STANDARD PLANS
for
ROAD CONSTRUCTION

New Hampshire
DOT
Department of Transportation

STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION
April 1, 2021

April 1, 2021

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SEPTEMBER 16, 2010

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TS-4	QUADRUPOLE LOOP DETECTOR 2-4-2 TURNS
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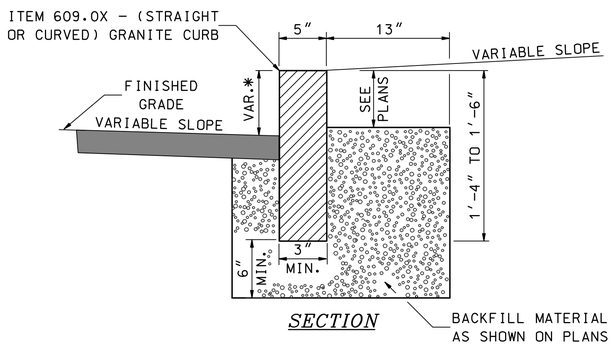


SECTION

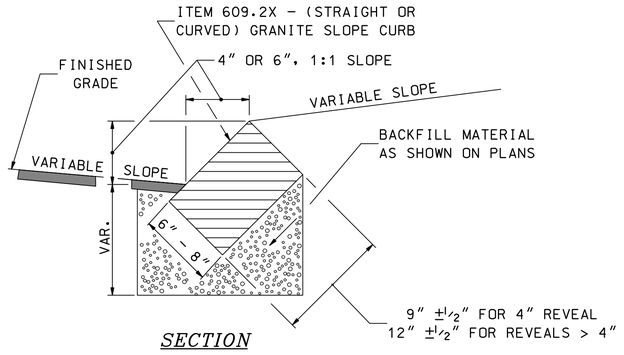
RADIUS	MAX. LENGTH
< 21′	USE CURVED CURB
21′	3′
22′ – 28′	4′
29′ – 35′	5′
36′ – 42′	6′
43′ – 49′	7′
50′ – 56′	8′
57′ – 60′	9′
OVER 60′	10′

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

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

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

NHDOT STANDARD PLANS	REV. DATE		PLATE
STRAIGHT OR CURVED GRANITE CURB	06-16-2010		1
			STANDARD CR-1



SECTION

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′

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

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

NHDOT STANDARD PLANS	REV. DATE		PLATE
GRANITE SLOPE CURB	06-16-2010		2
			STANDARD CR-1

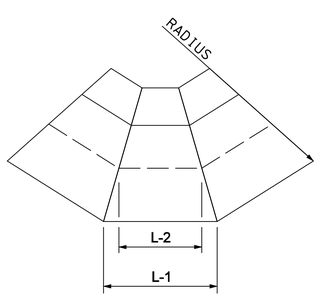
STANDARD NO. CR-1

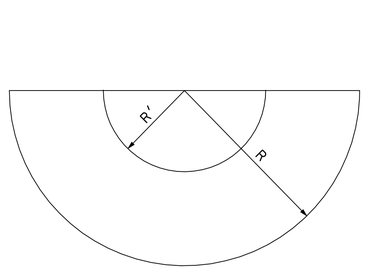
REVISION DATE
07-13-2001
06-16-2010

*.DGN FILE NAME
CR-1

2021

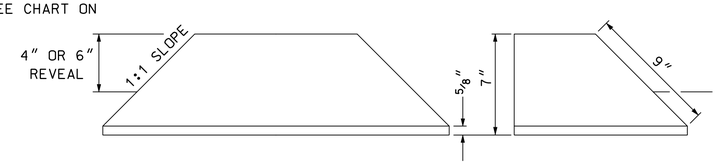
STANDARD PLANS





DETAIL FOR CUTTING SLOPE CURB WITH RADIAL JOINTS

NOTE: USE FOR 2′ TO 15′ RADIUS – SEE CHART ON PLATE 4.



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

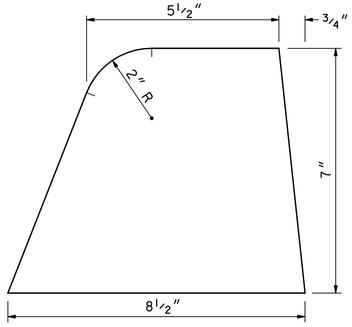
NHDOT STANDARD PLANS	REV. DATE		PLATE
DETAILS FOR CUTTING STRAIGHT GRANITE SLOPE CURB	06-16-2010		3
			STANDARD CR-1

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

NHDOT STANDARD PLANS	REV. DATE		PLATE
CHART FOR CUTTING STRAIGHT GRANITE SLOPE CURB WITH RADIAL JOINTS	06-16-2010		4
			STANDARD CR-1

New Hampshire DOT Department of Transportation

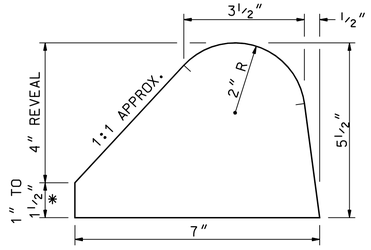
STANDARD NO. CR-1



TYPE 'A'

ITEM 609.812

NOTE: TO BE USED ONLY WHEN CALLED FOR ON PLANS.



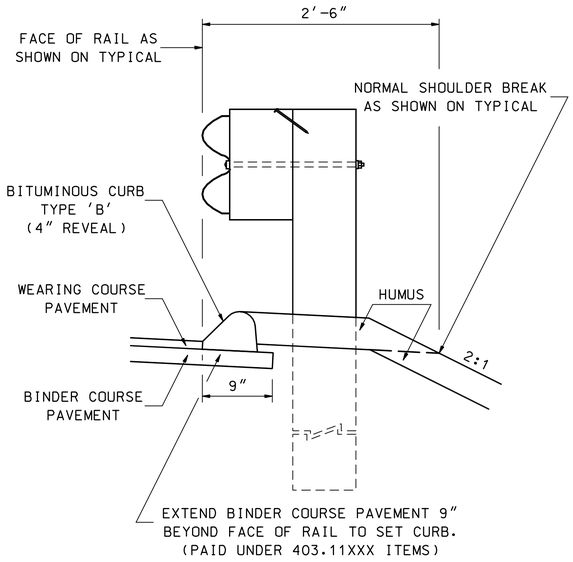
* MATCH DEPTH OF WEARING COURSE PAVEMENT

TYPE 'B' (4" REVEAL)

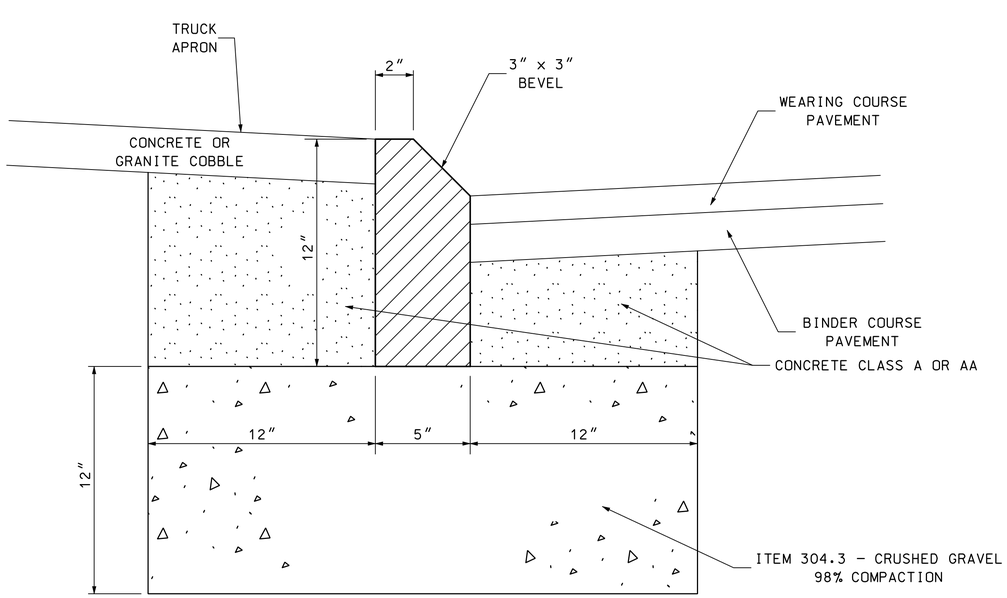
ITEM 609.811

NOTE: NORMALLY USED UNDER GUARDRAIL. SEE PLATE 2 FOR PLACEMENT DETAIL.

NHDOT STANDARD PLANS	REV. DATE		PLATE
BITUMINOUS CURB	06-16-2010		1
			STANDARD CR-2

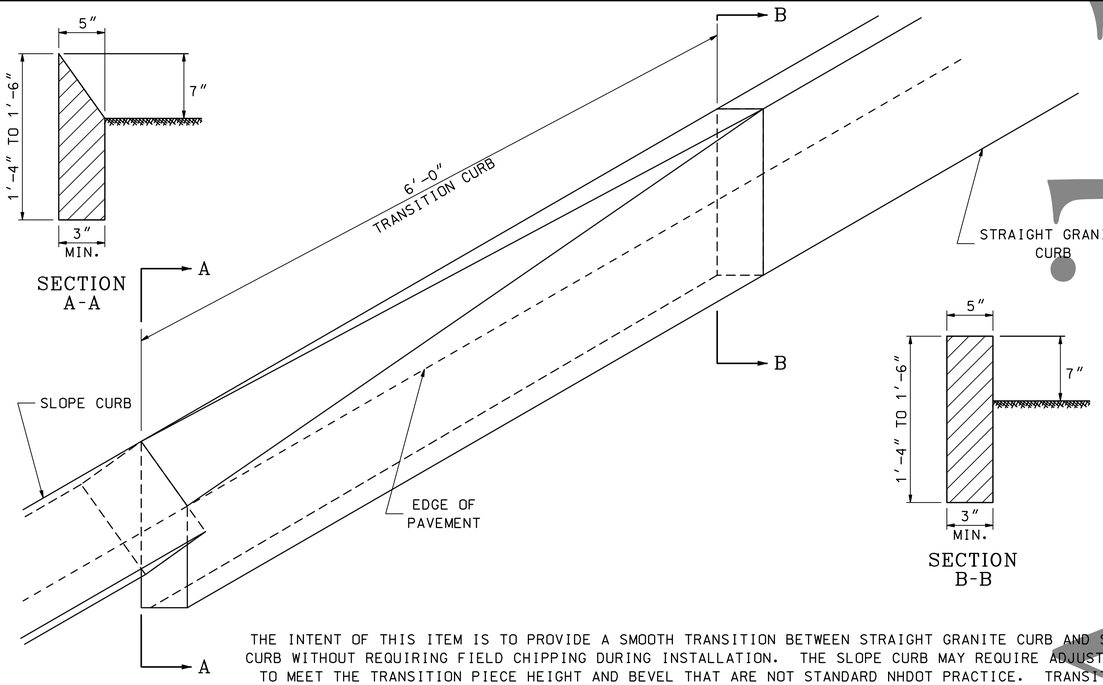


NHDOT STANDARD PLANS	REV. DATE		PLATE
BITUMINOUS CURB PLACEMENT UNDER BEAM GUARDRAIL	06-16-2010		2
			STANDARD CR-2



ITEM 609.01123 - STRAIGHT GRANITE CURB, 12" HIGH W/ 3" X 3" BEVELED MOUNTABLE EDGE

NHDOT STANDARD PLANS	REV. DATE		PLATE
ROUNDABOUT TRUCK APRON CURB	06-16-2010		3
			STANDARD CR-2



THE INTENT OF THIS ITEM IS TO PROVIDE A SMOOTH TRANSITION BETWEEN STRAIGHT GRANITE CURB AND SLOPE CURB WITHOUT REQUIRING FIELD CHIPPING DURING INSTALLATION. THE SLOPE CURB MAY REQUIRE ADJUSTMENTS TO MEET THE TRANSITION PIECE HEIGHT AND BEVEL THAT ARE NOT STANDARD NHDOT PRACTICE. TRANSITION SLOPE CURB TO STANDARD REVEAL AS QUICKLY AS POSSIBLE TO PROVIDE FOR THIS SMOOTH TRANSITION.

NHDOT STANDARD PLANS	REV. DATE		PLATE
STRAIGHT TO SLOPE CURB TRANSITION	06-16-2010		4
			STANDARD CR-2

STANDARD NO. CR-2

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

*.DGN FILE NAME
CR-2

2021

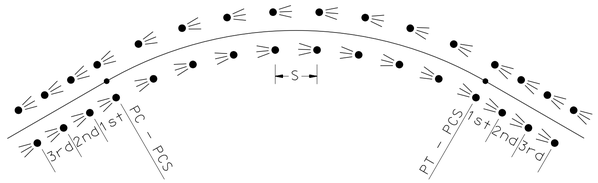
STANDARD PLANS

April

New Hampshire DOT Department of Transportation

STANDARD NO. CR-2

DELINEATOR SPACING

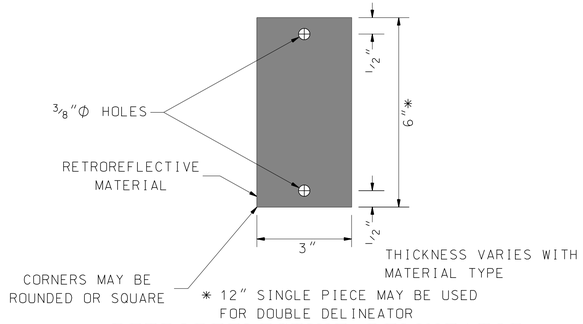


APPROXIMATE SPACING FOR DELINEATORS ON HORIZONTAL CURVES

RADIUS OF CURVE (FT)	SPACING FOR POSTMOUNTED DELINEATORS ON CURVE = S (FT)	SPACING FOR BEAM GUARDRAIL DELINEATORS ON CURVE = S (FT)
≤ 50	20	18.75
> 50 BUT ≤ 115	25	25
> 115 BUT ≤ 180	35	25
> 180 BUT ≤ 250	40	25
> 250 BUT ≤ 300	50	50
> 300 BUT ≤ 400	55	50
> 400 BUT ≤ 500	65	50
> 500 BUT ≤ 600	70	50
> 600 BUT ≤ 700	75	75
> 700 BUT ≤ 800	80	75
> 800 BUT ≤ 900	85	75
> 900 BUT ≤ 1,000	90	75
> 1,000 ON MAINLINE	250	100
> 1,000 ON RAMPS	100	100

1. THE MINIMUM SPACING SHALL BE 20 FEET FOR POST MOUNTED DELINEATORS AND 18.75 FEET FOR BEAM GUARDRAIL AND CONCRETE BARRIER DELINEATORS.

2. IN ADVANCE OF OR BEYOND A CURVE, AND PROCEEDING AWAY FROM THE END OF THE CURVE, THE SPACING OF THE FIRST POST MOUNTED DELINEATOR IS 2S, THE SECOND IS 3S, AND THE THIRD IS 6S, BUT NOT TO EXCEED 250 FEET IF ON A MAINLINE, OR 100 FEET ON A RAMP.



RETROREFLECTIVE DELINEATOR

(ITEM 621.3X, 621.4)

GENERAL NOTES

1. UNLESS OTHERWISE ORDERED, DELINEATORS SHALL BE MOUNTED ALONG THE RIGHT SIDE OF ALL ROADWAYS (SEE TYPICAL). DELINEATORS MAY ALSO BE USED ON THE LEFT SIDE OF DIVIDED HIGHWAYS WHERE NEEDED FOR CLEAR INDICATION OF THE ALIGNMENT.

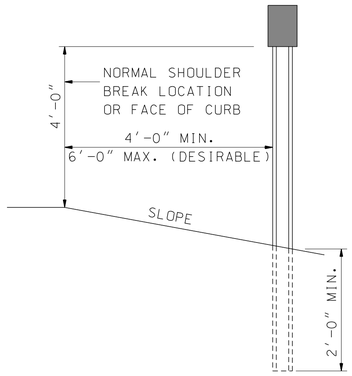
2. DELINEATORS LOCATED BEHIND GUARDRAIL SHALL BE INSTALLED SO THAT THE DELINEATOR POST IS ADJACENT TO THE TRAILING EDGE OF THE NEAREST GUARDRAIL POST.

3. WHEN DELINEATION IS USED ONLY ON CURVES, THREE DELINEATORS SHALL BE PLACED BEFORE AND AFTER THE CIRCULAR PORTION OF THE CURVE.

4. WHEN DELINEATION IS USED ON TANGENTS, THE SPACING SHALL BE 250 FEET. THE TANGENT SPACING SHALL BEGIN BEYOND THE SPACING REQUIREMENTS FOR CURVES.

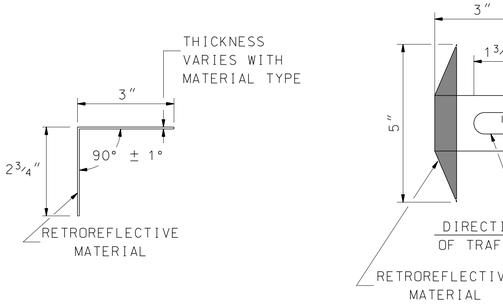
5. DELINEATOR COLORS SHALL IN ALL CASES CONFORM TO THE COLOR OF THE EDGELINES.

6. DELINEATORS WILL NOT BE PLACED BEHIND SIDEWALK.



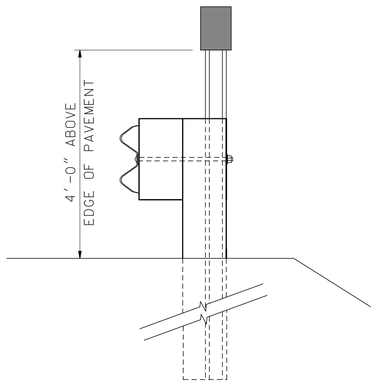
TYPICAL INSTALLATION

(ITEM 621.31)

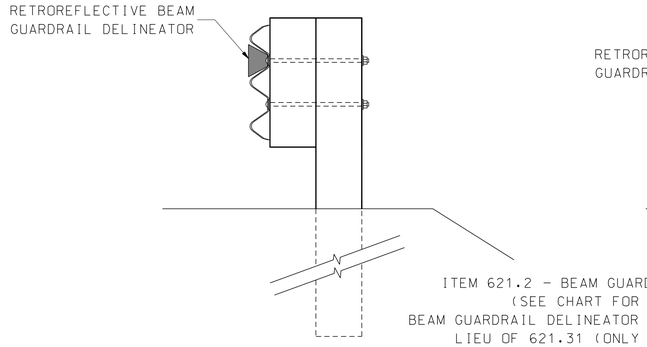


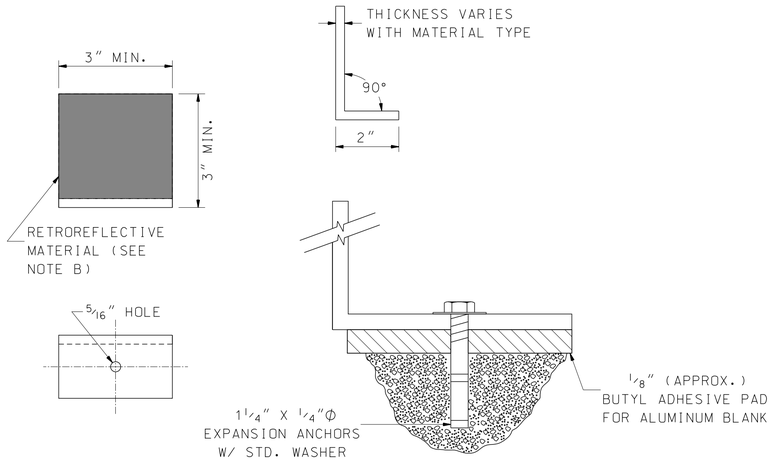
RETROREFLECTIVE BEAM GUARDRAIL DELINEATOR

(ITEM 621.2)



DELINEATOR WITHIN GUARDRAIL SECTION





RETROREFLECTIVE PERMANENT CONCRETE BARRIER DELINEATOR

(ITEM 621.1)

BARRIER DELINEATOR GENERAL NOTES

A. THIS DELINEATOR IS TO BE PLACED ON TOP OF CONCRETE BARRIER.

B. IF GLARE SCREEN IS PLACED ON TOP OF THE CONCRETE BARRIER, THEN DELINEATORS ARE ATTACHED TO EITHER SIDE OF THE BARRIER AND DO NOT NEED TO BE RETRO-REFLECTORIZED ON BOTH SIDES. THE UPPER EDGE OF THE DELINEATOR IS TO BE PLACED VERTICALLY 1/2 INCH DOWN FROM THE TOP OF THE BARRIER.

C. YELLOW DELINEATOR FOR MEDIAN BARRIERS SHALL BE LOCATED ON THE LEFT SIDE OF THE ROADWAY FACING TRAFFIC IN BOTH DIRECTIONS, AND SHALL HAVE RETROREFLECTIVE MATERIAL ON BOTH SIDES, BEGINNING AT THE FIRST FULL HEIGHT OF THE CONCRETE MEDIAN BARRIER AND SPACED ACCORDING TO CHART FOR BEAM GUARDRAIL DELINEATORS.

DELINEATION STANDARD

ROADSIDE DELINEATION

STANDARD NO. DL-1

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

*.DGN FILE NAME
DL-1

APPROVED 2021 STANDARD PLANS

New Hampshire DOT Department of Transportation

STANDARD NO. DL-1

STANDARD NO. DL-2

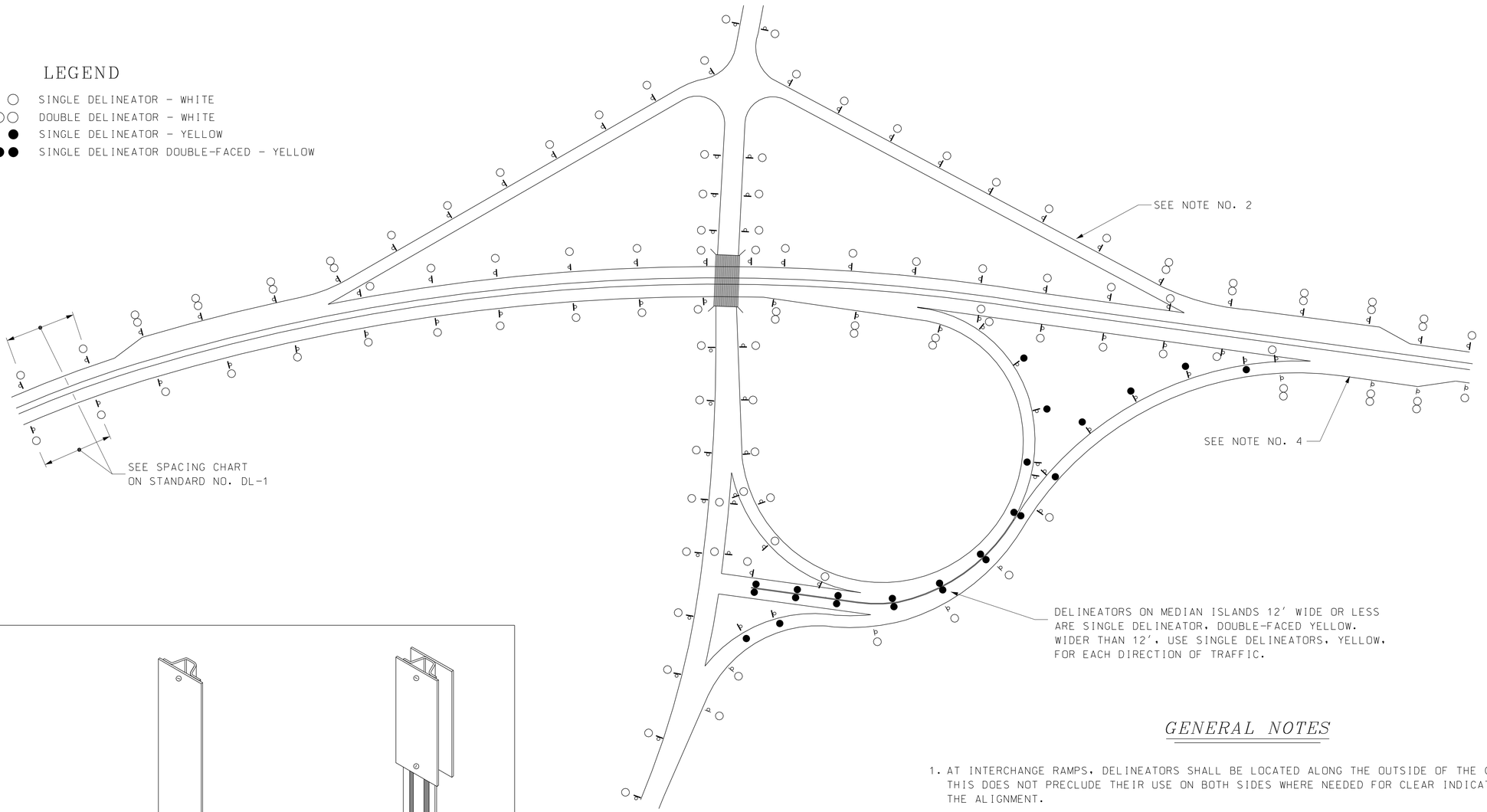
REVISION DATE
07-13-2001
06-16-2010
03-05-2015

*.DGN FILE NAME
DL-2

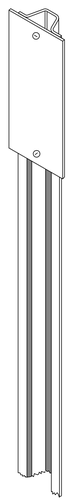
2021

LEGEND

- ○ SINGLE DELINEATOR - WHITE
- ○○ DOUBLE DELINEATOR - WHITE
- ● SINGLE DELINEATOR - YELLOW
- ●● SINGLE DELINEATOR DOUBLE-FACED - YELLOW

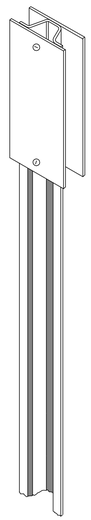


DELINEATORS ON MEDIAN ISLANDS 12′ WIDE OR LESS ARE SINGLE DELINEATOR, DOUBLE-FACED YELLOW. WIDER THAN 12′, USE SINGLE DELINEATORS, YELLOW, FOR EACH DIRECTION OF TRAFFIC.



SINGLE DELINEATOR
ITEM 621.31

DOUBLE DELINEATOR
ITEM 621.32



SINGLE DELINEATOR
DOUBLE-FACED
ITEM 621.33

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.

April

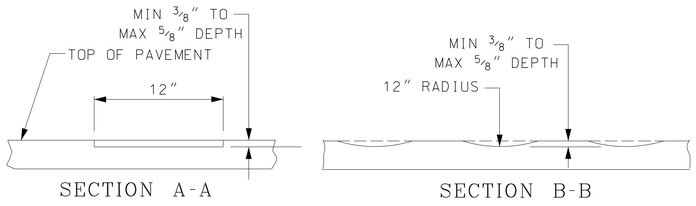
STANDARD PLANS

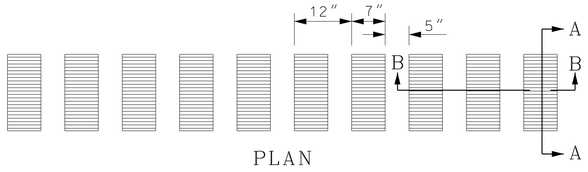
New Hampshire DOT Department of Transportation

DELINEATION STANDARD

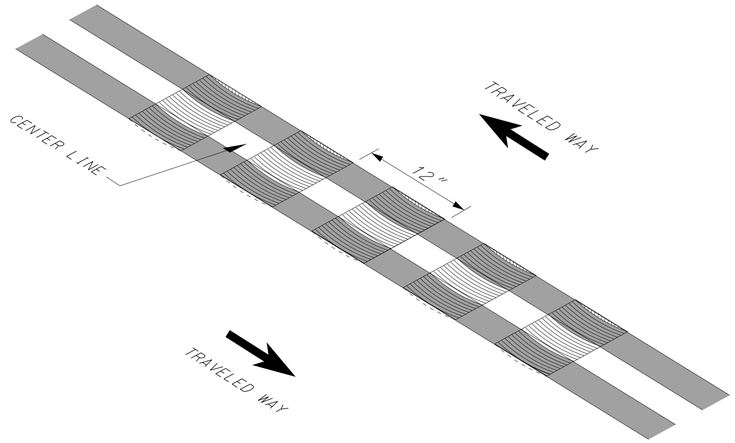
INTERCHANGE DELINEATION

STANDARD NO. DL-2





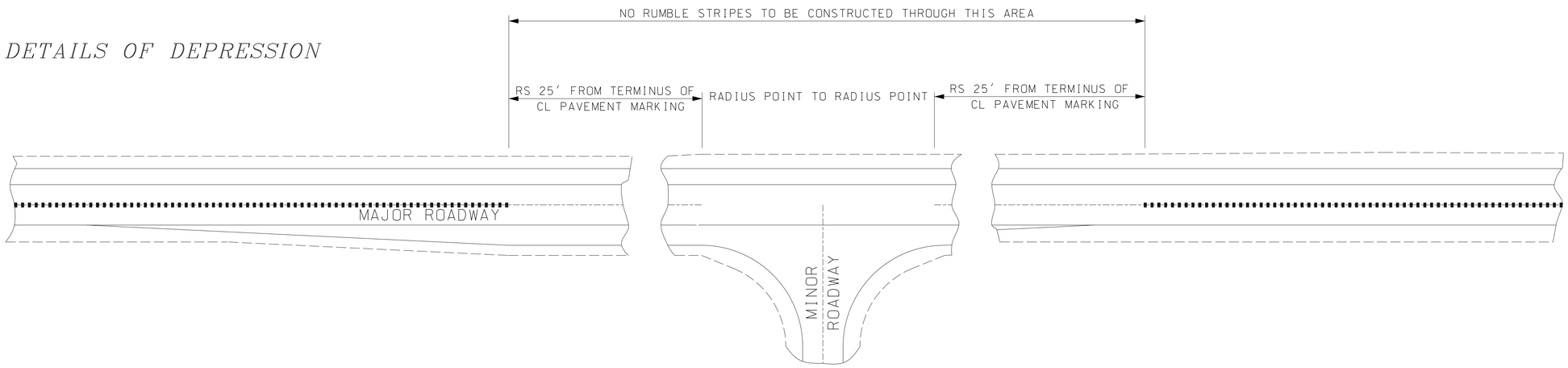
DETAILS OF DEPRESSION



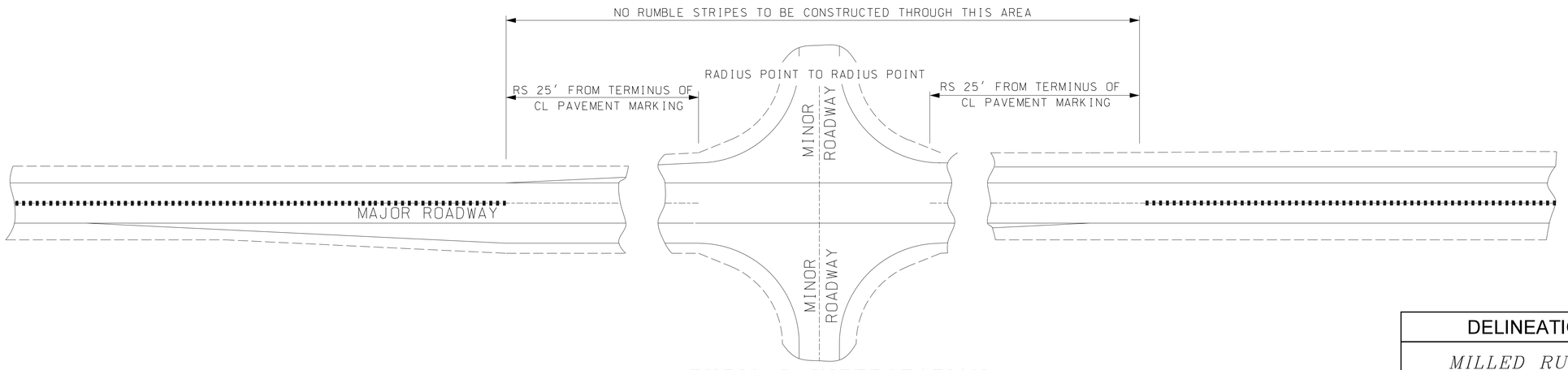
TYPICAL CENTERLINE INSTALLATION DETAIL

GENERAL NOTES

1. CENTERLINE RUMBLE STRIPES SHALL BE CONTINUED THROUGHOUT ALL PASSING ZONES.
2. WHERE AT-GRADE BRIDGES ARE PRESENT, RUMBLE STRIPES SHALL END/BEGIN 30 FEET BEYOND THE EXISTING BRIDGE DECK JOINTS.
3. RUMBLE STRIPES SHALL HAVE A FINISHED DIMENSION OF 7" WIDE IN THE DIRECTION OF TRAVEL AND HAVE A MINIMUM OF 12" LONG MEASURED PERPENDICULAR TO THE DIRECTION OF TRAVEL.
4. THE DEPRESSIONS SHALL GENERALLY HAVE A CONCAVE CIRCULAR SHAPE WITH A 3/8" MINIMUM TO 5/8" MAXIMUM DEPTH AT THE CENTER.



TYPICAL "T" INTERSECTION



TYPICAL INTERSECTION

STANDARD NO. DL-6

REVISION DATE
06-16-2010
01-25-2016

.DGN FILE NAME
DL-6

2021 STANDARD PLANS

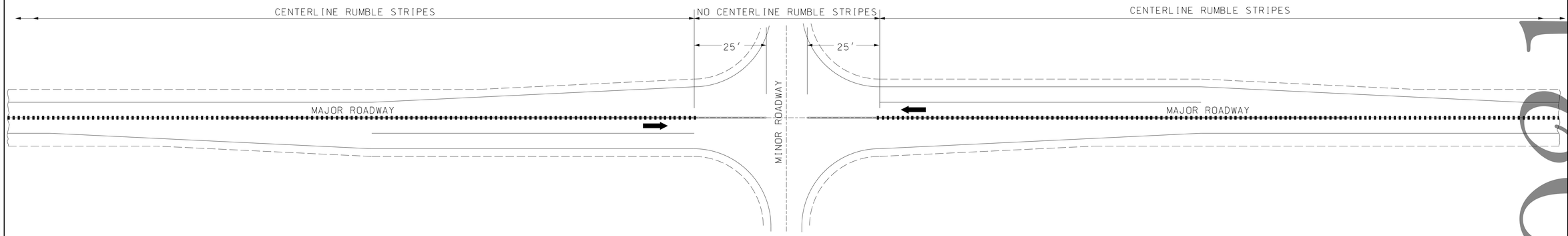
April

New Hampshire DOT Department of Transportation

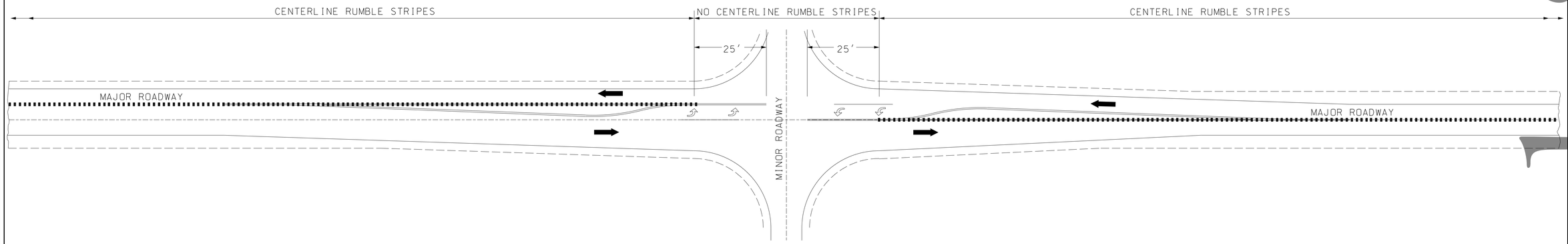
DELINEATION STANDARD

MILLED RUMBLE STRIPES (CENTERLINE)

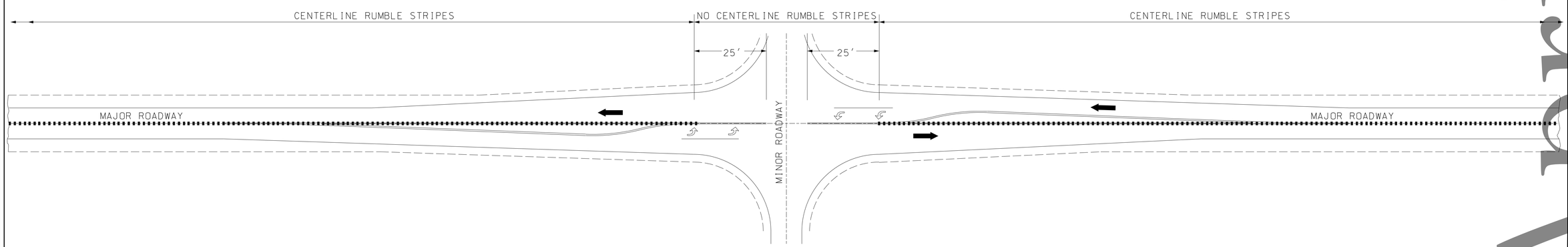
STANDARD NO. DL-6



TYPICAL RURAL INTERSECTION WITH BYPASS LANES



TYPICAL RURAL INTERSECTION WITH OPPOSING LEFT TURN LANES



TYPICAL RURAL INTERSECTION WITH OFFSET LEFT TURN LANES

STANDARD
NO. DL-7

REVISION DATE
06-16-2010
01-25-2016

DGN FILE NAME
DL-7

2021

STANDARD PLANS

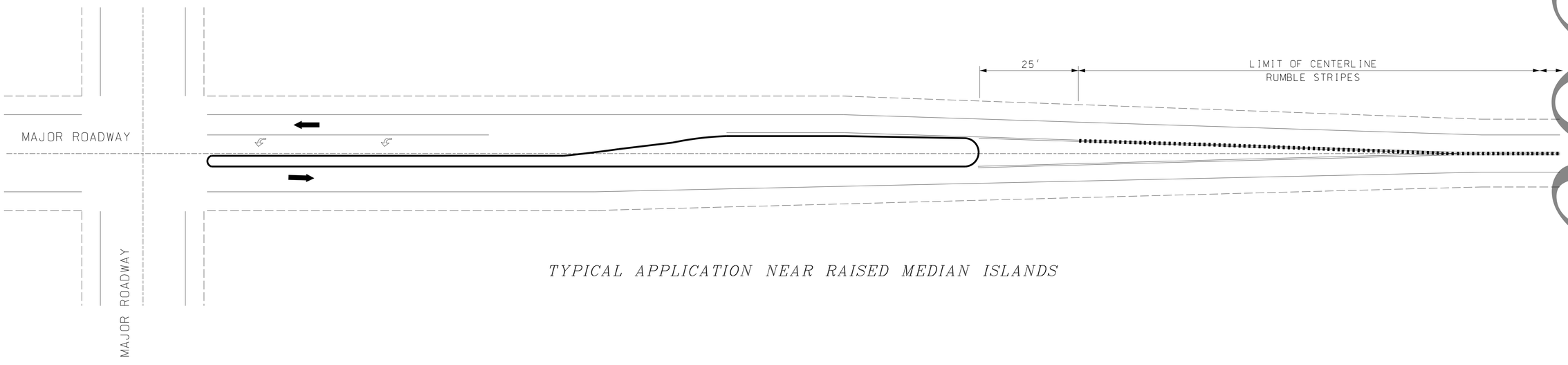
April

New Hampshire DOT
Department of Transportation

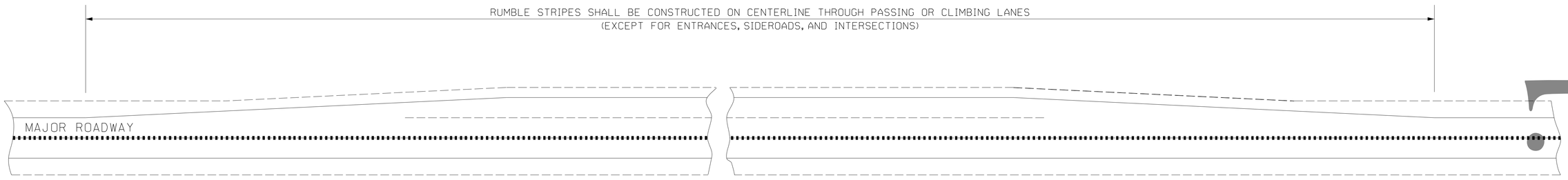
DELINEATION STANDARD

MILLED RUMBLE STRIPES (CENTERLINE)

STANDARD
NO. DL-7



TYPICAL APPLICATION NEAR RAISED MEDIAN ISLANDS



TYPICAL PASSING OR CLIMBING LANES

STANDARD
NO. DL-8

REVISION DATE
06-16-2010
01-25-2016

.DGN FILE NAME
DL-8

APRIL 2021

STANDARD PLANS

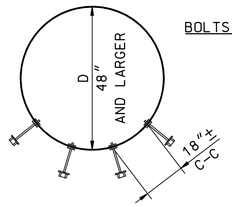
New Hampshire DOT Department of Transportation

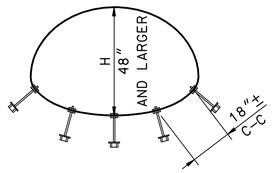
DELINEATION STANDARD

MILLED RUMBLE STRIPES (CENTERLINE)

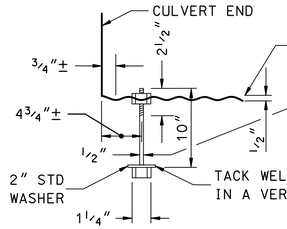
STANDARD
NO. DL-8

BOLTS FOR USE WITH LOW HEADWALL STRUCTURES





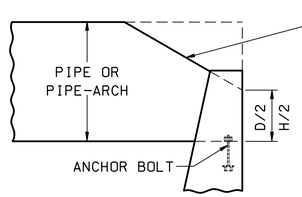
ELEVATIONS



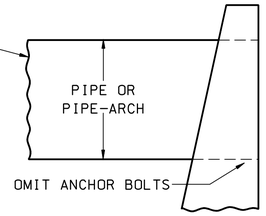
ALL HOLES 9/16" DIA. TO BE DRILLED OR PUNCHED PRIOR TO COATING PIPE, OR FIELD DRILLED IF CHANGES ORDERED.

BOLTS TO BE SPACED APPROX. 18" C-C.

ANCHOR BOLT & LOCATION

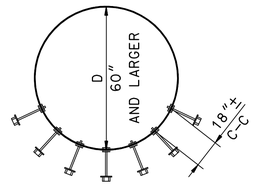


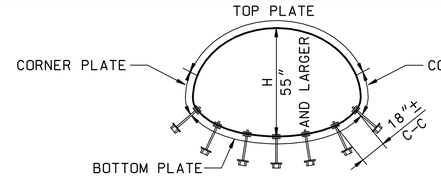
DESIGN WITH LOW HEADWALL



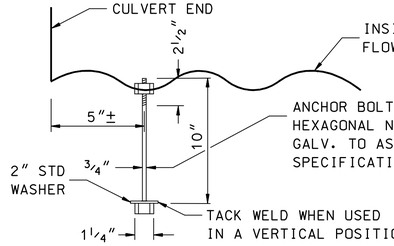
DESIGN WITH FULL HEADWALL

NHDOT STANDARD PLANS	REV. DATE		PLATE
ANCHOR BOLTS FOR CORRUGATED STEEL PIPE AND PIPE-ARCH	06-16-2010		1
			STANDARD DP-1





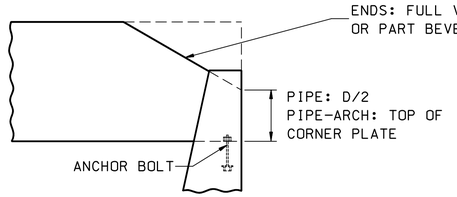
ELEVATIONS



ALL HOLES 7/8" DIA. TO BE DRILLED OR PUNCHED PRIOR TO COATING PIPE, OR FIELD DRILLED IF CHANGES ORDERED.

BOLTS TO BE SPACED APPROX. 18" C-C, EXCEPT ON SKEW CUT ENDS. SOME HOLES WILL NOT BE IN CORRUGATION VALLEY.

ANCHOR BOLT & LOCATION



NOTE: WITH FULL HEADWALL, ANCHOR BOLTS NOT REQUIRED, EXCEPT ON SKEWS GREATER THAN 20° WHERE FULL PERIPHERY ANCHOR BOLTS ARE TO BE USED.

DESIGN WITH LOW HEADWALL

NHDOT STANDARD PLANS	REV. DATE		PLATE
ANCHOR BOLTS FOR STRUCTURAL STEEL PLATE PIPE AND PIPE-ARCH	06-16-2010		2
			STANDARD DP-1

NHDOT STANDARD PLANS	REV. DATE		PLATE
			3
			STANDARD DP-1

NHDOT STANDARD PLANS	REV. DATE		PLATE
			4
			STANDARD DP-1

STANDARD NO. DP-1

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

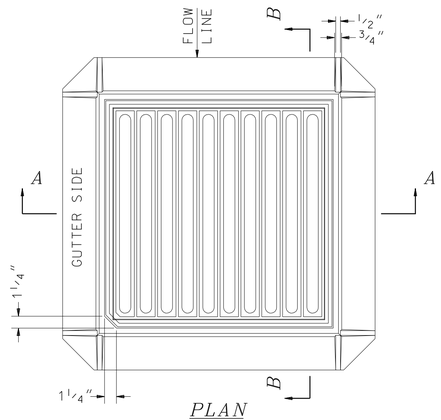
*.DGN FILE NAME
DP-1

April 2021

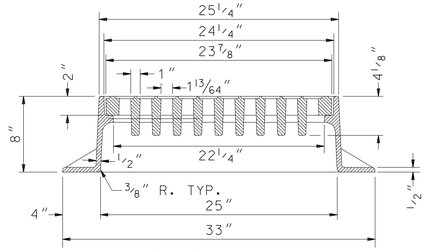
STANDARD PLANS

New Hampshire DOT Department of Transportation

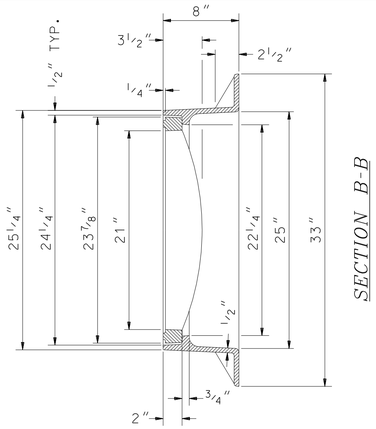
STANDARD NO. DP-1



PLAN



SECTION A-A

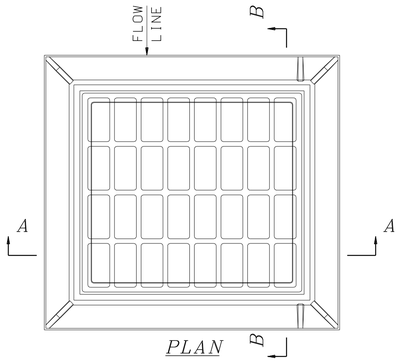


SECTION B-B

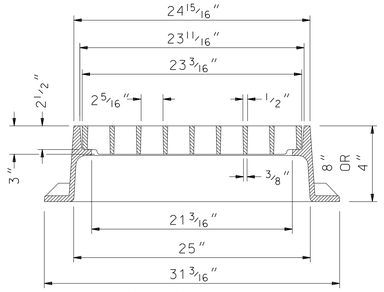
GENERAL NOTES

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.

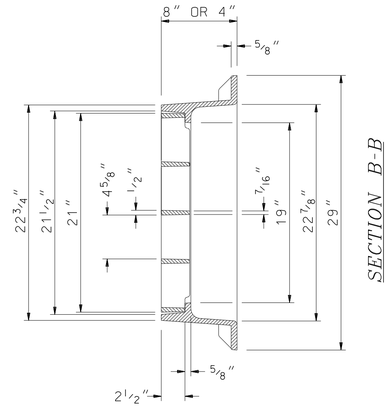
NHDOT STANDARD PLANS	REV. DATE		PLATE
TYPE "A" GRATE & FRAME	06-16-2010		1
			STANDARD
			DR-1



PLAN



SECTION A-A



SECTION B-B

GENERAL NOTES

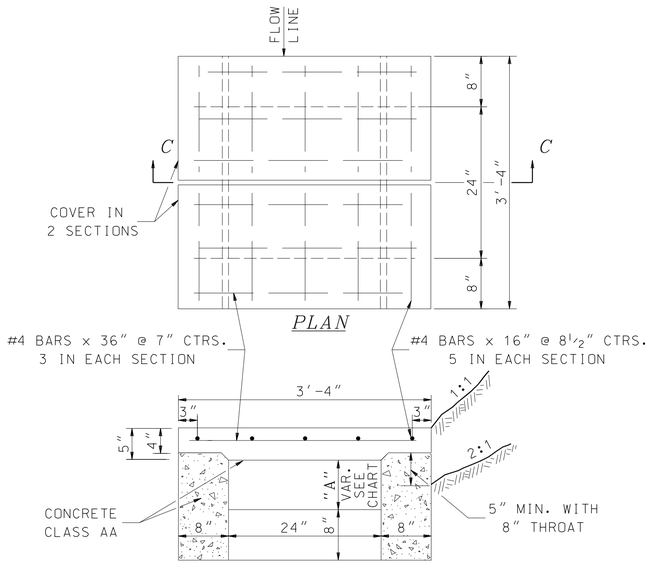
1. ALL DIMENSIONS ARE NOMINAL.
2. FRAMES USING NARROWER DIMENSIONS FOR THICKNESS ARE ALLOWED PROVIDED:
   A. THE FRAMES MEET OR EXCEED THE SPECIFIED LOAD RATING.
   B. THE INTERIOR PERIMETER (SEAT AREA) DIMENSIONS OF THE FRAMES REMAIN THE SAME TO ALLOW CONTINUED USE OF EXISTING GRATES/COVERS AS THE EXISTING 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	REV. DATE		PLATE
TYPE "B" GRATE & FRAME	06-16-2010		2
	08-14-2015		STANDARD
			DR-1

STANDARD NO. DR-1

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

*.DGN FILE NAME
DR-1



PLAN

#4 BARS x 36" @ 7" CTRS. 3 IN EACH SECTION

#4 BARS x 16" @ 8 1/2" CTRS. 5 IN EACH SECTION

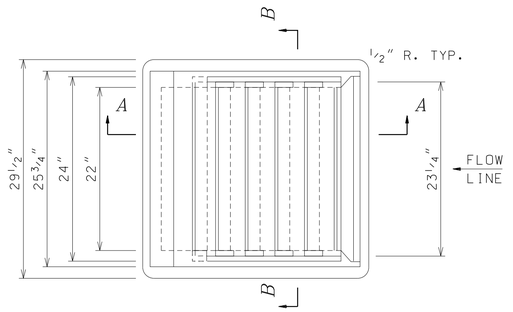
SECTION C-C

TO BE USED IN BERM DITCHES AND AT LOCATIONS INACCESSIBLE TO VEHICULAR TRAFFIC

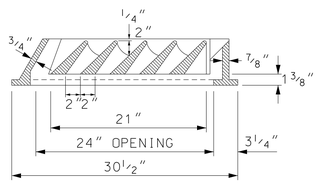
PIPE DIAMETER INCHES	THROAT DEPTH "A" INCHES	
	ONE THROAT	TWO THROAT
12"	8"	8"
15"	8"	8"
18"	16"	8"
24"	18"	16"

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.

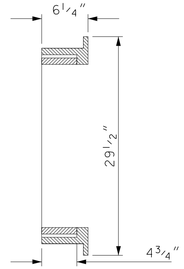
NHDOT STANDARD PLANS	REV. DATE		PLATE
TYPE "C" GRATE & FRAME	06-16-2010		3
			STANDARD
			DR-1



PLAN



SECTION A-A



SECTION B-B

GENERAL NOTES

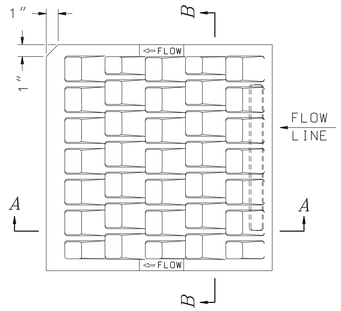
1. ALL DIMENSIONS ARE NOMINAL.
2. NOT TO BE USED WHEN BICYCLE TRAFFIC IS ANTICIPATED.
3. USE 3-FLANGE FRAME IF INSTALLED ADJACENT TO GRANITE CURB.
4. FREE OPEN AREA = 1.80 S.F.

NHDOT STANDARD PLANS	REV. DATE		PLATE
TYPE "E" GRATE	06-16-2010		4
			STANDARD
			DR-1

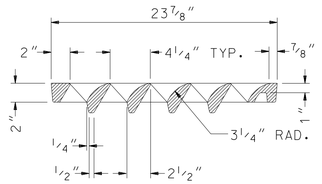
April 2021 STANDARD PLANS

New Hampshire DOT Department of Transportation

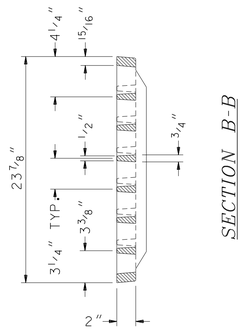
STANDARD NO. DR-1



PLAN



SECTION A-A

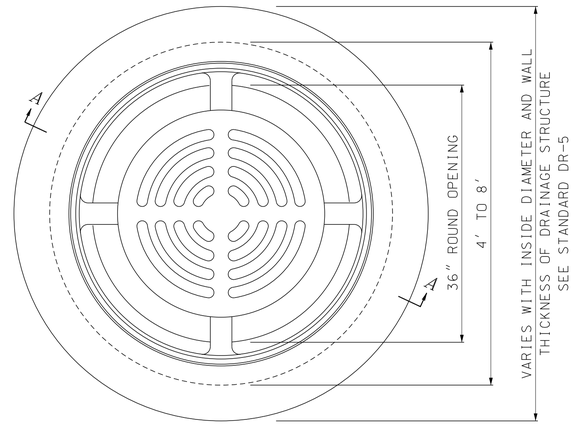


SECTION B-B

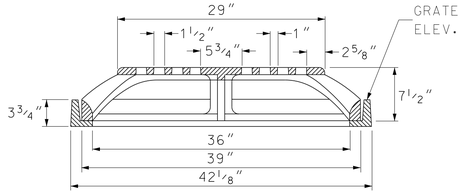
GENERAL NOTES

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.

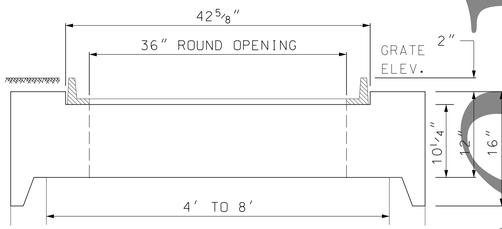
NHDOT STANDARD PLANS	REV. DATE		PLATE
TYPE "F" GRATE	06-16-2010		1
			STANDARD
			DR-2



PLAN



GRATE SECTION A-A

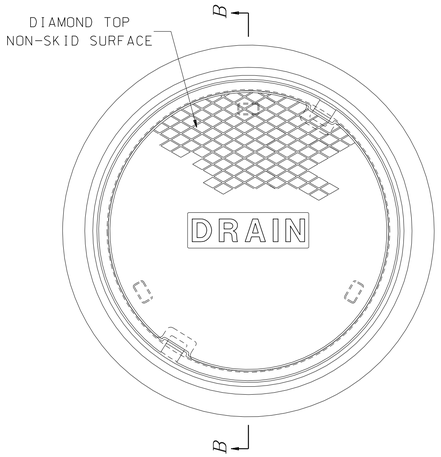


SLAB SECTION A-A

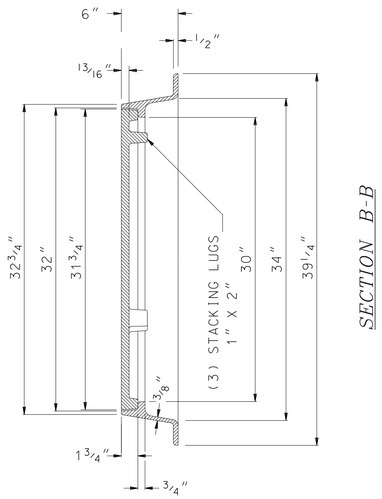
GENERAL NOTES

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.

NHDOT STANDARD PLANS	REV. DATE		PLATE
TYPE "G" GRATE, FRAME AND SLAB	08-14-2015		2
			STANDARD
			DR-2



PLAN

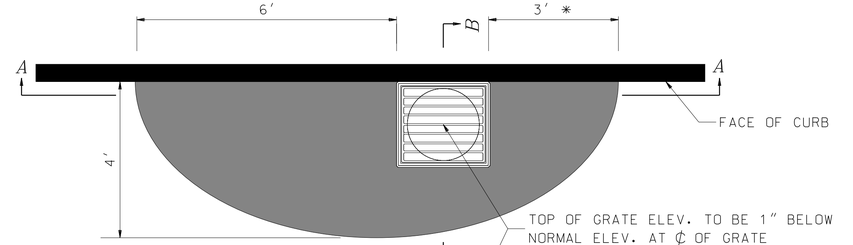


SECTION B-B

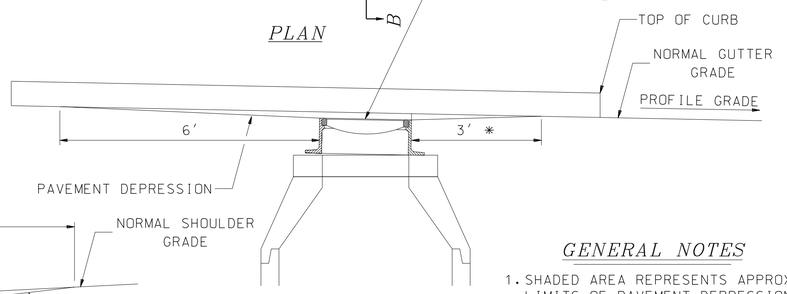
GENERAL NOTES

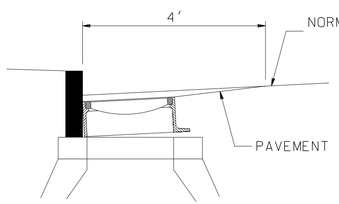
1. ALL DIMENSIONS ARE NOMINAL.
2. FRAMES USING NARROWER DIMENSIONS FOR THICKNESS ARE ALLOWED PROVIDED:
   A. THE FRAMES MEET OR EXCEED THE SPECIFIED LOAD RATING.
   B. THE INTERIOR PERIMETER (SEAT AREA) DIMENSIONS OF THE FRAMES REMAIN THE SAME TO ALLOW CONTINUED USE OF EXISTING GRATES/COVERS AS THE EXISTING 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	REV. DATE		PLATE
MANHOLE COVER & FRAME	06-16-2010		3
	08-14-2015		STANDARD
			DR-2



PLAN





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	REV. DATE		PLATE
PAVEMENT DEPRESSION DETAIL	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

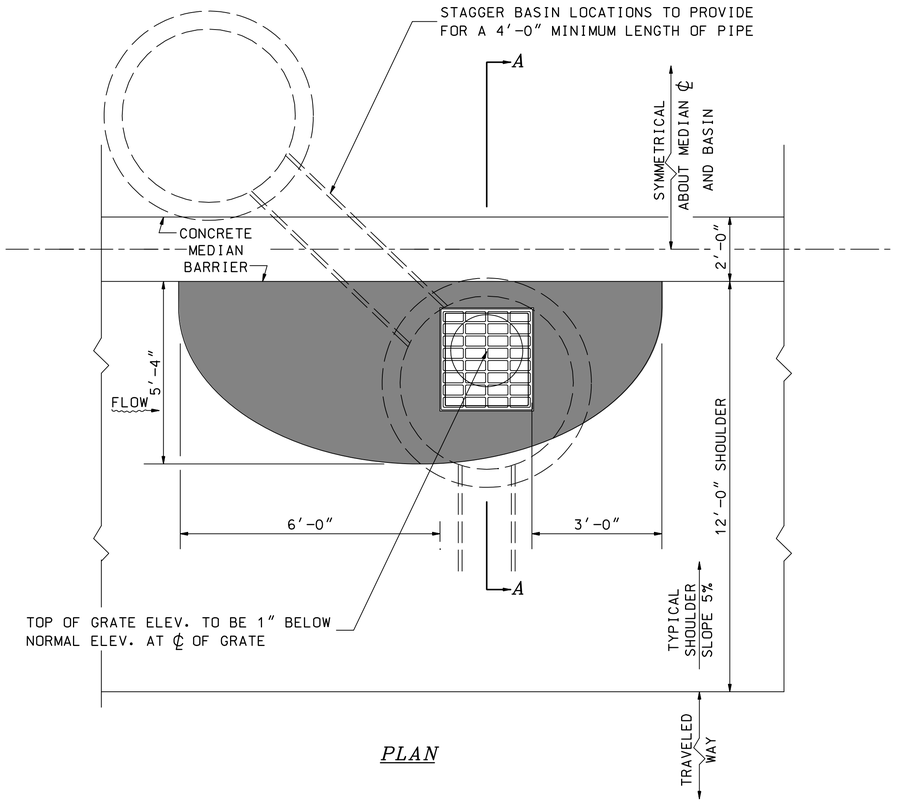
DGN FILE NAME
DR-2

April 2021

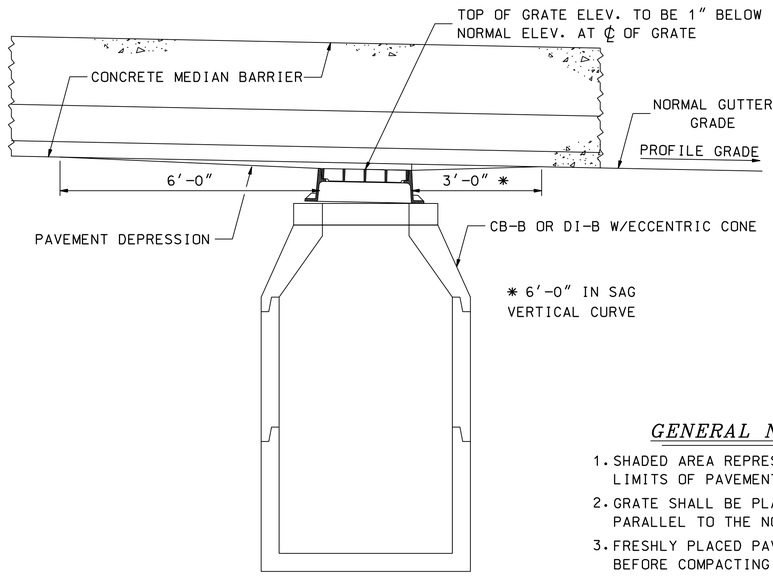
STANDARD PLANS

New Hampshire DOT Department of Transportation

STANDARD NO. DR-2



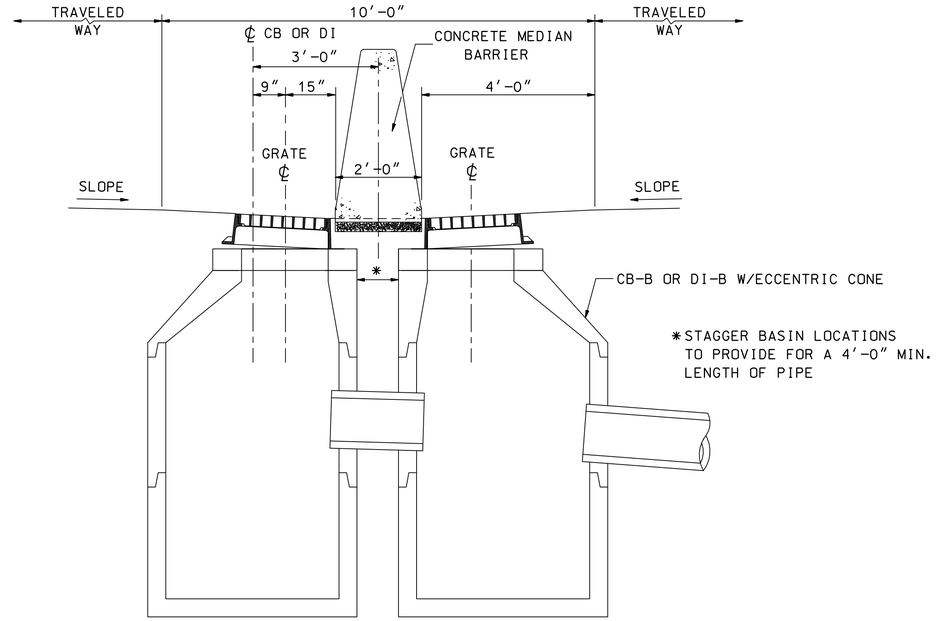
PLAN



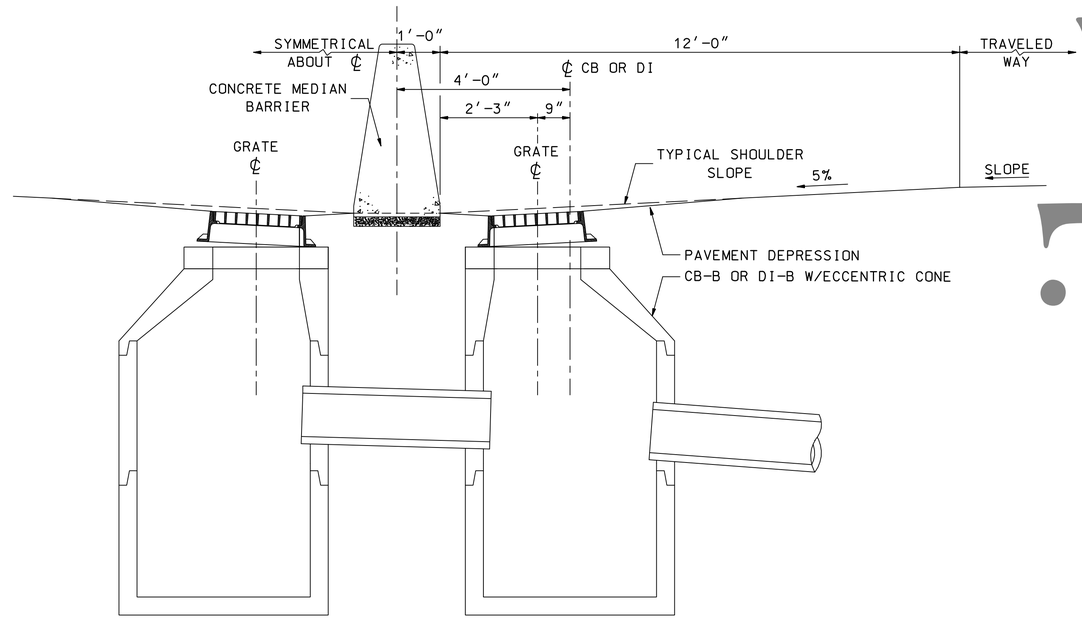
ELEVATION

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



10′-0″ WIDE MEDIAN DRAINAGE DETAILS
(OR ALTERNATE DESIGN FOR SPECIAL CONDITIONS)



SECTION A-A

26′-0″ WIDE MEDIAN DRAINAGE DETAILS

STANDARD NO. DR-3

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

*.DGN FILE NAME
DR-3

2021

STANDARD PLANS

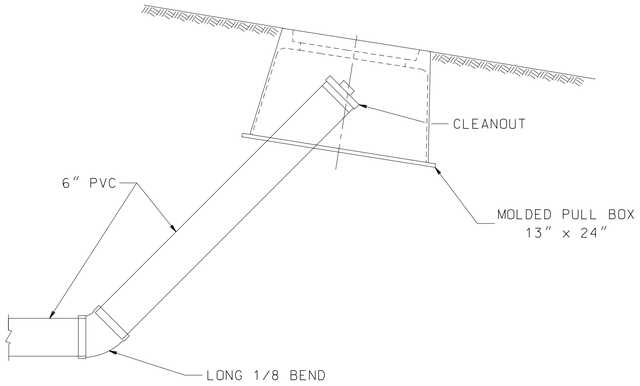
April

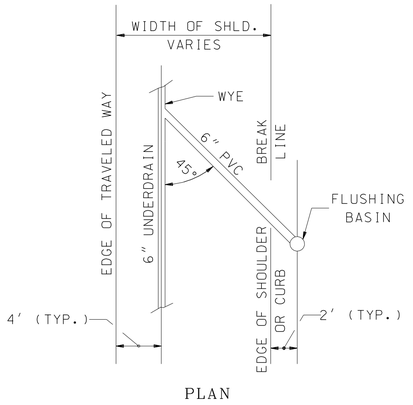
New Hampshire DOT Department of Transportation

DRAINAGE STANDARD

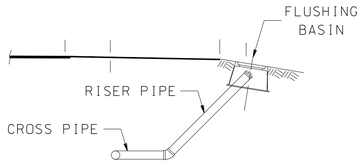
CONCRETE MEDIAN BARRIER DRAINAGE DETAILS

STANDARD NO. DR-3





PLAN



CROSS SECTION

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.

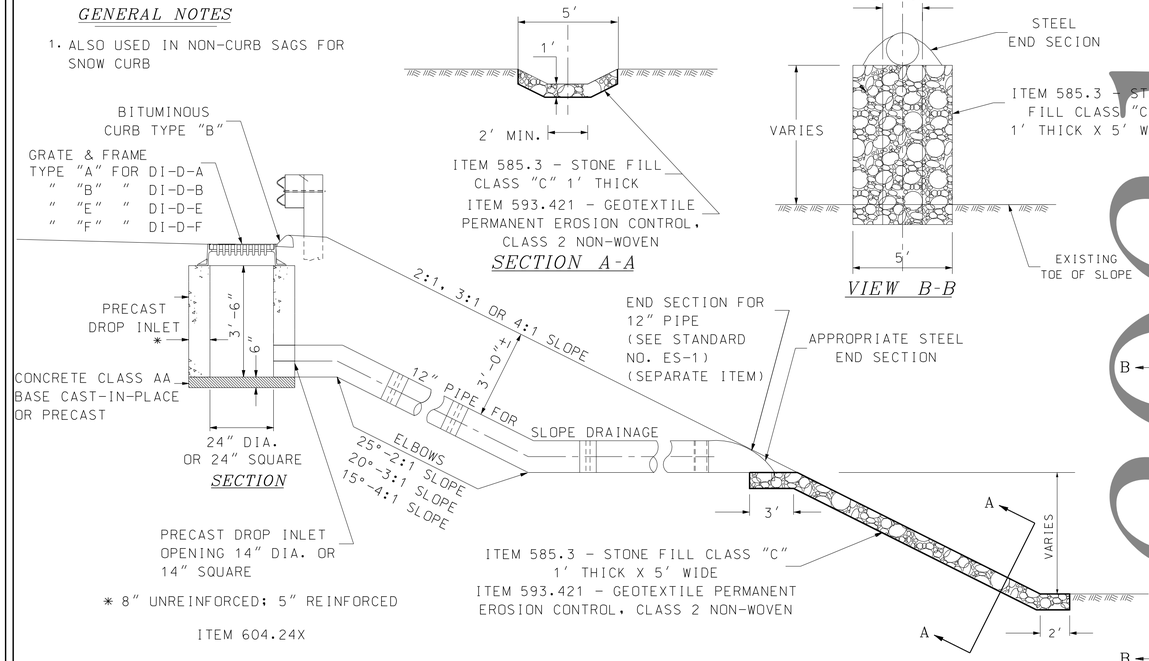
TYPICAL DETAIL

TYPICAL LOCATION

NHDOT STANDARD PLANS	REV. DATE		PLATE
UNDERDRAIN FLUSHING BASIN	06-16-2010		1
			STANDARD
			DR-4

GENERAL NOTES

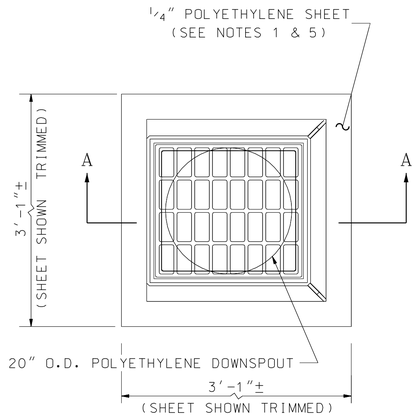
1. ALSO USED IN NON-CURB SAGS FOR SNOW CURB



NHDOT STANDARD PLANS	REV. DATE		PLATE
DROP INLET TYPE D & PIPE FOR SLOPE DRAINAGE	06-16-2010		2
	11-05-2010		STANDARD
	08-14-2015		DR-4

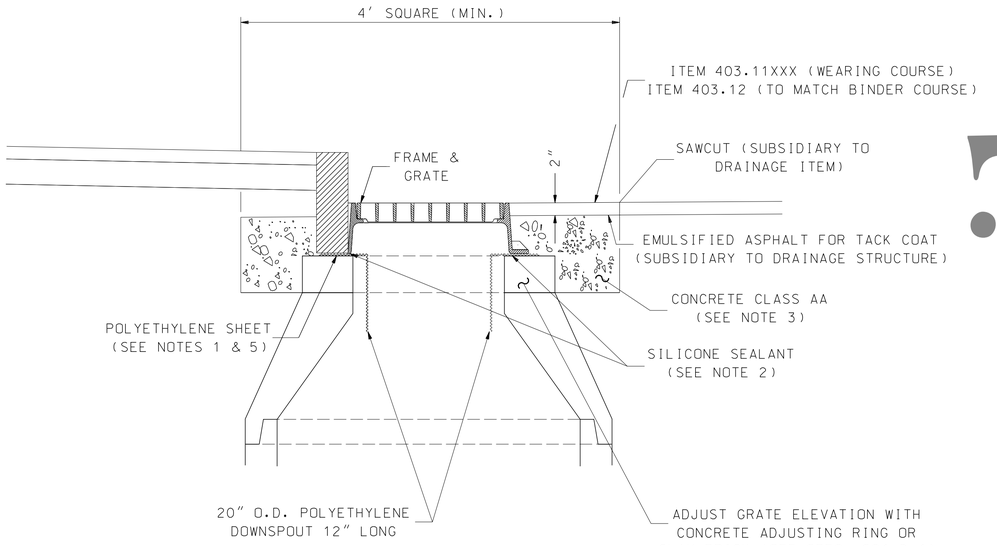
GENERAL NOTES

1. POLYETHYLENE LINER (ITEM 604.0007) SHALL BE FABRICATED AT THE SHOP. DOWNSPOUT SHALL BE EXTRUSION FILLET WELDED TO THE POLYETHYLENE SHEET.
2. 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).
3. PLACE CLASS AA CONCRETE TO 2" BELOW THE TOP OF GRATE ELEVATION (SUBSIDIARY TO DRAINAGE STRUCTURE).
4. USE ON DRAINAGE STRUCTURES 4' MIN. DIAMETER ONLY.
5. 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).
6. THE CENTER OF THE GRATE & FRAME MAY BE SHIFTED A MAXIMUM OF 6" FROM THE CENTER OF THE DOWNSPOUT IN ANY DIRECTION.
7. PLACED ONLY IN DRAINAGE STRUCTURES IN PAVEMENT.



