

**BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR**

IN THE TOWN OF
BILLERICA
MIDDLESEX COUNTY
FEDERAL AID PROJECT NO. - STP-0034(025)X

DESIGN DESIGNATION
BOSTON ROAD (ROUTE 3A)

	<u>LEXINGTON ROAD</u>	<u>GLAD VALLEY DRIVE</u>
DESIGN SPEED	35 MPH	35 MPH
ADT (2019)	5,400	3,400
ADT (2039)	6,590	4,150
K	8.6%	10.0%
D	69% (NB)	64% (WB)
T (PEAK HOUR)	0.1%	0.0%
T (AVERAGE DAY)	0.4%	0.5%
DHV	567	415
DDHV	392	266
FUNCTIONAL CLASSIFICATION	URBAN COLLECTOR	LOCAL ROAD

PROJECT BEGIN
STA. 102+34.00
N 3026562.6957
E 719742.9386

PROJECT LOCATION

LIMIT OF WORK
STA. 22+53.00
N 3024662.4511
E 720868.6602

PROJECT END
STA. 139+82.00
N 3024145.4363
E 722172.1695

0 1000 2000 3000 4000

SCALE: 1" = 1000'

			
DATE		DESCRIPTION	REV #
 massDOT Massachusetts Department of Transportation Highway Division			
APPROVED			
Carrie Lavallee, P.E.		Carrie Lavallee, P.E. 2025.04.03 09:39:50 -04'00"	04/03/2025
CHIEF ENGINEER		DATE	

EXISTING	PROPOSED	DESCRIPTION
		JERSEY BARRIER
		CATCH BASIN
		CATCH BASIN CURB INLET
		GUTTER 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 OR CB WITH FRAME AND COVER
		DRAINAGE MANHOLE (5' DIAMETER)
		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 WITH DOUBLE LIGHT
		UTILITY POLE W / 1 LIGHT
		UTILITY POLE
		BUSH
		TREE
		STUMP
		SWAMP / MARSH
		WATER GATE
		PARKING METER
		SIGN
		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 (EXISTING 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
		SAWCUT LINE
		TOP OR BOTTOM OF SLOPE
		LIMIT OF EDGE OF PAVEMENT OR COLD PLANE 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
		WATER SERVICE AND CURB STOP
		SOLID SLEEVE COUPLING
		WATER BEND AND TEE
		WATER MAIN CAP
		REDUCER
		TEMPORARY BYPASS PIPE
		TEMPORARY BYPASS HYDRANT
		ABANDON EXISTING WATER MAIN

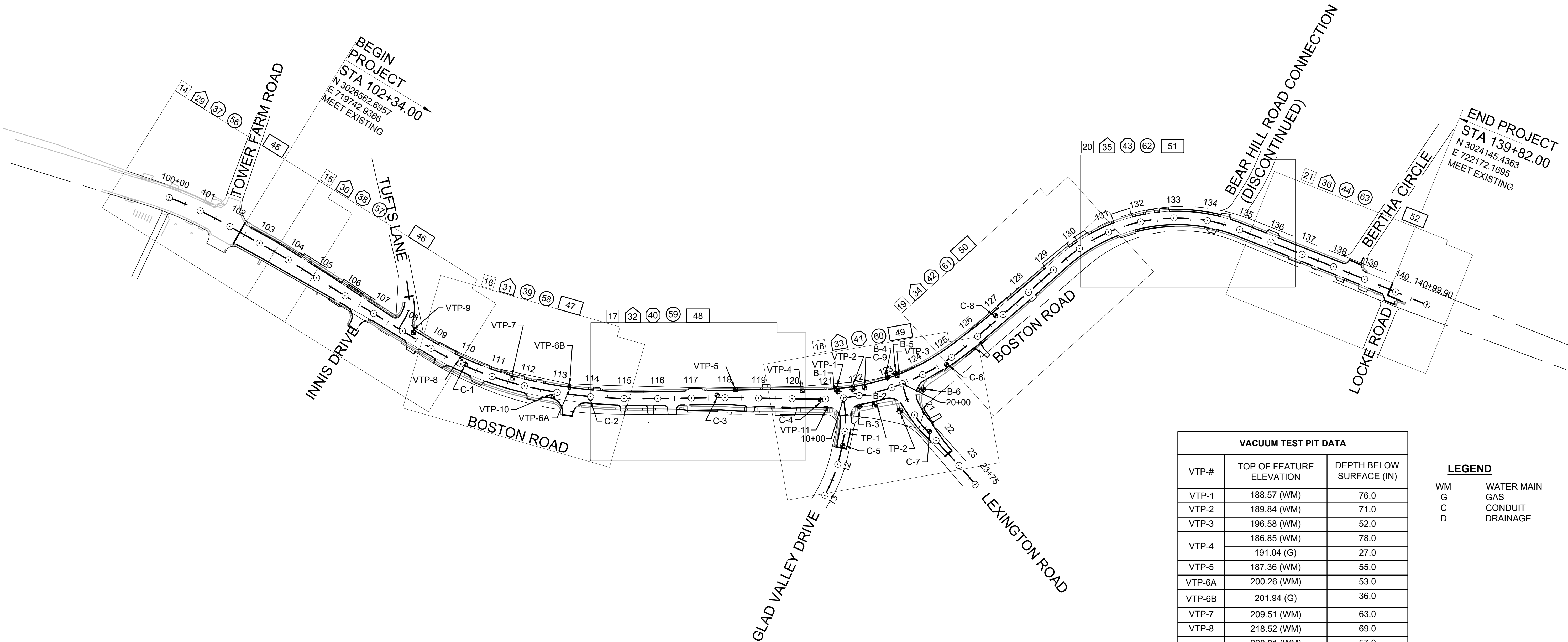
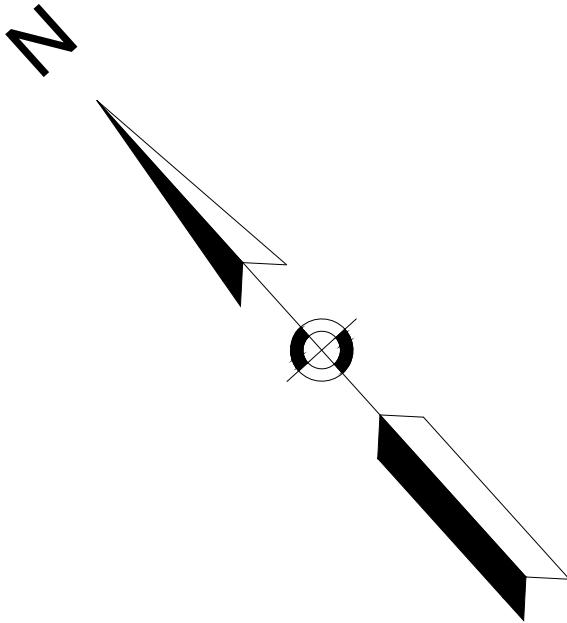
PROPOSED	
CROSSWALK, 2 - 12" WHITE LINES (8' WIDTH)	
STOP LINE - 12" WHITE LINE 4' BEHIND CW (TYP.)	
SOLID WHITE LINE - 6"	
SOLID WHITE CHANNELIZING LINES - 12" (SPACING NOTED)	
SOLID WHITE GORE LINE 12" @ 45°, (SPACING NOTED)	
SOLID WHITE PARKING LINE - 6"	
BROKEN WHITE LINE - 6" (10' LINE & 30' GAP)	
DOTTED WHITE LANE EXTENSION LINE - 6" (2' LINE & 6' GAP)	
DOTTED YELLOW LANE EXTENSION LINE - 6" (2' LINE & 6' GAP)	
BROKEN YELLOW LINE - 6"	
DOUBLE YELLOW LINE - 2 - 6" LINES	
SOLID YELLOW LINE - 6"	
SOLID YELLOW GORE LINE 12" @ 45°, (SPACING NOTED)	
SCHOOL ZONE - WHITE	
ACCESSIBILITY SYMBOL - WHITE	
PAVEMENT ARROW - WHITE	
LEGEND "ONLY" - WHITE	
TRAFFIC SIGNAL SYMBOLS	
EXISTING	PROPOSED
	CONTROL CABINET GROUND MOUNTED WITH FOUNDATION
	CONTROL CABINET POLE MOUNTED
	CONTROLLER PHASE
	MAST ARM, SHAFT & BASE (ARM LENGTH AS NOTED)
	VEHICULAR SIGNAL HEAD (ALPHA-NUMERIC DESIGNATION AS NOTED)
	VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED
	VEHICULAR SIGNAL HEAD (REMOVED & RESET)
	FLASHING BEACON
	PEDESTRIAN SIGNAL HEAD
	PEDESTRIAN SIGNAL HEAD, OPTICALLY PROGRAMMED
	PULL BOX 12"x12" OR HANDHOLE
	LOOP DETECTOR
	PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE
	PRE-EMPTION DETECTOR
	PRE-EMPTION CONFIRMATION STROBE
	SIGNAL CONDUIT (SINGLE RUN)
	SIGNAL CONDUIT (DOUBLE RUN)
	SIGNAL POST & BASE
	MAGNETIC DETECTOR
	SCHOOL ZONE SPEED LIMIT SIGN
	MICROWAVE OR ULTRASONIC DETECTOR
	VIDEO DETECTION CAMERA
	VIDEO DETECTION ZONE
TRAFFIC SIGNAL SYSTEMS	
R	STEADY CIRCULAR RED
Y	STEADY CIRCULAR AMBER
G	STEADY CIRCULAR GREEN
FR	FLASHING CIRCULAR RED
FY	FLASHING CIRCULAR AMBER
←FY	FLASHING YELLOW LEFT ARROW
R→	STEADY RED RIGHT ARROW
Y→	STEADY AMBER RIGHT ARROW
G→	STEADY GREEN RIGHT ARROW
←R	STEADY RED LEFT ARROW
←Y	STEADY AMBER LEFT ARROW
←G	STEADY GREEN LEFT ARROW
W	STEADY WALK (PERSON WALKING) - LUNAR WHITE
DW	STEADY DON'T WALK (HAND) - PORTLAND ORANGE
FDW	FLASHING DON'T WALK (FLASHING HAND) - PORTLAND ORANGE

GENERAL	
AADT	ANNUAL AVERAGE DAILY TRAFFIC
ABAN	ABANDON
ADJ	ADJUST
APPROX.	APPROXIMATE
A.C.	ASPHALT CONCRETE
ACCM PIPE	ASPHALT COATED CORRUGATED METAL PIPE
BB	BITUMINOUS BERM
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
CB CI	CATCH BASIN WITH CURB INLET
CC	CEMENT CONCRETE
CCM	CEMENT CONCRETE MASONRY
CEM	CEMENT
CI	CURB INLET
CIP	CAST IRON PIPE
CLF	CHAIN LINK FENCE
CLO	CLEANOUT
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
DU	DESTINATION UNKNOWN
DW	STEADY DON'T WALK - PORTLAND ORANGE
DWY	DRIVEWAY
ELEV (or EL.)	ELEVATION
EMB	EMBANKMENT
EOP	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
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
LA	LANDSCAPING
LB	LEACH BASIN
LP	LIGHT POLE
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
PCR	PEDESTRIAN CURB RAMP
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
PSB	PLANTABLE SOIL BORROW

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	2	103
PROJECT FILE NO.		609250	

<u>GENERAL</u>	
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PVMT	PAVEMENT
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
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
SUP	SHARED USE PATH
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
WG	WATER GATE
WIP	WROUGHT IRON PIPE
WM	WATER METER/WATER MAIN
WRW	WOOD RETAINING WALL
X-SECT	CROSS SECTION

PWW	PAVED WATER WAY
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 AMBER
FYL	FLASHING AMBER LEFT ARROW
FYR	FLASHING AMBER 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, TILE, 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 WALK
Y	STEADY CIRCULAR AMBER
YL	STEADY AMBER LEFT ARROW



VACUUM TEST PIT DATA		
VTP-#	TOP OF FEATURE ELEVATION	DEPTH BELOW SURFACE (IN)
VTP-1	188.57 (WM)	76.0
VTP-2	189.84 (WM)	71.0
VTP-3	196.58 (WM)	52.0
VTP-4	186.85 (WM)	78.0
VTP-5	191.04 (G)	27.0
VTP-6A	187.36 (WM)	55.0
VTP-6B	200.26 (WM)	53.0
VTP-7	201.94 (G)	36.0
VTP-8	209.51 (WM)	63.0
VTP-9	218.52 (WM)	69.0
VTP-10	228.81 (WM)	57.0
VTP-11	230.60 (D)	33.0
	207.33 (C)	10.7
	193.51 (G)	32.0

- LEGEND
- WM

G

C

D

WATER MAIN

GAS

CONDUIT

DRAINAGE

- SHEET NUMBER LEGEND
- XX

XX

XX

XX

XX

XX

CONSTRUCTION PLAN

CURB TIE & GRADING PLAN

DRAINAGE & UTILITY PLAN

SIGN & PAVEMENT MARKING PLAN

WATER PLAN

- C-#

B-#

VTP-#

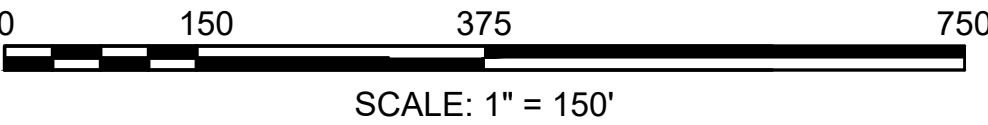
TP-#

PAVEMENT CORES (SEE DATA IN SPECIAL PROVISIONS)

BORING LOG (SEE DATA IN SPECIAL PROVISIONS)

VACUUM TEST PIT

TEST PIT (SEE DATA ON UTILITY PLANS)



BILLERICA

BOSTON RD (ROUTE 3A)

AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	4	103
PROJECT FILE NO.		609250	

TYPICAL SECTIONS & PAVEMENT NOTES

PAVEMENT NOTES (BOSTON ROAD)

- PAVEMENT MILLING AND OVERLAY**
- SURFACE COURSE: 2-1/4" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5) OVER ASPHALT EMULSION FOR TACK COAT OVER
- PAVEMENT MILLING: 2-1/4" PAVEMENT FINE MILLING
- LEVELING COURSE: SUPERPAVE INTERMEDIATE COURSE 19.0 (SIC-19.0) (ITEM 450.32) COMPACTED 1.5 INCH MAX. LAYERS

FULL DEPTH PAVEMENT CONSTRUCTION / BOX WIDENING > 4' WIDE

- SURFACE COURSE: 2-1/4" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5) OVER ASPHALT EMULSION FOR TACK COAT OVER
- INTERMEDIATE COURSE: 2-1/4" SUPERPAVE INTERMEDIATE COURSE 19.0 (SIC-19.0) OVER ASPHALT EMULSION FOR TACK COAT OVER
- BASE COURSE: 4-1/2" SUPERPAVE BASE COURSE 37.5 (SBC-37.5) OVER
- SUB-BASE: 4" DENSE GRADED CRUSHED STONE FOR SUB-BASE OVER 8" GRAVEL BORROW, TYPE b (MIN)

FULL DEPTH PAVEMENT BOX WIDENING ≤4' WIDE

- SURFACE COURSE: 2-1/4" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5) OVER ASPHALT EMULSION FOR TACK COAT OVER
- INTERMEDIATE COURSE: 2-1/4" SUPERPAVE INTERMEDIATE COURSE 19.0 (SIC-19.0) OVER ASPHALT EMULSION FOR TACK COAT OVER
- BASE COURSE: 6" HES CEMENT CONCRETE BASE COURSE OVER
- SUB-BASE: 8" GRAVEL BORROW, TYPE b (MIN)

CEMENT CONCRETE SIDEWALK, PEDESTRIAN CURB RAMPS, AND SHARED USE PATH

- SURFACE: 4" CEMENT CONCRETE WALK SURFACE 4000 PSI, 3/4", 610, AIR-ENTRAINED, OVER
- FOUNDATION: 8" GRAVEL BORROW, TYPE b

CEMENT CONCRETE DRIVEWAY

- SURFACE: 6" CEMENT CONCRETE WALK SURFACE 4000 PSI, 3/4", 610, AIR-ENTRAINED, OVER
- FOUNDATION: 8" GRAVEL BORROW, TYPE b

HMA SIDEWALK

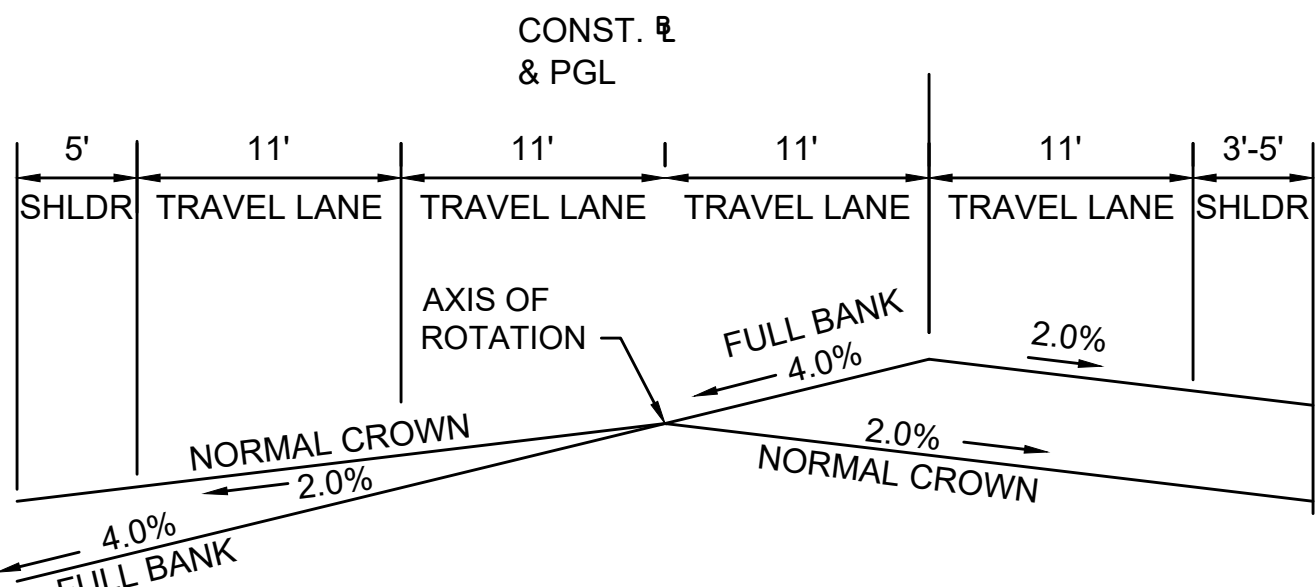
- SURFACE: 1-1/4" SUPERPAVE SURFACE COURSE 9.5 (SSC-9.5) OVER ASPHALT EMULSION FOR TACK COAT OVER 1-3/4" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5) OVER
- FOUNDATION: 8" GRAVEL BORROW, TYPE b

HMA DRIVEWAYS

- SURFACE: 1-1/2" SUPERPAVE SURFACE COURSE 9.5 (SSC-9.5) (SEE NOTE 3) OVER 2-1/2" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5) OVER
- FOUNDATION: 8" GRAVEL BORROW, TYPE b

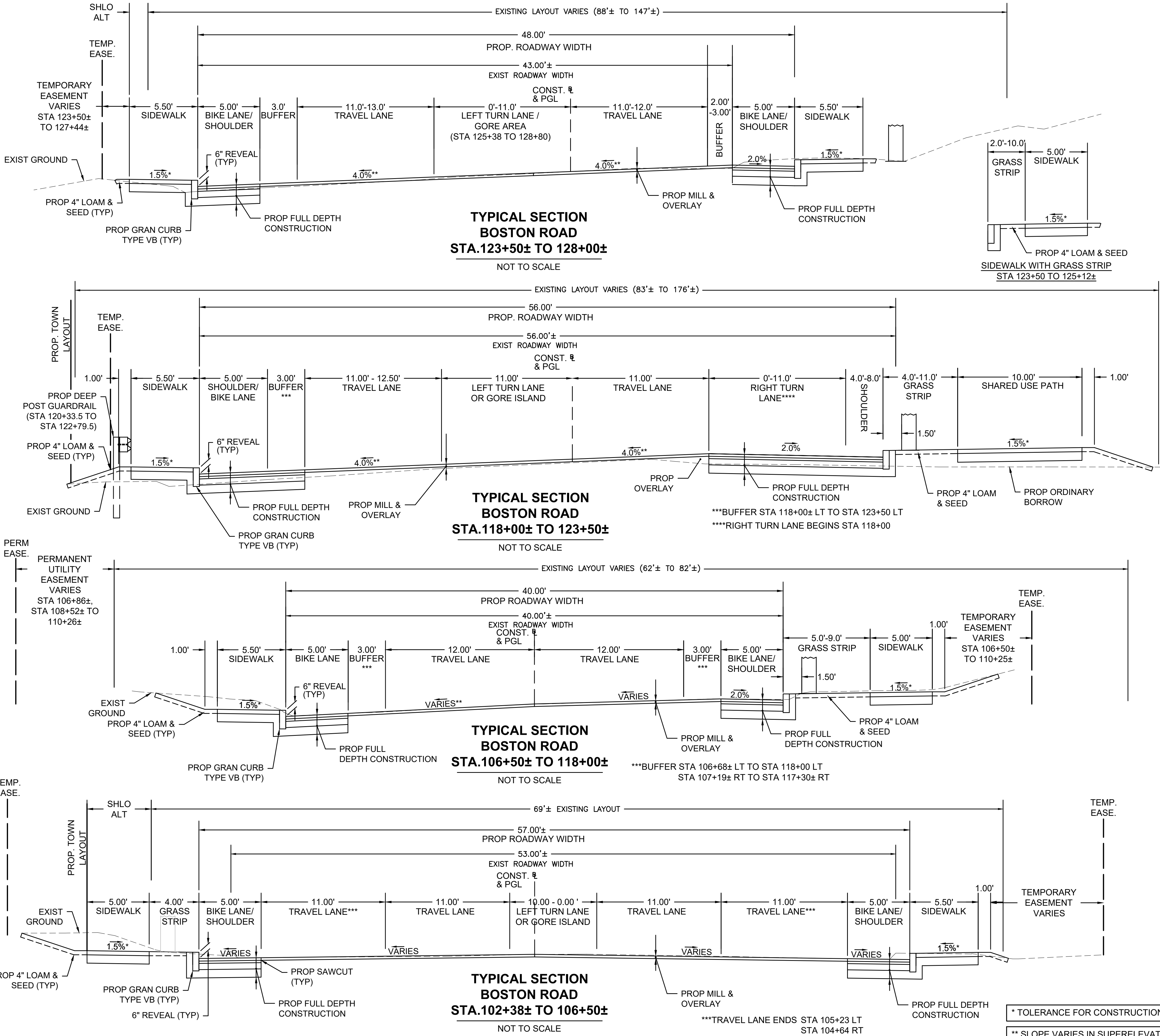
PAVEMENT NOTES

- MILLING SHALL ESTABLISH PROP CROSS SLOPE AND/OR AS SHOWN ON PLANS TO PROVIDE A CONSISTENT HMA OVERLAY THICKNESS. LEVELING COURSE SHALL BE SUPERPAVE INTERMEDIATE COURSE 19.0 (SIC-19.0) (ITEM 450.32)
- ALL HMA FOR PATCHING. ASPHALT EMULSION FOR TACK COAT AND HMA JOINT SEALANT SHALL BE INSTALLED PER SECTION 450.43G2.
- HMA DRIVEWAYS - THE SURFACE COURSE SHALL BE A DRIVEWAY AND SIDEWALK RECIPE MIX OR 9.5mm SUPERPAVE SURFACE COURSE. IN AREAS OF HIGH TRAFFIC THE DRIVEWAY SURFACE COURSE SHALL BE 12.5mm SUPERPAVE SURFACE COURSE. THE MIXTURE TYPE AND PLACEMENT METHOD SHALL BE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER PRIOR TO COMMENCING WORK.



* TOLERANCE FOR CONSTRUCTION ±0.5%

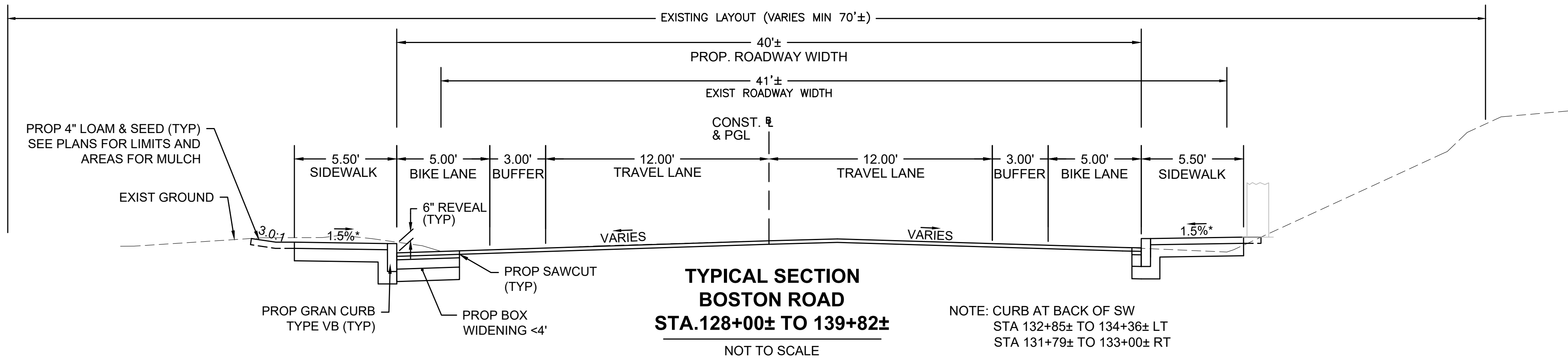
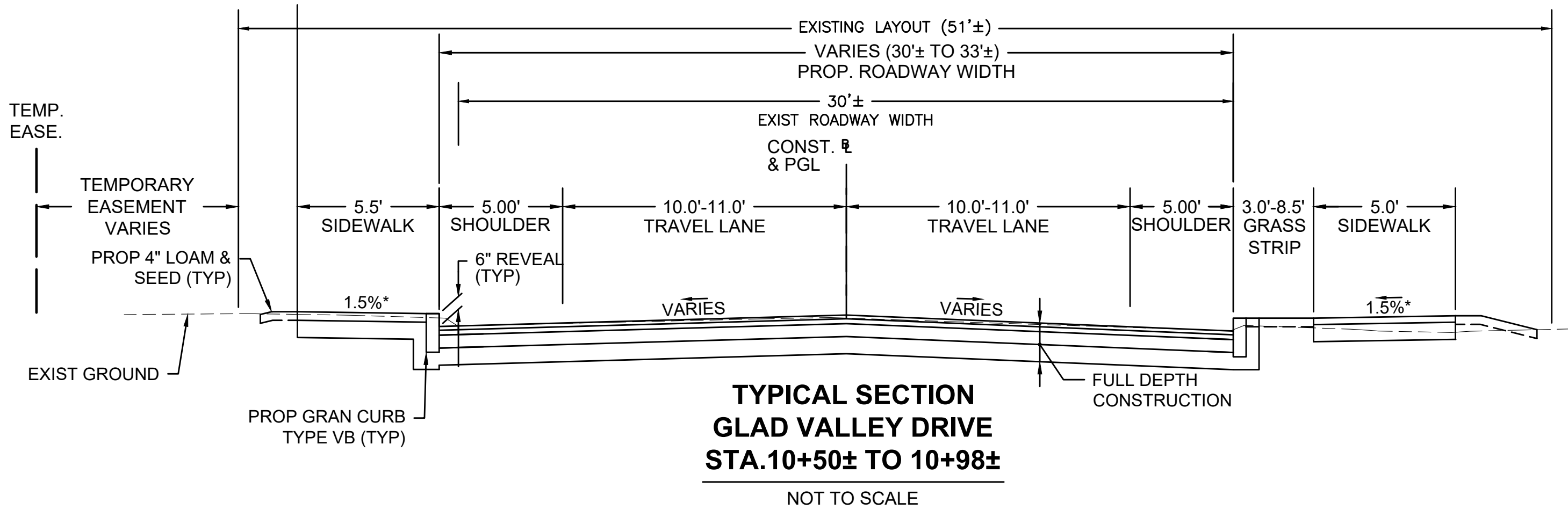
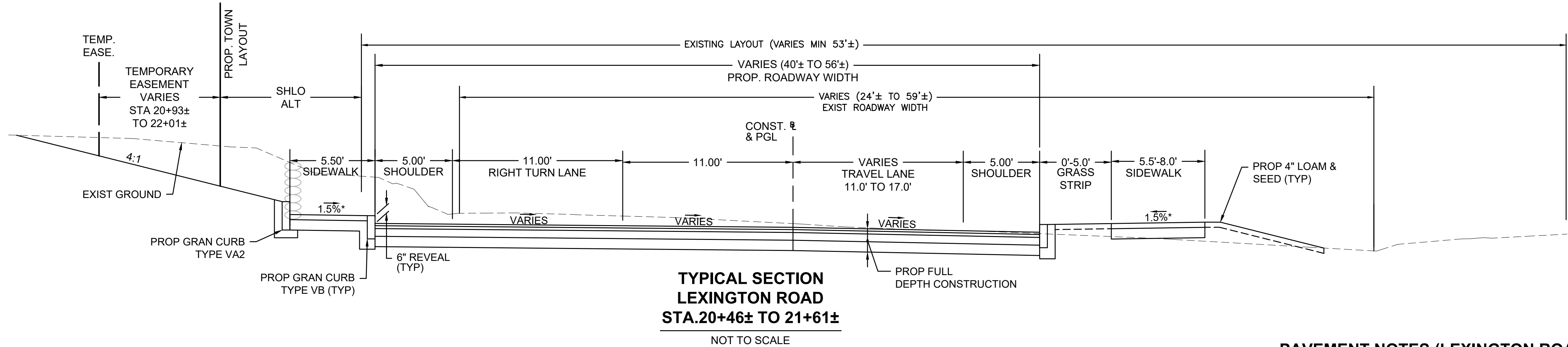
** SLOPE VARIES IN SUPERELEVATION TRANSITION



BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	5	103
PROJECT FILE NO.		609250	

TYPICAL SECTIONS & PAVEMENT NOTES



NOTE: CURB AT BACK OF SW
STA 132+85± TO 134+36± LT
STA 131+79± TO 133+00± RT

* TOLERANCE FOR CONSTRUCTION ±0.5%

** SLOPE VARIES IN SUPERELEVATION TRANSITION

PAVEMENT NOTES (LEXINGTON ROAD AND GLAD VALLEY DRIVE)

PAVEMENT MILLING AND OVERLAY

SURFACE COURSE: 1-3/4" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5) OVER ASPHALT EMULSION FOR TACK COAT OVER

PAVEMENT MILLING: 1-3/4" PAVEMENT FINE MILLING

LEVELING COURSE: SUPERPAVE INTERMEDIATE COURSE 19.0 (SIC-19.0) (ITEM 450.32) COMPACTED 1.5 INCH MAX. LAYERS

FULL DEPTH PAVEMENT CONSTRUCTION / BOX WIDENING > 4' WIDE

SURFACE COURSE: 1-3/4" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5) OVER ASPHALT EMULSION FOR TACK COAT OVER

INTERMEDIATE COURSE: 2-1/4" SUPERPAVE INTERMEDIATE COURSE 19.0 (SIC-19.0) OVER ASPHALT EMULSION FOR TACK COAT OVER

BASE COURSE: 4-1/2" SUPERPAVE BASE COURSE 37.5 (SBC-37.5) OVER

SUB-BASE: 4" DENSE GRADED CRUSHED STONE FOR SUB-BASE OVER 8" GRAVEL BORROW, TYPE b (MIN)

FULL DEPTH PAVEMENT BOX WIDENING ≤ 4' WIDE

SURFACE COURSE: 1-3/4" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5) OVER ASPHALT EMULSION FOR TACK COAT OVER

INTERMEDIATE COURSE: 2-1/4" SUPERPAVE INTERMEDIATE COURSE 19.0 (SIC-19.0) OVER ASPHALT EMULSION FOR TACK COAT OVER

BASE COURSE: 6" HES CEMENT CONCRETE BASE COURSE OVER

SUB-BASE: 8" GRAVEL BORROW, TYPE b (MIN)

CEMENT CONCRETE SIDEWALK, PEDESTRIAN CURB RAMPS, AND SHARED USE PATH

SURFACE: 4" CEMENT CONCRETE WALK SURFACE 4000 PSI, 3/4", 610, AIR-ENTRAINED, OVER

FOUNDATION: 8" GRAVEL BORROW, TYPE b

CEMENT CONCRETE DRIVEWAY

SURFACE: 6" CEMENT CONCRETE WALK SURFACE 4000 PSI, 3/4", 610, AIR-ENTRAINED, OVER

FOUNDATION: 8" GRAVEL BORROW, TYPE b

HMA SIDEWALK

SURFACE: 1-1/4" SUPERPAVE SURFACE COURSE 9.5 (SSC-9.5) OVER ASPHALT EMULSION FOR TACK COAT OVER 1-3/4" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5) OVER

FOUNDATION: 8" GRAVEL BORROW, TYPE b

HMA DRIVEWAYS

SURFACE: 1-1/2" SUPERPAVE SURFACE COURSE 9.5 (SSC-9.5) (SEE NOTE 3) OVER 2-1/2" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5) OVER

FOUNDATION: 8" GRAVEL BORROW, TYPE b

PAVEMENT NOTES

- MILLING SHALL ESTABLISH PROP CROSS SLOPE AND/OR AS SHOWN ON PLANS TO PROVIDE A CONSISTENT HMA OVERLAY THICKNESS. LEVELING COURSE SHALL BE SUPERPAVE INTERMEDIATE COURSE 19.0 (SIC-19.0) (ITEM 450.32)
- ALL HMA FOR PATCHING. ASPHALT EMULSION FOR TACK COAT AND HMA JOINT SEALANT SHALL BE INSTALLED PER SECTION 450.43G2.
- HMA DRIVEWAYS - THE SURFACE COURSE SHALL BE A DRIVEWAY AND SIDEWALK RECIPE MIX OR 9.5mm SUPERPAVE SURFACE COURSE. IN AREAS OF HIGH TRAFFIC THE DRIVEWAY SURFACE COURSE SHALL BE 12.5mm SUPERPAVE SURFACE COURSE. THE MIXTURE TYPE AND PLACEMENT METHOD SHALL BE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER PRIOR TO COMMENCING WORK.

GENERAL NOTES

1.

THE LOCATION OF SUBSURFACE UTILITIES SHOWN IS APPROXIMATE AND NOT GUARANTEED TO BE COMPLETE OR ACCURATE. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND ELEVATIONS OF EXISTING UTILITY LINES AND STRUCTURES PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR MUST NOTIFY DIG SAFE (811) AT LEAST 72 BUSINESS HOURS PRIOR TO ANY EXCAVATION, DEMOLITION OR EXPLOSIVE WORK IN PUBLIC OR PRIVATE WAYS OR UTILITY COMPANY RIGHT-OF-WAY OR EASEMENT.
2.

DRAINAGE ELEVATIONS ARE PROVIDED FOR DESIGN PURPOSES ONLY. THE CONTRACTOR SHALL VERIFY BY TEST PIT, THE LOCATIONS OF EXISTING UTILITIES WHICH MAY CONFLICT WITH THE PROPOSED DRAINAGE DESIGN. ANY FIELD ADJUSTMENTS REQUIRED WILL BE MADE AS APPROVED OR DIRECTED BY THE ENGINEER. ONLY AFTER THE CONTRACTOR VERIFIES ELEVATIONS FOR THE CONSTRUCTABILITY OF THE DRAINAGE SYSTEM SHALL ANY STRUCTURES BE ORDERED. ANY FIELD ADJUSTMENTS TO LINE & GRADE UP TO A DEPTH OF 5' SHALL BE INCLUDED IN THE COST OF THE PIPE. PIPE EXCAVATION GREATER THAN 5' WILL BE PAID UNDER CLASS B TRENCH EXCAVATION.
3.

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 THE RESOLUTION OF THE CONFLICT.
4.

THE CONTRACTOR SHALL MAINTAIN REASONABLE ACCESS TO ABUTTING PROPERTIES AT ALL TIMES AND NOTIFY ALL ABUTTERS IN ADVANCE OF ANY INTERRUPTIONS TO ACCESS.
5.

THE CONTRACTOR SHALL ALTER THE MASONRY OF THE TOP SECTION OF ALL EXISTING DRAINAGE AND SANITARY STRUCTURES AS NECESSARY FOR THE CHANGES IN GRADE, AND RESET ALL WATER AND DRAINAGE FRAMES, GRATES AND BOXES TO THE PROPOSED FINISH SURFACE GRADE. REQUIRED NEW MASONRY SHALL BE CLAY BRICK CONFORMING TO M4.05.2.
6.

THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE, CABLE TV, FIRE ALARM AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES. ALL UTILITY CASTING SHALL BE ADJUSTED TO FINISH GRADE BY THEIR RESPECTIVE OWNERS.
7.

AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
8.

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).
9.

DRAINAGE STRUCTURES SHALL BE RETAINED UNLESS NOTED OTHERWISE.
10.

CATCH BASIN AND MANHOLE FRAMES AND GRATES/COVERS SHALL CLEARLY ALIGN WITH THE OPENINGS IN THE PRECAST STRUCTURES AND THE GRADE OF THE ROADWAY.
11.

ALL EXISTING DRAINAGE PIPES THAT ARE NO LONGER BEING UTILIZED BY THE NEW DRAINAGE DESIGN WITHIN THE PROJECT LIMITS SHALL BE REMOVED UNLESS OTHERWISE NOTED ON THE PLANS.
12.

WHERE DRAINAGE PIPES OR STRUCTURES ARE ABANDONED IN PLACE THE CONTRACTOR SHALL MAKE SURE THAT ALL CONNECTING PIPES, DOWN SPOUT FROM BUILDING, INLETS AND OUTLETS ARE PLUGGED. ALL LIVE CONNECTIONS SHALL BE CONNECTED TO THE NEW SYSTEM.
13.

ALL CURB TIE DIMENSIONS ARE TO THE FACE OF THE CURB (GUTTER LINE) OR EDGE OF TRAVEL WAY.
14.

CONSTRUCTION BASELINE TIES ARE SHOWN ON CURB TIE & GRADING PLANS.
15.

PROPOSED SIDEWALKS AND PEDESTRIAN CURB RAMPS SHALL BE CONSTRUCTED TO THE NEAREST SCORE LINE OR EXPANSION JOINT IN THE EXISTING ADJACENT WALK SURFACE AS DIRECTED BY THE ENGINEER.
16.

IN ALL LOCATIONS WHERE PROPOSED SIDEWALK TRANSITION DOWN TO MEET EXISTING GRADE, EXISTING SIDEWALK OR PAVED AREA, SLOPE SHALL NOT EXCEED 1:12.
17.

THE LOCATION OF THE PROPOSED DRIVEWAY OPENINGS ARE SHOWN ON TIE AND GRADING PLANS. EXACT LOCATIONS MAY BE ADJUSTED IF NECESSARY OR AS REQUIRED BY THE ENGINEERS IN THE FIELD.
18.

CONTRACTOR SHALL VERIFY LOCATION OF ALL OBJECTS (SIGNS, TREES, POLES ETC.) TO BE SET WITHIN SIDEWALK PRIOR TO FINAL PLACEMENT TO PROVIDE A MINIMUM CLEAR PATH OF 36" EXCLUDING THE CURB. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY LOCATION WHICH CANNOT MEET THE CLEARANCE REQUIREMENTS.
19.

SIGNS, POLES AND OTHER FEATURES LOCATED IN PROPOSED CEMENT CONCRETE SIDEWALK SHALL BE BOXED AND PROVIDED FLEXIBLE JOINT FILLER.
20.

CONTRACTOR SHALL VERIFY EXISTING GRADES. IF ANY ADJUSTMENT IS REQUIRED DUE TO DIFFERENT EXISTING GRADES FOUND IN THE FIELD, THE CONTRACTOR SHALL NOTIFY AND SEEK THE APPROVAL OF THE ENGINEER PRIOR TO PERFORMING THE WORK.
21.

IN AREAS OF NEW SIDEWALK, NEW EDGE OF PAVEMENT OR CURB WITHOUT SIDEWALK OR ANY WORK ADJACENT TO EXISTING GRASS AREAS, EVEN WHEN NO SLOPE-MATCHING OR GRADING IS NECESSARY AND THE EXISTING GRADE IS MET, LOAM BORROW AND SEED SHALL BE PROVIDED AS NECESSARY TO REPAIR AND COMPLETE ANY DAMAGE TO THE GRADE CAUSED BY THE CONSTRUCTION PROCESS.
22.

WHEN WORKING NEXT TO EXISTING TREES, WALLS OR FENCES, THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION NOT TO DISTURB THE EXISTING WALL, TREES OR FENCE. IF THE CONTRACTOR DAMAGES EXISTING TREES, WALLS OR FENCES AS A RESULT OF THE CONSTRUCTION PROCESS, IT SHALL BE HIS/HER RESPONSIBILITY (THE CONTRACTOR) TO REPAIR ALL DAMAGES AS DIRECTED BY THE ENGINEER. ALL WORK ASSOCIATED WITH THE REPAIR OR REPLACEMENT OF EXISTING TREES, WALLS OR FENCES SHALL BE PERFORMED BY THE CONTRACTOR AT HIS/HER EXPENSE AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED THEREFORE.
23.

IN FILL AREAS, TOP SOIL/EXISTING PAVEMENT SHALL BE REMOVED FOR A DEPTH OF 12" (MIN.) OR AS DIRECTED BY THE ENGINEER. SUBGRADE AREAS WILL BE COMPACTED PRIOR TO THE PLACEMENT OF FILL MATERIAL.
24.

ALL NEW GRANITE CURB SHALL BE MASSDOT TYPE VB, UNLESS OTHERWISE NOTED ON THE PLANS OR SPECIFICATIONS.
25.

EXISTING GRANITE CURB IN GOOD CONDITION SHALL BE REMOVED AND RESET BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER. ALL OTHER EXISTING GRANITE CURB SHALL BE REMOVED AND DISCARDED BY THE CONTRACTOR UNLESS OTHERWISE NOTED ON THE PLAN OR DIRECTED BY THE ENGINEER.
26.

ALL PROPOSED PAVEMENT MARKINGS ON ROADWAYS SHALL BE REFLECTORIZED WHITE AND YELLOW THERMOPLASTIC.
27.

SAFETY CONTROLS FOR CONSTRUCTION OPERATIONS SHALL BE IN ACCORDANCE WITH MASSDOT REQUIREMENTS AND THE LATEST VERSION OF THE MUTCD.

28.

TREES TO BE RETAINED WHICH RESTRICT SIGHT DISTANCE OR RESTRICT HORIZONTAL OR VERTICAL CLEARANCES SHALL BE TRIMMED AS REQUIRED BY THE ENGINEER.
29.

NO TREE SHALL BE REMOVED PRIOR TO APPROVAL OF THE TOWN OF BILLERICA.
30.

WHEN WORKING NEXT TO EXISTING WALLS, BERMS, AND OTHER STRUCTURES, CONTRACTOR SHALL EXERCISE EXTREME CAUTION NOT TO DISTURB THE EXISTING STRUCTURES. ANY DAMAGE TO THE EXISTING STRUCTURES SHALL BE REPAIRED BY THE CONTRACTOR AT HIS OWN EXPENSE.
31.

ALL PAVEMENT MARKINGS AND/OR SIGN NOTES ARE SHOWN ON THE SIGNS AND PAVEMENT MARKING PLANS.
32.

TOWN HAS PERFORMED SUB-SURFACE INVESTIGATION FOR THE WATER MAIN AND OTHER UTILITIES BY VACUUM EXCAVATION. THE TEST PIT DATA HAS SHOWN ON KEY PLAN AND UTILITY PLANS. THE 16" WATER MAIN IS SHOWN AS A SINGLE LINE WHERE APPROXIMATE AND A DOUBLE LINE WHERE LOCATED THRU SUB-SURFACE INVESTIGATIONS.
33.

FRAMES FOUR-INCHES IN HEIGHT SHALL BE SUBSTITUTED FOR STANDARD FRAMES IN AREAS OF LOW COVER AS DETAILED ON THE PLANS OR AS DIRECTED BY THE ENGINEER. FOUR-INCH FRAMES SHALL BE COMPATIBLE WITH MASSDOT STANDARD GRATES. NO ADDITIONAL PAYMENT SHALL BE MADE FOR FOUR-INCH FRAMES.
34.

THE 12" AND 8" WATER LINE FROM TUFTS LANE TO LOCKE ROAD WAS MARKED BY THE TOWN OF BILLERICA AND LOCATED USING A LEICA GPS DEVICE IN AUGUST 2023.
35.

ALL PROPOSED WATER WORK INCLUDING GATE AND VALVE LOCATIONS SHALL BE VERIFIED IN THE FIELD FOR ANY UTILITY CONFLICTS AND ADJUSTED AS NECESSARY.

PEDESTRIAN CURB RAMP NOTES

1.

ALL PEDESTRIAN CURB RAMPS SHALL CONFORM TO THE REQUIREMENTS OF THE ARCHITECTURAL ACCESS BOARD (A.A.B.) AND THE AMERICANS WITH DISABILITIES ACT (A.D.A.). AND THE LATEST MASSDOT STANDARDS.
2.

THE LOCATION OF PROPOSED PEDESTRIAN CURB RAMPS ARE SHOWN ON CONSTRUCTION PLANS AND THE PEDESTRIAN CURB RAMP DETAILS. EXACT LOCATIONS MAY BE ADJUSTED, IF NECESSARY, BY THE ENGINEER IN THE FIELD.
3.

ALL PROPOSED PEDESTRIAN CURB RAMPS SHALL HAVE DETECTABLE WARNING PANELS INSTALLED IN ACCORDANCE WITH MASSDOT CONSTRUCTION STANDARD DRAWINGS. THE COLOR OF THE PANEL SHALL BE BRICK RED AND APPROVED BY THE ENGINEER.
4.

IN INSTANCES WHERE AN EXISTING MANHOLE, HANDHOLE OR OTHER "SURFACE" TYPE STRUCTURE THAT CANNOT BE REMOVED OR RESET, IS WITHIN THE ACTUAL PEDESTRIAN CURB RAMP PATH, THE STRUCTURE SHALL BE CAREFULLY ADJUSTED SUCH THAT THE TOPMOST SURFACES OF THE STRUCTURE COVER SHALL BE FLUSH WITH THE RAMP SURFACE AND SHALL MATCH THE SLOPE OF THE NEW PEDESTRIAN CURB RAMP AS DIRECTED BY THE ENGINEER.
5.

THE TRANSITION SLOPE OF ANY CURB RAMP, EXCEPT MAXIMUM LENGTH HIGH SIDE TRANSITIONS, SHALL NOT EXCEED 7.5%, +/-0.5% FOR TOLERANCE OF CONSTRUCTION. PER AAB 521 CMR, FINISHED SLOPE MAY NOT EXCEED 8.00%. PROPOSED PEDESTRIAN CURB RAMP SLOPES, ESPECIALLY HIGH SIDE TRANSITIONS, SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO POURING OF CONCRETE AND ADJUSTED, IF NECESSARY, AT THE DIRECTION OF THE ENGINEER.

SURVEY NOTES

1.

MASSDOT SURVEY SECTION PROVIDED CONTROL ONTO POINTS 4 (MASSDOT #32322) & 201 (MASSDOT #32321). THESE WERE OBSERVED DURING THE COURSE OF THE ON-THE-GROUND INSTRUMENT SURVEY.
2.

HORIZONTAL DATUM: MASSACHUSETTS STATE PLANE - MAINLAND ZONE NAD83 (2011) EPOCH 2010.00 - US FEET
3.

VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (GEOID 12B) - US FEET
4.

ALL ON-THE-GROUND OBSERVATIONS WERE PERFORMED USING LEICA TS12 (3") ROBOTIC TOTAL STATIONS.
5.

THIS SURVEY AND PLAN ARE BASED UPON AN ACTUAL ON THE GROUND INSTRUMENT SURVEY PERFORMED BETWEEN JULY 2016 AND JUNE 2019.

BOUND DATA					
BOUND NO.	LOCATION	NORTHING	EASTING	STATION	OFFSET
1	BOSTON ROAD	3026566.0337	719778.2419	102+42.10	34.52' LT
2	BOSTON ROAD	3026550.1727	719785.8410	102+59.61	36.67' LT
3	BOSTON ROAD	3026077.7976	719919.4721	107+49.34	29.42' LT
4	BOSTON ROAD	3024968.3430	720869.6845	122+74.52	40.50' LT
5	LEXINGTON ROAD	3024814.7160	720908.9039	20+92.57	36.47' LT
6	LEXINGTON ROAD	3024753.2171	720893.6785	21+62.63	26.36' LT
7	LEXINGTON ROAD	3024752.2903	720901.6008	21+63.68	34.27' LT

WATER NOTES

1.

DUCTILE IRON PIPE SHALL BE DOUBLE CEMENT LINED PUSH-ON TYPE JOINT CLASS 52, WITH MECHANICAL JOINT, DUCTILE IRON FITTING.
2.

MINIMUM WATER PIPE COVER SHALL BE 5'-0" EXCEPT AS OTHERWISE INDICATED ON THE CONTRACT DRAWINGS OR AS OTHERWISE DIRECTED BY ENGINEER.
3.

EXCEPT WHERE OTHERWISE INDICATED, 12" MINIMUM CLEARANCE SHALL BE PROVIDED BETWEEN THE EXTERIOR OF WATER MAINS AND OTHER UTILITIES.
4.

WHEN WATER MAINS ARE INSTALLED PARALLEL TO SEWER MAINS, THE WATER MAIN SHALL BE LAID AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING SEWER MAIN, WHENEVER POSSIBLE. IF THE 10-FOOT SPACING CANNOT BE ACHIEVED, THE WATER MAIN MAY BE INSTALLED CLOSER PROVIDED THAT ITS LOCATION IS IN A SEPARATE TRENCH OR ON AN UNDISTURBED SHELF, AND THERE IS A SEPARATION OF AT LEAST 12-INCHES HORIZONTALLY AND 18-INCHES VERTICALLY FROM THE BOTTOM OF THE WATER MAIN TO TOP OF THE SEWER MAIN. THERE SHALL BE NO REDUCTION IN THE 10-FOOT SEPARATION REQUIREMENT WHEN THE SEWER IS A FORCE MAIN. WATER MAINS SHALL NOT COME INTO CONTACT WITH SEWER MANHOLES. IF SEPARATION DISTANCES CANNOT BE ACHIEVED, THE WATER MAIN SHALL BE WRAPPED IN POLYETHYLENE AND SECURED WITH FLOWABLE FILL TO PROTECT THE MAIN FROM CONTAMINATION.
5.

WHEN WATER MAINS ARE INSTALLED PERPENDICULAR TO SEWER MAINS, A MINIMUM VERTICAL CLEARANCE OF 18-INCHES, MEASURED FROM BOTTOM OF THE WATER MAIN TO THE TOP OF THE SEWER MAIN, SHALL BE MAINTAINED WITH THE PREFERRED LOCATION OF THE WATER MAIN ABOVE THE SEWER WHENEVER POSSIBLE. THE WATER MAIN SHALL BE CENTERED AT THE SEWER CROSSING SUCH THAT THE WATER MAIN JOINTS ARE SPACED AS FAR AS POSSIBLE FROM THE SEWER. IF THE WATER MAIN WILL CROSS ABOVE THE SEWER AND WILL BE CENTERED ABOVE THE SEWER SUCH THAT THE WATER MAIN JOINTS ARE SPACED AS FAR AS POSSIBLE FROM THE SEWER, THE VERTICAL SEPARATION DISTANCE MAY BE REDUCED TO 12-INCHES. THERE SHOULD BE NO REDUCTION IN THE 18-INCH REQUIREMENT WHEN CROSSING A FORCE MAIN. IF SEPARATION DISTANCES CANNOT BE ACHIEVED, THE WATER MAIN SHALL BE WRAPPED IN POLYETHYLENE AND SECURED WITH FLOWABLE FILL TO PROTECT THE MAIN FROM CONTAMINATION.
6.

ALL HYDRANT BRANCHES CONNECTED TO NEW DUCTILE IRON PIPE SHALL HAVE ANCHOR TEES.
7.

PRIOR TO CONSTRUCTION IN ANY STREET AND BEFORE DISRUPTION IN WATER SERVICE, ALL CONSUMERS SHALL BE DIRECTLY NOTIFIED 48-HOURS IN ADVANCE OF THE SHUTDOWN BY A TOWN APPROVED NOTICE, DELIVERED TO THE PROPERTY BY THE CONTRACTOR STATING HOW THEY WILL BE AFFECTED AND THE EXPECTED DURATION OF SHUT-DOWN.
8.

THE TOPS OF ALL VALVE BOXES AND CURB STOPS SHALL BE FLUSH WITH GROUND OR PAVEMENT SURFACE LEVEL AND PLUMB. THE LOCATION OF PROPOSED CURB STOPS AS SHOWN ARE APPROXIMATE. CURB STOP LOCATIONS MUST BE COORDINATED WITH THE BOSTON ROAD RECONSTRUCTION CONTRACTOR.
9.

HYDRANTS SHALL BE SET WITH THE CENTER OF THE OPERATING NUT 18" BACK FROM THE FACE OF THE CURB, UNLESS DIRECTED OTHERWISE BY THE ENGINEER. THE LOCATION OF PROPOSED HYDRANTS AS SHOWN ARE APPROXIMATE. HYDRANT LOCATIONS MUST BE COORDINATED WITH THE BOSTON ROAD RECONSTRUCTION CONTRACTOR.
10.

AT CONNECTIONS BETWEEN EXISTING AND NEW PIPES, SLEEVES AND EXTENSIONS NECESSARY FOR CONNECTIONS ARE NOT NECESSARILY SHOWN ON THE PLANS OR DETAILS. THE CONTRACTOR SHALL PROVIDE AND INSTALL THESE ITEMS AS NECESSARY AND INCLUDE THE COST UNDER THE APPROPRIATE BID ITEMS.
11.

DUCTILE IRON TO CAST IRON CONNECTIONS SHALL BE MADE WITH RESTRAINED JOINT DUCTILE IRON COUPLINGS. DUCTILE IRON TO DUCTILE IRON CONNECTIONS SHALL BE MADE WITH SOLID SLEEVE MECHANICAL JOINT FITTINGS.
12.

ALL TEMPORARY BYPASS PIPING WILL BE SUPPLIED, INSTALLED AND MAINTAINED BY THE CONTRACTOR.
13.

THE CONTRACTOR SHALL SUBMIT A TEMPORARY WATER BYPASS PLAN TO THE ENGINEER FOR REVIEW AND MAKE ANY CHANGES TO THE BYPASS PLAN AS DEEMED NECESSARY BY THE ENGINEER. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ANY DWELLINGS/BUILDINGS WATER SERVICE AFFECTED BY THE PROPOSED WORK BE PROVIDED WITH TEMPORARY WATER SERVICE.
14.

OUT OF SERVICE HYDRANTS SHALL BE PROPERLY BAGGED AND THE CONTRACTOR WILL NOTIFY THE FIRE DEPARTMENT OF THEIR LOCATION.
15.

ANY EXISTING PIPE OR UTILITY DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED IMMEDIATELY BY THE CONTRACTOR AT NO COST TO THE OWNER.
16.

FOLLOWING SUCCESSFUL COMPLETION OF CHLORINATION TESTING, CONTRACTOR SHALL CHECK EVERY GATE VALVE (BOTH HYDRANT AND MAIN) TO ENSURE THAT ALL VALVES ARE FULLY OPERATIONAL AND OPEN. THIS PROCEDURE WILL BE REPEATED WHEN SUBSTANTIAL COMPLETION IS DECLARED TO ENSURE ALL VALVES ARE OPEN.
17.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL SIZES AND MATERIALS OF WATER SERVICES WITHIN THE LIMITS OF WORK.
18.

THE LOCATIONS OF EXISTING CURB STOPS ARE FROM TOWN RECORD INFORMATION OR FROM FIELD VERIFICATION. ONLY SOME CURB STOP LOCATIONS HAVE BEEN VERIFIED IN THE FIELD. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL CURB STOPS WITHIN THE LIMITS OF WORK.
19.

LOCATION OF ALL NECESSARY BENDS (HORIZONTAL AND VERTICAL) AND FITTINGS ARE TO BE DETERMINED IN THE FIELD AND SHALL BE INCLUDED IN THE UNIT PRICE FOR ALL DUCTILE IRON PIPE.
20.

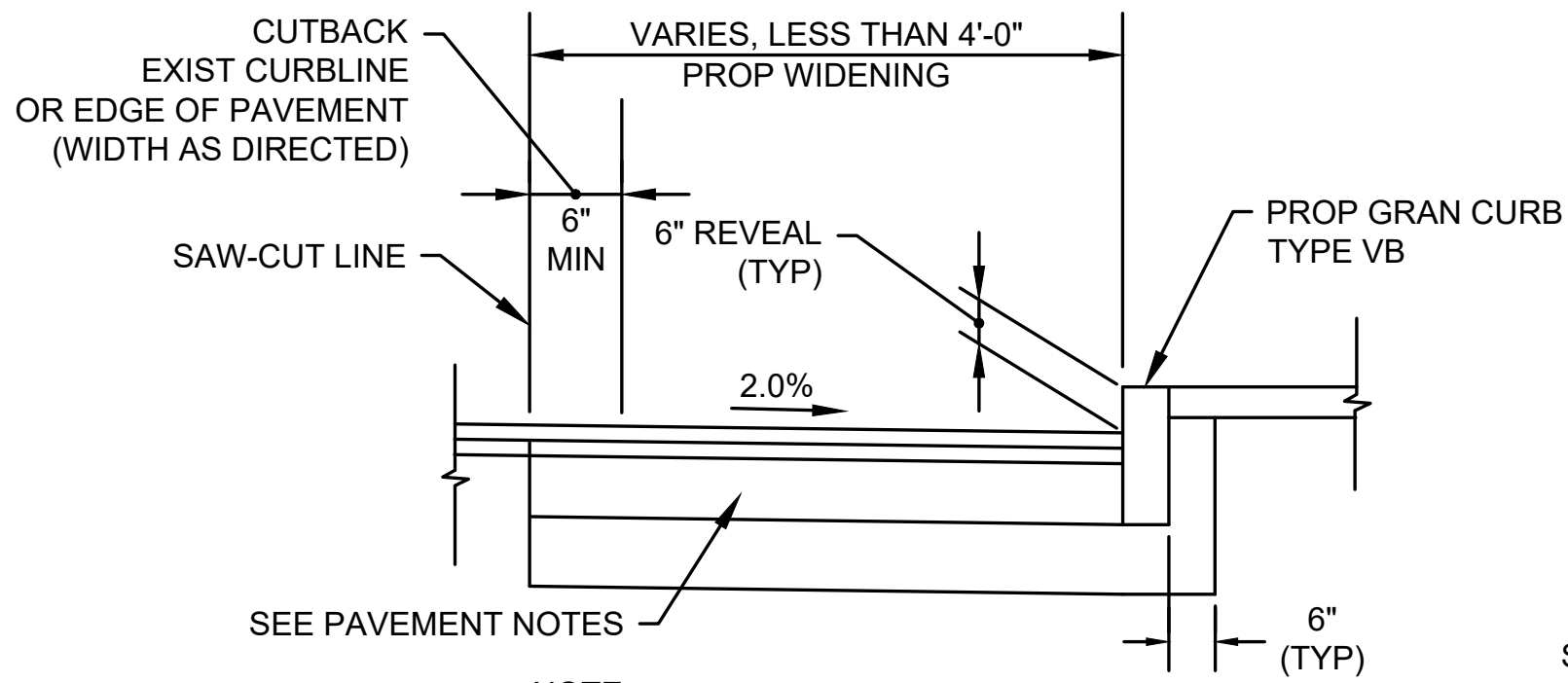
PROPOSED WATER MAIN SHALL BE LAID IN THE SAME TRENCH AS THE EXISTING MAIN UNLESS OTHERWISE SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF OFF-SITE DISPOSAL OF THE EXISTING WATER MAIN AND APPURTENANCES.
21.

CONTRACTOR MAY BE REQUIRED TO EXCAVATE AND INSTALL TEMPORARY 1" TAPS ON EXISTING MAINS FOR SHUTDOWN / FLUSHING PURPOSES AT THE REQUEST OF THE TOWN. THIS SHALL BE CONSIDERED INCIDENTAL TO THE WORK. ALL SAMPLING TAPS MUST BE LOCATED AT THE TOP OF THE PIPE (12 O'CLOCK). SAMPLING PORT LOCATIONS MAY CHANGE DEPENDING ON THE SEQUENCING OF THE JOB.

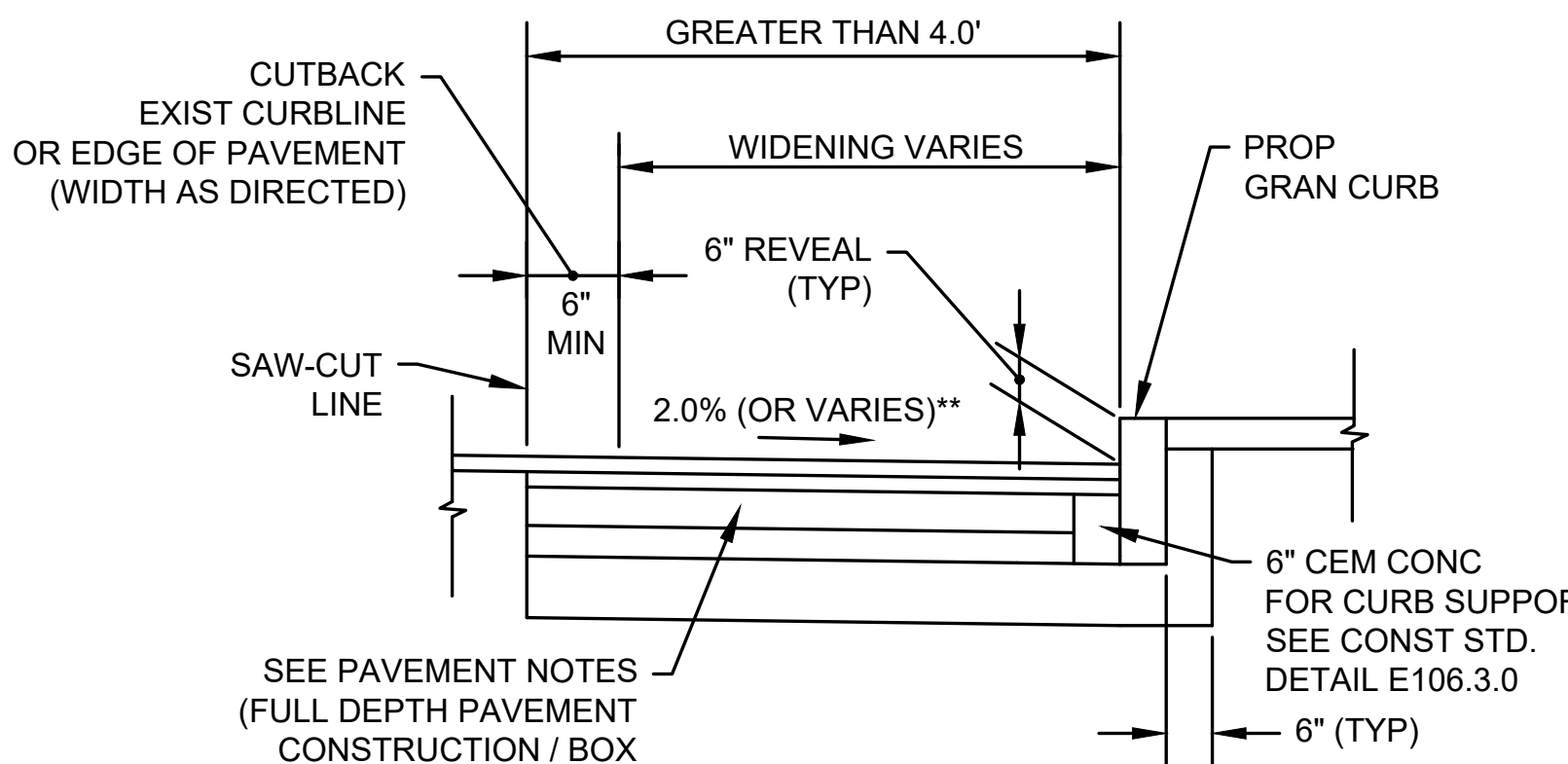
BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	6	103
PROJECT FILE NO.		609250	

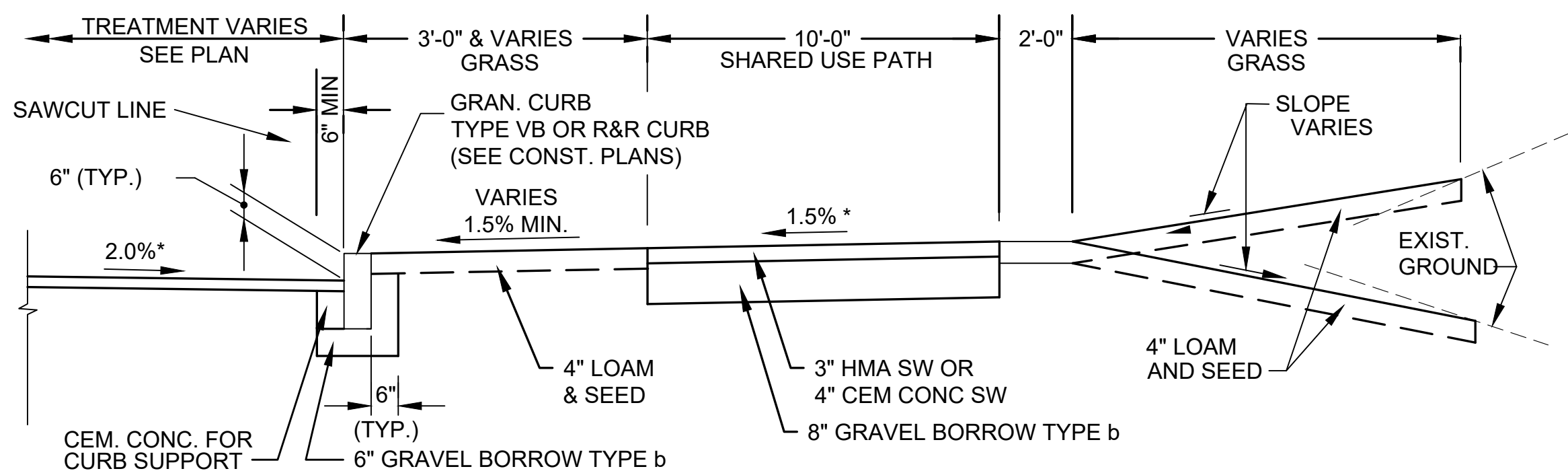
GENERAL NOTES



DETAIL FOR BOX WIDENING 4.0' OR LESS
NOT TO SCALE

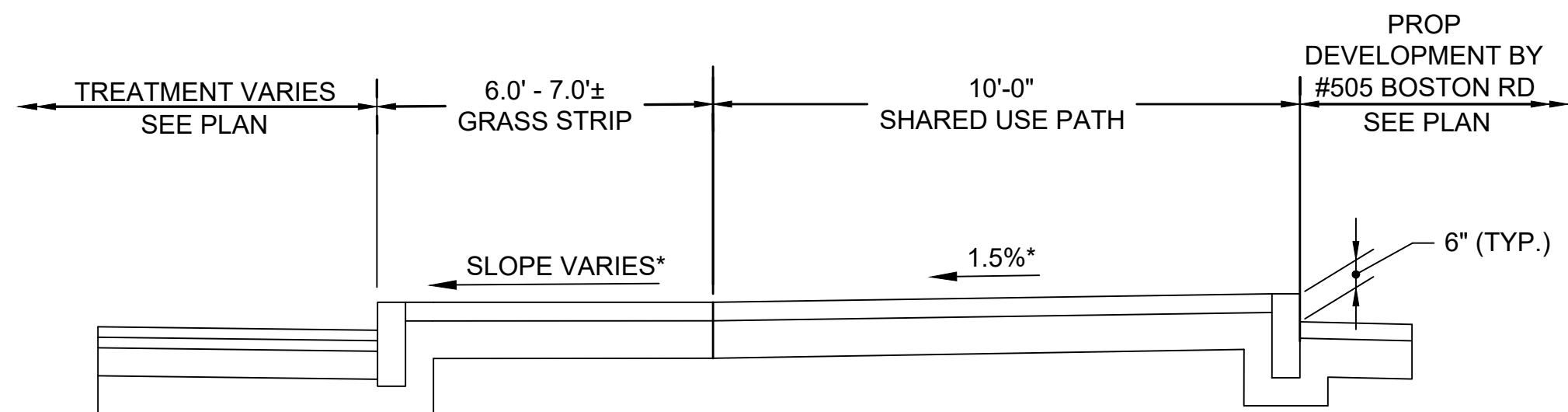


DETAIL FOR BOX WIDENING GREATER THAN 4.0'
NOT TO SCALE

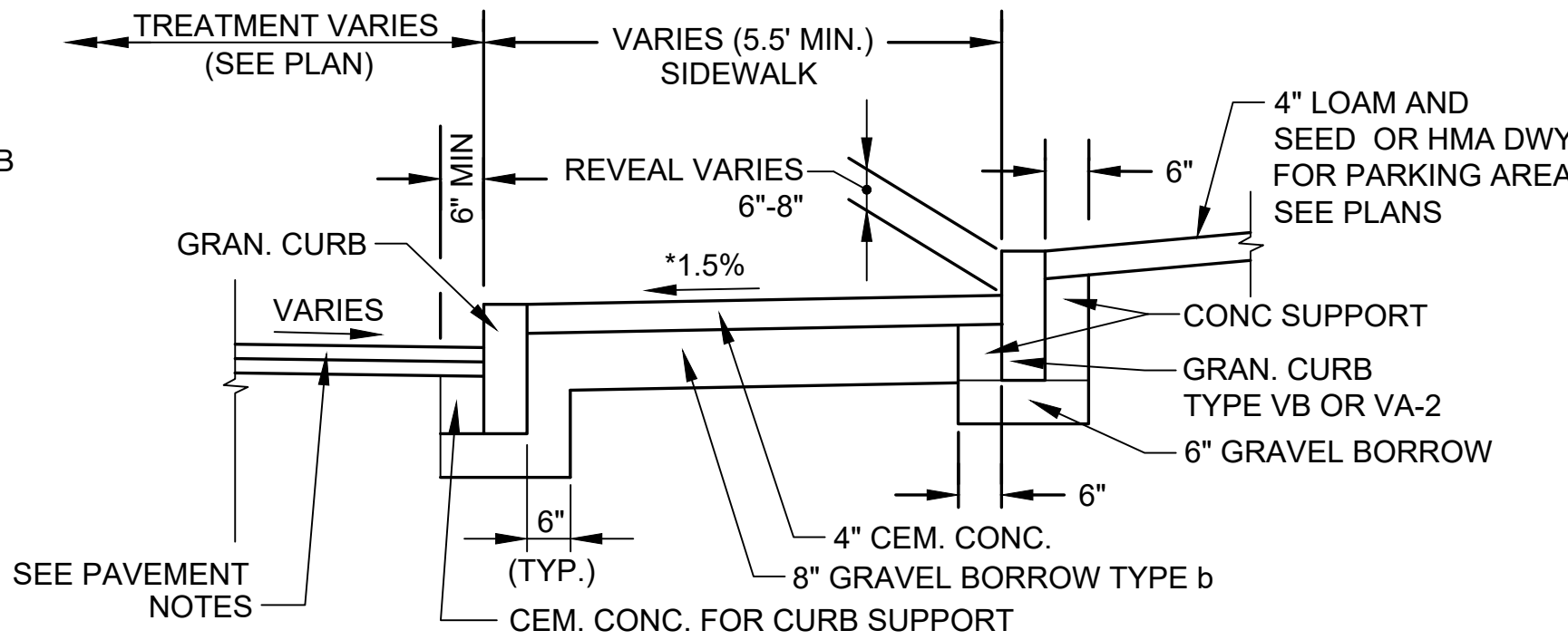


NOTE: REFER TO CROSS SECTIONS FOR PROPOSED SLOPE WITHIN GRASS STRIP

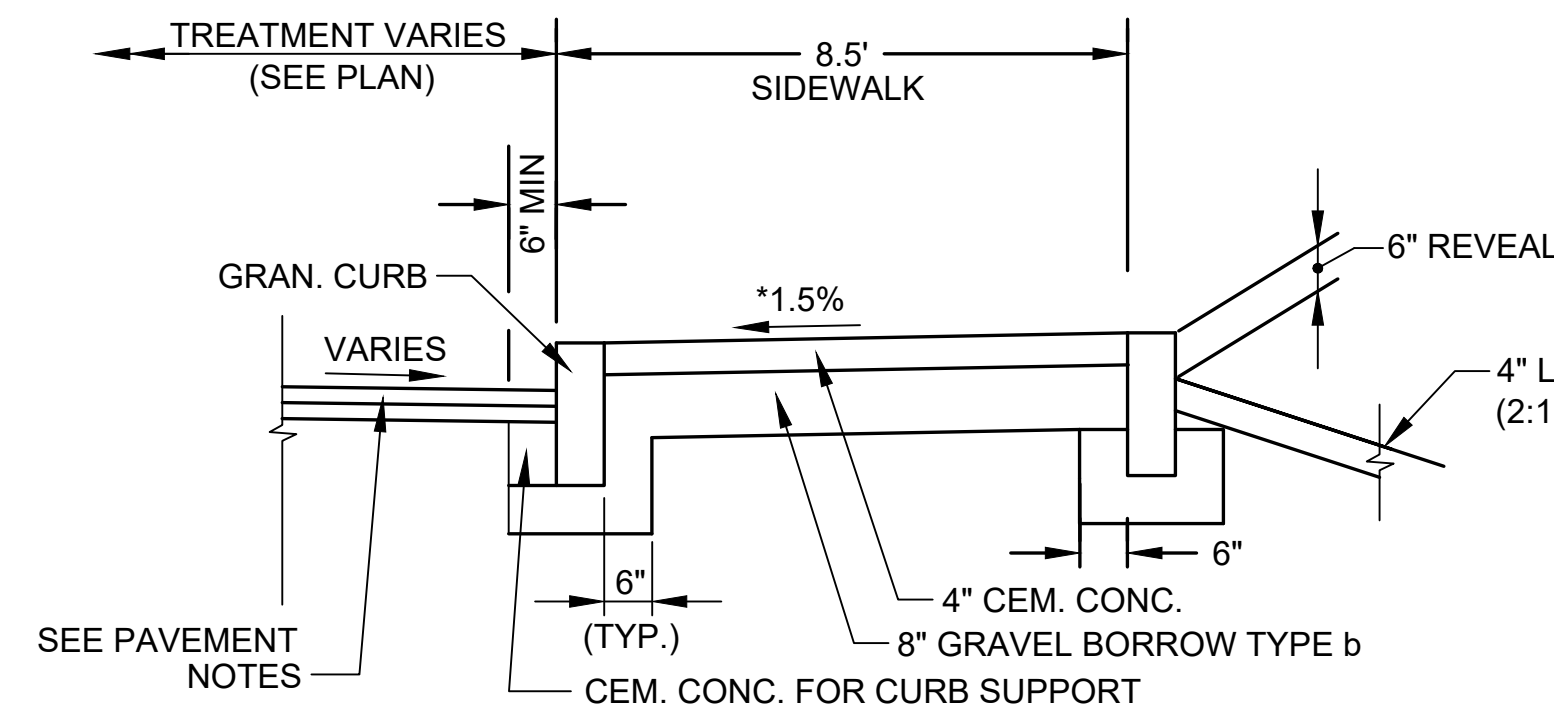
DETAIL FOR GRANITE CURB WITH SIDEWALK AND GRASS STRIP
STA 121+50± TO 123+00± RT
NOT TO SCALE



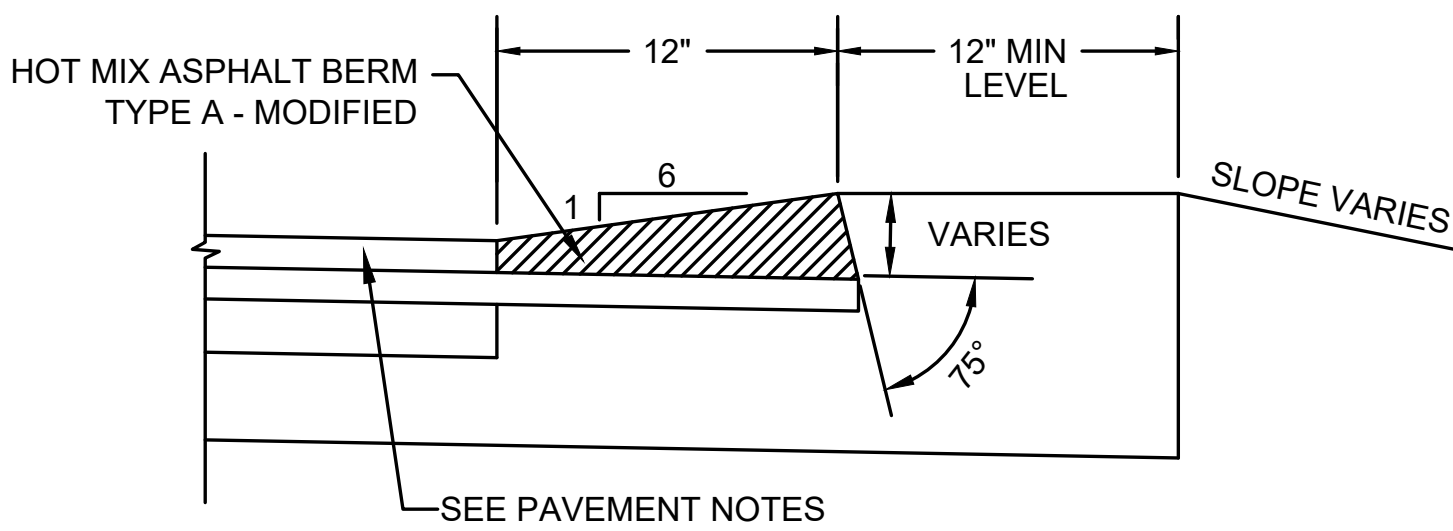
DETAIL FOR SHARED USE PATH AT STA 117+00 TO 118+50 RT
NOT TO SCALE



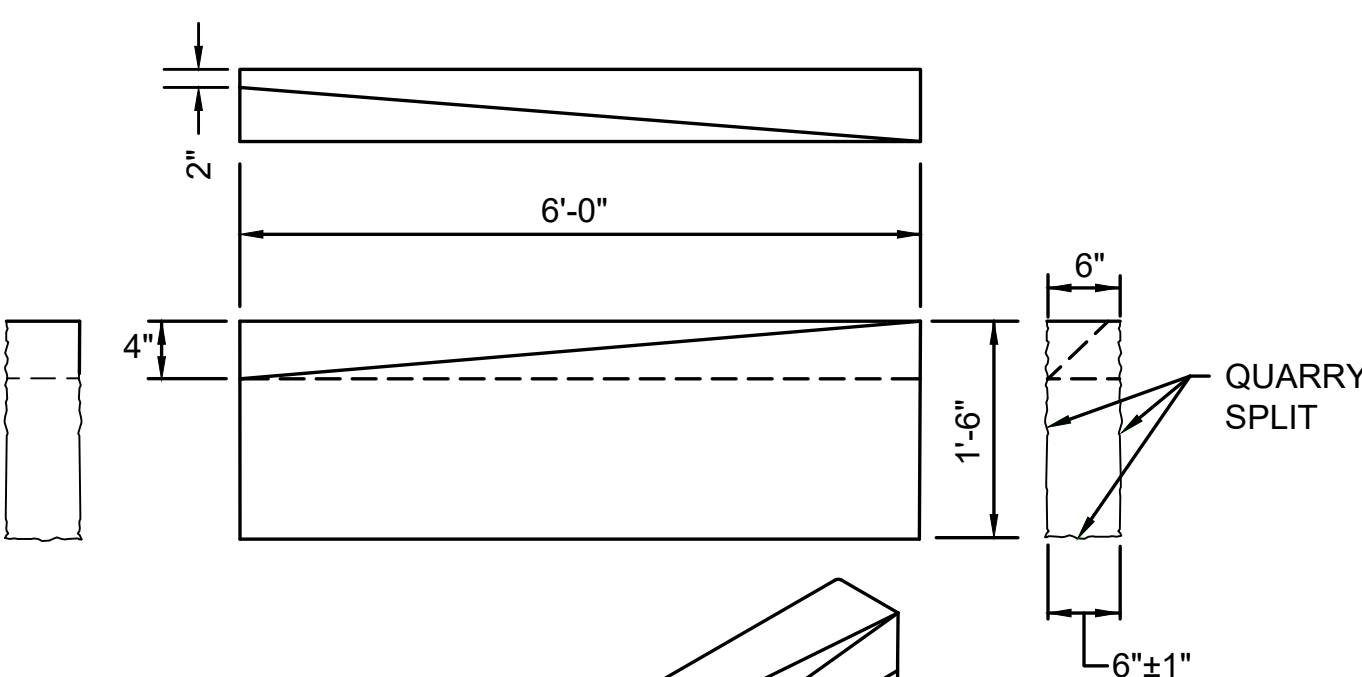
DETAIL FOR GRANITE CURB AT BACK OF SIDEWALK
NOT TO SCALE



DETAIL FOR GRANITE CURB AT BACK OF BUS LANDING
(STA 120+26 LT)
NOT TO SCALE

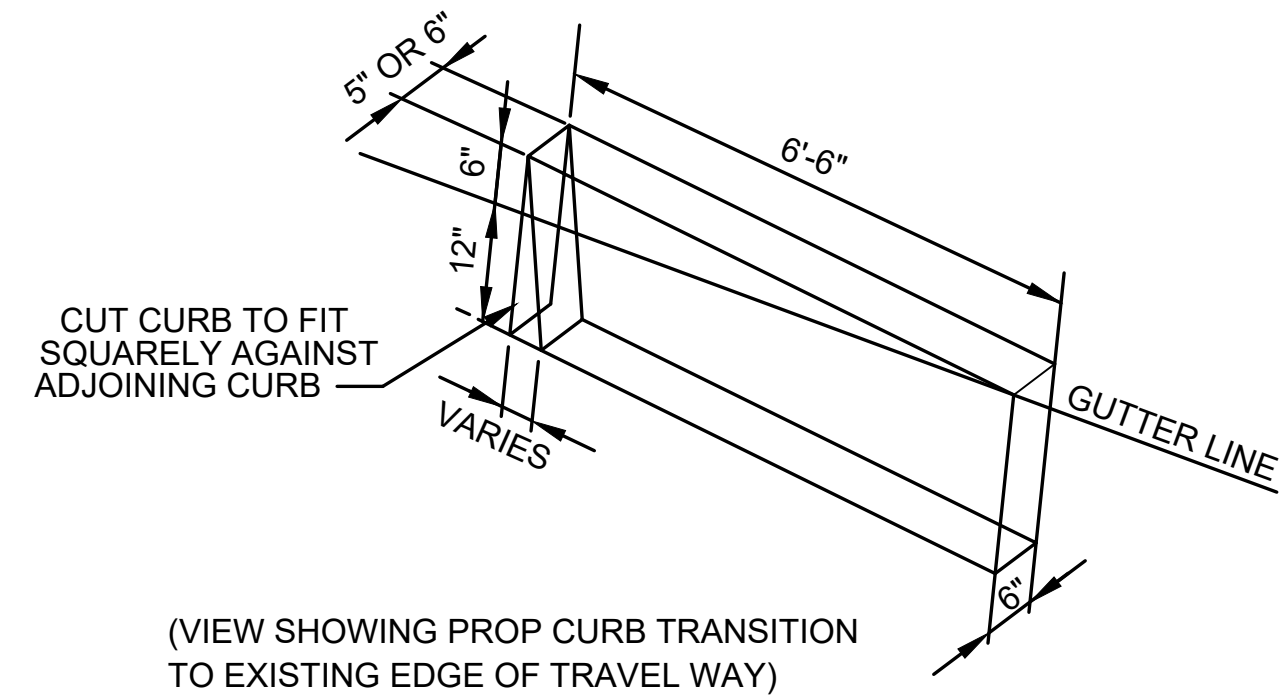


DETAIL FOR HMA BERM TYPE A (MODIFIED)
NOT TO SCALE

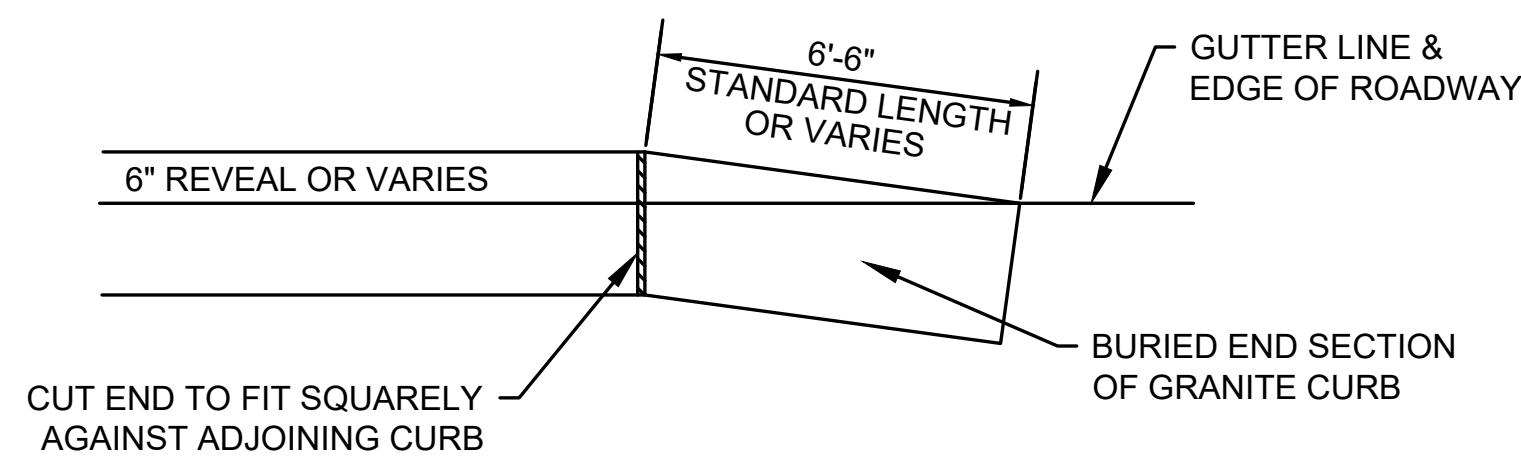


- NOTES:
1. TOP SURFACE AND SLOPED SURFACE TO BE DRESSED BY SAW. REMAINDER TO BE QUARRY SPLIT.
 2. DRAWING SHOWS TRANSITION CURB FOR ONE DIRECTION. FOR OTHER DIRECTION USE OPPOSITE HAND.

