES SHALL BE HIGH FRICTION SURFACE TREATMENT (GREEN).
SEE DETAIL SHEET 74 FOR TREATMENT AT INTERSECTIONS.

**WESTFORD
BOSTON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	41	132
PROJECT FILE NO.		609035	

TRAFFIC SIGN & PAVEMENT MARKING PLANS - 5 OF 10



LIMIT OF WORK
STA 82+57
N3034927.2634
E674152.8645

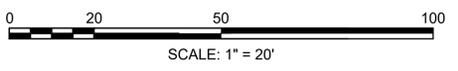
N/F
DAVID B. ANDERSON & MARY E.
ANDERSON, TRUSTEE OF THE
ANDERSON NOMINEE TRUST
4 CROWN ROAD
MAP-LOT 021 0111 0000
BK-PG 11298-56

N/F
JIM-PO WANG
YI-LING LIU
3 CROWN ROAD
MAP-LOT 021 0113 0000
BK-PG 23193-34

N/F
JOHN RUSSELL SCOTT, JR.
36 BOSTON ROAD
MAP-LOT 021 0110 0000
BK-PG 25831-51

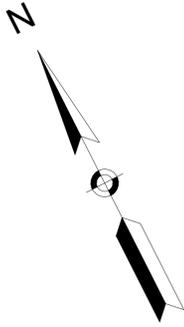
N/F
NAGA VENKATA LAKSHMI
SANDEEP INAMPUDI &
PALLAVI DORADLA
1 CROWN ROAD
MAP-LOT 021 0114 0000
BK-PG 35945-125

N/F
ROBERT M. HICKS, INC.,
TRUSTEE OF THE
ORCHARD HILL TRUST
BLAKE'S HILL ROAD
MAP-LOT 021 0109 0001
BK-PG 7473-0318



CONTINUED ON
SHEET NO. 40

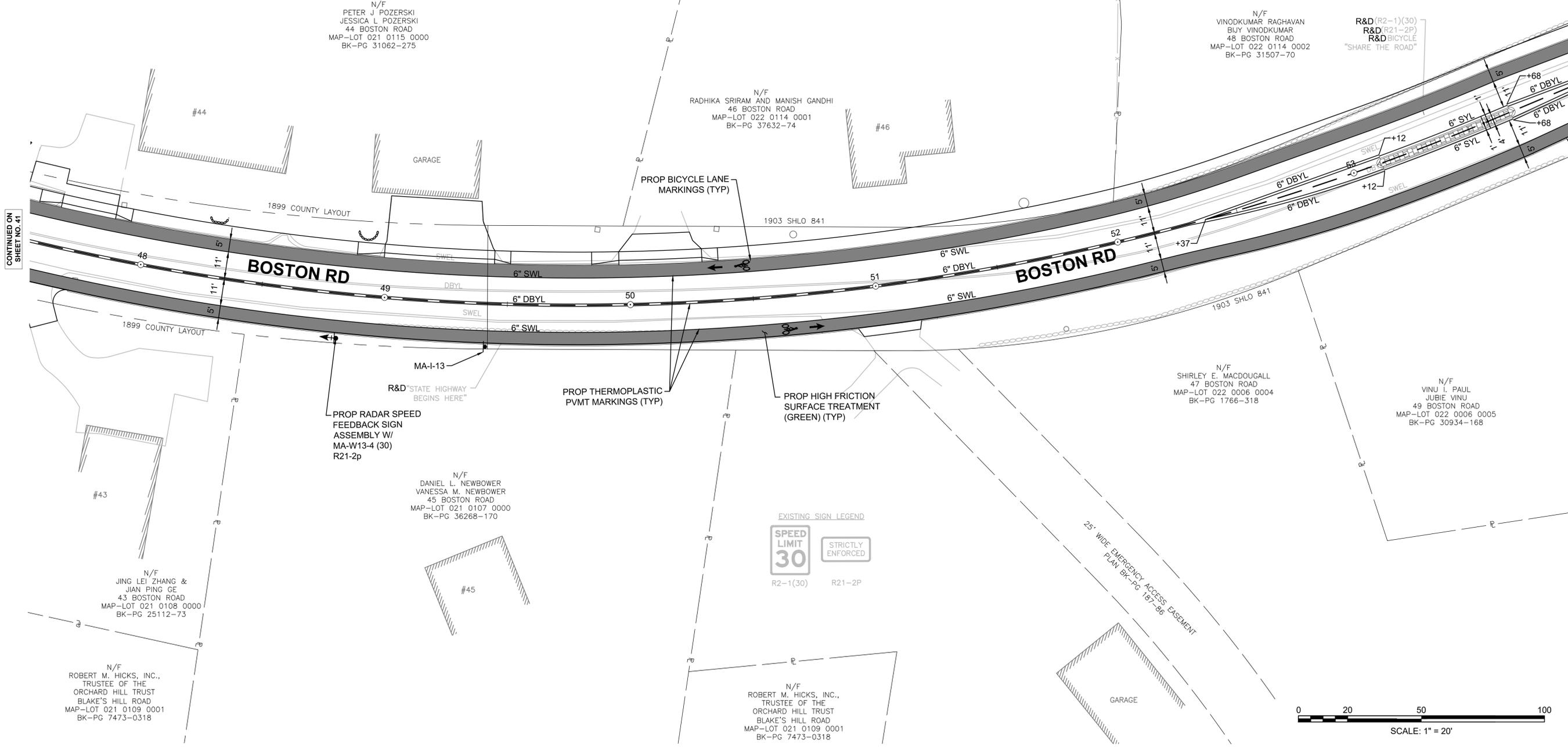
CONTINUED ON
SHEET NO. 42



**WESTFORD
BOSTON ROAD**

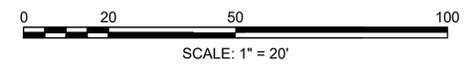
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MA	-	42	132
PROJECT FILE NO.		609035	

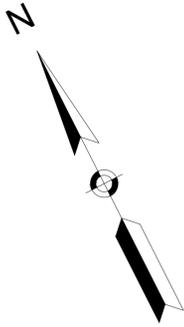
TRAFFIC SIGN & PAVEMENT MARKING PLANS - 6 OF 10



CONTINUED ON SHEET NO. 41

CONTINUED ON SHEET NO. 43



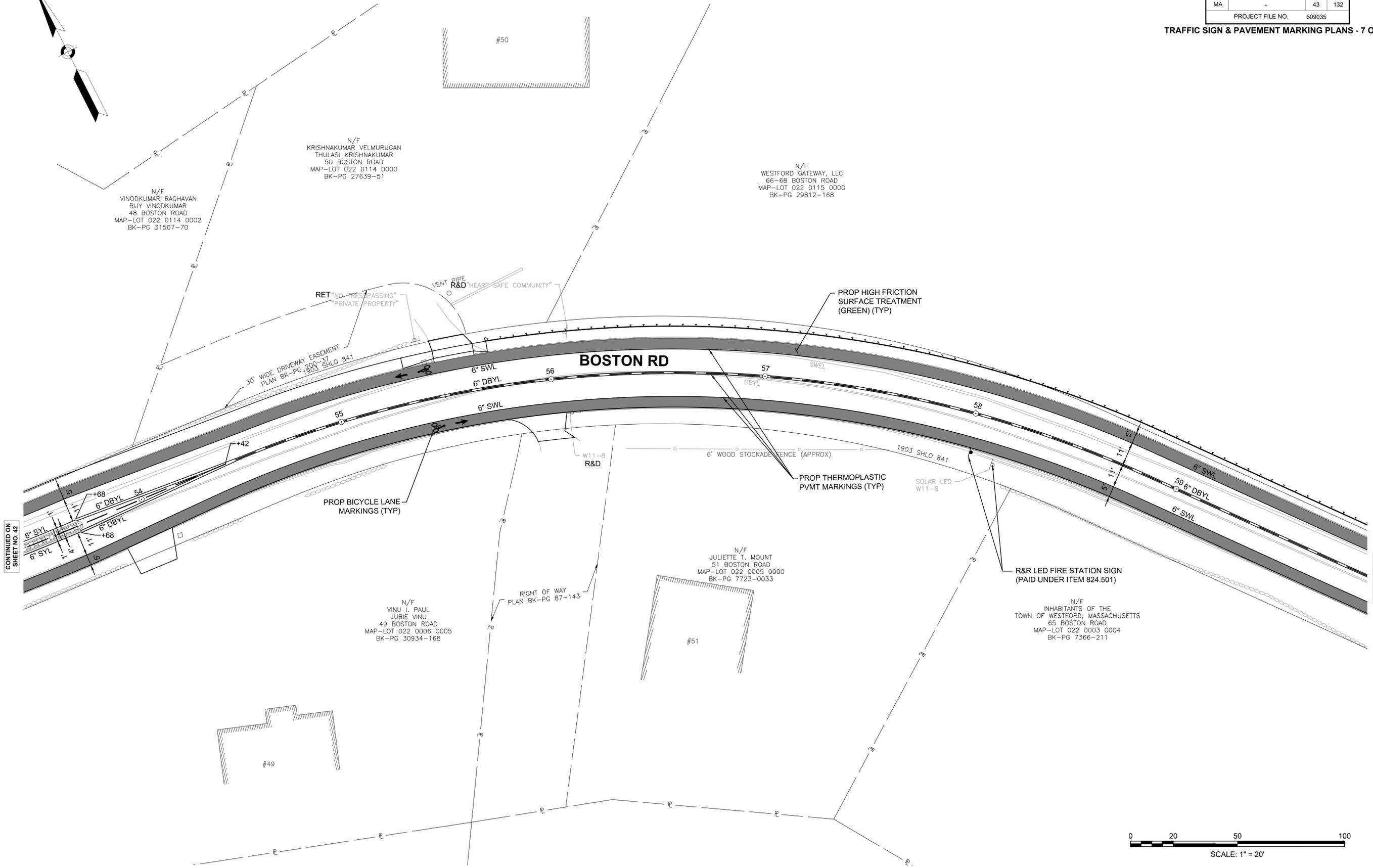


**WESTFORD
BOSTON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	43	132
PROJECT FILE NO.		609035	

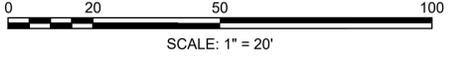
TRAFFIC SIGN & PAVEMENT MARKING PLANS - 7 OF 10

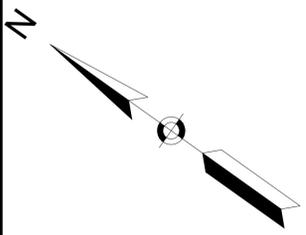
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CONTINUED ON SHEET NO. 42

CONTINUED ON SHEET NO. 44





**WESTFORD
BOSTON ROAD**

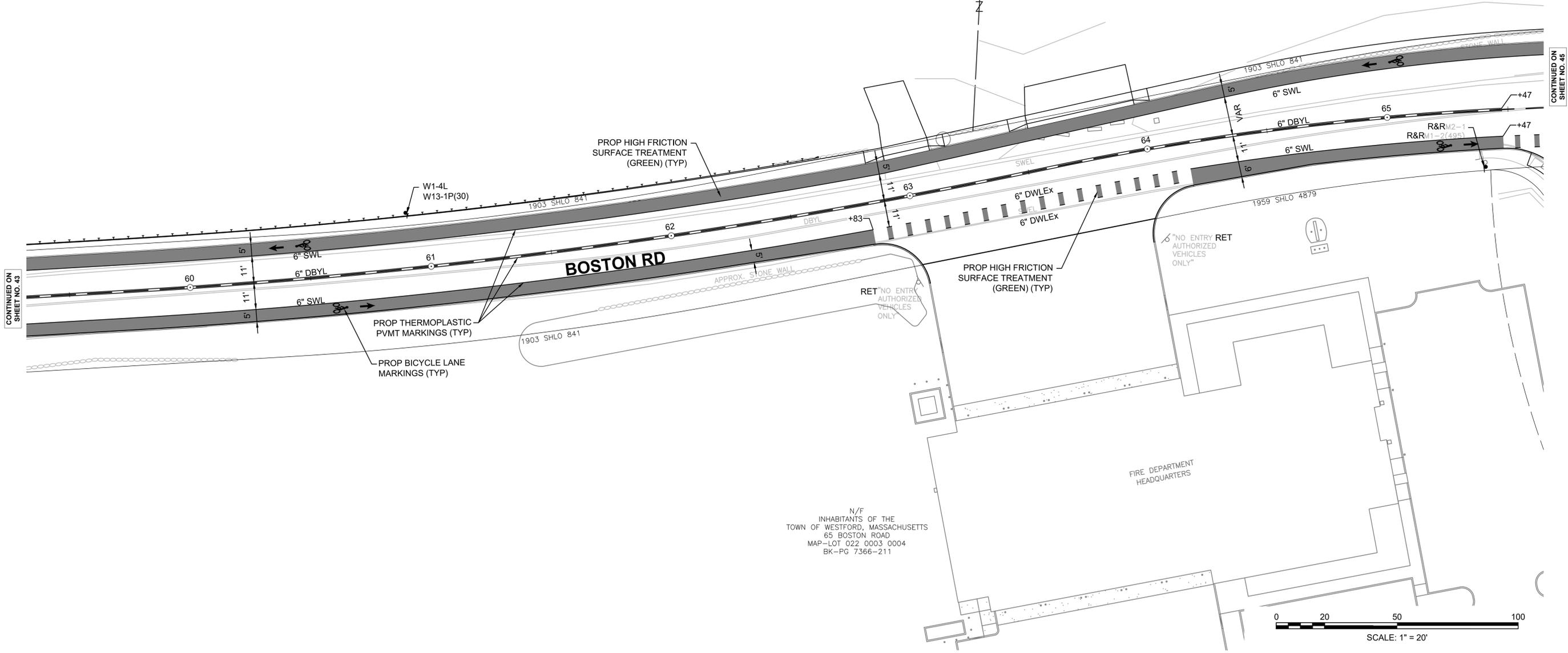
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	44	132
PROJECT FILE NO.		609035	

TRAFFIC SIGN & PAVEMENT MARKING PLANS - 8 OF 10



N/F
WESTFORD GATEWAY, LLC
66-68 BOSTON ROAD
MAP-LOT 022 0115 0000
BK-PG 29812-168

N/F
WESTFORD GATEWAY, LLC
BOSTON ROAD
MAP-LOT 022 0116 0000
BK-PG 29812-168

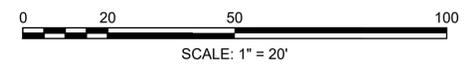


CONTINUED ON
SHEET NO. 43

CONTINUED ON
SHEET NO. 45

N/F
INHABITANTS OF THE
TOWN OF WESTFORD, MASSACHUSETTS
65 BOSTON ROAD
MAP-LOT 022 0003 0004
BK-PG 7366-211

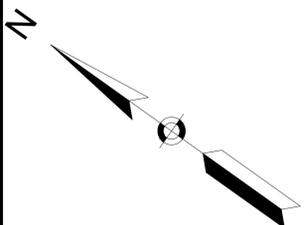
FIRE DEPARTMENT
HEADQUARTERS



**WESTFORD
BOSTON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	45	132
PROJECT FILE NO.		609035	

TRAFFIC SIGN & PAVEMENT MARKING PLANS - 9 OF 10



NOTE:
SEE DETAIL SHEET 74 FOR TREATMENT AT INTERSECTIONS.