PLAN

NHDOT STANDARD PLANS	REV. DATE		PLATE
POLYETHYLENE LINER	06-16-2010		3
	08-14-2015		STANDARD
			DR-4



SECTION A-A

NHDOT STANDARD PLANS	REV. DATE		PLATE
POLYETHYLENE LINER	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

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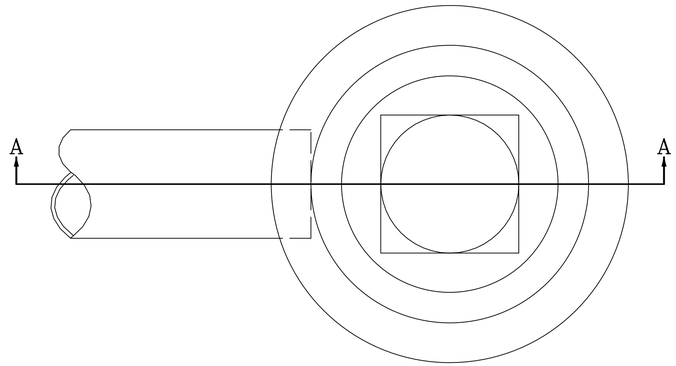
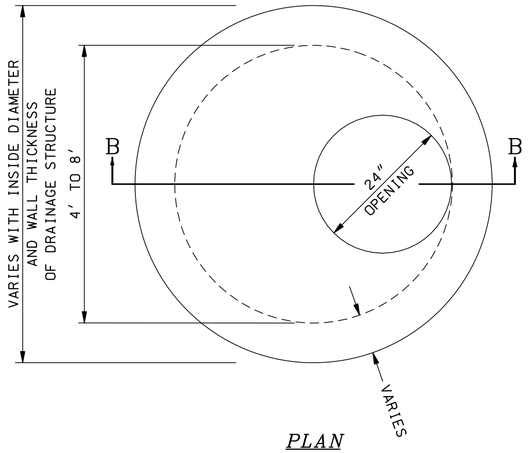
STANDARD PLANS

New Hampshire DOT Department of Transportation

STANDARD NO. DR-4

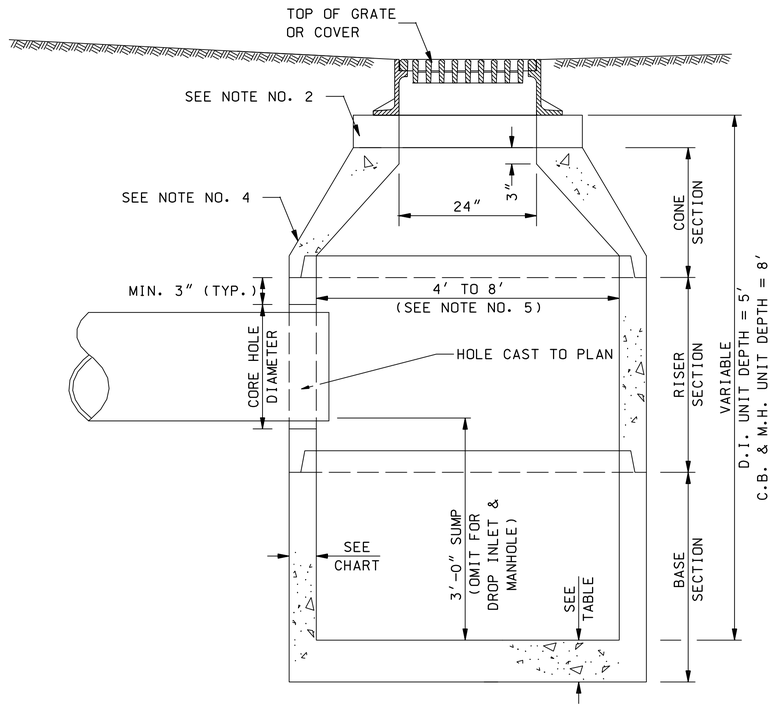


PLAN

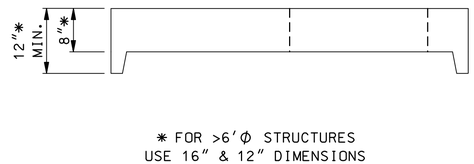


PLAN

CORE HOLE SIZE				
PIPE SIZE	RCP CORE HOLE DIA.		PLASTIC CORE HOLE DIA.	
INCHES	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'Φ 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

1. ITEM NUMBERS: C.B.= 604.1XXX, D.I.= 604.2XXX, M.H.= 604.32XX
2. FITTING FRAME TO GRADE MAY BE DONE WITH PREFABRICATED ADJUSTMENT RINGS OR CLAY BRICKS (2 COURSES MAX.).
3. CB & DI GRATES IN PAVED AREAS SHALL BE SET ACCORDING TO THE PAVEMENT DEPRESSION DETAIL SHOWN ON PLATE 4 OF STANDARD NO. DR-2.
4. 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.
5. 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.
6. PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
7. OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL OF STRUCTURE.
8. 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.
9. 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.

STANDARD NO. DR-5

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

*.DGN FILE NAME
DR-5

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STANDARD PLANS

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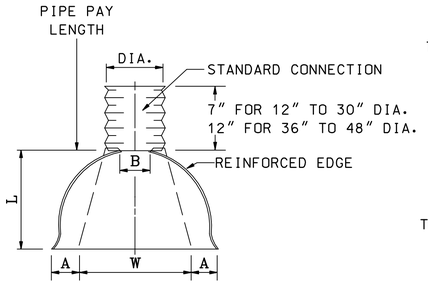
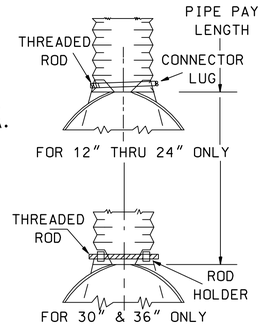
DRAINAGE STANDARD

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

STANDARD NO. DR-5

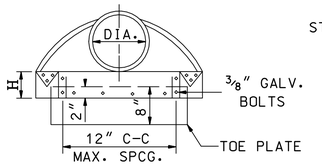


PLAN

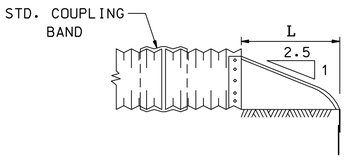


ALTERNATE CONNECTIONS

ITEM NO.	PIPE DIA.	METAL GAGE	DIMENSIONS				
			A (1" TOL.)	B MAX.	H (1" TOL.)	L(1½" 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"



ELEVATION

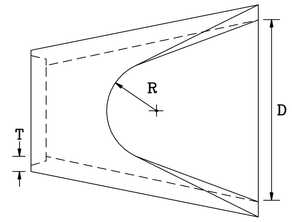


TYPICAL CROSS-SECTION

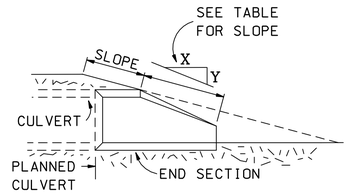
GENERAL NOTES

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	REV. DATE	PLATE
END SECTION FOR PLASTIC & CORRUGATED STEEL PIPE	06-16-2010	1
		STANDARD ES-1



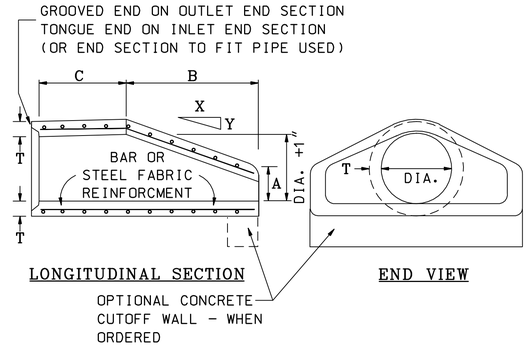
PLAN



SLOPE DETAIL

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.



LONGITUDINAL SECTION

END VIEW

ITEM NO.	PIPE DIA.	APPROX. SLOPE X to Y	A	B	C	D	R	T
603.30112	12"	3 TO 1	4"	24"	48⅞"	24"	9"	2"
603.30115	15"	3 TO 1	6"	27"	46"	30"	11"	2¼"
603.30118	18"	3 TO 1	9"	27"	46"	36"	12"	2½"
603.30124	24"	3 TO 1	9½"	43½"	30"	48"	14"	3"
603.30130	30"	3 TO 1	12"	54"	19¾"	60"	15"	3½"
603.30136	36"	3 TO 1	15"	63"	33"	72"	20"	4"
603.30142	42"	3 TO 1	21"	63"	33"	78"	22"	4½"
603.30148	48"	3 TO 1	24"	72"	24"	84"	22"	5"

NHDOT STANDARD PLANS	REV. DATE	PLATE
CONCRETE END SECTION FOR REINFORCED CONCRETE PIPE	06-16-2010	2
		STANDARD ES-1

NHDOT STANDARD PLANS	REV. DATE	PLATE
		3
		STANDARD ES-1

NHDOT STANDARD PLANS	REV. DATE	PLATE
		4
		STANDARD ES-1

STANDARD NO. ES-1

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

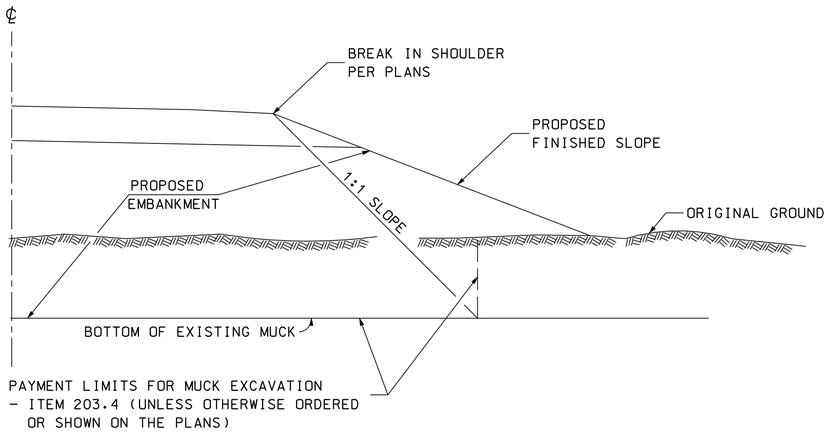
*.DGN FILE NAME
ES-1

April 2021

STANDARD PLANS

New Hampshire DOT Department of Transportation

STANDARD NO. ES-1



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

NHDOT STANDARD PLANS	REV. DATE	PLATE
MUCK EXCAVATION	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

STANDARD
NO. EW-1

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

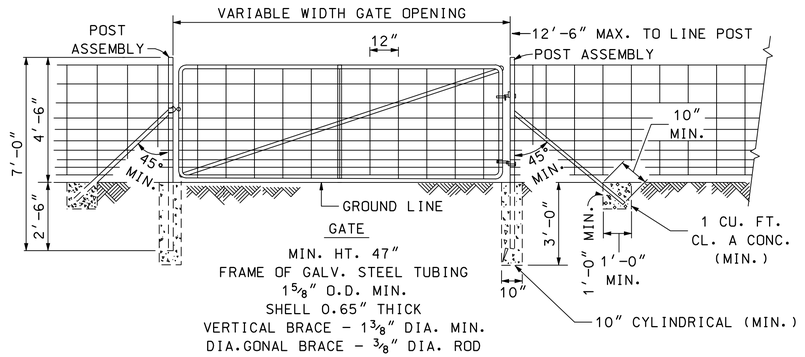
*.DGN FILE NAME
EW-1

April 2021

STANDARD PLANS

New Hampshire DOT Department of Transportation

STANDARD
NO. EW-1

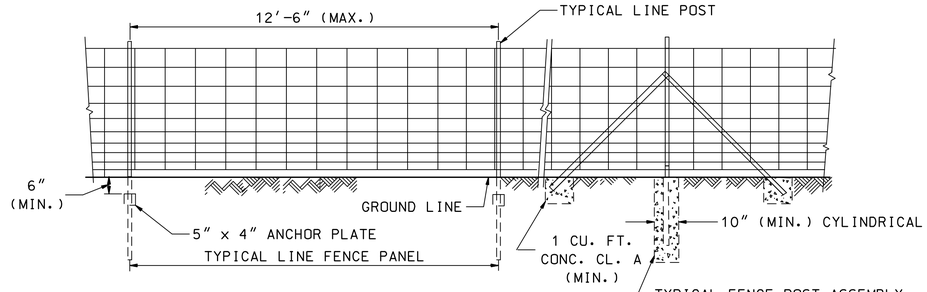


ELEVATION

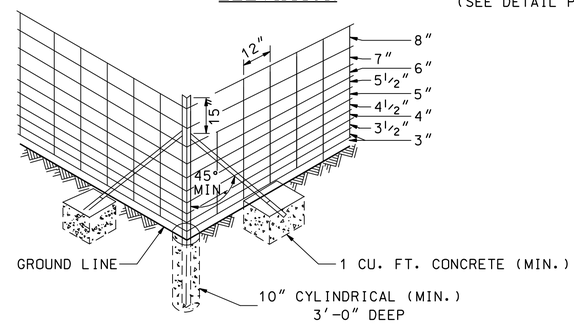
GENERAL NOTES

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	REV. DATE		PLATE
WOVEN WIRE FENCE (ITEM 607.1)	06-16-2010		1
			STANDARD FN-1

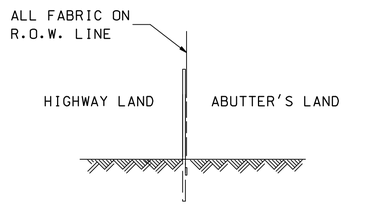


ELEVATION

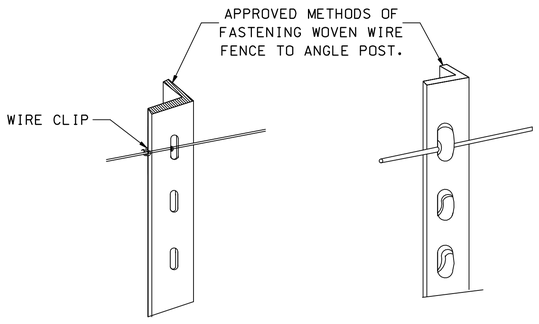


DETAIL OF CORNER BRACE - POST ASSEMBLY

NHDOT STANDARD PLANS	REV. DATE		PLATE
POST ASSEMBLIES FOR WOVEN WIRE FENCE (ITEM 607.41)	06-16-2010		2
			STANDARD FN-1



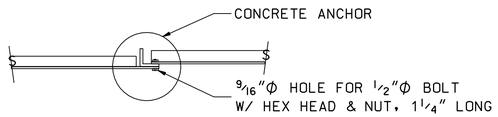
SECTION VIEW ON R.O.W. LINE



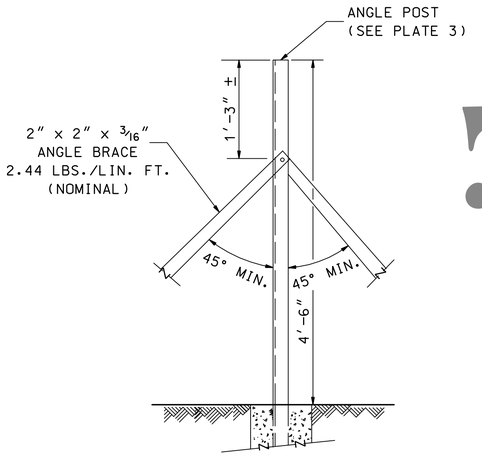
SLOTTED HOLE SELF-FASTENING

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

NHDOT STANDARD PLANS	REV. DATE		PLATE
POST ASSEMBLIES FOR WOVEN WIRE FENCE	06-16-2010		3
			STANDARD FN-1



PLAN



ELEVATION

TYPICAL FENCE POST ASSEMBLY

NHDOT STANDARD PLANS	REV. DATE		PLATE
ANGLE BRACES FOR WOVEN WIRE FENCE	06-16-2010		4
			STANDARD FN-1

STANDARD NO. FN-1

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

*.DGN FILE NAME
FN-1

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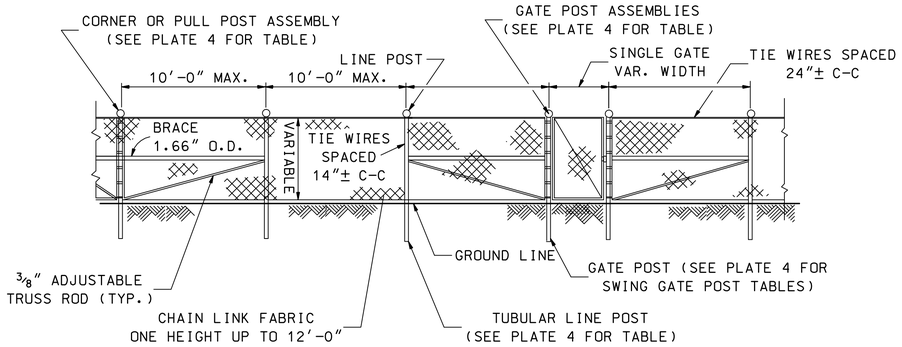
STANDARD PLANS

New Hampshire DOT Department of Transportation

STANDARD NO. FN-1

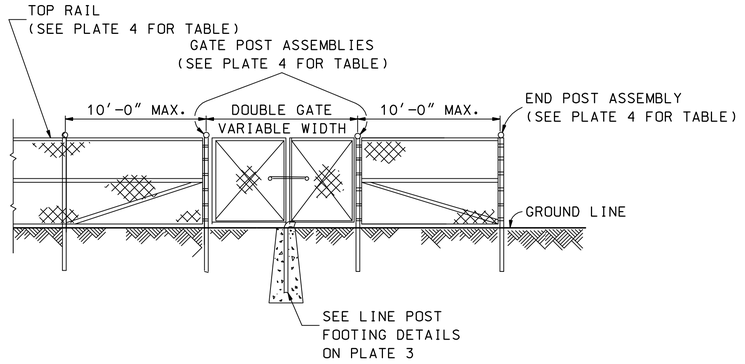


ELEVATION

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



ELEVATION

GENERAL NOTES

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

NHDOT STANDARD PLANS	REV. DATE		PLATE
CHAIN LINK FENCE	06-16-2010		2
			STANDARD FN-2

STANDARD NO. FN-2

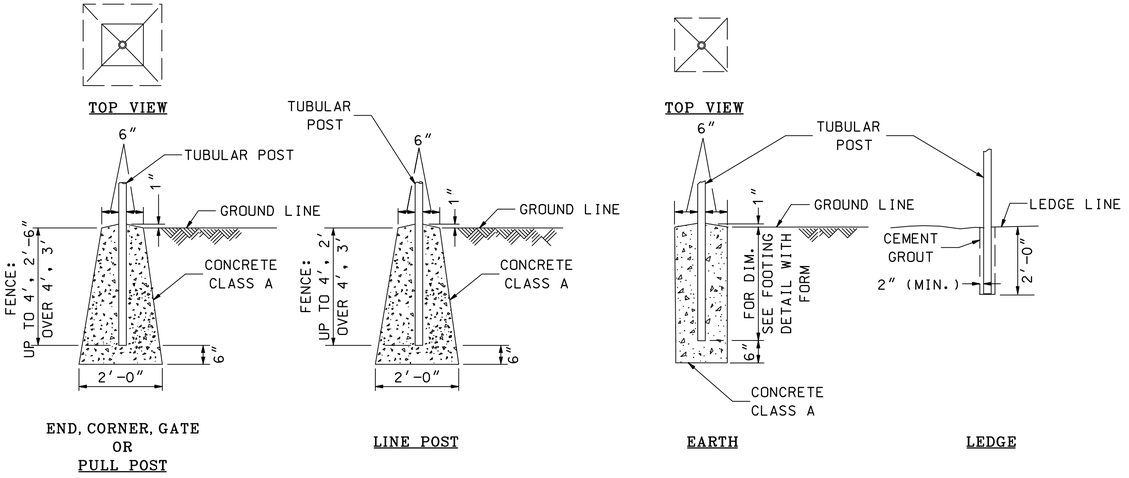
REVISION DATE
07-13-2001
06-16-2010

*.DGN FILE NAME
FN-2

2021

STANDARD PLANS

April



FOOTING DETAIL
(WITH FORM)

FOOTING DETAIL
(WITHOUT FORM)

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

END, CORNER AND PULL POST				
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

TOP RAILS		
FENCE HEIGHT (ft)	ROUND	lb/ft
STEEL		
ALL	2 7/8″ O.D.	5.79
ALUMINUM		
UP TO 12′	2 7/8″ O.D.	2.00

LINE POSTS		
FENCE HEIGHT (ft)	TUBULAR	
	ROUND	lb/ft
STEEL		
UP TO 6′	1.90″ O.D.	2.72
OVER 6′	2 3/8″ O.D.	3.65
ALUMINUM		
UP TO 12′	2 3/8″ O.D.	1.264

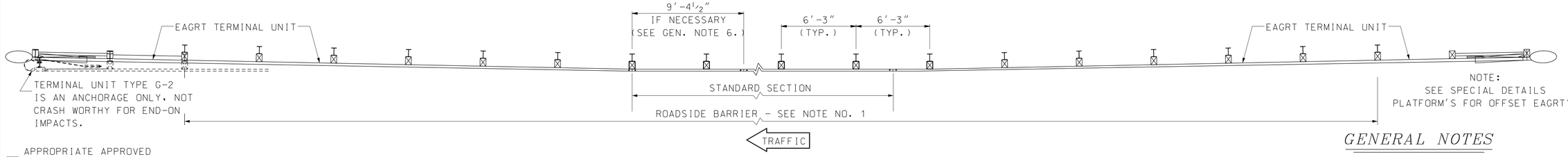
STEEL SWING GATE AND POST TABLE						
TYPE	GATE OPENING		GATE POST (TUBULAR)			
	SINGLE	DOUBLE	ROUND	lb/ft	SQUARE	lb/ft
A	UP TO 6′	UP TO 12′	2 7/8″ O.D.	5.79	2 1/2″ x 2 1/2″	5.70
B	OVER 6′ TO 13′	OVER 12′ TO 26′	4″ O.D.	9.11	3″ x 3″	7.55
C	OVER 13′ TO 18′	OVER 26′ TO 36′	6 5/8″ O.D.	18.97	–	–
D	OVER 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

ALUMINUM SWING GATE AND POST TABLE						
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″	1.76
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

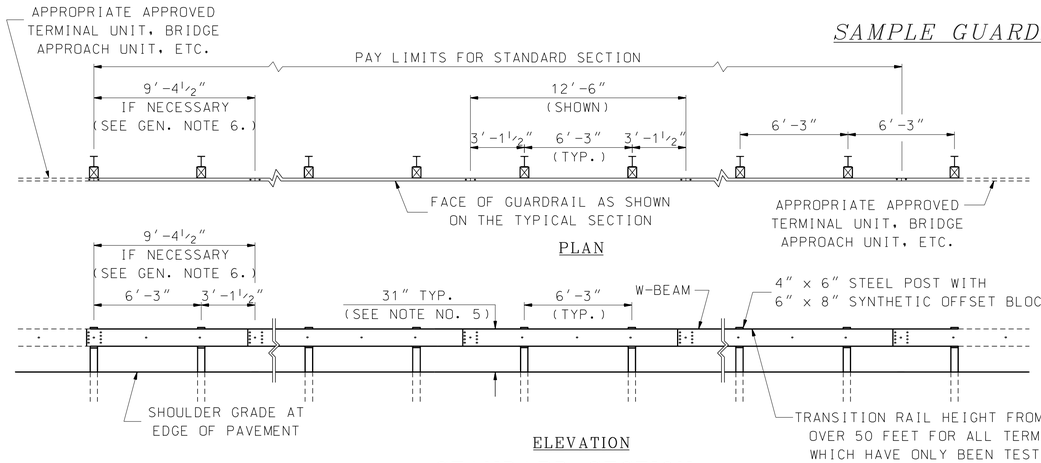
NHDOT STANDARD PLANS	REV. DATE		PLATE
POSTS FOR CHAIN LINK FENCE	06-16-2010		4
			STANDARD FN-2

New Hampshire DOT Department of Transportation

STANDARD NO. FN-2

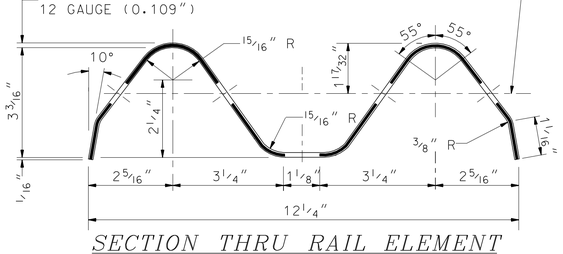


SAMPLE GUARDRAIL INSTALLATION LAYOUT



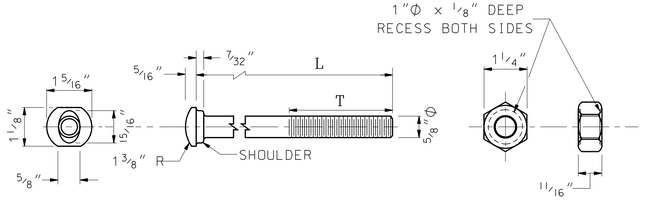
STANDARD SECTION

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.



SECTION THRU RAIL ELEMENT

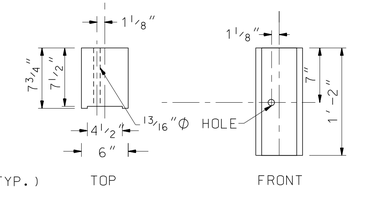
[4 SPACE W-BEAM GUARDRAIL DESIGNATED RWM04a (NOMINALLY 12′-6″)]
[8 SPACE W-BEAM GUARDRAIL UNDESIGNATED AT THIS TIME (NOMINALLY 25′-0″)]



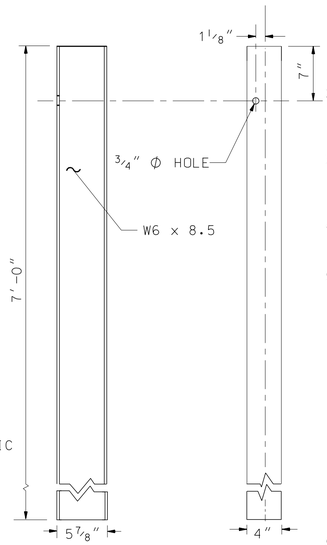
DESIGNATOR	L	T	INTENDED USE
FBB01	1¼″	FULL LENGTH THREAD	RAIL SPLICE BOLTS
FBB02	2″	1¾″ MIN. THREAD LENGTH	POST BOLT (STEEL POSTS)
FBB03	9½″	4″ MIN. THREAD LENGTH	POST BOLT

5/8″ BUTTON HEAD BOLT AND RECESSED NUT

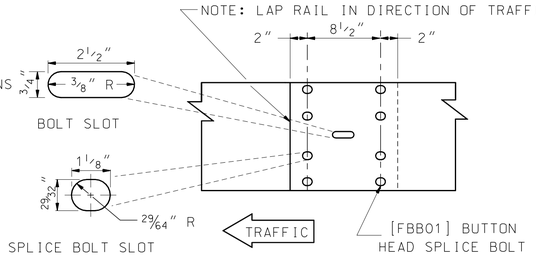
[FBB01-03]



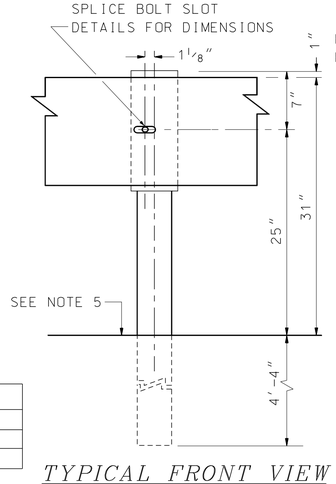
SYNTHETIC OFFSET BLOCK



STRUCTURAL SHAPE STEEL POST

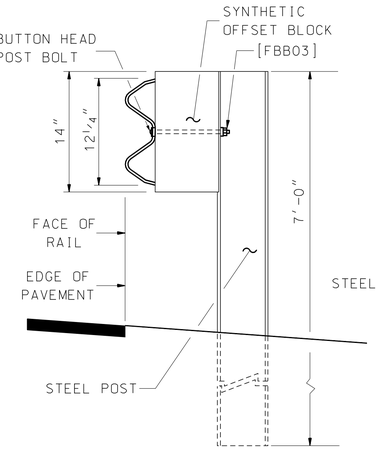


ELEVATION VIEW AT BEAM SPLICE



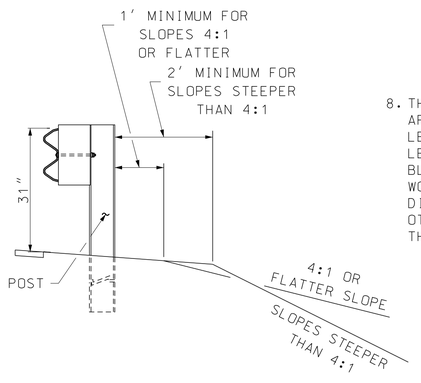
TYPICAL FRONT VIEW

(SHOWN WITH FASTENERS)



TYPICAL SIDE VIEW

(SHOWN WITH FASTENERS)



CLARIFICATION DETAIL FOR GENERAL NOTE 7

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′-4½″ 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 DISTATNCE 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.

STANDARD NO. GR-1

REVISION DATE
08-19-2015

.DGN FILE NAME
GR-1

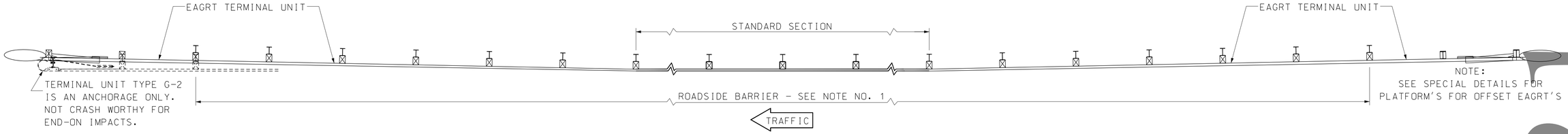
2021 ADJUSTED STANDARD PLANS

New Hampshire DOT Department of Transportation

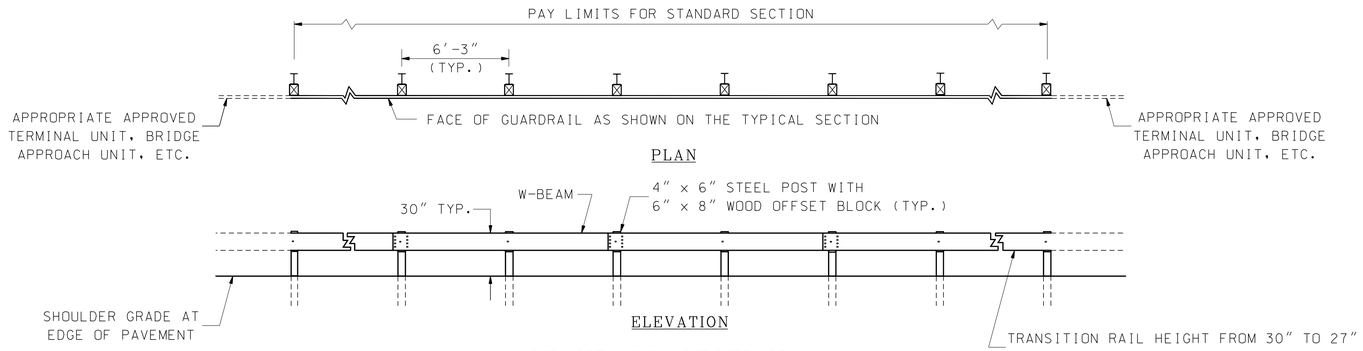
GUARDRAIL STANDARD

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

STANDARD NO. GR-1

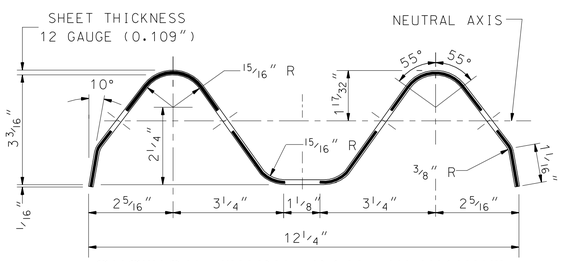


SAMPLE GUARDRAIL INSTALLATION LAYOUT



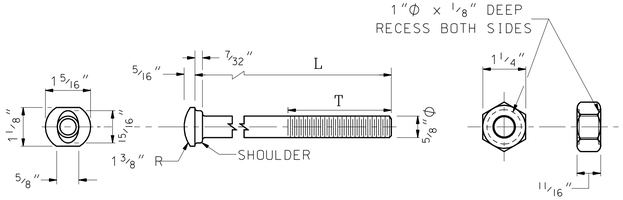
STANDARD SECTION

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 POST 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



SECTION THRU RAIL ELEMENT

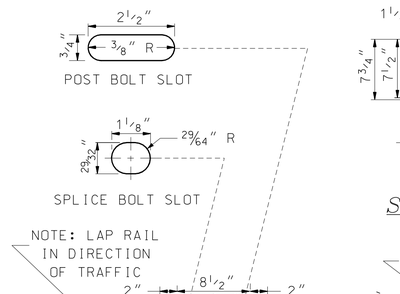
[4 SPACE W-BEAM GUARDRAIL DESIGNATED RWM04a (NOMINALLY 12'-6")]
[8 SPACE W-BEAM GUARDRAIL UNDESIGNATED AT THIS TIME (NOMINALLY 25'-0")]



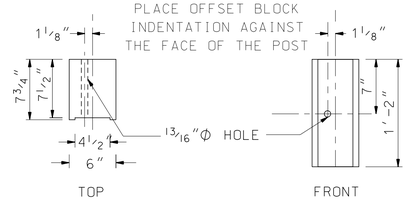
DESIGNATOR	L	T	INTENDED USE
FBB01	1 1/4"	FULL LENGTH THREAD	RAIL SPLICE BOLTS
FBB02	2"	1 3/4" MIN. THREAD LENGTH	POST BOLT (STEEL POSTS)
FBB03	9 1/2"	4" MIN. THREAD LENGTH	POST BOLT

5/8" BUTTON HEAD BOLT AND RECESSED NUT

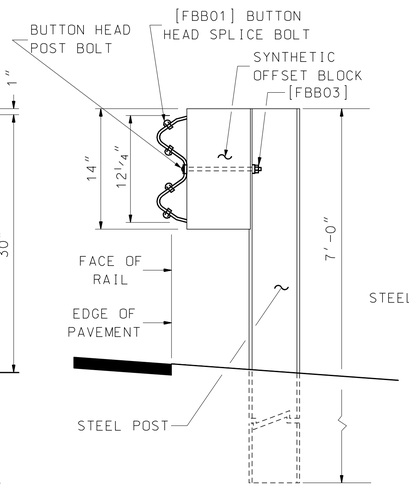
[FBB01-03]



LINE POST ELEVATION VIEW AT BEAM SPLICE

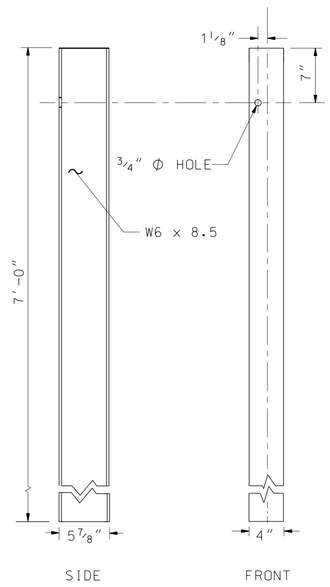


SYNTHETIC OFFSET BLOCK

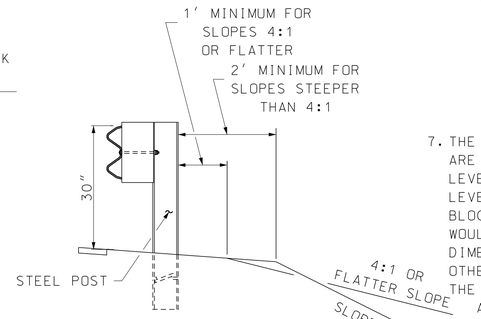


TYPICAL SIDE VIEW

(SHOWN WITH FASTENERS)



STRUCTURAL SHAPE STEEL POST



CLARIFICATION DETAIL FOR GENERAL NOTE 6

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. 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 DISTATNCE 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.

7. 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:
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   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.

STANDARD NO. GR-2

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

*.DGN FILE NAME
GR-2

2021 STANDARD PLANS

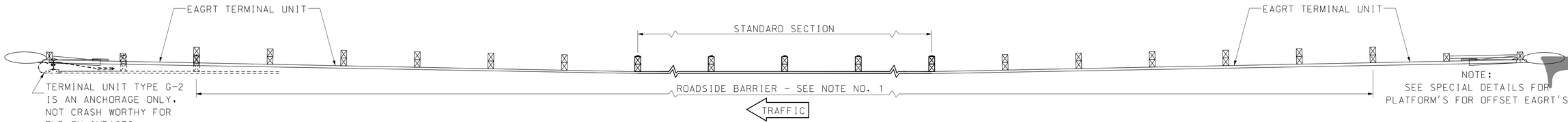
GUARDRAIL STANDARD

BEAM GUARDRAIL STANDARD SECTION-STEEL POSTS & HARDWARE DETAILS

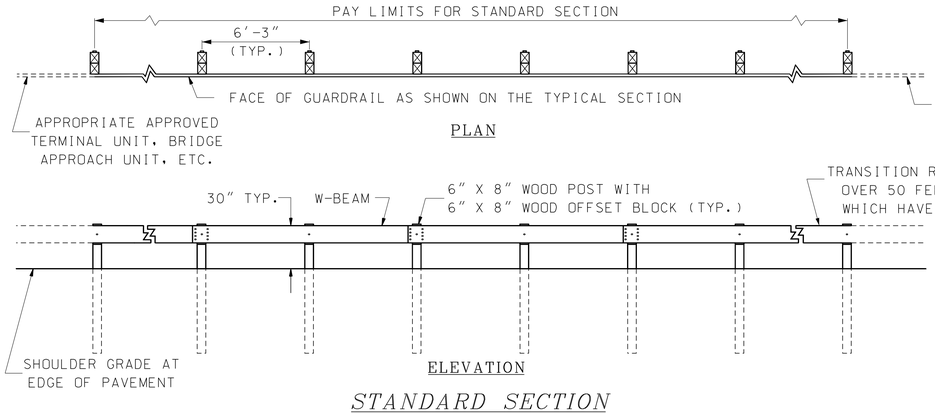
New Hampshire DOT Department of Transportation

STANDARD NO. GR-2

APPROVED

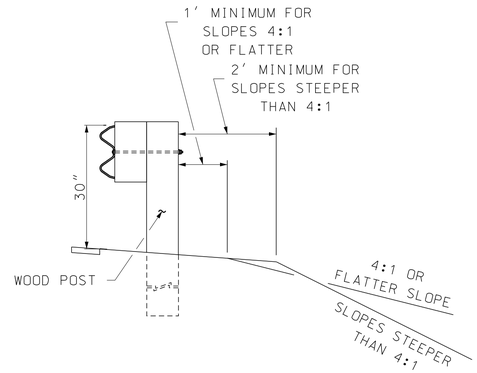


SAMPLE GUARDRAIL INSTALLATION LAYOUT

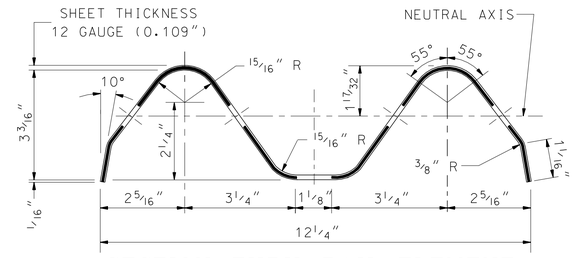


STANDARD SECTION

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

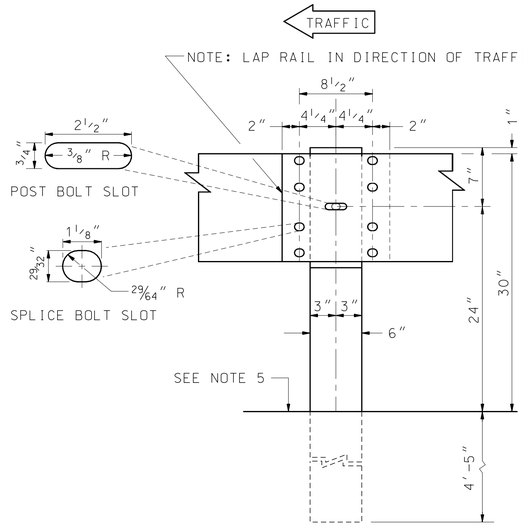


CLARIFICATION DETAIL FOR GENERAL NOTE 6



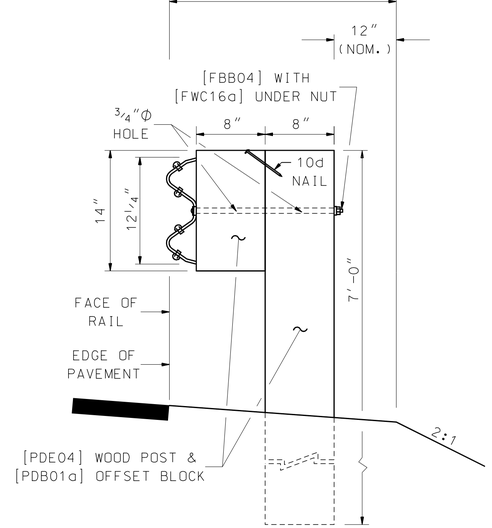
SECTION THRU RAIL ELEMENT

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



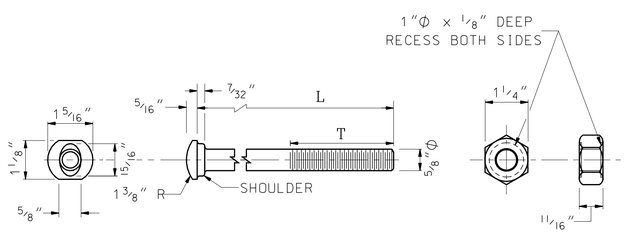
LINE POST ELEVATION VIEW AT BEAM SPLICE

(SHOWN WITHOUT FASTENERS)



TYPICAL SIDE VIEW

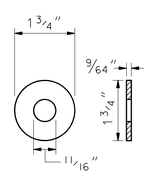
(SHOWN WITH FASTENERS)



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]



WASHER

[FWC16a]

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, EXTABLISH RAIL HEIGHT THROUGH AN ENGINEERING REVIEW TO ENSURE APPROPRIATE SYSTEM PERFORMANCE.

6. 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 DISTATNCE 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.

7. 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.

STANDARD NO. GR-2A

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

DGN FILE NAME
GR-2A

2021

STANDARD PLANS

APPROVED

New Hampshire DOT Department of Transportation

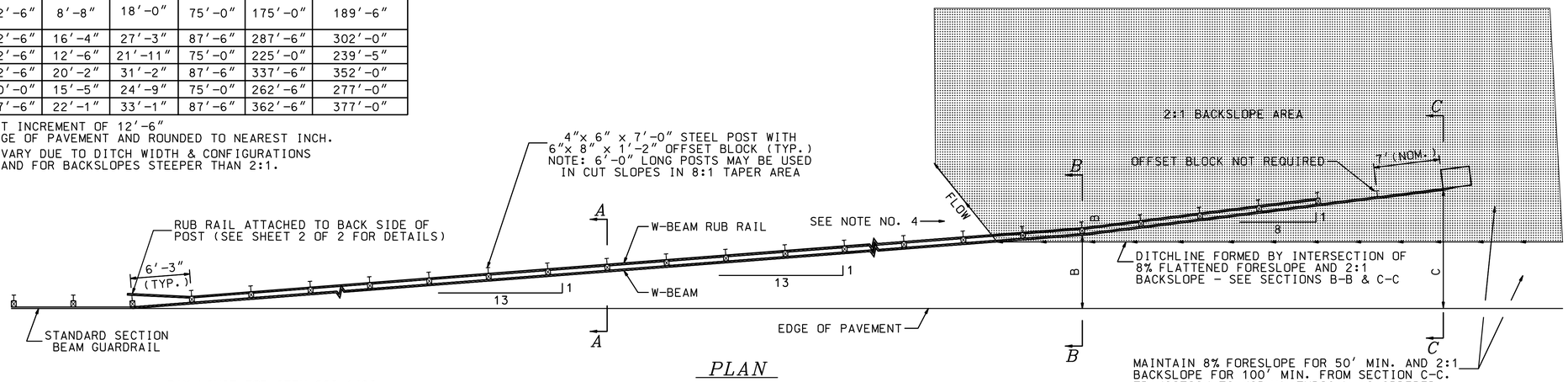
STANDARD NO. GR-2A

GUARDRAIL STANDARD

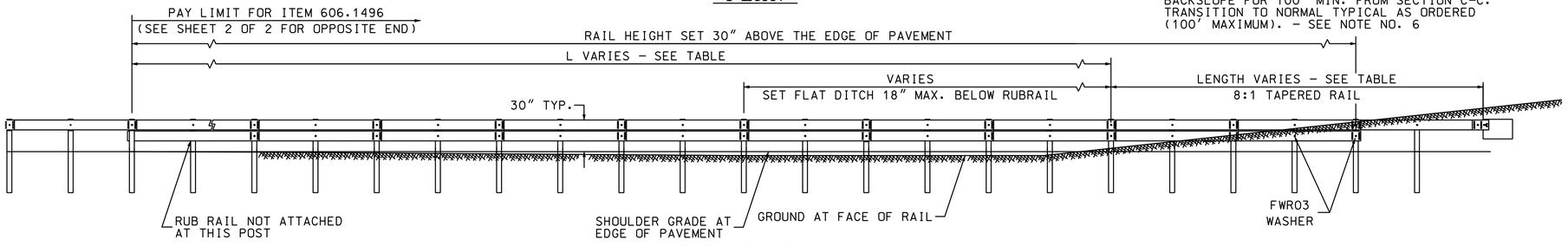
BEAM GUARDRAIL STANDARD SECTION-WOOD POSTS & HARDWARE DETAILS

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.



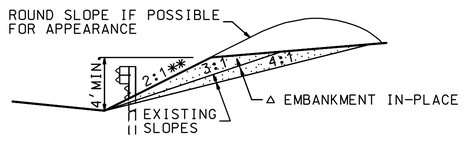
PLAN



ELEVATION

GENERAL NOTES

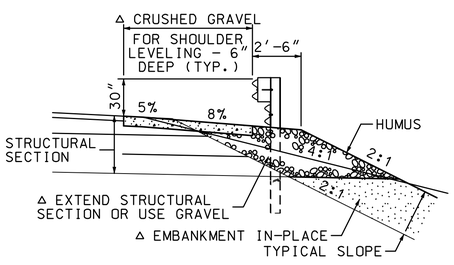
1. THIS TERMINAL IS DESIGNED FOR USE PRIMARILY AT SITES WHERE THE TERRAIN CHANGES ABRUPTLY FROM A CUT TO A STEEP FILL, AND WHERE THEORETICAL LENGTH OF NEED WOULD EXTEND INTO THE CUT SECTION FOR A CONSIDERABLE DISTANCE. THIS TERMINAL IS PRIMARILY FOR TYPICALS REFLECTING NEW CONSTRUCTION AND FOR SPEEDS OF 50 MPH OR GREATER. FOR LOWER SPEEDS SEE THE DETAIL FOR BEAM GUARDRAIL TERMINAL SECTION TYPE E-2 MODIFIED.
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 606.1496).
   C) ATTACH W-BEAM TERMINAL CONNECTOR DIRECTLY TO ROCK FACE BY AN APPROVED ROCK BOLT METHOD (SUBSIDIARY TO ITEM 606.1496).
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.



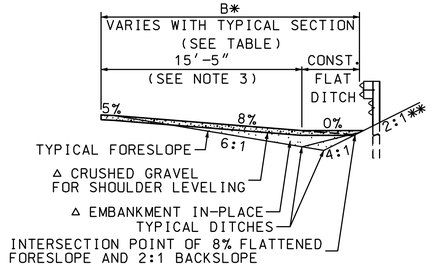
SLOPE STEEPENING DETAIL
(WHERE REQUIRED)

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

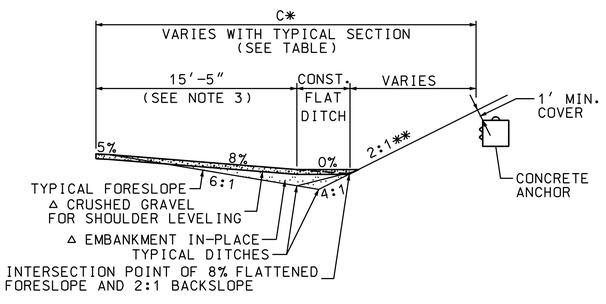


SECTION A-A



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

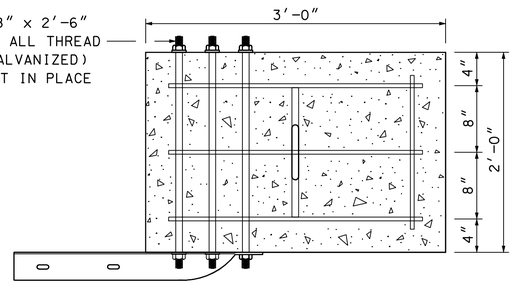
2021

STANDARD PLANS

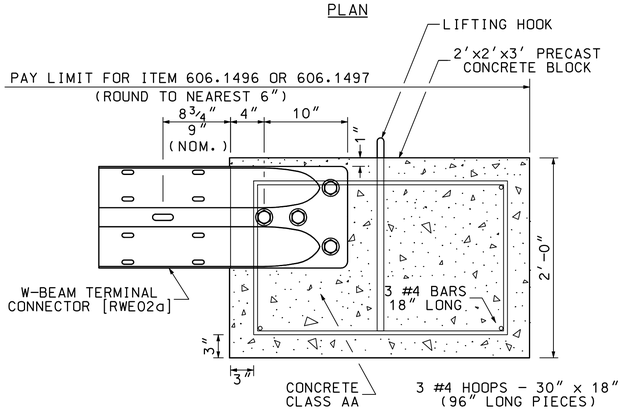
New Hampshire DOT Department of Transportation

STANDARD NO. GR-5

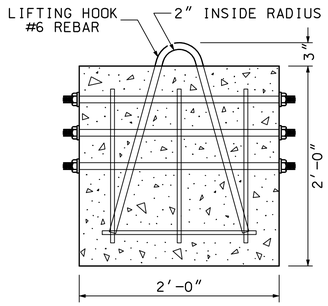
APPROVED



PLAN

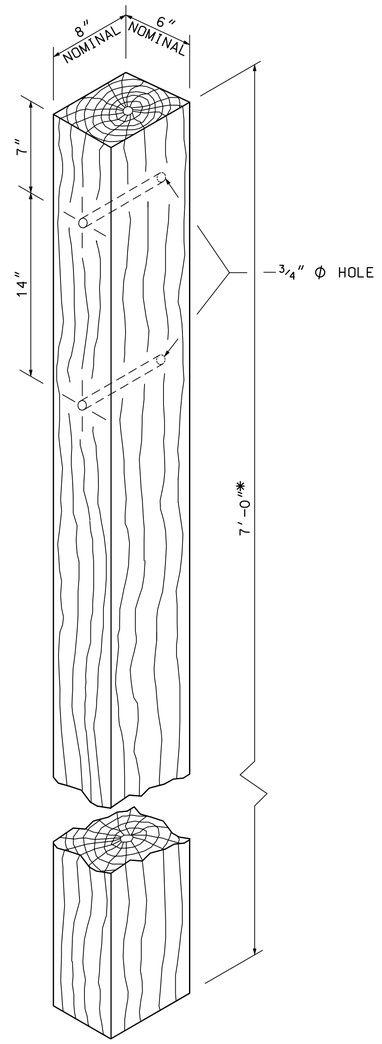


ELEVATION



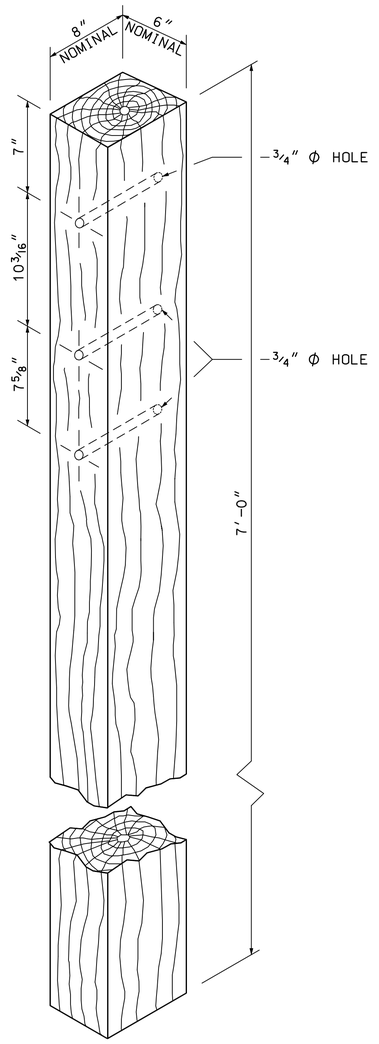
END VIEW

PRECAST CONCRETE BLOCK ANCHOR



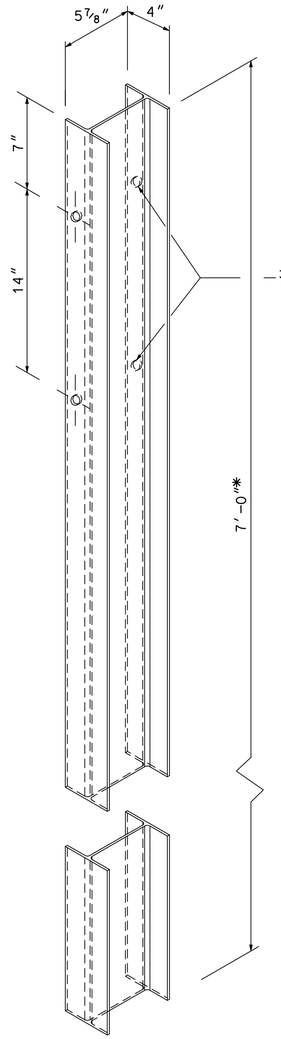
RUB RAIL LINE POST

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



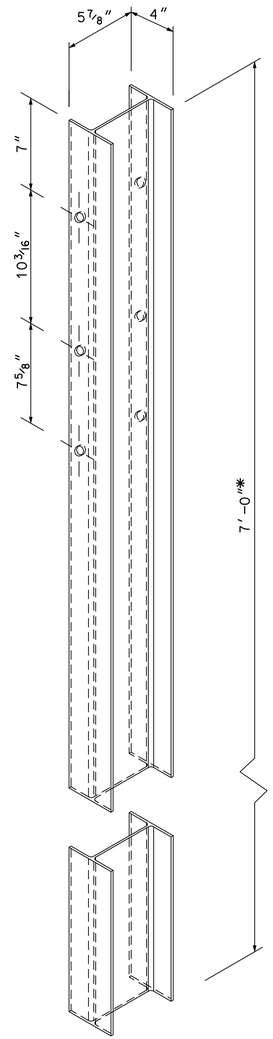
SPECIAL POST FOR DOWNSTREAM END OF RUB RAIL

[PDE04] MODIFIED (1 REQ'D)



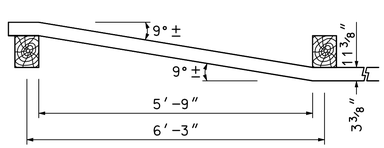
RUB RAIL LINE POST

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



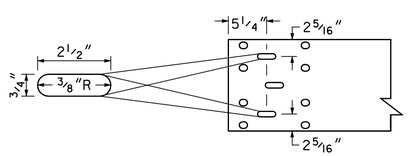
SPECIAL POST FOR DOWNSTREAM END OF RUB RAIL

[PWE02] MODIFIED (1 REQ'D)



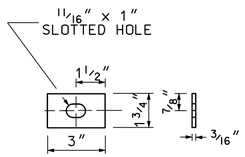
SHOP-BENDING DETAILS

MODIFICATIONS TO DOWNSREAM 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

1. ALL DIMENSIONS SUBJECT TO MANUFACTURER'S TOLERANCES.
2. 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

2021 STANDARD PLANS

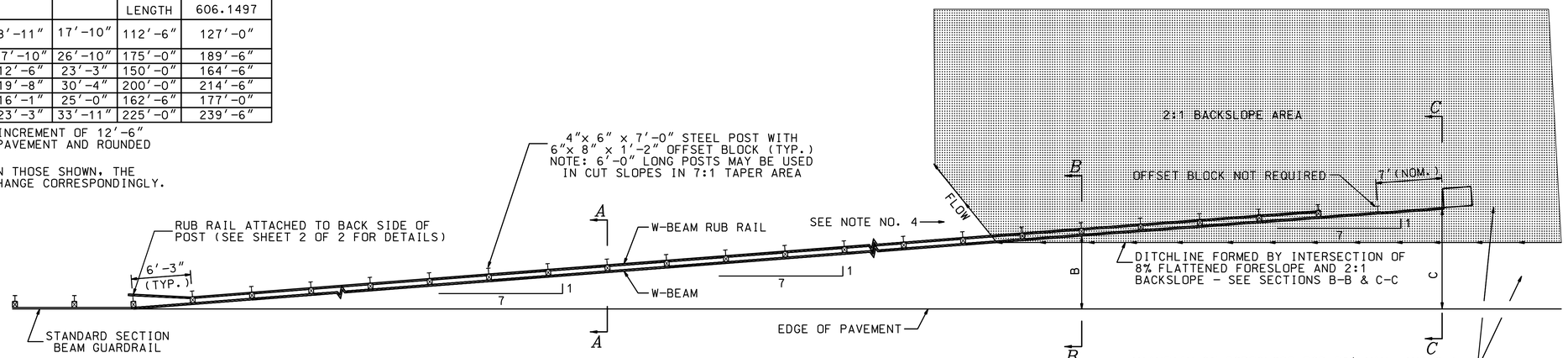
April

New Hampshire DOT Department of Transportation

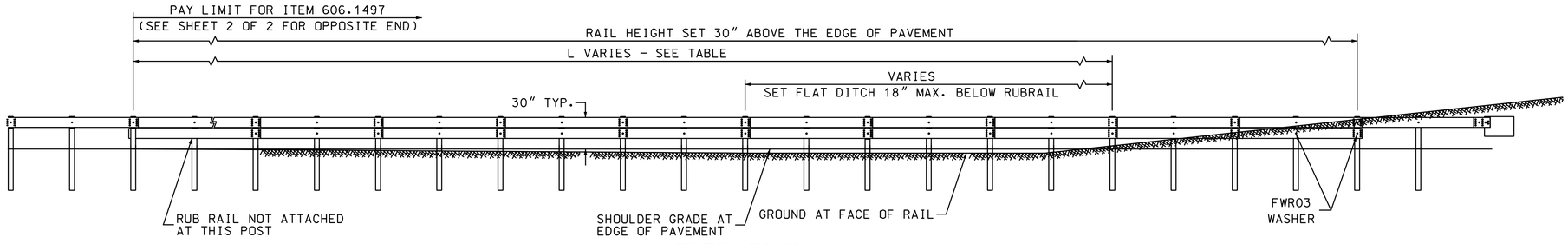
STANDARD NO. GR-6

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"	62'-6"	8'-11"	17'-10"	112'-6"	127'-0"
12-10-10 (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"

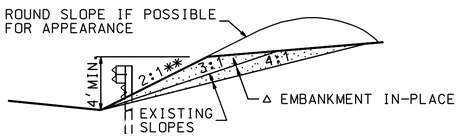
RAIL LENGTHS ROUNDED TO NEAREST INCREMENT OF 12'-6"
* OFFSETS MEASURED FROM EDGE OF PAVEMENT AND ROUNDED TO NEAREST INCH
NOTE: FOR DITCH WIDTHS OTHER THAN THOSE SHOWN, THE LENGTHS AND OFFSETS WILL CHANGE CORRESPONDINGLY.



PLAN



ELEVATION

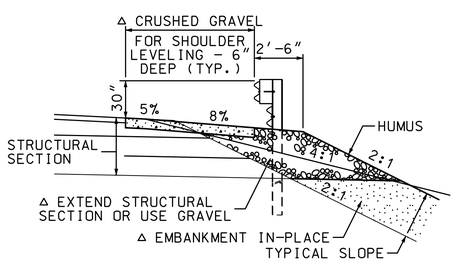


SLOPE STEEPENING DETAIL
(WHERE REQUIRED)

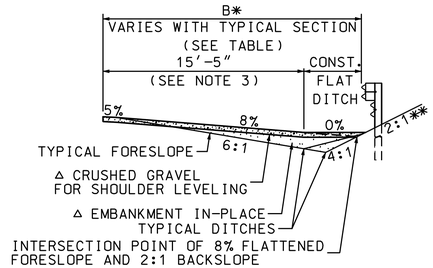
30 MPH - 7:1 TAPER RATE

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

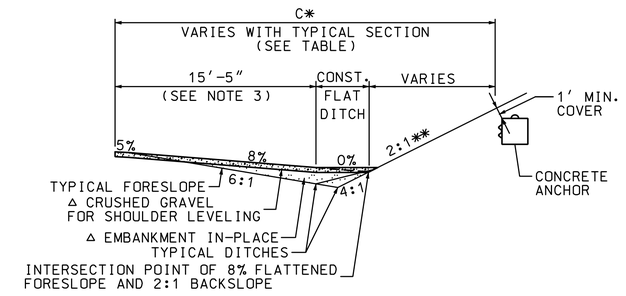


SECTION A-A



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.

STANDARD NO. GR-7

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

*.DGN FILE NAME
GR-7

2021 STANDARD PLANS

New Hampshire DOT Department of Transportation

GUARDRAIL STANDARD

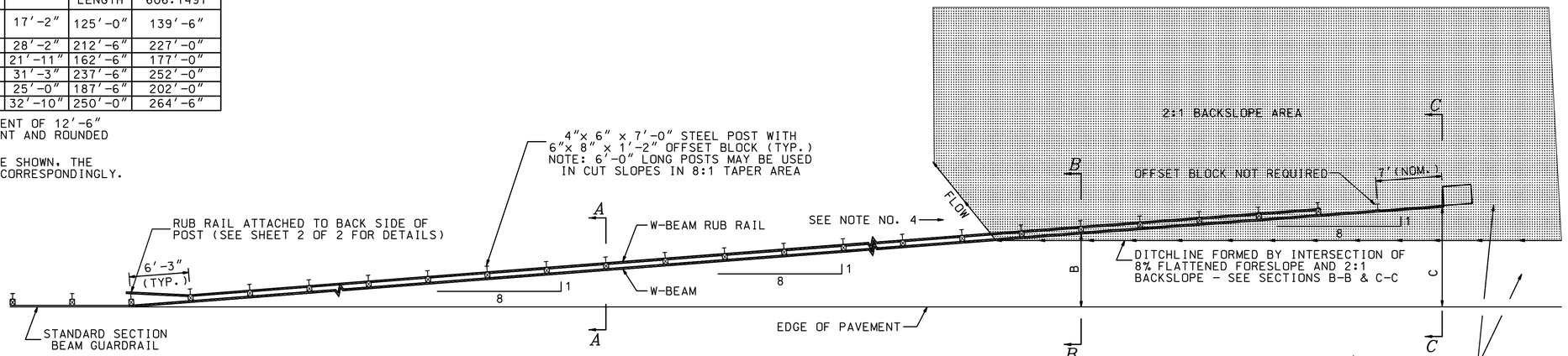
BEAM GUARDRAIL TERMINAL SECTION TYPE E-2 MODIFIED 30

STANDARD NO. GR-7

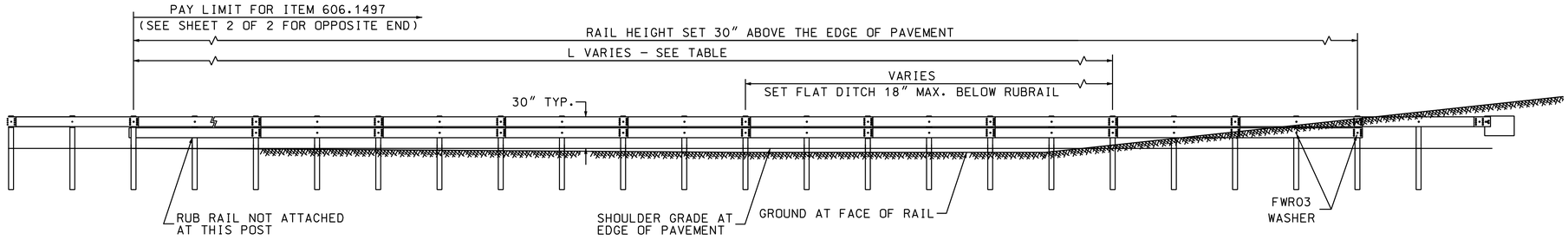
TYPICAL SECTION	TYPICAL DITCH WIDTH	L	B*	C*	RUB RAIL LENGTH	CALCULATED LENGTH ITEM 606.1497
11-4-4 (EARTH) 12-4-4 (EARTH)	6′-0″	75′-0″	9′-5″	17′-2″	125′-0″	139′-6″
12-10-10 (EARTH)	12′-0″	137′-6″	17′-2″	28′-2″	212′-6″	227′-0″
12-10-10 (ROCK)	10′-0″	100′-0″	12′-6″	21′-11″	162′-6″	177′-0″
12-10-12 (EARTH)	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

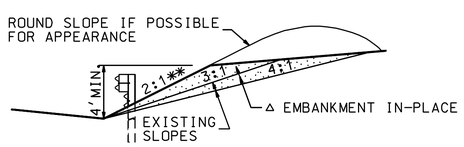
NOTE: FOR DITCH WIDTHS OTHER THAN THOSE SHOWN, THE LENGTHS AND OFFSETS WILL CHANGE CORRESPONDINGLY.



PLAN



ELEVATION

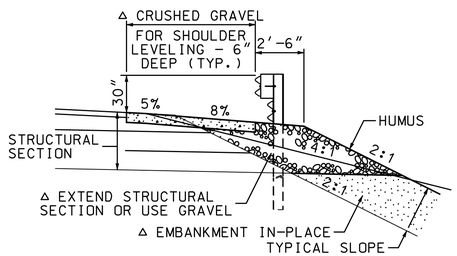


SLOPE STEEPENING DETAIL
(WHERE REQUIRED)

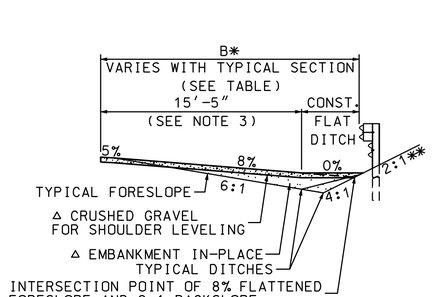
40 MPH - 8:1 TAPER RATE

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

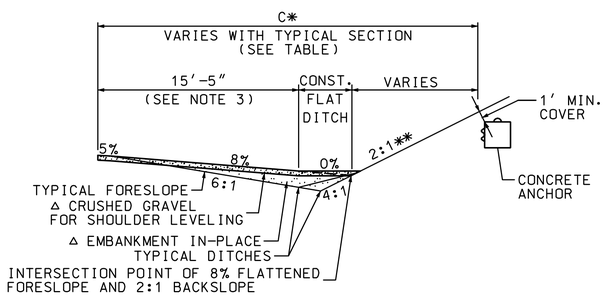


SECTION A-A



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

APPROVED 12-2021

STANDARD PLANS

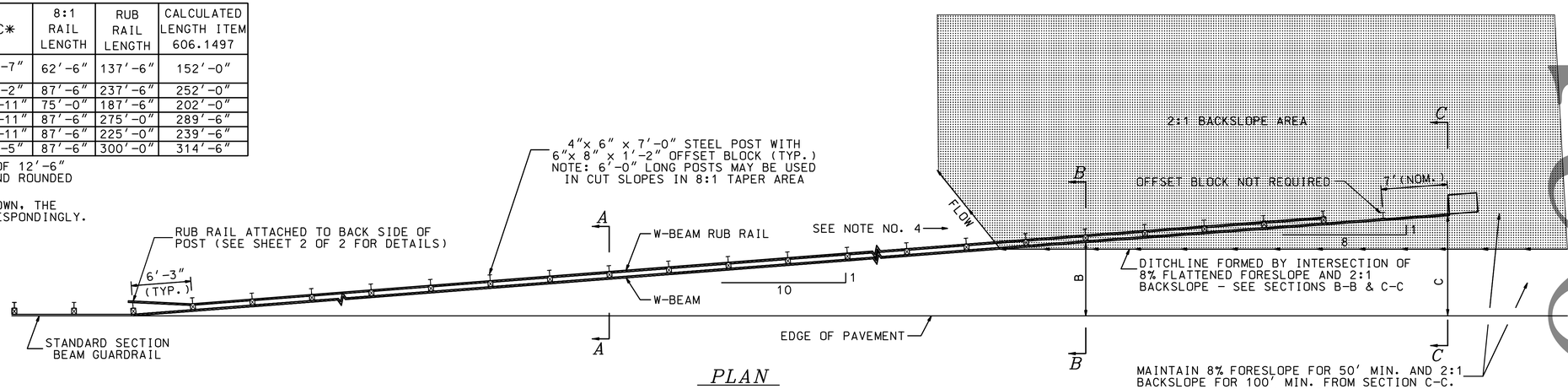
New Hampshire DOT Department of Transportation

STANDARD NO. GR-8

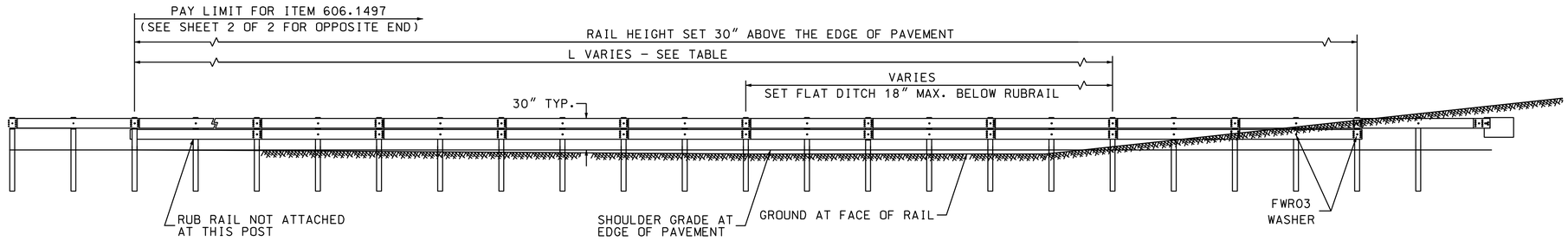
TYPICAL SECTION	TYPICAL DITCH WIDTH	L	B*	C*	8:1 RAIL LENGTH	RUB RAIL LENGTH	CALCULATED LENGTH ITEM 606.1497
11-4-4 (EARTH) 12-4-4 (EARTH)	6'-0"	87'-6"	8'-9"	16'-7"	62'-6"	137'-6"	152'-0"
12-10-10 (EARTH)	12'-0"	162'-6"	16'-3"	27'-2"	87'-6"	237'-6"	252'-0"
12-10-10 (ROCK)	10'-0"	125'-0"	12'-6"	21'-11"	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.