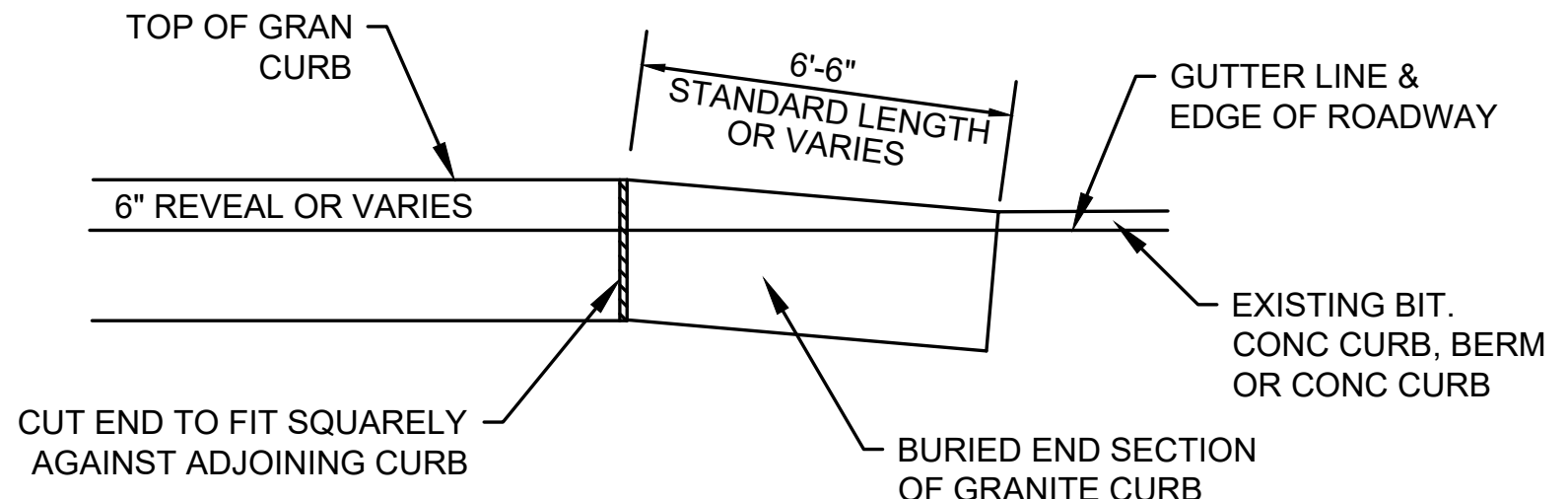
GRANITE CURB TYPE VA4-SPLAYED END
(ITEM 504.2)
NOT TO SCALE



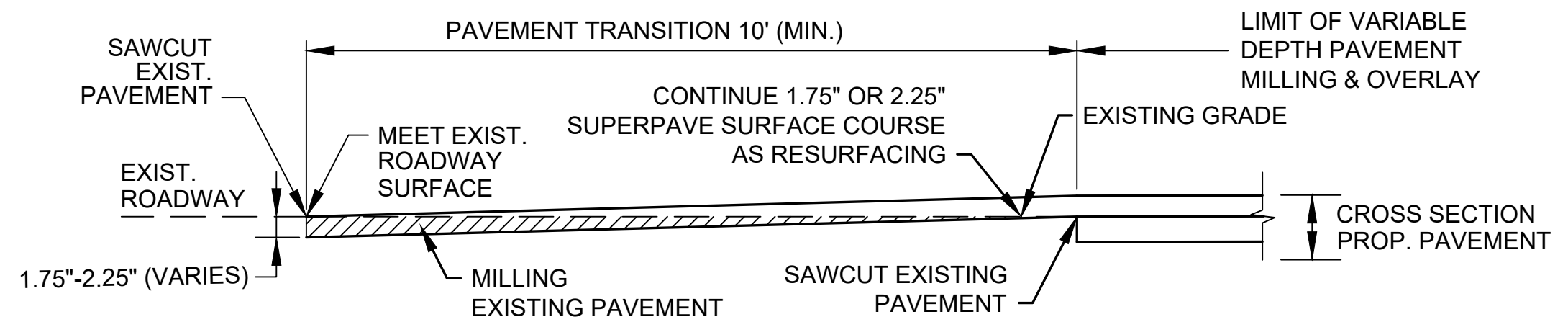
DETAIL FOR GRANITE TRANSITION CURB
NOT TO SCALE



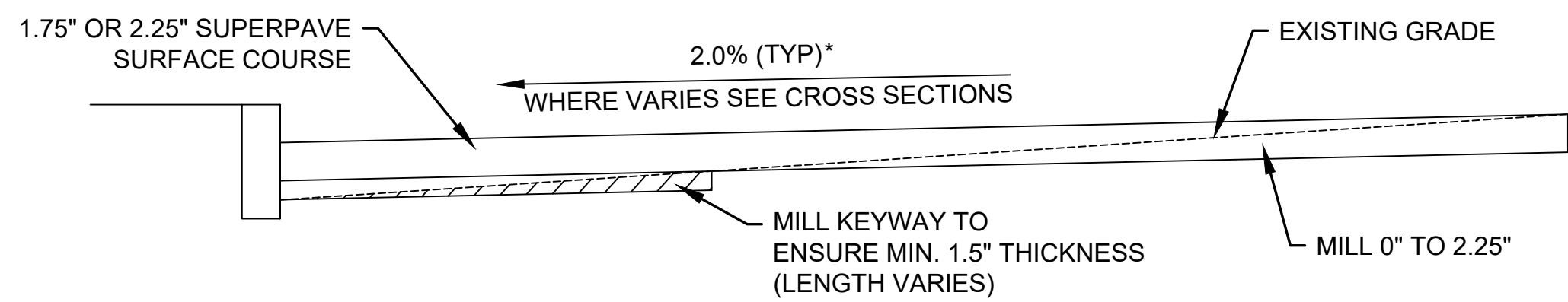
DETAIL FOR TRANSITION CURB
PROP CURB TO EXISTING EDGE OF TRAVEL WAY
NOT TO SCALE



DETAIL FOR TRANSITION CURB
TRANSITION CURB - PROP CURB TO EXISTING CURB
NOT TO SCALE



DETAIL FOR PAVEMENT TRANSITION AT LIMIT OF WORK
NOT TO SCALE



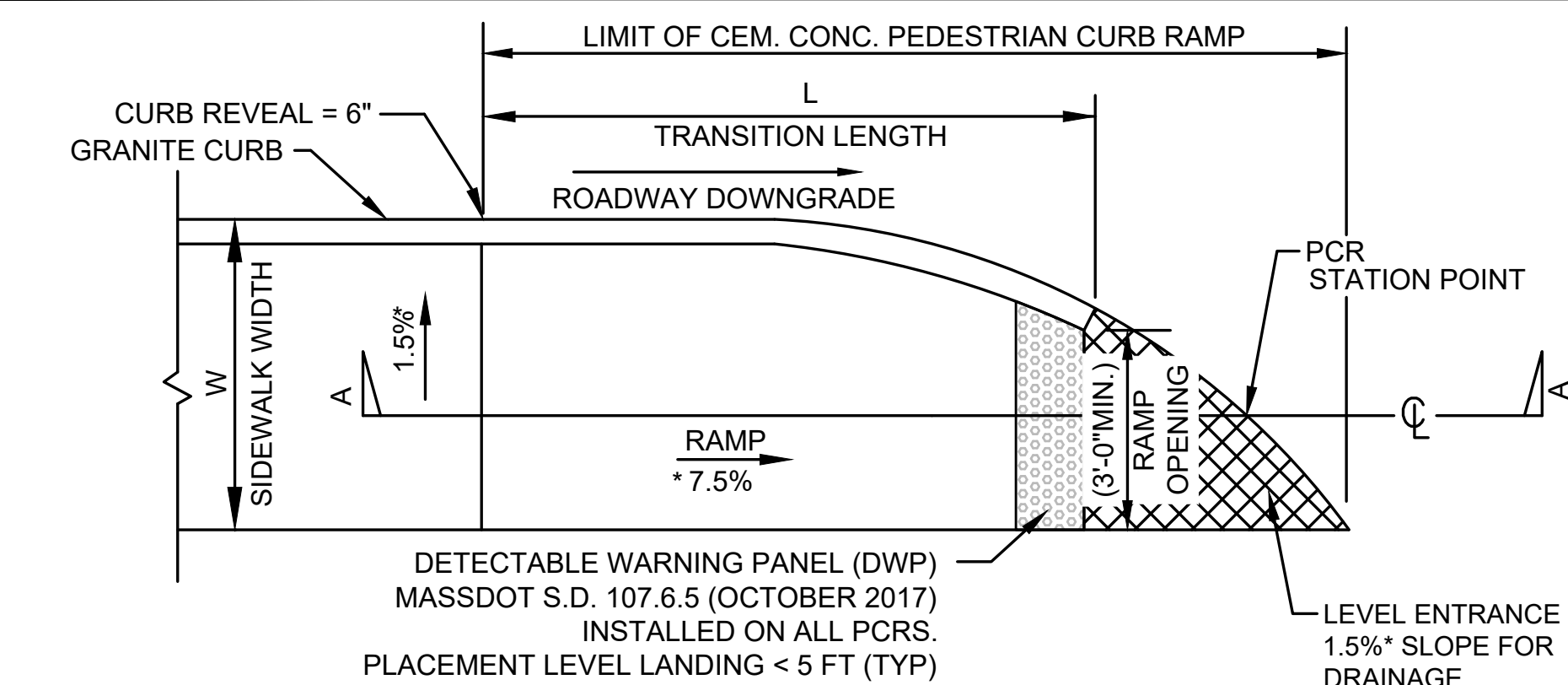
DETAIL FOR VARIABLE DEPTH LEVELING
NOT TO SCALE

* TOLERANCE FOR CONSTRUCTION ±0.5%

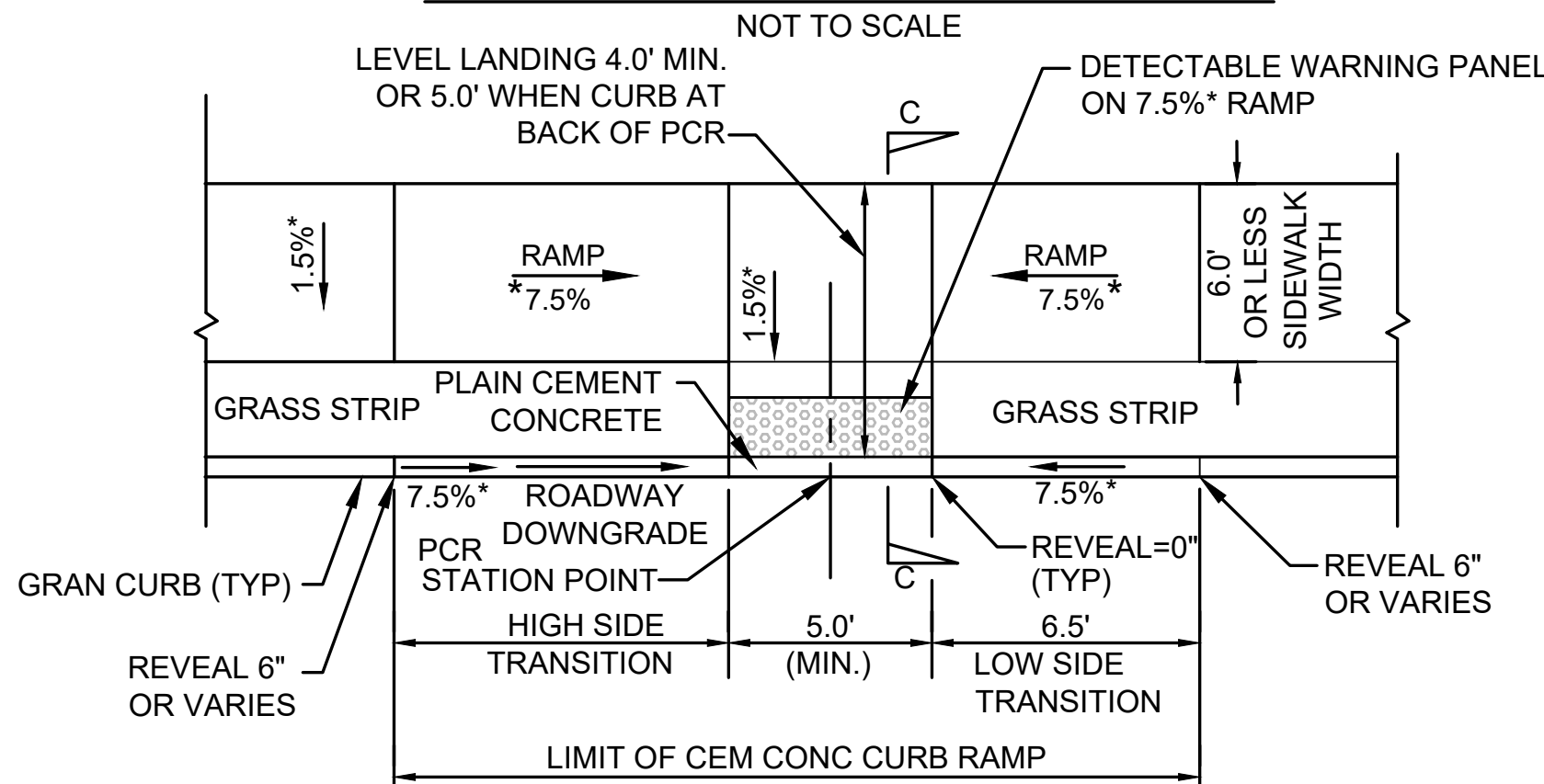
**BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	8	103
PROJECT FILE NO. 609250			

CONSTRUCTION DETAILS

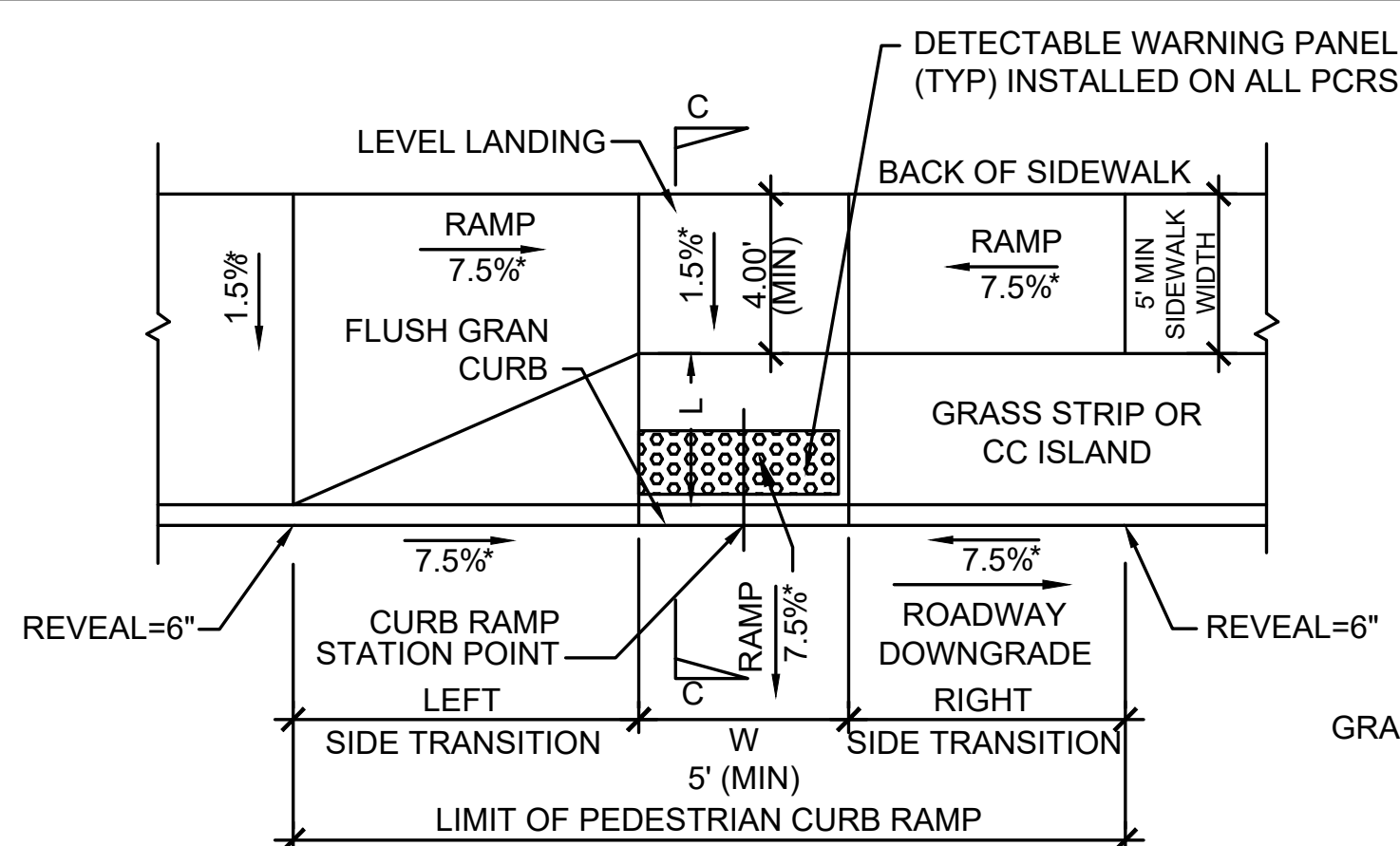


PEDESTRIAN CURB RAMP TYPE "A"

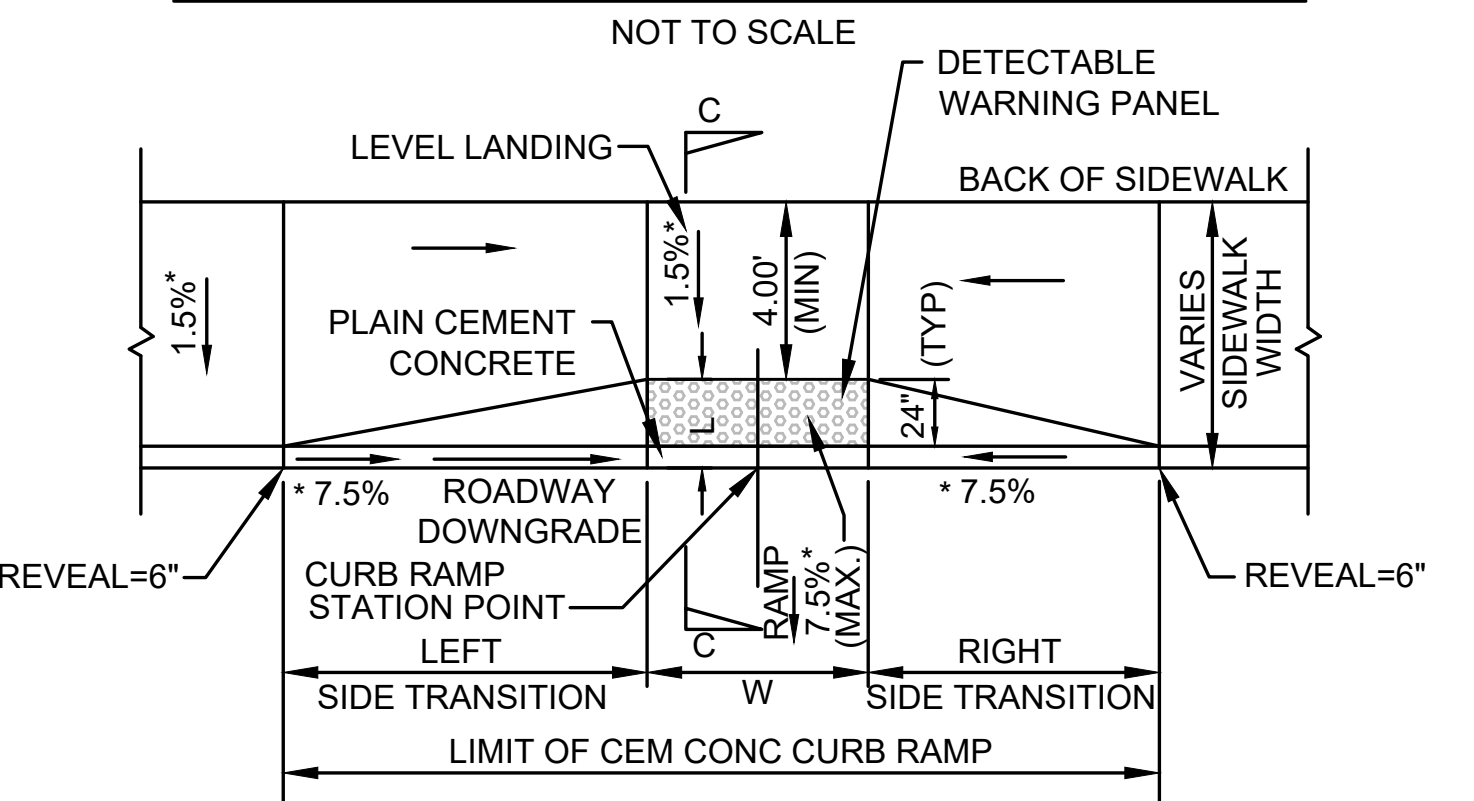


CURB RAMP DETAIL TYPE "D"

SEE MASSDOT S.D. E107.2.1
NOT TO SCALE

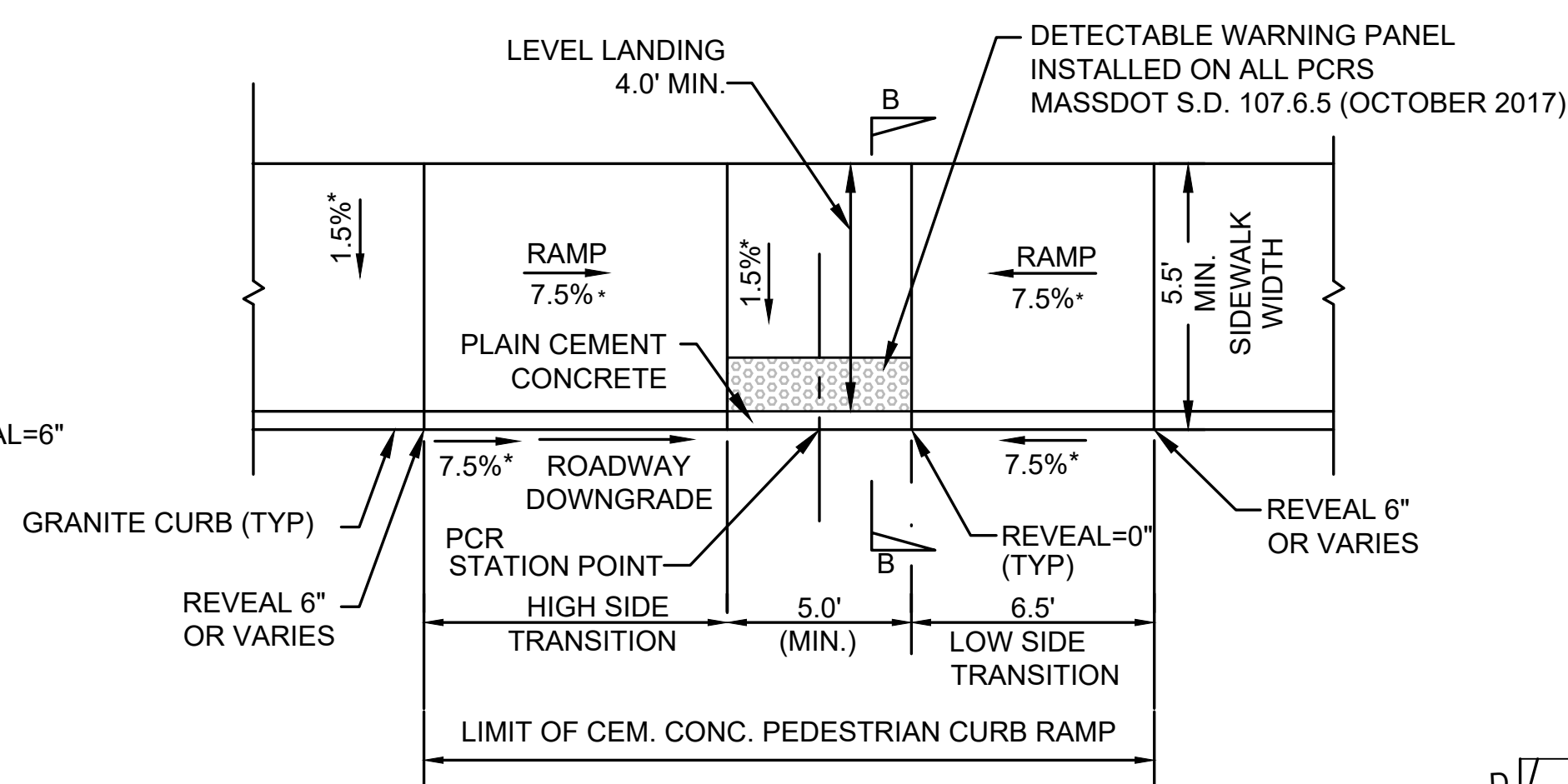


PEDESTRIAN CURB RAMP DETAIL TYPE "G"



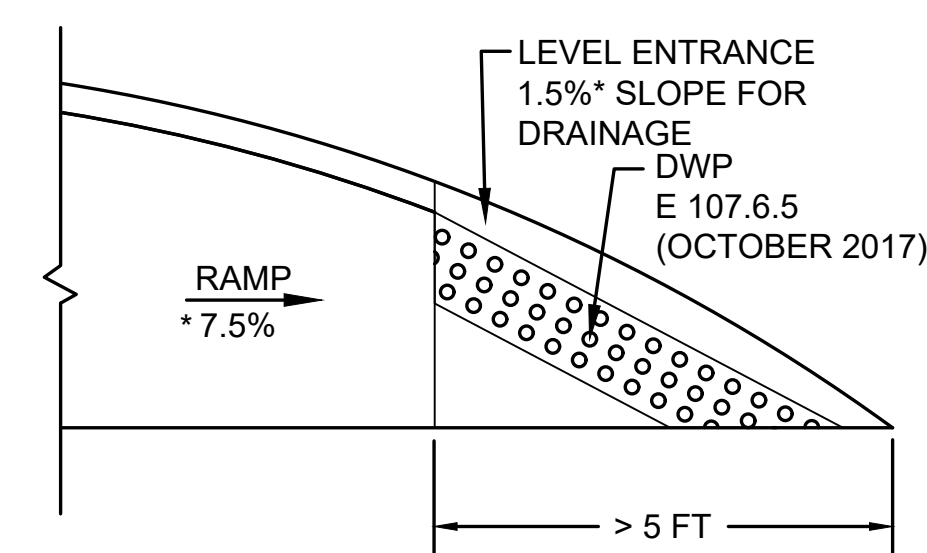
CURB RAMP DETAIL TYPE "E"

NOT TO SCALE



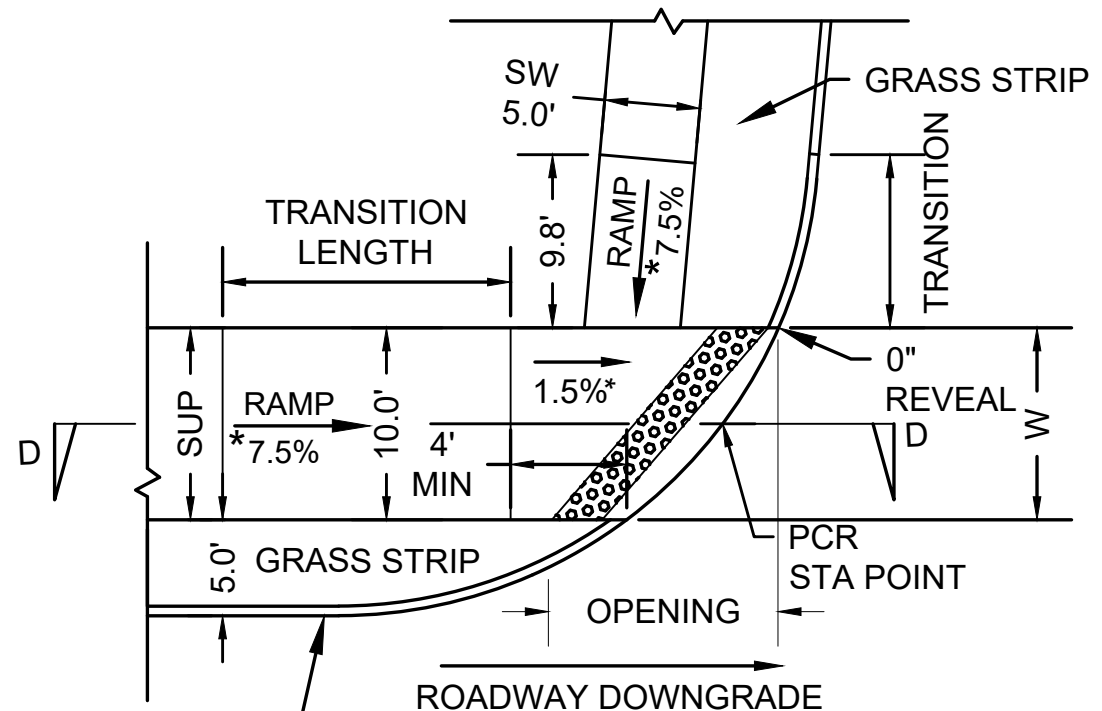
PEDESTRIAN CURB RAMP DETAIL TYPE "C"

NOT TO SCALE



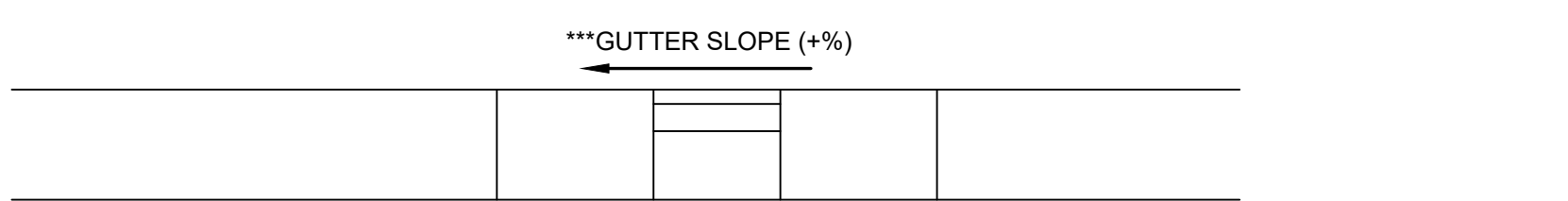
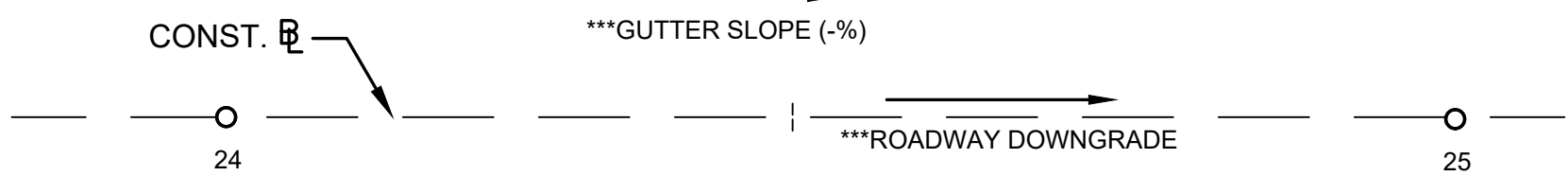
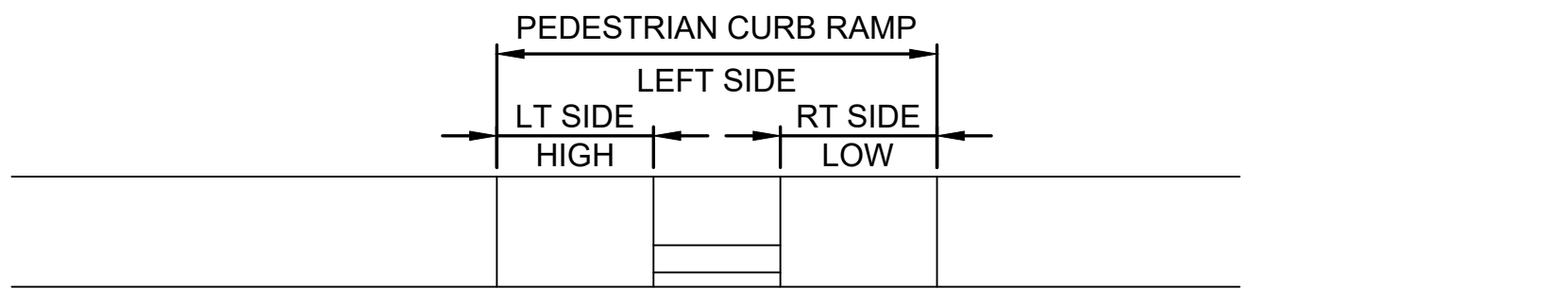
**DETECTABLE WARNING PANEL AT
LEVEL LANDING >5'**

NOT TO SCALE



CURB RAMP DETAIL TYPE "F"

NOT TO SCALE



GUTTER SLOPE DIAGRAM

NOT TO SCALE

NOTES:

- ALL PEDESTRIAN CURB RAMPS SHALL CONFORM TO THE REQUIREMENTS OF THE MASSACHUSETTS ARCHITECTURAL ACCESS BOARD (AAB) AND THE AMERICAN WITH DISABILITIES ACT (ADA) AND THE LATEST MASSDOT STANDARDS.
- THE LOCATIONS OF PROPOSED PEDESTRIAN CURB RAMPS ARE SHOWN ON CONSTRUCTION PLANS AND THE PEDESTRIAN CURB RAMP DETAILS SHEETS. EXACT LOCATIONS MAY BE ADJUSTED, IF NECESSARY, BY THE ENGINEER IN THE FIELD.
- PCR'S #15, #21, & #22 ARE SHOWN ON SHEET 9

PEDESTRIAN CURB RAMP TYPE A DATA								
MASSDOT ASSET ID	PCR NO.	LOCATION	RAMP REFERENCE POINT		GUTTER PROFILE SLOPE (%)	LENGTH OF PRIMARY RAMP L	WIDTH OF RAMP OPENING W	SIDEWALK WIDTH
			STATION	OFFSET				
	17	BOSTON RD	138+30.9	23.4 L	-4.5%	15.0'	4.0'	5.5'
	18	BOSTON RD	139+70.2	23.2 R	2.3%	11.0'	4.0'	5.5'

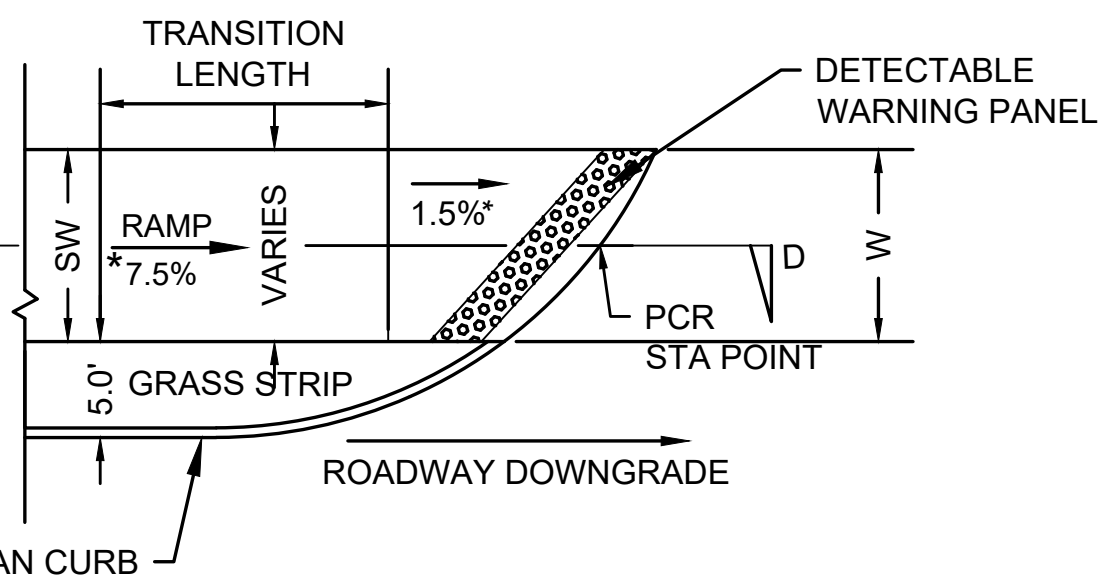
PEDESTRIAN CURB RAMP TYPE B DATA								
MASSDOT ASSET ID	PCR NO.	LOCATION	RAMP REFERENCE POINT		GUTTER PROFILE SLOPE (%)	LENGTH OF PRIMARY RAMP L	WIDTH OF RAMP OPENING W	SIDEWALK WIDTH
			STATION	OFFSET				
PED-17698	2	BOSTON RD	106+94.0	26.9 R	1.0%	6.5'	5.0'	5.0'
PED-11611	8	BOSTON RD	113+64.7	31.4 R	5.5%	6.5'	5.0'	5.0'

PEDESTRIAN CURB RAMP TYPE C DATA										
MASSDOT ASSET ID	PCR NO.	LOCATION	RAMP REFERENCE POINT		GUTTER PROFILE SLOPE (%)	WIDTH OF RAMP OPENING W	DEPTH OF LEVEL LANDING (MIN 4.0')	TRANSITION LENGTH		SIDEWALK WIDTH
			STATION	OFFSET				LEFT	RIGHT	
PED-14099	1	BOSTON RD	106+41.6	30.7 R	5.4%	5.0'	5.0'	6.5'	15.0'	5.5'
PED-11209	4	BOSTON RD	108+17.9	29.5 L	-4.1%	5.0'	5.0'	7.5' 3\"/>R	6.5'	5.5'
	5	BOSTON RD	108+84.0	20.0 L	-5.7%	5.0'	5.0'	15.0'	6.5' 4\"/>R	5.5'
	11	BOSTON RD	121+06.2	29.5 L	2.5%	5.0'	5.0'	6.5'	11.0'	5.5'
	16	BOSTON RD	123+66.9	30.0 L	4.9%	10.0'	5.0'	6.5'	15.0'	5.5'
	20	BOSTON RD	138+81.23	26.7 L	1.5%	5.0'	5.0'	6.5'	9.0'	5.5'

PEDESTRIAN CURB RAMP TYPE D DATA											
MASSDOT ASSET ID	PCR NO.	LOCATION	RAMP REFERENCE POINT		GUTTER PROFILE SLOPE (%)	LENGTH OF PRIMARY RAMP L	WIDTH OF RAMP OPENING W	DEPTH OF LEVEL LANDING (MIN 4.0')	TRANSITION LENGTH		SIDEWALK WIDTH
			STATION	OFFSET					LEFT	RIGHT	
	6	BOSTON RD	108+84.0	20.0 R	4.7%	5.0'	5.0'	10.0'	6.5'	5.0' 2'R	5.0'

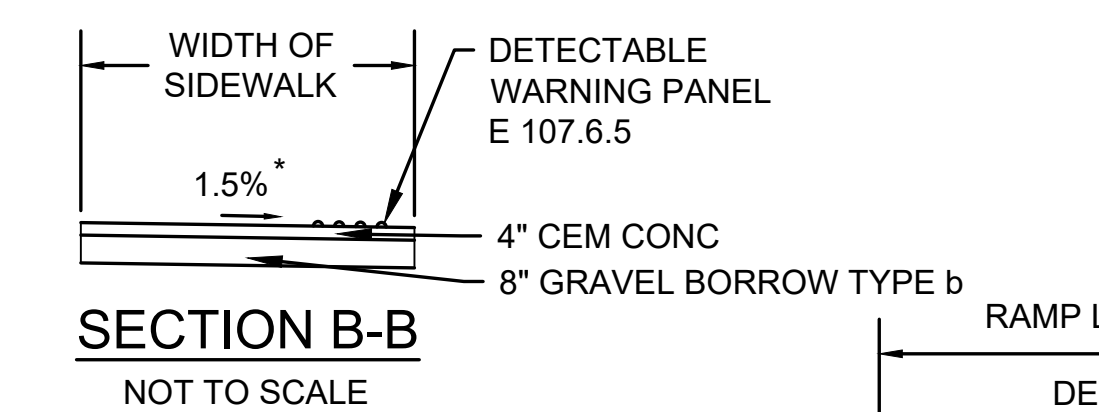
PEDESTRIAN CURB RAMP TYPE E DATA											
MASSDOT ASSET ID	PCR NO.	LOCATION	RAMP REFERENCE POINT		GUTTER PROFILE SLOPE (%)	LENGTH OF PRIMARY RAMP L	WIDTH OF RAMP OPENING W	DEPTH OF LEVEL LANDING (MIN 4.0')	TRANSITION LENGTH		SIDEWALK WIDTH
			STATION	OFFSET					LEFT	RIGHT	
PED-16929	3	BOSTON RD	107+68.4	29.0 L	-3.2%	2.6'	5.0'	4.3'	14.0'	6.5'	5.0' (BOSTON RD) 5.5' (TUFTS LN)
PED-8482	7	BOSTON RD	113+14.0	34.0 R	3.4%	3.8'	5.0'	4.0'	6.5'	14.0'	5.0'

PEDESTRIAN CURB RAMP TYPE G DATA											
MASSDOT ASSET ID	PCR NO.	LOCATION	RAMP REFERENCE POINT		GUTTER PROFILE SLOPE (%)	LENGTH OF PRIMARY RAMP L	WIDTH OF RAMP OPENING W	DEPTH OF LEVEL LANDING (MIN 4.0')	TRANSITION LENGTH		SIDEWALK WIDTH
			STATION	OFFSET					LEFT	RIGHT	
	7	BOSTON RD	113+14.0	34.0 R	3.4%	3.8'	5.0'	4.0'	6.5'	14.0'	5.0'
	19	BOSTON RD	121+06.6	25.5 R	-2.4%	4.0'	5.0'	10.0'	9.0' 3'R	6.5'	5.0'

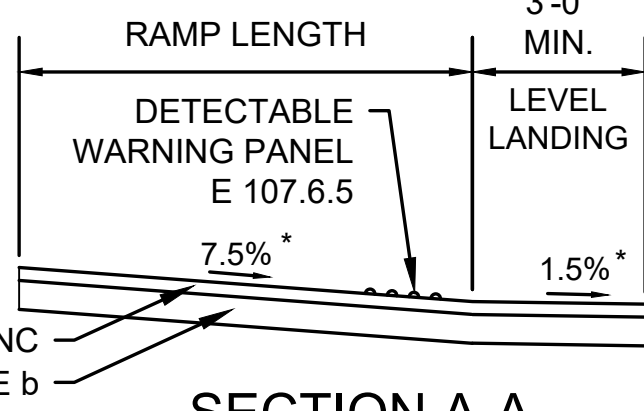


CURB RAMP DETAIL TYPE "B"

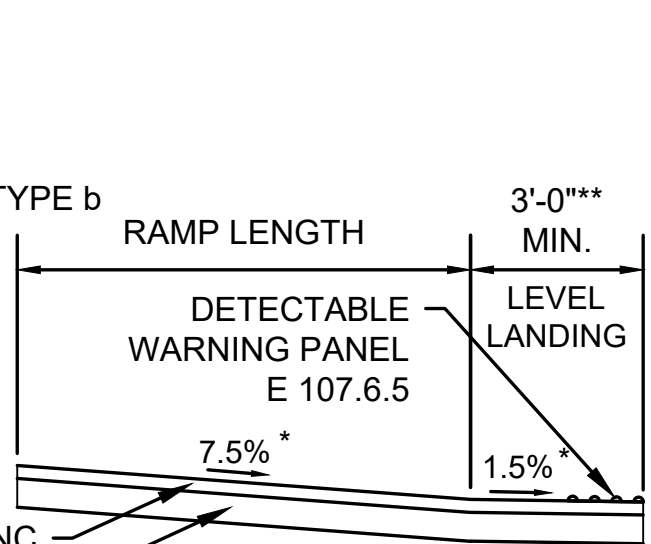
NOT TO SCALE



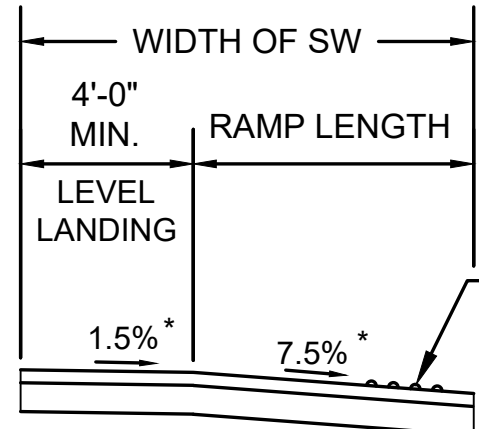
SECTION B-B
NOT TO SCALE



SECTION A-A
NOT TO SCALE



SECTION D-D
NOT TO SCALE



SECTION C-C
NOT TO SCALE

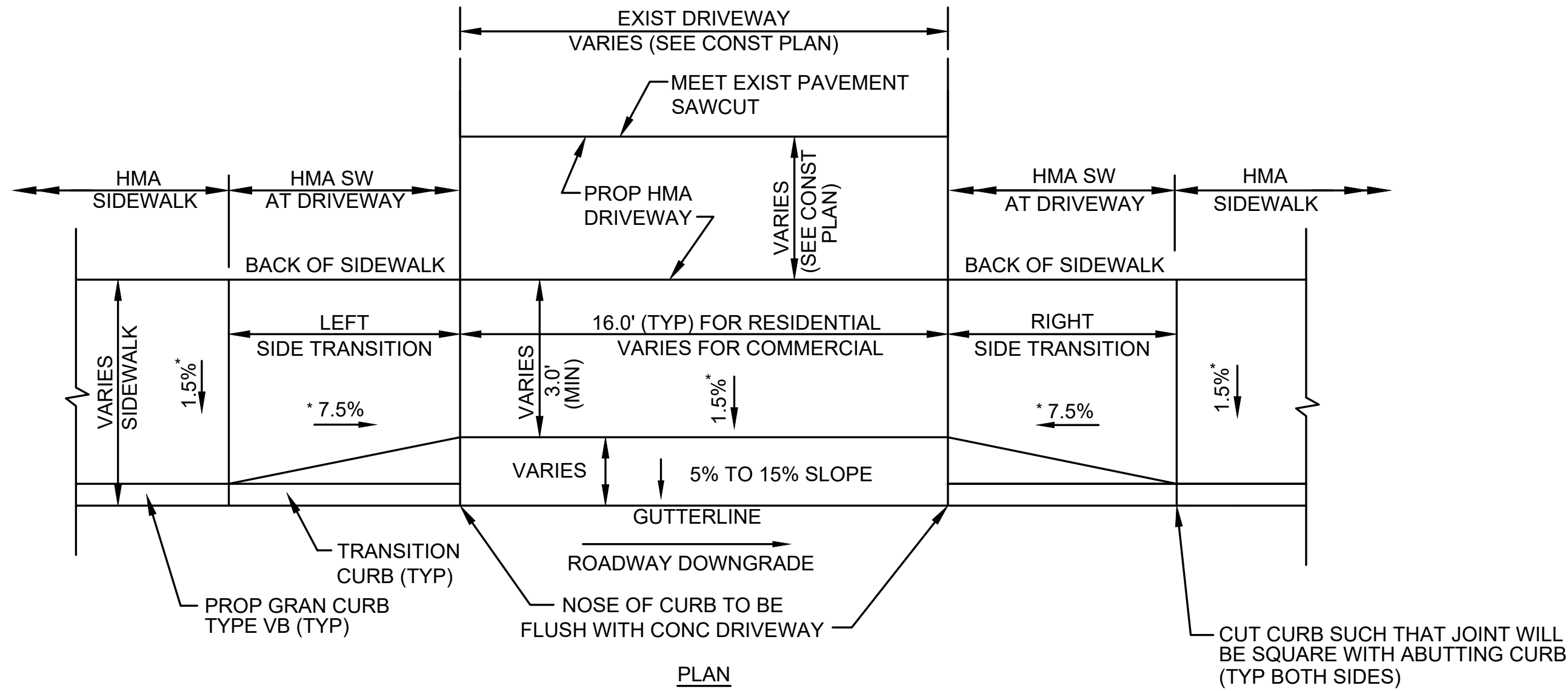
PEDESTRIAN CURB RAMP TYPE F DATA								
MASSDOT ASSET ID	PCR NO.	LOCATION	RAMP REFERENCE POINT		GUTTER PROFILE SLOPE (%)	WIDTH OF RAMP OPENING W	TRANSITION LENGTH	SIDEWALK WIDTH
			STATION	OFFSET				
	12	BOSTON RD	121+29.3	35.0 R	-2.6%	10.0'	9.0' (BOSTON RD) 3" R 6.5' (GLAD VALLEY DR)	10.0' (BOSTON RD) 5.0' (GLAD VALLEY DR)
	13	BOSTON RD	121+77.9	33.2 R	-3.1%	10.0'	6.5' (GLAD VALLEY DR)	10.0' (BOSTON RD) 5.0' (GLAD VALLEY DR)
	14	BOSTON RD	123+02.6	39.6 R	-0.074	10.0'	16.9' (LEXINGTON RD)	10.0' (BOSTON RD) 5.5'-8.5' (LEXINGTON RD)

NOTE: REFER TO GUTTER SLOPE DIAGRAM ON SHEET 8
FOR EXPLANATION OF GUTTER PROFILE SLOPE

* TOLERANCE FOR CONSTRUCTION $\pm 0.5\%$

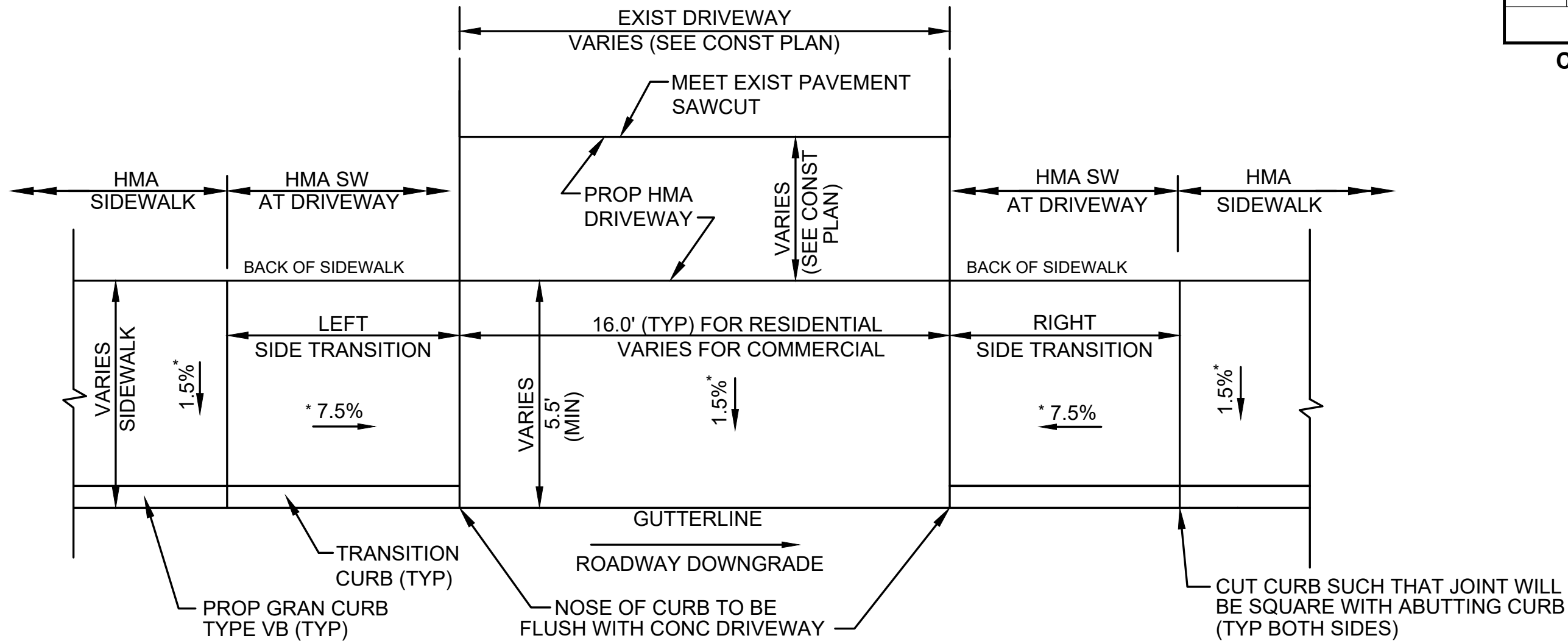
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	9	103
PROJECT FILE NO.		609250	

CONSTRUCTION DETAILS



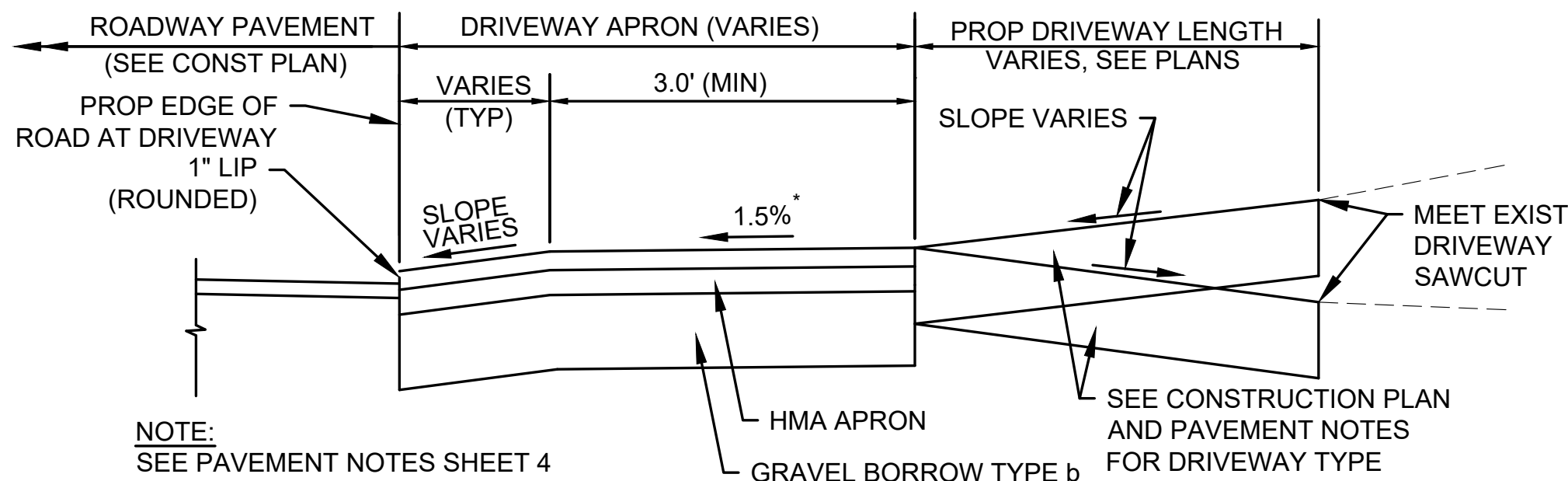
DETAIL FOR TYPICAL DRIVEWAY WITH SIDEWALK - TYPE A

NOT TO SCALE
MASSDOT CONST. STD. DWG. NO. E107.7.0



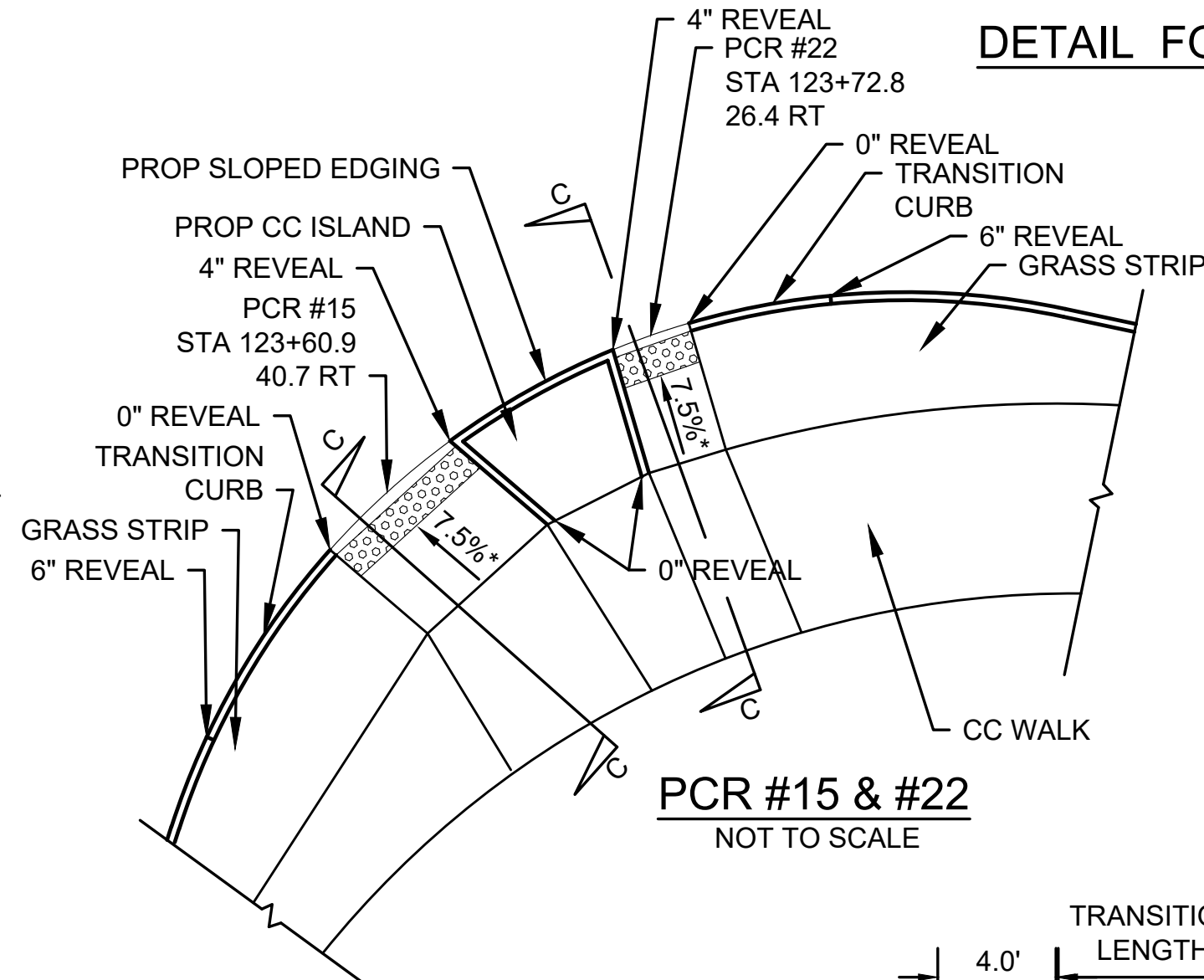
DETAIL FOR DEPRESSED DRIVEWAY WITH SIDEWALK - TYPE B

NOT TO SCALE



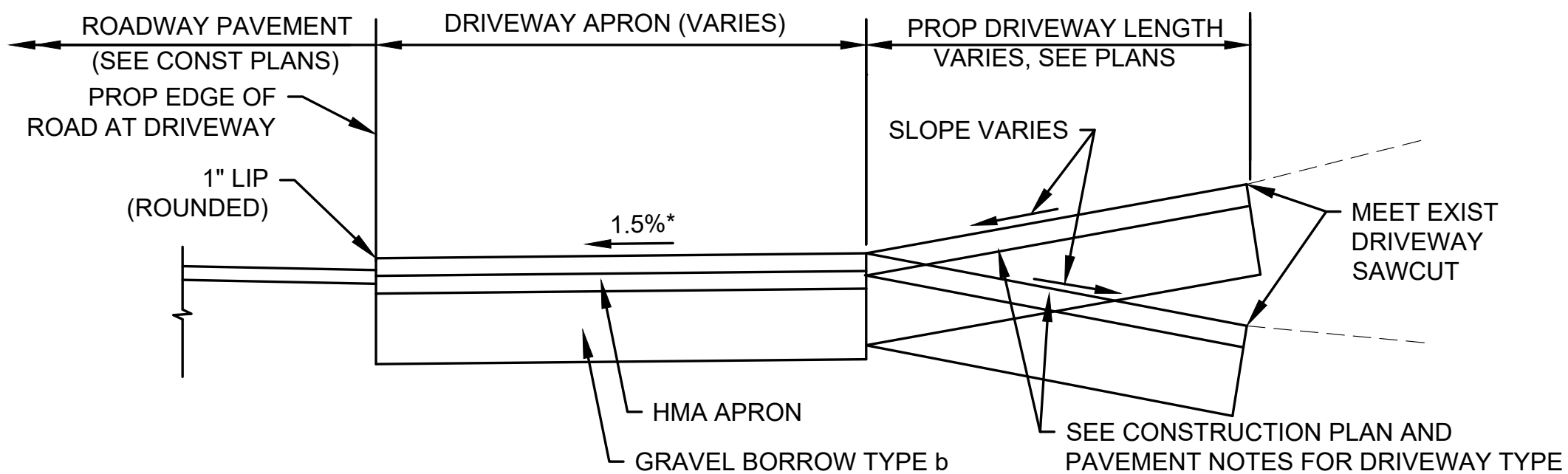
SECTION FOR TYPICAL HMA DRIVEWAY WITH SIDEWALK

NOT TO SCALE



DETAIL FOR DEPRESSED DRIVEWAY WITH SIDEWALK - TYPE B

NOT TO SCALE



SECTION FOR DEPRESSED HMA DRIVEWAY WITH SIDEWALK

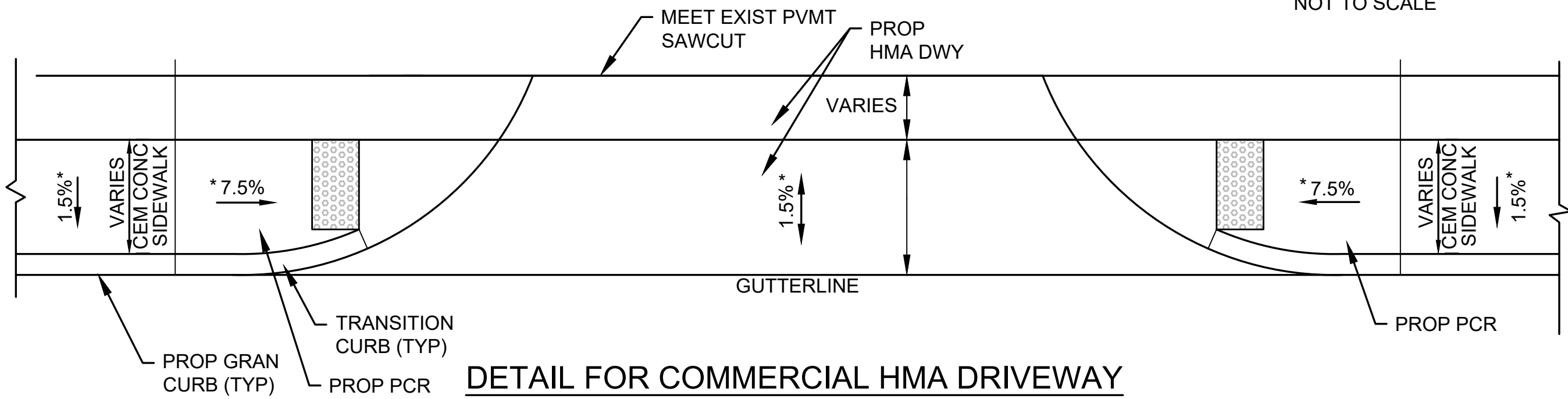
NOT TO SCALE

- NOTES:
- ALL WHEELCHAIR RAMPS SHALL CONFORM TO THE REQUIREMENTS OF THE MASSACHUSETTS ARCHITECTURAL ACCESS BOARD (AAB) AND THE AMERICAN WITH DISABILITIES ACT (ADA) AND THE LATEST MASSDOT STANDARDS.
 - THE LOCATIONS OF PROPOSED WHEELCHAIR RAMPS ARE SHOWN ON CONSTRUCTION PLANS AND THE WHEELCHAIR RAMP DETAILS SHEETS. EXACT LOCATIONS MAY BE ADJUSTED, IF NECESSARY, BY THE ENGINEER IN THE FIELD.

TABLE I	
ROADWAY PROFILE GRADE	* HIGH SIDE TRANSITION LENGTH
%	ENGLISH UNITS
=0%	6'-6"
>0% TO 1%	7'-8"
>1% TO 2%	9'-0"
>2% TO 3%	11'-0"
>3% TO 4%	14'-0"
>4% TO 5%	15'-0" MAX.

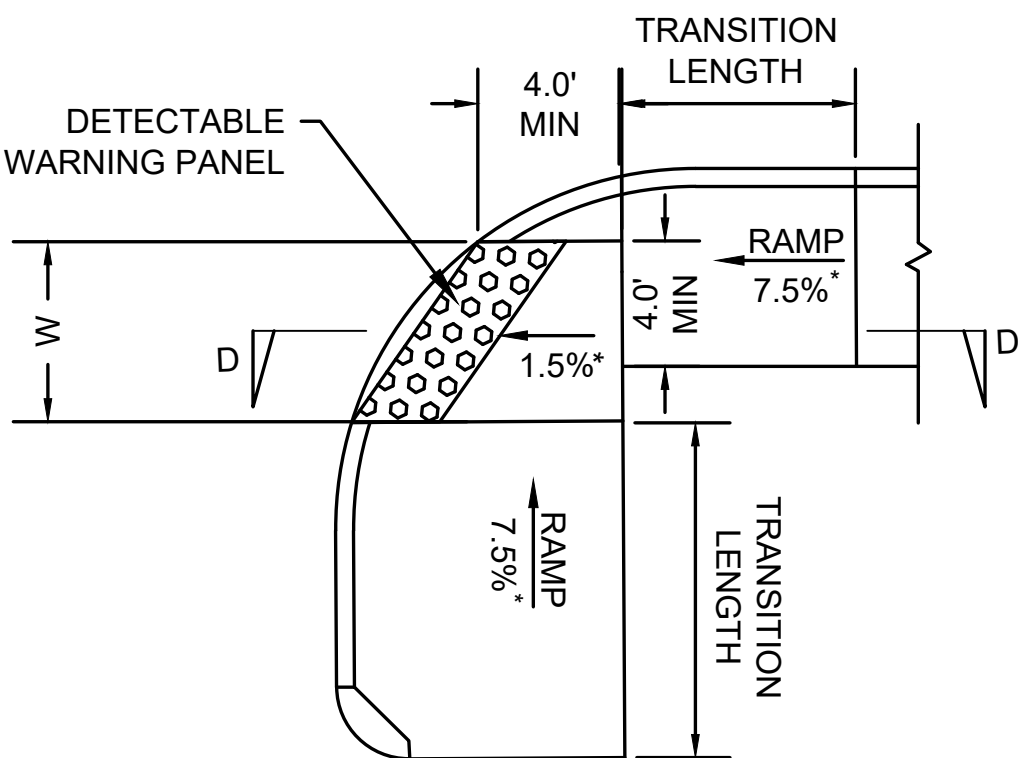
CURB TRANSITION LENGTH FOR PEDESTRIAN CURB RAMPS

MASSDOT CONST. STD. DWG. NO. E107.9.0
*BASED ON A DESIGN SLOPE OF 7.5% AND A REVEAL OF 6".



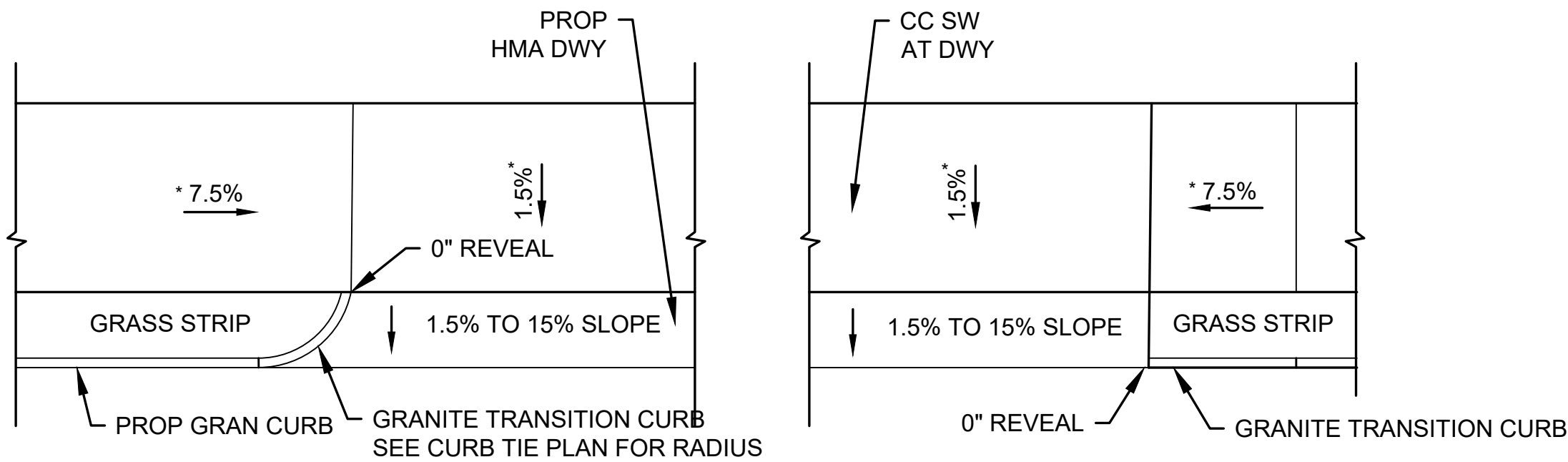
DETAIL FOR COMMERCIAL HMA DRIVEWAY WITH SIDEWALK

NOT TO SCALE



CURB RAMP DETAIL TYPE "H"

NOT TO SCALE



DETAIL FOR TYPICAL DRIVEWAY WITH SIDEWALK & GRASS STRIP

NOT TO SCALE

PEDESTRIAN CURB RAMP TYPE H DATA								
MASSDOT ASSET ID	PCR NO.	LOCATION	RAMP REFERENCE POINT		GUTTER PROFILE SLOPE (%)	WIDTH OF RAMP OPENING W	TRANSITION LENGTH	SIDEWALK WIDTH
			STATION	OFFSET				
	21	BOSTON RD	140+09.6	24.1 R	1.3%	5.0'	6.5' (BOSTON RD) 3" R 9.4' (LOCKE RD)	5.5' (BOSTON RD) 8.0' (LOCKE RD)

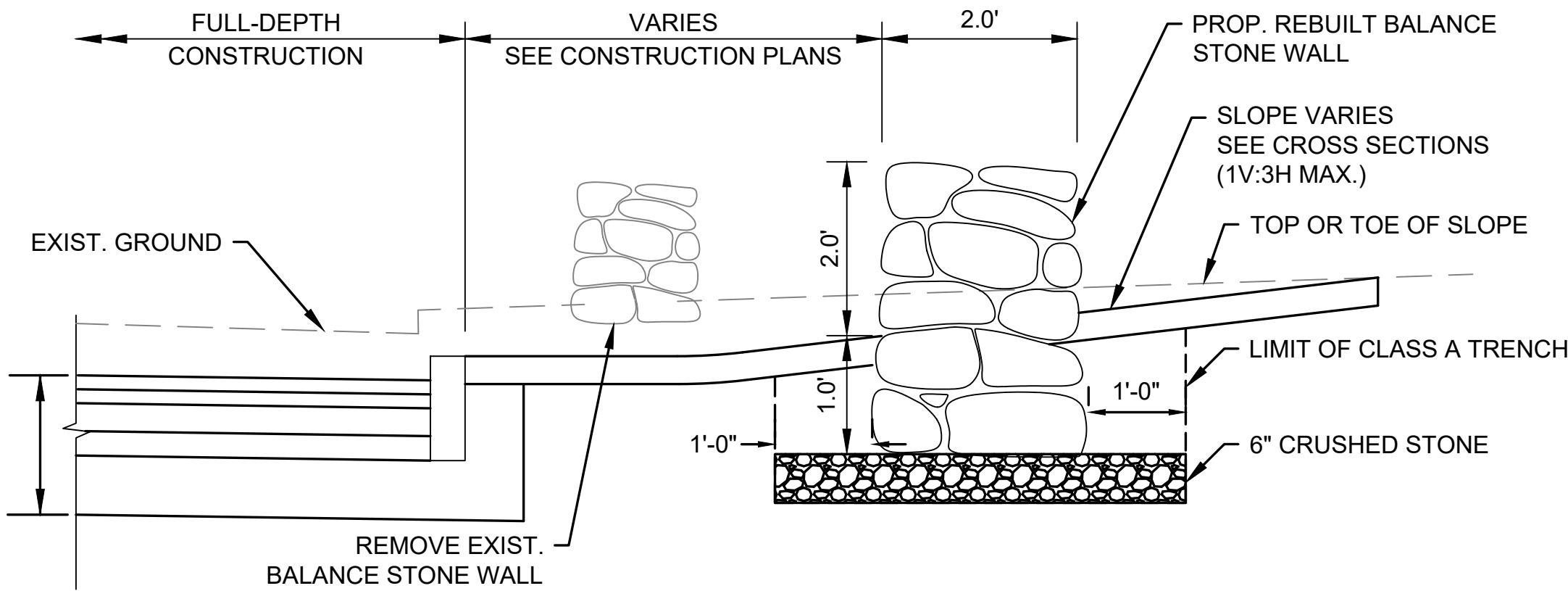
NOTE:
SEE DRIVEWAY TABLE ON SHEET 8

NOTE:
SEE WCR TABLE ON SHEET 7

* TOLERANCE FOR CONSTRUCTION ±0.5%

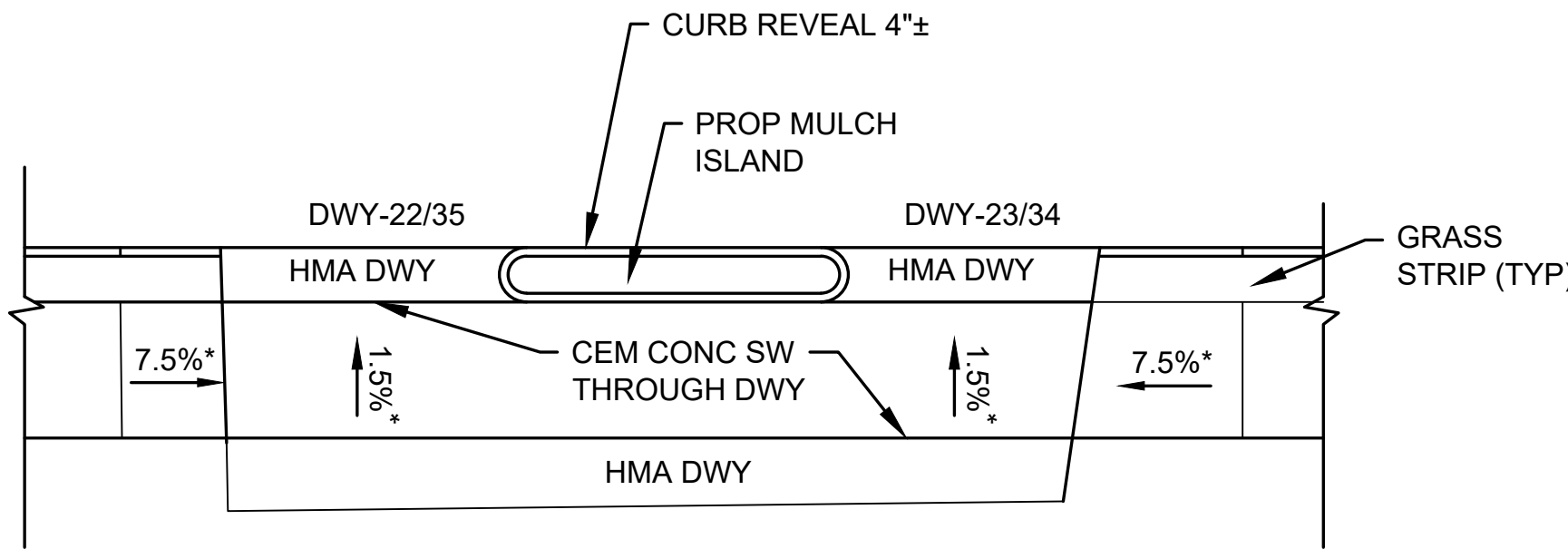
DRIVEWAY TYPE A OPENING									
DWY NO.	LOCATION	DRIVEWAY OPENING AT GUTTER		GUTTER PROFILE SLOPE (%)	OPENING WIDTH AT GUTTER	DEPTH OF GUTTER TO BACK OF SIDEWALK	PATH OF TRAVEL WIDTH ACROSS DRIVEWAY	TRANSITION LENGTH	
		STATION	OFFSET					LEFT	RIGHT
10	BOSTON RD	111+29.9	20.0 L	-6.0%	20.0'	5.5'	3.0'	15.0'	6.5'
26	LEXINGTON RD	21+48.1	25.4 L	6.0%	25.3'	5.5'	5.5'	6.5'	-
27	BOSTON RD	125+83.3	18.0 R	-4.3%	20.0'	8.0'	3.0'	15.0'	6.5'
36	BOSTON RD	134+17.8	20.0 R	0.6%	29.0'	5.5'	5.5'	6.5'	7.7'

DRIVEWAY TYPE B OPENING									
DWY NO.	LOCATION	DRIVEWAY OPENING AT GUTTER		GUTTER PROFILE SLOPE (%)	OPENING WIDTH AT GUTTER	DEPTH OF GUTTER TO BACK OF SIDEWALK	PATH OF TRAVEL WIDTH ACROSS DRIVEWAY	TRANSITION LENGTH	
		STATION	OFFSET					LEFT	RIGHT
1	BOSTON RD	104+43.0	27.0 L	-3.9%	25.0'	9.0'	5.0'	14.0'	7.0'
2	BOSTON RD	105+79.9	25.9 L	-4.2%	20.0'	9.0'	5.0'	15.0'	6.5'
3	BOSTON RD	105+89.7	25.4 R	4.2%	20.0'	5.5'	5.5'	6.5'	15.0'
4	BOSTON RD	106+55.2	24.1 L	-3.9%	25.0'	9.0'	5.0'	14.0'	6.5'
5	BOSTON RD	108+49.3	20.0 R	4.1%	61.3'	10.0'	5.0'	6.5'	15.0'
6	BOSTON RD	109+41.1	20.0 L	-6.1%	56.0'	5.5'	5.5'	10.0' (4"R)	6.5'
7	BOSTON RD	109+43.3	20.0 R	6.4%	61.6'	11.5' ±	5.0'	6.5'	15.0'
8	BOSTON RD	110+63.5	20.0 R	5.5%	67.3'	12.5' ±	5.0'	6.5'	15.0'
9	BOSTON RD	110+73.1	20.0 L	-3.2%	20.0'	5.5'	5.5'	15.0'	6.5'
11	BOSTON RD	111+84.9	20.0 L	-6.5%	20.0'	5.5'	5.0'	15.0'	6.5'
12	BOSTON RD	112+31.7	20.0 R	5.4%	71.7'	13.0'	5.5'	6.5'	15.0'
13	BOSTON RD	112+43.1	20.0 L	-5.9%	20.0'	5.5'	5.0'	15.0'	6.5'
14	BOSTON RD	114+17.0	20.0 L	-4.6%	22.0'	5.5'	5.5'	15.0'	6.5'
15	BOSTON RD	114+97.1	20.0 R	4.1%	31.8'	14.0'	5.0'	6.5'	15.0'
16	BOSTON RD	115+70.5	20.0 R	3.1%	49.8'	14.0'	5.0'	6.5'	14.0'
17	BOSTON RD	116+42.0	20.0 R	2.7%	52.7'	14.0'	5.0'	7.7'	6.5'
18	BOSTON RD	117+12.4	28.8 L	0.0%	68.5'	5.5'	5.5'	-	-
19	BOSTON RD	117+60.	20.0 R	0.8%	56.2'	16.0'	10.0'	6.5'	6.5'
20	BOSTON RD	118+76.3	24.4 R	-0.6%	38.7'	5.5'	10.0'	7.7'	14.0'
21	BOSTON RD	119+22.7	26.8 L	1.0%	24.0'	5.5'	5.5'	6.5'	7.7'
22	BOSTON RD	119+61.0	25.0 R	-1.1%	22.5'	14.0'	10.0'	-	6.5'
23	BOSTON RD	120+04.1	25.0 R	-0.9%	20.5'	14.0'	10.0'	7.7'	-
28	BOSTON RD	127+21.9	26.1 L	5.1%	46.3'	5.5'	5.5'	6.5'	15.0'
29	BOSTON RD	128+00.1	18.4 R	-3.0%	23.5'	4.3'	4.3'	14.0'	6.5'
30	BOSTON RD	129+33.3	20.0 L	3.7%	92.9'	5.5'	5.5'	6.5'	14.0'
31	BOSTON RD	130+25.7	20.0 L	2.2%	39.9'	5.5'	5.5'	11.0'	6.5'
32	BOSTON RD	131+51.3	20.0 R	1.2%	50.5'	5.5'	5.5'	7.7'	6.5'
33	BOSTON RD	131+53.2	20.0 L	-1.6%	58.5'	5.5'	5.5'	6.5'	9.0'
34	BOSTON RD	132+32.5	20.0 L	0.5%	26.7'	5.5'	5.5'	6.5'	4.0' (3"R)
35	BOSTON RD	132+73.0	20.0 L	0.9%	30.4'	5.5'	5.5'	3.3' (3"R)	7.7'
37	BOSTON RD	134+49.9	20.0 L	-1.7%	30.0'	5.5'	5.5'	7.7'	6.5'
38	BOSTON RD	135+96.7	20.0 L	-5.8%	40.0'	5.5'	5.5'	15.0'	6.5'
39	BOSTON RD	136+84.9	20.0 R	4.3%	39.5'	5.5'	5.5'	6.5'	14.0'
40	BOSTON RD	137+49.9	20 R	4.4%	20.0'	5.5'	5.5'	6.5'	15.0'
41	BOSTON RD	138+31.0	20.0 R	5.3%	28.0'	5.5'	5.5'	6.5'	15.0'
42	BOSTON RD	139+05.7	20.0 R	3.5%	30.0'	5.5'	5.5'	6.5'	15.0'
25	LEXINGTON RD	22+00.2	13.1 R	-6.9%	20.0'	5.5'	5.5'	-	6.5'
24	GLAD VALLEY DR	10+82.5	16.0 L	-5.3%	18.8'	5.5'	5.5'	15.0'	-



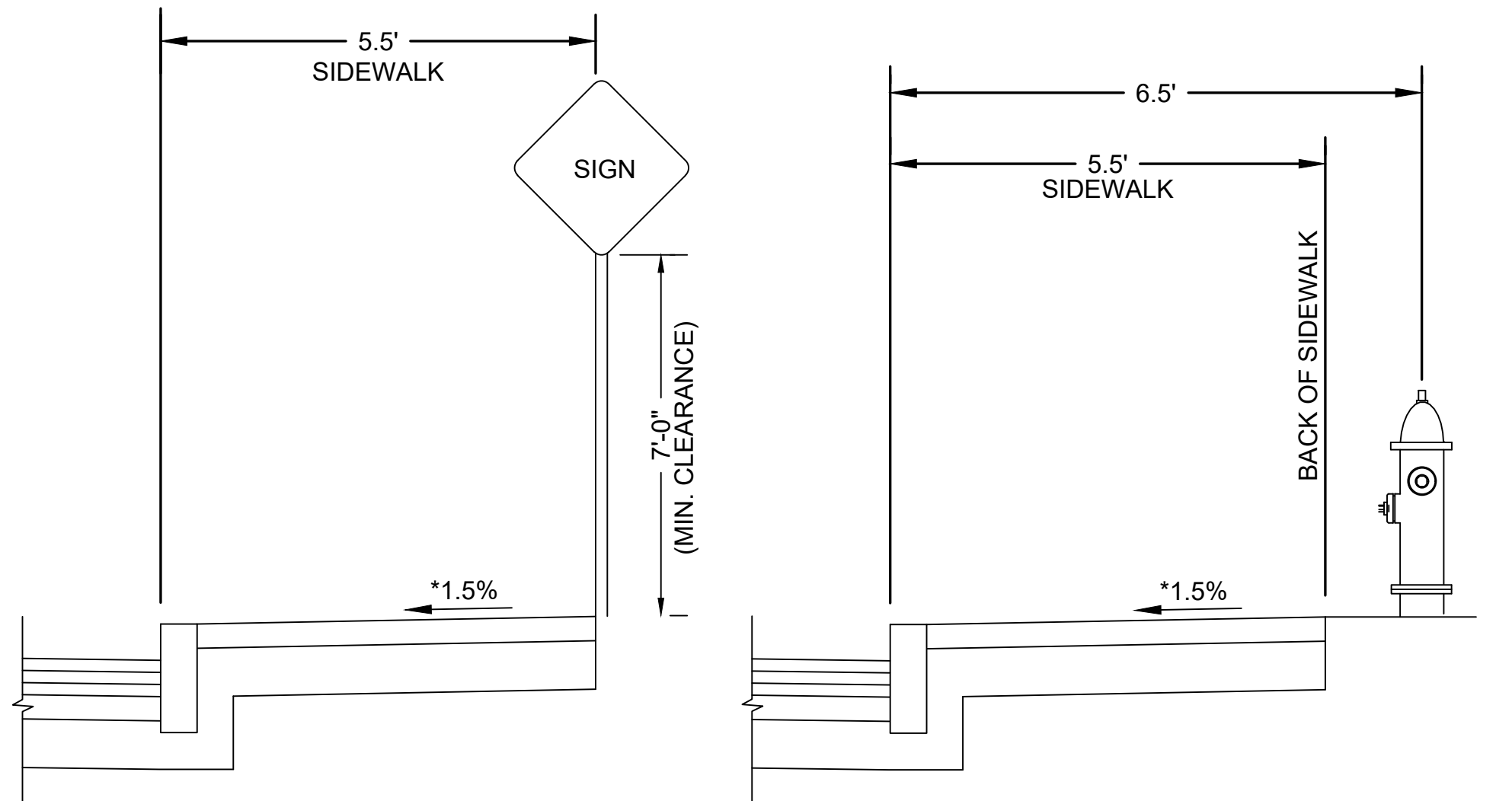
NOTE: PROVIDE ADDITIONAL FIELD STONE MASONRY (M9.04.4) AS MAY BE NECESSARY TO REBUILD THE STONE WALL TO THE DIMENSIONS SHOWN ABOVE AND ON THE CONSTRUCTION PLANS.

DETAIL FOR BALANCE STONE WALL REMOVED AND REBUILT
NOT TO SCALE

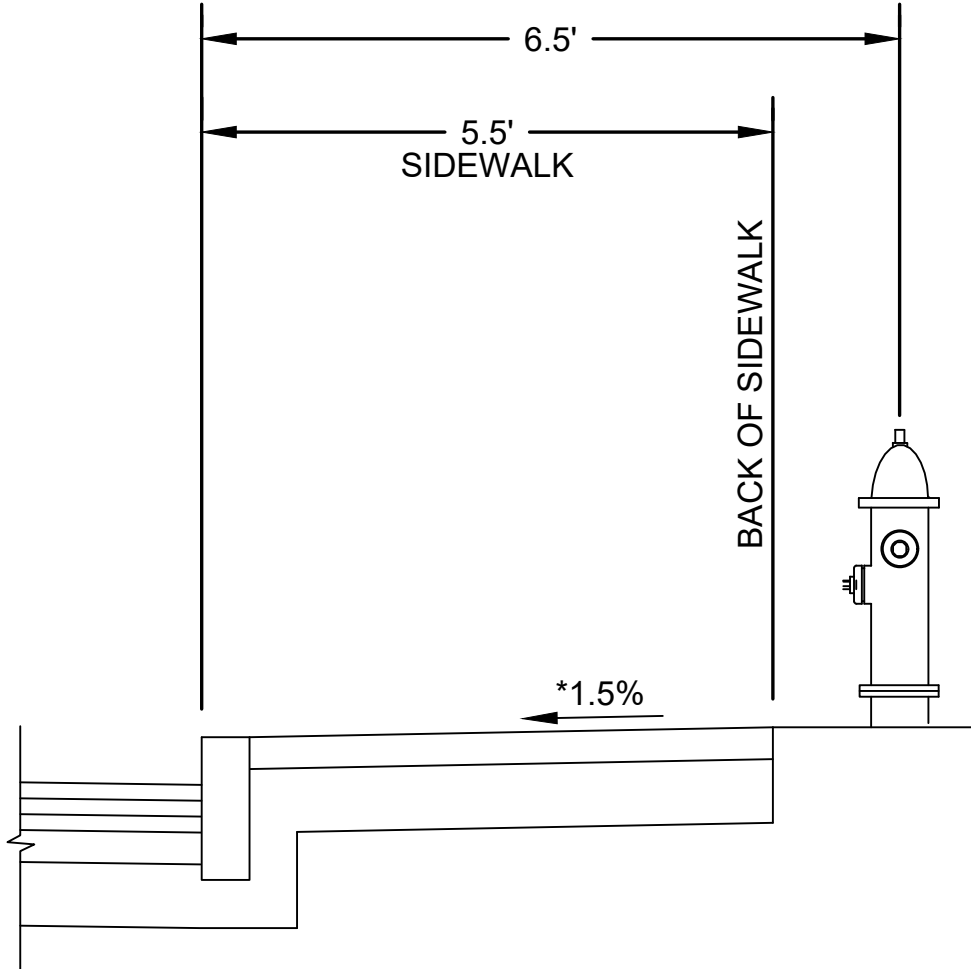


DRIVEWAY-22/23 AND DRIVEWAY-34/35 DETAIL
NOT TO SCALE

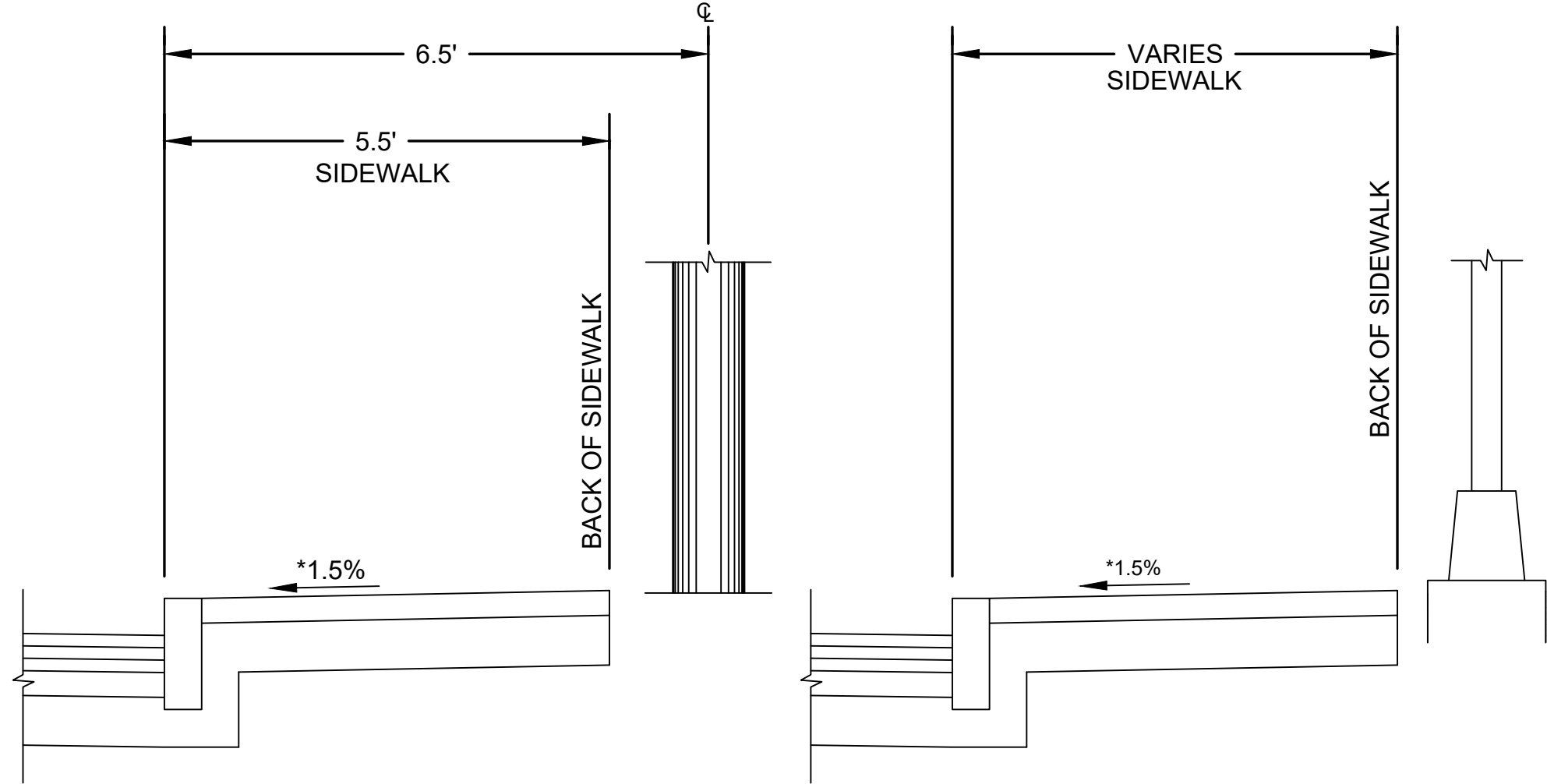
* TOLERANCE FOR CONSTRUCTION ±0.5%



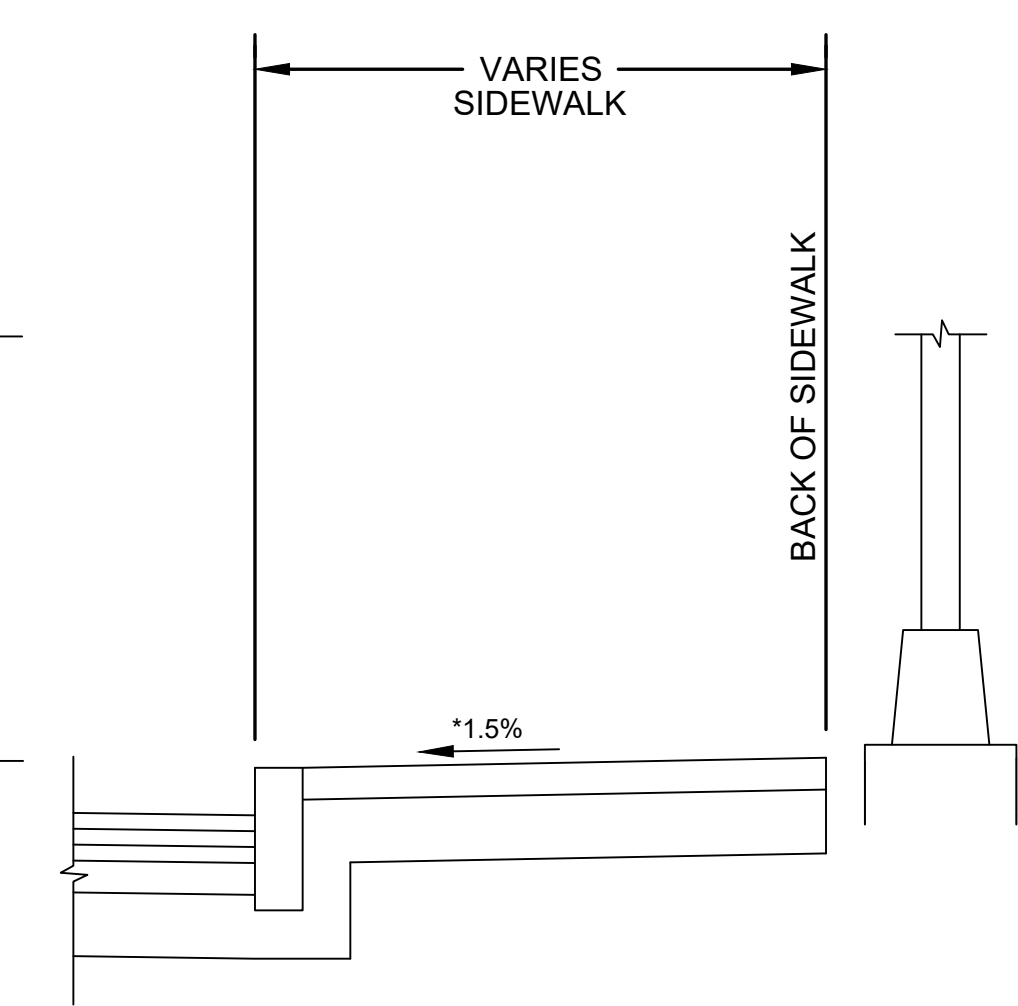
TRAFFIC SIGN
NOT TO SCALE



HYDRANT
NOT TO SCALE

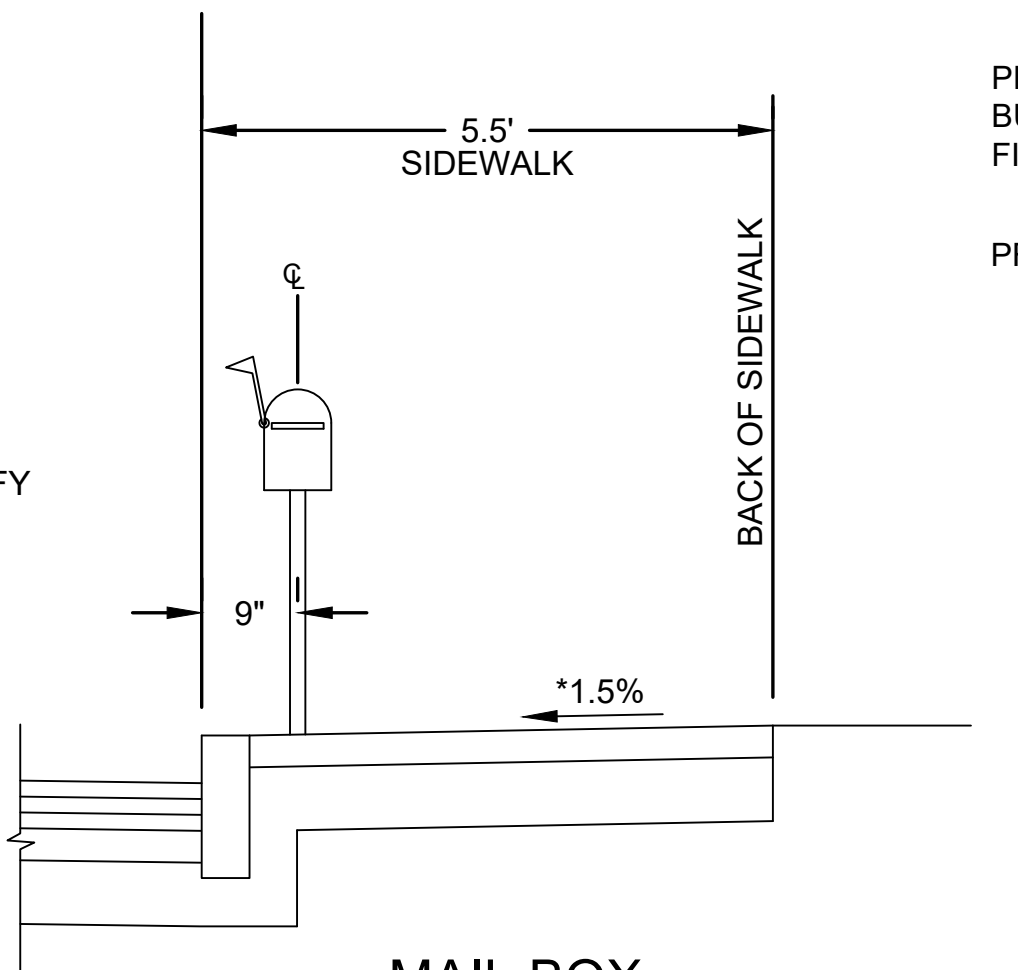


UTILITY POLE
NOT TO SCALE



TRAFFIC SIGNAL FOUNDATION
NOT TO SCALE

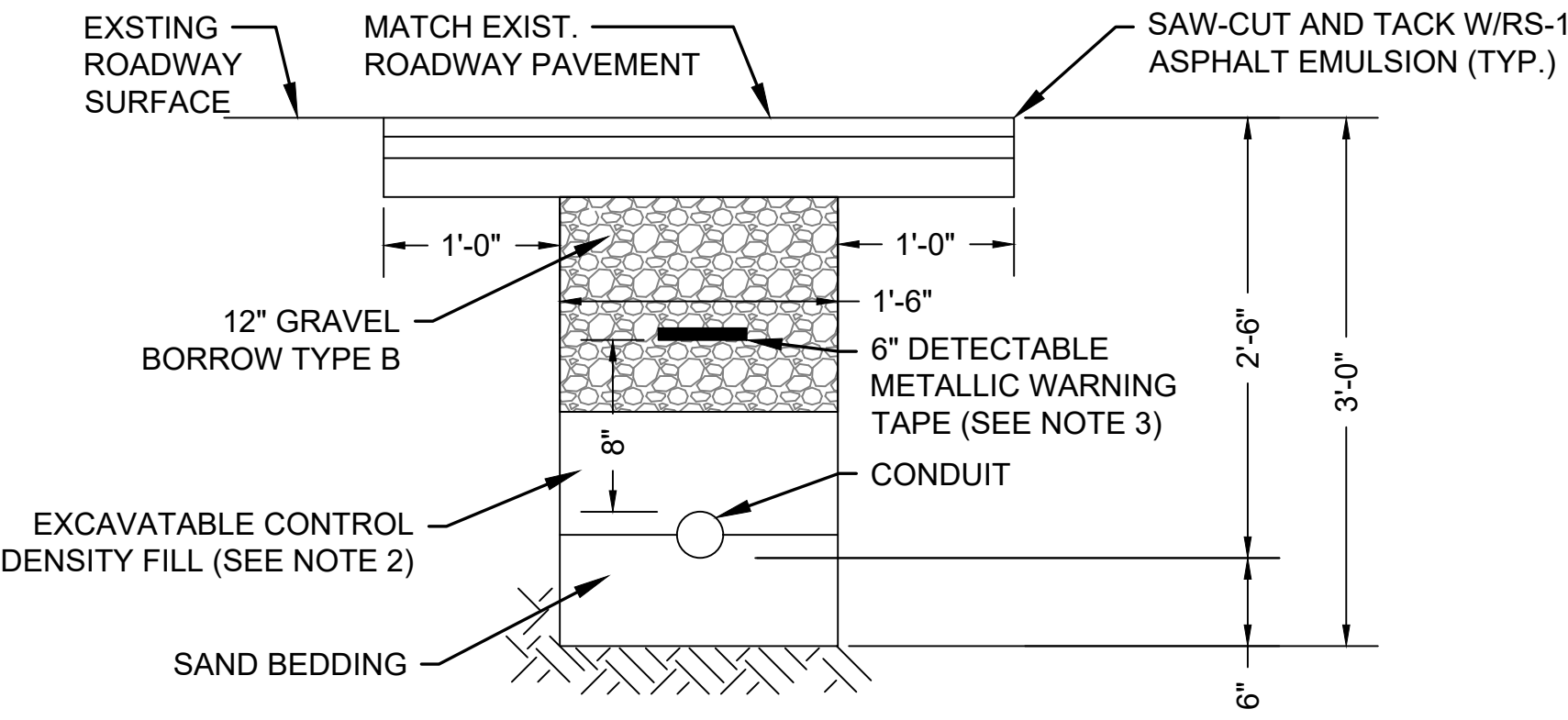
- NOTES:
1. MINIMUM CLEAR PATH ON ALL SIDEWALKS SHALL BE 36 INCHES, EXCLUDING THE CURB.
 2. CONTRACTOR SHALL VERIFY LOCATION OF ALL OBJECTS (SIGNS, POLES ETC.) TO BE SET WITHIN SIDEWALK PRIOR TO FINAL PLACEMENT TO PROVIDE A MINIMUM CLEAR PATH OF 36 INCHES NOT INCLUDING CURB. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY LOCATION WHICH CANNOT MEET THE CLEARANCE REQUIREMENTS.



