

*STANDARD PLANS*  
*for*  
*ROAD CONSTRUCTION*



STATE OF NEW HAMPSHIRE  
DEPARTMENT OF TRANSPORTATION  
September 1, 2020

September 1, 2020

TABLE OF CONTENTS

SEPTEMBER 16, 2010

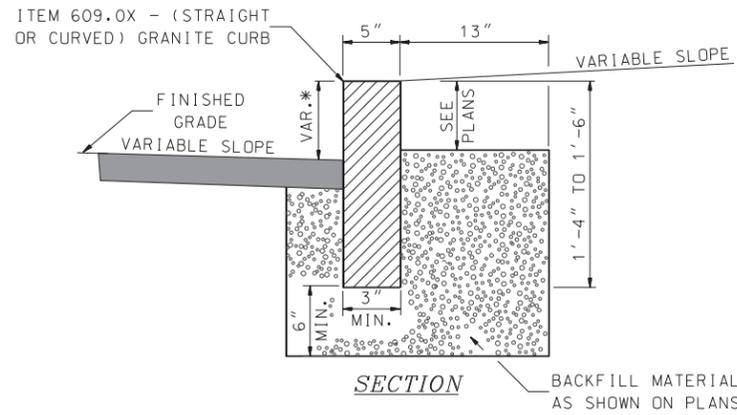
HIGHWAY STANDARD PLANS

<i>STANDARD NO.</i>	<i>DESCRIPTION</i>
CR-1	GRANITE CURB DETAILS
CR-2	CURB DETAILS
DL-1	ROADSIDE DELINEATION
DL-2	INTERCHANGE DELINEATION
DL-3	SSD-ASK FOR DETAIL SHEET - MILLED RUMBLE STRIPS (SHOULDERS)
DL-4	SSD-ASK FOR DETAIL SHEET - MILLED RUMBLE STRIPS (SHOULDERS)
DL-5	SSD-ASK FOR DETAIL SHEET - MILLED RUMBLE STRIPS (SHOULDERS)
DL-6	SSD-ASK FOR DETAIL SHEET - MILLED RUMBLE STRIPS (CENTERLINE)
DL-7	SSD-ASK FOR DETAIL SHEET - MILLED RUMBLE STRIPS (CENTERLINE)
DL-8	SSD-ASK FOR DETAIL SHEET - MILLED RUMBLE STRIPS (CENTERLINE)
DP-1	DRAINAGE PIPE DETAILS
DR-1	GRATE AND FRAME DETAILS
DR-2	D.I., MANHOLE COVER AND PAVEMENT DEPRESSION DETAILS
DR-3	PRECAST CONCRETE MEDIAN BARRIER DRAINAGE DETAILS
DR-4	UNDERDRAIN FLUSHING BASIN AND POLYETHYLENE LINER DETAILS
DR-5	PRECAST REINFORCED CONCRETE C.B., D.I. AND M.H.
ES-1	END SECTIONS FOR CORRUGATED STEEL AND REINFORCED CONCRETE PIPES
EW-1	EARTHWORK - MUCK EXCAVATION
FN-1	WOVEN WIRE FENCE
FN-2	CHAIN LINK FENCE
GR-1	BEAM GUARDRAIL STANDARD SECTION-WOOD POSTS AND HARDWARE DETAILS
GR-2	BEAM GUARDRAIL STANDARD SECTION-STEEL POSTS AND HARDWARE DETAILS
GR-3	SSD-SEE DETAIL - PREFERRED PLATFORM FOR ENERGY ABSORBING GUARDRAIL TERMINAL (EAGRT)
GR-4	SSD-SEE DETAIL - ALTERNATIVE PLATFORM FOR ENERGY ABSORBING GUARDRAIL TERMINAL (EAGRT)
GR-5	BEAM GUARDRAIL TERMINAL SECTION TYPE E-2
GR-6	BEAM GUARDRAIL TERMINAL SECTION TYPE E-2 HARDWARE DETAILS
GR-7	BEAM GUARDRAIL TERMINAL SECTION TYPE E-2 MODIFIED 30
GR-8	BEAM GUARDRAIL TERMINAL SECTION TYPE E-2 MODIFIED 40
GR-9	BEAM GUARDRAIL TERMINAL SECTION TYPE E-2 MODIFIED 45
GR-10	BEAM GUARDRAIL TERMINAL UNIT TYPE G-2
GR-11	BEAM GUARDRAIL THRIE BEAM DOUBLE FACED (WOOD POSTS)
GR-12	BEAM GUARDRAIL THRIE BEAM DOUBLE FACED (STEEL POSTS)
GR-13	BEAM GUARDRAIL THRIE BEAM SINGLE FACED (WOOD POSTS)
GR-14	BEAM GUARDRAIL THRIE BEAM SINGLE FACED (STEEL POSTS)
GR-15	PRECAST CONCRETE BARRIER 42" F-SHAPE (DOUBLE-FACED)
GR-16	TRANSITION F-SHAPE BARRIER
GR-17	TRANSITION F-SHAPE BARRIER AND GUARDRAIL (WOOD POSTS)
GR-18	TRANSITION F-SHAPE BARRIER AND GUARDRAIL (STEEL POSTS)
GR-19	SINGLE SLOPE BARRIER
GR-20	TRANSITION SINGLE SLOPE CONCRETE BARRIER, PRECAST
GR-21	TRANSITION SINGLE SLOPE CONCRETE BARRIER AND GUARDRAIL (WOOD POSTS)
GR-22	TRANSITION SINGLE SLOPE CONCRETE BARRIER AND GUARDRAIL (STEEL POSTS)
GR-23	PORTABLE CONCRETE BARRIER 10 FOOT
HR-1	HANDRAIL DETAILS
HR-2	CONCRETE BOUND AND STEPS
HW-1	HEADWALL DETAILS
HW-2	HEADWALL DETAILS (45° WINGS)
HW-3	HEADWALL DETAILS (2 PIPES 45° WINGS)
MB-1	MAILBOX DETAILS
PL-1	PLANTING DETAILS
PL-2	PLANTING DETAILS
SL-1	PULL BOXES & CONDUIT TRENCH DETAIL
SL-2	CONCRETE FOUNDATIONS & LIGHT POLE BASE, TYPE B

TRAFFIC STANDARD PLANS

<i>STANDARD NO.</i>	<i>DESCRIPTION</i>
PM-1	LAYOUT DETAILS
PM-2	TOLERANCES FOR PAVEMENT MARKING LINES
PM-3	DIVIDED ROADWAY MULTIPLE LANES WITH ENTRANCE AND EXIT RAMPS STRIPING LAYOUT
PM-4	DIVIDED ROADWAY MULTIPLE LANES WITH ENTRANCE AND EXIT RAMPS STRIPING LAYOUT
PM-5	DIVIDED ROADWAY MULTIPLE LANES WITH ENTRANCE AND EXIT RAMPS STRIPING LAYOUT
PM-6	PAINTED ISLAND DETAILS
PM-7	INTERSECTION DETAILS
PM-8	WORD AND SYMBOL LANE LAYOUT
PM-9	PAVEMENT MARKING AT MINOR INTERSECTIONS
PM-10	TURNING LANE EXTENSION DETAILS
PM-11	CROSSWALK DETAIL OPTIONS
PM-12	WORDS AND SYMBOLS
PM-13	WORDS AND SYMBOLS
PM-14	SPEED ZONE PAVEMENT MARKINGS (DIVIDED HIGHWAY)
PS-1	ALUMINUM PLANK DETAILS
PS-2	ALUMINUM PLANK DETAILS
PS-3	ALUMINUM SHEET DETAILS
PS-4	TUBULAR / U-CHANNEL POST DETAIL
PS-5	STEEL BEAM DETAILS (NON-BREAKAWAY)
PS-6	STEEL BEAM DETAILS (NON-BREAKAWAY)
PS-7	STEEL BEAM DETAILS (BREAKAWAY)
PS-8	STEEL BEAM DETAILS (BREAKAWAY)
PS-9	BREAKAWAY MOUNTS
PS-10	BREAKAWAY MOUNTS
SG-1	ROUTE MARKER DETAILS
SG-2	REGULATORY SIGNS
SG-3	REGULATORY SIGNS
SG-4	REGULATORY SIGNS
SG-5	REGULATORY SIGNS
SG-6	REGULATORY SIGNS
SG-7	WARNING SIGNS
SG-8	WARNING SIGNS
SG-9	WARNING SIGNS
SG-10	WARNING SIGNS
SG-11	WARNING SIGNS
SG-12	MISCELLANEOUS SIGNS
SG-13	INFORMATIONAL SIGNS
SG-14	INFORMATIONAL SIGNS
TS-1	TRAFFIC SIGNAL MAST ARM FOUNDATION-TYPE 1A
TS-2	TRAFFIC SIGNAL MAST ARM FOUNDATION-TYPE 1B & 1C
TS-3	TRAFFIC SIGNAL MAST ARM FOUNDATION-TYPE 2
TS-4	QUADRUPOLE LOOP DETECTOR 2-4-2 TURNS
TS-5	RECTANGULAR LOOP DETECTOR 3 TURNS

September 1, 2020

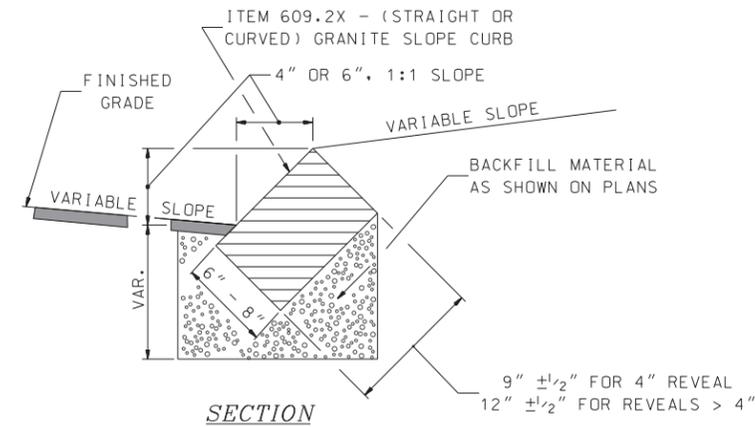


RADIUS	MAX. LENGTH
< 21'	USE CURVED CURB
21'	3'
22' - 28'	4'
29' - 35'	5'
36' - 42'	6'
43' - 49'	7'
50' - 56'	8'
57' - 60'	9'
OVER 60'	10'

\* NORMALLY 7" REVEAL, VARIES 9" MAX. TO 2" AT DRIVEWAYS AND 0" AT PEDESTRIAN SIDEWALK RAMPS.

NOTE: ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.

MINIMUM LENGTH OF STRAIGHT CURB STONES = 3'  
 MAXIMUM LENGTH OF STRAIGHT CURB STONES = 10'  
 MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES - SEE CHART



RADIUS FOR STONES WITH SQUARE JOINTS	MAXIMUM LENGTH
< 2'	USE CURVED CURB
2' - 15'	USE RADIAL JOINTS
16' - 28'	1' - 6"
29' - 41'	2'
42' - 55'	3'
56' - 68'	4'
69' - 82'	5'
83' - 96'	6'
97' - 110'	7'
OVER 110'	8'

MINIMUM LENGTH OF STRAIGHT CURB STONES = 18"  
 MAXIMUM LENGTH OF STRAIGHT CURB STONES = 8'  
 MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES - SEE CHART

NOTE: ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.

STANDARD NO. CR-1

REVISION DATE
07-13-2001
06-16-2010

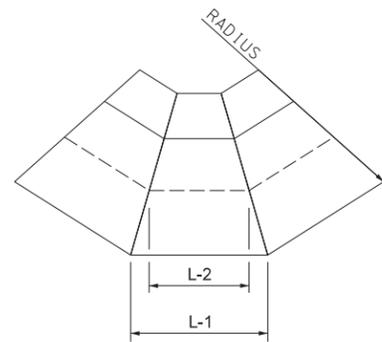
\*.DGN FILE NAME  
CR-1

NHDOT STANDARD PLANS  
STRAIGHT OR CURVED GRANITE CURB

REV. DATE	PLATE
06-16-2010	1
	STANDARD
	CR-1

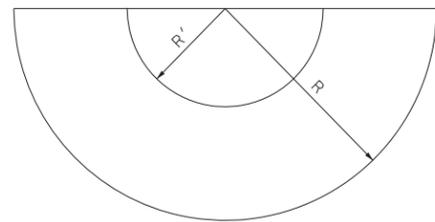
NHDOT STANDARD PLANS  
GRANITE SLOPE CURB

REV. DATE	PLATE
06-16-2010	2
	STANDARD
	CR-1



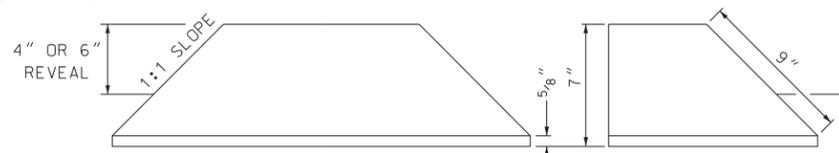
DETAIL FOR CUTTING SLOPE CURB WITH RADIAL JOINTS

NOTE: USE FOR 2' TO 15' RADIUS - SEE CHART ON PLATE 4.



R' = 5 5/8" FOR 1' R

R' = 11 5/8" FOR 1.5' R



DETAIL FOR CUTTING CURVED SLOPE CURB WITH 1' OR 1.5' RADIUS

NHDOT STANDARD PLANS  
DETAILS FOR CUTTING STRAIGHT GRANITE SLOPE CURB

REV. DATE	PLATE
06-16-2010	3
	STANDARD
	CR-1

NHDOT STANDARD PLANS  
CHART FOR CUTTING STRAIGHT GRANITE SLOPE CURB WITH RADIAL JOINTS

REV. DATE	PLATE
06-16-2010	4
	STANDARD
	CR-1

L-1	RADIUS (SEE DETAIL ON PLATE 3)												
	2'	2.5'	3'	3.5'	4'	5'	6'	8'	10'	12'	14'	15'	
0'-9"	0'-6 1/2"												
1'-0"	0'-8 3/4"	0'-9 1/2"											
1'-1"	0'-9 1/2"	0'-10 1/4"											
1'-2"	0'-10 1/4"	0'-11"	0'-11 1/2"										
1'-3"	0'-11"	0'-11 3/4"	1'-0 1/4"										
1'-4"	0'-11 3/4"	1'-0 1/2"	1'-1 1/4"	1'-1 1/2"									
1'-5"	1'-0 1/2"	1'-1 1/2"	1'-2"	1'-2 1/2"	1'-2 3/4"	1'-3 1/4"	1'-3 1/2"	1'-4"	1'-4"	1'-4 1/4"	1'-4 1/4"	1'-4 1/4"	1'-4 1/4"
1'-6"	1'-1 1/4"	1'-2 1/4"	1'-2 3/4"	1'-3 1/4"	1'-3 1/2"	1'-4"	1'-4 1/2"	1'-4 3/4"	1'-5"	1'-5 1/4"	1'-5 1/4"	1'-5 1/4"	1'-5 1/4"
1'-7"	1'-2"	1'-3"	1'-3 3/4"	1'-4"	1'-4 1/2"	1'-5"	1'-5 1/4"	1'-5 3/4"	1'-6"	1'-6 1/4"	1'-6 1/4"	1'-6 1/4"	1'-6 1/4"
1'-8"	1'-2 3/4"	1'-3 3/4"	1'-4 1/2"	1'-5"	1'-5 1/4"	1'-6"	1'-6 1/4"	1'-6 3/4"	1'-7"	1'-7"	1'-7 1/4"	1'-7 1/4"	1'-7 1/4"
1'-9"							1'-7 1/4"	1'-7 1/2"	1'-8"	1'-8"	1'-8 1/4"	1'-8 1/4"	1'-8 1/4"
1'-10"							1'-8"	1'-8 1/2"	1'-8 3/4"	1'-9"	1'-9 1/4"	1'-9 1/4"	1'-9 1/4"
1'-11"							1'-9"	1'-9 1/2"	1'-9 3/4"	1'-10"	1'-10 1/4"	1'-10 1/4"	1'-10 1/4"
2'-0"							1'-10"	1'-10 1/2"	1'-10 3/4"	1'-11"	1'-11"	1'-11"	1'-11"
2'-1"											2'-0"	2'-0"	2'-0"
2'-2"											2'-1"	2'-1"	2'-1"
2'-3"											2'-2"	2'-2"	2'-2"
2'-4"											2'-3"	2'-3"	2'-3"
2'-5"											2'-4"	2'-4"	2'-4"
2'-6"											2'-4 3/4"	2'-5"	2'-5"
2'-7"											2'-5 3/4"	2'-5 3/4"	2'-5 3/4"
2'-8"											2'-6 3/4"	2'-6 3/4"	2'-6 3/4"

STANDARD PLANS

New Hampshire  
**DOT**  
 Department of Transportation

STANDARD NO. CR-1



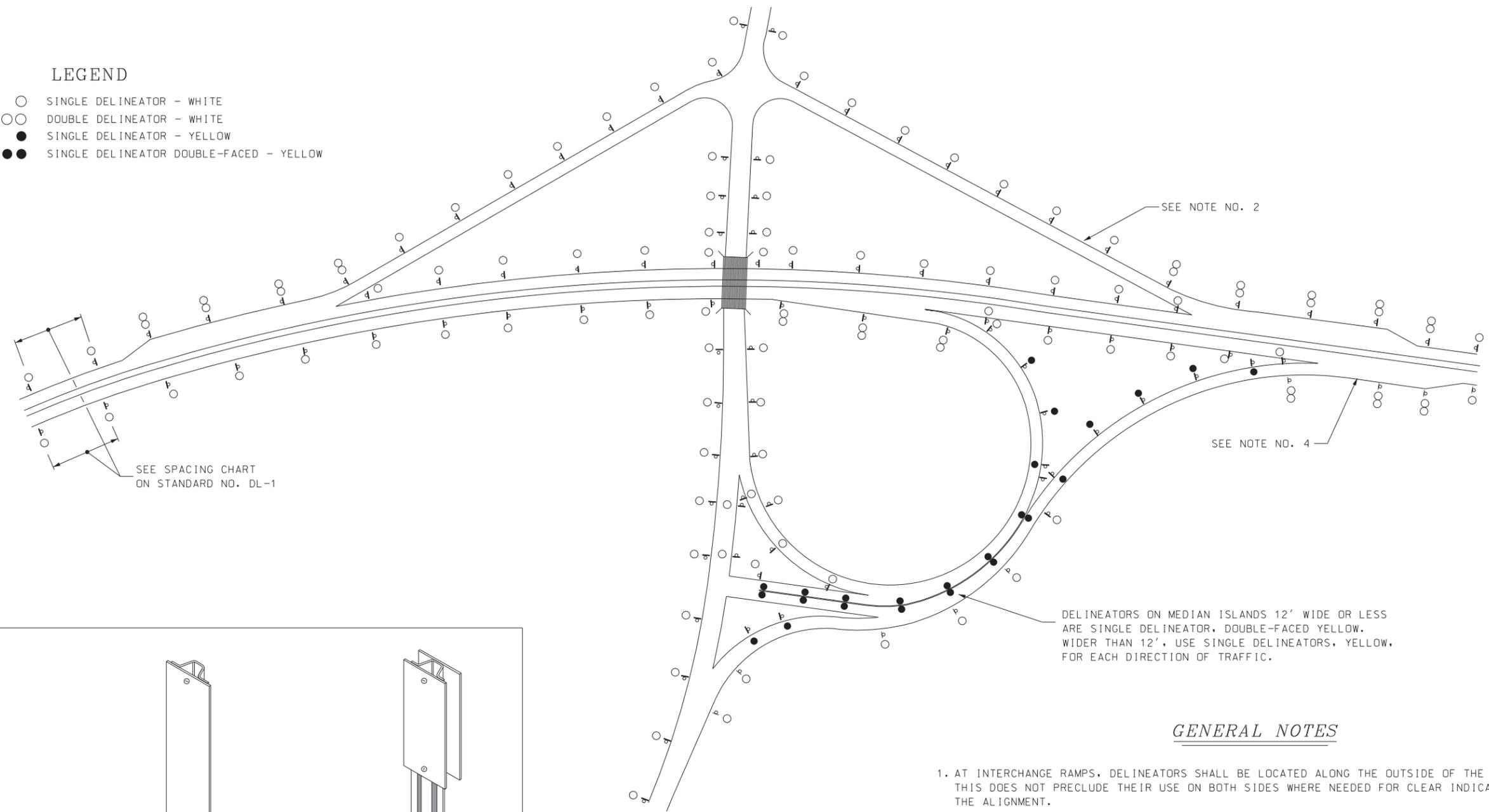


REVISION DATE
07-13-2001
06-16-2010
03-05-2015

\*.DGN FILE NAME  
DL-2

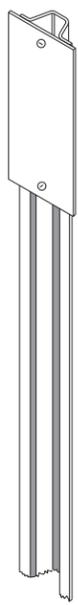
**LEGEND**

- SINGLE DELINEATOR - WHITE
- DOUBLE DELINEATOR - WHITE
- SINGLE DELINEATOR - YELLOW
- SINGLE DELINEATOR DOUBLE-FACED - YELLOW



GENERAL NOTES

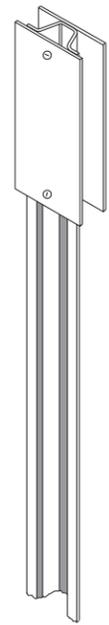
1. AT INTERCHANGE RAMPS, DELINEATORS SHALL BE LOCATED ALONG THE OUTSIDE OF THE CURVES. THIS DOES NOT PRECLUDE THEIR USE ON BOTH SIDES WHERE NEEDED FOR CLEAR INDICATION OF THE ALIGNMENT.
2. CONTINUE NORMAL DELINEATOR SPACING ON RIGHT SIDE OF RAMPS IF RADII OF CURVES ARE GREATER THAN 1000 FT OR TANGENT (SEE STD. NO. DL-1)
3. WHEN THE RADII OF RIGHT HAND CURVES ON RAMPS AND LOOPS ARE LESS THAN 1000 FT., DELINEATE THE LEFT SIDE (OUTSIDE OF CURVE) OF EACH RAMP OR LOOP FROM THE PC TO THE PT OR CARRY DELINEATION ON THE RIGHT SIDE FOR A MINIMUM OVERLAP OF 2 DELINEATORS. WHERE DELINEATION IS TERMINATED ON THE LEFT SIDE, BEGIN DELINEATION AGAIN ON THE RIGHT SIDE WITH A MINIMUM OVERLAP OF 2 DELINEATORS. WHEN THE GAP ON THE RIGHT SIDE IS LESS THAN 500 FT., CONTINUE THE DELINEATORS ON THE RIGHT SIDE THROUGH THE CURVE.
4. ON SPEED CHANGE LANES THE DELINEATORS SHALL BE INSTALLED ON THE RIGHT FOR RIGHT HAND CONNECTIONS, AND ON THE LEFT FOR LEFT HAND CONNECTIONS. DOUBLE DELINEATORS SHALL BE INSTALLED AT 100 FT. INTERVALS ALONG ACCELERATION AND DECELERATION LANES.



SINGLE DELINEATOR  
ITEM 621.31



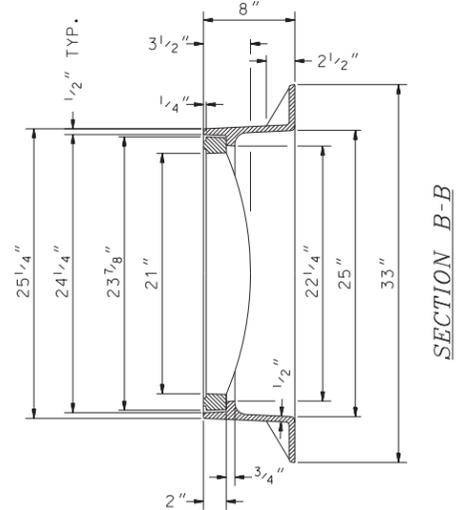
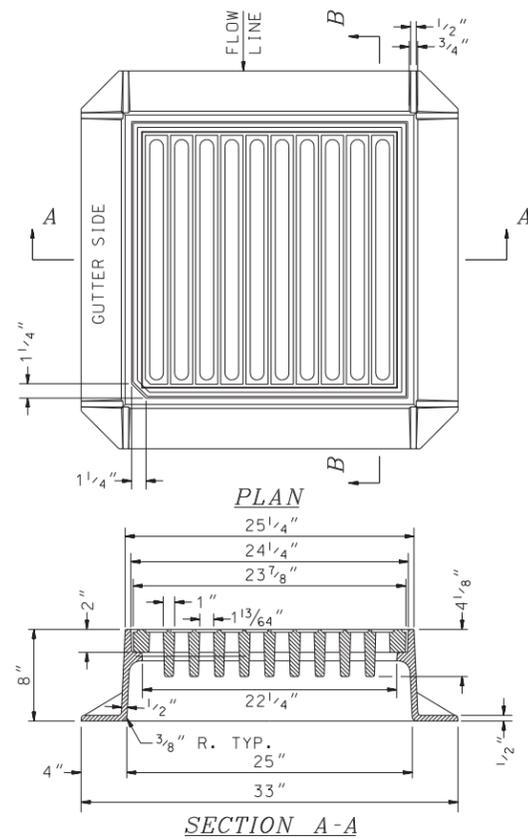
DOUBLE DELINEATOR  
ITEM 621.32



SINGLE DELINEATOR DOUBLE-FACED  
ITEM 621.33

**DELINEATION STANDARD**  
*INTERCHANGE DELINEATION*



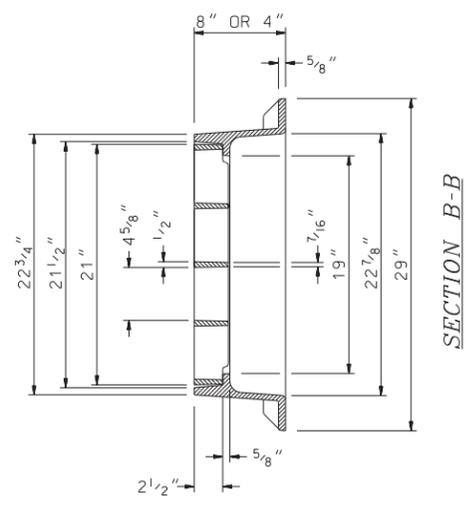
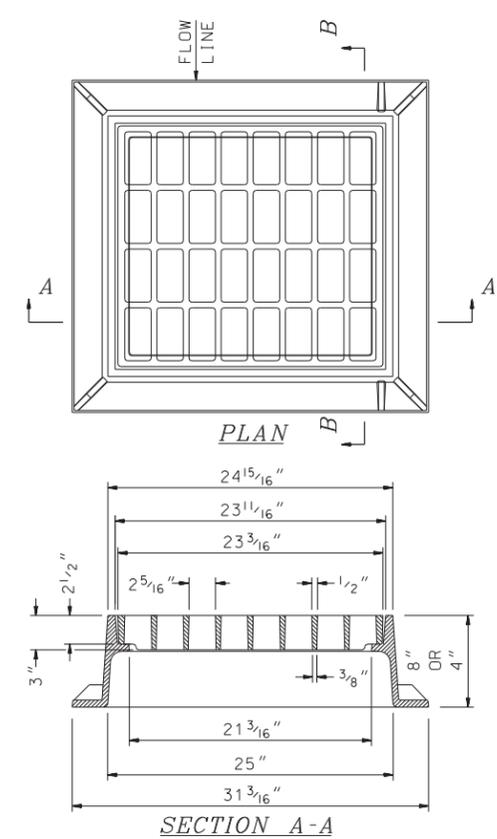


**GENERAL NOTES**

1. ALL DIMENSIONS ARE NOMINAL.
2. FREE OPEN AREA = 1.73 S.F.
3. NOT TO BE USED WHEN BICYCLE TRAFFIC IS ANTICIPATED.
4. USE 3-FLANGE FRAME IF INSTALLED ADJACENT TO GRANITE CURB.

NHDOT STANDARD PLANS  
**TYPE "A" GRATE & FRAME**

REV. DATE	PLATE
06-16-2010	1
	STANDARD
	DR-1

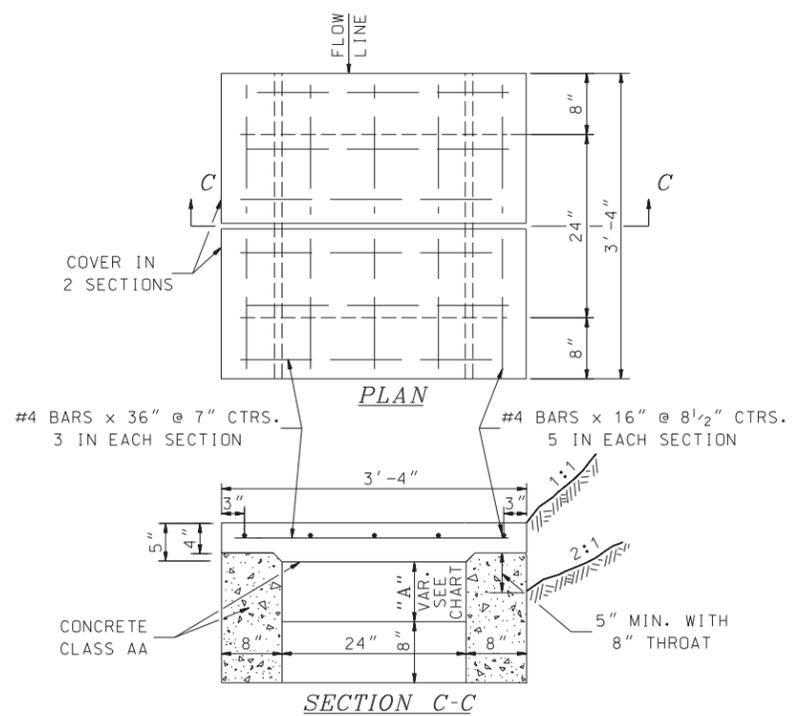


**GENERAL NOTES**

1. ALL DIMENSIONS ARE NOMINAL.
2. FRAMES USING NARROWER DIMENSIONS FOR THICKNESS ARE ALLOWED PROVIDED:
  - A. THE FRAMES MEET OR EXCEED THE SPECIFIED LOAD RATING.
  - B. THE INTERIOR PERIMETER (SEAT AREA) DIMENSIONS OF THE FRAMES REMAIN THE SAME TO ALLOW CONTINUED USE OF EXISTING GRATES/COVERS AS THE EXISTING FRAMES ALLOW, WITHOUT SHIMS OR OTHER MODIFICATIONS OR ACCOMMODATIONS.
  - C. ALL OTHER PERTINENT REQUIREMENTS OF THE SPECIFICATIONS ARE MET.
3. FRAME AVAILABLE IN 4" OR 8" HEIGHTS.
4. FREE OPEN AREA = 2.55 S.F.
5. USE 3-FLANGE FRAME IF INSTALLED ADJACENT TO GRANITE CURB.

NHDOT STANDARD PLANS  
**TYPE "B" GRATE & FRAME**

REV. DATE	PLATE
06-16-2010	2
08-14-2015	STANDARD
	DR-1

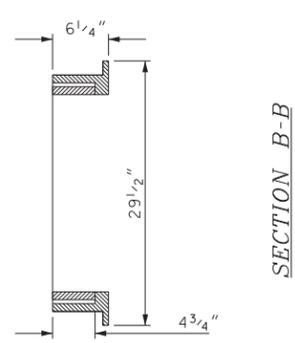
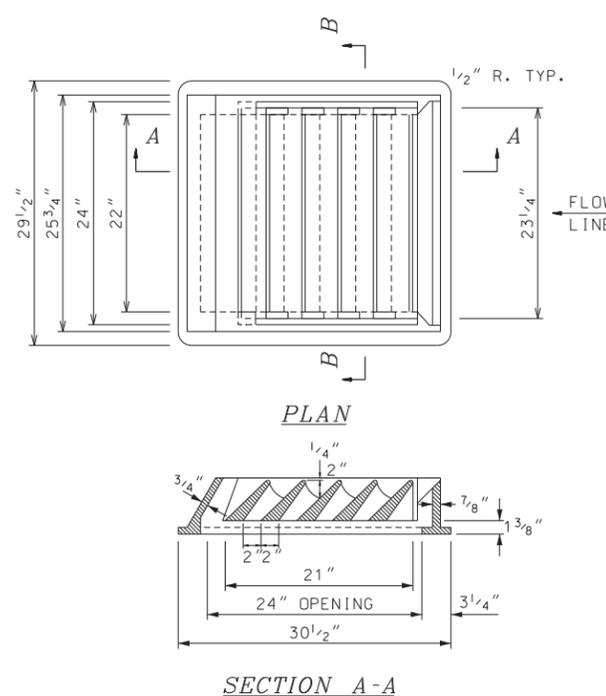


PIPE DIAMETER INCHES	THROAT DEPTH "A" INCHES	
	ONE THROAT	TWO THROAT
12"	8"	8"
15"	8"	8"
18"	16"	8"
24"	18"	16"

IN A SERIES OF CONNECTING C.B.'S OR D.I.'S, THE OUTLET PIPES MAY INCREASE IN DIAMETER, BUT THE SURFACE THROAT OPENINGS ARE NOT AFFECTED.

NHDOT STANDARD PLANS  
**TYPE "C" GRATE & FRAME**

REV. DATE	PLATE
06-16-2010	3
	STANDARD
	DR-1



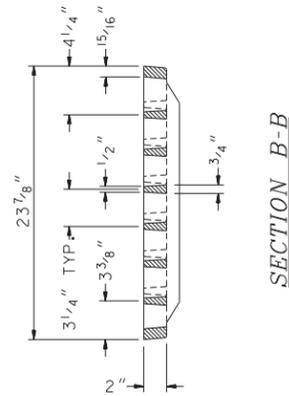
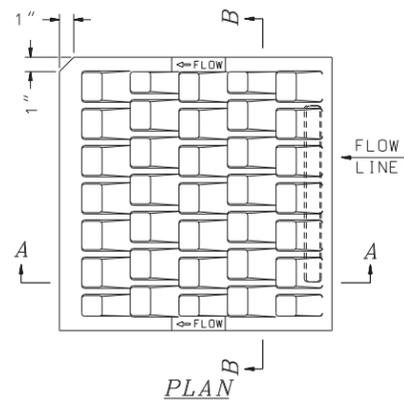
**GENERAL NOTES**

1. ALL DIMENSIONS ARE NOMINAL.
2. NOT TO BE USED WHEN BICYCLE TRAFFIC IS ANTICIPATED.
3. USE 3-FLANGE FRAME IF INSTALLED ADJACENT TO GRANITE CURB.
4. FREE OPEN AREA = 1.80 S.F.

NHDOT STANDARD PLANS  
**TYPE "E" GRATE**

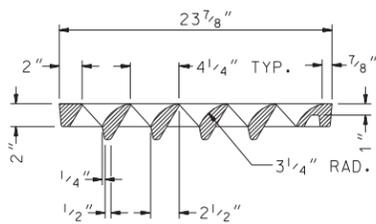
REV. DATE	PLATE
06-16-2010	4
	STANDARD
	DR-1

STANDARD NO. DR-1
REVISION DATE
07-13-2001
06-16-2010
08-14-2015
DGN FILE NAME
DR-1



**GENERAL NOTES**

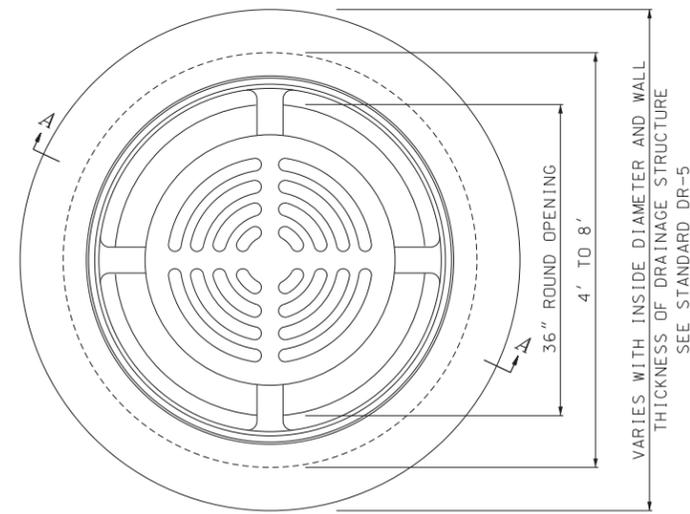
1. ALL DIMENSIONS ARE NOMINAL
2. FREE OPEN AREA = 1.5 S.F.
3. TO BE USED ON STEEP GRADES WHERE HIGH CAPACITY IS NEEDED AND BICYCLE TRAFFIC IS ANTICIPATED.



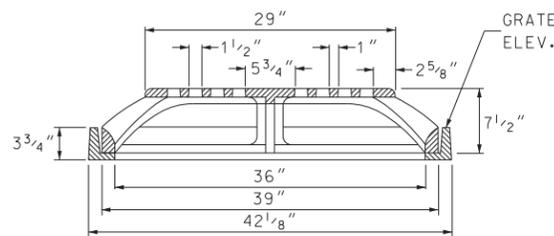
SECTION A-A

NHDOT STANDARD PLANS  
TYPE "F" GRATE

REV. DATE	PLATE
06-16-2010	1
	STANDARD
	DR-2



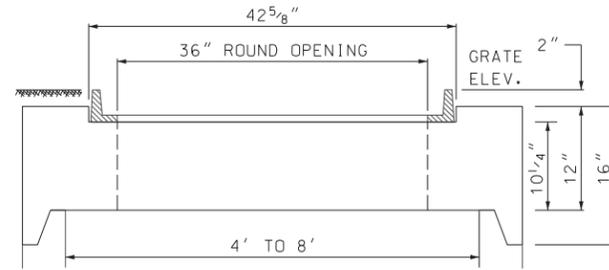
PLAN



GRATE SECTION A-A

NHDOT STANDARD PLANS  
TYPE "G" GRATE, FRAME AND SLAB

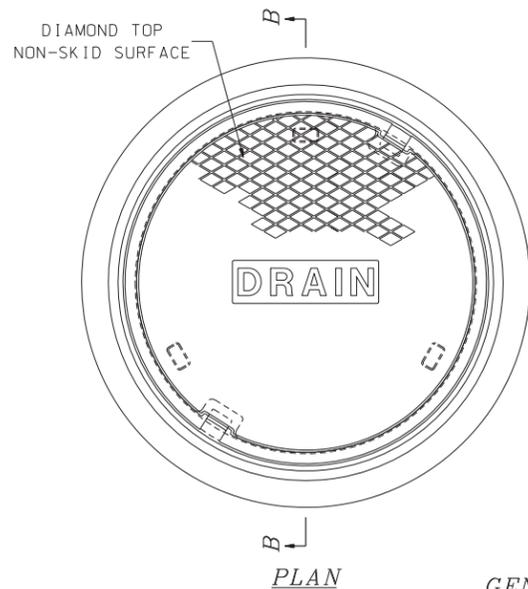
REV. DATE	PLATE
08-14-2015	2
	STANDARD
	DR-2



SLAB SECTION A-A

**GENERAL NOTES**

1. ALL DIMENSIONS ARE NOMINAL.
2. SEE DR-5 FOR ADDITIONAL NOTES.
3. FRAME SHALL BE USED WITH 12" SLAB TOP AND BE INSET 1 3/4" SUBSIDIARY.
4. FREE OPEN AREA = 5.4 S.F.
5. TO BE USED OFF PAVEMENT WHERE HIGH CAPACITY IS NEEDED AND WHERE THE GRATE IS NOT ANTICIPATED TO BE WITHIN OR IMMEDIATELY ADJACENT TO THE PATH OF BICYCLE OR PEDESTRIAN TRAFFIC.



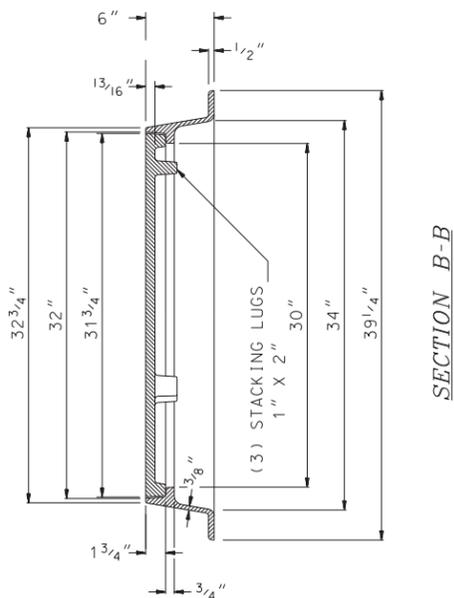
PLAN

**GENERAL NOTES**

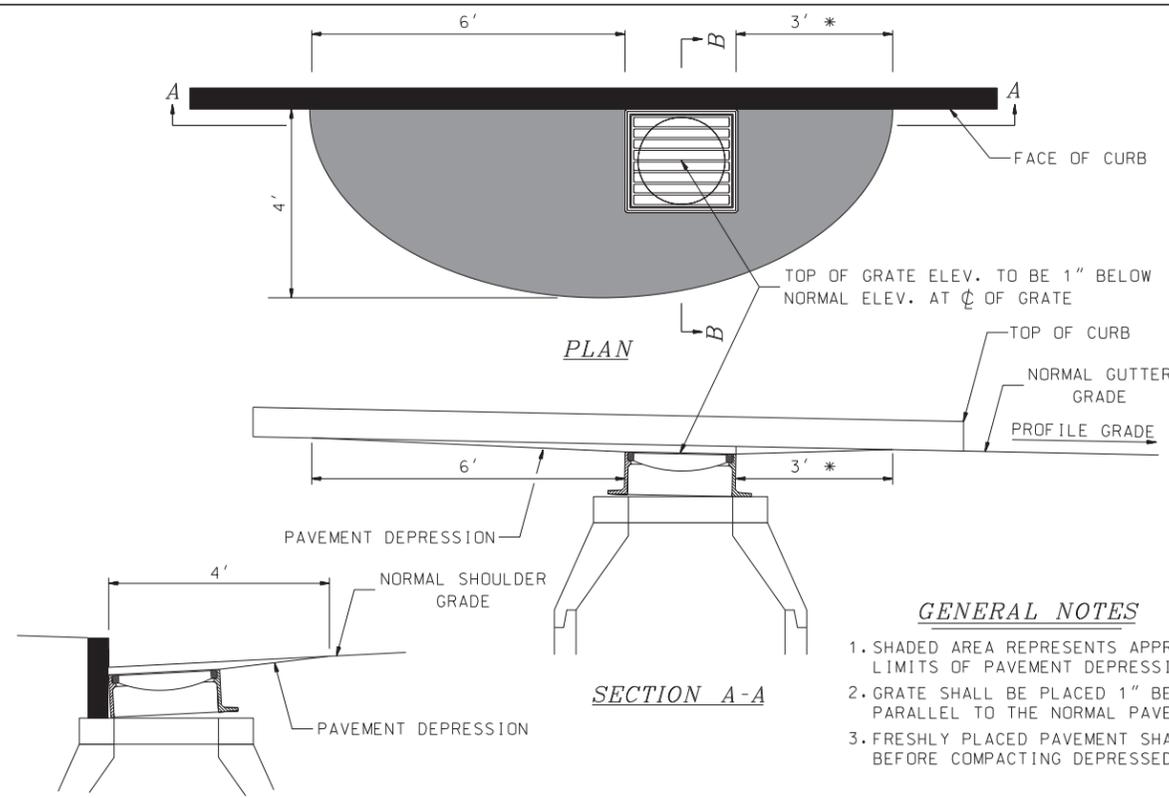
1. ALL DIMENSIONS ARE NOMINAL.
2. FRAMES USING NARROWER DIMENSIONS FOR THICKNESS ARE ALLOWED PROVIDED:
  - A. THE FRAMES MEET OR EXCEED THE SPECIFIED LOAD RATING.
  - B. THE INTERIOR PERIMETER (SEAT AREA) DIMENSIONS OF THE FRAMES REMAIN THE SAME TO ALLOW CONTINUED USE OF EXISTING GRATES/COVERS AS THE EXISTING FRAMES ALLOW, WITHOUT SHIMS OR OTHER MODIFICATIONS OR ACCOMMODATIONS.
  - C. ALL OTHER PERTINENT REQUIREMENTS OF THE SPECIFICATIONS ARE MET.
3. LABEL TYPE OF MANHOLE WITH 3" HIGH LETTERS IN THE CENTER OF THE COVER.

NHDOT STANDARD PLANS  
MANHOLE COVER & FRAME

REV. DATE	PLATE
06-16-2010	3
08-14-2015	STANDARD
	DR-2



SECTION B-B



SECTION B-B

SECTION A-A

**GENERAL NOTES**

1. SHADED AREA REPRESENTS APPROXIMATE LIMITS OF PAVEMENT DEPRESSION
2. GRATE SHALL BE PLACED 1" BELOW AND PARALLEL TO THE NORMAL PAVEMENT GRADE
3. FRESHLY PLACED PAVEMENT SHALL BE REMOVED BEFORE COMPACTING DEPRESSED AREA

\* 6' IN SAG VERTICAL CURVE

NHDOT STANDARD PLANS  
PAVEMENT DEPRESSION DETAIL

REV. DATE	PLATE
06-16-2010	4
	STANDARD
	DR-2

STANDARD NO. DR-2

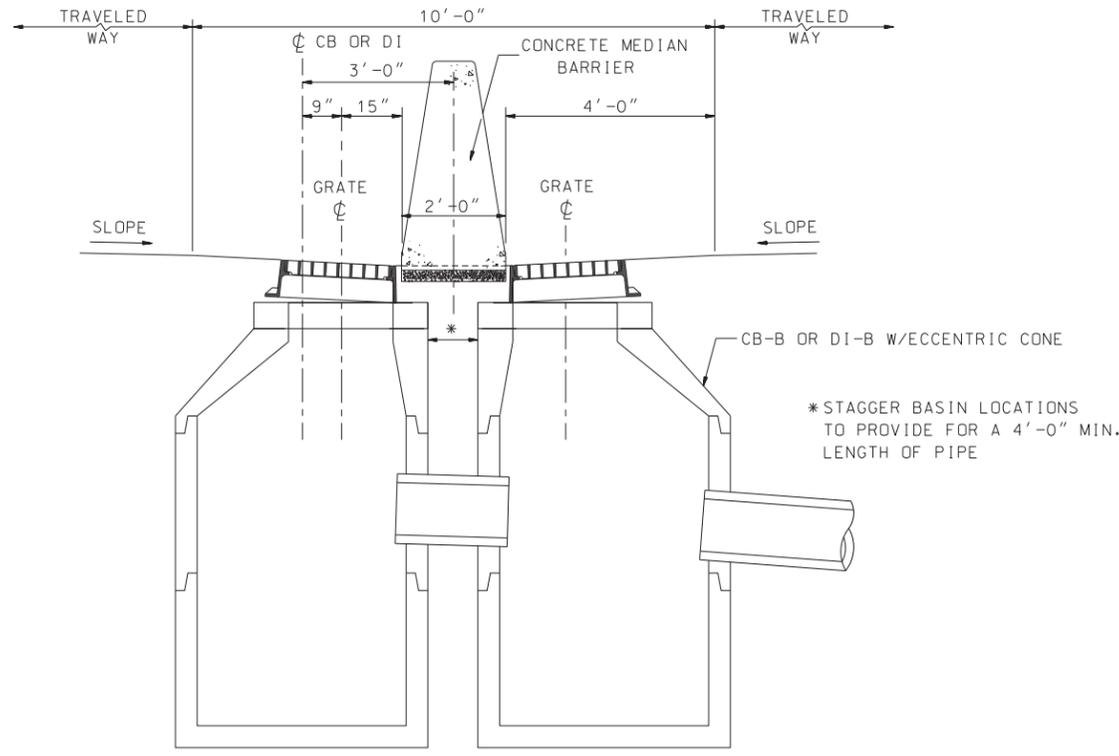
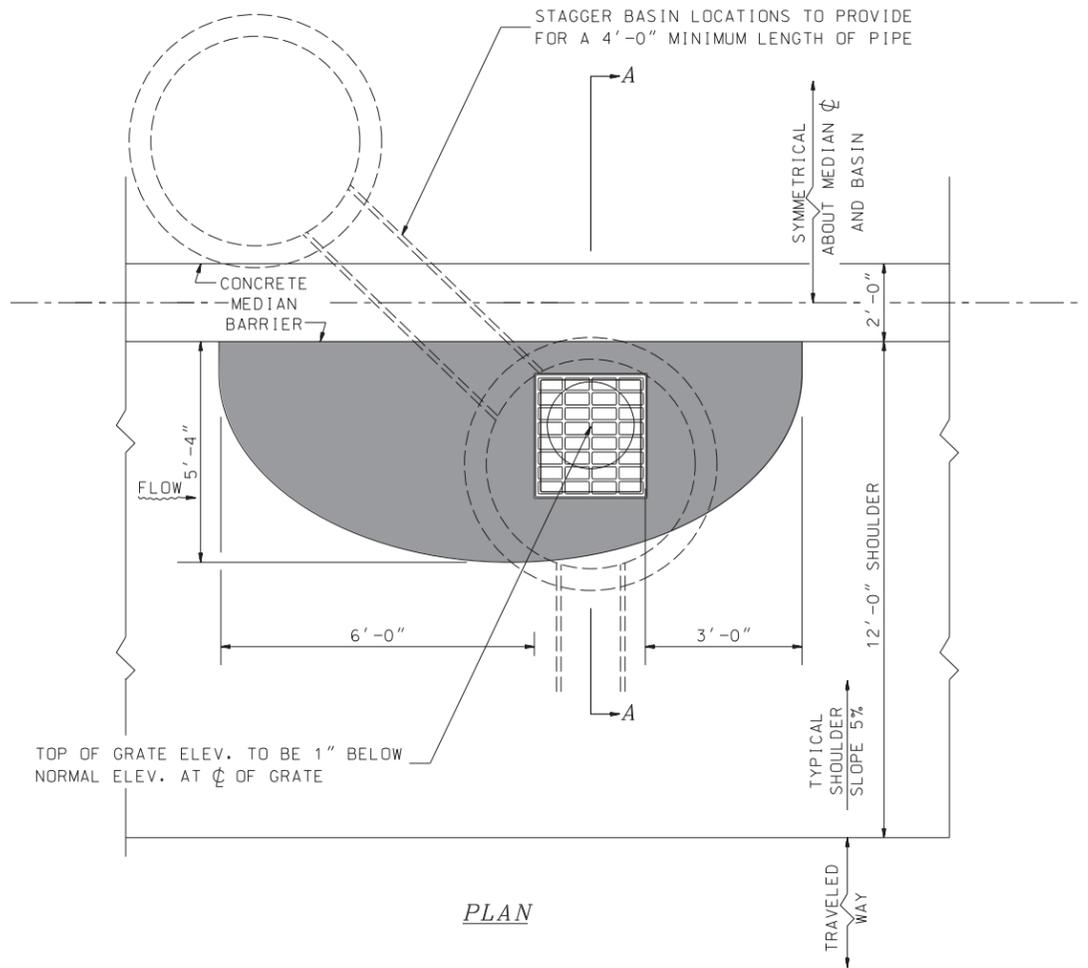
REVISION DATE
07-13-2001
06-16-2010
11-05-2010
08-14-2015

\*.DGN FILE NAME  
DR-2

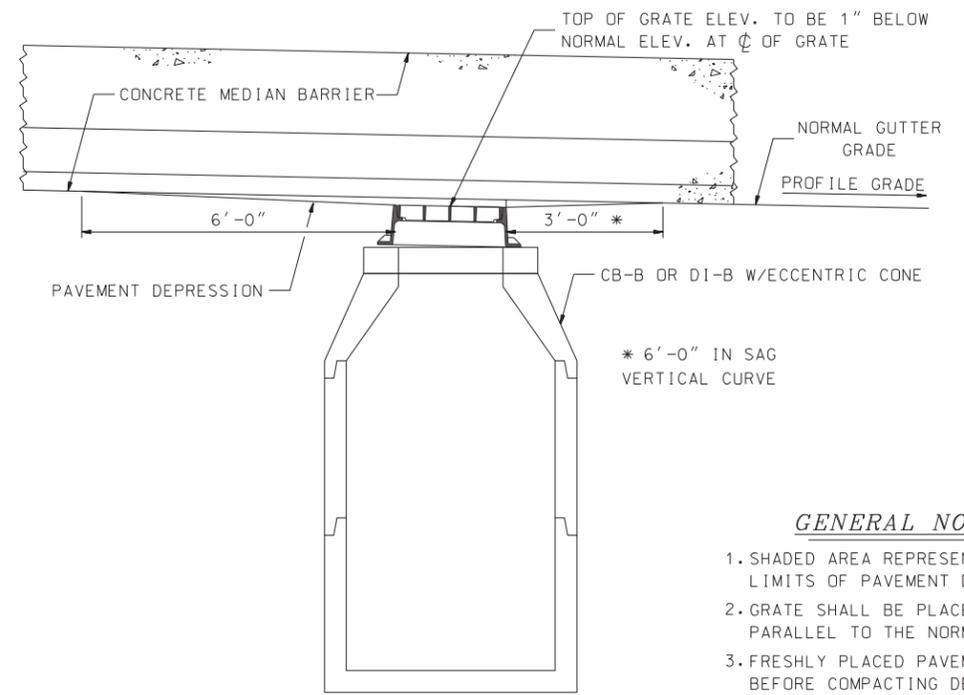
STANDARD PLANS

New Hampshire  
**DOT**  
Department of Transportation

STANDARD NO. DR-2



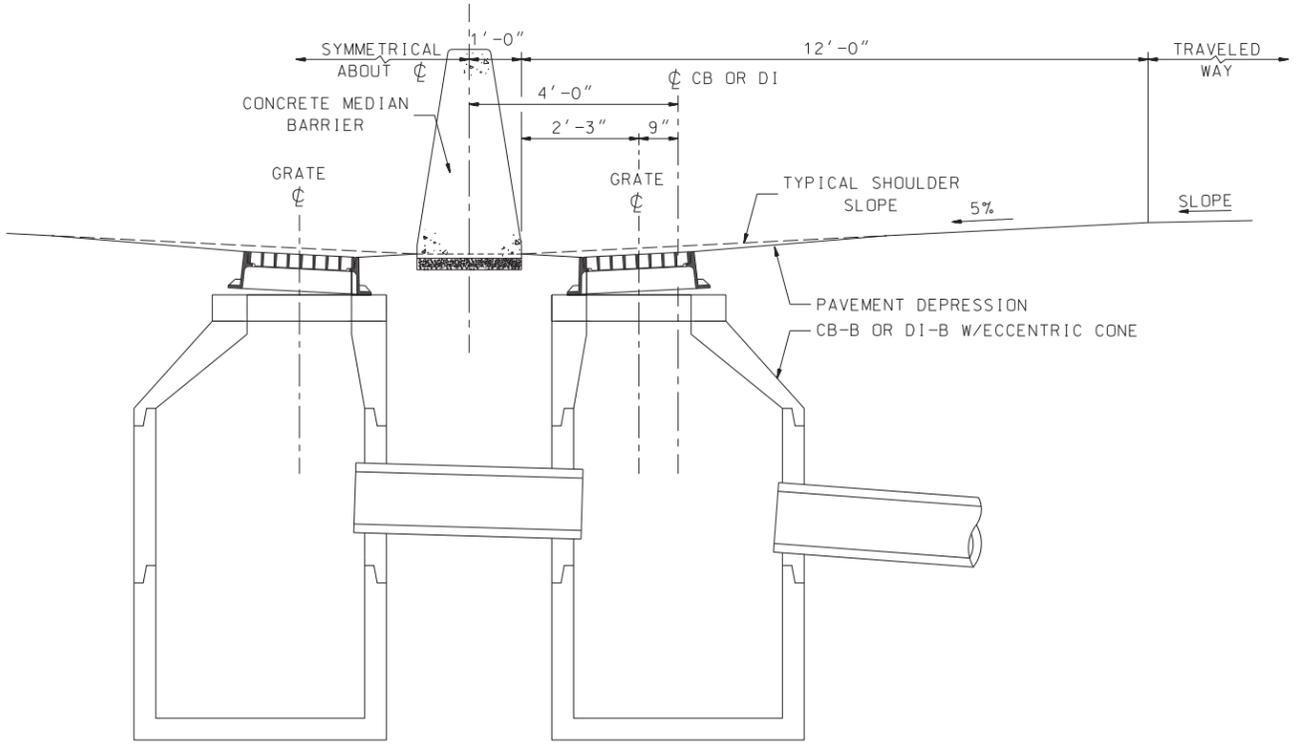
10'-0" WIDE MEDIAN DRAINAGE DETAILS  
(OR ALTERNATE DESIGN FOR SPECIAL CONDITIONS)



**GENERAL NOTES**

1. SHADED AREA REPRESENTS APPROXIMATE LIMITS OF PAVEMENT DEPRESSION
2. GRATE SHALL BE PLACED 1" BELOW AND PARALLEL TO THE NORMAL PAVEMENT GRADE
3. FRESHLY PLACED PAVEMENT SHALL BE REMOVED BEFORE COMPACTING DEPRESSED AREA

26'-0" WIDE MEDIAN DRAINAGE DETAILS



SECTION A-A

**DRAINAGE STANDARD**  
CONCRETE MEDIAN BARRIER  
DRAINAGE DETAILS

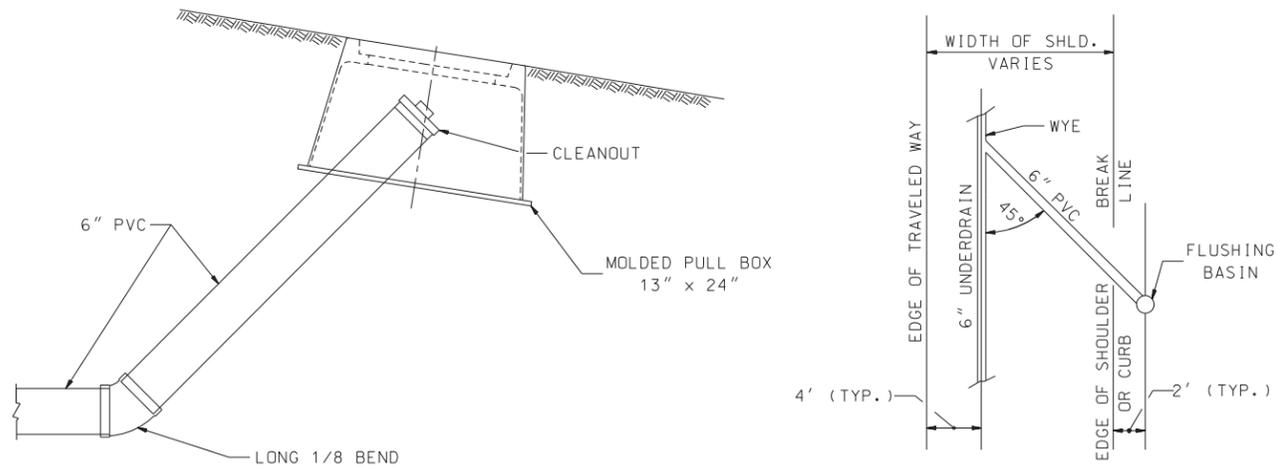
STANDARD NO. DR-3

REVISION DATE
07-13-2001
06-16-2010

\*.DGN FILE NAME  
DR-3

2011  
 STANDARD PLANS  
 DOT  
 Department of Transportation  
 New Hampshire

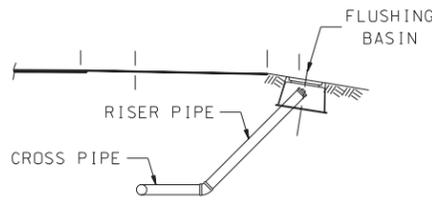
STANDARD NO. DR-3



ITEM 605.79 - UNDERDRAIN FLUSHING BASIN SHALL INCLUDE ALL REQUIRED RISER PIPE, 45° WYE, LONG BEND, CROSS PIPE, CLEANOUT, PULL BOX AND BACKFILL MATERIAL AS REQUIRED.

USE ITEM 622.1 - STEEL WITNESS MARKER TO MARK PULL BOX LOCATION.

TYPICAL DETAIL



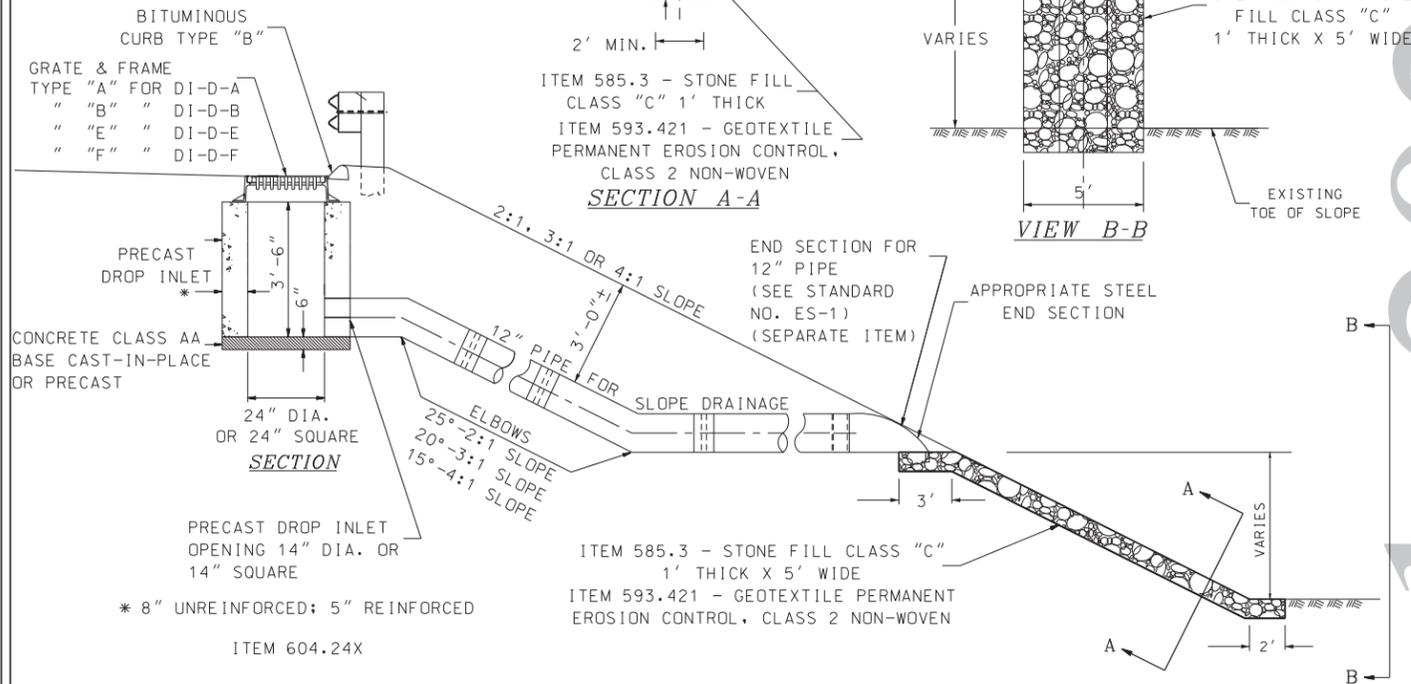
CROSS SECTION  
TYPICAL LOCATION

NHDOT STANDARD PLANS  
UNDERDRAIN FLUSHING BASIN

REV. DATE	PLATE
06-16-2010	1
	STANDARD
	DR-4

GENERAL NOTES

1. ALSO USED IN NON-CURB SAGS FOR SNOW CURB



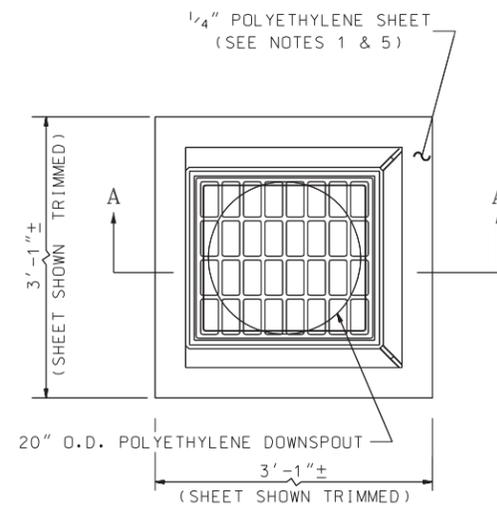
\* 8" UNREINFORCED; 5" REINFORCED  
ITEM 604.24X

NHDOT STANDARD PLANS  
DROP INLET TYPE D & PIPE FOR SLOPE DRAINAGE

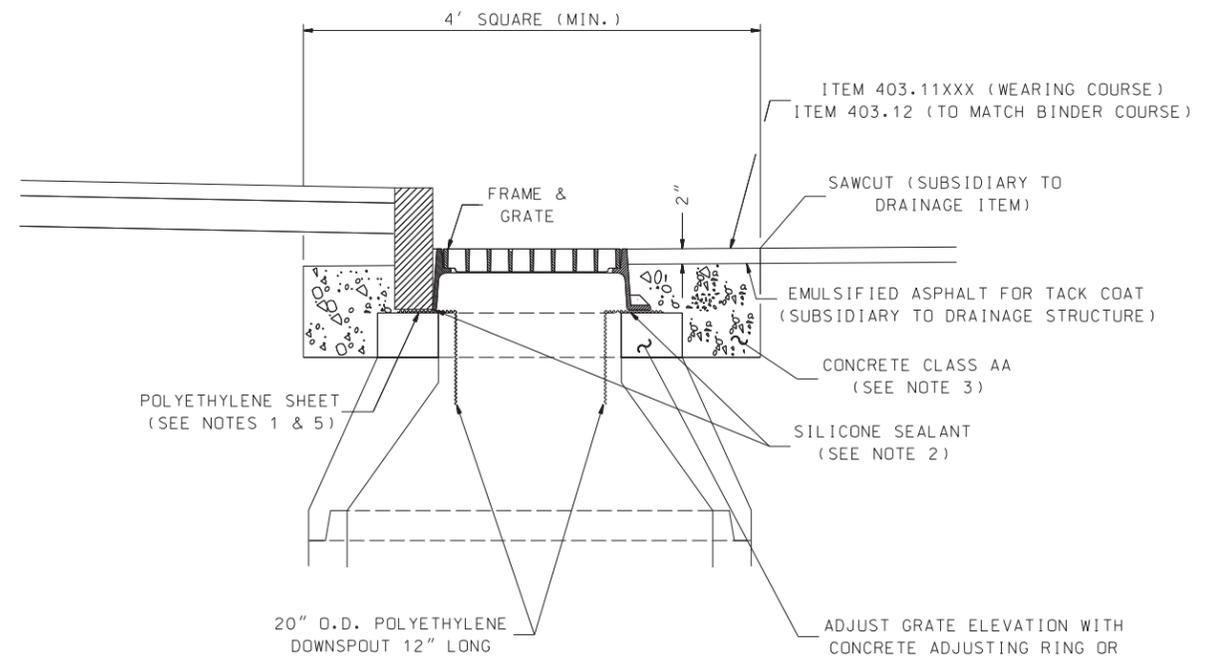
REV. DATE	PLATE
06-16-2010	2
11-05-2010	STANDARD
08-14-2015	DR-4

GENERAL NOTES

- POLYETHYLENE LINER (ITEM 604.0007) SHALL BE FABRICATED AT THE SHOP. DOWNSPOUT SHALL BE EXTRUSION FILLET WELDED TO THE POLYETHYLENE SHEET.
- PLACE A CONTINUOUS BEAD OF AN APPROVED SILICONE SEALANT (SUBSIDIARY TO ITEM 604.0007) BETWEEN FRAME AND POLYETHYLENE SHEET (SEE SECTION A-A, PLATE 4).
- PLACE CLASS AA CONCRETE TO 2" BELOW THE TOP OF GRATE ELEVATION (SUBSIDIARY TO DRAINAGE STRUCTURE).
- USE ON DRAINAGE STRUCTURES 4' MIN. DIAMETER ONLY.
- TRIM POLYETHYLENE SHEET A MAXIMUM OF 4" OUTSIDE THE FLANGE ON THE FRAME FOR THE CATCH BASIN BEFORE PLACING CONCRETE (EXCEPT AS SHOWN WHEN USED WITH 3-FLANGE FRAME AND CURB).
- THE CENTER OF THE GRATE & FRAME MAY BE SHIFTED A MAXIMUM OF 6" FROM THE CENTER OF THE DOWNSPOUT IN ANY DIRECTION.
- PLACED ONLY IN DRAINAGE STRUCTURES IN PAVEMENT.



PLAN



SECTION A-A

NHDOT STANDARD PLANS  
POLYETHYLENE LINER

REV. DATE	PLATE
06-16-2010	3
08-14-2015	STANDARD
	DR-4

NHDOT STANDARD PLANS  
POLYETHYLENE LINER

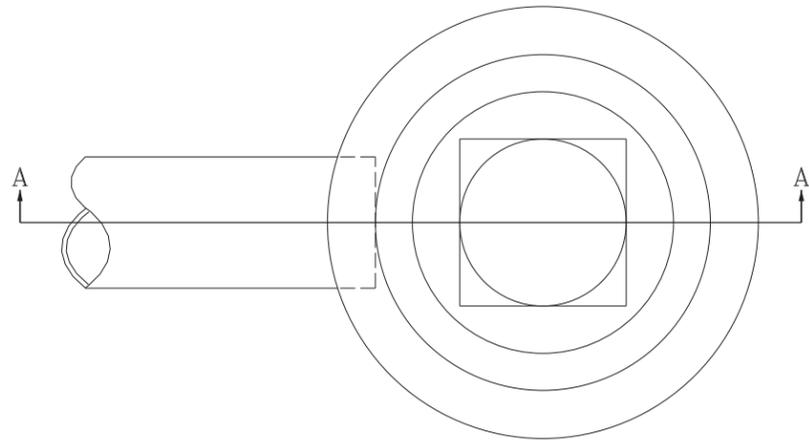
REV. DATE	PLATE
06-16-2010	4
	STANDARD
	DR-4

STANDARD NO. DR-4

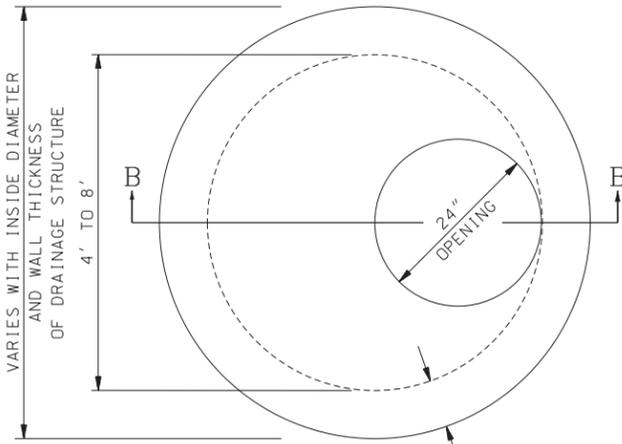
REVISION DATE
07-13-2001
06-16-2010
08-14-2015

\*.DGN FILE NAME  
DR-4

STANDARD NO. DR-4

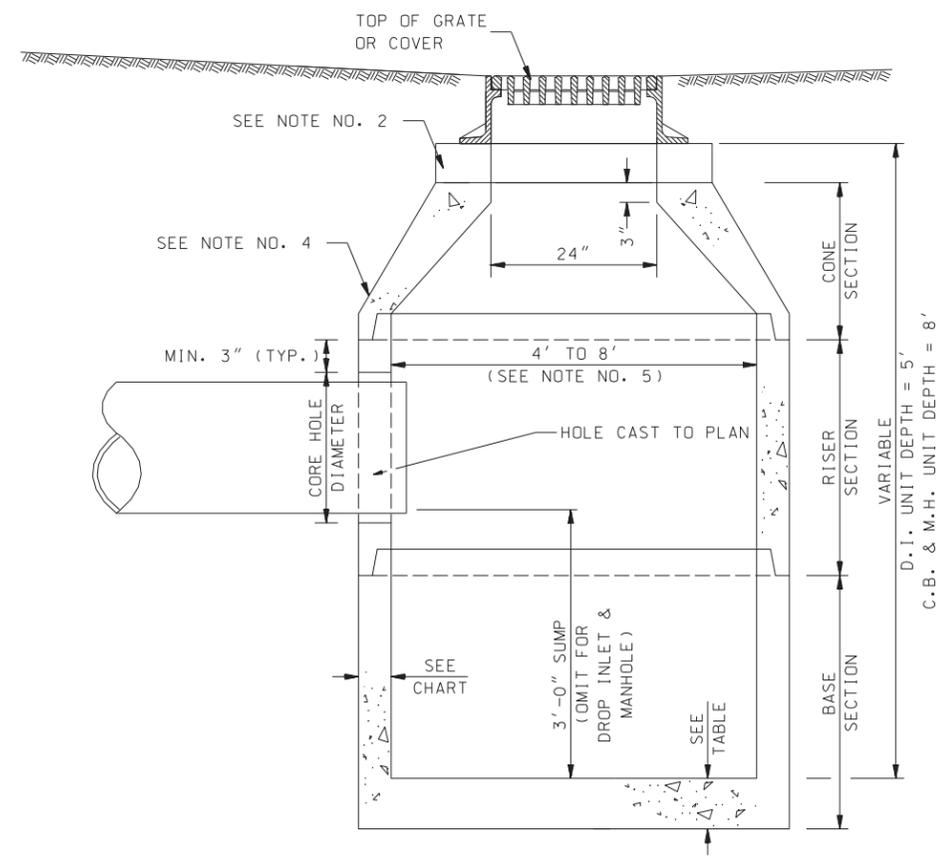


PLAN



PLAN

CORE HOLE SIZE				
PIPE SIZE	RCP CORE HOLE DIA.		PLASTIC CORE HOLE DIA.	
	INCHES	FEET	INCHES	FEET
6			7	0.6
12	18	1.5	18	1.5
15	22	1.8	20	1.7
18	26	2.2	24	2.0
24	34	2.8	32	2.7
30	42	3.5	42	3.5
36	48	4.0	48	4.0
42	54	4.5	54	4.5
48	64	5.3	64	5.3
54	72	6.0		
60	78	6.5		



SECTION A-A



\* FOR >6' Ø STRUCTURES USE 16" & 12" DIMENSIONS

SECTION B-B

FLAT SLAB TOP

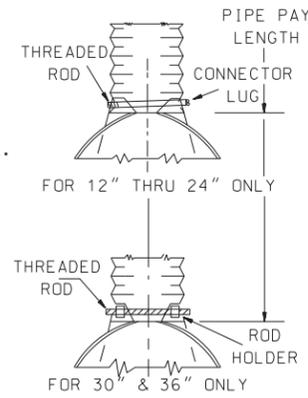
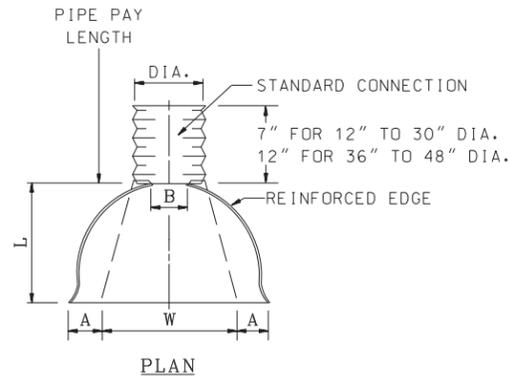
DIAMETER	WALL THICKNESS (MIN.)	FLOOR THICKNESS (MIN.)
4'	5"	6"
5'	6"	8"
6'	7"	8"
8'	9"	10"

GENERAL NOTES

- ITEM NUMBERS: C.B.= 604.1XXX, D.I.= 604.2XXX, M.H.= 604.32XX
- FITTING FRAME TO GRADE MAY BE DONE WITH PREFABRICATED ADJUSTMENT RINGS OR CLAY BRICKS (2 COURSES MAX.).
- CB & DI GRATES IN PAVED AREAS SHALL BE SET ACCORDING TO THE PAVEMENT DEPRESSION DETAIL SHOWN ON PLATE 4 OF STANDARD NO. DR-2.
- CONE SECTIONS MAY BE EITHER CONCENTRIC OR ECCENTRIC, OR FLAT SLAB TOPS MAY BE USED WHERE PIPE WOULD OTHERWISE ENTER INTO THE CONE SECTION OF THE STRUCTURE AND WHERE PERMITTED.
- FOR STRUCTURES WITH DIAMETERS GREATER THAN 4', THE DIAMETER MAY BE CONSTANT FROM TOP TO BOTTOM WITH A FLAT SLAB TOP, OR A RISER SECTION THAT TRANSITIONS FROM A STANDARD 4' CONE SECTION TO THE LARGER DIAMETER RISER OR BASE SECTION MAY BE USED.
- PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
- OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL OF STRUCTURE.
- PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4" HIGH AT AN 11° ANGLE CENTERED IN THE WIDTH OF THE WALL AND SHALL BE ASSEMBLED USING AN APPROVED FLEXIBLE SEALANT IN JOINTS.
- ALL STRUCTURES WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 12" OF INSIDE SURFACE BETWEEN HOLES, NO MORE THAN 75% OF A HORIZONTAL CROSS-SECTION SHALL BE HOLES, AND THERE SHALL BE NO HOLES CLOSER THAN 3" TO JOINTS.

**DRAINAGE STANDARD**  
**PRECAST REINFORCED CONCRETE**  
**C.B., D.I. AND M.H.**

Standard Plans  
 2021  
 New Hampshire  
**DOT**  
 Department of Transportation

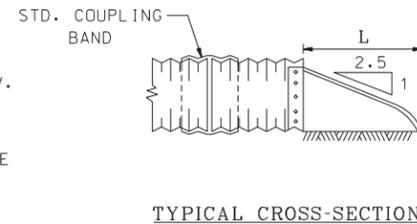
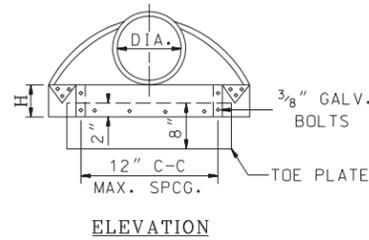


ALTERNATE CONNECTIONS

ITEM NO.	PIPE DIA.	METAL GAGE	DIMENSIONS				
			A (1" TOL.)	B (1" TOL.)	H (1" TOL.)	L (1 1/2" TOL.)	W (2" TOL.)
603.34112	12"	16	6"	6"	6"	21"	24"
603.34115	15"	16	7"	8"	6"	26"	30"
603.34118	18"	16	8"	13"	6"	31"	36"
603.34124	24"	16	10"	16"	6"	41"	48"
603.34130	30"	14	12"	16"	8"	51"	60"
603.34136	36"	14	14"	19"	9"	60"	72"
603.34142	42"	12	16"	22"	11"	69"	84"
603.34148	48"	12	18"	27"	12"	78"	90"

GENERAL NOTES

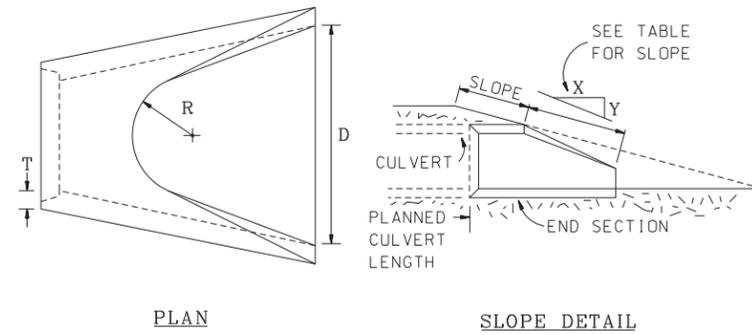
1. END SECTION FOR 12" TO 30" DIA. PIPE IN ONE PIECE, FOR 36" TO 48" DIA. PIPE TO BE MADE FROM TWO SHEETS JOINED BY RIVETING OR BOLTING ON CENTER LINE.
2. CONNECTOR SECTION, CORNER PLATE AND TOE PLATE TO BE SAME THICKNESS AS END SECTION AND EACH TO BE GALVANIZED.



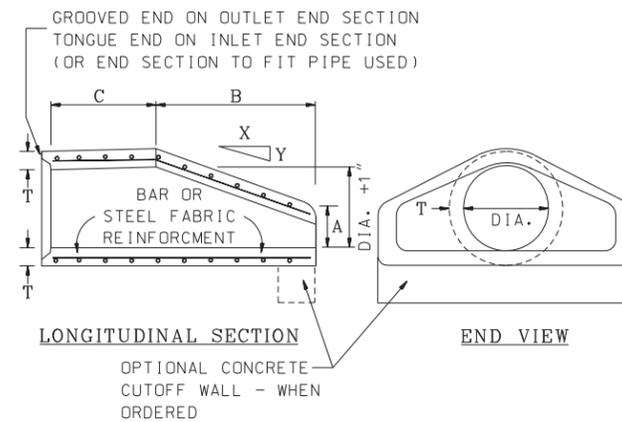
NHDOT STANDARD PLANS

END SECTION FOR PLASTIC & CORRUGATED STEEL PIPE

REV. DATE	PLATE
06-16-2010	1
	STANDARD
	ES-1



PLAN SLOPE DETAIL



LONGITUDINAL SECTION END VIEW

GENERAL NOTES

1. DESIGN OF END SECTION SHALL CONFORM TO STANDARD REINFORCED CONCRETE PIPE.
2. CUT OFF WALL TO BE POURED IN FIELD, IF NECESSARY, AS DIRECTED BY THE ENGINEER.
3. PAYMENT FOR THE CUT OFF WALL WILL BE MADE UNDER THE APPROPRIATE CONTRACT ITEMS.

ITEM NO.	PIPE DIA.	APPROX. SLOPE X TO Y	A	B	C	D	R	T
603.30112	12"	3 TO 1	4"	24"	48 7/8"	24"	9"	2"
603.30115	15"	3 TO 1	6"	27"	46"	30"	11"	2 1/4"
603.30118	18"	3 TO 1	9"	27"	46"	36"	12"	2 1/2"
603.30124	24"	3 TO 1	9 1/2"	43 1/2"	30"	48"	14"	3"
603.30130	30"	3 TO 1	12"	54"	19 3/4"	60"	15"	3 1/2"
603.30136	36"	3 TO 1	15"	63"	33"	72"	20"	4"
603.30142	42"	3 TO 1	21"	63"	33"	78"	22"	4 1/2"
603.30148	48"	3 TO 1	24"	72"	24"	84"	22"	5"

NHDOT STANDARD PLANS

CONCRETE END SECTION FOR REINFORCED CONCRETE PIPE

REV. DATE	PLATE
06-16-2010	2
	STANDARD
	ES-1

NHDOT STANDARD PLANS

END SECTION FOR PLASTIC & CORRUGATED STEEL PIPE

REV. DATE	PLATE
	3
	STANDARD
	ES-1

NHDOT STANDARD PLANS

CONCRETE END SECTION FOR REINFORCED CONCRETE PIPE

REV. DATE	PLATE
	4
	STANDARD
	ES-1

STANDARD NO. ES-1

REVISION DATE
07-13-2001
06-16-2010

\*.DGN FILE NAME  
ES-1

STANDARD PLANS

New Hampshire  
**DOT**  
Department of Transportation

STANDARD NO. ES-1

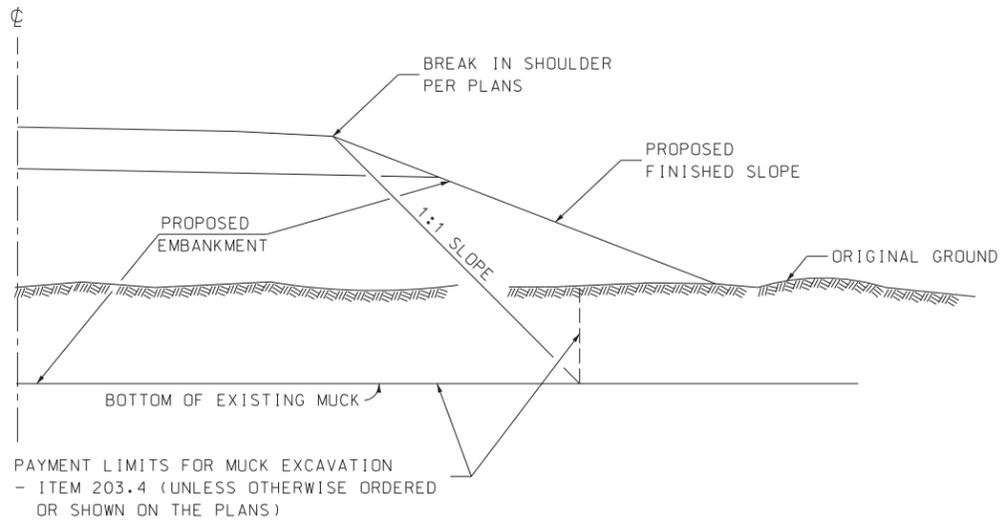
STANDARD NO. EW-1

REVISION DATE
07-13-2001
06-16-2010

\*.DGN FILE NAME  
EW-1

September 1, 2022  
 STANDARD PLANS  
 New Hampshire  
**DOT**  
 Department of Transportation

STANDARD NO. EW-1



*TYPICAL HALF-SECTION SHOWING  
MUCK TO BE REMOVED  
PER SECTION 203.*

NHDOT STANDARD PLANS  
*MUCK EXCAVATION*

REV. DATE	PLATE
06-16-2010	1
	STANDARD
	EW-1

NHDOT STANDARD PLANS

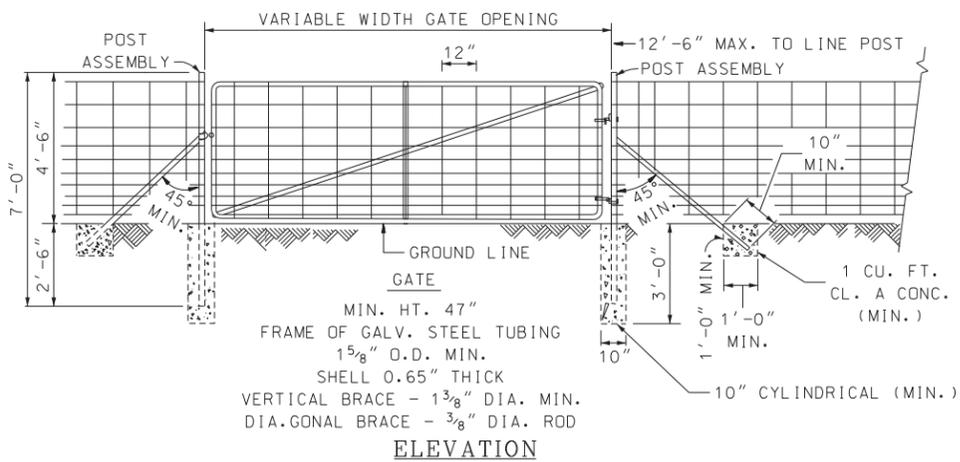
REV. DATE	PLATE
	2
	STANDARD
	EW-1

NHDOT STANDARD PLANS

REV. DATE	PLATE
	3
	STANDARD
	EW-1

NHDOT STANDARD PLANS

REV. DATE	PLATE
	4
	STANDARD
	EW-1

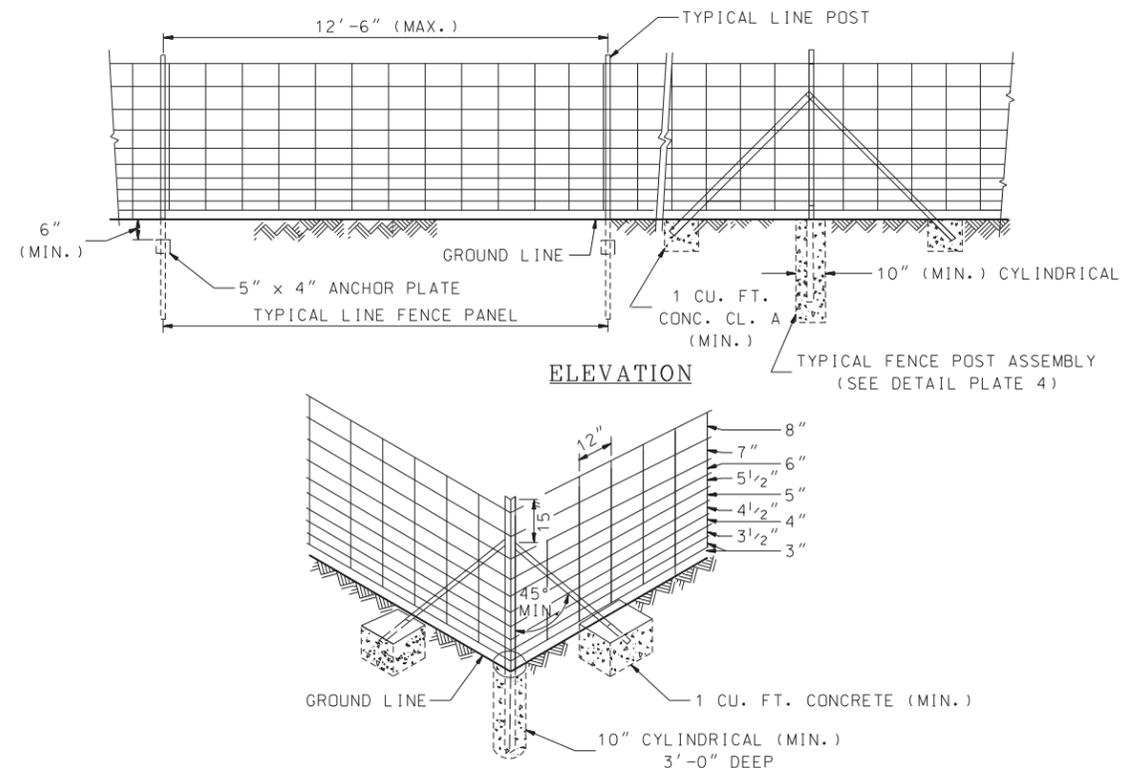


**GENERAL NOTES**

1. ALL END POSTS SHALL HAVE ONE BRACE, ALL CORNER AND INTERMEDIATE BRACE OR PULL POSTS SHALL HAVE TWO BRACES.
2. INTERMEDIATE OR LINE POSTS SHALL BE STANDARD STUDDED TEE POSTS.
3. END POSTS, CORNER POSTS AND PULL POSTS SHALL BE AN ANGLE POST DETAILED IN PLATE 3. BRACES SHALL BE AN ANGLE POST DETAILED IN PLATE 4.
4. WHERE GROUND CONDITION PERMITS, FORMS FOR FOOTING WILL NOT BE REQUIRED.
5. CONCRETE SHALL BE CLASS A.