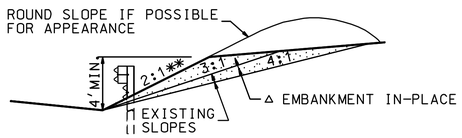


PLAN



ELEVATION

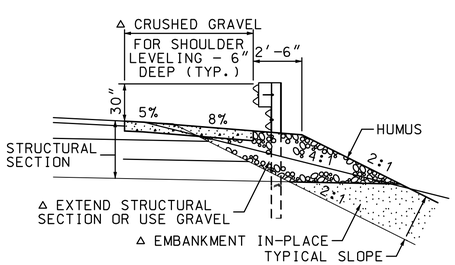
45 MPH - 10:1 TAPER RATE



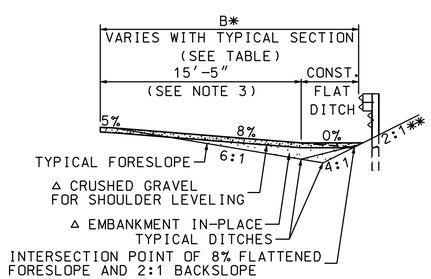
SLOPE STEEPENING DETAIL
(WHERE REQUIRED)

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

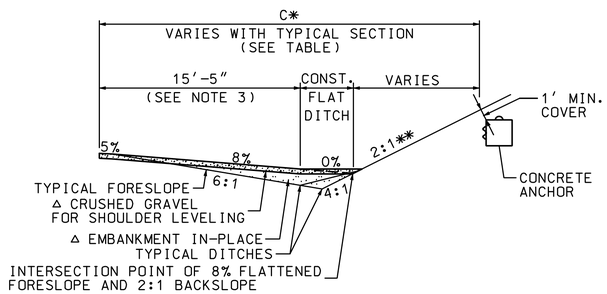


SECTION A-A



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 45 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 45

STANDARD NO. GR-9

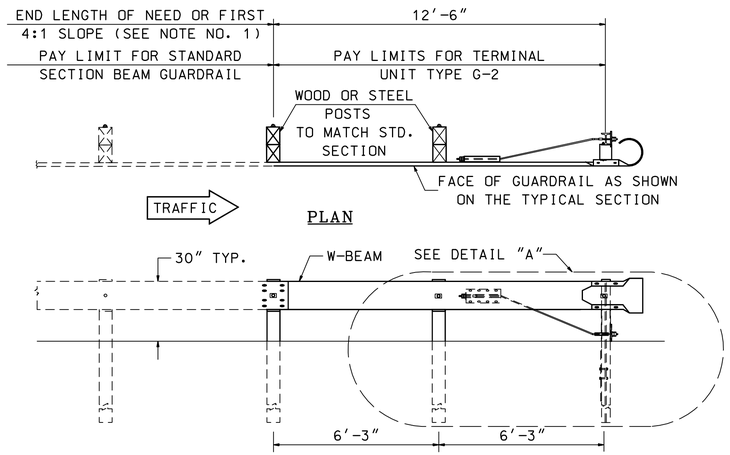
REVISION DATE
03-01-2006
06-16-2010

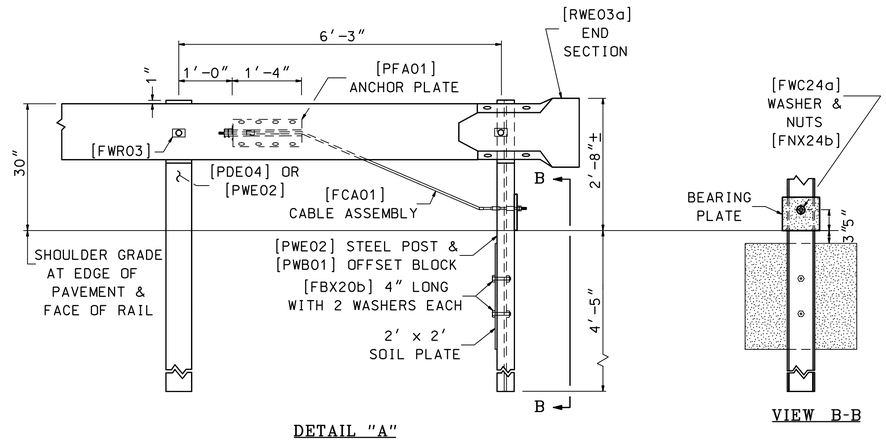
*.DGN FILE NAME
GR-9

2021 APPROVED STANDARD PLANS

New Hampshire DOT Department of Transportation

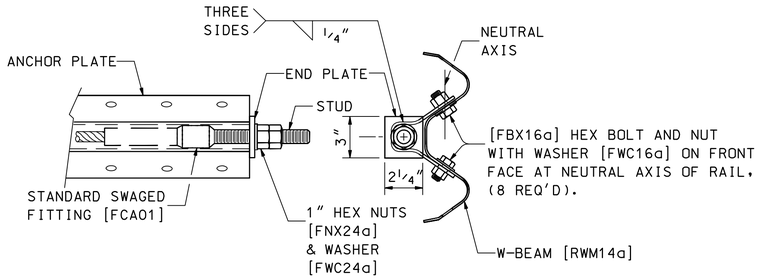
STANDARD NO. GR-9



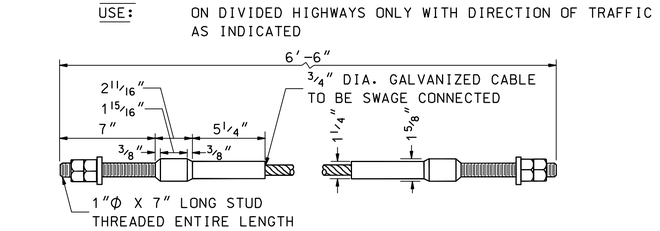


TERMINAL UNIT TYPE G-2

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



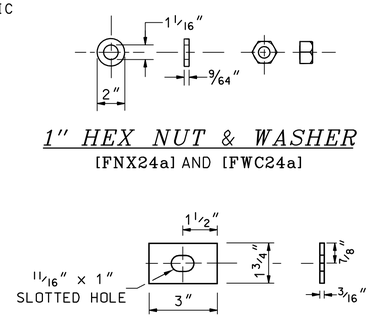
ANCHOR PLATE ASSEMBLY DETAILS



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

CABLE ASSEMBLY

[FCA01]

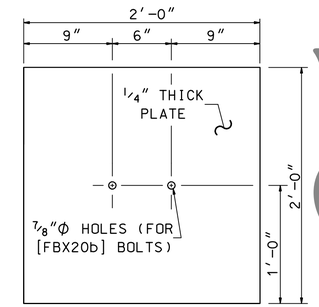


1" HEX NUT & WASHER

[FNX24a] AND [FWC24a]

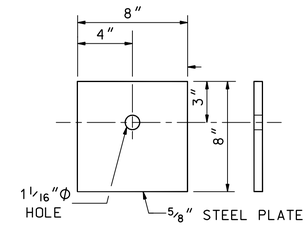
RECTANGULAR PLATE WASHER

[FWR03] (3 REQ'D)



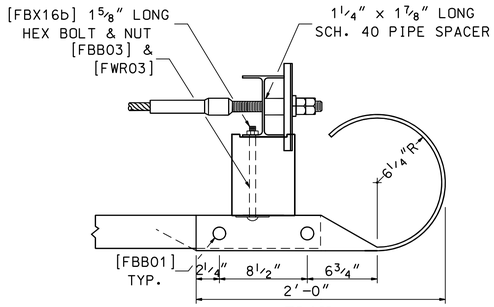
SOIL PLATE

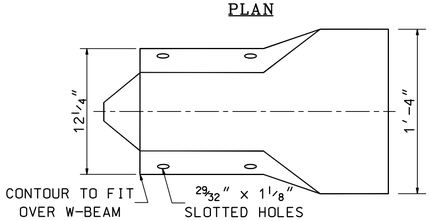
(2 REQ'D-POSTS A)



BEARING PLATE

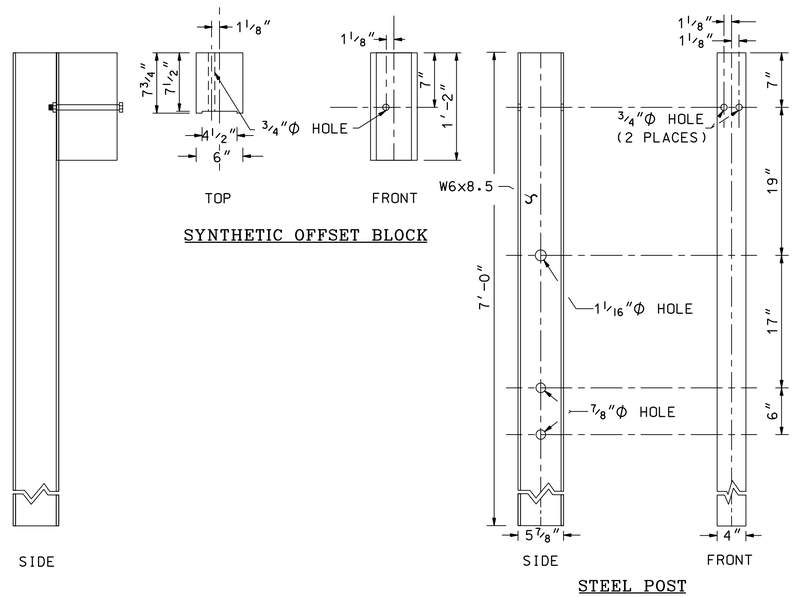
[FPB01]





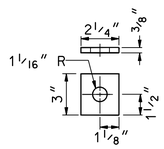
END SECTION

[RWE03a]



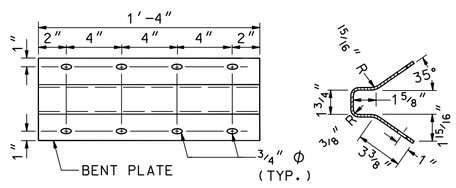
STRUCTURAL SHAPE STEEL POST & BLOCK

[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

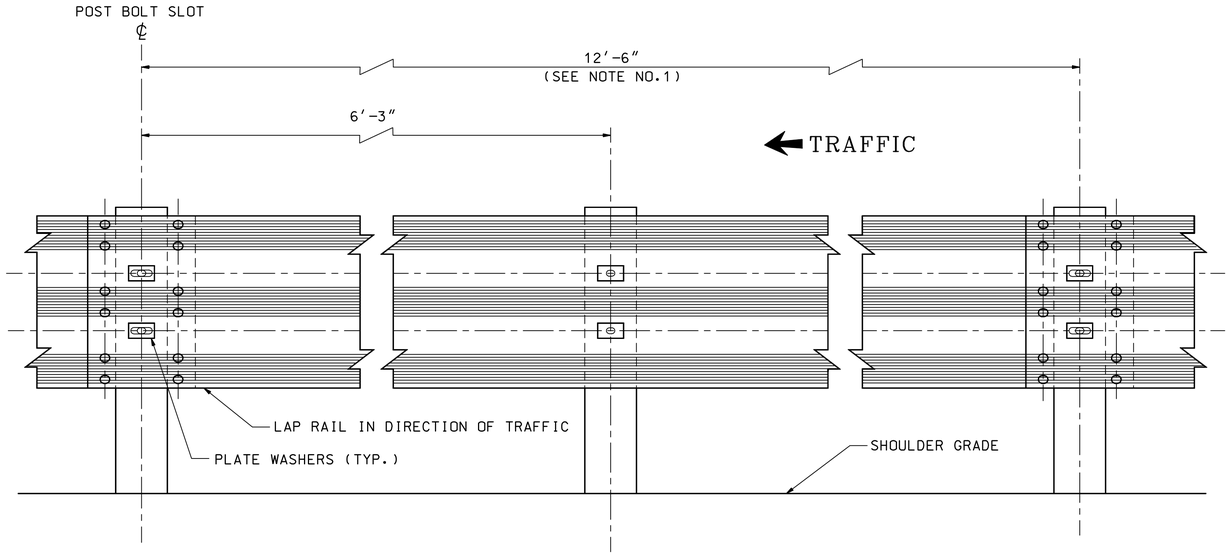
*.DGN FILE NAME
GR-10

2021

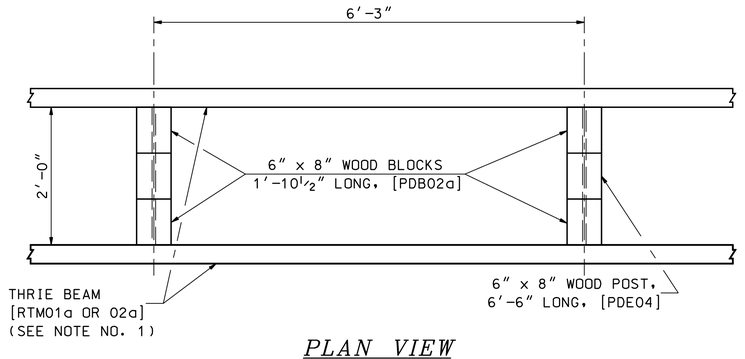
STANDARD PLANS

New Hampshire DOT Department of Transportation

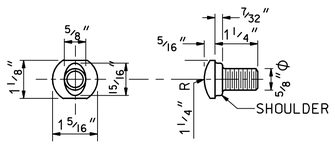
STANDARD NO. GR-10



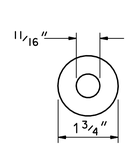
ELEVATION VIEW



PLAN VIEW



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



ROUND WASHER
[FWC16a]

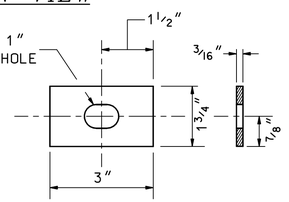
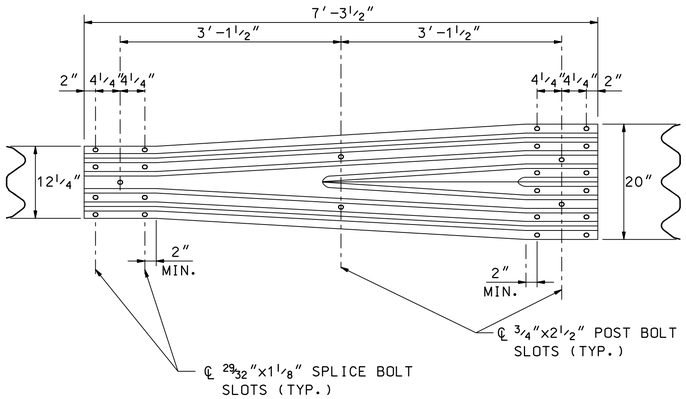
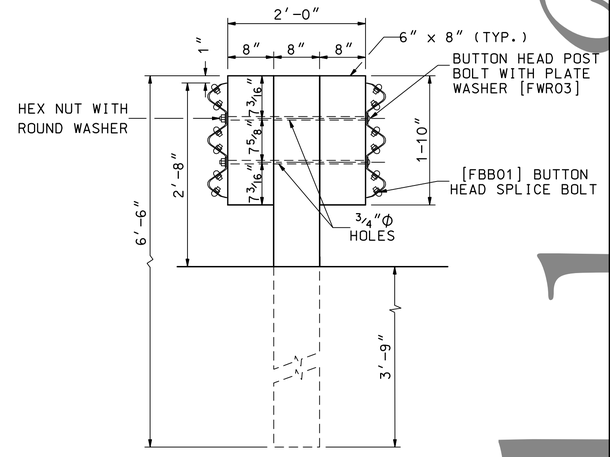


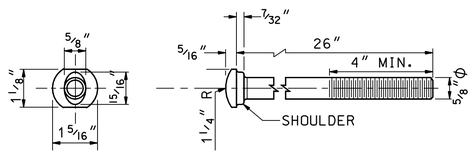
PLATE WASHER
[FWR03]



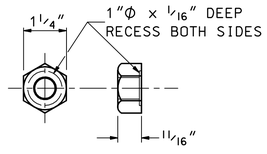
W-THRIE BEAM TRANSITION SECTION
[RWT01a]



SIDE VIEW AT SPLICE POST

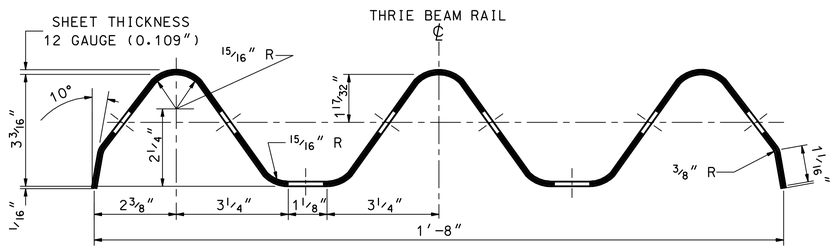


POST BOLT
(2 REQ'D PER POST)

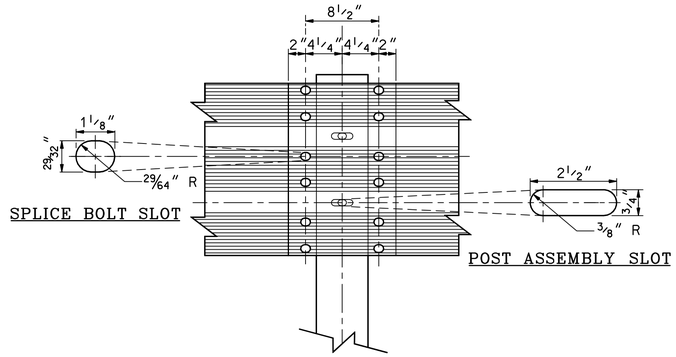


NUT FOR SPLICE & POST BOLTS

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

1. 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.
2. GUARDRAIL HEIGHT SHALL BE SET FROM THE GRADE AT THE FACE OF RAIL.
3. 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.
4. SEE STD. NO. DL-1 FOR BEAM GUARDRAIL DELINEATORS.
5. PAID FOR UNDER APPROPRIATE 606 ITEMS, OR AS SHOWN ON PLANS.

GUARDRAIL STANDARD

BEAM GUARDRAIL THRIE BEAM DOUBLE-FACED (WOOD)

STANDARD NO. GR-11

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

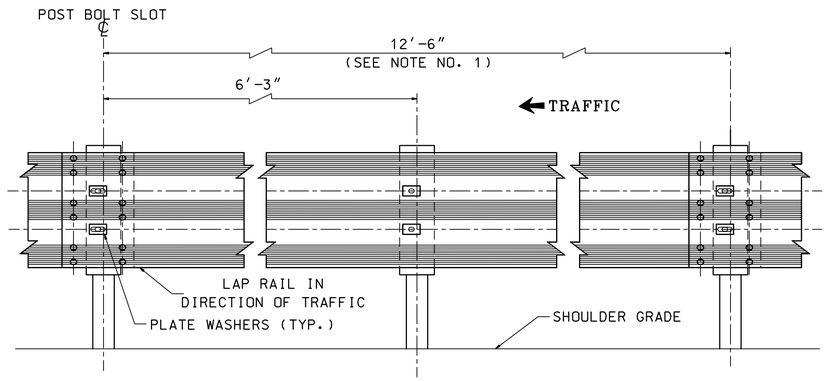
*.DGN FILE NAME
GR-11

2021 STANDARD PLANS

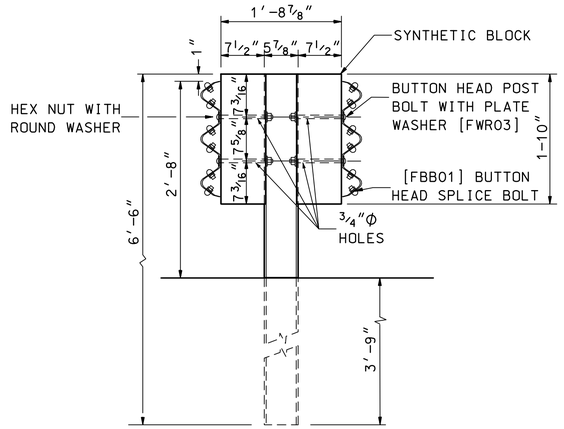
April

New Hampshire DOT Department of Transportation

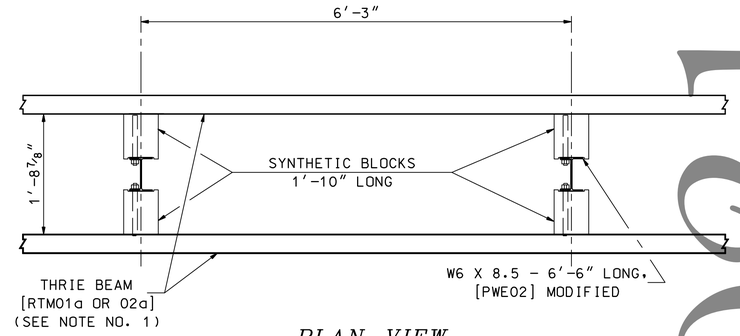
STANDARD NO. GR-11



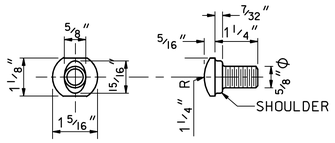
ELEVATION VIEW



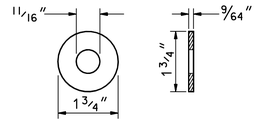
SIDE VIEW AT SPLICE POST



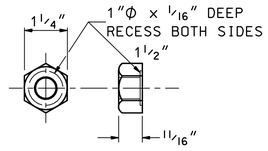
PLAN VIEW



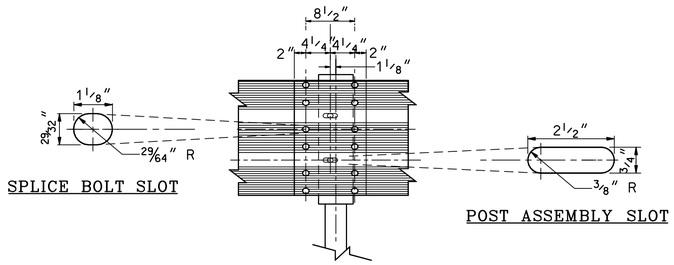
SPLICE BOLT
[FBB01]
(12 REQ'D PER SPLICE)



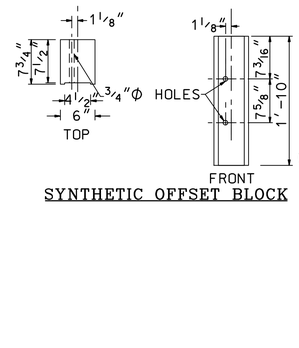
ROUND WASHER
[FWC16a]



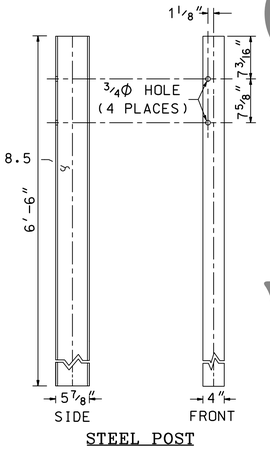
NUT FOR SPLICE & POST BOLTS
[FBB01 & 05]



BEAM SPLICE

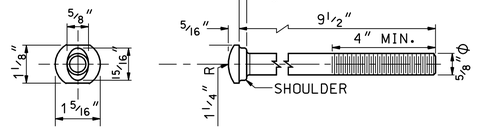


SYNTHETIC OFFSET BLOCK



STEEL POST

STRUCTURAL SHAPE STEEL POST & BLOCK



POST BOLT
[FBB03]
(2 REQ'D PER POST)
NOTE: LONGER ERECTION BOLTS MAY BE REQUIRED

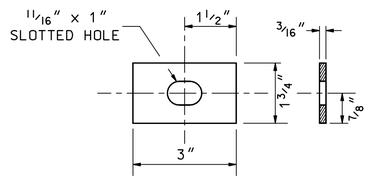
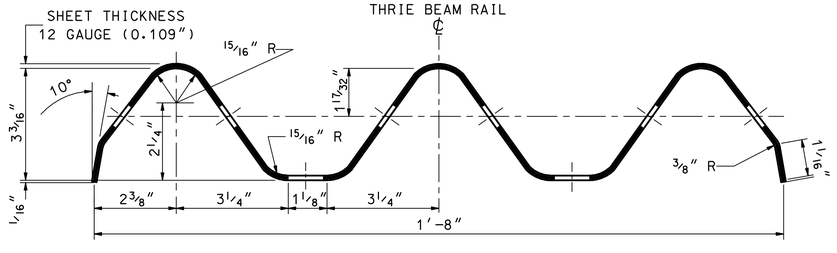
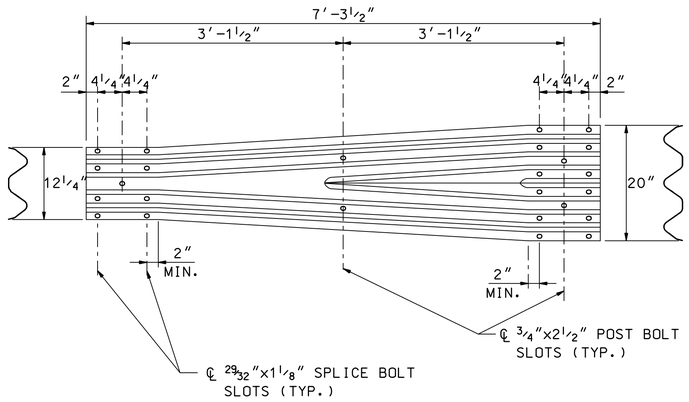


PLATE WASHER
[FWR03]



THRIE BEAM RAIL SECTION
[RTM01a & RTM02a]



W-THRIE BEAM TRANSITION SECTION
[RWT01a]

GENERAL NOTES

1. 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.
2. GUARDRAIL HEIGHT SHALL BE SET FROM THE GRADE AT THE FACE OF RAIL.
3. 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.
4. SEE STD. NO. DL-1 FOR BEAM GUARDRAIL DELINEATORS.
5. PAID UNDER APPROPRIATE 606 ITEMS, OR AS SHOWN ON PLANS.
6. DIMENSIONS OF PLASTIC AND SYNTHETIC BLOCKOUTS ARE AS SHOWN ON MANUFACTURER'S DRAWINGS.

GUARDRAIL STANDARD

BEAM GUARDRAIL THRIE BEAM DOUBLE-FACED (STEEL)

STANDARD NO. GR-12

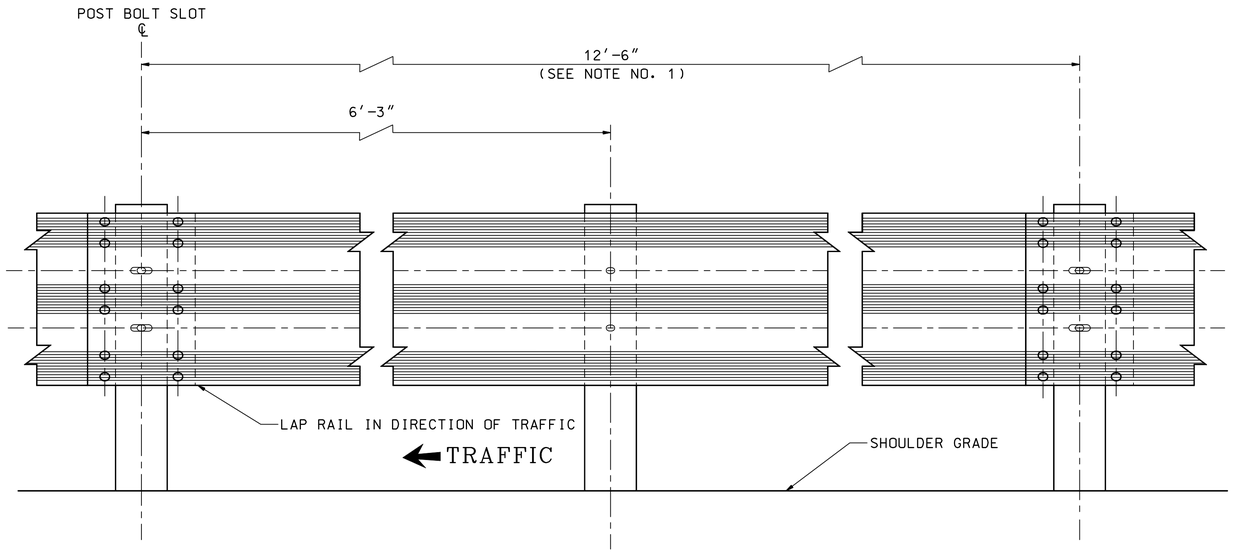
REVISION DATE
06-16-2010
11-05-2010
05-03-2011

*.DGN FILE NAME
GR-12

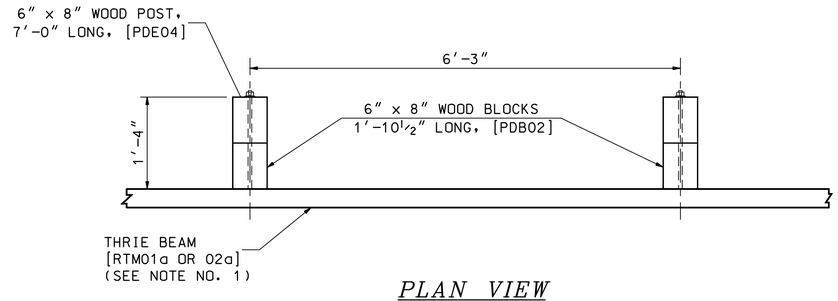
STANDARD PLANS 2021

New Hampshire DOT Department of Transportation

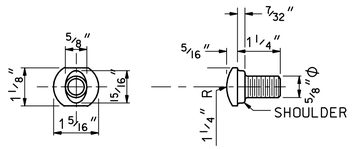
STANDARD NO. GR-12



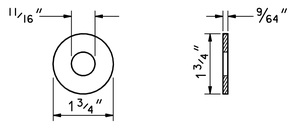
ELEVATION VIEW



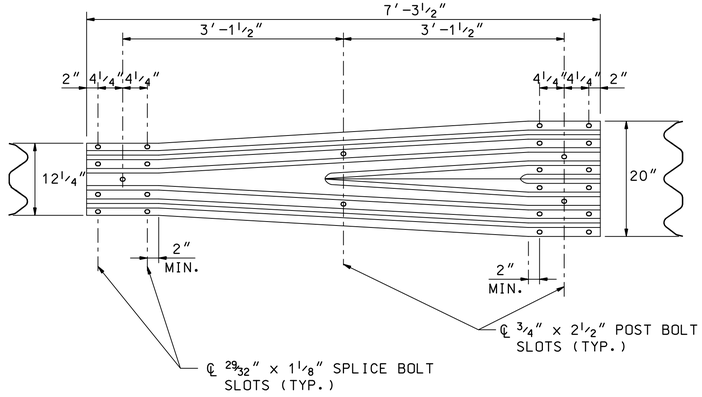
PLAN VIEW



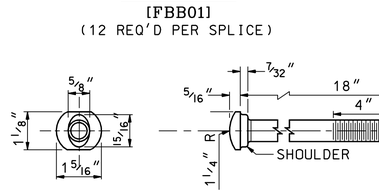
SPLICE BOLT
[FBB01]
(12 REQ'D PER SPLICE)



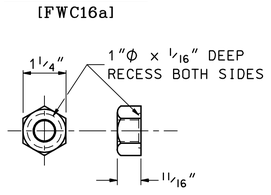
ROUND WASHER
[FWC16a]



W-THRIE BEAM TRANSITION SECTION
[RWT01a]

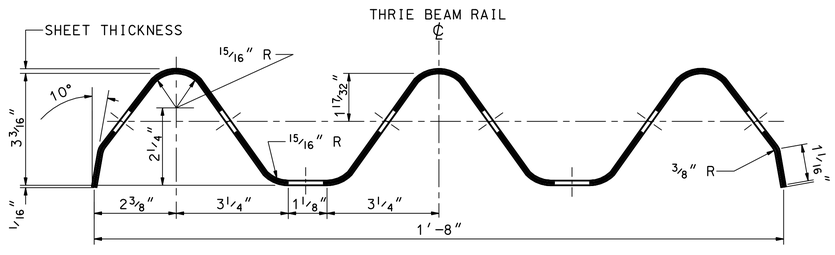


POST BOLT
[FBB05]
(2 REQ'D PER POST)

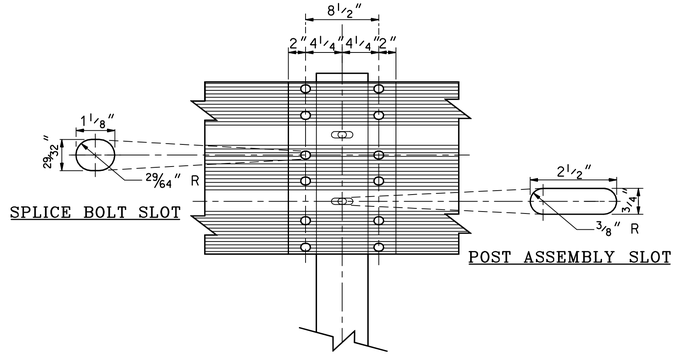


NUT FOR SPLICE & POST BOLTS
[FBB01 & 05]

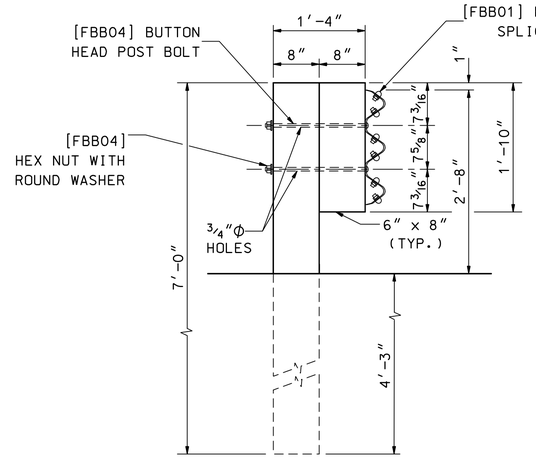
NOTE: LONGER ERECTION BOLTS MAY BE REQUIRED



THRIE BEAM RAIL SECTION
[RTM01a & RTM02a]



BEAM SPLICE



SIDE VIEW AT SPLICE POST

GENERAL NOTES

1. 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.
2. GUARDRAIL HEIGHT SHALL BE SET FROM THE GRADE AT THE FACE OF RAIL.
3. 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.
4. SEE STD. NO. DL-1 FOR BEAM GUARDRAIL DELINEATORS.
5. PAID FOR UNDER APPROPRIATE 606 ITEMS, OR AS SHOWN ON PLANS.
6. POSTS SHORTER THAN THE 7′-0″ INDICATED ON THE DETAIL, BUT NOT LESS THAN 6′-6″, MAY ONLY BE USED WHEN
   A) THE SLOPE BEHIND THE GUARDRAIL IS NO STEEPER THAN 4:1
   B) WHERE THE DISTANCE FROM THE BACK OF THE POST TO THE BREAK OF THE SLOPE IS A MINIMUM OF 2′-0″
   C) AND THEN ONLY AS APPROVED OR SPECIFICALLY SHOWN ON THE PLANS.

GUARDRAIL STANDARD

BEAM GUARDRAIL
THRIE BEAM SINGLE-FACED

STANDARD NO. GR-13
REVISION DATE
07-13-2001
06-16-2010
*.DGN FILE NAME
GR-13

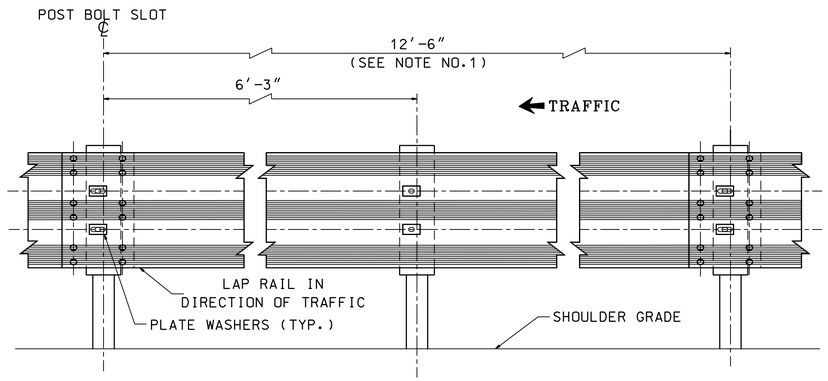
STANDARD PLANS

2021

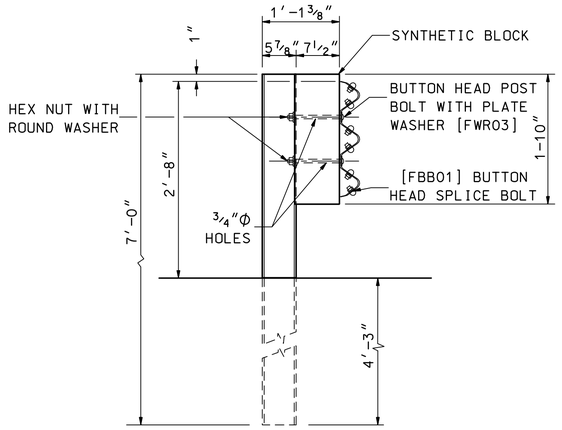
April

New Hampshire DOT Department of Transportation

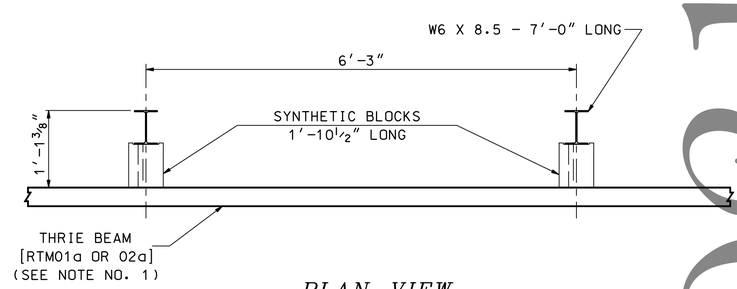
STANDARD NO. GR-13



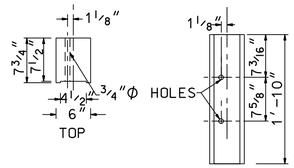
ELEVATION VIEW



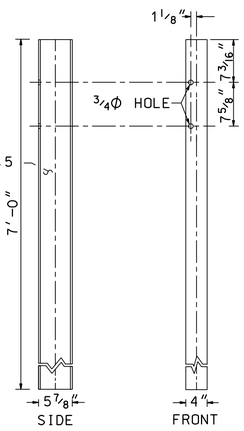
SIDE VIEW AT SPLICE POST



PLAN VIEW

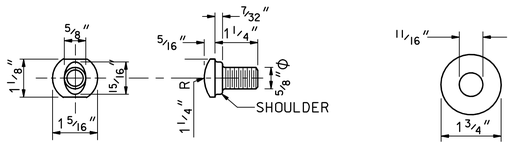


SYNTHETIC OFFSET BLOCK



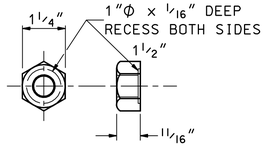
STEEL POST

STRUCTURAL SHAPE STEEL POST & BLOCK

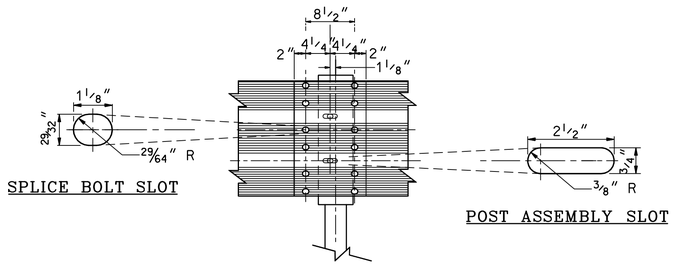


SPLICE BOLT
[FBB01]
(12 REQ'D PER SPLICE)

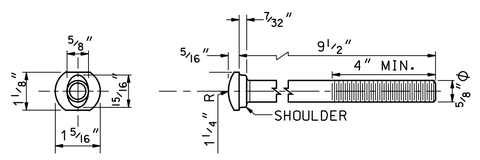
ROUND WASHER
[FWC16a]



NUT FOR SPLICE & POST BOLTS
[FBB01]



BEAM SPLICE



POST BOLT

NOTE: LONGER ERECTION BOLTS MAY BE REQUIRED.

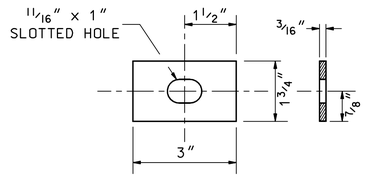
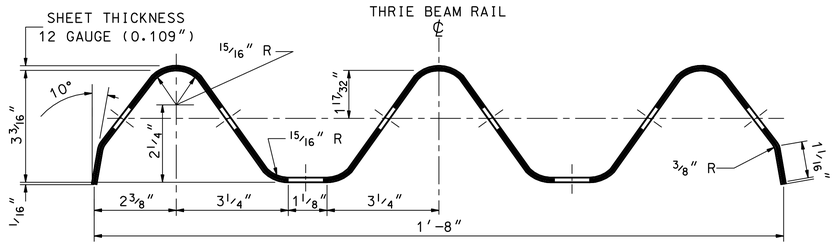
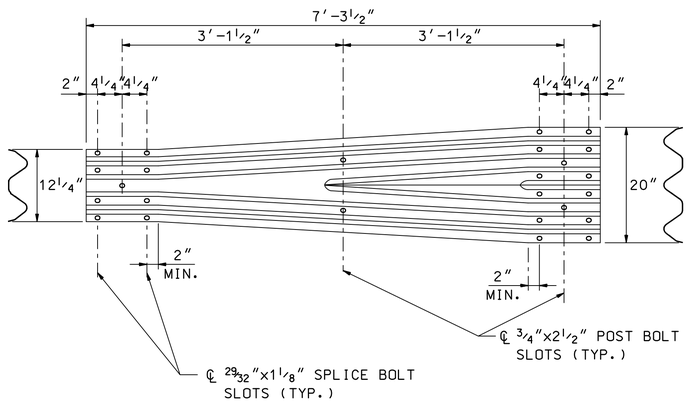


PLATE WASHER
[FWR03]



THRIE BEAM RAIL SECTION
[RTM01a & RTM02a]



W-THRIE BEAM TRANSITION SECTION
[RWT01a]

GENERAL NOTES

1. 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.
2. GUARDRAIL HEIGHT SHALL BE SET FROM THE GRADE AT THE FACE OF RAIL.
3. 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.
4. SEE STD. NO. DL-1 FOR BEAM GUARDRAIL DELINEATORS.
5. PAID FOR UNDER APPROPRIATE 606 ITEMS, OR AS SHOWN ON PLANS.
6. DIMENSIONS OF PLASTIC AND SYNTHETIC BLOCKOUTS ARE AS SHOWN ON MANUFACTURER'S DRAWINGS.
7. POSTS SHORTER THAN THE 7′-0″ INDICATED ON THE DETAIL, BUT NOT LESS THAN 6′-6″, MAY ONLY BE USED WHEN
   A) THE SLOPE BEHIND THE GUARDRAIL IS NO STEEPER THAN 4:1
   B) WHERE THE DISTANCE FROM THE BACK OF THE POST TO THE BREAK OF THE SLOPE IS A MINIMUM OF 2′-0″
   C) AND THEN ONLY AS APPROVED OR SPECIFICALLY SHOWN ON THE PLANS.

GUARDRAIL STANDARD

BEAM GUARDRAIL THRIE BEAM SINGLE-FACED (STEEL)

STANDARD NO. GR-14

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

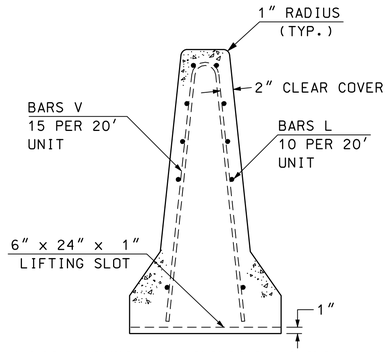
*.DGN FILE NAME
GR-14

2021 STANDARD PLANS

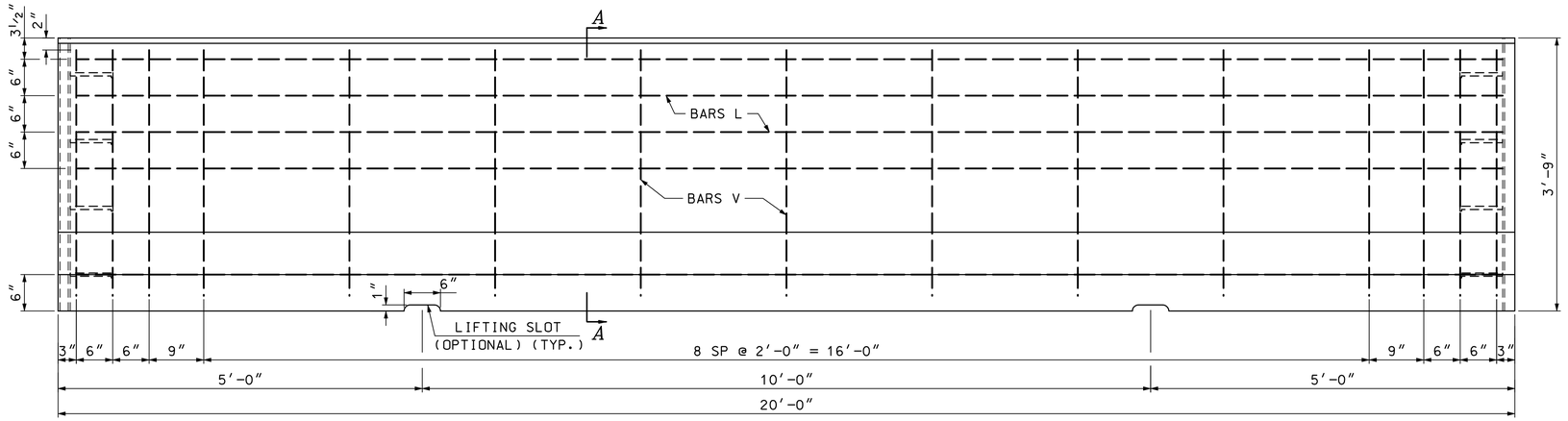
APPROVED

New Hampshire DOT Department of Transportation

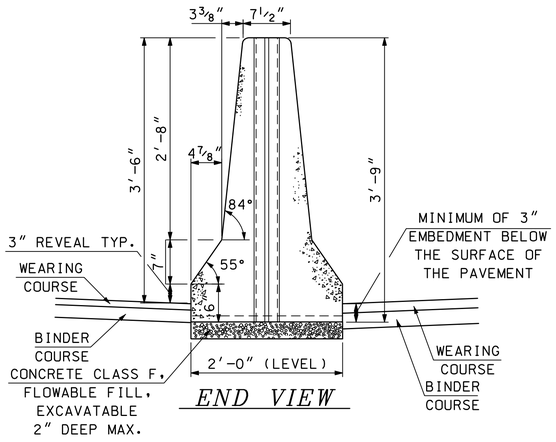
STANDARD NO. GR-14



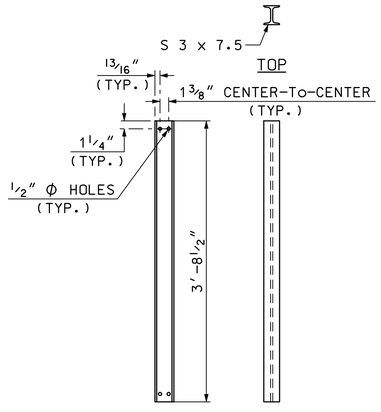
CONCRETE BARRIER PRECAST DOUBLE-FACED 42" F-SHAPE SECTION A-A



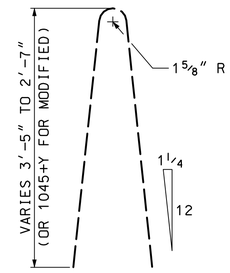
ELEVATION



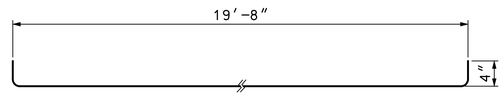
END VIEW



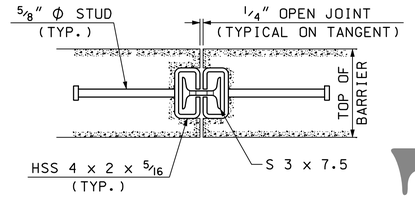
I-BEAM DETAILS



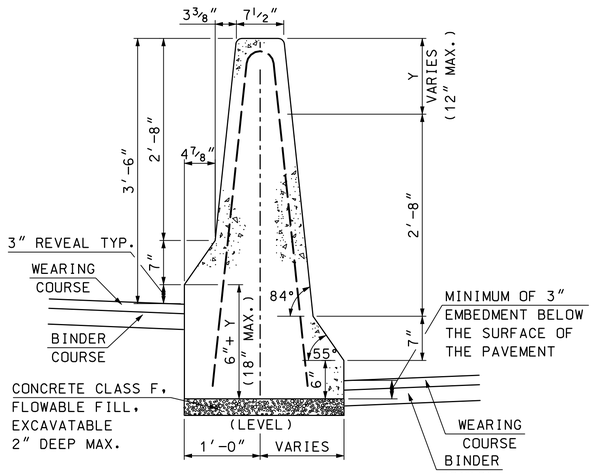
BAR V DETAIL (#4)



BAR L DETAIL (#4)

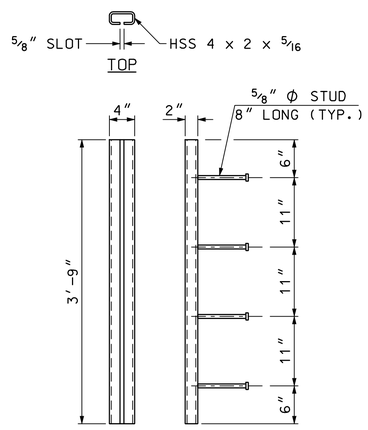


BARRIER CONNECTION DETAIL

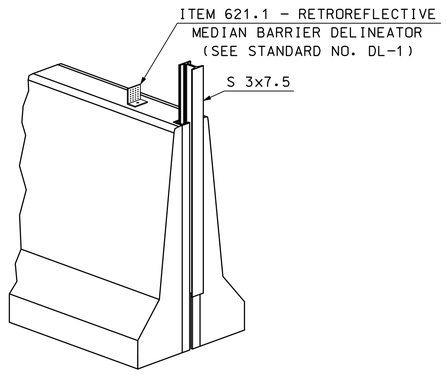


CONCRETE BARRIER PRECAST DOUBLE-FACED 42" F-SHAPE MODIFIED

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



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

STANDARD NO. GR-15

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

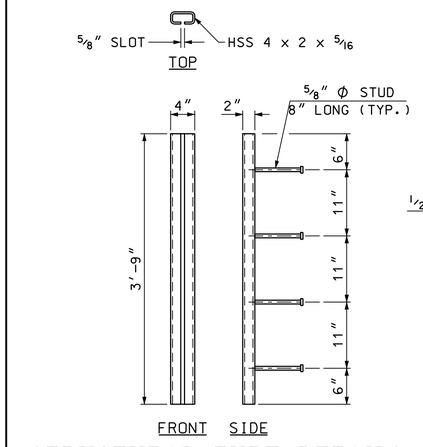
*.DGN FILE NAME
GR-15

2021 STANDARD PLANS

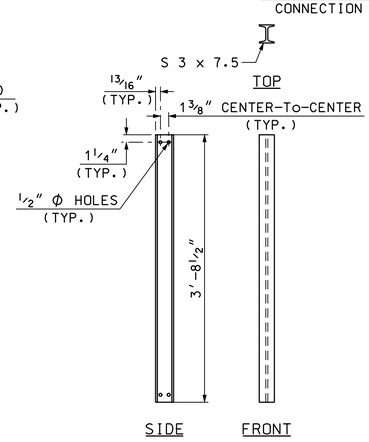
APPROVED

New Hampshire DOT Department of Transportation

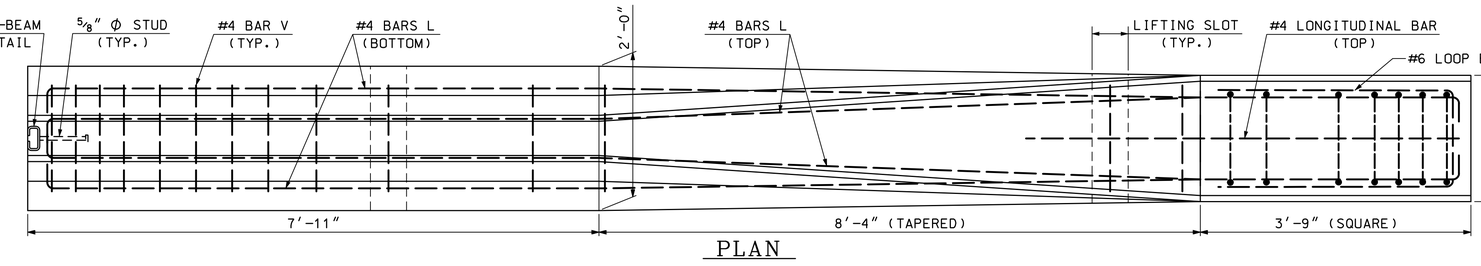
STANDARD NO. GR-15



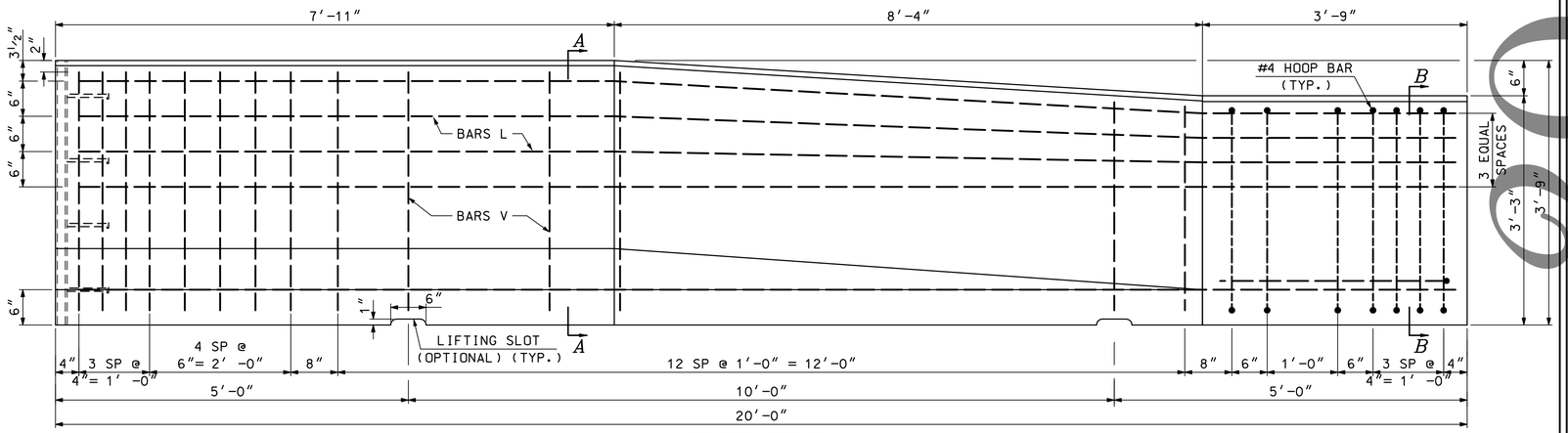
STRUCTURAL TUBE DETAILS



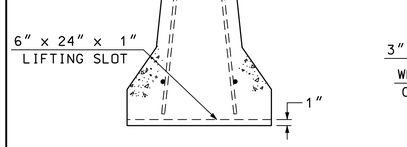
I-BEAM DETAILS



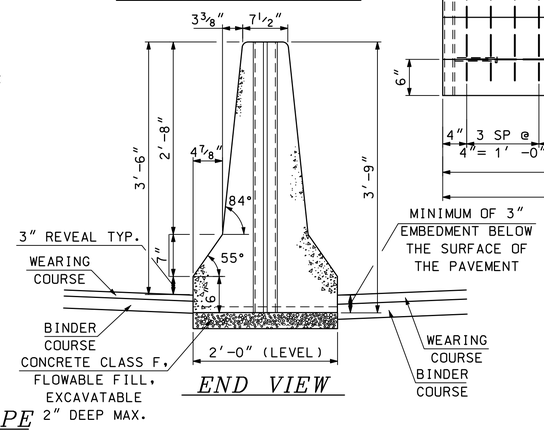
PLAN



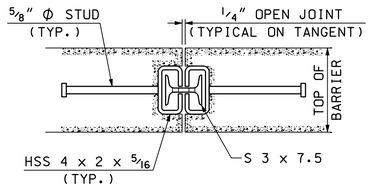
ELEVATION



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



END VIEW



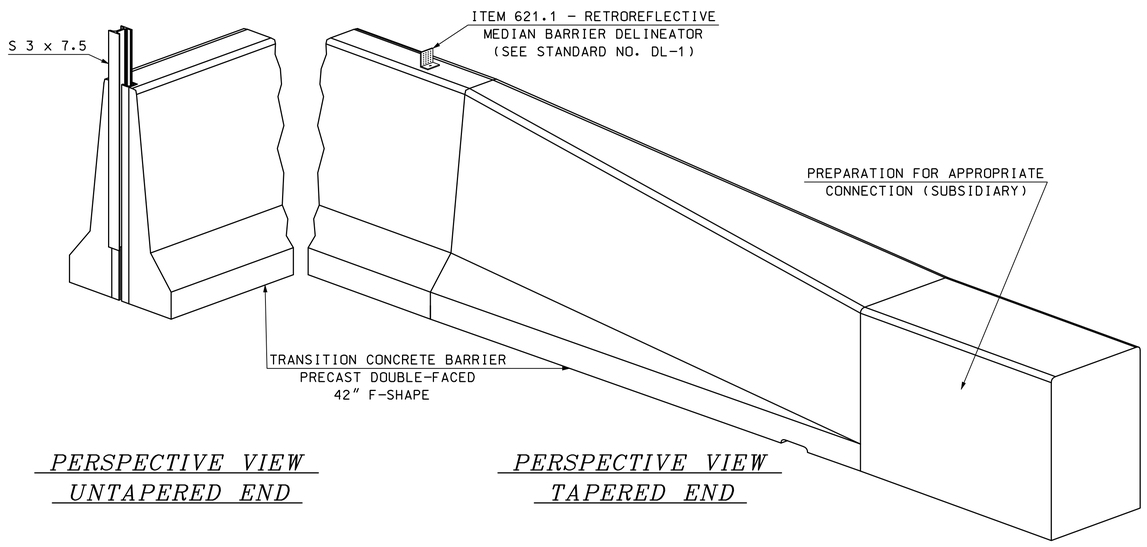
BARRIER CONNECTION DETAIL

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.

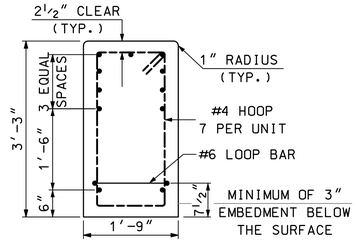
MATERIAL NOTES

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

STANDARD NO. GR-16

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

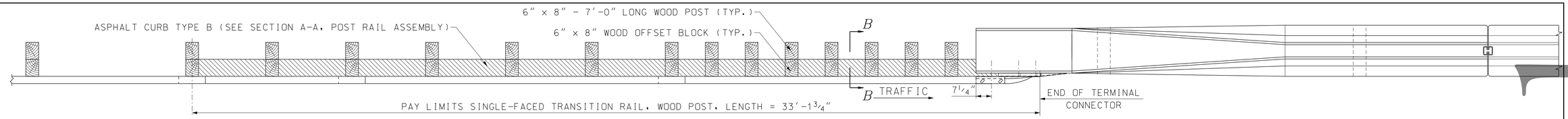
*.DGN FILE NAME
GR-16

STANDARD PLANS

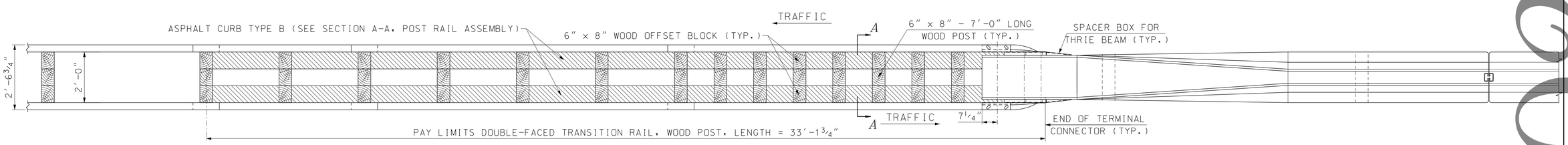
New Hampshire DOT Department of Transportation

STANDARD NO. GR-16

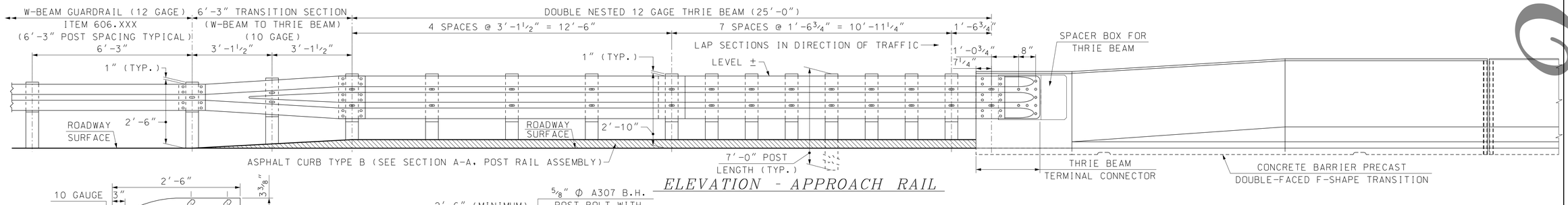
April 2021



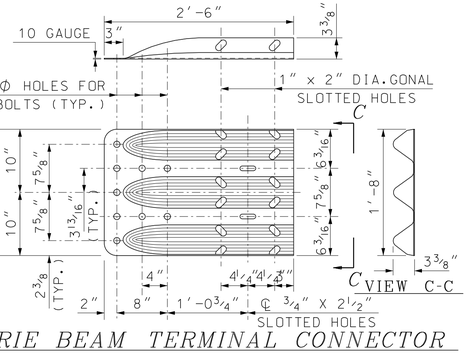
PLAN VIEW - CONCRETE BARRIER TO GUARDRAIL CONNECTION DETAIL (SINGLE-FACED THRIE BEAM GUARDRAIL)



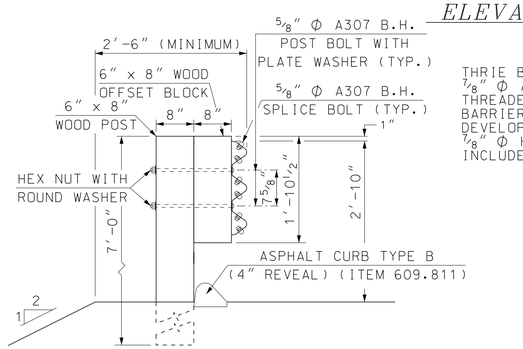
PLAN VIEW - CONCRETE BARRIER TO GUARDRAIL CONNECTION DETAIL (DOUBLE-FACED THRIE BEAM GUARDRAIL)



ELEVATION - APPROACH RAIL

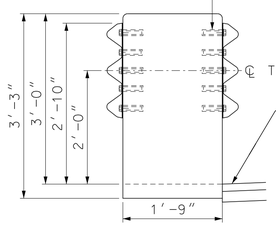


THRIE BEAM TERMINAL CONNECTOR



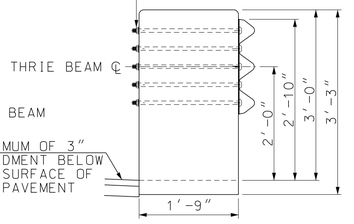
SECTION B-B (POST RAIL ASSEMBLY)

THRIE BEAM SHALL BE FASTENED WITH 7/8" Φ ASTM A325 BOLTS IN EPOXY THREADED INSERTS SET INTO CONCRETE BARRIER. INSERTS SHALL BE CAPABLE OF DEVELOPING THE FULL STRENGTH OF A 7/8" Φ HIGH STRENGTH BOLT. ALL COSTS INCLUDED IN ITEM - SEE NOTE 9.

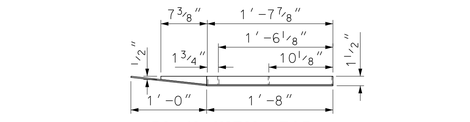


DOUBLE-FACED THRIE BEAM ATTACHMENT

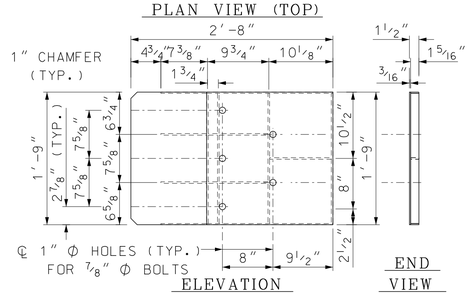
THRIE BEAM SHALL BE FASTENED WITH 7/8" Φ ASTM A325 BOLTS, NUTS AND WASHERS. (EPOXY THREADED INSERTS ARE OPTIONAL). ALL COSTS INCLUDED IN ITEM - SEE NOTE 9.



THRIE BEAM ATTACHMENT

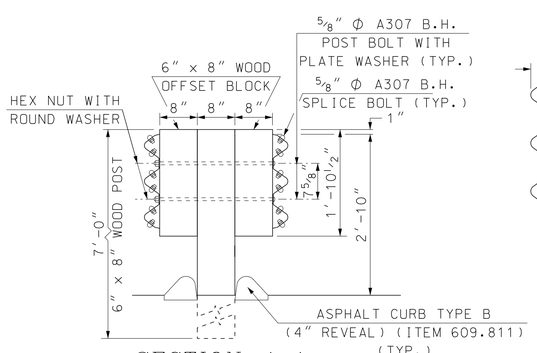


PLAN VIEW (TOP)

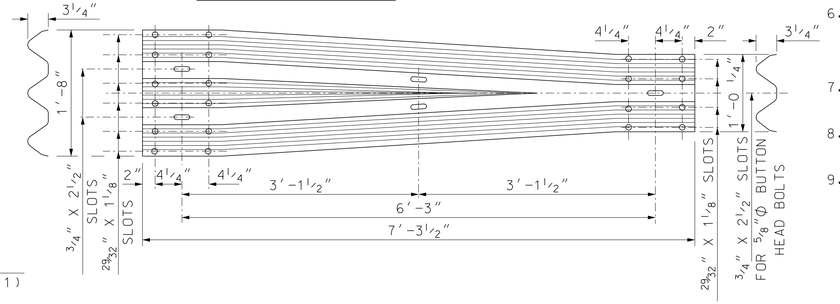


SPACER BOX DETAILS

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" Φ 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" Φ.
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 NO. GR-17

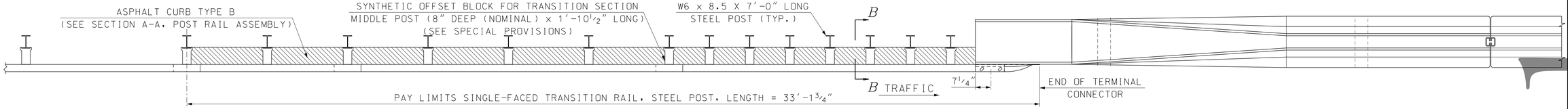
REVISION DATE
06-16-2010
11-05-2010
10-30-2012

DGN FILE NAME
GR-17

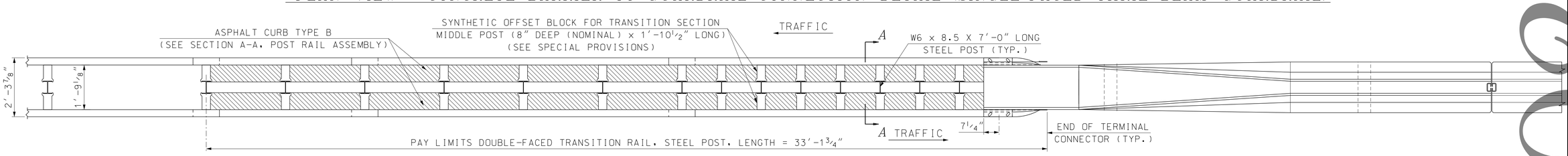
2012 STANDARD PLANS

New Hampshire DOT Department of Transportation

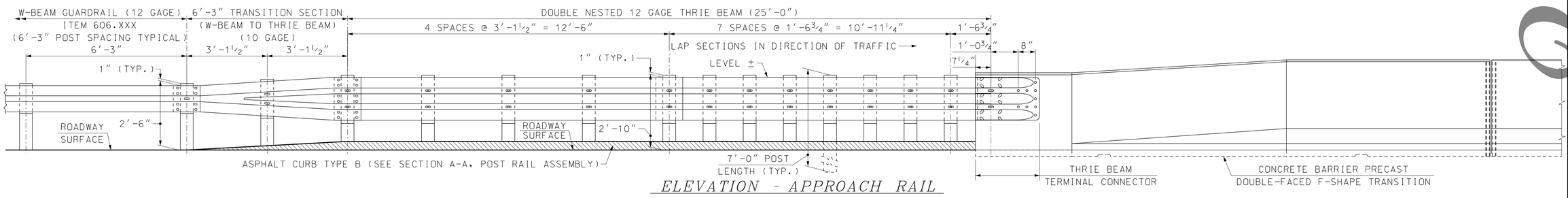
STANDARD NO. GR-17



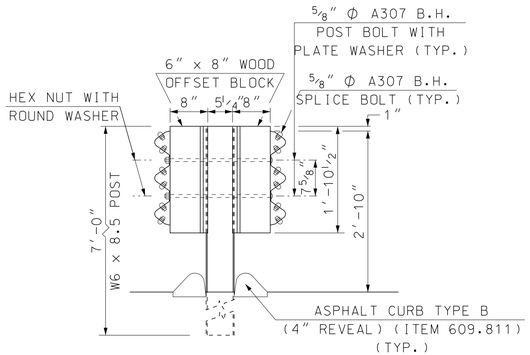
PLAN VIEW - CONCRETE BARRIER TO GUARDRAIL CONNECTION DETAIL (SINGLE-FACED THRIE BEAM GUARDRAIL)



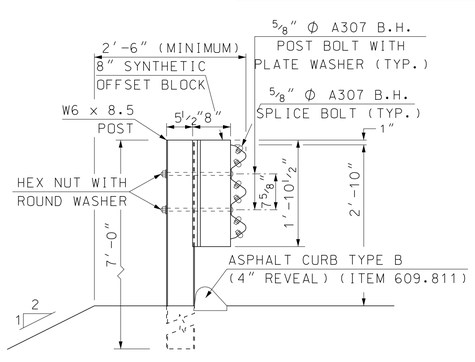
PLAN VIEW - CONCRETE BARRIER TO GUARDRAIL CONNECTION DETAIL (DOUBLE-FACED THRIE BEAM GUARDRAIL)



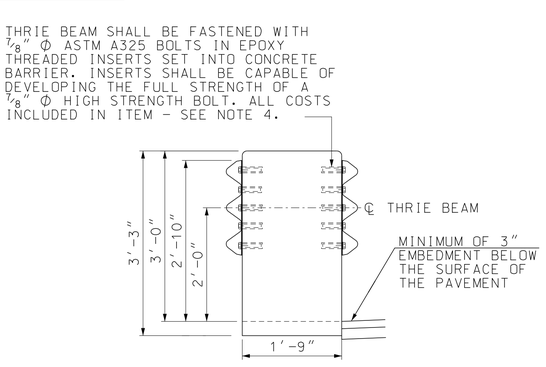
ELEVATION - APPROACH RAIL



SECTION A-A (POST RAIL ASSEMBLY)



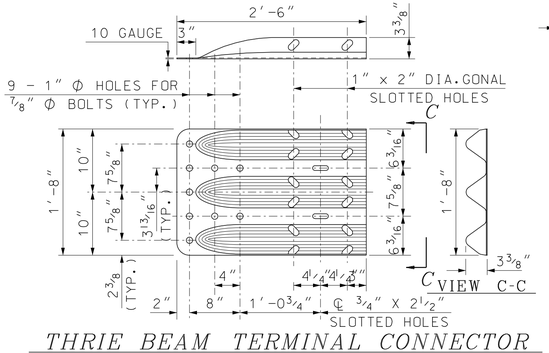
SECTION B-B (POST RAIL ASSEMBLY)



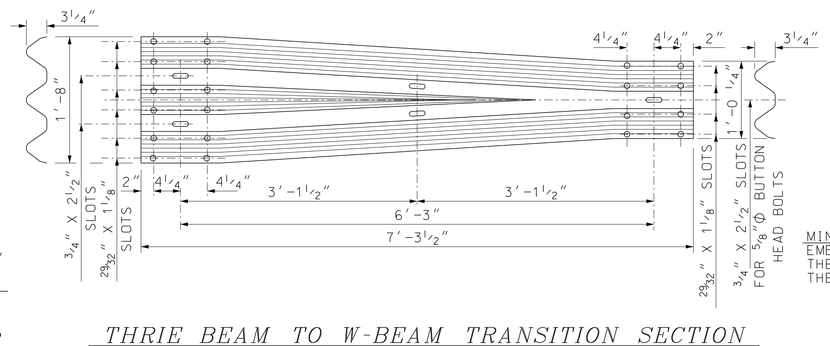
DOUBLE-FACED THRIE BEAM ATTACHMENT

GENERAL NOTES

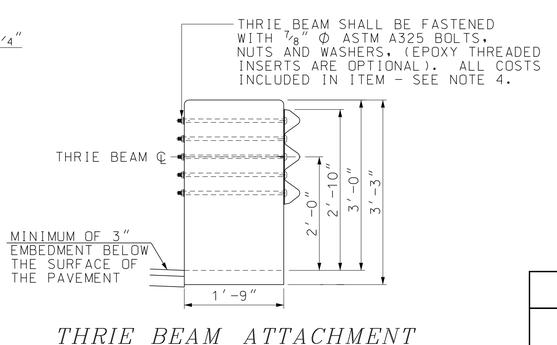
1. ALL THRIE BEAM RAIL, INCLUDING TRANSITION SECTION, SHALL BE GALVANIZED 12 GAUGE. ALL TERMINAL CONNECTORS SHALL BE GALVANIZED 10 GAUGE.
2. CONNECTIONS TO CONCRETE BARRIER SHALL BE APPROVED 7/8" Φ GALVANIZED HIGH STRENGTH THROUGH BOLTS IN CORE DRILLED HOLES. CHECK ACTUAL HOLE SPACING BEFORE CORING BOLT 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

STANDARD
NO. GR-18

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

*.DGN FILE NAME
GR-18

2021 STANDARD PLANS

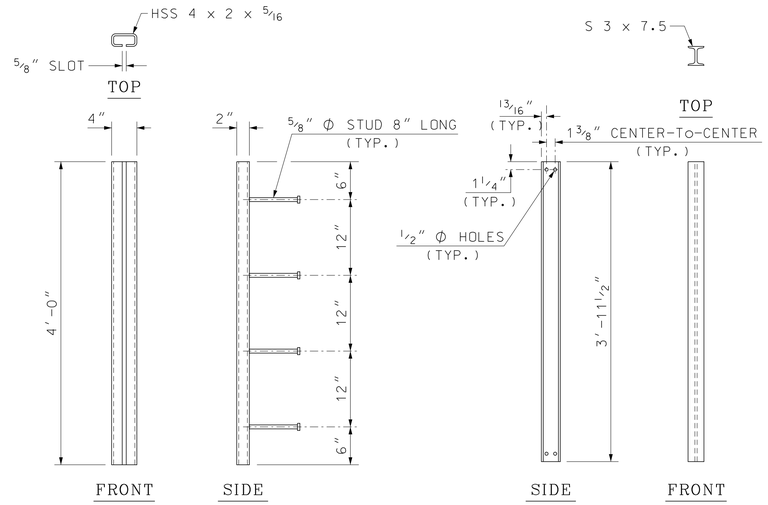
New Hampshire DOT Department of Transportation

GUARDRAIL STANDARD

TRANSITION F-SHAPE CONCRETE BARRIER AND GUARDRAIL (STEEL)

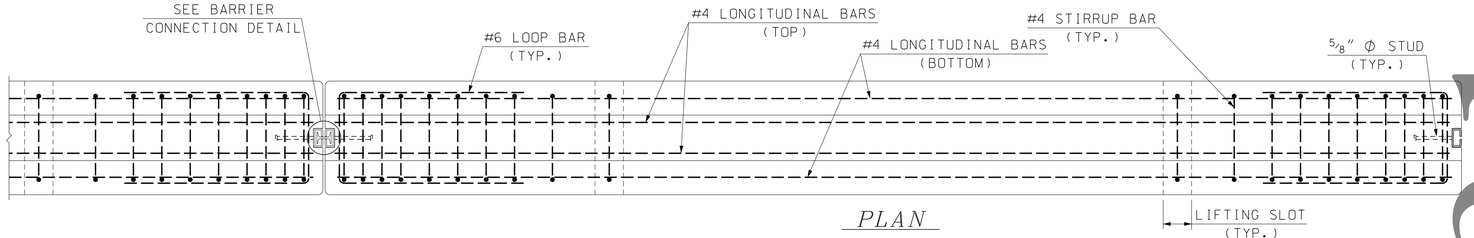
STANDARD
NO. GR-18

APPROVED

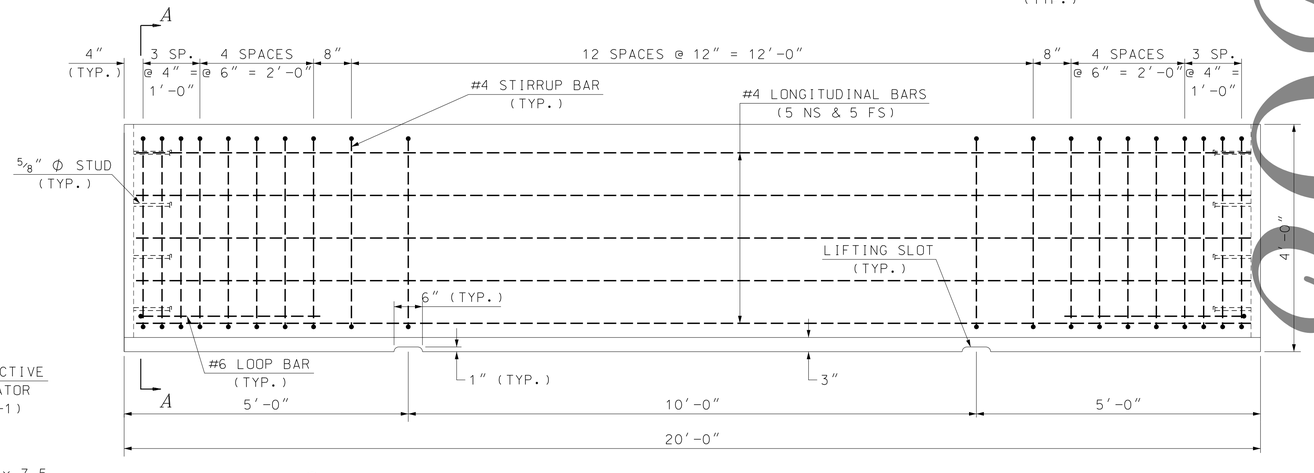


STRUCTURAL TUBE DETAILS

I-BEAM DETAILS

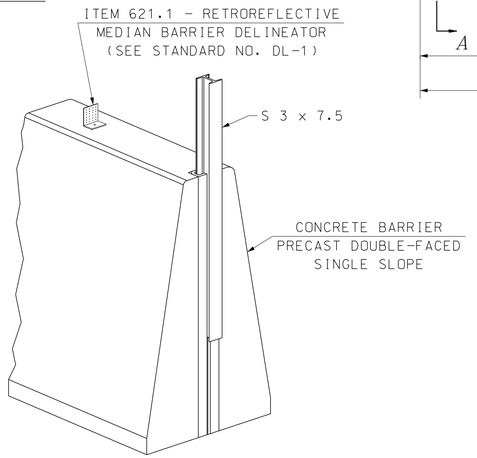


PLAN

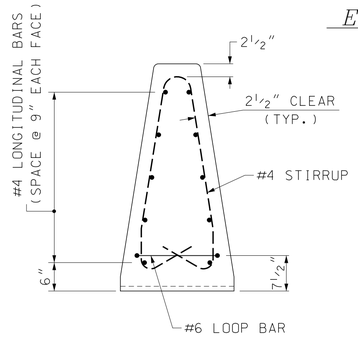


ELEVATION

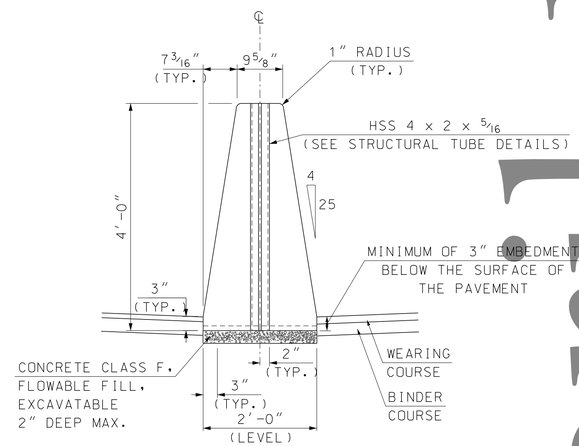
BARRIER CONNECTION DETAIL



PERSPECTIVE VIEW



SECTION A-A (REINFORCEMENT)



END VIEW (MASONRY)

GENERAL NOTES

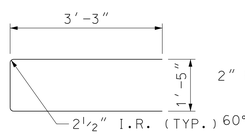
1. THE CONCRETE BARRIER DETAILS, AS SHOWN ON THIS SHEET, ARE IN COMPLIANCE WITH THE REQUIREMENTS OF NCHRP REPORT 350, TL 4.
2. I-BEAMS AND STRUCTURAL TUBES SHALL BE GALVANIZED AFTER FABRICATION.
3. STUD WELDING SHALL BE IN ACCORDANCE WITH ITEM 547.
4. SLOTS IN STRUCTURAL TUBES SHALL BE CUT WITH MECHANICALLY 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

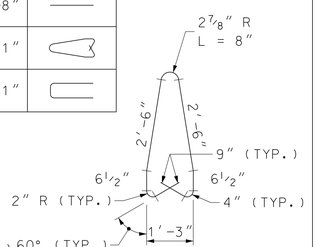
1. THE BARRIERS SHALL BE LIGHT COLORED CLASS "AA" CONCRETE HAVING A MINIMUM 28 DAY COMPRESSION STRENGTH OF 4,000 PSI. BARRIERS SHALL HAVE A SMOOTH UNIFORM SURFACE FREE OF DEFECTS AND IRREGULARITIES. CASTING DATE SHALL BE SHOWN ON BARRIER. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4", UNLESS 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"	



*6 LOOP BAR (TOP VIEW)



*4 STIRRUP BAR

GUARDRAIL STANDARD

CONCRETE BARRIER
PRECAST DOUBLE-FACED
SINGLE SLOPE

STANDARD NO. GR-19

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

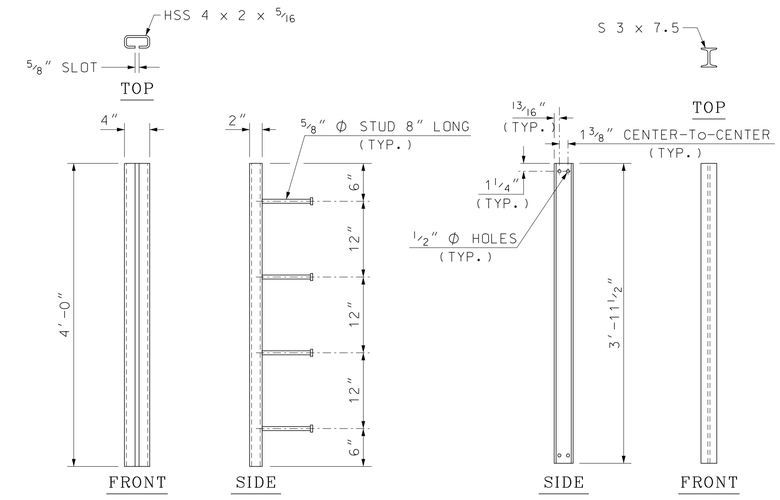
DGN FILE NAME
GR-19

APPROVED 2021

STANDARD PLANS

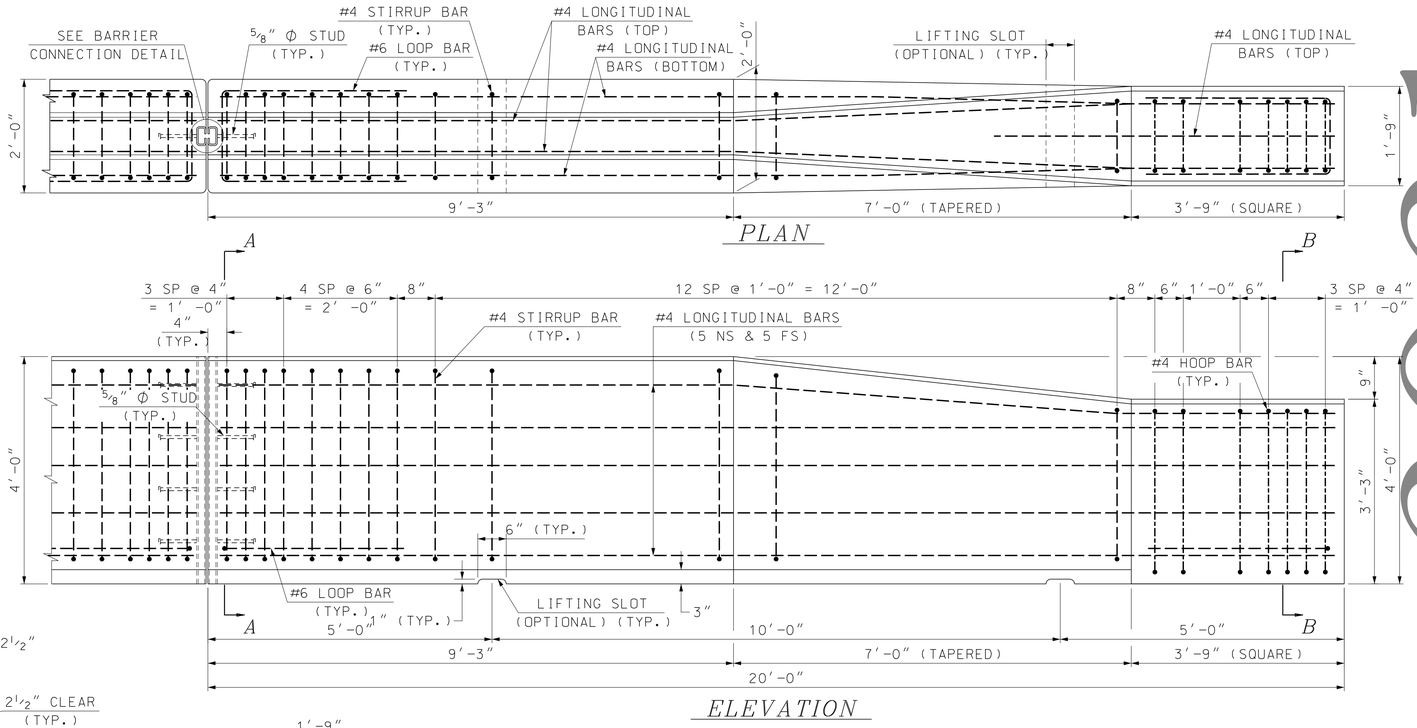
New Hampshire DOT Department of Transportation

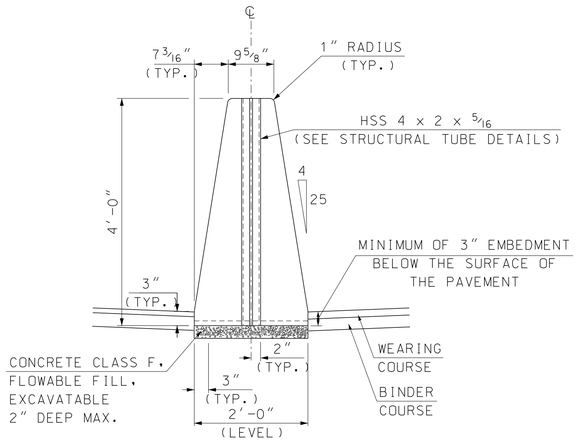
STANDARD NO. GR-19



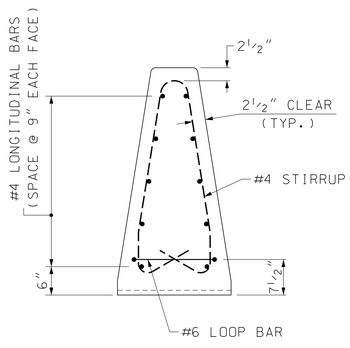
STRUCTURAL TUBE DETAILS

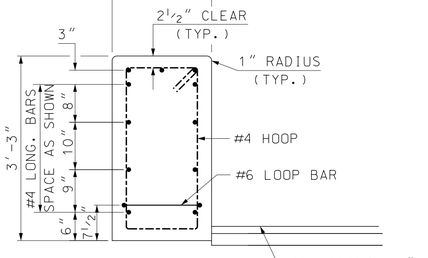
I-BEAM DETAILS



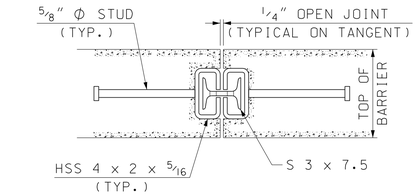


END VIEW (MASONRY)

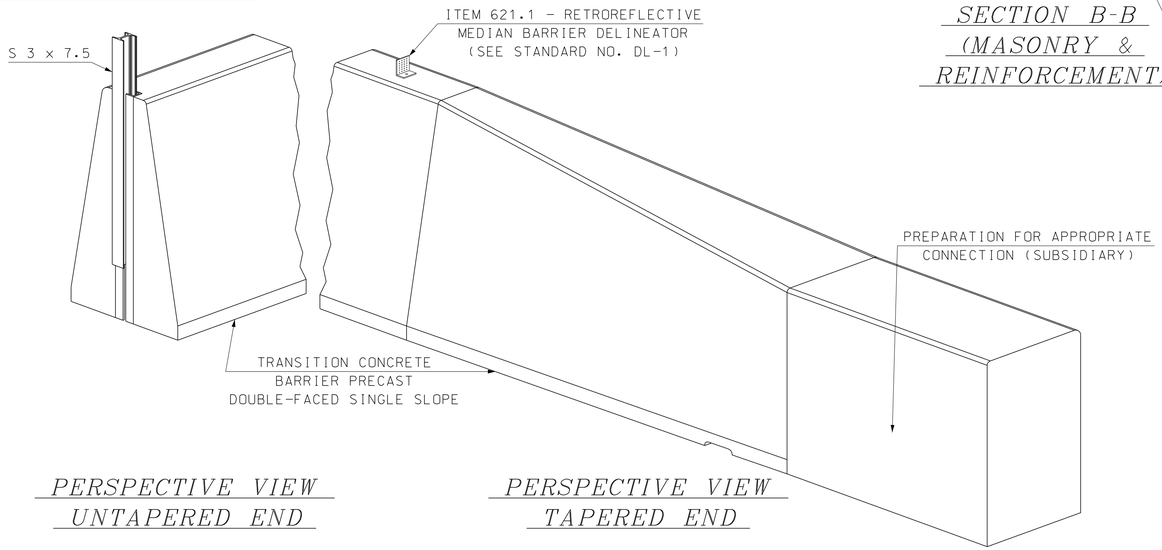




SECTION B-B (MASONRY & REINFORCEMENT)



BARRIER CONNECTION DETAIL



PERSPECTIVE VIEW UNTAPERED END

PERSPECTIVE VIEW TAPERED END

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.