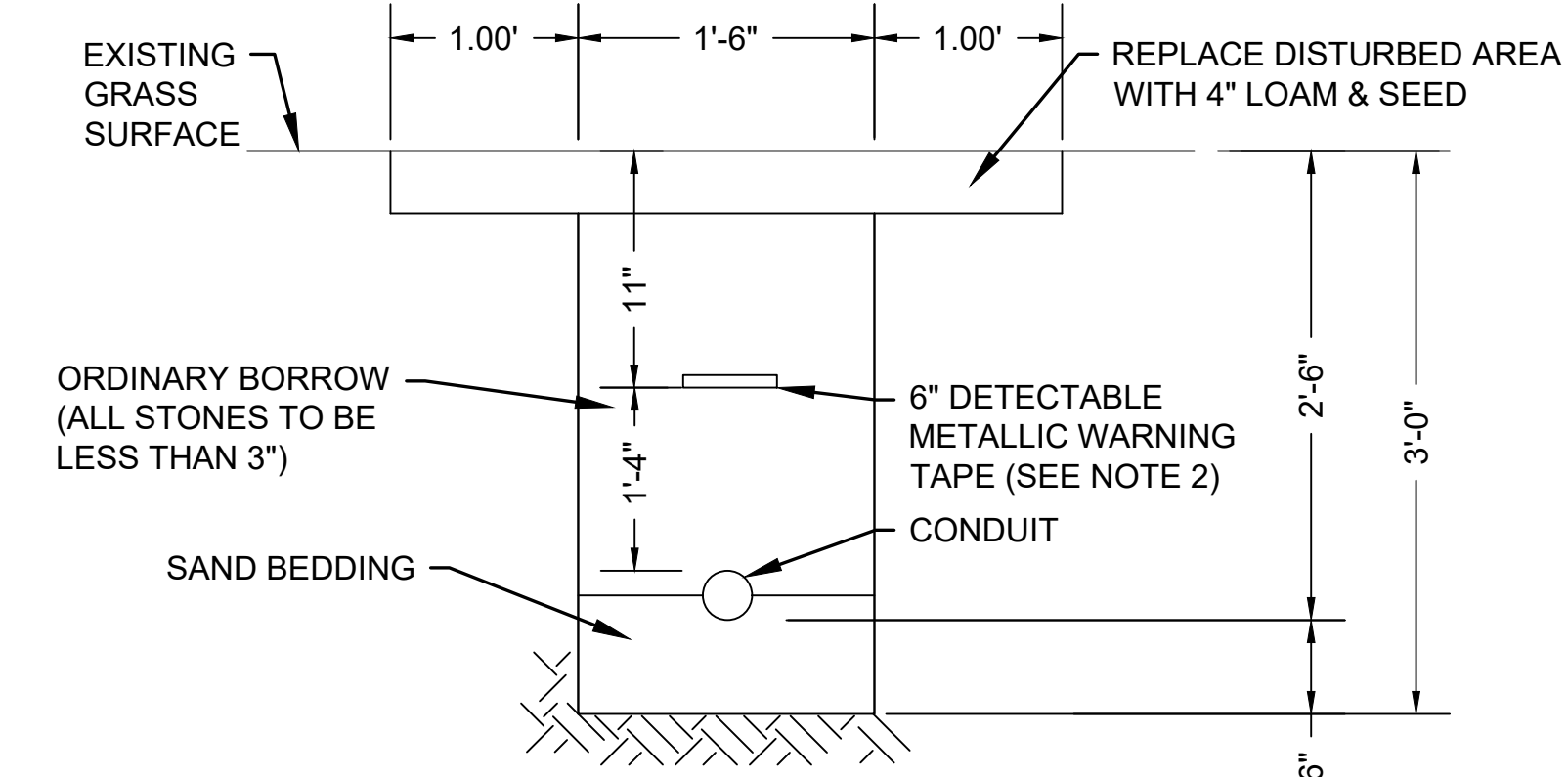
MAIL BOX
NOT TO SCALE
SEE MASSDOT S.D. E504.1.0

* TOLERANCE FOR CONSTRUCTION ±0.5%

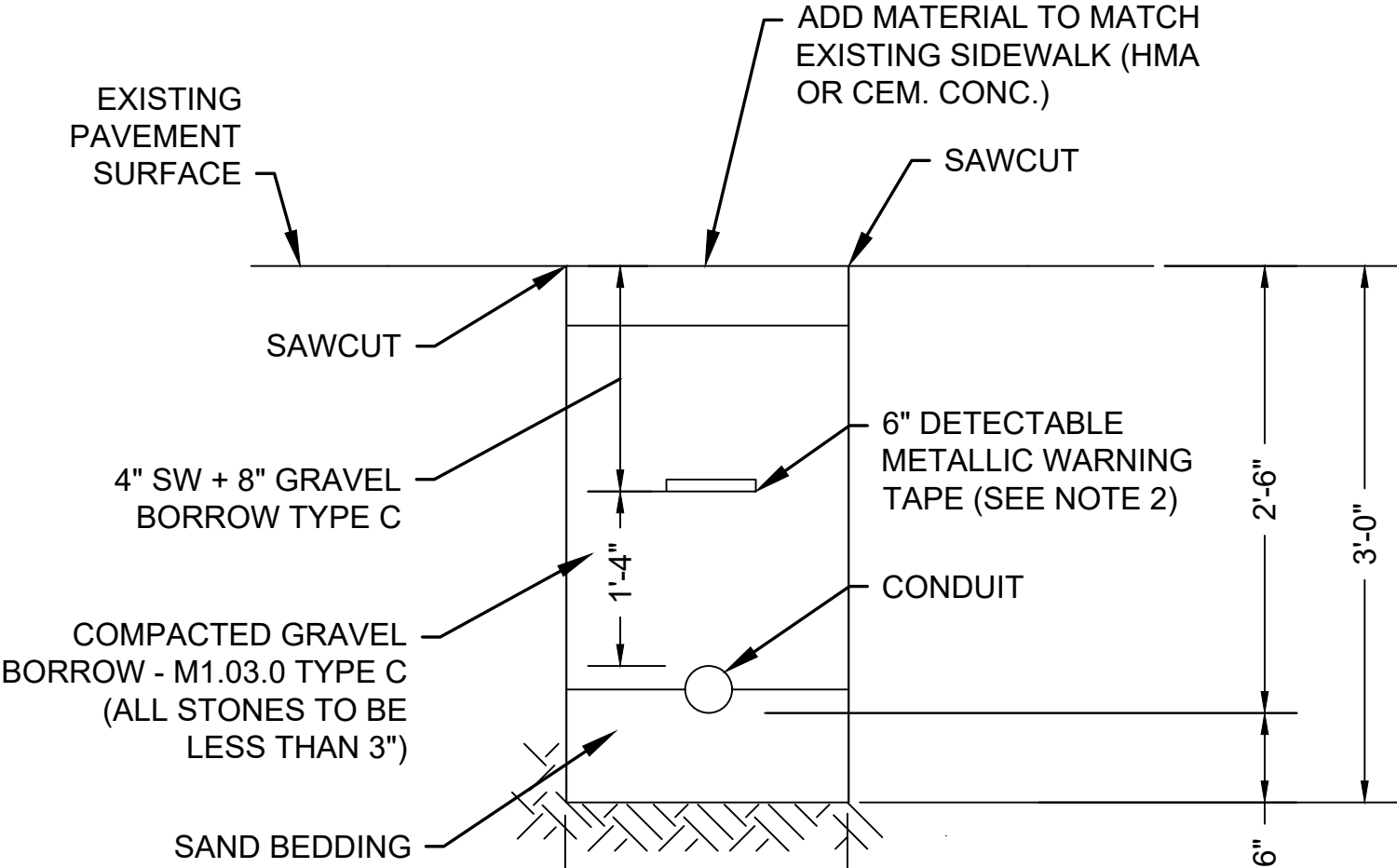
DETAILS SHOWING SIDEWALK CLEARANCES



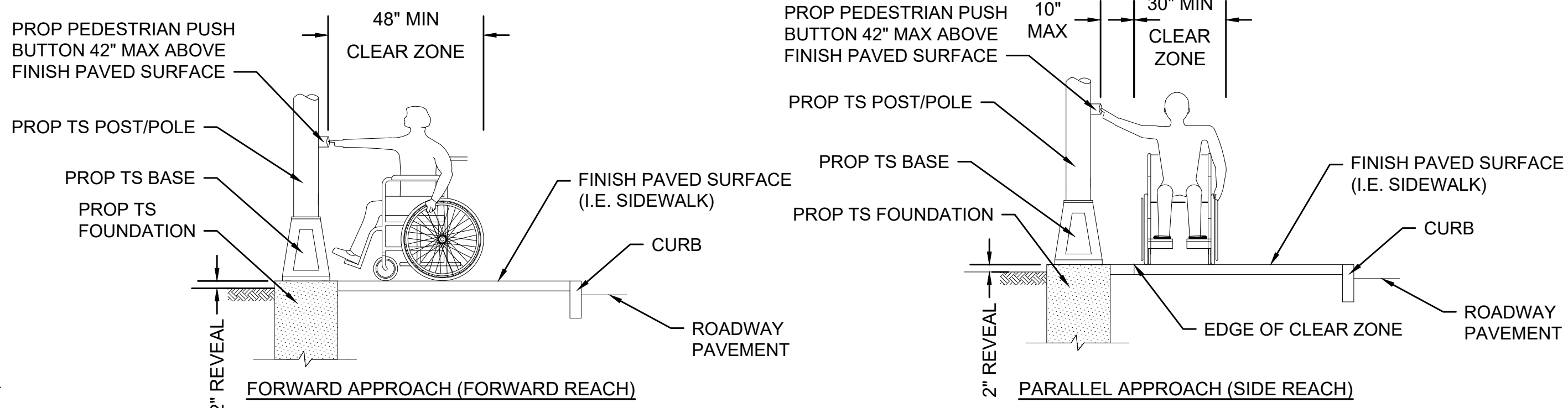
CONDUIT CROSSING ROADWAY
WITH MILL & OVERLAY
NOT TO SCALE



CONDUIT UNDER
GRASS AREAS
NOT TO SCALE

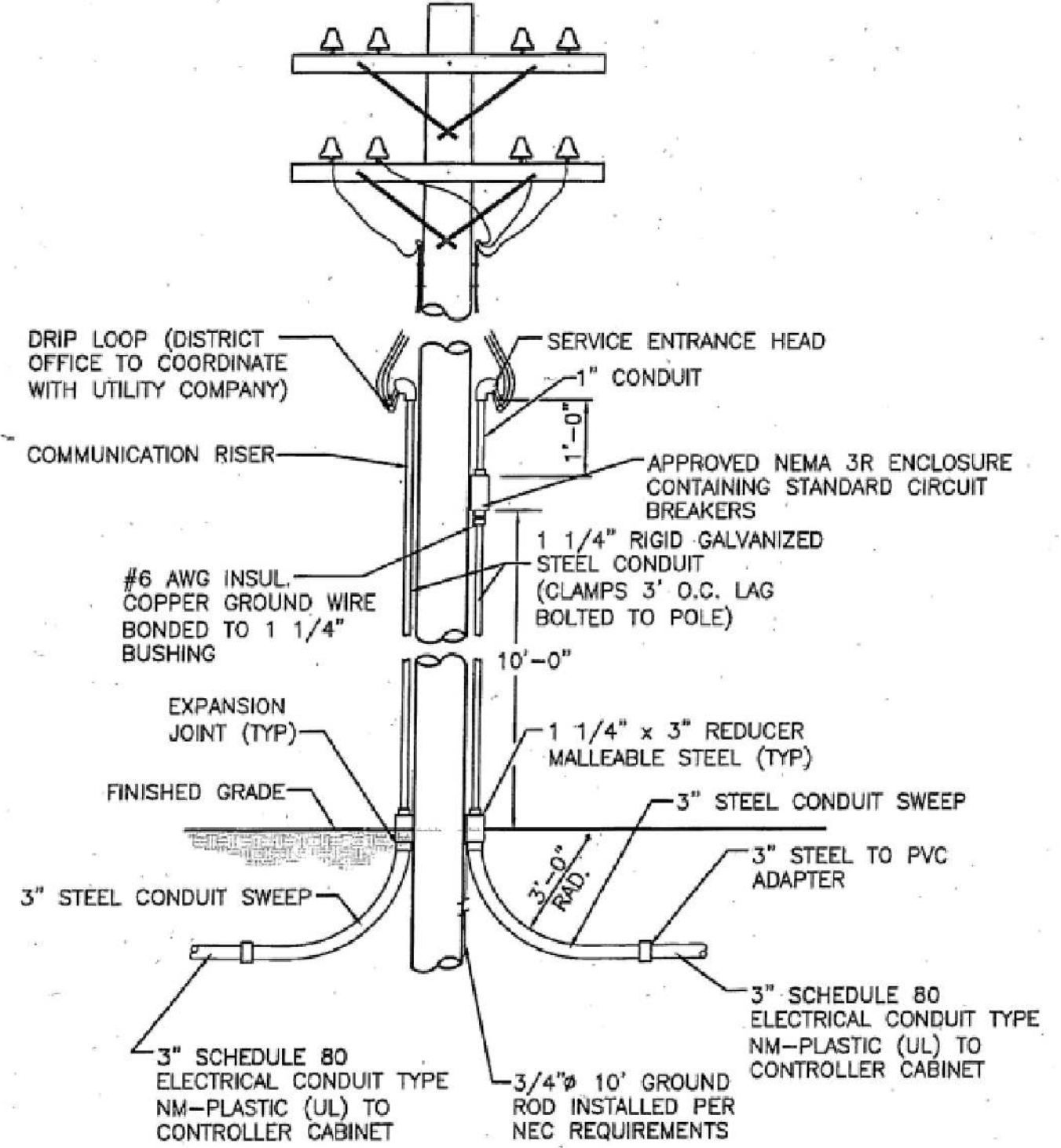


CONDUIT UNDER
SIDEWALK AREAS
NOT TO SCALE



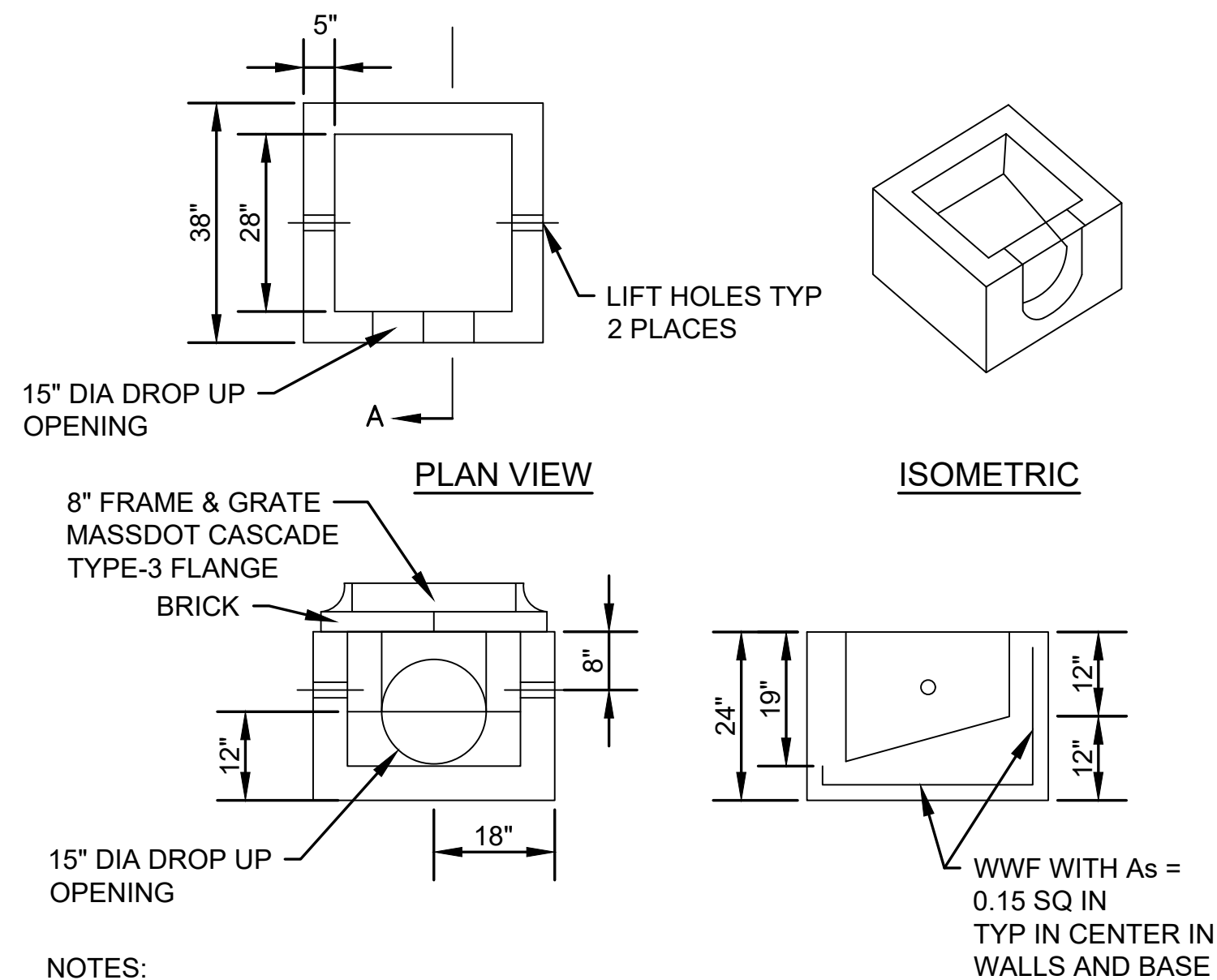
PEDESTRIAN PUSH BUTTON CLEAR ZONE
NOT TO SCALE

- NOTE:
- A CLEAR GROUND SPACE SHALL CONSIST OF A STABLE AND FIRM AREA, COMPLYING WITH 521 CMR 6.5 (FORWARD REACH) OR 521 CMR 6.6 (SIDE REACH) AND SHALL BE PROVIDED AT EACH OF THE PEDESTRIAN PUSH BUTTONS.
- a) WHERE A FORWARD APPROACH IS PROVIDED, PEDESTRIAN PUSH BUTTONS SHALL ABUT AND BE CENTERED ON THE CLEAR GROUND SPACE.
 - b) WHERE A PARALLEL APPROACH IS PROVIDED, PEDESTRIAN PUSH BUTTONS SHALL BE WITHIN TEN INCHES (10") HORIZONTALLY OF AND CENTERED ON THE CLEAR GROUND SPACE.



NOTE:
SPECIFIC ATTACHMENT AND CONNECTION REQUIREMENTS MAY VARY. COORDINATION WITH THE LOCAL UTILITY COMPANY IS REQUIRED BY THE CONTRACTOR.

TRAFFIC SIGNAL SERVICE
CONNECTION - OVERHEAD
NOT TO SCALE

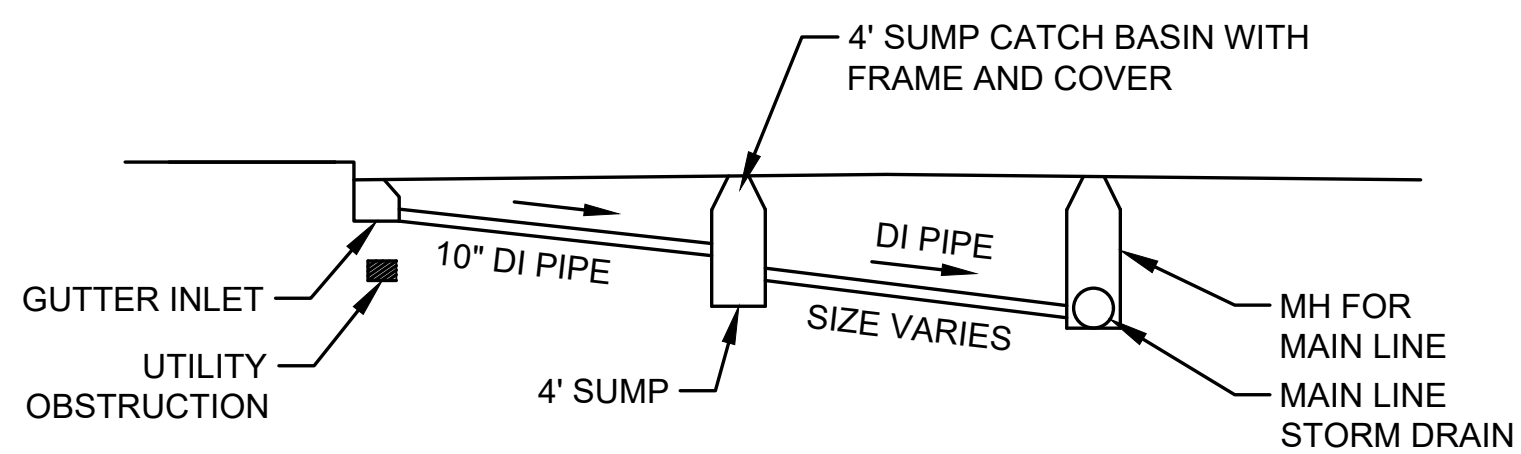


NOTES:

- DESIGNED FOR AASHTO HS25-44 LOADING
- CONCRETE STRENGTH $f_c=4000$ PSI
- REINFORCING STEEL: ASTM A185 (wwf) $f_y=60,000$ PSI
- CURB INLETS ARE REQUIRED WHEN GUTTER INLETS ARE INSTALLED AGAINST CURBING.

SPECIAL GUTTER INLET

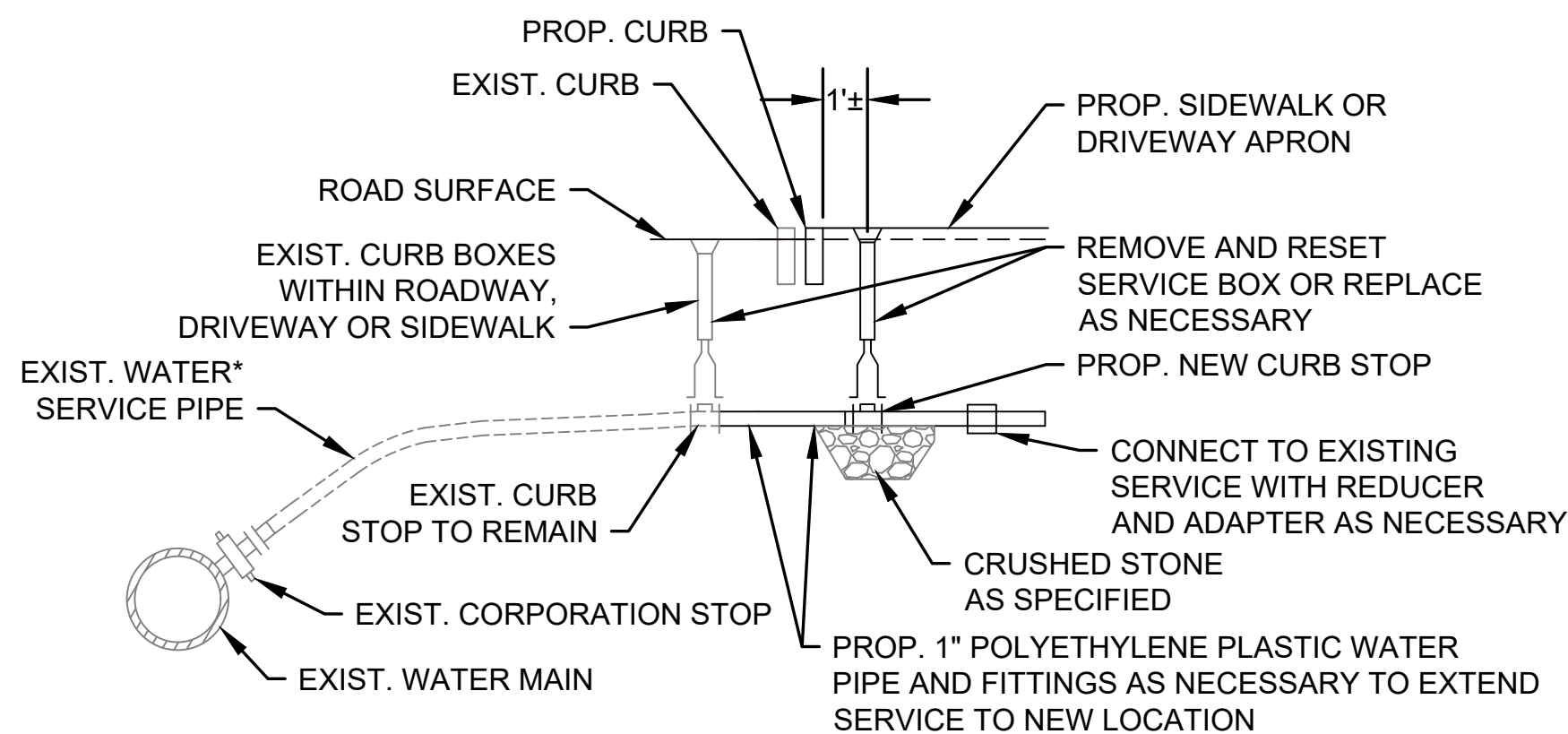
NOT TO SCALE
(ITEM 204.11)



NOTE:
GUTTER INLET SHOULD NOT BE USED DIRECTLY OVER GAS MAINS, TELEPHONE OR ELECTRIC DUCTS.

CONTINGENCY DETAIL FOR STORM DRAIN LATERAL LINES

(USE ONLY IF OBSTRUCTION IS ENCOUNTERED)
NOT TO SCALE

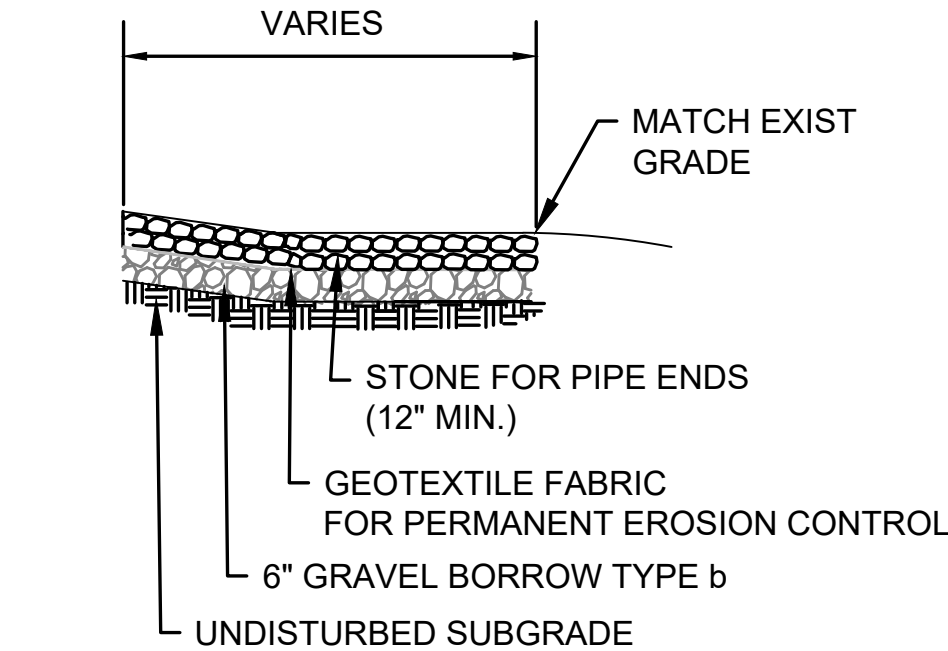


* IF EXISTING WATER SERVICE LINES IS NOT PLASTIC, CONTRACTOR SHALL INFORM BILLERICA DPW. NO CONNECTION SHALL BE MADE UNTIL THE BILLERICA DPW DETERMINES IF THE EXISTING LINE IS SUITABLE TO BE EXTENDED OR MUST BE REPLACE TO THE MAIN.

CURB STOP RELOCATION DETAIL

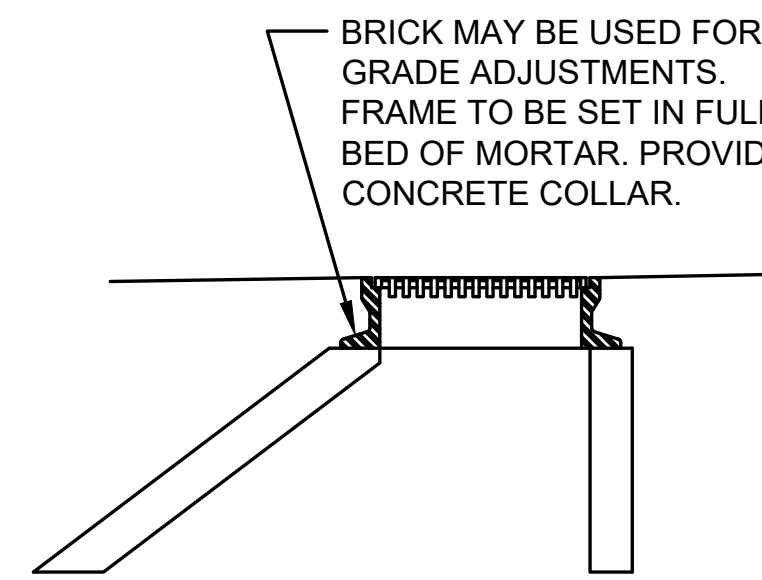
NOT TO SCALE

NOTE: IN AREA OF NEW WATER MAIN REPLACEMENT AND SERVICES, PLEASE USE WATER DETAIL PROVIDED ON SHEET 53-55.



STONE FOR PIPE ENDS DETAIL

NOT TO SCALE

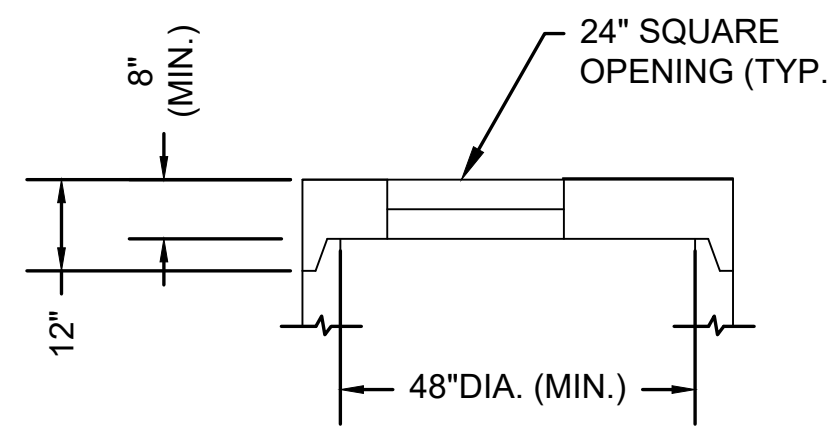


NOTES:

- BASED ON ACTUAL FIELD CONDITIONS; THE CONTRACTOR SHALL DETERMINE WHICH STYLE OF TOP SECTION SHOULD BE USED.

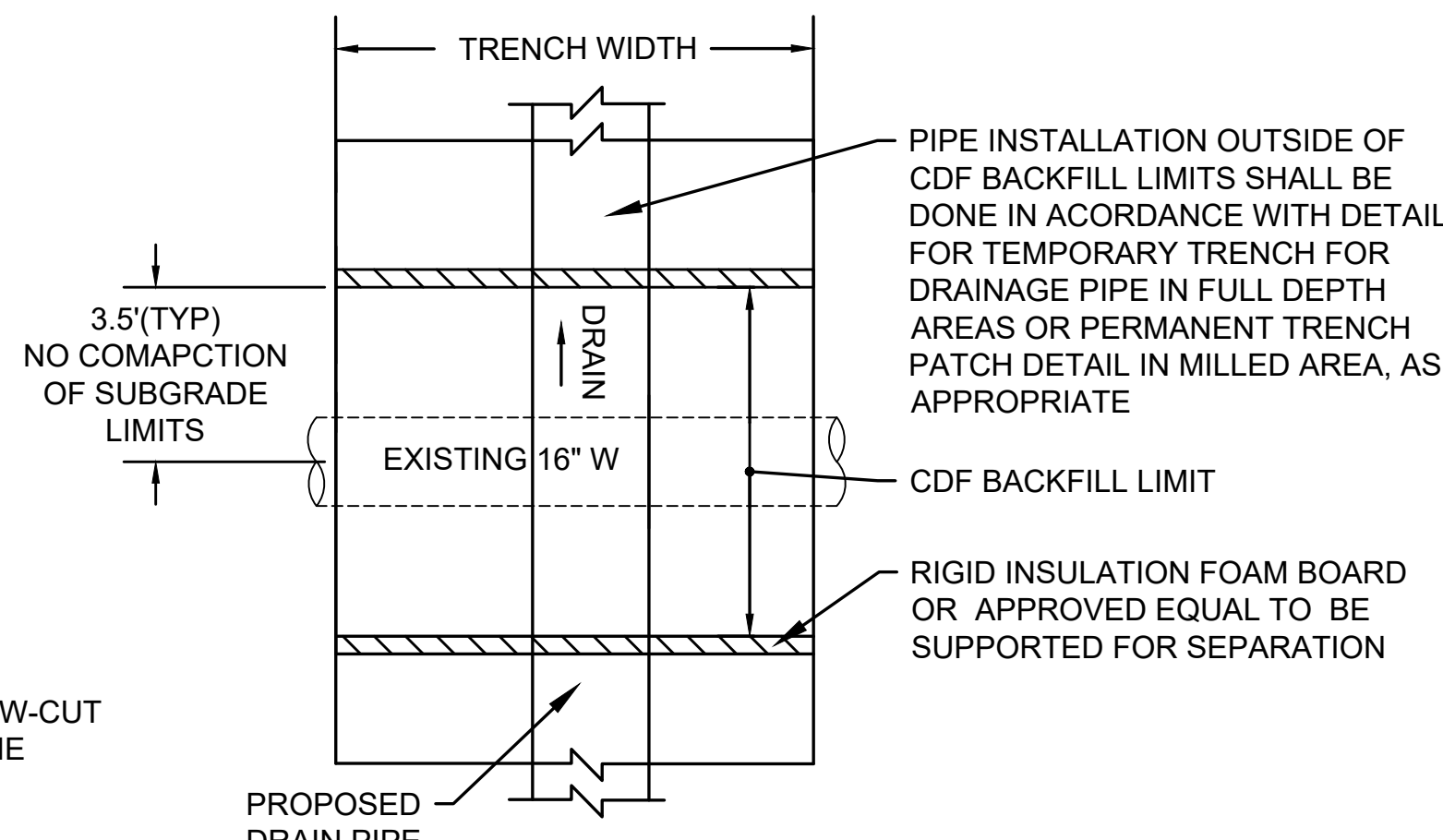
ALTERNATE ECCENTRIC CONE SECTION FOR CATCH BASIN OR MANHOLE

NOT TO SCALE



ALTERNATE TOP SLAB FOR CATCH BASIN OR MANHOLE

NOT TO SCALE

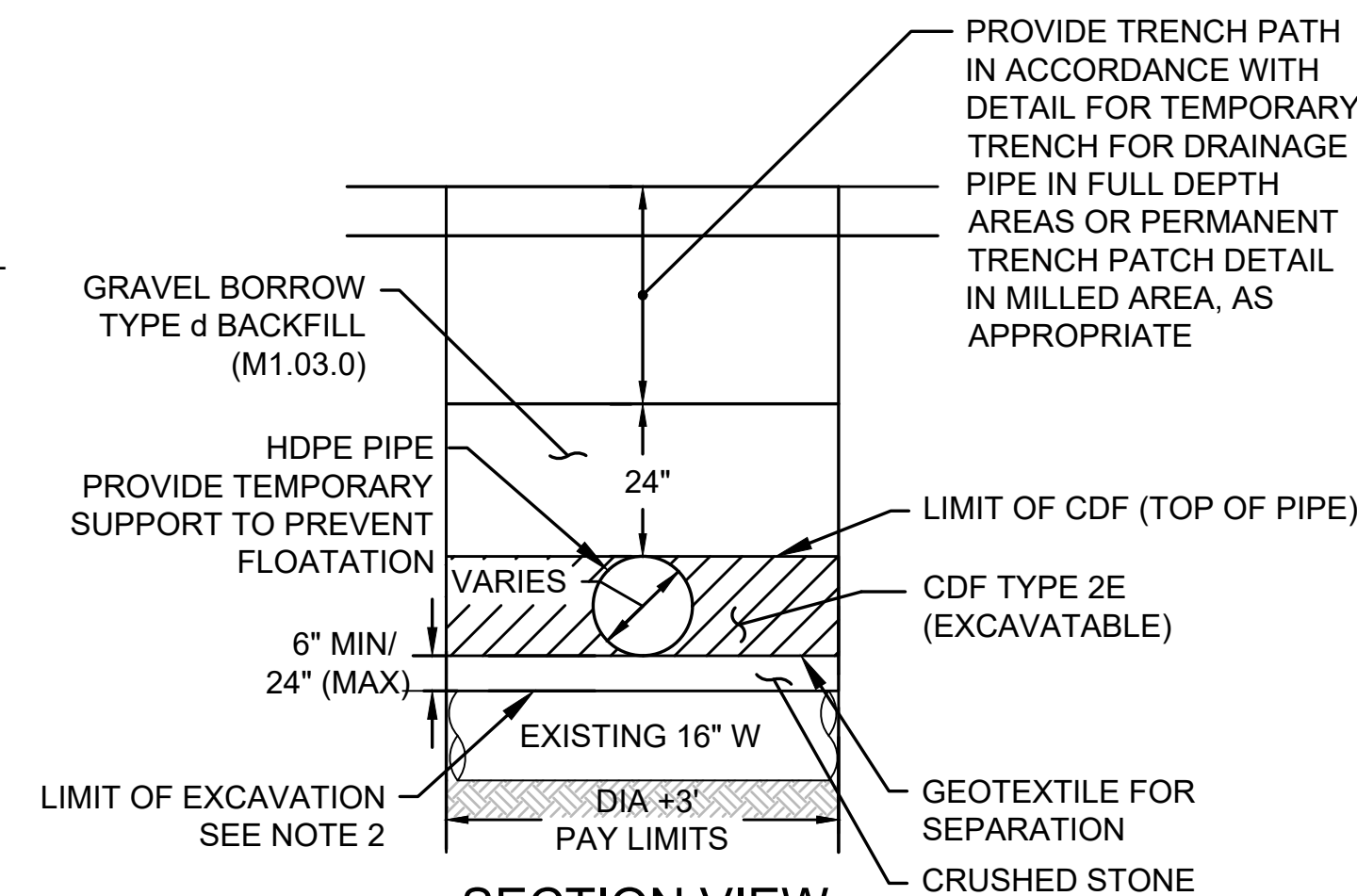


PLAN VIEW
NOT TO SCALE

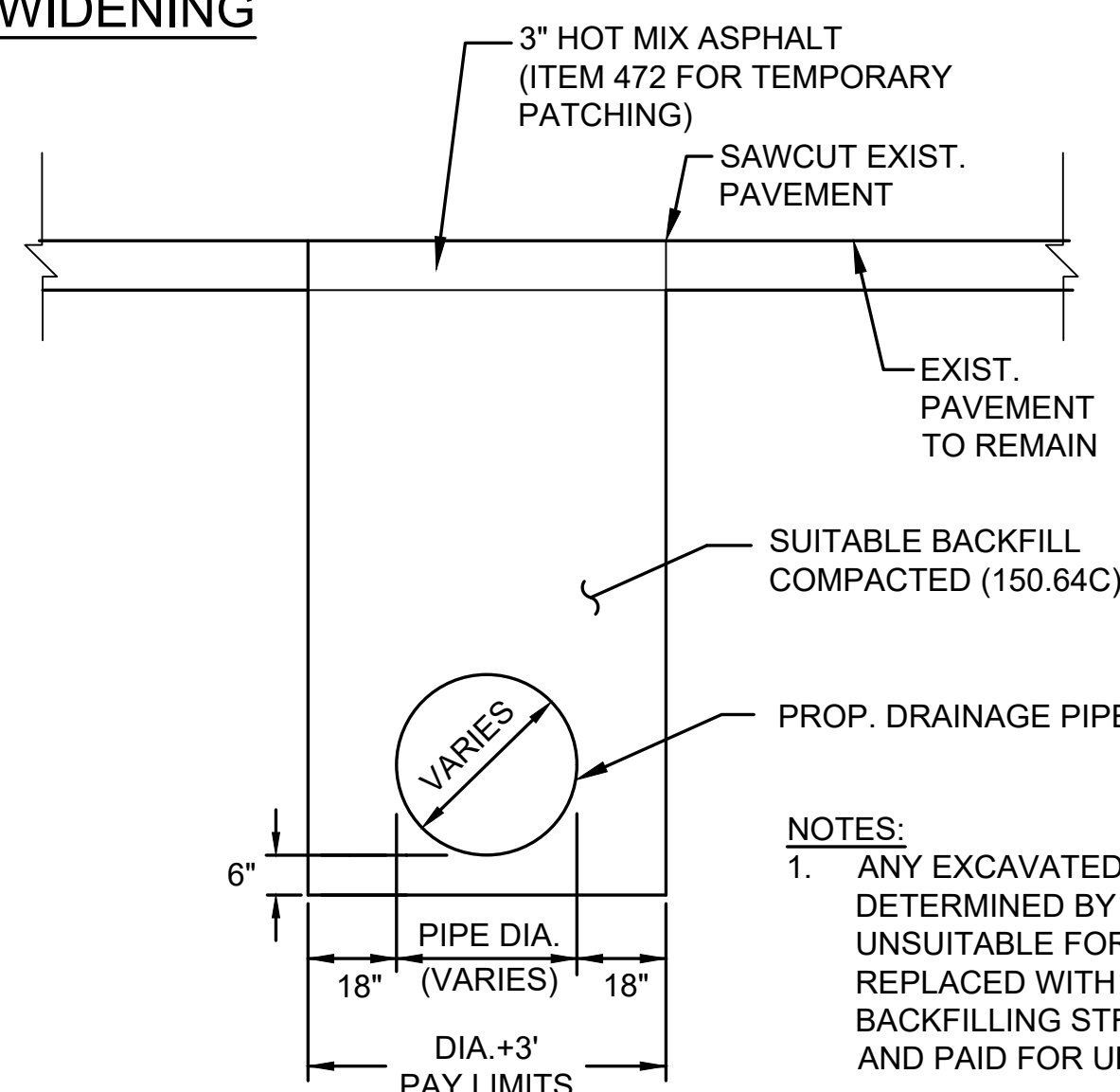
NOTES:

- CDF BACKFILL AT SHALLOW DRAINAGE CROSSINGS SHALL ONLY BE USED AT LOCATIONS WHERE SEPARATION BETWEEN THE PROPOSED DRAIN PIPE AND EXISTING WATER MAIN IS LESS THAN 24 INCHES OR AS DIRECTED BY THE ENGINEER IN COORDINATION WITH THE TOWN OF BILLERICA.
- HAND OR OTHER NON-DESTRUCTIVE EXCAVATION SHALL BE PERFORMED WHERE PROPOSED DRAINAGE HAS LESS THAN 2' OF SEPARATION TO EXISTING CONCRETE WATER MAIN AND IS WITHIN "NO COMPACTION OF SUBGRADE LIMITS."

SHALLOW DRAINAGE CROSSING AT EXISTING CONCRETE WATER MAIN DETAIL



SECTION VIEW
NOT TO SCALE

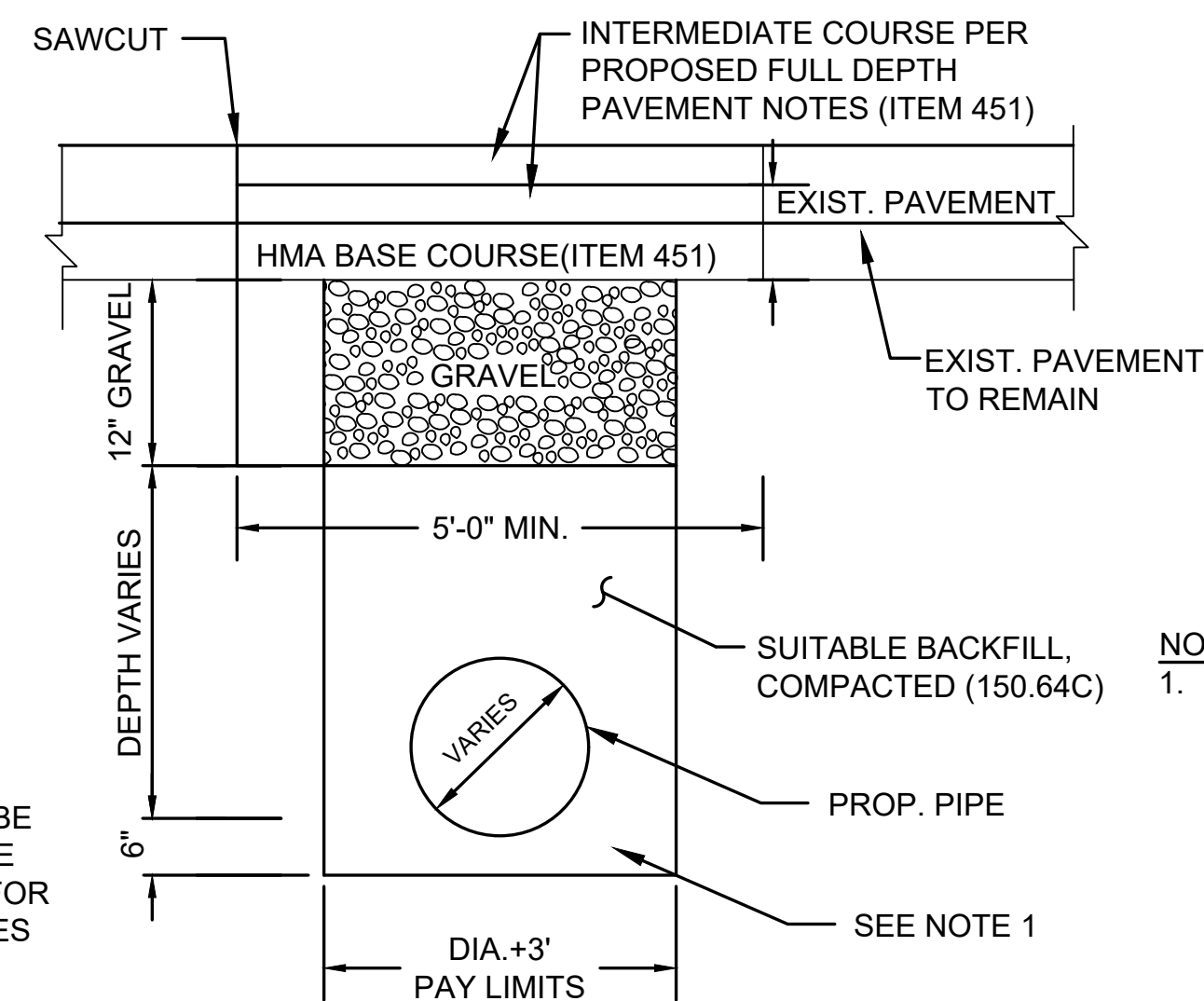


TEMPORARY DRAINAGE PATCH IN FULL DEPTH AREAS

NOT TO SCALE

NOTES:

- ANY EXCAVATED MATERIALS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILL SHALL BE REPLACED WITH GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES AND PAID FOR UNDER ITEM 151.2.

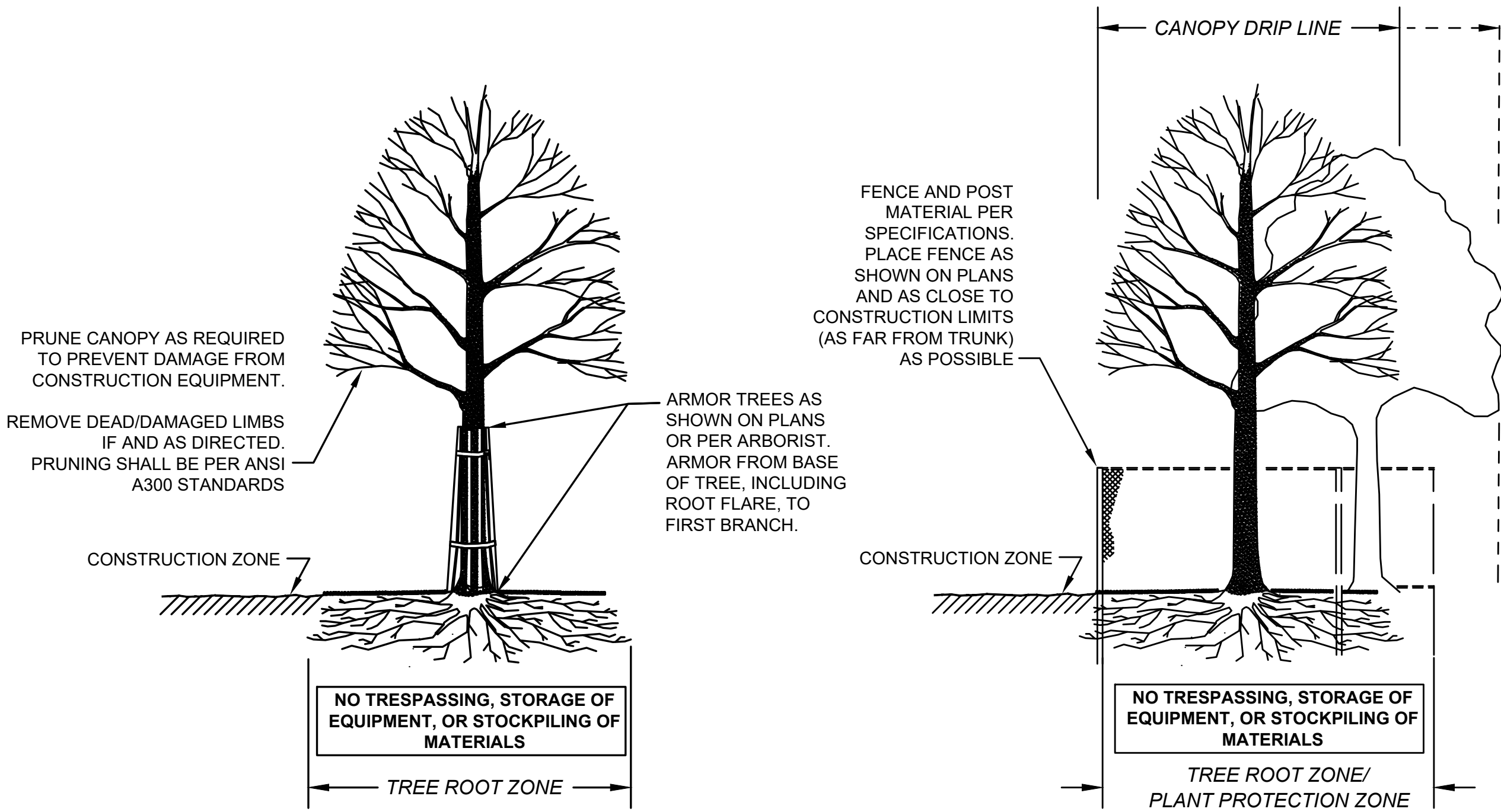


PERMANENT DRAINAGE TRENCH PATCH

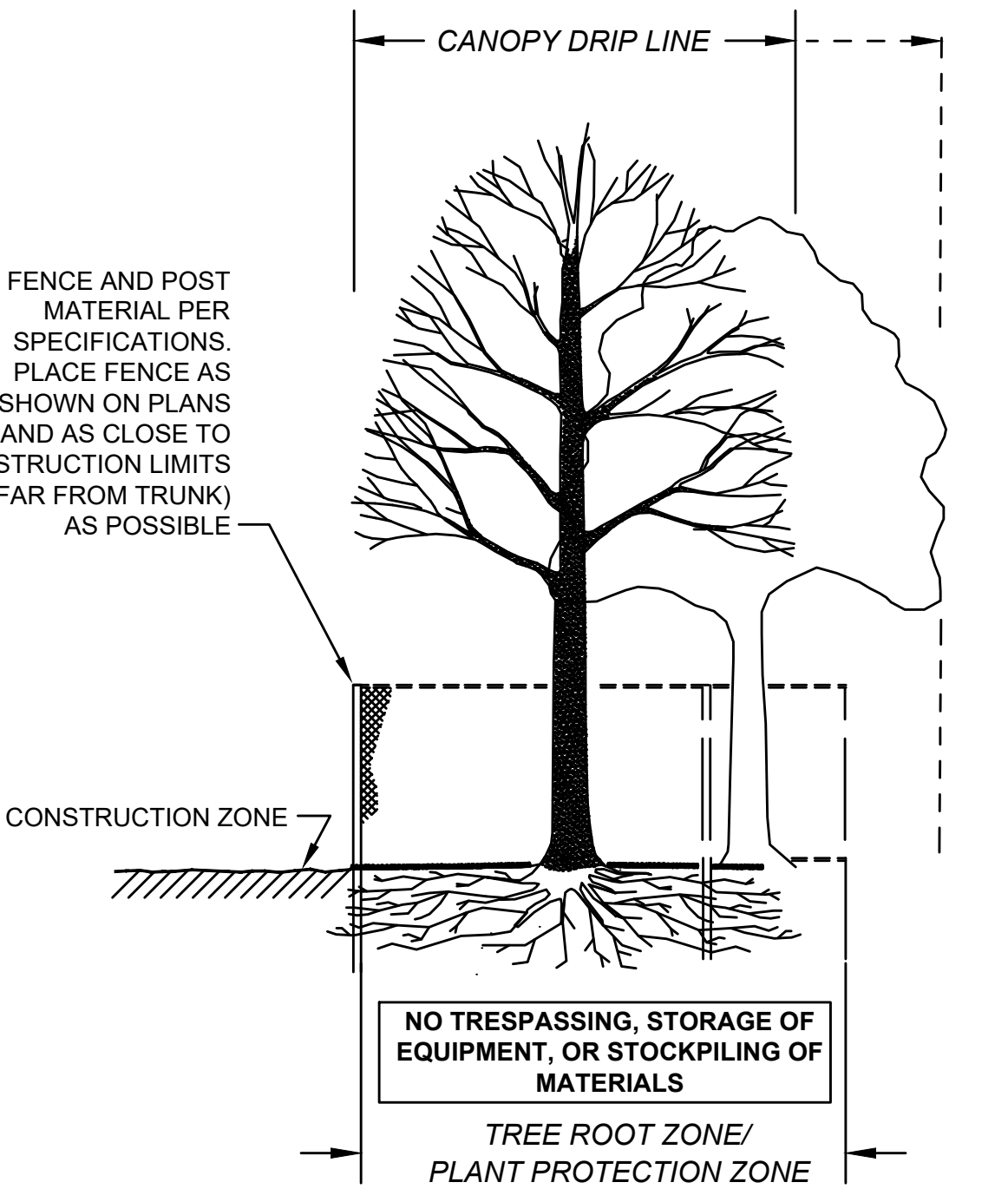
NOT TO SCALE

NOTES:

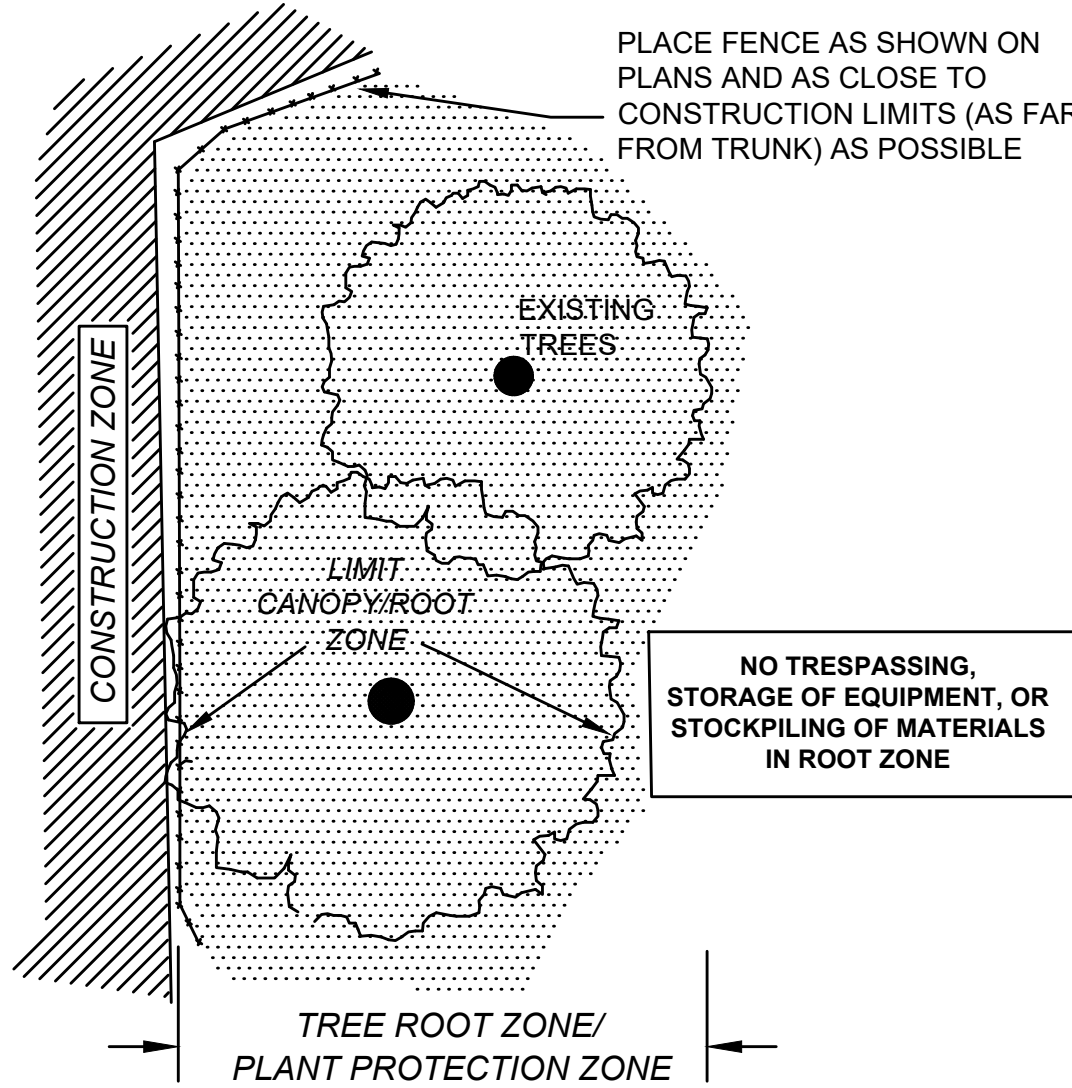
- ANY EXCAVATED MATERIALS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILL SHALL BE REPLACED WITH GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES AND PAID FOR UNDER ITEM 151.2.



SECTION - TRUNK ARMORING & PRUNING

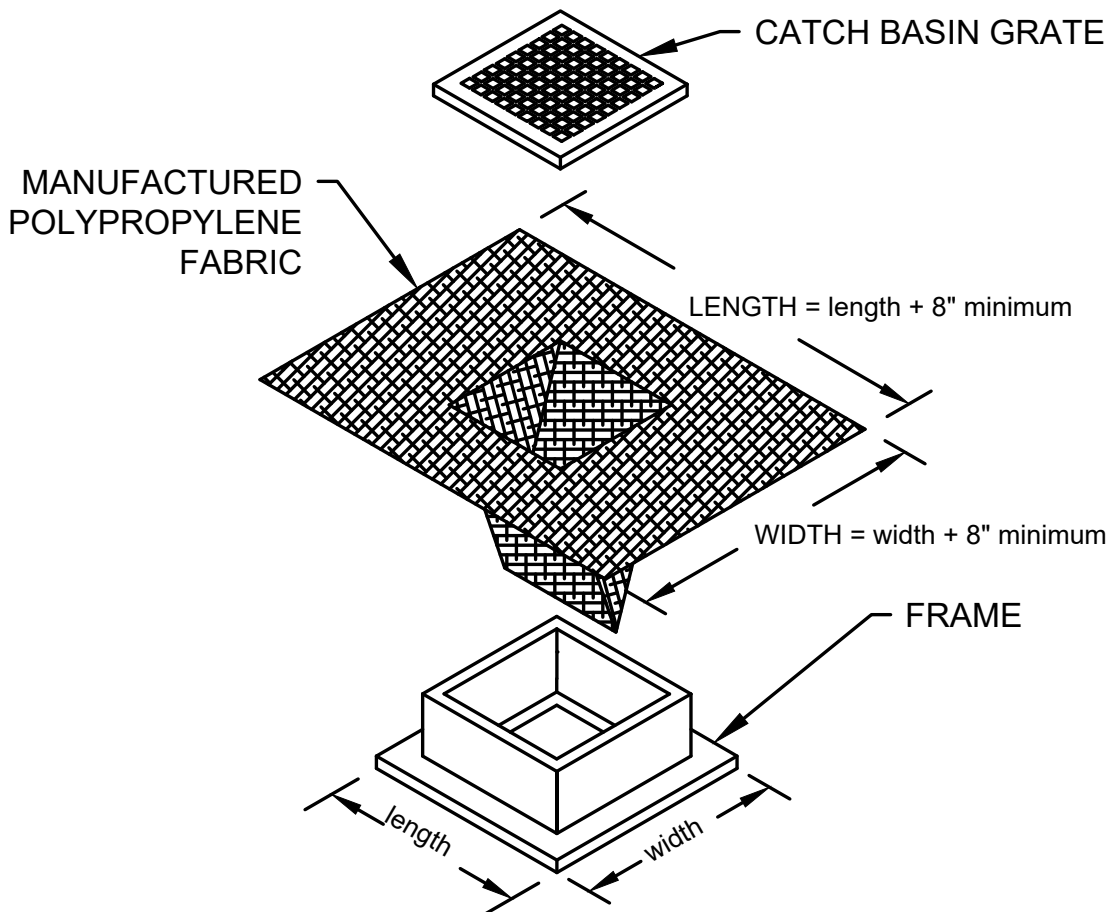


SECTION - FENCE PROTECTION OF ROOT ZONE



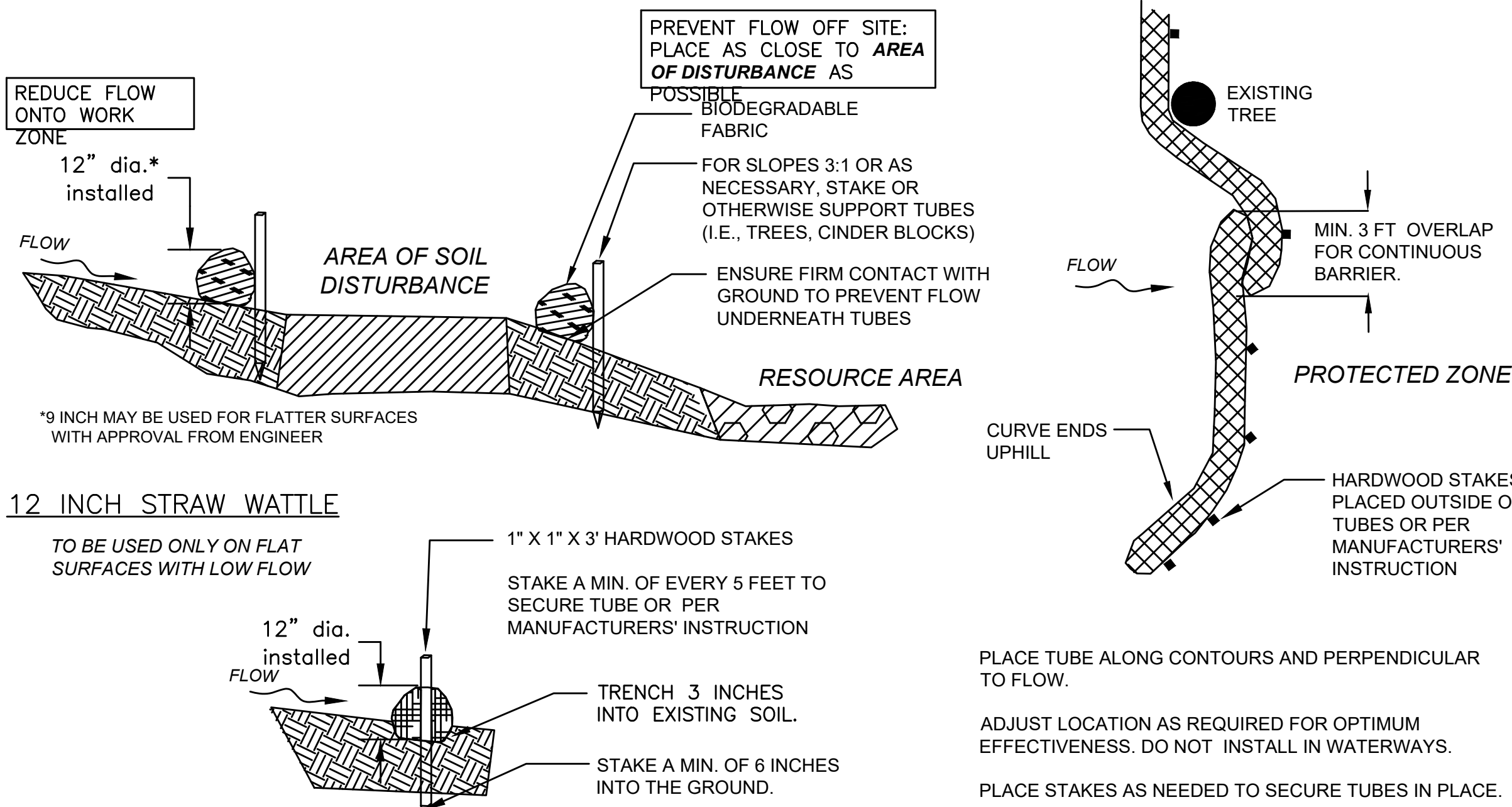
PLAN VIEW - FENCE PROTECTION OF ROOT ZONE

TREE PROTECTION DETAILS
NOT TO SCALE

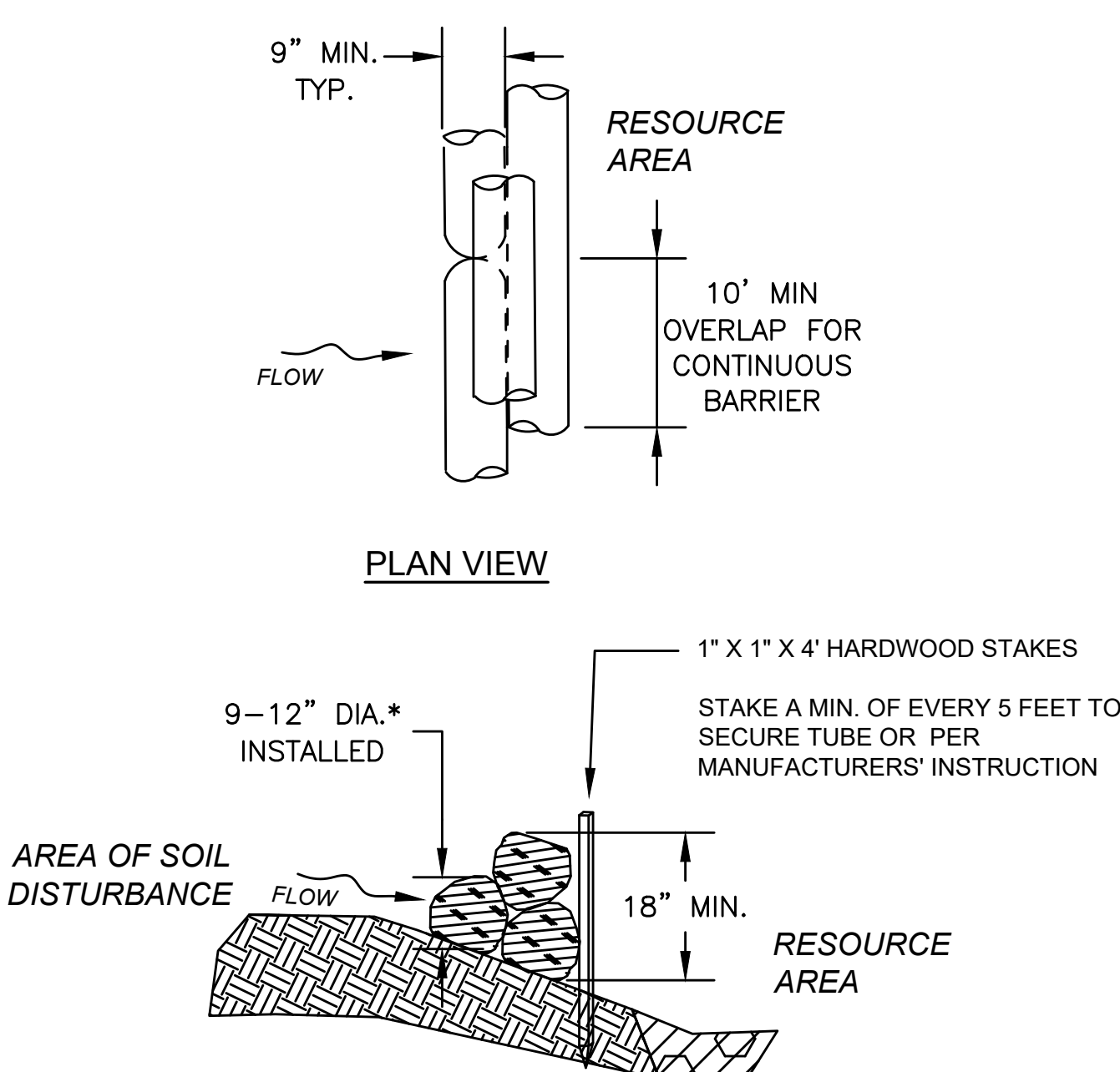


- NOTES
1. LENGTH AND WIDTH OF POLYPROPYLENE FABRIC MUST EXCEED EXISTING CATCH BASIN FRAME DIMENSIONS BY A MINIMUM OF 8".
 2. REMOVE CATCH BASIN GRATE AND INSTALL POLYPROPYLENE FABRIC OVER CATCH BASIN FRAME. REPLACE CATCH BASIN GRATE TO SECURE POLYPROPYLENE FABRIC IN PLACE.

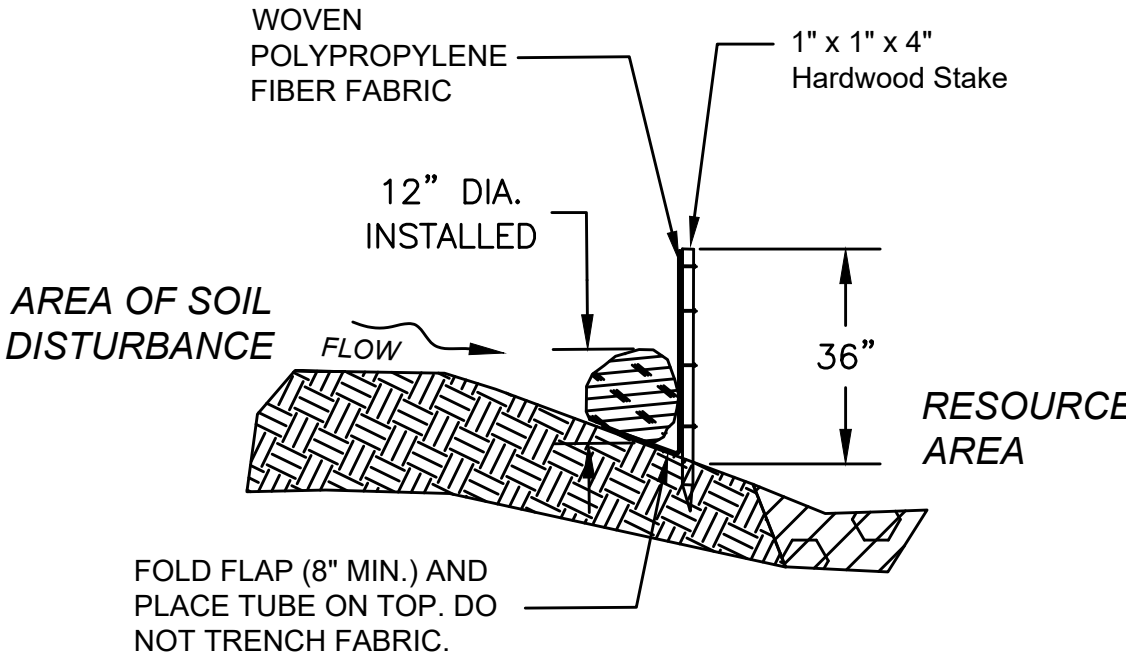
CATCH BASIN EROSION
CONTROL PROTECTION (TYP)
NOT TO SCALE



SEDIMENT BARRIERS - COMPOST FILTER TUBES & STRAW WATTLES
NOT TO SCALE



COMPOST FILTER TUBE BERM
(SLOPES 2:1 OR STEEPER)
NOT TO SCALE



COMPOST FILTER TUBE & SILT FENCE
NOT TO SCALE

HIGHWAY GUARD DETAILS

TRAFFIC SIGNAL CONDUIT

WATER SUPPLY ALTERATIONS

DRAINAGE & UTILITY DETAILS

CURB TIE & GRADING PLAN

NONE

SHEET 66

SHEET 45

SHEET 37

SHEET 29

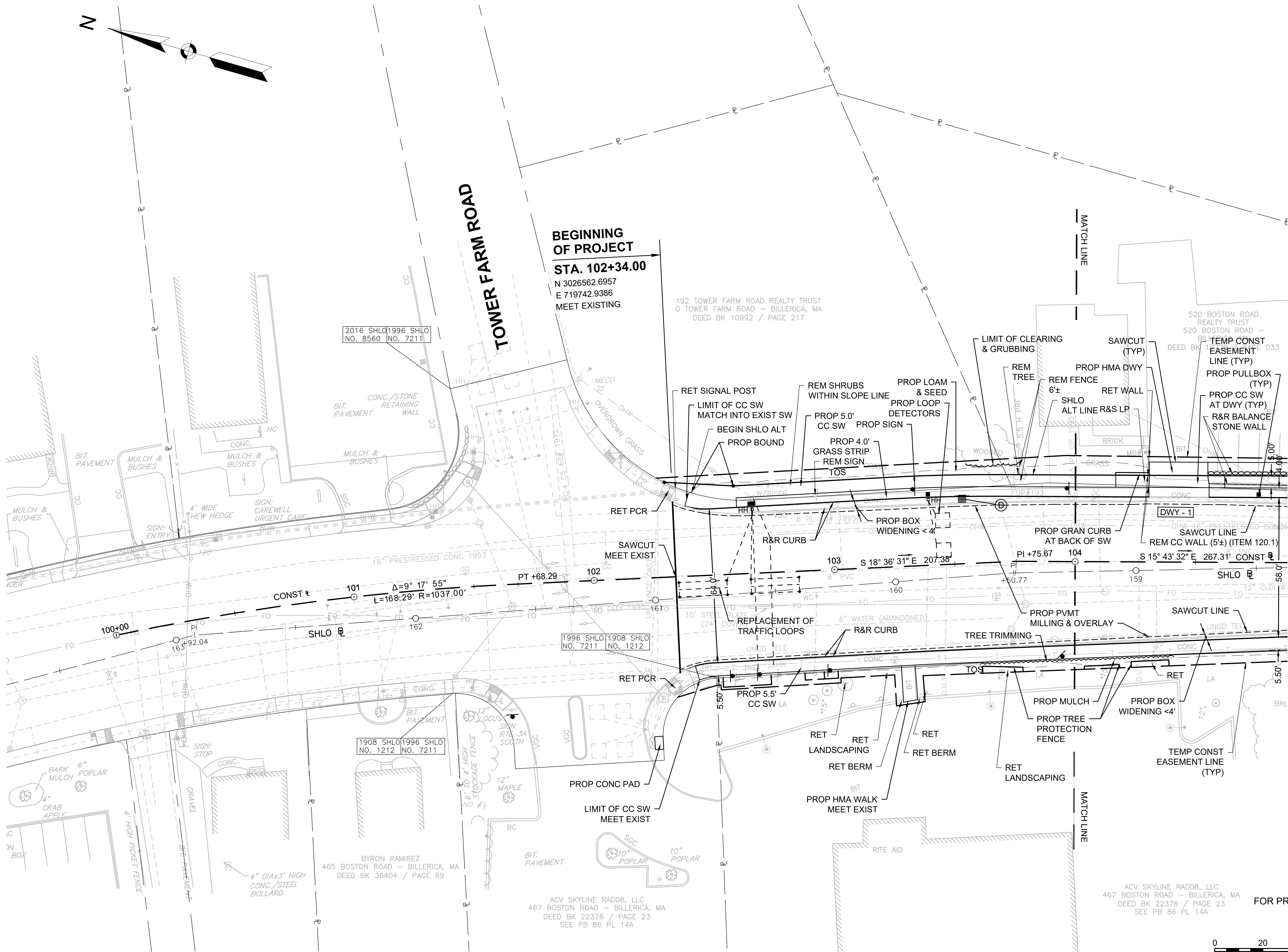
BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	14	103
PROJECT FILE NO.		609250	

CONSTRUCTION PLAN

CONTINUED ON
SHEET NO. 15

609250_HD(5658 CONST).DWG
Plotted on 25-Feb-2017 9:24 AM



HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SHEET 46

DRAINAGE & UTILITY DETAILS

SEE SHEET 38

CURB TIE & GRADING PLAN

SHEET 30

BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	15	103
PROJECT FILE NO.		609250	

CONSTRUCTION PLAN

JPD 530R BOSTON ROAD, LLC AKA
JPD 530R BOSTON ROAD, LLC
530 BOSTON ROAD - BILLERICA, MA
DEED BK 33777 / PAGE 24
SEE PB 232 PG 143

JPD 530 BOSTON ROAD, LLC AKA
JPD 530 BOSTON ROAD, LLC
530 BOSTON ROAD - BILLERICA, MA
DEED BK 33777 / PAGE 24
SEE PB 232 PG 143

GRANITE MANAGEMENT, LLC
524 BOSTON RD - BILLERICA, MA
DEED BK 36577 / PAGE 86

485 BOSTON ROAD, LLC
485 BOSTON ROAD - BILLERICA, MA
DEED BK 38353 / PAGE 66

481 BOSTON ROAD, LLC
481 BOSTON ROAD - BILLERICA, MA
DEED BK 22939 / PAGE 242
SEE PB 192 PL 120

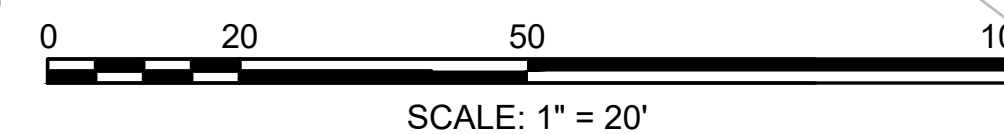
ACV SKYLINE RAD08, LLC
467 BOSTON ROAD - BILLERICA, MA
DEED BK 22376 / PAGE 23
SEE PB 86 PL 14A

CHARLETON REALTY TRUST, ROBERT L. INNIS,
MATTHEW INNIS & DAVID INNIS, TRUSTEES
ROBERT L. INNIS
475 BOSTON ROAD - BILLERICA, MA
DEED BK 6916 / PAGE 216
SEE PB 118 PL 29

INNIS DRIVE

DANIEL REALTY TRUST
BOSTON ROAD - BILLERICA, MA
DEED BK 2044 / PAGE 146

FOR PROFILE SEE SHEET NOS.11-12



TUFTS LANE

BOSTON ROAD
ROUTE (3A)

CONTINUED ON
SHEET NO. 16

CONTINUED ON
SHEET NO. 14

HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SHEET 47

DRAINAGE DETAILS

SEE SHEET 39

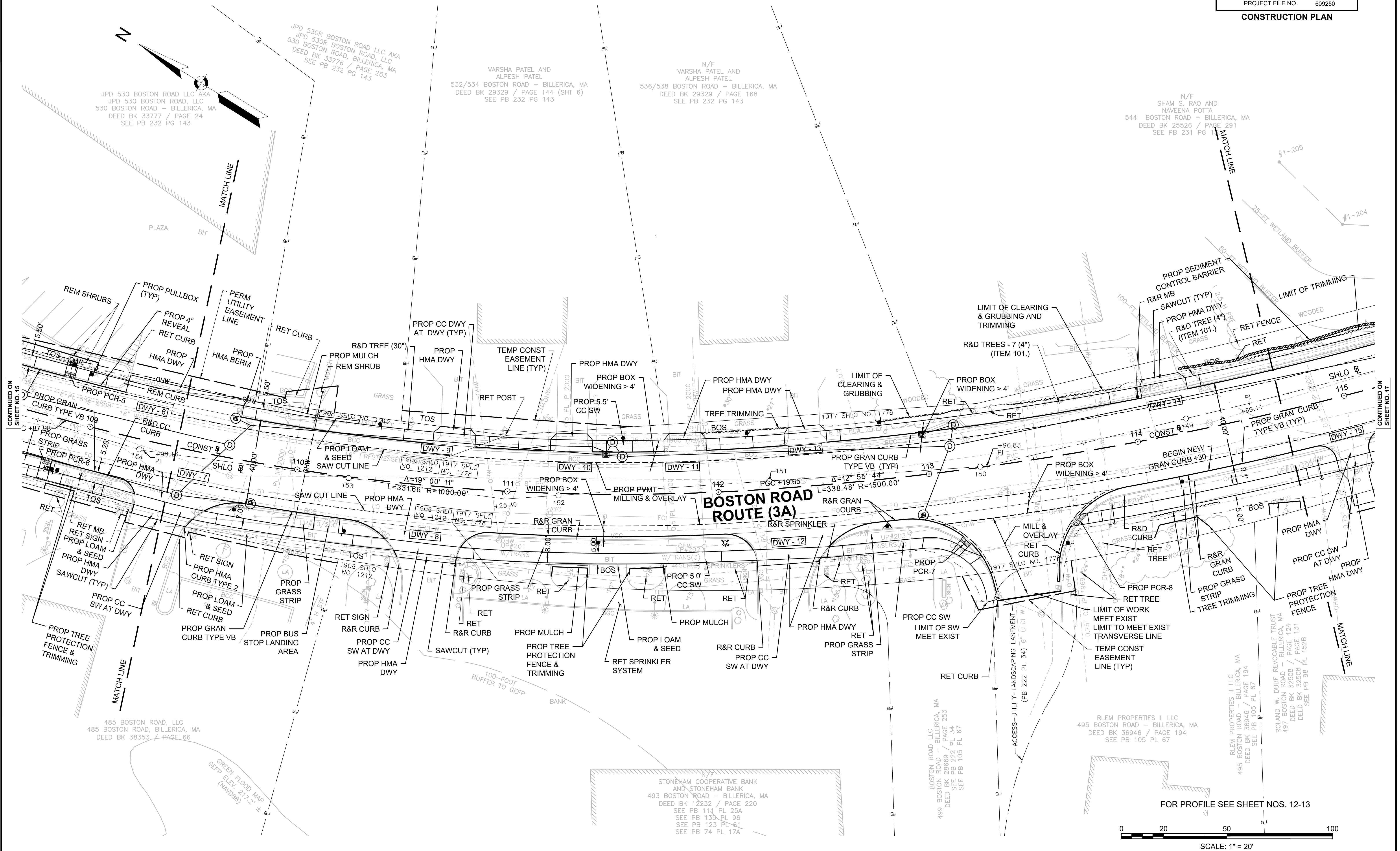
CURB TIE & GRADING PLAN

SHEET 31

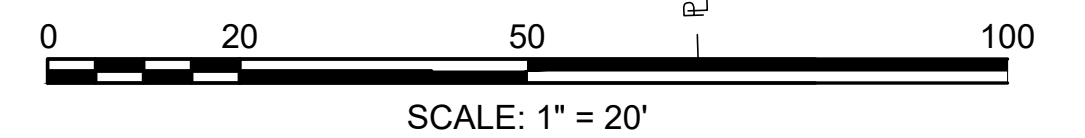
BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	16	103
PROJECT FILE NO. 609250			

CONSTRUCTION PLAN



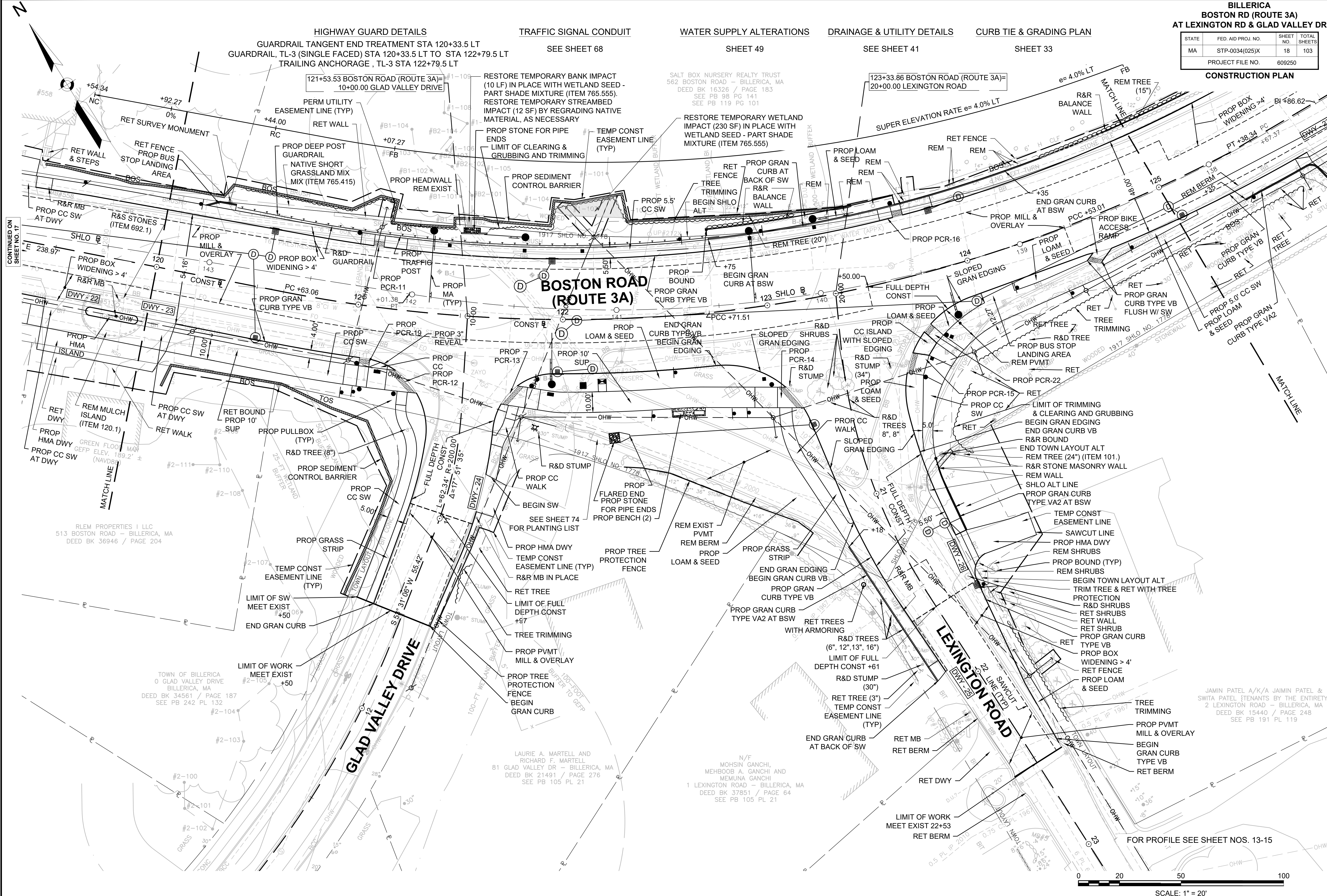
FOR PROFILE SEE SHEET NOS. 12-13



BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	18	103
PROJECT FILE NO.		609250	

CONSTRUCTION PLAN



FOR PROFILE SEE SHEET NOS. 13-15

SCALE: 1" = 20'

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	19	103
PROJECT FILE NO.		609250	

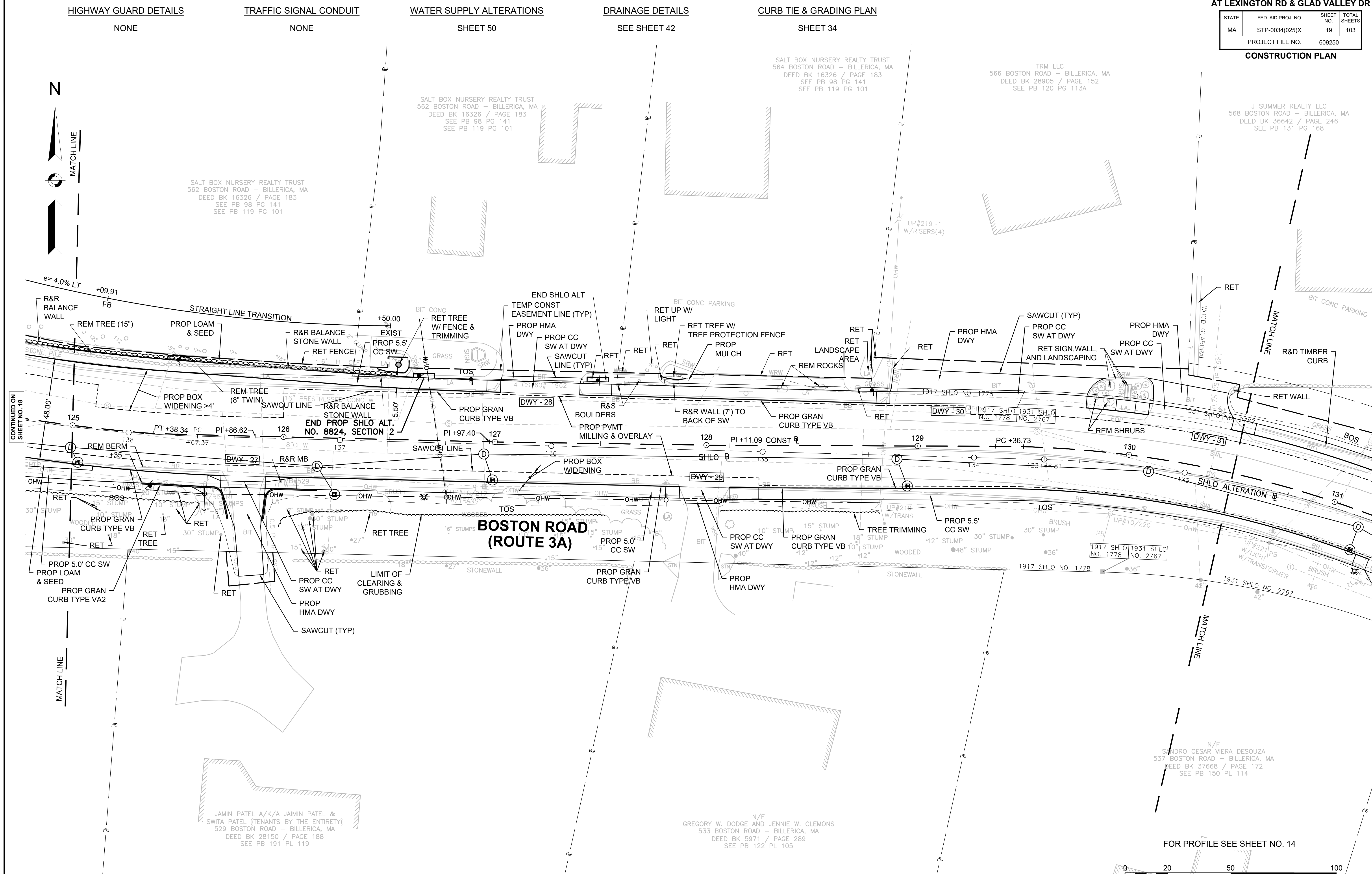
J SUMMER REALTY LLC
68 BOSTON ROAD - BILLERICA,
DEED BK 36642 / PAGE 246
SEE PB 131 PG 168

0 20 50 100
SCALE: 1" = 20'

SCALE: 1" = 20'

