MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

PLAN & PROFILE OF

MASSACHUSETTS AVENUE ROADWAY IMPROVEMENTS

IN THE TOWN OF

LEXINGTON

MIDDLESEX COUNTY

FEDERAL AID PROJECT NO. xxxxxxxxxxxxxxx

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	1	123
PROJECT FILE NO.	607409		

TITLE SHEET & INDEX

607409_HDITL1.DWG 24-Apr-2016

THE MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES DATED 1988, AS AMENDED, THE SUPPLEMENTAL SPECIFICATIONS DATED JULY 1, 2015, THE 2014 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS WITH MASSACHUSETTS AMENDMENTS, 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, WILL GOVERN.

DESIGN DESIGNATION (MASSACHUSETTS AVENUE)

DESIGN SPEED	35 MPH
ADT (2013)	20,370
ADT (2023)	21,200
K	8.0%
D	52% WB
T (PEAK HOUR)	3.8%
T (AVERAGE DAY)	7.5%
DHV	1,625
DDHV	840
FUNCTIONAL CLASSIFICATION	URBAN PRINCIPAL ARTERIAL

DESIGN DESIGNATION (MARRETT ROAD)

DESIGN SPEED	30 MPH
ADT (2013)	7,815
ADT (2023)	8,055
K	9.7%
D	52% SB
T (PEAK HOUR)	N/A
T (AVERAGE DAY)	N/A
DHV	765
DDHV	395
FUNCTIONAL CLASSIFICATION	URBAN MINOR ARTERIAL

DESIGN DESIGNATION (MAPLE STREET)

DESIGN SPEED	30 MPH
ADT (2013)	12,760
ADT (2023)	13,280
K	9.6%
D	52% EB
T (PEAK HOUR)	4.6%
T (AVERAGE DAY)	5.6%
DHV	1,225
DDHV	640
FUNCTIONAL CLASSIFICATION	URBAN MINOR ARTERIAL

DESIGN DESIGNATION (PLEASANT STREET)

DESIGN SPEED	30 MPH
ADT (2013)	13,955
ADT (2023)	14,525
K	7.0%
D	54% SB
T (PEAK HOUR)	3.6%
T (AVERAGE DAY)	4.2%
DHV	980
DDHV	530
FUNCTIONAL CLASSIFICATION	URBAN PRINCIPAL ARTERIAL

INDEX

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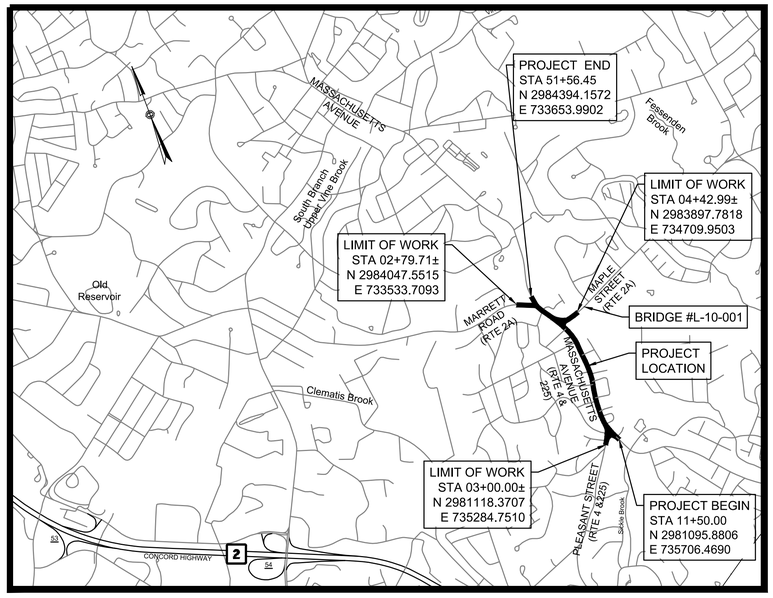


CONVENTIONAL SIGNS

COUNTY, CITY, OR TOWN BOUNDARY . . . . . .
COUNTY, CITY, OR TOWN SIDE LINE . . . . . .
FENCE LINE . . . . . .
BASE LINE OR SURVEY LINE . . . . . N14°50'04"W 35 54.75 FEET
RIGHT OF WAY LINE . . . . . .
CULVERT . . . . . .

PROPOSED SURFACE
PRESENT SURFACE
PRES. 54.1 54.32 PROP.
35
ELEVATIONS . . . . . .
POLE . . . . . .

ELEVATIONS REFER TO U.S.C. & G.S. MEAN SEA LEVEL DATUM OF 1929

1500 0 1500 3000
SCALE 1" = 1500'

LENGTH OF PROJECT (MASSACHUSETTS AVENUE) = 4006.45 FEET = 0.759 MILES
LENGTH OF PROJECT (PLEASANT STREET) = 300.00 FEET = 0.057 MILES
LENGTH OF PROJECT (MAPLE STREET) = 442.99 FEET = 0.084 MILES
LENGTH OF PROJECT (MARRETT ROAD) = 279.71 FEET = 0.053 MILES

75% SUBMISSION
APRIL, 2016

DATE	DESCRIPTION	REV #

massDOT Massachusetts Department of Transportation Highway Division

RECOMMENDED FOR APPROVAL

CHIEF ENGINEER DATE

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

DIVISION ADMINISTRATOR DATE

APPROVED

HIGHWAY ADMINISTRATOR DATE

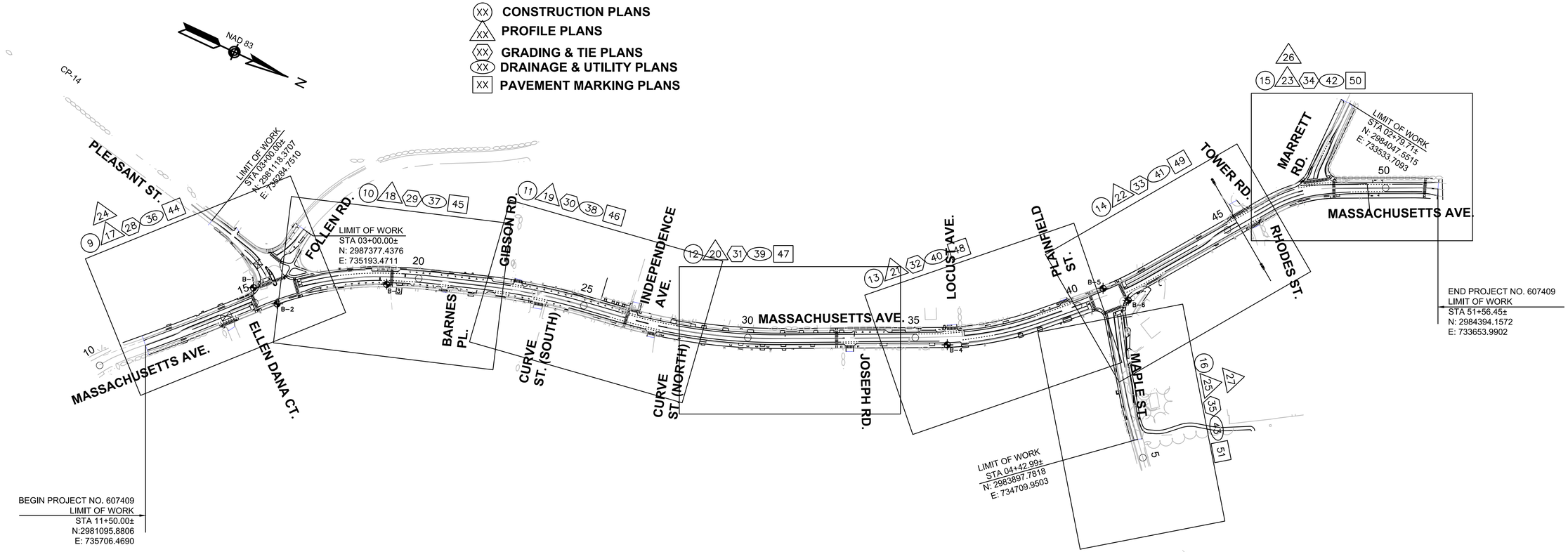
LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	2	123
PROJECT FILE NO.	607409		

KEY & BORING LOCATION

LEGEND

- (XX) CONSTRUCTION PLANS
- (XX) PROFILE PLANS
- (XX) GRADING & TIE PLANS
- (XX) DRAINAGE & UTILITY PLANS
- [XX] PAVEMENT MARKING PLANS



607409_HD(KP).DWG Plotted on 24-Apr-2016 6:45 PM

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	3	123
PROJECT FILE NO.	607409		

BORING LOGS

Geologic - Earth Exploration, Inc.

7 Sherwood Drive, Norfolk, MA 02056
TEL 508-384-4434 FAX 508-384-4452

CLIENT: BSC Group
PROJECT: Mass Ave
LOCATION: Lexington, MA
BORING #: B-1
PAGE 1 OF 1

File #: 16041
Date Started: 03/14/16
Date Completed: 03/14/16
Driller: C. O'Donnell
Site Rep.:

	CASING	SAMPLER	CORE BARREL
TYPE	HSA	SS	
SIZE	3 1/4"	1 3/8"	
HAMMER		140#	---
FALL		30"	---

Surface Elevation:
Station:
Groundwater level readings
Date 3/14/16 Depth 8.5'
Date Depth

Depth ft	Sample No.	Depth ft	Pen. in	Rec. in	Blows/6"	Sample Description
	S-1	0.0-2.0	24	20	4-4-5-6	S-1 Dry loose fine to medium SAND, trace coarse Sand
5	S-2	4.0-6.0	24	12	4-12-13-17	S-2 Dry brown medium dense fine to medium SAND, some coarse Sand, trace fine Gravel
10	S-3	9.0-11.0	24	16	4-4-4-7	S-3 Wet loose light brown fine SAND, trace Silt
15	S-4	14.0-16.0	24	12	8-9-12-10	S-4 Wet medium dense brown fine to medium SAND, trace coarse Sand
20	S-5	19.0-21.0	24	18	8-9-11-10	S-5 Similar to S-4
						Bottom of exploration at 21.0'
25						
30						

Ground Surface to _____ used _____ then _____

Proportions Used		Cohesive Consistency Blows/ft			Cohesionless Density Blows/ft		Sample Type
Trace	0 to 10%	0-2 Very Soft	9-15	Stiff	0-10	Loose	UP = Fixed Piston
Little	10 to 20%	3-4 Soft	16-30	V-Stiff	10-30	M-Dense	UT = Shelby Tube
Some	20 to 35%	5-8 M-Stiff	31+	Hard	30-50	Dense	OE = Open End Rod
And	35 to 50%				50+	V-Dense	* = 300# hammer

Notes:
1. The stratification lines represent the approximate boundary between soil types. The transition may be gradual.
2. Water level readings were made in the drill hole during or at the completion of drilling. The water level may fluctuate over time.

Remarks: NOTE: All soil descriptions are made in the field by the Drilling Foreman. No laboratory analyses were performed for this purpose.

Geologic - Earth Exploration, Inc.

7 Sherwood Drive, Norfolk, MA 02056
TEL 508-384-4434 FAX 508-384-4452

CLIENT: BSC Group
PROJECT: Mass Ave
LOCATION: Lexington, MA
BORING #: B-2
PAGE 1 OF 1

File #: 16041
Date Started: 03/14/16
Date Completed: 03/14/16
Driller: C. O'Donnell
Site Rep.:

	CASING	SAMPLER	CORE BARREL
TYPE	HSA	SS	
SIZE	3 1/4"	1 3/8"	
HAMMER		140#	---
FALL		30"	---

Surface Elevation:
Station:
Groundwater level readings
Date 3/14/16 Depth 8.5'
Date Depth

Depth ft	Sample No.	Depth ft	Pen. in	Rec. in	Blows/6"	Sample Description
	S-1	0.0-0.0 0.5-2.5	0.5 24	10	1-3-4-7	4" Blacktop S-1 Dry loose brown fine SAND, some coarse Sand, trace Silt
5	S-2	4.0-6.0	24	10	11-17-17-6	S-2 Dry dense dark brown fine SAND, some fine Gravel, trace Cobble
10	S-3	9.0-11.0	24	20	5-9-9-18	S-3 Top of sample wet medium dense light brown SILT, trace fine Sand Bottom of sample wet medium dense light brown fine SAND, trace Silt
15	S-4	14.0-16.0	24	21	27-19-18-21	S-4 Wet dense brown fine to medium SAND, trace coarse Sand, trace Silt
20	S-5	19.0-21.0	24	24	23-28-31-35	S-5 Wet very dense brown fine to medium SAND, some Silt, trace coarse Sand
						Bottom of exploration at 21.0'
25						
30						

Ground Surface to _____ used _____ then _____

Proportions Used		Cohesive Consistency Blows/ft			Cohesionless Density Blows/ft		Sample Type
Trace	0 to 10%	0-2 Very Soft	9-15	Stiff	0-10	Loose	UP = Fixed Piston
Little	10 to 20%	3-4 Soft	16-30	V-Stiff	10-30	M-Dense	UT = Shelby Tube
Some	20 to 35%	5-8 M-Stiff	31+	Hard	30-50	Dense	OE = Open End Rod
And	35 to 50%				50+	V-Dense	* = 300# hammer

Notes:
1. The stratification lines represent the approximate boundary between soil types. The transition may be gradual.
2. Water level readings were made in the drill hole during or at the completion of drilling. The water level may fluctuate over time.

Remarks: NOTE: All soil descriptions are made in the field by the Drilling Foreman. No laboratory analyses were performed for this purpose.

Geologic - Earth Exploration, Inc.

7 Sherwood Drive, Norfolk, MA 02056
TEL 508-384-4434 FAX 508-384-4452

CLIENT: BSC Group
PROJECT: Mass Ave
LOCATION: Lexington, MA
BORING #: B-3
PAGE 1 OF 1

File #: 16041
Date Started: 03/15/16
Date Completed: 03/15/16
Driller: C. O'Donnell
Site Rep.:

	CASING	SAMPLER	CORE BARREL
TYPE	HSA	SS	
SIZE	3 1/4"	1 3/8"	
HAMMER		140#	---
FALL		30"	---

Surface Elevation:
Station:
Groundwater level readings
Date 3/15/16 Depth NE
Date Depth

Depth ft	Sample No.	Depth ft	Pen. in	Rec. in	Blows/6"	Sample Description
	S1	0.0-2.0	24	10	1-2-1-2	S1 Dry loose brown loamy fine SAND, trace Silt and medium Sand
5	S2	4.0-5.5	18	7	21-47-100/6	S2 Dry very dense brown fine SAND, some coarse to medium Sand and fine Gravel
						Boulder 5.5' - 7.0'
						Auger refusal at 8.0'
						Bottom of exploration at 8.0'
10						
15						
20						
25						
30						

Ground Surface to _____ used _____ then _____

Proportions Used		Cohesive Consistency Blows/ft			Cohesionless Density Blows/ft		Sample Type
Trace	0 to 10%	0-2 Very Soft	9-15	Stiff	0-10	Loose	UP = Fixed Piston
Little	10 to 20%	3-4 Soft	16-30	V-Stiff	10-30	M-Dense	UT = Shelby Tube
Some	20 to 35%	5-8 M-Stiff	31+	Hard	30-50	Dense	OE = Open End Rod
And	35 to 50%				50+	V-Dense	* = 300# hammer

Notes:
1. The stratification lines represent the approximate boundary between soil types. The transition may be gradual.
2. Water level readings were made in the drill hole during or at the completion of drilling. The water level may fluctuate over time.

Remarks: NOTE: All soil descriptions are made in the field by the Drilling Foreman. No laboratory analyses were performed for this purpose.

Geologic - Earth Exploration, Inc.

7 Sherwood Drive, Norfolk, MA 02056
TEL 508-384-4434 FAX 508-384-4452

CLIENT: BSC Group
PROJECT: Mass Ave
LOCATION: Lexington, MA
BORING #: B-3A
PAGE 1 OF 1

File #: 16041
Date Started: 03/17/16
Date Completed: 03/17/16
Driller: C. O'Donnell
Site Rep.:

	CASING	SAMPLER	CORE BARREL
TYPE	HW	SS	
SIZE	4"	1 3/8"	
HAMMER		140#	---
FALL		30"	---

Surface Elevation:
Station:
Groundwater level readings
Date 3/17/16 Depth 8.5'
Date Depth

Depth ft	Sample No.	Depth ft	Pen. in	Rec. in	Blows/6"	Sample Description
		0.0				No Samples 0 - 8.0'
5						
						Boulder at 8.0' - 9.0'
10	S1	9.0-9.1	1	0	100/1	S1 No Recovery
						Boulder at 9.5' - 11.0'
15	S2	14.0-15.1	13	8	37-69-100/1	S2 Wet very dense light brown fine to medium SAND and SILT, some fine Gravel
						Rollerbit refusal at 16.0', possible bedrock
						Bottom of exploration at 16.0'
20						
25						
30						

Ground Surface to _____ used _____ then _____

Proportions Used		Cohesive Consistency Blows/ft			Cohesionless Density Blows/ft		Sample Type
Trace	0 to 10%	0-2 Very Soft	9-15	Stiff	0-10	Loose	UP = Fixed Piston
Little	10 to 20%	3-4 Soft	16-30	V-Stiff	10-30	M-Dense	UT = Shelby Tube
Some	20 to 35%	5-8 M-Stiff	31+	Hard	30-50	Dense	OE = Open End Rod
And	35 to 50%				50+	V-Dense	* = 300# hammer

Notes:
1. The stratification lines represent the approximate boundary between soil types. The transition may be gradual.
2. Water level readings were made in the drill hole during or at the completion of drilling. The water level may fluctuate over time.

Remarks: NOTE: All soil descriptions are made in the field by the Drilling Foreman. No laboratory analyses were performed for this purpose.

Geologic - Earth Exploration, Inc.

7 Sherwood Drive, Norfolk, MA 02056
TEL 508-384-4434 FAX 508-384-4452

CLIENT: BSC Group
PROJECT: Mass Ave
LOCATION: Lexington, MA
BORING #: B-4
PAGE 1 OF 1

File #: 16041
Date Started: 03/15/16
Date Completed: 03/15/16
Driller: C. O'Donnell
Site Rep.:

	CASING	SAMPLER	CORE BARREL
TYPE	HSA	SS	
SIZE	3 1/4"	1 3/8"	
HAMMER		140#	---
FALL		30"	---

Surface Elevation:
Station:
Groundwater level readings
Date 3/15/16 Depth 8.5'
Date Depth

Depth ft	Sample No.	Depth ft	Pen. in	Rec. in	Blows/6"	Sample Description
	S1	0.0-2.0	24	8	1-2-1-3	S1 Dry loose brown loamy fine SAND, trace roots and medium Sand, Fill
5	S2	4.0-6.0	24	16	21-35-33-49	S2 Dry very dense light brown fine SAND, little coarse Sand and fine Gravel, trace Cobble Boulder at 7.0' - 8.5'
10	S3	9.0-11.0	24	15	45-60-75-61	S3 Wet very dense brown/gray fine to medium SAND, some coarse Sand and fine Gravel, trace Silt
15	S4	14.0-16.0	24	16	27-35-49-25	S4 Wet very dense brown fine to medium SAND, trace coarse Sand and Silt
20	S5	19.0-20.0	12	10	69-110/6	S5 Wet very dense brown fine SAND, some fine Gravel and coarse Sand, trace Silt
						Bottom of exploration at 20.0'
25						
30						

Ground Surface to _____ used _____ then _____

Proportions Used		Cohesive Consistency Blows/ft			Cohesionless Density Blows/ft		Sample Type
Trace	0 to 10%	0-2 Very Soft	9-15	Stiff	0-10	Loose	UP = Fixed Piston
Little	10 to 20%	3-4 Soft	16-30	V-Stiff	10-30	M-Dense	UT = Shelby Tube
Some	20 to 35%	5-8 M-Stiff	31+	Hard	30-50	Dense	OE = Open End Rod
And	35 to 50%				50+	V-Dense	* = 300# hammer

Notes:
1. The stratification lines represent the approximate boundary between soil types. The transition may be gradual.
2. Water level readings were made in the drill hole during or at the completion of drilling. The water level may fluctuate over time.

Remarks: NOTE: All soil descriptions are made in the field by the Drilling Foreman. No laboratory analyses were performed for this purpose.

Geologic - Earth Exploration, Inc.

7 Sherwood Drive, Norfolk, MA 02056
TEL 508-384-4434 FAX 508-384-4452

CLIENT: BSC Group
PROJECT: Mass Ave
LOCATION: Lexington, MA
BORING #: B-5
PAGE 1 OF 1

File #: 16041
Date Started: 03/16/16
Date Completed: 03/17/16
Driller: C. O'Donnell
Site Rep.:

	CASING	SAMPLER	CORE BARREL
TYPE	HW	SS	
SIZE	4"	1 3/8"	
HAMMER		140#	---
FALL		30"	---

Surface Elevation:
Station:
Groundwater level readings
Date 3/16/16 Depth 8.5'
Date Depth

Depth ft	Sample No.	Depth ft	Pen. in	Rec. in	Blows/6"	Sample Description
	S1	0.0-2.0	24	20	2-7-11-12	S1 Dry medium dense fine SAND and SILT, trace Roots, trace medium to coarse Sand
5	S2	4.0-4.7	8	6	63-100/2	S2 Dry very dense brown/gray fine to coarse SAND and SILT, some fine Gravel Boulder 4.8' - 6.5'
10	S3	9.0-11.0	24	7	23-52-41-27	S3 Moist very dense brown fine to coarse SAND, some Silt, trace coarse Gravel
15	S4	14.0-14.7	8	6	23-100/2	S4 Similar to S3 Possible bedrock at 14.7' Rollerbit refusal at 15.5' Bottom of exploration at 15.5'
20						
25						
30						

Ground Surface to _____ used _____ then _____

Proportions Used		Cohesive Consistency Blows/ft			Cohesionless Density Blows/ft		Sample Type
Trace	0 to 10%	0-2 Very Soft	9-15	Stiff	0-10	Loose	UP = Fixed Piston
Little	10 to 20%	3-4 Soft	16-30	V-Stiff	10-30	M-Dense	UT = Shelby Tube
Some	20 to 35%	5-8 M-Stiff	31+	Hard	30-50	Dense	OE = Open End Rod
And	35 to 50%				50+	V-Dense	* = 300# hammer

Notes:
1. The stratification lines represent the approximate boundary between soil types. The transition may be gradual.
2. Water level readings were made in the drill hole during or at the completion of drilling. The water level may fluctuate over time.

Remarks: NOTE: All soil descriptions are made in the field by the Drilling Foreman. No laboratory analyses were performed for this purpose.

Geologic - Earth Exploration, Inc.

7 Sherwood Drive, Norfolk, MA 02056
TEL 508-384-4434 FAX 508-384-4452

CLIENT: BSC Group
PROJECT: Mass Ave
LOCATION: Lexington, MA
BORING #: B-6
PAGE 1 OF 1

File #: 16041
Date Started: 03/16/16
Date Completed: 03/16/16
Driller: C. O'Donnell
Site Rep.:

	CASING	SAMPLER	CORE BARREL
TYPE	HW	SS	
SIZE	4"	1 3/8"	
HAMMER		140#	---
FALL		30"	---

Surface Elevation:
Station:
Groundwater level readings
Date 3/16/16 Depth 12.0'
Date Depth

Depth ft	Sample No.	Depth ft	Pen. in	Rec. in	Blows/6"	Strata Change ft	Sample Description
	S-1	0.0-2.0	24	2	2-5-2-3		S-1 Dry loose brown loamy Topsoil and fine Gravel
5	S-2	4.0-6.0	24	14	5-11-7-8		S-2 Dry medium dense light brown fine SAND, trace Silt and medium to coarse Sand
10	S-3	9.0-10.0	12	8	13-31-100/0		S-3 Dry very dense brown fine to coarse SAND and GRAVEL, trace Cobble Boulder at 10.0' - 13.0'
15	S-4	14.0-15.5	18	7	31-66-100/6	15.5	S-4 Wet very dense brown fine to coarse SAND, trace Silt and fine Gravel, Till
	C-1	17.0-18.0	12	10			C-1 Weathered Bedrock
	S-5	18.0-18.2	2	1	100/2	19.0	S-5 Weathered Bedrock
	C-2	18.2-19.2	12	2			C-2 Weathered Bedrock
20							Bottom of exploration at 19.0'
25							
30							

Ground Surface to _____ used _____ then _____

Proportions Used		Cohesive Consistency Blows/ft			Cohesionless Density Blows/ft		Sample Type
Trace	0 to 10%	0-2 Very Soft	9-15	Stiff	0-10	Loose	UP = Fixed Piston
Little	10 to 20%	3-4 Soft	16-30	V-Stiff	10-30	M-Dense	UT = Shelby Tube
Some	20 to 35%	5-8 M-Stiff	31+	Hard	30-50	Dense	OE = Open End Rod
And	35 to 50%				50+	V-Dense	* = 300# hammer

Notes:
1. The stratification lines represent the approximate boundary between soil types. The transition may be gradual.
2. Water level readings were made in the drill hole during or at the completion of drilling. The water level may fluctuate over time.

Remarks: NOTE: All soil descriptions are made in the field by the Drilling Foreman. No laboratory analyses were performed for this purpose.

NOTE:
BORING B-3 & B-3A WERE PERFORMED
AT THE SAME LOCATION.

B_ALL - 16041 BSC LEXINGTON, MA GPJ - GEOLOGIC.GDT 04/06/16
607409_HD(BO).DWG Plotted on 24-Apr-2016 6:45 PM

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
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
		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
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'	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
	CW	CROSSWALK
	SWLL	SOLID WHITE LANE LINE
	SWEL	SOLID WHITE EDGE LINE
	SYLL	SOLID YELLOW LANE LINE
	BWLL	BROKEN WHITE LANE LINE
	DWLL	DOTTED WHITE LANE LINE
	DYL	DOTTED YELLOW LINE
	DWLEx	DOTTED WHITE LINE EXTENSION
	DYLEx	DOTTED YELLOW LINE EXTENSION
		12" YELLOW TRANSVERSE LINES @ 10' O.C. @ 45°
	DYCL	DOUBLE YELLOW CENTER LINE

GENERAL NOTES:

1. ALL BASELINE TIES FOR CURB CORNERS AND RADII ARE TO THE P.C.'S OR P.T.'S, UNLESS OTHERWISE NOTED. WHERE PROPOSED CURB MEETS EXISTING CURB, BERM, ROADWAY, AND/OR DRIVEWAY PAVEMENT EDGES, MINOR FIELD ADJUSTMENTS TO EITHER THE DESIGNATED RADIUS OR THE DESIGNATED STATION OF THE P.C. OR P.T. FOR THE PROPOSED CURB OR BERM MAY BE REQUIRED. THESE ADJUSTMENTS SHALL BE MADE IN THE FIELD BY THE CONTRACTOR AS DIRECTED BY THE RESIDENT ENGINEER.
2. ALL EXISTING MUNICIPAL UTILITY CASTINGS THAT ARE TO REMAIN SHALL BE ADJUSTED TO LINE AND GRADE BY THE CONTRACTOR UNLESS OTHERWISE NOTED. ALL PRIVATE TELEPHONE, GAS, AND ELECTRICAL CASTINGS SHALL BE ADJUSTED BY OTHERS.
3. HORIZONTAL DATUM: NORTH AMERICAN DATUM OF 1983 (NAD83), VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
4. THE LOCATIONS OF EXISTING SUBSURFACE UTILITIES SHOWN ON THE PLANS WERE COMPILED FROM AVAILABLE RECORD DRAWINGS AND ARE NOT WARRANTED TO BE CORRECT. THE LOCATIONS ARE APPROXIMATE ONLY AND IN SOME CASES MAY BE INCOMPLETE. THE CONTRACTOR SHALL NOTIFY ALL AGENCIES REQUIRED AND VERIFY THE LOCATIONS OF ALL EXISTING SUBSURFACE UTILITIES PRIOR TO PERFORMING ANY WORK.
5. PRIOR TO THE INSTALLATION OF PROPOSED UTILITIES, THE CONTRACTOR SHALL EXCAVATE TEST PITS AT LOCATIONS OF UTILITY CROSSINGS TO VERIFY DEPTHS OF EXISTING PIPES, CONDUITS OR OTHER FACILITIES, AS DIRECTED BY ENGINEER.
6. THE CONTRACTOR SHALL ENSURE THAT ALL ROADWAY RUNOFF SHALL BE DIRECTED TO CATCH BASINS.
7. ALL WHEELCHAIR RAMPS SHALL BE CONSTRUCTED TO COMPLY WITH THE LATEST MASSDOT - HIGHWAY DIVISION STANDARDS.
8. ALL AREAS OUTSIDE OF THE LIMIT OF WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S OWN EXPENSE.
9. ALL EXISTING TREES TO REMAIN SHALL BE PROTECTED FROM DAMAGE CAUSED BY CONTRACTORS OPERATIONS.

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
CIT	CHANGE IN TYPE
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

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	4	123
PROJECT FILE NO.	607409		

LEGEND & GENERAL NOTES

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

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

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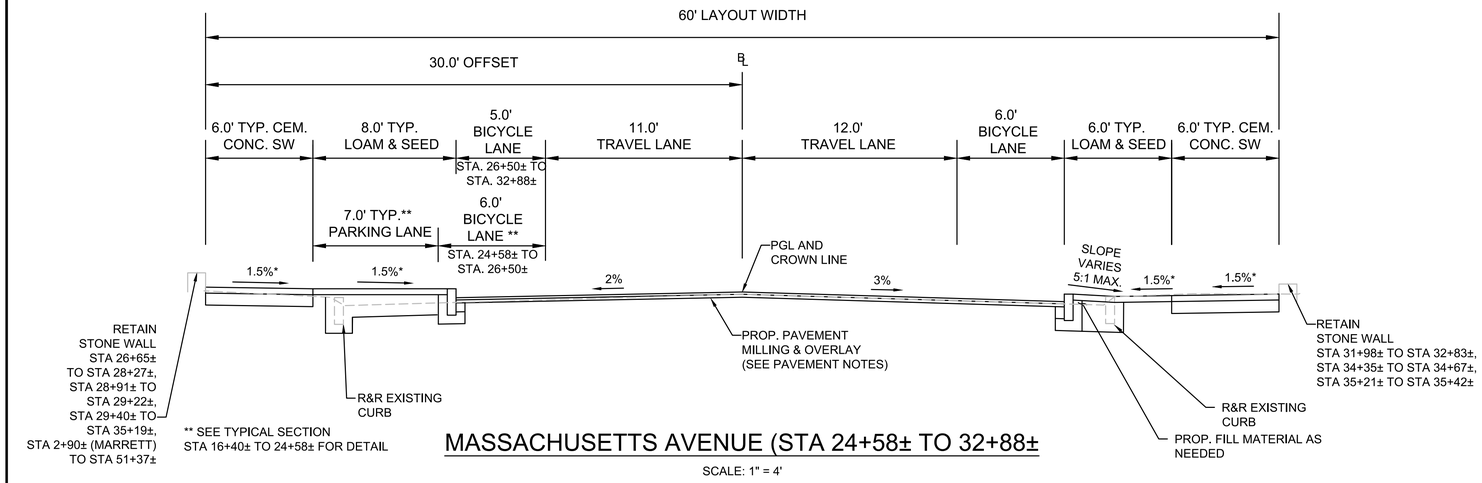
LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

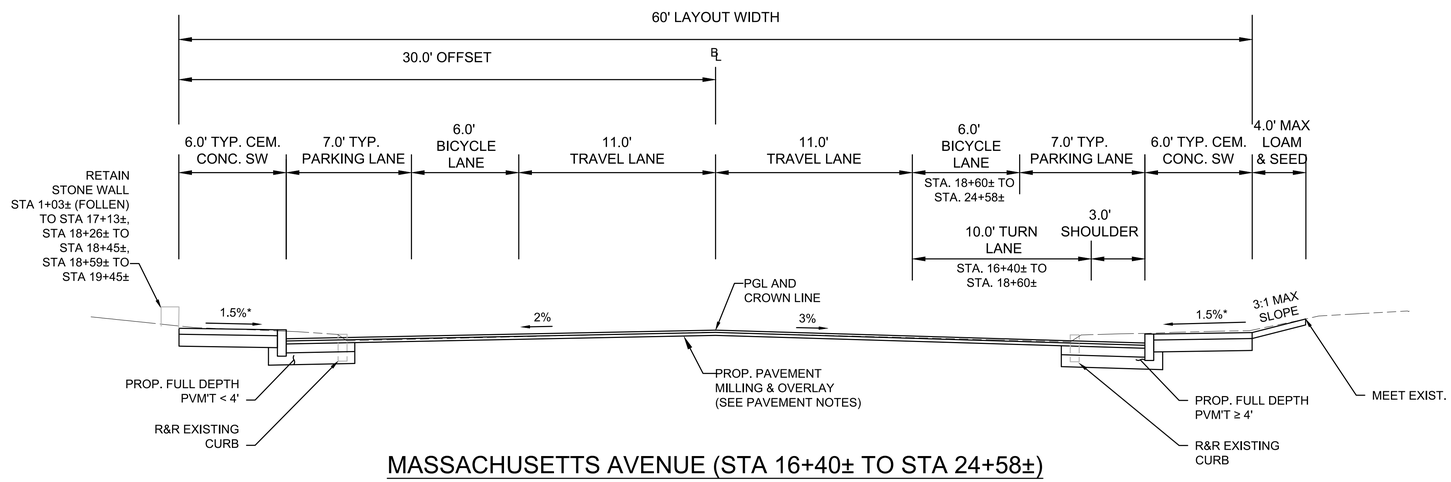
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	5	123
PROJECT FILE NO.	607409		

TYPICAL SECTIONS
SHEET 1 OF 4



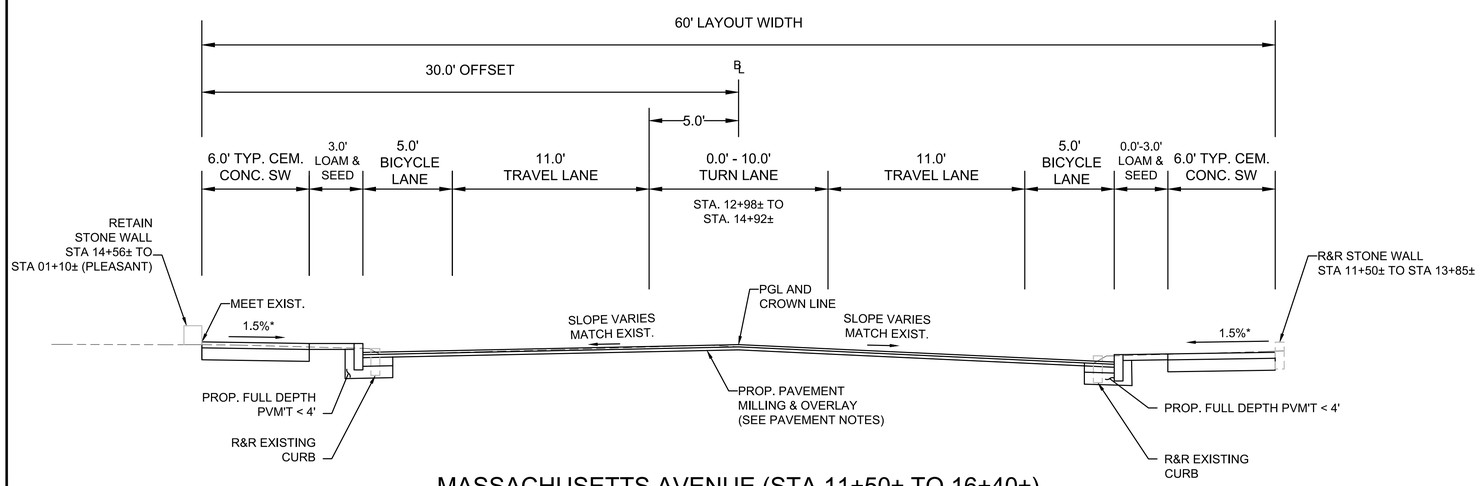
MASSACHUSETTS AVENUE (STA 24+58± TO 32+88±

SCALE: 1" = 4'



MASSACHUSETTS AVENUE (STA 16+40± TO STA 24+58±)

SCALE: 1" = 4'



MASSACHUSETTS AVENUE (STA 11+50± TO 16+40±)

SCALE: 1" = 4'

PROPOSED PAVEMENT NOTES

PROPOSED PAVEMENT MILLING AND OVERLAY

1.5" SUPERPAVE SURFACE COURSE 9.5 (SSC-9.5) OVER
0.05 GAL/SY TACK COAT OVER
2" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5) OVER
0.07 GAL/SY TACK COAT OVER
VARIABLE DEPTH PAVEMENT MILLING (MAX. 3")

PROPOSED FULL DEPTH RECONSTRUCTION (FULL DEPTH PAVEMENT ≥ 4')

1.5" SUPERPAVE SURFACE COURSE 9.5 (SSC-9.5) OVER
0.05 GAL/SY TACK COAT OVER
2" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5) OVER
0.05 GAL/SY TACK COAT OVER
2.5" SUPERPAVE INTERMEDIATE COURSE 19.0 (SIC-19.0) OVER
0.05 GAL/SY TACK COAT OVER
2.5" SUPERPAVE INTERMEDIATE COURSE 19.0 (SIC-19.0) OVER
4" DENSE GRADED CRUSHED STONE OVER
8" GRAVEL BORROW TYPE B

FULL DEPTH PAVEMENT WIDENING < 4'

1.5" SUPERPAVE SURFACE COURSE 9.5 (SSC-9.5) OVER
0.05 GAL/SY TACK COAT OVER
2" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5) OVER
0.07 GAL/SY TACK COAT OVER
6" HIGH EARLY STRENGTH CONCRETE BASE COURSE OVER
8" GRAVEL BORROW TYPE B

CEMENT CONCRETE SIDEWALK/WALK/WCR

4" CEMENT CONCRETE AIR ENTRAINED 4000 PSI, ¾", 610 LB/CY, OVER
8" GRAVEL BORROW TYPE B

CEMENT CONCRETE SIDEWALK AT DRIVEWAY

6" CEMENT CONCRETE AIR ENTRAINED 4000 PSI, ¾", 610 LB/CY, OVER
8" GRAVEL BORROW TYPE B

HMA DRIVEWAY

1.5" SUPERPAVE SURFACE COURSE 9.5 (SSC-9.5) OVER
2" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5) OVER
8" GRAVEL BORROW TYPE B

HMA SIDEWALK

2" SUPERPAVE SURFACE COURSE 9.5 (SSC-9.5) OVER
2" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5) OVER
8" GRAVEL BORROW TYPE B OVER
ORDINARY BORROW AS NEEDED

NOTES:

EXISTING GRAVEL BORROW SATISFYING GRADATION REQUIREMENTS SHALL REMAIN IN PLACE. UNSUITABLE MATERIALS SHALL BE REPLACED WITH GRAVEL BORROW FOR BASE COURSE.

PREPARATION OF UNDERLYING SURFACE, ASPHALT EMULSION FOR TACK COAT, HMA FOR PATCHING, AND HMA JOINT SEALANT SHALL BE IN ACCORDANCE WITH SECTION 450.

ALL PAVEMENT MILLING SHALL ACHIEVE A 2% CROSS SLOPE OR AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

* CONSTRUCTION TOLERANCE ±0.5%

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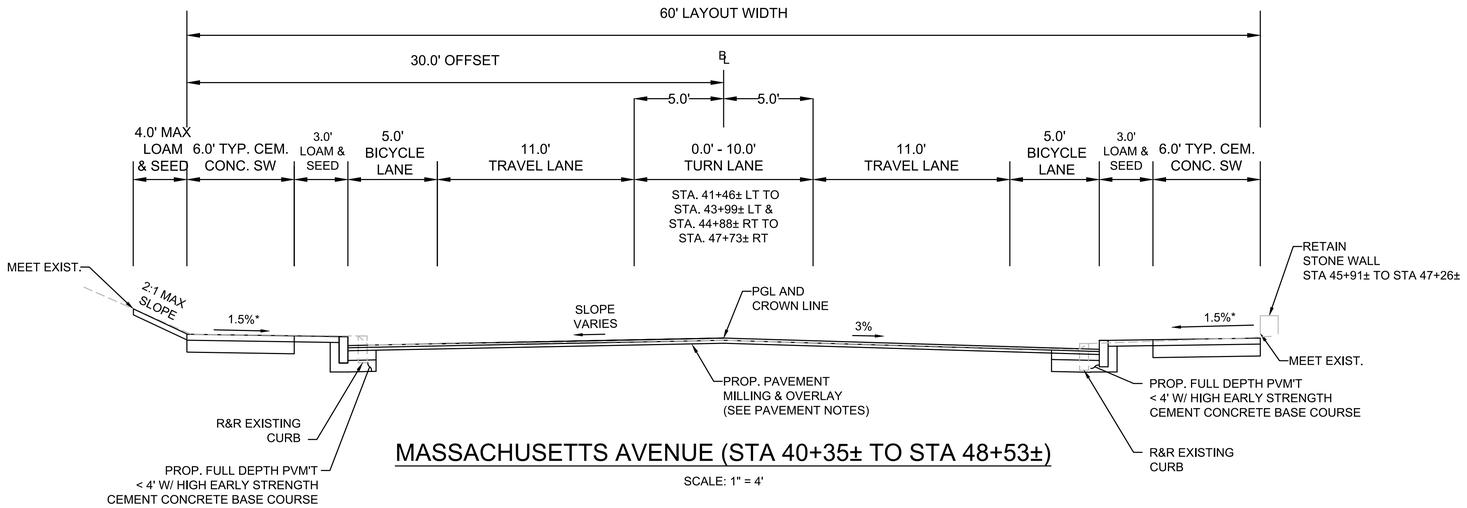
LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

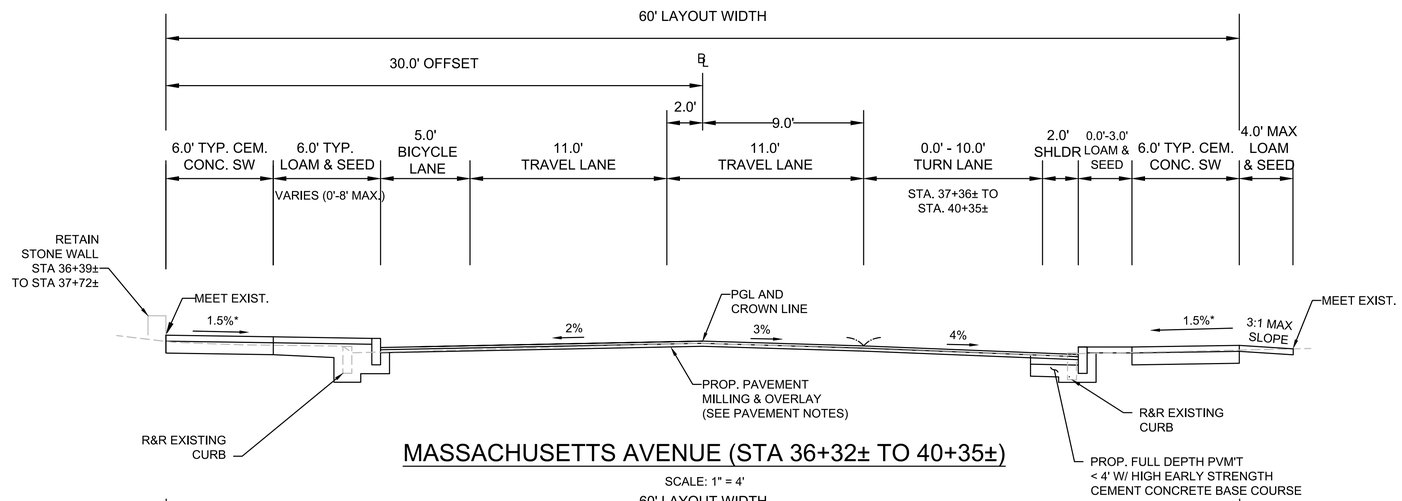
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	6	123
PROJECT FILE NO.	607409		

TYPICAL SECTIONS
SHEET 2 OF 4



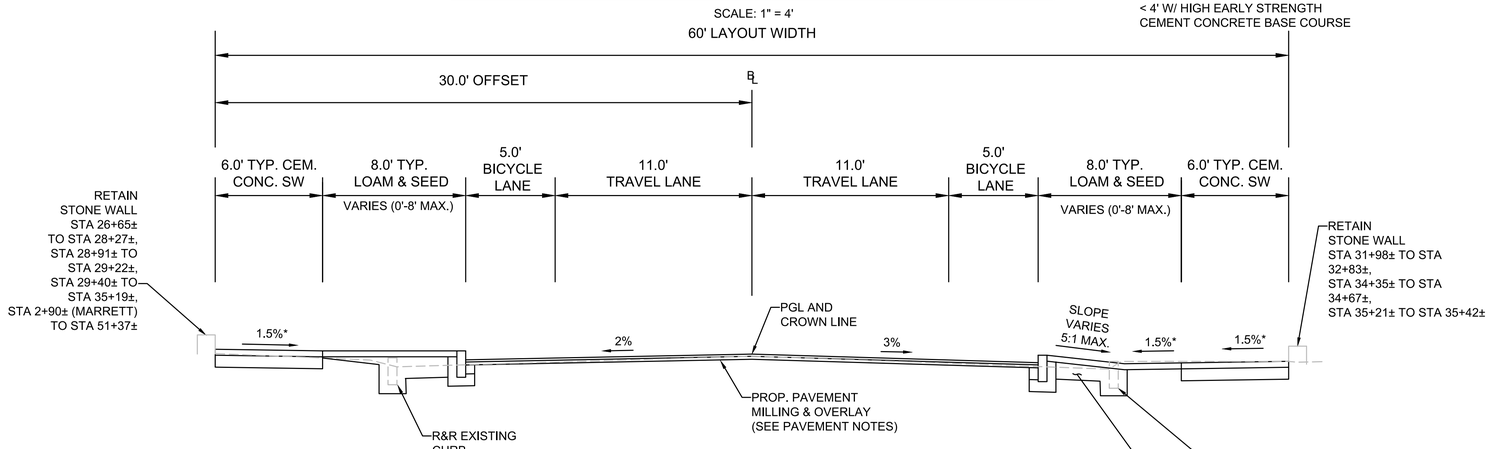
MASSACHUSETTS AVENUE (STA 40+35± TO STA 48+53±)

SCALE: 1" = 4'



MASSACHUSETTS AVENUE (STA 36+32± TO 40+35±)

SCALE: 1" = 4'



MASSACHUSETTS AVENUE
(STA 32+88± TO 36+32± & STA 48+53± TO 51+56±

SCALE: 1" = 4'

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LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	7	123
PROJECT FILE NO.	607409		