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

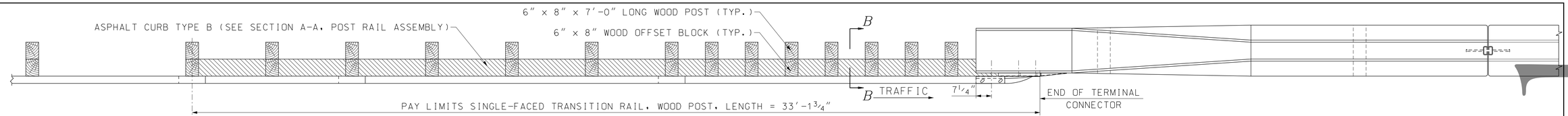
DGN FILE NAME
GR-20

April 2021

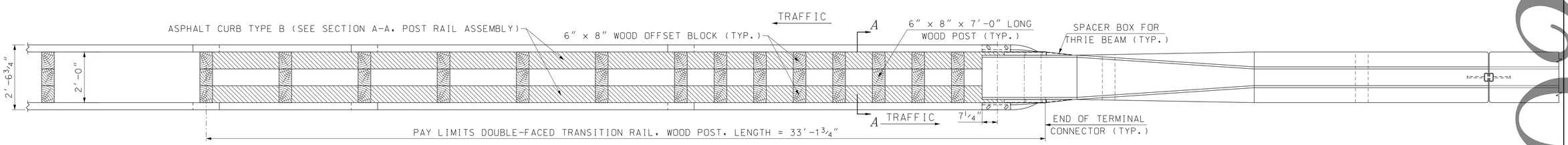
STANDARD PLANS

New Hampshire DOT Department of Transportation

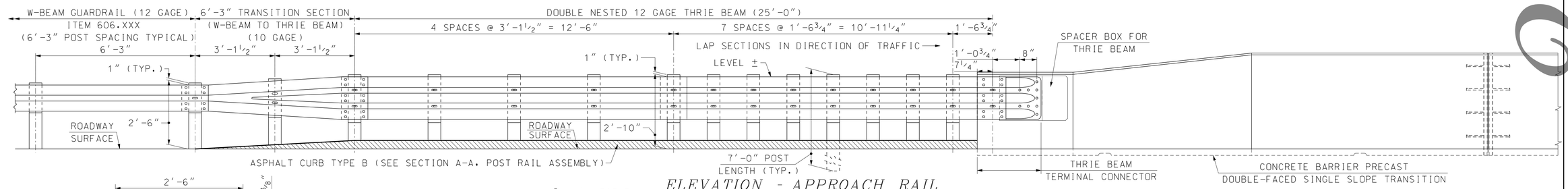
STANDARD NO. GR-20



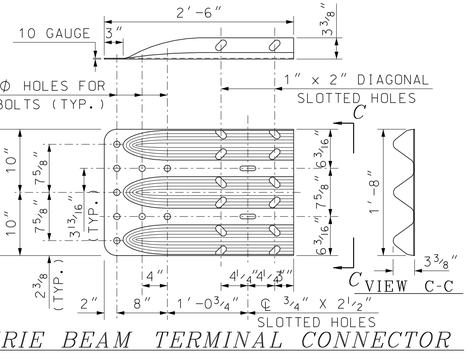
PLAN VIEW - CONCRETE BARRIER TO GUARDRAIL CONNECTION DETAIL (SINGLE-FACED THRIE BEAM GUARDRAIL)



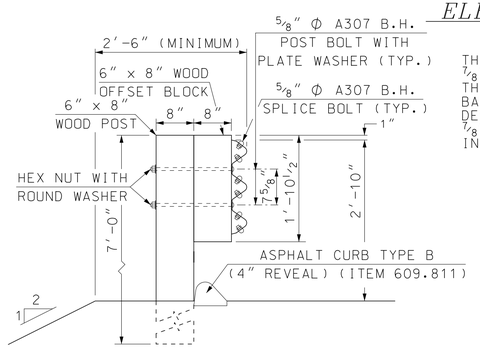
PLAN VIEW - CONCRETE BARRIER TO GUARDRAIL CONNECTION DETAIL (DOUBLE-FACED THRIE BEAM GUARDRAIL)



ELEVATION - APPROACH RAIL

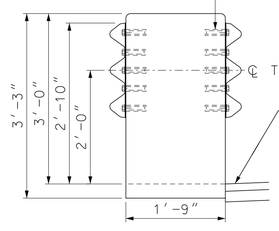


THRIE BEAM TERMINAL CONNECTOR



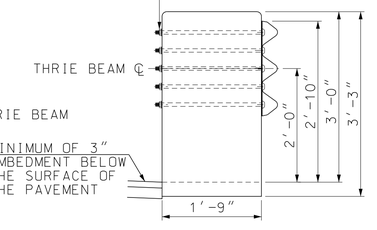
SECTION B-B
(POST RAIL ASSEMBLY)

THRIE BEAM SHALL BE FASTENED WITH 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 9.



DOUBLE-FACED THRIE BEAM ATTACHMENT

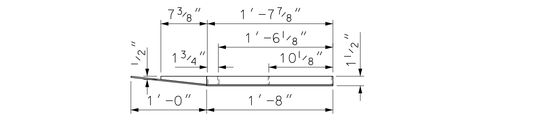
THRIE BEAM SHALL BE FASTENED WITH 7/8" Ø ASTM A325 BOLTS, NUTS AND WASHERS. (EPOXY THREADED INSERTS ARE OPTIONAL). ALL COSTS INCLUDED IN ITEM - SEE NOTE 9.



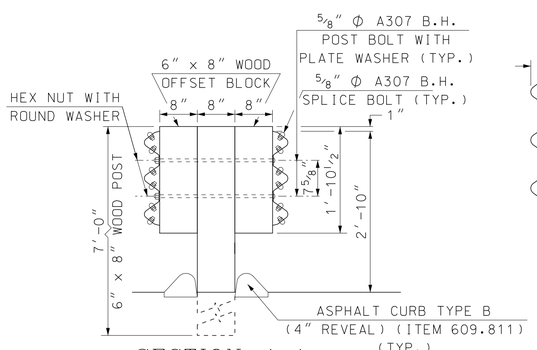
THRIE BEAM ATTACHMENT

GENERAL NOTES

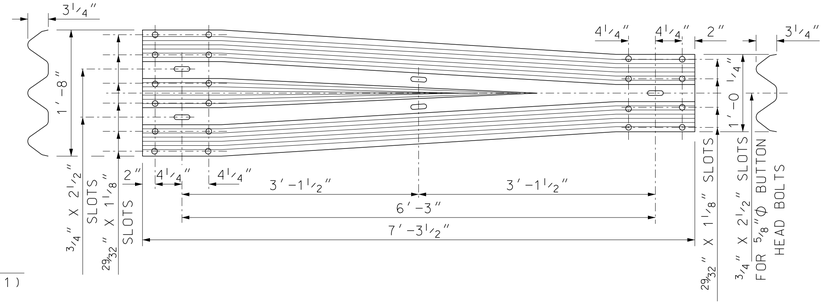
1. ALL THRIE BEAM RAIL, INCLUDING TRANSITION SECTION, SHALL BE GALVANIZED 12 GAUGE. ALL TERMINAL CONNECTORS SHALL BE GALVANIZED 10 GAUGE.
2. CONNECTIONS TO CONCRETE BARRIER SHALL BE APPROVED 7/8" Ø GALVANIZED HIGH STRENGTH THROUGH BOLTS IN CORE DRILLED HOLES. CHECK ACTUAL HOLE SPACING BEFORE CORING BOLT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



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

STANDARD NO. GR-21
REVISION DATE
06-16-2010
11-05-2010
10-30-2012
.DGN FILE NAME
GR-21

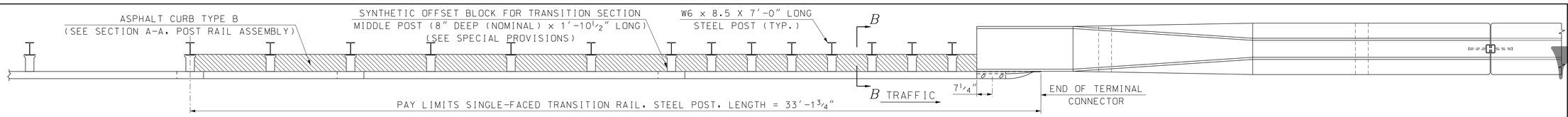
2021 STANDARD PLANS

GUARDRAIL STANDARD

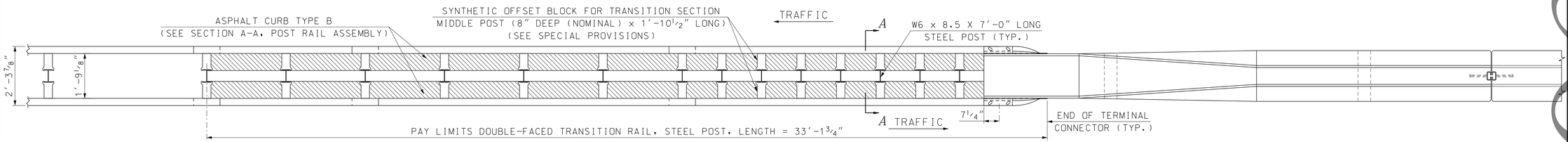
TRANSITION SINGLE SLOPE CONCRETE BARRIER AND GUARDRAIL (WOOD)

New Hampshire DOT Department of Transportation

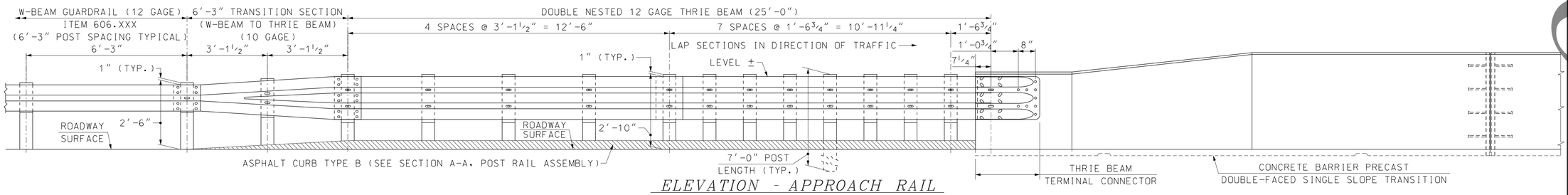
STANDARD NO. GR-21



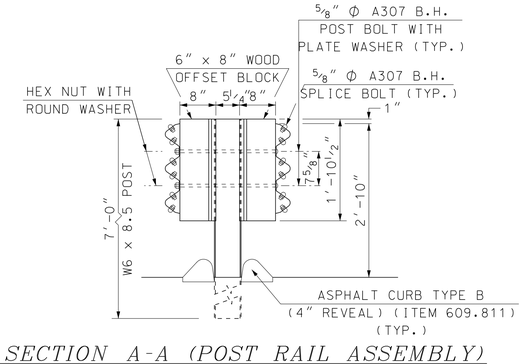
PLAN VIEW - CONCRETE BARRIER TO GUARDRAIL CONNECTION DETAIL (SINGLE-FACED THRIE BEAM GUARDRAIL)



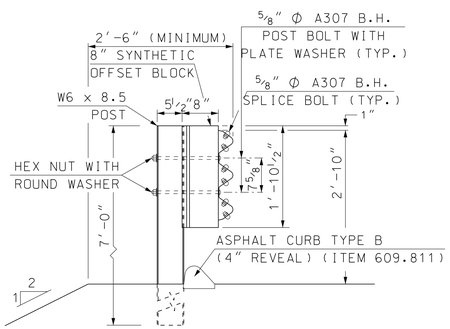
PLAN VIEW - CONCRETE BARRIER TO GUARDRAIL CONNECTION DETAIL (DOUBLE-FACED THRIE BEAM GUARDRAIL)



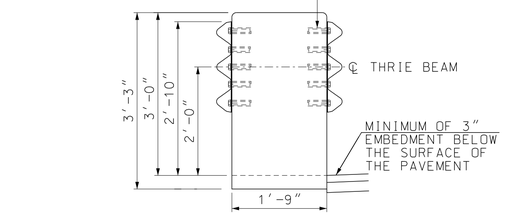
ELEVATION - APPROACH RAIL



SECTION A-A (POST RAIL ASSEMBLY)



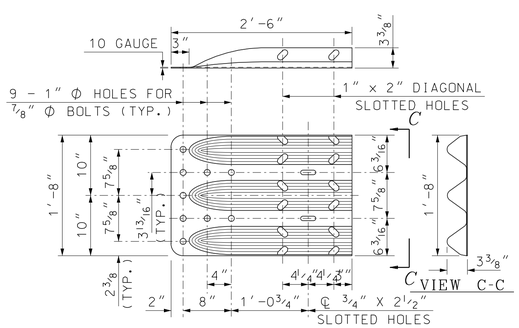
SECTION B-B (POST RAIL ASSEMBLY)



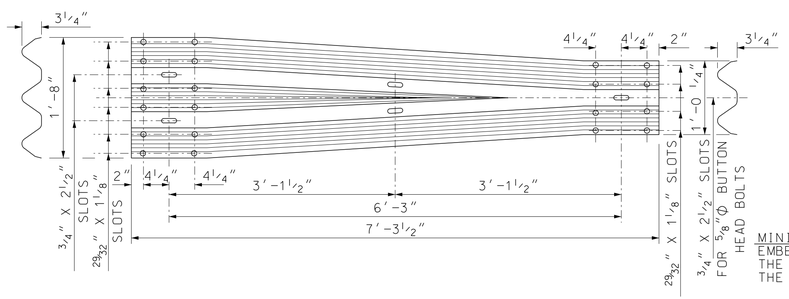
DOUBLE-FACED THRIE BEAM ATTACHMENT

GENERAL NOTES

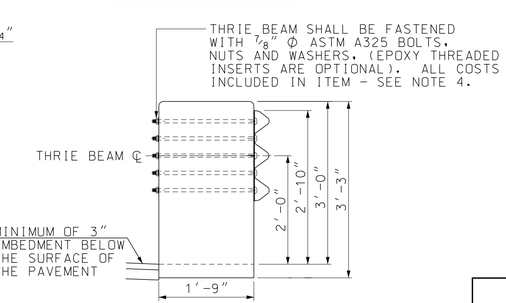
1. ALL THRIE BEAM RAIL, INCLUDING TRANSITION SECTION, SHALL BE GALVANIZED 12 GAUGE. ALL TERMINAL CONNECTORS SHALL BE GALVANIZED 10 GAUGE.
2. CONNECTIONS TO CONCRETE BARRIER SHALL BE APPROVED 7/8" Φ GALVANIZED HIGH STRENGTH THROUGH BOLTS IN CORE DRILLED HOLES. CHECK ACTUAL HOLE SPACING BEFORE CORING BOLT 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

STANDARD NO. GR-22

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

* DGN FILE NAME
GR-22

2012

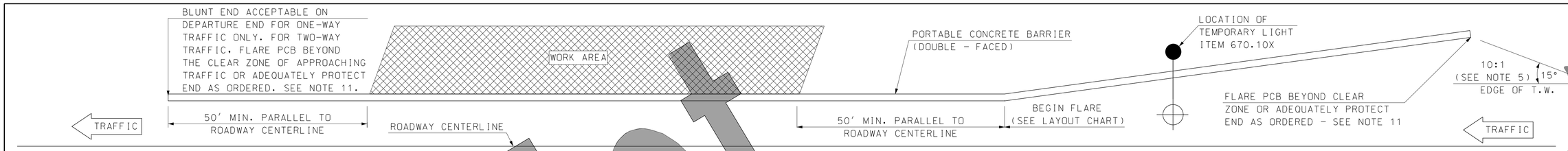
STANDARD PLANS

New Hampshire DOT Department of Transportation

GUARDRAIL STANDARD

TRANSITION SINGLE SLOPE CONCRETE BARRIER AND GUARDRAIL (STEEL)

STANDARD NO. GR-22

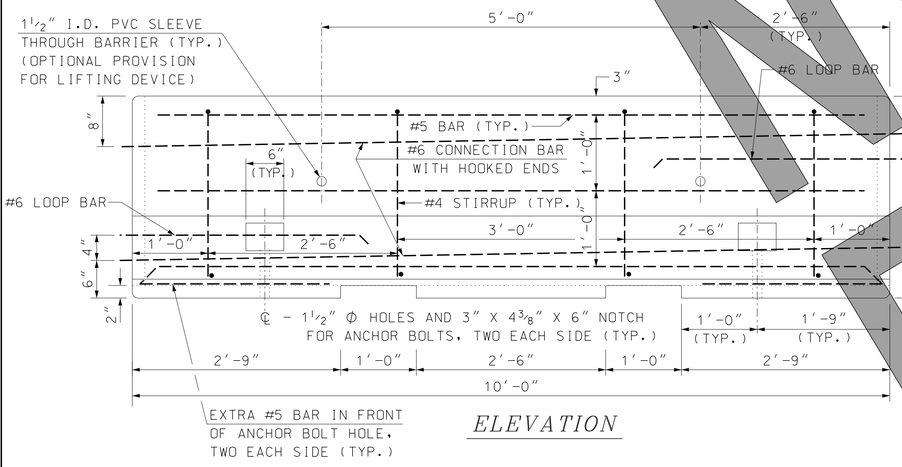


LAYOUT OF PORTABLE CONCRETE BARRIER

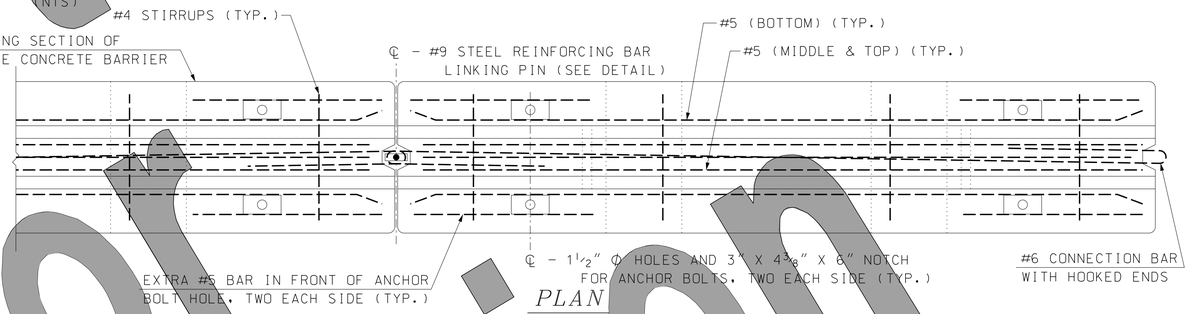
(NTS)

TRAFFIC OR TRAFFIC

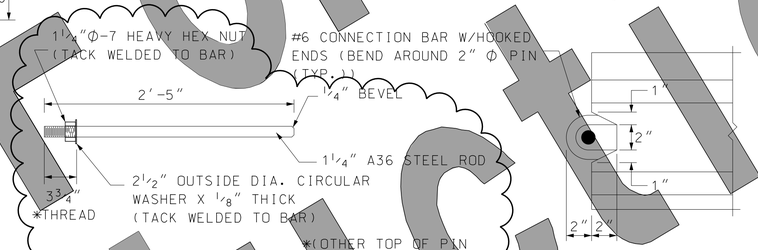
(SEE NOTE ABOVE)



ELEVATION

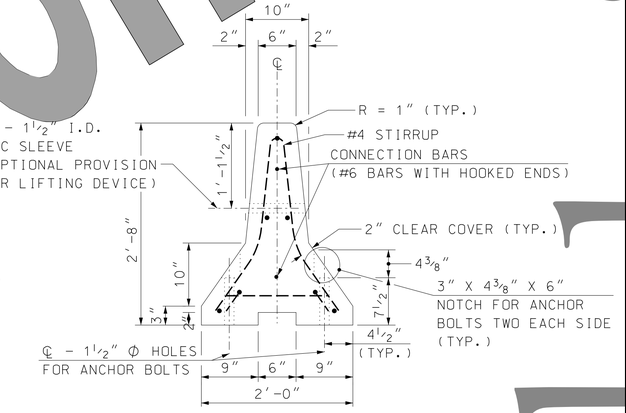


PLAN



LINKING PIN

END NOTCH DETAIL



TYPICAL SECTION

GENERAL NOTES

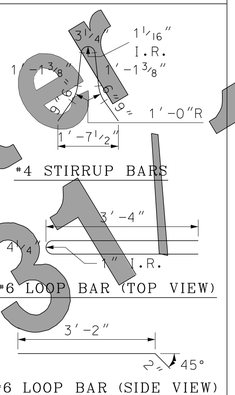
1. THE PORTABLE CONCRETE BARRIER DETAILS, AS SHOWN ON THIS SHEET, ARE IN COMPLIANCE WITH THE REQUIREMENTS OF NCHRP REPORT 350.
2. CONCRETE BARRIER SHALL BE FURNISHED BY THE CONTRACTOR AND PAID AS ITEM 606.417 - PORTABLE CONCRETE BARRIER FOR TRAFFIC CONTROL. CONNECTIONS TO EXISTING BARRIERS, WHEN REQUIRED, SHALL BE SUBSIDIARY TO ITEM 606.417.
3. THE CONTRACTOR SHALL FURNISH AND INSTALL APPROVED RETROREFLECTIVE DELINEATORS AT AN INTERVAL SPACING OF ONE (1) PER EVERY OTHER BARRIER (MAXIMUM 25 FT INTERVAL) ALONG THE TOP AND/OR ONE FOOT DOWN THE SIDE OF THE PORTABLE CONCRETE BARRIER, SUBSIDIARY TO ITEM 606.417. MECHANICALLY CONNECT DELINEATOR TO PORTABLE CONCRETE BARRIER. 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 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.

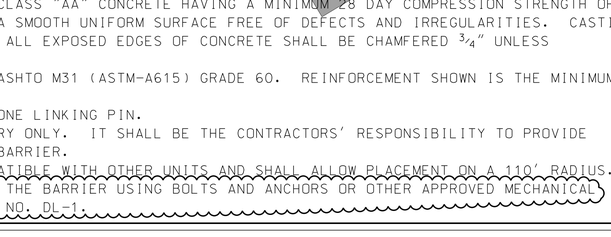
MATERIAL NOTES

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 ¾" 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 BOLTS AND ANCHORS OR OTHER APPROVED MECHANICAL CONNECTION, AS SHOWN ON STANDARD NO. DL-1.

PORTABLE CONCRETE BARRIER REINFORCING SCHEDULE

DESCRIPTION	SIZE	NO.	UNBENT LENGTH	TYPE
CONNECTION BARS	#6	2	14'-9½"	
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'-10¼"	





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

STANDARD NO. GR-23

STANDARD NO. GR-23

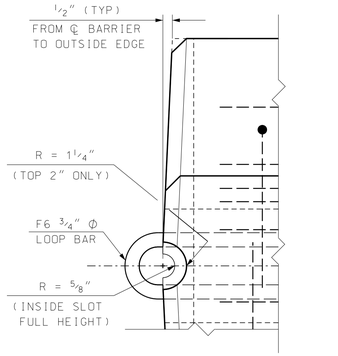
REVISION DATE
06-16-2010
10-03-2013
1/17/2020
3/16/2020

DGN FILE NAME
ARCVD GR-23

STANDARD PLANS

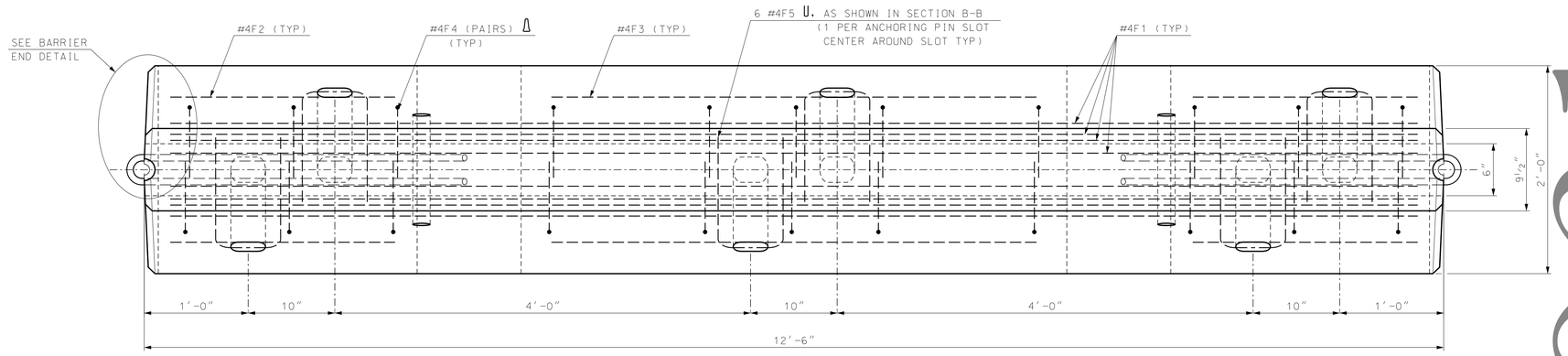
New Hampshire DOT Department of Transportation

April 2021



BARRIER END DETAIL

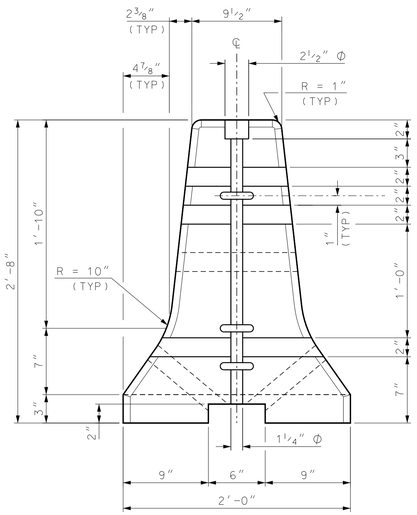
SCALE: 3" = 1'-0"



PLAN

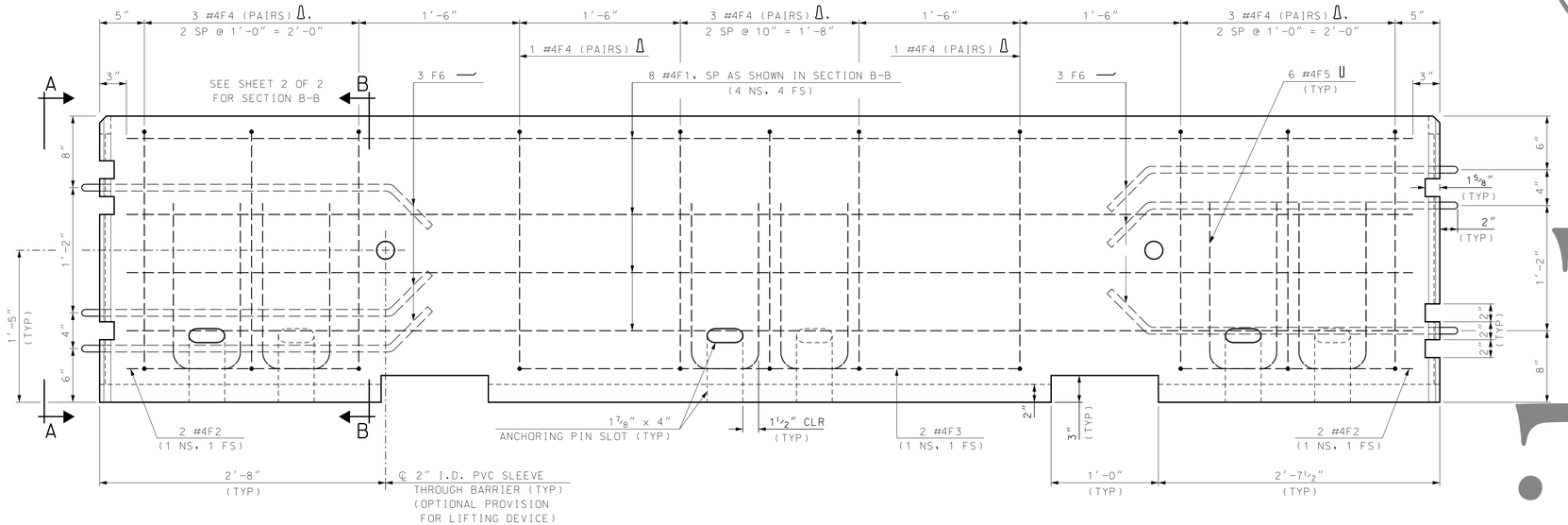
SCALE: 1 1/2" = 1'-0"

SEE SHEET 2 OF 2 FOR REBAR SCHEDULE AND BENDING DIAGRAMS



VIEW A-A

SCALE: 1 1/2" = 1'-0"



ELEVATION

SCALE: 1 1/2" = 1'-0"

GENERAL NOTES

1. THE PORTABLE CONCRETE BARRIER DETAILS, AS SHOWN ON THIS SHEET, ARE IN COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH 16). (ROADSIDE SAFETY RESEARCH PROGRAM POOLED FUND STUDY NO TPF-5 (114) MAY 2017). THE FREE-STANDING BARRIER HAS BEEN TL-3 CRASH TESTED WITH A 5.28' DYNAMIC DEFLECTION.
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. MECHANICALLY CONNECT DELINEATOR TO PORTABLE CONCRETE BARRIER. 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 FOR ATTENUATION. REFER TO MOST CURRENT EDITION OF THE ROADSIDE DESIGN GUIDE AASHTO ADOPTED BY THE DEPARTMENT, 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. PLACE RETROREFLECTORIZED DRUMS OR BARRICADES IN ACCORDANCE WITH THE MUTCD IN ADVANCE OF PORTABLE CONCRETE BARRIER TO WARN AND ALERT DRIVERS.
8. ANCHOR PIN DETAILS CAN BE PROVIDED IF REQUIRED OR DIRECTED.
9. TEMPORARY LIGHTING SHALL BE PAID UNDER ITEM 670.10X.
10. 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 AAA CONCRETE HAVING A MINIMUM 28 DAY COMPRESSION STRENGTH OF 5,000 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. ALL REINFORCING STEEL SHALL HAVE A MINIMUM 1 1/2" CLEAR COVER UNLESS OTHERWISE NOTED.
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. DELINEATORS SHALL BE ATTACHED TO THE BARRIER USING BOLTS AND ANCHORS OR OTHER APPROVED MECHANICAL CONNECTION, AS SHOWN ON STANDARD NO. DL-1.

BARRIER WEIGHT APPROXIMATELY = 2.84 TONS/UNIT

GUARDRAIL STANDARD

PORTABLE CONCRETE BARRIER (1 OF 2)

STANDARD NO. GR-24

REVISION DATE
6-3-2020

.DGN FILE NAME
GR-24

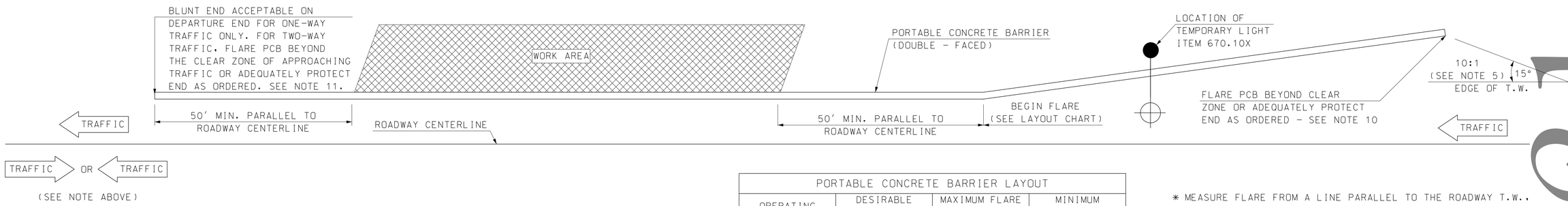
2021

STANDARD PLANS

April

New Hampshire DOT Department of Transportation

STANDARD NO. GR-24



LAYOUT OF PORTABLE CONCRETE BARRIER

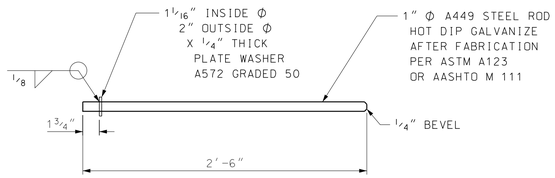
(NTS)

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. ***		200'

* MEASURE FLARE FROM A LINE PARALLEL TO THE ROADWAY T.W., WHETHER ON A CURVE OR A TANGENT.

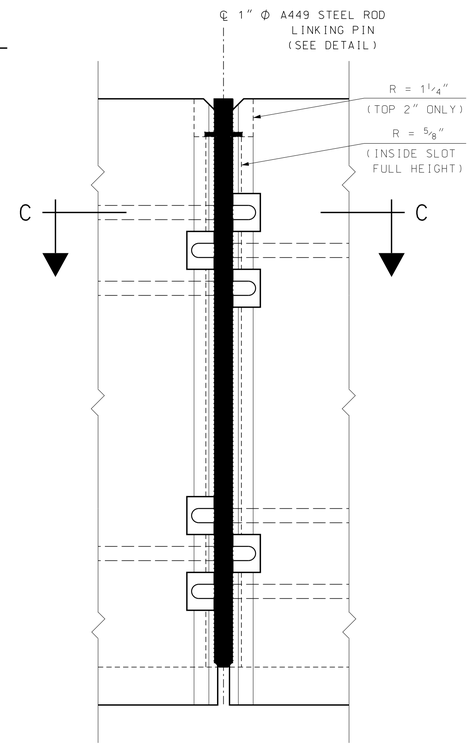
** FOR RESTRICTED SITE CONDITIONS, LESSER OFFSETS MAY BE PERMITTED BY THE ENGINEER.

*** TO REDUCE POTENTIAL FOR HIGH-ANGLE IMPACTS (> 15°)



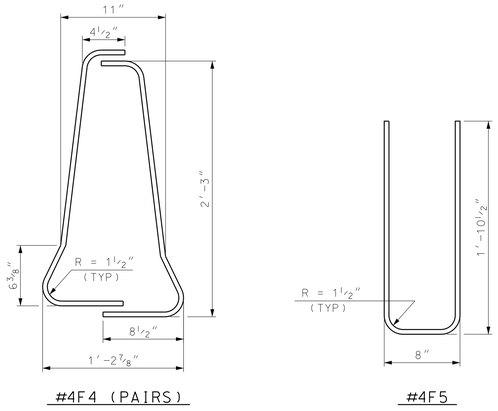
LINKING PIN

SCALE: 1 1/2" = 1'-0"



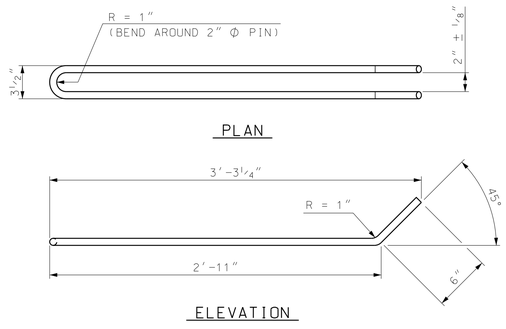
JOINING TWO BARRIERS

SCALE: 3" = 1'-0"



BENDING DIAGRAMS

SCALE: 1 1/2" = 1'-0"



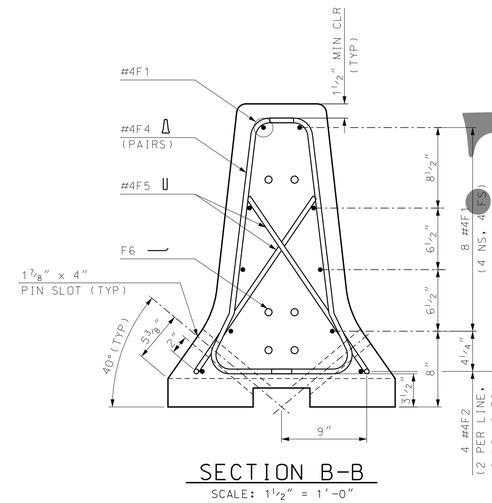
F6 3/4" Φ LOOP BAR

SCALE: 1 1/2" = 1'-0"

6-LOOP BARS (7'-2" TOTAL LENGTH)
(ASTM A36) HOT DIP GALVANIZE AFTER
FABRICATION PER ASTM A123 OR AASHTO M 111

REBAR SCHEDULE F-SHAPE PCB (12'-6" BARRIER)				
MK	SIZE	QTY	LENGTH	TYPE
F1	#4	8	12'-0"	———
F2	#4	4	2'-2"	–
F3	#4	2	4'-8"	—
*F4	#4	22	3'-4"	⌋
F5	#4	6	4'-5"	⌊⌋

*11 PAIRS



STANDARD NO. GR-24

REVISION DATE

.DGN FILE NAME
GR-24

2021

APRIL

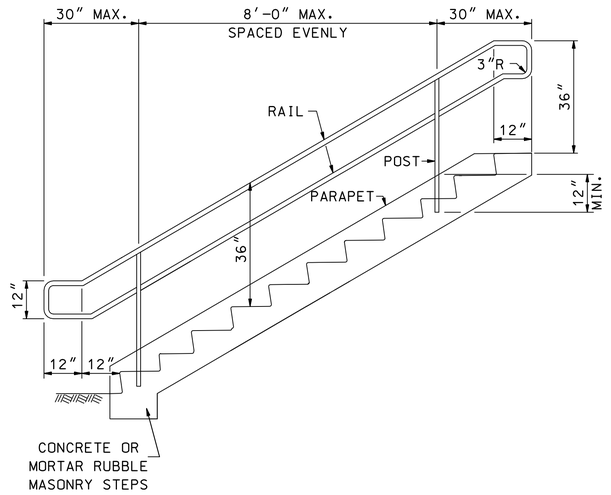
STANDARD PLANS

New Hampshire DOT Department of Transportation

GUARDRAIL STANDARD

PORTABLE CONCRETE BARRIER (2 OF 2)

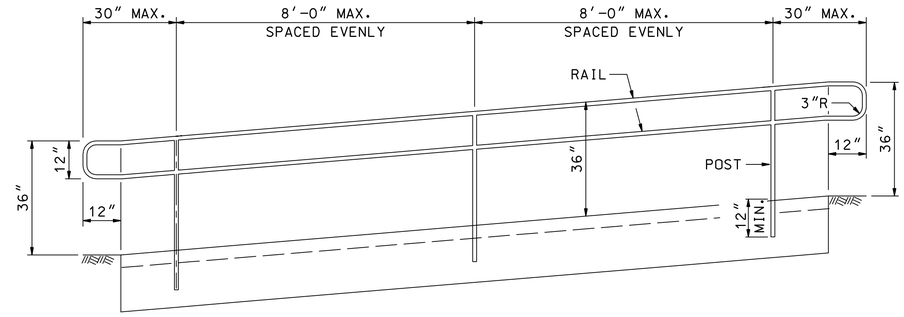
STANDARD NO. GR-25



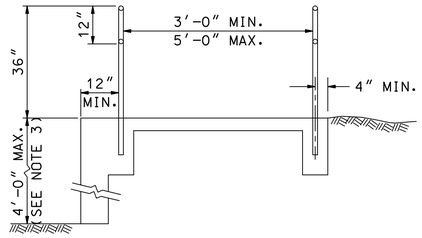
GENERAL NOTES

1. RAIL SHALL BE 1¼″ TO 1½″ O.D.
2. POSTS SHALL BE 1¼″ 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	REV. DATE		PLATE
STEP HANDRAIL	06-16-2010		1
			STANDARD HR-1



ELEVATION

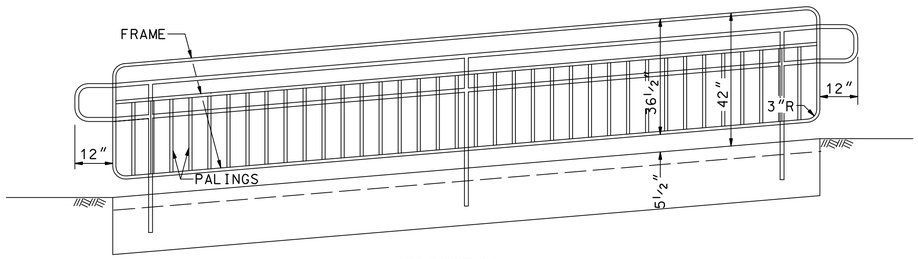


CROSS-SECTION

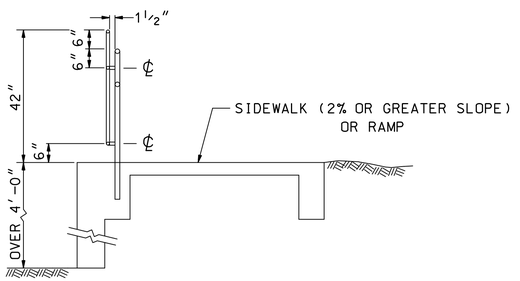
GENERAL NOTES

1. RAIL SHALL BE 1¼″ TO 1½″ O.D.
2. POSTS SHALL BE 1¼″ 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	REV. DATE		PLATE
RAMP HANDRAIL	06-16-2010		2
			STANDARD HR-1



ELEVATION

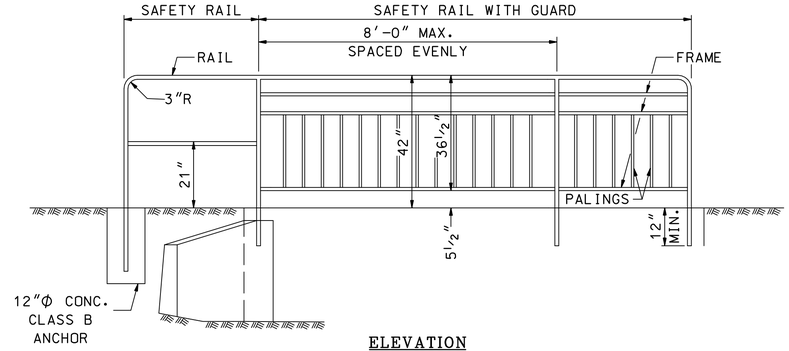


CROSS-SECTION

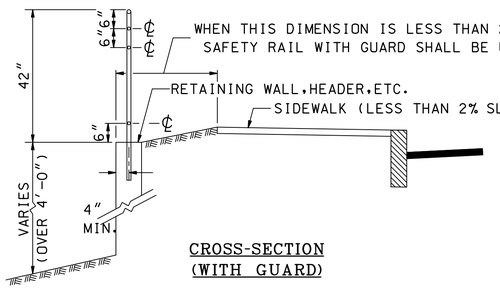
GENERAL NOTES

1. FOR DETAILS OF HANDRAIL, SEE PLATE 2.
2. FRAME AND CONNECTORS TO HANDRAIL SHALL BE 1″ NOMINAL.
3. PALINGS SHALL BE ¾″ NOMINAL SPACED 6″ ON CENTER.
4. ITEM 606.611X – STEP HANDRAIL W/ GUARD, (MATERIAL); 606.621X – RAMP HANDRAIL W/ GUARD, (MATERIAL).

NHDOT STANDARD PLANS	REV. DATE		PLATE
GUARD FOR HANDRAIL	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 1¼″ NOMINAL.
2. FRAME SHALL BE 1″ NOMINAL.
3. PALINGS SHALL BE ¾″ NOMINAL SPACED 6″ ON CENTER.
4. ITEM 606.630X – SAFETY RAIL, (MATERIAL); 606.631X – SAFETY RAIL W/ GUARD, (MATERIAL).

NHDOT STANDARD PLANS	REV. DATE		PLATE
SAFETY RAIL & SAFETY RAIL WITH GUARD	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

April

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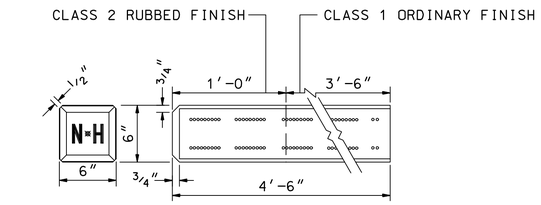
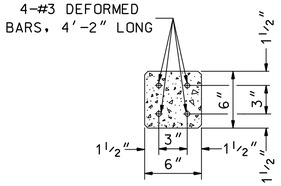
STANDARD
NO. HR-1

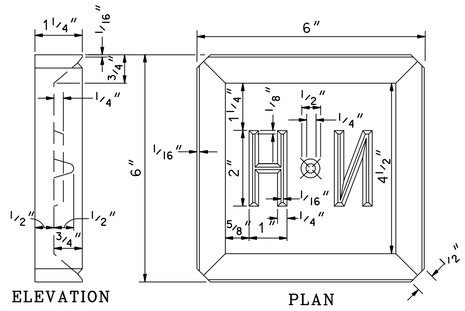


TOP

DETAIL OF CONCRETE BOUND



SECTION



ELEVATION PLAN

DETAIL OF METAL FORM

GENERAL NOTES

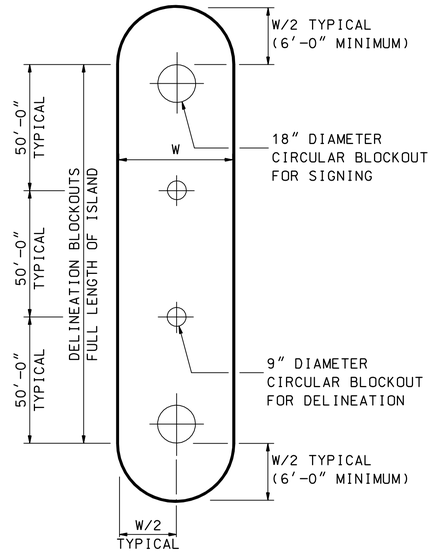
1. CONCRETE SHALL BE CLASS A.
2. BOUNDS TO BE SET IN GRAVEL, 9" ON ALL SIDES OF AND UNDER BOUND.
3. WHEN BOUNDING NON-STATE RIGHT-OF-WAY FOR CITIES AND TOWNS, USE ITEM 622.4 - STONE BOUNDS.
4. ITEM 622.2 - CONCRETE BOUNDS.

NHDOT STANDARD PLANS	REV. DATE		PLATE
CONCRETE BOUND	06-16-2010		1
			STANDARD HR-2

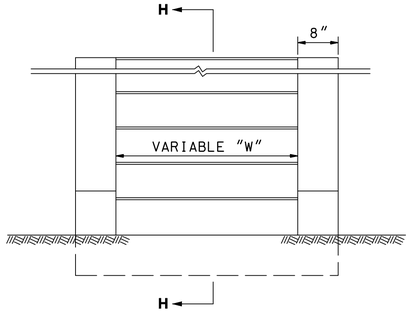
TYPICAL TREATMENT OF RAISED ISLAND TO PROVIDE BLOCKOUTS FOR SIGNING AND DELINEATION

GENERAL NOTES

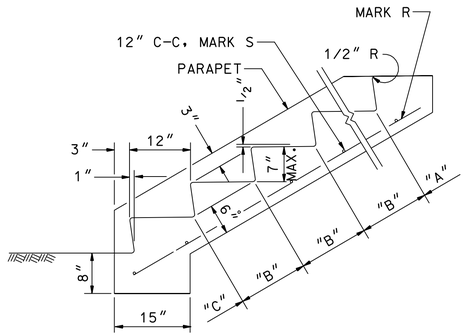
1. ISLANDS LESS THAN 16'-0" LONG REQUIRE ONLY ONE 18" CIRCULAR BLOCKOUT LOCATED AT THE MIDPOINT.
2. ADDITIONAL SIGNING BLOCKOUTS SHALL BE PROVIDED OPPOSITE ALL DRIVEWAYS AND SIDE ROAD APPROACHES.
3. BLOCKOUTS SHALL BE BACKFILLED WITH 2" OF COLD PATCH. BLOCKOUTS AND COLD PATCH ARE SUBSIDIARY TO THE RAISED ISLAND CONSTRUCTION.
4. IT MAY BE NECESSARY TO ADJUST THE LOCATION OF BLOCKOUTS TO AVOID UTILITY STRUCTURES OR PEDESTRIAN CROSSWALK OPENINGS.



NHDOT STANDARD PLANS	REV. DATE		PLATE
RAISED ISLAND BLOCKOUTS	06-16-2010		2
			STANDARD HR-2



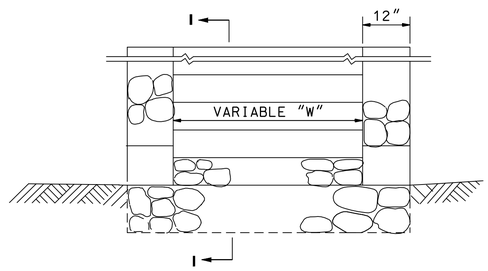
ELEVATION



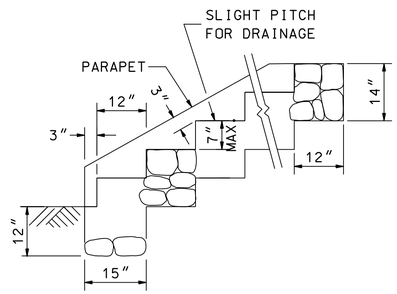
SECTION H-H

REINFORCING STEEL			
MARK	SIZE	NUMBER	LENGTH (EACH)
R	#5 1.043#/FT.	1 EA. PARAPET 1 EA. FT. OF WIDTH "W"	8" FOR "A" +13" EACH "B" +16" FOR "C"
S	#4 0.668#/FT.	1 FOR "A" 1 FOR "B" 2 FOR "C"	6" EA. PARAPET +12"/FT. OF WIDTH "W"

NHDOT STANDARD PLANS	REV. DATE		PLATE
CONCRETE STEPS	06-16-2010		3
			STANDARD HR-2



ELEVATION



SECTION I-I

NHDOT STANDARD PLANS	REV. DATE		PLATE
MORTAR RUBBLE MASONRY STEPS	06-16-2010		4
			STANDARD HR-2

STANDARD NO. HR-2

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

*.DGN FILE NAME
HR-2

2021

STANDARD PLANS

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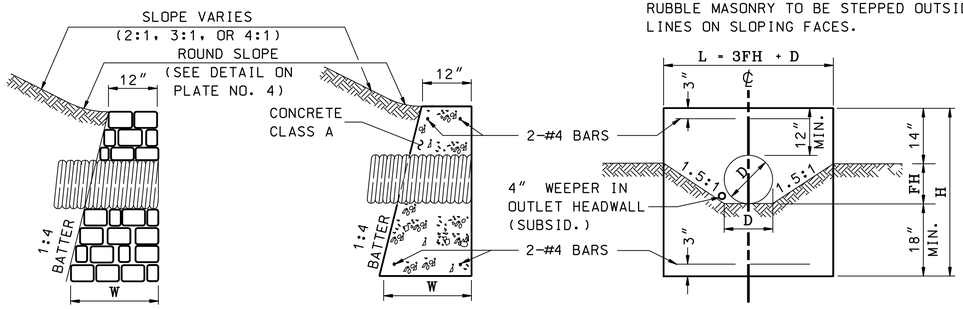
New Hampshire DOT Department of Transportation

STANDARD NO. HR-2

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



SECTION ON CENTERLINE *ELEVATION*

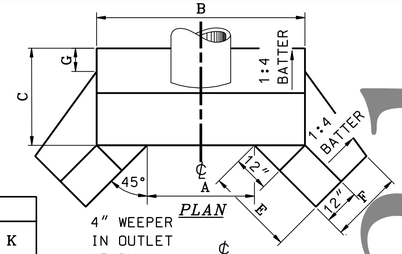
NOTE: STEEL QUANTITIES ARE FOR CONCRETE HEADWALLS ONLY.

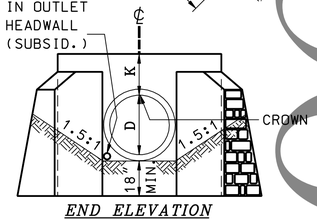
DIAMETER D INCHES	MASONRY PER FOOT OF WALL CU. YD	MASONRY PER STANDARD HEADER CU. YD.	STEEL PER STANDARD HEADER LB.	LENGTH OF BARS	EXC. FOR 1' DEPTH CU. YD.	HEADER LENGTH L	HEADER HEIGHT H	FILL HEIGHT FH	WIDTH AT BOTTOM OF HEADER W	"L" HEADWALL	
										MASONRY IN CORNER FRUSTUM CU. YD.	EXC. FOR 1' 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

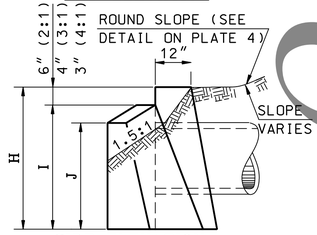
NOTE: FOR PLAN OF "L" HEADWALL SEE PLATE NO. 1 OF STD. NO. HW-2

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

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



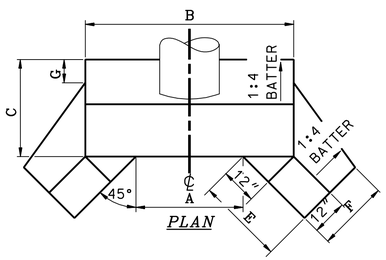


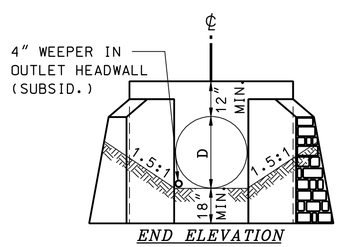


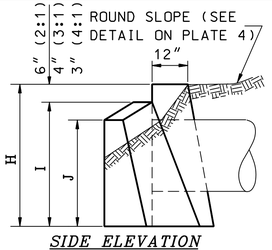
2:1 SLOPE

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	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"
3:1 SLOPE												
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"
4:1 SLOPE												
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





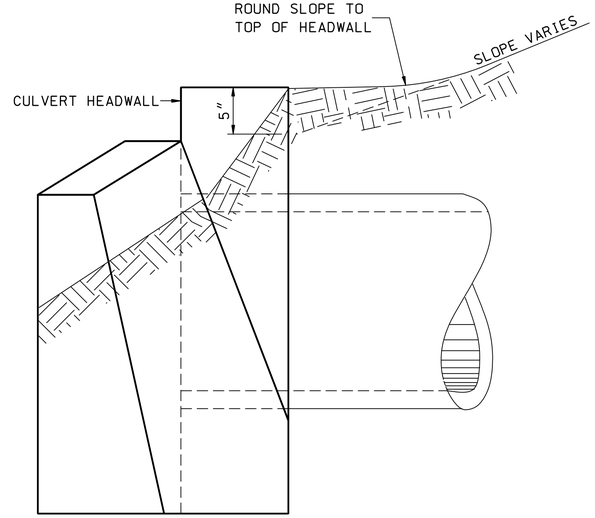


2:1 SLOPE

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

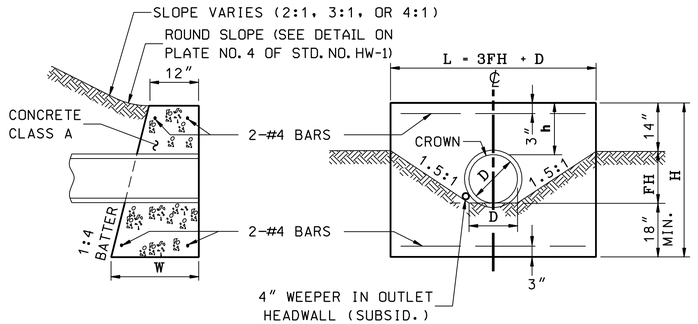
*.DGN FILE NAME
HW-1

April 2021

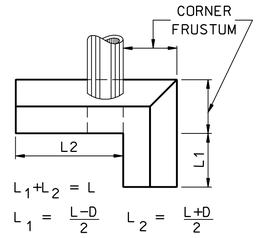
STANDARD PLANS

New Hampshire DOT Department of Transportation

STANDARD NO. HW-1



SECTION ON CENTERLINE *ELEVATION*



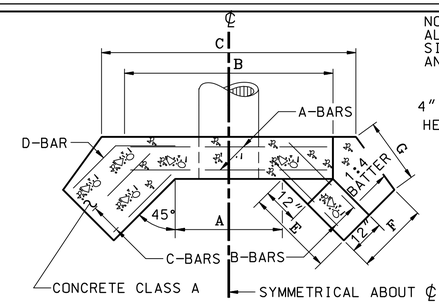
PLAN OF L HEADWALL

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	2-3	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

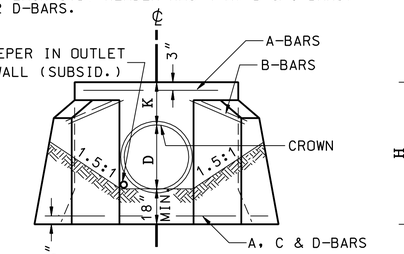
NOTE: STEEL QUANTITIES ARE FOR CONCRETE HEADWALLS ONLY

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

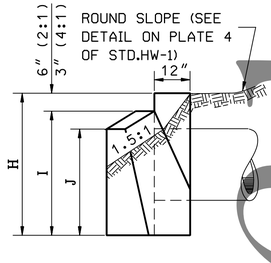


HALF PLAN OF BOTTOM STEEL *HALF PLAN OF TOP STEEL*

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



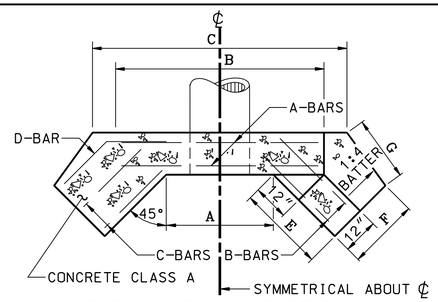
END ELEVATION
2:1 SLOPE



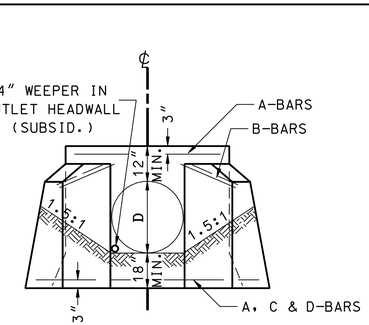
SIDE ELEVATION

DIAMETER D INCHES	QUANTITIES PER HEADER CONC. CU. YD.	STEEL LB.	EXC. FOR 1' DEPTH CU. YD.	DIMENSIONS A	B	C	E	F	G	H	I	J	K	REINFORCING STEEL SIZE	LENGTH A BARS	B BARS	C BARS	D BARS	D-BARS a	D-BARS b1	b
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"	
4:1 SLOPE																					
24	2.58	43	1.90	2'-6"	5'-4"	6'-9"	3'-11"	2'-1"	3'-2"	5'-0"	4'-9"	4'-3"	1'-6"	#4	5'-0"	4'-3"	4'-0"	5'-6"	2'-6"	3'-0"	
30	3.31	49	2.22	3-1	5-11	7-8	4-8	2-2	3-9	5-6	5-3	4-7	1-6	#4	5-7	5-0	4-8	6-3	2-8	3-7	
36	4.33	56	2.58	3-8	6-6	8-7	5-5	2-3	4-5	6-0	5-9	5-0	1-6	#4	6-2	5-9	5-4	7-1	2-10	4-3	
42	5.99	149	3.11	4-3	7-1	9-9	6-7	2-5	5-4	6-9	6-6	5-6	1-9	#6	6-9	6-11	6-5	9-3	4-0	5-3	
48	7.28	163	3.48	4-10	7-8	10-7	7-4	2-6	6-0	7-3	7-0	5-11	1-9	#6	7-4	7-8	7-1	10-1	4-2	5-11	
54	8.78	179	3.89	5-5	8-3	11-6	8-2	2-7	6-9	7-9	7-6	6-3	1-9	#6	7-11	8-6	7-10	10-11	4-3	6-8	
60	10.35	194	4.29	6-0	8-10	12-5	8-11	2-8	7-4	8-3	8-0	6-7	1-9	#6	8-6	9-3	8-8	11-9	4-4	7-5	
66	12.10	210	4.70	6-7	9-5	13-3	9-8	2-9	8-0	8-9	8-6	7-0	1-9	#6	9-1	10-0	9-5	12-8	4-7	8-1	
72	14.14	222	5.16	7'-2"	10'-0"	14'-3"	10'-6"	2'-10"	8'-8"	9'-3"	9'-0"	7'-4"	1'-9"	#6	9'-8"	10'-10"	9'-9"	13'-5"	4'-8"	8'-9"	

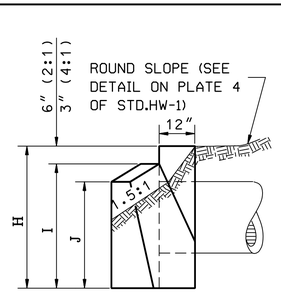
NHDOT STANDARD PLANS	REV. DATE	PLATE
CONCRETE HEADWALLS WITH 45° WINGS FOR R.C. PIPE P.C.-7	06-16-2010	2
		STANDARD HW-2



HALF PLAN OF BOTTOM STEEL *HALF PLAN OF TOP STEEL*



END ELEVATION

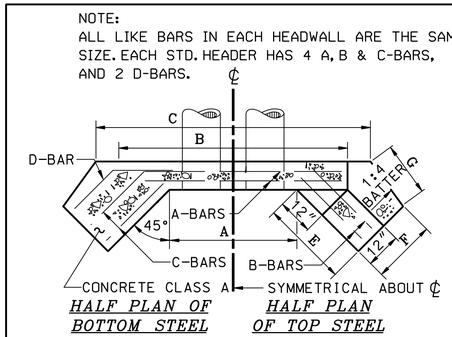


SIDE ELEVATION

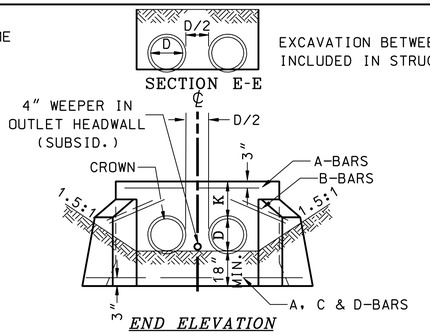
NOTE:
ALL LIKE BARS IN EACH HEADWALL ARE THE SAME SIZE.
EACH STD. HEADER HAS 4 A, B & C-BARS, AND 2 D-BARS.
2:1 SLOPE

DIAMETER D INCHES	QUANTITIES PER HEADER CONC. CU. YD.	STEEL LB.	EXC. FOR 1' DEPTH CU. YD.	DIMENSIONS A	B	C	E	F	G	H	I	J	REINFORCING STEEL SIZE	LENGTH A BARS	B BARS	C BARS	D BARS	D-BARS a	D-BARS b1	b
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"		
4:1 SLOPE																					
24	1.93	37	1.60	2'-3"	5'-1"	6'-2"	3'-2"	2'-0"	2'-6"	4'-6"	4'-3"	3'-10"	#4	4'-9"	3'-6"	3'-2"	4'-10"	2'-7"	2'-3"		
30	2.62	44	1.93	2-9	5-7	7-0	3-11	2-1	3-2	5-0	4-9	4-3	#4	5-3	4-3	3-10	5-9	2-10	2-11		
36	3.44	50	2.25	3-3	6-1	7-10	4-8	2-2	3-10	5-6	5-3	4-7	#4	5-9	5-1	4-7	6-5	2-10	3-7		
42	4.39	56	2.60	3-9	6-7	8-8	5-6	2-3	4-5	6-0	5-9	5-0	#4	6-3	5-10	5-3	7-4	3-0	4-4		
48	5.49	144	2.96	4-4	7-2	9-7	6-3	2-4	5-1	6-6	6-3	5-4	#6	6-10	6-6	6-0	9-2	4-1	5-1		
60	8.10	172	3.70	5-4	8-2	11-3	7-9	2-6	6-5	7-6	7-3	6-1	#6	7-10	8-0	7-6	10-8	4-3	6-5		
72	11.36	202	4.51	6'-5"	9'-3"	13'-0"	9'-4"	2'-8"	7'-8"	8'-6"	8'-3"	6'-9"	#6	8'-11"	9'-6"	9'-1"	12'-3"	4'-6"	7'-9"		

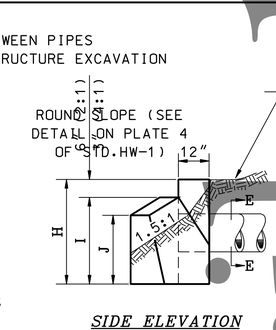
NHDOT STANDARD PLANS	REV. DATE	PLATE
CONCRETE HEADWALLS WITH 45° WINGS FOR PIPES OTHER THAN R.C. P.C.-5	06-16-2010	3
		STANDARD HW-2



HALF PLAN OF BOTTOM STEEL *HALF PLAN OF TOP STEEL*



END ELEVATION



SIDE ELEVATION

NOTE:
ALL LIKE BARS IN EACH HEADWALL ARE THE SAME SIZE. EACH STD. HEADER HAS 4 A, B & C-BARS, AND 2 D-BARS.
2:1 SLOPE

DIA. D INCHES	QUANTITIES PER HEADER CONC. CU. YD.	STEEL LB.	EXC. FOR 1' DEPTH CU. YD.	DIMENSIONS A	B	C	E	F	G	H	I	J	K	D/2	REINFORCING STEEL SIZE	LENGTH A BARS	B BARS	C BARS	D BARS	D-BARS a	D-BARS b1	b
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"	3'-0"	#6	19'-10"	8'-3"	7'-10"	11'-0"	4'-3"	6'-9"	
4:1 SLOPE																						
24	3.05	53	2.29	6'-0"	8'-10"	10'-0"	3'-11"	2'-1"	3'-2"	5'-0"	4'-9"	4'-3"	1'-6"	1'-0"	#4	8'-6"	4'-3"	4'-0"	5'-6"	2'-6"	3'-0"	
30	3.92	61	2.70	7-5	10-3	11-9	4-8	2-2	3-9	5-6	5-3	4-7	1-6	1-3	#4	9-11	5-0	4-8	6-3	2-8	3-7	
36	5.09	70	3.15	8-10	11-8	13-7	5-5	2-3	4-5	6-0	5-9	5-0	1-6	1-6	#4	11-4	5-9	5-4	7-1	2-10	4-3	
42	6.97	185	3.78	10-3	13-1	15-6	6-7	2-5	5-4	6-9	6-6	5-6	1-9	1-9	#6	12-9	6-11	6-5	9-3	4-0	5-3	
48	8.44	204	4.24	11-8	14-6	17-3	7-4	2-6	6-0	7-3	7-0	5-11	1-9	2-0	#6	14-2	7-8	7-1	10-1	4-2	5-11	
54	10.13	225	4.74	13-1	15-11	19-1	8-2	2-7	6-9	7-9	7-6	6-3	1-9	2-3	#6	15-7	8-6	7-10	10-11	4-3	6-8	
60	11.90	245	5.23	14-6	17-4	20-10	8-11	2-8	7-4	8-3	8-0	6-7	1-9	2-6	#6	17-0	9-3	8-8	11-9	4-4	7-5	
66	13.87	266	5.75	15-11	18-9	22-5	9-8	2-9	8-0	8-9	8-6	7-0	1-9	2-9	#6	18-5	10-0	9-5	12-8	4-7	8-1	
72	16.13	283	6.29	17'-4"	20'-2"	24'-2"	10'-6"	2'-10"	8'-8"	9'-3"	9'-0"	7'-4"	1'-9"	3'-0"	#6	19'-10"	10'-10"	9'-9"	13'-5"	4'-8"	8'-9"	

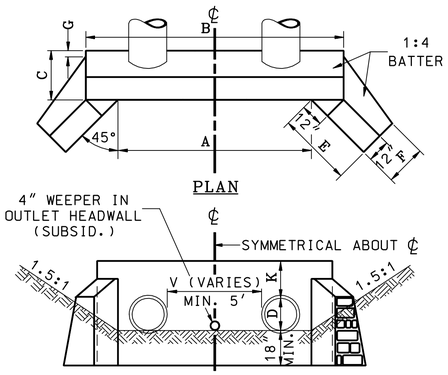
NHDOT STANDARD PLANS	REV. DATE	PLATE
CONCRETE HEADWALLS WITH 45° WINGS FOR TWIN R.C. PIPE P.C.-9	06-16-2010	4
		STANDARD HW-2

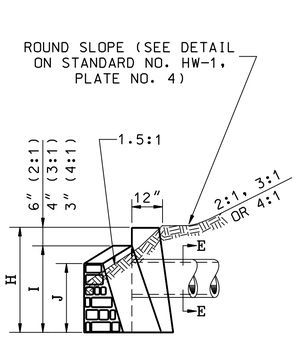
STANDARD NO. HW-2	
REVISION DATE	
07-13-2001	
06-16-2010	
*.DGN FILE NAME	
HW-2	

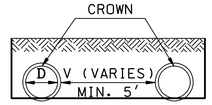
STANDARD PLANS

New Hampshire DOT Department of Transportation

STANDARD NO. 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	
06-16-2010	

PLATE
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

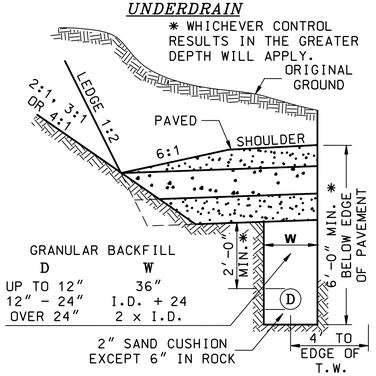
DIAMETER D INCHES	QUANTITIES IN CUBIC YARDS, PER HEADER				DIMENSIONS									
	M.R.M. V=1.5	M.R.M. PER FOOT ADD. LENGTH V=5′	EXC. FOR 1′ DEPTH V=5′	EXC. PER FOOT ADD. LENGTH 1 FOOT DEPTH	A V=5′	B V=5′	C	E	F	G	H	I	J	K
24	5.01	0.300	3.39	0.157	10′-0″	12′-10″	2′-3″	3′-10″	2′-1″	0′-6″	5′-0″	4′-9″	4′-3″	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	
06-16-2010	

PLATE
2
STANDARD HW-3

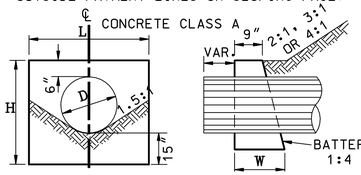
UNDERDRAIN



UNDERDRAIN HEADWALL

CONCRETE	NO. UH-1
MOR. RUB. MAS.	NO. UH-2

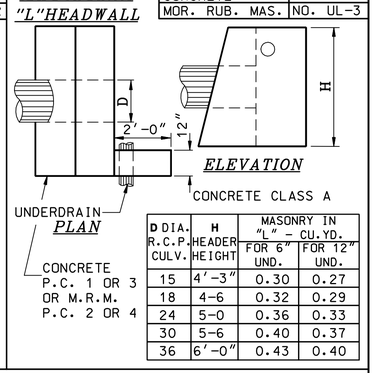
DIMENSIONS SHOWN ARE TO PAYMENT LINES. MORTAR RUBBLE MASONRY TO BE STEPPED OUTSIDE PAYMENT LINES ON SLOPING FACE.



