MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

PLAN AND PROFILE OF

ROUTE 2A (AYER ROAD)

IN THE TOWNS OF

LITTLETON/AYER

MIDDLESEX COUNTY

FEDERAL AID PROJECT NO.

LITTLETON/AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	1	57
PROJECT FILE NO.	608443		

TITLE SHEET & INDEX

608443_HD01(TITLE & INDEX).DWG Plotted on 13-Nov-2020 11:12 AM

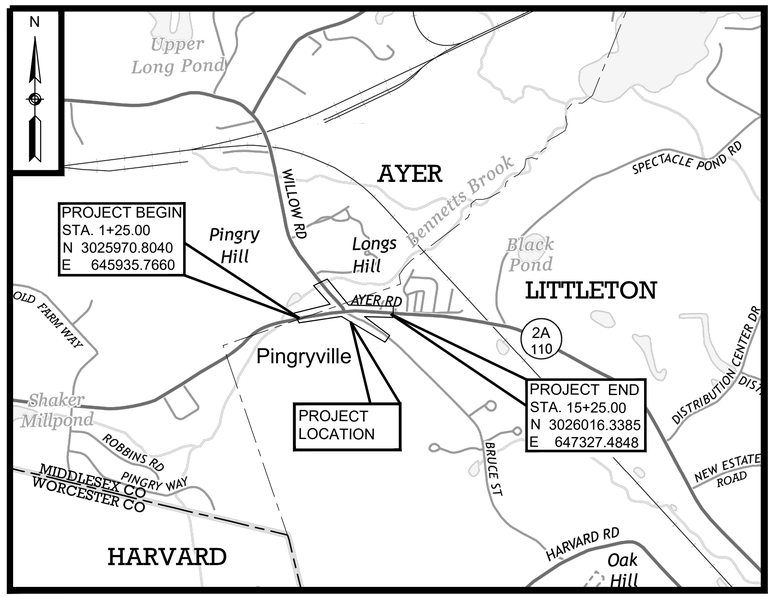
THESE PLANS ARE SUPPLEMENTED BY THE OCTOBER 2017 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS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

REVISED 25% SUBMITTAL

INDEX

SHEETS TO BE INCLUDED IN THE 75% DESIGN SUBMISSION

BORING LOGS
CONSTRUCTION BASELINE TIES SHEETS
CURB TIE & GRADING PLANS
TRAFFIC SIGNAL DETAILS
WHEELCHAIR RAMP/DRIVEWAY DETAILS
CONSTRUCTION DETAILS



0 2000 4000 6000 8000

SCALE: 1" = 2000'

LENGTH OF PROJECT = 1400.00 FEET = 0.265 MILES

DESIGN DESIGNATION (ROUTE 2A (AYER ROAD))

DESIGN SPEED	50 MPH
ADT (2017)	14,460
ADT (2037)	15,980
K	7.7%
D	65.7%
T (PEAK HOUR)	7.2%
T (AVERAGE DAY)	10.7%
DHV	1,230
DDHV	810
FUNCTIONAL CLASSIFICATION	URBAN PRINCIPAL ARTERIAL

11/13/2020	REVISED 25% SUBMISSION	REV 1
9/21/2018	25% SUBMISSION	REV 0

massDOT Massachusetts Department of Transportation Highway Division

PREPARED BY

GREEN INTERNATIONAL AFFILIATES, INC.
Civil and Structural Engineers Westford, Massachusetts

APPROVED

CHIEF ENGINEER **DATE**

GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
JB	JB	JERSEY BARRIER
CB	CB	CATCH BASIN
		CATCH BASIN CURB INLET
FP	FP	FLAG POLE
GP	GP	GAS PUMP
MB	MB	MAIL BOX
		POST SQUARE
		POST CIRCULAR
WELL	WELL	WELL
EHH	EHH	ELECTRIC HANDHOLE
		FENCE GATE POST
GG	GG	GAS GATE
BHL #	BHL #	BORING HOLE
MW #	MW #	MONITORING WELL
TP #	TP #	TEST PIT
		HYDRANT
		LIGHT POLE
CO.BD.		COUNTY BOUND
		GPS POINT
		CABLE MANHOLE
		DRAINAGE MANHOLE
		ELECTRIC MANHOLE
		GAS MANHOLE
		MISC MANHOLE
		SEWER MANHOLE
		TELEPHONE MANHOLE
		WATER MANHOLE
MHB	MHB	MASSACHUSETTS HIGHWAY BOUND
MON		MONUMENT
SB		STONE BOUND
TB		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
TPL or GUY	TPL or GUY	TROLLEY POLE OR GUY POLE
HTP		TRANSMISSION POLE
UFB	UFB	UTILITY POLE W/ FIREBOX
UPDL	UPDL	UTILITY POLE WITH DOUBLE LIGHT
ULT	ULT	UTILITY POLE W / 1 LIGHT
UPL	UPL	UTILITY POLE
		BUSH
SIZE & TYPE		TREE
		STUMP
		SWAMP / MARSH
WG	WG	WATER GATE
PM	PM	PARKING METER
		OVERHEAD CABLE/WIRE
		CURBING
100 99		CONTOURS (ON-THE-GROUND SURVEY DATA)
100 99		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
x	x	CHAIN LINK OR METAL FENCE
		WOOD FENCE
		HAY BALES/SILT FENCE
		TREE LINE
		SAWCUT LINE
		TOP OR BOTTOM OF SLOPE
		EDGE OF PAVEMENT
		LIMIT OF MICROMILLING AND OVERLAY
		BANK OF RIVER OR STREAM
		BORDER OF WETLAND
		100 FT WETLAND BUFFER
		200 FT RIVERFRONT BUFFER
		STATE HIGHWAY LAYOUT
		TOWN OR CITY LAYOUT
		COUNTY LAYOUT
		RAILROAD SIDELINE
		TOWN OR CITY BOUNDARY LINE
		PROPERTY LINE OR APPROXIMATE PROPERTY LINE
		EASEMENT

TRAFFIC SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
1	1	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)
RRSG	RRSG	RAILROAD SIGNAL
OR		SIGNAL POST AND BASE (ALPHA-NUMERIC DESIGNATION NOTED)
20'	20'	MAST ARM, SHAFT AND BASE (ARM LENGTH AS NOTED)
		HIGH MAST POLE OR TOWER
		SIGN AND POST
		SIGN AND POST (2 POSTS)
	20'	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
ONLY	ONLY	LEGEND "ONLY" - WHITE
	SL	STOP LINE - 12"
	CW	CROSSWALK
	SWL	SOLID WHITE LINE - 6"
	SYL	SOLID YELLOW LINE - 6"
	BWL	BROKEN WHITE LINE - 6" (10' LINE SEGMENT AND 30' GAP)
	BYL	BROKEN YELLOW LINE - 6" (10' LINE SEGMENT AND 30' GAP)
	DWL	DOTTED WHITE LINE - 6" (3' LINE SEGMENT AND 9' GAP)
	DYL	DOTTED YELLOW LINE - 6" (3' LINE SEGMENT AND 9' GAP)
	DWLEx	DOTTED WHITE LINE EXTENSION - 6" (2' LINE SEGMENT AND 6' GAP)
	DYLEx	DOTTED YELLOW LINE EXTENSION - 6" (2' LINE SEGMENT AND 6' GAP)
	DBWL	DOUBLE WHITE LINE - 6"
	DBYL	DOUBLE YELLOW LINE - 6"
		12" SOLID YELLOW GORE LINES @ 10' O.C. @ 45°

ABBREVIATIONS

GENERAL

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

LITTLETON/AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	2	57
PROJECT FILE NO.	608443		

LEGEND & ABBREVIATIONS

ABBREVIATIONS (cont.)

GENERAL

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
FR	FLASHING CIRCULAR RED
FRL	FLASHING RED LEFT ARROW
FRR	FLASHING RED RIGHT ARROW
FY	FLASHING CIRCULAR YELLOW
FYL	FLASHING YELLOW LEFT ARROW
FYR	FLASHING YELLOW RIGHT ARROW
G	STEADY CIRCULAR GREEN
GL	STEADY GREEN LEFT ARROW
GR	STEADY GREEN RIGHT ARROW
GSL	STEADY GREEN SLASH LEFT ARROW
GSR	STEADY GREEN SLASH RIGHT ARROW
GV	STEADY GREEN VERTICAL ARROW
OL	OVERLAP
PED	PEDESTRIAN
PTZ	PAN, TILT, ZOOM
R	STEADY CIRCULAR RED
RL	STEADY RED LEFT ARROW
RR	STEADY RED RIGHT ARROW
TR SIG	TRAFFIC SIGNAL
TSC	TRAFFIC SIGNAL CONDUIT
W	STEADY WALKING PERSON
Y	STEADY CIRCULAR YELLOW
YL	STEADY YELLOW LEFT ARROW

608443_HD02(LEG & ABBREVS).DWG Plotted on 13-Nov-2020 11:12 AM

GENERAL NOTES

1. THE LOCATIONS OF THE EXISTING UTILITIES SHOWN ARE APPROXIMATE AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES AND SUBSURFACE STRUCTURES. THE CONTRACTOR IS RESPONSIBLE FOR MAKING FIELD INVESTIGATIONS AND OBTAINING INFORMATION FROM UTILITY COMPANIES AND INDIVIDUALS TO PINPOINT THE LOCATION AND ELEVATION OF ALL SUBSURFACE UTILITIES AND STRUCTURES. DIG-SAFE SHALL BE CONTACTED 72 HOURS PRIOR TO THE START OF CONSTRUCTION. DIG-SAFE TELEPHONE: 1-888-344-7233.
2. ALL DRAINAGE STRUCTURES, WATER GATES, AND CURB STOPS ARE TO BE ADJUSTED TO FINISHED GRADE UNLESS OTHERWISE NOTED.
3. ALL GAS GATES, TELEPHONE MANHOLES, ELECTRIC MANHOLES AND ELECTRIC HANDHOLES ARE TO BE ADJUSTED TO FINISHED GRADE BY OTHERS UNLESS OTHERWISE NOTED.
4. ALL UTILITY POLES REQUIRING RELOCATION ARE TO BE RELOCATED BY OTHERS.
5. ALL SHARED USE PATHS WITHIN THE LIMITS OF THE PROJECT ARE TO BE CEMENT CONCRETE.
6. MINIMUM CLEAR PATH ON THE SHARED USE PATHS SHALL BE 8'-0" EXCLUDING THE SURFACE OF THE CURB.
7. WHEELCHAIR RAMPS AND DRIVEWAYS SHALL CONFORM TO THE CURRENT MASSDOT STANDARDS, ADA REQUIREMENTS AND MASSACHUSETTS ARCHITECTURAL ACCESS BOARD REQUIREMENTS.
8. THE CONTRACTOR SHALL RETAIN ALL CURBS, FENCES, WALLS, TREES, SHRUBS, POSTS, LANDSCAPE FEATURES, AND OTHER MISCELLANEOUS ITEMS WITHIN ABUTTING PROPERTIES, UNLESS OTHERWISE NOTED. WHEN RETAINING THOSE ITEMS IS NOT PRACTICAL IN THE OPINION OF THE ENGINEER, THE CONTRACTOR SHALL REMOVE, STOCKPILE, PROTECT AND RESET THE ITEMS. THE CONTRACTOR SHALL REPLACE ITEMS DAMAGED DURING REMOVAL, STOCKPILING, OR RESETTING DUE TO NEGLIGENCE, CARELESSNESS, OR MISHANDLING WITH EQUIVALENT NEW ITEMS AT NO COST TO THE OWNER.
9. ALL TREES WITHIN THE SLOPE LIMIT SHALL BE RETAINED AND PROTECTED UNLESS OTHERWISE NOTED.
10. CONTRACTOR SHALL PROTECT ALL PROPERTY MARKERS UNLESS OTHERWISE NOTED IN THE PLANS. THE CONTRACTOR IS HEREBY RESPONSIBLE FOR REPLACING ANY EXISTING MASSACHUSETTS HIGHWAY BOUND OR PRIVATE PROPERTY PIN DAMAGED OR DESTROYED DURING CONSTRUCTION TO ITS PRE-CONSTRUCTION LOCATION.
11. TREATMENT OF SLOPE AREAS SHALL BE REPLACEMENT IN KIND UNLESS OTHERWISE NOTED.
12. THE RIGHT OF WAY LINES SHOWN ON THIS PLAN ARE THE DIRECT RESULT OF AN INSTRUMENT SURVEY PERFORMED ON THE GROUND IN MAY OF 2016 BY GREEN INTERNATIONAL AFFILIATES, INC. (GREEN) WITH AN ERROR OF CLOSURE LESS THAN 1:15,000, AND FROM PLANS AND DEEDS OF RECORD. PROPERTY LINES SHOWN HEREON ARE APPROXIMATE ONLY AND ARE BASED UPON RECORD DEEDS, PLANS AND ASSESSORS INFORMATION.
13. OWNERSHIP AND DEED INFORMATION WAS OBTAINED FROM THE TOWNS OF LITTLETON AND AYER ASSESSORS OFFICES AND THE MIDDLESEX(SOUTH) COUNTY REGISTRY OF DEEDS. ALL INFORMATION WAS CURRENT AS OF THE DATE OF THE OCTOBER 2020 GREEN SURVEY.
14. THE SAID PARCELS SHOWN HEREIN ARE SUBJECT TO RIGHTS AND EASEMENTS AS CONTAINED WITHIN THE VARIOUS DEEDS OF RECORD DESCRIBING SAID PREMISES. THE LOCATIONS AND EXTENT OF SAID RIGHTS AND EASEMENTS ARE NOT THE SUBJECT OF THIS SURVEY.
15. EXTRA CARE SHALL BE TAKEN BY THE CONTRACTOR WHEN PERFORMING WORK IN CLOSE PROXIMITY (I.E. EXCAVATION WITH HAND TOOLS) TO THE EXISTING SEPTIC SYSTEM AT 254 AYER ROAD TO PREVENT ANY DAMAGE TO THE SEPTIC SYSTEM. ANY DAMAGE TO THE EXISTING SEPTIC SYSTEM DUE TO THE NEGLIGENCE OR CARELESSNESS OF THE CONTRACTOR SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE OWNER.

DRAINAGE NOTES

1. ALL REINFORCED CONCRETE (RCP) PIPE SHALL BE CLASS III UNLESS OTHERWISE NOTED.
2. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ALL CONFLICTS BETWEEN THE EXISTING UTILITIES AND THE PROPOSED WORK. AT LEAST 48-HOURS NOTICE MUST BE PROVIDED. THE ENGINEER RESERVES THE RIGHT TO MODIFY THE DESIGN TO REALIGN THE PIPE AND STRUCTURE LOCATIONS AND INVERTS TO SUIT ACTUAL FIELD CONDITIONS ENCOUNTERED AT NO ADDITIONAL COST.
3. ALL OFFSETS TO THE CATCH BASINS ARE TO THE CENTER BACK OF THE GRATE. THE LOCATION AND ORIENTATION OF THE BELOW GRADE STRUCTURE SHALL BE FIELD COORDINATED BY THE CONTRACTOR TO AVOID CONFLICTS WITH EXISTING UTILITIES.
4. ALL EXISTING AND PROPOSED CATCH BASINS SHALL BE PROTECTED FROM SEDIMENT INUNDATION DURING ALL CONSTRUCTION ACTIVITIES.
5. ALL EXISTING DRAIN PIPES UNDER THE PROPOSED ROAD OR SIDEWALK SHALL BE RETAINED UNLESS OTHERWISE NOTED. IF THE EXISTING PIPE IS TO BE REMOVED OR ABANDONED AND IT EXTENDS OUTSIDE THE PROPOSED ROADWAY OR SIDEWALK LIMIT IT SHALL BE CUT AND CAPPED AT THE RESPECTIVE LIMIT AT NO ADDITIONAL COST. REMOVAL AND DISPOSAL OF THESE PIPES ARE INCIDENTAL TO THE DRAINAGE ITEMS.
6. ALL PROPOSED CATCH BASINS SHALL BE DEEP SUMP CATCH BASINS WITH HOOD.
7. 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. FIELD ADJUSTMENTS WILL BE MADE AS APPROVED OR AS REQUIRED BY THE ENGINEER. ONLY AFTER THE CONTRACTOR VERIFIES ELEVATIONS FOR CONTSRUCTABILITY OF THE DRAINAGE SYSTEM SHALL ANY STRUCTURES BE ORDERED. ANY FIELD ADJUSTMENTS TO DRAIN LINE UP TO A DEPTH OF 5 FEET SHALL BE INCLUDED IN THE COST OF THE PIPE.
8. ALL SINGLE GRATE CATCH BASINS AND DRAIN MANHOLE STRUCTURES ARE ECCENTRIC, UNLESS OTHERWISE NOTED.
9. USE FLAT TOP SLAB MANHOLE AND CATCH BASIN WHERE NEEDED.