309250 HD(5958 CONST) DWG Plotted on 23-Feb-2017 9:24 AM

309250 HD/5958 CONST) DWG



HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SHEET 51

DRAINAGE DETAILS

SEE SHEET 43

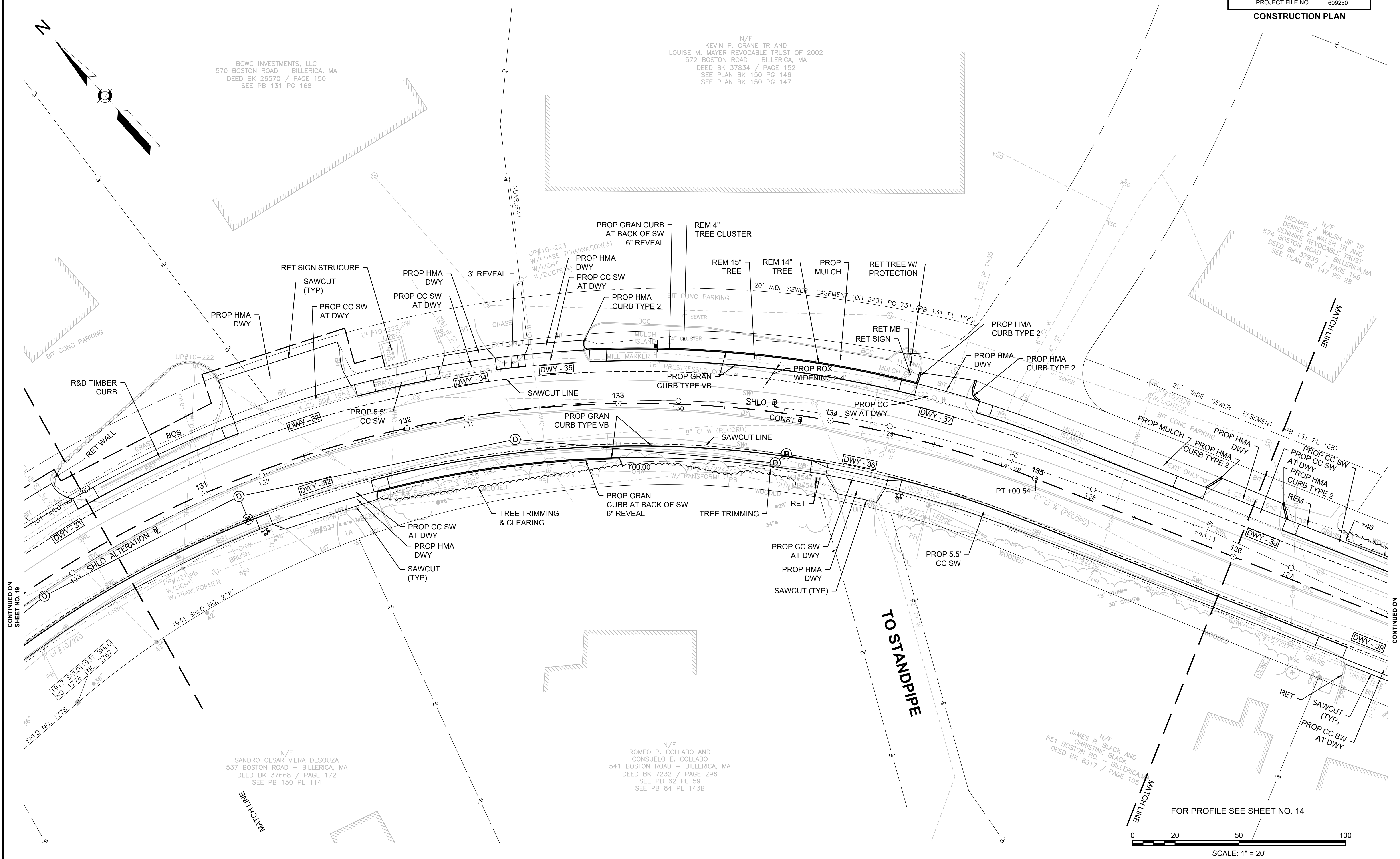
CURB TIE & GRADING PLAN

SHEET 35

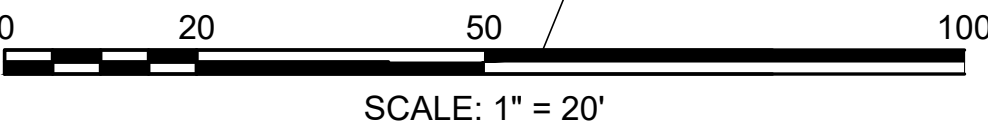
BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

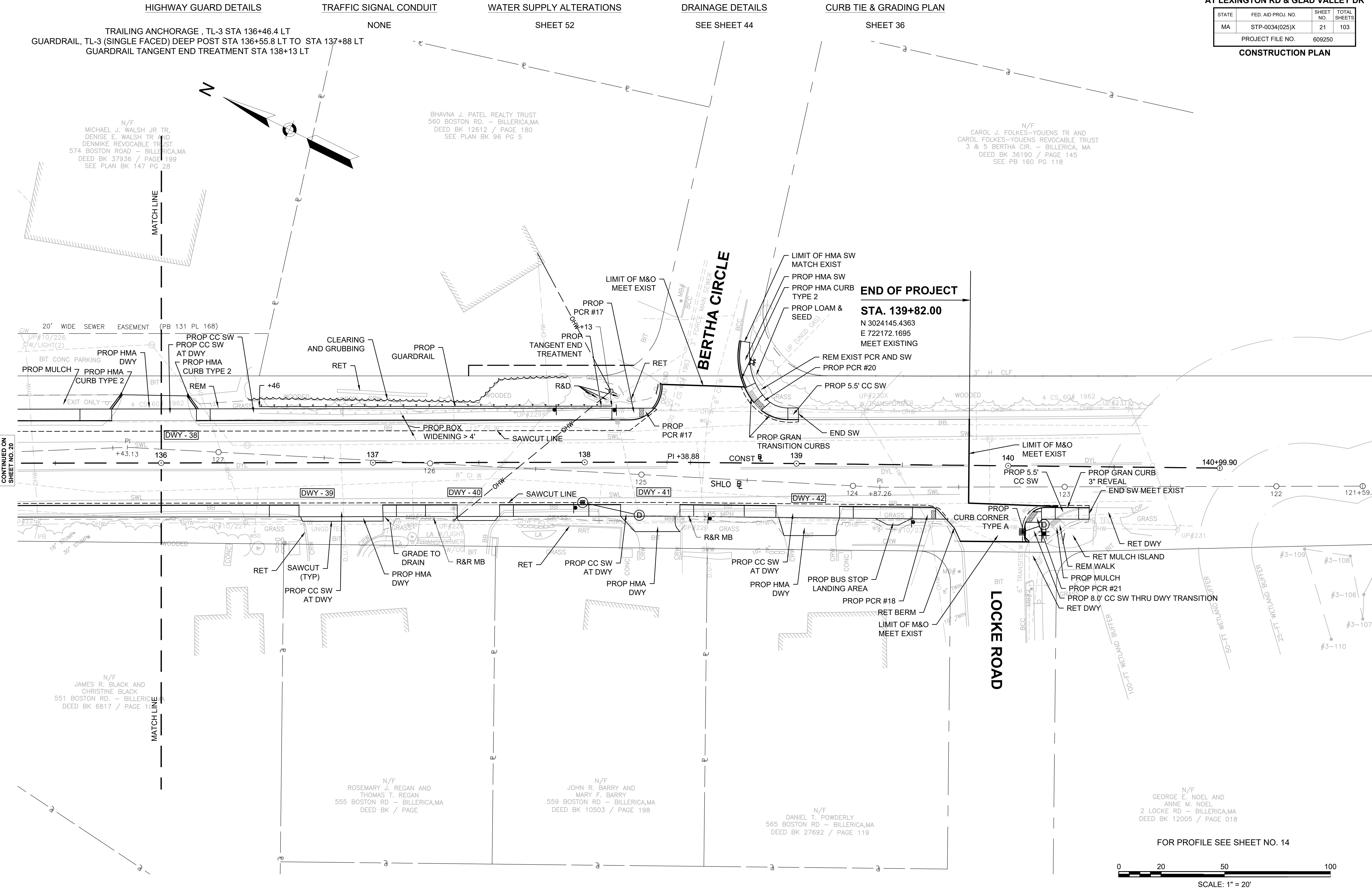
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	20	103
PROJECT FILE NO. 609250			

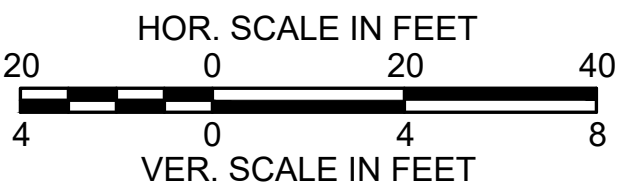
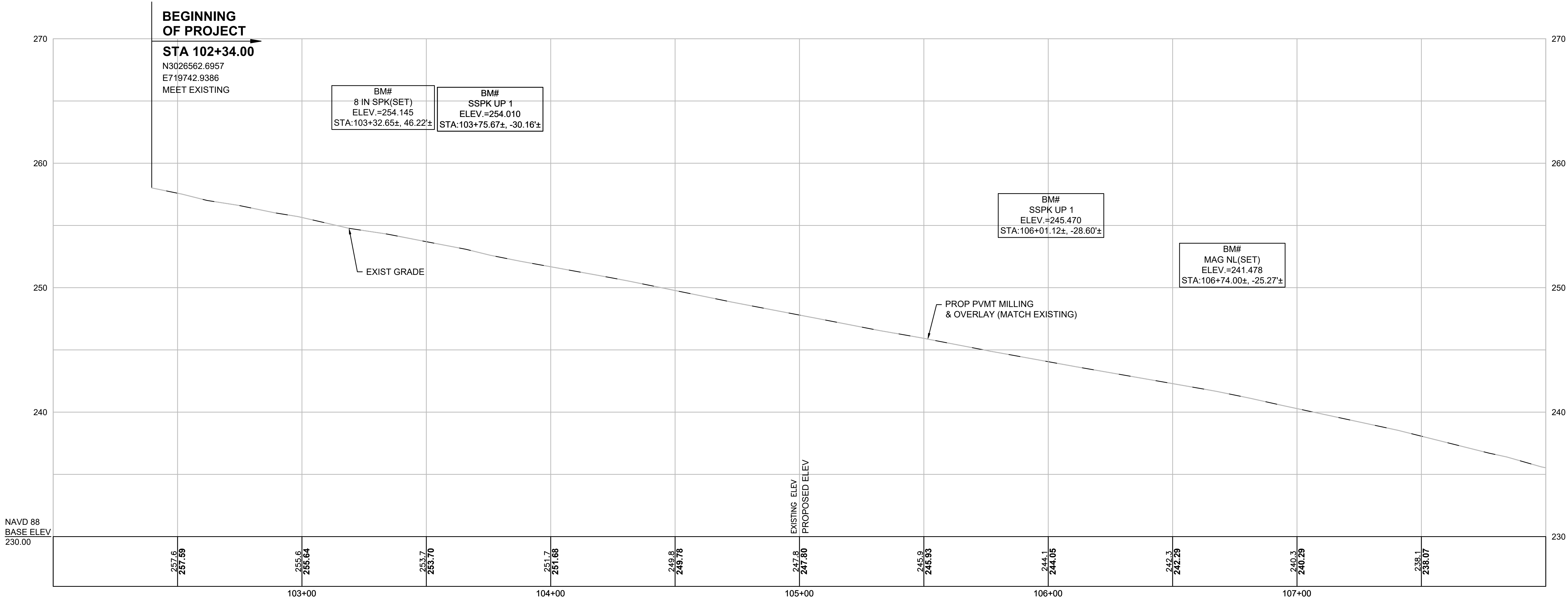
CONSTRUCTION PLAN



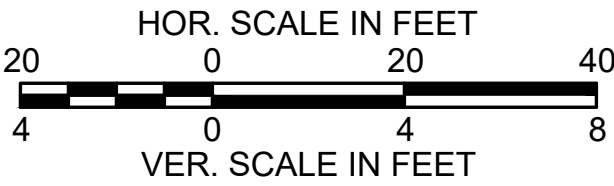
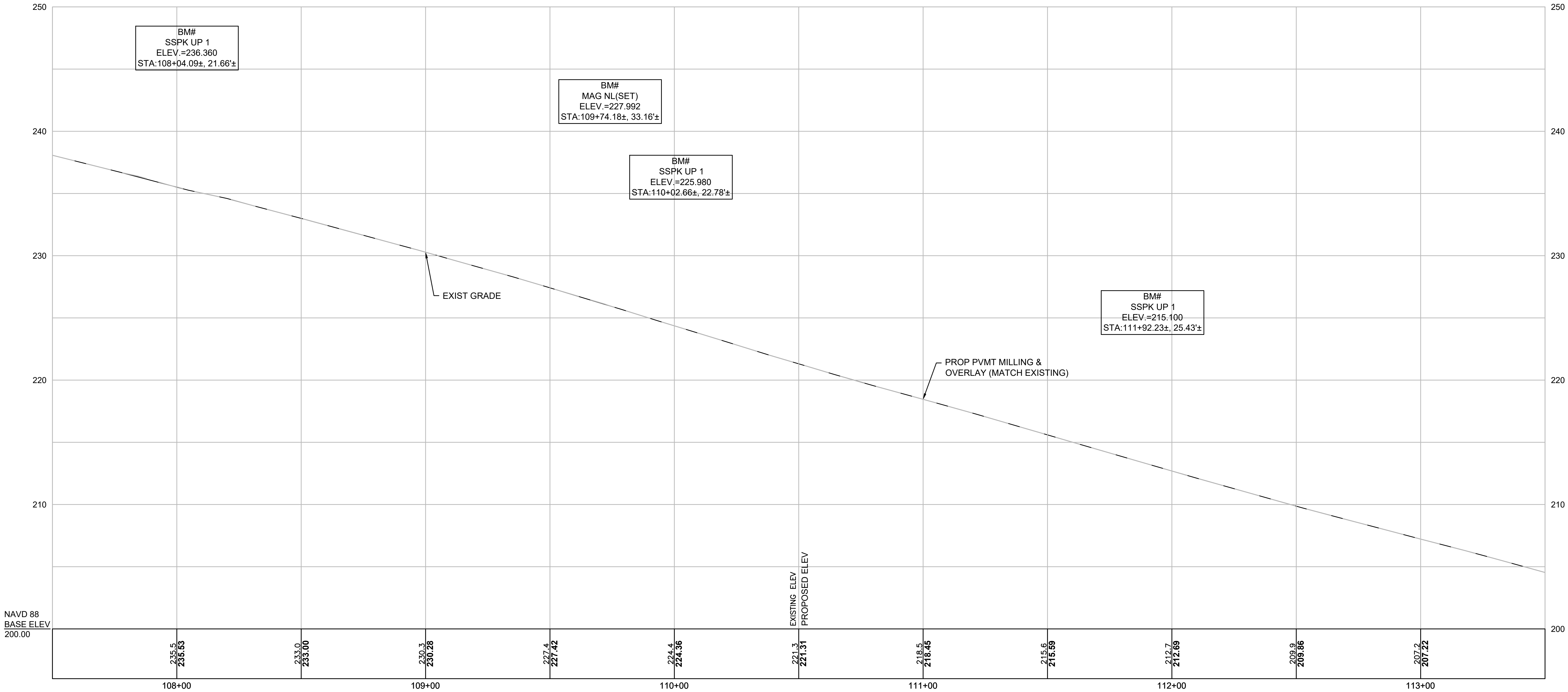
FOR PROFILE SEE SHEET NO. 14







FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 14 & 15

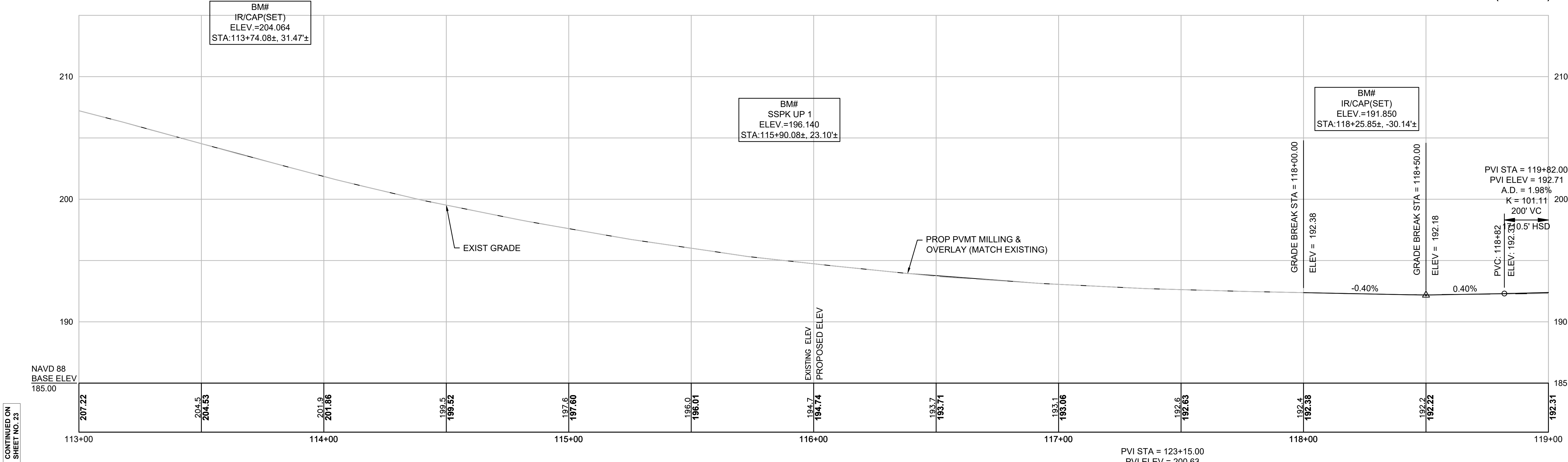


FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 15 & 16

BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

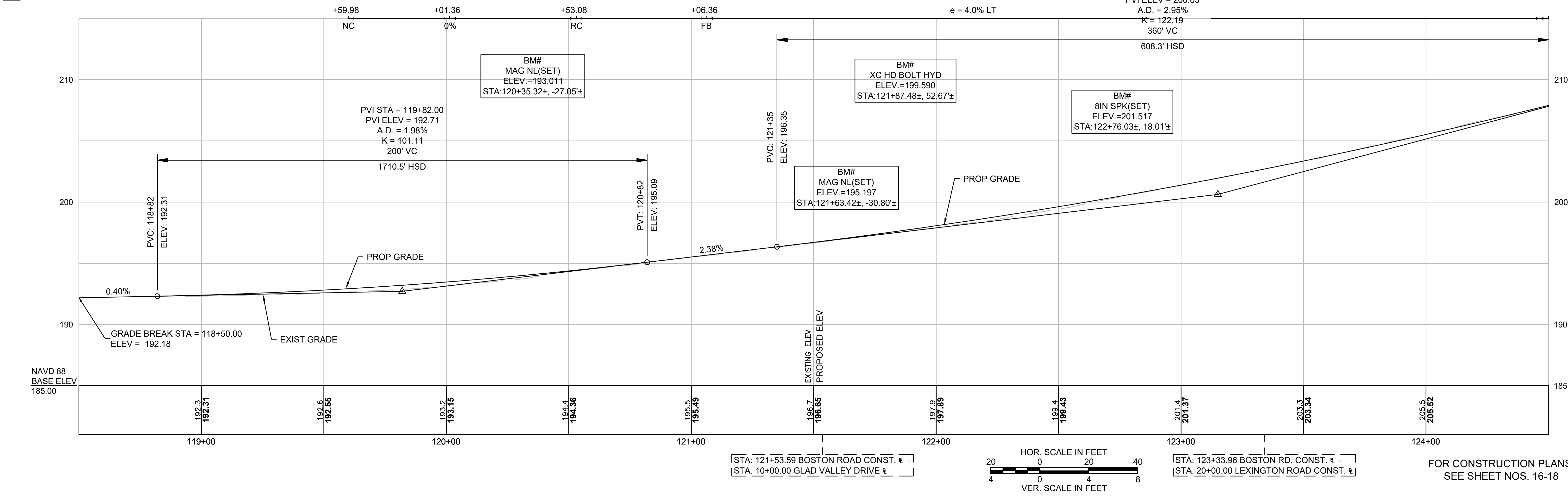
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	24	103
PROJECT FILE NO. 609250			

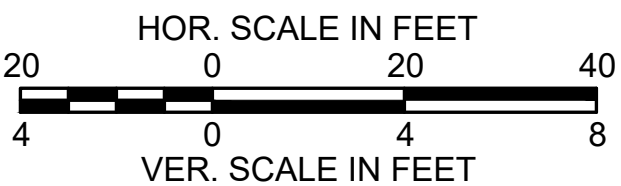
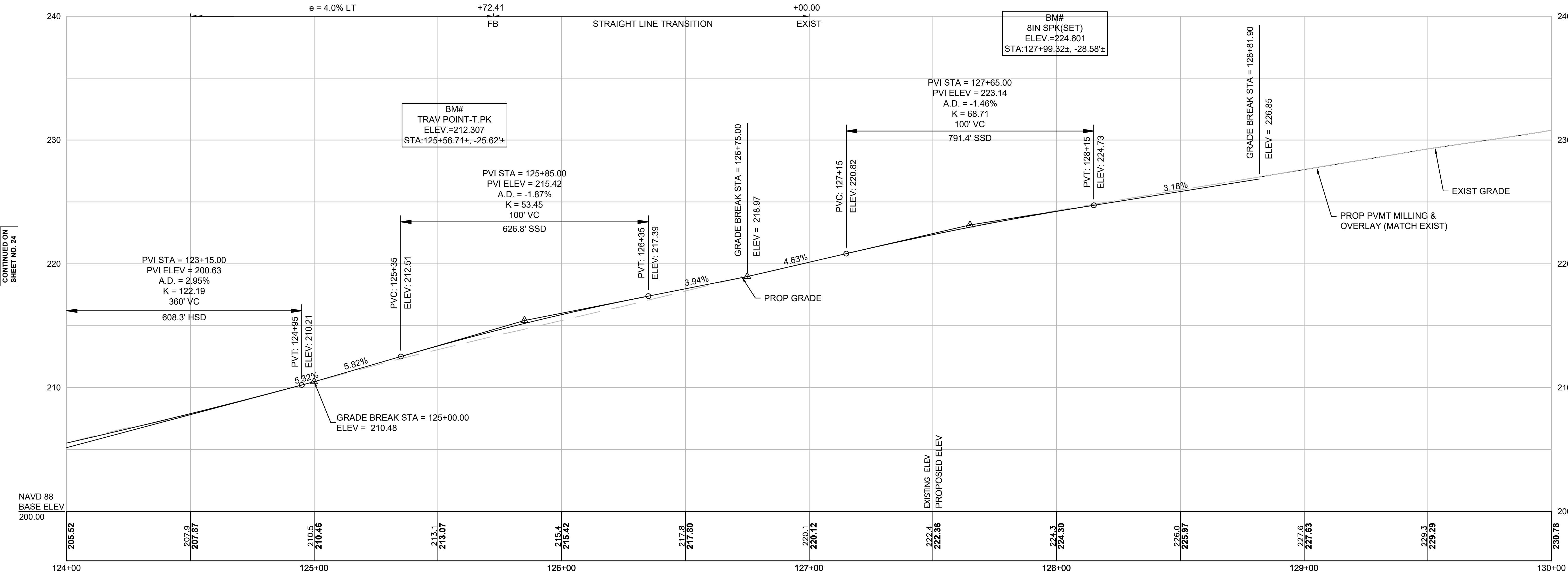
PROFILE
BOSTON ROAD (ROUTE 3A)



CONTINUED ON
SHEET NO. 23

CONTINUED ON
SHEET NO. 25

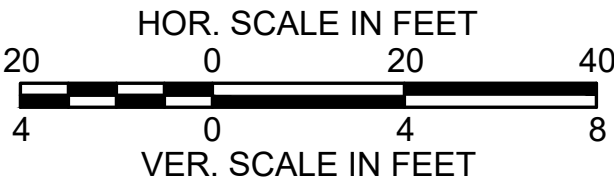
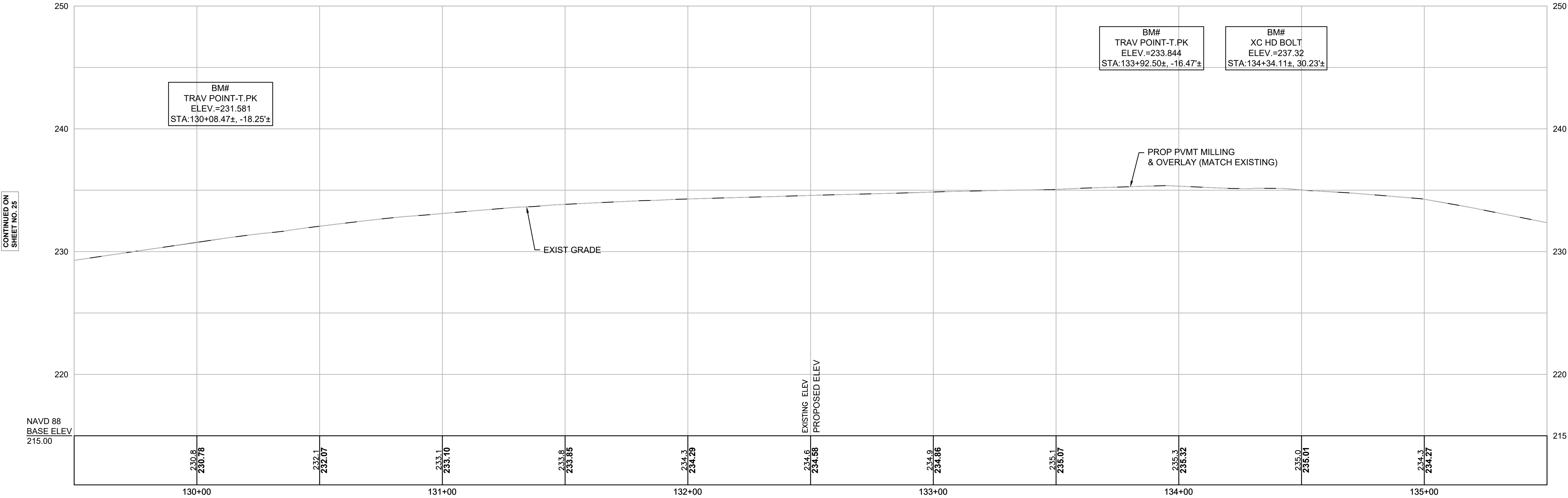




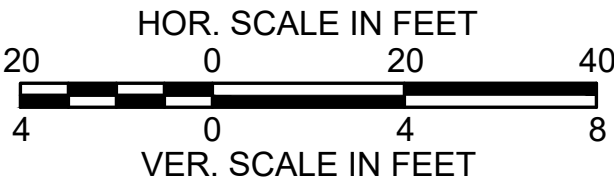
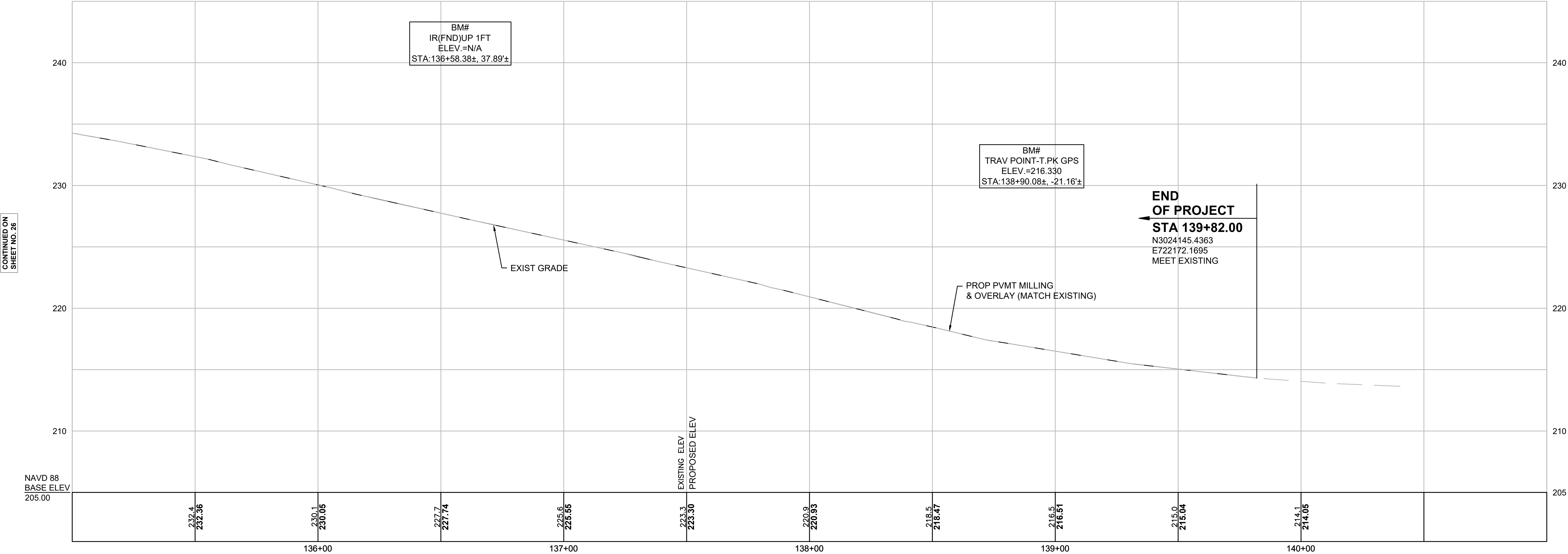
FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 18 & 19

CONTINUED ON
SHEET NO. 24

CONTINUED ON
SHEET NO. 26



FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 18 & 19

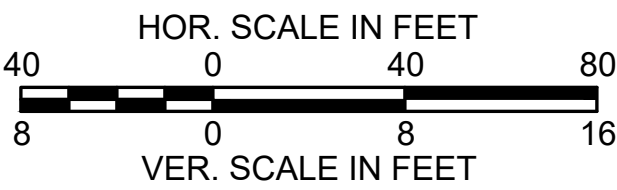


FOR CONSTRUCTION PLANS:
SEE SHEET NO. 21

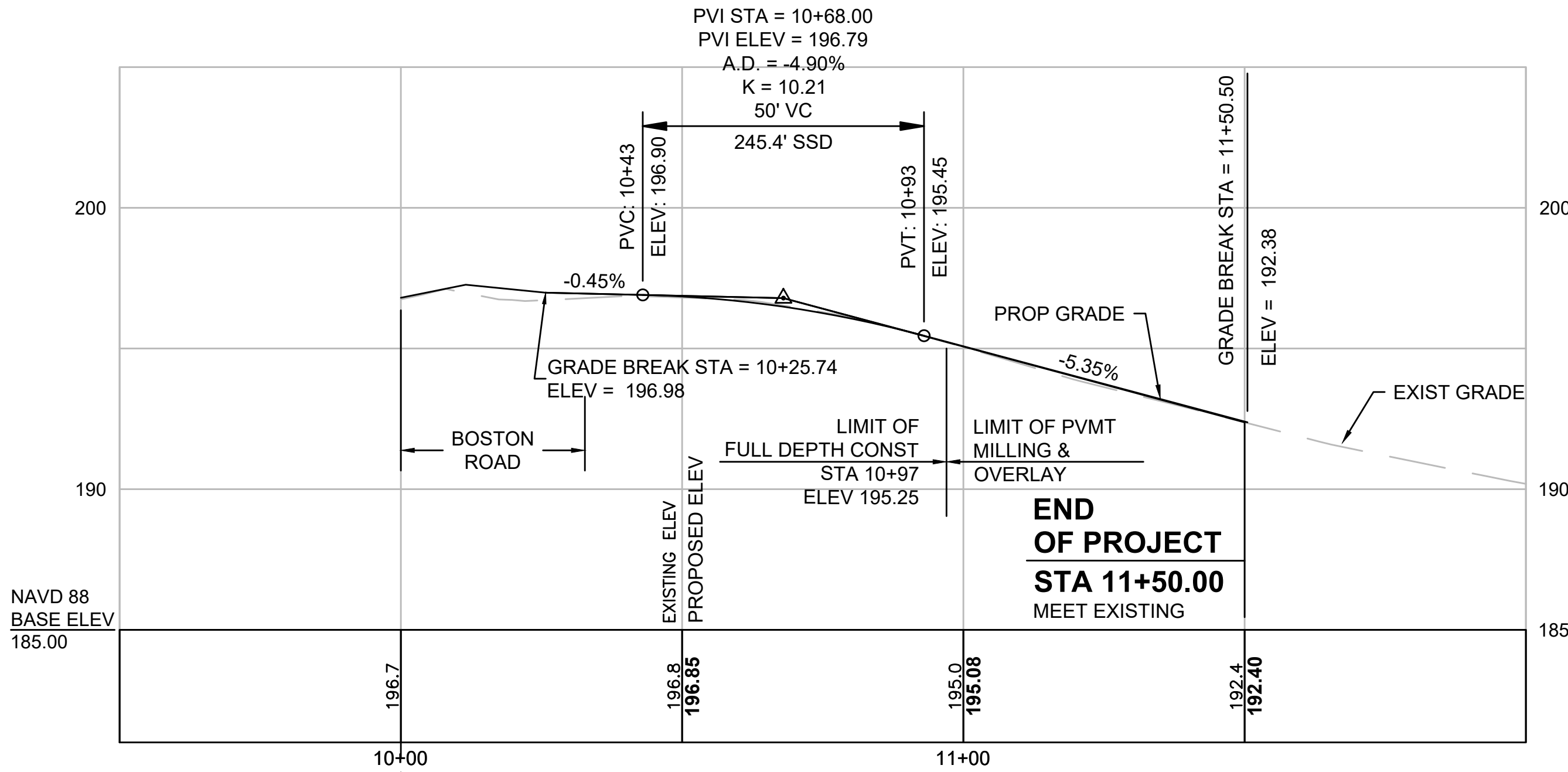
BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	28	103
PROJECT FILE NO.		609250	

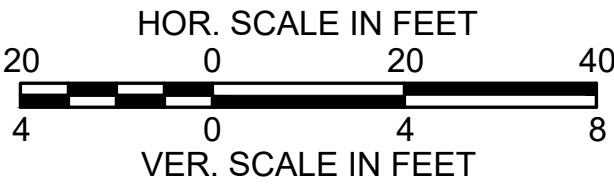
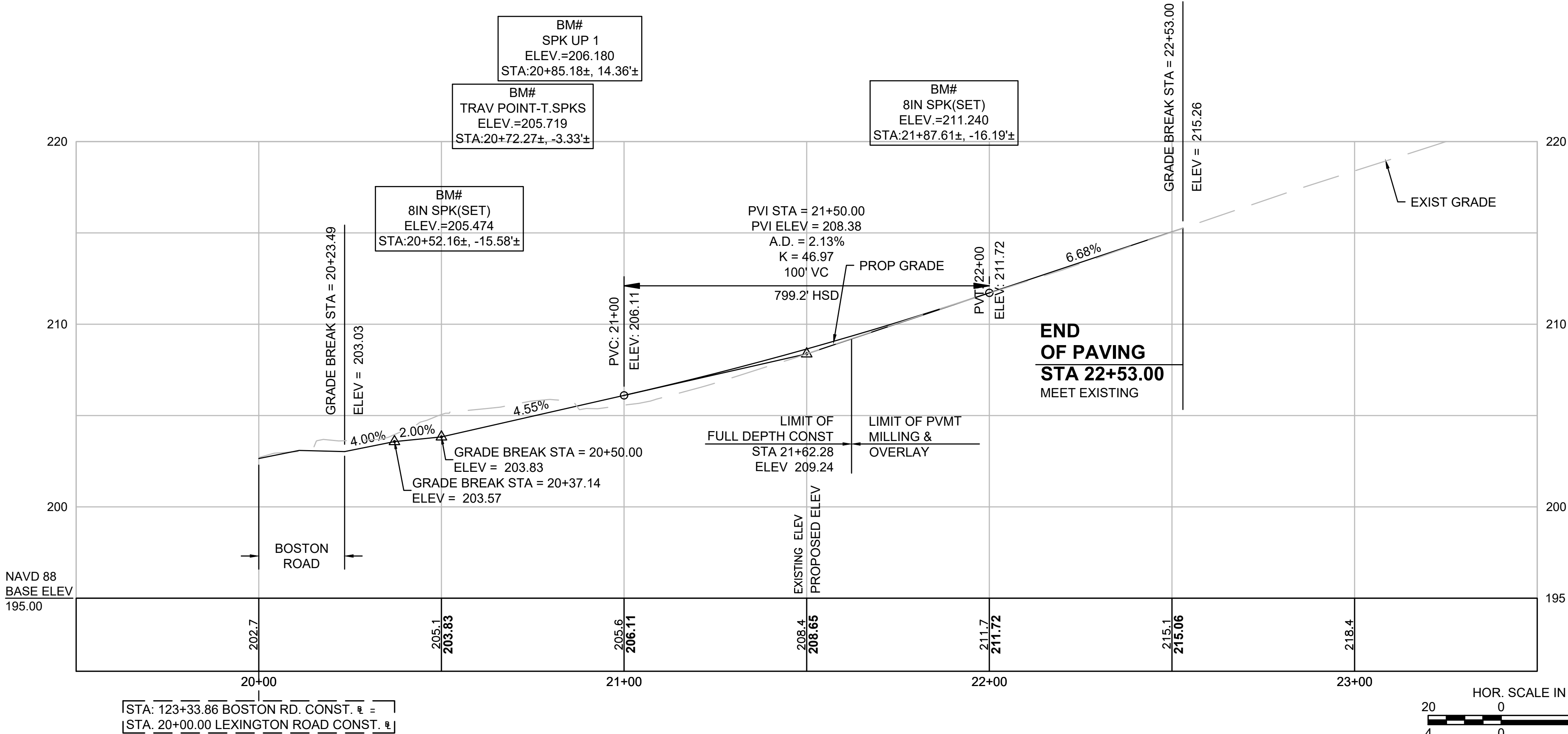
PROFILE
GLADVALLEY DRIVE
AND LEXINGTON ROAD



GLAD VALLEY DRIVE



LEXINGTON ROAD



FOR CONSTRUCTION PLANS:
SEE SHEET NO. 18

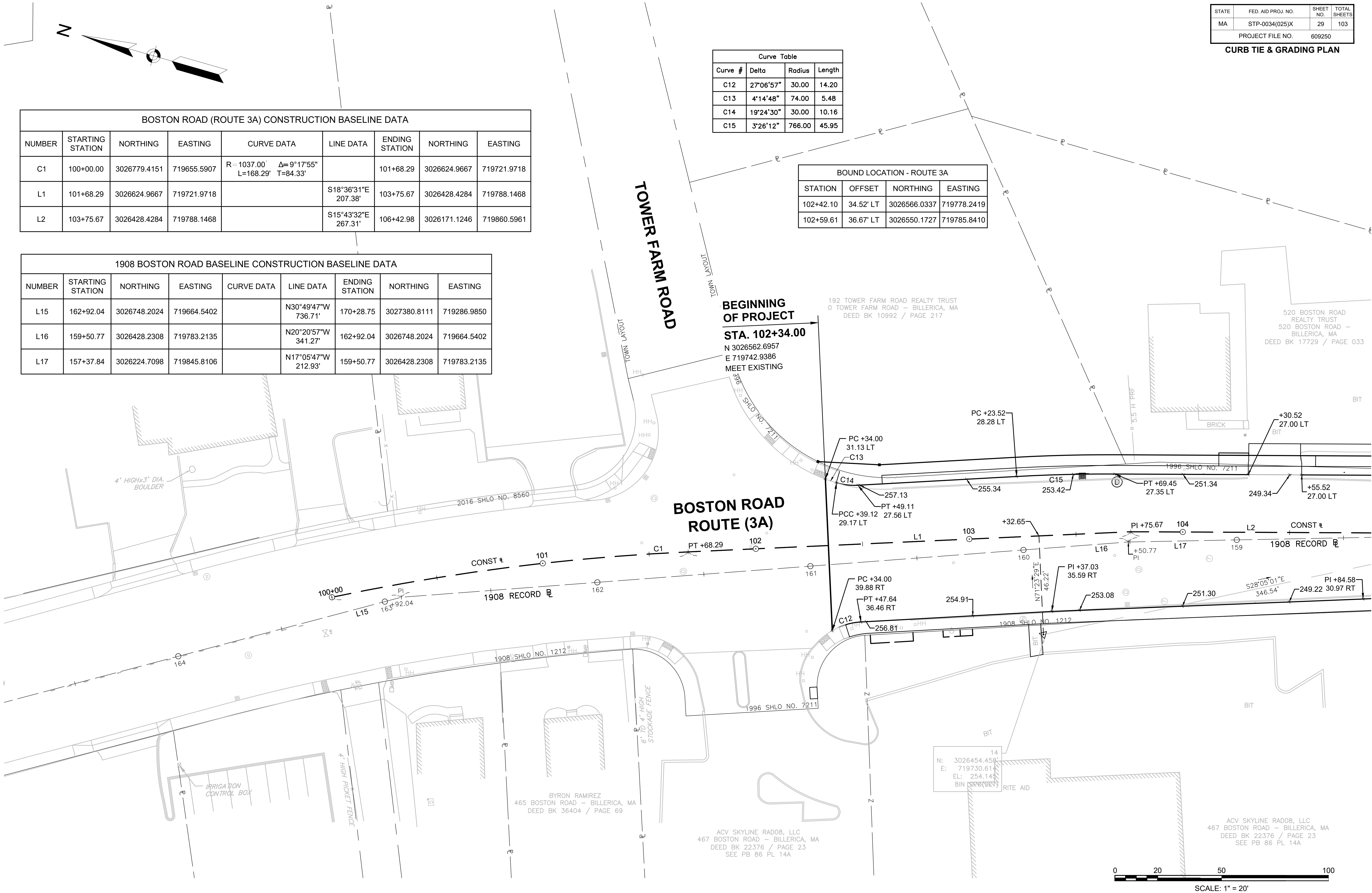
CONTINUED ON
SHEET NO. 24

Curve Table			
Curve #	Delta	Radius	Length
C12	27°06'57"	30.00	14.20
C13	4°14'48"	74.00	5.48
C14	19°24'30"	30.00	10.16
C15	3°26'12"	766.00	45.95

BOUND LOCATION - ROUTE 3A			
STATION	OFFSET	NORTHING	EASTING
102+42.10	34.52' LT	3026566.0337	719778.2419
102+59.61	36.67' LT	3026550.1727	719785.8410

BOSTON ROAD (ROUTE 3A) CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C1	100+00.00	3026779.4151	719655.5907	R=1037.00' Δ=9°17'55" L=168.29' T=84.33'		101+68.29	3026624.9667	719721.9718
L1	101+68.29	3026624.9667	719721.9718		S18°36'31"E 207.38'	103+75.67	3026428.4284	719788.1468
L2	103+75.67	3026428.4284	719788.1468		S15°43'32"E 267.31'	106+42.98	3026171.1246	719860.5961

1908 BOSTON ROAD BASELINE CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L15	162+92.04	3026748.2024	719664.5402		N30°49'47"W 736.71'	170+28.75	3027380.8111	719286.9850
L16	159+50.77	3026428.2308	719783.2135		N20°20'57"W 341.27'	162+92.04	3026748.2024	719664.5402
L17	157+37.84	3026224.7098	719845.8106		N17°05'47"W 212.93'	159+50.77	3026428.2308	719783.2135



CONTINUED ON
SHEET NO. 30

BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	30	103
PROJECT FILE NO.		609250	

CURB TIE & GRADING PLAN

JPD 530R BOSTON ROAD, LLC AKA
JPD 530R BOSTON ROAD, LLC
530 BOSTON ROAD - BILLERICA, MA
DEED BK 33776 / PAGE 263
SEE PB 232 PG 143

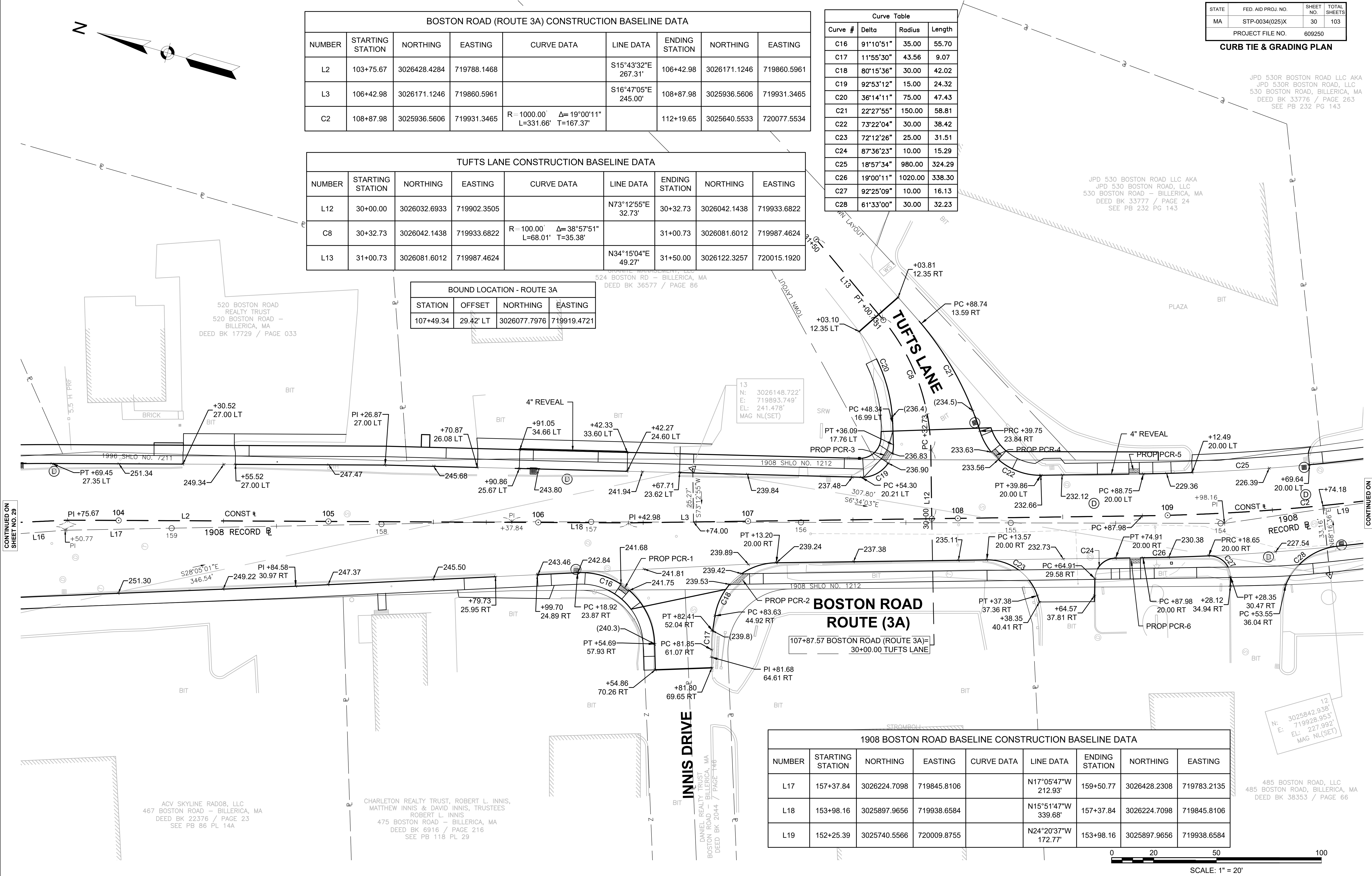
JPD 530 BOSTON ROAD, LLC AKA
JPD 530 BOSTON ROAD, LLC
530 BOSTON ROAD - BILLERICA, MA
DEED BK 33777 / PAGE 24
SEE PB 232 PG 143

BOSTON ROAD (ROUTE 3A) CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L2	103+75.67	3026428.4284	719788.1468		S15°43'32"E 267.31'	106+42.98	3026171.1246	719860.5961
L3	106+42.98	3026171.1246	719860.5961		S16°47'05"E 245.00'	108+87.98	3025936.5606	719931.3465
C2	108+87.98	3025936.5606	719931.3465	R=1000.00' Δ=19°00'11" L=331.66' T=167.37'		112+19.65	3025640.5533	720077.5534

TUFTS LANE CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L12	30+00.00	3026032.6933	719902.3505		N73°12'55"E 32.73'	30+32.73	3026042.1438	719933.6822
C8	30+32.73	3026042.1438	719933.6822	R=100.00' Δ=38°57'51" L=68.01' T=35.38'		31+00.73	3026081.6012	719987.4624
L13	31+00.73	3026081.6012	719987.4624		N34°15'04"E 49.27'	31+50.00	3026122.3257	720015.1920

BOUND LOCATION - ROUTE 3A			
STATION	OFFSET	NORTHING	EASTING
107+49.34	29.42' LT	3026077.7976	719919.4721

Curve Table			
Curve #	Delta	Radius	Length
C16	91°10'51"	35.00	55.70
C17	11°55'30"	43.56	9.07
C18	80°15'36"	30.00	42.02
C19	92°53'12"	15.00	24.32
C20	36°14'11"	75.00	47.43
C21	22°27'55"	150.00	58.81
C22	73°22'04"	30.00	38.42
C23	72°12'26"	25.00	31.51
C24	87°36'23"	10.00	15.29
C25	18°57'34"	980.00	324.29
C26	19°00'11"	1020.00	338.30
C27	92°25'09"	10.00	16.13
C28	61°33'00"	30.00	32.23



1908 BOSTON ROAD BASELINE CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L17	157+37.84	3026224.7098	719845.8106		N17°05'47"W 212.93'	159+50.77	3026428.2308	719783.2135
L18	153+98.16	3025897.9656	719938.6584		N15°51'47"W 339.68'	157+37.84	3026224.7098	719845.8106
L19	152+25.39	3025740.5566	720009.8755		N24°20'37"W 172.77'	153+98.16	3025897.9656	719938.6584

12
N: 3025842.938'
E: 719928.953'
EL: 227.992'
MAG NL(SET)

485 BOSTON ROAD, LLC
485 BOSTON ROAD, BILLERICA, MA
DEED BK 38353 / PAGE 66

ACV SKYLINE RAD08, LLC
467 BOSTON ROAD - BILLERICA, MA
DEED BK 22376 / PAGE 23
SEE PB 86 PL 14A

CHARLETON REALTY TRUST, ROBERT L. INNIS,
MATTHEW INNIS & DAVID INNIS, TRUSTEES
ROBERT L. INNIS
475 BOSTON ROAD - BILLERICA, MA
DEED BK 6916 / PAGE 216
SEE PB 118 PL 29

DANIEL REALTY TRUST
BOSTON ROAD - BILLERICA, MA
DEED BK 2044 / PAGE 146

CONTINUED ON
SHEET NO. 29

CONTINUED ON
SHEET NO. 31

BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

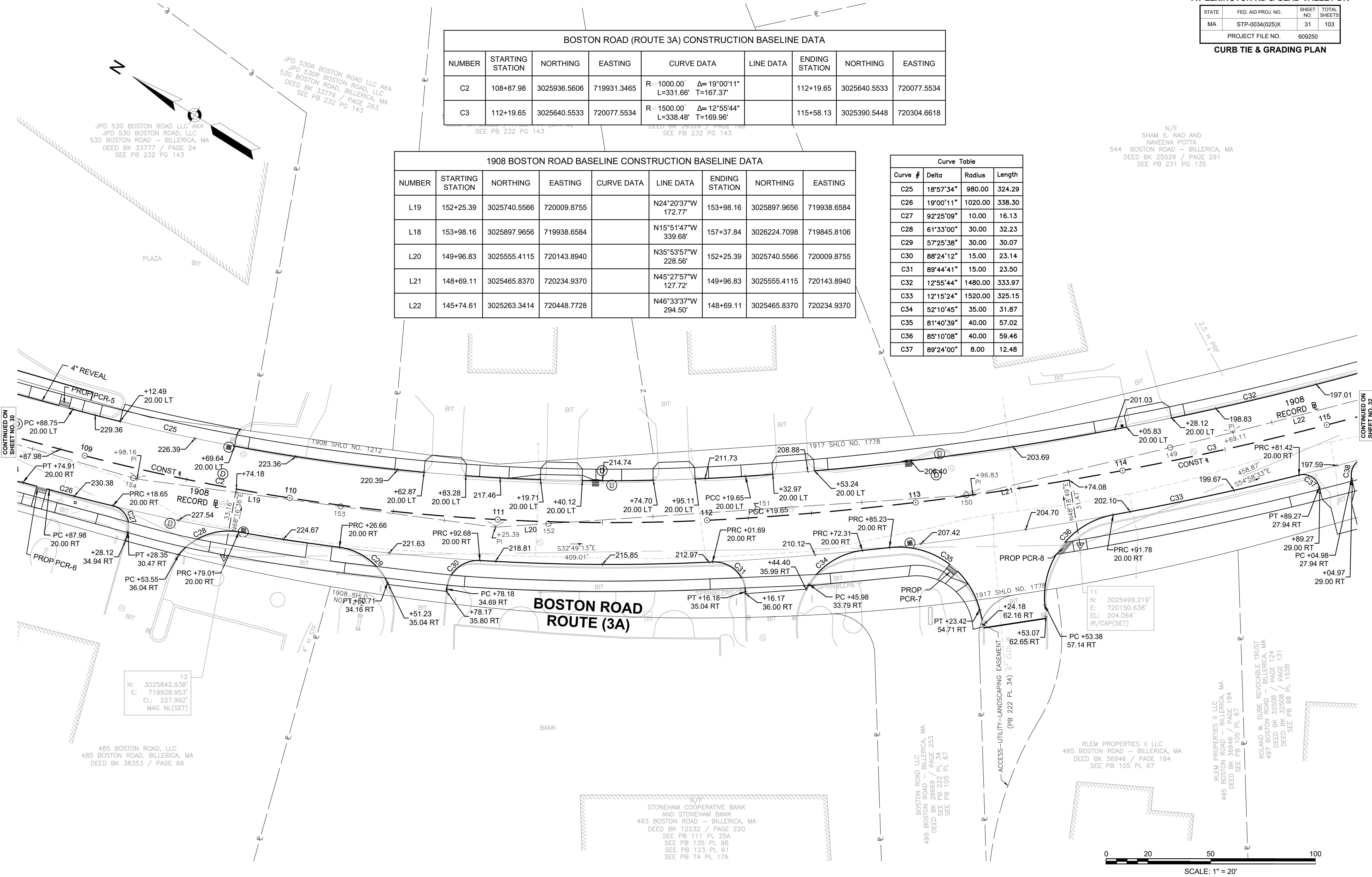
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	31	103
PROJECT FILE NO.		609250	

CURB TIE & GRADING PLAN

BOSTON ROAD (ROUTE 3A) CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C2	108+87.98	3025936.5606	719931.3465	R=1000.00' Δ=19°00'11" L=331.66' T=167.37'		112+19.65	3025640.5533	720077.5534
C3	112+19.65	3025640.5533	720077.5534	R=1500.00' Δ=12°55'44" L=338.48' T=169.96'		115+58.13	3025390.5448	720304.6618

1908 BOSTON ROAD BASELINE CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L19	152+25.39	3025740.5566	720009.8755		N24°20'37"W 172.77'	153+98.16	3025897.9656	719938.6584
L18	153+98.16	3025897.9656	719938.6584		N15°51'47"W 339.68'	157+37.84	3026224.7098	719845.8106
L20	149+96.83	3025555.4115	720143.8940		N35°53'57"W 228.56'	152+25.39	3025740.5566	720009.8755
L21	148+69.11	3025465.8370	720234.9370		N45°27'57"W 127.72'	149+96.83	3025555.4115	720143.8940
L22	145+74.61	3025263.3414	720448.7728		N46°33'37"W 294.50'	148+69.11	3025465.8370	720234.9370

Curve Table			
Curve #	Delta	Radius	Length
C25	18°57'34"	980.00	324.29
C26	19°00'11"	1020.00	338.30
C27	92°25'09"	10.00	16.13
C28	61°33'00"	30.00	32.23
C29	57°25'38"	30.00	30.07
C30	88°24'12"	15.00	23.14
C31	89°44'41"	15.00	23.50
C32	12°55'44"	1480.00	333.97
C33	12°15'24"	1520.00	325.15
C34	52°10'45"	35.00	31.87
C35	81°40'39"	40.00	57.02
C36	85°10'08"	40.00	59.46
C37	89°24'00"	8.00	12.48



JPD 530R BOSTON ROAD LLC AKA
JPD 530R BOSTON ROAD, LLC
530 BOSTON ROAD - BILLERICA, MA
DEED BK 33776 / PAGE 24
SEE PB 232 PG 143

SEE PB 232 PG 143

SEE PB 232 PG 143

N/F
SHAM S. RAO AND
NAVEENA POTTA
544 BOSTON ROAD - BILLERICA, MA
DEED BK 25526 / PAGE 291
SEE PB 231 PG 135

485 BOSTON ROAD, LLC
485 BOSTON ROAD, BILLERICA, MA
DEED BK 38353 / PAGE 66

STONEHAM COOPERATIVE BANK
AND STONEHAM BANK
493 BOSTON ROAD - BILLERICA, MA
DEED BK 12232 / PAGE 220
SEE PB 111 PL 25A
SEE PB 135 PL 96
SEE PB 123 PL 61
SEE PB 74 PL 17A

BOSTON ROAD LLC
499 BOSTON ROAD - BILLERICA, MA
DEED BK 28669 / PAGE 253
SEE PB 222 PL 34
SEE PB 105 PL 67

RLEM PROPERTIES II LLC
495 BOSTON ROAD - BILLERICA, MA
DEED BK 36946 / PAGE 194
SEE PB 105 PL 67

RLEM PROPERTIES II LLC
495 BOSTON ROAD - BILLERICA, MA
DEED BK 36946 / PAGE 194
SEE PB 105 PL 67

ROLAND W. DUBE REVOCABLE TRUST
497 BOSTON ROAD - BILLERICA, MA
DEED BK 32508 / PAGE 124
DEED BK 32508 / PAGE 131
SEE PB 98 PL 152B

0 20 50 100
SCALE: 1" = 20'

BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

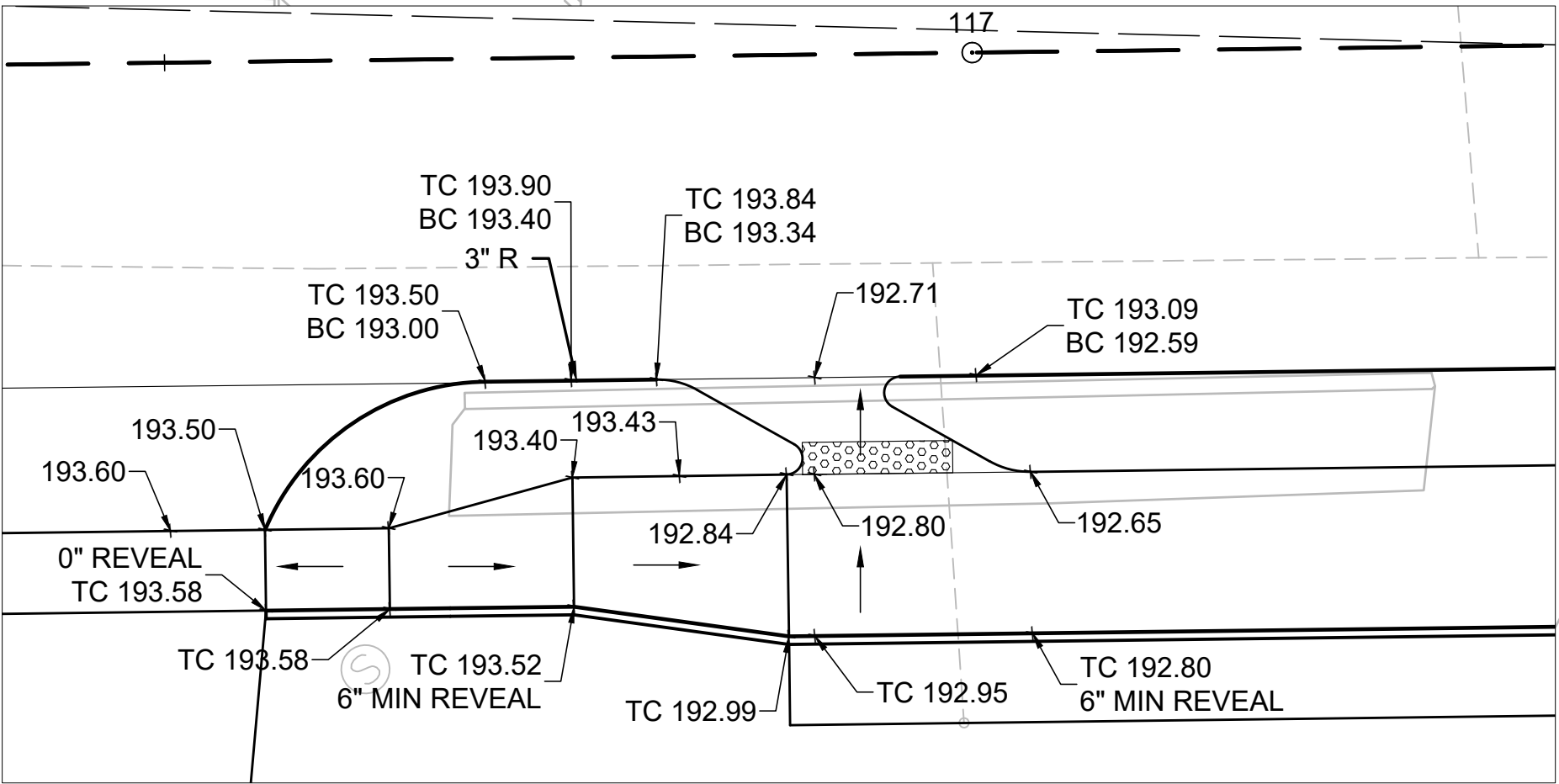
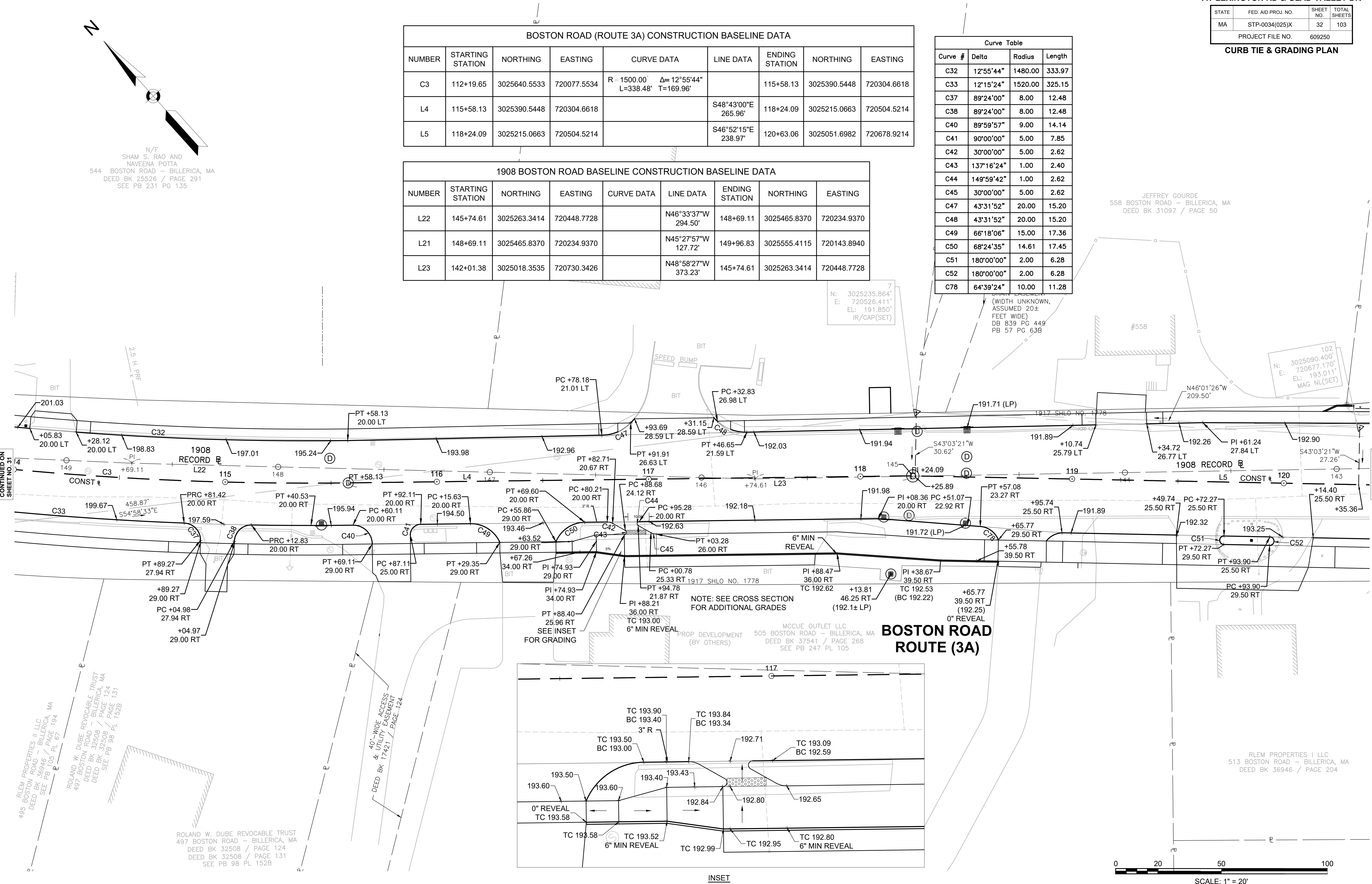
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	32	103
PROJECT FILE NO.		609250	

CURB TIE & GRADING PLAN

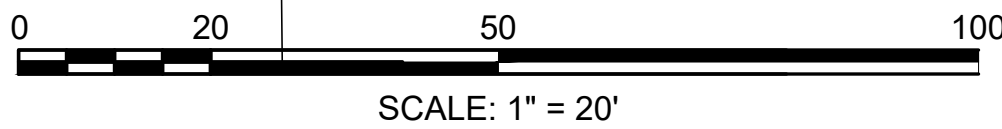
BOSTON ROAD (ROUTE 3A) CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C3	112+19.65	3025640.5533	720077.5534	R=1500.00' Δ=12°55'44" L=338.48' T=169.96'		115+58.13	3025390.5448	720304.6618
L4	115+58.13	3025390.5448	720304.6618		S48°43'00"E 265.96'	118+24.09	3025215.0663	720504.5214
L5	118+24.09	3025215.0663	720504.5214		S46°52'15"E 238.97'	120+63.06	3025051.6982	720678.9214

1908 BOSTON ROAD BASELINE CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L22	145+74.61	3025263.3414	720448.7728		N46°33'37"W 294.50'	148+69.11	3025465.8370	720234.9370
L21	148+69.11	3025465.8370	720234.9370		N45°27'57"W 127.72'	149+96.83	3025555.4115	720143.8940
L23	142+01.38	3025018.3535	720730.3426		N48°58'27"W 373.23'	145+74.61	3025263.3414	720448.7728

Curve Table			
Curve #	Delta	Radius	Length
C32	12°55'44"	1480.00	333.97
C33	12°15'24"	1520.00	325.15
C37	89°24'00"	8.00	12.48
C38	89°24'00"	8.00	12.48
C40	89°59'57"	9.00	14.14
C41	90°00'00"	5.00	7.85
C42	30°00'00"	5.00	2.62
C43	137°16'24"	1.00	2.40
C44	149°59'42"	1.00	2.62
C45	30°00'00"	5.00	2.62
C47	43°31'52"	20.00	15.20
C48	43°31'52"	20.00	15.20
C49	66°18'06"	15.00	17.36
C50	68°24'35"	14.61	17.45
C51	180°00'00"	2.00	6.28
C52	180°00'00"	2.00	6.28
C78	64°39'24"	10.00	11.28



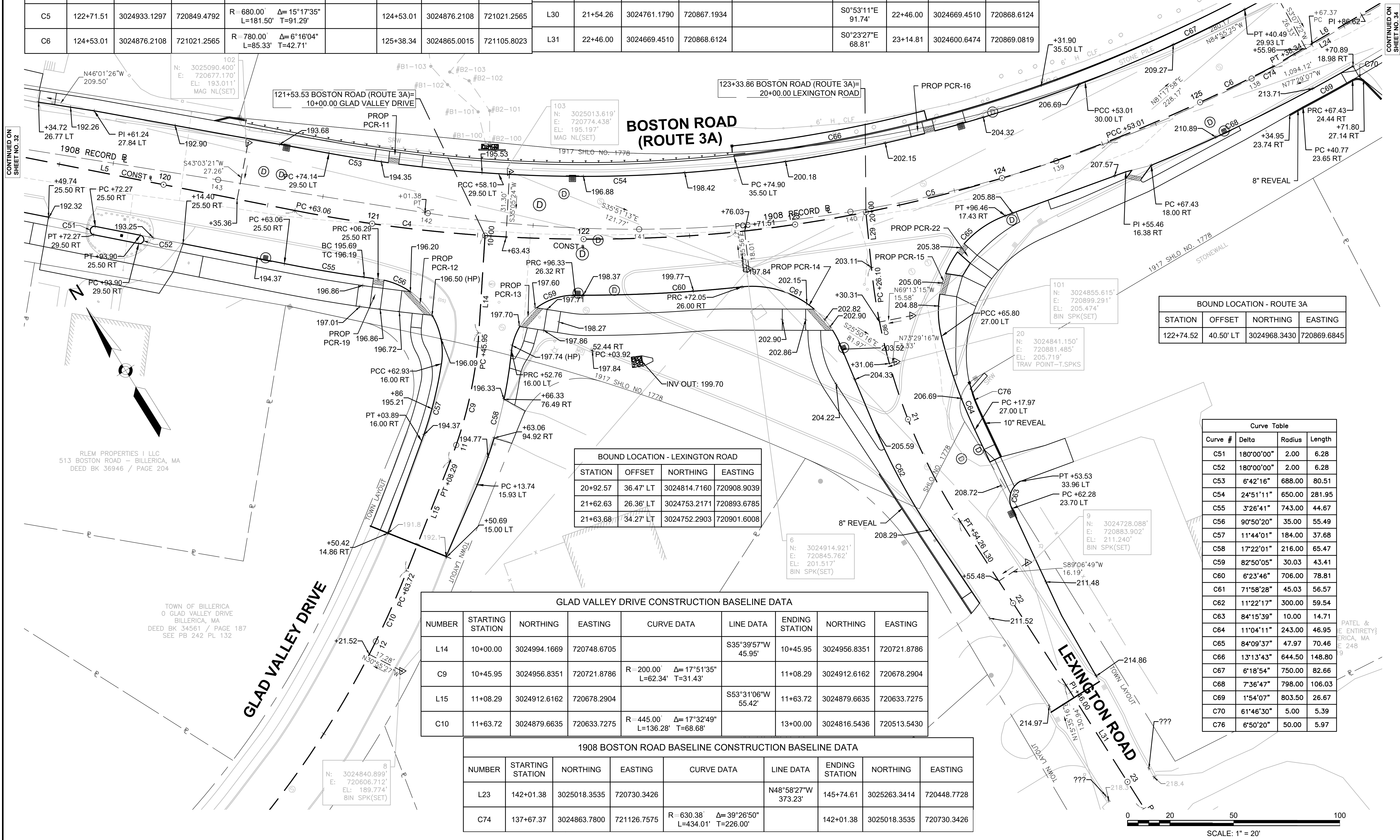
INSET
SCALE = 1:10



SCALE: 1" = 20'

BOSTON ROAD (ROUTE 3A) CONSTRUCTION BASELINE DATA									LEXINGTON ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING	NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L5	118+24.09	3025215.0663	720504.5214		S46°52'15"E 238.97'	120+63.06	3025051.6982	720678.9214	L29	20+00.00	3024908.4246	720906.6993		S26°18'34"W 26.10'	20+26.10	3024885.0245	720895.1295
C4	120+63.06	3025051.6982	720678.9214	R=717.50' Δ=16°38'46" L=208.45' T=104.97'		122+71.51	3024933.1297	720849.4792	C86	20+26.10	3024885.0245	720895.1295	R=270.00' Δ=27°11'45" L=128.16' T=65.31'		21+54.26	3024761.1790	720867.1934
C5	122+71.51	3024933.1297	720849.4792	R=680.00' Δ=15°17'35" L=181.50' T=91.29'		124+53.01	3024876.2108	721021.2565	L30	21+54.26	3024761.1790	720867.1934		S0°53'11"E 91.74'	22+46.00	3024669.4510	720868.6124
C6	124+53.01	3024876.2108	721021.2565	R=780.00' Δ=6°16'04" L=85.33' T=42.71'		125+38.34	3024865.0015	721105.8023	L31	22+46.00	3024669.4510	720868.6124		S0°23'27"E 68.81'	23+14.81	3024600.6474	720869.0819

BILLERICA BOSTON RD (ROUTE 3A) AT LEXINGTON RD & GLAD VALLEY DR			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	33	103
PROJECT FILE NO. 609250			
CURB TIE & GRADING PLAN			



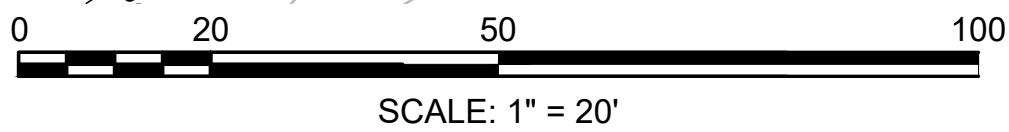
BOUND LOCATION - ROUTE 3A			
STATION	OFFSET	NORTHING	EASTING
122+74.52	40.50' LT	3024968.3430	720869.6845

BOUND LOCATION - LEXINGTON ROAD			
STATION	OFFSET	NORTHING	EASTING
20+92.57	36.47' LT	3024814.7160	720908.9039
21+62.63	26.36' LT	3024753.2171	720893.6785
21+63.68	34.27' LT	3024752.2903	720901.6008

GLAD VALLEY DRIVE CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L14	10+00.00	3024994.1669	720748.6705		S35°39'57"W 45.95'	10+45.95	3024956.8351	720721.8786
C9	10+45.95	3024956.8351	720721.8786	R=200.00' Δ=17°51'35" L=62.34' T=31.43'		11+08.29	3024912.6162	720678.2904
L15	11+08.29	3024912.6162	720678.2904		S53°31'06"W 55.42'	11+63.72	3024879.6635	720633.7275
C10	11+63.72	3024879.6635	720633.7275	R=445.00' Δ=17°32'49" L=136.28' T=68.68'		13+00.00	3024816.5436	720513.5430

1908 BOSTON ROAD BASELINE CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L23	142+01.38	3025018.3535	720730.3426		N48°58'27"W 373.23'	145+74.61	3025263.3414	720448.7728
C74	137+67.37	3024863.7800	721126.7575	R=630.38 Δ=39°26'50" L=434.01' T=226.00'		142+01.38	3025018.3535	720730.3426

Curve Table			
Curve #	Delta	Radius	Length
C51	180°00'00"	2.00	6.28
C52	180°00'00"	2.00	6.28
C53	6°42'16"	688.00	80.51
C54	24°51'11"	650.00	281.95
C55	3°26'41"	743.00	44.67
C56	90°50'20"	35.00	55.49
C57	11°44'01"	184.00	37.68
C58	17°22'01"	216.00	65.47
C59	82°50'05"	30.03	43.41
C60	6°23'46"	706.00	78.81
C61	71°58'28"	45.03	56.57
C62	11°22'17"	300.00	59.54
C63	84°15'39"	10.00	14.71
C64	11°04'11"	243.00	46.95
C65	84°09'37"	47.97	70.46
C66	13°13'43"	644.50	148.80
C67	6°18'54"	750.00	82.66
C68	7°36'47"	798.00	106.03
C69	1°54'07"	803.50	26.67
C70	61°46'30"	5.00	5.39
C76	6°50'20"	50.00	5.97



BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	34	103
PROJECT FILE NO.		609250	

CURB TIE & GRADING PLAN

J SUMMER REALTY LLC
568 BOSTON ROAD - BILLERICA, MA
DEED BK 36642 / PAGE 246
SEE PB 131 PG 168

Curve Table			
Curve #	Delta	Radius	Length
C67	6°18'54"	750.00	82.66
C68	7°36'47"	798.00	106.03
C69	1°54'07"	803.50	26.67
C70	61°46'30"	5.00	5.39
C71	84°36'51"	5.00	7.38
C72	2°48'39"	1492.00	73.19
C79	63°20'26"	490.00	541.70
C80	63°08'59"	530.00	584.15

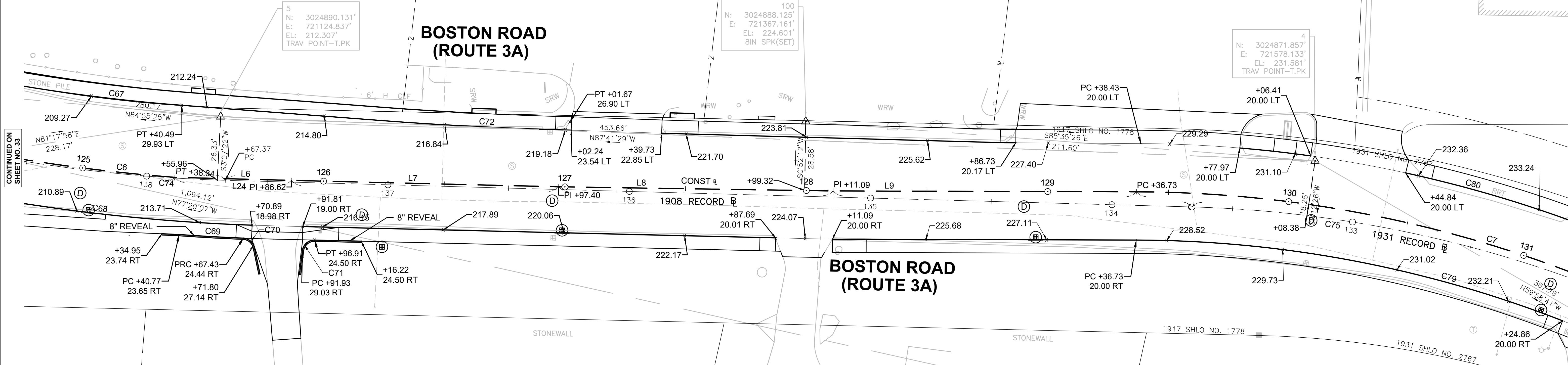
BOSTON ROAD (ROUTE 3A) CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C6	124+53.01	3024876.2108	721021.2565	R=780.00' Δ=6°16'04" L=85.33' T=42.71'		125+38.34	3024865.0015	721105.8023
L6	125+38.34	3024865.0015	721105.8023		S88°30'24"E 48.28'	125+86.62	3024863.7432	721154.0661
L7	125+86.62	3024863.7432	721154.0661		S88°37'42"E 110.78'	126+97.40	3024861.0912	721264.8192
L8	126+97.40	3024861.0912	721264.8192		S89°07'51"E 113.69'	128+11.09	3024859.3669	721378.4942
L9	128+11.09	3024859.3669	721378.4942		S89°50'30"E 125.64'	129+36.73	3024859.0196	721504.1325
C7	129+36.73	3024859.0196	721504.1325	R=510.00' Δ=63°20'26" L=563.81' T=314.62'		135+00.54	3024576.5907	721959.1351

SALT BOX NURSERY REALTY TRUST
564 BOSTON ROAD - BILLERICA, MA
DEED BK 16326 / PAGE 183
SEE PB 98 PG 141
SEE PB 119 PG 101

4
N: 3024871.857'
E: 721578.133'
EL: 231.581'
TRAV POINT-T.PK

100
N: 3024888.125'
E: 721367.161'
EL: 224.601'
8IN SPK(SET)

5
N: 3024890.131'
E: 721124.837'
EL: 212.307'
TRAV POINT-T.PK

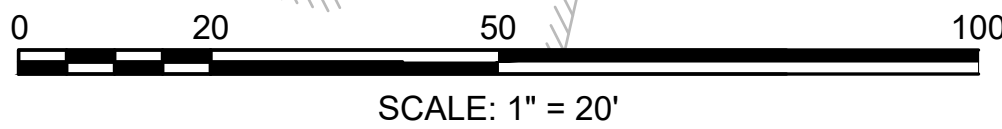


1908 BOSTON ROAD BASELINE CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C74	137+67.37	3024863.7800	721126.7575	R=630.38' Δ=39°26'50" L=434.01' T=226.00'		142+01.38	3025018.3535	720730.3426
L24	133+67.05	3024852.7517	721526.9256		N88°25'17"W 400.32'	137+67.37	3024863.7800	721126.7575

1931 ALTERATION (LO 2767) CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C75	128+40.28	3024590.3925	721956.3452	R=505.18' Δ=59°43'00" L=526.53' T=290.00'		133+66.81	3024852.7450	721527.1655

GREGORY E 533 E D
SEE PB 122 PL 105

N/F
SANDRO CESAR VIERA DESOUSA
537 BOSTON ROAD - BILLERICA, MA
DEED BK 37668 / PAGE 172
PL 114



HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

NONE

DRAINAGE DETAILS

SEE SHEET 43

BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

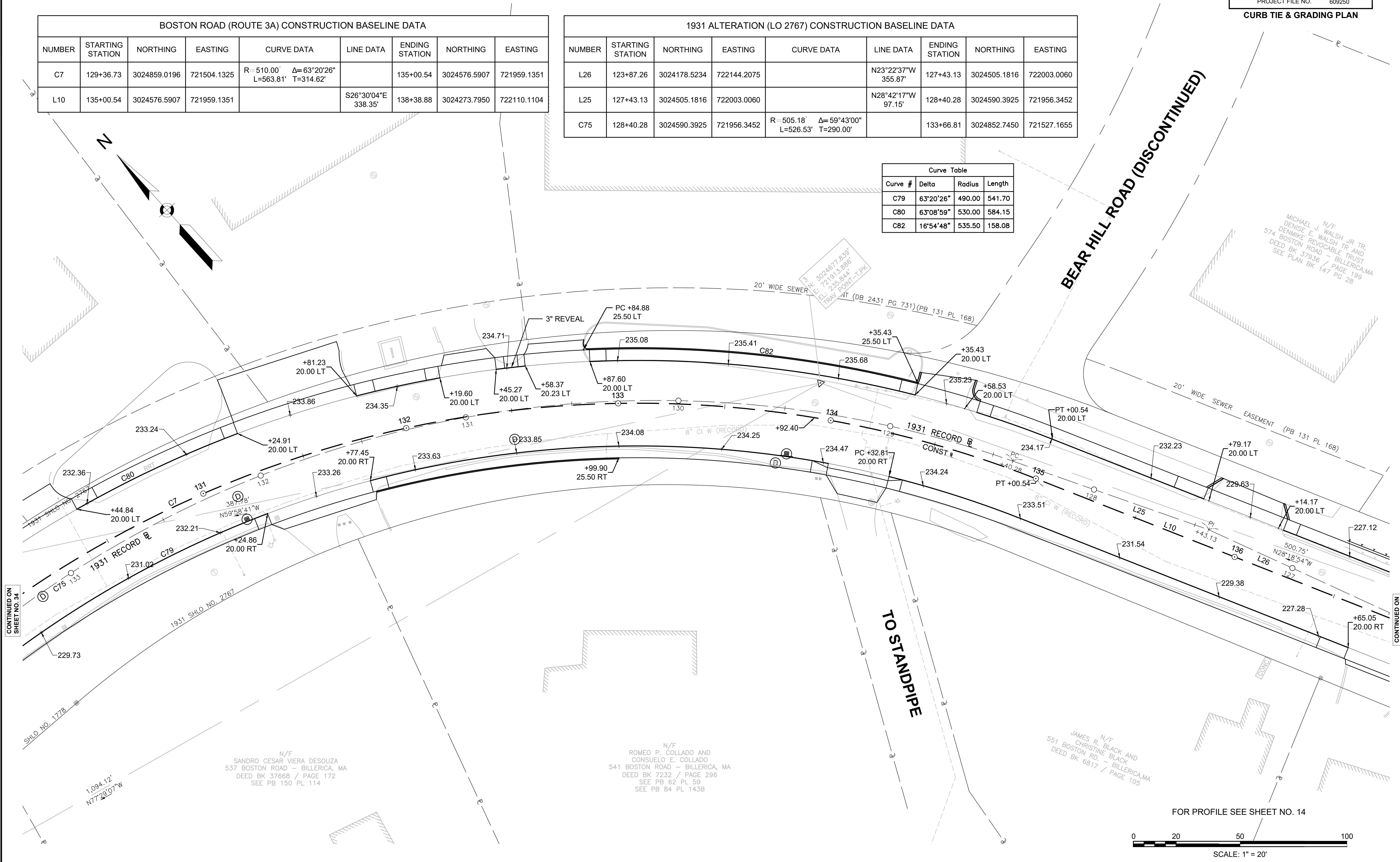
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	35	103
PROJECT FILE NO.		609250	

CURB TIE & GRADING PLAN

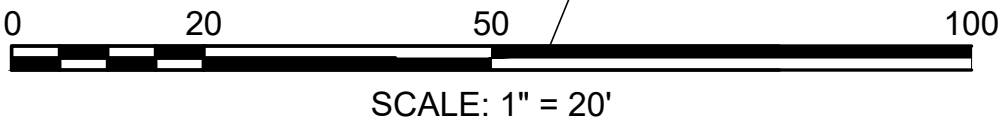
BOSTON ROAD (ROUTE 3A) CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C7	129+36.73	3024859.0196	721504.1325	R=510.00' Δ=63°20'26" L=563.81' T=314.62'		135+00.54	3024576.5907	721959.1351
L10	135+00.54	3024576.5907	721959.1351		S26°30'04"E 338.35'	138+38.88	3024273.7950	722110.1104

1931 ALTERATION (LO 2767) CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L26	123+87.26	3024178.5234	722144.2075		N23°22'37"W 355.87'	127+43.13	3024505.1816	722003.0060
L25	127+43.13	3024505.1816	722003.0060		N28°42'17"W 97.15'	128+40.28	3024590.3925	721956.3452
C75	128+40.28	3024590.3925	721956.3452	R=505.18' Δ=59°43'00" L=526.53' T=290.00'		133+66.81	3024852.7450	721527.1655

Curve Table			
Curve #	Delta	Radius	Length
C79	63°20'26"	490.00	541.70
C80	63°08'59"	530.00	584.15
C82	16°54'48"	535.50	158.08



FOR PROFILE SEE SHEET NO. 14



CONTINUED ON
SHEET NO. 34

CONTINUED ON
SHEET NO. 36

HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

NONE

DRAINAGE DETAILS

SEE SHEET 44

BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

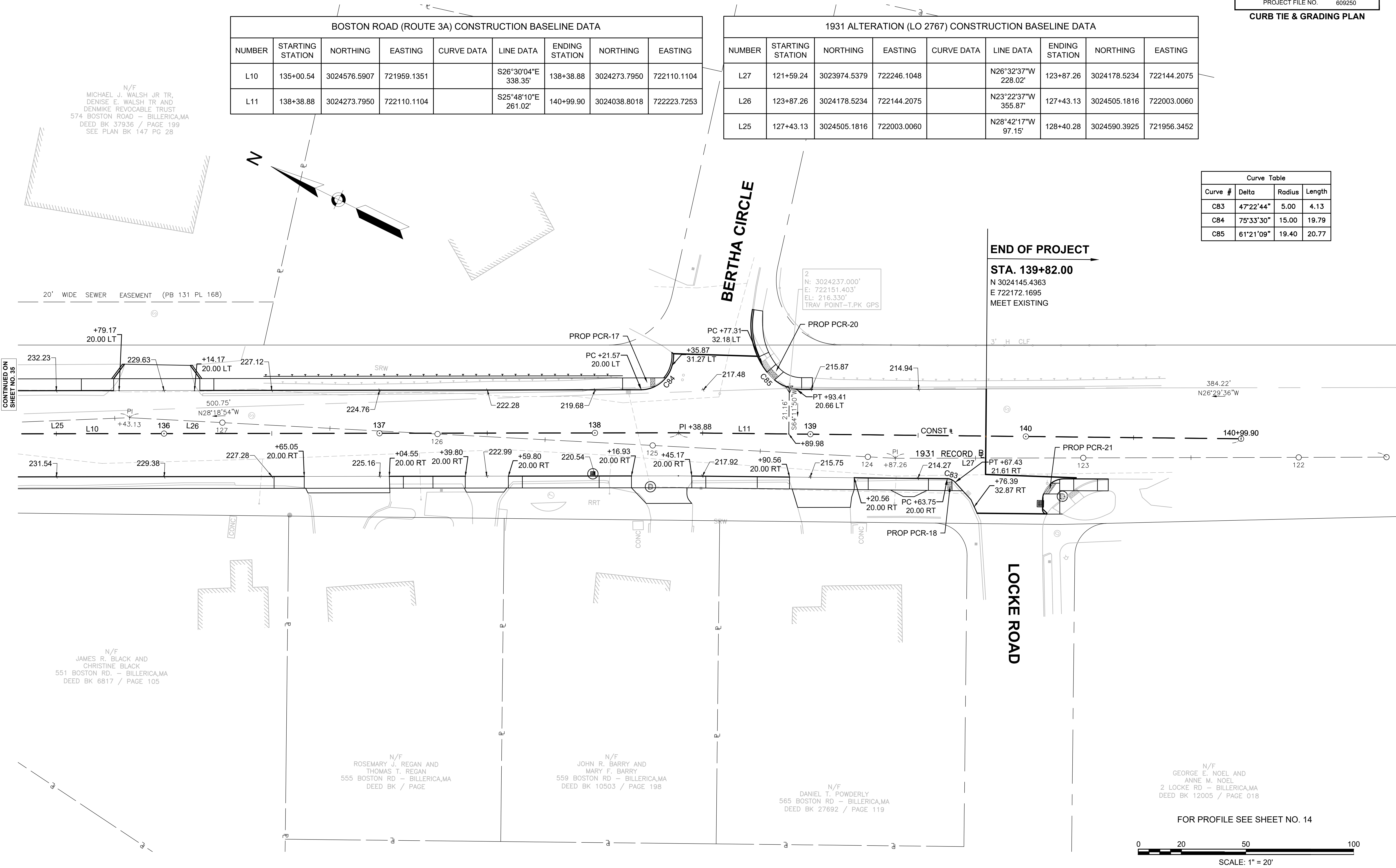
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	36	103
PROJECT FILE NO. 609250			

CURB TIE & GRADING PLAN

BOSTON ROAD (ROUTE 3A) CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L10	135+00.54	3024576.5907	721959.1351		S26°30'04"E 338.35'	138+38.88	3024273.7950	722110.1104
L11	138+38.88	3024273.7950	722110.1104		S25°48'10"E 261.02'	140+99.90	3024038.8018	722223.7253

1931 ALTERATION (LO 2767) CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L27	121+59.24	3023974.5379	722246.1048		N26°32'37"W 228.02'	123+87.26	3024178.5234	722144.2075
L26	123+87.26	3024178.5234	722144.2075		N23°22'37"W 355.87'	127+43.13	3024505.1816	722003.0060
L25	127+43.13	3024505.1816	722003.0060		N28°42'17"W 97.15'	128+40.28	3024590.3925	721956.3452

Curve Table			
Curve #	Delta	Radius	Length
C83	47°22'44"	5.00	4.13
C84	75°33'30"	15.00	19.79
C85	61°21'09"	19.40	20.77



CONTINUED ON
SHEET NO. 35

N/F
MICHAEL J. WALSH JR TR,
DENISE E. WALSH TR AND
DENIMKE REVOCABLE TRUST
574 BOSTON ROAD - BILLERICA,MA
DEED BK 37936 / PAGE 199
SEE PLAN BK 147 PG 28

N/F
JAMES R. BLACK AND
CHRISTINE BLACK
551 BOSTON RD. - BILLERICA,MA
DEED BK 6817 / PAGE 105

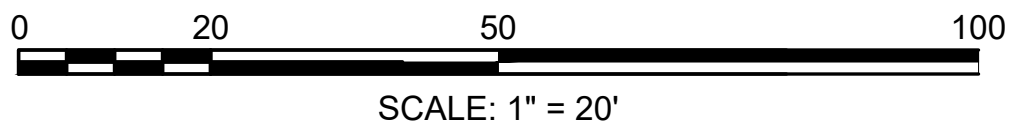
N/F
ROSEMARY J. REGAN AND
THOMAS T. REGAN
555 BOSTON RD - BILLERICA,MA
DEED BK / PAGE

N/F
JOHN R. BARRY AND
MARY F. BARRY
559 BOSTON RD - BILLERICA,MA
DEED BK 10503 / PAGE 198

N/F
DANIEL T. POWDERLY
565 BOSTON RD - BILLERICA,MA
DEED BK 27692 / PAGE 119

N/F
GEORGE E. NOEL AND
ANNE M. NOEL
2 LOCKE RD - BILLERICA,MA
DEED BK 12005 / PAGE 018

FOR PROFILE SEE SHEET NO. 14

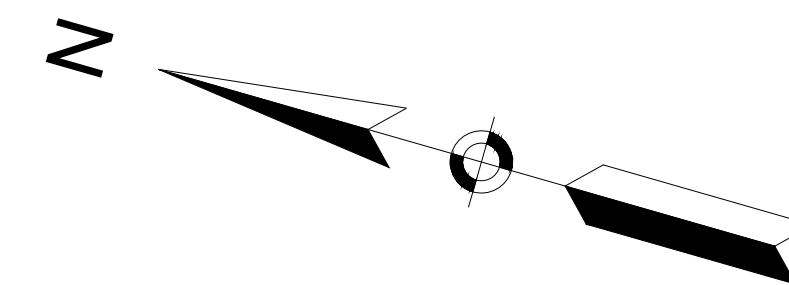


STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	37	103
PROJECT FILE NO.		609250	

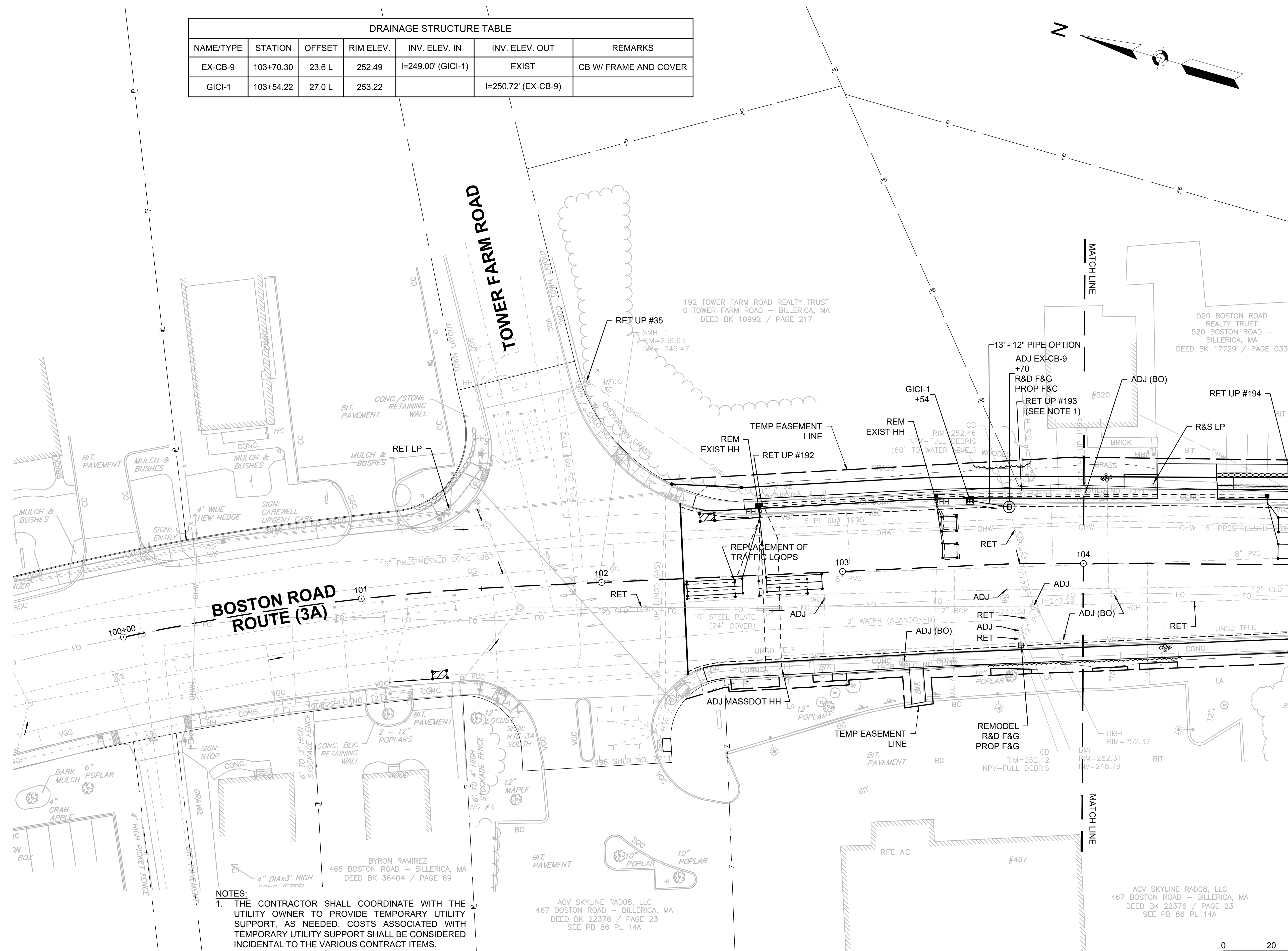
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	37	103
PROJECT FILE NO.		609250	

WATER SUPPLY ALTERATIONS

SHEET 45



DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
EX-CB-9	103+70.30	23.6 L	252.49	I=249.00' (GICI-1)	EXIST	CB W/ FRAME AND COVER
GICI-1	103+54.22	27.0 L	253.22		I=250.72' (EX-CB-9)	



UTILITY LEGEND

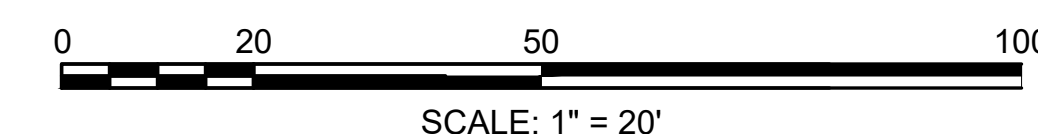
[illegible]

NOTES:

1. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY OWNER TO PROVIDE TEMPORARY UTILITY SUPPORT, AS NEEDED. COSTS ASSOCIATED WITH TEMPORARY UTILITY SUPPORT SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS CONTRACT ITEMS.