TYPICAL SECTIONS
SHEET 3 OF 4

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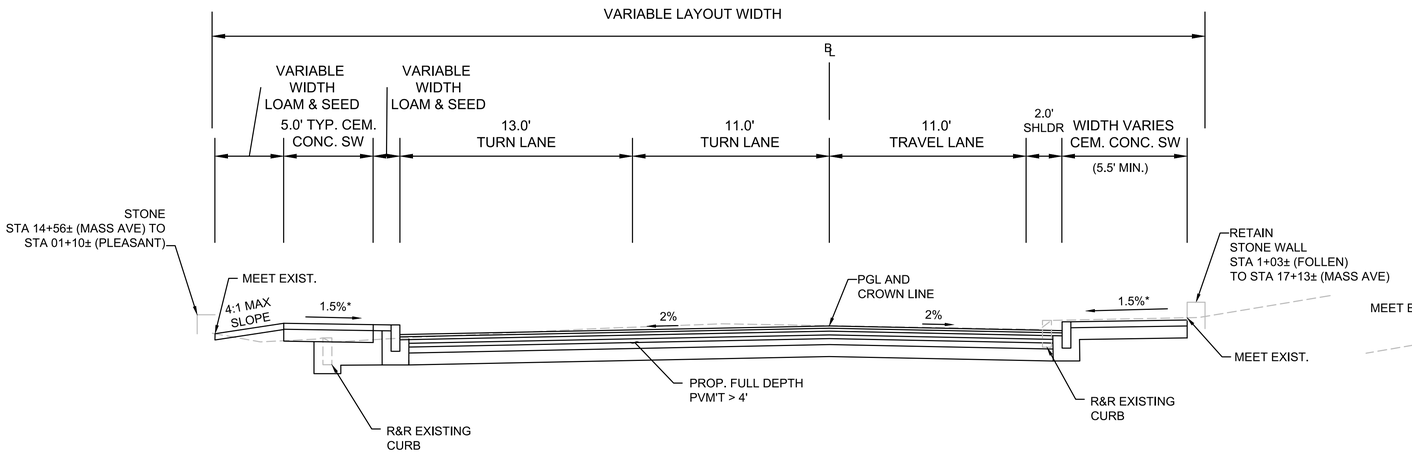
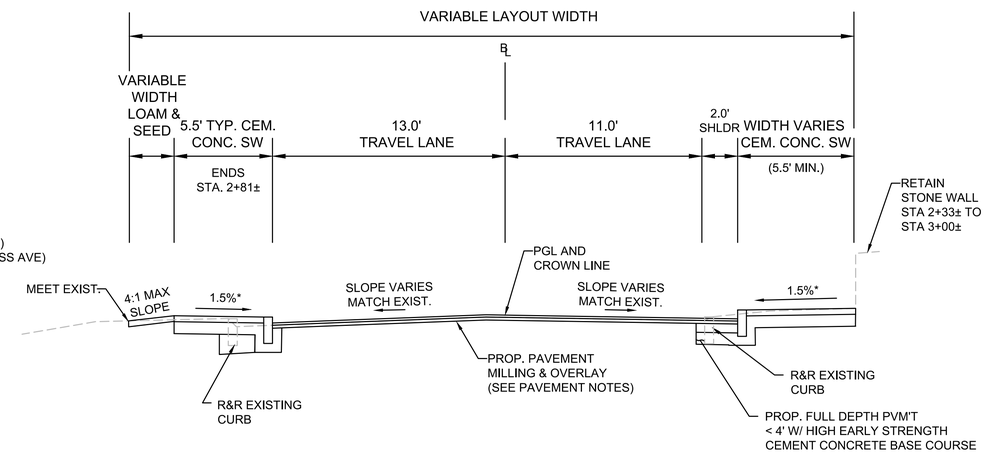


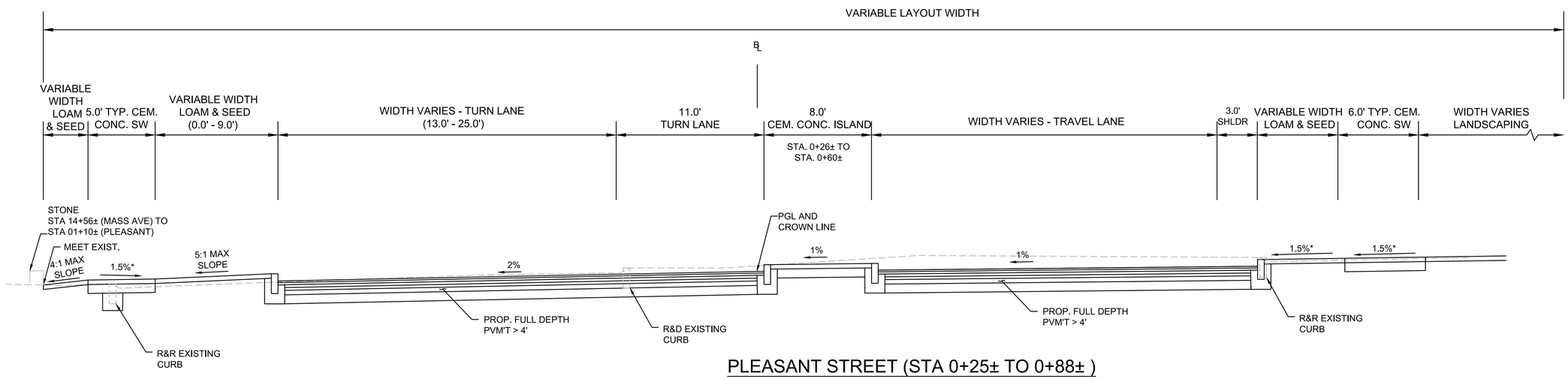
PLEASANT STREET (STA 0+88± TO 1+68±)

SCALE: 1" = 4'



PLEASANT STREET (STA 1+68± TO 3+00±)

SCALE: 1" = 4'



PLEASANT STREET (STA 0+25± TO 0+88±)

SCALE: 1" = 4'

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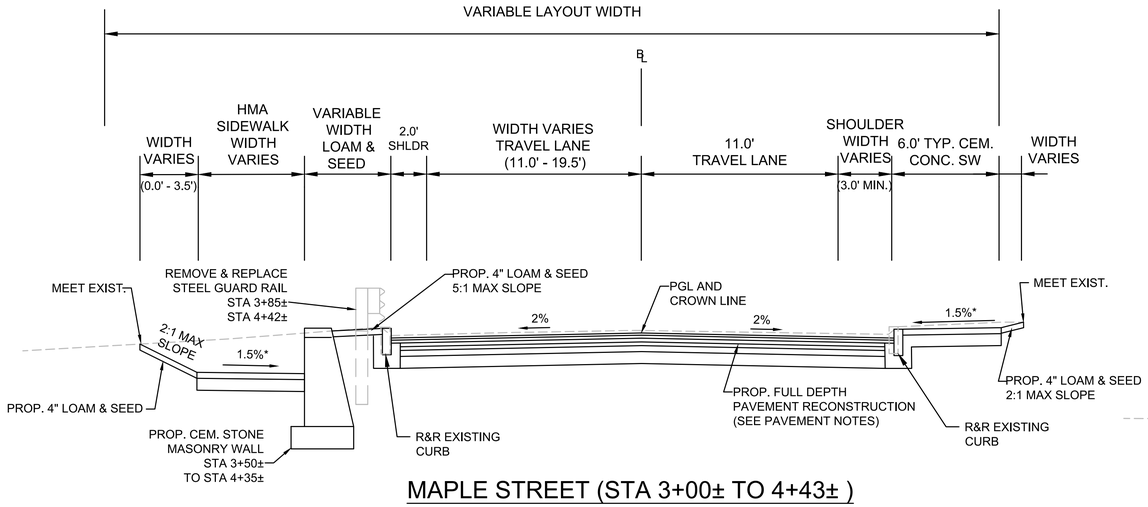
MASSACHUSETTS AVENUE IMPROVEMENTS

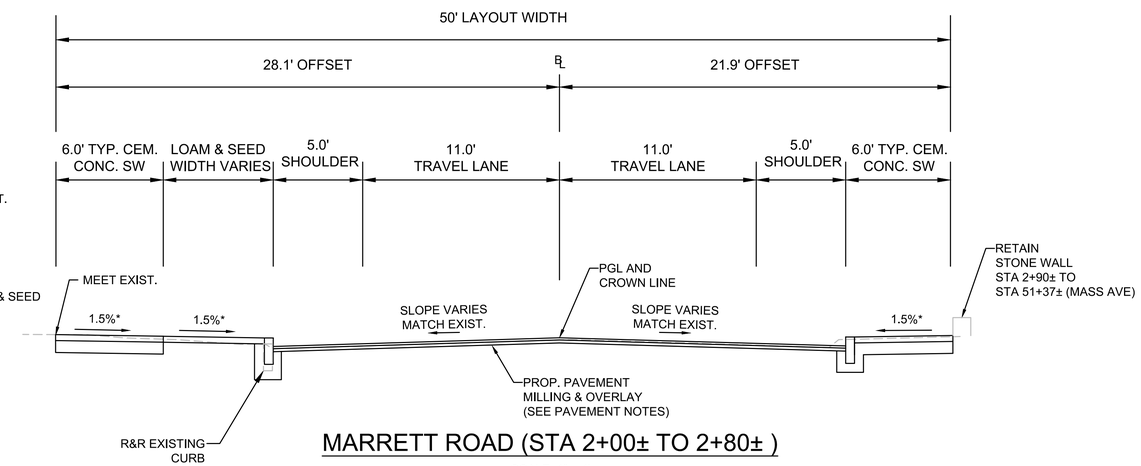
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	8	123
PROJECT FILE NO.	607409		

TYPICAL SECTIONS
SHEET 4 OF 4



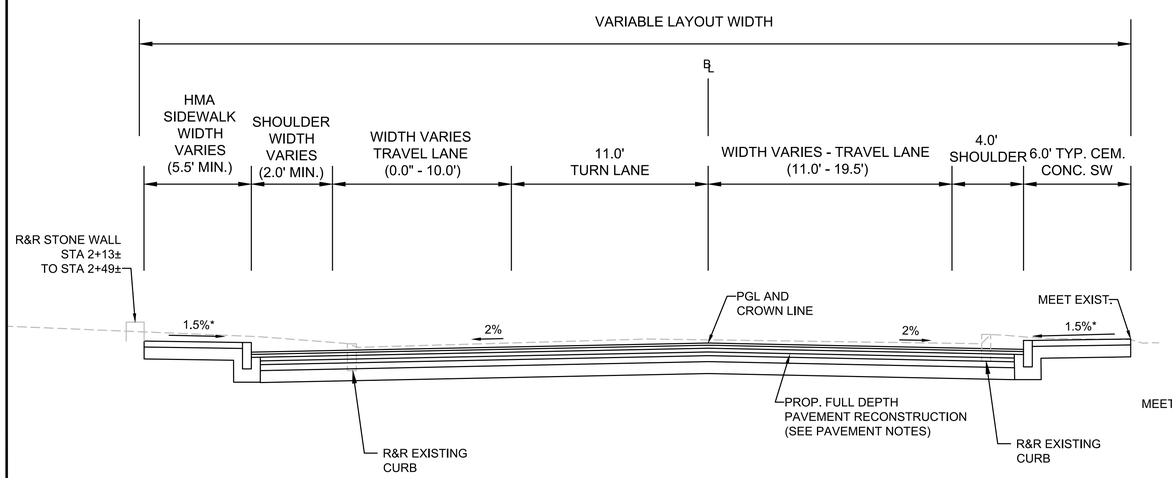
MAPLE STREET (STA 3+00± TO 4+43±)

SCALE: 1" = 4'



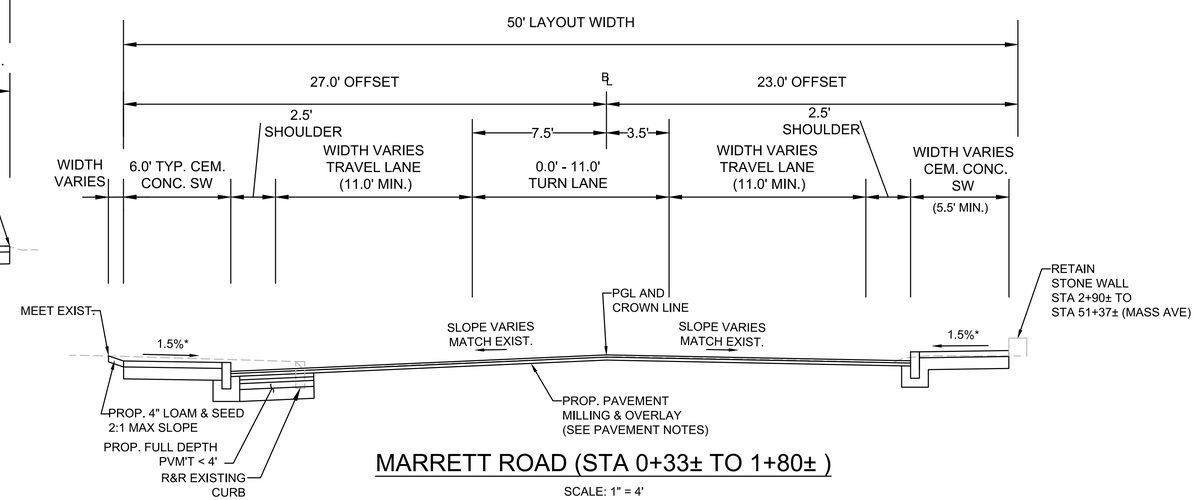
MARRETT ROAD (STA 2+00± TO 2+80±)

SCALE: 1" = 4'



MAPLE STREET (STA 0+63± TO 3+00±)

SCALE: 1" = 4'



MARRETT ROAD (STA 0+33± TO 1+80±)

SCALE: 1" = 4'

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HIGHWAY GUARD DETAILS
NONE

TRAFFIC SIGNAL CONDUIT
SEE SHEET 56

WHEELCHAIR RAMP DETAILS
SEE SHEET 67&68

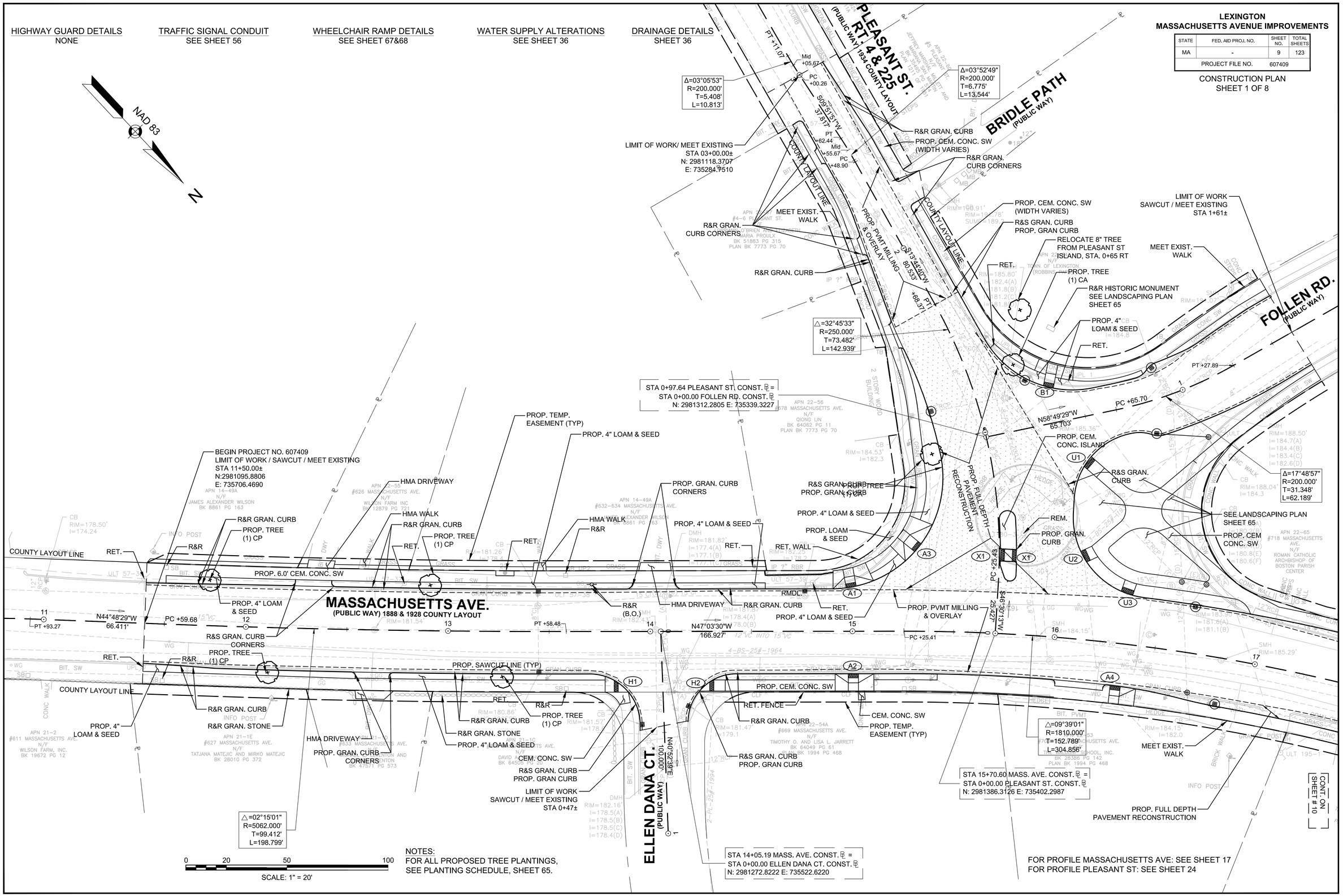
WATER SUPPLY ALTERATIONS
SEE SHEET 36

DRAINAGE DETAILS
SHEET 36

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	9	123
PROJECT FILE NO.	607409		

CONSTRUCTION PLAN
SHEET 1 OF 8



NOTES:
FOR ALL PROPOSED TREE PLANTINGS, SEE PLANTING SCHEDULE, SHEET 65.

FOR PROFILE MASSACHUSETTS AVE: SEE SHEET 17
FOR PROFILE PLEASANT ST: SEE SHEET 24

CONT. ON SHEET # 10

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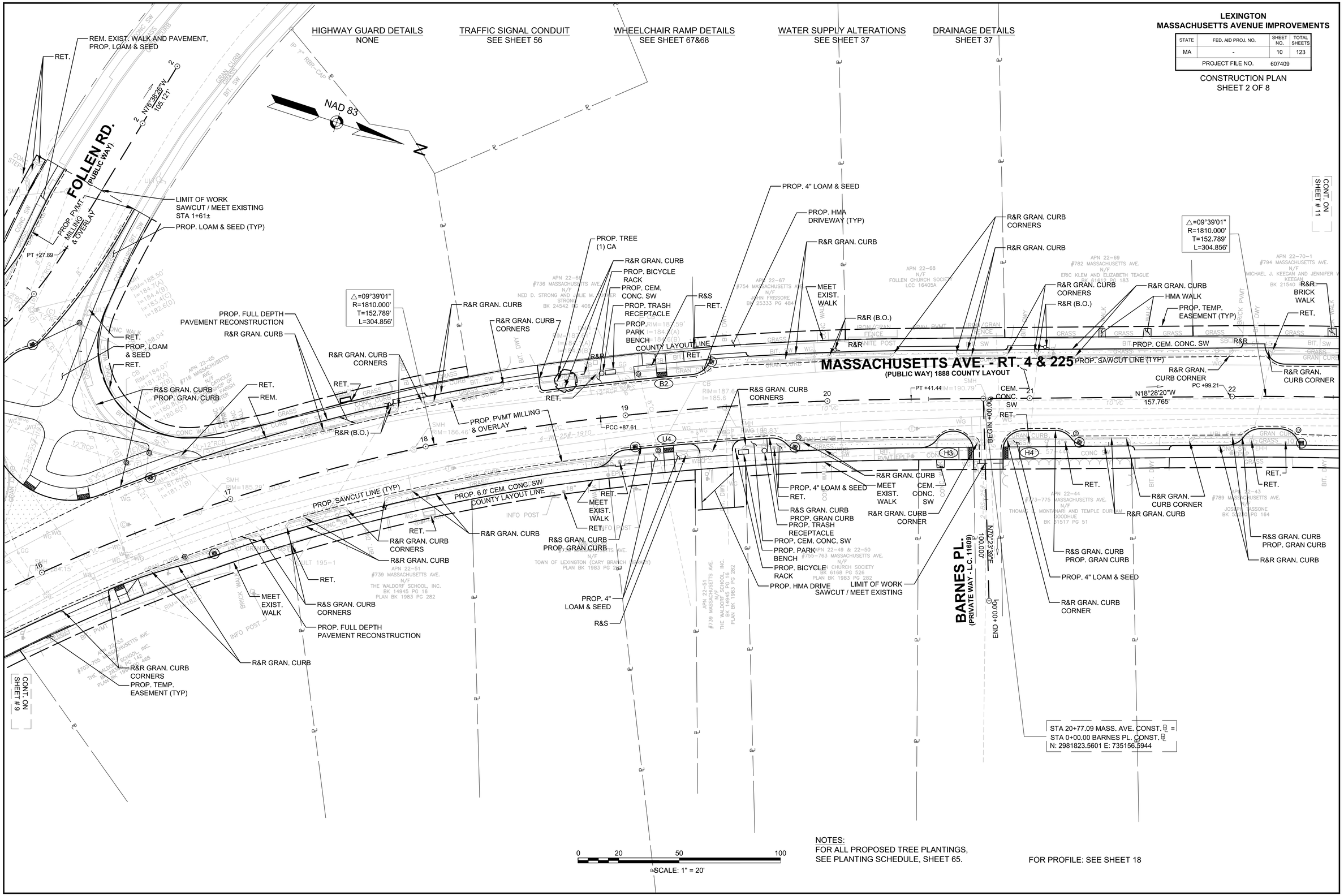
LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	10	123
PROJECT FILE NO.	607409		

CONSTRUCTION PLAN
SHEET 2 OF 8



NOTES:
FOR ALL PROPOSED TREE PLANTINGS, SEE PLANTING SCHEDULE, SHEET 65.

FOR PROFILE: SEE SHEET 18

607409_HD(DET).DWG Plotted on 20-Apr-2016 8:40 AM

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	11	123
PROJECT FILE NO.	607409		

CONSTRUCTION PLAN
SHEET 3 OF 8

HIGHWAY GUARD DETAILS
NONE

TRAFFIC SIGNAL CONDUIT
NONE

WHEELCHAIR RAMP DETAILS
SEE SHEET 67&68

WATER SUPPLY ALTERATIONS
SEE SHEET 38

DRAINAGE DETAILS
SHEET 38

NAD 83
N

GIBSON RD. (PUBLIC - VARIABLE WIDTH)

INDEPENDENCE AVE. (PUBLIC WAY - VARIABLE WIDTH)

MASSACHUSETTS AVENUE

CURVE ST. (SOUTH) (PUBLIC WAY)

CURVE ST. (NORTH) (PUBLIC WAY)

△=03°43'56"
R=500.000'
T=16.292'
L=32.572'

STA 22+94.46 MASS. AVE. CONST. ⌀ =
STA 0+00.00 GIBSON AVE. CONST. ⌀
N: 2982030.4865 E: 735090.1112

STA 26+46.71 MASS. AVE. CONST. ⌀ =
STA 0+00.00 INDEPENDENCE AVE. CONST. ⌀
N: 2982376.1872 E: 735023.8194

△=09°39'01"
R=1810.000'
T=152.789'
L=304.856'

△=16°31'42"
R=1692.000'
T=245.754'
L=488.095'

STA 23+65.90 MASS. AVE. CONST. ⌀ =
STA 0+00.00 CURVE ST. CONST. ⌀
N: 2982099.6966 E: 735072.4360

STA 27+13.11 MASS. AVE. CONST. ⌀ =
STA 0+00.00 CURVE ST. CONST. ⌀
N: 2982441.3268 E: 735010.9938

S27°28'45"W 100.000'

N76°52'09"E 100.000'

N73°53'43"E 100.000'

N08°49'19"W 107.429'

S74°53'03"W 99.66'

PT +99.24

PC +66.67

PT +04.06

PC +11.49

LIMIT OF WORK SAWCUT / MEET EXISTING STA 0+34±

LIMIT OF WORK SAWCUT / MEET EXISTING STA 0+52±

LIMIT OF WORK SAWCUT / MEET EXISTING STA 0+42±

LIMIT OF WORK SAWCUT / MEET EXISTING STA 0+38±

COUNTY LAYOUT LINE

PROP. SAWCUT LINE (TYP)

PROP. 3.0' CEM. CONC. SW

PROP. CEM. CONC. SW

PROP. GRAN. TRANSITION CURB

PROP. GRAN. CURB

PROP. GRAN. CURB CORNER

PROP. HMA DRIVEWAY (TYP)

PROP. TEMP. EASEMENT (TYP)

PROP. 4" LOAM & SEED

PROP. TREE (1) CA

PROP. TREE (1) CC

PROP. TREE (1) CP

PROP. BRICK WALK

PROP. PVMT MILLING & OVERLAY

R&S GRAN. CURB
PROP. GRAN CURB

R&R GRAN. CURB

R&S GRAN. CURB CORNER

R&R GRAN. CURB CORNERS

R&R GRAN. CURB CORNER

R&R BRICK WALK

R&R (B.O.)

R&R

REM. STUMP

REM. WALK

CEM. CONC. SW W/ 1 STEP

CEM. CONC. SW

MEET EXIST. WALK

RET.

CONT. ON SHEET # 10

CONT. ON SHEET # 12

NOTES:
FOR ALL PROPOSED TREE PLANTINGS, SEE PLANTING SCHEDULE, SHEET 65.

0 20 50 100
SCALE: 1" = 20'

FOR PROFILE: SEE SHEET 19

607409_HD(DET).DWG Plotted on 20-Apr-2016 8:40 AM

HIGHWAY GUARD DETAILS
NONE

TRAFFIC SIGNAL CONDUIT
NONE

WHEELCHAIR RAMP DETAILS
SEE SHEET 67&68

WATER SUPPLY ALTERATIONS
SEE SHEET 39

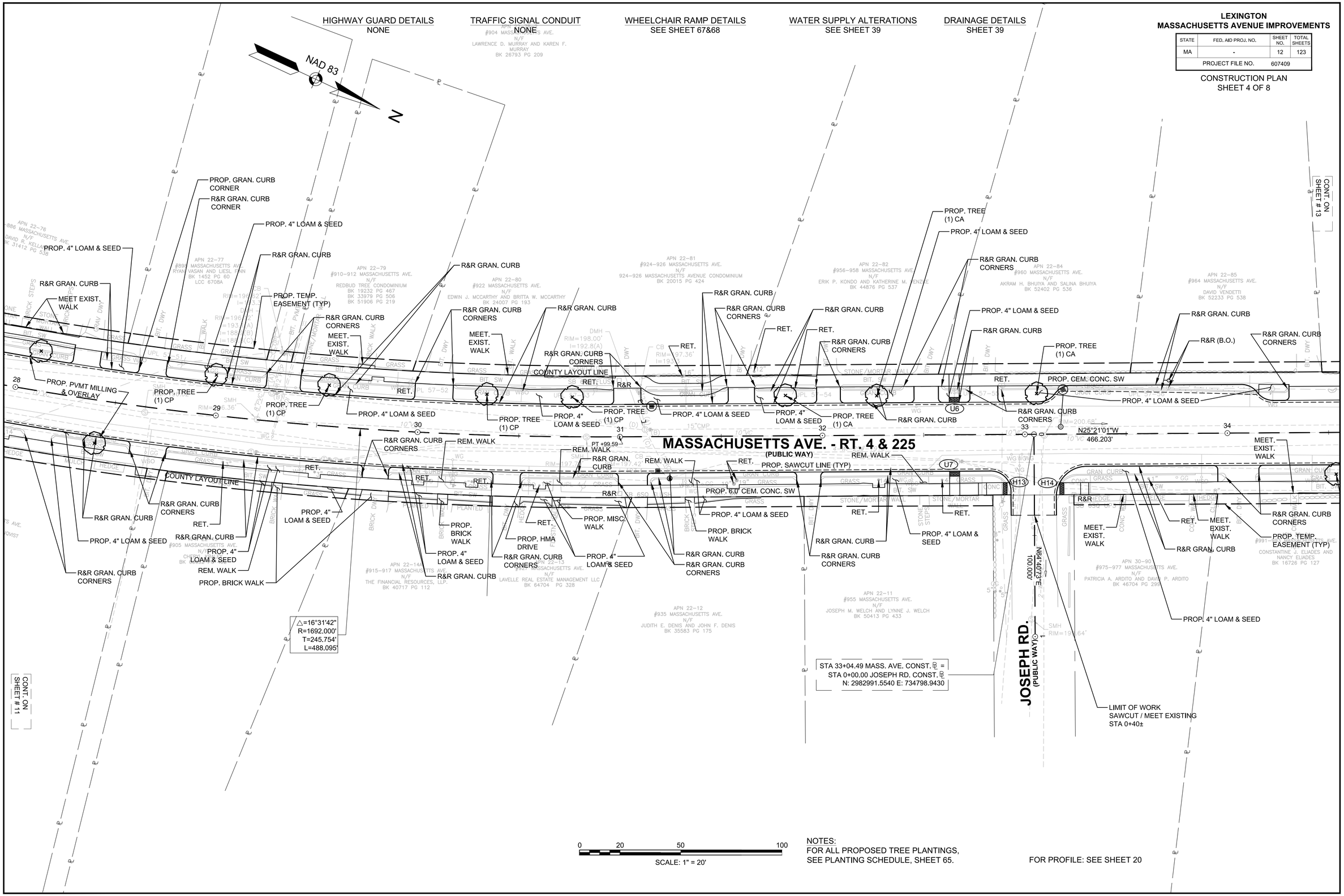
DRAINAGE DETAILS
SHEET 39

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	12	123
PROJECT FILE NO.	607409		

CONSTRUCTION PLAN
SHEET 4 OF 8

607409_HD(DET).DWG Plotted on 20-Apr-2016 8:40 AM



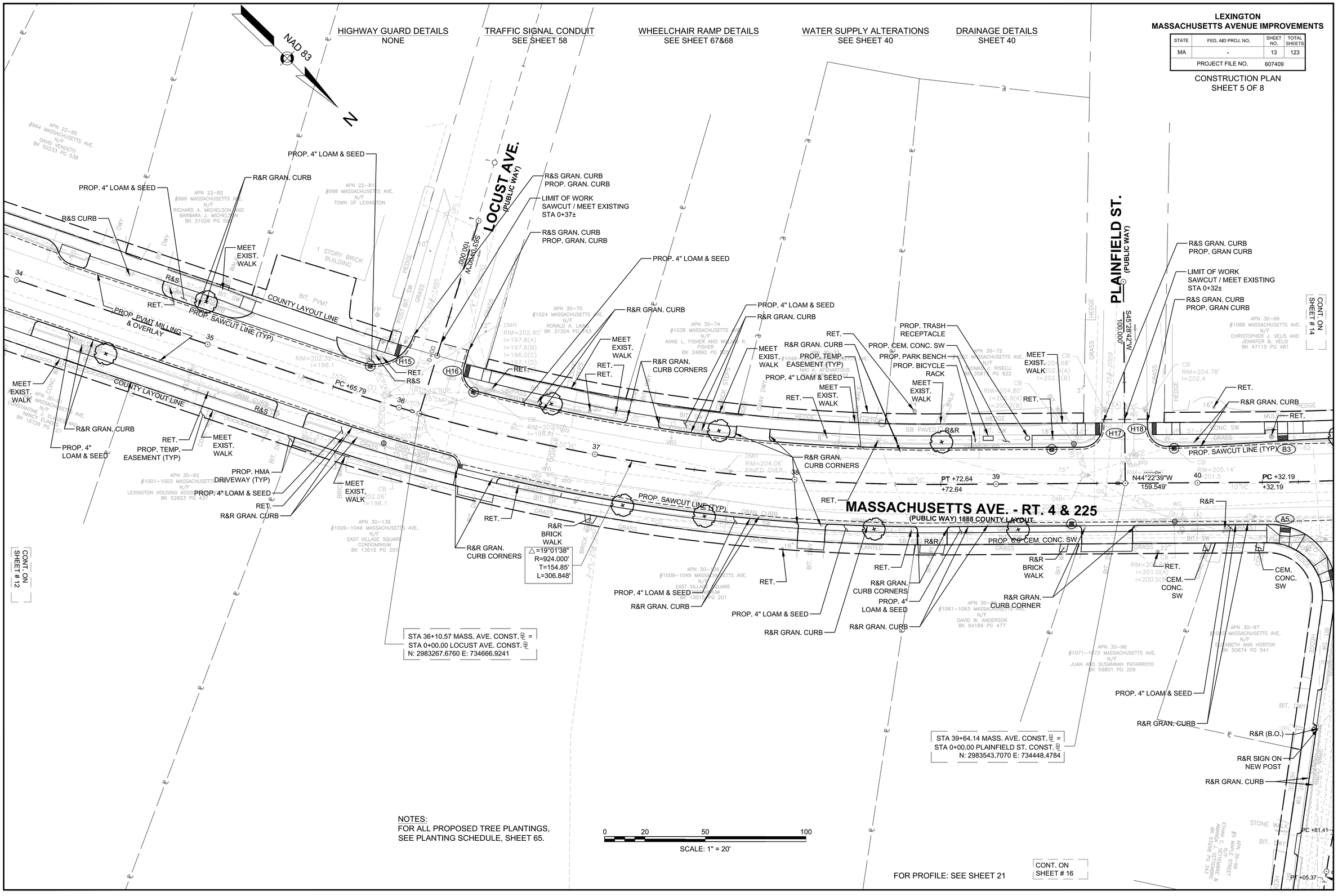
NOTES:
FOR ALL PROPOSED TREE PLANTINGS, SEE PLANTING SCHEDULE, SHEET 65.

FOR PROFILE: SEE SHEET 20

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	13	123
PROJECT FILE NO.	607409		

CONSTRUCTION PLAN
SHEET 5 OF 8



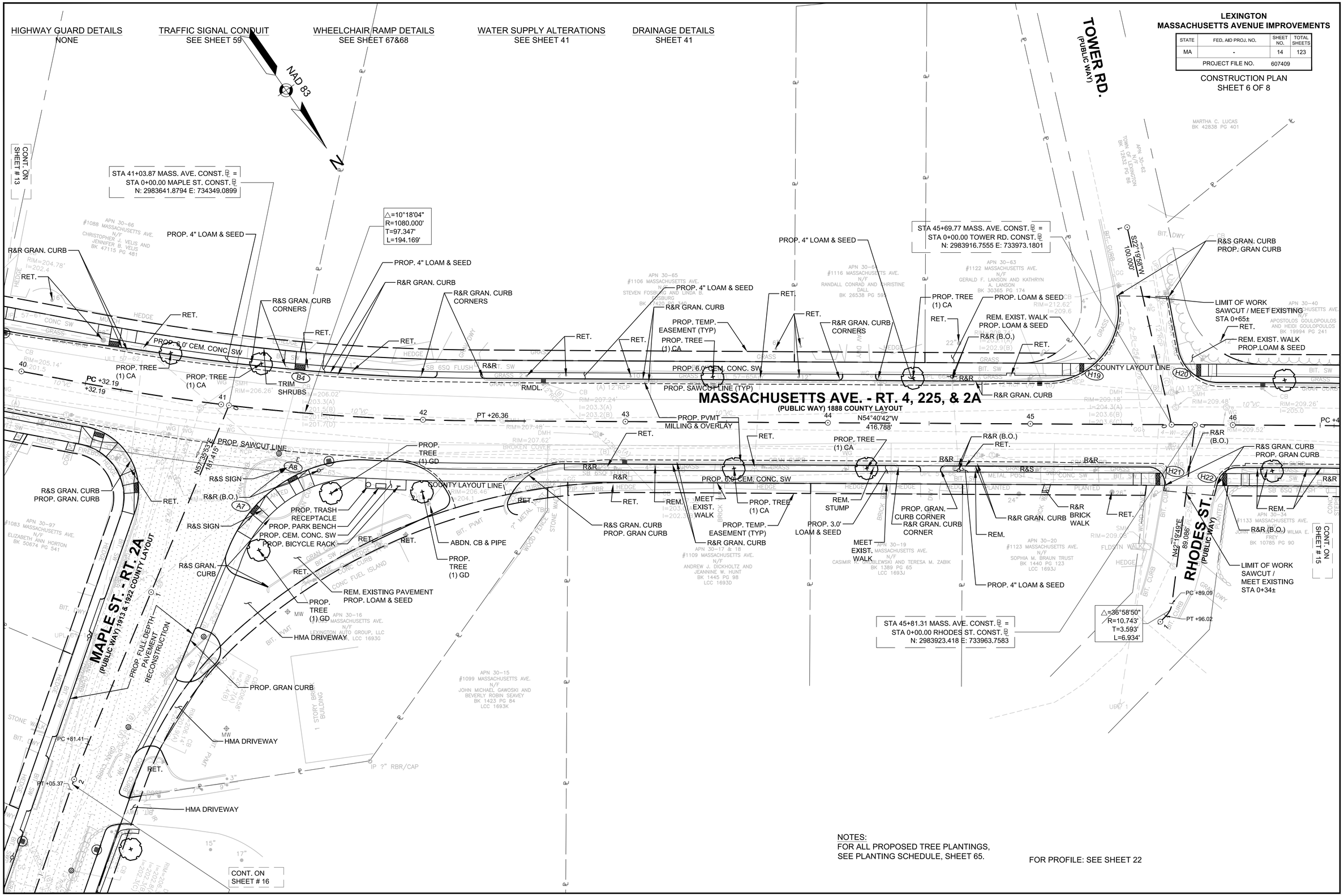
NOTES:
FOR ALL PROPOSED TREE PLANTINGS,
SEE PLANTING SCHEDULE, SHEET 65.

607409_HD(DET).DWG Plotted on 20-Apr-2016 8:40 AM

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	14	123
PROJECT FILE NO.	607409		

CONSTRUCTION PLAN
SHEET 6 OF 8



NOTES:
FOR ALL PROPOSED TREE PLANTINGS,
SEE PLANTING SCHEDULE, SHEET 65.

FOR PROFILE: SEE SHEET 22

607409_HD(DET).DWG Plotted on 20-Apr-2016 8:40 AM

HIGHWAY GUARD DETAILS
NONE

TRAFFIC SIGNAL CONDUIT
NONE

WHEELCHAIR RAMP DETAILS
SEE SHEET 67&68

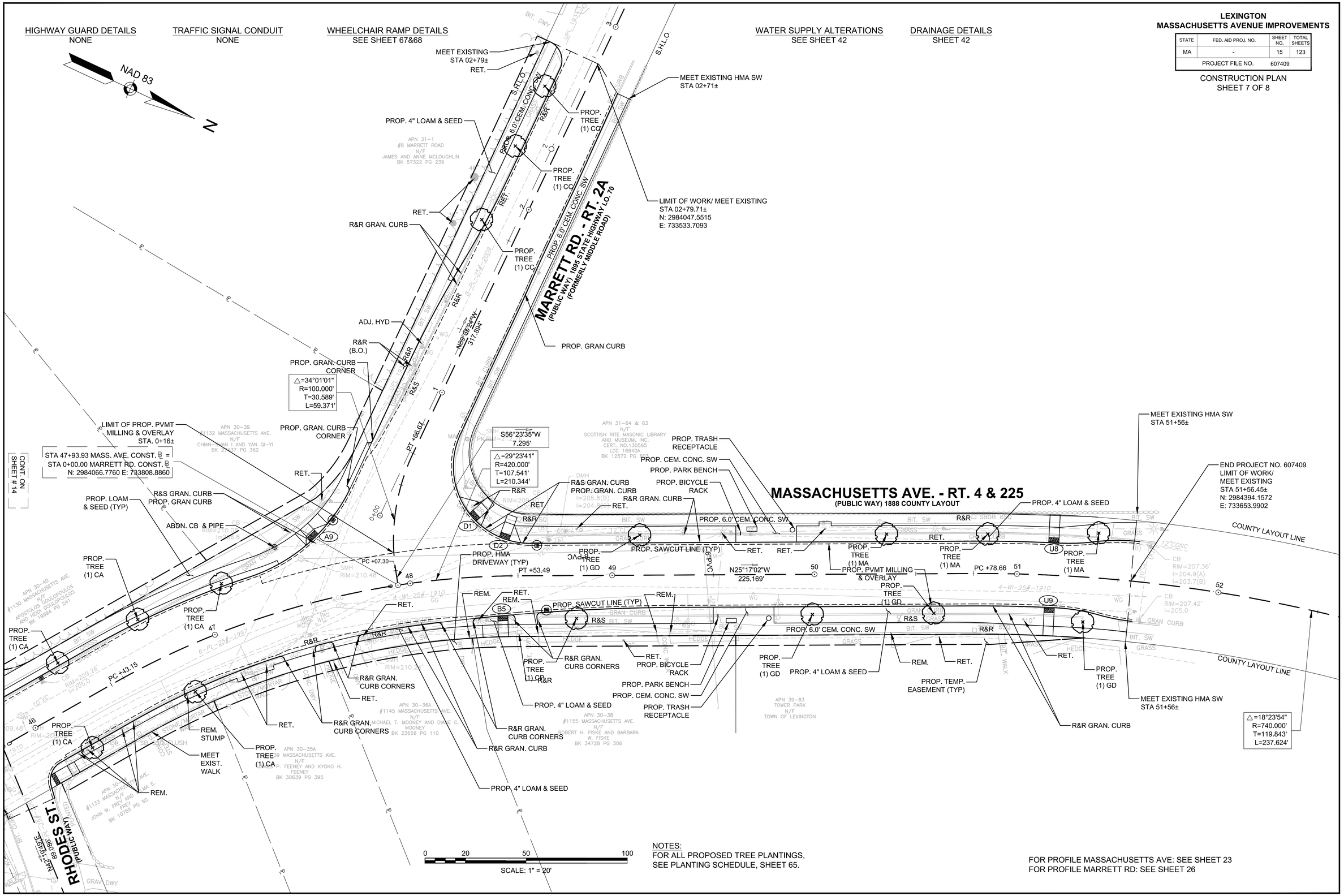
WATER SUPPLY ALTERATIONS
SEE SHEET 42

DRAINAGE DETAILS
SHEET 42

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	15	123
PROJECT FILE NO.	607409		

CONSTRUCTION PLAN
SHEET 7 OF 8



NOTES:
FOR ALL PROPOSED TREE PLANTINGS, SEE PLANTING SCHEDULE, SHEET 65.

FOR PROFILE MASSACHUSETTS AVE: SEE SHEET 23
FOR PROFILE MARRETT RD: SEE SHEET 26

607409_HD(DET).DWG Plotted on 20-Apr-2016 8:40 AM

HIGHWAY GUARD DETAILS
PROP. STEEL THRIE BEAM TERMINAL SECTION (SINGLE FACED) - (STA. 3+70 TO STA. 3+72)
PROP. STEEL THRIE BEAM HIGHWAY GUARD (SINGLE FACED) - (STA. 3+72 TO STA. 4+35)
PROP. STEEL HIGHWAY GUARD TRANSITION BEAM - (STA. 4+35 TO STA. 4+41)

TRAFFIC SIGNAL CONDUIT
NONE

WHEELCHAIR RAMP DETAILS
SEE SHEET 67&68

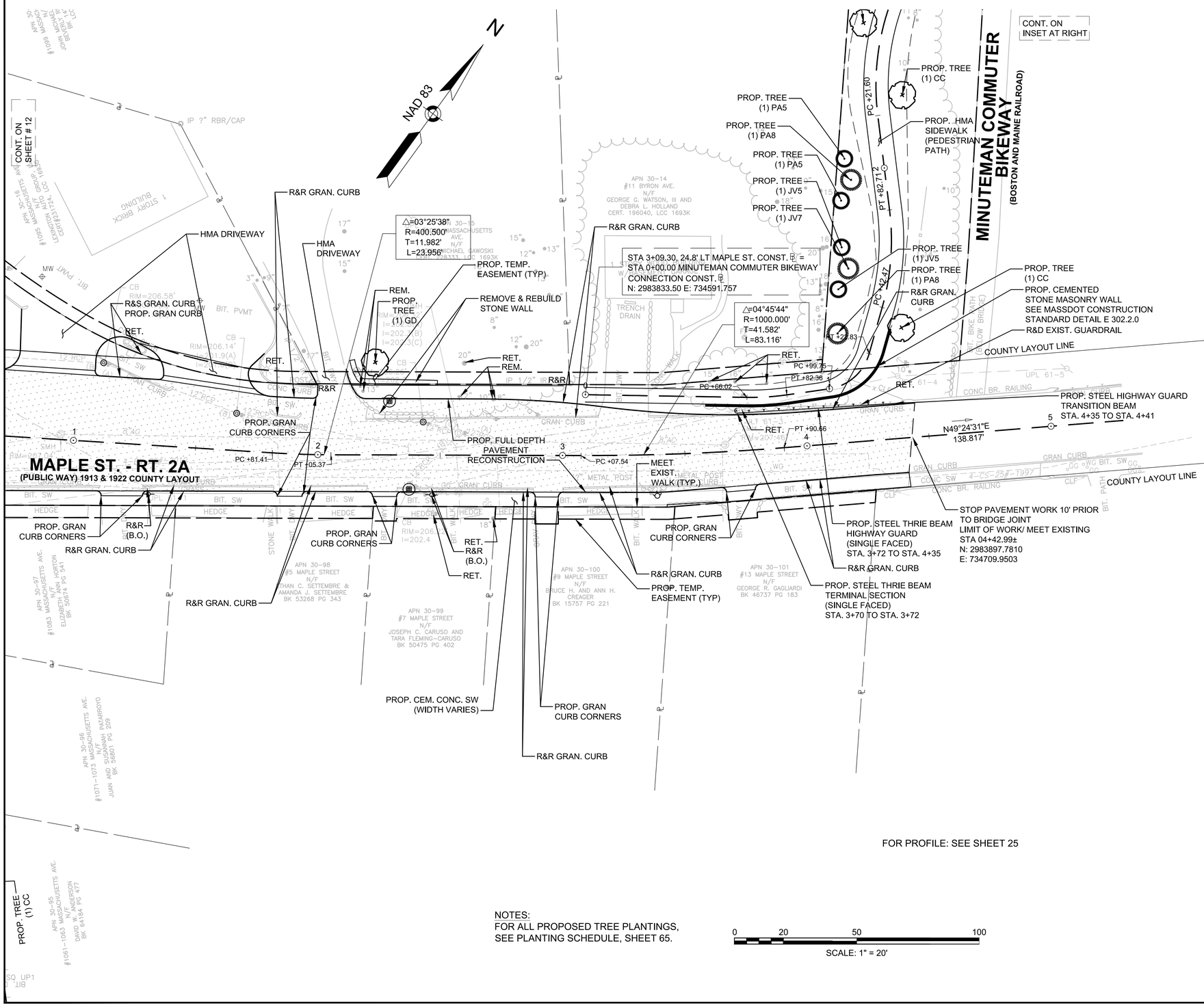
WATER SUPPLY ALTERATIONS
SEE SHEET 43

DRAINAGE DETAILS
SHEET 43

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

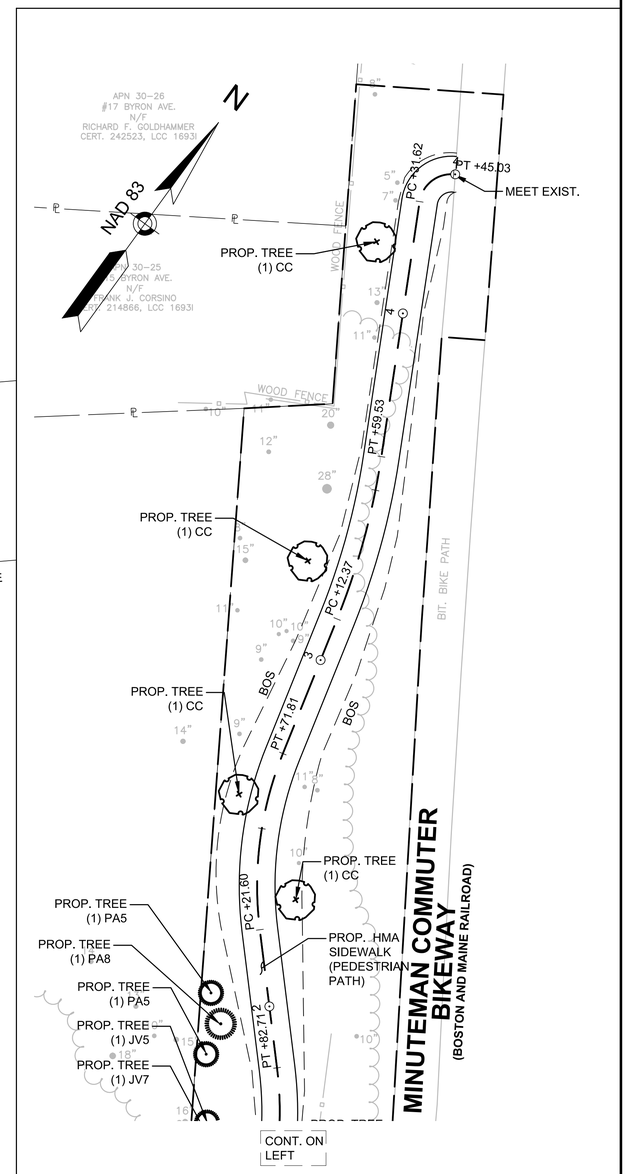
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	16	123
PROJECT FILE NO.	607409		

CONSTRUCTION PLAN
SHEET 8 OF 8



NOTES:
FOR ALL PROPOSED TREE PLANTINGS, SEE PLANTING SCHEDULE, SHEET 65.