UTILITY NOTES:

1. THE CONTRACTOR IS HEREBY MADE AWARE THAT EXISTING UTILITIES, INCLUDING BUT NOT LIMITED TO EXISTING WATER AND DRAIN PIPES; DRAINAGE AND SEWER STRUCTURES; GAS LINES, COMMUNICATION LINES AND UTILITY POLES, MAY NEED TO BE PROTECTED AND/OR SHORED UP DURING THE CONSTRUCTION OF THE PROPOSED IMPROVEMENTS UNDER THIS PROJECT. THE COST OF THE WORK REQUIRED FOR THE PROTECTION, MAINTENANCE AND SUPPORT OF THESE OR OTHER EXISTING ABOVEGROUND OR UNDERGROUND UTILITIES IN THE VICINITY OF THE PROPOSED WORK SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE CONSIDERED INCIDENTAL TO THE WORK UNDER THIS CONTRACT.
2. THIS PLAN WAS PREPARED IN CONFORMANCE WITH AMERICAN SOCIETY OF CIVIL ENGINEERS STANDARD CI/ASCE 38-02 "STANDARD GUIDELINE FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA", QL"C". REFER TO UTILITY QUALITY LEVEL INFORMATION INDEX. ACCURACY OF UTILITY LOCATIONS IS NOT GUARANTEED.
3. BELOW GROUND STRUCTURES, UNLESS DIMENSIONED, ARE SYMBOLIC ONLY.
4. PRIOR TO THE START OF ANY WORK ON THE SITE, THE CONTRACTOR SHALL VERIFY THE ACTUAL LOCATION OF ALL UTILITIES, SHOWN OR NOT SHOWN ON THIS PLAN.
5. ANY EXISTING DRAIN PIPES UNDER THE EXISTING ROADWAY, THAT ARE NOT CALLED OUT TO BE RETAINED SHALL BE ABANDONED. IF THE EXISTING PIPE EXTENDS OUTSIDE THE PROPOSED ROADWAY LIMIT, IT SHALL BE CUT AND CAPPED AT NO ADDITIONAL COST. NO EXTRA PAYMENT FOR REMOVAL OF EXISTING DRAIN PIPES THAT NEED TO BE REMOVED AS A RESULT OF A DIRECT CONFLICT WITH THE PROPOSED WORK, INCLUDING BUT NOT LIMITED TO NEW DRAINAGE, SUBDRAIN, ROADWAY EXCAVATION, ETC. EXCAVATION AND REMOVAL OF DRAINAGE PIPES THAT ARE NOT IN DIRECT CONFLICT WITH PROPOSED IMPROVEMENTS WILL BE PAID FOR UNDER UNCLASSIFIED EXCAVATION.
6. ALL UTILITY COMPANIES, PUBLIC AND PRIVATE, MUST BE NOTIFIED INCLUDING THOSE IN CONTROL OF UTILITIES NOT SHOWN ON THIS PLAN (SEE CHAPTER 370, ACTS OF 1963, MASSACHUSETTS) PRIOR TO DESIGNING, EXCAVATING, BLASTING, INSTALLING, BACKFILLING, GRADING, PAVEMENT RESTORING, OR REPAVING.
7. INVERTS SHOWN ON THE PLAN ARE NOT GUARANTEED TO BE ACCURATE. DUE TO THE LIMITATIONS OF FIELD OBSERVATION AND SURVEY TECHNIQUES, THE INVERTS ARE SHOWN AS APPROXIMATE ONLY AND SHALL NOT BE WARRANTED TO BE CORRECT. ADDITIONAL FIELD INVESTIGATION IS NECESSARY WHERE ACCURATE MEASUREMENTS ARE REQUIRED FOR DESIGN OF CRITICAL AREAS.

SUMMARY OF UTILITY MAPPING QUALITY LEVELS:

THE FOLLOWING IS A SUMMARY OF THE SURVEY MAPPING LEVELS FOR UTILITIES AS DESCRIBED IN ASCE STANDARD 38-02, "STANDARD GUIDELINE FOR THE DEPICTION OF EXISTING SUBSURFACE UTILITY DATA". THESE GUIDELINES ARE MORE FULLY DESCRIBED IN THE ASCE STANDARD.

UTILITY QUALITY LEVEL A:
PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES OBTAINED BY THE ACTUAL EXPOSURE (OR VERIFICATION OF PREVIOUSLY EXPOSED AND SURVEYED UTILITIES) AND SUBSEQUENT MEASUREMENT OF SUBSURFACE UTILITIES, USUALLY AT A SPECIFIC POINT. MINIMALLY INTRUSIVE EXCAVATION EQUIPMENT IS TYPICALLY USED TO MINIMIZE THE POTENTIAL FOR UTILITY DAMAGE. A PRECISE HORIZONTAL AND VERTICAL LOCATION, AS WELL AS OTHER UTILITY ATTRIBUTES, IS SHOWN ON PLAN DOCUMENTS. ACCURACY IS TYPICALLY SET TO 15-MM VERTICAL AND TO APPLICABLE HORIZONTAL SURVEY AND MAPPING ACCURACY AS DEFINED OR EXPECTED BY THE PROJECT OWNER.

UTILITY QUALITY LEVEL B:
INFORMATION OBTAINED THROUGH THE APPLICATION OF APPROPRIATE SURFACE GEOPHYSICAL METHODS TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF SUBSURFACE UTILITIES. QUALITY LEVEL B DATA SHOULD BE REPRODUCIBLE BY SURFACE GEOPHYSICS AT ANY POINT OF THEIR DEPICTION. THIS INFORMATION IS SURVEYED TO APPLICABLE TOLERANCES DEFINED BY THE PROJECT AND REDUCED ONTO PLAN DOCUMENTS.

UTILITY QUALITY LEVEL C:
INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE-GROUND UTILITY FEATURES AND BY USING PROFESSIONAL JUDGMENT IN CORRELATING THIS INFORMATION TO QUALITY LEVEL D INFORMATION.

UTILITY QUALITY LEVEL D:
INFORMATION DERIVED FROM EXISTING RECORDS OR ORAL RECOLLECTIONS.

LITTLETON/AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	4	57
PROJECT FILE NO.	608443		

KEY PLAN

608443_HD04(KEY).DWG Plotted on 13-Nov-2020 11:13 AM

N

10 14 19 23

8 12 17 21

9 13 18 22

7 11 16 20

LIMIT OF WORK
END FINE MILLING AND RESURFACING
STA. 14+90.00

14+00

15

WILLOW ROAD

16

17

17+40

18

19

AYER
LITTLETON

APPROX.
TOWN LINE

BEGIN PROJECT
BEGIN FINE MILLING AND RESURFACING
STATION 1+25.00
COORD. N 3025970.8040
E 645935.7660

END PROJECT
END FINE MILLING AND RESURFACING
STATION 15+25.00
COORD. N 3026016.3385
E 647327.4848

20

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 15+50

0+00

ROUTE 2A/110
(AYER ROAD)

ROUTE 2A/110
(AYER ROAD)

21

22

LIMIT OF WORK
END FINE MILLING AND RESURFACING
STA. 23+16.00

23

23+60

BRUCE STREET

LEGEND

7 CONSTRUCTION PLANS

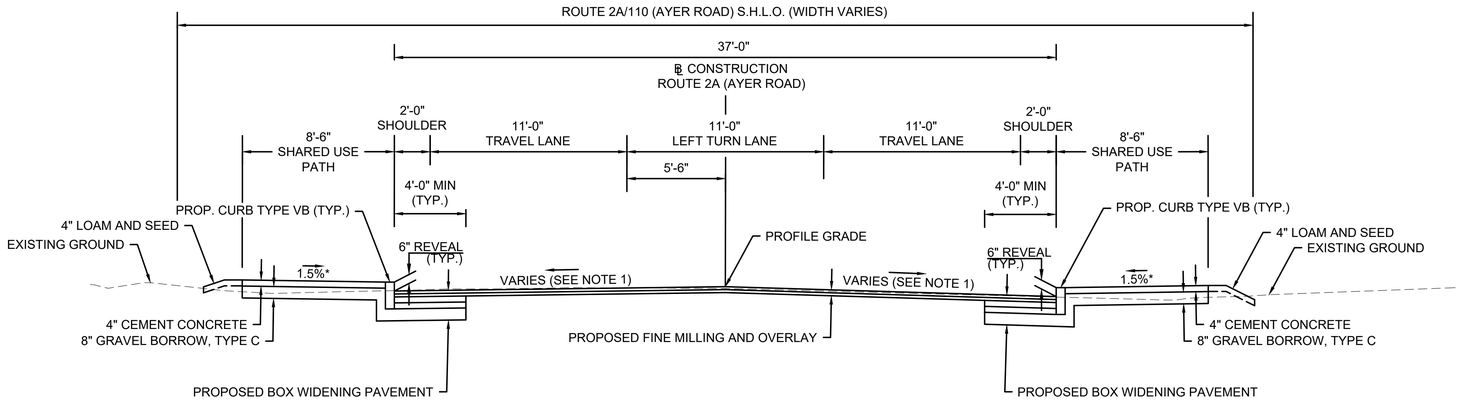
11 PROFILES

16 DRAINAGE AND UTILITY PLANS

20 PAVEMENT MARKING AND SIGN PLANS

0 60 120 240

SCALE: 1"=60'



* TOLERANCE FOR CONSTRUCTION = ±0.5%

TYPICAL ROUTE 2A/110 (AYER ROAD) SECTION

STA. 3+50.00 - STA. 9+90.00
SCALE 1"=4'

PAVEMENT NOTES:

PROPOSED BOX WIDENING PAVEMENT

PAVEMENT: 2" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5) OVER ASPHALT EMULSION FOR TACK COAT RS-1H OVER 2.25" SUPERPAVE INTERMEDIATE COURSE 19.0 (SIC-19.0) OVER ASPHALT EMULSION FOR TACK COAT RS-1H OVER

BASE: 4" SUPERPAVE BASE COURSE 37.5 (SBC-37.5)

SUBBASE: 4" DENSE GRADED CRUSHED STONE OVER EXISTING SUBBASE MEETING MATERIAL SPECIFICATION M1.03.0 GRAVEL BORROW, TYPE B OR 8" GRAVEL BORROW, TYPE B

PROPOSED FINE MILLING AND OVERLAY

PAVEMENT FINE MILLING: 3" VARIABLE PAVEMENT FINE MILLING

SURFACE: 2" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5) OVER ASPHALT EMULSION FOR TACK COAT RS-1H OVER 2.25" SUPERPAVE INTERMEDIATE COURSE 19.0 (SIC-19.0) OVER ASPHALT EMULSION FOR TACK COAT RS-1H

CEM. CONC. SHARED USE PATH

TOP COURSE: 4" CEMENT CONCRETE
BASE: 8" GRAVEL BORROW, TYPE C

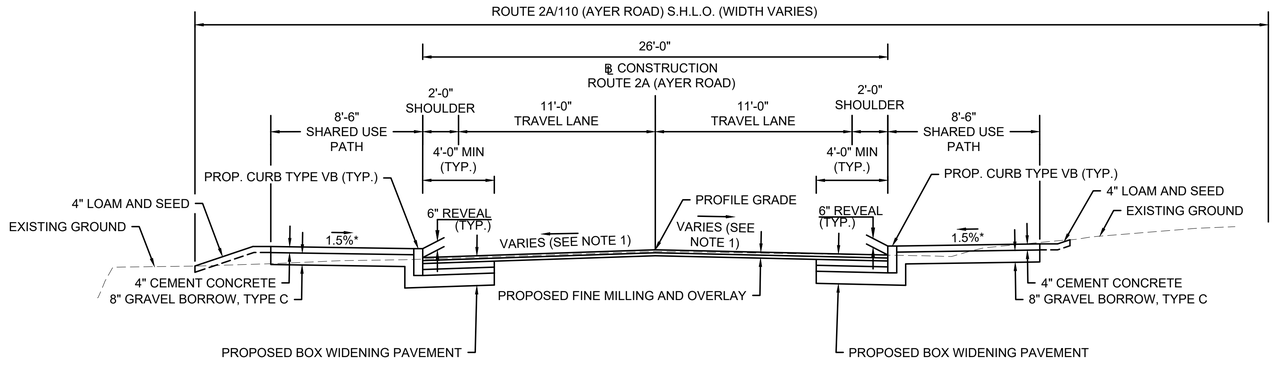
CEM. CONC. DRIVEWAY

TOP COURSE: 6" CEMENT CONCRETE
BASE: 8" GRAVEL BORROW, TYPE C

NOTES:

1. PAVEMENT MILLING TO MATCH EXISTING CROSS SLOPE OR ESTABLISH 2% CROSS SLOPE WHERE POSSIBLE AS SHOWN ON THE CROSS SECTIONS.

2. ALL HMA SHALL BE PER SECTION 450 HOT MIX ASPHALT AND SECTION M3 ASPHALTIC MATERIALS.



* TOLERANCE FOR CONSTRUCTION = ±0.5%

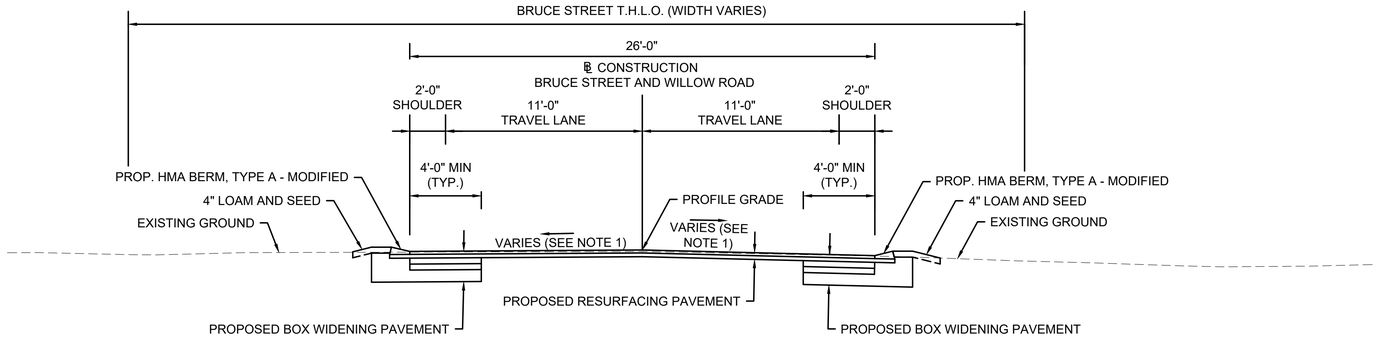
TYPICAL ROUTE 2A/110 (AYER ROAD) SECTION

STA. 1+25.00 - STA. 3+50.00
STA. 9+90.00 - STA. 15+25.00
SCALE 1"=4'

LITTLETON/AYER
ROUTE 2A (AYER ROAD)

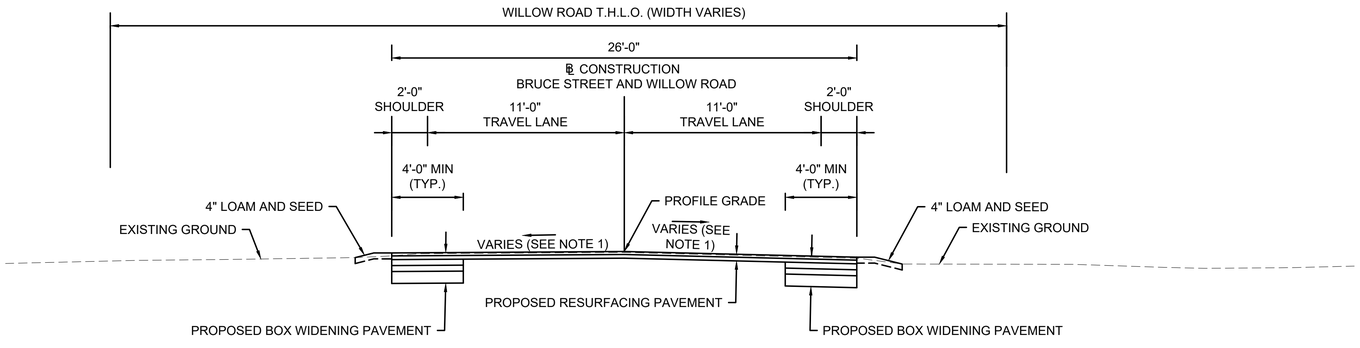
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	6	57
PROJECT FILE NO.	608443		

TYPICAL SECTIONS (2 OF 2)



TYPICAL BRUCE STREET SECTION

STA. 20+30.00 - STA. 23+16.00
SCALE 1"=4'



TYPICAL WILLOW ROAD SECTION

STA. 14+90.00 - STA. 19+70.00
SCALE 1"=4'

LITTLETON/AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	7	57
PROJECT FILE NO.	608443		

CONSTRUCTION PLANS (1 OF 4)

608443_HD06(CONSTRUCTION PLAN).DWG Plotted on 13-Nov-2020 11:13 AM

HIGHWAY GUARD DETAILS
NONE

TRAFFIC SIGNAL CONDUIT
SEE BELOW

WATER SUPPLY ALTERATIONS
NONE

DRAINAGE DETAILS
SEE SHEET NO. 16

N

N/F
JOSEPH P.A. ROUTHIER
PARCEL ID 30-9
BOOK 59354 PAGE 438
0 LITTLETON RD

N/F
PINGRYVILLE REALTY TRUST
BRENT C. ROUTHIER, TRUSTEE
PARCEL ID 30-12
BOOK 70372 PAGE 268
186 LITTLETON RD

N/F
PINGRYVILLE REALTY TRUST
PARCEL ID 30-13
BOOK 70655 PAGE 130
190 LITTLETON RD
TOWN OF AYER

N/F
PINGRYVILLE REALTY TRUST
PARCEL ID 30-14
BOOK 70655 PAGE 133
192 LITTLETON RD
TOWN OF AYER

N/F
PINGRYVILLE REALTY TRUST
PARCEL ID U45 9 0
BOOK 70655 PAGE 130
AYER RD
TOWN OF LITTLETON

N/F
PINGRYVILLE REALTY TRUST
PARCEL ID U45 10 0
BOOK 70655 PAGE 133
192 AYER RD
TOWN OF LITTLETON

BEGIN PROJECT
BEGIN FINE MILLING AND RESURFACING
STATION 1+25.00
COORD. N 3025970.8040 E 645935.7660

ROUTE 2A (AYER ROAD)
(PUBLIC - VARIABLE WIDTH)

AYER
LITTLETON

OCTOBER 22, 1912 MAIN BASELINE (SHLO NO. 1433)

0+00
+18.68 PI
PC +45.41

N78°55'35"E 212.73'
N78°55'35"E 569.95'
N 79° 29' 37" E 445.41'

WF#MAHW 201
WF#MAHW 202
WF#MAHW 203
WF#MAHW 204
HW 205

100 YEAR FLOOD (BLSF)
100 FT BUFFER
200 FT RIVERFRONT AREA

1926 SHLO NO. 2331

PROP. HMA DRIVEWAY
SAWCUT AND MATCH EXISTING
PROP. HMA DRIVEWAY
PROP. CEM. CONC. DRIVEWAY
R&R MB TO STA. 3+25
RET. FENCE
RET. TIMBER WALL
PROP. TEMP. EASEMENT (TYP.)
PROP. PERM. EASEMENT
RET. LP
RET. AND PROTECT 4" DIA. TREES
R&R MB
PROP. SLOPE LIMIT (TYP.)
PROP. CLEARING AND GRUBBING
LIMIT OF BOX WIDENING STA. 3+33.00
RET. FENCE
R&S MEMORIAL
R&D 3" DIA. TREE
R&D TREES
PROP. SAWCUT AND MATCH EXISTING
PROP. HMA DRIVEWAY
PROP. GRANITE CURB TYPE VB
PROP. LOAM AND SEED
PROP. CEMENT CONC. SHARED USE PATH
PROP. GRANITE CURB TYPE VB

PROP. HMA DRIVEWAY
SAWCUT AND MATCH EXISTING
NEAT CUTLINE (TYP.)
LIMIT OF BOX WIDENING STA. 2+47.00
RET. BRICK WALL
R&S BLDR.
PROP. TREE PROTECTION - ARMORING & PRUNING
R&S ROCKS
PROP. LOAM AND SEED
PROP. SLOPE LIMIT
RET. PLANTER AND SIGN

N/F
THE THEODORE W. NUSSDORFER
2007 REVOCABLE TRUST,
THEODORE W. NUSSDORFER AND
MAUREEN M. NUSSDORFER TRUSTEES
PARCEL ID U45 8 0
BOOK 50576 PAGE 223
264 AYER RD

N/F
260 AYER RD TRUST,
RONALD J RAFFI TRUSTEE
PARCEL ID U45 8 A
BOOK 21527 PAGE 232
260 AYER RD

CONTINUED ON SHEET NO. 8

0 20 50 100
SCALE: 1" = 20'

LITTLETON/AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	8	57
PROJECT FILE NO.	608443		

CONSTRUCTION PLANS (2 OF 4)

HIGHWAY GUARD DETAILS: NONE

TRAFFIC SIGNAL CONDUIT: SEE BELOW

WATER SUPPLY ALTERATIONS: NONE

DRAINAGE DETAILS: SEE SHEET NO. 17

CONTINUED ON SHEET NO. 10

CONTINUED ON SHEET NO. 7

CONTINUED ON SHEET NO. 9

LIMIT OF BOX WIDENING STA. 17+74.00

LIMIT OF BOX WIDENING STA. 17+80.00

RET. STONE WALL

RET. 22" DIA. TREE

N/F WATTS FAMILY TRUST, ELIZABETH M. WATTS TRUSTEE PARCEL ID 30–15 BOOK 25290 PAGE 543 59 WILLOW RD

1967 MIDDLESEX COUNTY LAYOUT

RET. AND PROTECT WOODED AREA

RET. 13" DIA. TREE

RET. 18" DIA. TREE

N/F 256 AYER ROAD TRUST PARCEL ID 30–16 BOOK 70655 PAGE 127 0 LITTLETON ROAD TOWN OF AYER

R&D 16" DIA. TREE

PROP. CLEARING AND GRUBBING

R&D 12" DIA. TREE

R&D 10" DIA. TREE

R&S BLDR.