ACV SKYLINE RAD08, LLC
467 BOSTON ROAD - BILLERICA, MA
DEED BK 22376 / PAGE 23
SEE PB 86 PL 14A

ACV SKYLINE RAD08, LLC
467 BOSTON ROAD - BILLERICA, MA
DEED BK 22376 / PAGE 23
SEE PB 86 PL 14A



CONTINUED ON
SHEET NO. 38

BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

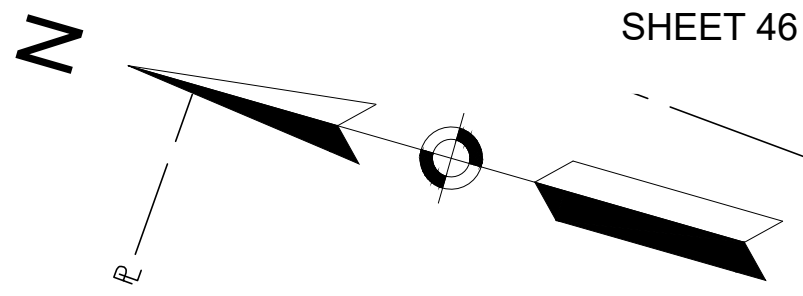
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	38	103
PROJECT FILE NO.		609250	

DRAINAGE & UTILITY PLAN

JPD 530R BOSTON ROAD LLC AKA
JPD 530R BOSTON ROAD, LLC
530 BOSTON ROAD - BILLERICA, MA
DEED BK 33776 / PAGE 263
SEE PB 232 PG 143

WATER SUPPLY ALTERATIONS

SHEET 46



TEST PIT DATA			
VTP-#	TOP OF WATER MAIN/ DUCT/GAS ELEVATION	DEPTH BELOW SURFACE (IN)	DATE
VTP-8	218.52 (WM)	69.0	MAY, 2023
VTP-9	228.81 (WM)	57.0	MAY, 2023
TP-6	NOTHING FOUND	54.0	JULY, 2022
TP-7	NOTHING FOUND	54.0	JULY, 2022

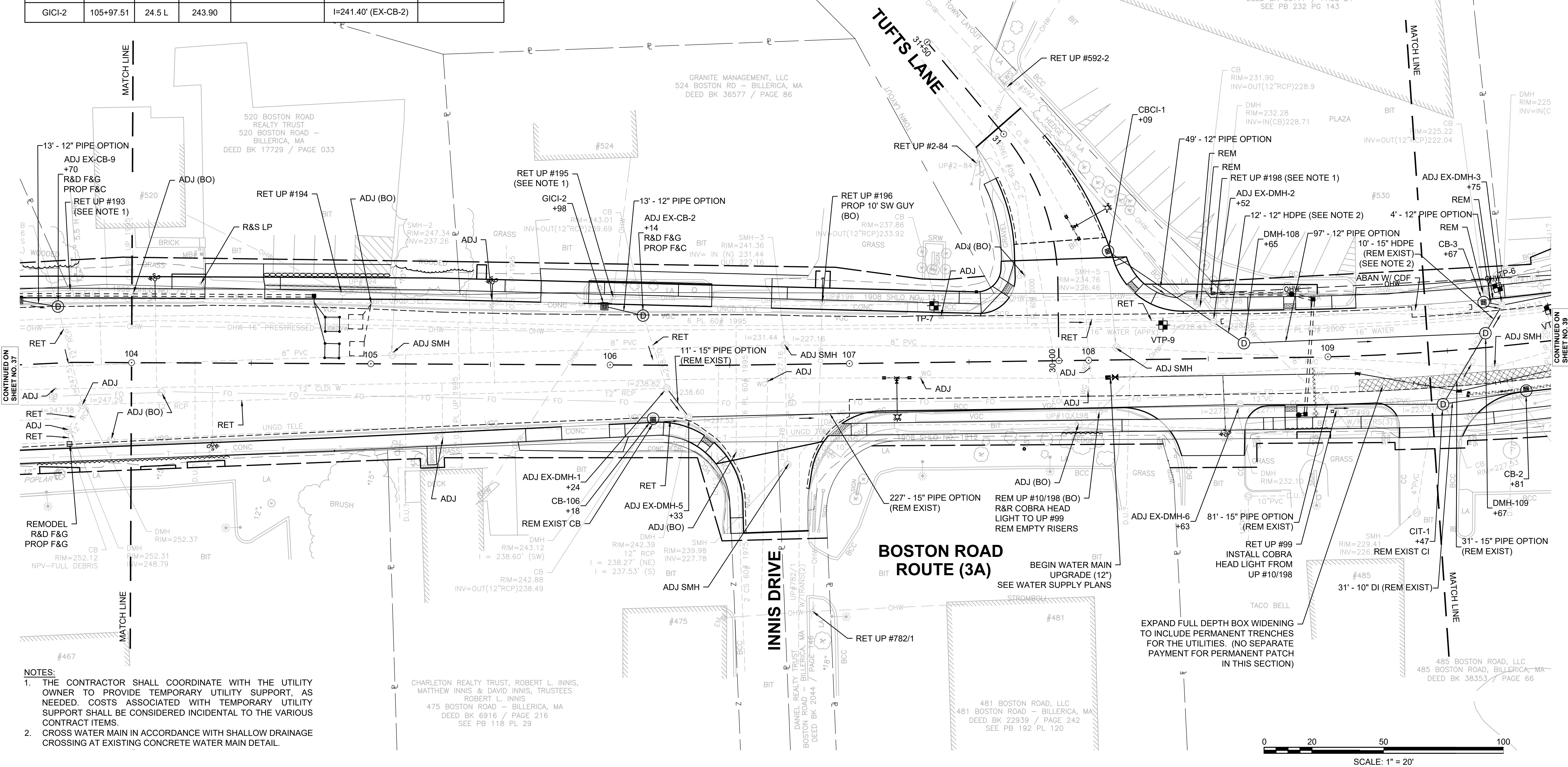
LEGEND

TP TEST PIT
VTP VACUUM TEST PIT
WM WATER MAIN
G GAS
C CONDUIT
D DRAINAGE

JPD 530R BOSTON ROAD LLC AKA
JPD 530R BOSTON ROAD, LLC
530 BOSTON ROAD - BILLERICA, MA
DEED BK 33777 / PAGE 24
SEE PB 232 PG 143

DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
CB-2	109+80.99	19.6 R	225.76		I=222.90' (CIT-1)	FLAT TOP OFFSET COVER 1 COURSE BRICK
CB-3	109+66.95	19.0 L	225.41		I=221.40' (EX-DMH-3)	
CB-106	106+18.05	22.3 R	242.91		I=238.49' (EXIST)	ECCENTRIC CONE
CBCI-1	108+08.72	45.5 L	234.57		I=231.07' (EX-DMH-2)	FLAT TOP
CIT-1	109+46.58	22.1 R	227.98	I=223.31' (EX-DMH-6) I=222.70' (CB-2)	I=222.70' (DMH-109)	CHANGE-IN-TYPE
DMH-108	108+64.98	6.3 L	231.91	I=228.20' (EX-DMH-2)	I=228.10' (DMH-109)	FLAT TOP
DMH-109	109+66.51	6.0 L	226.12	I=221.00' (CIT-1) I=221.00' (DMH-108)	I=220.90' (EX-DMH-3)	
GICI-2	105+97.51	24.5 L	243.90		I=241.40' (EX-CB-2)	

DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
EX-CB-2	106+13.65	20.7 L	243.11	I=239.70' (GICI-2)	I=239.69' (EXIST)	CB W/ FRAME AND COVER
EX-DMH-1	106+23.75	9.7 R	243.00	I=238.70' (EXIST) I=238.82' (EXIST)	I=238.60' (EX-DMH-5)	
EX-DMH-2	108+52.23	15.3 L	232.21	I=228.43' (EXIST) I=228.70' (CBCI-1)	I=228.30' (DMH-108)	
EX-DMH-3	109+74.59	17.0 L	225.09	I=221.30' (CB-3) I=220.20' (DMH-109)	I=220.13' (CIT-11)	
EX-DMH-5	106+33.04	21.6 R	242.35	I=237.53' (CB-106) I=238.27' (EXIST)	I=237.50' (EX-DMH-6)	
EX-DMH-6	108+63.07	19.4 R	232.14	I=227.20' (EX-DMH-5)	I=227.10' (CIT-1)	

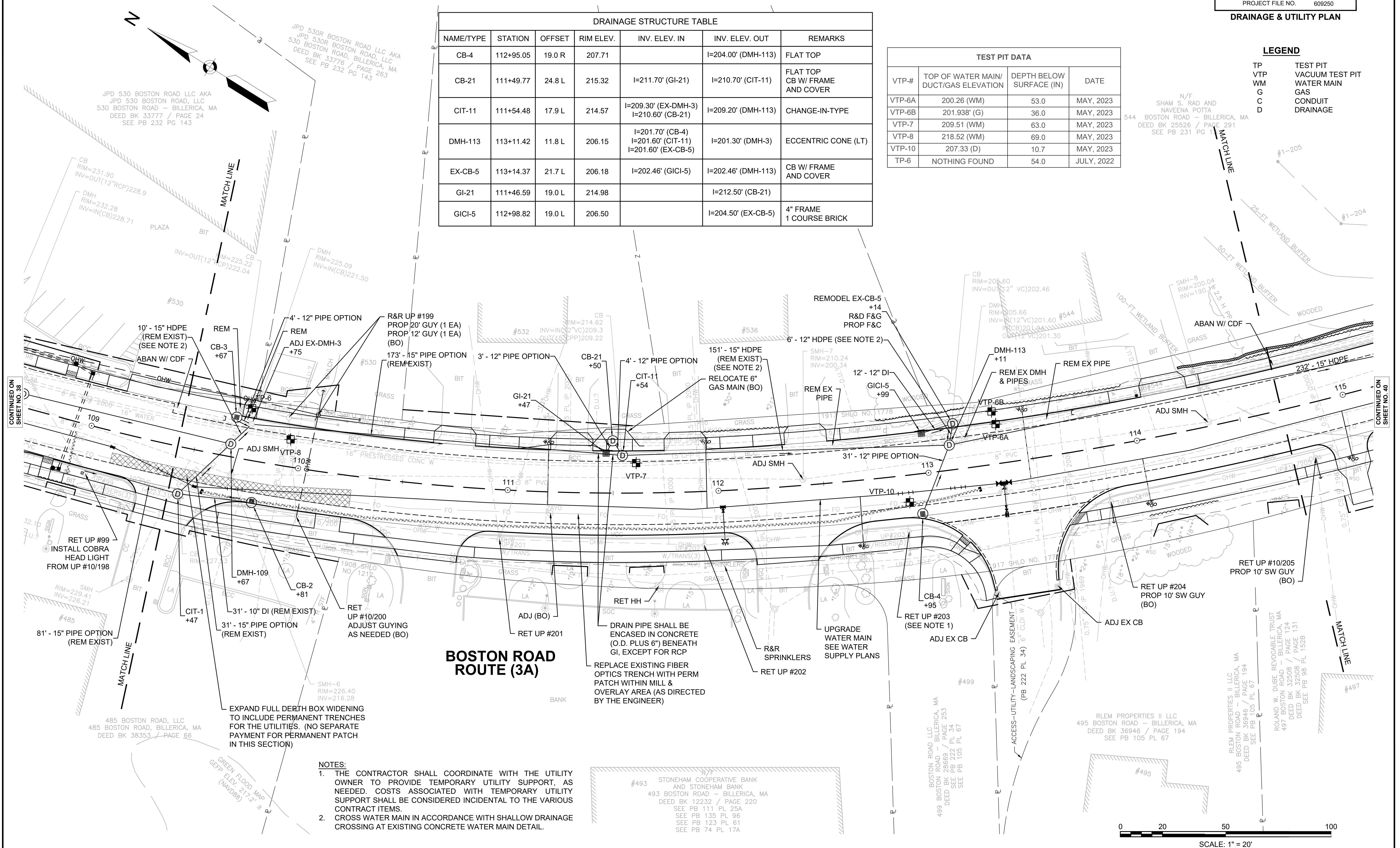


LEGEND

TP	TEST PIT
VTP	VACUUM TEST PIT
WM	WATER MAIN
G	GAS
C	CONDUIT
D	DRAINAGE

TEST PIT DATA			
VTP-#	TOP OF WATER MAIN/ DUCT/GAS ELEVATION	DEPTH BELOW SURFACE (IN)	DATE
VTP-6A	200.26 (WM)	53.0	MAY, 2023
VTP-6B	201.938* (G)	36.0	MAY, 2023
VTP-7	209.51 (WM)	63.0	MAY, 2023
VTP-8	218.52 (WM)	69.0	MAY, 2023
VTP-10	207.33 (D)	10.7	MAY, 2023
TP-6	NOTHING FOUND	54.0	JULY, 2022

DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
CB-4	112+95.05	19.0 R	207.71		I=204.00' (DMH-113)	FLAT TOP
CB-21	111+49.77	24.8 L	215.32	I=211.70' (GI-21)	I=210.70' (CIT-11)	FLAT TOP CB W/ FRAME AND COVER
CIT-11	111+54.48	17.9 L	214.57	I=209.30' (EX-DMH-3) I=210.60' (CB-21)	I=209.20' (DMH-113)	CHANGE-IN-TYPE
DMH-113	113+11.42	11.8 L	206.15	I=201.70' (CB-4) I=201.60' (CIT-11) I=201.60' (EX-CB-5)	I=201.30' (DMH-3)	ECCENTRIC CONE (LT
EX-CB-5	113+14.37	21.7 L	206.18	I=202.46' (GICI-5)	I=202.46' (DMH-113)	CB W/ FRAME AND COVER
GI-21	111+46.59	19.0 L	214.98		I=212.50' (CB-21)	
GICI-5	112+98.82	19.0 L	206.50		I=204.50' (EX-CB-5)	4" FRAME 1 COURSE BRICK



BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	40	103
PROJECT FILE NO. 609250			

DRAINAGE & UTILITY PLAN

WATER SUPPLY ALTERATIONS

SHEET 48

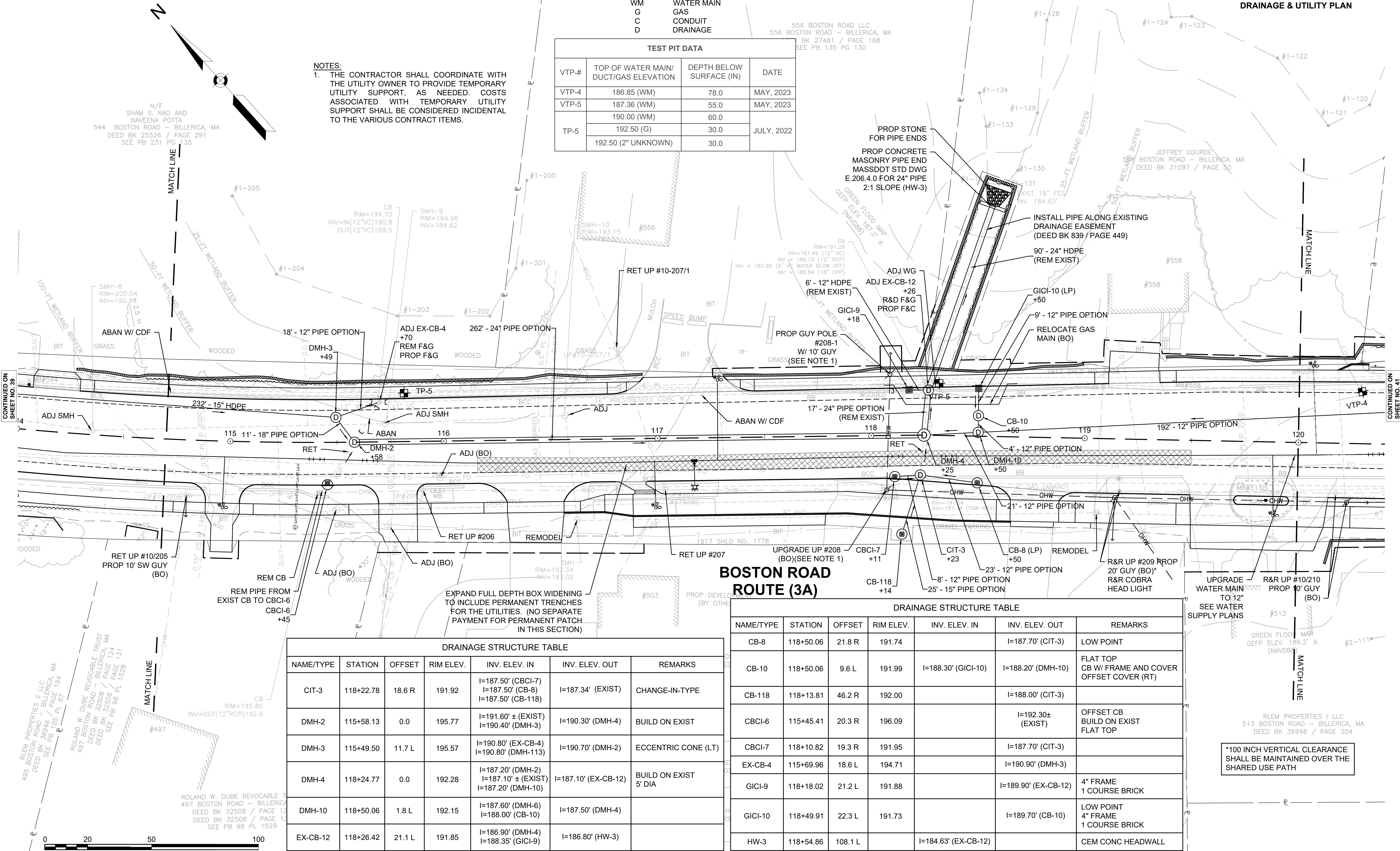
LEGEND

TP	TEST PIT
VTP	VACUUM TEST PIT
WM	WATER MAIN
G	GAS
C	CONDUIT
D	DRAINAGE

TEST PIT DATA			
VTP-#	TOP OF WATER MAIN/ DUCT/GAS ELEVATION	DEPTH BELOW SURFACE (IN)	DATE
VTP-4	186.85 (WM)	78.0	MAY, 2023
VTP-5	187.36 (WM)	55.0	MAY, 2023
TP-5	190.00 (WM)	60.0	JULY, 2022
	192.50 (G)	30.0	
	192.50 (2" UNKNOWN)	30.0	

NOTES:

- THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY OWNER TO PROVIDE TEMPORARY UTILITY SUPPORT, AS NEEDED. COSTS ASSOCIATED WITH TEMPORARY UTILITY SUPPORT SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS CONTRACT ITEMS.

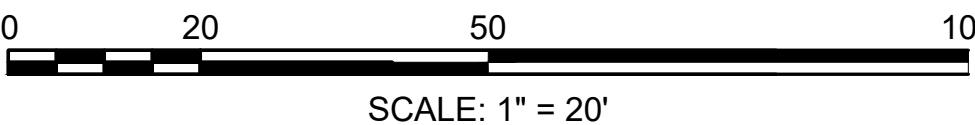


BOSTON ROAD
ROUTE (3A)

DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
CIT-3	118+22.78	18.6 R	191.92	I=187.50' (CBCI-7) I=187.50' (CB-8) I=187.50' (CB-118)	I=187.34' (EXIST)	CHANGE-IN-TYPE
DMH-2	115+58.13	0.0	195.77	I=191.60' ± (EXIST) I=190.40' (DMH-3)	I=190.30' (DMH-4)	BUILD ON EXIST
DMH-3	115+49.50	11.7 L	195.57	I=190.80' (EX-CB-4) I=190.80' (DMH-113)	I=190.70' (DMH-2)	ECCENTRIC CONE (LT)
DMH-4	118+24.77	0.0	192.28	I=187.20' (DMH-2) I=187.10' ± (EXIST) I=187.20' (DMH-10)	I=187.10' (EX-CB-12)	BUILD ON EXIST 5" DIA
DMH-10	118+50.06	1.8 L	192.15	I=187.60' (DMH-6) I=188.00' (CB-10)	I=187.50' (DMH-4)	
EX-CB-12	118+26.42	21.1 L	191.85	I=186.90' (DMH-4) I=188.35' (GICI-9)	I=186.80' (HW-3)	

DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
CB-8	118+50.06	21.8 R	191.74		I=187.70' (CIT-3)	LOW POINT
CB-10	118+50.06	9.6 L	191.99	I=188.30' (GICI-10)	I=188.20' (DMH-10)	FLAT TOP CB W/ FRAME AND COVER OFFSET COVER (RT)
CB-118	118+13.81	46.2 R	192.00		I=188.00' (CIT-3)	
CBCI-6	115+45.41	20.3 R	196.09		I=192.30± (EXIST)	OFFSET CB BUILD ON EXIST FLAT TOP
CBCI-7	118+10.82	19.3 R	191.95		I=187.70' (CIT-3)	
EX-CB-4	115+69.96	18.6 L	194.71		I=190.90' (DMH-3)	
GICI-9	118+18.02	21.2 L	191.88		I=189.90' (EX-CB-12)	4" FRAME 1 COURSE BRICK
GICI-10	118+49.91	22.3 L	191.73		I=189.70' (CB-10)	LOW POINT 4" FRAME 1 COURSE BRICK
HW-3	118+54.86	108.1 L		I=184.63' (EX-CB-12)		CEM CONC HEADWALL

*100 INCH VERTICAL CLEARANCE
SHALL BE MAINTAINED OVER THE
SHARED USE PATH



STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	41	103
PROJECT FILE NO.		609250	

DRAINAGE & UTILITY PLAN



CONTINUED ON
SHEET NO. 42

WATER SUPPLY ALTERATIONS

SHEET 50

BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	42	103
PROJECT FILE NO. 609250			

DRAINAGE & UTILITY PLAN

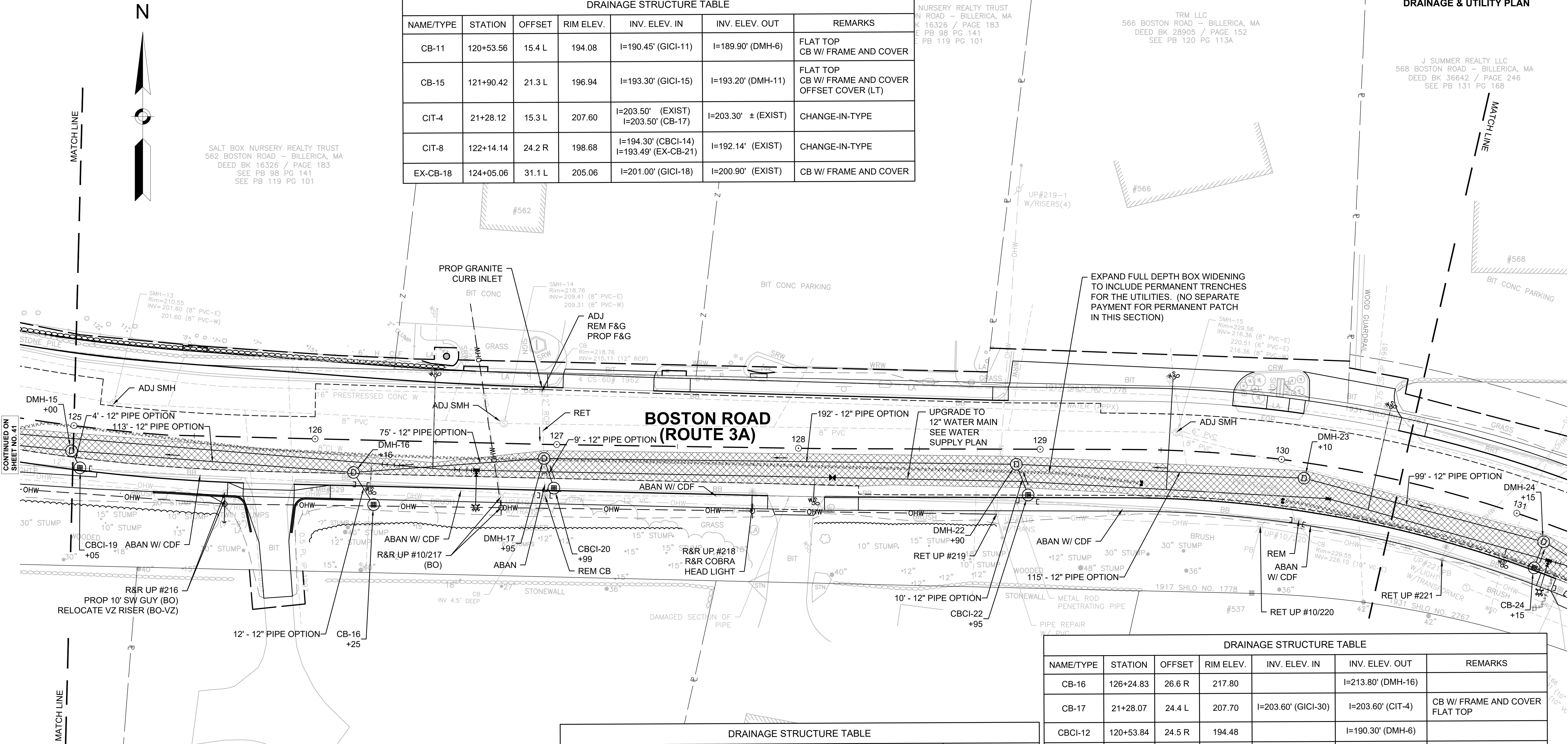
J SUMMER REALTY LLC
568 BOSTON ROAD - BILLERICA, MA
DEED BK 36642 / PAGE 246
SEE PB 131 PG 168

TRM LLC
566 BOSTON ROAD - BILLERICA, MA
DEED BK 28905 / PAGE 152
SEE PB 120 PG 113A

NURSERY REALTY TRUST
N ROAD - BILLERICA, MA
K 16326 / PAGE 183
E PB 98 PG 141
F PB 119 PG 101

DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
CB-11	120+53.56	15.4 L	194.08	I=190.45' (GICI-11)	I=189.90' (DMH-6)	FLAT TOP CB W/ FRAME AND COVER
CB-15	121+90.42	21.3 L	196.94	I=193.30' (GICI-15)	I=193.20' (DMH-11)	FLAT TOP CB W/ FRAME AND COVER OFFSET COVER (LT)
CIT-4	21+28.12	15.3 L	207.60	I=203.50' (EXIST) I=203.50' (CB-17)	I=203.30' ± (EXIST)	CHANGE-IN-TYPE
CIT-8	122+14.14	24.2 R	198.68	I=194.30' (CBCI-14) I=193.49' (EX-CB-21)	I=192.14' (EXIST)	CHANGE-IN-TYPE
EX-CB-18	124+05.06	31.1 L	205.06	I=201.00' (GICI-18)	I=200.90' (EXIST)	CB W/ FRAME AND COVER

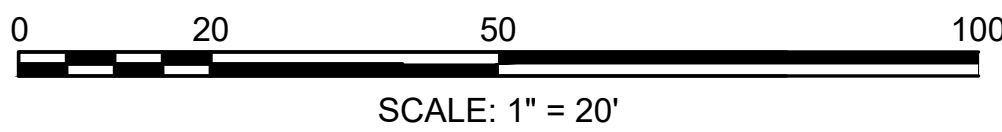
SALT BOX NURSERY REALTY TRUST
562 BOSTON ROAD - BILLERICA, MA
DEED BK 16326 / PAGE 183
SEE PB 98 PG 141
SEE PB 119 PG 101



DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
DMH-17	126+94.86	5.8 R	219.94	I=214.50' ± (EXIST) I=216.30' (CBCI-20) I=214.50' (DMH-22)	I=214.40' (DMH-16)	BUILD ON EXIST
DMH-19	123+98.78	20.2 R	206.25	I=200.10' ± (EXIST) I=202.75' (DMH-15)	I=200.00' (DMH-122)	BUILD ON EXIST
DMH-22	128+90.16	6.3 R	227.17	I=223.20' (CBCI-22) I=223.20' (DMH-23)	I=223.10' (DMH-17)	
DMH-23	130+10.36	6.4 R	230.81	I=226.70' (DMH-24)	I=226.60' (DMH-22)	
FES-15	122+30.41	57.4 R	199.95	I=198.70' (CBCI-15)		FLARED END

DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
DMH-6	120+45.13	15.2 L	193.95	I=189.80' (CB-11) I=190.00' (CBCI-12)	I=189.70' (DMH-10)	
DMH-11	121+78.69	15.9 L	196.83	I=191.80' (EXIST) I=192.80' (CB-15)	I=191.75' (EXIST)	BUILD ON EXIST 5' DIA
DMH-14	121+99.42	6.9 R	198.33	I=192.00' (EXIST) I=193.20' (DMH-12)	I=192.00' (EXIST)	BUILD ON EXIST 5' DIA
DMH-15	125+00.31	10.4 R	210.91	I=207.40' (CBCI-19) I=207.40' (DMH-16)	I=206.60' (DMH-19)	OFFSET COVER (RT) FLAT TOP
DMH-16	126+16.21	13.5 R	216.90	I=212.80' (DMH-17) I=212.80' (CB-16)	I=212.00' (DMH-15)	
DMH-122	122+06.83	0.5 R	198.29	I=193.65' (DMH-19)	I=193.55' (DMH-14)	

DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
CB-16	126+24.83	26.6 R	217.80		I=213.80' (DMH-16)	
CB-17	21+28.07	24.4 L	207.70	I=203.60' (GICI-30)	I=203.60' (CIT-4)	CB W/ FRAME AND COVER FLAT TOP
CBCI-12	120+53.84	24.5 R	194.48		I=190.30' (DMH-6)	
CBCI-14	121+97.57	25.5 R	198.17		I=194.50' (CIT-8)	FLAT TOP
CBCI-15	20+60.20	19.1 R	203.56		I=199.70' (FES-15)	FLAT TOP
CBCI-19	125+04.54	17.0 R	211.18		I=207.50' (DMH-15)	FLAT TOP
CBCI-20	126+99.08	18.0 R	220.05		I=216.40' (DMH-17)	FLAT TOP
CBCI-22	128+95.06	18.9 R	226.49		I=223.30' (DMH-22)	FLAT TOP
GICI-11	120+53.51	28.3 L	193.75		I=191.25' (CB-11)	
GICI-15	121+94.43	28.6 L	196.76		I=194.20' (CB-15)	
GICI-18	123+88.11	29.0 L	203.83		I=201.80' (EX-CB-18)	4" FRAME 1 COURSE BRICK
GICI-30	21+64.32	22.5 L	209.02		I=206.55' (CB-17)	



WATER SUPPLY ALTERATIONS

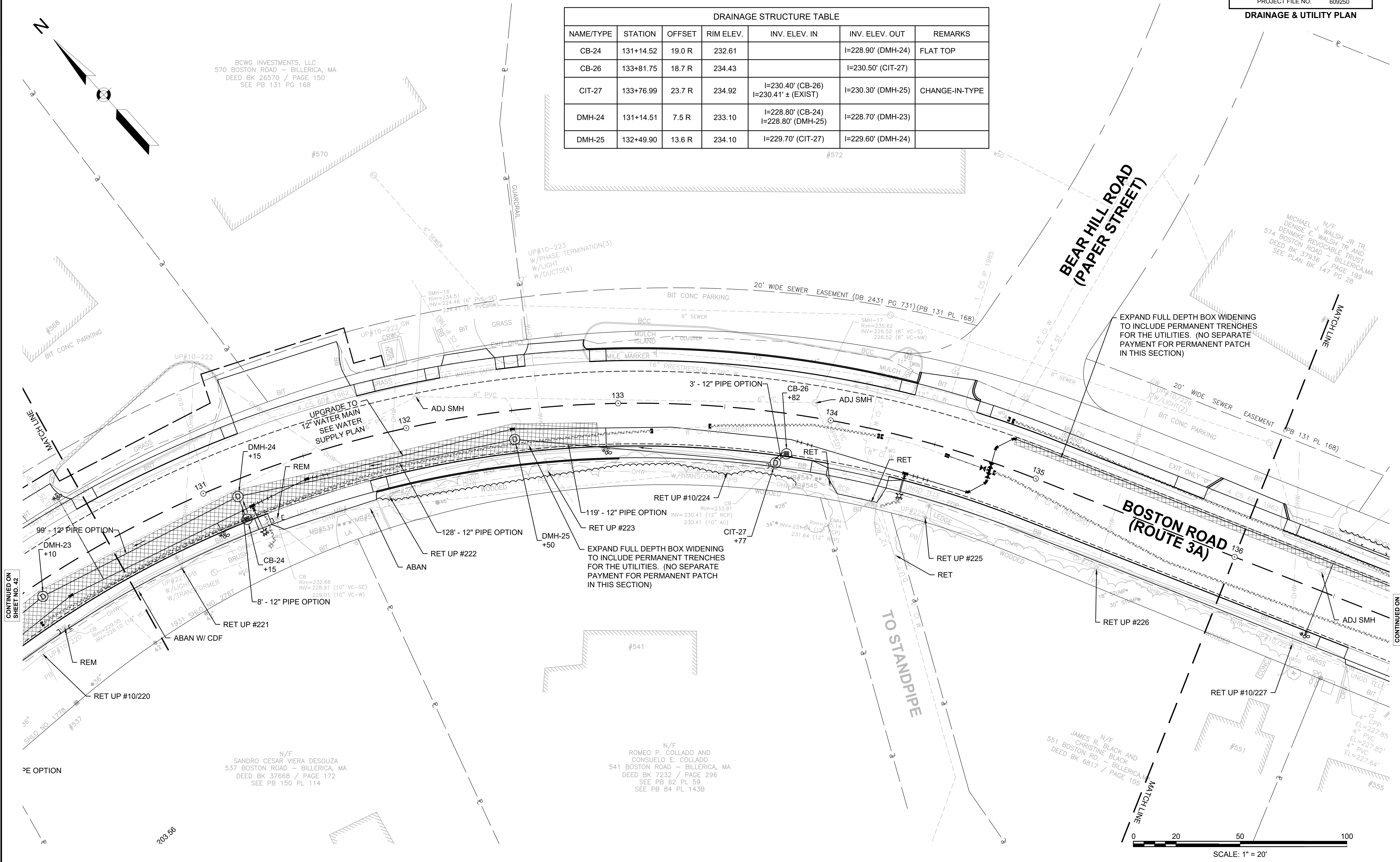
SHEET 51

BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	43	103
PROJECT FILE NO.		609250	

DRAINAGE & UTILITY PLAN

DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
CB-24	131+14.52	19.0 R	232.61		I=228.90' (DMH-24)	FLAT TOP
CB-26	133+81.75	18.7 R	234.43		I=230.50' (CIT-27)	
CIT-27	133+76.99	23.7 R	234.92	I=230.40' (CB-26) I=230.41' ± (EXIST)	I=230.30' (DMH-25)	CHANGE-IN-TYPE
DMH-24	131+14.51	7.5 R	233.10	I=228.80' (CB-24) I=228.80' (DMH-25)	I=228.70' (DMH-23)	
DMH-25	132+49.90	13.6 R	234.10	I=229.70' (CIT-27)	I=229.60' (DMH-24)	



CONTINUED ON
SHEET NO. 42

CONTINUED ON
SHEET NO. 44

DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
CB-28	137+99.01	19.0 R	220.63		I=216.60' (CIT-29)	
CIT-29	138+25.72	25.0 R	219.40	I=215.40' (CB-28) I=214.40' ± (EXIST)	I=209.66± (EXIST)	CHANGE-IN-TYPE
EX-CB-140	140+17.25	27.6 R	213.42	I= MATCH EXIST OUT	I= (EXIST)	CB W/ FRAME AND COVER
GICI-140	140+07.09	31.1 R	213.12		I=210.62' (EX-CB-140)	

BERTHA CIRCLE

LOCKE ROAD

BOSTON ROAD
(ROUTE 3A)

BOSTON ROAD
(ROUTE 3A)

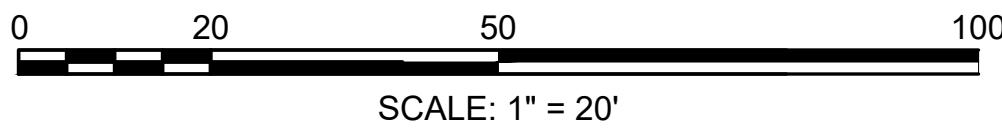
EXPAND FULL DEPTH BOX WIDENING
TO INCLUDE PERMANENT TRENCHES
FOR THE UTILITIES. (NO SEPARATE
PAYMENT FOR PERMANENT PATCH
IN THIS SECTION)

LIMIT OF WATER MAIN
UPGRADE

UPGRADE TO
12" WATER MAIN
SEE WATER
SUPPLY PLANS

REMODEL EX-CB-140
+17
R&D F&G
PROP F&C
7' - 12" PIPE OPTION

COVER SHALL BE LOCATED ENTIRELY
WITHIN A SINGLE PLANE AND SHALL
BE FLUSH WITH SURFACES



BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	45	103
PROJECT FILE NO.		609250	

WATER PLANS

WATER PLANS GENERAL NOTES:

- THE FOLLOWING NOTES APPLY TO SHEET NO. 45 TO 52 ONLY.
- WATER SERVICES SHALL BE 1-INCH DIAMETER TYPE K COPPER TUBING, OR IF LARGER, MATCH EXISTING SIZE, UNLESS OTHERWISE DIRECTED.
- WHERE WATER MAIN PIPE COVER IS LESS THAN 4' OR VERTICAL SEPARATION BETWEEN THE PROPOSED WATER MAIN AND DRAIN PIPE IS LESS THAN 1', CONTRACTOR SHALL PROVIDE WATER MAIN PIPE INSULATION. (SEE DETAIL ON SHEET 55)
- EXISTING WATER MAIN ENCOUNTERED WITHIN THE PROPOSED WATER MAIN TRENCH THAT IS NOTED TO BE REPLACED OR ABANDONED IS TO BE REMOVED AND DISPOSED OF.
- TOWN OF BILLERICA WILL COORDINATE WITH ABUTTERS FOR WATER MAIN BY-PASS AND SERVICE CONNECTIONS THAT REQUIRE ACCESS FOR THE CONTRACTOR.

WATER MAIN BYPASS NOTES:

- THE FOLLOWING NOTES APPLY TO SHEET NO. 45 TO 52 ONLY.
- STEEL TEMPORARY BYPASS PIPING SHALL RUN IN THE GUTTER AND SHALL BE TRENCHED, BURIED, AND PAVED AT EVERY ROAD CROSSING, SIDEWALK CROSSING, AND DRIVEWAY CROSSING.
- TEMPORARY HYDRANTS SHALL BE INSTALLED AT LOCATIONS WHERE EXISTING HYDRANTS ARE BEING TAKEN OUT OF SERVICE. EXISTING OUT-OF-SERVICE HYDRANTS SHALL BE BAGGED.
- VALVES SHALL BE INSTALLED ON BYPASS PIPING ON EACH SIDE OF ROAD CROSSINGS, AT EACH TEMPORARY HYDRANT, AND EVERY 400 FEET ALONG THE BYPASS PIPE.
- TEST EXISTING WATER MAIN VALVES PRIOR TO CONSTRUCTION TO ENSURE PROPER SHUTDOWN OF WATER DURING CONSTRUCTION.
- TEST EXISTING HYDRANTS TO BE USED FOR TEMPORARY BYPASS FEEDS TO ENSURE PROPER FUNCTION.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION.

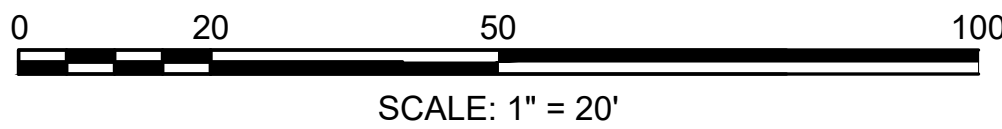
LEGEND

TP	TEST PIT
VTP	VACUUM TEST PIT
WM	WATER MAIN
G	GAS
C	CONDUIT
D	DRAINAGE

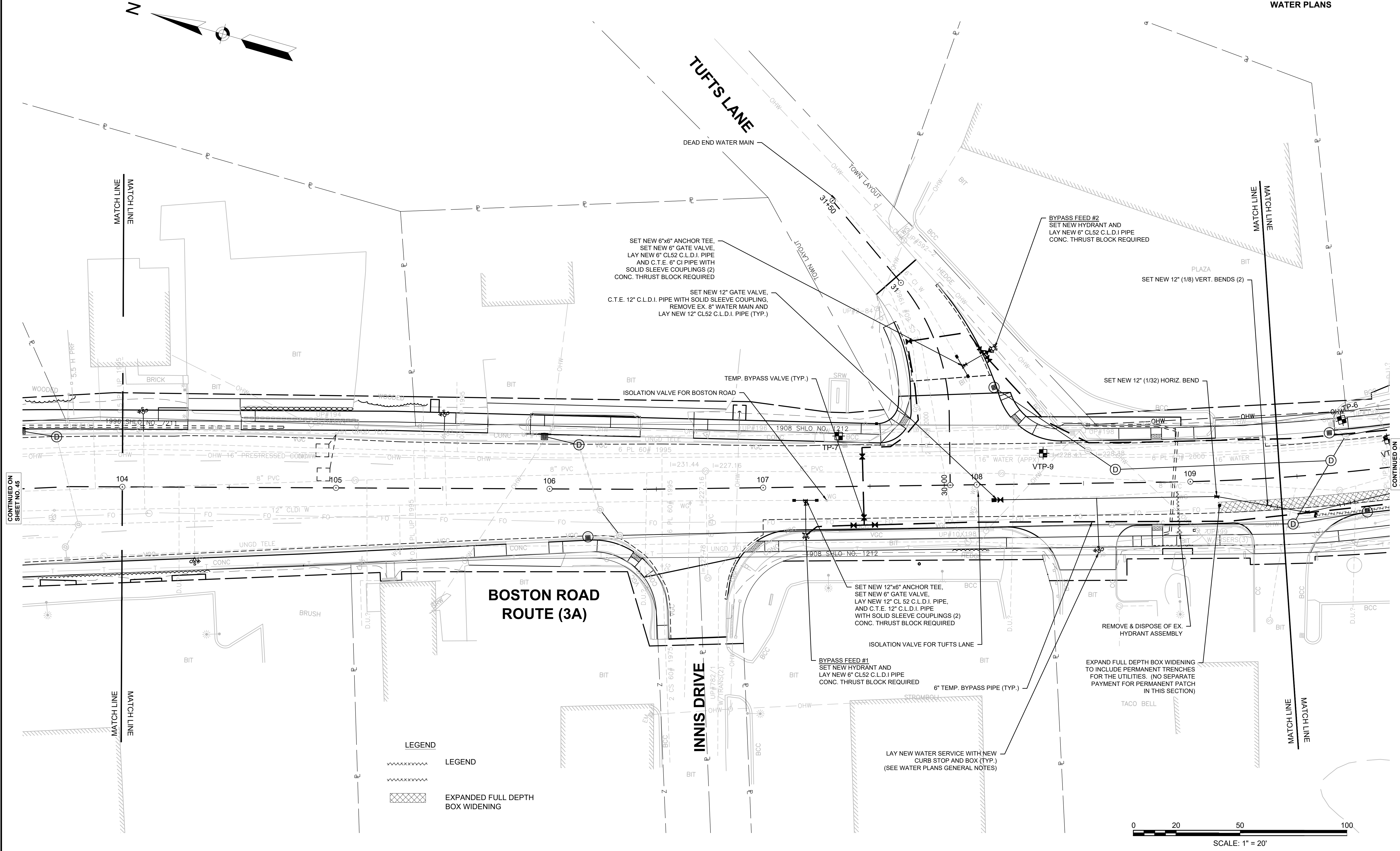
~~~~~	REMOVE HYDRANT BRANCH PIPING & FITTINGS
~~~~~	ABANDON WATER MAIN
XXXXXX	EXPANDED FULL DEPTH BOX WIDENING

UTILITY LEGEND

EXISTING CATV	PROPOSED CATV
EXISTING RCP	PROPOSED RCP
EXISTING ELECTRIC	PROPOSED ELECTRIC
EXISTING OVERHEAD WIRES	OHW
EXISTING GAS	PROPOSED GAS
EXISTING SEWER	PROPOSED SEWER
EXISTING TELEPHONE CONDUIT	PROPOSED TELEPHONE
EXISTING WATER	PROPOSED WATER
ABANDON EXISTING WATER MAIN	
REMOVE & DISPOSE HYDRANT ASSEMBLY	

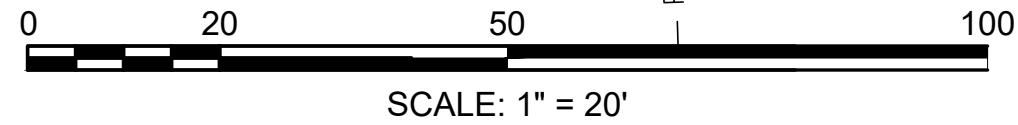
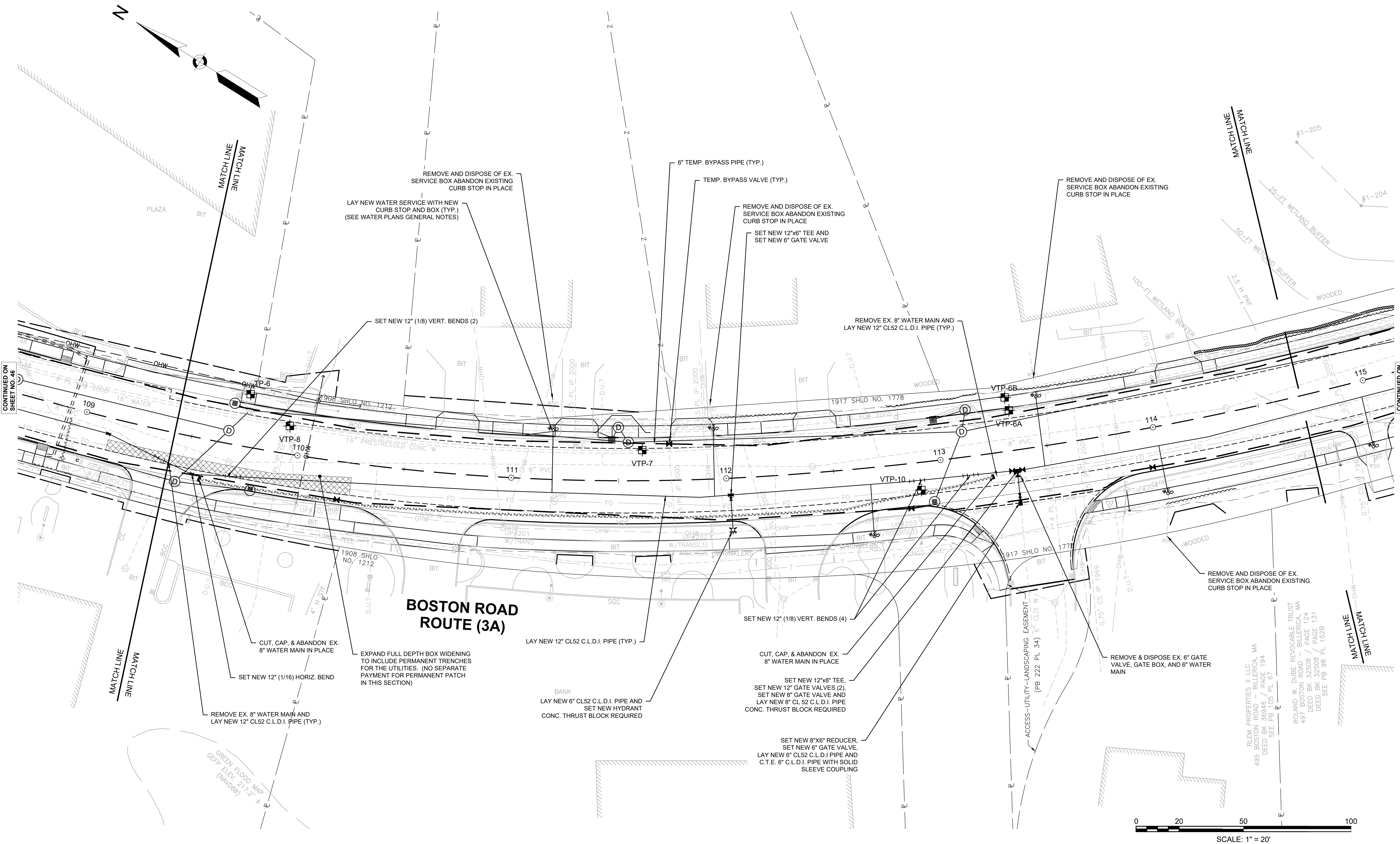


CONTINUED ON
SHEET NO. 46



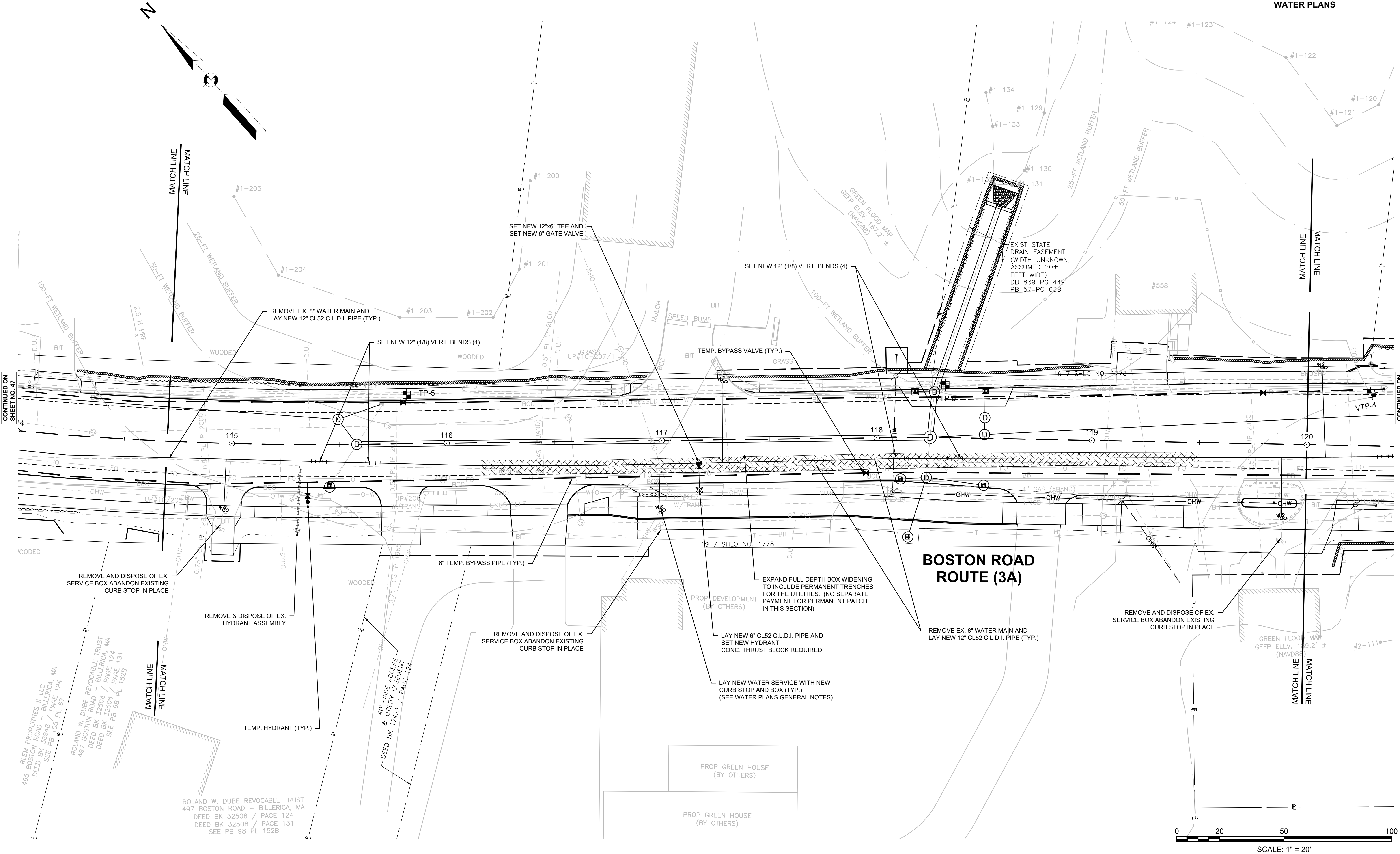
CONTINUED ON
SHEET NO. 45

CONTINUED ON
SHEET NO. 47



CONTINUED ON
SHEET NO. 46

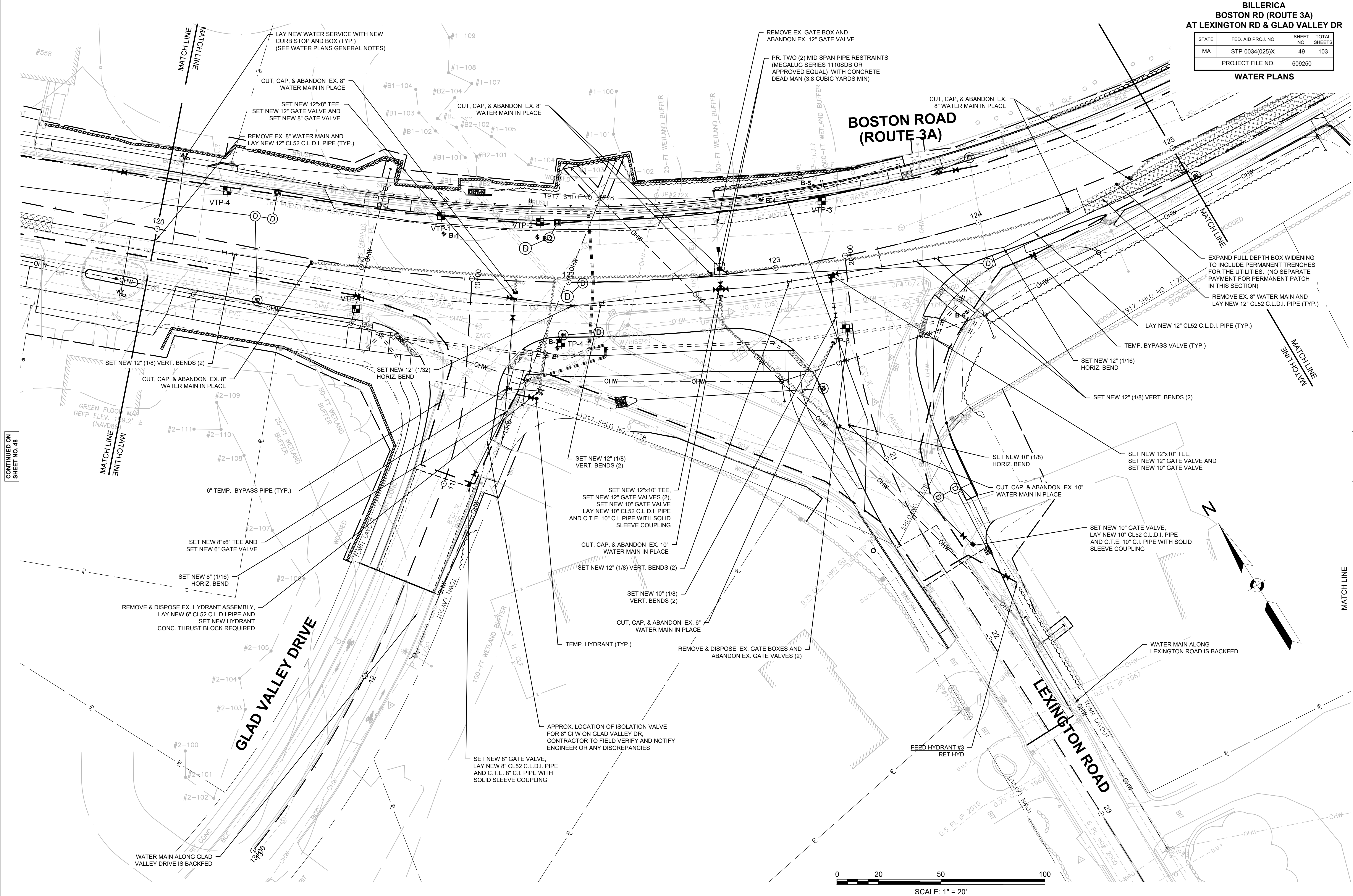
CONTINUED ON
SHEET NO. 48



BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	49	103
PROJECT FILE NO. 609250			

WATER PLANS



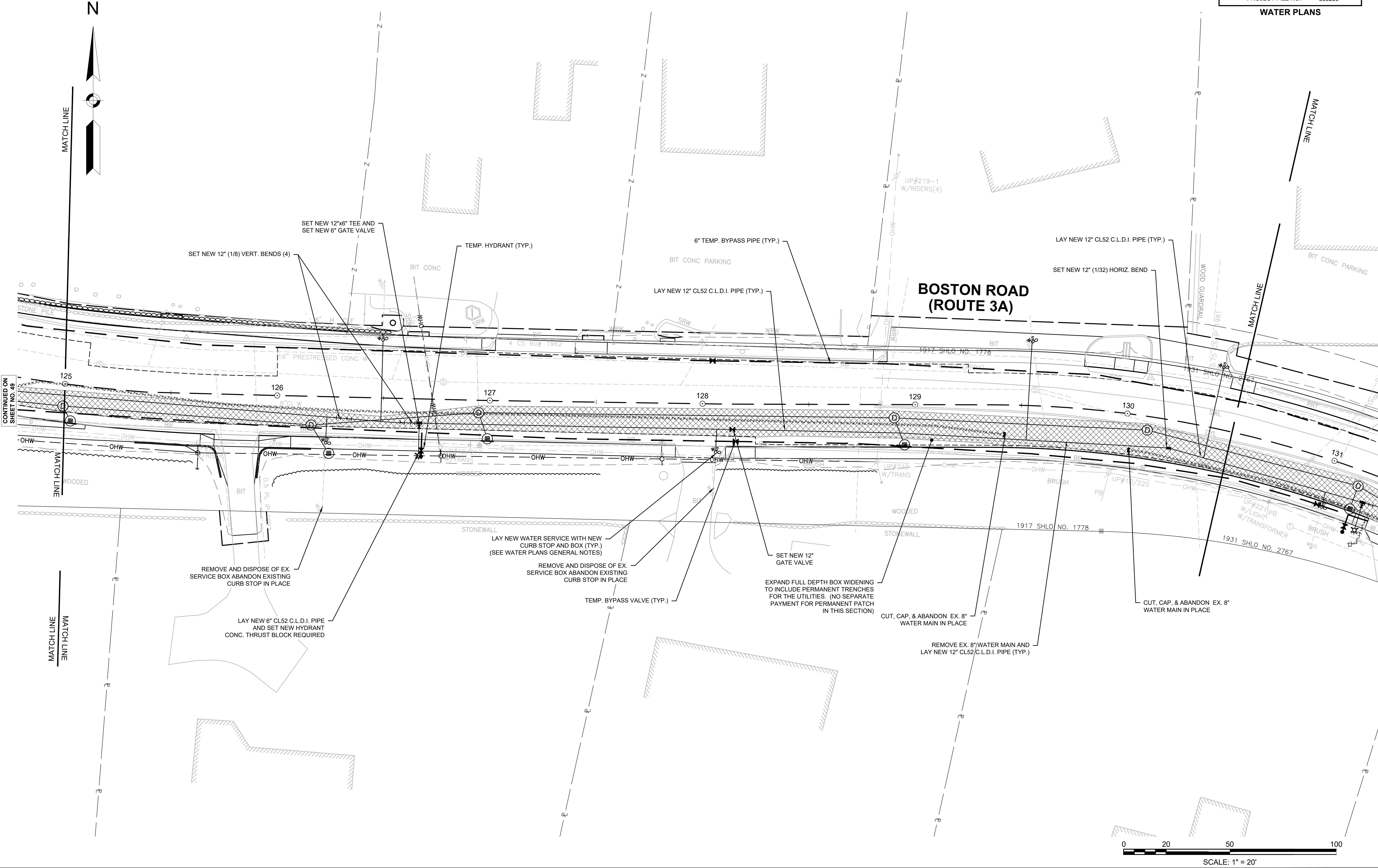
CONTINUED ON
SHEET NO. 48

CONTINUED ON
SHEET NO. 50

BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	50	103
PROJECT FILE NO. 609250			

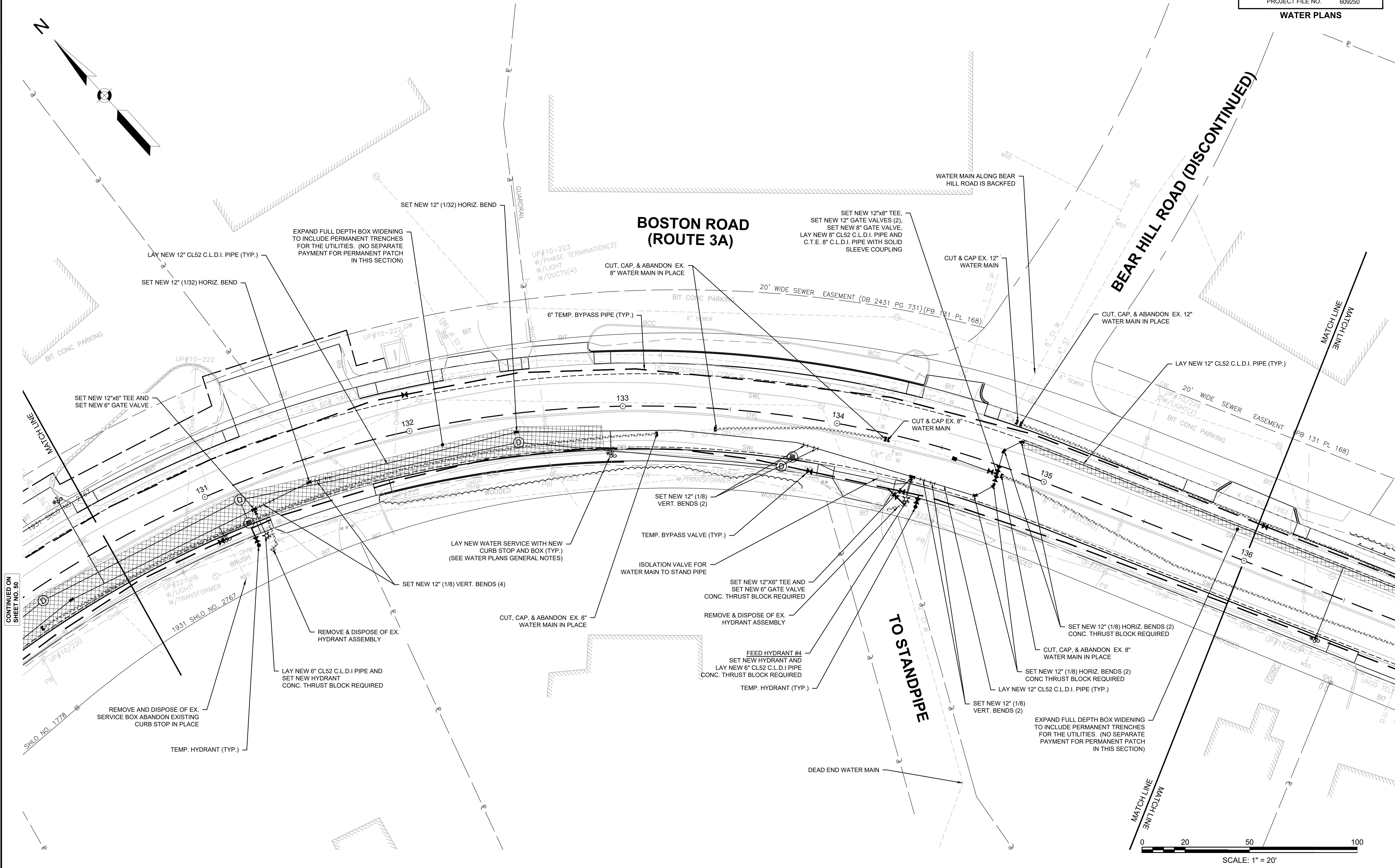
WATER PLANS



BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

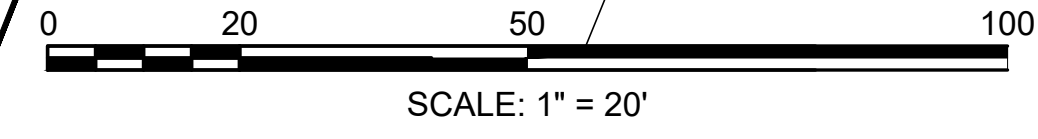
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	51	103
PROJECT FILE NO. 609250			

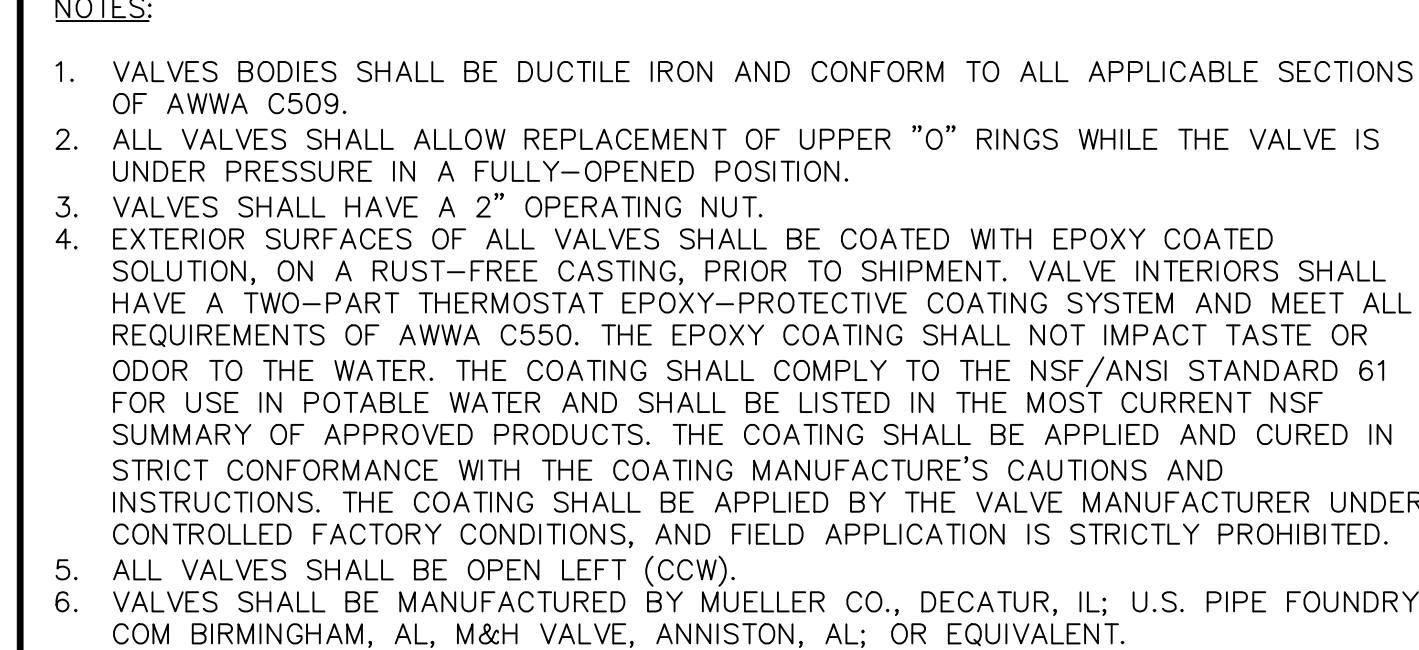
WATER PLANS



CONTINUED ON
SHEET NO. 50

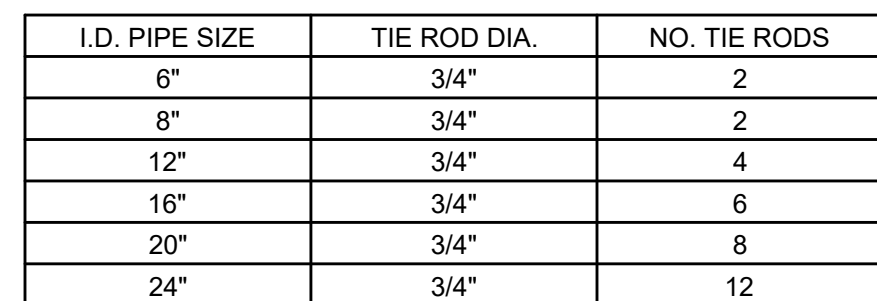
CONTINUED ON
SHEET NO. 52





1. PORTLAND TYPE II CEMENT CONCRETE SHALL MEED REQUIREMENTS OF ITEM 903, WITHIN THE SPECIAL PROVISIONS, AND SHALL BE PLACED SO AS TO NOT INTERFERE WITH THE JOINTS OF THE FITTING. CONCRETE SHALL BE 3000 PSI.
2. POLYPROPYLENE SHEETING SHALL BE PLACED AROUND FITTINGS PRIOR TO POURING CONCRETE IN ACCORDANCE WITH AWWA C105.
3. ALL JOINTS SHALL BE RESTRAINED IN ACCORDANCE WITH SPECIAL PROVISIONS ITEMS 302.06, 302.08, 302.10, 302.12, AND 309.

NOT TO SCALE



*TIE RODS REQUIRED FOR 150 P.S.I.

**SEE TABLE ON THRUST BLOCK BEARING AREAS FOR THE AREA OF CONCRETE REQUIRED

NOT TO SCALE

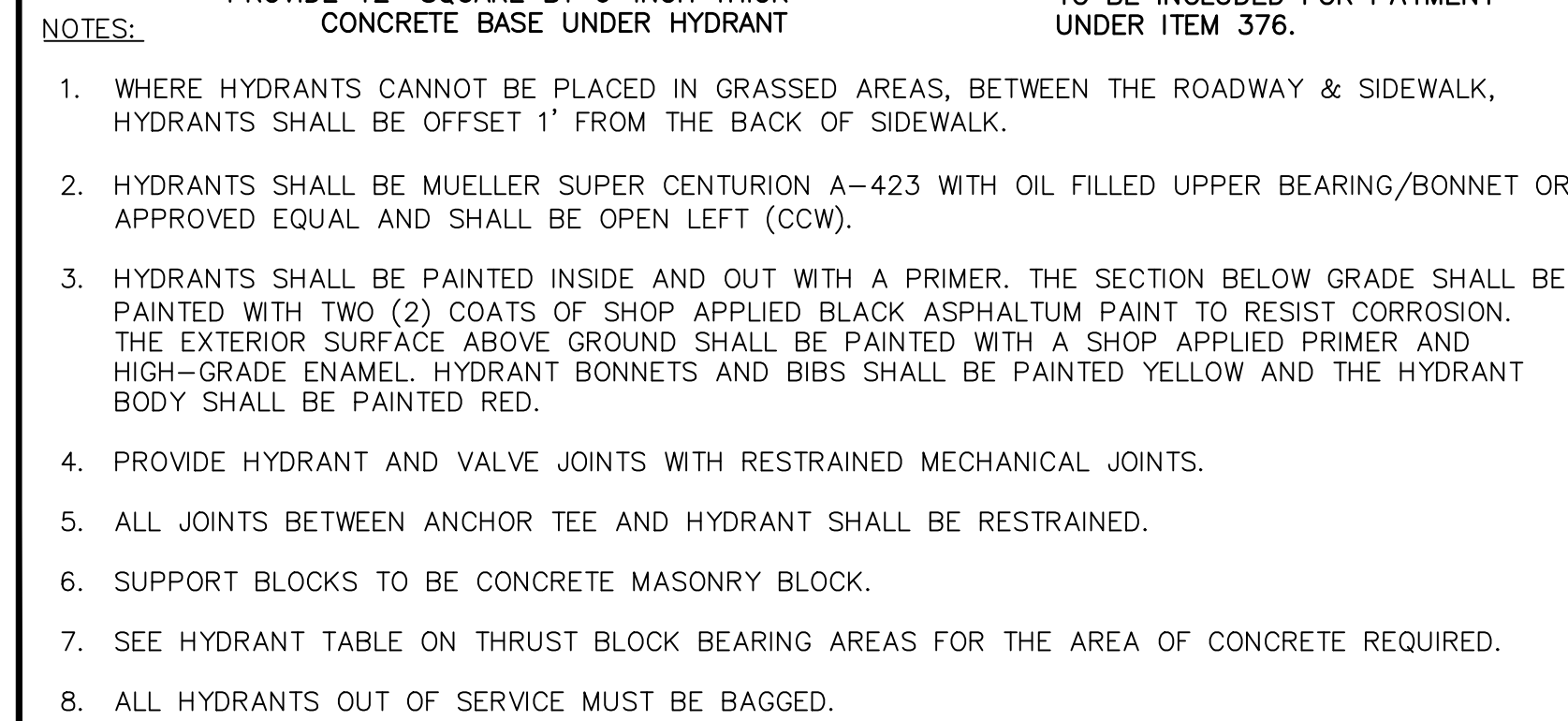
WATER DETAILS

MAXIMUM PAYMENT LIMITS		
DIAMETER OF PIPE D IN INCHES	TRENCH WIDTH W _u IN FEET	
	TRENCH DEPTH	
	< OR = 10'	> 10' TO 20'
12 AND SMALLER	5.00	6.00

NOT TO SCALE

NOTES

1. TRENCH DEPTH MEASURED FROM THE EXISTING GROUND SURFACE TO 6" BELOW THE BOTTOM OF THE CONSTRUCTED PIPE.
2. QUANTITIES FOR PAYMENT SHALL BE IN ACCORDANCE WITH THE ABOVE LIMITS OR THE ACTUAL WIDTHS, WHICHEVER IS LESS.



NOT TO SCALE



1. DEVICES NEED TO BE PLACED BEYOND THE AREA OF RESTRAINTS IN ACCORDANCE WITH MANUFACTURES RECOMMENDATIONS.
2. SEE TABLE ABOVE FOR RESTRAINED JOINT LENGTHS FOR CL52 DI WATER MAIN.

NOT TO SCALE



NOTES:

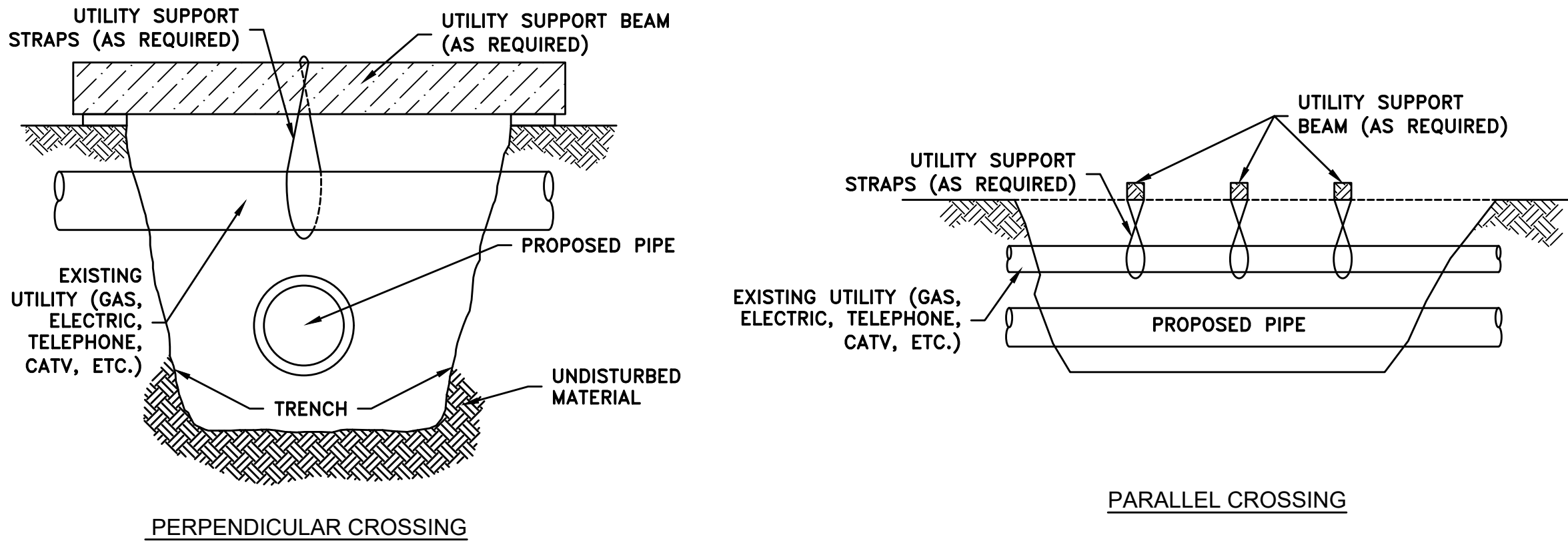
1. TRENCHES MAY BE EXCAVATED WIDER THAN TRENCH WIDTH ABOVE THE "LINE OR NARROW TRENCH LIMIT."
2. BELOW THE "LINE OF NARROW TRENCH LIMIT" THE TRENCH SHALL NOT BE EXCAVATED BEYOND THE TRENCH WIDTH W_u .
3. "COVER" AT ANY POINT SHALL BE DEFINED AS THE VERTICAL DISTANCE FROM THE UPPER MOST POINT OF THE PIPE TO A LINE WHICH CONNECTS THE SURFACE OF UNDISTURBED GROUND AT EITHER SIDE OF THE TRENCH AT THAT POINT.
4. WHERE FUTURE EXTENSION OF A CAPPED PIPE, OR CAPPED BRANCH WILL REQUIRE ROCK EXCAVATION, TRENCH EXCAVATION IN ROCK SHALL BE EXTENDED FOR A DISTANCE OF 3'-0" BEYOND THE CAP.
5. UNSUITABLE EXCAVATED MATERIAL SHALL BE REPLACED WITH CRUSHED STONE (ITEM 156.) AS DIRECTED.

NOT TO SCALE

BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	54	103
PROJECT FILE NO.		609250	

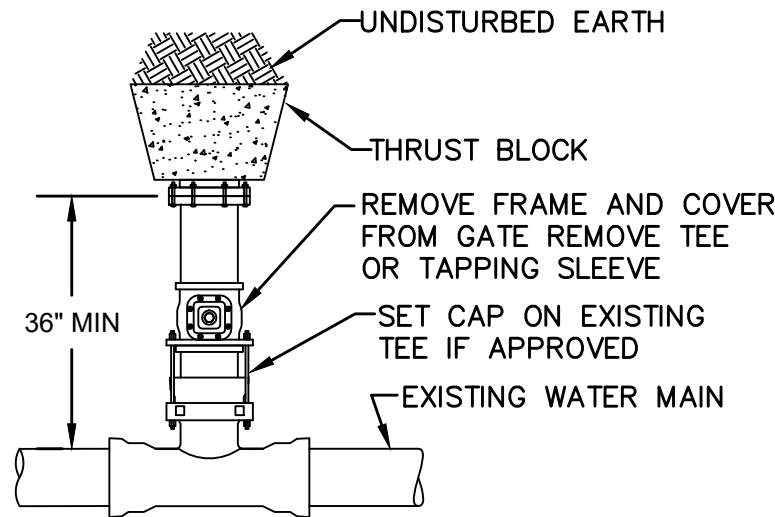
WATER DETAILS



NOTES:

1. ALL UTILITIES SHALL BE SUPPORTED AS SHOWN WHEN EXPOSED AND THE POTENTIAL EXISTS FOR UNDERMINING BY THE CONSTRUCTION ACTIVITY. THE SUPPORT SYSTEM SHALL BE IN PLACE PRIOR TO UNDERMINING OF UTILITY. ALL SUPPORT SYSTEMS SHALL HAVE SUFFICIENT TENSION SO THAT NO DEFLECTION OF THE EXISTING UTILITY WILL OCCUR ONCE UNDERMINED. THE QUANTITY, PLACEMENT AND MATERIALS USED FOR THE SUPPORT SYSTEM SHALL BE SUFFICIENT IN STRENGTH SO THAT NO DEFLECTION OF THE EXISTING UTILITY WILL OCCUR.
2. WHEN CONSTRUCTION ACTIVITY IS COMPLETED, THE TRENCH SHALL BE BACKFILLED WITH CRUSHED STONE (ITEM AND/OR MATERIAL OTHERWISE REQUIRED BY THE AFFECTED UTILITY COMPANY AND COMPACTED AROUND THE EXISTING UTILITY PRIOR TO REMOVING THE SUPPORT MECHANISM.

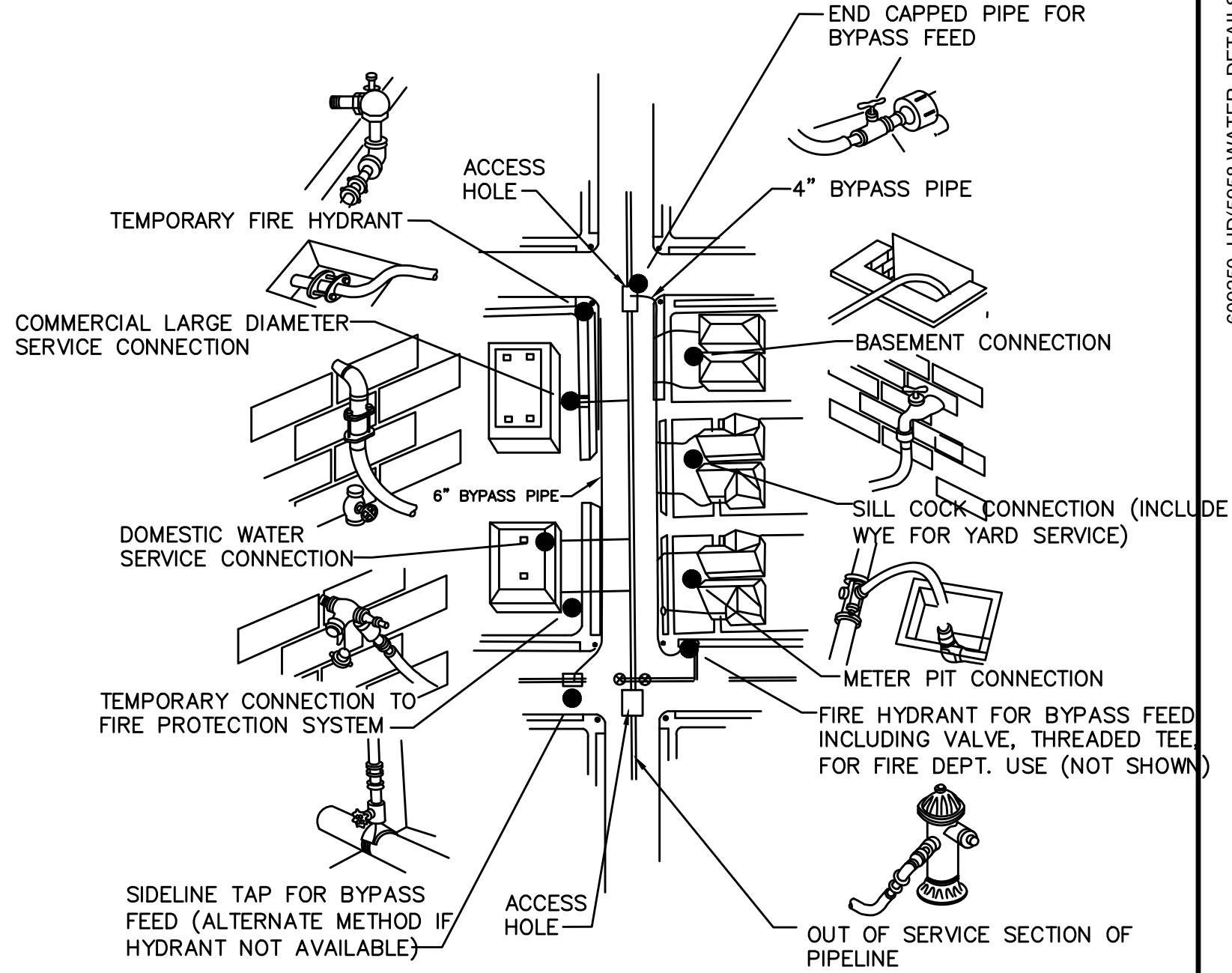
UTILITY SUPPORT
NOT TO SCALE



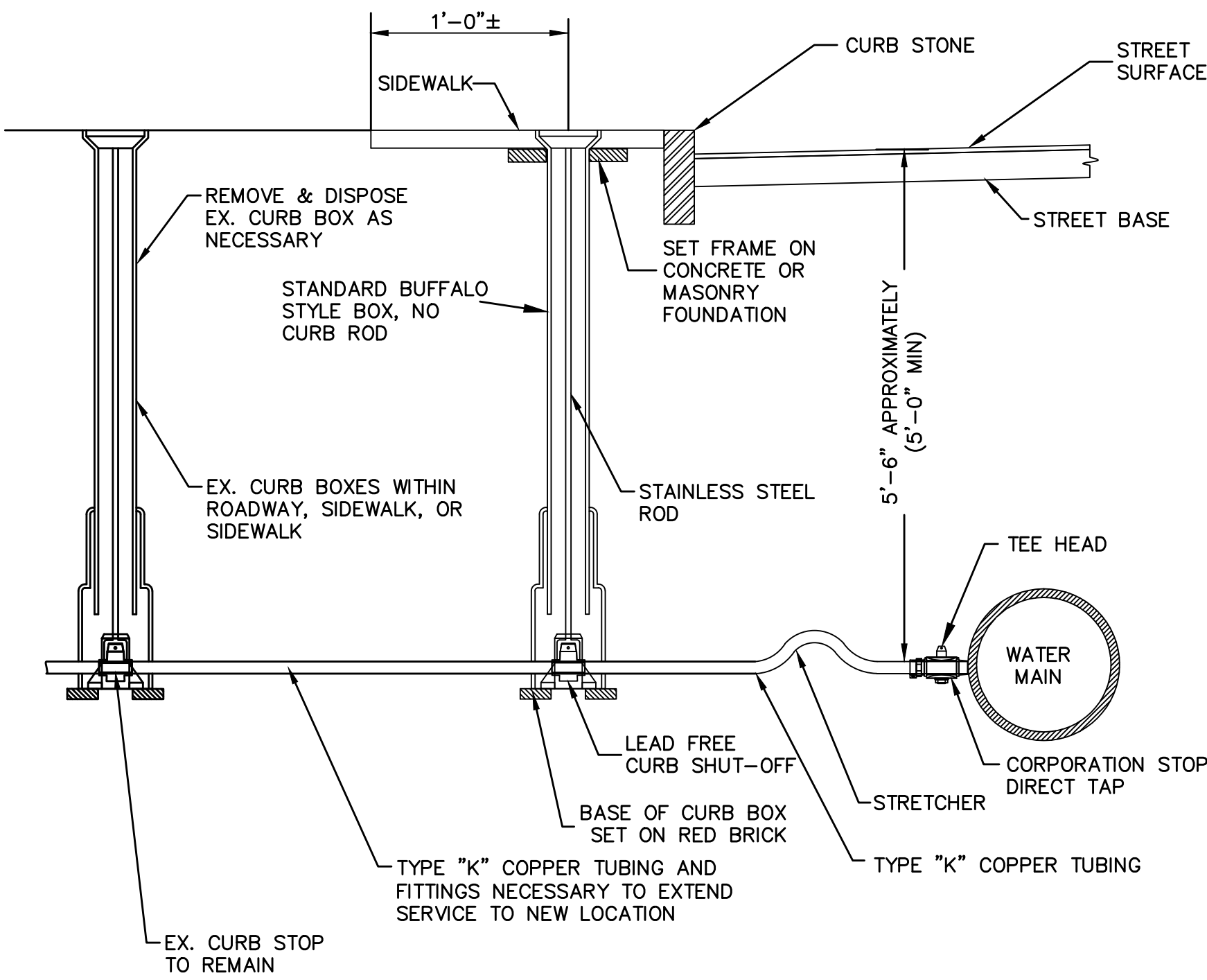
NOTES:

1. THIS PROCEDURE WILL INVOLVE A WATER MAIN SHUT DOWN THAT THE CONTRACTOR WILL COORDINATE WITH THE ENGINEER AND OWNER.
2. 48-HOUR PRIOR WRITTEN NOTIFICATION OF ALL AFFECTED CUSTOMERS MUST BE PERFORMED BY THE CONTRACTOR.
3. WORK MAY NOT COMMENCE UNTIL ALL APPLICABLE PERMITS HAVE BEEN OBTAINED.
4. ALL WORK MUST BE INSPECTED BY THE ENGINEER PRIOR TO BACKFILLING.

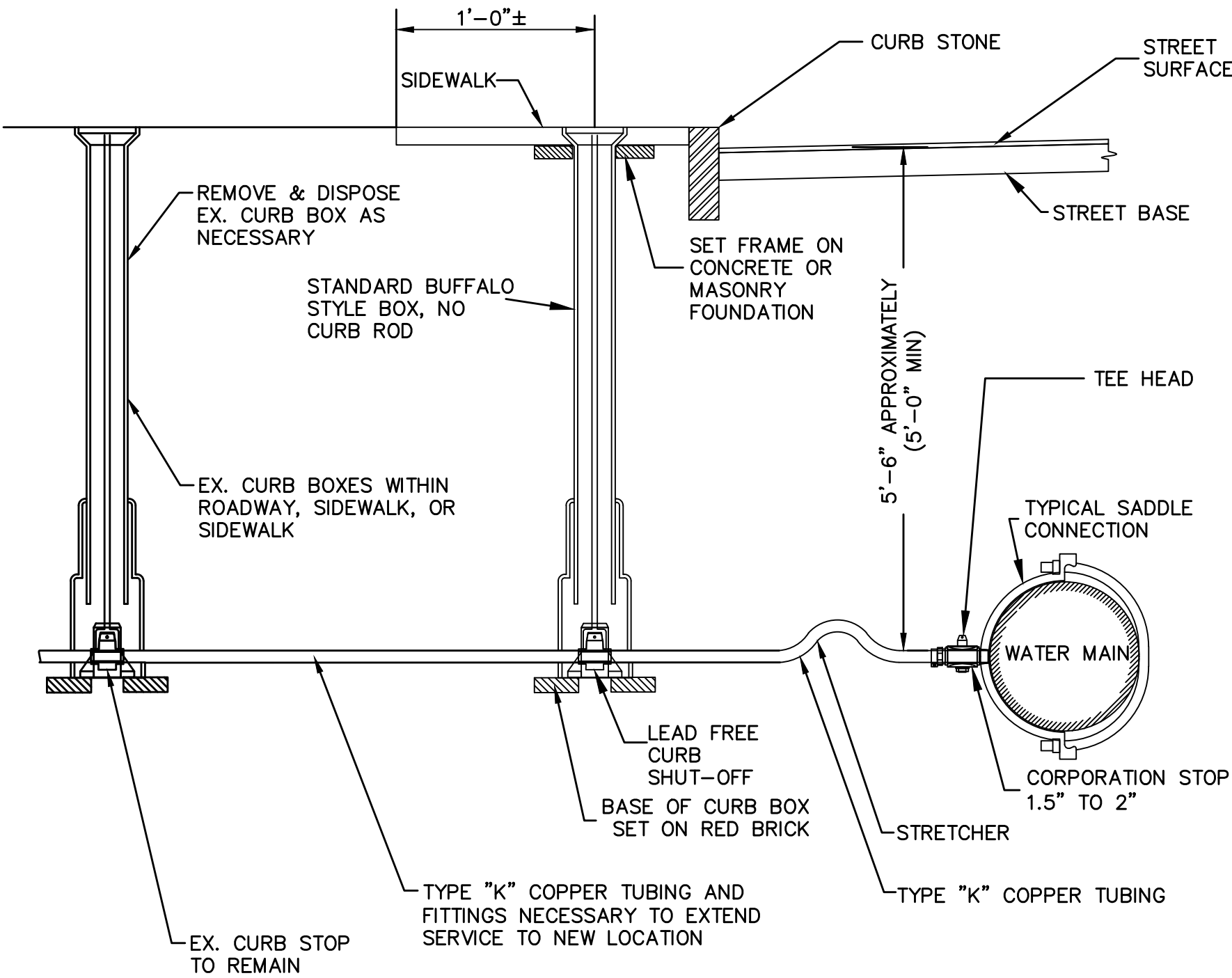
CUTTING AND CAPPING OF WATER CONNECTION 4" AND OVER
NOT TO SCALE



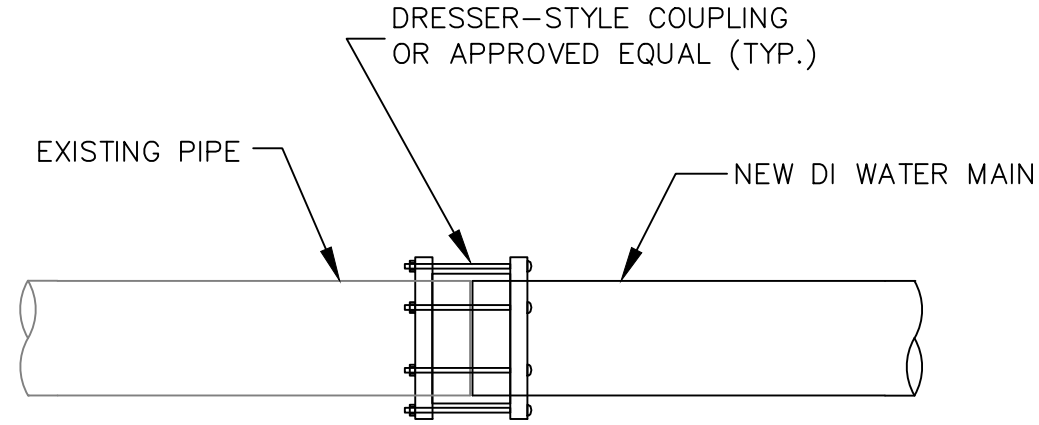
TYPICAL BYPASS PIPING
NOT TO SCALE



TYPICAL WATER CONNECTION FOR 1" SERVICE
NOT TO SCALE



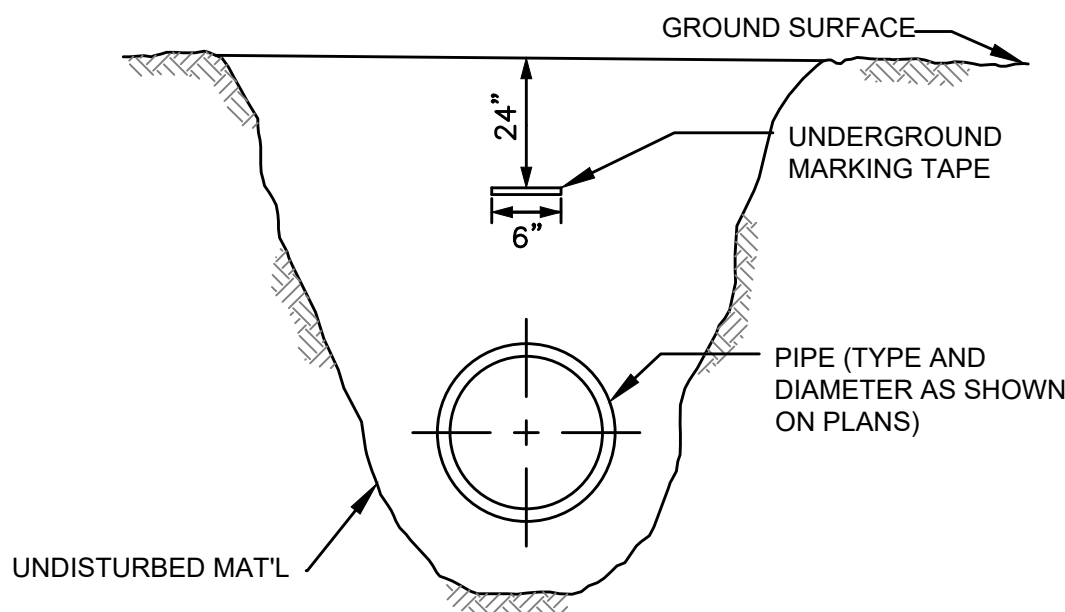
TYPICAL WATER CONNECTION FOR 1-1/2" TO 2" SERVICE
NOT TO SCALE



NOTES:

1. DRESSER-STYLE COUPLING TO BE USED ONLY WHERE A SOLID SLEEVE CANNOT BE INSTALLED.
2. CONNECTION SHALL INCLUDE TIE RODS AND FRICTION CLAMPS. (SEE DETAIL)
3. SEE SPECIAL PROVISIONS ITEMS 302.06, 302.08, 302.10, AND 302.12 FOR WATER MAIN COUPLING REQUIREMENTS.

