

# MASSACHUSETTS DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION

## PLAN AND PROFILE OF HARTFORD AVENUE (ROUTE 126)

IN THE TOWN OF  
**BELLINGHAM**  
NORFOLK COUNTY

# PRELIMINARY DESIGN

**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	01	93
PROJECT FILE NO.		2148.00	

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

### DESIGN DESIGNATION (HARTFORD AVE & NORTH MAIN / ROUTE 126)

DESIGN SPEED	45 MPH
ADT (2021)	25,135
ADT (2031)	26,158
K	8%
D	50.5 EB%
T (PEAK HOUR)	7.3%
T (AVERAGE DAY)	4.4%
DHV	2010
DDHV	1015
FUNCTIONAL CLASSIFICATION	URBAN PRINCIPAL ARTERY

### DESIGN DESIGNATION (I-495 SB ONRAMP D)

DESIGN SPEED	30 MPH
ADT (2019)	10,148
ADT (2031)	10,635
K	7%
D	100% SB
T (PEAK HOUR)	6.5%
T (AVERAGE DAY)	6.5%
DHV	729
DDHV	729
FUNCTIONAL CLASSIFICATION	FREEWAY & EXPRESSWAY

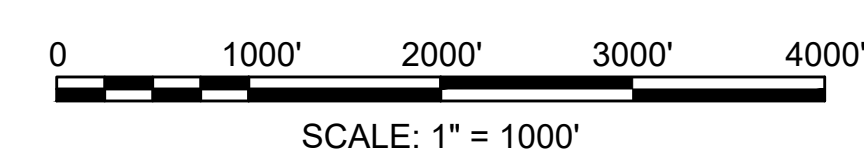
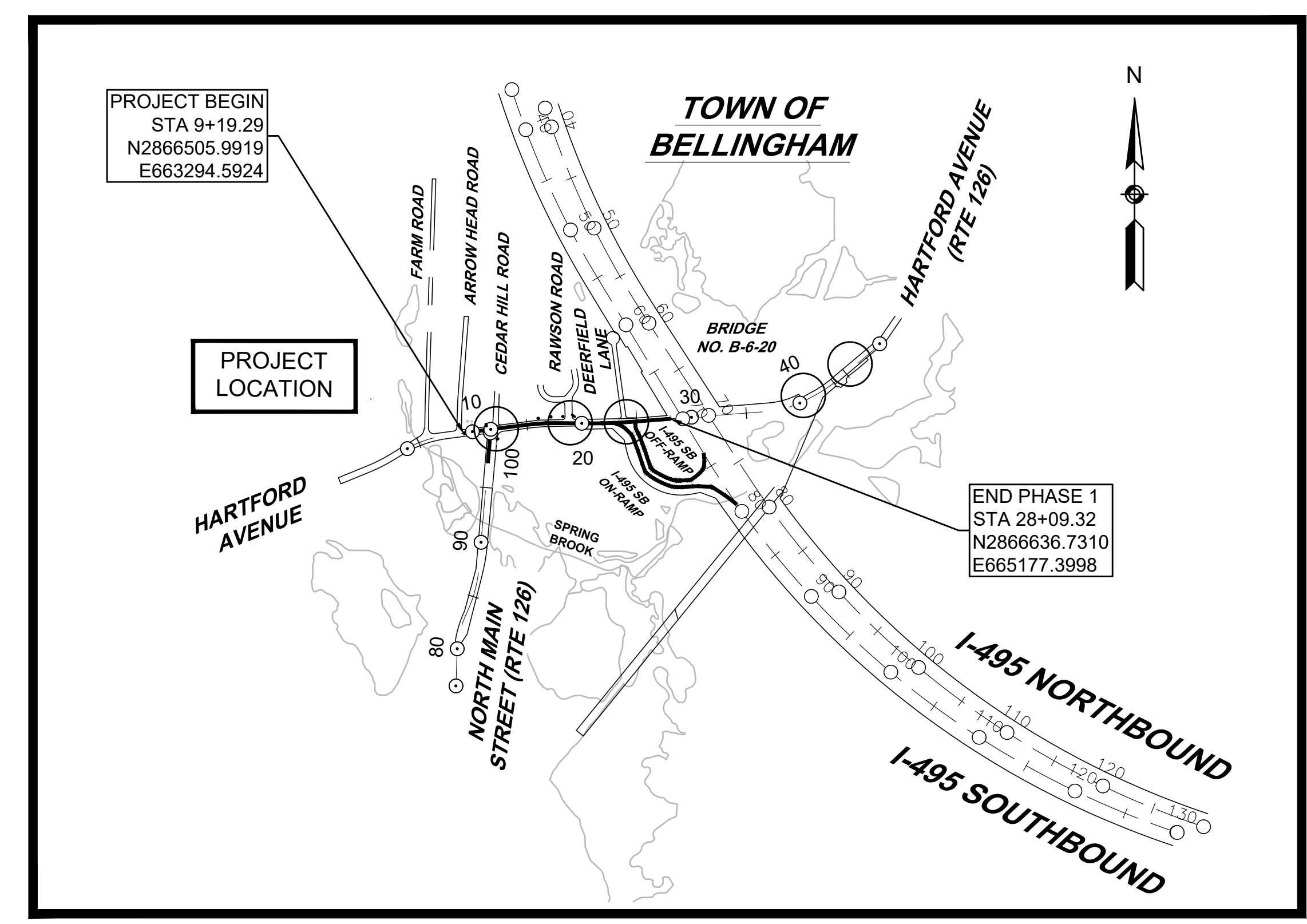
### DESIGN DESIGNATION (I-495 SB OFFRAMP C)

DESIGN SPEED	30 MPH
ADT (2020)	5,681
ADT (YYYY)	5,954
K	13%
D	100% NB
T (PEAK HOUR)	3.5%
T (AVERAGE DAY)	5.4%
DHV	756
DDHV	756
FUNCTIONAL CLASSIFICATION	FREEWAY & EXPRESSWAY



### DESIGN DESIGNATION (HARTFORD AVE)

DESIGN SPEED	35 MPH
ADT (2021)	19,151
ADT (2031)	20,332
K	8%
D	52% WB
T (PEAK HOUR)	7.3%
T (AVERAGE DAY)	4.4%
DHV	1,532
DDHV	797
FUNCTIONAL CLASSIFICATION	URBAN MINOR ARTERY

INDEX	
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01	TITLE SHEET & INDEX
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71-93	CROSS SECTIONS



LENGTH OF PROJECT (PHASE 1) = 1890.03 FEET = 0.358 MILES

 CHAPPELL ENGINEERING ASSOCIATES, LLC <i>Civil · Structural · Land Surveying</i> RK, EXECUTIVE CENTRE 201 BOSTON POST ROAD WEST, STE 101 MARLBOROUGH, MA 01752	APPROVED	
	_____ CHIEF ENGINEER	_____ DATE
	 Massachusetts Department of Transportation Highway Division	

**GENERAL SYMBOLS**

EXISTING	PROPOSED	DESCRIPTION
		JERSEY BARRIER
		CATCH BASIN
		CATCH BASIN CURB INLET
		FLAG POLE
		GAS PUMP
		MAIL BOX
		POST SQUARE
		POST CIRCULAR
		WELL
		ELECTRIC HANDHOLE
		FENCE GATE POST
		GAS GATE
		BORING HOLE
		MONITORING WELL
		TEST PIT
		HYDRANT
		LIGHT POLE
		COUNTY BOUND
		GPS POINT
		CABLE MANHOLE
		DRAINAGE MANHOLE
		ELECTRIC MANHOLE
		GAS MANHOLE
		MISC MANHOLE
		SEWER MANHOLE
		TELEPHONE MANHOLE
		WATER MANHOLE
		MASSACHUSETTS HIGHWAY BOUND
		MONUMENT
		STONE BOUND
		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
		TROLLEY POLE OR GUY POLE
		TRANSMISSION POLE
		UTILITY POLE W/ FIREBOX
		UTILITY POLE WITH DOUBLE LIGHT
		UTILITY POLE W / 1 LIGHT
		UTILITY POLE
		BUSH
		TREE
		STUMP
		SWAMP / MARSH
		WATER GATE
		PARKING METER
		OVERHEAD CABLE/WIRE
		CURBING
		CONTOURS (ON-THE-GROUND SURVEY DATA)
		CONTOURS (PHOTOGRAMMETRIC DATA)
		UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)
		BALANCED STONE WALL
		GUARD RAIL - STEEL POSTS
		GUARD RAIL - WOOD POSTS
		GUARD RAIL - DOUBLE FACE - STEEL POSTS
		GUARD RAIL - DOUBLE FACE - WOOD POSTS
		CHAIN LINK OR METAL FENCE
		WOOD FENCE
		HAY BALES/SILT FENCE
		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

**TRAFFIC SYMBOLS**

EXISTING	PROPOSED	DESCRIPTION
		CONTROLLER PHASE ACTUATED
		TRAFFIC SIGNAL HEAD (SIZE AS NOTED)
		WIRE LOOP DETECTOR (6' x 6' TYP UNLESS OTHERWISE SPECIFIED)
		VIDEO DETECTION CAMERA
		MICROWAVE DETECTOR
		PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE
		EMERGENCY PREEMPTION CONFIRMATION STROBE LIGHT
		VEHICULAR SIGNAL HEAD
		VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED
		FLASHING BEACON
		PEDESTRIAN SIGNAL HEAD, (TYPE AS NOTED OR AS SPECIFIED)
		RAILROAD SIGNAL
		SIGNAL POST AND BASE (ALPHA-NUMERIC DESIGNATION NOTED)
		MAST ARM, SHAFT AND BASE (ARM LENGTH AS NOTED)
		HIGH MAST POLE OR TOWER
		SIGN AND POST
		SIGN AND POST (2 POSTS)
		MAST ARM WITH LUMINAIRE
		OPTICAL PRE-EMPTION DETECTOR
		CONTROL CABINET, GROUND MOUNTED
		CONTROL CABINET, POLE MOUNTED
		FLASHING BEACON CONTROL AND METER PEDESTAL
		LOAD CENTER ASSEMBLY
		PULL BOX 12"x12" (OR AS NOTED)
		ELECTRIC HANDHOLE 12"x24" (OR AS NOTED)
		TRAFFIC SIGNAL CONDUIT

**PAVEMENT MARKINGS SYMBOLS**

EXISTING	PROPOSED	DESCRIPTION
		PAVEMENT ARROW - WHITE
		LEGEND "ONLY" - WHITE
		STOP LINE
		CROSSWALK
		SOLID WHITE LINE
		SOLID YELLOW LINE
		BROKEN WHITE LINE
		BROKEN YELLOW LINE
		DOTTED WHITE LINE
		DOTTED YELLOW LINE
		DOTTED WHITE LINE EXTENSION
		DOTTED YELLOW LINE EXTENSION
		DOUBLE WHITE LINE
		DOUBLE YELLOW LINE

**ABBREVIATIONS**

GENERAL	DESCRIPTION
AADT	ANNUAL AVERAGE DAILY TRAFFIC
ABAN	ABANDON
ADJ	ADJUST
APPROX.	APPROXIMATE
A.C.	ASPHALT CONCRETE
ACCM PIPE	ASPHALT COATED CORRUGATED METAL PIPE
BIT.	BITUMINOUS
BC	BOTTOM OF CURB
BD.	BOUND
BL	BASELINE
BLDG	BUILDING
BM	BENCHMARK
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BR.	BRIDGE
CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CC	CEMENT CONCRETE
CCM	CEMENT CONCRETE MASONRY
CEM	CEMENT
CI	CURB INLET
CIP	CAST IRON PIPE
CLF	CHAIN LINK FENCE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CSP	CORRUGATED STEEL PIPE
CO.	COUNTY
CONC	CONCRETE
CONT	CONTINUOUS
CONST	CONSTRUCTION
CR GR	CROWN GRADE
DHV	DESIGN HOURLY VOLUME
DI	DROP INLET
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DW	STEADY DON'T WALK - PORTLAND ORANGE
DWY	DRIVEWAY
ELEV (or EL.)	ELEVATION
EMB	EMBANKMENT
EOP	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
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
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
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PVMT	PAVEMENT
PWW	PAVED WATER WAY

**BELLINGHAM HARTFORD AVENUE (ROUTE 126)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	02	93
PROJECT FILE NO.		2148.00	

**LEGEND & ABBREVIATIONS**

**ABBREVIATIONS (cont.)**

GENERAL	DESCRIPTION
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
SW	SIDEWALK
T	TANGENT DISTANCE OF CURVE/TRUCK %
TAN	TANGENT
TEMP	TEMPORARY
TC	TOP OF CURB
TOS	TOP OF SLOPE
TYP	TYPICAL
UP	UTILITY POLE
VAR	VARIES
VERT	VERTICAL
VC	VERTICAL CURVE
WCR	WHEEL CHAIR RAMP
WG	WATER GATE
WIP	WROUGHT IRON PIPE
WM	WATER METER/WATER MAIN
X-SECT	CROSS SECTION

**TRAFFIC SIGNAL ABBREVIATIONS**

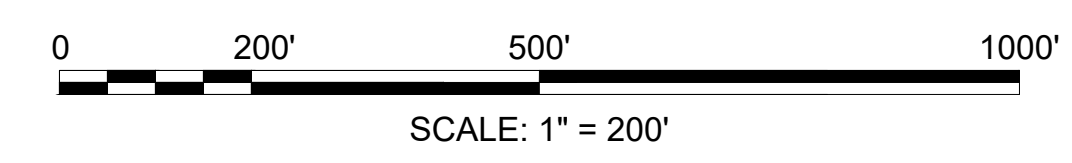
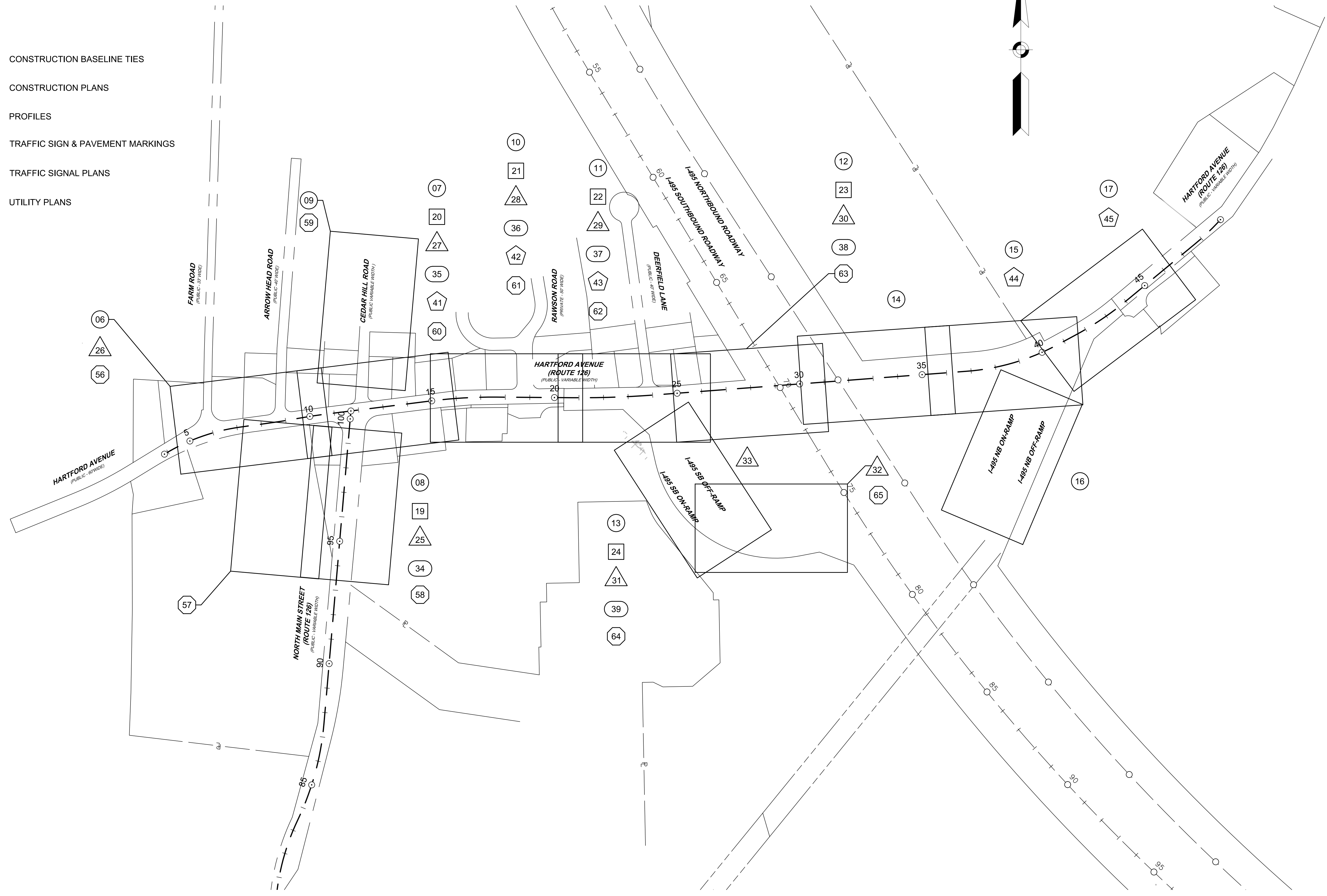
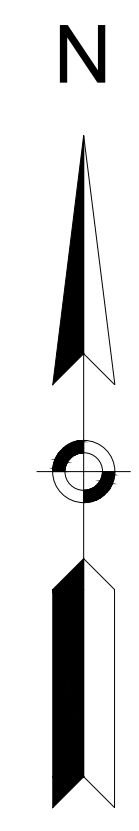
CAB	CABINET
CCVE	CLOSED CIRCUIT VIDEO EQUIPMENT
DW	STEADY UPRAISED HAND
FDW	FLASHING UPRAISED HAND
FRL	FLASHING CIRCULAR RED
FRR	FLASHING RED LEFT ARROW
FRR	FLASHING RED RIGHT ARROW
FYL	FLASHING CIRCULAR YELLOW
FYL	FLASHING YELLOW LEFT ARROW
FYR	FLASHING YELLOW RIGHT ARROW
G	STEADY CIRCULAR GREEN
GL	STEADY GREEN LEFT ARROW
GR	STEADY GREEN RIGHT ARROW
GSL	STEADY GREEN SLASH LEFT ARROW
GSR	STEADY GREEN SLASH RIGHT ARROW
GV	STEADY GREEN VERTICAL ARROW
OL	OVERLAP
PED	PEDESTRIAN
PTZ	PAN, TILT, ZOOM
R	STEADY CIRCULAR RED
RL	STEADY RED LEFT ARROW
RR	STEADY RED RIGHT ARROW
TR SIG	TRAFFIC SIGNAL
TSC	TRAFFIC SIGNAL CONDUIT
W	STEADY WALKING PERSON
Y	STEADY CIRCULAR YELLOW
YL	STEADY YELLOW LEFT ARROW

**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	03	93
PROJECT FILE NO.		2148.00	

**KEY PLAN**

- (XX) CONSTRUCTION BASELINE TIES
- (XX) CONSTRUCTION PLANS
- (XX) PROFILES
- (XX) TRAFFIC SIGN & PAVEMENT MARKINGS
- (XX) TRAFFIC SIGNAL PLANS
- (XX) UTILITY PLANS



**BELLINGHAM  
HARTFORD AVENUE**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	04	93
PROJECT FILE NO.		N/A	

**TYPICAL SECTIONS  
SHEET 01 OF 02**

**PAVEMENT NOTES**

**PROPOSED PAVEMENT MILLING AND PAVEMENT OVERLAY**

SURFACE: 2.50" SUPERPAVE SURFACE COURSE - 12.5 POLYMER (SSC - 12.5 - P) OVER ASPHALT EMULSION FOR TACK COAT (RS-1h) OVER  
MILLING: 2.50" PAVEMENT MILLING

BETWEEN EACH SUPERPAVE COURSE, ASPHALT EMULSION FOR TACK COAT SHALL BE SPRAY- APPLIED FOR DOUBLE OVERLAP COVERAGE OVER SMOOTH SURFACES PER SPECIFICATIONS. SEE STANDARD SPECIFICATIONS FOR RATES OF APPLICATION.

**PROPOSED FULL DEPTH PAVEMENT - FOR ROUTE 126, I-495 RAMP, AND PERMANENT TRENCH PATCHES**

SURFACE: 2.50" SUPERPAVE SURFACE COURSE - 12.5 POLYMER (SSC - 12.5 - P) OVER ASPHALT EMULSION FOR TACK COAT (RS-1h) OVER

INTERMEDIATE: 2.00" SUPERPAVE INTERMEDIATE COURSE - 19.0 - POLYMER (SIC - 19.0 - P) OVER  
ASPHALT EMULSION TACK COAT (RS-1h) OVER

2.00" SUPERPAVE INTERMEDIATE COURSE - 19.0 (SIC - 19.0) OVER ASPHALT EMULSION TACK COAT (RS-1h) OVER

BASE: 4.50" SUPERPAVE BASE COURSE - 37.5 (SBC - 37.5) OVER

SUBBASE: 4" DENSE GRADED CRUSHED STONE FOR SUB-BASE OVER 8" GRAVEL, TYPE b

BETWEEN EACH SUPERPAVE COURSE, ASPHALT EMULSION FOR TACK COAT SHALL BE SPRAY- APPLIED FOR DOUBLE OVERLAP COVERAGE OVER SMOOTH SURFACES PER SPECIFICATIONS. SEE STANDARD SPECIFICATIONS FOR RATES OF APPLICATION.

**PROPOSED SHARED USE PATH, HMA WALK, AND HMA MEDIAN SURFACE**

SURFACE: 1.25" SUPERPAVE SURFACE COURSE OVER  
1.75" SUPERPAVE INTERMEDIATE COURSE OVER

FOUNDATION: 8" GRAVEL BORROW, TYPE b

**PROPOSED HOT MIX ASPHALT DRIVEWAYS, WALKS AT DRIVEWAYS**

SURFACE: 1.5" SUPERPAVE SURFACE COURSE OVER

FOUNDATION: 2.5" SUPERPAVE INTERMEDIATE COURSE OVER 8" GRAVEL BORROW, TYPE b

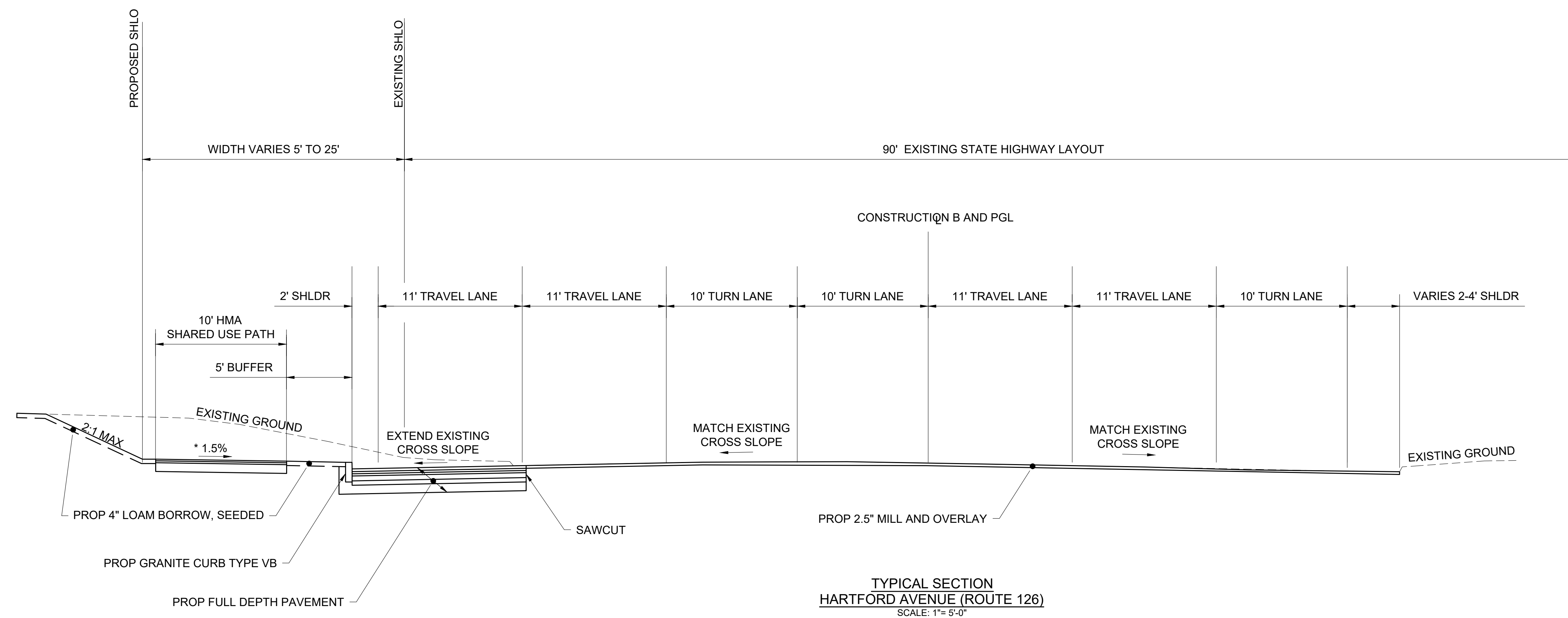
**PROPOSED CEMENT CONCRETE SIDEWALK / WHEELCHAIR RAMP**

SURFACE: 4" CEMENT CONCRETE WALK SURFACE 4000 PSI, 3/4", 610 LB OVER

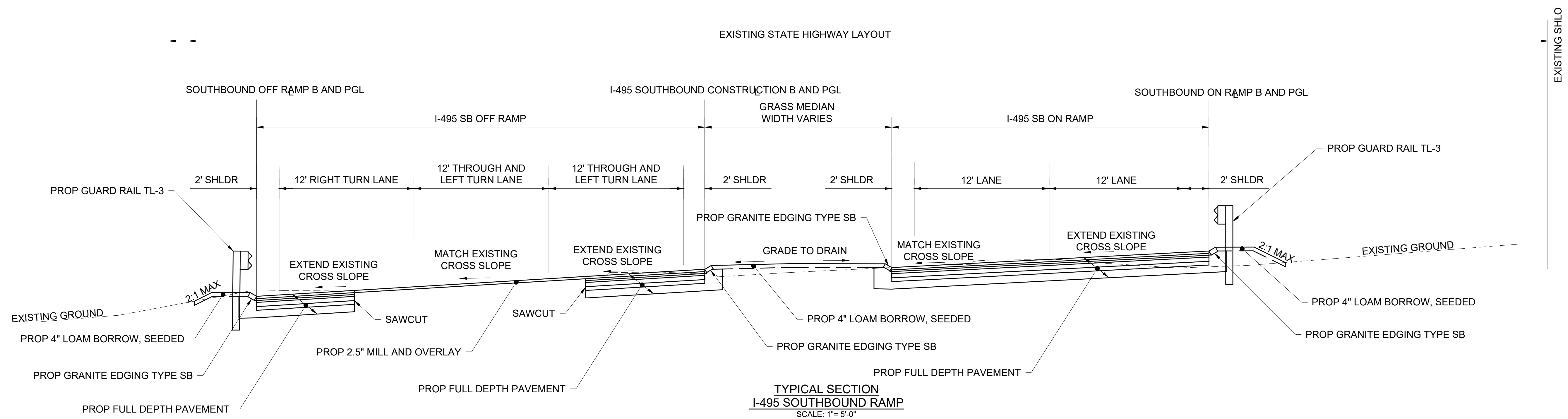
FOUNDATION: 8" GRAVEL BORROW, TYPE b

**NOTES**

- EXISTING PAVEMENT MARKINGS IN CONFLICT WITH PROPOSED LANE MARKINGS TO BE REMOVED, SEE SIGN AND PAVEMENT MARKING PLANS.



\* CONSTRUCTION TOLERANCE ±1.5%

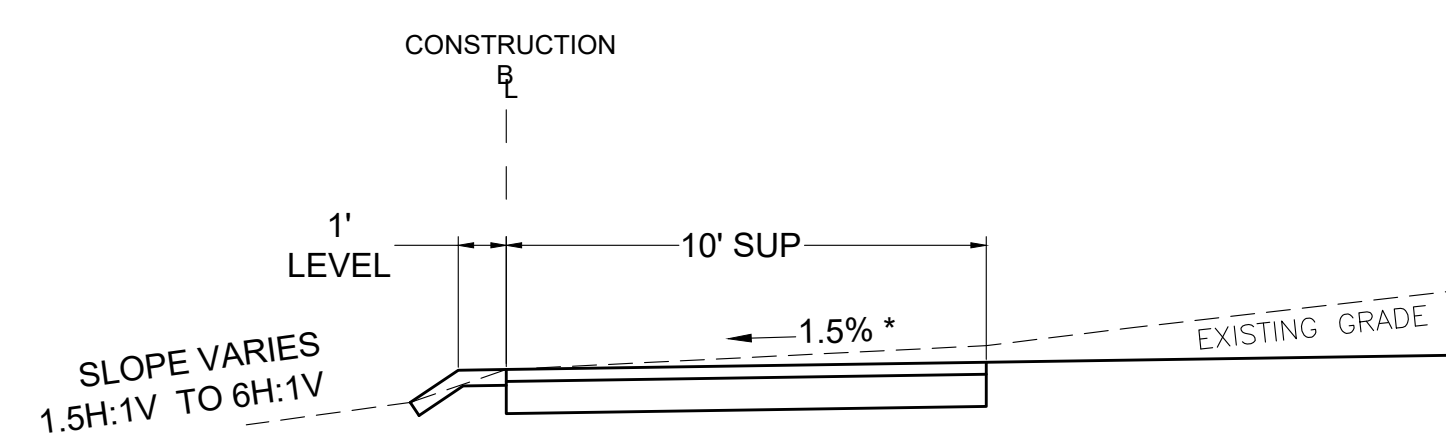




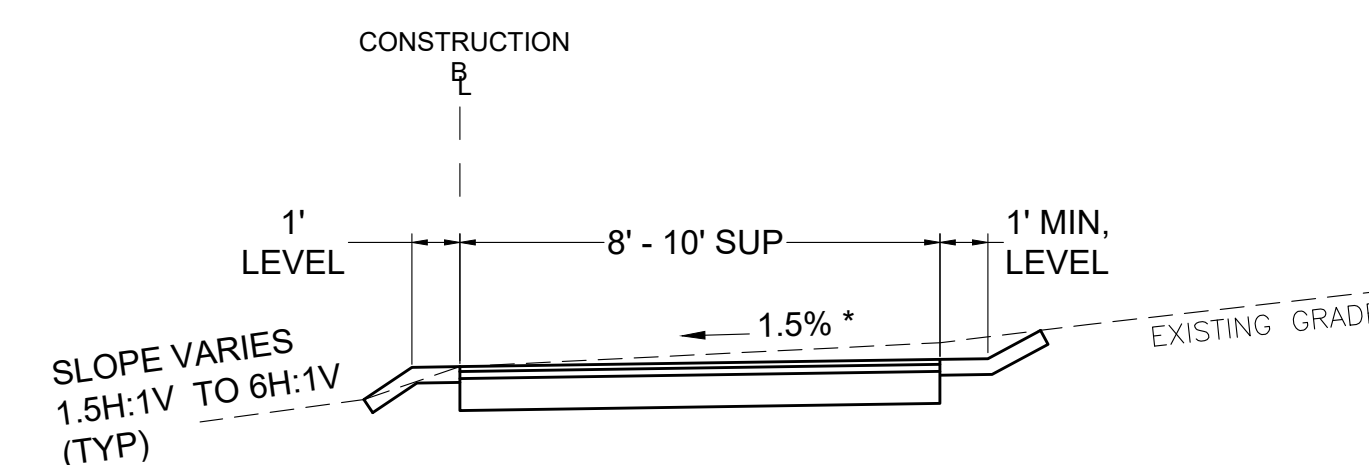
**BELLINGHAM  
HARTFORD AVENUE**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	05	93
PROJECT FILE NO.		N/A	

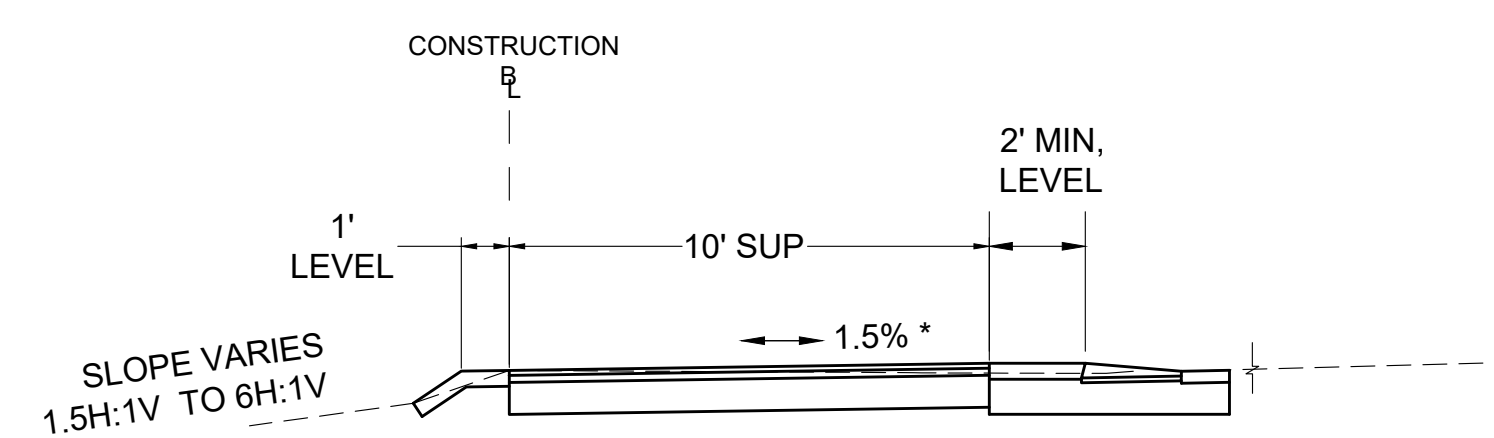
**TYPICAL SECTIONS  
SHEET 02 OF 02**



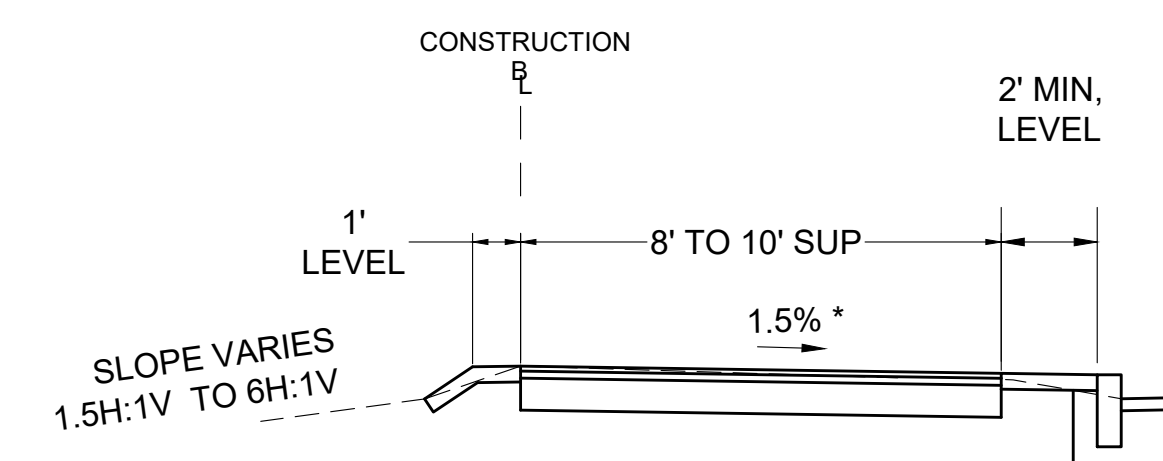
**TYPICAL SECTION  
SHARED USE PATH - ADJACENT TO PARKING LOT**  
SCALE: 1"= 4'-0"



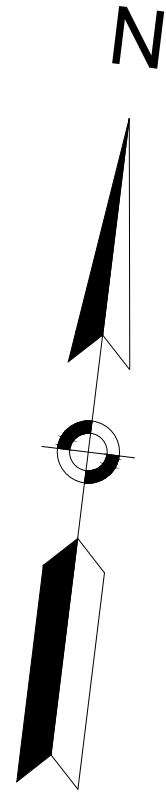
**TYPICAL SECTION  
SHARED USE PATH - LOAM FRONT & BACK**  
SCALE: 1"= 4'-0"



**TYPICAL SECTION  
SHARED USE PATH - GRASS STRIP, HMA BERM**  
SCALE: 1"= 4'-0"



**TYPICAL SECTION  
SHARED USE PATH - GRASS STRIP, NORMAL CROSS SLOPE**  
SCALE: 1"= 4'-0"



**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	06	93

PROJECT FILE NO. 2148.00  
**CONSTRUCTION BASELINE TIES  
SHEET 01 OF 12**

**NOTES:**

1. XXXXX.....  
XXXXX.....
2. XXXXX.....

0024-0002-0000  
n/f  
TIMOTHY F. STEARNS  
4 FARM STREET  
BELLINGHAM, MA 02109  
LCC#148080

**FARM ROAD**  
(PUBLIC - 33' WIDE)  
(PLAN 898 OF 1956)

0024-0003-0000  
n/f  
TIMOTHY C. OBRIEN  
3 FARM STREET  
BELLINGHAM, MA 02109  
BK 8066 PG 151

BENCHMARK: MBMK-CHSX-HYD BNT BOLT  
EL=258.43'

8  
N: 2866482.638'  
E: 663018.850'  
EL: 255.730'  
MAGNAIL-8

6  
N: 2866522.734'  
E: 663243.481'  
EL: 260.944'  
MAGNAIL-6

0024-0004-0000  
n/f  
EFB WHITEBURN CORPORATION  
178 HARTFORD AVENUE  
BELLINGHAM, MA 02019  
P.O. BOX 315  
MILLBURY, MA 01527  
BK 30847 PG 461

**ARROW HEAD ROAD**  
(PUBLIC - 40' WIDE)  
(PLAN 898 OF 1956)

0024-0005-0000  
n/f  
RTE. 85 REALTY CORP  
182 HARTFORD AVENUE  
BELLINGHAM, MA 02019  
8 UXBRIDGE ROAD  
MENDON, MA 01756  
BK 38626 PG 186

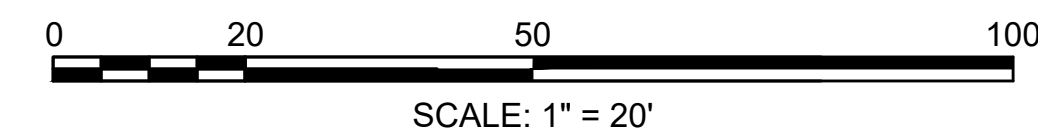
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n/f  
NORMAN G. & CYNTHIA S. HILL  
167 HARTFORD AVENUE  
BELLINGHAM, MA 02109  
52 MILLBURY STREET  
GRAFTON, MA 01519  
BK 10096 PG 78

BENCHMARK: MBMK-BNT BOLT  
EL=256.06'

0024-0020-0000  
n/f  
HARTFORD REALTY TRUST  
HARTFORD AVENUE  
BELLINGHAM, MA 02109  
C/O ALEXANDER HARCOVITZ  
256 ORCHARD STREET  
MILLIS, MA 02054  
BK 4488 PG 394

BENCHMARK: MBMK-HYD BNT BOLT  
EL=266.21'

0024-0022-0000  
n/f  
GLOBAL COMPANIES LLC  
270 NORTH MAIN STREET  
BELLINGHAM, MA 02019  
BK 28008 PG 245



CONTINUED ON  
SHEET NO. 07

2148.00\_HD(CONST BL TIES).DWG Plotted on 10-Jan-2022 5:39 PM

**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

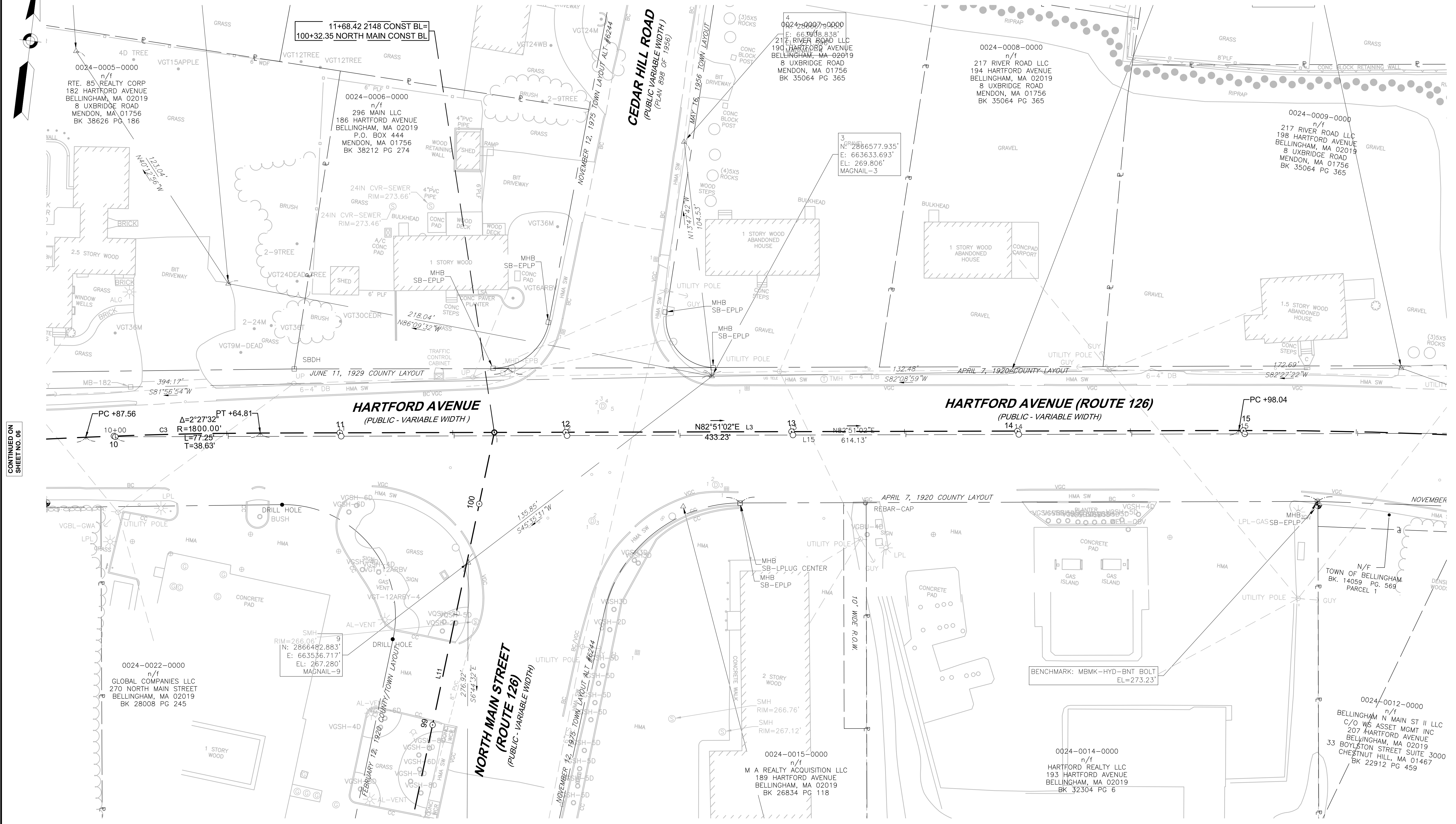
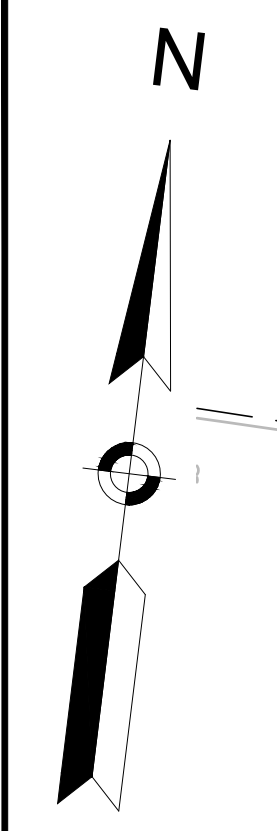
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	07	93
PROJECT FILE NO.		2148.00	

**CONSTRUCTION BASELINE TIES  
SHEET 02 OF 12**

**NOTES:**

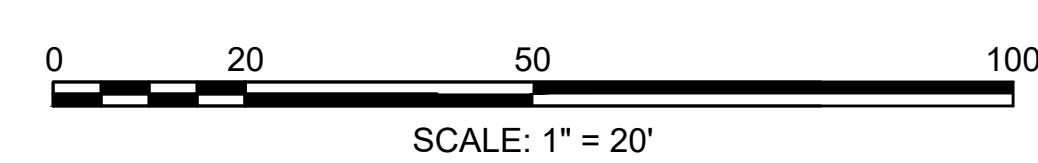
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XXXXX.....
- XXXXX.....

CONTINUED ON  
SHEET NO. 09



CONTINUED ON  
SHEET NO. 06

CONTINUED ON  
SHEET NO. 10



CONTINUED ON  
SHEET NO. 08

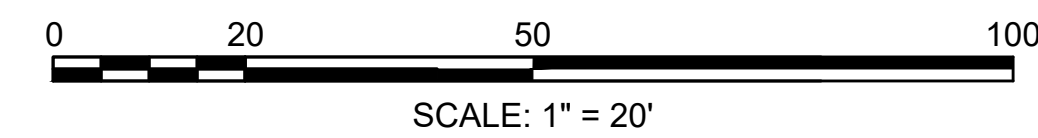
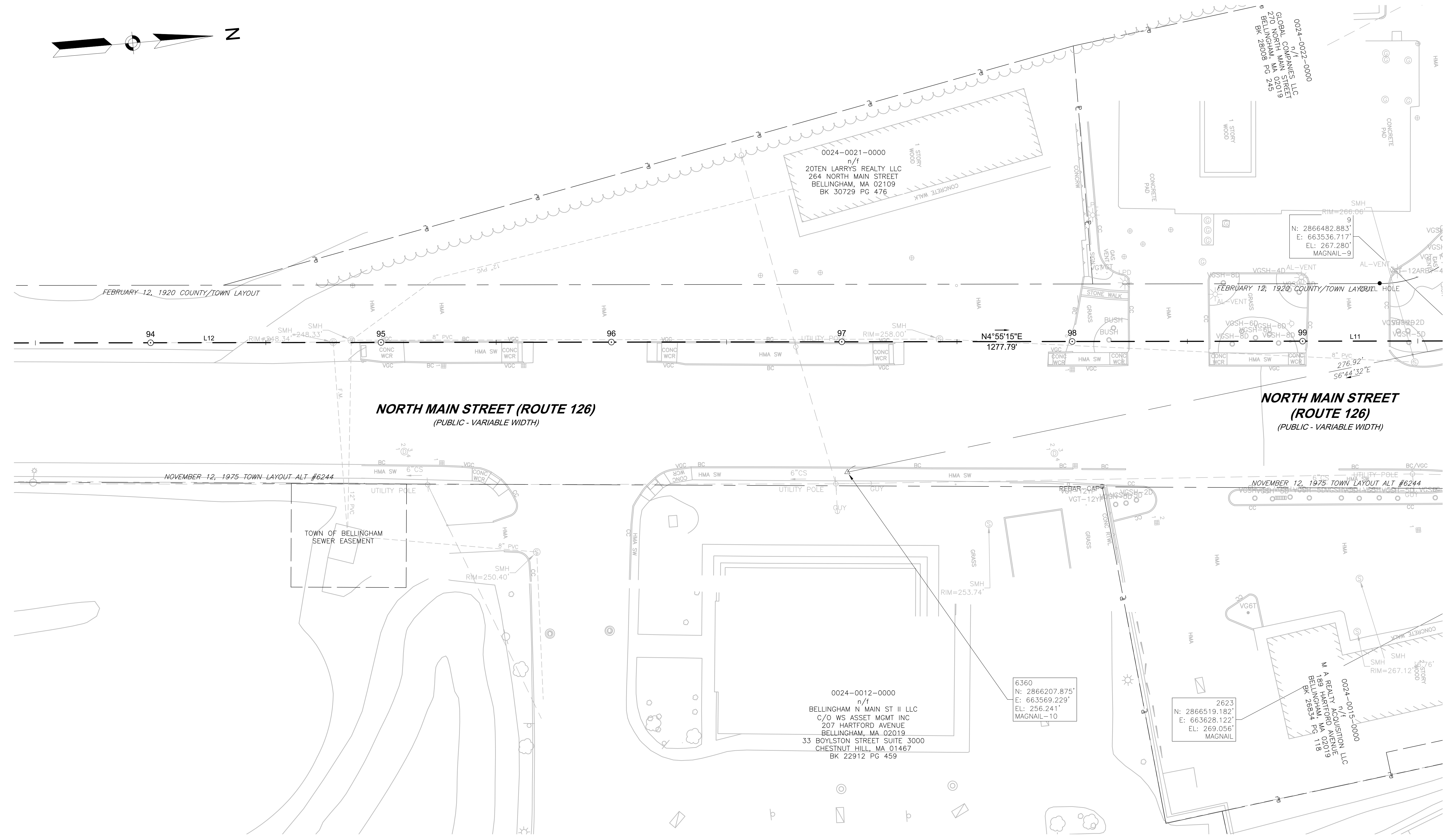
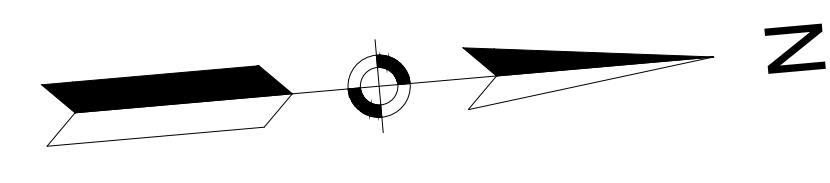
**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	08	93
PROJECT FILE NO. 2148.00			

**CONSTRUCTION BASELINE TIES  
SHEET 03 OF 12**

**NOTES:**

- XXXXX.....  
XXXXX.....
- XXXXX.....



CONTINUED ON  
SHEET NO. 07

2148.00\_HJD(CONST BL TIES).DWG Ploited on 10-Jan-2022 5:39 PM



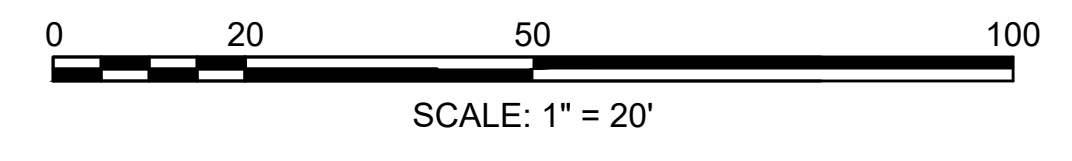
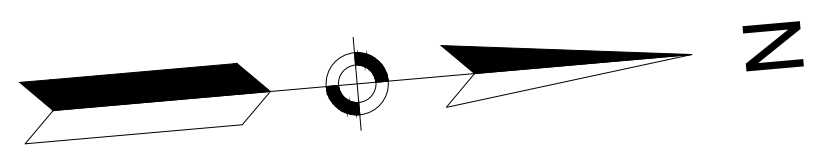
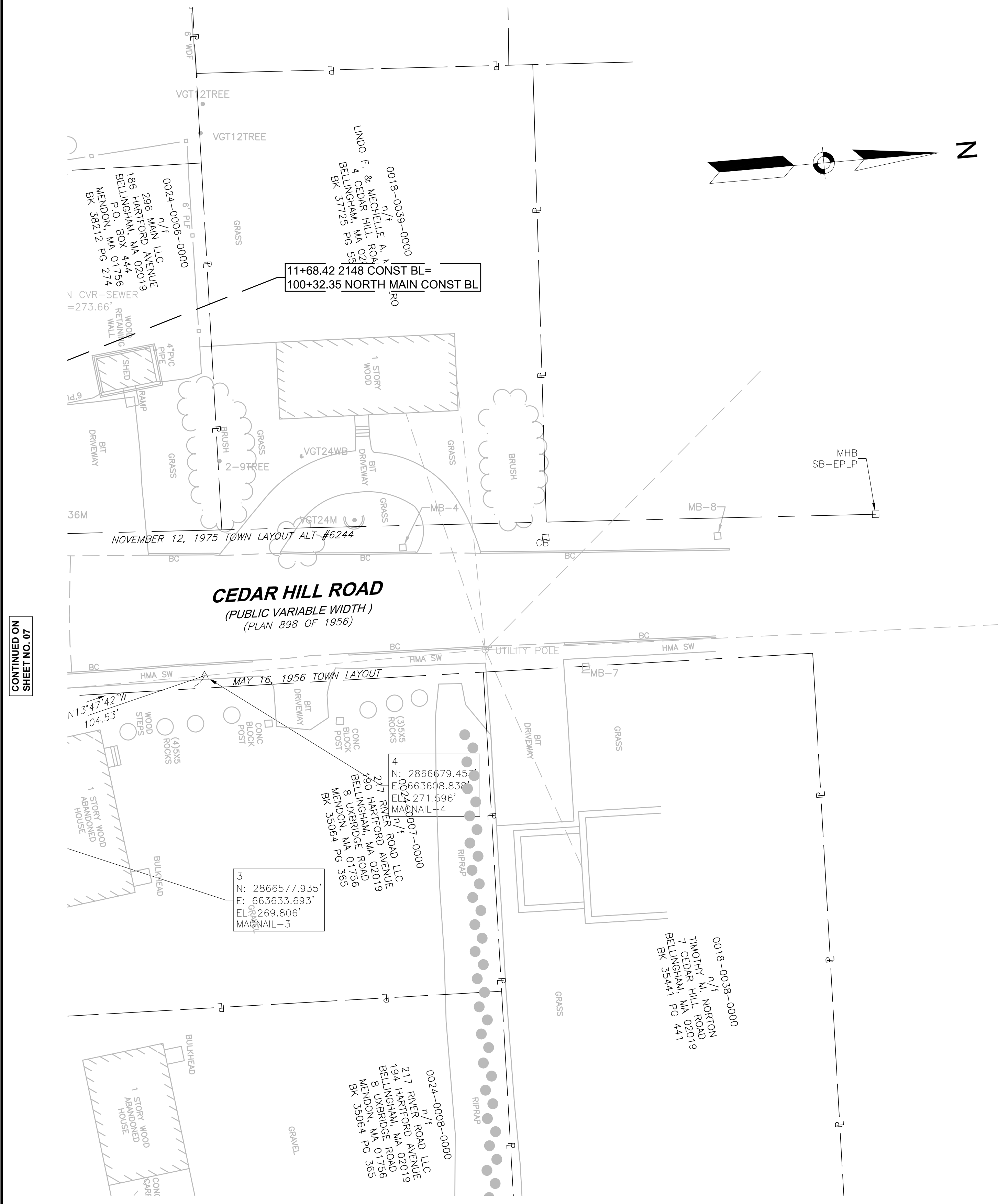
**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	09	93
PROJECT FILE NO.		2148.00	

**CONSTRUCTION BASELINE TIES  
SHEET 04 OF 12**

**NOTES:**

1. XXXXX.....  
XXXXX.....
2. XXXXX.....



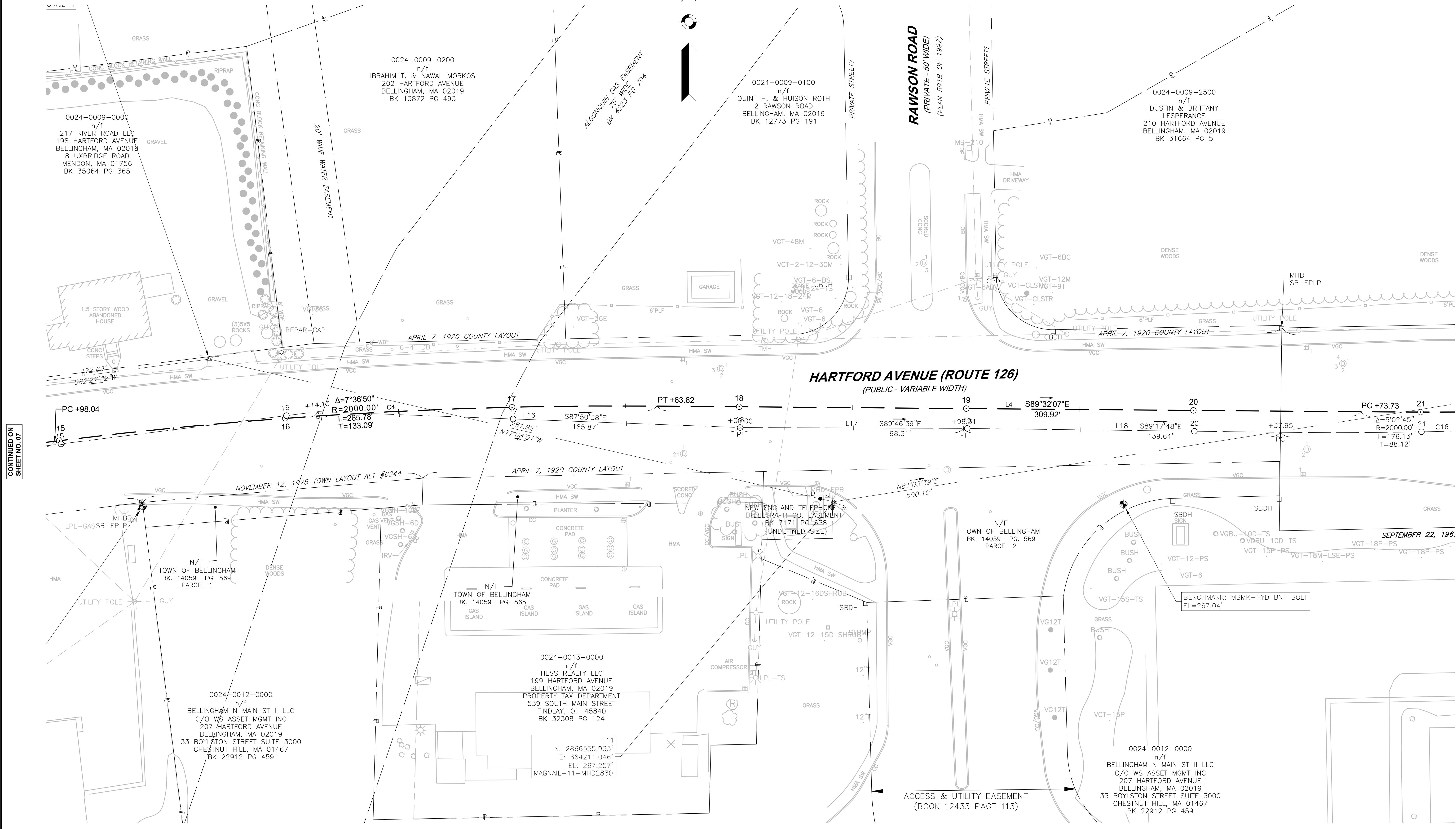
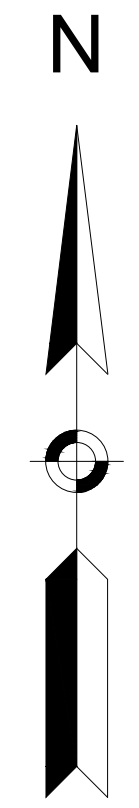
CONTINUED ON  
SHEET NO. 07

**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	10	93
PROJECT FILE NO.		2148.00	

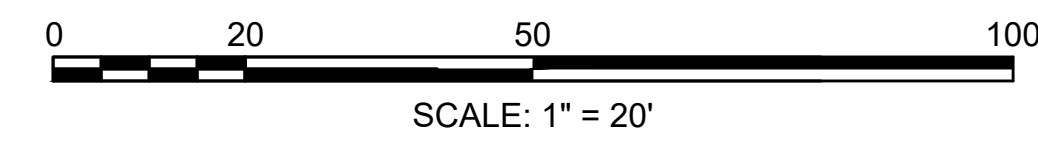
**CONSTRUCTION BASELINE TIES  
SHEET 05 OF 12**

- NOTES:**
- XXXXX.....  
XXXXX.....
  - XXXXX.....



CONTINUED ON  
SHEET NO. 07

CONTINUED ON  
SHEET NO. 11



**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

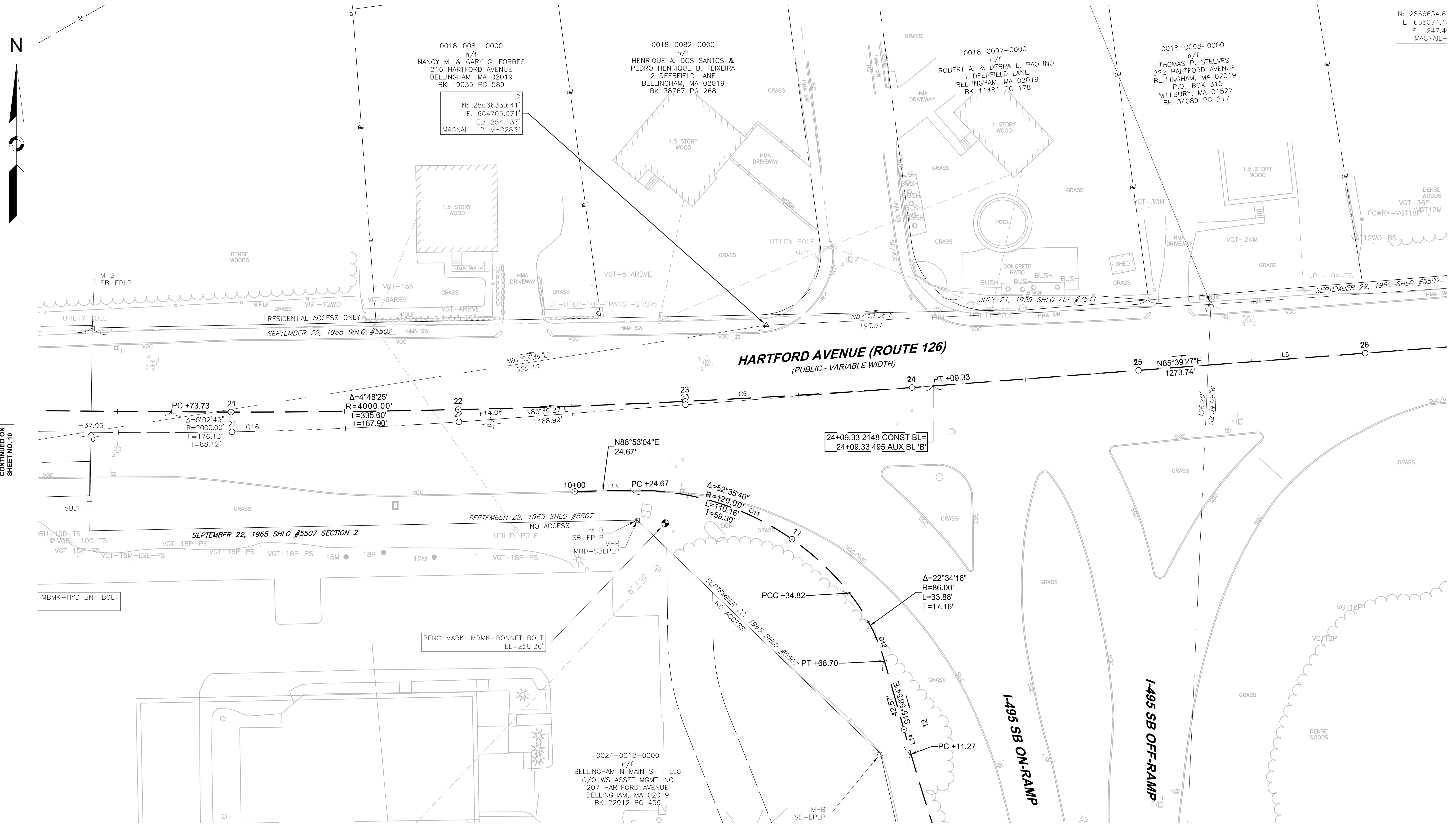
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MA	-	11	93
PROJECT FILE NO.		2148.00	

**CONSTRUCTION BASELINE TIES  
SHEET 06 OF 12**

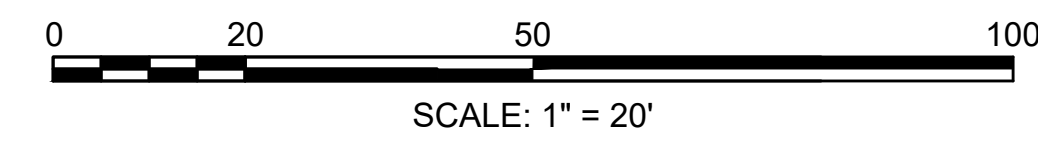
**NOTES:**

- XXXXX.....  
XXXXX.....
- XXXXX.....

N: 2866654.6  
E: 665074.1  
EL: 247.4  
MAGNAIL-



**HARTFORD AVENUE (ROUTE 126)  
(PUBLIC - VARIABLE WIDTH)**



CONTINUED ON  
SHEET NO. 10

CONTINUED ON  
SHEET NO. 12

CONTINUED ON  
SHEET NO. 13

HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

SEE BELOW

WATER SUPPLY ALTERATIONS

SEE BELOW

DRAINAGE DETAILS

SEE BELOW

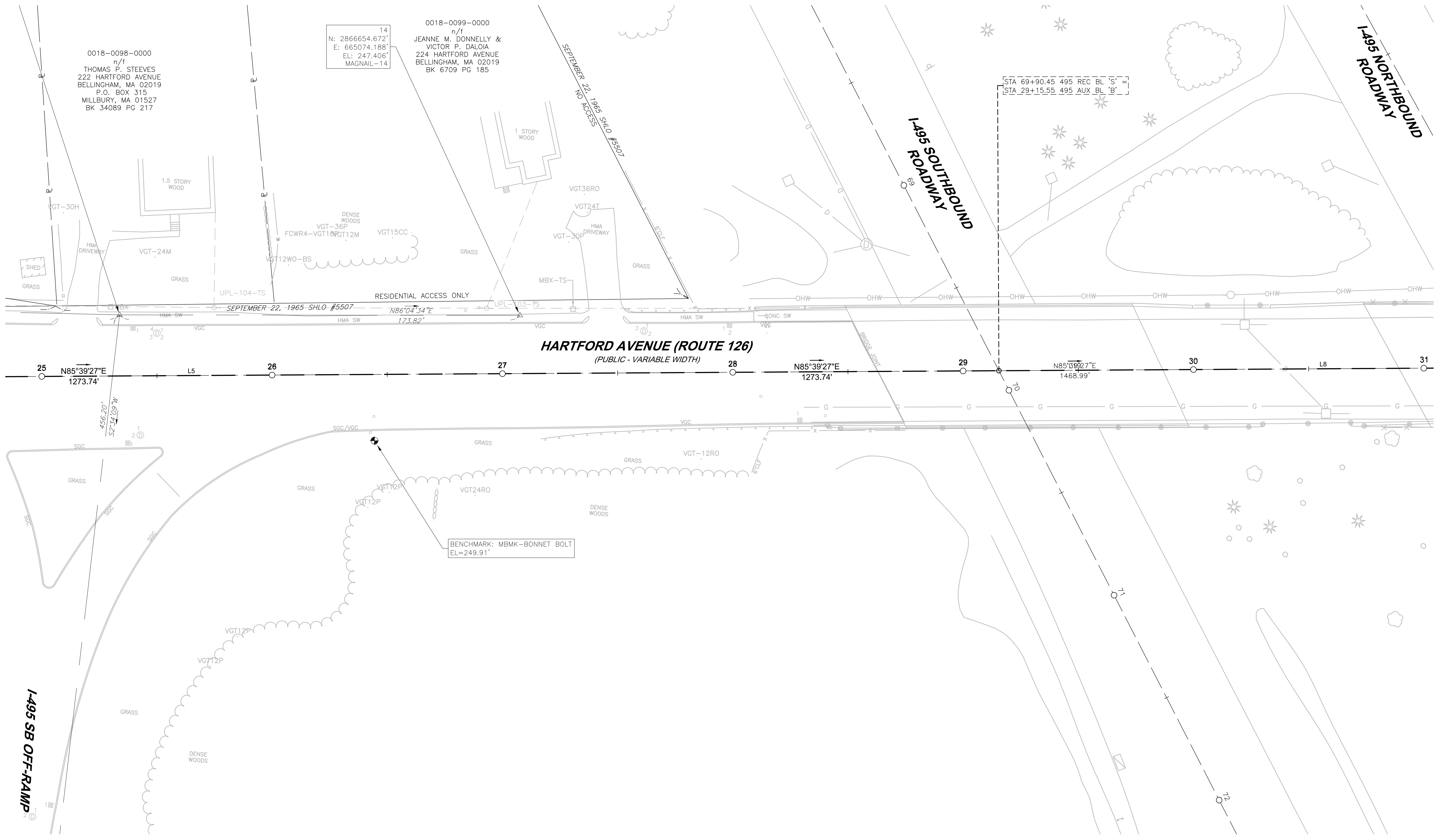
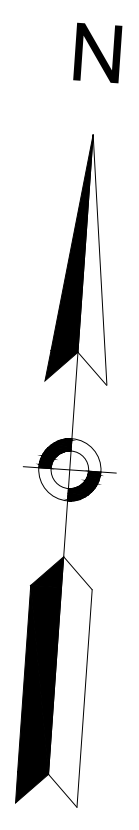
NOTES:

- 1. XXXXX.....
- 2. XXXXX.....