R&D 7" DIA. TREE

R&D 13" DIA. TREE

R&S POST

R&S BLDR.

PROP. LOAM AND SEED

PROP. TEMP. EASEMENT (TYP.)

PROP. PERM. EASEMENT

PROP. SAWCUT AND MATCH EXISTING

PROP. HMA DRIVEWAY

N/F 256 AYER ROAD TRUST PARCEL ID U45 11 0 BOOK 70655 PAGE 127 AYER RD TOWN OF LITTLETON

S 42° 11' 45" E 207.08'

MAY 9, 1967 COUNTY BASELINE

WILLOW ROAD (PUBLIC - VARIABLE WIDTH)

SAWCUT AND MATCH EXISTING

PROP. HMA DRIVEWAY

SAWCUT AND MATCH EXISTING

PROP. HMA DRIVEWAY

R&S GRANITE BLOCK

RET. SHRUBS

PROP. AGED PINE BARK MULCH

R&R MB

1967 MIDDLESEX COUNTY LAYOUT

N/F CLARISSA A. EATON PARCEL ID 31–2 BOOK 30815 PAGE 287 64 WILLOW RD TOWN OF AYER

AYER

LITTLETON

PROP. HMA DRIVEWAY

SAWCUT AND MATCH EXISTING

R&S GRANITE BLOCK

R&S BLDR.

RET. STONE WALL

N/F CLARISSA A. EATON PARCEL ID U45 12 0 BOOK 30815 PAGE 287 64 WILLOW RD TOWN OF LITTLETON

N/F CHIP SHOTS REALTY LLC PARCEL ID U45 14 0 BOOK 46676 PAGE 280 245 AYER RD

PROP. GRANITE CURB TYPE VB

PROP. LOAM AND SEED

PROP. TEMP. EASEMENT (TYP.)

R&S FENCE

STA. 6+84.87 ROUTE 2A/110 (AYER ROAD) ℄ =

STA. 20+00.00 WILLOW ROAD/BRUCE STREET ℄

PROP. GRANITE TRANSITION CURB TYPE VB

PROP. CEM. CONC. DRIVE (TYP.)

PROP. HMA DRIVEWAY

SAWCUT AND MATCH EXISTING

PROP. GRASS SWALE

R&S TIMBER

RET. LANDSCAPING

RET. SIGN

RET. POST

R&S FENCE

R&S BOLLARD

PROP. LOAM AND SEED

PROP. SLOPE LIMIT

R&S POST

RET. BERM

RET. BOLLARD

HMA BERM TYPE A, MODIFIED

SAWCUT AND MATCH EXISTING

PROP. HMA DRIVEWAY

RET. FENCE

R&S POST

RET. BOLLARD

RET. MB

PROP. CEMENT CONC. SHARED USE PATH

PROP. GRANITE CURB TYPE VB

PROP. CEMENT CONC. SHARED USE PATH

PROP. GRANITE CURB TYPE VB

Δ=22° 52' 36" L=219.28' R=550.00'

Δ=13° 57' 30" R=816.89' L=199.01' T=100.00'

Δ=13° 48' 19" L=409.61' R=1700.00'

OCTOBER 22, 1918 MAIN 7 BASELINE (SHLO 1433)

1912 SHLO NO. 1433

PC +45.41

PC-1

N78°55'35"E 569.95'

+88.63

PC

+57.64

PT

PT +55.02

S87°06'55"E 252.56'

PC-2

1940.20

PI

NEAT CUT LINE (TYP.)

PROP. GRANITE TRANSITION CURB TYPE VB

HMA BERM TYPE A, MODIFIED

REM. CURB

PROP. GRANITE CURB TYPE VB

PROP. CEMENT CONC. SHARED USE PATH

REM. BERM

HMA BERM TYPE A, MODIFIED

REM. CURB

SAWCUT AND MATCH EXISTING

PROP. HMA DRIVEWAY

PROP. AGED PINE BARK MULCH

REM. BERM

HMA BERM TYPE A, MODIFIED

SAWCUT AND MATCH EXISTING

PROP. HMA DRIVEWAY

PROP. TEMP. EASEMENT (TYP.)

HMA BERM TYPE A, MODIFIED

POLYETHELENE BARRIER

PROP. SLOPE LIMIT

PROP. LOAM AND SEED

LIMIT OF BOX WIDENING STA. 7+11.00

PROP. PERM. EASEMENT

R&D 14" DIA. TREE

R&D 15" DIA. TREE

R&D 6" DIA. TREE

R&D 13" DIA. TREE

R&D 4" DIA. TREES

R&D BUSHES

REM. BIT.CONC. DRIVEWAY

REM. BIT. BERM

PROP. TEMP. EASEMENT (TYP.)

R&D BUSHES

HMA BERM TYPE A, MODIFIED

R&R MB

SAWCUT AND MATCH EXISTING

PROP. HMA DRIVEWAY

R&R MB

TOWN OF LITTLETON EASEMENT LINE

R&S ROCKS

R&S ROCKS

PROP. GRANITE CURB TYPE VB

PROP. CEMENT CONC. SHARED USE PATH

PROP. GRANITE CURB TYPE VB

R&S POSTS

LIMIT OF BOX WIDENING STA. 7+97.00

RET. STUMP

R&S POST

R&S POST

1926 SHLO NO. 2330

PROP. GRANITE TRANSITION CURB TYPE VB

LIMIT OF BOX WIDENING STA. 21+48.00

RET. AND PROTECT 30" DIA. TREE

RET. ROCK

R&S POSTS

HMA BERM TYPE A, MODIFIED

LIMIT OF BOX WIDENING STA. 22+60.00

PT +60.65

S 64° 37' 20" E 199.35'

BRUCE STREET (PUBLIC - VARIABLE WIDTH)

PROP. HMA DRIVEWAY

SAWCUT AND MATCH EXISTING

LIMIT OF WORK

END FINE MILLING AND RESURFACING STA. 23+16.00

23+60

HMA BERM TYPE A, MODIFIED

RET. STONE WALL

R&D 9" DIA. TREE

R&S POST

LIMIT OF BOX WIDENING STA. 22+60.00

ACCESS EASEMENT BOOK 16148 PG 141

RET. PLANTER AND SIGN

PROP. AGED PINE BARK MULCH

N/F AYER HOUSE TRUST, JOSEPH PAUL ROUTHIER TRUSTEE PARCEL ID U45 7 0 BOOK 14463 PAGE 422 256 AYER RD

DRIVEWAY EASEMENT TO PASS AND REPASS BOOK 14407 PG 382

N/F 256 AYER ROAD TRUST, JOSEPH PAUL ROUTHIER TRUSTEE PARCEL ID U45 7 B BOOK 14407 PAGE 382 254 AYER RD

N/F AYER HOUSE TRUST, JOSEPH PAUL ROUTHIER TRUSTEE PARCEL ID U45 7 0 BOOK 14463 PAGE 422 256 AYER RD

N/F CHRISTOPHER SNAY PARCEL ID U45 7 A BOOK 70787 PAGE 593 5 BRUCE ST

N/F GEORGE MATHEW ROBINSON PARCEL ID U45 7 C BOOK 63285 PAGE 19 7 BRUCE ST

N/F FRANK W. MATHESON JR PARCEL ID U45 2 0 BOOK 64522 PAGE 122 2 BRUCE ST

PUMP STATION

SEPTIC TANK

GREASE TRAP

DRAINFIELD

0 20 50 100

SCALE: 1" = 20'

N

608443_HD06(CONSTRUCTION PLAN).DWG Plotted on 13-Nov-2020 11:13 AM

LITTLETON/AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	9	57
PROJECT FILE NO.	608443		

CONSTRUCTION PLANS (3 OF 4)

HIGHWAY GUARD DETAILS
NONE

TRAFFIC SIGNAL CONDUIT
SEE BELOW

WATER SUPPLY ALTERATIONS
NONE

DRAINAGE DETAILS
SEE SHEET NO. 18

608443_HD06(CONSTRUCTION PLAN).DWG Plotted on 13-Nov-2020 11:18 AM

N

END PROJECT
END FINE MILLING AND RESURFACING
STATION 15+25.00
COORD. N 3026016.3385
E 647327.4848

N/F
CHIP SHOTS REALTY LLC
PARCEL ID U45 14 0
BOOK 46676 PAGE 280
245 AYER RD

N/F
RODGERS FAMILY HOLDINGS LLC
PARCEL ID U45 15 0
BOOK 64393 PAGE 32
239 AYER RD

HMA BERM TYPE A, MODIFIED
SAWCUT AND MATCH EXISTING
RET. BOLLARD
RET. MB
RET. FENCE R&S POST
PROP. SLOPE LIMIT
PROP. LOAM AND SEED
PROP. TEMP. EASEMENT (TYP.)
PROP. LIMIT OF CLEARING AND GRUBBING
R&S MEMORIAL
LIMIT OF BOX WIDENING STA. 12+22.00
PROP. CEMENT CONC. SHARED USE PATH
PROP. GRANITE CURB TYPE VB

CONTINUED ON SHEET NO. 8

NEAT CUT LINE (TYP.)
OCTOBER 22, 1912 MAIN BASELINE (SHLO NO. 1433)
S 86° 42' 04" E 694.98'
+40.20 PI
+69.25 PI
10 11 12 13 14 15 22 23 24 25 26

ROUTE 2A
(AYER ROAD)
(PUBLIC - VARIABLE WIDTH)

R&S ROCKS
PROP. GRANITE CURB TYPE VB
PROP. CEMENT CONC. SHARED USE PATH
PROP. GRANITE CURB TYPE VB
R&S POST
PROP. LIMIT OF CLEARING AND GRUBBING
LIMIT OF BOX WIDENING STA. 11+47.00
PROP. TEMP. EASEMENT (TYP.)
RET. STONE WALL
RET. AND PROTECT 20" DIA. TREE
PROP. PERM. EASEMENT
PROP. SLOPE LIMIT (TYP.)
LIMIT OF BOX WIDENING STA. 13+26.00
R&R STONE WALL
PROP. GRANITE TRANSITION CURB TYPE VB
LIMIT OF BOX WIDENING STA. 14+00.00
R&S POSTS
PROP. PERM. EASEMENT
PROP. SEDIMENT CONTROL BARRIER
PROP. SLOPE LIMIT
PROP. STONE FOR PIPE ENDS

N/F
FRANK W. MATHESON JR
PARCEL ID U45 2 0
BOOK 64522 PAGE 122
2 BRUCE ST

FARM FIELD

1926 SHLO NO. 2330 BIT PAVEMENT
BIT PARKING
BIT DRIVE
BRICK WALL
LANDSCAPE TIMBER
WOOD POST AND RAIL FENCE
BIT WALK
PLANTINGS
MILE MARKER
BIT CURB
GRASS
TREES
STN WALL
WEEDS
EP
OHW
UPL #66 (VERIZON)
UPL 64 (VERIZON)
CB(BOLTED) RIM=239.90' CONTAINS SEDIMENT
8"W
4"G CS 1930
TRIANGLE DITCH (REMAINS OF SILT FENCE AT TOS)

0 20 50 100
SCALE: 1" = 20'

LITTLETON/AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	10	57
PROJECT FILE NO.	608443		

CONSTRUCTION PLANS (4 OF 4)

608443_HD06(CONSTRUCTION PLAN).DWG Plotted on 13-Nov-2020 11:18 AM

HIGHWAY GUARD DETAILS
NONE

TRAFFIC SIGNAL CONDUIT
NONE

WATER SUPPLY ALTERATIONS
NONE

DRAINAGE DETAILS
SEE SHEET NO. 19

N

WILLOW ROAD
(PUBLIC - VARIABLE WIDTH)

1963 MIDDLESEX COUNTY LAYOUT

N/F
WILLOWS CONDOMINIUM
PARCEL ID 30-24
BOOK 50661 PAGE 255
WILLOW ROAD

100 YEAR FLOOD (BLSF)

LIMIT OF WORK
BEGIN FINE MILLING
AND RESURFACING
STA. 14+90.00

R&D 12" DIA. TREE
PROP. STONE FOR PIPE ENDS
RET. AND PROTECT 12" DIA. TREE
PROP. SEDIMENT CONTROL BARRIER
PROP. SLOPE LIMIT
PROP. PERM. EASEMENT
PROP. CLEARING AND GRUBBING
RET. STONE WALL
RET. MB
PROP. LOAM AND SEED

100 FT BUFFER

N/F
MALLARD REALTY TRUST,
RONALD E. MALLARD, TRUSTEE
PARCEL ID 30-18
BOOK 68327 PAGE 521
60 WILLOW RD

RET. POSTS
RET. BRICK
SIDEWALK

N/F
JAMES P. DRISCOLL
PARCEL ID 31-1
BOOK 63699 PAGE 383
62A WILLOW RD

N/F
TIMOTHY W. HILL
PARCEL ID 30-19
BOOK 28280 PAGE 469
62 WILLOW RD

200 FT RIVERFRONT AREA

SAWCUT AND MATCH
EXISTING
PROP. HMA DRIVEWAY
LIMIT OF BOX WIDENING
STA. 17+74.00

14+00 30 28 29 15 31 16 32 17 33

S37°57'33"E
719.90'

S38°26'02"E
213.54'

PC +13.54
MAY 28, 1963 COUNTY BASELINE
Δ=3° 45' 43"
L=124.75'
R=1900.00'

PT +38.29
+09.50
PI

17+40

S 42° 11' 45" E 207.08'

CONTINUED ON SHEET NO. 8

15' ROW EASEMENT

N/F
ERIC F. ROBINSON
AND CHERYL A. ROBINSON
PARCEL ID 30-7
BOOK 53725 PAGE 508
55 WILLOW RD

NORTH COUNTRY DEVELOPERS LLC
PARCEL ID 30-8
BOOK 6838 PAGE 399
53 WILLOW RD

N/F
WATTS FAMILY TRUST,
ELIZABETH M. WATTS TRUSTEE
PARCEL ID 30-15
BOOK 25290 PAGE 543
59 WILLOW RD

RET. STONE WALL
LIMIT OF BOX WIDENING
STA. 17+80.00
RET. 22" DIA. TREE

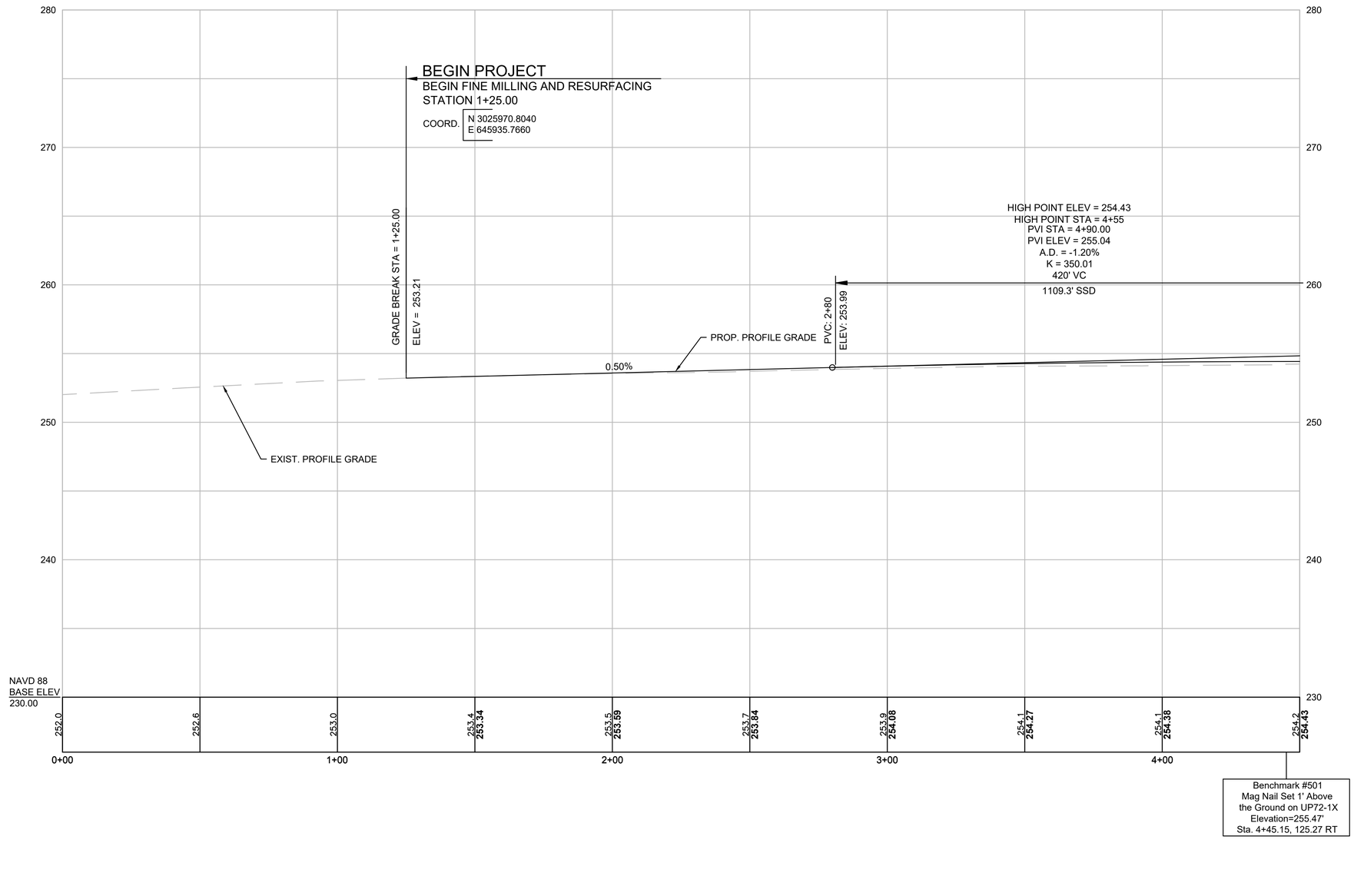
0 20 50 100
SCALE: 1" = 20'