WATER MAIN COUPLING CONNECTION
NOT TO SCALE



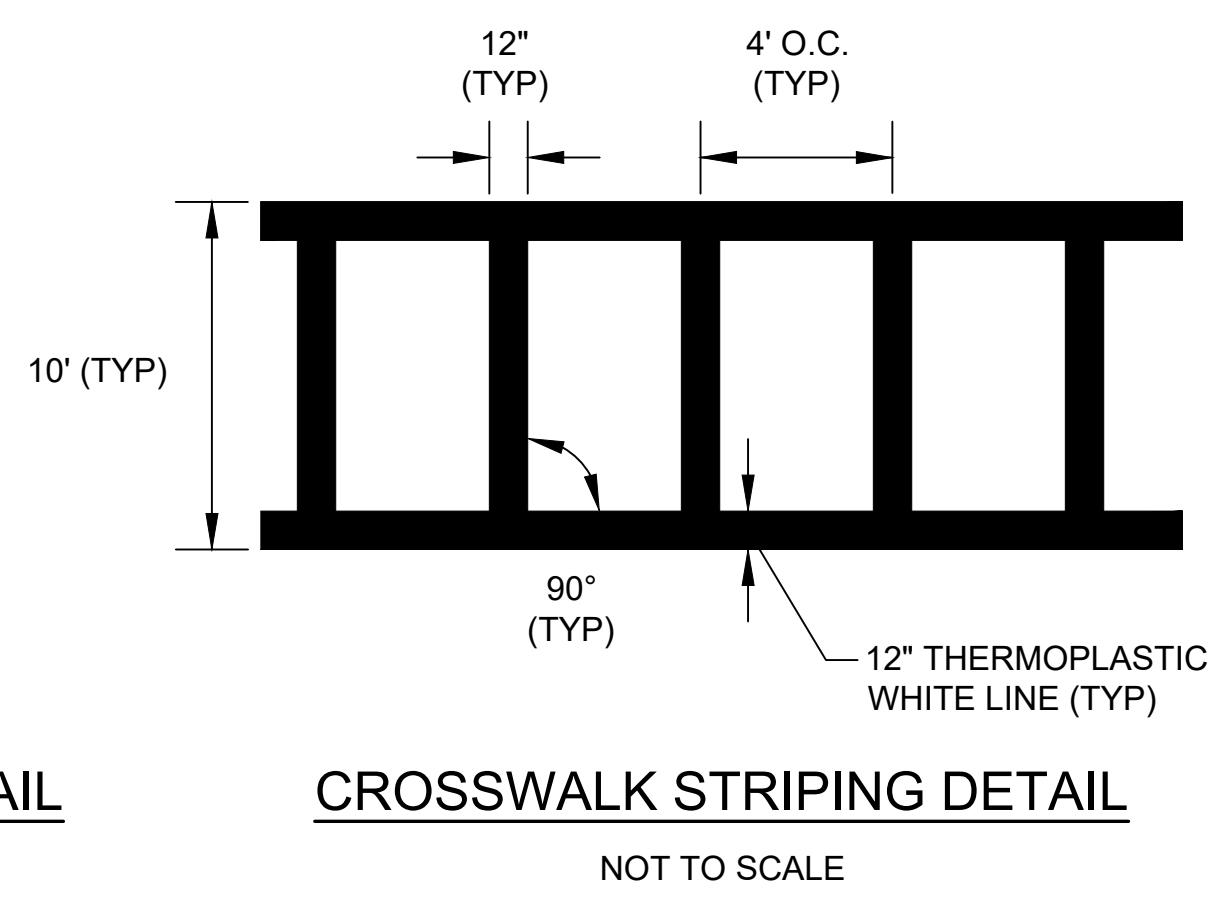
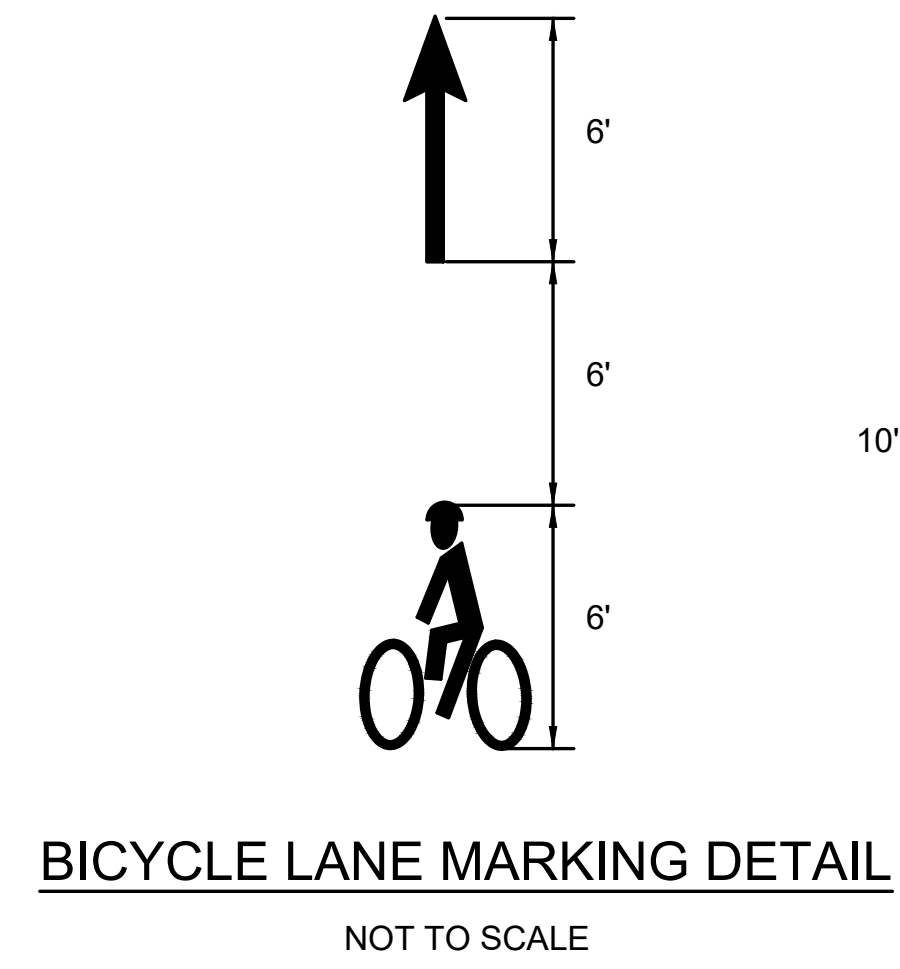
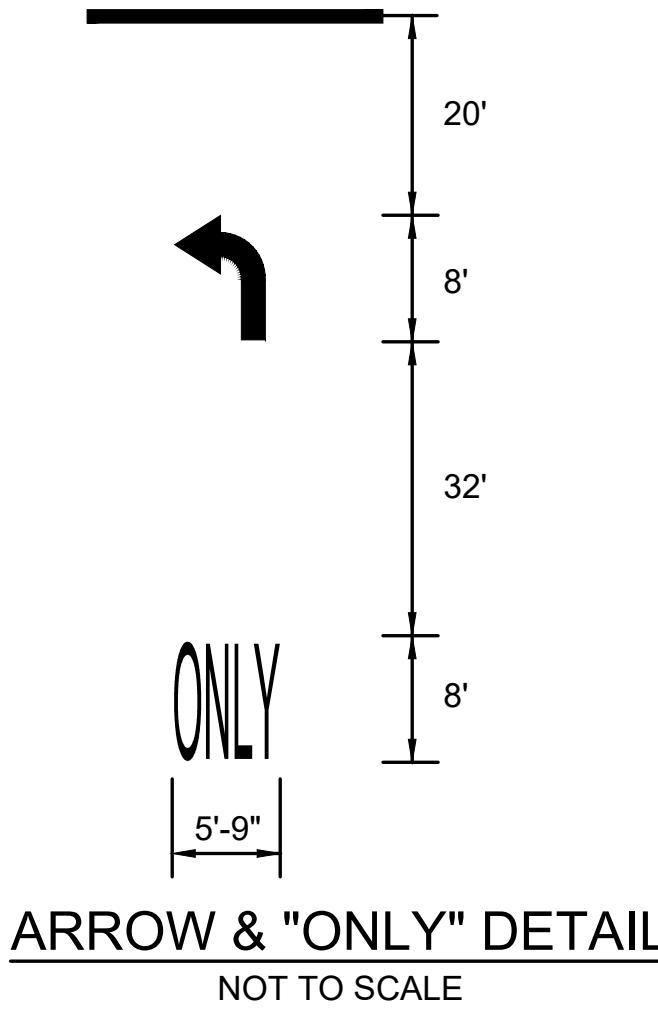
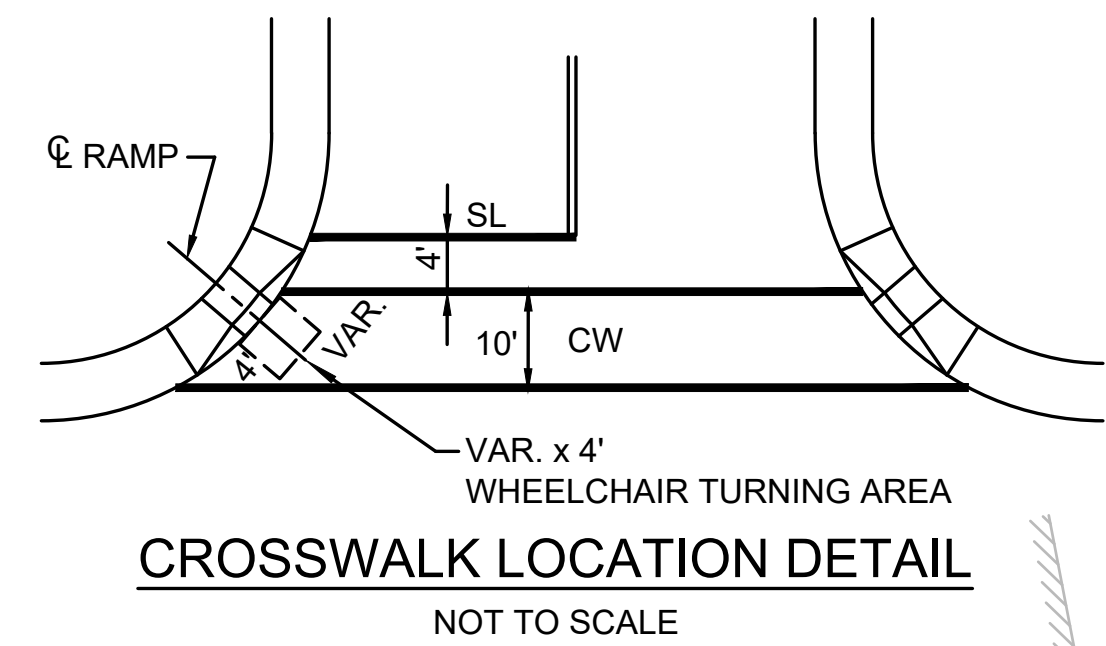
NOTES:

1. MARKING TAPE TO BE INSTALLED OVER ALL PIPELINES AND CONDUITS INSTALLED UNDER THIS CONTRACT.
2. MARKING TAPE FOR NON-FERROUS PIPE OR CONDUITS TO BE DETECTABLE, MAGNETIC TYPE.
3. MARKING TAPE FOR FERROUS PIPE OR CONDUITS TO BE NON-DETECTABLE, NON-MAGNETIC TYPE.
4. MARKING TAPE IS TO BE 6-INCHES WIDE AND INSTALLED DIRECTLY ABOVE THE PIPE OR CONDUIT APPROXIMATELY 24-INCHES BELOW THE PROPOSED FINISHED GRADE.

UNDERGROUND UTILITY MARKING TAPE DETAIL
NOT TO SCALE

PAVEMENT MARKING & SIGN NOTES

1. ALL EXISTING SIGNS AND SIGN POSTS WITHIN THE PROJECT LIMITS SHALL BE R&D UNLESS OTHERWISE NOTED ON PLANS.
2. ALL PROPOSED PAVEMENT MARKINGS SHALL BE THERMOPLASTIC. ALL EXISTING PAVEMENT MARKINGS THAT CONFLICT WITH THE PROPOSED PAVEMENT MARKINGS SHALL BE REMOVED BY AN APPROVED METHOD.
3. ALL PROPOSED SIGN POSTS SHALL BE P-5 TYPE (TELESCOPIC POST).
4. PROPOSED PAVEMENT MARKINGS (LEGENDS & ARROWS) SHALL BE INSTALLED IN ACCORDANCE WITH THE MUTCD & MASSDOT - 1996 CONSTRUCTION AND TRAFFIC STANDARD DETAILS, AS AMENDED.
5. UNLESS OTHERWISE PROVIDED FOR IN THE MUTCD, ALL SIGNS SHOULD BE 90° TO THE CURB AND FACING THE FLOW OF TRAFFIC. ALL R7 SIGNS SHALL BE MOUNTED AN AN ANGLE OF 45° TO THE CURB AND FACING THE FLOW OF TRAFFIC.
6. STREET NAME SIGNS SHALL BE MOUNTED PARALLEL WITH THE STREET.
7. ALL R&R SIGNS SHALL BE MOUNTED ON NEW POSTS.
8. SIGNS TO BE MOUNTED NEAR THE CURB LINE IN AREAS WITHOUT SIDEWALK SHALL BE SET BACK 2' FROM THE EDGE OF THE SIGN PANEL TO THE CURB LINE. NO SIGN SHALL OVERHANG THE CURB LINE.
9. ALL SIGNS SHALL BE MOUNTED TO PROVIDE A 7' MINIMUM CLEARANCE BETWEEN THE BOTTOM OF THE SIGN AND FINISHED GRADE.

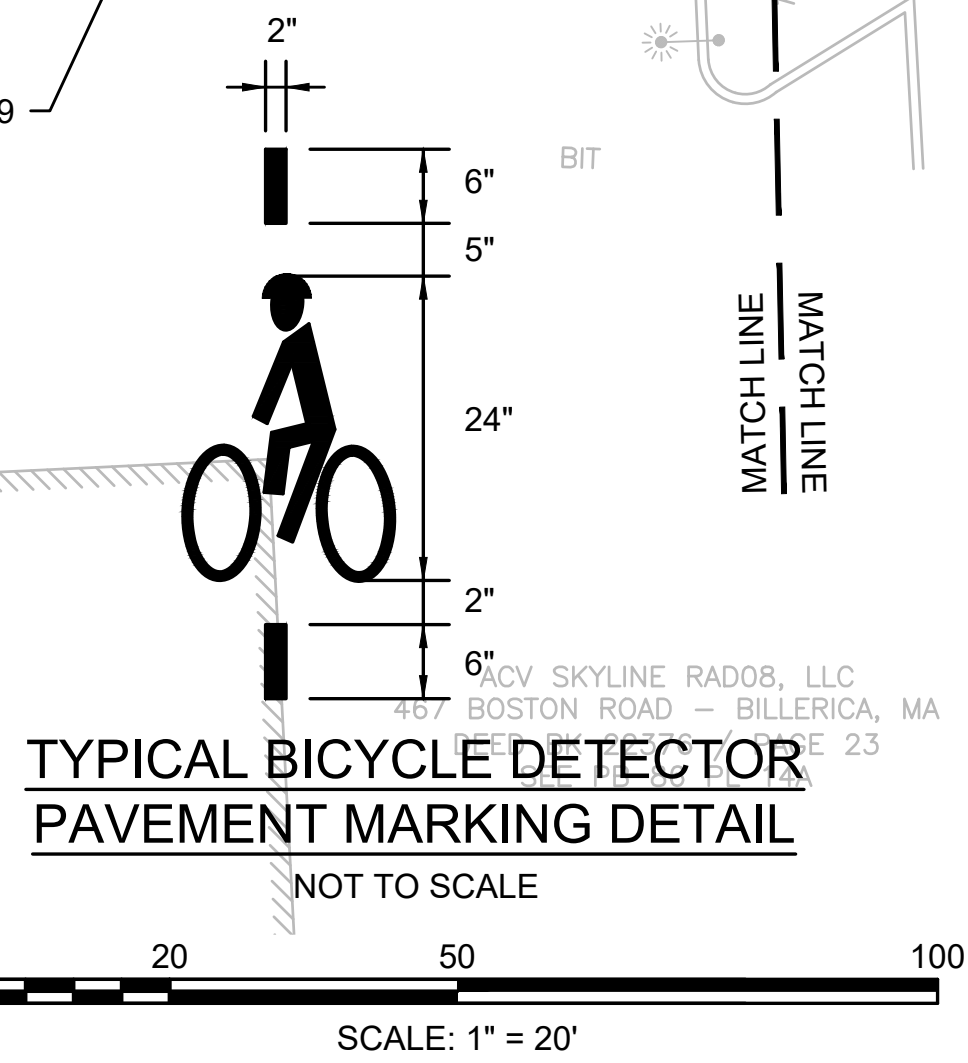
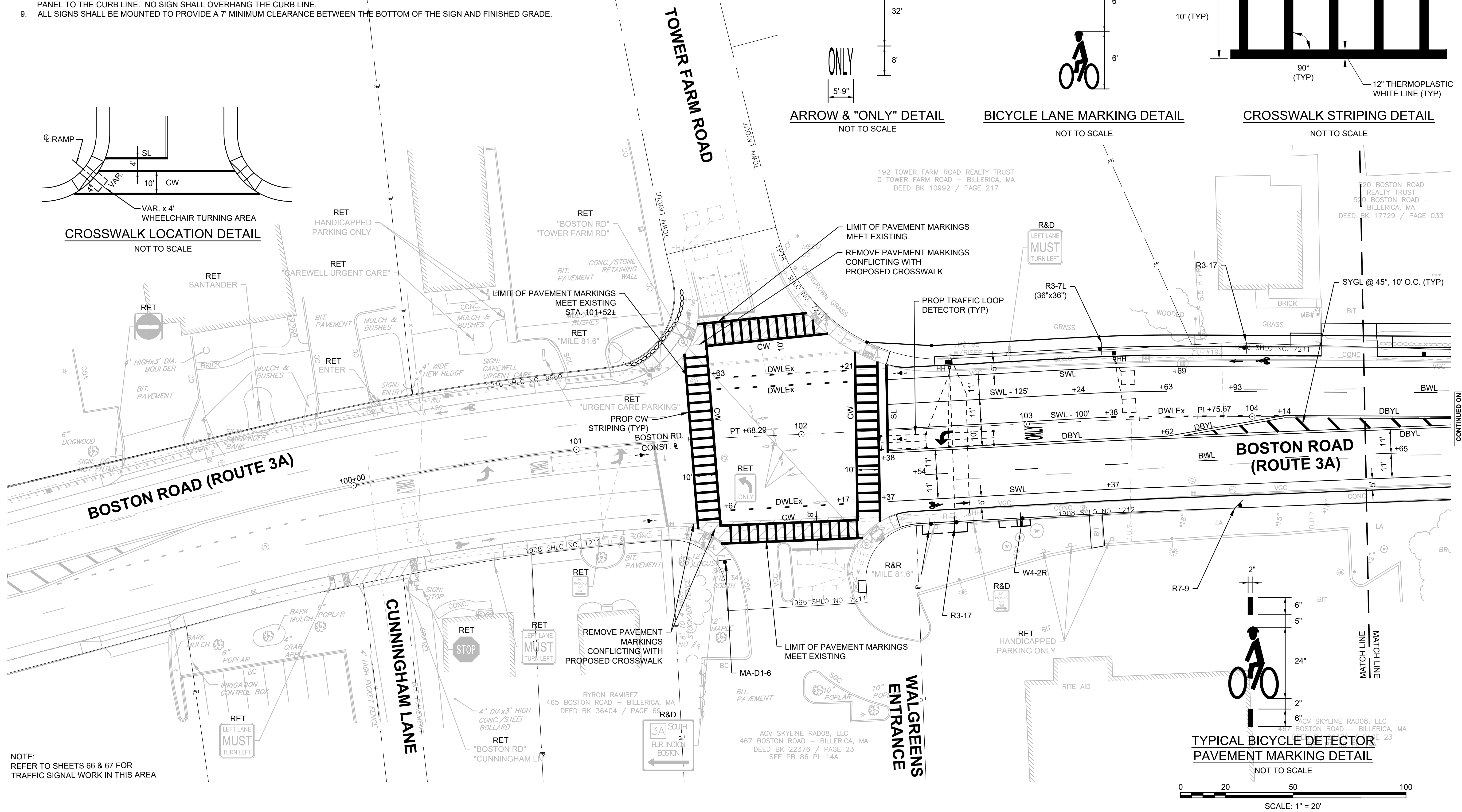


BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

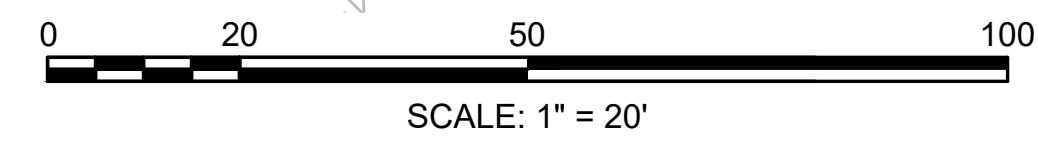
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	56	103

PROJECT FILE NO. 609250

SIGN & PAVEMENT MARKINGS PLAN



NOTE:
REFER TO SHEETS 66 & 67 FOR
TRAFFIC SIGNAL WORK IN THIS AREA



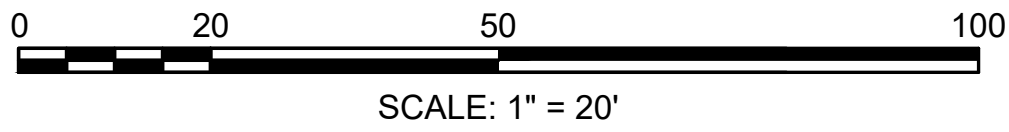
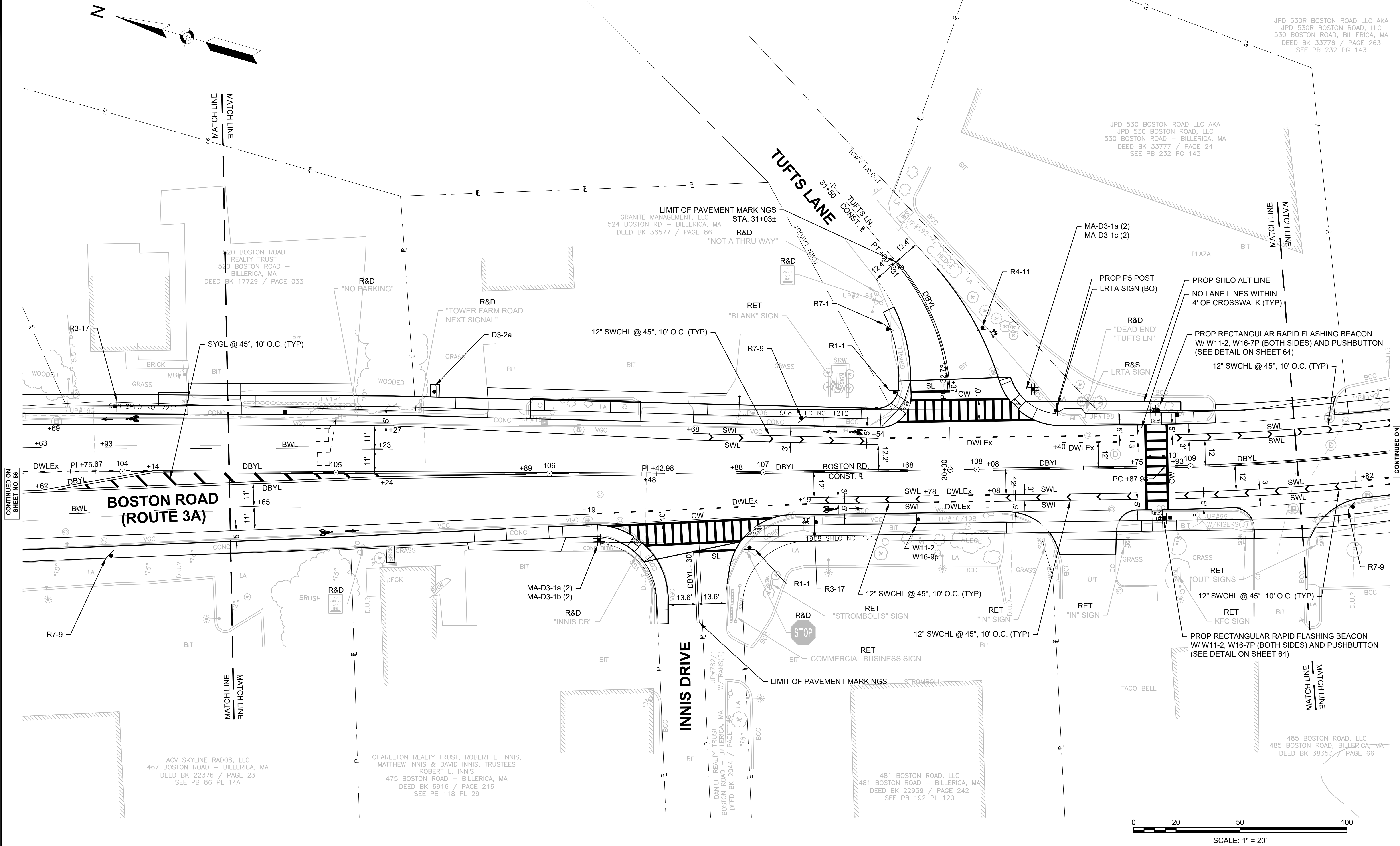
BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	57	103
PROJECT FILE NO.		609250	

SIGN & PAVEMENT MARKINGS PLAN

JPD 530R BOSTON ROAD LLC AKA
JPD 530R BOSTON ROAD, LLC
530 BOSTON ROAD, BILLERICA, MA
DEED BK 33777 / PAGE 24
SEE PB 232 PG 143

JPD 530 BOSTON ROAD LLC AKA
JPD 530 BOSTON ROAD, LLC
530 BOSTON ROAD, BILLERICA, MA
DEED BK 33777 / PAGE 24
SEE PB 232 PG 143



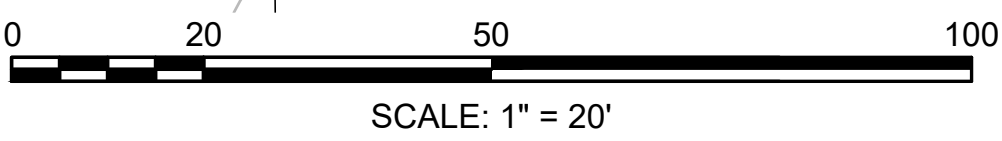
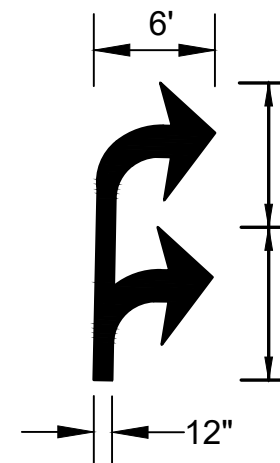
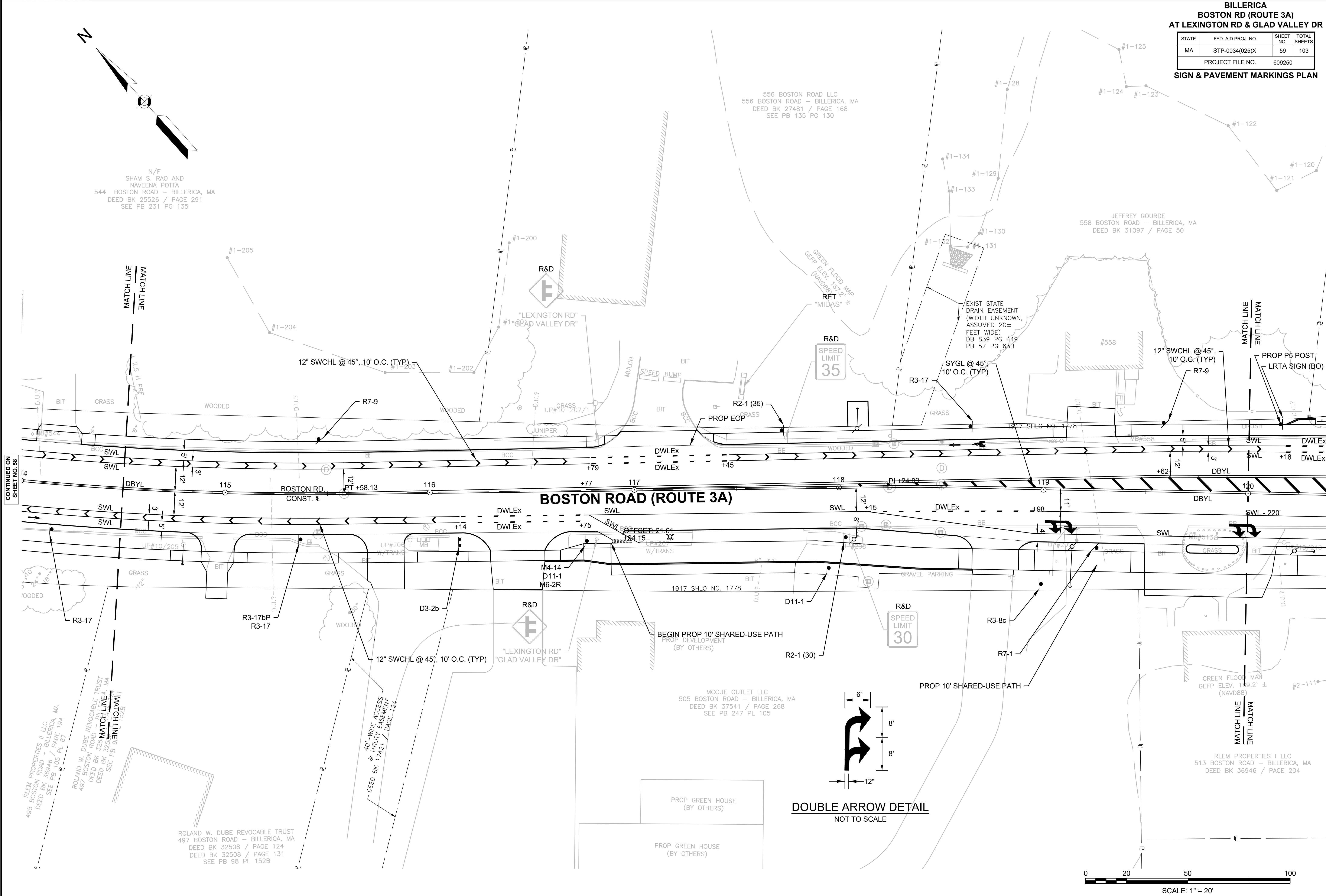
CONTINUED ON
SHEET NO. 56

CONTINUED ON
SHEET NO. 58

BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	59	103
PROJECT FILE NO. 609250			

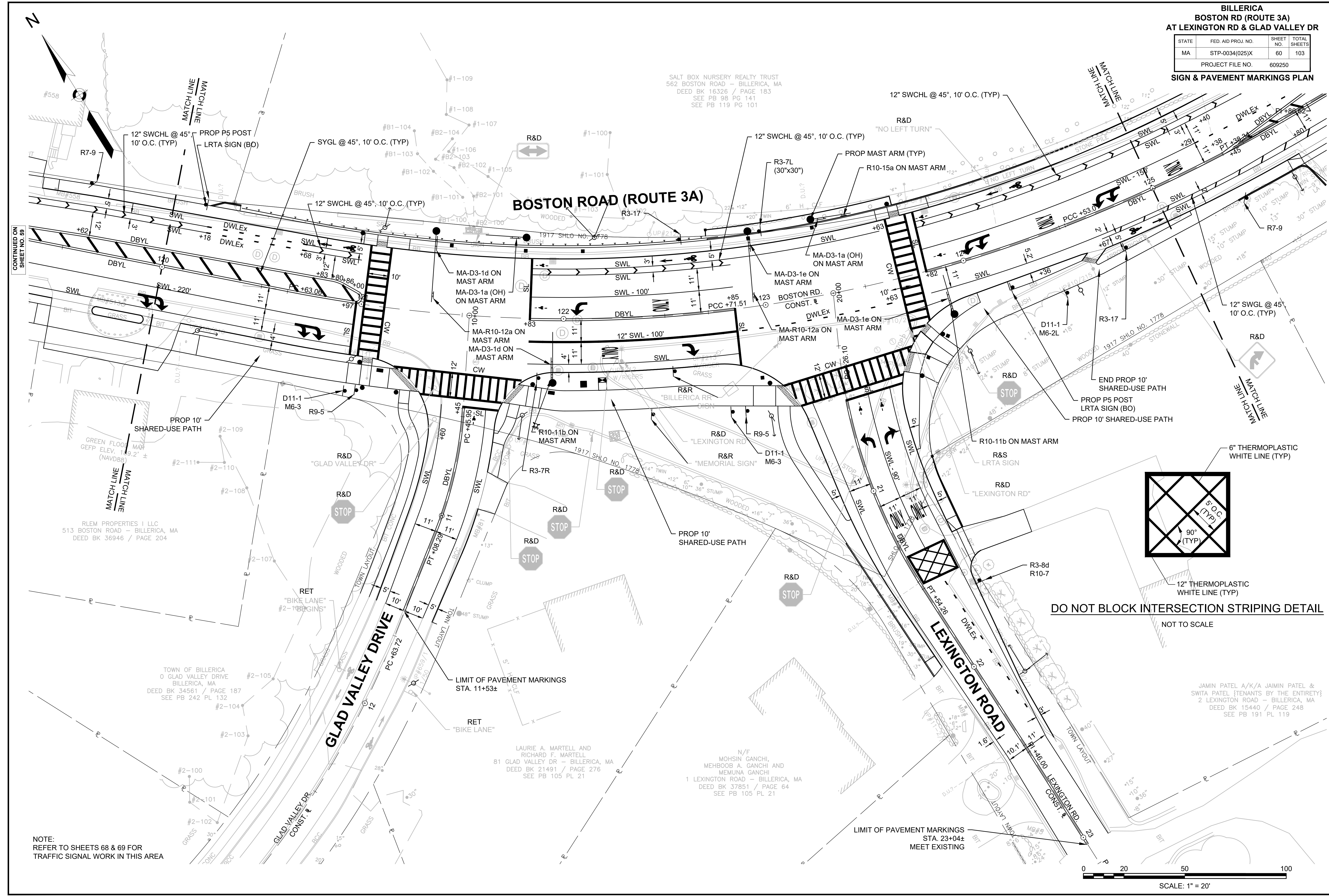
SIGN & PAVEMENT MARKINGS PLAN



BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

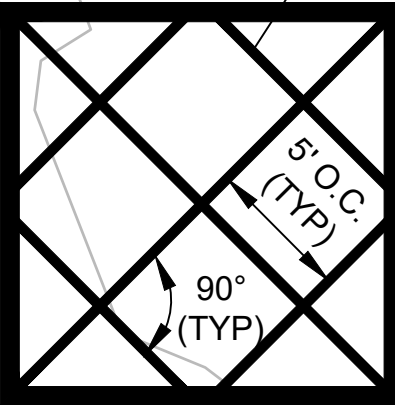
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	60	103
PROJECT FILE NO. 609250			

SIGN & PAVEMENT MARKINGS PLAN



DO NOT BLOCK INTERSECTION STRIPING DETAIL

NOT TO SCALE

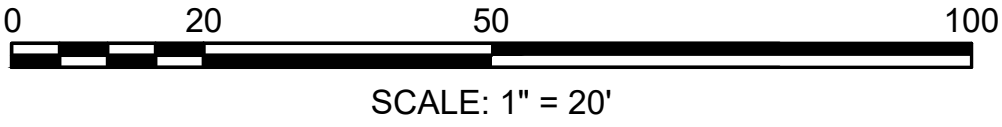


12" THERMOPLASTIC WHITE LINE (TYP)

NOT TO SCALE

JAMIN PATEL A/K/A JAMIN PATEL &
SWITA PATEL (TENANTS BY THE ENTIRETY)
2 LEXINGTON ROAD - BILLERICA, MA
DEED BK 15440 / PAGE 248
SEE PB 191 PL 119

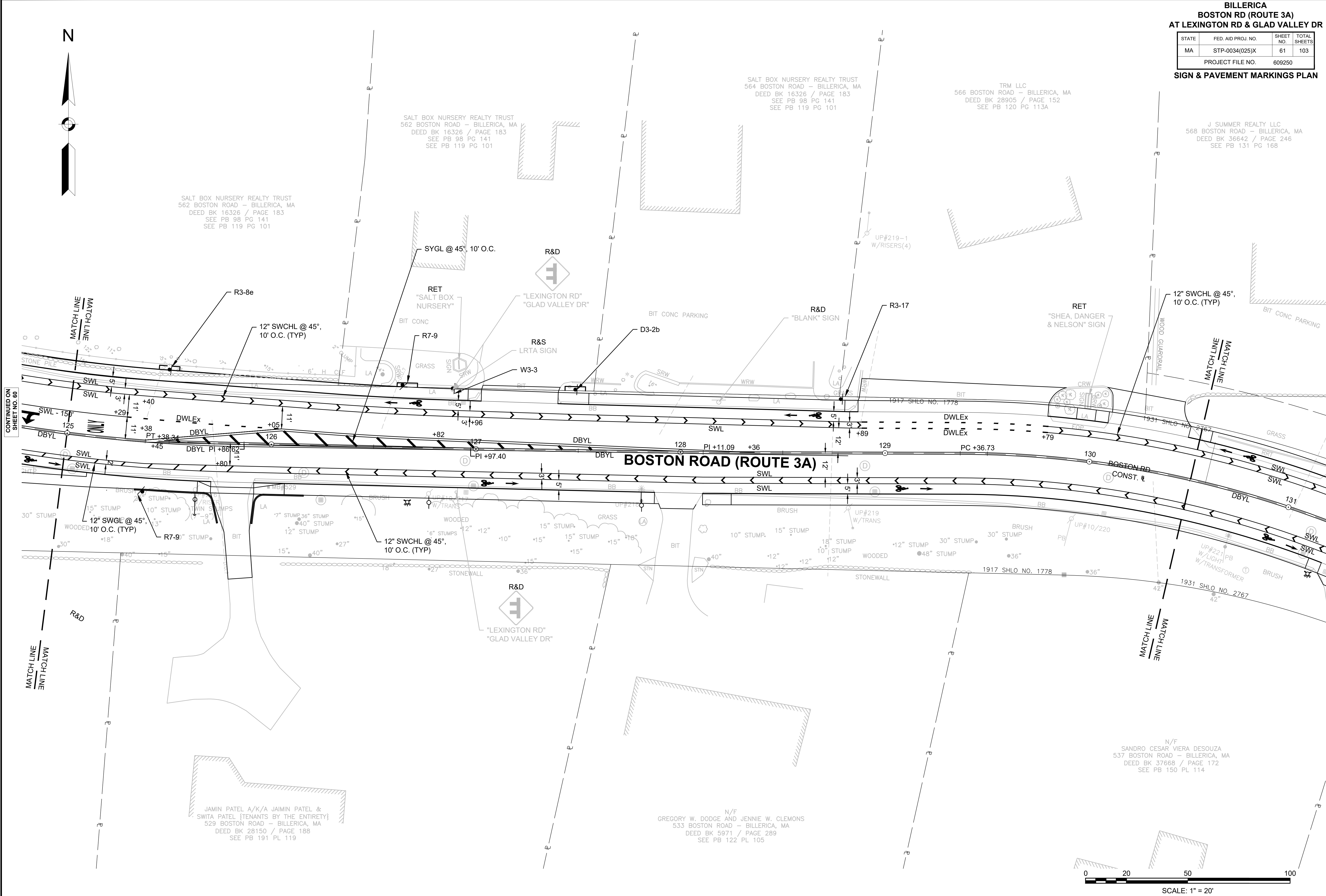
NOTE:
REFER TO SHEETS 68 & 69 FOR
TRAFFIC SIGNAL WORK IN THIS AREA



BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	61	103
PROJECT FILE NO.		609250	

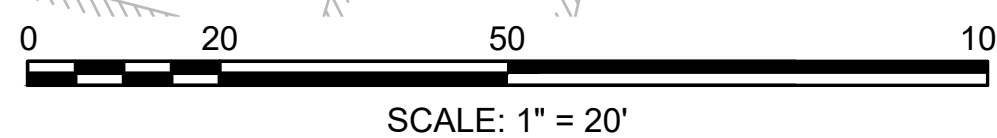
SIGN & PAVEMENT MARKINGS PLAN



N/F
SANDRO CESAR VIERA DESOUSA
537 BOSTON ROAD - BILLERICA, MA
DEED BK 37668 / PAGE 172
SEE PB 150 PL 114

N/F
GREGORY W. DODGE AND JENNIE W. CLEMONS
533 BOSTON ROAD - BILLERICA, MA
DEED BK 5971 / PAGE 289
SEE PB 122 PL 105

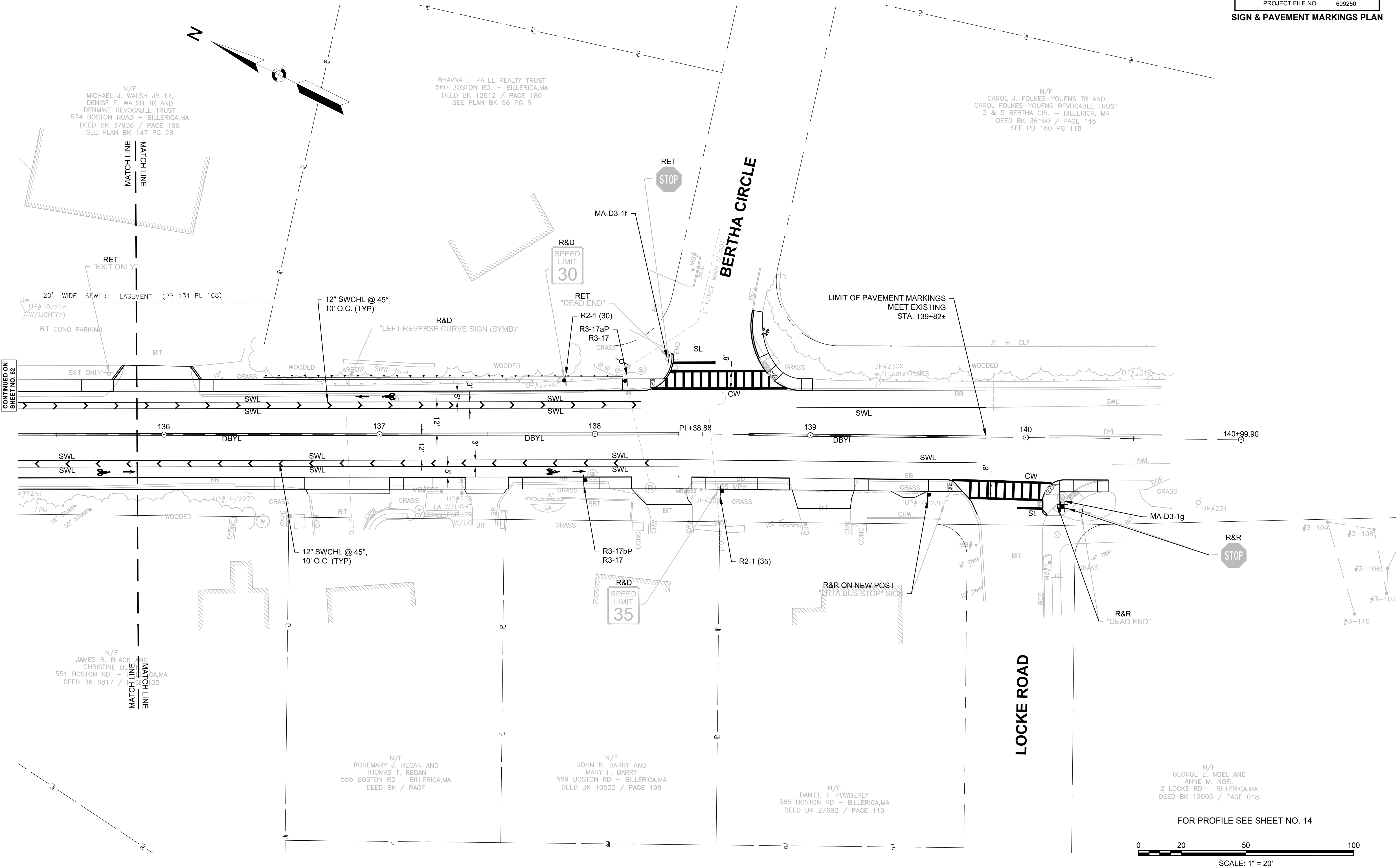
JAMIN PATEL A/K/A JAIMIN PATEL &
SWITA PATEL {TENANTS BY THE ENTIRETY}
529 BOSTON ROAD - BILLERICA, MA
DEED BK 28150 / PAGE 188
SEE PB 191 PL 119

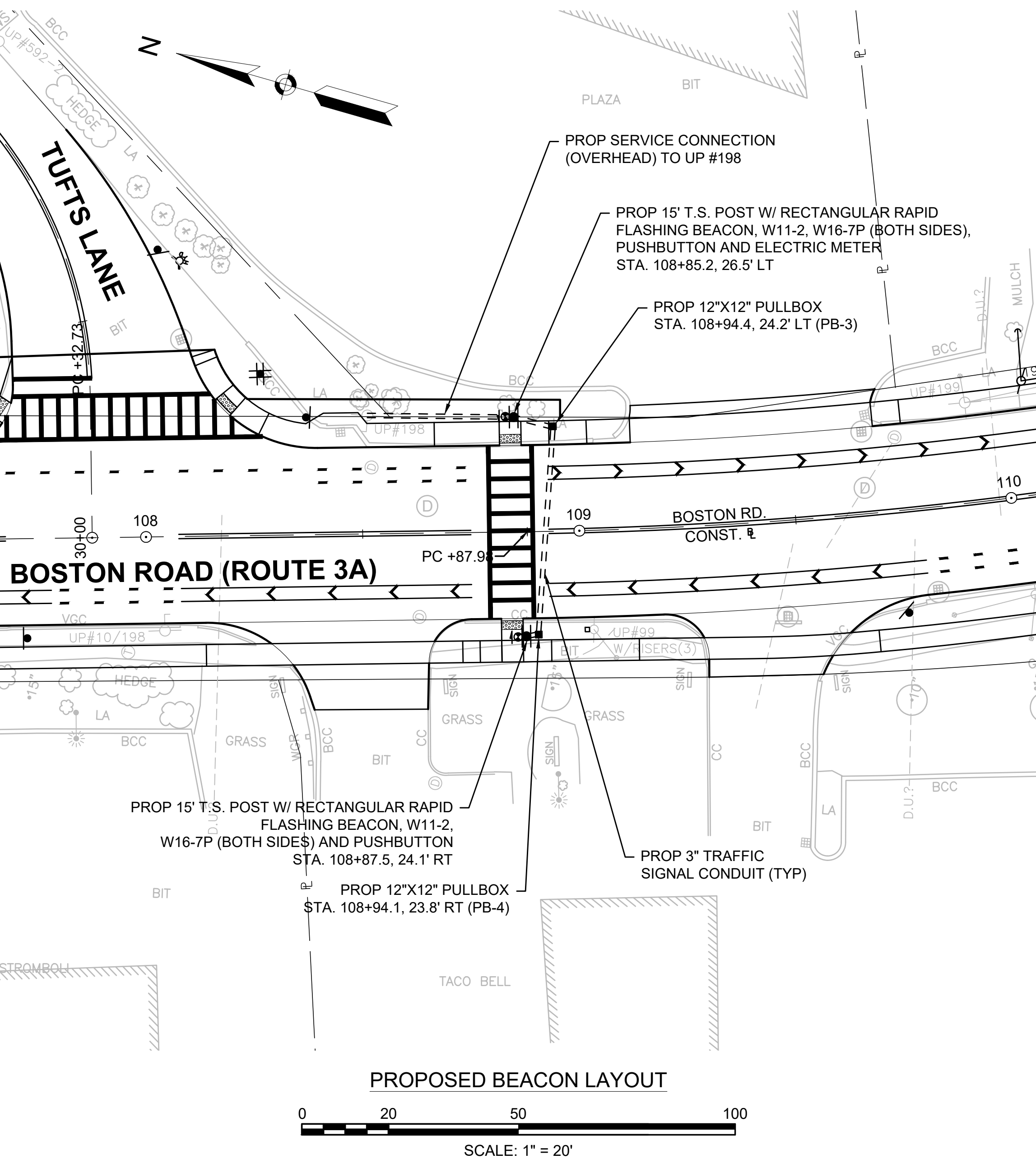


BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	63	103
PROJECT FILE NO.		609250	

SIGN & PAVEMENT MARKINGS PLAN

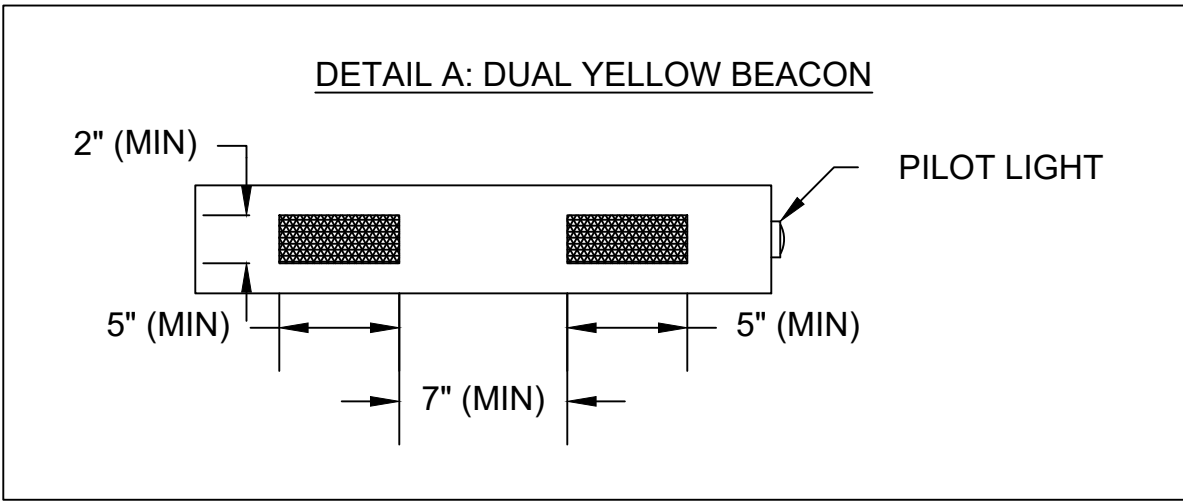




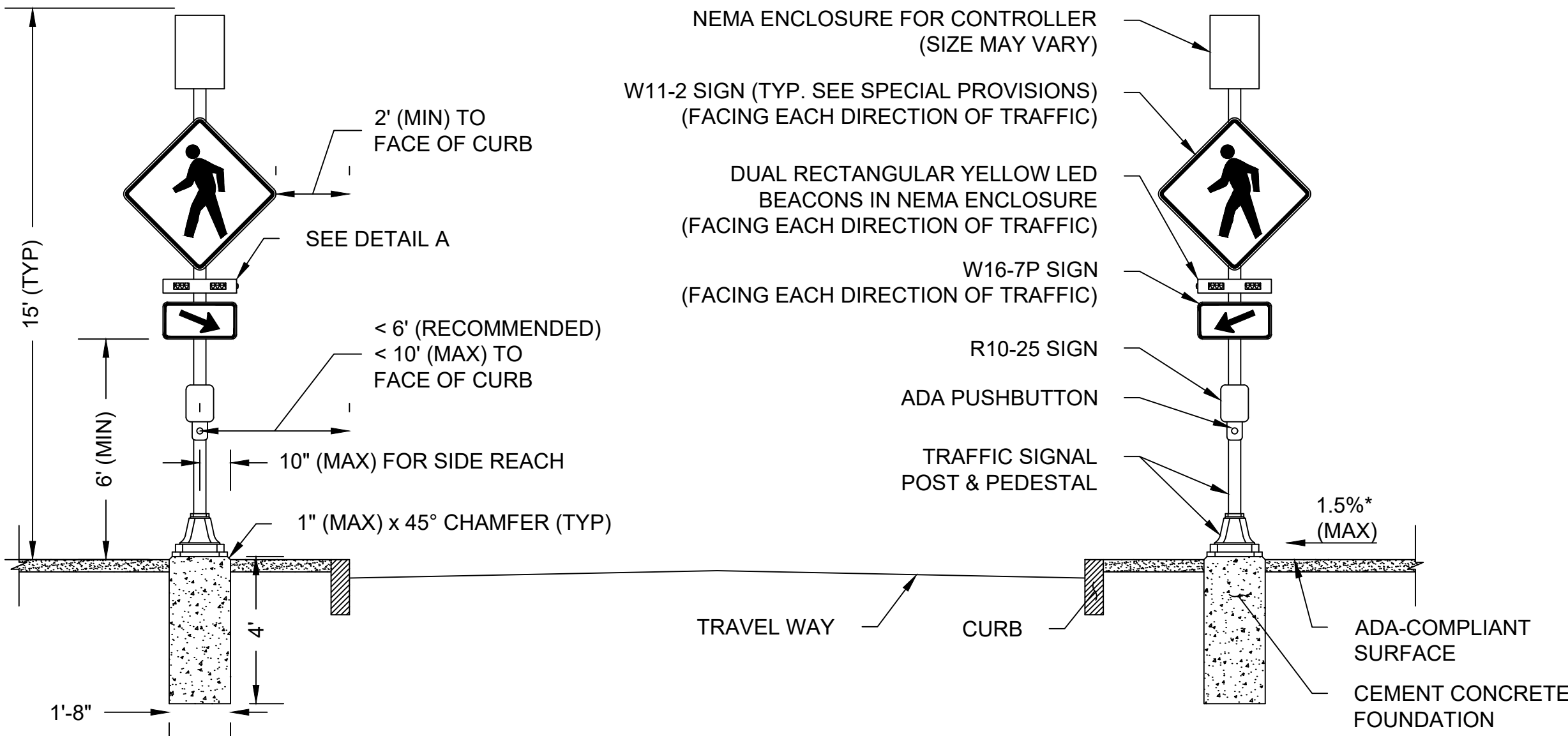
- NOTES:
1. ACCESS TO ALL PEDESTRIAN ACTUATED CONTROLS SHALL BE ADA/AAB COMPLIANT.
 2. *0.5% CONSTRUCTION TOLERANCE FOR CROSS-SLOPE.

RRFB TIMING AND OPERATIONS TABLE

LOCATION	FLASHING CYCLE TIME	MINIMUM TIME BETWEEN ACTUATIONS
LOCATION 1 (STA 108+84± BOSTON ROAD)	15 SECONDS	60 SECONDS



MAJOR ITEMS - RRFB LOCATION 1 - BOSTON ROAD (STA. 108+84±)		
ITEM NO.	QUANTITY	DESCRIPTION
824.211	2	NEMA ENCLOSURES FOR ALL COMPONENTS NEEDED TO MEET FUNCTIONAL REQUIREMENTS PER SPECIAL PROVISIONS
	2	TRAFFIC SIGNAL POST AND BASE STANDARD WITH FOUNDATION - 15' STEEL
	4	DUAL RECTANGULAR YELLOW LED BEACONS IN NEMA ENCLOSURES
	2	ADA PUSHBUTTON SYSTEMS
	2	R10-25 SIGNS (9" x 12")
	4	W11-2 SIGNS (30" x 30")
	2	W16-7pL SIGNS (24" x 12")
	2	W16-7pR SIGNS (24" x 12")
804.3	100 FT	3" TRAFFIC SIGNAL CONDUIT
811.31	2	PULL BOX, 12" X 12"
PLUS ALL MOUNTING AND SUPPORTING HARDWARE AND WIRING NECESSARY TO COMPLETE A WORKING SYSTEM.		



RRFB DETAIL - LOCATION 1 (BOSTON RD STA 108+84)
(FACING SOUTHBOUND)

NOT TO SCALE

BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

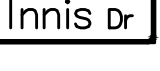
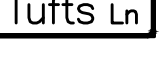
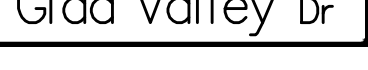
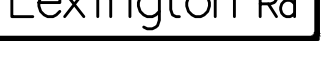
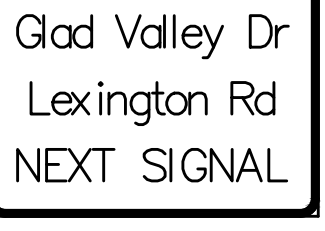
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	64	103
PROJECT FILE NO.		609250	

RECTANGULAR RAPID FLASHING BEACON
DETAILS

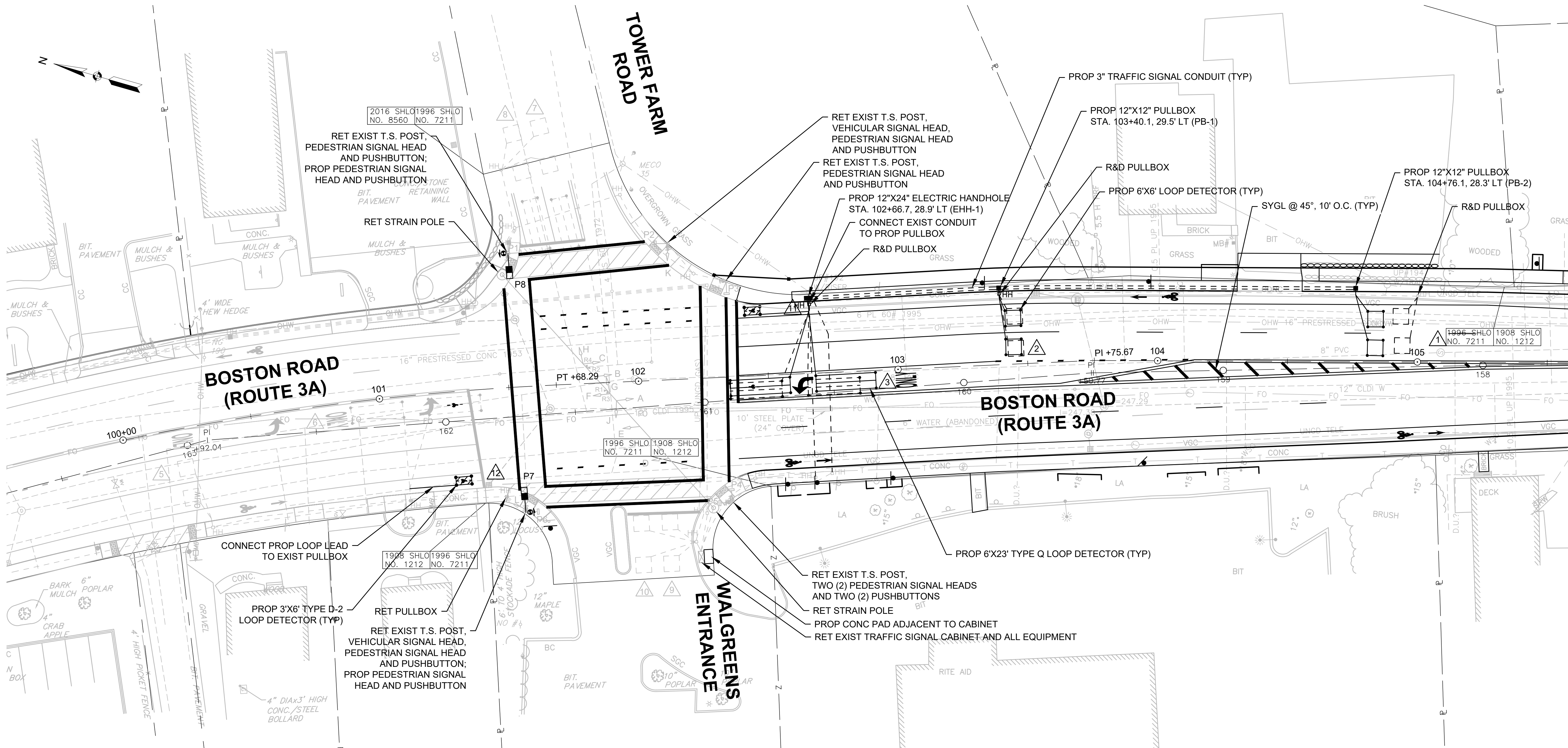
IDENTIFI- CATION NUMBER	SIZE OF SIGN		TEXT	DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA IN SQUARE FEET	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW		BACK- GROUND	LEGEND	BORDER			
R1-1	30 in	30 in		SEE 2009 MUTCD STANDARDS		SEE 2009 MUTCD STANDARDS	9	RED	WHITE	WHITE	P-5 9	6.25	56.25
R2-1 (30)	30 in	36 in					3	WHITE	BLACK	BLACK	P-5 2	7.5	22.5
R2-1 (35)	30 in	36 in					3	WHITE	BLACK	BLACK	P-5 2	7.5	22.5
R3-7L	36 in	36 in					1	WHITE	BLACK	BLACK	P-5 1	9.0	9.0
	30 in	30 in					1				P-5 1	6.25	6.25
R3-7R	30 in	30 in					1	WHITE	BLACK	BLACK	P-5 1	6.25	6.25
R3-8c	36 in	30 in					1	WHITE	BLACK	BLACK	P-5 1	7.5	7.5
R3-8d	36 in	30 in					2	WHITE	BLACK	BLACK	P-5 2	7.5	15.0
R3-8e	36 in	30 in					1	WHITE	BLACK	BLACK	P-5 1	7.5	7.5
R3-17aP	24 in	8 in					1	WHITE	BLACK	BLACK	MOUNT W/ R3-17	1.33	1.33
R3-17bP	24 in	8 in					2	WHITE	BLACK	BLACK	MOUNT W/ R3-17	1.33	2.66
R3-17	24 in	18 in					13	WHITE	BLACK	BLACK	P-5 13	3.0	39.0
R4-11	30 in	30 in					1	WHITE	BLACK	BLACK	P-5 1	6.25	6.25
R7-1	12 in	18 in					2	WHITE	RED	RED	P-5 2	1.5	3.0
R7-9	12 in	18 in					9	WHITE	RED	RED	P-5 9	1.5	13.5
R9-5	12 in	18 in					2	WHITE	BLACK	BLACK	P-5 2	1.5	3.0
R10-7	24 in	30 in					1	WHITE	BLACK	BLACK	MOUNT W/ R3-8d	5.0	5.0
R10-11b	36 in	36 in					2	WHITE	BLACK	BLACK	MOUNT ON MAST ARM	9.0	18.0
MA-R10-12a	30 in	36 in		SEE MASSDOT STANDARDS		SEE 2009 MUTCD STANDARDS	2	WHITE	BLACK	BLACK	MOUNT ON MAST ARM	7.5	15.0
R10-15a	36 in	36 in					1	FY/ WHITE	BLACK	BLACK	MOUNT ON MAST ARM	9.0	9.0
R10-25	9 in	12 in		SEE 2009 MUTCD STANDARDS		SEE 2009 MUTCD STANDARDS	2	WHITE	BLACK	BLACK	MOUNT ON RRFB	-	-
W1-3L	30 in	30 in					1	YELLOW	BLACK	BLACK	P-5 1	6.25	6.25
W3-3	30 in	30 in					1	YELLOW	BLACK	BLACK	P-5 1	6.25	6.25
W4-2R	36 in	36 in					1	YELLOW	BLACK	BLACK	P-5 1	9.0	9.0
W11-2	30 in	30 in					6	FY	BLACK	BLACK	MOUNT 4 ON RRFB 2 ON P-5	6.25	12.5
W16-7pL	24 in	12 in					4	FY	BLACK	BLACK	MOUNT 2 ON RRFB 2 W/ W11-2	2.0	4.0
W16-7pR	24 in	12 in					2	FY	BLACK	BLACK	MOUNT ON RRFB	-	-

BILLERICA BOSTON RD (ROUTE 3A) AT LEXINGTON RD & GLAD VALLEY DR			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	65	103
PROJECT FILE NO.		609250	

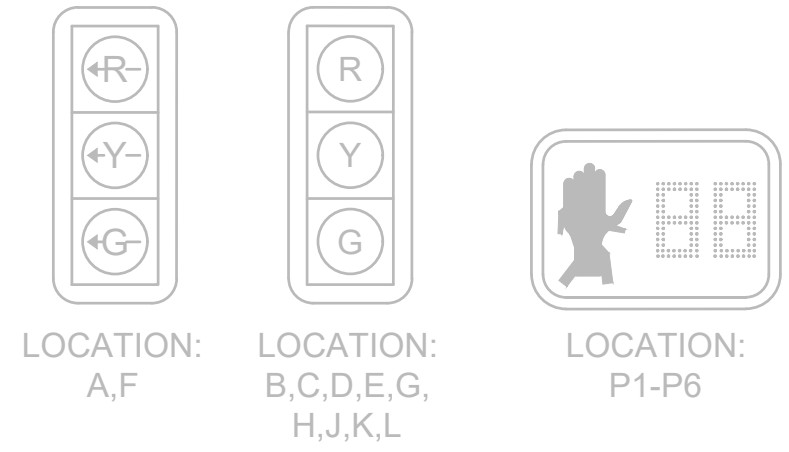
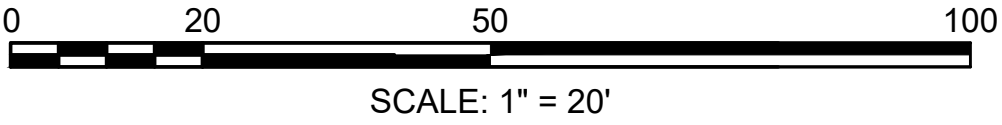
TRAFFIC SIGN SUMMARY

IDENTIFI- CATION NUMBER	SIZE OF SIGN		TEXT	DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA IN SQUARE FEET	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW		BACK- GROUND	LEGEND	BORDER			
W16-9p	24 in	12 in		SEE 2009 MUTCD STANDARDS			2	FY	BLACK	BLACK	MOUNT W/ W11-2	2.0	4.0
M4-14	12 in	6 in					1	GREEN	WHITE	WHITE	MOUNT W/ D11-1	0.5	0.5
M6-2L	12 in	9 in					1				MOUNT W/ D11-1	0.75	0.75
M6-2R	12 in	9 in					1				MOUNT W/ D11-1	0.75	0.75
M6-3	12 in	9 in					2				MOUNT W/ D11-1	0.75	1.5
MA-D1-6	60 in	66 in			9D/7C/6C 8C 8C	6.3 4 4 5.6	MA-M1-5 (28) 18X18 ARROW 18X8@180°	1			5" TUBULAR POST (1)	27.5	27.5
MA-D3-1a	48 in	12 in			6/4D	3 3	4				P-5 2	EACH	EACH
MA-D3-1a (OH)	60 in	18 in			8/5.33D	5 5	2				MOUNT ON MAST ARM	EACH	EACH
MA-D3-1b	36 in	12 in			6/4D	3 3	2				MOUNT W/ MA-D3-1a	EACH	EACH
MA-D3-1c	36 in	12 in			6/4D	3 3	2				MOUNT W/ MA-D3-1a	EACH	EACH
MA-D3-1d (OH)	84 in	18 in			8/5.33D	5 5	2				MOUNT ON MAST ARM	EACH	EACH
MA-D3-1e (OH)	72 in	18 in			8/5.33D	5 5	2				MOUNT ON MAST ARM	EACH	EACH
MA-D3-1f	48 in	12 in			6/4D	3 3	2				MOUNT W/ W14-1AR	EACH	EACH
MA-D3-1g	42 in	12 in			6/4D	3 3	2				MOUNT W/ W14-1AR	EACH	EACH
D3-2a	42 in	18 in			4D 4D	3 4 3	1				P-5 1	5.25	5.25
D3-2b	42 in	30 in			4D 4D 4D	4.5 4.5 4.5	2				P-5 2	8.75	17.5
D11-1	24 in	18 in		SEE 2009 MUTCD STANDARDS			4				P-5 4	3.0	12.0

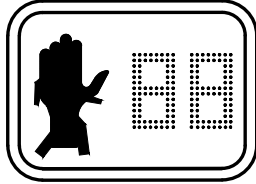
- NOTES:
- HIGH INTENSITY ENCAPSULATED LENS REFLECTIVE SHEETING CONFORMING TO SECTION M9:30.0, TYPE III OR IV, OF THE MASSDOT STANDARD SPECIFICATIONS SHALL BE USED FOR ALL SIGNS.
 - ALL P5 POSTS SHALL BE TELESCOPIC, RECTANGULAR TYPE POSTS, CONFORMING TO THE DIMENSIONS AND REQUIREMENTS OF THE MASSDOT "STANDARD DRAWINGS FOR SIGNS AND SUPPORTS" (LATEST EDITION).
 - SEE THE 2009 "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AND "STANDARD HIGHWAY SIGNS" FOR THE LATEST SPECIFICATIONS ON TEXT, DIMENSIONS AND COLOR. (ALSO SEE SECTION M9.30.0 TYPE III MASSDOT STANDARD SPECIFICATION, THE "MASSACHUSETTS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES," AND "GUIDE SIGN POLICY FOR SECONDARY STATE HIGHWAYS" (LATEST EDITIONS) BY THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION).
 - ALL STREET NAME SIGNS SHALL BE PAINTED ONE SIDE AND SHALL USE TWO SIGNS MOUNTED BACK TO BACK WITH BOLT-THROUGH METHOD.
 - FY: FLUORESCENT YELLOW.
 - ALL STREET NAME SIGNS SHALL INCLUDE BILLERICA TOWN SEAL . TOWN SEAL SHALL BE BLACK AND INCIDENTAL TO THE COST OF THE SIGN.



PROPOSED SIGNAL LAYOUT



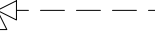
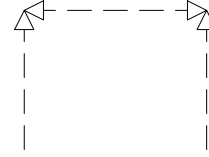
EXISTING SIGNAL HEAD DESIGNATIONS
NOT TO SCALE



PROPOSED SIGNAL HEAD DESIGNATIONS
NOT TO SCALE

- SIGNAL HEAD NOTES
1. ALL PEDESTRIAN SIGNAL HEADS SHALL DISPLAY INTERNATIONAL SYMBOLS - (HAND)/(PERSON WALKING) WITH COUNTDOWN DISPLAYS.
 2. ALL PEDESTRIAN SIGNAL HEADS SHALL HAVE 16" LED LENSES AND SUN VISORS.
 3. ALL SIGNAL HEADS SHALL BE FIXED MOUNTED.

SIGNAL PHASING AND TIMING CHART

SEQUENCE AND TIMING CHART FOR FULLY ACTUATED SIGNAL CONTROL (ISOLATED)																								
PHASE/EMERGENCY PRE-EMPTION			Ø1			Ø2			Ø4			Ø5			Ø6			Ø8			Ø9			FLASH OPER.
STREET	DIRECTION	HOUSINGS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
BOSTON ROAD	NB	A	←R	←R	←R	←R	←R	←R	←R	←R	←R	←G	←Y	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←FR
BOSTON ROAD	NB	B,C	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FY
BOSTON ROAD	SB	D,E	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	FY
BOSTON ROAD	SB	F	←G	←Y	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R	←FR
TOWER FARM ROAD	WB	G,H,L	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	FR
WALGREENS	EB	J,K	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	FR
PEDESTRIAN	ALL	P1-P8	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	OFF
TIMING IN SECONDS																								
MINIMUM GREEN			7			15			7			7			15			7						EMERGENCY ONLY
VEHICLE EXTENSION			3			3			3			3			3			3						
MAXIMUM GREEN			15			45			25			15			45			25						
CLEARANCE INTERVAL				3	3		3.5	1.5		3	3.5		3	3		3.5	1.5		3	3.5				
WALK/CLEARANCE/BUFFER INTERVAL																					7	20	4	
DETECTOR MEMORY			NON-LOCK			NON-LOCK			NON-LOCK			NON-LOCK			NON-LOCK			NON-LOCK			LOCK			
RECALL SWITCH			OFF			SOFT			OFF			OFF			SOFT			OFF			OFF			
																								

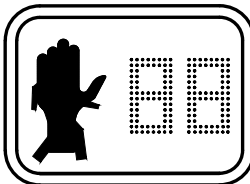
2

DETECTOR DATA

DETECTOR NO.	NO. SECTION/ SIZE	NO. OF TURNS	OPERATIONS	CALL DELAY (SECONDS)	CALL PHASE	EXTEND PHASE	LOOP CONNECTION
1	2 - 6'x6'	3	PRESENCE	0	Ø2	Ø2	SERIES
2	2 - 6'x6'	3	PRESENCE	0	Ø2	Ø2	SERIES
3	2 - 6'x23'	2-4-2	PRESENCE/BICYCLE	0	Ø5	Ø5	SERIES
4	2 - 6'x6'	3	PRESENCE	0	Ø6	Ø6	SERIES
5	2 - 6'x6'	3	PRESENCE	0	Ø6	Ø6	SERIES
6	2 - 6'x23'	2-4-2	PRESENCE/BICYCLE	0	Ø1	Ø1	SERIES
7	1 - 6'x23' 2 - 5'x5'	2-4-2 3	PRESENCE/BICYCLE PRESENCE	0 0	Ø8 Ø8	Ø8 Ø8	SERIES SERIES
8	1 - 6'x23' 2 - 5'x5'	2-4-2 3	PRESENCE/BICYCLE PRESENCE	0 0	Ø8 Ø8	Ø8 Ø8	SERIES SERIES
9	2 - 6'x6'	3	PRESENCE	0	Ø4	Ø4	SERIES
10	2 - 6'x6'	3	PRESENCE	0	Ø4	Ø4	SERIES
11	1 - 3'x6'	2-4-2	BICYCLE	0	Ø2	Ø2	SERIES
12	1 - 3'x6'	2-4-2	BICYCLE	0	Ø6	Ø6	SERIES

DETECTOR NOTES:

- DETECTOR GROUPS 1, 2 AND 3 ARE PROPOSED TO BE REPLACED.
- DETECTOR GROUPS 11 AND 12 ARE PROPOSED TO BE INSTALLED.
- ALL OTHER DETECTORS ARE TO BE RETAINED.

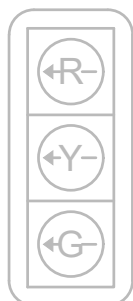


LOCATION:
P7-P8

PROPOSED SIGNAL HEAD DESIGNATIONS
NOT TO SCALE

SIGNAL HEAD NOTES

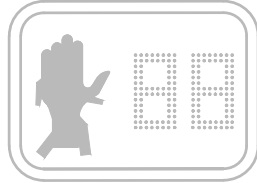
- ALL PEDESTRIAN SIGNAL HEADS SHALL DISPLAY INTERNATIONAL SYMBOLS - (HAND)/(PERSON WALKING) WITH COUNTDOWN DISPLAYS.
- ALL PEDESTRIAN SIGNAL HEADS SHALL HAVE 16" LED LENSES AND SUN VISORS.
- ALL SIGNAL HEADS SHALL BE FIXED MOUNTED.



LOCATION:
A,F



LOCATION:
B,C,D,E,G,
H,J,K,L



LOCATION:
P1-P6

EXISTING SIGNAL HEAD DESIGNATIONS
NOT TO SCALE

TRAFFIC SIGNAL NOTES:

- ALL EXISTING TRAFFIC SIGNAL EQUIPMENT SHALL BE RETAINED UNLESS OTHERWISE NOTED.
- 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 TRAFFIC MOVEMENT WILL DISPLAY THE APPROPRIATE CLEARANCE INTERVALS.
- FLASHING OPERATION IS FOR EMERGENCY OPERATION ONLY. THE SIGNAL SHALL PROVIDE STOP AND GO OPERATION 24 HOURS DAILY.
- PEDESTRIAN PHASE TO BE ACTIVATED BY PEDESTRIAN PUSH-BUTTON ONLY.
- OPTICAL DETECTORS SHALL BE LOCATED FOR OPTIMUM SIGHT DISTANCE.
- PEDESTRIAN PUSHBUTTONS AND SIGNS SHALL BE LOCATED IN ACCORDANCE WITH THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (FIG. 4E-4) AND POINTED PARALLEL TO THE CROSSWALK.

BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	67	103
PROJECT FILE NO.		609250	

TRAFFIC SIGNAL PLAN
LOCATION 1:
BOSTON ROAD (ROUTE 3A)
AT TOWER FARM ROAD

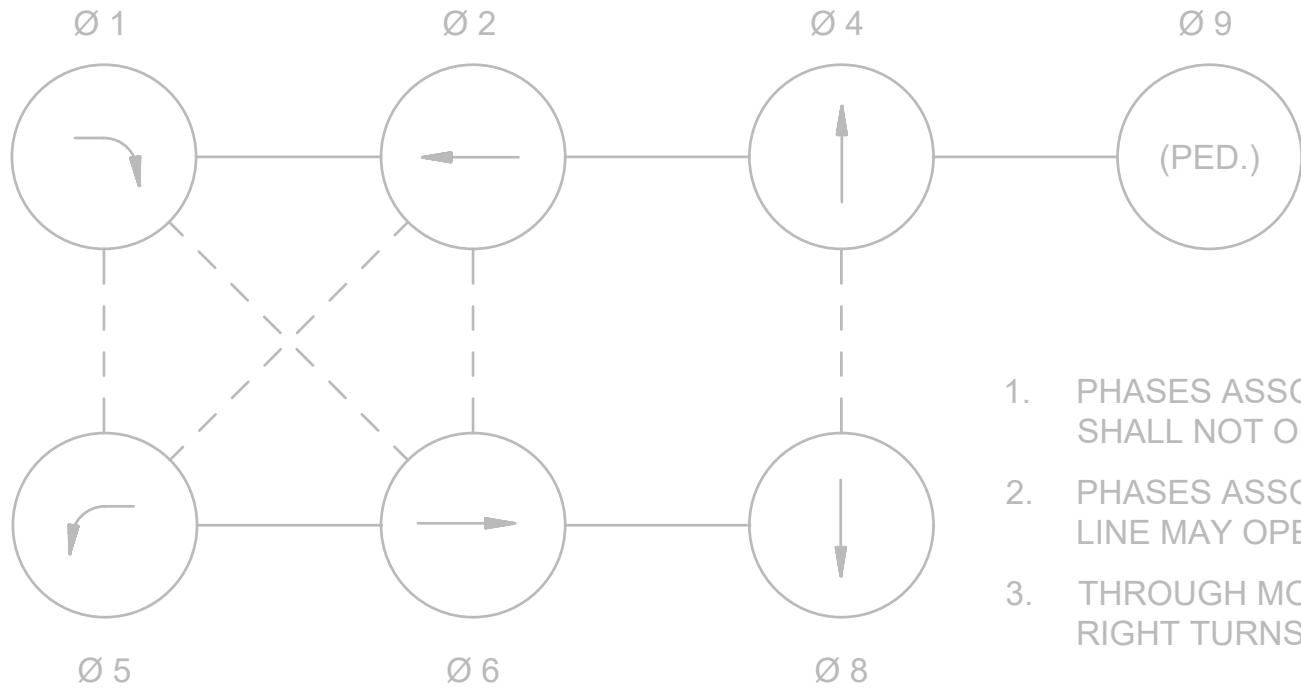
PRE-EMPTION PHASING & PRIORITY

RECEIVER AND PRIORITY	PRE-EMPT PHASE ASSIGNMENT	MOVEMENT	VEHICLE PHASE ASSIGNMENT
R1	1	SB	Ø1 & Ø6
R2	2	NB	Ø2 & Ø5
R3	3	EB	Ø4
R4	4	WB	Ø8

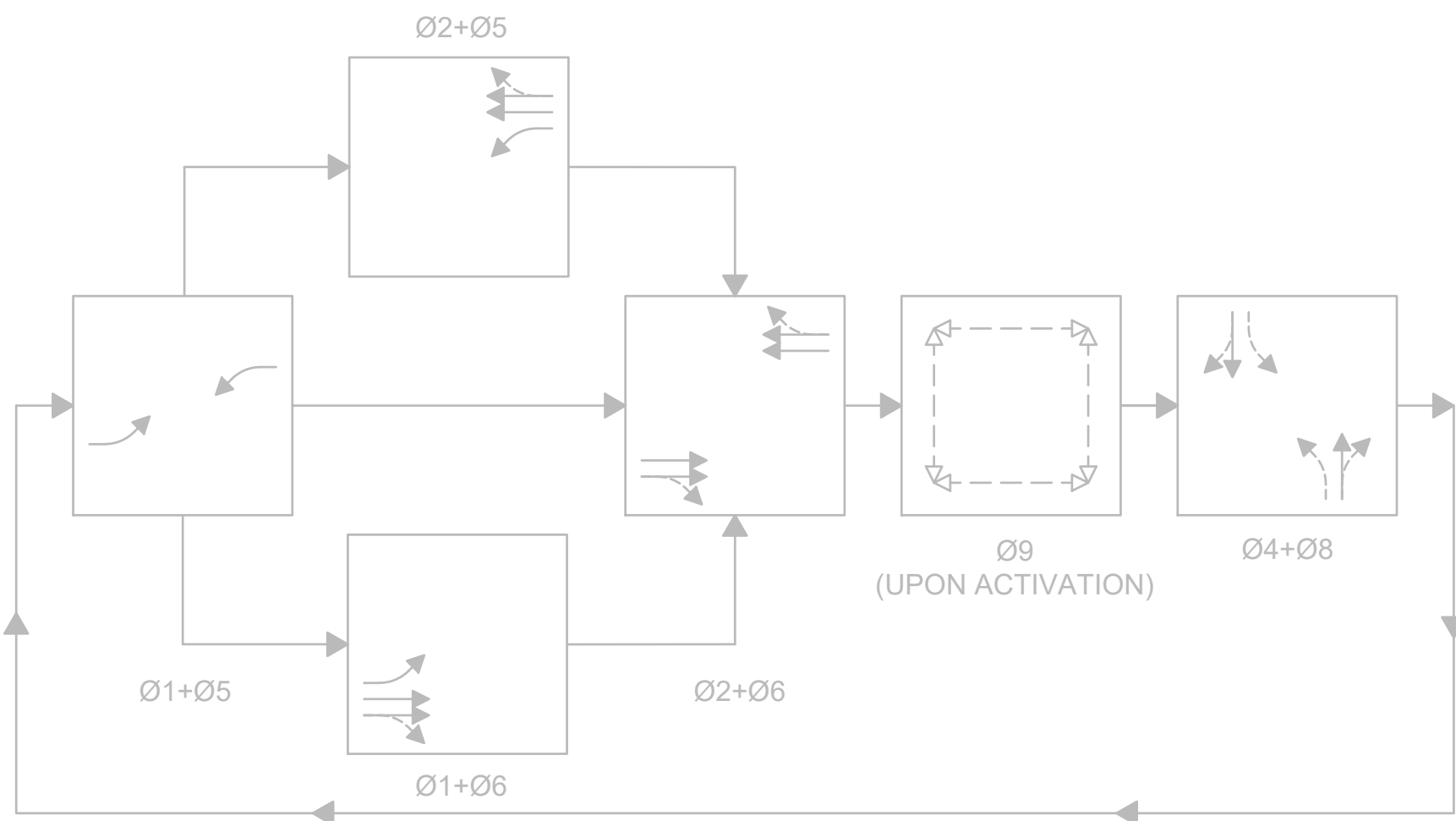
EMERGENCY PREEMPTION NOTES:

- UPON PREEMPTION ACTIVATION, PHASE(S) BEING SERVICED SHALL IMMEDIATELY BEGIN CLEARANCE (I.E., YELLOW AND ALL RED) AS DESIGNED, EXCEPT FOR WHEN PHASE(S) CALLED BY PREEMPTION ARE CURRENTLY IN SERVICE. WHEN PHASE(S) CURRENTLY IN SERVICE MATCH PHASE(S) CALLED BY PREEMPTION, SIGNAL INDICATIONS ARE MAINTAINED. HOWEVER, PREEMPTION OPERATION (I.E. TIMING) SUPERCEDES NORMAL TRAFFIC SIGNAL CONTROL.
- AFTER THE PREEMPTION SEQUENCE HAS TERMINATED, THE SIGNAL SHALL RETURN TO THE BEGINNING OF Ø2 & Ø6.
- THE PREEMPTION STROBE SHALL BE ILLUMINATED ONLY WHEN THE PREEMPTED PHASE IS DISPLAYING A GREEN INDICATION.
- A SEPARATE CABLE SHALL BE RUN FOR THE PREEMPTION STROBE. IT MAY NOT BE RUN ON THE SPARE SIGNAL CABLE.
- EMERGENCY PREEMPTION SHALL COME ON A FIRST-COME FIRST-SERVED BASIS.

NEMA DUAL RING PHASING NOTES:



- PHASES ASSOCIATED BY A SOLID LINE SHALL NOT OPERATE CONCURRENTLY.
- PHASES ASSOCIATED BY A DASHED LINE MAY OPERATE CONCURRENTLY.
- THROUGH MOVEMENTS MAY INCLUDE RIGHT TURNS.



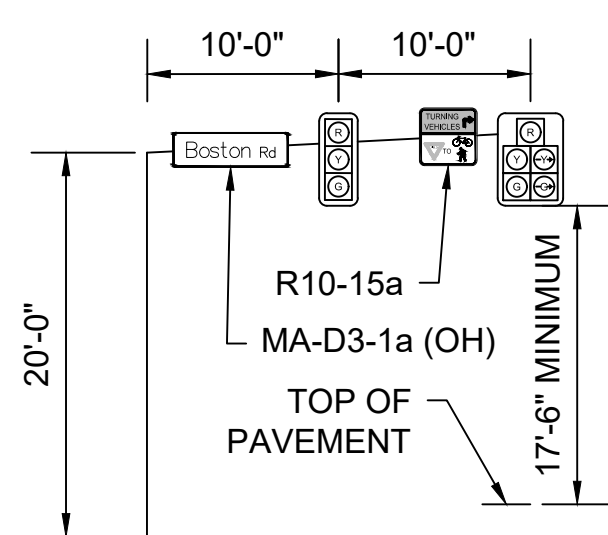
PREFERENTIAL PHASE SEQUENCE

MAJOR ITEMS (LOCATION 1)

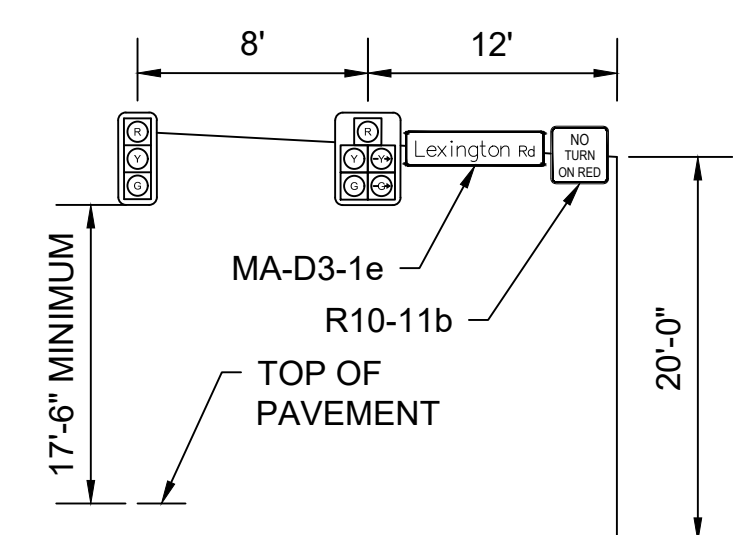
ITEM NO.	QUANTITY	DESCRIPTION
816.01	2	PEDESTRIAN SIGNAL HEAD, 1-WAY, 1 SECTION, 16" WITH COUNTDOWN
	2	AUDIBLE & VIBRO-TACTILE ACCESSIBLE PEDESTRIAN SIGNAL TYPE PUSHBUTTON INTEGRATED SIGN & SADDLE WITH LED CONFIRMATION LIGHT
	2	WIRE LOOPS, TYPE D-2 - 3'x6'
	4	WIRE LOOPS - 6'x6'
	2	WIRE LOOPS, TYPE Q - 6'x23'
804.3	210 FT	3" TRAFFIC SIGNAL CONDUIT
811.31	2	PULL BOX, 12" X 12"
811.22	1	ELECTRIC HANDHOLE - 12" X 24" (SD2.022)
PLUS ALL MISCELLANEOUS EQUIPMENT AND MATERIAL NECESSARY TO PROVIDE A COMPLETE OPERATING TRAFFIC CONTROL SIGNAL.		