N/F
TOWN OF WESTFORD
BOSTON ROAD
MAP-LOT 022 0117 0016
BK-PG 5117-0304

N/F
WESTFORD GATEWAY, LLC
BOSTON ROAD
MAP-LOT 022 0116 0000
BK-PG 29812-168

R&R "PEACE TRAIL
CUB SCOUT
PACK 95"

25' RADIUS ROAD EASEMENT
PLAN BK-PG 131-65

RET "COLDWELL BANKERS"

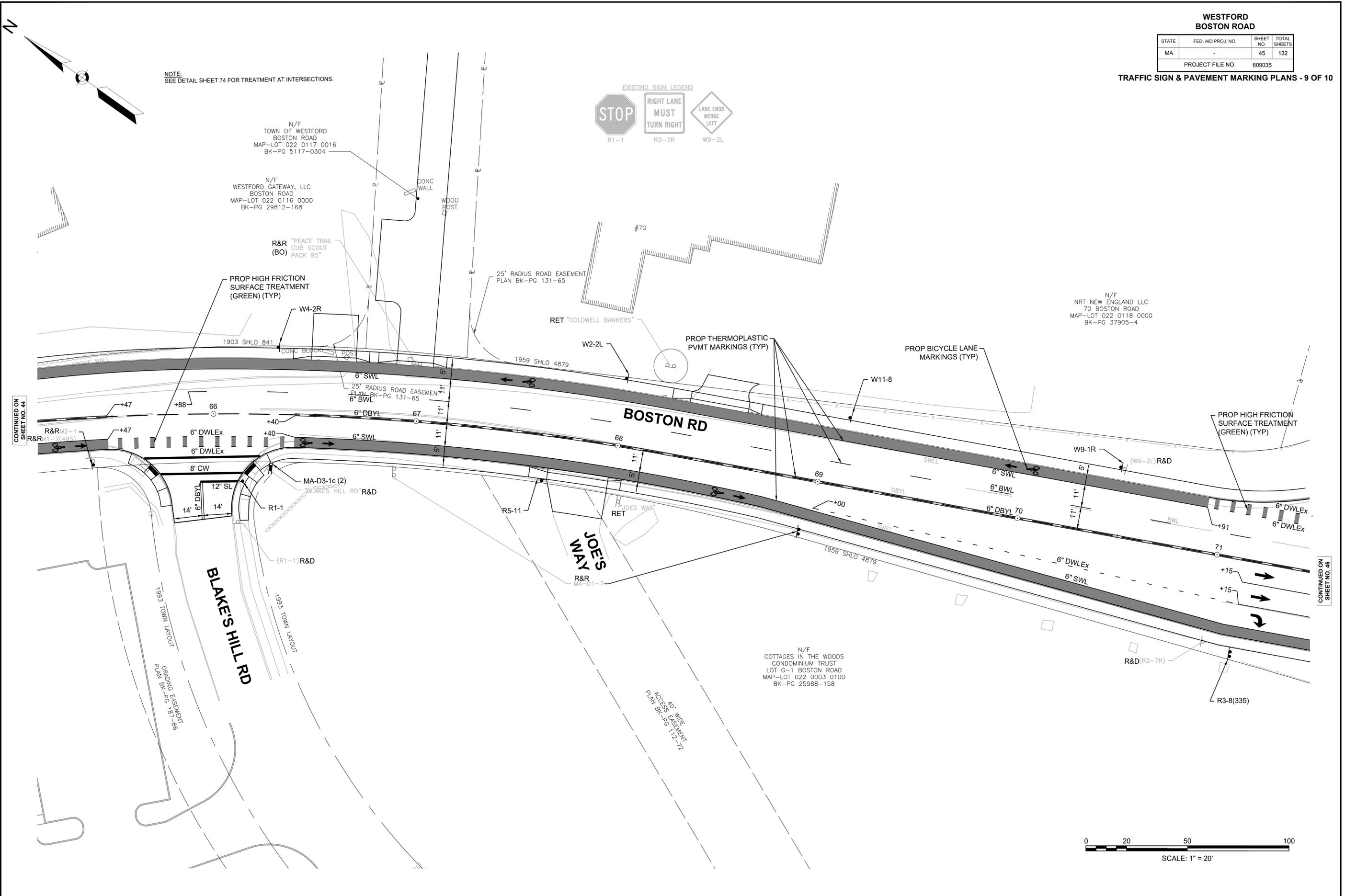
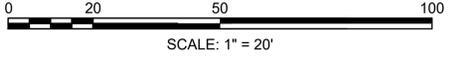
PROP THERMOPLASTIC
PVMT MARKINGS (TYP)

PROP BICYCLE LANE
MARKINGS (TYP)

N/F
NRT NEW ENGLAND LLC
70 BOSTON ROAD
MAP-LOT 022 0118 0000
BK-PG 37905-4

CONTINUED ON
SHEET NO. 44

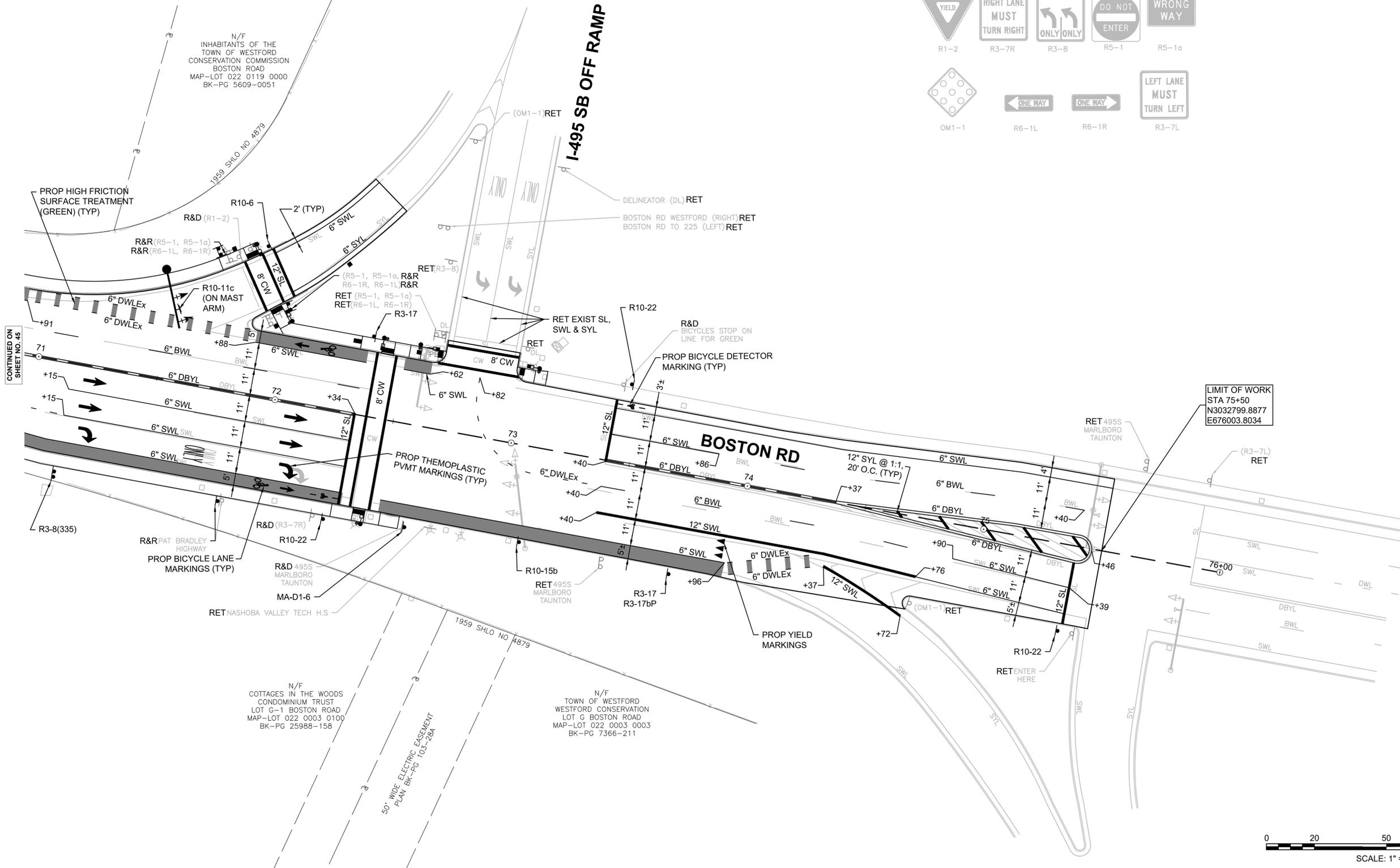
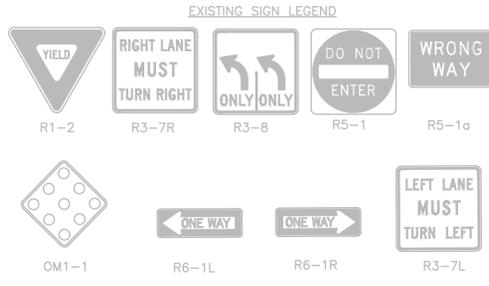
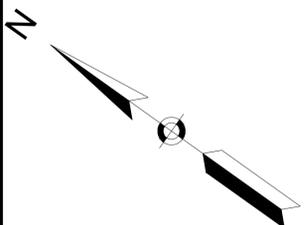
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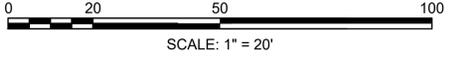
**WESTFORD
BOSTON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	46	132
PROJECT FILE NO.		609035	

TRAFFIC SIGN & PAVEMENT MARKING PLANS - 10 OF 10



LIMIT OF WORK
STA 75+50
N3032799.8877
E676003.8034



CONTINUED ON
SHEET NO. 45

N/F
INHABITANTS OF THE
TOWN OF WESTFORD
CONSERVATION COMMISSION
BOSTON ROAD
MAP-LOT 022 0119 0000
BK-PG 5609-0051

N/F
COTTAGES IN THE WOODS
CONDOMINIUM TRUST
LOT G-1 BOSTON ROAD
MAP-LOT 022 0003 0100
BK-PG 25988-158

N/F
TOWN OF WESTFORD
WESTFORD CONSERVATION
LOT G BOSTON ROAD
MAP-LOT 022 0003 0003
BK-PG 7366-211

50' WIDE ELECTRIC EASEMENT
PLANT BK-PG 10-3-28A

TRAFFIC SIGN SUMMARY													
IDENTIFICATION NUMBER	SIZE OF SIGN (in)		LEGEND	TEXT DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			SIZE AND NUMBER OF POSTS REQUIRED	UNIT AREA (SF)	TOTAL AREA (SF)
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR		BACK-GROUND	LEGEND	BORDER			
R1-1	30	30			①		2	RED	WHITE	WHITE	P5 2	6.25	12.50
R1-5	36	36					1	WHITE	RED/BLACK	BLACK	4" WOOD 1 (PAID UNDER ITEM 849.1)	9.00	9.00
R3-8(335)	48	30					1	WHITE	BLACK	BLACK	1 DOUBLE P5 POST ASSEMBLY	10.00	10.00
R3-17	24	18					4	BLACK/ WHITE	WHITE/ BLACK	BLACK	P5 2 4" WOOD 2 (PAID UNDER ITEM 849.1)	3.00	12.00
R3-17bP	24	8					2	WHITE	BLACK	BLACK	MOUNT W/ R3-17	1.33	2.67
R5-11	30	24					1	WHITE	BLACK	BLACK	P5 1	5.00	5.00
R8-3a	24	30					2	WHITE	RED	RED	4" WOOD 2 (PAID UNDER ITEM 849.1)	5.00	10.00
R10-6	24	36					1	WHITE	BLACK	BLACK	P5 1	6.00	6.00
R10-11c	24	30			▼		1	WHITE	BLACK	BLACK	MOUNT ON MAST ARM	5.00	5.00
R10-15b	30	30	SEE RIGHT		SEE RIGHT		1	FLUORESCENT YELLOW-GREEN/ WHITE	BLACK/ RED	BLACK	P5 1	6.25	6.25
R10-22	12	18			①		3	WHITE	BLACK	BLACK	P5 3	1.50	4.50
R21-2p	24	18		4C 4C	3.5 3 3.5	N/A	2	WHITE	BLACK	BLACK	MOUNT W/ SPEED FEEDBACK SIGN	PAID FOR UNDER ITEM 824.62	
W1-4L	30	30			①		2	YELLOW	BLACK	BLACK	P5 2	6.25	12.50
W2-2L	30	30					2	YELLOW	BLACK	BLACK	P5 2	6.25	12.50
W2-2R	30	30					1	YELLOW	BLACK	BLACK	P5 1	6.25	6.25
W4-2R	36	36					1	YELLOW	BLACK	BLACK	P5 1	9.00	9.00
W9-1R	36	36					1	YELLOW	BLACK	BLACK	P5 1	9.00	9.00
W11-2	30	30					9	FLUORESCENT YELLOW-GREEN	BLACK	BLACK	4" WOOD 9 (PAID UNDER ITEM 849.1)	6.25	56.25
W11-8	36	36					1	YELLOW	BLACK	BLACK	P5 1	9.00	9.00
W13-1P(30)	18	18			▼		2	YELLOW	BLACK	BLACK	MOUNT W/ W1-4L	2.25	4.50

NOTES:

- SEE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS FOR TEXT AND LEGEND DIMENSIONS.
- THE MINIMUM MOUNTING HEIGHT OF POST-MOUNTED SIGNS, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE TOP OF CURB OR SIDEWALK, OR THE ELEVATION OF THE NEAR EDGE OF TRAVEL WAY, SHALL BE 7 FEET UNLESS OTHERWISE SPECIFIED.
- A MINIMUM OF 3'-0" PATH OF TRAVEL CLEARANCE, EXCLUDING CURB, IS REQUIRED WHEN PLACING SIGNS.

WESTFORD BOSTON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	47	132
PROJECT FILE NO. 609035			
TRAFFIC SIGN SUMMARY			

TRAFFIC SIGN SUMMARY													
IDENTIFICATION NUMBER	SIZE OF SIGN (in)		LEGEND	TEXT DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			SIZE AND NUMBER OF POSTS REQUIRED	UNIT AREA (SF)	TOTAL AREA (SF)
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR		BACK-GROUND	LEGEND	BORDER			
W14-1	30	30			①		1	YELLOW	BLACK	BLACK	4" WOOD 1 (PAID UNDER ITEM 849.1)	6.25	6.25
W16-7PR	24	12					3	FLUORESCENT YELLOW-GREEN	BLACK	BLACK	MOUNT W/ W11-2	2.00	6.00
W16-7PL	24	12					4	FLUORESCENT YELLOW-GREEN	BLACK	BLACK	MOUNT W/ W11-2	2.00	8.00
W16-8P	24	8		4B	2 2	N/A	2	YELLOW	BLACK	BLACK	MOUNT W/ W2-2L W2-2R	1.33	2.67
W16-9P	24	12			①		2	FLUORESCENT YELLOW-GREEN	BLACK	BLACK	MOUNT W/ W11-2	2.00	4.00
D1-3	78	42	SEE BELOW	6D	6 6 6 6	9" x 6.1" ARROW	1	GREEN	WHITE	WHITE	S5 x 10 2 (PAID UNDER ITEM 841.81)	22.75	22.75
MA-W13-4 (30)	24	36		4C 4C 4C 8E 3E	2.5 2 2 2 2.5	N/A	2	YELLOW	BLACK	BLACK	MOUNT W/ SPEED FEEDBACK SIGN	PAID FOR UNDER ITEM 824.62	
MA-D1-6	60	66	SEE BELOW	MASSDOT STANDARD			1	GREEN	WHITE	WHITE	5" STEEL 1 (PAID UNDER ITEM 841.2)	27.50	27.50
MA-D3-1a	42	12	SEE BELOW	6D / 4D	3 3	N/A	2	GREEN	WHITE	WHITE	1 DOUBLE P5 POST ASSEMBLY	PAID UNDER ITEM 829.	
MA-D3-1b	48	12	SEE BELOW	6D / 4D	3 3	N/A	2	GREEN	WHITE	WHITE	MOUNT W/ MA-D3-1a	PAID UNDER ITEM 874.	
MA-D3-1c	57	12	SEE BELOW	6D / 4D	3 3	N/A	2	GREEN	WHITE	WHITE	1 DOUBLE P5 POST ASSEMBLY	PAID UNDER ITEM 874.	
MA-I-13	24	30		4C 4C 5C	4.5 4 4 4.5	N/A	1	GREEN	WHITE	WHITE	P5 1	5.00	5.00
											PAID UNDER ITEM 829.		