LITTLETON/AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	11	57
PROJECT FILE NO.	608443		

PROFILES (1 OF 5)

ROUTE 2A/110 (AYER ROAD)



HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

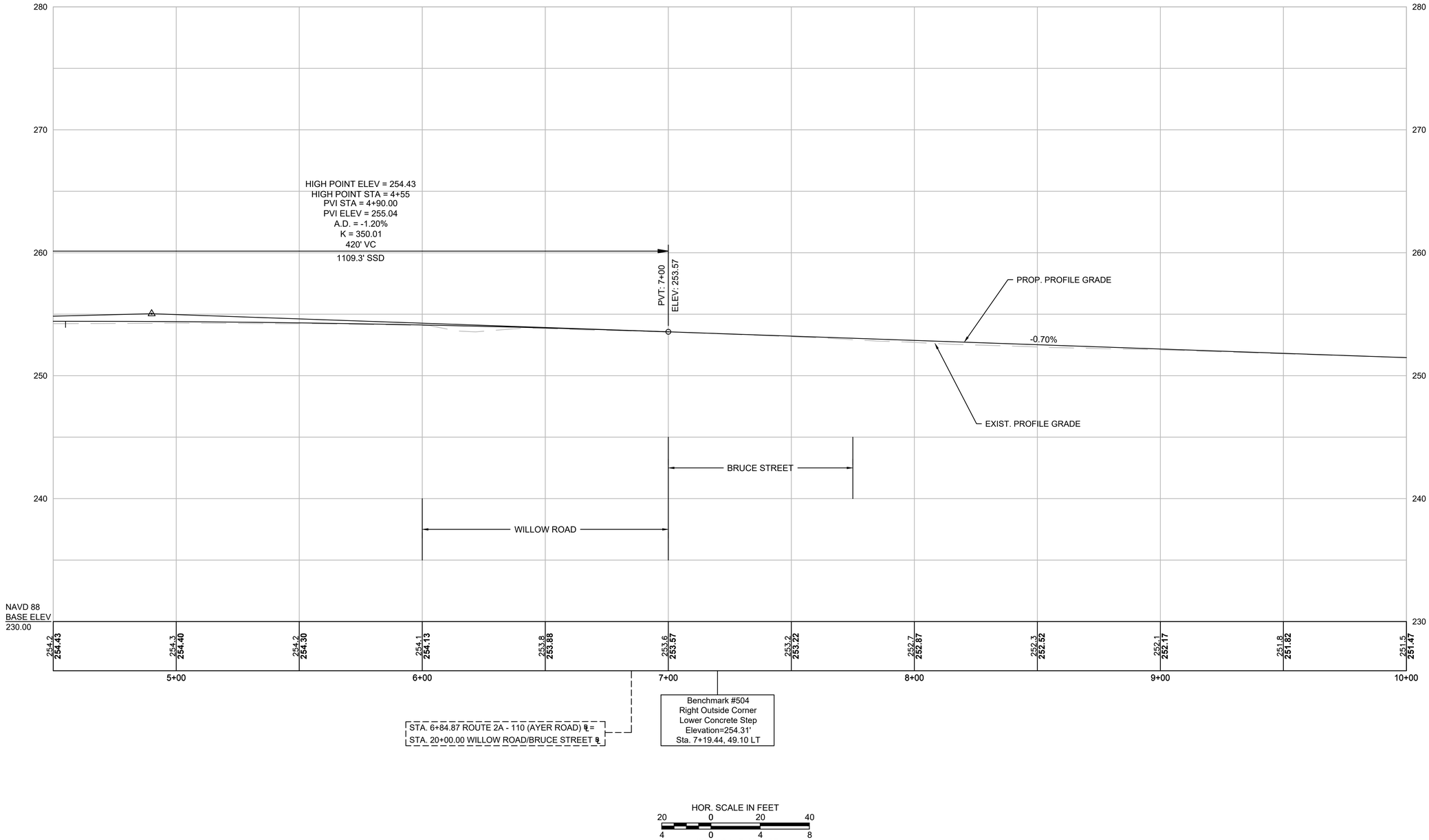
FOR CONSTRUCTION PLAN:
SEE SHEET NO. 7

LITTLETON/AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	12	57
PROJECT FILE NO.	608443		

PROFILES (2 OF 5)

ROUTE 2A/110 (AYER ROAD)



HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

FOR CONSTRUCTION PLAN:
SEE SHEET NO. 8

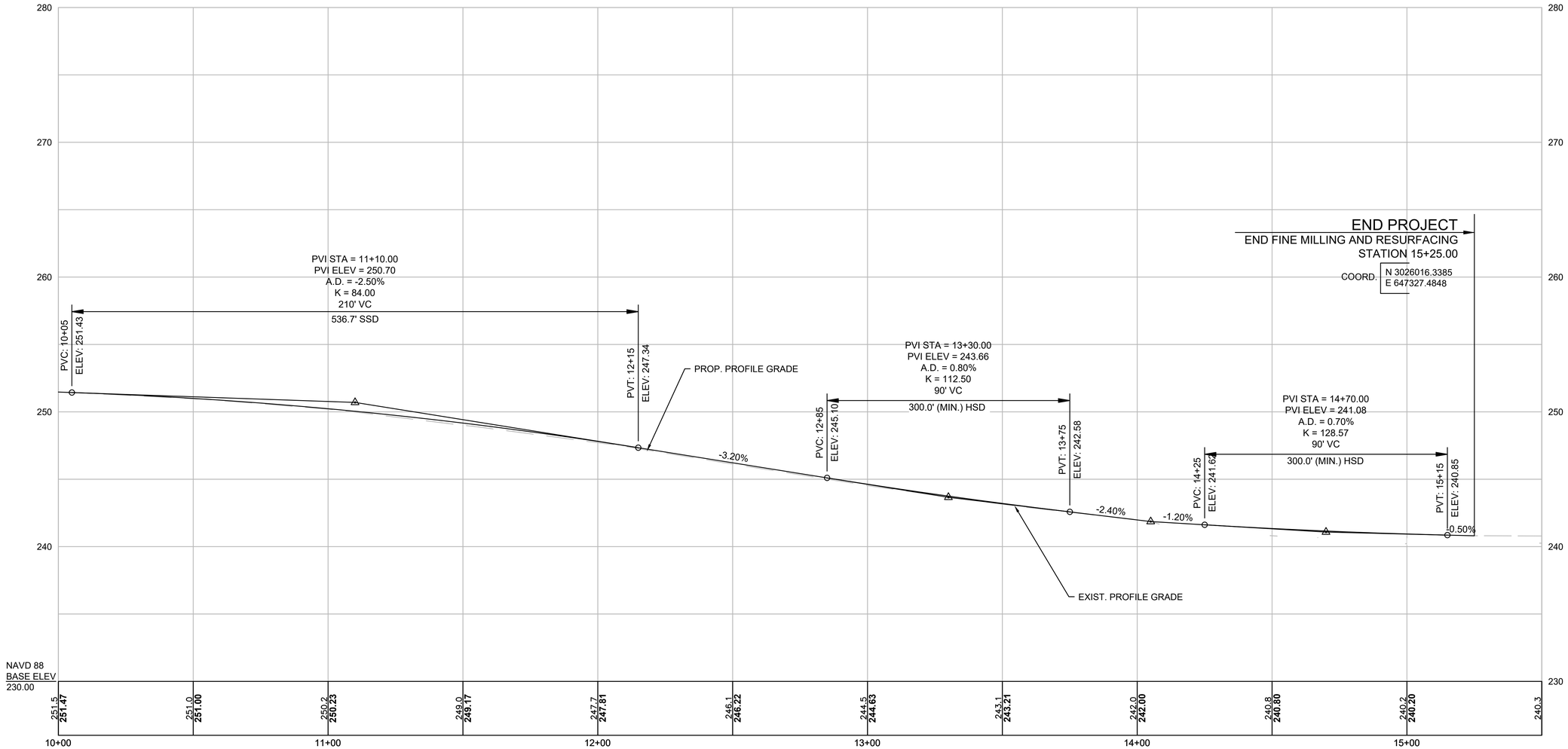
LITTLETON/AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	13	57
PROJECT FILE NO.	608443		

PROFILES (3 OF 5)

608443_HD07(PROFILES).DWG Plotted on 13-Nov-2020 11:14 AM

ROUTE 2A/110 (AYER ROAD)



HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

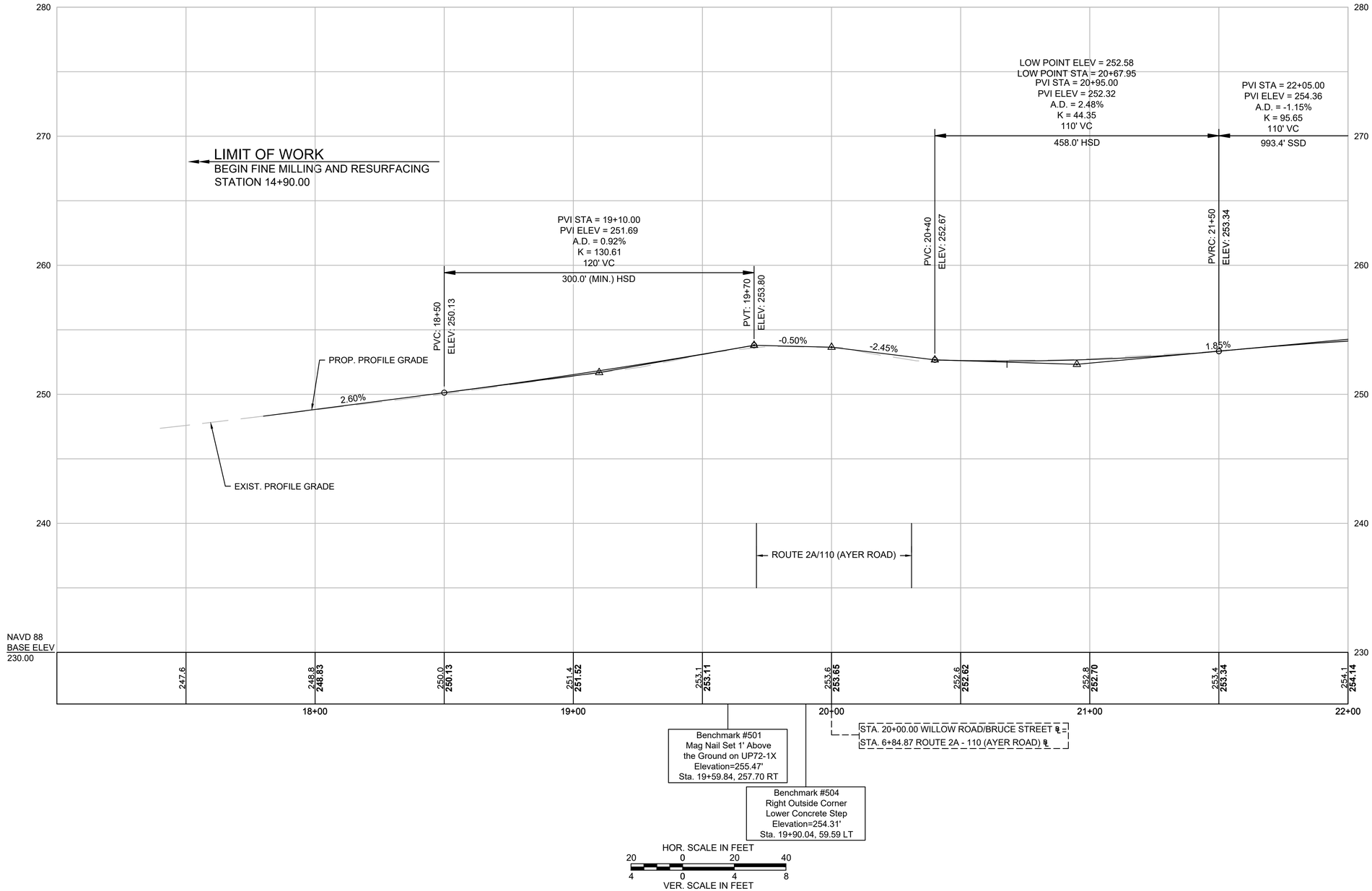
FOR CONSTRUCTION PLAN:
SEE SHEET NO. 9

LITTLETON/AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	14	57
PROJECT FILE NO.	608443		

PROFILES (4 OF 5)

WILLOW ROAD AND BRUCE STREET



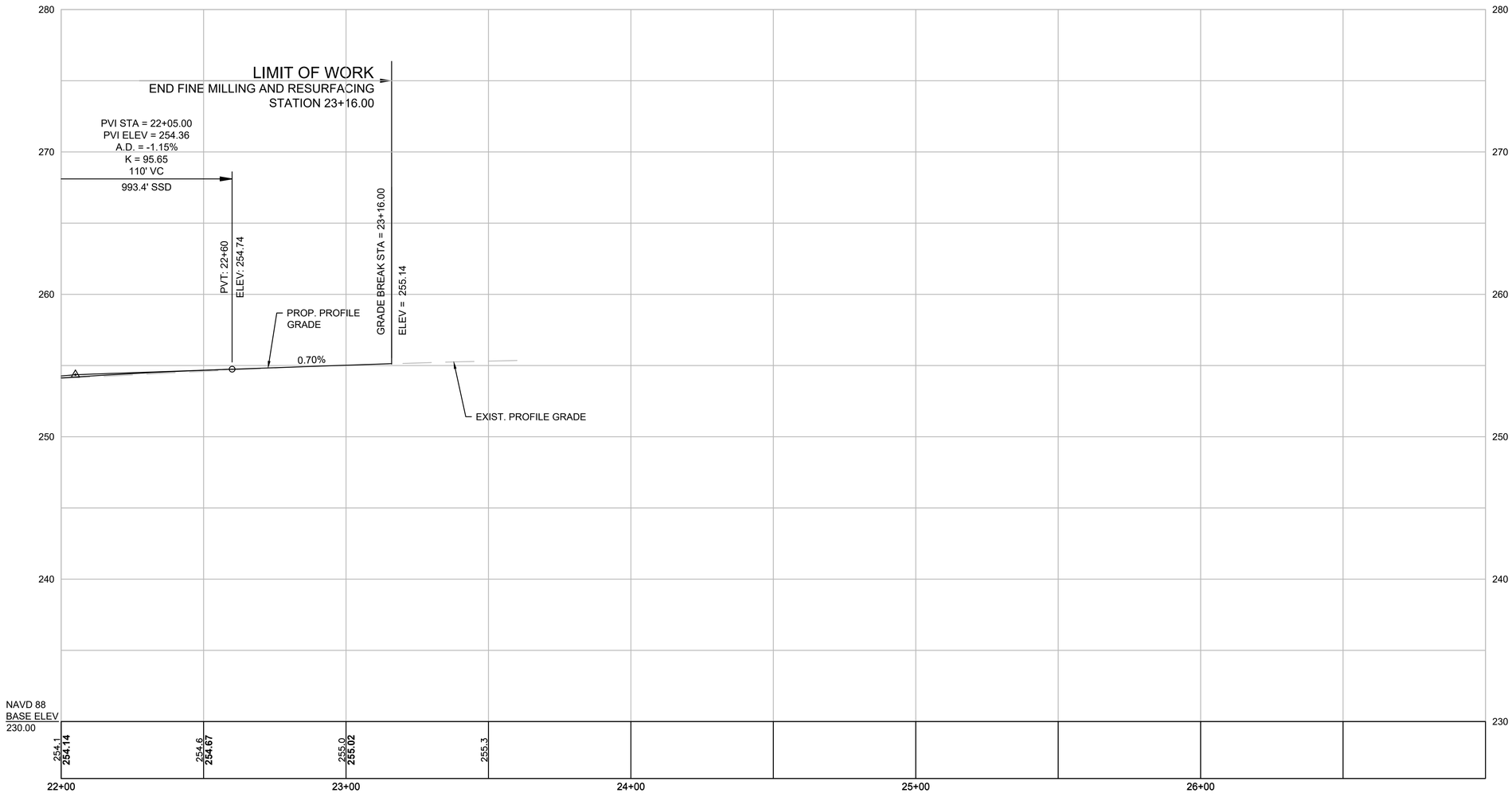
FOR CONSTRUCTION PLAN:
SEE SHEET NO. 8

LITTLETON/AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	15	57
PROJECT FILE NO.	608443		

PROFILES (5 OF 5)

WILLOW ROAD AND BRUCE STREET



HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

FOR CONSTRUCTION PLAN:
SEE SHEET NO. 8

LITTLETON/AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	16	57
PROJECT FILE NO.	608443		

DRAINAGE AND UTILITY PLANS (1 OF 4)