0 20 50 100
SCALE: 1" = 20'



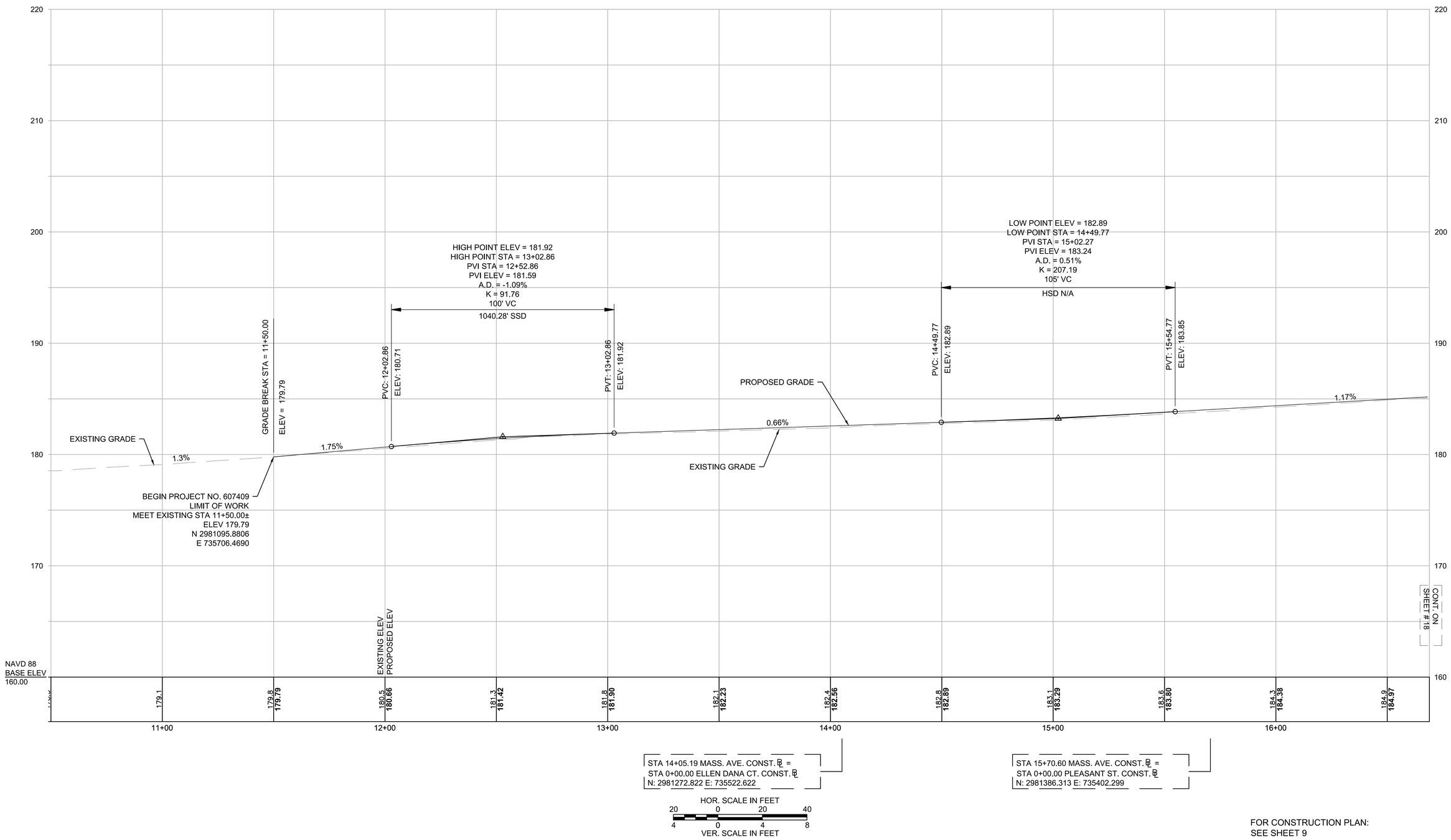
607409_HD(DET).DWG Plotted on 20-Apr-2016 8:40 AM

MASS AVE BL

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	17	123
PROJECT FILE NO.	607409		

PROFILE PLAN
MASSACHUSETTS AVENUE



FOR CONSTRUCTION PLAN:
SEE SHEET 9

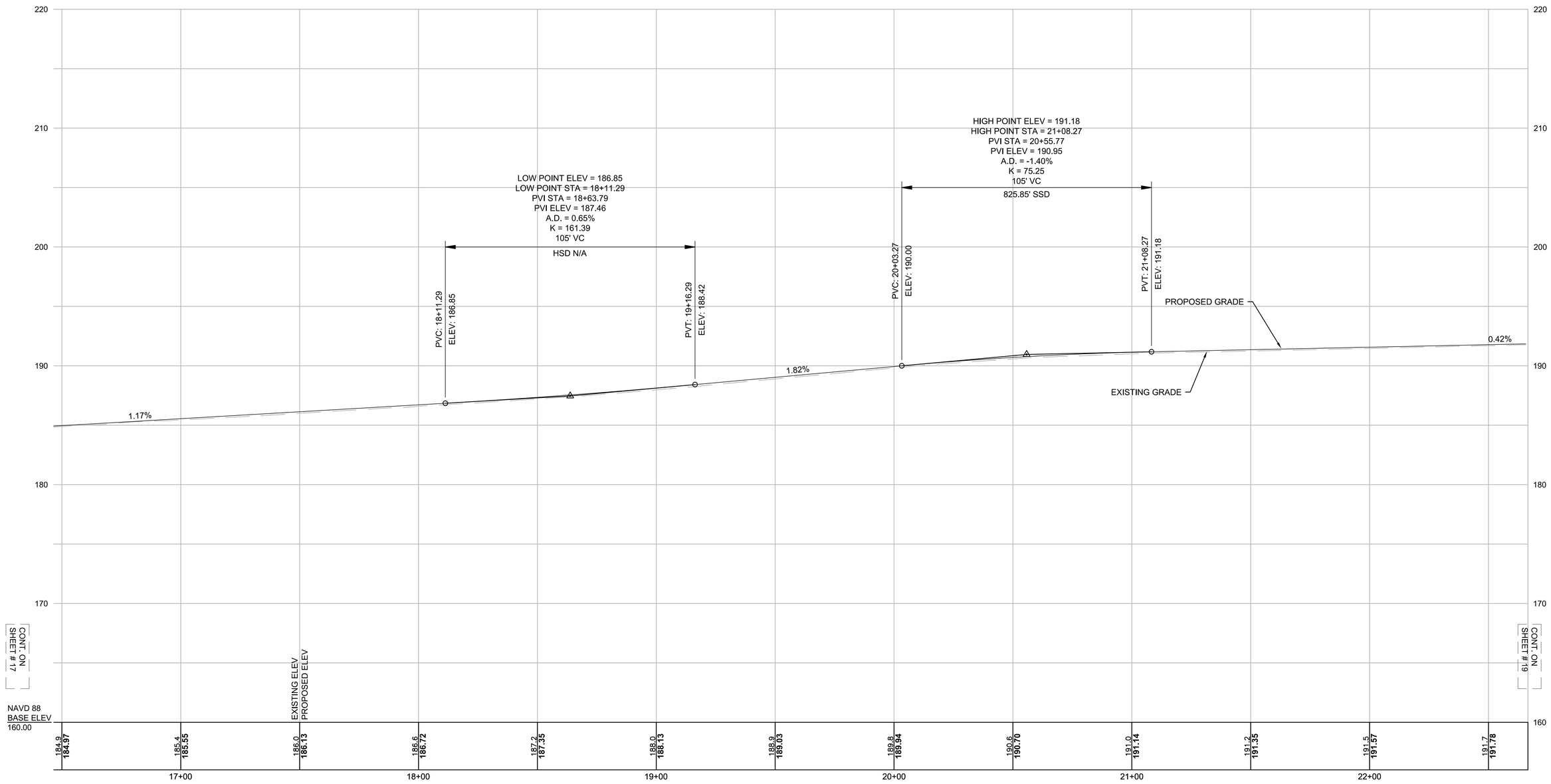
607409_HD(PR).DWG Plotted on 24-Apr-2016 6:49 PM

MASS AVE BL

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	18	123
PROJECT FILE NO.	607409		

PROFILE PLAN
MASSACHUSETTS AVENUE



STA 20+77.09 MASS. AVE. CONST. ℄ =
STA 0+00.00 BARNES PL. CONST. ℄
N: 2981823.5601 E: 735156.5944

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

FOR CONSTRUCTION PLAN:
SEE SHEET 10

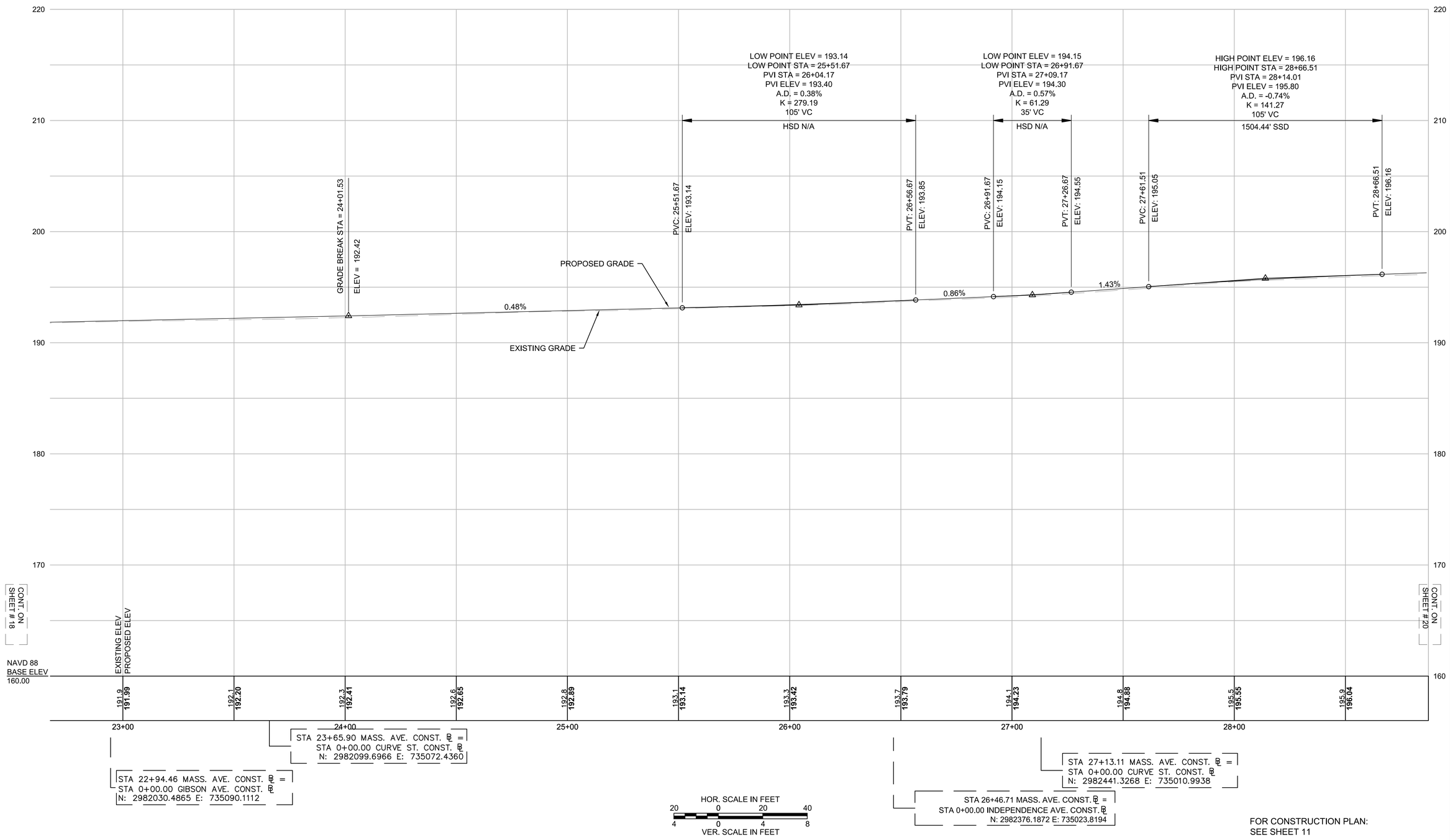
607409_HD(PR).DWG Plotted on 24-Apr-2016 6:49 PM

MASS AVE BL

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	19	123
PROJECT FILE NO.	607409		

PROFILE PLAN
MASSACHUSETTS AVENUE



FOR CONSTRUCTION PLAN:
SEE SHEET 11

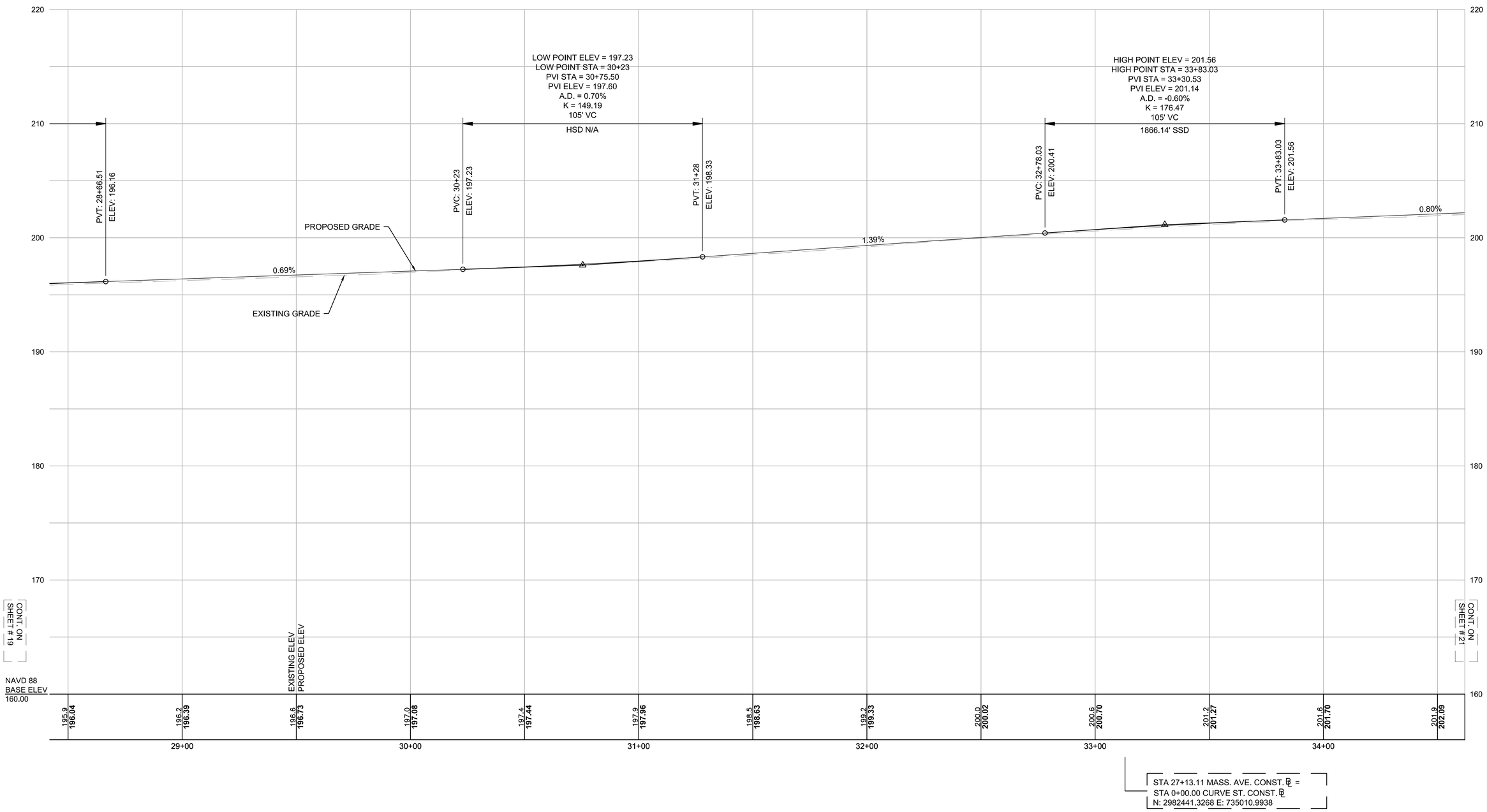
607409_HD(PR).DWG Plotted on 24-Apr-2016 6:49 PM

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	20	123
PROJECT FILE NO.	607409		

PROFILE PLAN
MASSACHUSETTS AVENUE

MASS AVE BL



STA 27+13.11 MASS. AVE. CONST. ℄ =
STA 0+00.00 CURVE ST. CONST. ℄
N: 2982441.3268 E: 735010.9938

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

FOR CONSTRUCTION PLAN:
SEE SHEET 12

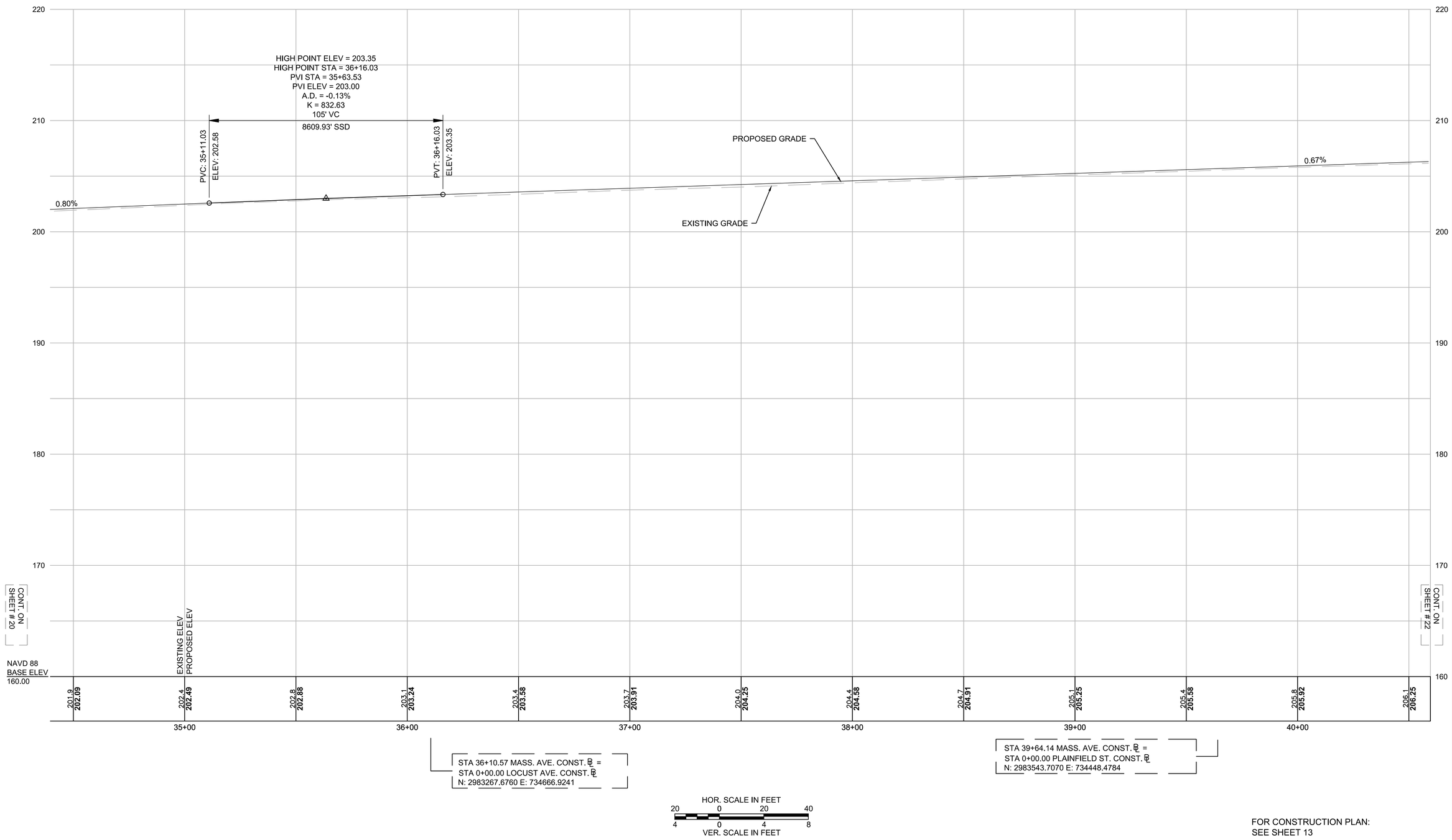
607409_HD(PR).DWG Plotted on 24-Apr-2016 6:50 PM

MASS AVE BL

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	21	123
PROJECT FILE NO.	607409		

PROFILE PLAN
MASSACHUSETTS AVENUE



FOR CONSTRUCTION PLAN:
SEE SHEET 13

607409_HD(PR).DWG Plotted on 24-Apr-2016 6:50 PM

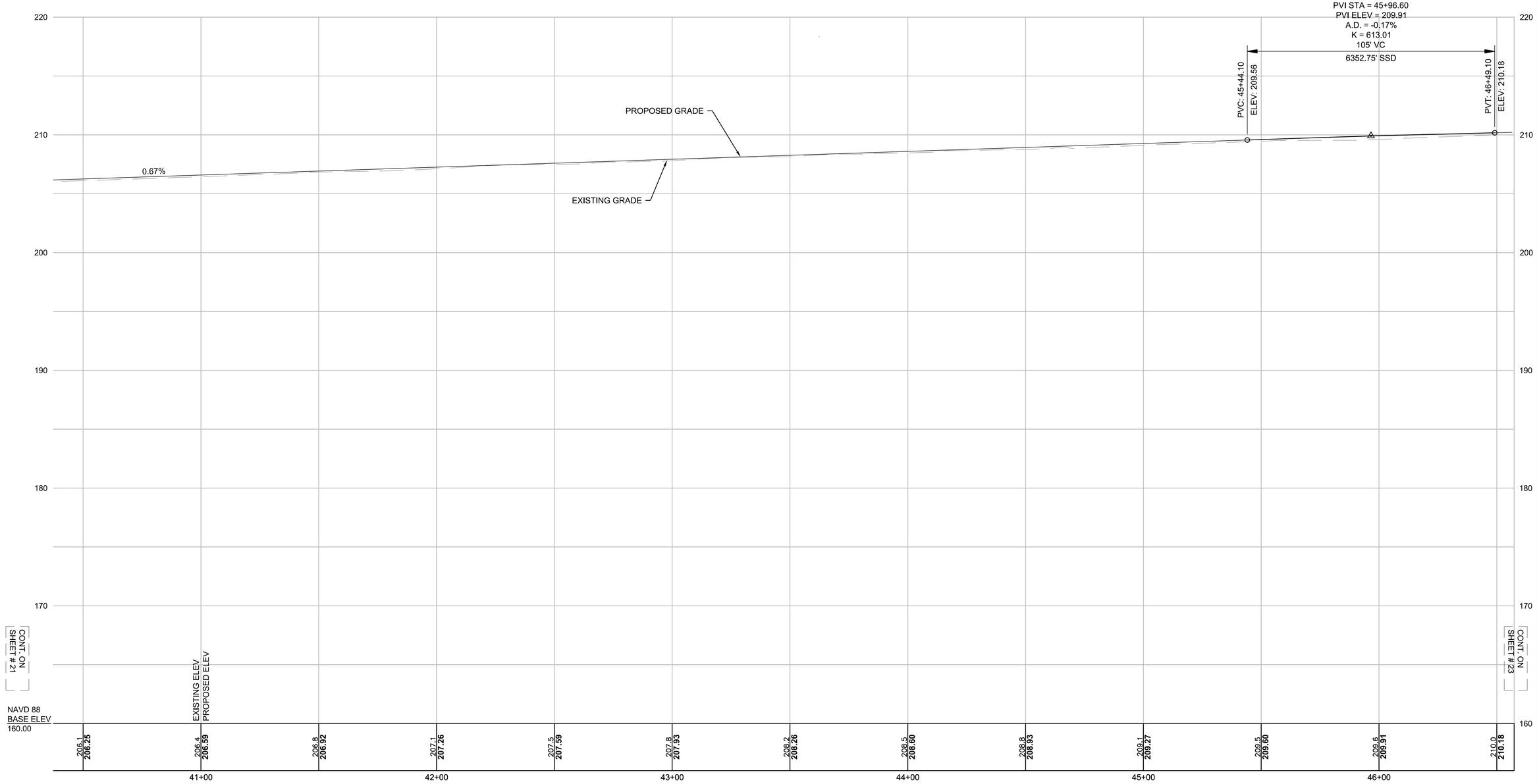
MASS AVE BL

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	22	123
PROJECT FILE NO.	607409		

PROFILE PLAN
MASSACHUSETTS AVENUE

HIGH POINT ELEV = 210.18
HIGH POINT STA = 46+49.10
PVI STA = 45+96.60
PVI ELEV = 209.91
A.D. = -0.17%
K = 613.01
105' VC
6352.75' SSD



STA 41+03.87 MASS. AVE. CONST. ℄ =
STA 0+00.00 MAPLE ST. CONST. ℄
N: 2983641.8794 E: 734349.0899

STA 45+69.77 MASS. AVE. CONST. ℄ =
STA 0+00.00 TOWER RD. CONST. ℄
N: 2983916.7555 E: 733973.1801

STA 45+81.31 MASS. AVE. CONST. ℄ =
STA 0+00.00 RHODES ST. CONST. ℄
N: 2983923.4318 E: 733963.7583

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

FOR CONSTRUCTION PLAN:
SEE SHEET 14

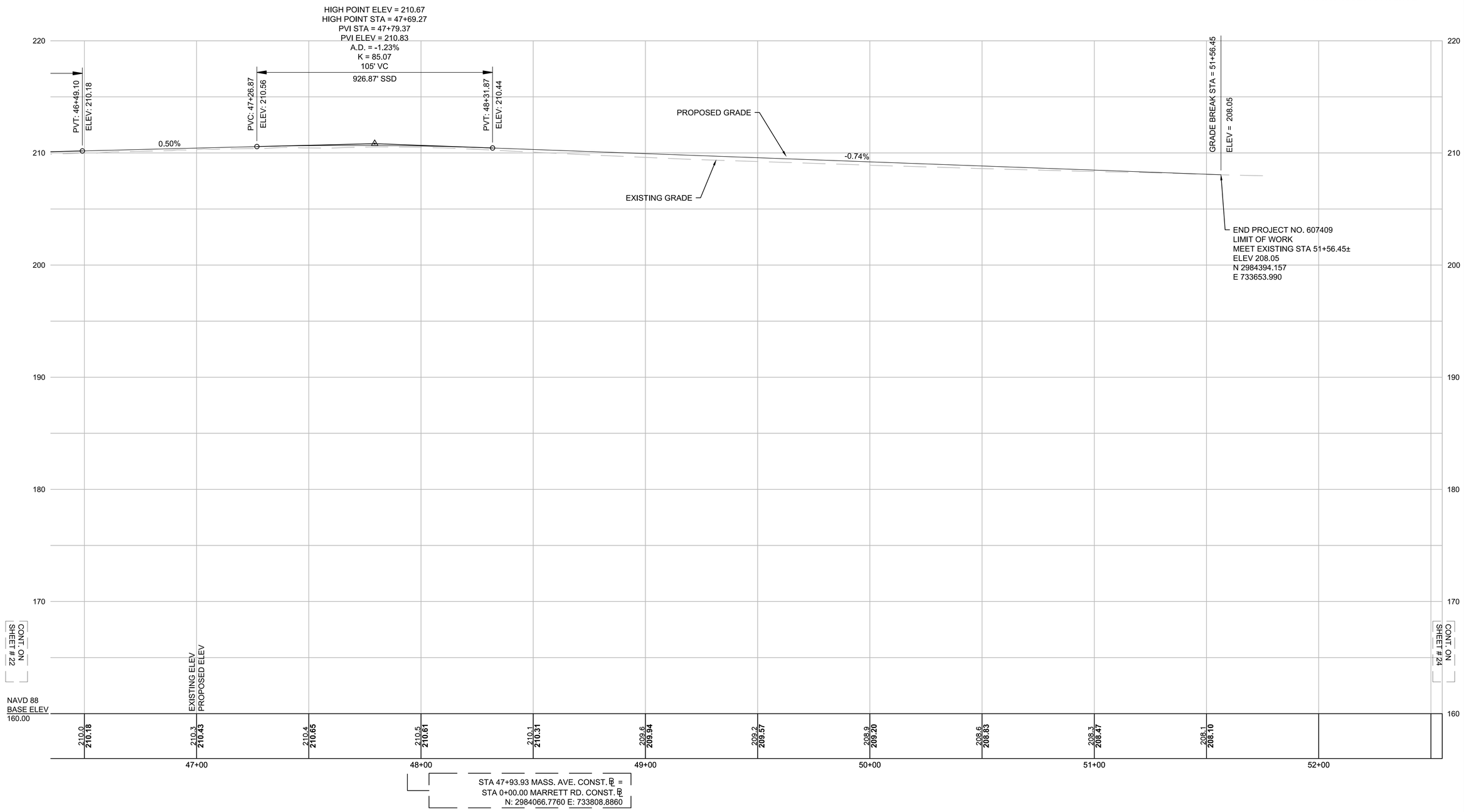
607409_HD(PR).DWG Plotted on 24-Apr-2016 6:50 PM

MASS AVE BL

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	23	123
PROJECT FILE NO.	607409		

PROFILE PLAN
MASSACHUSETTS AVENUE



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

FOR CONSTRUCTION PLAN:
SEE SHEET 15

607409_HD(PR).DWG Plotted on 24-Apr-2016 6:50 PM

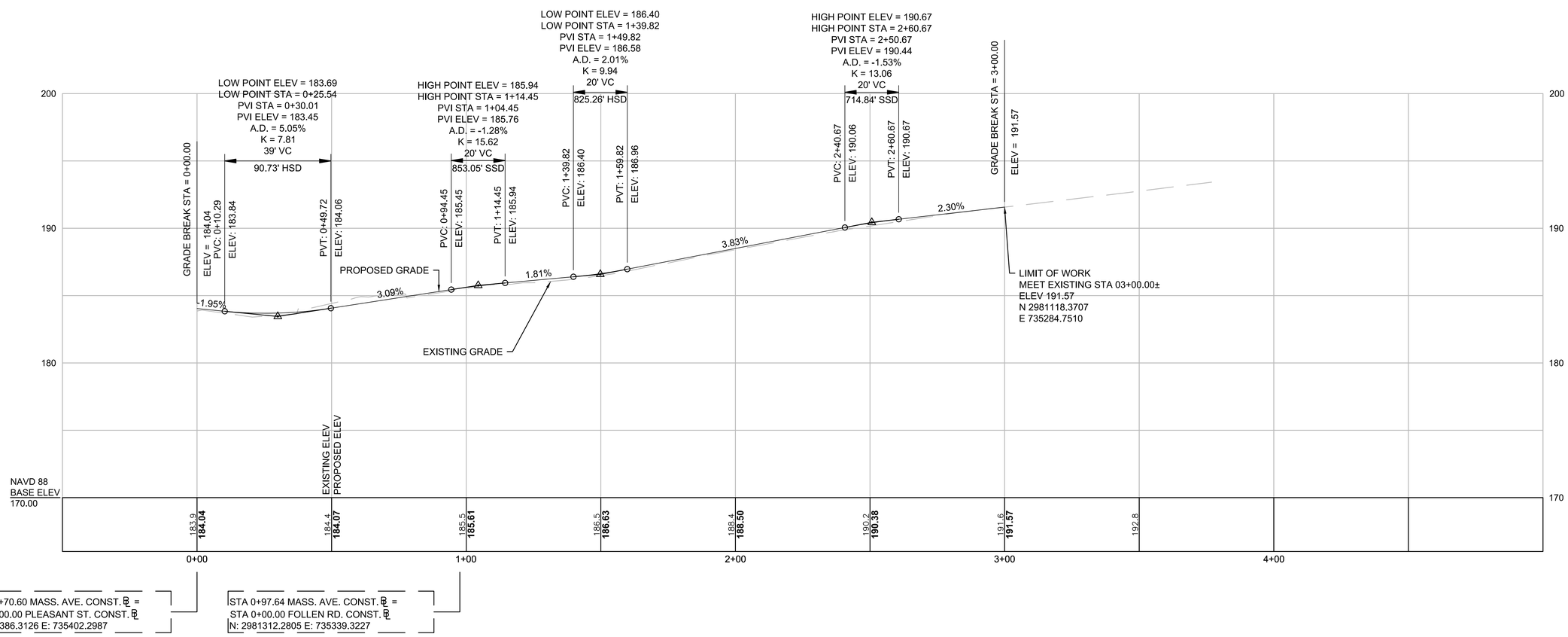
LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	24	123
PROJECT FILE NO.	607409		

PROFILE PLAN
PLEASANT STREET

607409_HD(PR).DWG Plotted on 24-Apr-2016 6:51 PM

PLEASANT STREET BL



STA 15+70.60 MASS. AVE. CONST. ℄ =
STA 0+00.00 PLEASANT ST. CONST. ℄
N: 2981386.3126 E: 735402.2987

STA 0+97.64 MASS. AVE. CONST. ℄ =
STA 0+00.00 FOLLEN RD. CONST. ℄
N: 2981312.2805 E: 735339.3227

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

FOR CONSTRUCTION PLAN:
SEE SHEET 9

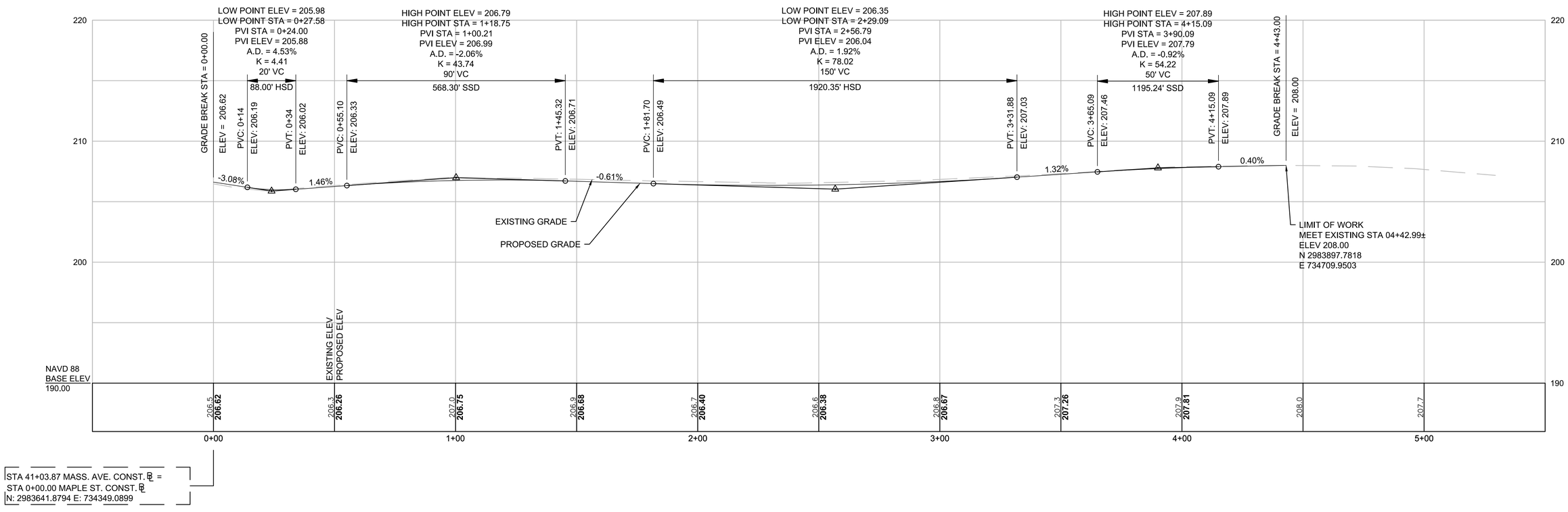
LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	25	123
PROJECT FILE NO.	607409		

PROFILE PLAN
MAPLE STREET

607409_HD(PR).DWG Plotted on 24-Apr-2016 6:51 PM

MAPLE STREET BL



STA 41+03.87 MASS. AVE. CONST. ℄ =
STA 0+00.00 MAPLE ST. CONST. ℄
N: 2983641.8794 E: 734349.0899

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

FOR CONSTRUCTION PLAN:
SEE SHEET 14

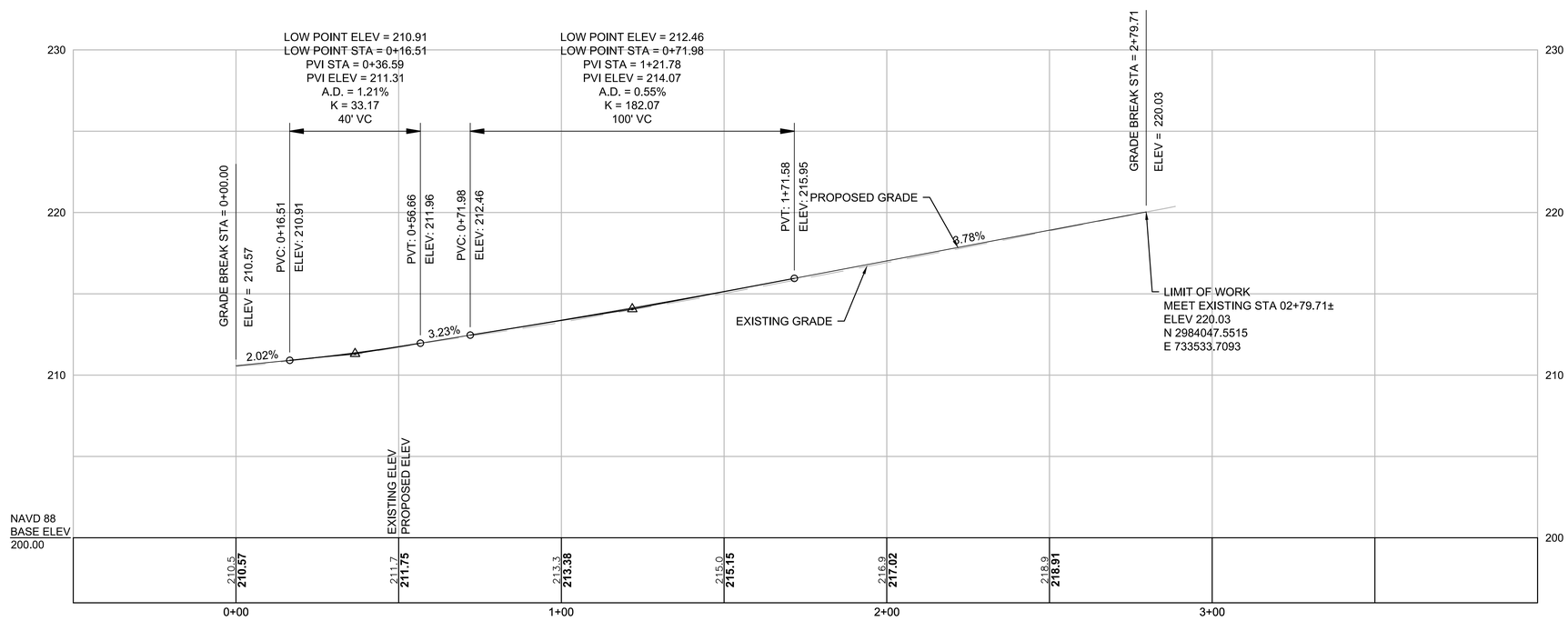
LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

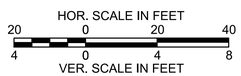
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	26	123
PROJECT FILE NO.	607409		

PROFILE PLAN
MARRETT ROAD

607409_HD(PR).DWG Plotted on 24-Apr-2016 6:51 PM

MARRETT ROAD BL





FOR CONSTRUCTION PLAN:
SEE SHEET 15

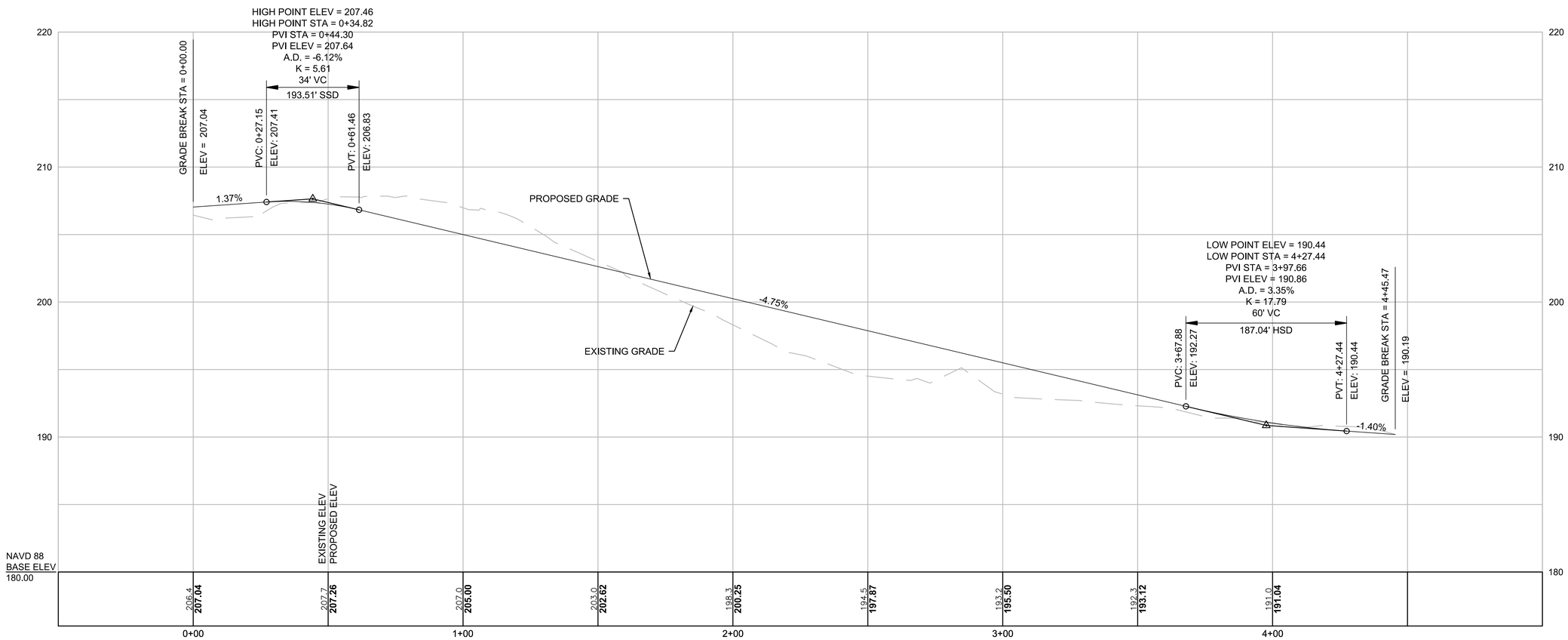
LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	27	123
PROJECT FILE NO.	607409		

PROFILE PLAN
MINUTEMAN COMMUTER BIKEWAY CONNECTION

607409_HD(PR).DWG Plotted on 24-Apr-2016 6:51 PM

MINUTEMAN COMMUTER BIKEWAY CONNECTION



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

FOR CONSTRUCTION PLAN:
SEE SHEET 16

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	28	123
PROJECT FILE NO.	607409		

GRADING & TIE PLAN
SHEET 1 OF 8

607409_HD(AP).DWG Plotted on 20-Apr-2016 8:40 AM

MASS AVE BL CONSTRUCTION BASELINE DATA

STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
10+00.00	2980997.311	735818.987	R=418.00' Δ=12°47'05" L=93.27' T=46.83'		10+93.27	2981055.632	735746.449
10+93.27	2981055.632	735746.449		N44°48'29"W 66.41'	11+59.68	2981102.749	735699.646
11+59.68	2981102.749	735699.646	R=5062.00' Δ=2°15'01" L=198.80' T=99.41'		13+58.48	2981241.004	735556.812
13+58.48	2981241.004	735556.812		N47°03'30"W 166.93'	15+25.41	2981354.724	735434.613
15+25.41	2981354.724	735434.613	R=920.00' Δ=22°33'27" L=362.21' T=183.48'		18+87.61	2981646.678	735224.208

PLEASANT STREET BL CONSTRUCTION BASELINE DATA

STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
0+00.00	2981386.313	735402.299		S46°30'13"W 25.43'	0+25.43	2981368.811	735383.853
0+25.43	2981368.811	735383.853	R=250.00' Δ=32°45'33" L=142.94' T=73.48'		1+68.37	2981246.854	735313.089
1+68.37	2981246.854	735313.089		S13°44'40"W 80.53'	2+48.90	2981168.627	735293.955
2+48.90	2981168.627	735293.955	R=200.00' Δ=3°52'49" L=13.54' T=6.77'		2+62.44	2981155.372	735291.185
2+62.44	2981155.372	735291.185		S9°51'51"W 37.82'	3+00.26	2981118.114	735284.706
3+00.26	2981118.114	735284.706	R=200.00' Δ=3°05'53" L=10.81' T=5.41'		3+11.07	2981107.515	735282.567