NHDOT STANDARD PLANS  
WOVEN WIRE FENCE (ITEM 607.1)

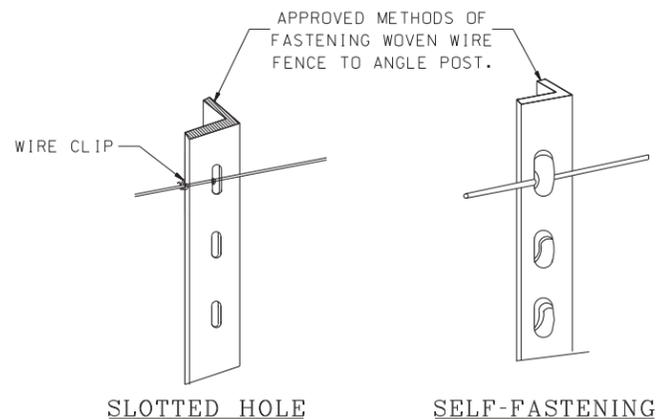
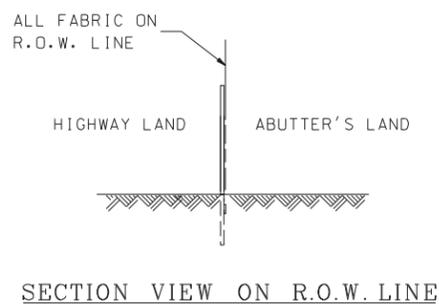
REV. DATE	PLATE
06-16-2010	1
	STANDARD
	FN-1



**DETAIL OF CORNER BRACE - POST ASSEMBLY**

NHDOT STANDARD PLANS  
POST ASSEMBLIES FOR WOVEN WIRE FENCE (ITEM 607.41)

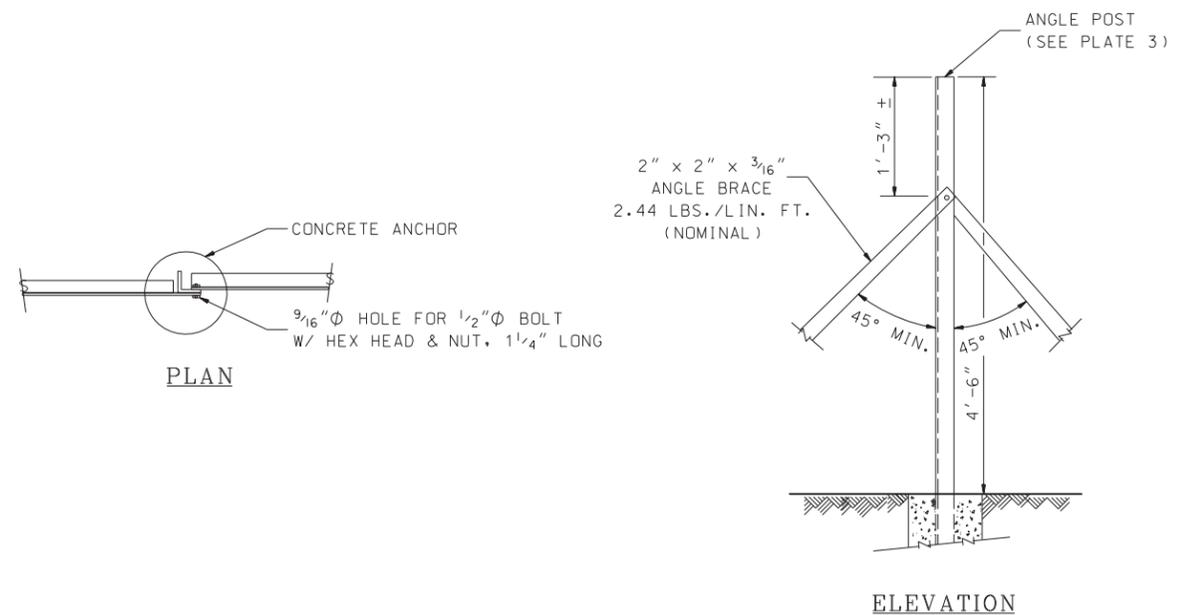
REV. DATE	PLATE
06-16-2010	2
	STANDARD
	FN-1



2 1/2" x 2 1/2" x 1/4" ANGLE POST  
4.1 LBS./LIN. FT. (NOMINAL)

NHDOT STANDARD PLANS  
POST ASSEMBLIES FOR WOVEN WIRE FENCE

REV. DATE	PLATE
06-16-2010	3
	STANDARD
	FN-1



**TYPICAL FENCE POST ASSEMBLY**

NHDOT STANDARD PLANS  
ANGLE BRACES FOR WOVEN WIRE FENCE

REV. DATE	PLATE
06-16-2010	4
	STANDARD
	FN-1

STANDARD NO. FN-1

REVISION DATE  
07-13-2001  
06-16-2010

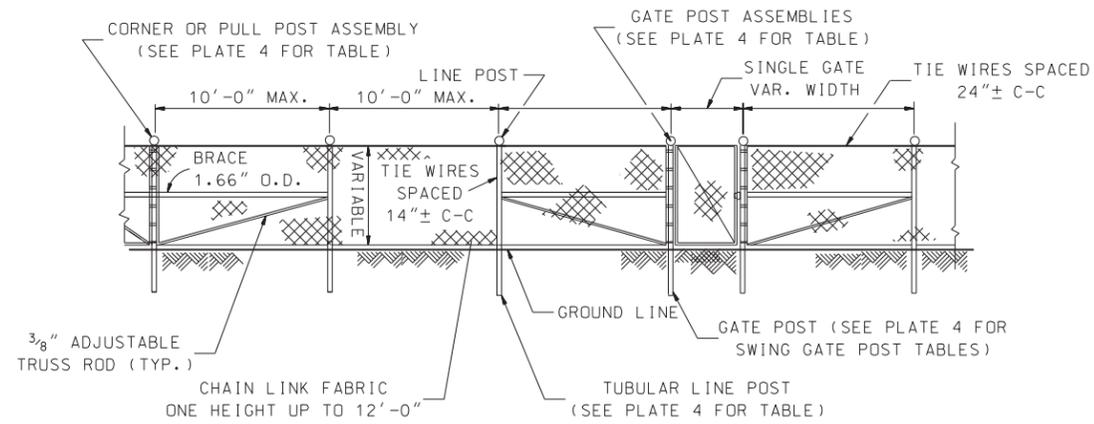
\*DGN FILE NAME  
FN-1

New Hampshire  
**DOT**  
 Department of Transportation

STANDARD NO. FN-1

REVISION DATE
07-13-2001
06-16-2010

\*.DGN FILE NAME  
FN-2



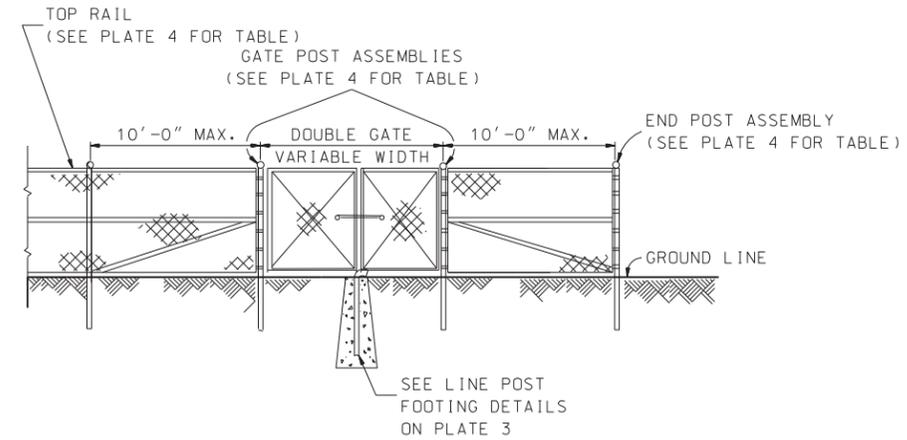
ELEVATION

GENERAL NOTES

1. ALL END POSTS SHALL HAVE ONE BRACE. (SEE DETAIL PLATE 2).
2. ALL CORNER AND INTERMEDIATE BRACE OR PULL POSTS SHALL HAVE TWO BRACES.
3. POST FOOTING DETAILS ARE SHOWN IN PLATE 3. FOR FENCE ERECTION ON THE RIGHT-OF-WAY LINE, SEE PLATE 3 OF STD. NO. FN-1.
4. FENCE DETAILS ARE FOR STEEL, ALUMINUM, OR VINYL COATED FENCING. FOR ADDITIONAL DETAILS AND NOTES, SEE PLATES 2, 3, & 4.

NHDOT STANDARD PLANS  
CHAIN LINK FENCE

REV. DATE	PLATE
06-16-2010	1
	STANDARD
	FN-2



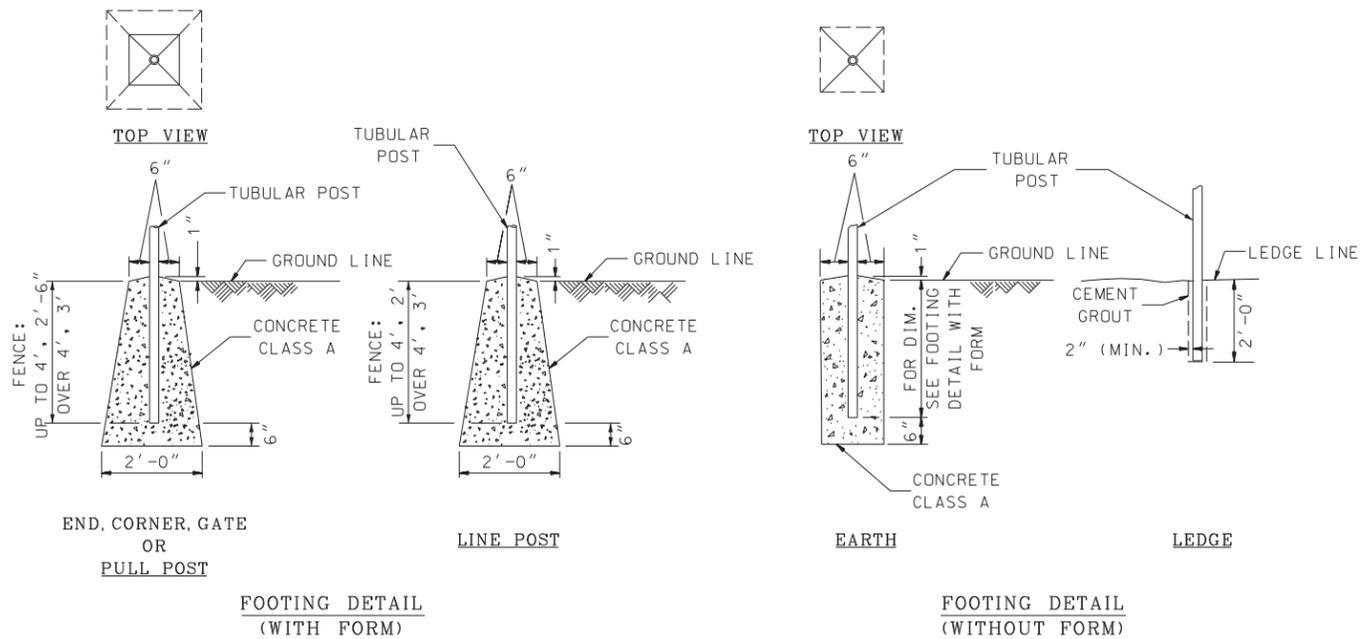
ELEVATION

GENERAL NOTES

1. FOR ADDITIONAL DETAILS AND NOTES SEE PLATES 1, 3 & 4.

NHDOT STANDARD PLANS  
CHAIN LINK FENCE

REV. DATE	PLATE
06-16-2010	2
	STANDARD
	FN-2



GENERAL NOTES

1. WHERE GROUND CONDITION PERMITS, FORMS FOR FOOTINGS WILL NOT BE REQUIRED.
2. ALUMINUM POSTS IN CONCRETE SHALL HAVE A PROTECTIVE COATING - 607.2.6

NHDOT STANDARD PLANS  
CHAIN LINK FENCE

REV. DATE	PLATE
06-16-2010	3
	STANDARD
	FN-2

FENCE HEIGHT (ft)	TUBULAR			
	ROUND	lb/ft	SQUARE	lb/ft
STEEL				
UP TO 6'	2 3/8" O.D.	3.65	2" x 2"	3.60
OVER 6'	2 7/8" O.D.	5.79	2 1/2" x 2 1/2"	5.70
ALUMINUM				
UP TO 12'	2 7/8" O.D.	2.00	3" x 3"	1.76

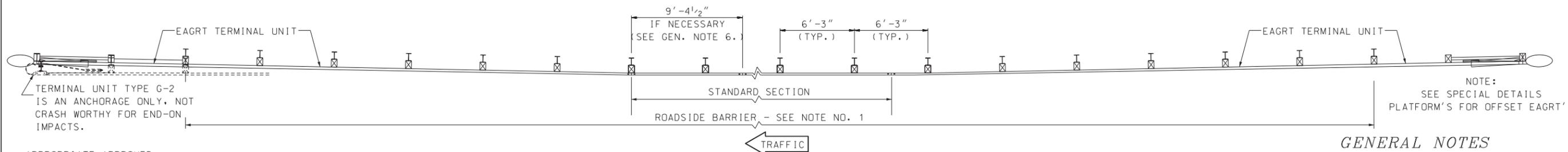
FENCE HEIGHT (ft)	TOP RAILS		LINE POSTS	
	ROUND	lb/ft	ROUND	lb/ft
STEEL				
ALL	2 7/8" O.D.	5.79	UP TO 6'	1.90" O.D. 2.72
ALUMINUM				
UP TO 12'	2 7/8" O.D.	2.00	OVER 6'	2 3/8" O.D. 3.65
ALUMINUM				
UP TO 12'	2 3/8" O.D.	1.264	UP TO 12'	2 3/8" O.D. 1.264

TYPE	GATE OPENING		GATE POST (TUBULAR)			
	SINGLE	DOUBLE	ROUND	lb/ft	SQUARE	lb/ft
	A	UP TO 6'	UP TO 12'	2 7/8" O.D.	5.79	2 1/2" x 2 1/2"
B	OVER 6' TO 13'	OVER 12' TO 26'	4" O.D.	9.11	3" x 3"	7.55
C	OVER 13' TO 18'	OVER 26' TO 36'	6 5/8" O.D.	18.97	-	-
D	OVER 18'	OVER 36'	8 5/8" O.D.	28.55	-	-
GATE FRAME		UP TO 6'	1.660" O.D.	2.27	1 1/2" x 1 1/2"	1.90
		OVER 6'	1.90" O.D.	2.72	2" x 2"	2.72

TYPE	GATE OPENING		GATE POST (TUBULAR)			
	SINGLE	DOUBLE ROUND	ROUND	lb/ft	SQUARE	lb/ft
	A - A	UP TO 6'	UP TO 12'	2 7/8" O.D.	2.004	3" x 3"
B - A	OVER 6' TO 12'	OVER 12' TO 24'	4" O.D.	3.151	-	-
C - A	OVER 12' TO 18'	OVER 24' TO 36'	6 5/8" O.D.	6.564	-	-
D - A	OVER 18' TO 32'	OVER 36' TO 44'	8 5/8" O.D.	9.878	-	-
GATE FRAME ALL			1.90" O.D.	0.940	2" x 2"	1.12

NHDOT STANDARD PLANS  
POSTS FOR CHAIN LINK FENCE

REV. DATE	PLATE
06-16-2010	4
	STANDARD
	FN-2

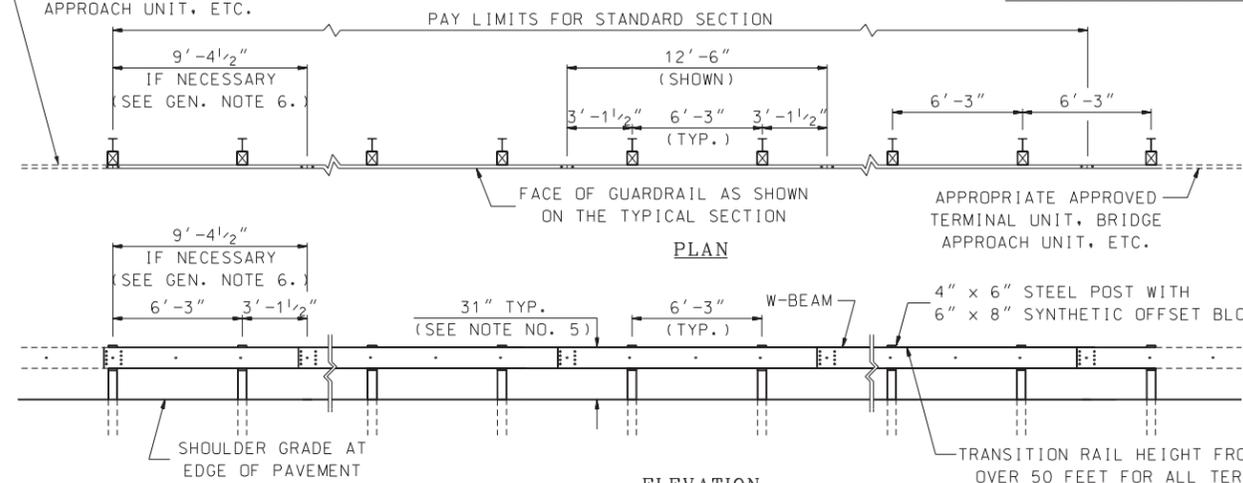


NOTE: SEE SPECIAL DETAILS PLATFORM'S FOR OFFSET EAGRT'S

**GENERAL NOTES**

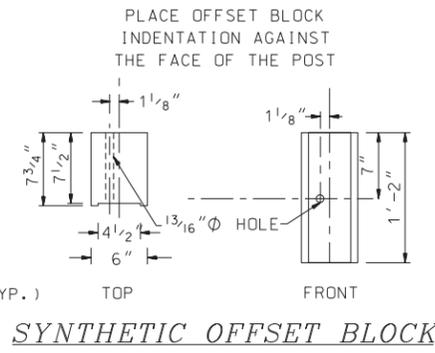
1. THE DEFINITION OF ROADSIDE BARRIER IS PER THE LATEST ADOPTED EDITION OF THE AASHTO ROADSIDE DESIGN GUIDE. EXCLUDED FROM THIS IS THE GATING PORTION OF A GUARDRAIL TERMINAL UNIT OR CRASH CUSHION AS WELL AS THE ENTIRE G-2 TERMINAL UNIT.
2. ITEMS IN BRACKETS [ ] ARE *STANDARD ELEMENTS* DESCRIBED IN AASHTO'S "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE".
3. ONLY USE RECTANGULAR PLATE WASHERS [FWR03] WHERE SHOWN ON THE OTHER STANDARD SHEETS OR AS REQUIRED BY THE MANUFACTURERS FOR THEIR PROPRIETARY PRODUCTS.
4. USE 12'-6" LENGTH RAIL ELEMENTS IN RAIL CURVES OF LESS THAN 100' RADIUS.
5. ESTABLISH RAIL HEIGHT AS FOLLOWS:
  - A) SET THE HEIGHT OF RAIL FROM THE EDGE OF THE PAVEMENT (EP) WHEN THE FACE OF RAIL IS AT THE EDGE OF PAVEMENT.
  - B) SET THE HEIGHT OF RAIL FROM THE GROUND AT THE FACE OF RAIL WHEN:
    - I) THE FACE OF RAIL IS OFFSET FROM THE EP AND THE CROSS SLOPE FROM THE EP TO THE FACE OF RAIL IS 10:1 OR FLATTER OR
    - II) THE FACE OF RAIL IS AT THE BACK OF A CURBED SIDEWALK AND THE CURB IS AT THE EDGE OF PAVEMENT
  - C) WHEN SITUATIONS OTHER THAN THOSE DESCRIBED IN A OR B ABOVE ARE ENCOUNTERED, ESTABLISH RAIL HEIGHT THROUGH AN ENGINEERING REVIEW TO ENSURE APPROPRIATE SYSTEM PERFORMANCE.
6. 9'-4 1/2" W-BEAM RAIL PANELS MAY BE USED TO TRANSITION TO CONVENTIONAL SPLICE ON POST W-BEAM GUARDRAIL AND SPLICE ON POST BRIDGE APPROACH UNITS AND GUARDRAIL TERMINAL UNITS. ALSO, THESE PANELS MAY BE USED TO FACILITATE THE CONSTRUCTION OF THE OFFSET GUARDRAIL TERMINAL UNITS AT THE TAPERED SECTIONS.
7. USE OF POSTS SHORTER THAN 7', BUT NOT LESS THAN 6'-0" LONG, IS ONLY ALLOWED UNDER THE FOLLOWING CONDITIONS:
  - A) WHERE THERE IS A MINIMUM DISTANCE OF 1' FROM THE BACK OF THE GUARDRAIL POST ALONG A 10:1 OR FLATTER SLOPE TO THE SLOPE BREAK OF A 4:1 OR FLATTER SLOPE OR
  - B) WHERE THERE IS A MINIMUM DISTANCE OF 2' FROM THE BACK OF THE GUARDRAIL POST ALONG A 10:1 OR FLATTER SLOPE TO THE SLOPE BREAK OF A STEEPER THAN 4:1 STABLE SOIL OR STONE LINED SLOPE. THE TERM STABLE INCLUDES NOT SHOWING SIGNS OF SLOPE MOVEMENT (SUCH AS DEPRESSIONS, CRACKS PARALLEL TO THE ROADWAY, ETC.) OR ACTIVE EROSION.
8. THE FHWA HAS LISTED OFFSET BLOCKS ON THEIR WEBSITE THAT ARE ELIGIBLE FOR FEDERAL PARTICIPATION PER NCHRP 350 TEST LEVEL 3 CRITERIA. OTHERS MAY BE ADDED UNDER MASH AT TEST LEVEL 3 OR HIGHER IN THE FUTURE. SOME OF THESE OFFSET BLOCKS HAVE OR MAY HAVE DIMENSIONS THAT VARY MORE THAN WOULD BE CONSIDERED WITHIN THE NORMAL CONTEXT OF NOMINAL DIMENSIONS. IN ORDER TO USE ANY OFFSET BLOCKS THAT HAVE OTHER THAN THE NOMINAL DIMENSIONS AS SHOWN ON THE PLANS, THE FOLLOWING APPLIES:
  - A) THE FACE OF RAIL SHALL REMAIN AT THE EDGE OF PAVEMENT OR AT THE INDICATED LOCATION AS SHOWN ON THE PLANS, AND
  - B) THE DISTANCE FROM THE BACK OF THE POST TO THE BREAK IN THE SLOPE SHALL NOT BE LESS THAN WHAT IS SHOWN ON THE PLANS BUT IT MAY BE MORE.
  - C) ALL OTHER REQUIREMENTS OF THE PERTINENT SPECIFICATIONS AND DETAILS REMAIN IN FORCE.
9. THIS GUARDRAIL SYSTEM HAS RECEIVED A FEDERAL ELIGIBILITY LETTER FOR MASH TEST LEVEL 3.

**SAMPLE GUARDRAIL INSTALLATION LAYOUT**

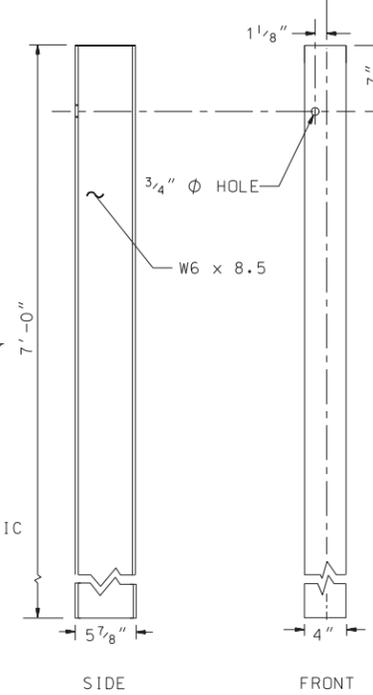


**STANDARD SECTION**

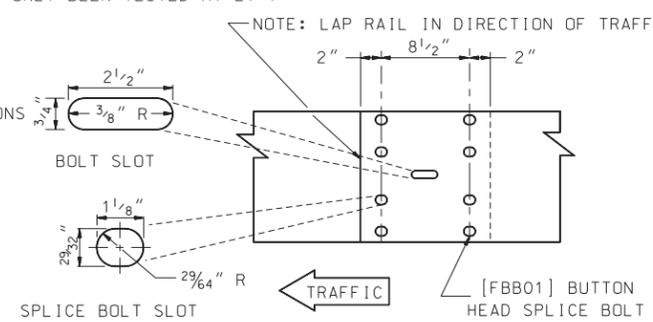
ITEM: 606.18001 - 31" W-BEAM GUARDRAIL WITH 8" OFFSET BLOCK (STEEL POST)  
 PAID: LINEAR FOOT  
 USE: WHEREVER STRONG POST W-BEAM GUARDRAIL WITH OFFSET BLOCKS IS REQUIRED. THIS INCLUDES ALL NEW RUNS, REPLACEMENT RUNS, AND SUBSTANTIAL REPLACEMENT PORTIONS OF EXISTING RUNS OF STRONG POST W-BEAM GUARDRAIL WITH OFFSET BLOCKS.



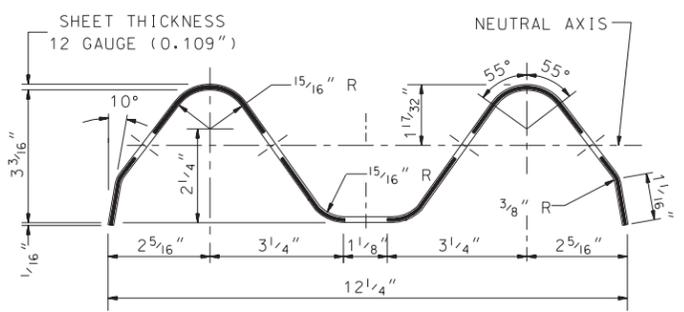
**SYNTHETIC OFFSET BLOCK**



**STRUCTURAL SHAPE STEEL POST**

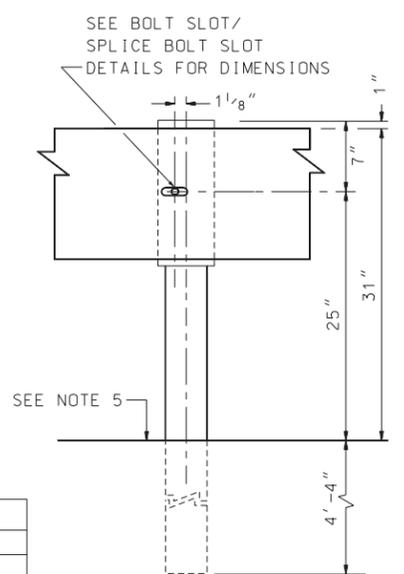


**ELEVATION VIEW AT BEAM SPLICE**

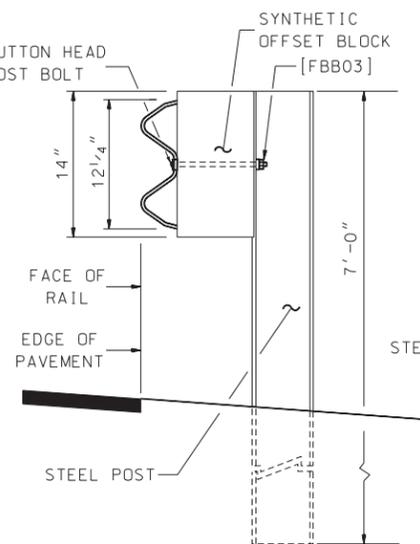


**SECTION THRU RAIL ELEMENT**

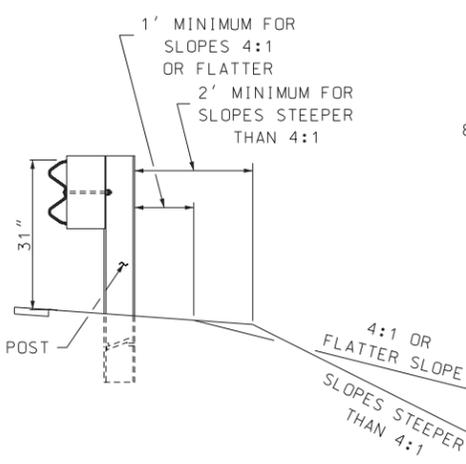
[4 SPACE W-BEAM GUARDRAIL DESIGNATED RWM04a (NOMINALLY 12'-6")]  
 [8 SPACE W-BEAM GUARDRAIL UNDESIGNATED AT THIS TIME (NOMINALLY 25'-0")]



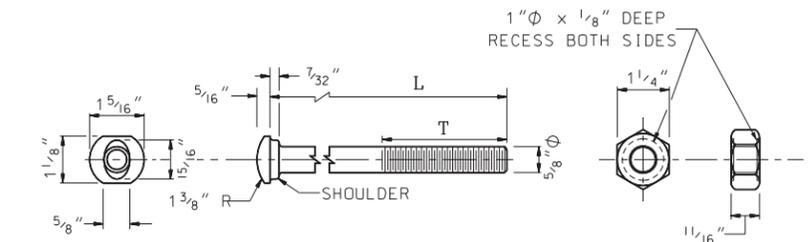
**TYPICAL FRONT VIEW (SHOWN WITH FASTENERS)**



**TYPICAL SIDE VIEW (SHOWN WITH FASTENERS)**



**CLARIFICATION DETAIL FOR GENERAL NOTE 7**



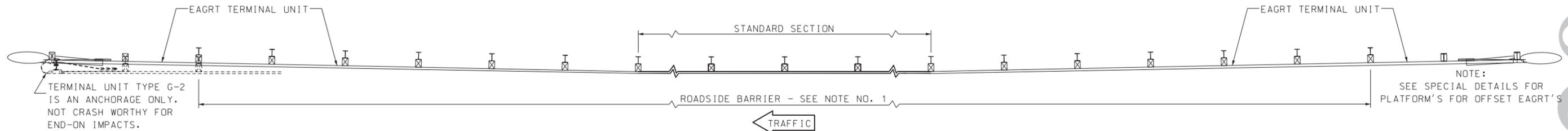
DESIGNATOR	L	T	INTENDED USE
FBB01	1 1/4"	FULL LENGTH THREAD	RAIL SPLICE BOLTS
FBB02	2"	1 3/4" MIN. THREAD LENGTH	POST BOLT (STEEL POSTS)
FBB03	9 1/2"	4" MIN. THREAD LENGTH	POST BOLT

**5/8" BUTTON HEAD BOLT AND RECESSED NUT [FBB01-03]**

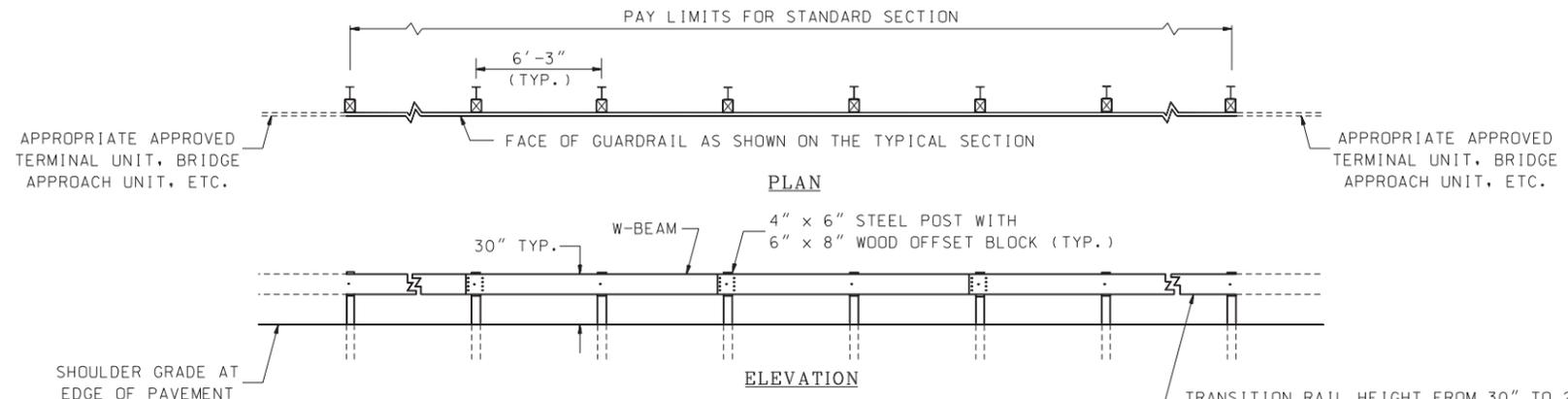
**GUARDRAIL STANDARD**  
**31" MID-SPLICE BEAM GUARDRAIL STANDARD SECTION-STEEL POSTS & HARDWARE DETAILS**

REVISION DATE
07-13-2001
06-16-2010
05-03-2011
08-19-2015

\*.DGN FILE NAME  
GR-2



SAMPLE GUARDRAIL INSTALLATION LAYOUT

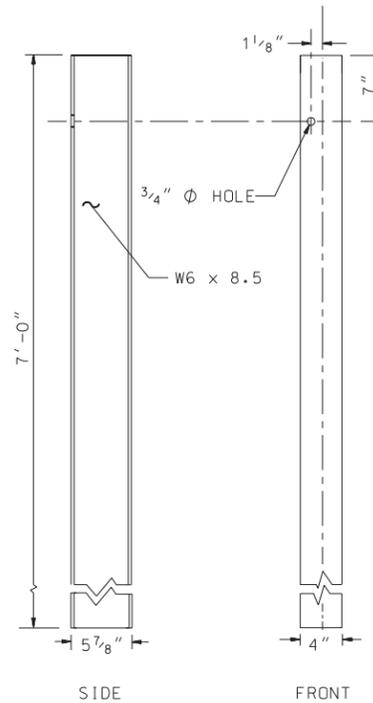


STANDARD SECTION

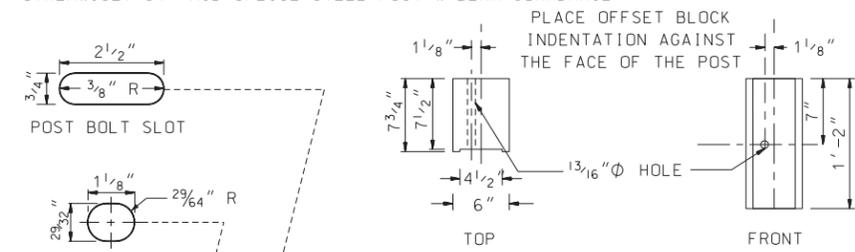
ITEM 606.120 - BEAM GUARDRAIL (STANDARD SECTION-STEEL POSTS)  
 PAID: LINEAR FOOT  
 USE: STRONG STEEL POST W-BEAM WITH SPLICE ON POST IS APPROPRIATE FOR REPAIRS OF EXISTING STRONG W-BEAM SPLICE ON POST GUARDRAIL RUNS OF LIMITED LENGTH OR SPECIFIC LOCATIONS WHERE USE OF 31" MID-SPLICE STEEL POST W-BEAM GUARDRAIL WOULD NOT BE PRACTICAL. OTHERWISE, 31" MID-SPLICE STEEL POST W-BEAM GUARDRAIL IS TO BE USED

GENERAL NOTES

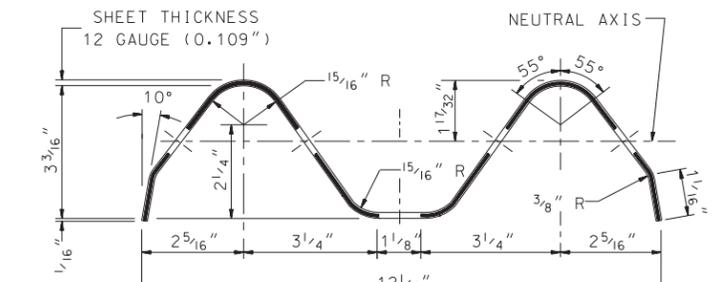
- THE DEFINITION OF ROADSIDE BARRIER IS PER THE LATEST ADOPTED EDITION OF THE AASHTO ROADSIDE DESIGN GUIDE. EXCLUDED FROM THIS IS THE GATING PORTION OF A GUARDRAIL TERMINAL UNIT OR CRASH CUSHION AS WELL AS THE ENTIRE G-2 TERMINAL UNIT.
- ITEMS IN BRACKETS [ ] ARE STANDARD ELEMENTS DESCRIBED IN AASHTO'S "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE".
- ONLY USE RECTANGULAR PLATE WASHERS [FWR03] WHERE SHOWN ON THE OTHER STANDARD SHEETS OR AS REQUIRED BY THE MANUFACTURERS FOR THEIR PROPRIETARY PRODUCTS.
- USE 12'-6" LENGTH RAIL ELEMENTS IN RAIL CURVES OF LESS THAN 100' RADIUS.
- ESTABLISH RAIL HEIGHT AS FOLLOWS:
  - SET THE HEIGHT OF RAIL FROM THE EDGE OF THE PAVEMENT (EP) WHEN THE FACE OF RAIL IS AT THE EDGE OF PAVEMENT.
  - SET THE HEIGHT OF RAIL FROM THE GROUND AT THE FACE OF RAIL WHEN:
    - THE FACE OF RAIL IS OFFSET FROM THE EP AND THE CROSS SLOPE FROM THE EP TO THE FACE OF RAIL IS 10:1 OR FLATTER OR
    - THE FACE OF RAIL IS AT THE BACK OF A CURBED SIDEWALK AND THE CURB IS AT THE EDGE OF PAVEMENT
  - WHEN SITUATIONS OTHER THAN THOSE DESCRIBED IN A OR B ABOVE ARE ENCOUNTERED, ESTABLISH RAIL HEIGHT THROUGH AN ENGINEERING REVIEW TO ENSURE APPROPRIATE SYSTEM PERFORMANCE.
- USE OF POSTS SHORTER THAN 7', BUT NOT LESS THAN 6'-0" LONG, IS ONLY ALLOWED UNDER THE FOLLOWING CONDITIONS:
  - WHERE THERE IS A MINIMUM DISTANCE OF 1' FROM THE BACK OF THE GUARDRAIL POST ALONG A 10:1 OR FLATTER SLOPE TO THE SLOPE BREAK OF A 4:1 OR FLATTER SLOPE OR
  - WHERE THERE IS A MINIMUM DISTANCE OF 2' FROM THE BACK OF THE GUARDRAIL POST ALONG A 10:1 OR FLATTER SLOPE TO THE SLOPE BREAK OF A STEEPER THAN 4:1 STABLE SOIL OR STONE LINED SLOPE. THE TERM STABLE INCLUDES NOT SHOWING SIGNS OF SLOPE MOVEMENT (SUCH AS DEPRESSIONS, CRACKS PARALLEL TO THE ROADWAY, ETC.) OR ACTIVE EROSION.
- THE FHWA HAS LISTED OFFSET BLOCKS ON THEIR WEBSITE THAT ARE ELIGIBLE FOR FEDERAL PARTICIPATION PER NCHRP 350 TEST LEVEL 3 CRITERIA. OTHERS MAY BE ADDED UNDER MASH AT TEST LEVEL 3 OR HIGHER IN THE FUTURE. SOME OF THESE OFFSET BLOCKS HAVE OR MAY HAVE DIMENSIONS THAT VARY MORE THAN WOULD BE CONSIDERED WITHIN THE NORMAL CONTEXT OF NOMINAL DIMENSIONS. IN ORDER TO USE ANY OFFSET BLOCKS THAT HAVE OTHER THAN THE NOMINAL DIMENSIONS AS SHOWN ON THE PLANS, THE FOLLOWING APPLIES:
  - THE FACE OF RAIL SHALL REMAIN AT THE EDGE OF PAVEMENT OR AT THE INDICATED LOCATION AS SHOWN ON THE PLANS, AND
  - THE DISTANCE FROM THE BACK OF THE POST TO THE BREAK IN THE SLOPE SHALL NOT BE LESS THAN WHAT IS SHOWN ON THE PLANS BUT IT MAY BE MORE.
  - ALL OTHER REQUIREMENTS OF THE PERTINENT SPECIFICATIONS AND DETAILS REMAIN IN FORCE.



STRUCTURAL SHAPE STEEL POST

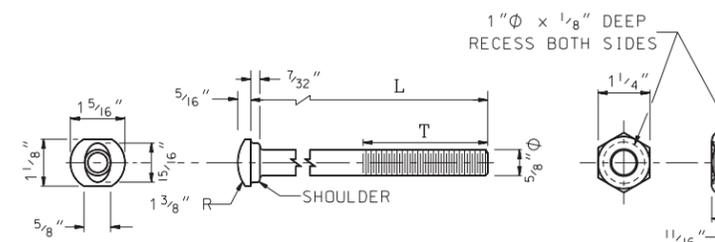


SYNTHETIC OFFSET BLOCK



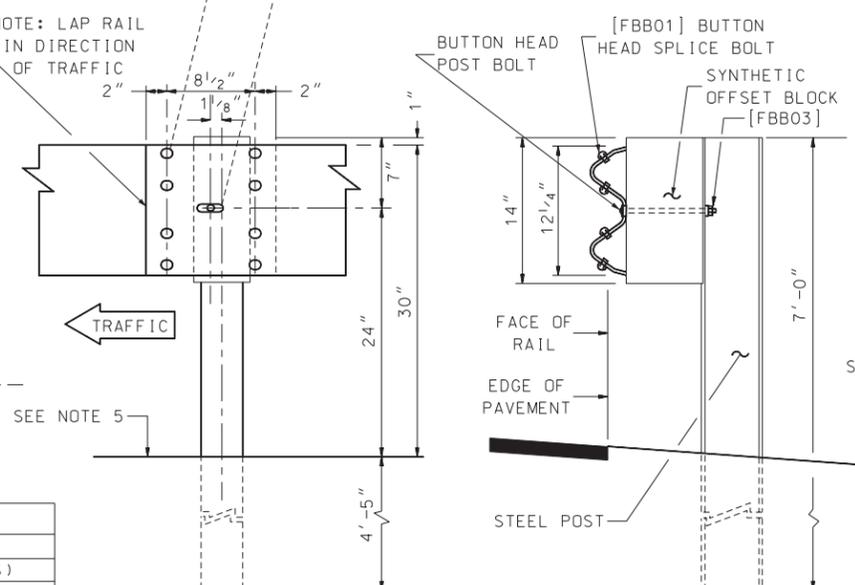
SECTION THRU RAIL ELEMENT

14 SPACE W-BEAM GUARDRAIL DESIGNATED RWM04a (NOMINALLY 12'-6")  
 18 SPACE W-BEAM GUARDRAIL UNDESIGNATED AT THIS TIME (NOMINALLY 25'-0")



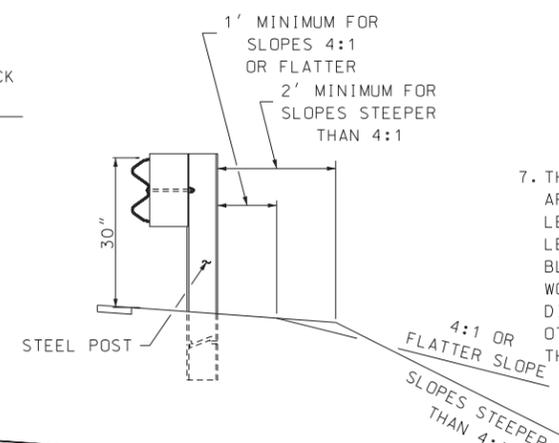
DESIGNATOR	L	T	INTENDED USE
FBB01	1 1/4"	FULL LENGTH THREAD	RAIL SPLICE BOLTS
FBB02	2"	1 3/4" MIN. THREAD LENGTH	POST BOLT (STEEL POSTS)
FBB03	9 1/2"	4" MIN. THREAD LENGTH	POST BOLT

5/8" BUTTON HEAD BOLT AND RECESSED NUT [FBB01-03]



LINE POST ELEVATION VIEW AT BEAM SPLICE

TYPICAL SIDE VIEW (SHOWN WITH FASTENERS)

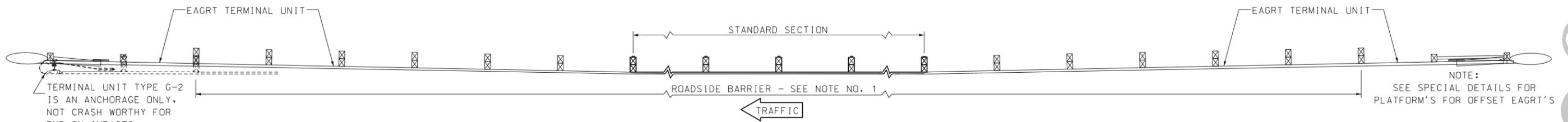


CLARIFICATION DETAIL FOR GENERAL NOTE 6

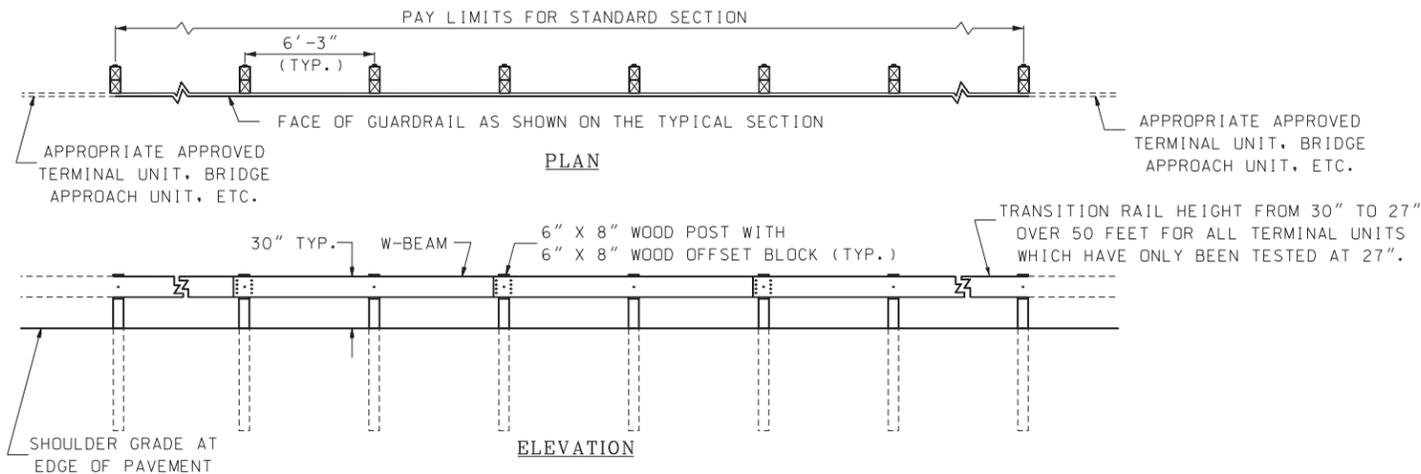
GUARDRAIL STANDARD  
 BEAM GUARDRAIL  
 STANDARD SECTION-STEEL POSTS  
 & HARDWARE DETAILS

REVISION DATE
07-13-2001
06-16-2010
08-19-2015

\*.DGN FILE NAME GR-2A

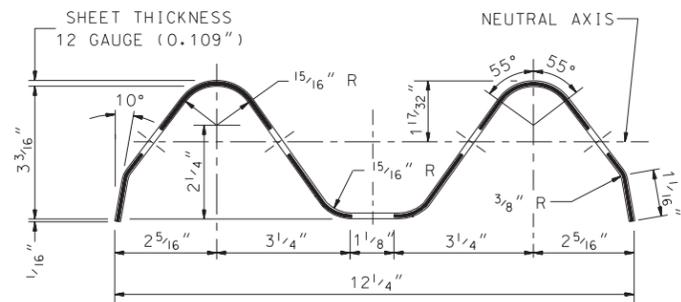


SAMPLE GUARDRAIL INSTALLATION LAYOUT

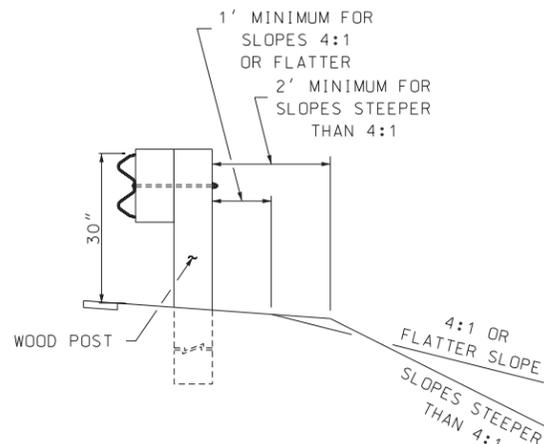


STANDARD SECTION

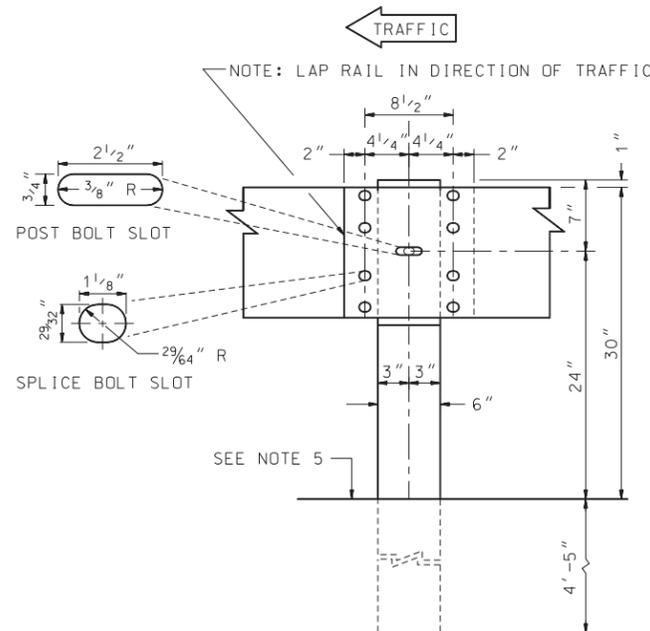
ITEM 606.140 - BEAM GUARDRAIL (STANDARD SECTION-WOOD POSTS)  
 PAID: LINEAR FOOT  
 USE: REPAIR OF EXISTING STRONG WOOD POST W-BEAM RUNS.



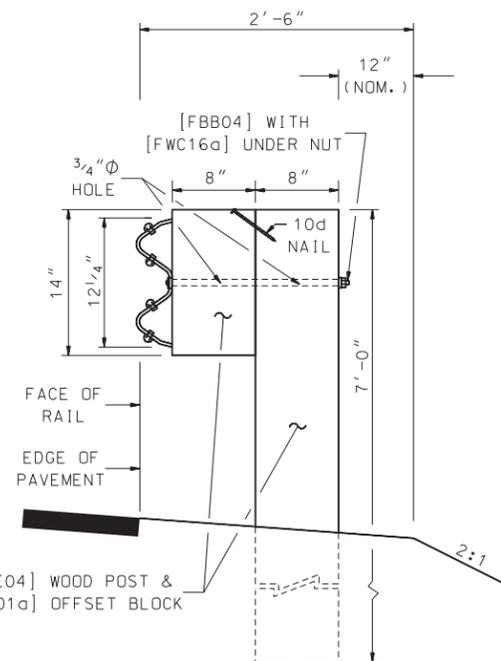
SECTION THRU RAIL ELEMENT  
 [4 SPACE W-BEAM GUARDRAIL DESIGNATED RWM04a (NOMINALLY 12'-6")]  
 [8 SPACE W-BEAM GUARDRAIL UNDESIGNATED AT THIS TIME (NOMINALLY 25'-0")]



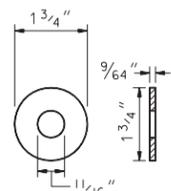
CLARIFICATION DETAIL FOR GENERAL NOTE 6



LINE POST ELEVATION VIEW AT BEAM SPLICE (SHOWN WITHOUT FASTENERS)



TYPICAL SIDE VIEW (SHOWN WITH FASTENERS)



WASHER [FWC16a]

GENERAL NOTES

- THE DEFINITION OF ROADSIDE BARRIER IS PER THE LATEST ADOPTED EDITION OF THE AASHTO ROADSIDE DESIGN GUIDE. EXCLUDED FROM THIS IS THE GATING PORTION OF A GUARDRAIL TERMINAL UNIT OR CRASH CUSHION AS WELL AS THE ENTIRE G-2 TERMINAL UNIT.
- ITEMS IN BRACKETS [ ] ARE STANDARD ELEMENTS DESCRIBED IN AASHTO'S "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE".
- ONLY USE RECTANGULAR PLATE WASHERS [FWR03] WHERE SHOWN ON THE OTHER STANDARD SHEETS OR AS REQUIRED BY THE MANUFACTURERS FOR THEIR PROPRIETARY PRODUCTS.
- USE 12'-6" LENGTH RAIL ELEMENTS IN RAIL CURVES OF LESS THAN 100' RADIUS.
- ESTABLISH RAIL HEIGHT AS FOLLOWS:
  - SET THE HEIGHT OF RAIL FROM THE EDGE OF THE PAVEMENT (EP) WHEN THE FACE OF RAIL IS AT THE EDGE OF PAVEMENT.
  - SET THE HEIGHT OF RAIL FROM THE GROUND AT THE FACE OF RAIL WHEN:
    - THE FACE OF RAIL IS OFFSET FROM THE EP AND THE CROSS SLOPE FROM THE EP TO THE FACE OF RAIL IS 10:1 OR FLATTER OR
    - THE FACE OF RAIL IS AT THE BACK OF A CURBED SIDEWALK AND THE CURB IS AT THE EDGE OF PAVEMENT
  - WHEN SITUATIONS OTHER THAN THOSE DESCRIBED IN A OR B ABOVE ARE ENCOUNTERED, ESTABLISH RAIL HEIGHT THROUGH AN ENGINEERING REVIEW TO ENSURE APPROPRIATE SYSTEM PERFORMANCE.
- USE OF POSTS SHORTER THAN 7', BUT NOT LESS THAN 6'-0" LONG, IS ONLY ALLOWED UNDER THE FOLLOWING CONDITIONS:
  - WHERE THERE IS A MINIMUM DISTANCE OF 1' FROM THE BACK OF THE GUARDRAIL POST ALONG A 10:1 OR FLATTER SLOPE TO THE SLOPE BREAK OF A 4:1 OR FLATTER SLOPE OR
  - WHERE THERE IS A MINIMUM DISTANCE OF 2' FROM THE BACK OF THE GUARDRAIL POST ALONG A 10:1 OR FLATTER SLOPE TO THE SLOPE BREAK OF A STEEPER THAN 4:1 STABLE SOIL OR STONE LINED SLOPE. THE TERM STABLE INCLUDES NOT SHOWING SIGNS OF SLOPE MOVEMENT (SUCH AS DEPRESSIONS, CRACKS PARALLEL TO THE ROADWAY, ETC.) OR ACTIVE EROSION.
- THE FHWA HAS LISTED OFFSET BLOCKS ON THEIR WEBSITE THAT ARE ELIGIBLE FOR FEDERAL PARTICIPATION PER NCHRP 350 TEST LEVEL 3 CRITERIA. OTHERS MAY BE ADDED UNDER MASH AT TEST LEVEL 3 OR HIGHER IN THE FUTURE. SOME OF THESE OFFSET BLOCKS HAVE OR MAY HAVE DIMENSIONS THAT VARY MORE THAN WOULD BE CONSIDERED WITHIN THE NORMAL CONTEXT OF NOMINAL DIMENSIONS. IN ORDER TO USE ANY OFFSET BLOCKS THAT HAVE OTHER THAN THE NOMINAL DIMENSIONS AS SHOWN ON THE PLANS, THE FOLLOWING APPLIES:
  - THE FACE OF RAIL SHALL REMAIN AT THE EDGE OF PAVEMENT OR AT THE INDICATED LOCATION AS SHOWN ON THE PLANS, AND
  - THE DISTANCE FROM THE BACK OF THE POST TO THE BREAK IN THE SLOPE SHALL NOT BE LESS THAN WHAT IS SHOWN ON THE PLANS BUT IT MAY BE MORE.
  - ALL OTHER REQUIREMENTS OF THE PERTINENT SPECIFICATIONS AND DETAILS REMAIN IN FORCE.

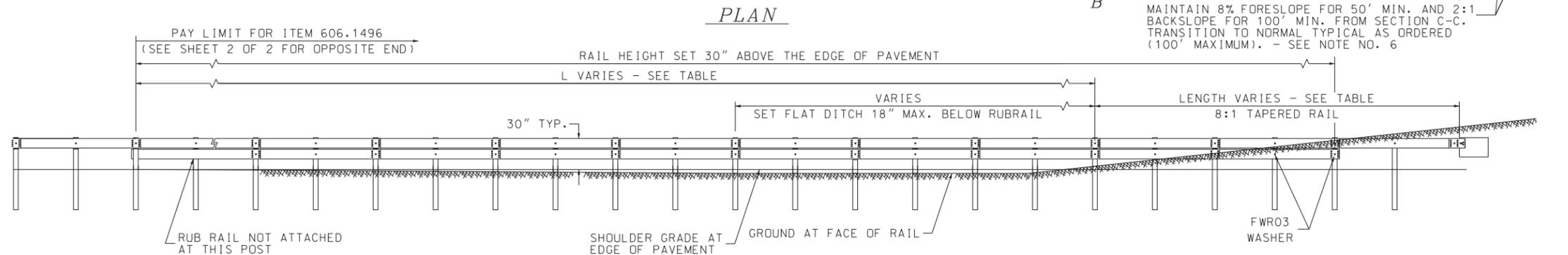
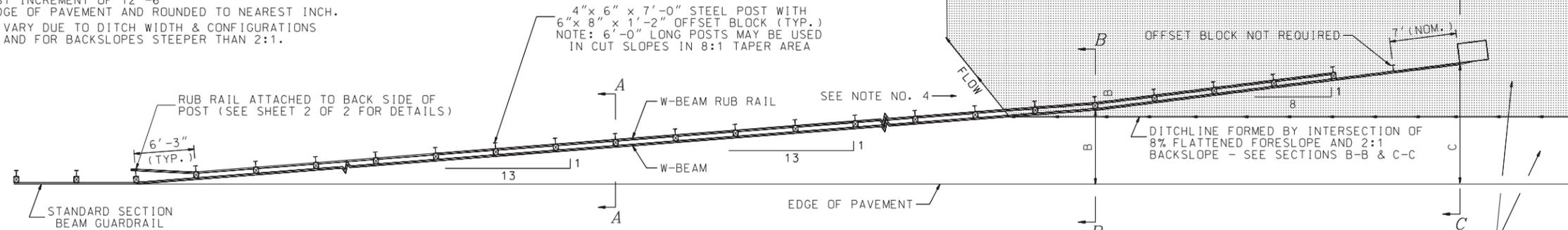
DESIGNATOR	L	T	INTENDED USE
FBB01	1 1/4"	FULL LENGTH THREAD	RAIL SPLICE BOLTS
FBB03	10"	4" MIN. THREAD LENGTH	POST BOLT
FBB04	18"	4" MIN. THREAD LENGTH	POST BOLT (WOOD POSTS)

5/8" BUTTON HEAD BOLT AND RECESSED NUT [FBB01-04]

GUARDRAIL STANDARD  
 BEAM GUARDRAIL  
 STANDARD SECTION-WOOD POSTS  
 & HARDWARE DETAILS

TYPICAL SECTION	TYPICAL DITCH WIDTH	L	B*	C*	8:1 RAIL LENGTH	RUB RAIL LENGTH	CALCULATED LENGTH ITEM 606.1496
11-4-4 (EARTH)							
12-4-4 (EARTH)	6'-0"	112'-6"	8'-8"	18'-0"	75'-0"	175'-0"	189'-6"
12-10-10 (EARTH)	12'-0"	212'-6"	16'-4"	27'-3"	87'-6"	287'-6"	302'-0"
12-10-10 (ROCK)	10'-0"	162'-6"	12'-6"	21'-11"	75'-0"	225'-0"	239'-5"
12-10-12 (EARTH)	14'-6"	262'-6"	20'-2"	31'-2"	87'-6"	337'-6"	352'-0"
12-10-12 (ROCK)	12'-0"	200'-0"	15'-5"	24'-9"	75'-0"	262'-6"	277'-0"
12-10-12 (ROCK)	18'-0"	287'-6"	22'-1"	33'-1"	87'-6"	362'-6"	377'-0"

RAIL LENGTHS ROUNDED TO NEAREST INCREMENT OF 12'-6"  
 \* OFFSETS ARE MEASURED FROM EDGE OF PAVEMENT AND ROUNDED TO NEAREST INCH.  
 NOTE: LENGTHS AND OFFSETS MAY VARY DUE TO DITCH WIDTH & CONFIGURATIONS OTHER THAN AS INDICATED AND FOR BACKSLOPES STEEPER THAN 2:1.



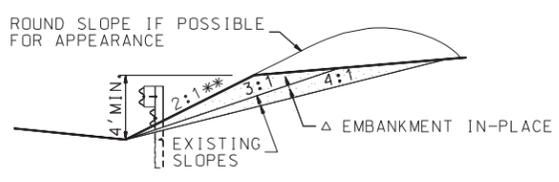
2:1 BACKSLOPE AREA  
 OFFSET BLOCK NOT REQUIRED  
 7' (NOM.)  
 DITCHLINE FORMED BY INTERSECTION OF 8% FLATTENED FORESLOPE AND 2:1 BACKSLOPE - SEE SECTIONS B-B & C-C  
 MAINTAIN 8% FORESLOPE FOR 50' MIN. AND 2:1 BACKSLOPE FOR 100' MIN. FROM SECTION C-C. TRANSITION TO NORMAL TYPICAL AS ORDERED (100' MAXIMUM). - SEE NOTE NO. 6

**GENERAL NOTES**

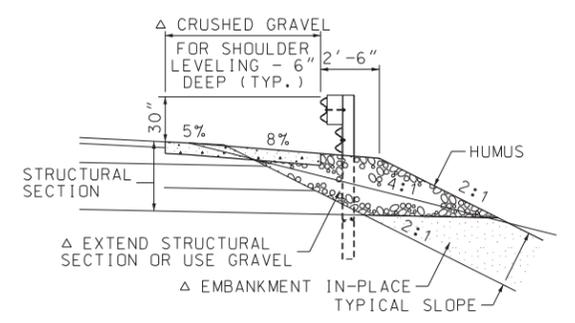
- THIS TERMINAL IS DESIGNED FOR USE PRIMARILY AT SITES WHERE THE TERRAIN CHANGES ABRUPTLY FROM A CUT TO A STEEP FILL, AND WHERE THEORETICAL LENGTH OF NEED WOULD EXTEND INTO THE CUT SECTION FOR A CONSIDERABLE DISTANCE. THIS TERMINAL IS PRIMARILY FOR TYPICALS REFLECTING NEW CONSTRUCTION AND FOR SPEEDS OF 50 MPH OR GREATER. FOR LOWER SPEEDS SEE THE DETAIL FOR BEAM GUARDRAIL TERMINAL SECTION TYPE E-2 MODIFIED.
- SEE STANDARD NO. GR-6 FOR E-2 HARDWARE DETAILS. SEE STANDARDS NO. GR-1 OR GR-2 FOR ADDITIONAL DETAILS OF COMMON HARDWARE.
- A RUB RAIL IS REQUIRED WHEN THE BOTTOM OF THE W-BEAM IS GREATER THAN 18" HIGH ABOVE THE GROUND. A MAXIMUM OFFSET FROM THE E.P. OF 15'-5" MAINTAINS A SINGLE RUB RAIL HEIGHT. FOR ANY PORTION OF A DITCH OFFSET GREATER THAN 15'-5" CONSTRUCT A FLAT BOTTOMED DITCH TO THE 2:1 BACK SLOPE.
- CONSTRUCT OUTLET DITCH TO FIT SITE CONDITIONS OR USE DROP INLET AND PIPE IF LARGE FLOWS ARE ANTICIPATED OR IF DITCHLINE BECOMES FLATTER THAN 0.4% (PAY UNDER BID ITEMS).
- FOR INSTALLATIONS IN ROCK CUT EARTH BERMS, EXCAVATE A SUFFICIENT QUANTITY OF ROCK TO PERMIT POST DRIVING, AND ANCHOR THE TERMINAL BY ONE OF THE FOLLOWING METHODS:  
 A) EXCAVATE ROCK TO PERMIT INSTALLATION OF PRECAST ANCHOR  
 B) CONSTRUCT CAST-IN-PLACE ANCHOR WITH SAME MASS AS PRECAST ANCHOR AND 4 S.F. CROSS-SECTIONAL AREA TO FACE OF ANCHOR (SUBSIDIARY TO ITEM 606.1496).  
 C) ATTACH W-BEAM TERMINAL CONNECTOR DIRECTLY TO ROCK FACE BY AN APPROVED ROCK BOLT METHOD (SUBSIDIARY TO ITEM 606.1496).
- ANY COMMON EXCAVATION, EMBANKMENT IN-PLACE, AND CRUSHED GRAVEL FOR SHOULDER LEVELING WILL BE PAID UNDER ITEM 203.5596 - GUARDRAIL E-2 PLATFORMS. ROCK EXCAVATION WILL BE PAID AS ITEM 206.2 - ROCK STRUCTURE EXCAVATION.

**TERMINAL SECTION TYPE E-2**

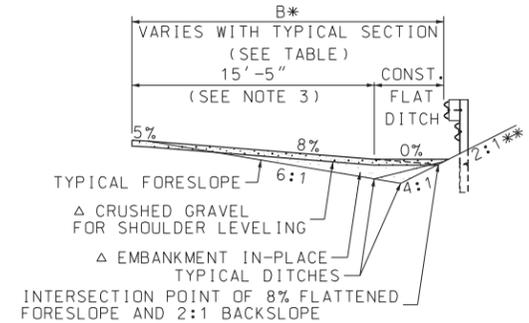
ITEM: 606.1496 - BEAM GUARDRAIL TERMINAL SECTION, TYPE E-2  
 PAID: LINEAR FOOT (INCLUDES RUB RAIL AND ANCHOR)  
 USE: AT BEGINNING OR END OF STANDARD SECTION GUARDRAIL



**SLOPE STEEPENING DETAIL**  
 (WHERE REQUIRED)

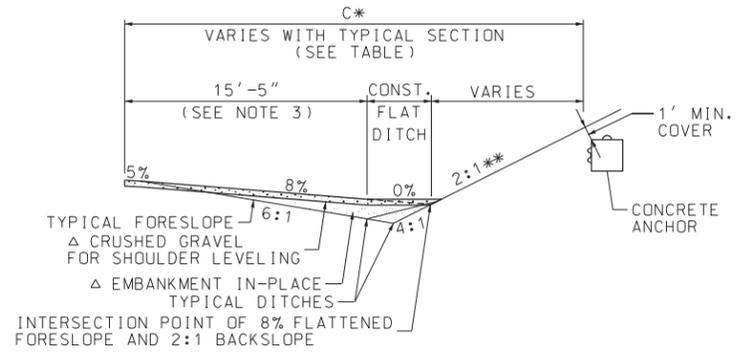


**SECTION A-A**



**SECTION B-B**

△ SEE NOTE 6 FOR ALL HATCHED AREAS



**SECTION C-C**

\*\* THE BACK SLOPE SHALL BE 2:1 OR STEEPER APPROACHING THE ANCHOR. IT IS NOT THE INTENT TO FLATTEN AN EXISTING BACKSLOPE THAT IS STEEPER THAN 2:1 UNLESS SO NOTED ON THE PLANS OR PROPOSAL.

**GUARDRAIL STANDARD**  
**BEAM GUARDRAIL**  
**TERMINAL UNIT TYPE E-2**

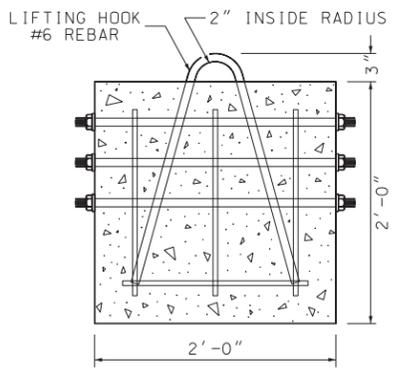
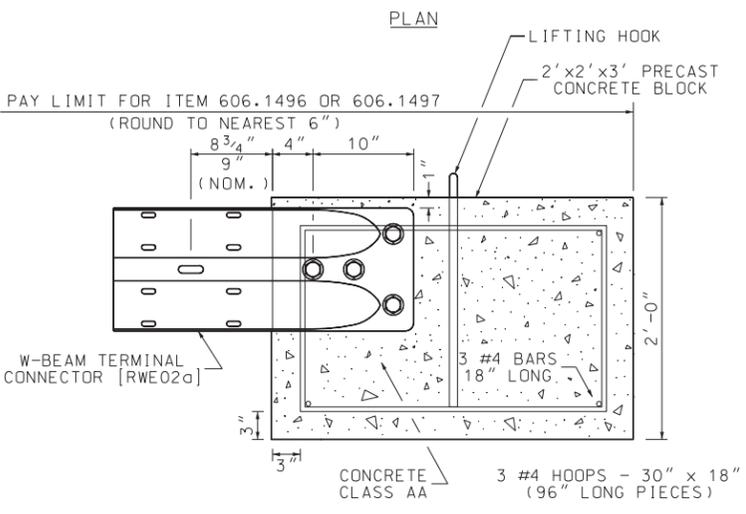
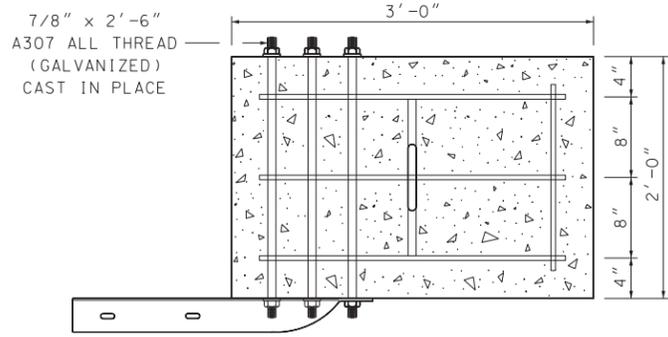
STANDARD NO. GR-5

REVISION DATE
03-01-2006
06-16-2010

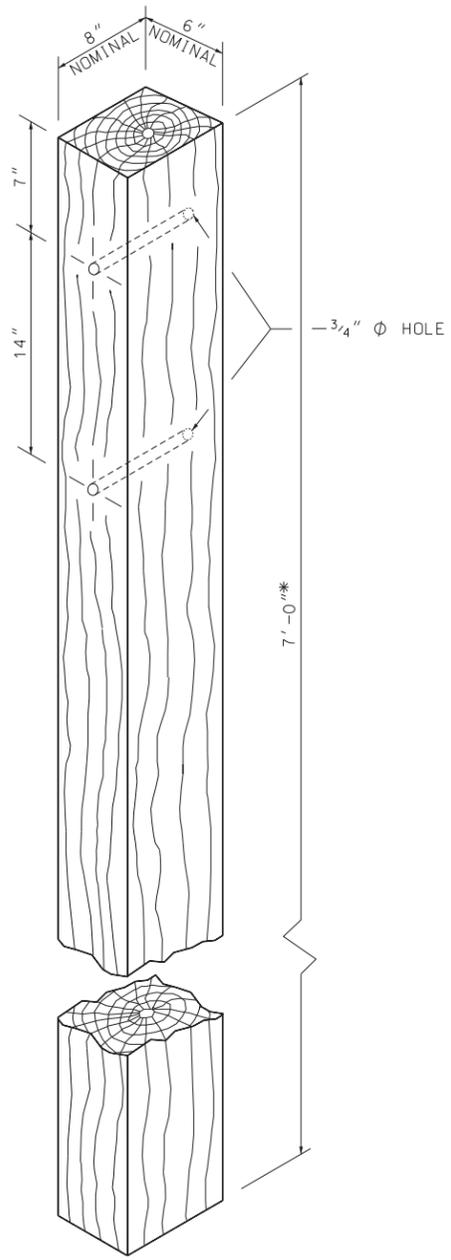
\*.DGN FILE NAME  
GR-5

New Hampshire  
**DOT**  
 Department of Transportation  
 STANDARD PLANS

STANDARD NO. GR-5

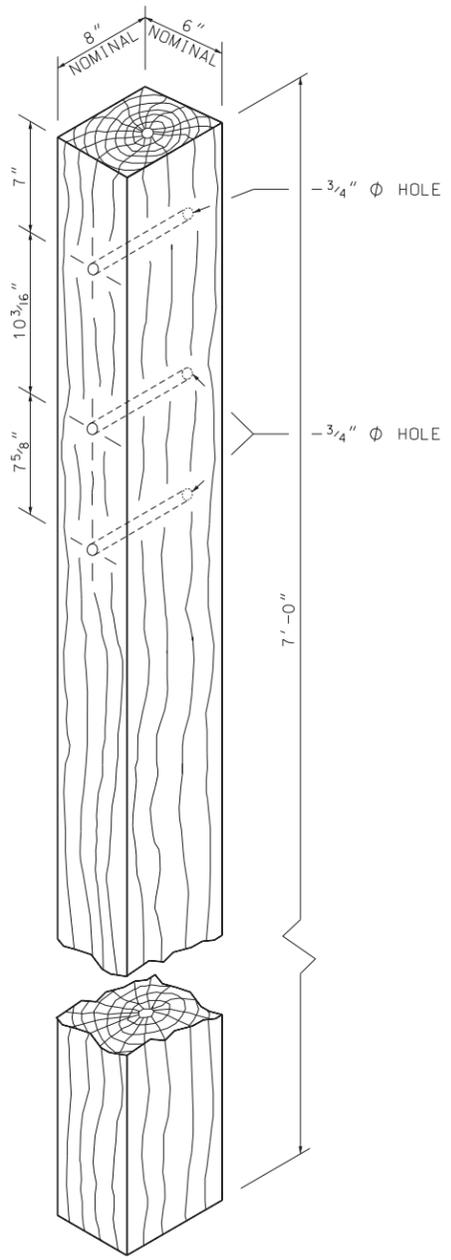


PRECAST CONCRETE BLOCK ANCHOR



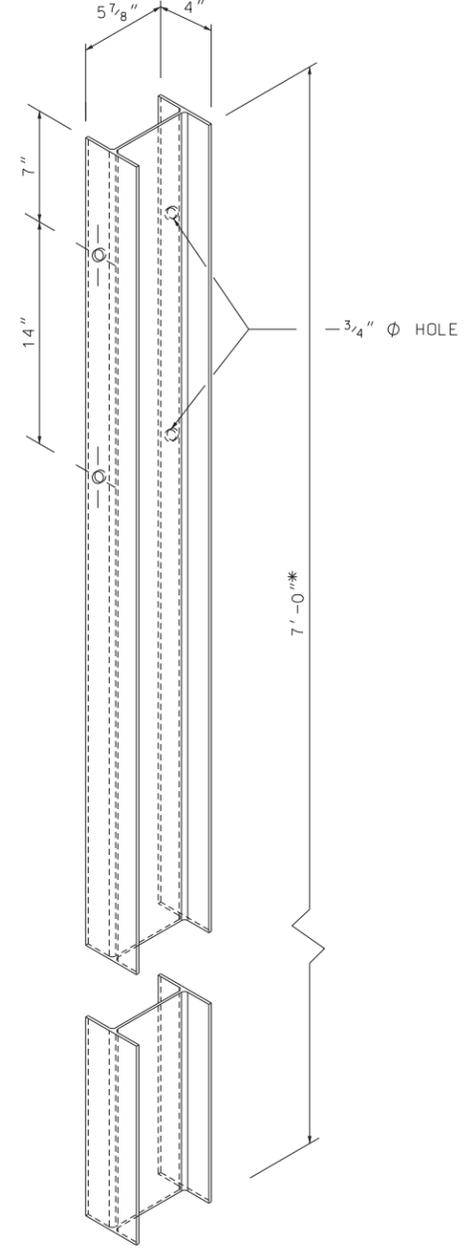
RUB RAIL LINE POST

[PDE04] MODIFIED  
\* 6'-0" POSTS MAY BE USED IN CUT SLOPES IN 8:1 TAPER AREA



SPECIAL POST FOR DOWNSTREAM END OF RUB RAIL

[PDE04] MODIFIED (1 REQ'D)

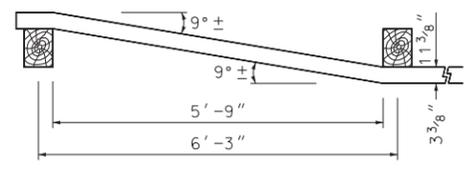


RUB RAIL LINE POST

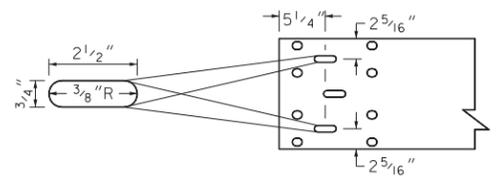
[PWE02] MODIFIED  
\* 6'-0" POSTS MAY BE USED IN CUT SLOPES IN 8:1 TAPER AREA

SPECIAL POST FOR DOWNSTREAM END OF RUB RAIL

[PWE02] MODIFIED (1 REQ'D)

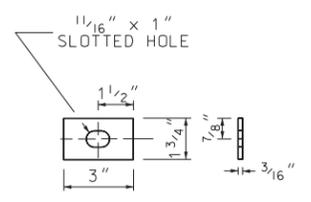


MODIFICATIONS TO DOWNSTREAM END OF RUB RAIL



SPECIAL POST BOLT SLOTS

NOTE: USE FWC16A WASHER UNDER BOLT HEAD AND NUT



RECTANGULAR PLATE WASHER

[FWR03] (4 REQ'D)

- GENERAL NOTES
- ALL DIMENSIONS SUBJECT TO MANUFACTURER'S TOLERANCES.
  - DESIGNATIONS PROVIDED IN BRACKETS [ ] RELATE TO STANDARD ELEMENTS IN "A GUIDE TO STANDARD HIGHWAY BARRIER RAIL HARDWARE", LATEST ADOPTED VERSION, AASHTO-AGC-ARTBA JOINT COOPERATIVE COMMITTEE.

**GUARDRAIL STANDARD**  
BEAM GUARDRAIL TERMINAL SECTION TYPE E-2 AND E-2MOD  
HARDWARE DETAILS

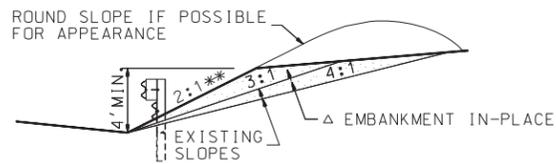
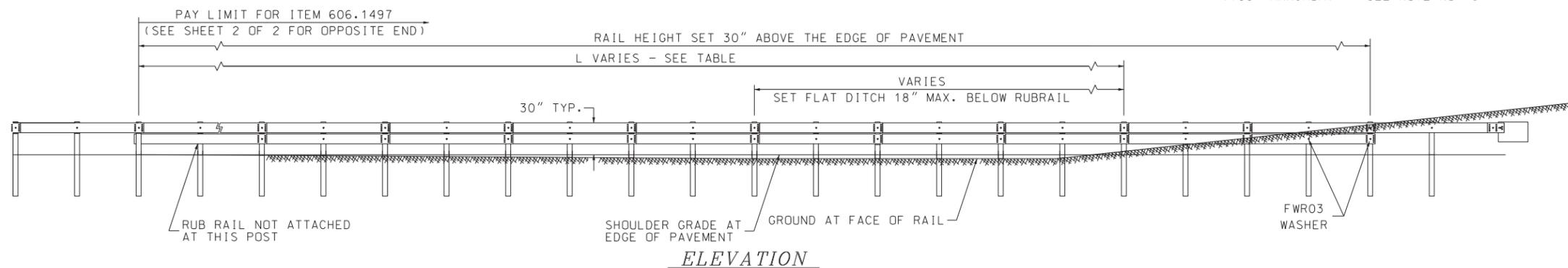
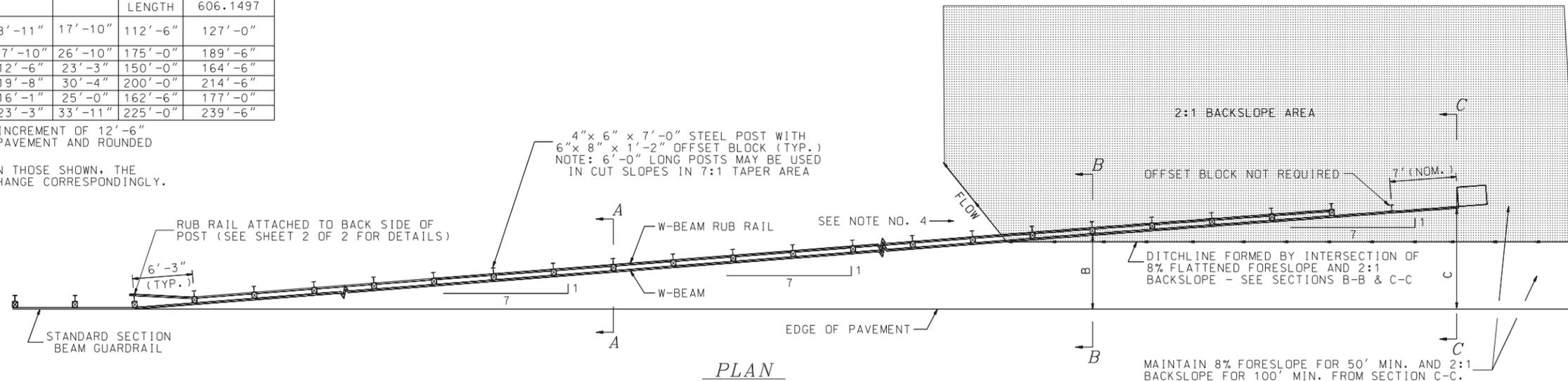
STANDARD NO. GR-6
REVISION DATE
03-01-2006
06-16-2010
DGN FILE NAME
GR-6

New Hampshire  
**DOT**  
 Department of Transportation  
 STANDARD PLANS

STANDARD NO. GR-6

TYPICAL SECTION	TYPICAL DITCH WIDTH	L	B*	C*	RUB RAIL LENGTH	CALCULATED LENGTH ITEM 606.1497
11-4-4 (EARTH)	6'-0"	62'-6"	8'-11"	17'-10"	112'-6"	127'-0"
12-4-4 (EARTH)	12'-0"	125'-0"	17'-10"	26'-10"	175'-0"	189'-6"
12-10-10 (ROCK)	10'-0"	87'-6"	12'-6"	23'-3"	150'-0"	164'-6"
12-10-12 (EARTH)	14'-6"	137'-6"	19'-8"	30'-4"	200'-0"	214'-6"
12-10-12 (ROCK)	12'-0"	112'-6"	16'-1"	25'-0"	162'-6"	177'-0"
12-10-12 (ROCK)	18'-0"	162'-6"	23'-3"	33'-11"	225'-0"	239'-6"

RAIL LENGTHS ROUNDED TO NEAREST INCREMENT OF 12'-6"  
 \* OFFSETS MEASURED FROM EDGE OF PAVEMENT AND ROUNDED TO NEAREST INCH  
 NOTE: FOR DITCH WIDTHS OTHER THAN THOSE SHOWN, THE LENGTHS AND OFFSETS WILL CHANGE CORRESPONDINGLY.

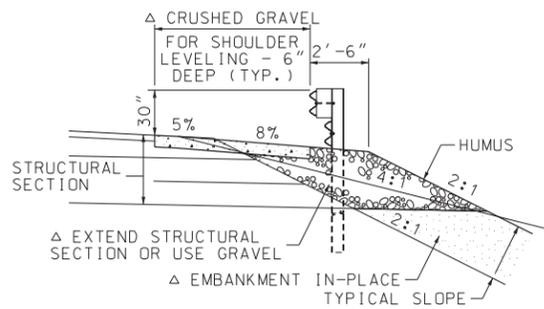


**SLOPE STEEPENING DETAIL**  
(WHERE REQUIRED)

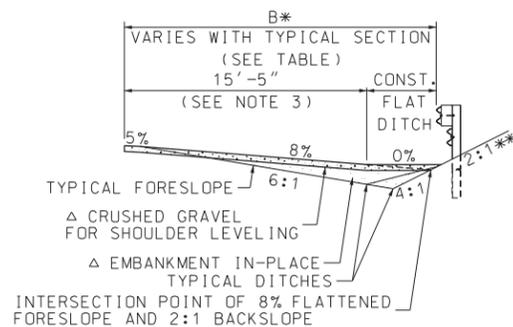
**30 MPH - 7:1 TAPER RATE**

**TERMINAL SECTION TYPE E-2 MODIFIED**

ITEM 606.1497 - BEAM GUARDRAIL TERMINAL SECTION, TYPE E-2 MODIFIED  
 PAID: LINEAR FOOT (INCLUDES RUB RAIL AND ANCHOR)  
 USE: AT BEGINNING OR END OF STANDARD SECTION GUARDRAIL

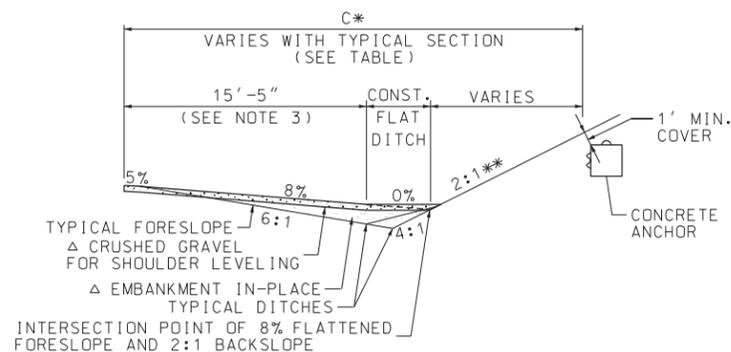


**SECTION A-A**



**SECTION B-B**

△ SEE NOTE 6 FOR ALL HATCHED AREAS



**SECTION C-C**

\*\* THE BACK SLOPE SHALL BE 2:1 OR STEEPER APPROACHING THE ANCHOR. IT IS NOT THE INTENT TO FLATTEN AN EXISTING BACKSLOPE THAT IS STEEPER THAN 2:1 UNLESS SO NOTED ON THE PLANS OR PROPOSAL.

**GENERAL NOTES**

1. THIS TERMINAL IS DESIGNED FOR USE PRIMARILY AT SITES WHERE THE TERRAIN CHANGES ABRUPTLY FROM A CUT TO A STEEP FILL, AND WHERE THEORETICAL LENGTH OF NEED WOULD EXTEND INTO THE CUT SECTION FOR A CONSIDERABLE DISTANCE. THE DESIGN SPEED FOR THIS TERMINAL IS 30 MPH.
2. SEE STANDARD NO. GR-6 FOR E-2 HARDWARE DETAILS. SEE STANDARDS NO. GR-1 OR GR-2 FOR ADDITIONAL DETAILS OF COMMON HARDWARE.
3. A RUB RAIL IS REQUIRED WHEN THE BOTTOM OF THE W-BEAM IS GREATER THAN 18" HIGH ABOVE THE GROUND. A MAXIMUM OFFSET FROM THE E.P. OF 15'-5" MAINTAINS A SINGLE RUB RAIL HEIGHT. FOR ANY PORTION OF A DITCH OFFSET GREATER THAN 15'-5" CONSTRUCT A FLAT BOTTOMED DITCH TO THE 2:1 BACK SLOPE.
4. CONSTRUCT OUTLET DITCH TO FIT SITE CONDITIONS OR USE DROP INLET AND PIPE IF LARGE FLOWS ARE ANTICIPATED OR IF DITCHLINE BECOMES FLATTER THAN 0.4% (PAY UNDER BID ITEMS).
5. FOR INSTALLATIONS IN ROCK CUT EARTH BERMS, EXCAVATE A SUFFICIENT QUANTITY OF ROCK TO PERMIT POST DRIVING, AND ANCHOR THE TERMINAL BY ONE OF THE FOLLOWING METHODS:  
 A) EXCAVATE ROCK TO PERMIT INSTALLATION OF PRECAST ANCHOR  
 B) CONSTRUCT CAST-IN-PLACE ANCHOR WITH SAME MASS AS PRECAST ANCHOR AND 4 S.F. CROSS-SECTIONAL AREA TO FACE OF ANCHOR (SUBSIDIARY TO ITEM 606.1497).  
 C) ATTACH W-BEAM TERMINAL CONNECTOR DIRECTLY TO ROCK FACE BY AN APPROVED ROCK BOLT METHOD (SUBSIDIARY TO ITEM 606.1497).
6. ANY COMMON EXCAVATION, EMBANKMENT IN-PLACE, AND CRUSHED GRAVEL FOR SHOULDER LEVELING REQUIRED WILL BE PAID UNDER ITEM 203.5596 - GUARDRAIL E-2 PLATFORMS. ROCK EXCAVATION WILL BE PAID AS ITEM 206.2 - ROCK STRUCTURE EXCAVATION.

**GUARDRAIL STANDARD**  
**BEAM GUARDRAIL TERMINAL**  
**SECTION TYPE E-2 MODIFIED 30**

STANDARD NO. GR-7

REVISION DATE  
 03-01-2006  
 06-16-2010

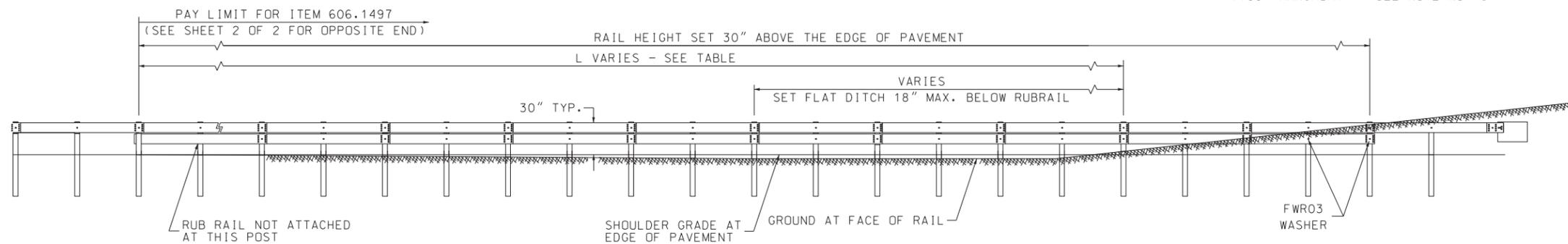
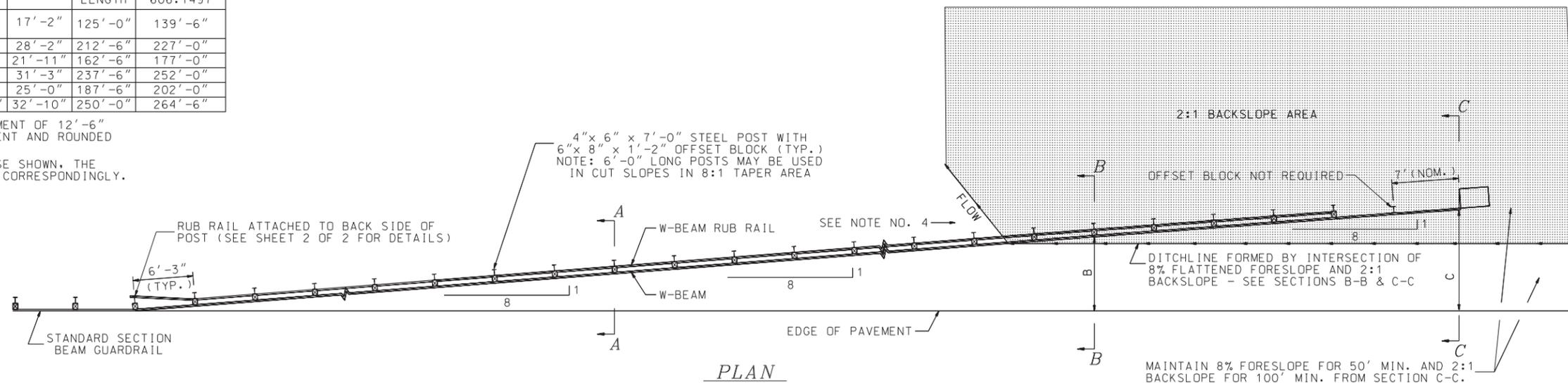
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 GR-7

STANDARD PLANS  
 Department of Transportation  
 DOT  
 New Hampshire

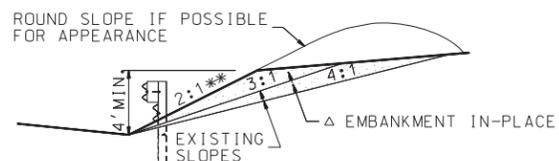
STANDARD NO. GR-7

TYPICAL SECTION	TYPICAL DITCH WIDTH	L	B*	C*	RUB RAIL LENGTH	CALCULATED LENGTH ITEM 606.1497
11-4-4 (EARTH)						
12-4-4 (EARTH)	6'-0"	75'-0"	9'-5"	17'-2"	125'-0"	139'-6"
12-10-10 (EARTH)	12'-0"	137'-6"	17'-2"	28'-2"	212'-6"	227'-0"
12-10-10 (ROCK)	10'-0"	100'-0"	12'-6"	21'-11"	162'-6"	177'-0"
12-10-12 (EARTH)	14'-6"	162'-6"	20'-4"	31'-3"	237'-6"	252'-0"
12-10-12 (ROCK)	12'-0"	125'-0"	15'-8"	25'-0"	187'-6"	202'-0"
12-10-12 (ROCK)	18'-0"	175'-0"	21'-10"	32'-10"	250'-0"	264'-6"

RAIL LENGTHS ROUNDED TO NEAREST INCREMENT OF 12'-6"  
 \* OFFSETS MEASURED FROM EDGE OF PAVEMENT AND ROUNDED TO NEAREST INCH  
 NOTE: FOR DITCH WIDTHS OTHER THAN THOSE SHOWN, THE LENGTHS AND OFFSETS WILL CHANGE CORRESPONDINGLY.