608443_HDXX(D&U PLAN).DWG Plotted on 13-Nov-2020 11:14 AM

N

NAD 83

AYER

LITTLETON

N/F
JOSEPH P.A. ROUTHIER
PARCEL ID 30-9
BOOK 59354 PAGE 438
0 LITTLETON RD

N/F
PINGRYVILLE REALTY TRUST
BRENT C. ROUTHIER, TRUSTEE
PARCEL ID 30-12
BOOK 70372 PAGE 268
186 LITTLETON RD

N/F
PINGRYVILLE REALTY TRUST
PARCEL ID 30-13
BOOK 70655 PAGE 130
190 LITTLETON RD
TOWN OF AYER

N/F
PINGRYVILLE REALTY TRUST
PARCEL ID 30-14
BOOK 70655 PAGE 133
192 LITTLETON RD
TOWN OF AYER

N/F
PINGRYVILLE REALTY TRUST
PARCEL ID U45 9 0
BOOK 70655 PAGE 130
AYER RD
TOWN OF LITTLETON

N/F
PINGRYVILLE REALTY TRUST
PARCEL ID U45 10 0
BOOK 70655 PAGE 133
192 AYER RD
TOWN OF LITTLETON

N/F
THE THEODORE W. NUSSDORFER
2007 REVOCABLE TRUST,
THEODORE W. NUSSDORFER AND
MAUREEN M. NUSSDORFER TRUSTEES
PARCEL ID U45 8 0
BOOK 50576 PAGE 223
264 AYER RD

N/F
260 AYER RD TRUST,
RONALD J RAFFI TRUSTEE
PARCEL ID U45 8 A
BOOK 21527 PAGE 232
260 AYER RD

BEGIN PROJECT
BEGIN FINE MILLING AND RESURFACING
STATION 1+25.00
COORD. N 3025970.8040 E 645935.7660

ROUTE 2A (AYER ROAD)
(PUBLIC - VARIABLE WIDTH)

0+00

1926 SHLO NO. 2331

WF#MAHW 201
WF#MAHW 202
WF#MAHW 203
WF#MAHW 204
HW 205

100 YEAR FLOOD (BLSF)
100 FT BUFFER
200 FT RIVERFRONT AREA

PROP. TEST PIT
4 LF-12" RCP
CONNECT TO EXIST. DRAIN LINE
SEE NOTE 1
RET. UP
14 LF - 12" RCP
PROP. CBCI (1-2)
PROP. TEST PIT
PROP. DMH (1-4)
7 LF - 12" RCP
PROP. DMH (1-3)
R&R UP & PROP. OFFSET ARM BRACKETS (BO)
PROP. PERM. EASEMENT
PROP. TEMP. EASEMENT (TYP.)
9 LF - 12" RCP
PROP. CBCI (1-7)
75 LF - 12" RCP
PROP. DMH (1-8)
20 LF - 12" RCP
16 LF - 12" RCP
PROP. CBCI (1-1)
PROP. CBCI (1-6)
22 LF - 12" RCP
PROP. DMH (1-5)
PROP CUT AND PLUG (TYP.)

CB
RIM=253.47
INV.(A)=250.12
INV.(B)=250.16
T.O.W.=250.22
T.O.S.=248.37
SUMP=248.07

RIM=253.54
INV.=251.54
T.O.S.=247.54

NOTE :
1. LOCATION OF 12" RCP DRAIN LINE AND OUTFALL TO BE VERIFIED VIA CCTV DURING 75% DESIGN.

CONTINUED ON SHEET NO. 17

0 20 50 100
SCALE: 1" = 20'

CONTINUED ON SHEET NO. 19

CONTINUED ON SHEET NO. 16

CONTINUED ON SHEET NO. 18

N

NAD 83

AYER

LITTLETON

ROUTE 2A (AYER ROAD)
(PUBLIC - VARIABLE WIDTH)

WILLOW ROAD
(PUBLIC - VARIABLE WIDTH)

BRUCE STREET
(PUBLIC - VARIABLE WIDTH)

R&R UP (BO)
PROP. PUSH BRACE - BY OTHERS
PROP. PERM. EASEMENT
PROP. DMH (2-12)
PROP. TEST PIT
1967 MIDDLESEX COUNTY LAYOUT
N/F CLARISSA A. EATON PARCEL ID 31-2 BOOK 30815 PAGE 287 64 WILLOW RD TOWN OF AYER
N/F WATTS FAMILY TRUST, ELIZABETH M. WATTS TRUSTEE PARCEL ID 30-15 BOOK 25290 PAGE 543 59 WILLOW RD
N/F 256 AYER ROAD TRUST PARCEL ID 30-16 BOOK 70655 PAGE 127 0 LITTLETON ROAD TOWN OF AYER
N/F CLARISSA A. EATON PARCEL ID U45 12 0 BOOK 30815 PAGE 287 64 WILLOW RD TOWN OF LITTLETON
N/F CHIP SHOTS REALTY LLC PARCEL ID U45 14 0 BOOK 46676 PAGE 280 245 AYER RD
N/F 256 AYER ROAD TRUST PARCEL ID U45 11 0 BOOK 70655 PAGE 127 AYER RD TOWN OF LITTLETON
221 LF - 18" RCP
ADJ.
PROP. PERM EASEMENT
PROP. TEMP. EASEMENT (TYP.)
ADJ. WATER GATE
PROP. DMH (2-14)
ADJ. GAS GATE (BO)
REMOVE AND RELOCATE SIGN - BY OTHERS
PROP. ELECTRIC SERVICE RISER RELOCATION
PROP. CBCI (2-18)
25 LF - 12" RCP
PROP. DMH (2-4)
6 LF - 12" RCP
PROP. GICI (2-1)
ADJ. HYDRANT
ADJ. TMH (BO)
PROP. DMH (2-9)
1912 SHLO NO. 1433
PROP CUT AND PLUG (TYP.)
ADJ. GAS GATE (BO)
38 LF - 18" RCP
46 LF - 18" RCP
58 LF - 12" RCP
108 LF - 12" RCP CLASS V
14 LF - 12" DIP
8 LF - 12" DIP
PROP. CB W/ FRAME & COVER (2-18)
PROP. CBCI (2-5)
PROP. CBCI (2-16)
11 LF - 12" RCP
PROP. DMH (2-15)
PROP. DMH (2-3)
6 LF - 12" DIP
PROP. CBCI (2-2)
4 LF - 12" RCP
ADJ. GAS GATE (BO)
PROP. TEMP. EASEMENT (TYP)
ADJ. WATER GATE
PROP CUT AND PLUG (TYP.)
ADJ. MONITORING WELL
PROP. CBCI (2-14)
16 LF - 12" RCP
PROP. DMH (2-11)
6 LF - 12" RCP
PROP. CBCI (2-10)
19 LF - 12" RCP
PROP. PERM. EASEMENT
R&R UP (BO)
PROP. DGCB (2-8)
20 LF - 12" RCP
PROP. CB (2-6)
PROP. TEMP. EASEMENT (TYP.)
4 LF - 12" RCP
4 LF - 12" RCP
PROP. 5' DIA DMH (2-7)
19 LF - 12" RCP
R&R UP (BO)
ADJ. WATER GATE
ADJ. GAS GATE (BO)
LIMIT OF WORK
END FINE MILLING AND RESURFACING
STA. 23+16.00
N/F AYER HOUSE TRUST, JOSEPH PAUL ROUTHIER TRUSTEE PARCEL ID U45 7 0 BOOK 14463 PAGE 422 256 AYER RD
DRIVEWAY EASEMENT TO PASS AND REPASS BOOK 14407 PG 382
N/F 256 AYER ROAD TRUST, JOSEPH PAUL ROUTHIER TRUSTEE PARCEL ID U45 7 B BOOK 14407 PAGE 382 254 AYER RD
N/F CHRISTOPHER SNAY PARCEL ID U45 7 A BOOK 70787 PAGE 593 5 BRUCE ST
ACCESS EASEMENT BOOK 16348 PG 141
N/F GEORGE MATHEW ROBINSON PARCEL ID U45 7 C BOOK 63285 PAGE 19 7 BRUCE ST
N/F FRANK W. MATHESON JR PARCEL ID U45 2 0 BOOK 64522 PAGE 122 2 BRUCE ST
TOWN OF LITTLETON EASEMENT LINE
TOWN LOCATION LINE
PC-1
PC-2
0 20 50 100
SCALE: 1" = 20'

LITTLETON/AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	18	57
PROJECT FILE NO.	608443		

DRAINAGE AND UTILITY PLANS (3 OF 4)

608443_HDXX(D&U PLAN).DWG Plotted on 13-Nov-2020 11:20 AM

N

NAD 83

CONTINUED ON SHEET NO. 18

N/F
CHIP SHOTS REALTY LLC
PARCEL ID U45 14 0
BOOK 46676 PAGE 280
245 AYER RD

N/F
RODGERS FAMILY HOLDINGS LLC
PARCEL ID U45 15 0
BOOK 64393 PAGE 32
239 AYER RD

END PROJECT
END FINE MILLING AND RESURFACING
STATION 15+25.00
COORD. N 3026016.3385
E 647327.4848

ROUTE 2A (AYER ROAD)

(PUBLIC - VARIABLE WIDTH)

RET. BOLLARD
R&R UP (BO)
PROP. TEMP. EASEMENT (TYP.)
R&R UP (BO)
R&R PRIMARY RISER (BO)
PROP. GICI (3-1)
5 LF - 12" DIP
RET. UP
PROP. GI (3-5)
5 LF - 12" DIP
RET. UP
PROP. TEST PIT
4 LF-12" RCP
CONNECT TO EXIST. DRAIN LINE
PROP. CB W/ FRAME & COVER (3-7)
PROP. CB W/ FRAME & COVER (3-8)
9 LF - 12" DIP
84 LF - 12" RCP
9 LF - 12" DIP
157 LF - 12" RCP
PROP CUT AND PLUG (TYP.)
REM.
PROP. TEMP. EASEMENT (TYP.)
PROP. STUB POLE (BO)
PROP. DMH (3-3)
5 LF - 12" RCP
PROP. CBCI (3-2)
PROP. PERM. EASEMENT
PROP. DMH (3-6)
31 LF - 12" RCP CLASS V
PROP. DMH (3-9)
9 LF - 12" RCP
5 LF - 12" RCP
PROP. WQS (3-10)
4 LF - 12" RCP
PROP. OCS W/ WEIR (3-11)
14 LF - 12" RCP
PROP. PERM. EASEMENT
BMP 1
SUBSURFACE INFILTRATION SYSTEM
(129.50'L X 6.33'W X 4.04'H)
PROP.DMH (3-4)
10 LF - 12" RCP
PROP. DMH (3-12)
4 LF - 12" RCP
PROP. FES (3-13) INV=236.50
PROP. STONE FOR PIPE ENDS

10 11 12 13 14 15 15+50

N/F
FRANK W. MATHESON JR
PARCEL ID U45 2 0
BOOK 64522 PAGE 122
2 BRUCE ST

FARM FIELD

FARM FIELD

NOTE :
1. LOCATION OF 12" RCP DRAIN LINE AND OUTFALL TO BE VERIFIED VIA CCTV DURING 75% DESIGN.

0 20 50 100
SCALE: 1" = 20'

LITTLETON/AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	19	57
PROJECT FILE NO.	608443		

DRAINAGE AND UTILITY PLANS (4 OF 4)

608443_HDXX(D&U PLAN).DWG Plotted on 13-Nov-2020 11:20 AM

CONTINUED ON SHEET NO. 17

N

NAD 83

WILLOW ROAD
(PUBLIC - VARIABLE WIDTH)

1963 MIDDLESEX COUNTY LAYOUT

N/F
WILLOWS CONDOMINIUM
PARCEL ID 30-24
BOOK 50661 PAGE 255
WILLOW ROAD

N/F
JAMES P. DRISCOLL
PARCEL ID 31-1
BOOK 63699 PAGE 383
62A WILLOW RD

N/F
MALLARD REALTY TRUST,
RONALD E. MALLARD, TRUSTEE
PARCEL ID 30-18
BOOK 68327 PAGE 521
60 WILLOW RD

N/F
TIMOTHY W. HILL
PARCEL ID 30-19
BOOK 28280 PAGE 469
62 WILLOW RD

100 YEAR FLOOD (BLSF)

100 FT BUFFER

200 FT RIVERFRONT AREA

LIMIT OF WORK
BEGIN FINE MILLING
AND RESURFACING
STA. 14+90.00

PROP. PERM. EASEMENT
PROP. STONE FOR PIPE ENDS
PROP. FES (2-17)
PROP. FLARED END
INV=238.00
24 LF - 18" RCP
221 LF - 18" RCP
PROP. DMH (2-12)
226 LF - 18" RCP
PROP. DMH (2-13)

14+00
15
16
17
17+40
18

WF#MAHW 101
WF#MAHW 109
WF#MAHW 108
WF#MAHW 102
WF#B-1
WF#B -2
WF#B -3
WF#B -4
WF#MAHW 105
WF#MAHW 104

INV 12" RCP
EL=235.24'

CB
RIM=245.87
INV.(A)=236.17
INV.(B)=235.97

1/2 STORY
BRICK AND
VINYL

2 STORY
WOOD

WELL
(REC)

GRASS
BLDR
MB
GRAV
BIT DRIVE
GRAV DRIVE
CONC
BRK SW
GRAN POSTS
OHW
UTL POLE #22
6"G PL 1989
8"W
12"D
12"D CMP?
12"D RCP
RET.
RET. ADJ.
EP
UPL #4
UPL #3-24
POST
R&R UP (BO)
PROP. PUSH BRACE (BO)
PROP. PERM. EASEMENT
DMH
RIM=249.88'

WF#MAHW 4
WF#MAHW 5
WF#MAHW -6
WF#MAHW -7
WF#MAHW 3
WF#A2
WF#A3
WF#MAHW 8
WF#MAHW 2
WF#A4
WF#MAHW 1
WF#A5 MAHW 9

CB
RIM=243.82
INV=239.32

16"
8"
13"
8"
9"
12"

INV 12" VCP
EL=237.73'

15' ROW EASEMENT

N/F
ERIC F. ROBINSON
AND CHERYL A. ROBINSON
PARCEL ID 30-7
BOOK 53725 PAGE 508
55 WILLOW RD

NORTH COUNTRY DEVELOPERS LLC
PARCEL ID 30-8
BOOK 68581 PAGE 399
53 WILLOW RD

N/F
WATTS FAMILY TRUST,
ELIZABETH M. WATTS TRUSTEE
PARCEL ID 30-15
BOOK 25290 PAGE 543
59 WILLOW RD

CB
RIM=246.52
INV.(A)=241.39
INV.(B)241.40
T.O.S.=242.02

1967 MIDDLESEX
COUNTY LAYOUT

N/F
256 AYER ROAD TRUST
PARCEL ID 30-16
BOOK 70655 PAGE 127
0 LITTLETON ROAD
TOWN OF AYER

0 20 50 100
SCALE: 1" = 20'

LITTLETON / AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	20	57
PROJECT FILE NO.	608443		

TRAFFIC SIGNS AND PAVEMENT MARKINGS (1 OF 4)

608443_TR1(SIGN & PVMT MARKS).DWG Plotted on 13-Nov-2020 11:15 AM

N

NAD 83

N/F
JOSEPH P.A. ROUTHIER
PARCEL ID 30-9
BOOK 59354 PAGE 438
0 LITTLETON RD

N/F
PINGRYVILLE REALTY TRUST
BRENT C. ROUTHIER, TRUSTEE
PARCEL ID 30-12
BOOK 70372 PAGE 268
186 LITTLETON RD

N/F
PINGRYVILLE REALTY TRUST
PARCEL ID 30-13
BOOK 70655 PAGE 130
190 LITTLETON RD
TOWN OF AYER

N/F
PINGRYVILLE REALTY TRUST
PARCEL ID 30-14
BOOK 70655 PAGE 133
192 LITTLETON RD
TOWN OF AYER

N/F
PINGRYVILLE REALTY TRUST
PARCEL ID U45 9 0
BOOK 70655 PAGE 130
AYER RD
TOWN OF LITTLETON

N/F
PINGRYVILLE REALTY TRUST
PARCEL ID U45 10 0
BOOK 70655 PAGE 133
192 AYER RD
TOWN OF LITTLETON

WF#MAHW 201
WF#MAHW 202
WF#MAHW 203
WF#MAHW 204
HW 205

LOCATION LINE OF MARCH 30, 1926
STATE HIGHWAY ALTERATION (SHLO NO. 2331)

1926 SHLO NO. 2331

BEGIN PROJECT
BEGIN FINE MILLING AND RESURFACING
STATION 1+25.00
COORD. N 3025970.8040
E 645935.7660

MATCH EXISTING MARKINGS AT STA. 1+25.00

PROP. R4-1 (R&D)

DO NOT PASS

0+00

1 2 3 4

11'

DBYL

SYGL (TYP)

ABAN. REM.

DWL (106')

SWL

8"G CS HIGH PRESSURE 1956

4"G CS 1930

TIMBER WALL

TIMBER RET WALL

8'WDF

6'WDF

5'WDF

BIT DRIVE

GRAV DRIVE

GRAV

BIT PARKING

BENCH

MEMORIAL

POT HOLE (VERIZON) PVT

T (VERIZON)

UPL #75

(2)MB

DMB

EP

AYER
LITTLETON

ROUTE 2A (AYER ROAD)

STN WALL

BRICK WALL

COMM SIGN

(RET)

ROCKS

(ABAN.)

PROP. W3-3 (R&D)

STOP (RET)

PROP. R3-8 (R&D)

PROP CUT AND PLUG (TYP.)