**BELLINGHAM**  
**HARTFORD AVENUE (ROUTE 126)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	12	93

PROJECT FILE NO. 2148.00  
**CONSTRUCTION BASELINE TIES**  
**SHEET 07 OF 12**



0018-0098-0000  
 n/f  
 THOMAS F. STEEVES  
 222 HARTFORD AVENUE  
 BELLINGHAM, MA 02019  
 P.O. BOX 315  
 MILLBURY, MA 01527  
 BK 34089 PG 217

14  
 N: 2866654.672'  
 E: 665074.188'  
 EL: 247.406'  
 MAGNAIL-14

0018-0099-0000  
 n/f  
 JEANNE M. DONNELLY &  
 VICTOR P. DALOIA  
 224 HARTFORD AVENUE  
 BELLINGHAM, MA 02019  
 BK 6709 PG 185

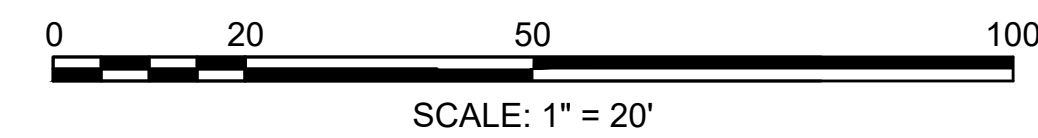
STA 69+90.45 495 REC BL 'S'  
 STA 29+15.55 495 AUX BL 'B'

BENCHMARK: MBMK-BONNET BOLT  
 EL=249.91'

CONTINUED ON  
 SHEET NO. 11

CONTINUED ON  
 SHEET NO. 14

CONTINUED ON  
 SHEET NO. 13





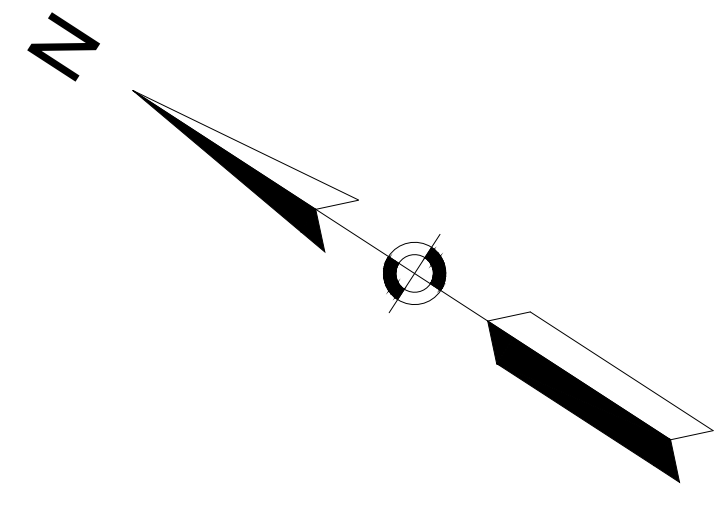
**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	13	93

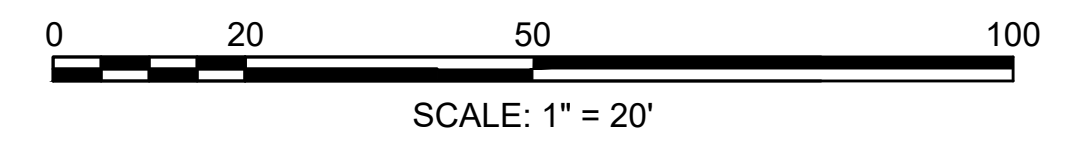
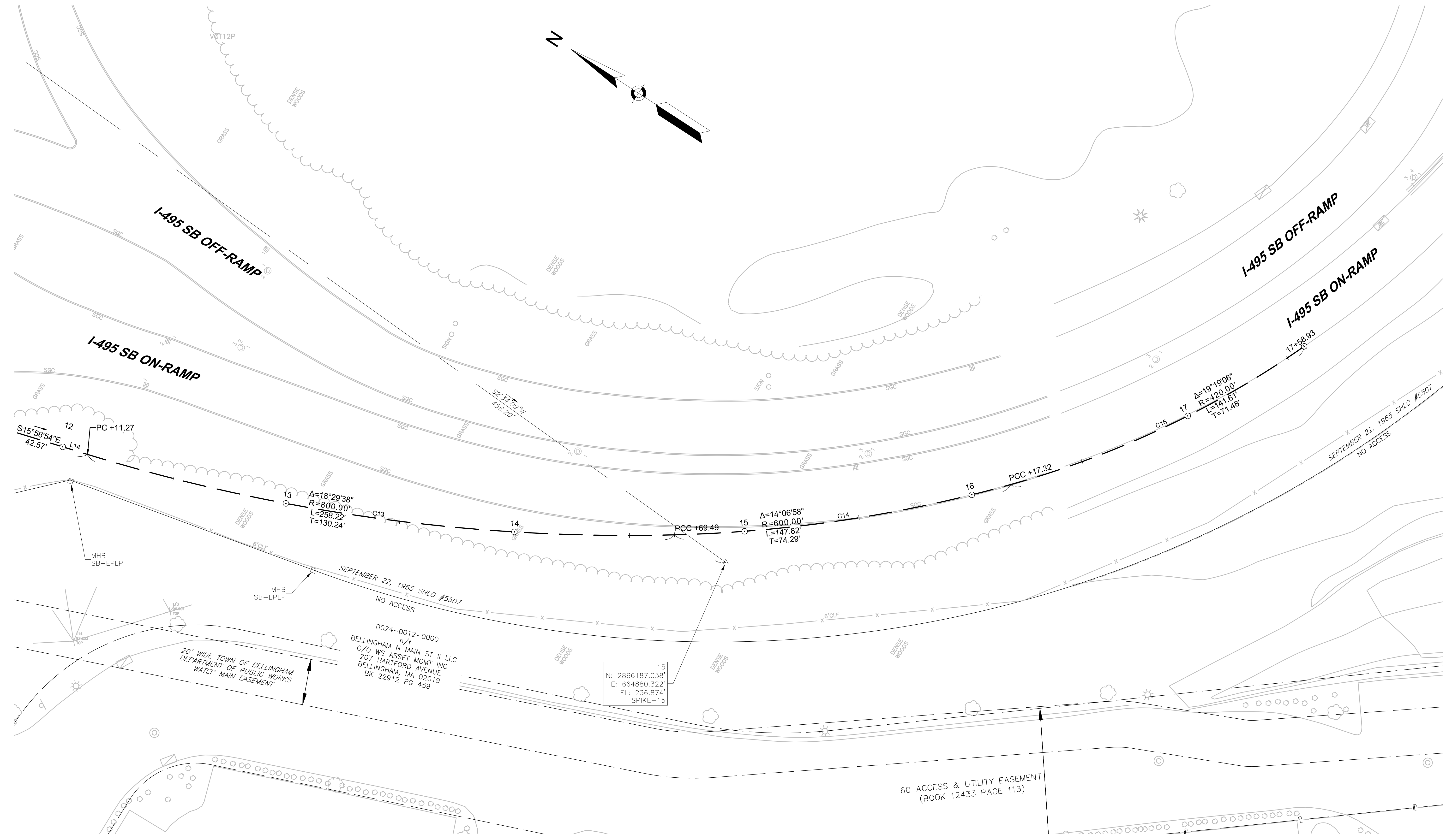
PROJECT FILE NO. 2148.00  
**CONSTRUCTION BASELINE TIES  
SHEET 08 OF 12**

**NOTES:**

1. XXXXX.....  
XXXXX.....
2. XXXXX.....



CONTINUED ON  
SHEET NO. 11



**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	14	93
PROJECT FILE NO.		2148.00	

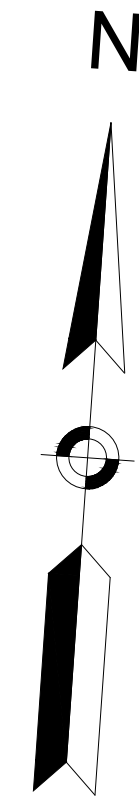
**CONSTRUCTION BASELINE TIES  
SHEET 09 OF 12**

**NOTES:**

- XXXXX.....  
XXXXX.....
- XXXXX.....

CONTINUED ON  
SHEET NO. XX

0019-0001-0000  
n/f  
WAL-MART REAL ESTATE BUSINESS TRUST  
250 HARTFORD AVENUE  
BELLINGHAM, MA 02019  
BK 14260 PG 573



**I-495 NORTHBOUND  
ROADWAY**

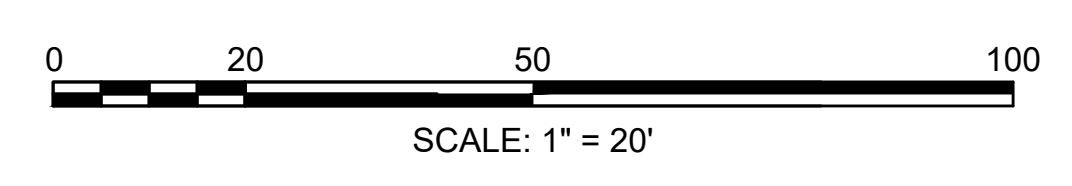
NO ACCESS  
SEPTEMBER 22, 1995 SHLO #5607

STA 70+05.30 495 REC BL 'N' =  
STA 31+59.57 495 AUX BL 'B' =

**HARTFORD AVENUE (ROUTE 126)**  
(PUBLIC - VARIABLE WIDTH)

N85°39'27"E  
1468.99'

N85°39'27"E  
1273.74'



CONTINUED ON  
SHEET NO. 12

CONTINUED ON  
SHEET NO. 15

**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

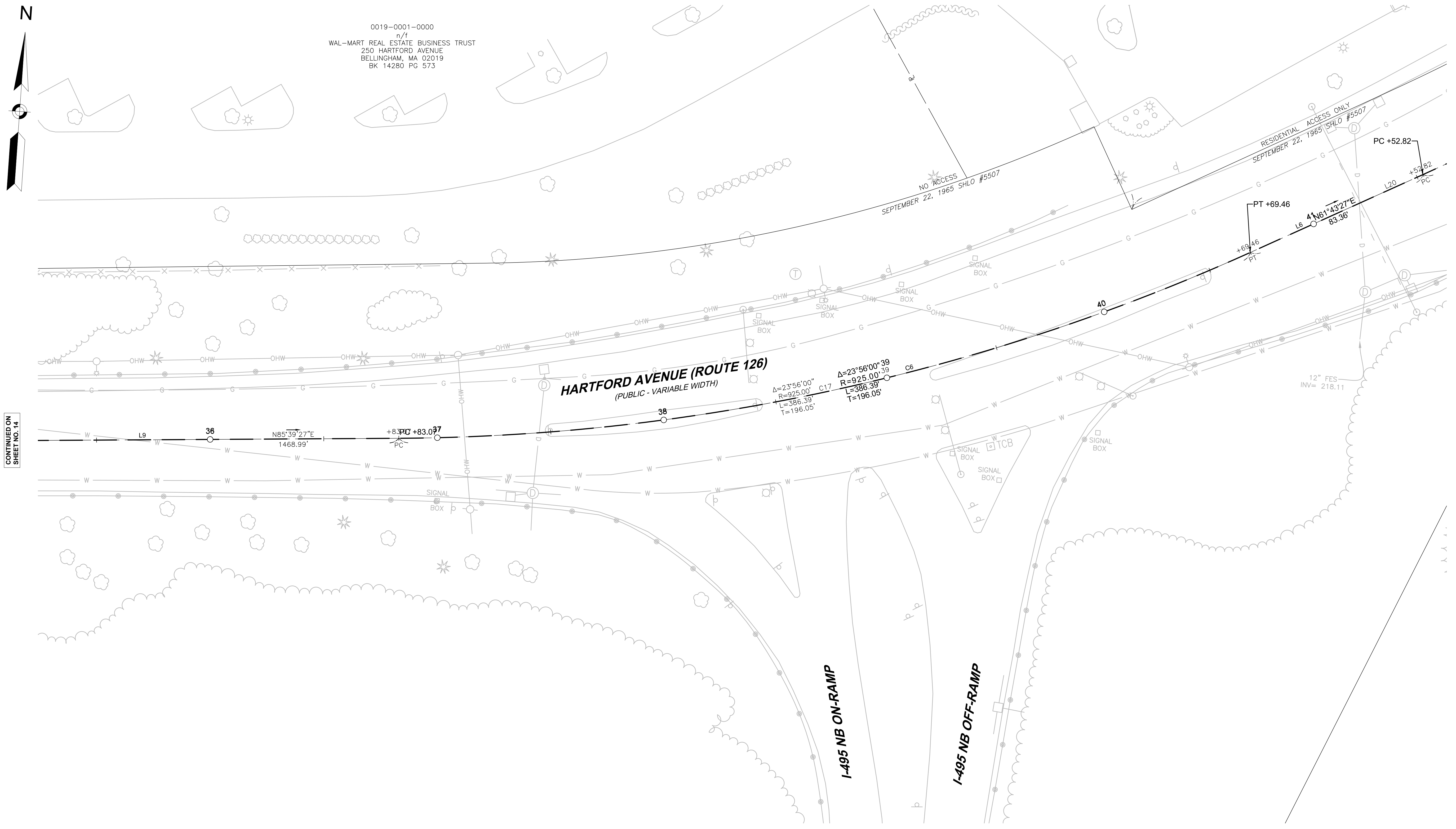
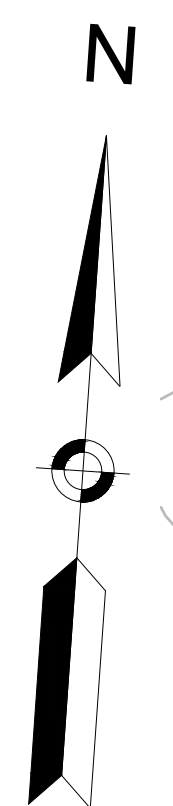
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	15	93
PROJECT FILE NO.		2148.00	

**CONSTRUCTION BASELINE TIES  
SHEET 10 OF 12**

**NOTES:**

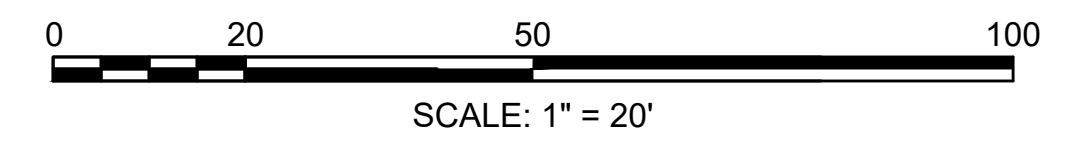
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XXXXX.....
2. XXXXX.....

0019-0001-0000  
n/f  
WAL-MART REAL ESTATE BUSINESS TRUST  
250 HARTFORD AVENUE  
BELLINGHAM, MA 02019  
BK 14280 PG 573



CONTINUED ON  
SHEET NO. 14

CONTINUED ON  
SHEET NO. 17



CONTINUED ON  
SHEET NO. 16

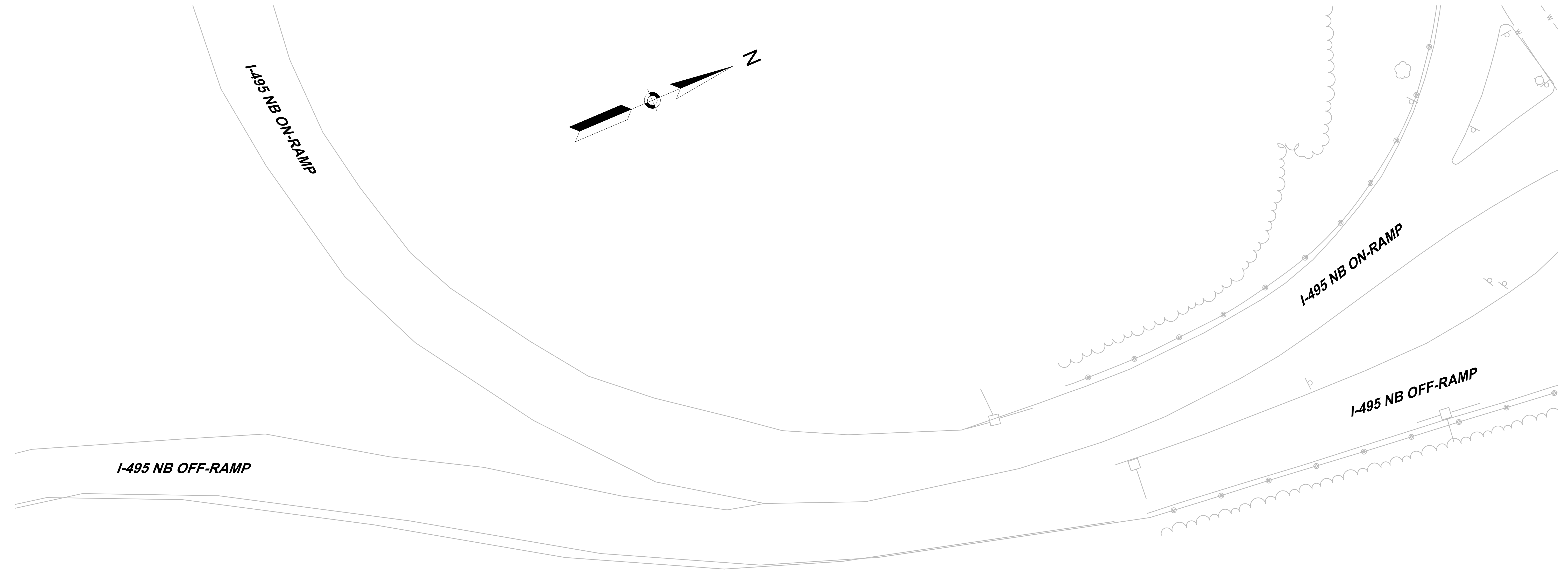
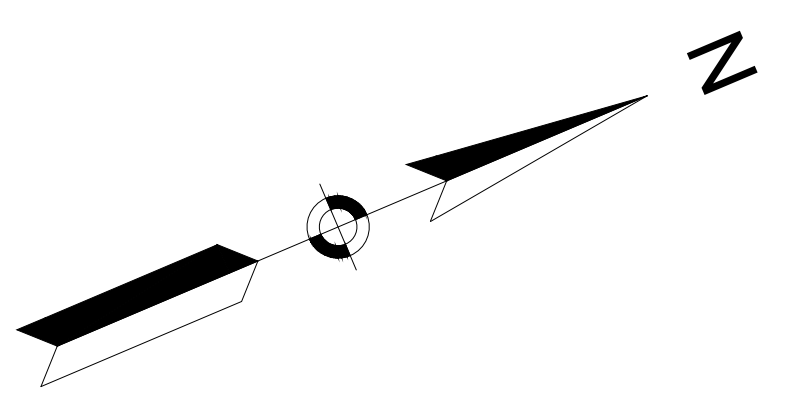
BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	16	93
PROJECT FILE NO.		2148.00	

CONSTRUCTION BASELINE TIES  
SHEET 11 OF 12

NOTES:

- XXXXX.....  
XXXXX.....
- XXXXX.....



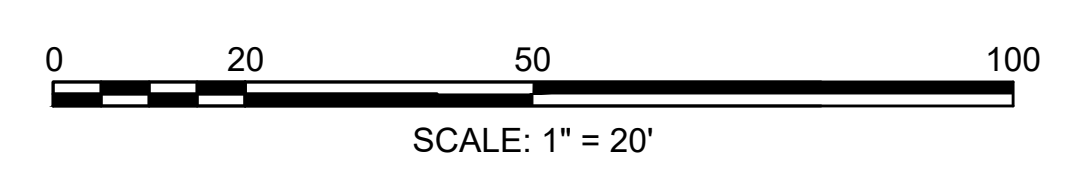
I-495 NB OFF-RAMP

I-495 NB ON-RAMP

I-495 NB ON-RAMP

I-495 NB OFF-RAMP

SEPTEMBER 22, 1965 SHLO #5507  
NO ACCESS



LOCA

CONTINUED ON  
SHEET NO. 15



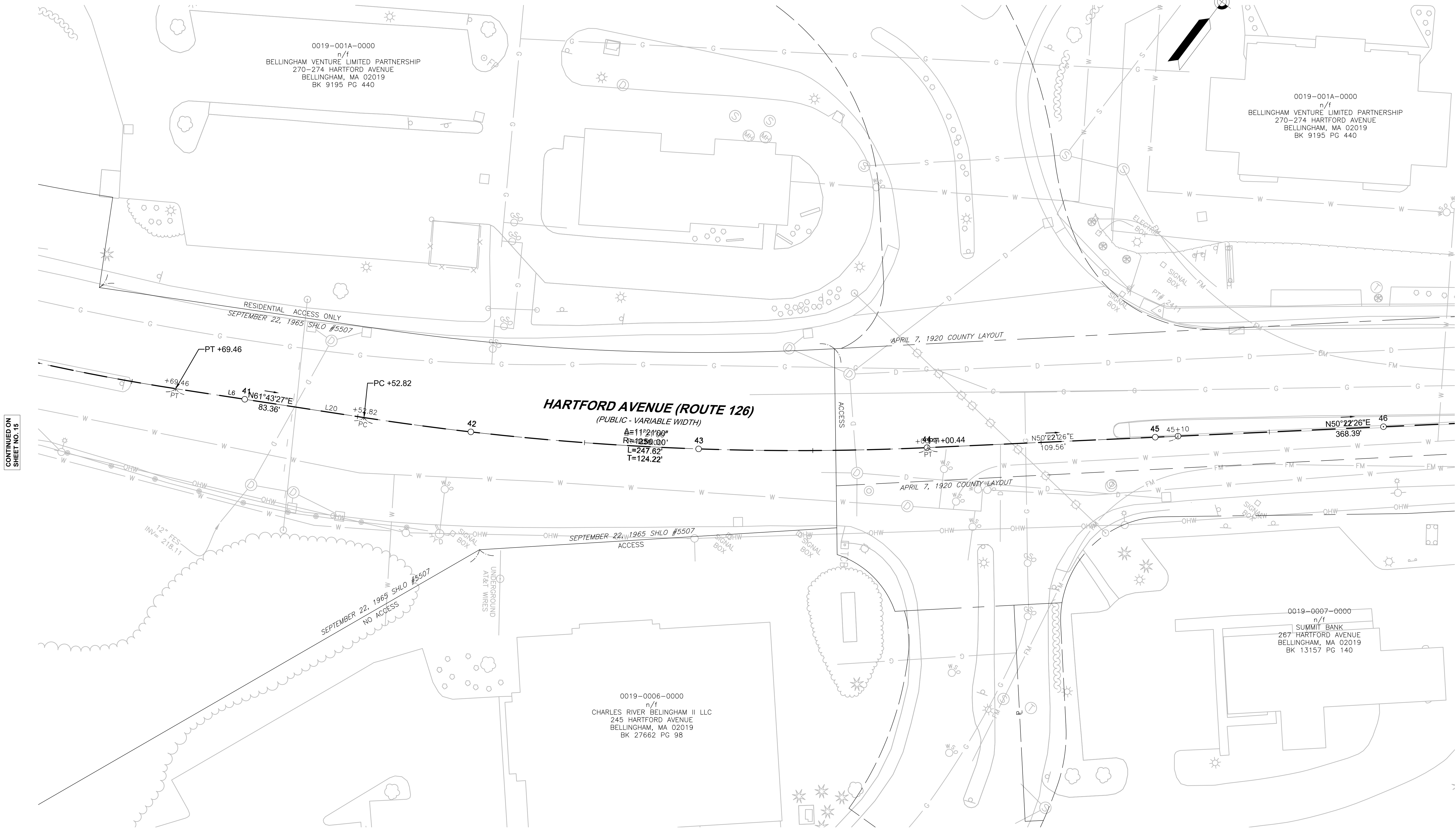
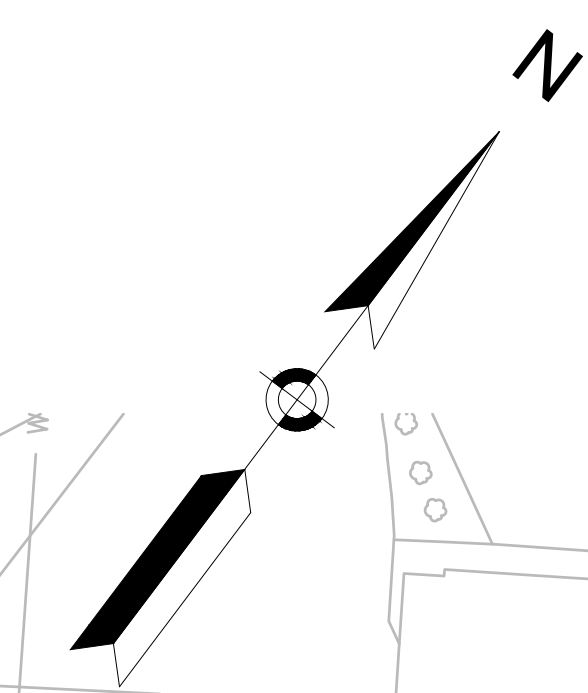
**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	17	93

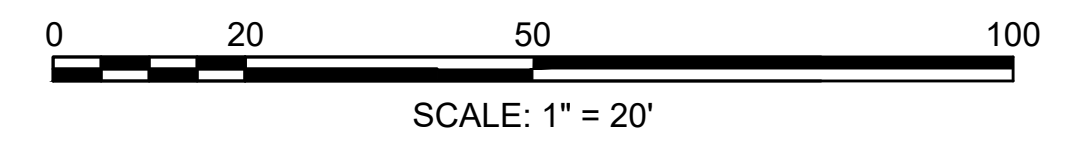
PROJECT FILE NO. 2148.00  
**CONSTRUCTION BASELINE TIES  
SHEET 12 OF 12**

**NOTES:**

- XXXXX.....  
XXXXX.....
- XXXXX.....



**HARTFORD AVENUE (ROUTE 126)**  
(PUBLIC - VARIABLE WIDTH)  
 $\Delta = 11^{\circ}21'00''$   
 $R = 1250.00'$   
 $L = 247.62'$   
 $T = 124.22'$



CONTINUED ON  
SHEET NO. 15

**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	18	93
PROJECT FILE NO.		2148.00	

**CONSTRUCTION BASELINE TIES  
BASELINE DATA TABLES**

**2148 CONST BL CONSTRUCTION BASELINE DATA**

NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C1	3+83.40	2866365.822	662782.302	R= 800.00' Δ= 23°26'18" L=327.26' T=165.95'		7+10.66	2866475.535	663088.206
L1	7+10.66	2866475.535	663088.206		N81°59'20"E 133.44'	8+44.10	2866494.131	663220.341
C2	8+44.10	2866494.131	663220.341	R= 1800.00' Δ= 1°35'50" L=50.18' T=25.09'		8+94.27	2866501.816	663269.924
L2	8+94.27	2866501.816	663269.924		N80°23'30"E 93.28'	9+87.56	2866517.386	663361.897
C3	9+87.56	2866517.386	663361.897	R= 1800.00' Δ= 2°27'32" L=77.25' T=38.63'		10+64.81	2866528.642	663438.317
L3	10+64.81	2866528.642	663438.317		N82°51'02"E 433.23'	14+98.04	2866582.560	663868.180
C4	14+98.04	2866582.560	663868.180	R= 2000.00' Δ= 7°36'50" L=265.78' T=133.09'		17+63.82	2866598.045	664133.312
L4	17+63.82	2866598.045	664133.312		S89°32'07"E 309.92'	20+73.73	2866595.531	664443.217
C5	20+73.73	2866595.531	664443.217	R= 4000.00' Δ= 4°48'25" L=335.60' T=167.90'		24+09.33	2866606.883	664778.523
L5	24+09.33	2866606.883	664778.523		N85°39'27"E 1273.74'	36+83.07	2866703.327	666048.606
L8	24+09.33	2866606.883	664778.523		N85°39'27"E 1273.74'	36+83.07	2866703.327	666048.606
L9	24+09.33	2866606.883	664778.523		N85°39'27"E 1273.74'	36+83.07	2866703.327	666048.606
C6	36+83.07	2866703.327	666048.606	R= 925.00' Δ= 23°56'00" L=386.39' T=196.05'		40+69.46	2866811.046	666416.756
L6	40+69.46	2866811.046	666416.756		N61°43'27"E 83.36'	41+52.82	2866850.535	666490.170
C7	41+52.82	2866850.535	666490.170	R= 1250.00' Δ= 11°21'00" L=247.62' T=124.22'		44+00.44	2866988.601	666695.239
L7	44+00.44	2866988.601	666695.239		N50°22'26"E 368.39'	47+68.82	2867223.548	666978.979
C8	47+68.82	2867223.548	666978.979	R= 1000.00' Δ= 8°02'47" L=140.44' T=70.33'		49+09.26	2867320.404	667080.513

**NORTH MAIN CONST BL CONSTRUCTION BASELINE DATA**

NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L10	76+61.60	2864205.782	663224.210		N1°47'35"E 293.38'	79+54.98	2864499.018	663233.390
C9	79+54.98	2864499.018	663233.390	R= 947.68' Δ= 23°41'51" L=391.96' T=198.82'		83+46.94	2864877.212	663325.175
C10	83+46.94	2864877.212	663325.175	R= 1135.42' Δ= 20°34'10" L=407.62' T=206.03'		87+54.56	2865268.453	663431.514
L12	87+54.56	2865268.453	663431.514		N4°55'15"E 1277.79'	100+32.35	2866541.537	663541.123
L11	87+54.56	2865268.453	663431.514		N4°55'15"E 1277.79'	100+32.35	2866541.537	663541.123

**495 SB ON-RAMP RT CONSTRUCTION BASELINE DATA**

NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L13	10+00.00	2866560.496	664620.802		N88°53'04"E 24.67'	10+24.67	2866560.976	664645.464
C11	10+24.67	2866560.976	664645.464	R= 120.00' Δ= 52°35'46" L=110.16' T=59.30'		11+34.82	2866515.733	664741.688
C12	11+34.82	2866515.733	664741.688	R= 86.00' Δ= 22°34'16" L=33.88' T=17.16'		11+68.70	2866485.804	664757.091
L14	11+68.70	2866485.804	664757.091		S15°56'54"E 42.57'	12+11.27	2866444.876	664768.787
C13	12+11.27	2866444.876	664768.787	R= 800.00' Δ= 18°29'38" L=258.22' T=130.24'		14+69.49	2866212.233	664878.237
C14	14+69.49	2866212.233	664878.237	R= 600.00' Δ= 14°06'58" L=147.82' T=74.29'		16+17.32	2866101.799	664975.941
C15	16+17.32	2866101.799	664975.941	R= 420.00' Δ= 19°19'06" L=141.61' T=71.48'		17+58.93	2866027.566	665095.748

**495 AUX BL 'B' CONSTRUCTION BASELINE DATA**

NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L15	10+00.00	2866519.165	663374.817		N82°51'02"E 614.13'	16+14.13	2866595.597	663984.169
L16	16+14.13	2866595.597	663984.169		S87°50'38"E 185.87'	18+00.00	2866588.604	664169.907
L17	18+00.00	2866588.604	664169.907		S89°46'39"E 98.31'	18+98.31	2866588.222	664268.216
L18	18+98.31	2866588.222	664268.216		S89°17'48"E 139.64'	20+37.95	2866586.508	664407.846
C16	20+37.95	2866586.508	664407.846	R= 2000.00' Δ= 5°02'45" L=176.13' T=88.12'		22+14.08	2866592.099	664583.833
L19	22+14.08	2866592.099	664583.833		N85°39'27"E 1468.99'	36+83.07	2866703.327	666048.606
C17	36+83.07	2866703.327	666048.606	R= 925.00' Δ= 23°56'00" L=386.39' T=196.05'		40+69.46	2866811.046	666416.756
L20	40+69.46	2866811.046	666416.756		N61°43'27"E 83.36'	41+52.82	2866850.535	666490.170
C18	41+52.82	2866850.535	666490.170	R= 1250.00' Δ= 11°21'00" L=247.62' T=124.22'		44+00.44	2866988.601	666695.239
L21	44+00.44	2866988.601	666695.239		N50°22'26"E 109.56'	45+10.00	2867058.476	666779.625

HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

SEE TRAFFIC SIGNAL PLANS

WATER SUPPLY ALTERATIONS

SEE UTILITY PLANS

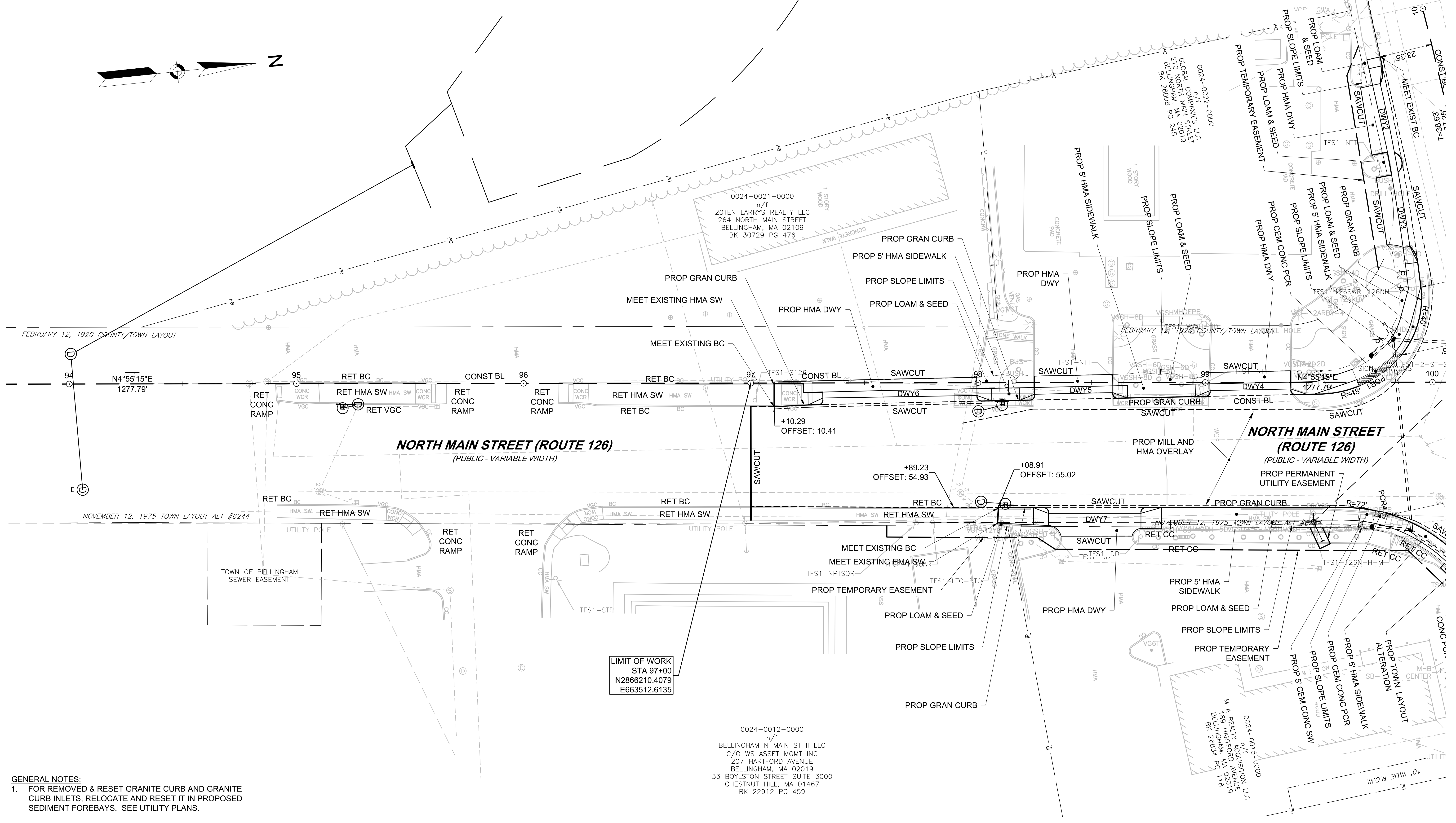
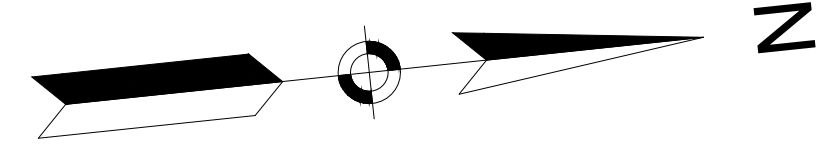
DRAINAGE DETAILS

SEE UTILITY PLANS

**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	19	93
PROJECT FILE NO.		2148.00	

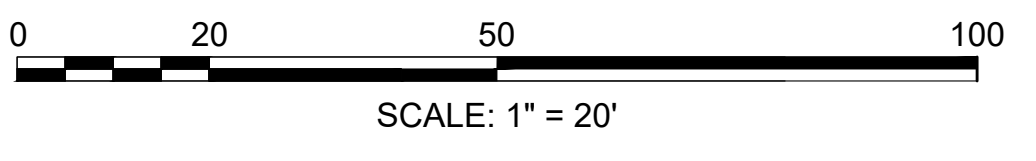
**CONSTRUCTION PLANS  
SHEET 01 OF 06**



LIMIT OF WORK  
 STA 97+00  
 N2866210.4079  
 E663512.6135

0024-0012-0000  
 n/f  
 BELLINGHAM N MAIN ST II LLC  
 C/O WS ASSET MGMT INC  
 207 HARTFORD AVENUE  
 BELLINGHAM, MA 02019  
 33 BOYLSTON STREET SUITE 3000  
 CHESTNUT HILL, MA 01467  
 BK 22912 PG 459

**GENERAL NOTES:**  
 1. FOR REMOVED & RESET GRANITE CURB AND GRANITE CURB INLETS, RELOCATE AND RESET IT IN PROPOSED SEDIMENT FOREBAYS. SEE UTILITY PLANS.



CONTINUED ON  
SHEET NO. 20



HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

SEE TRAFFIC SIGNAL PLANS

WATER SUPPLY ALTERATIONS

SEE UTILITY PLANS

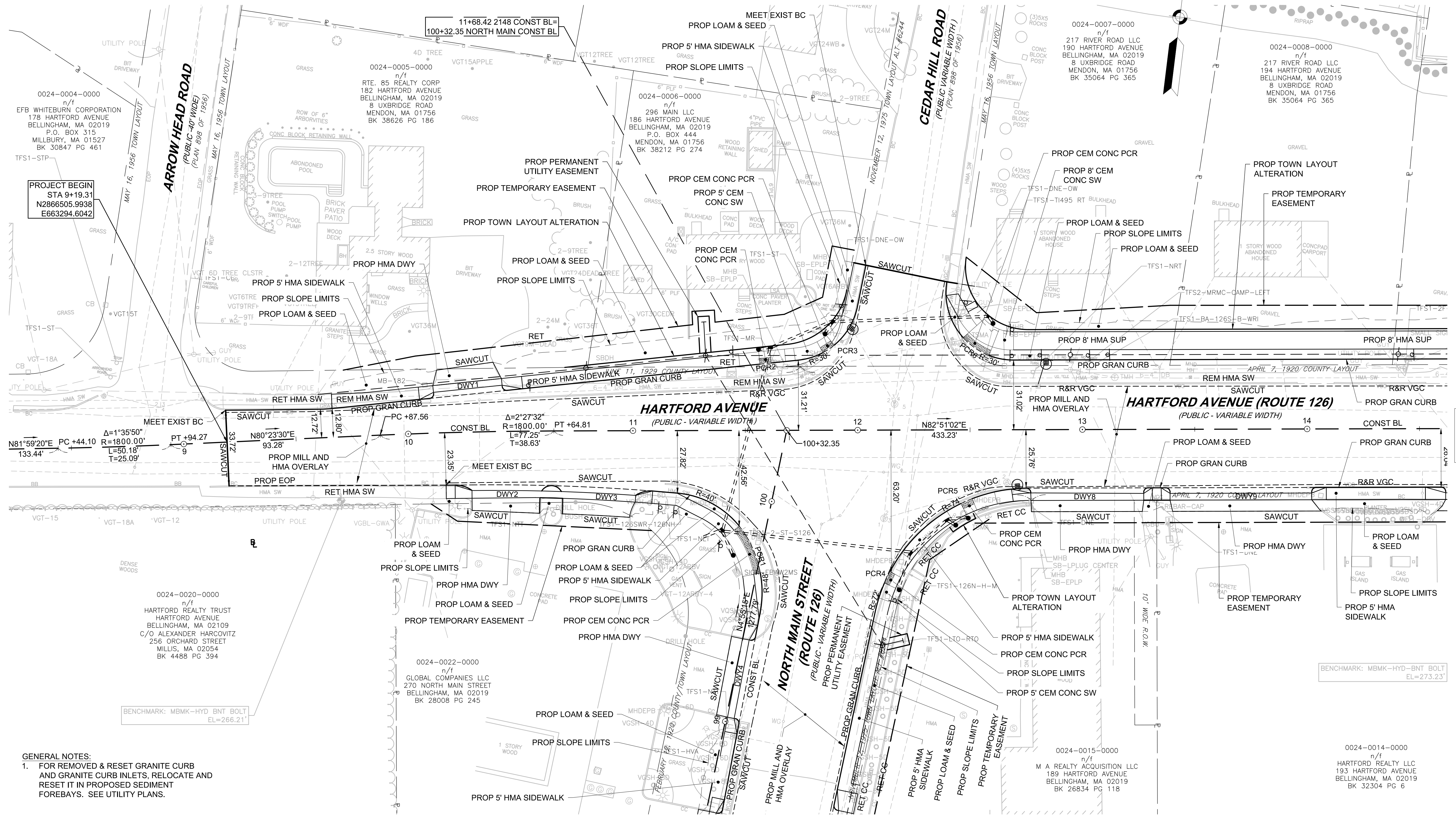
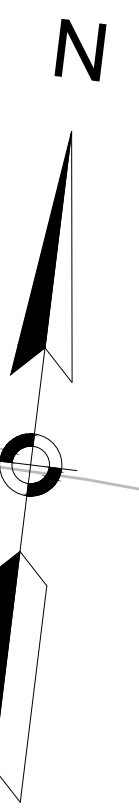
DRAINAGE DETAILS

SEE UTILITY PLANS

BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	20	93

PROJECT FILE NO. 2148.00  
CONSTRUCTION PLANS  
SHEET 02 OF 06

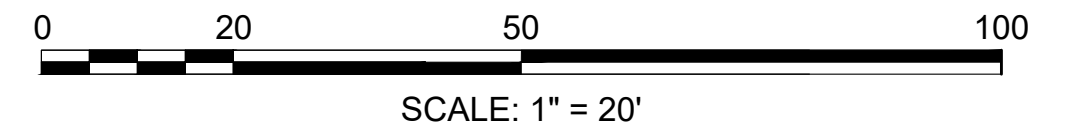


PROJECT BEGIN  
STA 9+19.31  
N2866505.9938  
E663294.6042

BENCHMARK: MBMK-HYD-BNT BOLT  
EL=266.21'

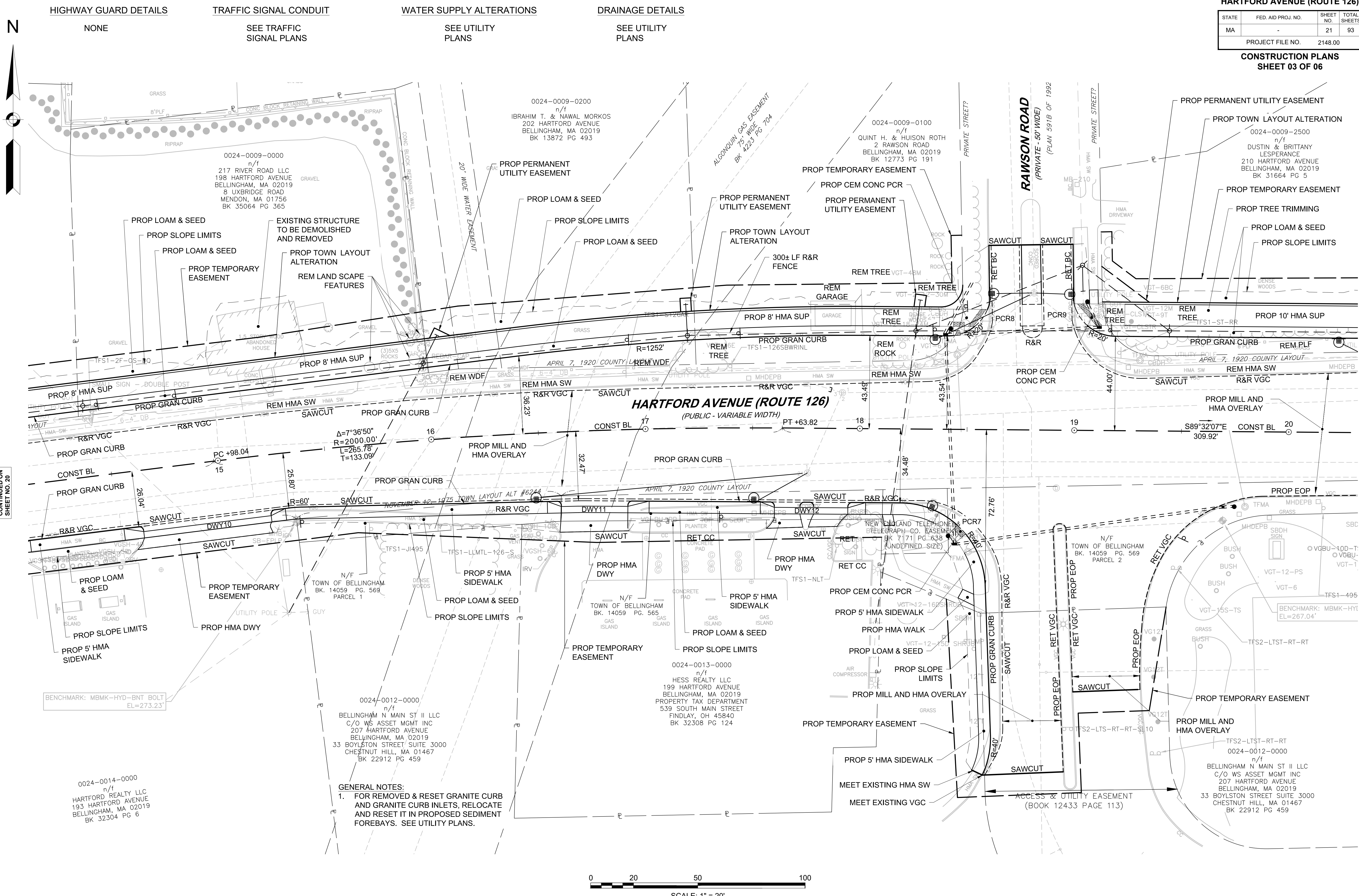
GENERAL NOTES:  
1. FOR REMOVED & RESET GRANITE CURB AND GRANITE CURB INLETS, RELOCATE AND RESET IT IN PROPOSED SEDIMENT FOREBAYS. SEE UTILITY PLANS.

CONTINUED ON SHEET NO. 19



CONTINUED ON SHEET NO. 21



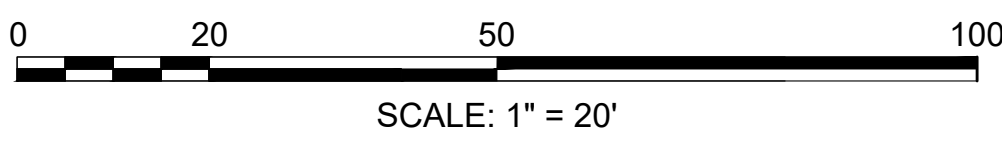


**HIGHWAY GUARD DETAILS**     **TRAFFIC SIGNAL CONDUIT**     **WATER SUPPLY ALTERATIONS**     **DRAINAGE DETAILS**

NONE     SEE TRAFFIC SIGNAL PLANS     SEE UTILITY PLANS     SEE UTILITY PLANS

CONTINUED ON SHEET NO. 20

CONTINUED ON SHEET NO. 22



**GENERAL NOTES:**  
 1. FOR REMOVED & RESET GRANITE CURB AND GRANITE CURB INLETS, RELOCATE AND RESET IT IN PROPOSED SEDIMENT FOREBAYS. SEE UTILITY PLANS.

0024-0014-0000  
 n/f  
 HARTFORD REALTY LLC  
 193 HARTFORD AVENUE  
 BELLINGHAM, MA 02019  
 BK 32304 PG 6

0024-0012-0000  
 n/f  
 BELLINGHAM N MAIN ST II LLC  
 C/O WS ASSET MGMT INC  
 207 HARTFORD AVENUE  
 BELLINGHAM, MA 02019  
 33 BOYLSTON STREET SUITE 3000  
 CHESTNUT HILL, MA 01467  
 BK 22912 PG 459

0024-0013-0000  
 n/f  
 HESS REALTY LLC  
 199 HARTFORD AVENUE  
 BELLINGHAM, MA 02019  
 PROPERTY TAX DEPARTMENT  
 539 SOUTH MAIN STREET  
 FINDLAY, OH 45840  
 BK 32308 PG 124

0024-0012-0000  
 n/f  
 BELLINGHAM N MAIN ST II LLC  
 C/O WS ASSET MGMT INC  
 207 HARTFORD AVENUE  
 BELLINGHAM, MA 02019  
 33 BOYLSTON STREET SUITE 3000  
 CHESTNUT HILL, MA 01467  
 BK 22912 PG 459

BENCHMARK: MBMK-HYD-BNT BOLT  
 EL=273.23'

BENCHMARK: MBMK-HYI  
 EL=267.04'

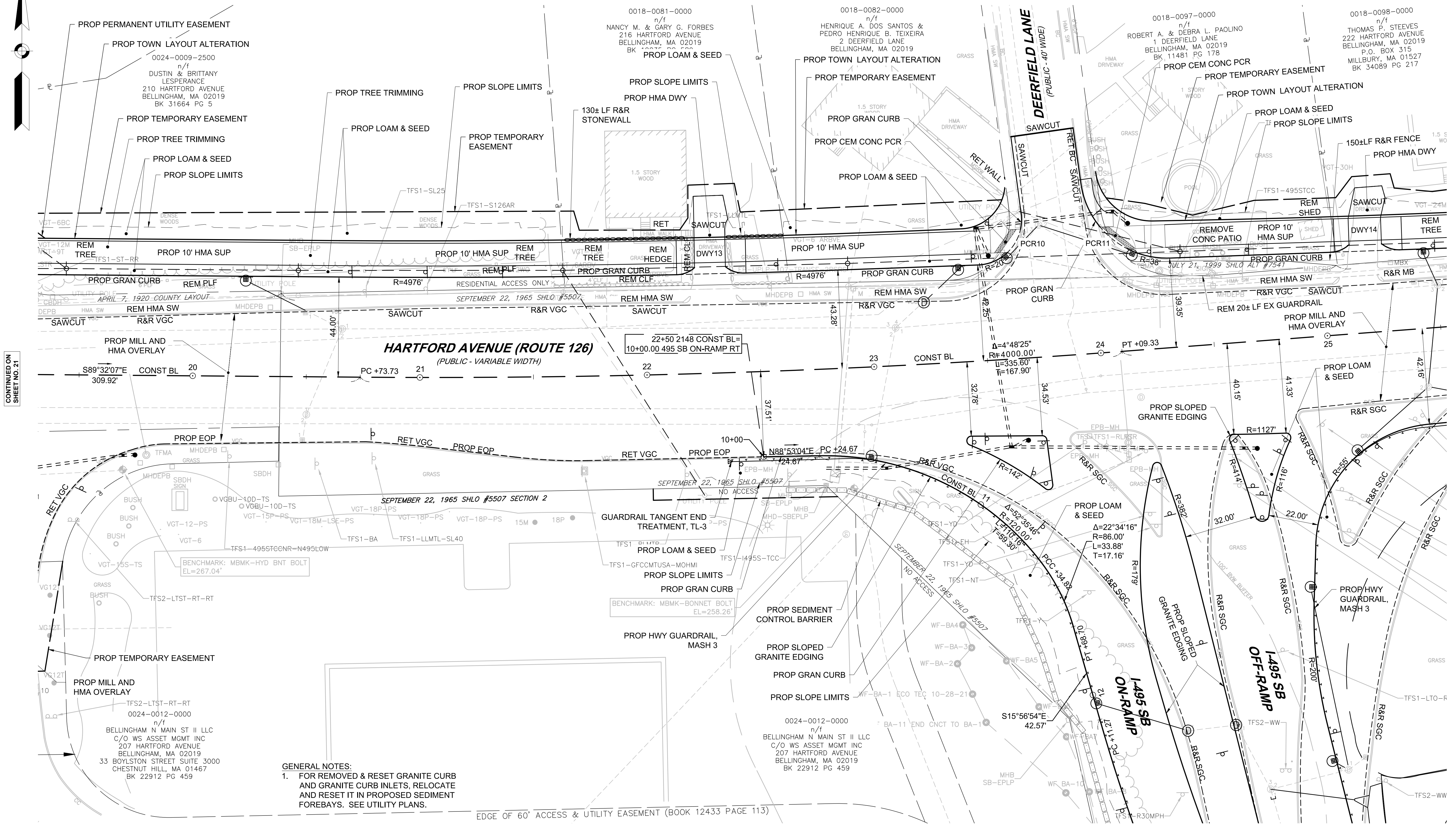
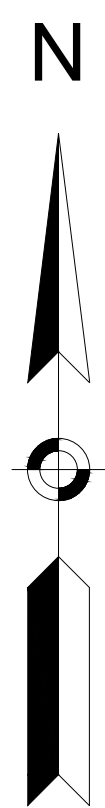
**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	22	93
PROJECT FILE NO. 2148.00			

**CONSTRUCTION PLANS  
SHEET 04 OF 06**

HIGHWAY GUARD DETAILS      TRAFFIC SIGNAL CONDUIT      WATER SUPPLY ALTERATIONS      DRAINAGE DETAILS

SEE BELOW      SEE TRAFFIC SIGNAL PLANS      SEE UTILITY PLANS      SEE UTILITY PLANS

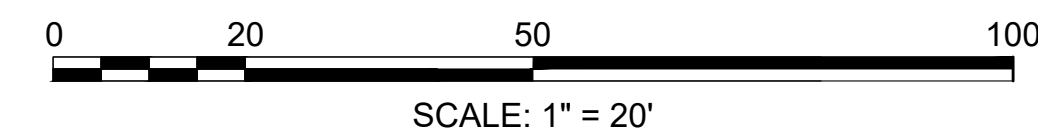


CONTINUED ON SHEET NO. 21

CONTINUED ON SHEET NO. 23

**GENERAL NOTES:**  
1. FOR REMOVED & RESET GRANITE CURB AND GRANITE CURB INLETS, RELOCATE AND RESET IT IN PROPOSED SEDIMENT FOREBAYS. SEE UTILITY PLANS.

EDGE OF 60' ACCESS & UTILITY EASEMENT (BOOK 12433 PAGE 113)



CONTINUED ON SHEET NO. 24



HIGHWAY GUARD DETAILS

SEE BELOW

TRAFFIC SIGNAL CONDUIT

SEE TRAFFIC SIGNAL PLANS

WATER SUPPLY ALTERATIONS

SEE UTILITY PLANS

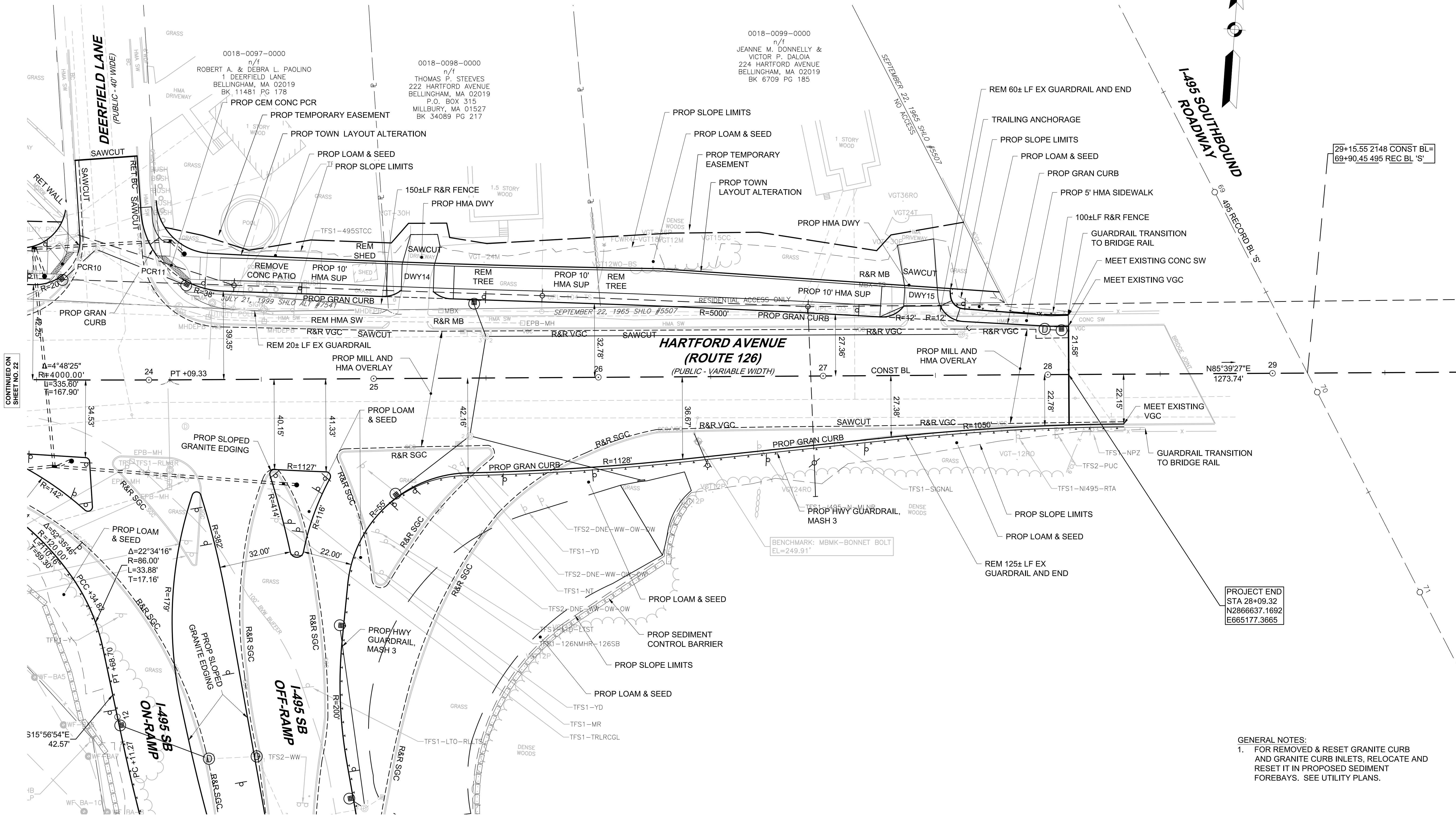
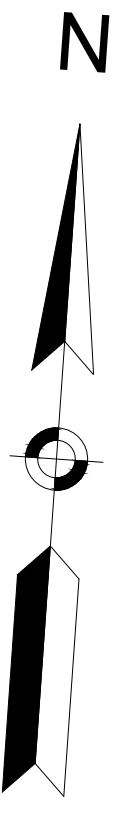
DRAINAGE DETAILS

SEE UTILITY PLANS

BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)

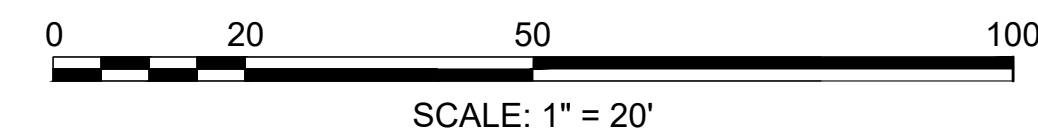
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	23	93
PROJECT FILE NO.		2148.00	

CONSTRUCTION PLANS  
SHEET 05 OF 06



CONTINUED ON SHEET NO. 22

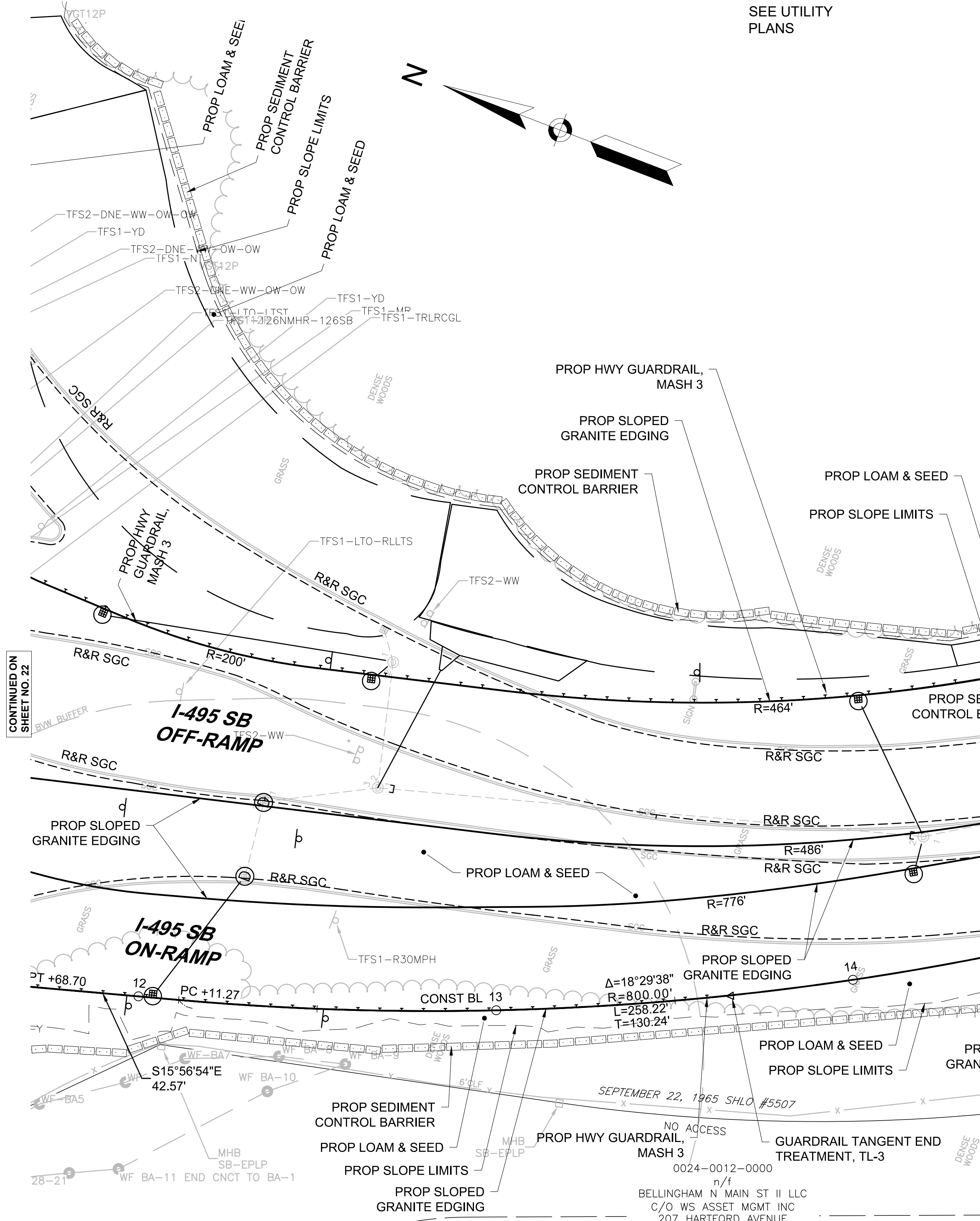
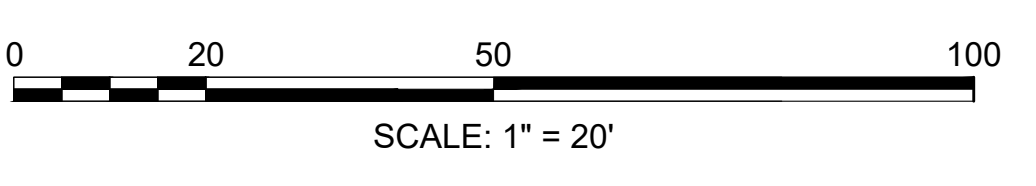
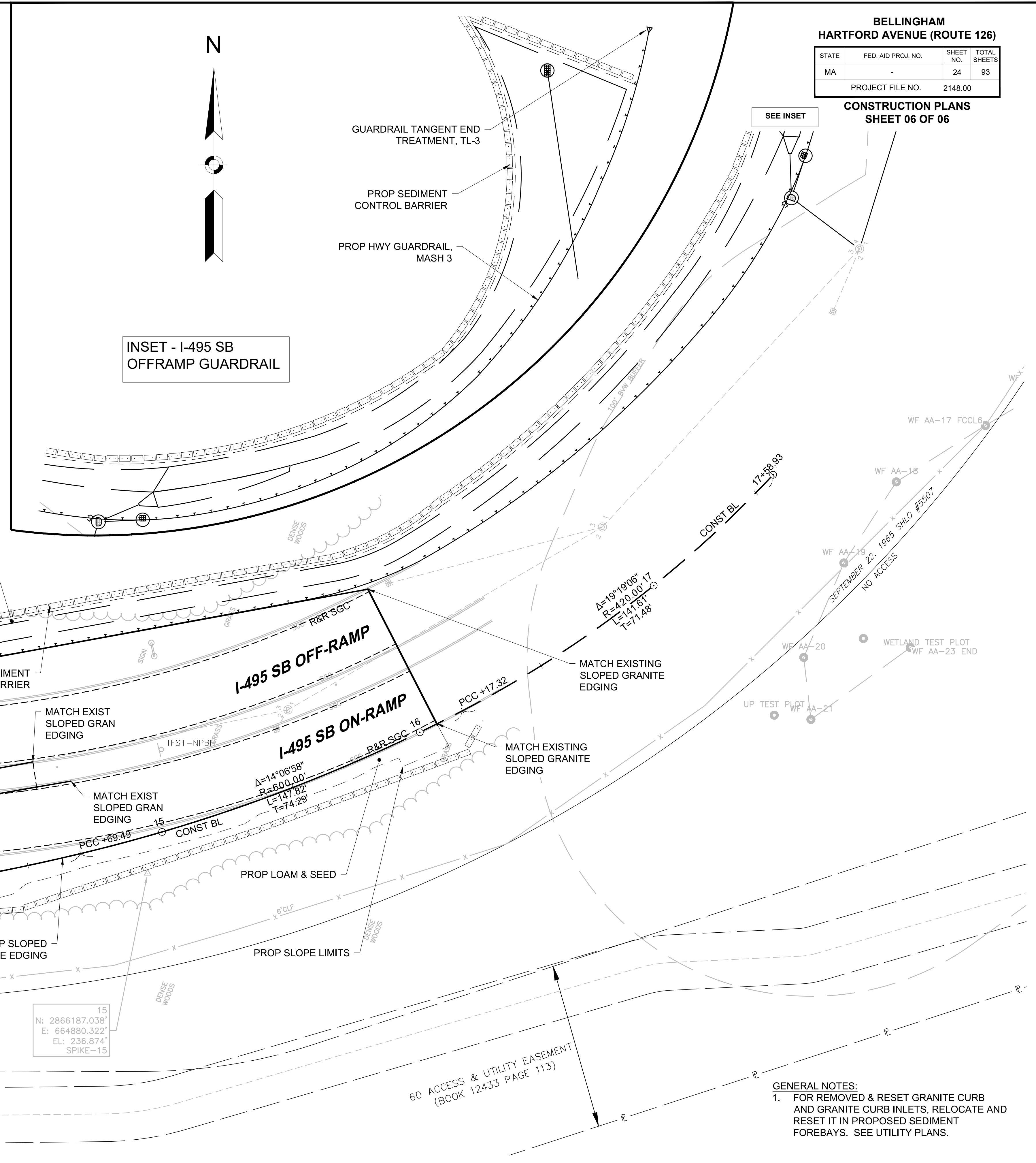
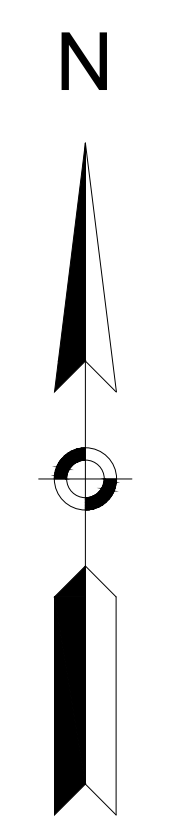
CONTINUED ON SHEET NO. 24



PROJECT END  
 STA 28+09.32  
 N2866637.1692  
 E665177.3665

- GENERAL NOTES:
- FOR REMOVED & RESET GRANITE CURB AND GRANITE CURB INLETS, RELOCATE AND RESET IT IN PROPOSED SEDIMENT FOREBAYS. SEE UTILITY PLANS.

HIGHWAY GUARD DETAILS SEE BELOW  
 TRAFFIC SIGNAL CONDUIT SEE TRAFFIC SIGNAL PLANS  
 WATER SUPPLY ALTERATIONS SEE UTILITY PLANS  
 DRAINAGE DETAILS SEE UTILITY PLANS



CONTINUED ON SHEET NO. 22

**GENERAL NOTES:**  
 1. FOR REMOVED & RESET GRANITE CURB AND GRANITE CURB INLETS, RELOCATE AND RESET IT IN PROPOSED SEDIMENT FOREBAYS. SEE UTILITY PLANS.