MAINTAIN 8% FORESLOPE FOR 50' MIN. AND 2:1 BACKSLOPE FOR 100' MIN. FROM SECTION C-C. TRANSITION TO NORMAL TYPICAL AS ORDERED (100' MAXIMUM). - SEE NOTE NO. 6

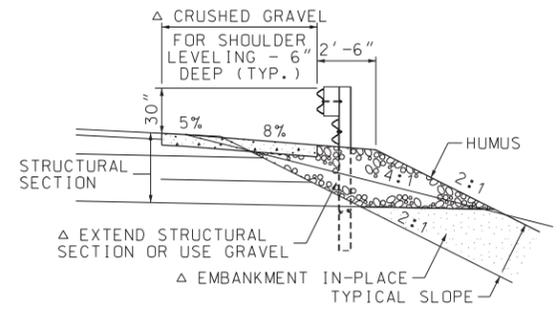


**SLOPE STEEPENING DETAIL**  
(WHERE REQUIRED)

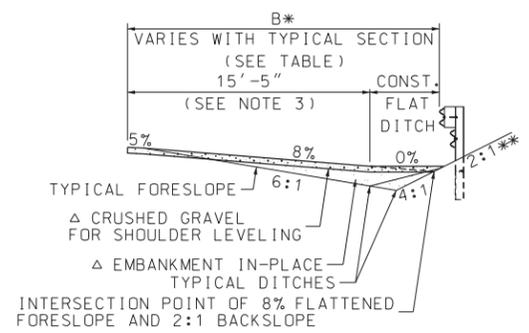
**40 MPH - 8:1 TAPER RATE**

**TERMINAL SECTION TYPE E-2 MODIFIED**

ITEM 606.1497 - BEAM GUARDRAIL TERMINAL SECTION, TYPE E-2 MODIFIED  
 PAID: LINEAR FOOT (INCLUDES RUB RAIL AND ANCHOR)  
 USE: AT BEGINNING OR END OF STANDARD SECTION GUARDRAIL

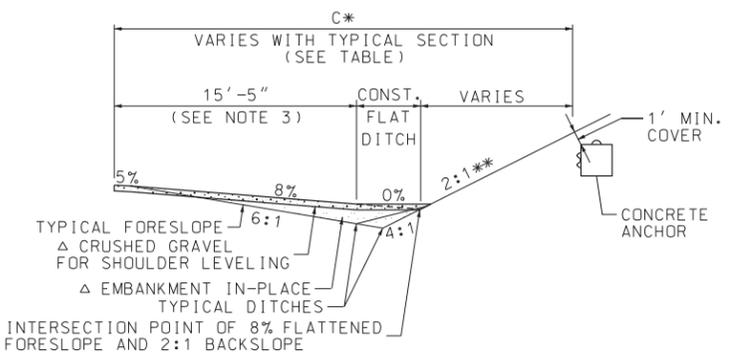


**SECTION A-A**



**SECTION B-B**

△ SEE NOTE 6 FOR ALL HATCHED AREAS



**SECTION C-C**

\*\* THE BACK SLOPE SHALL BE 2:1 OR STEEPER APPROACHING THE ANCHOR. IT IS NOT THE INTENT TO FLATTEN AN EXISTING BACKSLOPE THAT IS STEEPER THAN 2:1 UNLESS SO NOTED ON THE PLANS OR PROPOSAL.

**GENERAL NOTES**

1. THIS TERMINAL IS DESIGNED FOR USE PRIMARILY AT SITES WHERE THE TERRAIN CHANGES ABRUPTLY FROM A CUT TO A STEEP FILL, AND WHERE THEORETICAL LENGTH OF NEED WOULD EXTEND INTO THE CUT SECTION FOR A CONSIDERABLE DISTANCE. THE DESIGN SPEED FOR THIS TERMINAL IS 40 MPH.
2. SEE STANDARD NO. GR-6 FOR E-2 HARDWARE DETAILS. SEE STANDARDS NO. GR-1 OR GR-2 FOR ADDITIONAL DETAILS OF COMMON HARDWARE.
3. A RUB RAIL IS REQUIRED WHEN THE BOTTOM OF THE W-BEAM IS GREATER THAN 18" HIGH ABOVE THE GROUND. A MAXIMUM OFFSET FROM THE E.P. OF 15'-5" MAINTAINS A SINGLE RUB RAIL HEIGHT. FOR ANY PORTION OF A DITCH OFFSET GREATER THAN 15'-5" CONSTRUCT A FLAT BOTTOMED DITCH TO THE 2:1 BACK SLOPE.
4. CONSTRUCT OUTLET DITCH TO FIT SITE CONDITIONS OR USE DROP INLET AND PIPE IF LARGE FLOWS ARE ANTICIPATED OR IF DITCHLINE BECOMES FLATTER THAN 0.4% (PAY UNDER BID ITEMS).
5. FOR INSTALLATIONS IN ROCK CUT EARTH BERMS, EXCAVATE A SUFFICIENT QUANTITY OF ROCK TO PERMIT POST DRIVING, AND ANCHOR THE TERMINAL BY ONE OF THE FOLLOWING METHODS:  
 A) EXCAVATE ROCK TO PERMIT INSTALLATION OF PRECAST ANCHOR  
 B) CONSTRUCT CAST-IN-PLACE ANCHOR WITH SAME MASS AS PRECAST ANCHOR AND 4 S.F. CROSS-SECTIONAL AREA TO FACE OF ANCHOR (SUBSIDIARY TO ITEM 606.1497).  
 C) ATTACH W-BEAM TERMINAL CONNECTOR DIRECTLY TO ROCK FACE BY AN APPROVED ROCK BOLT METHOD (SUBSIDIARY TO ITEM 606.1497).
6. ANY COMMON EXCAVATION, EMBANKMENT IN-PLACE, AND CRUSHED GRAVEL FOR SHOULDER LEVELING REQUIRED WILL BE PAID UNDER ITEM 203.5596 - GUARDRAIL E-2 PLATFORMS. ROCK EXCAVATION WILL BE PAID AS ITEM 206.2 - ROCK STRUCTURE EXCAVATION.

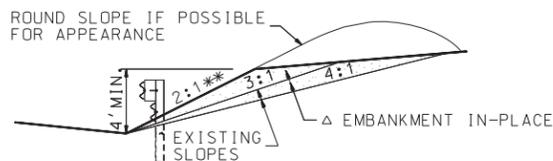
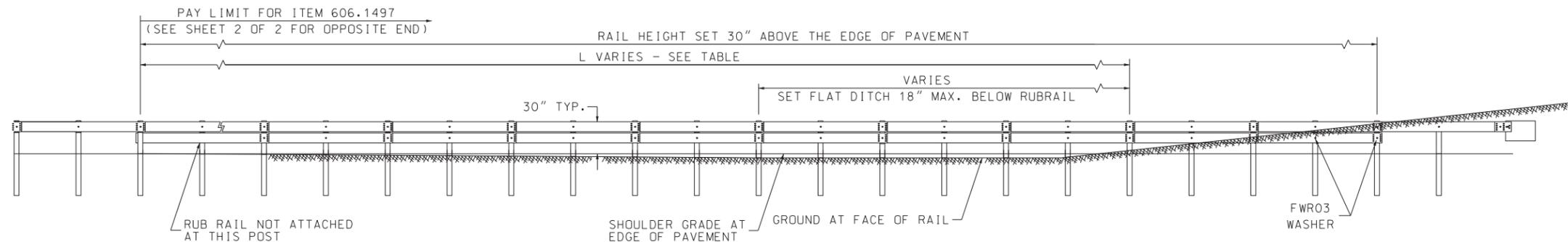
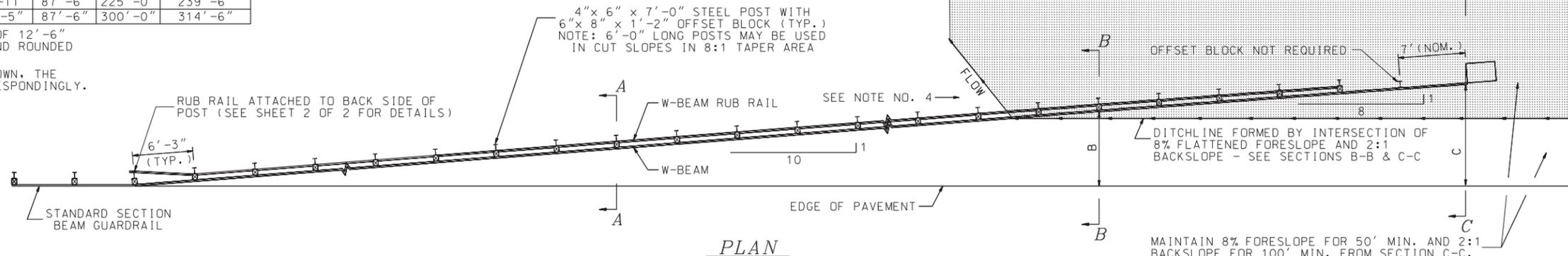
**GUARDRAIL STANDARD**  
**BEAM GUARDRAIL TERMINAL**  
**SECTION TYPE E-2 MODIFIED 40**

STANDARD NO. GR-8

REVISION DATE
03-01-2006
06-16-2010
*.DGN FILE NAME
GR-8

TYPICAL SECTION	TYPICAL DITCH WIDTH	L	B*	C*	8:1 RAIL LENGTH	RUB RAIL LENGTH	CALCULATED LENGTH ITEM 606.1497
11-4-4 (EARTH)							
12-4-4 (EARTH)	6'-0"	87'-6"	8'-9"	16'-7"	62'-6"	137'-6"	152'-0"
12-10-10 (EARTH)	12'-0"	162'-6"	16'-3"	27'-2"	87'-6"	237'-6"	252'-0"
12-10-10 (ROCK)	10'-0"	125'-0"	12'-6"	21'-11"	75'-0"	187'-6"	202'-0"
12-10-12 (EARTH)	14'-6"	200'-0"	20'-0"	30'-11"	87'-6"	275'-0"	289'-6"
12-10-12 (ROCK)	12'-0"	150'-0"	15'-0"	25'-11"	87'-6"	225'-0"	239'-6"
12-10-12 (ROCK)	18'-0"	225'-0"	22'-6"	33'-5"	87'-6"	300'-0"	314'-6"

RAIL LENGTHS ROUNDED TO NEAREST INCREMENT OF 12'-6"  
 \* OFFSETS MEASURED FROM EDGE OF PAVEMENT AND ROUNDED TO NEAREST INCH  
 NOTE: FOR DITCH WIDTHS OTHER THAN THOSE SHOWN, THE LENGTHS AND OFFSETS WILL CHANGE CORRESPONDINGLY.

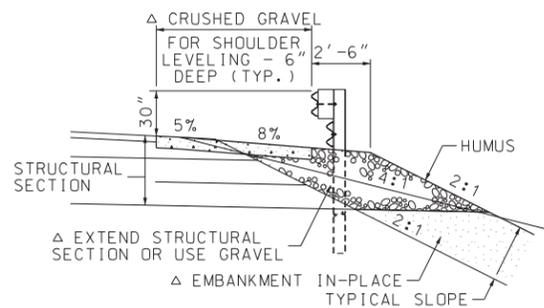


**SLOPE STEEPENING DETAIL**  
(WHERE REQUIRED)

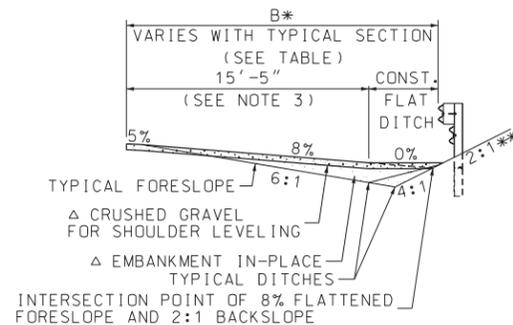
**45 MPH - 10:1 TAPER RATE**

**TERMINAL SECTION TYPE E-2 MODIFIED**

ITEM 606.1497 - BEAM GUARDRAIL TERMINAL SECTION, TYPE E-2 MODIFIED  
 PAID: LINEAR FOOT (INCLUDES RUB RAIL AND ANCHOR)  
 USE: AT BEGINNING OR END OF STANDARD SECTION GUARDRAIL

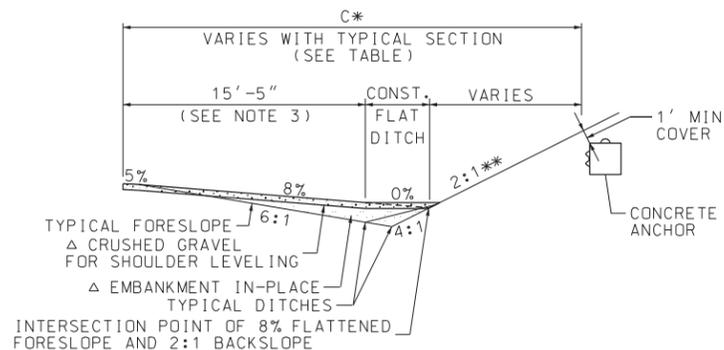


**SECTION A-A**



**SECTION B-B**

SEE NOTE 6 FOR ALL HATCHED AREAS



**SECTION C-C**

\*\* THE BACK SLOPE SHALL BE 2:1 OR STEEPER APPROACHING THE ANCHOR. IT IS NOT THE INTENT TO FLATTEN AN EXISTING BACKSLOPE THAT IS STEEPER THAN 2:1 UNLESS SO NOTED ON THE PLANS OR PROPOSAL.

**GENERAL NOTES**

- THIS TERMINAL IS DESIGNED FOR USE PRIMARILY AT SITES WHERE THE TERRAIN CHANGES ABRUPTLY FROM A CUT TO A STEEP FILL, AND WHERE THEORETICAL LENGTH OF NEED WOULD EXTEND INTO THE CUT SECTION FOR A CONSIDERABLE DISTANCE. THE DESIGN SPEED FOR THIS TERMINAL IS 45 MPH.
- SEE STANDARD NO. GR-6 FOR E-2 HARDWARE DETAILS. SEE STANDARDS NO. GR-1 OR GR-2 FOR ADDITIONAL DETAILS OF COMMON HARDWARE.
- A RUB RAIL IS REQUIRED WHEN THE BOTTOM OF THE W-BEAM IS GREATER THAN 18" HIGH ABOVE THE GROUND. A MAXIMUM OFFSET FROM THE E.P. OF 15'-5" MAINTAINS A SINGLE RUB RAIL HEIGHT. FOR ANY PORTION OF A DITCH OFFSET GREATER THAN 15'-5" CONSTRUCT A FLAT BOTTOMED DITCH TO THE 2:1 BACK SLOPE.
- CONSTRUCT OUTLET DITCH TO FIT SITE CONDITIONS OR USE DROP INLET AND PIPE IF LARGE FLOWS ARE ANTICIPATED OR IF DITCHLINE BECOMES FLATTER THAN 0.4% (PAY UNDER BID ITEMS).
- FOR INSTALLATIONS IN ROCK CUT EARTH BERMS, EXCAVATE A SUFFICIENT QUANTITY OF ROCK TO PERMIT POST DRIVING, AND ANCHOR THE TERMINAL BY ONE OF THE FOLLOWING METHODS:  
 A) EXCAVATE ROCK TO PERMIT INSTALLATION OF PRECAST ANCHOR  
 B) CONSTRUCT CAST-IN-PLACE ANCHOR WITH SAME MASS AS PRECAST ANCHOR AND 4 S.F. CROSS-SECTIONAL AREA TO FACE OF ANCHOR (SUBSIDIARY TO ITEM 606.1497).  
 C) ATTACH W-BEAM TERMINAL CONNECTOR DIRECTLY TO ROCK FACE BY AN APPROVED ROCK BOLT METHOD (SUBSIDIARY TO ITEM 606.1497).
- ANY COMMON EXCAVATION, EMBAKMENT IN-PLACE, AND CRUSHED GRAVEL FOR SHOULDER LEVELING REQUIRED WILL BE PAID UNDER ITEM 203.5596 - GUARDRAIL E-2 PLATFORMS. ROCK EXCAVATION WILL BE PAID AS ITEM 206.2 - ROCK STRUCTURE EXCAVATION.

**GUARDRAIL STANDARD**  
**BEAM GUARDRAIL TERMINAL**  
**SECTION TYPE E-2 MODIFIED 45**

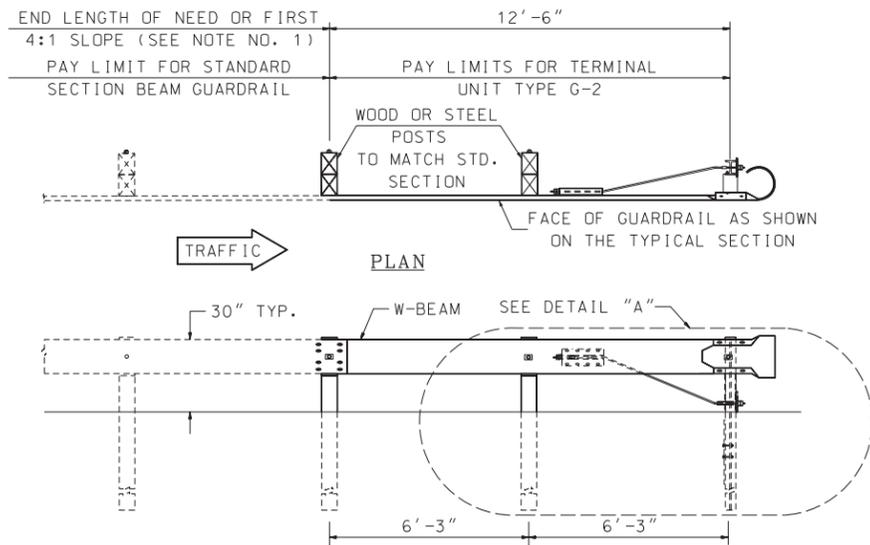
**STANDARD NO. GR-9**

REVISION DATE
03-01-2006
06-16-2010

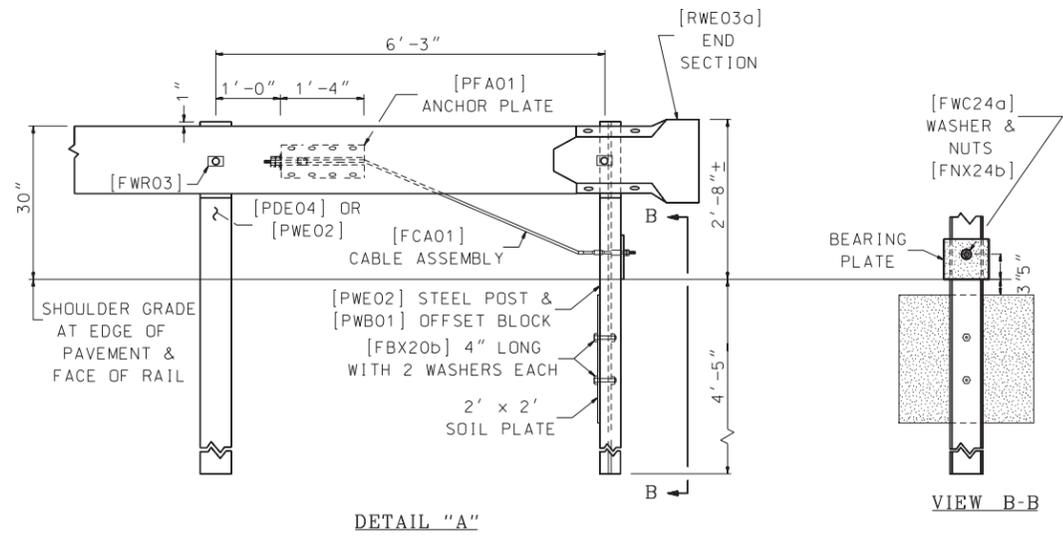
**\*.DGN FILE NAME**  
GR-9

2021  
 STANDARD PLANS  
 DOT  
 Department of Transportation

**STANDARD NO. GR-9**

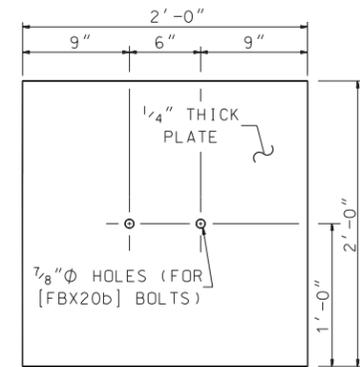


ELEVATION

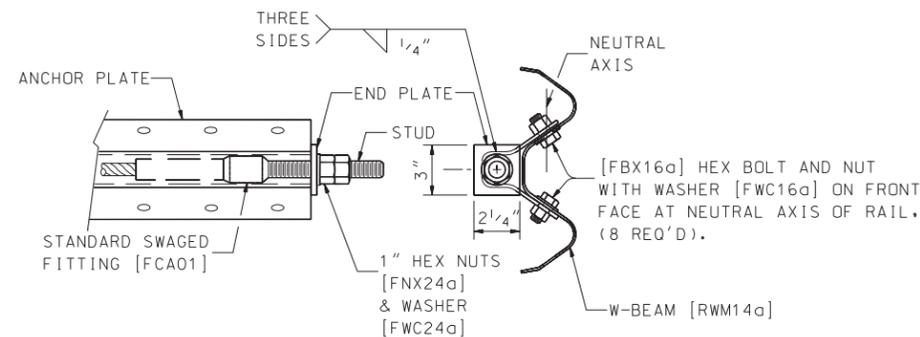


DETAIL "A"

VIEW B-B

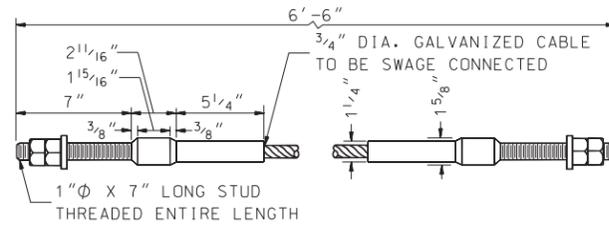


SOIL PLATE  
(2 REQ'D-POSTS A)



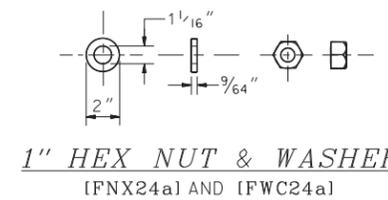
ANCHOR PLATE ASSEMBLY DETAILS

ITEM PAID: 606.147- BEAM GUARDRAIL (TERMINAL UNIT TYPE G-2)  
UNIT  
USE: ON DIVIDED HIGHWAYS ONLY WITH DIRECTION OF TRAFFIC AS INDICATED

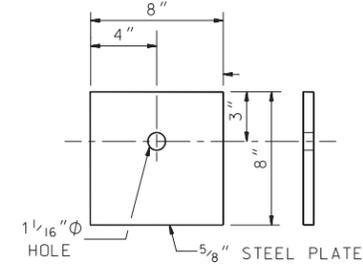


CABLE ASSEMBLY  
[FCA01]

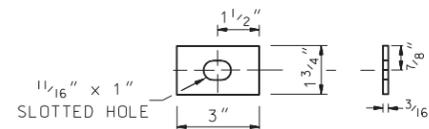
NOTE: TIGHTEN CABLE ASSEMBLY TO TAUT TENSION & DOUBLE-NUT BOTH ENDS



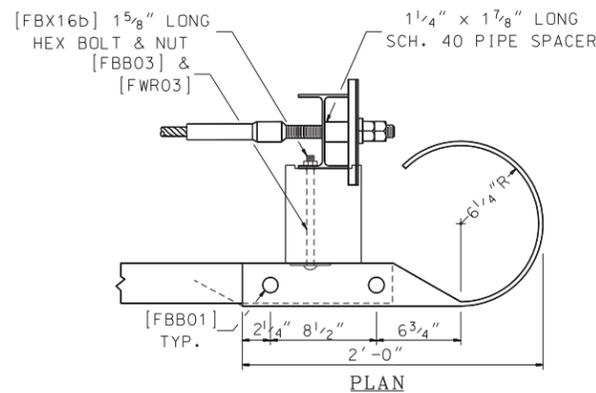
1" HEX NUT & WASHER  
[FNX24a] AND [FWC24a]



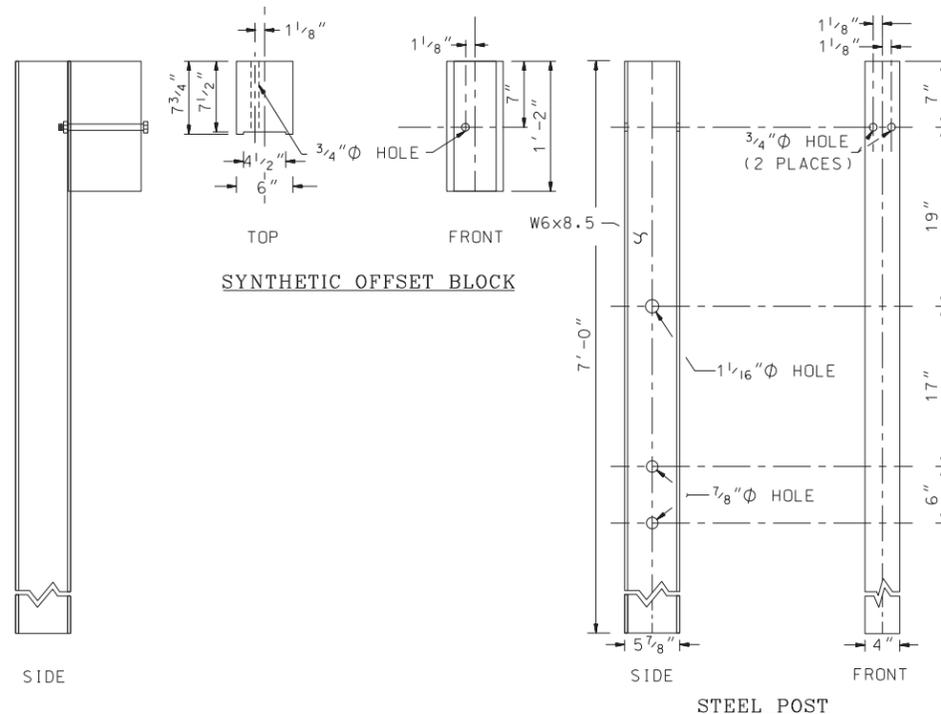
BEARING PLATE  
[FPB01]



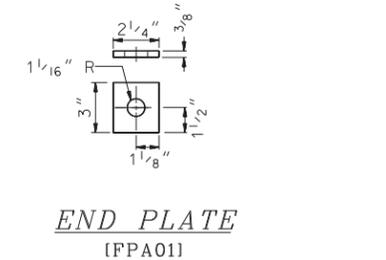
RECTANGULAR PLATE WASHER  
[FWR03] (3 REQ'D)



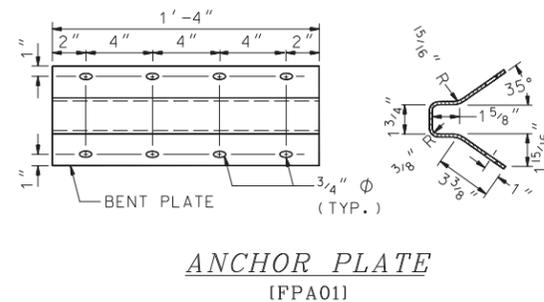
ELEVATION  
END SECTION  
[RWE03a]



STRUCTURAL SHAPE STEEL POST & BLOCK  
[PWE02] MODIFIED



END PLATE  
[FPA01]



ANCHOR PLATE  
[FPA01]

GENERAL NOTES

1. THE LENGTH OF NEED IS THE TOTAL LENGTH OF A LONGITUDINAL BARRIER NEEDED TO SHIELD AN AREA OF CONCERN. TO DETERMINE THE LENGTH OF NEED, REFER TO THE *ROADSIDE DESIGN GUIDE* - AASHTO, LATEST ADOPTED VERSION, THE G-2 UNIT SHALL TERMINATE IN A 4:1 OR FLATTER SLOPE.
2. DESIGNATIONS PROVIDED IN BRACKETS [ ] REFERENCE STANDARD ELEMENTS DETAILED IN A *GUIDE TO STANDARDIZED HIGHWAY BARRIER RAIL HARDWARE*, LATEST ADOPTED VERSION, AASHTO-AGC-ARTBA JOINT COOPERATIVE COMMITTEE.
3. ALL DIMENSIONS SUBJECT TO MANUFACTURER'S TOLERANCES.
4. STANDARDS NO. GR-1 (OR GR-2), SHALL BE USED IN CONJUNCTION WITH THIS STANDARD. SEE THESE STANDARDS FOR ADDITIONAL DETAILS OF COMMON HARDWARE.
5. TIGHTEN CABLE ASSEMBLY TO TAUT TENSION AND DOUBLE-NUT BOTH ENDS.
6. DIMENSIONS OF PLASTIC AND SYNTHETIC BLOCKOUTS ARE AS SHOWN ON MANUFACTURER'S DRAWINGS.

GUARDRAIL STANDARD

BEAM GUARDRAIL  
TERMINAL UNIT TYPE G-2

STANDARD  
NO. GR-10

REVISION DATE  
07-13-2001  
06-16-2010

\*.DGN FILE NAME  
GR-10

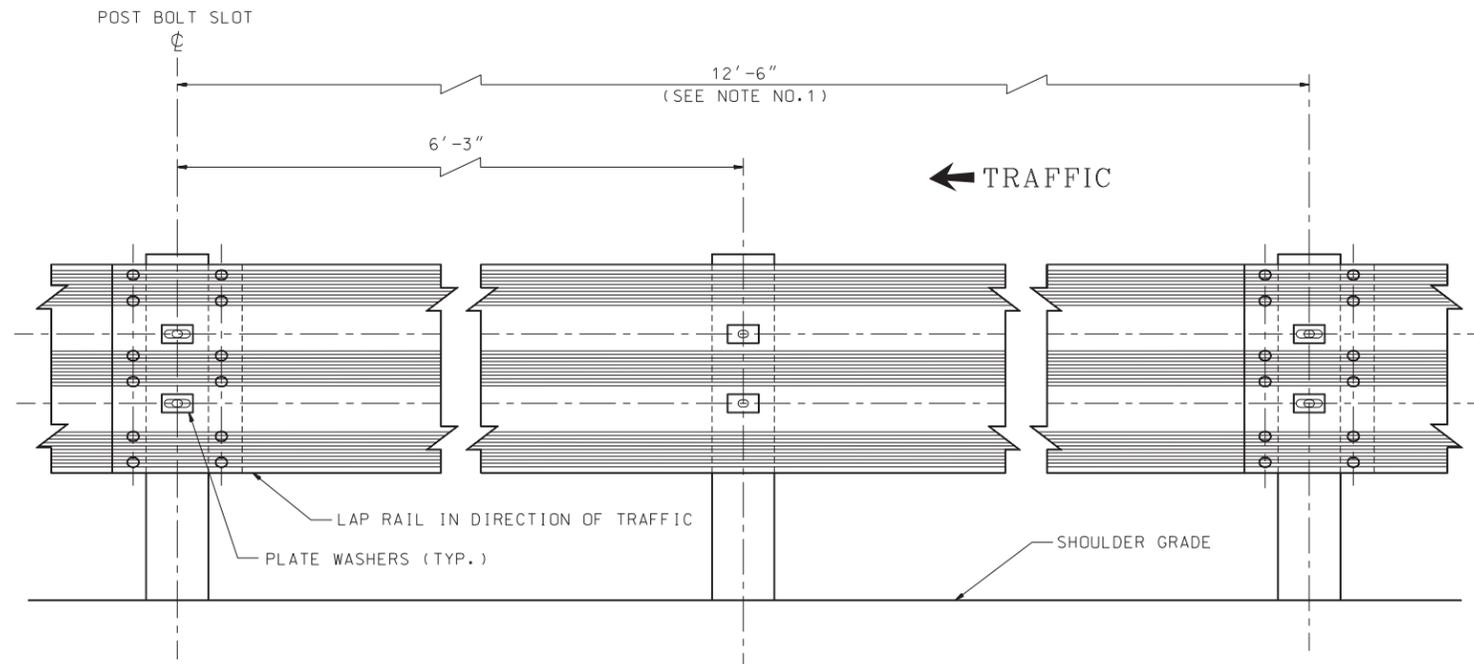
STANDARD PLANS

New Hampshire  
DOT  
Department of Transportation

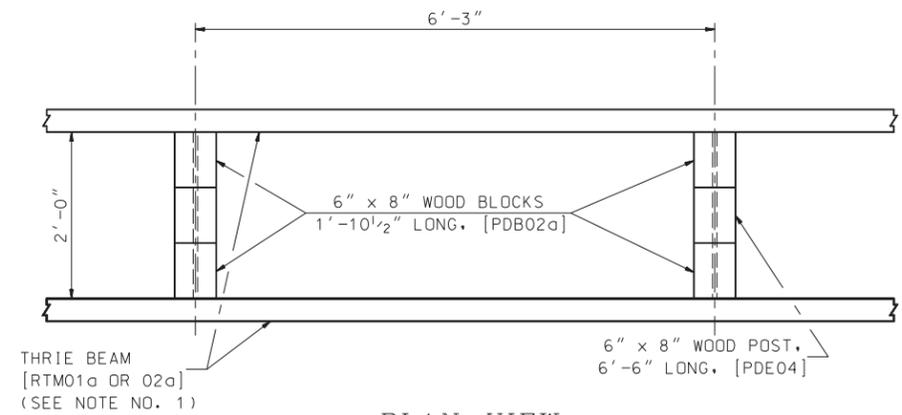
STANDARD  
NO. GR-10

REVISION DATE
07-13-2001
06-16-2010
11-05-2010

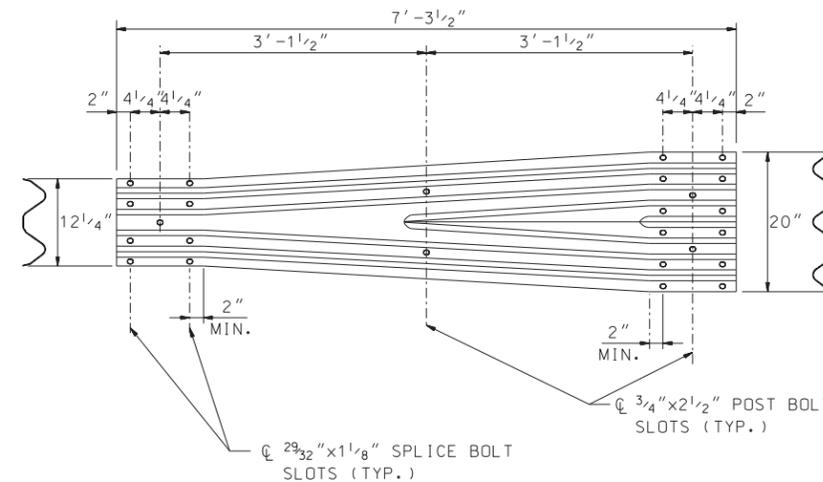
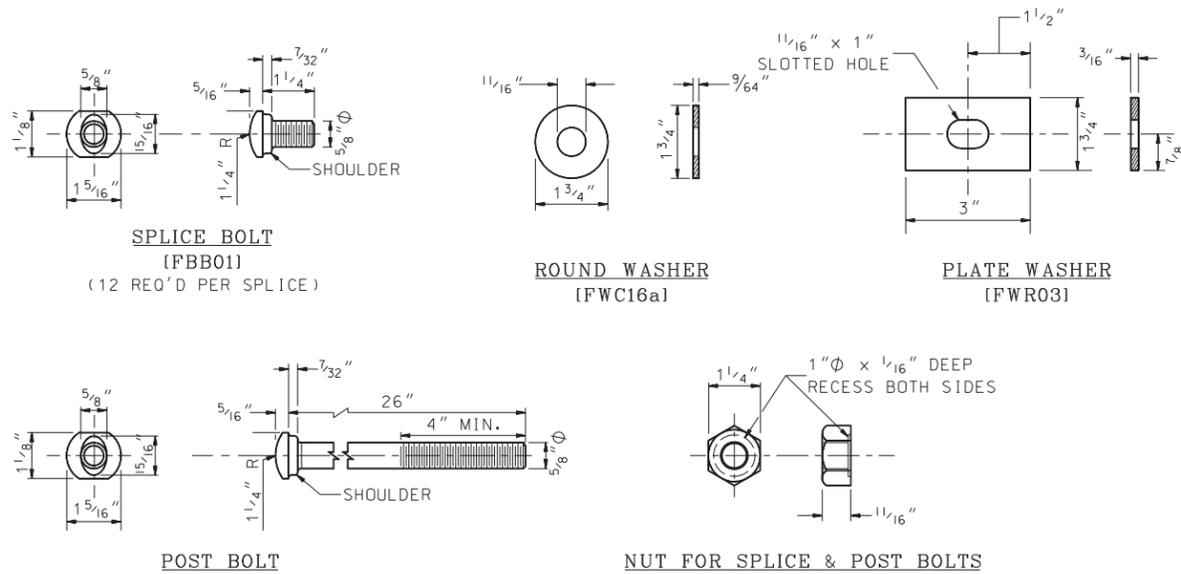
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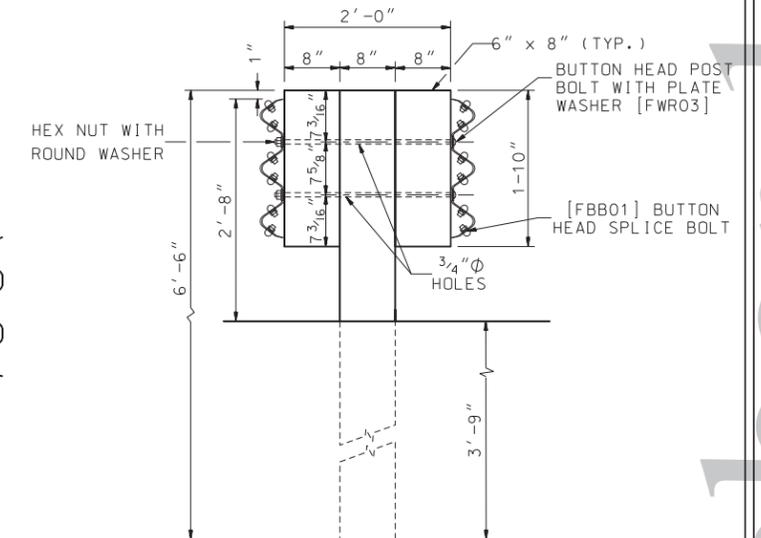
ELEVATION VIEW



PLAN VIEW

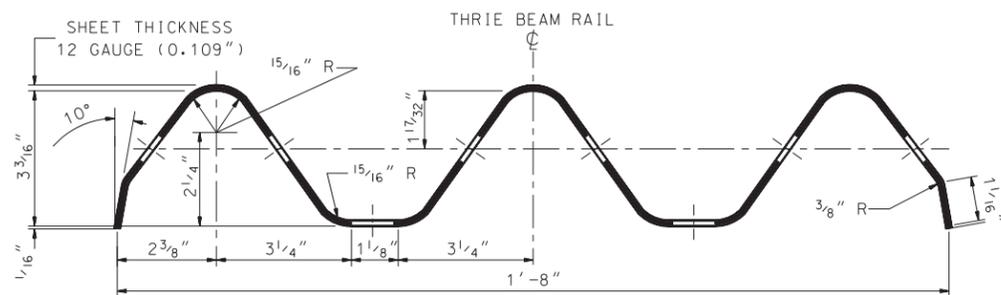


W-THRIE BEAM TRANSITION SECTION [RWT01a]

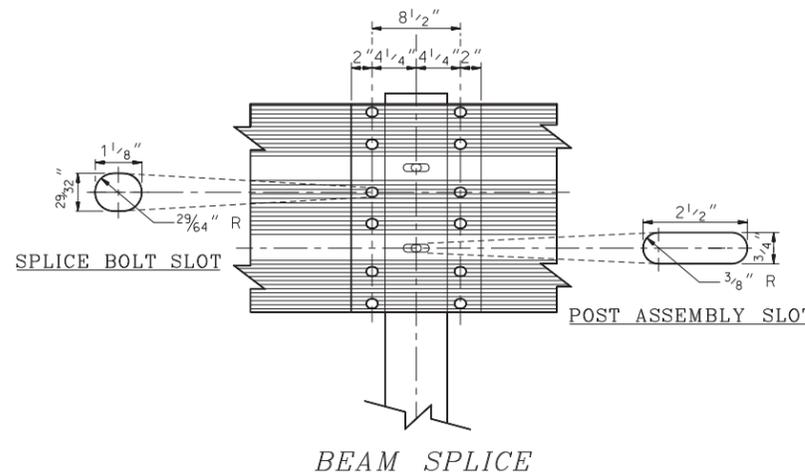


SIDE VIEW AT SPLICE POST

NOTE: LONGER ERECTION BOLTS MAY BE REQUIRED. IF THE BOLT EXTENDS MORE THAN 1/4" FROM THE NUT, THE BOLT SHOULD BE TRIMMED BACK.



THRIE BEAM RAIL SECTION [RTM01a & RTM02a]



BEAM SPLICE

GENERAL NOTES

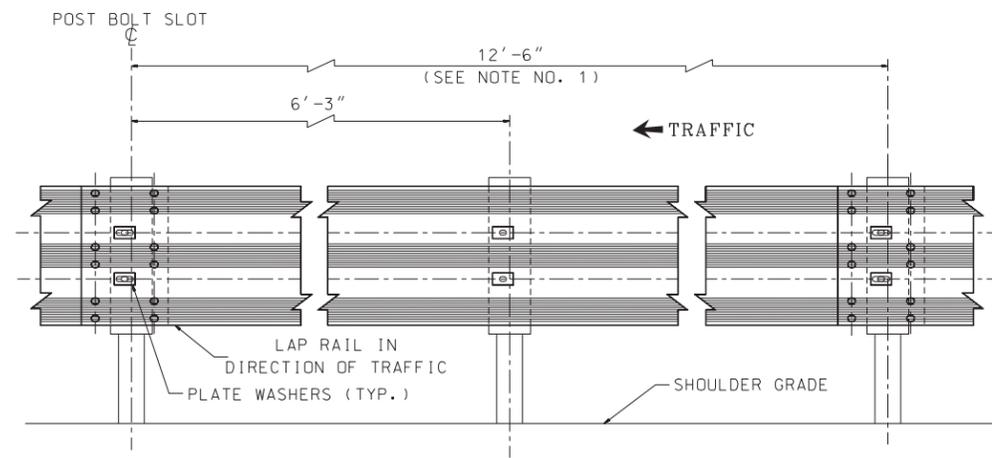
- 25'-0" RAIL PANELS MAY BE USED IN PLACE OF 12'-6" PANELS, EXCEPT ON CURVES WITH A RAIL RADIUS OF LESS THAN 300 FT.
- GUARDRAIL HEIGHT SHALL BE SET FROM THE GRADE AT THE FACE OF RAIL.
- DESIGNATIONS PROVIDED IN BRACKETS [ ] REFERENCE STANDARD ELEMENTS DETAILED IN A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE, LATEST ADOPTED VERSION, AASHTO-AGC-ARTBA JOINT COOPERATIVE COMMITTEE.
- SEE STD. NO. DL-1 FOR BEAM GUARDRAIL DELINEATORS.
- PAID FOR UNDER APPROPRIATE 606 ITEMS, OR AS SHOWN ON PLANS.

GUARDRAIL STANDARD  
BEAM GUARDRAIL THRIE  
BEAM DOUBLE-FACED (WOOD)

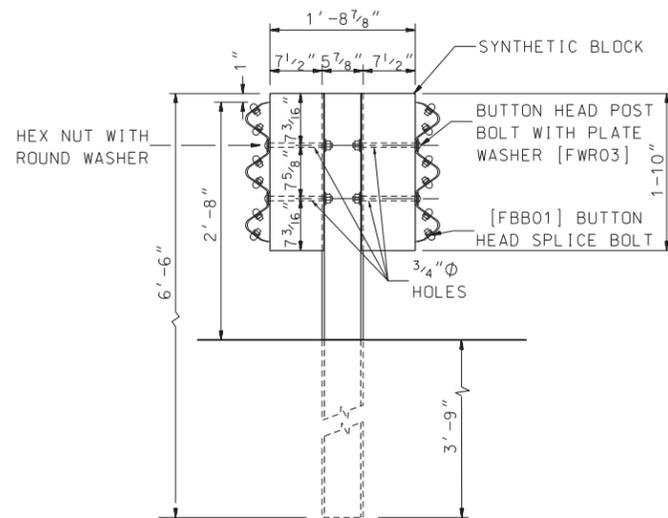
STANDARD PLANS  
 New Hampshire  
**DOT**  
 Department of Transportation

REVISION DATE
06-16-2010
11-05-2010
05-03-2011

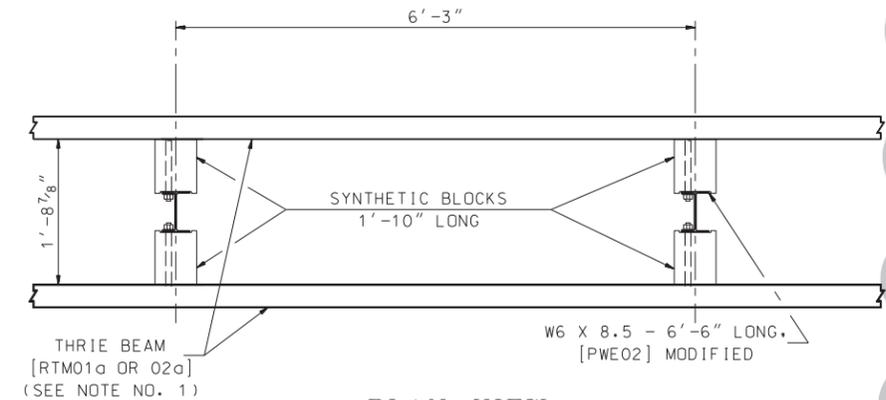
\*.DGN FILE NAME  
GR-12



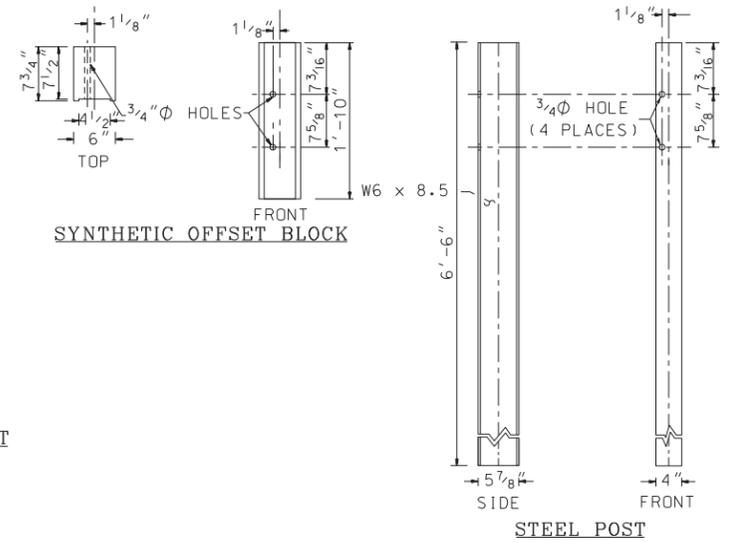
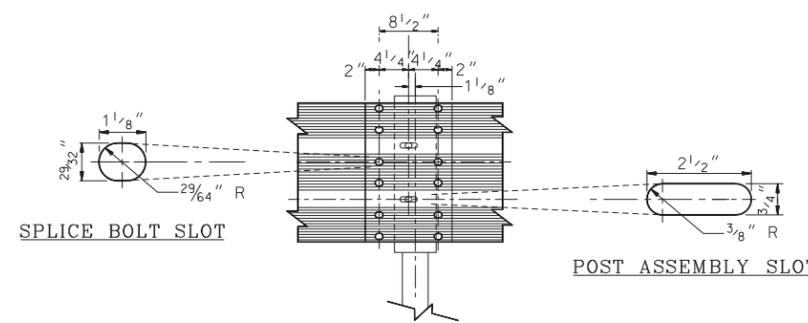
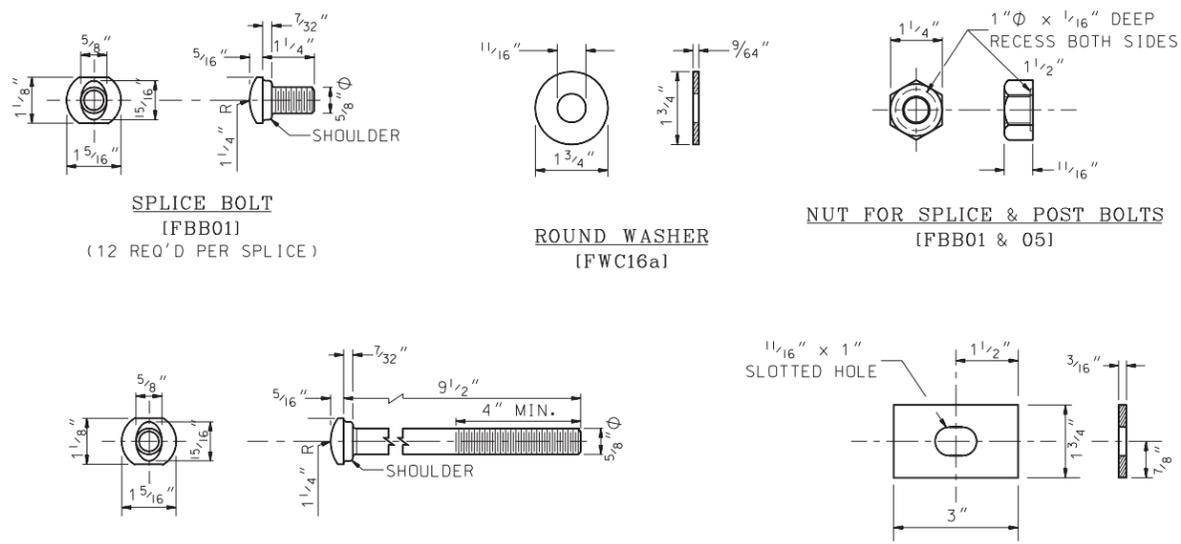
**ELEVATION VIEW**



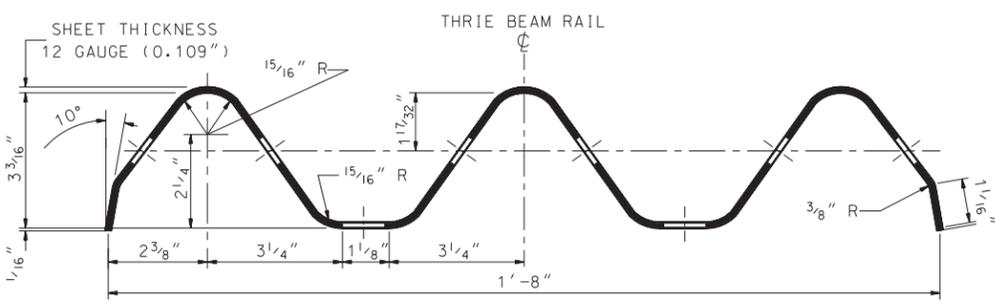
**SIDE VIEW AT SPLICE POST**



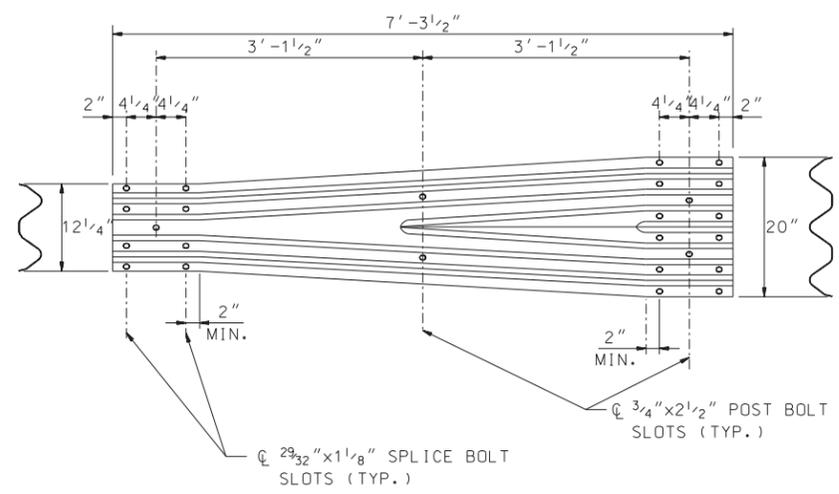
**PLAN VIEW**



**STRUCTURAL SHAPE STEEL POST & BLOCK**



**THRIE BEAM RAIL SECTION**  
[RTM01a & RTM02a]

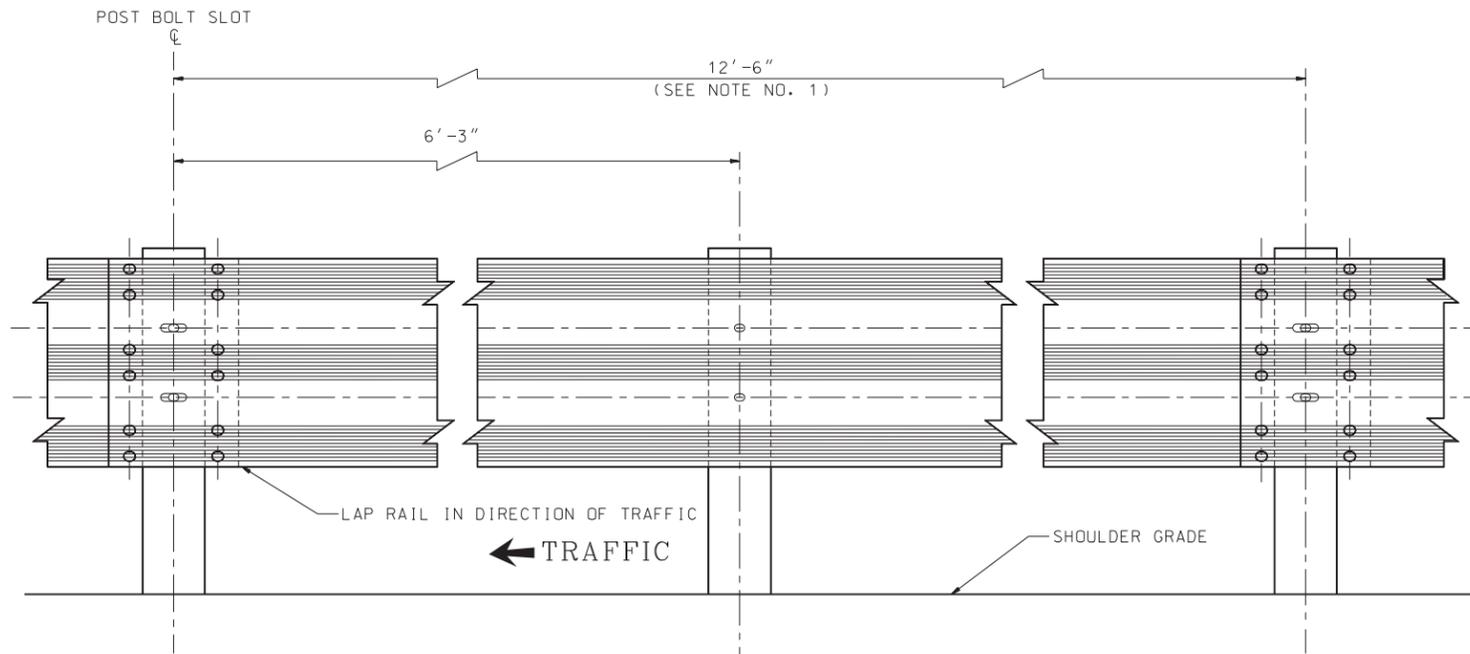


**W-THRIE BEAM TRANSITION SECTION**  
[RWT01a]

**GENERAL NOTES**

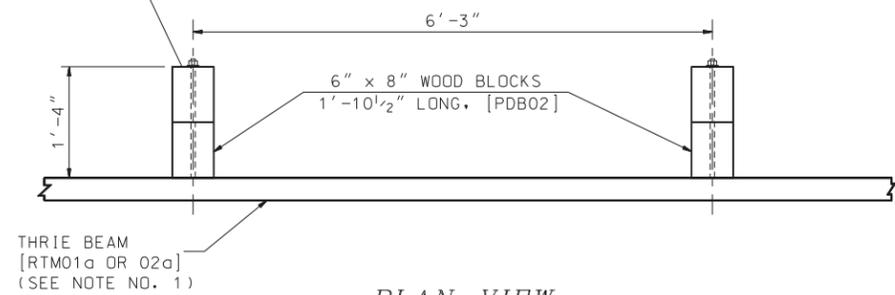
- 25'-0" RAIL PANELS MAY BE USED IN PLACE OF 12'-6" PANELS, EXCEPT ON CURVES WITH A RAIL RADIUS OF LESS THAN 300 FT.
- GUARDRAIL HEIGHT SHALL BE SET FROM THE GRADE AT THE FACE OF RAIL.
- DESIGNATIONS PROVIDED IN BRACKETS [ ] REFERENCE STANDARD ELEMENTS DETAILED IN A *GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE*, LATEST ADOPTED VERSION, AASHTO-AGC-ARTBA JOINT COOPERATIVE COMMITTEE.
- SEE STD. NO. DL-1 FOR BEAM GUARDRAIL DELINEATORS.
- PAID UNDER APPROPRIATE 606 ITEMS, OR AS SHOWN ON PLANS.
- DIMENSIONS OF PLASTIC AND SYNTHETIC BLOCKOUTS ARE AS SHOWN ON MANUFACTURER'S DRAWINGS.

**GUARDRAIL STANDARD**  
*BEAM GUARDRAIL THRIE*  
*BEAM DOUBLE-FACED (STEEL)*

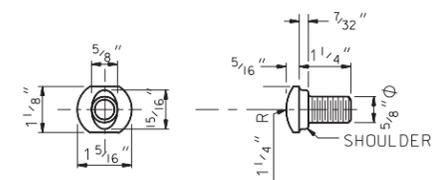


ELEVATION VIEW

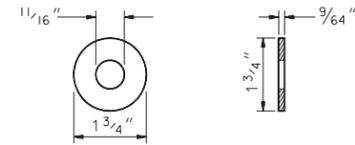
6" x 8" WOOD POST,  
7'-0" LONG, [PDE04]



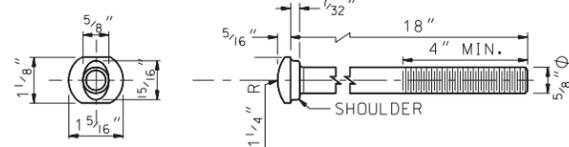
PLAN VIEW



SPLICE BOLT [FBB01]  
(12 REQ'D PER SPLICE)

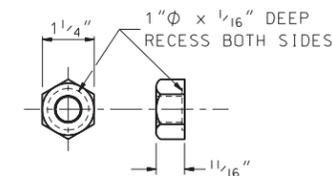


ROUND WASHER [FWC16a]

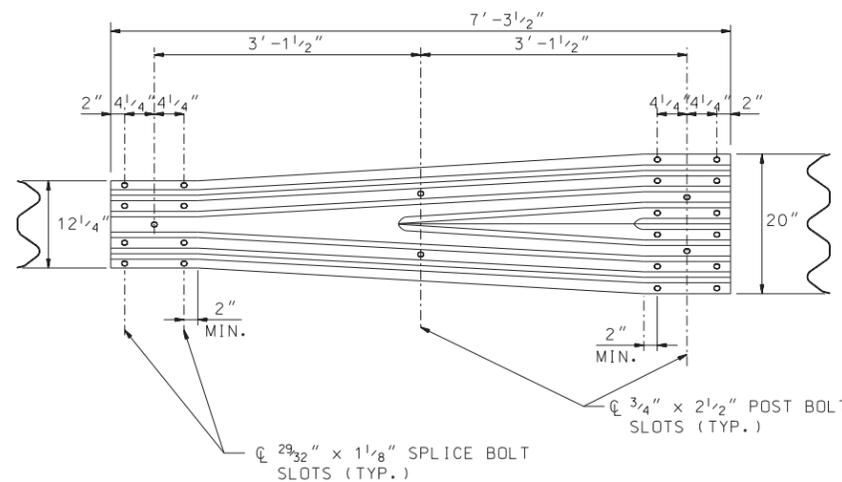


POST BOLT [FBB05]  
(2 REQ'D PER POST)

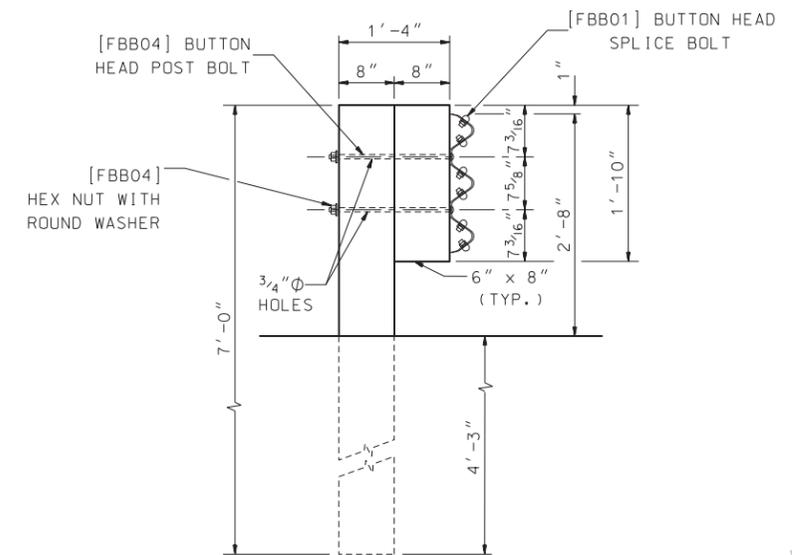
NOTE: LONGER ERECTION BOLTS MAY BE REQUIRED



NUT FOR SPLICE & POST BOLTS [FBB01 & 05]



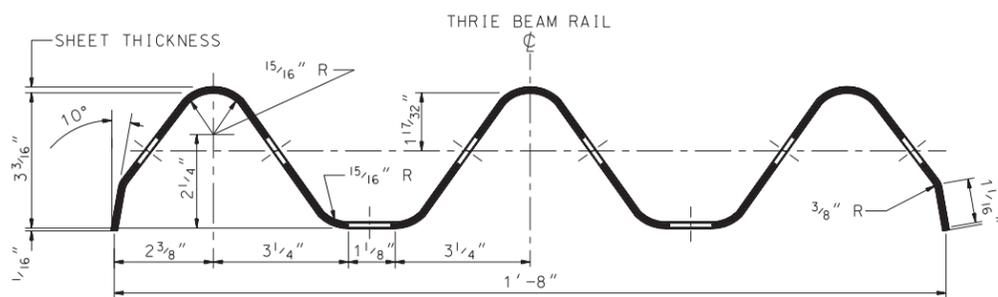
W-THRIE BEAM TRANSITION SECTION [RWT01a]



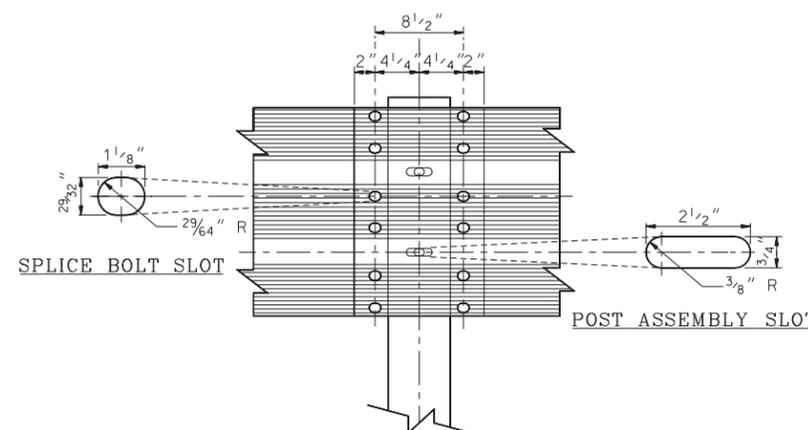
SIDE VIEW AT SPLICE POST

GENERAL NOTES

- 25'-0" RAIL PANELS MAY BE USED IN PLACE OF 12'-6" PANELS, EXCEPT ON CURVES WITH A RAIL RADIUS OF LESS THAN 300 FT.
- GUARDRAIL HEIGHT SHALL BE SET FROM THE GRADE AT THE FACE OF RAIL.
- DESIGNATIONS PROVIDED IN BRACKETS [ ] REFERENCE STANDARD ELEMENTS DETAILED IN A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE, LATEST ADOPTED VERSION, AASHTO-AGC-ARTBA JOINT COOPERATIVE COMMITTEE.
- SEE STD. NO. DL-1 FOR BEAM GUARDRAIL DELINEATORS.
- PAID FOR UNDER APPROPRIATE 606 ITEMS, OR AS SHOWN ON PLANS.
- POSTS SHORTER THAN THE 7'-0" INDICATED ON THE DETAIL, BUT NOT LESS THAN 6'-6", MAY ONLY BE USED WHEN
  - THE SLOPE BEHIND THE GUARDRAIL IS NO STEEPER THAN 4:1
  - WHERE THE DISTANCE FROM THE BACK OF THE POST TO THE BREAK OF THE SLOPE IS A MINIMUM OF 2'-0"
  - AND THEN ONLY AS APPROVED OR SPECIFICALLY SHOWN ON THE PLANS.



THRIE BEAM RAIL SECTION [RTM01a & RTM02a]

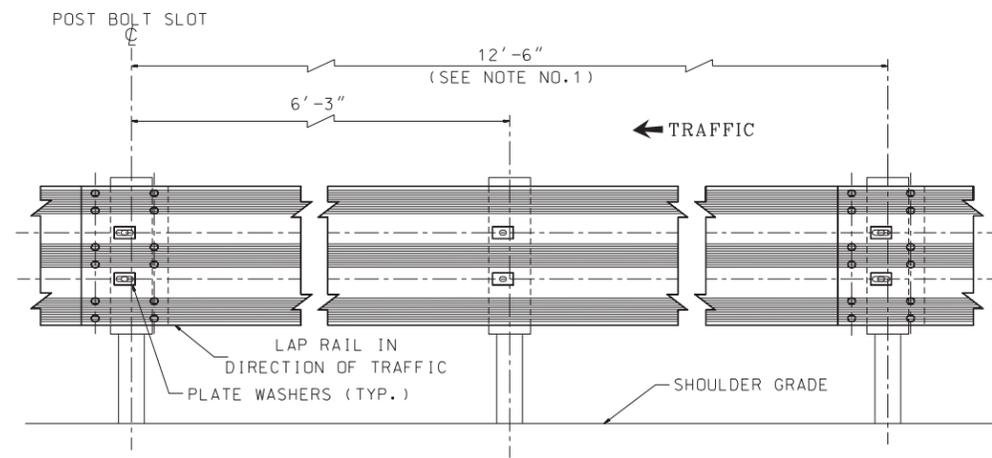


BEAM SPLICE

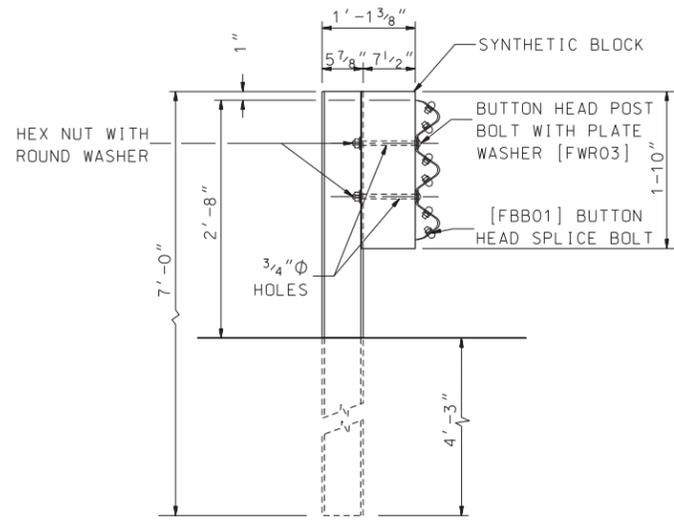
GUARDRAIL STANDARD  
BEAM GUARDRAIL  
THRIE BEAM SINGLE-FACED

REVISION DATE
06-16-2010
11-05-2010
05-03-2011

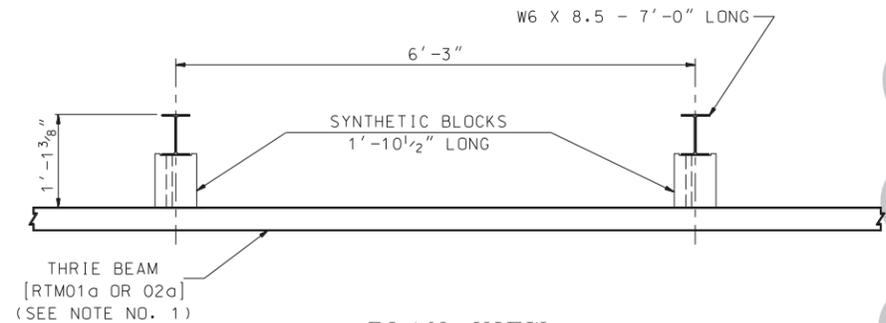
\*.DGN FILE NAME  
GR-14



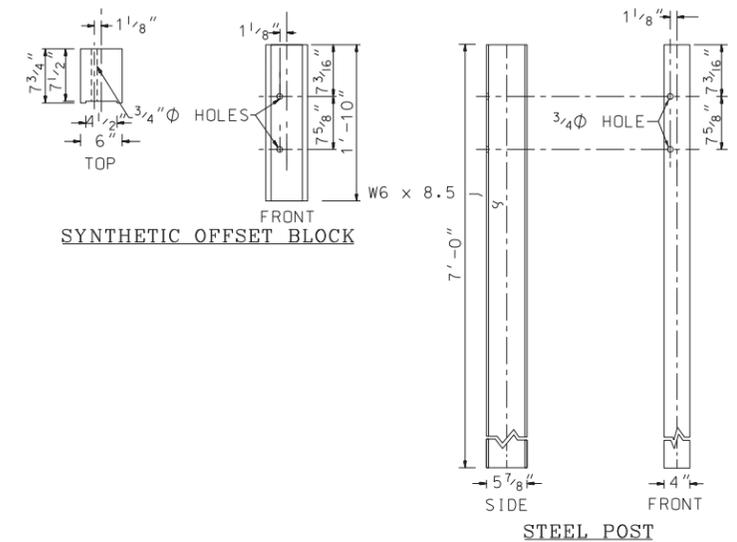
ELEVATION VIEW



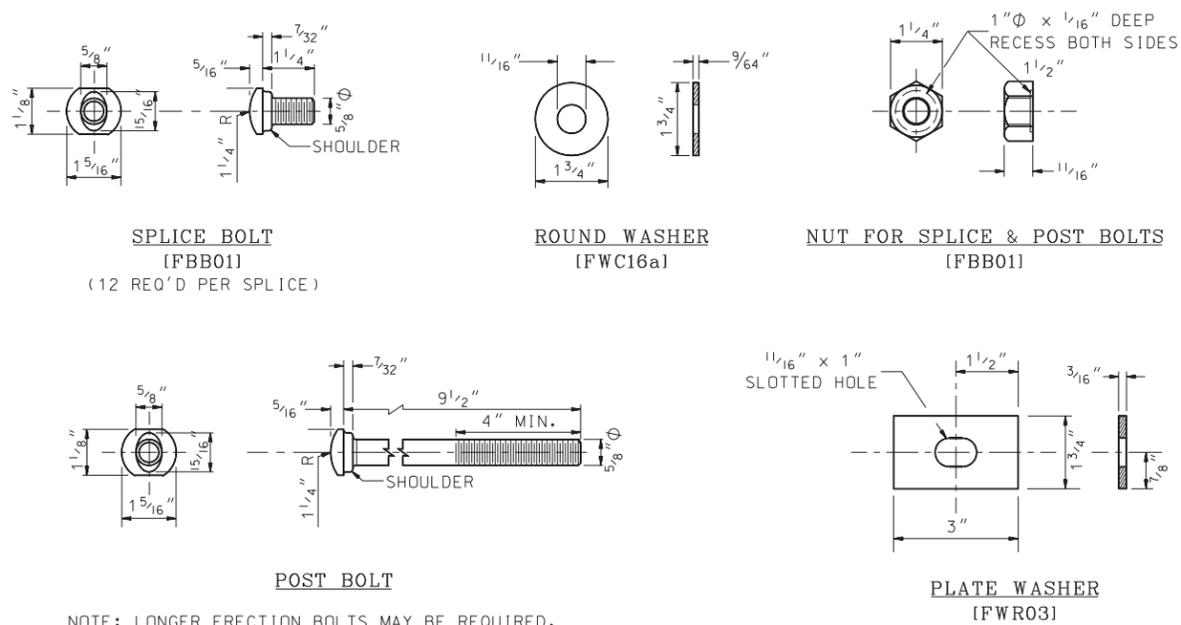
SIDE VIEW AT SPLICE POST



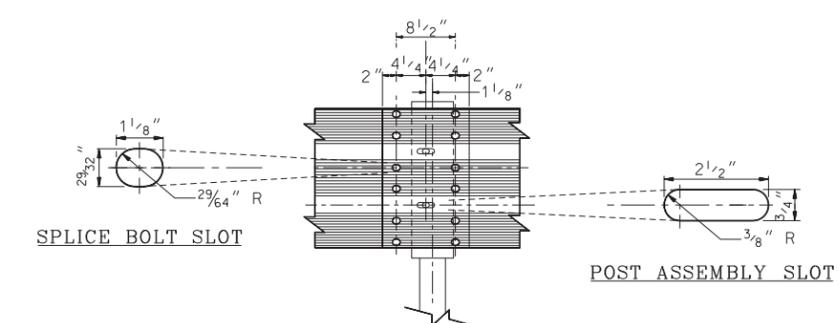
PLAN VIEW



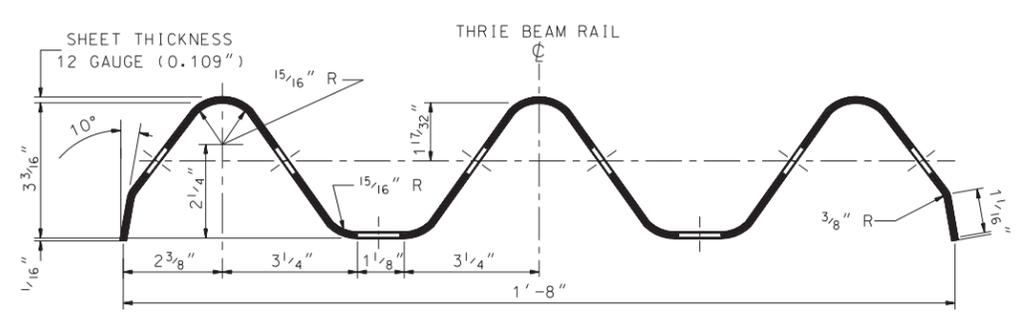
STRUCTURAL SHAPE STEEL POST & BLOCK



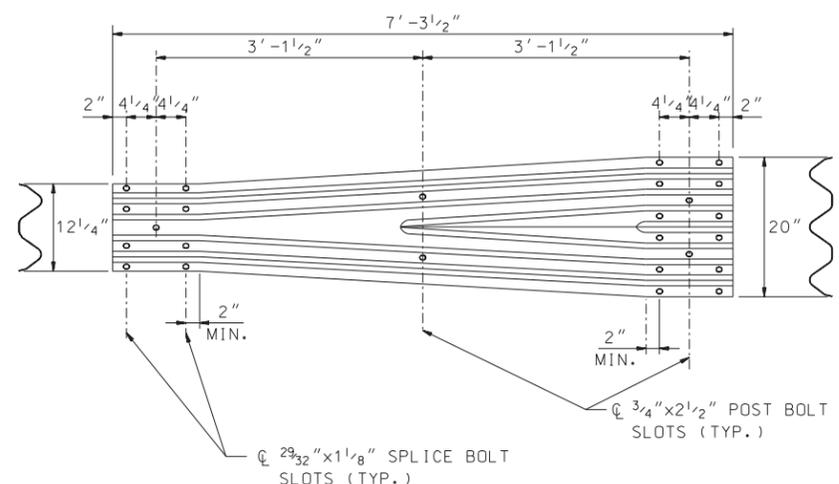
NOTE: LONGER ERECTION BOLTS MAY BE REQUIRED.



BEAM SPLICE



THRIE BEAM RAIL SECTION [RTM01a & RTM02a]



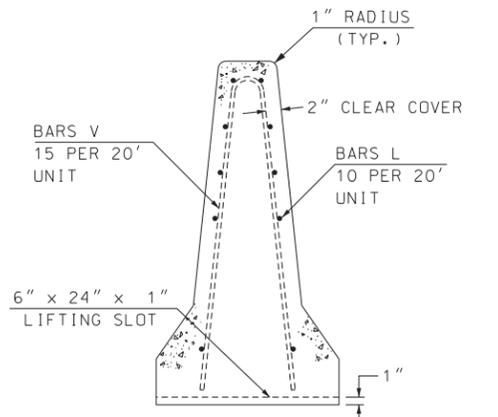
W-THRIE BEAM TRANSITION SECTION [RWT01a]

GENERAL NOTES

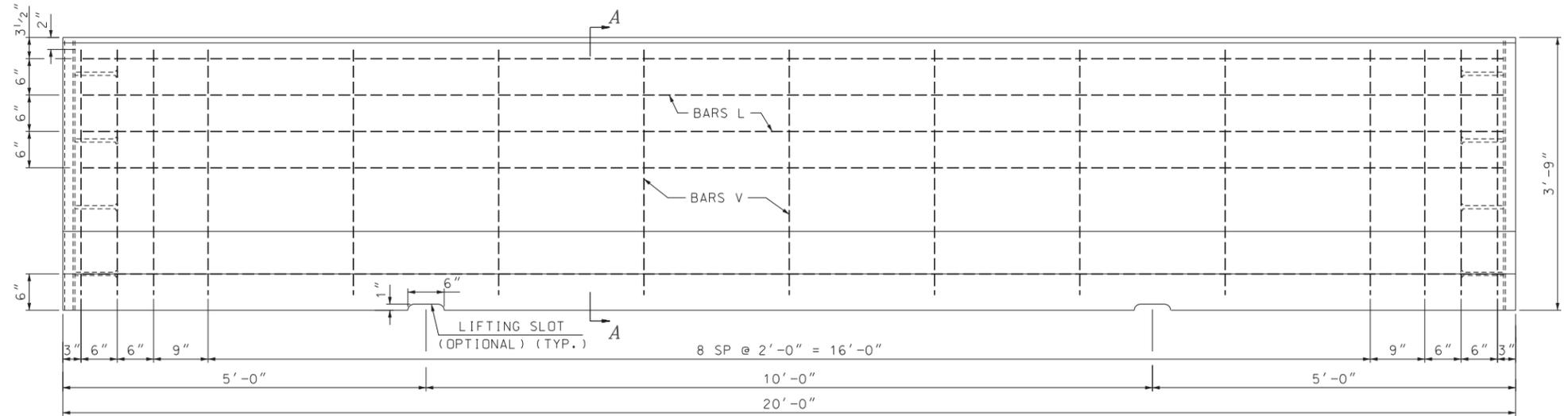
- 25'-0" RAIL PANELS MAY BE USED IN PLACE OF 12'-6" PANELS, EXCEPT ON CURVES WITH A RAIL RADIUS OF LESS THAN 300 FT.
- GUARDRAIL HEIGHT SHALL BE SET FROM THE GRADE AT THE FACE OF RAIL.
- DESIGNATIONS PROVIDED IN BRACKETS [ ] REFERENCE STANDARD ELEMENTS DETAILED IN A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE, LATEST ADOPTED VERSION, AASHTO-AGC-ARTBA JOINT COOPERATIVE COMMITTEE.
- SEE STD. NO. DL-1 FOR BEAM GUARDRAIL DELINEATORS.
- PAID FOR UNDER APPROPRIATE 606 ITEMS, OR AS SHOWN ON PLANS.
- DIMENSIONS OF PLASTIC AND SYNTHETIC BLOCKOUTS ARE AS SHOWN ON MANUFACTURER'S DRAWINGS.
- POSTS SHORTER THAN THE 7'-0" INDICATED ON THE DETAIL, BUT NOT LESS THAN 6'-6", MAY ONLY BE USED WHEN
  - THE SLOPE BEHIND THE GUARDRAIL IS NO STEEPER THAN 4:1
  - WHERE THE DISTANCE FROM THE BACK OF THE POST TO THE BREAK OF THE SLOPE IS A MINIMUM OF 2'-0"
  - AND THEN ONLY AS APPROVED OR SPECIFICALLY SHOWN ON THE PLANS.

**GUARDRAIL STANDARD**  
BEAM GUARDRAIL THRIE  
BEAM SINGLE-FACED (STEEL)

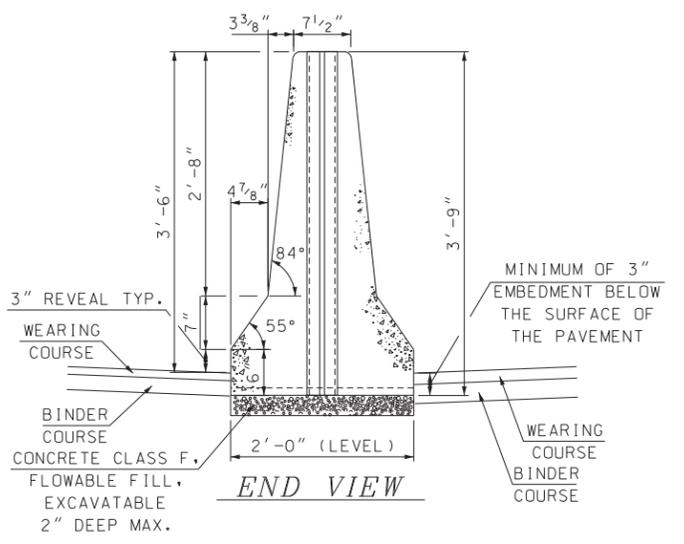
STANDARD PLANS  
 2011  
 New Hampshire  
**DOT**  
 Department of Transportation



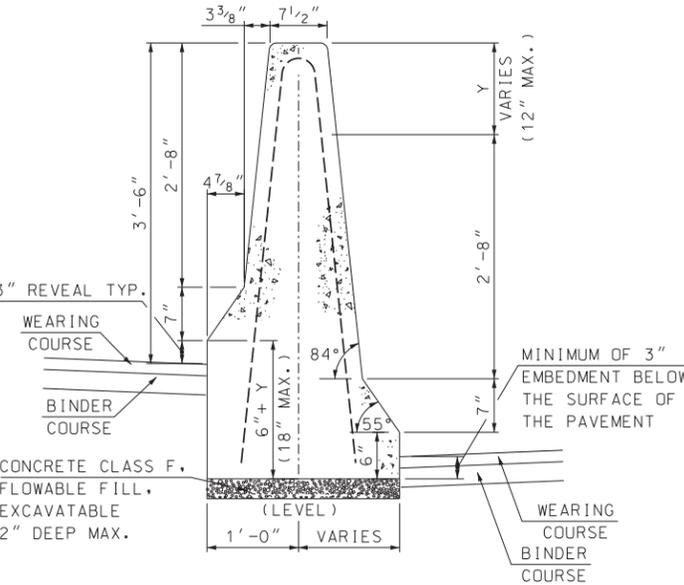
**CONCRETE BARRIER PRECAST  
DOUBLE-FACED 42" F-SHAPE  
SECTION A-A**



**ELEVATION**

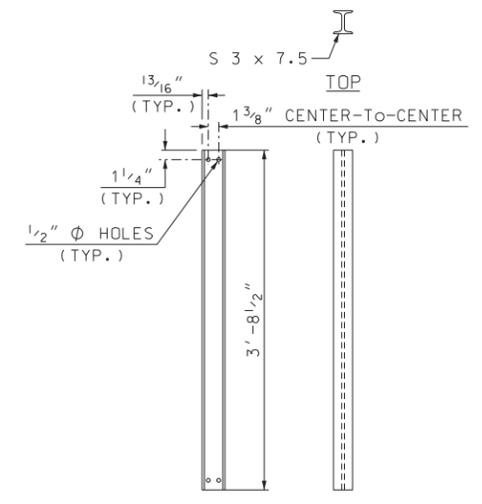


**END VIEW**

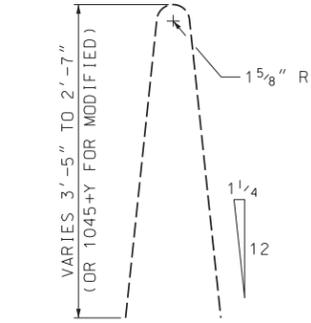


**CONCRETE BARRIER PRECAST  
DOUBLE-FACED 42" F-SHAPE  
MODIFIED**

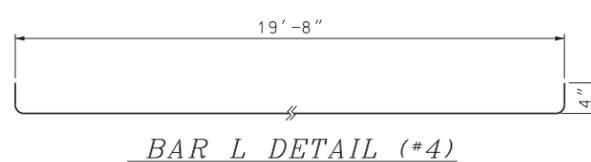
NOTE: Y = ELEVATION DIFFERENTIAL BETWEEN LANES AT FACE OF BARRIER



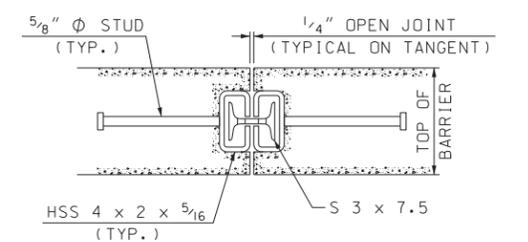
**I-BEAM DETAILS**



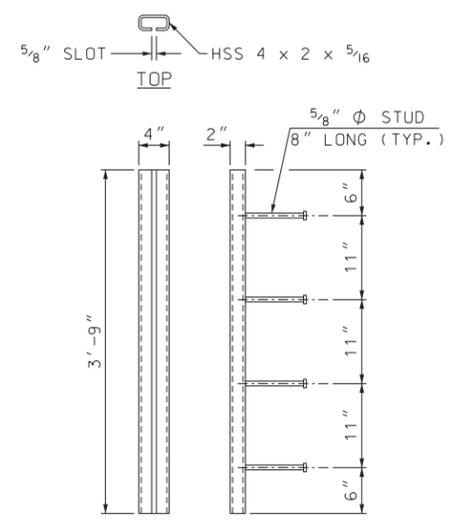
**BAR V DETAIL (#4)**



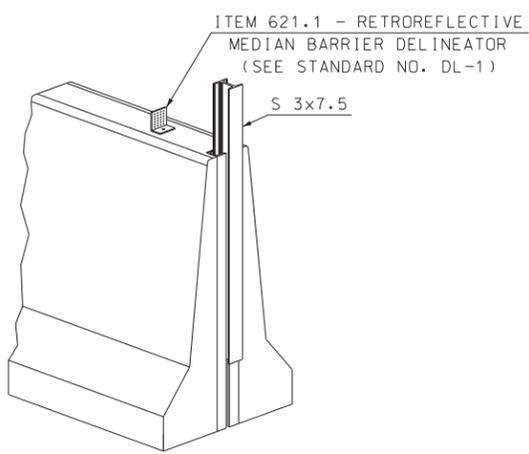
**BAR L DETAIL (#4)**



**BARRIER CONNECTION DETAIL**



**STRUCTURAL TUBE DETAILS**



**PERSPECTIVE VIEW**

**GENERAL NOTES**

1. THE CONCRETE BARRIER DETAILS, AS SHOWN ON THIS SHEET, ARE IN COMPLIANCE WITH THE REQUIREMENTS OF NCHRP REPORT 350, TL 4.
2. I-BEAMS AND STRUCTURAL TUBES SHALL BE GALVANIZED AFTER FABRICATION.
3. STUD WELDING SHALL BE IN ACCORDANCE WITH ITEM 547.
4. SLOT IN STRUCTURAL TUBE SHALL BE CUT WITH MECHANICALLY GUIDED MEANS TO A SMOOTH, UNIFORM SURFACE MEETING A SURFACE ROUGHNESS OF 1000 MICROINCHES OR BETTER (ANSI B46.1).
5. PAID FOR UNDER APPROPRIATE 606 ITEMS, OR AS SHOWN ON PLANS.

**MATERIAL NOTES**

1. THE BARRIERS SHALL BE LIGHT COLORED CLASS "AA" CONCRETE HAVING A MINIMUM 28 DAY COMPRESSION STRENGTH OF 4,000 PSI. BARRIERS SHALL HAVE A SMOOTH UNIFORM SURFACE FREE OF DEFECTS AND IRREGULARITIES. CASTING DATE SHALL BE SHOWN ON BARRIER. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4", UNLESS NOTED OTHERWISE.
2. ALL REINFORCING STEEL SHALL BE AASHTO M31 (ASTM-A615) GRADE 60, EPOXY COATED. REINFORCEMENT SHOWN IS THE MINIMUM REQUIRED.
3. EACH BARRIER UNIT SHALL INCLUDE ONE S 3 x 7.5 AS SHOWN ON THIS PLAN SHEET.
4. SHOP DRAWINGS, SHALL INCLUDE REINFORCING SCHEDULE.
5. LEVELING PADS OR SHIMMING MATERIAL SHALL BE SUBSIDIARY TO THE BARRIER ITEM.