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	68	103
PROJECT FILE NO.		609250	

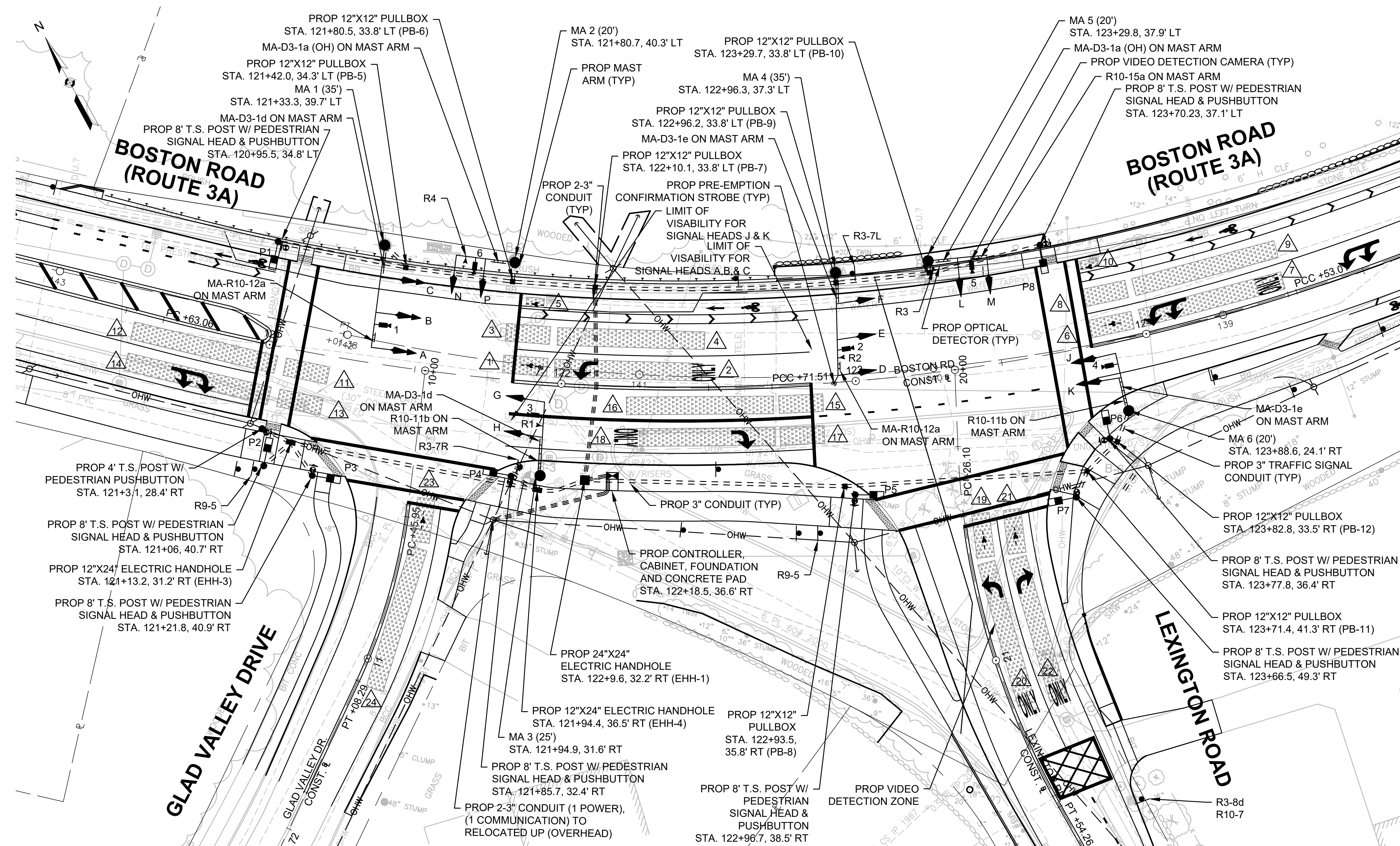
**TRAFFIC SIGNAL PLAN
LOCATION 2:
BOSTON ROAD (ROUTE 3A)
AT LEXINGTON ROAD/
GLAD VALLEY DRIVE**



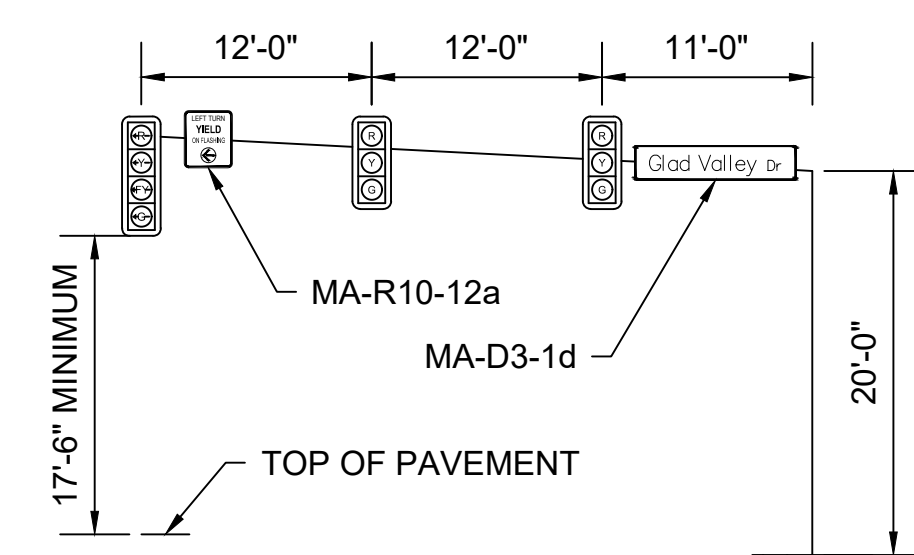
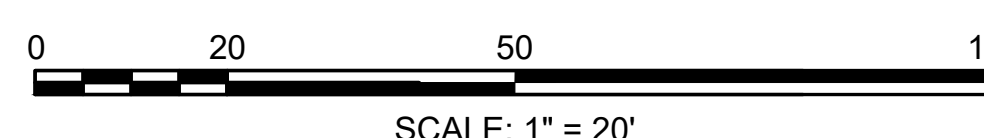
MAST ARM 5 (20') SKETCH
NOT TO SCALE



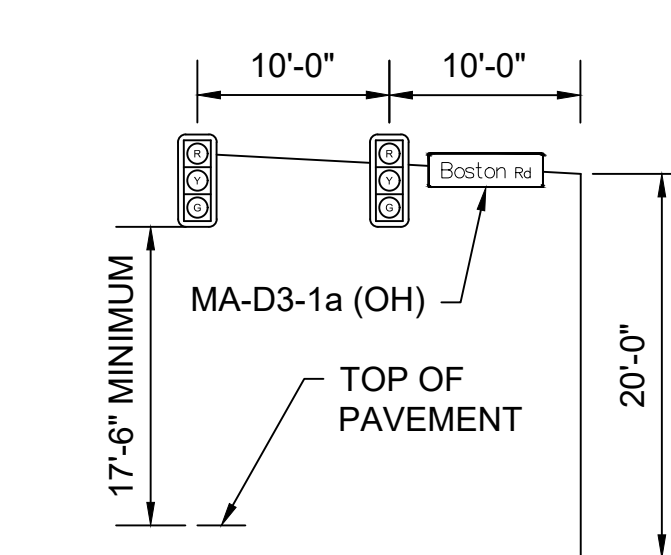
MAST ARM 6 (20') SKETCH
NOT TO SCALE



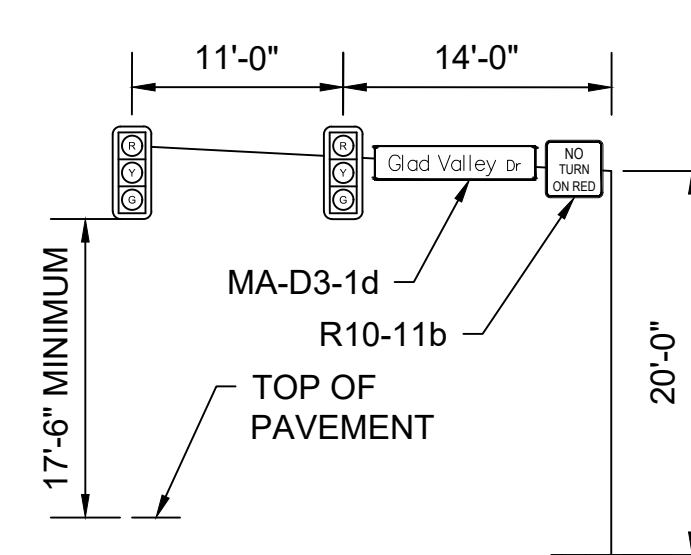
PROPOSED SIGNAL LAYOUT



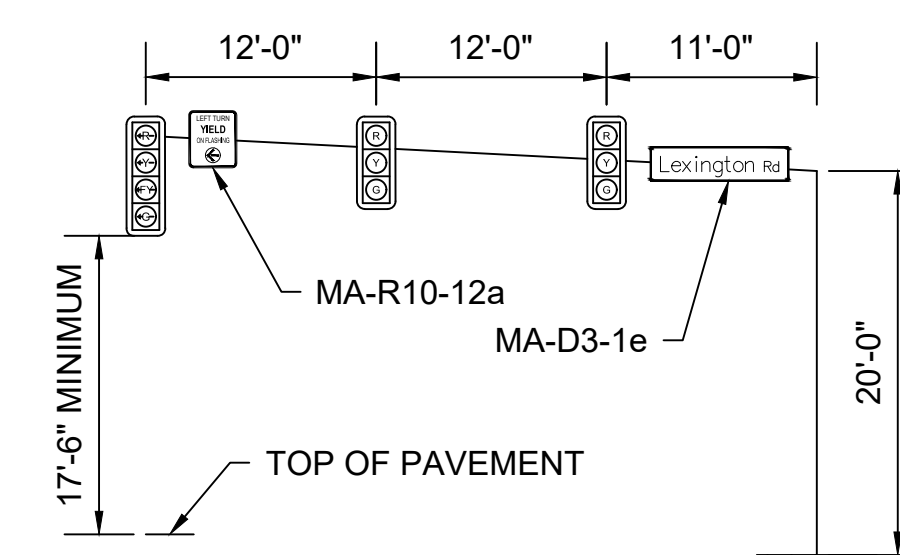
MAST ARM 1 (35') SKETCH
NOT TO SCALE



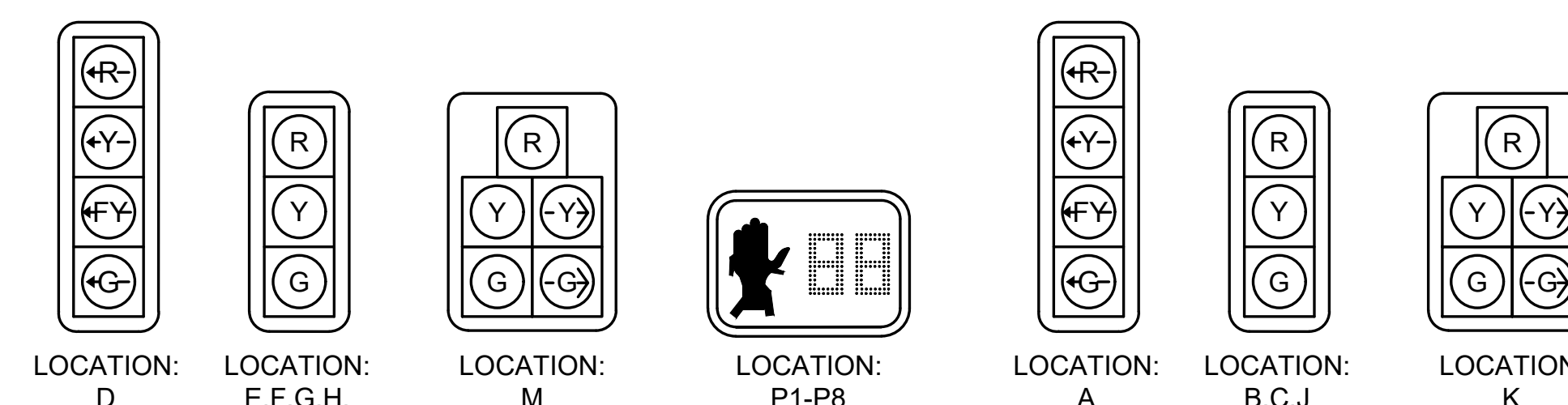
MAST ARM 2 (20') SKETCH
NOT TO SCALE



MAST ARM 3 (25') SKETCH
NOT TO SCALE



MAST ARM 4 (35') SKETCH
NOT TO SCALE



SIGNAL HEAD DESIGNATION
NOT TO SCALE

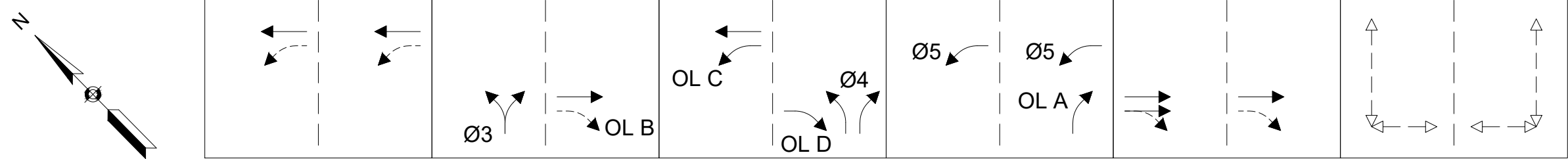
SIGNAL HEAD NOTE

1. ALL SIGNAL HEADS SHALL HAVE NON LOUVERED BACKPLATES AND TUNNEL VISORS.
2. ALL SIGNAL BACKPLATES SHALL BE 5" NON-LOUVERED WITH 3" YELLOW RETROREFLECTIVE BORDER.
3. ALL SIGNAL LENSES SHALL BE 12" DIA. LED.
4. ALL PEDESTRIAN SIGNAL HEADS SHALL DISPLAY INTERNATIONAL SYMBOLS - (HAND)/(PERSON WALKING) WITH COUNTDOWN DISPLAYS.
5. ALL PEDESTRIAN SIGNAL HEADS SHALL HAVE 16" LED LENSES AND SUN VISORS.
6. ALL SIGNAL HEADS SHALL BE FIXED MOUNTED.

SIGNAL PHASING AND TIMING CHART

SEQUENCE AND TIMING CHART FOR FULLY ACTUATED SIGNAL CONTROL (ISOLATED)																									
PHASE/EMERGENCY PRE-EMPTION			Ø2				Ø3				Ø4				Ø5			Ø6				Ø9			FLASH OPER.
STREET	DIRECTION	HOUSINGS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
BOSTON ROAD	NB	A	+FY	+FY	+Y	+R	+R	+R	+R	+R	+G	+G	+Y	+R	+G	+Y	+R	+R	+R	+R	+R	+R	+R	+R	+FR
BOSTON ROAD	NB	B,C	G	G	Y	R	R	R	R	R	G	G	Y	R	R	R	R	R	R	R	R	R	R	R	FY
BOSTON ROAD	NB	D	+FY	+Y	+R	+R	+R	+R	+R	+R	+R	+R	+R	+R	+G	+Y	+R	+R	+R	+R	+R	+R	+R	+R	+FR
BOSTON ROAD	NB	E,F	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FY
BOSTON ROAD	SB	G,H	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	FY
BOSTON ROAD	SB	J	R	R	R	R	G	G	Y	R	R	R	R	R	R	R	R	R	G	G	Y	R	R	R	FY
BOSTON ROAD	SB	K	R	R	R	R	G	G	Y	R	R	R	R	R	R	R	R	R	G	G	Y	R	R	R	FY
LEXINGTON ROAD	NE	L	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	FR
LEXINGTON ROAD	NE	M	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	FR
GLAD VALLEY DRIVE	EB	N,P	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FR
PEDESTRIAN	ALL	P1-P8	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	OFF
TIMING IN SECONDS																									
MINIMUM GREEN			10				6				6				6			10							
VEHICLE EXTENSION			4				2				2				2			4							
MAXIMUM GREEN I (ALL OTHER TIMES)			40				15				15				10			40							
MAXIMUM GREEN II (6:00 AM - 10:00 AM MON - FRI)			55				15				15				10			55							
CLEARANCE INTERVAL				4.5	4.5	1		3	3	2.5		4	4	3		4.5	2.5		4.5	4.5	1				
WALK/CLEARANCE/BUFFER INTERVAL																						7	15	4	
DETECTOR MEMORY			NON-LOCK				NON-LOCK				NON-LOCK				NON-LOCK				NON-LOCK				LOCK		
RECALL SWITCH			MIN				OFF				OFF				OFF				MIN				OFF		

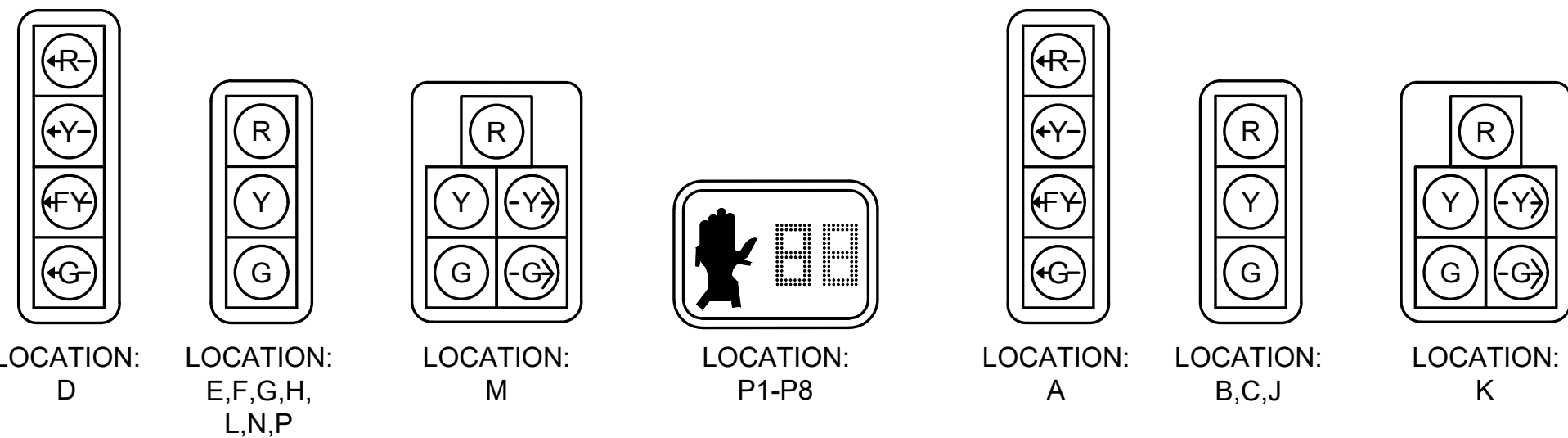
EMERGENCY ONLY



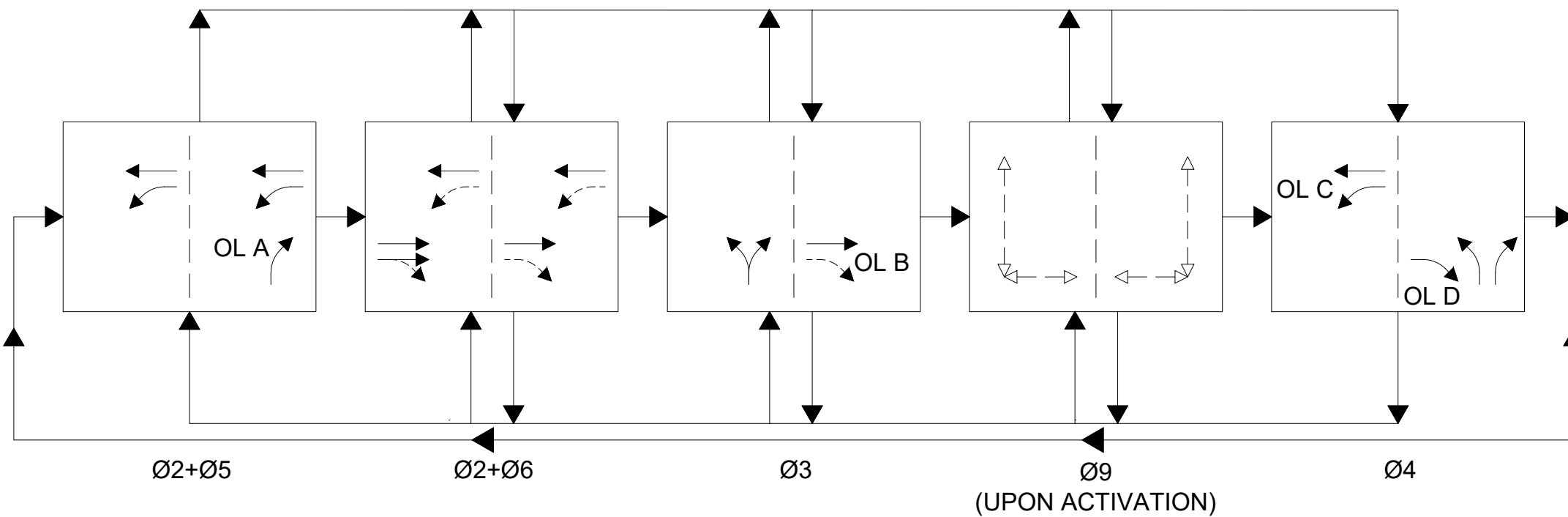
DETECTOR DATA

DETECTOR NO.	VIDEO CAMERA NO.	NO. SECTION/ SIZE	OPERATIONS	EXTENSION (SECONDS)	CALL DELAY (SECONDS)	CALL PHASE	SWITCH	EXTEND PHASE
1	1	1 - 6'x15'	PRESENCE/BICYCLE	0	0	Ø5	-	Ø5
1	1	1 - 6'x50'	PRESENCE	0	0	Ø5	-	Ø5
1	1	1 - 6'x15'	PRESENCE	0	0	Ø2	-	Ø2
1	1	1 - 6'x50'	PRESENCE	0	0	Ø2	-	Ø2
1	1	1 - 3'x6'	BICYCLE	0	0	Ø2	-	Ø2
2	2	1 - 6'x15'	PRESENCE/BICYCLE	0	0	Ø5	-	Ø5
2	2	1 - 6'x50'	PRESENCE	0	0	Ø5	-	Ø5
2	2	1 - 6'x15'	PRESENCE	0	0	Ø2	-	Ø2
2	2	1 - 6'x50'	PRESENCE	0	0	Ø2	-	Ø2
2	2	1 - 3'x6'	BICYCLE	0	0	Ø2	-	Ø2
3	3	1 - 6'x15'	PRESENCE/BICYCLE	0	0	Ø6	-	Ø6
3	3	1 - 6'x50'	PRESENCE	0	0	Ø6	-	Ø6
3	3	1 - 6'x15'	PRESENCE/BICYCLE	0	0	Ø6	-	Ø6
3	3	1 - 6'x50'	PRESENCE	0	0	Ø6	-	Ø6
3	3	1 - 6'x15'	PRESENCE/BICYCLE	0	0	Ø6	-	Ø6
4	4	1 - 6'x15'	PRESENCE/BICYCLE	0	0	Ø6	-	Ø6
4	4	1 - 6'x50'	PRESENCE	0	0	Ø6	-	Ø6
4	4	1 - 6'x15'	PRESENCE/BICYCLE	0	0	Ø6	-	Ø6
4	4	1 - 6'x50'	PRESENCE	0	0	Ø6	-	Ø6
5	5	1 - 6'x15'	PRESENCE/BICYCLE	0	0	Ø4	-	Ø4
5	5	1 - 6'x50'	PRESENCE	0	0	Ø4	-	Ø4
5	5	1 - 6'x15'	PRESENCE/BICYCLE	0	5	Ø4	-	Ø4
5	5	1 - 6'x50'	PRESENCE	0	5	Ø4	-	Ø4
6	6	1 - 6'x15'	PRESENCE/BICYCLE	0	0	Ø3	-	Ø3
6	6	1 - 6'x50'	PRESENCE	0	0	Ø3	-	Ø3

OPTICALLY PROGRAMMED



SIGNAL HEAD DESIGNATIONS
NOT TO SCALE



PREFERENTIAL PHASE SEQUENCE

TRAFFIC SIGNAL NOTES:

- 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 TRAFFIC MOVEMENT WILL DISPLAY THE APPROPRIATE CLEARANCE INTERVALS.
- FLASHING OPERATION IS FOR EMERGENCY OPERATION ONLY. THE SIGNAL SHALL PROVIDE STOP AND GO OPERATION 24 HOURS DAILY.
- PEDESTRIAN PHASE TO BE ACTIVATED BY PEDESTRIAN PUSH-BUTTON ONLY.
- OPTICAL DETECTORS SHALL BE LOCATED FOR OPTIMUM SIGHT DISTANCE.
- PEDESTRIAN PUSHBUTTONS AND SIGNS SHALL BE LOCATED IN ACCORDANCE WITH THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (FIG. 4E-4) AND POINTED PARALLEL TO THE CROSSWALK.

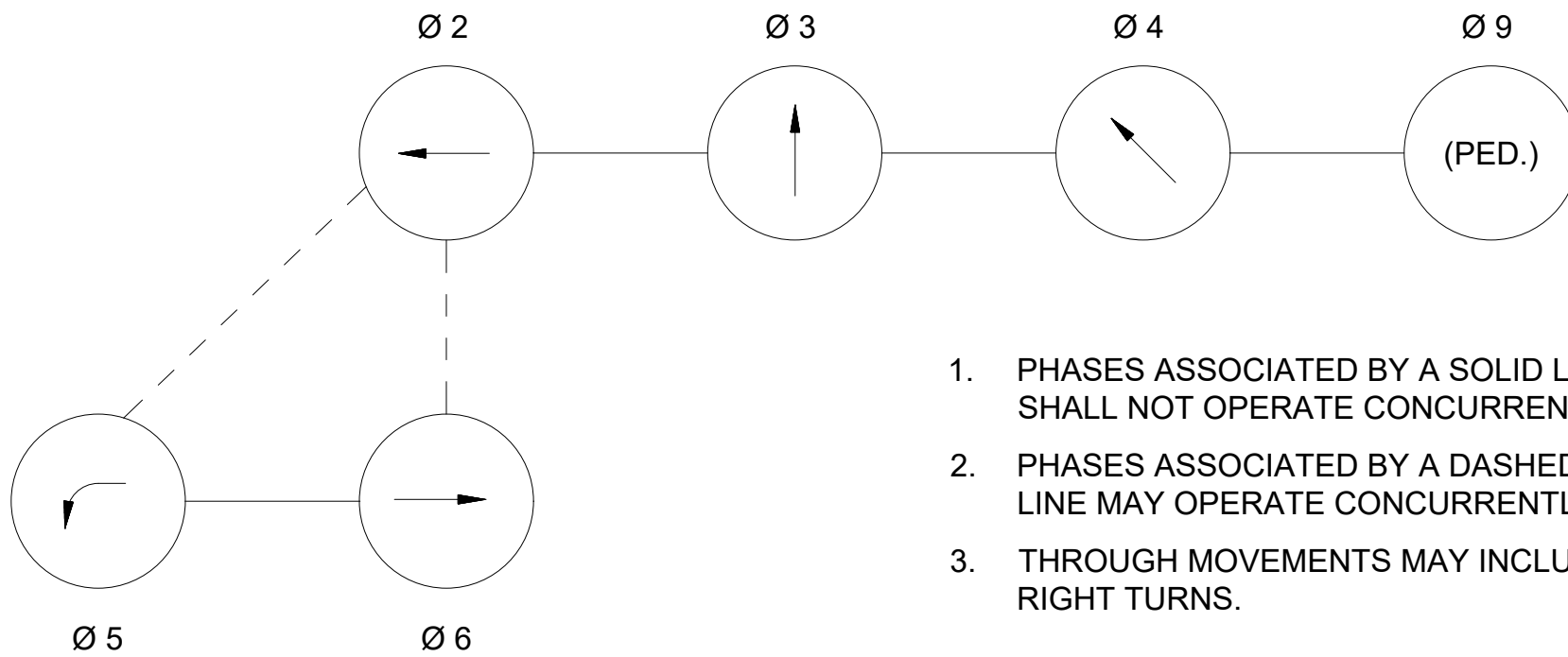
MAST ARM FOUNDATIONS

MAST ARM	SOIL TYPE	ARM LENGTH	LOCATION		FOUNDATION SIZE			
			STATION	OFFSET	DIAMETER	DEPTH	VERT. BARS	TIE BARS
MA 1	LOOSE WET SAND	35'	121+33.3	39.7' LT	3'-6"	14'-6"	18-#8	#5 @ 9"
MA 2	LOOSE WET SAND	20'	121+80.7	40.3' LT	3'-6"	9'-6"	18-#8	#5 @ 12"
MA 3	LOOSE WET SAND	25'	121+94.9	31.6' RT	3'-6"	11'-6"	18-#8	#5 @ 12"
MA 4	LOOSE WET SAND	35'	122+96.3	37.3' LT	3'-6"	14'-6"	18-#8	#5 @ 9"
MA 5	DENSE WET SAND	20'	123+29.8	37.9' LT	3'-6"	8'-6"	18-#8	#5 @ 12"
MA 6	DENSE WET SAND	20'	123+88.6	24.1' RT	3'-6"	9'-6"	18-#8	#5 @ 12"

MAST ARM FOUNDATION NOTES:

- BASED UPON THE BORING LOGS AND THE BLOW COUNTS, THE FOUNDATIONS SHALL BE TO THE DEPTH NOTED IN THE ABOVE TABLE.

NEMA DUAL RING PHASING NOTES:



- PHASES ASSOCIATED BY A SOLID LINE SHALL NOT OPERATE CONCURRENTLY.
- PHASES ASSOCIATED BY A DASHED LINE MAY OPERATE CONCURRENTLY.
- THROUGH MOVEMENTS MAY INCLUDE RIGHT TURNS.

MAJOR ITEMS (LOCATION 2)

ITEM NO.	QUANTITY	DESCRIPTION
815.2	1	ADVANCED TRAFFIC CONTROLLER (ATC) AND NEMA TS2 CABINET WITH FOUNDATION AND CONCRETE PAD
	2	35' MAST ARM, TYPE II, STEEL MONOLEVER WITH FOUNDATION
	1	25' MAST ARM, TYPE II, STEEL MONOLEVER WITH FOUNDATION
	3	20' MAST ARM, TYPE II, STEEL MONOLEVER WITH FOUNDATION
	7	TRAFFIC SIGNAL POST AND BASE STANDARD - 8' STEEL
	1	TRAFFIC SIGNAL POST AND BASE STANDARD - 4' STEEL
	1	SIGNAL HEAD, 1-WAY, 5 SECTION, 12" LENSES
	1	SIGNAL HEAD, 1-WAY, 4 SECTION, 12" LENSES
	7	SIGNAL HEAD, 1-WAY, 3 SECTION, 12" LENSES
	1	SIGNAL HEAD, 1-WAY, 5 SECTION, 12" LENSES - OPTICALLY PROGRAMMED
	1	SIGNAL HEAD, 1-WAY, 4 SECTION, 12" LENSES - OPTICALLY PROGRAMMED
	3	SIGNAL HEAD, 1-WAY, 3 SECTION, 12" LENSES - OPTICALLY PROGRAMMED
	2	5" 5-SECTION BACKPLATES WITH 3" YELLOW RETROREFLECTIVE YELLOW BORDER
	2	5" 4-SECTION BACKPLATES WITH 3" YELLOW RETROREFLECTIVE YELLOW BORDER
	10	5" 3-SECTION BACKPLATES WITH 3" YELLOW RETROREFLECTIVE YELLOW BORDER
	8	PEDESTRIAN SIGNAL HEAD, 1-WAY, 1 SECTION, 16" WITH COUNTDOWN
	8	AUDIBLE & VIBRO-TACTILE ACCESSIBLE PEDESTRIAN SIGNAL TYPE PUSHBUTTON INTEGRATED SIGN & SADDLE WITH LED CONFIRMATION LIGHT
	3	VIDEO PROCESSOR (2 CHANNEL)
	6	VIDEO DETECTION CAMERA
	1	9" VIDEO DETECTION MONITOR
	1	SERVICE CONNECTION (OVERHEAD)
	4	OPTICAL DETECTOR, UNIDIRECTIONAL, SINGLE CHANNEL
	1	4 CHANNEL PHASE SELECTOR
	1	CARD RACK
	2	EMERGENCY PRE-EMPTION CONFIRMATION STROBE (WHITE)
	2	SPARE FLASHERS
	2	SPARE LOAD SWITCHES
804.3	850 FT	3" TRAFFIC SIGNAL CONDUIT
811.31	8	PULL BOX, 12" X 12"
811.23	1	ELECTRIC HANDHOLE, 24" X 24" (SD2.023)
811.22	2	ELECTRIC HANDHOLE, 12" X 24" (SD2.022)
PLUS ALL MISCELLANEOUS EQUIPMENT AND MATERIAL NECESSARY TO PROVIDE A COMPLETE OPERATING TRAFFIC CONTROL SIGNAL.		

BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	69	103
PROJECT FILE NO.		609250	

TRAFFIC SIGNAL PLAN
LOCATION 2:
BOSTON ROAD (ROUTE 3A)
AT LEXINGTON ROAD/
GLAD VALLEY DRIVE

PRE-EMPTION PHASING & PRIORITY

RECEIVER AND PRIORITY	PRE-EMPT PHASE ASSIGNMENT	MOVEMENT	VEHICLE PHASE ASSIGNMENT
R1	1	SB	Ø6
R2	2	NB	Ø2 & Ø5
R3	3	NE	Ø4 & OL C
R4	4	EB	Ø3 & OL B

EMERGENCY PREEMPTION NOTES:

- UPON PREEMPTION ACTIVATION, PHASE(S) BEING SERVICED SHALL IMMEDIATELY BEGIN CLEARANCE (I.E., YELLOW AND ALL RED) AS DESIGNED, EXCEPT FOR WHEN PHASE(S) CALLED BY PREEMPTION ARE CURRENTLY IN SERVICE. WHEN PHASE(S) CURRENTLY IN SERVICE MATCH PHASE(S) CALLED BY PREEMPTION, SIGNAL INDICATIONS ARE MAINTAINED. HOWEVER, PREEMPTION OPERATION (I.E. TIMING) SUPERCEDES NORMAL TRAFFIC SIGNAL CONTROL.
- AFTER THE PREEMPTION SEQUENCE HAS TERMINATED, THE SIGNAL SHALL RETURN TO THE BEGINNING OF Ø2 & Ø6.
- THE PREEMPTION STROBE SHALL BE ILLUMINATED ONLY WHEN THE PREEMPTED PHASE IS DISPLAYING A GREEN INDICATION.
- A SEPARATE CABLE SHALL BE RUN FOR THE PREEMPTION STROBE. IT MAY NOT BE RUN ON THE SPARE SIGNAL CABLE.
- EMERGENCY PREEMPTION SHALL COME ON A FIRST-COME FIRST-SERVED BASIS.
- EMERGENCY PREEMPTION CALLS VIA OPTICAL DETECTOR SHALL HAVE A 10 SECOND MINIMUM AND 60 SECOND MAX TIME.

BOSTON ROAD/LEXINGTON ROAD/GLAD VALLEY DRIVE CONSTRUCTION PHASING SEQUENCE

PHASE 1 - SITE PREPARATION

- INSTALL ADVANCE WARNING SIGNS AND OTHER TEMPORARY TRAFFIC CONTROL DEVICES AS SHOWN IN TEMPORARY TRAFFIC CONTROL PLANS OR REQUIRED BY THE ENGINEER.
- PERFORM TREE REMOVAL/TRIMMING IN PREPARATION FOR UTILITY POLE RELOCATIONS

PHASE 2 - UTILITY POLE RELOCATION

- INSTALL UNDERGROUND UTILITIES (DRAINAGE, WATER, AND TRAFFIC CONDUITS).
- RELOCATE EXISTING UTILITY POLES BY OTHERS.

PHASE 3 - MEDIAN ISLAND REMOVAL & CONSTRUCTION OF NEW ROADWAY

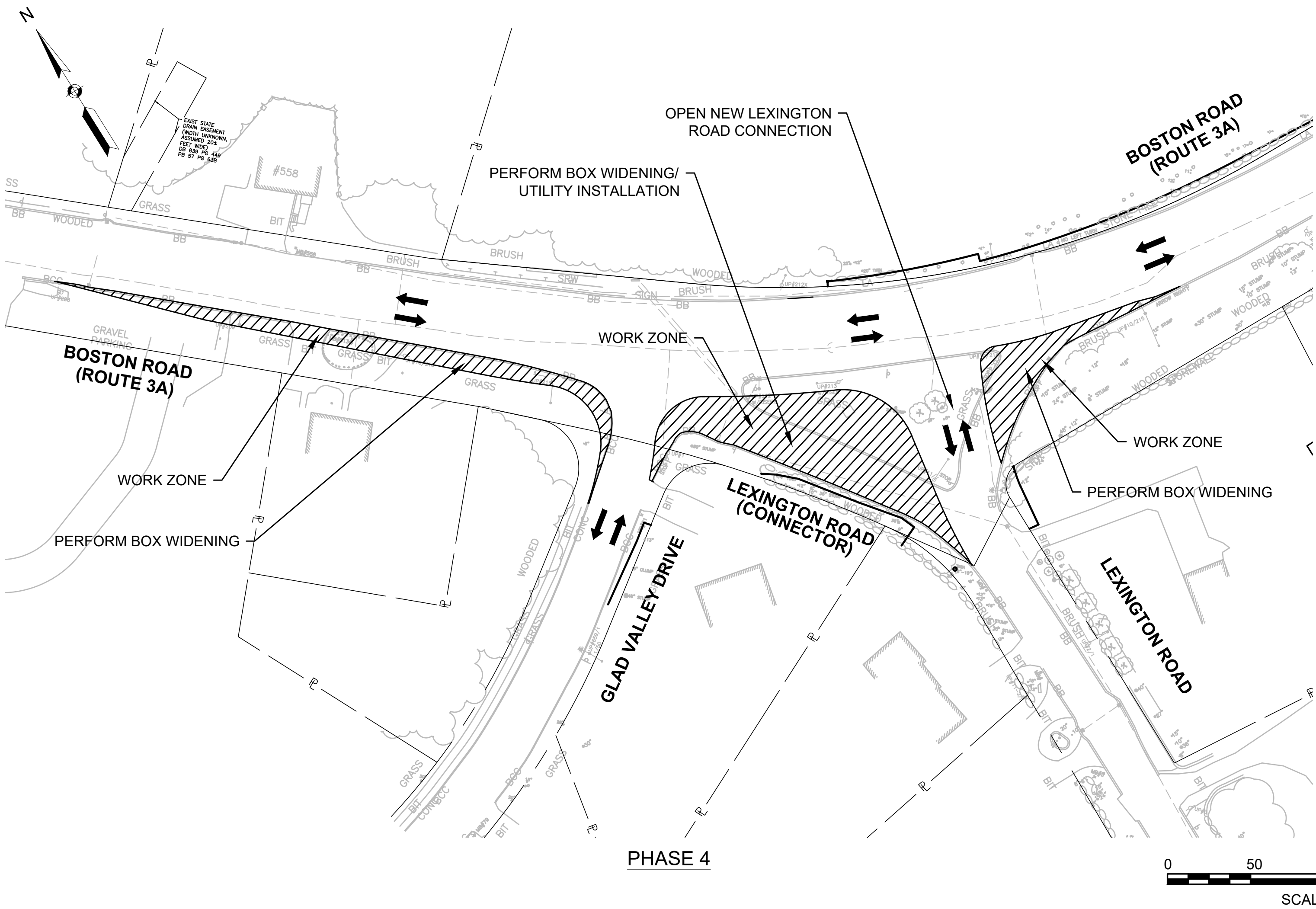
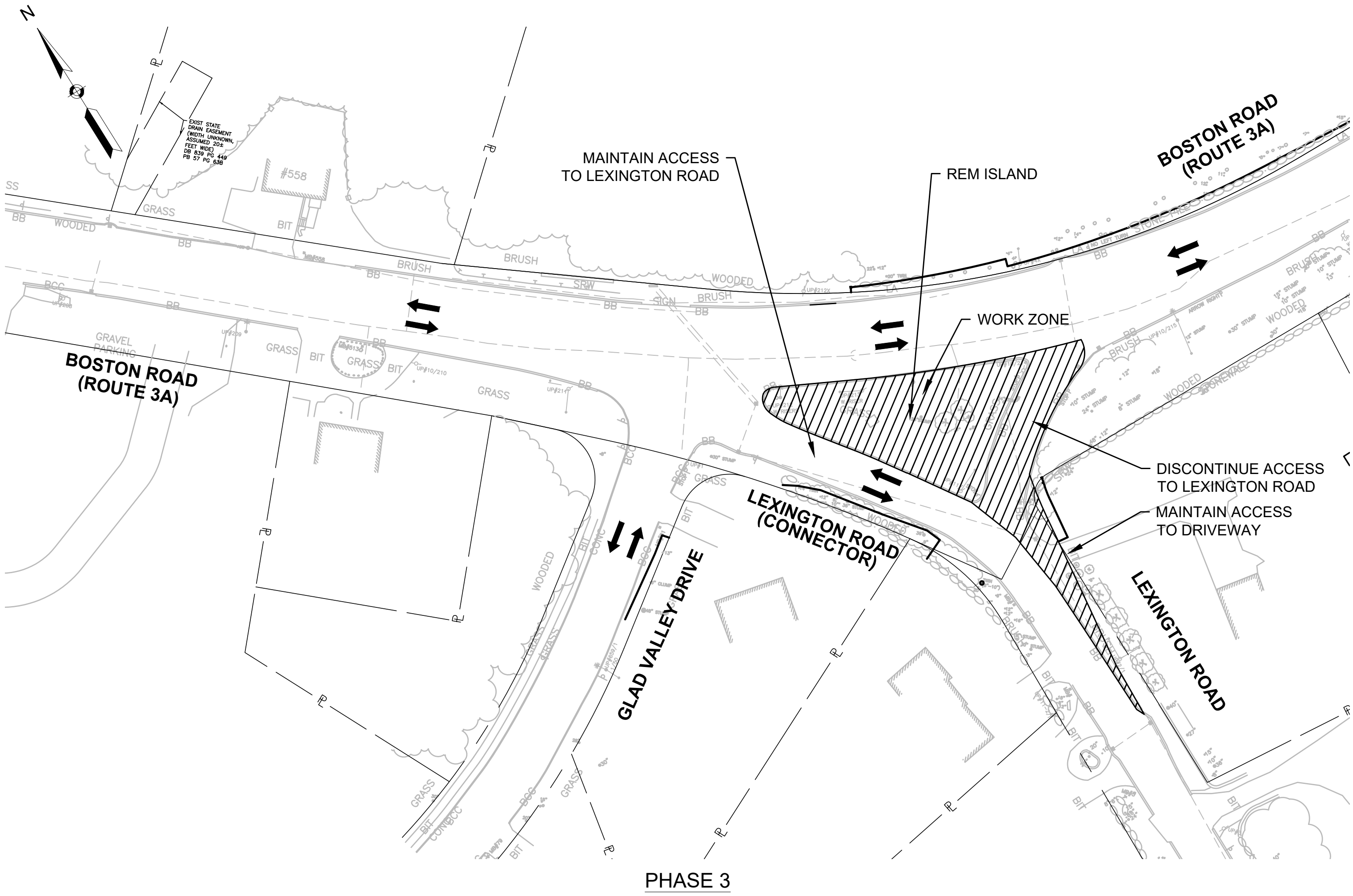
- DISCONTINUE ACCESS TO LEXINGTON ROAD.
- MAINTAIN ACCESS TO LEXINGTON ROAD (CONNECTOR).
- PERFORM FULL DEPTH CONSTRUCTION OF ISLAND AND LEXINGTON ROAD.
- INSTALL TEMP ROADWAY FOR FUTURE LEXINGTON ROAD CONNECTION UP TO BINDER COURSE PAVEMENT.
- INSTALL TEMPORARY PAVEMENT MARKINGS AND SIGNAGE AS DIRECTED BY THE ENGINEER. SEE TEMPORARY TRAFFIC CONTROL PLANS FOR ADDITIONAL DETAILS.
- OPEN TEMP ROADWAY TO TRAFFIC.

PHASE 4 - BOX WIDENING

- DISCONTINUE ACCESS TO LEXINGTON ROAD (CONNECTOR).
- PERFORM BOX WIDENING FOR ISLAND AND APPROACHES ALONG BOSTON ROAD.
- INSTALL UNDERGROUND UTILITIES IN AREAS OF BOX WIDENING.
- INSTALL PROPOSED CURB AND BINDER COURSE PAVEMENT.
- INSTALL TEMPORARY PAVEMENT MARKINGS AND SIGNAGE AS DIRECTED BY THE ENGINEER.SEE TEMPORARY TRAFFIC CONTROL PLANS FOR ADDITIONAL DETAILS.
- OPEN ROADWAY TO TRAFFIC.

PHASE 5 - TRAFFIC SIGNAL INSTALLATION

- INSTALL MAST ARM AND SIGNAL POST FOUNDATIONS, PULLBOXES AND CABINET.



BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	71	103
PROJECT FILE NO.		609250	

TEMPORARY TRAFFIC CONTROL PLAN

NOTES:

- ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE 2009 EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND ALL REVISIONS.
- ALL SIGN LEGENDS, BORDERS AND MOUNTING SHALL BE IN ACCORDANCE WITH THE MUTCD, EXCEPT THAT BACKGROUND COLOR SHALL BE FLUORESCENT ORANGE, IN ACCORDANCE WITH MASSDOT SPECIFICATIONS.
- TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
- 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.
- SIGNS AND SIGN SUPPORTS LOCATED ON OR NEAR THE TRAVELED WAY, AND REFLECTORIZED PLASTIC DRUMS WITH LIGHTING DEVICES MOUNTED ON THEM, MUST PASS THE CRITERIA SET FORTH IN NCHRP REPORT 350, "RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE EVALUATION OF HIGHWAY FEATURES" AND/OR "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH).
- CONTRACTORS SHALL NOTIFY EACH ABUTTER AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OF ACCESS, SUCH AS CONDUIT INSTALLATION, EXISTING PAVEMENT EXCAVATION, TEMPORARY DRIVEWAY PAVEMENT PLACEMENT AND SIMILAR OPERATIONS.
- THE FIRST TEN PLASTIC DRUMS OF A TAPER SHALL BE MOUNTED WITH SEQUENTIAL FLASHING LIGHTS.
- THE ADVISORY SPEED LIMIT, IF REQUIRED, SHALL BE DETERMINED BY THE ENGINEER.
- DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
- MAXIMUM SPACING OF TRAFFIC DEVICES IN A TAPER (DRUMS OR CONES) IS EQUAL IN FEET TO THE SPEED LIMIT IN MPH.
- MINIMUM LANE WIDTH IS TO BE 11 FEET UNLESS OTHERWISE SHOWN. MINIMUM LANE WIDTH TO BE MEASURED FROM THE EDGE OF DRUMS OR MEDIAN BARRIER.
- ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS.
- TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER NECESSARY WORK ZONE TRAFFIC CONTROL NOT COVERED IN THE PLAN SHALL REFER TO MASSDOT "STANDARD DETAILS AND DRAWINGS FOR THE DEVELOPMENT OF TRAFFIC MANAGEMENT PLANS".
- NO WORK REQUIRING LANE CLOSURES SHALL BE ALLOWED BETWEEN 6:00 AND 9:00 AM OR BETWEEN 3:00 AND 6:00 PM.
- OVERNIGHT WORK HOURS, 9PM-5AM, WILL BE REQUIRED FOR LOCATIONS USING ONE LANE ALTERNATING TRAFFIC CLOSURES.

LEGEND:

- REFLECTORIZED PLASTIC DRUM
- TYPE III BARRICADE
- FLASHING ARROW PANEL
- FLASHING ARROW PANEL
- WORK ZONE
- DIRECTION OF TRAFFIC
- IMPACT ATTENUATOR
- MEDIAN BARRIER
- MEDIAN BARRIER WITH WARNING LIGHTS
- WORK VEHICLE
- TRUCK MOUNTED ATTENUATOR
- TRAFFIC OR PEDESTRIAN SIGNAL
- SIGN
- P POLICE DETAIL
- F FLAGGER

PCMS-1 PCMS-2	ROUTE 3A ROAD WORK	STARTS XX/XX
	FRAME 1	FRAME 2

NOTE: MESSAGE TO BE DISPLAYED TWO WEEKS PRIOR TO ROUTE 3A ROAD WORK.

PCMS-1 PCMS-2	ROUTE 3A ROAD WORK	SEEK ALT ROUTE
	FRAME 1	FRAME 3

NOTE: MESSAGE TO BE DISPLAYED FOR THE FIRST TWO WEEKS OF ROUTE 3A ROAD WORK.

PCMS MESSAGES

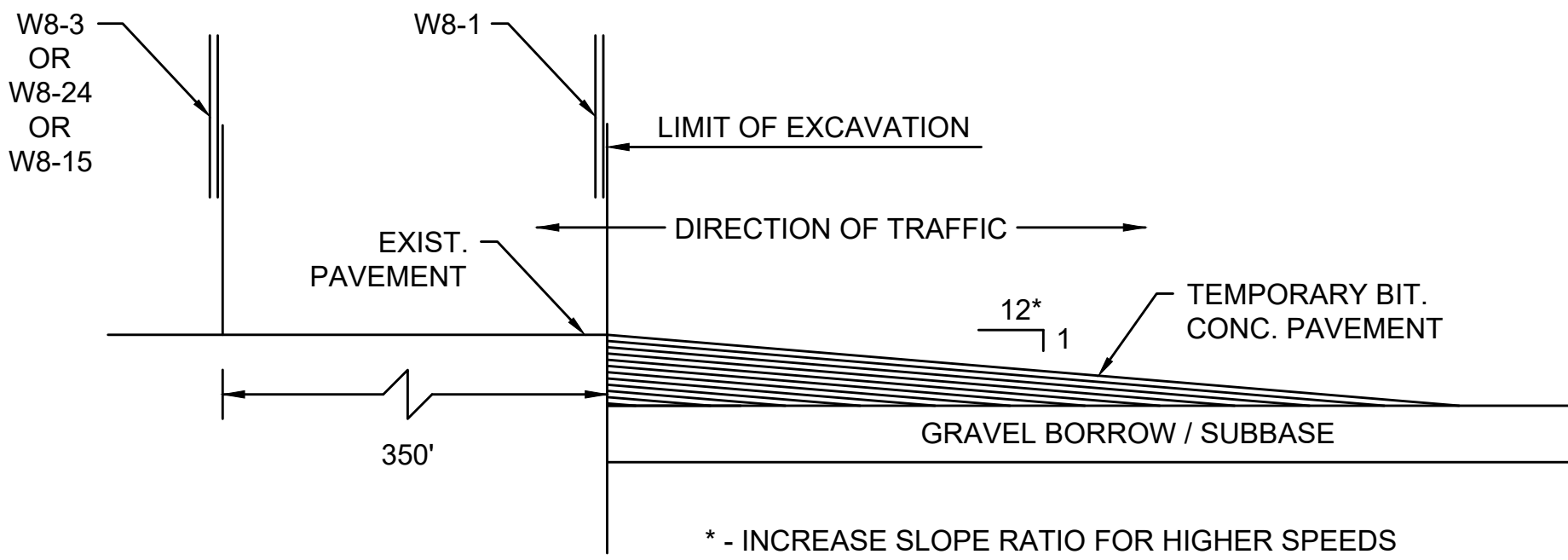
WORK ZONE SIGN SPACING

ROAD TYPE	DISTANCE BETWEEN SIGNS (IN FEET) *			PROJECT ROADWAY CLASSIFICATION
	A	B	C	
LOCAL/LOW VOLUME ROADWAYS	350	350	350	TOWER FARM ROAD INNIS DRIVE TUFTS LANE GLAD VALLEY DRIVE LEXINGTON ROAD BERTHA CIRCLE LOCKE ROAD
MOST OTHER ROADWAYS	500	500	500	BOSTON ROAD
FREEWAYS AND EXPRESSWAYS	1,000	1,000	1,000	

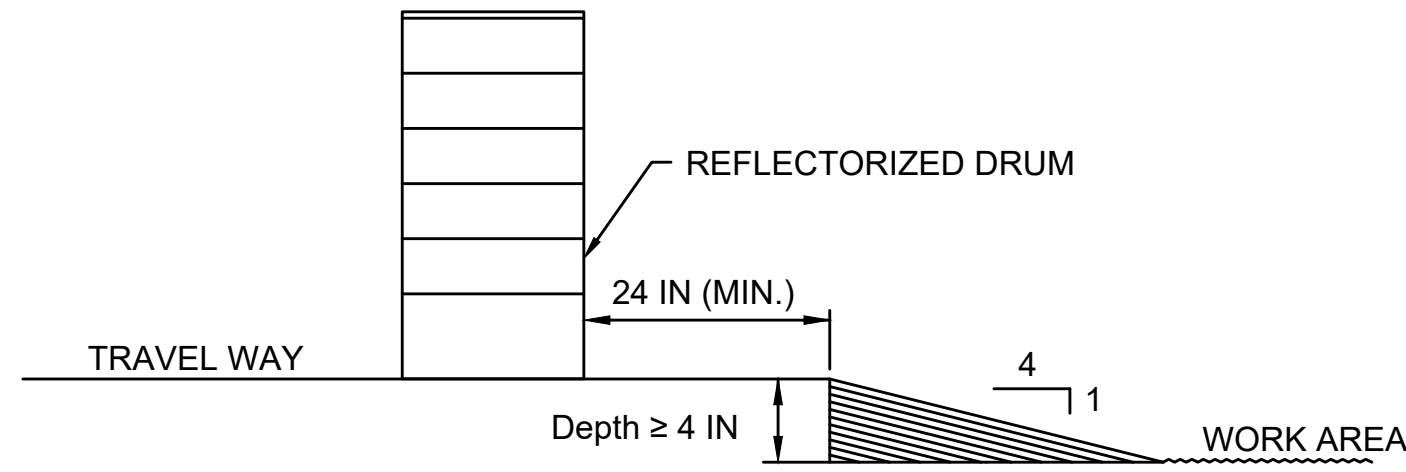
* A = DISTANCE FROM TRANSITION/POINT OF RESTRICTION TO FIRST SIGN

B = DISTANCE BETWEEN FIRST AND SECOND SIGN

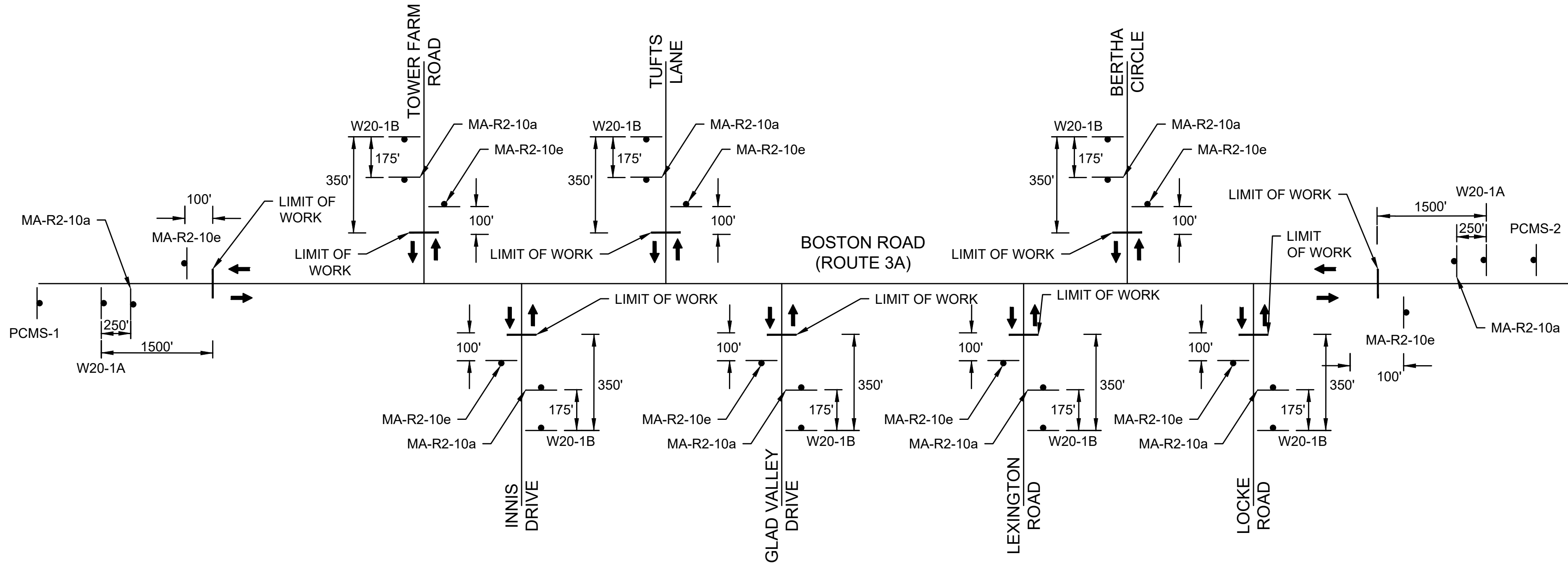
C = DISTANCE BETWEEN SECOND AND THIRD SIGN (INITIAL WARNING SIGN)



LONGITUDINAL DROP-OFF DETAIL
NOT TO SCALE



LATERAL DROP-OFF DETAIL
NOT TO SCALE



TYPICAL INTERSECTION
PROJECT LIMIT SIGNING

NOT TO SCALE

TAPER LENGTH

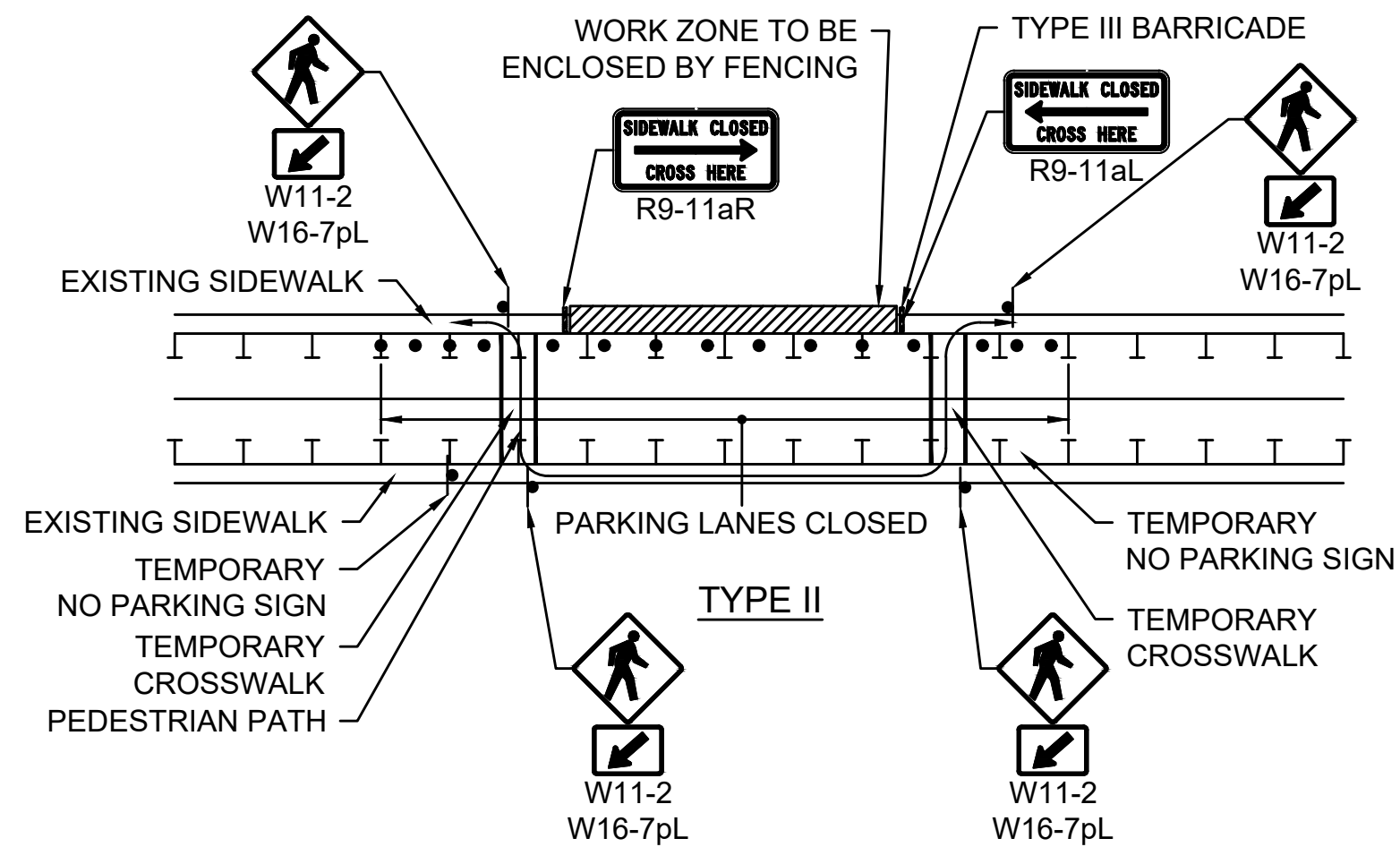
SPEED LIMIT	FORMULA	POSTED SPEED/ 85TH PERCENTILE
40 MPH OR LESS	$L = (W \cdot S^2) / 60$	40 MPH (85TH PERCENTILE) BOSTON ROAD
		38 MPH (85TH PERCENTILE) LEXINGTON ROAD
		28 MPH (85TH PERCENTILE) GLAD VALLEY DRIVE
45 MPH OR GREATER	$L = W \cdot S$	N/A

WHERE:

L = TAPER LENGTH IN FEET

W = WIDTH OF OFFSET IN FEET

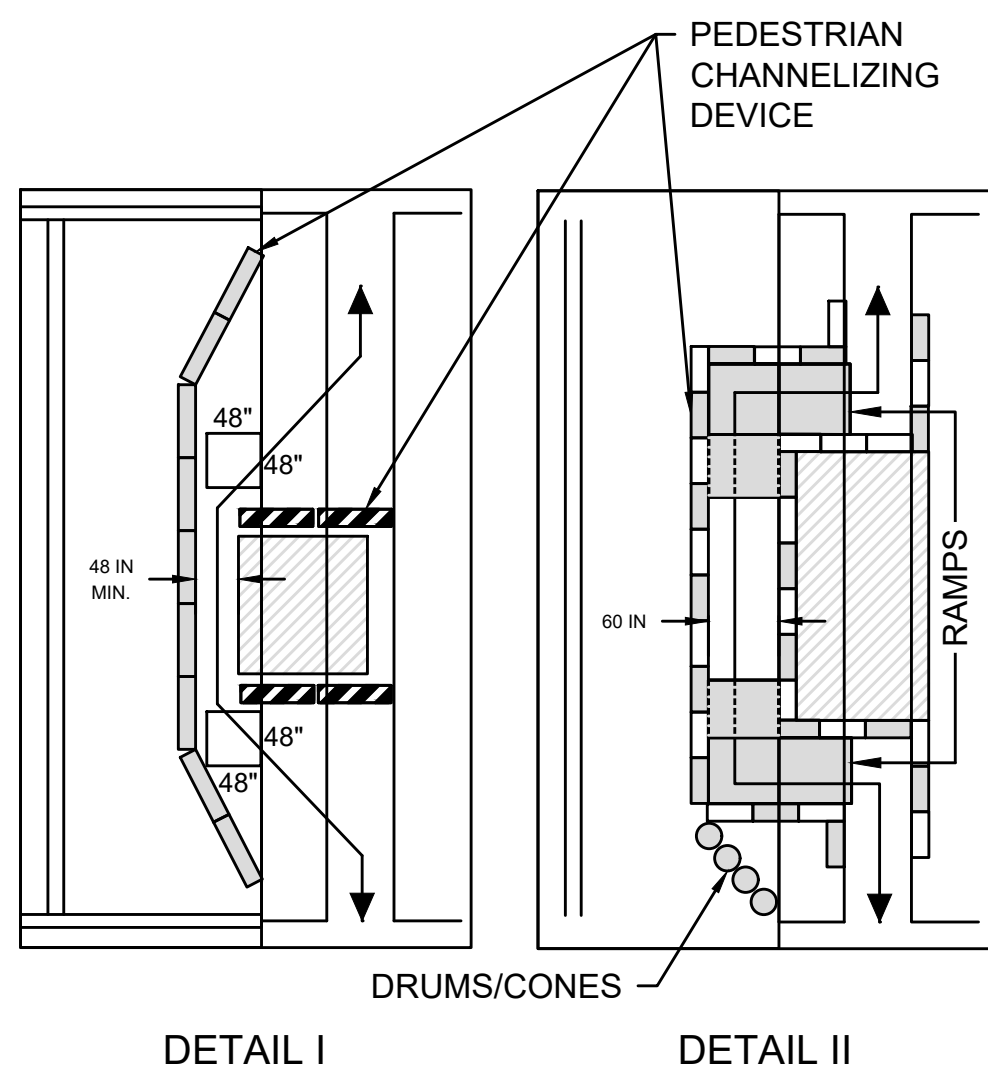
S = POSTED SPEED LIMIT, OR OFF-PEAK 85TH PERCENTILE SPEED PRIOR TO WORK STARTING IN MPH



NOTES:

1. ADDITIONAL ADVANCE WARNING MAY BE NECESSARY.
2. CONTROLS ONLY FOR PEDESTRIAN TRAFFIC ARE SHOWN. VEHICULAR TRAFFIC SHOULD BE HANDLED AS SHOWN ELSEWHERE.
3. STREET LIGHTING SHOULD BE CONSIDERED WHEN LOCATING CONTROL DEVICES.
4. IF THE WORK ZONE DOES NOT PERMIT PEDESTRIANS TO TRAVEL ADJACENT TO IT, TEMPORARY CROSSWALKS WITH APPROPRIATE SIGNS SHOULD BE INSTALLED TO CROSS PEDESTRIANS TO THE OPPOSITE SIDE OF THE STREET AS SHOWN IN PEDESTRIAN BYPASS, AND AS DIRECTED BY THE ENGINEER. TEMPORARY CURB RAMPS WILL BE REQUIRED AT ALL TEMPORARY CROSSWALK LOCATIONS.
5. BYPASS IS TO BE USED IN CONJUNCTION WITH THE PROPOSED LANE CLOSURE DETAILS AND DURING CONSTRUCTION STAGING, AS DIRECTED BY THE ENGINEER.
6. THE TEMPORARY SIDEWALK SHOULD BE A MINIMUM OF 4 FEET WIDE. IF THIS WALKWAY EXCEEDS 200 FEET THEN A 5 FOOT X 5 FOOT PASSING ZONE.

PEDESTRIAN BYPASS DETAILS
NOT TO SCALE

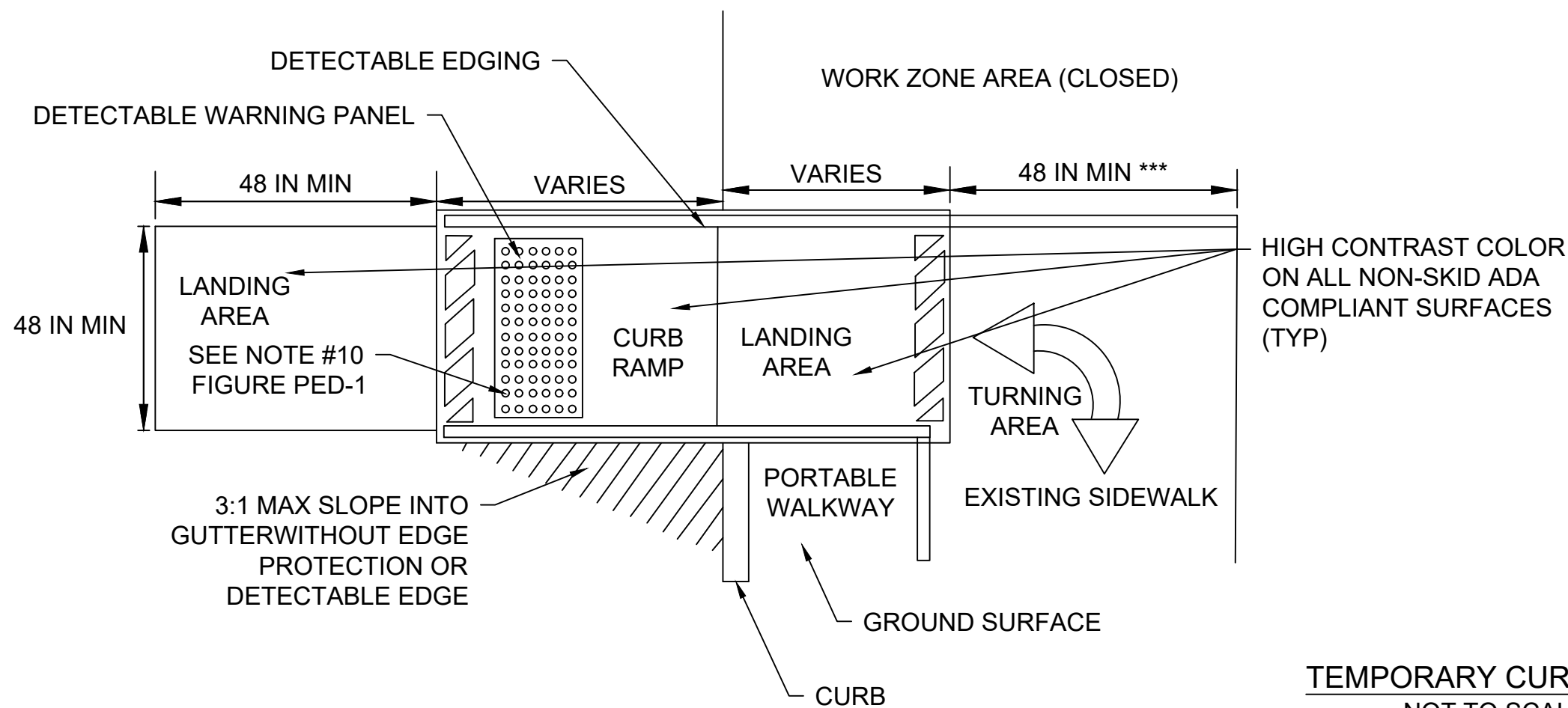


NOTES:

- DETAIL I IS CONSIDERED AN EXAMPLE OF A SHORT TERM CLOSURE AND PEDESTRIAN ASSISTANCE (PERSONEL) TO NAVIGATE AROUND THE CLOSURE/WORK AREA COULD BE CONSIDERED AS AN OPTION IN PLACE OF PROVIDING ADA/AAB DEVICES. DETAIL II IS CONSIDERED AN EXAMPLE OF A LONG TERM CLOSURE THAT WOULD REQUIRE ADDITIONAL ADA/AAB COMPLIANT DEVICES. IF A SIDEWALK CLOSURE OR RESTRICTION LASTS FOR MORE THAN ONE (1) WORK SHIFT THEN ADA/AAB COMPLIANCE SHALL BE FOLLOWED.
- WHEN EXISTING PEDESTRIAN FACILITIES ARE DISRUPTED, CLOSED, OR RELOCATED IN A TTC ZONE, TEMPORARY FACILITIES SHALL BE PROVIDED AND THEY SHALL BE DETECTABLE AND INCLUDE ACCESSIBILITY FEATURES CONSISTENT WITH THE FEATURES PRESENT IN THE EXISTING PEDESTRIAN FACILITY.
- A PEDESTRIAN CHANNELIZING DEVICE THAT IS DETECTABLE BY A PERSON WITH A VISUAL DISABILITY TRAVELING WITH THE AID OF A LONG CANE SHALL BE PLACED ACROSS THE FULL WIDTH OF THE CLOSED SIDEWALK.
- WHEN USED, TEMPORARY RAMPS SHALL COMPLY WITH AMERICANS WITH DISABILITIES ACT (SEE FIGURES).
- THE ALTERNATE PATHWAY SHOULD HAVE A SMOOTH CONTINUOUS HARD SURFACE FOR THE ENTIRE LENGTH OF THE TEMPORARY PEDESTRIAN FACILITY.
- THE TEMPORARY SIDEWALK SHOULD BE A MINIMUM OF 4 FEET WIDE. IF THE SIDEWALK EXCEEDS 200 FEET THEN A 5 FOOT BE 5 FOOT PASSING ZONE SHALL BE PROVIDED.
- THE PROTECTIVE REQUIREMENTS OF A TTC WORK ZONE MAY HAVE AN IMPACT IN DETERMINING THE NEED FOR TEMPORARY TRAFFIC BARRIERS AND THEIR USE IN PROVIDING PEDESTRIAN DELINEATION SHOULD BE BASED ON ENGINEERING JUDGMENT.
- CONTROLS ONLY FOR PEDESTRIAN TRAFFIC ARE SHOWN; VEHICULAR TRAFFIC SHOULD BE HANDLED AS SHOWN ELSEWHERE. THESE DETAILS ARE USED IN CONJUNCTION WITH THE PROPOSED LANE CLOSURE DETAILS AND DURING CONSTRUCTION STAGING, AS DETERMINED BY THE ENGINEER.
- AUDIBLE INFORMATION DEVICES SHOULD BE CONSIDERED WHERE MIDBLOCK CLOSINGS AND CHANGED CROSSWALK AREAS CAUSE INADEQUATE COMMUNICATION TO BE PROVIDED TO PEDESTRIANS WHO HAVE VISUAL DISABILITIES.
- EXISTING AUDIBLE DEVICES NO LONGER APPLICABLE DUE TO CONSTRUCTION SHALL BE DISABLED.

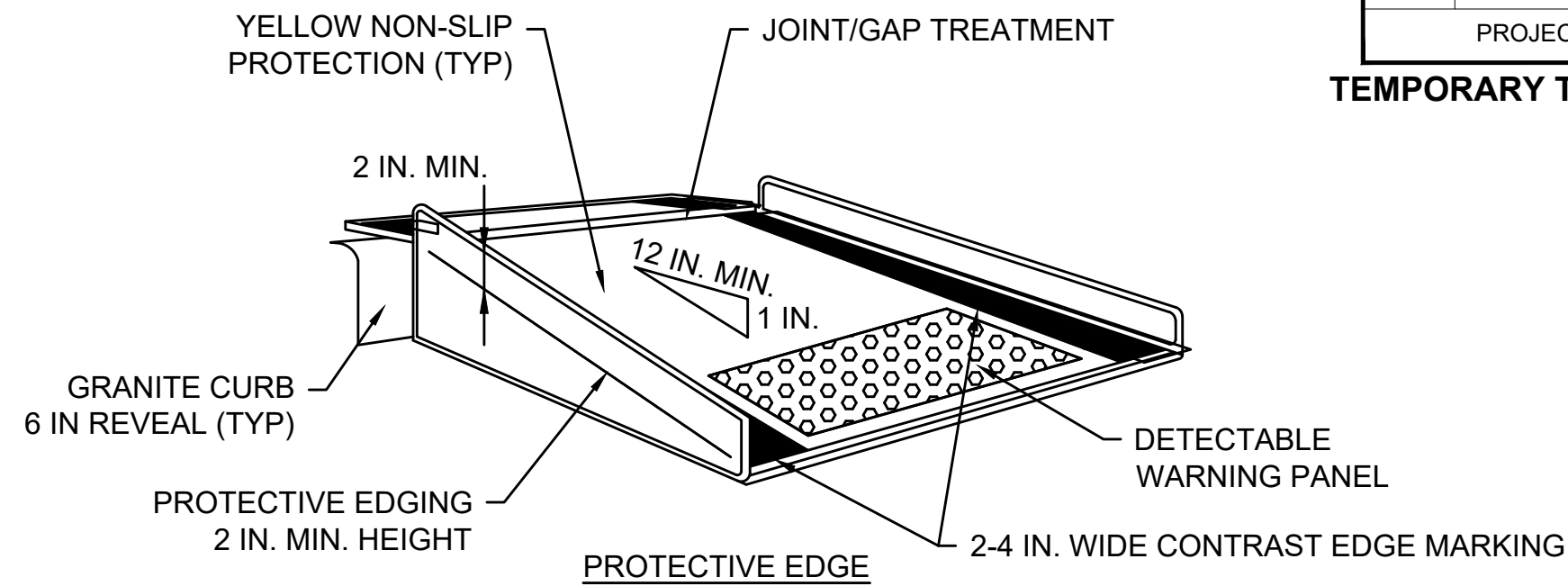
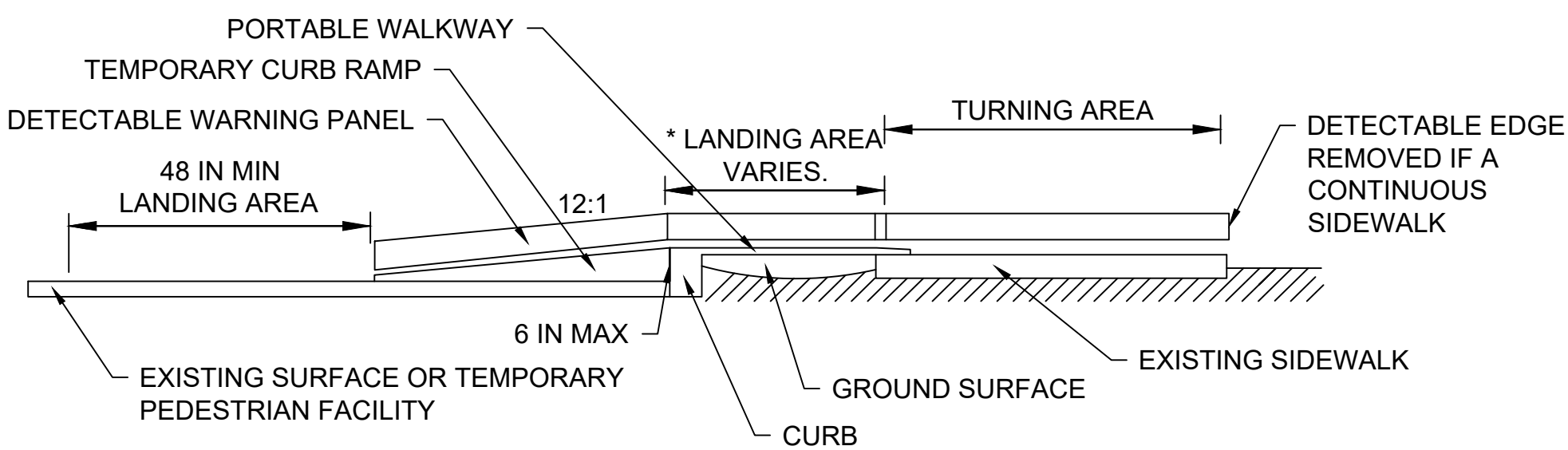
AUDIBLE DEVICES:

- FOR LONG TERM SIDEWALK CLOSURES (AT A MINIMUM OVERNIGHT) A FORM OF SPEECH MESSAGING FOR PEDESTRIANS WITH VISUAL DISABILITIES SHALL BE PROVIDED. AUDIBLE INFORMATION DEVICES SUCH AS DETECTABLE BARRIERS OR BARRICADES AND OTHER PASSIVE PEDESTRIAN ACTIVATION (MOTION ACTIVATED) DEVICES SHOULD BE CONSIDERED FOR THESE CASES. THESE AUDIBLE DEVICES CAN BE MOUNTABLE OR STAND ALONE.

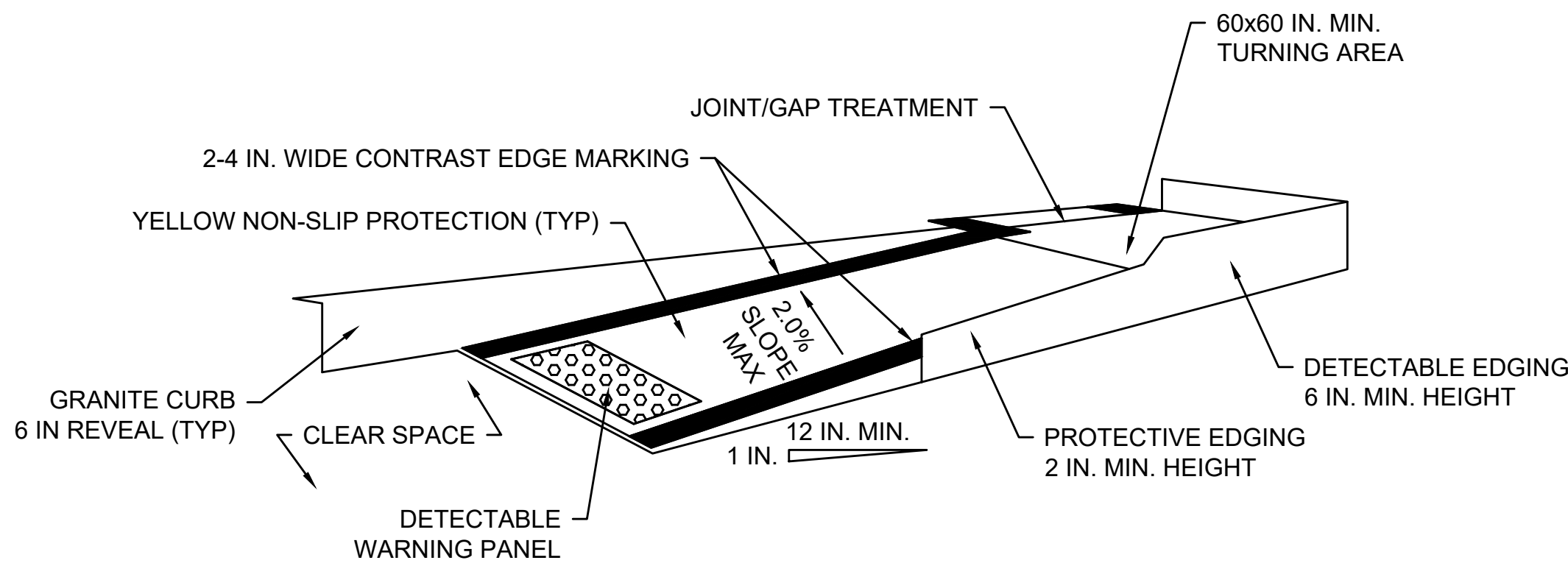


TEMPORARY CURB RAMP
NOT TO SCALE

- * LANDING AREA USED TO OVERLAP NON-ADA COMPLIANT SURFACES.
- ** DETECTABLE EDGE REMOVED IF A CONTINUOUS SIDEWALK.
- *** 60 IN. IF AN OBSTRUCTION IS AT BACK OF SIDEWALK



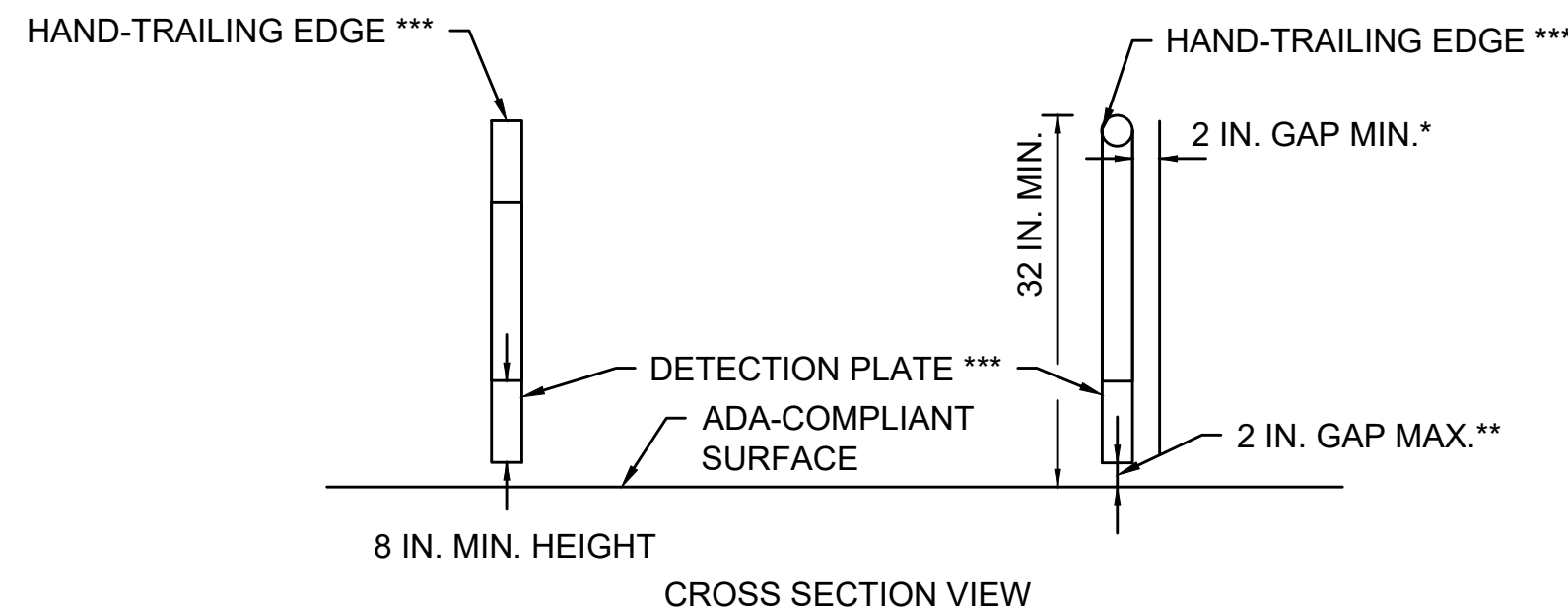
TEMPORARY CURB RAMP-PERPENDICULAR TO CURB
NOT TO SCALE



TEMPORARY CURB RAMP-PARALLEL TO CURB
NOT TO SCALE

NOTES:

1. CURB RAMPS SHALL BE 60 IN. MINIMUM WIDTH WITH A FIRM, STABLE AND NON-SLIP SURFACE.
2. PROTECTIVE EDGING WITH A 2 IN. MINIMUM HEIGHT SHALL BE INSTALLED WHEN THE CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6 IN. OR GREATER OR HAS A SIDE APRON SLOP STEEPER THAN 1:3 (33%). PROTECTIVE EDGING SHOULD BE CONSIDERED WHEN THE CURB RAMPS OR LANDING PLATFORMS HAVE A VERTICAL DROP OF 3 IN. OR MORE.
3. DETECTABLE EDGING WITH 6 IN. MINIMUM HEIGHT AND CONTRASTING COLOR SHALL BE INSTALLED ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION (TURNS).
4. THE CURB RAMP WALKWAY AND LANDING AREA SURFACE SHALL BE OF A SOLID CONTINUOUS CONTRASTING COLOR ABUTTING UP TO THE EXISTING SIDEWALK.
5. CURB RAMPS AND LANDINGS SHOULD HAVE A 1:50 (2%) MAX CROSS-SLOPE.
6. CLEAR SPACE OF 48x48 IN. MINIMUM SHALL BE PROVIDED ABOVE AND BELOW THE CURB RAMP.
7. WATER FLOW IN THE GUTTER SYSTEM SHALL HAVE MINIMAL RESTRICTION.
8. LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE LESS THAN 0.5 IN. WIDTH.
9. CHANGES BETWEEN SURFACE HEIGHTS SHOULD NOT EXCEED 0.5 IN. LATERAL EDGES SHOULD BE VERTICAL UP TO 0.25 IN. HIGH, AND BEVELED AT 1:2 BETWEEN 0.25 IN. AND 0.5 IN. HEIGHT.
10. IF A TEMPORARY PEDESTRIAN RAMP LEADS TO A CROSSWALK, THEN A DETECTABLE WARNING PAD MUST BE ADHERED TO THE BASE OF THE RAMP. IF IT LEADS TO A PROTECTED PEDESTRIAN BYPASS THAT DOES NOT CONFLICT WITH VEHICULAR TRAFFIC, THEN A PAD SHALL NOT BE INSTALLED ON THE RAMP.



PEDESTRIAN CHANNELIZING DEVICE
NOT TO SCALE

NOTES:

- * THERE SHALL BE A 2 INCH GAP BETWEEN THE HAND-TRAILING EDGE AND ITS SUPPORT.
- ** A MAXIMUM 2 INCH GAP BETWEEN THE BOTTOM OF THE BOTTOM RAIL AND THE SURFACE MAY BE USED TO PROVIDE DRAINAGE.
- *** THE HAND-TRAILING EDGE AND DETECTION PLATE SHALL BE CONTINUOUS THROUGHOUT THE LENGTH OF THE PATH SUCH THAT A PEDESTRIAN USER WITH A LONG CANE CAN FOLLOW IT.

BILLERICA

BOSTON RD (ROUTE 3A)

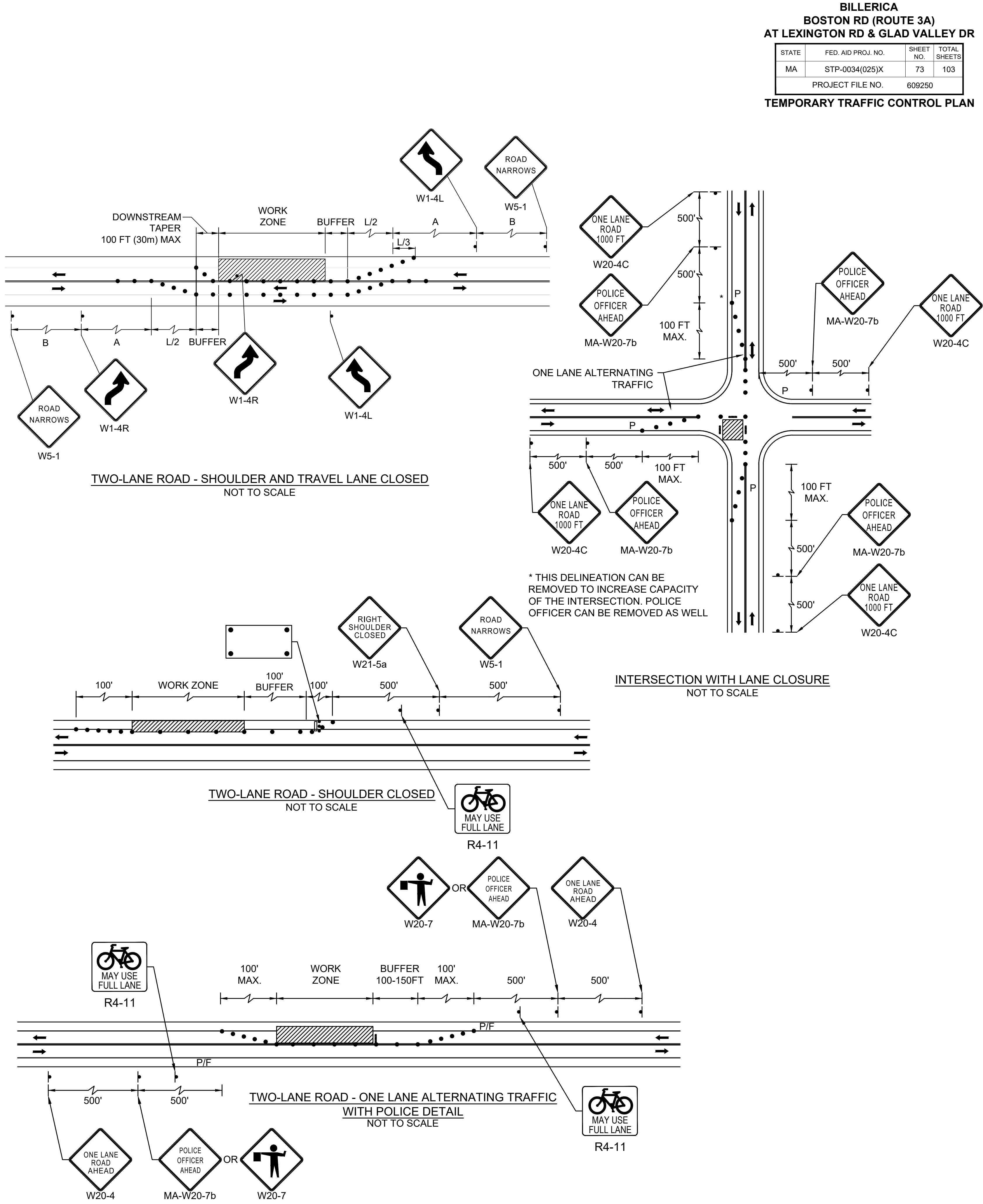
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	72	103
PROJECT FILE NO.		609250	

TEMPORARY TRAFFIC CONTROL PLAN

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			UNIT AREA IN SQUARE FEET	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW		BACK-GROUND	LEGEND	BORDER		
MA-R2-10a	48 in	36 in	WORK ZONE SPEEDING FINES DOUBLED	SEE MASSDOT STANDARDS			9	ORANGE* /WHITE	BLACK	BLACK	12.0	108.0
MA-R2-10e	36 in	48 in	END ROAD WORK DOUBLE FINES END				9	ORANGE* /WHITE	BLACK	BLACK	12.0	108.0
R4-11	30 in	30 in		SEE 2009 MUTCD STANDARDS			4	WHITE	BLACK	BLACK	6.25	25.0
R9-11aL	24 in	12 in					1	WHITE	BLACK	BLACK	2.0	2.0
R9-11aR	24 in	12 in					1	WHITE	BLACK	BLACK	2.0	2.0
W1-4R	36 in	36 in					2	ORANGE*	BLACK	BLACK	9.0	18.0
W1-4L	36 in	36 in					2	ORANGE*	BLACK	BLACK	9.0	18.0
W5-1	36 in	36 in					2	ORANGE*	BLACK	BLACK	9.0	18.0
W8-1	36 in	36 in					4	ORANGE*	BLACK	BLACK	9.0	36.0
W8-3	36 in	36 in					4	ORANGE*	BLACK	BLACK	9.0	36.0
W8-15	36 in	36 in					4	ORANGE*	BLACK	BLACK	9.0	36.0
W8-24	36 in	36 in					4	ORANGE*	BLACK	BLACK	9.0	36.0
W11-2	30 in	30 in					4	FYG	BLACK	BLACK	6.25	25.0
W16-7pL	24 in	12 in					4	FYG	BLACK	BLACK	2.0	8.0
W20-1A	36 in	36 in					2	ORANGE*	BLACK	BLACK	9.0	18.0
W20-1B	36 in	36 in					7	ORANGE*	BLACK	BLACK	9.0	63.0
W20-4	36 in	36 in					4	ORANGE*	BLACK	BLACK	9.0	36.0
W20-4C	36 in	36 in					4	ORANGE*	BLACK	BLACK	9.0	36.0
W20-7	36 in	36 in					4	ORANGE*	BLACK	BLACK	9.0	36.0
MA-W20-7b	36 in	36 in		SEE MASSDOT STANDARDS			4	ORANGE*	BLACK	BLACK	9.0	36.0
W21-5aR	36 in	36 in		SEE 2009 MUTCD STANDARDS			2	ORANGE*	BLACK	BLACK	9.0	18.0

- NOTES:
- NUMBER OF SIGNS ARE ESTIMATED FOR BIDDING PURPOSES ONLY.
 - HIGH INTENSITY ENCAPSULATED LENS REFLECTIVE SHEETING CONFORMING TO SECTION M9.30.0, TYPE III OR IV, OF THE MASSDOT STANDARD SPECIFICATIONS SHALL BE USED FOR ALL SIGNS.
 - SEE THE 2009 "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AND "STANDARD HIGHWAY SIGNS" FOR THE LATEST SPECIFICATIONS ON TEXT, DIMENSIONS AND COLOR. (ALSO SEE SECTION M9.30.0 TYPE III MASSDOT STANDARD SPECIFICATION, THE "MASSACHUSETTS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES," AND "GUIDE SIGN POLICY FOR SECONDARY STATE HIGHWAYS" (LATEST EDITIONS) BY THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION).
 - FYG: FLUORESCENT YELLOW GREEN.
 - * = FLUORESCENT ORANGE



TRAFFIC SIGNAL CONDUIT

SEE SHEET 68

WATER SUPPLY ALTERATIONS

NONE

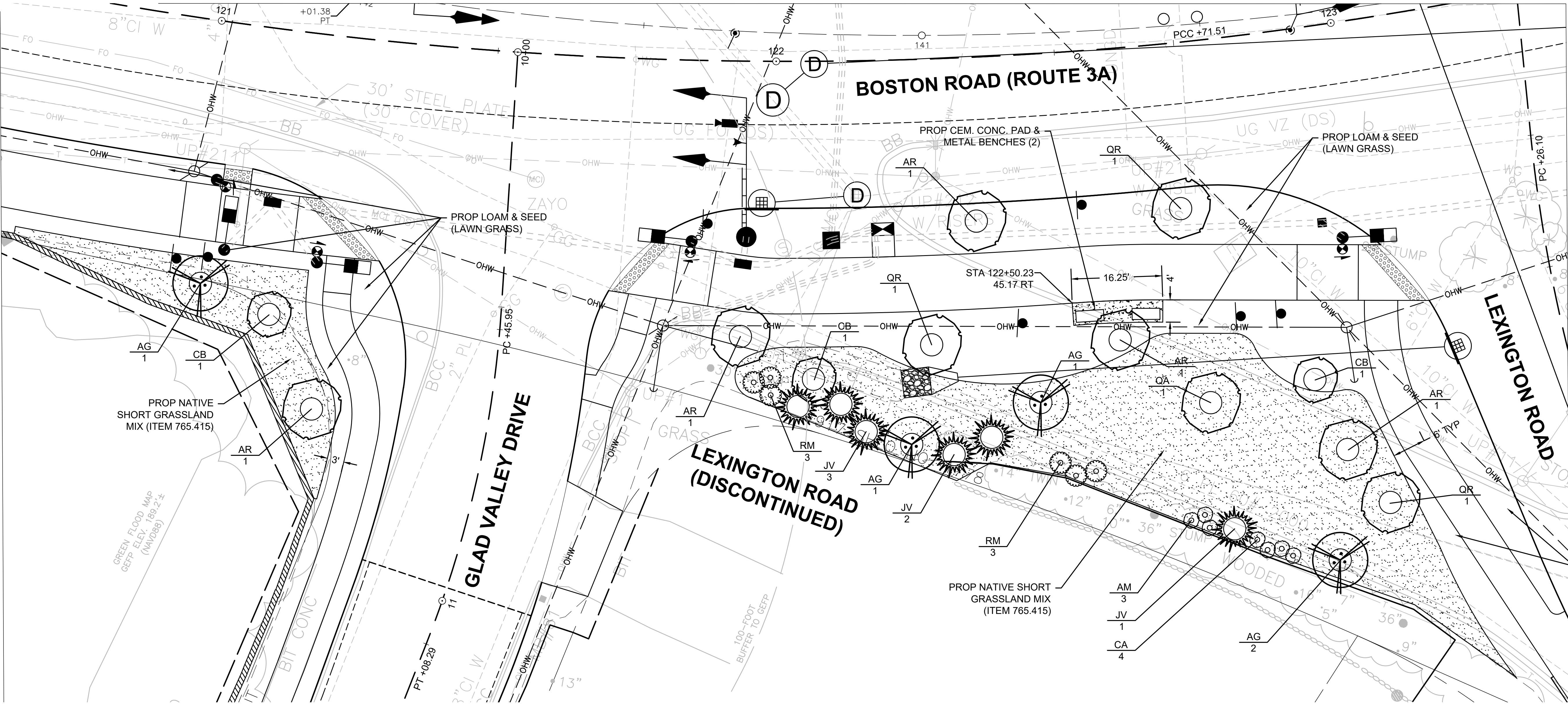
DRAINAGE & UTILITY DETAILS

SEE SHEET 41

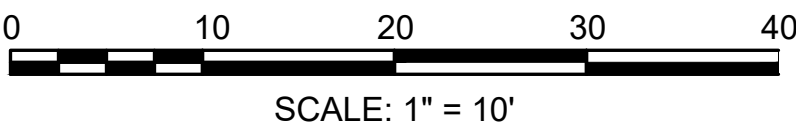
BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	74	103
PROJECT FILE NO.		609250	

LANDSCAPE PLAN

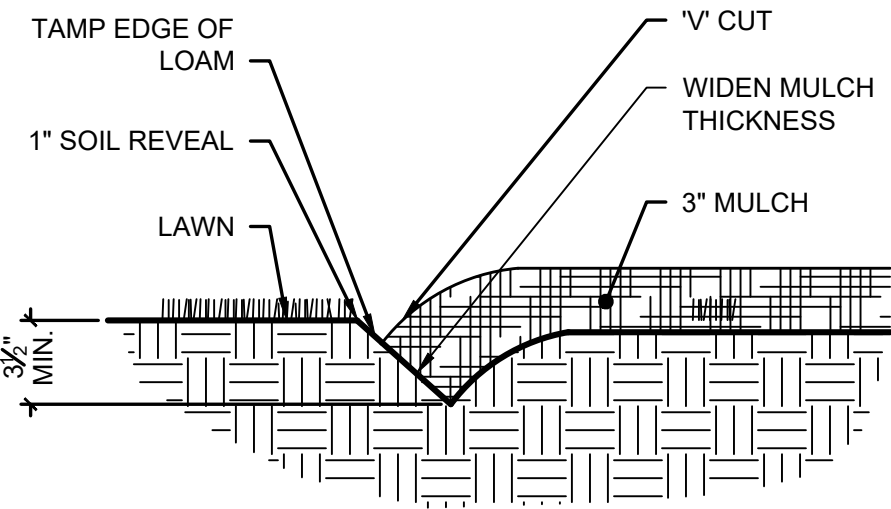


INTERSECTION PLANTING SITE PLAN



PLANT LIST - THIS SHEET

	KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
TREES						
	AR	5	Acer rubrum	MAPLE - RED	2-2.5" CAL	
	AG	4	Amelanchier x grandiflora 'Autumn Brilliance'	SERVICEBERRY - AUTUMN BRILLIANCE	7-8 HGT	
	CB	3	Carpinus betulus 'Frans Fontain'	HORNBEAM - COLUMNAR - FRANS FONTAINE	2-2.5" CAL	
	JV	6	Juniperus virginiana	CEDAR - RED	7-8" HGT	
	QA	1	Quercus alba	OAK - WHITE	2-2.5" CAL	
	QR	3	Quercus rubra	OAK - NORTHERN RED	2-2.5" CAL	
SHRUBS						
	AM	3	Aronia melanocarpa 'Viking'	CHOKEBERRY - BLACK	2-3' / #3	
	CA	4	Clethra alnifolia 'Compacta'	SUMMERSWEET SHRUB - COMPACT	3-4' / #3	
	RH	6	Rhododendron maximum 'Roseum'	RHODO - ROSEBAY	2-2.5 FT / 3 GAL	



NOTE:
LOCATE BEDLINE AS SHOWN ON PLAN.