NO ACCESS  
 0024-0012-0000  
 n/f  
 BELLINGHAM N MAIN ST II LLC  
 C/O WS ASSET MGMT INC  
 207 HARTFORD AVENUE  
 BELLINGHAM, MA 02019  
 BK 22912 PG 459

15  
 N: 2866187.038'  
 E: 664880.322'  
 EL: 236.874'  
 SPIKE-15

60 ACCESS & UTILITY EASEMENT  
 (BOOK 12433 PAGE 113)

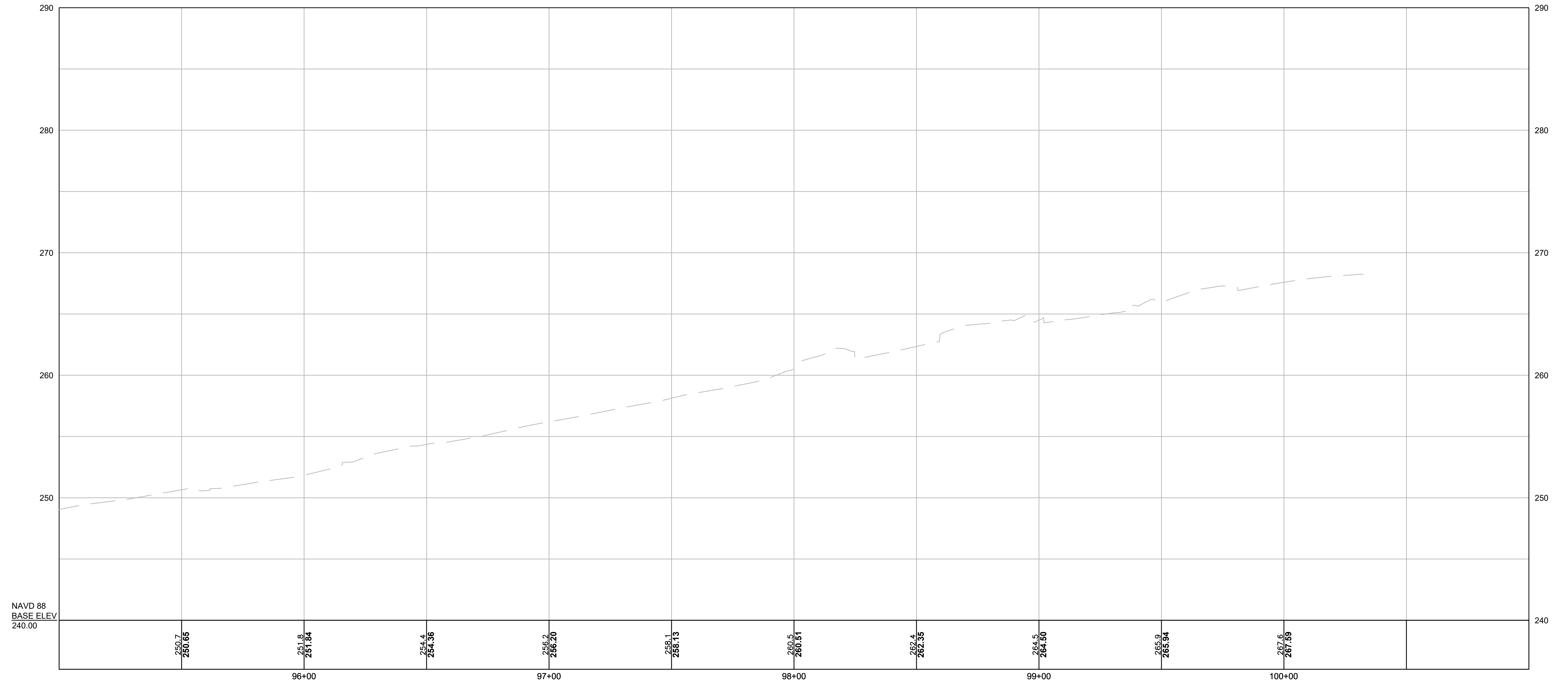


**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	25	93
PROJECT FILE NO.		2148.00	

**NORTH MAIN STREET (ROUTE 126) - PROFILES  
SHEET 01 OF 06**

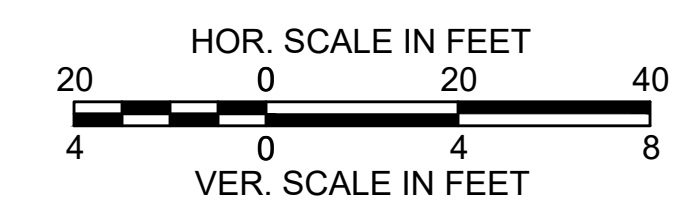
NORTH MAIN STREET  
CONSTRUCTION BASELINE



NAVD 88  
BASE ELEV  
240.00

STA 100+32.35 NORTH MAIN CONST @ =  
STA 11+68.42 HARTFORD AVENUE CONST @

FOR CONSTRUCTION PLANS:  
SEE SHEET NOS. XX-XX

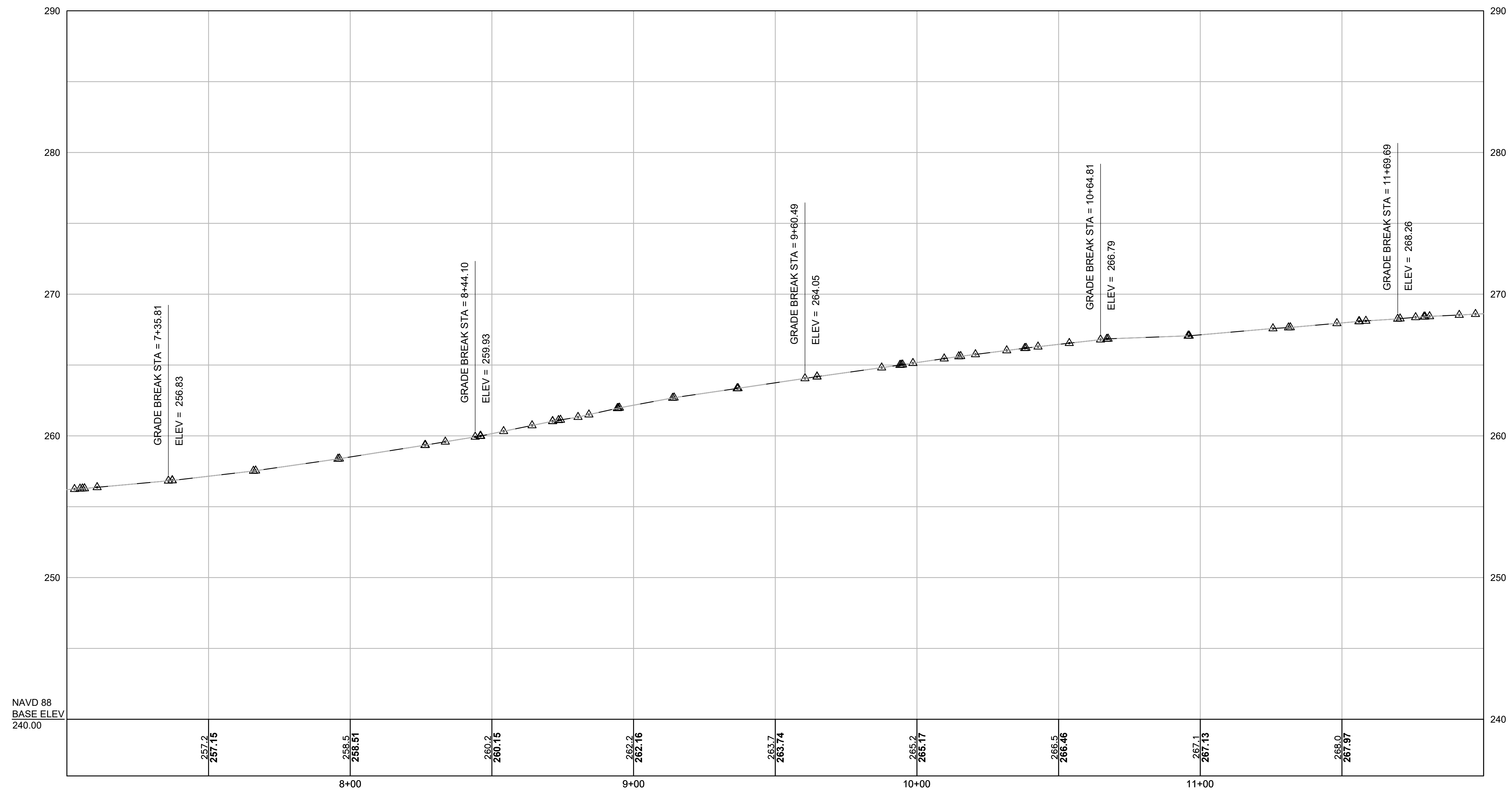


BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	26	93
PROJECT FILE NO.		2148.00	

ROUTE 126 - PROFILES  
SHEET 02 OF 06

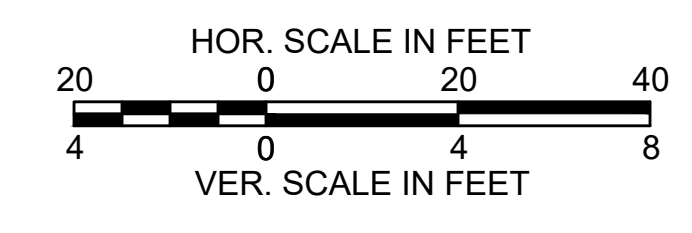
HARTFORD AVENUE  
CONSTRUCTION BASELINE



Temp. Benchmark  
Hydrant Bonnet Bolt  
Elevation = 265.21  
Sta. 9+68.81, 28.31' RT

STA 100+32.35 NORTH MAIN CONST @ =  
STA 11+68.42 HARTFORD AVENUE CONST @

FOR CONSTRUCTION PLANS:  
SEE SHEET NOS. XX-XX

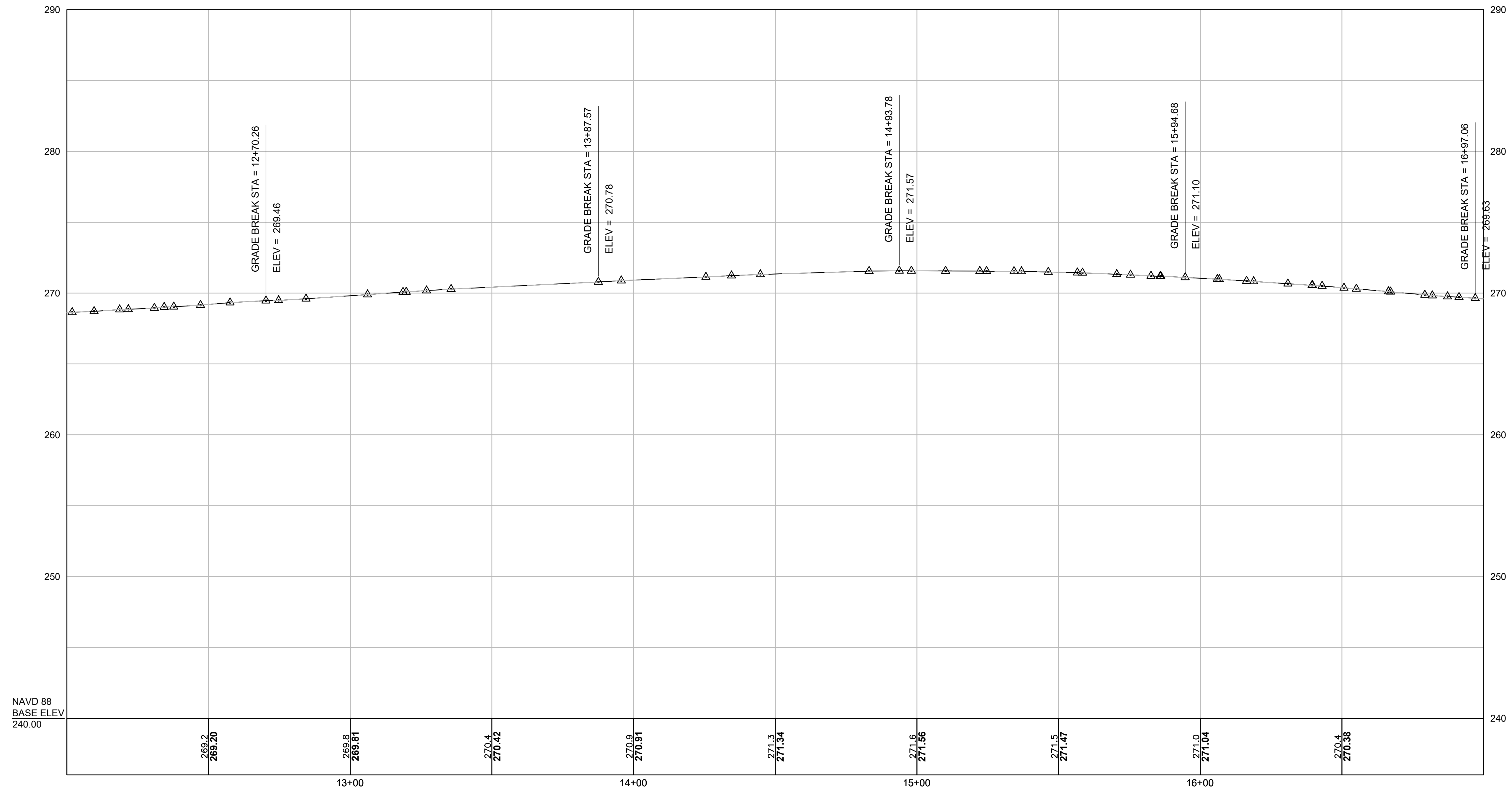


BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	27	93
PROJECT FILE NO.		2148.00	

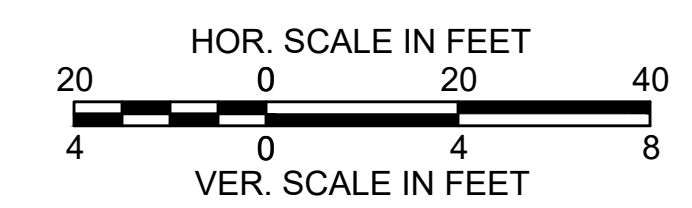
ROUTE 126 - PROFILES  
SHEET 03 OF 06

HARTFORD AVENUE  
CONSTRUCTION BASELINE



NAVD 88  
BASE ELEV  
240.00

Temp. Benchmark  
Hydrant Bonnet Bolt  
Elevation = 273.23'  
Sta. 15+33.60, 32.91 RT

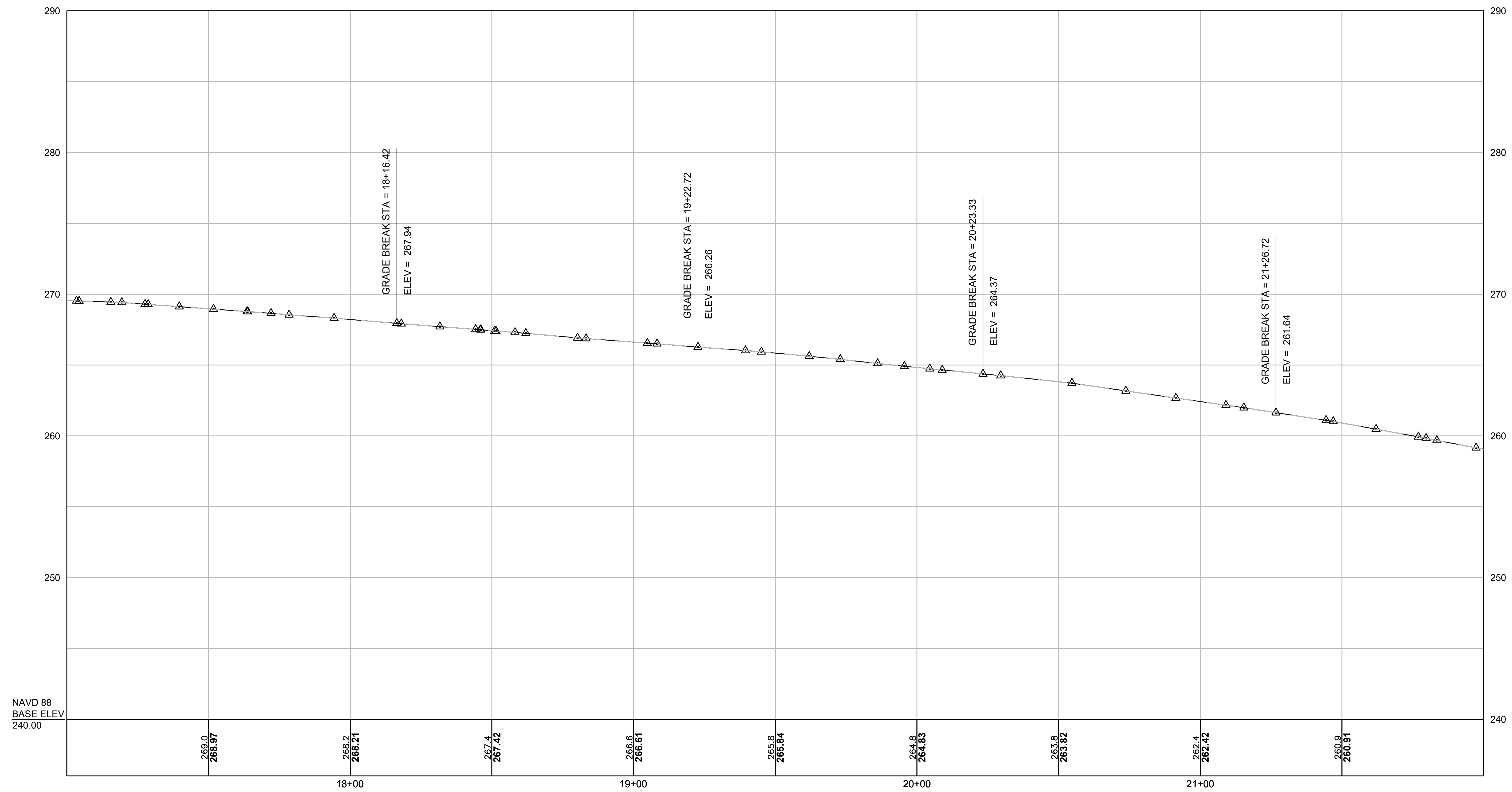


BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)

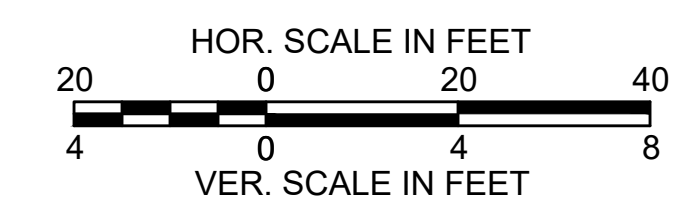
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	28	93
PROJECT FILE NO.		2148.00	

ROUTE 126 - PROFILES  
SHEET 04 OF 06

HARTFORD AVENUE  
CONSTRUCTION BASELINE



Temp. Benchmark  
Hydrant Bonnet Bolt  
Elevation = 267.04'  
Sta. 19+69.52, 41.54' RT



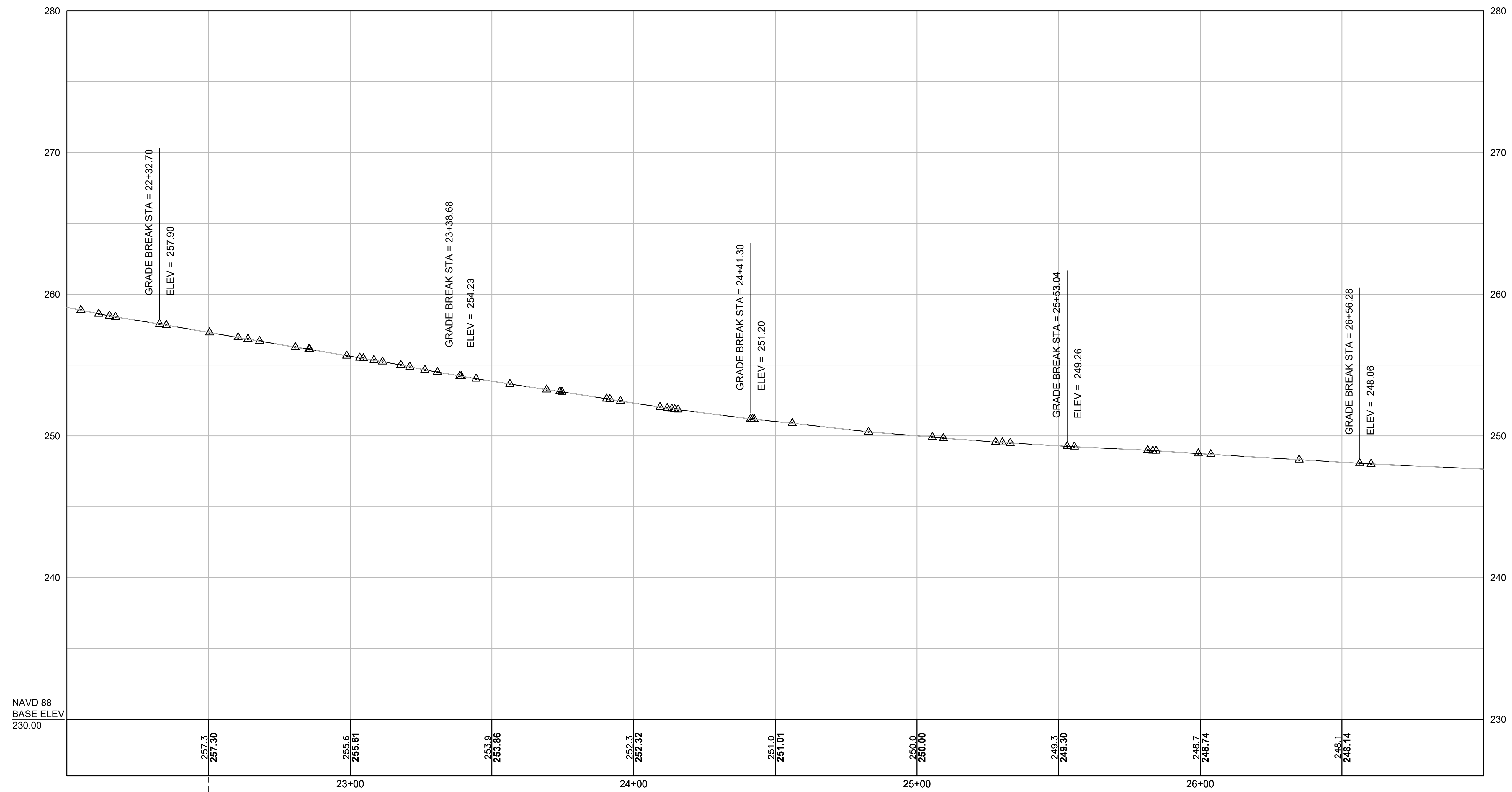


**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	29	93
PROJECT FILE NO.		2148.00	

**ROUTE 126 - PROFILES  
SHEET 05 OF 06**

**HARTFORD AVENUE  
CONSTRUCTION BASELINE**



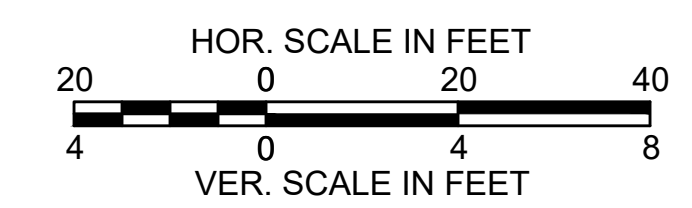
NAVD 88  
BASE ELEV  
230.00

257.3  
257.30  
255.6  
255.61  
253.9  
253.86  
252.3  
252.32  
251.0  
251.01  
250.0  
250.00  
249.3  
249.30  
248.7  
248.74  
248.1  
248.14

STA 10+00.00 I-495 SB ON-RAMP CONST E =  
STA 22+50.00 HARTFORD AVENUE CONST E

Temp. Benchmark  
Hydrant Bonnet Bolt  
Elevation = 258.26'  
Sta. 22+88.76, 53.08 RT

Temp. Benchmark  
Hydrant Bonnet Bolt  
Elevation = 249.91'  
Sta. 26+44.26, 28.79 RT

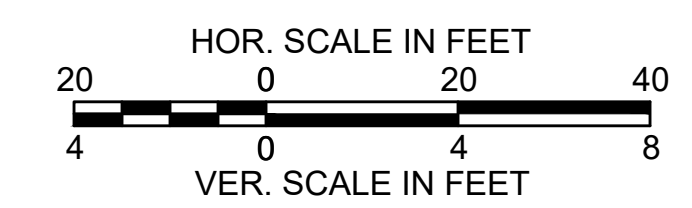
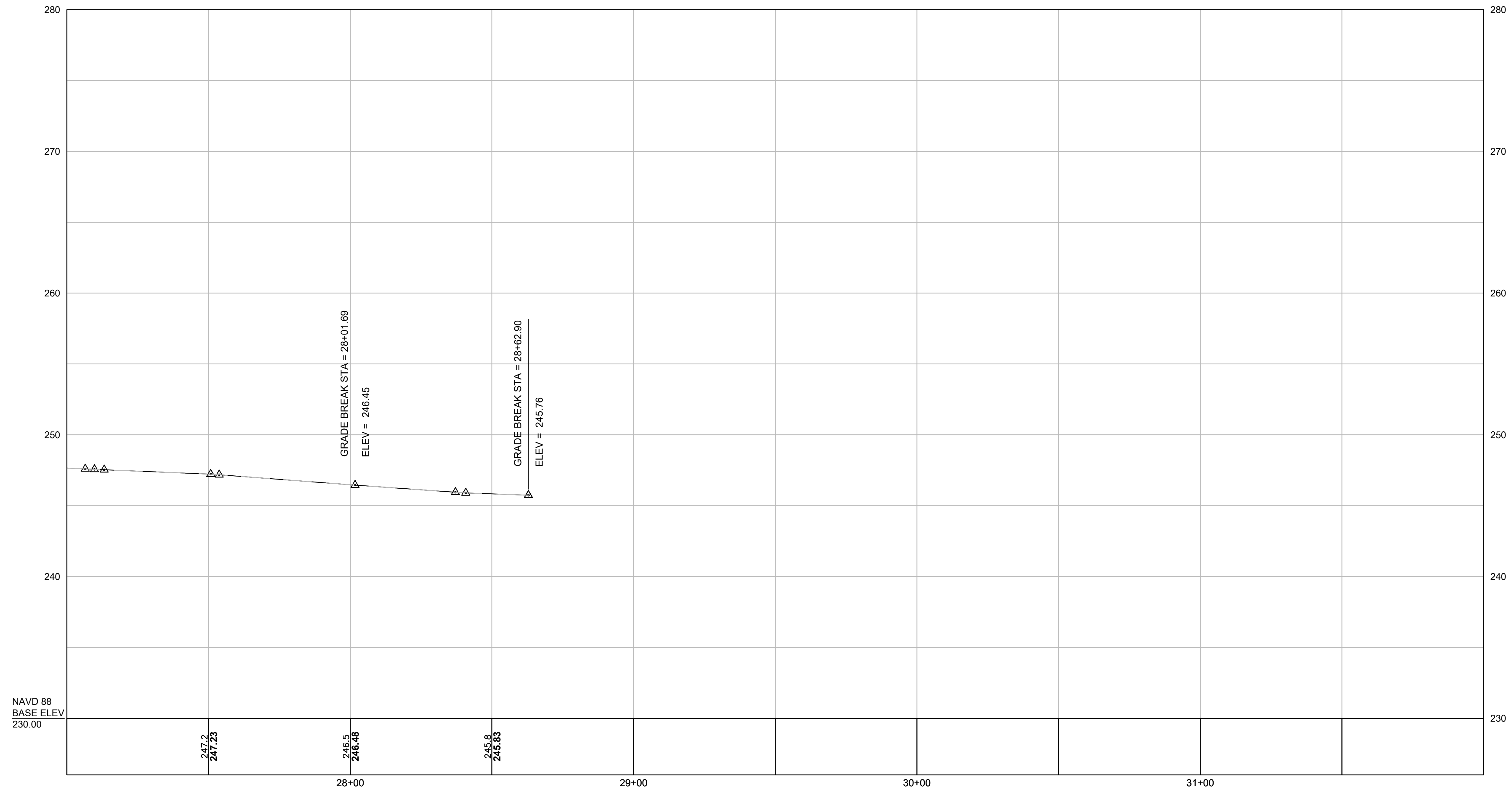


BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	30	93

PROJECT FILE NO. 2148.00  
ROUTE 126 - PROFILES  
SHEET 06 OF 06

HARTFORD AVENUE  
CONSTRUCTION BASELINE

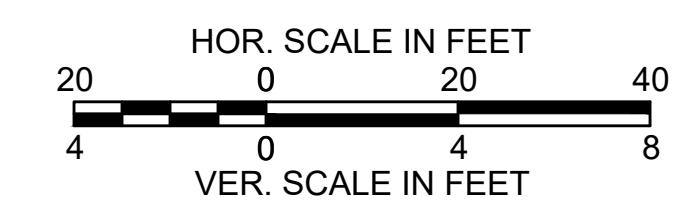
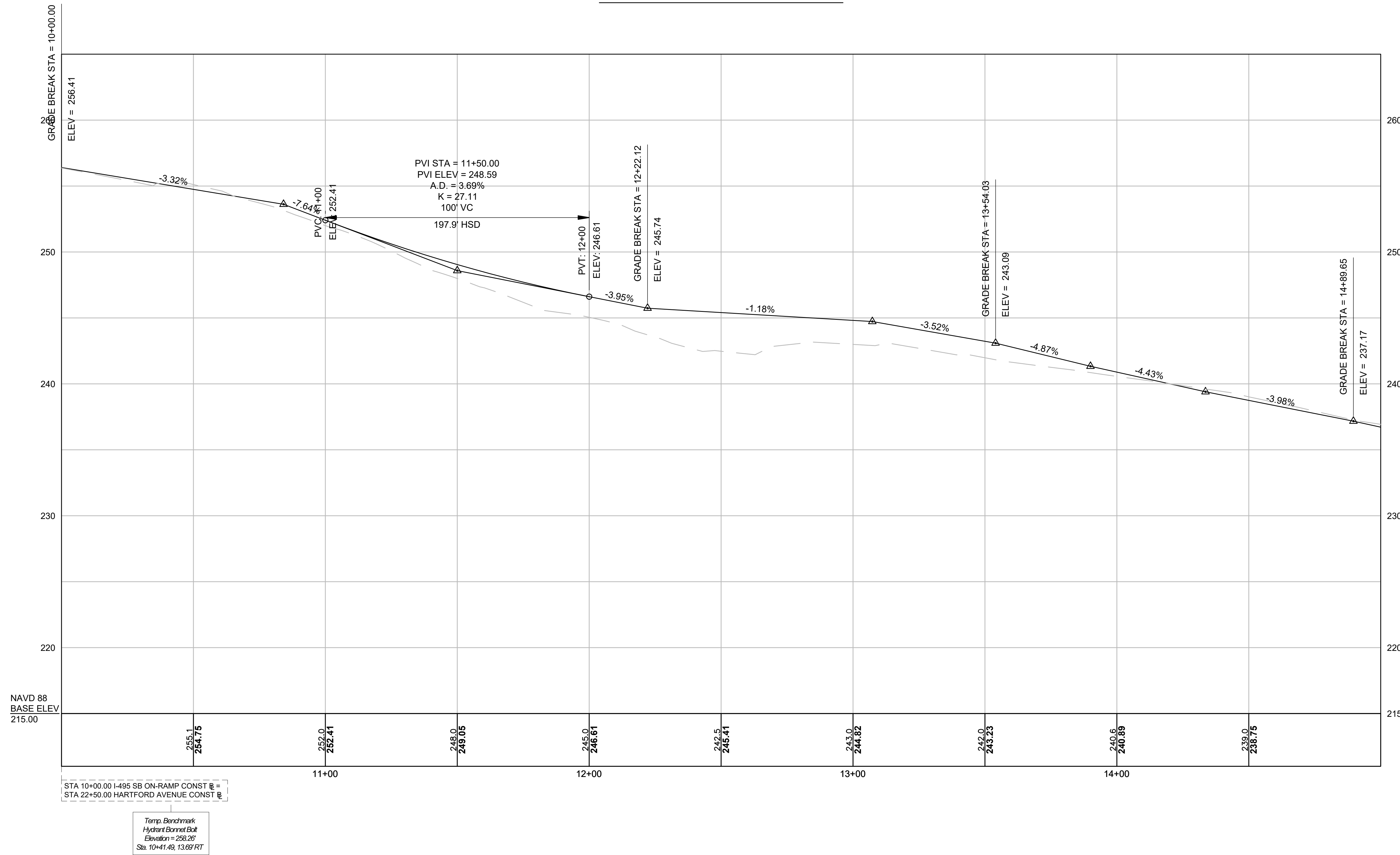


BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	31	93
PROJECT FILE NO.		2148.00	

ROUTE I-495 SOUTHBOUND RAMPS  
SHEET 01 OF 03

I-495 SOUTHBOUND ON RAMP  
CONSTRUCTION BASELINE

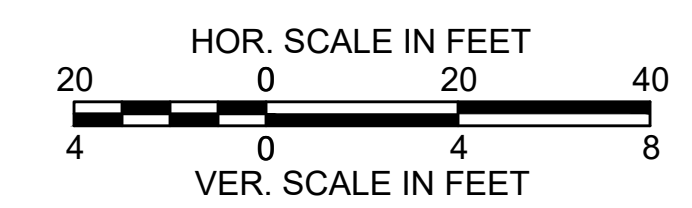
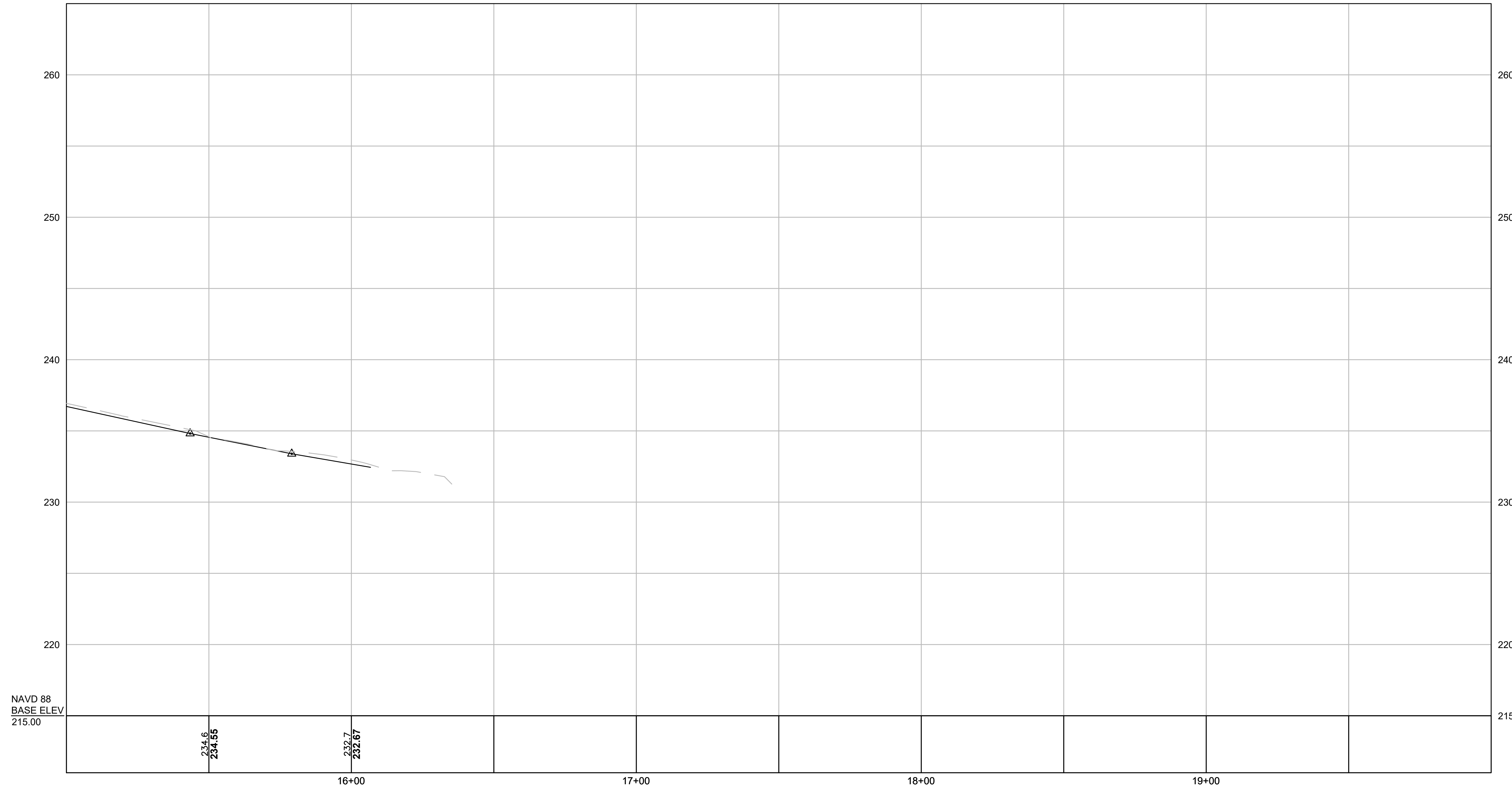


BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	32	93
PROJECT FILE NO.		2148.00	

ROUTE I-495 SOUTHBOUND RAMPS  
SHEET 02 OF 03

I-495 SOUTHBOUND ON RAMP  
CONSTRUCTION BASELINE



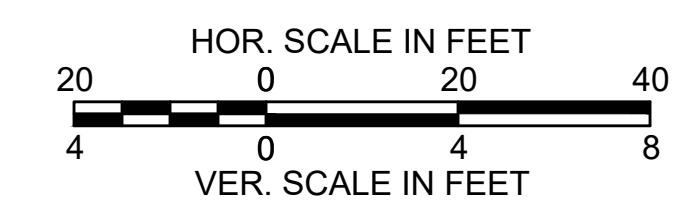
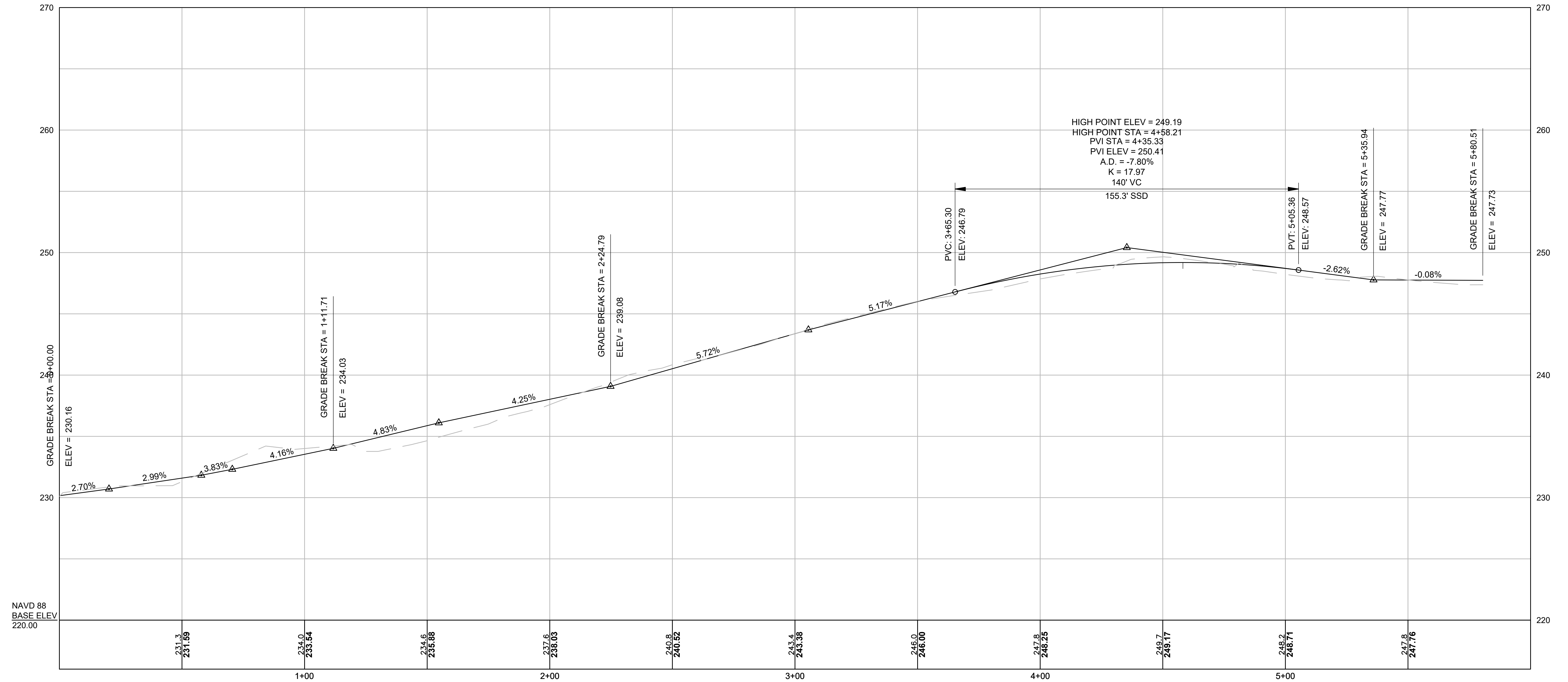


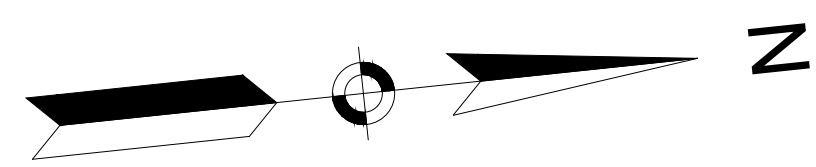
BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	33	93

PROJECT FILE NO. 2148.00  
ROUTE I-495 SOUTHBOUND RAMPS  
SHEET 03 OF 03

I-495 SOUTHBOUND OFF RAMP  
CONSTRUCTION BASELINE

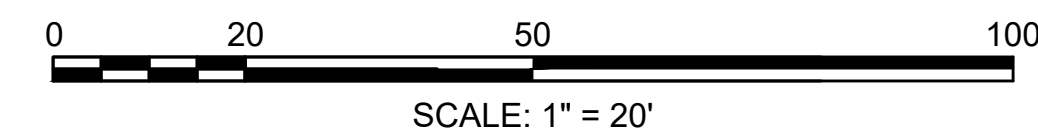
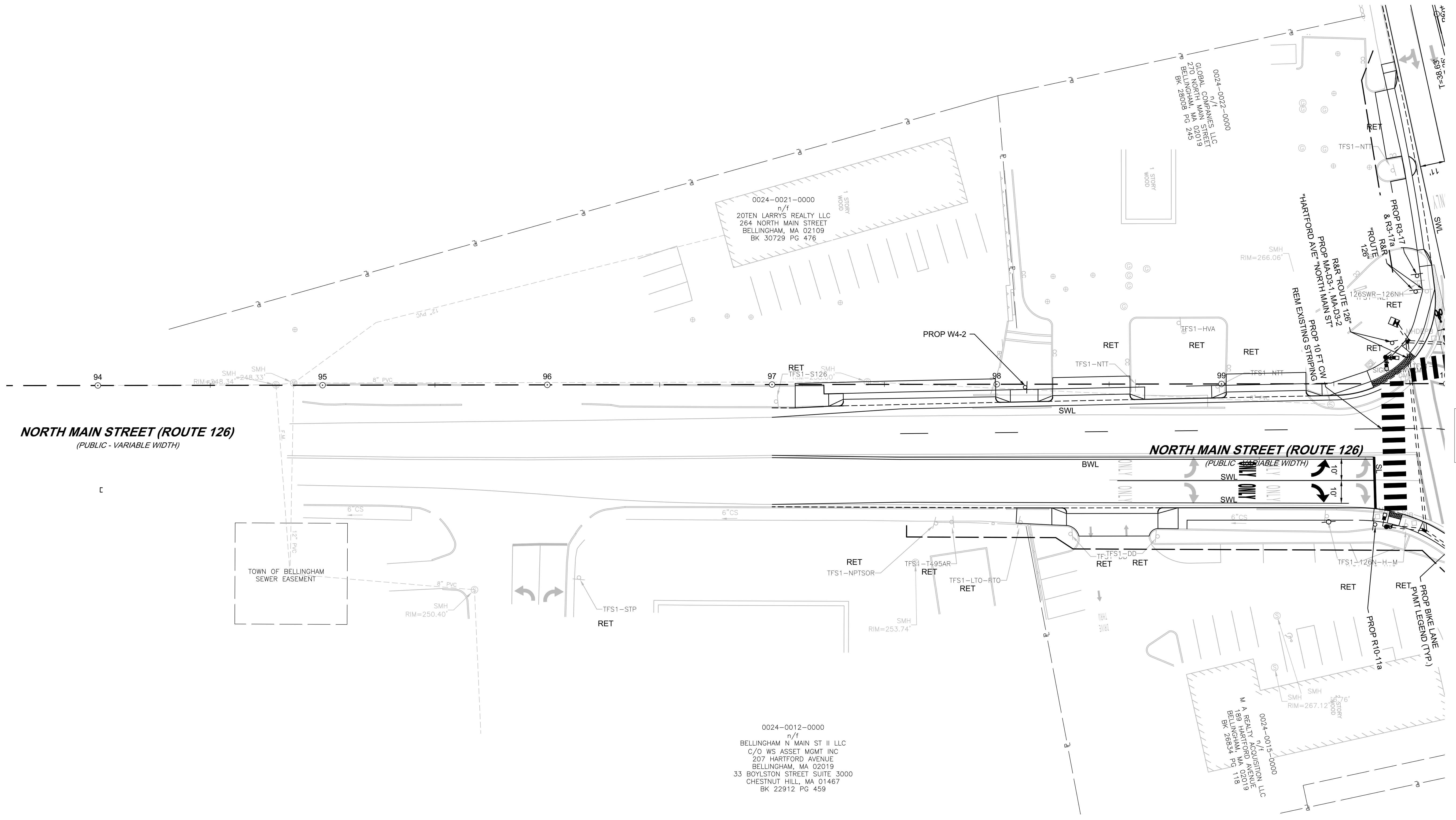




**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	34	93
PROJECT FILE NO.		2148.00	

**TRAFFIC SIGN & PAVEMENT MARKINGS  
SHEET 01 OF 06**

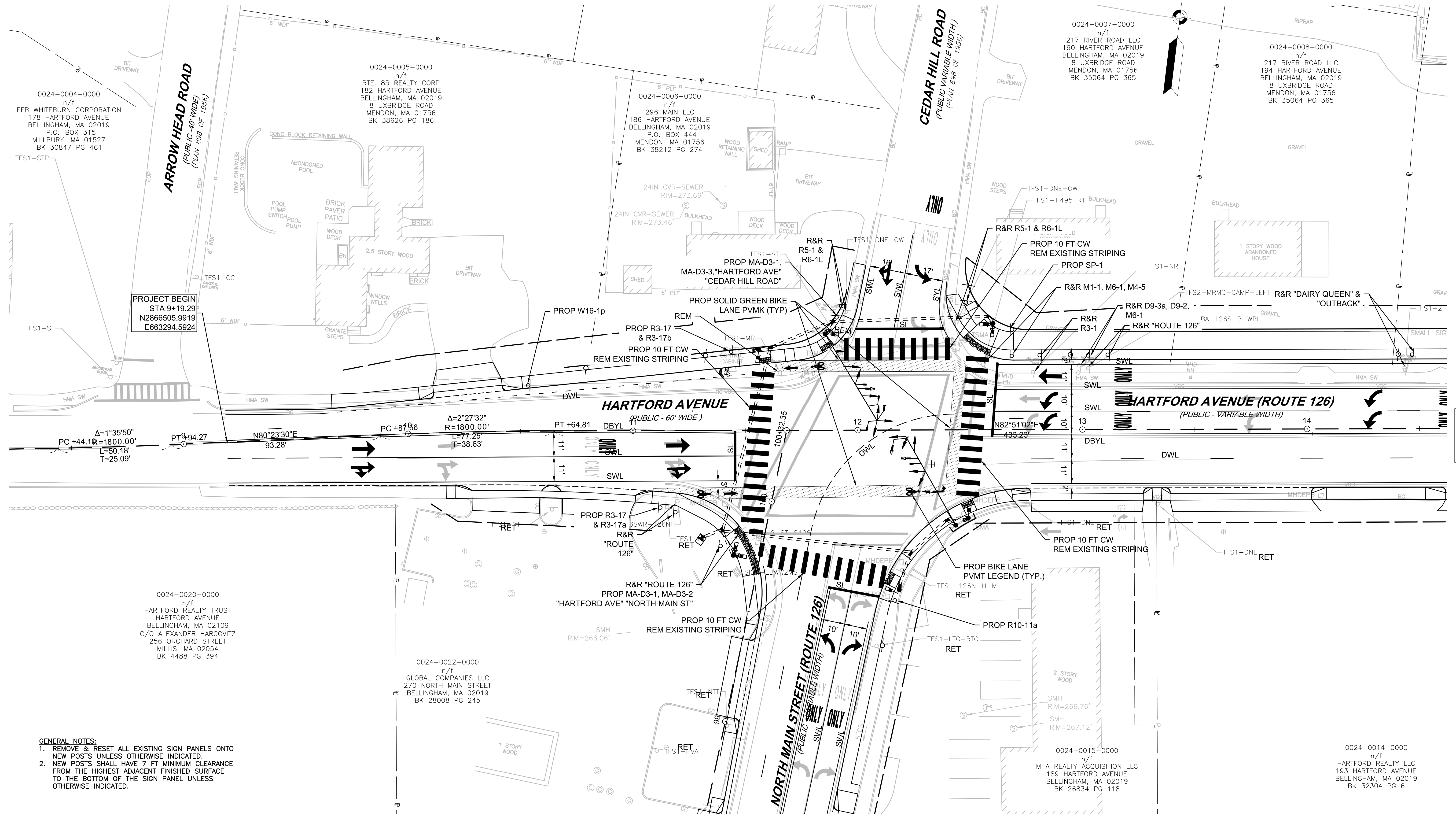
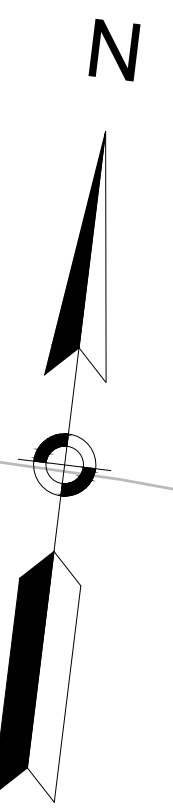


CONTINUED ON  
SHEET NO. 35

BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	35	93
PROJECT FILE NO.		2148.00	

TRAFFIC SIGN & PAVEMENT MARKINGS  
SHEET 02 OF 06



PROJECT BEGIN  
STA 9+19.29  
N2866505.9919  
E663294.5924

0024-0004-0000  
n/f  
EFB WHITEBURN CORPORATION  
178 HARTFORD AVENUE  
BELLINGHAM, MA 02019  
P.O. BOX 315  
MILLBURY, MA 01527  
BK 30847 PG 461

0024-0005-0000  
n/f  
RTE. 85 REALTY CORP  
182 HARTFORD AVENUE  
BELLINGHAM, MA 02019  
8 UXBRIDGE ROAD  
MENDON, MA 01756  
BK 38626 PG 186

0024-0006-0000  
n/f  
296 MAIN LLC  
186 HARTFORD AVENUE  
BELLINGHAM, MA 02019  
P.O. BOX 444  
MENDON, MA 01756  
BK 38212 PG 274

0024-0007-0000  
n/f  
217 RIVER ROAD LLC  
190 HARTFORD AVENUE  
BELLINGHAM, MA 02019  
8 UXBRIDGE ROAD  
MENDON, MA 01756  
BK 35064 PG 365

0024-0008-0000  
n/f  
217 RIVER ROAD LLC  
194 HARTFORD AVENUE  
BELLINGHAM, MA 02019  
8 UXBRIDGE ROAD  
MENDON, MA 01756  
BK 35064 PG 365

0024-0020-0000  
n/f  
HARTFORD REALTY TRUST  
HARTFORD AVENUE  
BELLINGHAM, MA 02109  
C/O ALEXANDER HARCOVITZ  
256 ORCHARD STREET  
MILLSIS, MA 02054  
BK 4488 PG 394

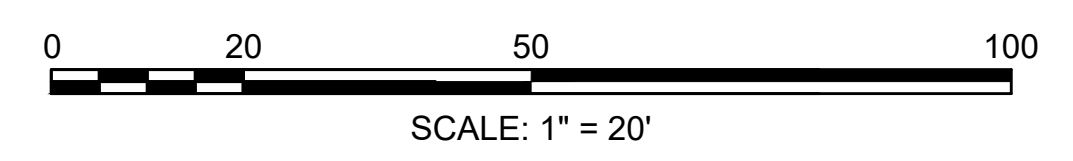
0024-0022-0000  
n/f  
GLOBAL COMPANIES LLC  
270 NORTH MAIN STREET  
BELLINGHAM, MA 02019  
BK 28008 PG 245

0024-0015-0000  
n/f  
M A REALTY ACQUISITION LLC  
189 HARTFORD AVENUE  
BELLINGHAM, MA 02019  
BK 26834 PG 118

0024-0014-0000  
n/f  
HARTFORD REALTY LLC  
193 HARTFORD AVENUE  
BELLINGHAM, MA 02019  
BK 32304 PG 6

- GENERAL NOTES:
1. REMOVE & RESET ALL EXISTING SIGN PANELS ONTO NEW POSTS UNLESS OTHERWISE INDICATED.
  2. NEW POSTS SHALL HAVE 7 FT MINIMUM CLEARANCE FROM THE HIGHEST ADJACENT FINISHED SURFACE TO THE BOTTOM OF THE SIGN PANEL UNLESS OTHERWISE INDICATED.

CONTINUED ON  
SHEET NO. 36

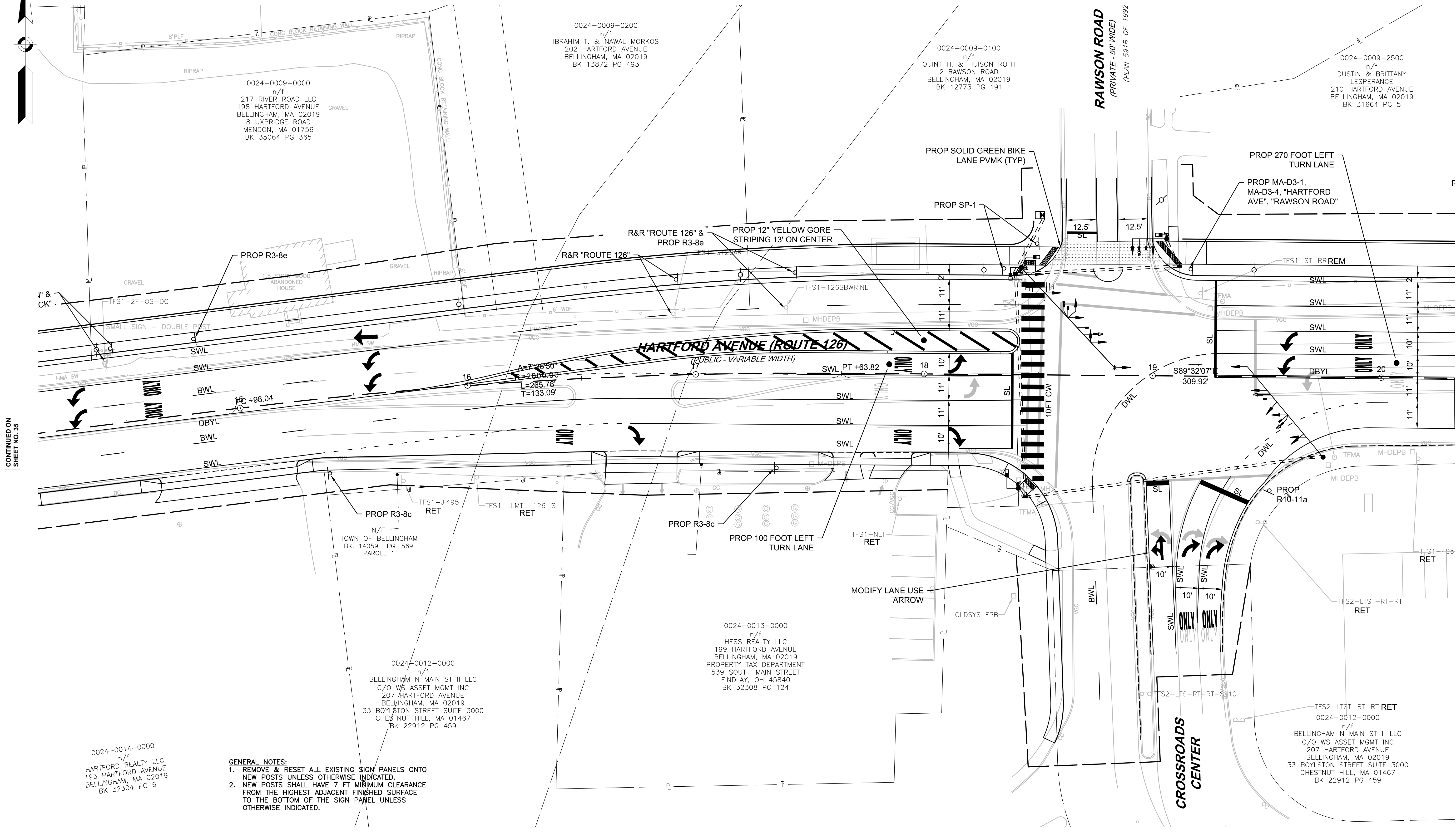
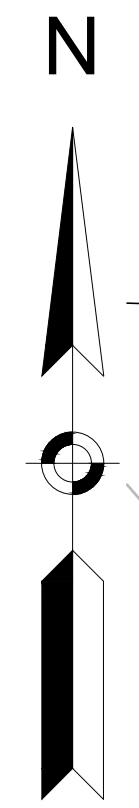


CONTINUED ON  
SHEET NO. 36

**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	36	93
PROJECT FILE NO. 2148.00			

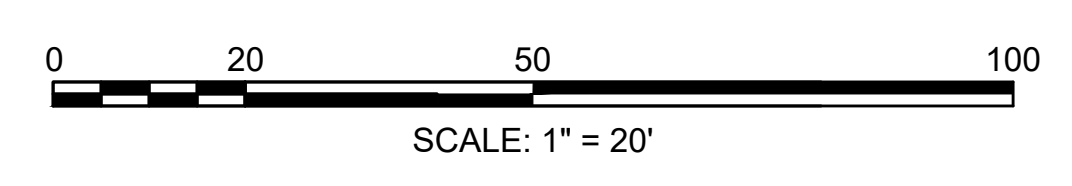
**TRAFFIC SIGN & PAVEMENT MARKINGS  
SHEET 03 OF 06**



CONTINUED ON  
SHEET NO. 35

CONTINUED ON  
SHEET NO. 37

- GENERAL NOTES:**
1. REMOVE & RESET ALL EXISTING SIGN PANELS ONTO NEW POSTS UNLESS OTHERWISE INDICATED.
  2. NEW POSTS SHALL HAVE 7 FT MINIMUM CLEARANCE FROM THE HIGHEST ADJACENT FINISHED SURFACE TO THE BOTTOM OF THE SIGN PANEL UNLESS OTHERWISE INDICATED.



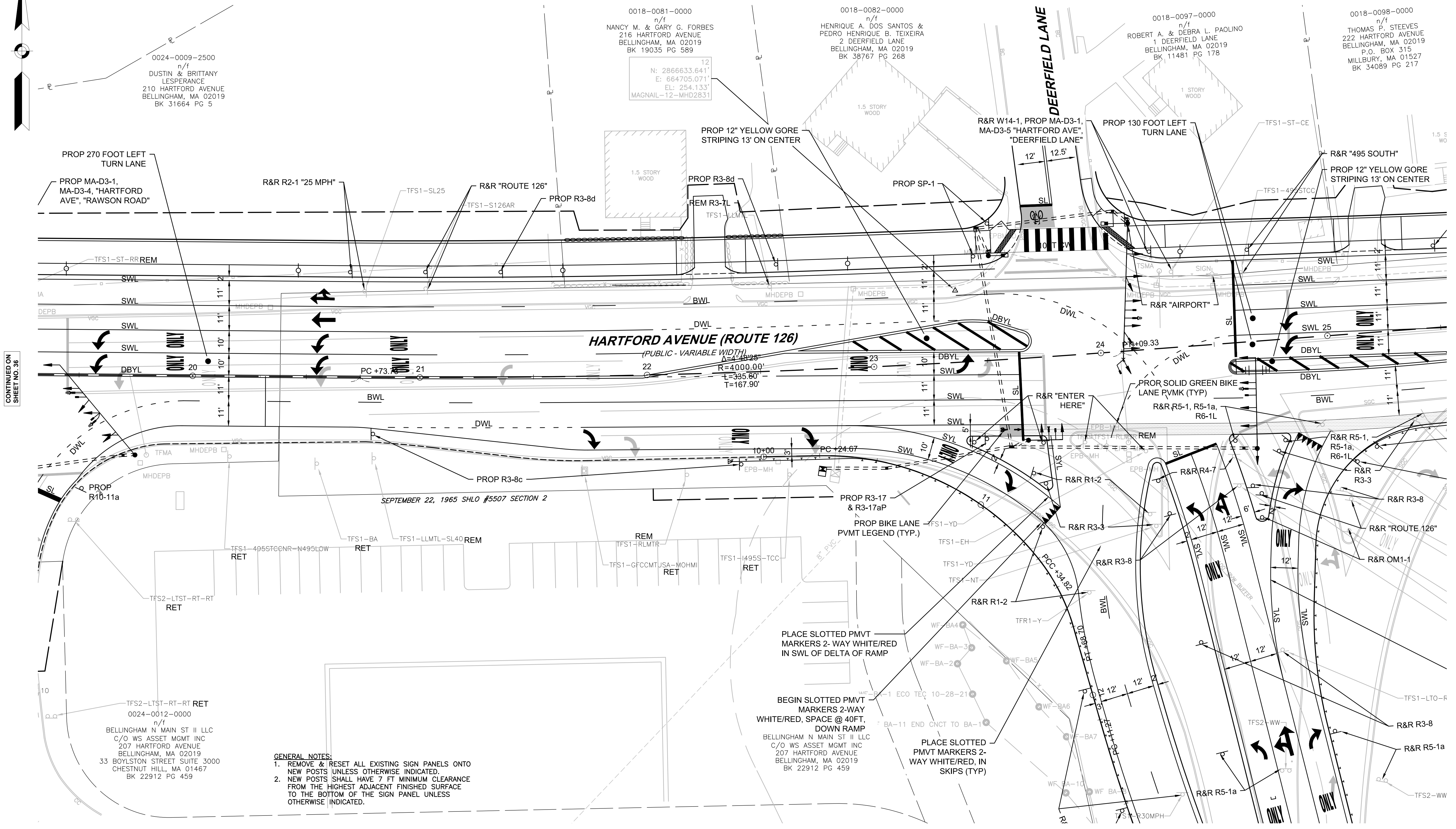
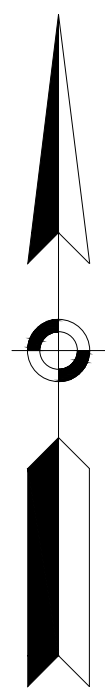


**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	37	93
PROJECT FILE NO. 2148.00			

**TRAFFIC SIGN & PAVEMENT MARKINGS  
SHEET 04 OF 06**

N



0024-0009-2500  
n/f  
DUSTIN & BRITTANY  
LESPERANCE  
210 HARTFORD AVENUE  
BELLINGHAM, MA 02019  
BK 31664 PG 5

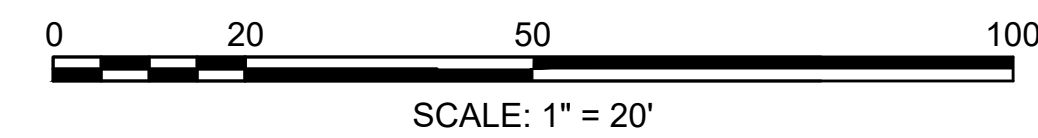
0018-0081-0000  
n/f  
NANCY M. & GARY G. FORBES  
216 HARTFORD AVENUE  
BELLINGHAM, MA 02019  
BK 19035 PG 589

0018-0082-0000  
n/f  
HENRIQUE A. DOS SANTOS &  
PEDRO HENRIQUE B. TEIXEIRA  
2 DEERFIELD LANE  
BELLINGHAM, MA 02019  
BK 38767 PG 268

0018-0097-0000  
n/f  
ROBERT A. & DEBRA L. PAOLINO  
1 DEERFIELD LANE  
BELLINGHAM, MA 02019  
BK 11481 PG 178

0018-0098-0000  
n/f  
THOMAS P. STEEVES  
222 HARTFORD AVENUE  
BELLINGHAM, MA 02019  
P.O. BOX 315  
MILLBURY, MA 01527  
BK 34089 PG 217

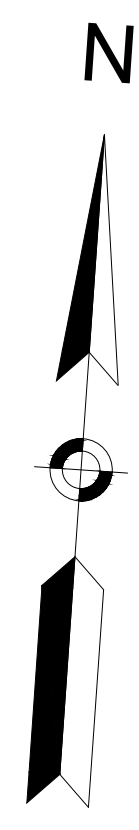
- GENERAL NOTES:**
1. REMOVE & RESET ALL EXISTING SIGN PANELS ONTO NEW POSTS UNLESS OTHERWISE INDICATED.
  2. NEW POSTS SHALL HAVE 7 FT MINIMUM CLEARANCE FROM THE HIGHEST ADJACENT FINISHED SURFACE TO THE BOTTOM OF THE SIGN PANEL UNLESS OTHERWISE INDICATED.



CONTINUED ON  
SHEET NO. 36

CONTINUED ON  
SHEET NO. 38

2148.00\_HDSIGN & PAV.DWG Picked on 10-Jan-2022 5:44 PM



0018-0099-0000  
n/f  
JEANNE M. DONNELLY &  
VICTOR P. DALOIA  
224 HARTFORD AVENUE  
BELLINGHAM, MA 02019  
BK 6709 PG 185

0018-0098-0000  
n/f  
THOMAS P. STEEVES  
222 HARTFORD AVENUE  
BELLINGHAM, MA 02019  
P.O. BOX 315  
MILLBURY, MA 01527  
BK 34089 PG 217

0018-0097-0000  
n/f  
ROBERT A. & DEBRA L. PAOLINO  
1 DEERFIELD LANE  
BELLINGHAM, MA 02019  
BK 11481 PG 178

PROJECT END  
STA 28+09.32  
N2866637.1427  
E665177.3685

**HARTFORD AVENUE (ROUTE 126)**  
(PUBLIC - VARIABLE WIDTH)

LIMIT OF WORK  
MEET EXIST

- GENERAL NOTES:**
1. REMOVE & RESET ALL EXISTING SIGN PANELS ONTO NEW POSTS UNLESS OTHERWISE INDICATED.
  2. NEW POSTS SHALL HAVE 7 FT MINIMUM CLEARANCE FROM THE HIGHEST ADJACENT FINISHED SURFACE TO THE BOTTOM OF THE SIGN PANEL UNLESS OTHERWISE INDICATED.