D (in) UND. DIA.	PER HEADER MAS'RY C.Y.	PER HEADER EXC. PER 1' DEPTH C.Y.	L	H	W
6	0.17	0.49	2′-0″	2′-3″	15¾″
12	0.32	0.66	3-2	2-9	17¼″
15	0.43	0.76	3′-10″	3′-0″	18″

UNDERDRAIN "L"HEADWALL

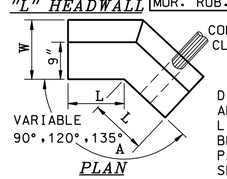
CONCRETE	NO. UL-1
MOR. RUB. MAS.	NO. UL-3



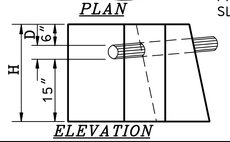
D DIA. R.C.P. CULV.	H HEADER HEIGHT	MASONRY IN "L" - CU.YD. FOR 6" UND.	MASONRY IN "L" - CU.YD. FOR 12" UND.
15	4′-3″	0.30	0.27
18	4-6	0.32	0.29
24	5-0	0.36	0.33
30	5-6	0.40	0.37
36	6′-0″	0.43	0.40

UNDERDRAIN "L" HEADWALL

CONCRETE	NO. UL-2
MOR. RUB. MAS.	NO. UL-4

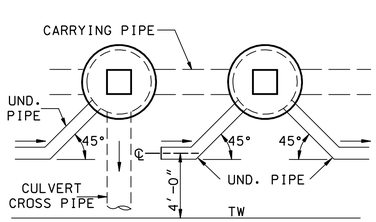


DIMENSIONS SHOWN ARE TO PAYMENT LINES. M.R.M. TO BE STEPPED OUTSIDE PAYMENT LINES ON SLOPING FACES.



D (in) UND. DIA.	A	PER HEADER MAS'RY C.Y.	PER HEADER EXC. PER 1' DEPTH C.Y.	L	H	W
6	90°	0.30	0.71	1′-3″	2′-3″	15¾″
6	120°	0.26	0.65	1-3	2-3	15¾″
6	135°	0.25	0.62	1-3	2-3	15¾″
12	90°	0.54	0.95	2-0	2-9	17¼″
12	120°	0.49	0.87	2-0	2-9	17¼″
12	135°	0.47	0.84	2-0	2-9	17¼″
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	18¾″
18	120°	0.79	1.11	2-9	3-3	18¾″
18	135°	0.77	1.07	2-9	3-3	18¾″
24	90°	1.25	1.46	3-6	3-9	20¼″
24	120°	1.18	1.37	3-6	3-9	20¼″
24	135°	1.14	1.32	3′-6″	3′-9″	20¼″

C.B. (OR HEADER) *C.B.*



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

NHDOT STANDARD PLANS	
UNDERDRAIN HEADWALLS & UNDERDRAIN "L" HEADWALLS	

REV. DATE	
06-16-2010	

PLATE
3
STANDARD HW-3

NHDOT STANDARD PLANS	

REV. DATE	
06-16-2010	

PLATE
4
STANDARD HW-3

STANDARD NO. HW-3

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

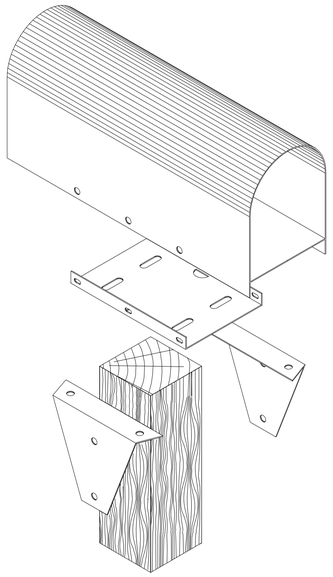
*.DGN FILE NAME
HW-3

April 2021

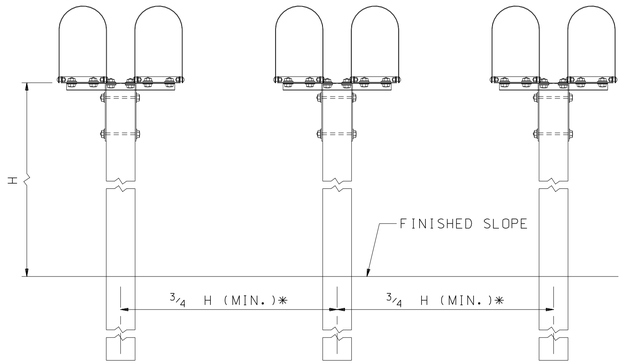
STANDARD PLANS

New Hampshire DOT Department of Transportation

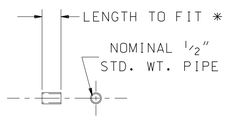
STANDARD NO. HW-3



EXPLODED VIEW
(SEE NOTE NO. 1)

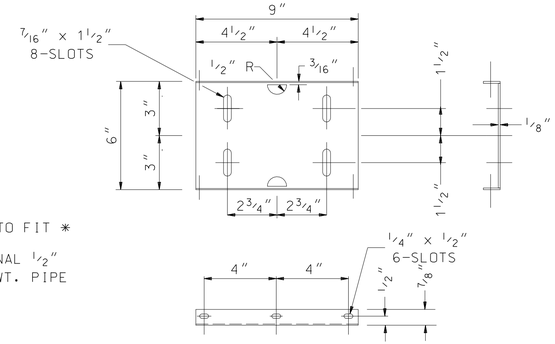


SPACING FOR MULTIPLE POST INSTALLATION
* FULL HEIGHT PREFERABLE

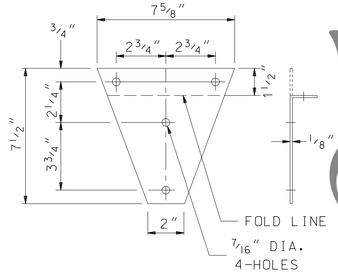


SPACER

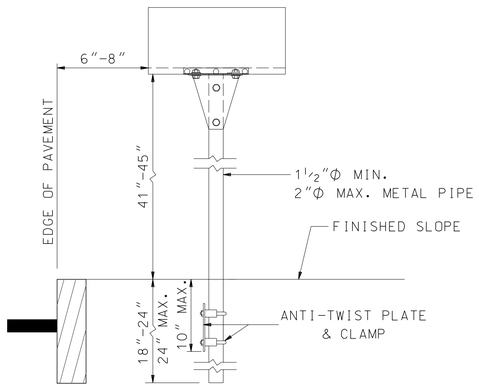
* STANDARD MAILBOX WIDTHS ARE 6 1/2", 8", AND 11 1/2"



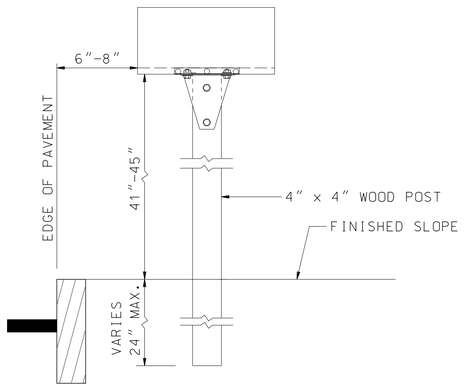
PLATFORM
(SEE NOTE NO. 1)



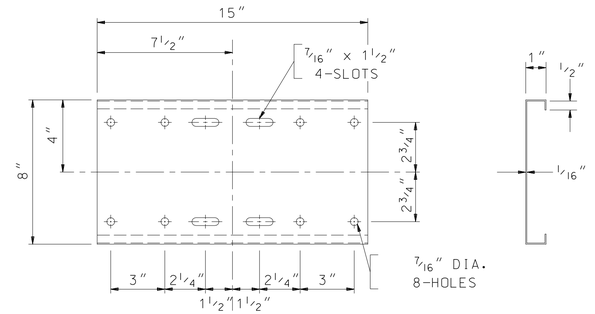
BRACKET
(SEE NOTE NO. 1)



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.

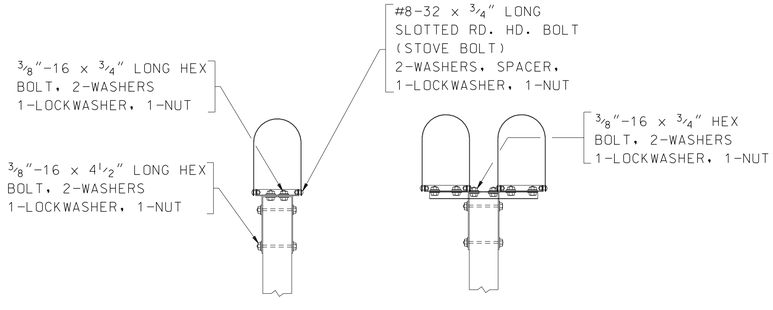
3. MAILBOX SUPPORTS SHALL NOT BE SET IN CONCRETE UNLESS THE SUPPORT DESIGN HAS BEEN SHOWN TO BE SAFE BY CRASH TESTS WHEN SO INSTALLED.

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

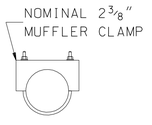
5. IN AREAS OF HIGH SNOWFALL, CANTILEVER DESIGNS MAY BE ADVANTAGEOUS. CANTILEVER SUPPORTS PERMIT WINDSHIELD CONTACT WITH THE MAILBOX WITHOUT THE VEHICLE FIRST CONTACTING THE POST, THEREFORE, AN APPROVED BREAKAWAY SUPPORT MUST BE USED.

6. FOR ADDITIONAL INFORMATION, REFER TO THE LATEST ADOPTED EDITION OF THE AASHTO - *ROADSIDE DESIGN GUIDE - CHAPTER 11, ERECTING MAILBOXES ON STREETS AND HIGHWAYS.*

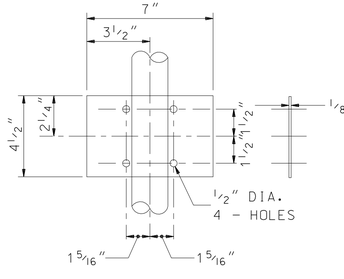
7. CONTACT THE LOCAL POSTMASTER FOR OFFSET AND HEIGHT FROM EP WHEN INSTALLING IN UNCURBED AREAS.



ASSEMBLY HARDWARE



CLAMP
(FOR METAL POSTS ONLY)



ANTI-TWIST PLATE
(FOR METAL POSTS ONLY)

MAILBOX STANDARD

MAILBOX SUPPORT ASSEMBLY DETAILS

STANDARD NO. MB-1

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

DGN FILE NAME
MB-1

2021

STANDARD PLANS

April

New Hampshire DOT Department of Transportation

STANDARD NO. MB-1

NOTE:
NEVER CUT LEADER

GUY MATERIAL AT TREE
$^{1}/_{2}$UP TREE OR TO FIRST
BRANCH, WHICHEVER IS LOWER

GUY MATERIAL

VERTICAL STAKES

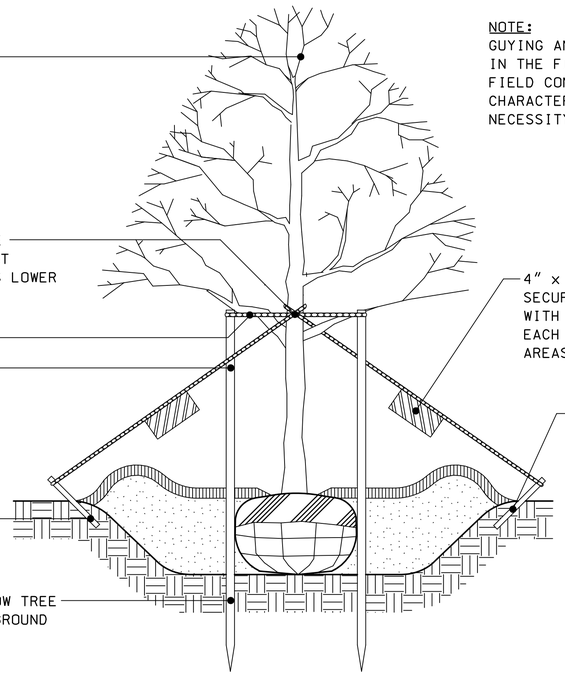
HUB STAKE

STAKE TO BE 18" BELOW TREE
PIT IN UNDISTURBED GROUND

NOTE:
GUYING AND STAKING TO BE DETERMINED IN THE FIELD BY THE ENGINEER. 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



DECIDUOUS TREE PLANTING

NOTE:
GUYING AND STAKING TO BE DETERMINED IN THE FIELD BY THE ENGINEER. 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

45°

45°

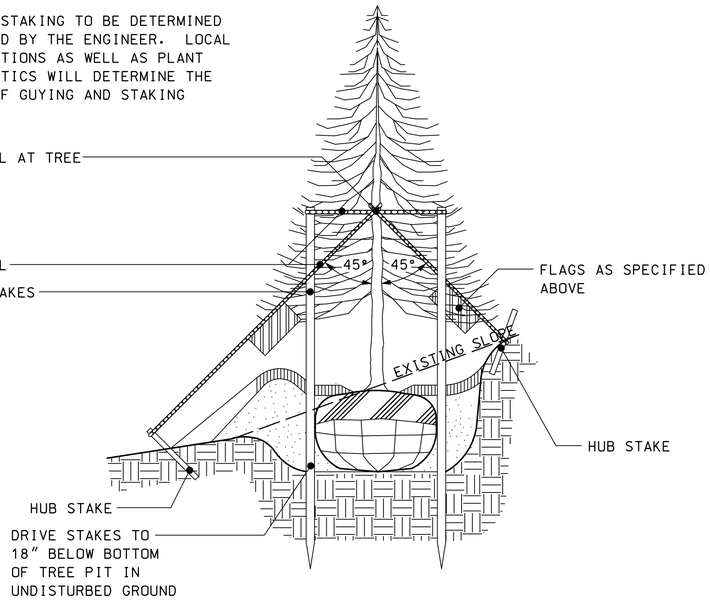
FLAGS AS SPECIFIED
ABOVE

EXISTING SLOPE

HUB STAKE

HUB STAKE

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



EVERGREEN TREE PLANTING

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.

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

ROOT COLLAR

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

4" DEEP BARK MULCH

EXISTING SLOPE

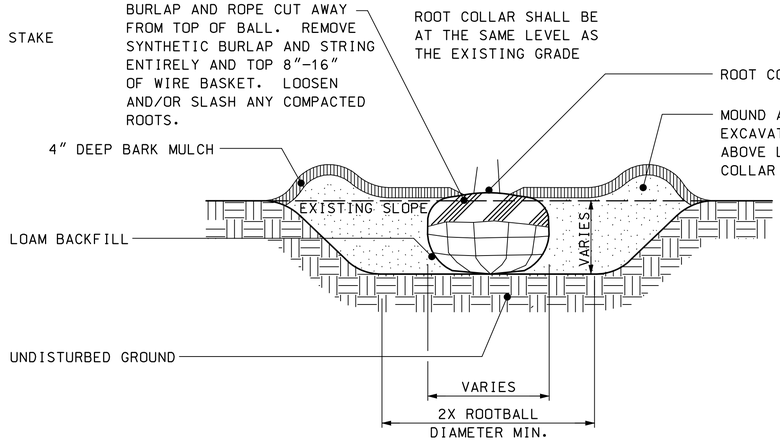
LOAM BACKFILL

VARIES

UNDISTURBED GROUND

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.

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

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

ROOT COLLAR
KEEP SAUCER LEVEL

4" DEEP BARK MULCH

EXISTING SLOPE

HUMUS AND SEED

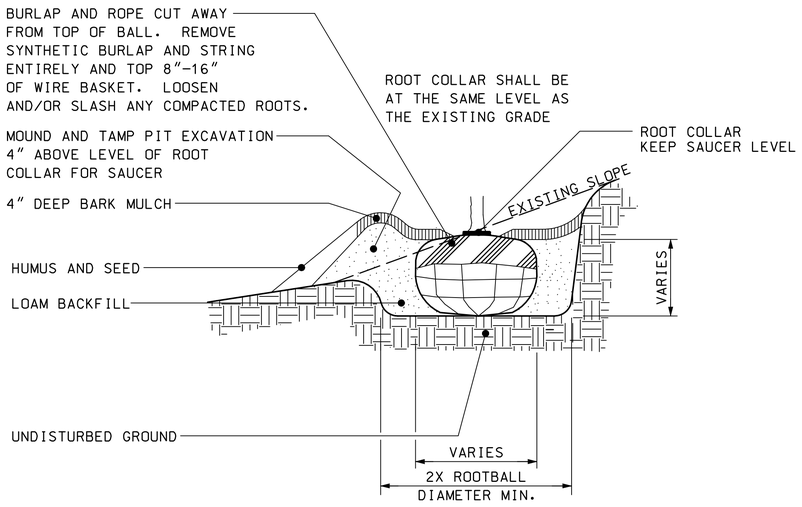
LOAM BACKFILL

VARIES

UNDISTURBED GROUND

VARIES

2X ROOTBALL
DIAMETER MIN.

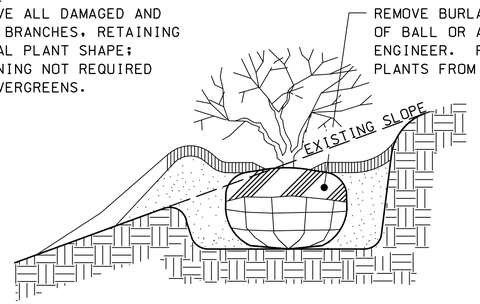


TYPICAL PLANTING PIT ON SLOPE
4:1 OR GREATER

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

REMOVE BURLAP FROM TOP 1/3
OF BALL OR AS DIRECTED BY THE
ENGINEER. REMOVE CONTAINERIZED
PLANTS FROM THEIR CONTAINERS.

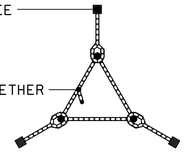
EXISTING SLOPE



SHRUB PLANTING

MAXIMUM 3 STAKES PER TREE

TIE INDIVIDUAL GUYED STEMS TOGETHER
WITH SINGLE GUY MATERIAL



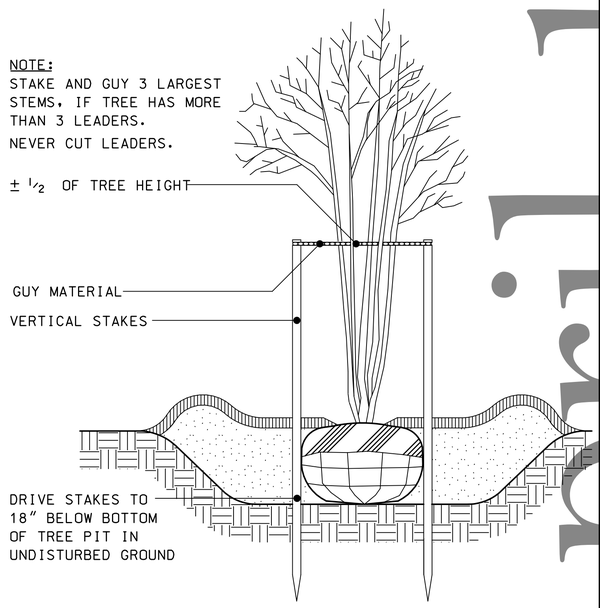
NOTE:
STAKE AND GUY 3 LARGEST STEMS, IF TREE HAS MORE THAN 3 LEADERS.
NEVER CUT LEADERS.

$\pm$ $^{1}/_{2}$ OF TREE HEIGHT

GUY MATERIAL

VERTICAL STAKES

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



MULTI-STEM TREE PLANTING

STANDARD
NO. PL-1

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

*.DGN FILE NAME
PL-1

2021

STANDARD PLANS

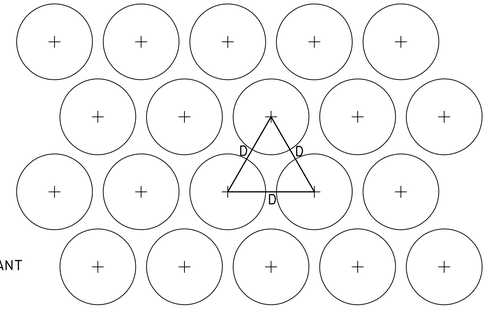
April

New Hampshire DOT Department of Transportation

PLANTING STANDARD

PLANTING DETAILS

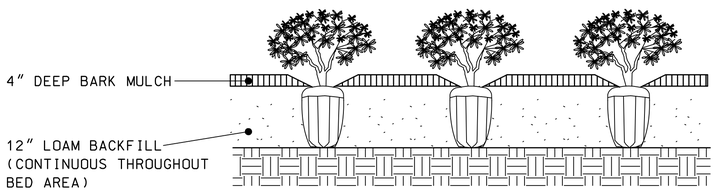
STANDARD
NO. PL-1



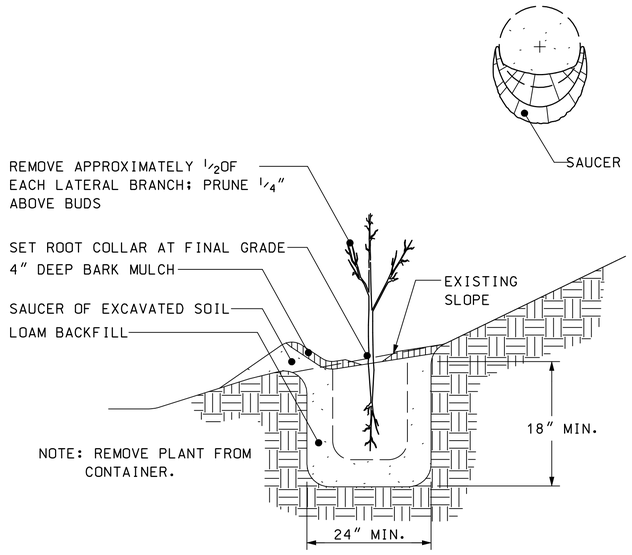
NOTE:

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

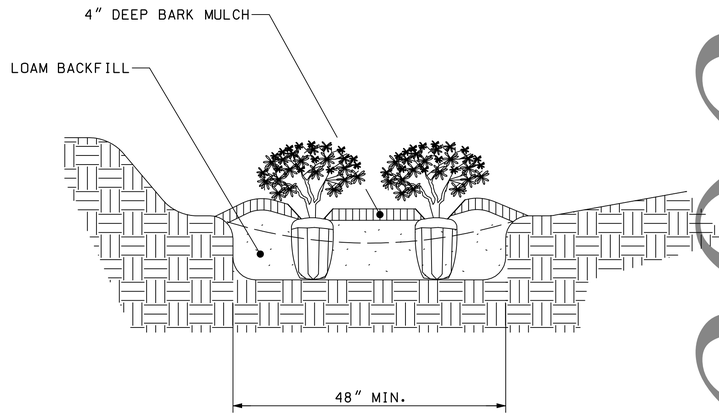
TYPICAL BED PLANT SPACING



GROUNDCOVER BED PLANTING



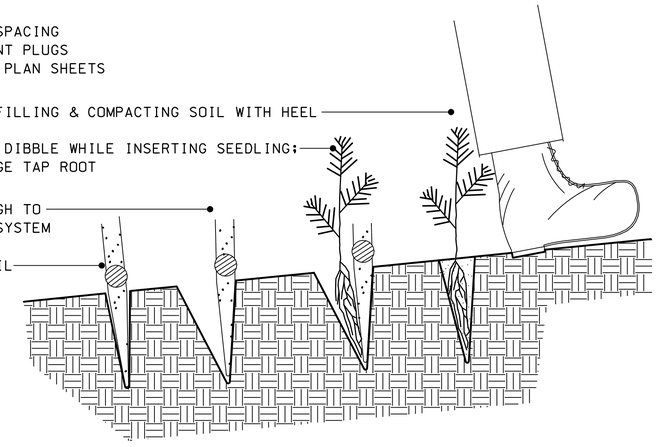
LINER PLANTING (DECIDUOUS)



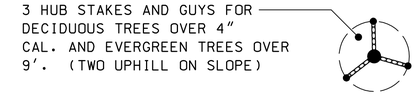
TRENCH NARROW MEDIAN PLANTING

NOTE:

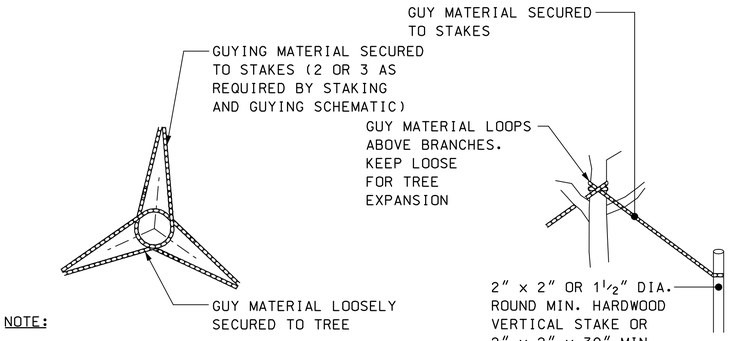
LOCATION, SIZE AND SPACING OF SEEDLINGS OR PLANT PLUGS ARE AS INDICATED ON PLAN SHEETS



SEEDLINGS (EVERGREEN) OR WETLAND PLUG PLACEMENT



STAKING AND GUYING PLAN SCHEMATIC



NOTE:

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

GUYING DETAILS

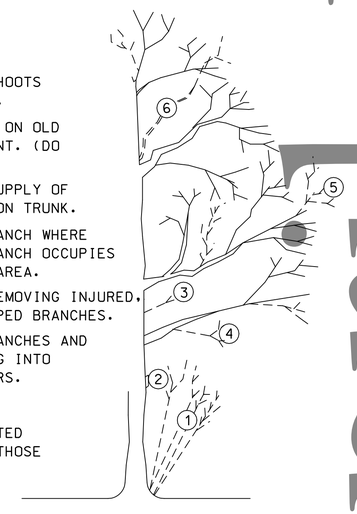
TREE STAKING AND GUYING

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

2021 STANDARD PLANS

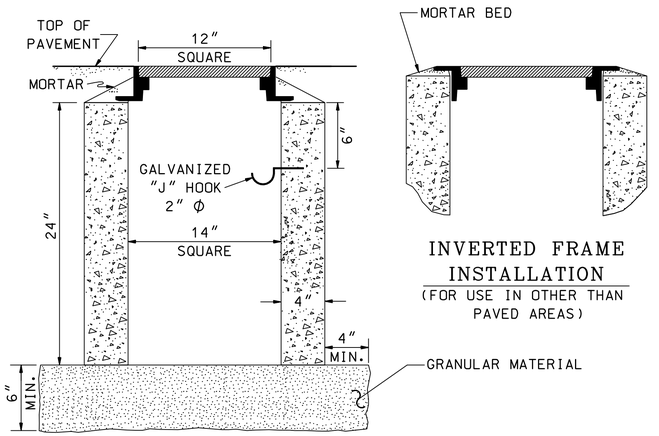
April 2021

New Hampshire DOT Department of Transportation

PLANTING STANDARD

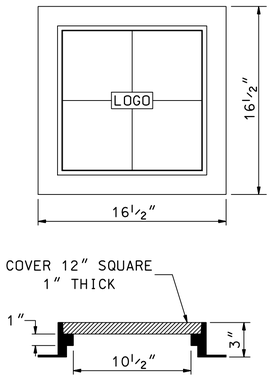
PLANTING DETAILS

STANDARD NO. PL-2

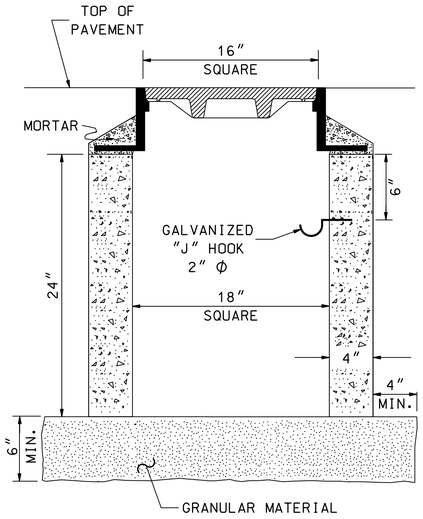


FOR USE IN PAVED AREAS
(SIDEWALKS AND PAVED ISLANDS ONLY)

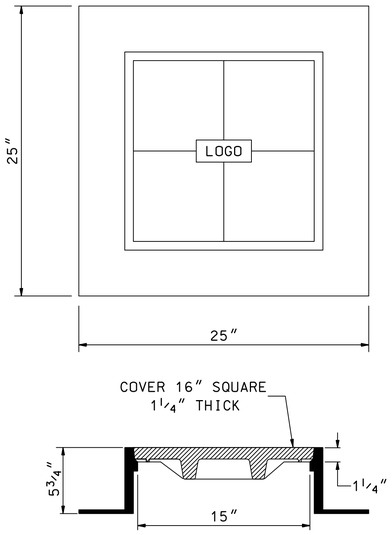
INVERTED FRAME INSTALLATION
(FOR USE IN OTHER THAN PAVED AREAS)



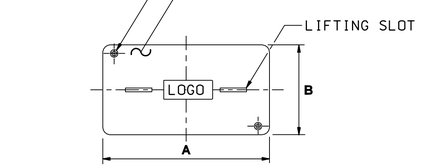
CONCRETE PULL BOX 14″ x 14″
ITEM 614.511

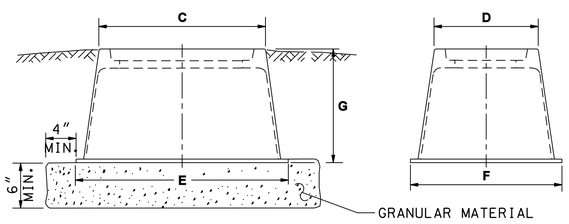


FOR USE IN PAVED AREAS
(SIDEWALKS AND PAVED ISLANDS ONLY)



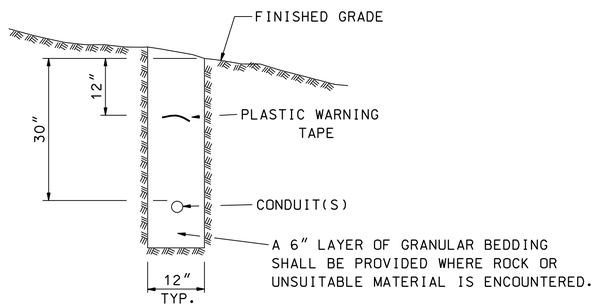
CONCRETE PULL BOX 18″ x 18″
ITEM 614.512





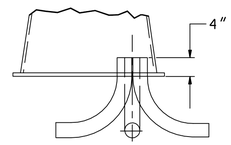
	A	B	C	D	E	F	G
ITEM NO 614.522	24″	13″	26″	15″	31″	22″	16″– 18″
ITEM NO 614.523	30″	17″	32″	19″	39″	26″	26″

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

1. DIMENSIONS SHOWN ARE NOMINAL. MOLDED PULL BOXES MAY VARY BY ½″.
2. ADJUST FRAMES & COVERS SO THAT DRAINAGE WILL BE AWAY FROM PULL BOX.
3. LOGO = SIGNAL, ITS, DRAIN OR POWER AS REQUIRED, ON CENTER OF COVER.

SIGNAL & LIGHTING STANDARD

PULL BOXES & CONDUIT TRENCH DETAIL

STANDARD NO. SL-1

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

*.DGN FILE NAME
SL-1

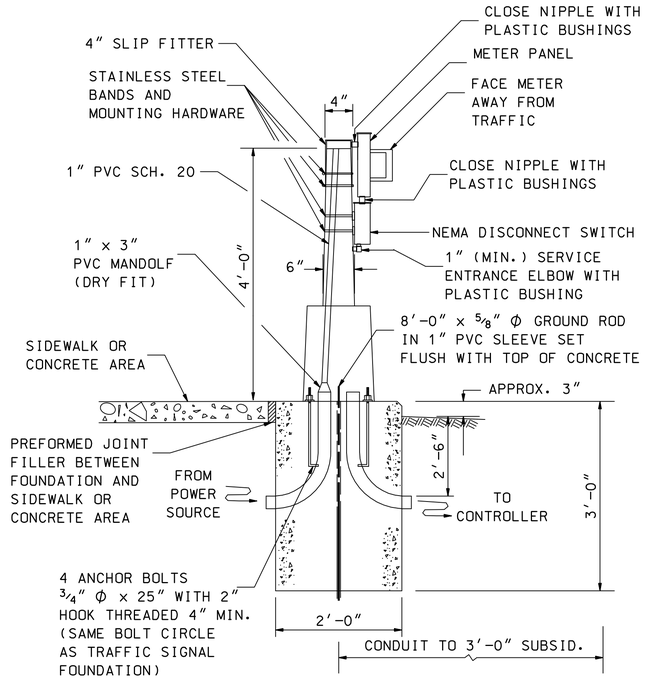
2021

STANDARD PLANS

April

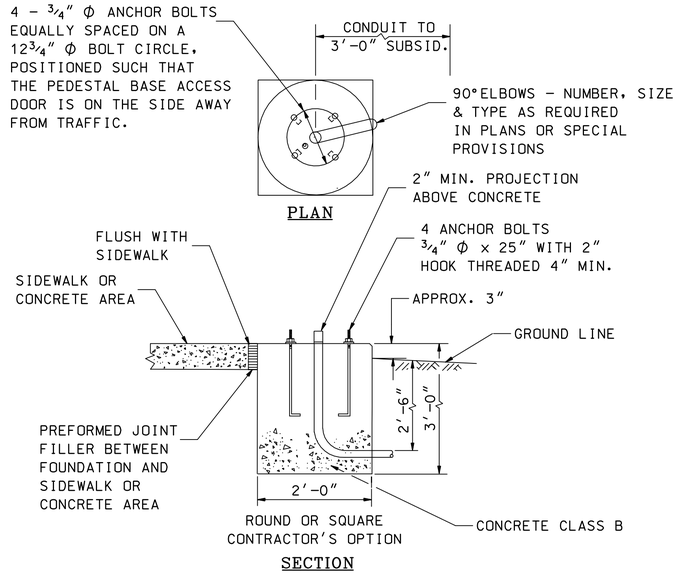
New Hampshire DOT Department of Transportation

STANDARD NO. SL-1



BASE AND POST TO BE P & K
CP 314 OR APPROVED EQUAL

TRAFFIC SIGNAL METER PEDESTAL AND FOUNDATION

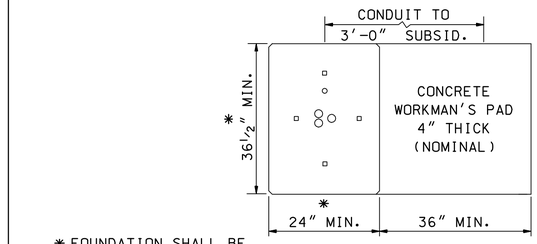


SECTION

1. SIZE OF FOUNDATION MAY BE CHANGED IN THE PLANS OR SPECIAL PROVISIONS, OR IN THE FIELD AS DIRECTED BY THE ENGINEER.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
3. OPEN ENDS OF ALL CONDUITS INTO FOUNDATION SHALL BE CAPPED UNTIL CABLES ARE INSTALLED.

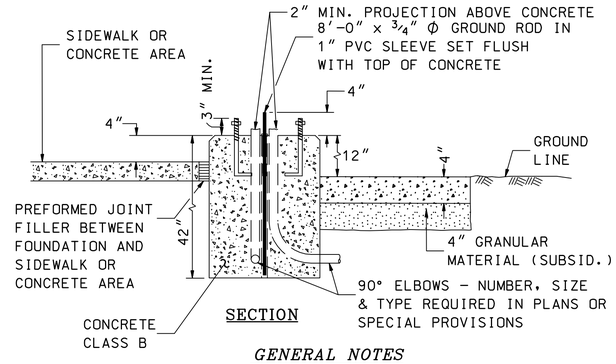
CONCRETE FOUNDATION FOR PEDESTALS

(TRAFFIC OR PEDESTRIAN SIGNAL)



PLAN

* FOUNDATION SHALL BE 6" WIDER AND LONGER THAN CABINET BASE TO BE INSTALLED

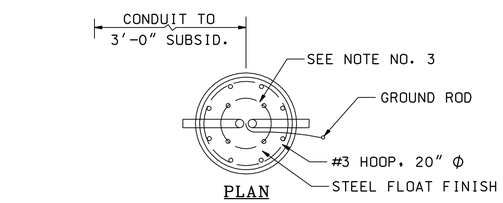


SECTION

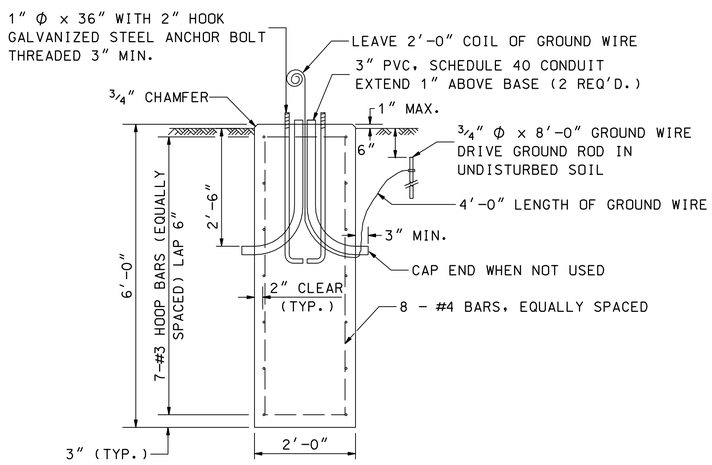
GENERAL NOTES

1. WORKMAN'S PAD MAY BE ELIMINATED IF CONTROLLER CABINET IS IN SIDEWALK SECTION.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
3. WORKMAN'S PAD (AND CABINET DOOR) SHOULD BE ORIENTED TO PERMIT MAXIMUM VIEW OF SIGNAL INSTALLATION (AWAY FROM TRAFFIC, IF POSSIBLE).

CONCRETE FOUNDATION FOR CONTROLLER CABINET



PLAN

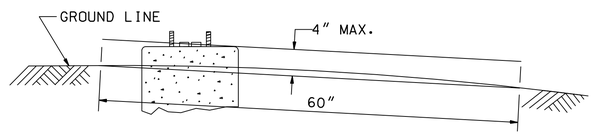


SECTION

GENERAL NOTES

1. ALL LIGHT POLES, LUMINAIRES, AND WIRE TO BE FURNISHED AND INSTALLED BY THE POWER COMPANY, UNLESS OTHERWISE DIRECTED.
2. ANCHOR BOLTS, GROUND ROD & GROUND WIRE TO BE FURNISHED BY THE POWER COMPANY AND INSTALLED BY THE CONTRACTOR, UNLESS OTHERWISE DIRECTED.
3. BOLT CIRCLE DIAMETER SHALL BE VERIFIED WITH THE POWER COMPANY.
4. ALL BASES SHALL BE LOCATED 10'-0" (TO CENTER) FROM FACE OF CURB OR EDGE OF PAVED SHOULDER, UNLESS OTHERWISE NOTED.
5. REINFORCEMENT SHALL CONFORM TO SECTION 544 OF THE STANDARD SPECIFICATIONS.
6. ANY ANCHOR BOLTS DAMAGED DURING INSTALLATION SHALL BE REPARIED OR REPLACED AS DIRECTED BY THE ENGINEER.
7. UPON INSTALLATION, ANCHOR BOLT THREADS SHALL BE CLEANED WITH A WIRE BRUSH.
8. TERRAIN SURROUNDING BASE MUST BE GRADED AS SHOWN IN DETAIL "A" TO PREVENT IMPACTING VEHICLES FROM SNAGGING ON BASE.

CONCRETE LIGHT POLE BASE TYPE B



DETAIL "A"

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

2021

STANDARD PLANS

April

New Hampshire DOT Department of Transportation

SIGNAL & LIGHTING STANDARD

CONCRETE FOUNDATIONS & LIGHT POLE BASE, TYPE B

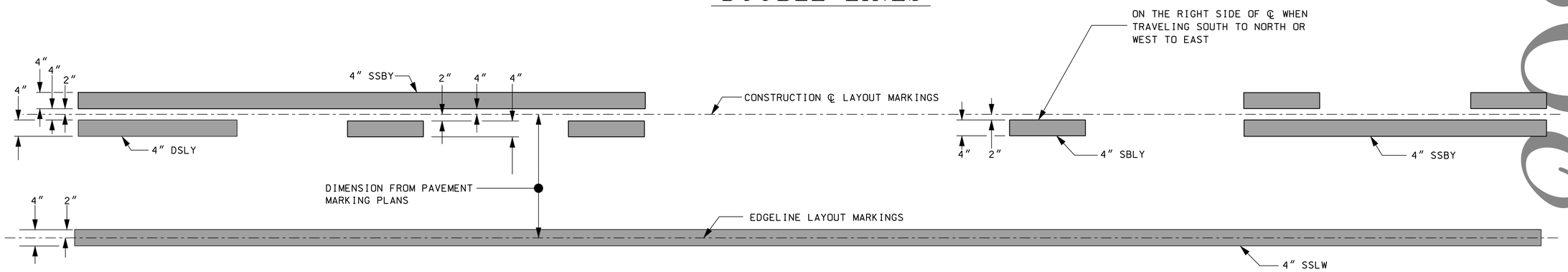
STANDARD NO. SL-2

STANDARD
NO. PM-1

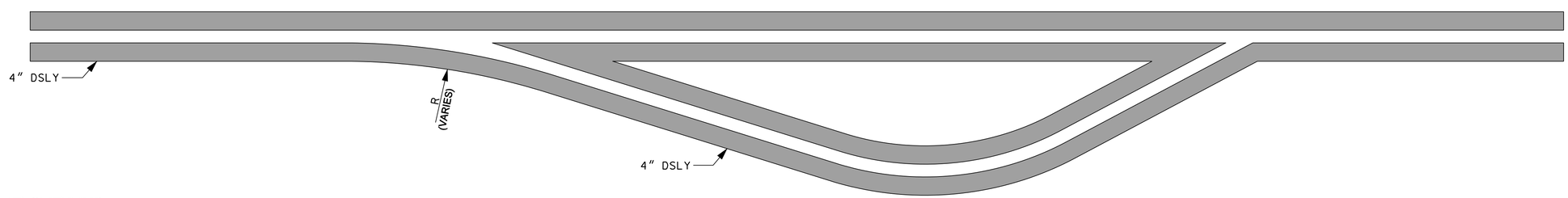
REVISION DATE
07-13-2001
02-26-2010

*.DGN FILE NAME
PM-1

DOUBLE LINES



TWO-LANE ROADWAY STRIPING LAYOUT



DIVERGING (OR CONVERGING) LINES FOR PAINTED ISLANDS

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

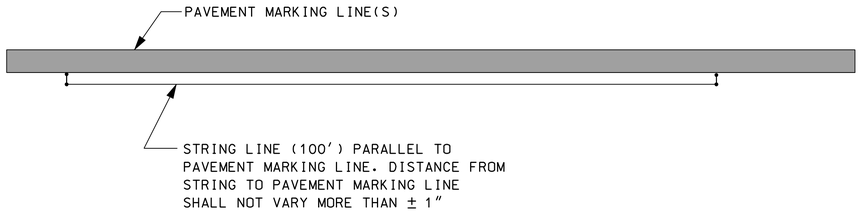
PAVEMENT MARKING STANDARD

LAYOUT DETAILS

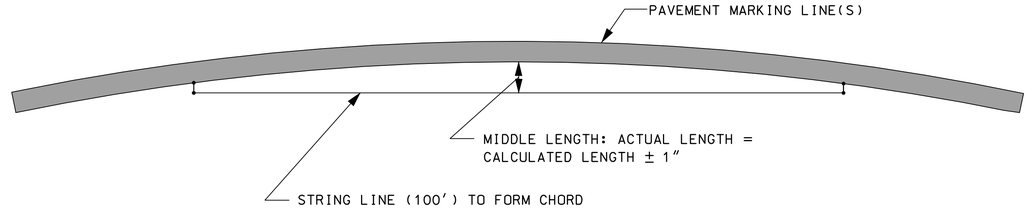
April 2021 STANDARD PLANS

New Hampshire DOT Department of Transportation

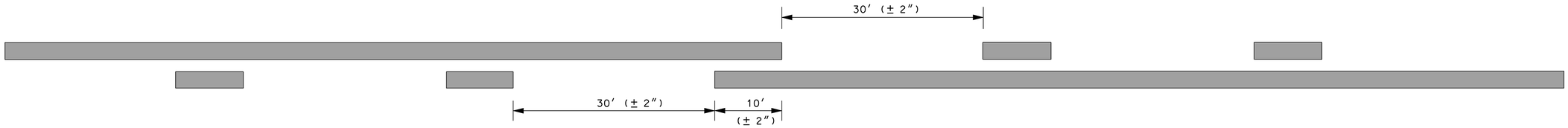
STANDARD
NO. PM-1



TANGENT SECTION

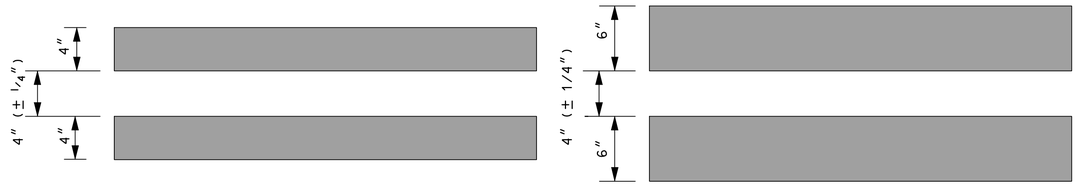


CURVED SECTION



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 ± 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).

STANDARD NO. PM-2
REVISION DATE
07-13-2001
02-26-2010
*.DGN FILE NAME
PM-2

2021

STANDARD PLANS

April

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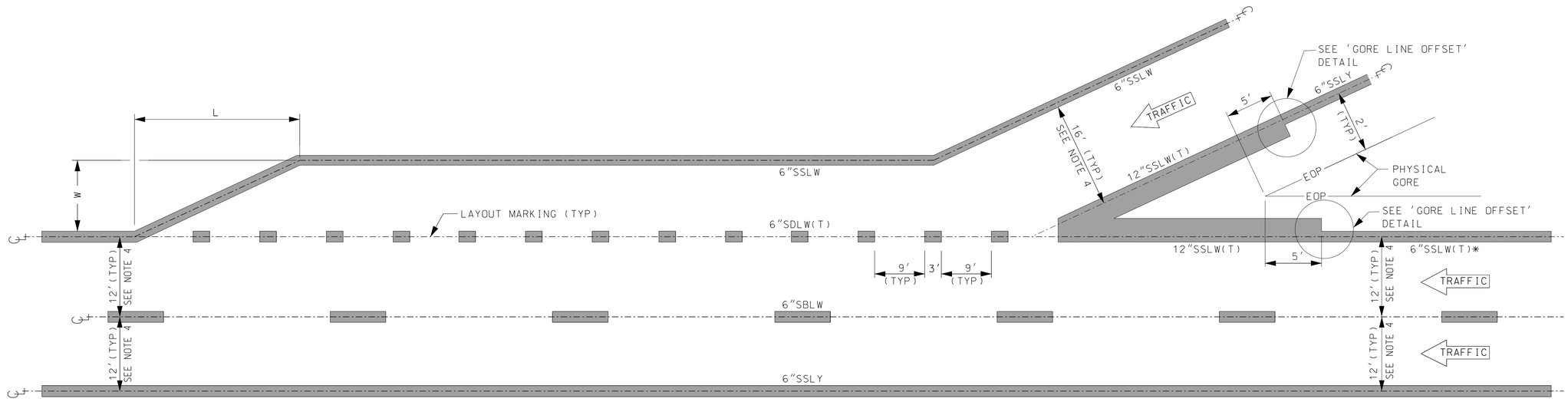
PAVEMENT MARKING STANDARD

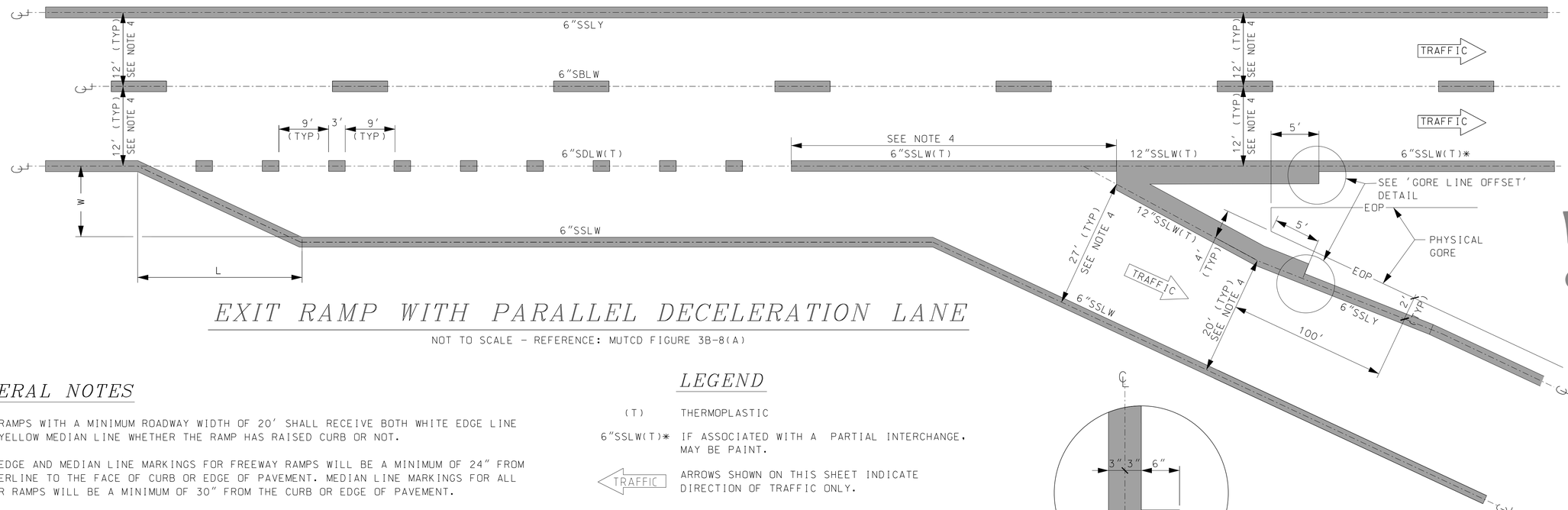
TOLERANCES FOR PAVEMENT MARKING LINES

STANDARD NO. PM-2



ENTRANCE RAMP WITH PARALLEL ACCELERATION LANE

NOT TO SCALE - REFERENCE: MUTCD FIGURE 3B-9(A)



EXIT RAMP WITH PARALLEL DECELERATION LANE

NOT TO SCALE - REFERENCE: MUTCD FIGURE 3B-8(A)

GENERAL NOTES

1. ALL RAMPS WITH A MINIMUM ROADWAY WIDTH OF 20' SHALL RECEIVE BOTH WHITE EDGE LINE AND YELLOW MEDIAN LINE WHETHER THE RAMP HAS RAISED CURB OR NOT.
2. THE EDGE AND MEDIAN LINE MARKINGS FOR FREEWAY RAMPS WILL BE A MINIMUM OF 24" FROM CENTERLINE TO THE FACE OF CURB OR EDGE OF PAVEMENT. MEDIAN LINE MARKINGS FOR ALL OTHER RAMPS WILL BE A MINIMUM OF 30" FROM THE CURB OR EDGE OF PAVEMENT.
3. THE MINIMUM DISTANCE BETWEEN THE EDGE AND MEDIAN LINES FOR RAMPS SHALL BE 14'. THE MEDIAN LINE ON A RAMP SHALL CONNECT WITH THE GORE MARKING. THE EDGELINE SHALL CONNECT WITH THE MAINLINE EDGELINE TO PROVIDE A CONTINUOUS LINE.
4. SEE PAVEMENT MARKING PLANS OR OTHER PROJECT DOCUMENT PLANS FOR PROJECT SPECIFIC DESIGN DIMENSIONS.
5. ALL DOTTED LANE LINES FOR ACCELERATION/DECELERATION LANES SHALL RUN THE FULL LENGTH OF EACH LANE AND CONTINUE THROUGH THE TRANSITION TAPER.

LEGEND

(T)	THERMOPLASTIC
6"SSLW(T)*	IF ASSOCIATED WITH A PARTIAL INTERCHANGE, MAY BE PAINT.
TRAFFIC	ARROWS SHOWN ON THIS SHEET INDICATE DIRECTION OF TRAFFIC ONLY.

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

L = TRANSITION TAPER
W = WIDTH OF OFFSET (FEET)
S = POSTED SPEED LIMIT OR DESIGN SPEED (MPH)

TYPICAL GORE LINE OFFSET (SIMILAR FOR ALL)
N.T.S.

STANDARD NO. PM-3

REVISION DATE
07-13-2001
02-26-2010
11-05-2010
02-22-2021

.DGN FILE NAME

2021 STANDARD PLANS

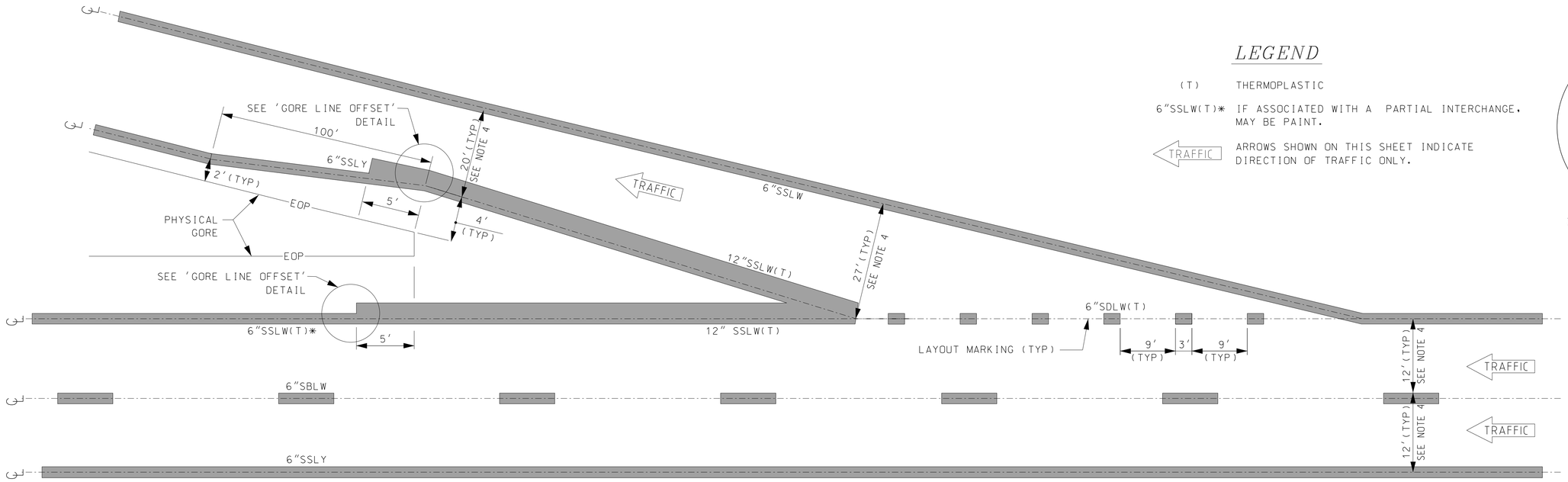
April

New Hampshire DOT Department of Transportation

PAVEMENT MARKING STANDARD

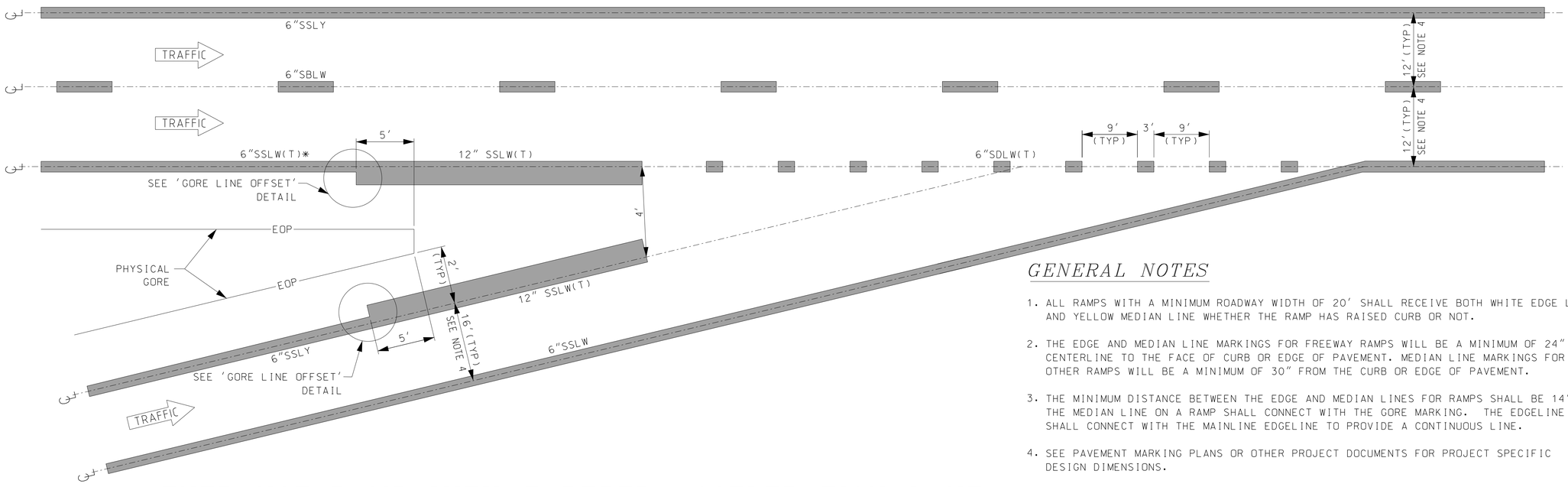
DIVIDED HIGHWAY PARALLEL RAMP MARKINGS

STANDARD NO. PM-3



EXIT RAMP WITH TAPERED DECELERATION LANE

NOT TO SCALE - REFERERENCE: MUTCD FIGURE 3B-8(B)



ENTRANCE RAMP WITH TAPERED ACCELERATION LANE

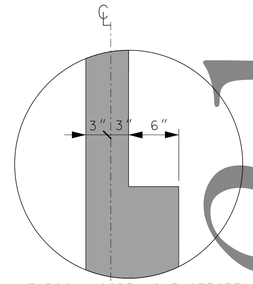
NOT TO SCALE - REFERERENCE: MUTCD FIGURE 3B-9(B)

LEGEND

(T) THERMOPLASTIC

6"SSLW(T)* IF ASSOCIATED WITH A PARTIAL INTERCHANGE, MAY BE PAINT.

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



TYPICAL GORE LINE OFFSET (SIMILAR FOR ALL)
N.T.S.

GENERAL NOTES

1. ALL RAMPS WITH A MINIMUM ROADWAY WIDTH OF 20' SHALL RECEIVE BOTH WHITE EDGE LINE AND YELLOW MEDIAN LINE WHETHER THE RAMP HAS RAISED CURB OR NOT.
2. THE EDGE AND MEDIAN LINE MARKINGS FOR FREEWAY RAMPS WILL BE A MINIMUM OF 24" FROM CENTERLINE TO THE FACE OF CURB OR EDGE OF PAVEMENT. MEDIAN LINE MARKINGS FOR ALL OTHER RAMPS WILL BE A MINIMUM OF 30" FROM THE CURB OR EDGE OF PAVEMENT.
3. THE MINIMUM DISTANCE BETWEEN THE EDGE AND MEDIAN LINES FOR RAMPS SHALL BE 14'. THE MEDIAN LINE ON A RAMP SHALL CONNECT WITH THE GORE MARKING. THE EDGELINE SHALL CONNECT WITH THE MAINLINE EDGELINE TO PROVIDE A CONTINUOUS LINE.
4. SEE PAVEMENT MARKING PLANS OR OTHER PROJECT DOCUMENTS FOR PROJECT SPECIFIC DESIGN DIMENSIONS.
5. ALL DOTTED LANE LINES FOR ACCELERATION/DECELERATION LANES SHALL RUN THE FULL LENGTH OF THE RAMP OPENING.

STANDARD NO. PM-4

REVISION DATE
07-13-2001
02-26-2010
11-05-2010
02-22-2021

.DGN FILE NAME

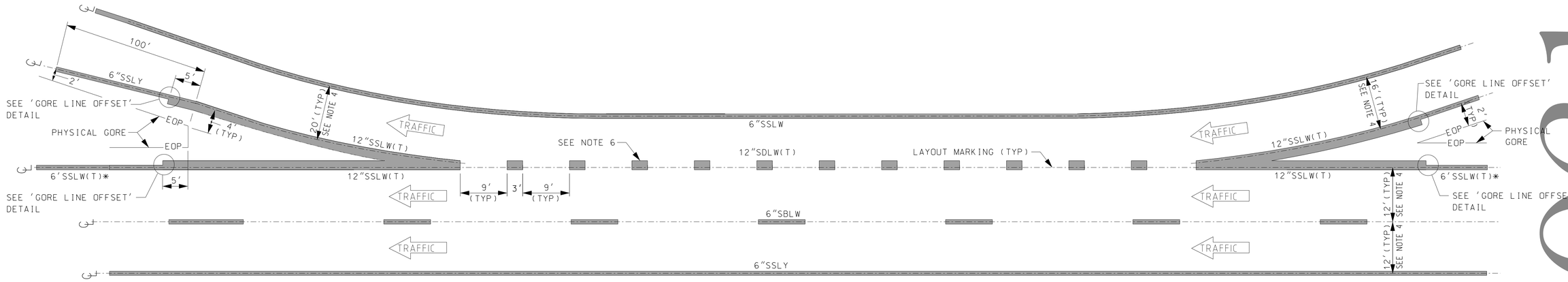
April 2021 STANDARD PLANS

New Hampshire DOT Department of Transportation

PAVEMENT MARKING STANDARD

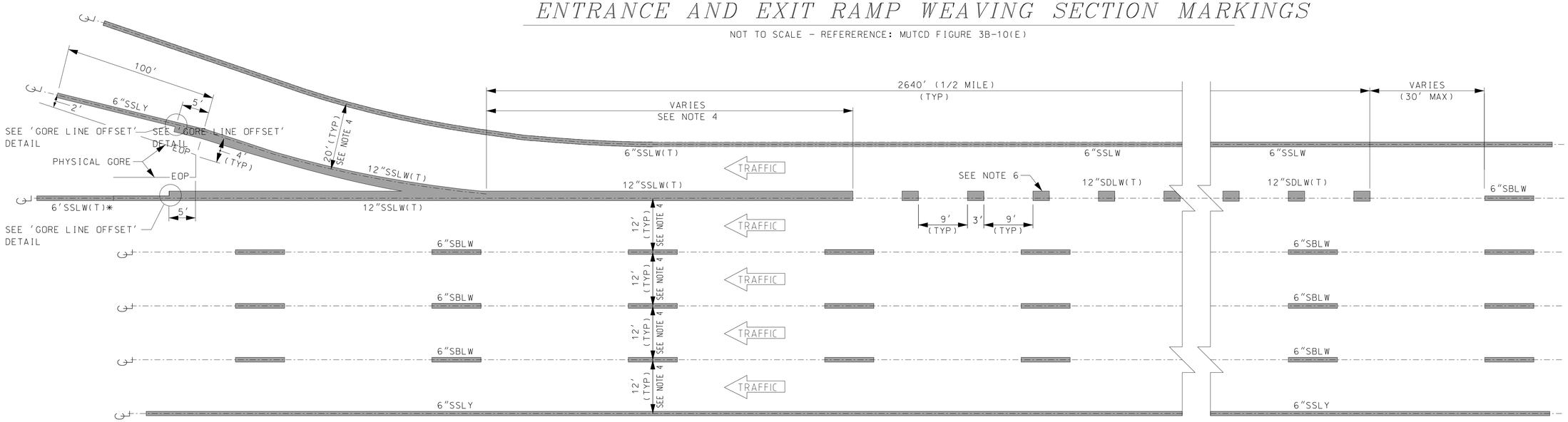
DIVIDED HIGHWAY TAPERED RAMP MARKINGS

STANDARD NO. PM-4



ENTRANCE AND EXIT RAMP WEAVING SECTION MARKINGS

NOT TO SCALE - REFERERENCE: MUTCD FIGURE 3B-10(E)

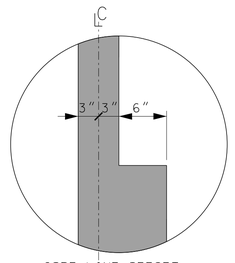


EXIT RAMPS WITH LANE DROP AT EXIT

NOT TO SCALE - REFERENCE: MUTCD FIGURE 3B-10(A)

GENERAL NOTES

1. ALL RAMPS WITH A MINIMUM ROADWAY WIDTH OF 20' SHALL RECEIVE BOTH WHITE EDGE LINE AND YELLOW MEDIAN LINE WHETHER THE RAMP HAS RAISED CURB OR NOT.
2. THE EDGE AND MEDIAN LINE MARKINGS FOR FREEWAY RAMPS WILL BE A MINIMUM OF 24" FROM CENTERLINE TO THE FACE OF CURB OR EDGE OF PAVEMENT. MEDIAN LINE MARKINGS FOR ALL OTHER RAMPS WILL BE A MINIMUM OF 30" FROM THE CURB OR EDGE OF PAVEMENT.
3. THE MINIMUM DISTANCE BETWEEN THE EDGE AND MEDIAN LINES FOR RAMPS SHALL BE 14'. THE MEDIAN LINE ON A RAMP SHALL CONNECT WITH THE GORE MARKING. THE EDGELINE SHALL CONNECT WITH THE MAINLINE EDGELINE TO PROVIDE A CONTINUOUS LINE.
4. SEE PAVEMENT MARKING PLANS OR OTHER PROJECT DOCUMENTS FOR PROJECT SPECIFIC DESIGN DIMENSIONS.
5. ALL DOTTED LANE LINES FOR ACCELERATION/DECELERATION LANES SHALL RUN THE FULL LENGTH OF EACH LANE AS SHOWN IN THE PROJECT DOCUMENTS.
6. 12"SDLW SHOULD BE INSTALLED OFFSET FROM THE CENTERLINE AS SHOWN TO MATCH INTO THE GORE.



GORE LINE OFFSET (SIMILAR FOR ALL)
N.T.S.

LEGEND

(T) THERMOPLASTIC

6"SSLW(T)* IF ASSOCIATED WITH A PARTIAL INTERCHANGE, MAY BE PAINT.

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

STANDARD NO. PM-5

REVISION DATE
07-13-2001
02-26-2010
02-22-2021

.DGN FILE NAME

2021 STANDARD PLANS

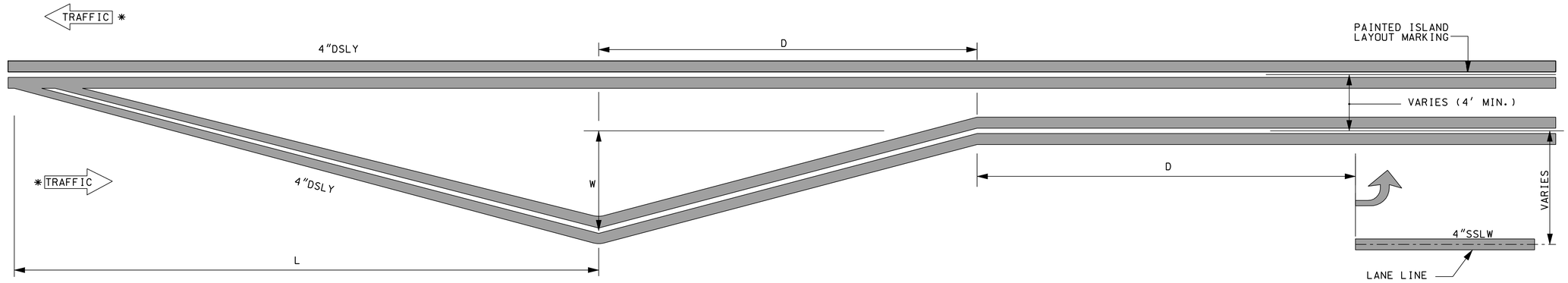
April

New Hampshire DOT Department of Transportation

PAVEMENT MARKING STANDARD

DIVIDED HIGHWAY WEAVE/LANE DROP RAMP MARKINGS

STANDARD NO. PM-5



TRANSITION TAPER = L

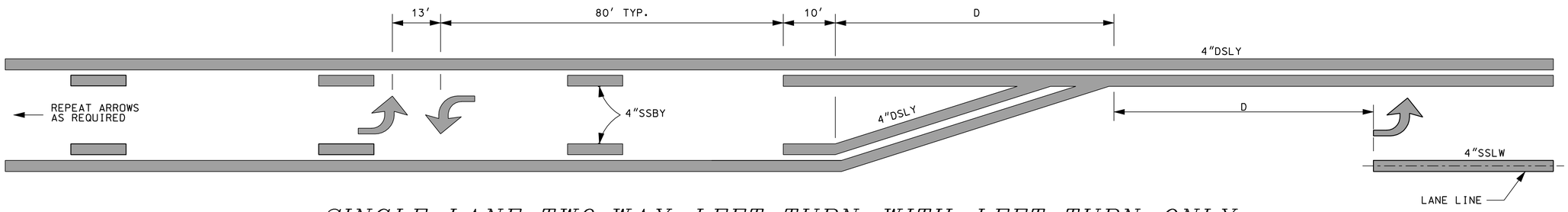
POSTED SPEED (mph)	L
≤ 40	$WS^2/60$
≥ 45	WS

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

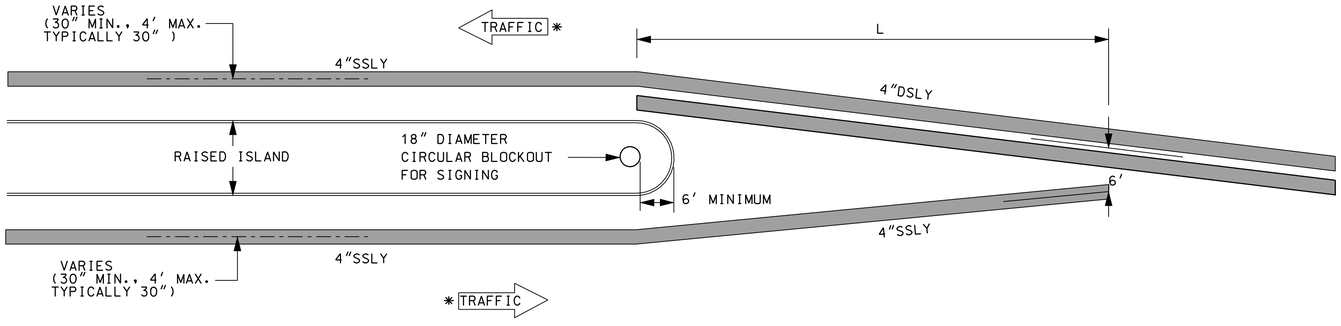
PAINTED ISLAND WITH LEFT TURN LANE

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.

STANDARD NO. PM-6

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

*.DGN FILE NAME
PM-6

2021 STANDARD PLANS

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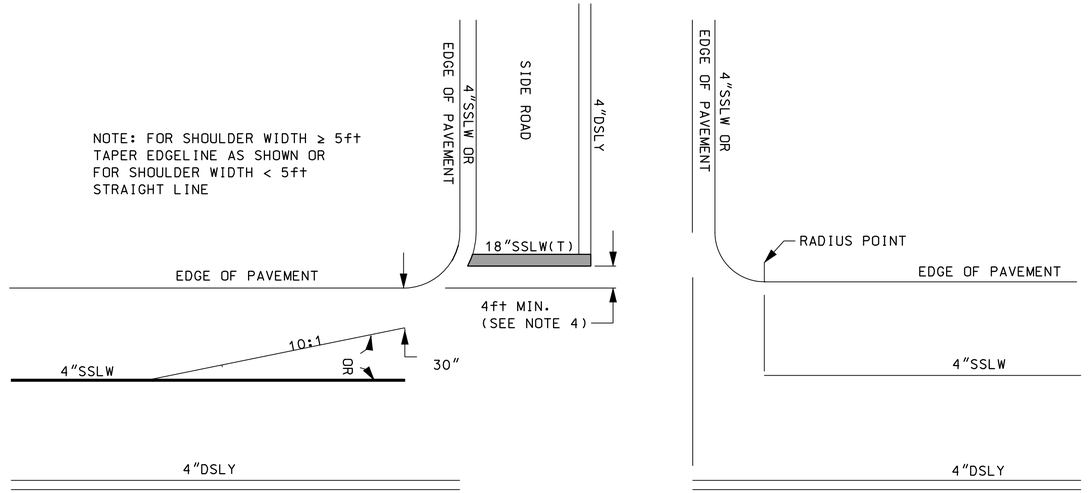
New Hampshire DOT Department of Transportation

PAVEMENT MARKING STANDARD

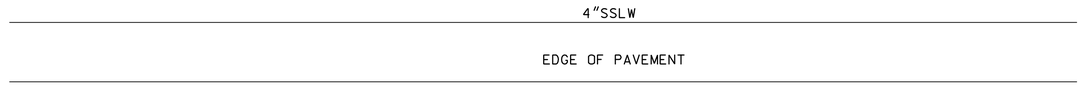
PAINTED ISLAND DETAILS

STANDARD NO. PM-6

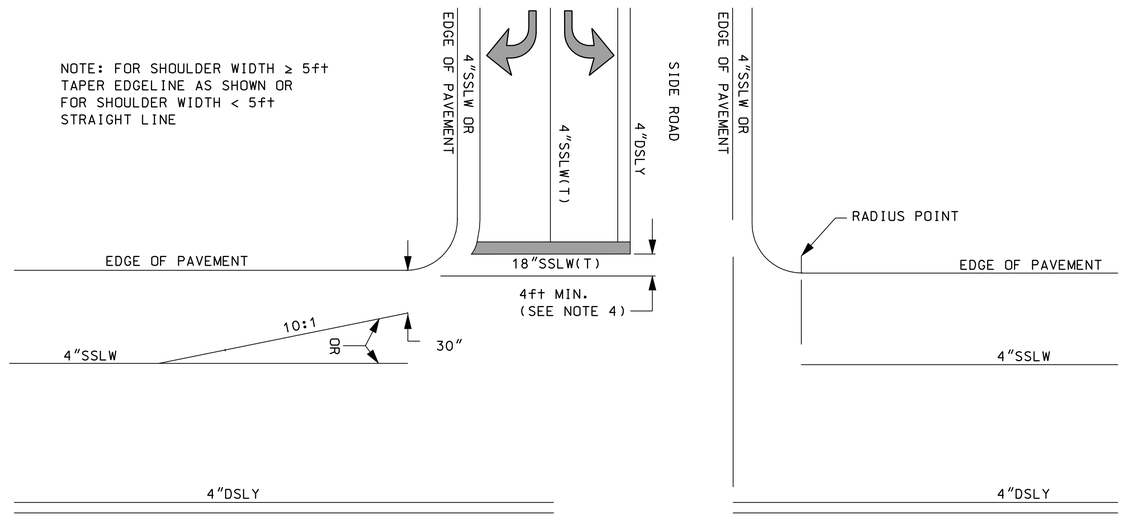
CENTERLINE AND EDGELINE "CUTS" AT SIDE ROAD



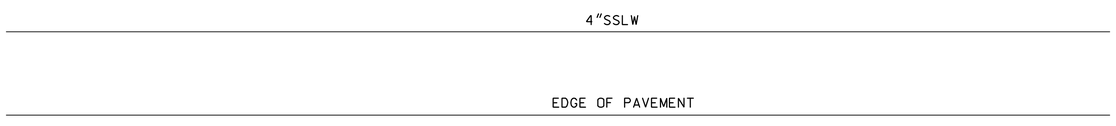
MAINLINE



CENTERLINE AND EDGELINE "CUTS" AT SIDE ROAD W/ TURN LANES



MAINLINE



GENERAL NOTES

1. EDGELINE DETAILS SHOWN ARE FOR MAINLINE ROADWAYS WITHOUT TURN LANES. THE PRESENCE OF TURN LANES MAY REQUIRE DIFFERENT EDGELINE TREATMENTS.
2. EDGELINES ON SIDE ROADS, WHEN CALLED FOR, SHALL FOLLOW THE ABOVE MAINLINE TYPICALS. EDGELINES SHALL NOT BE CONTINUOUS AROUND THE MAINLINE/ SIDE ROAD RADIUS. EDGELINES SHALL END AT STOP BARS.
3. CENTERLINE AND EDGELINE SHALL BE CONTINUOUS PAST RESIDENTIAL DRIVEWAYS. CENTERLINE AND EDGELINE SHALL BREAK FOR COMMERCIAL DRIVES W/TRAFFIC CONTROLS, MINOR SIDE ROADS OR PRIVATE ROAD INTERSECTIONS.
4. LOCATION OF THE STOP LINE MAY VARY DUE TO INTERSECTION SIGHT DISTANCE AND VEHICLE TURNING RADUIS, AND MAY NOT ALWAYS COINCIDE WITH THE LOCATION OF THE STOP SIGN.
5. IF THERE IS NO EDGELINE, END STOP BAR 12" FROM EDGE OF PAVEMENT.
6. STOP BARS, WORDS, LANE LINES, SYMBOLS AND ARROWS SHALL BE THERMOPLASTIC (T).