Crown Rd MA-D3-1a **Boston Rd** MA-D3-1b

Blakes Hill Rd MA-D3-1c

Nabnasset →

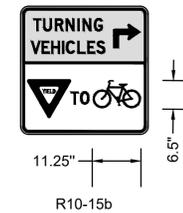
N Chelmsford →

Tyngsboro →

INTERSTATE 495 SOUTH

Marlboro Taunton →

MA-D1-6



NOTE:
SEE FHWA STANDARD HIGHWAY SIGNS 2012
SUPPLEMENT FOR MORE DETAILED DIMENSIONS

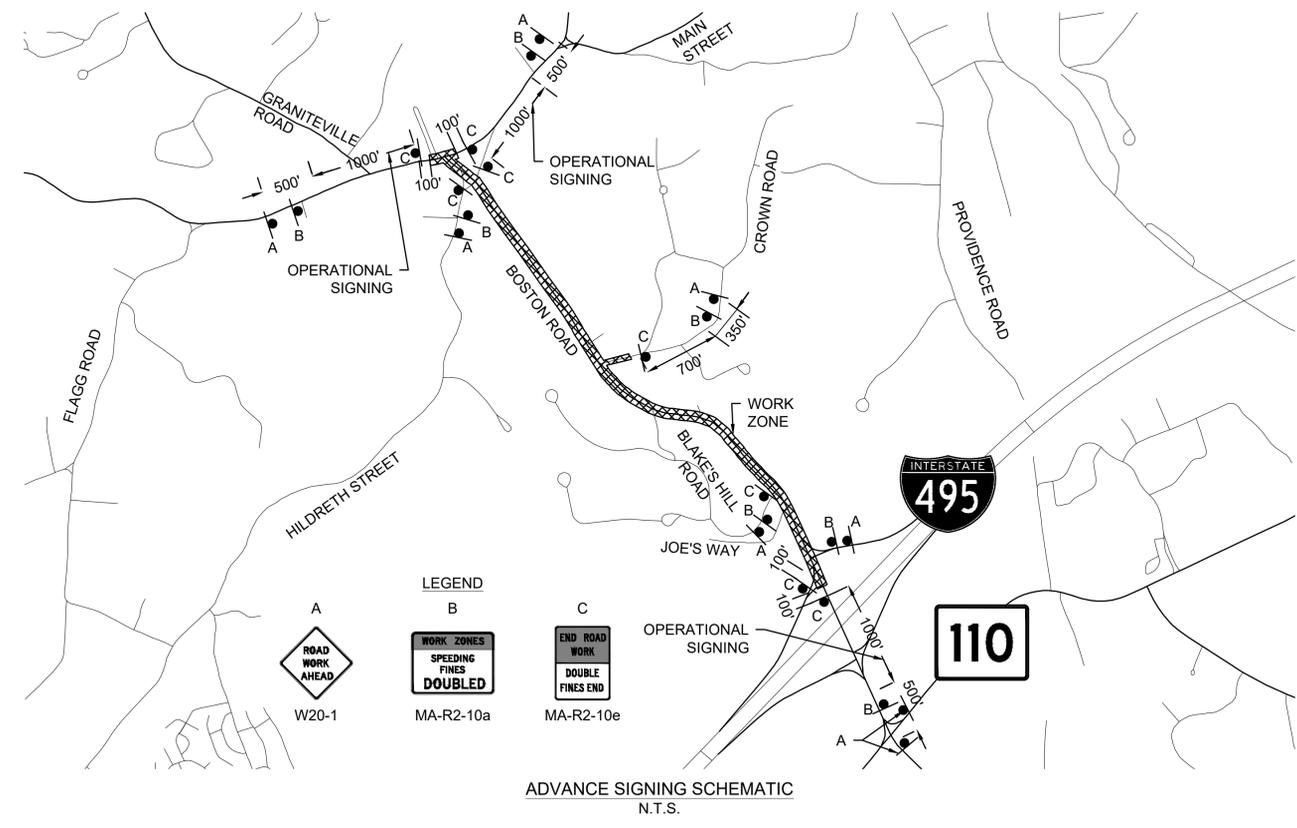
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	55	132
PROJECT FILE NO.		609035	

TEMPORARY TRAFFIC CONTROL SIGN SUMMARY												
IDENTIFICATION NUMBER	SIZE OF SIGN (in)		LEGEND	TEXT DIMENSIONS (in)			COLOR			NUMBER OF SIGNS REQUIRED	UNIT AREA (SF)	TOTAL AREA (SF)
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR	BACK-GROUND	LEGEND	BORDER			
D3-1	36	12	Boston Rd	SEE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS			ORANGE	BLACK	BLACK	28	3.00	84.00
M4-8a	24	18	END DETOUR				ORANGE	BLACK	BLACK	2	3.00	6.00
M4-9aL	30	24	DETOUR				ORANGE	BLACK	BLACK	3	5.00	15.00
M4-9aR	30	24	DETOUR				ORANGE	BLACK	BLACK	2	5.00	10.00
M4-9L	30	24	DETOUR				ORANGE	BLACK	BLACK	6	5.00	30.00
M4-9R	30	24	DETOUR				ORANGE	BLACK	BLACK	7	5.00	35.00
M4-9T	30	24	DETOUR				ORANGE	BLACK	BLACK	8	5.00	40.00
MA-R2-10a	48	36	WORK ZONES SPEEDING FINES DOUBLED	MASSDOT STANDARD SIGN			FL. ORANGE WHITE	BLACK BLACK	BLACK BLACK	7	12.00	84.00
MA-R2-10e	36	48	END ROAD WORK DOUBLE FINES END				FL. ORANGE WHITE	BLACK BLACK	BLACK BLACK	8	12.00	96.00
MA-W16-19P	24	18	ON ROADWAY				FL. ORANGE	BLACK	BLACK	4	3.00	12.00

NOTES:

- ON SIDE STREETS, "A" SIGNS SHALL BE LOCATED 1050' FROM LIMIT OF WORK, "B" SIGNS SHALL BE LOCATED 875' FROM THE LIMIT OF WORK.
- THE DISTANCE BETWEEN "A" AND "B" SIGNS ON BOSTON ROAD, MAIN STREET & I-495 SB RAMP SHALL BE APPROXIMATELY 250'.
- "C" SIGNS SHALL BE PLACED BETWEEN 100' TO 500' BEYOND THE LIMIT OF WORK.
- FOR LOCATIONS OF SIGNS FOR DETOUR PLAN AND TEMPORARY TRAFFIC SIGNALS, SEE SHEETS 56 AND 57.

TEMPORARY TRAFFIC CONTROL SIGN SUMMARY (CONTINUED)												
IDENTIFICATION NUMBER	SIZE OF SIGN (in)		LEGEND	TEXT DIMENSIONS (in)			COLOR			NUMBER OF SIGNS REQUIRED	UNIT AREA (SF)	TOTAL AREA (SF)
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR	BACK-GROUND	LEGEND	BORDER			
MA-W20-7b	36	36	POLICE OFFICER AHEAD	MASSDOT STANDARD SIGN			FL. ORANGE	BLACK	BLACK	4	9.00	36.00
R4-7	24	30	SEE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS				WHITE	BLACK	BLACK	4	5.00	20.00
R4-11	30	30	BICYCLE MAY USE FULL LANE				WHITE	BLACK	BLACK	2	6.25	12.50
R10-6	24	36	STOP HERE ON RED				WHITE	BLACK	BLACK	5	6.00	30.00
R11-4	60	30	ROAD CLOSED TO THRU TRAFFIC				WHITE	BLACK	BLACK	3	12.50	37.50
W1-4L	36	36	ROAD NARROWS				FL. ORANGE	BLACK	BLACK	2	9.00	18.00
W1-4R	36	36	ROAD NARROWS				FL. ORANGE	BLACK	BLACK	2	9.00	18.00
W3-3	36	36	ROAD NARROWS				YELLOW	RED YELLOW GREEN BLACK	BLACK	6	9.00	54.00
W5-1	36	36	ROAD NARROWS				FL. ORANGE	BLACK	BLACK	4	9.00	36.00
W8-1	36	36	BUMP				FL. ORANGE	BLACK	BLACK	2	9.00	18.00
W8-3	36	36	PAVEMENT ENDS				FL. ORANGE	BLACK	BLACK	2	9.00	18.00
W8-15	36	36	GROOVED PAVEMENT				FL. ORANGE	BLACK	BLACK	2	9.00	18.00
W8-24	36	36	STEEL PLATE AHEAD				FL. ORANGE	BLACK	BLACK	2	9.00	18.00
W11-1	36	36	BICYCLE				FL. YELLOW	BLACK	BLACK	4	9.00	36.00
W13-1p	24	24	XX MPH				FL. ORANGE	BLACK	BLACK	2	4.00	8.00
W16-9p	24	12	AHEAD				YELLOW	BLACK	BLACK	6	2.00	12.00
W20-1	36	36	ROAD WORK AHEAD				FL. ORANGE	BLACK	BLACK	8	9.00	72.00
W20-2	36	36	DETOUR AHEAD				ORANGE	BLACK	BLACK	10	9.00	90.00
W20-4	36	36	ONE LANE ROAD AHEAD				FL. ORANGE	BLACK	BLACK	4	9.00	36.00
W21-5a	36	36	RIGHT SHOULDER CLOSED				FL. ORANGE	BLACK	BLACK	1	9.00	9.00



CHELMSFORD

**WESTFORD
BOSTON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	56	132
PROJECT FILE NO. 609035			

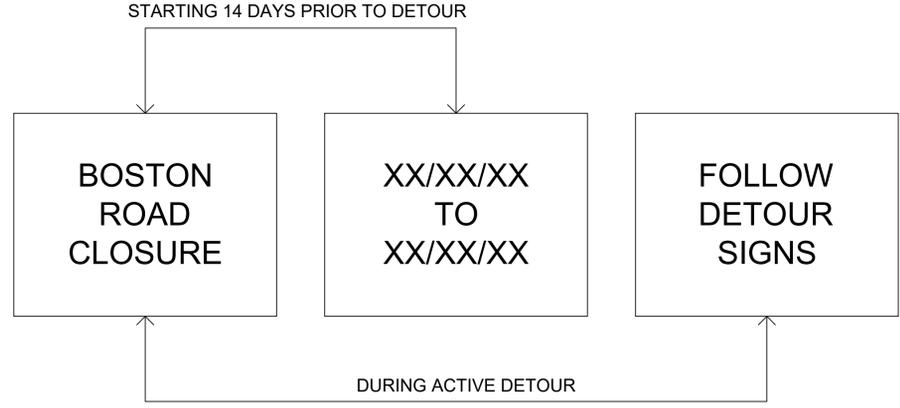
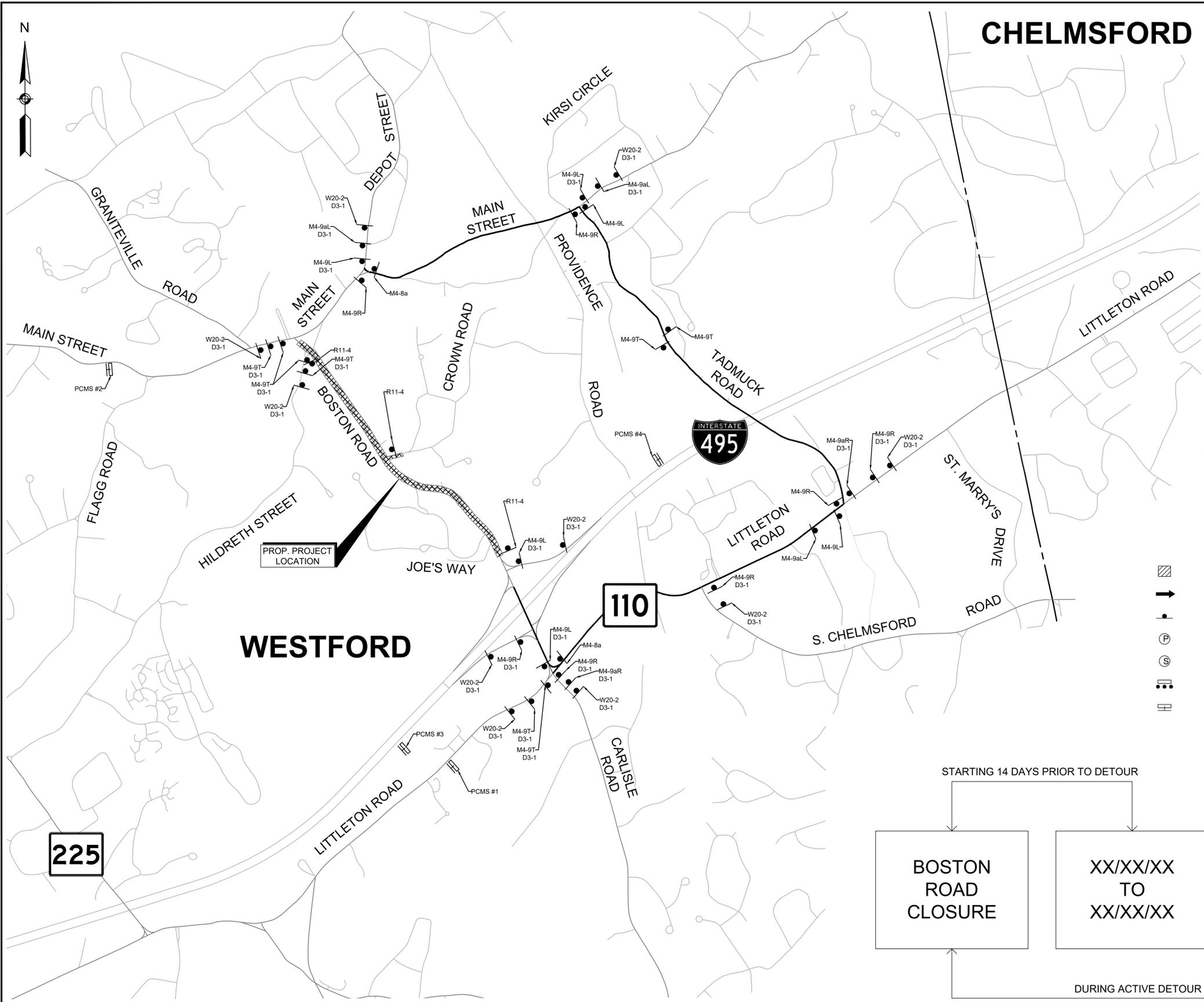
TEMPORARY TRAFFIC CONTROL PLANS - 4 OF 7

GENERAL NOTES:

1. ALL DETOURS ARE ESTABLISHED ON A DAY-TO-DAY BASIS BY NEED; HOWEVER, TEMPORARY TRAFFIC SIGNALS WILL BE IN OPERATION 24-HOURS A DAY. 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.
2. ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM WITH THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL (M.U.T.C.D.) AND ALL REVISIONS, UNLESS SUPERCEDED BY THESE PLANS.
3. ALL SIGN LEGENDS, BORDERS, AND MOUNTING SHALL BE IN ACCORDANCE WITH THE M.U.T.C.D.
4. TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
5. SIGNS AND SIGN SUPPORTS LOCATED ON OR NEAR THE TRAVELED WAY MUST PASS THE CRITERIA SET FORTH IN NCHRP REPORT 350, "RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE EVALUATION OF HIGHWAY FEATURES" AND/OR "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH).
6. DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
7. ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS AT THE DISCRETION OF THE CONTRACTOR.
8. ALL DRUMS AND/OR CONES SHALL BE SET @ 20' O.C. MAX. UNLESS OTHERWISE NOTED OR ADJUSTED BY THE ENGINEER.
9. ALL TRAFFIC SIGNAL TIMINGS AT BOTH EXISTING AND TEMPORARY TRAFFIC SIGNALS SHALL BE EVALUATED POST-INSTALLATION OF THE DETOUR. ALL SIGNAL TIMINGS SHALL BE MODIFIED AS NECESSARY.

TEMPORARY TRAFFIC CONTROL LEGEND

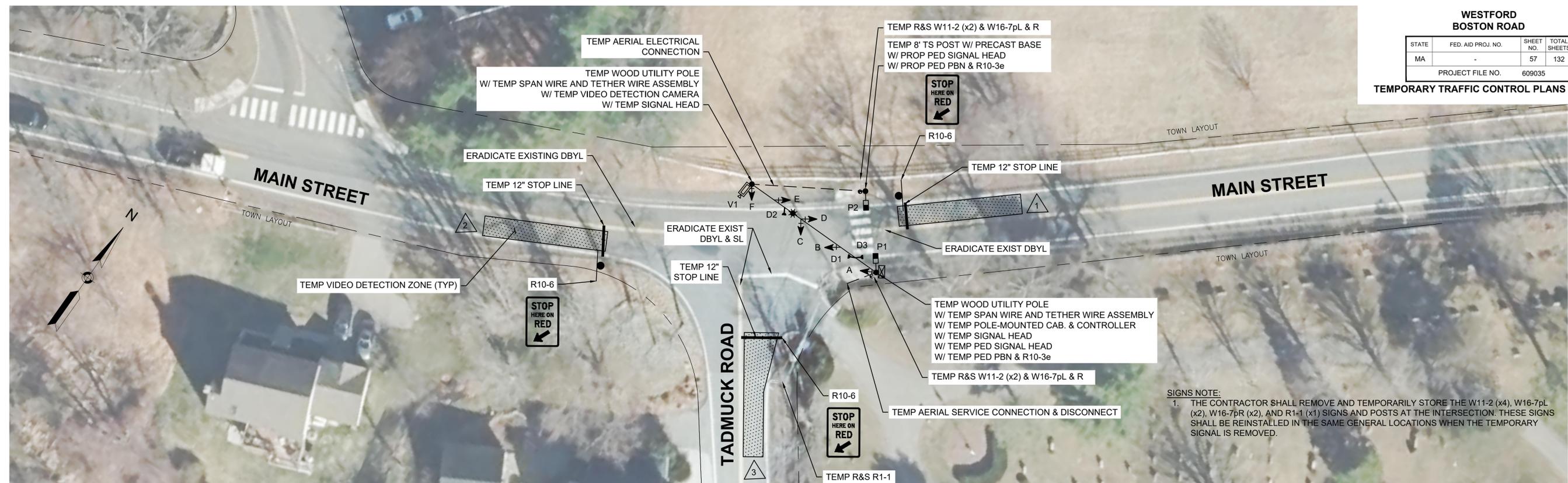
- | | | | |
|---|---|---|--|
|  | WORK ZONE |  | REFLECTORIZED PLASTIC DRUM OR 36" CONE |
|  | DIRECTION OF TRAVEL |  | REFLECTORIZED DRUM W/ SEQUENTIAL FLASHING LIGHTS |
|  | SIGN |  | CONSTRUCTION BARRIER |
|  | POLICE DETAIL |  | CONSTRUCTION BARRIER W/ REFLECTORS OR WARNING LIGHTS |
|  | TRAFFIC SIGNAL |  | TYPE III BARRICADES |
|  | ARROW BOARD |  | IMPACT ATTENUATOR |
|  | PORTABLE CHANGEABLE MESSAGE SIGN (PCMS) |  | WORK VEHICLE |