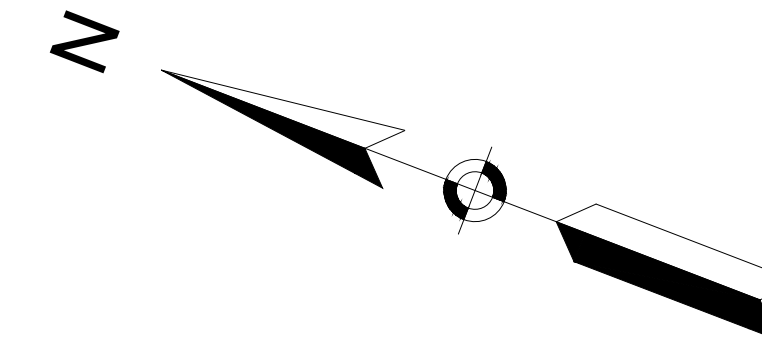


CONTINUED ON  
SHEET NO. 37

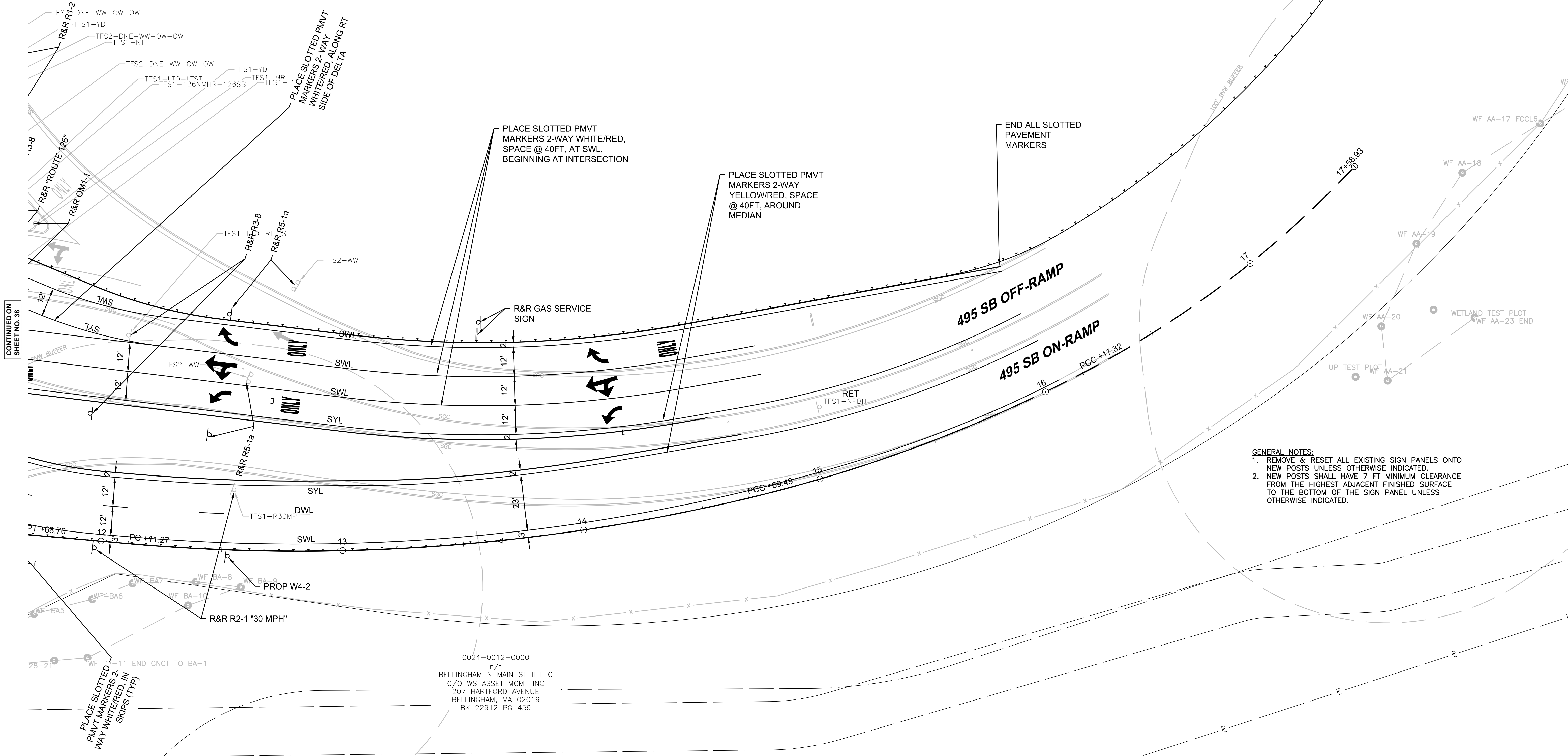
**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	39	93
PROJECT FILE NO.		2148.00	

**TRAFFIC SIGN & PAVEMENT MARKINGS  
SHEET 06 OF 06**



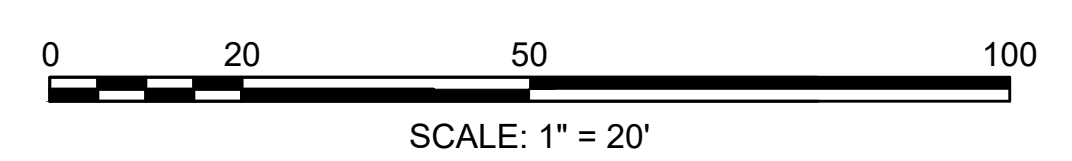
R&R "495 NORTH"



CONTINUED ON  
SHEET NO. 38

- GENERAL NOTES:**
1. REMOVE & RESET ALL EXISTING SIGN PANELS ONTO NEW POSTS UNLESS OTHERWISE INDICATED.
  2. NEW POSTS SHALL HAVE 7 FT MINIMUM CLEARANCE FROM THE HIGHEST ADJACENT FINISHED SURFACE TO THE BOTTOM OF THE SIGN PANEL UNLESS OTHERWISE INDICATED.




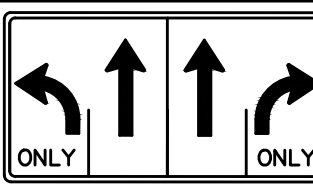
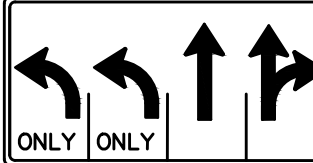
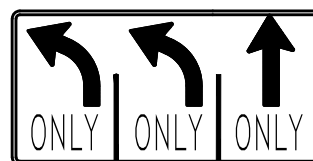







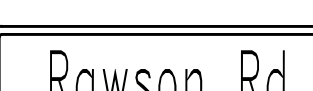
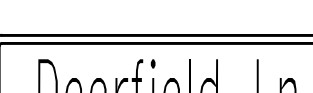
0024-0012-0000  
n/f  
BELLINGHAM N MAIN ST II LLC  
C/O WS ASSET MGMT INC  
207 HARTFORD AVENUE  
BELLINGHAM, MA 02019  
BK 22912 PG 459





STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	40	93
PROJECT FILE NO.		2148.00	

## TRAFFIC SIGN SUMMARY

IDENTIFI- CATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK- GROUND	LEGEND	BORDER			
R3-17	24	18		MUTCD STD	MUTCD STD	MUTCD STD	4	WHITE	BLACK	BLACK	P5 (5)	3.0	12.00
R3-17aP	24	8					2	WHITE	BLACK	BLACK	MOUNT WITH R3-17	1.33	2.66
R3-17bP	24	8					2	WHITE	BLACK	BLACK	MOUNT WITH R3-17	1.33	2.66
R3-8c	60	30					2	WHITE	BLACK	BLACK	P5 (2)	12.5	25.00
R3-8d	60	30					4	WHITE	BLACK	BLACK	P5 (4)	12.5	50.00
R3-8e	48	30					2	WHITE	BLACK	BLACK	P5 (2)	10	20.00
R10-11a	36	36					2	WHITE	BLACK	BLACK	P5 (2)	9	18.00
SP-1	18	24					8	WHITE	BLACK	BLACK	P5 (8)	3	24.00
W4-2	30	30					2	YELLOW	BLACK	BLACK	P5 (2)	6.25	12.50
W16-1p	18	24					2	WHITE	BLACK	BLACK	P5 (2)	3	6.00
MA-D3-1	45.0	12		SERIES D 1ST LETTER: 6" ABBR.: 4"	3" TOP 3" BOTTOM*	N/A	10	GREEN	WHITE SERIES D	WHITE	P5 (5)	3.75	7.50
MA-D3-2	45.0	12		SERIES D 1ST LETTER: 6" ABBR.: 4"	3" TOP 3" BOTTOM*	N/A	2	GREEN	WHITE SERIES D	WHITE	P5 (1)	3.75	7.50
MA-D3-3	45.0	12		SERIES D 1ST LETTER: 6" ABBR.: 4"	3" TOP 3" BOTTOM*	N/A	2	GREEN	WHITE SERIES D	WHITE	P5 (1)	3.75	7.50
MA-D3-4	45.0	12		SERIES D 1ST LETTER: 6" ABBR.: 4"	3" TOP 3" BOTTOM*	N/A	2	GREEN	WHITE SERIES D	WHITE	P5 (1)	3.75	7.50
MA-D3-5	45.0	12		SERIES D 1ST LETTER: 6" ABBR.: 4"	3" TOP 3" BOTTOM*	N/A	2	GREEN	WHITE SERIES D	WHITE	P5 (1)	3.75	7.50

**SIGNS - GENERAL NOTES:**

- ALL WARNING, REGULATORY AND ROUTE MARKERS SHALL BE FABRICATED WITH HIGH INTENSITY ENCAPSULATED LENS REFLECTIVE SHEETING (SEE SECTION M9.30.0) TYPE III OR IV.
- ALL SIGNS NOTED AS "(R&R)" SHALL BE MOUNTED ON NEW P5 POSTS OR AS OTHERWISE INDICATED.
- ALL P5 POSTS SHALL BE TELESCOPIC BREAKAWAY RECTANGULAR TYPE POSTS.
- QUANTITIES OF SIGNS SHOWN ON THIS SHEET MAY DIFFER FROM THE PAVEMENT MARKING AND SIGNING PLANS. WHERE DIFFERENCES OCCUR, THE PAVEMENT MARKINGS AND SIGNING PLANS SHALL PREVAIL.
- CONTRACTOR SHALL TAKE NOTE THAT STREET SIGN PANELS ARE PAID PER EACH. THE TOTAL SQUARE FOOTAGE SHOWN FOR STREET SIGN PANELS IS FOR REFERENCE ONLY.
- MOUNT TWO MA-D3 STREET NAME SIGNS BACK TO BACK TO MAKE A SINGLE DOUBLE-SIDED SIGN.
- FOR MA-D3 STREET NAME SIGNS, USE FHWA STANDARD ALPHABET LETTER SERIES D AS SHOWN. UPPER CASE LETTERS SHALL BE 6 INCHES TALL; LOWER CASE SHALL BE 4.5 INCHES TALL.



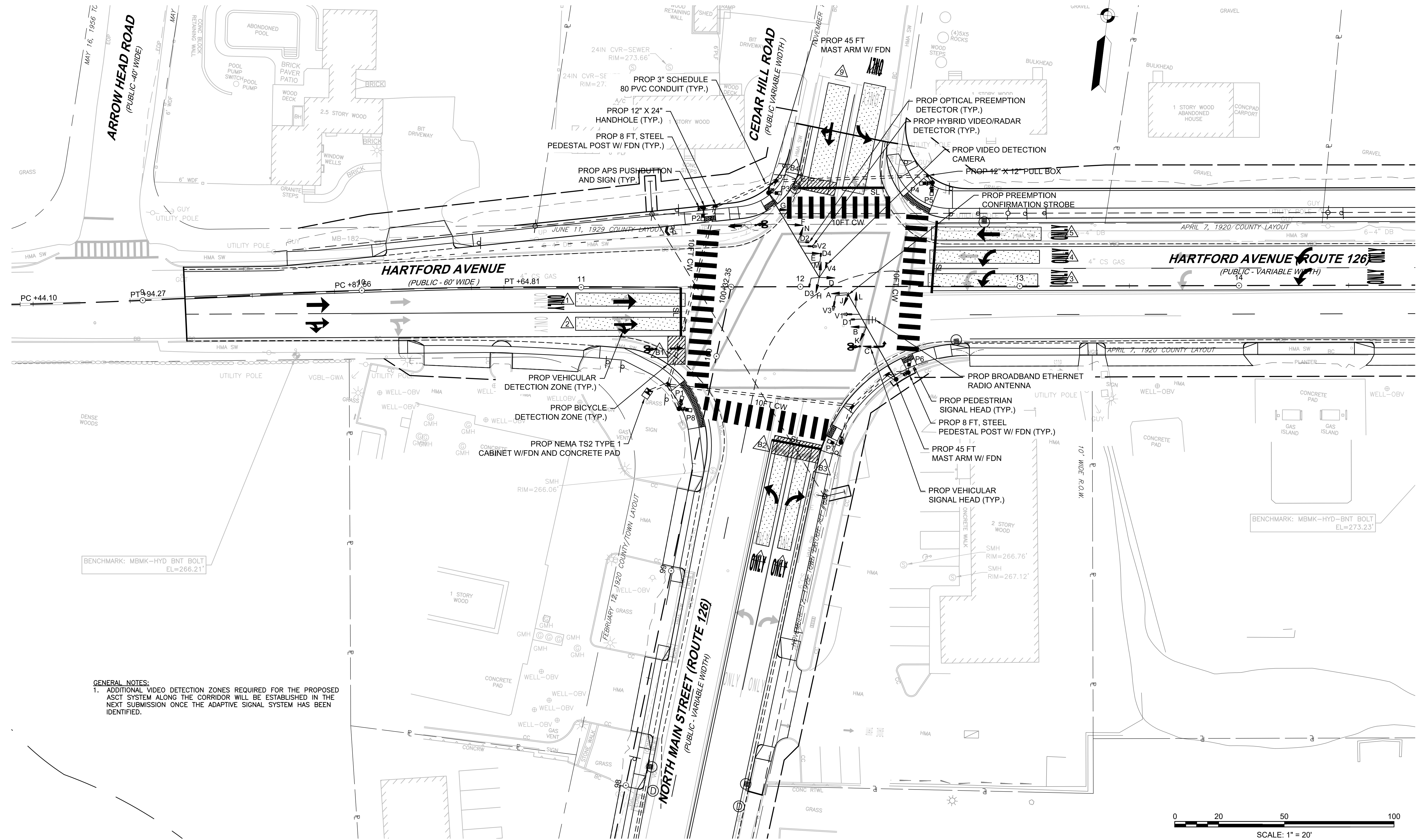
**NOTES:**

1. THE CONTRACTOR SHALL REMOVE AND STACK ALL EXISTING TRAFFIC SIGNAL EQUIPMENT UNLESS OTHERWISE NOTED.
2. THE CONTRACTOR SHALL DELIVER ALL EXISTING TRAFFIC SIGNAL EQUIPMENT TO THE TOWN DPW UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

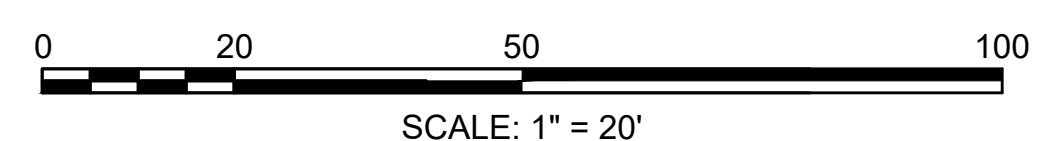
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	41	93
PROJECT FILE NO.		2148.00	

**TRAFFIC SIGNAL PLANS  
SHEET 01 OF 05**



BENCHMARK: MBMK-HYD-BNT BOLT  
EL=266.21'

**GENERAL NOTES:**  
1. ADDITIONAL VIDEO DETECTION ZONES REQUIRED FOR THE PROPOSED ASCT SYSTEM ALONG THE CORRIDOR WILL BE ESTABLISHED IN THE NEXT SUBMISSION ONCE THE ADAPTIVE SIGNAL SYSTEM HAS BEEN IDENTIFIED.



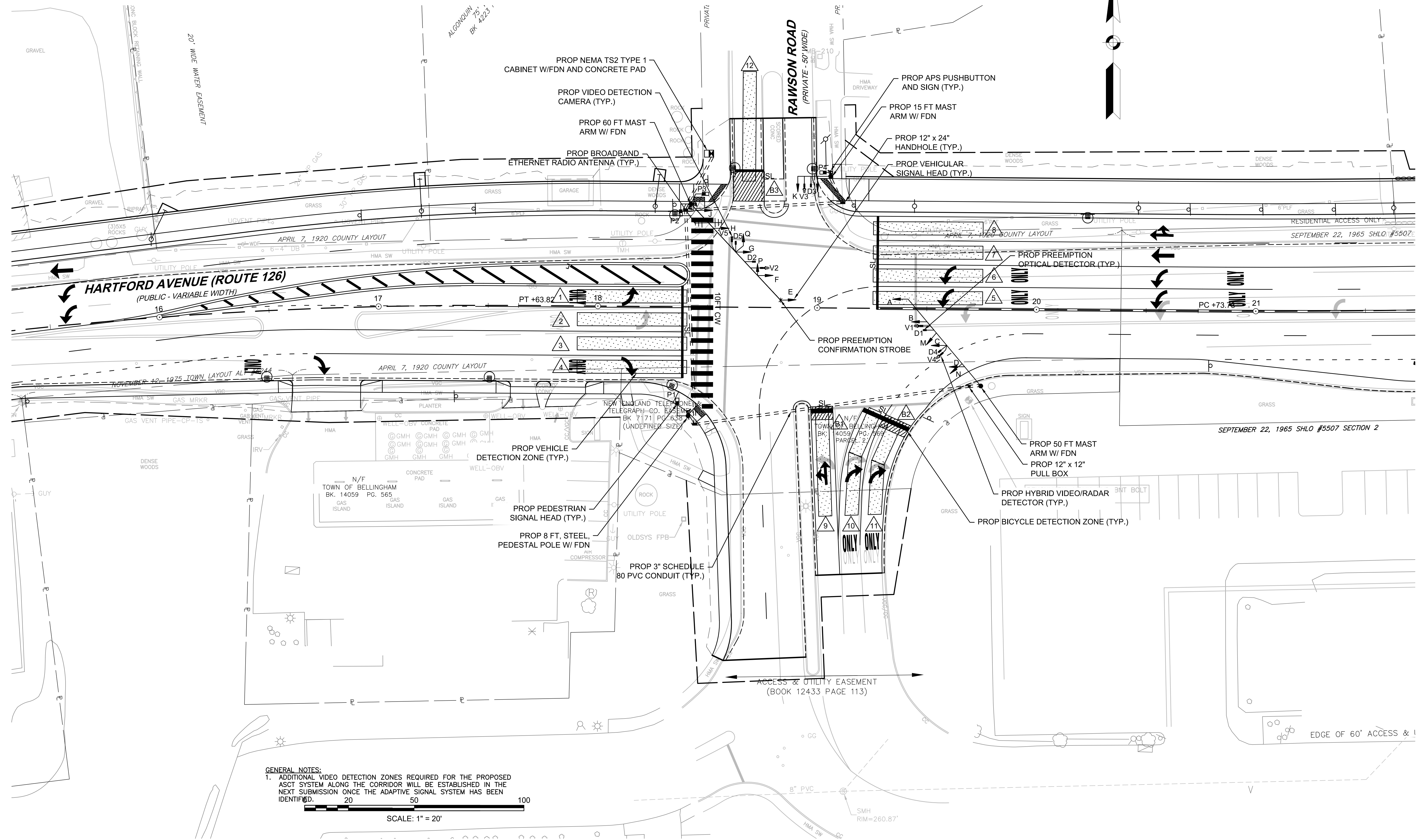
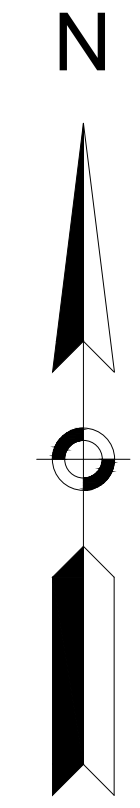
BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	42	93
PROJECT FILE NO.		2148.00	

TRAFFIC SIGNAL PLANS  
SHEET 02 OF 05

NOTES:

1. THE CONTRACTOR SHALL REMOVE AND STACK ALL EXISTING TRAFFIC SIGNAL EQUIPMENT UNLESS OTHERWISE NOTED.
2. THE CONTRACTOR SHALL DELIVER ALL EXISTING TRAFFIC SIGNAL EQUIPMENT TO THE TOWN DPW UNLESS OTHERWISE DIRECTED BY THE ENGINEER.



GENERAL NOTES:  
1. ADDITIONAL VIDEO DETECTION ZONES REQUIRED FOR THE PROPOSED ASCT SYSTEM ALONG THE CORRIDOR WILL BE ESTABLISHED IN THE NEXT SUBMISSION ONCE THE ADAPTIVE SIGNAL SYSTEM HAS BEEN IDENTIFIED.

SCALE: 1" = 20'

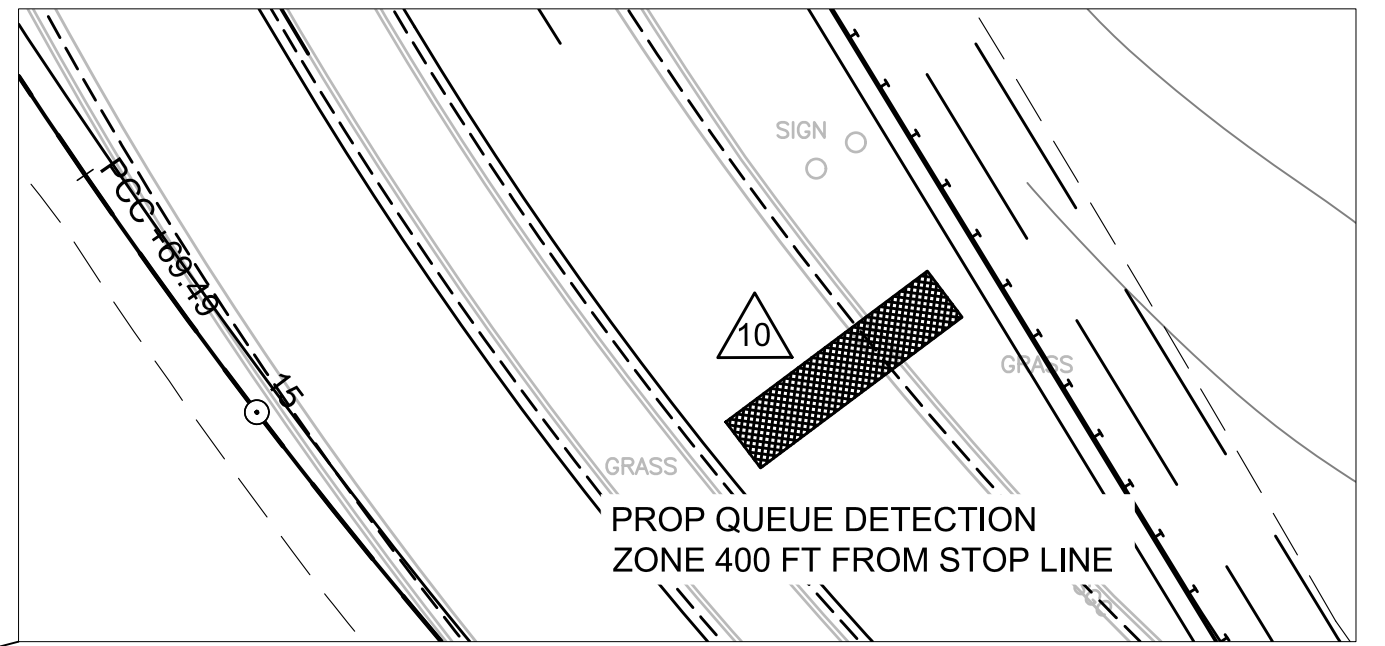
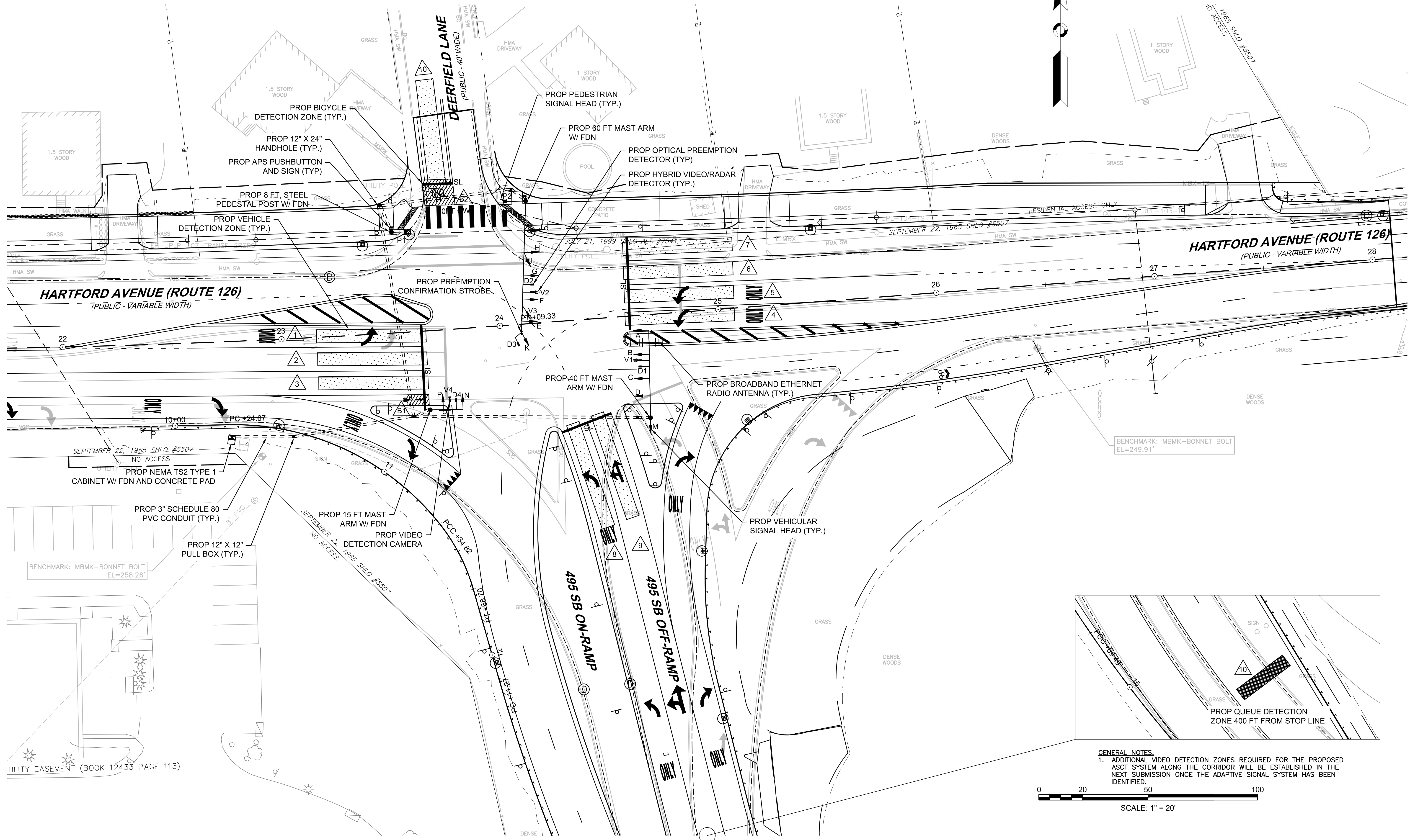
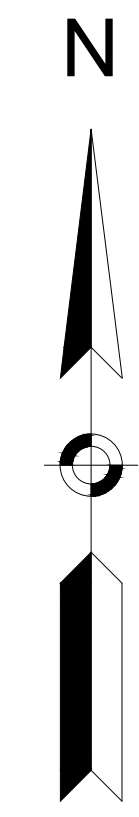


BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)

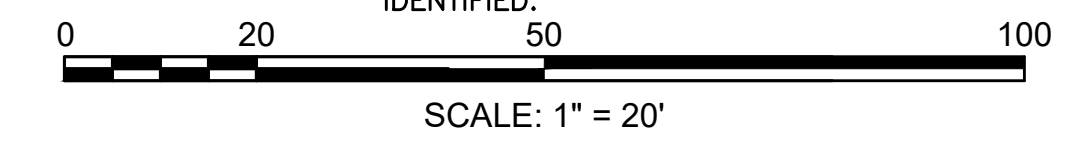
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	43	93
PROJECT FILE NO.		2148.00	

TRAFFIC SIGNAL PLANS  
SHEET 03 OF 05

- NOTES:  
1. THE CONTRACTOR SHALL REMOVE AND STACK ALL EXISTING TRAFFIC SIGNAL EQUIPMENT UNLESS OTHERWISE NOTED.  
2. THE CONTRACTOR SHALL DELIVER ALL EXISTING TRAFFIC SIGNAL EQUIPMENT TO THE MASSDOT DISTRICT 3 OFFICE UNLESS OTHERWISE DIRECTED BY THE ENGINEER.



- GENERAL NOTES:  
1. ADDITIONAL VIDEO DETECTION ZONES REQUIRED FOR THE PROPOSED ASCT SYSTEM ALONG THE CORRIDOR WILL BE ESTABLISHED IN THE NEXT SUBMISSION ONCE THE ADAPTIVE SIGNAL SYSTEM HAS BEEN IDENTIFIED.

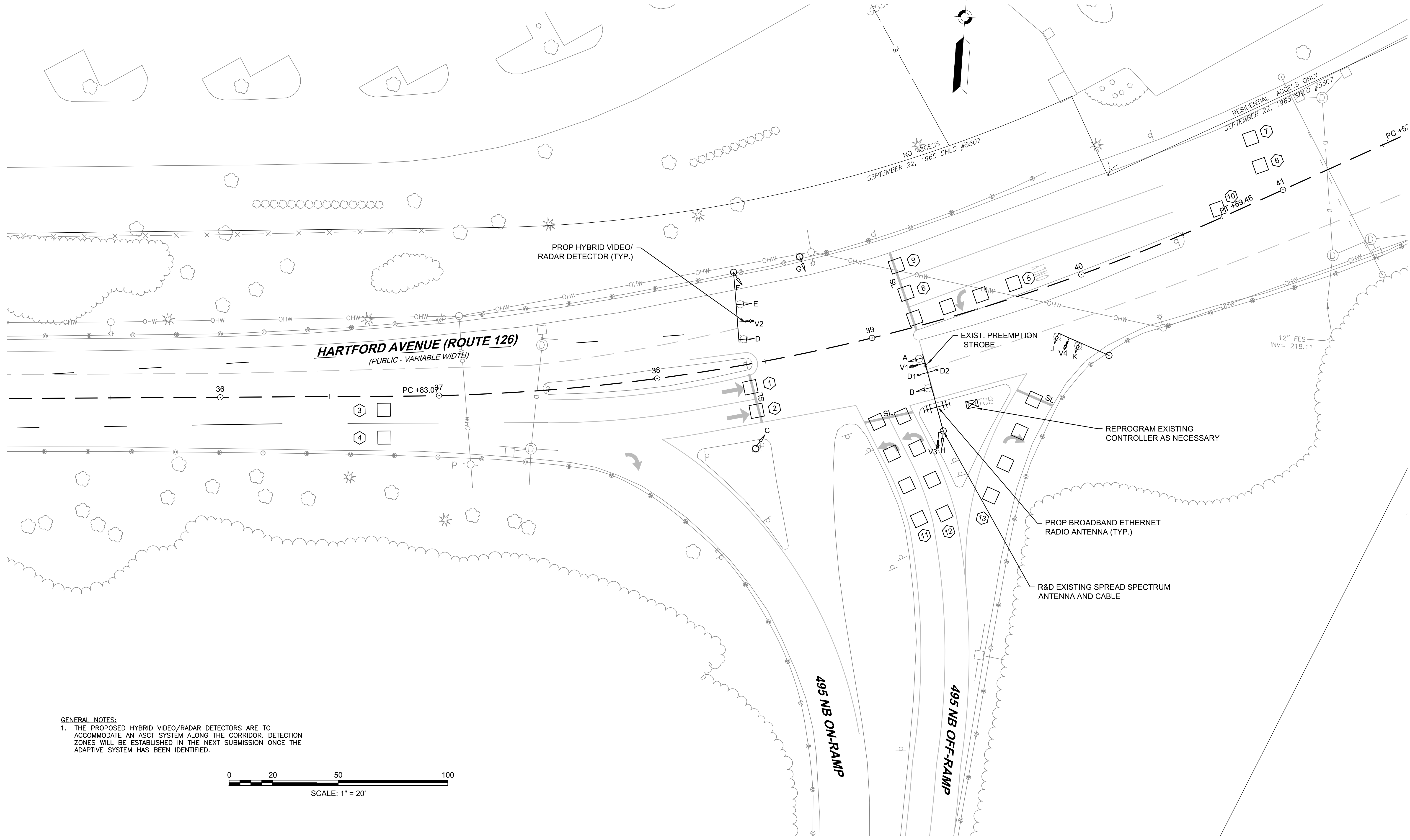


NOTES:  
 1. ALL EXISTING TRAFFIC SIGNAL EQUIPMENT TO BE RETAINED INCLUDING ALL EXISTING LOOP DETECTORS UNLESS OTHERWISE NOTED.

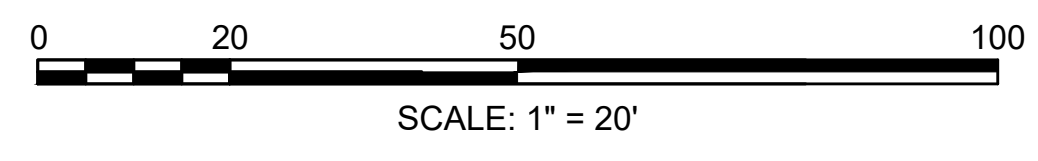
**BELLINGHAM  
 HARTFORD AVENUE (ROUTE 126)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	44	93
PROJECT FILE NO. 2148.00			

**TRAFFIC SIGNAL PLAN  
 SHEET 04 OF 05**



GENERAL NOTES:  
 1. THE PROPOSED HYBRID VIDEO/RADAR DETECTORS ARE TO ACCOMMODATE AN ASCT SYSTEM ALONG THE CORRIDOR. DETECTION ZONES WILL BE ESTABLISHED IN THE NEXT SUBMISSION ONCE THE ADAPTIVE SYSTEM HAS BEEN IDENTIFIED.



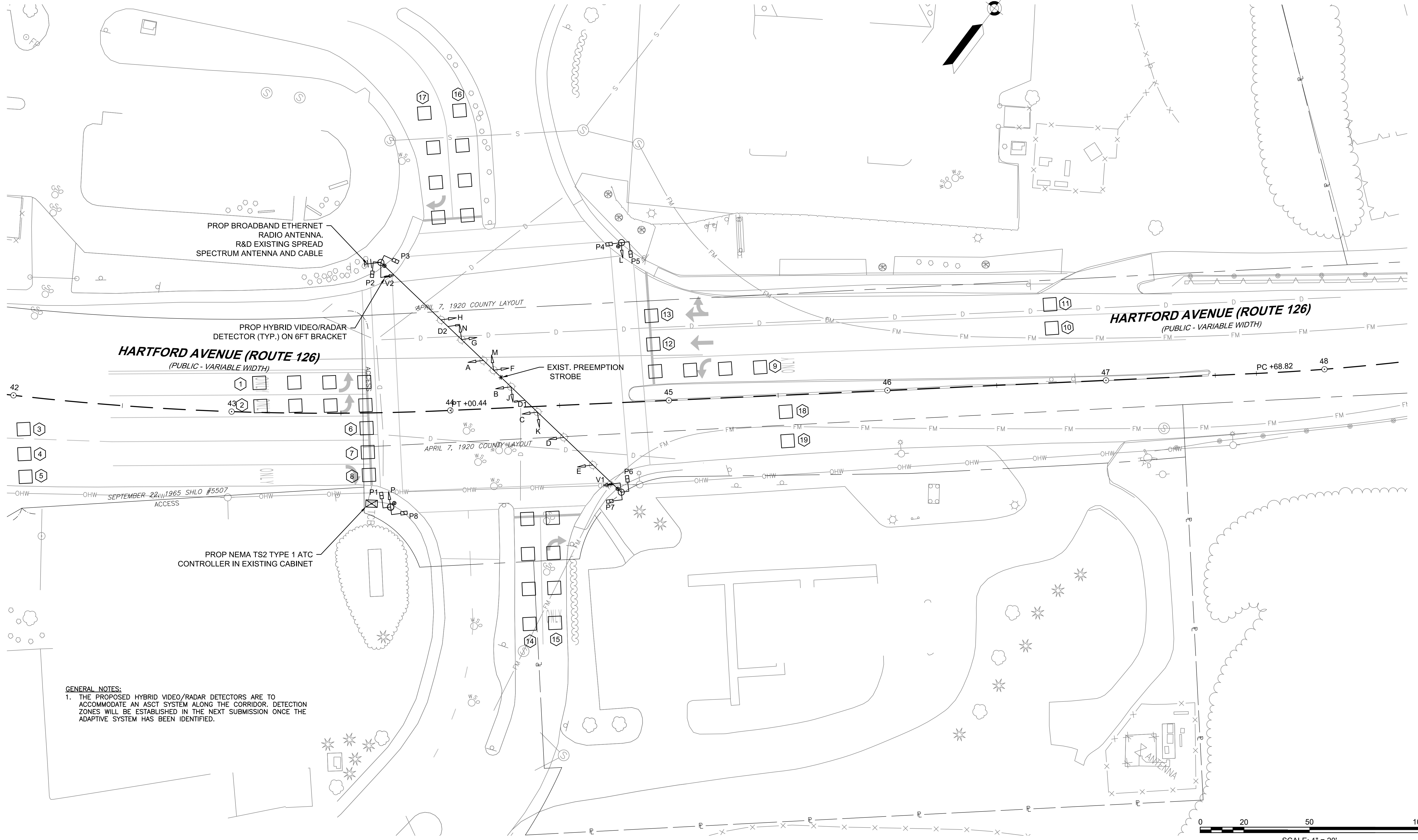


BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)

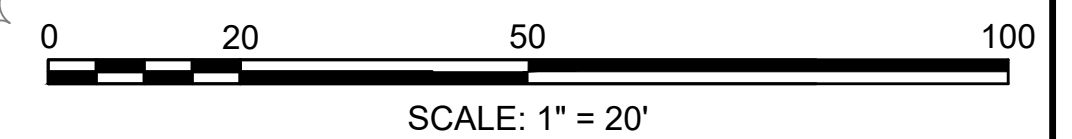
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	45	93
PROJECT FILE NO.		2148.00	

TRAFFIC SIGNAL PLANS  
SHEET 05 OF 05

NOTES:  
1. ALL EXISTING TRAFFIC SIGNAL EQUIPMENT TO BE RETAINED INCLUDING ALL EXISTING LOOP DETECTORS UNLESS OTHERWISE NOTED.



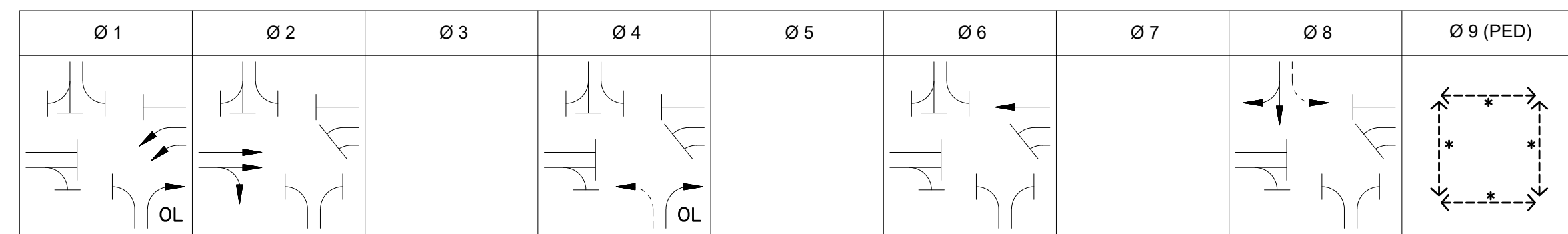
GENERAL NOTES:  
1. THE PROPOSED HYBRID VIDEO/RADAR DETECTORS ARE TO ACCOMMODATE AN ASCT SYSTEM ALONG THE CORRIDOR. DETECTION ZONES WILL BE ESTABLISHED IN THE NEXT SUBMISSION ONCE THE ADAPTIVE SYSTEM HAS BEEN IDENTIFIED.



**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	46	93
PROJECT FILE NO.		2148.00	

**TRAFFIC SIGNAL DATA  
SHEET 01 OF 05**

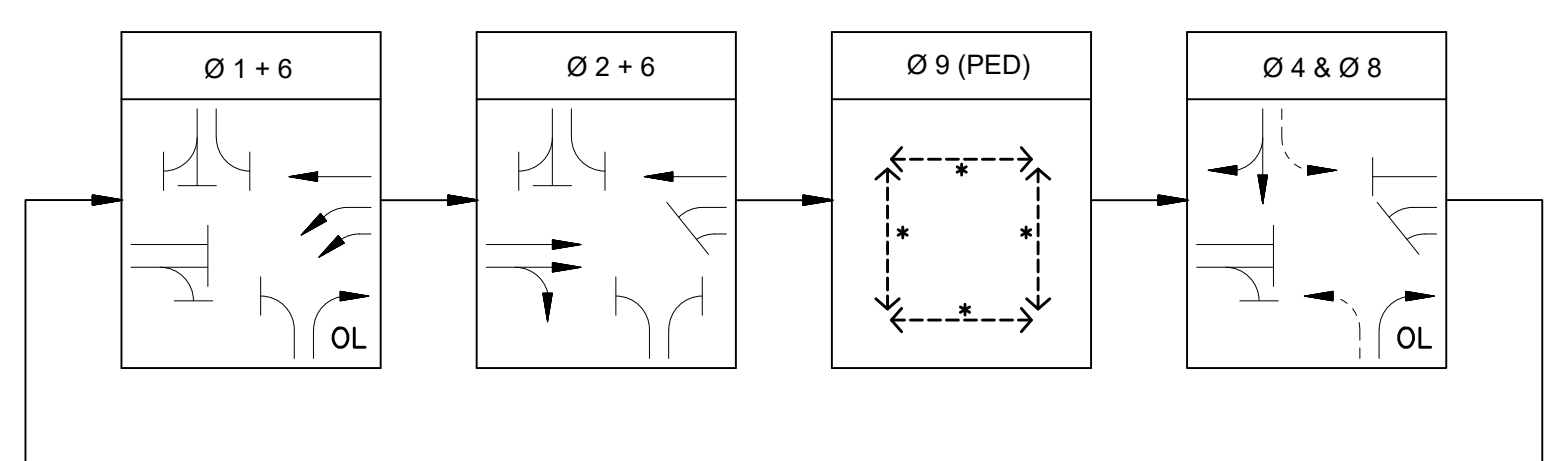


**SEQUENCE AND TIMING FOR FULL ACTUATED CONTROL (COORDINATED)**

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	23	24	25	26	27	FLASH OPER.
HARTFORD AVENUE	EB	A	R	R	R	GT	Y	R				R	R	R				R	R	R			R	R	R	R	R	R	R	FY
HARTFORD AVENUE	EB	B,C	R	R	R	G	Y	R				R	R	R				R	R	R			R	R	R	R	R	R	R	FY
HARTFORD AVENUE	WBL	D,E	GL	YL	RL	RL	RL	RL				RL	RL	RL				RL	RL	RL			RL	RL	RL	RL	RL	RL	RL	FRL
HARTFORD AVENUE	WBT	F,G	R	R	R	R	R	R				R	R	R				GT	Y	R			R	R	R	R	R	R	R	FY
N.MAIN ST	NBL	H	RL	RL	RL	RL	RL	RL				FYL	YL	RL				RL	RL	RL			RL	RL	RL	RL	RL	RL	RL	FRL
N.MAIN ST	NBR	J,K	GR	YR	RR	RR	RR	RR				FYR	YR	RR				RR	RR	RR			RR	RR	RR	RR	RR	RR	RR	FRR
CEDAR HILL RD	SBL	L	RL	RL	RL	RL	RL	RL				RL	RL	RL				RL	RL	RL			FYL	YL	RL	RL	RL	RL	RL	FRL
CEDAR HILL RD	SBTR	M,N	R	R	R	R	R	R				R	R	R				R	R	R			G	Y	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	W	FDW	DW	OUT	
			<b>TIMING IN SECONDS</b>																											
MINIMUM GREEN (INITIAL)			6			10						6						10						6						
PASSAGE TIME (VEHICLE)			2			2						2						2						2						
MAXIMUM 1 (FREE OPERATION)			42			45						33						93						33						
MAXIMUM 2 (DURING COORDINATION)			33			63						11						101						11						
YELLOW CLEARANCE				3			4					3.5							4					3.5						
RED CLEARANCE					2.5			1.5						2.5						1.5						2.5				
WALK (W)																											7			
PEDESTRIAN CLEARANCE																												18	4	
RECALL			OFF			SOFT			OFF			SOFT			OFF			OFF												
MEMORY			NON-LOCK			NON-LOCK			NON-LOCK			NON-LOCK			NON-LOCK			NON-LOCK												
<b>COORDINATION DATA</b>			<b>COORDINATION PHASE TIMING</b>																											
TIMING PLAN			CYCLE LENGTH	REF/OFFSET	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.
PLAN 1: MON-FRI 5-9AM			110	BOG/89	27	49	14	76	14	20+																				
PLAN 2: MON-FRI 3-8PM			120	BOG/104	38	44	17	82	17	21+																				
PLAN 3: MON-FRI 9AM-3PM & SAT 9AM-7PM			110	BOG/90	33	39	17	72	17	21+																				

- NOTE:**
- FLASHING OPERATION PER MUTCD.
  - MAXIMUM 1 = FREE OPERATION, MAXIMUM 2 = COORDINATED OPERATION.
  - Ø2 + Ø6 "CALL NOT ACTUATED" DURING COORDINATION.
  - OFFSET REFERENCED TO BEGINNING OF GREEN (BOG) OF Ø2 + Ø6 (COORDINATED PHASE).
  - SPLIT TIMES EQUAL TO GREEN TIMES PLUS CLEARANCES
  - THE COORDINATION SHALL BE SET TO ALLOCATE UNUSED PEDESTRIAN TIME TO THE COORDINATED PHASES (PHASES Ø2 + Ø6)
  - UPON PEDESTRIAN PUSHBUTTON ACTUATION ONLY
  - THE SPLIT TIME SHOWN DOES NOT ACCOMMODATE THE PEDESTRIAN TIME. IF THE PEDESTRIAN PHASE IS ACTUATED, THE CONTROLLER SHALL DROP OUT OF COORDINATION TO SERVICE THE PEDESTRIAN PHASE.

**PREFERENTIAL PHASING SEQUENCE**



- NOTE:**
- ANY PHASE OR PHASE COMBINATION NOT CALLED SHALL BE SKIPPED. \*UPON PEDESTRIAN PUSHBUTTON ACTIVATION ONLY.

**EMERGENCY VEHICLE PREEMPTION**

DETECTOR NO.	APPROACH	PREEMPTION PHASE	NEXT PHASE CALLED
D1	EASTBOUND	2	2+6
D2	WESTBOUND	1 + 6	2+6
D3	NORTHBOUND	4	2+6
D4	SOUTHBOUND	8	2+6

**EMERGENCY VEHICLE PREEMPTION OPERATION:**

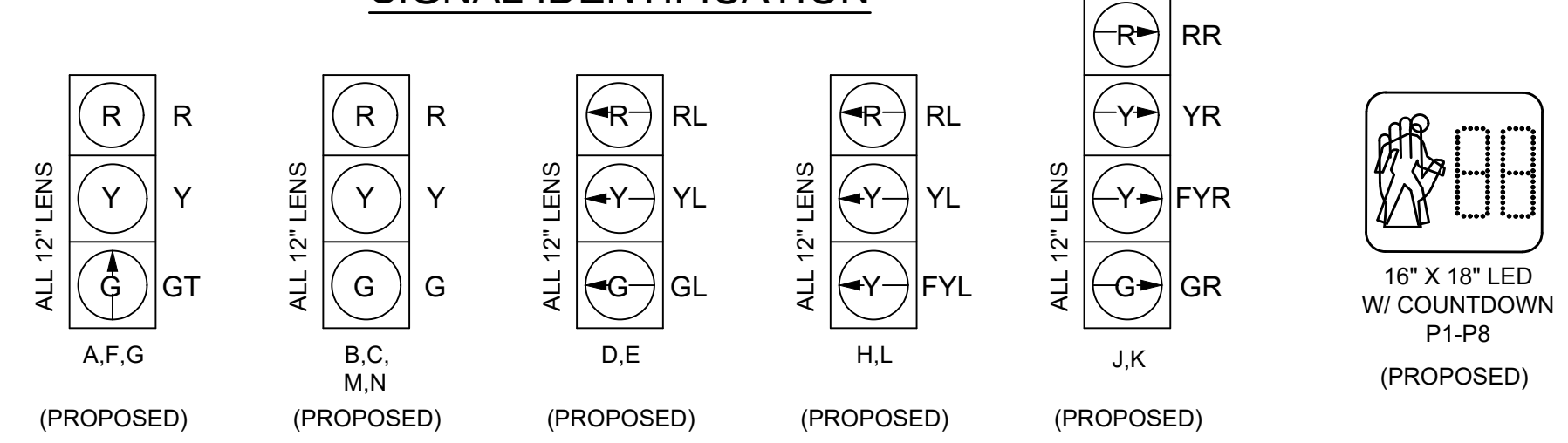
- EMERGENCY VEHICLE PREEMPTION SHALL BE ACTUATED BY AN OPTICAL SIGNAL FROM AN OPTICAL EMITTER MOUNTED ON AN EMERGENCY VEHICLE AND RECEIVED BY AN OPTICAL DETECTOR LOCATED AT INTERSECTION. A SEPARATE RECEIVING DETECTOR IS REQUIRED FOR EACH DETECTED APPROACH.
- PREEMPTION SIGNALS FROM MULTIPLE APPROACHES SHALL BE SERVICED ON A FIRST DETECTED FIRST SERVED BASIS.
- IN RESPONSE TO A PREEMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR, THE CONTROLLER SHALL TIME THE CLEARANCE INTERVALS OF THE ACTIVE PHASE (IF DIFFERENT FROM THAT TO BE SERVICED) AND ADVANCE TO AND/OR HOLD IN EMERGENCY VEHICLE PREEMPTION PHASE UNTIL PREEMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME CLEARANCES AND SIMILARLY SERVICE OTHER EMERGENCY VEHICLE PREEMPTION SEQUENCES IN THE ORDER RECEIVED (IF RECEIVED) OTHERWISE, RESUME NORMAL PREFERENTIAL PHASE SEQUENCE.
- PREEMPTION MINIMUM GREENS SHALL BE TEN SECONDS.
- NORMAL CLEARANCES SHALL BE PROVIDED ON PHASES THAT ARE TERMINATED BY PREEMPTION DEMAND.
- ACTUAL TIMMING FOR PREEMPTION SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH THE FIRE DEPARTMENT AND SHALL BE APPROVED BY THE TOWN PRIOR TO OPERATION.

PAY ITEM	QUANTITY	ITEM	
816.1	1	NEMA TS2 TYPE 1 ATC CONTROLLER W/ VIDEO DETECTION SYSTEM AND FULL INPUT AND OUTPUT SUPPRESSION PACKAGE IN P-SIZE CABINET W/ FDN AND CONCRETE PAD	
	2	45' TYPE II GALV. STEEL MAST ARM W/ FDN	
	5	8" PEDESTAL POLE, STEEL W/ FDN	
	1	ENVIRONMENTALLY HARDENED ETHERNET SWITCH	
	8	PEDESTRIAN SIGNAL HEAD, LED W/ COUNTDOWN TIMER AND CAP VISOR	
	8	APS PUSHBUTTON AND SIGN W/ AUDIBLE AND VISIBLE INDICATOR, VIBRO-TACTILE ARROW AND SPEECH-WALK MESSAGE	
	11	SIGNAL HEAD, 3 SECTION, 12" LED W/ 5" FLAT BACKPLATE AND 3" YELLOW RETROREFLECTIVE BORDER	
	2	SIGNAL HEAD, 4 SECTION, 12" LED W/ 5" FLAT BACKPLATE AND 3" YELLOW RETROREFLECTIVE BORDER	
	4	EMERGENCY PREEMPTION OPTICAL DETECTOR	
	1	EMERGENCY PREEMPTION PHASE SELECTOR (4-CHANNEL) AND RACK	
	1	EMERGENCY PREEMPTION STROBE (WHITE LENS)	
	1	COLOR 9" MONITOR AND PROGRAMMING KEYBOARD	
	3	HYBRID VIDEO/RADAR DETECTOR W/ MOUNTING HARDWARE AND CAT 5 CABLE	
	1	VIDEO DETECTION CAMERA W/ MOUNTING HARDWARE AND CAT 5 CABLE	
	1	VIDEO DETECTION SYSTEM CENTRAL UNIT AND PROCESSOR	
	1	BROADBAND ETHERNET RADIO WITH ANTENNA AND CABLE AND MOUNTING HARDWARE	
	1	GPS RECEIVER ANTENNA	
	1	OVERHEAD ELECTRIC SERVICE CONNECTION	
	804.3	350 FT	3" SCHEDULE 80 PVC CONDUIT
	811.22	5	HANDHOLE 12" X 24"
	811.31	1	PULL BOX 12" X 12"
			Plus all necessary duct, cable, labor, miscellaneous material and equipment to complete the installation.

**VIDEO DETECTOR DATA**

DETECTOR NUMBER	DIRECTION	CAMERA	PHASE CALLED	PHASE EXT.	DELAY TIME (SEC)
1	EBT	V1	2	2	0
2	EBTR	V1	2	2	0
3	WBL	V2	1	1	0
4	WBL	V2	1	1	0
5	WBT	V2	6	6	0
6	NBL	V3	4	4	0
7	NBR	V3	4	4	0
8	SBL	V4	8	8	0
9	SBTR	V4	8	8	0
B1	EB	V1	2	2	0
B2	NBL	V3	4	4	0
B3	NBR	V3	4	4	0
B4	SB	V4	8	8	0

**SIGNAL IDENTIFICATION**

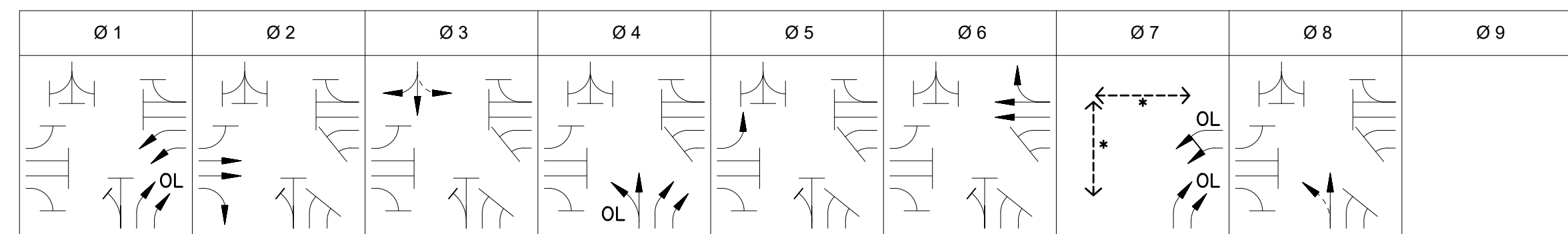


- NOTES:**
- ALL SIGNALS SHALL HAVE CUT AWAY VISORS.
  - ALL SIGNALS SHALL HAVE 12" LED WITH 5" FLAT BACKPLATES WITH 3" YELLOW RETROREFLECTIVE BORDERS

BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	47	93
PROJECT FILE NO.		2148.00	

TRAFFIC SIGNAL DATA  
SHEET 02 OF 05



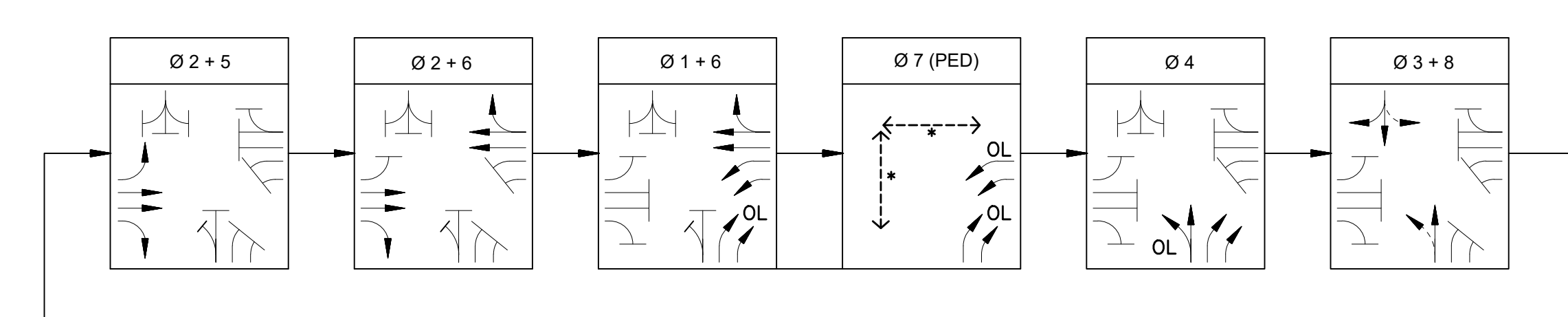
SEQUENCE AND TIMING FOR FULL ACTUATED CONTROL (COORDINATED)																														
STREET	DIRECTION	HOUSINGS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	FLASH OPER.
HARTFORD AVENUE	EBL	A	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	GL	YL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	FRL
HARTFORD AVENUE	EBT	B,C	R	R	R	GT	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FY
HARTFORD AVENUE	EBR	D	RR	RR	RR	GR	YR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	FYR
HARTFORD AVENUE	WBL	E,F	GL	YL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	GL	YL	RL	RL	RL	RL	RL	RL	RL	RL	FRL
HARTFORD AVENUE	WBT	G	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	GT	Y	R	R	R	R	R	R	R	R	FY
HARTFORD AVENUE	WBTR	H,J	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	FY
CROSSROADS DRIVE	NBLT	K	R	R	R	R	R	R	R	R	RL	G/Y	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	FR
CROSSROADS DRIVE	NB	L	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FR
CROSSROADS DRIVE	NBR	M,N	GR	YR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	RR	FRR
RAWSON ROAD	SB	P,Q	R	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FR
PEDESTRIAN	ALL	P1-P4	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	OUT

TIMING IN SECONDS												
MINIMUM GREEN (INITIAL)	6		10		6		6		6		10	
PASSAGE TIME (VEHICLE)	2		2		2		2		2		2	
MAXIMUM 1 (FREE OPERATION)	25		68		10		25		10		84	
MAXIMUM 2 (DURING COORDINATION)	30		62		10		29		10		83	
YELLOW CLEARANCE		3		4		3.5		3.5		3		3.5
RED CLEARANCE			2.5		1.5		2.5		1.5		2	
WALK (W)										7		2.5
PEDESTRIAN CLEARANCE										21		3
RECALL		OFF		SOFT		OFF		OFF		SOFT		OFF
MEMORY		NON-LOCK		NON-LOCK		NON-LOCK		NON-LOCK		NON-LOCK		NON-LOCK

COORDINATION DATA			COORDINATION PHASE TIMING									
TIMING PLAN	CYCLE LENGTH	REF/OFFSET	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	
PLAN 1: MON-FRI 5-9AM	110	BOG/90	10	67	12	21	11	66	18+	15		
PLAN 2: MON-FRI 3-8PM	120	BOG/104	17	57	12	34	11	63	18+	28		
PLAN 3: MON-FRI 9AM-3PM & SAT 9AM-7PM	110	BOG/95	11	55	12	32	11	55	18+	26		

NOTE:  
 1. FLASHING OPERATION PER MUTCD.  
 2. MAXIMUM 1 = FREE OPERATION, MAXIMUM 2 = COORDINATED OPERATION.  
 3. Ø2 + Ø6 "CALL NOT ACTUATED" DURING COORDINATION.  
 4. OFFSET REFERENCED TO BEGINNING OF GREEN (BOG) OF Ø2 + Ø6 (COORDINATED PHASE).  
 5. SPLIT TIMES EQUAL TO GREEN TIMES PLUS CLEARANCES.  
 6. THE COORDINATION SHALL BE SET TO ALLOCATE UNUSED PEDESTRIAN TIME TO PHASE 1.  
 \* UPON PEDESTRIAN PUSHBUTTON ACTUATION ONLY.  
 + THE SPLIT TIME SHOWN DOES NOT ACCOMMODATE THE PEDESTRIAN TIME, IF THE PEDESTRIAN PHASE IS ACTUATED, THE CONTROLLER SHALL DROP OUT OF COORDINATION TO SERVICE THE PEDESTRIAN PHASE.

PREFERENTIAL PHASING SEQUENCE



NOTE:  
 1. ANY PHASE OR PHASE COMBINATION NOT CALLED SHALL BE SKIPPED.  
 \* UPON PEDESTRIAN PUSHBUTTON ACTUATION ONLY.

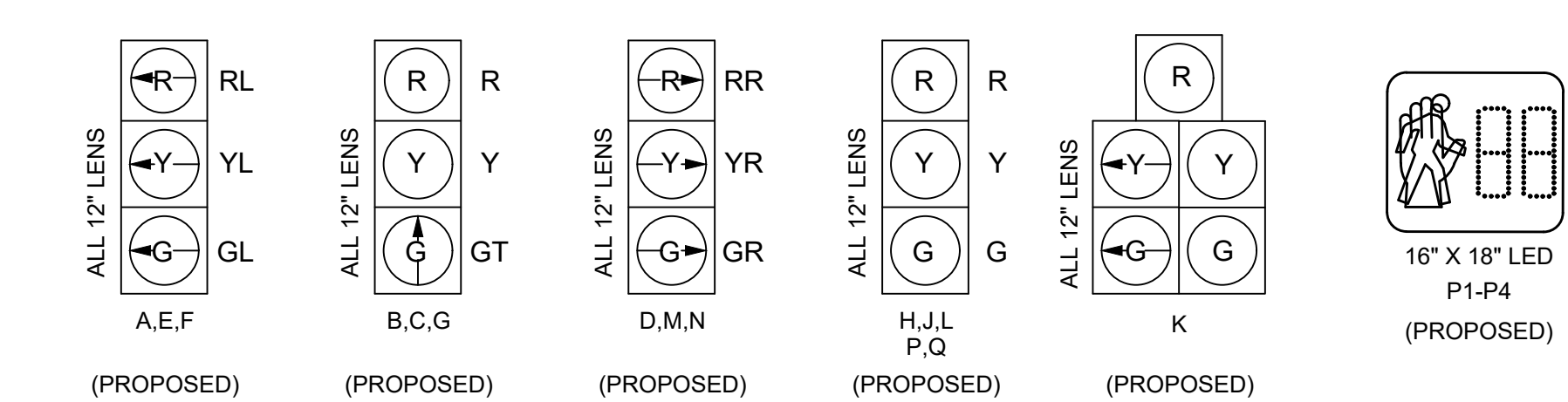
EMERGENCY VEHICLE PREEMPTION

DETECTOR NO.	APPROACH	PREEMPTION PHASE	NEXT PHASE CALLED
D1	EASTBOUND	2 + 5	2+6
D2	WESTBOUND	1 + 6	2+6
D3	NORTHBOUND	4 + 8	2+6
D4	SOUTHBOUND	3	2+6

EMERGENCY VEHICLE PREEMPTION OPERATION:

- EMERGENCY VEHICLE PREEMPTION SHALL BE ACTUATED BY AN OPTICAL SIGNAL FROM AN OPTICAL EMITTER MOUNTED ON AN EMERGENCY VEHICLE AND RECEIVED BY AN OPTICAL DETECTOR LOCATED AT INTERSECTION. A SEPARATE RECEIVING DETECTOR IS REQUIRED FOR EACH DETECTED APPROACH.
- PREEMPTION SIGNALS FROM MULTIPLE APPROACHES SHALL BE SERVICED ON A FIRST DETECTED FIRST SERVED BASIS.
- IN RESPONSE TO A PREEMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR, THE CONTROLLER SHALL TIME THE CLEARANCE INTERVALS OF THE ACTIVE PHASE (IF DIFFERENT FROM THAT TO BE SERVICED) AND ADVANCE TO AND/OR HOLD IN EMERGENCY VEHICLE PREEMPTION PHASE UNTIL PREEMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME CLEARANCES AND SIMILARLY SERVICE OTHER EMERGENCY VEHICLE PREEMPTION SEQUENCES IN THE ORDER RECEIVED (IF RECEIVED) OTHERWISE, RESUME NORMAL PREFERENTIAL PHASE SEQUENCE.
- PREEMPTION MINIMUM GREENS SHALL BE TEN SECONDS.
- NORMAL CLEARANCES SHALL BE PROVIDED ON PHASES THAT ARE TERMINATED BY PREEMPTION DEMAND.
- ACTUAL TIMING FOR PREEMPTION SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH THE FIRE DEPARTMENT AND SHALL BE APPROVED BY THE TOWN PRIOR TO OPERATION.

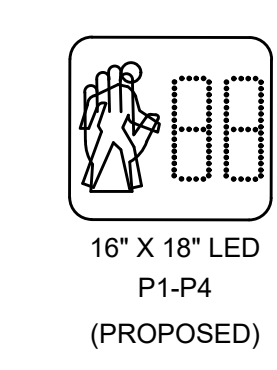
SIGNAL IDENTIFICATION



- NOTES:  
 1. ALL SIGNALS SHALL HAVE CUT AWAY VISORS.  
 2. ALL SIGNALS SHALL HAVE 12" LED WITH 5" FLAT BACK PLATES WITH 3" YELLOW RETROREFLECTIVE BORDERS

VIDEO DETECTOR DATA

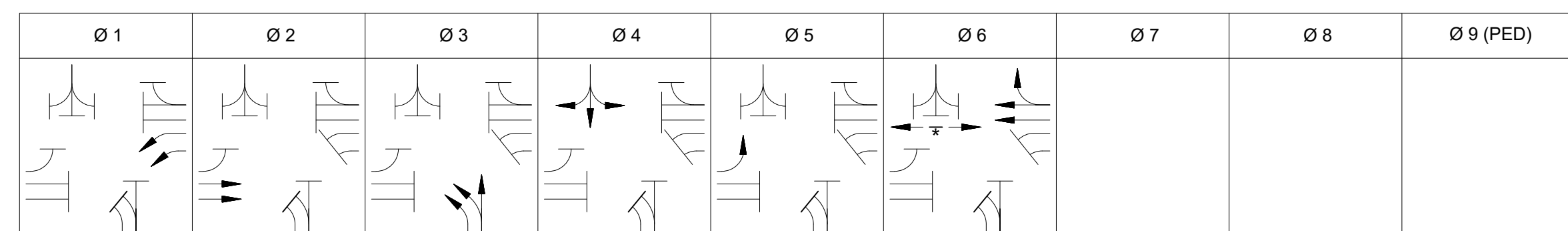
DETECTOR NUMBER	DIRECTION	CAMERA	PHASE CALLED	PHASE EXT.	DELAY TIME (SEC)
1	EBL	V1	5	5	0
2	EBT	V1	2	2	0
3	EBT	V1	2	2	0
4	EBR	V1	2	2	5
5	WBL	V2	1	1	0
6	WBL	V2	1	1	0
7	WBT	V2	6	6	0
8	WBTR	V2	6	6	0
9	NBLT	V3	8	8	0
10	NBR	V4	4	4	0
11	NBR	V4	4	4	0
12	SB	V5	3	3	0
B1	NBLT	V3	8	8	0
B2	NBR	V4	4	4	0
B3	SB	V5	3	3	0



**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	48	93
PROJECT FILE NO.		2148.00	

**TRAFFIC SIGNAL DATA  
SHEET 03 OF 05**



SEQUENCE AND TIMING FOR FULL ACTUATED CONTROL (COORDINATED)

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	23	24	25	26	27	FLASH OPER.
HARTFORD AVENUE	EBL	A	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	GL	YL	RL	RL	RL	RL										FRL
HARTFORD AVENUE	EBT	B,C	R	R	R	GT	Y	R	R	R	R	R	R	R	R	R	R	R	R	R										FY
HARTFORD AVENUE	EBT	D	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R										FY
HARTFORD AVENUE	WBL	E,F	GL	YL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL										FRL
HARTFORD AVENUE	WBT	G	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R										FY
HARTFORD AVENUE	WBTR	H,J	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R										FY
I-495 SB RAMP	NBL	K	RL	RL	RL	RL	RL	GL	YL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL										FRL
I-495 SB RAMP	NBLT	L	R	R	R	R	R	GL/G	Y	R	R	R	R	R	R	R	R	R	R	R										FR
I-495 SB RAMP	NBLT	M	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R										FR
DEERFIELD LN	SB	N	R	R	R	R	R	R	R	R	R	GL/G	Y	R	R	R	R	R	R	R										FR
DEERFIELD LN	SB	P	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R										FR
PEDESTRIAN	E-W	P1-P2	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW										OUT

TIMING IN SECONDS

MINIMUM GREEN (INITIAL)	6		10		6		6		6		10																			
PASSAGE TIME (VEHICLE)	2		2		2		2		2		2																			
MAXIMUM 1 (FREE OPERATION)	17		49		35		10		10		56																			
MAXIMUM 2 (DURING COORDINATION)	46		39		26		10		10		75																			
YELLOW CLEARANCE		3.5		4.5		3.5		3.5		3.5		4.5		4.5																
RED CLEARANCE			2.5		1.5		3.5		3		1.5			1.5																
WALK (W)																														
PEDESTRIAN CLEARANCE																														

EMERGENCY ONLY

RECALL	OFF	SOFT	OFF	OFF	OFF	SOFT																									
MEMORY	NON-LOCK	NON-LOCK	NON-LOCK	NON-LOCK	NON-LOCK	NON-LOCK																									

COORDINATION DATA

TIMING PLAN	CYCLE LENGTH	REF/OFFSET	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.
PLAN 1: MON-FRI 5-9AM	110	BOG/0	52	28	18	12	12	68		
PLAN 2: MON-FRI 3-8PM	120	BOG/0	30	45	33	12	12	63		
PLAN 3: MON-FRI 9AM-3PM & SAT 9AM-7PM	110	BOG/0	49	29	20	12	12	66		

COORDINATION PHASE TIMING

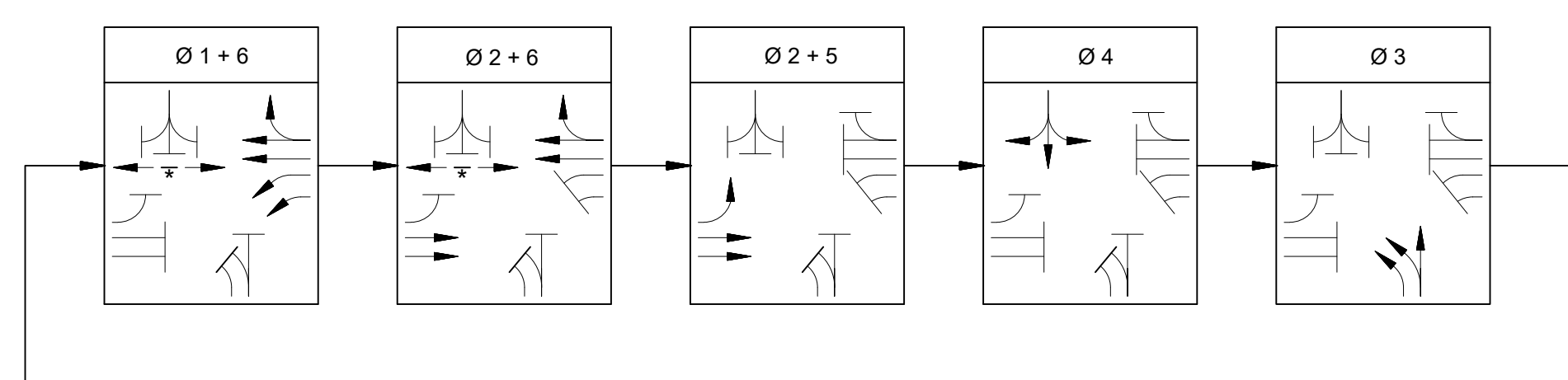
TIMING PLAN	CYCLE LENGTH	REF/OFFSET	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.
PLAN 1: MON-FRI 5-9AM	110	BOG/0	52	28	18	12	12	68		
PLAN 2: MON-FRI 3-8PM	120	BOG/0	30	45	33	12	12	63		
PLAN 3: MON-FRI 9AM-3PM & SAT 9AM-7PM	110	BOG/0	49	29	20	12	12	66		

- NOTE:
- FLASHING OPERATION PER MUTCD.
  - MAXIMUM 1 = FREE OPERATION, MAXIMUM 2 = COORDINATED OPERATION.
  - Ø2 + Ø6 "CALL NOT ACTUATED" DURING COORDINATION.
  - OFFSET REFERENCED TO BEGINNING OF GREEN (BOG) OF Ø2 + Ø6 (COORDINATED PHASE).
  - SPLIT TIMES EQUAL TO GREEN TIMES PLUS CLEARANCES.
  - UPON PEDESTRIAN PUSHBUTTON ACTUATION ONLY.