PAVEMENT MARKING STANDARD

PAVEMENT MARKINGS AT MINOR INTERSECTIONS

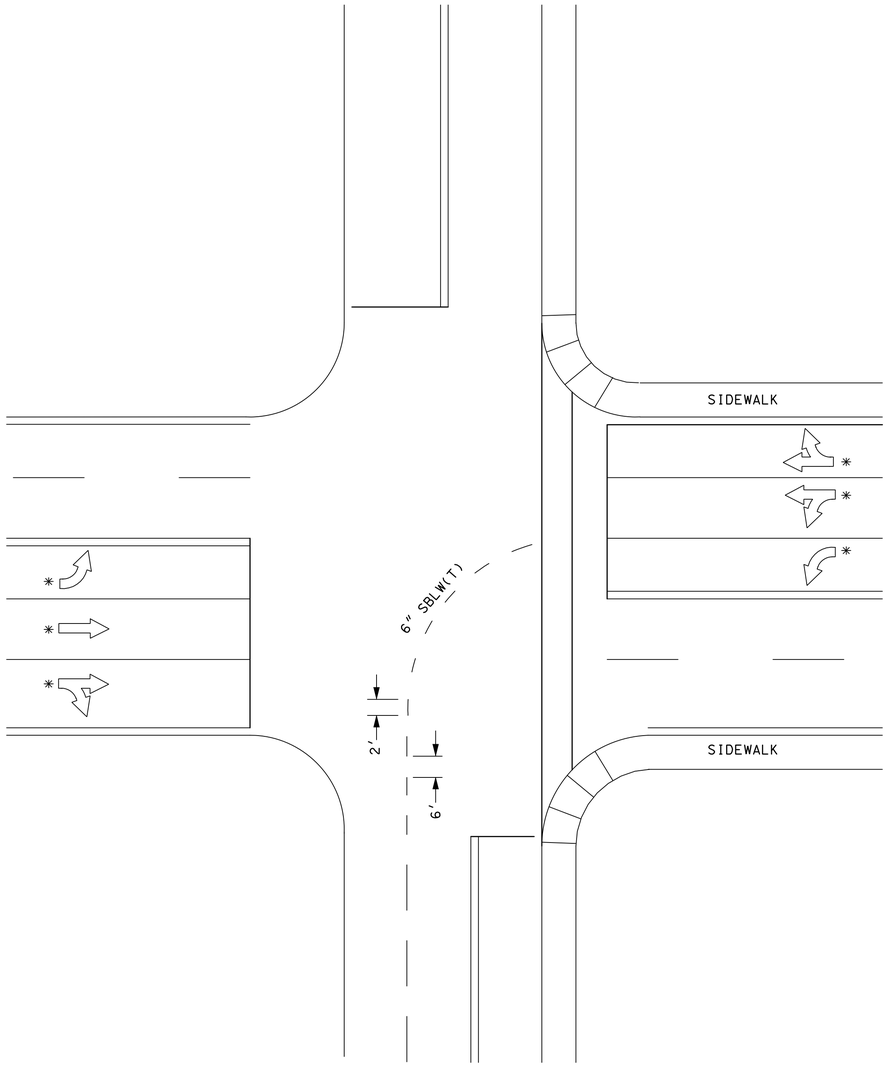
STANDARD NO. PM-9

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

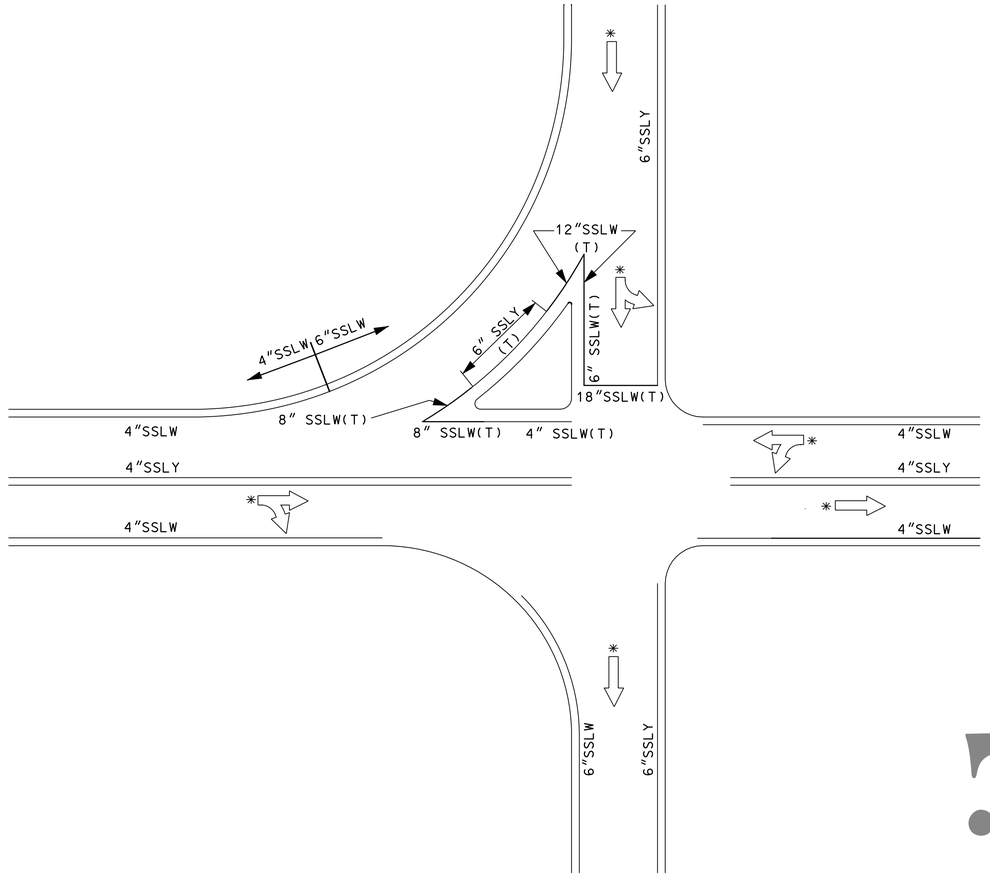
*.DGN FILE NAME
PM-9

New Hampshire DOT Department of Transportation

STANDARD NO. PM-9



TURNING LANE EXTENSION DETAIL



RAMP LAYOUT

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

(T) = THERMOPLASTIC

STANDARD
NO. PM-10

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

*.DGN FILE NAME
PM-10

2021

STANDARD PLANS

April

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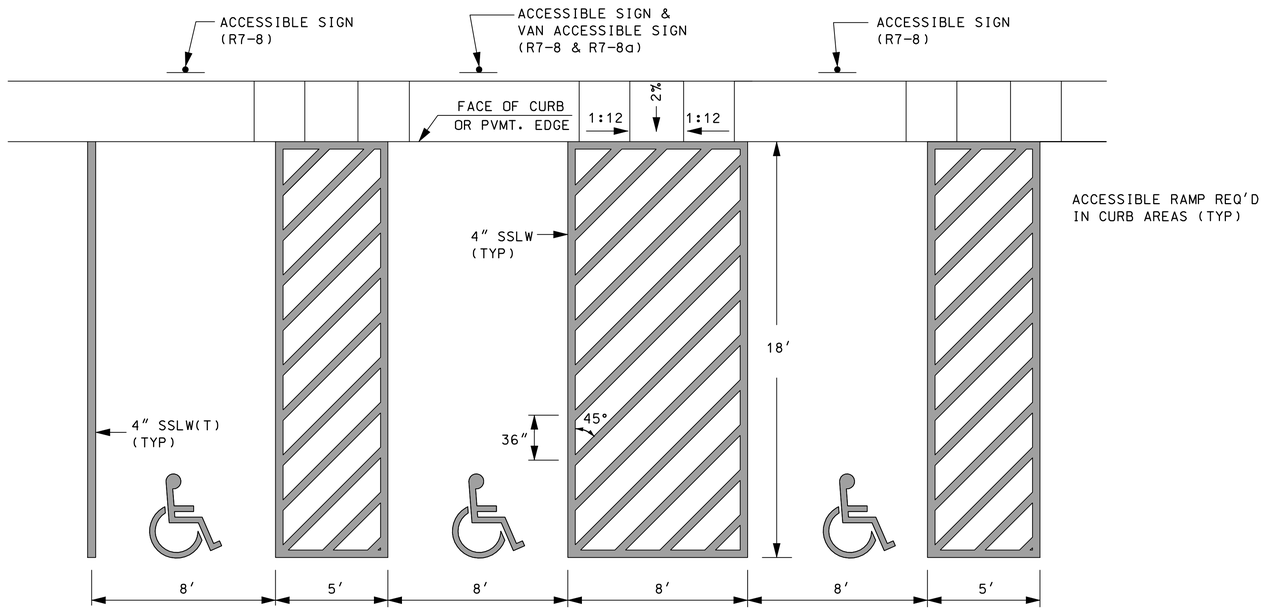
Department of Transportation

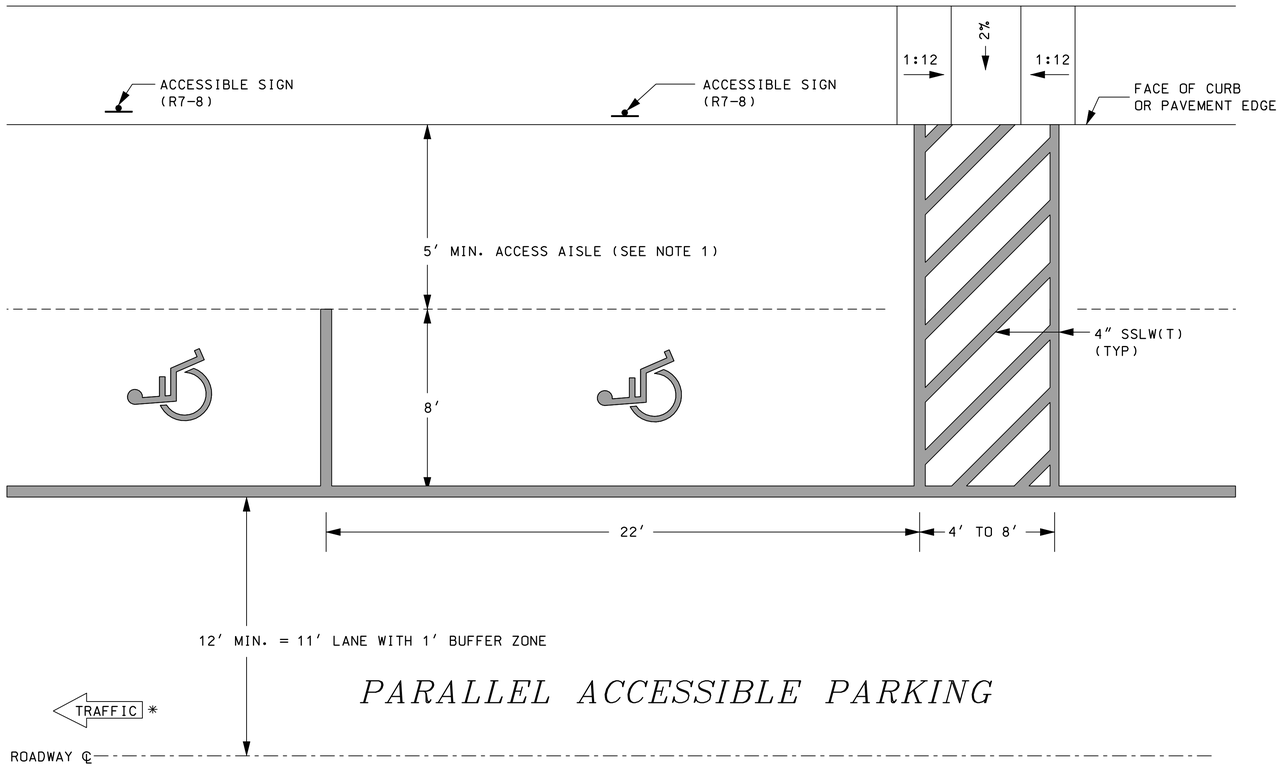
PAVEMENT MARKING STANDARD

TURN LANE EXTENSION DETAIL & INTERSTATE OFF RAMP

STANDARD
NO. PM-10

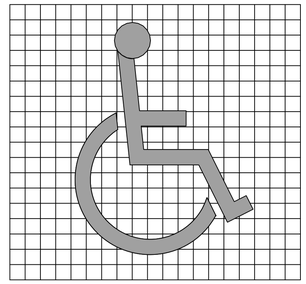
PERPENDICULAR ACCESSIBLE PARKING





PARALLEL ACCESSIBLE PARKING

3' x 3'-2"



INTERNATIONAL SYMBOL OF ACCESSIBILITY

PAY QUANTITY FOR EACH ACCESSIBLE
PAVEMENT MARKING SYMBOL 2.58ft².

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.

PAVEMENT MARKING STANDARD

ACCESSIBLE PARKING DETAIL

STANDARD
NO. PM-11

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

*.DGN FILE NAME
PM-11

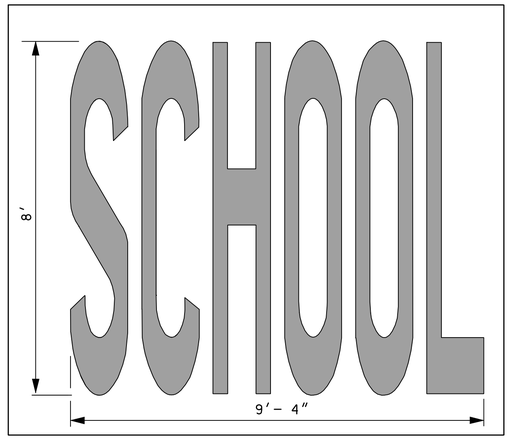
2021

April

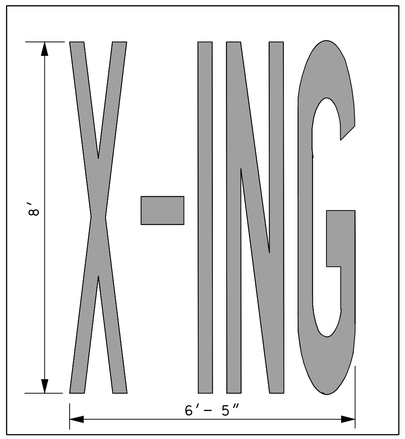
STANDARD PLANS

New Hampshire DOT Department of Transportation

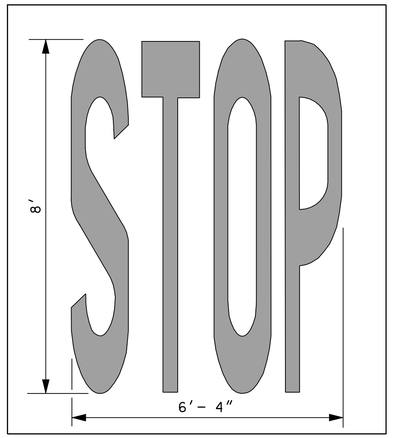
STANDARD
NO. PM-11



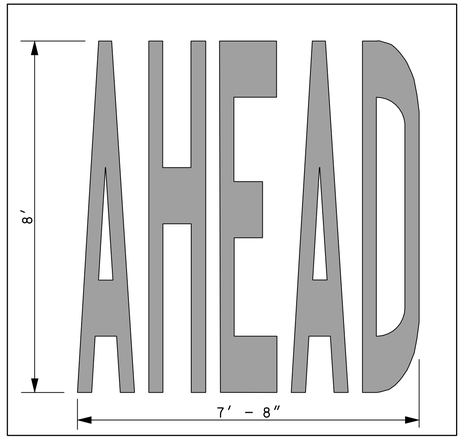
SCHOOL
PAY QUANTITY = 34.7 FT²



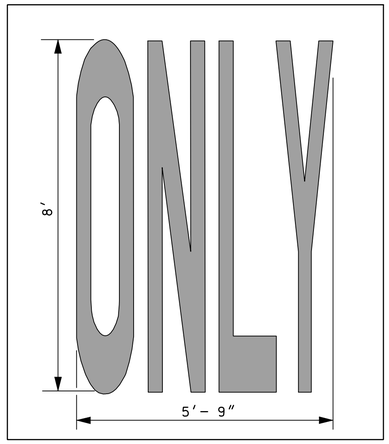
X-ING
PAY QUANTITY = 20.8 FT²



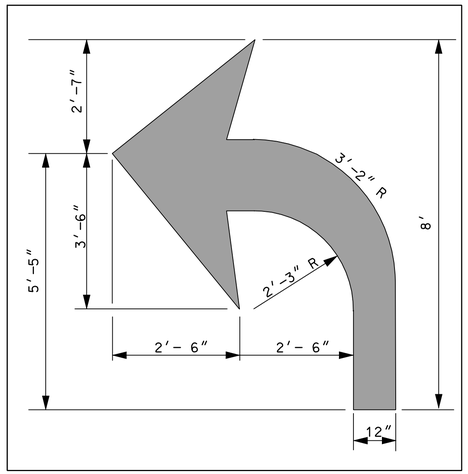
STOP
PAY QUANTITY = 22.2 FT²



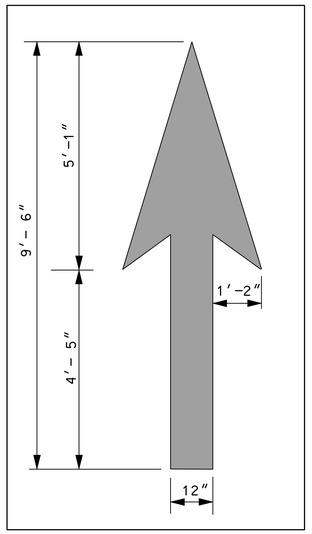
AHEAD
PAY QUANTITY = 31.3 FT²



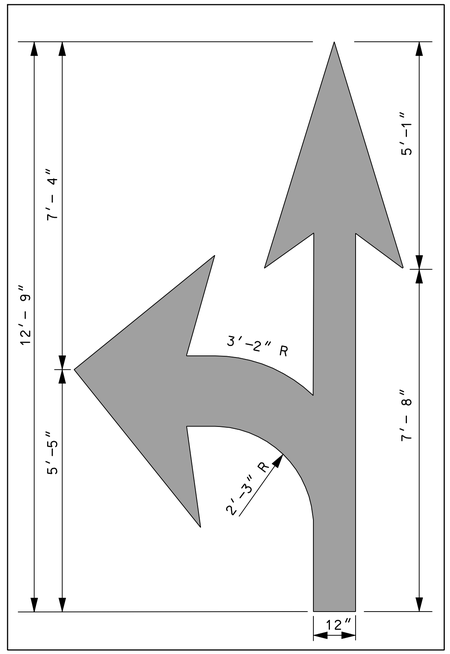
ONLY
PAY QUANTITY = 22.3 FT²



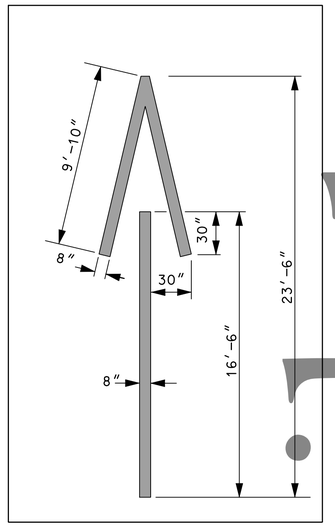
TURN ARROW
(RIGHT TURN OPPOSITE IN KIND)
PAY QUANTITY = 17.0 FT²



THROUGH (STRAIGHT ARROW)
PAY QUANTITY = 12.5 FT²



COMBINATION ARROW
PAY QUANTITY = 28.8 FT²



WRONG-WAY ARROW
PAY QUANTITY = 24.1 FT²

GENERAL NOTES

1. ALL WORDS AND SYMBOLS SHALL BE RETROREFLECTIVE WHITE AND SHALL CONFORM TO THE LATEST VERSION OF THE MUTCD.
2. MULTI-WORD MESSAGES SHALL READ "UP"; THAT IS, THE FIRST WORD SHALL BE NEAREST THE APPROACHING DRIVER.
3. 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".
4. 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.
5. PREFORMED WORDS AND SYMBOLS SHALL BE PRE-CUT BY THE MANUFACTURER.
6. WRONG-WAY ARROWS SHALL NOT BE SUBSTITUTED FOR THROUGH ARROWS.
7. ALL STOP BARS, WORDS, SYMBOLS AND ARROWS SHALL BE THERMOPLASTIC.

STANDARD
NO. PM-12

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

*.DGN FILE NAME
PM-12

2021

STANDARD PLANS

April

New Hampshire DOT
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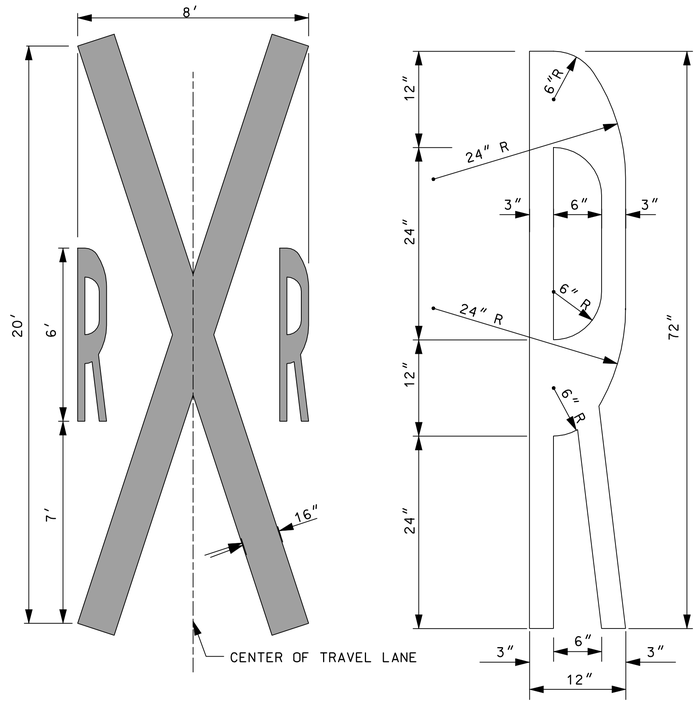
PAVEMENT MARKING STANDARD

WORDS AND SYMBOLS

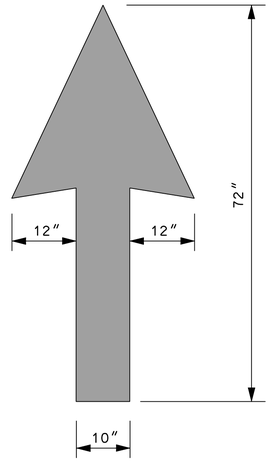
STANDARD
NO. PM-12

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



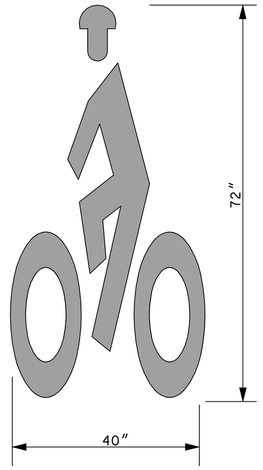
RAILROAD CROSSING SYMBOL

PAY QUANTITY = 63.6 ft² (SEE NOTE 3)



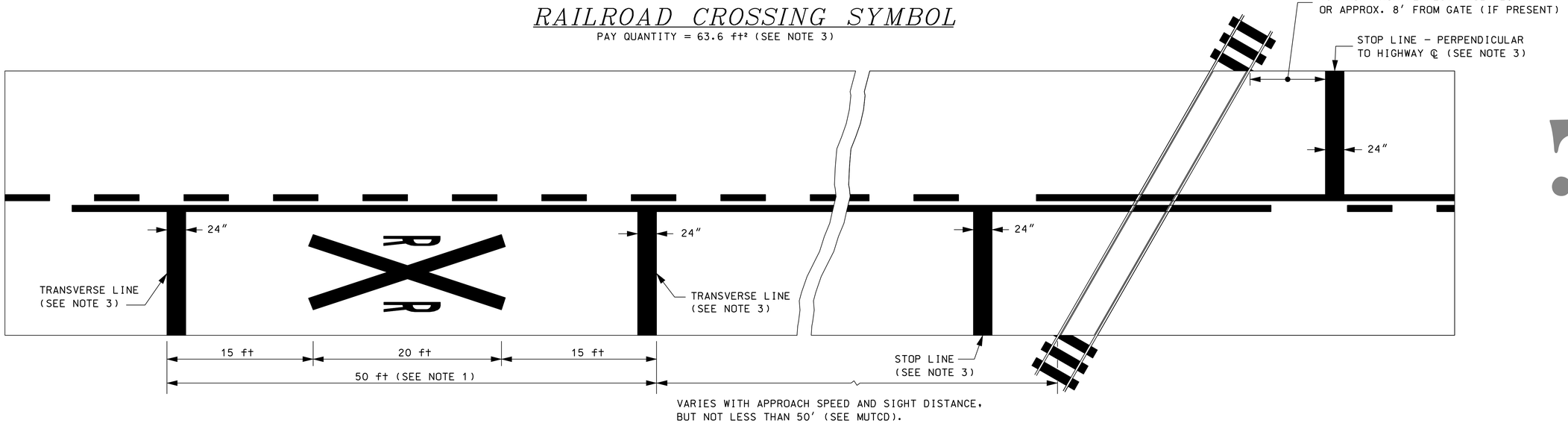
BICYCLE LANE DIRECTIONAL ARROW

PAY QUANTITY = 6.0 FT²



BICYCLE LANE SYMBOL

PAY QUANTITY = 8.1 FT²



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.

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REVISION DATE
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02-26-2010

*.DGN FILE NAME
PM-13

April 2021

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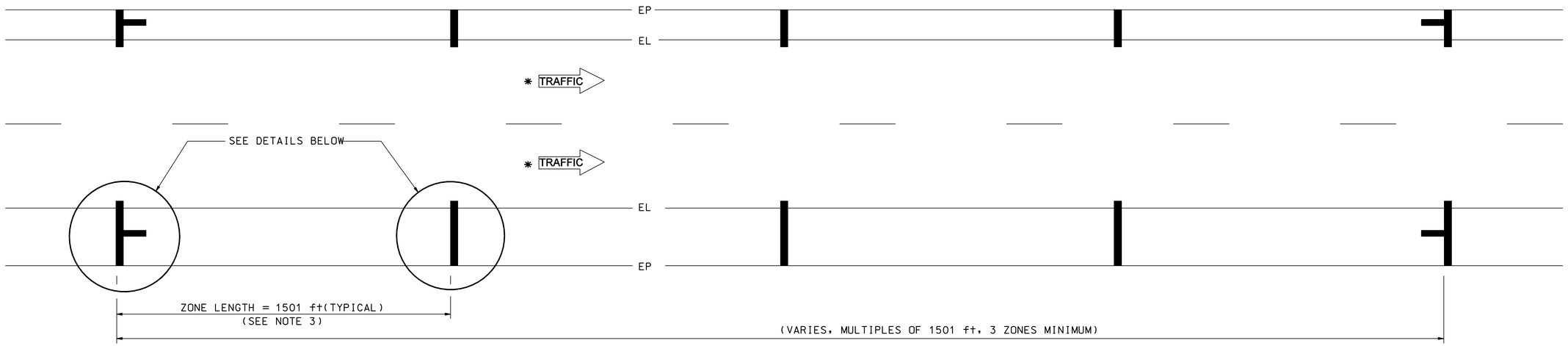
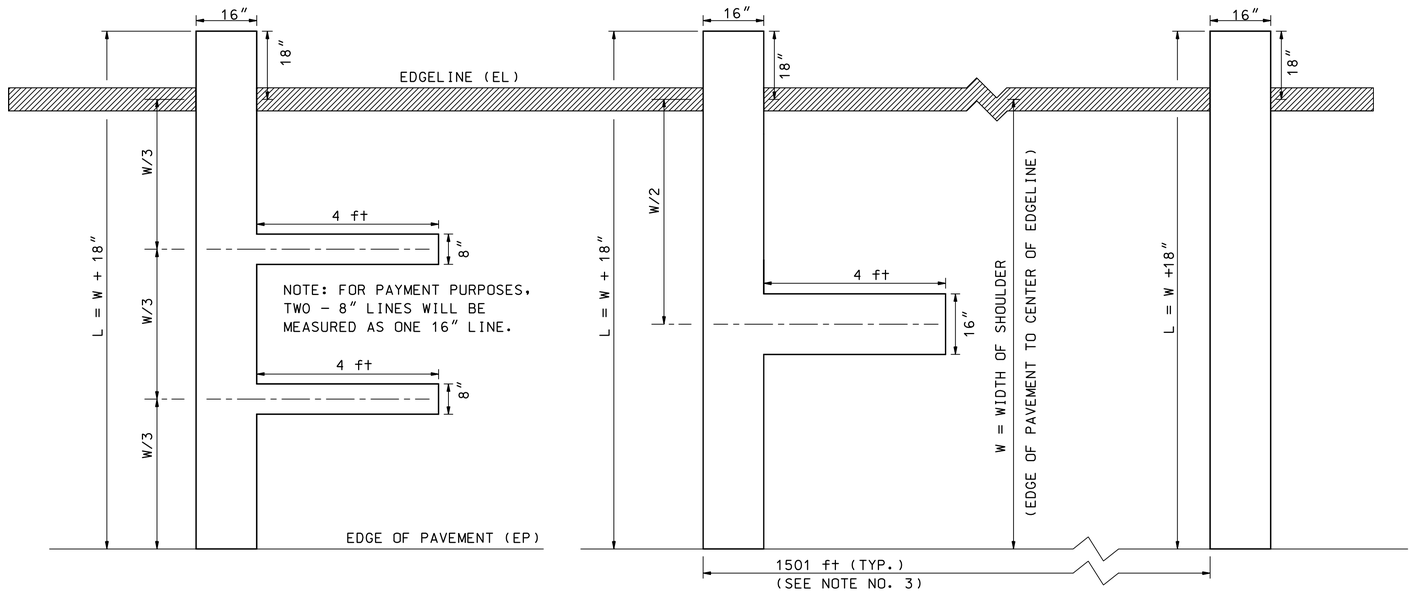
PAVEMENT MARKING STANDARD

WORDS AND SYMBOLS

STANDARD NO. PM-13



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 APROACH 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

STANDARD NO. PM-14

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

*.DGN FILE NAME
PM-14

2021 STANDARD PLANS

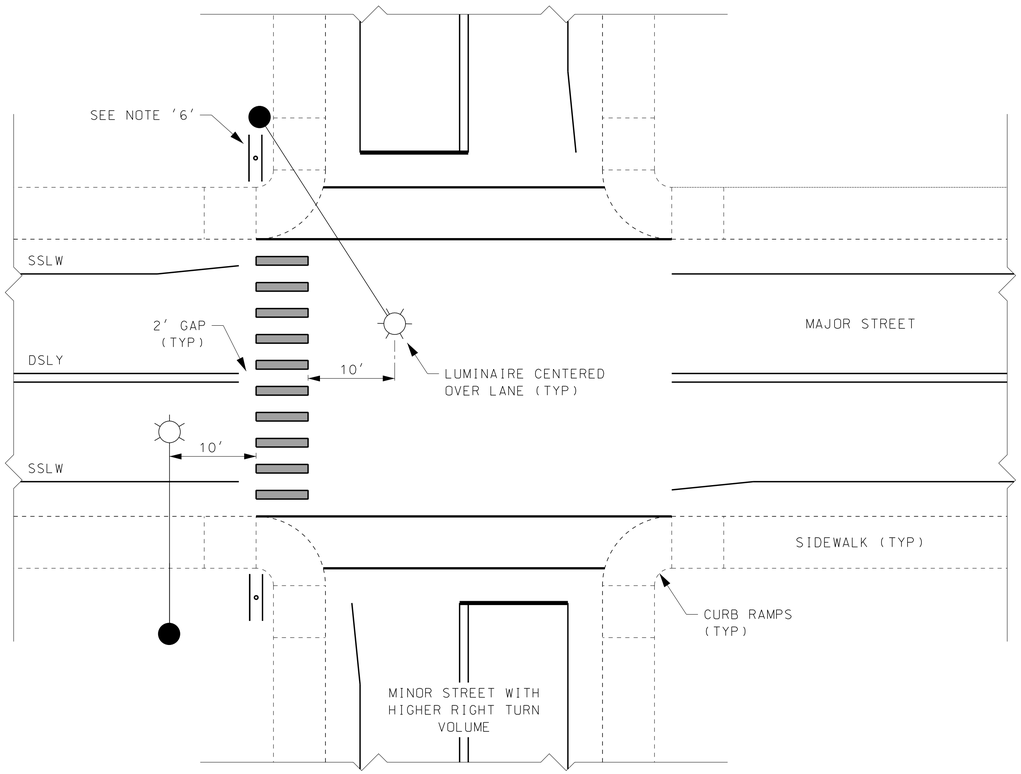
April

New Hampshire DOT Department of Transportation

PAVEMENT MARKING STANDARD

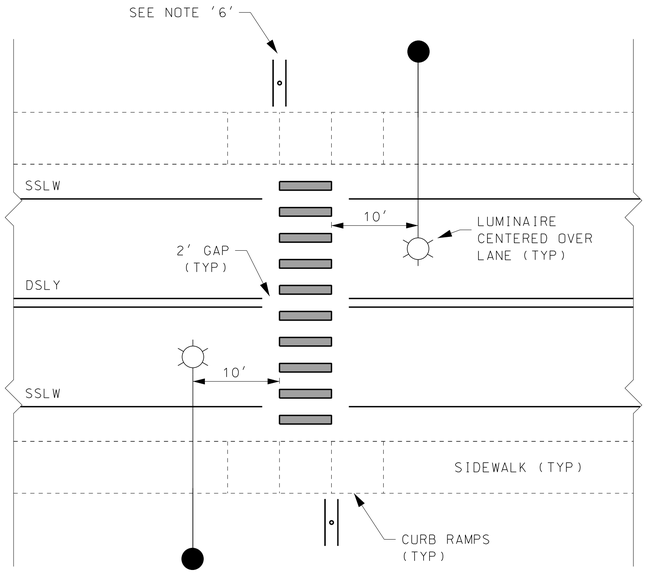
SPEED ZONE PAVEMENT MARKINGS

STANDARD NO. PM-14



STANDARD PEDESTRIAN CROSSING LAYOUT FOR CONTROLLED AND UNCONTROLLED APPROACHES AT INTERSECTIONS

N.T.S.



STANDARD PEDESTRIAN CROSSING LAYOUT FOR UNCONTROLLED MIDBLOCK LOCATIONS

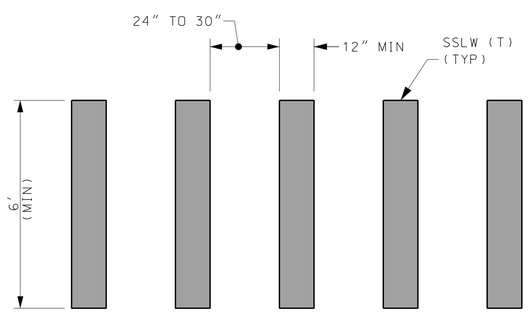
N.T.S.

GENERAL NOTES

1. SPACING FOR THE CONTINENTAL BLOCK MARKINGS SHOULD BE UNIFORM FOR EACH INDIVIDUAL CROSSWALK BUT BE ADJUSTED TO AVOID PLACEMENT DIRECTLY IN THE WHEEL PATH.
2. CROSSWALKS LOCATED AT A YIELD CONTROLLED SLIP RAMP OR OTHER YIELD CONTROLLED INTERSECTION APPROACH SHALL USE CONTINENTAL BLOCK MARKINGS REGARDLESS OF WHETHER THE CROSSWALK IS IN ADVANCE OF OR BEYOND THE YIELD CONTROL.
3. LOCATE UNCONTROLLED CROSSWALKS TO THE LEFT SIDE OF THE MINOR STREET WITH THE HIGHER RIGHT TURN VOLUMES.
4. STREET LIGHTING FOR UNCONTROLLED CROSSINGS TO MEET FHWA "INFORMATIONAL REPORT ON LIGHTING DESIGN FOR MIDBLOCK CROSSWALKS" (APRIL 2008) WHEN REQUIRED.
5. WHEN PROPOSED BY A MUNICIPALITY OUTSIDE NHDOT, INSTALLATION OF STREET LIGHTING SHALL MEET THE REQUIREMENTS OF THE CURRENT EDITION OF THE NHDOT UTILITY ACCOMMODATION MANUAL, AND IS SUBJECT TO THE REQUIREMENTS OF THE EXCAVATION PERMIT AND POLE LICENSING PROCEDURE.
6. VERIFY THAT WARNING SIGN LOCATIONS ARE NOT OBSCURED FROM THE VIEW OF APPROACHING TRAFFIC BY LIGHT POLES OR OTHER OBJECTS.
7. CONTROLLED CROSSWALKS SHALL BE OUTSIDE THE PAVEMENT LIMITS OF THE MAJOR STREET. THIS APPLIES TO BOTH MARKED AND IMPLIED CROSSWALKS.

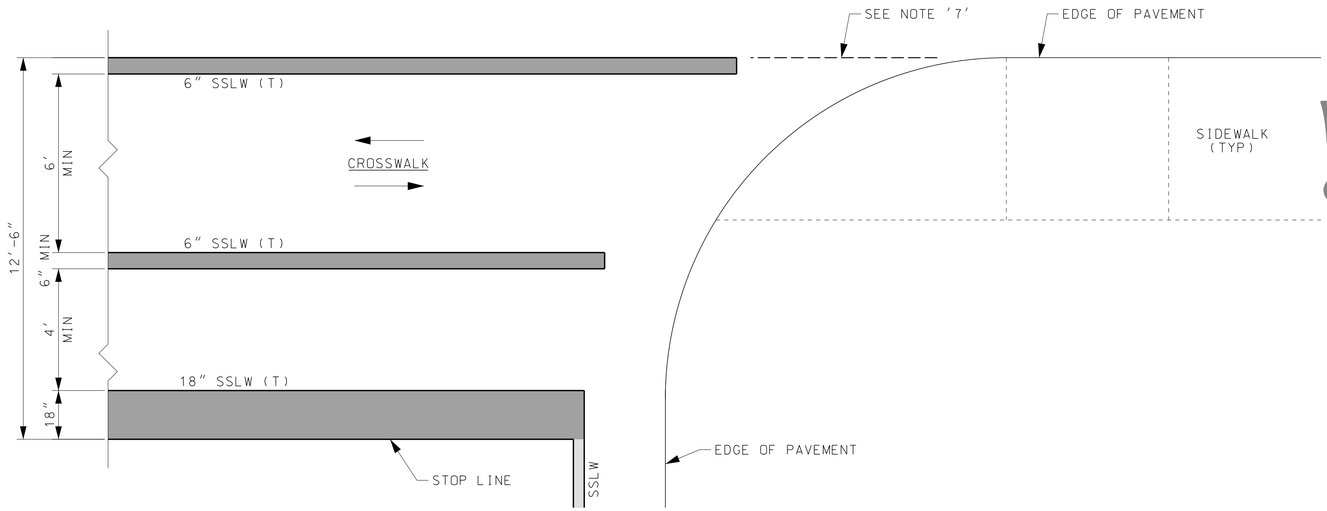
LEGEND

(T) = THERMOPLASTIC



CONTINENTAL CROSSWALK MARKING DETAIL FOR UNCONTROLLED CROSSING LOCATIONS

N.T.S.



STANDARD CROSSWALK MARKING DETAIL FOR CONTROLLED CROSSING LOCATIONS

N.T.S.

STANDARD NO. PM-15

REVISION DATE
02-22-2021

.DGN FILE NAME

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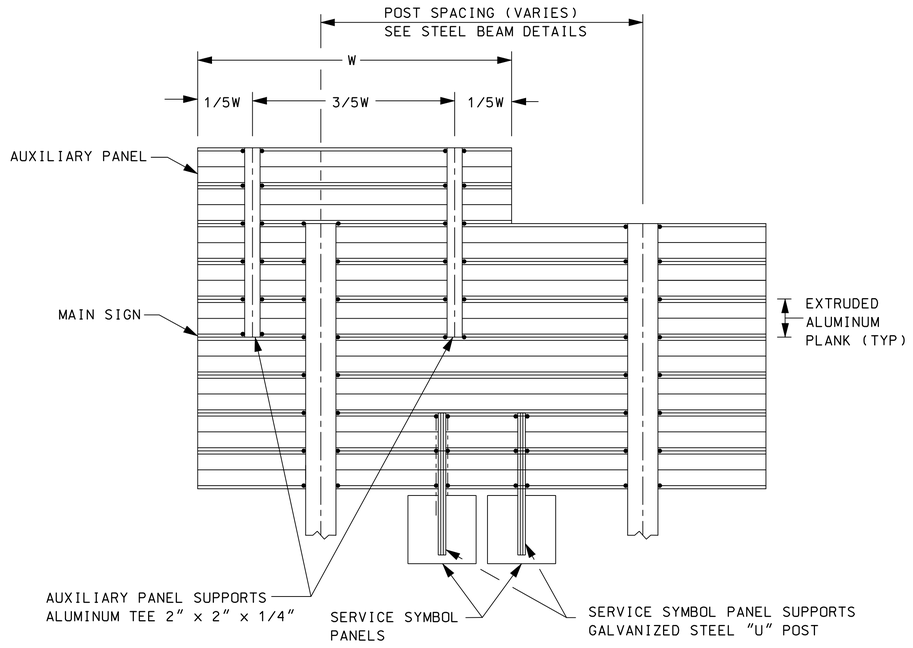
PAVEMENT MARKING STANDARD

PEDESTRIAN CROSSINGS

STANDARD NO. PM-15

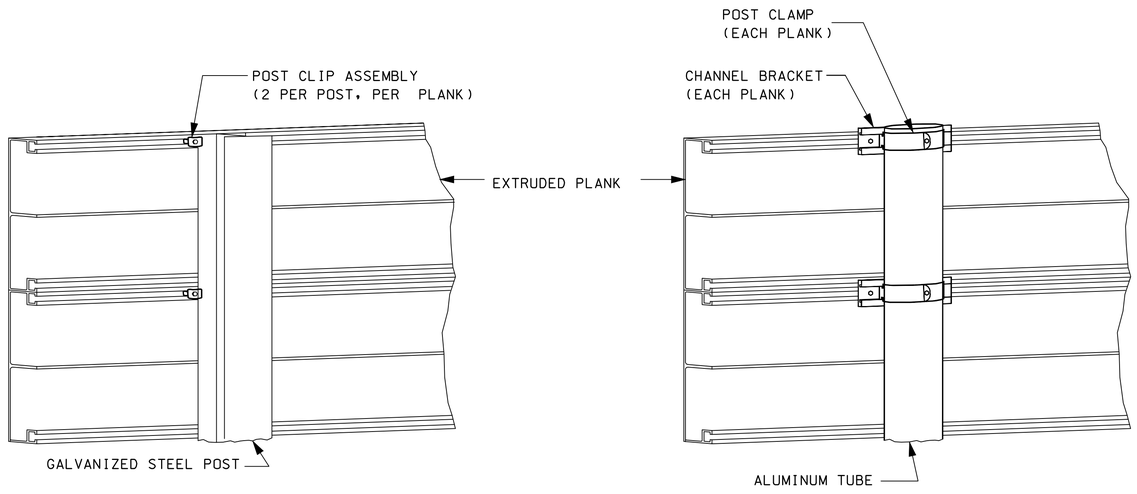


ATTACHMENT OF AUXILIARY PANELS AND SERVICE SYMBOL PANELS (BACK VIEW)

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. SUPPPORTS 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.

STANDARD NO. PS-1

REVISION DATE
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02-26-2010

*.DGN FILE NAME
PS-1

2021 STANDARD PLANS

April 1

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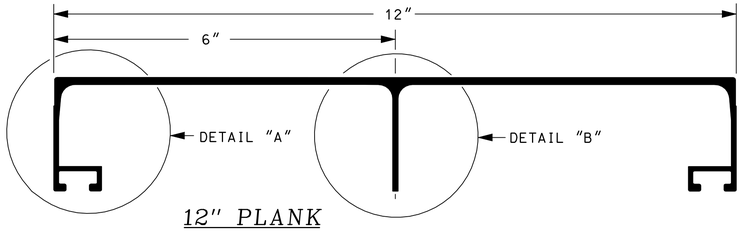
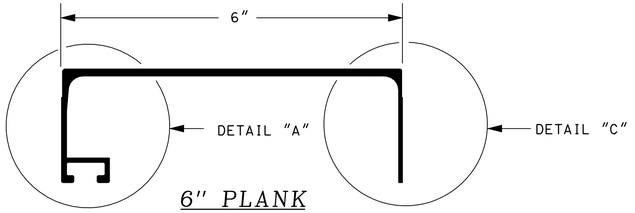
SIGNING STANDARD

ALUMINUM PLANK DETAILS

STANDARD NO. PS-1

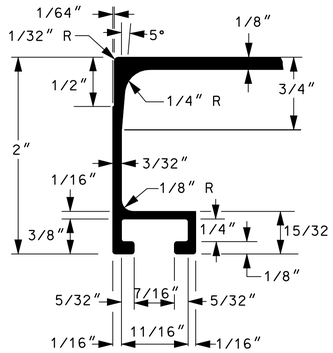


12" PLANK

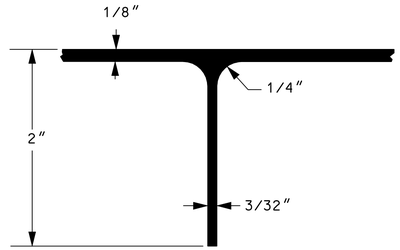


6" PLANK

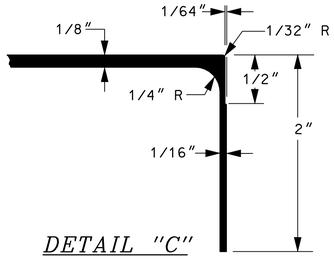
EXTRUDED ALUMINUM SIGN PLANK



DETAIL "A"

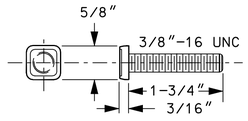


DETAIL "B"

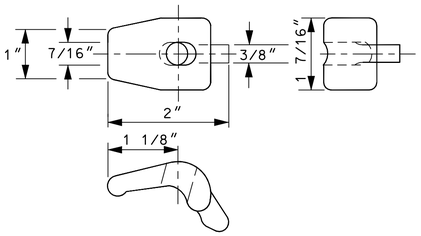


DETAIL "C"

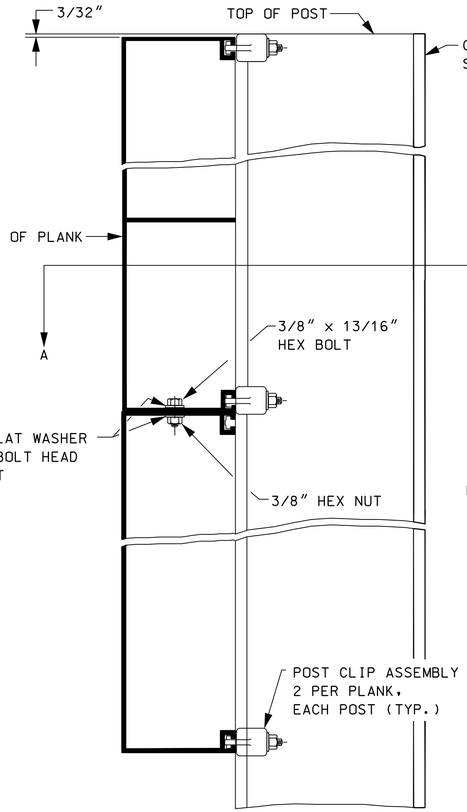
STIFFENER DETAILS



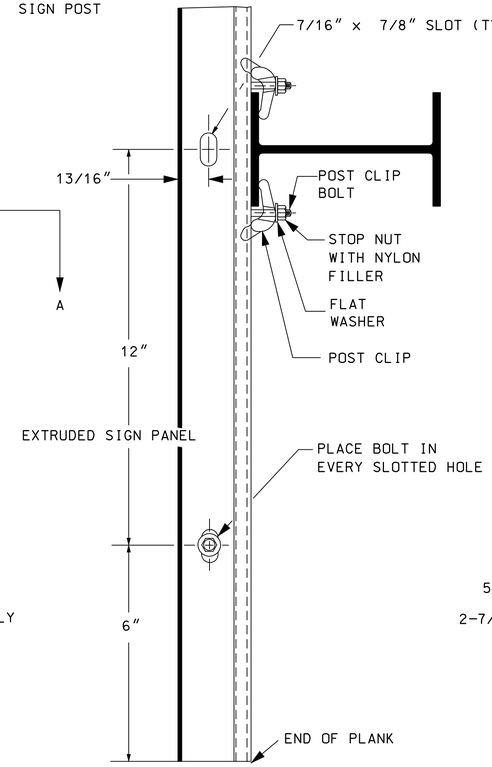
POST CLIP BOLT



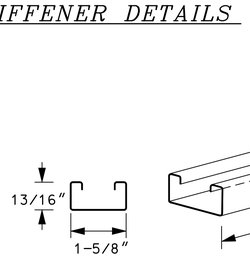
POST CLIP



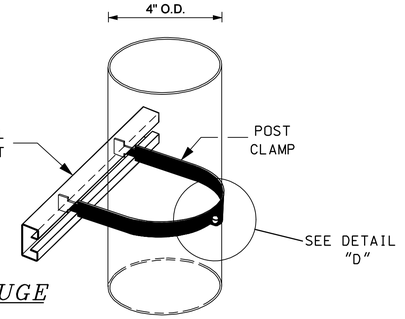
END VIEW



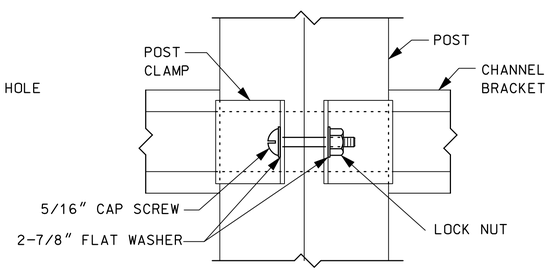
SECTION A-A



CHANNEL BRACKET 14 GAUGE



POST CLAMP 4" DIA. 11 GAUGE



DETAIL "D"

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

April 2021

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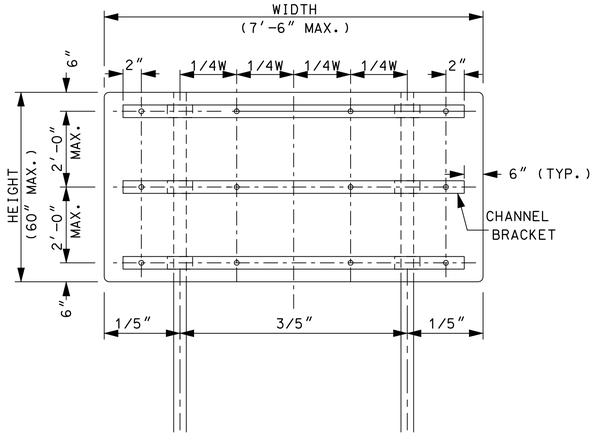
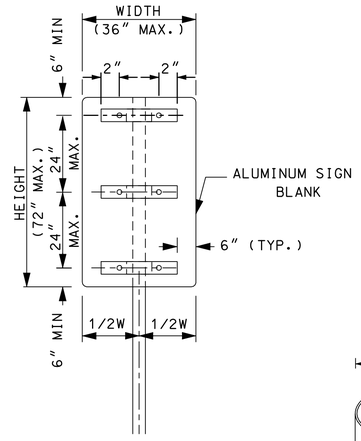
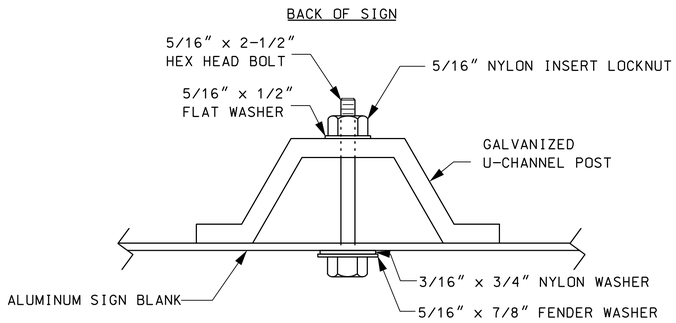
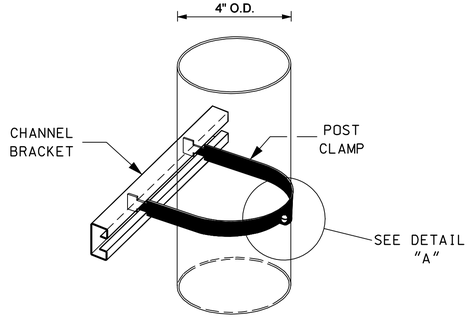
STANDARD NO. PS-2



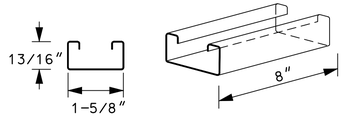


ALUMINUM POST SPACING

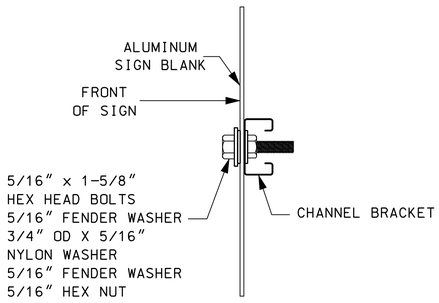




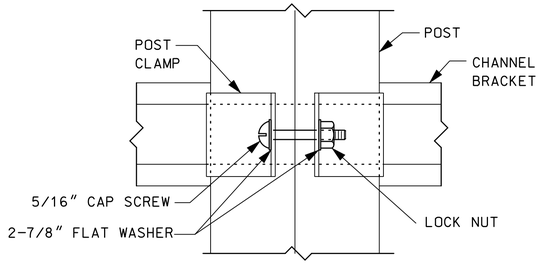
POST CLAMP 4" DIA. 11 GAUGE



CHANNEL BRACKET 14 GAUGE



SIGN BLANK ATTACHMENT DETAIL



DETAIL A

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.

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.

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

STANDARD NO. PS-3

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

*.DGN FILE NAME
PS-3

April 2021 STANDARD PLANS

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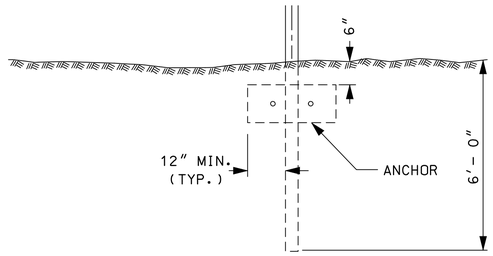
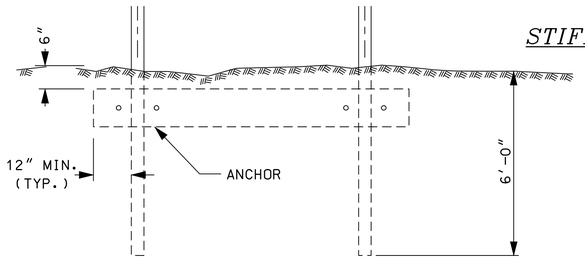
STANDARD NO. PS-3

DIRECT BURIED

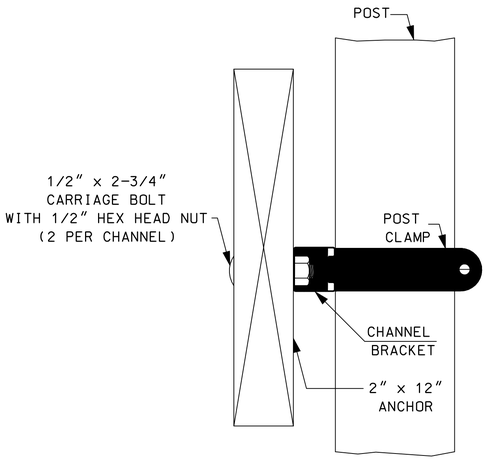


SINGLE POST



DOUBLE POST

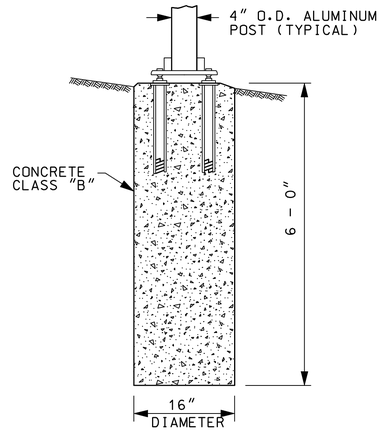
STIFFENER DETAILS



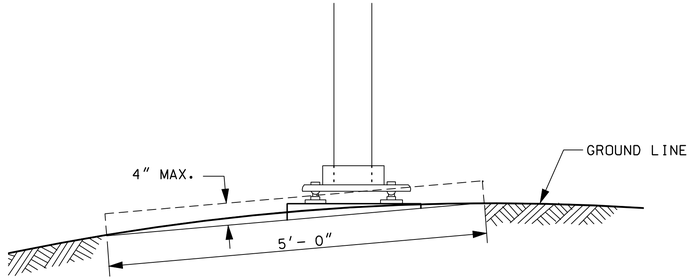
ANCHOR DETAIL

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



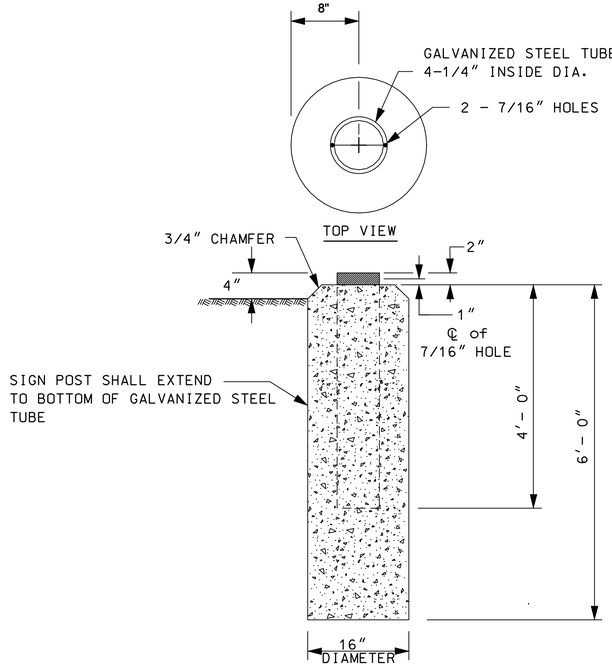
MAXIMUM BREAKAWAY STUB HEIGHT

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

1. MULTIPLE POST SIGNS MUST BE PROTECTED BY GUARDRAIL OR OTHER POSITIVE BARRIER, UNLESS BREAKAWAY MOUNTED.
2. 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.
3. ALL HARDWARE SHALL BE STAINLESS STEEL UNLESS OTHERWISE NOTED.

CONCRETE BASE



SIDE VIEW

CONCRETE BASE NOTES:

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

STANDARD NO. PS-4

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

*.DGN FILE NAME
PS-4

2021

STANDARD PLANS

April

New Hampshire DOT Department of Transportation

SIGNING STANDARD

ALUMINUM TUBING DETAILS

STANDARD NO. PS-4

PROCEDURE FOR SELECTING BEAM SECTIONS

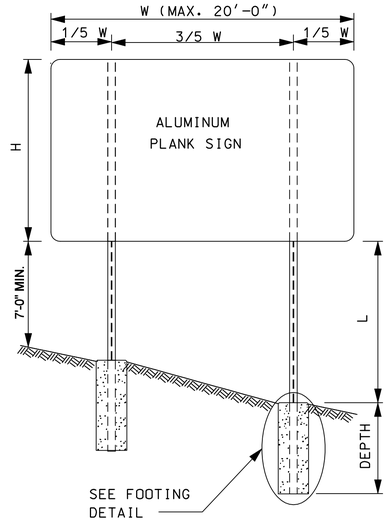
- DETERMINE VALUES FOR W, H, & L AS INDICATED IN DRAWING
  W = MAXIMUM WIDTH OF REQUIRED SIGN
  H = MAXIMUM HEIGHT OF REQUIRED SIGN INCLUDING AUXILIARY SIGNS AND SERVICE SYMBOLS.
  L = MAXIMUM DISTANCE BETWEEN TOP OF FOOTING AND BOTTOM OF REQUIRED SIGN.
  (SEE GENERAL NOTE NO. 4)

- FOR SIGN SIZES BETWEEN THOSE VALUES IN THE TABLE, USE NEXT HIGHEST FOOT VALUE.

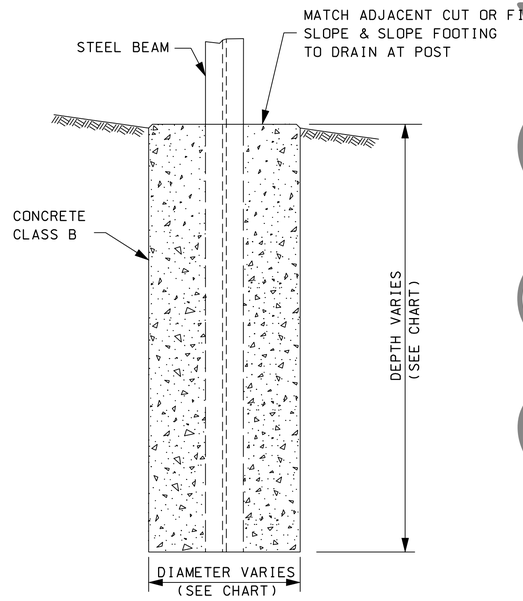
- ENTER TABLE WITH MAXIMUM VALUE OF "L" AND REQUIRED VALUES OF "W" AND "H" FOR SELECTION OF APPROPRIATE BEAM SELECTION.

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	W8x18	W8x18
8'	8'	S4x7.7	S4x7.7	W6x9	W6x9	W6x9	W6x12	W6x12	W6x15	W6x15	W6x15	W8x18	W8x18
	10'	S4x7.7	W6x9	W6x9	W6x9	W6x12	W6x12	W6x15	W6x15	W6x15	W8x18	W8x18	W8x18
	12'	S4x7.7	W6x9	W6x9	W6x12	W6x12	W6x15	W6x15	W6x15	W8x18	W8x18	W8x18	W8x18
10'	8'	S4x7.7	W6x9	W6x9	W6x12	W6x12	W6x15	W6x15	W6x15	W8x18	W8x18	W8x18	W8x18
	10'	W6x9	W6x9	W6x12	W6x12	W6x15	W6x15	W6x15	W8x18	W8x18	W8x18	W8x18	W8x18
	12'	W6x9	W6x9	W6x12	W6x12	W6x15	W6x15	W8x18	W8x18	W8x18	W8x18	W8x18	W8x18
	14'	W6x9	W6x12	W6x12	W6x15	W6x15	W8x18	W8x18	W8x18	W8x18	W8x18	W8x18	W8x21
	16'	W6x9	W6x12	W6x15	W6x15	W8x18	W8x18	W8x18	W8x18	W8x18	W8x18	W8x21	W8x21
12'	8'	W6x9	W6x9	W6x12	W6x12	W6x15	W6x15	W8x18	W8x18	W8x18	W8x18	W8x18	W8x18
	10'	W6x9	W6x9	W6x12	W6x15	W6x15	W8x18	W8x18	W8x18	W8x18	W8x18	W8x18	W8x21
	12'	W6x9	W6x12	W6x15	W6x15	W8x18	W8x18	W8x18	W8x18	W8x18	W8x18	W8x21	W8x21
	14'	W6x12	W6x12	W6x15	W6x15	W8x18	W8x18	W8x18	W8x18	W8x18	W8x21	W8x21	W10x22
	16'	W6x12	W6x15	W6x15	W8x18	W8x18	W8x18	W8x18	W8x18	W8x21	W8x21	W10x22	W10x22
14'	8'	W6x12	W6x15	W6x15	W8x18	W8x18	W8x18	W8x18	W8x18	W8x18	W8x21	W8x21	W10x22
	10'	W6x12	W6x15	W6x15	W8x18	W8x18	W8x18	W8x18	W8x18	W8x21	W8x21	W10x22	W10x22
	12'	W6x15	W6x15	W8x18	W8x18	W8x18	W8x18	W8x18	W8x21	W8x21	W10x22	W10x22	W10x26
	14'	W6x15	W8x18	W8x18	W8x18	W8x18	W8x18	W8x21	W8x21	W10x22	W10x22	W10x26	W10x26
	16'	W6x15	W8x18	W8x18	W8x18	W8x18	W8x21	W8x21	W10x22	W10x22	W10x26	W10x26	W10x26
16'	8'	W6x12	W6x15	W6x15	W8x18	W8x18	W8x18	W8x18	W8x18	W8x21	W8x21	W10x22	W10x22
	10'	W6x15	W6x15	W8x18	W8x18	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x22	W10x26
	12'	W6x15	W8x18	W8x18	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x22	W10x26	W10x26
	14'	W6x15	W8x18	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x22	W10x26	W10x26	W12x26
	16'	W8x18	W8x18	W8x18	W8x18	W8x21	W8x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26
	18'	W8x18	W8x18	W8x18	W8x21	W8x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26	W12x26
18'	8'	W6x12	W6x15	W8x18	W8x18	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x22	W10x26
	10'	W6x15	W6x15	W8x18	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x22	W10x26	W10x26
	12'	W6x15	W8x18	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x22	W10x26	W10x26	W12x26
	14'	W8x18	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26
	16'	W8x18	W8x18	W8x18	W8x21	W8x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26	W12x26
	18'	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26	W12x26	–
20'	8'	W6x15	W6x15	W8x18	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x22	W10x26	W10x26
	10'	W6x15	W8x18	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x26	W10x26	W10x26	W12x26
	12'	W8x18	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26	W12x26
	14'	W8x18	W8x18	W8x18	W8x21	W8x21	W10x22	W10x26	W10x26	W12x26	W12x26	W12x26	–
	16'	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26	–	–
	18'	W8x18	W8x18	W8x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26	W12x26	–	–
	20'	W8x18	W8x18	W8x21	W10x22	W10x26	W10x26	W12x26	W12x26	W12x26	–	–	–



POST SPACING DETAIL



FOOTING DETAIL

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	FOOTING	
SIZE	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"

STANDARD NO. PS-5

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

*.DGN FILE NAME
PS-5

2021

APPROVED

STANDARD PLANS

New Hampshire DOT Department of Transportation

SIGNING STANDARD

STEEL BEAM DETAILS
NON-BREAKAWAY

STANDARD NO. PS-5

PROCEDURE FOR SELECTING BEAM SECTIONS

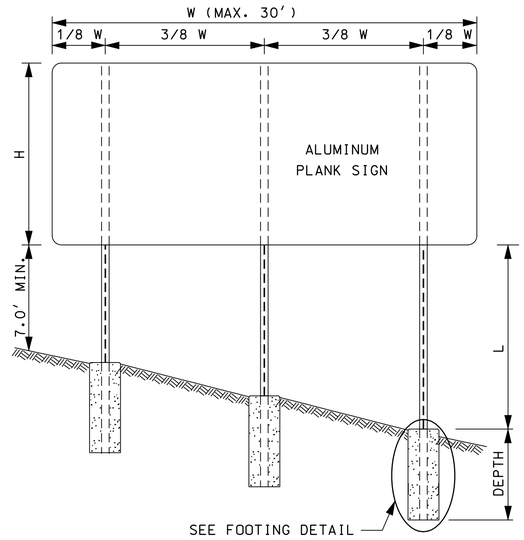
- DETERMINE VALUES FOR W, H, & L AS INDICATED IN DRAWING
  W = MAXIMUM WIDTH OF REQUIRED SIGN
  H = MAXIMUM HEIGHT OF REQUIRED SIGN INCLUDING AUXILIARY SIGNS AND SERVICE SYMBOLS.
  L = MAXIMUM DISTANCE BETWEEN TOP OF FOOTING AND BOTTOM OF REQUIRED SIGN.
  (SEE GENERAL NOTE NO. 4)

- FOR SIGN SIZES BETWEEN THOSE VALUES IN THE TABLE, USE NEXT HIGHEST FOOT VALUE.

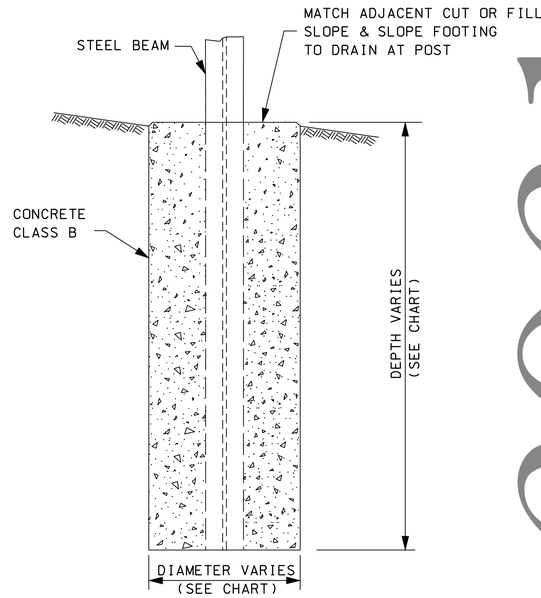
- ENTER TABLE WITH MAXIMUM VALUE OF "L" AND REQUIRED VALUES OF "W" AND "H" FOR SELECTION OF APPROPRIATE BEAM SELECTION.

3 POST SIGN

W	L	H											
		4′	5′	6′	7′	8′	9′	10′	11′	12′	13′	14′	15′
22′	8′	W6x12	W6x12	W6x15	W6x15	W8x18	W8x18	W8x18	W8x18	W8x18	W8x21	W8x21	W10x22
	10′	W6x12	W6x15	W6x15	W8x18	W8x18	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x22
	12′	W6x12	W6x15	W8x18	W8x18	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x22	W10x26
	14′	W6x15	W8x18	W8x18	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x22	W10x26	W10x26
	16′	W6x15	W8x18	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x22	W10x26	W10x26	W12x26
	18′	W6x15	W8x18	W8x18	W8x18	W8x21	W8x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26
	20′	W8x18	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26	W12x26
	22′	W8x18	W8x18	W8x18	W8x21	W8x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26	W12x26
24′	8′	W6x12	W6x12	W6x15	W8x18	W8x18	W8x18	W8x18	W8x18	W8x21	W8x21	W10x22	W10x22
	10′	W6x12	W6x15	W8x18	W8x18	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x22	W10x26
	12′	W6x15	W6x15	W8x18	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x22	W10x26	W10x26
	14′	W6x15	W8x18	W8x18	W8x18	W8x18	W8x21	W8x21	W10x22	W10x22	W10x26	W10x26	W12x26
	16′	W6x15	W8x18	W8x18	W8x18	W8x21	W8x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26
	18′	W8x18	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26	W12x26
	20′	W8x18	W8x18	W8x18	W8x21	W8x21	W10x22	W10x26	W10x26	W12x26	W12x26	W12x26	–
	22′	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26	W12x26	–
26′	8′	W6x12	W6x15	W6x15	W8x18	W8x18	W8x18	W8x18	W8x21	W8x21	W10x22	W10x22	W10x26
	10′	W6x12	W6x15	W8x18	W8x18	W8x18	W8x18	W8x21	W8x21	W10x22	W10x22	W10x26	W10x26
	12′	W6x15	W8x18	W8x18	W8x18	W8x18	W8x21	W8x21	W10x22	W10x22	W10x26	W10x26	W12x26
	14′	W6x15	W8x18	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26
	16′	W8x18	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26	W12x26
	18′	W8x18	W8x18	W8x18	W8x21	W8x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26	–
	20′	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26	–	–
	22′	W8x18	W8x18	W8x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26	W12x26	–	–
	24′	W8x18	W8x18	W8x21	W10x22	W10x22	W10x26	W12x26	W12x26	W12x26	–	–	–
28′	8′	W6x12	W6x15	W8x18	W8x18	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x26	W10x26
	10′	W6x15	W6x15	W8x18	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x26	W10x26	W12x26
	12′	W6x15	W8x18	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26
	14′	W6x15	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26	W12x26
	16′	W8x18	W8x18	W8x18	W8x21	W8x21	W10x22	W10x22	W10x26	W12x26	W12x26	W12x26	–
	18′	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26	–	–
	20′	W8x18	W8x18	W8x21	W8x21	W10x22	W10x26	W10x26	W12x26	W12x26	–	–	–
	22′	W8x18	W8x18	W8x21	W10x22	W10x22	W10x26	W12x26	W12x26	W12x26	–	–	–
	24′	W8x18	W8x18	W8x21	W10x22	W10x26	W10x26	W12x26	W12x26	–	–	–	–
30′	8′	W6x12	W6x15	W8x18	W8x18	W8x18	W8x18	W8x21	W8x21	W10x22	W10x22	W10x26	W10x26
	10′	W6x15	W8x18	W8x18	W8x18	W8x18	W8x21	W8x21	W10x22	W10x22	W10x26	W10x26	W12x26
	12′	W6x15	W8x18	W8x18	W8x18	W8x21	W8x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26
	14′	W8x18	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26	–
	16′	W8x18	W8x18	W8x18	W8x21	W10x22	W10x22	W10x26	W10x26	W12x26	W12x26	–	–
	18′	W8x18	W8x18	W8x21	W8x21	W10x22	W10x26	W10x26	W12x26	W12x26	W12x26	–	–
	20′	W8x18	W8x18	W8x21	W10x22	W10x22	W10x26	W12x26	W12x26	W12x26	–	–	–
	22′	W8x18	W8x18	W8x21	W10x22	W10x26	W10x26	W12x26	W12x26	–	–	–	–
	24′	W8x18	W8x21	W10x22	W10x22	W10x26	W12x26	W12x26	–	–	–	–	–



POST SPACING DETAIL



FOOTING DETAIL

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	FOOTING 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"

STANDARD NO. PS-6

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

*.DGN FILE NAME
PS-6

2021 STANDARD PLANS

April 1

New Hampshire DOT Department of Transportation

SIGNING STANDARD

STEEL BEAM DETAILS
NON-BREAKAWAY

STANDARD NO. PS-6

PROCEDURE FOR SELECTING BEAM SECTIONS

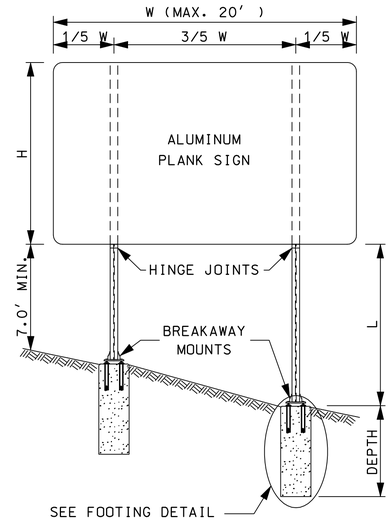
- DETERMINE VALUES FOR W, H, & L AS INDICATED IN DRAWING
  W = MAXIMUM WIDTH OF REQUIRED SIGN
  H = MAXIMUM HEIGHT OF REQUIRED SIGN INCLUDING AUXILIARY SIGNS AND SERVICE SYMBOLS.
  L = MAXIMUM DISTANCE BETWEEN TOP OF FOOTING AND BOTTOM OF REQUIRED SIGN.
  (SEE GENERAL NOTE NO. 4)

- FOR SIGN SIZES BETWEEN THOSE VALUES IN THE TABLE, USE NEXT HIGHEST FOOT VALUE.