DETOUR PLAN & ADVANCED SIGNAGE SCHEMATIC PLAN
BOSTON ROAD
 SCALE: 1" = 600'

PORTABLE CHANGEABLE MESSAGE SIGNS TEXT
 (DIMENSIONS ARE APPROX.)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	57	132
PROJECT FILE NO.		609035	



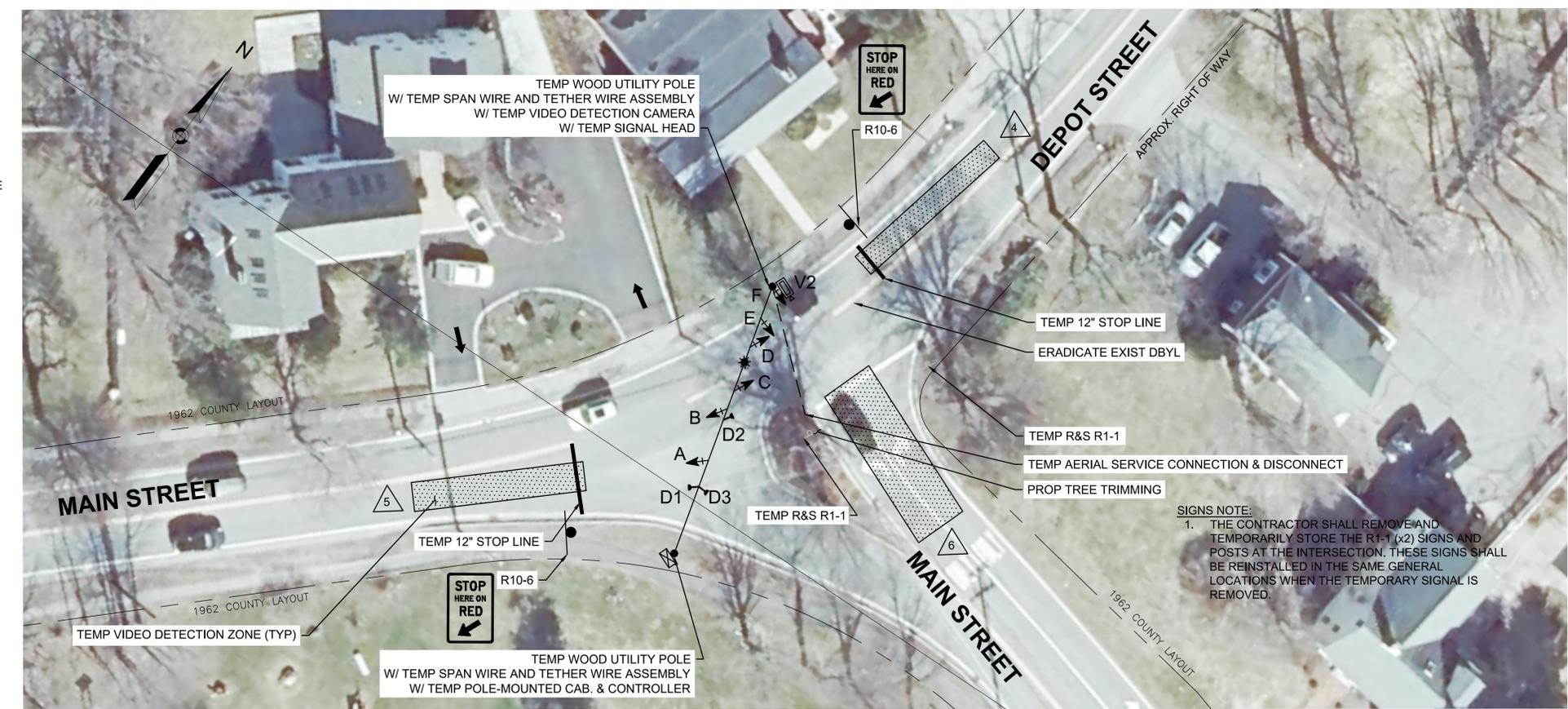
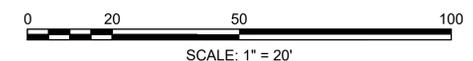
MAIN STREET AT TADMUCK ROAD
TEMPORARY TRAFFIC SIGNAL-SHORT TERM STATIONARY (24 HOURS A DAY)
SCALE: 1" = 20'

TEMPORARY SIGNAL NOTES:

- TEMPORARY PEDESTRIAN PUSH BUTTONS SHALL BE PERPENDICULAR TO THE CROSSWALK PATH OF TRAVEL, WITH THE ARROW PROVIDED ON THE PUSH BUTTON PARALLEL TO THE CROSSWALK PATH OF TRAVEL.
- TEMPORARY SIGNAL UTILITY POLE AND FOUNDATIONS MAY NEED TO BE INSTALLED WITH LOW-PROFILE INSTALLATION AND/OR EXCAVATION EQUIPMENT DUE TO CLOSE PROXIMITY WITH EXISTING OVERHEAD PRIMARY POWER LINES.
- CONTRACTOR IS RESPONSIBLE FOR AND SHALL COORDINATE WITH UTILITY COMPANY FOR THE SHIELDING AND INSULATION OF TRAFFIC SIGNAL EQUIPMENT AND OVERHEAD HEAD WIRES (AS NECESSARY).
- ALL THE EXISTING DOUBLE YELLOW LINES AT THE INTERSECTION, BETWEEN THE TEMPORARY STOP LINES, SHALL BE ERADICATED AND REPLACED WITH OTHER MARKINGS AS INDICATED.
- CONTRACTOR MAY PROPOSE AN ALTERNATIVE ARRANGEMENT OF THE TRAFFIC SIGNAL EQUIPMENT OF THE USE OF TRAILER MOUNTED SIGNAL. ANY PROPOSED CHANGE IN THE EQUIPMENT LAYOUT SHALL BE APPROVED BY MASDOT, THE TOWN OF WESTFORD, AND THE ENGINEER PRIOR TO IMPLEMENTATION.
- TEMPORARY WOOD POLES SHALL BE CLASS IV, WITH A FIBER BENDING STRESS OF 8,000 PSI AND OF SUFFICIENT LENGTH TO ALLOW FOR DEPTH OF EMBEDMENT TO PREVENT OVERTURNING. THE POLES SHALL CONFORM TO THE RURAL ELECTRIFICATION ADMINISTRATION (REA) SPECIFICATION DT-5C.

TEMPORARY TRAFFIC CONTROL LEGEND

- TEMPORARY WOOD POLE
- TEMPORARY TRAFFIC SIGNAL POST
- ➔ SIGNAL HOUSING
- ⊠ PEDESTRIAN SIGNAL HOUSING
- PEDESTRIAN PUSH BUTTON
- ⊥ PREEMPT RECIEVER
- ⚡ PREEMPT STROBE
- 📹 VIDEO DETECTION CAMERA
- ⬇️ SIGN

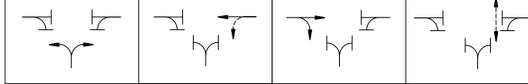
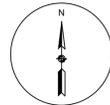


MAIN STREET AT DEPOT ROAD
TEMPORARY TRAFFIC SIGNAL-SHORT TERM STATIONARY (24 HOURS A DAY)
SCALE: 1" = 20'

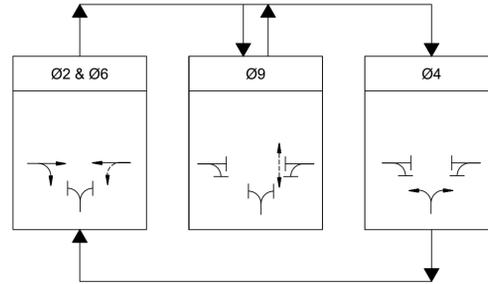
TEMPORARY TRAFFIC SIGNAL CONTROL - MAIN STREET AT TADMUCK ROAD

TEMPORARY TRAFFIC SIGNAL TIMING AND PHASING																																																							
APPROACH	DIRECTION	HOUSING	1	2	3	4	5	6	7	8	9	10	11	12																																									
MINIMUM INTERVAL			4			10			10																																														
VEHICLE EXTENSION			-			2			2																																														
MAXIMUM 1			25			55			55																																														
MAXIMUM 2			55			25			25																																														
YELLOW CLEARANCE			4.0			4.0			4.0																																														
RED CLEARANCE				1.0			1.0				1.0																																												
WALK													7.0																																										
PEDESTRIAN CLEARANCE													7.0	4.0																																									
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RECALL			OFF			MIN			MIN			OFF																																											
NOTES:			Ø4			Ø6			Ø2			Ø9																																											

- NOTES:
 1. MAXIMUM 1 = FREE OPERATION
 2. MAXIMUM 2 = 3:00 PM - 7:00 PM
 3. SIGNAL "X" MAY BE ALTERED BASED ON EXISTING SET-UP.

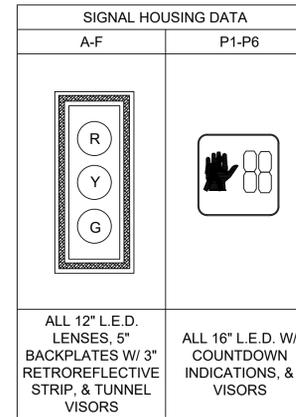


PREFERENTIAL PHASE SEQUENCE



PREEMPTION PHASING & PRIORITY			
DETECTOR	PREEMPT PHASE ASSIGNMENT	MOVEMENT	VEHICLE PHASE ASSIGNMENT
D1	1		Ø2
D2	2		Ø4
D3	3		Ø6

VIDEO DETECTION DATA						
CAMERA #	DETECTOR #	SIZE	Ø CALLED	Ø EXTEND	DELAY/EXT	OPERATION
V1	1	±8'x50'	Ø6	Ø6	0 SEC	PRESENCE
V1	2	±8'x50'	Ø2	Ø2	0 SEC	PRESENCE
V1	3	±12'x50'	Ø4	Ø4	0 SEC	PRESENCE



WESTFORD BOSTON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	58	132
PROJECT FILE NO.		609035	

TEMPORARY TRAFFIC CONTROL PLANS - 6 OF 7

MAIN STREET AT TADMUCK ROAD

LIST OF MAJOR ITEMS REQUIRED - TEMPORARY TRAFFIC SIGNAL INSTALLATION

ITEM #	QUANTITY	DESCRIPTION
816.81	1	NEMA TS 2 - TYPE 1 POLE-MOUNTED CONTROLLER & CABINET W/ GROUNDING ARRAY
	2	CLASS IV WOOD UTILITY POLE WITH SPAN WIRE & TETHER WIRE ASSEMBLIES W/ GUY
	1	8' TS POST, BASE W/ PRECAST FDN WITH WEATHERHEAD FOR AERIAL CONNECTION TO WOOD POLE
	6	SIGNAL HEAD, 3-SECTION, 12" LED MODULES, REFLECTIVE BACKPLATES, & TUNNEL VISORS
	2	PEDESTRIAN SIGNAL HEAD, 16" LED MODULE COUNTDOWN INDICATOR & VISORS
	2	PEDESTRIAN PUSH BUTTON W/ R10-3e AND SIGN SADDLE
	1	COMPLETE VIDEO DETECTION SYSTEM [CAMERA(S), PROCESSOR(S), CHASSIS, & CABLING]
	3	EMERGENCY PRE-EMPTION DETECTORS AND DETECTOR CABLING
	2	EMERGENCY PRE-EMPTION 2-CHANNEL PHASE SELECTORS
	1	EMERGENCY PRE-EMPTION SYSTEM CHASSIS
	1	EMERGENCY PRE-EMPTION STROBE (WHITE LENS)
	1	CONTROLLER PROGRAMMING & FINE TUNING
	1	INTERSECTION CABLING FOR SIGNAL HEADS, VIDEO DETECTION, & PRE-EMPTION (AERIAL)
	1	SERVICE CONNECTION & DISCONNECT (AERIAL)

PLUS NECESSARY CABLE, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION AND PROVIDE AN OPERATING TRAFFIC CONTROL SIGNAL. ALL EQUIPMENT SHALL REMAIN OWNED BY THE CONTRACTOR OR UNDER LEASE AGREEMENTS WITH ITS VENDORS FOR THE TERM OF THE TEMPORARY TRAFFIC SIGNAL INSTALLATION. UPON NOTIFICATION THAT THE NEED FOR THE TEMPORARY TRAFFIC SIGNAL IS NO LONGER REQUIRED, THE CONTRACTOR SHALL REMOVE ALL TEMPORARY EQUIPMENT AND RESTORE THE INTERSECTION BACK TO THE EXISTING CONFIGURATION OF SIGNS AND STRIPING UNLESS OTHERWISE APPROVED BY THE TOWN OF WESTFORD AND MASSDOT.

MAIN STREET AT DEPOT STREET

LIST OF MAJOR ITEMS REQUIRED - TEMPORARY TRAFFIC SIGNAL INSTALLATION

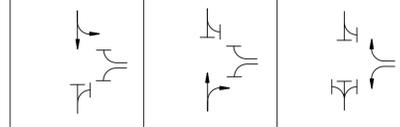
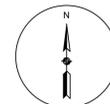
ITEM #	QUANTITY	DESCRIPTION
816.82	1	NEMA TS 2 - TYPE 1 POLE-MOUNTED CONTROLLER & CABINET W/ GROUNDING ARRAY
	2	CLASS IV WOOD UTILITY POLE WITH SPAN WIRE & TETHER WIRE ASSEMBLIES W/ GUY
	6	SIGNAL HEAD, 3-SECTION, 12" LED MODULES, REFLECTIVE BACKPLATES, & TUNNEL VISORS
	1	COMPLETE VIDEO DETECTION SYSTEM [CAMERA(S), PROCESSOR(S), CHASSIS, & CABLING]
	3	EMERGENCY PRE-EMPTION DETECTORS AND DETECTOR CABLING
	2	EMERGENCY PRE-EMPTION 2-CHANNEL PHASE SELECTORS
	1	EMERGENCY PRE-EMPTION SYSTEM CHASSIS
	1	EMERGENCY PRE-EMPTION STROBE (WHITE LENS)
	1	CONTROLLER PROGRAMMING & FINE TUNING
	1	INTERSECTION CABLING FOR SIGNAL HEADS, VIDEO DETECTION, & PRE-EMPTION (AERIAL)
	1	SERVICE CONNECTION & DISCONNECT (AERIAL)

PLUS NECESSARY CABLE, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION AND PROVIDE AN OPERATING TRAFFIC CONTROL SIGNAL. ALL EQUIPMENT SHALL REMAIN OWNED BY THE CONTRACTOR OR UNDER LEASE AGREEMENTS WITH ITS VENDORS FOR THE TERM OF THE TEMPORARY TRAFFIC SIGNAL INSTALLATION. UPON NOTIFICATION THAT THE NEED FOR THE TEMPORARY TRAFFIC SIGNAL IS NO LONGER REQUIRED, THE CONTRACTOR SHALL REMOVE ALL TEMPORARY EQUIPMENT AND RESTORE THE INTERSECTION BACK TO THE EXISTING CONFIGURATION OF SIGNS AND STRIPING UNLESS OTHERWISE APPROVED BY THE TOWN OF WESTFORD AND MASSDOT.

TEMPORARY TRAFFIC SIGNAL CONTROL - MAIN STREET AT DEPOT ROAD

TEMPORARY TRAFFIC SIGNAL TIMING AND PHASING																																															
APPROACH	DIRECTION	HOUSING	1	2	3	4	5	6	7	8	9																																				
MINIMUM INTERVAL			4			6			10																																						
VEHICLE EXTENSION			-			2			2																																						
MAXIMUM 1			60			60			20																																						
MAXIMUM 2			55			55			25																																						
YELLOW CLEARANCE			4.0			4.0			4.0																																						
RED CLEARANCE				1.5			1.0				1.0																																				
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DETECTOR			NON-LOCK			NON-LOCK			NON-LOCK																																						
RECALL			MIN			MIN			OFF																																						
NOTES:			Ø2			Ø6			Ø4																																						

- NOTES:
 1. MAXIMUM 1 = FREE OPERATION
 2. MAXIMUM 2 = 3:00 PM - 7:00 PM
 3. SIGNAL "X" MAY BE ALTERED BASED ON EXISTING SET-UP.

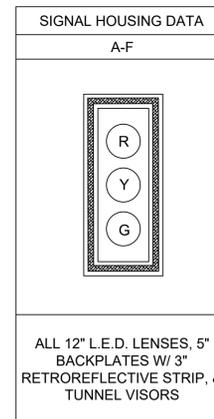


SEQUENCE & TIMING NOTES:

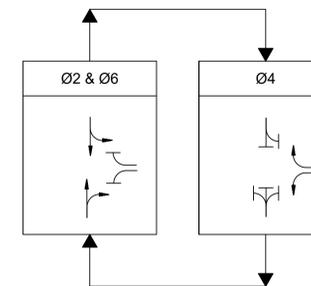
- AUTOMATIC FLASHING OPERATION PER M.U.T.C.D. SECTION 4D.28 TO 4D.31
- PEDESTRIAN PHASE UPON PUSH BUTTON ACTIVATION ONLY.
- MAXIMUM 1 = FREE OPERATION
- MAXIMUM 2 = 3:00 PM - 7:00 PM
- IF THE ASSIGNED RIGHT-OF-WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT WILL NOT CHANGE DURING THE CLEARANCE INTERVAL.
- IF THE ASSIGNED RIGHT-OF-WAY FOR ANY TRAFFIC MOVEMENT IS TO CHANGE DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATION FOR THAT MOVEMENT WILL DISPLAY THE APPROPRIATE CLEARANCE INTERVALS.
- THE RIGHT-OF-WAY MAY BE ASSIGNED TO ANY PHASE OR ANY COMBINATION OF NON-CONFLICTING PHASES.
- IF CALLS EXIST ON ALL PHASES, THE ASSIGNMENT OF RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH THE PREFERENTIAL PHASE SEQUENCE.