**EMERGENCY VEHICLE PREEMPTION**

DETECTOR NO.	APPROACH	PREEMPTION PHASE	NEXT PHASE CALLED
D1	EASTBOUND	2 + 5	2+6
D2	WESTBOUND	1 + 6	2+6
D3	NORTHBOUND	3	2+6
D4	SOUTHBOUND	4	2+6

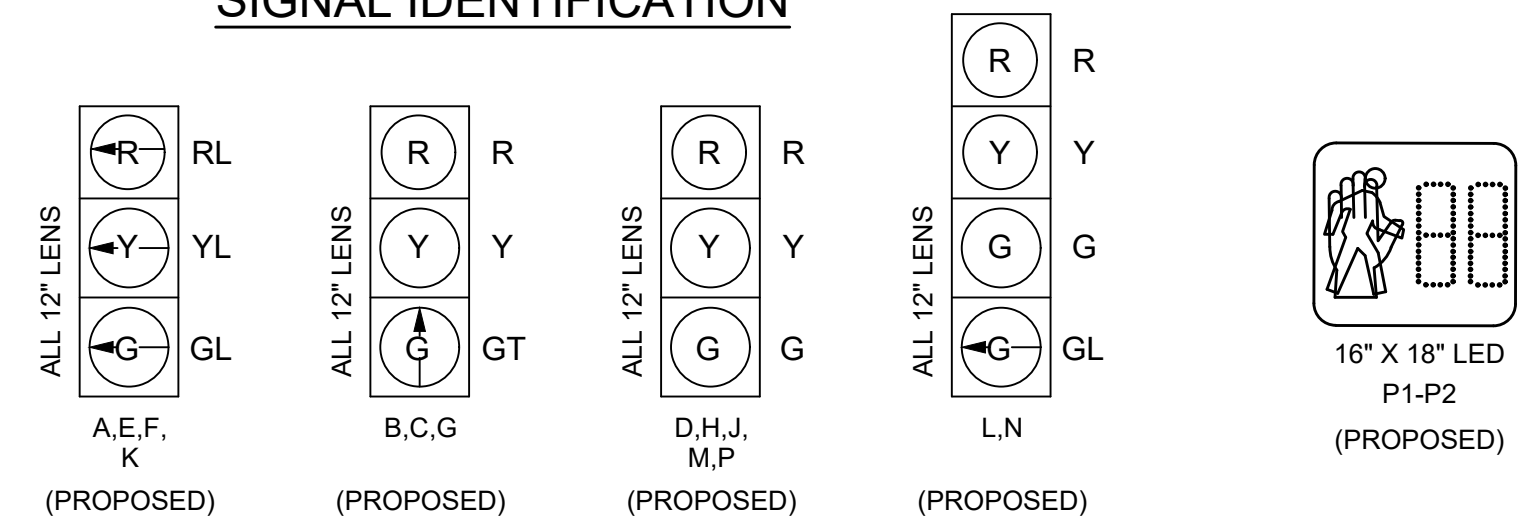
**PREFERENTIAL PHASING SEQUENCE**



- NOTE:
- ANY PHASE OR PHASE COMBINATION NOT CALLED SHALL BE SKIPPED.
  - UPON PEDESTRIAN PUSHBUTTON ACTIVATION ONLY.

- EMERGENCY VEHICLE PREEMPTION OPERATION:**
- EMERGENCY VEHICLE PREEMPTION SHALL BE ACTUATED BY AN OPTICAL SIGNAL FROM AN OPTICAL EMITTER MOUNTED ON AN EMERGENCY VEHICLE AND RECEIVED BY AN OPTICAL DETECTOR LOCATED AT INTERSECTION. A SEPARATE RECEIVING DETECTOR IS REQUIRED FOR EACH DETECTED APPROACH.
  - PREEMPTION SIGNALS FROM MULTIPLE APPROACHES SHALL BE SERVICED ON A FIRST DETECTED FIRST SERVED BASIS.
  - IN RESPONSE TO A PREEMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR, THE CONTROLLER SHALL TIME THE CLEARANCE INTERVALS OF THE ACTIVE PHASE (IF DIFFERENT FROM THAT TO BE SERVICED) AND ADVANCE TO AND/OR HOLD IN EMERGENCY VEHICLE PREEMPTION PHASE UNTIL PREEMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME CLEARANCES AND SIMILARLY SERVICE OTHER EMERGENCY VEHICLE PREEMPTION SEQUENCES IN THE ORDER RECEIVED (IF RECEIVED) OTHERWISE, RESUME NORMAL PREFERENTIAL PHASE SEQUENCE.
  - PREEMPTION MINIMUM GREENS SHALL BE TEN SECONDS.
  - NORMAL CLEARANCES SHALL BE PROVIDED ON PHASES THAT ARE TERMINATED BY PREEMPTION DEMAND.
  - ACTUAL TIMING FOR PREEMPTION SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH THE FIRE DEPARTMENT AND SHALL BE APPROVED BY MASSDOT PRIOR TO OPERATION.

**SIGNAL IDENTIFICATION**



- NOTES:
- ALL SIGNALS SHALL HAVE CUT AWAY VISORS.
  - ALL SIGNALS SHALL HAVE 12" LED WITH 5" FLAT BACK PLATES WITH 3" YELLOW RETRO BORDERS

MAJOR ITEMS REQUIRED

PAY ITEM	QUANTITY	ITEM
816.3	1	NEMA TS2 TYPE I ATC CONTROLLER W/ VIDEO DETECTION SYSTEM AND FULL INPUT AND OUTPUT SUPPRESSION PACKAGE IN P-SIZE CABINET W/ FDN AND CONCRETE PAD
	1	40' TYPE II GALV. STEEL MAST ARM W/ FDN
	1	60' TYPE II GALV. STEEL MAST ARM W/ FDN
	1	15' TYPE II GALV. STEEL MAST ARM W/ FDN
	1	8' PEDESTAL POLE, STEEL W/ FDN
	2	PEDESTRIAN SIGNAL HEAD, LED W/ COUNTDOWN TIMER AND CAP VISOR
	2	APS PUSHBUTTON AND SIGN W/ AUDIBLE AND VISIBLE INDICATOR, VIBRO-TACTILE ARROW AND SPEECH-WALK MESSAGE
	12	SIGNAL HEAD, 3 SECTION, 12" LED W/ 5" FLAT BACKPLATE AND 3" YELLOW RETROREFLECTIVE BORDER
	2	SIGNAL HEAD, 4 SECTION, 12" LED W/ 5" FLAT BACKPLATE AND 3" YELLOW RETROREFLECTIVE BORDER
	4	EMERGENCY PREEMPTION OPTICAL DETECTOR
	1	EMERGENCY PREEMPTION PHASE SELECTOR (4-CHANNEL) AND RACK
	1	EMERGENCY PREEMPTION STROBE (WHITE LENS)
	1	COLOR 9" MONITOR AND PROGRAMMING KEYBOARD
	3	HYBRID VIDEO/RADAR DETECTOR W/ MOUNTING HARDWARE AND CAT 5 CABLE
	1	VIDEO DETECTION CAMERA W/ MOUNTING HARDWARE AND CAT 5 CABLE
	1	VIDEO DETECTION SYSTEM CENTRAL UNIT AND PROCESSOR
	2	BROADBAND ETHERNET RADIO WITH ANTENNA AND CABLE AND MOUNTING HARDWARE
	1	GPS RECEIVER ANTENNA
	1	ENVIRONMENTALLY HARDENED ETHERNET SWITCH
	1	OVERHEAD ELECTRIC SERVICE CONNECTION
	1	HIGH SPEED CABLE MODEM SERVICE CONNECTION
804.3	450 FT	3" SCHEDULE 80 PVC CONDUIT
811.22	2	HANDHOLE 12" X 24"
811.31	3	PULL BOX 12" X 12"
		Plus all necessary duct, cable, labor, miscellaneous material and equipment to complete the installation.

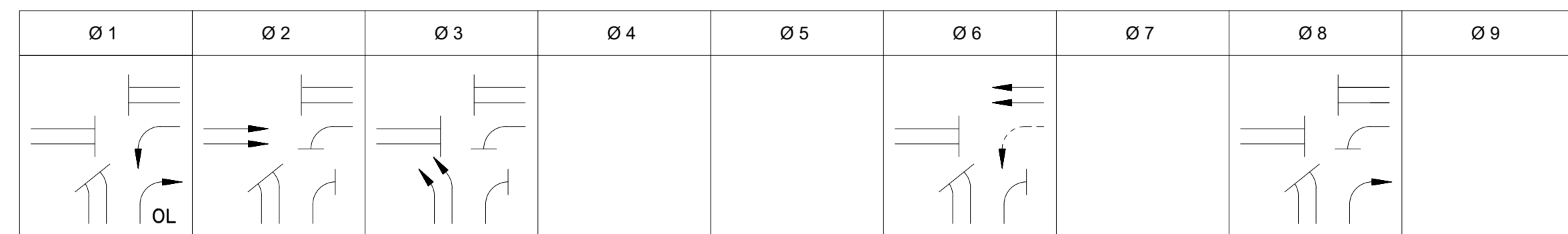
**VIDEO DETECTOR DATA**

DETECTOR NUMBER	DIRECTION	CAMERA	PHASE CALLED	PHASE EXT.	DELAY TIME (SEC)
1	EBL	V1	5	5	0
2	EBT	V1	2	2	0
3	EBT	V1	2	2	0
4	WBL	V2	1	1	0
5	WBL	V2	1	1	0
6	WBT	V2	6	6	0
7	WBTR	V2	6	6	0
8	NBL	V3	3	3	0
9	NBLT	V3	3	3	0
10	SB	V4	4	4	0
B1	EB	V1	2	2	0
B2	SB	V4	4	4	0
10 QUEUE	NB	V3	3	3	5



STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	49	93
PROJECT FILE NO.		2148.00	

TRAFFIC SIGNAL DATA  
SHEET 04 OF 05



SEQUENCE AND TIMING FOR FULL ACTUATED CONTROL (COORDINATED)

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	23	24	25	26	27	FLASH OPER.
HARTFORD AVENUE	EB	A,B	R	R	R	G	Y	R	R	R	R							R	R	R			R	R	R				FY	
HARTFORD AVENUE	WBL	C,D	R	R	R	R	R	R	R	R	R							G	Y	R			R	R	R				FY	
HARTFORD AVENUE	WB	E	R	R	R	R	R	R	R	R	R							G	Y	R			R	R	R				FY	
I-495 NB RAMP	NB	F,G,H	R	R	R	R	R	R	G	Y	R							R	R	R			R	R	R				FR	
I-495 NB RAMP	NB	J,K	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø							Ø	Ø	Ø			Ø	Ø	Ø				FR	

TIMING IN SECONDS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	EMERGENCY ONLY	
MINIMUM GREEN (INITIAL)	6			10				6								10							6						
PASSAGE TIME (VEHICLE)	2			2				2								2							2						
MAXIMUM 1 (FREE OPERATION)	17			53				24								76							24						
MAXIMUM 2 (DURING COORDINATION)	25			56				32								87							32						
YELLOW CLEARANCE		3.5			4.5				3								4.5						3						
RED CLEARANCE			2			2				3									2						3				
WALK (W)																													
PEDESTRIAN CLEARANCE																													
RECALL				OFF		SOFT		OFF								SOFT							OFF						
MEMORY				NON-LOCK		NON-LOCK		NON-LOCK								NON-LOCK							NON-LOCK						

COORDINATION DATA

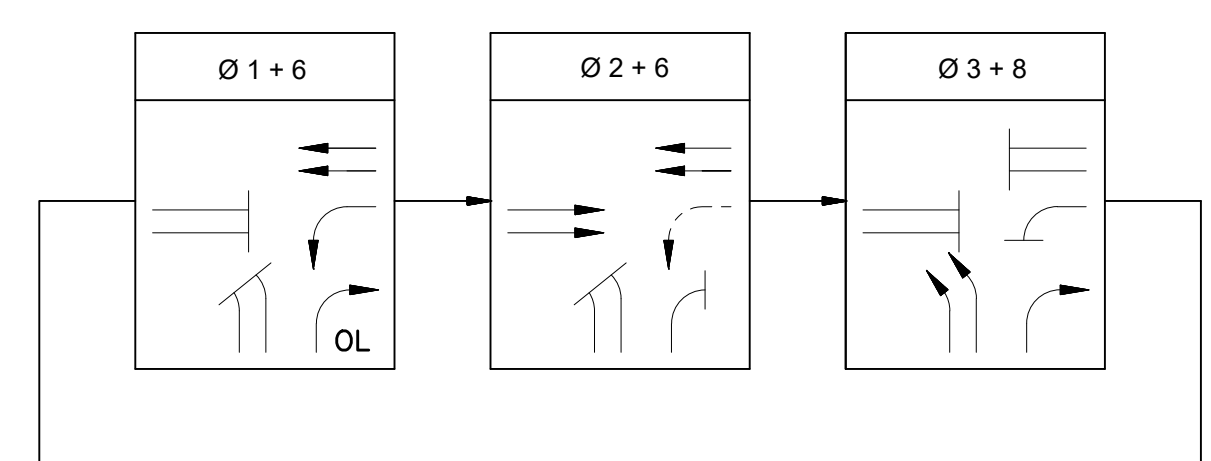
TIMING PLAN	CYCLE LENGTH	REF/OFFSET	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.
PLAN 1: MON-FRI 5-9AM	110	BOG/39	19	62	29			81		29
PLAN 2: MON-FRI 3-8PM	120	BOG/35	22	60	38			82		38
PLAN 3: MON-FRI 9AM-3PM & SAT 9AM-7PM	110	BOG/33	30	54	26			84		26

- NOTE:
- FLASHING OPERATION PER MUTCD.
  - MAXIMUM 1 = FREE OPERATION, MAXIMUM 2 = COORDINATED OPERATION.
  - Ø2 + Ø6 "CALL NOT ACTUATED" DURING COORDINATION.
  - OFFSET REFERENCED TO BEGINNING OF GREEN (BOG) OF Ø2 + Ø6 (COORDINATED PHASE).
  - SPLIT TIMES EQUAL TO GREEN TIMES PLUS CLEARANCES.
  - UPON PEDESTRIAN PUSHBUTTON ACTUATION ONLY.

EMERGENCY VEHICLE PREEMPTION

DETECTOR NO.	APPROACH	PREEMPTION PHASE	NEXT PHASE CALLED
D1	EASTBOUND	2	2+6
D2	WESTBOUND	1 + 6	2+6

PREFERENTIAL PHASING SEQUENCE



- NOTE:
- ANY PHASE OR PHASE COMBINATION NOT CALLED SHALL BE SKIPPED

EMERGENCY VEHICLE PREEMPTION OPERATION:

- EMERGENCY VEHICLE PREEMPTION SHALL BE ACTUATED BY AN OPTICAL SIGNAL FROM AN OPTICAL EMITTER MOUNTED ON AN EMERGENCY VEHICLE AND RECEIVED BY AN OPTICAL DETECTOR LOCATED AT INTERSECTION. A SEPARATE RECEIVING DETECTOR IS REQUIRED FOR EACH DETECTED APPROACH.
- PREEMPTION SIGNALS FROM MULTIPLE APPROACHES SHALL BE SERVICED ON A FIRST DETECTED FIRST SERVED BASIS.
- IN RESPONSE TO A PREEMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR, THE CONTROLLER SHALL TIME THE CLEARANCE INTERVALS OF THE ACTIVE PHASE (IF DIFFERENT FROM THAT TO BE SERVICED) AND ADVANCE TO AND/OR HOLD IN EMERGENCY VEHICLE PREEMPTION PHASE UNTIL PREEMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME CLEARANCES AND SIMILARLY SERVICE OTHER EMERGENCY VEHICLE PREEMPTION SEQUENCES IN THE ORDER RECEIVED (IF RECEIVED) OTHERWISE, RESUME NORMAL PREFERENTIAL PHASE SEQUENCE.
- PREEMPTION MINIMUM GREENS SHALL BE TEN SECONDS.
- NORMAL CLEARANCES SHALL BE PROVIDED ON PHASES THAT ARE TERMINATED BY PREEMPTION DEMAND.
- ACTUAL TIMING FOR PREEMPTION SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH THE FIRE DEPARTMENT AND SHALL BE APPROVED BY MASSDOT PRIOR TO OPERATION.

MAJOR ITEMS REQUIRED

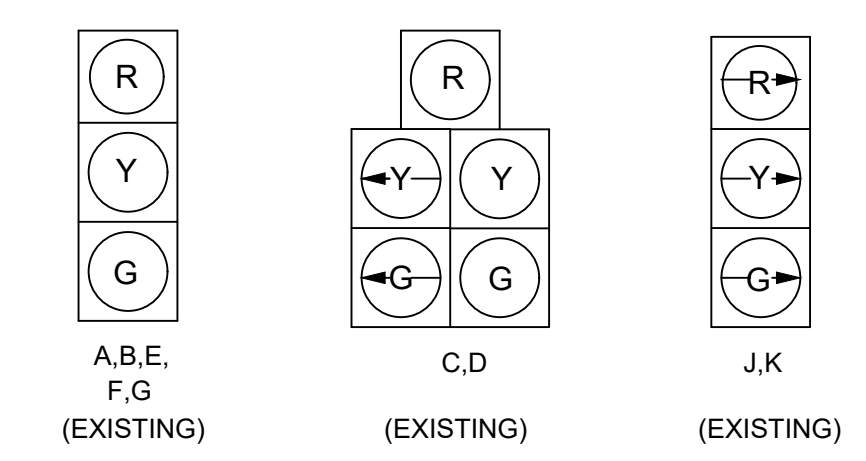
PAY ITEM	QUANTITY	ITEM
816.4	1	REPROGRAM EXISTING CONTROLLER AS NECESSARY
	1	COLOR 9" MONITOR AND PROGRAMMING KEYBOARD
	4	HYBRID VIDEO/RADAR DETECTOR W/ MOUNTING HARDWARE AND CAT 5 CABLE
	1	VIDEO DETECTION SYSTEM CENTRAL UNIT AND PROCESSOR
	2	BROADBAND ETHERNET RADIO WITH ANTENNA AND CABLE AND MOUNTING HARDWARE
	1	ENVIRONMENTALLY HARDENED ETHERNET SWITCH
		Plus all necessary duct, cable, labor, miscellaneous material and equipment to complete the installation.

EXISTING LOOP DETECTOR DATA

DETECTOR NUMBER	NUMBER OF SEGMENTS	LOOP SIZE	NUM. OF TURNS	Ø CALLED	Ø EXT.	MODE PULSE PRESENCE	DELAY TIME	EXT. TIME
1	1	6'x6'	3	Ø2	Ø2	PRESENCE	0	0
2	1	6'x6'	3	Ø2	Ø2	PRESENCE	0	0
3	1	6'x6'	3	Ø2	Ø2	PRESENCE	0	1.5
4	1	6'x6'	3	Ø2	Ø2	PRESENCE	0	1.5
5	4	6'x6'	3	Ø1	Ø1	PRESENCE	5	1.5
6	1	6'x6'	3	Ø6	Ø6	PRESENCE	0	1.5
7	1	6'x6'	3	Ø6	Ø6	PRESENCE	0	1.5
8	1	6'x6'	3	Ø6	Ø6	PRESENCE	0	0
9	1	6'x6'	3	Ø6	Ø6	PRESENCE	0	0
10	1	6'x6'	3	Ø1	Ø1	PRESENCE	0	1.5
11	4	6'x6'	3	Ø3	Ø3	PRESENCE	0	0
12	4	6'x6'	3	Ø3	Ø3	PRESENCE	0	0
13	4	6'x6'	3	Ø8	Ø8	PRESENCE	8	0

- NOTE:
- ALL EXISTING LOOP DETECTORS SHALL BE RETAINED.
  - THE PROPOSED HYBRID VIDEO/RADAR DETECTORS ARE TO ACCOMMODATE AN ASCT SYSTEM ALONG THE CORRIDOR. THE DETECTION ZONES WILL BE ESTABLISHED IN THE NEXT SUBMISSION ONCE THE ADAPTIVE SYSTEM HAS BEEN IDENTIFIED.

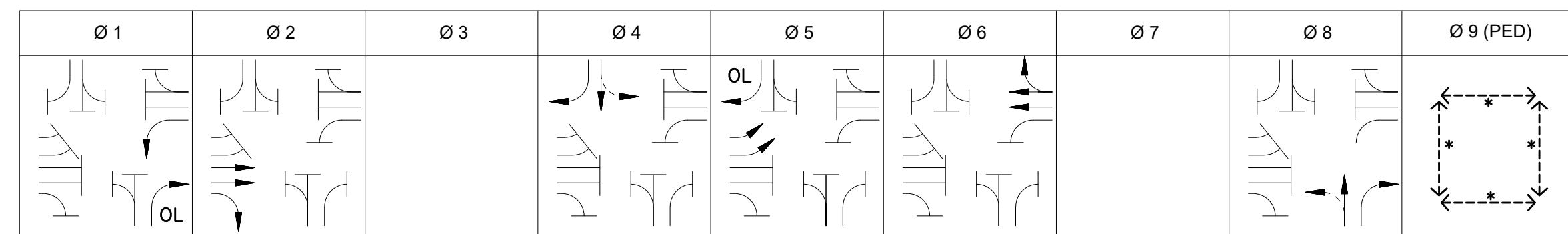
SIGNAL IDENTIFICATION



**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	50	93
PROJECT FILE NO.		2148.00	

**TRAFFIC SIGNAL DATA  
SHEET 05 OF 05**



SEQUENCE AND TIMING FOR FULL ACTUATED CONTROL (COORDINATED)																														
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	23	24	25	26	27	FLASH OPER.
HARTFORD AVENUE	EBL	A,B	R	R	R	R	R	R				R	R	R	R	R	R	R	R	R				R	R	R	R	R	R	FR
HARTFORD AVENUE	EBT	C,D	R	R	R	G	Y	R				R	R	R	R	R	R	R	R	R				R	R	R	R	R	R	FY
HARTFORD AVENUE	EBR	E	R	R	R	R	R	R				R	R	R	R	R	R	R	R	R				R	R	R	R	R	R	FR
HARTFORD AVENUE	WBL	F	R	R	R	R	R	R				R	R	R	R	R	R	R	R	R				R	R	R	R	R	R	FR
HARTFORD AVENUE	WBTR	G,H	R	R	R	R	R	R				R	R	R	R	R	R	R	R	R				R	R	R	R	R	R	FY
CHARLES RIVER CENTER	NB	J	R	R	R	R	R	R				R	R	R	R	R	R	R	R	R				R	R	R	R	R	R	FR
CHARLES RIVER CENTER	NB	K,L	R	R	R	R	R	R				R	R	R	R	R	R	R	R	R				R	R	R	R	R	R	FR
STALLBROOK MARKETPLACE	SB	M	R	R	R	R	R	R				G	Y	R	R	R	R	R	R	R				R	R	R	R	R	R	FR
STALLBROOK MARKETPLACE	SB	N,P	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	W	FDW	DW	OUT	
TIMING IN SECONDS																														
MINIMUM GREEN (INITIAL)			6			10						6			6			10						6						
PASSAGE TIME (VEHICLE)			2			2						2			2			2						2						
MAXIMUM 1 (FREE OPERATION)			14			39						45			23			30						45						
MAXIMUM 2 (DURING COORDINATION)			12			66						34			20			58						34						
YELLOW CLEARANCE				3.5			4.5						3.5			3.5			4.5					3.5						
RED CLEARANCE					3			1						3			3			1						3				
WALK (W)																											7			
PEDESTRIAN CLEARANCE																												23	4	
RECALL			OFF			SOFT						OFF			OFF			SOFT						OFF			OFF			
MEMORY			NON-LOCK			NON-LOCK						NON-LOCK			NON-LOCK			NON-LOCK						NON-LOCK			NON-LOCK			
COORDINATION DATA														COORDINATION PHASE TIMING																
TIMING PLAN	CYCLE LENGTH	REF/OFFSET	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.	SEC.
PLAN 1: MON-FRI 5-9AM	110	BOG/34	14	47				25	22	39							25	24+												
PLAN 2: MON-FRI 3-8PM	120	BOG/49	17	39				40	23	33							40	24+												
PLAN 3: MON-FRI 9AM-3PM & SAT 9AM-7PM	110	BOG/38	18	42				26	26	34							26	24+												

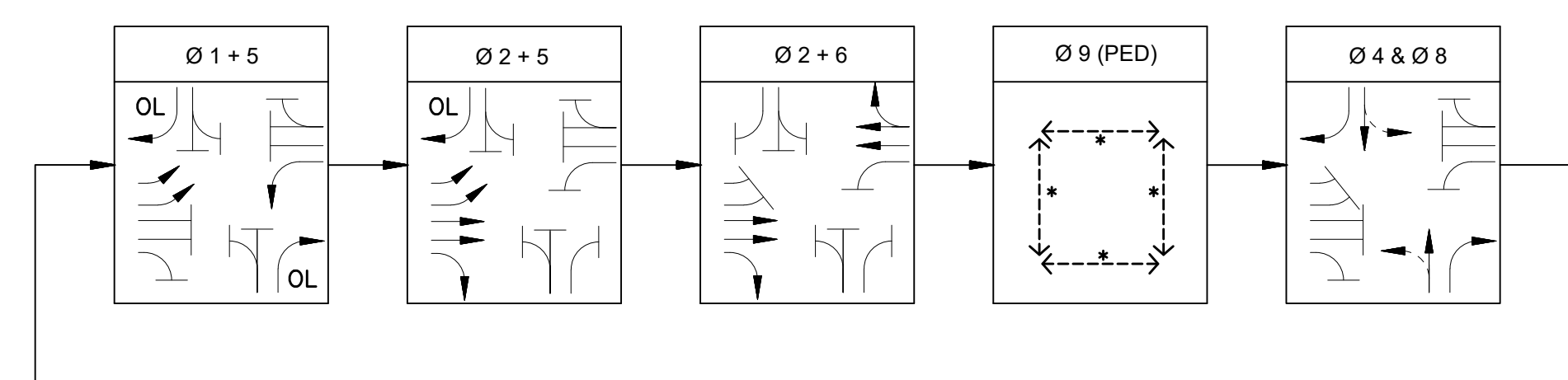
- NOTE:**
- FLASHING OPERATION PER MUTCD.
  - MAXIMUM 1 = FREE OPERATION, MAXIMUM 2 = COORDINATED OPERATION.
  - Ø2 + Ø6 "CALL NOT ACTUATED" DURING COORDINATION.
  - OFFSET REFERENCED TO BEGINNING OF GREEN (BOG) OF Ø2 + Ø6 (COORDINATED PHASE).
  - SPLIT TIMES EQUAL TO GREEN TIMES PLUS CLEARANCES
  - THE COORDINATION SHALL BE SET TO ALLOCATE UNUSED PEDESTRIAN TIME TO THE COORDINATED PHASES (PHASES Ø2 + Ø6)
  - UPON PEDESTRIAN PUSHBUTTON ACTUATION ONLY
  - THE SPLIT TIME SHOWN DOES NOT ACCOMMODATE THE PEDESTRIAN TIME. IF THE PEDESTRIAN PHASE IS ACTUATED, THE CONTROLLER SHALL DROP OUT OF COORDINATION TO SERVICE THE PEDESTRIAN PHASE.

**EMERGENCY VEHICLE PREEMPTION**

DETECTOR NO.	APPROACH	PREEMPTION PHASE	NEXT PHASE CALLED
D1	EASTBOUND	2 + 5	2+6
D2	WESTBOUND	1 + 6	2+6

- EMERGENCY VEHICLE PREEMPTION OPERATION:**
- EMERGENCY VEHICLE PREEMPTION SHALL BE ACTUATED BY AN OPTICAL SIGNAL FROM AN OPTICAL EMITTER MOUNTED ON AN EMERGENCY VEHICLE AND RECEIVED BY AN OPTICAL DETECTOR LOCATED AT INTERSECTION. A SEPARATE RECEIVING DETECTOR IS REQUIRED FOR EACH DETECTED APPROACH.
  - PREEMPTION SIGNALS FROM MULTIPLE APPROACHES SHALL BE SERVICED ON A FIRST DETECTED FIRST SERVED BASIS.
  - IN RESPONSE TO A PREEMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR, THE CONTROLLER SHALL TIME THE CLEARANCE INTERVALS OF THE ACTIVE PHASE (IF DIFFERENT FROM THAT TO BE SERVICED) AND ADVANCE TO AND/OR HOLD IN EMERGENCY VEHICLE PREEMPTION PHASE UNTIL PREEMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME CLEARANCES AND SIMILARLY SERVICE OTHER EMERGENCY VEHICLE PREEMPTION SEQUENCES IN THE ORDER RECEIVED (IF RECEIVED) OTHERWISE, RESUME NORMAL PREFERENTIAL PHASE SEQUENCE.
  - PREEMPTION MINIMUM GREENS SHALL BE TEN SECONDS.
  - NORMAL CLEARANCES SHALL BE PROVIDED ON PHASES THAT ARE TERMINATED BY PREEMPTION DEMAND.
  - ACTUAL TIMING FOR PREEMPTION SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH THE FIRE DEPARTMENT AND SHALL BE APPROVED BY THE TOWN PRIOR TO OPERATION.

**PREFERENTIAL PHASING SEQUENCE**



- NOTE:**
- ANY PHASE OR PHASE COMBINATION NOT CALLED SHALL BE SKIPPED.
  - UPON PEDESTRIAN PUSHBUTTON ACTIVATION ONLY.

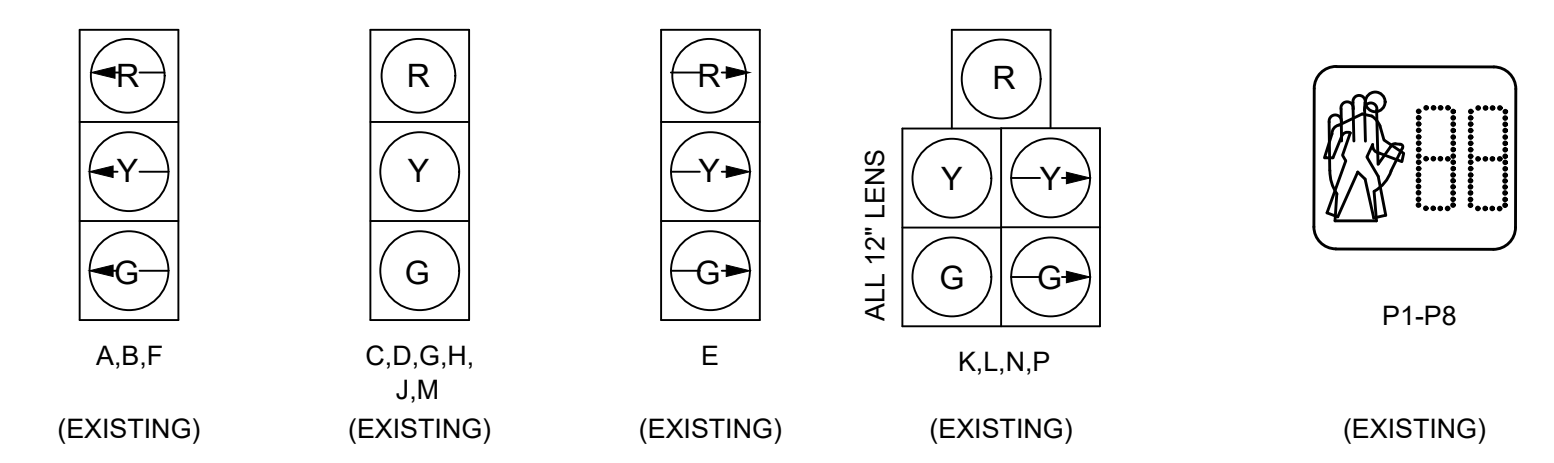
PAY ITEM	MAJOR ITEMS REQUIRED	
	QUANTITY	ITEM
816.5	1	NEMA TS2 TYPE I ATC CONTROLLER W/VIDEO DETECTION SYSTEM AND FULL INPUT SUPPRESSION PACKAGE IN EXISTING CABINET
	1	GPS RECEIVER ANTENNA
	1	COLOR 9" MONITOR AND PROGRAMMING KEYBOARD
	2	HYBRID VIDEO/RADAR DETECTOR W/ MOUNTING HARDWARE AND CAT 5 CABLE
	1	VIDEO DETECTION SYSTEM CENTRAL UNIT AND PROCESSOR
	1	BROADBAND ETHERNET RADIO WITH ANTENNA AND CABLE AND MOUNTING HARDWARE
	1	ENVIRONMENTALLY HARDENED ETHERNET SWITCH
		Plus all necessary duct, cable, labor, miscellaneous material and equipment to complete the installation.

**EXISTING LOOP DETECTOR DATA**

DETECTOR NUMBER	NUMBER OF SEGMENTS	LOOP SIZE	NUM. OF TURNS	Ø CALLED	Ø EXT.	MODE PULSE PRESENCE	DELAY TIME	EXT. TIME
1	4	6'x6'	3	Ø5	Ø5	PRESENCE	0	0
2	4	6'x6'	3	Ø5	Ø5	PRESENCE	0	0
3	1	6'x6'	3	Ø2	Ø2	PRESENCE	0	1.5
4	1	6'x6'	3	Ø2	Ø2	PRESENCE	0	1.5
5	1	6'x6'	3	Ø2	Ø2	PRESENCE	0	1.5
6	1	6'x6'	3	Ø2	Ø2	PRESENCE	0	0
7	1	6'x6'	3	Ø2	Ø2	PRESENCE	0	0
8	1	6'x6'	3	Ø2	Ø2	PRESENCE	0	0
9	4	6'x6'	3	Ø1	Ø1	PRESENCE	0	0
10	1	6'x6'	3	Ø6	Ø6	PRESENCE	0	1.5
11	1	6'x6'	3	Ø6	Ø6	PRESENCE	0	1.5
12	1	6'x6'	3	Ø6	Ø6	PRESENCE	0	0
13	1	6'x6'	3	Ø6	Ø6	PRESENCE	0	0
14	4	6'x6'	3	Ø8	Ø8	PRESENCE	0	0
15	4	6'x6'	3	Ø8	Ø8	PRESENCE	8	0
16	4	6'x6'	3	Ø4	Ø4	PRESENCE	0	0
17	4	6'x6'	3	Ø4	Ø4	PRESENCE	8	0
18	1	6'x6'	3	-	-	PRESENCE	0	0
19	1	6'x6'	3	-	-	PRESENCE	0	0

- NOTE:**
- ALL EXISTING LOOP DETECTORS SHALL BE RETAINED.
  - THE PROPOSED HYBRID VIDEO/RADAR DETECTORS ARE TO ACCOMMODATE AN ASCT SYSTEM ALONG THE CORRIDOR. THE DETECTION ZONES WILL BE ESTABLISHED IN THE NEXT SUBMISSION ONCE THE ADAPTIVE SYSTEM HAS BEEN IDENTIFIED.

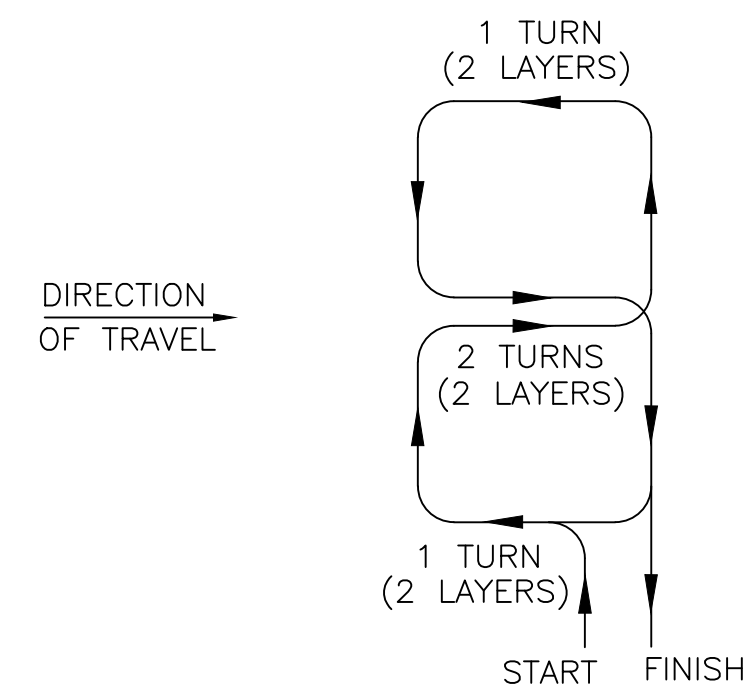
**SIGNAL IDENTIFICATION**



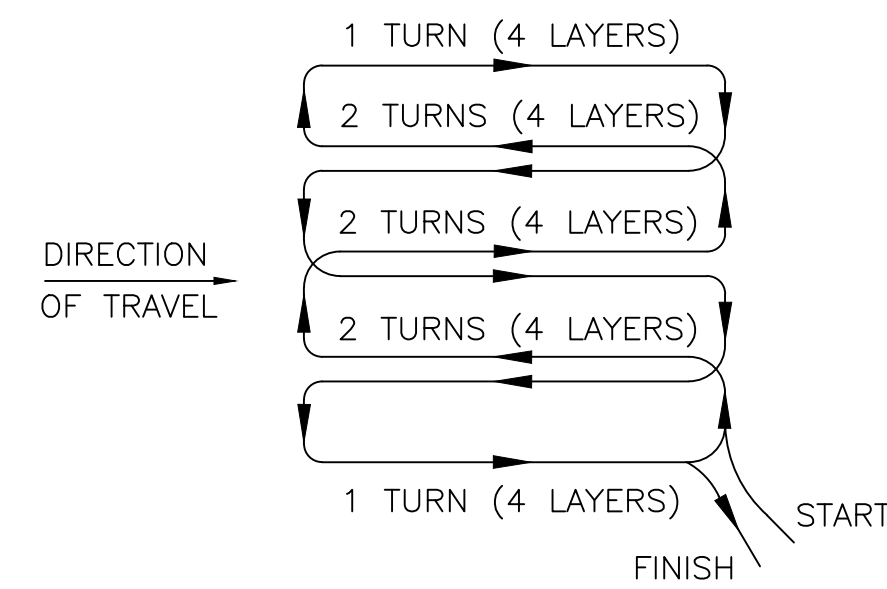
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	51	93
PROJECT FILE NO. 2148.00			

TRAFFIC SIGNAL DETAILS  
SHEET 01 OF 01

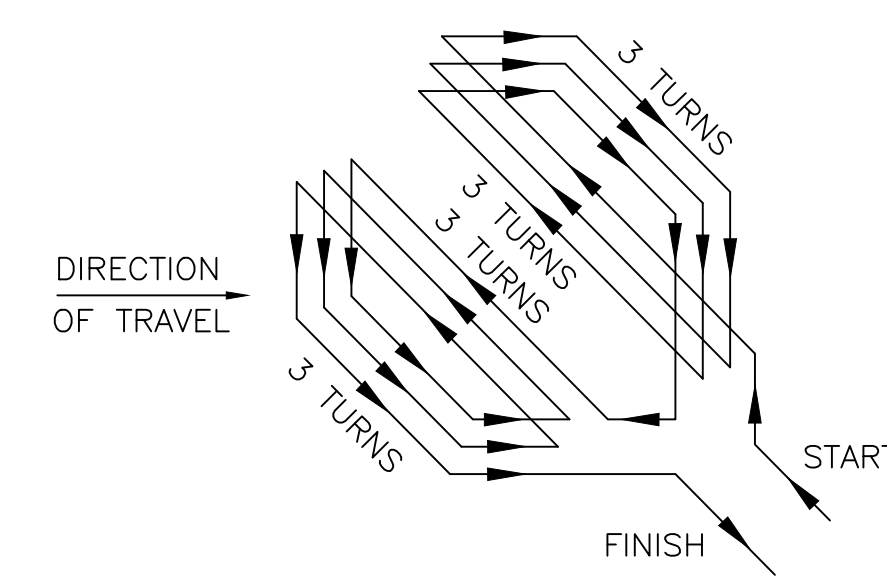
WINDING DETAILS



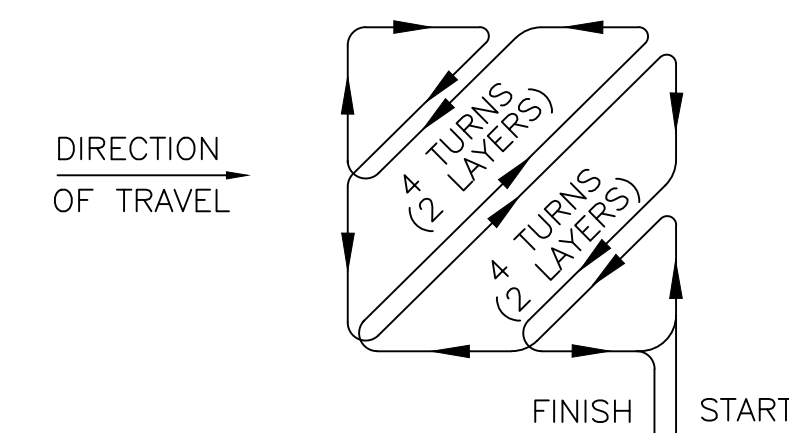
TYPE Q DETECTOR



TYPE D-Q DETECTOR

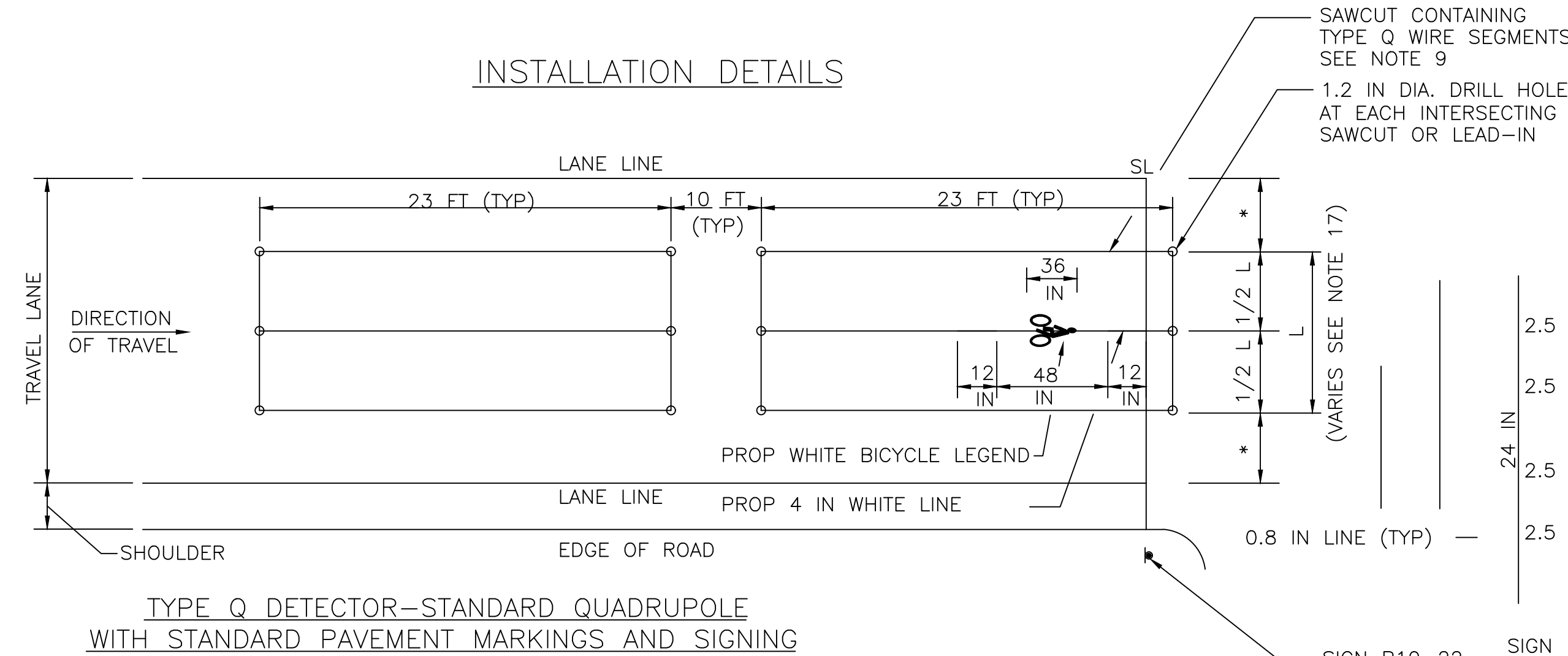


TYPE D-1 DETECTOR

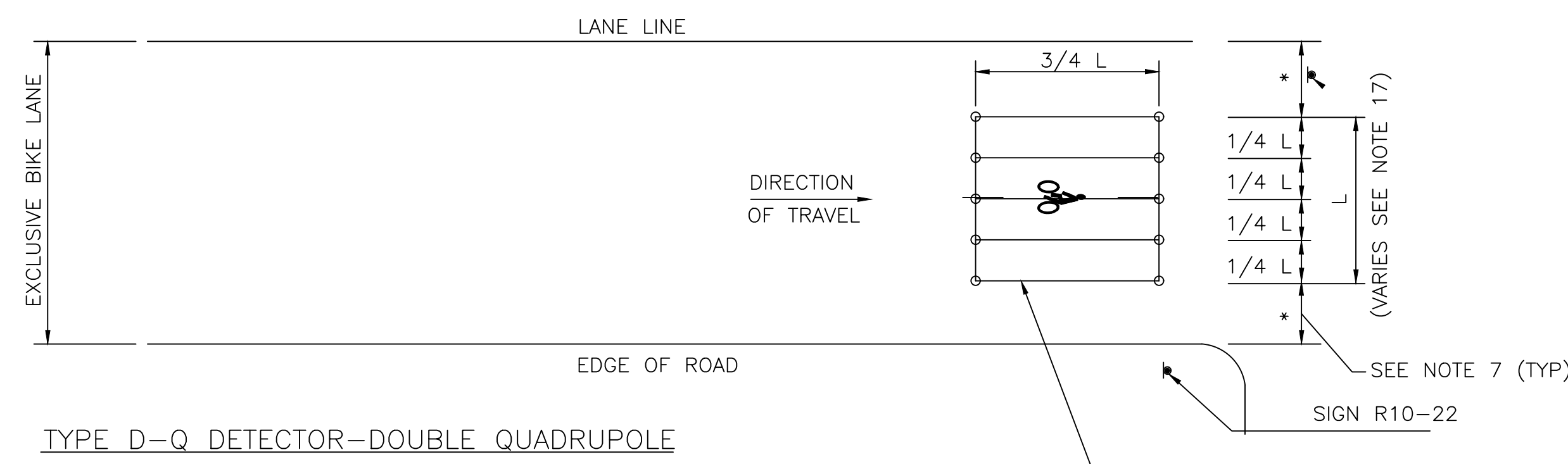


TYPE D-2 DETECTOR

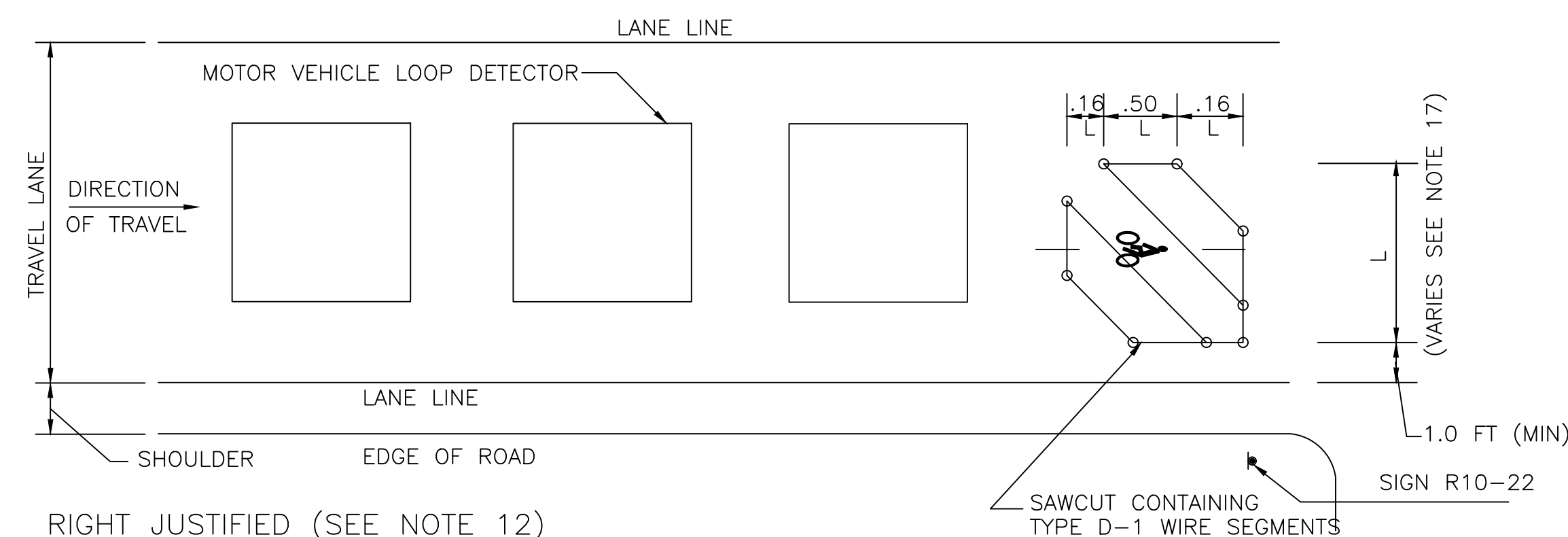
INSTALLATION DETAILS



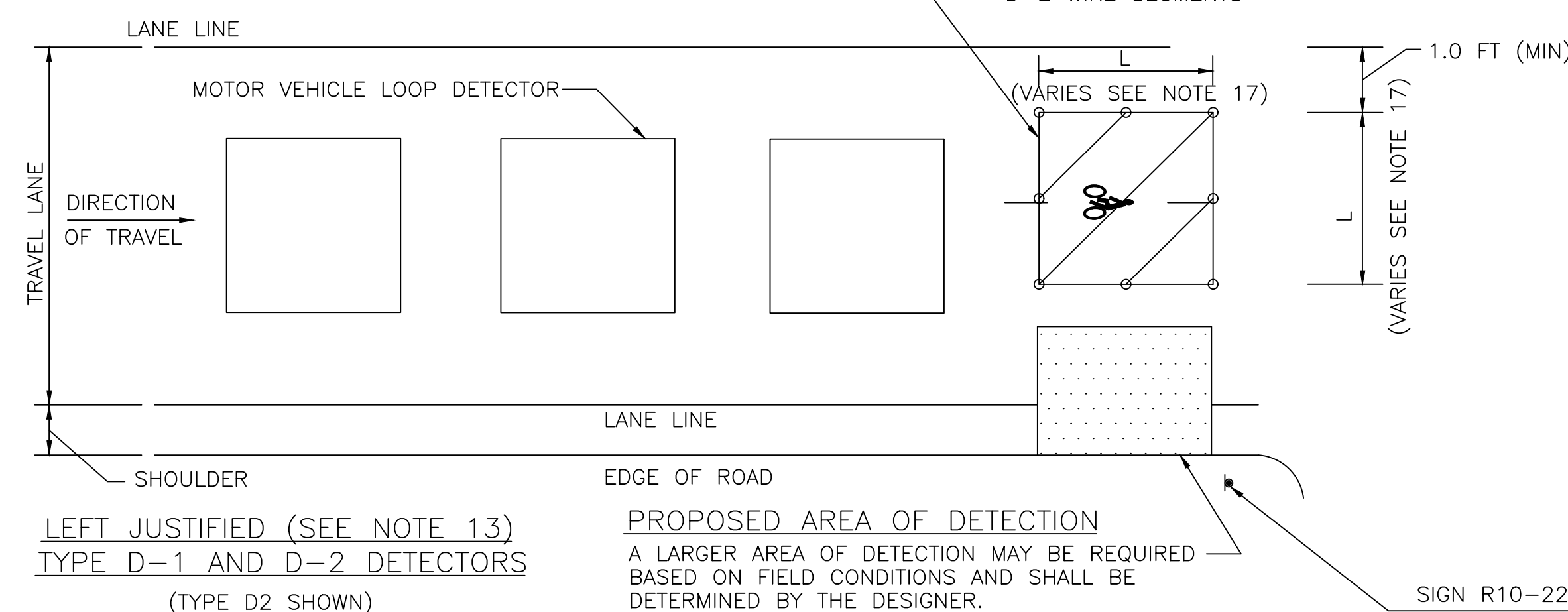
TYPE Q DETECTOR—STANDARD QUADRUPOLE WITH STANDARD PAVEMENT MARKINGS AND SIGNING



TYPE D-Q DETECTOR—DOUBLE QUADRUPOLE



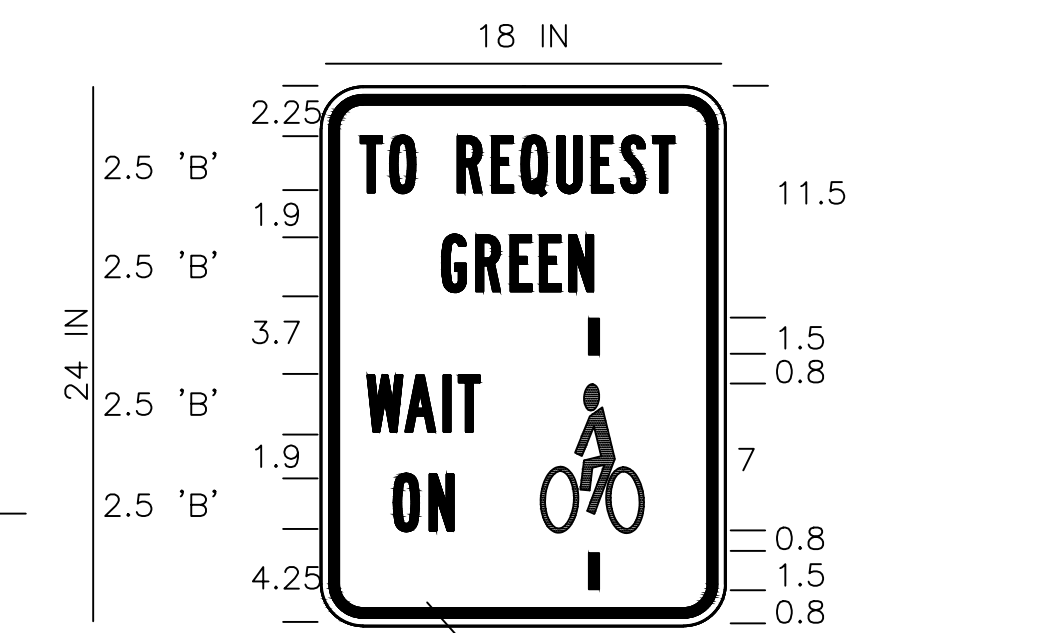
RIGHT JUSTIFIED (SEE NOTE 12)  
TYPE D-1 AND D-2 DETECTORS  
(TYPE D1 SHOWN)



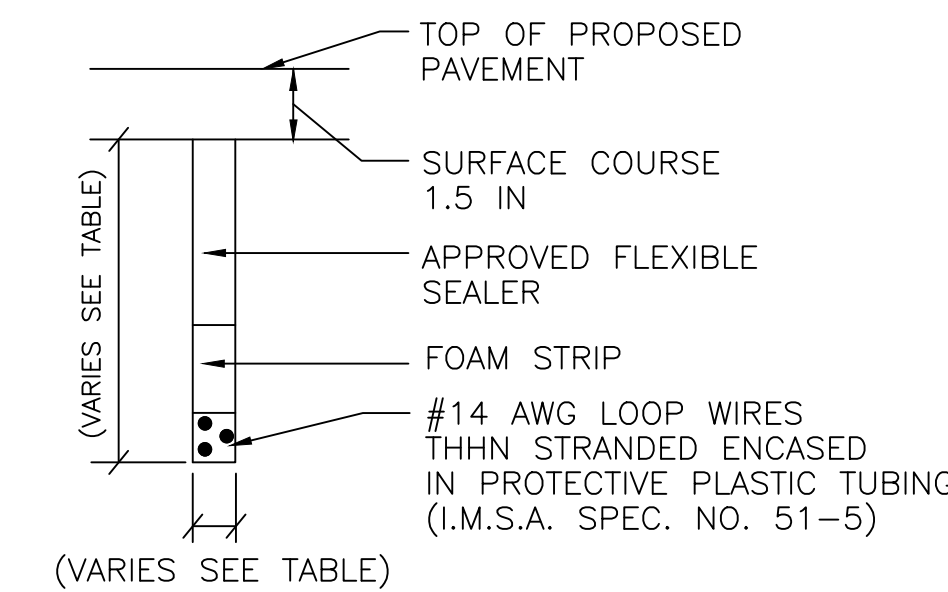
LEFT JUSTIFIED (SEE NOTE 13)  
TYPE D-1 AND D-2 DETECTORS  
(TYPE D2 SHOWN)

PROPOSED AREA OF DETECTION  
A LARGER AREA OF DETECTION MAY BE REQUIRED BASED ON FIELD CONDITIONS AND SHALL BE DETERMINED BY THE DESIGNER.

SIGN R10-22



NOTE: ALL SIGN DIMENSIONS IN INCHES  
NOTE: SIGN PANEL NOT SHOWN TO SCALE



SECTION THRU LOOP DETECTOR

TURNS OF WIRE	SLOT SIZE	
	DEPTH (IN)	WIDTH (IN)
1	1.5	0.5
2	1.5	0.5
3	1.5	0.5
4	2.0	0.5
5	2.0	0.5
6	2.0	0.5
7	2.0	0.5
8	2.0	0.5

BICYCLE LOOP DETECTOR DETAILS

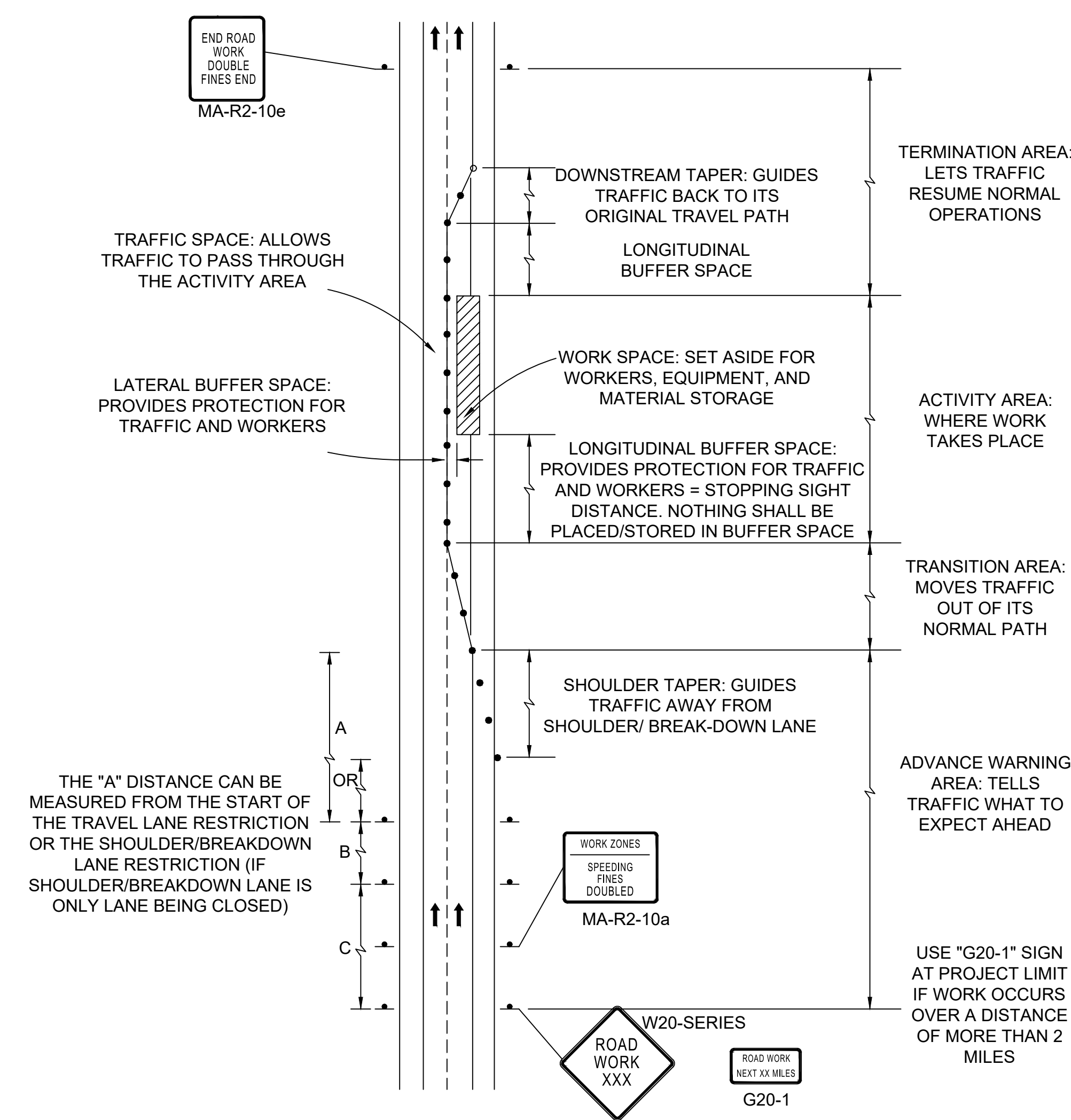
NOTES:

- REFER TO VEHICLE LOOP DETECTOR DETAIL SHEET FOR ADDITIONAL NOTES AND CONSTRUCTION DETAILS.
- ALL DETAILS ARE GRAPHICAL WITH NO SCALE.
- THE NUMBER, SIZE, LOCATION AND LENGTH OF DETECTION AREA VARIES AND SHALL BE DETERMINED BY THE DESIGNER REFER TO TRAFFIC SIGNAL PLAN.
- BICYCLE LOOPS SHALL BE CONNECTED TO SEPARATE LOOP DETECTOR AMPLIFIERS CAPABLE OF HIGHER LEVELS OF SENSITIVITY.
- BICYCLE LOOPS SHALL BE INSTALLED IN THE BASE COURSE OF EXISTING PAVEMENT. THE EXISTING PAVEMENT SHALL BE COLD PLANED TO THE BASE COURSE AND SAWCUT FOR LOOP INSTALLATION.
- SIGNS AND PAVEMENT MARKINGS SHALL BE INSTALLED FOR ALL BICYCLE DETECTORS TO INFORM CYCLISTS OF THE DETECTION AREA.
- OFFSETS FROM LANE LINE EQUAL UNLESS OTHERWISE NOTED. SEE PLANS.
- TYPE Q DETECTORS SHALL BE WIRED IN A FIGURE EIGHT PATTERN WITH A DOUBLE LAYER DESIGN (2-4-2) WITH 2 TURNS IN THE PERIMETER SLOTS AND 4 TURNS IN THE CENTER SLOT AS SHOWN IN THE WINDING DETAIL.
- BICYCLES WILL BE DETECTED WITHIN 4 IN. OF THE INTERIOR LONGITUDINAL LOOP WIRES FOR TYPE Q AND D-Q DETECTORS.
- PROVIDE 3 TURNS FOR TYPE D-1 DETECTORS.
- INSTALL 2 LAYERS OF WIRE WOUND IN THE SAME DIRECTION IN BOTH LAYERS FOR TYPE D-2 DETECTORS. THE RESULT IS 4 TURNS IN EACH DIAGONAL.
- RIGHT JUSTIFIED LOOP DETECTORS SHALL BE CONSIDERED FOR THE FOLLOWING CONDITIONS:
  - BICYCLE STOPPING ON THE RIGHT SIDE OF A THRU TRAVEL LANE.
  - BICYCLE STOPPING ON THE RIGHT SIDE OF AN EXCLUSIVE LEFT TURN LANE.
- LEFT JUSTIFIED LOOP DETECTORS SHALL BE CONSIDERED FOR THE FOLLOWING CONDITIONS:
  - BICYCLE STOPPING ON THE LEFT SIDE OF A SHARED LEFT/THRU LANE.
  - BICYCLE STOPPING JUST TO THE RIGHT OF THE CENTERLINE WHEN TURNING LEFT ON A TWO-LANE ROADWAY.
- RECTANGULAR LOOP DETECTORS SHALL BE CONSIDERED FOR BICYCLES STOPPING ON EITHER THE LEFT OR RIGHT SIDE OF A TWO-LANE ROADWAY. THE MINIMUM OFFSET FROM LANE LINE OR CURB LINE SHALL BE 1.0 FT.
- PAVEMENT CORES OR TEST PITS MAY BE REQUIRED TO DETERMINE THE DEPTH OF EXISTING PAVEMENT AND CONFIRM THAT THE DETECTION OPTION CHOSEN AND CORRESPONDING WINDING PATTERN CAN BE ACCOMMODATED.
- THESE DETAILS APPLY TO BICYCLE LOOPS INSTALLED IN ROADWAYS. PUSH BUTTON ACTUATION SHALL BE CONSIDERED FOR RECREATIONAL BIKE PATHS.
- THE MINIMUM DIMENSION FOR L SHALL BE 6 FT MIN. FOR DETECTORS TYPE D-Q, D-1 & D-2. FINAL DIMENSIONS SHALL BE DETERMINED BY THE DESIGN ENGINEER.