**GUARDRAIL STANDARD**  
**CONCRETE BARRIER PRECAST  
DOUBLE-FACED 42" F-SHAPE**

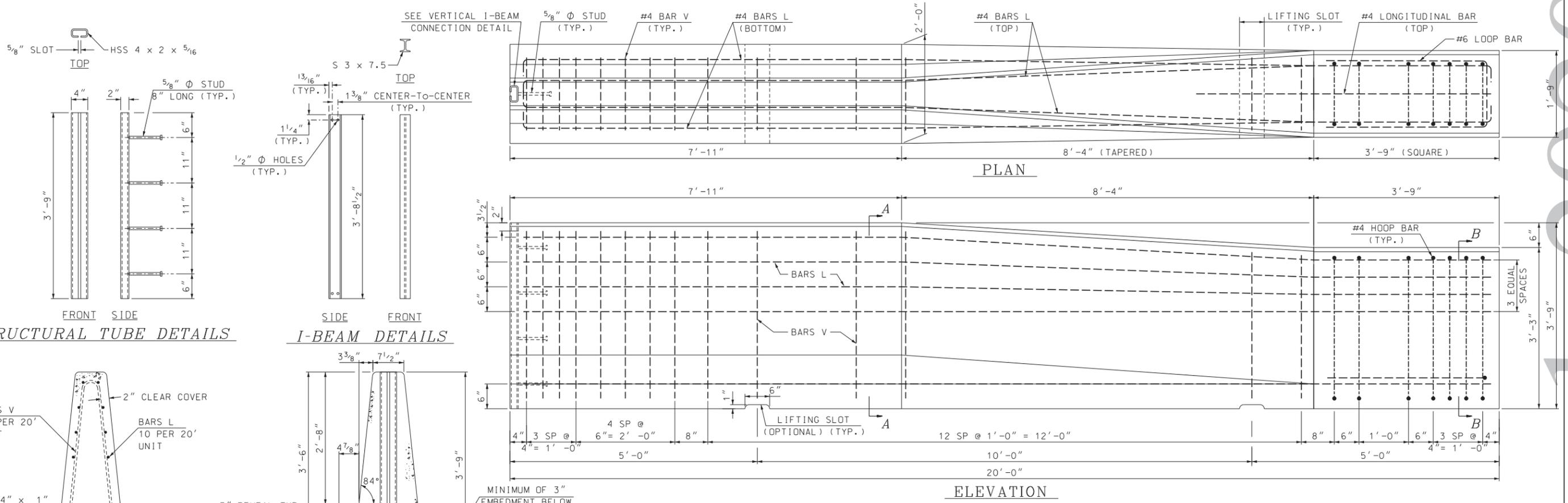
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<b>REVISION DATE</b>
06-16-2010
11-05-2010
<b>*.DGN FILE NAME</b>
GR-15

**Standard Plans**  
**2021**  
**DOT**  
 New Hampshire  
 Department of Transportation

**STANDARD NO. GR-15**

REVISION DATE	02-26-2010
	11-05-2010

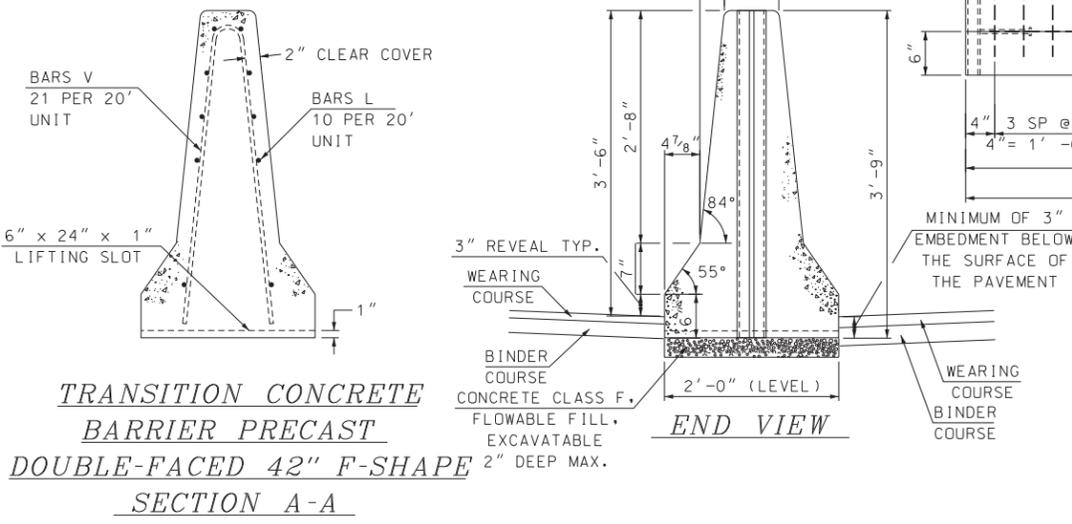
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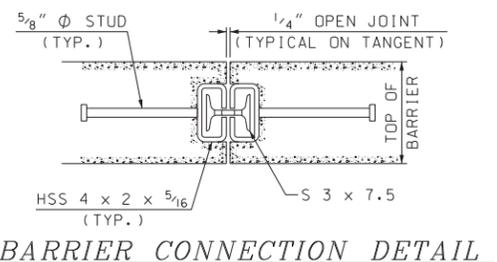
FRONT SIDE  
STRUCTURAL TUBE DETAILS

SIDE FRONT  
I-BEAM DETAILS

ELEVATION



TRANSITION CONCRETE BARRIER PRECAST DOUBLE-FACED 42" F-SHAPE SECTION A-A



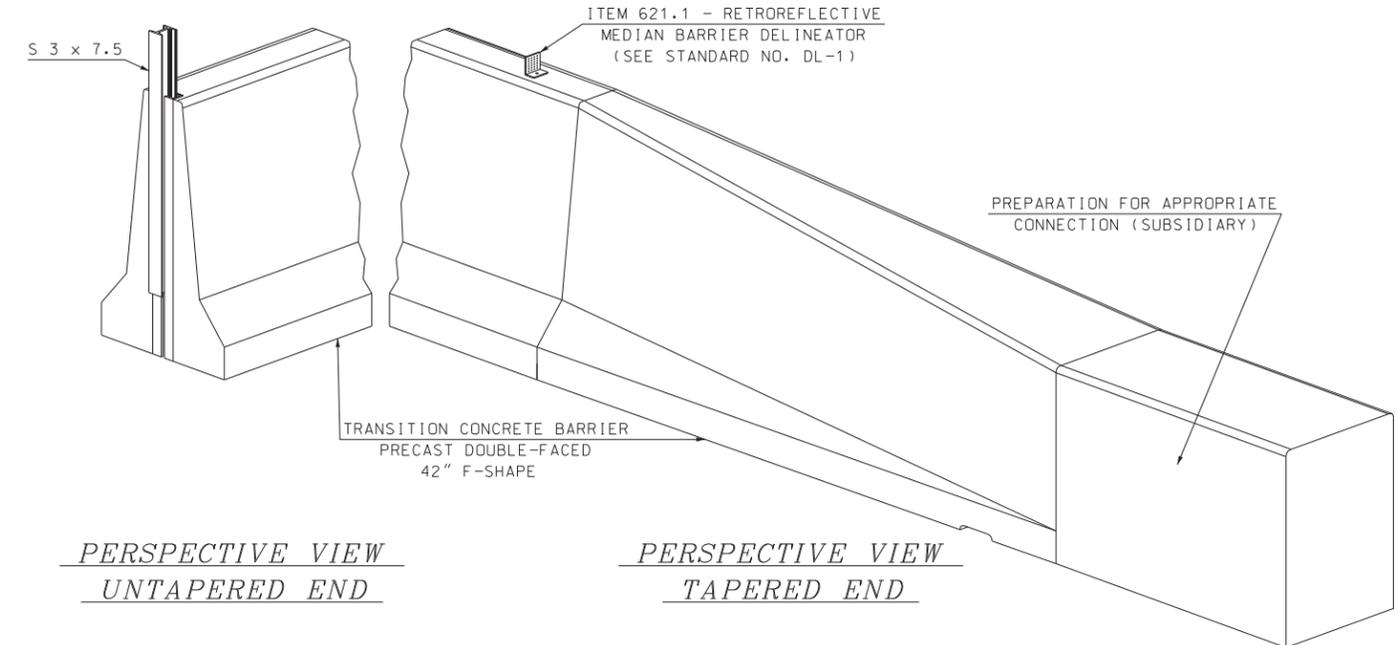
BARRIER CONNECTION DETAIL

GENERAL NOTES

1. THE CONCRETE BARRIER DETAILS, AS SHOWN ON THIS SHEET, ARE IN COMPLIANCE WITH THE REQUIREMENTS OF NCHRP REPORT 350, TL 4.
2. I-BEAMS AND STRUCTURAL TUBES SHALL BE GALVANIZED AFTER FABRICATION.
3. STUD WELDING SHALL BE IN ACCORDANCE WITH ITEM 547.
4. SLOT IN STRUCTURAL TUBE SHALL BE CUT WITH MECHANICALLY GUIDED MEANS TO A SMOOTH, UNIFORM SURFACE MEETING A SURFACE ROUGHNESS OF 1000 MICROINCHES OR BETTER (ANSI B46.1).
5. PAID FOR UNDER APPROPRIATE 606 ITEMS, OR AS SHOWN ON PLANS.

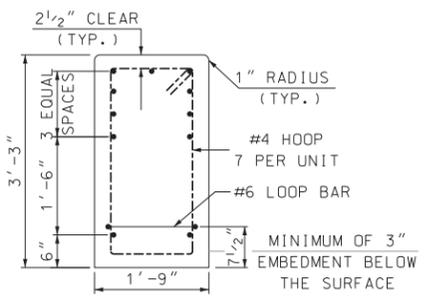
MATERIAL NOTES

1. THE BARRIERS SHALL BE LIGHT COLORED CLASS "AA" CONCRETE HAVING A MINIMUM 28 DAY COMPRESSION STRENGTH OF 4,000 PSI. BARRIERS SHALL HAVE A SMOOTH UNIFORM SURFACE FREE OF DEFECTS AND IRREGULARITIES. CASTING DATE SHALL BE SHOWN ON BARRIER. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4", UNLESS NOTED OTHERWISE.
2. ALL REINFORCING STEEL SHALL BE AASHTO M31 (ASTM-A615) GRADE 60, EPOXY COATED. REINFORCEMENT SHOWN IS THE MINIMUM REQUIRED.
3. EACH BARRIER UNIT SHALL INCLUDE ONE S 3x7.5 AS SHOWN ON THIS PLAN SHEET.
4. SHOP DRAWINGS, SHALL INCLUDE REINFORCING SCHEDULE.
5. LEVELING PADS OR SHIMMING MATERIAL SHALL BE SUBSIDIARY TO THE BARRIER ITEM.



PERSPECTIVE VIEW UNTAPERED END

PERSPECTIVE VIEW TAPERED END

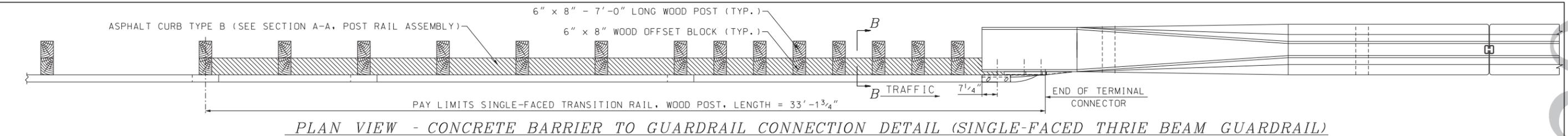


SECTION B-B (MASONRY & REINFORCEMENT)

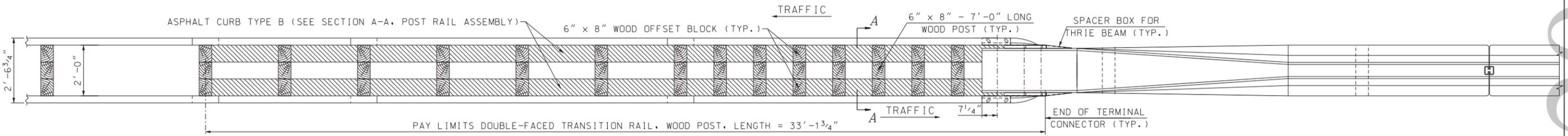
GUARDRAIL STANDARD  
TRANSITION  
CONCRETE BARRIER PRECAST  
DOUBLE-FACED 42" F-SHAPE

REVISION DATE
06-16-2010
11-05-2010
10-30-2012

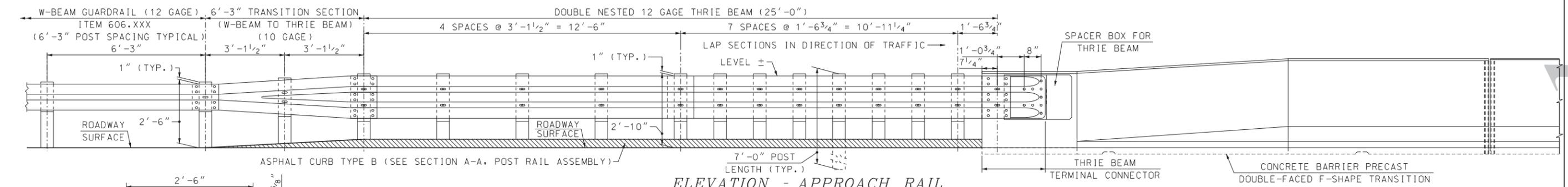
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GR-17



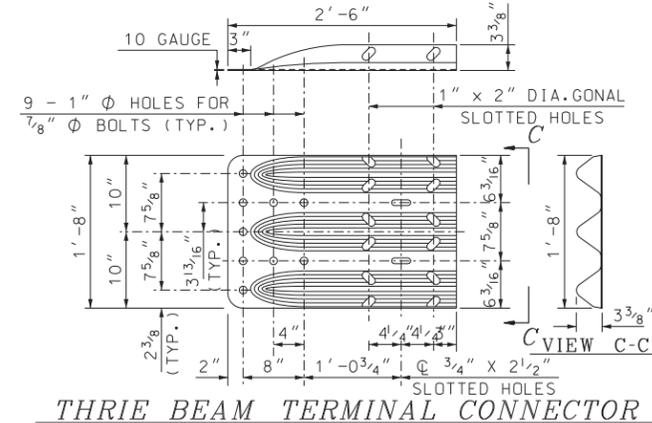
PLAN VIEW - CONCRETE BARRIER TO GUARDRAIL CONNECTION DETAIL (SINGLE-FACED THRIE BEAM GUARDRAIL)



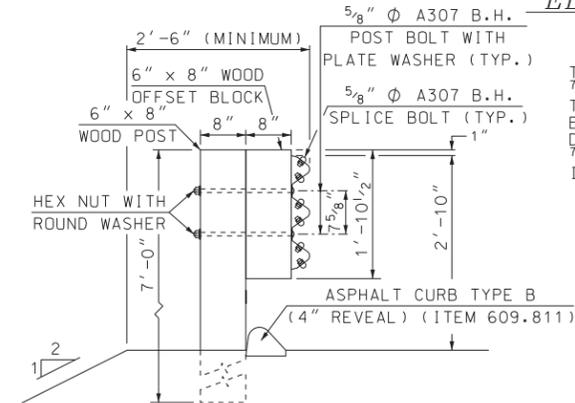
PLAN VIEW - CONCRETE BARRIER TO GUARDRAIL CONNECTION DETAIL (DOUBLE-FACED THRIE BEAM GUARDRAIL)



ELEVATION - APPROACH RAIL



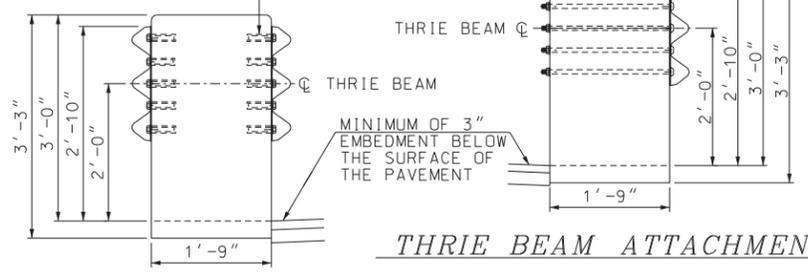
THRIE BEAM TERMINAL CONNECTOR



SECTION B-B (POST RAIL ASSEMBLY)

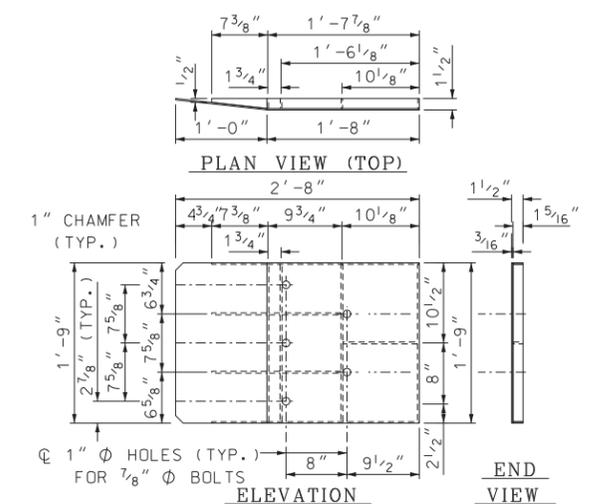
THRIE BEAM SHALL BE FASTENED WITH 1/8" Ø ASTM A325 BOLTS IN EPOXY THREADED INSERTS SET INTO CONCRETE BARRIER. INSERTS SHALL BE CAPABLE OF DEVELOPING THE FULL STRENGTH OF A 1/8" Ø HIGH STRENGTH BOLT. ALL COSTS INCLUDED IN ITEM - SEE NOTE 9.

THRIE BEAM SHALL BE FASTENED WITH 1/8" Ø ASTM A325 BOLTS, NUTS AND WASHERS. (EPOXY THREADED INSERTS ARE OPTIONAL). ALL COSTS INCLUDED IN ITEM - SEE NOTE 9.



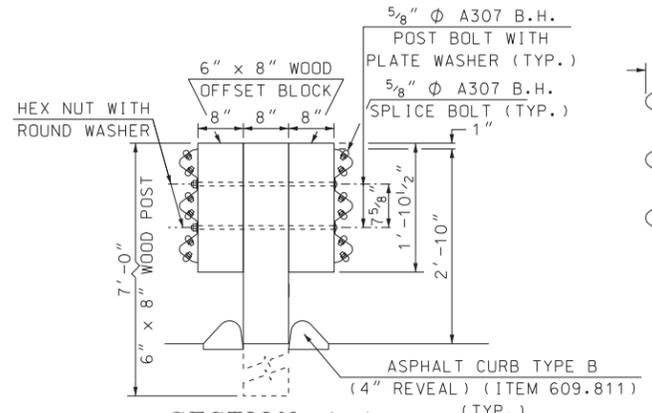
THRIE BEAM ATTACHMENT

DOUBLE-FACED THRIE BEAM ATTACHMENT

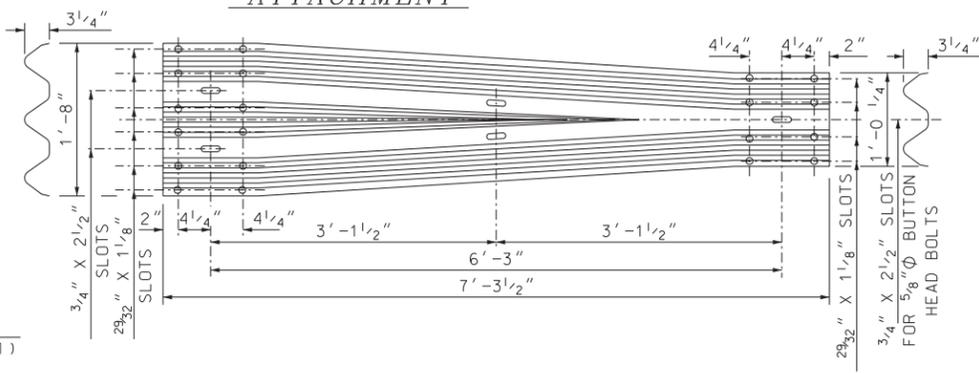


SPACER BOX DETAILS

3/16" GALVANIZED STEEL PLATES (TYP.)  
ASTM A709 GRADE 36 (AASHTO M270 GRADE 36)



SECTION A-A (POST RAIL ASSEMBLY)



THRIE BEAM TO W-BEAM TRANSITION SECTION

GENERAL NOTES

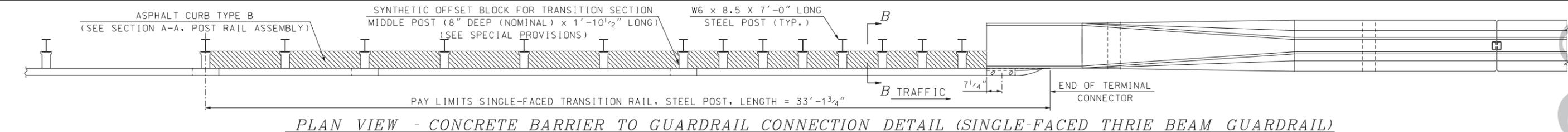
1. ALL THRIE BEAM RAIL, INCLUDING TRANSITION SECTION, SHALL BE GALVANIZED 12 GAUGE. ALL TERMINAL CONNECTORS SHALL BE GALVANIZED 10 GAUGE.
2. CONNECTIONS TO CONCRETE BARRIER SHALL BE APPROVED 7/8" Ø GALVANIZED HIGH STRENGTH THROUGH BOLTS IN CORE DRILLED HOLES. CHECK ACTUAL HOLE SPACING BEFORE CORING BOLT HOLES.
3. ALL CONNECTIONS FOR THE THRIE BEAM RAIL AND TERMINAL CONNECTOR SHALL LAP IN THE DIRECTION OF TRAFFIC.
4. ALL STEEL PLATES FOR SPACER BOXES SHALL BE 3/16" GALVANIZED STEEL PLATES (TYP.), ASTM A709 GRADE 36 (AASHTO M270 GRADE 36). ALL STIFFENER PLATES SHALL BE 1/4" GALVANIZED STEEL PLATES (TYP.).
5. ALL HOLE DIAMETERS FOR SPACER BOXES SHALL BE 1" Ø.
6. STIFFENERS LOCATED ON THE OUTSIDE EDGES OF COVER PLATES SHALL BE WELDED AS FOLLOWS: 3 3/16" CONTINUOUS BACK WELD ON EXTERNAL SIDES AND 3 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.
7. STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS: 3 3/16" FILLET WELD BY 1" LONG SPACED AT 2".
8. RECTANGULAR AND TRIANGULAR COVER PLATES SHALL BE WELDED TOGETHER WITH A 3 3/16" CONTINUOUS BACK WELD ON BOTH SIDES.
9. PAID FOR UNDER APPROPRIATE 606 ITEMS, OR AS SHOWN ON PLANS.

GUARDRAIL STANDARD  
TRANSITION F-SHAPE  
CONCRETE BARRIER  
AND GUARDRAIL (WOOD)

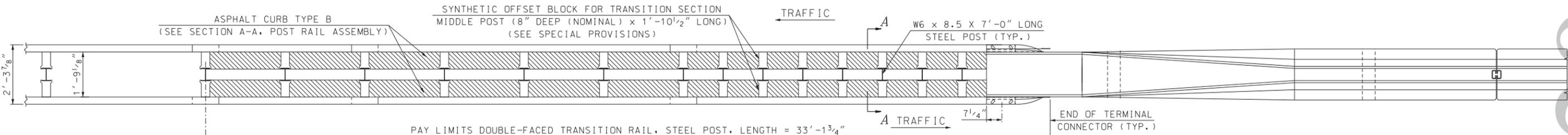
STANDARD PLANS  
 New Hampshire  
**DOT**  
 Department of Transportation

REVISION DATE
06-16-2010
11-05-2010
10-30-2012

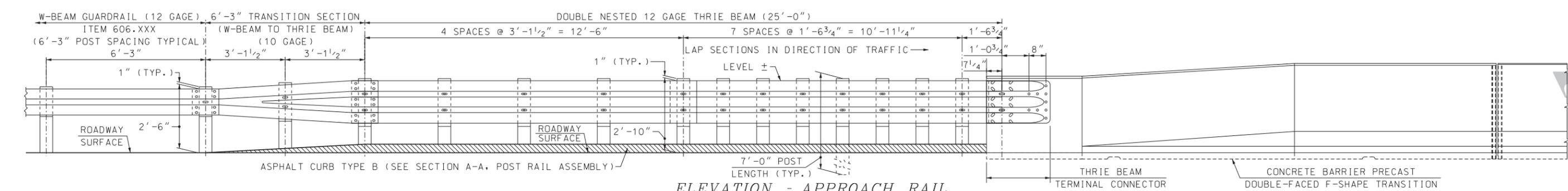
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GR-18



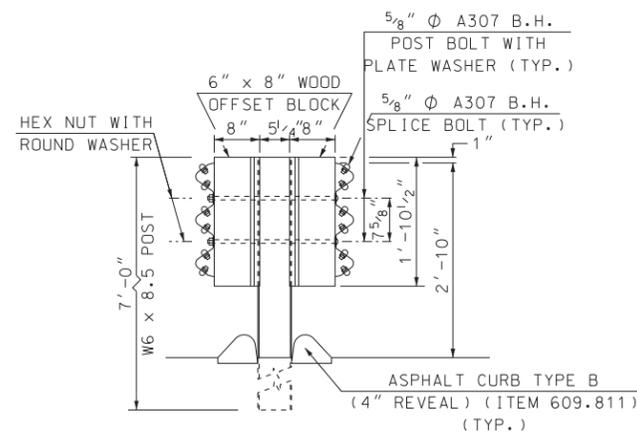
PLAN VIEW - CONCRETE BARRIER TO GUARDRAIL CONNECTION DETAIL (SINGLE-FACED THRIE BEAM GUARDRAIL)



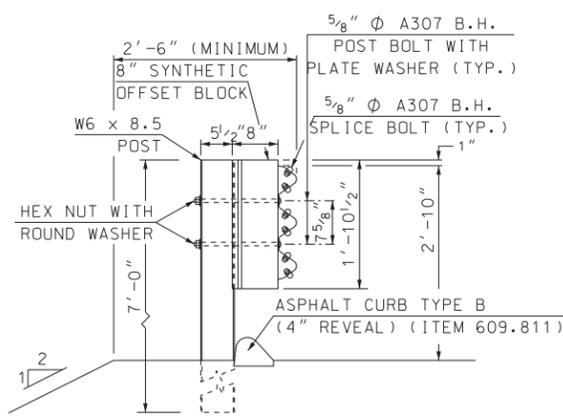
PLAN VIEW - CONCRETE BARRIER TO GUARDRAIL CONNECTION DETAIL (DOUBLE-FACED THRIE BEAM GUARDRAIL)



ELEVATION - APPROACH RAIL

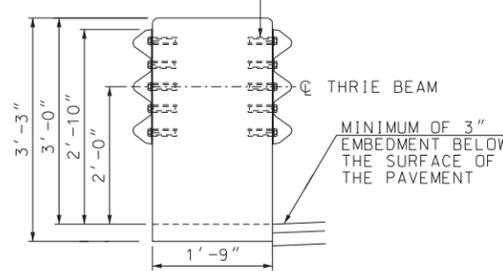


SECTION A-A (POST RAIL ASSEMBLY)



SECTION B-B (POST RAIL ASSEMBLY)

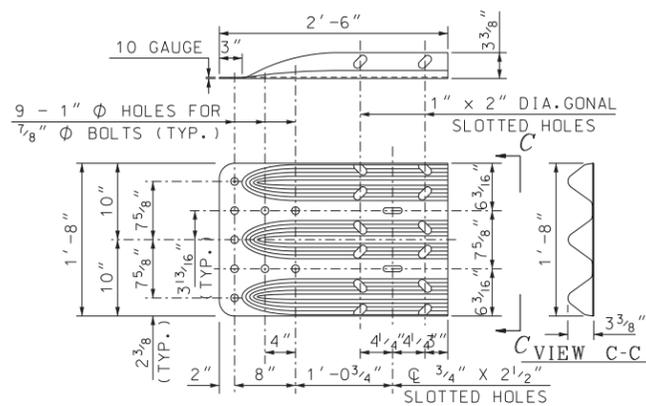
THRIE BEAM SHALL BE FASTENED WITH 7/8" Ø ASTM A325 BOLTS IN EPOXY THREADED INSERTS SET INTO CONCRETE BARRIER. INSERTS SHALL BE CAPABLE OF DEVELOPING THE FULL STRENGTH OF A 7/8" Ø HIGH STRENGTH BOLT. ALL COSTS INCLUDED IN ITEM - SEE NOTE 4.



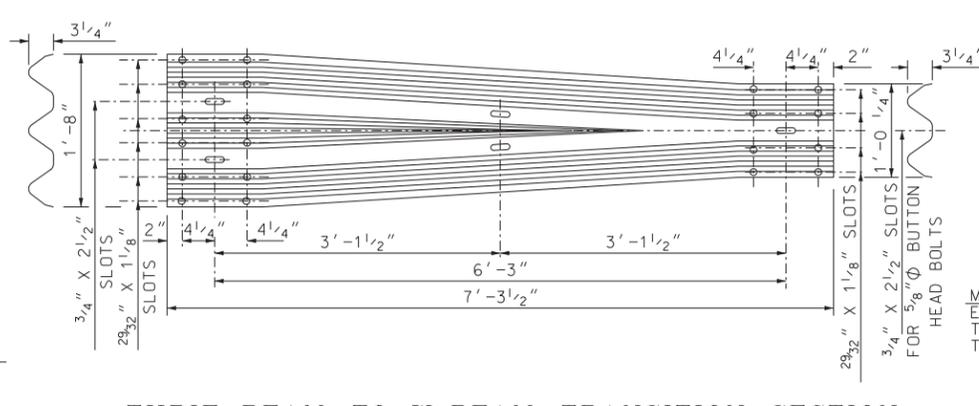
DOUBLE-FACED THRIE BEAM ATTACHMENT

GENERAL NOTES

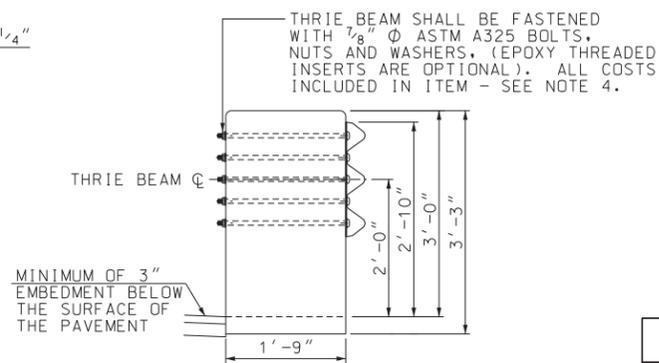
1. ALL THRIE BEAM RAIL, INCLUDING TRANSITION SECTION, SHALL BE GALVANIZED 12 GAUGE. ALL TERMINAL CONNECTORS SHALL BE GALVANIZED 10 GAUGE.
2. CONNECTIONS TO CONCRETE BARRIER SHALL BE APPROVED 7/8" Ø GALVANIZED HIGH STRENGTH THROUGH BOLTS IN CORE DRILLED HOLES. CHECK ACTUAL HOLE SPACING BEFORE CORING BOLT HOLES.
3. ALL CONNECTIONS FOR THE THRIE BEAM RAIL AND TERMINAL CONNECTOR SHALL LAP IN THE DIRECTION OF TRAFFIC.
4. PAID FOR UNDER APPROPRIATE 606 ITEMS, OR AS SHOWN ON PLANS.



THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM TO W-BEAM TRANSITION SECTION

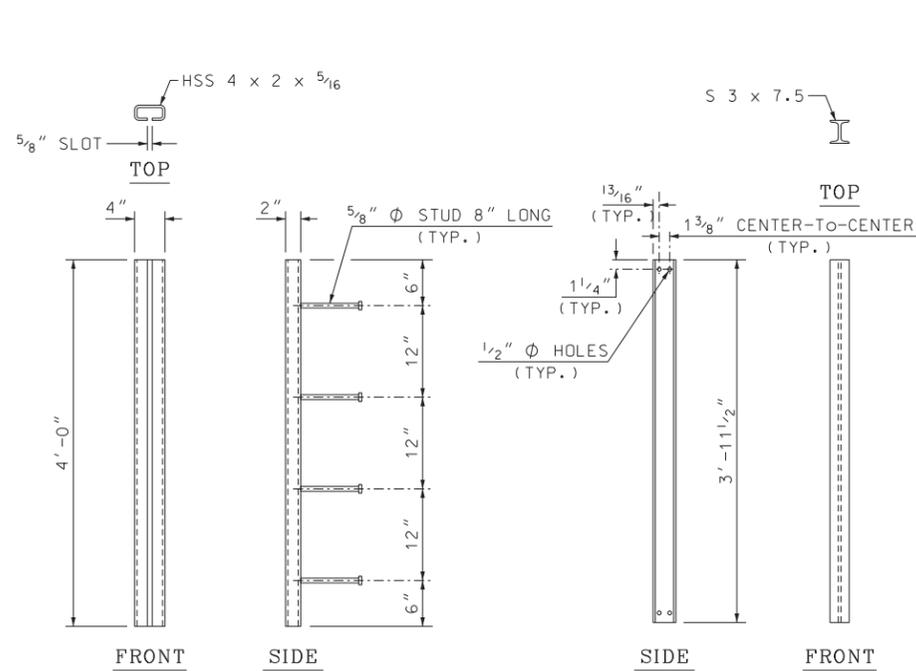


THRIE BEAM ATTACHMENT

GUARDRAIL STANDARD  
 TRANSITION F-SHAPE  
 CONCRETE BARRIER  
 AND GUARDRAIL (STEEL)

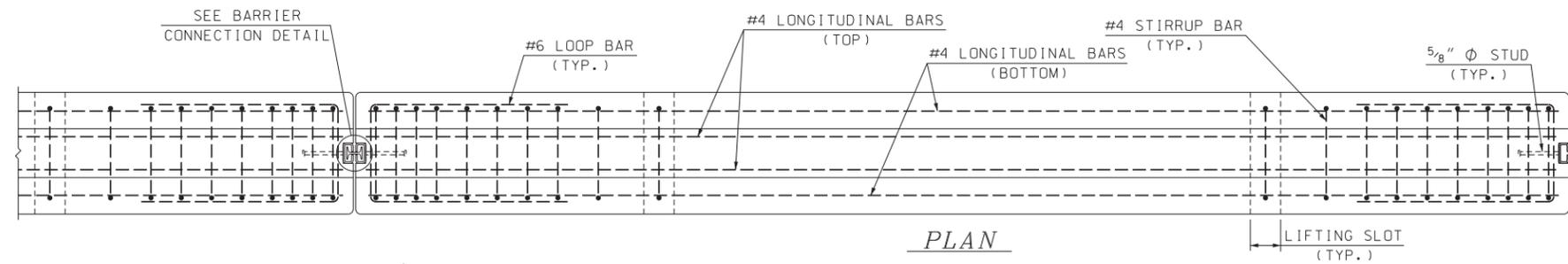
REVISION DATE
06-16-2010
11-05-2010
04-03-2014

\*.DGN FILE NAME  
GR-19

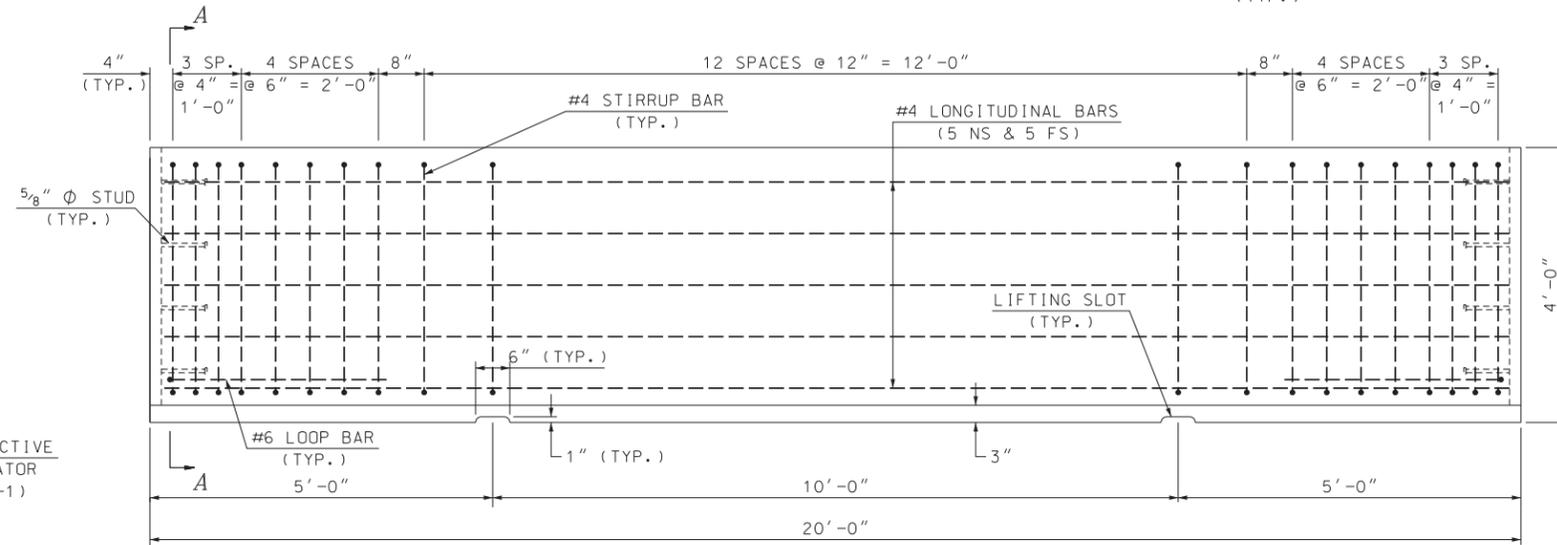


STRUCTURAL TUBE DETAILS

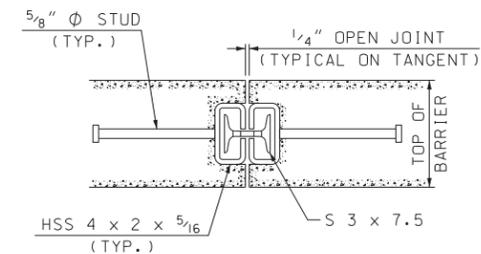
I-BEAM DETAILS



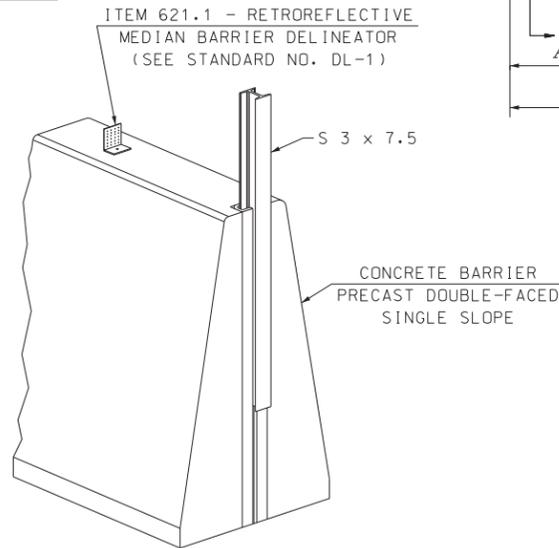
PLAN



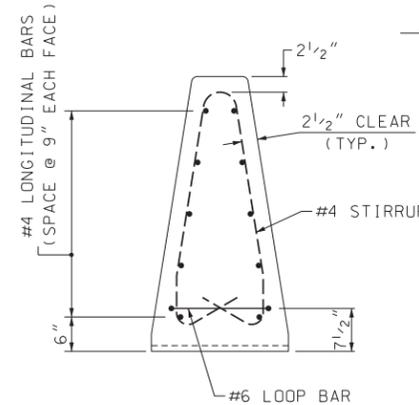
ELEVATION



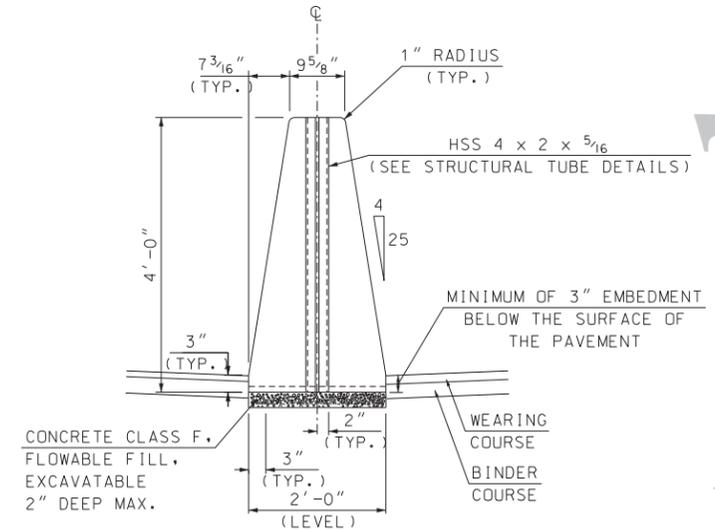
BARRIER CONNECTION DETAIL



PERSPECTIVE VIEW



SECTION A-A (REINFORCEMENT)



END VIEW (MASONRY)

GENERAL NOTES

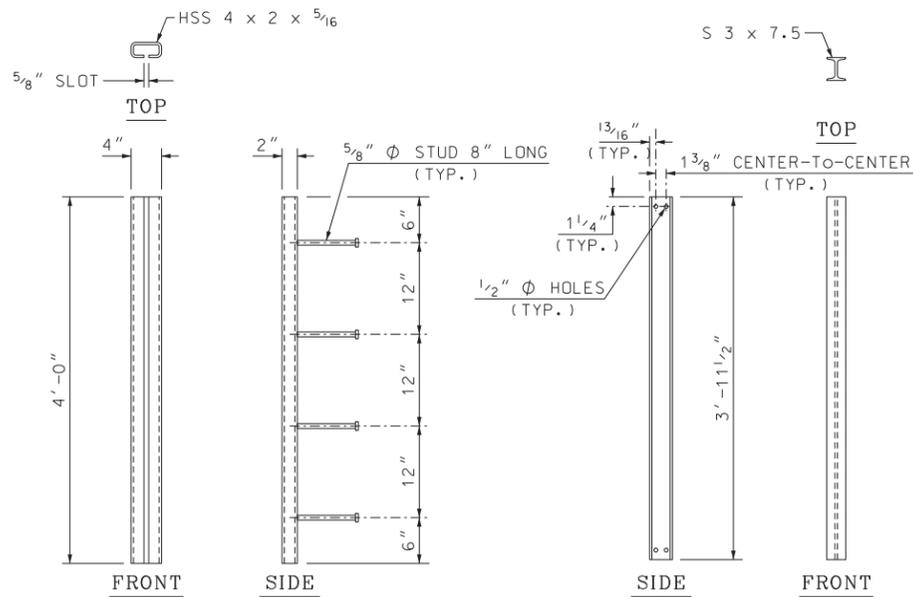
1. THE CONCRETE BARRIER DETAILS, AS SHOWN ON THIS SHEET, ARE IN COMPLIANCE WITH THE REQUIREMENTS OF NCHRP REPORT 350, TL 4.
2. I-BEAMS AND STRUCTURAL TUBES SHALL BE GALVANIZED AFTER FABRICATION.
3. STUD WELDING SHALL BE IN ACCORDANCE WITH ITEM 547.
4. SLOTS IN STRUCTURAL TUBES SHALL BE CUT WITH MECHANICALLY GUIDED MEANS TO A SMOOTH, UNIFORM SURFACE MEETING A SURFACE ROUGHNESS OF 1000 MICROINCHES OR BETTER (ANSI B46.1).
5. PAID FOR UNDER APPROPRIATE 606 ITEMS, OR AS SHOWN ON PLANS.

MATERIAL NOTES

1. THE BARRIERS SHALL BE LIGHT COLORED CLASS "AA" CONCRETE HAVING A MINIMUM 28 DAY COMPRESSION STRENGTH OF 4,000 PSI. BARRIERS SHALL HAVE A SMOOTH UNIFORM SURFACE FREE OF DEFECTS AND IRREGULARITIES. CASTING DATE SHALL BE SHOWN ON BARRIER. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4", UNLESS NOTED OTHERWISE.
2. ALL REINFORCING STEEL SHALL BE AASHTO M31 (ASTM-A615) GRADE 60, EPOXY COATED. REINFORCEMENT SHOWN IS THE MINIMUM REQUIRED.
3. EACH BARRIER UNIT SHALL INCLUDE ONE S 3 x 7.5 AS SHOWN ON THIS PLAN SHEET.
4. SHOP DRAWINGS, SHALL INCLUDE REINFORCING SCHEDULE.
5. LEVELING PADS OR SHIMMING MATERIAL SHALL BE SUBSIDIARY TO THE BARRIER ITEM.

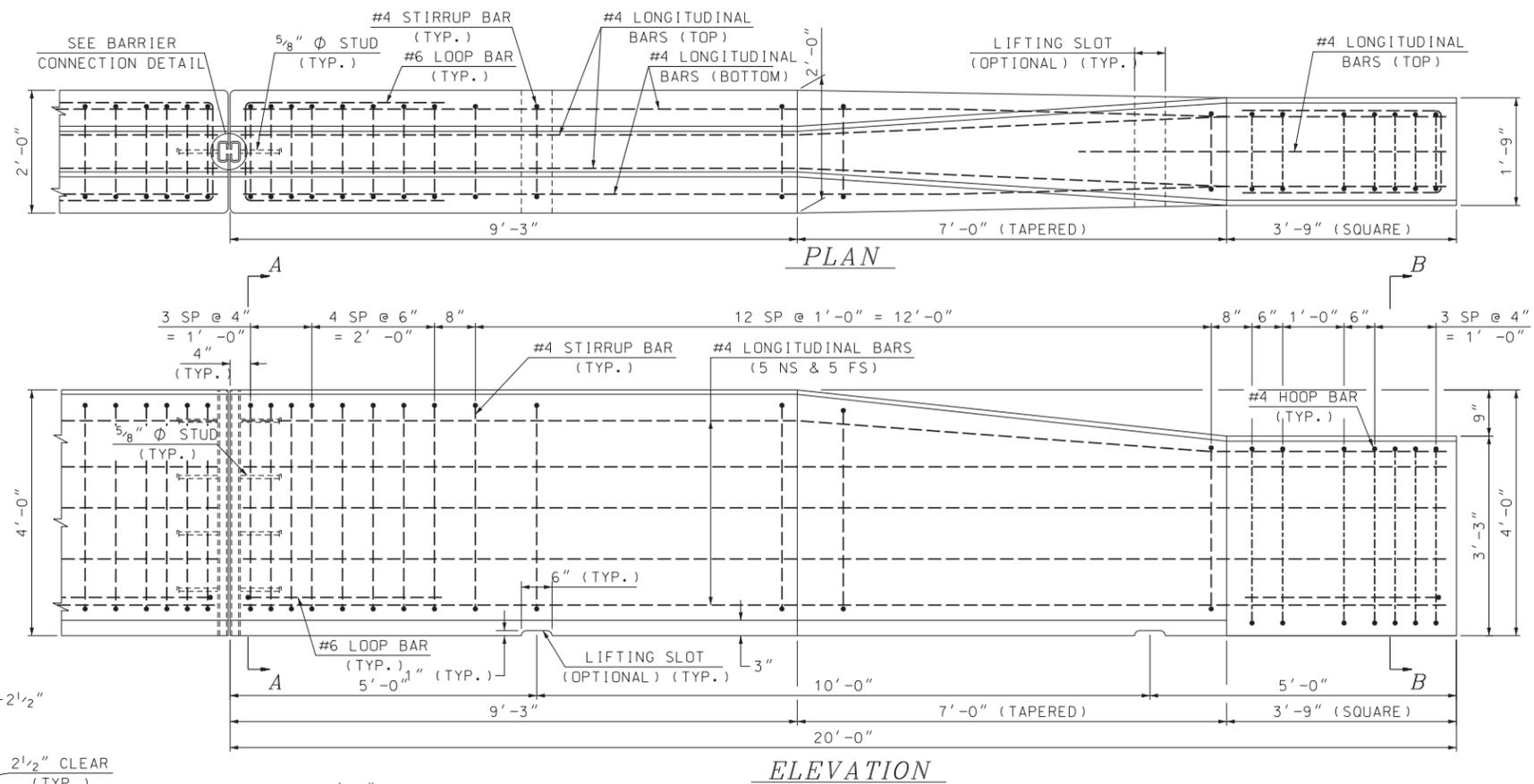
CONCRETE BARRIER REINFORCING SCHEDULE				
DESCRIPTION	SIZE	NO.	UNBENT LENGTH	TYPE
LONGITUDINAL (EACH FACE)	#4	10	19'-8"	—
STIRRUPS	#4	29	8'-11"	
LOOP BAR	#6	2	7'-11"	

GUARDRAIL STANDARD  
CONCRETE BARRIER  
PRECAST DOUBLE-FACED  
SINGLE SLOPE



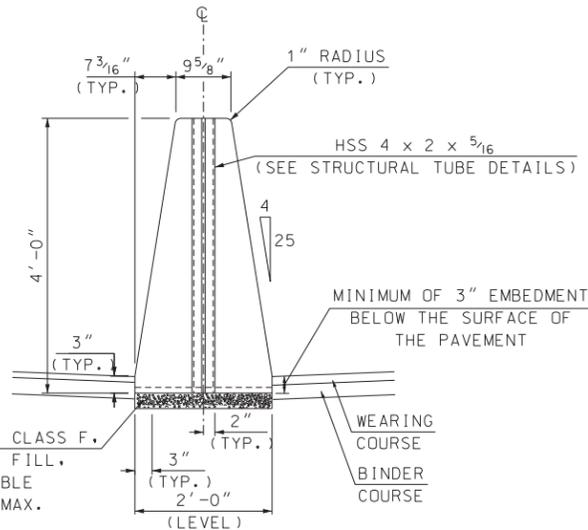
**STRUCTURAL TUBE DETAILS**

**I-BEAM DETAILS**

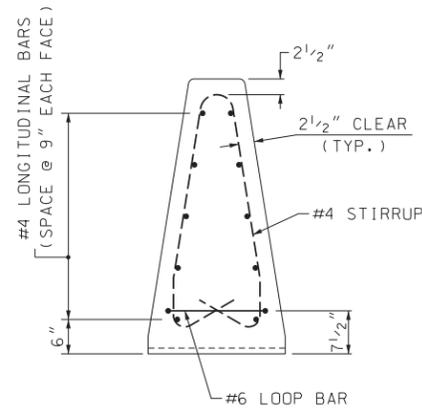


**PLAN**

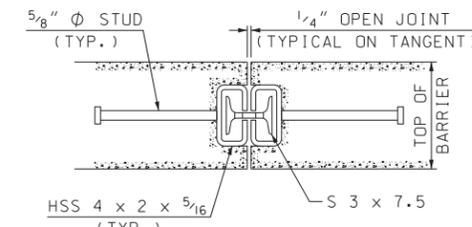
**ELEVATION**



**END VIEW (MASONRY)**



**SECTION B-B  
(MASONRY &  
REINFORCEMENT)**



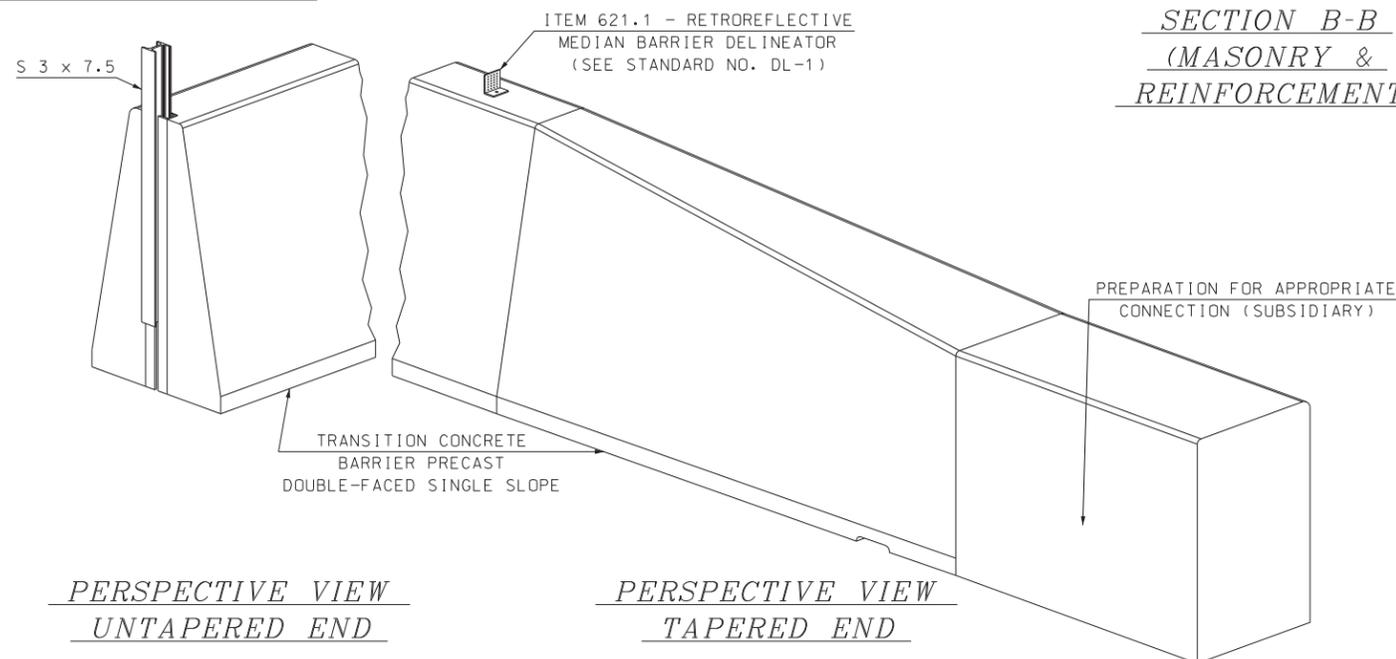
**BARRIER CONNECTION DETAIL**

**GENERAL NOTES**

1. THE CONCRETE BARRIER DETAILS, AS SHOWN ON THIS SHEET, ARE IN COMPLIANCE WITH THE REQUIREMENTS OF NCHRP REPORT 350, TL 4.
2. I-BEAMS AND STRUCTURAL TUBES SHALL BE GALVANIZED AFTER FABRICATION.
3. STUD WELDING SHALL BE IN ACCORDANCE WITH ITEM 547.
4. SLOTS IN STRUCTURAL TUBES SHALL BE CUT WITH MECHANICALLY GUIDED MEANS TO A SMOOTH, UNIFORM SURFACE MEETING A SURFACE ROUGHNESS OF 1000 MICROINCHES OR BETTER (ANSI B46.1).
5. PAID FOR UNDER APPROPRIATE 606 ITEMS, OR AS SHOWN ON PLANS.

**MATERIAL NOTES**

1. THE BARRIERS SHALL BE LIGHT COLORED CLASS "AA" CONCRETE HAVING A MINIMUM 28 DAY COMPRESSION STRENGTH OF 4,000 PSI. BARRIERS SHALL HAVE A SMOOTH UNIFORM SURFACE FREE OF DEFECTS AND IRREGULARITIES. CASTING DATE SHALL BE SHOWN ON BARRIER. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4", UNLESS NOTED OTHERWISE.
2. ALL REINFORCING STEEL SHALL BE AASHTO M31 (ASTM-A615) GRADE 60, EPOXY COATED. REINFORCEMENT SHOWN IS THE MINIMUM REQUIRED.
3. EACH BARRIER UNIT SHALL INCLUDE ONE S 3 x 7.5 AS SHOWN ON THIS PLAN SHEET.
4. SHOP DRAWINGS, SHALL INCLUDE REINFORCING SCHEDULE.
5. LEVELING PADS OR SHIMMING MATERIAL SHALL BE SUBSIDIARY TO THE BARRIER ITEM.



**PERSPECTIVE VIEW  
UNTAPERED END**

**PERSPECTIVE VIEW  
TAPERED END**

**GUARDRAIL STANDARD  
TRANSITION  
CONCRETE BARRIER PRECAST  
DOUBLE-FACED SINGLE SLOPE**

**STANDARD  
NO. GR-20**

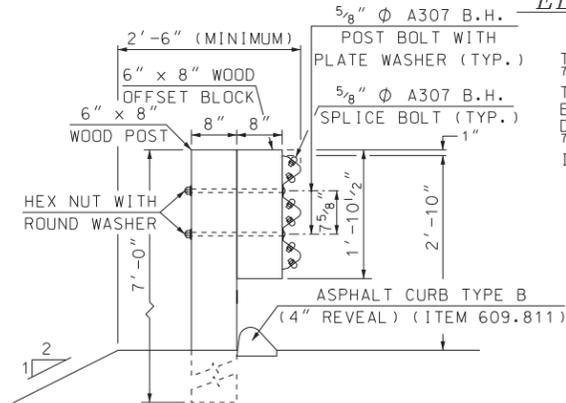
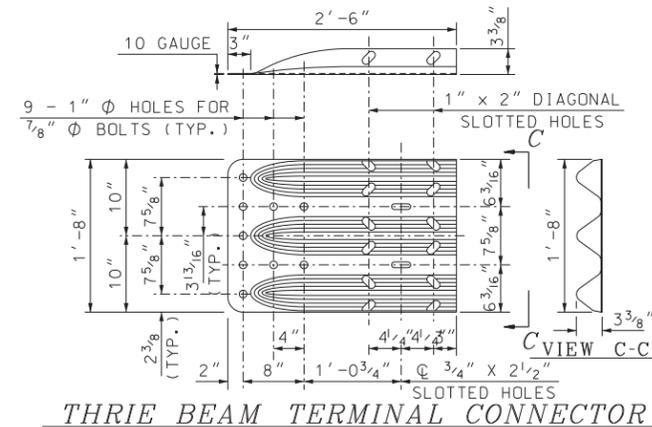
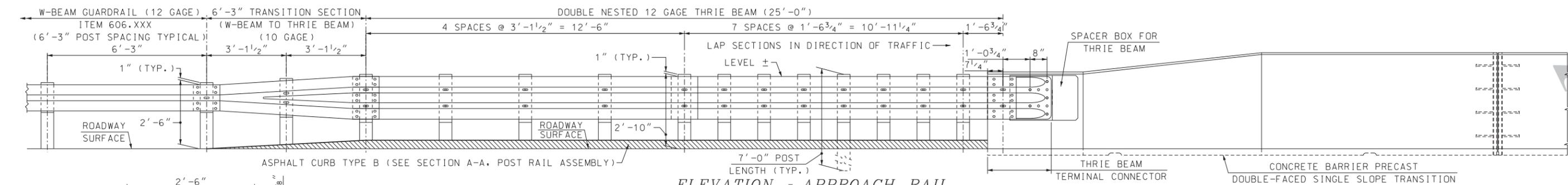
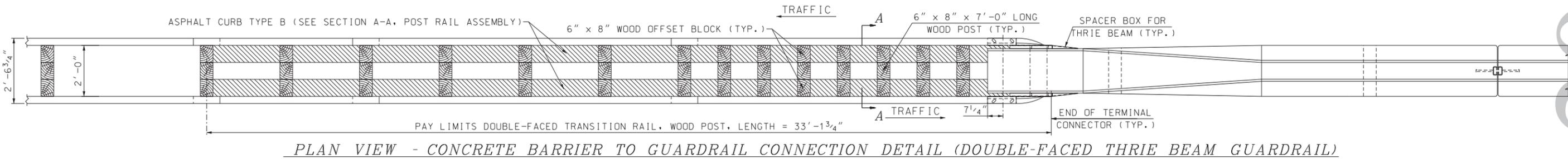
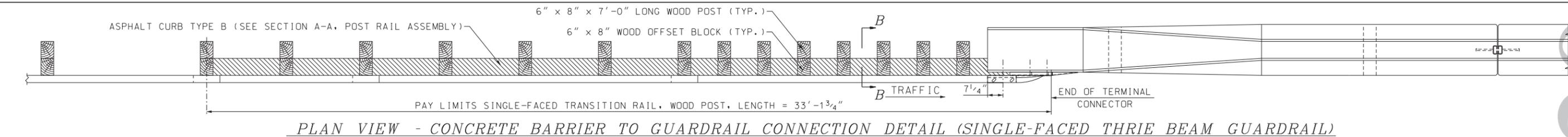
REVISION DATE
02-26-2010
09-16-2010
11-05-2010
10-30-2012
04-03-2014

**\*DGN FILE NAME  
GR-20**

**STANDARD PLANS**

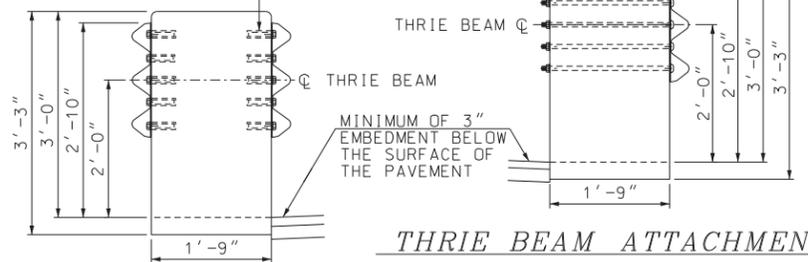
**DOT**  
Department of Transportation

**STANDARD  
NO. GR-20**



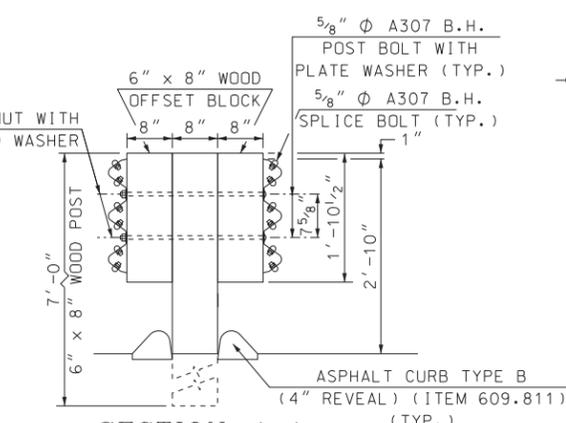
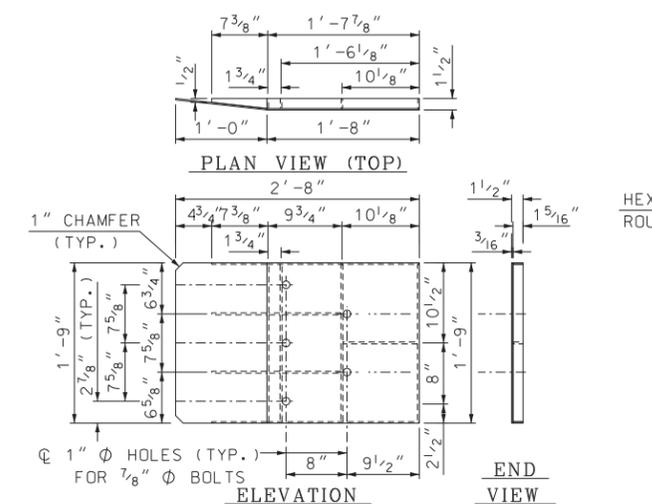
THRIE BEAM SHALL BE FASTENED WITH 1/2" Ø ASTM A325 BOLTS IN EPOXY THREADED INSERTS SET INTO CONCRETE BARRIER. INSERTS SHALL BE CAPABLE OF DEVELOPING THE FULL STRENGTH OF A 1/2" Ø HIGH STRENGTH BOLT. ALL COSTS INCLUDED IN ITEM - SEE NOTE 9.

THRIE BEAM SHALL BE FASTENED WITH 1/2" Ø ASTM A325 BOLTS, NUTS AND WASHERS. (EPOXY THREADED INSERTS ARE OPTIONAL). ALL COSTS INCLUDED IN ITEM - SEE NOTE 9.

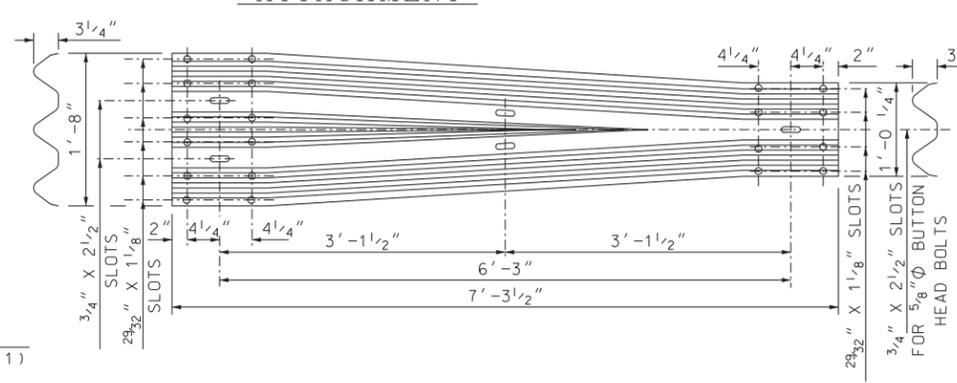


GENERAL NOTES

1. ALL THRIE BEAM RAIL, INCLUDING TRANSITION SECTION, SHALL BE GALVANIZED 12 GAUGE. ALL TERMINAL CONNECTORS SHALL BE GALVANIZED 10 GAUGE.
2. CONNECTIONS TO CONCRETE BARRIER SHALL BE APPROVED 7/8" Ø GALVANIZED HIGH STRENGTH THROUGH BOLTS IN CORE DRILLED HOLES. CHECK ACTUAL HOLE SPACING BEFORE CORING BOLT HOLES.
3. ALL CONNECTIONS FOR THE THRIE BEAM RAIL AND TERMINAL CONNECTOR SHALL LAP IN THE DIRECTION OF TRAFFIC.
4. ALL STEEL PLATES FOR SPACER BOXES SHALL BE 3/16" GALVANIZED STEEL PLATES (TYP.), ASTM A709 GRADE 36 (AASHTO M270 GRADE 36). ALL STIFFENER PLATES SHALL BE 1/4" GALVANIZED STEEL PLATES (TYP.).
5. ALL HOLE DIAMETERS FOR SPACER BOXES SHALL BE 1" Ø.
6. STIFFENERS LOCATED ON THE OUTSIDE EDGES OF COVER PLATES SHALL BE WELDED AS FOLLOWS: 3 3/16" CONTINUOUS BACK WELD ON EXTERNAL SIDES AND 3 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.
7. STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS: 3 3/16" FILLET WELD BY 1" LONG SPACED AT 2".
8. RECTANGULAR AND TRIANGULAR COVER PLATES SHALL BE WELDED TOGETHER WITH A 3 3/16" CONTINUOUS BACK WELD ON BOTH SIDES.
9. PAID FOR UNDER APPROPRIATE 606 ITEMS, OR AS SHOWN ON PLANS.



DOUBLE-FACED THRIE BEAM ATTACHMENT

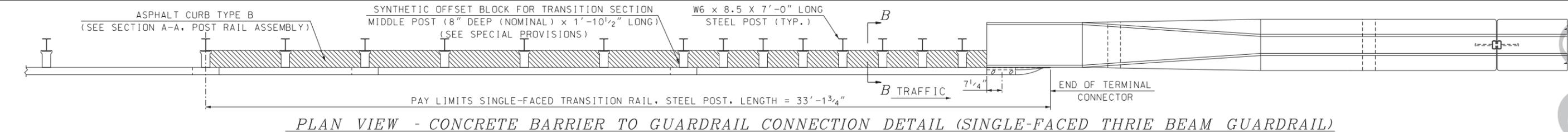


GUARDRAIL STANDARD  
TRANSITION SINGLE SLOPE  
CONCRETE BARRIER AND  
GUARDRAIL (WOOD)

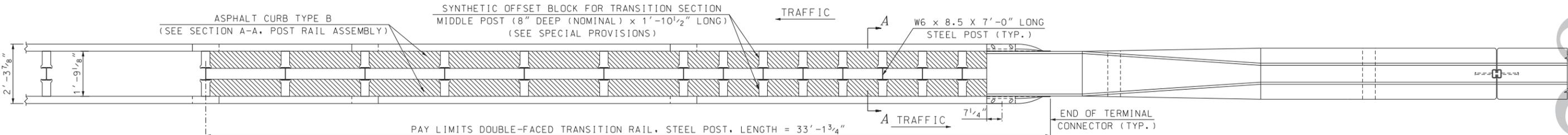
New Hampshire DOT Department of Transportation

REVISION DATE
06-16-2010
11-05-2010
10-30-2012

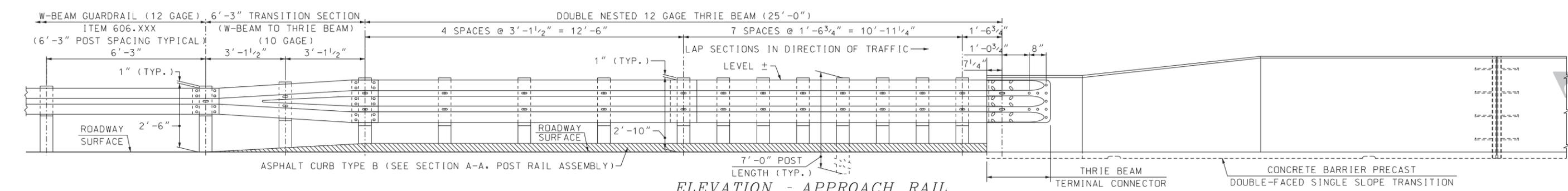
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GR-22



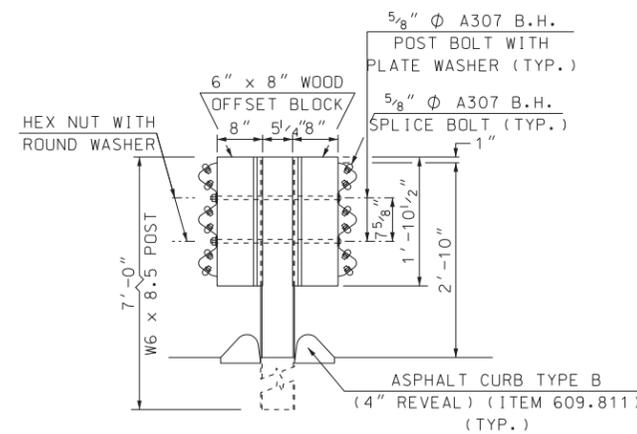
PLAN VIEW - CONCRETE BARRIER TO GUARDRAIL CONNECTION DETAIL (SINGLE-FACED THRIE BEAM GUARDRAIL)



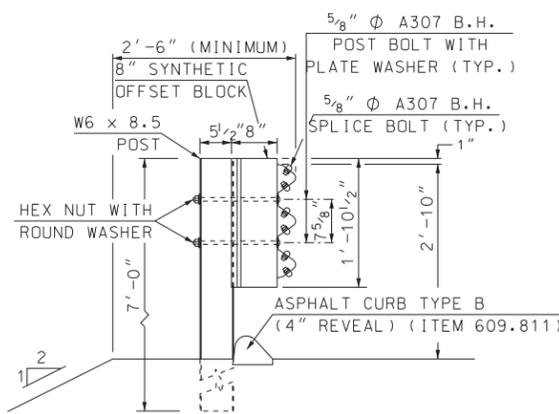
PLAN VIEW - CONCRETE BARRIER TO GUARDRAIL CONNECTION DETAIL (DOUBLE-FACED THRIE BEAM GUARDRAIL)



ELEVATION - APPROACH RAIL

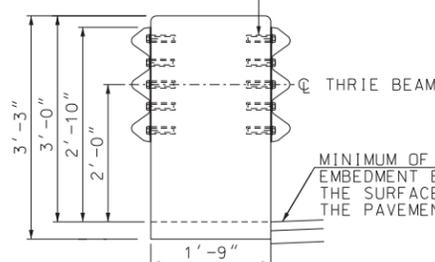


SECTION A-A (POST RAIL ASSEMBLY)



SECTION B-B (POST RAIL ASSEMBLY)

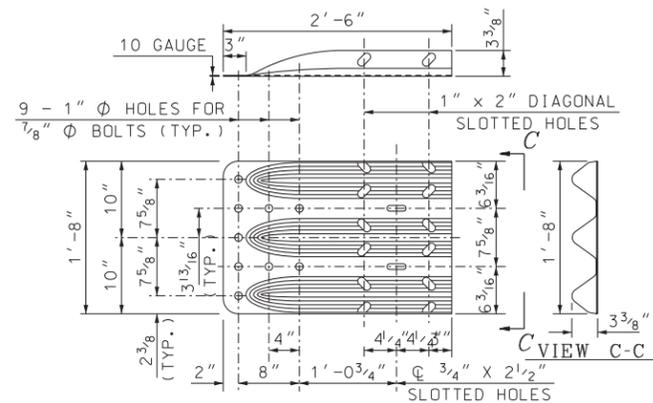
THRIE BEAM SHALL BE FASTENED WITH 1/8" Ø ASTM A325 BOLTS IN EPOXY THREADED INSERTS SET INTO CONCRETE BARRIER. INSERTS SHALL BE CAPABLE OF DEVELOPING THE FULL STRENGTH OF A 1/8" Ø HIGH STRENGTH BOLT. ALL COSTS INCLUDED IN ITEM - SEE NOTE 4.



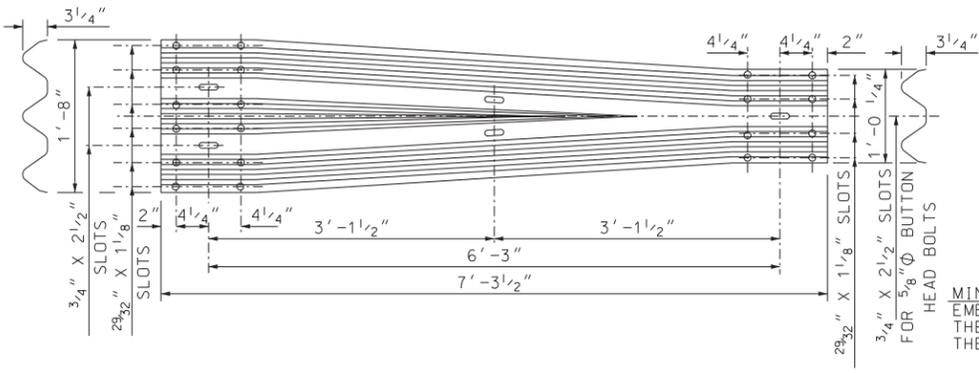
DOUBLE-FACED THRIE BEAM ATTACHMENT

GENERAL NOTES

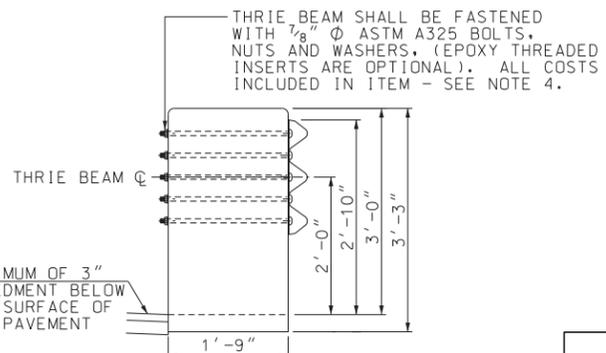
1. ALL THRIE BEAM RAIL, INCLUDING TRANSITION SECTION, SHALL BE GALVANIZED 12 GAUGE. ALL TERMINAL CONNECTORS SHALL BE GALVANIZED 10 GAUGE.
2. CONNECTIONS TO CONCRETE BARRIER SHALL BE APPROVED 1/8" Ø GALVANIZED HIGH STRENGTH THROUGH BOLTS IN CORE DRILLED HOLES. CHECK ACTUAL HOLE SPACING BEFORE CORING BOLT HOLES.
3. ALL CONNECTIONS FOR THE THRIE BEAM RAIL AND TERMINAL CONNECTOR SHALL LAP IN THE DIRECTION OF TRAFFIC.
4. PAID FOR UNDER APPROPRIATE 606 ITEMS, OR AS SHOWN ON PLANS.



THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM TO W-BEAM TRANSITION SECTION

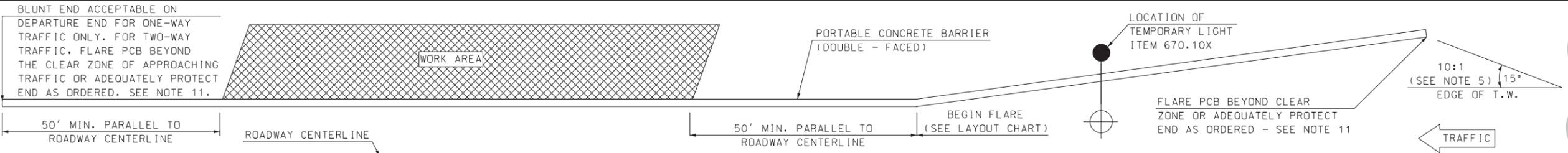


THRIE BEAM ATTACHMENT

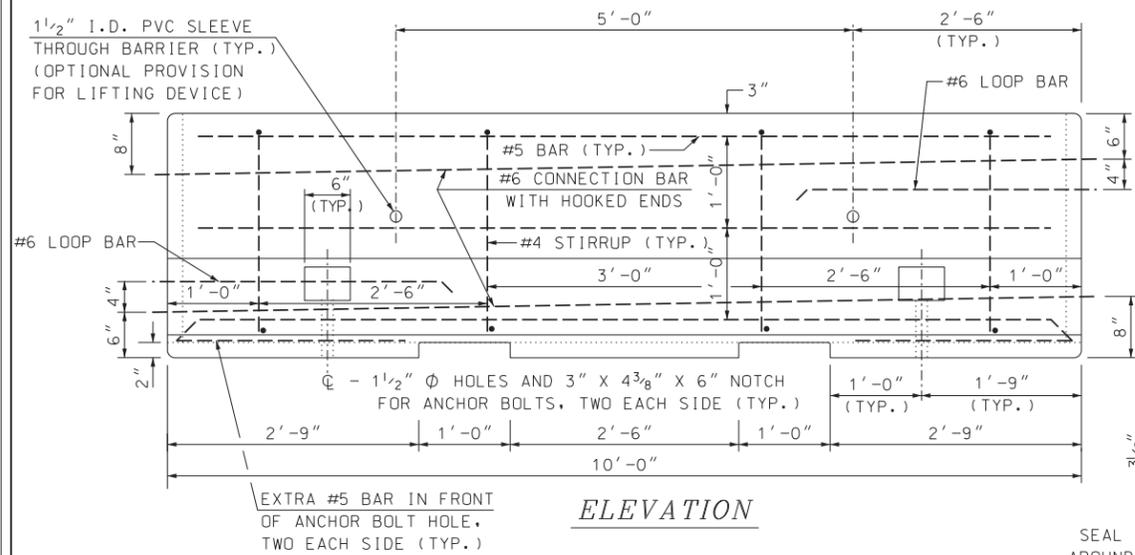
GUARDRAIL STANDARD  
TRANSITION SINGLE SLOPE  
CONCRETE BARRIER  
AND GUARDRAIL (STEEL)

REVISION DATE
06-16-2010
10-03-2013

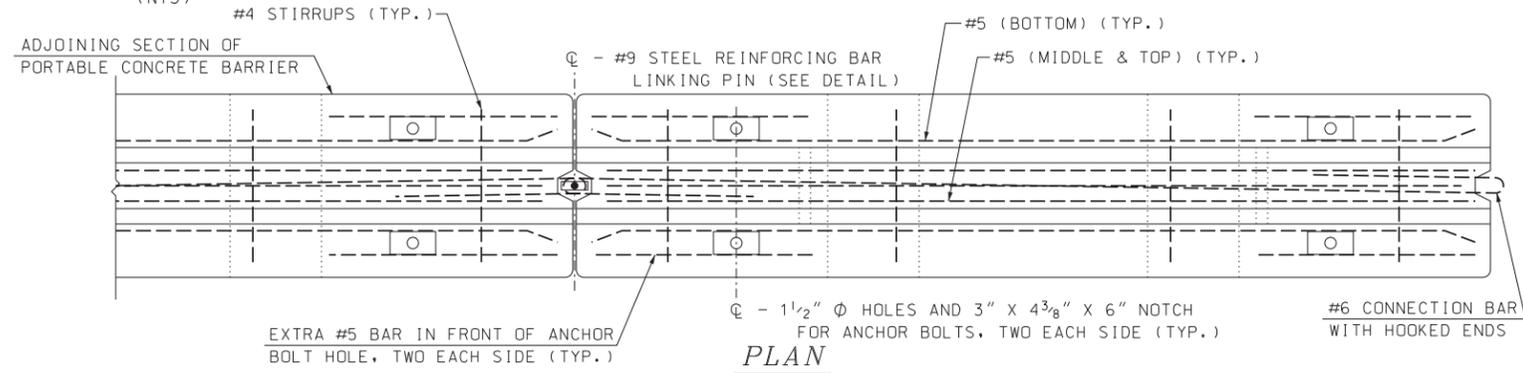
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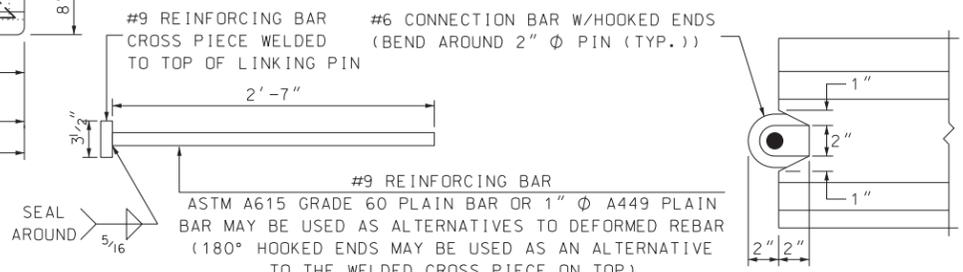
LAYOUT OF PORTABLE CONCRETE BARRIER (NTS)



ELEVATION

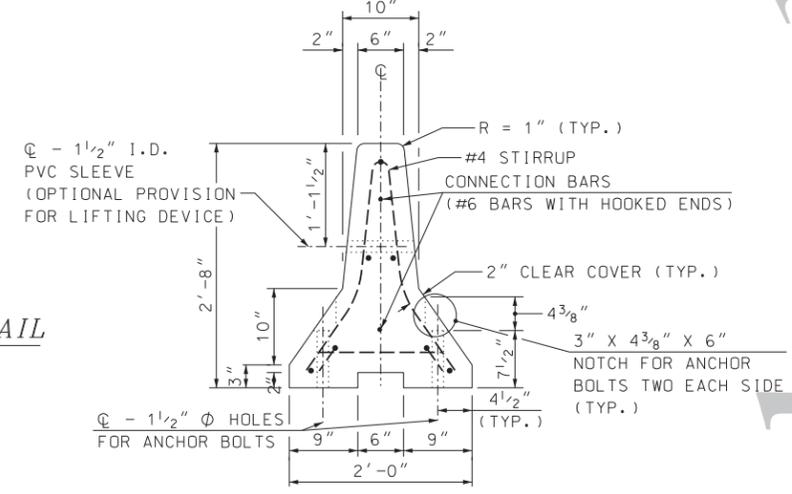


PLAN



LINKING PIN

END NOTCH DETAIL



TYPICAL SECTION

GENERAL NOTES

1. THE PORTABLE CONCRETE BARRIER DETAILS, AS SHOWN ON THIS SHEET, ARE IN COMPLIANCE WITH THE REQUIREMENTS OF NCHRP REPORT 350.
2. CONCRETE BARRIER SHALL BE FURNISHED BY THE CONTRACTOR AND PAID AS ITEM 606.417 - PORTABLE CONCRETE BARRIER FOR TRAFFIC CONTROL. CONNECTIONS TO EXISTING BARRIERS, WHEN REQUIRED, SHALL BE SUBSIDIARY TO ITEM 606.417.
3. THE CONTRACTOR SHALL FURNISH AND INSTALL APPROVED RETROREFLECTIVE DELINEATORS AT 25-FOOT INTERVALS ALONG THE TOP AND/OR ONE FOOT DOWN THE SIDE OF THE PORTABLE CONCRETE BARRIER, SUBSIDIARY TO ITEM 606.417. THE COLOR OF DELINEATORS SHALL, IN ALL CASES, CONFORM TO THE COLOR OF EDGE LINE MARKINGS, DELINEATORS SUPPLEMENT, BUT DO NOT REPLACE, THE NEED FOR RETROREFLECTIVE SOLID EDGE LINE MARKINGS.
4. UNPROTECTED OPENINGS IN PORTABLE CONCRETE BARRIER WILL NOT BE PERMITTED, UNLESS SPECIFICALLY AUTHORIZED BY THE ENGINEER.
5. A 10:1 OR FLATTER FORESLOPE (SUBSIDIARY TO ITEM 606.417) SHALL BE PROVIDED IN ADVANCE OF ALL PORTABLE CONCRETE BARRIER SYSTEMS WITHIN THE CLEAR ZONE. REFER TO THE ROADSIDE DESIGN GUIDE AASHTO, 2006, FOR CLEAR ZONE WIDTHS AND ADDITIONAL INFORMATION.
6. WHEN PORTABLE CONCRETE BARRIER IS INSTALLED ON BOTH SIDES OF TRAFFIC, THE BEGINNINGS OF THE BARRIER SHALL BE STAGGERED BY AT LEAST 50 FEET.
7. OTHER BARRIER CONFIGURATIONS AND END CONNECTIONS ARE SUBJECT TO APPROVAL BY THE ENGINEER. BARRIERS OF DIFFERENT GEOMETRIC SHAPES SHALL NOT BE MIXED ON THE SAME RUN.
8. PLACE RETROREFLECTORIZED DRUMS OR BARRICADES IN ACCORDANCE WITH 6C-2 OF THE MUTCD IN ADVANCE OF PORTABLE CONCRETE BARRIER TO WARN AND ALERT DRIVERS.
9. DETAILS FOR ANCHOR BOLTS ARE SHOWN ONLY FOR USE AS REQUIRED OR DIRECTED.
10. TEMPORARY LIGHTING SHALL BE PAID UNDER ITEM 670.10X.
11. ADEQUATE PROTECTION SHALL BE MEASURES AS DESCRIBED IN THE MOST CURRENT EDITION OF THE ROADSIDE DESIGN GUIDE AS ADOPTED BY THE DEPARTMENT. PLACING GRANULAR MATERIAL AT THE END(S) OF THE BARRIER SHALL NOT BE CONSIDERED ADEQUATE PROTECTION.

MATERIAL NOTES

1. BARRIERS SHALL BE LIGHT COLORED CLASS "AA" CONCRETE HAVING A MINIMUM 28 DAY COMPRESSION STRENGTH OF 4,000 PSI. BARRIERS SHALL HAVE A SMOOTH UNIFORM SURFACE FREE OF DEFECTS AND IRREGULARITIES. CASTING DATE SHALL BE SHOWN ON BARRIER. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4" UNLESS OTHERWISE NOTED.
2. ALL REINFORCING STEEL SHALL BE AASHTO M31 (ASTM-A615) GRADE 60. REINFORCEMENT SHOWN IS THE MINIMUM REQUIRED.
3. EACH BARRIER UNIT SHALL INCLUDE ONE LINKING PIN.
4. LIFTING OPTIONS SHOWN ARE ADVISORY ONLY. IT SHALL BE THE CONTRACTORS' RESPONSIBILITY TO PROVIDE ADEQUATE LIFTING POINTS ON EACH BARRIER.
5. CONNECTING DEVICES SHALL BE COMPATIBLE WITH OTHER UNITS AND SHALL ALLOW PLACEMENT ON A 110' RADIUS.
6. DELINEATORS SHALL BE ATTACHED TO THE BARRIER USING AN APPROVED ADHESIVE MATERIAL OR BY BOLTS AND ANCHORS AS SHOWN ON STANDARD NO. DL-1.

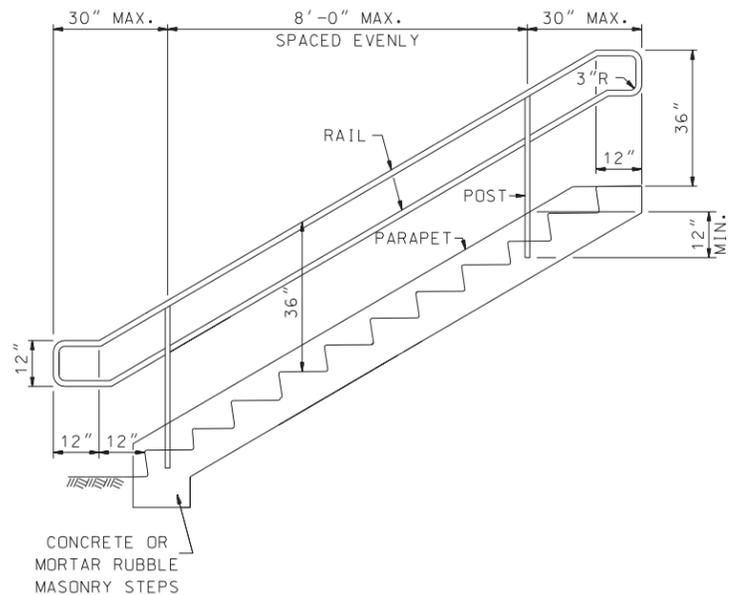
PORTABLE CONCRETE BARRIER REINFORCING SCHEDULE				
DESCRIPTION	SIZE	NO.	UNBENT LENGTH	TYPE
CONNECTION BARS	#6	2	14'-9 1/2"	
BOTTOM LONGITUDINAL	#5	2	9'-10"	
CENTER & TOP LONGITUDINAL	#5	3	9'-4"	
BOTTOM TRANSVERSE	#5	4	1'-4"	
STIRRUPS	#4	4	5'-0"	
EXTRA ANCHOR HOLE BARS	#5	4	2'-5"	
LOOP BAR	#6	2	6'-10 1/4"	

PORTABLE CONCRETE BARRIER LAYOUT			
OPERATING SPEED	DESIRABLE LATERAL OFFSET FROM T.W. **	MAXIMUM FLARE RATE * (FREE-STANDING)	MINIMUM LENGTH OF PCB SYSTEM
≤30 MPH	2'	7:1	
40 MPH	5'	9:1	
50 MPH	6.5'	11:1	
60 MPH	8'	13:1	
70 MPH	10'	15:1	
ALL SPEEDS	15' MAX. ***		100'

\* MEASURE FLARE FROM A LINE PARALLEL TO THE ROADWAY T.W., WHETHER ON A CURVE OR A TANGENT.  
 \*\* FOR RESTRICTED SITE CONDITIONS, LESSER OFFSETS MAY BE PERMITTED BY THE ENGINEER.  
 \*\*\* TO REDUCE POTENTIAL FOR HIGH-ANGLE IMPACTS (> 15°)

GUARDRAIL STANDARD  
 PORTABLE CONCRETE BARRIER

2012  
 STANDARD PLANS  
 New Hampshire  
 DOT  
 Department of Transportation

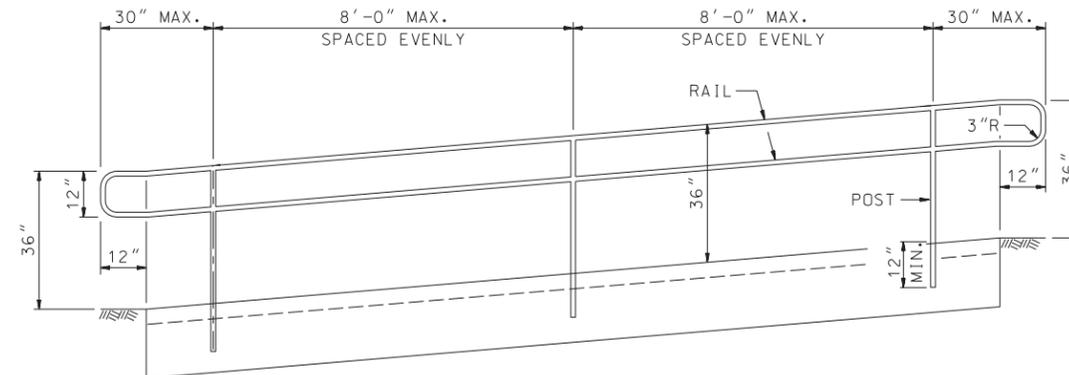


**GENERAL NOTES**

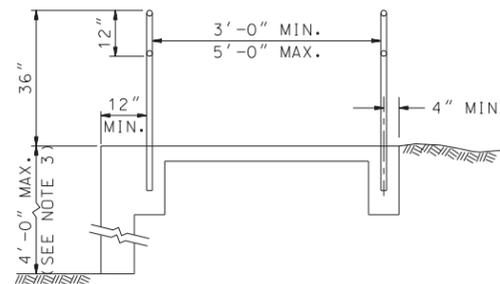
1. RAIL SHALL BE 1 1/4" TO 1 1/2" O.D.
2. POSTS SHALL BE 1 1/4" NOMINAL.
3. POSTS SHALL BE CENTERED IN PARAPET OF STEPS.
4. HANDRAILS SHALL BE INSTALLED ON BOTH SIDES OF STEPS.
5. THE MINIMUM SPACING BETWEEN HANDRAILS IS 3'-0", MAXIMUM 5'-0".
6. ITEM 606.610X - STEP HANDRAIL, (MATERIAL).