VIDEO DETECTION DATA						
CAMERA #	DETECTOR #	SIZE	Ø CALLED	Ø EXTEND	DELAY/EXT	OPERATION
V2	4	±8'x50'	Ø2	Ø2	0 SEC	PRESENCE
V2	5	±8'x50'	Ø6	Ø6	0 SEC	PRESENCE
V2	6	±15'x50'	Ø4	Ø4	0 SEC	PRESENCE

PREEMPTION PHASING & PRIORITY			
DETECTOR	PREEMPT PHASE ASSIGNMENT	MOVEMENT	VEHICLE PHASE ASSIGNMENT
D1	1		Ø6
D2	2		Ø2
D3	3		Ø4

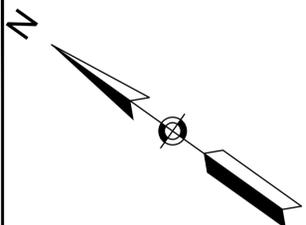


PREFERENTIAL PHASE SEQUENCE



EMERGENCY VEHICLE PRE-EMPTION NOTES:

- EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE OPTICALLY TRANSMITTED BY OPTICAL EMITTERS MOUNTED IN EMERGENCY VEHICLES AND RECEIVED BY OPTICAL DETECTORS LOCATED AT EACH INTERSECTION.
- EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE SERVICED ON A FIRST DETECTED FIRST SERVE BASIS.
- IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY OPTICAL DETECTOR D1 (OR D2 & D3) THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD IN EMERGENCY VEHICLE PRE-EMPTION PHASE #1 (OR #2 OR #3) GREEN FOR A MINIMUM OF TEN (10) SECONDS OR UNTIL PRE-EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE-EMPTION PHASE CLEARANCE (3 SECONDS; YELLOW AND 8 SECONDS; ALL RED) AND SERVICE SUBSEQUENT EMERGENCY VEHICLE PRE-EMPTION PHASES AS NECESSARY.
- NORMAL CLEARANCE INTERVALS SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
- ONCE PRE-EMPTION PHASING HAS CLEARED, THE SYSTEM SHALL RESTART NORMAL OPERATIONS ACCORDING TO THE PREFERENTIAL PHASE SEQUENCE.
- CONFIRMATION STROBE SHALL BE ILLUMINATED WHENEVER ANY EMERGENCY VEHICLE PRE-EMPTION GREEN IS ON.



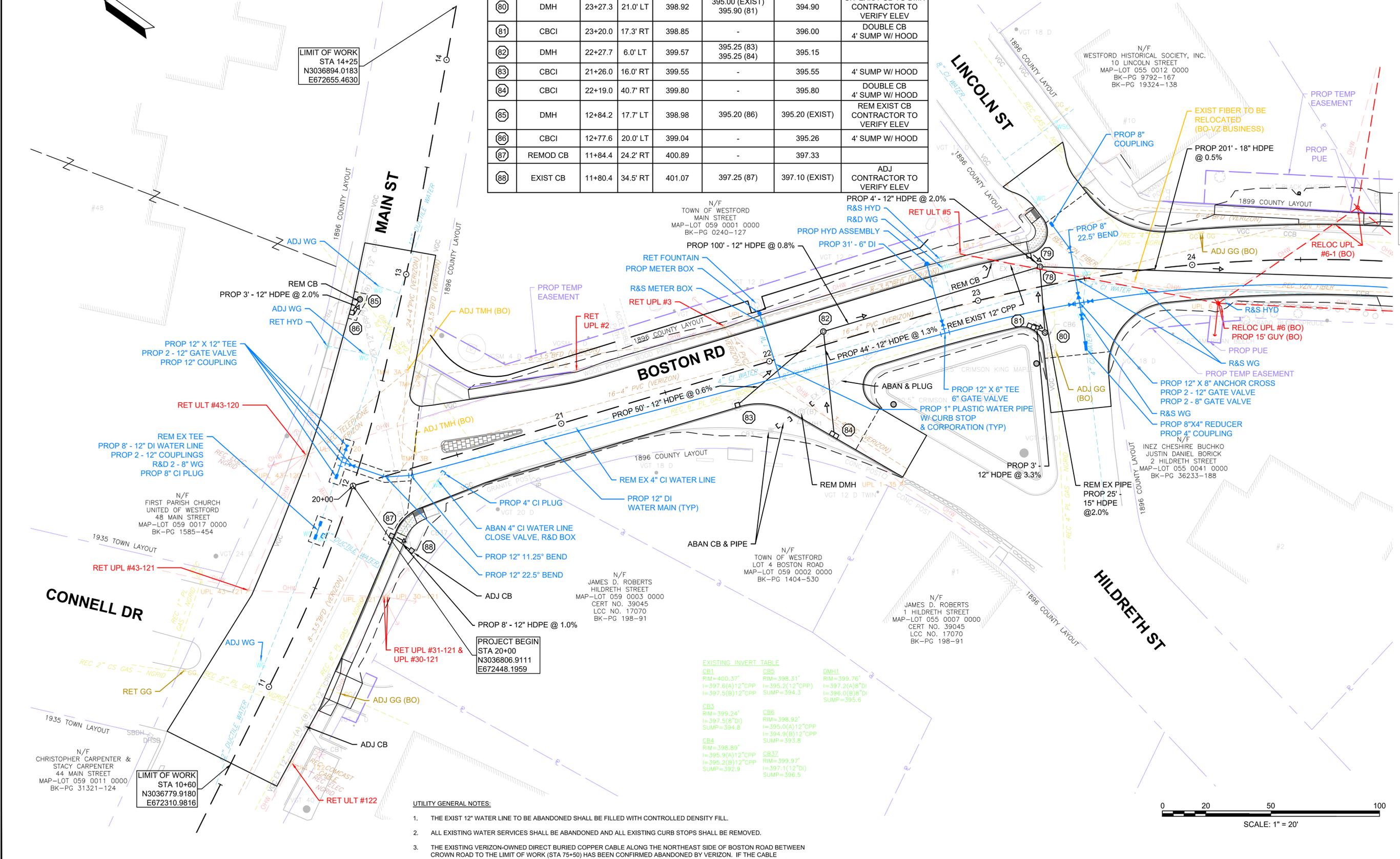
PROPOSED DRAINAGE STRUCTURE DATA							
NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
78	DMH	23+31.0	9.0' LT	398.98	394.40 (82) 394.40 (80) 394.90 (79)	393.90	5' DIAMETER
79	CB	23+27.0	16.0' RT	398.87	-	394.98	4' SUMP W/ HOOD
80	DMH	23+27.3	21.0' LT	398.92	395.00 (EXIST) 395.90 (81)	394.90	CIT EXIST CB TO DMH CONTRACTOR TO VERIFY ELEV
81	CBCI	23+20.0	17.3' RT	398.85	-	396.00	DOUBLE CB 4' SUMP W/ HOOD
82	DMH	22+27.7	6.0' LT	399.57	395.25 (83) 395.25 (84)	395.15	
83	CBCI	21+26.0	16.0' RT	399.55	-	395.55	4' SUMP W/ HOOD
84	CBCI	22+19.0	40.7' RT	399.80	-	395.80	DOUBLE CB 4' SUMP W/ HOOD
85	DMH	12+84.2	17.7' LT	398.98	395.20 (86)	395.20 (EXIST)	REM EXIST CB CONTRACTOR TO VERIFY ELEV
86	CBCI	12+77.6	20.0' LT	399.04	-	395.26	4' SUMP W/ HOOD
87	REMOD CB	11+84.4	24.2' RT	400.89	-	397.33	
88	EXIST CB	11+80.4	34.5' RT	401.07	397.25 (87)	397.10 (EXIST)	ADJ CONTRACTOR TO VERIFY ELEV

**WESTFORD
BOSTON ROAD**

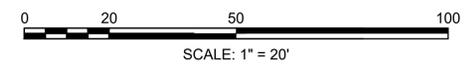
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	60	132

PROJECT FILE NO. 609035

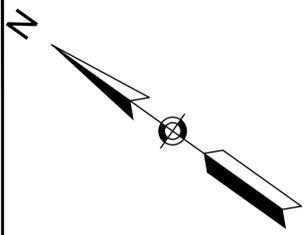
UTILITY PLANS - 1 OF 11



- UTILITY GENERAL NOTES:**
- THE EXIST 12" WATER LINE TO BE ABANDONED SHALL BE FILLED WITH CONTROLLED DENSITY FILL.
 - ALL EXISTING WATER SERVICES SHALL BE ABANDONED AND ALL EXISTING CURB STOPS SHALL BE REMOVED.
 - THE EXISTING VERIZON-OWNED DIRECT BURIED COPPER CABLE ALONG THE NORTHEAST SIDE OF BOSTON ROAD BETWEEN CROWN ROAD TO THE LIMIT OF WORK (STA 75+50) HAS BEEN CONFIRMED ABANDONED BY VERIZON. IF THE CABLE INTERFERES WITH CONSTRUCTION ACTIVITIES, THE CONTRACTOR IS ALLOWED TO REMOVE THE CABLE AS NECESSARY.



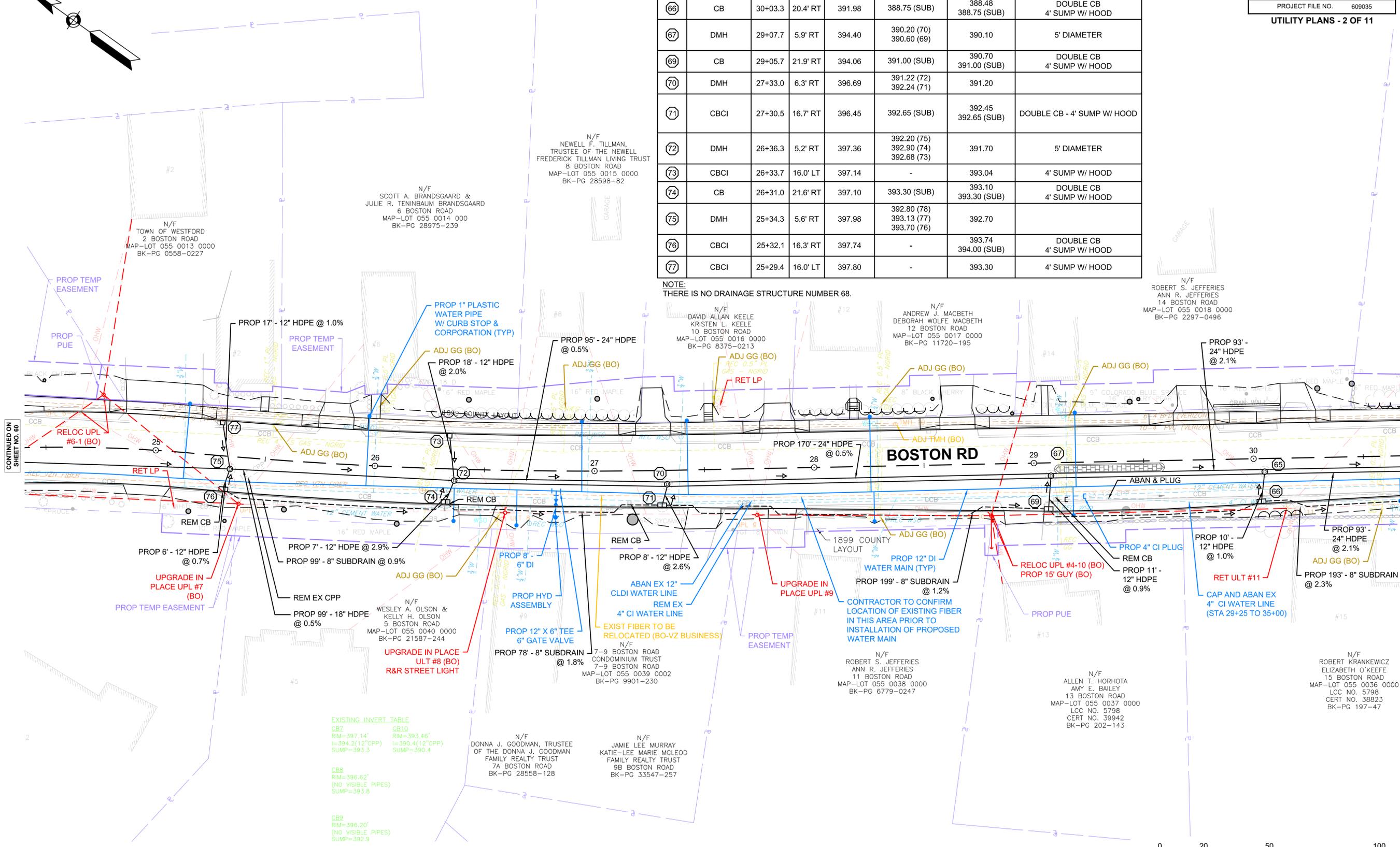
CONTINUED ON
SHEET NO. 61



PROPOSED DRAINAGE STRUCTURE DATA							
NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
65	DMH	30+05.0	6.0' RT	392.29	388.14 (67) 388.38 (66)	388.10	5' DIAMETER
66	CB	30+03.3	20.4' RT	391.98	388.75 (SUB)	388.48 388.75 (SUB)	DOUBLE CB 4' SUMP W/ HOOD
67	DMH	29+07.7	5.9' RT	394.40	390.20 (70) 390.60 (69)	390.10	5' DIAMETER
69	CB	29+05.7	21.9' RT	394.06	391.00 (SUB)	390.70 391.00 (SUB)	DOUBLE CB 4' SUMP W/ HOOD
70	DMH	27+33.0	6.3' RT	396.69	391.22 (72) 392.24 (71)	391.20	
71	CBCI	27+30.5	16.7' RT	396.45	392.65 (SUB)	392.45 392.65 (SUB)	DOUBLE CB - 4' SUMP W/ HOOD
72	DMH	26+36.3	5.2' RT	397.36	392.20 (75) 392.90 (74) 392.68 (73)	391.70	5' DIAMETER
73	CBCI	26+33.7	16.0' LT	397.14	-	393.04	4' SUMP W/ HOOD
74	CB	26+31.0	21.6' RT	397.10	393.30 (SUB)	393.10 393.30 (SUB)	DOUBLE CB 4' SUMP W/ HOOD
75	DMH	25+34.3	5.6' RT	397.98	392.80 (78) 393.13 (77) 393.70 (76)	392.70	
76	CBCI	25+32.1	16.3' RT	397.74	-	393.74 394.00 (SUB)	DOUBLE CB 4' SUMP W/ HOOD
77	CBCI	25+29.4	16.0' LT	397.80	-	393.30	4' SUMP W/ HOOD

NOTE:
THERE IS NO DRAINAGE STRUCTURE NUMBER 68.