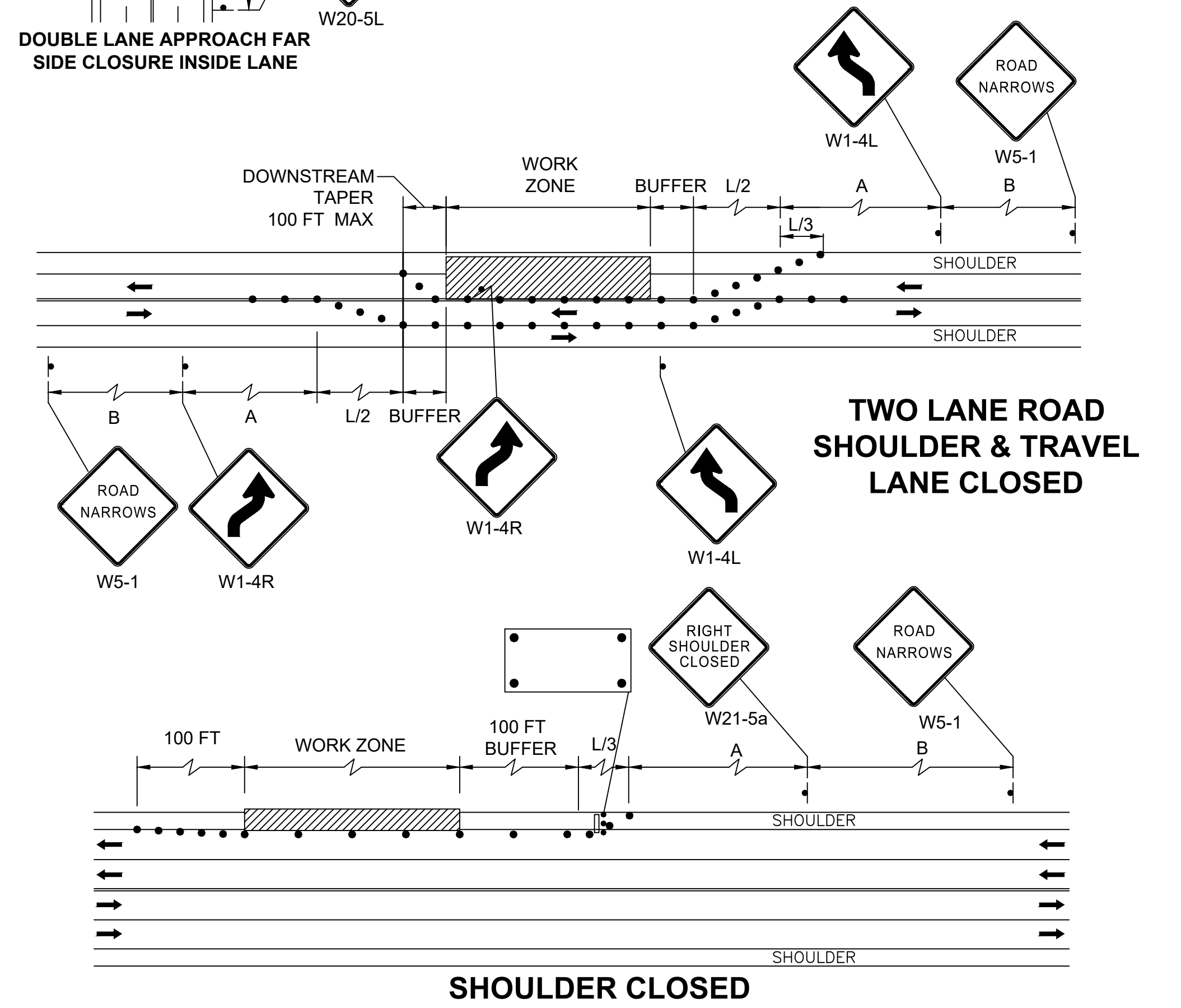
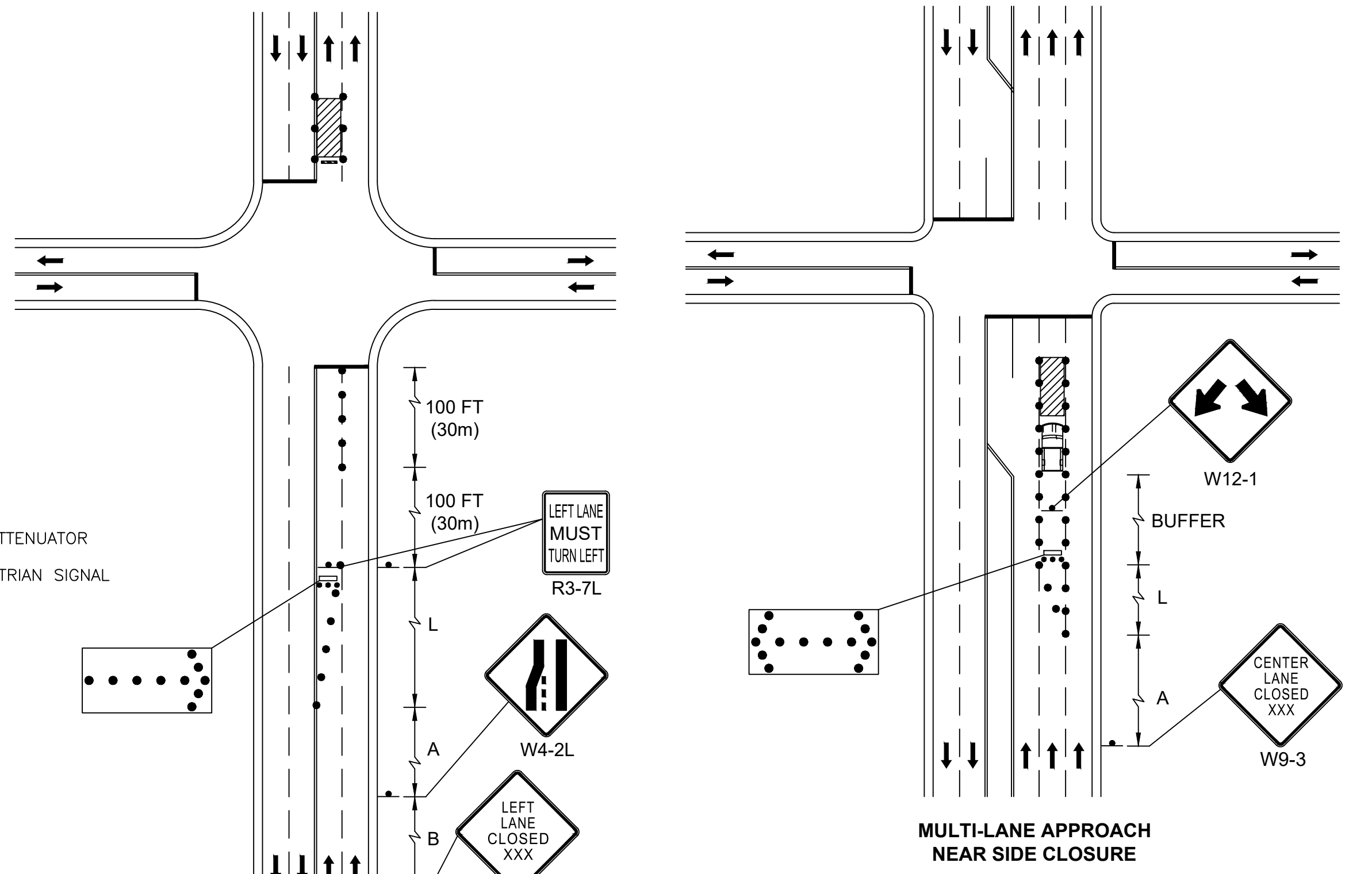
- NOTES:**
1. ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND ALL REVISIONS, UNLESS SUPERCEDED BY THESE PLANS.
  2. ALL SIGN LEGENDS, BORDERS, AND MOUNTING SHALL BE IN ACCORDANCE WITH THE MUTCD.
  3. TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
  4. TEMPORARY CONSTRUCTION SIGNING, BARRICADES, AND ALL OTHER NECESSARY WORK ZONE TRAFFIC CONTROL DEVICES SHALL BE REMOVED FROM THE HIGHWAY OR COVERED WHEN THEY ARE NOT REQUIRED FOR CONTROL OF TRAFFIC.
  5. SIGNS AND SIGN SUPPORTS LOCATED ON OR NEAR THE TRAVELED WAY, CHANNELIZING DEVICES, BARRIERS, AND CRASH ATTENUATORS MUST PASS THE CRITERIA SET FORTH IN NCHRP REPORT 350, "RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE EVALUATION OF HIGHWAY FEATURES" AND/OR "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH).
  6. CONTRACTORS SHALL NOTIFY EACH ADJUTTER AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OF ACCESS, SUCH AS CONDUIT INSTALLATION, EXISTING PAVEMENT EXCAVATION, TEMPORARY DRIVEWAY PAVEMENT PLACEMENT, AND SIMILAR OPERATIONS.
  7. THE FIRST TEN PLASTIC DRUMS OF A TAPER SHALL BE MOUNTED WITH FLASHING SEQUENTIAL LIGHTS.
  8. THE ADVISORY SPEED LIMIT, IF REQUIRED, SHALL BE DETERMINED BY THE ENGINEER.
  9. DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
  10. MAXIMUM SPACING OF TRAFFIC DEVICES IN A TAPER (DRUMS OR CONES) IS EQUAL IN FEET TO THE SPEED LIMIT IN MPH.
  11. 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.
  12. ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS.

**LEGEND:**

- REFLECTORIZED PLASTIC DRUM OR 36" CONE
- P/F POLICE/FLAGGER DETAIL
- ▨ TYPE III BARRICADE
- CHANGEABLE MESSAGE SIGN
- ⋯ ARROW BOARD
- ▨ WORK ZONE
- DIRECTION OF TRAFFIC
- ⊘ IMPACT ATTENUATOR
- ▭ MEDIAN BARRIER
- ▭ MEDIAN BARRIER WITH WARNING LIGHTS
- 🚚 WORK VEHICLE
- 🚚 TRUCK MOUNTED ATTENUATOR
- 🚶 TRAFFIC OR PEDESTRIAN SIGNAL
- SIGN



**COMPONENT PARTS OF A TEMPORARY TRAFFIC CONTROL (TTC) ZONE**



**SUGGESTED WORK ZONE WARNING SIGN SPACING**

ROAD TYPE	DISTANCE BETWEEN SIGNS **		
	A	B	C
LOCAL OR LOW VOLUME ROADWAYS	350	350	350
MOST OTHER ROADWAYS	500	500	500
FREEWAYS AND EXPRESSWAYS	1,000	1,500	2,640

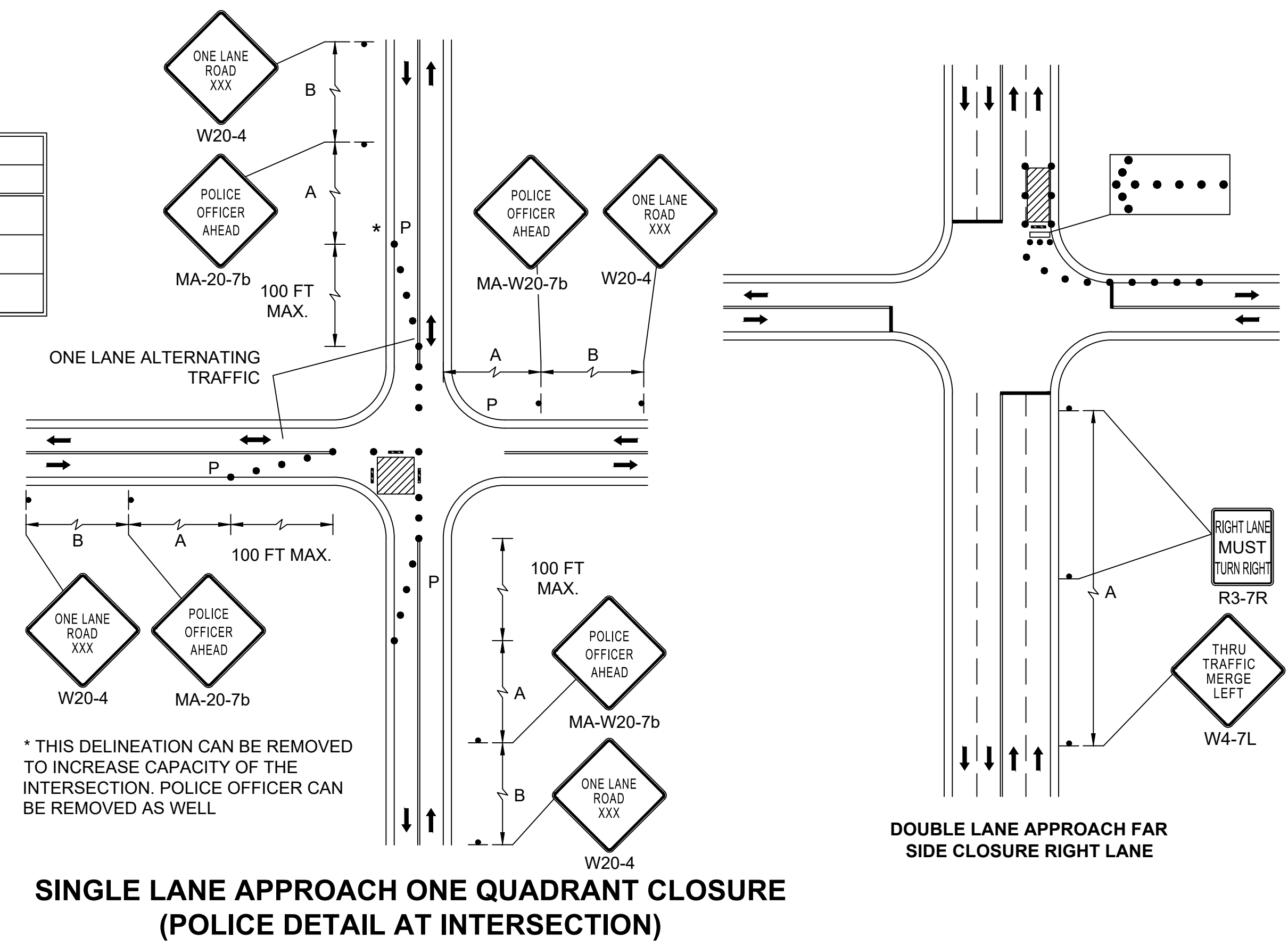
DISTANCES ARE SHOWN IN FEET. THE COLUMN HEADINGS A, B, AND C ARE THE DIMENSIONS SHOWN IN THE DETAIL/ TYPICAL SETUP FIGURES. THE A DIMENSION IS THE DISTANCE FROM THE TRANSITION OR POINT OF RESTRICTION TO THE FIRST SIGN. THE B DIMENSION IS THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS. THE C DIMENSION IS THE DISTANCE BETWEEN THE SECOND AND THIRD SIGNS. (THE "THIRD" SIGN IS THE FIRST ONE TYPICALLY ENCOUNTERED BY A DRIVER APPROACHING A TEMPORARY TRAFFIC CONTROL (TTC) ZONE.)

THE "THIRD" SIGN ABOVE IS TYPICALLY REFERRED TO AS AN "ADVANCE WARNING" SIGN ON THE TTC PLANS. THESE ADVANCE WARNING SIGNS ARE LOCATED PRIOR TO THE PROJECT LIMITS ON ALL APPROACHES (i.e. THE W20-1 SERIES (ROAD WORK XX FT) SIGNS), AND USUALLY REMAIN FOR THE DURATION OF THE PROJECT. ADDITIONAL SIGNS (i.e. "RIGHT LANE CLOSED 1 MILE" AND "LEFT LANE CLOSED 1 MILE") HAVE BEEN SHOWN IN SOME FIGURES AS EXAMPLES OF REINFORCEMENT SIGN PLACEMENT BUT ARE USED IN RARE OCCASIONS.

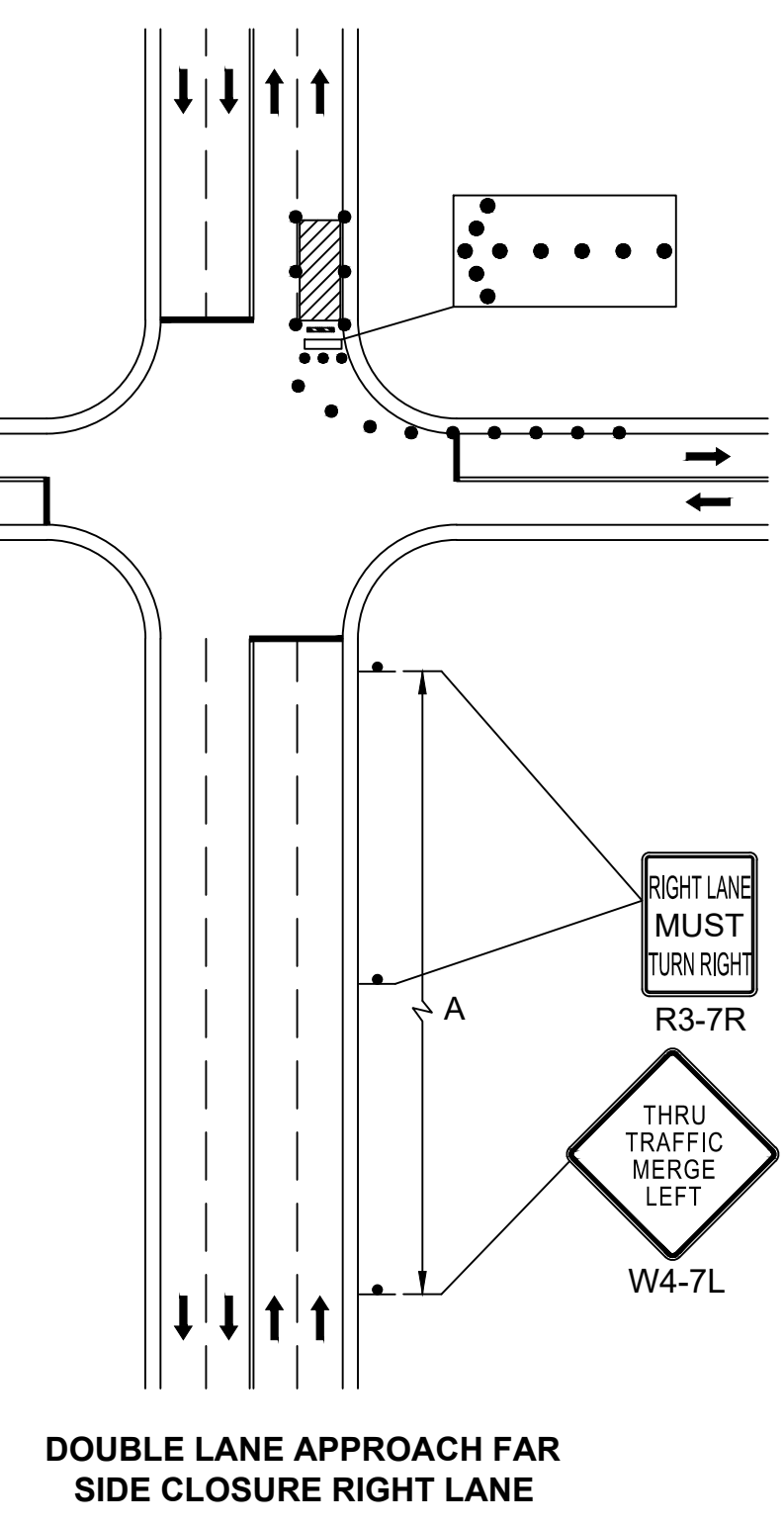
THE FIRST AND SECOND WARNING SIGNS ABOVE ARE REFERRED TO AS THE OPERATIONAL (DAY-TO-DAY) WORK ZONE SIGNS AND MAY BE MOVED DEPENDING ON WHERE THE SPECIFIC ROADWAY WORK FOR THAT DAY IS LOCATED.

MA-R2-10a SIGNS SHALL BE PLACED BETWEEN THE SECOND AND THIRD SIGNS AS DESCRIBED ABOVE.

MA-R2-10a, MA-R2-10e, AND W20-1 SERIES SIGNS ARE TO BE INCLUDED ON ALL DETAILS/TYPICAL SETUPS.

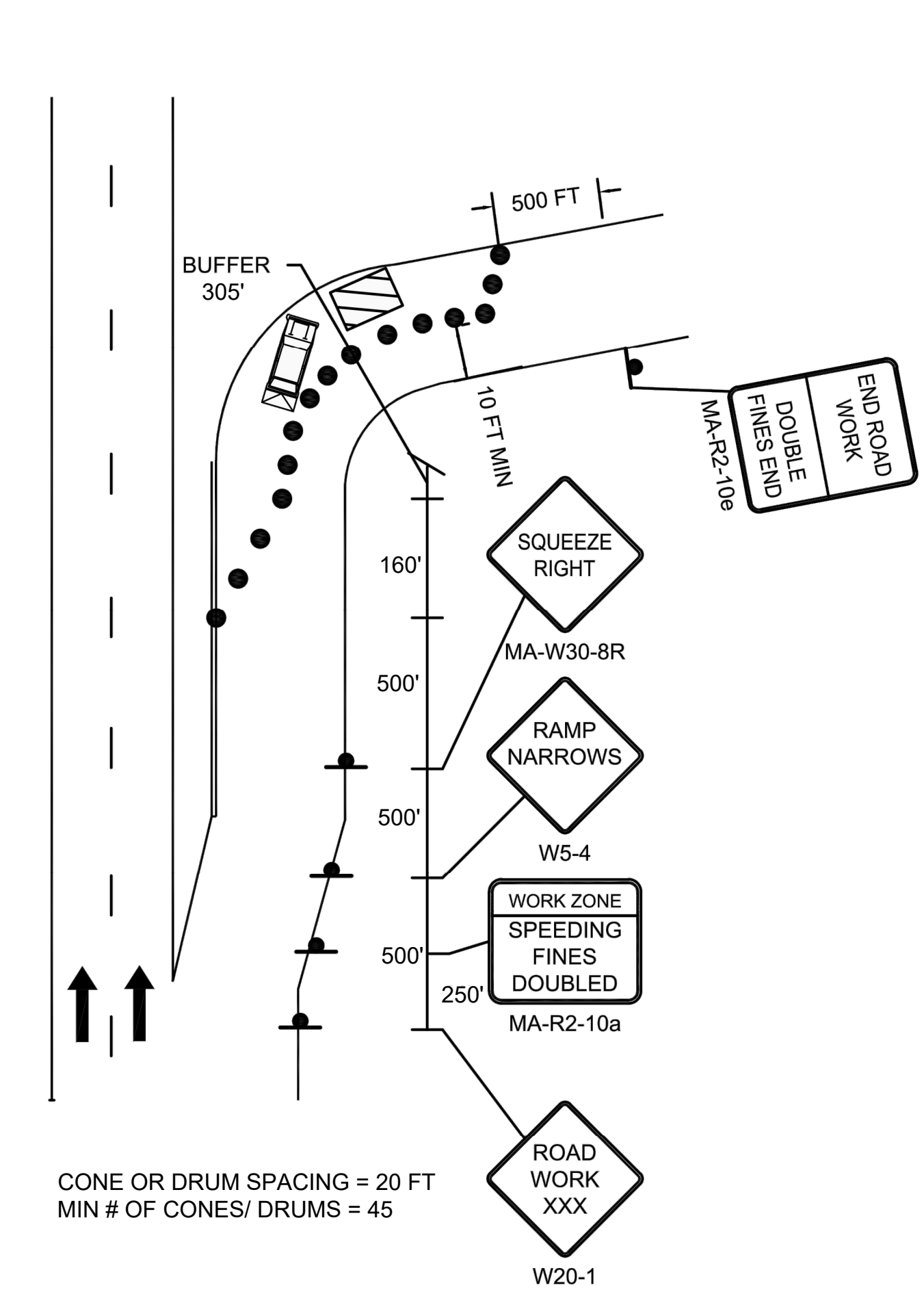


**SINGLE LANE APPROACH ONE QUADRANT CLOSURE (POLICE DETAIL AT INTERSECTION)**



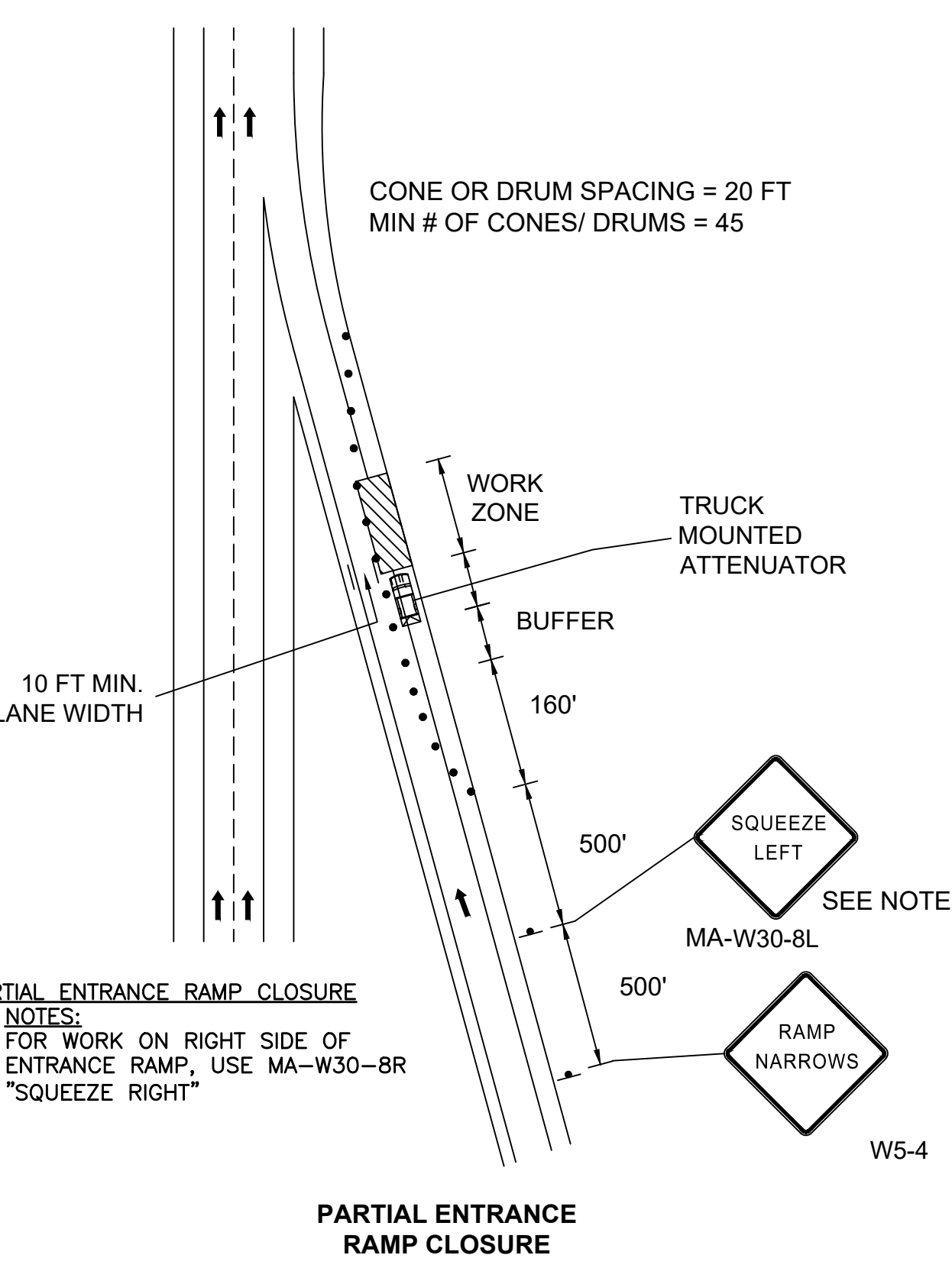
**DOUBLE LANE APPROACH FAR SIDE CLOSURE RIGHT LANE**





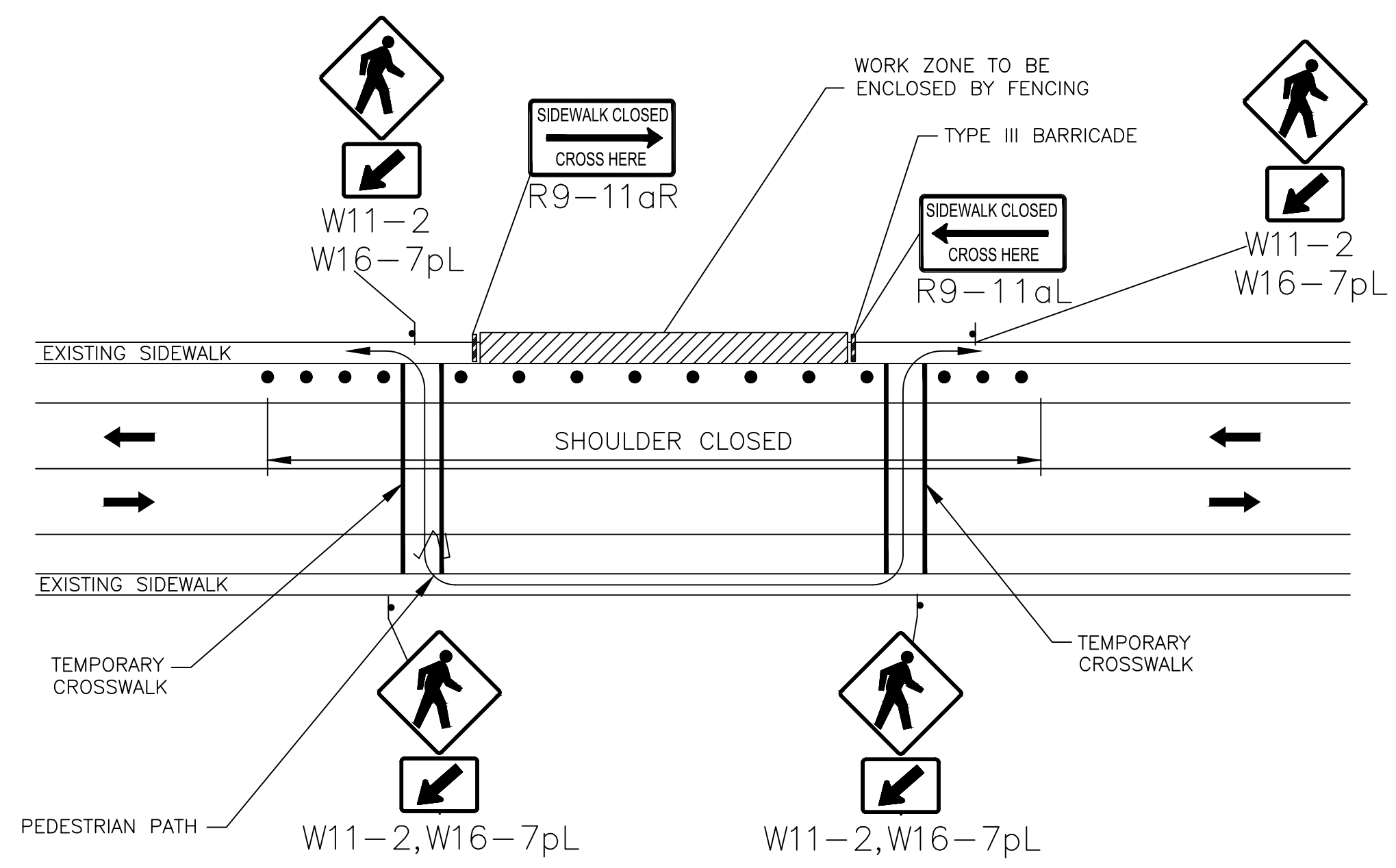
**PARTIAL EXIT RAMP CLOSURE NOTES:**  
1. FOR WORK ON LEFT SIDE OF ENTRANCE RAMP, USE MA-W30-8L "SQUEEZE LEFT"

**PARTIAL EXIT RAMP CLOSURE**



**PARTIAL ENTRANCE RAMP CLOSURE NOTES:**  
1. FOR WORK ON RIGHT SIDE OF ENTRANCE RAMP, USE MA-W30-8R "SQUEEZE RIGHT"

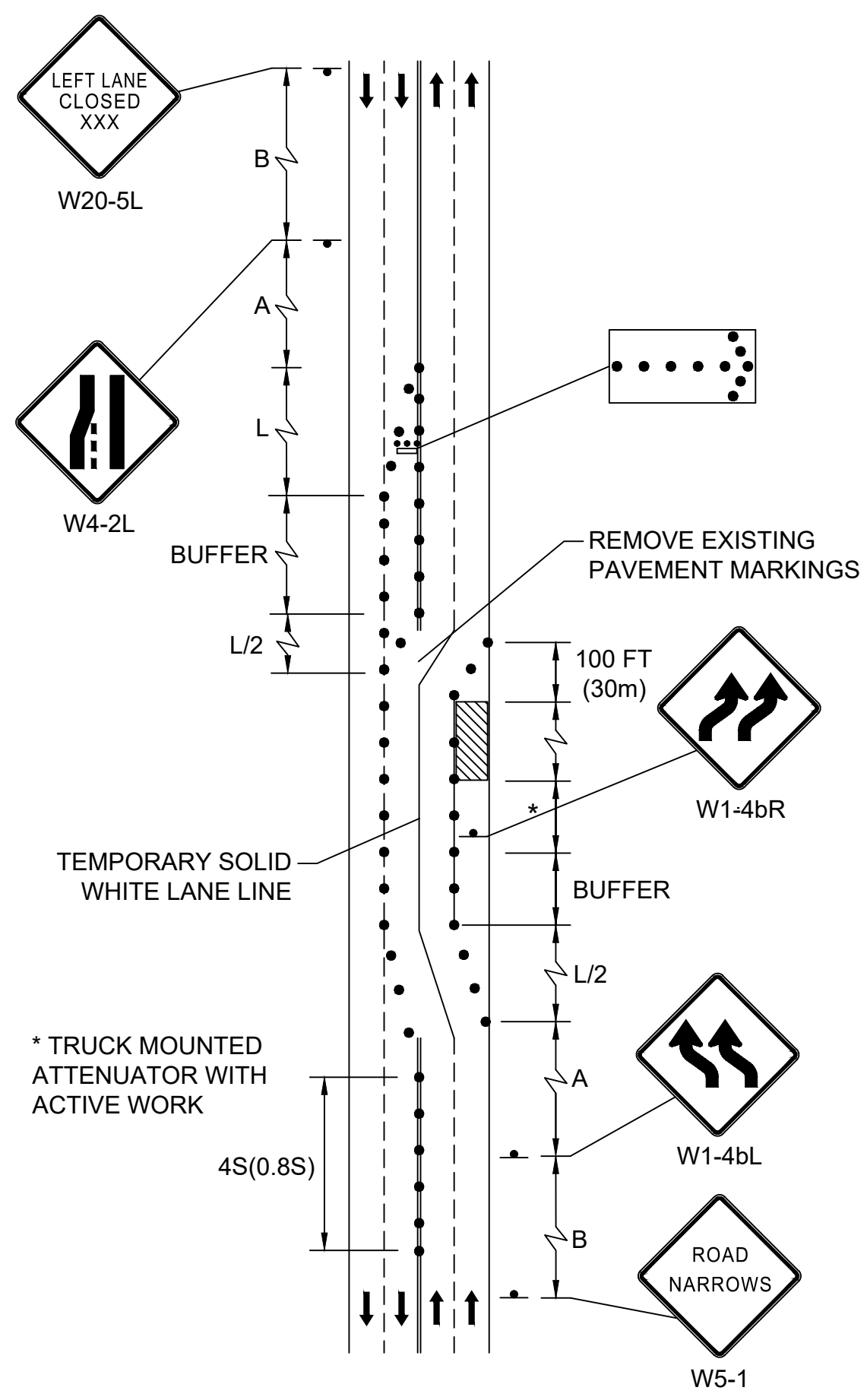
**PARTIAL ENTRANCE RAMP CLOSURE**



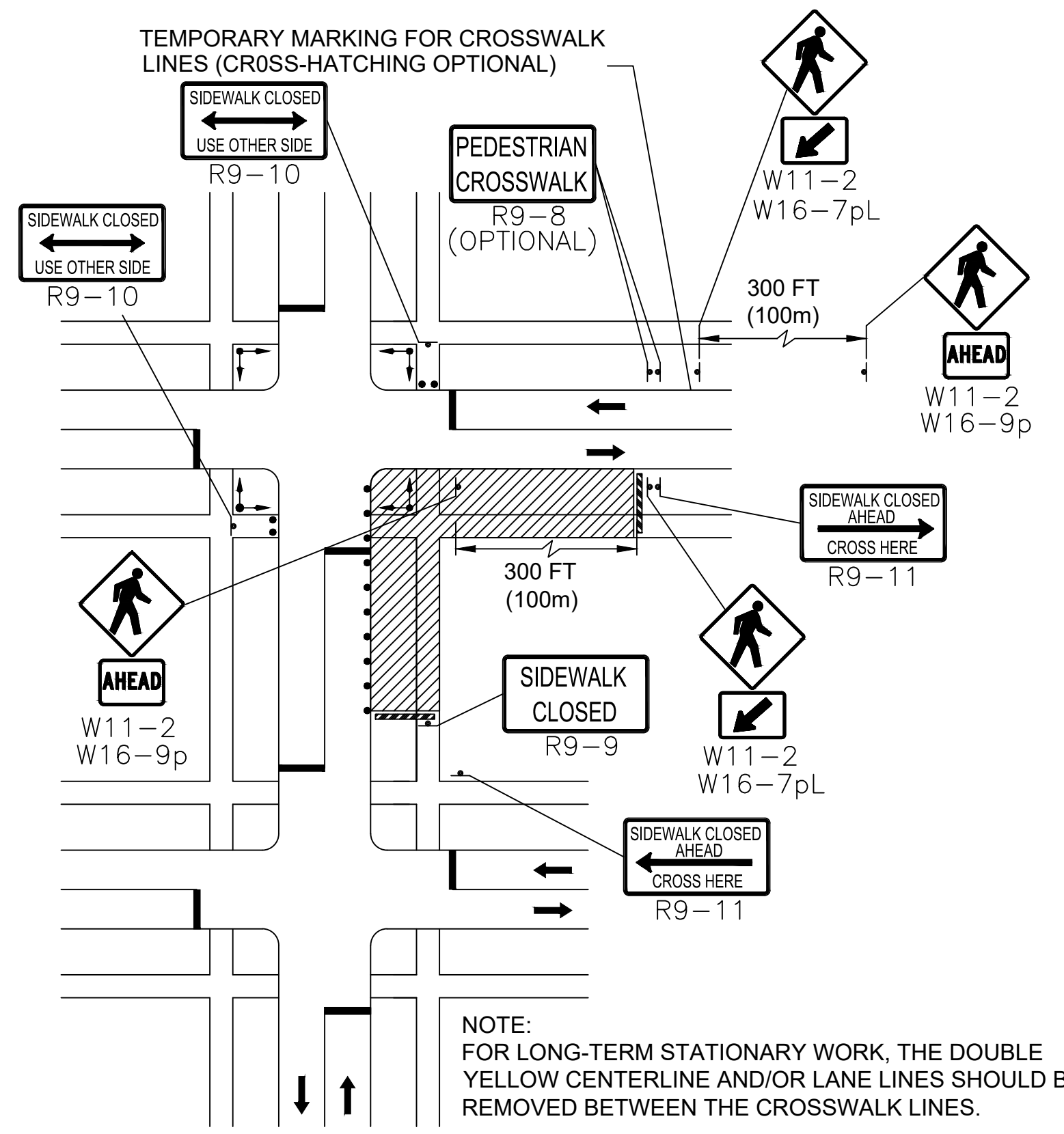
**TEMPORARY PEDESTRIAN BYPASS NOTES:**

- IF A MINIMUM WIDTH OF 48" OF SOLID SMOOTH UNOBSTRUCTED SURFACE REMAINS ALONG THE WORK AREA THEN THE DETAILS CAN BE DISREGARDED. DELINEATION OF THE WORK AREA WILL STILL BE REQUIRED. ALL PEDESTRIAN DETOUR ROUTES SHALL BE ADA/MAAB COMPLIANT IN THEIR ENTIRETY.
- THE POLICE/FLAGGER MAY DIRECT PEDESTRIANS, AS NEEDED, WITH OR WITHOUT PERMANENT OR TEMPORARY CROSSWALKS AND WITH OR WITHOUT TEMPORARY PEDESTRIAN TRAFFIC SIGNS.
- BYPASS IS TO BE USED IN CONJUNCTION WITH THE PROPOSED LANE CLOSURE DETAILS AND DURING CONSTRUCTION STAGING, AS DIRECTED BY THE ENGINEER.

**SIDEWALK CLOSED WITH  
TEMPORARY PEDESTRIAN BYPASS  
TYPE II**

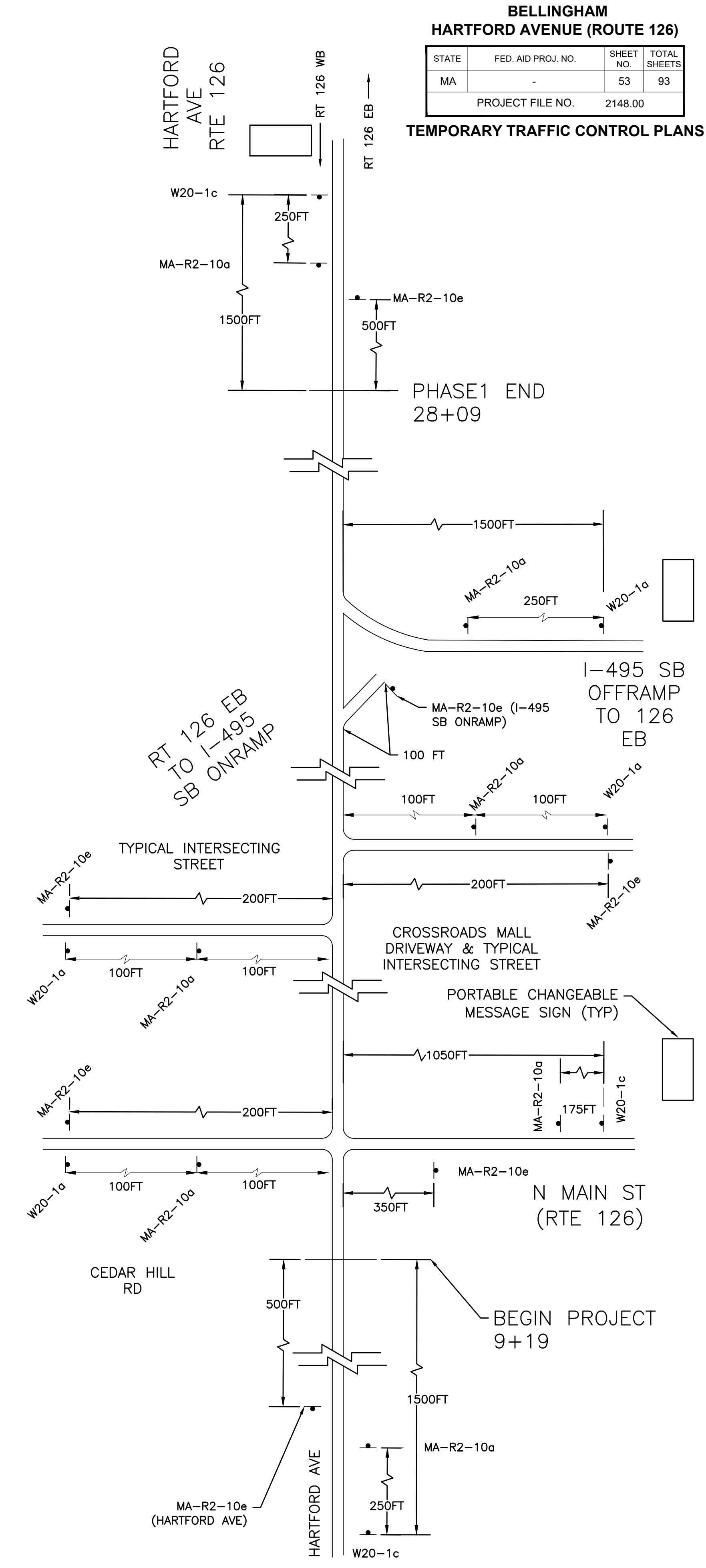


**MULTIPLE LANE ROAD  
INTERIOR LANE CLOSURE W/ UNEVEN VOLUMES**



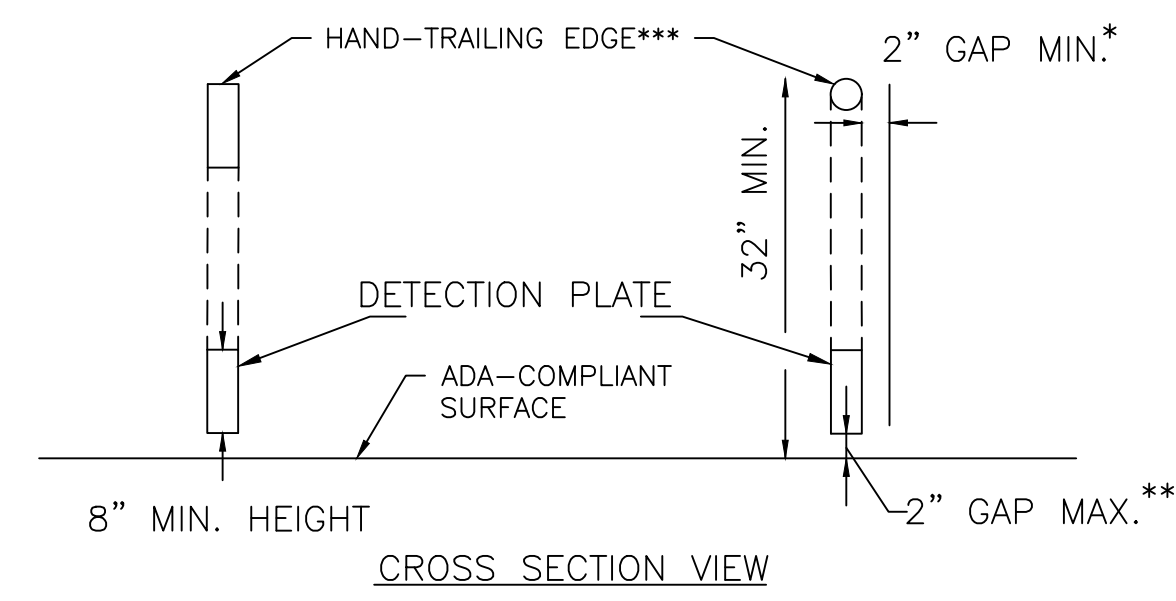
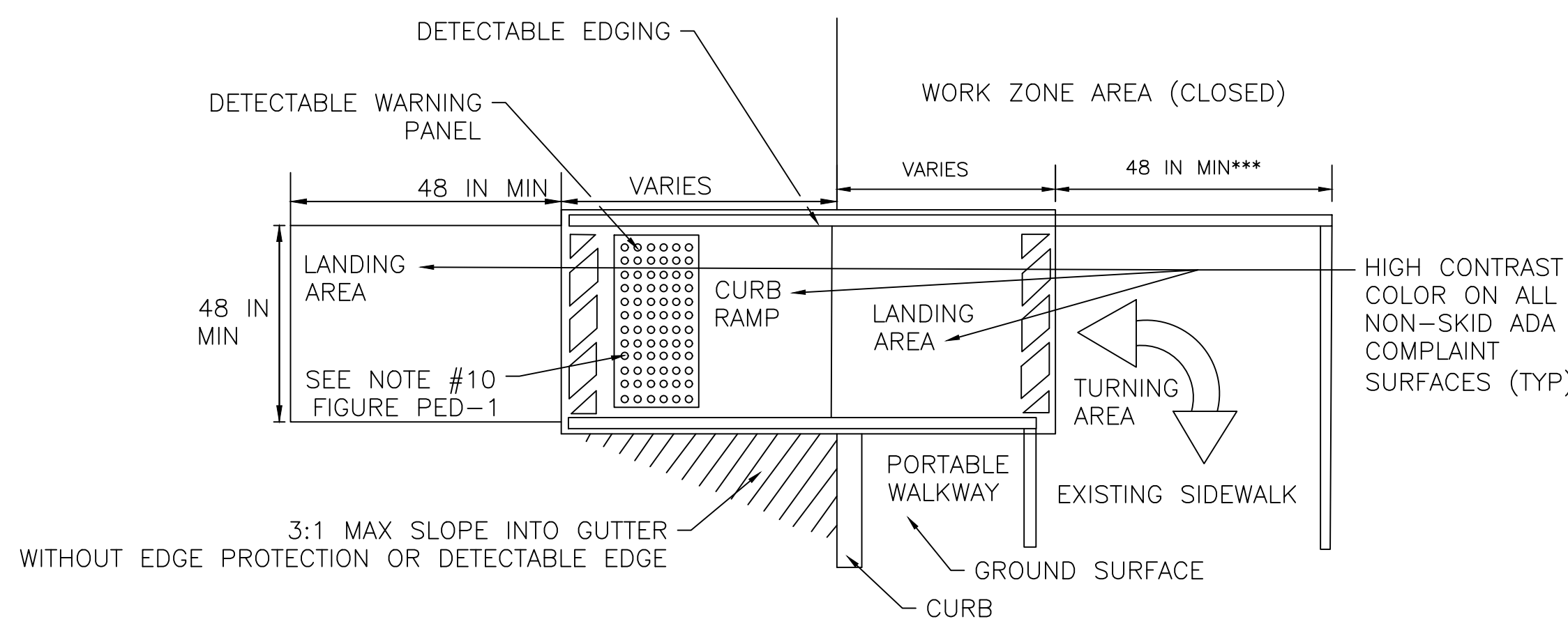
**NOTE:**  
FOR LONG-TERM STATIONARY WORK, THE DOUBLE YELLOW CENTERLINE AND/OR LANE LINES SHOULD BE REMOVED BETWEEN THE CROSSWALK LINES.

**PEDESTRIAN  
DETOUR**



**PERMANENT PROJECT  
CONSTRUCTION SIGNING**  
NOT TO SCALE

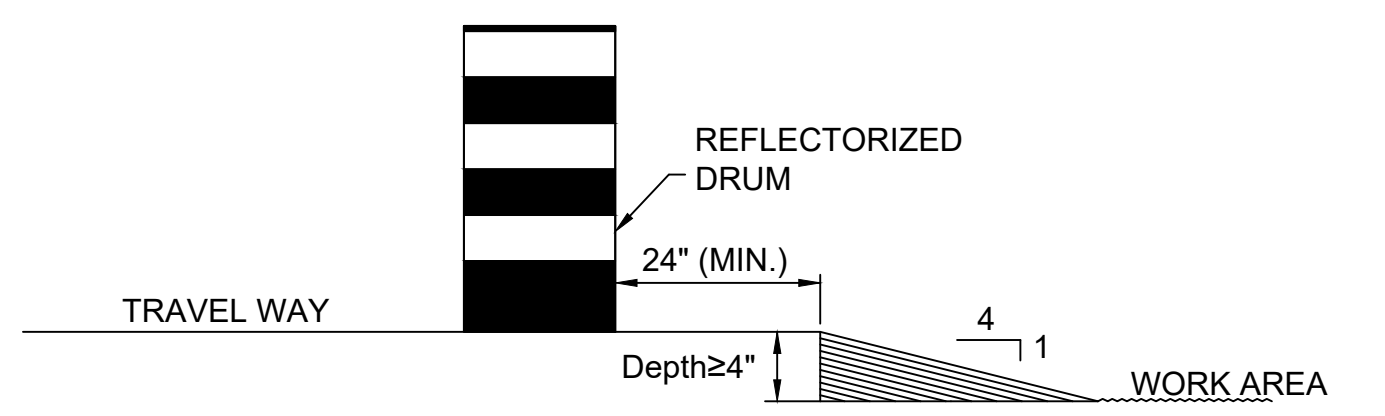
**TEMPORARY TRAFFIC CONTROL PLANS**



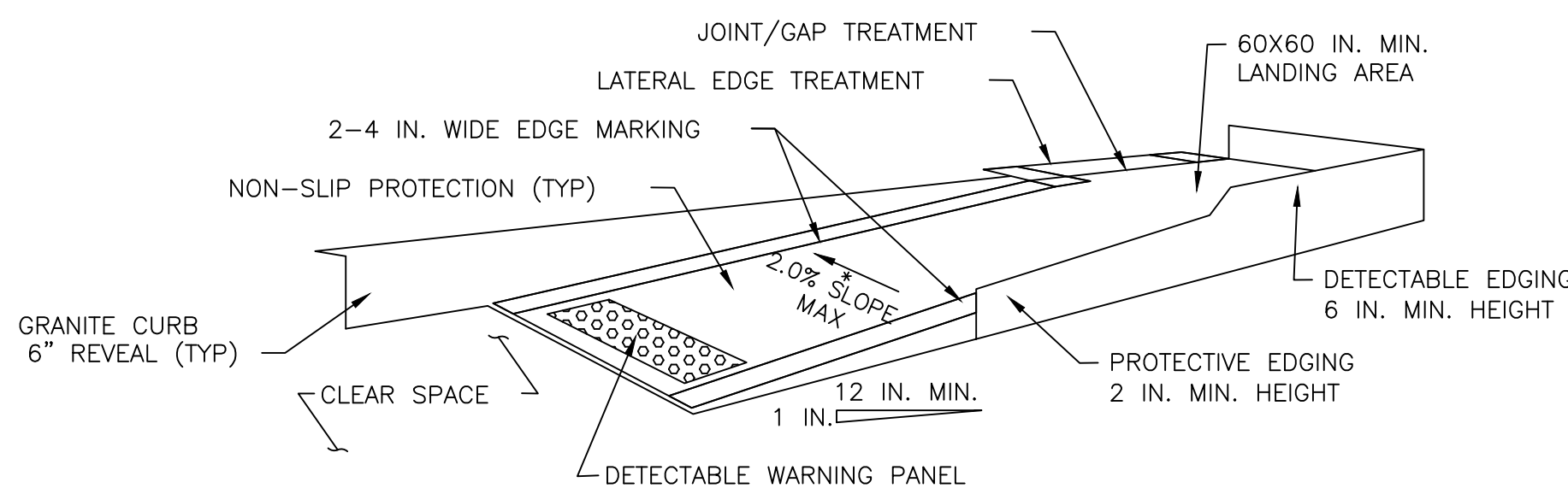
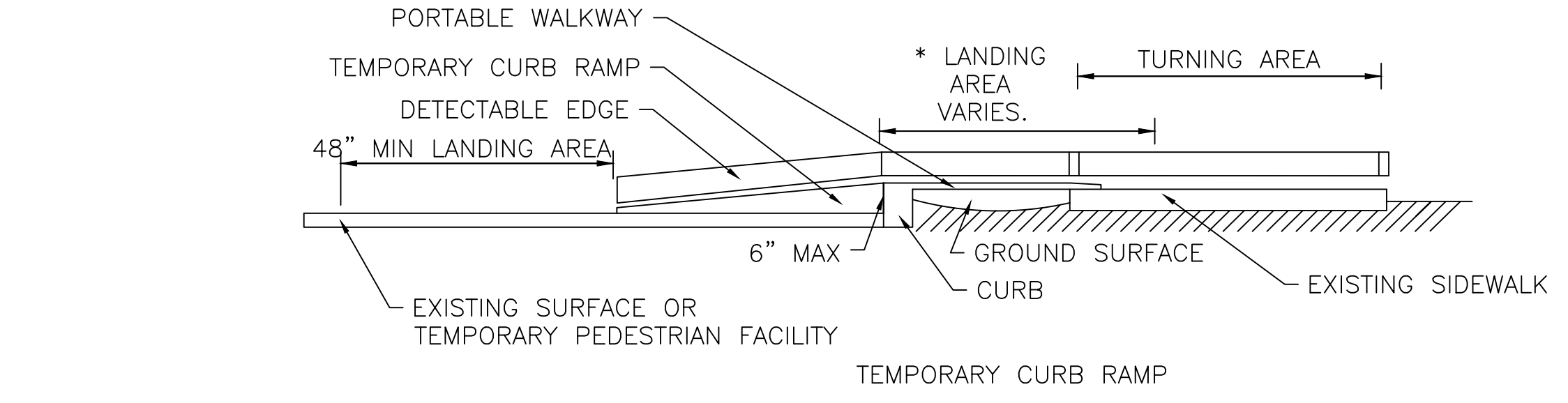
NOTES:

- \* 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.

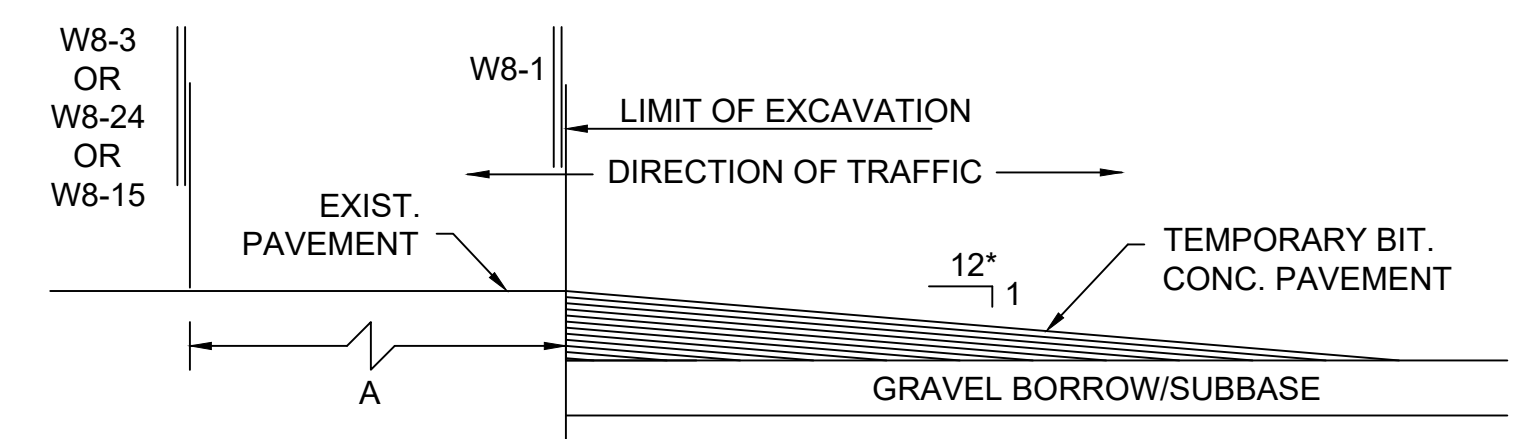
**TEMPORARY PEDESTRIAN BARRICADE**



**LATERAL DROP-OFF DETAIL**  
NOT TO SCALE



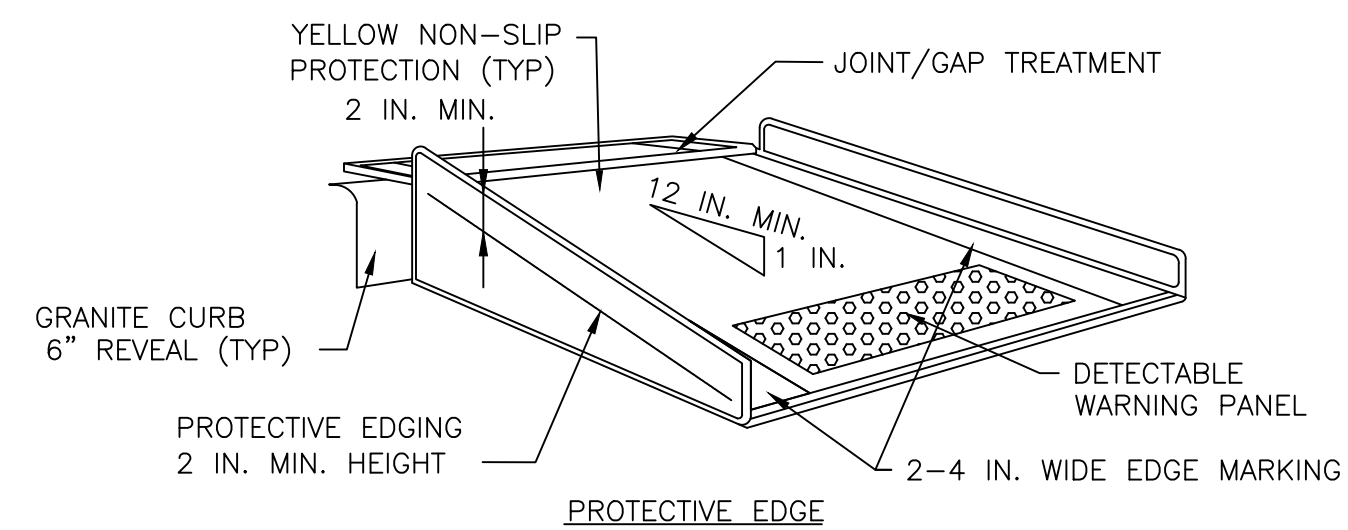
**TEMPORARY PEDESTRIAN CURB RAMP - PARALLEL TO CURB**



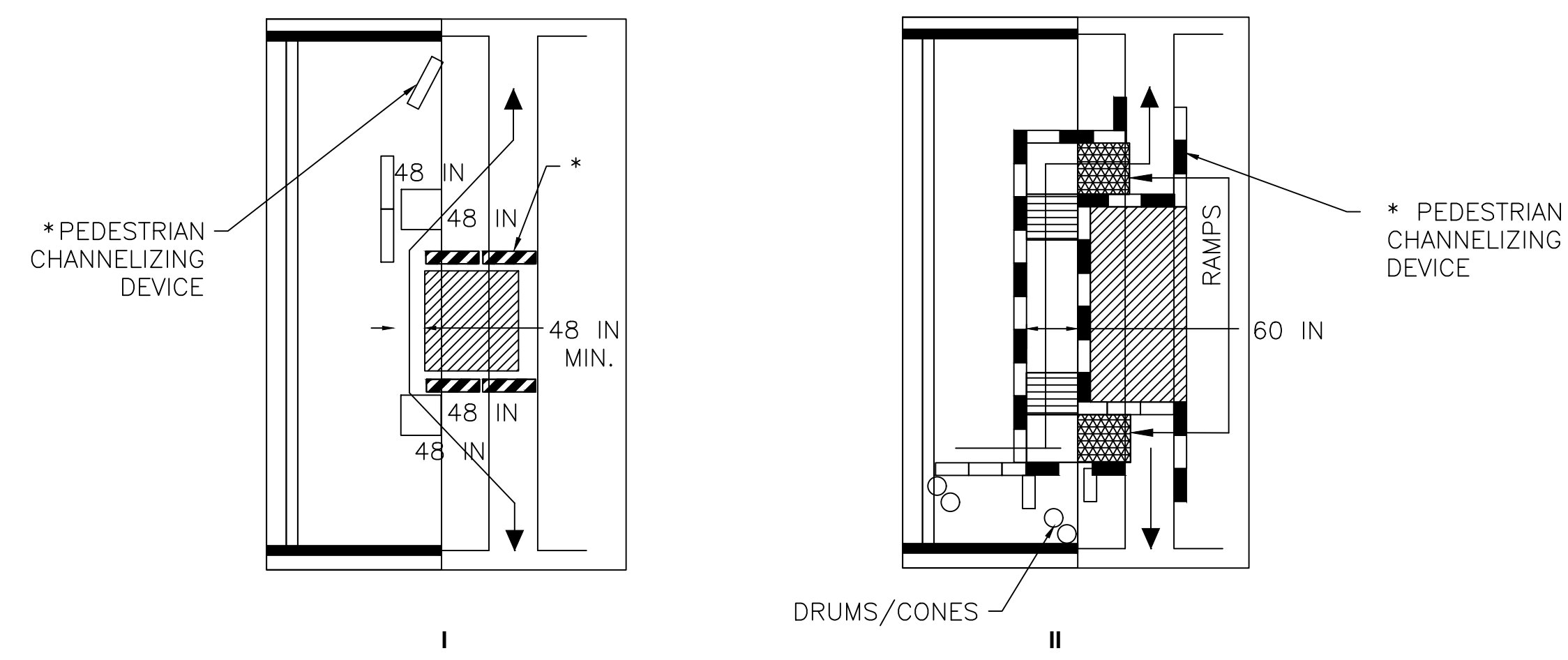
**LONGITUDINAL DROP-OFF DETAIL**  
NOT TO SCALE \* - INCREASE SLOPE RATIO FOR HIGHER SPEEDS

\* - 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 PEDESTRIAN RAMP DETAILS**



**TEMPORARY PEDESTRIAN CURB RAMP - PERPENDICULAR TO CURB**



**TEMPORARY PEDESTRIAN WALKWAY DETAILS**

**TEMPORARY PEDESTRIAN CURB RAMP NOTES:**

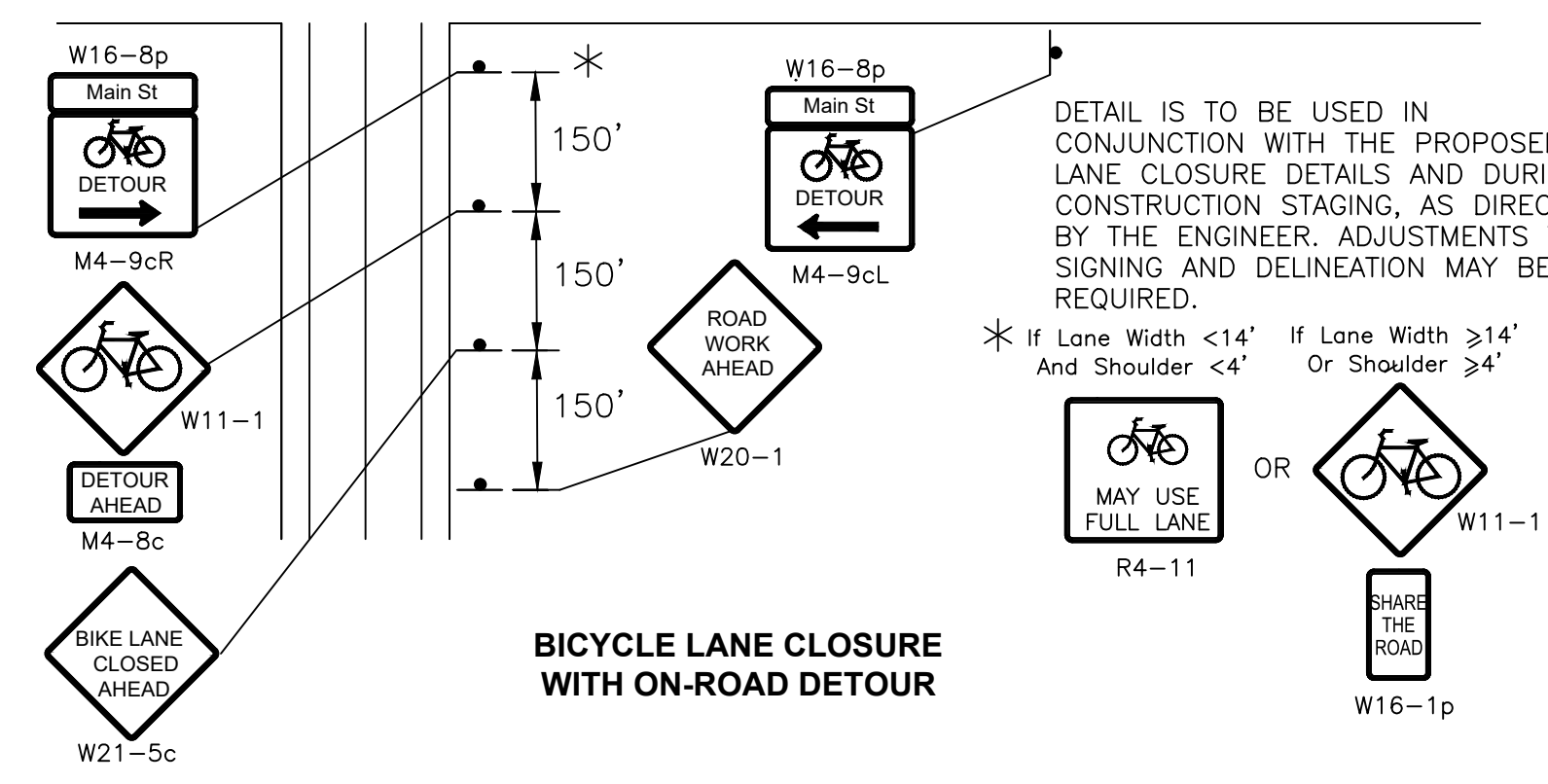
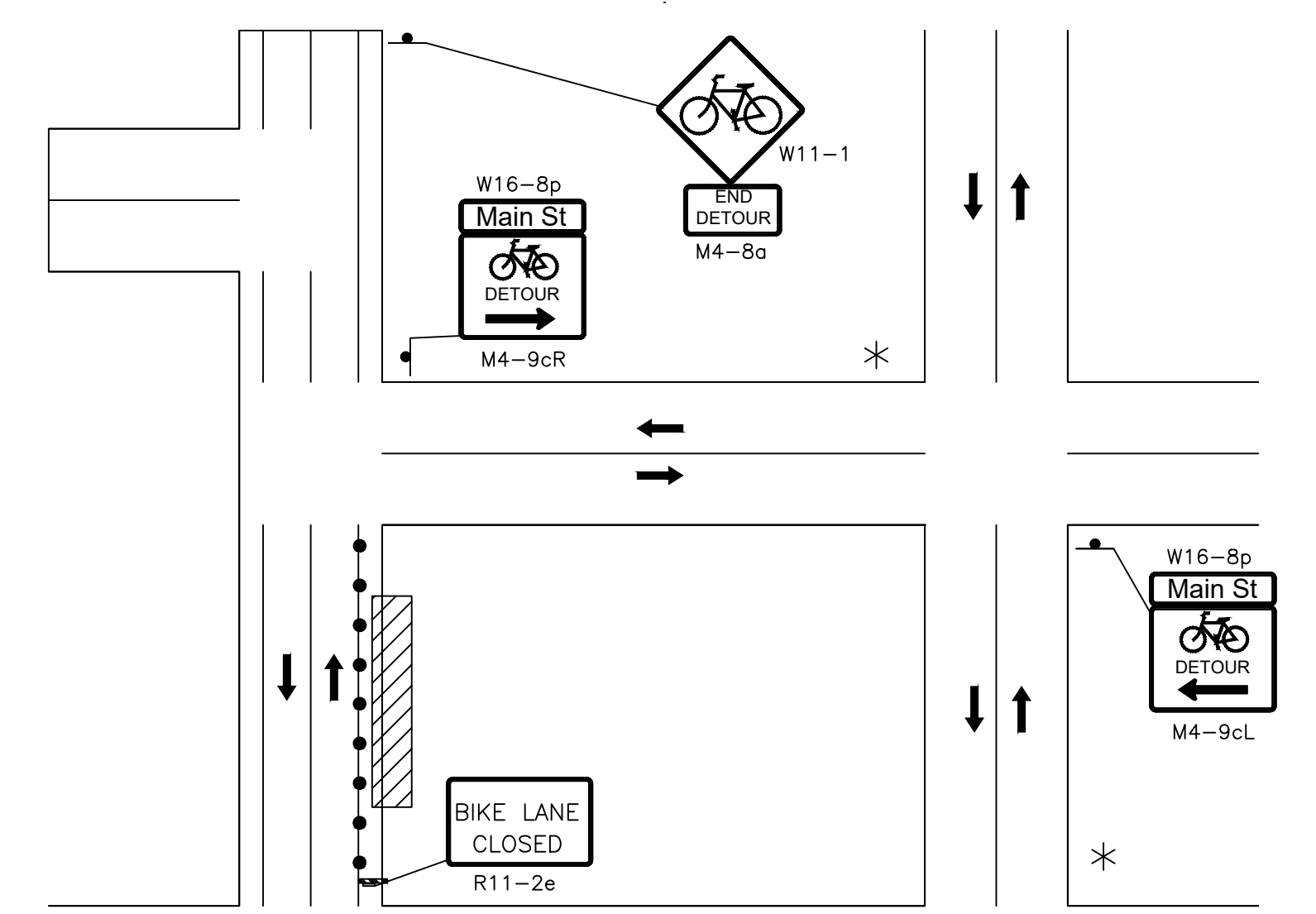
1. CURB RAMP SHALL BE 60 IN. MINIMUM WIDTH WITH A FIRM, STABLE AND NON-SLIP SURFACE.
2. PROTECTIVE EDGING WITH A 2 IN. MINIMUM HEIGHT SHALL BE INSTALLED WHEN THE CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6 IN. OR GREATER OR HAS A SIDE APRON SLOPE STEEPER THAN 1:3 (33%). PROTECTIVE EDGING SHOULD BE CONSIDERED WHEN THE CURB RAMP 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 RAMP 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.