FOLLEN RD BL CONSTRUCTION BASELINE DATA

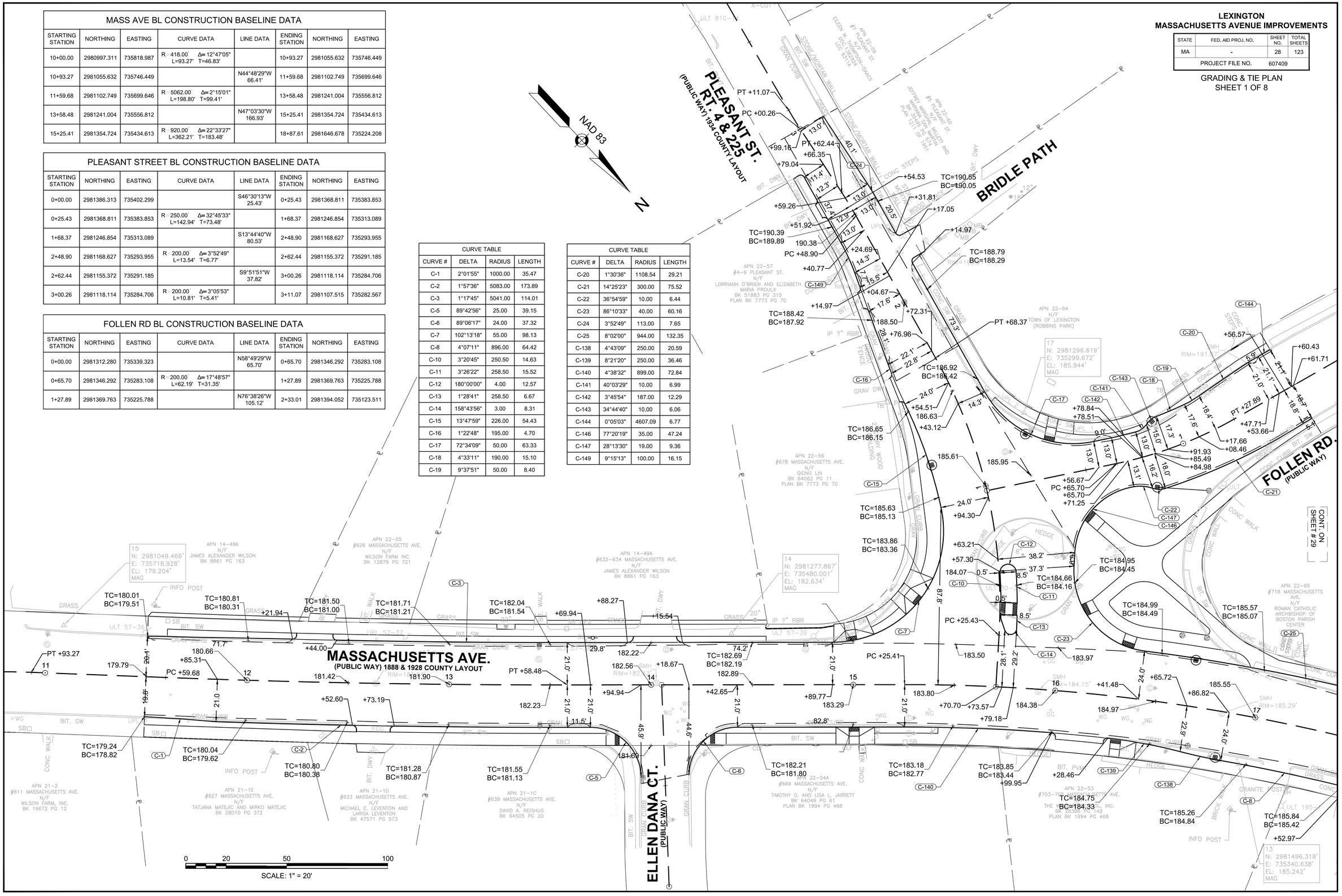
STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
0+00.00	2981312.280	735339.323		N58°49'29"W 65.70'	0+65.70	2981346.292	735283.108
0+65.70	2981346.292	735283.108	R=200.00' Δ=17°48'57" L=62.19' T=31.35'		1+27.89	2981369.763	735225.788
1+27.89	2981369.763	735225.788		N76°38'26"W 105.12'	2+33.01	2981394.052	735123.511

CURVE TABLE

CURVE #	DELTA	RADIUS	LENGTH
C-1	2°01'55"	1000.00	35.47
C-2	1°57'36"	5083.00	173.89
C-3	1°17'45"	5041.00	114.01
C-5	89°42'56"	25.00	39.15
C-6	89°06'17"	24.00	37.32
C-7	102°13'18"	55.00	98.13
C-8	4°07'11"	896.00	64.42
C-10	3°20'45"	250.50	14.63
C-11	3°26'22"	258.50	15.52
C-12	180°00'00"	4.00	12.57
C-13	1°28'41"	258.50	6.67
C-14	158°43'56"	3.00	8.31
C-15	13°47'59"	226.00	54.43
C-16	1°22'48"	195.00	4.70
C-17	72°34'09"	50.00	63.33
C-18	4°33'11"	190.00	15.10
C-19	9°37'51"	50.00	8.40

CURVE TABLE

CURVE #	DELTA	RADIUS	LENGTH
C-20	1°30'36"	1108.54	29.21
C-21	14°25'23"	300.00	75.52
C-22	36°54'59"	10.00	6.44
C-23	86°10'33"	40.00	60.16
C-24	3°52'49"	113.00	7.65
C-25	8°02'00"	944.00	132.35
C-138	4°43'09"	250.00	20.59
C-139	8°21'20"	250.00	36.46
C-140	4°38'32"	899.00	72.84
C-141	40°03'29"	10.00	6.99
C-142	3°45'54"	187.00	12.29
C-143	34°44'40"	10.00	6.06
C-144	0°05'03"	4607.09	6.77
C-146	77°20'19"	35.00	47.24
C-147	28°13'30"	19.00	9.36
C-149	9°15'13"	100.00	16.15

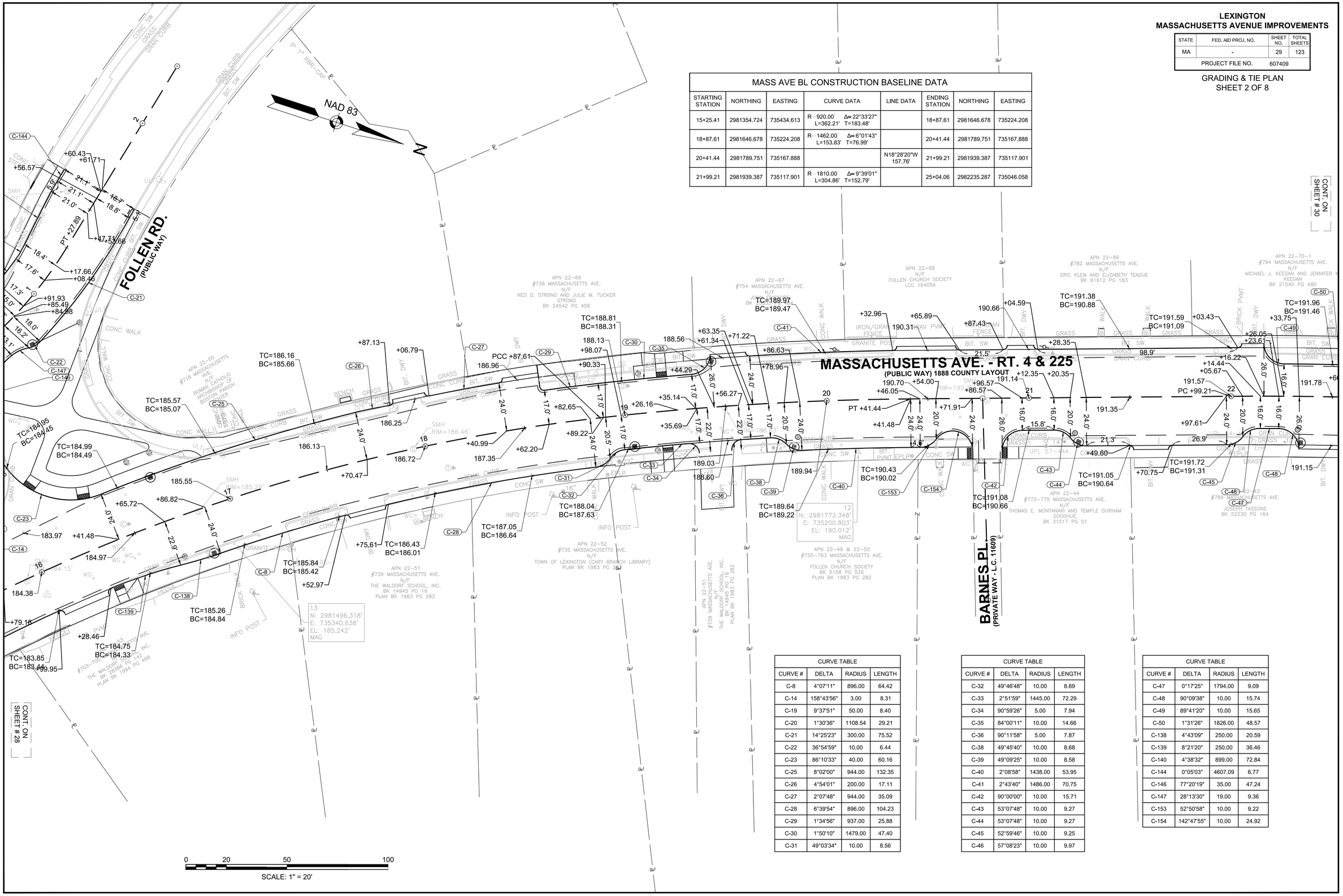


LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	29	123
PROJECT FILE NO.	607409		

GRADING & TIE PLAN
SHEET 2 OF 8

607409_HD(AP).DWG Plotted on 20-Apr-2016 8:40 AM



MASS AVE BL CONSTRUCTION BASELINE DATA

STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
15+25.41	2981354.724	735434.613	R=920.00' Δ=22°33'27" L=362.21' T=183.48'		18+87.61	2981646.678	735224.208
18+87.61	2981646.678	735224.208	R=1462.00' Δ=6°01'43" L=153.83' T=76.99'		20+41.44	2981789.751	735167.888
20+41.44	2981789.751	735167.888		N18°28'20"W 157.76'	21+99.21	2981939.387	735117.901
21+99.21	2981939.387	735117.901	R=1810.00' Δ=9°39'01" L=304.86' T=152.79'		25+04.06	2982235.287	735046.058

CURVE TABLE			
CURVE #	DELTA	RADIUS	LENGTH
C-8	4°07'11"	896.00	64.42
C-14	158°43'56"	3.00	8.31
C-19	9°37'51"	50.00	8.40
C-20	1°30'36"	1108.54	29.21
C-21	14°25'23"	300.00	75.52
C-22	36°54'59"	10.00	6.44
C-23	86°10'33"	40.00	60.16
C-25	8°02'00"	944.00	132.35
C-26	4°54'01"	200.00	17.11
C-27	2°07'48"	944.00	35.09
C-28	6°39'54"	896.00	104.23
C-29	1°34'56"	937.00	25.88
C-30	1°50'10"	1479.00	47.40
C-31	49°03'34"	10.00	8.56

CURVE TABLE			
CURVE #	DELTA	RADIUS	LENGTH
C-32	49°46'48"	10.00	8.69
C-33	2°51'59"	1445.00	72.29
C-34	90°59'26"	5.00	7.94
C-35	84°00'11"	10.00	14.66
C-36	90°11'58"	5.00	7.87
C-38	49°45'40"	10.00	8.68
C-39	49°09'25"	10.00	8.58
C-40	2°08'58"	1438.00	53.95
C-41	2°43'40"	1486.00	70.75
C-42	90°00'00"	10.00	15.71
C-43	53°07'48"	10.00	9.27
C-44	53°07'48"	10.00	9.27
C-45	52°59'46"	10.00	9.25
C-46	57°08'23"	10.00	9.97

CURVE TABLE			
CURVE #	DELTA	RADIUS	LENGTH
C-47	0°17'25"	1794.00	9.09
C-48	90°09'38"	10.00	15.74
C-49	89°41'20"	10.00	15.65
C-50	1°31'26"	1826.00	48.57
C-138	4°43'09"	250.00	20.59
C-139	8°21'20"	250.00	36.46
C-140	4°38'32"	899.00	72.84
C-144	0°05'03"	4607.09	6.77
C-146	77°20'19"	35.00	47.24
C-147	28°13'30"	19.00	9.36
C-153	52°50'58"	10.00	9.22
C-154	142°47'55"	10.00	24.92

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	30	123
PROJECT FILE NO.	607409		

GRADING & TIE PLAN
SHEET 3 OF 8

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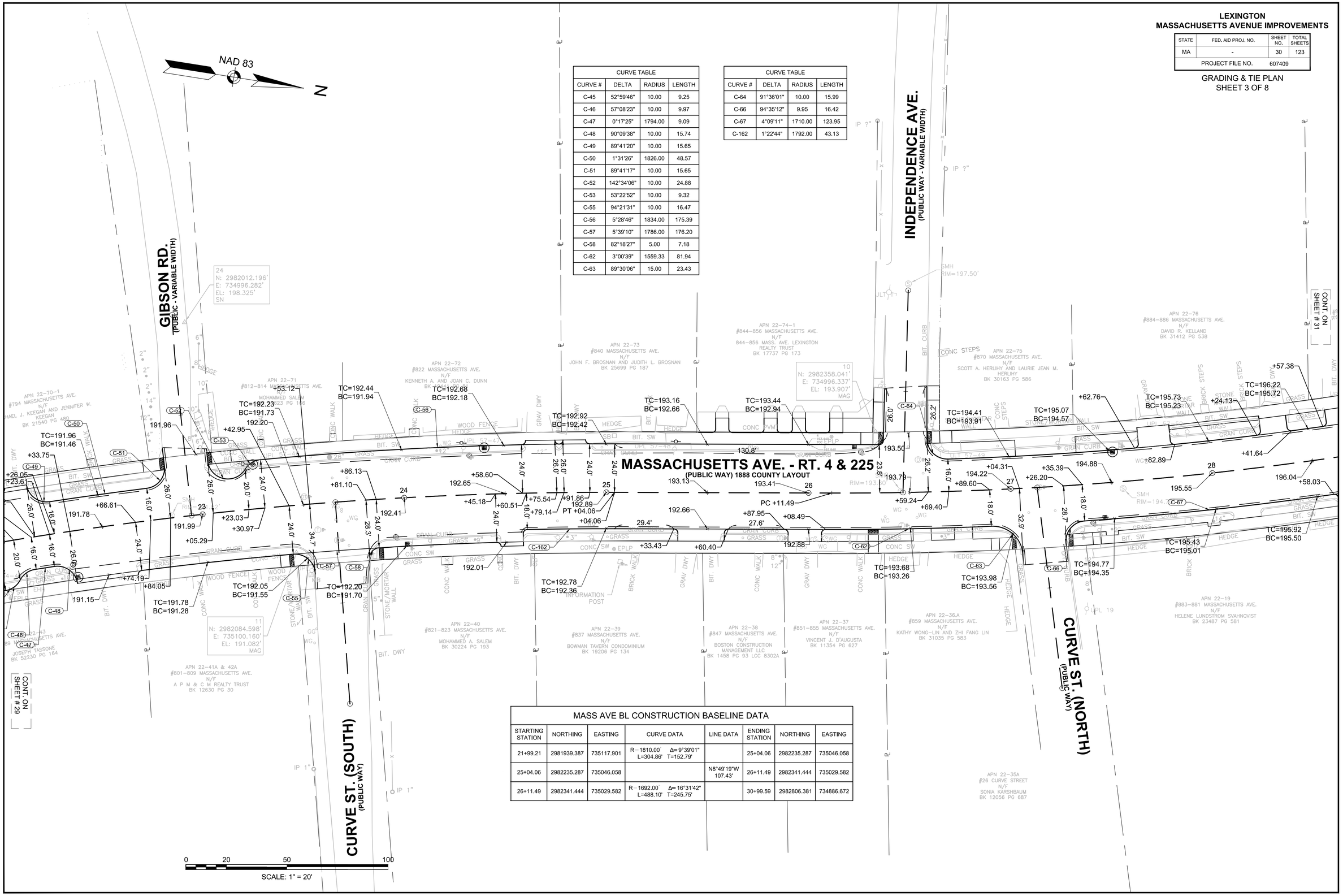


CURVE TABLE			
CURVE #	DELTA	RADIUS	LENGTH
C-45	52°59'46"	10.00	9.25
C-46	57°08'23"	10.00	9.97
C-47	0°17'25"	1794.00	9.09
C-48	90°09'38"	10.00	15.74
C-49	89°41'20"	10.00	15.65
C-50	1°31'26"	1826.00	48.57
C-51	89°41'17"	10.00	15.65
C-52	142°34'06"	10.00	24.88
C-53	53°22'52"	10.00	9.32
C-55	94°21'31"	10.00	16.47
C-56	5°28'46"	1834.00	175.39
C-57	5°39'10"	1786.00	176.20
C-58	82°18'27"	5.00	7.18
C-62	3°00'39"	1559.33	81.94
C-63	89°30'06"	15.00	23.43

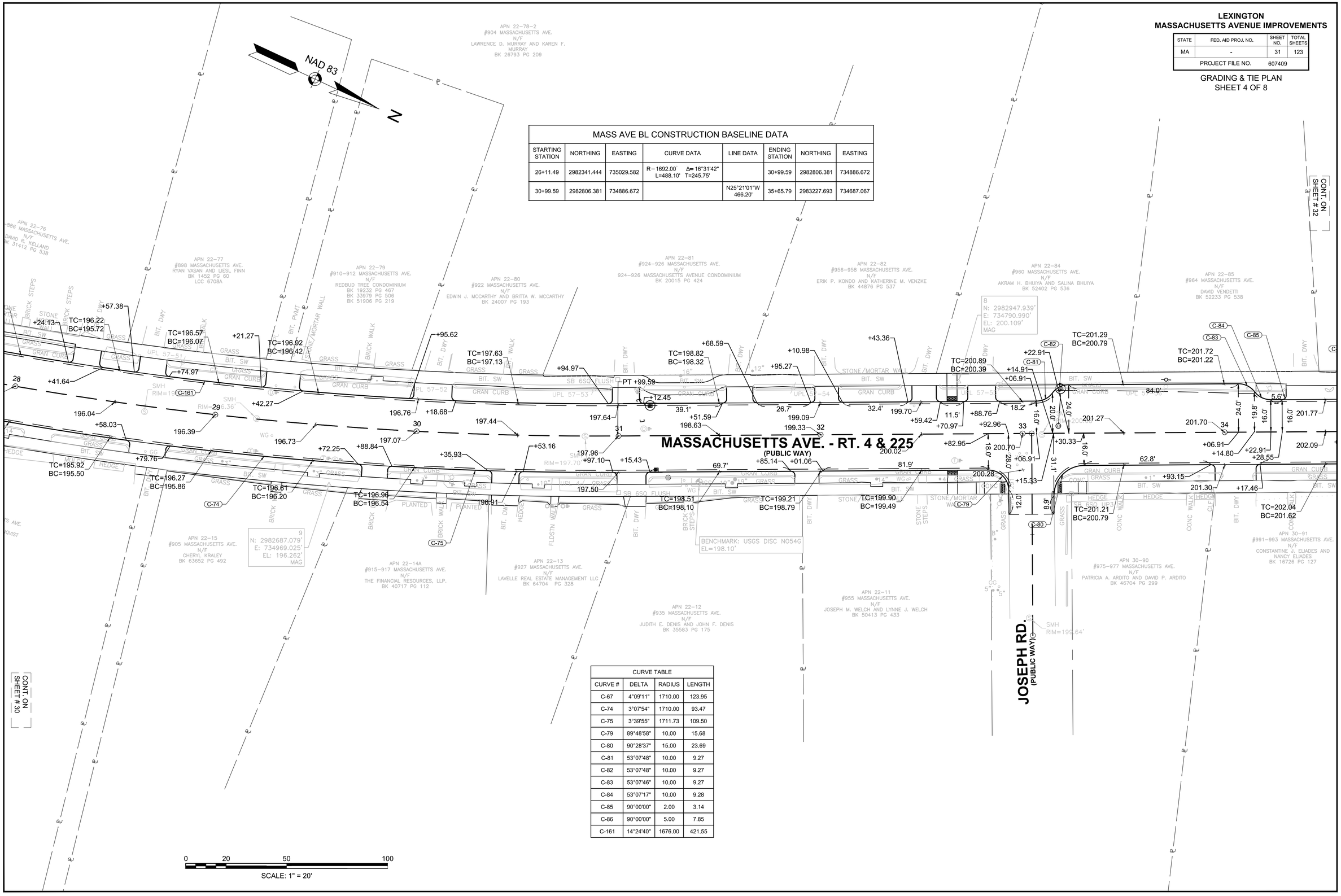
CURVE TABLE			
CURVE #	DELTA	RADIUS	LENGTH
C-64	91°36'01"	10.00	15.99
C-66	94°35'12"	9.95	16.42
C-67	4°09'11"	1710.00	123.95
C-162	1°22'44"	1792.00	43.13

MASS AVE BL CONSTRUCTION BASELINE DATA							
STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
21+99.21	2981939.387	735117.901	R=1810.00' Δ=9°39'01" L=304.86' T=152.79'		25+04.06	2982235.287	735046.058
25+04.06	2982235.287	735046.058		N8°49'19"W 107.43'	26+11.49	2982341.444	735029.582
26+11.49	2982341.444	735029.582	R=1692.00' Δ=16°31'42" L=488.10' T=245.75'		30+99.59	2982806.381	734886.672

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	31	123
PROJECT FILE NO.	607409		

GRADING & TIE PLAN
SHEET 4 OF 8



MASS AVE BL CONSTRUCTION BASELINE DATA

STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
26+11.49	2982341.444	735029.582	R=1692.00' Δ=16°31'42" L=488.10' T=245.75'		30+99.59	2982806.381	734886.672
30+99.59	2982806.381	734886.672		N25°21'01"W 466.20'	35+65.79	2983227.693	734687.067

CURVE TABLE

CURVE #	DELTA	RADIUS	LENGTH
C-67	4°09'11"	1710.00	123.95
C-74	3°07'54"	1710.00	93.47
C-75	3°39'55"	1711.73	109.50
C-79	89°48'58"	10.00	15.68
C-80	90°28'37"	15.00	23.69
C-81	53°07'48"	10.00	9.27
C-82	53°07'48"	10.00	9.27
C-83	53°07'46"	10.00	9.27
C-84	53°07'17"	10.00	9.28
C-85	90°00'00"	2.00	3.14
C-86	90°00'00"	5.00	7.85
C-161	14°24'40"	1676.00	421.55

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LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	32	123
PROJECT FILE NO.	607409		

GRADING & TIE PLAN
SHEET 5 OF 8

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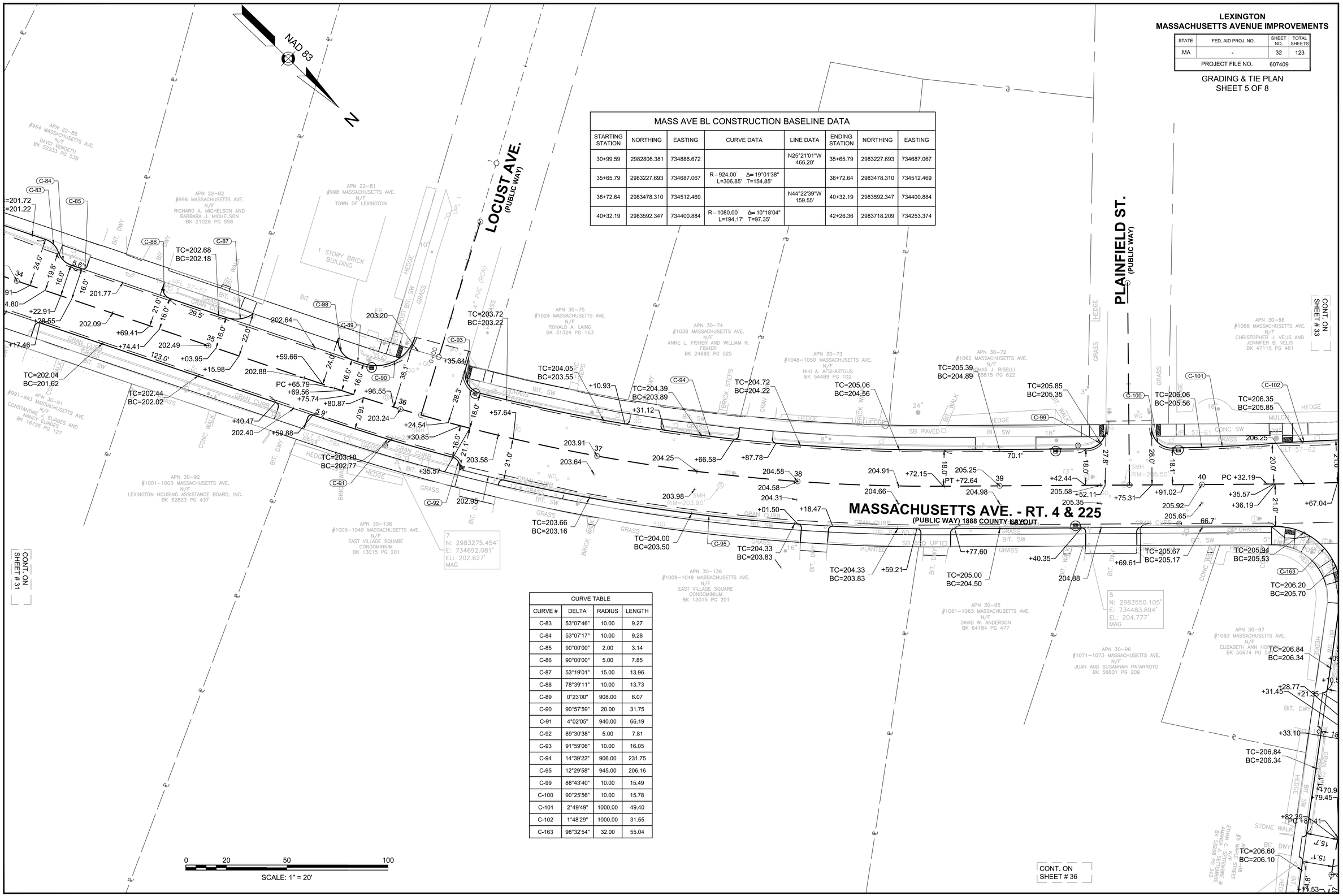


MASS AVE BL CONSTRUCTION BASELINE DATA

STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
30+99.59	2982806.381	734886.672		N25°21'01"W 466.20'	35+65.79	2983227.693	734687.067
35+65.79	2983227.693	734687.067	R=924.00' Δ=19°01'38" L=306.85' T=154.85'		38+72.64	2983478.310	734512.469
38+72.64	2983478.310	734512.469		N44°22'39"W 159.55'	40+32.19	2983592.347	734400.884
40+32.19	2983592.347	734400.884	R=1080.00' Δ=10°18'04" L=194.17' T=97.35'		42+26.36	2983718.209	734253.374

CURVE TABLE

CURVE #	DELTA	RADIUS	LENGTH
C-83	53°07'46"	10.00	9.27
C-84	53°07'17"	10.00	9.28
C-85	90°00'00"	2.00	3.14
C-86	90°00'00"	5.00	7.85
C-87	53°19'01"	15.00	13.96
C-88	78°39'11"	10.00	13.73
C-89	0°23'00"	908.00	6.07
C-90	90°57'59"	20.00	31.75
C-91	4°02'05"	940.00	66.19
C-92	89°30'38"	5.00	7.81
C-93	91°59'06"	10.00	16.05
C-94	14°39'22"	906.00	231.75
C-95	12°29'58"	945.00	206.16
C-99	88°43'40"	10.00	15.49
C-100	90°25'56"	10.00	15.78
C-101	2°49'49"	1000.00	49.40
C-102	1°48'29"	1000.00	31.55
C-163	98°32'54"	32.00	55.04

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	33	123
PROJECT FILE NO.	607409		

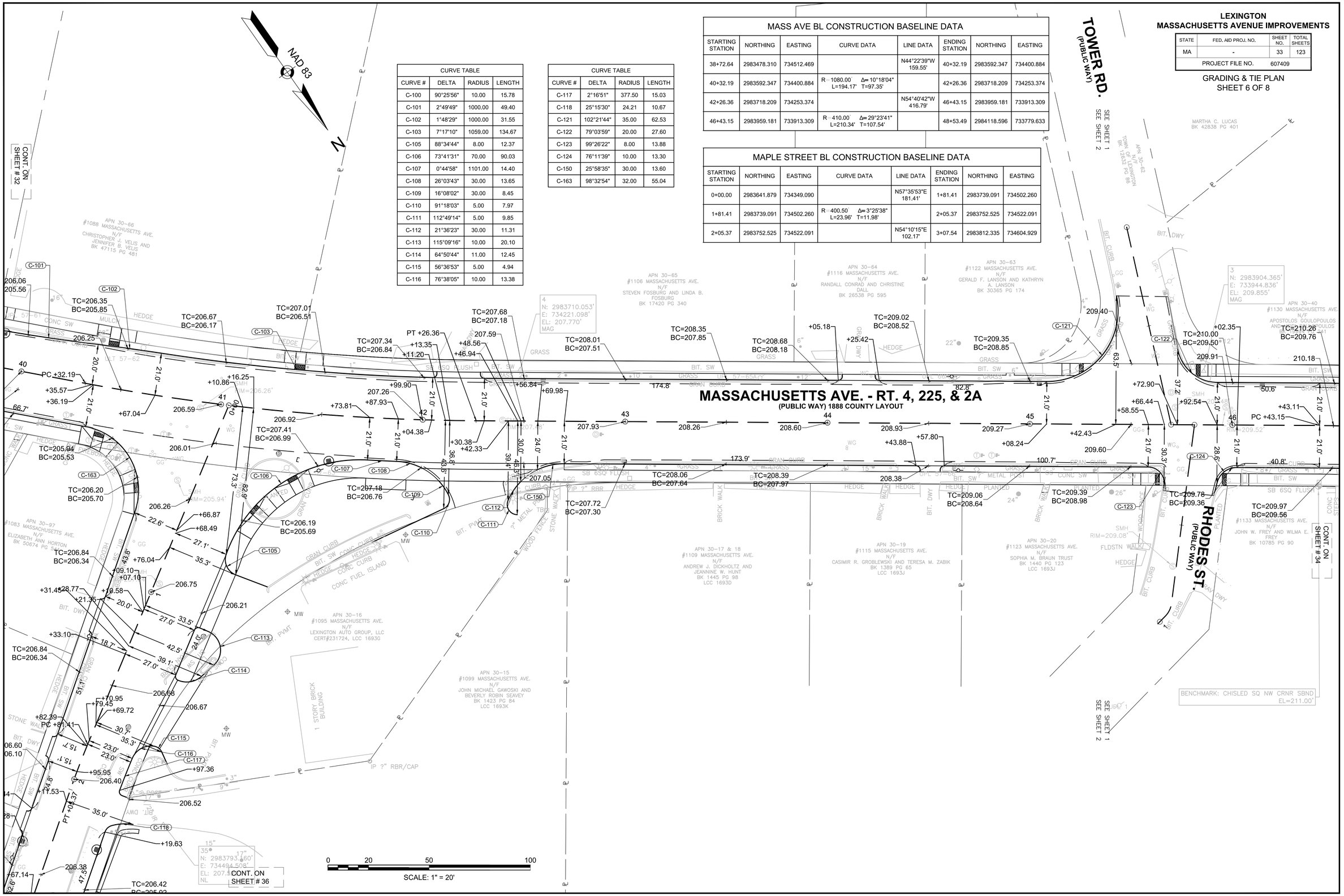
GRADING & TIE PLAN
SHEET 6 OF 8

MASS AVE BL CONSTRUCTION BASELINE DATA							
STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
38+72.64	2983478.310	734512.469		N44°22'39"W 159.55'	40+32.19	2983592.347	734400.884
40+32.19	2983592.347	734400.884	R=1080.00' Δ=10°18'04" L=194.17' T=97.35'		42+26.36	2983718.209	734253.374
42+26.36	2983718.209	734253.374		N54°40'42"W 416.79'	46+43.15	2983959.181	733913.309
46+43.15	2983959.181	733913.309	R=410.00' Δ=29°23'41" L=210.34' T=107.54'		48+53.49	2984118.596	733779.633

MAPLE STREET BL CONSTRUCTION BASELINE DATA							
STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
0+00.00	2983641.879	734349.090		N57°35'53"E 181.41'	1+81.41	2983739.091	734502.260
1+81.41	2983739.091	734502.260	R=400.50' Δ=3°25'38" L=23.96' T=11.98'		2+05.37	2983752.525	734522.091
2+05.37	2983752.525	734522.091		N54°10'15"E 102.17'	3+07.54	2983812.335	734604.929

CURVE TABLE			
CURVE #	DELTA	RADIUS	LENGTH
C-100	90°25'56"	10.00	15.78
C-101	2°49'49"	1000.00	49.40
C-102	1°48'29"	1000.00	31.55
C-103	7°17'10"	1059.00	134.67
C-105	88°34'44"	8.00	12.37
C-106	73°41'31"	70.00	90.03
C-107	0°44'58"	1101.00	14.40
C-108	26°03'43"	30.00	13.65
C-109	16°08'02"	30.00	8.45
C-110	91°18'03"	5.00	7.97
C-111	112°49'14"	5.00	9.85
C-112	21°36'23"	30.00	11.31
C-113	115°09'16"	10.00	20.10
C-114	64°50'44"	11.00	12.45
C-115	56°36'53"	5.00	4.94
C-116	76°38'05"	10.00	13.38

CURVE TABLE			
CURVE #	DELTA	RADIUS	LENGTH
C-117	2°16'51"	377.50	15.03
C-118	25°15'30"	24.21	10.67
C-121	102°21'44"	35.00	62.53
C-122	79°03'59"	20.00	27.60
C-123	99°26'22"	8.00	13.88
C-124	76°11'39"	10.00	13.30
C-150	25°58'35"	30.00	13.60
C-163	98°32'54"	32.00	55.04



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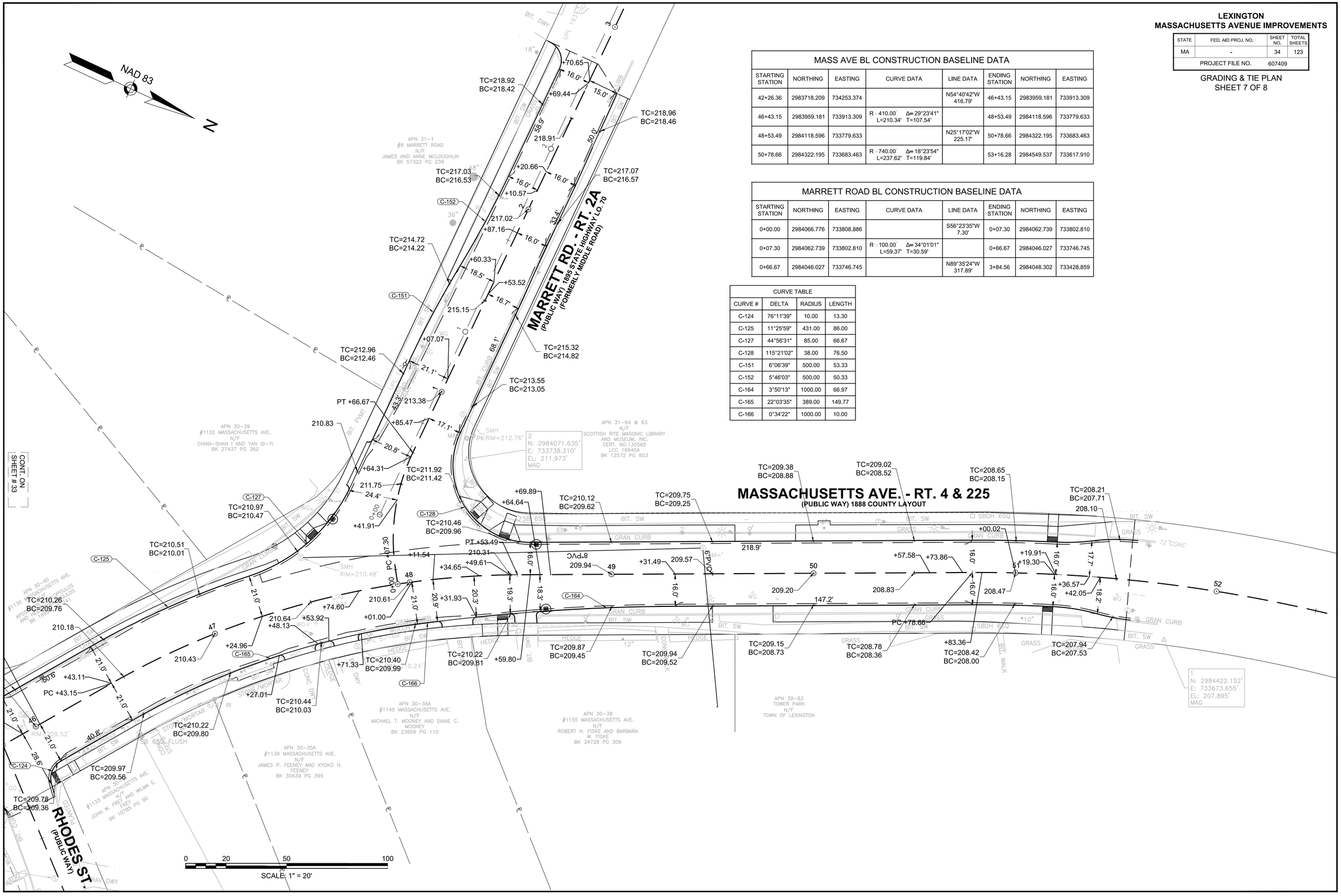
LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	34	123
PROJECT FILE NO.	607409		

GRADING & TIE PLAN
SHEET 7 OF 8



MASS AVE BL CONSTRUCTION BASELINE DATA

STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
42+26.36	2983718.209	734253.374		N54°40'42"W 416.79'	46+43.15	2983959.181	733913.309
46+43.15	2983959.181	733913.309	R=410.00' Δ=29°23'41" L=210.34' T=107.54'		48+53.49	2984118.596	733779.633
48+53.49	2984118.596	733779.633		N25°17'02"W 225.17'	50+78.66	2984322.195	733683.463
50+78.66	2984322.195	733683.463	R=740.00' Δ=18°23'54" L=237.62' T=119.84'		53+16.28	2984549.537	733617.910

MARRETT ROAD BL CONSTRUCTION BASELINE DATA

STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
0+00.00	2984066.776	733808.886		S56°23'35"W 7.30'	0+07.30	2984062.739	733802.810
0+07.30	2984062.739	733802.810	R=100.00' Δ=34°01'01" L=59.37' T=30.59'		0+66.67	2984046.027	733746.745
0+66.67	2984046.027	733746.745		N89°35'24"W 317.89'	3+84.56	2984048.302	733428.859

CURVE TABLE

CURVE #	DELTA	RADIUS	LENGTH
C-124	76°11'39"	10.00	13.30
C-125	11°25'59"	431.00	86.00
C-127	44°56'31"	85.00	66.67
C-128	115°21'02"	38.00	76.50
C-151	6°06'39"	500.00	53.33
C-152	5°46'03"	500.00	50.33
C-164	3°50'13"	1000.00	66.97
C-165	22°03'35"	389.00	149.77
C-166	0°34'22"	1000.00	10.00

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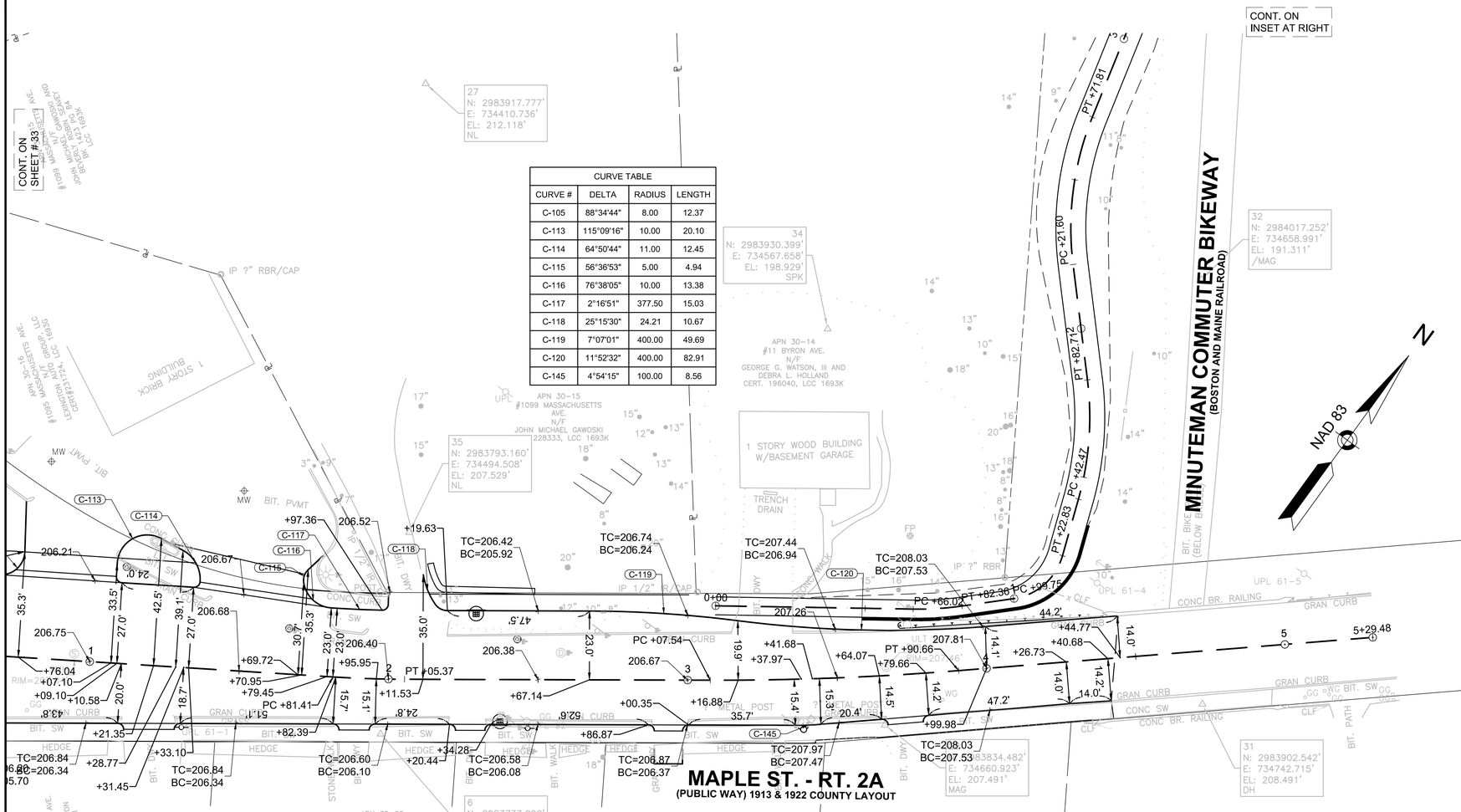
LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	35	123
PROJECT FILE NO.	607409		

GRADING & TIE PLAN
SHEET 8 OF 8



CURVE TABLE			
CURVE #	DELTA	RADIUS	LENGTH
C-105	88°34'44"	8.00	12.37
C-113	115°09'16"	10.00	20.10
C-114	64°50'44"	11.00	12.45
C-115	56°36'53"	5.00	4.94
C-116	76°38'05"	10.00	13.38
C-117	2°16'51"	377.50	15.03
C-118	25°15'30"	24.21	10.67
C-119	7°07'01"	400.00	49.69
C-120	11°52'32"	400.00	82.91
C-145	4°54'15"	100.00	8.56

MAPLE STREET BL CONSTRUCTION BASELINE DATA

STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
0+00.00	2983641.879	734349.090		N57°35'53"E 181.41'	1+81.41	2983739.091	734502.260
1+81.41	2983739.091	734502.260	R=400.50' Δ=3°25'38" L=23.96' T=11.98'		2+05.37	2983752.525	734522.091
2+05.37	2983752.525	734522.091		N54°10'15"E 102.17'	3+07.54	2983812.335	734604.929
3+07.54	2983812.335	734604.929	R=1000.00' Δ=4°45'44" L=83.12' T=41.58'		3+90.66	2983863.731	734670.219
3+90.66	2983863.731	734670.219		N49°24'31"E 138.82'	5+29.48	2983954.054	734775.632

MINUTEMAN COMMUTER BIKEWAY CONNECTION CONSTRUCTION BASELINE DATA

STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
0+00.00	2983833.502	734591.757		N54°57'25"E 66.02'	0+66.02	2983871.412	734645.811
0+66.02	2983871.412	734645.811	R=103.00' Δ=9°05'14" L=16.34' T=8.19'		0+82.36	2983881.811	734658.388
0+82.36	2983881.811	734658.388		N45°52'11"E 17.39'	0+99.75	2983893.917	734670.866
0+99.75	2983893.917	734670.866	R=20.00' Δ=66°07'52" L=23.08' T=13.02'		1+22.83	2983915.198	734675.703
1+22.83	2983915.198	734675.703		N20°15'41"W 19.64'	1+42.47	2983933.623	734668.902
1+42.47	2983933.623	734668.902	R=101.00' Δ=22°49'42" L=40.24' T=20.39'		1+82.71	2983967.644	734647.910
1+82.71	2983967.644	734647.910		N43°05'24"W 38.89'	2+21.60	2983996.046	734621.341
2+21.60	2983996.046	734621.341	R=99.00' Δ=29°03'21" L=50.20' T=25.65'		2+71.81	2984039.670	734597.594
2+71.81	2984039.670	734597.594		N14°02'03"W 40.56'	3+12.37	2984079.024	734587.757
3+12.37	2984079.024	734587.757	R=201.00' Δ=13°26'33" L=47.16' T=23.69'		3+59.53	2984123.020	734571.083
3+59.53	2984123.020	734571.083		N27°28'36"W 72.09'	4+31.62	2984186.980	734537.821
4+31.62	2984186.980	734537.821	R=9.00' Δ=85°19'31" L=13.40' T=8.29'		4+45.03	2984198.753	734541.016

0 20 50 100
SCALE: 1" = 20'

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LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

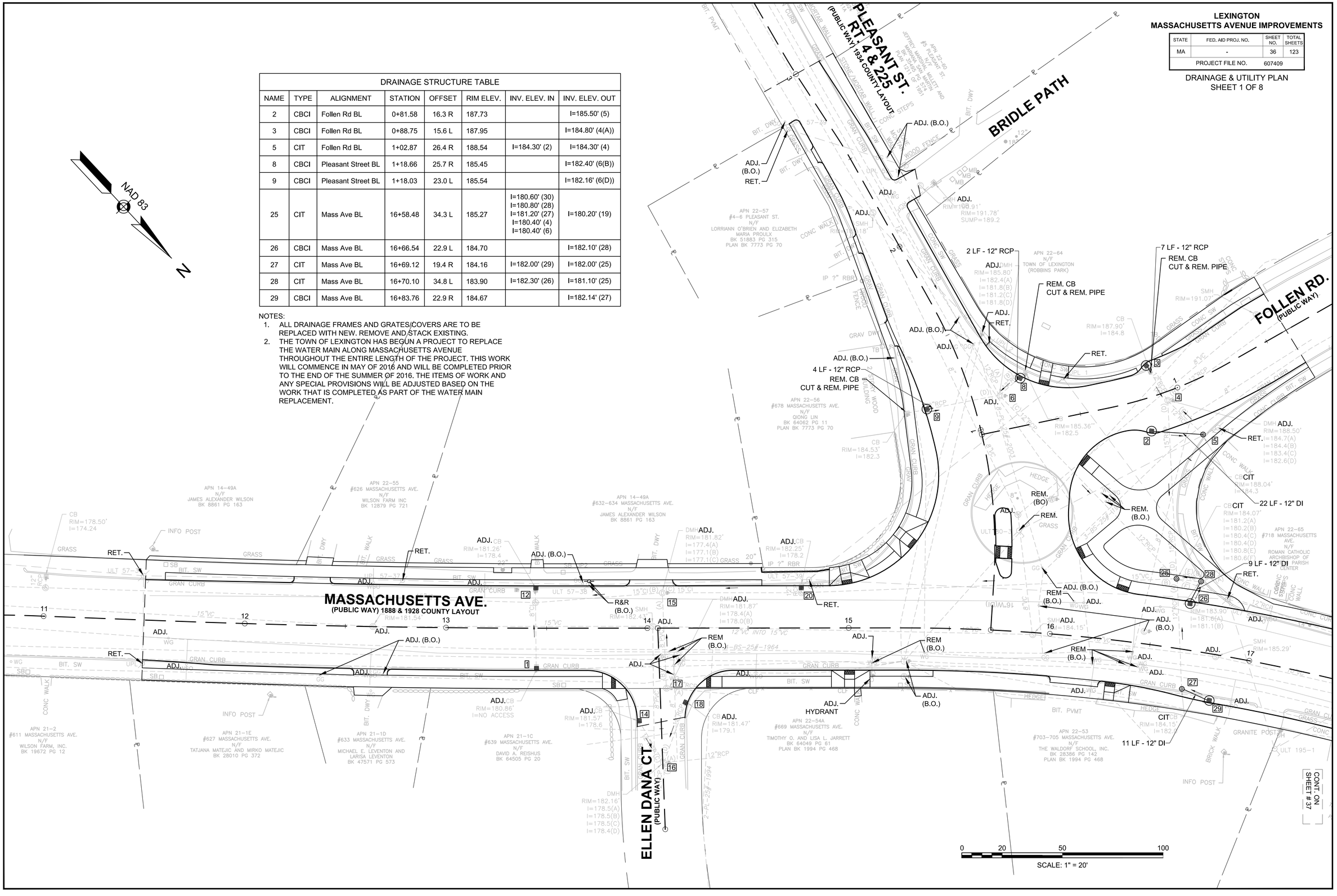
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	36	123
PROJECT FILE NO.	607409		

DRAINAGE & UTILITY PLAN
SHEET 1 OF 8

607409_UT(UT).DWG Plotted on 24-Apr-2016 6:54 PM

DRAINAGE STRUCTURE TABLE							
NAME	TYPE	ALIGNMENT	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT
2	CBCI	Follen Rd BL	0+81.58	16.3 R	187.73		I=185.50' (5)
3	CBCI	Follen Rd BL	0+88.75	15.6 L	187.95		I=184.80' (4(A))
5	CIT	Follen Rd BL	1+02.87	26.4 R	188.54	I=184.30' (2)	I=184.30' (4)
8	CBCI	Pleasant Street BL	1+18.66	25.7 R	185.45		I=182.40' (6(B))
9	CBCI	Pleasant Street BL	1+18.03	23.0 L	185.54		I=182.16' (6(D))
25	CIT	Mass Ave BL	16+58.48	34.3 L	185.27	I=180.60' (30) I=180.80' (28) I=181.20' (27) I=180.40' (4) I=180.40' (6)	I=180.20' (19)
26	CBCI	Mass Ave BL	16+66.54	22.9 L	184.70		I=182.10' (28)
27	CIT	Mass Ave BL	16+69.12	19.4 R	184.16	I=182.00' (29)	I=182.00' (25)
28	CIT	Mass Ave BL	16+70.10	34.8 L	183.90	I=182.30' (26)	I=181.10' (25)
29	CBCI	Mass Ave BL	16+83.76	22.9 R	184.67		I=182.14' (27)

NOTES:
1. ALL DRAINAGE FRAMES AND GRATES/COVERS ARE TO BE REPLACED WITH NEW. REMOVE AND STACK EXISTING.
2. THE TOWN OF LEXINGTON HAS BEGUN A PROJECT TO REPLACE THE WATER MAIN ALONG MASSACHUSETTS AVENUE THROUGHOUT THE ENTIRE LENGTH OF THE PROJECT. THIS WORK WILL COMMENCE IN MAY OF 2016 AND WILL BE COMPLETED PRIOR TO THE END OF THE SUMMER OF 2016. THE ITEMS OF WORK AND ANY SPECIAL PROVISIONS WILL BE ADJUSTED BASED ON THE WORK THAT IS COMPLETED AS PART OF THE WATER MAIN REPLACEMENT.



LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	37	123
PROJECT FILE NO.	607409		

DRAINAGE & UTILITY PLAN
SHEET 2 OF 8

DRAINAGE STRUCTURE TABLE

NAME	TYPE	ALIGNMENT	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT
31	CBCI	Mass Ave BL	19+03.19	16.0 R	187.71		I=185.67' (33)
32	CIT	Mass Ave BL	19+08.28	19.8 L	188.50	I=184.80' (33) I=184.60' (34)	I=184.60' (30)
33	CIT	Mass Ave BL	19+14.42	18.8 R	188.31	I=185.60' (36) I=185.60' (31)	I=185.60' (32)
34	CBCI	Mass Ave BL	19+44.37	22.6 L	188.48		I=184.93' (32)
35	CBCI	Mass Ave BL	19+82.79	22.2 R	188.96		I=186.40' (36)
36	DMH	Mass Ave BL	19+84.96	17.3 R	189.06	I=185.95' (37) I=186.27' (35)	I=185.95' (33)
37	DMH	Mass Ave BL	21+22.67	17.6 R	190.50	I=186.64' (39) I=187.71' (38)	I=186.64' (36)
38	CBCI	Mass Ave BL	21+24.30	22.0 R	191.26		I=187.90' (37)
39	DMH	Mass Ave BL	22+33	16.5 R	191.00	I=188.89' (40)	I=187.19' (37)
40	CBCI	Mass Ave BL	22+34.14	22.5 R	191.11		I=189.00' (39)

NOTES:
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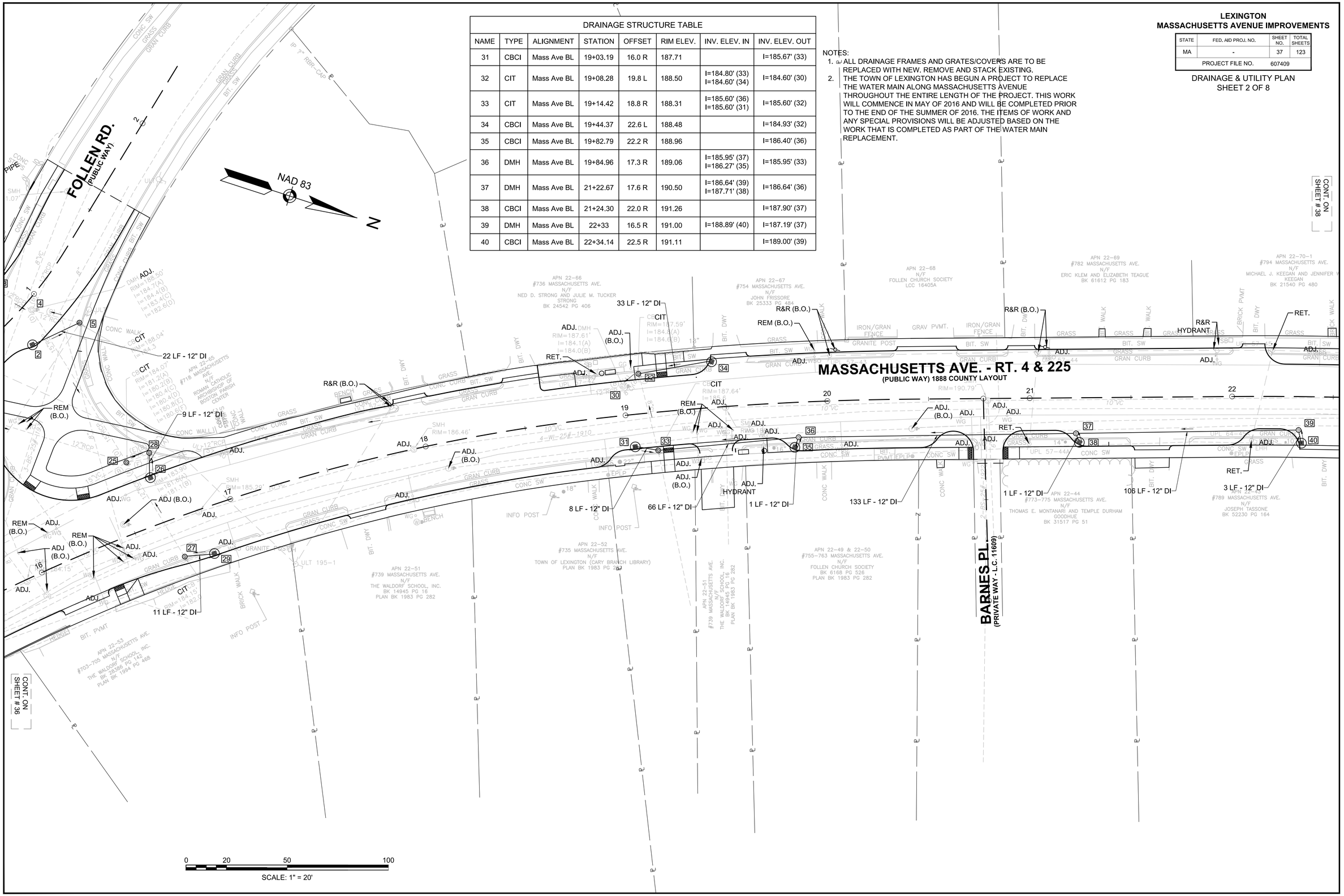

607409_UT(UT).DWG Plotted on 24-Apr-2016 6:54 PM

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	38	123
PROJECT FILE NO.	607409		

DRAINAGE & UTILITY PLAN
SHEET 3 OF 8

607409_UT(UT).DWG Plotted on 24-Apr-2016 6:54 PM

DRAINAGE STRUCTURE TABLE

NAME	TYPE	ALIGNMENT	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT
42	CIT	Mass Ave BL	23+94.76	19.1 R	191.41	I=187.80' (80)	I=187.80' (41)
44	CBCI	Mass Ave BL	24+40.34	23.0 L	192.15		I=189.20' (81)
45	GICI	Mass Ave BL	26+22.68	22.9 L	193.12		I=190.62' (46)
46	CIT	Mass Ave BL	26+25.95	20.3 L	193.20	I=190.52' (45)	I=189.20' (81)
49	CIT	Mass Ave BL	27+39.54	19.2 R	194.16	I=191.10' (50)	I=191.10' (48)
50	GICI	Mass Ave BL	27+45.40	17.0 R	194.31		I=191.20' (49)
77	CBCI	Mass Ave BL	27+51.61	15.0 L	194.61		I=191.11' (48(A))
80	GICI	Mass Ave BL	24+00.35	23.0 R	191.72		I=188.22' (42)
81	CIT	Mass Ave BL	24+32.93	19.4 L	192.18	I=189.10' (46) I=189.10' (44) I=189.09' (105)	I=189.09' (41)
105	CBCI	Mass Ave BL	23+27.01	22.0 L	191.66		I=189.63' (81)

NOTES:
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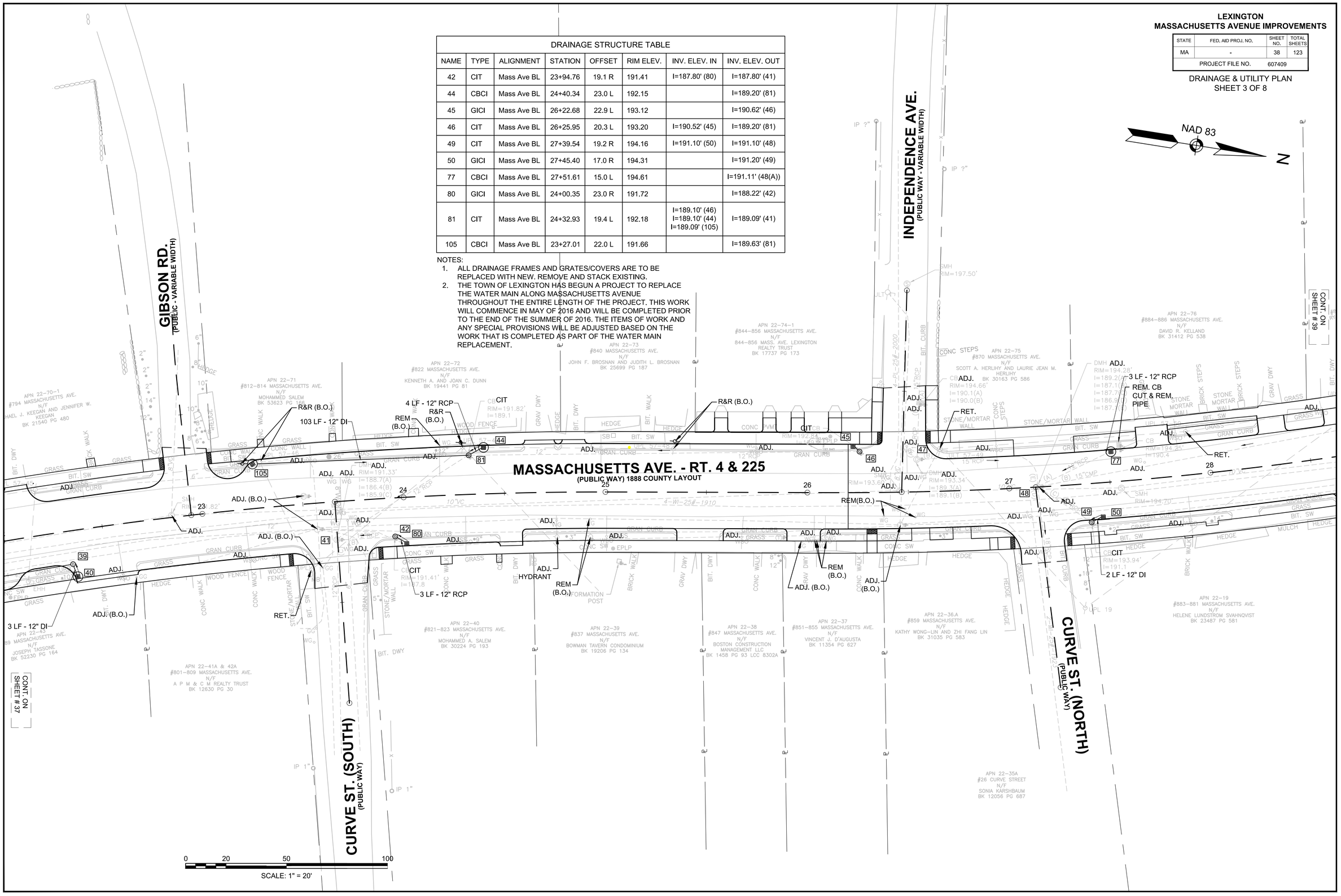

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	39	123
PROJECT FILE NO.	607409		

DRAINAGE & UTILITY PLAN
SHEET 4 OF 8

607409_UT(UT).DWG Plotted on 24-Apr-2016 6:54 PM

DRAINAGE STRUCTURE TABLE							
NAME	TYPE	ALIGNMENT	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT
55	EX. DMH	Mass Ave BL	31+12.51	3.5 L	197.99	I=190.50' (107) I=191.40' (56) I=192.80' (79)	I=190.40' (52)
56	CIT	Mass Ave BL	31+24.37	20.7 R	198.16	I=194.14' (82)	I=193.40' (55)
79	CBCI	Mass Ave BL	31+15.73	15.0 L	197.86		I=194.36' (55)
82	GICI	Mass Ave BL	31+18.56	17.0 R	197.74		I=194.24' (56)
106	CBCI	Mass Ave BL	33+18.88	22.0 L	200.49		I=196.99' (107)
107	DMH	Mass Ave BL	33+17.77	3.7 L	200.85	I=192.81' (58) I=196.00' (106)	I=192.81' (55)

NOTES:
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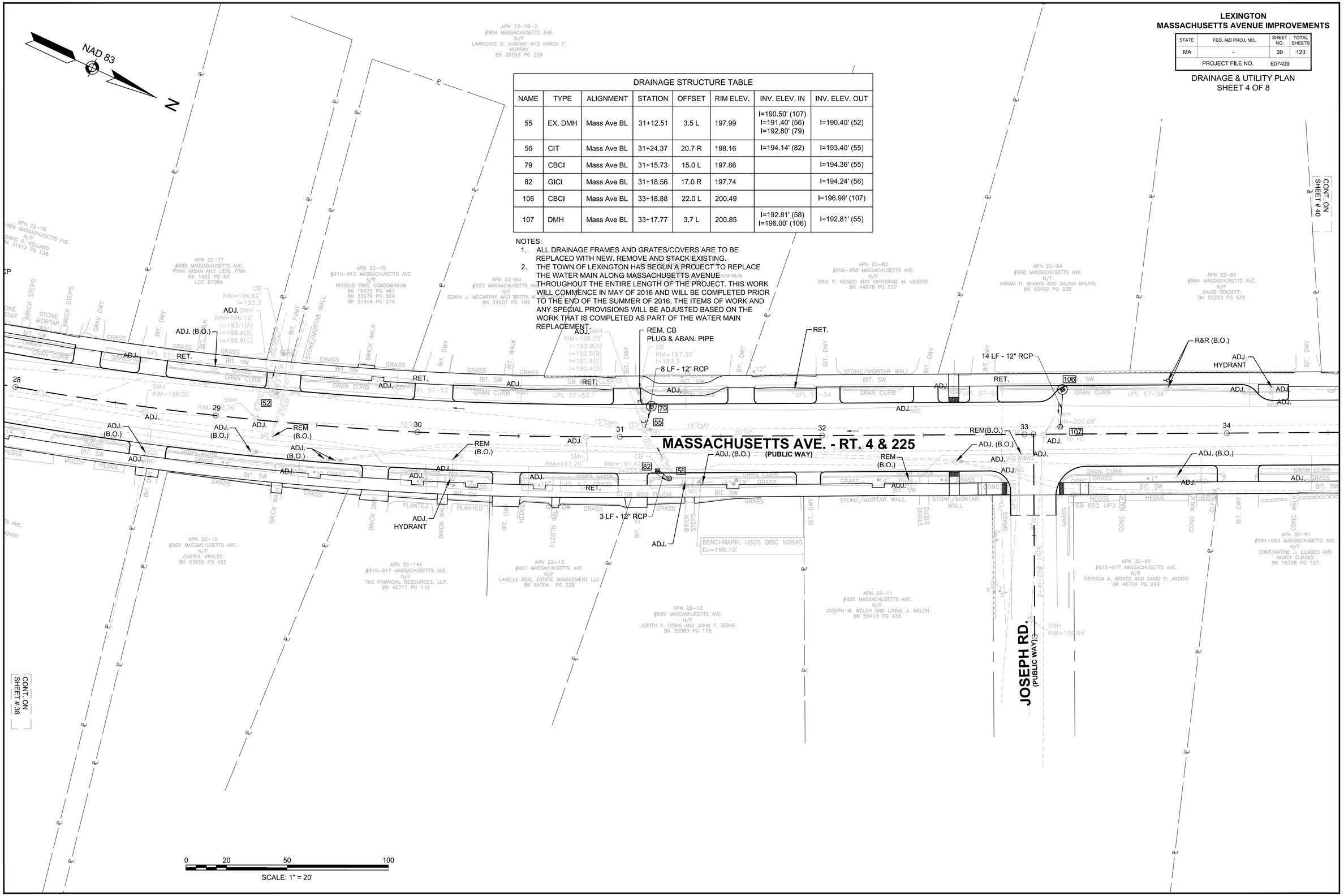

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	40	123
PROJECT FILE NO.	607409		

DRAINAGE & UTILITY PLAN
SHEET 5 OF 8

DRAINAGE STRUCTURE TABLE							
NAME	TYPE	ALIGNMENT	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT
59	SUMP MH	Mass Ave BL	35+97.79	19.1 R	202.25	I=198.10' (85)	I=198.10' (58)
62	CIT	Mass Ave BL	39+38.79	18.8 L	205.65	I=200.30' (86)	I=200.20' (63)
63	EX. DMH	Mass Ave BL	39+43.32	4.1 L	205.48	I=199.74' (65) I=200.00' (62) I=200.79' (89) I=201.10' (87)	I=199.00' (61)
65	CIT	Mass Ave BL	39+88.51	19.2 R	204.54	I=201.00' (66)	I=200.50' (63)
83	CBCI	Mass Ave BL	35+80.14	15.4 L	202.81		I=198.00' (53(A))
84	CBCI	Mass Ave BL	36+33.95	17.3 L	203.20		I=198.64' (58(B))
85	GICI	Mass Ave BL	36+36.64	20.0 R	202.77		I=198.50' (59)
86	CBCI	Mass Ave BL	39+27.77	17.0 L	205.10		I=201.60' (62)
87	CBCI	Mass Ave BL	39+37.32	20.0 R	204.84		I=201.40' (63)
88	CBCI	Mass Ave BL	39+88.47	17.2 L	205.50		I=202.00' (89)

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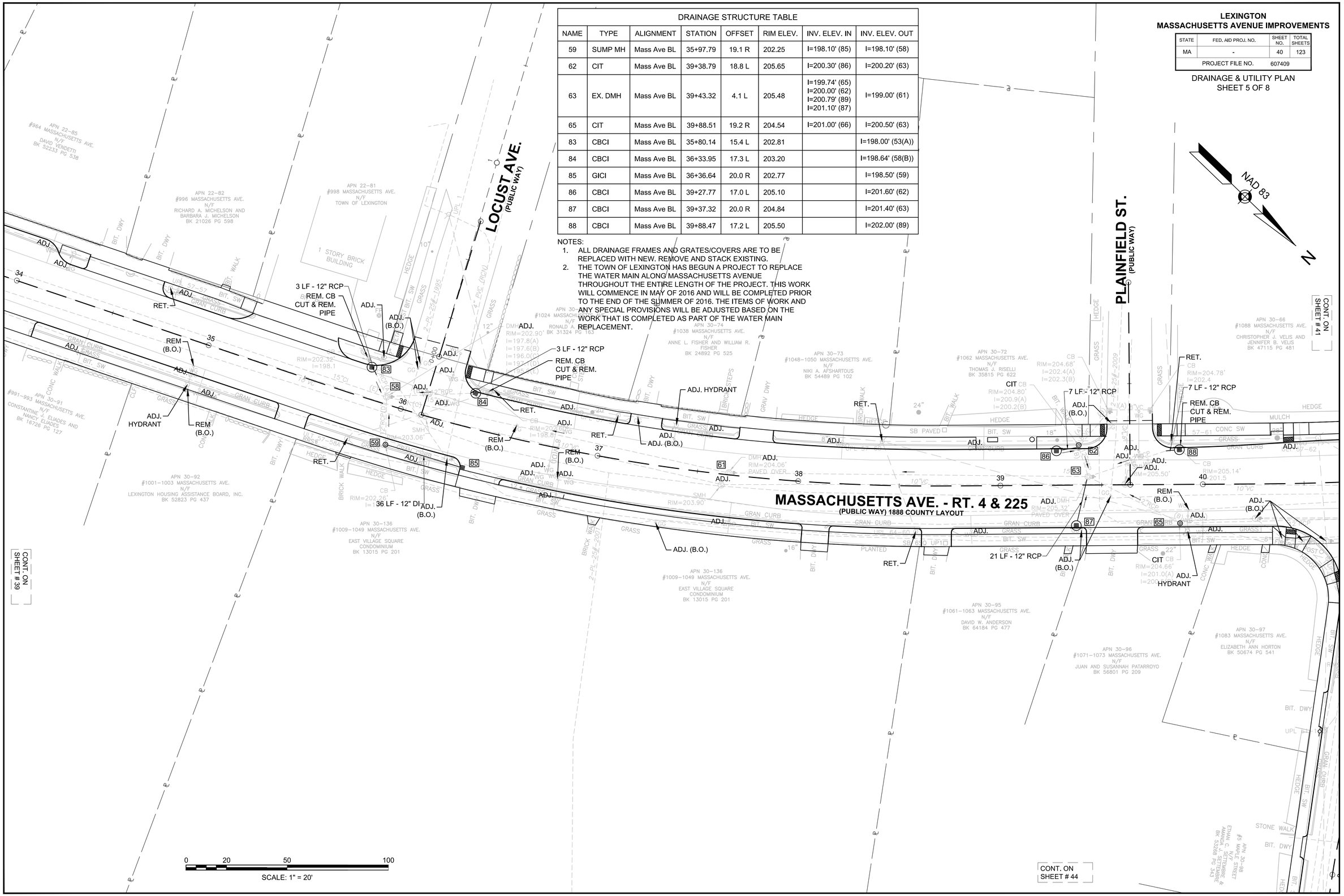

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LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	41	123
PROJECT FILE NO.	607409		

DRAINAGE & UTILITY PLAN
SHEET 6 OF 8

DRAINAGE STRUCTURE TABLE							
NAME	TYPE	ALIGNMENT	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT
66	CIT	Mass Ave BL	41+30.82	21.1 R	206.02	I=201.70' () I=201.50' (94) I=203.30' (95)	I=201.50' (65)
93	CIT	Maple Street BL	1+65.85	15.3 L	206.28	I=201.90' ()	I=201.60' (94)
94	CIT	Maple Street BL	1+10.30	32.4 L	206.81	I=201.70' (93)	I=201.40' (66)
95	CBCI	Mass Ave BL	41+55.12	22.8 R	206.86		I=203.50' (66)

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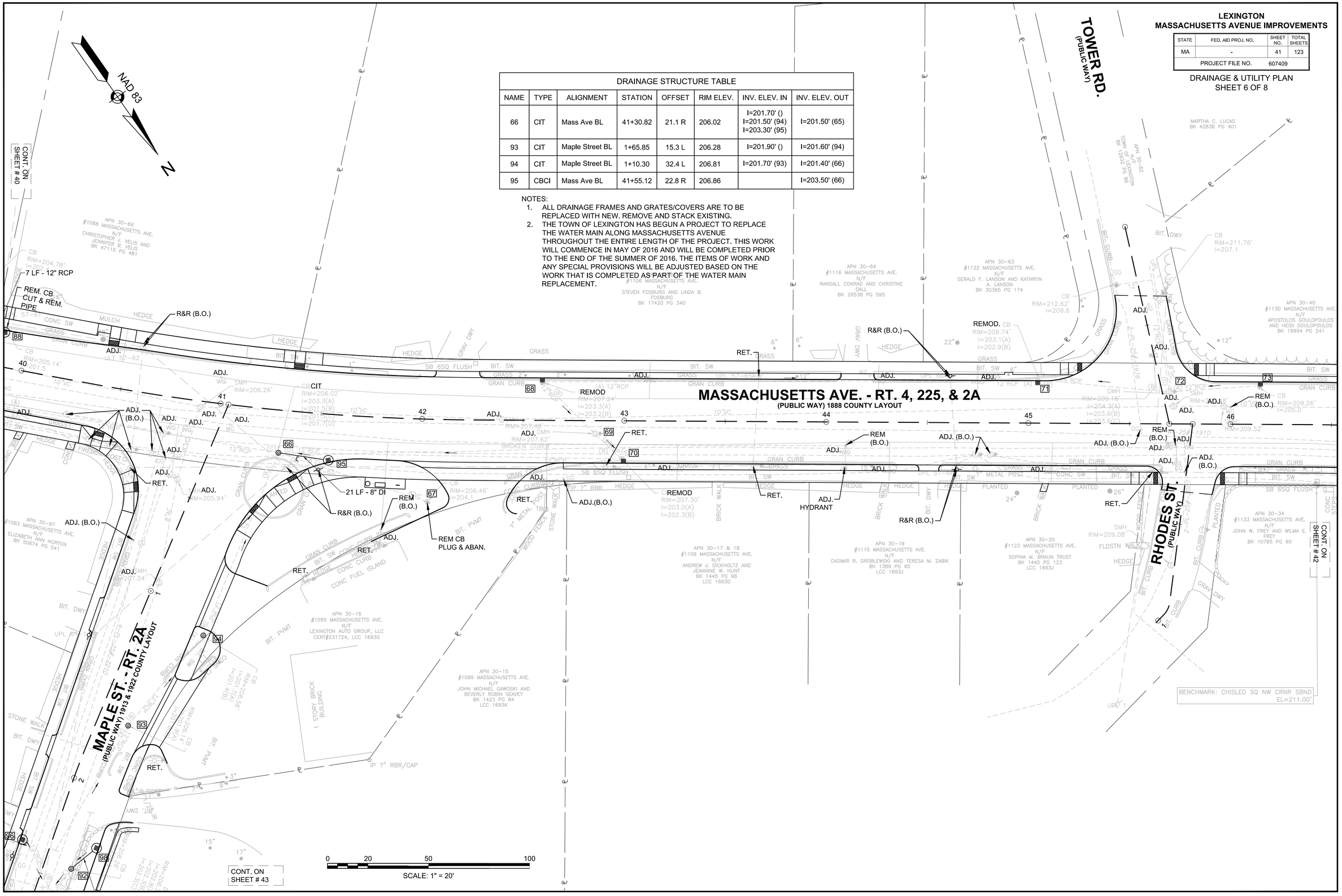

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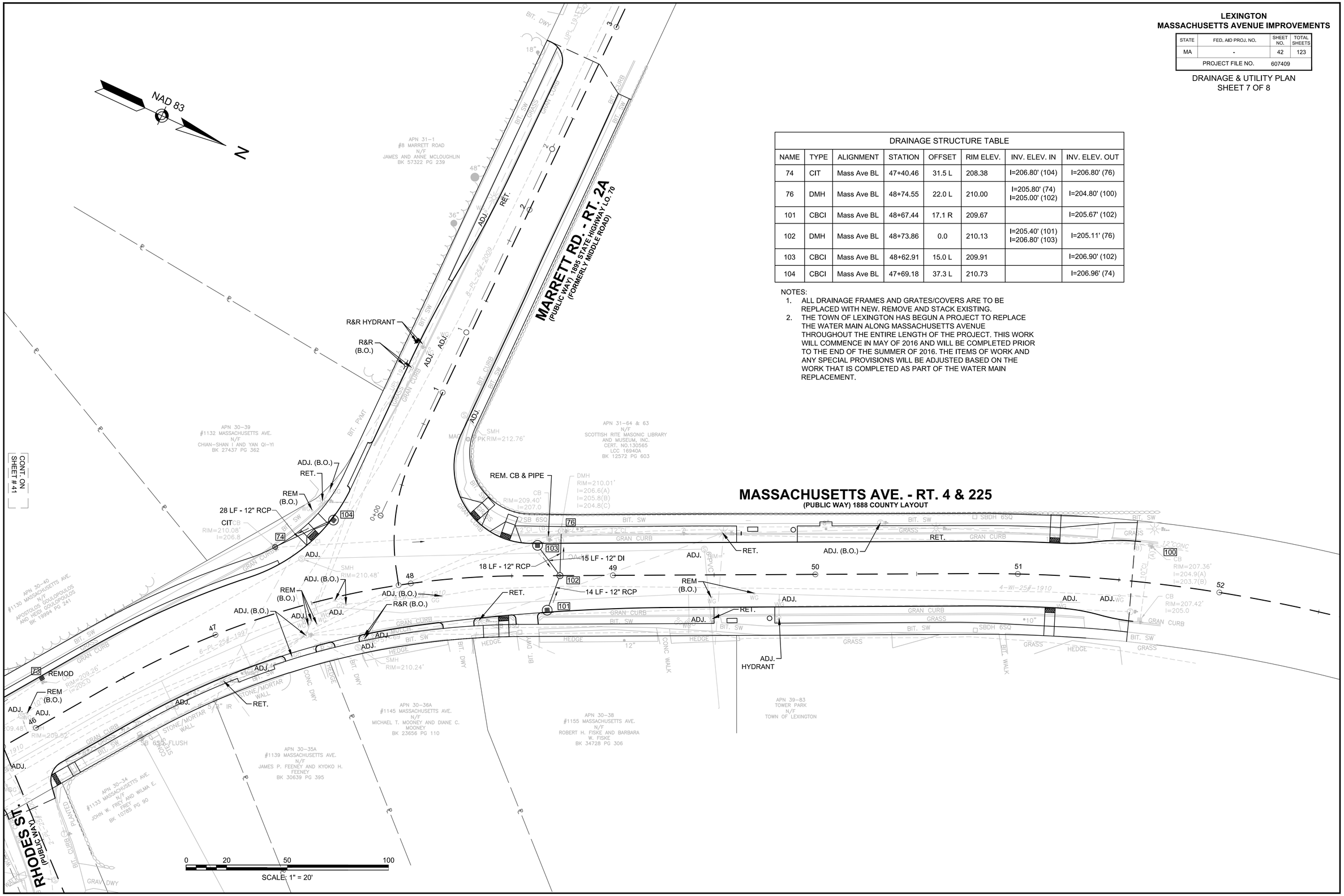
LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	42	123
PROJECT FILE NO.	607409		

DRAINAGE & UTILITY PLAN
SHEET 7 OF 8



DRAINAGE STRUCTURE TABLE							
NAME	TYPE	ALIGNMENT	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT
74	CIT	Mass Ave BL	47+40.46	31.5 L	208.38	I=206.80' (104)	I=206.80' (76)
76	DMH	Mass Ave BL	48+74.55	22.0 L	210.00	I=205.80' (74) I=205.00' (102)	I=204.80' (100)
101	CBCI	Mass Ave BL	48+67.44	17.1 R	209.67		I=205.67' (102)
102	DMH	Mass Ave BL	48+73.86	0.0	210.13	I=205.40' (101) I=206.80' (103)	I=205.11' (76)
103	CBCI	Mass Ave BL	48+62.91	15.0 L	209.91		I=206.90' (102)
104	CBCI	Mass Ave BL	47+69.18	37.3 L	210.73		I=206.96' (74)

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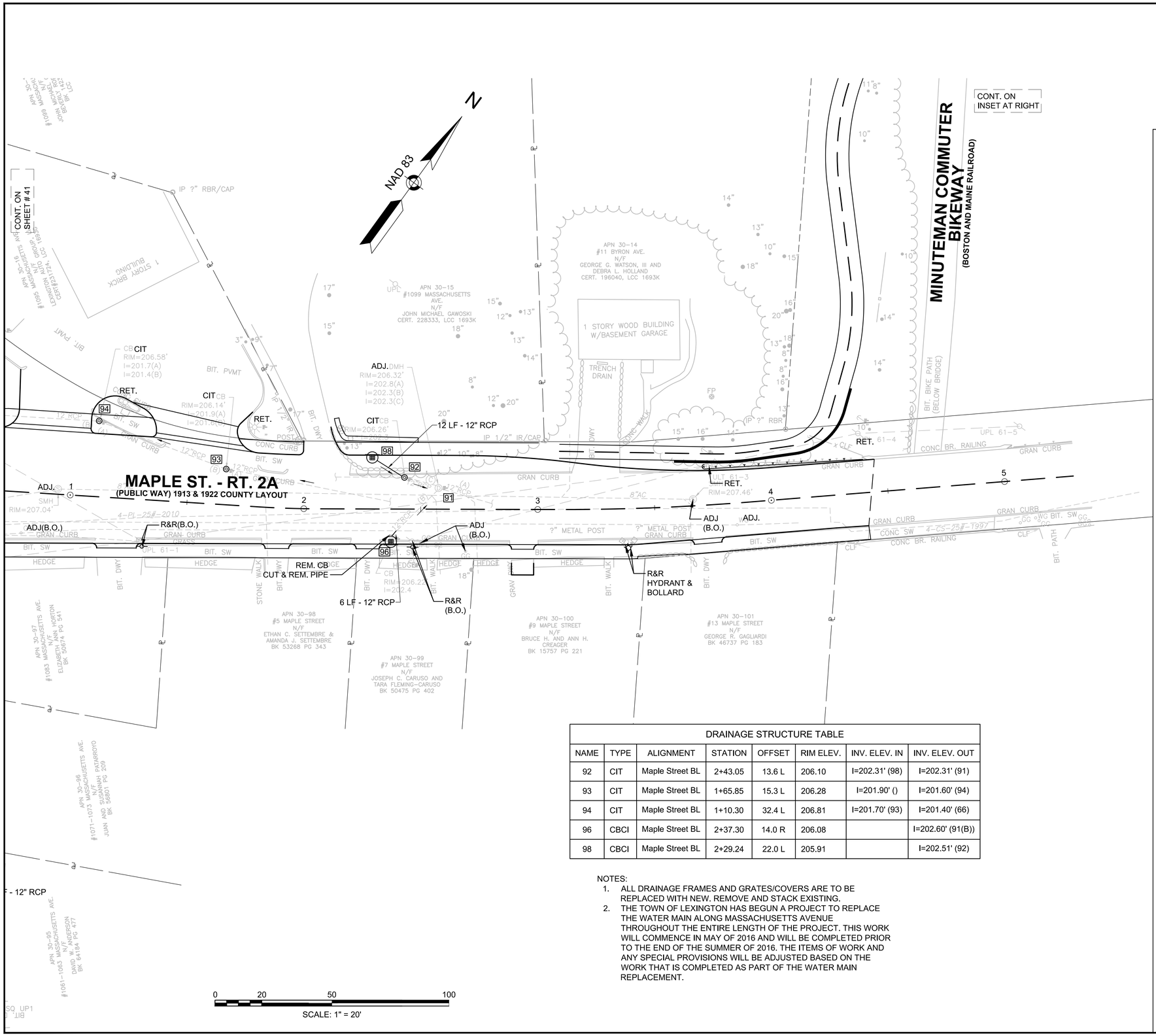
LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	43	123
PROJECT FILE NO.	607409		

DRAINAGE & UTILITY PLAN
SHEET 8 OF 8



DRAINAGE STRUCTURE TABLE							
NAME	TYPE	ALIGNMENT	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT
92	CIT	Maple Street BL	2+43.05	13.6 L	206.10	I=202.31' (98)	I=202.31' (91)
93	CIT	Maple Street BL	1+65.85	15.3 L	206.28	I=201.90' ()	I=201.60' (94)
94	CIT	Maple Street BL	1+10.30	32.4 L	206.81	I=201.70' (93)	I=201.40' (66)
96	CBCI	Maple Street BL	2+37.30	14.0 R	206.08		I=202.60' (91(B))
98	CBCI	Maple Street BL	2+29.24	22.0 L	205.91		I=202.51' (92)

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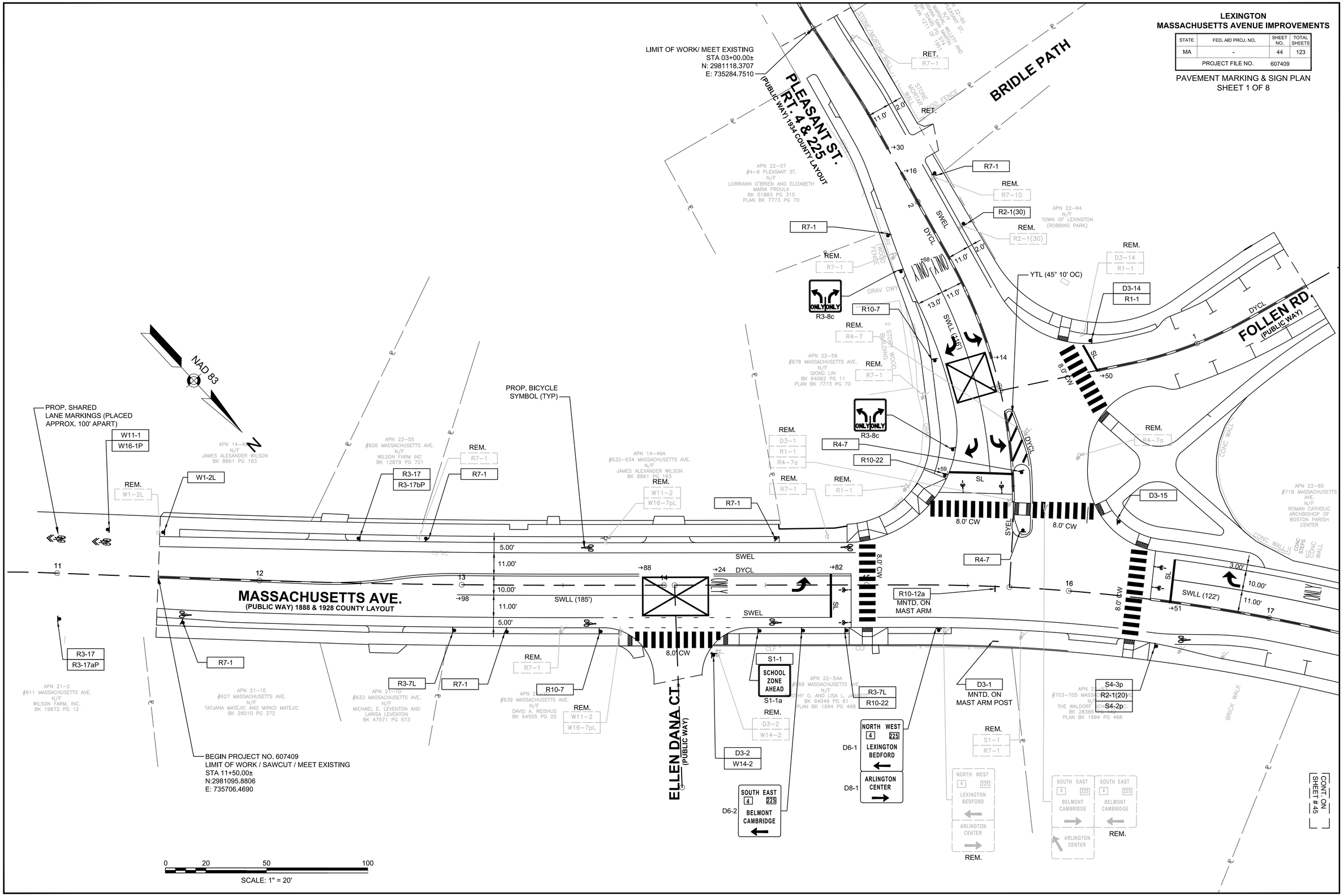
LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	44	123
PROJECT FILE NO.	607409		

PAVEMENT MARKING & SIGN PLAN
SHEET 1 OF 8



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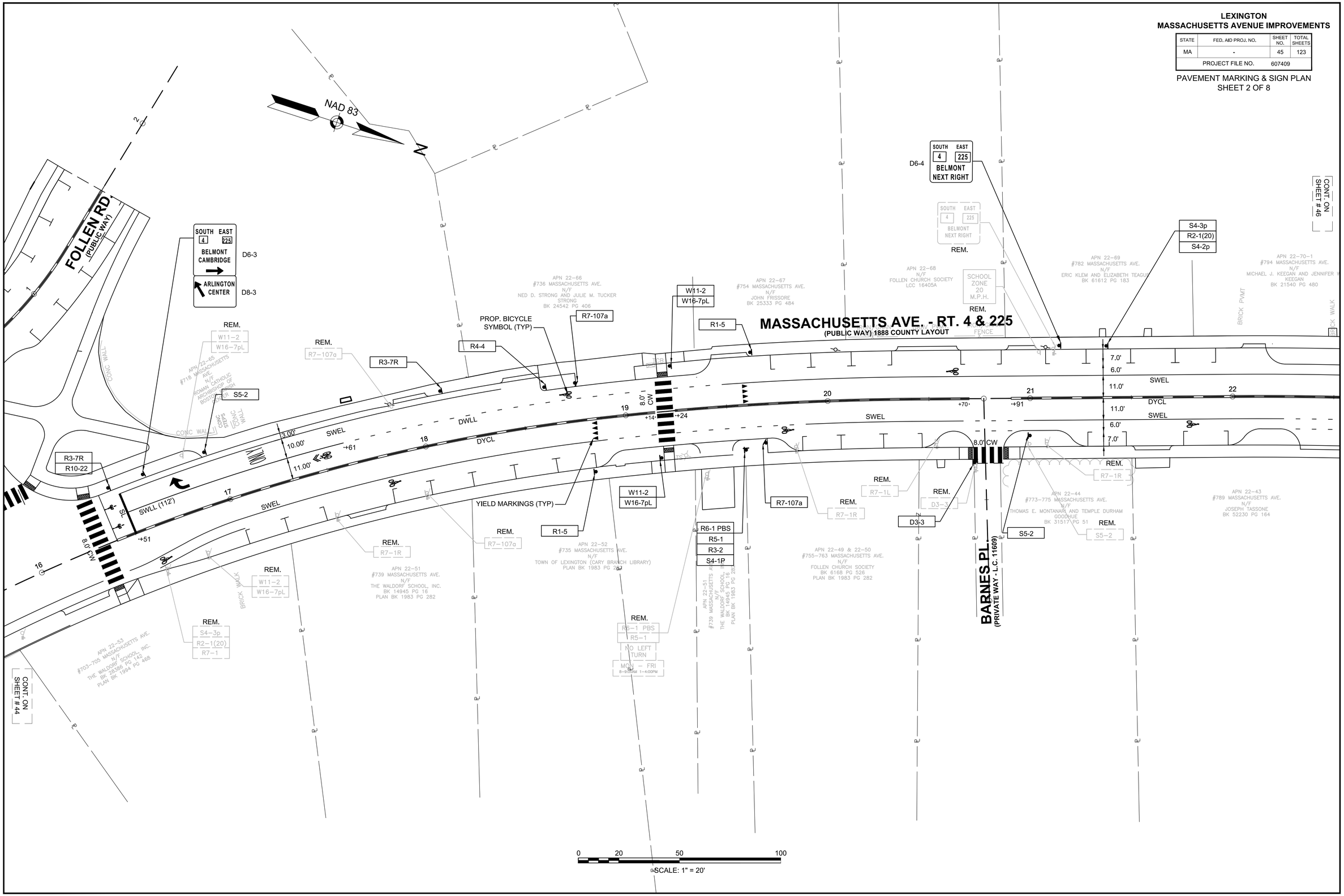
LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	45	123
PROJECT FILE NO.	607409		