WESTFORD BOSTON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	61	132
PROJECT FILE NO. 609035			
UTILITY PLANS - 2 OF 11			



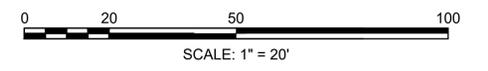
CONTINUED ON
SHEET NO. 60

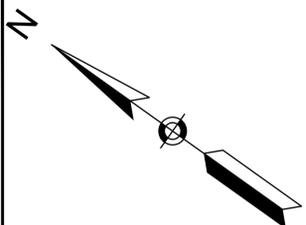
CONTINUED ON
SHEET NO. 62

EXISTING INVERT TABLE
 CB7 CB10
 RIM=397.14' RIM=393.46'
 I=394.2(12"CPP) I=390.4(12"CPP)
 SUMP=393.3 SUMP=390.4

CB8
 RIM=396.62'
 (NO VISIBLE PIPES)
 SUMP=393.8

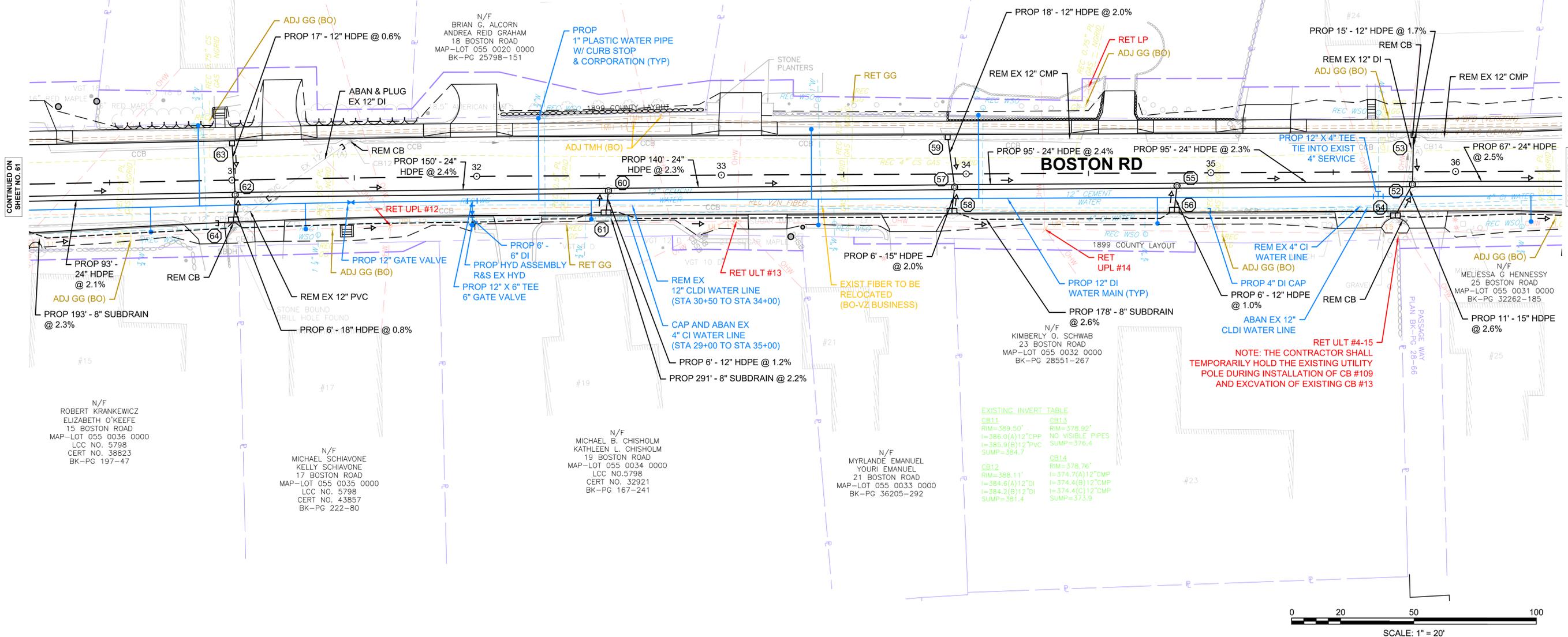
CB9
 RIM=396.20'
 (NO VISIBLE PIPES)
 SUMP=392.9





PROPOSED DRAINAGE STRUCTURE DATA							
NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
52	DMH	35+82.4	5.1' RT	379.58	374.50 (55) 374.40 (54) 374.40 (53)	374.40	5' DIAMETER
53	CBCI	35+82.9	16.0' LT	379.35	-	374.65	4' SUMP W/ HOOD OFFSET TOP
54	CB	35+75.3	17.6' RT	379.95	374.95 (SUB)	374.68 374.95 (SUB)	DOUBLE CB 4' SUMP W/ HOOD
55	DMH	34+86.2	5.2' RT	381.70	376.77 (57) 377.40 (56)	376.70	5' DIAMETER
56	CB	34+85.0	16.0' RT	381.46	377.75 (SUB)	377.46 377.75 (SUB)	DOUBLE CB 4' SUMP W/ HOOD
57	DMH	33+95.3	5.4' RT	383.70	379.15 (60) 379.17 (59) 379.17 (58)	379.05	5' DIAMETER
58	CB	33+94.1	16.0' RT	383.46	379.55 (SUB)	379.29 379.55 (SUB)	DOUBLE CB 4' SUMP W/ HOOD
59	CBCI	33+92.5	16.0' LT	383.54	-	379.54	4' SUMP W/ HOOD
60	DMH	32+53.7	6.1' RT	386.80	382.50 (61) 382.40 (62)	382.35	5' DIAMETER
61	CB	32+52.8	16.0' RT	386.57	382.80 (SUB)	382.57 382.80 (SUB)	DOUBLE CB 4' SUMP W/ HOOD
62	DMH	31+01.6	6.2' RT	390.16	386.10 (66) 386.10 (64) 386.10 (63)	386.00	5' DIAMETER
63	CB	31+00.3	16.0' LT	389.71	-	386.20	4' SUMP W/ HOOD
64	CB	31+00.3	16.0' RT	389.91	386.30 (SUB)	386.15 386.30 (SUB)	DOUBLE CB 4' SUMP W/ HOOD

WESTFORD BOSTON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	62	132
PROJECT FILE NO. 609035			
UTILITY PLANS - 3 OF 11			



CONTINUED ON
SHEET NO. 61

CONTINUED ON
SHEET NO. 63

EXISTING INVERT TABLE

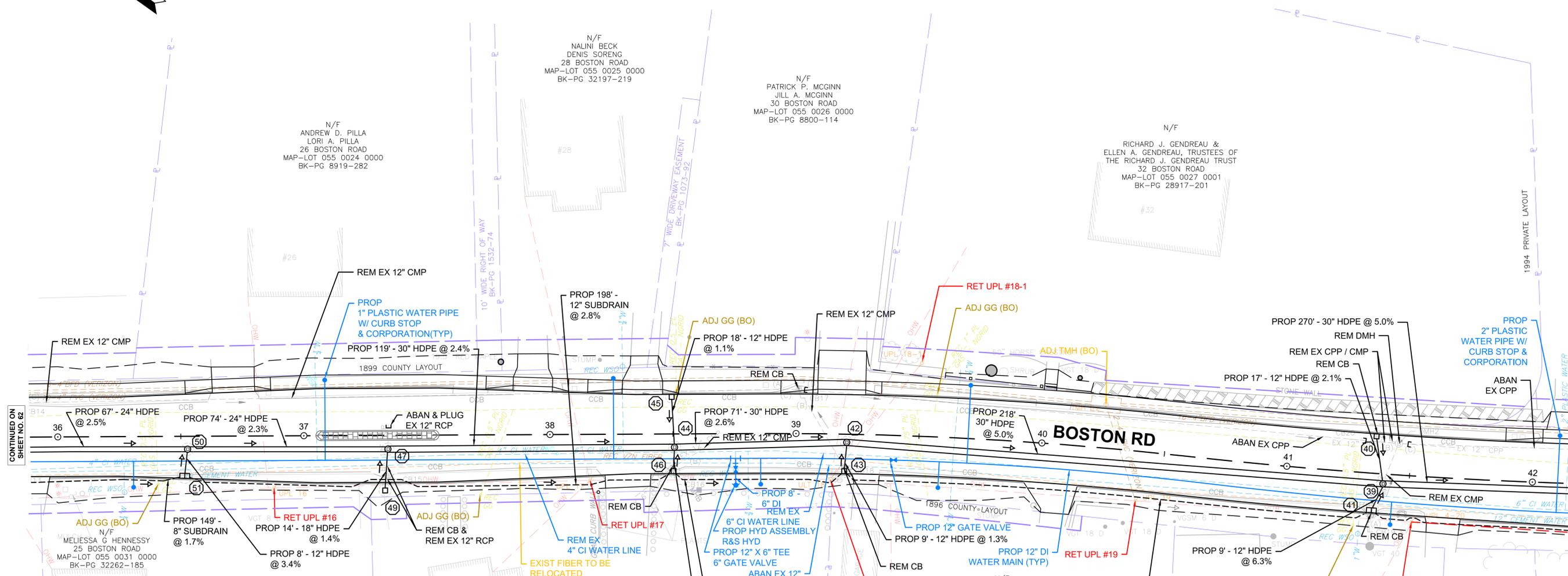
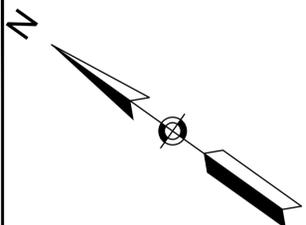
CB11	CB13
RIM=389.50'	RIM=378.92'
I=386.0(A)12"CPP	NO VISIBLE PIPES
I=385.9(B)12"PVC	SUMP=376.4
SUMP=384.7	
CB12	CB14
RIM=388.11'	RIM=378.76'
I=384.6(A)12"DI	I=374.7(A)12"OMP
I=384.2(B)12"DI	I=374.4(B)12"OMP
SUMP=381.4	I=374.4(C)12"OMP
	SUMP=373.9

NOTE: THE CONTRACTOR SHALL TEMPORARILY HOLD THE EXISTING UTILITY POLE DURING INSTALLATION OF CB #109 AND EXCAVATION OF EXISTING CB #13

**WESTFORD
BOSTON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	63	132
PROJECT FILE NO. 609035			

UTILITY PLANS - 4 OF 11

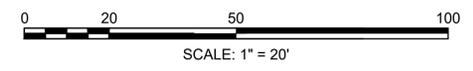


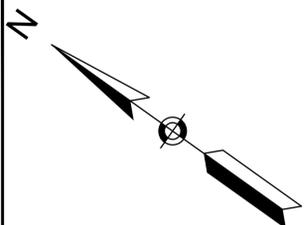
PROPOSED DRAINAGE STRUCTURE DATA							
NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
39	DMH	41+39.5	2.7' RT	359.65	355.00 (40) 355.00 (41) 354.50 (42)	354.40	5' DIAMETER
40	CBCI	41+35.5	16.0' LT	359.60	-	355.35	4' SUMP W/ HOOD
41	CBCI	41+35.5	16.0' RT	359.61	355.60 (SUB)	355.36 355.60 (SUB)	DOUBLE CB 4' SUMP W/ HOOD
42	DMH	39+20.7	2.1' RT	370.42	365.60 (44) 365.80 (43)	365.50	5' DIAMETER
43	CB	39+19.9	16.0' RT	370.25	366.17 (SUB)	365.92	4' SUMP W/ HOOD
44	DMH	38+50.6	5.4' LT	372.84	367.60 (47) 368.50 (46) 368.50 (45)	367.50	5' DIAMETER
45	CB	38+49.5	16.2' LT	372.97	-	368.70	4' SUMP W/ HOOD
46	CB	38+50.2	16.2' RT	373.15	368.95 (SUB)	368.69 368.95 (SUB)	4' SUMP W/ HOOD
47	DMH	37+28.3	5.6' RT	376.35	370.90 (50) 372.60 (49)	370.40	5' DIAMETER
49	DROP INLET	37+32.9	22.3' RT	376.30	-	372.80	TYPE C
50	DMH	36+52.7	5.2' RT	378.03	372.72 (52) 373.50 (51)	372.62	5' DIAMETER
51	CB	36+51.5	17.0' RT	377.77	374.00 (SUB)	373.77 374.00 (SUB)	DOUBLE CB 4' SUMP W/ HOOD

NOTE:
THERE IS NO DRAINAGE STRUCTURE NUMBER 48.

EXISTING INVERT TABLE

CB15 RIM=375.33' I=372.3(12"RCP) SUMP=370.5	CB18 RIM=369.76' I=366.8(12"CPP) SUMP=366.7	DMH2 RIM=358.51' I=354.9(A)12"CMP I=354.8(B)12"CPP I=354.8(C)12"CPP SUMP=354.3
CB16 RIM=372.17' I=368.7(A)6"PVC I=368.3(B)12"CMP SUMP=368.0	CB19 RIM=359.82' I=357.5(A)4"CPP I=356.7(B)12"CMP SUMP=355.8	
CB17 RIM=370.30' I=366.6(A)12"PVC I=366.5(B)8"CMP I=365.5(C)12"CMP I=365.4(D)12"CPP SUMP=364.8	CB20 RIM=358.78' I=355.2(12"CMP) SUMP=355.2	





PROPOSED DRAINAGE STRUCTURE DATA							
NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
31	DMH	46+90.9	0' LT/RT	335.28	330.89 (33) 329.00 (34)	327.70 (32) 327.90 (29)	7' DIAMETER
32	OUTLET	47+00.8	34.4' LT	-	-	327.45	36" FES
33	CBCI	46+87.6	16.0' RT	335.69	331.94 (SUB)	331.69 331.94 (SUB)	4' SUMP W/ HOOD
34	DMH	46+52.6	0.0'	336.12	330.82 (36) 332.40 (35)	329.70	5' DIAMETER
35	CBCI	46+50.0	16.0' LT	335.63	-	332.50	4' SUMP W/ HOOD
36	DMH	44+09.5	2.9' RT	346.20	341.10 (39) 341.10 (38) 341.10 (37)	340.60	6' DIAMETER
37	CB	43+97.3	18.0' LT	346.48	-	341.90	4' SUMP W/ HOOD
38	CBCI	44+21.0	19.4' RT	345.42	341.55 (SUB)	341.30 341.55 (SUB)	4' SUMP W/ HOOD

**WESTFORD
BOSTON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	64	132

PROJECT FILE NO. 609035

UTILITY PLANS - 5 OF 11

LIMIT OF WORK
STA 82+57
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E674152.8645

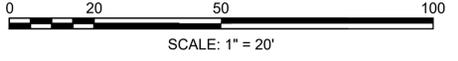
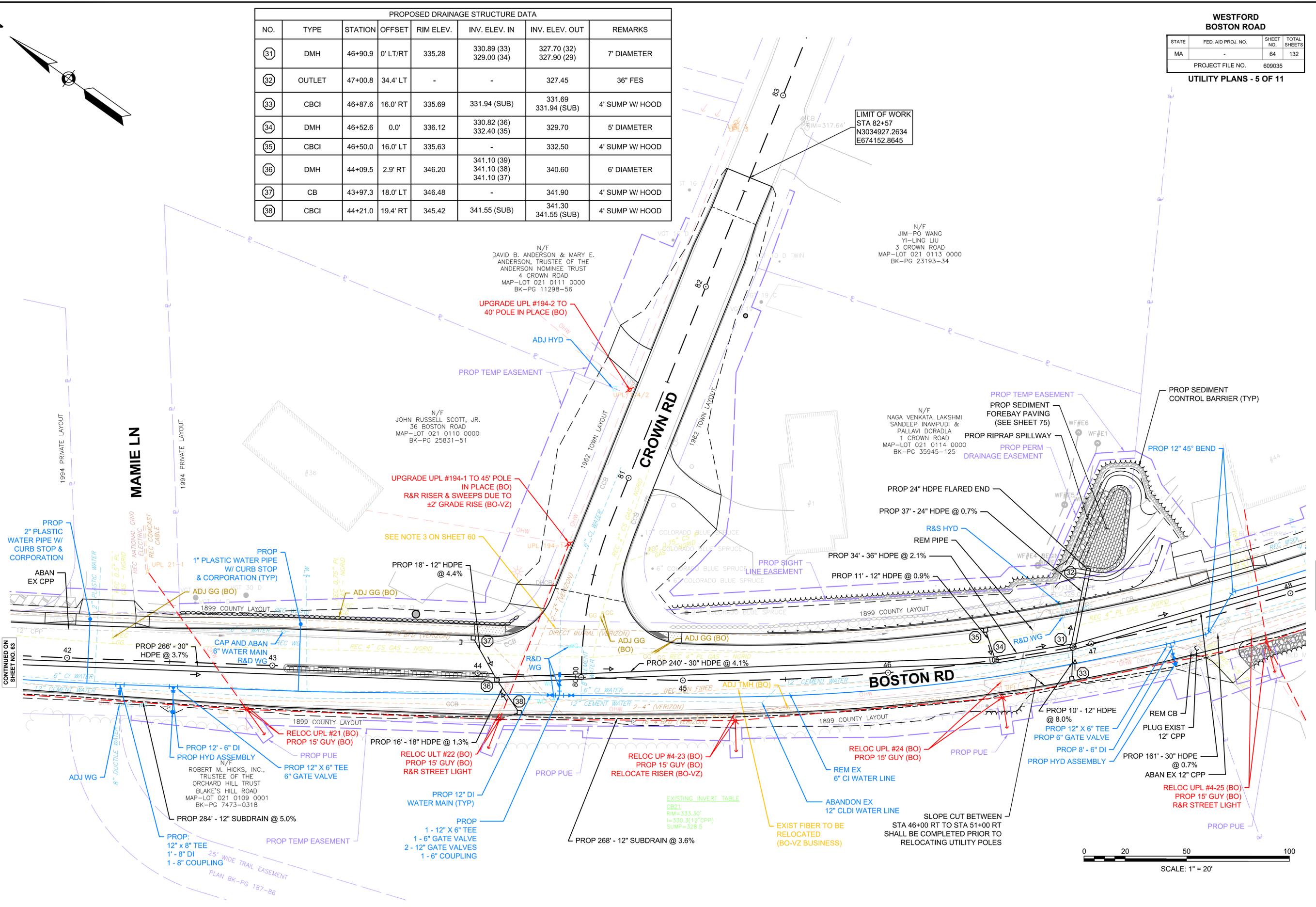
N/F
JIM-PO WANG
YI-LING LIU
3 CROWN ROAD
MAP-LOT 021 0113 0000
BK-PG 23193-34