NHDOT STANDARD PLANS  
**STEP HANDRAIL**

REV. DATE	PLATE
06-16-2010	1
	STANDARD
	HR-1



**ELEVATION**



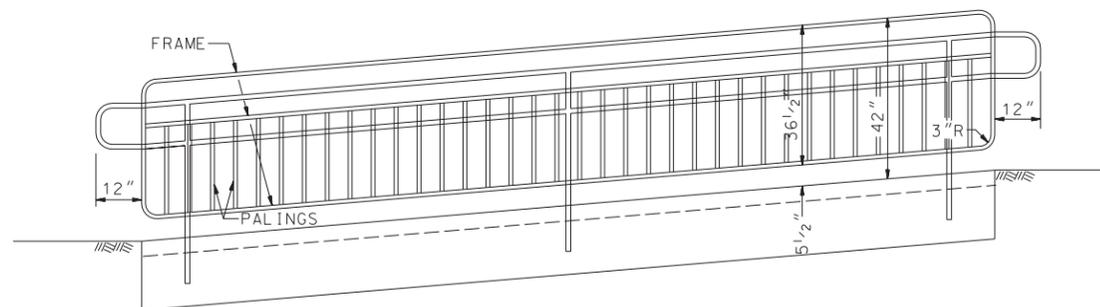
**CROSS-SECTION**

**GENERAL NOTES**

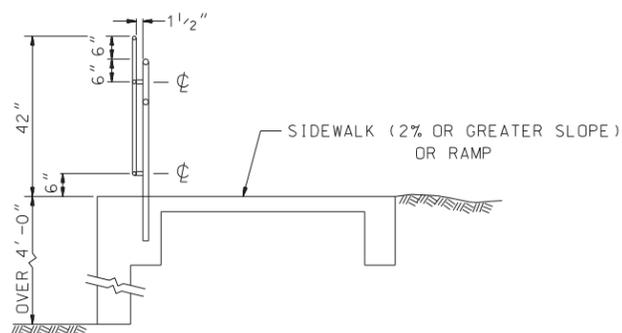
1. RAIL SHALL BE 1 1/4" TO 1 1/2" O.D.
2. POSTS SHALL BE 1 1/4" NOMINAL.
3. WHEN THIS DIMENSION EXCEEDS 4'-0" A GUARD IS REQUIRED (SEE PLATE 3).
4. ITEM 606.620X - RAMP HANDRAIL, (MATERIAL).

NHDOT STANDARD PLANS  
**RAMP HANDRAIL**

REV. DATE	PLATE
06-16-2010	2
	STANDARD
	HR-1



**ELEVATION**



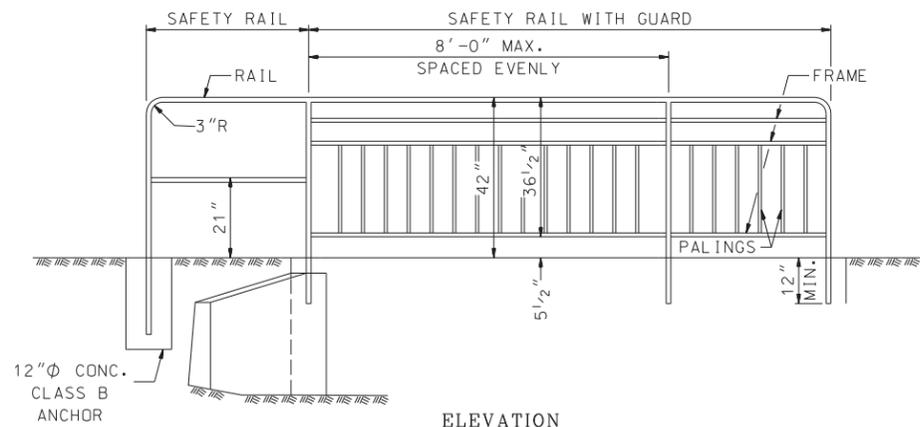
**CROSS-SECTION**

**GENERAL NOTES**

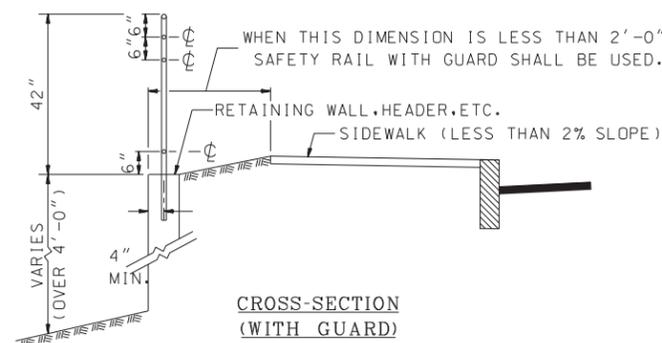
1. FOR DETAILS OF HANDRAIL, SEE PLATE 2.
2. FRAME AND CONNECTORS TO HANDRAIL SHALL BE 1" NOMINAL.
3. PALINGS SHALL BE 3/4" NOMINAL SPACED 6" ON CENTER.
4. ITEM 606.611X - STEP HANDRAIL W/ GUARD, (MATERIAL); 606.621X - RAMP HANDRAIL W/ GUARD, (MATERIAL).

NHDOT STANDARD PLANS  
**GUARD FOR HANDRAIL**

REV. DATE	PLATE
06-16-2010	3
	STANDARD
	HR-1



**ELEVATION**



**CROSS-SECTION (WITH GUARD)**

**GENERAL NOTES**

1. RAIL, POSTS, AND HORIZONTAL MEMBER OF SAFETY RAIL WITHOUT GUARD SHALL BE 1 1/4" NOMINAL.
2. FRAME SHALL BE 1" NOMINAL.
3. PALINGS SHALL BE 3/4" NOMINAL SPACED 6" ON CENTER.
4. ITEM 606.630X - SAFETY RAIL, (MATERIAL); 606.631X - SAFETY RAIL W/ GUARD, (MATERIAL).

NHDOT STANDARD PLANS  
**SAFETY RAIL & SAFETY RAIL WITH GUARD**

REV. DATE	PLATE
06-16-2010	4
	STANDARD
	HR-1

STANDARD NO. HR-1

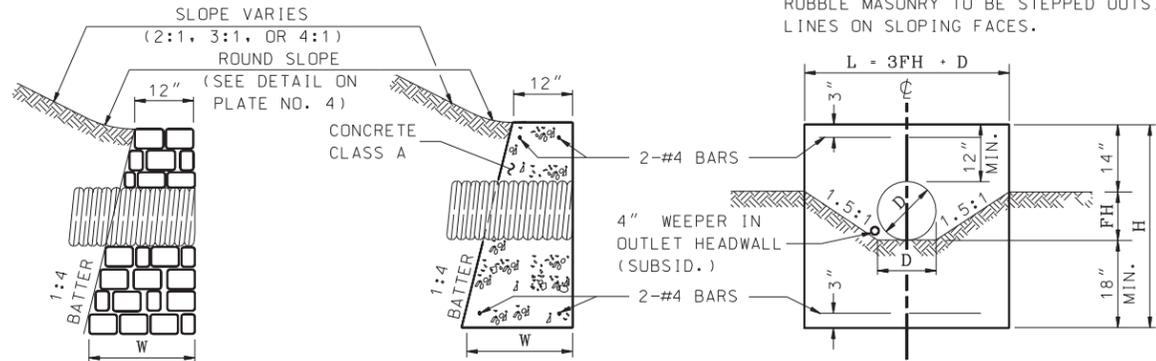
REVISION DATE  
07-13-2001  
06-16-2010

\*.DGN FILE NAME  
HR-1

2021  
 STANDARD PLANS  
 New Hampshire  
**DOT**  
 Department of Transportation

STANDARD NO. HR-1





SECTION ON CENTERLINE

ELEVATION

NOTE: STEEL QUANTITIES ARE FOR CONCRETE HEADWALLS ONLY.

DIAMETER D INCHES	MASONRY PER FOOT OF WALL CU. YD.	MASONRY PER STANDARD HEADER CU. YD.	STEEL PER STANDARD HEADER LB.	LENGTH OF BARS	EXC. FOR 1' DEPTH CU. YD.	HEADER LENGTH L	HEADER HEIGHT H	FILL HEIGHT FH	WIDTH AT BOTTOM OF HEADER W	"L" HEADWALL	
										MASONRY IN CORNER FRUSTUM CU. YD.	EXC. FOR 1' DEPTH CU. YD.
12	0.186	0.61	9	3'-2"	0.789	3'-6"	3'-6"	0'-10"	0'-10 1/2"	0.28	1.057
15	0.202	0.85	11	3-10	0.947	4-6	3-9	1-1	1-11 1/4	0.31	1.232
18	0.222	1.13	14	5-2	1.111	5-6	4-0	1-4	2-0	0.35	1.406
24	0.260	1.78	20	7-2	1.451	7-6	4-6	1-10	2-1 1/2	0.42	1.776
30	0.301	2.58	25	9-2	1.810	9-6	5-0	2-4	2-3	0.51	2.164
36	0.344	3.53	31	11-2	2.187	11-6	5-6	2-10	2-4 1/2	0.61	2.572
42	0.389	4.65	36	13-2	2.581	13-6	6-0	3-4	2-6	0.72	3.000
48	0.436	5.95	42	15-2	3.000	15-6	6-6	3-10	2-7 1/2	0.84	3.447
54	0.486	7.44	47	17-2	3.432	17-6	7-0	4-4	2-9	0.98	3.914
60	0.538	9.13	52	19-2	3.882	19-6	7-6	4-10	2-10 1/2	1.12	4.401
66	0.593	11.04	58	21-2	4.350	21-6	8-0	5-4	3-0	1.28	4.907
72	0.649	13.17	63	23'-2"	4.638	23'-6"	8'-6"	5'-10"	3'-1 1/2"	1.46	5.433

NOTE: FOR PLAN OF "L" HEADWALL SEE PLATE NO. 1 OF STD. NO. HW-2

NHDOT STANDARD PLANS		REV. DATE	PLATE
HEADWALLS FOR PIPES OTHER THAN R.C.: CONCRETE	P.C.-1	06-16-2010	1
MORTAR RUBBLE MASONRY	P.C.-2		STANDARD
			HW-1

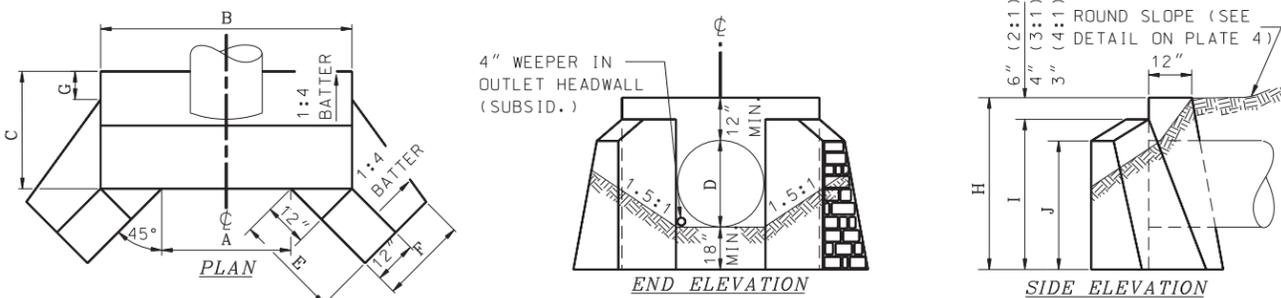
DIMENSIONS SHOWN ARE TO PAYMENT LINES. MORTAR RUBBLE MASONRY TO BE STEPPED OUTSIDE PAYMENT LINES ON SLOPING FACES.

DIAMETER D INCHES	QUANTITIES PER HEADER		DIMENSIONS										
	M.R.M. CU. YD.	EXC. FOR 1' DEPTH CU. YD.	A	B	C	E	F	G	H	I	J	K	
24	2.45	1.89	2'-6"	5'-4"	2'-3"	2'-11"	1'-11"	0'-6"	5'-0"	4'-6"	3'-10"	1'-6"	
30	3.19	2.28	3-1	5-11	2-5	3-6	2-0	0-5	5-6	5-0	4-1	1-6	
36	4.03	2.57	3-8	6-6	2-6	4-1	2-1	0-4	6-0	5-6	4-4	1-6	
42	5.50	3.09	4-3	7-1	2-8	5-0	2-2	0-3	6-9	6-3	4-10	1-9	
48	6.68	3.53	4-10	7-8	2-10	5-8	2-3	0-2	7-3	6-9	5-1	1-9	
54	7.92	3.95	5-5	8-3	2-11	6-3	2-4	0-1	7-9	7-3	5-4	1-9	
60	9.39	4.40	6-0	8-10	3-1	6-10	2-5	0-1	8-3	7-9	5-8	1-9	
66	10.90	4.81	6-7	9-5	3-2	7-5	2-6	0-0	8-9	8-3	5-11	1-9	
72	12.66	5.22	7'-2"	10'-0"	3'-4"	8'-1"	2'-7"	0'-1"	9'-3"	8'-9"	6'-3"	1'-9"	

DIAMETER D INCHES	QUANTITIES PER HEADER		DIMENSIONS										
	M.R.M. CU. YD.	EXC. FOR 1' DEPTH CU. YD.	A	B	C	E	F	G	H	I	J	K	
24	2.81	2.09	2'-6"	5'-4"	2'-3"	3'-6"	2'-0"	0'-6"	5'-0"	4'-8"	4'-1"	1'-6"	
30	3.73	2.51	3-1	5-11	2-5	4-3	2-1	0-6	5-6	5-2	4-5	1-6	
36	4.69	2.90	3-8	6-6	2-6	4-11	2-2	0-4	6-0	5-8	4-9	1-6	
42	6.47	3.46	4-3	7-1	2-8	6-0	2-4	0-3	6-9	6-5	5-3	1-9	
48	7.85	3.93	4-10	7-8	2-10	6-8	2-5	0-3	7-3	6-11	5-7	1-9	
54	9.37	4.37	5-5	8-3	2-11	7-5	2-6	0-2	7-9	7-5	5-11	1-9	
60	11.10	4.85	6-0	8-10	3-1	8-1	2-7	0-1	8-3	7-11	6-3	1-9	
66	12.95	5.36	6-7	9-5	3-2	8-10	2-8	0-0	8-9	8-5	6-7	1-9	
72	15.03	5.86	7'-2"	10'-0"	3'-4"	9'-6"	2'-9"	0'-0"	9'-3"	8'-11"	6'-11"	1'-9"	

DIAMETER D INCHES	QUANTITIES PER HEADER		DIMENSIONS										
	M.R.M. CU. YD.	EXC. FOR 1' DEPTH CU. YD.	A	B	C	E	F	G	H	I	J	K	
24	3.05	2.21	2'-6"	5'-4"	2'-3"	3'-10"	2'-1"	0'-6"	5'-0"	4'-9"	4'-3"	1'-6"	
30	4.02	2.62	3-1	5-11	2-5	4-7	2-2	0-6	5-6	5-3	4-7	1-6	
36	5.10	3.03	3-8	6-6	2-6	5-4	2-3	0-4	6-0	5-9	5-0	1-6	
42	7.03	3.65	4-3	7-1	2-8	6-6	2-5	0-3	6-9	6-6	5-6	1-9	
48	8.60	4.14	4-10	7-8	2-10	7-3	2-6	0-3	7-3	7-0	5-11	1-9	
54	10.28	4.62	5-5	8-3	2-11	8-1	2-7	0-2	7-9	7-6	6-3	1-9	
60	12.18	5.16	6-0	8-10	3-1	8-10	2-8	0-1	8-3	8-0	6-7	1-9	
66	14.24	5.67	6-7	9-5	3-2	9-7	2-9	0-1	8-9	8-6	7-0	1-9	
72	16.54	6.21	7'-2"	10'-0"	3'-4"	10'-5"	2'-10"	0'-0"	9'-3"	9'-0"	7'-4"	1'-9"	

NHDOT STANDARD PLANS		REV. DATE	PLATE
MORTAR RUBBLE MASONRY HEADWALLS WITH 45° WINGS FOR R.C. PIPE	P.C.-8	06-16-2010	2
			STANDARD
			HW-1



2:1 SLOPE

DIAMETER D INCHES	QUANTITIES PER HEADER		DIMENSIONS									
	M.R.M. CU. YD.	EXC. FOR 1' DEPTH CU. YD.	A	B	C	E	F	G	H	I	J	
24	1.89	1.65	2'-3"	5'-1"	2'-2"	2'-4"	1'-11"	0'-7"	4'-6"	4'-0"	3'-6"	
30	2.54	1.94	2-9	5-7	2-3	2-11	1-11	0-6	5-0	4-6	3-10	
36	3.31	2.29	3-3	6-1	2-5	3-7	2-0	0-6	5-6	5-0	4-1	
42	4.17	2.63	3-9	6-7	2-6	4-2	2-1	0-5	6-0	5-6	4-5	
48	5.33	3.00	4-4	7-2	2-8	4-9	2-2	0-4	6-6	6-0	4-8	
60	7.63	3.76	5-4	8-2	2-11	6-0	2-4	0-2	7-6	7-0	5-3	
72	10.59	4.60	6'-5"	9'-3"	3'-2"	7'-2"	2'-5"	0'-1"	8'-6"	8'-0"	5'-10"	

3:1 SLOPE

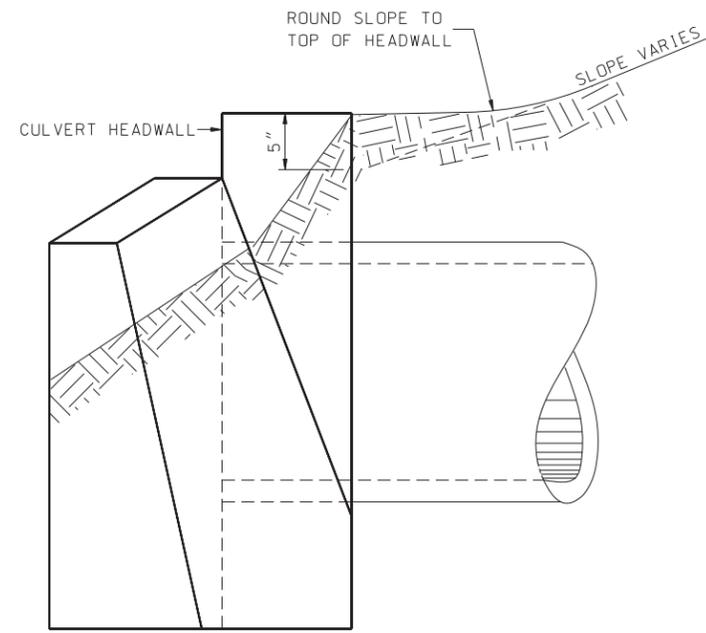
24	2.18	1.79	2'-3"	5'-1"	2'-2"	2'-10"	1'-11"	0'-7"	4'-6"	4'-2"	3'-9"
30	2.94	2.18	2-9	5-7	2-3	3-7	2-0	0-6	5-0	4-8	4-1
36	3.81	2.55	3-3	6-1	2-5	4-3	2-1	0-6	5-6	5-2	4-5
42	4.86	2.93	3-9	6-7	2-6	5-0	2-2	0-4	6-0	5-8	4-9
48	6.04	3.36	4-4	7-2	2-8	5-8	2-3	0-4	6-6	6-2	5-1
60	8.90	4.24	5-4	8-2	2-11	7-1	2-5	0-3	7-6	7-2	5-9
72	12.46	5.13	6'-5"	9'-3"	3'-2"	8'-6"	2'-7"	0'-1"	8'-6"	8'-2"	6'-5"

4:1 SLOPE

24	2.36	1.91	2'-3"	5'-1"	2'-2"	3'-2"	2'-0"	0'-7"	4'-6"	4'-3"	3'-10"
30	3.18	2.27	2-9	5-7	2-3	3-11	2-1	0-6	5-0	4-9	4-3
36	4.18	2.67	3-3	6-1	2-5	4-8	2-2	0-6	5-6	5-3	4-7
42	5.28	3.08	3-9	6-7	2-6	5-6	2-3	0-4	6-0	5-9	5-0
48	6.65	3.55	4-4	7-2	2-8	6-3	2-4	0-4	6-6	6-3	5-4
60	9.78	4.46	5-4	8-2	2-11	7-9	2-6	0-3	7-6	7-3	6-1
72	14.81	5.86	6'-5"	9'-3"	3'-2"	9'-4"	2'-8"	0'-1"	8'-6"	8'-3"	6'-9"

DIMENSIONS SHOWN ARE TO PAYMENT LINES. MORTAR RUBBLE MASONRY TO BE STEPPED OUTSIDE PAYMENT LINES ON SLOPING FACES.

NHDOT STANDARD PLANS		REV. DATE	PLATE
MORTAR RUBBLE MASONRY HEADWALLS WITH 45° WINGS FOR PIPES OTHER THAN R.C.	P.C.-6	06-16-2010	3
			STANDARD
			HW-1



SIDE ELEVATION

NHDOT STANDARD PLANS		REV. DATE	PLATE
SLOPE ROUNDING AT TOP OF CULVERT HEADWALL		06-16-2010	4
			STANDARD
			HW-1

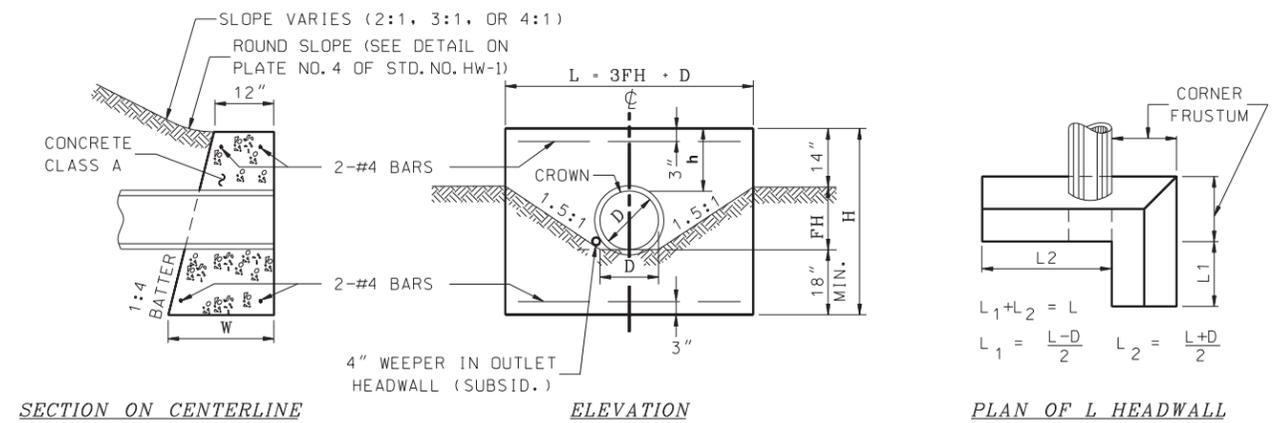
STANDARD NO. HW-1
REVISION DATE
07-13-2001
06-16-2010

*.DGN FILE NAME
HW-1

STANDARD PLANS

New Hampshire  
**DOT**  
Department of Transportation

STANDARD NO. HW-1



SECTION ON CENTERLINE

ELEVATION

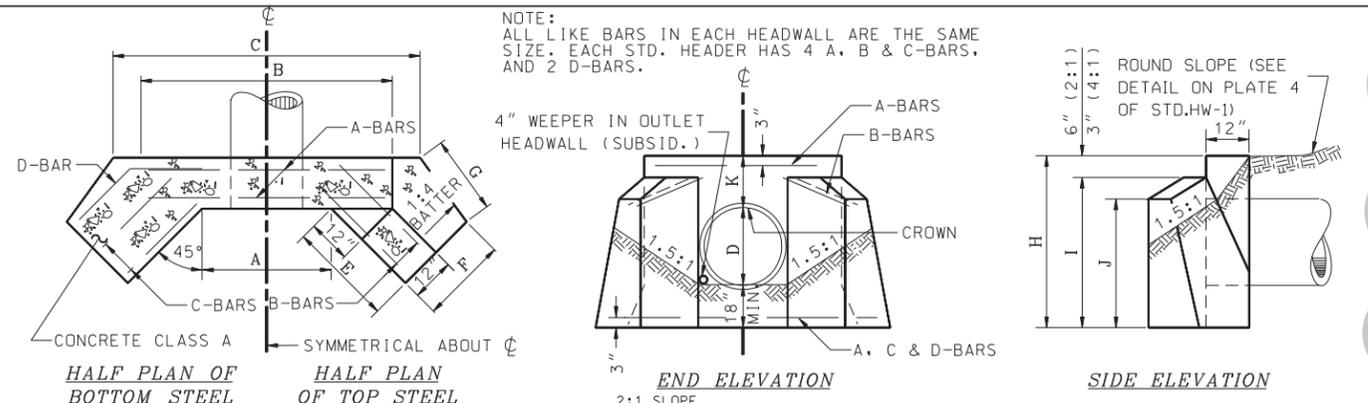
PLAN OF L HEADWALL

SECTIONS ON CENTERLINE FOR PC-4 SIMILAR TO PC-2.

DIAMETER D INCHES	MASONRY PER FOOT OF WALL CU. YD.	MASONRY PER STANDARD HEADER CU. YD.	STEEL PER STANDARD HEADER LB.	LENGTH OF BARS	EXC. FOR 1' DEPTH CU. YD.	HEADER LENGTH L	HEADER HEIGHT H	FILL HEIGHT FH	"h"	WIDTH AT BOTTOM OF HEADER W	"L" HEADWALL	
											MASONRY IN CORNER FRUSTUM CU. YD.	EXC. FOR 1' DEPTH CU. YD.
12	0.204	0.80	11	3'-10"	0.911	4'-3"	3'-9"	1'-1"	1'-3"	1'-11 1/4"	0.31	1.195
15	0.240	1.32	16	5-8	1.204	6-0	4-3	1-7	1-6	2-0 3/4"	0.38	1.588
18	0.260	1.66	16	5-8	1.375	7-0	4-6	1-10	1-6	2-1 1/2"	0.42	1.700
24	0.301	2.41	24	8-8	1.731	9-0	5-0	2-4	1-6	2-4	0.51	2.086
30	0.344	3.32	29	10-8	2.106	11-0	5-6	2-10	1-6	2-4 1/2"	0.61	2.491
36	0.389	4.43	35	12-8	2.500	13-0	6-0	3-4	1-6	2-6	0.72	2.917
42	0.461	6.28	42	15-2	3.082	15-9	6-9	4-1	1-9	2-8 1/4"	0.94	3.549
48	0.512	7.77	47	17-2	3.520	17-9	7-3	4-7	1-9	2-9 3/4"	1.05	4.019
54	0.565	9.46	52	19-2	3.977	19-9	7-9	5-1	1-9	2-11 1/4"	1.20	4.522
60	0.621	11.42	58	21-2	4.451	21-9	8-3	5-7	1-9	3-0 3/4"	1.37	5.024
66	0.689	13.68	63	23-2	4.947	23-9	8-9	6-1	1-9	3-2 1/4"	1.55	5.559
72	0.740	15.79	69	25'-2"	5.460	25'-9"	9'-3"	6'-7"	1'-9"	3'-3 3/4"	1.75	6.108

NOTE: STEEL QUANTITIES ARE FOR CONCRETE HEADWALLS ONLY

NHDOT STANDARD PLANS			REV. DATE	PLATE
HEADWALLS FOR R.C. PIPE:	CONCRETE	P.C.-3	06-16-2010	1
	MORTAR RUBBLE MASONRY	P.C.-4		STANDARD HW-2



HALF PLAN OF BOTTOM STEEL

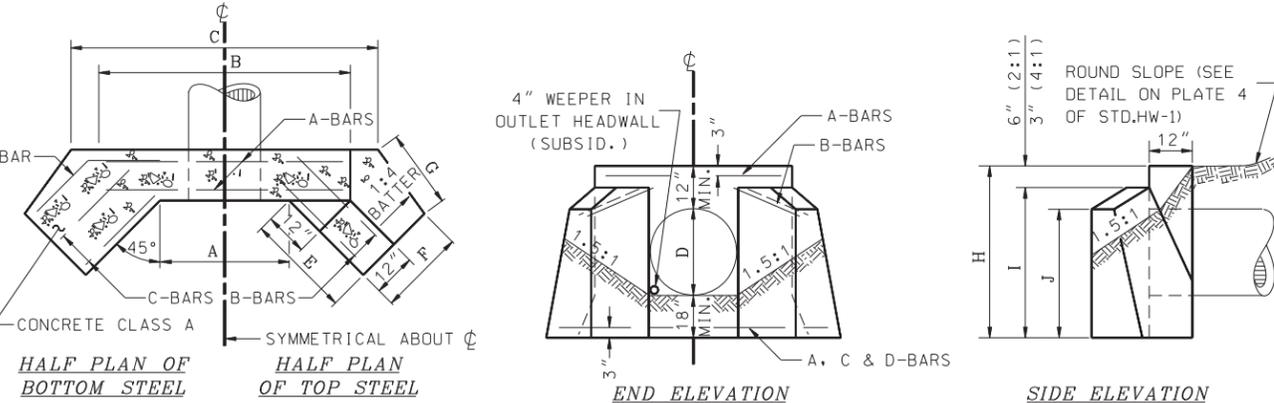
HALF PLAN OF TOP STEEL

END ELEVATION

SIDE ELEVATION

DIAMETER D INCHES	QUANTITIES PER HEADER			DIMENSIONS											REINFORCING STEEL					
	CONC. CU. YD.	STEEL LB.	EXC. FOR 1' DEPTH CU. YD.	A	B	C	E	F	G	H	I	J	K	SIZE	LENGTH				D-BARS	
24	1.97	36	1.58	2'-6"	5'-4"	6'-7"	3'-0"	1'-11"	2'-3"	5'-0"	4'-6"	3'-10"	1'-6"	#4	5'-0"	3'-2"	3'-0"	4'-8"	2'-5"	2'-3"
30	2.57	42	1.80	3-1	5-11	7-6	3-7	2-0	2-9	5-6	5-0	4-1	1-6	#4	5-7	3-9	3-7	5-3	2-6	2-9
36	3.24	47	2.12	3-8	6-6	8-5	4-2	2-1	3-3	6-0	5-6	4-4	1-6	#4	6-2	4-3	4-1	5-10	2-8	3-2
42	4.46	125	2.55	4-3	7-1	9-6	5-1	2-2	4-0	6-9	6-3	4-10	1-9	#6	6-9	5-3	4-11	7-10	3-10	4-0
48	5.38	139	2.88	4-10	7-8	10-5	5-9	2-3	4-6	7-3	6-9	5-1	1-9	#6	7-4	5-11	5-7	8-5	3-10	4-7
54	6.46	151	3.15	5-5	8-3	11-3	6-4	2-4	5-0	7-9	7-3	5-4	1-9	#6	7-11	6-7	6-1	9-2	4-1	5-1
60	7.55	162	3.51	6-0	8-10	12-2	6-11	2-5	5-6	8-3	7-9	5-8	1-9	#6	8-6	7-1	6-8	9-9	4-1	5-8
66	8.80	176	3.80	6-7	9-5	13-2	7-6	2-6	6-0	8-9	8-3	5-11	1-9	#6	9-1	7-8	7-3	10-5	4-2	6-3
72	10.29	188	4.12	7'-2"	10'-0"	14'-0"	8'-2"	2'-7"	6'-6"	9'-3"	8'-9"	6'-3"	1'-9"	#6	9'-8"	8'-3"	7'-10"	11'-0"	4'-3"	6'-9"

NHDOT STANDARD PLANS			REV. DATE	PLATE
CONCRETE HEADWALLS WITH 45° WINGS FOR R.C. PIPE	P.C.-7		06-16-2010	2
				STANDARD HW-2



HALF PLAN OF BOTTOM STEEL

HALF PLAN OF TOP STEEL

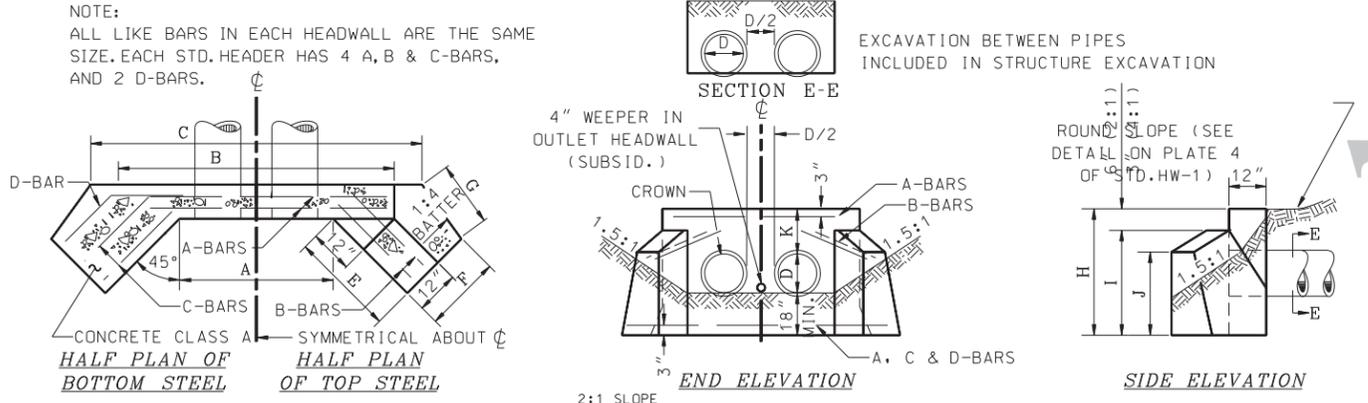
END ELEVATION

SIDE ELEVATION

NOTE: ALL LIKE BARS IN EACH HEADWALL ARE THE SAME SIZE. EACH STD. HEADER HAS 4 A, B & C-BARS, AND 2 D-BARS.

DIAMETER D INCHES	QUANTITIES PER HEADER			DIMENSIONS											REINFORCING STEEL				
	CONC. CU. YD.	STEEL LB.	EXC. FOR 1' DEPTH CU. YD.	A	B	C	E	F	G	H	I	J	SIZE	LENGTH				D-BARS	
24	1.50	32	1.36	2'-3"	5'-1"	6'-0"	2'-5"	1'-11"	1'-9"	4'-6"	4'-0"	3'-6"	#4	4'-9"	2'-7"	2'-5"	3'-11"	2'-4"	1'-7"
30	2.01	37	1.63	2-9	5-7	6-10	3-0	1-11	2-3	5-0	4-6	3-10	#4	5-3	3-3	3-1	4-7	2-7	2-0
36	2.62	42	1.88	3-3	6-1	7-8	3-7	2-0	2-9	5-6	5-0	4-1	#4	5-9	3-10	3-6	5-2	2-8	2-6
42	3.31	47	2.18	3-9	6-7	8-6	4-2	2-1	3-3	6-0	5-6	4-4	#4	6-3	4-5	4-1	5-10	2-10	3-0
48	4.11	123	2.42	4-4	7-2	9-5	4-10	2-2	3-9	6-6	6-0	4-8	#6	6-10	5-1	4-8	7-8	4-0	3-8
60	5.98	146	3.04	5-4	8-2	11-0	6-0	2-4	4-8	7-6	7-0	5-3	#6	7-10	6-3	5-8	8-11	4-6	4-5
72	8.33	171	3.69	6'-5"	9'-3"	12'-9"	7'-3"	2'-5"	5'-8"	8'-6"	8'-0"	5'-10"	#6	8'-11"	7'-6"	6'-9"	10'-4"	4'-10"	5'-6"

NHDOT STANDARD PLANS			REV. DATE	PLATE
CONCRETE HEADWALLS WITH 45° WINGS FOR PIPES OTHER THAN R.C.	P.C.-5		06-16-2010	3
				STANDARD HW-2



HALF PLAN OF BOTTOM STEEL

HALF PLAN OF TOP STEEL

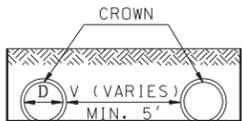
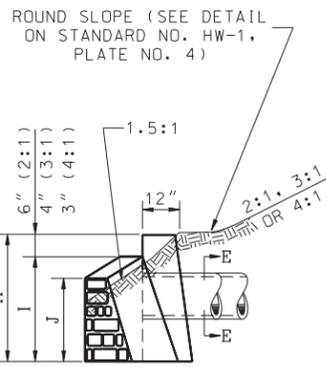
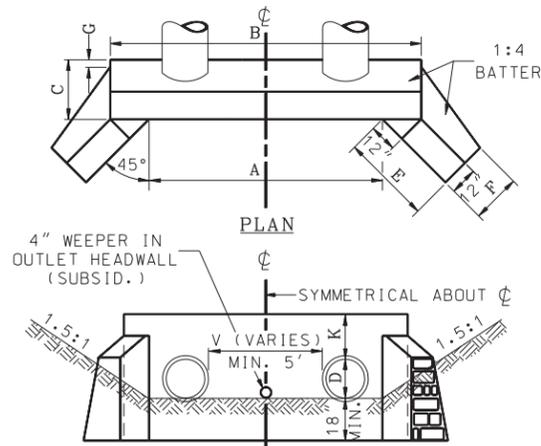
END ELEVATION

SIDE ELEVATION

DIA. D INCHES	QUANTITIES PER HEADER			DIMENSIONS											REINFORCING STEEL						
	CONC. CU. YD.	STEEL LB.	EXC. FOR 1' DEPTH CU. YD.	A	B	C	E	F	G	H	I	J	K	D/2	SIZE	LENGTH				D-BARS	
24	2.44	46	1.96	6'-0"	8'-10"	10'-0"	3'-0"	1'-11"	2'-3"	5'-0"	4'-6"	3'-10"	1'-6"	1'-0"	#4	8'-6"	3'-2"	3'-0"	4'-8"	2'-5"	2'-3"
30	3.18	53	2.28	7-5	10-3	11-9	3-7	2-0	2-9	5-6	5-0	4-1	1-6	1-3	#4	9-11	3-9	3-7	5-3	2-6	2-9
36	3.99	61	2.69	8-10	11-8	13-7	4-2	2-1	3-3	6-0	5-6	4-4	1-6	1-6	#4	11-4	4-3	4-1	5-10	2-8	3-2
42	5.43	161	3.22	10-3	13-1	15-6	5-1	2-2	4-0	6-9	6-3	4-10	1-9	1-9	#6	12-9	5-3	4-11	7-10	3-10	4-0
48	6.53	180	3.64	11-8	14-6	17-3	5-9	2-3	4-6	7-3	6-9	5-1	1-9	2-0	#6	14-2	5-11	5-7	8-5	3-10	4-7
54	7.76	197	4.00	13-1	15-11	19-1	6-4	2-4	5-0	7-9	7-3	5-4	1-9	2-3	#6	15-7	6-7	6-1	9-2	4-1	5-1
60	9.10	214	4.45	14-6	17-4	20-10	6-11	2-5	5-6	8-3	7-9	5-8	1-9	2-6	#6	17-0	7-1	6-8	9-9	4-1	5-8
66	10.56	232	4.84	15-11	18-9	22-5	7-6	2-6	6-0	8-9	8-3	5-11	1-9	2-9	#6	18-5	7-8	7-3	10-5	4-2	6-3
72	12.28	249	5.25	17'-4"	20'-2"	24'-2"	8'-2"	2'-7"	6'-6"	9'-3"	8'-9"	6'-3"	1'-9"	2-9	#6	19'-10"	8'-3"	7'-10"	11'-0"	4'-3"	6'-9"

NHDOT STANDARD PLANS			REV. DATE	PLATE
CONCRETE HEADWALLS WITH 45° WINGS FOR TWIN R.C. PIPE	P.C.-9		06-16-2010	4
				STANDARD HW-2

STANDARD NO. HW-2
REVISION DATE
07-13-2001
06-16-2010
DGN FILE NAME
HW-2



SECTION E-E  
EXCAVATION BETWEEN PIPES INCLUDED IN STRUCTURE EXCAVATION

DIMENSIONS SHOWN ARE TO PAYMENT LINES. MASONRY TO BE STEPPED OUTSIDE PAYMENT LINES ON SLOPING FACES.

2:1 SLOPE (FOR 3:1 AND 4:1 SLOPES SEE PLATE 2)

DIAMETER D INCHES	QUANTITIES IN CUBIC YARDS, PER HEADER				DIMENSIONS										
	M.R.M. V=5'	M.R.M. PER FOOT ADD. LENGTH V=5'	EXC. FOR 1' DEPTH V=5'	EXC. PER FOOT ADD. LENGTH 1 FOOT DEPTH	A V=5'	B V=5'	C	E	F	G	H	I	J	K	
24	4.40	0.300	3.08	0.157	10'-0"	12'-10"	2'-3"	2'-11"	1'-11"	0'-6"	5'-0"	4'-6"	3'-10"	1'-6"	
30	5.56	0.348	3.60	0.163	11-2	14-0	2-5	3-6	2-0	0-5	5-6	5-0	4-1	1-6	
36	6.71	0.389	4.03	0.167	12-4	15-2	2-6	4-1	2-1	0-4	6-0	5-6	4-4	1-6	
42	8.75	0.458	4.68	0.173	13-6	16-4	2-8	5-0	2-2	0-3	6-9	6-3	4-10	1-9	
48	10.43	0.515	5.29	0.179	14-8	17-6	2-10	5-8	2-3	0-2	7-3	6-9	5-1	1-9	
54	12.07	0.562	5.85	0.182	15-10	18-8	2-11	6-3	2-4	0-1	7-9	7-3	5-4	1-9	
60	14.09	0.624	6.47	0.188	17-0	19-10	3-1	6-10	2-5	0-1	8-3	7-9	5-8	1-9	
66	16.05	0.675	7.03	0.191	18-2	21-0	3-2	7-5	2-6	0-0	8-9	8-3	5-11	1-9	
72	18.41	0.742	7.63	0.198	19'-4"	22'-2"	3'-4"	8'-1"	2'-7"	-0'-1"	9'-3"	8'-9"	6'-3"	1'-9"	

NHDOT STANDARD PLANS  
MORTAR RUBBLE MASONRY HEADWALLS WITH 45° WINGS  
FOR TWIN R. C. PIPES P.C.-10

REV. DATE	PLATE
06-16-2010	1
	STANDARD
	HW-3

3:1 SLOPE

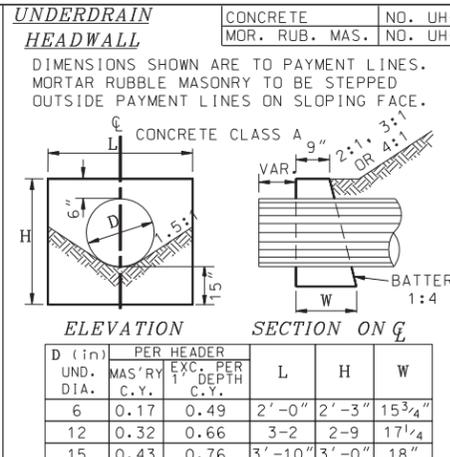
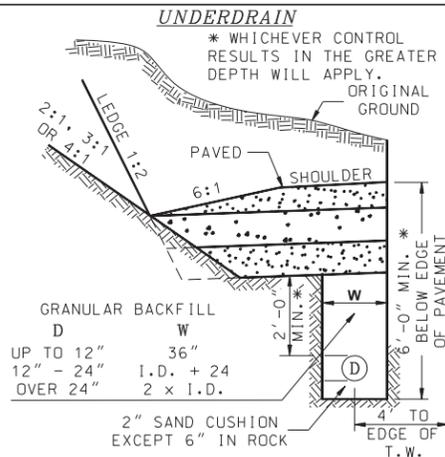
DIAMETER D INCHES	QUANTITIES IN CUBIC YARDS, PER HEADER				DIMENSIONS										
	M.R.M. V=1.5	M.R.M. PER FOOT ADD. LENGTH V=5'	EXC. FOR 1' DEPTH V=5'	EXC. PER FOOT ADD. LENGTH 1 FOOT DEPTH	A V=5'	B V=5'	C	E	F	G	H	I	J	K	
24	4.77	0.300	3.27	0.157	10'-0"	12'-10"	2'-3"	3'-6"	2'-0"	0'-6"	5'-0"	4'-8"	4'-1"	1'-6"	
30	6.08	0.348	3.83	0.163	11-2	14-0	2-5	4-3	2-1	0-6	5-6	5-2	4-5	1-6	
36	7.38	0.389	4.34	0.167	12-4	15-2	2-6	4-11	2-2	0-4	6-0	5-8	4-9	1-6	
42	9.72	0.458	5.06	0.173	13-6	16-4	2-8	6-0	2-4	0-3	6-9	6-5	5-3	1-9	
48	11.59	0.515	5.69	0.179	14-8	17-6	2-10	6-8	2-5	0-3	7-3	6-11	5-7	1-9	
54	13.52	0.562	6.27	0.182	15-10	18-8	2-11	7-5	2-6	0-2	7-9	7-5	5-11	1-9	
60	15.80	0.624	6.92	0.188	17-0	19-10	3-1	8-1	2-7	0-1	8-3	7-11	6-3	1-9	
66	18.10	0.675	7.58	0.191	18-2	21-0	3-2	8-10	2-8	0-0	8-9	8-5	6-7	1-9	
72	20.80	0.742	8.26	0.198	19'-4"	22'-2"	3'-4"	9'-6"	2'-9"	0-0	9'-3"	8'-11"	6'-11"	1'-9"	

4:1 SLOPE

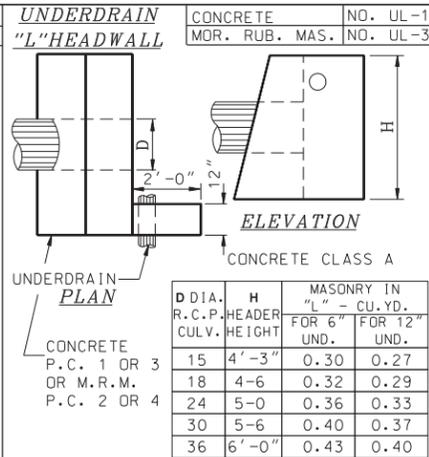
DIAMETER D INCHES	QUANTITIES IN CUBIC YARDS, PER HEADER				DIMENSIONS										
	M.R.M. V=1.5	M.R.M. PER FOOT ADD. LENGTH V=5'	EXC. FOR 1' DEPTH V=5'	EXC. PER FOOT ADD. LENGTH 1 FOOT DEPTH	A V=5'	B V=5'	C	E	F	G	H	I	J	K	
24	5.01	0.300	3.39	0.157	10'-0"	12'-10"	2'-3"	3'-10"	2'-1"	0'-6"	5'-0"	4'-9"	4'-3"	1'-6"	
30	6.37	0.348	3.94	0.163	11-2	14-0	2-5	4-7	2-2	0-6	5-6	5-3	4-7	1-6	
36	7.79	0.389	4.47	0.167	12-4	15-2	2-6	5-4	2-3	0-4	6-0	5-9	5-0	1-6	
42	10.30	0.458	5.25	0.173	13-6	16-4	2-8	6-6	2-5	0-3	6-9	6-6	5-6	1-9	
48	12.34	0.515	5.90	0.179	14-8	17-6	2-10	7-3	2-6	0-3	7-3	7-0	5-11	1-9	
54	14.46	0.562	6.52	0.182	15-10	18-8	2-11	8-1	2-7	0-2	7-9	7-6	6-3	1-9	
60	16.85	0.624	7.23	0.188	17-0	19-10	3-1	8-10	2-8	0-1	8-3	8-0	6-7	1-9	
66	19.41	0.675	7.89	0.191	18-2	21-0	3-2	9-7	2-9	0-0	8-9	8-6	7-0	1-9	
72	22.26	0.742	8.62	0.198	19'-4"	22'-2"	3'-4"	10'-5"	2'-10"	0-0	9'-3"	9'-0"	7'-4"	1'-9"	

NHDOT STANDARD PLANS  
MORTAR RUBBLE MASONRY HEADWALLS WITH 45° WINGS  
FOR TWIN R. C. PIPES P.C.-10

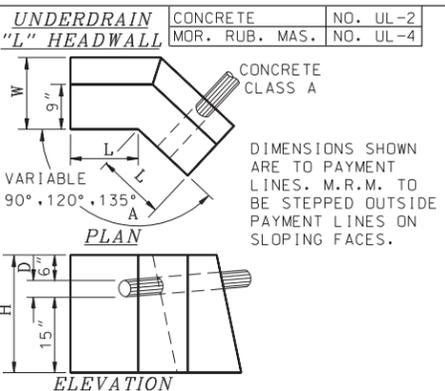
REV. DATE	PLATE
06-16-2010	2
	STANDARD
	HW-3



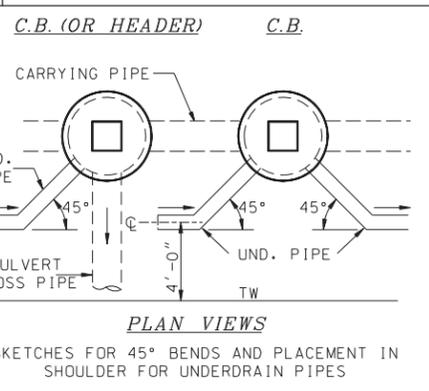
D (in) UND. DIA.	PER HEADER		L	H	W
	MAS'RY C.Y.	EXC. PER DEPTH C.Y.			
6	0.17	0.49	2'-0"	2'-3"	15 3/4"
12	0.32	0.66	3-2	2-9	17 1/4"
15	0.43	0.76	3'-10"	3'-0"	18"



D DIA. R.C.P. CULV.	H HEADR HEIGHT	MASONRY IN "L" "CU. YD.	
		FOR 6" UND.	FOR 12" UND.
15	4'-3"	0.30	0.27
18	4-6	0.32	0.29
24	5-0	0.36	0.33
30	5-6	0.40	0.37
36	6'-0"	0.43	0.40



D (in) UND. DIA.	A	PER HEADER		L	H	W
		MAS'RY C.Y.	EXC. PER DEPTH C.Y.			
6	90°	0.30	0.71	1'-3"	2'-3"	15 3/4"
6	120°	0.26	0.65	1-3	2-3	15 3/4"
6	135°	0.25	0.62	1-3	2-3	15 3/4"
12	90°	0.54	0.95	2-0	2-9	17 1/4"
12	120°	0.49	0.87	2-0	2-9	17 1/4"
12	135°	0.47	0.84	2-0	2-9	17 1/4"
15	90°	0.72	1.10	2-6	3-0	18"
15	120°	0.66	1.02	2-6	3-0	18"
15	135°	0.64	0.99	2-6	3-0	18"
18	90°	0.85	1.20	2-9	3-3	18 3/4"
18	120°	0.79	1.11	2-9	3-3	18 3/4"
18	135°	0.77	1.07	2-9	3-3	18 3/4"
24	90°	1.25	1.46	3-6	3-9	20 1/4"
24	120°	1.18	1.37	3-6	3-9	20 1/4"
24	135°	1.14	1.32	3'-6"	3'-9"	20 1/4"



SKETCHES FOR 45° BENDS AND PLACEMENT IN SHOULDER FOR UNDERDRAIN PIPES

NHDOT STANDARD PLANS  
UNDERDRAIN HEADWALLS & UNDERDRAIN "L" HEADWALLS

REV. DATE	PLATE
06-16-2010	3
	STANDARD
	HW-3

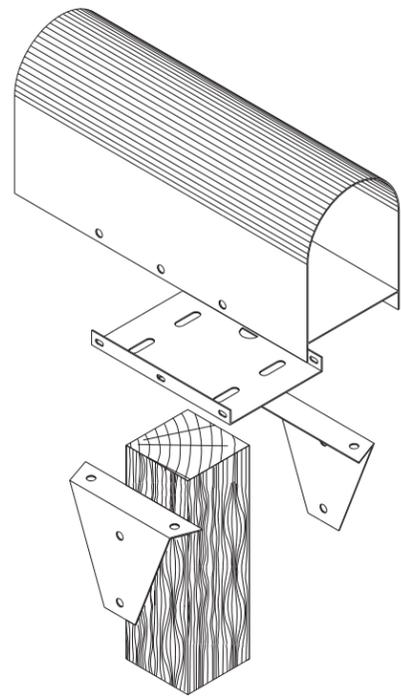
NHDOT STANDARD PLANS

REV. DATE	PLATE
06-16-2010	4
	STANDARD
	HW-3

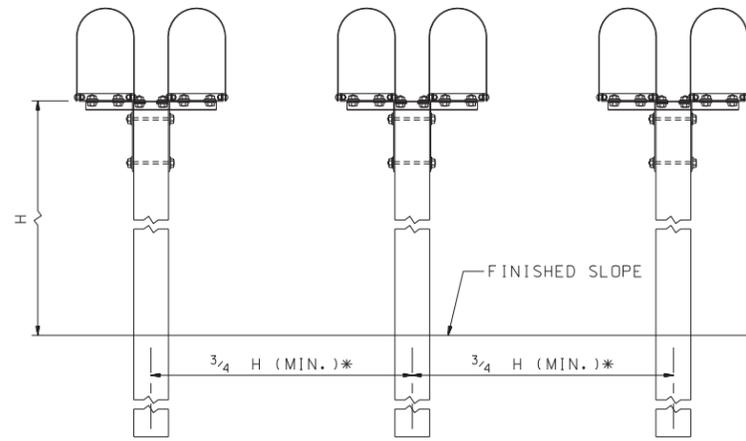
New Hampshire  
**DOT**  
 Department of Transportation  
 STANDARD PLANS

REVISION DATE
07-13-2001
06-16-2010
02-25-2016

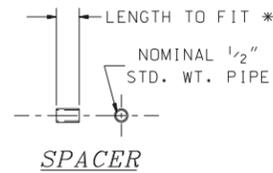
\*.DGN FILE NAME MB-1



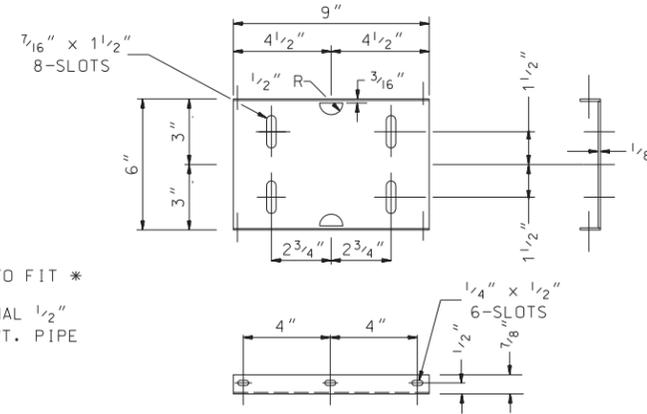
**EXPLODED VIEW**  
(SEE NOTE NO. 1)



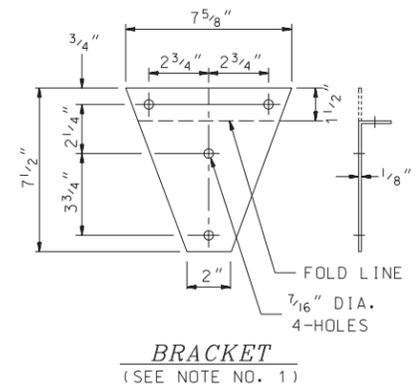
**SPACING FOR MULTIPLE POST INSTALLATION**  
\* FULL HEIGHT PREFERABLE



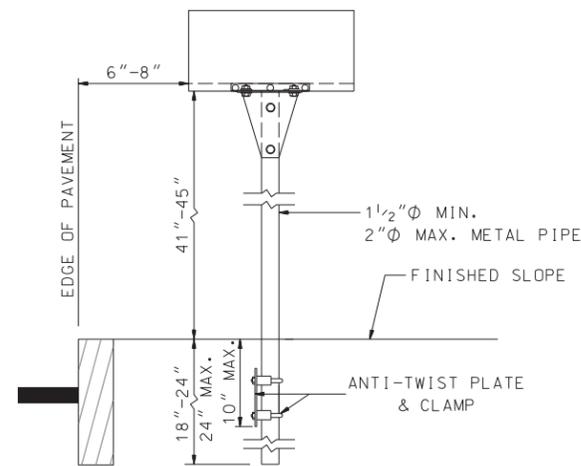
**SPACER**  
\* STANDARD MAILBOX WIDTHS ARE 6 1/2", 8", AND 11 1/2"



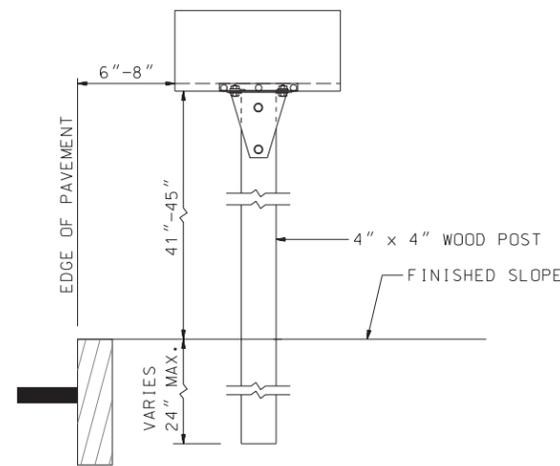
**PLATFORM**  
(SEE NOTE NO. 1)



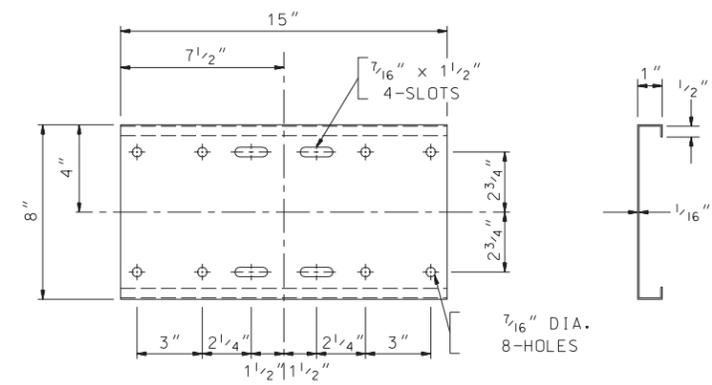
**BRACKET**  
(SEE NOTE NO. 1)



**METAL POST**  
(SEE NOTE NO. 7)



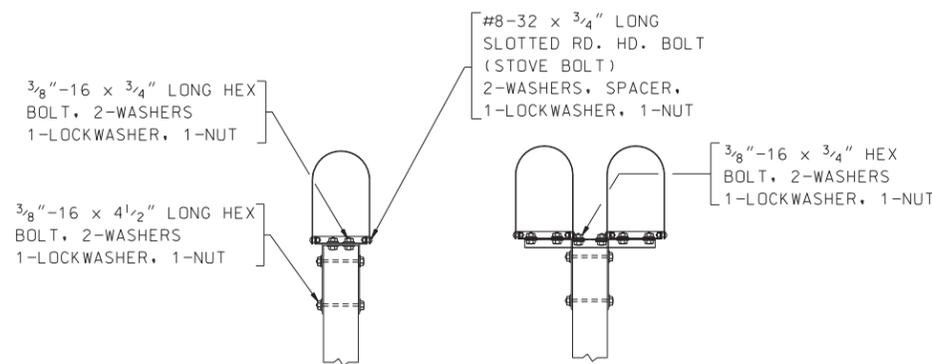
**WOOD POST**  
(SEE NOTE NO. 7)



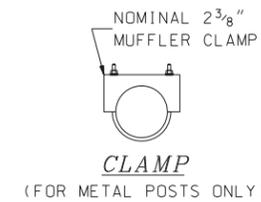
**SHELF**  
(SEE NOTE NO. 1)

**GENERAL NOTES**

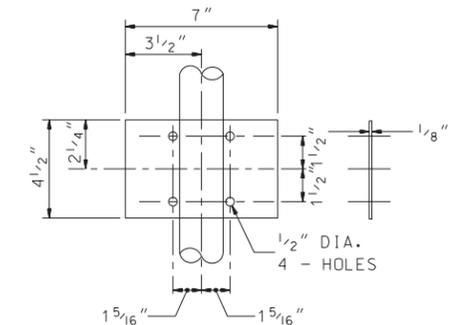
1. THE MAILBOX SUPPORT ASSEMBLY SHOWN ON THIS SHEET IS AN EXAMPLE OF AN ACCEPTABLE NON-PROPRIETARY DESIGN.
2. NO MORE THAN TWO MAILBOXES MAY BE MOUNTED ON A SUPPORT STRUCTURE UNLESS THE SUPPORT STRUCTURE AND MAILBOX ARRANGEMENT HAVE BEEN SHOWN TO BE SAFE BY CRASH TESTING. HOWEVER, LIGHTWEIGHT NEWSPAPER BOXES MAY BE MOUNTED BELOW THE MAILBOX ON THE SIDE OF THE MAILBOX SUPPORT.
3. MAILBOX SUPPORTS SHALL NOT BE SET IN CONCRETE UNLESS THE SUPPORT DESIGN HAS BEEN SHOWN TO BE SAFE BY CRASH TESTS WHEN SO INSTALLED.
4. A SINGLE 4" x 4" SQUARE\* OR 4" DIAMETER\* WOOD POST OR A METAL POST WITH A STRENGTH NO GREATER THAN A 2" DIAMETER STANDARD STRENGTH STEEL PIPE AND EMBEDDED NO MORE THAN 24" INTO THE GROUND WILL BE ACCEPTABLE AS A MAILBOX SUPPORT. A METAL POST SHALL NOT BE FITTED WITH AN ANCHOR PLATE, BUT IT SHALL HAVE AN ANTI-TWIST DEVICE THAT EXTENDS NO MORE THAN 10" BELOW THE GROUND SURFACE.  
\* THESE DIMENSIONS ARE BOTH MAXIMUM AND MINIMUM
5. IN AREAS OF HIGH SNOWFALL, CANTILEVER DESIGNS MAY BE ADVANTAGEOUS. CANTILEVER SUPPORTS PERMIT WINDSHIELD CONTACT WITH THE MAILBOX WITHOUT THE VEHICLE FIRST CONTACTING THE POST, THEREFORE, AN APPROVED BREAKAWAY SUPPORT MUST BE USED.
6. FOR ADDITIONAL INFORMATION, REFER TO THE LATEST ADOPTED EDITION OF THE AASHTO - ROADSIDE DESIGN GUIDE - CHAPTER 11, ERECTING MAILBOXES ON STREETS AND HIGHWAYS.
7. CONTACT THE LOCAL POSTMASTER FOR OFFSET AND HEIGHT FROM EP WHEN INSTALLING IN UNCURBED AREAS.



**ASSEMBLY HARDWARE**



**CLAMP**  
(FOR METAL POSTS ONLY)



**ANTI-TWIST PLATE**  
(FOR METAL POSTS ONLY)

**MAILBOX STANDARD**  
*MAILBOX SUPPORT ASSEMBLY DETAILS*

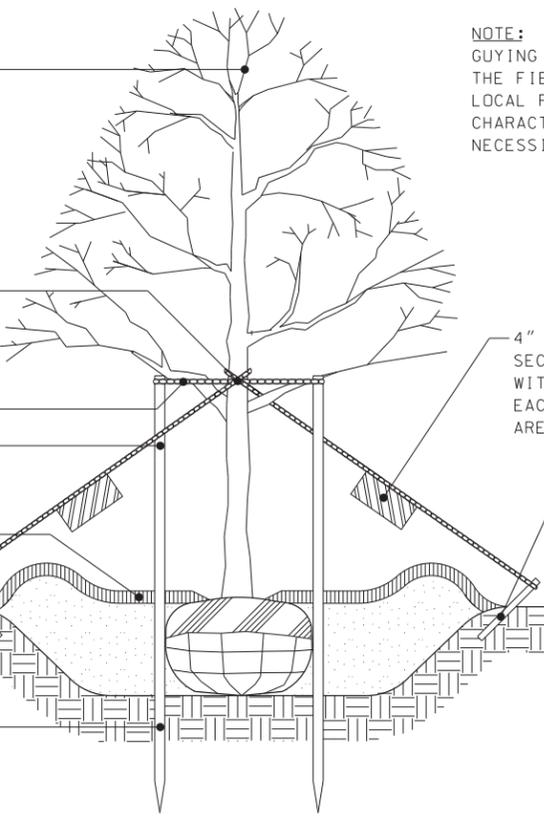
NOTE:  
NEVER CUT LEADER

GUY MATERIAL AT TREE  
1/2 UP TREE OR TO FIRST  
BRANCH, WHICHEVER IS LOWER

GUY MATERIAL  
VERTICAL STAKES

4" DEEP BARK MULCH  
MIN. 3" FROM TRUNK  
MAX. 6" FROM TRUNK

STAKE TO BE 18" BELOW TREE  
PIT IN UNDISTURBED GROUND



DECIDUOUS TREE PLANTING

NOTE:  
GUYING AND STAKING TO BE DETERMINED IN  
THE FIELD BY THE LANDSCAPE SPECIALIST.  
LOCAL FIELD CONDITIONS AS WELL AS PLANT  
CHARACTERISTICS WILL DETERMINE THE  
NECESSITY OF GUYING AND STAKING

4" x 12" PLASTIC FLAG  
SECURED TO GUY MATERIAL  
WITH TWISTED WIRE AT  
EACH END (FOR MOWED  
AREAS ONLY)

HUB STAKE

BURLAP AND ROPE CUT AWAY  
FROM TOP OF BALL. REMOVE  
SYNTHETIC BURLAP AND STRING  
ENTIRELY AND TOP 8"-16"  
OF WIRE BASKET. LOOSEN  
AND/OR SLASH ANY COMPACTED  
ROOTS.

4" DEEP BARK MULCH

LOAM BACKFILL

UNDISTURBED GROUND

ROOT COLLAR SHALL BE  
AT THE SAME LEVEL AS  
THE EXISTING GRADE

ROOT COLLAR  
4" DEEP BARK MULCH  
MIN. 3" FROM TRUNK  
MAX. 6" FROM TRUNK  
MOUND AND TAMP PIT  
EXCAVATION 4"  
ABOVE LEVEL OF ROOT  
COLLAR FOR SAUCER

EXISTING SLOPE

VARIES

VARIES  
2X ROOTBALL  
DIAMETER MIN.

TYPICAL PLANTING PIT ON LEVEL

BURLAP AND ROPE CUT AWAY  
FROM TOP OF BALL. REMOVE  
SYNTHETIC BURLAP AND STRING  
ENTIRELY AND TOP 8"-16"  
OF WIRE BASKET. LOOSEN  
AND/OR SLASH ANY COMPACTED  
ROOTS.

MOUND AND TAMP PIT EXCAVATION  
4" ABOVE LEVEL OF ROOT  
COLLAR FOR SAUCER

4" DEEP BARK MULCH  
MIN. 3" FROM TRUNK  
MAX. 6" FROM TRUNK

HUMUS AND SEED

LOAM BACKFILL

UNDISTURBED GROUND

ROOT COLLAR SHALL BE  
AT THE SAME LEVEL AS  
THE EXISTING GRADE

ROOT COLLAR  
KEEP SAUCER LEVEL

EXISTING SLOPE

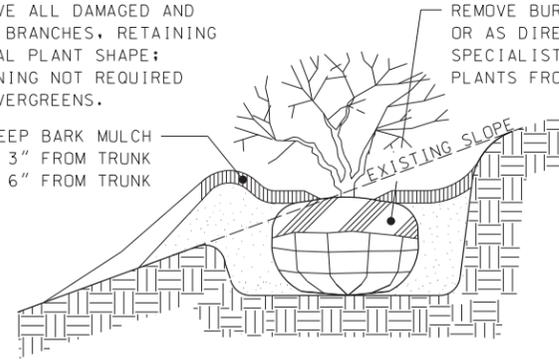
VARIES

VARIES  
2X ROOTBALL  
DIAMETER MIN.

TYPICAL PLANTING PIT ON SLOPE  
4:1 OR GREATER

NOTE:  
REMOVE ALL DAMAGED AND  
DEAD BRANCHES, RETAINING  
NORMAL PLANT SHAPE;  
THINNING NOT REQUIRED  
ON EVERGREENS.

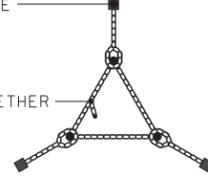
4" DEEP BARK MULCH  
MIN. 3" FROM TRUNK  
MAX. 6" FROM TRUNK



SHRUB PLANTING

MAXIMUM 3 STAKES PER TREE

TIE INDIVIDUAL GUYED STEMS TOGETHER  
WITH SINGLE GUY MATERIAL

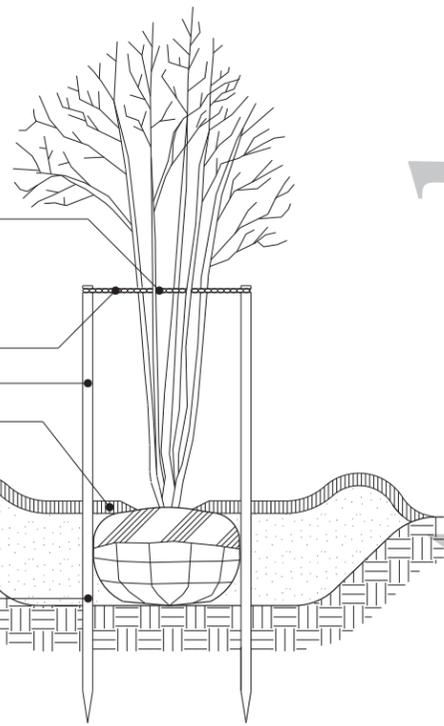


NOTE:  
STAKE AND GUY 3 LARGEST  
STEMS, IF TREE HAS MORE  
THAN 3 LEADERS.  
NEVER CUT LEADERS.

± 1/2 OF TREE HEIGHT

GUY MATERIAL  
VERTICAL STAKES  
4" DEEP BARK MULCH  
MIN. 3" FROM TRUNK  
MAX. 6" FROM TRUNK

DRIVE STAKES TO  
18" BELOW BOTTOM  
OF TREE PIT IN  
UNDISTURBED GROUND



MULTI-STEM TREE PLANTING

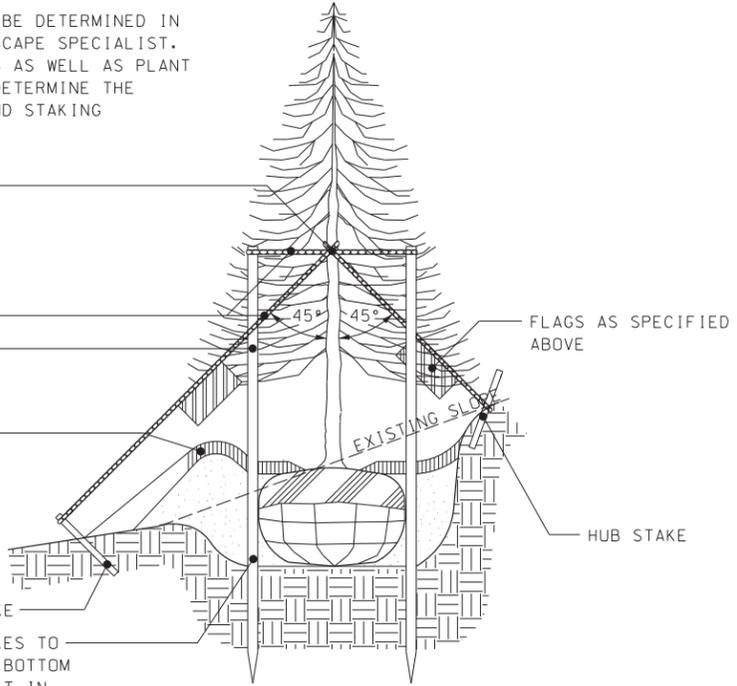
NOTE:  
GUYING AND STAKING TO BE DETERMINED IN  
THE FIELD BY THE LANDSCAPE SPECIALIST.  
LOCAL FIELD CONDITIONS AS WELL AS PLANT  
CHARACTERISTICS WILL DETERMINE THE  
NECESSITY OF GUYING AND STAKING

GUY MATERIAL AT TREE  
1/2 UP TREE

GUY MATERIAL  
VERTICAL STAKES

4" DEEP BARK MULCH  
MIN. 3" FROM TRUNK  
MAX. 6" FROM TRUNK

DRIVE STAKES TO  
18" BELOW BOTTOM  
OF TREE PIT IN  
UNDISTURBED GROUND



EVERGREEN TREE PLANTING

FLAGS AS SPECIFIED  
ABOVE

HUB STAKE

STANDARD  
NO. PL-1

REVISION DATE
07-13-2001
02-26-2010

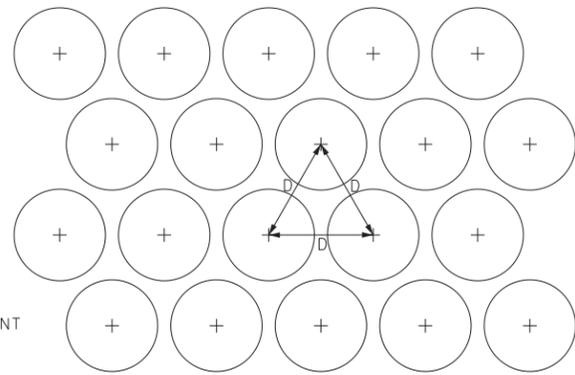
\*.DGN FILE NAME  
PL-1

STANDARD PLANS  
 2012  
 New Hampshire  
**DOT**  
 Department of Transportation

PLANTING STANDARD

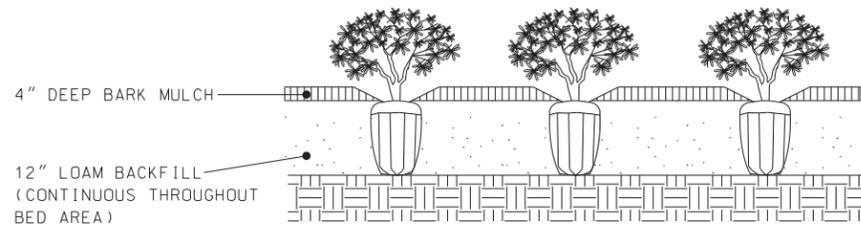
PLANTING DETAILS

STANDARD  
NO. PL-1



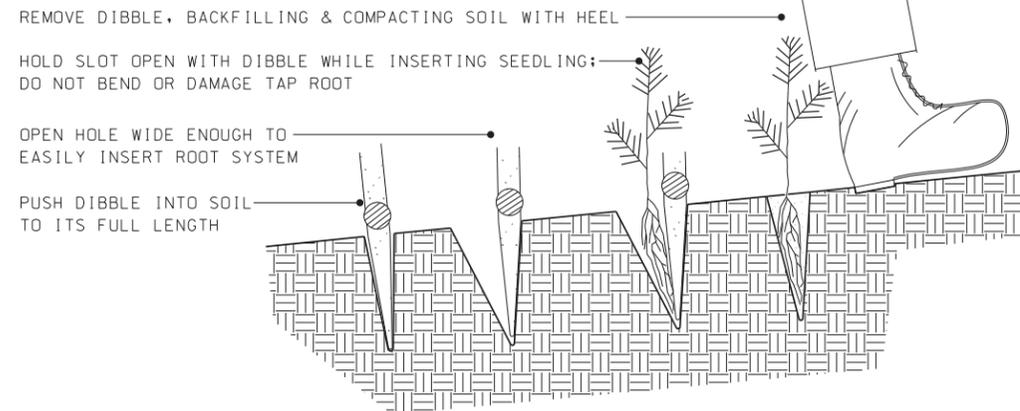
**NOTE:**  
D=DIMENSION OF PLANT SPACING (SHRUB OR GROUND COVER AS INDICATED ON PLANS)

TYPICAL BED PLANT SPACING

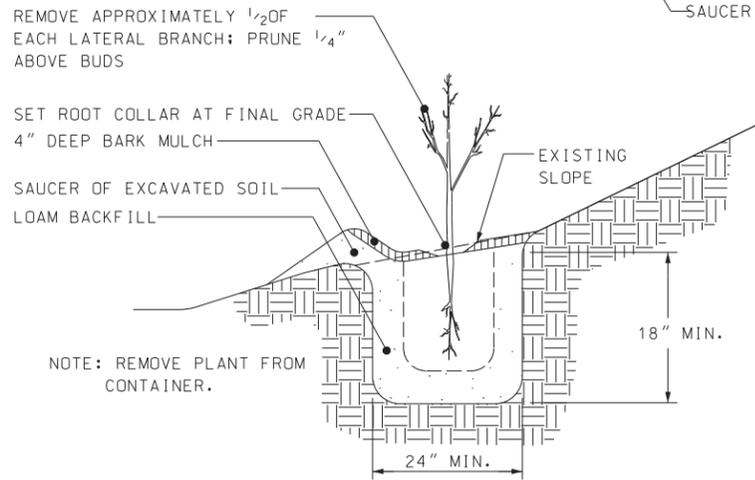


GROUNDCOVER BED PLANTING

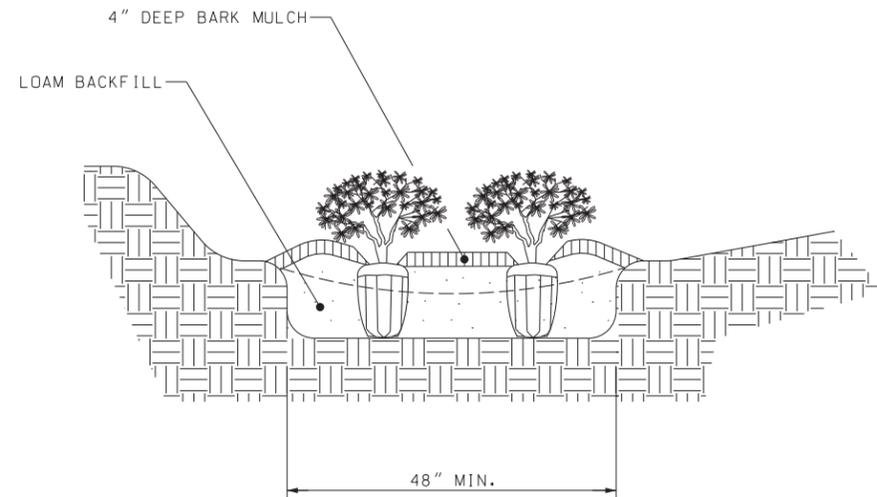
**NOTE:**  
LOCATION, SIZE AND SPACING OF SEEDLINGS OR PLANT PLUGS ARE AS INDICATED ON PLAN SHEETS



SEEDLINGS (EVERGREEN) OR WETLAND PLUG PLACEMENT



LINER PLANTING (DECIDUOUS)

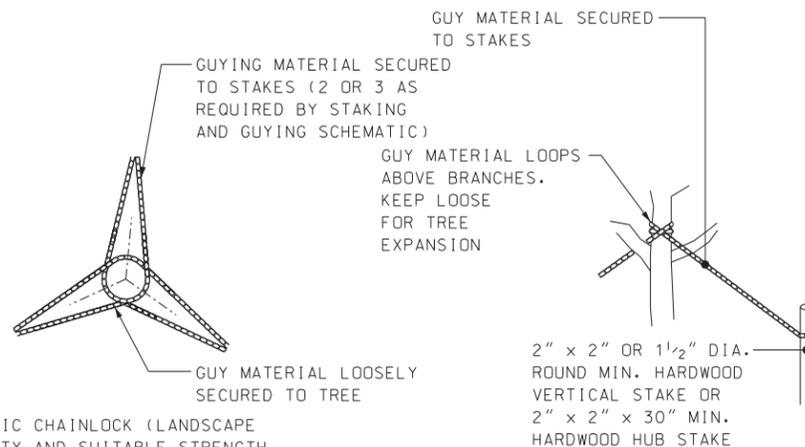


TRENCH NARROW MEDIAN PLANTING

3 HUB STAKES AND GUYS FOR DECIDUOUS TREES OVER 4" CAL. AND EVERGREEN TREES OVER 9'. (TWO UPHILL ON SLOPE)

2 VERTICAL STAKES AND GUYS FOR DECIDUOUS TREES UP TO 4" CAL. AND EVERGREENS 3' - 9'.

STAKING AND GUYING PLAN SCHEMATIC



**NOTE:**  
PLASTIC CHAINLOCK (LANDSCAPE QUALITY AND SUITABLE STRENGTH FOR GUYING TREES) OR EQUIVALENT GUYING MATERIAL

GUYING DETAILS

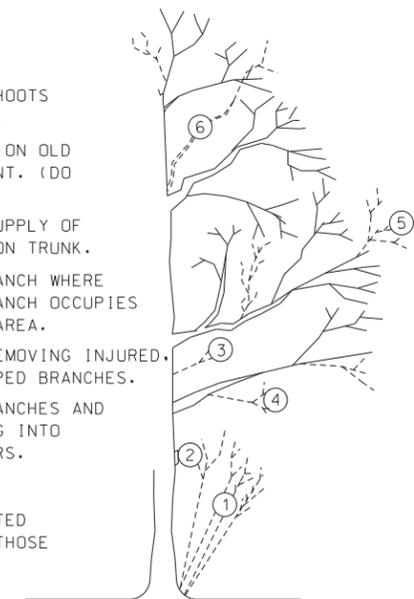
TREE STAKING AND GUYING

**NOTE:**

- ① REMOVE SUCKER SHOOTS AT BASE OF TREE.
- ② MAKE CLEAN CUTS ON OLD STUBS, IF PRESENT. (DO NOT FLUSH CUT)
- ③ REMOVE ENTIRE SUPPLY OF TWIGS AND BUDS ON TRUNK.
- ④ REMOVE LOWER BRANCH WHERE AN OVERLYING BRANCH OCCUPIES ABOUT THE SAME AREA.
- ⑤ SHAPE TREE BY REMOVING INJURED, DEAD AND MISSHAPED BRANCHES.
- ⑥ REMOVE CROSS BRANCHES AND THOSE DEVELOPING INTO SECONDARY LEADERS.

**NOTE:**

BRANCHES IN DOTTED LINES INDICATE THOSE TO BE REMOVED.



TREE PRUNING

STANDARD NO. PL-2

REVISION DATE  
07-13-2001  
06-16-2010

\*.DGN FILE NAME  
PL-2

STANDARD PLANS

New Hampshire  
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Department of Transportation

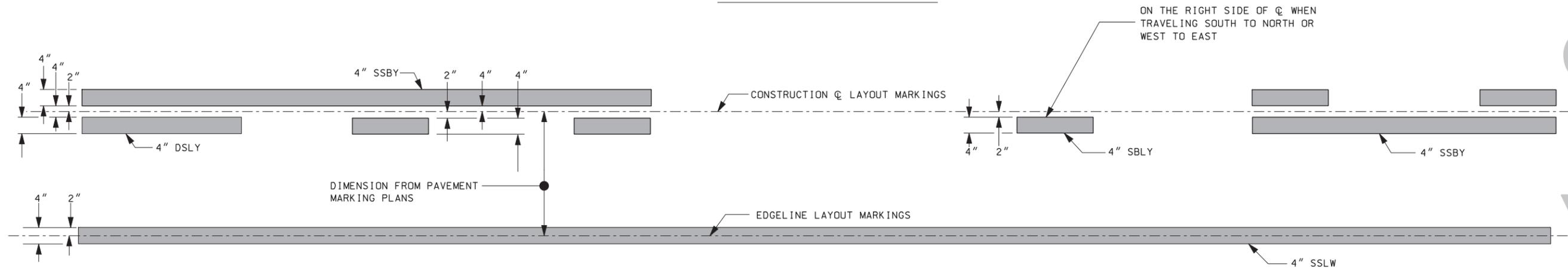
PLANTING STANDARD

PLANTING DETAILS

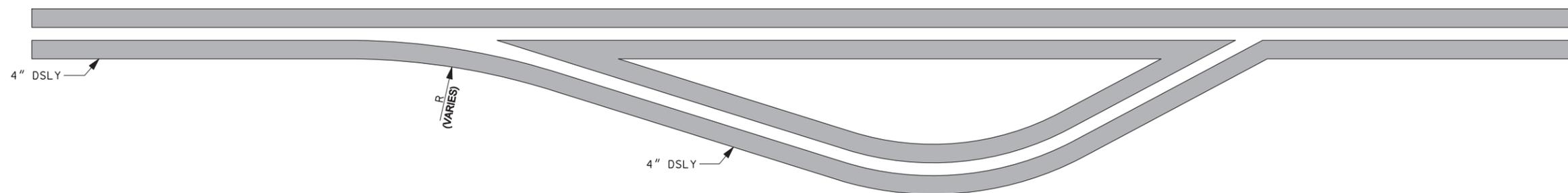
STANDARD NO. PL-2

REVISION DATE
07-13-2001
02-26-2010

*DOUBLE LINES*



*TWO-LANE ROADWAY STRIPING LAYOUT*



*LEGEND*

- {SSL}\* = {SIZE IN INCHES} SINGLE SOLID LINE (COLOR W=WHITE, Y=YELLOW)
- {DSL}\* = {SIZE IN INCHES} DOUBLE SOLID LINE (COLOR W=WHITE, Y=YELLOW)
- {SSB}\* = {SIZE IN INCHES} SINGLE SOLID W/ BROKEN LINE (COLOR W=WHITE, Y=YELLOW)
- {SBL}\* = {SIZE IN INCHES} SINGLE BROKEN LINE (COLOR W=WHITE, Y=YELLOW)
- {DBL}\* = {SIZE IN INCHES} DOUBLE BROKEN LINE (COLOR W=WHITE, Y=YELLOW)

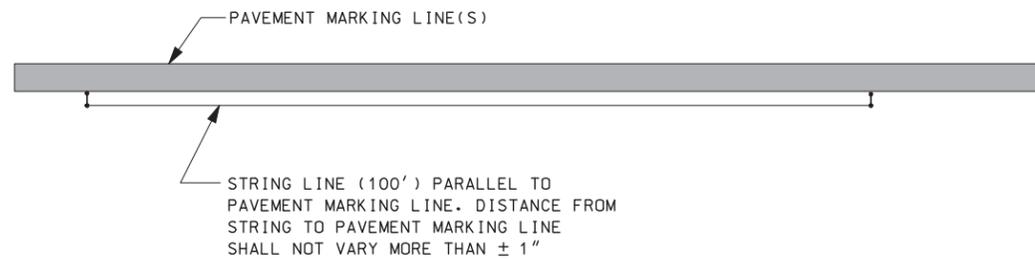
\*EXAMPLE: A 4" SINGLE SOLID LINE WHITE = 4" SSLW

*DIVERGING (OR CONVERGING) LINES FOR PAINTED ISLANDS*

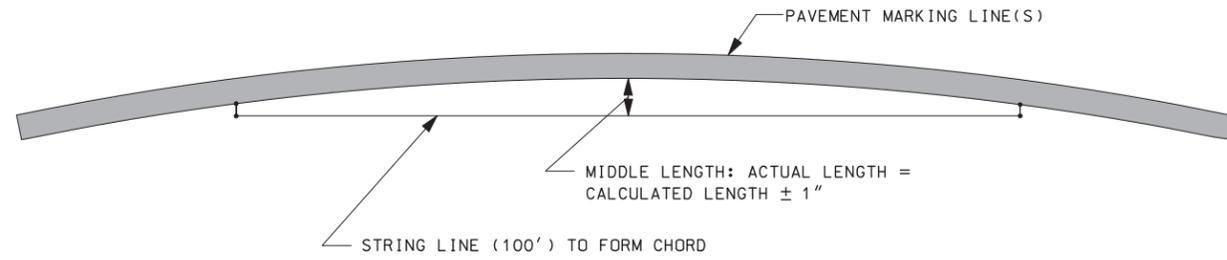
PAVEMENT MARKING STANDARD

LAYOUT DETAILS

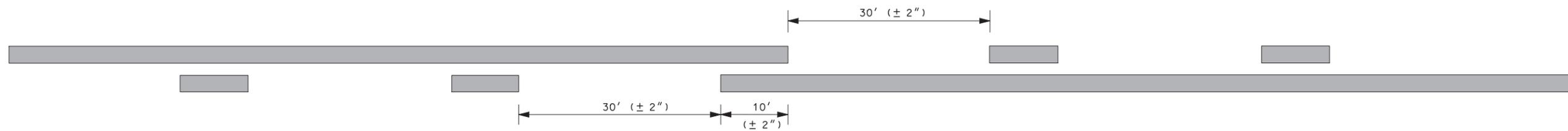
September 1, 2012  
 STANDARD PLANS  
 New Hampshire  
**DOT**  
 Department of Transportation



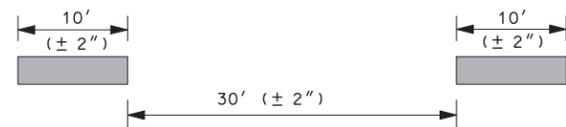
TANGENT SECTION



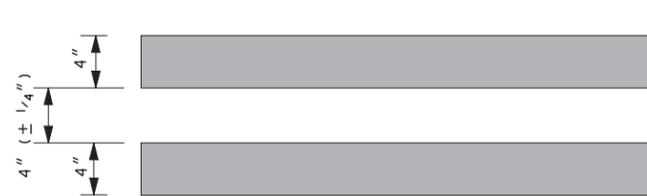
CURVED SECTION



TYPICAL "CROSS-SWITCH" PASSING ZONE



TYPICAL BROKEN LINE



4" DOUBLE LINES



6" DOUBLE LINES

GENERAL NOTES

1. ALL PAVEMENT MARKINGS SHALL BE IN CONFORMANCE WITH THESE STANDARDS AND THE CURRENT EDITION OF THE MUTCD.
2. WIDTH OF LINES SHALL VARY NO MORE THAN  $\pm 1/4$ " FROM THAT SPECIFIED.
3. THE WET FILM THICKNESS OF A PAINTED LINE SHALL BE A MINIMUM OF 20 MIL THROUGHOUT THE ENTIRE WIDTH AND LENGTH OF LINE SPECIFIED.
4. BROKEN LINES SHALL BEGIN AND END WITH THE NEAREST FULL CYCLE OF BROKEN LINE.
5. SOLID LONGITUDINAL LINES SHALL BEGIN AND END WITHIN 2" OF A LAYOUT SYMBOL INDICATING THE END OF THE LINE OR WITH A FULL CYCLE OF BROKEN LINE (IF APPROPRIATE).