**TEMPORARY PEDESTRIAN WALKWAY**  
**DETAIL 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 PED-1 & PED-2)
- THE ALTERNATE SURFACE 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 BY 5 FOOT PASSING ZONE SHALL BE PROVIDED.
- THE PROTECTIVE REQUIREMENTS OF A TTC 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 JUDGEMENT.
- 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 MIDDLEBLOCK CLOSING 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 VASES. THE AUDIBLE DEVICES CAN BE MOUNTABLE OR STAND ALONE.



**BICYCLE LANE CLOSURE WITH ON-ROAD DETOUR**

DETAIL IS TO BE USED IN CONJUNCTION WITH THE PROPOSED LANE CLOSURE DETAILS AND DURING CONSTRUCTION STAGING, AS DIRECTED BY THE ENGINEER. ADJUSTMENTS TO SIGNING AND DELINEATION MAY BE REQUIRED.

\* If Lane Width <14' And Shoulder <4' OR If Lane Width >14' Or Shoulder >4'

TEMPORARY TRAFFIC CONTROL SIGN SUMMARY

BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	55	93
PROJECT FILE NO.		2148.00	

TEMPORARY TRAFFIC CONTROL PLANS

IDENTIFI- CATION NUMBER	SIZE OF SIGN		#OF SIGNS REQ'D	UNIT AREA (SF)	TOTAL AREA (SF)
	WIDTH (IN)	HEIGHT (IN)			
R9-8 (OPTIONAL)	36	18	1	4.50	18.00
W20-4	36	36	4	9.00	36.00
MA-20-7b	36	36	4	9.00	36.00
W4-7L	36	36	1	9.00	9.00
R3-7R	30	30	1	6.25	6.25
R3-7L	30	30	1	6.25	6.25
W4-2L	36	36	2	9.00	18.00
W20-5L	36	36	2	9.00	18.00
W12-1	36	36	1	9.00	9.00
W9-3	36	36	1	9.00	9.00
W5-1	36	36	2	9.00	18.00
W1-4R	36	36	2	9.00	18.00
W1-4L	36	36	2	9.00	18.00
W21-5a	36	36	1	9.00	18.00

IDENTIFI- CATION NUMBER	SIZE OF SIGN		#OF SIGNS REQ'D	UNIT AREA (SF)	TOTAL AREA (SF)
	WIDTH (IN)	HEIGHT (IN)			
MA- W30-8R	36	36	1	9.00	18.00
MA- W30-8L	36	36	1	9.00	18.00
W5-4	36	36	2	9.00	18.00
MA- R2-10A	36	36	1	9.00	XXX
W20-1	36	36	2	9.00	18.00
W1-4-bR	36	36	1	9.00	9.00
W1-4-bL	36	36	1	9.00	9.00
W11-2	36	36	4	9.00	36.00
W16-7pL	24	12	4	2.00	8.00
R9-11aR	24	12	1	2.00	2.00
R9-11aL	24	12	1	2.00	2.00
W16-9p	24	12	2	2.00	4.00
R9-9	24	12	1	2.00	2.00
R9-10	24	12	2	2.00	4.00

IDENTIFI- CATION NUMBER	SIZE OF SIGN		#OF SIGNS REQ'D	UNIT AREA (SF)	TOTAL AREA (SF)
	WIDTH (IN)	HEIGHT (IN)			
W8-3 OR W8-24 OR W8-15	36	36	1	9.00	9.00
W8-1	36	36	1	9.00	9.00
M4-9cL			2	0.5	1.00
M4-9cR			2	0.5	1.00
M4-8A			1	0.5	0.5
R11-2e	30	48	1	10.00	10.00
W11-1	36	36	4	9.00	36.00
M4-8c			1	0.5	0.5
W21-5c	36	36	1	9.00	9.00
R4-11	30	30	3	6.25	18.75
W16-1P	24	12	3	2.00	6.00
W8-1	36	36	1	9.00	9.00
W8-1	36	36	1	9.00	9.00
W8-1	36	36	1	9.00	9.00

IDENTIFI- CATION NUMBER	SIZE OF SIGN		#OF SIGNS REQ'D	UNIT AREA (SF)	TOTAL AREA (SF)
	WIDTH (IN)	HEIGHT (IN)			
W20-1c	36	36	3	9.00	27.00
W20-1a	36	36	8	9.00	72.00
MA- R2-10a	48	36	12	12.00	144.00
MA- R2-10e	36	48	12	12.00	144.00

TOTAL AREA = 833.25 SQ. FT.

NOTES:

1. ALL WARNING, REGULATORY AND ROUTE MARKERS SHALL BE FABRICATED WITH HIGH INTENSITY ENCAPSULATED LENS REFLECTIVE SHEETING (SEE SECTION M9.30.0) TYPE III OR IV.
2. ALL SIGNS NOTED AS "(R&R)" SHALL BE MOUNTED ON NEW POSTS OR AS OTHERWISE INDICATED.
3. QUANTITIES OF SIGNS SHOWN ON THIS SHEET MAY DIFFER FROM THE PAVEMENT MARKING AND SIGNING PLANS. WHERE DIFFERENCES OCCUR, THE PAVEMENT MARKINGS AND SIGNING PLANS SHALL PREVAIL.



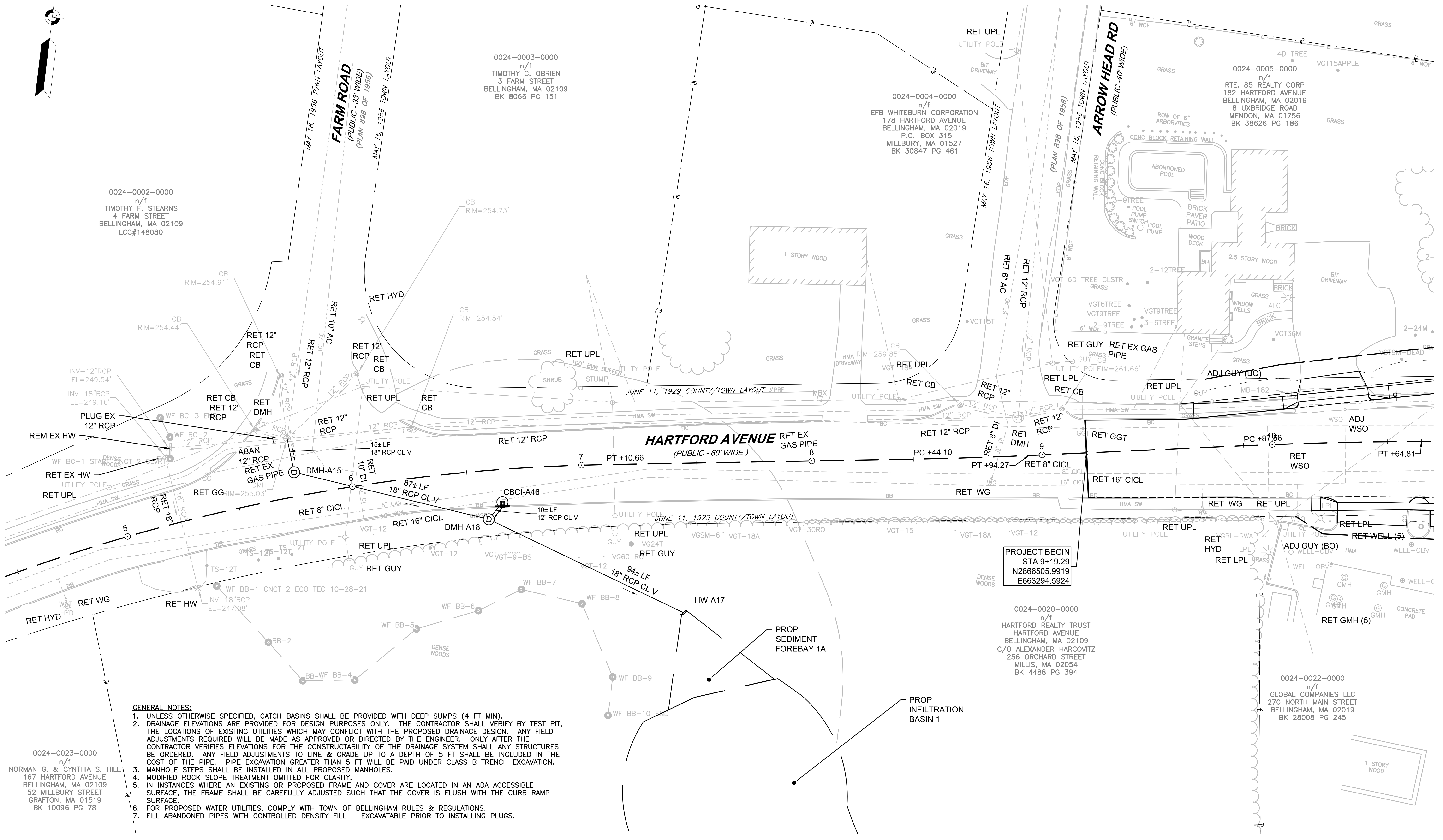
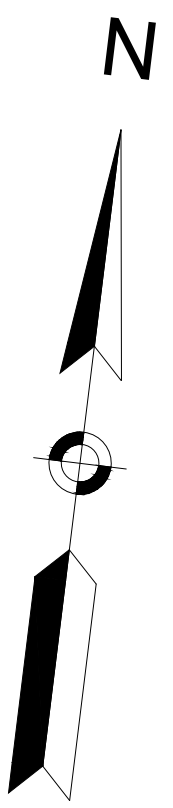
**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	56	93
PROJECT FILE NO.		2148.00	

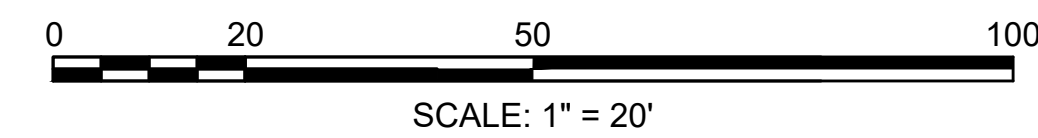
**UTILITY PLANS  
SHEET 01 OF 10**

2148.00\_H(UTILITY PLANS).DWG Plotted on 10-Jan-2022 5:48 PM

CONTINUED ON  
SHEET NO. 07



- GENERAL NOTES:**
- UNLESS OTHERWISE SPECIFIED, CATCH BASINS SHALL BE PROVIDED WITH DEEP SUMPS (4 FT MIN).
  - 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 FT SHALL BE INCLUDED IN THE COST OF THE PIPE. PIPE EXCAVATION GREATER THAN 5 FT WILL BE PAID UNDER CLASS B TRENCH EXCAVATION.
  - MANHOLE STEPS SHALL BE INSTALLED IN ALL PROPOSED MANHOLES.
  - MODIFIED ROCK SLOPE TREATMENT OMITTED FOR CLARITY.
  - IN INSTANCES WHERE AN EXISTING OR PROPOSED FRAME AND COVER ARE LOCATED IN AN ADA ACCESSIBLE SURFACE, THE FRAME SHALL BE CAREFULLY ADJUSTED SUCH THAT THE COVER IS FLUSH WITH THE CURB RAMP SURFACE.
  - FOR PROPOSED WATER UTILITIES, COMPLY WITH TOWN OF BELLINGHAM RULES & REGULATIONS.
  - FILL ABANDONED PIPES WITH CONTROLLED DENSITY FILL - EXCAVATABLE PRIOR TO INSTALLING PLUGS.



0024-0023-0000  
n/f  
NORMAN G. & CYNTHIA S. HILL  
167 HARTFORD AVENUE  
BELLINGHAM, MA 02109  
52 MILLBURY STREET  
GRAFTON, MA 01519  
BK 10096 PG 78

0024-0002-0000  
n/f  
TIMOTHY F. STEARNS  
4 FARM STREET  
BELLINGHAM, MA 02109  
LCC#148080

0024-0003-0000  
n/f  
TIMOTHY C. OBRIEN  
3 FARM STREET  
BELLINGHAM, MA 02109  
BK 8066 PG 151

0024-0004-0000  
n/f  
EFB WHITEBURN CORPORATION  
178 HARTFORD AVENUE  
BELLINGHAM, MA 02019  
P.O. BOX 315  
MILLBURY, MA 01527  
BK 30847 PG 461

0024-0005-0000  
n/f  
RTE. 85 REALTY CORP  
182 HARTFORD AVENUE  
BELLINGHAM, MA 02019  
8 UXBRIDGE ROAD  
MENDON, MA 01756  
BK 38626 PG 186

PROJECT BEGIN  
STA 9+19.29  
N2866505.9919  
E663294.5924

0024-0020-0000  
n/f  
HARTFORD REALTY TRUST  
HARTFORD AVENUE  
BELLINGHAM, MA 02109  
C/O ALEXANDER HARCOWITZ  
256 ORCHARD STREET  
MILLIS, MA 02054  
BK 4488 PG 394

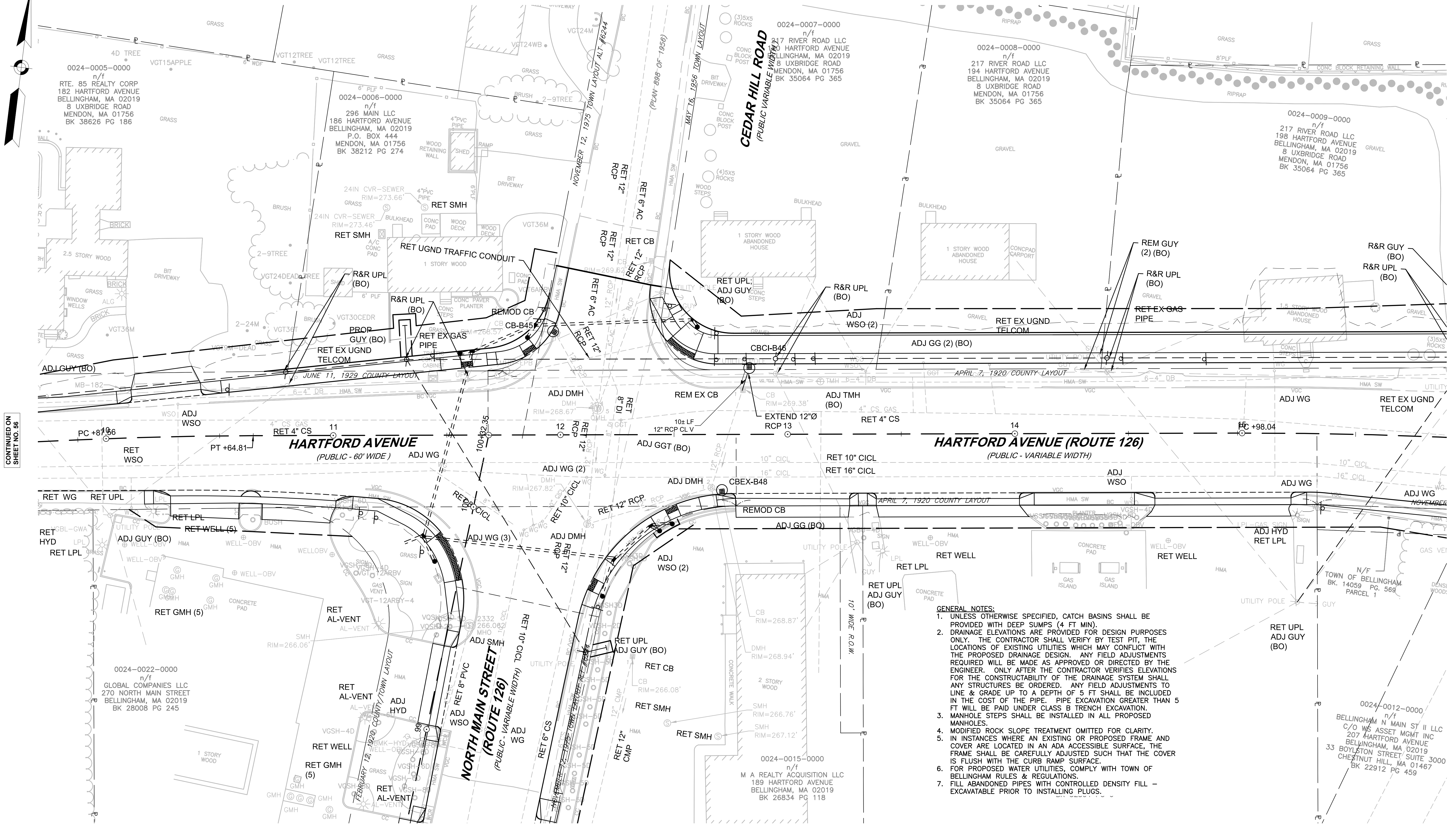
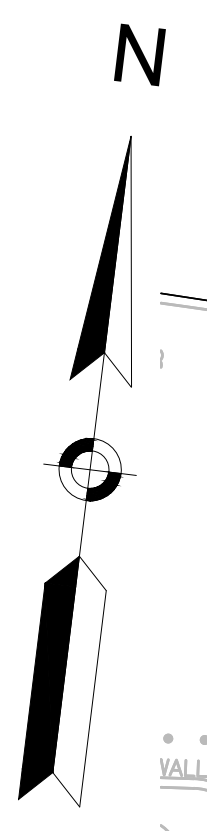
0024-0022-0000  
n/f  
GLOBAL COMPANIES LLC  
270 NORTH MAIN STREET  
BELLINGHAM, MA 02019  
BK 28008 PG 245



**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	57	93

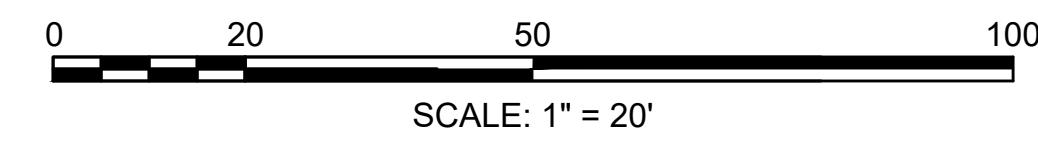
PROJECT FILE NO. 2148.00  
**UTILITY PLANS  
SHEET 02 OF 10**



CONTINUED ON SHEET NO. 56

CONTINUED ON SHEET NO. 58

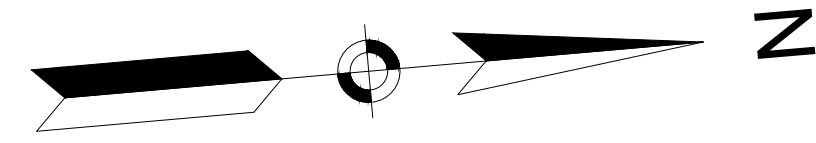
- GENERAL NOTES:**
- UNLESS OTHERWISE SPECIFIED, CATCH BASINS SHALL BE PROVIDED WITH DEEP SUMPS (4 FT MIN).
  - DRAINAGE ELEVATIONS ARE PROVIDED FOR DESIGN PURPOSES ONLY. THE CONTRACTOR SHALL VERIFY BY TEST PIT, THE LOCATIONS OF EXISTING UTILITIES WHICH MAY CONFLICT WITH THE PROPOSED DRAINAGE DESIGN. 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 FT SHALL BE INCLUDED IN THE COST OF THE PIPE. PIPE EXCAVATION GREATER THAN 5 FT WILL BE PAID UNDER CLASS B TRENCH EXCAVATION.
  - MANHOLE STEPS SHALL BE INSTALLED IN ALL PROPOSED MANHOLES.
  - MODIFIED ROCK SLOPE TREATMENT OMITTED FOR CLARITY.
  - IN INSTANCES WHERE AN EXISTING OR PROPOSED FRAME AND COVER ARE LOCATED IN AN ADA ACCESSIBLE SURFACE, THE FRAME SHALL BE CAREFULLY ADJUSTED SUCH THAT THE COVER IS FLUSH WITH THE CURB RAMP SURFACE.
  - FOR PROPOSED WATER UTILITIES, COMPLY WITH TOWN OF BELLINGHAM RULES & REGULATIONS.
  - FILL ABANDONED PIPES WITH CONTROLLED DENSITY FILL - EXCAVATABLE PRIOR TO INSTALLING PLUGS.



**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

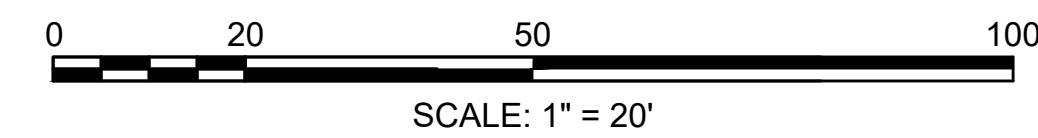
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	58	93
PROJECT FILE NO.		2148.00	

**UTILITY PLANS  
SHEET 03 OF 10**



**GENERAL NOTES:**

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- MODIFIED ROCK SLOPE TREATMENT OMITTED FOR CLARITY.
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- FOR PROPOSED WATER UTILITIES, COMPLY WITH TOWN OF BELLINGHAM RULES & REGULATIONS.
- FILL ABANDONED PIPES WITH CONTROLLED DENSITY FILL - EXCAVATABLE PRIOR TO INSTALLING PLUGS.



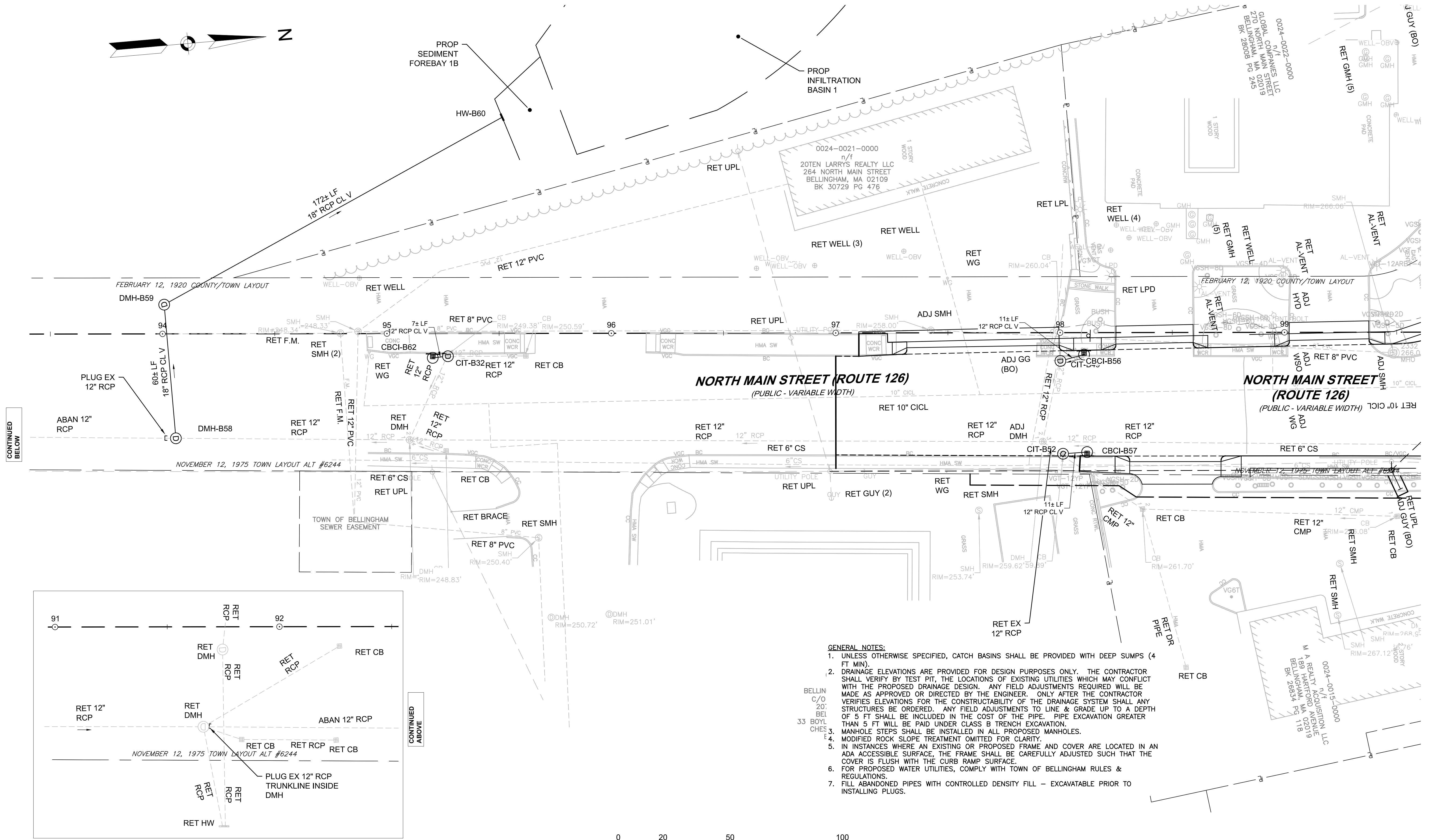
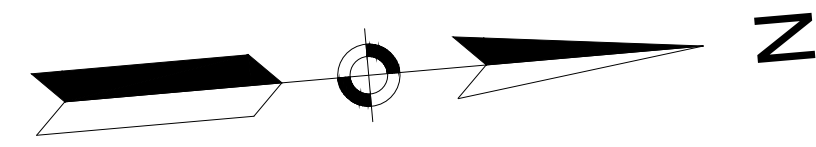
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SHEET NO. 57

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SHEET NO. 59

**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

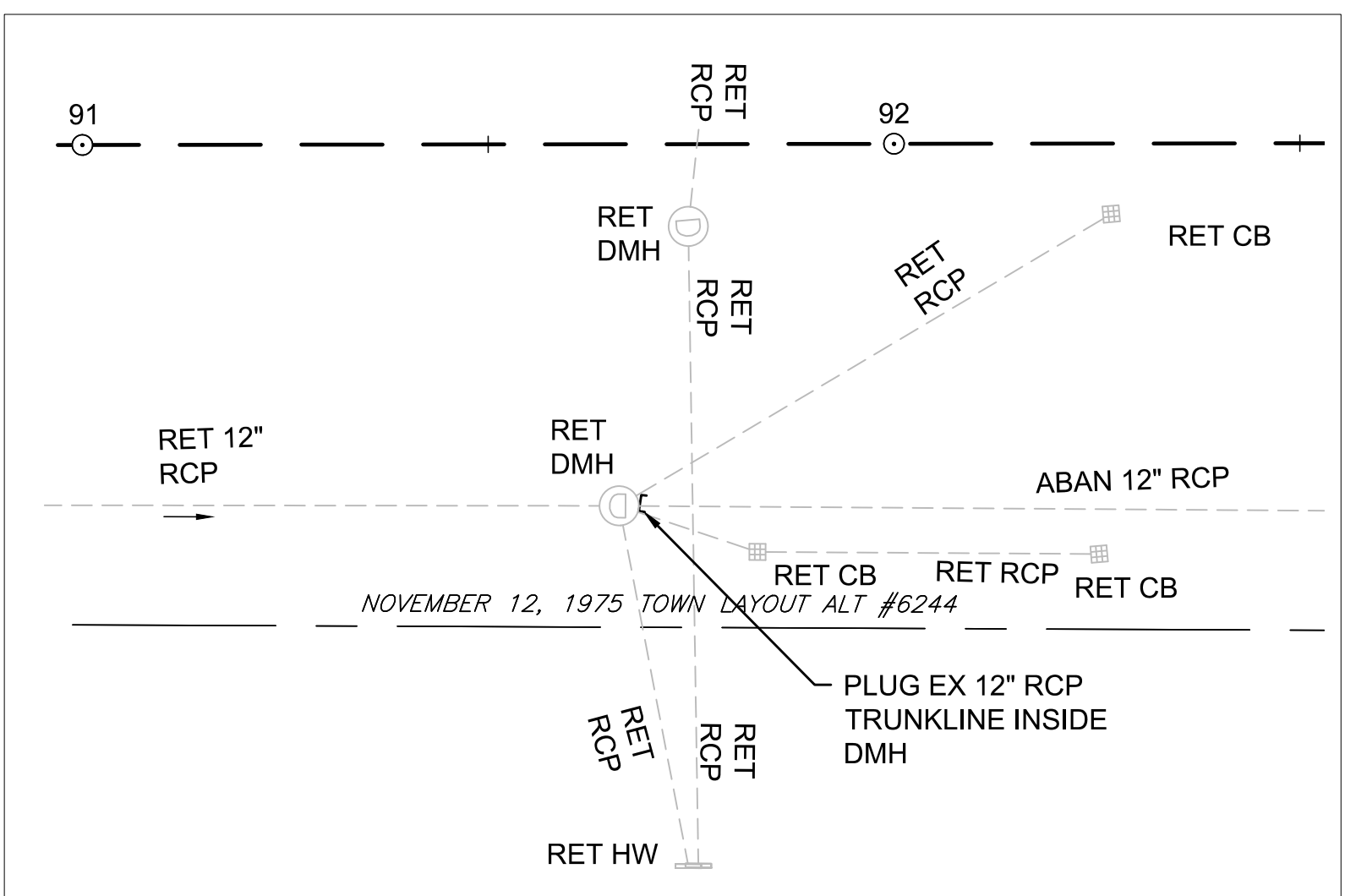
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	59	93
PROJECT FILE NO.		2148.00	

**UTILITY PLANS  
SHEET 04 OF 10**



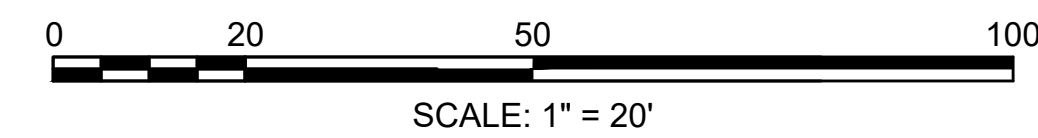
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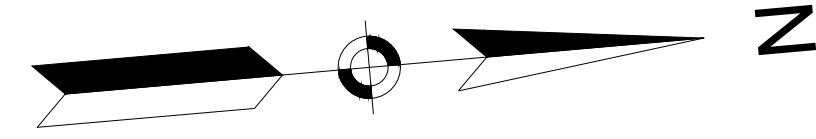




**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

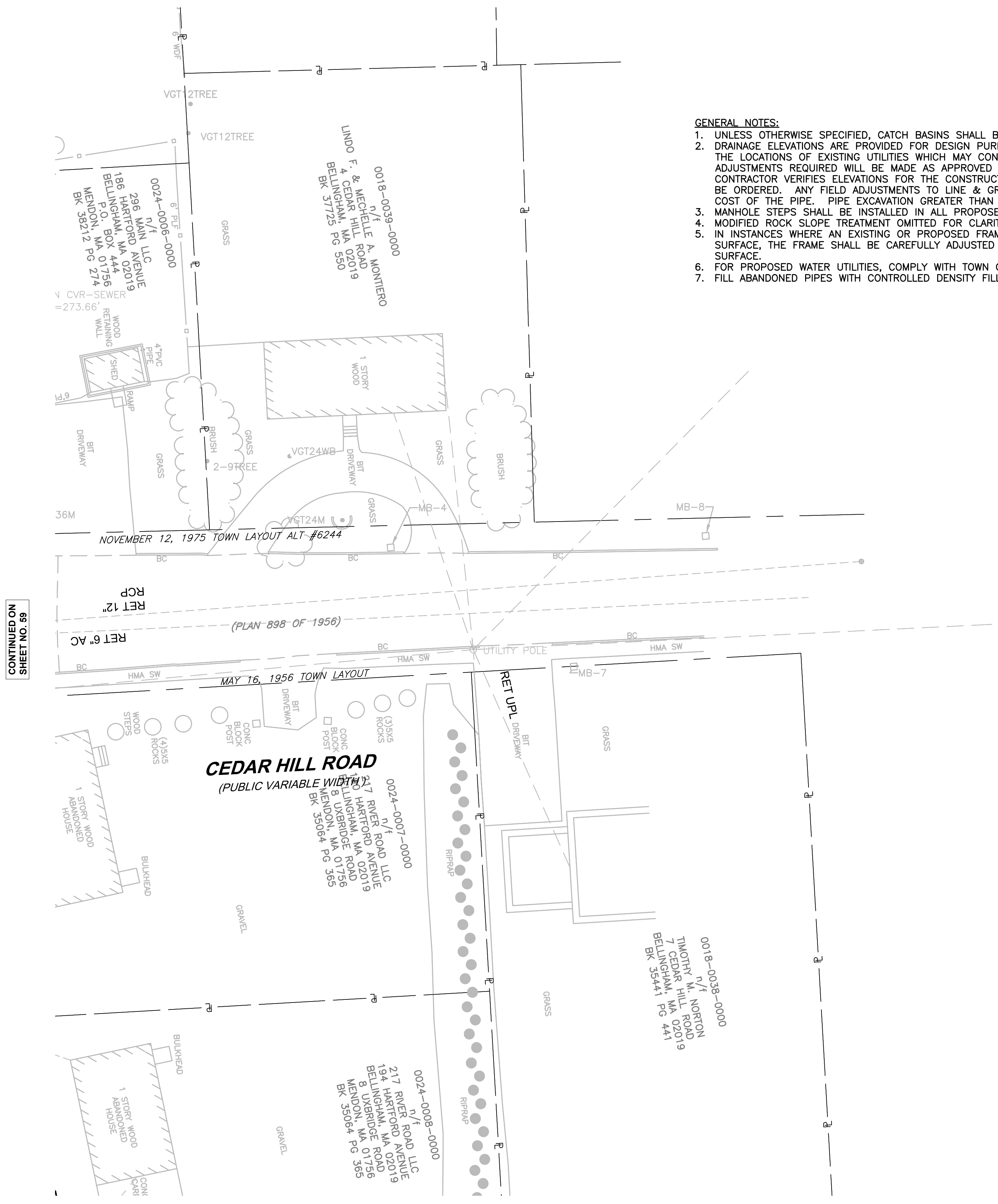
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	60	93
PROJECT FILE NO.		2148.00	

**UTILITY PLANS  
SHEET 05 OF 10**

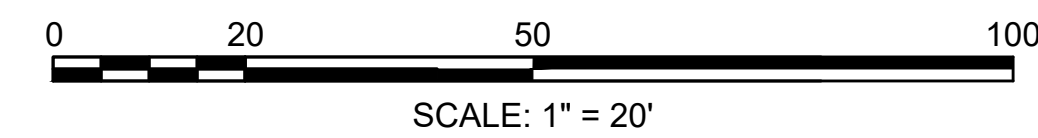


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7. FILL ABANDONED PIPES WITH CONTROLLED DENSITY FILL - EXCAVATABLE PRIOR TO INSTALLING PLUGS.



CONTINUED ON  
SHEET NO. 59

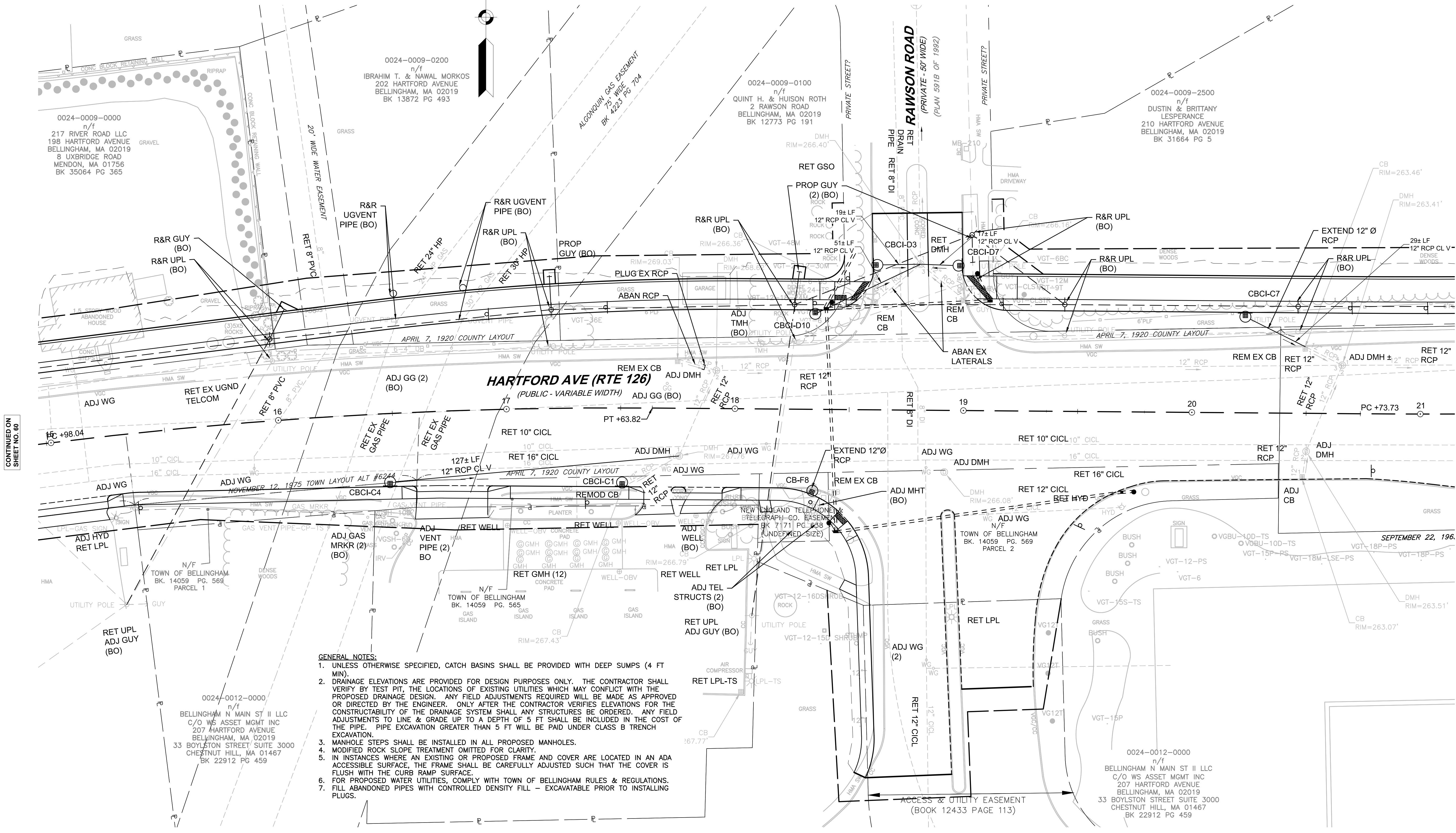




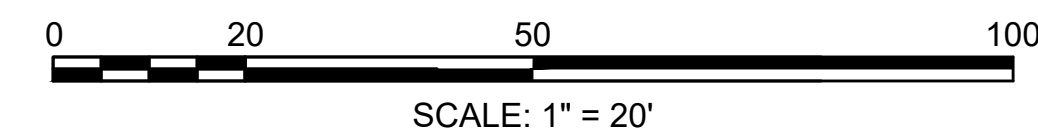
**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	61	93
PROJECT FILE NO.		2148.00	

**UTILITY PLANS  
SHEET 06 OF 10**



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CONTINUED ON  
SHEET NO. 60

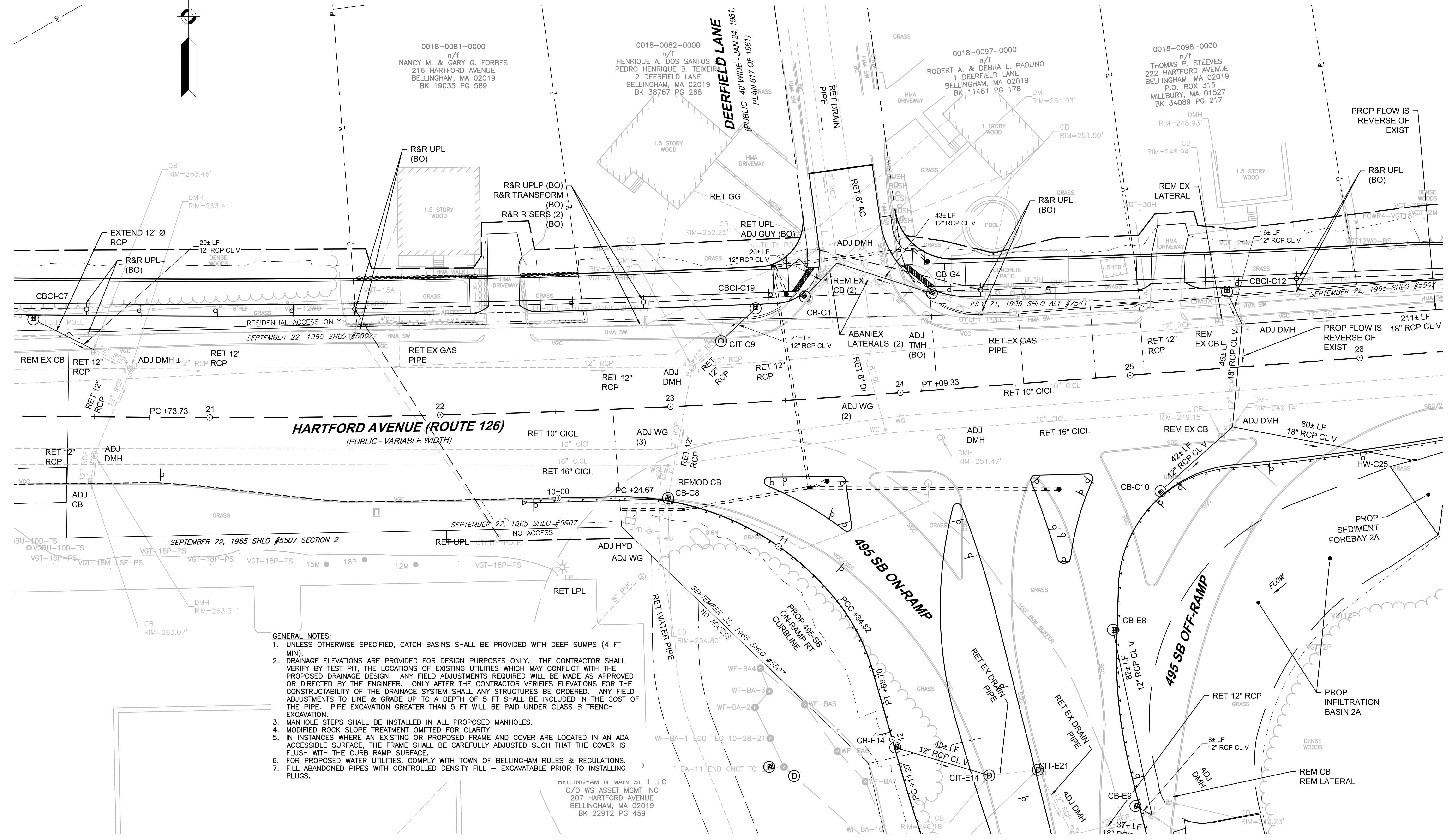
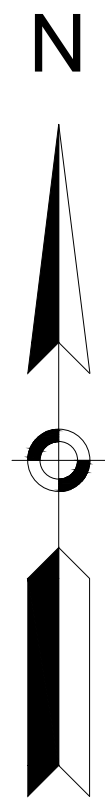
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SHEET NO. 62

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HARTFORD AVENUE (ROUTE 126)

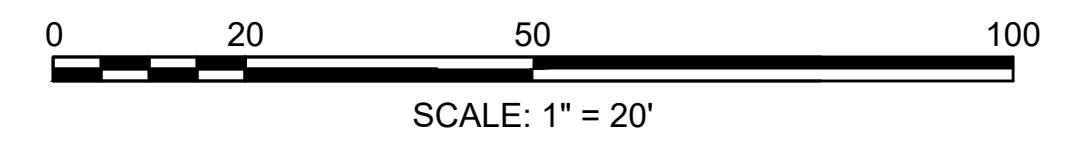
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	62	93
PROJECT FILE NO.		2148.00	

UTILITY PLANS  
SHEET 06 OF 13



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BELLINGHAM N MAIN S I LLC  
C/O WS ASSET MGMT INC  
207 HARTFORD AVENUE  
BELLINGHAM, MA 02019  
BK 22912 PG 459



CONTINUED ON  
SHEET NO. 61

CONTINUED ON  
SHEET NO. 63



BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	63	93
PROJECT FILE NO.		2148.00	

UTILITY PLANS  
SHEET 08 OF 10

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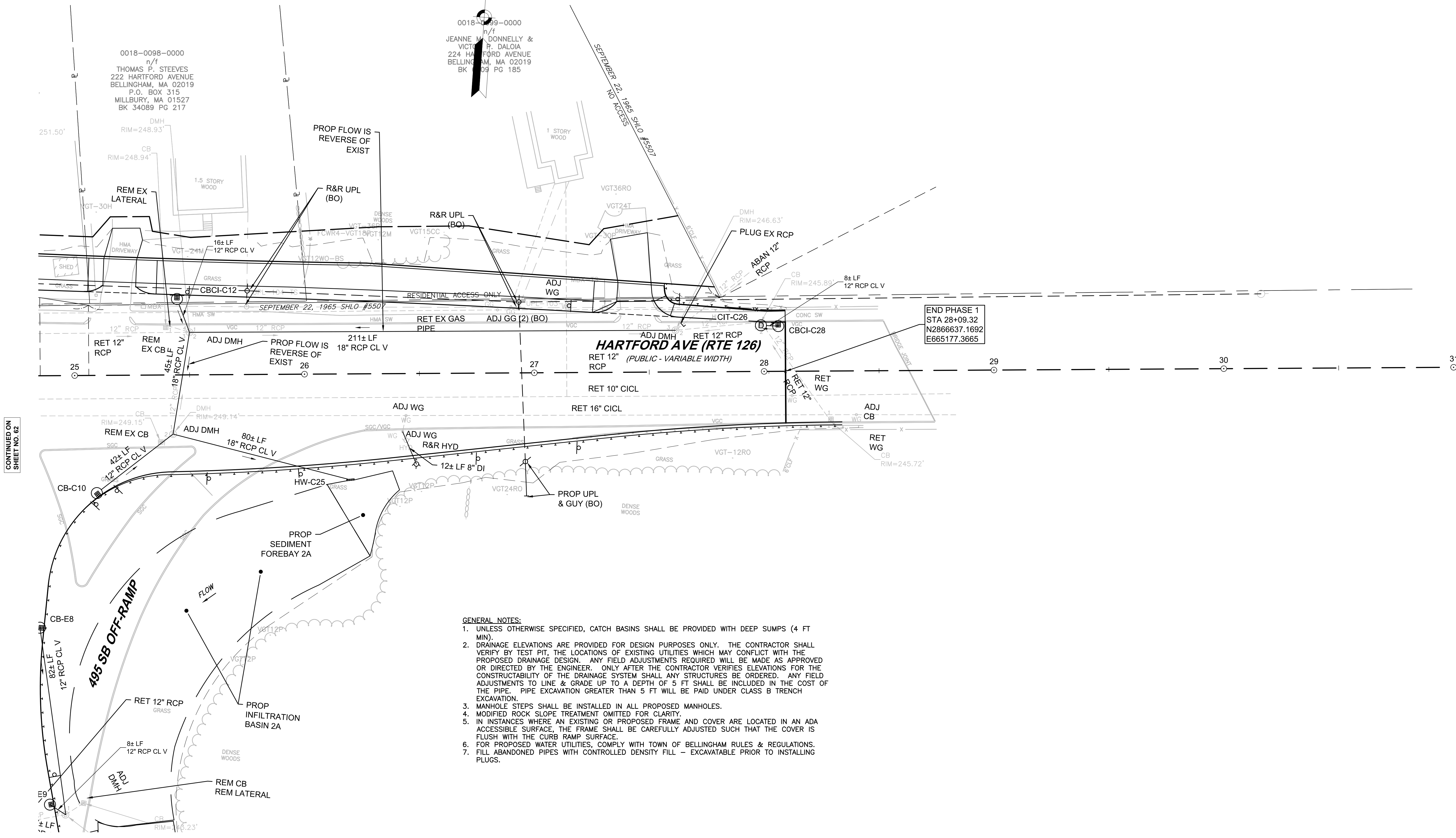
0018-0099-0000  
n/f  
JEANNE M. DONNELLY &  
VICTOR P. DALOIA  
224 HARTFORD AVENUE  
BELLINGHAM, MA 02019  
BK 34089 PG 185

0018-0098-0000  
n/f  
THOMAS P. STEEVES  
222 HARTFORD AVENUE  
BELLINGHAM, MA 02019  
P.O. BOX 315  
MILLBURY, MA 01527  
BK 34089 PG 217

SEPTEMBER 22, 1965 SHLO #5502  
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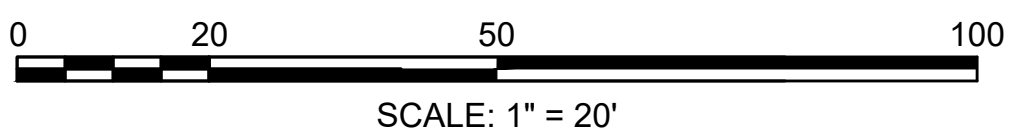
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CONTINUED ON  
SHEET NO. 62

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**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

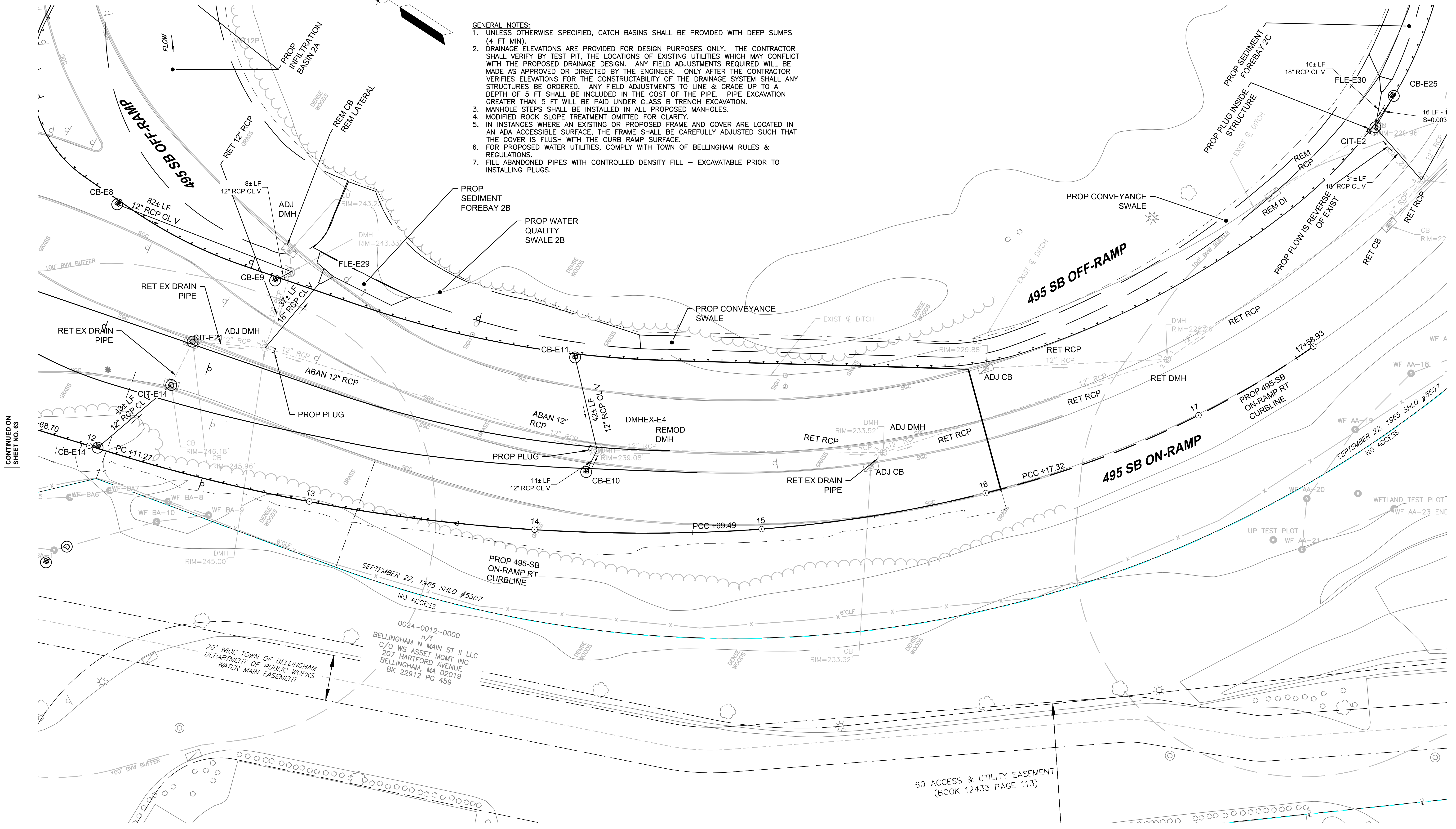
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MA	-	64	93

**UTILITY PLANS  
SHEET 09 OF 10**

PROJECT FILE NO. 2148.00

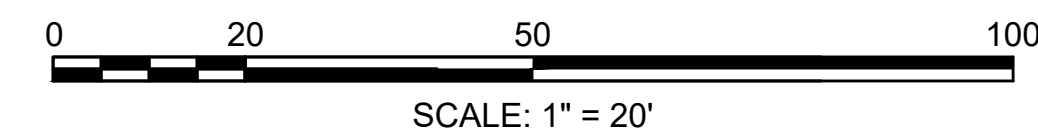
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CONTINUED ON  
SHEET NO. 63

CONTINUED ON  
SHEET NO. 65



20' WIDE TOWN OF BELLINGHAM  
DEPARTMENT OF PUBLIC WORKS  
WATER MAIN CASEMENT

0024-0012-0000  
n/f  
BELLINGHAM N MAIN ST II LLC  
C/O WS ASSET MGMT INC  
207 HARTFORD AVENUE  
BELLINGHAM, MA 02019  
BK 22912 PG 459

60 ACCESS & UTILITY EASEMENT  
(BOOK 12433 PAGE 113)

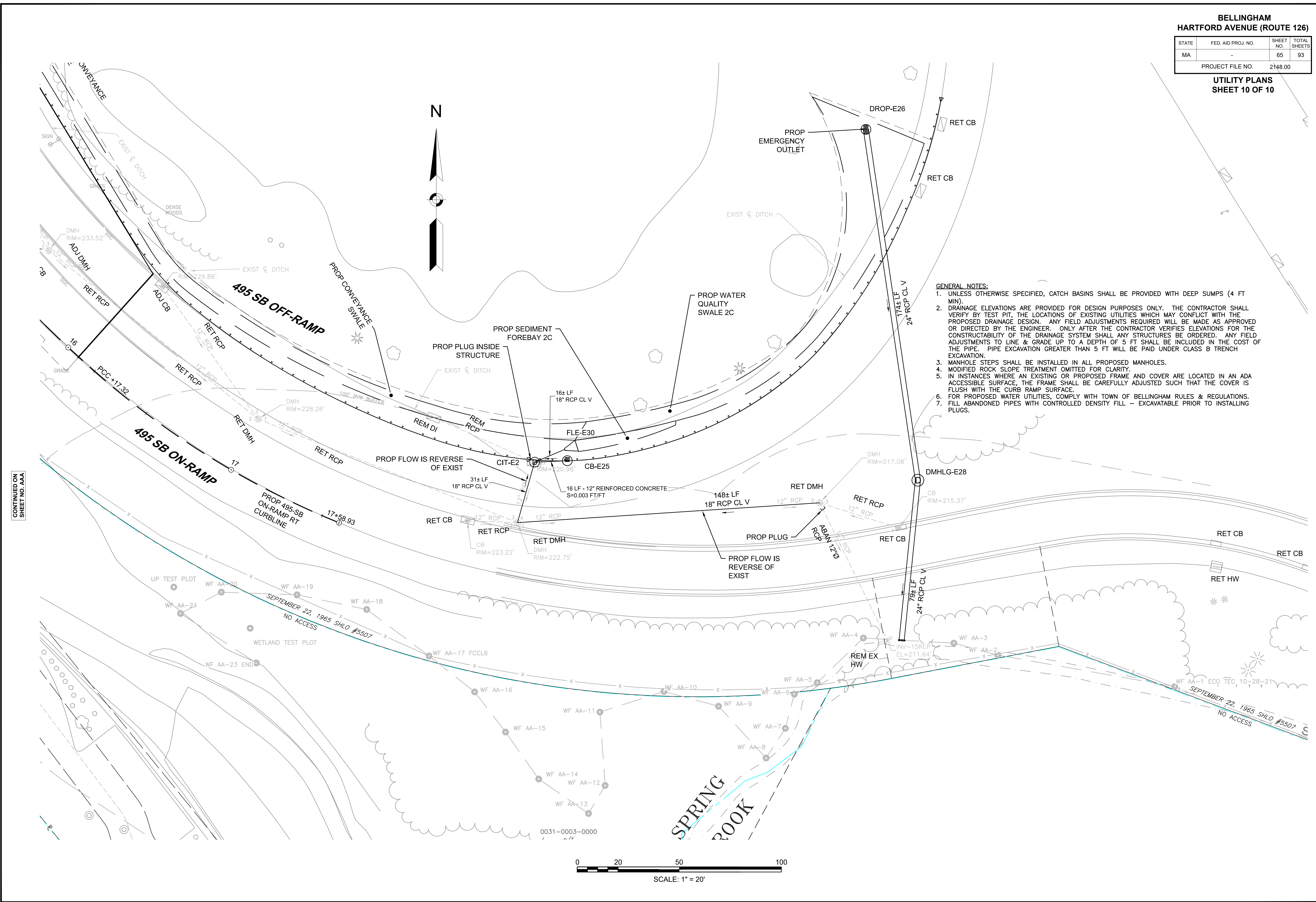


**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

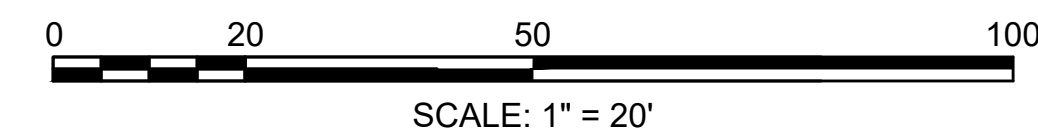
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	65	93
PROJECT FILE NO.		2148.00	

**UTILITY PLANS  
SHEET 10 OF 10**

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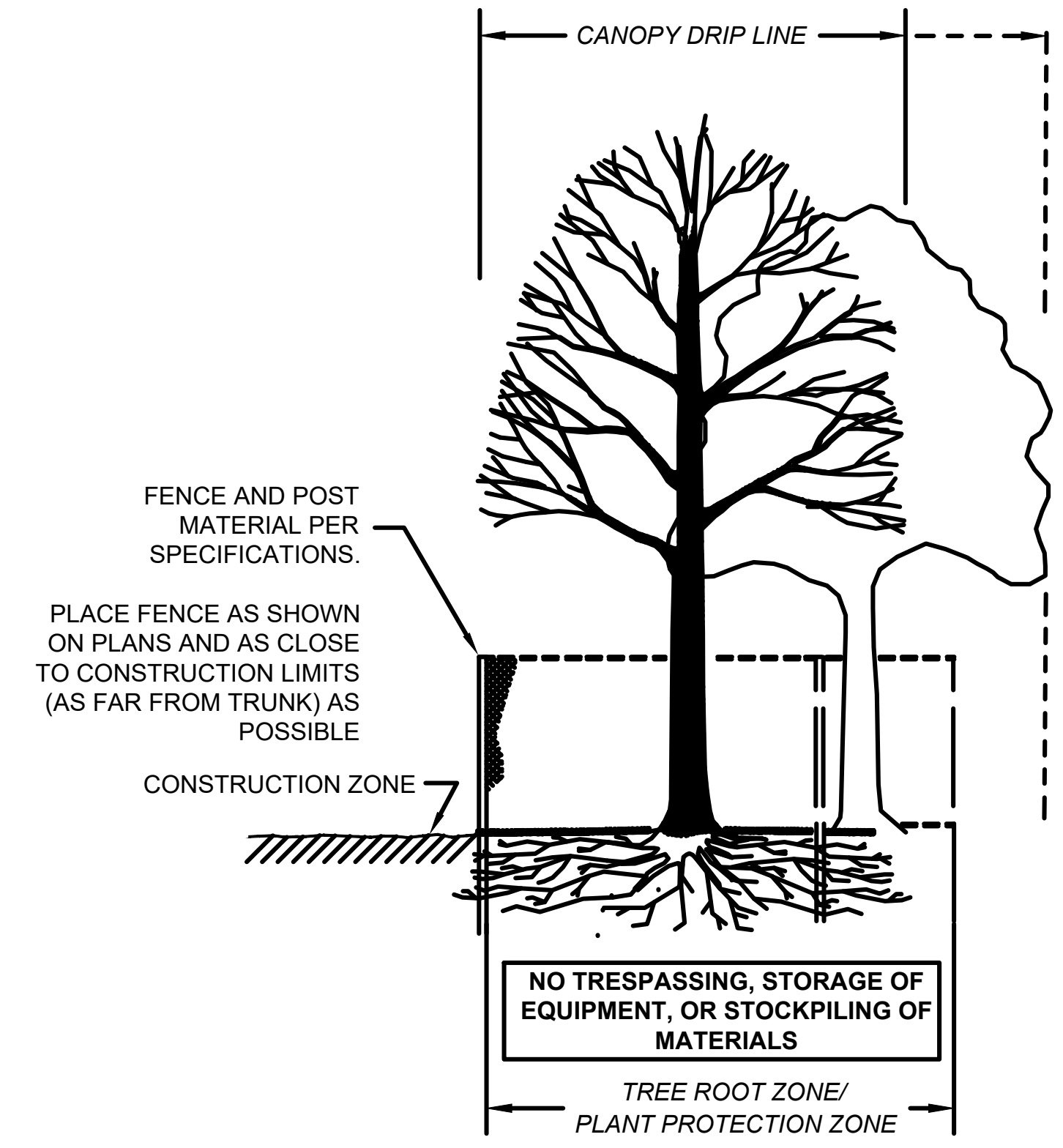


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SHEET NO. AAA

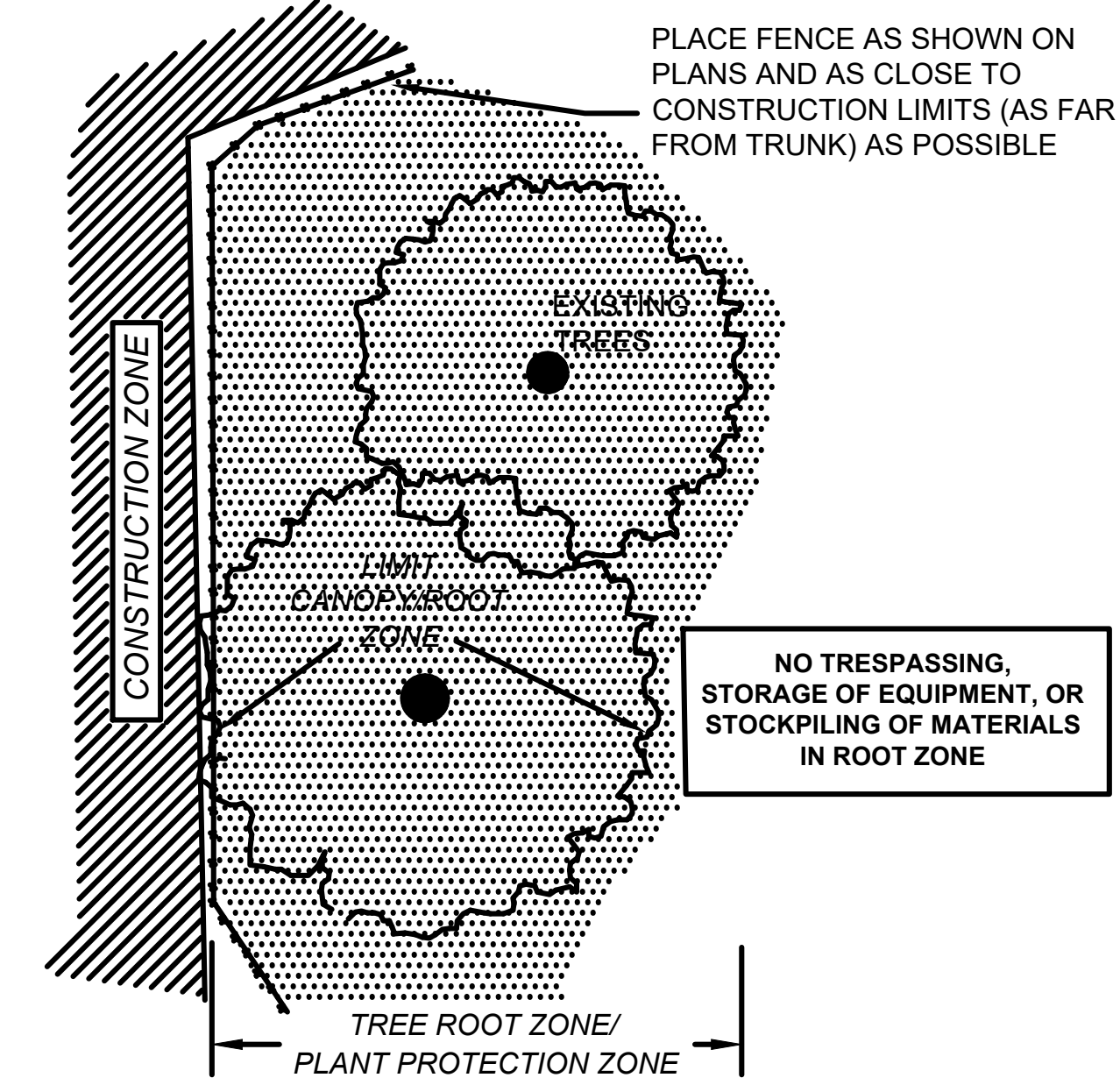


STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	66	93
PROJECT FILE NO.		2148.00	

CONSTRUCTION DETAILS



SECTION - FENCE PROTECTION OF ROOT ZONE



PLAN VIEW - FENCE PROTECTION OF ROOT ZONE

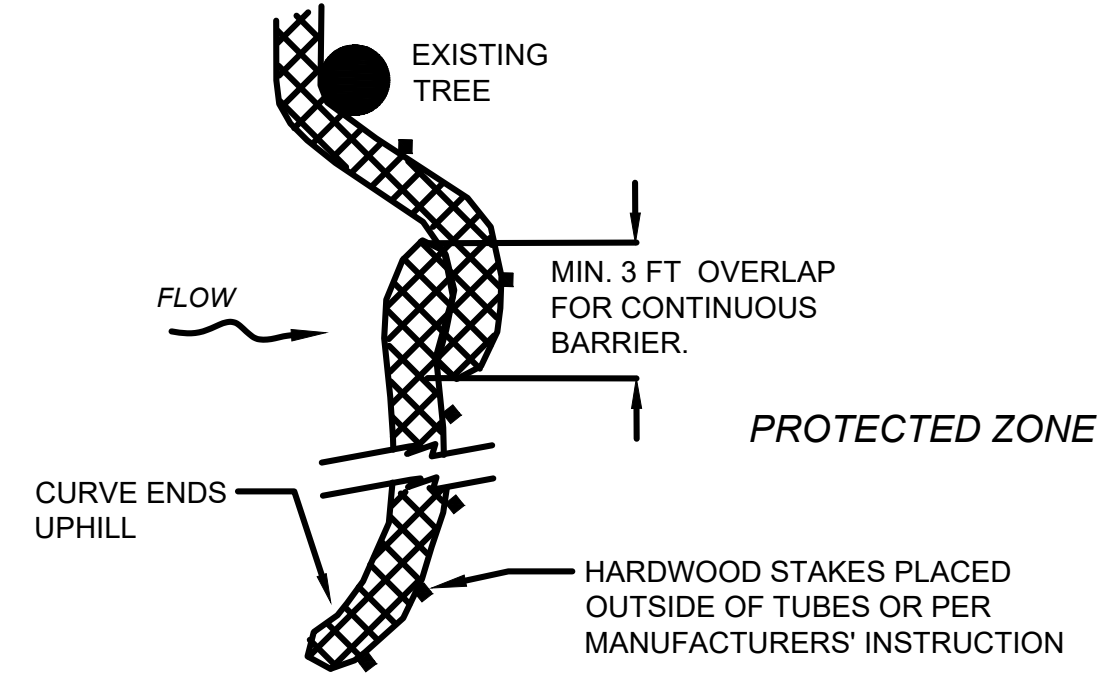


SECTION - TRUNK ARMORING & PRUNING

TREE PROTECTION - TRUNK

TREE PROTECTION - ROOT ZONE

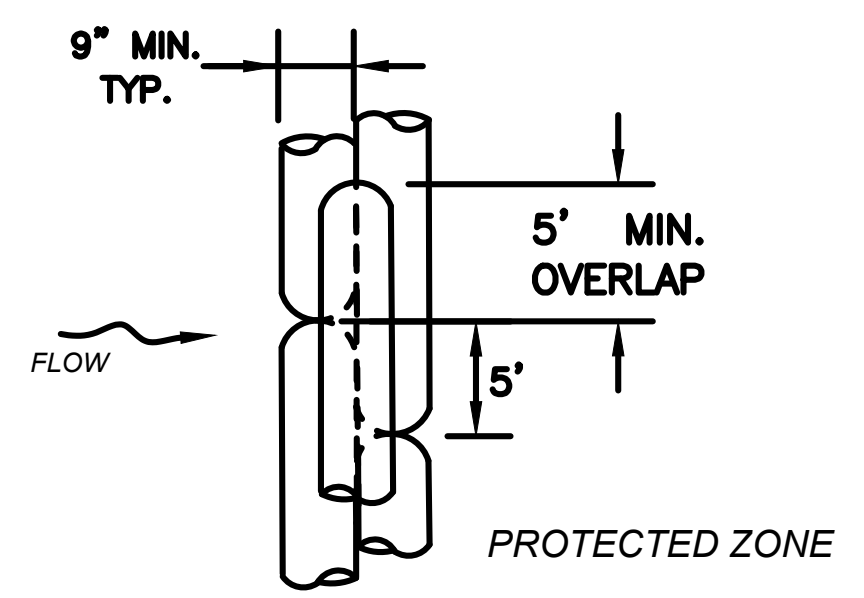
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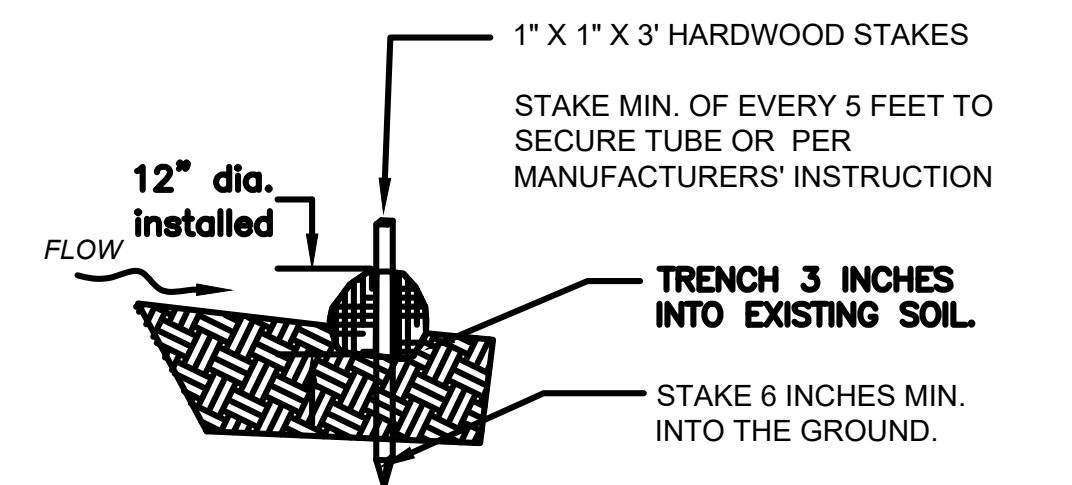
PLACE TUBE AS CLOSE TO LIMIT OF SOIL DISTURBANCE AS POSSIBLE, ALONG CONTOURS, AND PERPENDICULAR TO FLOW.  
ADJUST LOCATION AS REQUIRED FOR OPTIMUM EFFECTIVENESS. DO NOT INSTALL IN WATERWAYS.