PAVEMENT MARKING & SIGN PLAN
SHEET 2 OF 8



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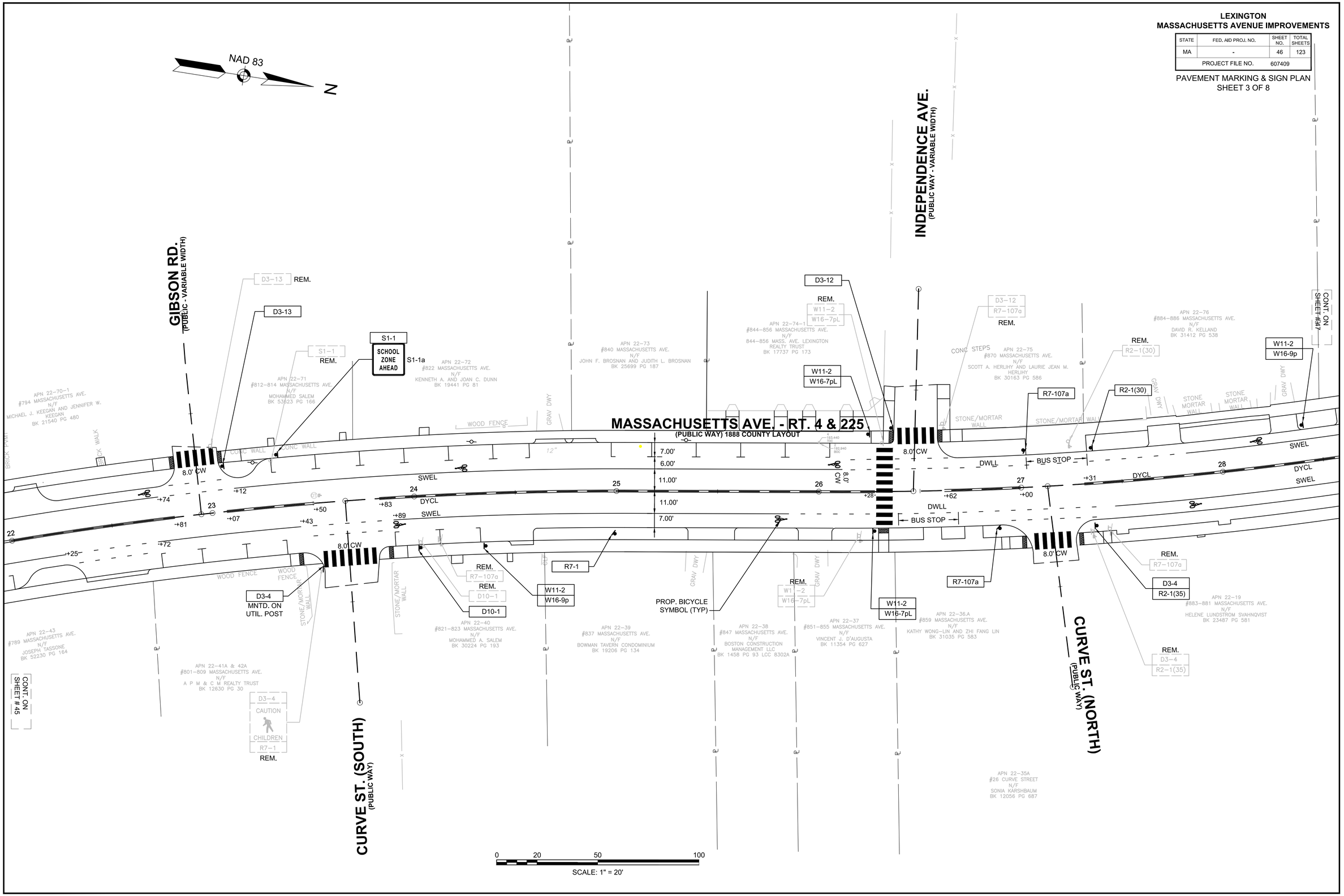
LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	46	123
PROJECT FILE NO.	607409		

PAVEMENT MARKING & SIGN PLAN
SHEET 3 OF 8



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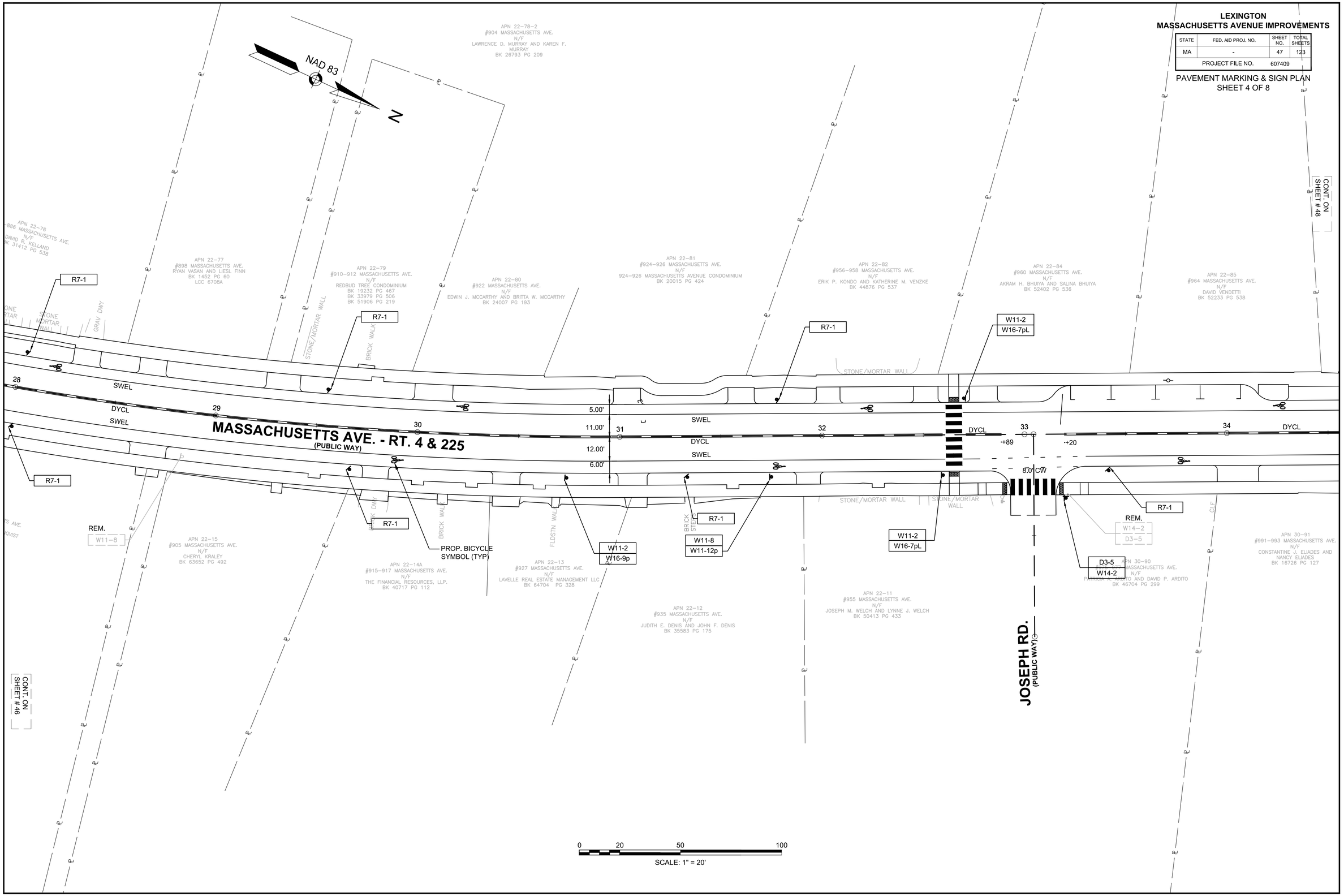
LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	47	123
PROJECT FILE NO.	607409		

PAVEMENT MARKING & SIGN PLAN
SHEET 4 OF 8



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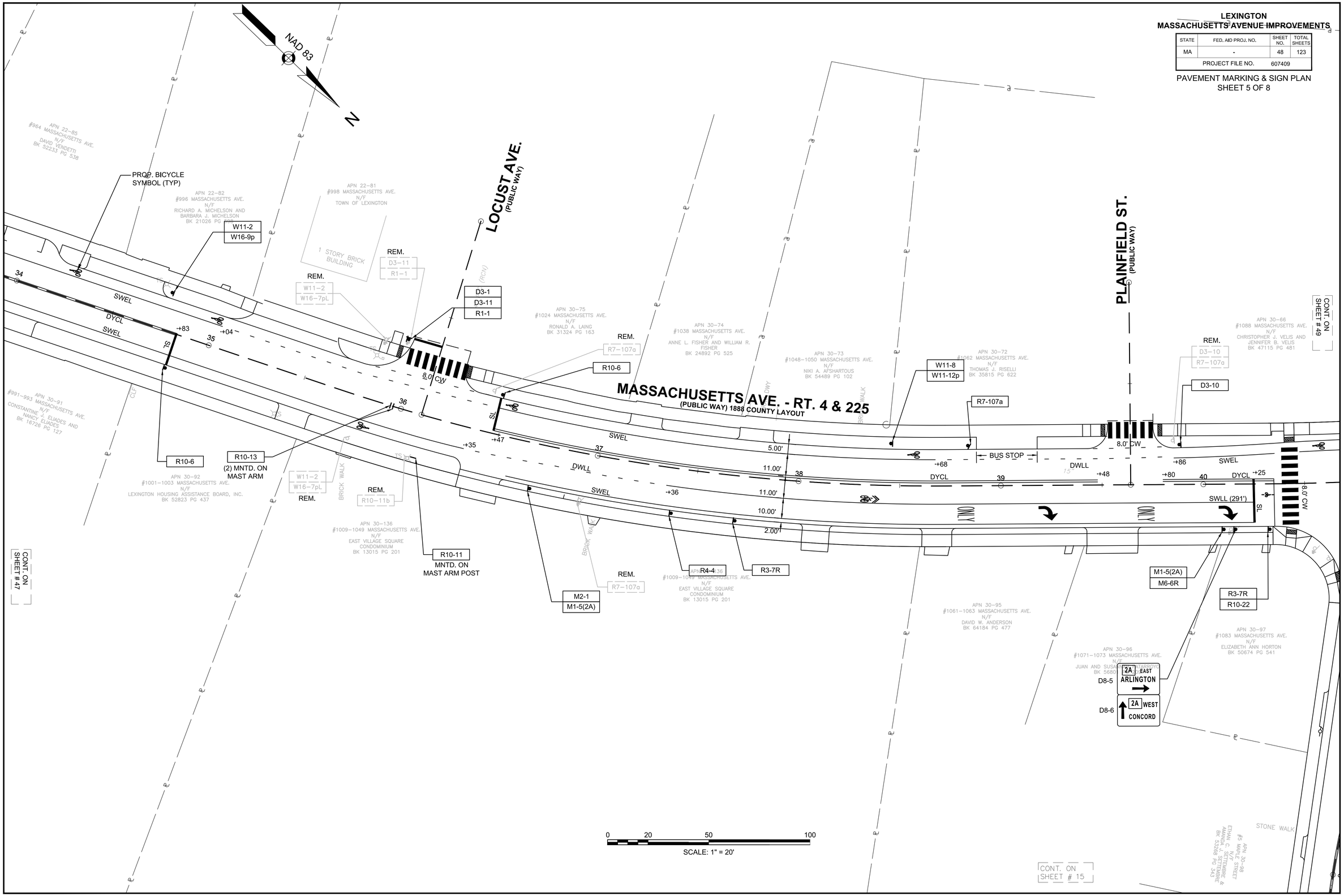
LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	48	123
PROJECT FILE NO.	607409		

PAVEMENT MARKING & SIGN PLAN
SHEET 5 OF 8



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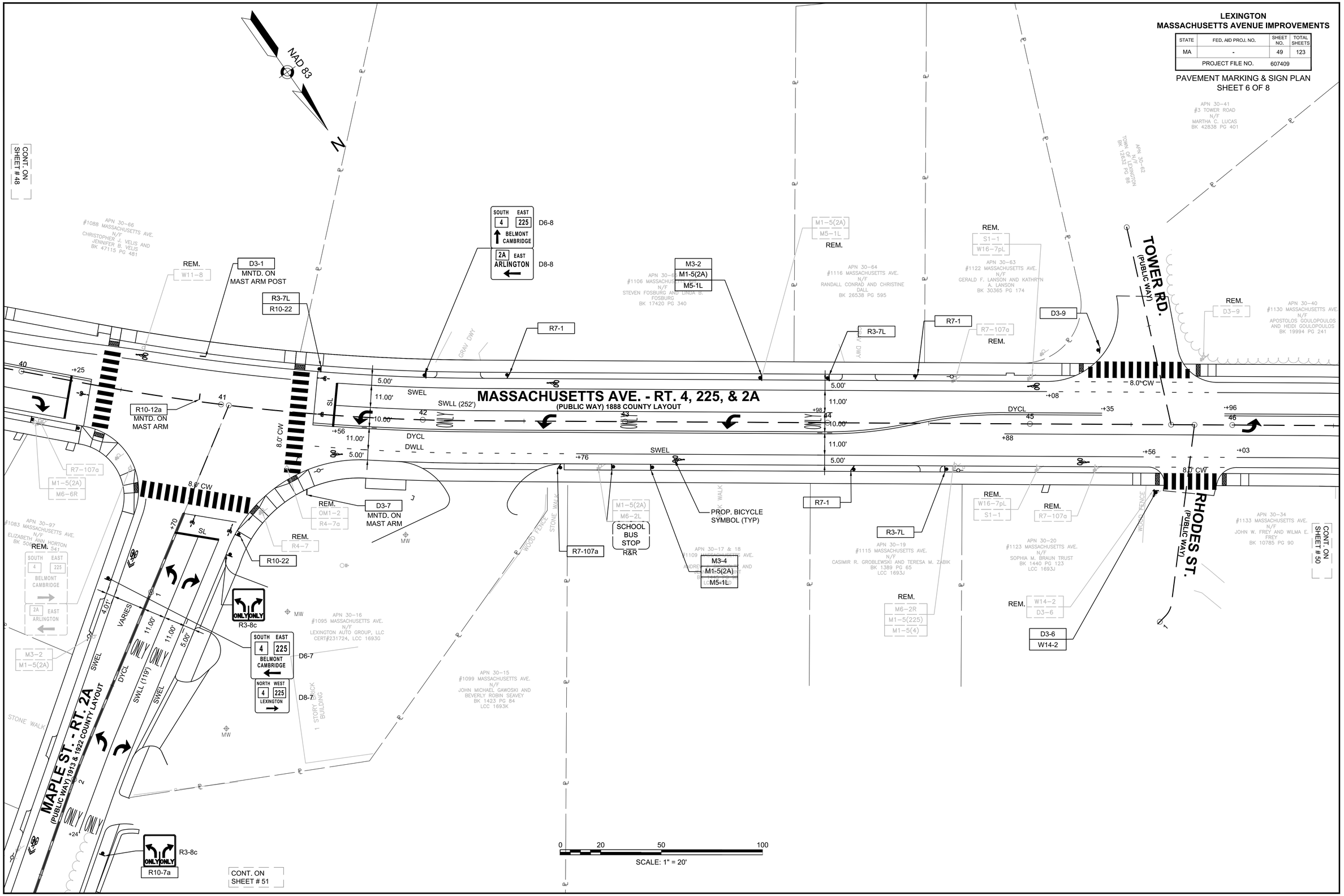
LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	49	123
PROJECT FILE NO.	607409		

PAVEMENT MARKING & SIGN PLAN
SHEET 6 OF 8



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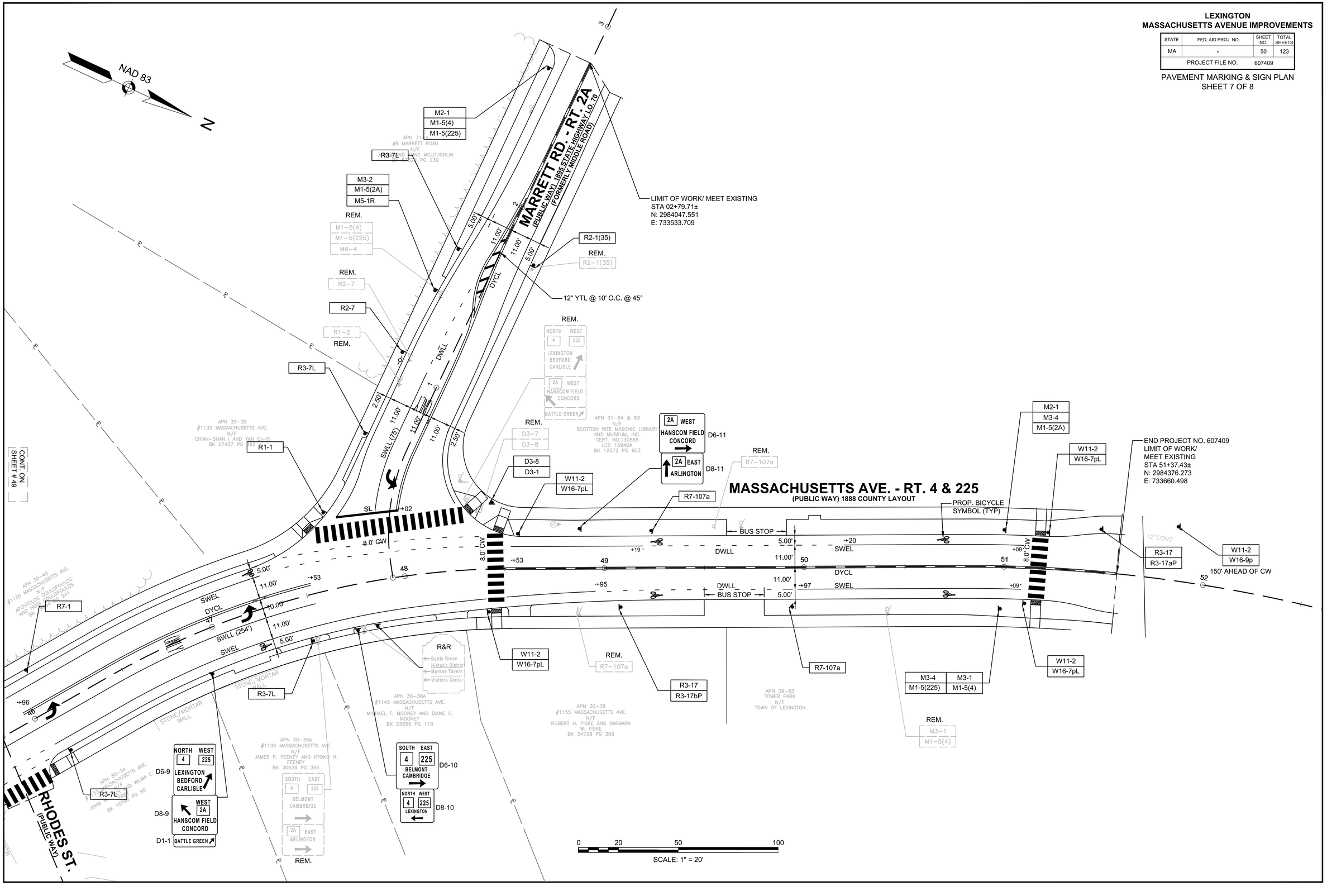
LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	50	123
PROJECT FILE NO.	607409		

PAVEMENT MARKING & SIGN PLAN
SHEET 7 OF 8



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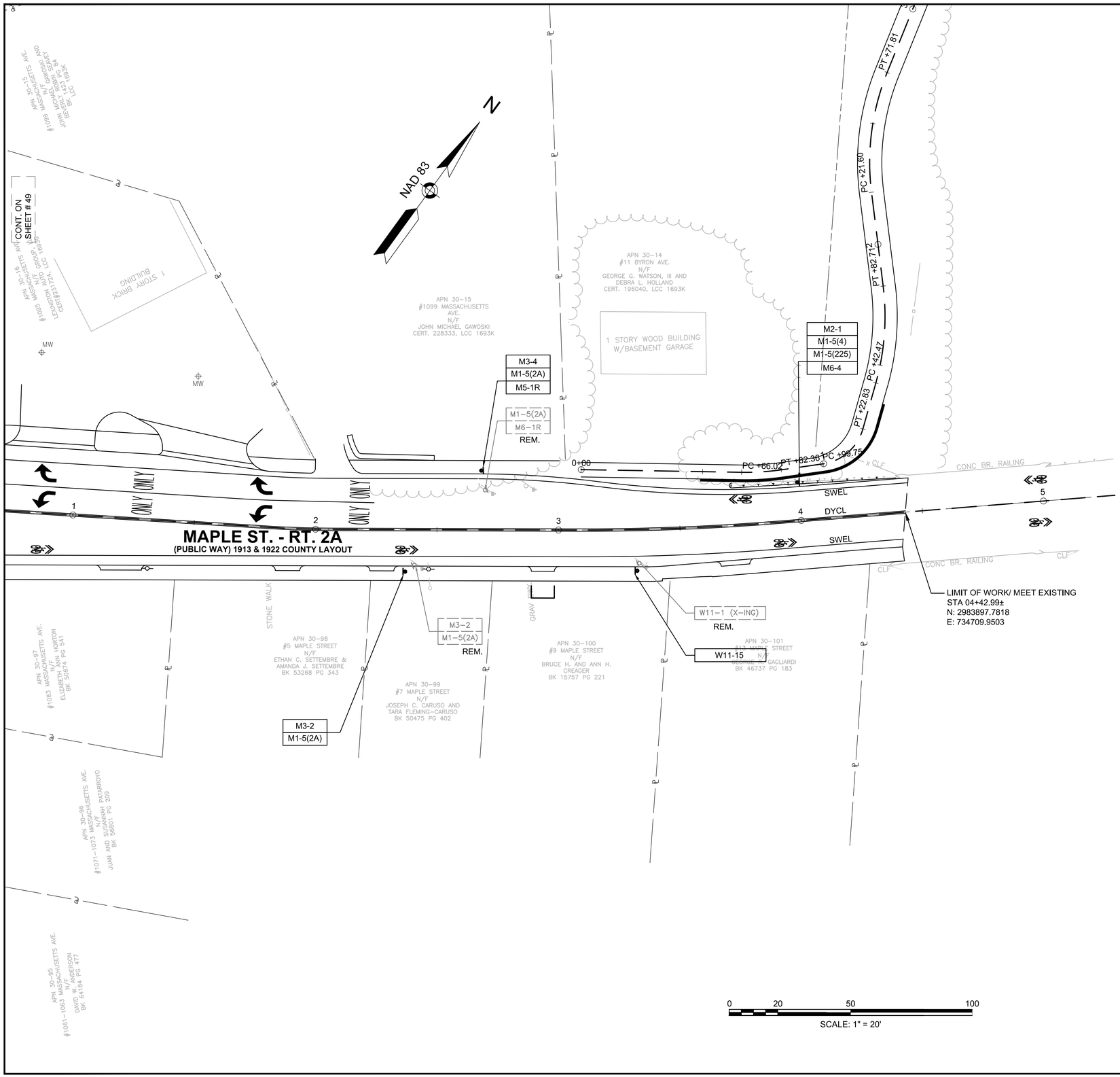
LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	51	123
PROJECT FILE NO.	607409		

PAVEMENT MARKING & SIGNING PLAN
SHEET 8 OF 8



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LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	52	123
PROJECT FILE NO.	607409		

SIGN SUMMARY
SHEET 1 OF 4

TRAFFIC SIGN SUMMARY

IDENTIFI-CATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA (S.F.)
	WIDTH (in)	HEIGHT (in)		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND	BORDER			
W1-2L	30	30		SEE 2009 M.U.T.C.D.			1	SEE 2009 M.U.T.C.D.			P-5 (1)	6.25	6.25
W11-1	30	30					2				P-5 (2)	6.25	13.00
W11-2	30	30					13				P-5 (13)	6.25	81.25
W11-8	30	30					2				P-5 (2)	6.25	13.00
W11-12p	36	30	EMERGENCY SIGNAL AHEAD				2				P-5 (0)	7.50	15.00
W11-15	30	30					1				P-5 (1)	6.25	6.25
W14-2	30	30	NO OUTLET				3				P-5 (0)	6.25	18.75
W16-1P	18	24	SHARE THE ROAD				1				P-5 (0)	3.00	3.00
W16-7pL	24	12					8				P-5 (0)	2.00	16.00
W16-9P	24	12	AHEAD				5				P-5 (0)	2.00	10.00
R1-1	30	30	STOP				3				P-5 (1)	6.25	18.75
R1-5	36	36	HERE TO				2				P-5 (2)	9.00	18.00
R2-1 (20)	24	30	SPEED LIMIT 20				2				P-5 (2)	5.00	10.00
R2-1 (30)	24	30	SPEED LIMIT 30				2				P-5 (2)	5.00	10.00
R2-1 (35)	24	30	SPEED LIMIT 35				2				P-5 (1)	5.00	10.00
R2-7	24	30	END SPEED ZONE	SEE MASSDOT STANDARDS			1	SEE MASSDOT STANDARDS			P-5 (1)	5.00	5.00
R3-2	24	24		SEE 2009 M.U.T.C.D.			1	SEE 2009 M.U.T.C.D.			P-5 (0)	4.00	4.00

TRAFFIC SIGN SUMMARY

IDENTIFI-CATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA (S.F.)
	WIDTH (in)	HEIGHT (in)		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND	BORDER			
R3-7R	30	30	RIGHT LANE MUST TURN RIGHT	SEE 2009 M.U.T.C.D.			4	SEE 2009 M.U.T.C.D.			P-5 (4)	6.25	25.00
R3-7L	30	30	LEFT LANE MUST TURN LEFT				9				P-5 (9)	6.25	56.25
R3-8c	36	30	ONLY ONLY				4				P-5 (4)	7.50	30.00
R3-17	24	18	BIKE LANE				4				P-5 (4)	3.00	12.00
R3-17aP	24	8	AHEAD				2				P-5 (0)	1.33	2.66
R3-17bP	24	8	ENDS				2				P-5 (0)	1.33	2.66
R4-4	36	30	BEGIN RIGHT TURN LANE YIELD TO BIKES				2				P-5 (2)	7.50	15.00
R4-7	24	30					2				P-5 (2)	5.00	10.00
R5-1	30	30	DO NOT ENTER				1				P-5 (1)	6.25	6.25
R6-1 (PBS)	36	12	ONE WAY				1				P-5 (0)	3.00	3.00
R7-1	12	18	NO PARKING ANY TIME				18				P-5 (14)	1.50	27.00
R7-107a	12	30					8				P-5 (8)	2.50	20.00
R10-6	24	36	STOP HERE ON RED				2				P-5 (2)	6.00	12.00
R10-7	24	30	DO NOT BLOCK INTERSECTION				2				P-5 (2)	5.00	10.00

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LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	53	123
PROJECT FILE NO.	607409		

SIGN SUMMARY
SHEET 2 OF 4

TRAFFIC SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED*	UNIT AREA (S.F.)	AREA (S.F.)
	WIDTH (in)	HEIGHT (in)		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND	BORDER			
R10-7a	24	30	DO NOT BLOCK DRIVEWAY	SEE 2009 M.U.T.C.D.			1	SEE 2009 M.U.T.C.D.			P-5 (0)	5.00	5.00
R10-11	24	30	NO TURN ON RED				1				MNTD. ON SIGNAL POST	5.00	5.00
R10-12a	30	36	LEFT TURN YIELD ON FLASHING	SEE MASSDOT STANDARDS			2	SEE MASSDOT STANDARDS			MNTD. ON MAST ARM	7.50	15.00
R10-13	42	30	EMERGENCY SIGNAL	SEE 2009 M.U.T.C.D.			2	SEE 2009 M.U.T.C.D.			MNTD. ON MAST ARM	8.75	17.50
R10-22	12	18	TO REQUEST GREEN WAIT ON ORD				6				P-5 (2)	1.50	9.00
S1-1	36	36					2				P-5 (2)	9.00	18.00
S1-1a	36	36	SCHOOL ZONE AHEAD	SEE MASSDOT STANDARDS			2	SEE MASSDOT STANDARDS			P-5 (0)	9.00	18.00
S4-1P	24	10	0:00 AM TO 0:00 PM	SEE 2009 M.U.T.C.D.			1	SEE 2009 M.U.T.C.D.			P-5 (0)	1.67	1.67
S4-2P	24	10	WHEN CHILDREN ARE PRESENT				2				P-5 (0)	1.67	3.33
S4-3P	24	8	SCHOOL				2				P-5 (0)	1.33	2.66
S5-2	24	30	END SCHOOL ZONE				2				P-5 (2)	5.00	10.00
D10-1	10	18	MILE 1	SEE MASSDOT STANDARDS			1	SEE MASSDOT STANDARDS			P-5 (1)	1.25	1.25
M1-5(2A)	24	24	2A	SEE 2009 M.U.T.C.D.			8	SEE 2009 M.U.T.C.D.			P-5 (8)	4.00	32.00
M1-5(4)	24	24	4				3				P-5 (3)	4.00	12.00
M1-5(225)	30	24	225				3				P-5 (0)	4.00	12.00
M2-1	21	15	JCT				4				P-5 (0)	2.19	8.75
M3-1	24	12	NORTH				1				P-5 (0)	2.00	2.00

TRAFFIC SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA (S.F.)
	WIDTH (in)	HEIGHT (in)		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND	BORDER			
M3-2	24	12	EAST	SEE 2009 M.U.T.C.D.			3	SEE 2009 M.U.T.C.D.			P-5 (0)	2.00	6.00
M3-4	24	12	WEST				4				P-5 (0)	2.00	8.00
M5-1L	21	15					2				P-5 (0)	2.19	4.38
M5-1R	21	15					2				P-5 (0)	2.19	4.38
M6-4	21	15					1				P-5 (0)	2.19	2.19
M6-6R	21	15					1				P-5 (0)	2.19	2.19

*SOME SIGNS ARE MOUNTED WITH OTHERS ON THE SAME POST.

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LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	54	123
PROJECT FILE NO.	607409		

SIGN SUMMARY
SHEET 3 OF 4

TRAFFIC SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA (S.F.)
	WIDTH (in)	HEIGHT (in)		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND	BORDER			
D1-1	60	18	BATTLE GREEN ↗	SEE 2009 M.U.T.C.D.			1	SEE 2009 M.U.T.C.D.			P-5 (0)	7.50	7.50
D3-1	VARIES	12	Massachusetts Ave	6D/4.5D	3 3		4	GREEN	WHITE	WHITE	P-5 (2)	VARIES	VARIES
D3-2	VARIES	12	Ellen Dana Ct				1				P-5 (1)	VARIES	VARIES
D3-3	VARIES	12	Barnes Pl				1				P-5 (1)	VARIES	VARIES
D3-4	VARIES	12	Curve St				2				P-5 (1)	VARIES	VARIES
D3-5	VARIES	12	Joseph Rd				1				P-5 (1)	VARIES	VARIES
D3-6	VARIES	12	Rhodes St				1				P-5 (1)	VARIES	VARIES
D3-7	VARIES	12	Maple St				1				P-5 (0)	VARIES	VARIES
D3-8	VARIES	12	Marrett Rd				1				P-5 (0)	VARIES	VARIES
D3-9	VARIES	12	Tower Rd				1				P-5 (1)	VARIES	VARIES
D3-10	VARIES	12	Plainfield St				1				P-5 (1)	VARIES	VARIES
D3-11	VARIES	12	Locust Ave				1				P-5 (0)	VARIES	VARIES
D3-12	VARIES	12	Independence Ave				1				P-5 (1)	VARIES	VARIES
D3-13	VARIES	12	Gibson Rd				1				P-5 (1)	VARIES	VARIES
D3-14	VARIES	12	Follen Rd				1				P-5 (1)	VARIES	VARIES
D3-15	VARIES	12	Pleasant St				1				P-5 (1)	VARIES	VARIES

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LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	55	123
PROJECT FILE NO.	607409		

SIGN SUMMARY
SHEET 4 OF 4

TRAFFIC SIGN SUMMARY

IDENTIFI-CATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA (S.F.)
	WIDTH (in)	HEIGHT (in)		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND	BORDER			
D6-1	60	66	NORTH WEST 4 225 LEXINGTON BEDFORD ←	7C/6C 6C 6C	4 4 3 3 3 4	18x18 36x8 @ 180°	1	GREEN	WHITE	WHITE	5 IN NOM STEEL PIPE 4.89 LB/FT 11 FT (1)	27.5	27.5
D6-2	60	66	SOUTH EAST 4 225 BELMONT CAMBRIDGE ←	7C/6C 6C 6C	4 4 3 3 3 4	18x18 36x8 @ 180°	1				5 IN NOM STEEL PIPE 4.89 LB/FT 11 FT (1)	27.5	27.5
D6-3	60	66	SOUTH EAST 4 225 BELMONT CAMBRIDGE →	7C/6C 6C 6C	4 4 3 3 3 4	18x18 36x8 @ 0°	1				5 IN NOM STEEL PIPE 4.89 LB/FT 11 FT (1)	27.5	27.5
D6-4	60	60	SOUTH EAST 4 225 BELMONT NEXT RIGHT	7C/6C 6C 6C	4 3 5 5 6	18x18	1				5 IN NOM STEEL PIPE 4.89 LB/FT 11 FT (1)	25.0	25.0
D6-7	60	66	SOUTH EAST 4 225 BELMONT CAMBRIDGE ←	7C/6C 6C 6C	4 4 3 3 3 4	18x18 36x8 @ 180°	1				5 IN NOM STEEL PIPE 4.89 LB/FT 11 FT (1)	27.5	27.5
D6-8	60	60	SOUTH EAST 4 225 ↑ BELMONT CAMBRIDGE	7C/6C 6C 6C	4 3 5 5 6	18x18 20x8 @ 90°	1				5 IN NOM STEEL PIPE 4.89 LB/FT 11 FT (1)	27.5	27.5
D6-9	60	66	NORTH WEST 4 225 LEXINGTON BEDFORD CARLISLE ↗	7C/6C 6C 6C 6C	4 4 3 3 3 6	18x18 20x8 @ 45°	1				5 IN NOM STEEL PIPE 4.89 LB/FT 11 FT (1)	27.5	27.5
D6-10	60	66	SOUTH EAST 4 225 BELMONT CAMBRIDGE →	7C/6C 6C 6C	4 4 3 3 3 4	18x18 36x8 @ 0°	1				5 IN NOM STEEL PIPE 4.89 LB/FT 11 FT (1)	27.5	27.5
D6-11	60	60	2A WEST HANSCOM FIELD CONCORD →	7C/6C 6C 6C	6 4 4 4 6	18x18 36x8 @ 0°	1				5 IN NOM STEEL PIPE 4.89 LB/FT 11 FT (1)	25.0	25.0

TRAFFIC SIGN SUMMARY

IDENTIFI-CATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA (S.F.)
	WIDTH (in)	HEIGHT (in)		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND	BORDER			
D8-1	48	36	ARLINGTON CENTER →	6C 6C	3.5 4.5 4.5 3.5	20x8 @ 0°	1	GREEN	WHITE	WHITE	MNTD. W/ D6-1	12.0	12.0
D8-3	48	30	↖ ARLINGTON CENTER	6C 6C	6 6 6	20x8 @ 135°	1				MNTD. W/ D6-3	10.00	10.00
D8-5	48	42	2A EAST ARLINGTON →	7C/6C 6C	2.5 2.5 2.5 2.5	18x18 20x8 @ 0°	1				5 IN NOM STEEL PIPE 4.89 LB/FT 11 FT (1)	14.0	14.0
D8-6	48	42	↑ 2A WEST CONCORD	7C/6C 6C	2.5 2.5 5	18x18 20x8 @ 90°	1				MNTD. W/ D8-5	14.0	14.0
D8-7	48	48	NORTH WEST 4 225 LEXINGTON →	7C/6C 5C	2.0 2.5 3.0 2.5 2.0	16x16 20x8 @ 0°	1				MNTD. W/ D6-7	16.0	16.0
D8-8	48	42	2A EAST ARLINGTON ←	6C 6C	6 6 6	18x18 20x8 @ 180°	1				MNTD. W/ D6-8	14.0	14.0
D8-9	48	48	↖ WEST 2A HANSCOM FIELD CONCORD	7C/6C 6C 6C	2.0 2.5 2.5 2.0 2.0	20x8 @ 135° 18x18	1				MNTD. W/ D6-9	16.0	16.0
D8-10	48	48	NORTH WEST 4 225 LEXINGTON ←	7C/6C 5C	2.0 2.5 3.0 2.5 2.0	16x16 20x8 @ 180°	1				MNTD. W/ D6-10	16.0	16.0
D8-11	48	42	↑ 2A EAST ARLINGTON	7C/6C 6C	2.5 2.5 2.5 2.5	18x18 20x8 @ 0°	1				MNTD. W/ D6-11	14.0	14.0

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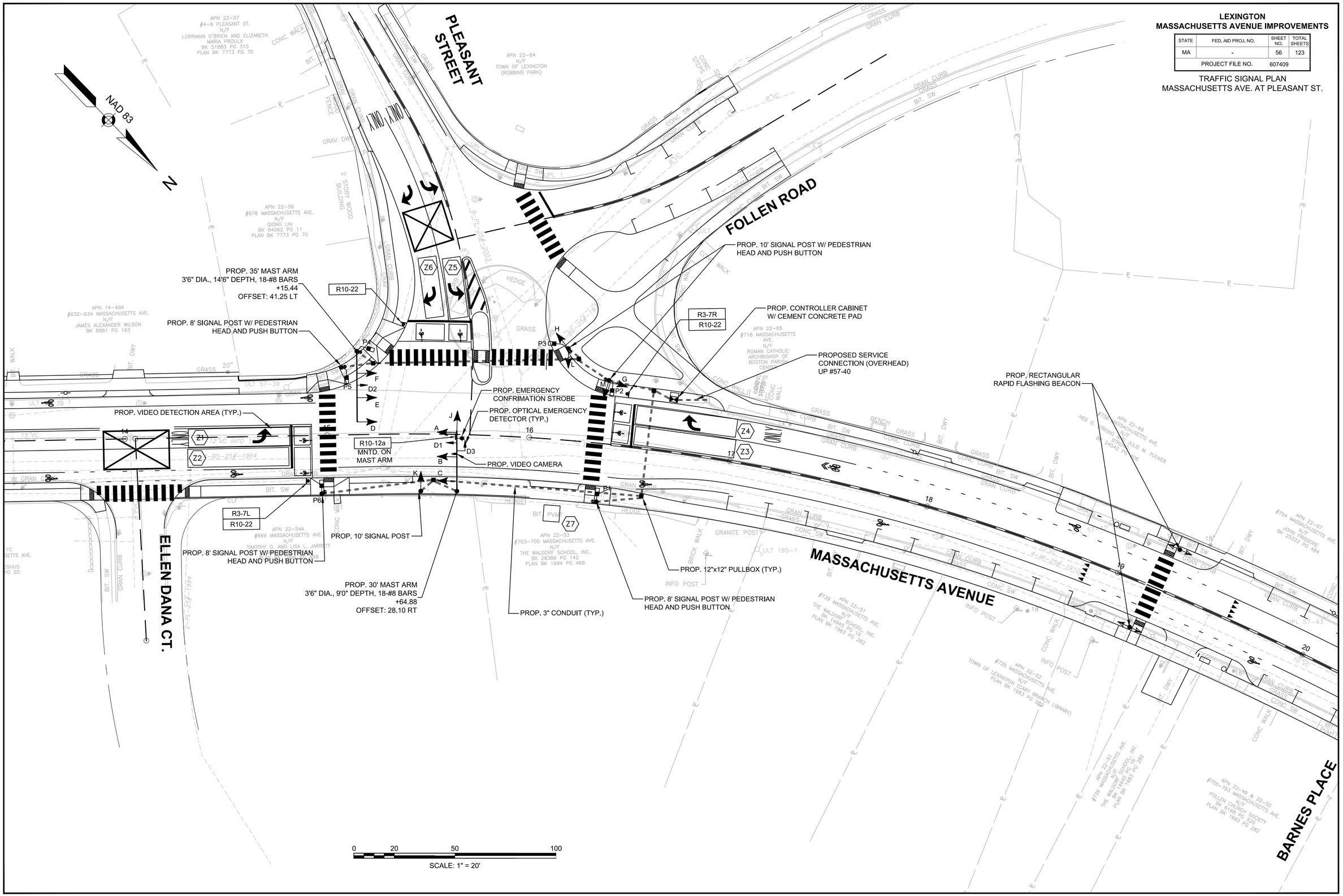
LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	56	123
PROJECT FILE NO.	607409		

TRAFFIC SIGNAL PLAN
MASSACHUSETTS AVE. AT PLEASANT ST.

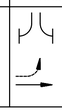
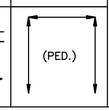


607409_TR(SP).DWG Plotted on 24-Apr-2016 6:58 PM

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	57	123
PROJECT FILE NO.	607409		

TRAFFIC SIGNAL DATA
MASSACHUSETTS AVE. AT PLEASANT ST.

PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8	PHASE 9
NOT USED		NOT USED				NOT USED		

SEQUENCE AND TIMING FOR FULL ACTUATED CONTROL (ISOLATED)

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.
MASSACHUSETTS AVENUE	NB	A				FYL	YL	RL				RL	RL	RL	GL	YL	RL	RL	RL	RL				RL	RL	RL	RL	RL	RL	FYL
MASSACHUSETTS AVENUE	NB	B,C				G	Y	R				R	R	R	R	R	R	R	R	R				R	R	R	R	R	R	FY
MASSACHUSETTS AVENUE	SB	D,E				R	R	R				R	R	R	R	R	R	G	Y	R				R	R	R	R	R	R	FY
MASSACHUSETTS AVENUE	SB	F,G				R	R	R				R/GR	R/YR	R	R	R	R	G	Y	R				R	R	R	R	R	R	FY
PLEASANT STREET	EB	H,J				RL	RL	RL				GL	YL	RL	RL	RL	RL	RL	RL	RL				RL	RL	RL	RL	RL	RL	FRL
PLEASANT STREET	EB	K				R	R	R				G	Y	R	R/GR	R/YR	R	R	R	R				R	R	R	R	R	R	FR
DRIVEWAY	WB	L,M				G	Y	R				R	R	R	R	R	R	R	R	R				G	Y	R	R	R	R	FR
DRIVEWAY	WB	N																												
PEDESTRIAN X-ING	ALL	P1-P6				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)						12						8			4			12						4						EMERGENCY ONLY
PASSAGE TIME (VEHICLE)						3						3			3			3						3						
MAXIMUM GREEN 1 (6AM–9AM)						44						24			12			29						6						
MAXIMUM GREEN 1 (W/ PED)						32						16			8			20						0						
MAXIMUM GREEN 2 (3PM–6PM)						42						26			9			30						6						
MAXIMUM GREEN 2 (W/ PED)						32						16			8			20						0						
YELLOW CLEARANCE							3.5						3.0			3			3.5						3					
RED CLEARANCE								2.5						3.0			0			2.5						1				
WALK (W)																											7			
PEDESTRIAN CLEARANCE																												23	1	
RECALL			–			SOFT			–			OFF			OFF			SOFT			–			OFF			OFF			
MEMORY			–			NON–LOCK			–			NON–LOCK			NON–LOCK			NON–LOCK			–			NON–LOCK			PED			

MAJOR ITEMS REQUIRED

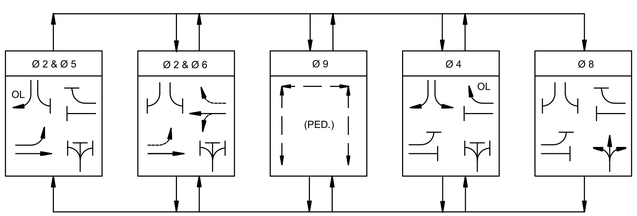
QTY	ITEM 816.01
500	3 INCH ELECTRICAL CONDUIT TYPE NM - PLASTIC-(UL) (ITEM #804.3)
5	PULL BOX 12 X 12 INCHES - SD2.031 (ITEM #811.31)
1	TRAFFIC SIGNAL CONTROLLER (TS-2, TYPE 1) TYPE BASE MOUNTED CABINET INCL. FOUNDATION AND CEM. CONCRETE PAD
1	30' MAST ARM (STEEL), INCLUDE BASE & FOUNDATION
1	35' MAST ARM (STEEL), INCLUDE BASE & FOUNDATION
3	10' TRAFFIC SIGNAL POST, BASE & FOUNDATION
2	8' TRAFFIC SIGNAL POST, BASE & FOUNDATION
5	1-WAY, 3-SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
2	1-WAY, 4-SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
1	1-WAY, 5-SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
2	2-WAY, 3-SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
1	2-WAY, 3/4-SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
1	2-WAY, 3/5-SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
12	5" NON-LOUVERED BACKPLATES W/ 3" REFLECTIVE BORDERS
6	PEDESTRIAN SIGNAL HEAD (L.E.D. W/ COUNTDOWN)
6	ACCESSIBLE PEDESTRIAN SIGNAL - PUSH BUTTON ASSEMBLY W/ SIGN, LOCATOR TONE, AND VIBROTACTILE ARROW
1	VIDEO DETECTION CAMERA
1	VIDEO DETECTION PROCESSOR
3	OPTICAL PRE-EMPTION DETECTORS - SINGLE CHANNEL
1	EMERGENCY VEHICLE PRE-EMPTION CONFIRMATION STROBE LIGHT
1	OPTICAL PHASE SELECTOR

PLUS ALL NECESSARY DUCT, CABLE, FOUNDATIONS, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION AND PROVIDE AN OPERATING TRAFFIC SIGNAL.

DETECTOR OPERATION

DETECTOR NUMBER	PROCESSOR NUMBER	CHANNEL NUMBER	NO. OF SECTIONS	SIZE	Ø CALLED	Ø EXT.	MODE A=PULSE B=PRES.	DELAY TIME	EXT. TIME
Z1	1	1	2	9'x8' 9'x50'	2/5		B	0	0
Z2	1	2	2	14'x8' 9'x50'	2		B	0	0
Z3	1	3	2	9'x8' 9'x50'	6		B	0	0
Z4	1	4	2	9'x8' 9'x50'	6		B	5	0
Z5	1	5	2	9'x8' 9'x50'	4		B	0	0
Z6	1	6	2	14'x8' 9'x50'	4		B	5	0
Z7	1	7	1	8'x8'	8		B	0	0

PREFERENTIAL PHASING SEQUENCE



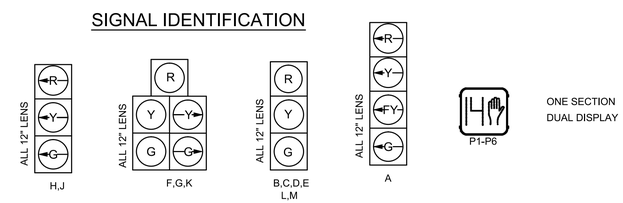
FIRE PREEMPTION SCHEDULE

DETECTOR	APPROACH	PREEMPTION PHASE	NEXT PHASE CALLED
D1	NORTHBOUND	2+5	2+6
D2	SOUTHBOUND	6	2+6
D3	WESTBOUND	4	2+5

EMERGENCY VEHICLE PREEMPTION OPERATION:

1. 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.
2. PREEMPTION SIGNALS FROM MULTIPLE APPROACHES SHALL BE SERVICED ON A FIRST DETECTED FIRST SERVED BASIS.
3. 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 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.
4. PREEMPTION MINIMUM GREENS SHALL BE SIX SECONDS.
5. NORMAL CLEARANCES SHALL BE PROVIDED ON PHASES THAT ARE TERMINATED BY PREEMPTION DEMAND.
6. ACTUAL TIMMING FOR PREEMPTION SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH THE FIRE DEPARTMENT AND SHALL BE APPROVED BY MHD PRIOR TO OPERATION.