**PAVEMENT MARKING STANDARD**  
 TOLERANCES FOR PAVEMENT  
 MARKING LINES

STANDARD  
NO. PM-2

REVISION DATE
07-13-2001
02-26-2010

\*.DGN FILE NAME  
PM-2

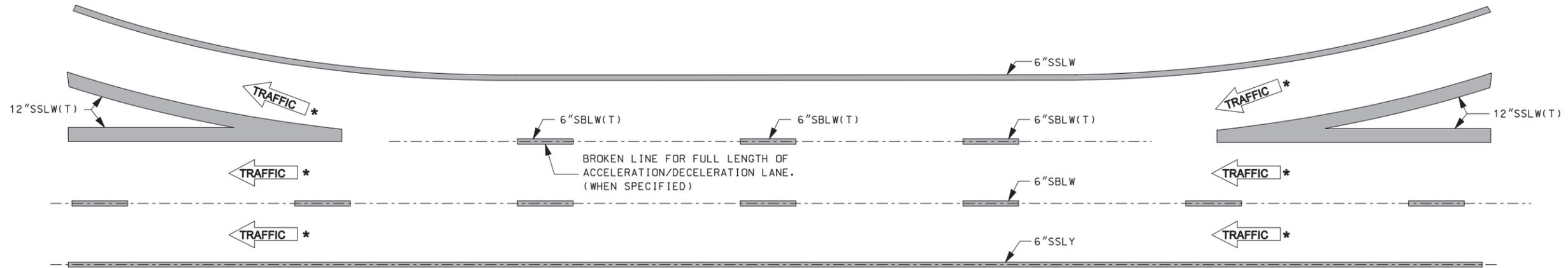
New Hampshire  
**DOT**  
 Department of Transportation  
 STANDARD PLANS

STANDARD  
NO. PM-2

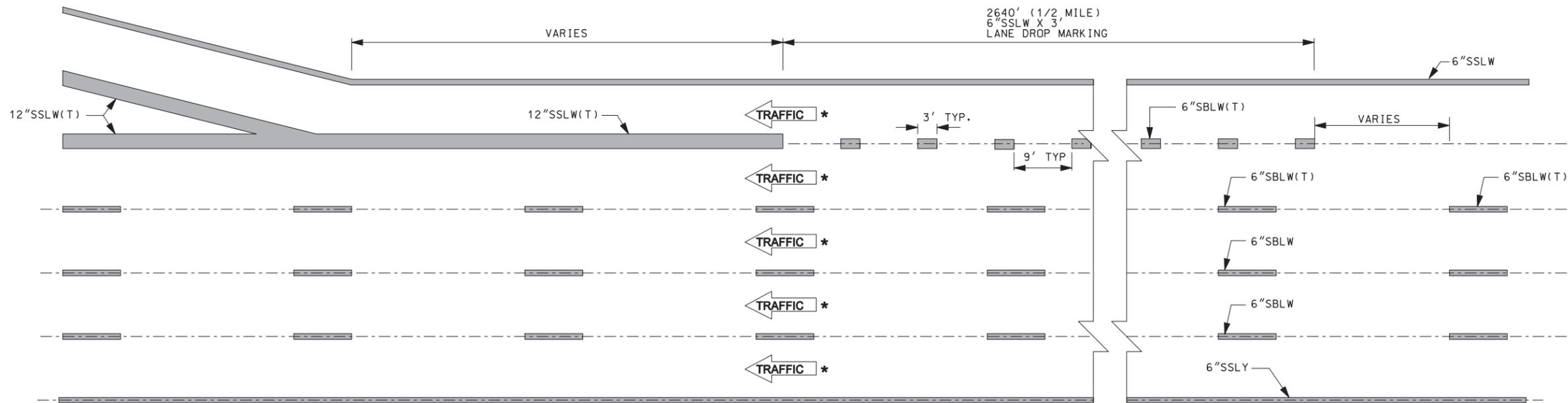


REVISION DATE
07-13-2001
02-26-2010

\*.DGN FILE NAME  
PM-5



*ENTRANCE AND EXIT RAMP CLOVERLEAF MARKINGS*



*EXIT RAMPS WITH LANE DROP AT EXIT*

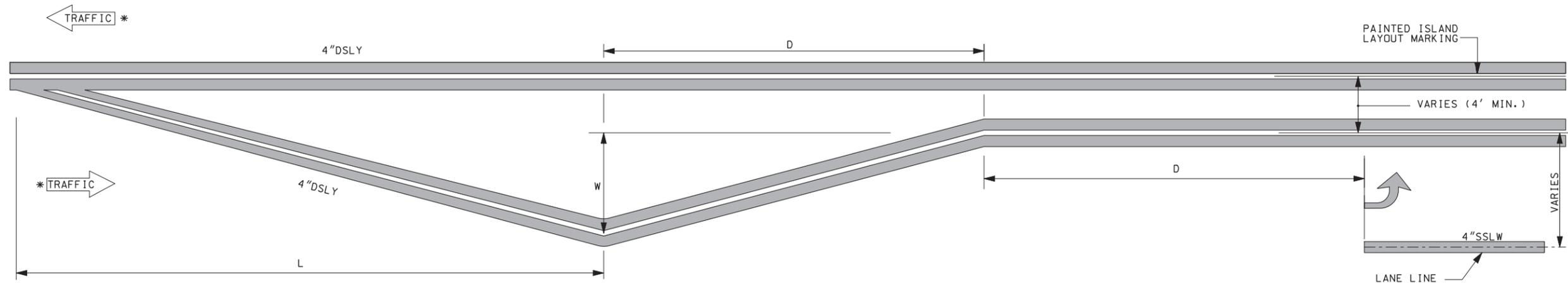
\* ARROWS SHOWN ON THIS SHEET INDICATE DIRECTION OF TRAFFIC ONLY.  
(T) = THERMOPLASTIC.

**PAVEMENT MARKING STANDARD**  
*DIVIDED HIGHWAY, MULTI-LANE  
RAMP STRIPING LAYOUT*

Standard Plans  
 2021  
 New Hampshire  
**DOT**  
 Department of Transportation

REVISION DATE
07-13-2001
02-26-2010

\*.DGN FILE NAME  
PM-6



*PAINTEd ISLAND WITH LEFT TURN LANE*

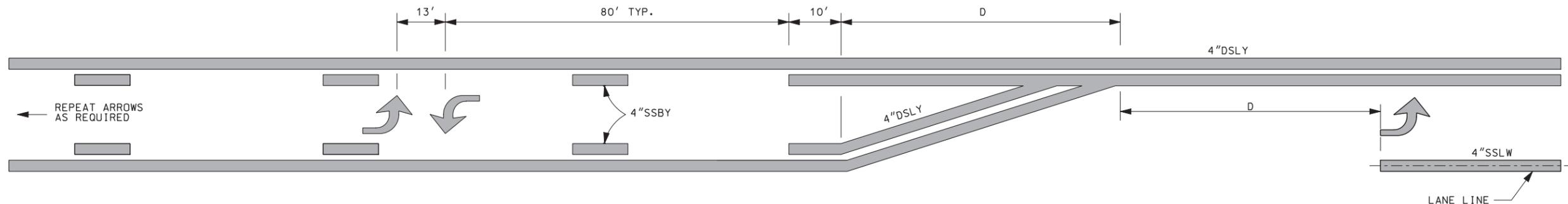
TRANSITION TAPER = L

POSTED SPEED (mph)	L
≤ 40	$WS^2/60$
≥ 45	WS

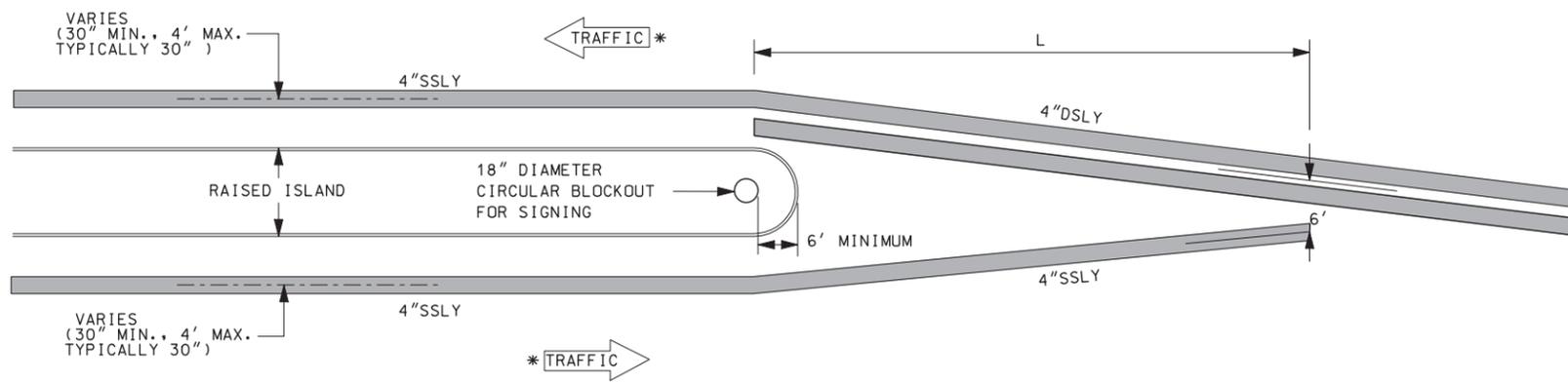
W = WIDTH OF OFFSET (feet)  
S = POSTED SPEED LIMIT (mph)

DECELERATION TRANSITION TAPER = D

POSTED SPEED (mph)	LENGTH (ft)
≤ 40	75
≥ 45	100



*SINGLE LANE, TWO-WAY LEFT TURN WITH LEFT TURN ONLY*



*STRIPING AT ENDS OF RAISED ISLANDS*

*GENERAL NOTES*

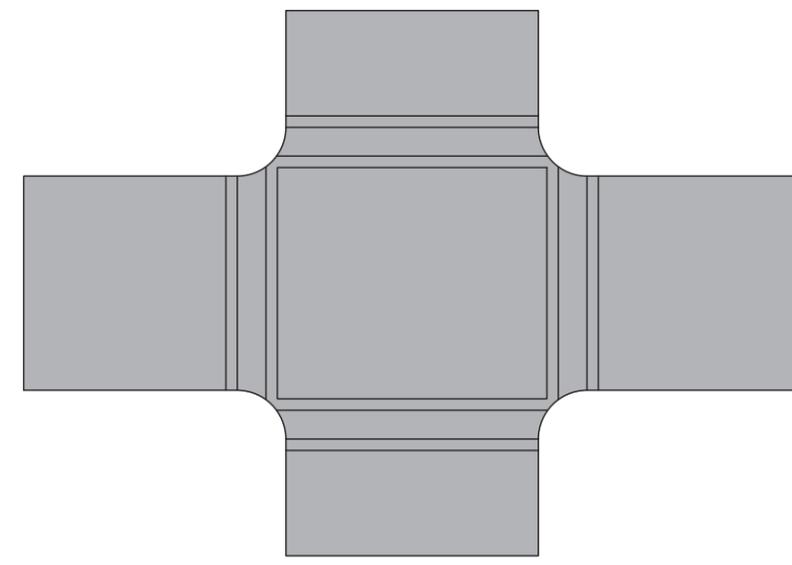
1. SEE STANDARD NO. PM-8 FOR LAYOUT OF WORDS AND SYMBOLS WITHIN TURN LANES.
2. SEE RAISED ISLAND BLOCKOUTS ON STANDARD HR-2

\* ARROWS SHOWN ON THIS SHEET INDICATE DIRECTION OF TRAFFIC ONLY.

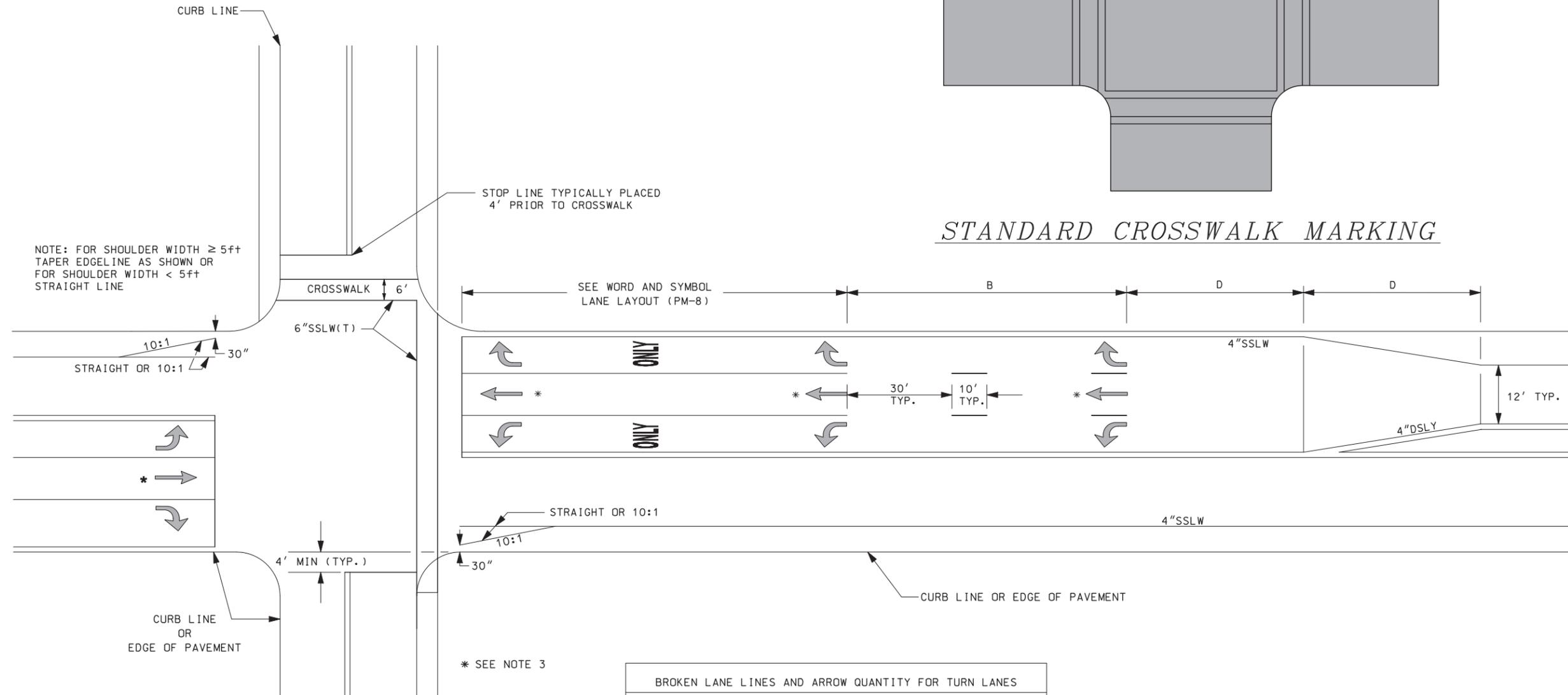
<b>PAVEMENT MARKING STANDARD</b>
<i>PAINTED ISLAND DETAILS</i>

REVISION DATE
07-13-2001
02-26-2010
11-05-2010

\*.DGN FILE NAME  
PM-7



STANDARD CROSSWALK MARKING



NOTE: FOR SHOULDER WIDTH  $\geq$  5ft  
TAPER EDGELINE AS SHOWN OR  
FOR SHOULDER WIDTH  $<$  5ft  
STRAIGHT LINE

STOP LINE TYPICALLY PLACED  
4' PRIOR TO CROSSWALK

SEE WORD AND SYMBOL  
LANE LAYOUT (PM-8)

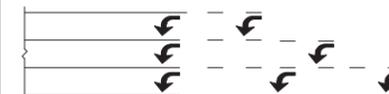
CURB LINE  
OR  
EDGE OF PAVEMENT

GENERAL NOTES

1. PAINTED EDGELINE REQUIRED ON CURBED SHOULDERS GREATER THAN 24".
2. STOP LINES ARE 18" WIDE SSLW(T).
3. STRAIGHT THROUGH ARROWS AS REQUIRED, SEE THE PAVEMENT MARKING PLANS FOR THE APPROPRIATE LAYOUT.
4. TRANSVERSE CROSSWALK LINES SHALL BE THERMOPLASTIC, NOT LESS THAN 6" WIDE AND NOT LESS THAN 6' APART.

\* SEE NOTE 3

BROKEN LANE LINES AND ARROW QUANTITY FOR TURN LANES		
TYPICAL B LAYOUT		
POSTED SPEED (mph)	BROKEN LINES	ARROWS
$\geq$ 30	2	1
$\geq$ 40	4	1
$\geq$ 45	6	2



DECCELERATION TRANSITION TAPER = D	
POSTED SPEED (mph)	LENGTH (ft)
$\leq$ 40	75
$\geq$ 45	100

PAVEMENT MARKING STANDARD

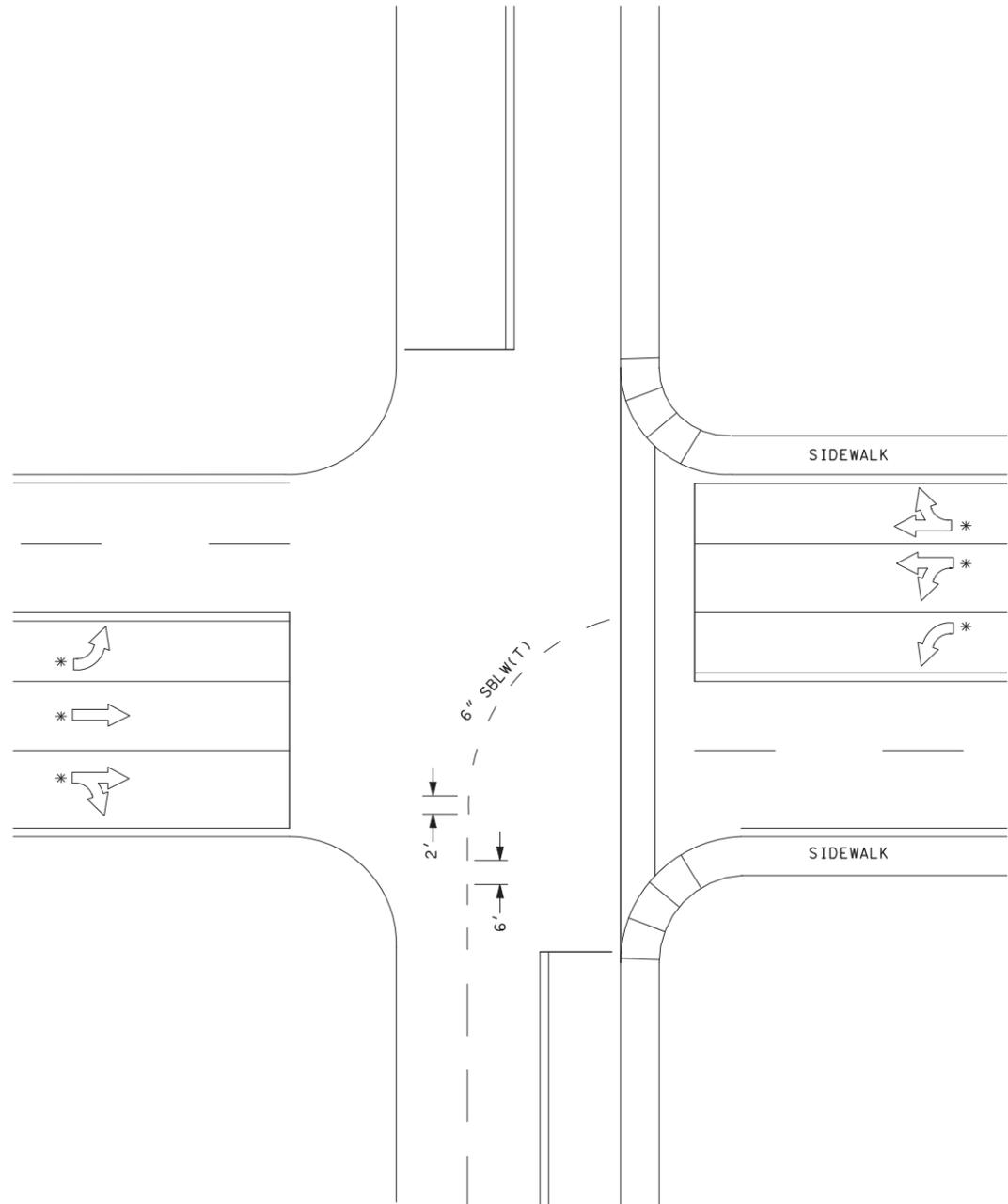
INTERSECTION DETAILS



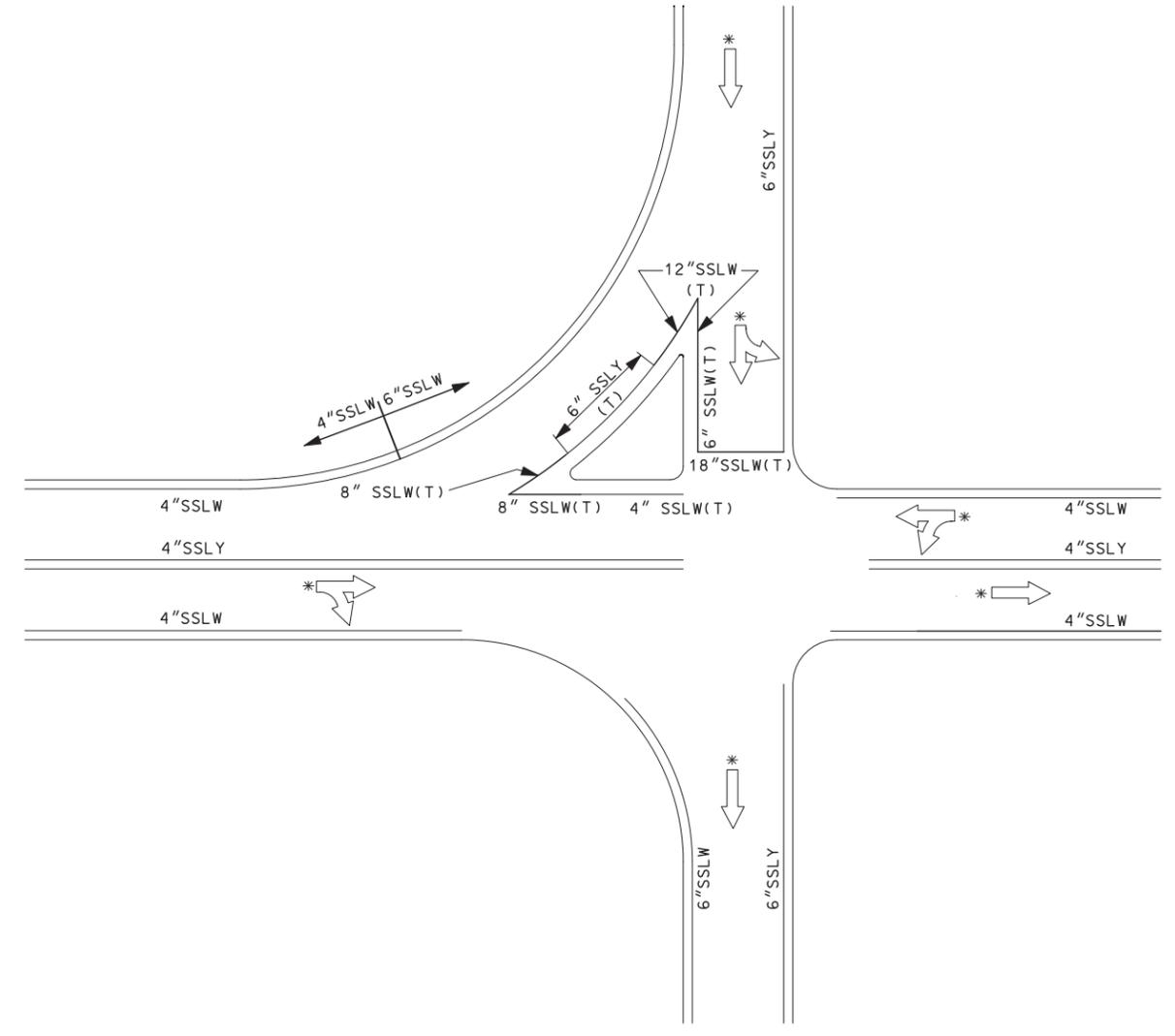
REVISION DATE
07-13-2001
02-26-2010

\*.DGN FILE NAME  
PM-10

October 1, 2024  
 STANDARD PLANS  
 New Hampshire  
**DOT**  
 Department of Transportation



TURNING LANE EXTENSION DETAIL



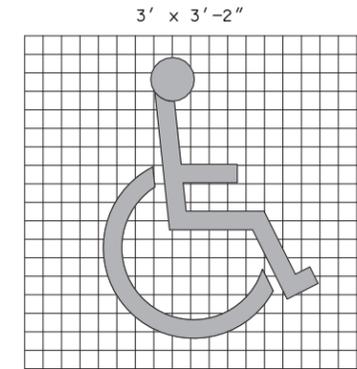
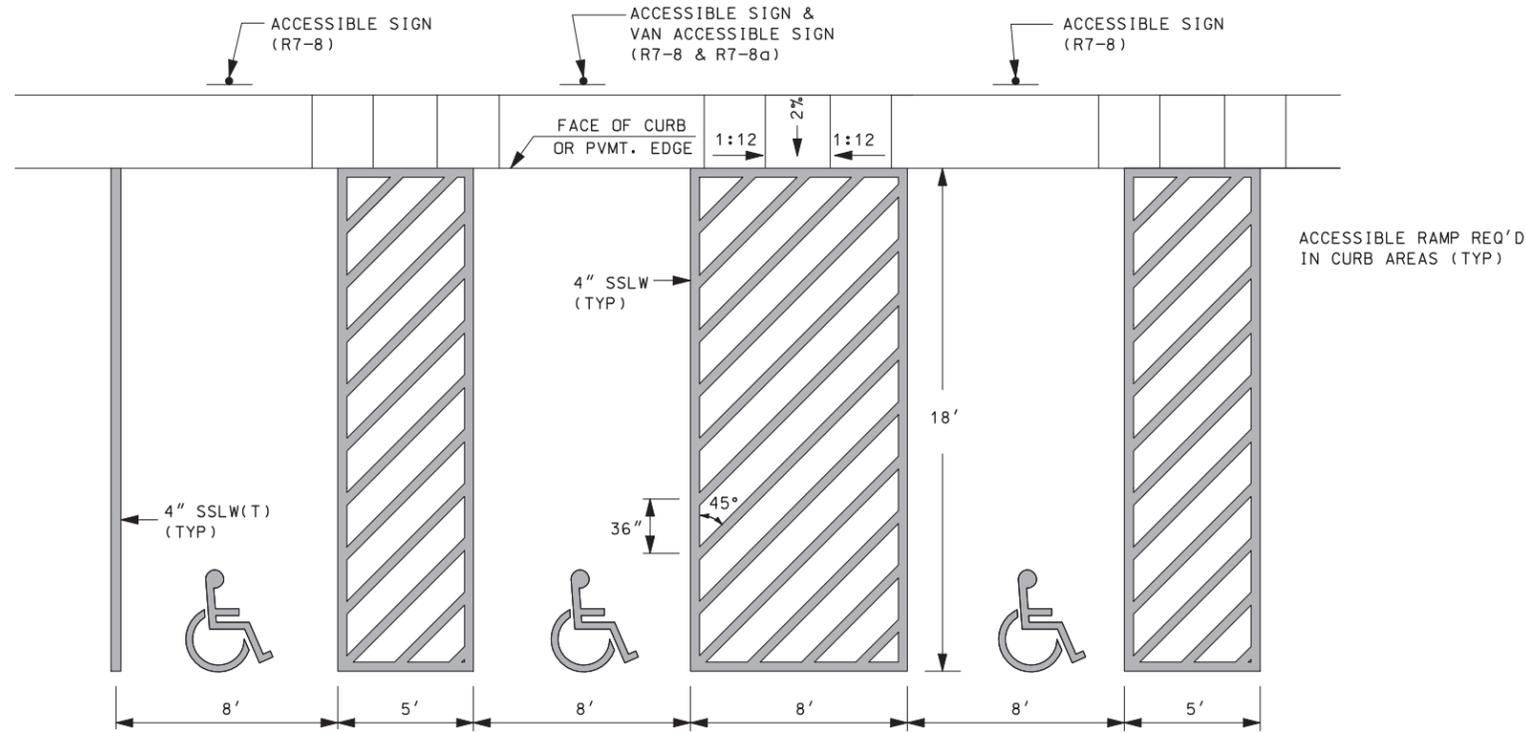
RAMP LAYOUT

\* ARROWS SHOWN ON THIS SHEET  
INDICATE DIRECTION OF TRAFFIC ONLY.

(T) = THERMOPLASTIC

PAVEMENT MARKING STANDARD
TURN LANE EXTENSION DETAIL & INTERSTATE OFF RAMP

# PERPENDICULAR ACCESSIBLE PARKING

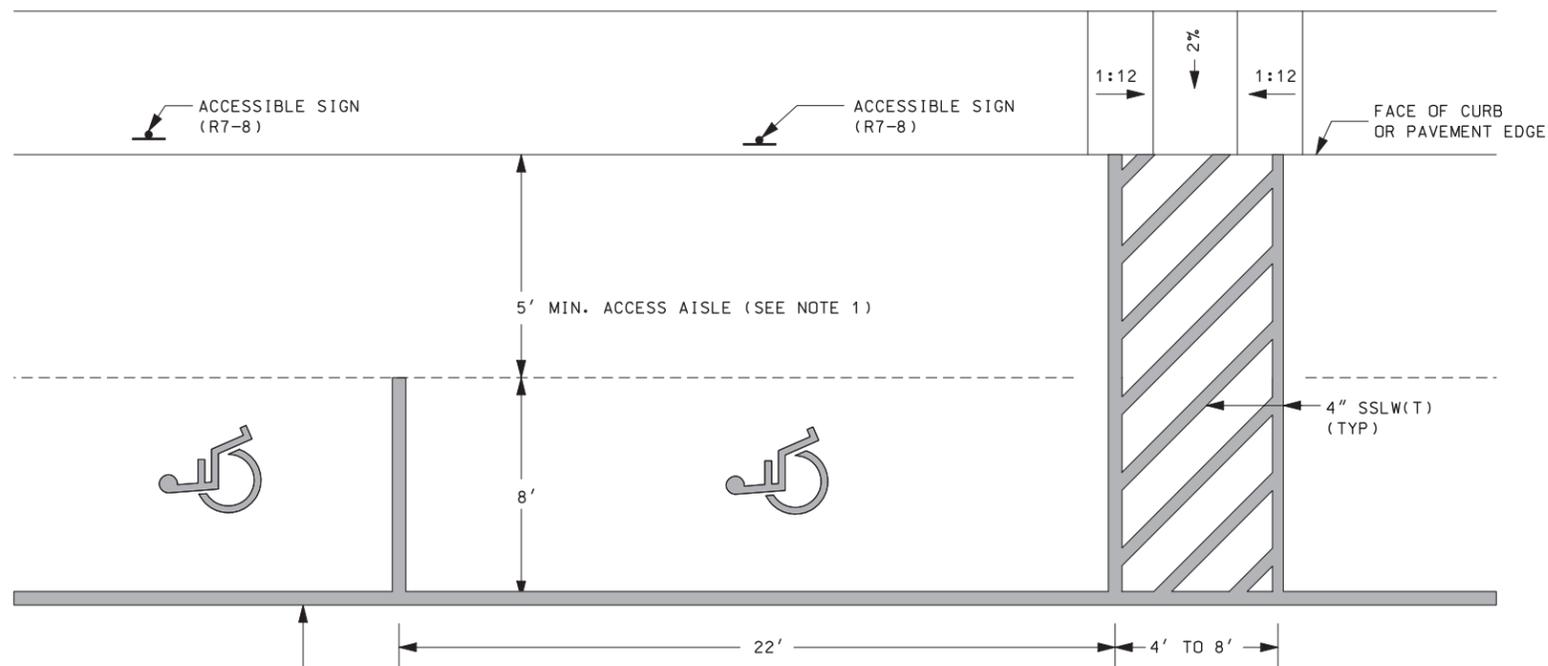


INTERNATIONAL SYMBOL OF ACCESSIBILITY

PAY QUANTITY FOR EACH ACCESSIBLE PAVEMENT MARKING SYMBOL 2.58ff<sup>2</sup>.

## GENERAL NOTES

1. VAN ACCESS AISLE SHALL BE A MINIMUM 8' WIDE. R7-8a SIGN WILL BE ADDED TO VAN ACCESSIBLE PARKING SIGN R7-8.
2. ARROW ON THIS SHEET INDICATE DIRECTION OF TRAFFIC ONLY.
3. (T) = THERMOPLASTIC PAVEMENT MARKING.



# PARALLEL ACCESSIBLE PARKING

PAVEMENT MARKING STANDARD

ACCESSIBLE PARKING DETAIL

STANDARD NO. PM-11

REVISION DATE

07-13-2001

02-26-2010

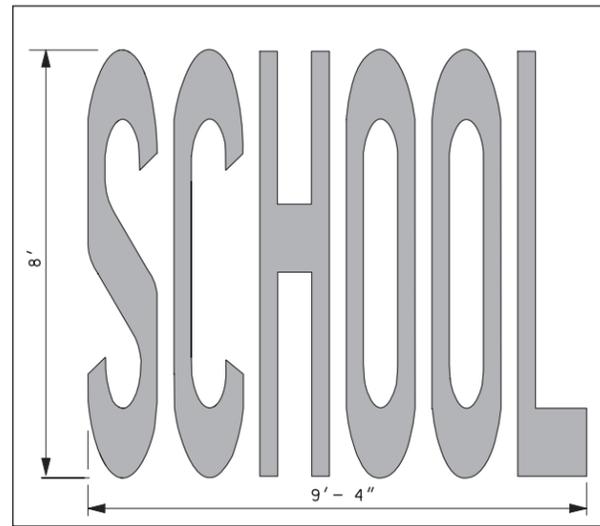
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PM-11

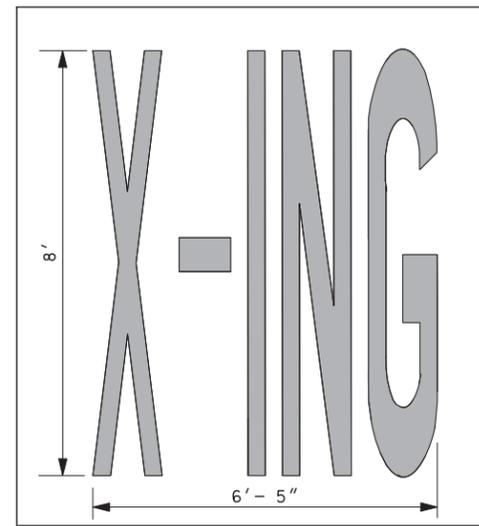
STANDARD NO. PM-11

REVISION DATE
07-13-2001
02-26-2010

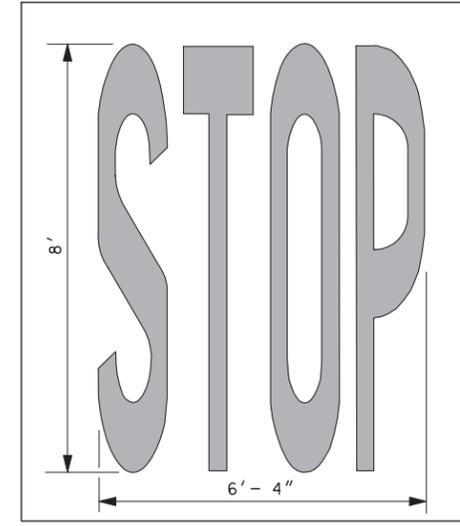
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PM-12



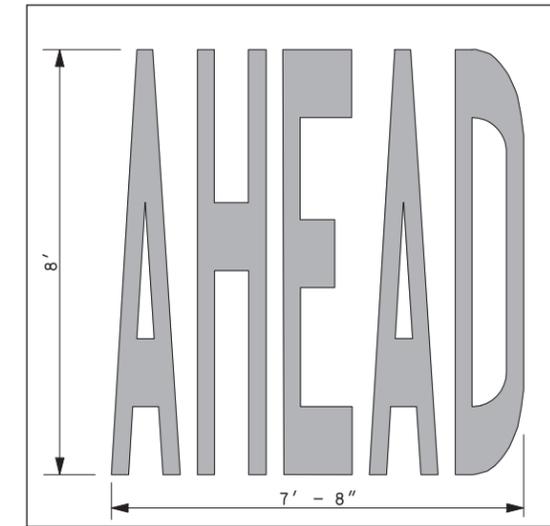
*SCHOOL*  
*PAY QUANTITY = 34.7 FT<sup>2</sup>*



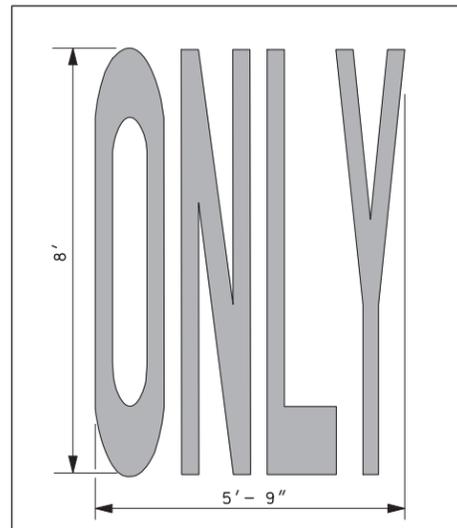
*X-ING*  
*PAY QUANTITY = 20.8 FT<sup>2</sup>*



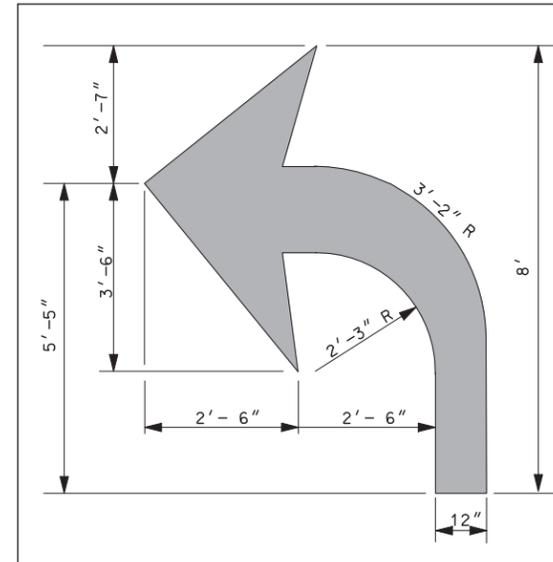
*STOP*  
*PAY QUANTITY = 22.2 FT<sup>2</sup>*



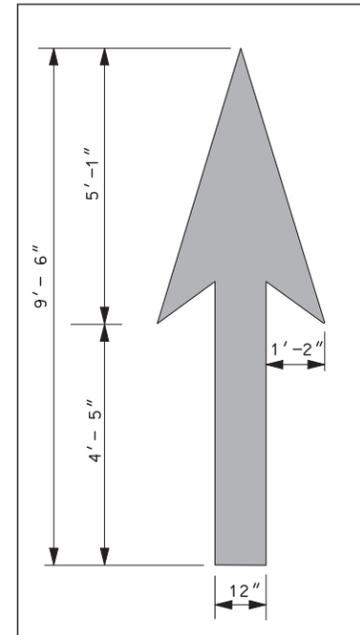
*AHEAD*  
*PAY QUANTITY = 31.3 FT<sup>2</sup>*



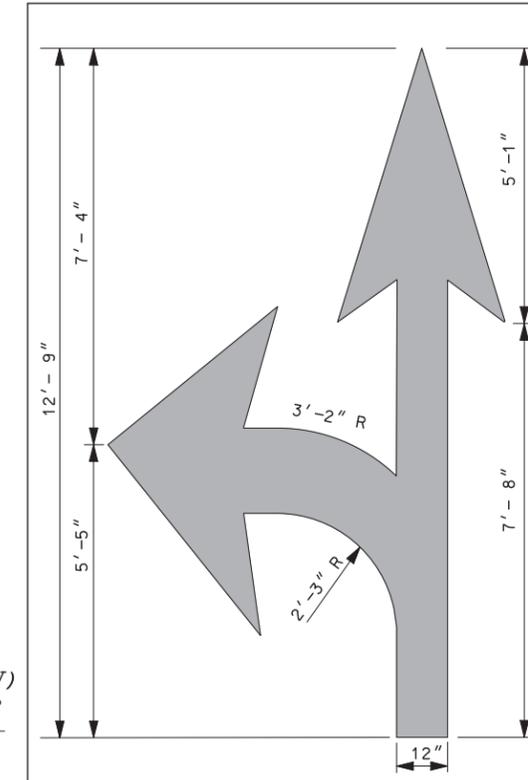
*ONLY*  
*PAY QUANTITY = 22.3 FT<sup>2</sup>*



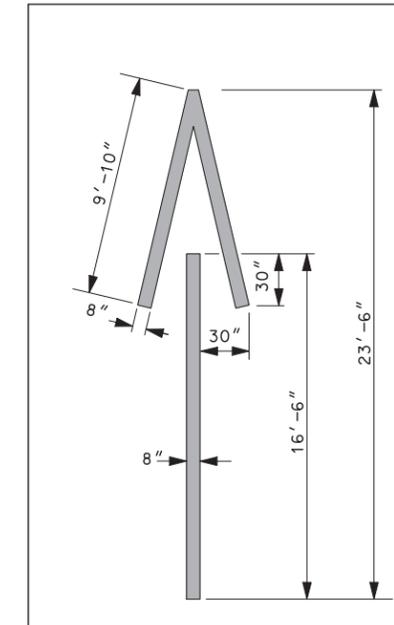
*TURN ARROW*  
*(RIGHT TURN OPPOSITE IN KIND)*  
*PAY QUANTITY = 17.0 FT<sup>2</sup>*



*THROUGH (STRAIGHT ARROW)*  
*PAY QUANTITY = 12.5 FT<sup>2</sup>*



*COMBINATION ARROW*  
*PAY QUANTITY = 28.8 FT<sup>2</sup>*



*WRONG-WAY ARROW*  
*PAY QUANTITY = 24.1 FT<sup>2</sup>*

**GENERAL NOTES**

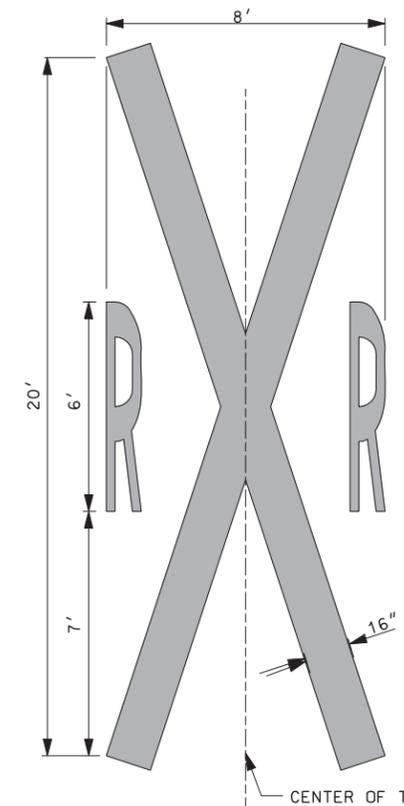
- ALL WORDS AND SYMBOLS SHALL BE RETROREFLECTIVE WHITE AND SHALL CONFORM TO THE LATEST VERSION OF THE MUTCD.
- MULTI-WORD MESSAGES SHALL READ "UP"; THAT IS, THE FIRST WORD SHALL BE NEAREST THE APPROACHING DRIVER.
- THE WORD "ONLY" SHALL NOT BE USED WITH THROUGH OR COMBINATION ARROWS, AND SHALL NOT BE USED ADJACENT TO A BROKEN LANE LINE. A WORD/SYMBOL SHALL PRECEED THE WORD "ONLY".
- COMBINATION ARROWS MAY BE COMPRISED OF 2 SINGLE ARROWS (e.g. TURN AND THROUGH ARROWS). HOWEVER, THE SHAFTS OF THE ARROWS SHALL COINCIDE AS SHOWN.
- PREFORMED WORDS AND SYMBOLS SHALL BE PRE-CUT BY THE MANUFACTURER.
- WRONG-WAY ARROWS SHALL NOT BE SUBSTITUTED FOR THROUGH ARROWS.
- ALL STOP BARS, WORDS, SYMBOLS AND ARROWS SHALL BE THERMOPLASTIC.

PAVEMENT MARKING STANDARD

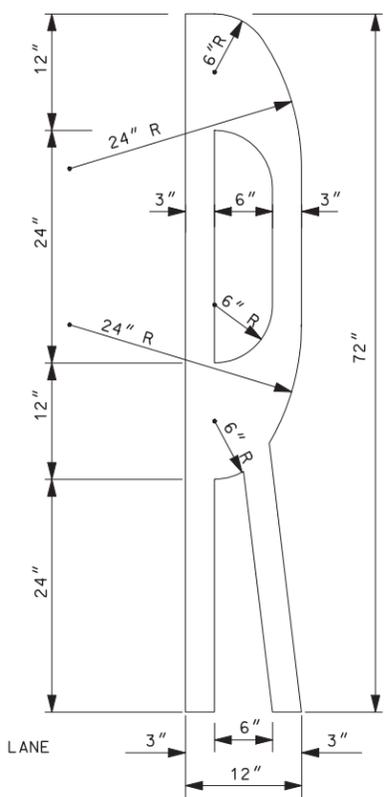
WORDS AND SYMBOLS

STANDARD PLANS

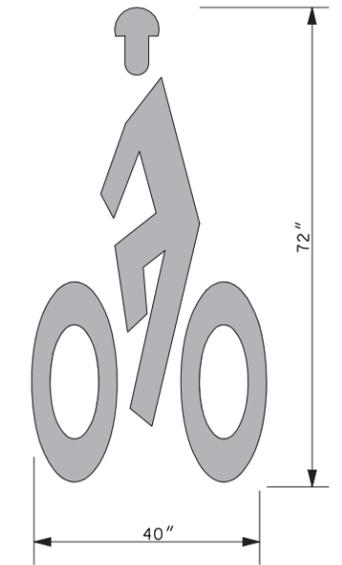
PAY QUANTITIES FOR STANDARD (8 FT) LETTERS AND NUMERALS (SQUARE FEET)			
A	5.8	S	6.1
B	7.7	T	4.0
C	5.3	U	6.6
D	6.8	V	5.0
E	6.3	W	7.0
F	5.0	X	4.3
G	6.3	Y	4.2
H	6.6	Z	5.7
I	2.0	1	2.0
J	3.9	2	5.8
K	6.4	3	5.8
L	4.1	4	5.1
M	9.0	5	6.4
N	7.7	6	6.8
O	6.3	7	3.8
P	5.8	8	7.0
Q	6.7	9	6.8
R	6.8	0	6.3
		-	0.5



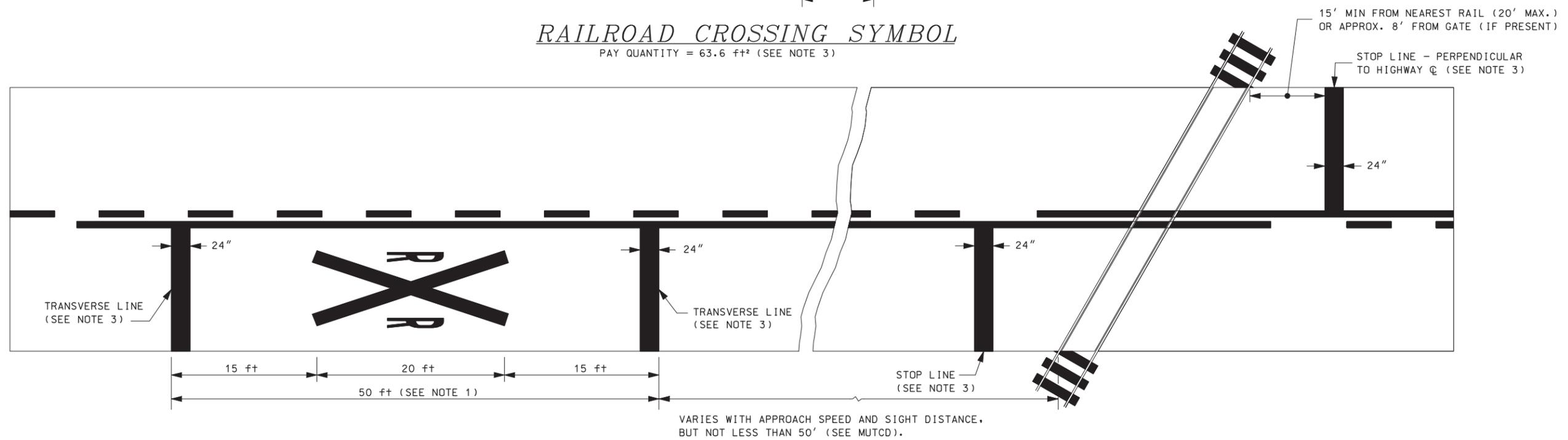
**RAILROAD CROSSING SYMBOL**  
PAY QUANTITY = 63.6 ft<sup>2</sup> (SEE NOTE 3)



**BICYCLE LANE DIRECTIONAL ARROW**  
PAY QUANTITY = 6.0 FT<sup>2</sup>



**BICYCLE LANE SYMBOL**  
PAY QUANTITY = 8.1 FT<sup>2</sup>

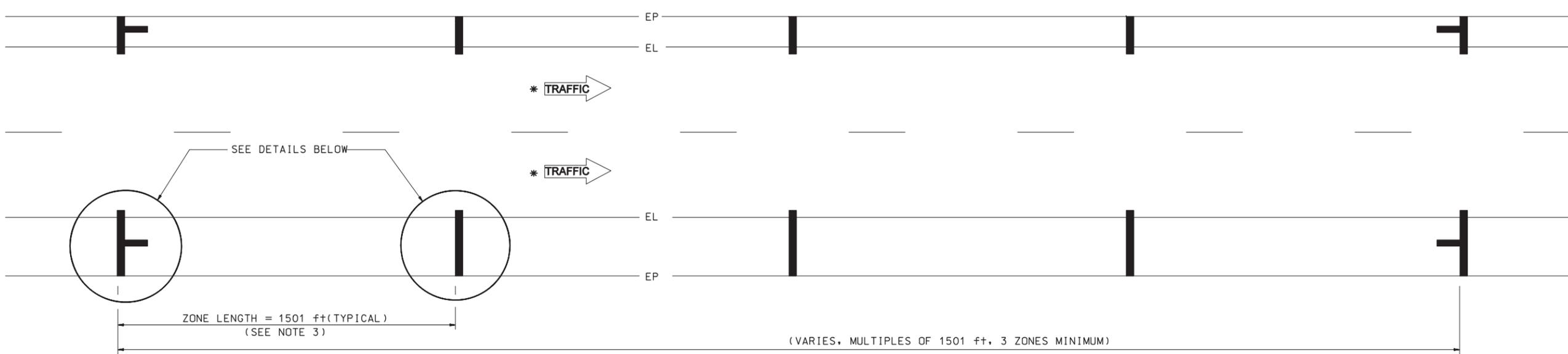


VARIES WITH APPROACH SPEED AND SIGHT DISTANCE, BUT NOT LESS THAN 50' (SEE MUTCD).

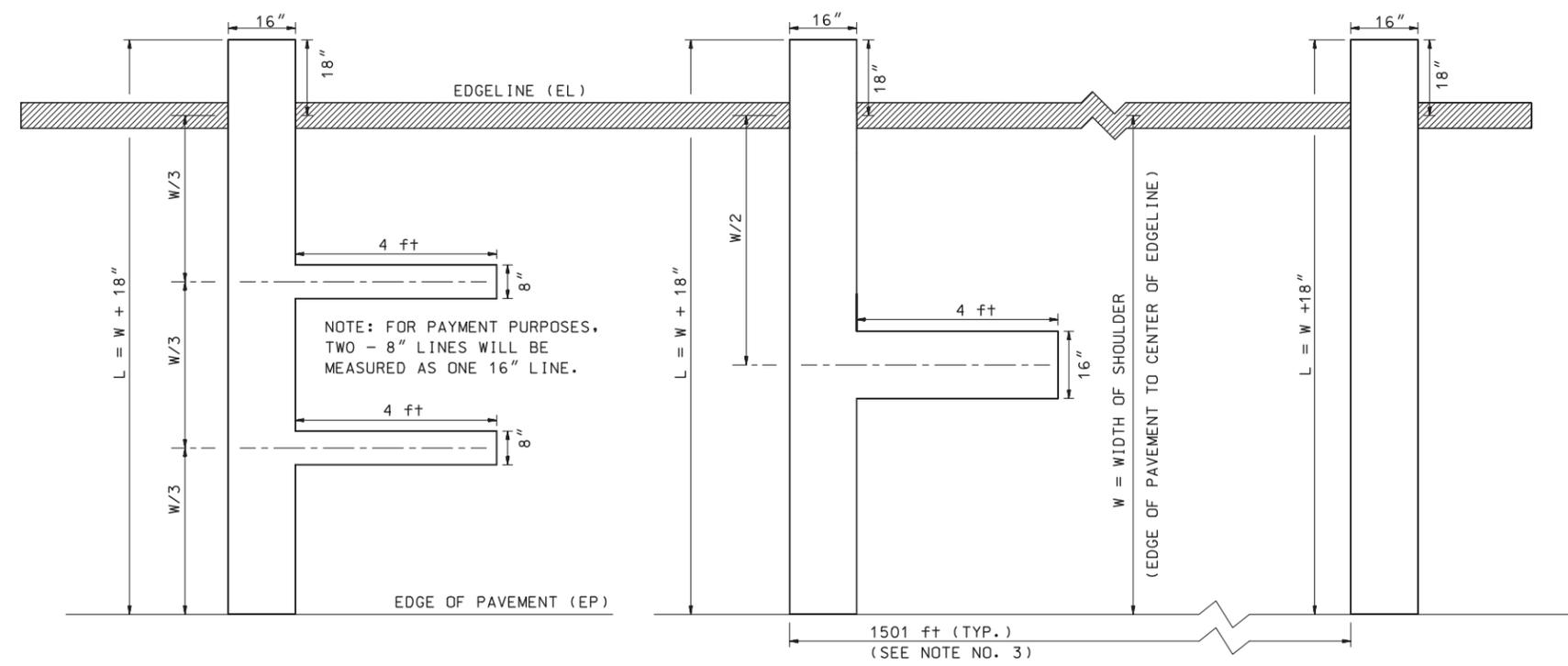
**PAVEMENT MARKINGS AT RAILROAD-HIGHWAY GRADE CROSSINGS**

1. A PORTION OF THE PAVEMENT MARKING RXR SYMBOL SHOULD BE DIRECTLY OPPOSITE THE ADVANCE WARNING SIGN (W10-1, NOT SHOWN).
2. ON MULTI-LANE ROADS THE TRANSVERSE LINES SHOULD EXTEND ACROSS ALL APPROACH LANES, AND INDIVIDUAL RXR SYMBOLS SHOULD BE USED IN EACH APPROACH LANE.
3. RXR SYMBOL WILL BE PAID FOR BY THE SQUARE FOOT, TRANSVERSE LINES AND STOP BARS (24" WIDE) WILL BE PAID FOR BY THE LINEAR FOOT.

**PAVEMENT MARKING STANDARD**  
WORDS AND SYMBOLS



LAYOUT DETAILS



APPROACH END PATTERN - ALTERNATE  
(DEPARTURE END OPPOSITE IN KIND)  
(SEE NOTE NO. 2)

APPROACH END PATTERN - STANDARD  
(DEPARTURE END OPPOSITE IN KIND)

INTERMEDIATE PATTERN

PAVEMENT MARKING DETAILS

RIGHT SHOULDER SHOWN - LEFT SHOULDER  
OPPOSITE IN KIND (SEE NOTE NO. 2)

GENERAL NOTES

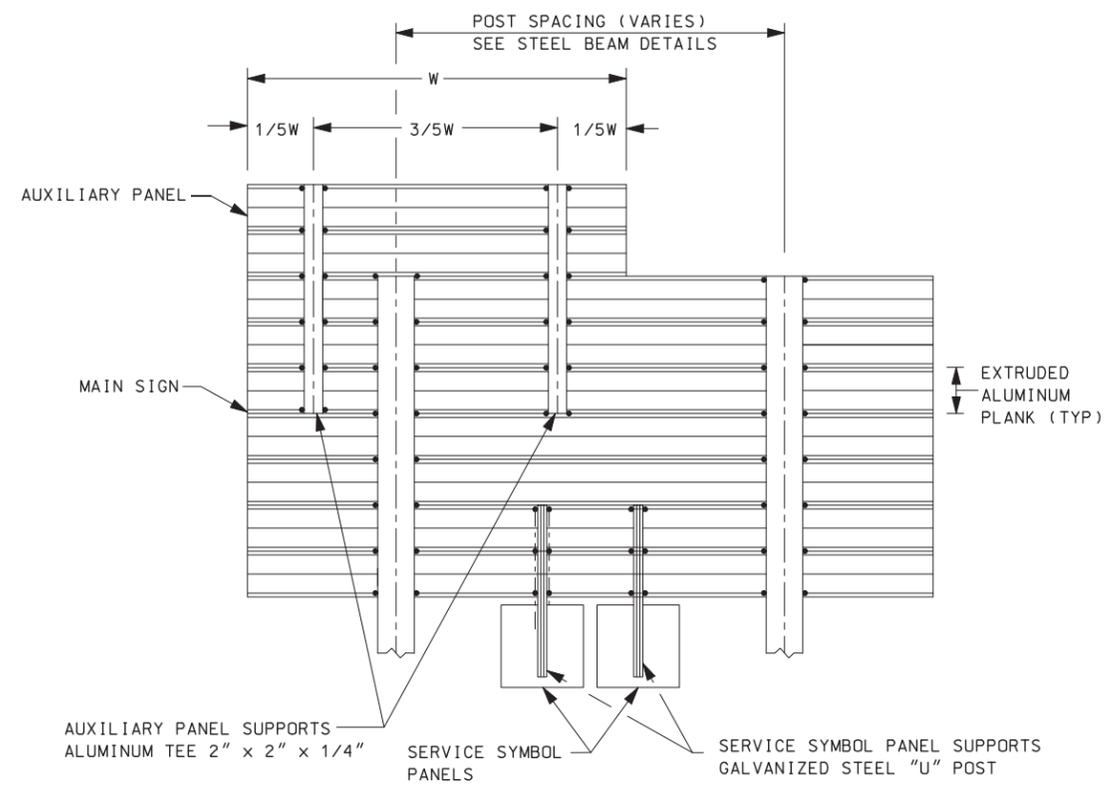
1. ALL SPEED ZONE MARKINGS SHALL BE SOLID WHITE.
2. ALTERNATE APPROACH END PATTERN SHALL BE USED FOR 3 ZONE LAYOUT ONLY. STANDARD PATTERN SHALL BE USED IN LIEU OF ALTERNATE PATTERN FOR LEFT SHOULDER WIDTHS LESS THAN 8 ft.
3. LONGITUDINAL DISTANCES SHALL BE MEASURED BY NHDOT SURVEY PERSONNEL. A COPY OF SURVEY NOTES SHALL BE FORWARDED TO BUREAU OF TRAFFIC.
4. FOR LEGAL REASONS, STATE POLICE SHALL BE PRESENT DURING THE INSTALLATION OF THESE MARKINGS. (TEL. 603-271-3678).
5. STATE POLICE SHOULD BE NOTIFIED WHEN ANY EXISTING MARKINGS ARE REMOVED DUE TO CONSTRUCTION.

\*ARROWS SHOWN ON THIS SHEET INDICATE DIRECTION OF TRAFFIC ONLY

PAVEMENT MARKING STANDARD  
SPEED ZONE PAVEMENT  
MARKINGS

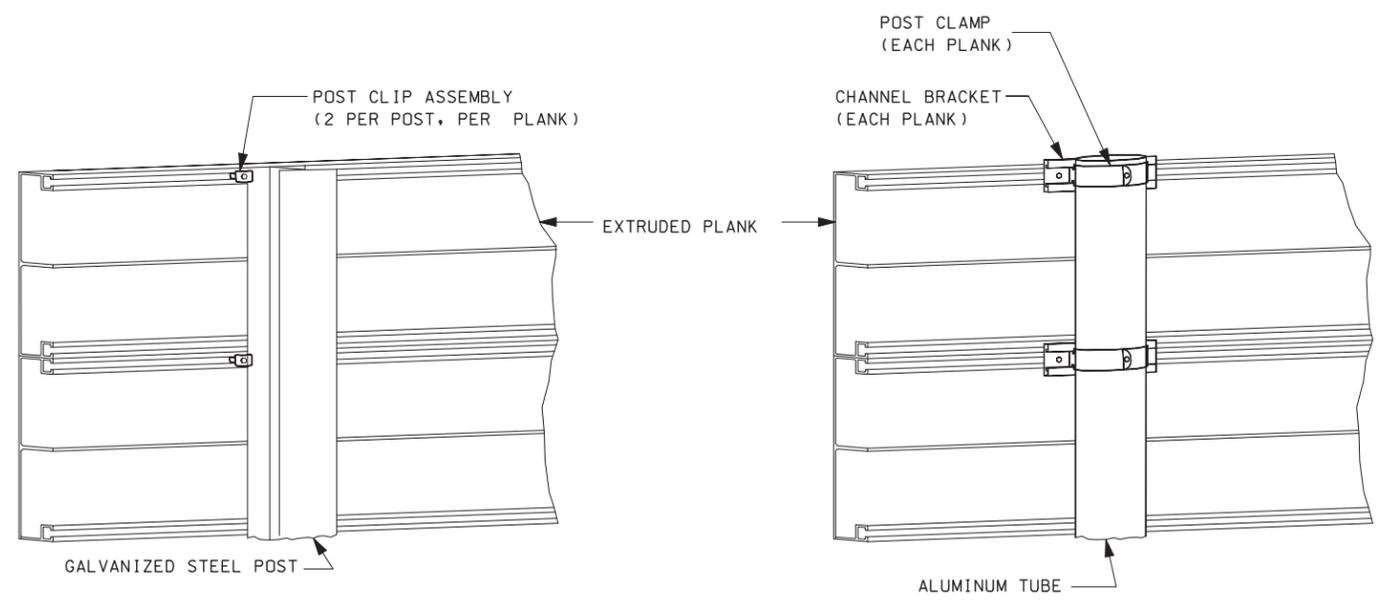
REVISION DATE
07-13-2001
02-26-2010

\*.DGN FILE NAME  
PS-1



### ATTACHMENT OF AUXILIARY PANELS AND SERVICE SYMBOL PANELS (BACK VIEW)

1. AUXILIARY PANELS SHALL BE MOUNTED TO THE RIGHT SIDE OF THE MAIN SIGN FOR RIGHT-HAND EXIT RAMPS, OR TO THE LEFT FOR LEFT-HAND EXIT RAMPS. SUPPORTS SHALL EXTEND TO THE TOP OF THE AUXILIARY PANEL AND SHALL OVERLAP THE MAIN SIGN BY A MINIMUM OF 3 FULL PLANKS AS SHOWN.
2. SERVICE SYMBOL PANELS, WHEN NOT ON A SEPARATE SIGN, SHALL BE MOUNTED IMMEDIATELY BELOW THE MAIN SIGN AND CENTERED LATERALLY WITHIN THE WIDTH OF THE SIGN. SUPPORTS SHALL OVERLAP THE MAIN SIGN BY A MINIMUM OF 2 FULL PLANKS AS SHOWN.
3. POST CLIP ASSEMBLIES SHALL BE INSTALLED ON BOTH SIDES OF EACH AUXILIARY PANEL SUPPORT AND SERVICE SYMBOL SUPPORT AT EACH PLANK, AS WELL AS EACH END OF BOTH SUPPORTS.



### GENERAL NOTES

1. GAP BETWEEN ANY TWO ASSEMBLED PLANK SECTIONS SHALL NOT EXCEED 3/32".
2. ALLOWABLE LATERAL BOW SHALL NOT EXCEED ± 1/16".
3. ALL PLANK SECTIONS SHALL BE ONE PIECE FOR THE ENTIRE WIDTH OF SIGN SPECIFIED, AND SHALL NOT EXCEED ± 1/8" FROM THE LENGTH & WIDTH SPECIFIED.
4. ALL PLANK SECTIONS SHALL BE 12" WIDE UNLESS OTHERWISE SPECIFIED.
5. SIGNS 8' AND GREATER IN WIDTH SHALL BE MOUNTED ON STEEL BEAM.

### PLANK MOUNTED ON STEEL BEAM

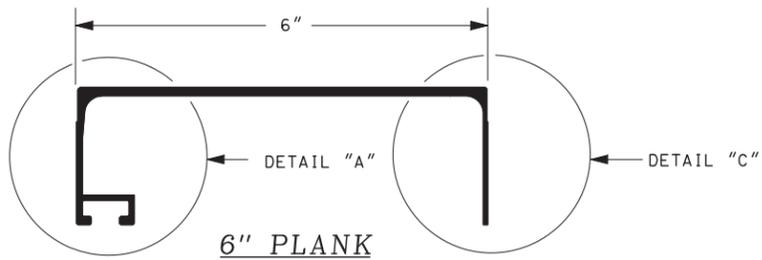
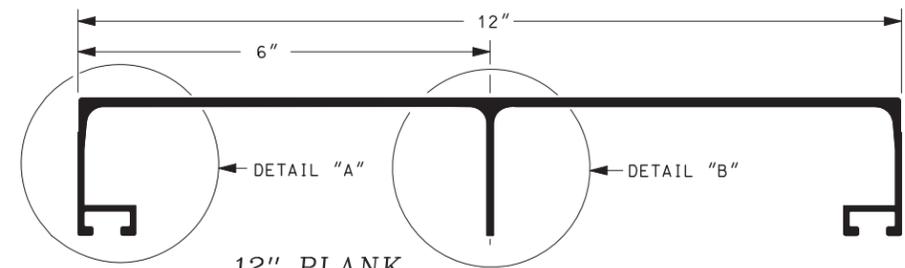
1. POST CLIP ASSEMBLIES SHALL BE INSTALLED ON BOTH SIDES OF EACH POST AT EACH PLANK AS WELL AS AT THE TOP AND BOTTOM OF THE SIGN.
2. STEEL BEAM SHALL BE FLUSH WITH TOP OF SIGN AND SHALL NOT EXTEND ONTO AUXILIARY PANELS.
3. STEEL BEAMS SHALL NOT BE USED AS AUXILIARY PANEL SUPPORTS.

### PLANK MOUNTED ON TUBING

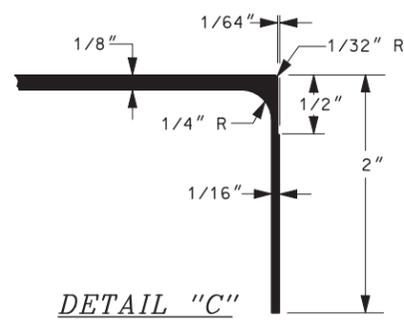
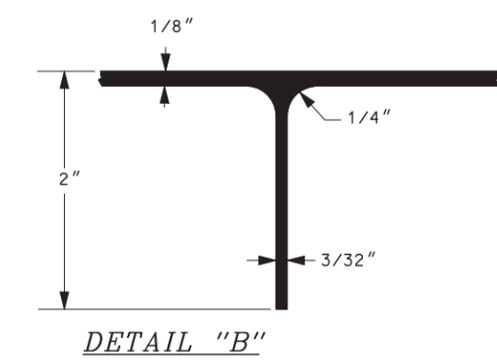
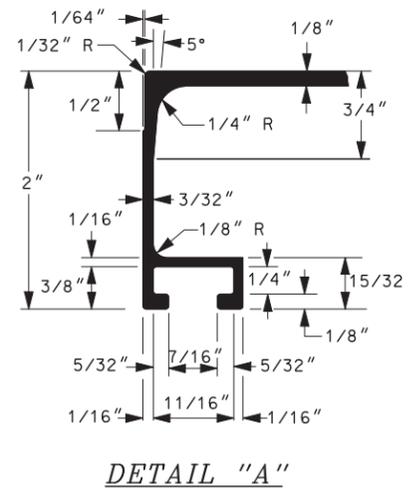
1. POST CLAMP ASSEMBLIES SHALL BE INSTALLED AT EACH PLANK, AS WELL AS AT THE TOP AND BOTTOM OF THE SIGN.
2. TUBING SHALL NOT BE USED AS AUXILIARY PANEL SUPPORTS.

<b>SIGNING STANDARD</b>
<i>ALUMINUM PLANK DETAILS</i>

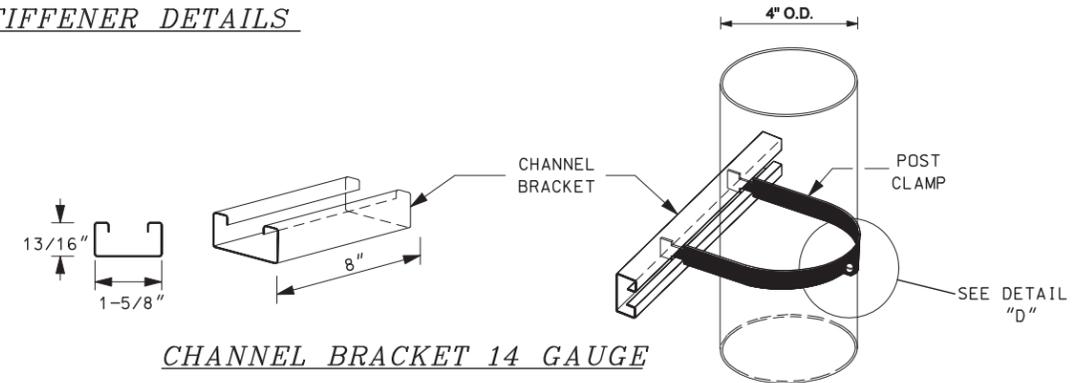
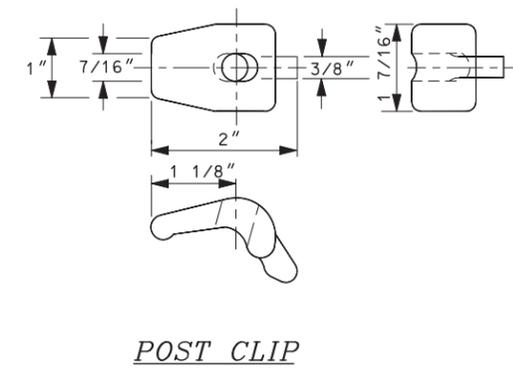
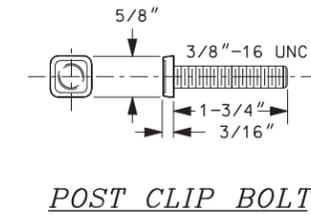
New Hampshire  
**DOT**  
 Department of Transportation  
 STANDARD PLANS



EXTRUDED ALUMINUM SIGN PLANK



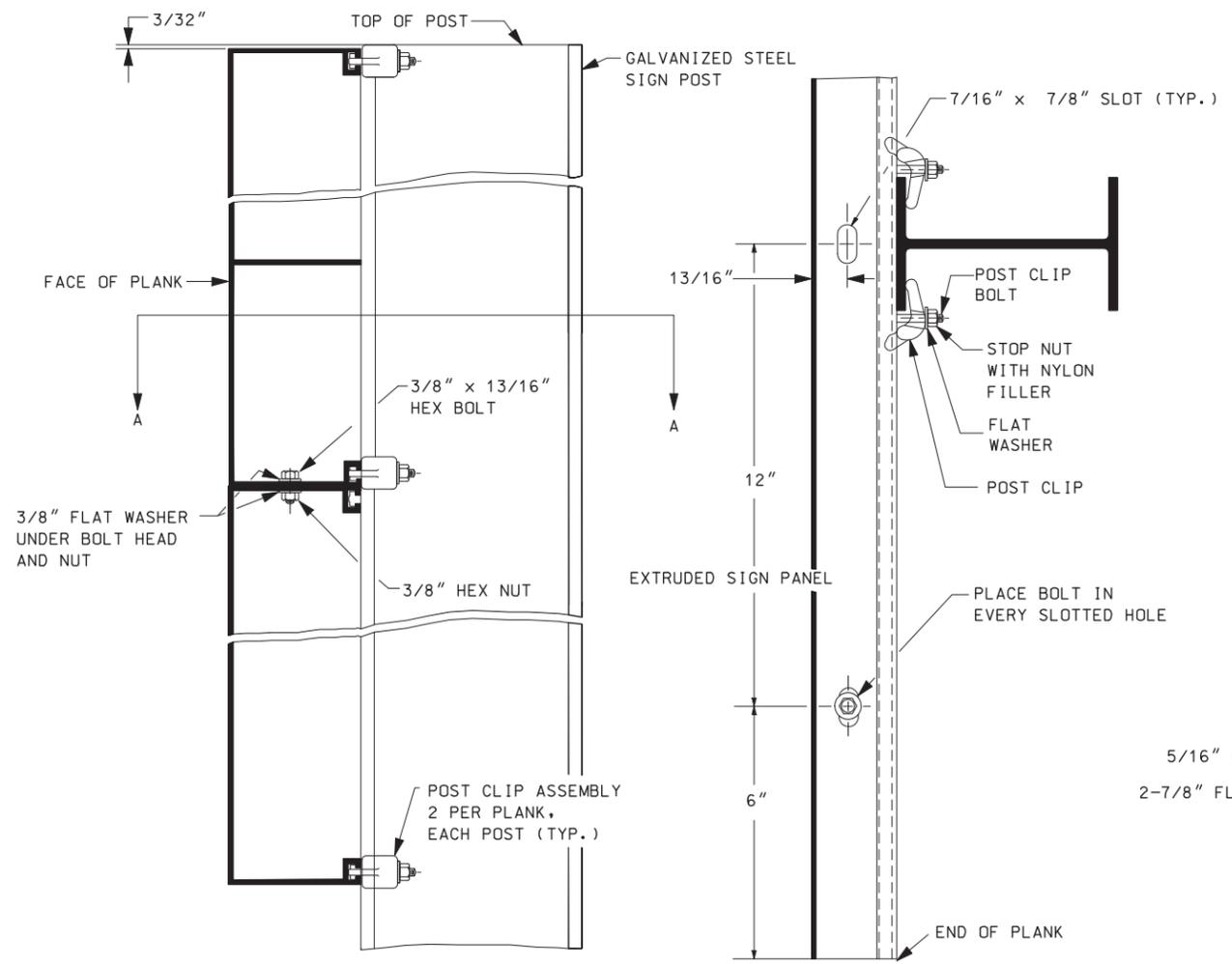
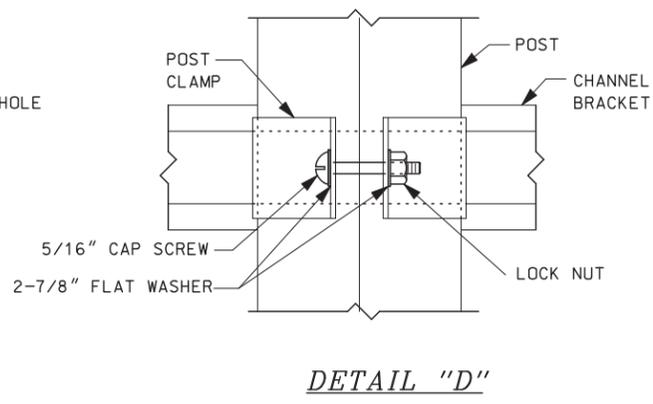
STIFFENER DETAILS



POST CLAMP 4" DIA. 11 GAUGE

POST CLAMP ASSEMBLIES

1. SEE SPECIFICATION 615.2.7.3 FOR ADDITIONAL INFORMATION REGARDING THE CHANNEL BRACKET AND POST CLAMP.
2. USE 5/16" CAP SCREW WITH 2-7/8" O.D. WASHERS AND LOCKNUT FOR CLAMP CONNECTION.
3. ALL HARDWARE SHALL BE STAINLESS STEEL.



**SIGNING STANDARD**  
ALUMINUM PLANK DETAILS

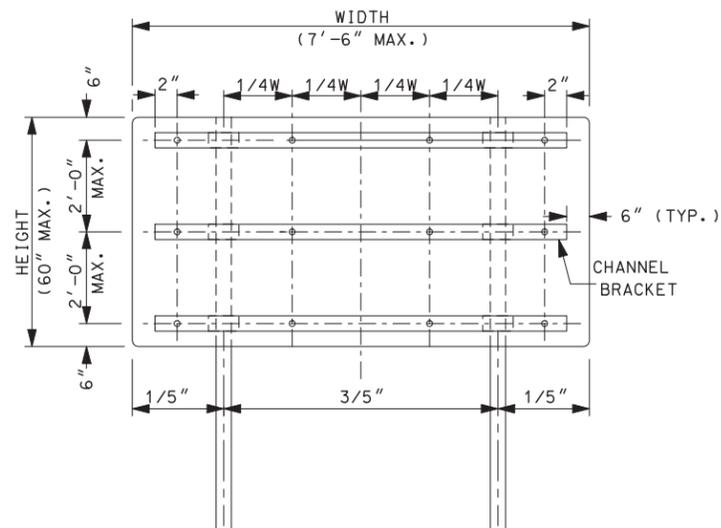
**STANDARD NO. PS-2**

REVISION DATE
07-13-2001
02-26-2010

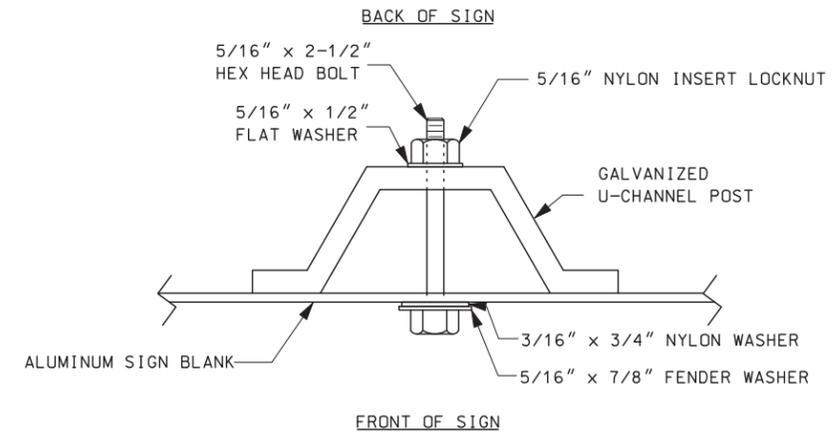
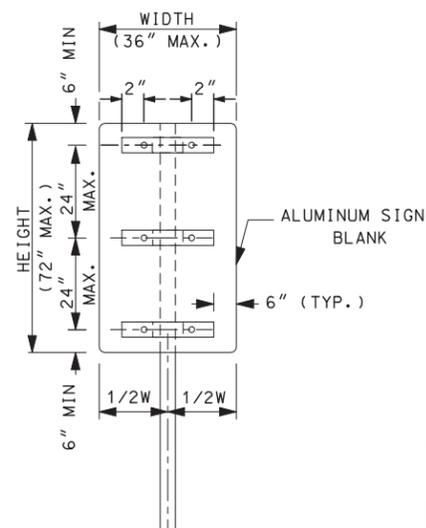
**\*.DGN FILE NAME**  
PS-2

2011  
 STANDARD PLANS  
 New Hampshire  
**DOT**  
 Department of Transportation

**STANDARD NO. PS-2**

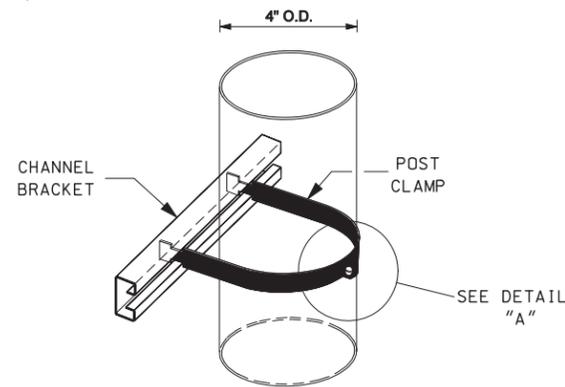


ALUMINUM POST SPACING

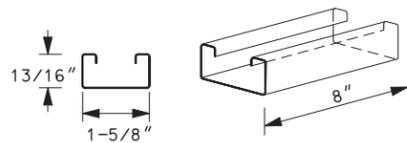


SIGN AND U-CHANNEL POST ASSEMBLY DETAIL

1. FOR GALVANIZED U-CHANNEL POST, SEE NHDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION BOOK, SECTION 615.
2. THE STAINLESS STEEL HEX HEAD BOLT LENGTH SHALL BE INCREASED TO ACCOMMODATE A THICKER SIGN MATERIAL.
3. THE POST SHALL BE SET A MINIMUM OF 3 INCHES TO A MAXIMUM OF 6 INCHES BELOW THE TOP OF SIGN.
4. U-CHANNEL POSTS SHALL NOT BE SPLICED AND DO NOT REQUIRE CHANNEL BRACKETS.
5. U-CHANNEL POSTS SHALL BE INSTALLED 36" OR GREATER BELOW EXISTING GROUND.



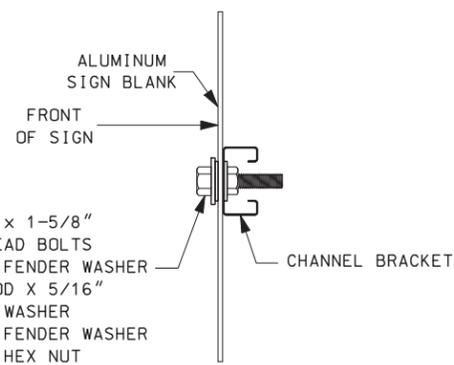
POST CLAMP 4" DIA. 11 GAUGE



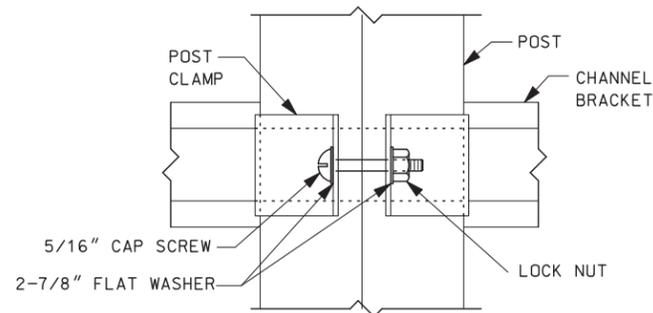
CHANNEL BRACKET 14 GAUGE

GENERAL NOTES

1. BRACKETS: ALL SIGNS TO BE FASTENED TO POSTS WITH POST CLAMP ASSEMBLIES AS SHOWN.
2. SIGN WIDTH 36" OR LESS MAY BE MOUNTED ON ONE (1) U-CHANNEL POST.
3. RECTANGULAR SIGNS 72" x 48" OR LESS MAY BE MOUNTED ON DUAL U-CHANNEL POST. DIAMOND SHAPE SIGNS GREATER THAN 36" SHALL BE MOUNTED ON ALUMINUM TUBING (INTERSTATE).
4. SIGN HEIGHT 48" OR LESS, CENTER CHANNEL BRACKET MAY BE OMITTED.
5. DIAMOND SHAPE SIGNS 48" OR LARGER REQUIRE TWO CHANNEL BRACKETS.
6. SIGNS 72" x 72" OR GREATER SHALL BE ALUMINUM PLANK.



SIGN BLANK ATTACHMENT DETAIL



DETAIL A

POST CLAMP ASSEMBLIES

1. SEE SPECIFICATION 615.2.7.3 FOR ADDITIONAL INFORMATION REGARDING THE CHANNEL BRACKET AND POST CLAMP.
2. USE 5/16" STAINLESS STEEL CAP SCREW WITH 2-7/8" O.D. WASHERS & LOCKNUT FOR CLAMP CONNECTION.

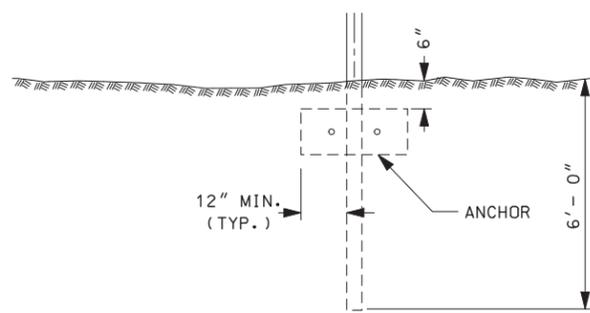
**SIGNING STANDARD**  
ALUMINUM SHEET DETAILS FOR  
TUBING & U-CHANNEL POSTS

New Hampshire  
**DOT**  
 Department of Transportation  
 STANDARD PLANS

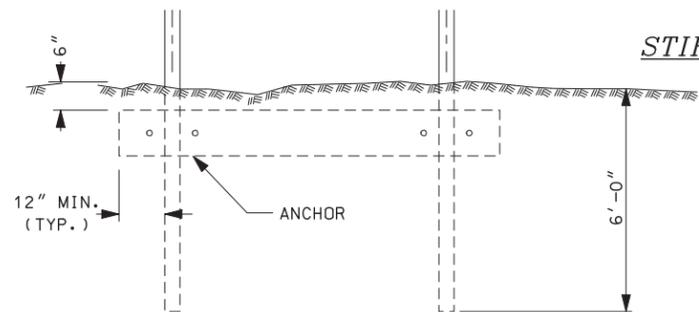
REVISION DATE
07-13-2001
02-26-2010

\*DGN FILE NAME  
PS-4

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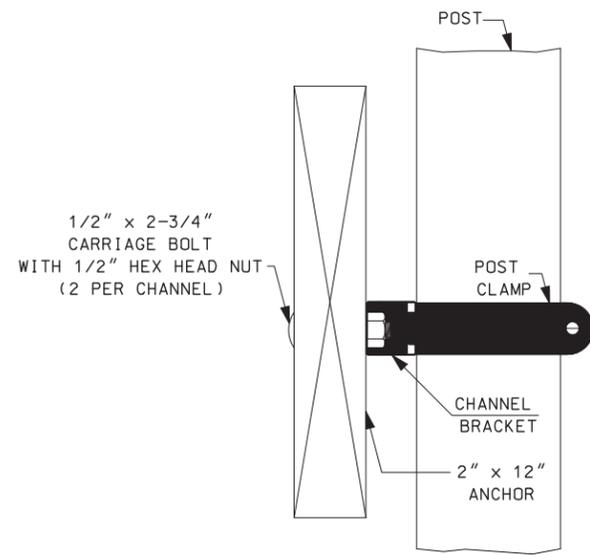


SINGLE POST



STIFFENER DETAILS

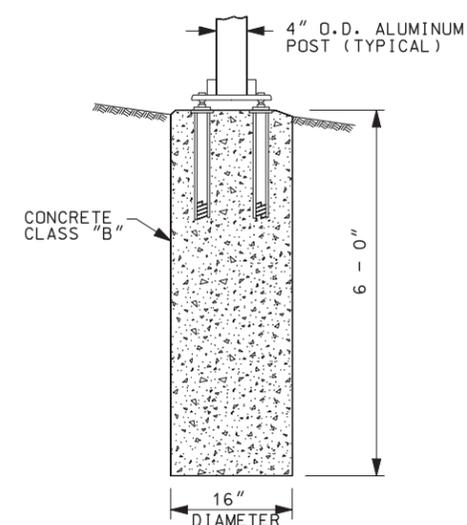
DOUBLE POST



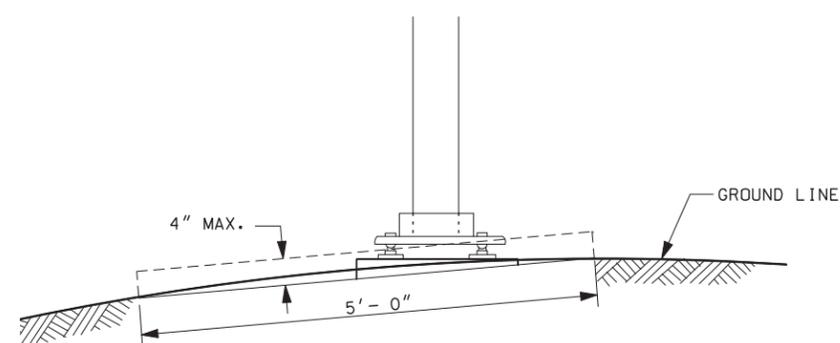
ANCHOR DETAIL

ANCHORS: USE 1 PIECE OF 2" x 12" PLANK (PRESSURE TREATED) CLAMPED TO POST WITH A MINIMUM OF 12" OVERHANG, TO BE PARALLEL WITH GROUND LINE. PLACE 2" x 12" PLANK BEHIND SIGN POST.

BREAKAWAY



FOOTING DETAIL



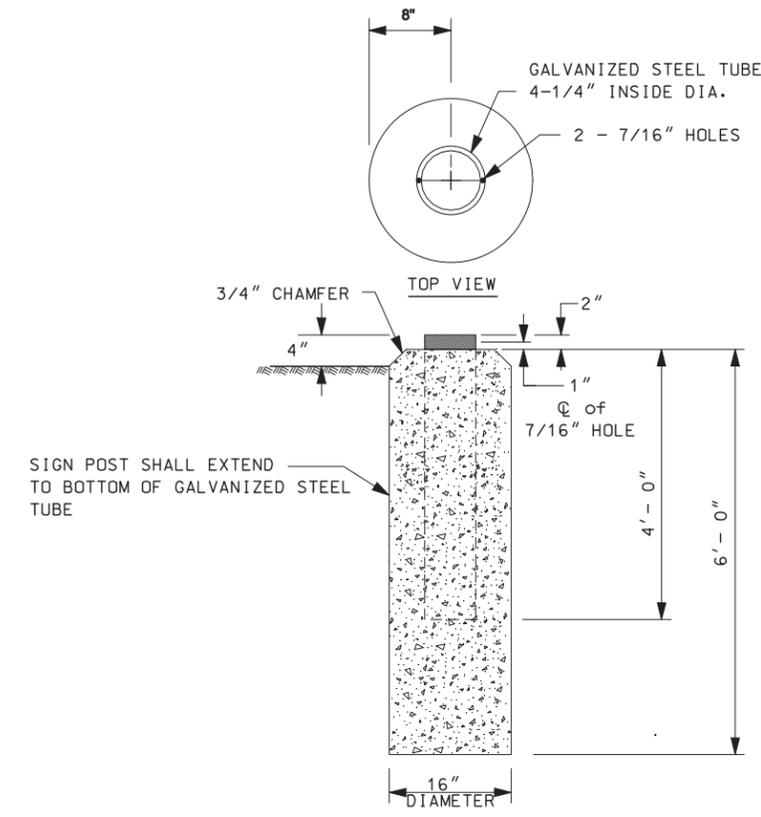
MAXIMUM BREAKAWAY STUB HEIGHT

BREAKAWAY SUPPORTS PLACED ON ROADSIDE SLOPES SHALL NOT ALLOW IMPACTING VEHICLES TO SNAG ON EITHER THE FOUNDATION OR ANY SUBSTANTIAL REMAINS OF THE SUPPORT. SURROUNDING TERRAIN SHALL BE GRADED TO PERMIT VEHICLES TO PASS OVER ANY NON-BREAKAWAY PORTION OF THE SIGN INSTALLATION WHICH REMAINS IN THE GROUND OR RIGIDLY ATTACHED TO THE FOUNDATION.

GENERAL NOTES

- MULTIPLE POST SIGNS MUST BE PROTECTED BY GUARDRAIL OR OTHER POSITIVE BARRIER, UNLESS BREAKAWAY MOUNTED.
- THE MINIMUM HORIZONTAL CLEARANCE TO THE NEAR EDGE OF THE SIGN OF ANY MULTIPLE POST NON-BREAKAWAY MOUNT SIGN SHALL BE 7'-0" MIN. FROM FACE OF BEAM GUARDRAIL. OTHER TYPES OF GUARDRAIL OR BARRIER MAY REQUIRE A DIFFERENT OFFSET.
- ALL HARDWARE SHALL BE STAINLESS STEEL UNLESS OTHERWISE NOTED.

CONCRETE BASE



SIDE VIEW

CONCRETE BASE NOTES:

- GALVANIZED STEEL TUBE 4-1/4" I.D. x 4'-2"
- CONCRETE CLASS B.
- TOP SHALL HAVE TROWEL FINISH.
- USE 5/16" x 5-1/2" LONG STAINLESS STEEL BOLT WITH STAINLESS STEEL NYLON INSERT NUT FOR SECURING POST.
- ALUMINUM CAP SHALL BE INSTALLED ON THE TOP OF THE SIGN POST WITH THIS INSTALLATION.