N/F
DAVID B. ANDERSON & MARY E.
ANDERSON, TRUSTEE OF THE
ANDERSON NOMINEE TRUST
4 CROWN ROAD
MAP-LOT 021 0111 0000
BK-PG 11298-56

N/F
JOHN RUSSELL SCOTT, JR.
36 BOSTON ROAD
MAP-LOT 021 0110 0000
BK-PG 25831-51

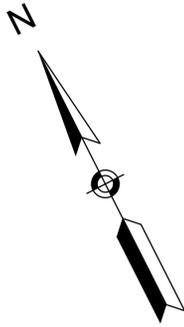
N/F
NAGA VENKATA LAKSHMI
SANDEEP INAMPUDI &
PALLAVI DORADLA
1 CROWN ROAD
MAP-LOT 021 0114 0000
BK-PG 35945-125

N/F
ROBERT M. HICKS, INC.,
TRUSTEE OF THE
ORCHARD HILL TRUST
BLAKE'S HILL ROAD
MAP-LOT 021 0109 0001
BK-PG 7473-0318



CONTINUED ON
SHEET NO. 63

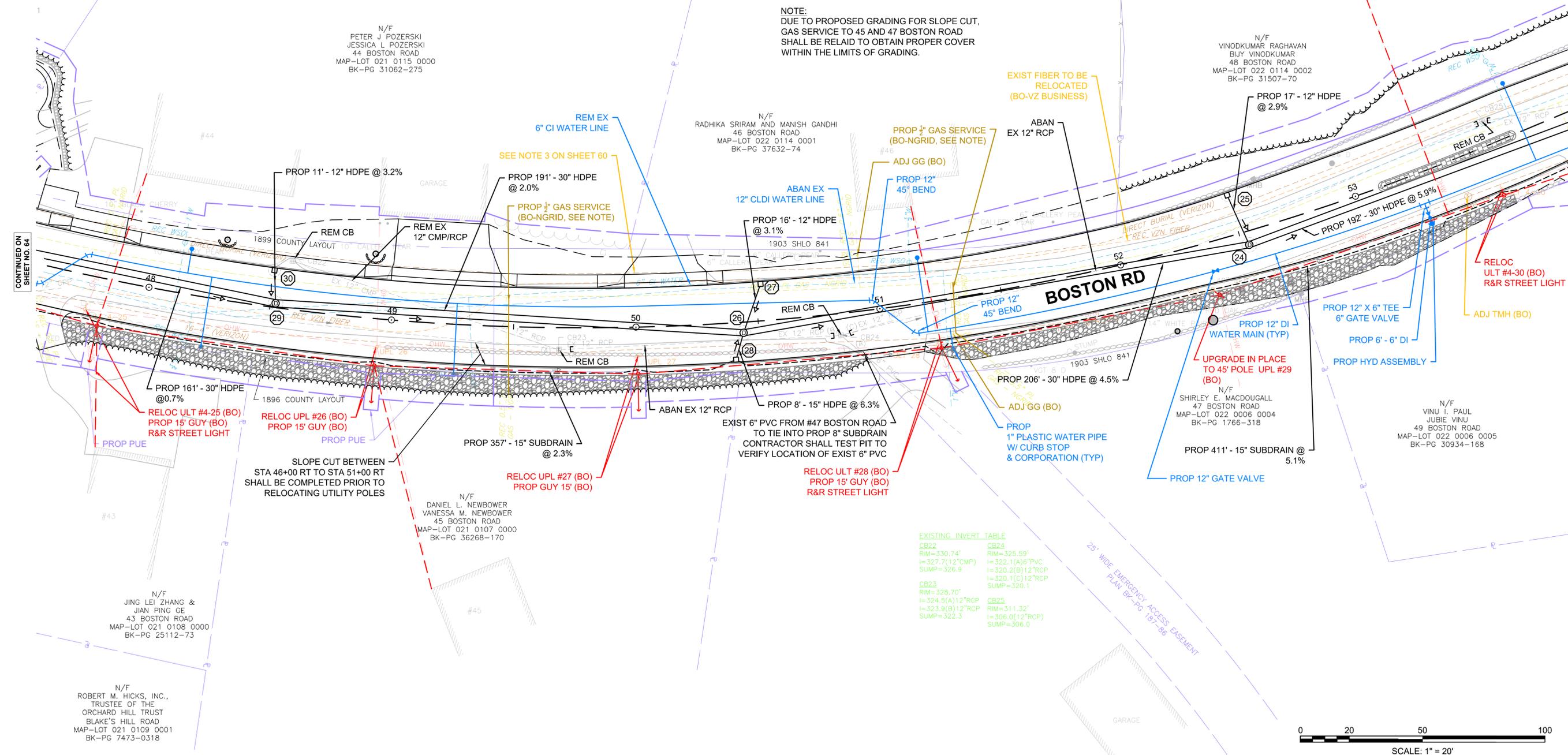
CONTINUED ON
SHEET NO. 65



PROPOSED DRAINAGE STRUCTURE DATA							
NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
24	DMH	52+52.8	5.5' RT	318.70	313.60 (26) 313.50 (25)	313.50	5' DIAMETER
25	CBCI	52+50.0	16.0' LT	318.10	-	314.00	4' SUMP W/ HOOD OFFSET TOP
26	DMH	50+43.7	4.3' RT	328.00	322.90 (29) 323.00 (28) 323.00 (27)	322.80	6' DIAMETER
27	CB	50+40.0	16.0' LT	327.01	-	323.50	4' SUMP W/ HOOD
28	CBCI	50+40.0	16.0' RT	328.31	323.75 (SUB)	323.75 (SUB)	4' SUMP W/ HOOD
29	DMH	48+52.4	0.2' LT	332.13	326.81 (31) 327.40 (30)	326.75	5' DIAMETER
30	CBCI	48+50.0	16.0' LT	331.70	-	327.75	4' SUMP W/ HOOD

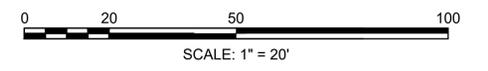
WESTFORD BOSTON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	65	132
PROJECT FILE NO.		609035	
UTILITY PLANS - 6 OF 11			

NOTE:
DUE TO PROPOSED GRADING FOR SLOPE CUT,
GAS SERVICE TO 45 AND 47 BOSTON ROAD
SHALL BE RELAID TO OBTAIN PROPER COVER
WITHIN THE LIMITS OF GRADING.



EXISTING INVERT TABLE

CB22	CB24
RIM=330.74'	RIM=325.59'
I=327.7(12")CMP	I=322.1(A)6"PVC
SUMP=326.9	I=320.2(B)12"RCP
	I=320.1(C)12"RCP
CB23	CB25
RIM=328.70'	RIM=311.32'
I=324.5(A)12"RCP	I=306.0(12")RCP
SUMP=322.3	SUMP=306.0



CONTINUED ON
SHEET NO. 64

CONTINUED ON
SHEET NO. 66

N/F
PETER J. POZERSKI
JESSICA L. POZERSKI
44 BOSTON ROAD
MAP-LOT 021 0115 0000
BK-PG 31062-275

N/F
RADHIKA SRIRAM AND MANISH GANDHI
46 BOSTON ROAD
MAP-LOT 022 0114 0001
BK-PG 37632-74

N/F
VINODKUMAR RAGHAVAN
BIJU VINODKUMAR
48 BOSTON ROAD
MAP-LOT 022 0114 0002
BK-PG 31507-70

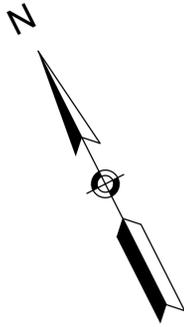
N/F
SHIRLEY E. MACDOUGALL
47 BOSTON ROAD
MAP-LOT 022 0006 0004
BK-PG 1766-318

N/F
VINU I. PAUL
JUBIE VINU
49 BOSTON ROAD
MAP-LOT 022 0006 0005
BK-PG 30934-168

N/F
JING LEI ZHANG &
JIAN PING GE
43 BOSTON ROAD
MAP-LOT 021 0108 0000
BK-PG 25112-73

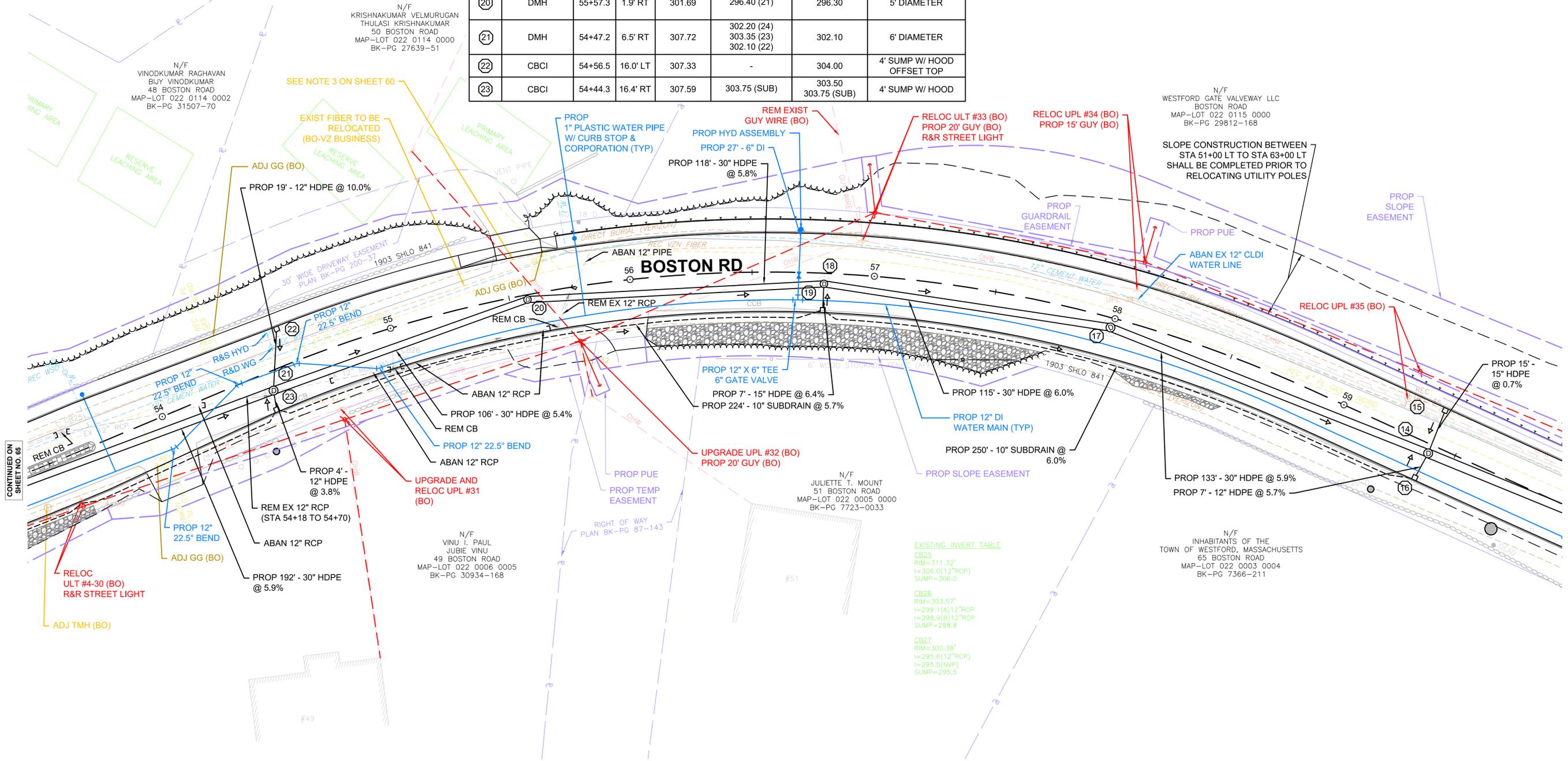
N/F
ROBERT M. HICKS, INC.,
TRUSTEE OF THE
ORCHARD HILL TRUST
BLAKE'S HILL ROAD
MAP-LOT 021 0109 0001
BK-PG 7473-0318

N/F
DANIEL L. NEWBOWER
VANESSA M. NEWBOWER
45 BOSTON ROAD
MAP-LOT 021 0107 0000
BK-PG 36268-170



PROPOSED DRAINAGE STRUCTURE DATA							
NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
14	DMH	59+35.3	3.9' RT	280.22	274.50 (17) 274.60 (16) 275.90 (15)	274.00	5' DIAMETER
15	CBCI	59+35.0	16.0' LT	280.19	-	276.00	4' SUMP W/ HOOD
16	CBCI	59+35.0	16.0' RT	280.17	275.10 (SUB)	275.00	4' SUMP W/ HOOD OFFSET TOP
17	DMH	57+99.1	3.9' RT	287.81	282.40 (18)	282.30	5' DIAMETER
18	DMH	56+79.5	4.3' RT	294.76	289.40 (20) 289.30 (19)	289.30	
19	CBCI	56+80.0	16.0' RT	294.30	290.00 (SUB)	289.75 290.00 (SUB)	4' SUMP W/ HOOD
20	DMH	55+57.3	1.9' RT	301.69	296.40 (21)	296.30	5' DIAMETER
21	DMH	54+47.2	6.5' RT	307.72	302.20 (24) 303.35 (23) 302.10 (22)	302.10	6' DIAMETER
22	CBCI	54+56.5	16.0' LT	307.33	-	304.00	4' SUMP W/ HOOD OFFSET TOP
23	CBCI	54+44.3	16.4' RT	307.59	303.75 (SUB)	303.50 303.75 (SUB)	4' SUMP W/ HOOD

WESTFORD BOSTON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	66	132
PROJECT FILE NO. 609035			
UTILITY PLANS - 7 OF 11			

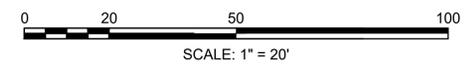


EXISTING INVERT TABLE

CB25
RIM=311.32'
I=306.0(12"RCP)
SUMP=306.0

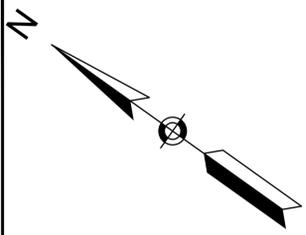
CB26
RIM=303.57'
I=299.1(A)12"RCP
I=298.9(B)12"RCP
SUMP=298.8

CB27
RIM=300.38'
I=295.6(12"RCP)
I=295.5(NVP)
SUMP=295.5



CONTINUED ON
SHEET NO. 65

CONTINUED ON
SHEET NO. 67



WESTFORD BOSTON ROAD			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	67	132
PROJECT FILE NO. 609035			
UTILITY PLANS - 8 OF 11			

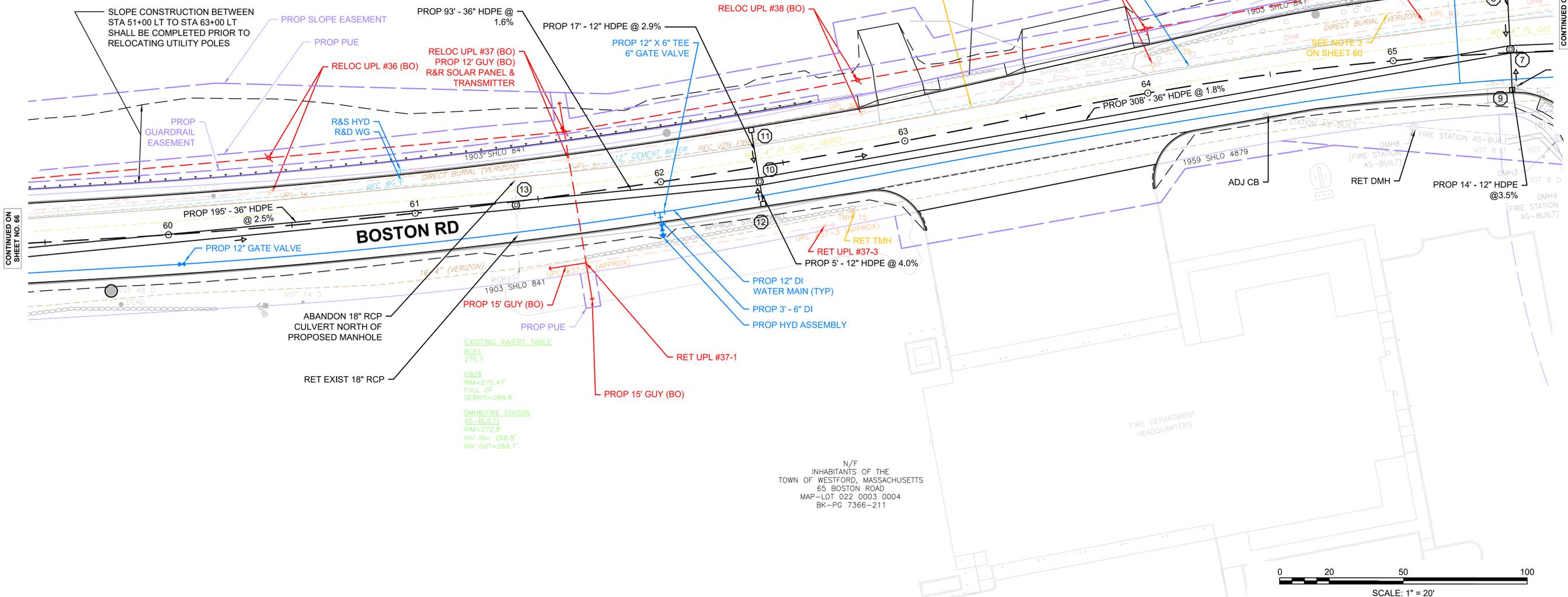
PROPOSED DRAINAGE STRUCTURE DATA							
NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
7	DMH	65+47.6	1.3' LT	271.48	262.10 (10) 265.50 (9) 265.50 (8)	262.00	6' DIAMETER
8	CBCI	65+48.0	26.5' LT	272.08	-	265.91	4' SUMP W/ HOOD
9	CBCI	65+48.0	16.0' RT	270.92	-	265.99	4' SUMP W/ HOOD REM EX CB OFFSET TOP
10	DMH	62+39.4	6.0' RT	273.38	267.60 (13) 268.50 (12) 268.50 (11)	267.50	5' DIAMETER
11	CBCI	62+40.0	16.0' LT	272.87	-	269.00	4' SUMP W/ HOOD
12	CBCI	62+40.0	16.1' RT	273.43	-	268.70	4' SUMP W/ HOOD OFFSET TOP
13	DMH	61+40.8	1.4' RT	274.10	269.20 (14) 269.63 (EXIST)	269.10	5' DIAMETER CONTRACTOR TO VERIFY EXIST INVERT