STATE HIGHWAY PARKING PROHIBITED (R&D)

PROP. R8-3a

STN WALL PLANTER

OHW

N/F
THE THEODORE W. NUSSDORFER
2007 REVOCABLE TRUST,
THEODORE W. NUSSDORFER AND
MAUREEN M. NUSSDORFER TRUSTEES
PARCEL ID U45 8 0
BOOK 50576 PAGE 223
264 AYER RD

N/F
260 AYER RD TRUST,
RONALD J RAFFI TRUSTEE
PARCEL ID U45 8 A
BOOK 21527 PAGE 232
260 AYER RD

CONTINUED ON SHEET NO. 21

0 20 50 100
SCALE: 1" = 20'

LITTLETON / AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	21	57
PROJECT FILE NO.	608443		

TRAFFIC SIGNS AND PAVEMENT MARKINGS (2 OF 4)

608443_TR1(SIGN & PVMT MARKS).DWG Plotted on 13-Nov-2020 11:15 AM

CONTINUED ON SHEET NO. 20

CONTINUED ON SHEET NO. 23

CONTINUED ON SHEET NO. 22

N

NAD 83

AYER

LITTLETON

ROUTE 2A (AYER ROAD)

WILLOW ROAD

BRUCE STREET

TOWN LOCATION LINE

TOWN OF LITTLETON EASEMENT LINE

1912 SHLO NO. 143

1967 MIDDLESEX COUNTY LAYOUT

PROP. R2-1 (35) R&R WATER RESTRICTION SIGN

PROP. W3-3

PROP. R3-7R

PROP. M3-4
PROP. MA-M1-5
PROP. MA-M1-5a

REM. PULL BOX

REM. ELECTRICAL BOX

PROP. R10-6a

PROP. R3-7L

PROP. R10-6a

PROP. R8-3a

PROP. MA-D3-1_2

PROP. MA-D3-1_1

PROP. R10-11b

R&D EXISTING WILLOW RD STREET NAME SIGN MOUNTED ON UPL

REM. PULL BOX

PROP. R3-7L

PROP. R3-8

REM. PULL BOX

PROP. R10-6a

REM. PULL BOXES

PROP. R10-11b

PROP. R10-11b

PROP. R10-11b

REM. TRAFFIC SIGNAL

REM. PULL BOX

PROP. M3-2
PROP. MA-M1-5
PROP. MA-M1-5a

PROP. R8-3a

PROP. R10-6a
PROP. R12-3

PROP. W3-3
LIMIT OF WORK
END FINE MILLING AND RESURFACING
STA. 23+16.00

PROP. R2-1 (30)

DRIVEWAY EASEMENT TO PASS AND REPASS BOOK 14407 PG 382

ACCESS EASEMENT BOOK 16348 PG 141

N/F
WATTS FAMILY TRUST,
ELIZABETH M. WATTS TRUSTEE
PARCEL ID 30-15
BOOK 25290 PAGE 543
59 WILLOW RD

N/F
CLARISSA A. EATON
PARCEL ID 31-2
BOOK 30815 PAGE 287
64 WILLOW RD
TOWN OF AYER

N/F
CLARISSA A. EATON
PARCEL ID U45 12 0
BOOK 30815 PAGE 287
64 WILLOW RD
TOWN OF LITTLETON

N/F
CHIP SHOTS REALTY LLC
PARCEL ID U45 14 0
BOOK 46676 PAGE 280
245 AYER RD

N/F
256 AYER ROAD TRUST
PARCEL ID 30-16
BOOK 70655 PAGE 127
0 LITTLETON ROAD
TOWN OF AYER

N/F
256 AYER ROAD TRUST
PARCEL ID U45 11 0
BOOK 70655 PAGE 127
AYER RD
TOWN OF LITTLETON

N/F
AYER HOUSE TRUST,
JOSEPH PAUL ROUTHIER TRUSTEE
PARCEL ID U45 7 0
BOOK 14463 PAGE 422
256 AYER RD

N/F
256 AYER ROAD TRUST,
JOSEPH PAUL ROUTHIER TRUSTEE
PARCEL ID U45 7 B
BOOK 14407 PAGE 382
254 AYER RD

N/F
AYER HOUSE TRUST,
JOSEPH PAUL ROUTHIER TRUSTEE
PARCEL ID U45 7 0
BOOK 14463 PAGE 422
256 AYER RD

N/F
CHRISTOPHER SNAY
PARCEL ID U45 7 A
BOOK 70787 PAGE 593
5 BRUCE ST

N/F
GEORGE MATHEW ROBINSON
PARCEL ID U45 7 C
BOOK 63285 PAGE 19
7 BRUCE ST

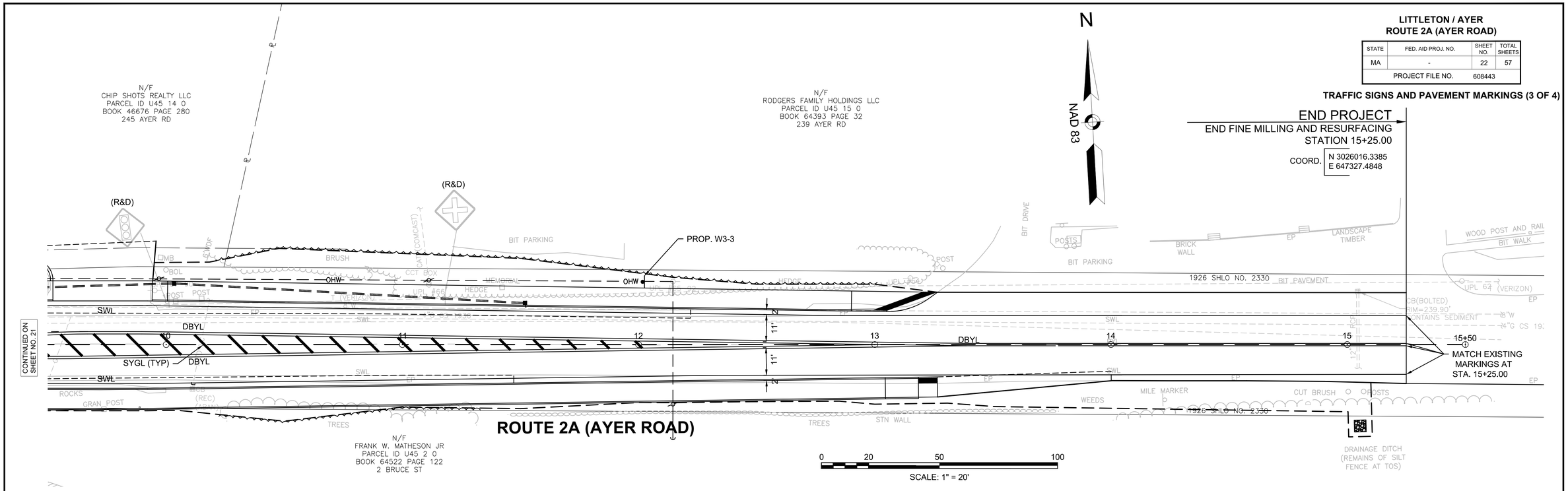
N/F
FRANK W. MATHESON JR
PARCEL ID U45 2 0
BOOK 64522 PAGE 122
2 BRUCE ST

SCALE: 1" = 20'

LITTLETON / AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	22	57
PROJECT FILE NO.	608443		

TRAFFIC SIGNS AND PAVEMENT MARKINGS (3 OF 4)

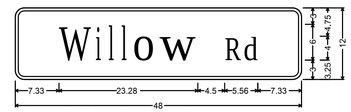


TRAFFIC SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN WIDTH (INCH)	SIZE OF SIGN HEIGHT (INCH)	TEXT	TEXT DIMENSIONS (INCHES) LETTER HEIGHT	TEXT DIMENSIONS (INCHES) VERTICAL SPACING	TEXT DIMENSIONS (INCHES) ARROW RTE MKR	NUMBER OF SIGNS REQUIRED	COLOR BACK-GROUND	COLOR LEGEND	COLOR BORDER	POST SIZE AND NUMBER REQUIRED (1) P-5	UNIT AREA IN SQUARE FEET	TOTAL AREA IN SQUARE FEET
MA-D3-1_1	48	12	Willow Rd	SEE SIGN DETAIL ON THIS SHEET			1(PBS)	RETRO-REFLECTIVE GREEN	RETRO-REFLECTIVE WHITE	RETRO-REFLECTIVE WHITE	0 1 MTD ON MAST ARM POLE	4.00	4.00
MA-D3-1_2	42	12	Bruce St				1(PBS)	RETRO-REFLECTIVE GREEN	RETRO-REFLECTIVE WHITE	RETRO-REFLECTIVE WHITE	0 1 MTD ON MAST ARM POLE	3.50	3.50
MA-M1-5	24	24	2A	MASSDOT STANDARD SIGN BOOK			2	RETRO-REFLECTIVE WHITE	BLACK	BLACK	0 2 MTD W/ M3-2 OR M3-4	4.00	8.00
MA-M1-5a	30	24	110				2	RETRO-REFLECTIVE WHITE	BLACK	BLACK	0 2 MTD W/ M3-2 OR M3-4	5.00	10.00
M3-2	24	12	EAST	SEE MUTCD STD. DETAIL			1	RETRO-REFLECTIVE WHITE	BLACK	BLACK	1	2.00	2.00
M3-4	24	12	WEST				1	RETRO-REFLECTIVE WHITE	BLACK	BLACK	1	2.00	2.00
R2-1 (30)	24	30	SPEED LIMIT 30				1	RETRO-REFLECTIVE WHITE	BLACK	BLACK	1	5.00	5.00
R2-1 (35)	24	30	SPEED LIMIT 35				1	RETRO-REFLECTIVE WHITE	BLACK	BLACK	1	5.00	5.00
R3-7L	30	30	LEFT LANE MUST TURN LEFT				2	RETRO-REFLECTIVE WHITE	BLACK	BLACK	2	6.25	12.50
R3-7R	30	30	RIGHT LANE MUST TURN RIGHT				2	RETRO-REFLECTIVE WHITE	BLACK	BLACK	2	6.25	12.50

TRAFFIC SIGN SUMMARY (CONTINUED)

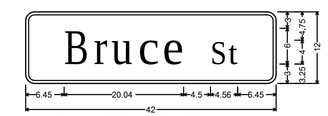
IDENTIFICATION NUMBER	SIZE OF SIGN WIDTH (INCH)	SIZE OF SIGN HEIGHT (INCH)	TEXT	TEXT DIMENSIONS (INCHES) LETTER HEIGHT	TEXT DIMENSIONS (INCHES) VERTICAL SPACING	TEXT DIMENSIONS (INCHES) ARROW RTE MKR	NUMBER OF SIGNS REQUIRED	COLOR BACK-GROUND	COLOR LEGEND	COLOR BORDER	POST SIZE AND NUMBER REQUIRED (1) P-5	UNIT AREA IN SQUARE FEET	TOTAL AREA IN SQUARE FEET
R3-8	30	30	ONLY	SEE MUTCD STD. DETAIL			2	RETRO-REFLECTIVE WHITE	BLACK	BLACK	2	6.25	12.50
R4-1	24	30	DO NOT PASS				1	RETRO-REFLECTIVE WHITE	BLACK	BLACK	1	5.00	5.00
R8-3a	24	30	NO PARKING				2	RETRO-REFLECTIVE WHITE	RETRO-REFLECTIVE RED	RETRO-REFLECTIVE RED	2	5.00	10.00
R10-6a	24	30	STOP HERE ON RED				4	RETRO-REFLECTIVE WHITE	BLACK	BLACK	4	5.00	20.00
R10-11b	36	36	NO TURN ON RED				4	RETRO-REFLECTIVE WHITE	BLACK	BLACK	0 3 MTD ON MAST ARM 1 MTD ON MAST ARM POLE	9.00	36.00
W3-3	36	36					4	RETRO-REFLECTIVE YELLOW	RETRO-REFLECTIVE RED & GREEN	BLACK	4	9.00	36.00
R12-4	24	36	TRUCKS OVER 2 1/2 TONS EXCLUDED				1	RETRO-REFLECTIVE WHITE	BLACK	BLACK	1	6.00	6.00
												TOTAL	190.00



1.50" Radius, 0.50" Border, White on Green;
[Willow] D 2K; [Rd] D 2K;
Table of distances between letter and object lefts.

	W	i	l	l	o	w	R	d	
7.33	6.12	2.16	.	2.16	1.92	4.14	11.28	3.16	2.40	7.33

MA-D3-1_1 DETAIL
NOT TO SCALE



1.50" Radius, 0.50" Border, White on Green;
[Bruce] D 2K; [St] D 2K;
Table of distances between letter and object lefts.

	B	r	u	c	e	S	t	
6.45	4.98	2.94	4.50	4.08	8.04	2.96	1.60	6.45

MA-D3-1_2 DETAIL
NOT TO SCALE

NOTES:

1. UNLESS OTHERWISE NOTED, ALL POSTS TO BE P-5.
2. PER THE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND REVISIONS, THE 1990 MASSDOT HIGHWAY DIVISION STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, AND THE 2012 MASSDOT MASSACHUSETTS AMENDMENTS TO THE 2009 MUTCD. 2012 SUPPLEMENT TO THE 2004 STANDARD HIGHWAY SIGN, AND 2016 MASSDOT STANDARD SIGN BOOK
3. PBS="PRINTED BOTH SIDES"

608443_TR1(SIGN & PVMT MARKS).DWG Plotted on 13-Nov-2020 11:15 AM

LITTLETON / AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	23	57
PROJECT FILE NO.	608443		

TRAFFIC SIGNS AND PAVEMENT MARKINGS (4 OF 4)

608443_TR1(SIGN & PVMT MARKS).DWG Plotted on 13-Nov-2020 11:15 AM

N

NAD 83

WILLOW ROAD

1963 MIDDLESEX COUNTY LAYOUT

LIMIT OF WORK
BEGIN FINE MILLING AND RESURFACING
STA. 14+90.00

MATCH EXISTING MARKINGS AT STA. 14+90.00

14+00 15 16 17 17+40

2' 13' 13' 2'

SWL DBYL

N/F
WILLOWS CONDOMINIUM
PARCEL ID 30-24
BOOK 50661 PAGE 255
WILLOW ROAD

N/F
JAMES P. DRISCOLL
PARCEL ID 31-1
BOOK 63699 PAGE 383
62A WILLOW RD

N/F
MALLARD REALTY TRUST,
RONALD E. MALLARD, TRUSTEE
PARCEL ID 30-18
BOOK 68327 PAGE 521
60 WILLOW RD

N/F
TIMOTHY W. HILL
PARCEL ID 30-19
BOOK 28280 PAGE 469
62 WILLOW RD

N/F
ERIC F. ROBINSON
AND CHERYL A. ROBINSON
PARCEL ID 30-7
BOOK 53725 PAGE 508
55 WILLOW RD

N/F
WATTS FAMILY TRUST,
ELIZABETH M. WATTS TRUSTEE
PARCEL ID 30-15
BOOK 25290 PAGE 543
59 WILLOW RD

N/F
256 AYER ROAD TRUST
PARCEL ID 30-16
BOOK 70655 PAGE 127
0 LITTLETON ROAD
TOWN OF AYER

NORTH COUNTRY DEVELOPERS LLC
PARCEL ID 30-8
BOOK 68381 PAGE 399
53 WILLOW RD

15' ROW EASEMENT

1987 MIDDLESEX COUNTY LAYOUT

PROP. W3-3

(R&D)

PROP. R3-1

WF#MAHW 101
WF#MAHW 109
WF#MAHW 108
WF#MAHW 102
WF#B-1
WF#B -2
WF#MAHW 107
WF#MAHW 105
WF#B -3
WF#B -4
WF#MAHW 106
WF#MAHW 104
WF#MAHW 4
WF#MAHW -5
WF#MAHW -6
WF#MAHW -7
WF#A2
WF#MAHW 3
WF#A3
WF#MAHW 8
WF#MAHW 2
WF#A4
WF#MAHW 1
WF#A5 MAHW 9

INV 12" RCP EL=235.24'
INV 12" VCP EL=237.73'

1 1/2 STORY BRICK AND VINYL
2 STORY WOOD
BIT DRIVE
GRAV DRIVE
CONC
BRK SW
GRAN POSTS
GRAV
MB
UPL #4
UPL #3-24
4"CLF
8"W
6"G PL 1989
12"D
WG
WELL (REC)
BLDR
OHW
POST
RIM

CONTINUED ON SHEET NO. 21

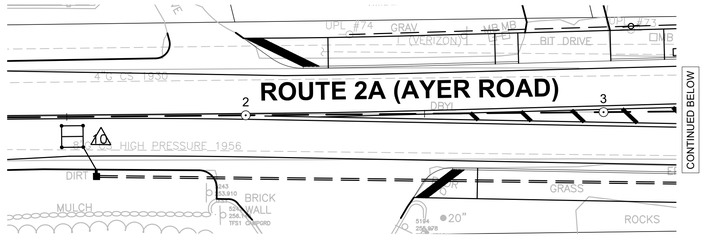
0 20 50 100
SCALE: 1" = 20'

LITTLETON / AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	25	57
PROJECT FILE NO.	608443		

TRAFFIC SIGNAL PLAN
ROUTE 2A (AYER ROAD) AT WILLOW ROAD / BRUCE STREET

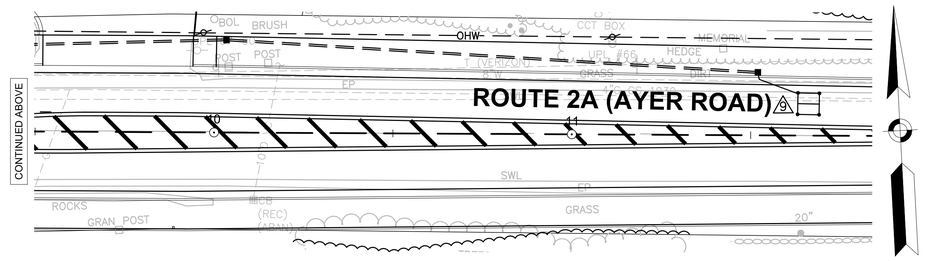
608443_TR3(TSIG PLANS).DWG Plotted on 13-Nov-2020 11:15 AM



NOTE:

1. REMOVE AND STACK ALL EXISTING TRAFFIC SIGNAL EQUIPMENT.

0 20 50 100
SCALE: 1" = 20'



LITTLETON / AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	24	57
PROJECT FILE NO.	608443		

TRAFFIC SIGNAL TIMING PLAN
ROUTE 2A (AYER ROAD) AT
WILLOW ROAD / BRUCE STREET

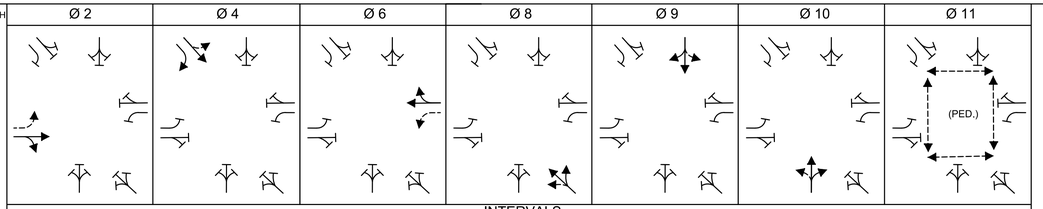
SEQUENCE & TIMING
FOR
FULL ACTUATED CONTROL

WILLOW ROAD / BRUCE STREET

AT

ROUTE 2A
(AYER ROAD)

APPROX. NORTH



APPROACH	DIRECTION	HOUSINGS	INTERVALS 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	FLASHING OPERATION
ROUTE 2A (AYER ROAD)	EB	A, B	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FY
ROUTE 2A (AYER ROAD)	WB	E, F	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	FY
GAS STATION DRIVEWAY	NB	C, D	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	FR
WILLOW ROAD	SEB	G,H	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FR
BRUCE STREET	NWB	J,K,L	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	FR
RESIDENTIAL DRIVEWAY	SB	M,N	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	FR
PEDESTRIANS	ALL	P1 - P10	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	OFF
TIMING IN SECONDS																								
MINIMUM GREEN (INITIAL)			8			6			8			6			6			6						EMERGENCY ONLY
MAX GREEN 1			58			19			58			19			6			6						
MAX GREEN 2			45			32			45			32			6			6						
VEHICLE EXTENSION			3			3			3			3			3			3						
YELLOW CLEARANCE				5			3.5			5			3			3			3					
RED CLEARANCE					2			3			2			3.5			4			4				
PED WALK INTERVAL																					7			
PED CLEARANCE INTERVAL																						23	3	
DETECTION (MEMORY)			NON-LOCK			NON-LOCK			NON-LOCK			NON-LOCK			NON-LOCK			NON-LOCK			LOCK			
RECALL			SOFT			OFF			SOFT			OFF			OFF			OFF			OFF			

NOTES:

1. STANDARD NEMA CLEARANCES SHALL APPLY.
2. MAXIMUM GREEN 1 SHALL BE IN EFFECT ALL THE TIME EXCEPT AS NOTED BELOW.
3. MAXIMUM GREEN 2 SHALL BE IN EFFECT ON WEEKDAYS FROM 6AM TO 9AM.
4. PREEMPTION MINIMUM GREENS SHALL BE SIX SECONDS.
5. 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.
6. NORMAL CLEARANCES SHALL BE PROVIDED ON PHASES THAT ARE TERMINATED BY PREEMPTION DEMAND.
7. PEDESTRIAN PHASE SHOULD ONLY BE SERVED UPON PEDESTRIANS' PUSHBUTTON ACTIVATION.