SIGNAL IDENTIFICATION



NOTES:

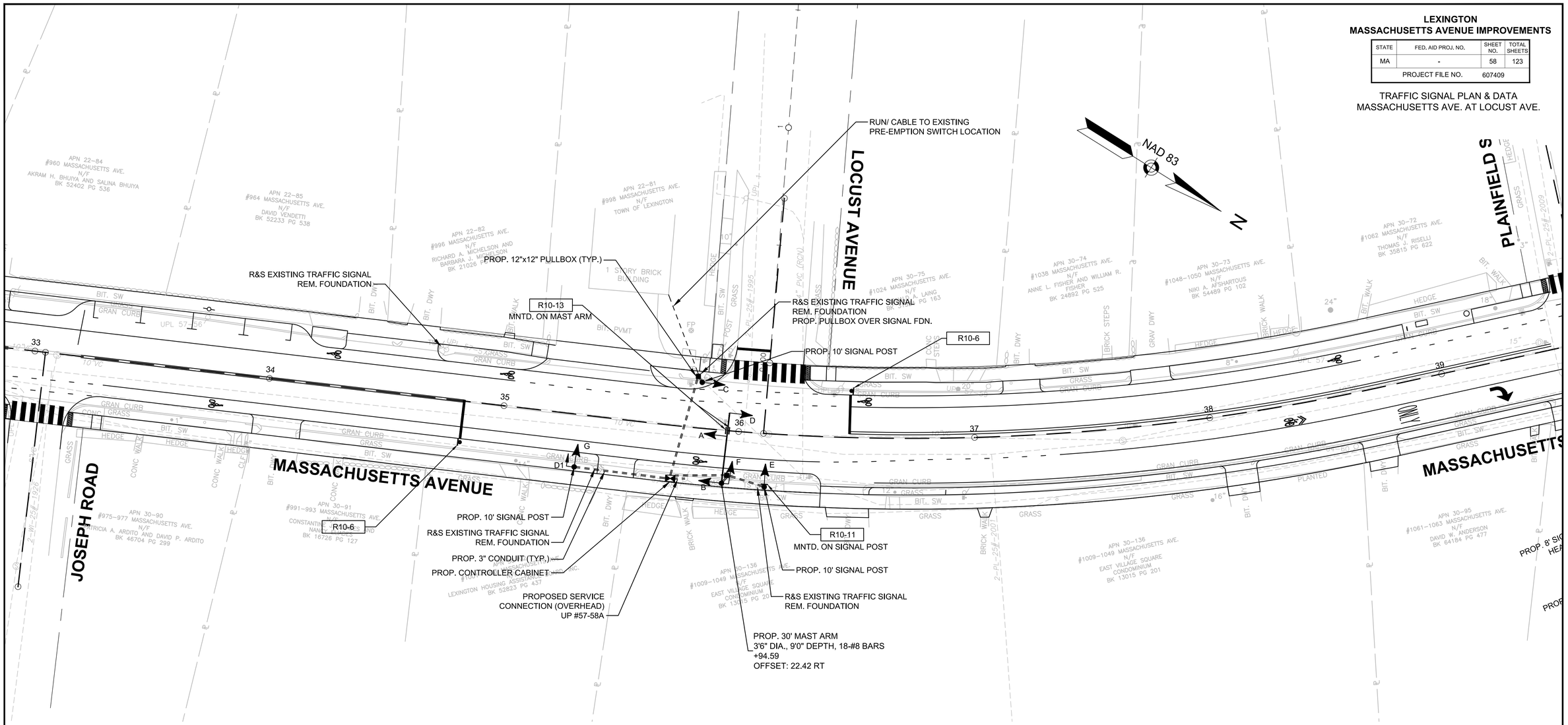
1. ALL SIGNALS SHALL HAVE CUT AWAY VISORS.
2. ALL PROP. SIGNALS SHALL HAVE 5" NON-LOUVERED BACKPLATES W/ 3" REFLECTIVE BORDER.

607409_TR(SQ).DWG Plotted on 24-Apr-2016 6:58 PM

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	58	123
PROJECT FILE NO.	607409		

TRAFFIC SIGNAL PLAN & DATA
MASSACHUSETTS AVE. AT LOCUST AVE.



MAJOR ITEMS REQUIRED

QTY	ITEM 816.03
200	3 INCH ELECTRICAL CONDUIT TYPE NM - PLASTIC-(UL) (ITEM #804.3)
2	PULL BOX 12 X 12 INCHES - SD2.031 (ITEM #811.31)
1	TRAFFIC SIGNAL CONTROLLER (TS-2, SIZE 5) BASE MOUNTED CABINET INCL. FOUNDATION AND CEM. CONCRETE PAD
1	30' MAST ARM (STEEL), INCLUDE BASE & FOUNDATION
3	10' TRAFFIC SIGNAL POST, BASE & FOUNDATION
1	8' TRAFFIC SIGNAL POST, BASE & FOUNDATION
4	1-WAY, 3-SECTION SIGNAL HEAD, 12", 12", 8" LENS
3	1-WAY, 3-SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
7	5" NON-LOUVERED BACKPLATES W/ 3" REFLECTIVE BORDER
1	OPTICAL PRE-EMPTION DETECTOR - SINGLE CHANNEL
1	OPTICAL PHASE SELECTOR

PLUS ALL NECESSARY DUCT, CABLE, FOUNDATIONS, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION AND PROVIDE AN OPERATING TRAFFIC SIGNAL.

NOTES:

1. CONNECTION TO EXISTING HANDWIRE PRE-EMPTION EQUIPMENT TO BE COORDINATED WITH TOWN OF LEXINGTON FIRE DEPARTMENT
2. LOCUST ST. OPERATION SHALL BE FLASHING RED AT ALL TIMES EXCEPT DURING EMERGENCY PRE-EMPTION WHEN IT SHALL BE STEADY RED.
3. FIRE STATION SIGNAL SHALL REST ON PHASE 1 (MASSACHUSETTS AVE).

0 20 50 100
SCALE: 1" = 20'

SEQUENCE AND TIMING FOR FIRE STATION

			PHASE 1			PHASE 2		
STREET	DIRECTION	HOUSINGS	1	2	3	4	5	6
MASSACHUSETTS AVENUE	NB	A,B	FY	Y	R	R	R	R
MASSACHUSETTS AVENUE	SB	C,D	FY	Y	R	R	R	R
FIRE STATION	EB	G	R	R	R	G	Y	R
MASSACHUSETTS AVENUE	EB	E,F	FR	FR	FR	R	Y	FR

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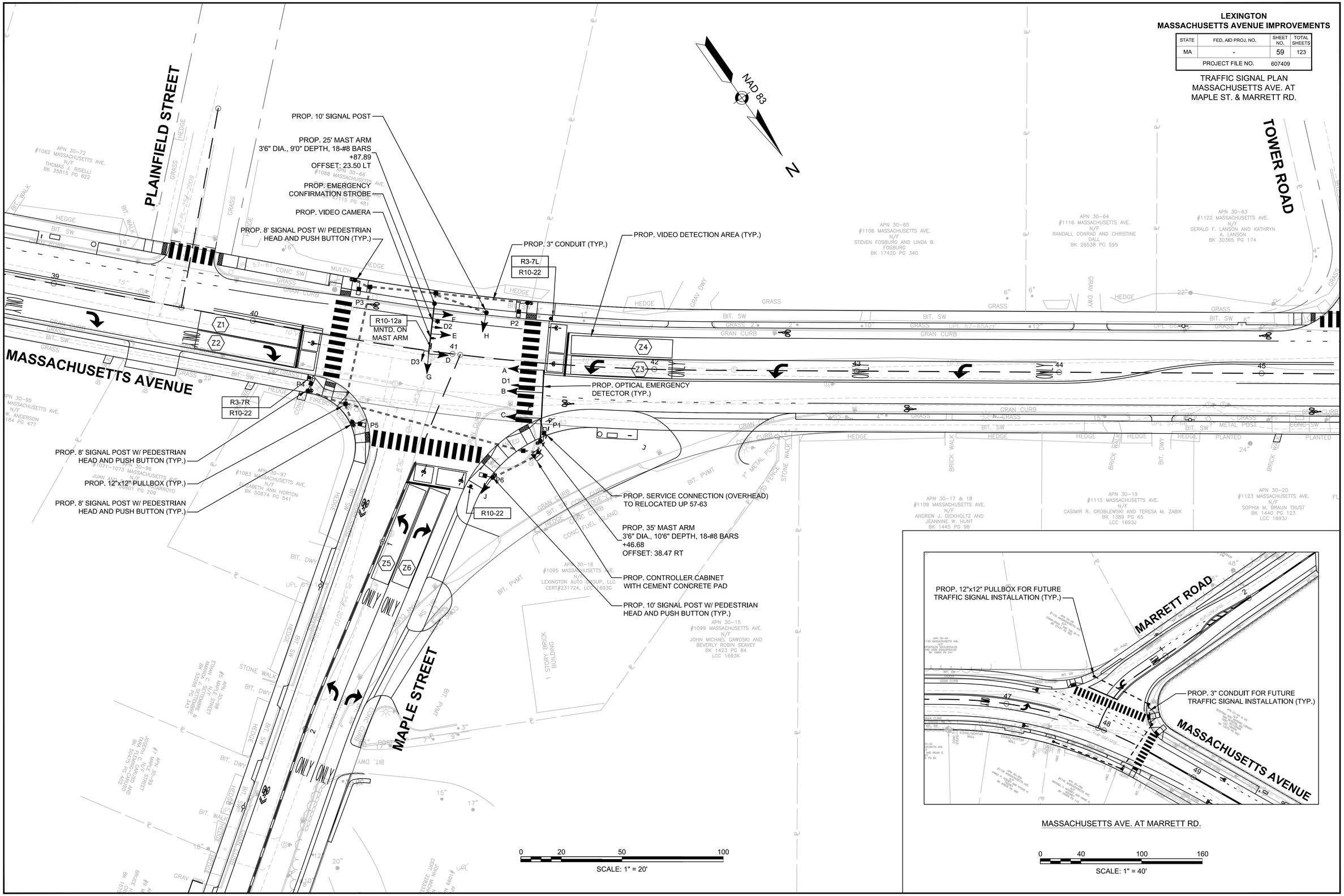
LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	59	123
PROJECT FILE NO.	607409		

TRAFFIC SIGNAL PLAN
MASSACHUSETTS AVE. AT
MAPLE ST. & MARRETT RD.



607409_TR(SP).DWG Plotted on 24-Apr-2016 6:59 PM

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	60	123
PROJECT FILE NO.	607409		

TRAFFIC SIGNAL DATA
MASSACHUSETTS AVE. AT
MAPLE ST. & MARRETT RD.

PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8	PHASE 9
OL		NOT USED	NOT USED	NOT USED		NOT USED	OL	(PED.)

SEQUENCE AND TIMING FOR FULL ACTUATED CONTROL (ISOLATED)

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.
MASSACHUSETTS AVENUE	NB	A,B	R	R	R	G	Y	R										R	R	R				R	R	R	R	R	R	FY
MASSACHUSETTS AVENUE	NB	C	R	R	R	G	Y	R										R	R	R				R/GR	R/YR	R	R	R	R	FY
MASSACHUSETTS AVENUE	SB	D	GL	YL	RL	RL	RL	RL										FYL	YL	RL				RL	RL	RL	RL	RL	RL	FY
MASSACHUSETTS AVENUE	SB	E,F	R	R	R	R	R	R										G	Y	R				R	R	R	R	R	R	FY
MAPLE STREET	EB	G	RL	RL	RL	RL	RL	RL																GL	YL	RL	RL	RL	RL	FR
MAPLE STREET	EB	H,J	R/GR	R/YR	R	R	R	R										R	R	R				G/GR	Y/YR	R	R	R	R	FR
PEDESTRIAN X-ING	ALL	P1-P6	DW	DW	DW	DW	DW	DW										DW	DW	DW				DW	DW	DW	W	FDW	DW	OUT

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	
MINIMUM GREEN (INITIAL)	4			12												12						6						EMERGENCY ONLY
PASSAGE TIME (VEHICLE)	3			3												3						3						
MAXIMUM GREEN 1 (6AM–9AM)	9.5			35												48						20						
MAXIMUM GREEN 1 (W/ PED)	9.5			35												48						20						
MAXIMUM GREEN 2 (3PM–6PM)	32.5			36												72						16						
MAXIMUM GREEN 2 (W/ PED)	22.5			25												51						12						
YELLOW CLEARANCE		3.5			4												4						3					
RED CLEARANCE			0			2												2						3				
WALK (W)																									7			
PEDESTRIAN CLEARANCE																										17	1	
RECALL	OFF			SOFT			–			–			–			SOFT			–			OFF			OFF			
MEMORY	NON–LOCK			NON–LOCK			–			–			–			NON–LOCK			–			NON–LOCK			PED			

MAJOR ITEMS REQUIRED - MASSACHUSETTS AVE. AT MAPLE ST.

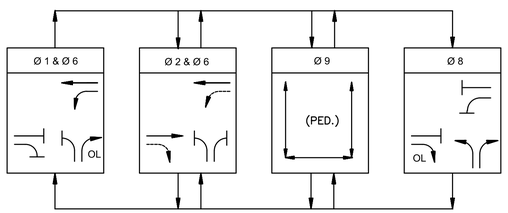
QTY	ITEM 816.04
400	3 INCH ELECTRICAL CONDUIT TYPE NM - PLASTIC-(UL) (ITEM #804.3)
4	PULL BOX 12 X 12 INCHES - SD2.031 (ITEM #811.31)
1	TRAFFIC SIGNAL CONTROLLER (TS-2, TYPE 1) BASE MOUNTED CABINET INCL. FOUNDATION AND CEM. CONCRETE PAD
1	25' MAST ARM (STEEL), INCLUDE BASE & FOUNDATION
1	35' MAST ARM (STEEL), INCLUDE BASE & FOUNDATION
2	10' TRAFFIC SIGNAL POST, BASE & FOUNDATION
4	8' TRAFFIC SIGNAL POST, BASE & FOUNDATION
4	1-WAY, 3-SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
3	1-WAY, 4-SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
1	2-WAY, 3/4-SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
9	5" LOUVERED BACKPLATES W/ 2" REFLECTIVE BORDER
6	PEDESTRIAN SIGNAL HEAD (L.E.D. W/ COUNTDOWN)
6	ACCESSIBLE PEDESTRIAN SIGNAL - PUSH BUTTON ASSEMBLY W/ SIGN, LOCATOR TONE, AND VIBROTACTILE ARROW
1	VIDEO DETECTION CAMERA
1	VIDEO DETECTION PROCESSOR
3	OPTICAL PRE-EMPTION DETECTORS - SINGLE CHANNEL
1	EMERGENCY VEHICLE PRE-EMPTION CONFIRMATION STROBE LIGHT
1	OPTICAL PHASE SELECTOR

PLUS ALL NECESSARY DUCT, CABLE, FOUNDATIONS, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION AND PROVIDE AN OPERATING TRAFFIC SIGNAL.

MAJOR ITEMS REQUIRED FOR FUTURE TRAFFIC SIGNAL INSTALLATION - MASSACHUSETTS AVE. AT MARRETT RD.

QTY	
300	3 INCH ELECTRICAL CONDUIT TYPE NM - PLASTIC-(UL) (ITEM #804.3)
5	PULL BOX 12 X 12 INCHES - SD2.031 (ITEM #811.31)

PREFERENTIAL PHASING SEQUENCE



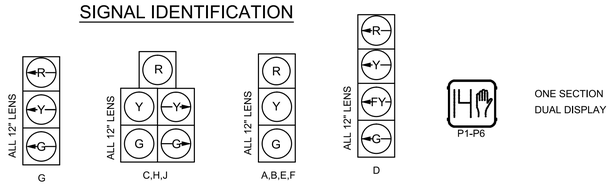
FIRE PREEMPTION SCHEDULE

DETECTOR	APPROACH	PREEMPTION PHASE	NEXT PHASE CALLED
D3	WESTBOUND	8	1+6
D1	NORTHBOUND	2	2+6
D2	SOUTHBOUND	6	2+6

DETECTOR OPERATION

DETECTOR NUMBER	PROCESSOR NUMBER	CHANNEL NUMBER	NO. OF SECTIONS	SIZE	Ø CALLED	Ø EXT.	MODE A=PULSE B=PRES.	DELAY TIME	EXT. TIME
Z1	1	1	2	9'x50'			B	0	0
Z2	1	2	2	9'x50'			B	0	0
Z3	1	3	2	9'x50'			B	0	0
Z4	1	4	2	9'x50'			B	0	0
Z5	1	5	2	9'x50'			B	0	0
Z6	1	6	2	9'x50'			B	0	0

SIGNAL IDENTIFICATION



NOTES:

1. ALL SIGNALS SHALL HAVE CUT AWAY VISORS.
2. ALL PROP. SIGNALS SHALL HAVE 5" NON-LOUVERED BACKPLATES W/ 3" REFLECTIVE BORDER.

EMERGENCY VEHICLE PREEMPTION OPERATION:

1. 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.
2. PREEMPTION SIGNALS FROM MULTIPLE APPROACHES SHALL BE SERVICED ON A FIRST DETECTED FIRST SERVED BASIS.
3. 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 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.
4. PREEMPTION MINIMUM GREENS SHALL BE SIX SECONDS.
5. NORMAL CLEARANCES SHALL BE PROVIDED ON PHASES THAT ARE TERMINATED BY PREEMPTION DEMAND.
6. ACTUAL TIMMING FOR PREEMPTION SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH THE FIRE DEPARTMENT AND SHALL BE APPROVED BY MHD PRIOR TO OPERATION.

607409_TR(SQ).DWG Plotted on 24-Apr-2016 6:59 PM

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	61	123
PROJECT FILE NO.	607409		

TRAFFIC MANAGEMENT PLAN
SHEET 1 OF 4

NOTES:

1. ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND ALL REVISIONS.
2. ALL SIGN LEGENDS, BORDERS AND MOUNTING SHALL BE IN ACCORDANCE WITH THE MUTCD.
3. TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
4. TEMPORARY CONSTRUCTION SIGNING, BARRICADES AND ALL OTHER NECESSARY WORK ZONE TRAFFIC CONTROL DEVICES SHALL BE REMOVED FROM THE HIGHWAY OR COVERED WHEN THEY ARE NOT REQUIRED FOR CONTROL OF TRAFFIC.
5. SIGNS AND SIGN SUPPORTS LOCATED ON OR NEAR THE TRAVELED WAY, AND REFLECTORIZED PLASTIC DRUMS WITH LIGHTING DEVICES MOUNTED ON THEM, MUST PASS THE CRITERIA SET FORTH IN NCHRP REPORT 350, "RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE EVALUATION OF HIGHWAY FEATURES."
6. CONTRACTORS SHALL NOTIFY EACH ABUTTER AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OF ACCESS, SUCH AS CONDUIT INSTALLATION, EXISTING PAVEMENT EXCAVATION, TEMPORARY DRIVEWAY PAVEMENT PLACEMENT AND SIMILAR OPERATIONS.
7. THE FIRST FIVE PLASTIC DRUMS OF A TAPER SHALL BE MOUNTED WITH TYPE A LIGHTS. (INCIDENTAL TO ITEM 859)
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 (3.3m) 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
- WORK ZONE
- WORK VEHICLE
- P POLICE DETAIL
- DIRECTION OF TRAFFIC
- MOVEABLE IMPACT ATTENUATOR
- TYPE 3 BARRICADE
- IMPACT ATTENUATOR
- TRAFFIC OR PEDESTRIAN SIGNAL
- CHANGEABLE MESSAGE SIGN
- MEDIAN BARRIER
- SIGN
- FLASHING ARROW PANEL
- MEDIAN BARRIER WITH WARNING LIGHTS

THE IDEAL CAPACITY OF A MAJOR HIGHWAY IS GENERALLY CONSIDERED TO BE 1900 PASSENGER CARS PER HOUR PER LANE (PCPHPL). IN WORK ZONES ON A MULTI-LANE DIVIDED HIGHWAY, THE FOLLOWING VOLUME GUIDELINES HAVE BEEN SUGGESTED:

MEASURED AVERAGE WORK ZONE CAPACITIES

Number of Lanes		Number of Studies	Average Capacity	
NORMAL (existing)	OPEN (to traffic)		VPH	VPHPL
3	1	7	1,170	1,170
2	1	8	1,340	1,340
5	2	8	2,740	1,370
4	2	4	2,980	1,480
3	2	9	2,980	1,490
4	3	4	4,560	1,520

Source: Dudek, C., Notes on Work Zone Capacity and Level of Service. Texas Transportation Institute, Texas A&M University, College Station, Texas (1984)

BY OBTAINING HOURLY TRAFFIC COUNTS FOR A PARTICULAR ROADWAY (WITH A MINIMUM OF A 48-HOUR AUTOMATIC TRAFFIC RECORDER (ATR) COUNT), THIS WILL HELP TO DETERMINE AT WHAT TIMES OF THE DAY OR NIGHT A CERTAIN NUMBER OF LANES MAY BE CLOSED.

massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | FIGURE Gen-1 GENERAL GUIDELINES NOT TO SCALE | 1/6

SUGGESTED WORK ZONE WARNING SIGN SPACING

Road Type	Distance Between Signs**		
	A	B	C
LOCAL OR LOW VOLUME ROADWAYS*	350 (100)	350 (100)	350 (100)
MOST OTHER ROADWAYS*	500 (150)	500 (150)	500 (150)
FREEWAYS AND EXPRESSWAYS*	1,000 (300)	1,500 (450)	2,640 (800)

* SPEED CATEGORY TO BE DETERMINED BY HIGHWAY AGENCY

** DISTANCES ARE SHOWN IN FEET (METERS). 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 TMP SETUPS. IT IS THE ONE WHICH MAY OFTEN HAVE THE "STANDARD RED OR RED-ORANGE FLAGS (16 in. X 16 in.)" MOUNTED ON IT. THESE ADVANCE WARNING SIGNS ARE LOCATED AT 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 ONLY 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.

R2-10a SIGNS SHALL BE PLACED BETWEEN THE SECOND AND THIRD SIGNS.

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

Based on: Table 6C-1 2009 MUTCD

STOPPING SIGHT DISTANCE AS A FUNCTION OF SPEED

SPEED* (km/h)	DISTANCE (m)
30	35
40	50
50	65
60	85
70	105
80	130
90	160
100	185
110	220
120	250

SPEED* (mph)	DISTANCE (ft)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820

*POSTED SPEED, OFF-PEAK 85TH-PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED

THESE VALUES MAY BE USED TO DETERMINE THE LENGTH OF LONGITUDINAL BUFFER SPACES.

THE DISTANCES IN THE ABOVE CHART REPRESENT THE MINIMAL VALUES FOR BUFFER SPACING.

Source: Table 6C-2 2009 MUTCD

massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | FIGURE Gen-2 NOTES ON WORK ZONE DISTANCES NOT TO SCALE | 2/6

CONVENTIONAL ROADWAY– A STREET OR HIGHWAY OTHER THAN A LOW-VOLUME ROAD, EXPRESSWAY, OR FREEWAY.

EXPRESSWAY– A DIVIDED HIGHWAY WITH PARTIAL CONTROL OF ACCESS.

FREEWAY– A DIVIDED HIGHWAY WITH FULL CONTROL OF ACCESS.

LOW-VOLUME ROAD– A FACILITY LYING OUTSIDE OF BUILT-UP AREAS OF CITIES, TOWNS, AND COMMUNITIES, AND IT SHALL HAVE A TRAFFIC VOLUME OF LESS THAN 400 AADT. IT SHALL NOT BE A FREEWAY, EXPRESSWAY, INTERCHANGE RAMP, FREEWAY SERVICE ROAD, OR A ROAD ON A DESIGNATED STATE HIGHWAY SYSTEM.

Source: 2009 MUTCD

TAPER LENGTH CRITERIA FOR TEMPORARY TRAFFIC CONTROL ZONES

Type of Taper	Taper Length (L)*
MERGING TAPER	AT LEAST L
SHIFTING TAPER	AT LEAST 0.5L
SHOULDER TAPER	AT LEAST 0.33L
ONE-LANE, TWO-WAY TRAFFIC TAPER	100 FT (30 m) MAXIMUM
DOWNSTREAM TAPER	100 FT (30 m) PER LANE

Source: Table 6C-3 2009 MUTCD

FORMULAS FOR DETERMINING TAPER LENGTHS

Speed Limit (S)	Taper Length (L) Feet
40 MPH OR LESS	$L = \frac{WS^2}{60}$
45 MPH OR MORE	L= WS

Speed Limit (S)	Taper Length (L) Meters
60 KM/H OR LESS	$L = \frac{WS^2}{155}$
70 KM/H OR MORE	$L = \frac{WS}{1.6}$

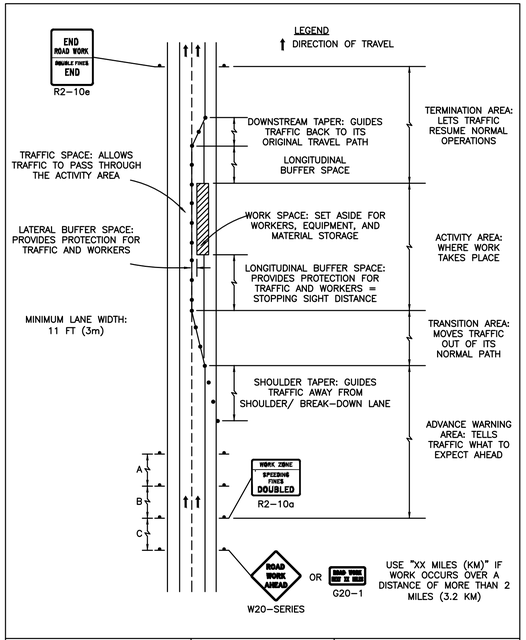
WHERE: L = TAPER LENGTH IN FEET (METERS)

W = WIDTH OF OFFSET IN FEET (METERS)

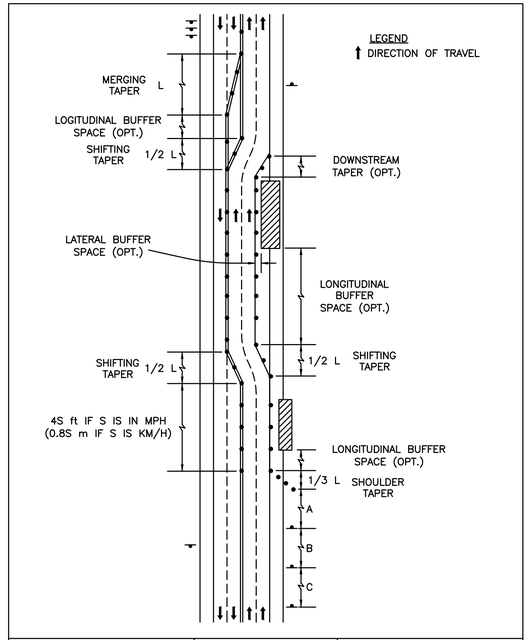
S = POSTED SPEED LIMIT, OR OFF-PEAK 85TH-PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED IN MPH (KM/H)

Source: Table 6C-4 2009 MUTCD

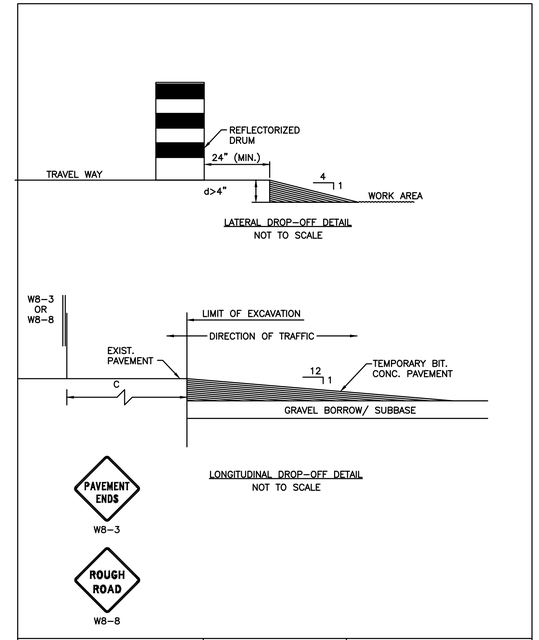
massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | FIGURE Gen-3 NOTES ON WORK ZONE DISTANCES NOT TO SCALE | 3/6



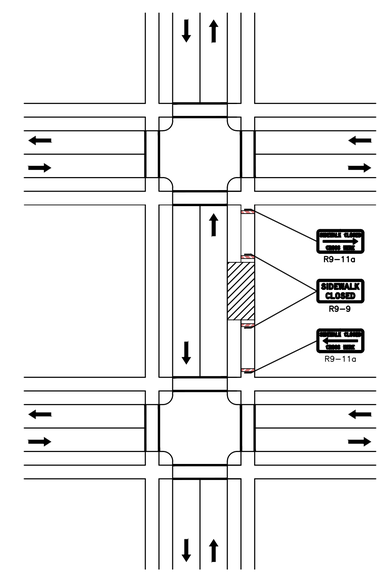
massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | FIGURE Gen-4 COMPONENT PARTS OF A TEMPORARY TRAFFIC CONTROL (TTC) ZONE NOT TO SCALE | 4/6



massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | FIGURE Gen-5 TYPES OF TAPERS AND BUFFER SPACES NOT TO SCALE | 5/6



massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | FIGURE Gen-6 LATERAL AND LONGITUDINAL DROP-OFF DETAILS NOT TO SCALE | 6/6



massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | FIGURE PED-1 SIDEWALK CLOSED WITH DETOUR NOT TO SCALE | 8/1

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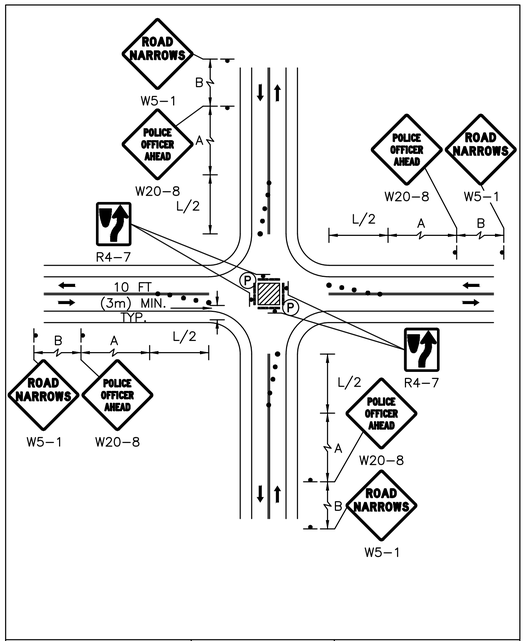
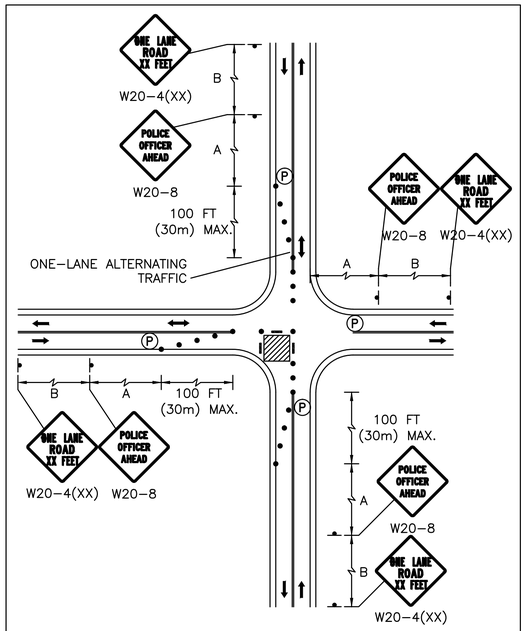
LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	62	123
PROJECT FILE NO.	607409		

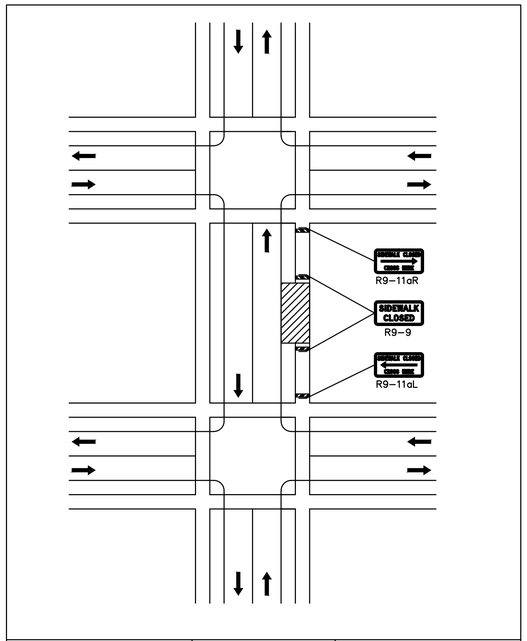
TRAFFIC MANAGEMENT PLAN
SHEET 2 OF 4



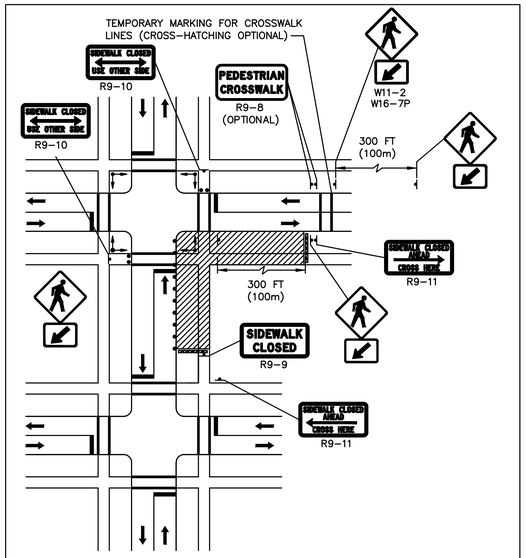
massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | FIGURE Int-1 SINGLE LANE APPROACH CENTER CLOSURE NOT TO SCALE | 1/2



massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | FIGURE Int-2 SINGLE LANE APPROACH ONE QUADRANT CLOSURE NOT TO SCALE | 2/2

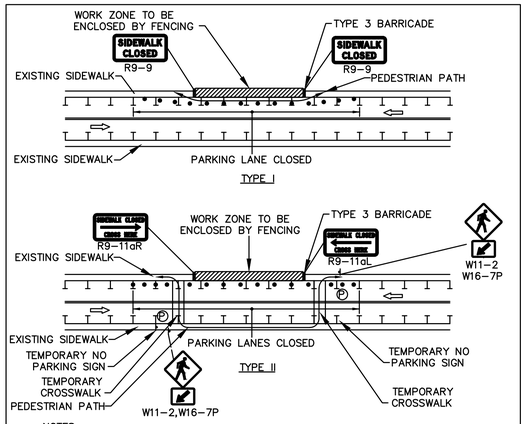


massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | FIGURE Ped-5 SIDEWALK CLOSED WITH DETOUR NOT TO SCALE | 1/3



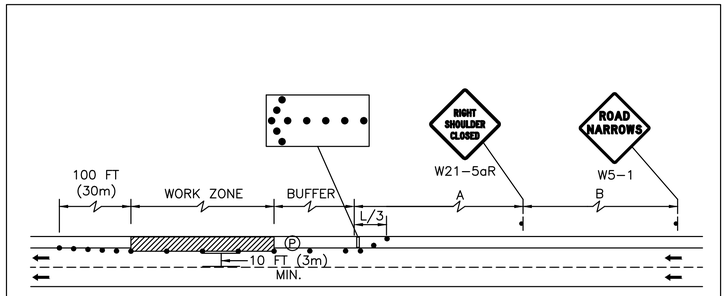
NOTE: FOR LONG-TERM STATIONARY WORK, THE DOUBLE YELLOW CENTERLINE AND/OR LANE LINES SHOULD BE REMOVED BETWEEN THE CROSSWALK LINES.

massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | FIGURE Ped-6 PEDESTRIAN DETOUR NOT TO SCALE | 2/3



NOTES
1. ADDITIONAL ADVANCE WARNING MAY BE NECESSARY.
2. CONTROLS ONLY FOR PEDESTRIAN TRAFFIC ARE SHOWN. VEHICULAR TRAFFIC SHOULD BE HANDLED AS SHOWN ELSEWHERE.
3. STREET LIGHTING SHOULD BE CONSIDERED WHEN LOCATING CONTROL DEVICES.
4. IF THE WORK ZONE DOES NOT PERMIT PEDESTRIANS TO TRAVEL ADJACENT TO IT AS SHOWN IN PEDESTRIAN BYPASS TYPE I, TEMPORARY CROSSWALKS WITH APPROPRIATE SIGNS SHOULD BE INSTALLED TO CROSS PEDESTRIANS TO THE OPPOSITE SIDE OF THE STREET AS SHOWN IN PEDESTRIAN BYPASS TYPE II, AND AS DIRECTED BY THE ENGINEER.
5. BYPASS IS TO BE USED IN CONJUNCTION WITH THE PROPOSED LANE CLOSURE DETAILS AND DURING CONSTRUCTION STAGING, AS DIRECTED BY THE ENGINEER.
6. AT ALL TIMES, MAINTAIN A PEDESTRIAN PATH THAT CONFORMS TO ALL RELEVANT ADA AND AAB STANDARDS.
7. THE SPECIFIC LOCATION OF THE POLICE OFFICER ON DUTY IS DEPENDENT ON THE ACTUAL TRAFFIC FIELD CONDITIONS.

massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | FIGURE Ped-7 PEDESTRIAN BYPASS NOT TO SCALE | 3/3



DRUM SPACING DEPENDENT ON SPEED

massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | FIGURE TLR-1 DIVIDED HIGHWAY SHOULDER CLOSED NOT TO SCALE | 4/7

CHANNELIZING DEVICE SPACING CHART		
	TAPER (FT)	TANGENT (FT)
TUBULAR MARKERS	5	20
DRUMS	20	30

607409_TR(TMP).DWG Plotted on 24-Apr-2016 7:00 PM

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	63	123
PROJECT FILE NO.	607409		

TRAFFIC MANAGEMENT PLAN
SHEET 3 OF 4

607409_TR(TMP).DWG Plotted on 24-Apr-2016 7:00 PM

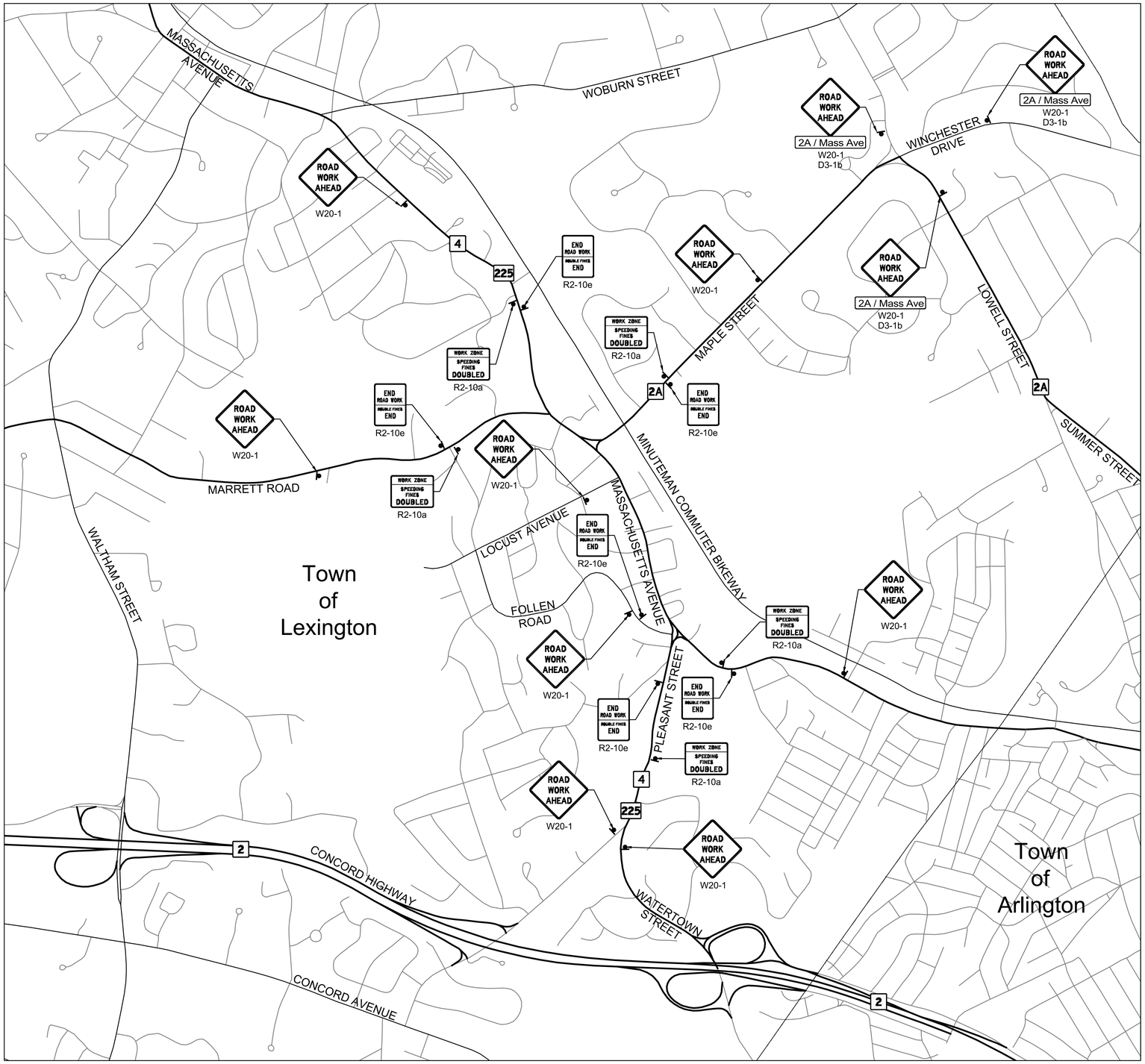
TRAFFIC SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA (S.F.)
	WIDTH (in)	HEIGHT (in)		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE MKR.		BACK-GROUND	LEGEND	BORDER			
D3-1b	48	12	2A / Mass Ave	SEE 2009 M.U.T.C.D.			3	SEE 2009 M.U.T.C.D.				4.00	12.00
R2-10a	48	36	WORK ZONE SPEEDING FINES DOUBLED	SEE MASSDOT STANDARDS			5	SEE MASSDOT STANDARDS				12.00	60.00
R2-10e	36	48	END ROAD WORK DOUBLE FINES END				6					12.00	72.00
R4-7	24	30					4					5.00	20.00
R9-9	24	12	SIDEWALK CLOSED	SEE 2009 M.U.T.C.D.			2	SEE 2009 M.U.T.C.D.				2.00	4.00
R9-10 (D)	24	12	SIDEWALK CLOSED USE OTHER SIDE				2					2.00	4.00
R9-11aL/R	24	12	SIDEWALK CLOSED CROSS HERE / SIDEWALK CLOSED CROSS HERE				4					2.00	8.00
W5-1	36	36	ROAD NARROWS				4					9.00	36.00
W8-3	36	36	PAVEMENT ENDS				2					9.00	18.00
W8-8	36	36	ROUGH ROAD				4					9.00	36.00
W11-2	36	36					6					9.00	54.00
W13-1	24	30	XX M.P.H.				6					5.00	30.00
W16-7pL	24	12					6					2.00	12.00
W20-1 (AHD)	36	36	ROAD WORK AHEAD				11					9.00	99.00
W20-4	36	36	ONE LANE ROAD AHEAD				2					9.00	18.00
W20-8 (AHD)	36	36	POLICE OFFICER AHEAD	SEE MASSDOT STANDARDS			4	SEE MASSDOT STANDARDS				9.00	36.00
W21-5aR	36	36	RIGHT SHOULDER CLOSED	SEE 2009 M.U.T.C.D.			2	SEE 2009 M.U.T.C.D.				9.00	18.00

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	64	123
PROJECT FILE NO.	607409		

TRAFFIC MANAGEMENT PLAN
SHEET 4 OF 4



ADVANCE WARNING SIGN PLAN
SCALE: 1"=650'

TRAFFIC MANAGEMENT NOTES

GENERAL:

1. ALL CONSTRUCTION SIGNING, DRUMS, BARRICADES AND OTHER DEVICES SHALL BE FURNISHED AND INSTALLED IN CONFORMANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES - 2009 EDITION (M.U.T.C.D.); MASSDOT'S STANDARD SPECIFICATIONS; MASSDOT'S STANDARD DETAILS AND DRAWINGS FOR THE DEVELOPMENT OF TRAFFIC MANAGEMENT PLANS, OCTOBER 2014 EDITION, AND THE LATEST REVISIONS; AND THE FOLLOWING:

2. UNLESS WRITTEN PERMISSION FROM MASSDOT IS OBTAINED, ALL TRAVEL WAYS WITHIN MASSDOT'S RIGHT OF WAY CAN ONLY BE OCCUPIED DURING THE HOURS STATED IN THE SPECIAL PROVISIONS, SUBSECTION 7.09 PUBLIC SAFETY AND CONVENIENCE.

3. WARNING SIGNS SHALL HAVE AN ORANGE BACKGROUND, AND REGULATORY SIGNS SHALL BE BLACK TEXT ON A WHITE BACKGROUND.

CONSTRUCTION SIGNING:

1. FINAL LOCATION OF SIGNS, DRUMS, AND OTHER TRAFFIC CONTROL DEVICES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.

2. AT THE END OF EACH WORKDAY/SHIFT, THE CONTRACTOR SHALL COVER TEMPORARY TRENCHES WITH STEEL PLATES AND PROVIDE A TEMPORARY SIDEWALK WITH A STABLE AND FIRM SURFACE. TEMPORARY TRAFFIC CONTROL DEVICES, I.E., DRUMS AND CONSTRUCTION FENCES, SHALL BE REMOVED FROM THE TRAVELWAY OR MOVED TO THE BACK OF THE SIDEWALK.

MISCELLANEOUS:

1. THE WORKSITE SHALL BE ADEQUATELY PROTECTED (DURING BOTH WORKING AND NON-WORKING HOURS) TO ENSURE THE SAFETY OF ALL MODES OF TRAFFIC.

2. AT ALL TIMES, MAINTAIN INGRESS AND EGRESS TO ALL STREETS AND DRIVES.

3. UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL REMOVE THE TEMPORARY MARKINGS AND RESTORE THE PAVEMENT MARKINGS TO THEIR ORIGINAL LOCATION.