N/F
WESTFORD GATEWAY, LLC
66-68 BOSTON ROAD
MAP-LOT 022 0115 0000
BK-PG 29812-168

N/F
WESTFORD GATEWAY, LLC
BOSTON ROAD
MAP-LOT 022 0116 0000
BK-PG 29812-168

N/F
INHABITANTS OF THE
TOWN OF WESTFORD, MASSACHUSETTS
65 BOSTON ROAD
MAP-LOT 022 0003 0004
BK-PG 7366-211

SLOPE CONSTRUCTION BETWEEN
STA 51+00 LT TO STA 63+00 LT
SHALL BE COMPLETED PRIOR TO
RELOCATING UTILITY POLES



CONTINUED ON
SHEET NO. 66

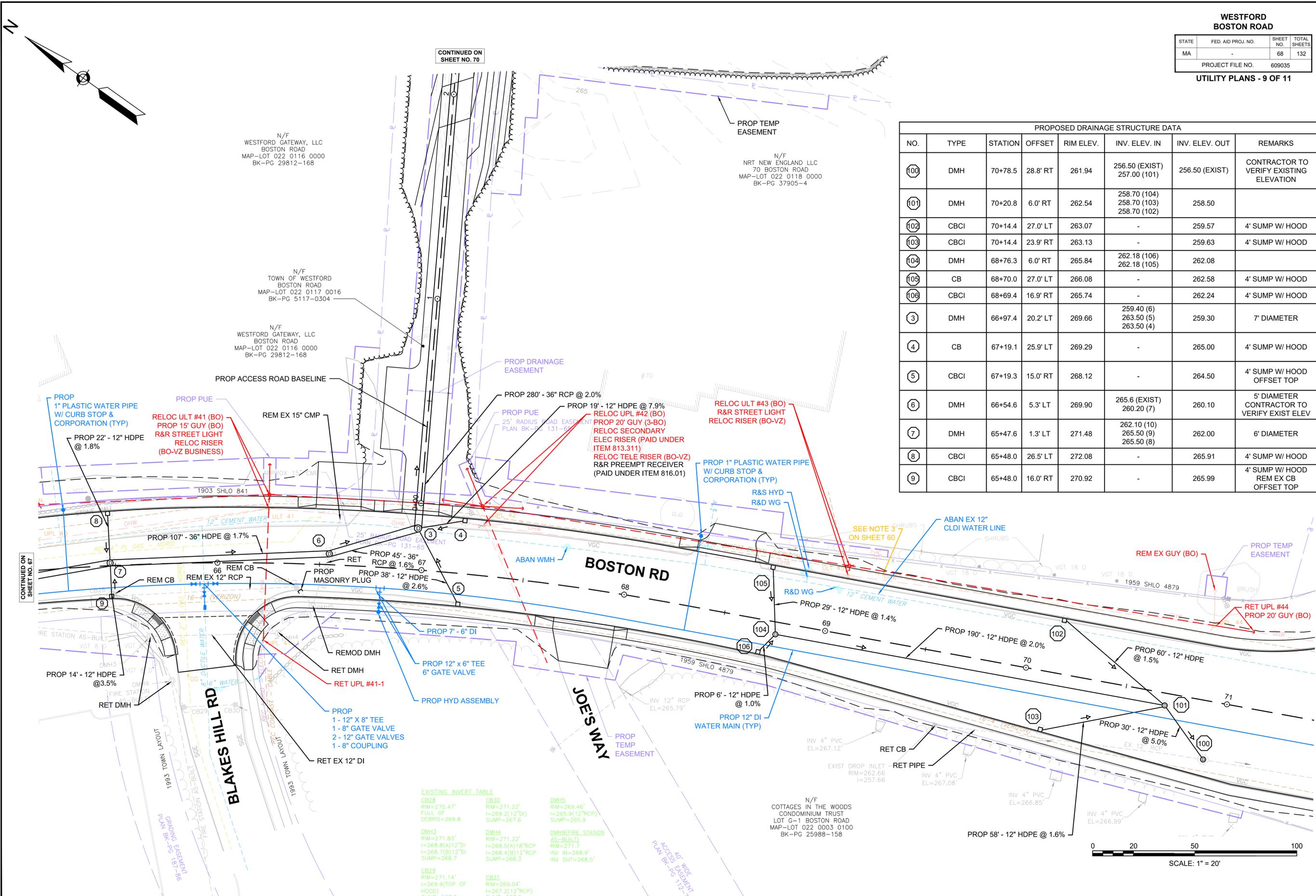
CONTINUED ON
SHEET NO. 68

**WESTFORD
BOSTON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	68	132
PROJECT FILE NO.		609035	

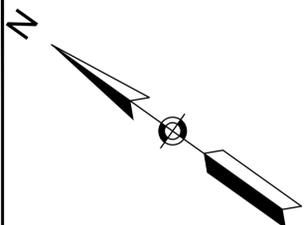
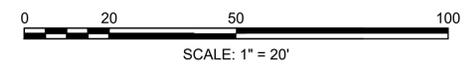
UTILITY PLANS - 9 OF 11

PROPOSED DRAINAGE STRUCTURE DATA							
NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
100	DMH	70+78.5	28.8' RT	261.94	256.50 (EXIST) 257.00 (101)	256.50 (EXIST)	CONTRACTOR TO VERIFY EXISTING ELEVATION
101	DMH	70+20.8	6.0' RT	262.54	258.70 (104) 258.70 (103) 258.70 (102)	258.50	
102	CBCI	70+14.4	27.0' LT	263.07	-	259.57	4' SUMP W/ HOOD
103	CBCI	70+14.4	23.9' RT	263.13	-	259.63	4' SUMP W/ HOOD
104	DMH	68+76.3	6.0' RT	265.84	262.18 (106) 262.18 (105)	262.08	
105	CB	68+70.0	27.0' LT	266.08	-	262.58	4' SUMP W/ HOOD
106	CBCI	68+69.4	16.9' RT	265.74	-	262.24	4' SUMP W/ HOOD
3	DMH	66+97.4	20.2' LT	269.66	259.40 (6) 263.50 (5) 263.50 (4)	259.30	7' DIAMETER
4	CB	67+19.1	25.9' LT	269.29	-	265.00	4' SUMP W/ HOOD
5	CBCI	67+19.3	15.0' RT	268.12	-	264.50	4' SUMP W/ HOOD OFFSET TOP
6	DMH	66+54.6	5.3' LT	269.90	265.6 (EXIST) 260.20 (7)	260.10	5' DIAMETER CONTRACTOR TO VERIFY EXIST ELEV
7	DMH	65+47.6	1.3' LT	271.48	262.10 (10) 265.50 (9) 265.50 (8)	262.00	6' DIAMETER
8	CBCI	65+48.0	26.5' LT	272.08	-	265.91	4' SUMP W/ HOOD
9	CBCI	65+48.0	16.0' RT	270.92	-	265.99	4' SUMP W/ HOOD REM EX CB OFFSET TOP



EXISTING INVERT TABLE

CB28 RIM=270.47' FULL OF DEBRIS=269.8	CB30 RIM=271.22' I=269.2(12"DI) SUMP=267.6	DMH5 RIM=269.46' I=265.9(12"RCP) SUMP=265.9
DMH3 RIM=271.83' I=268.8(A)12"DI I=268.7(B)12"DI SUMP=268.7	DMH4 RIM=271.22' I=268.5(A)18"RCP I=268.4(B)12"RCP SUMP=268.3	DMH9(FIRE STATION AS-BUILT) RIM=271.7 INV IN=268.9' INV OUT=268.5'
CB29 RIM=271.14' I=269.9(TOP OF HOOD) SUMP=267.0	CB31 RIM=269.04' I=267.2(12"RCP) SUMP=267.2	



CONTINUED ON
SHEET NO. 70

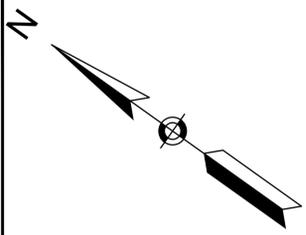
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SHEET NO. 67

CONTINUED ON
SHEET NO. 69

**WESTFORD
BOSTON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	69	132
PROJECT FILE NO.		609035	

UTILITY PLANS - 10 OF 11



N/F
INHABITANTS OF THE
TOWN OF WESTFORD
CONSERVATION COMMISSION
BOSTON ROAD
MAP-LOT 022 0119 0000
BK-PG 5609-0051

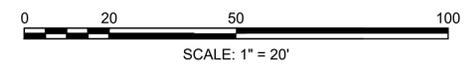
**I-495 SB
OFF-RAMP**

BOSTON RD

PROPOSED DRAINAGE STRUCTURE DATA							
NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
107	CB	72+54.8	27.0' LT	258.98	-	255.48	4' SUMP W/ HOOD CONTRACTOR SHALL VERIFY EXIST INVERT PRIOR TO REMOVAL OF EXISTING CB

EXISTING INVERT TABLE

DMH6 RIM=258.48' I=255.1'(A) 12"RCP I=254.2'(B) 6"PVC I=254.1'(C) 6"PVC I=253.9'(D) 12"RCP I=253.6'(E) 12"RCP	CB34 RIM=254.19' I=250.9'(12"RCP)	DMH7 RIM=258.93' I=255.1'(A) 12"RCP I=252.2'(B) 12"RCP I=252.1'(C) 12"RCP	CB35 RIM=257.65' I=253.2'(12"RCP)	CB32 RIM=257.18' I=255.0'(A) 6"PVC I=255.0'(B) 6"PVC	CB36 RIM=255.47' I=251.9'(12"RCP)
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CONTINUED ON
SHEET NO. 68

PROJECT END
STA 75+50
N3032799.8877
E676003.8034

N/F
COTTAGES IN THE WOODS
CONDOMINIUM TRUST
LOT G-1 BOSTON ROAD
MAP-LOT 022 0003 0100
BK-PG 25988-158

N/F
TOWN OF WESTFORD
CONSERVATION
LOT G BOSTON ROAD
MAP-LOT 022 0003 0003
BK-PG 7366-211

50' WIDE ELECTRIC EASEMENT
PLAN BK-PG 103-28A

PROP 12" - 45° BEND
ABAN EX 12" CLDI
WATER MAIN
PROP 12" DI
WATER MAIN
PROP 12" CAP

PROP 12" x 6" TEE
6" GATE VALVE
PROP 21" - 6" DI
PROP HYD ASSEMBLY
PROP SIDEWALK FLUME
(SEE ITEM 280.15)

ADJ CB W/
PROP BEEHIVE F&G
(ITEM 222.31)

16-4" (VERIZON)

RET UPL #44
PROP 20' GUY (BO)

PROP TS LOOP DETECTOR
(TYP, SEE SHEET 48)

PROP TS
CONDUIT (TYP)

PROP TS
MAST ARM

RET DMH

PROP TS
POST (TYP)

RET EXIST TS LOOP
DETECTOR
(SEE SHEET 48)

RET UPL #45

SEE NOTE 3
ON SHEET 60

ADJ DMH

ADJ EXIST PB

RET UPL #45-1

UPL 6

RET UPL #6

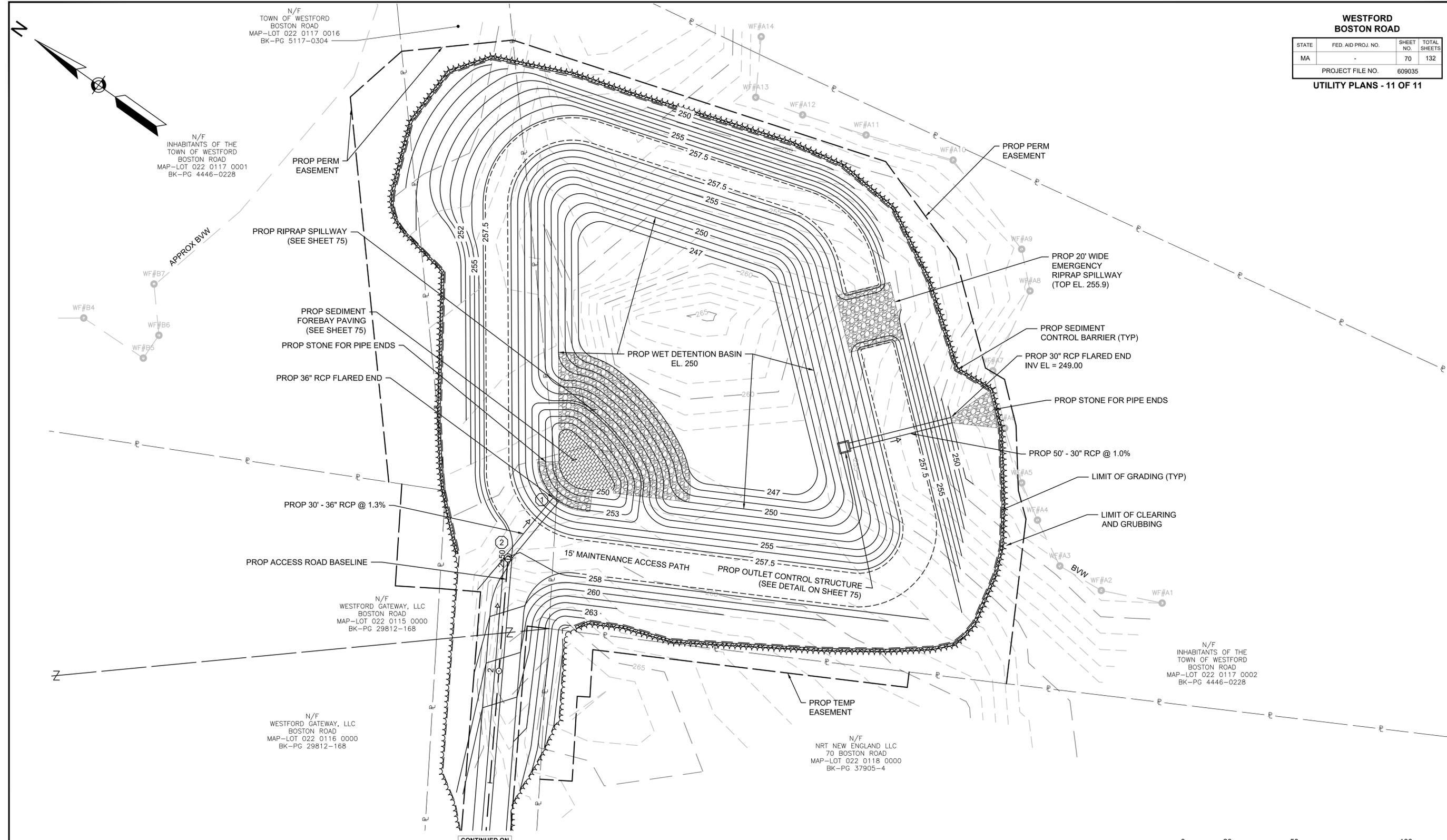
RET EXIST TS EQUIPMENT
(TYP)

RET EXIST TS LOOP
DETECTOR
(SEE SHEET 48)

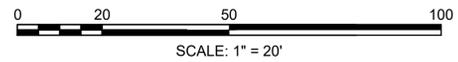
**WESTFORD
BOSTON ROAD**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	70	132
PROJECT FILE NO.		609035	

UTILITY PLANS - 11 OF 11



CONTINUED ON SHEET NO. 68



PROPOSED DRAINAGE STRUCTURE DATA							
NO.	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
①	OUTLET	67+12.8	301.9' LT	-	-	253.20	36" FES
②	DMH	66+98.3	283.2' LT	258.00	253.70 (3)	253.60	6' DIAMETER