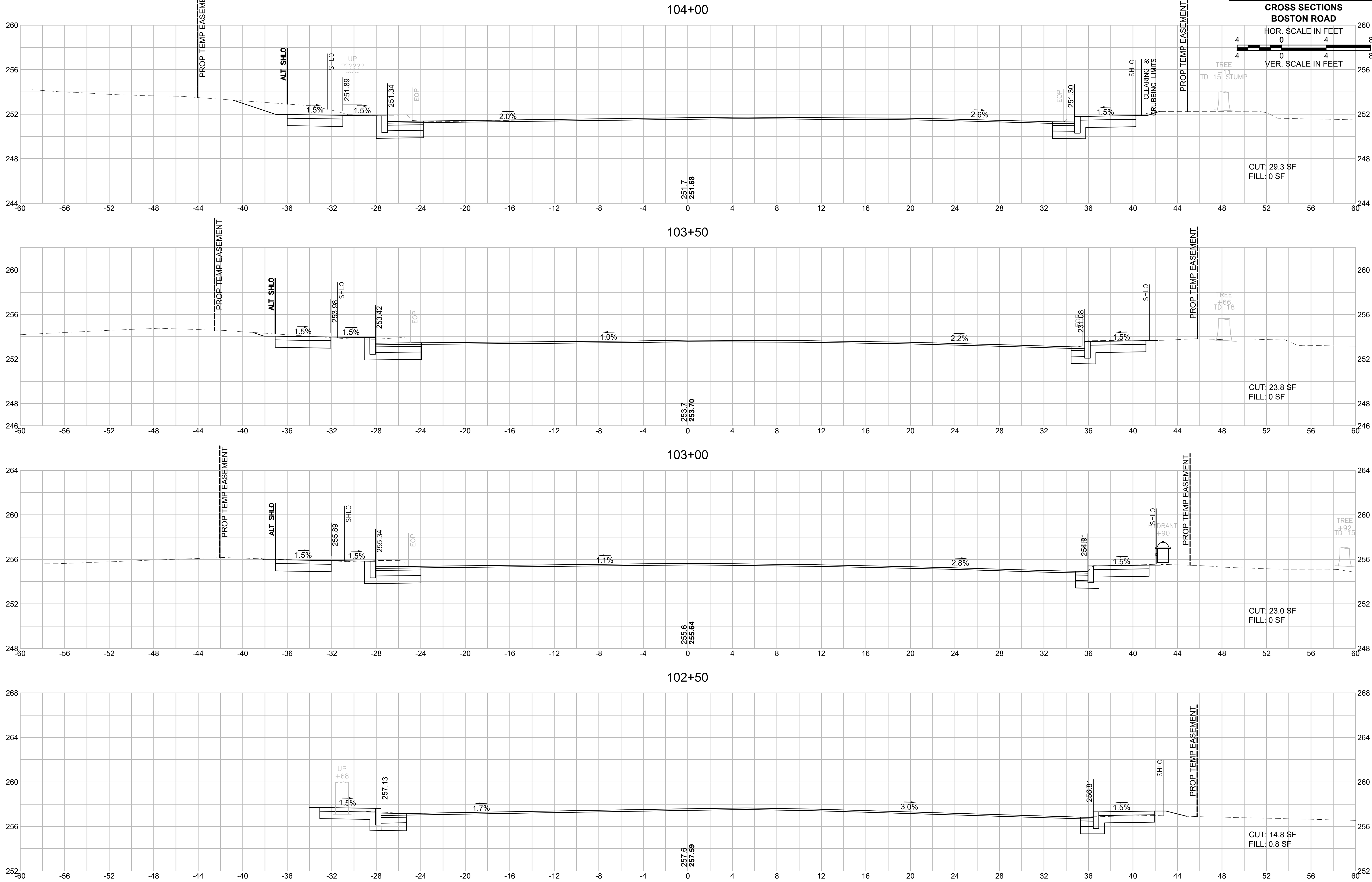
BEDLINE EDGE
NOT TO SCALE

BILLERICA

BOSTON RD (ROUTE 3A)

AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	75	103
PROJECT FILE NO.		609250	



104+00

251.7
251.68

CUT: 29.3 SF
FILL: 0 SF

103+50

253.7
253.70

CUT: 23.8 SF
FILL: 0 SF

103+00

255.6
255.64

CUT: 23.0 SF
FILL: 0 SF

102+50

257.6
257.59

CUT: 14.8 SF
FILL: 0.8 SF

BILLERICA

BOSTON RD (ROUTE 3A)

AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	76	103
PROJECT FILE NO. 609250			



BILLERICA

BOSTON RD (ROUTE 3A)

AT LEXINGTON RD & GLAD VALLEY DR

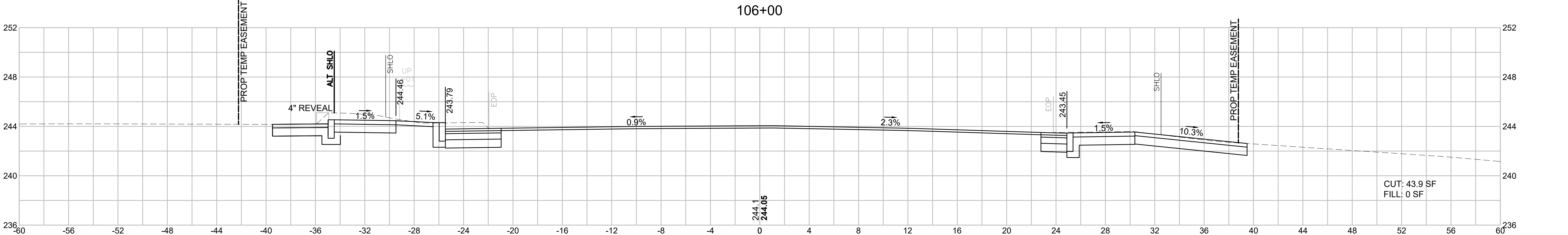
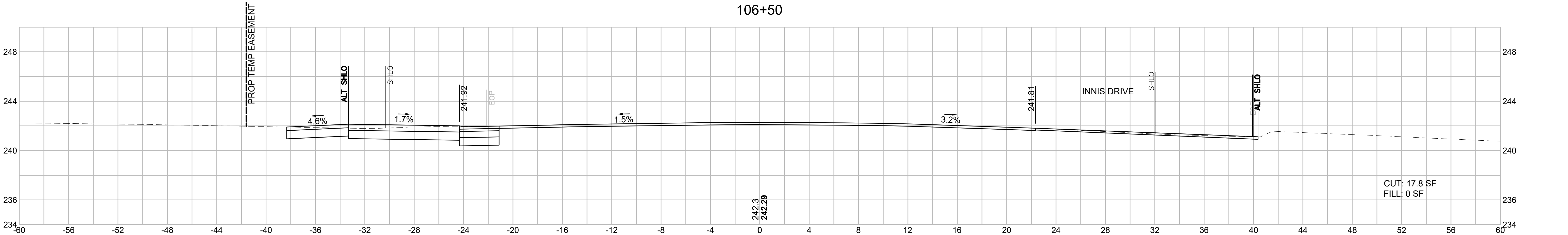
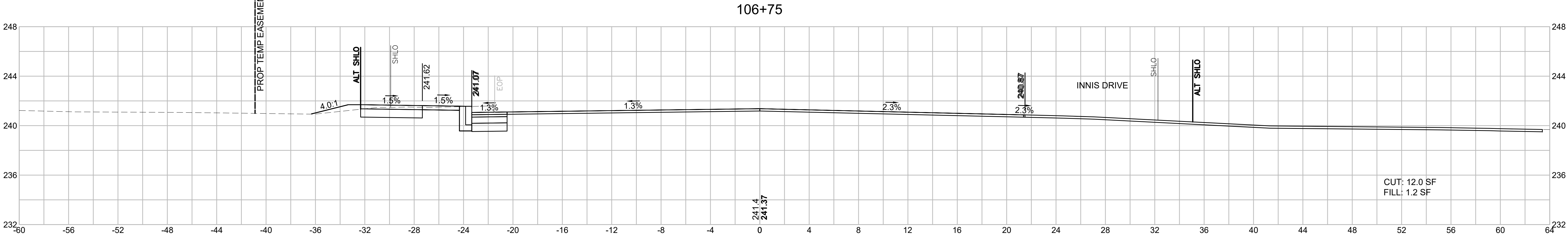
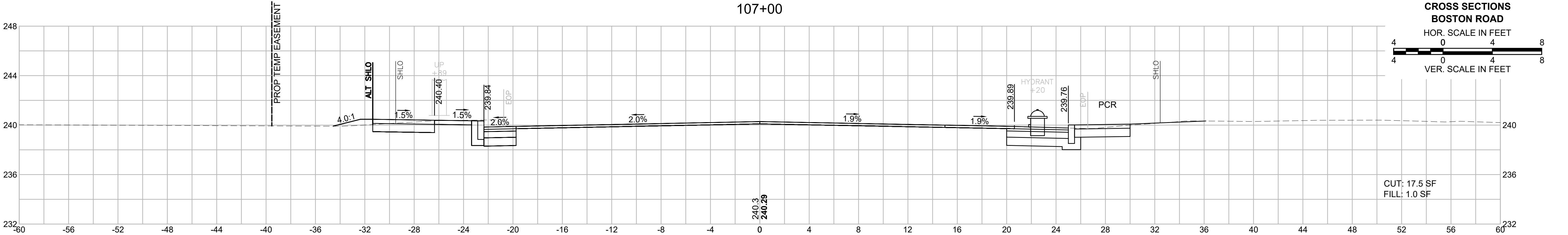
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	77	103
PROJECT FILE NO.		609250	

CROSS SECTIONS
BOSTON ROAD

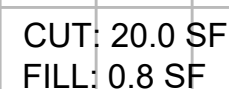
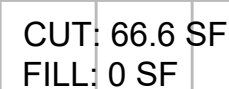
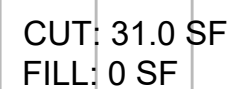
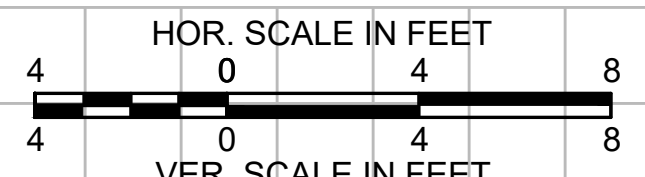
HOR. SCALE IN FEET



VER. SCALE IN FEET



STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	78	103
PROJECT FILE NO.		609250	



BILLERICA

BOSTON RD (ROUTE 3A)

AT LEXINGTON RD & GLAD VALLEY DR

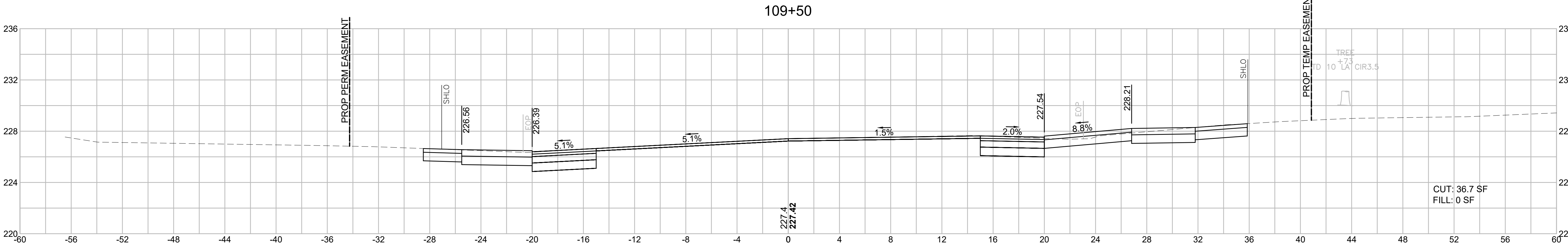
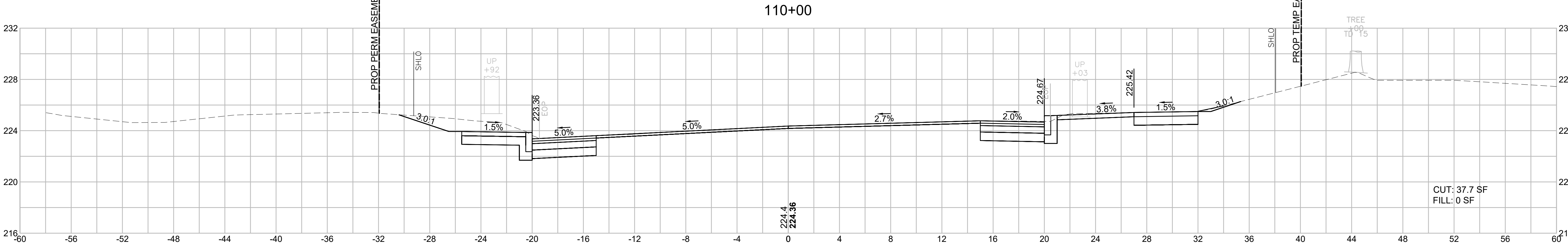
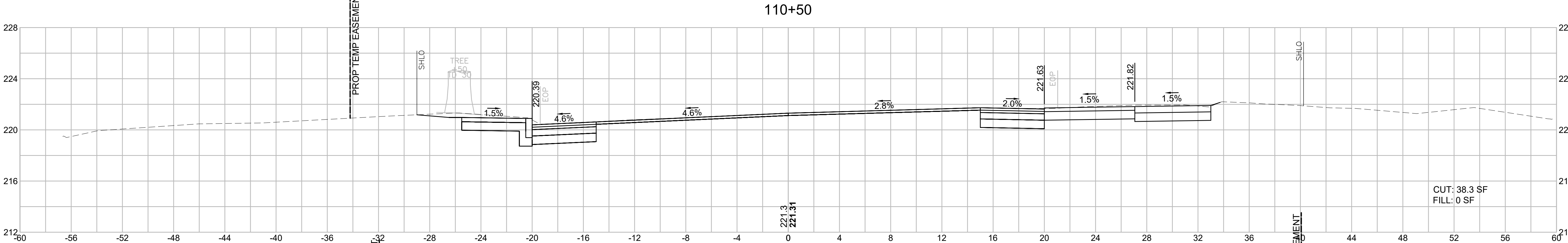
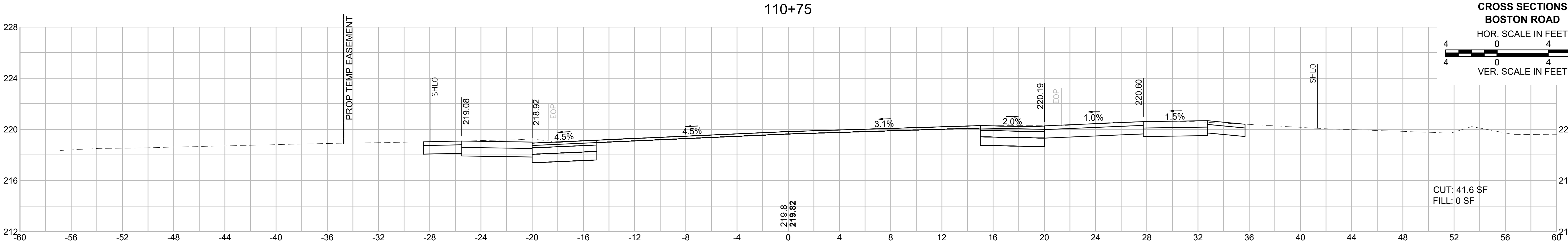
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	79	103
PROJECT FILE NO. 609250			

CROSS SECTIONS
BOSTON ROAD

HOR. SCALE IN FEET



VER. SCALE IN FEET



BILLERICA

BOSTON RD (ROUTE 3A)

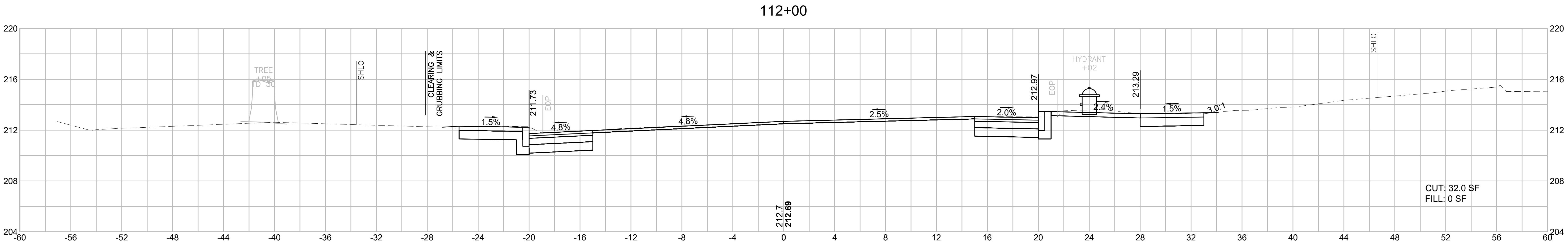
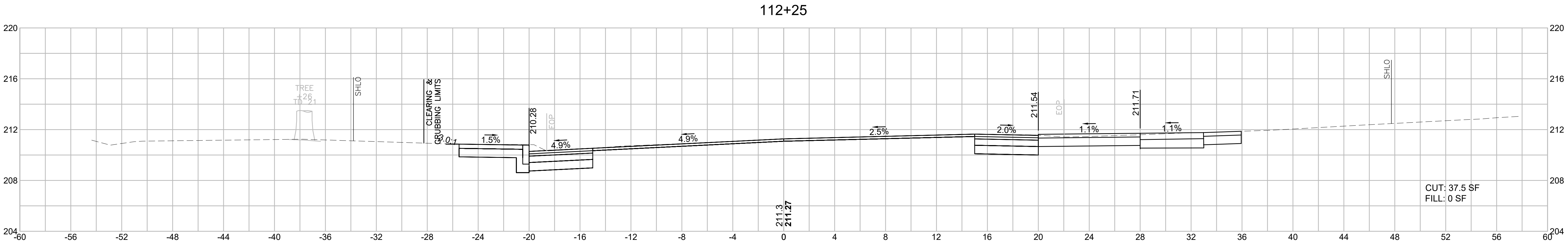
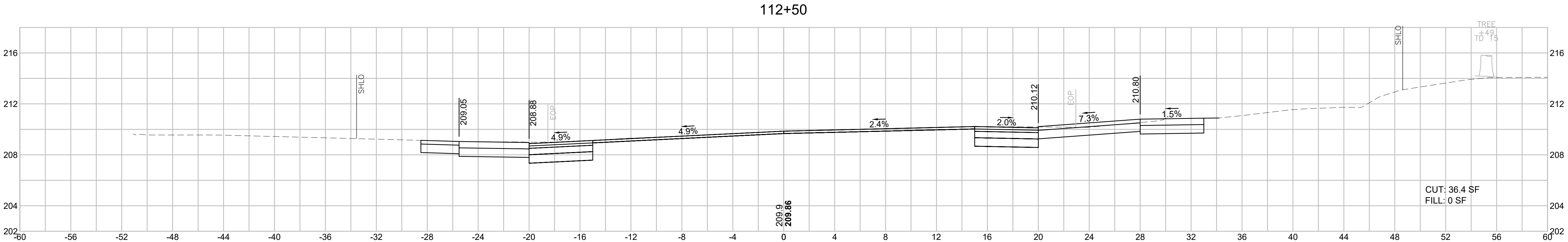
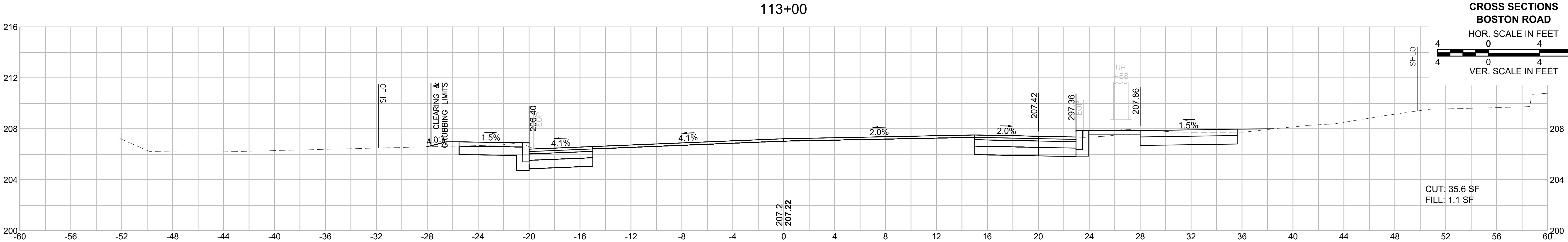
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	81	103
PROJECT FILE NO.		609250	

CROSS SECTIONS
BOSTON ROAD

HOR. SCALE IN FEET

VER. SCALE IN FEET



BILLERICA

BOSTON RD (ROUTE 3A)

AT LEXINGTON RD & GLAD VALLEY DR

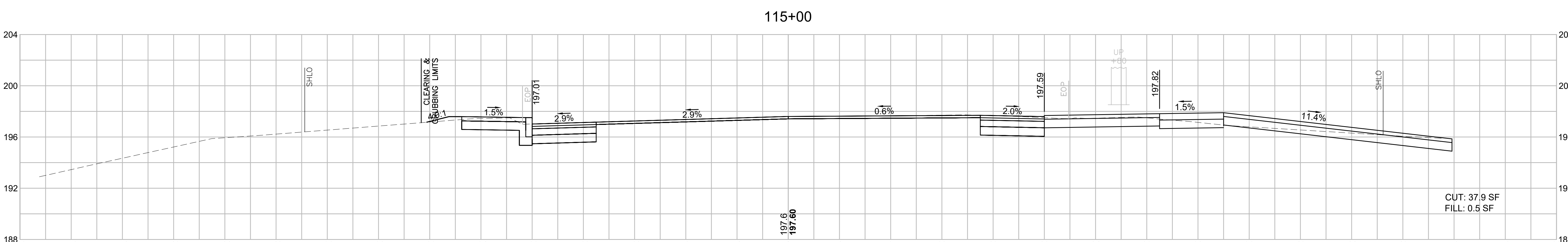
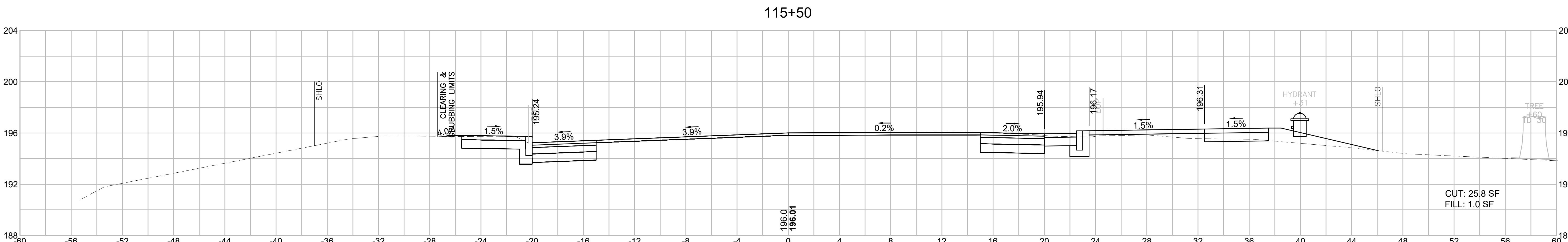
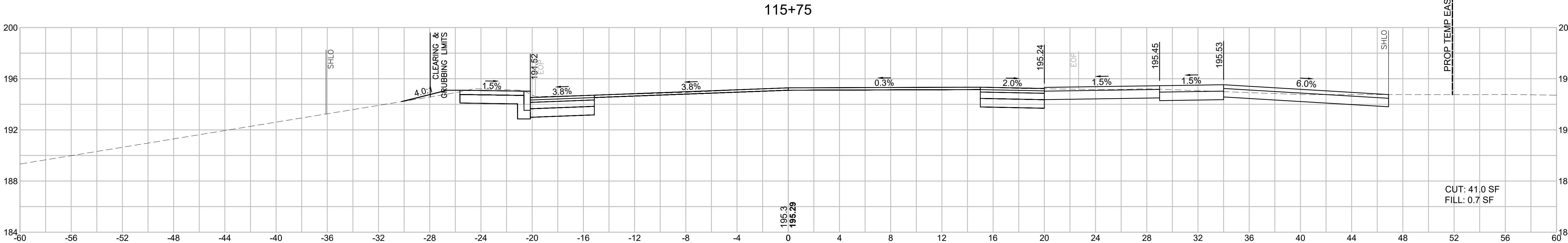
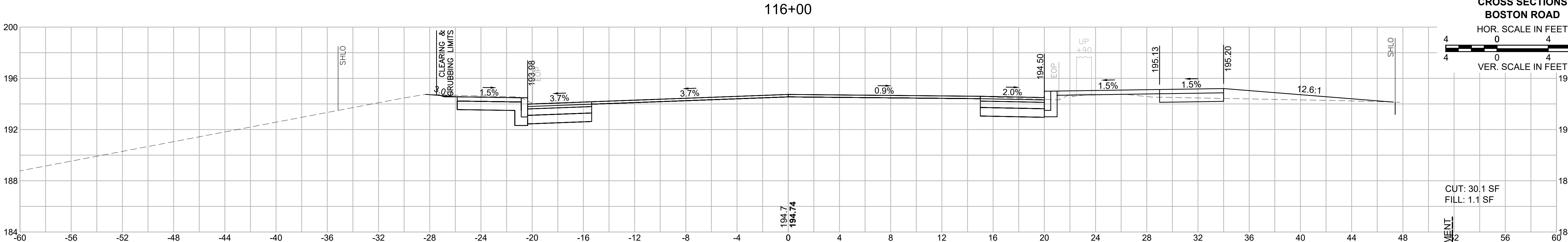
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	83	103
PROJECT FILE NO.		609250	

CROSS SECTIONS
BOSTON ROAD

HOR. SCALE IN FEET



VER. SCALE IN FEET



BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

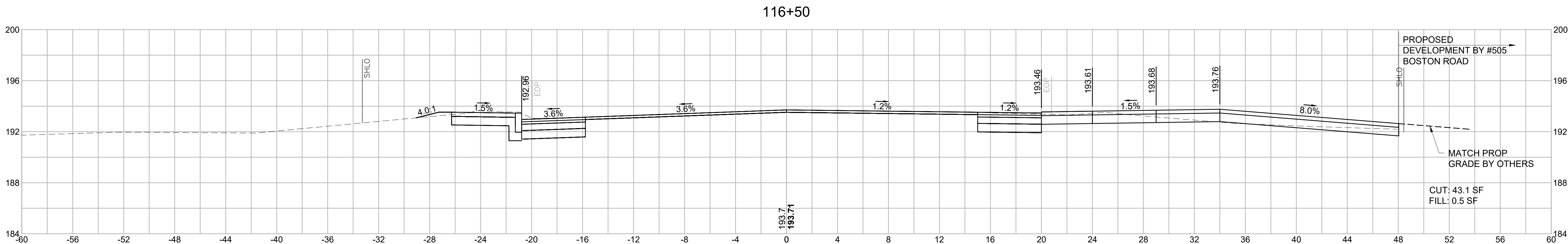
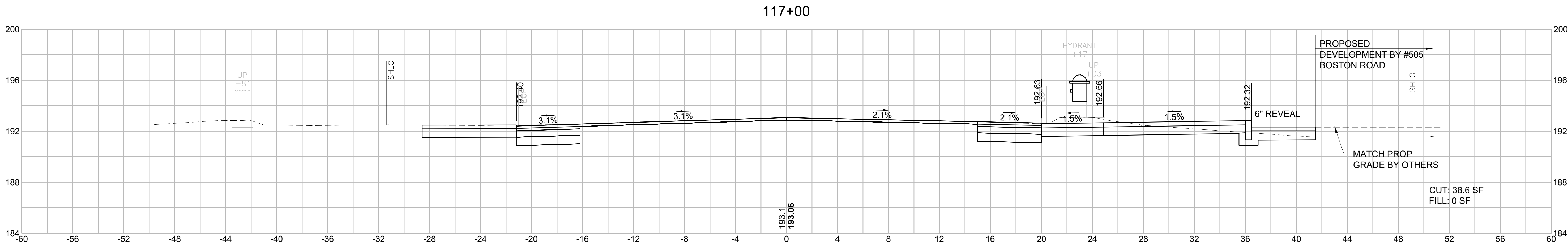
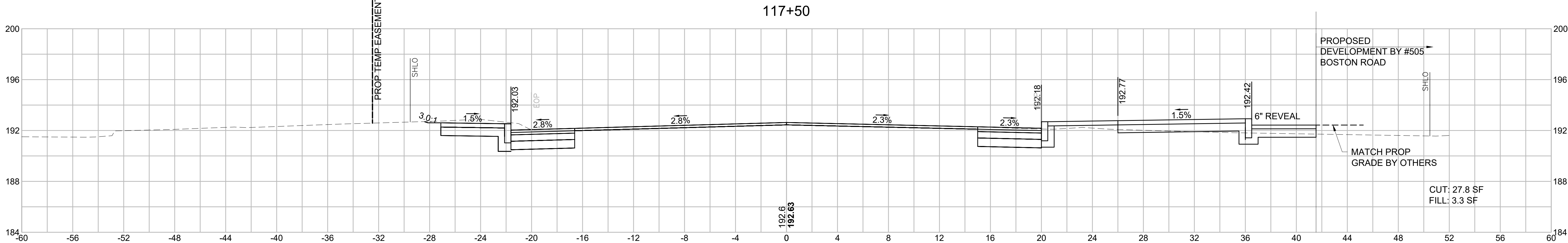
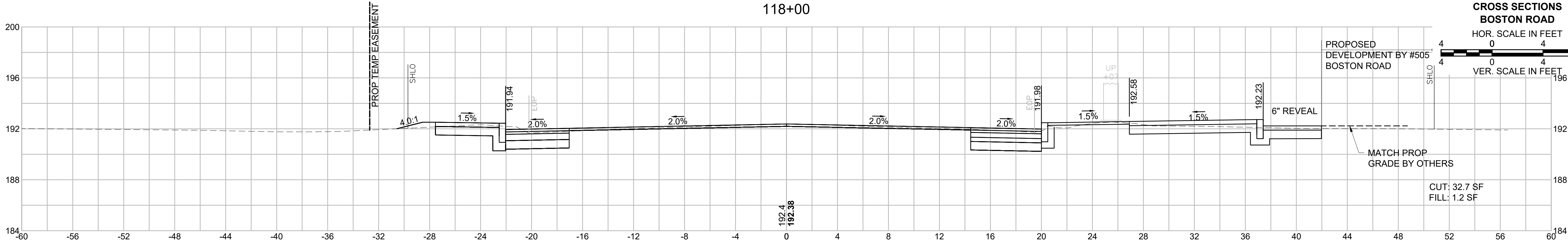
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	84	103
PROJECT FILE NO.		609250	

CROSS SECTIONS
BOSTON ROAD

HOR. SCALE IN FEET



VER. SCALE IN FEET



BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	85	103
PROJECT FILE NO. 609250			

CROSS SECTIONS
BOSTON ROAD

HOR. SCALE IN FEET



VER. SCALE IN FEET

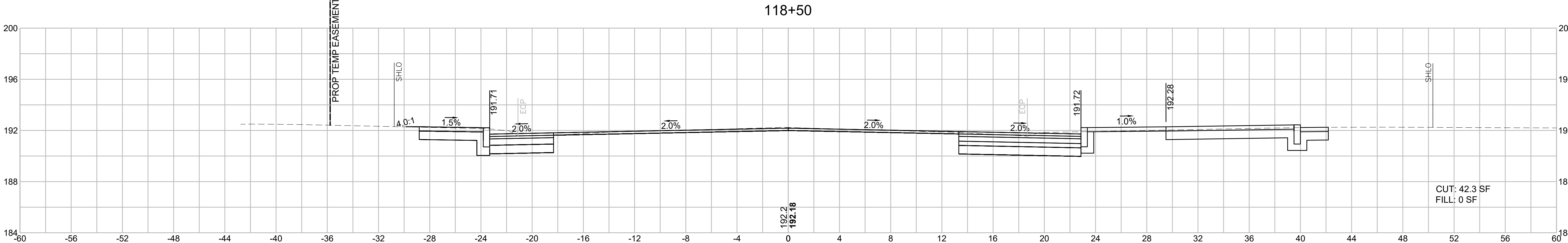
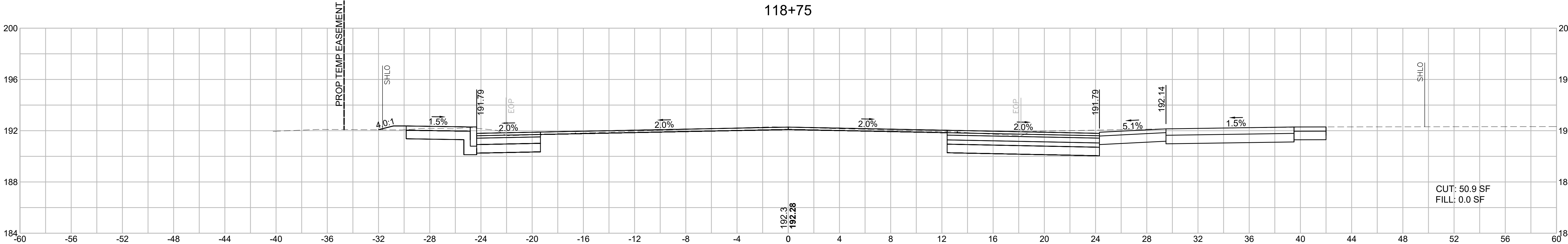
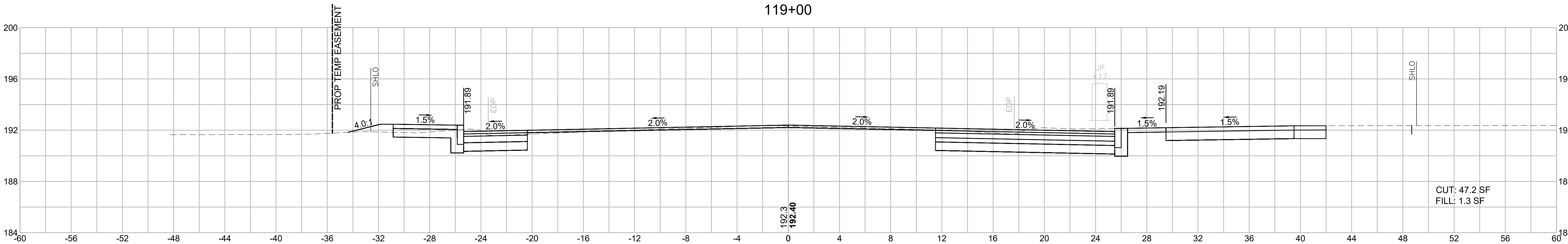
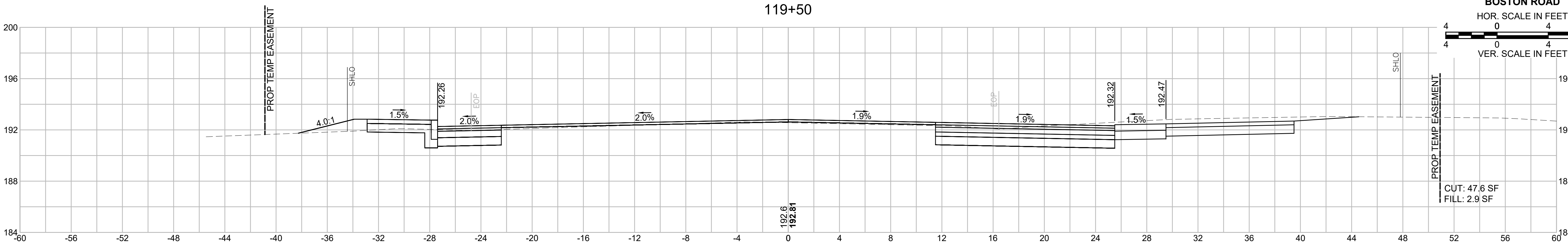


CUT: 47.6 SF
FILL: 2.9 SF

CUT: 47.2 SF
FILL: 1.3 SF

CUT: 50.9 SF
FILL: 0.0 SF

CUT: 42.3 SF
FILL: 0 SF

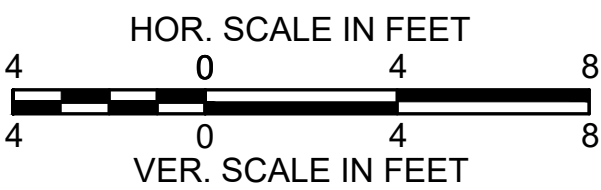


BILLERICA

BOSTON RD (ROUTE 3A)

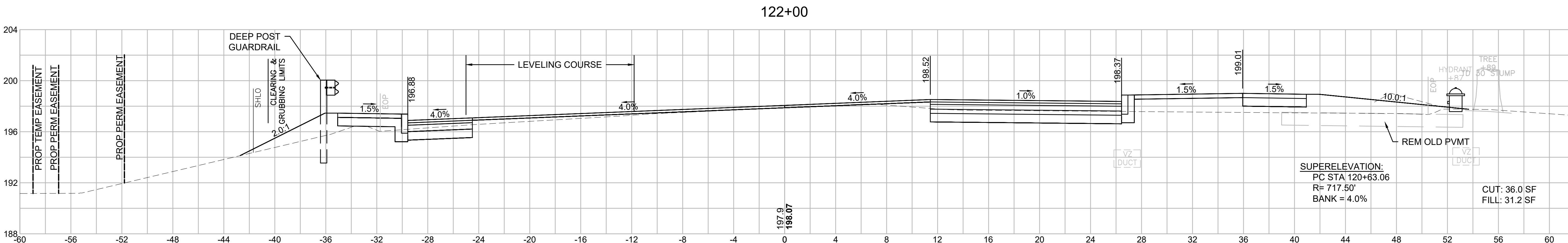
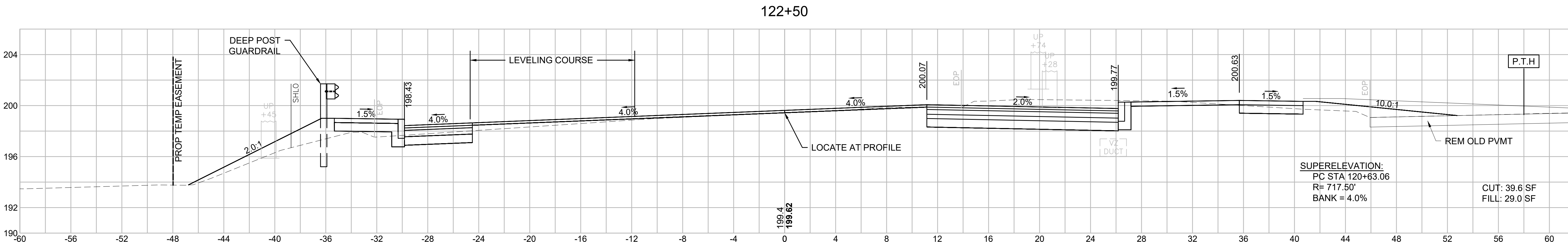
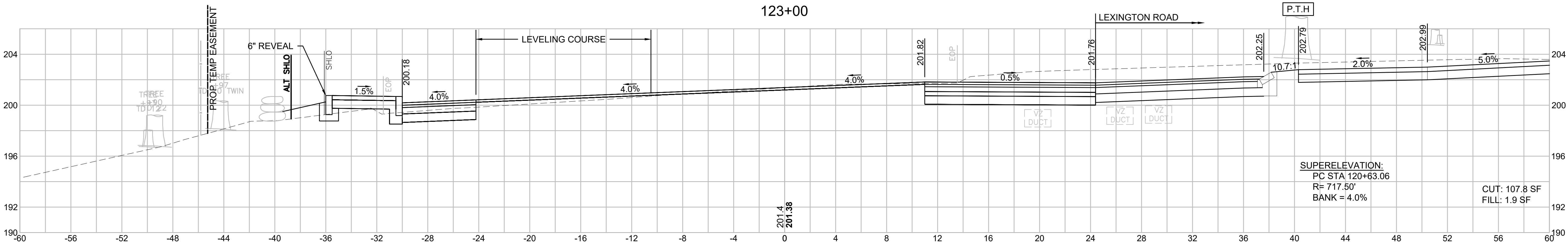
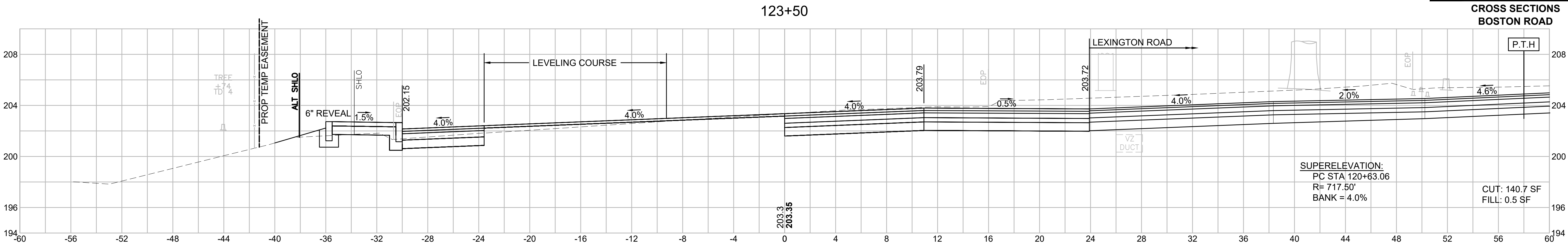
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	87	103
PROJECT FILE NO.		609250	



CROSS SECTIONS

BOSTON ROAD



BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	88	103
PROJECT FILE NO.		609250	

CROSS SECTIONS

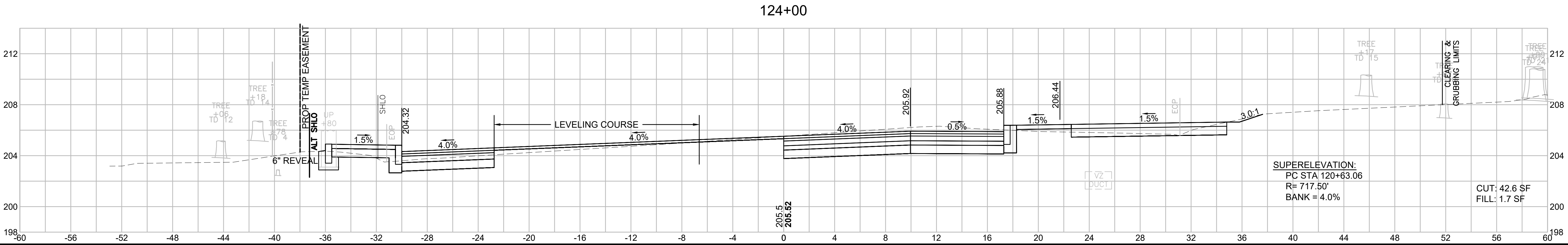
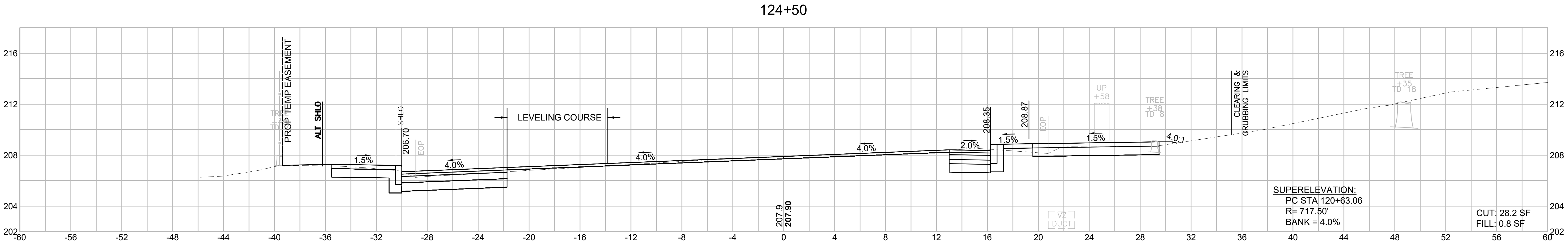
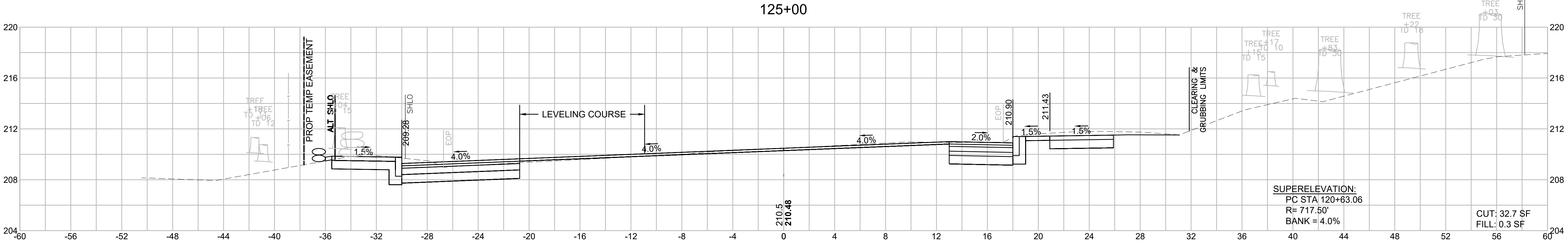
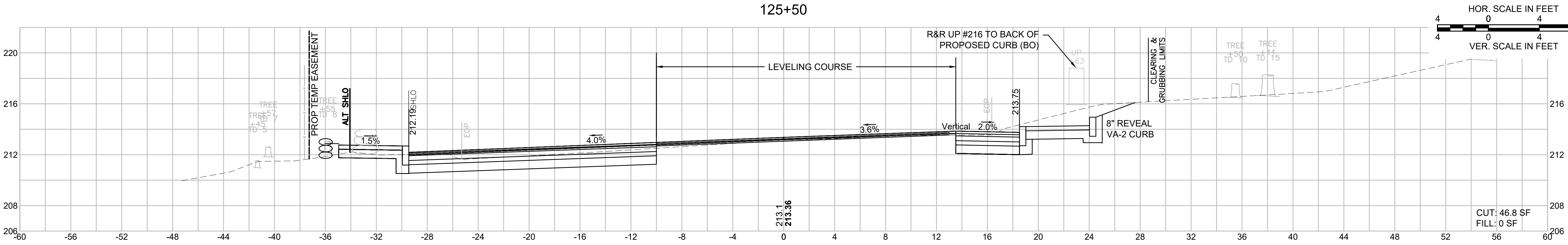
BOSTON ROAD

HOR. SCALE IN FEET

4 0 4 8

VER. SCALE IN FEET

4 0 4 8



BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

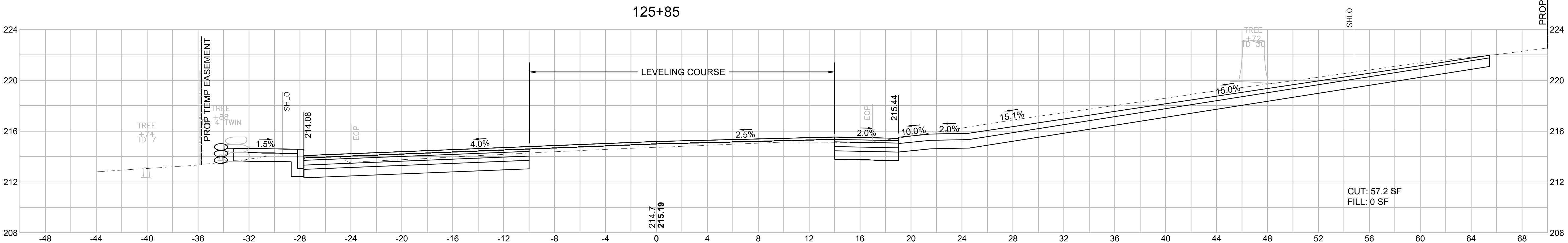
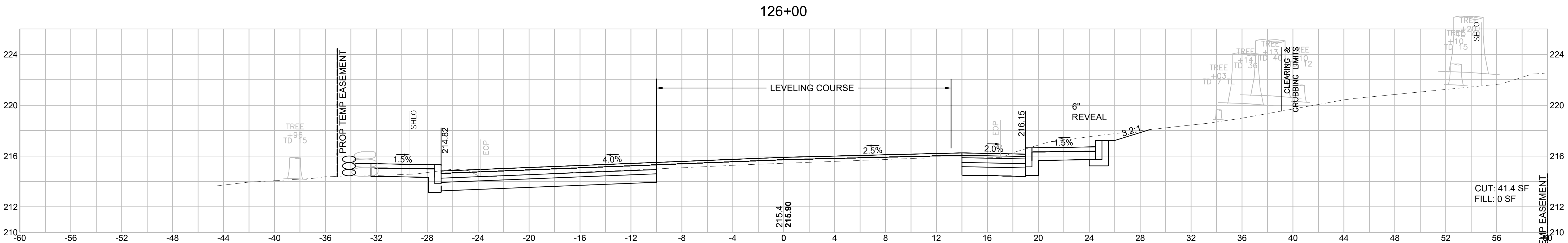
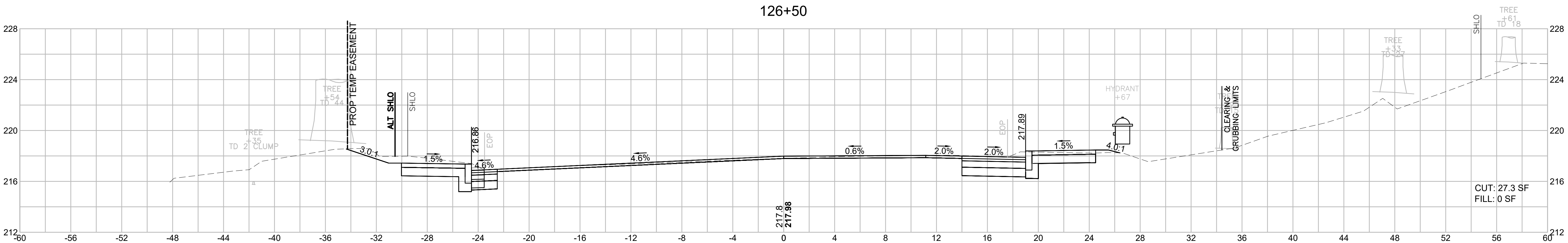
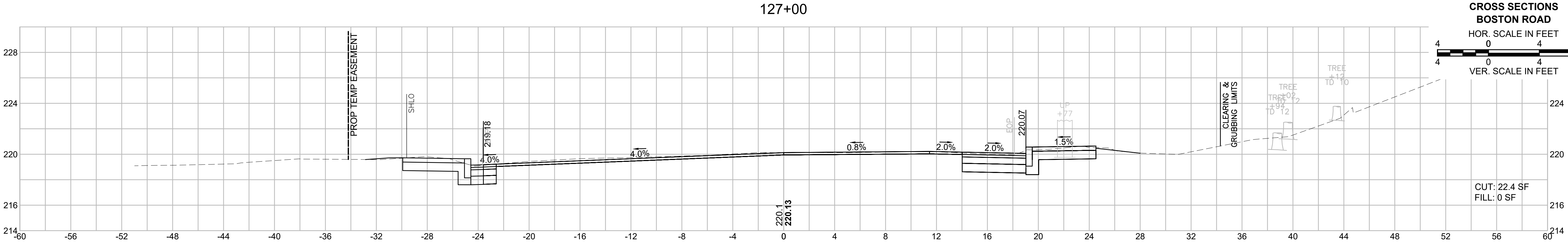
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	89	103
PROJECT FILE NO.		609250	

CROSS SECTIONS
BOSTON ROAD

HOR. SCALE IN FEET



VER. SCALE IN FEET



BILLERICA

BOSTON RD (ROUTE 3A)

AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	90	103
PROJECT FILE NO. 609250			

CROSS SECTIONS
BOSTON ROAD

HOR. SCALE IN FEET

VER. SCALE IN FEET

4 0 4 8

4 0 4 8

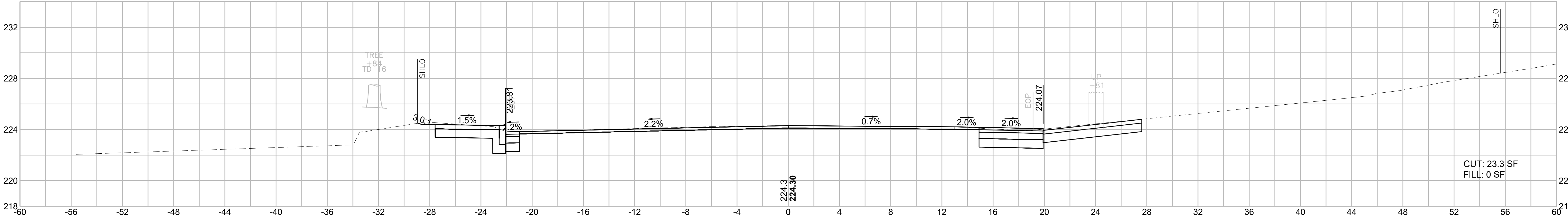
CUT: 15.3 SF

FILL: 0 SF

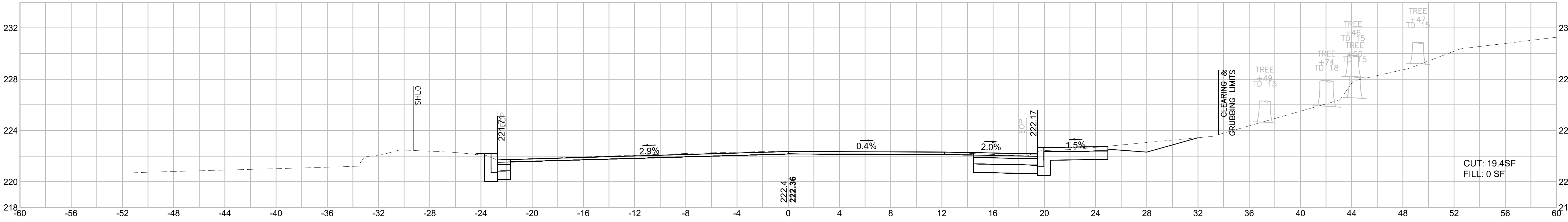
128+50



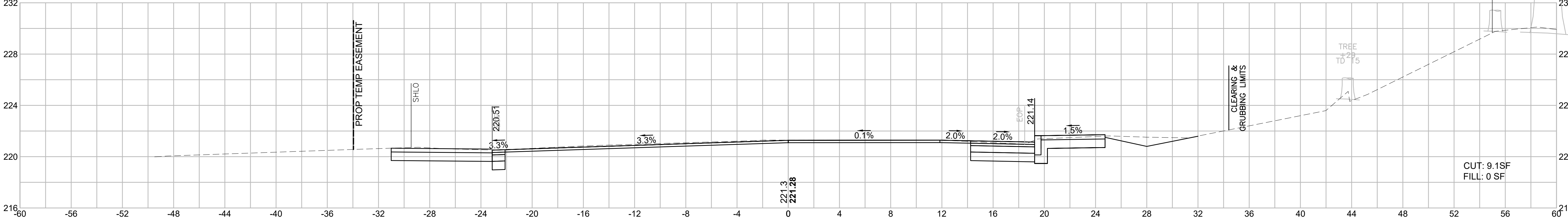
128+00



127+50



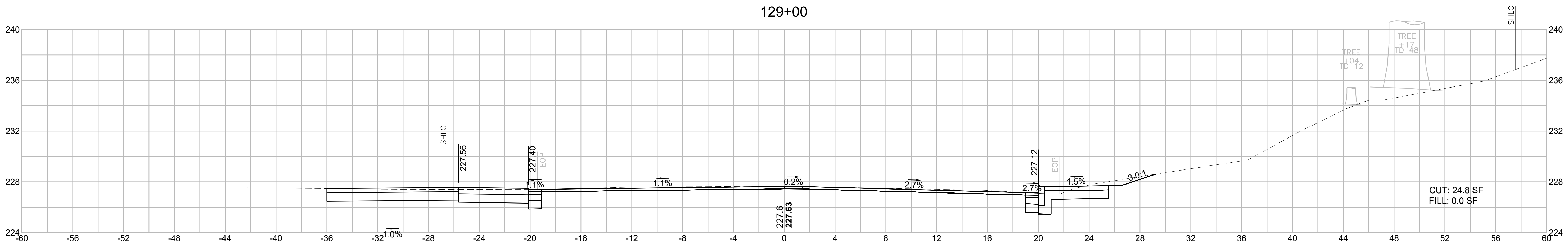
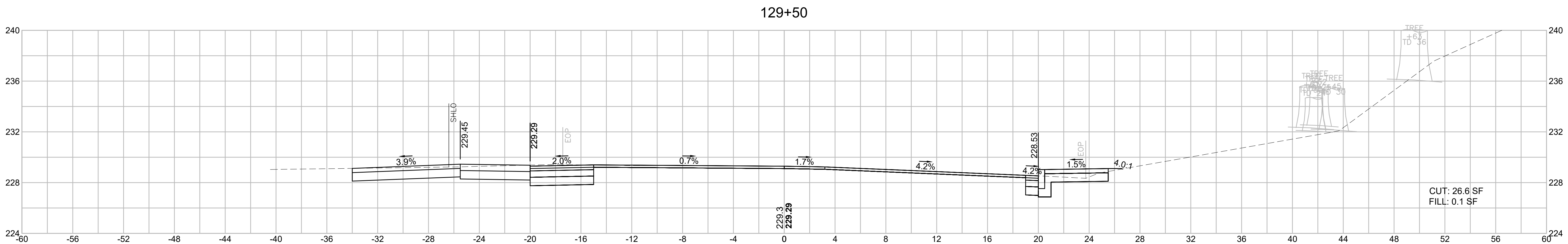
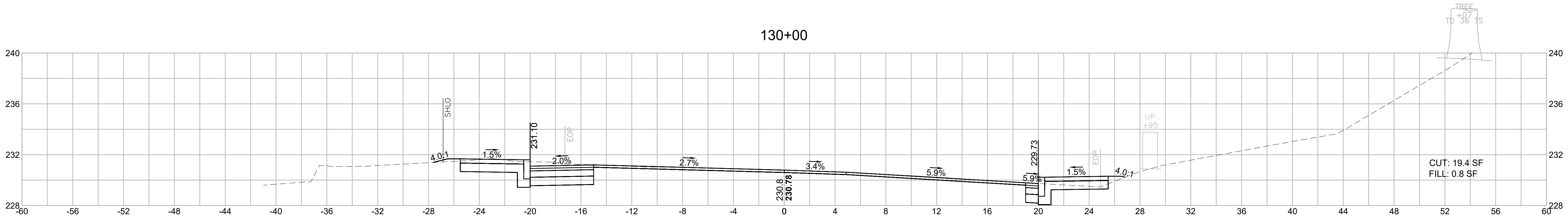
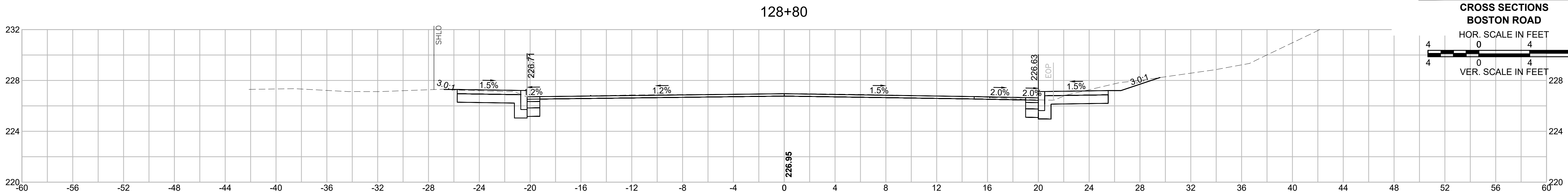
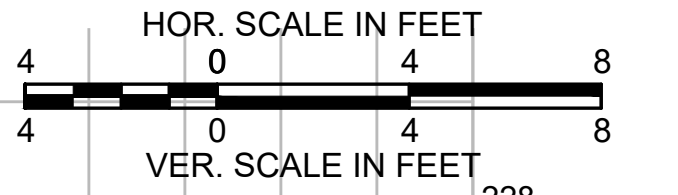
127+25



BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	91	103
PROJECT FILE NO.		609250	

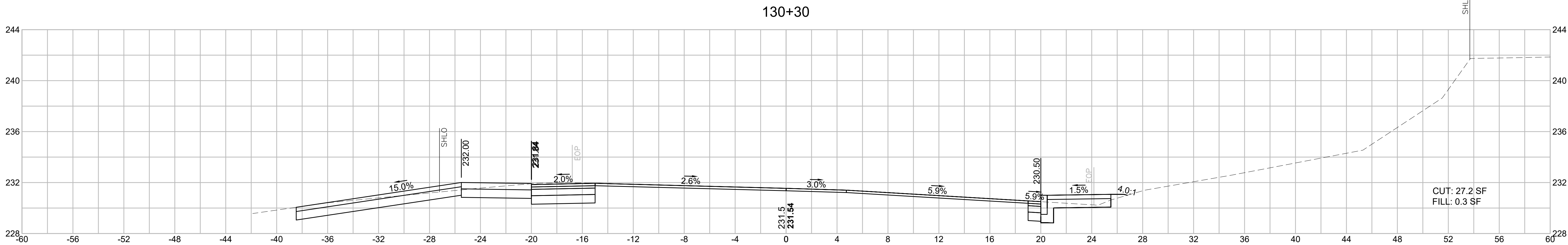
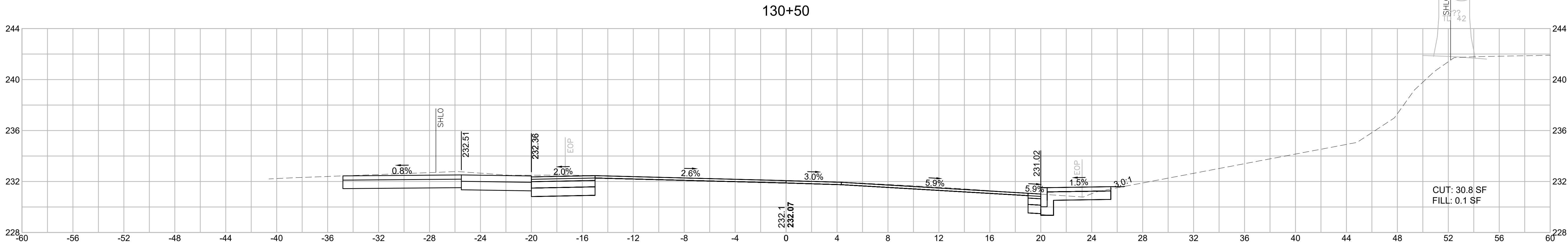
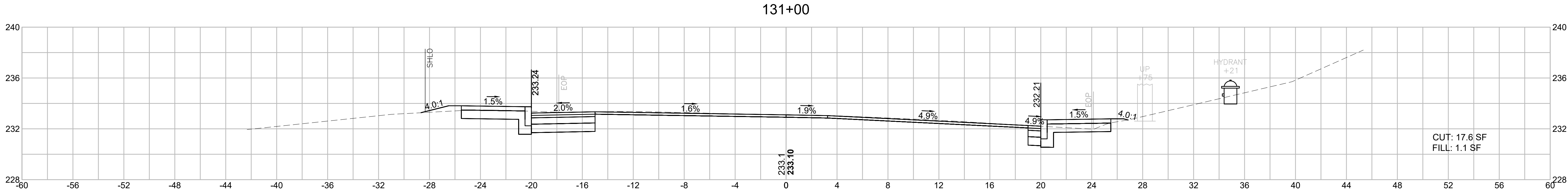
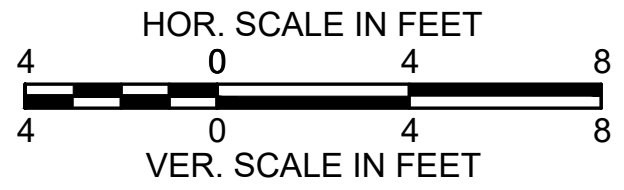
CROSS SECTIONS
BOSTON ROAD



BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	92	103
PROJECT FILE NO.		609250	

CROSS SECTIONS
BOSTON ROAD



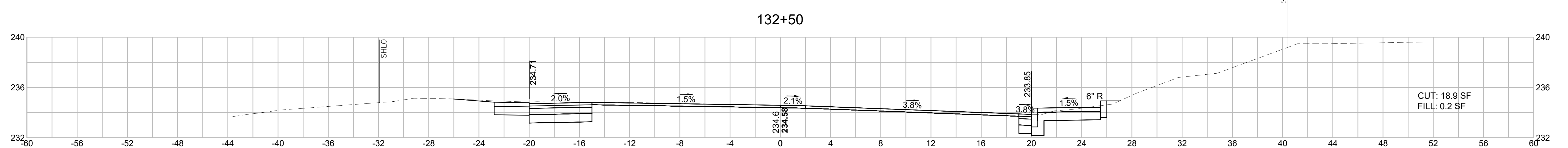
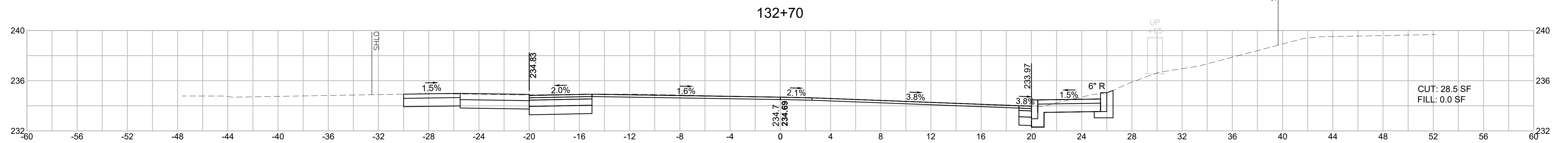
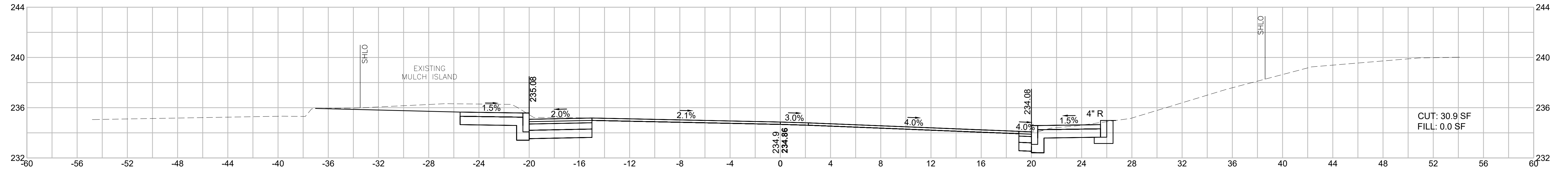
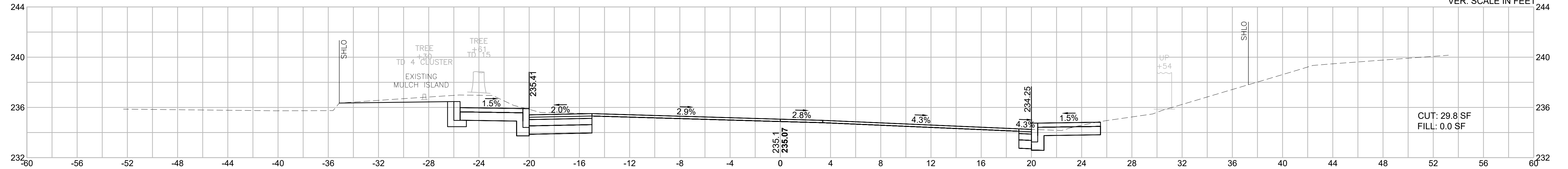
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	93	103
PROJECT FILE NO.		609250	

HOR. SCALE IN FEET



STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	94	103
PROJECT FILE NO.		609250	

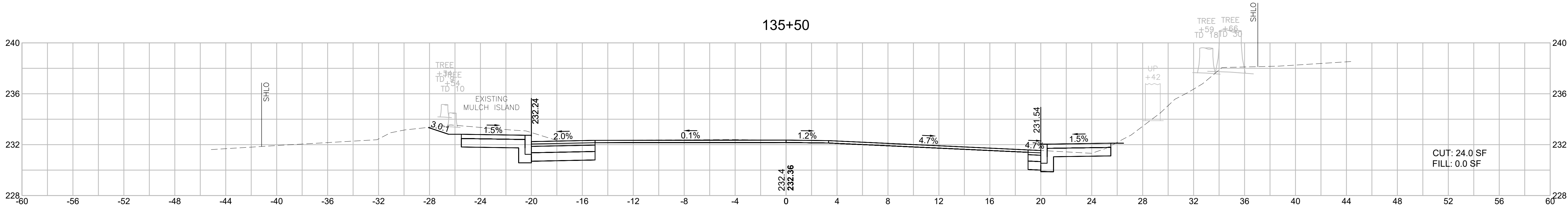
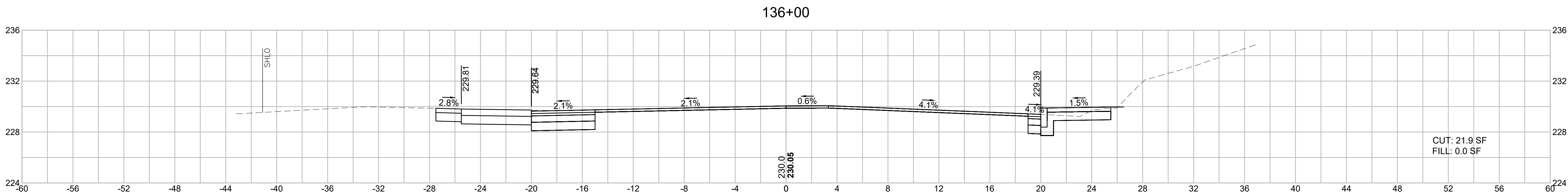
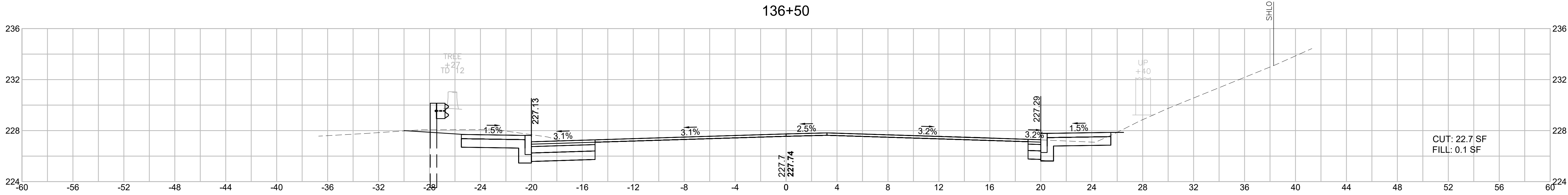
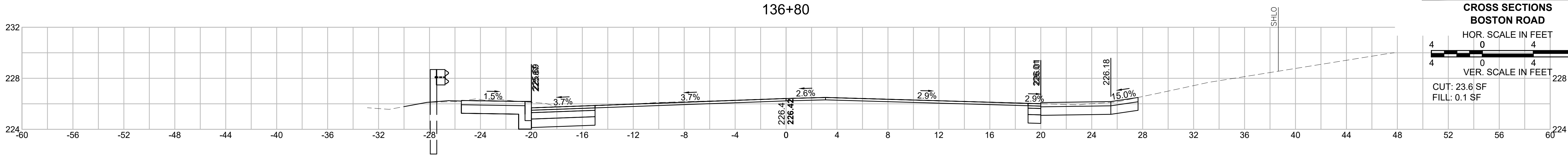
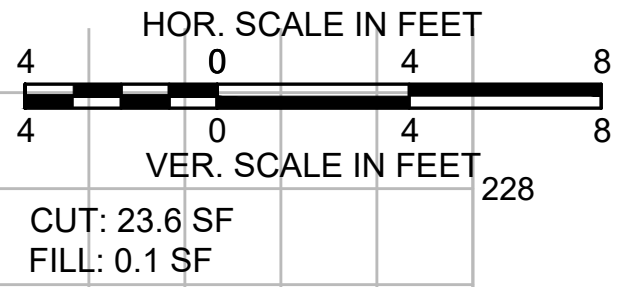
HOR. SCALE IN FEET



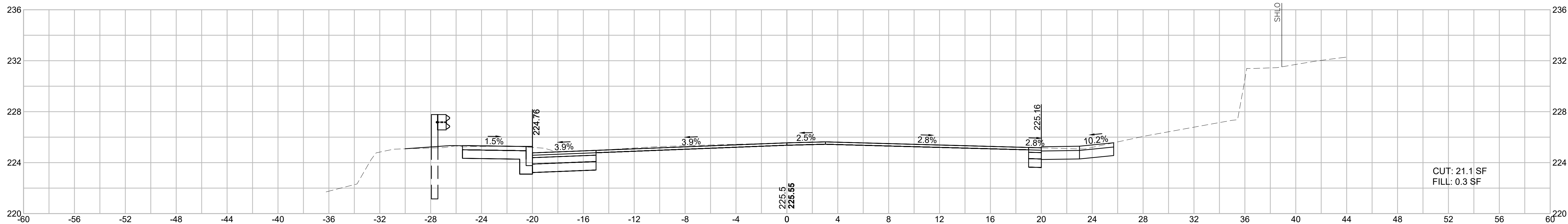
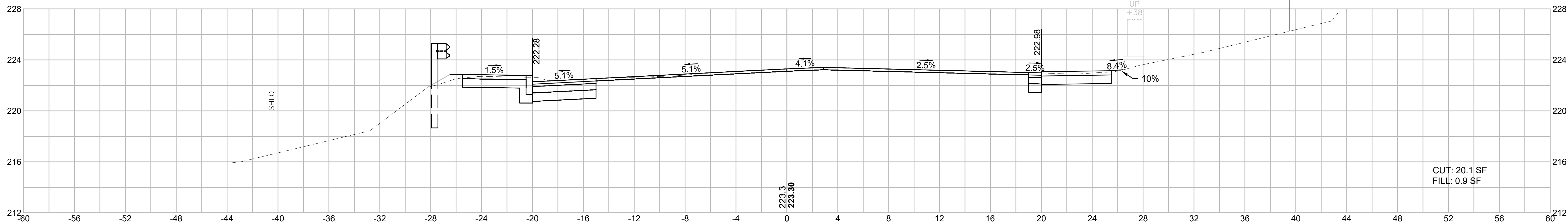
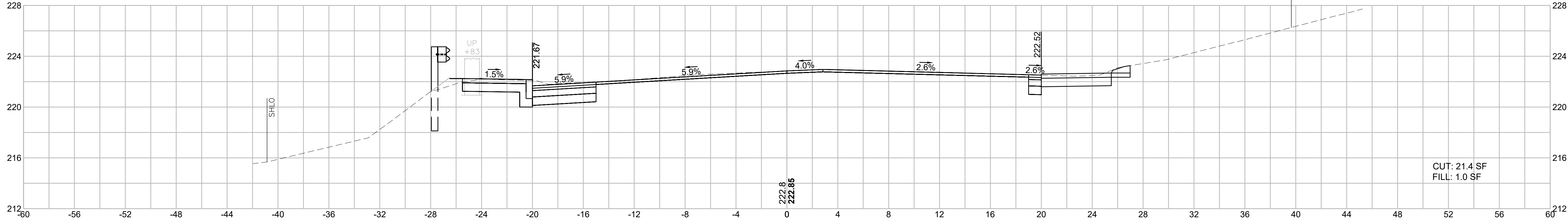
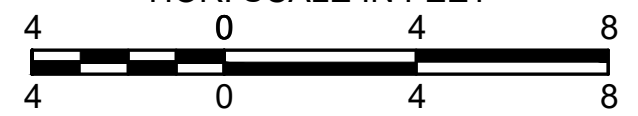
BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	96	103
PROJECT FILE NO.		609250	

CROSS SECTIONS
BOSTON ROAD



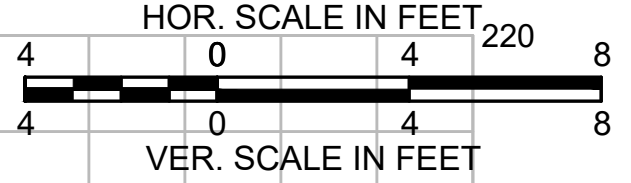
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	97	103
PROJECT FILE NO.		609250	



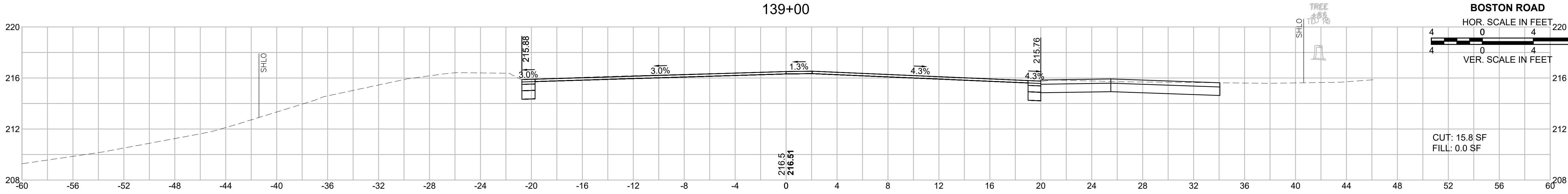
BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	98	103
PROJECT FILE NO.		609250	

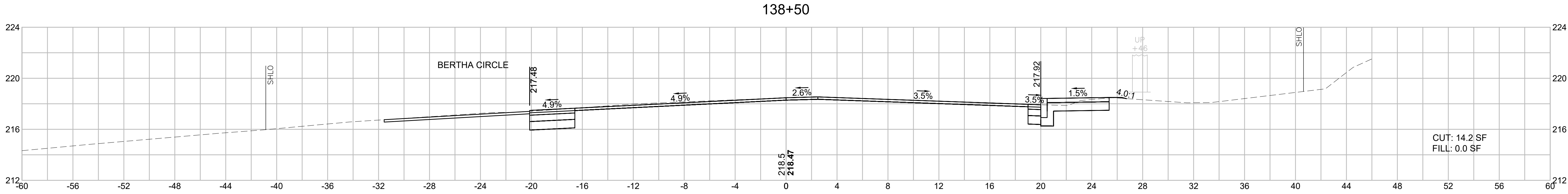
CROSS SECTIONS
BOSTON ROAD



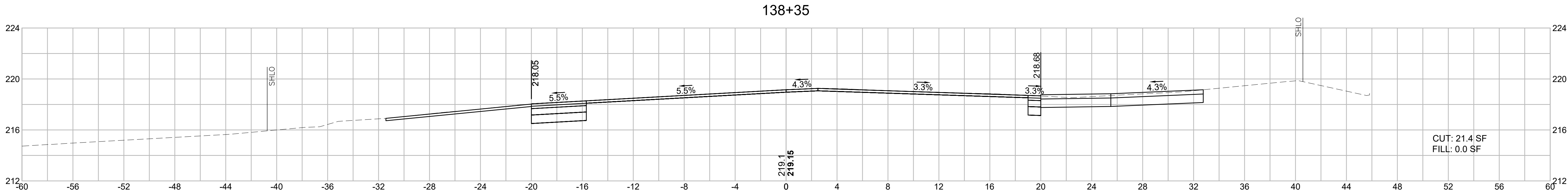
CUT: 15.8 SF
FILL: 0.0 SF



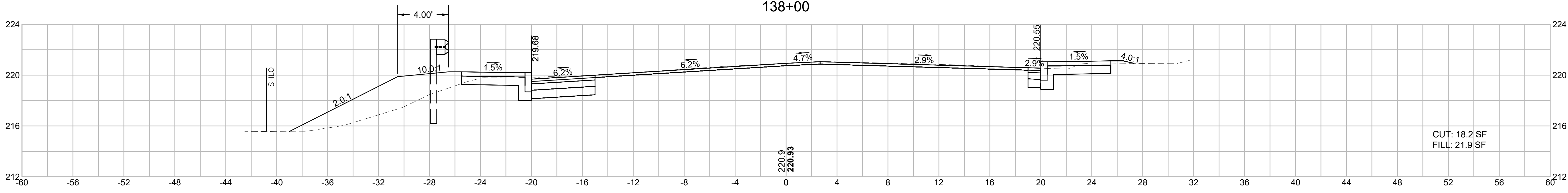
CUT: 14.2 SF
FILL: 0.0 SF



CUT: 21.4 SF
FILL: 0.0 SF



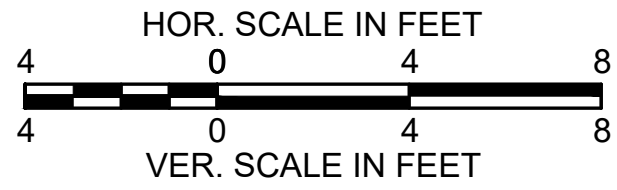
CUT: 18.2 SF
FILL: 21.9 SF



BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

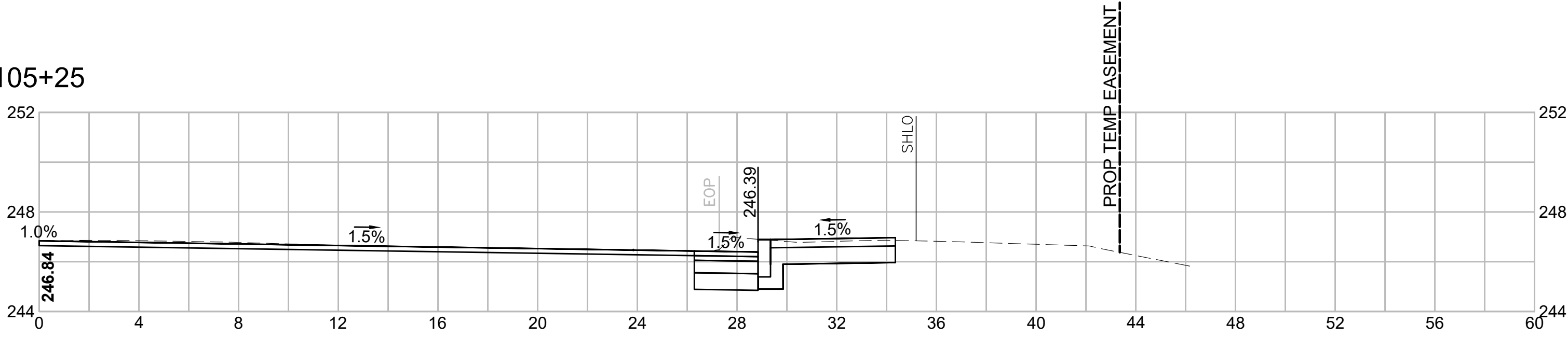
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	99	103
PROJECT FILE NO.		609250	

CROSS SECTIONS
BOSTON ROAD

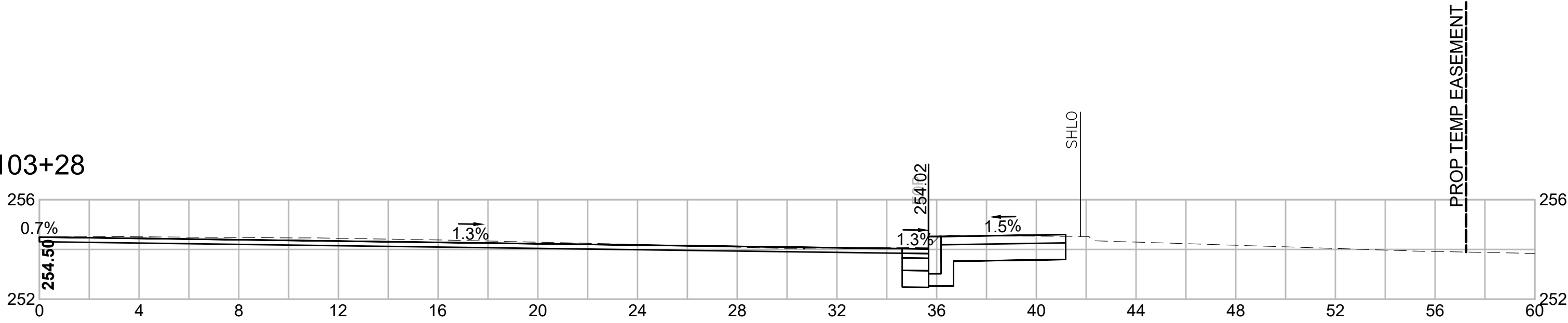


WALKWAY SECTIONS

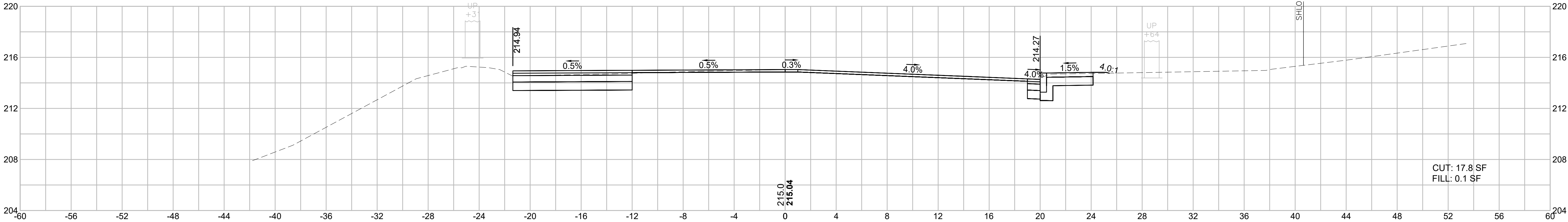
105+25



103+28



139+50



BILLERICA
BOSTON RD (ROUTE 3A)
AT LEXINGTON RD & GLAD VALLEY DR

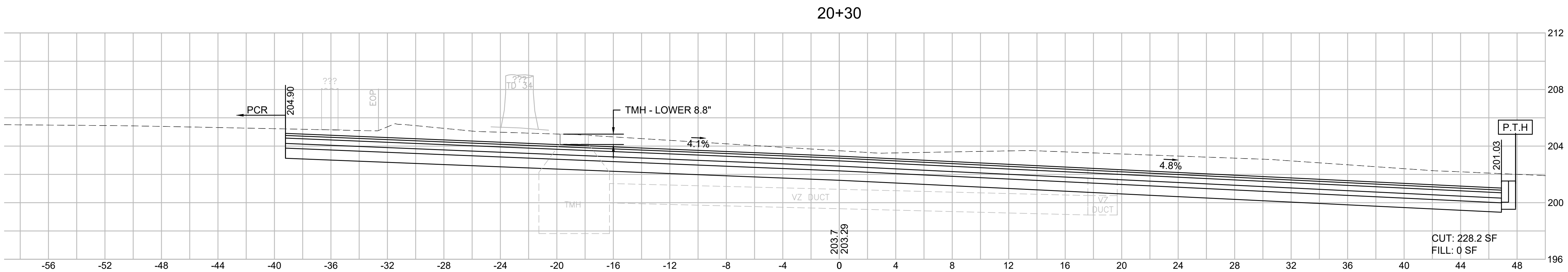
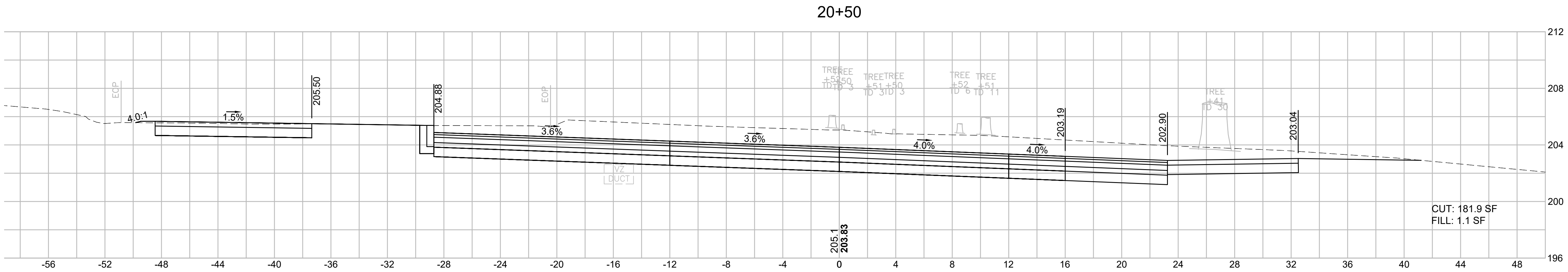
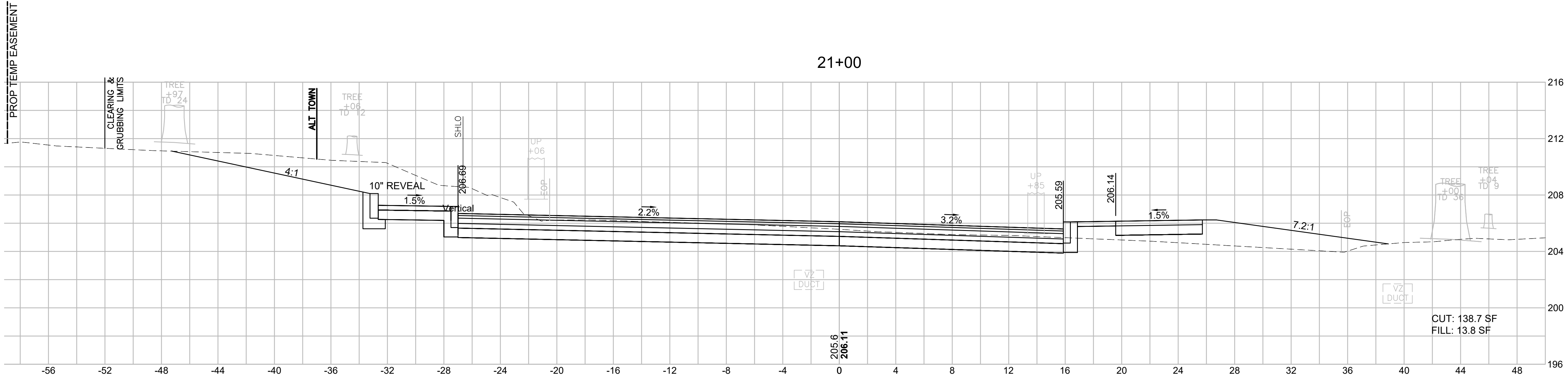
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	100	103
PROJECT FILE NO.		609250	

CROSS SECTIONS
LEXINGTON ROAD

HOR. SCALE IN FEET



VER. SCALE IN FEET



STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	102	103
PROJECT FILE NO.		609250	

HOR. SCALE IN FEET

A horizontal number line with arrows at both ends. There are tick marks at every integer. The tick mark for 0 is labeled with the number 0 below it. The tick mark for 4 is labeled with the number 4 below it.

BILLERICA

BOSTON RD (ROUTE 3A)

AT LEXINGTON RD & GLAD VALLEY DR

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP-0034(025)X	103	103
PROJECT FILE NO.		609250	

CROSS SECTIONS

GLAD VALLEY DRIVE