**SIGNING STANDARD**

ALUMINUM TUBING DETAILS

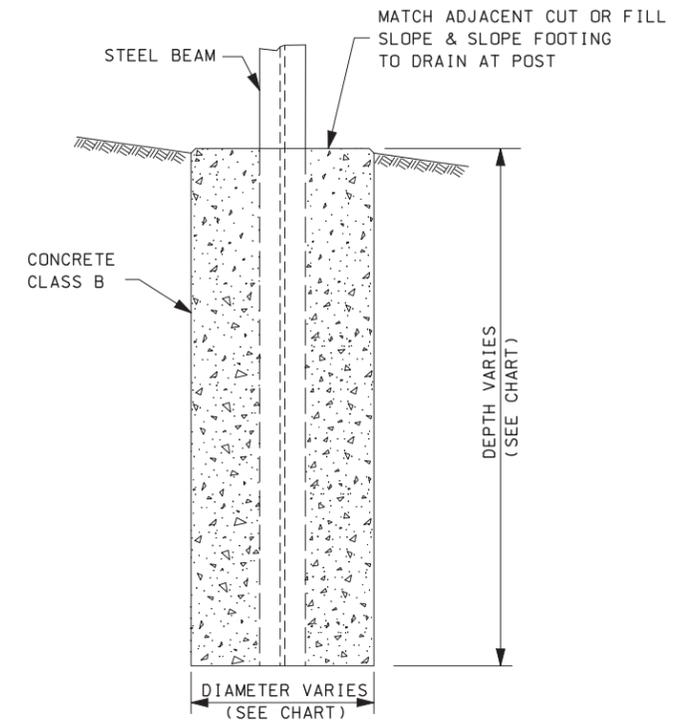
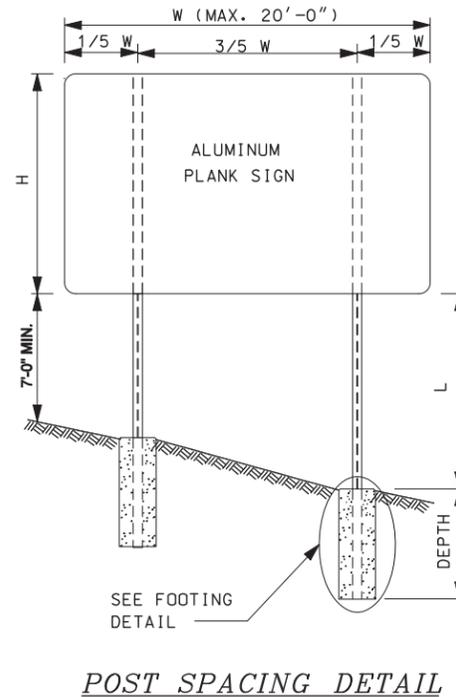
STANDARD PLANS



**PROCEDURE FOR SELECTING BEAM SECTIONS**

- DETERMINE VALUES FOR W, H, & L AS INDICATED IN DRAWING  
 W = MAXIMUM WIDTH OF REQUIRED SIGN  
 H = MAXIMUM HEIGHT OF REQUIRED SIGN INCLUDING AUXILIARY SIGNS AND SERVICE SYMBOLS.  
 L = MAXIMUM DISTANCE BETWEEN TOP OF FOOTING AND BOTTOM OF REQUIRED SIGN.  
 (SEE GENERAL NOTE NO. 4)
- FOR SIGN SIZES BETWEEN THOSE VALUES IN THE TABLE, USE NEXT HIGHEST FOOT VALUE.
- ENTER TABLE WITH MAXIMUM VALUE OF "L" AND REQUIRED VALUES OF "W" AND "H" FOR SELECTION OF APPROPRIATE BEAM SELECTION.

2 POST SIGN													
W	L	H											
		4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'	15'
6'	8'	S4x7.7	S4x7.7	S4x7.7	S4x7.7	W6x9	W6x9	W6x9	W6x12	W6x12	W6x12	W6x15	W6x15
	10'	S4x7.7	S4x7.7	S4x7.7	W6x9	W6x9	W6x9	W6x12	W6x12	W6x15	W6x15	W6x15	W6x15
	12'	S4x7.7	S4x7.7	W6x9	W6x9	W6x9	W6x12	W6x12	W6x15	W6x15	W6x15	W6x18	W6x18
8'	8'	S4x7.7	S4x7.7	W6x9	W6x9	W6x9	W6x12	W6x12	W6x15	W6x15	W6x15	W6x18	W6x18
	10'	S4x7.7	W6x9	W6x9	W6x9	W6x12	W6x12	W6x15	W6x15	W6x15	W6x18	W6x18	W6x18
	12'	S4x7.7	W6x9	W6x9	W6x12	W6x12	W6x15	W6x15	W6x15	W6x18	W6x18	W6x18	W6x18
10'	8'	S4x7.7	W6x9	W6x9	W6x12	W6x12	W6x15	W6x15	W6x15	W6x18	W6x18	W6x18	W6x18
	10'	W6x9	W6x9	W6x12	W6x12	W6x15	W6x15	W6x15	W6x18	W6x18	W6x18	W6x18	W6x18
	12'	W6x9	W6x9	W6x12	W6x12	W6x15	W6x15	W6x18	W6x18	W6x18	W6x18	W6x18	W6x18
	14'	W6x9	W6x12	W6x12	W6x15	W6x15	W6x18	W6x18	W6x18	W6x18	W6x18	W6x18	W6x21
	16'	W6x9	W6x12	W6x15	W6x15	W6x18	W6x18	W6x18	W6x18	W6x18	W6x18	W6x21	W6x21
12'	8'	W6x9	W6x9	W6x12	W6x12	W6x15	W6x15	W6x18	W6x18	W6x18	W6x18	W6x18	W6x18
	10'	W6x9	W6x9	W6x12	W6x15	W6x15	W6x18	W6x18	W6x18	W6x18	W6x18	W6x18	W6x21
	12'	W6x9	W6x12	W6x15	W6x15	W6x18	W6x18	W6x18	W6x18	W6x18	W6x18	W6x21	W6x21
	14'	W6x12	W6x12	W6x15	W6x15	W6x18	W6x18	W6x18	W6x18	W6x18	W6x21	W6x21	W10x22
	16'	W6x12	W6x15	W6x15	W6x18	W6x18	W6x18	W6x18	W6x18	W6x21	W6x21	W10x22	W10x22
14'	8'	W6x12	W6x15	W6x15	W6x18	W6x18	W6x18	W6x18	W6x18	W6x21	W6x21	W10x22	W10x22
	10'	W6x12	W6x15	W6x15	W6x18	W6x18	W6x18	W6x18	W6x21	W6x21	W10x22	W10x22	W10x22
	12'	W6x15	W6x15	W6x18	W6x18	W6x18	W6x18	W6x21	W6x21	W10x22	W10x22	W10x26	W10x26
	14'	W6x15	W6x18	W6x18	W6x18	W6x18	W6x21	W6x21	W10x22	W10x22	W10x26	W10x26	W10x26
	16'	W6x15	W6x18	W6x18	W6x18	W6x18	W6x21	W6x21	W10x22	W10x22	W10x26	W10x26	W10x26
16'	8'	W6x12	W6x15	W6x15	W6x18	W6x18	W6x18	W6x18	W6x21	W6x21	W10x22	W10x22	W10x22
	10'	W6x15	W6x15	W6x18	W6x18	W6x18	W6x18	W6x21	W10x22	W10x22	W10x22	W10x22	W10x26
	12'	W6x15	W6x18	W6x18	W6x18	W6x18	W6x21	W10x22	W10x22	W10x22	W10x26	W10x26	W10x26
	14'	W6x15	W6x18	W6x18	W6x18	W6x18	W6x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26
	16'	W6x18	W6x18	W6x18	W6x18	W6x21	W6x21	W10x22	W10x22	W10x26	W12x26	W12x26	W12x26
18'	8'	W6x12	W6x15	W6x18	W6x18	W6x18	W6x18	W6x21	W10x22	W10x22	W10x22	W10x26	W10x26
	10'	W6x15	W6x15	W6x18	W6x18	W6x18	W6x21	W10x22	W10x22	W10x22	W10x26	W10x26	W10x26
	12'	W6x15	W6x18	W6x18	W6x18	W6x18	W6x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26
	14'	W6x18	W6x18	W6x18	W6x18	W6x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26	W12x26
	16'	W6x18	W6x18	W6x18	W6x21	W6x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26	W12x26
20'	8'	W6x15	W6x15	W6x18	W6x18	W6x18	W6x21	W10x22	W10x22	W10x22	W10x26	W10x26	W10x26
	10'	W6x15	W6x18	W6x18	W6x18	W6x18	W6x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26
	12'	W6x18	W6x18	W6x18	W6x18	W6x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26	W12x26
	14'	W6x18	W6x18	W6x18	W6x21	W6x21	W10x22	W10x26	W10x26	W12x26	W12x26	W12x26	--
	16'	W6x18	W6x18	W6x18	W6x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26	--	--
18'	W6x18	W6x18	W6x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26	W12x26	--	--	
20'	W6x18	W6x18	W6x21	W10x22	W10x26	W10x26	W12x26	W12x26	W12x26	--	--	--	



**GENERAL NOTES**

1. SIGNS SHALL BE PROVIDED FOR LOCATIONS SPECIFIED ON THE PLANS OR AS DIRECTED BY THE ENGINEER. SEE SIGN TEXT LAYOUT SHEETS AND PLANS FOR SIGN SIZES AND APPROXIMATE LOCATIONS.
2. DIMENSIONS, ELEVATIONS, SLOPES, AND SITUATIONS SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY. ACTUAL CASES WILL DEPEND ON FIELD CONDITIONS.
3. WHEN TWO OR MORE INDEPENDENT SIGNS ARE MOUNTED AS A SINGLE INSTALLATION, THE POST SUPPORTS SHALL BE CALCULATED WITH THE TOTAL AREA OF THE SIGNS BEING CONSIDERED AS ONE UNIT, INCLUDING AN ALLOWANCE FOR A 6" VERTICAL SPACE BETWEEN THE SIGNS.
4. POST LENGTH TO BE DETERMINED BY SIGN SIZE AND LOCATION. EXACT FIELD LOCATION TO BE DETERMINED BY THE ENGINEER.
5. THE MINIMUM HORIZONTAL CLEARANCE TO THE NEAR EDGE OF THE SIGN OF ANY MULTIPLE POST NON-BREAKAWAY MOUNT SIGN SHALL BE 7'-0" MIN. FROM FACE OF BEAM GUARDRAIL. OTHER TYPES OF GUARDRAIL OR BARRIER MAY REQUIRE A DIFFERENT OFFSET.
6. SEE STANDARD NO. PS-1 & PS-2 FOR ADDITIONAL INFORMATION.

POST SIZE	FOOTING	
	DEPTH	DIAMETER
S4x7.7	6'	24"
W6x9	6'	24"
W6x12	6'	24"
W6x15	7'-6"	24"
W8x18	7'-6"	30"
W8x21	8'-6"	30"
W10x22	8'-6"	36"
W10x26	8'-6"	36"
W12x26	8'-6"	36"

**SIGNING STANDARD**  
 STEEL BEAM DETAILS  
 NON-BREAKAWAY

**STANDARD NO. PS-5**

REVISION DATE
07-13-2001
02-26-2010
*.DGN FILE NAME
PS-5

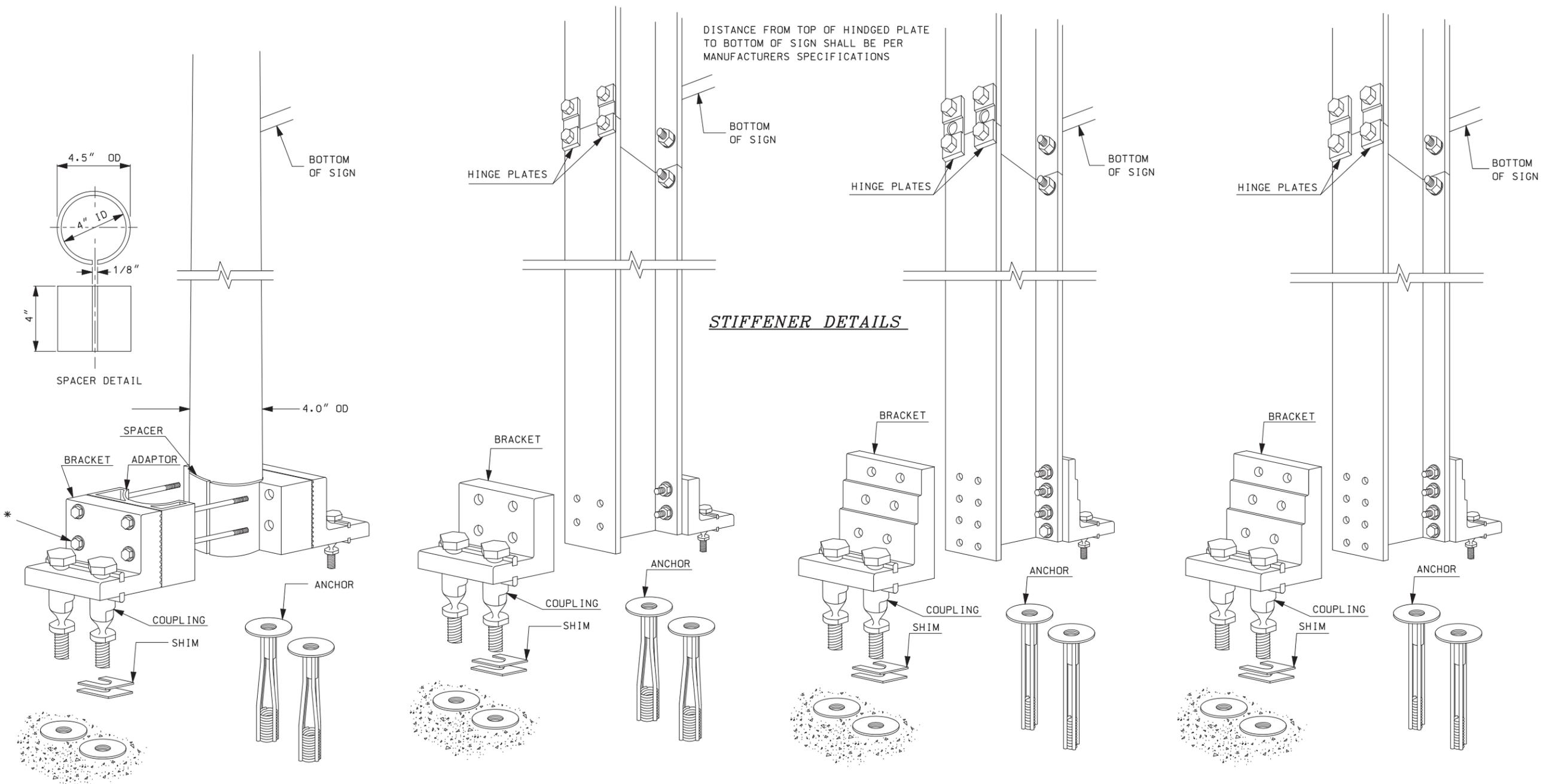
2021  
 STANDARD PLANS  
 New Hampshire  
**DOT**  
 Department of Transportation

**STANDARD NO. PS-5**









**TRANSPO TYPE APx4.5 (S/B) (OR EQUAL)**  
USE FOR 4 " DIAMETER ALUMINUM TUBE

**TRANSPO TYPE A16-LP (OR EQUAL)**  
USE FOR W6x9 STEEL BEAM

**TRANSPO TYPE B-525-LP (OR EQUAL)**  
USE FOR W6x12, W6x15, W8x18,  
OR W8x21 STEEL BEAMS

**TRANSPO TYPE B-650-LP (OR EQUAL)**  
USE FOR W10x22, W10x26, W12x26,  
OR W14x30 STEEL BEAMS

\* BOLT HEAD SHALL FACE TRAFFIC

**GENERAL NOTES**

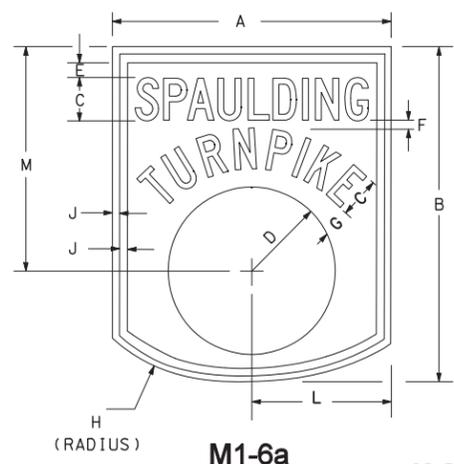
1. ASSEMBLE ACCORDING TO MANUFACTURER'S INSTRUCTIONS.
2. SEE PS-7 OR PS-8 FOR STEEL BEAM SIZES.
3. SEE PS-10 FOR BRACKET SELECTION TABLES FOR TYPE B525-LP & B-650-LP.

**SIGNING STANDARD**  
**BREAKAWAY MOUNTS**

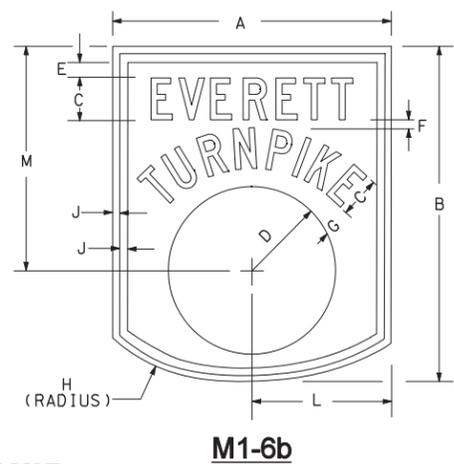


REVISION DATE
07-13-2001
02-26-2010

\*.DGN FILE NAME  
SG-1



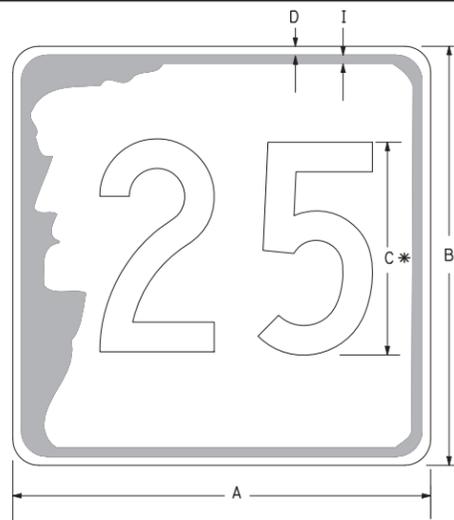
**M1-6a**



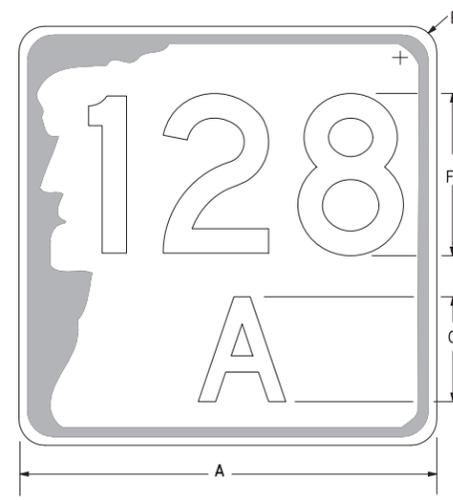
**M1-6b**

**N.H. TURNPIKE  
ROUTE MARKERS**  
(FOR GUIDE SIGN USE)

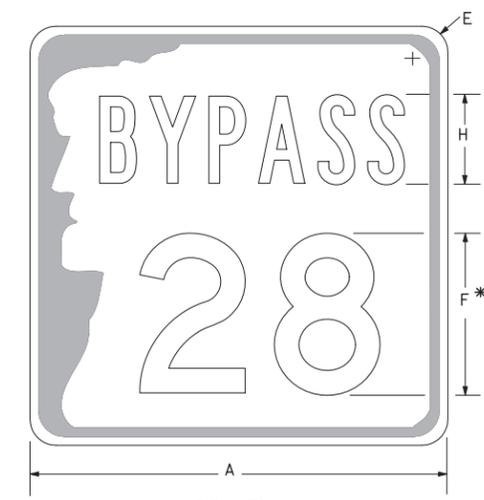
DIMENSIONS (inches)/LETTER FONTS										
A	B	C	D	E	F	G	H	J	L	M
15	18	2 1/4 C	4 1/2	3/4	1/2	1	12 3/4	3/8	7 1/2	12
20	24	3 C	6	1	3/4	1 1/4	17	1/2	10	16
30	36	4 1/2 C	9	1 1/2	1	2	25 1/2	3/4	15	24



**M1-5**



**M1-5a**



**M1-5b**

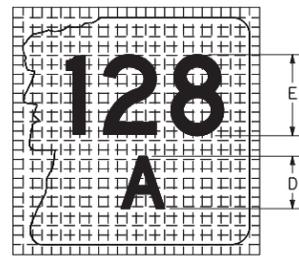
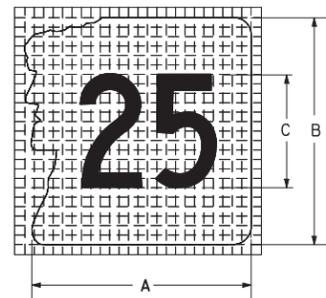
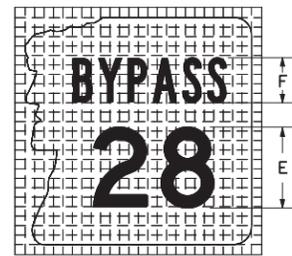
**N.H. STATE ROUTE MARKER**  
(FOR INDEPENDENT USE)

SIGN	DIMENSIONS (inches)/LETTER FONTS								
	A	B	C	D	E	F	G	H	I
1, 2 DIGITS	24	24	12D	1/2	1 1/2	9D	6D	5B	1/2
3 DIGITS	24	24	12B	1/2	1 1/2	9C	6D	5B	1/2
1, 2 DIGITS	36	36	18D	3/4	2 1/4	14D	9D	9B	3/4
3 DIGITS	36	36	18B	3/4	2 1/4	14C	9D	9B	3/4

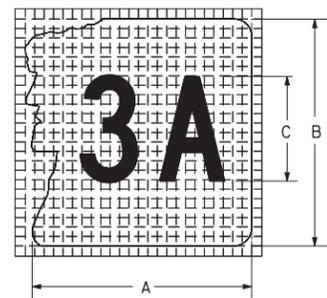
\* OPTICALLY PLACE NUMERALS WITHIN SHIELD



**M1-5c**



SIGN	DIMENSIONS (inches)/LETTER FONTS					
	A	B	C	D	E	F
1 DIGIT	18	18	10E	-	8D	4B
2 DIGIT	18	18	10C	4D	8D	4B
3 DIGIT	18	18	10B	4D	8B	4B
1 DIGIT	24	24	14E	-	11D	6B
2 DIGIT	24	24	14C	6D	11D	6B
3 DIGIT	24	24	12B	6D	11B	6B
1 DIGIT	36	36	18E	-	16D	8B
2 DIGIT	36	36	18C	8D	16D	8B
3 DIGIT	36	36	18B	8D	16B	8B
1 DIGIT	48	48	24E	-	20D	11B
2 DIGIT	48	48	24C	12D	20D	11B
3 DIGIT	48	48	24B	12D	20B	11B



**NOTES:**

- OPTICALLY PLACE NUMERALS WITHIN SHIELD.
- ANY 2 DIGIT ROUTE WITH ONE OR MORE #1'S IN THE COPY WILL BE A "D" SERIES.
- ANY 3 DIGIT ROUTE WITH TWO #1'S IN THE COPY WILL BE A "C" SERIES.
- ANY 3 DIGIT ROUTE WITH THREE #1'S IN THE COPY WILL BE A "D" SERIES.

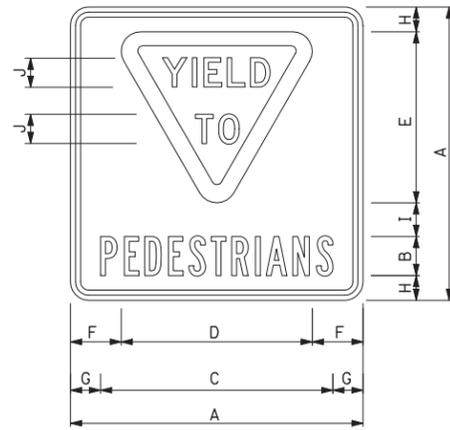
**NH STATE ROUTE MARKER PATTERN  
FOR GUIDE SIGN USE**

**GENERAL NOTES**

- BACKGROUND FOR ALL SHIELDS FOR C & CC SIGNS SHALL BE WHITE TYPE III. BACKGROUND FOR ALL SHIELDS ON OVERHEAD STRUCTURES SHALL BE TYPE VII, VIII, IX OR X.
- SHEET ALUMINUM USED FOR DEMOUNTABLE ROUTE MARKERS SHALL CONFORM TO THE OUTLINE OF THE SHIELD.
- NEW HAMPSHIRE STATE ROUTE MARKERS SHALL UTILIZE "THE OLD MAN" IMAGE OR OUTLINE AS FOLLOWS:
  - INDEPENDENT ROUTE MARKERS SHALL HAVE BLACK TEXT INSIDE A BLACK "OLD MAN" IMAGE AS SHOWN ABOVE.
  - GUIDE SIGN ROUTE MARKERS SHALL HAVE BLACK TEXT ON A CUT OUT WHITE "OLD MAN" OUTLINE AS SHOWN LEFT.
- NEW HAMPSHIRE TURNPIKE ROUTE MARKERS SHALL UTILIZE THE FOLLOWING DESIGN:
  - SPAULDING TURNPIKE GUIDE SIGN ROUTE MARKERS SHALL HAVE BLUE TEXT, BORDER, AND DISK ON A WHITE BACKGROUND.
  - EVERETT TURNPIKE GUIDE SIGN ROUTE MARKERS SHALL HAVE GREEN TEXT, BORDER, AND DISK ON A WHITE BACKGROUND.
- INTERSTATE AND U.S. ROUTE MARKERS SHALL CONFORM TO THE MUTCD AND STANDARD HIGHWAY SIGNS MANUAL.
- DIMENSIONS OF ROUTE MARKERS NOT SHOWN ON THIS SHEET SHALL BE DIRECTLY PROPORTIONAL TO THOSE SHOWN.

**SIGNING STANDARD**

**ROUTE MARKER DETAILS**



1.88" RADIUS, 0.50" BORDER, 0.50" INDENT  
BLACK ON WHITE,  
"YIELD", "TO" & SHIELD BORDER ARE RED.

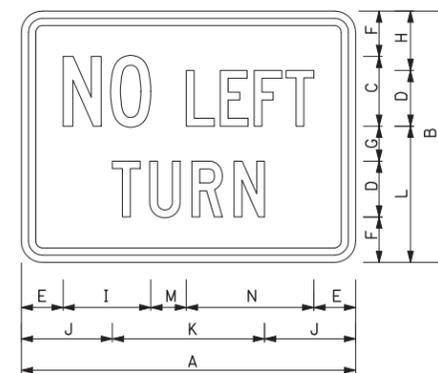
**R1-2B1**

DIMENSIONS (inches)/LETTER FONTS										
A	B	C	D	E	F	G	H	I	J	
30	4B	23 <sup>3</sup> / <sub>4</sub>	19 <sup>1</sup> / <sub>2</sub>	17 <sup>1</sup> / <sub>2</sub>	5 <sup>1</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>2</sub>	B

REGULATORY SIGN

NHDOT STANDARD PLANS  
YIELD TO PEDESTRIANS

REV. DATE	PLATE
07-13-2001	1
02-26-2010	STANDARD
	SG-2



1.50" RADIUS, 0.50" BORDER, 0.50" INDENT  
BLACK ON WHITE

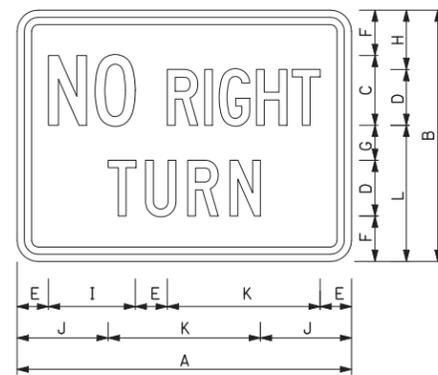
**R3-3LB1**

DIMENSIONS (inches)/LETTER FONTS													
A	B	C	D	E	F	G	H	I	J	K	L	M	N
24	18	5C	4C	3	3 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>2</sub>	11	9 <sup>3</sup> / <sub>4</sub>	2 <sup>5</sup> / <sub>8</sub>	9 <sup>1</sup> / <sub>8</sub>

REGULATORY SIGN

NHDOT STANDARD PLANS

REV. DATE	PLATE
07-13-2001	2
02-26-2010	STANDARD
	SG-2



1.50" RADIUS, 0.50" BORDER, 0.50" INDENT  
BLACK ON WHITE

**R3-3RB1**

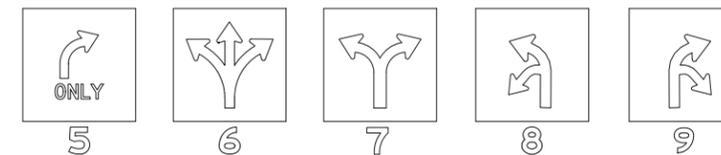
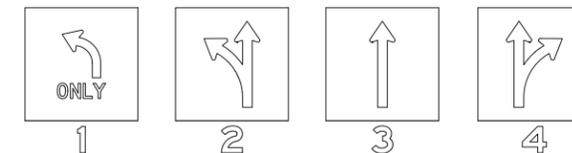
DIMENSIONS (inches)/LETTER FONTS											
A	B	C	D	E	F	G	H	I	J	K	L
24	18	5C	4C	2 <sup>1</sup> / <sub>4</sub>	3 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>4</sub>	6 <sup>1</sup> / <sub>2</sub>	11	9 <sup>3</sup> / <sub>4</sub>

REGULATORY SIGN

NHDOT STANDARD PLANS  
NO RIGHT TURN

REV. DATE	PLATE
07-13-2001	3
02-26-2010	STANDARD
	SG-2

**R3-8 SERIES**  
LANE USE CONTROL SIGNS



EXAMPLE:  
R3-8(12)



MODIFY THE R3-8 SIGN TO REFLECT THE ACTUAL LANE USE COMBINATIONS

REGULATORY SIGN

NHDOT STANDARD PLANS  
LANE USE CONTROL SIGNS

**SIGNING STANDARD**

REV. DATE	PLATE
07-13-2001	4
02-26-2010	STANDARD
	SG-2

STANDARD  
NO. SG-2

REVISION DATE
07-13-2001
02-26-2010

\*.DGN FILE NAME  
SG-2

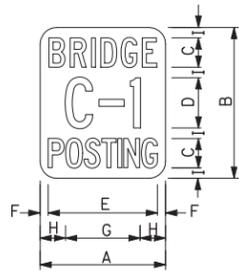
STANDARD PLANS

New Hampshire  
**DOT**  
Department of Transportation

STANDARD  
NO. SG-2

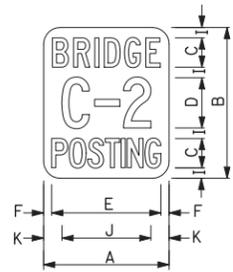
REVISION DATE
07-13-2001
02-26-2010

\*.DGN FILE NAME  
SG-3



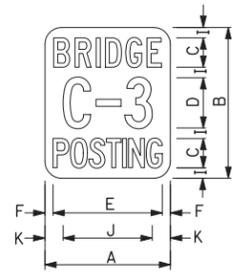
R4-5cB1

2.0" RADIUS, NO BORDER, WHITE;  
"BRIDGE" BLACK C 85% SPACING;  
"C-1" BLACK C 75% SPACING;  
"POSTING" BLACK C 30% SPACING



R4-5bB1

2.0" RADIUS, NO BORDER, WHITE;  
"BRIDGE" BLACK C 85% SPACING;  
"C-2" BLACK C 65% SPACING;  
"POSTING" BLACK C 30% SPACING



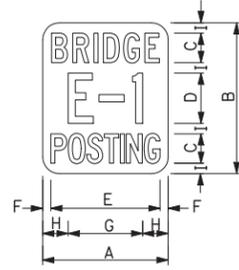
R4-5B1

2.0" RADIUS, NO BORDER, WHITE;  
"BRIDGE" BLACK C 85% SPACING;  
"C-3" BLACK C 65% SPACING;  
"POSTING" BLACK C 30% SPACING

DIMENSIONS (inches)/LETTER FONTS						
A	B	C	D	E	F	G
15	18	3 1/2	6C	13	1	9

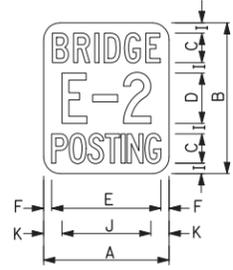
DIMENSIONS (inches)/LETTER FONTS			
H	I	J	K
3	1 1/4	10 5/8	2 3/16

REGULATORY SIGN



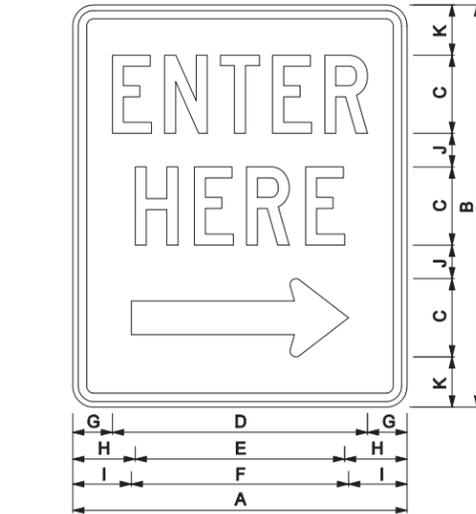
R4-5dB1

2.0" RADIUS, NO BORDER, WHITE;  
"BRIDGE" BLACK C 85% SPACING;  
"E-1" BLACK C 100% SPACING;  
"POSTING" BLACK C 30% SPACING



R4-5eB1

2.0" RADIUS, NO BORDER, WHITE;  
"BRIDGE" BLACK C 85% SPACING;  
"E-2" BLACK C 100% SPACING;  
"POSTING" BLACK C 30% SPACING



R4-7B1

1.88" RADIUS, 0.75" BORDER, 0.50" INDENT, BLACK ON WHITE  
ARROW: 19.50" X 7.00"

DIMENSIONS (inches)/LETTER FONTS										
A	B	C	D	E	F	G	H	I	J	K
30	36	7C	23	18 3/4	19 1/2	3 1/2	5 5/8	5 1/4	3	4 1/2

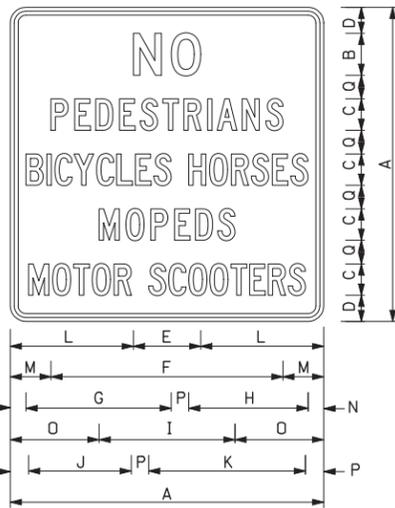
REGULATORY SIGN

NHDOT STANDARD PLANS  
BRIDGE RESTRICTIONS

REV. DATE	PLATE
07-13-2001	1
02-26-2010	STANDARD SG-3

NHDOT STANDARD PLANS  
ENTER HERE

REV. DATE	PLATE
07-13-2001	2
02-26-2010	STANDARD SG-3



R5-10a(M)

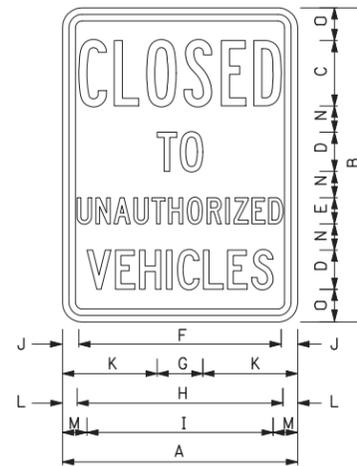
1.88" RADIUS, 0.50" BORDER, 0.50" INDENT,  
BLACK ON WHITE

DIMENSIONS (inches)/LETTER FONTS										
A	B	C	D	E	F	G	H	I	J	K
30	4D	3C	2 1/2	6 3/8	22 1/4	13 7/8	11 3/8	13	9 3/4	15

DIMENSIONS (inches)/LETTER FONTS					
L	M	N	O	P	Q
11 3/4	3 7/8	1 1/2	8 1/2	1 3/4	2 1/4

DIMENSIONS (inches)/LETTER FONTS										
A	B	C	D	E	F	G	H	I	J	K
18	24	5B	3C	2C	15 1/2	3 1/2	15 3/4	14 1/4	1 1/4	7 1/4

DIMENSIONS (inches)/LETTER FONTS			
L	M	N	O
1 1/8	1 7/8	2	2 1/2



R5-10B1

1.50" RADIUS, 0.50" BORDER, 0.50" INDENT,  
BLACK ON WHITE

REGULATORY SIGN

REGULATORY SIGN

NHDOT STANDARD PLANS  
NO PEDESTRIANS

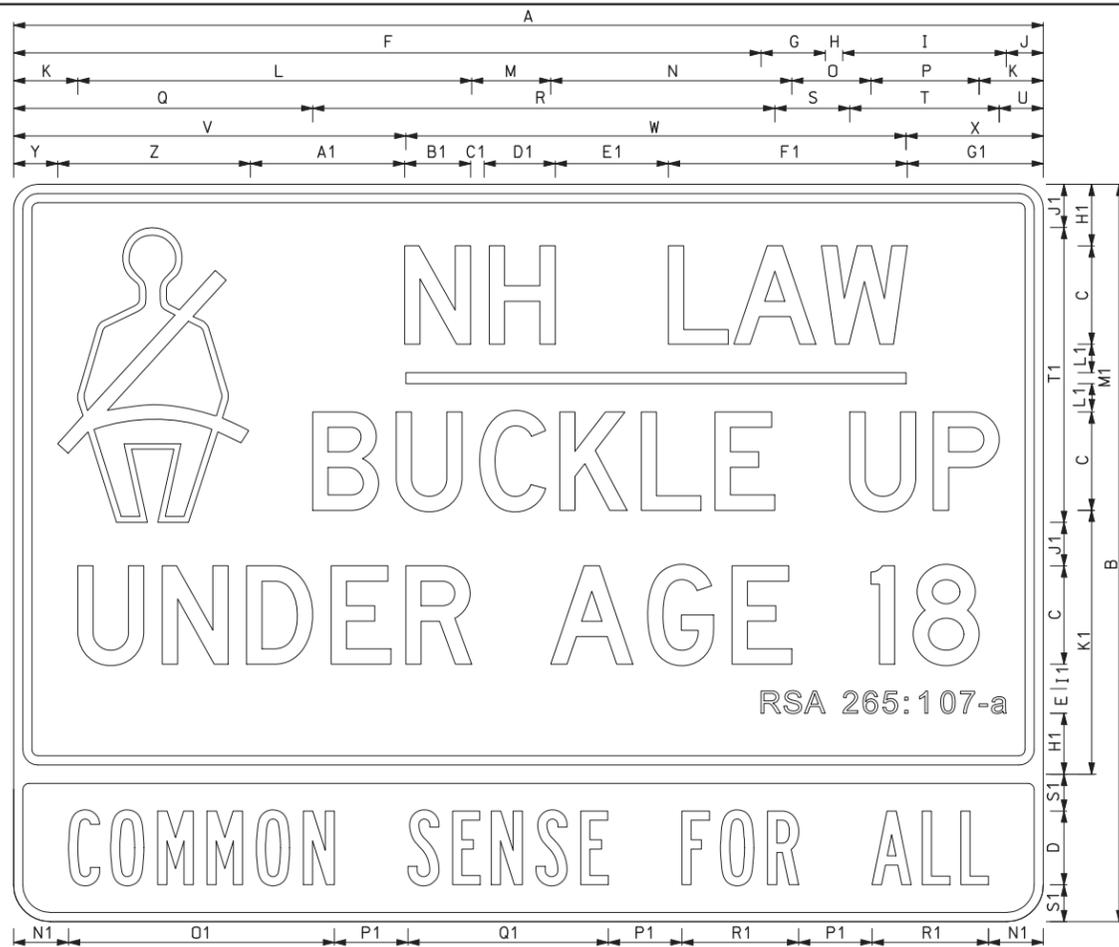
REV. DATE	PLATE
07-13-2001	3
02-26-2010	STANDARD SG-3

NHDOT STANDARD PLANS  
CLOSED TO UNAUTHORIZED VEHICLES

SIGNING STANDARD

REV. DATE	PLATE
07-13-2001	4
02-26-2010	STANDARD SG-3





DIMENSIONS (inches)/LETTER FONTS																	
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
60	48	6C	5B	1 1/2	42 3/8	3 7/8	1	9 5/8	3 1/8	4 3/4	20 7/8	5 3/4	12 3/8	5 3/4	5 3/4	19 3/8	23 3/8
84	60	8D	6B	2	61	5 1/8	1 1/2	13 3/8	3	5 1/4	32 1/4	6 1/4	19 3/4	6 3/8	8 7/8	24 3/8	37 3/4

DIMENSIONS (inches)/LETTER FONTS																			
S	T	U	V	W	X	Y	Z	A1	B1	C1	D1	E1	F1	G1	H1	I1	J1	K1	L1
6	7 5/8	3 5/8	23 7/8	28	8 1/8	3 5/8	11 3/4	8 3/4	5 3/8	1	5 3/8	7 3/8	12 1/8	8 3/8	3	2 1/2	2	17	1 1/2
6 1/8	12 1/4	3 1/2	32	40 7/8	11 1/8	3 5/8	15 3/4	12 1/2	5 3/8	2 1/4	5 3/8	7 5/8	19 1/2	11	5	2	3 1/2	21 1/2	2 5/16

DIMENSIONS (inches)/LETTER FONTS							
M1	N1	O1	P1	Q1	R1	S1	T1
1	1 3/8	17 5/8	3 5/8	13 1/4	7 3/4	3 1/2	18
7/8	4 1/2	21 3/4	6	16 1/4	9 1/2	3	24

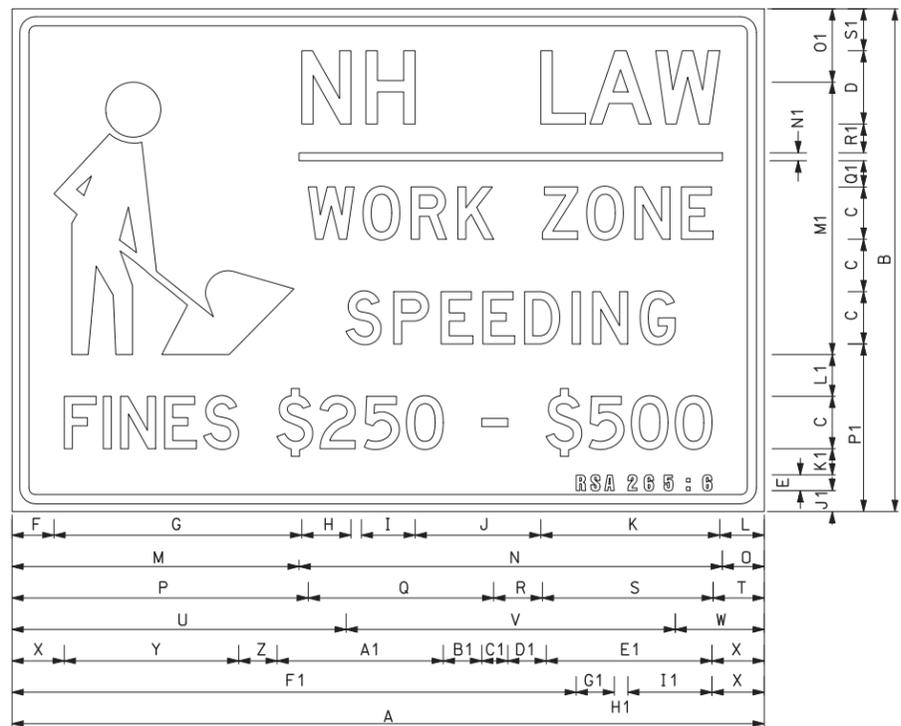
60" x 48"  
 Symbol RG015; 1.25" RADIUS, 0.75" BORDER, 0.75" INDENT, BLACK ON WHITE  
 "RSA 256:107-a" Triumvirate Compressed; "COMMON SENSE FOR ALL", WHITE ON BLUE

84" x 60"  
 Symbol RG015; 1.25" RADIUS, 0.75" BORDER, 0.75" INDENT, BLACK ON WHITE  
 "RSA 256:107-a" Triumvirate Compressed; "COMMON SENSE FOR ALL", WHITE ON BLUE

R16-1B1

NHDOT STANDARD PLANS NH LAW BUCKLE UP	REV. DATE		PLATE 1 STANDARD SG-5
	07-13-2001		
	02-26-2010		

REGULATORY SIGN



DIMENSIONS (inches)/LETTER FONTS																							
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
48	36	4D	5D	1 1/2	3	15	3 3/8	3 1/4	6 3/4	12 3/8	3 1/4	18	27	3	18 1/2	12 3/4	1 1/2	11 3/4	3 1/2	21	21	6	3 1/2
72	48	5D	7D	1 1/2	4 1/4	23	6	6	10 5/8	17 1/2	4 1/4	27 3/4	40	4 1/4	28 7/8	17 3/4	4 5/8	16 1/4	5	32	31 1/2	8 1/2	5

DIMENSIONS (inches)/LETTER FONTS																				
Y	Z	A1	B1	C1	D1	E1	F1	G1	H1	I1	J1	K1	L1	M1	N1	O1	P1	Q1	R1	S1
12	1 1/4	11 3/4	1 1/8	2	1 1/4	11 3/4	35 1/2	3 3/4	5 5/8	4 5/8	2 3/8	1 1/2	3	17	1/2	6 3/8	13 1/8	1 1/2	1 1/2	2 3/8
16 3/4	3 3/4	16 7/8	3 1/4	2 1/2	3 5/8	15 7/8	54	4 1/4	1	4	2	1 1/2	4	26	3/4	7	16	2 1/2	2 3/4	4

48" x 36"  
 Symbol RG015; 1.25" RADIUS, 0.75" BORDER, 0.75" INDENT,  
 BLACK ON WHITE  
 "RSA 265:6" Triumvirate Compressed;  
 BB GRADE PLYWOOD

72" x 48"  
 Symbol RG015; 1.25" RADIUS, 0.75" BORDER, 0.75" INDENT,  
 BLACK ON WHITE  
 "RSA 265:6" Triumvirate Compressed;  
 BB GRADE PLYWOOD

R50-1

NHDOT STANDARD PLANS NH WORK ZONE SPEEDING	REV. DATE		PLATE 2 STANDARD SG-5
	07-13-2001		
	02-26-2010		

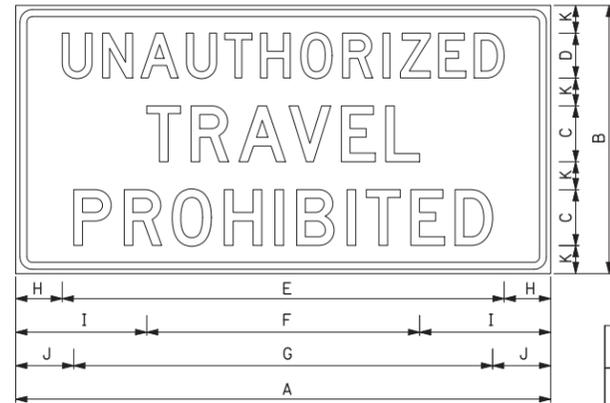
REGULATORY SIGN

SIGNING STANDARD

<b>STANDARD NO.</b>	<b>SG-5</b>
<b>REVISION DATE</b>	07-13-2001 02-26-2010
<b>*.DGN FILE NAME</b>	SG-5

New Hampshire  
**NHDOT**  
 Department of Transportation  
 STANDARD PLANS

**STANDARD NO.** SG-5



1.50" RADIUS. 0.68" BORDER. 0.375" INDENT. BLACK ON WHITE; BB GRADE PLYWOOD SIGN

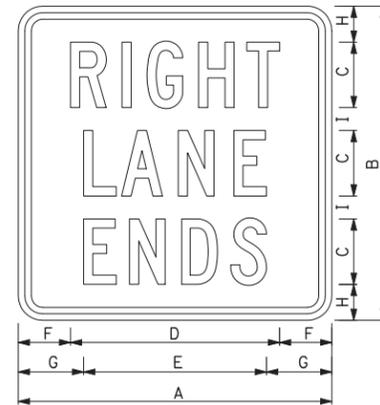
DIMENSIONS (inches)/LETTER FONTS										
A	B	C	D	E	F	G	H	I	J	K
48	24	5D	4D	39 <sup>3</sup> / <sub>4</sub>	24 <sup>1</sup> / <sub>2</sub>	37 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>8</sub>	12 <sup>3</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>2</sub>

**R200-S**

REGULATORY SIGN

NHDOT STANDARD PLANS  
UNAUTHORIZED TRAVEL

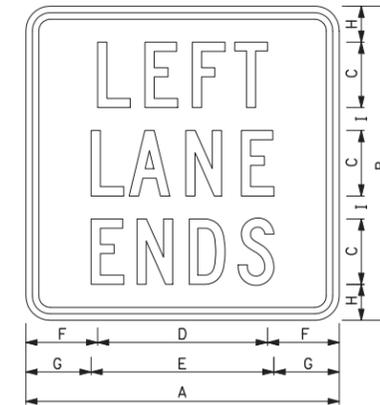
REV. DATE	PLATE
07-13-2001	1
02-26-2010	STANDARD
	SG-6



1.50" RADIUS. 0.50" BORDER. 0.375" INDENT. BLACK ON YELLOW;

**W4-2a(R)**

DIMENSIONS (inches)/LETTER FONTS									
A	B	C	D	E	F	G	H	I	
24	24	5C	16	14	4	5	2 <sup>3</sup> / <sub>4</sub>	1 <sup>3</sup> / <sub>4</sub>	



1.50" RADIUS. 0.50" BORDER. 0.375" INDENT. BLACK ON YELLOW;

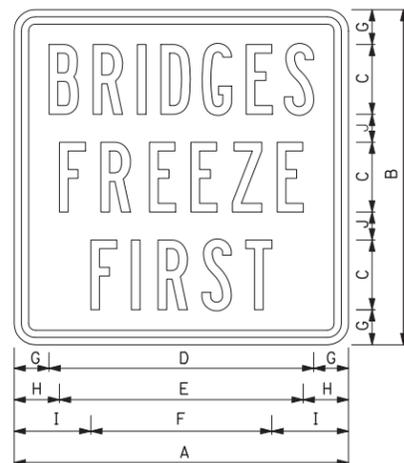
**W4-2a(L)**

DIMENSIONS (inches)/LETTER FONTS									
A	B	C	D	E	F	G	H	I	
24	24	5C	13	14	5 <sup>1</sup> / <sub>2</sub>	5	2 <sup>3</sup> / <sub>4</sub>	1 <sup>3</sup> / <sub>4</sub>	

WARNING SIGN

NHDOT STANDARD PLANS  
RIGHT / LEFT LANE ENDS

REV. DATE	PLATE
07-13-2001	2
02-26-2010	STANDARD
	SG-6



1.50" RADIUS. 0.50" BORDER. 0.375" INDENT. BLACK ON YELLOW;

**W5-B2**

DIMENSIONS (inches)/LETTER FONTS										
A	B	C	D	E	F	G	H	I	J	
24	24	5B	19	17 <sup>1</sup> / <sub>2</sub>	13	2 <sup>1</sup> / <sub>2</sub>	3 <sup>1</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>2</sub>	2	

WARNING SIGN

NHDOT STANDARD PLANS  
BRIDGES FREEZE FIRST

REV. DATE	PLATE
07-13-2001	3
02-26-2010	STANDARD
	SG-6



1.50" RADIUS. 0.63" BORDER. 0.375" INDENT. BLACK ON YELLOW;

**W6-3b**

DIMENSIONS (inches)/LETTER FONTS										
A	B	C	D	E	F	G	H	I	J	K
24	18	4C	8	8 <sup>1</sup> / <sub>4</sub>	16 <sup>1</sup> / <sub>2</sub>	1 <sup>3</sup> / <sub>8</sub>	4	3 <sup>3</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>2</sub>
30	24	5C	10	10 <sup>1</sup> / <sub>2</sub>	20 <sup>3</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>4</sub>	5	4 <sup>5</sup> / <sub>8</sub>	5	4

WARNING SIGN

NHDOT STANDARD PLANS  
TWO WAY TRAFFIC

SIGNING STANDARD

REV. DATE	PLATE
07-13-2001	4
02-26-2010	STANDARD
	SG-6

STANDARD NO. SG-6

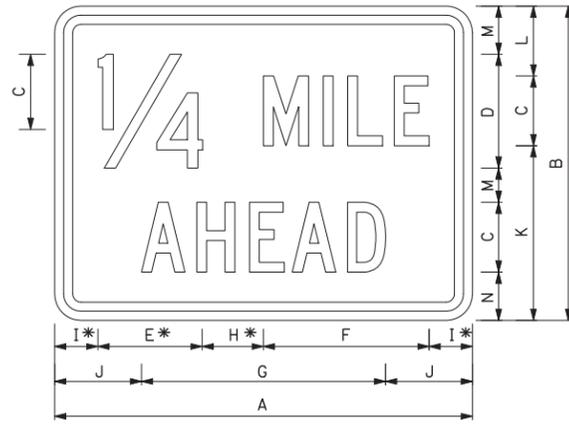
REVISION DATE
07-13-2001
02-26-2010

\*.DGN FILE NAME  
SG-6

STANDARD PLANS

New Hampshire  
**DOT**  
Department of Transportation

STANDARD NO. SG-6



1.50" RADIUS. 0.50" BORDER. 0.375" INDENT.  
BLACK ON YELLOW;

**W7-B7**

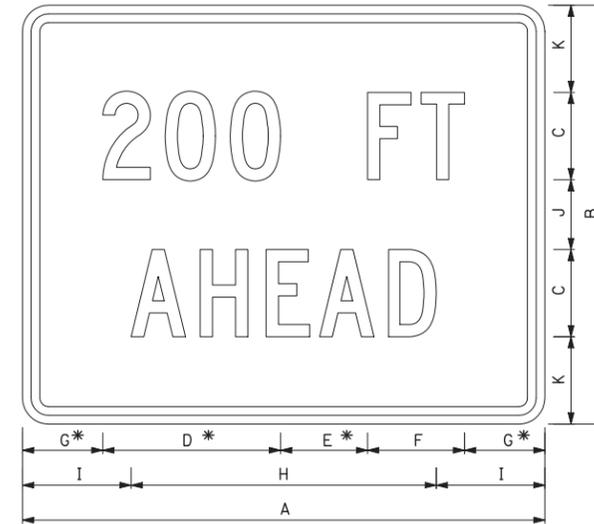
DIMENSIONS (inches)/LETTER FONTS													
A	B	C	D	E	F*	G	H	I*	J*	K	L	M	N
24	18	4C	6 <sup>1</sup> / <sub>2</sub>	6	9 <sup>1</sup> / <sub>2</sub>	14	3 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>2</sub>	5	10	4	2 <sup>3</sup> / <sub>4</sub>	2
30	24	5C	8 <sup>1</sup> / <sub>2</sub>	7 <sup>3</sup> / <sub>4</sub>	11 <sup>7</sup> / <sub>8</sub>	17 <sup>1</sup> / <sub>2</sub>	3 <sup>5</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>8</sub>	6 <sup>1</sup> / <sub>4</sub>	13 <sup>3</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>4</sub>	4	2 <sup>1</sup> / <sub>2</sub>

\* DIMENSION VARIES WITH DIFFERENT NUMBERS

**WARNING SIGN**

NHDOT STANDARD PLANS  
1/4, 1/2, 3/4 MILE AHEAD

REV. DATE	PLATE
07-13-2001	1
02-26-2010	STANDARD
	SG-7



1.50" RADIUS. 0.50" BORDER. 0.375" INDENT.  
BLACK ON YELLOW;

**W7-B2**

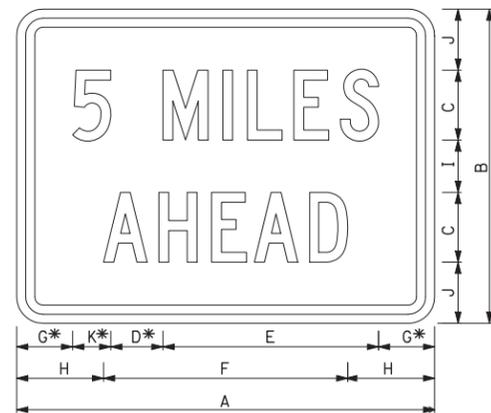
DIMENSIONS (inches)/LETTER FONTS										
A	B	C	D*	E*	F	G*	H	I	J	K
24	18	4C	8 <sup>1</sup> / <sub>8</sub>	4	4 <sup>3</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>4</sub>	14	5	3	3 <sup>1</sup> / <sub>2</sub>
30	24	5C	10 <sup>1</sup> / <sub>4</sub>	5	5 <sup>1</sup> / <sub>2</sub>	4 <sup>5</sup> / <sub>8</sub>	17 <sup>1</sup> / <sub>2</sub>	6 <sup>1</sup> / <sub>4</sub>	4	5

\* DIMENSION VARIES WITH DIFFERENT NUMBERS

**WARNING SIGN**

NHDOT STANDARD PLANS  
XXX FT AHEAD

REV. DATE	PLATE
07-13-2001	2
02-26-2010	STANDARD
	SG-7



1.50" RADIUS. 0.50" BORDER. 0.375" INDENT.  
BLACK ON YELLOW;

**W7-B3**

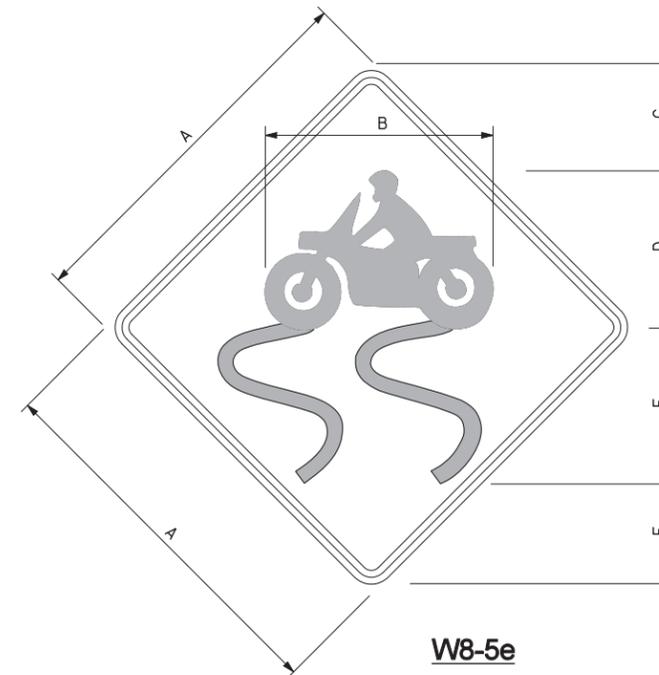
DIMENSIONS (inches)/LETTER FONTS											
A	B	C	D*	E	F	G*	H	I	J	K*	
24	18	4C	3	12 <sup>1</sup> / <sub>2</sub>	14	3 <sup>1</sup> / <sub>4</sub>	5	3	3 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>4</sub>	
30	24	5C	4	15 <sup>1</sup> / <sub>2</sub>	17 <sup>1</sup> / <sub>2</sub>	3 <sup>7</sup> / <sub>8</sub>	6 <sup>1</sup> / <sub>4</sub>	4	5	2 <sup>3</sup> / <sub>4</sub>	

\* DIMENSION VARIES WITH DIFFERENT NUMBERS

**WARNING SIGN**

NHDOT STANDARD PLANS  
X MILES AHEAD

REV. DATE	PLATE
07-13-2001	3
02-26-2010	STANDARD
	SG-7

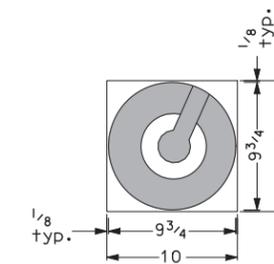


3.0" RADIUS. 1.25" BORDER. 0.75" INDENT.  
BLACK ON YELLOW

**W8-5e**

THE SLIPPERY SYMBOL IS FROM W8-5

FOR SCALING PURPOSES SEE BELOW



DIMENSIONS (inches)/LETTER FONTS					
A	B	C	D	E	F
48	29 <sup>1</sup> / <sub>8</sub>	12 <sup>3</sup> / <sub>4</sub>	20	19 <sup>7</sup> / <sub>8</sub>	12 <sup>3</sup> / <sub>4</sub>

**WARNING SIGN**

**SIGNING STANDARD**

NHDOT STANDARD PLANS  
MOTORCYCLE CAUTION

REV. DATE	PLATE
07-13-2001	4
02-26-2010	STANDARD
	SG-7

STANDARD NO. SG-7

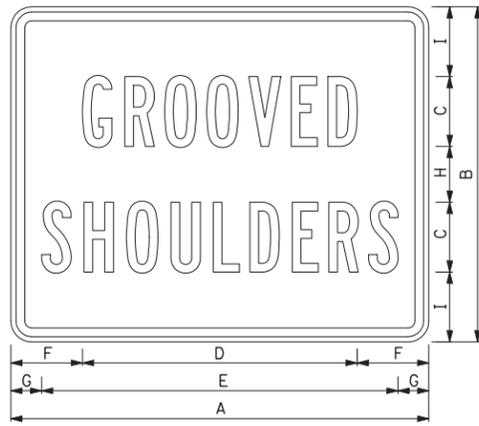
REVISION DATE
07-13-2001
02-26-2010

\*.DGN FILE NAME  
SG-7

STANDARD PLANS

New Hampshire  
**DOT**  
Department of Transportation

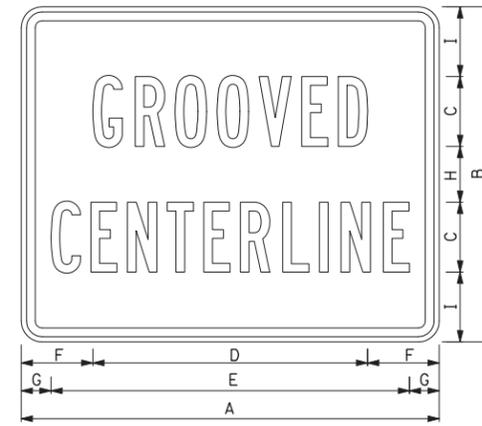
STANDARD NO. SG-7



1.50" RADIUS, 0.63" BORDER, 0.375" INDENT, BLACK ON YELLOW;

**W8-5F**

DIMENSIONS (inches)/LETTER FONTS								
A	B	C	D	E	F	G	H	I
30	24	5B	19 <sup>3</sup> / <sub>4</sub>	25 <sup>1</sup> / <sub>2</sub>	5 <sup>1</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>4</sub>	4	5

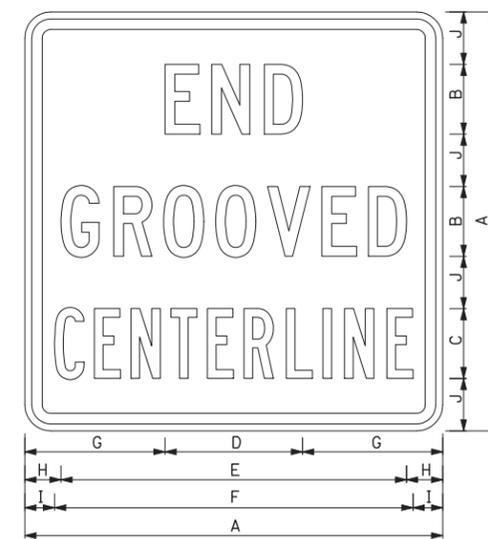


1.50" RADIUS, 0.63" BORDER, 0.375" INDENT, BLACK ON YELLOW;

**W8-5G**

DIMENSIONS (inches)/LETTER FONTS								
A	B	C	D	E	F	G	H	I
30	24	5B	19 <sup>3</sup> / <sub>4</sub>	25 <sup>3</sup> / <sub>4</sub>	5 <sup>1</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>8</sub>	4	5

DIMENSIONS (inches)/LETTER FONTS									
A	B	C	D	E	F	G	H	I	J
30	5C	5B	9 <sup>3</sup> / <sub>4</sub>	24 <sup>3</sup> / <sub>4</sub>	25 <sup>3</sup> / <sub>4</sub>	10 <sup>1</sup> / <sub>8</sub>	2 <sup>5</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>4</sub>



1.88" RADIUS, 0.75" BORDER, 0.375" INDENT, BLACK ON YELLOW;

**W8-5H**

**WARNING SIGN**

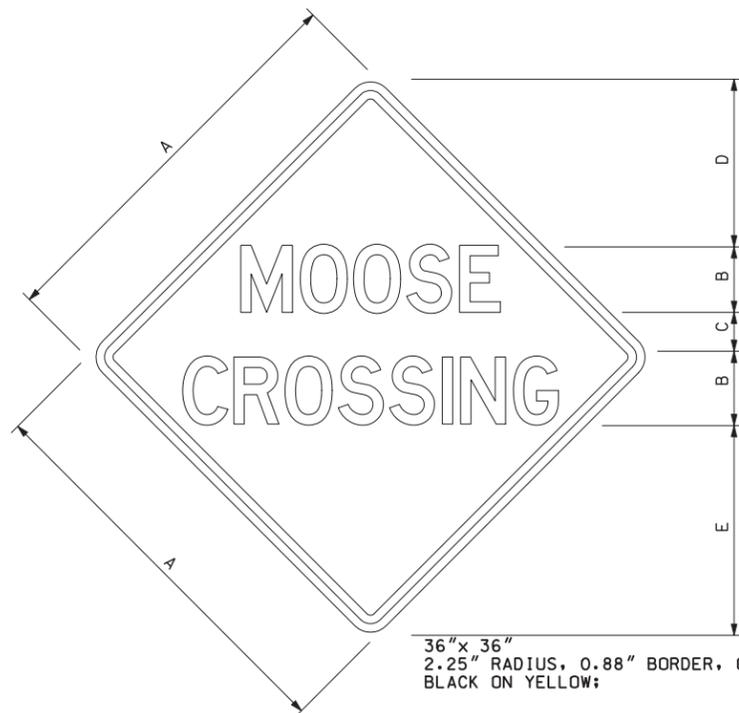
NHDOT STANDARD PLANS  
GROOVED PAVEMENT

REV. DATE	PLATE
07-13-2001	1
02-26-2010	STANDARD
	SG-8

**WARNING SIGN**

NHDOT STANDARD PLANS  
END GROOVED CENTERLINE

REV. DATE	PLATE
07-13-2001	2
02-26-2010	STANDARD
	SG-8



36" x 36"  
2.25" RADIUS, 0.88" BORDER, 0.63" INDENT, BLACK ON YELLOW;

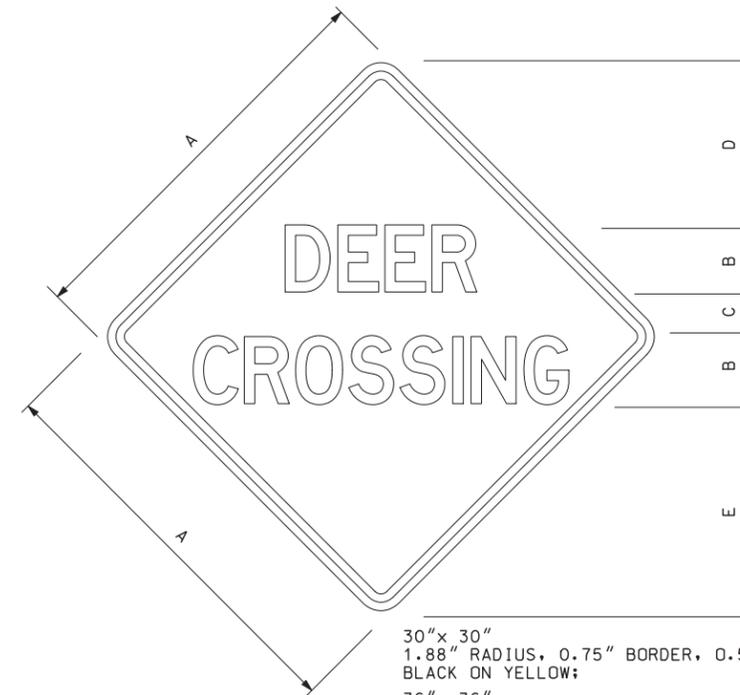
**W11-B5**

48" x 48"  
3.0" RADIUS, 1.25" BORDER, 0.75" INDENT, BLACK ON YELLOW;

**WARNING SIGN**

NHDOT STANDARD PLANS  
MOOSE CROSSING

REV. DATE	PLATE
07-13-2001	3
02-26-2010	STANDARD
	SG-8



30" x 30"  
1.88" RADIUS, 0.75" BORDER, 0.50" INDENT, BLACK ON YELLOW;

36" x 36"  
2.25" RADIUS, 0.88" BORDER, 0.63" INDENT, BLACK ON YELLOW;

48" x 48"  
3.0" RADIUS, 1.25" BORDER, 0.75" INDENT, BLACK ON YELLOW;

**W11B-6**

**WARNING SIGN**

NHDOT STANDARD PLANS  
DEER CROSSING

**SIGNING STANDARD**

REV. DATE	PLATE
07-13-2001	4
02-26-2010	STANDARD
	SG-8

STANDARD NO. SG-8

REVISION DATE

07-13-2001

02-26-2010

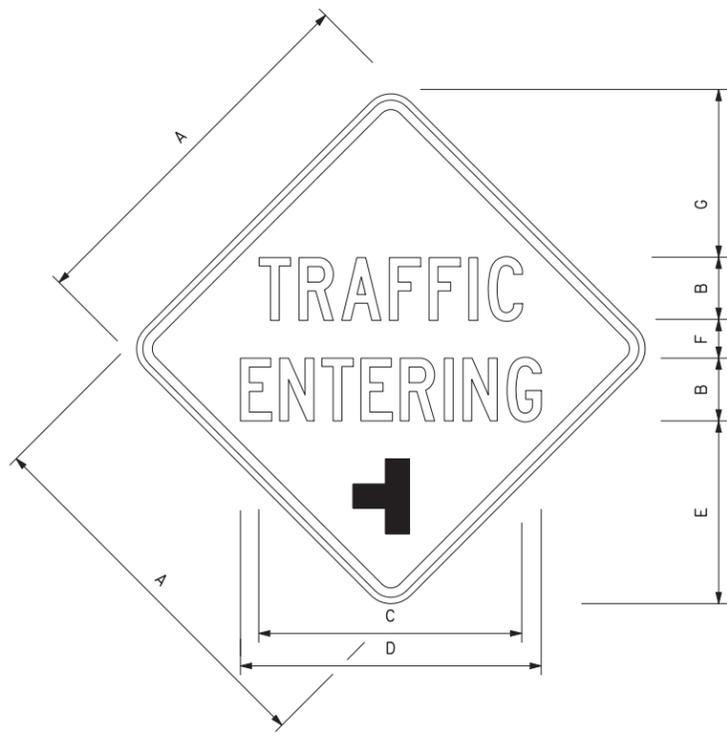
\*.DGN FILE NAME

SG-8

STANDARD PLANS

New Hampshire  
**DOT**  
Department of Transportation

STANDARD NO. SG-8



1.88" RADIUS, 0.75" BORDER, 0.50" INDENT, BLACK ON YELLOW;

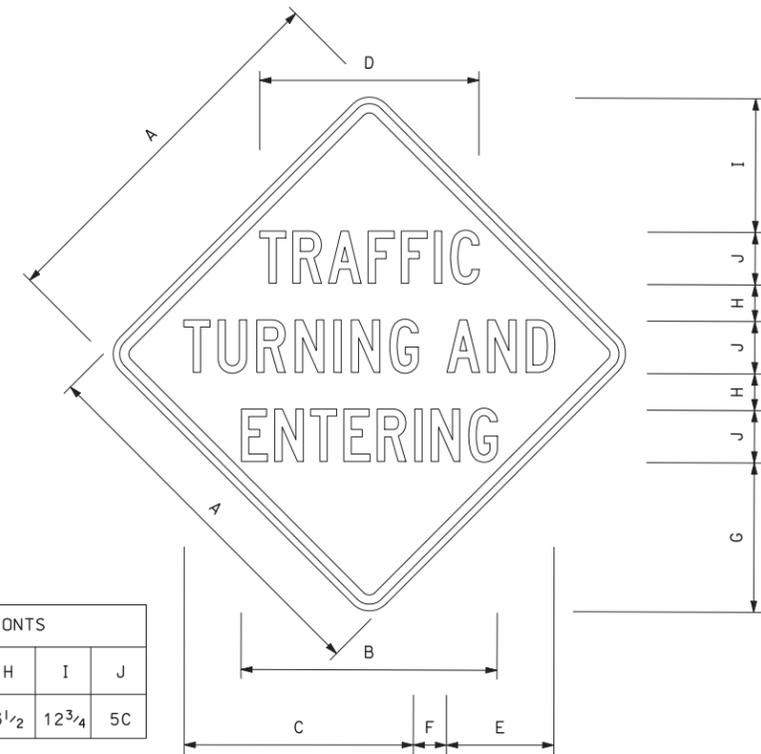
**W14-B1**

DIMENSIONS (inches)/LETTER FONTS						
A	B	C	D	E	F	G
30	5C	21	24	14 1/2	3	13

**WARNING SIGN**

NHDOT STANDARD PLANS  
TRAFFIC ENTERING

REV. DATE	PLATE
07-13-2001	1
02-26-2010	STANDARD SG-9



36"x 36", 2.25" RADIUS, 0.88" BORDER, 0.63" INDENT, BLACK ON YELLOW;

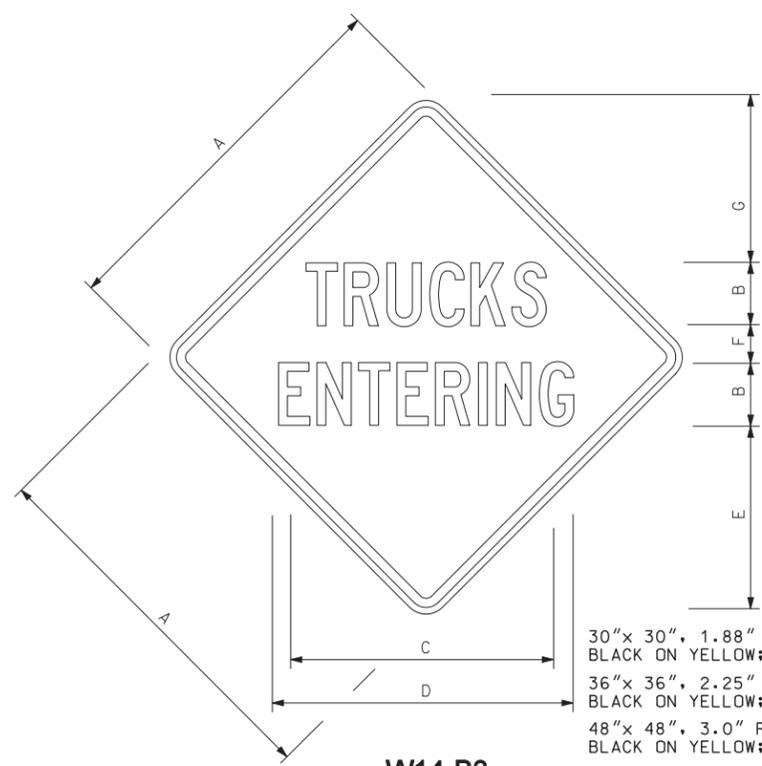
**W14-B2**

**WARNING SIGN**

DIMENSIONS (inches)/LETTER FONTS									
A	B	C	D	E	F	G	H	I	J
36	24 1/2	22 1/2	21	10 1/4	2 3/4	14 1/4	3 1/2	12 3/4	5C

NHDOT STANDARD PLANS  
TRUCKS TURNING AND ENTERING

REV. DATE	PLATE
07-13-2001	2
02-26-2010	STANDARD SG-9



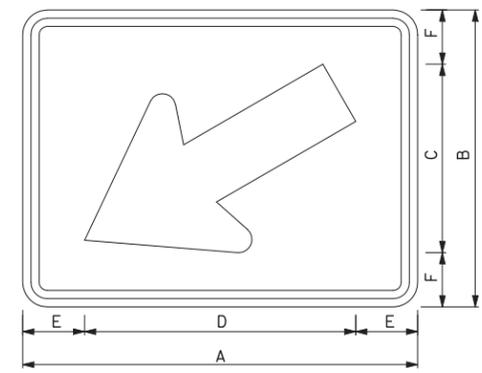
30"x 30", 1.88" RADIUS, 0.75" BORDER, 0.50" INDENT, BLACK ON YELLOW;  
36"x 36", 2.25" RADIUS, 0.88" BORDER, 0.63 INDENT, BLACK ON YELLOW;  
48"x 48", 3.0" RADIUS, 1.25" BORDER, 0.75" INDENT, BLACK ON YELLOW;

**W14-B3**

**WARNING SIGN**

NHDOT STANDARD PLANS  
TRUCKS ENTERING

REV. DATE	PLATE
07-13-2001	3
02-26-2010	STANDARD SG-9



1.50" RADIUS, 0.60" BORDER, 0.375 INDENT, BLACK ON YELLOW OR BLACK ON FLUORESCENT YELLOW GREEN  
STANDARD ARROW CUSTOM 13.4"x 8.1" @ 210°

**W16-7pL(M)**

**WARNING SIGN**

NHDOT STANDARD PLANS  
DOWNWARD ARROW

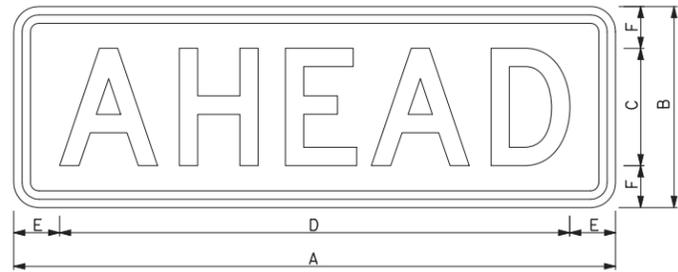
**SIGNING STANDARD**

REV. DATE	PLATE
07-13-2001	4
02-26-2010	STANDARD SG-9

<b>STANDARD NO. SG-9</b>
<b>REVISION DATE</b>
07-13-2001
02-26-2010
<b>*.DGN FILE NAME</b>
SG-9

New Hampshire  
**DOT**  
 Department of Transportation  
 STANDARD PLANS

**STANDARD NO. SG-9**



1.50" RADIUS, 0.50" BORDER, 0.375" INDENT,  
BLACK ON YELLOW OR FLUORESCENT YELLOW GREEN

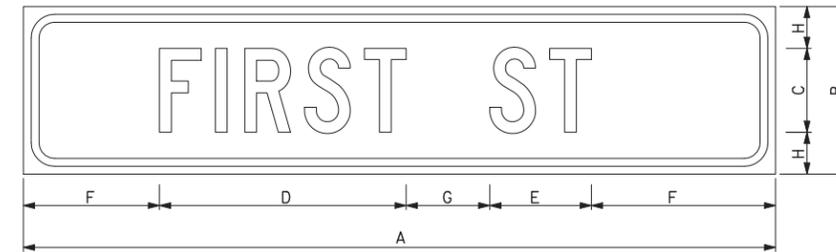
**W16-9p(M)**

DIMENSIONS (inches)/ LETTER FONTS						
A	B	C	D	E	F	
36	12	7D	30 <sup>1</sup> / <sub>2</sub>	2 <sup>3</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>2</sub>	

**WARNING SIGN**

NHDOT STANDARD PLANS  
AHEAD PLAQUE

REV. DATE	PLATE
07-13-2001	1
02-26-2010	STANDARD
	SG-10



1.50" RADIUS, 0.38" BORDER, 0.375" INDENT,  
BLACK ON YELLOW, BB GRADE PLYWOOD SIGN

**W16-8(M)**

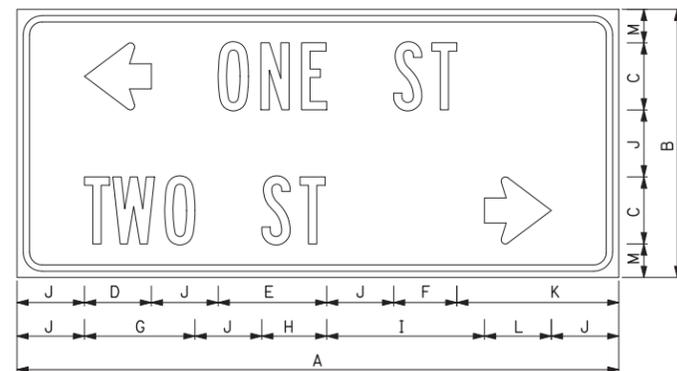
DIMENSIONS (inches)/LETTER FONTS							
A	B	C	D	E	F	G	H
36	8	4C	*	*	*	4	2

\*VARIES DEPENDING ON LENGTH OF WORD.

**WARNING SIGN**

NHDOT STANDARD PLANS  
ADVANCE STREET NAME PLAQUE

REV. DATE	PLATE
07-13-2001	2
02-26-2010	STANDARD
	SG-10



1.50" BORDER RADIUS, 0.38" BORDER, 0.375" INDENT,  
BLACK ON YELLOW; BB GRADE PLYWOOD SIGN  
STANDARD CUSTOM ARROW 4.0" X 4.0"

**W16-8b(M)**

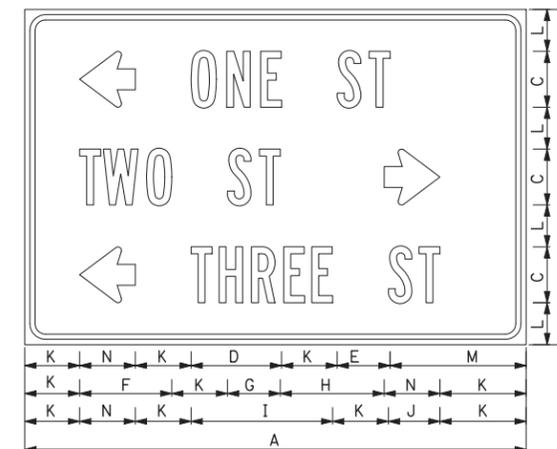
DIMENSIONS (inches)/LETTER FONTS													
A	B	C	D	E	F	G	H	I	J	K	L	M	
36	16	4B	4	*	*	*	*	*	4	*	4	2	

\*VARIES DEPENDING ON LENGTH OF WORD.

**WARNING SIGN**

NHDOT STANDARD PLANS  
ADVANCE STREET NASME PLAQUE  
(TWO STREETS)

REV. DATE	PLATE
07-13-2001	3
02-26-2010	STANDARD
	SG-10



1.50" RADIUS, 0.38" BORDER, 0.375" INDENT,  
BLACK ON YELLOW; BB GRADE PLYWOOD SIGN  
STANDARD CUSTOM ARROW 4.0" X 4.0"

**W16-8c(M)**

DIMENSIONS (inches)/LETTER FONTS													
A	B	C	D	E	F	G	H	I	J	K	L	M	N
36	24	4B	*	*	*	*	*	*	*	*	3	*	4

\*VARIES DEPENDING ON LENGTH OF WORD.