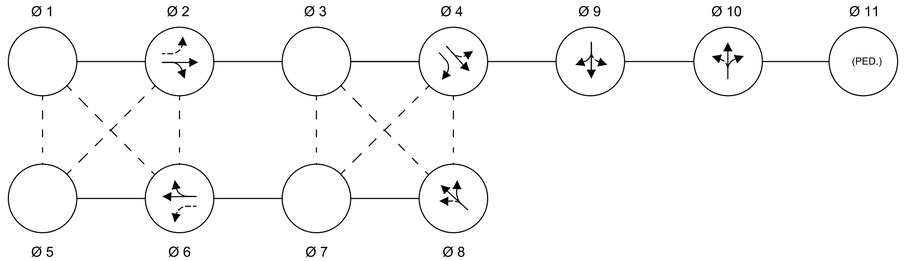
VIDEO DETECTION DATA

DETECTOR NUMBER	Ø CALLED	Ø EXT.	OPERATIONS	DELAY TIME	EXT. TIME
3	9	9	PRESENCE	-	-
4	4	4	PRESENCE	-	-
5	4	4	PRESENCE	-	-
8	10	10	PRESENCE	-	-
11	8	8	PRESENCE	-	-

LOOP DETECTOR DATA

DETECTOR NUMBER	LOOP SIZE	Ø CALLED	Ø EXT.	MODE A=PULSE B=PRES.	DELAY TIME	EXT. TIME
1	6'X25'	6	6	B	0	-
2	6'X25'	6	6	B	0	-
6	6'X25'	2	2	B	0	-
7	6'X25'	2	2	B	0	-
9	6'X6'	-	6	B	0	3
10	6'X6'	-	2	B	0	3

DUAL RING PHASING NOTES:



1. PHASES ASSOCIATED BY A SOLID LINE SHALL NOT OPERATE CONCURRENTLY.
2. PHASES ASSOCIATED BY A DASHED LINE MAY OPERATE CONCURRENTLY.
3. THROUGH MOVEMENTS MAY INCLUDE RIGHT TURNS.
4. IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT SHALL NOT CHANGE DURING THE CHANGE INTERVAL(S) UNLESS OTHERWISE NOTED.

MAJOR ITEMS REQUIRED

PAY ITEM	QUANTITY	ITEM
815.	1	SERVICE CONNECTION (OVERHEAD)
	1	CONTROLLER NEMA 8 PHASE TS-2 (TYPE 1), CAB, & FDN
	1	35 FT GALV. STEEL MAST ARM ASSEMBLY, BASE & FDN
	1	40 FT GALV. STEEL MAST ARM ASSEMBLY, BASE & FDN
	1	45 FT GALV. STEEL MAST ARM ASSEMBLY, BASE & FDN
	4	8 FT PEDESTRIAN SIGNAL POST, BASE & FDN
	3	10 FT SIGNAL POST, BASE & FDN
	13	12 INCH 1 WAY 3-SECTION LED VEHICLE SIGNAL INDICATION
	10	16 INCH LED PEDESTRIAN SIGNAL INDICATION WITH COUNTDOWN
	10	APS DEVICE, SIGN & SADDLE
	1	PREEMPTION PHASE SELECTOR MODULE-FOUR CHANNEL
	1	PREEMPTION CARD RACK
	1	EMERGENCY PRE-EMPTION CONFIRMATION STROBE LIGHT
	4	EMERGENCY PRE-EMPTION RECEIVER (DETECTOR) - ONE WAY
	4	VIDEO DETECTION CAMERA

PLUS ALL NECESSARY DUCT, CABLE, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION OF A FULLY OPERATIONAL SIGNAL SYSTEM AS INTENDED ON THESE PLANS

FIRE PRE-EMPTION SCHEDULE

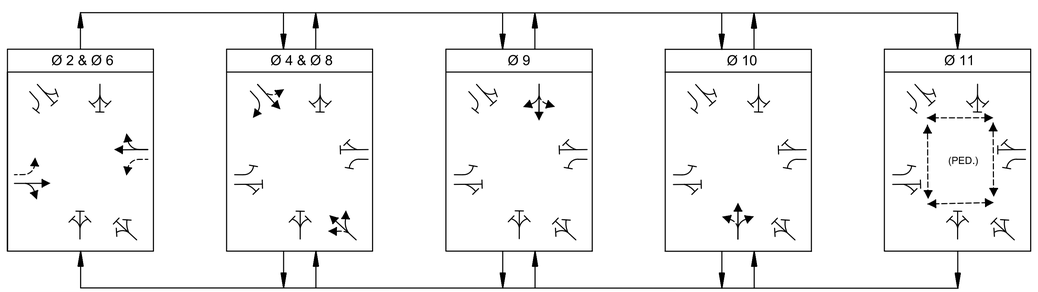
RECEIVER AND PRIORITY	PRE-EMPT PHASE ASSIGNMENT	APPROACH AND MOVEMENT	VEHICLE PHASE ASSIGNMENT	NEXT PHASE CALLED
R1	2	EB	Ø 2	Ø 2 + Ø 6
R2	1	WB	Ø 6	Ø 2 + Ø 6
R3	4	SEB	Ø 4	Ø 4 + Ø 8
R4	3	NWB	Ø 8	Ø 4 + Ø 8

NOTES:

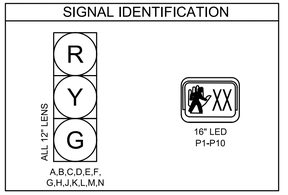
1. EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE OPTICALLY TRANSMITTED BY OPTICAL EMITTERS MOUNTED IN EMERGENCY VEHICLES AND RECEIVED BY OPTICAL RECEIVERS LOCATED AT THE INTERSECTION.
2. PRE-EMPTION SIGNALS SHALL BE SERVICED ON A PRIORITY BASIS WITH RECEIVERS ASSIGNED DESCENDING PRIORITIES AS FOLLOWS: (R1, R2, R3, THEN R4)
3. MINIMUM GREEN, NORMAL VEHICLE AND PEDESTRIAN CLEARANCE SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
4. ONCE PRE-EMPTION TERMINATES THE SIGNAL WILL RETURN TO PHASE SHOWN IN COLUMN "NEXT PHASE CALLED" TO RESUME NORMAL OPERATION.

PREFERENTIAL PHASING SEQUENCE

APPROX. NORTH



SIGNAL IDENTIFICATION



NOTES:

1. ALL VEHICLE LENSES SHALL BE LED TYPE.
2. ALL VEHICLE SIGNAL HEADS SHALL BE 12 INCHES.
3. ALL HOUSINGS TO BE PROVIDED WITH TUNNEL VISORS AND 5-INCH NON-LOUVERED BACKPLATES WITH 3-INCH RETROREFLECTIVE BORDER.
4. ALL HOUSINGS TO BE FIXED MOUNTED.

608443_TRA(TSIG PLANS).DWG Plotted on 13-Nov-2020 11:15 AM

TEMPORARY TRAFFIC CONTROL NOTES:

1. MINIMUM LANE WIDTH OF 11 FEET SHALL BE MAINTAINED ALL THE TIME.

2. THE CONTRACTOR SHALL COORDINATE APPROVAL OF ANY CHANGES TO THE TEMPORARY TRAFFIC CONTROL PLAN WITH MASSACHUSETTS DEPARTMENT OF TRANSPORTATION (MASSDOT) PRIOR TO CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL ALSO NOTIFY MASSDOT AND THE TOWNS OF LITTLETON AND AYER THREE (3) WEEKS IN ADVANCE OF PLACING TEMPORARY TRAFFIC CONTROL SIGNS.

3. THESE PLANS ARE NOT INTENDED TO LIMIT THE CONTRACTOR'S APPROACH TO SCHEDULE THE WORK BUT TO OUTLINE ONE WAY OF PROGRESSING. THE CONTRACTOR IS EXPECTED TO USE KNOWLEDGE AND EXPERIENCE TO PERFORM THE WORK IN THE MOST EFFICIENT AND SAFE MANNER IN COMPLIANCE WITH THE DRAWINGS AND SPECIFICATIONS.

4. PLACE ALL SAFETY DEVICES AND CONSTRUCTION SIGNING BEFORE ACTUAL CONSTRUCTION WORK BEGINS.

5. DISTANCES ARE A GUIDE AND MAY BE ADJUSTED BASED ON FIELD CONDITIONS WITH THE APPROVAL OF THE ENGINEER.

6. WHEN EXISTING SIGNS ARE NO LONGER APPLICABLE THEY SHALL BE TEMPORARILY COVERED DURING CONSTRUCTION OR REMOVED AND RESET UPON COMPLETION OF CONSTRUCTION.

7. ALL SIGNS SHALL BE REFLECTORIZED, WITH REFLECTIVE SHEETING CONFORMING TO M9.30.0. ALL SIGN COLORS SHALL BE PER THE CONSTRUCTION SIGN SUMMARY TABLE AND CURRENT MUTCD.

8. SIGNS AND SIGN SUPPORTS LOCATED ON OR NEAR THE TRAVELED WAY MUST PASS THE CRITERIA SET FORTH IN THE NCHRP 350 REPORT.

9. WHEN TEMPORARY PAVEMENT MARKINGS ARE NO LONGER APPLICABLE THEY SHALL BE REMOVED. CONTRACTOR SHALL RECORD EXISTING PAVEMENT MARKINGS AND RESTORE ALL MARKINGS TO EXISTING CONDITIONS AT THE CONCLUSION OF CONSTRUCTION.

10. ALL TRAFFIC CONTROL DEVICES SHALL BE REMOVED IMMEDIATELY WHEN NO LONGER NEEDED.

11. UNLESS OTHERWISE NOTED, ALL PAVEMENT MARKINGS, SIGNS AND OTHER TRAFFIC EQUIPMENT REMOVED OR DAMAGED AS A RESULT OF THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED IN CONFORMANCE WITH THE CONTRACT DOCUMENTS.

12. CONTRACTOR SHALL INSTALL, RENEW, AND MAINTAIN ALL TRAFFIC CONTROL DEVICES AS SHOWN ON THE DRAWINGS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

13. ACCESS/EGRESS TO ALL ABUTTERS SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.

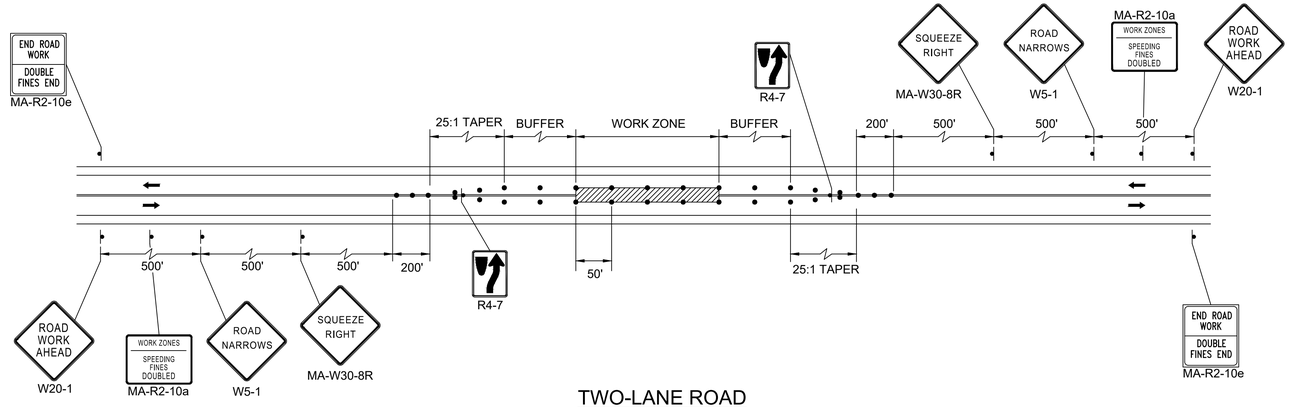
15. CONTRACTOR SHALL MAINTAIN EMERGENCY PASSAGE AT ALL TIMES TO BUILDINGS WITHIN AND ADJACENT TO THE PROJECT LIMITS AS WELL AS A LARGER AREA IF AFFECTED BY CONSTRUCTION CONDITIONS. CONTRACTOR SHALL MAINTAIN 24 HOUR EMERGENCY VEHICLE ACCESS TO CONSTRUCTION AREAS.

16. CONTRACTOR SHALL COORDINATE WITH ABUTTERS FOR THE PROPOSED WORK AND SHALL NOTIFY EACH ABUTTER AT LEAST 24 HOURS IN ADVANCE OF THE START OF THE WORK THAT WILL REQUIRE TEMPORARY CLOSURE OF ACCESS TO THEIR PROPERTY.

17. THE CONTRACTOR SHALL COORDINATE THE WORK WITH ALL ABUTTING PROJECTS.

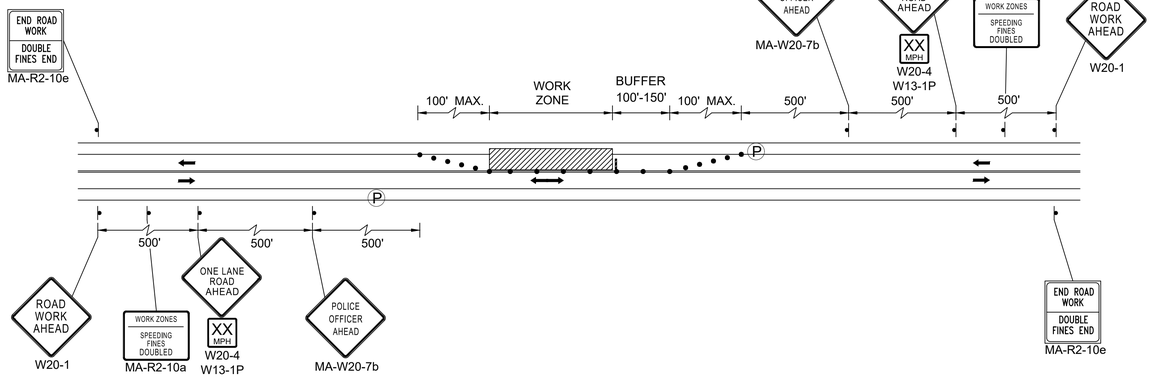
19. CONSTRUCTION ACTIVITIES REQUIRING LANE CLOSURES SHALL NOT BE PERFORMED DURING PM PEAK TRAVEL TIMES (4-6 PM).

20. THE FIRST TEN DRUMS OF A TAPER SHALL BE MOUNTED WITH SEQUENTIAL FLASHING TYPE A LIGHTS. SEE FIGURE GEN-1 OF THE MASSACHUSETTS TTCP.