607409_TR(TMP).DWG Plotted on 24-Apr-2016 7:00 PM

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	65	123
PROJECT FILE NO.	607409		

LANDSCAPING PLAN

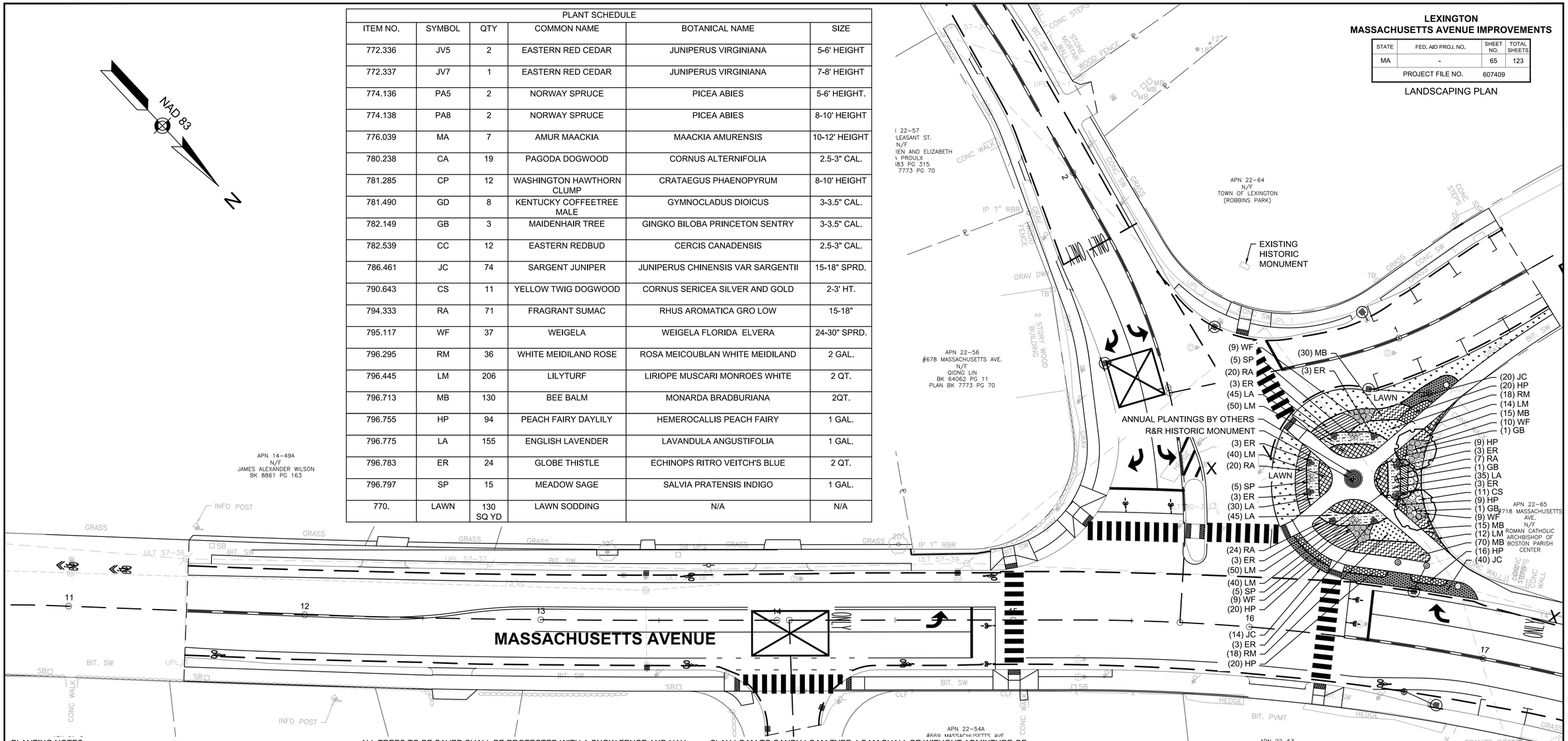
607409_HD(LA).DWG Plotted on 24-Apr-2016 7:01 PM

NAD 83

N

PLANT SCHEDULE

ITEM NO.	SYMBOL	QTY	COMMON NAME	BOTANICAL NAME	SIZE
772.336	JV5	2	EASTERN RED CEDAR	JUNIPERUS VIRGINIANA	5-6' HEIGHT
772.337	JV7	1	EASTERN RED CEDAR	JUNIPERUS VIRGINIANA	7-8' HEIGHT
774.136	PA5	2	NORWAY SPRUCE	PICEA ABIES	5-6' HEIGHT.
774.138	PA8	2	NORWAY SPRUCE	PICEA ABIES	8-10' HEIGHT
776.039	MA	7	AMUR MAACKIA	MAACKIA AMURENSIS	10-12' HEIGHT
780.238	CA	19	PAGODA DOGWOOD	CORNUS ALTERNIFOLIA	2.5-3" CAL.
781.285	CP	12	WASHINGTON HAWTHORN CLUMP	CRATAEGUS PHAENOPYRUM	8-10' HEIGHT
781.490	GD	8	KENTUCKY COFFEETREE MALE	GYMNOCLADUS DIOICUS	3-3.5" CAL.
782.149	GB	3	MAIDENHAIR TREE	GINGKO BILOBA PRINCETON SENTRY	3-3.5" CAL.
782.539	CC	12	EASTERN REDBUD	CERCIS CANADENSIS	2.5-3" CAL.
786.461	JC	74	SARGENT JUNIPER	JUNIPERUS CHINENSIS VAR SARGENTII	15-18" SPRD.
790.643	CS	11	YELLOW TWIG DOGWOOD	CORNUS SERICEA SILVER AND GOLD	2-3' HT.
794.333	RA	71	FRAGRANT SUMAC	RHUS AROMATICA GRO LOW	15-18"
795.117	WF	37	WEIGELA	WEIGELA FLORIDA ELVERA	24-30" SPRD.
796.295	RM	36	WHITE MEIDILAND ROSE	ROSA MEICOUBLAN WHITE MEIDILAND	2 GAL.
796.445	LM	206	LILYTURF	LIRIOPE MUSCARI MONROES WHITE	2 QT.
796.713	MB	130	BEE BALM	MONARDA BRADBURIANA	2QT.
796.755	HP	94	PEACH FAIRY DAYLILY	HEMEROCALLIS PEACH FAIRY	1 GAL.
796.775	LA	155	ENGLISH LAVENDER	LAVANDULA ANGUSTIFOLIA	1 GAL.
796.783	ER	24	GLOBE THISTLE	ECHINOPS RITRO VEITCH'S BLUE	2 QT.
796.797	SP	15	MEADOW SAGE	SALVIA PRATENSIS INDIGO	1 GAL.
770.	LAWN	130 SQ YD	LAWN SODDING	N/A	N/A



PLANTING NOTES

ALL PLANT MATERIAL SHALL CONFORM TO THE MINIMUM GUIDELINES ESTABLISHED BY THE AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC.

ANY PROPOSED SUBSTITUTIONS OF PLANT MATERIAL SHALL BE MADE WITH MATERIAL EQUIVALENT TO THE DESIRED MATERIAL IN OVERALL FORM, HEIGHT, BRANCHING HABIT, FLOWER, LEAF, COLOR, FRUIT AND CULTURE. PROPOSED SUBSTITUTIONS WILL ONLY BE CONSIDERED IF SUBMITTED WITH ENUMERATED REASONS WHY SUBSTITUTIONS ARE PROPOSED.

VERIFY ALL EXISTING UTILITY LINES PRIOR TO PLANTING AND REPORT ANY CONFLICTS TO THE OWNER OR HIS REPRESENTATIVE.

NO PLANT SHALL BE PLANTED BEFORE ACCEPTANCE OF ROUGH GRADING.

ALL PLANT MATERIALS SHALL BE GUARANTEED FOR ONE YEAR FOLLOWING DATE OF FINAL ACCEPTANCE.

THE CONTRACTOR SHALL CLEARLY MARK LIMITS OF CLEARING AND LIMITS OF SELECTIVE PRUNING AND THINNING, FOR REVIEW BY THE A/E PRIOR TO ANY CLEARING OPERATIONS.

ALL TREES NOTED FOR CLEARING AND SELECTIVE PRUNING AND THINNING SHALL BE EXECUTED BY A LICENSED ARBORIST.

THE CONTRACTOR SHALL TAKE ALL MEASURES NECESSARY TO PROTECT EXISTING VEGETATION THAT IS TAGGED BY THE A/E, "TO BE SAVED".

ALL TREES TO BE SAVED SHALL BE PROTECTED WITH A SNOW FENCE AND HAY BALES CIRCLING THE TREE AT A MINIMUM DISTANCE OF 1/2 THE CANOPY.

THE A/E RESERVES THE RIGHT TO ADJUST FINAL GRADES IN THE FIELD TO SAVE EXISTING VEGETATION.

PLANT QUANTITIES NOTED IN THE PLANT SCHEDULE ARE APPROXIMATE AND ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FURNISHING AND INSTALLATION OF ALL PLANT MATERIALS NOTED ON THE PLANTING PLAN.

LOAM AND SEED ALL DISTURBED AREAS UNLESS OTHERWISE INDICATED.

REGRADE STOCKPILE AREA AFTER REMOVAL OF SURPLUS MATERIALS (SEE SITE WORK SPECIFICATIONS). LOAM AND SEED THE DISTURBED AREA.

TOPSOIL STRIPPED FROM THE SITE AND PROPERLY STOCKPILED PRIOR TO APPLICATION MAY, UPON APPROVAL OF THE ENGINEER, BE USED FOR PREPARATION OF LAWNS AND PLANTING BEDS. IT SHOULD BE FREE OF LARGE (ONE (1) INCH OR GREATER) COBBLES, ROOTS, OLD SOD, TRASH, WOOD OR OTHER CONTAMINANTS AND BE OF A FRIABLE CONSISTENCY AND SUITABLE FOR PLANT GROWTH.

PROVIDE SOIL TEST REPORTS FOR ONSITE TOP SOIL TO BE REUSED AND FOR LOAM BORROW TO BE IMPORTED. SOIL TEST REPORT SHALL INCLUDE USDA TEXTURAL CLASSIFICATION TEXTURAL SIEVE ANALYSIS, AS WELL AS NUTRIENT ANALYSIS, AND MICRO-NUTRIENTS.

THE LANDSCAPE CONTRACTOR SHALL FURNISH LOAM BORROW/ TOPSOIL. LOAM SHALL BE FERTILE, FRIABLE, NATURAL AND PRODUCTIVE TOPSOIL OF GOOD CLAY-LOAM TO SANDY LOAM TYPE. LOAM SHALL BE WITHOUT ADMIXTURE OF SUBSOIL AND SHALL BE REASONABLY FREE OF STONES, LUMPS, ROOTS, STICKS INVASIVE SEED OR STOCK AND OTHER FOREIGN MATTER. LOAM SHALL NOT BE WORKED OR APPLIED IN A MUDDY OR WET CONDITION.

PROVIDE SOIL AMENDMENTS AS DIRECTED BY THE A/E BASED UPON THE FINDINGS OF SOIL TESTS PROVIDED FOR EXISTING TOP SOIL TO BE REUSED AND OR IMPORTED MATERIAL.

ALL PLANTING BEDS TO BE FILLED WITH SOIL AND CROWNED ABOVE ADJACENT LAWN OR IMPROVED AREAS. ALL PLANTING BEDS TO BE MULCHED WITH AGED PINE BARK MULCH TO A DEPTH OF THREE (3) INCHES.

CAUTION SHALL BE USED NOT TO EXTEND MULCH LAYER ABOVE SOIL LEVEL AT TRUNKS/STEMS OF INSTALLED PLANT MATERIAL.

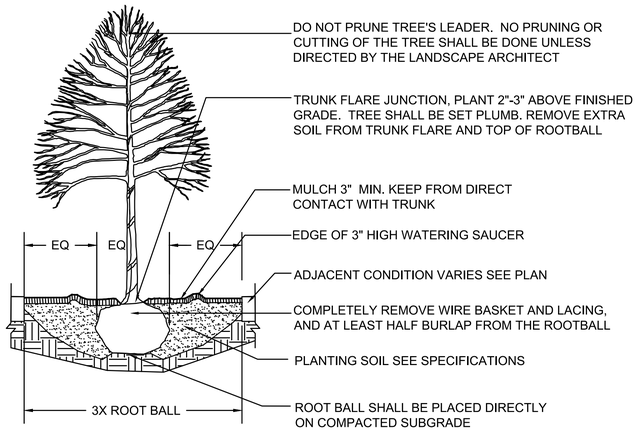
PROVIDE FIVE (5) FOOT DIAMETER MULCH CIRCLE AROUND ALL INDIVIDUAL TREE PLANTINGS AND CONTINUOUS MULCH BED AROUND SHRUB PLANTINGS.

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	66	123
PROJECT FILE NO.	607409		

LANDSCAPING DETAILS

607409_HD(LA).DWG Plotted on 24-Apr-2016 7:01 PM

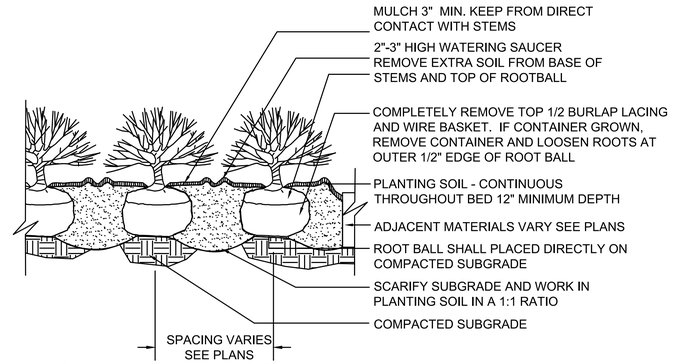
NOTES:
1. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. SAUCER SHALL BE FLOODED TWICE DURING THE FIRST 24 HOURS AFTER PLANTING.



TREE PLANTING

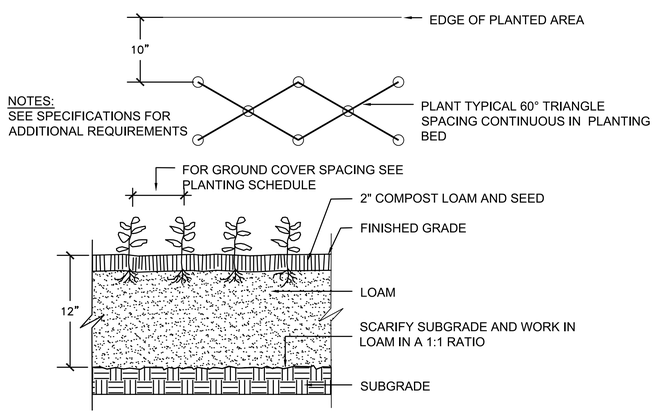
SCALE: NONE

NOTES:
1. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. NO PRUNING OR CUTTING UNLESS DIRECTED BY THE LANDSCAPE ARCHITECT.
3. SAUCER SHALL BE FLOODED TWICE DURING THE FIRST 24 HOURS AFTER PLANTING.
4. SHRUBS SHALL BE SET PLUMB AND PLANTED SO THAT THE TOP OF THE ROOTBALL IS 1"-2" ABOVE FINISHED GRADE.



SHRUB PLANTING BED

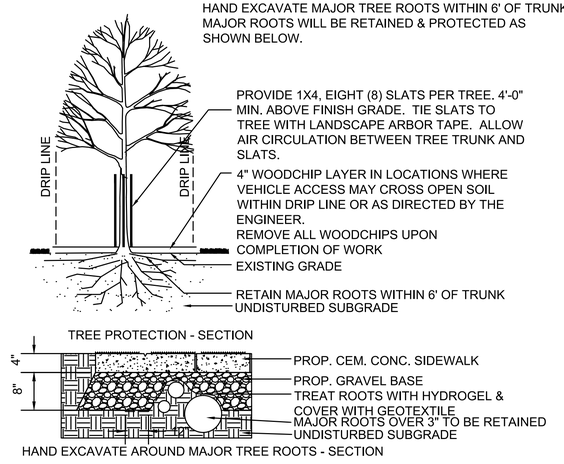
SCALE: NONE



GROUNDCOVER PLANTING

SCALE: NONE

NOTES:
IF EXCAVATION OCCURS WITHIN DRIP LINE, EXISTING ROOTS SHALL BE CLEANLY CUT PRIOR TO EXCAVATION BY A CERTIFIED ARBORIST AND TREES SHALL BE WATERED.
IN AREAS NOTED ON PLAN
HAND EXCAVATE MAJOR TREE ROOTS WITHIN 6' OF TRUNK
MAJOR ROOTS WILL BE RETAINED & PROTECTED AS SHOWN BELOW.

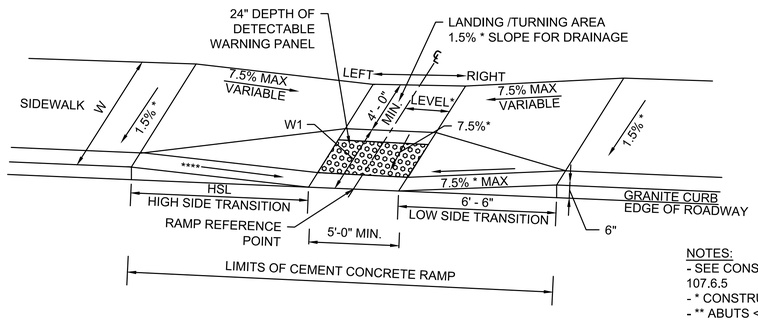


EXISTING TREE PROTECTION

SCALE: NONE

607409_HD(DET).DWG Plotted on 20-Apr-2016 8:40 AM

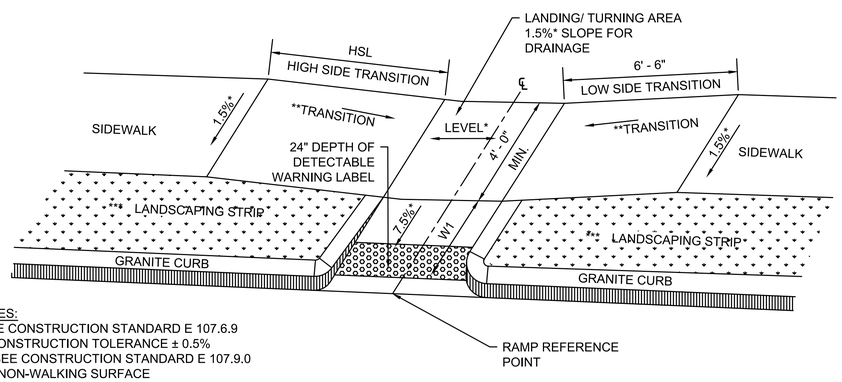
WHEELCHAIR RAMP
STYLE "A" – PARALLEL PERPENDICULAR



NOTES:
- SEE CONSTRUCTION STANDARD E 107.2.0 AND 107.6.5
- * CONSTRUCTION TOLERANCE ± 0.5%
- ** ABUTS <6" CURB REVEAL
- *** SIDEWALK ENDS
- **** SEE CONSTRUCTION STANDARD E 107.9.0

WCR #	C RAMP REFERENCE POINT (STATION/OFFSET) Ref Street for Centerline	WIDTH OF SIDEWALK (W)	LENGTH OF PRIMARY RAMP (W1)	WIDTH OF PRIMARY RAMP	DEPTH OF LEVEL LANDING Min. 4'–0"	TRANSITION LENGTH AND ROADWAY GUTTER SLOPE (%)			
						LEFT SIDE		RIGHT SIDE	
						L	%	L	%
A1	14+99.36/21.9LT	VARIES	5.22	5.00	4.00	6.50	N/A	9.00	1.08
A2	15+00.40/21RT	8.50	4.50	5.00	4.00	7.66	0.97	6.50	N/A
A3	15+32.05/41.30LT	VARIES	7.07	5.00	4.00	6.50	N/A	11.00	3.08
A4	16+32.56/21.03RT	VARIES	4.94	5.00	4.00	7.66	0.95	N/A	N/A
A5	40+43.39/21.21RT	VARIES	4.90	5.00	VARIES	7.66	0.39	6.50	N/A
A6	MAPLE ST 0+54.60/25.61RT	VARIES	2.21	4.30	5.05	11.00	2.48	6.50	N/A
A7	MAPLE ST 0+42.46/30.60LT	VARIES	2.00	4.64	6.26	6.50	3.54	11.00	2.15
A8	41+37.93/32.20RT	VARIES	2.00	5.00	6.64	6.50	N/A	7.66	4.34
A9	47+59.05/31.43LT	VARIES	2.50	5.00	4.00	3.16	N/A	6.89	0.45

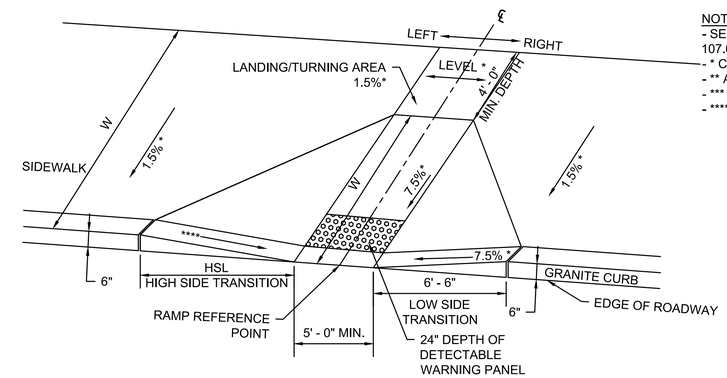
WHEELCHAIR RAMP
STYLE "B" – PARALLEL PERPENDICULAR W/ LANDSCAPING STRIP



NOTES:
- SEE CONSTRUCTION STANDARD E 107.6.9
- * CONSTRUCTION TOLERANCE ± 0.5%
- ** SEE CONSTRUCTION STANDARD E 107.9.0
- *** NON-WALKING SURFACE

WCR #	C RAMP REFERENCE POINT (STATION/OFFSET) Ref Street for Centerline	WIDTH OF SIDEWALK (W)	LENGTH OF PRIMARY RAMP (W1)	WIDTH OF PRIMARY RAMP	DEPTH OF LEVEL LANDING Min. 4'–0"	TRANSITION LENGTH AND ROADWAY GUTTER SLOPE (%)			
						LEFT SIDE		RIGHT SIDE	
						L	%	L	%
B1	FOLLEN RD 0+35.08/17.90LT	6.00	6.75	5.00	4.70	5.85	N/A	8.70	2.08
B2	19+19.74/17.00LT	VARIES	6.73	5.00	5.00	6.50	N/A	9.00	1.70
B3	40+42.71/20.94LT	VARIES	3.68	5.00	6.01	6.50	N/A	7.66	0.65
B4	41+37.23/21.50LT	VARIES	3.00	5.00	6.02	5.50	N/A	8.67	0.84
B5	48+45.52/19.60RT	6.00	4.40	5.00	6.00	N/A	N/A	7.66	0.64

WHEELCHAIR RAMP
STYLE "D" – PERPENDICULAR RAMP FOR WIDE SIDEWALKS



NOTES:
- SEE CONSTRUCTION STANDARD E 107.3.0 AND 107.6.5R
- * CONSTRUCTION TOLERANCE ± 0.5%
- ** ABUTS <6" CURB REVEAL
- *** SIDEWALK ENDS
- ****SEE CONSTRUCTION STANDARD E 107.9.0

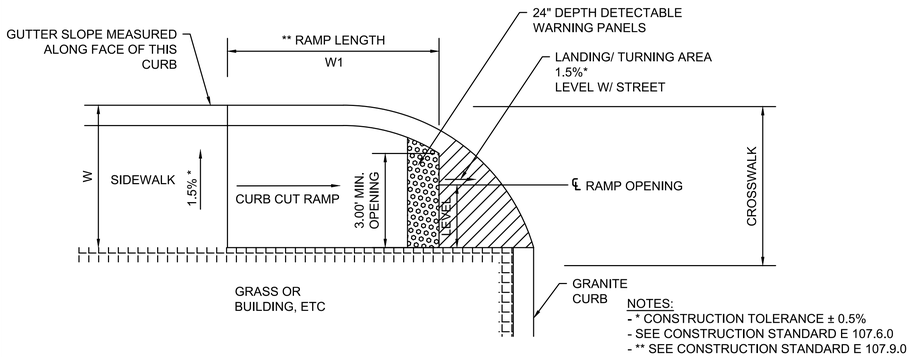
WCR #	C RAMP REFERENCE POINT (STATION/OFFSET) Ref Street for Centerline	WIDTH OF SIDEWALK (W)	LENGTH OF PRIMARY RAMP (W1)	WIDTH OF PRIMARY RAMP (W1)	DEPTH OF LEVEL LANDING Min. 4'–0"	TRANSITION LENGTH AND ROADWAY GUTTER SLOPE (%)			
						LEFT SIDE		RIGHT SIDE	
						L	%	L	%
D1	48+32.74/29.56LT	VARIES	8.00	5.00	4.00	9.00	2.88	3.29	N/A
D2	48+47.00/18.47LT	VARIES	8.00	5.00	4.00	5.68	2.02	6.03	N/A

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	68	123
PROJECT FILE NO.	607409		

WHEELCHAIR RAMP DETAILS
SHEET 2 OF 2

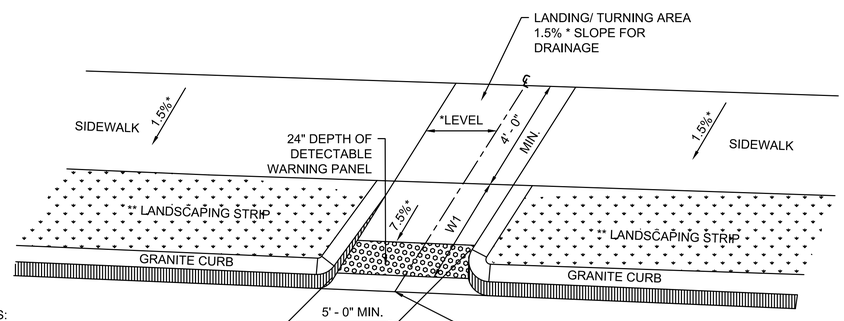
WHEELCHAIR RAMP
STYLE "H" – SINGLE DIRECTION WITH LEVEL ENTRANCE



NOTES:
- * CONSTRUCTION TOLERANCE ± 0.5%
- SEE CONSTRUCTION STANDARD E 107.6.0
- ** SEE CONSTRUCTION STANDARD E 107.9.0

WCR #	C RAMP REFERENCE POINT (STATION/OFFSET) Ref Street for Centerline	WIDTH OF SIDEWALK W	WIDTH OF OPENING	ROADWAY GUTTER SLOPE (%)	LENGTH OF RAMP (W1)
H1	13+84.15/27.70RT	6.00	4.54	0.14	6.50
H2	14+29.39/27.25RT	5.50	4.50	0.66	7.67
H3	20+71.29/27.02RT	6.00	6.00	0.55	6.50
H4	20+87.06/27.00RT	6.00	6.00	1.00	7.67
H5	22+83.86/27.00LT	6.00	6.00	0.25	10.30
H6	23+05.36/27.17LT	5.85	5.73	0.34	11.67
H7	23+42.95/27.00RT	6.00	6.00	0.18	6.50
H8	23+86.13/27.00RT	6.00	6.00	1.50	9.00
H9	26+37.03/27.35LT	6.00	5.20	1.41	10.87

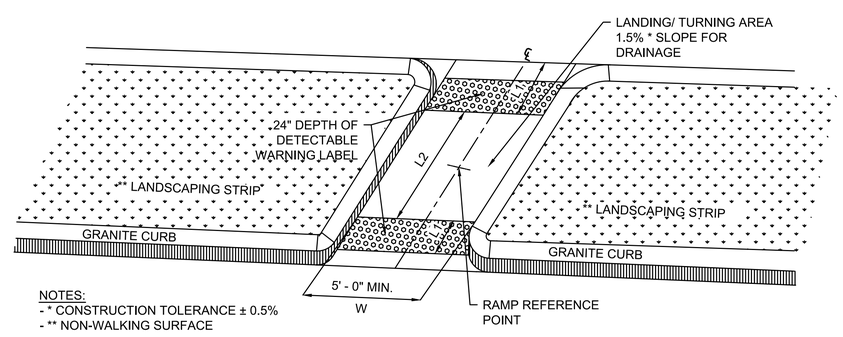
WHEELCHAIR RAMP
STYLE "U" – PERPENDICULAR W/ LANDSCAPING STRIP



NOTES:
- * CONSTRUCTION TOLERANCE ± 0.5%
- ** NON-WALKING SURFACE

WCR #	C RAMP REFERENCE POINT (STATION/OFFSET) Ref Street for Centerline	WIDTH OF SIDEWALK W	WIDTH OF OPENING	ROADWAY GUTTER SLOPE (%)	LENGTH OF RAMP (W1)
U1	FOLLEN RD 0+46.54/22.07RT	6.00	6.00	4.64	7.98
U2	16+10.63/40.833LT	6.00	6.00	1.45	5.61
U3	16+33.03/24.99LT	6.00	6.00	0.75	5.52
U4	19+19.66/17.00RT	5.50	5.00	1.88	6.98
U5	26+31.87/18.00RT	6.00	5.00	1.05	5.57
U6	32+65.19/16.50LT	6.00	5.00	1.29	7.50
U7	32+65.19/18.00RT	6.00	5.00	1.41	5.97
U8	51+17.45/16.00LT	VARIES	5.00	0.64	7.25
U9	51+16.74/16.00RT	4.80	5.00	0.32	8.73

WHEELCHAIR RAMP
STYLE "X" – MEDIAN ISLAND CROSSINGS

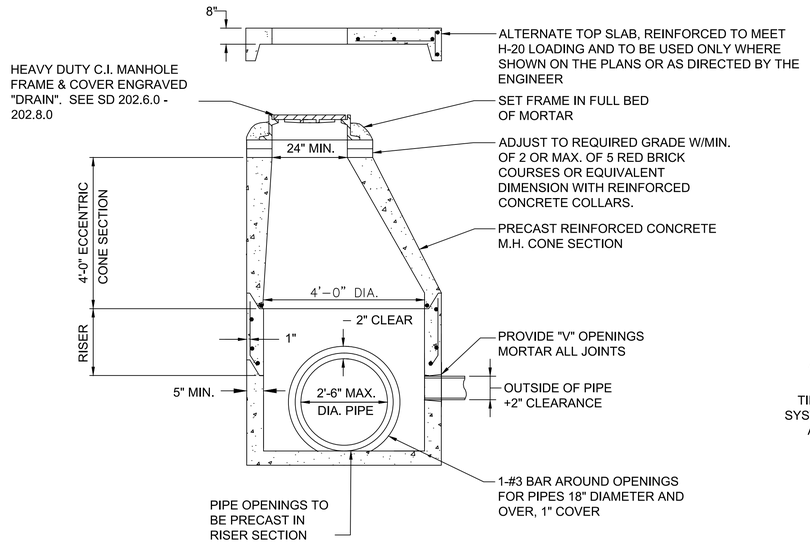


NOTES:
- * CONSTRUCTION TOLERANCE ± 0.5%
- ** NON-WALKING SURFACE

WCR #	C RAMP REFERENCE POINT (STATION/OFFSET) Ref Street for Centerline	WIDTH OF OPENING (W)	LENGTH OF RAMP (L1)	LENGTH OF LANDING (L2)
X1	15+75.04/38.88LT	6.00	1.92	3.93

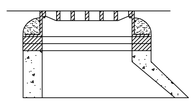
607409_HD(DET).DWG Plotted on 20-Apr-2016 8:40 AM

607409_HD(DET).DWG Plotted on 24-Apr-2016 7:01 PM

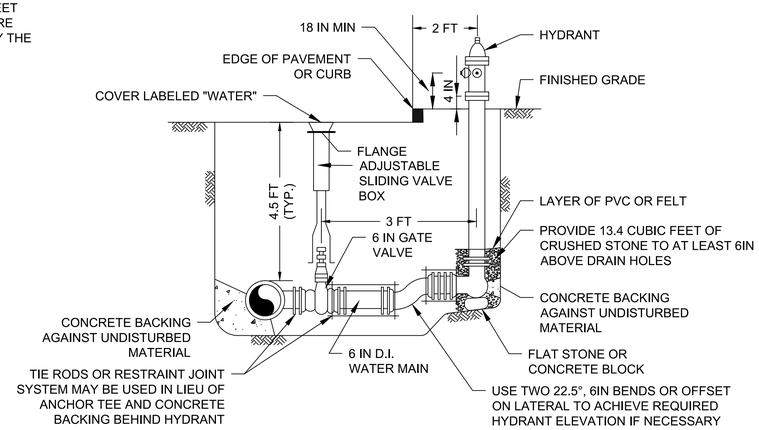


NOTE:
1. PREFORMED BITUMASTIC SEALANT AS SPECIFIED. SHALL FILL AT LEAST 75% OF JOINT CAVITY. RUBBER OR "O" RING SET IN RECESS.
2. PROVIDE STEPS WHEN MH DEPTH IS OVER 8 FEET.

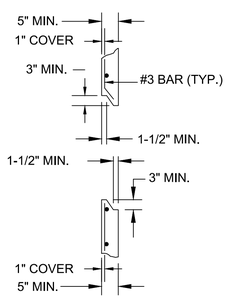
DRAIN MANHOLE
SCALE: NONE



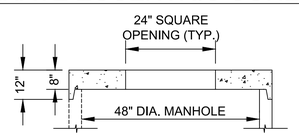
ALTERNATE ECCENTRIC CONE SECTION



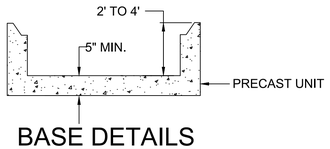
HYDRANT AND VALVE
SCALE: NONE



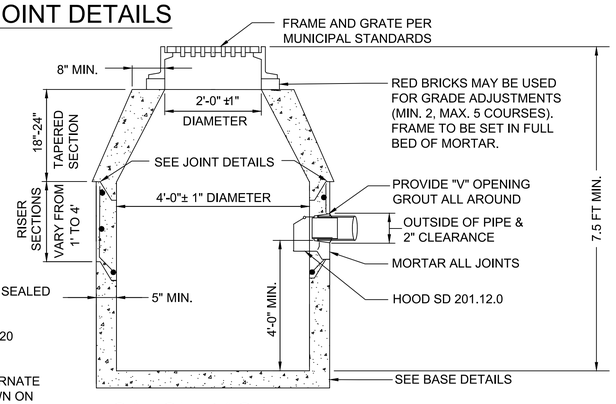
JOINT DETAILS



ALTERNATE TOP SLAB



BASE DETAILS

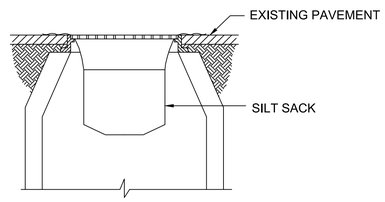


1. ALL PRECAST JOINTS TO BE SEALED WITH BUTYL RUBBER.

2. DESIGN TO CONFORM TO H-20 LOADING.

3. CONTRACTOR TO USE ALTERNATE TOP SLAB ONLY WHERE SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

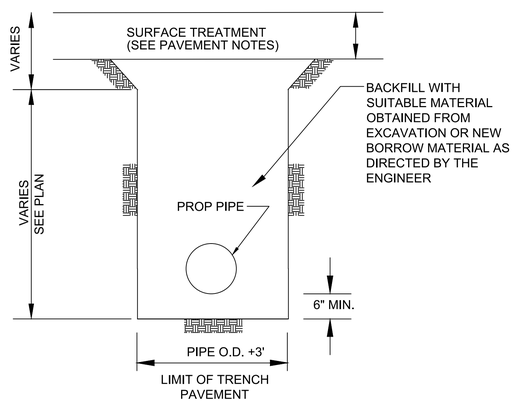
CATCH BASIN
SCALE: NONE



(FOR USE WITH EXISTING CATCH BASINS)

NOTE: SILT SACKS TO BE PLACED IN ALL CATCH BASINS IN THE VICINITY OF NEW CONSTRUCTION. CATCH BASINS ARE TO BE PROTECTED AS SHOWN, WITH MINIMUM WEEKLY MAINTENANCE, OR AS REQUIRED AND REPLACED IF NECESSARY.

SILT SACK INLET PROTECTION DETAIL
SCALE: NONE



DRAINAGE TRENCH
SCALE: NONE

607409_HD(DET).DWG Plotted on 24-Apr-2016 7:01 PM

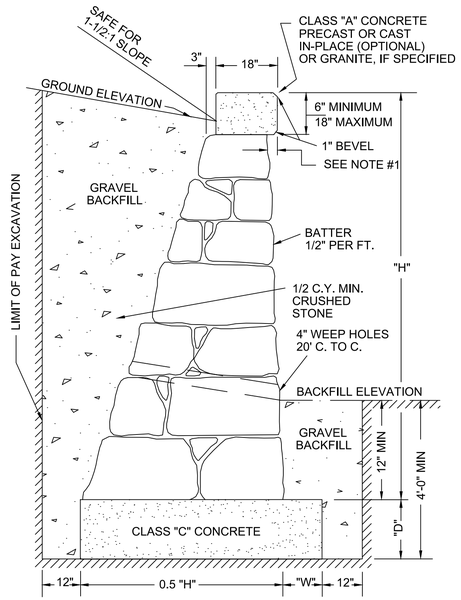
H	W	D	CONC. MASONRY FOOTING		STONE MASONRY EXCLUDING COPING	
			SECTION AREA SQ. FT.	CU. YD. PER LIN. FT.	SECTION AREA SQ. FT.	CU. YD. PER LIN. FT.
5.0	0.75	1.25	4.06	0.150	9.00	0.333
5.5			4.38	0.162	10.63	0.394
6.0			4.69	0.174	12.38	0.458

NOTES:

1. COPING OVERHANG TO BE APPROXIMATELY 3" FOR WALLS 10' OR MORE IN HEIGHT AND APPROXIMATELY 2" FOR WALLS LESS THAN 10' IN HEIGHT; IN A CONTINUOUS WALL OF VARYING HEIGHT THE OVERHANG WILL BE APPROXIMATELY 2" TO 3" FOR THE ENTIRE LENGTH.
2. ALL DIMENSIONS SHOWN ARE MINIMUM.
3. PAYMENT WILL BE BASED ON THE ACCOMPANYING TABLE.

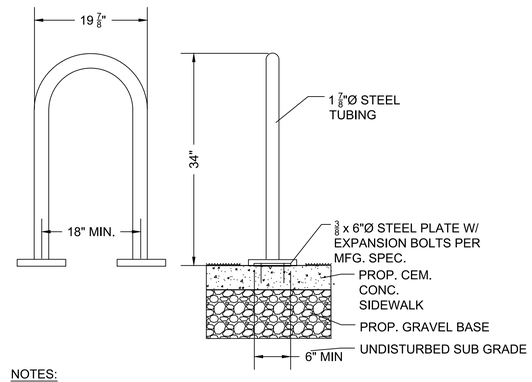
COPING TO BE PRECAST CONCRETE OR GRANITE OF UNIFORM DEPTH FOR THE ENTIRE LENGTH. DEPTH OF CONCRETE TO BE 1/12 THE AVERAGE "H" WITHIN THE LIMITS SHOWN. DEPTH OF GRANITE TO BE AS SHOWN ON THE PLANS, 6" OR 9".

FOR CHAIN LINK FENCE ON TOP OF WALL, THE COPING SHALL BE CONCRETE CAST-IN-PLACE WITH A MINIMUM DEPTH OF 12". THE LENGTH OF GALVANIZED PIPE SLEEVES FOR FENCE POSTS SHALL BE EQUAL TO THE DEPTH OF COPING.



CEMENTED STONE MASONRY WALL

SCALE: NONE

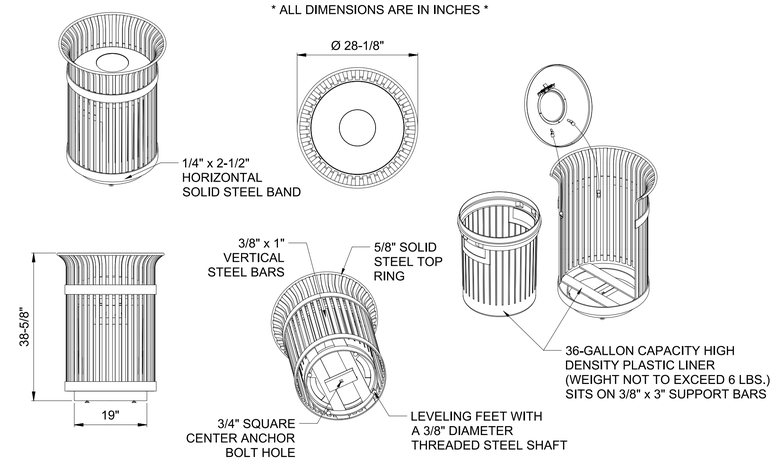


NOTES:
1. BIKE RACK SHALL BE SURFACE MOUNTED ON CONCRETE PAVEMENT.
2. COLOR SHALL BE BLACK

BIKE RACK

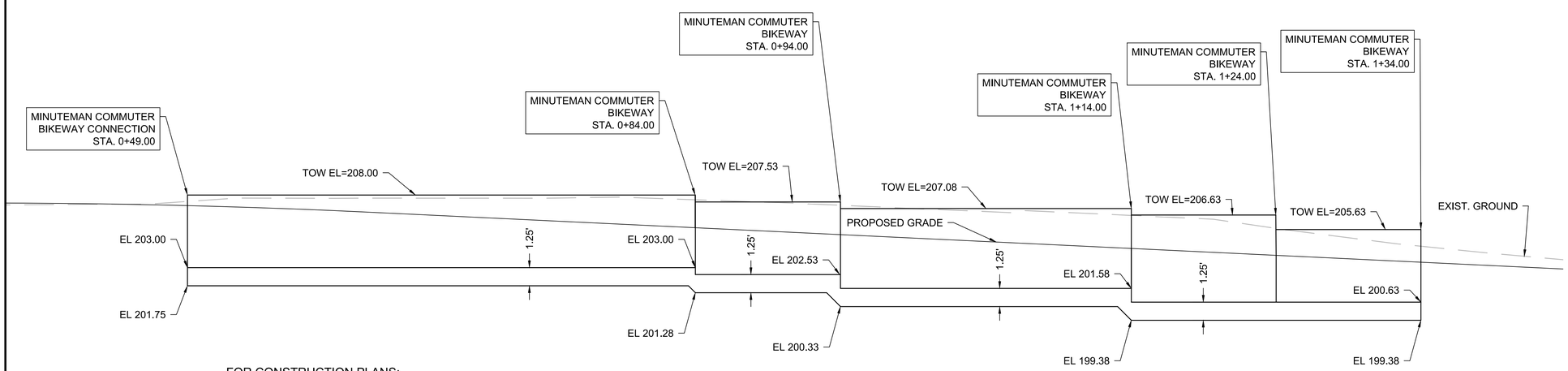
SCALE: NONE

* ALL DIMENSIONS ARE IN INCHES *



TRASH RECEPTACLE

SCALE: NONE

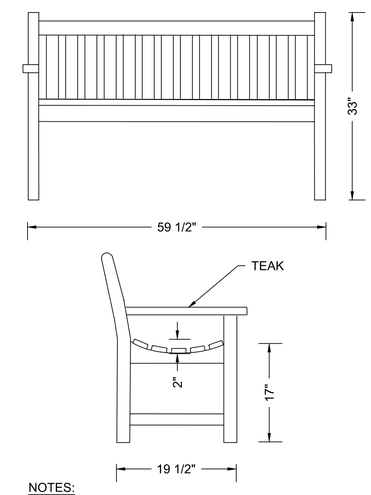


FOR CONSTRUCTION PLANS:
SEE SHEET 16

CEMENTED STONE MASONRY WALL PROFILE

SCALE: 1"=4'

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



NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

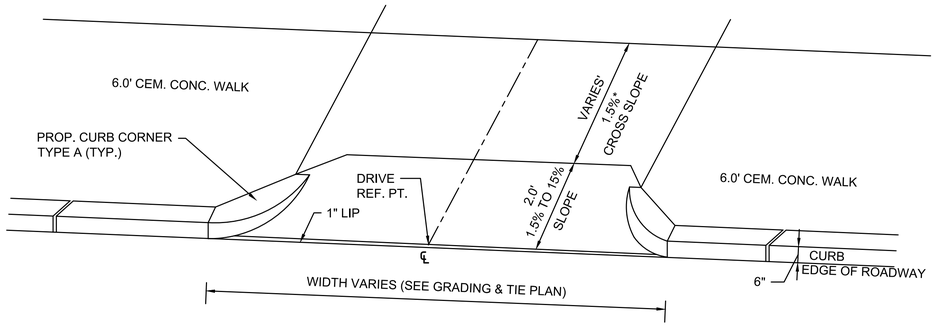
PARK BENCH

SCALE: NONE

LEXINGTON
MASSACHUSETTS AVENUE IMPROVEMENTS

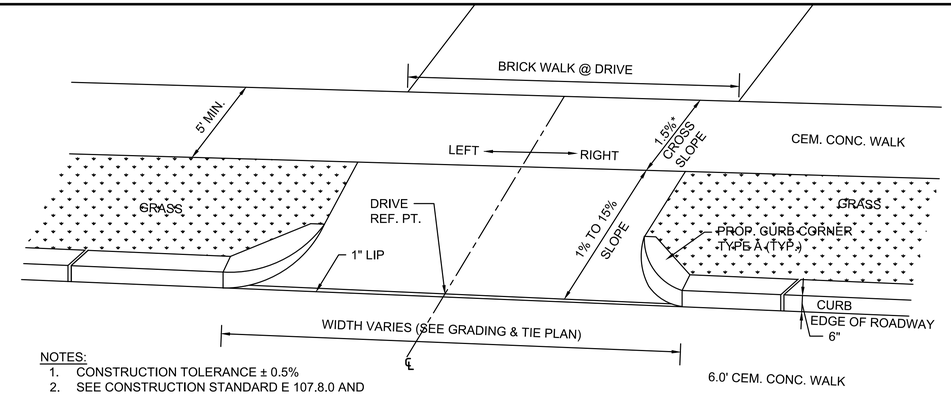
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	71	123
PROJECT FILE NO.	607409		

CONSTRUCTION DETAILS
SHEET 3 OF 3



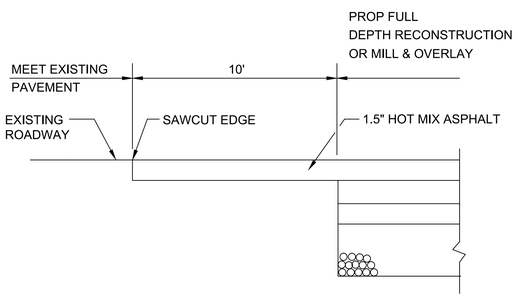
NOTES:
1. CONSTRUCTION TOLERANCE ± 0.5%

DRIVEWAY DETAIL 1
SCALE: NONE

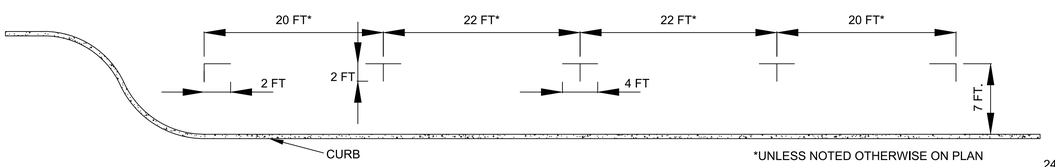


NOTES:
1. CONSTRUCTION TOLERANCE ± 0.5%
2. SEE CONSTRUCTION STANDARD E 107.8.0 AND 107.9.0 WHERE ABUTTING AREA NOT GRASS

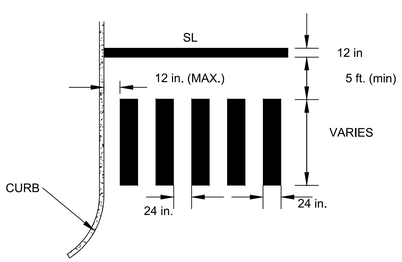
DRIVEWAY DETAIL 2
SCALE: NONE



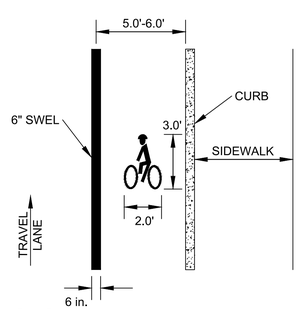
PAVEMENT TRANSTION (LONGITUDINAL SECTION)
SCALE: NONE



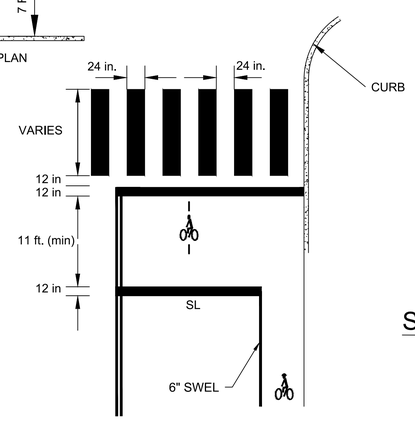
TYPICAL PARKING STALL LAYOUT DETAIL
SCALE: NONE



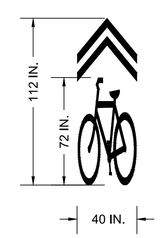
CROSSWALK DETAIL
SCALE: NONE



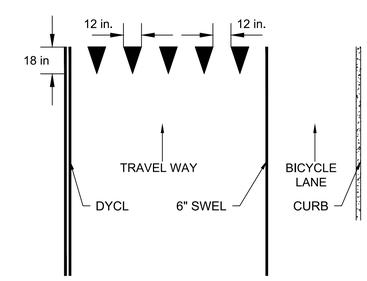
BICYCLE LANE DETAIL
SCALE: NONE



BICYCLE BOX DETAIL
SCALE: NONE



SHARED LANE MARKING DETAIL
SCALE: NONE



YIELD LINE LAYOUT DETAIL
SCALE: NONE

607409_HD(DET).DWG Plotted on 24-Apr-2016 7:28 PM