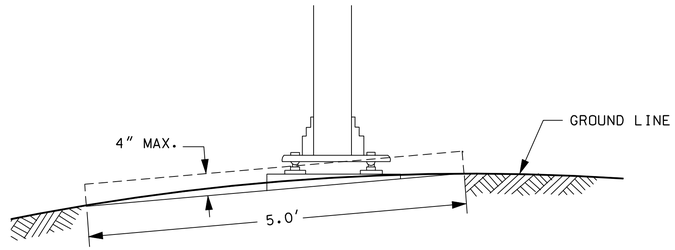
- ENTER TABLE WITH MAXIMUM VALUE OF "L" AND REQUIRED VALUES OF "W" AND "H" FOR SELECTION OF APPROPRIATE BEAM SELECTION.

2 POST SIGN

W	L	H											
		4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'	15'
6'	8'	W6x9	W6x9	W6x9	W6x9	W6x9	W6x9	W6x9	W6x9	W6x12	W6x12	W8x18	W8x18
	10'	W6x9	W6x9	W6x9	W6x9	W6x12	W6x12	W6x12	W6x15	W6x15	W8x18	W8x18	W8x18
	12'	W6x9	W6x12	W6x12	W6x12	W6x15	W6x15	W6x15	W6x15	W6x18	W8x18	W8x18	W8x18
	14'	W6x12	W6x12	W6x12	W6x15	W6x15	W6x15	W6x15	W8x18	W8x18	W8x18	W8x18	W8x21
	16'	W6x12	W6x15	W6x15	W6x15	W6x15	W6x15	W8x18	W8x18	W8x18	W8x21	W8x21	W8x21
8'	8'	W6x9	W6x9	W6x9	W6x9	W6x9	W6x9	W6x12	W6x12	W6x12	W6x15	W8x18	W8x18
	10'	W6x9	W6x9	W6x12	W6x12	W6x12	W6x12	W6x15	W8x18	W8x18	W8x18	W8x18	W8x18
	12'	W6x12	W6x12	W6x15	W6x15	W6x15	W6x15	W8x18	W8x18	W8x18	W8x18	W8x18	W8x21
	14'	W6x12	W6x15	W6x15	W6x15	W6x15	W8x18	W8x18	W8x18	W8x18	W8x21	W8x21	W8x21
	16'	W6x15	W6x15	W6x15	W8x18	W8x18	W8x18	W8x21	W8x21	W8x21	W8x21	W10x26	W10x26
10'	8'	W6x9	W6x9	W6x9	W6x9	W6x12	W6x12	W6x12	W6x15	W8x18	W8x18	W8x18	W10x22
	10'	W6x9	W6x12	W6x12	W6x12	W6x15	W6x15	W8x18	W8x18	W8x18	W8x18	W8x18	W10x22
	12'	W6x12	W6x12	W6x15	W6x15	W8x18	W8x18	W8x18	W8x18	W8x18	W8x21	W8x21	W10x22
	14'	W6x15	W6x15	W6x15	W8x18	W8x18	W8x18	W8x21	W8x21	W8x21	W8x21	W10x26	W10x26
	16'	W6x15	W6x15	W8x18	W8x18	W8x21	W8x21	W8x21	W8x21	W10x26	W10x26	W10x26	W10x26
12'	8'	W6x9	W6x9	W6x9	W6x12	W6x12	W6x15	W8x18	W8x18	W8x18	W8x18	W10x22	W12x26
	10'	W6x9	W6x12	W6x12	W6x15	W6x15	W8x18	W8x18	W8x18	W8x18	W10x22	W10x22	W12x26
	12'	W6x12	W6x12	W6x15	W8x18	W8x18	W8x18	W8x18	W8x21	W8x21	W10x22	W10x22	W12x26
	14'	W6x15	W6x15	W8x18	W8x18	W8x18	W8x21	W8x21	W10x22	W10x26	W10x26	W10x26	W12x26
	16'	W6x15	W8x18	W8x18	W8x21	W8x21	W8x21	W10x26	W10x26	W10x26	W10x26	W12x26	W12x26
14'	8'	W6x9	W6x9	W6x12	W6x12	W6x15	W8x18	W8x18	W8x18	W8x18	W8x21	W12x26	W14x30
	10'	W6x12	W6x12	W6x15	W6x15	W8x18	W8x18	W8x18	W8x18	W10x22	W12x26	W12x26	W14x30
	12'	W6x12	W6x15	W8x18	W8x18	W8x18	W8x21	W8x21	W8x21	W10x22	W12x26	W12x26	W14x30
	14'	W6x15	W6x15	W8x18	W8x18	W8x21	W8x21	W10x22	W10x26	W10x26	W12x26	W12x26	W14x30
	16'	W6x15	W8x18	W8x21	W8x21	W10x22	W10x26	W10x26	W10x26	W12x26	W14x30	–	–
16'	8'	W6x9	W6x9	W6x12	W6x12	W8x18	W8x18	W8x18	W8x18	W8x18	W10x22	W14x30	–
	10'	W6x12	W6x12	W6x15	W8x18	W8x18	W8x18	W8x18	W10x22	W10x26	W12x26	W14x30	–
	12'	W6x15	W6x15	W8x18	W8x18	W8x21	W8x21	W8x21	W10x26	W10x26	W12x26	W14x30	–
	14'	W6x15	W8x18	W8x18	W8x21	W8x21	W10x26	W10x26	W10x26	W10x26	W12x26	W14x30	–
	16'	W8x18	W8x18	W8x21	W8x21	W10x26	W10x26	W10x26	W12x26	–	–	–	–
18'	8'	W6x9	W6x12	W6x12	W6x15	W8x18	W8x18	W8x18	W8x18	W10x22	W12x26	–	–
	10'	W6x12	W6x15	W6x15	W8x18	W8x18	W8x18	W8x21	W10x22	W12x26	W14x30	–	–
	12'	W6x15	W6x15	W8x18	W8x18	W8x21	W8x21	W10x26	W10x26	W12x26	W14x30	–	–
	14'	W6x15	W8x18	W8x21	W8x21	W10x22	W10x26	W10x26	W10x26	W12x26	–	–	–
	16'	W8x18	W8x21	W8x21	W10x26	W10x26	W10x26	W12x26	–	–	–	–	–
20'	8'	W6x9	W6x12	W6x15	W8x18	W8x18	W8x18	W8x18	W10x22	W10x26	W12x26	–	–
	10'	W6x12	W6x15	W8x18	W8x18	W8x18	W8x18	W10x22	W12x26	W14x30	–	–	–
	12'	W6x15	W6x15	W8x18	W8x21	W8x21	W10x22	W10x26	W12x26	W14x30	–	–	–
	14'	W8x18	W8x18	W8x21	W8x21	W10x26	W10x26	W10x26	W12x26	–	–	–	–
	16'	W8x18	W8x21	W10x26	W10x26	W10x26	W12x26	–	–	–	–	–	–



POST SPACING DETAIL

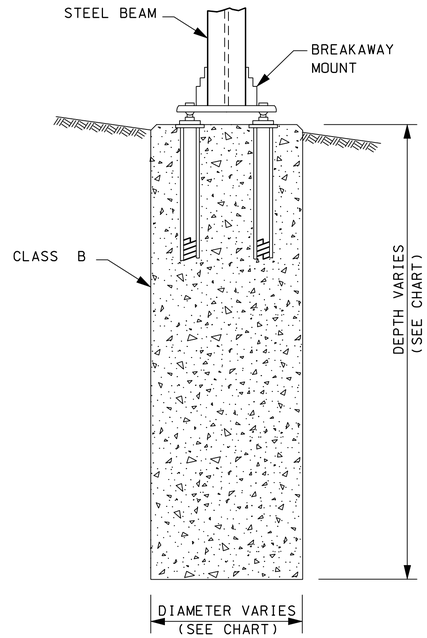


MAXIMUM BREAKAWAY STUB HEIGHT

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

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.



FOOTING DETAIL

POST	FOOTING	
SIZE	DEPTH	DIAMETER
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"
W14x30	9'	36"

SIGNING STANDARD

STEEL BEAM DETAILS
BREAKAWAY

STANDARD NO. PS-7

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

*.DGN FILE NAME
PS-7

2021 STANDARD PLANS

April

New Hampshire DOT Department of Transportation

STANDARD NO. PS-7

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
  L = MAXIMUM DISTANCE BETWEEN TOP OF FOOTING AND BOTTOM OF REQUIRED SIGN.

- FOR SIGN SIZES BETWEEN THOSE VALUES IN THE TABLE, USE NEXT HIGHEST

- ENTER TABLE WITH MAXIMUM VALUE OF "L" AND REQUIRED VALUES OF "W" AND "H" FOR SELECTION OF APPROPRIATE BEAM SELECTION.

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.

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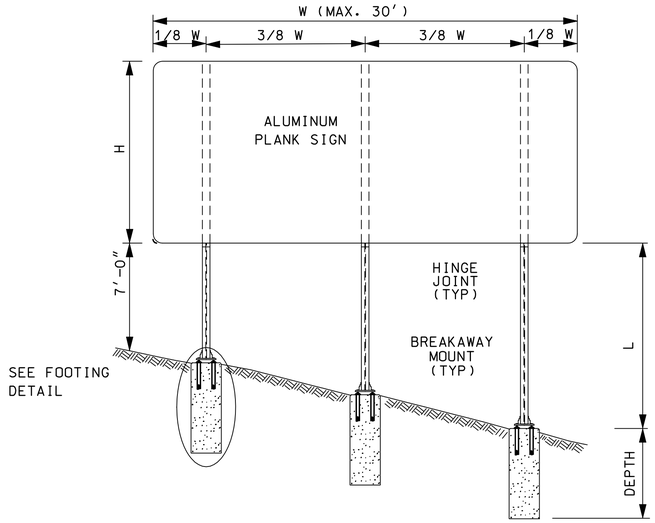
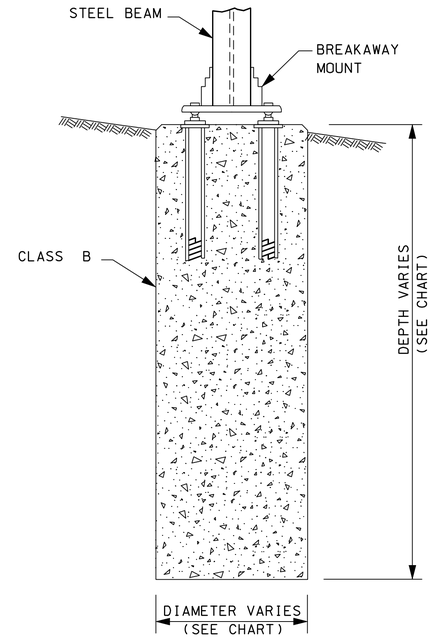
5. THE MINIMUM HORIZONTAL CLEARANCE TO THE NEAR EDGE OF THE SIGN OF ANY MULTIPLE POST NON-BREAKAWAY MOUNT SIGN SHALL BE 7'-0" MIN. FROM FACE OF BEAM GUARDRAIL. OTHER TYPES OF GUARDRAIL OR BARRIER MAY REQUIRE A DIFFERENT OFFSET.

6. SEE STANDARD NO. PS-1 & PS-2 FOR ADDITIONAL INFORMATION.



POST SPACING DETAIL



FOOTING DETAIL

3 POST SIGN

W	L	H											
		4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'	15'
22'	8'	W6x9	W6x9	W6x12	W6x12	W6x15	W8x18	W8x18	W8x18	W8x18	W10x22	W14x30	–
	10'	W6x12	W6x12	W6x15	W6x15	W8x18	W8x18	W8x18	W8x21	W10x22	W12x26	W14x30	–
	12'	W6x12	W6x15	W8x18	W8x18	W8x18	W8x21	W8x21	W8x21	W10x26	W12x26	W14x30	–
	14'	W6x15	W8x18	W8x18	W8x21	W8x21	W8x21	W10x26	W10x26	W10x26	W12x26	W14x30	–
	16'	W8x18	W8x18	W8x21	W8x21	W10x26	W10x26	W10x26	W12x26	W12x26	–	–	–
24'	8'	W6x9	W6x9	W6x12	W6x12	W8x18	W8x18	W8x18	W8x18	W8x21	W10x22	W14x30	–
	10'	W6x12	W6x12	W6x15	W8x18	W8x18	W8x18	W8x18	W10x22	W10x26	W12x26	W14x30	–
	12'	W6x15	W6x15	W8x18	W8x18	W8x21	W8x21	W8x21	W10x26	W10x26	W12x26	W14x30	–
	14'	W6x15	W8x18	W8x18	W8x21	W8x21	W10x26	W10x26	W10x26	W10x26	W12x26	W14x30	–
	16'	W8x18	W8x18	W8x21	W8x21	W10x26	W10x26	W10x26	W12x26	–	–	–	–
26'	8'	W6x9	W6x12	W6x12	W6x12	W8x18	W8x18	W8x18	W8x18	W10x22	W12x26	–	–
	10'	W6x12	W6x15	W6x15	W8x18	W8x18	W8x18	W8x21	W10x22	W12x26	W14x30	–	–
	12'	W6x15	W6x15	W8x18	W8x18	W8x21	W8x21	W8x21	W10x26	W12x26	W14x30	–	–
	14'	W6x15	W8x21	W8x21	W8x21	W8x21	W10x26	W10x26	W10x26	W12x26	W14x30	–	–
	16'	W8x18	W8x21	W8x21	W10x26	W10x26	W10x26	W12x26	W14x30	–	–	–	–
28'	8'	W6x9	W6x12	W6x12	W8x18	W8x18	W8x18	W8x18	W8x18	W10x22	W12x26	–	–
	10'	W6x12	W6x15	W8x18	W8x18	W8x18	W8x18	W10x22	W10x22	W12x26	W14x30	–	–
	12'	W6x15	W6x15	W8x18	W8x18	W8x21	W8x21	W10x26	W10x26	W12x26	W14x30	–	–
	14'	W8x18	W8x18	W8x21	W10x26	W10x26	W10x26	W10x26	W12x26	W12x26	–	–	–
	16'	W8x18	W8x21	W8x21	W10x26	W10x26	W10x26	W12x26	–	–	–	–	–
30'	8'	W6x9	W6x12	W6x15	W8x18	W8x18	W8x18	W8x18	W10x22	W10x26	W12x26	–	–
	10'	W6x12	W6x15	W8x18	W8x18	W8x18	W8x18	W10x22	W12x26	W14x30	–	–	–
	12'	W6x15	W8x18	W8x18	W8x21	W8x21	W10x22	W10x26	W12x26	W14x30	–	–	–
	14'	W8x18	W8x18	W8x21	W8x21	W10x26	W10x26	W10x26	W12x26	–	–	–	–
	16'	W8x18	W8x21	W10x26	W10x26	W10x26	W12x26	–	–	–	–	–	–

POST	FOOTING	
SIZE	DEPTH	DIAMETER
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"
W14x30	9'	36"

STANDARD NO. PS-8

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

*.DGN FILE NAME
PS-8

April 2021

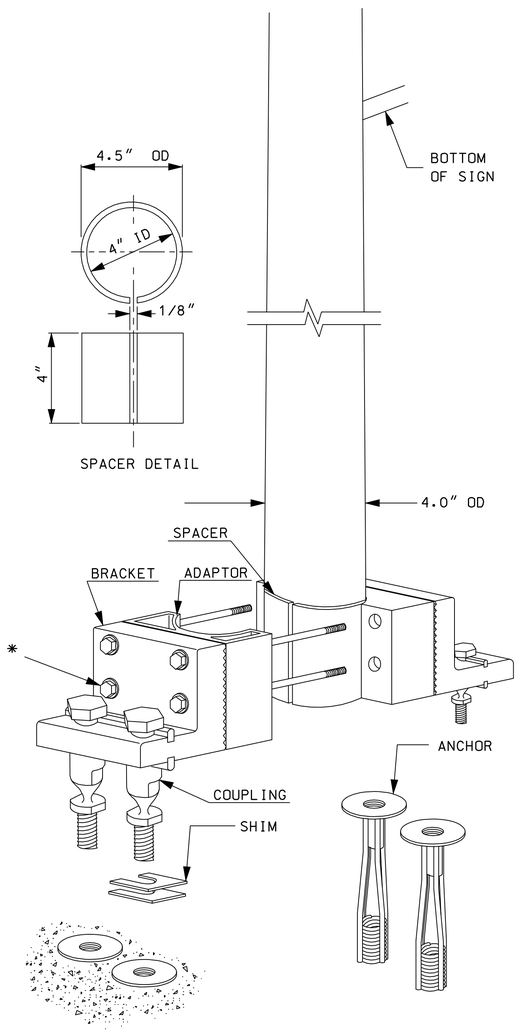
STANDARD PLANS

New Hampshire DOT Department of Transportation

SIGNING STANDARD

STEEL BEAM DETAILS
BREAKAWAY

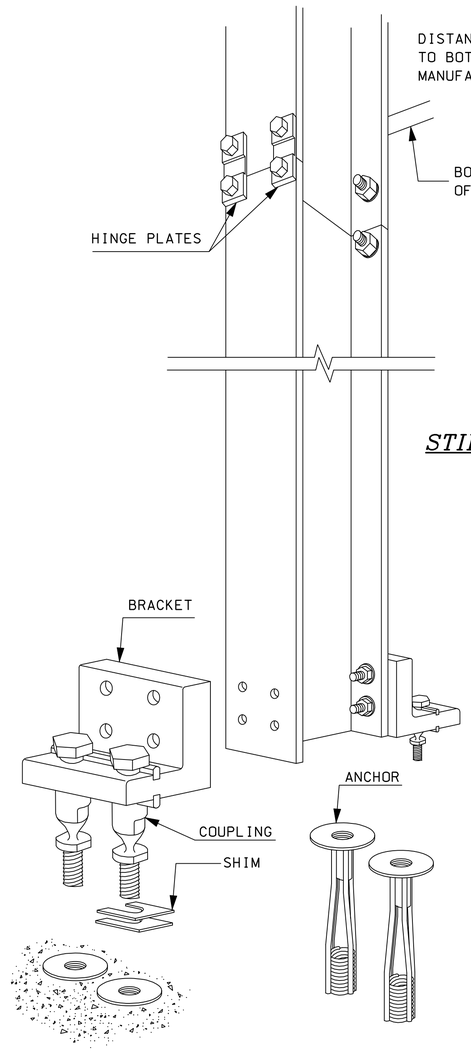
STANDARD NO. PS-8



TRANSPO TYPE APx4.5 (S/B) (OR EQUAL)

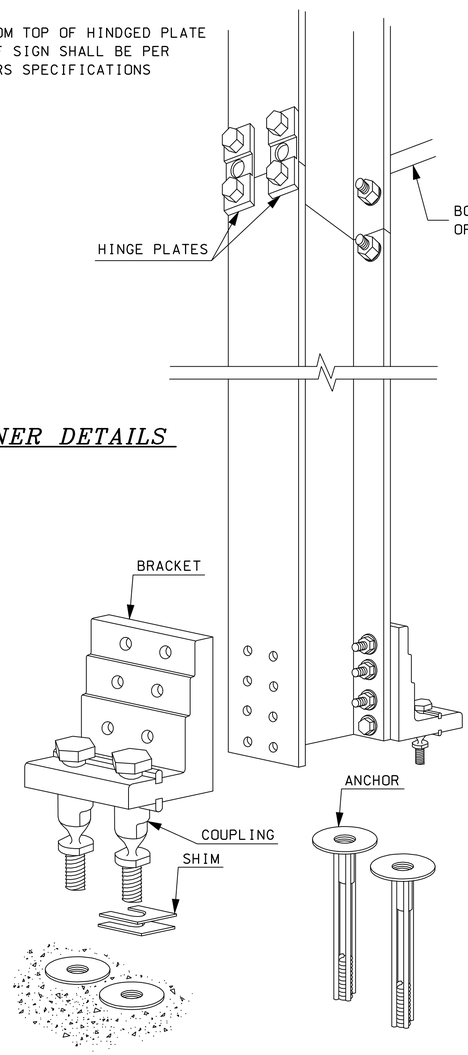
USE FOR 4 " DIAMETER ALUMINUM TUBE

* BOLT HEAD SHALL FACE TRAFFIC



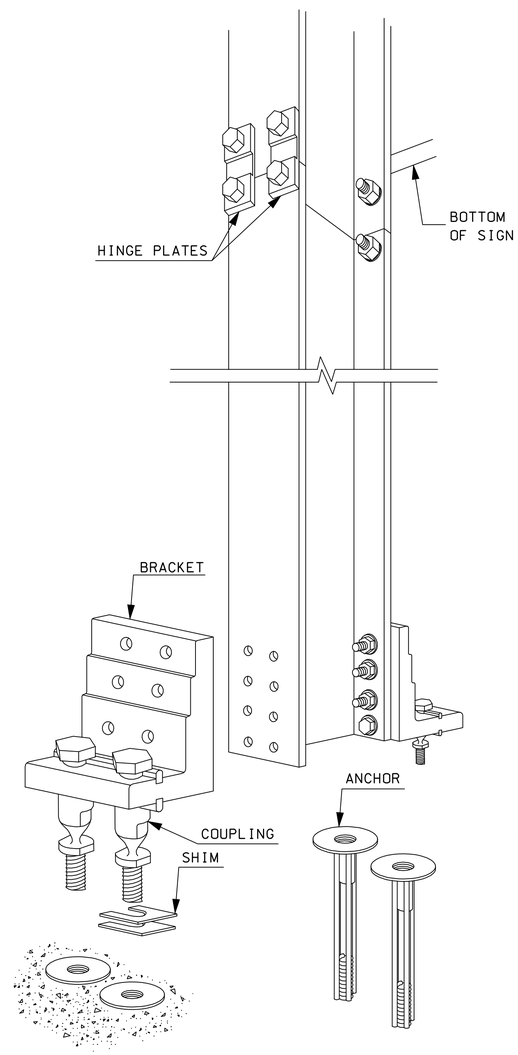
TRANSPO TYPE AI6-LP (OR EQUAL)

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

STIFFENER DETAILS

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.

STANDARD NO. PS-9

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

*.DGN FILE NAME
PS-9

2021

STANDARD PLANS

April

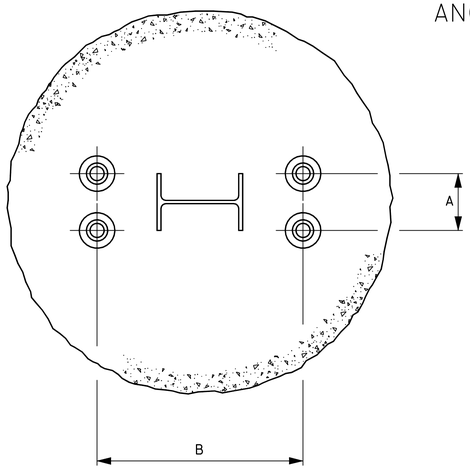
New Hampshire DOT Department of Transportation

SIGNING STANDARD

BREAKAWAY MOUNTS

STANDARD NO. PS-9

ANCHOR INSTALLATION & BRACKET SELECTION



TRAFFIC

A = LATERAL SPACING OF ANCHORS

3" FOR B-525 USED ON 6" & 8" WIDE FLANGE POSTS

4" FOR B-650 USED ON 10", 12" & 14" WIDE FLANGE POSTS

4-1/4" FOR AI6 USED ON W6x9 WIDE FLANGE POSTS

3-1/4" FOR AP x 4-1/2" USED ON 4" DIAMETER ALUMINUM TUBE.

B = LONGITUDINAL SPACING OF ANCHORS

* BRACKET #1 - DEPTH OF POST SECTION PLUS 7-15/16"

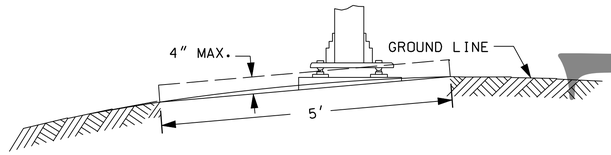
* BRACKET #2 - DEPTH OF POST SECTION PLUS 8-1/16"

* BRACKET #3 - DEPTH OF POST SECTION PLUS 8-1/8"
DEPTH OF POST SECTION PLUS 3-3/4" FOR AI6

* FOR B-525 & B-650 MOUNTS, SEE BRACKET TABLES

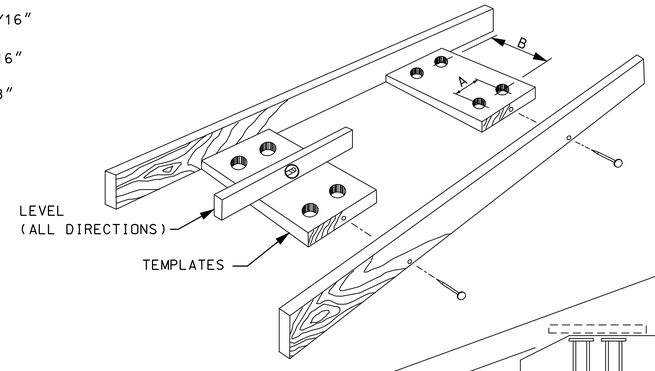
PLAN VIEW OF FOOTINGS

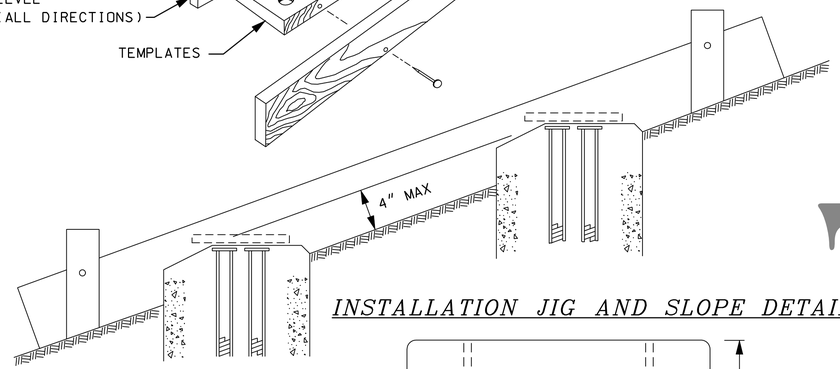
(SEE PS-3, PS-5A, OR PS-5B FOR FOOTING SIZES)



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.





INSTALLATION JIG AND SLOPE DETAIL

6" POST

POST LENGTH = L+ H(FT)

SIGN HEIGHT = H(FT)	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
3																
4																
5																
6												1				
7																
8																
9																
10							2									
11																
12																
13			3													
14																
15																

8" POST

POST LENGTH = L+ H(FT)

SIGN HEIGHT = H(FT)	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
3																
4																
5																
6													1			
7																
8																
9								2								
10																
11																
12																
13			3													
14																
15																

BRACKET TABLES FOR B-525-LP MOUNTS

10" POST

POST LENGTH = L+ H(FT)

SIGN HEIGHT = H(FT)	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
3																
4																
5														1		
6																
7																
8																
9									2							
10																
11																
12																
13			3													
14																
15																

12" POST

POST LENGTH = L+ H(FT)

SIGN HEIGHT = H(FT)	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
3																
4																
5														1		
6																
7																
8									2							
9																
10																
11																
12				3												
13																
14																
15																

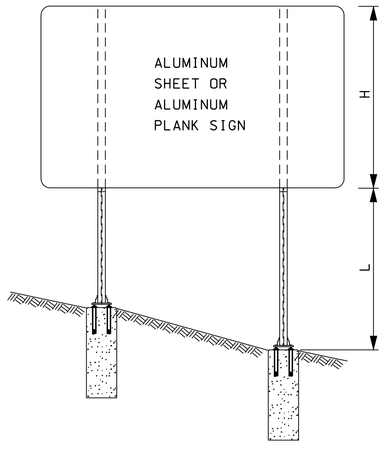
14" POST

POST LENGTH = L+ H(FT)

SIGN HEIGHT = H(FT)	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
3																
4																
5														1		
6																
7																
8											2					
9																
10																
11																
12					3											
13																
14																
15																

BRACKET TABLES FOR B-650-LP MOUNTS

SELECT CORRECT BRACKET NUMBER BY LOCATING THE INTERSECTION OF SIGN HEIGHT AND POST LENGTH IN THE BRACKET SELECTION MATRIX. THE INTERSECTION WILL BE EITHER ZONE 1, 2, OR 3 WHICH CORRESPONDS TO BRACKET NUMBERS 1, 2, OR 3.



STANDARD NO. PS-10

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

*.DGN FILE NAME
PS-10

2021 STANDARD PLANS

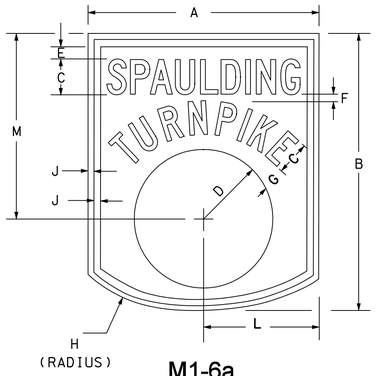
April 2021

New Hampshire DOT Department of Transportation

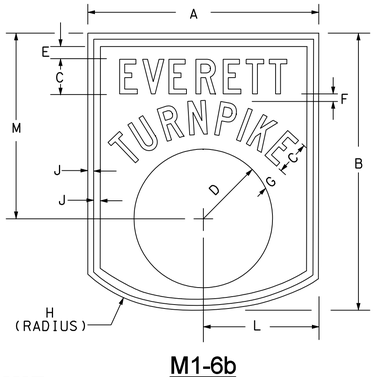
SIGNING STANDARD

BREAKAWAY MOUNTS

STANDARD NO. PS-10



M1-6a

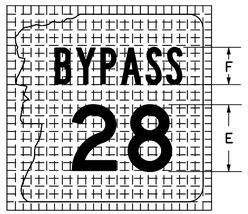


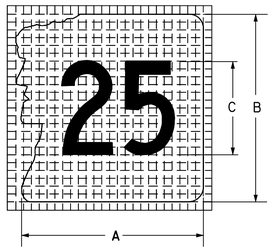
M1-6b

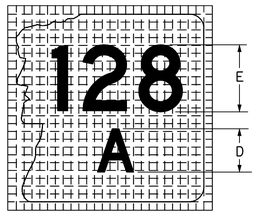
N.H. TURNPIKE ROUTE MARKERS

(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	3C	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

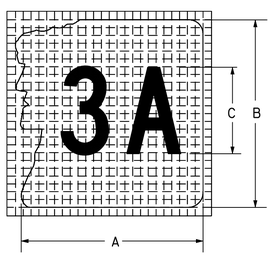






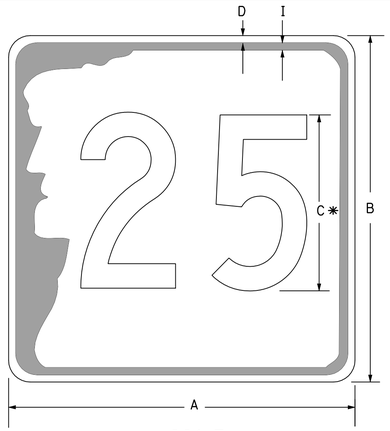
SIGN	DIMENSIONS (inches)/LETTER FONTS					
	A	B	C	D	E	F
1 DIGIT	18	18	10E	–	8D	4B
2 DIGIT	18	18	10C	4D	8D	4B
3 DIGIT	18	18	10B	4D	8B	4B
1 DIGIT	24	24	14E	–	11D	6B
2 DIGIT	24	24	14C	6D	11D	6B
3 DIGIT	24	24	12B	6D	11B	6B
1 DIGIT	36	36	18E	–	16D	8B
2 DIGIT	36	36	18C	8D	16D	8B
3 DIGIT	36	36	18B	8D	16B	8B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

NH STATE ROUTE MARKER PATTERN FOR GUIDE SIGN USE

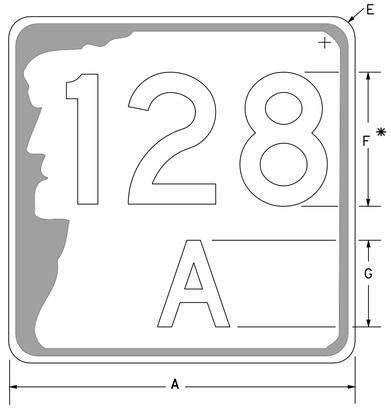


NOTES:

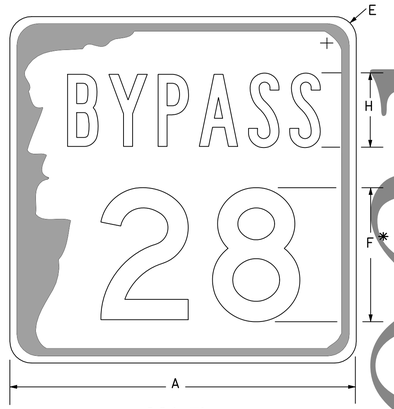
1. OPTICALLY PLACE NUMERALS WITHIN SHIELD.
2. ANY 2 DIGIT ROUTE WITH ONE OR MORE #1's IN THE COPY WILL BE A "D" SERIES.
3. ANY 3 DIGIT ROUTE WITH TWO #1's IN THE COPY WILL BE WILL BE A "C" SERIES.
4. ANY 3 DIGIT ROUTE WITH THREE #1's IN THE COPY WILL BE WILL BE A "D" SERIES.



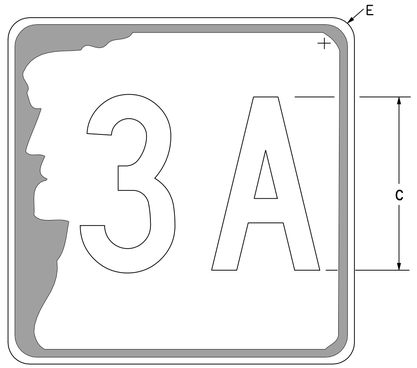
M1-5



M1-5a



M1-5b



M1-5c

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

GENERAL NOTES

1. 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.
2. SHEET ALUMINUM USED FOR DEMOUNTABLE ROUTE MARKERS SHALL CONFORM TO THE OUTLINE OF THE SHIELD.
3. 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.
4. 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.
5. INTERSTATE AND U.S. ROUTE MARKERS SHALL CONFORM TO THE MUTCD AND STANDARD HIGHWAY SIGNS MANUAL.
6. DIMENSIONS OF ROUTE MARKERS NOT SHOWN ON THIS SHEET SHALL BE DIRECTLY PROPORTIONAL TO THOSE SHOWN.

SIGNING STANDARD

ROUTE MARKER DETAILS

STANDARD NO. SG-1

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

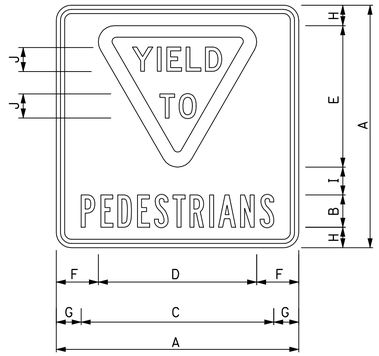
*.DGN FILE NAME
SG-1

April 2021

STANDARD PLANS

New Hampshire DOT Department of Transportation

STANDARD NO. SG-1



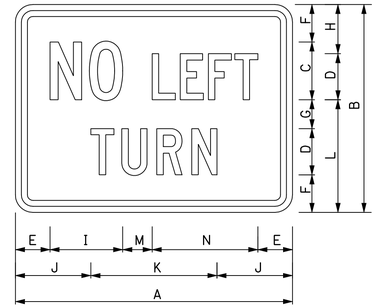
1.88" RADIUS, 0.50" BORDER, 0.50" INDENT
BLACK ON WHITE,
"YIELD", "TO" & SHIELD BORDER ARE RED.

R1-2B1

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

REGULATORY SIGN

NHDOT STANDARD PLANS	REV. DATE	PLATE
YIELD TO PEDESTRAINS	07-13-2001	1
	02-26-2010	STANDARD SG-2



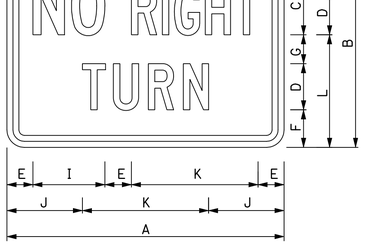
1.50" RADIUS, 0.50" BORDER, 0.50" INDENT
BLACK ON WHITE

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 1/4	2 1/2	4 1/4	6 1/4	6 1/2	11	9 3/4	2 5/8	9 1/8

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

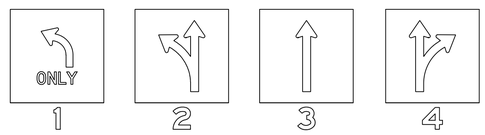
R3-3RB1

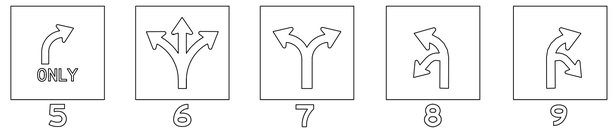
DIMENSIONS (inches)/LETTER FONTS											
A	B	C	D	E	F	G	H	I	J	K	L
24	18	5C	4C	2 1/4	3 1/4	2 1/2	4 1/4	6 1/4	6 1/2	11	9 3/4

REGULATORY SIGN

NHDOT STANDARD PLANS	REV. DATE	PLATE
NO RIGHT TURN	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	REV. DATE	PLATE
LANE USE CONTROL SIGNS	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

2021

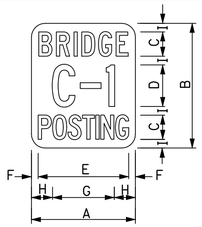
April

STANDARD PLANS

New Hampshire DOT Department of Transportation

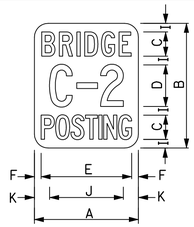
SIGNING STANDARD

STANDARD NO. SG-2



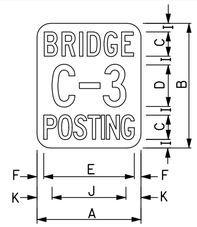
R4-5cB1

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

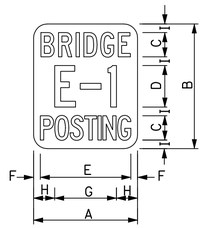


R4-5B1

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

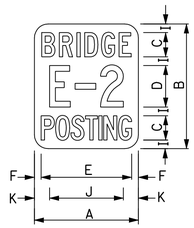
DIMENSIONS (inches)/LETTER FONTS						
A	B	C	D	E	F	G
15	18	3½C	6C	13	1	9

DIMENSIONS (inches)/ LETTER FONTS			
H	I	J	K
3	1¼	10⅝	2³⁄₁₆



R4-5dB1

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

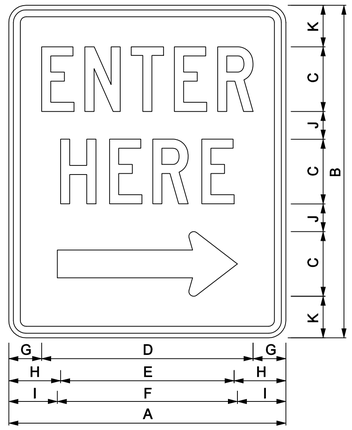


R4-5eB1

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

REGULATORY SIGN

NHDOT STANDARD PLANS	REV. DATE		PLATE
BRIDGE RESTRICTIONS	07-13-2001		1
	02-26-2010		STANDARD
			SG-3



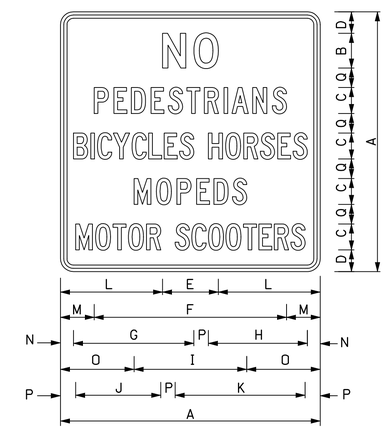
DIMENSIONS (inches)/LETTER FONTS										
A	B	C	D	E	F	G	H	I	J	K
30	36	7C	23	18¾	19½	3½	5⅝	5¼	3	4½

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

R4-7B1

REGULATORY SIGN

NHDOT STANDARD PLANS	REV. DATE		PLATE
ENTER HERE	07-13-2001		2
	02-26-2010		STANDARD
			SG-3



DIMENSIONS (inches)/LETTER FONTS										
A	B	C	D	E	F	G	H	I	J	K
30	4D	3C	2½	6⅜	22¼	13⅞	11⅜	13	9¾	15

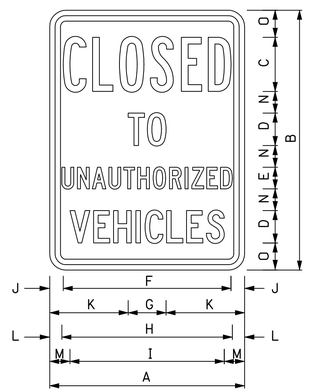
DIMENSIONS (inches)/LETTER FONTS					
L	M	N	O	P	Q
11¾	3⅞	1½	8½	1¾	2¼

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

R5-10a(M)

REGULATORY SIGN

NHDOT STANDARD PLANS	REV. DATE		PLATE
NO PEDESTRIANS	07-13-2001		3
	02-26-2010		STANDARD
			SG-3



DIMENSIONS (inches)/LETTER FONTS										
A	B	C	D	E	F	G	H	I	J	K
18	24	5B	3C	2C	15½	3½	15¾	14¼	1¼	7¼

DIMENSIONS (inches)/ LETTER FONTS			
L	M	N	O
1⅛	1⅞	2	2½

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

R5-10B1

REGULATORY SIGN

NHDOT STANDARD PLANS	REV. DATE		PLATE
CLOSED TO UNAUTHORIZED VEHICLES	07-13-2001		4
	02-26-2010		STANDARD
			SG-3

STANDARD NO. SG-3

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

*.DGN FILE NAME
SG-3

2021

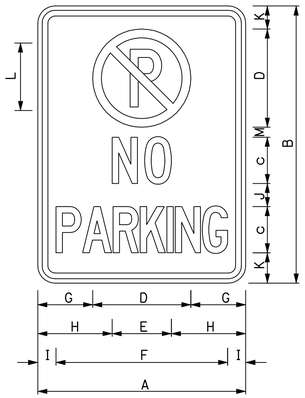
STANDARD PLANS

April

SIGNING STANDARD

New Hampshire DOT Department of Transportation

STANDARD NO. SG-3



1.50" RADIUS, 0.50" BORDER, 0.38" INDENT,
SEE COLOR CHART

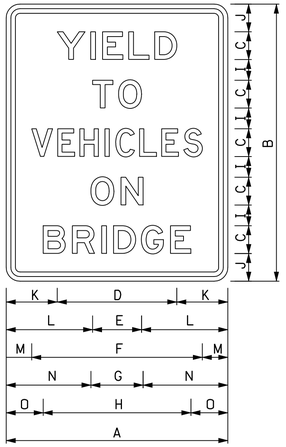
R7-2B1

COLOR CHART	
BORDER	RED
P	BLACK
	RED
NO PARKING	RED
BACKGROUND	WHITE

DIMENSIONS (inches)/LETTER FONTS												
A	B	C	D	E	F	G	H	I	J	K	L	M
18	24	3B	10	5	14 3/4	4	6 1/2	1 5/8	2 3/8	2 1/4	6EM	2

REGULATORY SIGN

NHDOT STANDARD PLANS	REV. DATE		PLATE
NO PARKING	07-13-2001		1
	02-26-2010		STANDARD
			SG-4



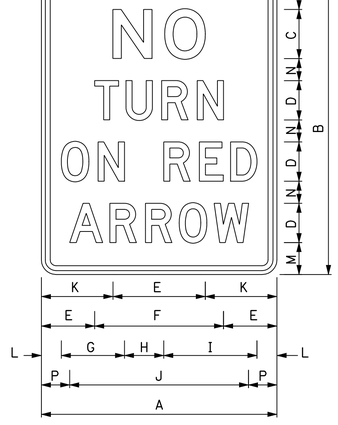
DIMENSIONS (inches)/LETTER FONTS														
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
24	30	3E	13	5 1/4	18 1/2	5 3/4	16	2 1/4	3	5 1/2	9 3/8	2 3/4	9 1/8	4

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

R10-9

REGULATORY SIGN

NHDOT STANDARD PLANS	REV. DATE		PLATE
YIELD TO VEHICLES ON BRIDGE	07-13-2001		2
	02-26-2010		STANDARD
			SG-4



DIMENSIONS (inches)/LETTER FONTS									
A	B	C	D	E	F	G	H	I	J
24	30	5E	4D	9 1/2	13 1/4	6 1/2	4	9 1/2	18 1/4

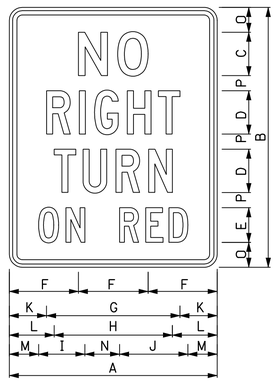
DIMENSIONS (inches)/LETTER FONTS					
K	L	M	N	O	P
7 1/4	2	3 1/4	2 1/4	3	2 7/8

1.50" RADIUS, 0.50" BORDER, 0.38" INDENT,
BLACK ON WHITE

R10-11A(M)

REGULATORY SIGN

NHDOT STANDARD PLANS	REV. DATE		PLATE
NO TURN ON RED ARROW	07-13-2001		3
	02-26-2010		STANDARD
			SG-4



DIMENSIONS (inches)/LETTER FONTS									
A	B	C	D	E	F	G	H	I	J
24	30	5E	4D	4C	8	15 1/2	13 3/4	5 3/8	7 7/8

DIMENSIONS (inches)/LETTER FONTS					
K	L	M	N	O	P
4 1/4	5 1/8	3 1/4	4	3	1 3/4

1.50" RADIUS, 0.50" BORDER, 0.38" INDENT,
BLACK ON WHITE

R10-11B1

REGULATORY SIGN

NHDOT STANDARD PLANS	REV. DATE		PLATE
NO RIGHT TURN ON RED	07-13-2001		4
	02-26-2010		STANDARD
			SG-4

STANDARD NO. SG-4

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

*.DGN FILE NAME
SG-4

2021

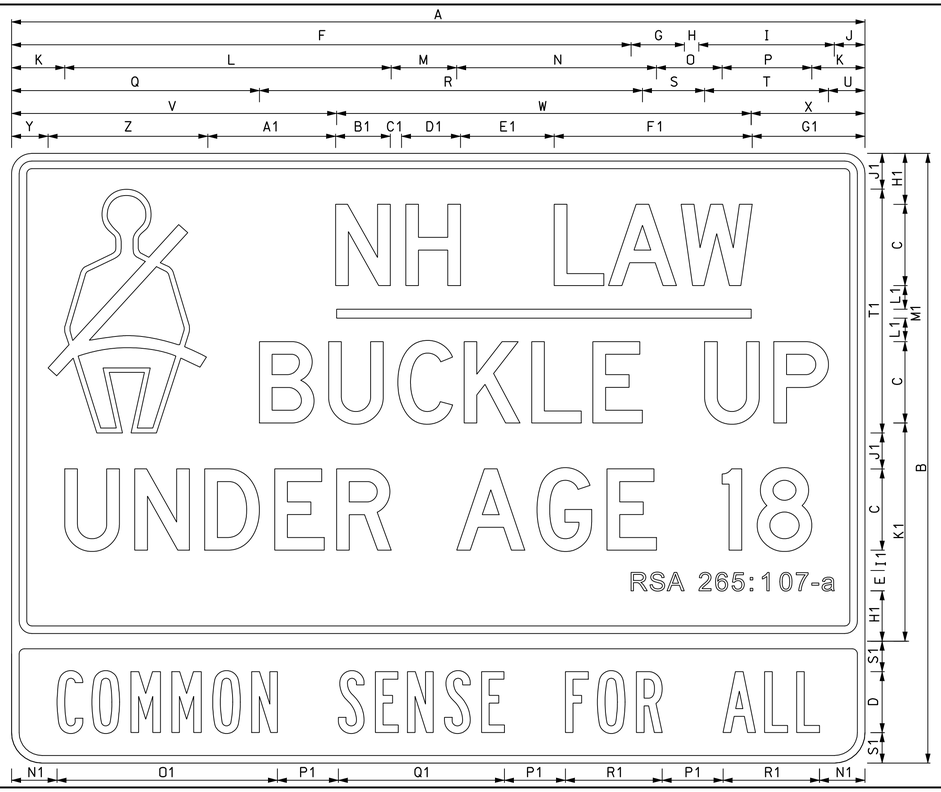
STANDARD PLANS

April

New Hampshire DOT Department of Transportation

SIGNING STANDARD

STANDARD NO. SG-4



R16-1B1

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

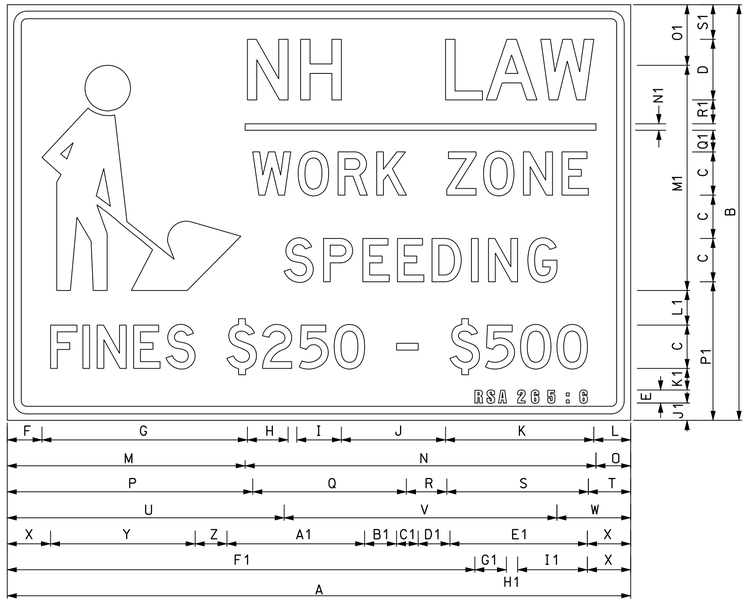
DIMENSIONS (inches)/LETTER FONTS							
M1	N1	O1	P1	Q1	R1	S1	T1
1	1 3/8	17 5/8	3 5/8	13 1/4	7 3/4	3 1/2	18
7/8	4 1/2	21 3/4	6	16 1/4	9 1/2	3	24

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

REGULATORY SIGN

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



R50-1

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	5/8	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

REGULATORY SIGN

SIGNING STANDARD

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

STANDARD NO. SG-5

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

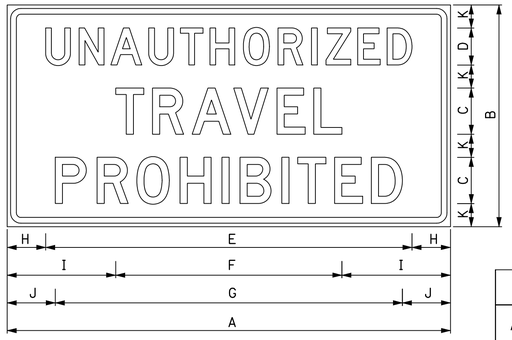
*.DGN FILE NAME
SG-5

April 2021

STANDARD PLANS

New Hampshire DOT Department of Transportation

STANDARD NO. SG-5



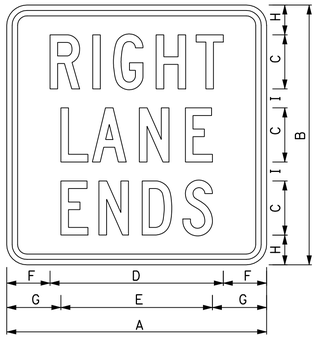
1.50" RADIUS. 0.68" BORDER, 0.375" INDENT,
BLACK ON WHITE; BB GRADE PLYWOOD SIGN

DIMENSIONS (inches)/LETTER FONTS										
A	B	C	D	E	F	G	H	I	J	K
48	24	5D	4D	$39\frac{3}{4}$	$24\frac{1}{2}$	$37\frac{1}{2}$	$4\frac{1}{8}$	$12\frac{3}{4}$	$5\frac{1}{4}$	$2\frac{1}{2}$

R200-S

REGULATORY SIGN

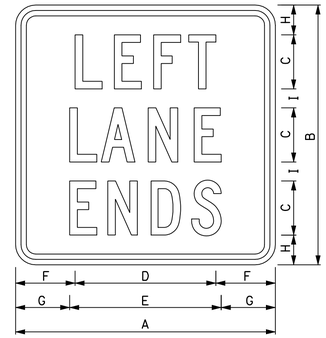
NHDOT STANDARD PLANS	REV. DATE		PLATE
UNAUTHORIZED TRAVEL	07-13-2001		1
	02-26-2010		STANDARD
			SG-6



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	$2\frac{3}{4}$	$1\frac{3}{4}$



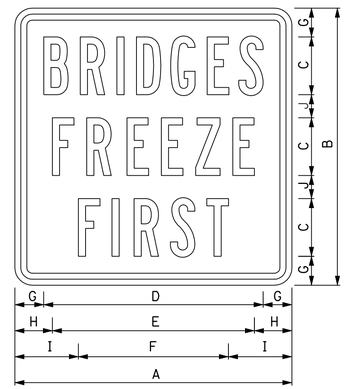
1.50" RADIUS. 0.50" BORDER, 0.375" INDENT,
BLACK ON YELLOW;

W4-2a(L)

DIMENSIONS (inches)/LETTER FONTS								
A	B	C	D	E	F	G	H	I
24	24	5C	13	14	$5\frac{1}{2}$	5	$2\frac{3}{4}$	$1\frac{3}{4}$

WARNING SIGN

NHDOT STANDARD PLANS	REV. DATE		PLATE
RIGHT / LEFT LANE ENDS	07-13-2001		2
	02-26-2010		STANDARD
			SG-6



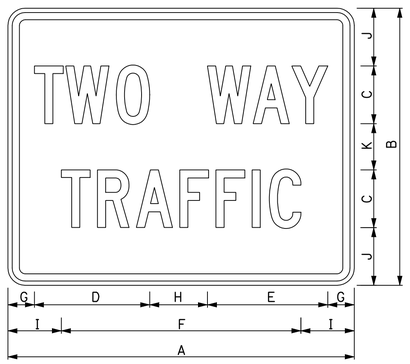
1.50" RADIUS. 0.50" BORDER, 0.375" INDENT,
BLACK ON YELLOW;

W5-B2

DIMENSIONS (inches)/LETTER FONTS									
A	B	C	D	E	F	G	H	I	J
24	24	5B	19	$17\frac{1}{2}$	13	$2\frac{1}{2}$	$3\frac{1}{4}$	$5\frac{1}{2}$	2

WARNING SIGN

NHDOT STANDARD PLANS	REV. DATE		PLATE
BRIDGES FREEZE FIRST	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	$8\frac{1}{4}$	$16\frac{1}{2}$	$1\frac{3}{8}$	4	$3\frac{3}{4}$	$3\frac{3}{4}$	$2\frac{1}{2}$
30	24	5C	10	$10\frac{1}{2}$	$20\frac{3}{4}$	$2\frac{1}{4}$	5	$4\frac{5}{8}$	5	4

WARNING SIGN

SIGNING STANDARD

NHDOT STANDARD PLANS	REV. DATE		PLATE
TWO WAY TRAFFIC	07-13-2001		4
	02-26-2010		STANDARD
			SG-6

STANDARD NO. SG-6

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

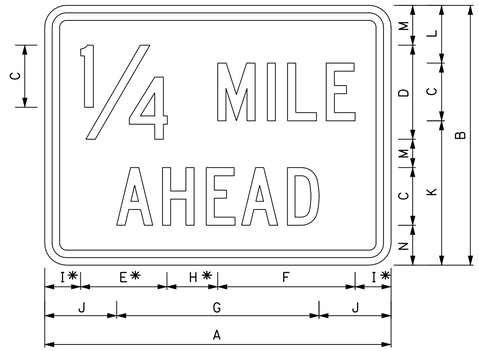
*.DGN FILE NAME
SG-6

April 2021

STANDARD PLANS

New Hampshire DOT Department of Transportation

STANDARD NO. SG-6



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

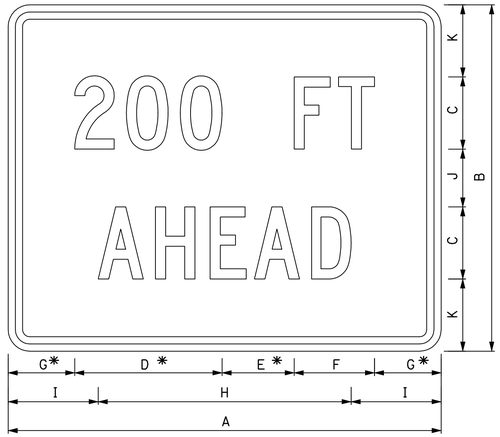
W7-B7

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

* DIMENSION VARIES WITH DIFFERENT NUMBERS

WARNING SIGN

NHDOT STANDARD PLANS	REV. DATE		PLATE
1/4, 1/2, 3/4 MILE AHEAD	07-13-2001		1
	02-26-2010		STANDARD
			SG-7



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

* DIMENSION VARIES WITH DIFFERENT NUMBERS

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

W7-B2

WARNING SIGN

NHDOT STANDARD PLANS	REV. DATE		PLATE
XXX FT AHEAD	07-13-2001		2
	02-26-2010		STANDARD
			SG-7

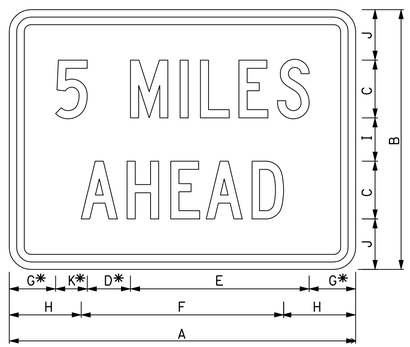
STANDARD
NO. SG-7

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

*.DGN FILE NAME
SG-7

2021

STANDARD PLANS



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

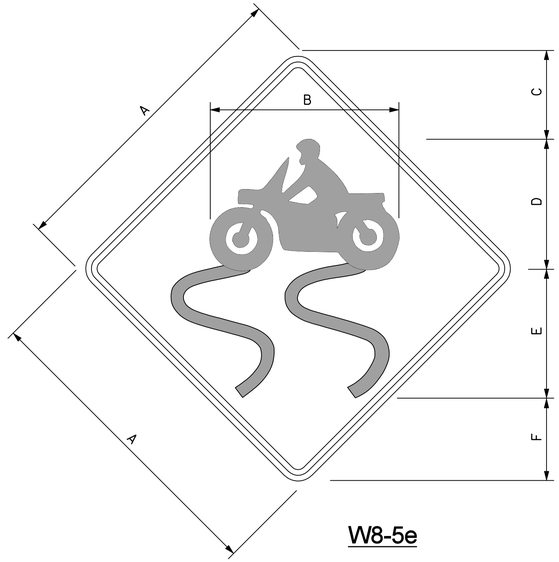
DIMENSIONS (inches)/LETTER FONTS										
A	B	C	D*	E	F	G*	H	I	J	K*
24	18	4C	3	12 1/2	14	3 1/4	5	3	3 1/2	2 1/4
30	24	5C	4	15 1/2	17 1/2	3 7/8	6 1/4	4	5	2 3/4

* DIMENSION VARIES WITH DIFFERENT NUMBERS

W7-B3

WARNING SIGN

NHDOT STANDARD PLANS	REV. DATE		PLATE
X MILES AHEAD	07-13-2001		3
	02-26-2010		STANDARD
			SG-7

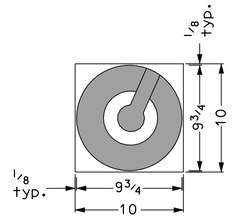


3.0" RADIUS, 1.25" BORDER, 0.75" INDENT,
BLACK ON YELLOW

THE SLIPPERY SYMBOL IS FROM W8-5

W8-5e

FOR SCALING PURPOSES SEE BELOW



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

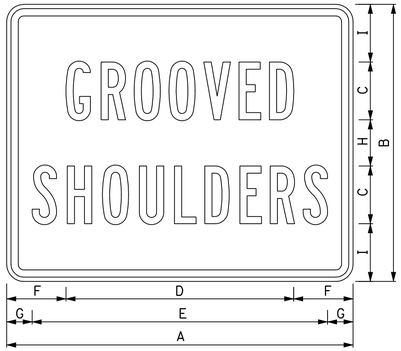
WARNING SIGN

SIGNING STANDARD

NHDOT STANDARD PLANS	REV. DATE		PLATE
MOTORCYCLE CAUTION	07-13-2001		4
	02-26-2010		STANDARD
			SG-7

New Hampshire DOT Department of Transportation

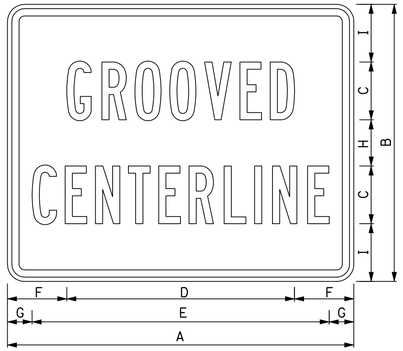
STANDARD
NO. SG-7



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 3/4	25 1/2	5 1/8	2 1/4	4	5



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

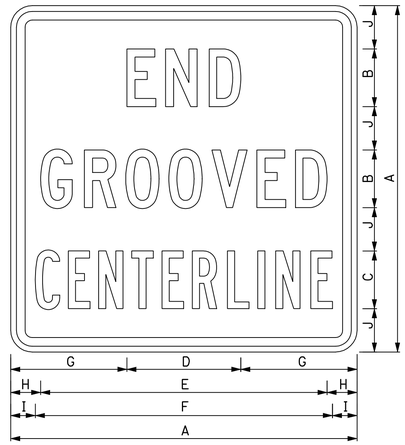
W8-5G

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

WARNING SIGN

NHDOT STANDARD PLANS	REV. DATE		PLATE
GROOVED PAVEMENT	07-13-2001		1
	02-26-2010		STANDARD
			SG-8

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

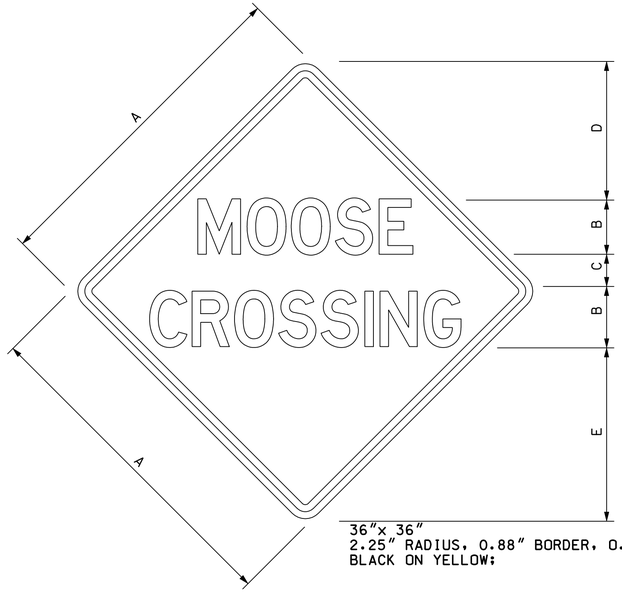


1.88" RADIUS, 0.75 BORDER, 0.375 INDENT,
BLACK ON YELLOW;

W8-5H

WARNING SIGN

NHDOT STANDARD PLANS	REV. DATE		PLATE
END GROOVED CENTERLINE	07-13-2001		2
	02-26-2010		STANDARD
			SG-8



DIMENSIONS (inches) /LETTER FONTS				
A	B	C	D	E
36	6D	4	14 5/8	18 5/8
48	8D	5	20	25

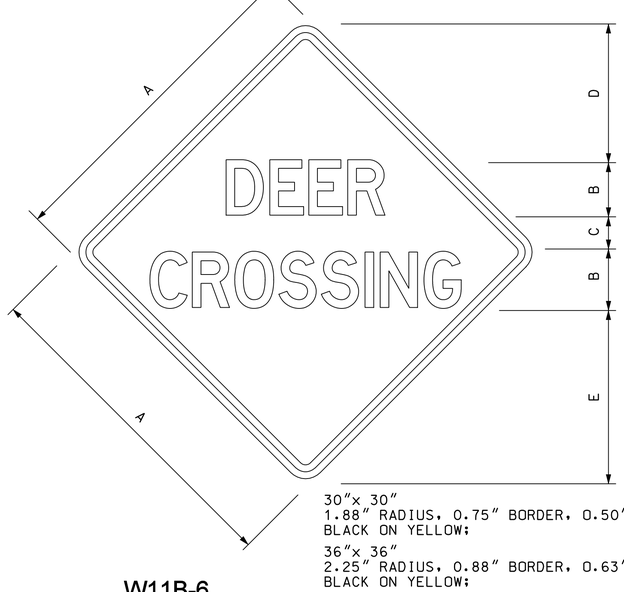
36"x 36"
2.25" RADIUS, 0.88" BORDER, 0.63" INDENT,
BLACK ON YELLOW;

W11-B5

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

WARNING SIGN

NHDOT STANDARD PLANS	REV. DATE		PLATE
MOOSE CROSSING	07-13-2001		3
	02-26-2010		STANDARD
			SG-8



DIMENSIONS (inches) /LETTER FONTS				
A	B	C	D	E
30	5C	3	12 3/8	15 1/2
36	6C	4	14 1/2	18 1/2
48	8C	5	20	25

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	REV. DATE		PLATE
DEER CROSSING	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

2021

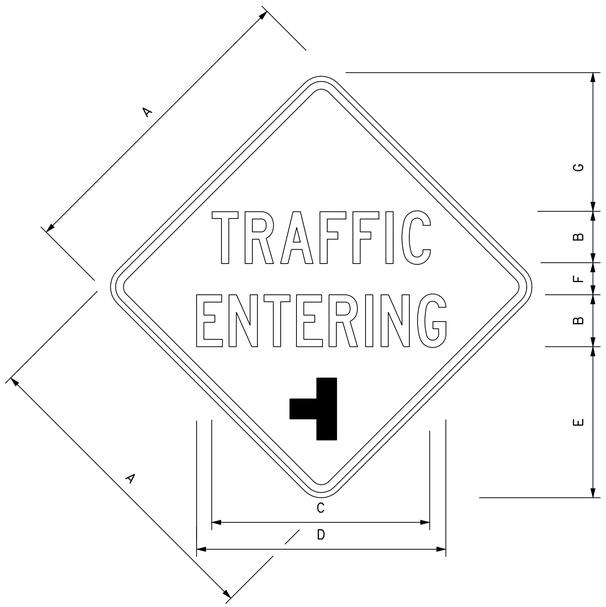
STANDARD PLANS

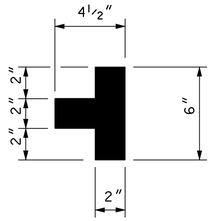
April

New Hampshire DOT Department of Transportation

SIGNING STANDARD

STANDARD NO. SG-8





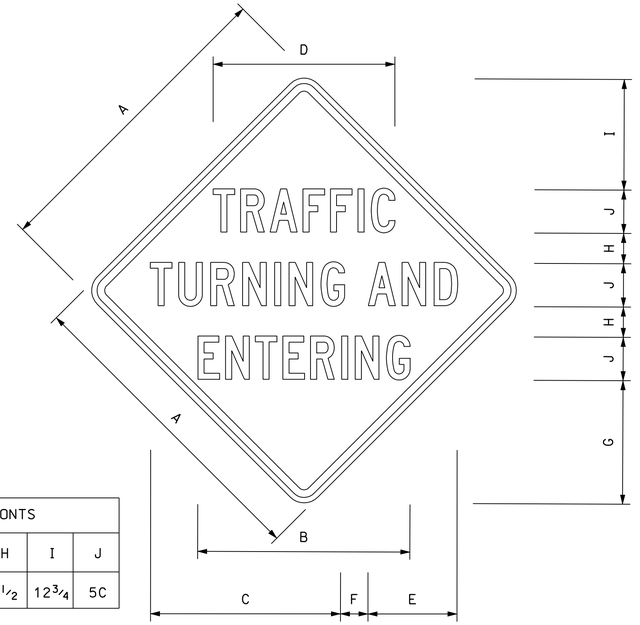
DIMENSIONS (inches)/LETTER FONTS						
A	B	C	D	E	F	G
30	5C	21	24	14 1/2	3	13

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

W14-B1

WARNING SIGN

NHDOT STANDARD PLANS	REV. DATE		PLATE
TRAFFIC ENTERING	07-13-2001		1
	02-26-2010		STANDARD
			SG-9



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

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

W14-B2

WARNING SIGN

NHDOT STANDARD PLANS	REV. DATE		PLATE
TRUCKS TURNING AND ENTERING	07-13-2001		2
	02-26-2010		STANDARD
			SG-9

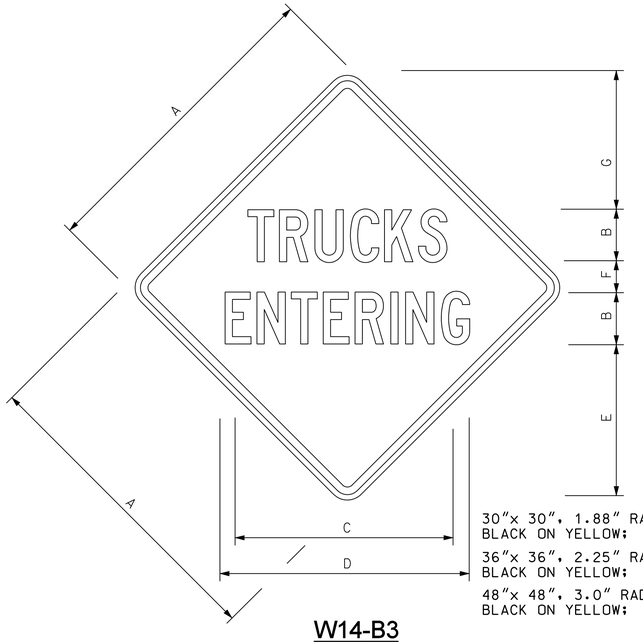
STANDARD
NO. SG-9

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

*.DGN FILE NAME
SG-9

2021

STANDARD PLANS



DIMENSIONS (inches)/LETTER FONTS						
A	B	C	D	E	F	G
30	5C	20 3/4	25 5/8	15	3	12 1/2
36	6C	23	28 1/4	18	3 1/2	15 1/2
48	8C	26	40	25	4	19 1/2

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

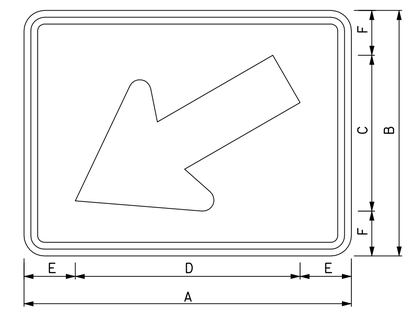
36"x 36", 2.25" RADIUS, 0.88" BORDER, 0.63 INDENT,
BLACK ON YELLOW;

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

W14-B3

WARNING SIGN

NHDOT STANDARD PLANS	REV. DATE		PLATE
TRUCKS ENTERING	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)

DIMENSIONS (inches)/ LETTER FONTS					
A	B	C	D	E	F
24	12	8 1/2	12 1/2	5 3/4	1 3/4

WARNING SIGN

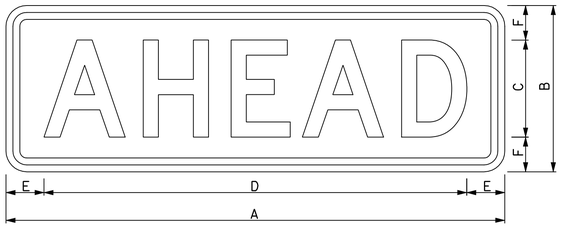
NHDOT STANDARD PLANS	REV. DATE		PLATE
DOWNWARD ARROW	07-13-2001		4
	02-26-2010		STANDARD
			SG-9

SIGNING STANDARD

April

New Hampshire DOT Department of Transportation

STANDARD
NO. SG-9



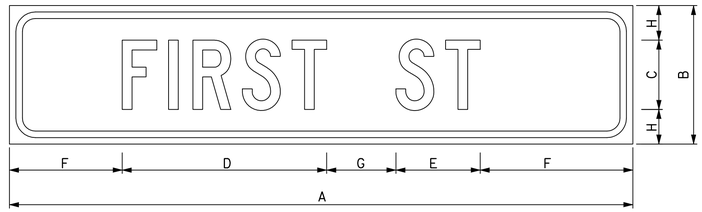
1.50″ RADIUS, 0.50″ BORDER, 0.375″ INDENT,
BLACK ON YELLOW OR FLUORESCENT YELLOW GREEN

W16-9p(M)

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

WARNING SIGN

NHDOT STANDARD PLANS	REV. DATE		PLATE
AHEAD PLAQUE	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

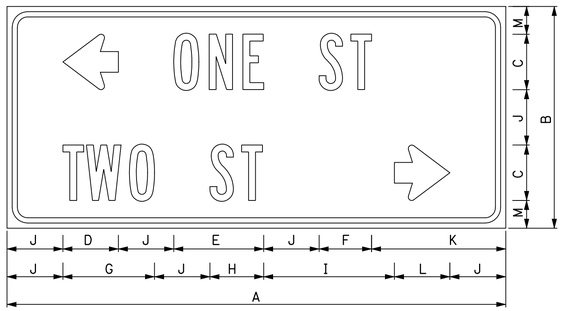
W16-8(M)

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	REV. DATE		PLATE
ADVANCE STREET NAME PLAQUE	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″

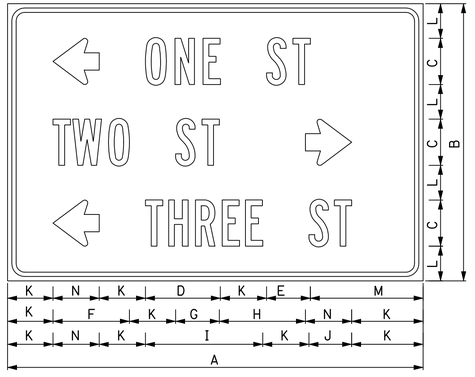
W16-8b(M)

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	REV. DATE		PLATE
ADVANCE STREET NASME PLAQUE (TWO STREETS)	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	REV. DATE		PLATE
ADVANCE STREET NAME PLAQUE (THREE STREETS)	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

2021

STANDARD PLANS

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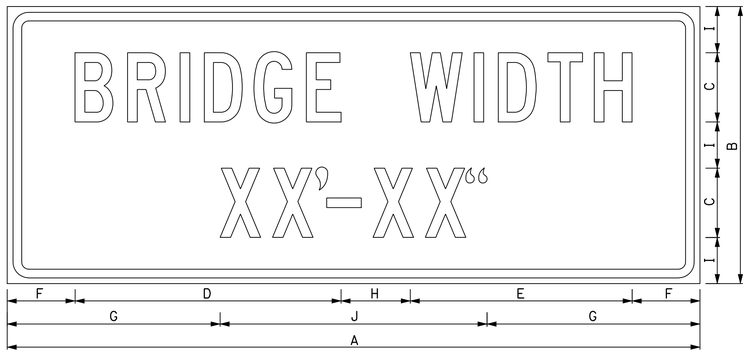
New Hampshire DOT Department of Transportation