TWO-LANE ROAD
CENTER OF ROAD CLOSURE

NOT TO SCALE

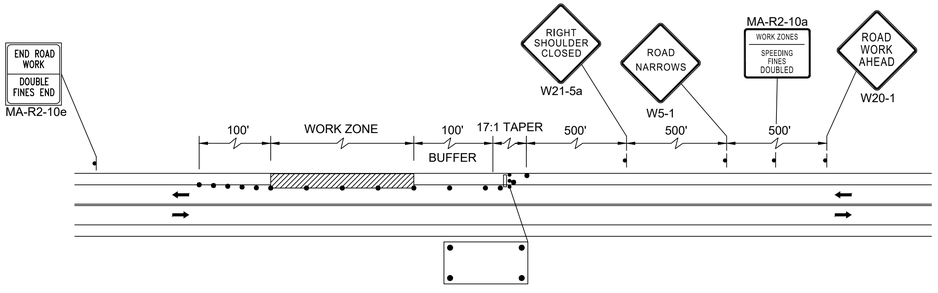


TWO-LANE ROAD
ONE LANE ALTERNATING TRAFFIC

NOT TO SCALE

TYPICAL INTERSECTION
PROJECT LIMIT SIGNING

NOT TO SCALE

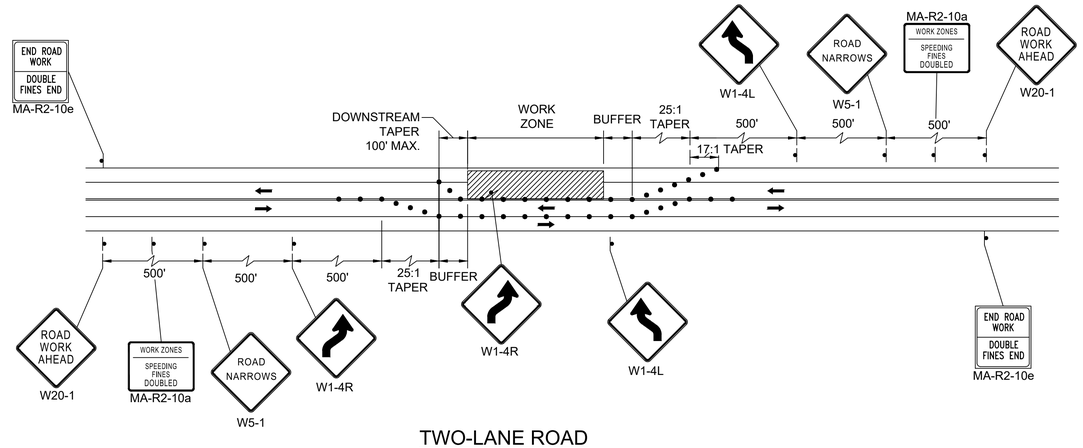


LEGEND

- DIRECTION OF TRAFFIC
- SIGN
- (P) POLICE OFFICER
- REFLECTORIZED DRUM
- WORK ZONE
- TYPE III BARRICADE
- ARROW BOARD

TWO-LANE ROAD
SHOULDER CLOSED

NOT TO SCALE



TWO-LANE ROAD
SHOULDER AND TRAVEL LANE CLOSED

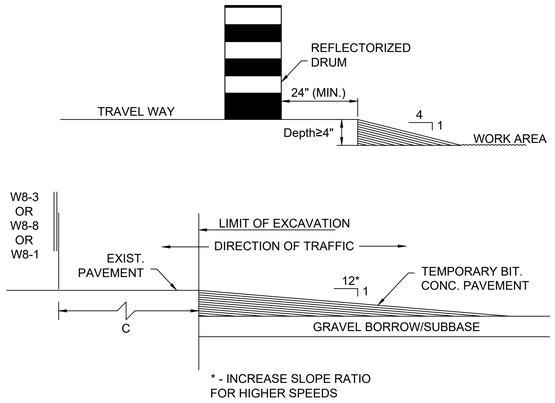
NOT TO SCALE

LITTLETON / AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	26	57
PROJECT FILE NO.	608443		

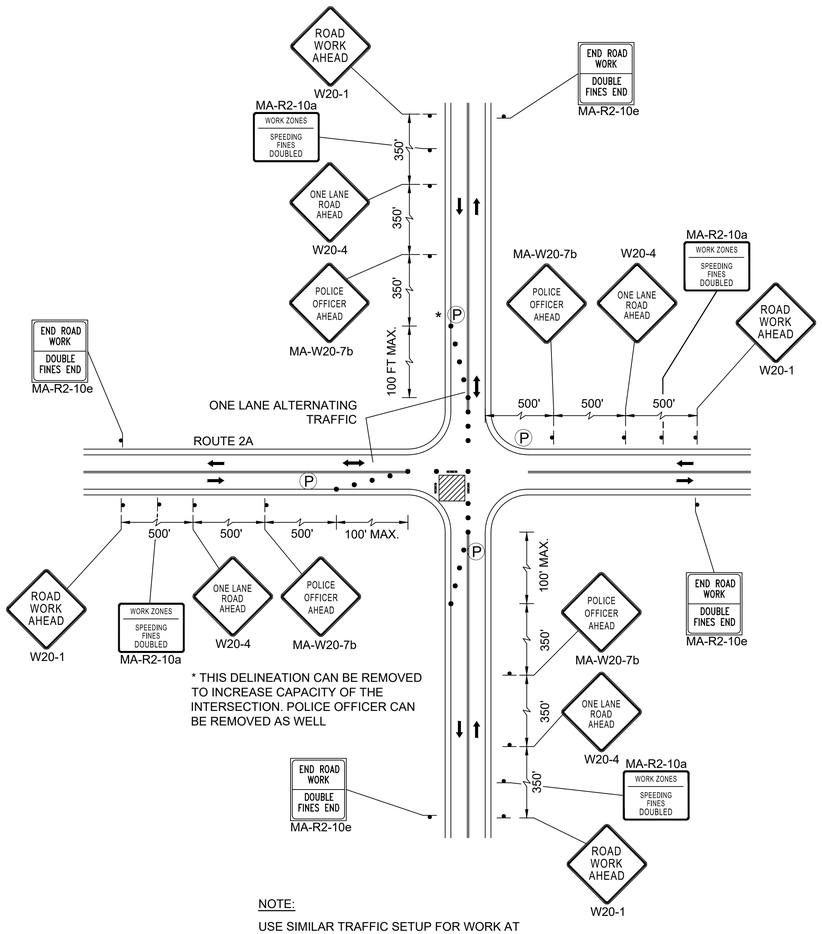
TEMPORARY TRAFFIC CONTROL PLANS (1 OF 6)

608443_TR5(TTCP).DWG Plotted on 13-Nov-2020 11:16 AM



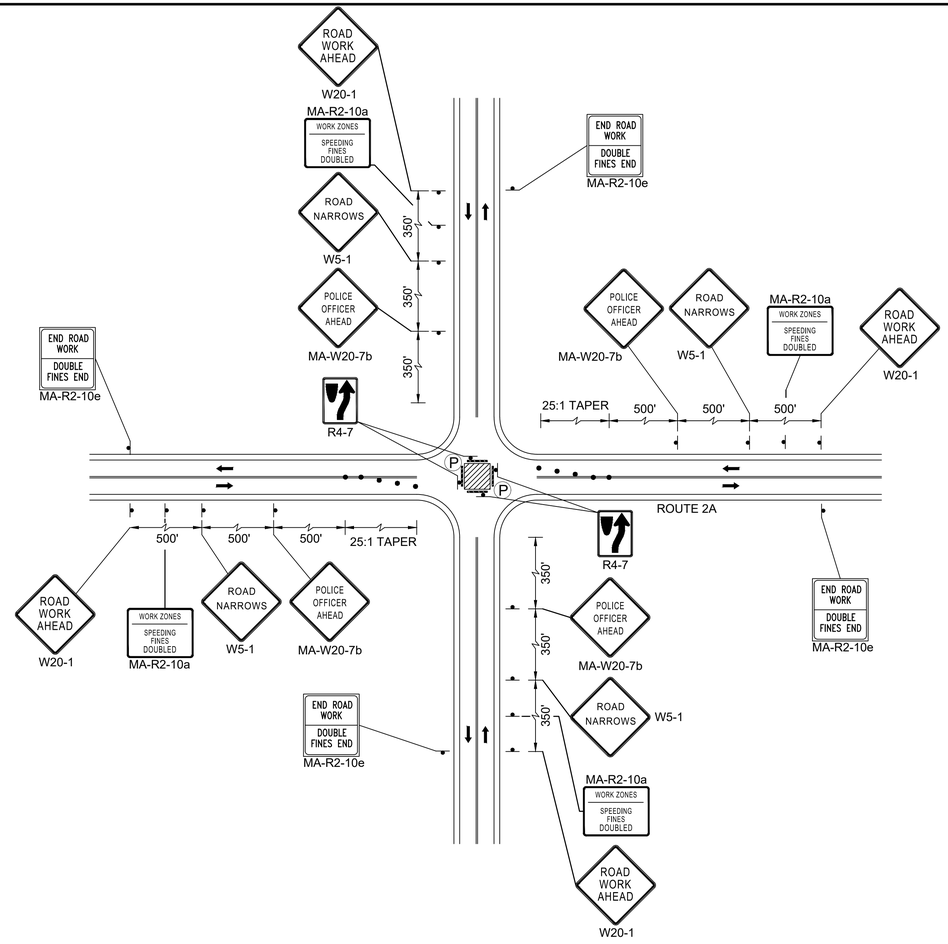
LATERAL AND LONGITUDINAL DROP-OFF DETAILS

NOT TO SCALE



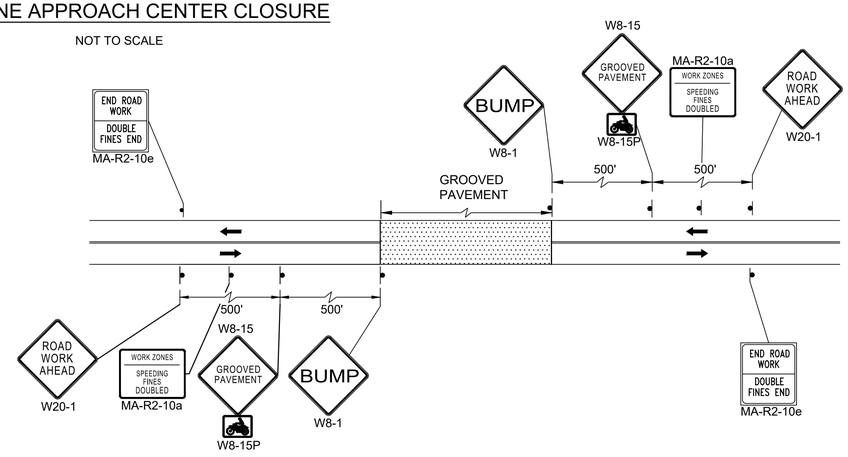
QUADRANT CLOSURE AT INTERSECTION

NOT TO SCALE



SINGLE LANE APPROACH CENTER CLOSURE

NOT TO SCALE



TYPICAL APPLICATION GROOVED PAVEMENT

NOT TO SCALE

LITTLETON / AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	27	57
PROJECT FILE NO.	608443		

TEMPORARY TRAFFIC CONTROL PLANS (2 OF 6)

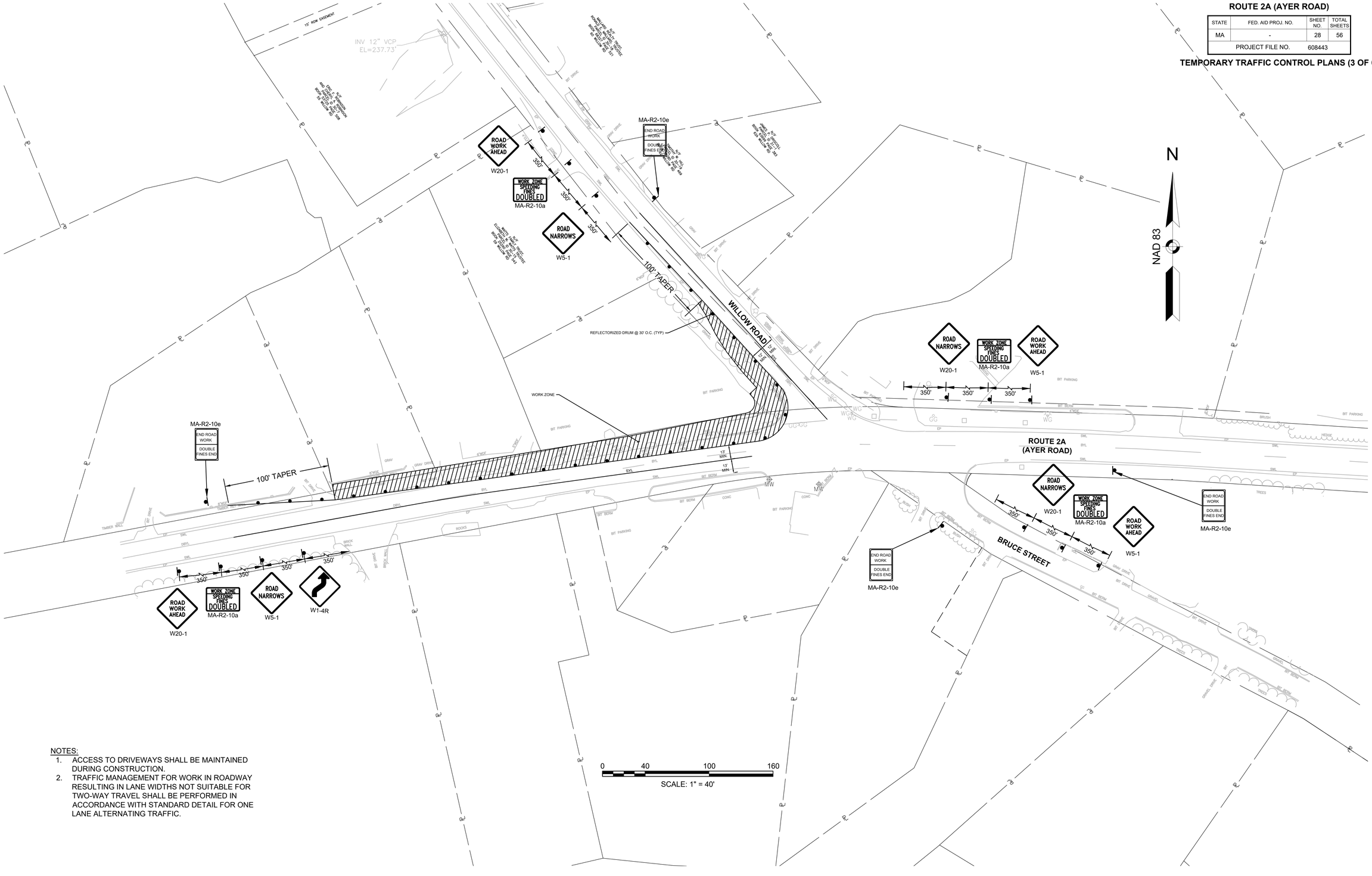
608443_TR5(TTCP).DWG Plotted on 13-Nov-2020 11:16 AM

LITTLETON / AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	28	56
PROJECT FILE NO.	608443		

TEMPORARY TRAFFIC CONTROL PLANS (3 OF 6)

608443_TR6(TMP1).DWG Plotted on 13-Sep-2018 5:31 PM



NOTES:

1. ACCESS TO DRIVEWAYS SHALL BE MAINTAINED DURING CONSTRUCTION.
2. TRAFFIC MANAGEMENT FOR WORK IN ROADWAY RESULTING IN LANE WIDTHS NOT SUITABLE FOR TWO-WAY TRAVEL SHALL BE PERFORMED IN ACCORDANCE WITH STANDARD DETAIL FOR ONE LANE ALTERNATING TRAFFIC.

LITTLETON / AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	29	56
PROJECT FILE NO.	608443		

TEMPORARY TRAFFIC CONTROL PLANS (4 OF 6)

608443_TR7(TMP2).DWG Plotted on 13-Sep-2018 5:31 PM

NAD 83

N

ROUTE 2A (AYER ROAD)

WILLOW ROAD

BRUCE STREET

MA-R2-10e
END ROAD WORK
DOUBLE FINES END

ROAD WORK AHEAD
W20-1

WORK ZONE SPEEDING FINES DOUBLED
MA-R2-10a

ROAD NARROWS
W5-1

350'

PT 38.2

100' TAPER

REFLECTORIZED DRUM @ 30' O.C. (TYP)

WORK ZONE

13' MIN.

NOTES:

1. ACCESS TO DRIVEWAYS SHALL BE MAINTAINED DURING CONSTRUCTION.
2. TRAFFIC MANAGEMENT FOR WORK IN ROADWAY RESULTING IN LANE WIDTHS NOT SUITABLE FOR TWO-WAY TRAVEL SHALL BE PERFORMED IN ACCORDANCE WITH STANDARD DETAIL FOR ONE LANE ALTERNATING TRAFFIC.

0 40 100 160

SCALE: 1" = 40'

LITTLETON / AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	30	56
PROJECT FILE NO.	608443		

TEMPORARY TRAFFIC CONTROL PLANS (5 OF 6)

608443_TR8(TMP3).DWG Plotted on 13-Sep-2018 5:31 PM

N

NAD 83

ROUTE 2A
(AYER ROAD)

WILLOW ROAD

BRUCE STREET

(APPROXIMATE) TOWN OF AYER
TOWN OF LITTLETON

MA-R2-10e
END ROAD WORK
DOUBLE FINES END

ROAD WORK AHEAD
W20-1

WORK ZONE SPEEDING FINES DOUBLED
MA-R2-10a

ROAD NARROWS
W5-1

350'

100' TAPER

14' MIN.

13' MIN.

WORK ZONE

REFLECTORIZED DRUM @ 30' O.C. (TYP)

NOTES:
1. ACCESS TO DRIVEWAYS SHALL BE MAINTAINED DURING CONSTRUCTION.
2. TRAFFIC MANAGEMENT FOR WORK IN ROADWAY RESULTING IN LANE WIDTHS NOT SUITABLE FOR TWO-WAY TRAVEL SHALL BE PERFORMED IN ACCORDANCE WITH STANDARD DETAIL FOR ONE LANE ALTERNATING TRAFFIC.

0 40 100 160
SCALE: 1" = 40'

LITTLETON / AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	31	56
PROJECT FILE NO.	608443		

TEMPORARY TRAFFIC CONTROL PLANS (6 OF 6)

608443_TR9(TMP4).DWG Plotted on 13-Sep-2018 5:31 PM

N

NAD 83

ROUTE 2A
(AYER ROAD)

WILLOW ROAD

BRUCE STREET

TOWN OF AYER
TOWN OF LITTLETON
(APPROXIMATE)

BEGIN PROJECT
BEGIN FINE MILLING AND RESURFACING
STATION 1+25.00
COORD N 2925970.8040
E 645855.7660

MA-R2-10e
END ROAD WORK
DOUBLE FINES END

ROAD WORK AHEAD
W20-1

WORK ZONE SPEEDING FINES DOUBLED
MA-R2-10a

ROAD NARROWS
W5-1

350'

100' TAPER

13' MIN.

0 40 100 160

SCALE: 1" = 40'

NOTES:
1. ACCESS TO DRIVEWAYS SHALL BE MAINTAINED DURING CONSTRUCTION.
2. TRAFFIC MANAGEMENT FOR WORK IN ROADWAY RESULTING IN LANE WIDTHS NOT SUITABLE FOR TWO-WAY TRAVEL SHALL BE PERFORMED IN ACCORDANCE WITH STANDARD DETAIL FOR ONE LANE ALTERNATING TRAFFIC.