PLAN VIEW

WHERE SPECIFIED ON CONSTRUCTION PLANS OR AS REQUIRED

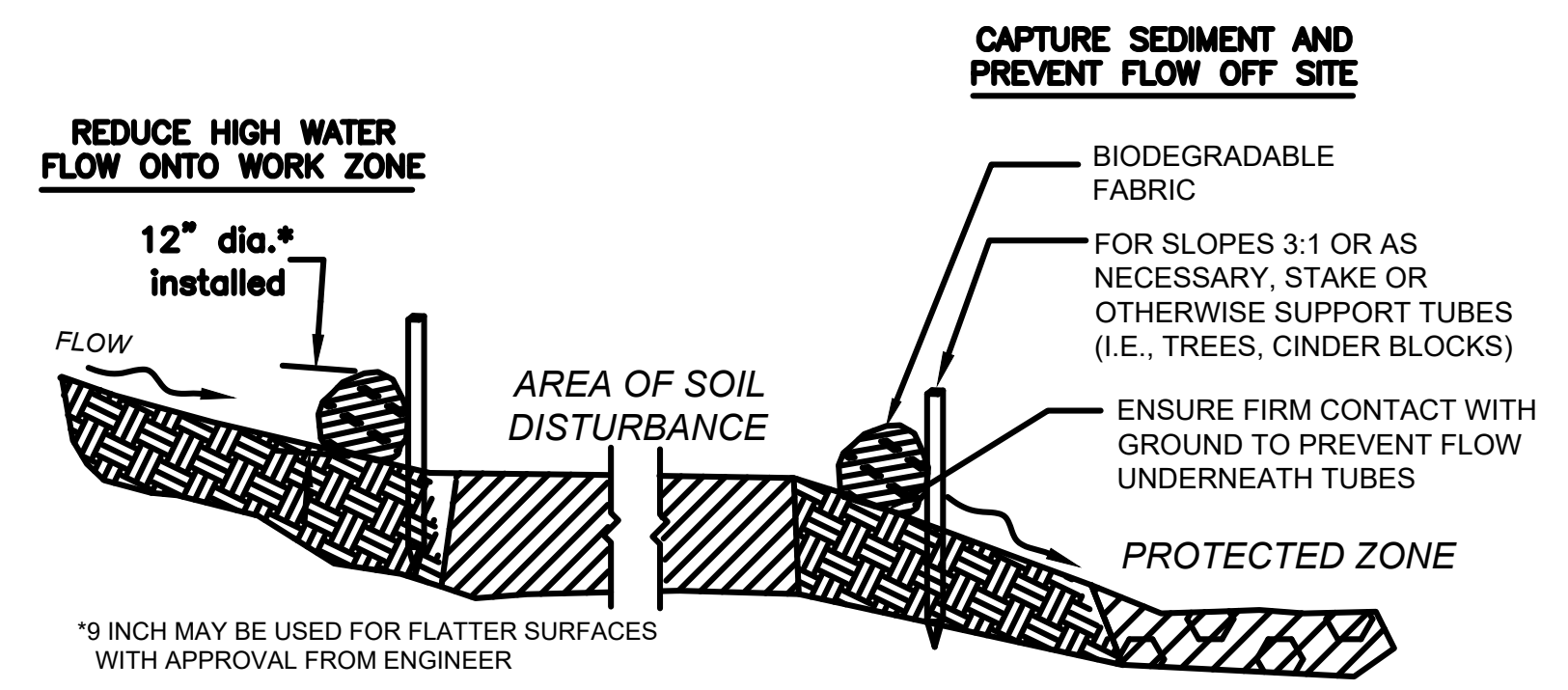


PLAN VIEW



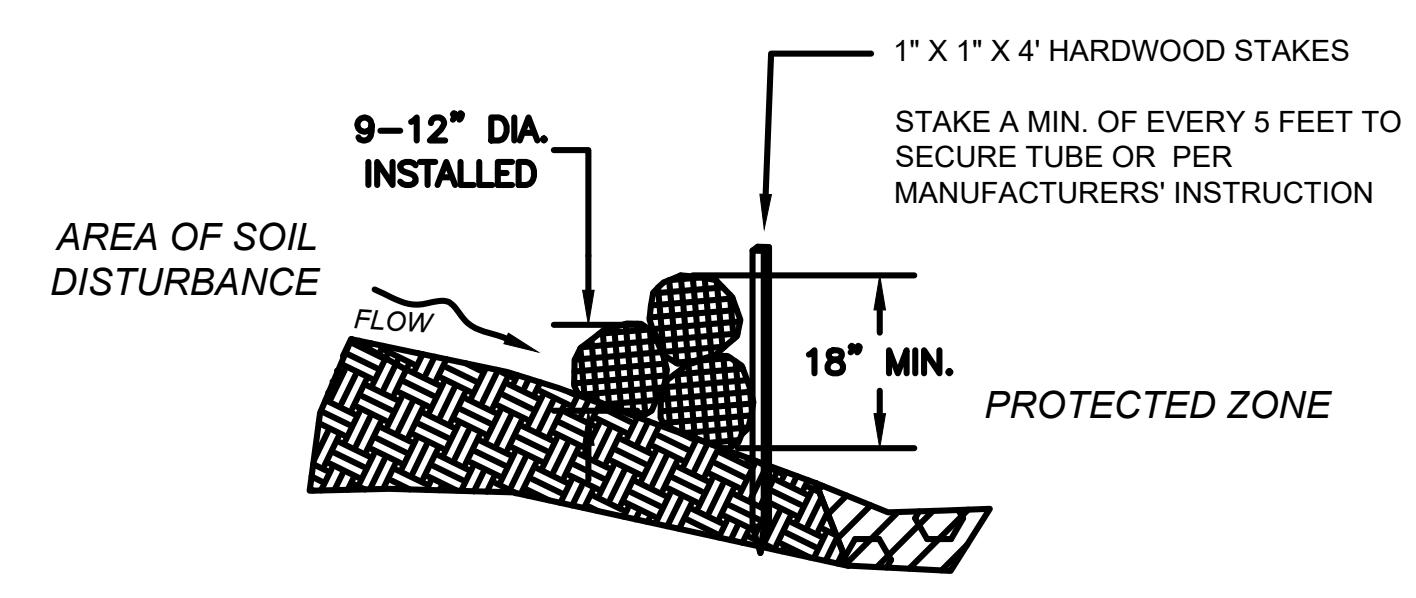
SECTION  
12 INCH STRAW WATTLE

NOT TO SCALE



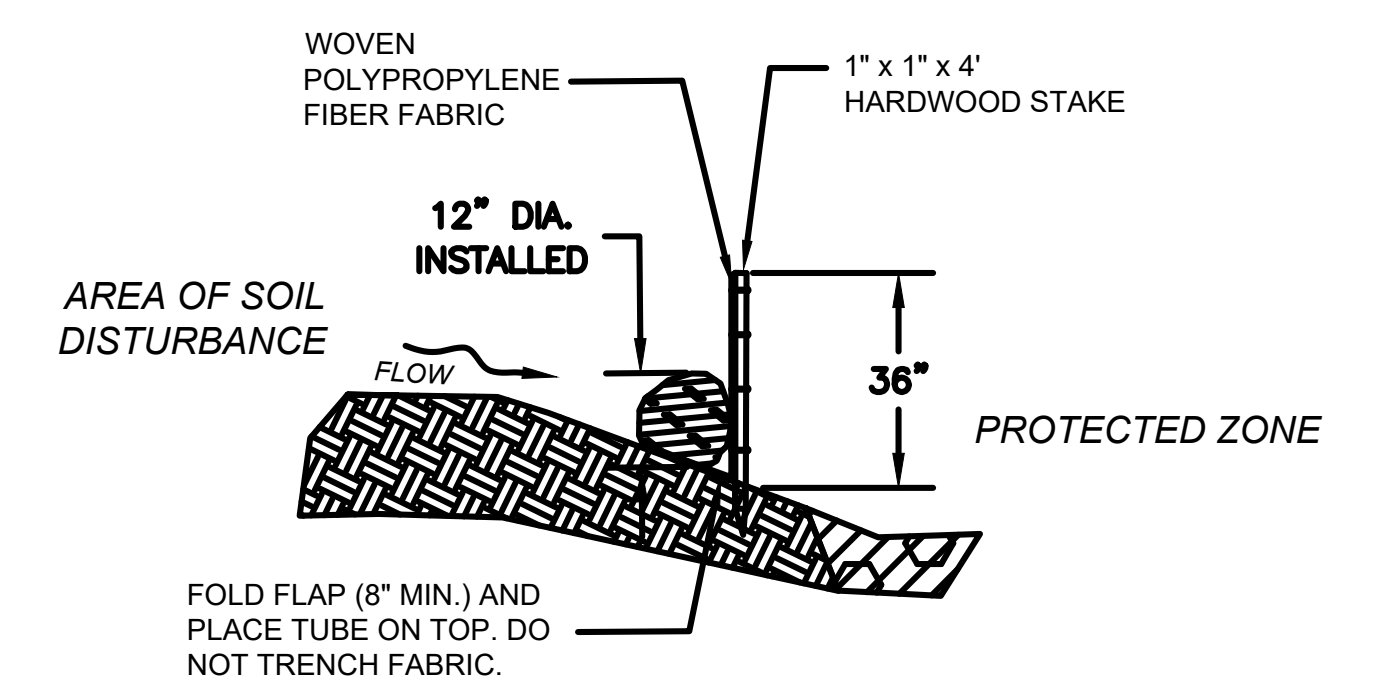
SECTION  
SEDIMENT BARRIER - COMPOST FILTER TUBE

NOT TO SCALE



SECTION  
COMPOST FILTER TUBES STACKED

NOT TO SCALE



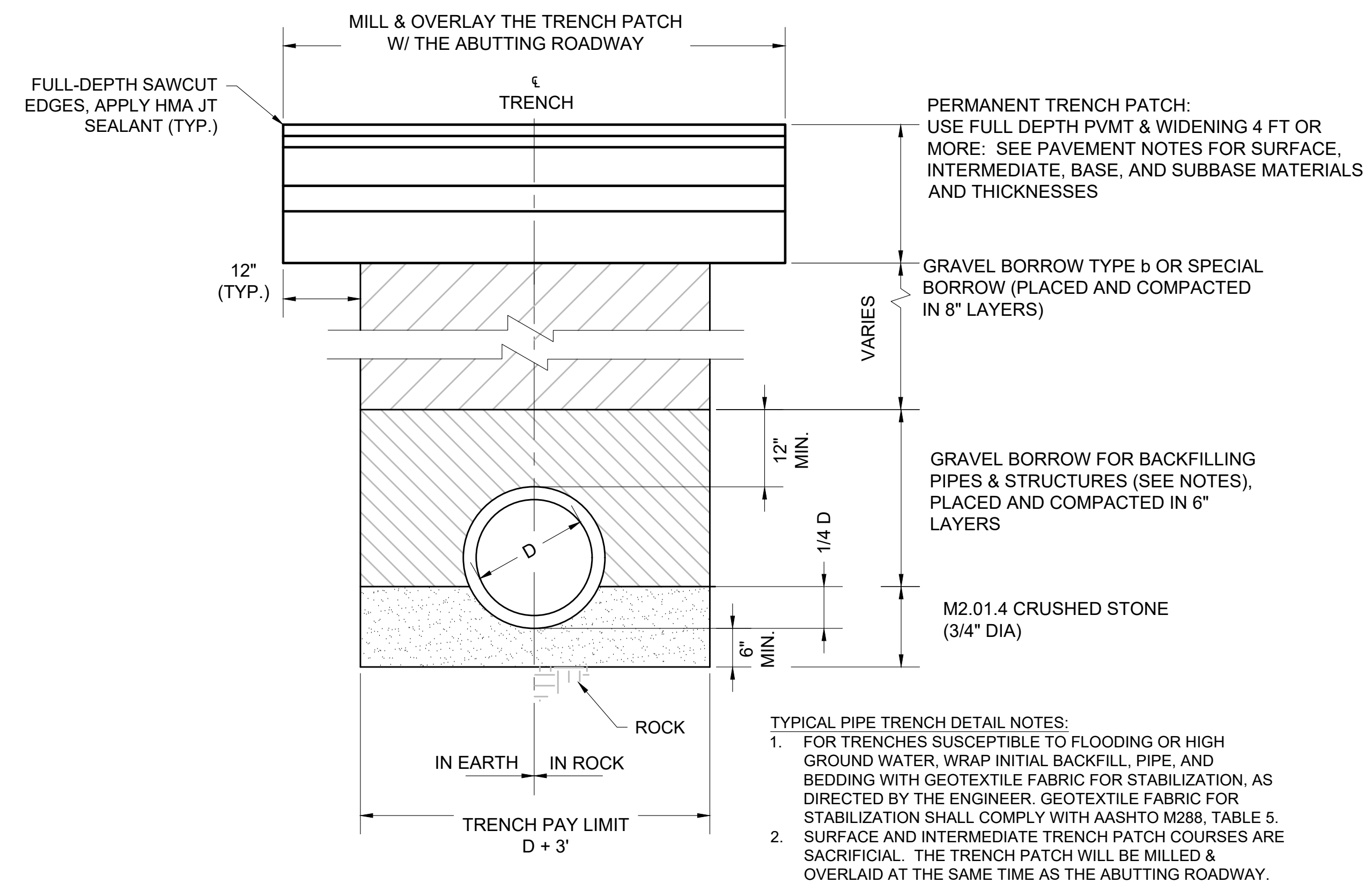
SECTION  
COMPOST FILTER TUBE & SILT FENCE

NOT TO SCALE



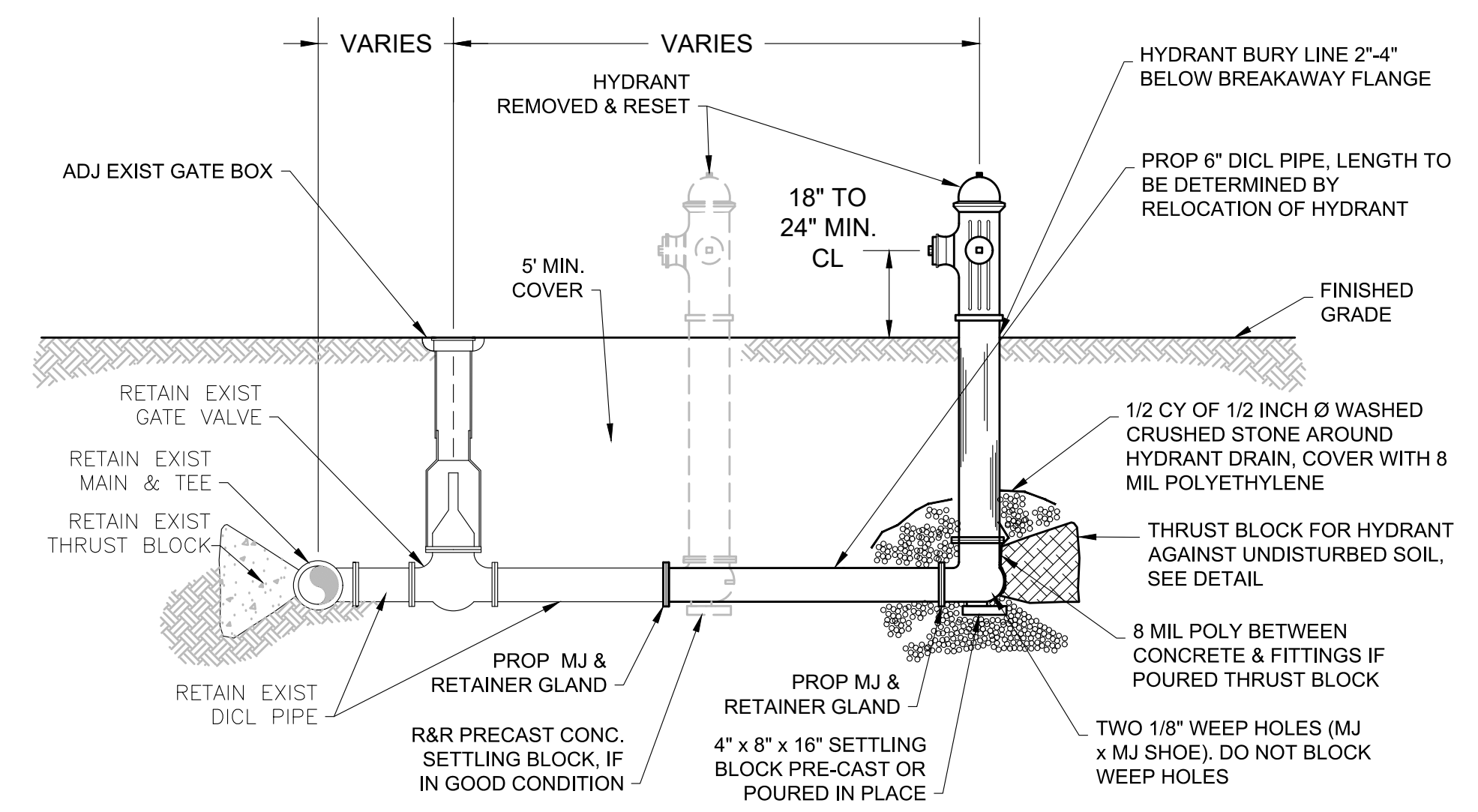
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	67	93
PROJECT FILE NO.		2148.00	

CONSTRUCTION DETAILS



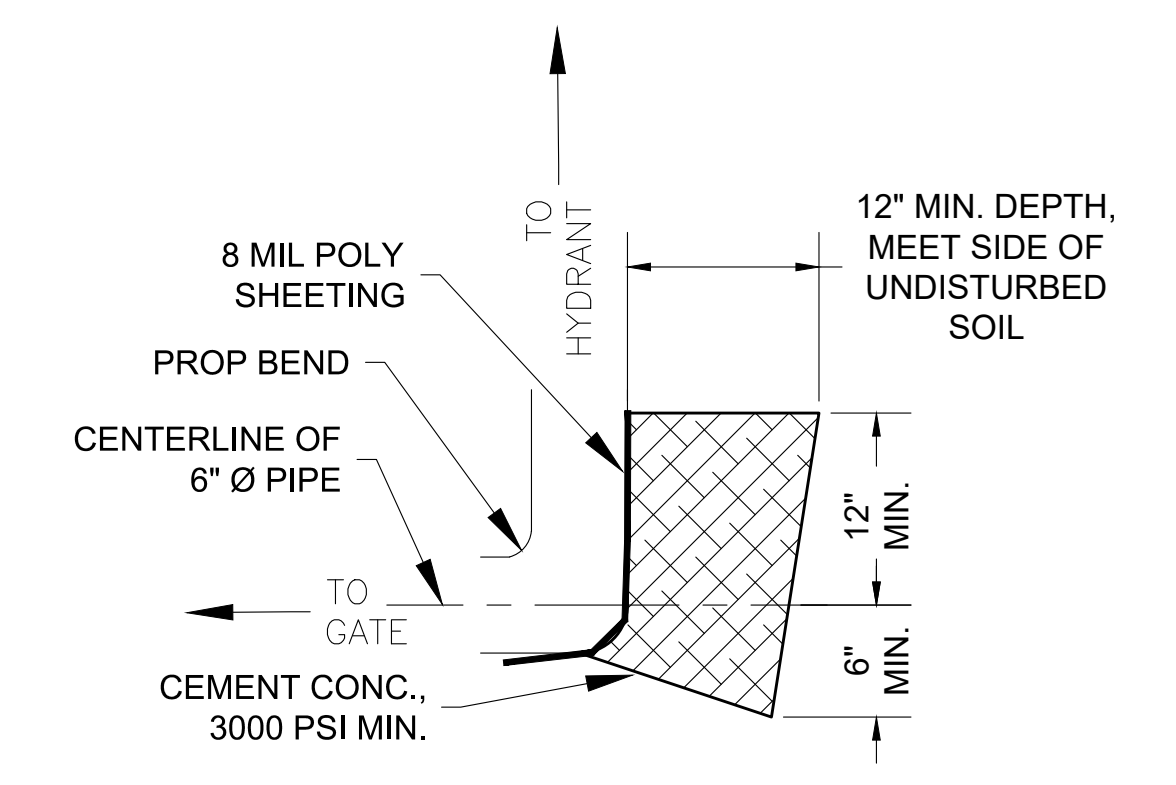
TYPICAL PIPE TRENCH DETAIL  
SCALE: NONE

- TYPICAL PIPE TRENCH DETAIL NOTES:
- FOR TRENCHES SUSCEPTIBLE TO FLOODING OR HIGH GROUND WATER, WRAP INITIAL BACKFILL, PIPE, AND BEDDING WITH GEOTEXTILE FABRIC FOR STABILIZATION, AS DIRECTED BY THE ENGINEER. GEOTEXTILE FABRIC FOR STABILIZATION SHALL COMPLY WITH AASHTO M288, TABLE 5.
  - SURFACE AND INTERMEDIATE TRENCH PATCH COURSES ARE SACRIFICIAL. THE TRENCH PATCH WILL BE MILLED & OVERLAID AT THE SAME TIME AS THE ABUTTING ROADWAY.



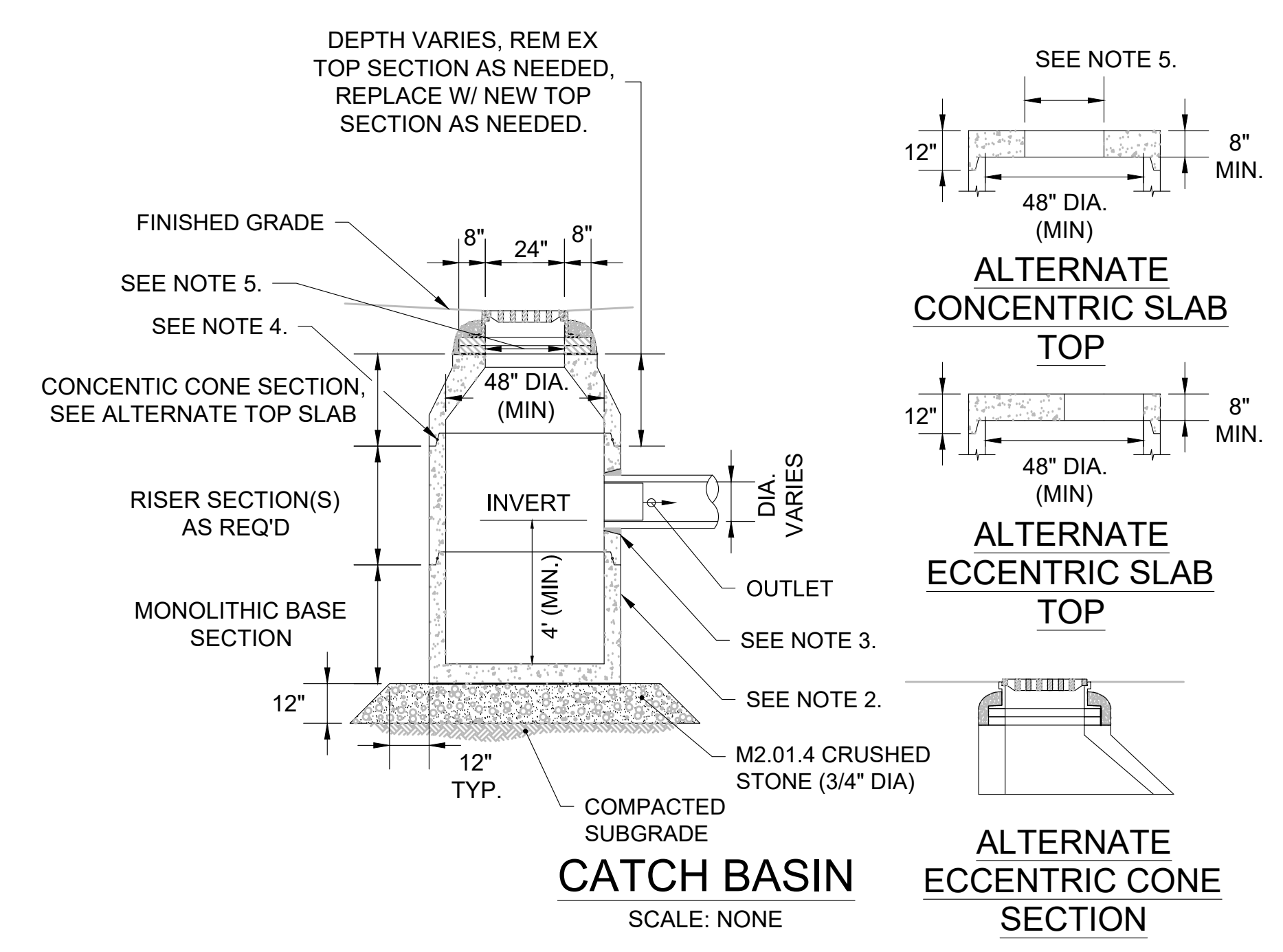
HYDRANT REMOVED & RESET (STRAIGHT BACK)  
SCALE: NONE

- HYDRANT REMOVE & RESET NOTES:
- ALL MATERIALS WILL CONFORM TO TOWN MATERIAL SPECIFICATIONS AND INSTALLATION PROCEDURES SHALL CONFORM TO TOWN GUIDELINES AND POLICIES.
  - ALL HYDRANT, VALVE, AND TEE JOINTS TO BE RESTRAINED MECHANICAL JOINTS.
  - DEPTH OF HYDRANT BURIED SHALL SUIT INSTALLED DEPTH OF COVER OVER WATERMAIN. INSTALL RISERS AS NECESSARY AT NO ADDITIONAL COST TO THE OWNER. MAKE AND MODEL OF HYDRANT SHALL BE COMPLY WITH TOWN RULES & REGULATIONS.
  - IF THRUST BLOCK IS POURED, ALL GLANDS, JOINTS, BOLTS, AND NUTS SHALL BE COVERED OR WRAPPED IN 8 MIL OR GREATER POLYETHYLENE SHEETING TO KEEP THE CONCRETE FROM BONDING TO THE PIPE AND APPURTENANCES. THE PLASTIC SHALL BE PLACED SO THAT THE PIPE JOINTS WILL BE ACCESSIBLE FOR ANY FUTURE REPAIRS. NO CONCRETE SHALL DIRECTLY COVER PIPE JOINTS, FITTING JOINTS, NUTS, BOLTS OR HYDRANT DRAIN HOLES.
  - NO TAPS SHALL BE ALLOWED BETWEEN THE HYDRANT AND THE VALVE.

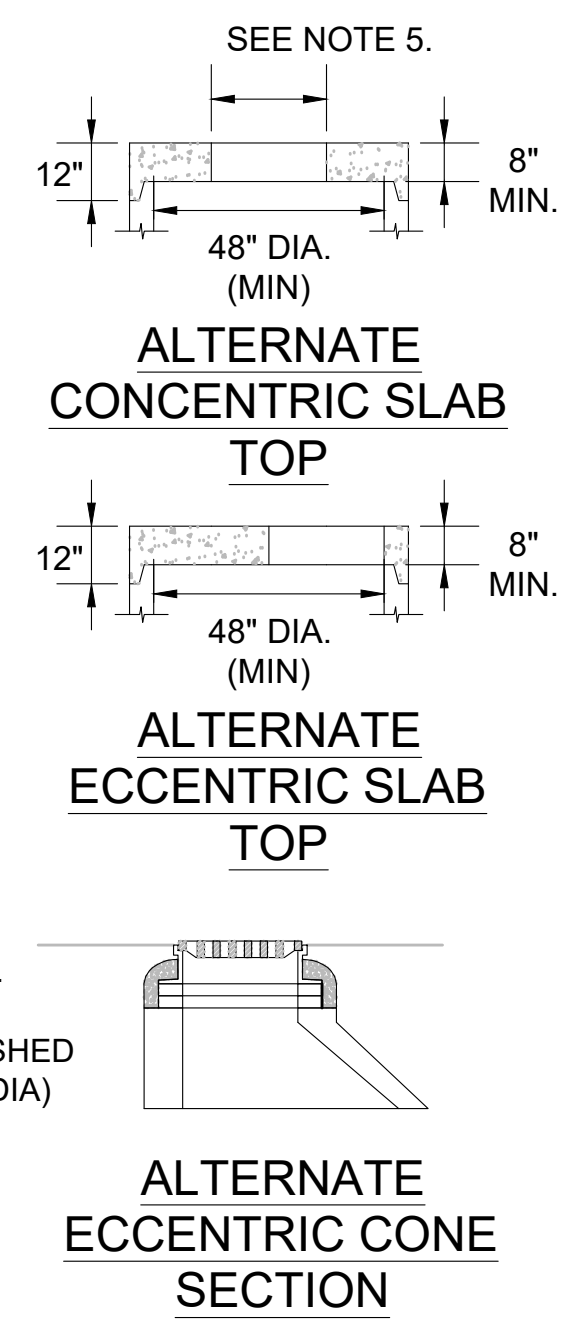


THRUST BLOCK FOR 6" DIA. SUPPLY  
ELEVATION DETAIL  
NOT TO SCALE

- THRUST BLOCK NOTES:
- BLOCK IS 24" MIN IN WIDTH.
  - IF THRUST BLOCK IS POURED, ALL GLANDS, JOINTS, BOLTS, AND NUTS SHALL BE COVERED OR WRAPPED IN 8 MIL OR GREATER POLYETHYLENE SHEETING TO KEEP THE CONCRETE FROM BONDING TO THE PIPE AND APPURTENANCES. THE PLASTIC SHALL BE PLACED SO THAT THE PIPE JOINTS WILL BE ACCESSIBLE FOR ANY FUTURE REPAIRS. NO CONCRETE SHALL DIRECTLY COVER PIPE JOINTS, FITTING JOINTS, NUTS, BOLTS OR HYDRANT DRAIN HOLES.
  - THIS DETAIL IS VALID ONLY WITH A 6 INCH DIAMETER SUPPLY. IF THE WATER SUPPLY IS NOT 6 INCHES IN DIAMETER, NOTIFY THE ENGINEER IMMEDIATELY.

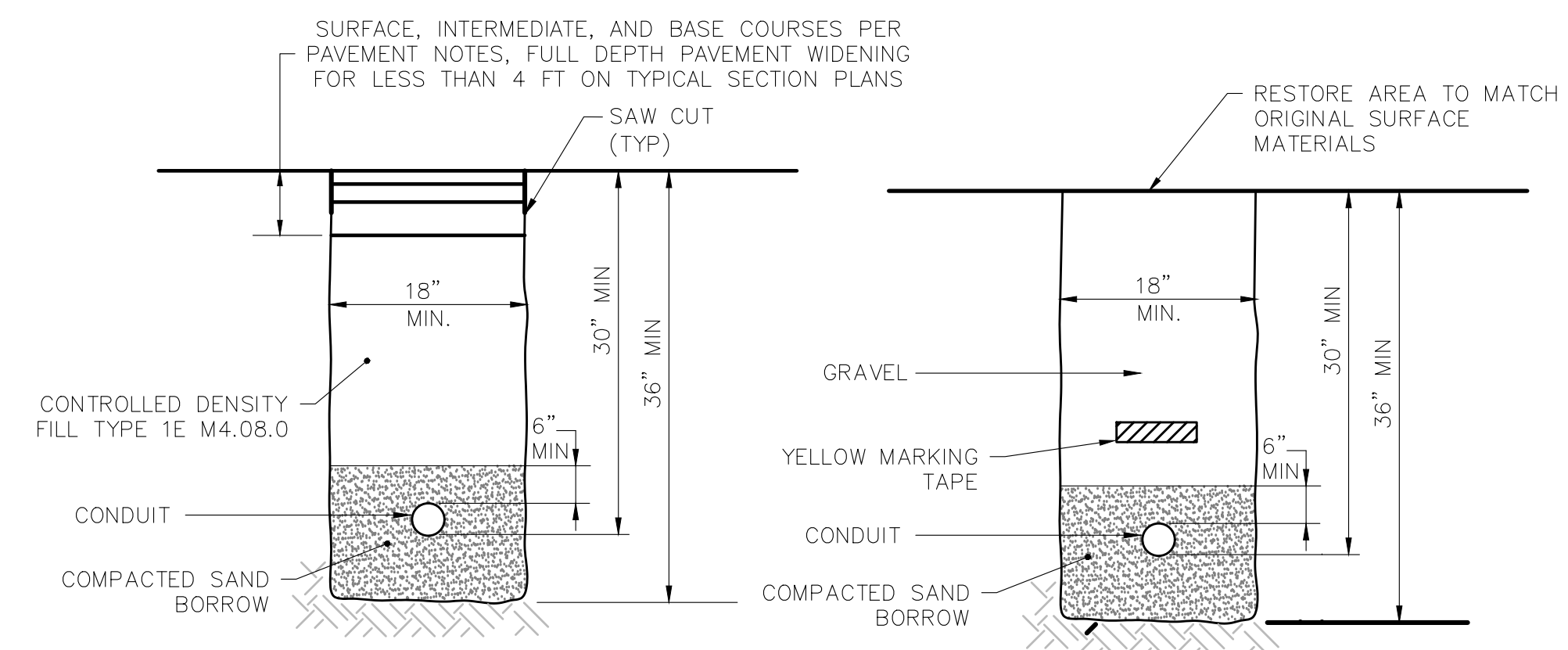


CATCH BASIN  
SCALE: NONE



ALTERNATE ECCENTRIC CONE SECTION

- CATCH BASIN NOTES:
- ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING.
  - PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
  - JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
  - CATCH BASIN FRAME AND GRATE SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM).
  - OPENING IN TOP SLAB SHALL BE 24"x27" FOR CATCH BASINS WITH CURB INLETS. OPENING SHALL BE 24"x24" AT ALL OTHER LOCATIONS.
  - EXCLUSIVE OF THE RIM, UTILIZE THIS DETAIL FOR A REMODEL WITH CHANGE IN TYPE.



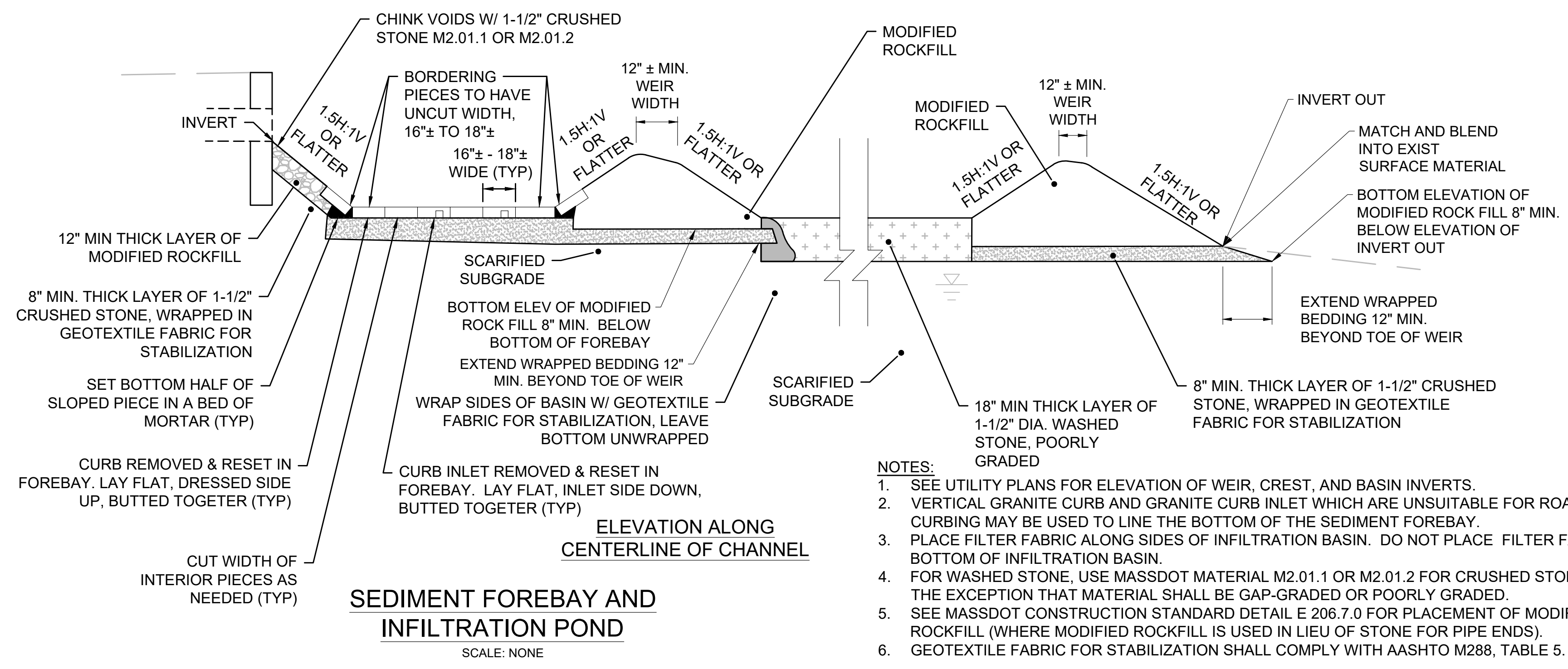
TRAFFIC SIGNAL CONDUIT TRENCH DETAIL  
SCALE: NONE

- CONDUIT NOTES:
- EXISTING MATERIAL OBTAINED FROM EXCAVATION THAT IS DETERMINED TO BE SUITABLE AND APPROVED BY THE ENGINEER SHALL BE USED.
  - BACKFILL SHALL BE PLACED IN LAYERS, NO MORE THAN 6" IN DEPTH AND THOROUGHLY COMPACTED.
  - BACKFILLING TO A POINT 24" OVER THE PIPE SHALL CONTAIN NO STONES GREATER THAN 3 INCHES.
  - USE MASSDOT MATERIAL M.1.04.0 TYPE b (3/8 INCH) FOR SAND BORROW.

CONDUIT UNDER ROADWAY      CONDUIT UNDER UNDER GRASS

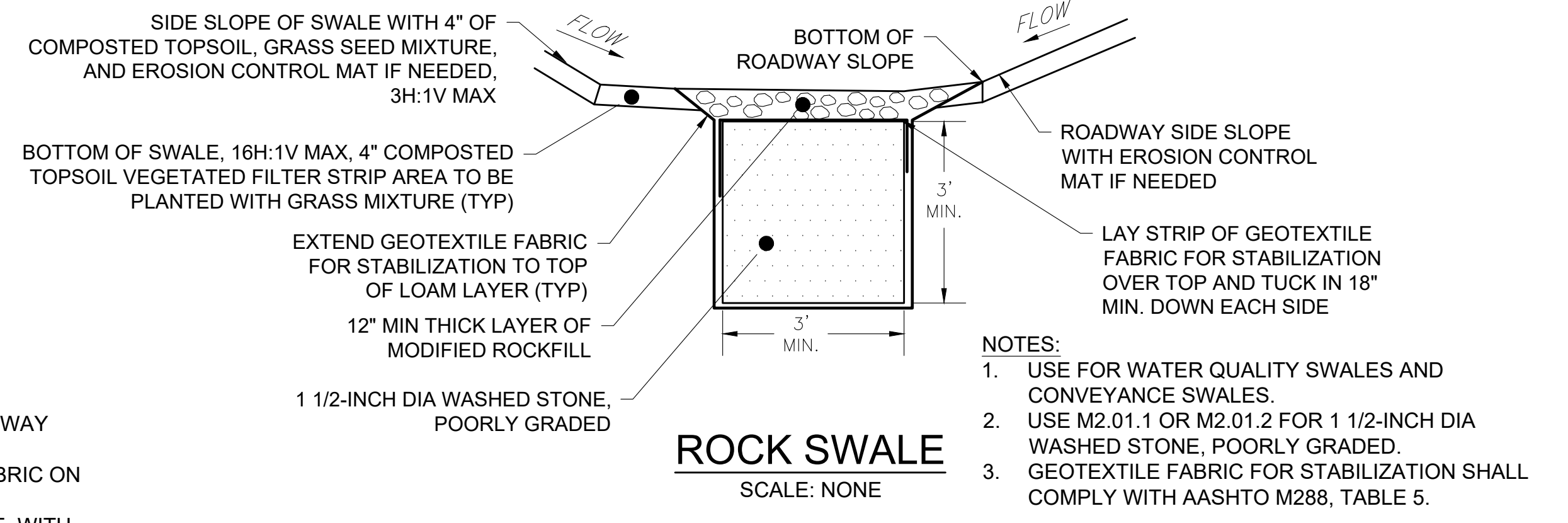
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	68	93
PROJECT FILE NO.		2148.00	

CONSTRUCTION DETAILS



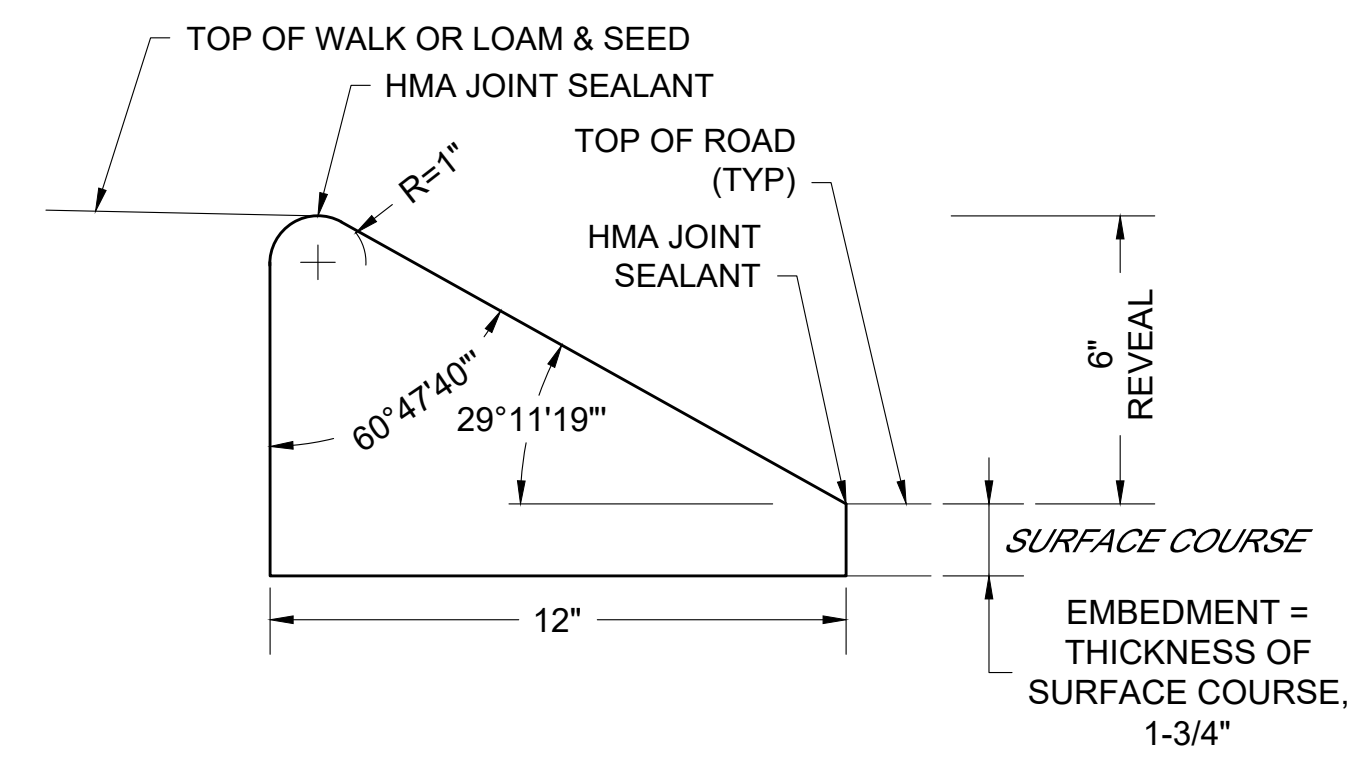
**SEDIMENT FOREBAY AND INFILTRATION POND**  
SCALE: NONE

- NOTES:
- SEE UTILITY PLANS FOR ELEVATION OF WEIR, CREST, AND BASIN INVERTS.
  - VERTICAL GRANITE CURB AND GRANITE CURB INLET WHICH ARE UNSUITABLE FOR ROADWAY CURBING MAY BE USED TO LINE THE BOTTOM OF THE SEDIMENT FOREBAY.
  - PLACE FILTER FABRIC ALONG SIDES OF INFILTRATION BASIN. DO NOT PLACE FILTER FABRIC ON BOTTOM OF INFILTRATION BASIN.
  - FOR WASHED STONE, USE MASSDOT MATERIAL M2.01.1 OR M2.01.2 FOR CRUSHED STONE, WITH THE EXCEPTION THAT MATERIAL SHALL BE GAP-GRADED OR POORLY GRADED.
  - SEE MASSDOT CONSTRUCTION STANDARD DETAIL E 206.7.0 FOR PLACEMENT OF MODIFIED ROCKFILL (WHERE MODIFIED ROCKFILL IS USED IN LIEU OF STONE FOR PIPE ENDS).
  - GEOTEXTILE FABRIC FOR STABILIZATION SHALL COMPLY WITH AASHTO M288, TABLE 5.

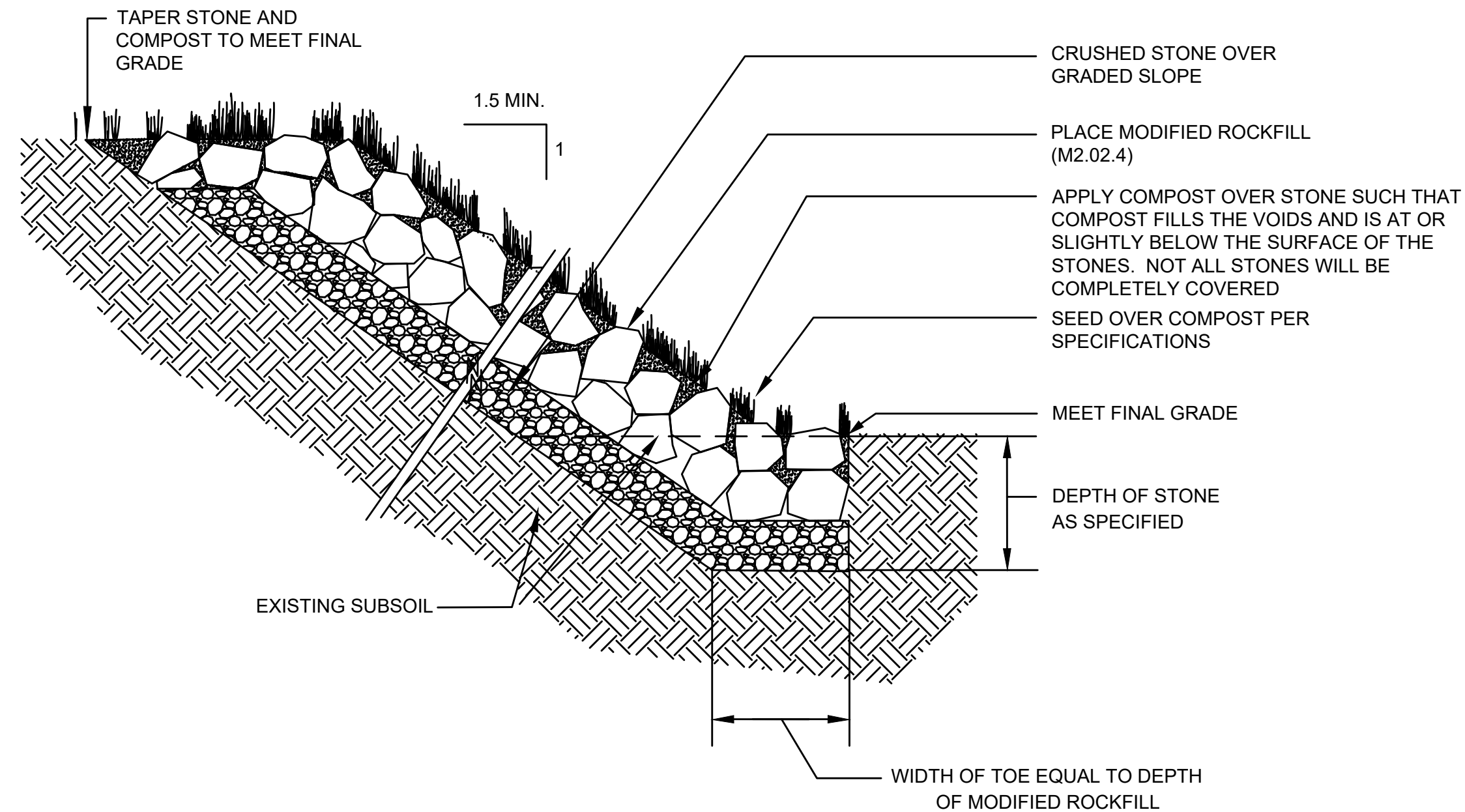


**ROCK SWALE**  
SCALE: NONE

- NOTES:
- USE FOR WATER QUALITY SWALES AND CONVEYANCE SWALES.
  - USE M2.01.1 OR M2.01.2 FOR 1 1/2-INCH DIA WASHED STONE, POORLY GRADED.
  - GEOTEXTILE FABRIC FOR STABILIZATION SHALL COMPLY WITH AASHTO M288, TABLE 5.

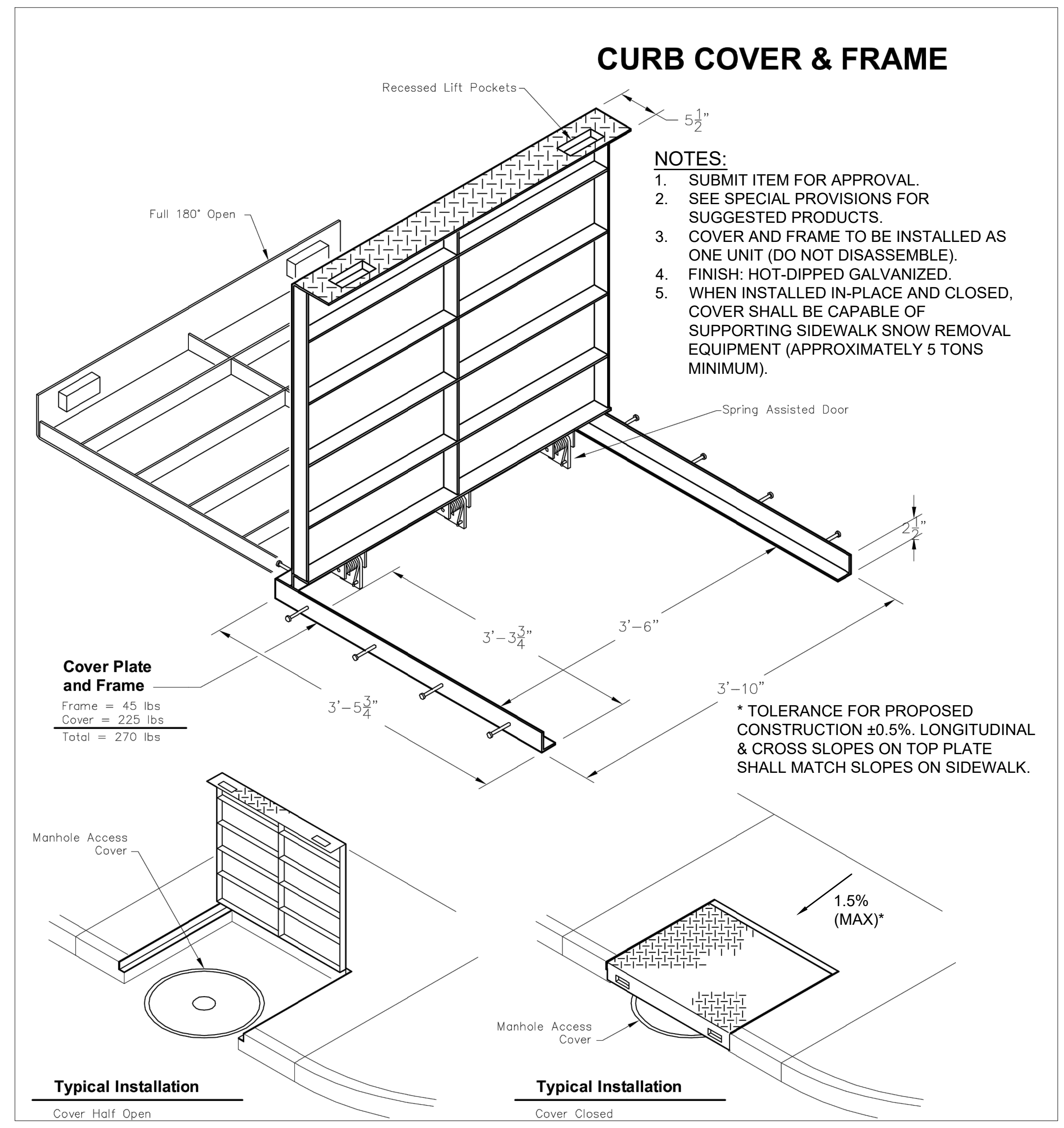


**HMA BERM, TYPE A-MODIFIED**  
SCALE: NONE



**COMPOST AND SEED OVER MODIFIED ROCKFILL (NON-WATERWAY)**  
NOT TO SCALE

20160320\_MassDOT



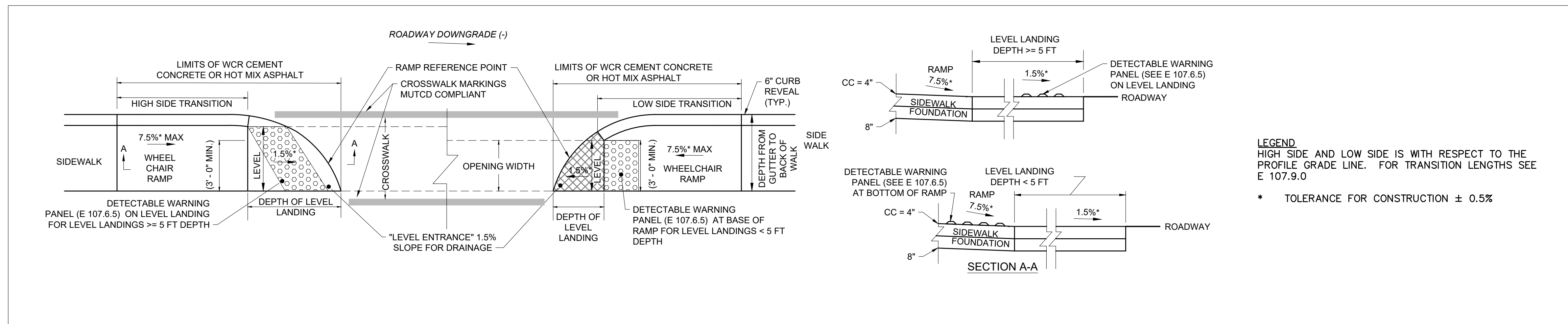
**SPECIAL CURB COVER & FRAME**  
SCALE: NONE



**BELLINGHAM  
HARTFORD AVENUE (ROUTE 126)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	69	93
PROJECT FILE NO.		2148.00	

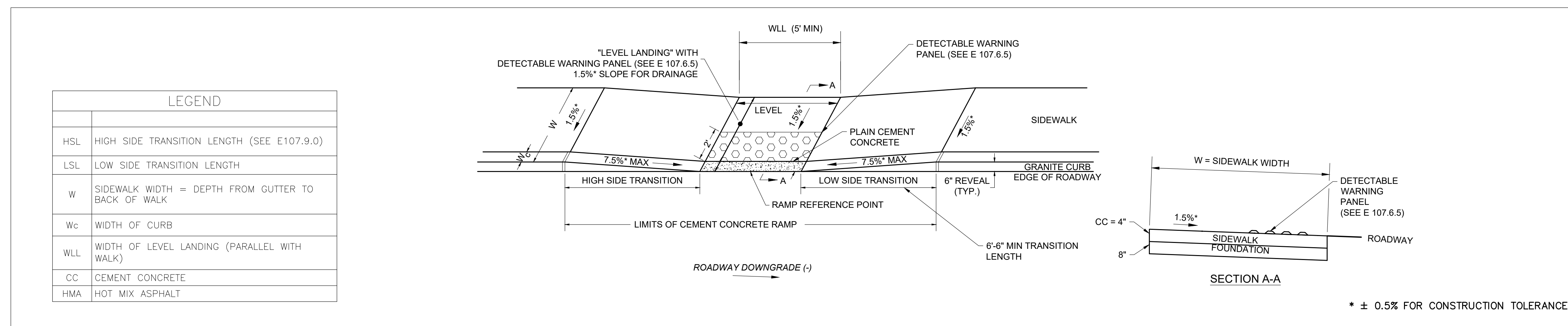
**PEDESTRIAN CURB RAMP /  
DRIVEWAY DETAILS**



**WHEELCHAIR RAMP WITH CONTINUOUS TRAVEL**

PCR NO	BASELINE	STA AT CENTER OF OPENING	OFFSET	OPENING WIDTH (FT)	GUTTER PROFILE SLOPE (%) AT REF. PT	HIGH TRANS LENGTH (FT)	LOW TRANS LENGTH (FT)	DEPTH FROM GUTTER TO BACK OF WALK (FT)	DEPTH OF LEVEL LANDING FROM GUTTER (FT)	COMMENT

- PCR AND DRIVEWAY NOTES:**
- CONSTRUCTION DETAILS SHALL BE IN ACCORDANCE WITH MASSDOT CONSTRUCTION STANDARDS.
  - ALL TRANSITIONS ARE 6 INCH MAXIMUM REVEAL AT THE TOP OF THE TRANSITION UNLESS OTHERWISE NOTED ON THE SCHEDULES OR THE CONSTRUCTION PLANS.
  - CONCRETE RAMPS ARE TO BE TEXTURED BY BROOMING IN A DIRECTION PARALLEL TO THE LENGTH OF THE RAMP.
  - SEE CONSTRUCTION PLANS FOR LOCATION OF WHEELCHAIR RAMP, AND DRIVEWAYS.
  - DETECTABLE WARNING PANELS ARE REQUIRED ON ALL PROPOSED WHEELCHAIR RAMPS AND SHALL BE INSTALLED IN ACCORDANCE WITH MASSDOT CONSTRUCTION STANDARDS.
  - DETECTABLE WARNING PANEL SHALL BE LOCATED NOT LESS THAN 6" OR MORE THAN 24" FROM ROADWAY EDGE (GUTTER LINE). TRUNCATED DOMES TO BE ALIGNED WITH DIRECTION OF TRAVEL.
  - FOR DETAILS OF TRUNCATED DOMES SEE DRAWING E 107.6.5.
  - ROADWAY, GUTTER, AND FIRST 6" OF SIDEWALK TO BE ADJUSTED FOR FIELD CONDITIONS.



**LEGEND**

HSL	HIGH SIDE TRANSITION LENGTH (SEE E107.9.0)
LSL	LOW SIDE TRANSITION LENGTH
W	SIDEWALK WIDTH = DEPTH FROM GUTTER TO BACK OF WALK
Wc	WIDTH OF CURB
WLL	WIDTH OF LEVEL LANDING (PARALLEL WITH WALK)
CC	CEMENT CONCRETE
HMA	HOT MIX ASPHALT

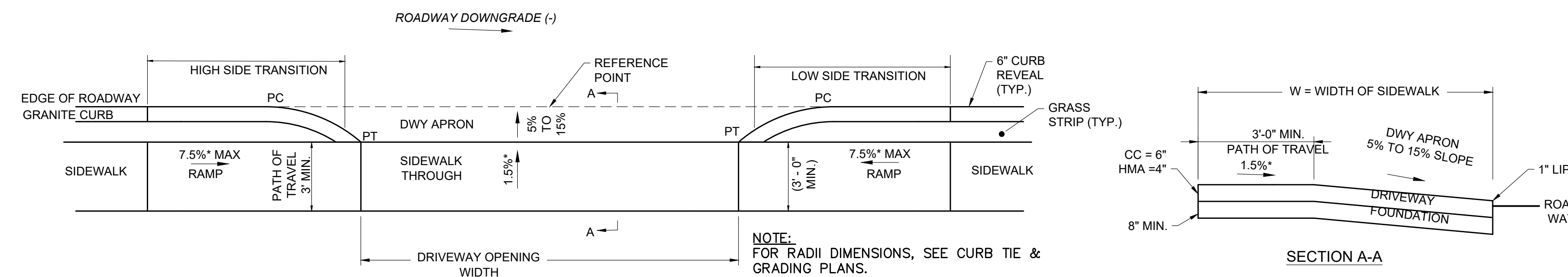
**WHEELCHAIR RAMP ON NARROW SIDEWALK**

PCR NO	BASELINE	STA AT CENTER OF OPENING	OFFSET	OPENING WIDTH (FT)	GUTTER PROFILE SLOPE (%) AT REF. PT	HIGH TRANS LENGTH (FT)	LOW TRANS LENGTH (FT)	DEPTH FROM GUTTER TO BACK OF WALK (FT)	WIDTH OF LEVEL LANDING FROM GUTTER (FT)	COMMENT

SHEET NO.	70	TOTAL SHEETS	93
PROJECT FILE NO.	2148.00		

PEDESTRIAN CURB RAMP / DRIVEWAY DETAILS

LEGEND	
HSL	HIGH SIDE TRANSITION LENGTH (SEE E107.9.0)
LSL	LOW SIDE TRANSITION LENGTH
W	SIDEWALK WIDTH = DEPTH FROM GUTTER TO BACK OF WALK
Wc	WIDTH OF CURB
WLL	WIDTH OF LEVEL LANDING (PARALLEL WITH WALK)
CC	CEMENT CONCRETE
HMA	HOT MIX ASPHALT



NOTE:  
FOR RADII DIMENSIONS, SEE CURB TIE & GRADING PLANS.

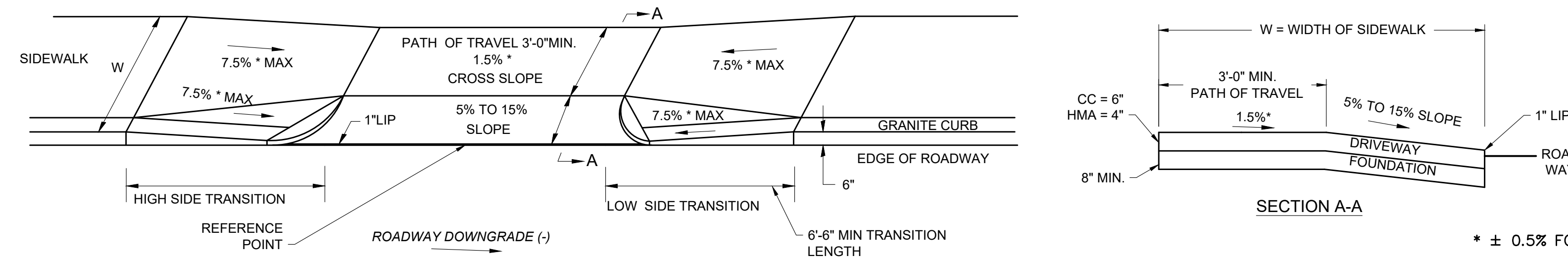
\* ± 0.5% FOR CONSTRUCTION TOLERANCE

SIDEWALK AT DRIVEWAY WITH RADIAL CURB RETURNS & GRASS STRIP

WCR NO	BASELINE	STA AT CENTER OF OPENING	OFFSET	OPENING WIDTH (FT)	GUTTER PROFILE SLOPE (%) AT REF. PT	HIGH SIDE TRANS LENGTH (FT)	LOW TRANS LENGTH (FT)	DEPTH FROM GUTTER TO BACK OF WALK (FT)	WIDTH OF PATH OF TRAVEL (FT)	COMMENT

- PCR AND DRIVEWAY NOTES:
- CONSTRUCTION DETAILS SHALL BE IN ACCORDANCE WITH MASSDOT CONSTRUCTION STANDARDS.
  - ALL TRANSITIONS ARE 6 INCH MAXIMUM REVEAL AT THE TOP OF THE TRANSITION UNLESS OTHERWISE NOTED ON THE SCHEDULES OR THE CONSTRUCTION PLANS.
  - CONCRETE RAMPS ARE TO BE TEXTURED BY BROOMING IN A DIRECTION PARALLEL TO THE LENGTH OF THE RAMP.
  - SEE CONSTRUCTION PLANS FOR LOCATION OF WHEELCHAIR RAMP, AND DRIVEWAYS.
  - DETECTABLE WARNING PANELS ARE REQUIRED ON ALL PROPOSED WHEELCHAIR RAMPS AND SHALL BE INSTALLED IN ACCORDANCE WITH MASSDOT CONSTRUCTION STANDARDS.
  - DETECTABLE WARNING PANEL SHALL BE LOCATED NOT LESS THAN 6" OR MORE THAN 24" FROM ROADWAY EDGE (GUTTER LINE). TRUNCATED DOMES TO BE ALIGNED WITH DIRECTION OF TRAVEL.
  - FOR DETAILS OF TRUNCATED DOMES SEE DRAWING E 107.6.5.
  - ROADWAY, GUTTER, AND FIRST 6" OF SIDEWALK TO BE ADJUSTED FOR FIELD CONDITIONS.

LEGEND	
HSL	HIGH SIDE TRANSITION LENGTH (SEE E107.9.0)
LSL	LOW SIDE TRANSITION LENGTH
W	SIDEWALK WIDTH = DEPTH FROM GUTTER TO BACK OF WALK
Wc	WIDTH OF CURB
WLL	WIDTH OF LEVEL LANDING (PARALLEL WITH WALK)
CC	CEMENT CONCRETE
HMA	HOT MIX ASPHALT



\* ± 0.5% FOR CONSTRUCTION TOLERANCE

SIDEWALK AT DRIVEWAYS WITHOUT CURB RETURNS

DWY NO	BASELINE	STA AT CENTER OF OPENING	OFFSET	OPENING WIDTH (FT)	GUTTER PROFILE SLOPE (%) AT REF. PT	HIGH TRANS LENGTH (FT)	LOW TRANS LENGTH (FT)	DEPTH FROM GUTTER TO BACK OF WALK (FT)	WIDTH OF PATH OF TRAVEL (FT)	COMMENT