**WARNING SIGN**

NHDOT STANDARD PLANS  
ADVANCE STREET NAME PLAQUE  
(THREE STREETS)

SIGNING STANDARD		REV. DATE	PLATE
		07-13-2001	4
		02-26-2010	STANDARD
			SG-10

STANDARD  
NO. SG-10

REVISION DATE

07-13-2001  
02-26-2010

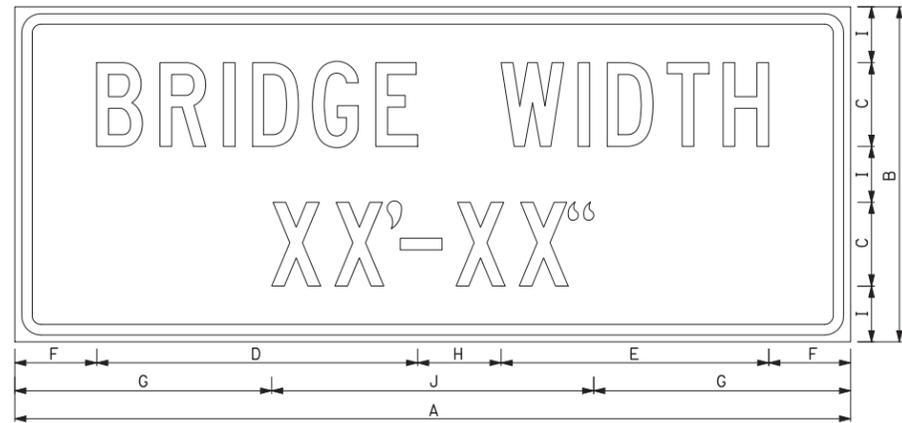
\*.DGN FILE NAME

SG-10

STANDARD PLANS

New Hampshire  
**DOT**  
Department of Transportation

STANDARD  
NO. SG-10



1.88" RADIUS, 1.00" BORDER, 0.75" INDENT,  
BLACK ON ORANGE; BB GRADE PLYWOOD SIGN

**W5-3a**

DIMENSIONS (inches)/LETTER FONTS

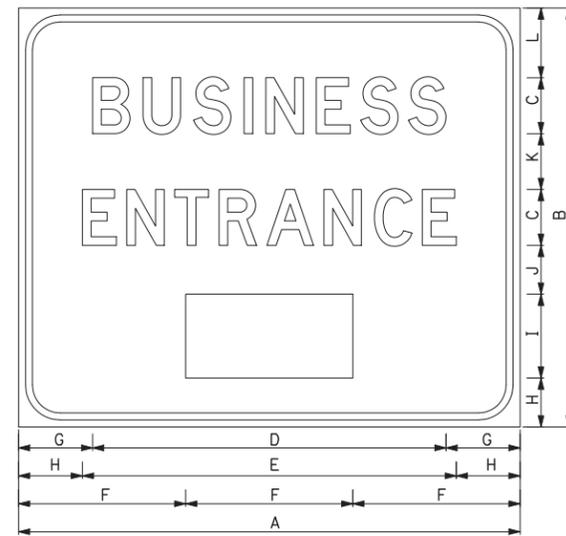
A	B	C	D	E	F	G	H	I	J
60	24	6C	23	19 1/4	5 7/8	*	6	4	*

\* VARIES

CONSTRUCTION SIGN

NHDOT STANDARD PLANS  
BRIDGE WIDTH

REV. DATE	PLATE
07-13-2001	1
02-26-2010	STANDARD
	SG-11

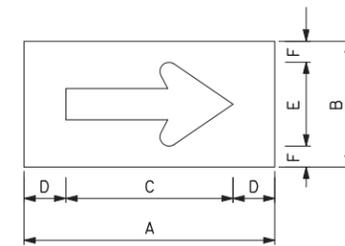


3.0" RADIUS, 0.875" BORDER, 0.625" INDENT,  
BLACK ON ORANGE;  
BB GRADE PLYWOOD SIGN

**W14-B4**

DIMENSIONS (inches)/LETTER FONTS

A	B	C	D	E	F	G	H	I	J	K	L
36	30	4D	25 1/2	26 3/4	12	5 1/4	4 5/8	6	3 1/2	4	5



NO BORDER, BLACK ON ORANGE;  
BB GRADE PLYWOOD SIGN

**W14-B5**

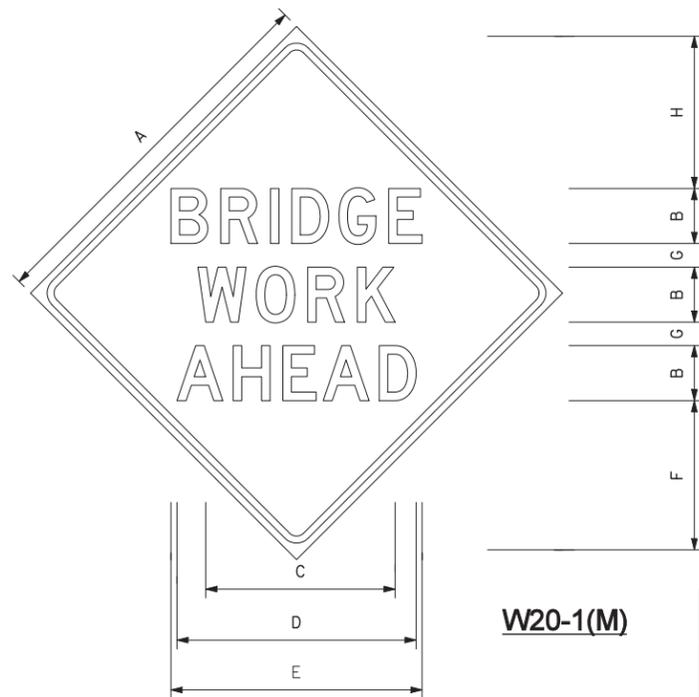
DIMENSIONS (inches)/LETTER FONTS

A	B	C	D	E	F
12	6	8	2	4	1

CONSTRUCTION SIGN

NHDOT STANDARD PLANS  
BUSINESS ENTRANCE

REV. DATE	PLATE
07-13-2001	2
02-26-2010	STANDARD
	SG-11



**W20-1(M)**

DIMENSIONS (inches)/LETTER FONTS

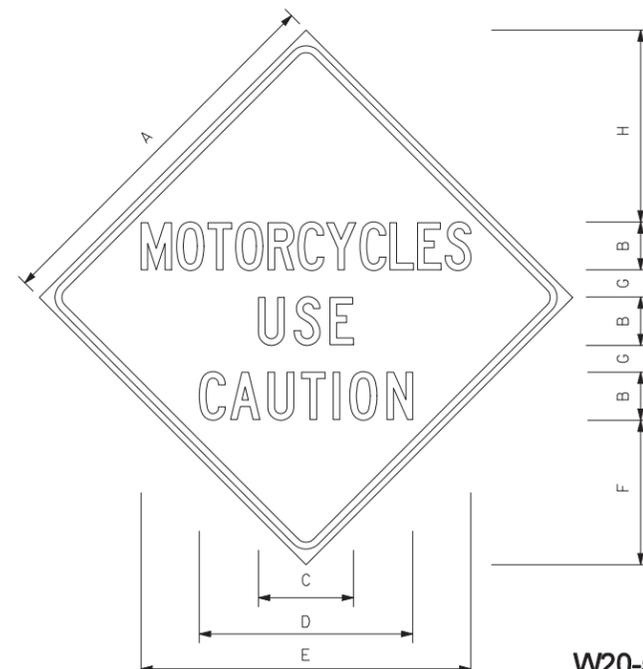
A	B	C	D	E	F	G	H
48	7D	25	30 1/2	32	19	3	19 1/2

48" x 48",  
3.0" RADIUS, 1.25" BORDER, 0.75" INDENT,  
BLACK ON ORANGE,  
BB GRADE PLYWOOD SIGN

CONSTRUCTION SIGN

NHDOT STANDARD PLANS  
BRIDGE WORK AHEAD

REV. DATE	PLATE
07-13-2001	3
02-26-2010	STANDARD
	SG-11



**W20-5**

48" x 48",  
3.0" RADIUS, 1.25" BORDER, 0.75" INDENT,  
BLACK ON ORANGE,  
BB GRADE PLYWOOD

DIMENSIONS (inches)/LETTER FONTS

A	B	C	D	E	F	G	H
48	6C	12 1/8	27 1/8	42	17 1/8	3 1/2	23 1/4

CONSTRUCTION SIGN

SIGNING STANDARD

NHDOT STANDARD PLANS  
MOTORCYCLES USE CAUTION

REV. DATE	PLATE
07-13-2001	4
02-26-2010	STANDARD
	SG-11

STANDARD NO. SG-11

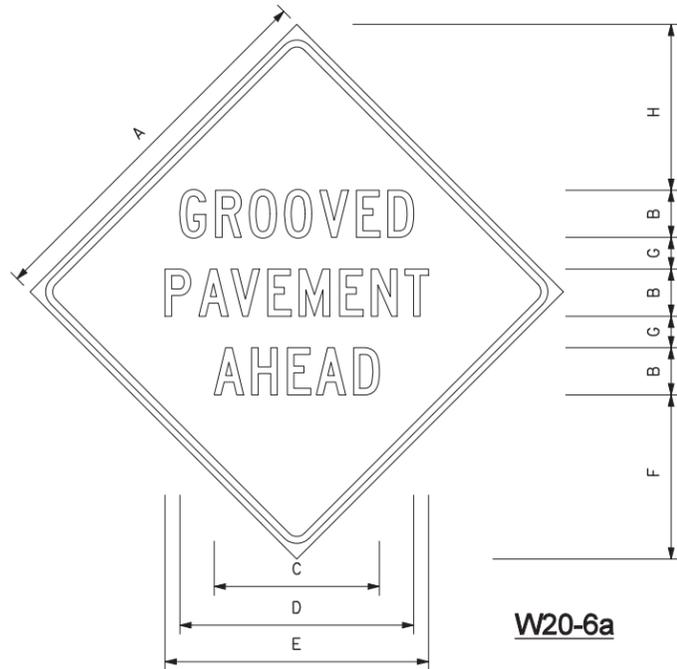
REVISION DATE
07-13-2001
02-26-2010

\*.DGN FILE NAME  
SG-11

STANDARD PLANS

New Hampshire  
**DOT**  
Department of Transportation

STANDARD NO. SG-11



48" x 48"  
3.0" RADIUS, 1.25" BORDER, 0.75" INDENT,  
BLACK ON ORANGE, BB GRADE PLYWOOD

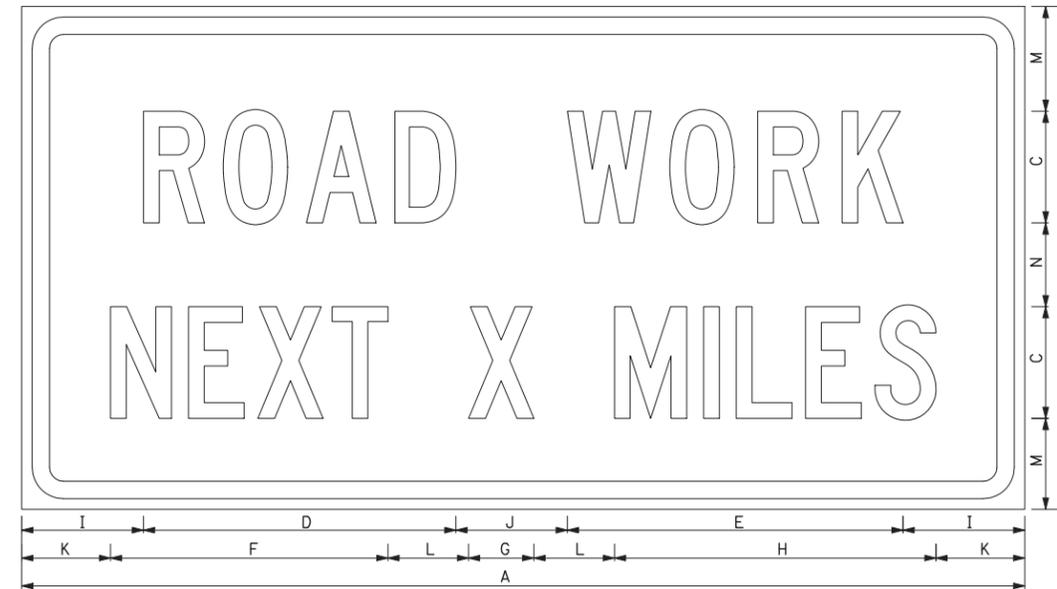
**W20-6a**

DIMENSIONS (inches)/LETTER FONTS							
A	B	C	D	E	F	G	H
48	6C	21 1/8	29 5/8	33 5/8	20 1/8	3 1/2	20 1/4

CONSTRUCTION SIGN

NHDOT STANDARD PLANS  
GROOVED PAVEMENT

REV. DATE	PLATE
07-13-2001	1
02-26-2010	STANDARD
	SG-12



3.0" RADIUS, 1.25" BORDER, 0.75" INDENT,  
BLACK ON ORANGE, BB GRADE PLYWOOD SIGN

**G20-1(M)**

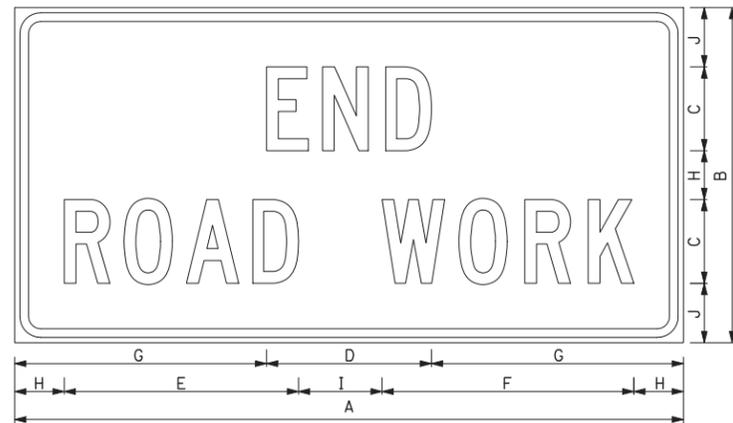
DIMENSIONS (inches)/LETTER FONTS													
A	B	C	D	E	F	G	H	I	J	K	L	M	N
72	36	8C	22 1/4	24 1/4	21	*	24 3/4	8 3/4	8	*	*	7 1/2	5

\* VARIES DEPENDING ON  
NUMBER OF MILES (X)

CONSTRUCTION SIGN

NHDOT STANDARD PLANS  
ROAD WORK NEXT X-MILES

REV. DATE	PLATE
07-13-2001	2
02-26-2010	STANDARD
	SG-12



1.88" RADIUS, 1.25" BORDER, 0.75" INDENT,  
BLACK ON ORANGE, BB GRADE PLYWOOD SIGN

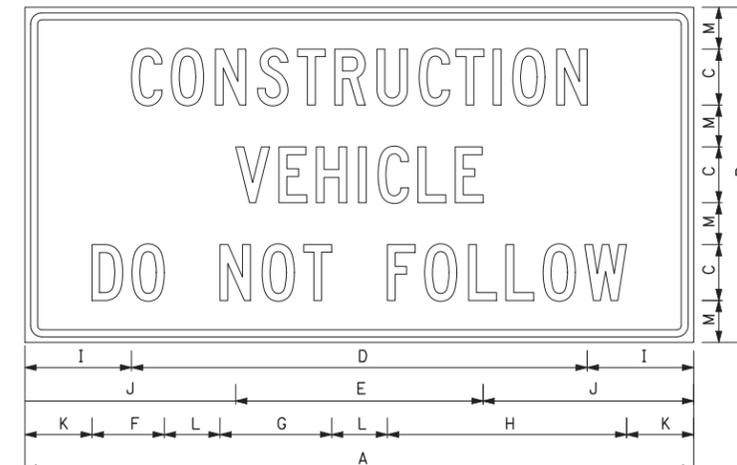
**G20-2a**

DIMENSIONS (inches)/LETTER FONTS									
A	B	C	D	E	F	G	H	I	J
48	24	6C	11 3/4	16 7/8	18 1/8	18 1/8	3 1/2	6	4 1/4

CONSTRUCTION SIGN

NHDOT STANDARD PLANS  
END ROAD WORK

REV. DATE	PLATE
07-13-2001	3
02-26-2010	STANDARD
	SG-12



1.50" RADIUS, 1.25" BORDER, 0.75" INDENT,  
BLACK ON ORANGE, BB GRADE PLYWOOD SIGN

**G20-4a**

DIMENSIONS (inches)/LETTER FONTS												
A	B	C	D	E	F	G	H	I	J	K	L	M
60	30	5C	40 7/8	22 1/4	6 1/2	10	21 1/2	9 9/16	19	6	5	3 3/4

CONSTRUCTION SIGN

NHDOT STANDARD PLANS  
CONSTRUCTION VEHICLE DO NOT FOLLOW

SIGNING STANDARD		REV. DATE	PLATE
		07-13-2001	4
		02-26-2010	STANDARD
			SG-12

STANDARD NO. SG-12

REVISION DATE
07-13-2001
02-26-2010

\*.DGN FILE NAME  
SG-12

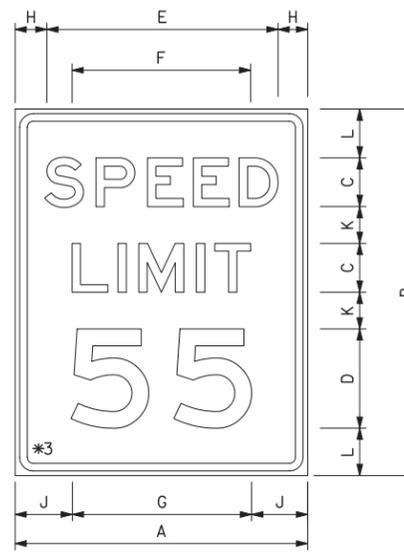
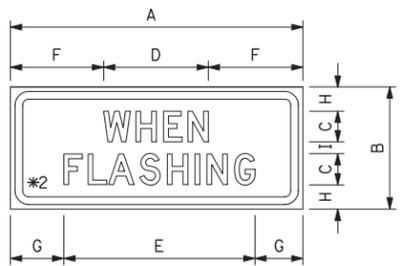
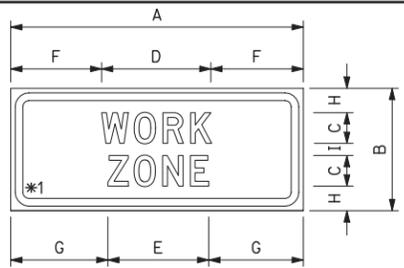
2021  
STANDARD PLANS

New Hampshire  
**DOT**  
Department of Transportation

STANDARD NO. SG-12

REVISION DATE
07-13-2001
02-26-2010

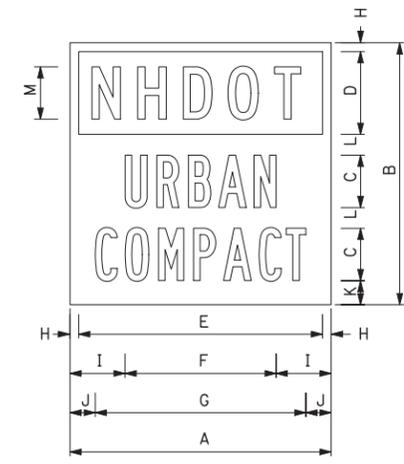
\*.DGN FILE NAME  
SG-13



\*1 - 1.25" BORDER, 0.75" INDENT, BLACK ON ORANGE; BB GRADE PLYWOOD SIGN  
 \*2 - 1.25" BORDER, 0.75" INDENT, BLACK ON WHITE; BB GRADE PLYWOOD SIGN  
 \*3 - 1.25" BORDER, 0.75" INDENT, BLACK ON WHITE; BB GRADE PLYWOOD SIGN

AS SHOWN IN THE FIELD

DIMENSIONS (inches)/LETTER FONTS												
	A	B	C	D	E	F	G	H	I	J	K	L
*1	48	20	5D	18 1/4	16 5/8	14 7/8	15 5/8	4	2	N/A	N/A	N/A
*2	48	20	5D	17 1/4	31 3/8	15 1/2	8 1/4	4	2	N/A	N/A	N/A
*3	48	60	8E	16E	38 1/4	29 1/4	29 1/2	4 7/8	9 3/8	9 1/4	8	6



NO BORDER, BB GRADE PLYWOOD SIGN

D1-7B1

COLOR CHART	
NHDOT	WHITE TEXT GREEN BACKGROUND
URBAN	GREEN TEXT WHITE BACKGROUND
COMPACT	GREEN TEXT WHITE BACKGROUND

DIMENSIONS (inches)/LETTER FONTS												
A	B	C	D	E	F	G	H	I	J	K	L	M
15	15	3B	4 3/4	14	8 3/4	12	1/2	3 1/8	1 1/2	1 1/4	1 1/4	3D

CONSTRUCTION SIGN/REGULATORY SIGNS

NHDOT STANDARD PLANS  
TRAILER MOUNTED CONSTRUCTION ZONE  
SPEED LIMIT SIGN

REV. DATE	PLATE
07-13-2001	1
02-26-2010	STANDARD
	SG-13

NHDOT STANDARD PLANS  
NHDOT URBAN COMPACT

REV. DATE	PLATE
07-13-2001	2
02-26-2010	STANDARD
	SG-13



DIMENSIONS (inches)/LETTER FONTS												
A	B	C	D	E	F	G	H	I	J	K	L	
30	24	3C	6 3/4	1 3/8	3/4 C	17 3/4	9 3/4	25 1/2	16 1/8	21 1/8	24	

DIMENSIONS (inches)/LETTER FONTS												
M	N	O	P	Q	R	S	T	U	V	W	X	Y
4 1/4	2 1/2	2 1/4	10 1/2	3 3/8	5 1/2	1 7/8	1 3/4	1	3 3/4	1 1/8	1 1/4	1 1/2

1.5" RADIUS, 0.75" BORDER, 0.50" INDENT  
 GREEN ON WHITE:  
 "KEEP NEW HAMPSHIRE" 1.375"  
 AVANT GARDE MD BT, GREEN;  
 "CLEAN AND SCENIC" 5.5" BRUSH SCRIPT, GREEN;  
 "SPONSOR" C, WHITE;  
 "A HIGHWAY" C, WHITE;  
 "NHDOT" C, WHITE;

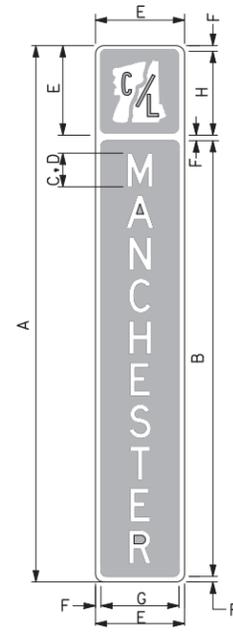
NHDOT STANDARD PLANS  
SPONSOR A HIGHWAY

REV. DATE	PLATE
07-13-2001	3
02-26-2010	STANDARD
	SG-13

NHDOT STANDARD PLANS

SIGNING STANDARD

REV. DATE	PLATE
	4
	STANDARD
	SG-13



PUT "T/L" FOR TOWN LINE

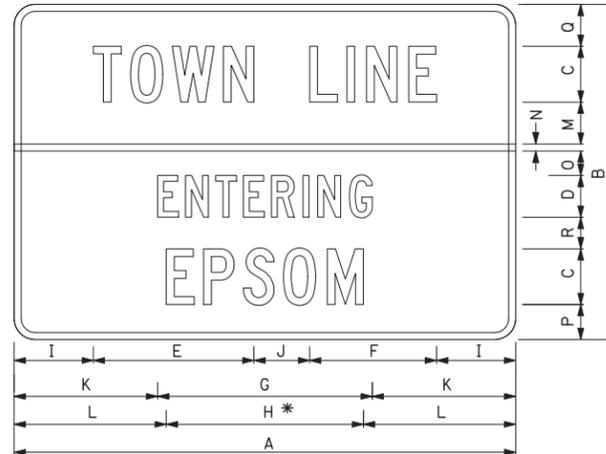
	DIMENSIONS (inches)/LETTER FONTS							
	A	B	C	D*	E	F	G	H
10 CHARACTERS OR LESS	48	39	3D	4D	8	1/2"	7"	7 1/2"
OVER 10 CHARACTERS	60	51	3D	-	8	1/2"	7"	7 1/2"

IF THE TOWN OR CITY NAME IS SMALL, CENTER THE TEXT ON THE SIGN.

\* UNDER 8 CHARACTERS USE 1" FOR VERTICAL SPACING BETWEEN CHARACTERS.

0.75" RADIUS, 0.5" BORDER  
WHITE ON GREEN

**I-20**



1.50" RADIUS, 0.75" BORDER, WHITE ON GREEN

**I-21**  
**INTERSTATE SIGN**

DIMENSIONS (inches)/LETTER FONTS																	
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
36	24	4D	3D	13 3/4	10 3/4	18 3/4	*	3 3/4	4	8 3/4	*	3	1/2	1 3/4	2 1/2	3	2 1/4

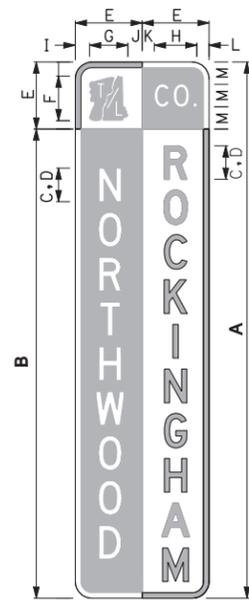
\* VARIES DEPENDING ON TOWN NAME

NHDOT STANDARD PLANS  
VERTICAL TOWN/CITY LINE

REV. DATE		PLATE
07-13-2001		1
02-26-2010		STANDARD
		SG-14

NHDOT STANDARD PLANS  
HORIZONTAL TOWN/CITY LINE

REV. DATE		PLATE
07-13-2001		2
02-26-2010		STANDARD
		SG-14



	DIMENSIONS (inches)/LETTER FONTS												
	A	B	C	D*	E	F	G	H	I	J	K	L	M
10 CHARACTERS OR LESS	48	42	3D	4D	6	4	3 1/2	3 3/4	1 1/2	1	7/8	1 1/4	2
OVER 10 CHARACTERS	60	54	3D	-	6	4	3 1/2	3 3/4	1 1/2	1	7/8	1 1/4	2

\* UNDER 8 CHARACTERS USE 1" FOR VERTICAL SPACING BETWEEN CHARACTERS.

1.50" RADIUS, 0.50" BORDER.  
WHITE ON GREEN, GREEN ON WHITE

**I-22**

NHDOT STANDARD PLANS  
VERTICAL TOWN/CITY/COUNTY LINE

REV. DATE		PLATE
07-13-2001		3
02-26-2010		STANDARD
		SG-14

**SIGNING STANDARD**

NHDOT STANDARD PLANS

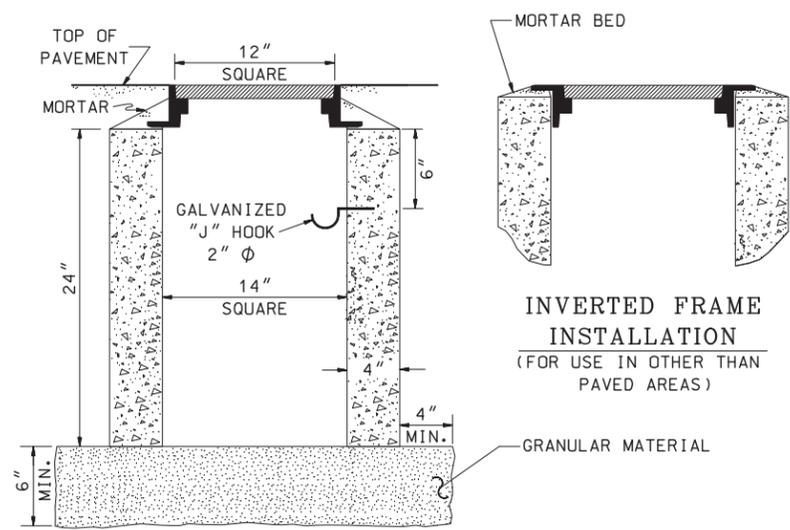
REV. DATE		PLATE
		4
		STANDARD
		SG-14

STANDARD NO. SG-14

REVISION DATE
07-13-2001
02-26-2010

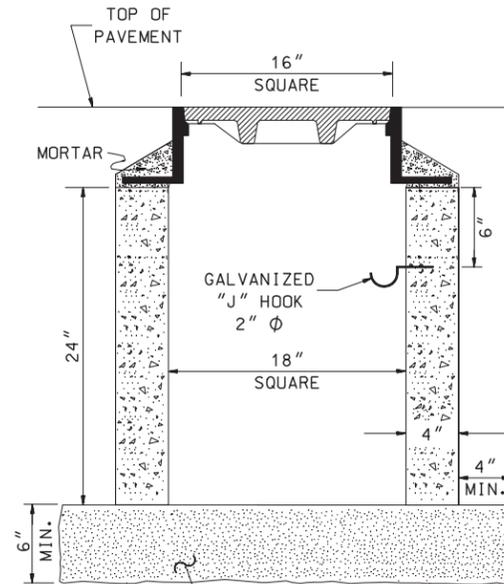
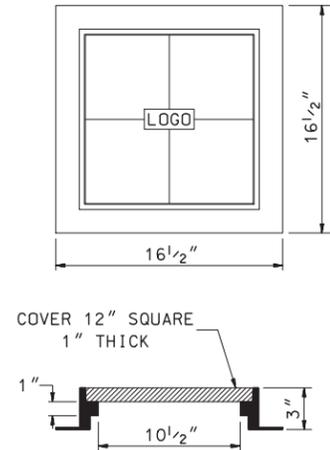
\*.DGN FILE NAME  
SG-14

STANDARD NO. SG-14



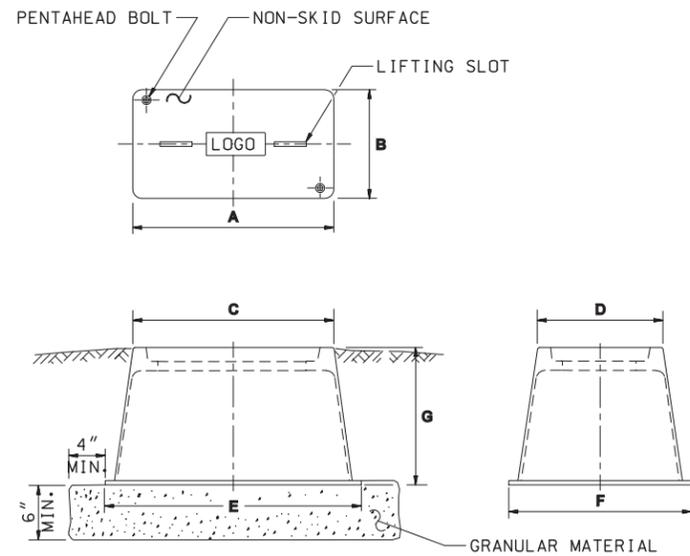
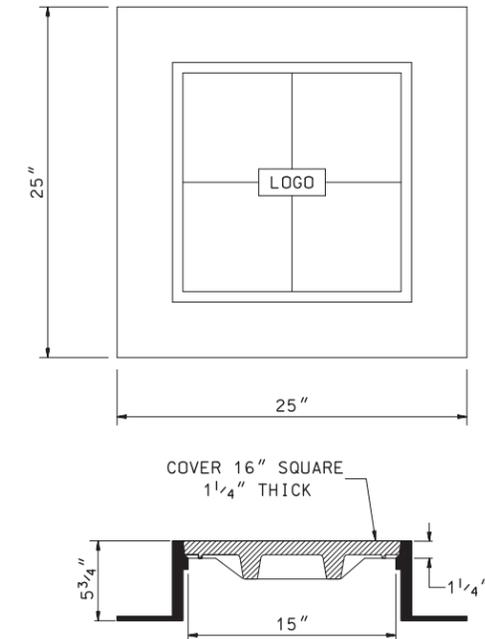
FOR USE IN PAVED AREAS  
(SIDEWALKS AND PAVED ISLANDS ONLY)

CONCRETE PULL BOX 14" x 14"  
ITEM 614.511



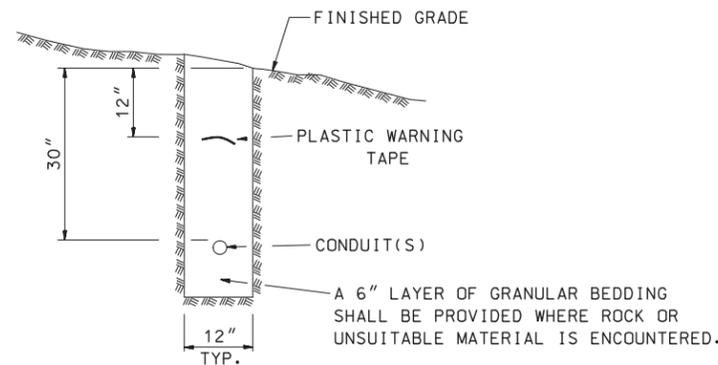
FOR USE IN PAVED AREAS  
(SIDEWALKS AND PAVED ISLANDS ONLY)

CONCRETE PULL BOX 18" x 18"  
ITEM 614.512



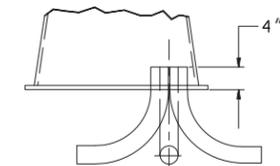
	A	B	C	D	E	F	G
ITEM NO 614.522	24"	13"	26"	15"	31"	22"	16" - 18"
ITEM NO 614.523	30"	17"	32"	19"	39"	26"	26"

MOLDED PULL BOXES  
(FOR USE IN OTHER THAN PAVED AREAS)



NOTE: BACKFILL ABOVE CONDUIT SHALL BE IN ACCORDANCE WITH 614.

TRENCH DETAIL FOR CONDUIT INSTALLATION



90° ELBOWS - NUMBER, SIZE & TYPE AS REQUIRED IN PLANS OR SPECIAL PROVISIONS. USE STEEL ELBOWS WITH GROUNDING BUSHINGS WHEN CONDUIT RUN EXCEEDS 200'.

CONDUIT ARRANGEMENT  
ALL TYPES

GENERAL NOTES

- DIMENSIONS SHOWN ARE NOMINAL. MOLDED PULL BOXES MAY VARY BY 1/2".
- ADJUST FRAMES & COVERS SO THAT DRAINAGE WILL BE AWAY FROM PULL BOX.
- LOGO = SIGNAL, ITS, DRAIN OR POWER AS REQUIRED, ON CENTER OF COVER.

SIGNAL & LIGHTING STANDARD

PULL BOXES &  
CONDUIT TRENCH DETAIL

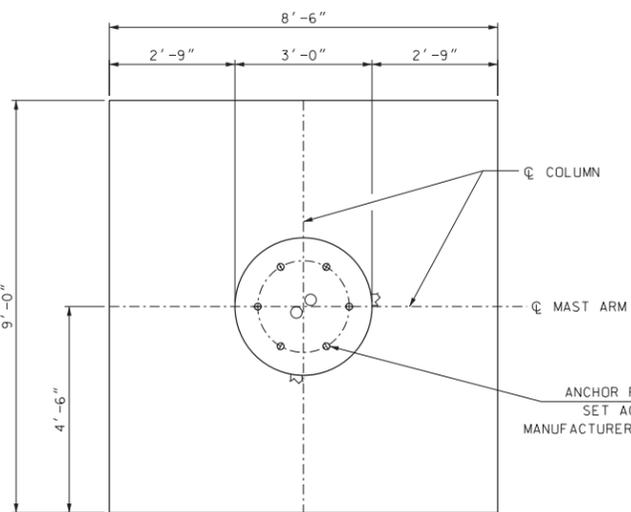
Standard Plans  
 2024  
 New Hampshire  
 DOT  
 Department of Transportation







TRAFFIC SIGNAL MAST ARM FOUNDATION - TYPE 1D



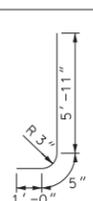
PLAN VIEW

NOTES  
1. SEE MAST ARM FOUNDATION - TYPE 1A SPECIAL DETAIL, FOR TYPE 1 FOUNDATION NOTES.

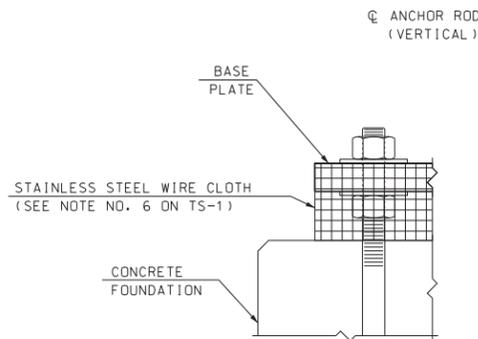
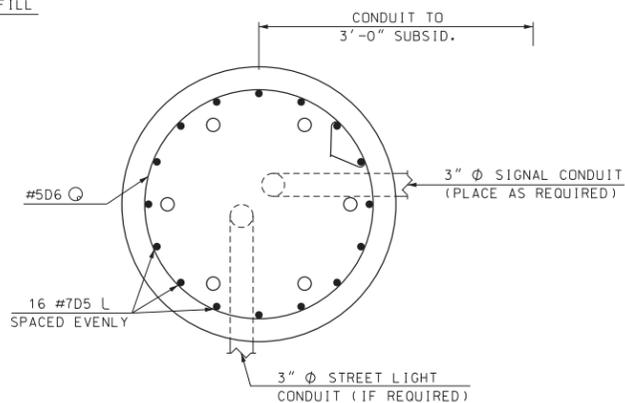
TYPICAL QUANTITIES PER BASE		
ITEM NUMBER	ITEM	QUANTITY
206.1*	COMMON STRUCTURE EXCAVATION	28 CY
209.1*	GRANULAR BACKFILL	21.3 CY
520.21*	CONCRETE CLASS B, FOOTINGS	6.9 CY
544*	REINFORCING STEEL	610 LB

\* ITEM NUMBERS ARE FOR SPECIFICATION REFERENCE ONLY. NO SEPARATE PAYMENT WILL BE MADE FOR THESE ITEMS.

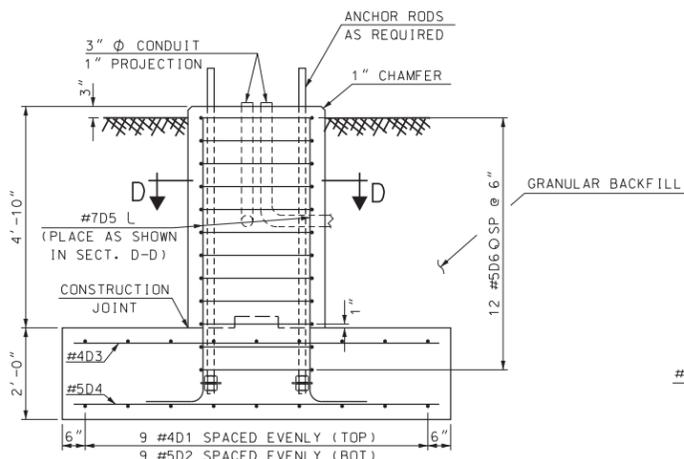
TYPE 1D REINFORCING SCHEDULE				
MARK	SIZE	NO.	UNBENT LENGTH	TYPE
D1	#4	9	8'-6"	—
D2	#5	9	8'-6"	—
D3	#4	9	8'-0"	—
D4	#5	9	8'-0"	—
D5	#7	16	7'-4"	L
D6	#5	12	9'-3"	Q



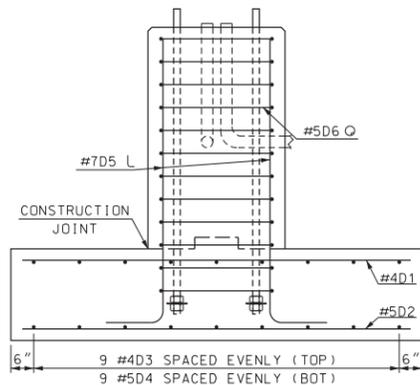
SECTION D-D



SCREEN DETAIL

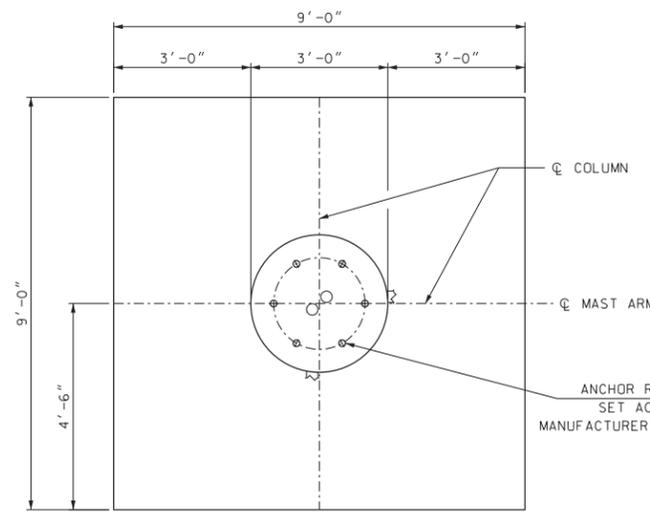


ELEVATION VIEW



END ELEVATION VIEW

TRAFFIC SIGNAL MAST ARM FOUNDATION - TYPE 1E



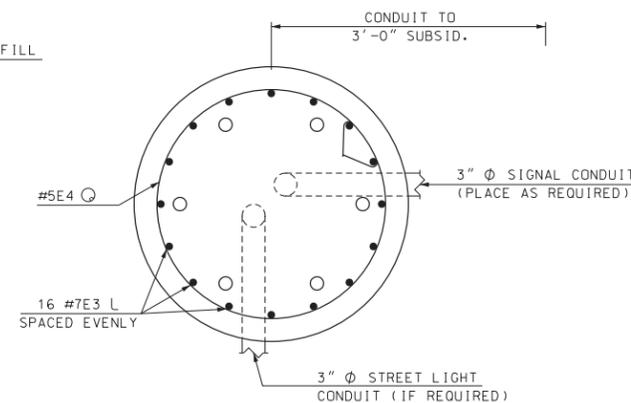
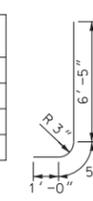
PLAN VIEW

NOTES  
1. SEE MAST ARM FOUNDATION - TYPE 1A SPECIAL DETAIL, FOR TYPE 1 FOUNDATION NOTES.

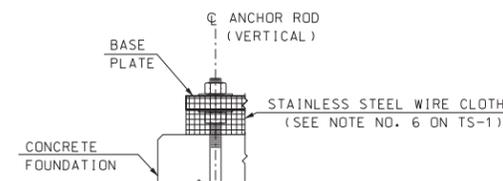
TYPICAL QUANTITIES PER BASE		
ITEM NUMBER	ITEM	QUANTITY
206.1*	COMMON STRUCTURE EXCAVATION	32 CY
209.1*	GRANULAR BACKFILL	24.4 CY
520.21*	CONCRETE CLASS B, FOOTINGS	7.4 CY
544*	REINFORCING STEEL	714 LB

\* ITEM NUMBERS ARE FOR SPECIFICATION REFERENCE ONLY. NO SEPARATE PAYMENT WILL BE MADE FOR THESE ITEMS.

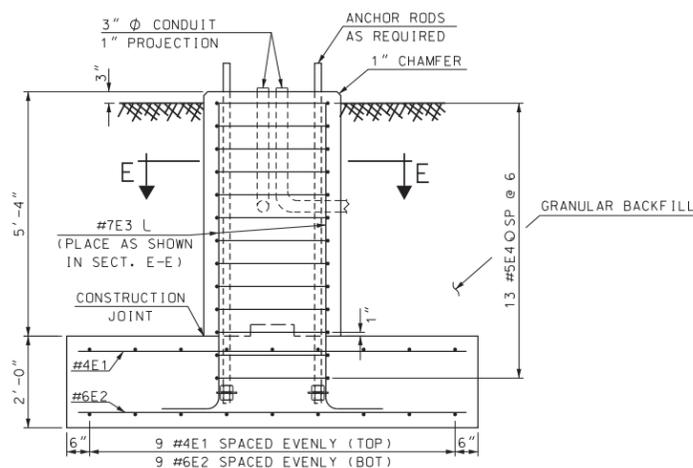
TYPE 1E REINFORCING SCHEDULE				
MARK	SIZE	NO.	UNBENT LENGTH	TYPE
E1	#4	18	8'-6"	—
E2	#6	18	8'-6"	—
E3	#7	16	7'-10"	L
E4	#5	13	9'-3"	Q



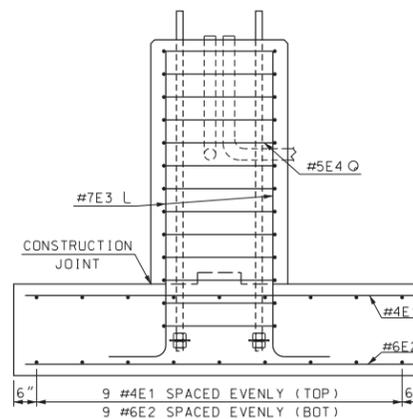
SECTION E-E



SCREEN DETAIL



ELEVATION VIEW



END ELEVATION VIEW

TRAFFIC SIGNAL STANDARD

Traffic Signal Mast Arm Foundations - Type 1D & 1E

STANDARD NO. TS-3

REVISION DATE
07-13-01
02-26-10
10-09-17

\*.DGN FILE NAME  
TS-3

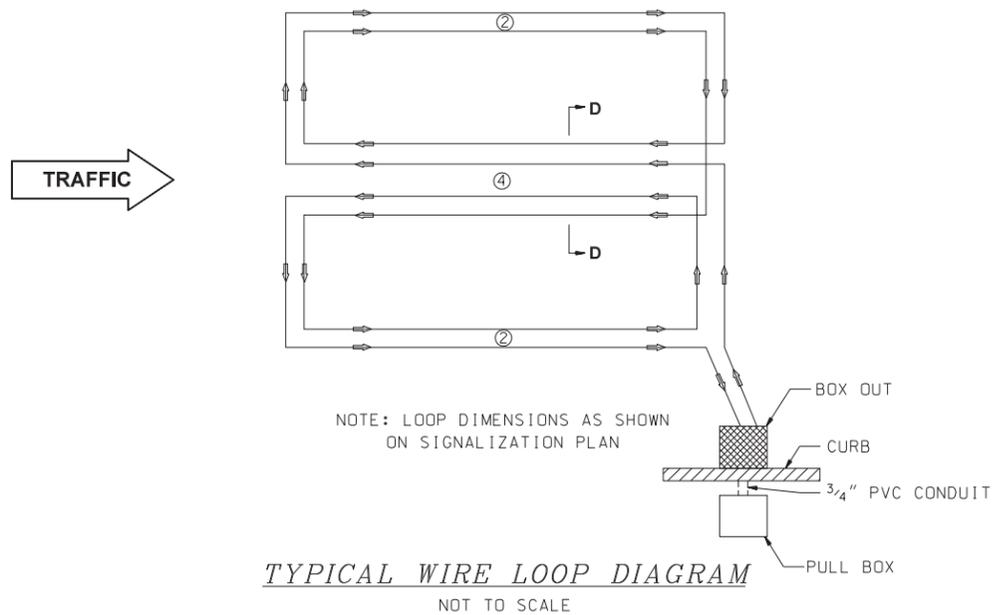
STANDARD PLAN  
 New Hampshire  
**DOT**  
 Department of Transportation

STANDARD NO. TS-3

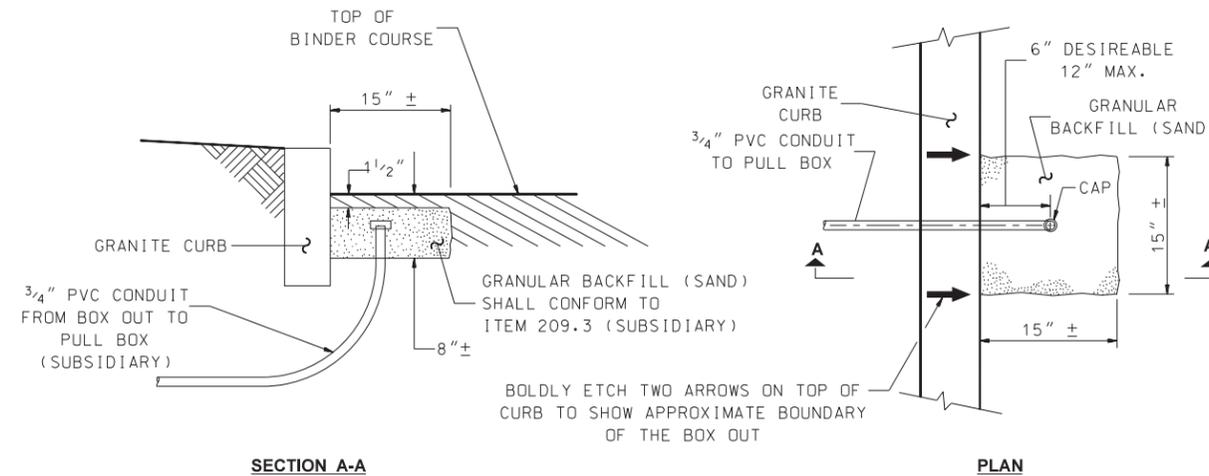


REVISION DATE
07-13-01
02-26-10
01-17-19

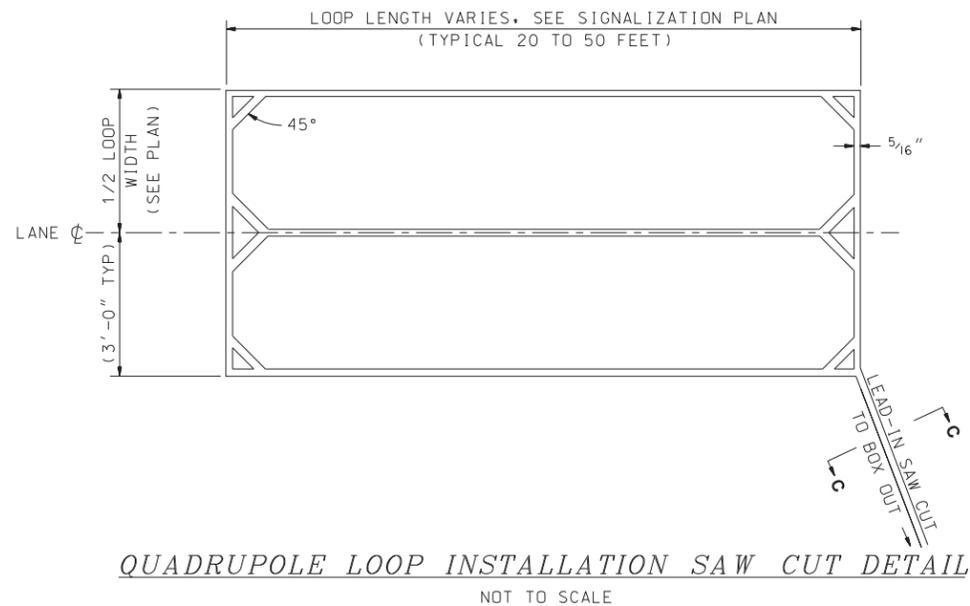
\*.DGN FILE NAME  
TS-5



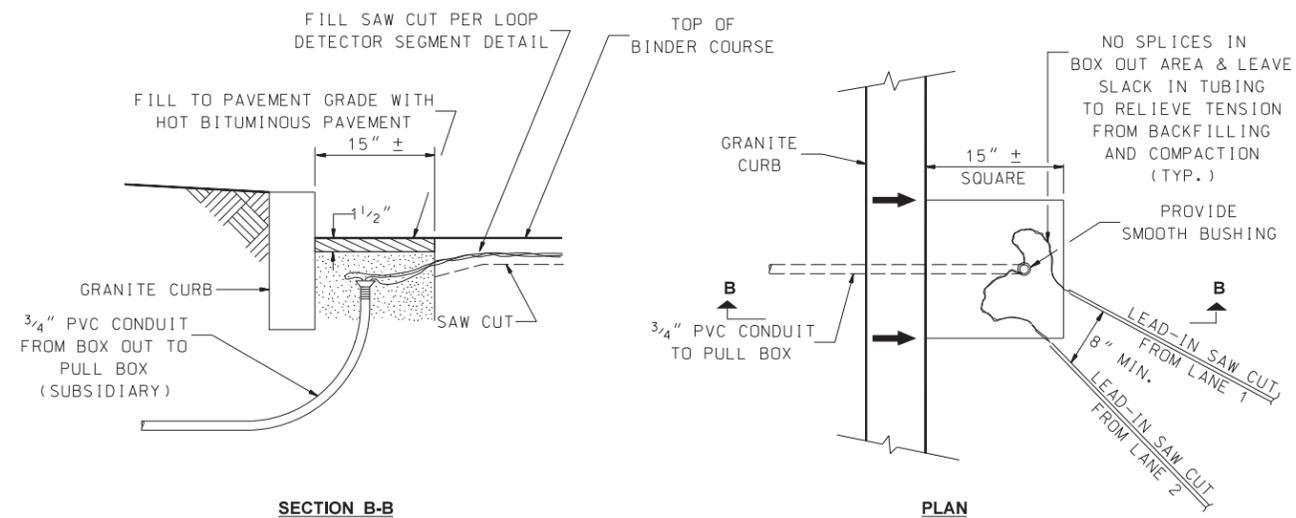
**TYPICAL WIRE LOOP DIAGRAM**  
NOT TO SCALE



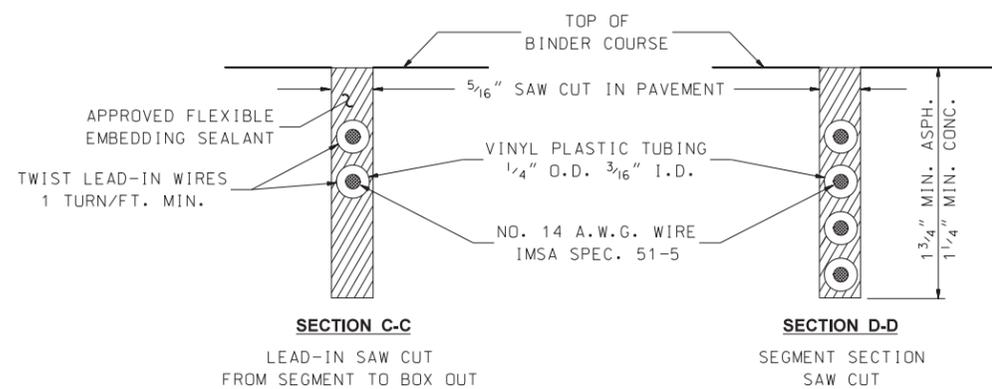
**DETECTOR BOX OUT DETAIL STAGE 1: AT PAVING**  
NOT TO SCALE



**QUADRUPOLE LOOP INSTALLATION SAW CUT DETAIL**  
NOT TO SCALE



**DETECTOR BOX OUT DETAIL STAGE 2: AT LOOP INSTALLATION**  
NOT TO SCALE



**LOOP DETECTOR SEGMENT DETAIL**  
NOT TO SCALE

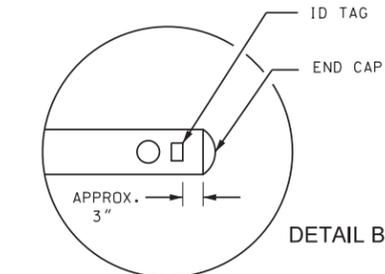
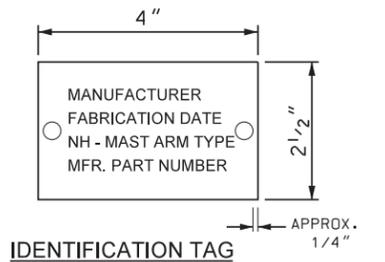
**GENERAL NOTES**

1. MAXIMUM OF TWO LEAD-IN PAIRS PER 3/4" CONDUIT.
2. TAPE TUBING 3" ON EACH SIDE OF THE SAW CUT BOX OUT BOUNDARY WITH ELECTRICAL TAPE.
3. AFTER TUBING IS INSTALLED, FILL CONDUIT WITH CRUMPLED PAPER AND SEAL WITH PLIABLE DUCT SEALANT.
4. USE ITEM 209.3 - GRANULAR BACKFILL (SAND) (SUBSIDIARY) TO COVER AND SUPPORT THE VINYL PLASTIC TUBING.

TRAFFIC SIGNAL STANDARD  
QUADRUPOLE LOOP DETECTOR  
2-4-2 TURNS

STANDARD PLANS  
 2021  
 DDT  
 Department of Transportation  
 New Hampshire





**ID TAG NOTE:**

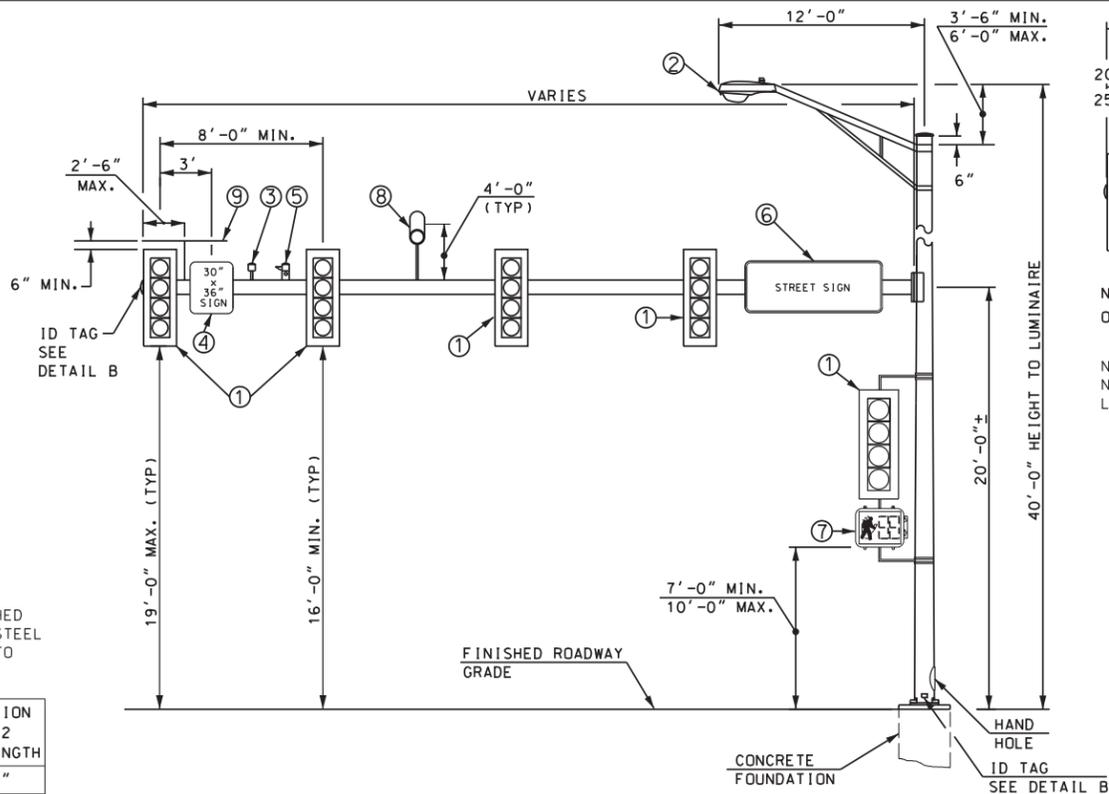
TAG SHALL BE ALUMINUM OR STAINLESS STEEL AND ATTACHED TO POLE OR MAST ARM USING TWO RIVETS OR STAINLESS STEEL DRIVE SCREWS. ID TAG HOLES SHALL BE DRILLED PRIOR TO GALVANIZING.

NH MAST ARM TYPE	DIMENSION (FT)	FOUNDATION TYPE 1	FOUNDATION TYPE 2 SHAFT LENGTH
NH-20	20	1A	8' - 0"
NH-20L	20	1A	9' - 0"
NH-25	25	1A	9' - 0"
NH-25L	25	1A	10' - 0"
NH-30	30	1B	10' - 0"
NH-30L	30	1C	10' - 0"
NH-35	35	1B	10' - 0"
NH-35L	35	1C	10' - 0"
NH-40	40	1B	10' - 0"
NH-40L	40	1C	11' - 0"
NH-45	45	1C	11' - 0"
NH-45L	45	1C	11' - 0"
NH-50	50	1D	11' - 0"
NH-50L	50	1D	11' - 0"
NH-55	55	1D	11' - 0"
NH-55L	55	1D	12' - 0"
NH-60	60	1E	12' - 0"
NH-60L	60	1E	12' - 0"

**GENERAL NOTES**

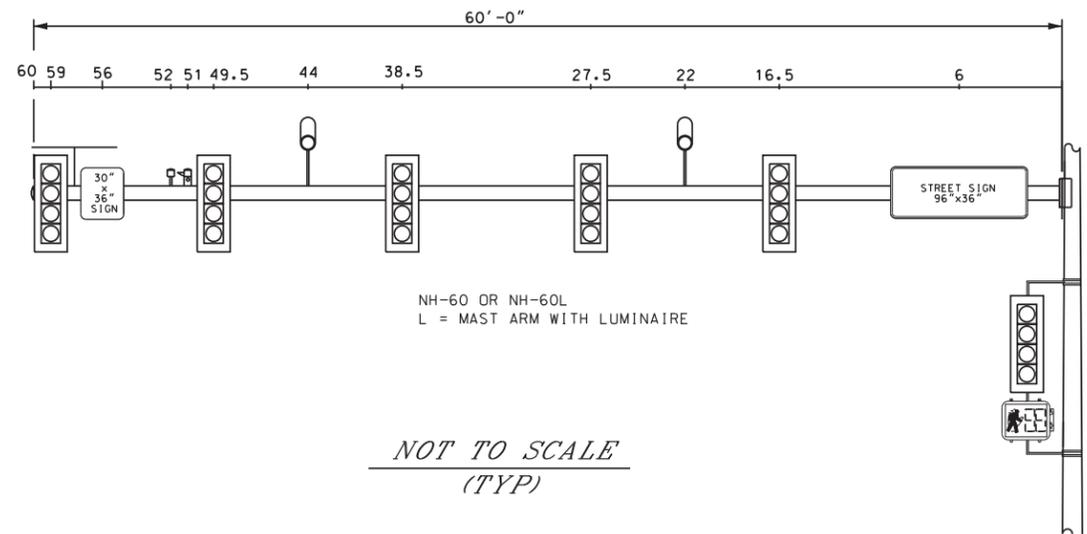
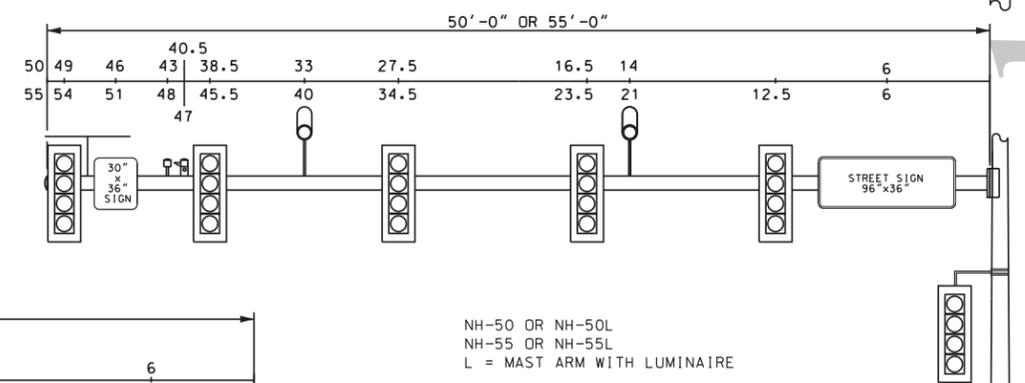
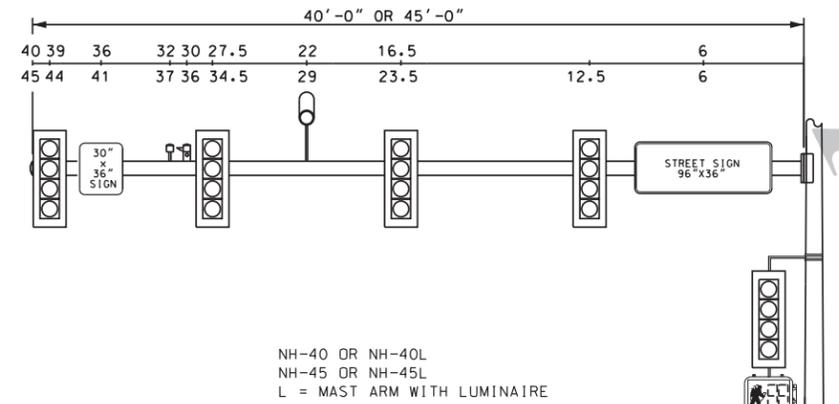
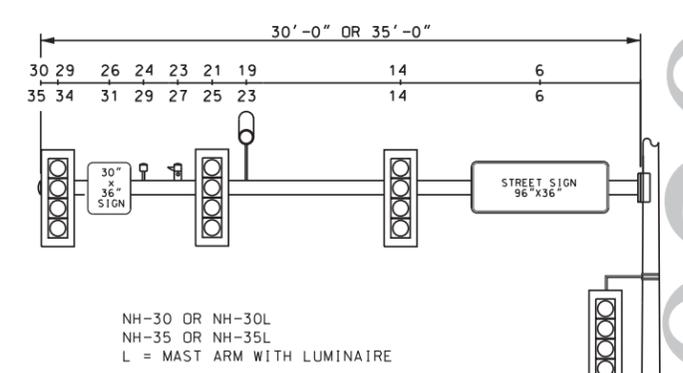
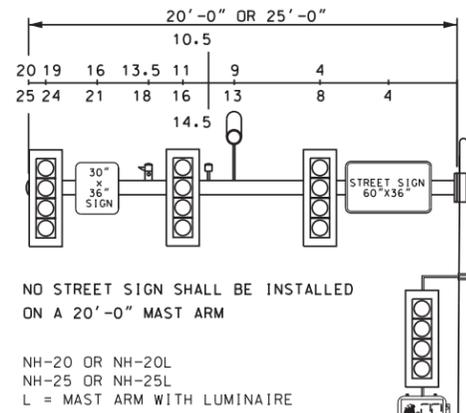
NOTES FOR TRAFFIC SIGNAL POLES, MAST ARMS AND PEDESTALS

- TRAFFIC SIGNAL STRUCTURES SHALL BE DESIGNED IN ACCORDANCE WITH THE CURRENT EDITION OF THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS. LUMINAIRES AND TRAFFIC SIGNALS INCLUDING ALL INTERIMS EXCEPT AS MODIFIED HEREIN. TRAFFIC SIGNAL STRUCTURES SHALL BE DESIGNED TO SUPPORT FIXED SIGNALS, VIDEO DETECTION EQUIPMENT, EMERGENCY PREEMPTION EQUIPMENT AND LUMINAIRES AS SHOWN ON THE PLANS. MINIMUM CLEARANCE TO THE BOTTOM OF THE OVERHEAD SIGNAL HOUSING SHALL BE 16.0 FT. TRAFFIC SIGNAL STRUCTURES SHALL BE DESIGNED BASED ON THE SPECIAL PROVISION FOR SECTION 616.
- STEEL STRUCTURES, UNLESS OTHERWISE INDICATED, SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A 123.
- CONCRETE FOUNDATIONS SHALL BE CONCRETE CLASS AAA OR B, AS INDICATED ON THE FOUNDATION PLANS MEETING THE REQUIREMENTS OF 520. REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF 544. THE FOUNDATIONS SHALL BE AS SHOWN ON THE PLAN.
- ANCHOR BOLTS SHALL CONFORM TO ASTM F1554, GRADE 55, HAVING MINIMUM YIELD STRENGTH OF 55 KSI WITH THREADED END AND HEX NUTS (2 PER BOLT), FULLY GALVANIZED IN ACCORDANCE WITH ASTM A 153. ANCHOR BOLTS SHALL BE SET ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- MAST ARM SIGNS SHALL BE INSTALLED ON THE MAST ARM ONE HALF THE SIGN WIDTH DISTANCE PLUS TWO FEET.
- A MITIGATION DEVICE SHALL BE INSTALLED ON ALL MAST ARM LENGTHS GREATER THAN 50 FEET.
- LAYOUTS SHOWN ARE FOR THE DESIGN OF TRAFFIC SIGNAL STRUCTURES. IF ACTUAL LOADING IS EQUAL TO OR LESS THAN THE LAYOUTS SHOWN, A STANDARD FOUNDATION MAY BE USED. IF LOADING EXCEEDS THE STANDARD DESIGNS SHOWN, A CUSTOM FOUNDATION WILL NEED TO BE DESIGNED AND APPROVED.
- SEE STANDARD PLANS TS-1, TS-2, TS-3 AND TS-4 FOR STANDARD FOUNDATION PLANS.



ITEM NO.	DESCRIPTION	WEIGHT (LBS.)	AREA (SQ. FT.)	SURFACE AREA (SQ. FT.)
①	4-SECTION HEAD	90	11.0	40.0
②	250 WATT LIMINAIRE	30	3.3	3.5
③	STROBE	5	1.0	N/A
④	SIGN	3.0 LB/SF	5.0	N/A
⑤	PREEMPTION RECEIVER	5	1.0	N/A
⑥	SIGN	AS	SHOWN	VARIES
⑦	PEDESTRIAN SIGNAL	80	8.0	N/A
⑧	VIDEO DETECTION	40	3.0	VARIES
⑨	MITIGATION DEVICE 60"x16"x1/8"	3.5 LB/SF		

THE LOCATION OF THE STROBE AND PREEMPTION RECEIVER VARY.



NOT TO SCALE (TYP)

LAYOUTS SHOWN ARE FOR THE DESIGN OF STANDARD MAST ARMS. IF ACTUAL LOADING IS EQUAL TO OR LESS THAN THE LAYOUTS SHOWN, STANDARD MAST ARM MAY BE USED. IF LOADING EXCEEDS THE STANDARD DESIGNS SHOWN, A CUSTOM MAST ARM WILL NEED TO BE DESIGNED AND APPROVED.

## AMENDMENTS TO PART VI OF THE MUTCD (2009 EDITION)

**NOTE: Revised Standards TC-1 through TC-8 amend Part VI of the 2009 Edition of the MUTCD by superseding or supplementing certain Sections. They shall be used in conjunction with the MUTCD and the Specifications for work zone traffic control on all projects.**

1. Section 6C.04, Table 6C-1 and Section 6H-01, Table 6H-3. "Urban (low speed)" shall be defined as those roadways with regulatory speed limits of 30 mph or less; "Urban (high speed)" shall be defined as those roadways with regulatory speed limits of 35 mph or greater.
2. Section 6F.03, Sign Placement. Add the following paragraph as a "Standard" heading:  
**01a Actual placement of temporary traffic control signs shall be carefully considered to avoid obstructing existing signs or allowing existing signs, vegetation or other physical features to obstruct or limit visibility to temporary traffic control signs. Temporary traffic control signs shall also be placed at locations that avoid overwhelming motorists with information when combined with existing signs.**
3. Section 6F.17 Positioning of Advanced Warning Signs. Add the following sentence as "Guidance" and "Option", respectively after sentence 07:  
 Guidance:  
 08 *When multiple operations are occurring in the same area, duplication of the advance warning signs, e.g. ROAD WORK AHEAD, ROAD WORK ½ MILE, etc., should be avoided.*  
 Option:  
 09 In cases where room for advance warning signage is severely limited, some of the general advanced warning signs (e.g. ROAD WORK AHEAD) may be eliminated in order to provide adequate space for driver to see and comprehend the warning signs requiring driver action, e.g. LANE ENDS MERGE LEFT, FLAGGER AHEAD, etc.
4. Section 6F.64, Cones. Add the following to the "Standard":  
**01a Cones shall not be used at night as the primary channelization device, except during work hours.**
5. Section 6F.65, Tubular Markers. Replace paragraphs 01 and 02 of the "Standard" section with the following:  
**01 Tubular markers shall be predominately orange and shall not be less than 42 inches high and 3 inches wide when facing road users. They shall be made of material that can be struck without causing damage to the impacting vehicle. Refer to MUTCD 6F-65 Paragraph 3 for delineation color and type.**
6. Section 6F.67, Drums. Add the following sentences after Sentence number 01:  
**Standard:**  
**01a Drums shall be the primary delineation device on divided highways for all tapers and tangents.**  
 Option:  
 01b Cones or tubular markers may be used, only in the tangent sections of the lane closure, when inadequate width, geometric constraints or the duration of the operation (short-duration or mobile, see 6G.02 for Work Duration definitions) necessitates the use of a narrower or more easily moved channelizing device.
7. Section 6F.78 – Temporary Markings. Add to the "Standard" the follow sentences:  
**05a All temporary markings on divided highways shall be 4-inch removable tape or paint conforming to MUTCD Chapter 3, Section 3A.**  
**05b All temporary markings shall be offset 1-foot from the final striping location.**  
**05c All temporary white broken-line pavement markings for traffic moving in the same direction shall be retroreflectorized paint or tape. Temporary paint or tape markings shall have a cycle length of 40 feet long with minimum 4-foot long skip and 36-foot long gap. Temporary tape shall be removed prior to any overlays and after permanent pavement markings have been applied.**  
**05d Stop lines shall be installed during temporary conditions and shall be retroreflectorized paint or tape.**  
 Replace "Guidance" paragraph 03 with:  
 03 *Edge lines, channelizing lines, lane reduction transitions, gore markings, and non-longitudinal lines (e.g., railroad crossings, crosswalks, words, symbols, etc.) are usually not required for temporary situations. Their use should be evaluated on a project by project basis based on field conditions, relative traffic speeds and volumes, and the use of other traffic control devices. When used, temporary markings for these types of longitudinal and non-longitudinal lines shall be retroreflectorized paint or tape and conform to MUTCD Part 3 Chapters 3A and 3B.*
8. Section 6F.85 – Temporary Traffic Barriers. Add the following to the "Standard" paragraph 06:  
**06a Temporary end treatments in the form of sand barrels and water filled arrays shall not be used from November 1st through April 15th unless they are greater than ten feet from the travelway (measured to the face) or specifically approved in writing by the Engineer. If approved by the Engineer for winter use, the sand or water shall be treated in accordance with the manufacturer's recommendations to prevent freezing.**  
**06b Impact attenuators shall be marked with a Type 3 Object Marker per Section 2C.63 Object Marker Design and Placement Height paragraph 02.**
9. Section 6F.86 – Crash Cushions. Add the following to the "Standard" paragraph 05:  
**05a Truck Mounted Attenuators (TMA's) shall be used as positive protection when short-term, short duration, or mobile work operations require a lane or shoulder closure.**
10. Section 6G.05 – Work Affecting Pedestrian and Bicycle Facilities. Add the following to the "Support" paragraph 01:  
 01a R4-11 (Bike May Use Full Lane) sign should be used when the clear width of a single lane and shoulder is less than 14', except when the existing lane and shoulder in the general vicinity of the work provides less than 14' clear. This sign is optional where operational controls are used, and during mobile, short duration, and short term stationary work durations as defined by Section 6G.02. This sign shall not be used when the speed limit is over 40 mph.
11. Section 6H.01, Typical Applications. Add the following paragraph to the Option heading:  
 08 Many diagrams show ROAD WORK (W20-1), ROAD WORK NEXT XX MILES (G20-1), and END ROAD WORK (G20-2a) signs being used for the activities. These signs may be omitted if the activity is being performed within the limits of a larger project and the Advance Warning and/or Termination Signs for the larger project provide reasonable warning to the motorist for the activity.
12. Section 6H.01, Figure 6H-14. The diagram for the unsignalized crossing of a Haul Road shows interim tape and a NO PASSING ZONE (W-14-3) sign to deter passing maneuvers. In lieu of interim tape, cones may be placed along the centerline, using a maximum spacing of 40-feet.  
  
 In both diagrams, add a TRUCK CROSSING (W8-6) sign at a distance "B" in advance of the DO NOT PASS (R4-1) sign. Show the ROAD WORK AHEAD (W20-1a) sign at a distance "C" in advance of the TRUCK CROSSING sign. (See Table 6H-3 for distance between signs)
13. Section 6H.01, Figure 6H-36. Make the following revisions:  
 a. Use REVERSE CURVE (W1-4 series) signs which show side-by-side arrows, one arrow for each open lane, at each location that the sign is shown.

STANDARD  
NO. TC-1

REVISION DATE
08/03/2004
03/16/2017
11/28/2018
05/17/2019

\*.DGN FILE NAME  
TC-1

2021  
 STANDARD PLANS  
 DOT  
 Department of Transportation  
 New Hampshire

WORK ZONE TRAFFIC CONTROL  
 AMENDMENTS TO PART VI  
 MUTCD (2009)

STANDARD  
NO. TC-1

REVISION DATE
03/16/2017

\*.DGN FILE NAME  
TC-2

## UNIFORMED OFFICER AND FLAGGER USE GUIDELINES

**Flaggers shall be used to the greatest extent possible for "dynamic" traffic control operations. Uniformed Officers may be utilized for their specific authority above and beyond that of a flagger, such as assistance in speed control and traffic law enforcement. The use of Uniformed Officers may be necessary in some instances. However, Officer use is not a requirement. Their use must be preapproved by NHDOT.**

Examples of traffic control operations where Uniformed Officers and flaggers are typically not needed:

1. Shoulder work.
2. Work behind barrier.

Examples of traffic control operations where flaggers should be used include:

1. Alternating 1-way traffic (stop/slow paddles must be used).
2. Directing traffic through low volume intersections.
3. Assisting trucks and equipment in and out of work areas.
4. Providing coverage at side roads and driveways during mobile operations (e.g. paving, striping, etc.).
5. Directing pedestrians and bicyclists through the work zone.

Examples of traffic control operations where Uniformed Officers may be used include:

1. Directing traffic through complex intersections, especially where signals are being overridden.
2. Assisting construction vehicles and equipment in and out of work areas on high speed (> 45 mph), high volume facilities (> 15000 vpd). Note: If an access area is anticipated to be in place for an extended period of time and it is determined that assistance is required for the safe exit and entry of construction vehicles, then a cost analysis should be completed to determine if stationary measures (e.g. signals) would be more cost effective than officers or flaggers.
3. Rolling roadblock operations on interstate and turnpike facilities and other multi-lane L.A.R.O.W. highways.
4. If a uniformed officer is already on site for other needs (enforcement or presence), then the officer may be asked to supplement these duties by providing limited duration traffic control that would otherwise be covered by a flagger. However, the officer must be adequately trained for the flagger operation to be performed and must use appropriate equipment and techniques (which may include the use of stop/slow paddles).
5. If approved, officers may be hired as a speed deterrent and/or to increase driver awareness through a work zone under the following conditions:
  - a. The work zone has a posted speed of 45 mph or higher and an average daily traffic (ADT) volume of 15,000 vpd or greater; and
  - b. The work zone presents a unique safety issue, such as a high rate of crashes, vehicles traveling at excessive speeds, poor highway geometrics, excessive East-West sun glare; workers exposed to traffic; and/or construction equipment frequently entering and exiting the work zone.
6. In rare cases, a presence officer may be approved for use on low speed (< 45 mph) or low volume (< 15,000 vpd) roads if a unique safety issue exists and other speed deterrent or driver awareness measures are proven ineffective.
7. The use of law enforcement may be considered for nighttime operations. When used at night the use of the blue lights and positioning should be carefully considered. Excessive use of police vehicles with lights at night, or inappropriate positioning of these vehicles may actually detract from the positive guidance the work zone traffic control devices provide. When used for nighttime work, blue lights should be dimmed and headlights should be off.

See complete Flagger and Uniformed Officer guidelines at this link:

<http://www.nh.gov/dot/org/projectdevelopment/construction/documents/FlaggerPoliceUseGuidelines.pdf>

## UNIFORMED OFFICER PLACEMENT IN THE WORK ZONE

**If Uniformed Officer with Vehicle use has been approved for presence, cruiser placement is recommended as follows:**

1. Park in the shoulder or median, not in the travel lane.
2. Do not park behind the Truck Mounted Attenuator (TMA).
3. Do not park in the buffer zone. If buffer zone presence is needed, then consideration should be given to installing a truck TMA instead.
4. Do not park in the taper.
5. Locate the police cruiser between the 1st and 2nd signs (from the taper).
  - a. Urban (Low <= 30 mph) 150' from the taper.
  - b. Urban (High >= 35 mph) 525' from the taper.
  - c. Rural = 750' from the taper.
  - d. Expressway/Freeway = 1750' from the taper.
6. Consider having the cruiser face traffic for stationary operations.
  - a. Recommended cruiser positioning for moving operations:
    - I. Less than 5 mph face traffic (e.g. crack seal).
    - II. Greater than 5 mph face work (e.g. striping, rumble strips).
7. Stay ¼ mile in front of queue.
8. If a second Officer is used for enforcement, and there is no queue, the enforcement officer should be immediately after the work zone. If there is a traffic queue then the enforcement officer should be several miles before the backup queue and presence Officer.
9. Hands free and cell phone use should be only for work zone activity.
10. Headlights off, dim blue lights at night if possible.

WORK ZONE TRAFFIC CONTROL

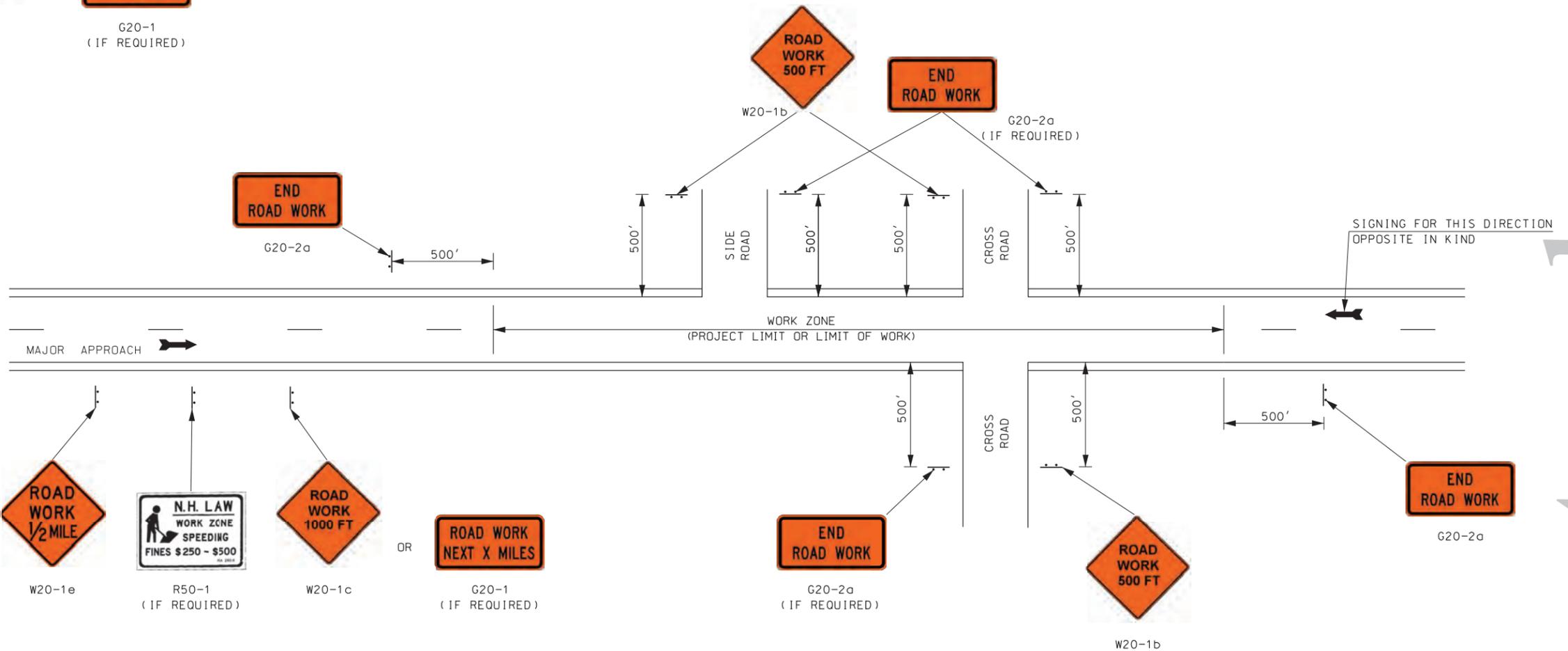
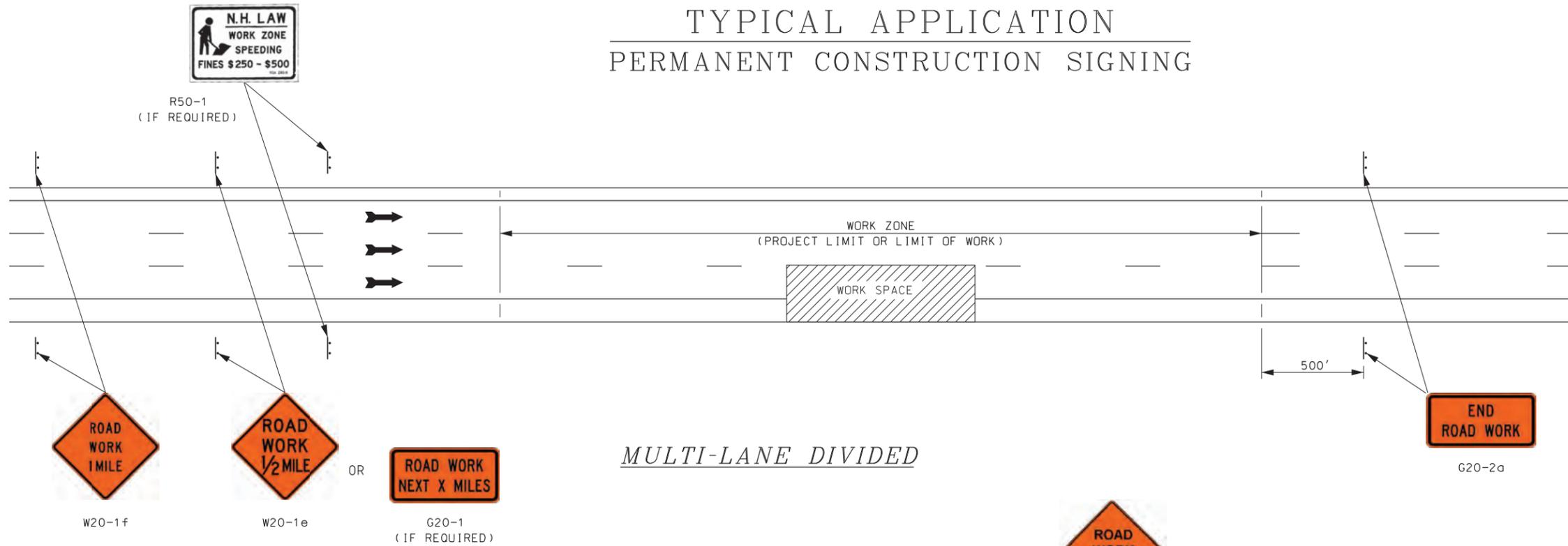
UNIFORMED OFFICERS  
AND FLAGGERS



REVISION DATE	08/03/2004
	03/16/2017

\*.DGN FILE NAME  
TC-3

# TYPICAL APPLICATION PERMANENT CONSTRUCTION SIGNING



## GENERAL NOTES

- SIGNS SHOWN INDICATE TYPICAL INSTALLATIONS. ACTUAL NUMBER OF SIGNS MAY VARY TO FIT INDIVIDUAL PROJECT NEEDS.
- CONSTRUCTION SIGNS SHOWN ON THIS SHEET SHALL BE FLUORESCENT ORANGE. WITH THE EXCEPTION OF R50-1 AND G20-2a.
- REFER TO TYPICAL APPLICATIONS FOR SIGNING OF INTERMEDIATE WORK AREAS.

NOT TO SCALE

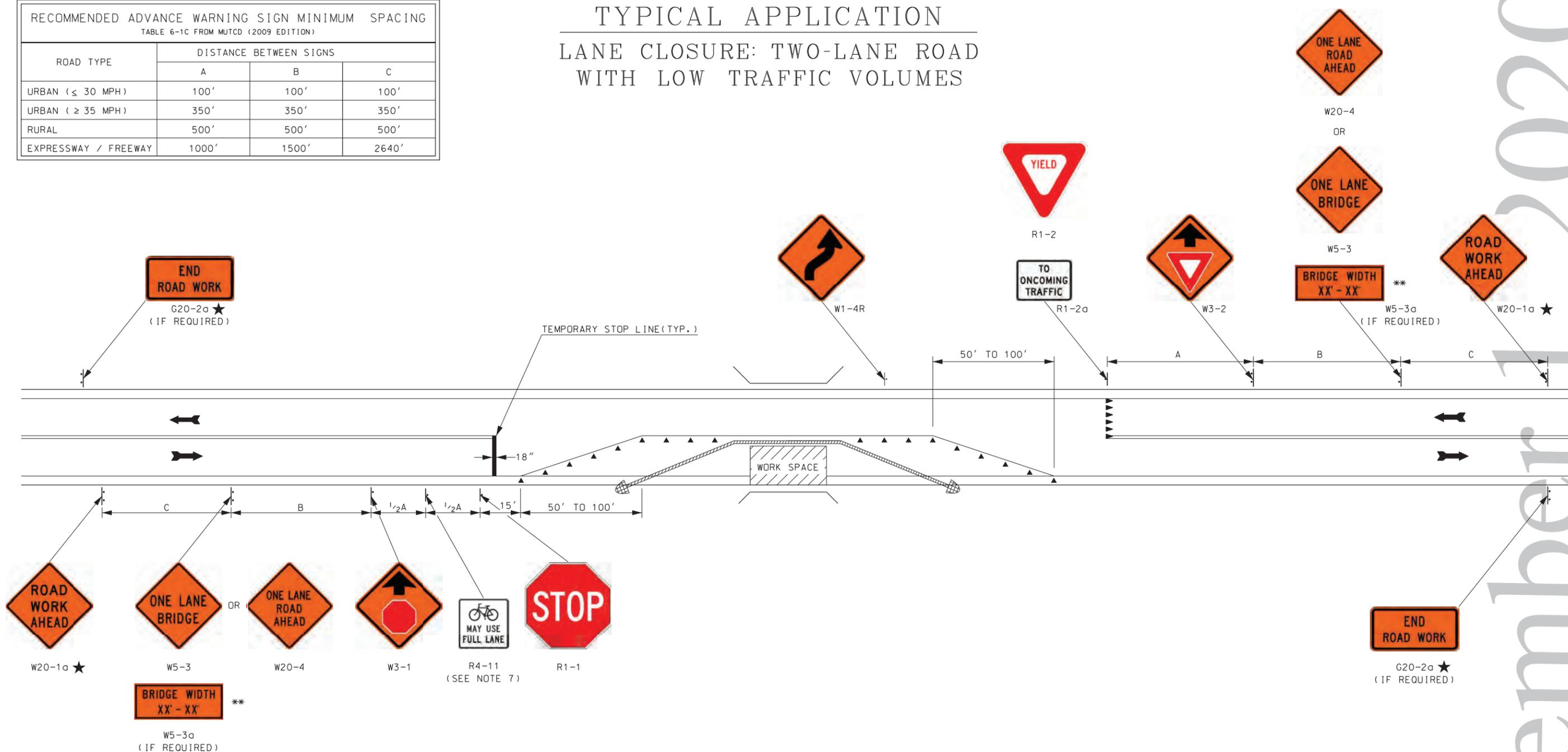
WORK ZONE TRAFFIC CONTROL  
**PERMANENT  
CONSTRUCTION SIGNING**

2021  
 STANDARD PLANS  
 New Hampshire  
**DOT**  
 Department of Transportation



RECOMMENDED ADVANCE WARNING SIGN MINIMUM SPACING TABLE 6-1C FROM MUTCD (2009 EDITION)			
ROAD TYPE	DISTANCE BETWEEN SIGNS		
	A	B	C
URBAN ( ≤ 30 MPH )	100'	100'	100'
URBAN ( ≥ 35 MPH )	350'	350'	350'
RURAL	500'	500'	500'
EXPRESSWAY / FREEWAY	1000'	1500'	2640'

## TYPICAL APPLICATION LANE CLOSURE: TWO-LANE ROAD WITH LOW TRAFFIC VOLUMES



### GENERAL NOTES

- ★ SEE AMENDMENT NO. 11 ON TC-1.
- \*\* POSTED BRIDGE WIDTH SHALL BE 1 FOOT LESS THAN ACTUAL WIDTH.
- 1. THIS TYPICAL APPLICATION SHOULD BE USED AS AN ALTERNATE TO MUTCD FIGURE TA-11 WHEN CONSTRUCTION ACTIVITIES ARE FOR A PERIOD LONGER THAN THAT CONSIDERED INTERMEDIATE-TERM WORK (SEE MUTCD SECTION 6G.02).
- 2. EXISTING PAVEMENT MARKINGS SHALL BE REMOVED AND TEMPORARY MARKINGS INSTALLED AS ORDERED.
- 3. REGULATORY SIGN PLACEMENT SHALL BE APPROVED BY BUREAU OF TRAFFIC.

- 4. HAZARD IDENTIFICATION BEACONS OR TYPE A FLASHING WARNING LIGHTS MAY BE MOUNTED WITH WARNING SIGNS, IF WARRANTED.
- 5. THE USE OF BARRIER IS ANTICIPATED FOR MOST SITUATIONS REQUIRING APPLICATION OF THIS LANE CLOSURE. REQUIRED BARRIER PROTECTION SHALL BE DETERMINED AS DESCRIBED IN THE MOST CURRENT EDITION OF THE ROADSIDE DESIGN GUIDE AS ADOPTED BY THE DEPARTMENT TAPER RATES FOR BARRIER ARE FOUND ON THE PORTABLE CONCRETE BARRIER STANDARD (GR-23).
- 6. CRASH CUSHIONS SHALL BE DELINEATED WITH TYPE 3 OBJECT MARKERS. SEE MUTCD FIGURE 2C-13.
- 7. INSTALL ON ALL APPROACHES IF THE CRITERIA IN AMENDMENT NO. 10 ON TC-1 APPLIES.

NOT TO SCALE

LEGEND			
	PORTABLE BARRIER		CHANNELIZING DEVICES
	IMPACT ATTENUATOR		YIELD LINES

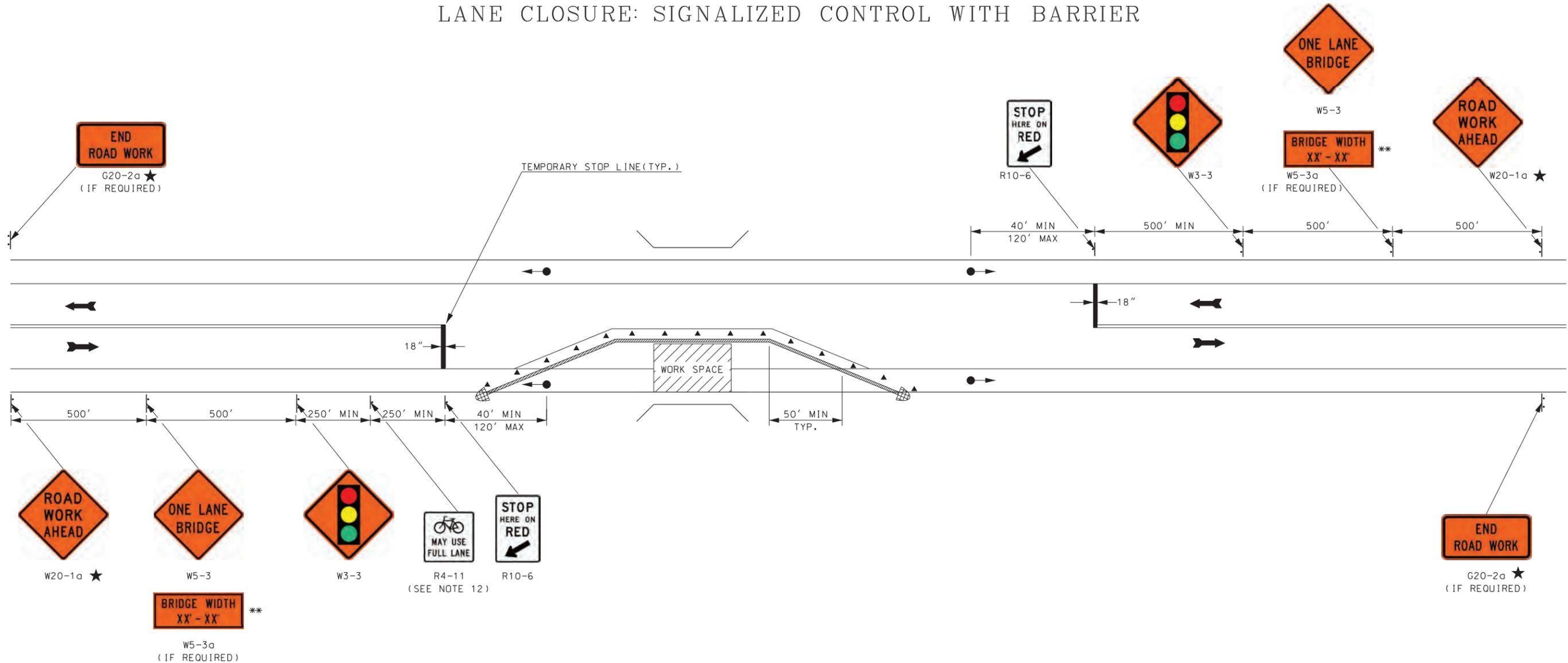
STATE OF NEW HAMPSHIRE  
SWANZEE  
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN  
**LANE CLOSURE: TWO-LANE ROAD  
WITH LOW TRAFFIC VOLUMES**

REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
PENDING	twlnrd-lowvol	40485	1	1



# TYPICAL APPLICATION

## LANE CLOSURE: SIGNALIZED CONTROL WITH BARRIER



### GENERAL NOTES

★ SEE AMENDMENT NO. 11 ON TC-1.

\*\* POSTED BRIDGE WIDTH SHALL BE 1 FOOT LESS THAN ACTUAL WIDTH.

1. TEMPORARY TRAFFIC SIGNALS ARE PREFERABLE TO FLAGGERS FOR LONG-TERM PROJECTS AND OTHER ACTIVITIES THAT WOULD REQUIRE FLAGGERS AT NIGHT.
2. THE MAXIMUM LENGTH OF THE ACTIVITY AREA FOR ONE-WAY TRAFFIC SIGNAL CONTROL IS DETERMINED BY THE CAPACITY REQUIRED TO HANDLE THE PEAK HOUR DEMAND. SIGNAL TIMING SHALL BE ESTABLISHED BY QUALIFIED PERSONNEL.
3. SIGNALS SHALL BE INSTALLED AND OPERATED IN ACCORDANCE WITH THE REQUIREMENTS OF PART IV OF THE MUTCD. TEMPORARY TRAFFIC CONTROL SHALL MEET THE PHYSICAL DISPLAY AND OPERATIONAL REQUIREMENTS OF CONVENTIONAL TRAFFIC SIGNALS.
4. ADEQUATE AREA ILLUMINATION SHALL BE PROVIDED TO CLEARLY IDENTIFY THE TRANSITION AREAS AT NIGHT FOR LONG-TERM OPERATIONS.
5. STOP LINES 18 INCHES WIDE SHALL BE INSTALLED. ADD "NO-PASSING" LINES WHEN NECESSARY. REMOVABLE PAVEMENT MARKINGS MAY BE USED. CONFLICTING PAVEMENT MARKINGS AND RAISED PAVEMENT MARKER REFLECTORS BETWEEN THE ACTIVITY AREA AND THE STOP LINES SHALL BE REMOVED.

6. HAZARD IDENTIFICATION BEACONS OR TYPE A FLASHING WARNING LIGHTS MAY BE MOUNTED WITH WARNING SIGNS, IF WARRANTED.
7. THE VERTICAL ALIGNMENT OF THE ROADWAY MAY REQUIRE ADJUSTMENTS IN THE HEIGHT OF THE SIGNAL HEADS.
8. WHEN THE SIGNAL IS CHANGED TO A FLASH CONDITION EITHER MANUALLY OR AUTOMATICALLY, ALL APPROACHES SHALL FLASH RED.
9. THE USE OF BARRIER IS ANTICIPATED FOR MOST SITUATIONS REQUIRING APPLICATION OF THIS LANE CLOSURE. REQUIRED BARRIER PROTECTION SHALL BE DETERMINED AS DESCRIBED IN THE MOST CURRENT EDITION OF THE ROADSIDE DESIGN GUIDE AS ADOPTED BY THE DEPARTMENT TAPER RATES FOR BARRIER ARE FOUND ON THE PORTABLE CONCRETE BARRIER STANDARD (GR-23).
10. FOR TEMPORARY TRAFFIC BARRIER CRITERIA, SEE SECTION 6F.85 OF THE MUTCD.
11. CRASH CUSHIONS SHALL BE DELINEATED WITH TYPE 3 OBJECT MARKERS. SEE MUTCD FIGURE 2C-13.
12. INSTALL ON ALL APPROACHES IF THE CRITERIA IN AMENDMENT NO. 10 ON TC-1 APPLIES.

LEGEND	
	PORTABLE BARRIER
	SIGNAL HEAD
	IMPACT ATTENUATOR
	CHANNELIZING DEVICES

**WORK ZONE TRAFFIC CONTROL**  
**LANE CLOSURE: SIGNALIZED CONTROL WITH BARRIER**

NOT TO SCALE

STANDARD NO. TC-7

REVISION DATE
08/03/2004
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TC-7

STANDARD PLANS  
 New Hampshire  
**DOT**  
 Department of Transportation

STANDARD NO. TC-7