STANDARD NO. SG-10



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

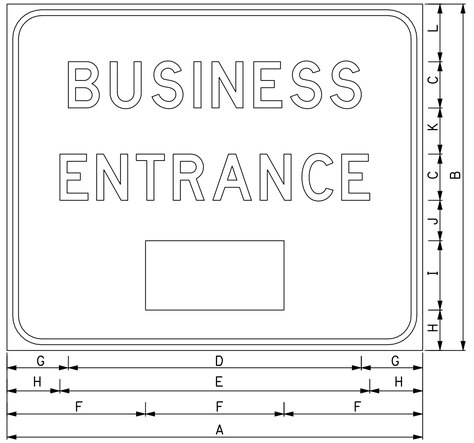
W5-3a

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

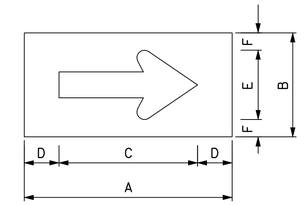
NHDOT STANDARD PLANS	REV. DATE	PLATE
BRIDGE WIDTH	07-13-2001	1
	02-26-2010	STANDARD SG-11



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



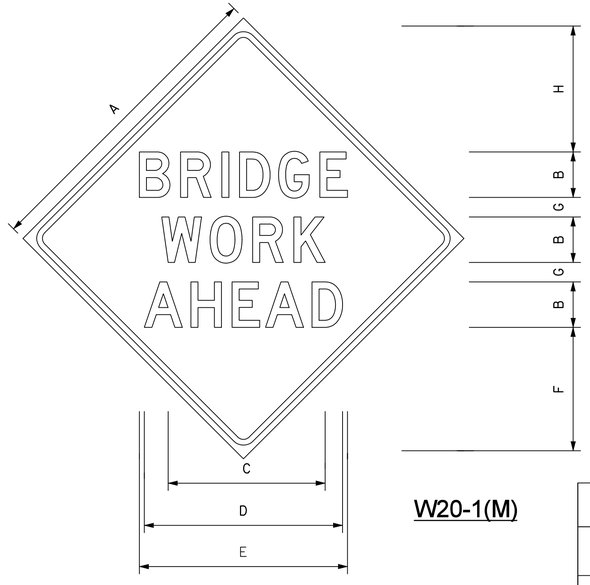
NO BORDER, BLACK ON ORANGE;
BB GRADE PLYWOOD SIGN

W14-B5

DIMENSIONS (inches)/LETTER FONTS					
A	B	C	D	E	F
12	6	8	2	4	1

CONSTRUCTION SIGN

NHDOT STANDARD PLANS	REV. DATE	PLATE
BUSINESS ENTRANCE	07-13-2001	2
	02-26-2010	STANDARD SG-11



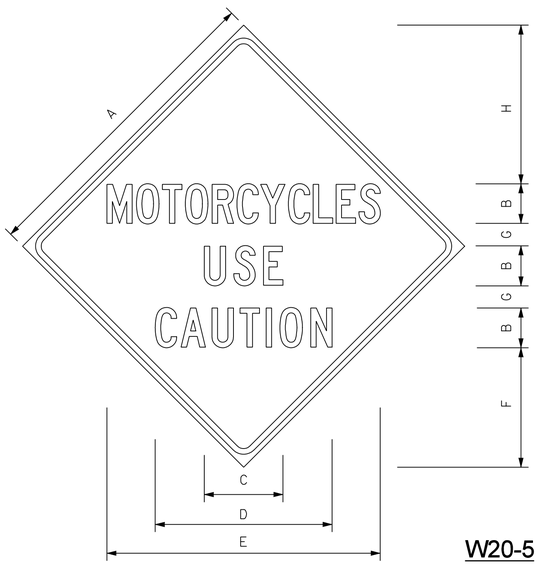
W20-1(M)

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



W20-5

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

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

CONSTRUCTION SIGN

SIGNING STANDARD

NHDOT STANDARD PLANS	REV. DATE	PLATE
MOTORCYCLES USE CAUTION	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

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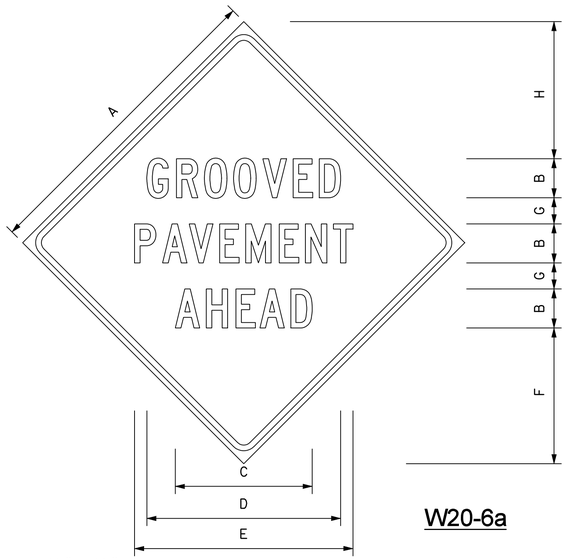
STANDARD NO. SG-11



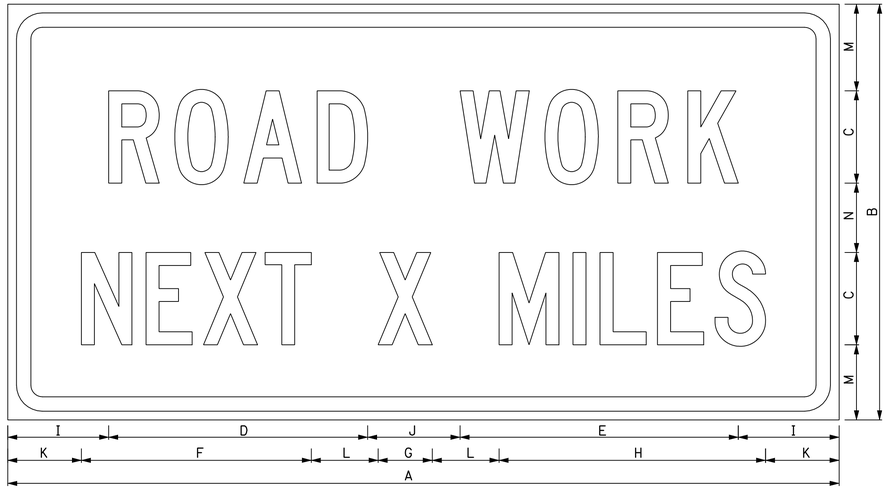
W20-6a

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	21 1/8	29 5/8	33 5/8	20 1/8	3 1/2	20 1/4

CONSTRUCTION SIGN

NHDOT STANDARD PLANS	REV. DATE		PLATE
GROOVED PAVEMENT	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

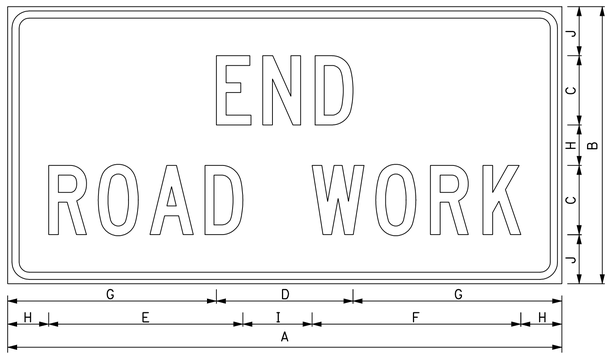
G20-1(M)

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	REV. DATE		PLATE
ROAD WORK NEXT X-MILES	07-13-2001		2
	02-26-2010		STANDARD
			SG-12



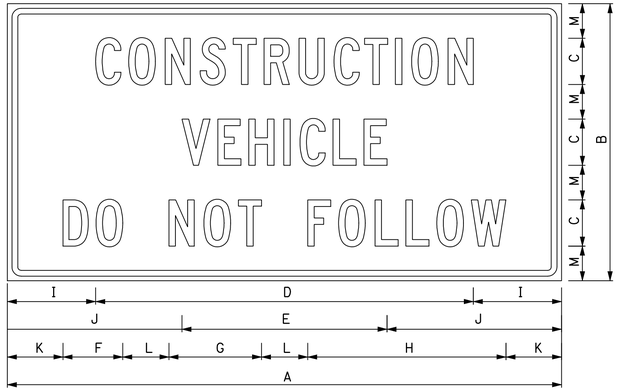
1.88″ RADIUS, 1.25″ BORDER, 0.75″ INDENT,
BLACK ON ORANGE, BB GRADE PLYWOOD SIGN

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	REV. DATE		PLATE
END ROAD WORK	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	REV. DATE		PLATE
CONSTRUCTION VEHICLE DO NOT FOLLOW	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

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STANDARD PLANS

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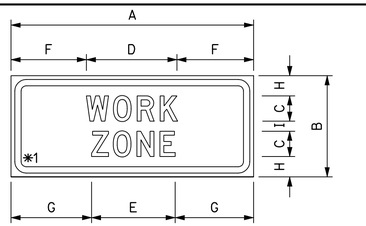
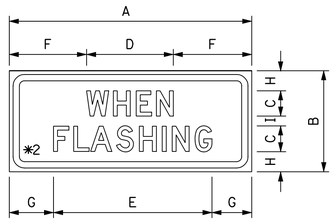
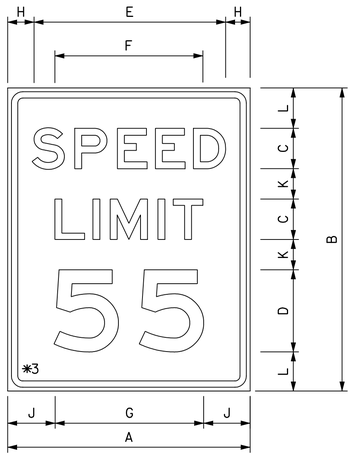
New Hampshire DOT Department of Transportation

STANDARD
NO. SG-12





AS SHOWN IN THE FIELD

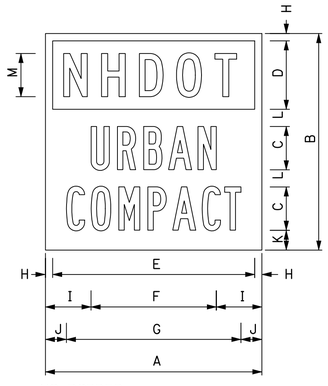


*1 – 1.25" BORDER, 0.75" INDENT,
BLACK ON ORANGE; BB GRADE PLYWOOD SIGN
*2 – 1.25" BORDER, 0.75" INDENT,
BLACK ON WHITE; BB GRADE PLYWOOD SIGN
*3 – 1.25" BORDER, 0.75" INDENT,
BLACK ON WHITE; BB GRADE PLYWOOD SIGN

DIMENSIONS (inches)/LETTER FONTS												
	A	B	C	D	E	F	G	H	I	J	K	L
*1	48	20	5D	18 1/8	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

CONSTRUCTION SIGN/REGULATORY SIGNS

NHDOT STANDARD PLANS	REV. DATE		PLATE
TRAILER MOUNTED CONSTRUCTION ZONE SPEED LIMIT SIGN	07-13-2001		1
	02-26-2010		STANDARD
			SG-13



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

NHDOT STANDARD PLANS	REV. DATE		PLATE
NHDOT URBAN COMPACT	07-13-2001		2
	02-26-2010		STANDARD
			SG-13

I-14

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

STANDARD NO. SG-13	
REVISION DATE	
07-13-2001	
02-26-2010	
*.DGN FILE NAME	
SG-13	

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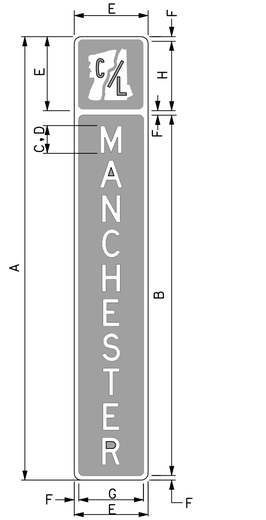
NHDOT STANDARD PLANS	REV. DATE		PLATE
			4
			STANDARD
			SG-13

STANDARD NO. 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"

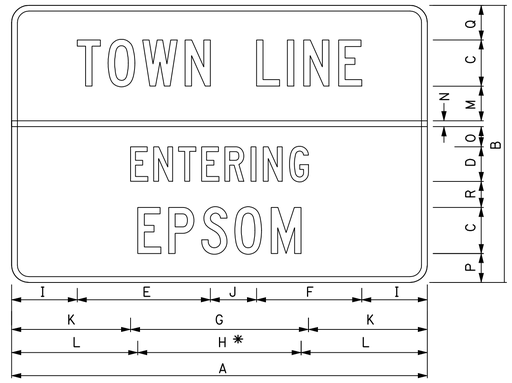
IF THE TOWN OR CITY NAME IS SMALL, CENTER THE TEXT ON THE SIGN.

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

0.75" RADIUS, 0.5" BORDER
WHITE ON GREEN

I-20

NHDOT STANDARD PLANS	REV. DATE		PLATE
VERTICAL TOWN/CITY LINE	07-13-2001		1
	02-26-2010		STANDARD
			SG-14



1.50" RADIUS, 0.75" BORDER, WHITE ON GREEN

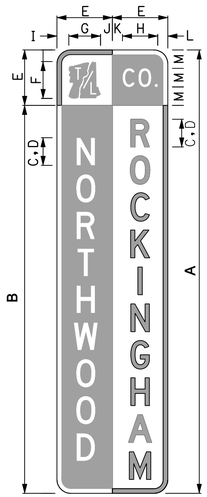
I-21

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	REV. DATE		PLATE
HORIZONTAL TOWN/CITY LINE	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	REV. DATE		PLATE
VERTICAL TOWN/CITY/COUNTY LINE	07-13-2001		3
	02-26-2010		STANDARD
			SG-14

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

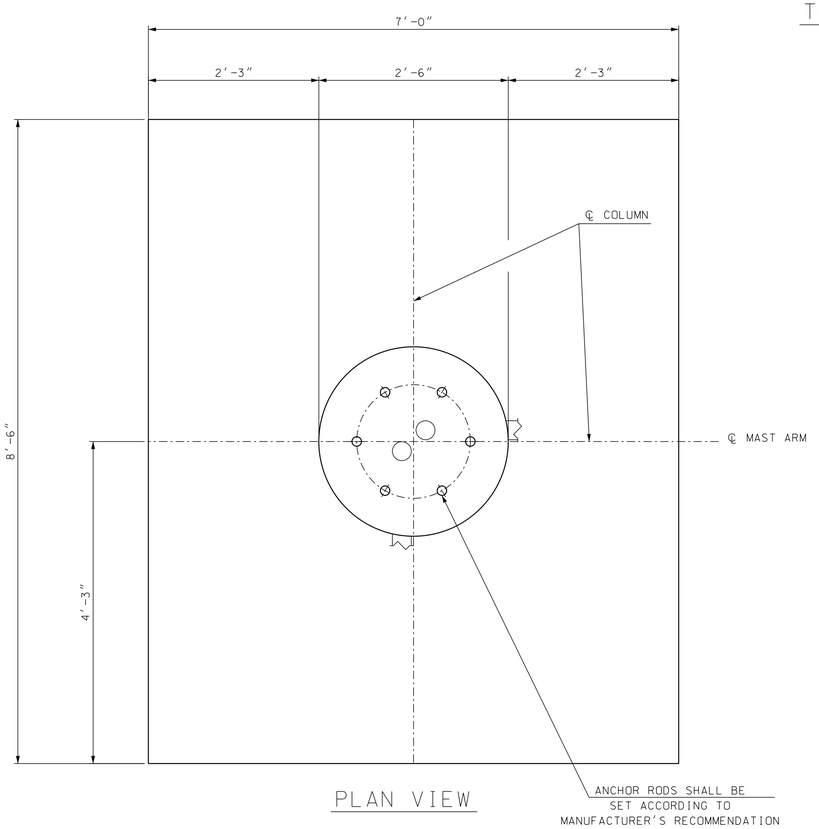
April 2021

STANDARD PLANS

New Hampshire DOT Department of Transportation

SIGNING STANDARD

STANDARD NO. SG-14



PLAN VIEW

TRAFFIC SIGNAL MAST ARM FOUNDATION – TYPE 1A

REQUIRED FOUNDATION DIMENSIONS			
STEM DIAMETER AND LENGTH	FOOTING DIMENSIONS	CASE 1 WITH LUMINAIRE	CASE 2 WITHOUT LUMINAIRE
		**  MAX h = 40'-0" MAX h1 = 20'-0"	**  MAX h1 = 20'-0"
TYPE 1A (2'-6"Φx4'-4")	TYPE 1A (8'-6"x7'x2')	MAX L = 25'-0"	MAX L = 25'-0"
TYPE 1B (3'-0"Φx4'-10")	TYPE 1B (8'x7'x2')	-	MAX L = 40'-0"
TYPE 1C (3'-0"Φx4'-10")	TYPE 1C (9'x7'x2')	MAX L = 45'-0"	MAX L = 45'-0"
TYPE 1D (3'-0"Φx4'-10")	TYPE 1D (9'x8'-6"x2')	MAX L = 55'-0"	MAX L = 55'-0"
TYPE 1E (3'-0"Φx5'-4")	TYPE 1E (9'x9'x2')	MAX L = 60'-0"	MAX L = 60'-0"

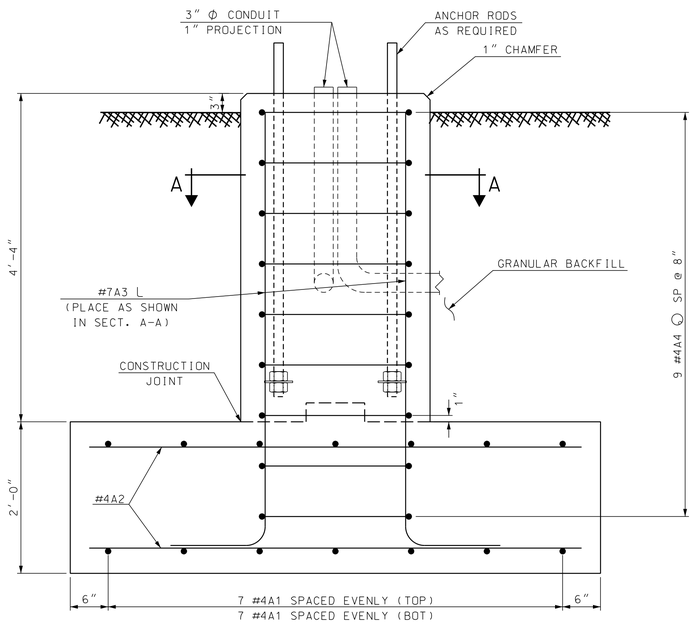
** NOTE: SEE TRAFFIC SIGNAL MAST ARM LAYOUT STANDARD PLAN TS-7 FOR ATTACHMENT LAYOUTS. ATTACHMENT COMBINATIONS OTHER THAN THOSE SHOWN ON THE STANDARD SHALL NOT BE USED WITHOUT DESIGN APPROVAL FROM EITHER THE BUREAU OF BRIDGE DESIGN OR THE BUREAU OF TRAFFIC.

TYPICAL QUANTITIES PER BASE		
ITEM NUMBER	ITEM	QUANTITY
206.1*	COMMON STRUCTURE EXCAVATION	21 CY
209.1*	GRANULAR BACKFILL	16.1 CY
520.21*	CONCRETE CLASS B, FOOTINGS	5.2 CY
544*	REINFORCING STEEL	366 LB

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

GENERAL NOTES (TYPE 1 FOUNDATION)

1. THERE SHALL BE A MINIMUM OF ONE TEST BORING REQUIRED, AT THE APPROXIMATE FOUNDATION LOCATION, TO CONFIRM THE ENGINEERING PROPERTIES OF THE SOILS PROVIDING FOUNDATION SUPPORT. THE ENGINEER MAY REQUIRE ADDITIONAL BORINGS IF CONSIDERED NECESSARY.
2. ALL REINFORCING STEEL SHALL CONFORM TO AASHTO M31/M31M, GRADE 60 (420). ALL REINFORCING STEEL SHALL BE A MINIMUM OF 3 INCHES FROM CONCRETE SURFACES, UNLESS NOTED OTHERWISE, AND SHALL MEET THE REQUIREMENTS OF SECTION 544.
3. CONCRETE SHALL BE CLASS B HAVING A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI PLACED IN CONFORMANCE WITH SECTION 520. CYLINDERS FOR STRENGTH TESTING SHALL BE TAKEN DURING CONCRETE PLACEMENT.
4. BEARING CAPACITY IS BASED ON THE ALLOWABLE STRESS DESIGN. THE ALLOWABLE BEARING CAPACITY SHALL BE A MINIMUM OF $1\frac{1}{2}$ TONS/SF AFTER THE APPLICATION OF A FACTOR OF SAFETY OF 3 TO THE ULTIMATE BEARING CAPACITY.
5. FOOTING CONCRETE SHALL BE PLACED ON UNDISTURBED MATERIAL. UNSUITABLE MATERIAL FOUND AT THE BOTTOM OF FOOTING GRADE SHALL BE REMOVED AND REPLACED WITH STRUCTURAL FILL, ITEM 508, AS DIRECTED BY THE ENGINEER. STRUCTURAL FILL USED IN EXCESS OF THE AMOUNT SPECIFIED ON THE PROJECT PLANS OR UNDER ITEM 616.1XX WILL BE PAID AS EXTRA WORK IN ACCORDANCE WITH 109.04.
6. STAINLESS STEEL STD. GR. WIRE CLOTH. $\frac{1}{4}$" MAX. OPENING WITH MIN. WIRE DIA. OF AWG NO. 16 WITH 2" LAP. SECURE WITH $\frac{3}{4}$" STAINLESS STEEL BANDING AFTER ANCHOR RODS ARE FULLY TIGHTENED.
7. NO GROUT SHALL BE PLACED BETWEEN THE FOUNDATION AND BOTTOM OF THE BASE PLATE.
8. THE EXPOSED LENGTH OF THE ANCHOR ROD BETWEEN THE TOP OF THE FOUNDATION AND THE BOTTOM OF THE LEVELING NUT SHOULD NOT EXCEED ONE ROD DIAMETER (MAXIMUM) OR 1-INCH (PREFERRED).
9. FOR THE INSTALLATION, PRETENSIONING AND ULTRASONIC TESTING OF ANCHOR RODS, SEE THE SPECIAL PROVISION AMENDMENT TO SECTION 616, TRAFFIC SIGNALS.
10. ANCHOR RODS SHALL BE STRAIGHT RODS AND CONFORM TO ASTM F1554 GRADE 50 (MIN.). GALVANIZE THE ENITRE ROD PER ASTM A153. EACH ANCHOR ROD SHALL BE SUPPLIED WITH A MINIMUM OF THREE HEX NUTS (ASTM A563 OR ASTM A194) AND A MINIMUM OF TWO FLAT HARDENED WASHERS (ASTM F436). LOCK WASHERS SHALL NOT BE USED. THE EMBEDDED END OF THE ANCHOR ROD SHALL HAVE EITHER ONE NUT TACKED WELDED OR DOUBLE NUTS. BENT (HOOKED OR J-BOLT) ANCHOR RODS SHALL NOT BE USED.
11. EXCAVATION AND BACKFILL QUANTITIES ARE BASED ON AN EXCAVATED AREA ONE FOOT CLEAR OF THE FOUNDATION SIDES AND TO THE BOTTOM OF THE FOOTING.
12. WHERE BEDROCK IS ENCOUNTERED, EXCAVATION SHALL STILL EXTEND TO LIMITS SHOWN.
13. TYPE 1 FOUNDATIONS SHALL BE PAID FOR UNDER ITEM 616.1XX.
14. SEE THE TYPE 1B & TYPE 1C FOOTING ON STANDARD PLAN TS-2.
15. SEE THE TYPE 1D & TYPE 1E FOOTING ON STANDARD PLAN TS-3.

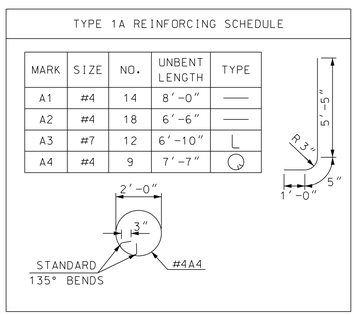


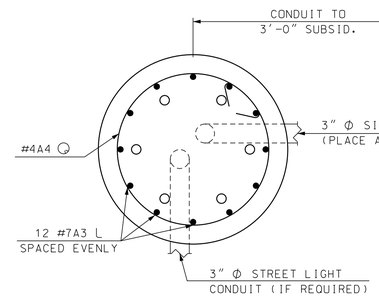
ELEVATION VIEW

END ELEVATION VIEW

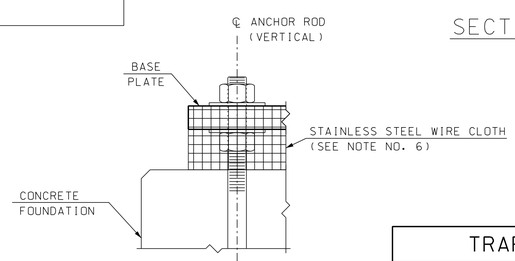
TYPE 1A REINFORCING SCHEDULE

MARK	SIZE	NO.	UNBENT LENGTH	TYPE
A1	#4	14	8'-0"	——
A2	#4	18	6'-6"	——
A3	#7	12	6'-10"	L
A4	#4	9	7'-7"	Q





SECTION A-A



SCREEN DETAIL

STANDARD NO. TS-1

REVISION DATE
07-13-01
02-26-10
10-09-17
01-17-19

*.DGN FILE NAME
TS-1

2021 STANDARD PLAN

April

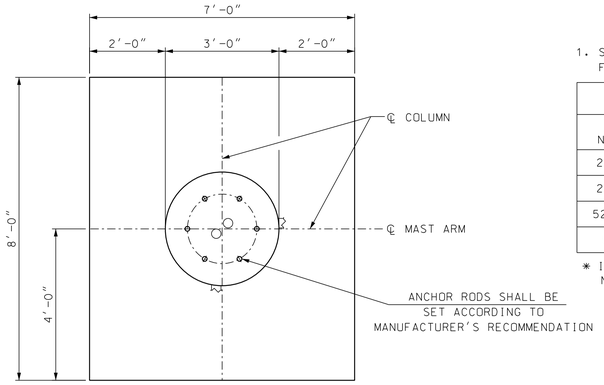
New Hampshire DOT Department of Transportation

TRAFFIC SIGNAL STANDARD

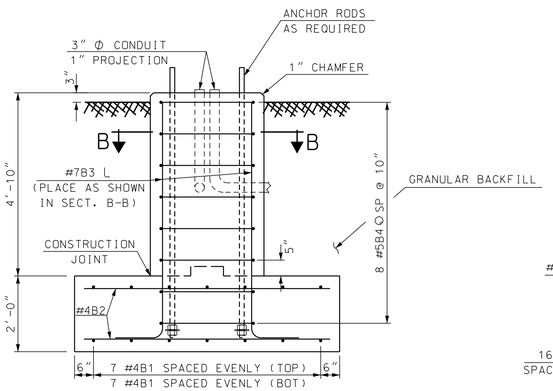
Traffic Signal Mast Arm Foundation - Type 1A

STANDARD NO. TS-1

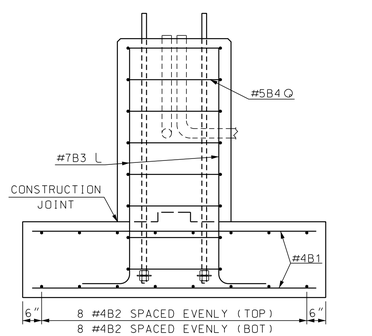
TRAFFIC SIGNAL MAST ARM FOUNDATION – TYPE 1B



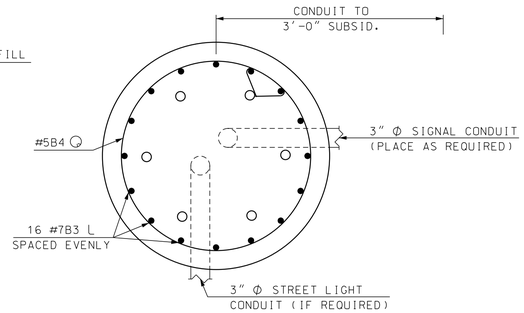
PLAN VIEW



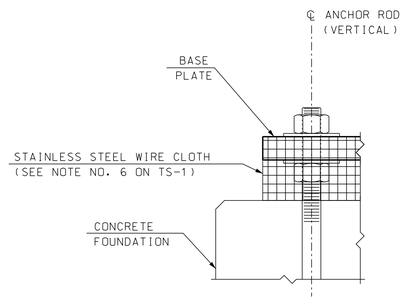
ELEVATION VIEW



END ELEVATION VIEW



SECTION B-B



SCREEN DETAIL

NOTES

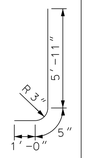
1. SEE MAST ARM FOUNDATION – TYPE 1A STANDARD PLAN TS-1, FOR TYPE 1 FOUNDATION NOTES.

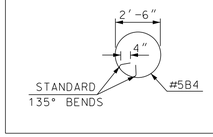
TYPICAL QUANTITIES PER BASE		
ITEM NUMBER	ITEM	QUANTITY
206.1*	COMMON STRUCTURE EXCAVATION	22 CY
209.1*	GRANULAR BACKFILL	16.6 CY
520.21*	CONCRETE CLASS B, FOOTINGS	5.4 CY
544*	REINFORCING STEEL	457 LB

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

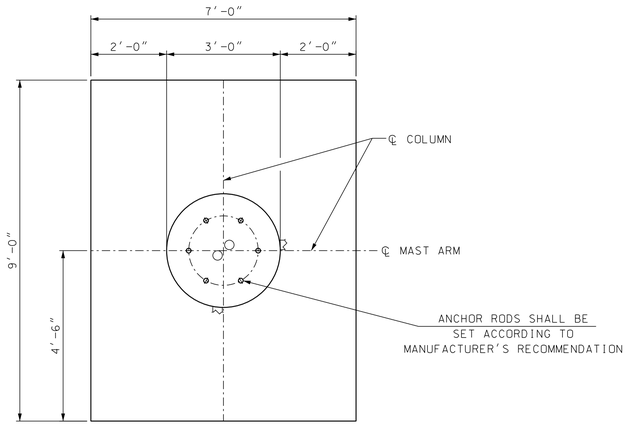
TYPE 1B REINFORCING SCHEDULE

MARK	SIZE	NO.	UNBENT LENGTH	TYPE
B1	#4	14	7'-6"	——
B2	#4	16	6'-6"	——
B3	#7	16	7'-4"	L
B4	#5	8	9'-3"	Q

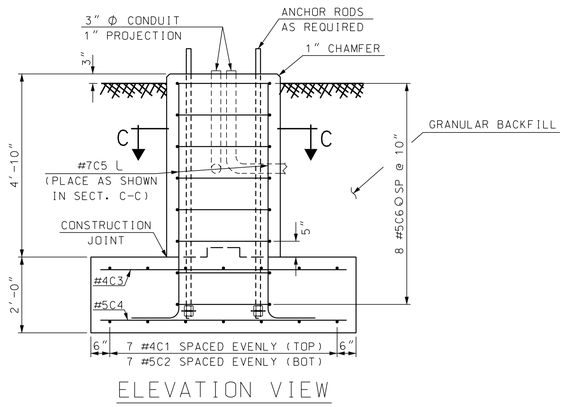




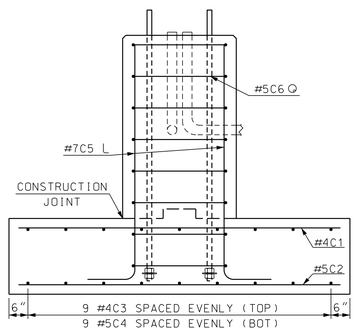
TRAFFIC SIGNAL MAST ARM FOUNDATION – TYPE 1C



PLAN VIEW



ELEVATION VIEW



END ELEVATION VIEW

NOTES

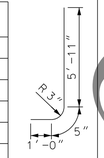
1. SEE MAST ARM FOUNDATION – TYPE 1A STANDARD PLAN TS-1, FOR TYPE 1 FOUNDATION NOTES.

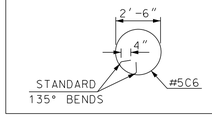
TYPICAL QUANTITIES PER BASE		
ITEM NUMBER	ITEM	QUANTITY
206.1*	COMMON STRUCTURE EXCAVATION	24 CY
209.1*	GRANULAR BACKFILL	18.3 CY
520.21*	CONCRETE CLASS B, FOOTINGS	5.9 CY
544*	REINFORCING STEEL	519 LB

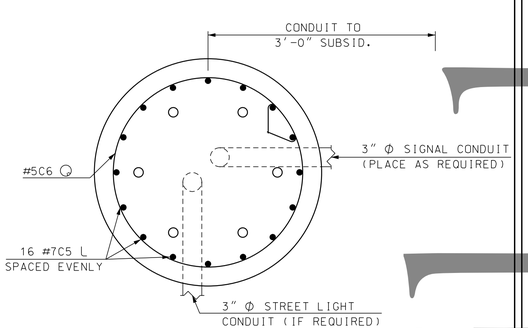
* ITEM NUMBERS ARE FOR SPECIFICATION REFERENCE ONLY. NO SEPARATE PAYMENT WILL BE MADE FOR THESE ITEMS.

TYPE 1C REINFORCING SCHEDULE

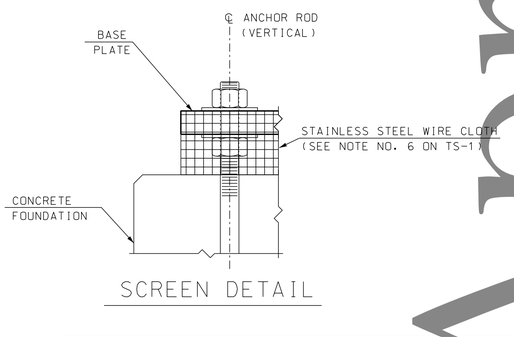
MARK	SIZE	NO.	UNBENT LENGTH	TYPE
C1	#4	7	8'-6"	——
C2	#5	7	8'-6"	——
C3	#4	9	6'-6"	——
C4	#5	9	6'-6"	——
C5	#7	16	7'-4"	L
C6	#5	8	9'-3"	Q







SECTION C-C



SCREEN DETAIL

STANDARD NO. TS-2

REVISION DATE
07-13-01
02-26-10
10-09-17
01-17-19

*.DGN FILE NAME
TS-2

2021

STANDARD PLAN

April

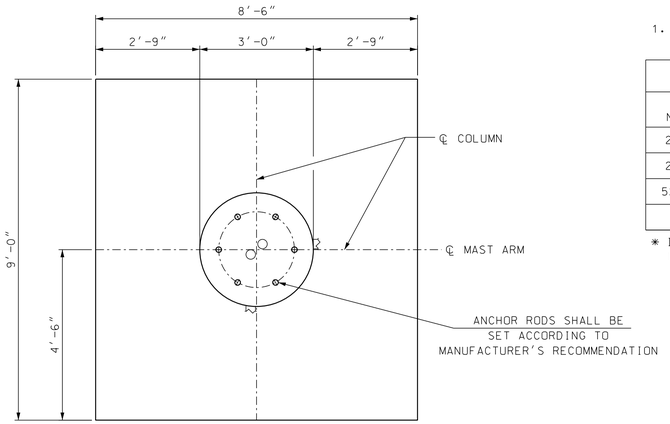
New Hampshire DOT Department of Transportation

TRAFFIC SIGNAL STANDARD

Traffic Signal Mast Arm Foundations - Type 1B & 1C

STANDARD NO. TS-2

TRAFFIC SIGNAL MAST ARM FOUNDATION – TYPE 1D



NOTES

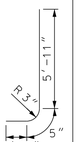
1. SEE MAST ARM FOUNDATION – TYPE 1A STANDARD PLAN TS-1, FOR TYPE 1 FOUNDATION NOTES.

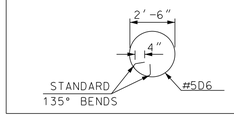
TYPICAL QUANTITIES PER BASE		
ITEM NUMBER	ITEM	QUANTITY
206.1*	COMMON STRUCTURE EXCAVATION	28 CY
209.1*	GRANULAR BACKFILL	21.3 CY
520.21*	CONCRETE CLASS B, FOOTINGS	6.9 CY
544*	REINFORCING STEEL	610 LB

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

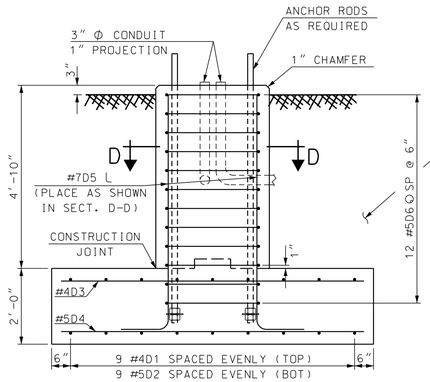
TYPE 1D REINFORCING SCHEDULE

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″	◯

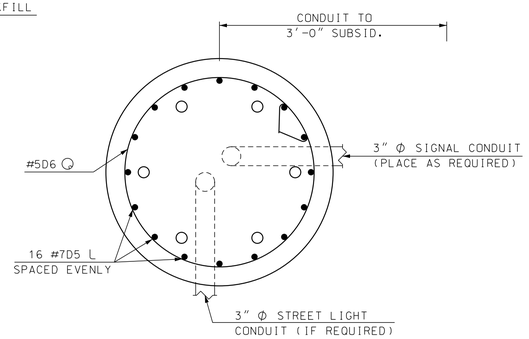




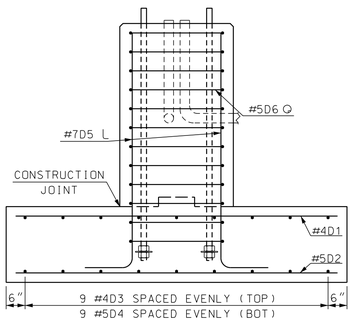
PLAN VIEW



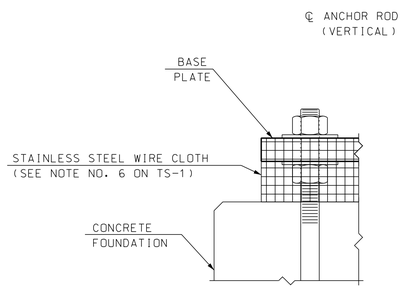
ELEVATION VIEW



SECTION D-D

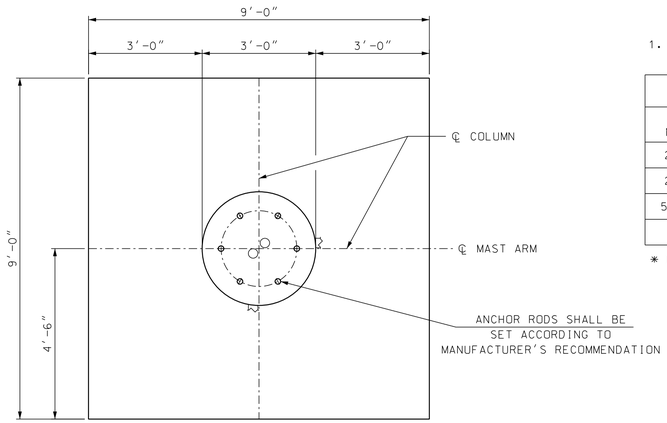


END ELEVATION VIEW



SCREEN DETAIL

TRAFFIC SIGNAL MAST ARM FOUNDATION – TYPE 1E



PLAN VIEW

NOTES

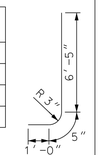
1. SEE MAST ARM FOUNDATION – TYPE 1A STANDARD PLAN TS-1, FOR TYPE 1 FOUNDATION NOTES.

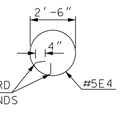
TYPICAL QUANTITIES PER BASE		
ITEM NUMBER	ITEM	QUANTITY
206.1*	COMMON STRUCTURE EXCAVATION	32 CY
209.1*	GRANULAR BACKFILL	24.4 CY
520.21*	CONCRETE CLASS B, FOOTINGS	7.4 CY
544*	REINFORCING STEEL	714 LB

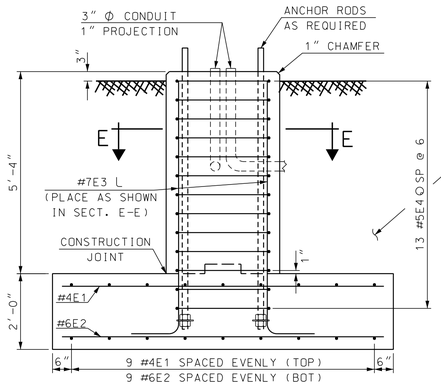
* ITEM NUMBERS ARE FOR SPECIFICATION REFERENCE ONLY. NO SEPARATE PAYMENT WILL BE MADE FOR THESE ITEMS.

TYPE 1E REINFORCING SCHEDULE

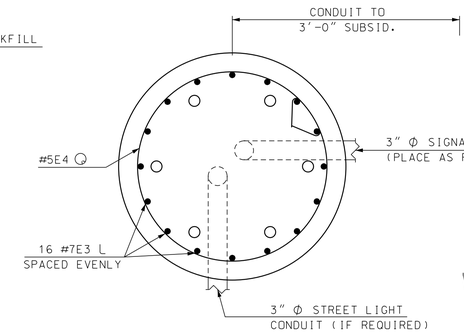
MARK	SIZE	NO.	UNBENT LENGTH	TYPE
E1	#4	18	8′-6″	——
E2	#6	18	8′-6″	——
E3	#7	16	7′-10″	L
E4	#5	13	9′-3″	◯



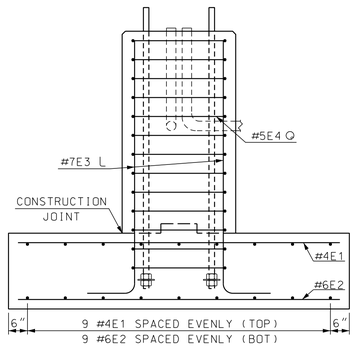




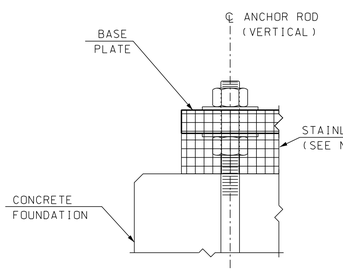
ELEVATION VIEW



SECTION E-E



END ELEVATION VIEW



SCREEN DETAIL

STANDARD NO. TS-3

REVISION DATE
07-13-01
02-26-10
10-09-17
01-17-19

DGN FILE NAME: TS-3

2021

STANDARD PLAN

April

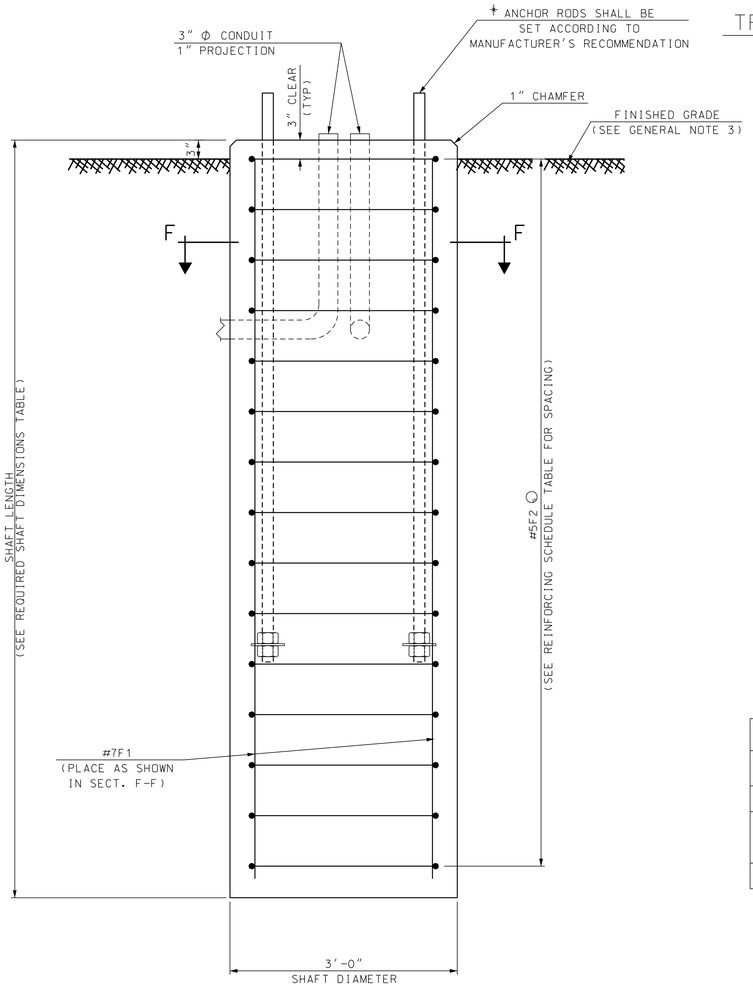
New Hampshire DOT Department of Transportation

TRAFFIC SIGNAL STANDARD

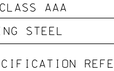
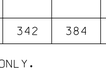
Traffic Signal Mast Arm Foundations - Type 1D & 1E

STANDARD NO. TS-3

TRAFFIC SIGNAL MAST ARM FOUNDATION – TYPE 2



ELEVATION VIEW

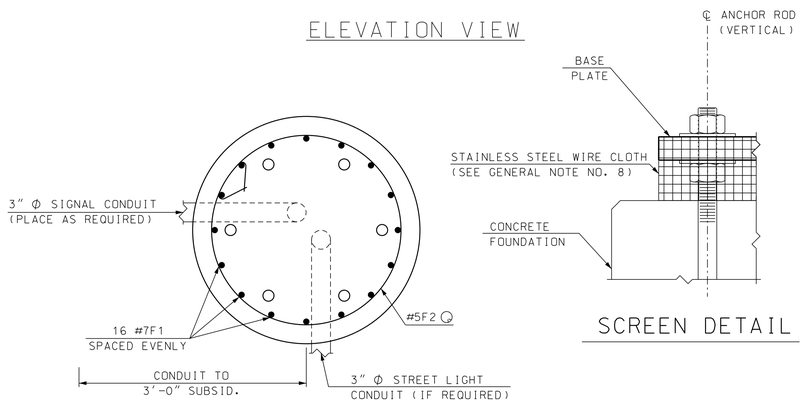
REQUIRED SHAFT DIMENSIONS		
SHAFT DIAMETER AND LENGTH	CASE 1 WITH LUMINAIRE	CASE 2 WITHOUT LUMINAIRE
	**  MAX h = 40'-0" MAX h1 = 20'-0"	**  MAX h1 = 20'-0"
3'-0"x8'-0"	-	MAX L = 20'-0"
3'-0"x9'-0"	MAX L = 20'-0"	MAX L = 25'-0"
3'-0"x10'-0"	MAX L = 35'-0"	MAX L = 40'-0"
3'-0"x11'-0"	MAX L = 50'-0"	MAX L = 55'-0"
3'-0"x12'-0"	MAX L = 60'-0"	MAX L = 60'-0"

** NOTE: SEE TRAFFIC SIGNAL MAST ARM LAYOUT STANDARD PLAN TS-7 FOR ATTACHMENT LAYOUTS. ATTACHMENT COMBINATIONS OTHER THAN THOSE SHOWN ON THE SPECIAL DETAIL SHALL NOT BE USED WITHOUT DESIGN APPROVAL FROM EITHER THE BUREAU OF BRIDGE DESIGN OR THE BUREAU OF TRAFFIC.

TYPICAL QUANTITIES FOR SHAFT LENGTH							
ITEM NUMBER	ITEM	UNIT	QUANTITY PER SHAFT LENGTH (MIN)				
			8'-0"	9'-0"	10'-0"	11'-0"	12'-0"
▲508*	STRUCTURAL FILL	CY	20	22	24	26	28
520.1* OR ▲520.001*	CONCRETE CLASS A OR CONCRETE CLASS AAA	CY	2.1	2.4	2.6	2.9	3.1
544*	REINFORCING STEEL	LB	342	384	455	556	608

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

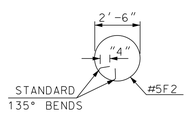
▲ DENOTES EXCAVATED HOLE METHOD OF CONSTRUCTION FOR CIRCULAR SHAFTS



SCREEN DETAIL

SECTION F-F

REINFORCING SCHEDULE					
SHAFT LENGTH	MARK	TYPE	BAR #	# OF BARS	UNBENT LENGTH
8'-0"	F1	——	#7	16	7'-6"
	F2	◯	#5	10 @ 10"	9'-3"
9'-0"	F1	——	#7	16	8'-6"
	F2	◯	#5	11 @ 10"	9'-3"
10'-0"	F1	——	#7	16	9'-6"
	F2	◯	#5	15 @ 8"	9'-3"
11'-0"	F1	——	#7	16	10'-6"
	F2	◯	#5	22 @ 6"	9'-3"
12'-0"	F1	——	#7	16	11'-6"
	F2	◯	#5	24 @ 6"	9'-3"



† ANCHOR RODS SHALL BE STRAIGHT RODS AND CONFORM TO ASTM F1554 GRADE 50 (MIN.). GALVANIZE THE ENITRE ROD PER ASTM A153. EACH ANCHOR ROD SHALL BE SUPPLIED WITH A MINIMUM OF THREE HEX NUTS (ASTM A563 OR ASTM A194) AND A MINIMUM OF TWO FLAT HARDENED WASHERS (ASTM F436). LOCK WASHERS SHALL NOT BE USED. THE EMBEDDED END OF THE ANCHOR ROD SHALL HAVE EITHER ONE NUT TACKED WELDED OR DOUBLE NUTS. BENT (HOOKED OR J-BOLT) ANCHOR RODS SHALL NOT BE USED.

GENERAL NOTES (TYPE 2 FOUNDATION)

1. THERE SHALL BE A MINIMUM OF ONE TEST BORING REQUIRED, AT THE APPROXIMATE FOUNDATION LOCATION, TO CONFIRM THE ENGINEERING PROPERTIES OF THE SOILS PROVIDING FOUNDATION SUPPORT. THE ENGINEER MAY REQUIRE ADDITIONAL BORINGS IF CONSIDERED NECESSARY.
2. THE CIRCULAR SHAFT FOUNDATION SHALL BE CONSTRUCTED IN EITHER A DRILLED HOLE OR IN AN EXCAVATED HOLE PER THE NOTES PROVIDED BELOW FOR EACH METHOD. CAST IN PLACE CONCRETE SHALL BE AN OPTION FOR EITHER EXCAVATION METHOD. PRECAST CONCRETE SHALL ONLY BE USED WITH THE EXCAVATED HOLE METHOD.
3. THE EVALUATION OF GEOTECHNICAL LATERAL CAPACITY IS BASED ON A SOIL MODEL COMPRISED OF HOMOGENEOUS GRANULAR (COHESIONLESS) SOILS HAVING A FRICTION ANGLE OF 32 DEGRESS, MAXIMUM GROUND SURFACE STEEPNESS OF 4H:1V, AND NEAR SURFACE GROUNDWATER TABLE. IF THE SOIL PROVIDING FOUNDATION SUPPORT CANNOT GENERATE AN EQUIVALENT OR GREATER LATERAL CAPACITY, AS COMPARED TO THIS SOIL MODEL, THEN THE ENGINEER WILL REVIEW THE FOUNDATION CONDITIONS WITH THE GEOTECHNICAL SECTION AND EVALUATE WHETHER A REDESIGN IS REQUIRED.
4. TRENCHES FOR THE CONDUITS SHALL BE HAND DUG NEAR THE PROPOSED FOUNDATION, DISTURBING AS LITTLE SOIL AS POSSIBLE IN PLACING OF THE CONDUITS (APPROXIMATELY 2.5 FT MAXIMUM DOWN FROM THE EXISTING GROUND SURFACE). THE RESULTING TRENCHES SHALL BE BACKFILLED WITH STRUCTURAL FILL CONFORMING TO SECTION 508.
5. WHERE BEDROCK IS ENCOUNTERED, A REDUCTION IN CIRCULAR SHAFT LENGTH MAY BE POSSIBLE FOR THE DRILLED HOLE METHOD ONLY, AS DESCRIBED IN THE DRILLED HOLE NOTES.
6. CAST IN PLACE CONCRETE SHALL BE CLASS A HAVING A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI AND BE PLACED IN CONFORMANCE WITH SECTION 520. CYLINDERS FOR STRENGTH TESTING SHALL BE TAKEN DURING CONCRETE PLACEMENT.
7. CONCRETE FOR A PRECAST CIRCULAR SHAFT FOUNDATION SHALL BE CLASS AAA WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 5000 PSI CONSTRUCTED IN CONFORMANCE WITH SECTION 520. INSPECTION BY A DEPARTMENT REPRESENTATIVE DURING THE PRECASTING AT THE PLANT IS REQUIRED. CONTACT THE BUREAU OF MATERIALS AND RESEARCH AT 271-1656 TO ARRANGE FOR PLANT INSPECTION AT LEAST 14 DAYS PRIOR TO CASTING.
8. STAINLESS STEEL STD. GR. WIRE CLOTH. 1/4" MAX. OPENING WITH MIN. WIRE DIA. OF AWG NO. 16 WITH 2" LAP. SECURE WITH 3/4" STAINLESS STEEL BANDING AFTER ANCHOR RODS ARE FULLY TIGHTENED.
9. NO GROUT SHALL BE PLACED BETWEEN THE FOUNDATION AND BOTTOM OF THE BASE PLATE.
10. THE EXPOSED LENGTH OF THE ANCHOR ROD BETWEEN THE TOP OF THE FOUNDATION AND THE BOTTOM OF THE LEVELING NUT SHOULD NOT EXCEED ONE ROD DIAMETER (MAXIMUM) OR 1-INCH (PREFERRED).
11. FOR THE INSTALLATION, PRETENSIONING AND ULTRASONIC TESTING OF ANCHOR RODS, SEE THE SPECIAL PROVISION AMENDMENT TO SECTION 616, TRAFFIC SIGNALS.
12. ALL REINFORCING STEEL SHALL CONFORM TO AASHTO M31/M31M, GRADE 60 (420). ALL REINFORCING STEEL SHALL BE A MINIMUM OF 3 INCHES FROM CONCRETE SURFACES, UNLESS NOTED OTHERWISE, AND MEET THE REQUIREMENTS OF SECTION 544.
13. TYPE 2 FOUNDATIONS SHALL BE PAID FOR UNDER ITEM 616.1XX.

DRILLED HOLES

1. THE CIRCULAR SHAFT FOUNDATION SHALL BE CONSTRUCTED OF CAST IN PLACE CONCRETE AGAINST UNDISTURBED MATERIAL USING TEMPORARY CASING IF NECESSARY. THE CONCRETE MIX SHALL BE CAPABLE OF FLOWING THROUGH THE REINFORCING CAGE TO THE EXCAVATION SIDES WITH MINIMAL USE OF VIBRATION EQUIPMENT WHETHER THE METHOD OF PLACEMENT IS FREEFALL OR UNDERWATER. THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER FOR VISUAL INSPECTION OF THE EXCAVATION, THE ARRANGEMENT OF THE REINFORCING BARS, AND THE ANCHOR BOLTS PRIOR TO CONCRETE PLACEMENT.
2. THE EXPOSED PORTION OF THE SHAFT AND TO A DEPTH OF AT LEAST 12 INCHES SHALL HAVE A FORMED APPEARANCE WITH THE TOP HAVING A SMOOTH LEVEL FINISH.
3. UNDERWATER PLACEMENT PROCEDURES (TREMIE OR PUMPING METHODS) SHALL BE REQUIRED WITHIN A DRILLED HOLE WHERE THE STANDARDS FOR A DRY EXCAVATION AND FREE FALL PLACEMENT METHOD CANNOT BE MET. THE WATER LEVEL WITHIN A DRILLED HOLE SHALL BE AT A STABILIZED, STATIC LEVEL AT THE TIME OF CONCRETE PLACEMENT.
4. WHERE BEDROCK IS ENCOUNTERED, THE DRILL SHALL PENETRATE THE BEDROCK A MINIMUM OF 3 FEET AND IN ALL CASES A MINIMUM SHAFT LENGTH OF 5 FEET SHALL BE OBTAINED. IT IS NOT NECESSARY TO EXTEND THE SHAFT IN BEDROCK BEYOND THE SPECIFIED SOIL-BASED LENGTH GIVEN ON THE PLANS.
5. WHERE FILL EMBANKMENT IS TO BE CONSTRUCTED ABOVE THE EXISTING GROUND, THE EMBANKMENT SHALL BE BUILT PRIOR TO CONSTRUCTING THE SHAFT. PLACEMENT AND COMPACTION OF THE FILL SHALL BE IN ACCORDANCE WITH SECTION 203.
6. IF THE DRILLED HOLE METHOD IS PERFORMED AND THE SOILS ARE FOUND TO BE UNSUITABLE, AN EXCAVATED HOLE SHALL BE COMPLETED AS APPROVED BY THE ENGINEER.

EXCAVATED HOLES

▲ 1. AS AN ALTERNATIVE TO A DRILLED HOLE, THE CIRCULAR SHAFT FOUNDATION CONCRETE SHALL BE CONSTRUCTED IN AN EXCAVATED HOLE. THE FOUNDATION SHALL BE CAST IN PLACE USING FORMS (WHICH MUST BE REMOVED) OR ALTERNATIVELY A PRECAST CIRCULAR SHAFT FOUNDATION SHALL BE INSTALLED.

2. THE EXCAVATED HOLE SHALL BE AT LEAST 3 FT CLEAR OF THE FOUNDATION SIDES AND 1 FT DEEPER THAN THE FOUNDATION.
3. ANY BEDROCK ENCOUNTERED SHALL BE REMOVED TO THE SAME LIMITS AS DESCRIBED FOR SOIL (SEE PREVIOUS NOTE). IF THIS IS NOT POSSIBLE THEN THE ENGINEER SHALL REQUEST A REDESIGN.
4. THE EXCAVATED HOLE SHALL BE BACKFILLED TO THE LIMITS OF EXCAVATION WITH STRUCTURAL FILL ACCORDING TO SECTION 508. NO PAYMENT SHALL BE MADE FOR STRUCTURAL FILL OR EXCAVATION.

STANDARD NO. TS-4

REVISION DATE
07-13-01
02-26-10
10-09-17
01-17-19

*.DGN FILE NAME
TS-4

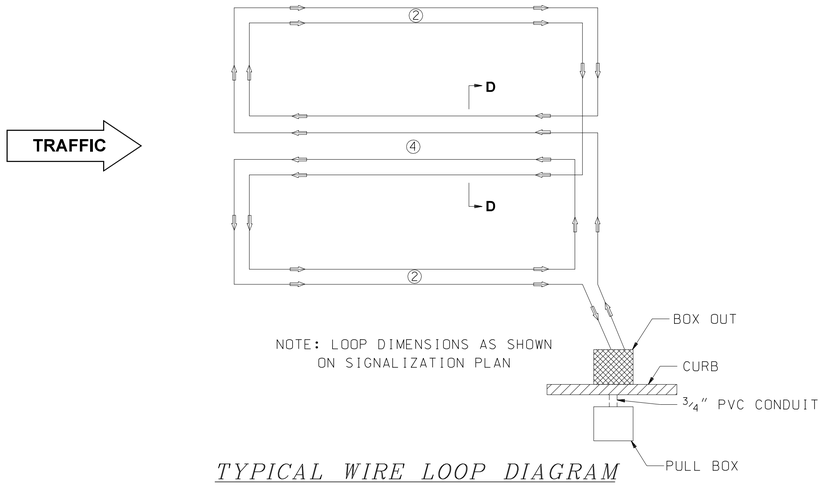
2021 STANDARD PLAN

New Hampshire DOT Department of Transportation

TRAFFIC SIGNAL STANDARD

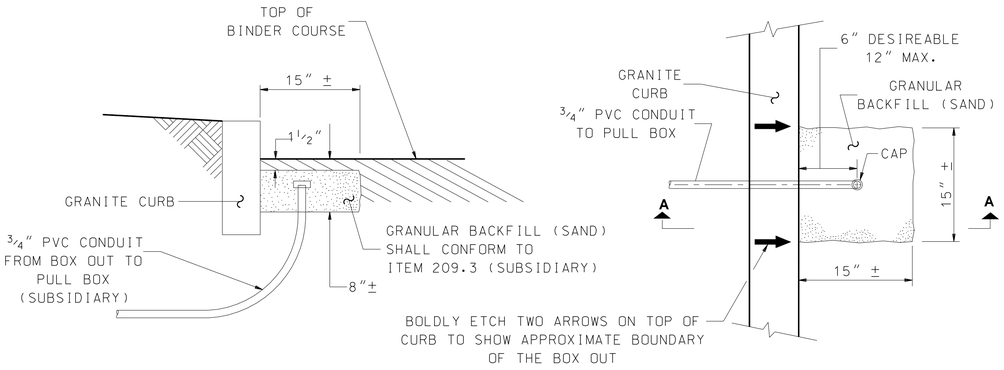
Traffic Signal Mast Arm Foundation - Type 2

STANDARD NO. TS-4



TYPICAL WIRE LOOP DIAGRAM

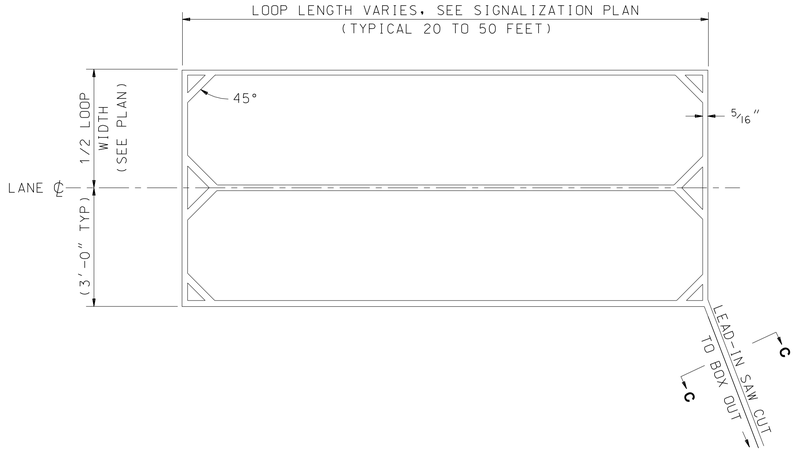
NOT TO SCALE



SECTION A-A **PLAN**

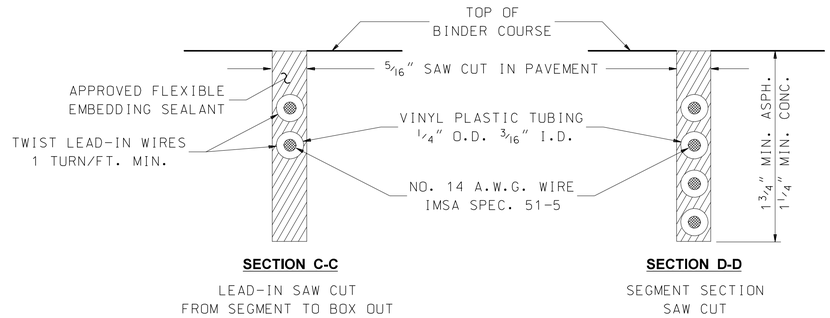
DETECTOR BOX OUT DETAIL STAGE 1: AT PAVING

NOT TO SCALE



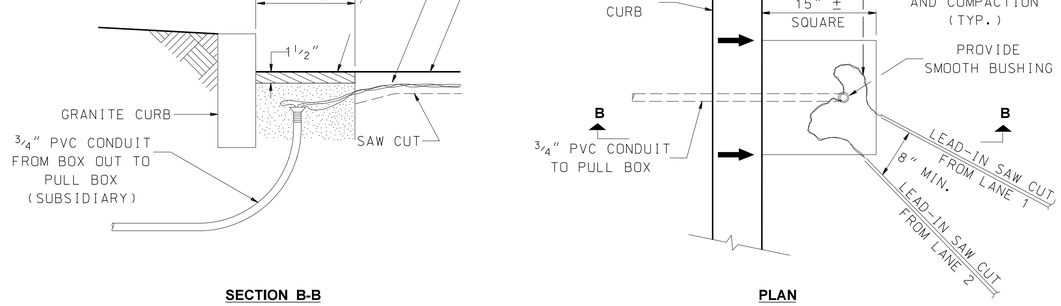
QUADRUPOLE LOOP INSTALLATION SAW CUT DETAIL

NOT TO SCALE



LOOP DETECTOR SEGMENT DETAIL

NOT TO SCALE



DETECTOR BOX OUT DETAIL STAGE 2: AT LOOP INSTALLATION

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.

STANDARD NO. TS-5

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

.DGN FILE NAME
TS-5

2021 STANDARD PLANS

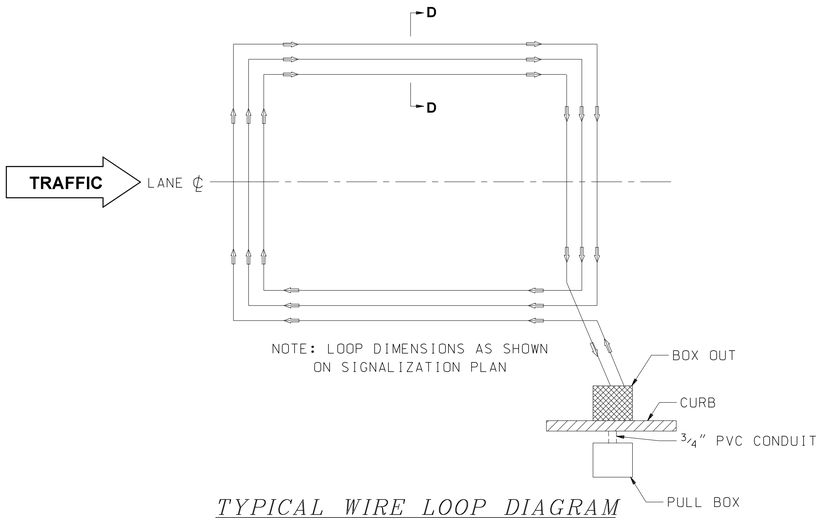
April

New Hampshire DOT Department of Transportation

TRAFFIC SIGNAL STANDARD

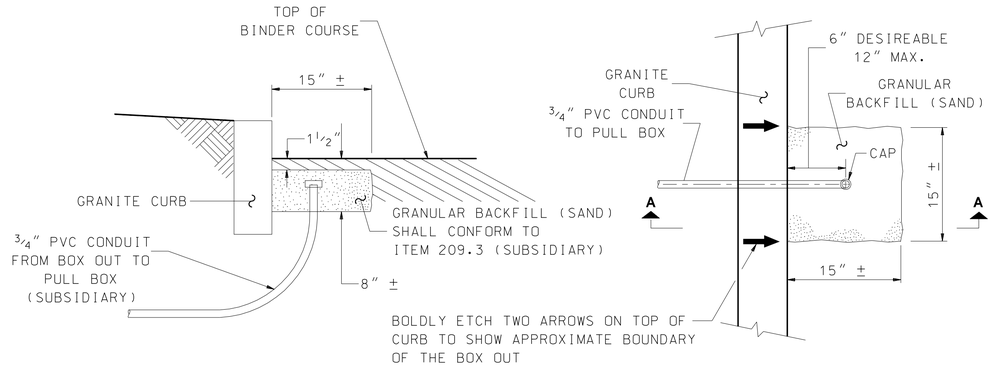
QUADRUPOLE LOOP DETECTOR 2-4-2 TURNS

STANDARD NO. TS-5



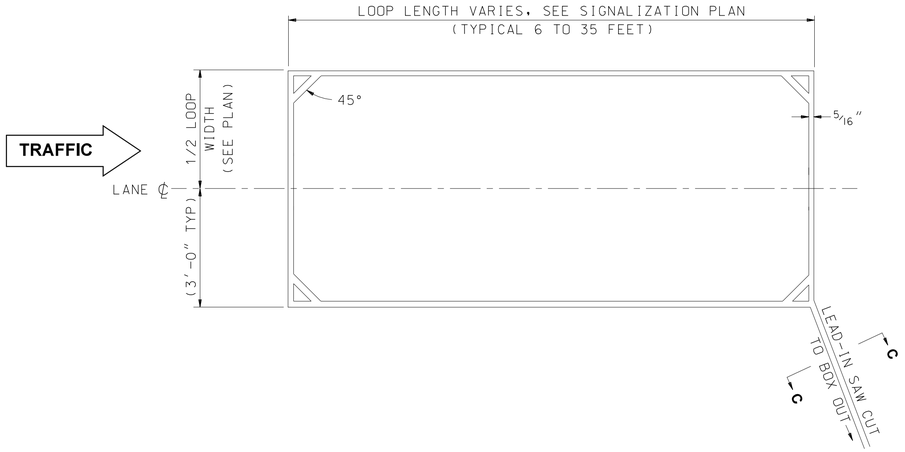
TYPICAL WIRE LOOP DIAGRAM

NOT TO SCALE



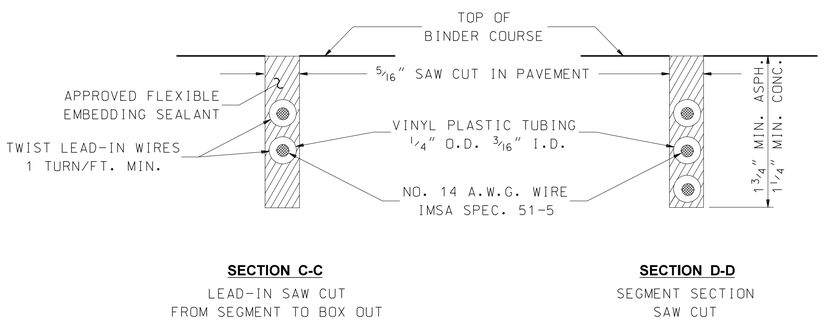
DETECTOR BOX OUT DETAIL STAGE 1: AT PAVING

NOT TO SCALE



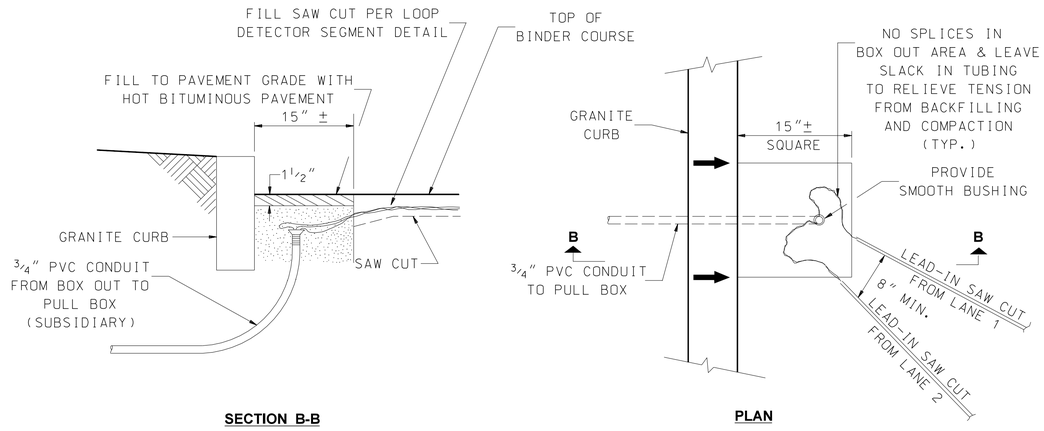
RECTANGULAR LOOP INSTALLATION SAW CUT DETAIL

NOT TO SCALE



LOOP DETECTOR SEGMENT DETAIL

NOT TO SCALE



DETECTOR BOX OUT DETAIL STAGE 2: AT LOOP INSTALLATION

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.

STANDARD
NO. TS-6

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

.DGN FILE NAME
TS-6

2021

STANDARD PLANS

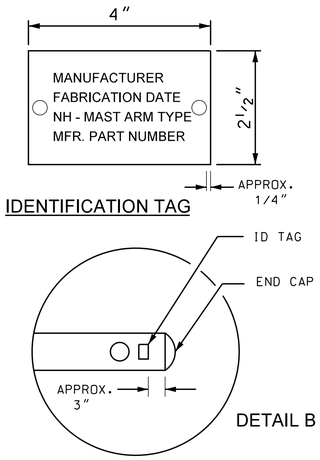
April

New Hampshire DOT Department of Transportation

TRAFFIC SIGNAL STANDARD

RECTANGULAR LOOP DETECTOR
3 TURNS

STANDARD
NO. TS-6



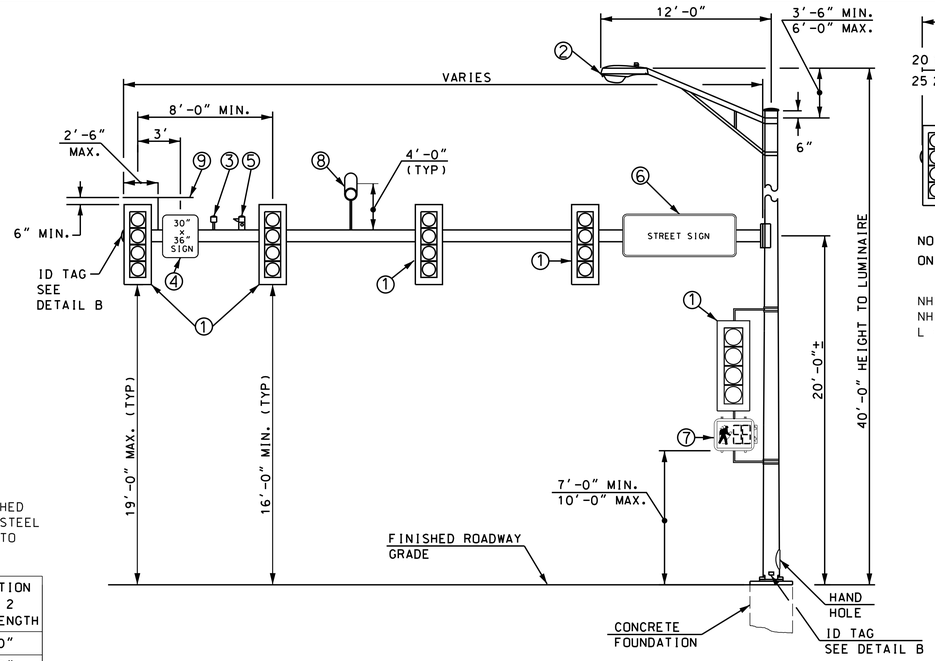
IDENTIFICATION TAG

DETAIL B

ID TAG NOTE:

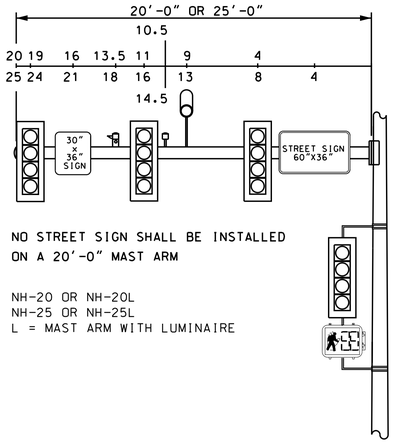
TAG SHALL BE ALUMINUM OR STAINLESS STEEL AND ATTACHED TO POLE OR MAST ARM USING TWO RIVETS OR STAINLESS STEEL DRIVE SCREWS. ID TAG HOLES SHALL BE DRILLED PRIOR TO GALVANIZING.

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"



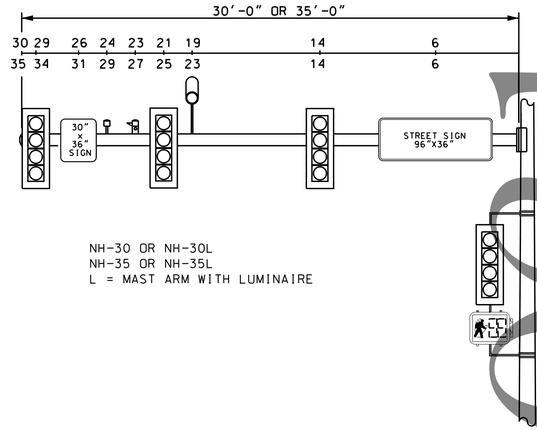
ITEM NO.	DESCRIPTION	WEIGHT (LBS.)	AREA (SQ. FT.)	SURFACE AREA (SQ. FT.)
①	4-SECTION HEAD	90	11.0	40.0
②	250 WATT LIMINAIRE	30	3.3	3.5
③	STROBE	5	1.0	N/A
④	SIGN	3.0 LB/SF	5.0	N/A
⑤	PREEMPTION RECEIVER	5	1.0	N/A
⑥	SIGN	AS	SHOWN	VARIES
⑦	PEDESTRIAN SIGNAL	80	8.0	N/A
⑧	VIDEO DETECTION	40	3.0	VARIES
⑨	MITIGATION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

THE LOCATION OF THE STROBE AND PREEMPTION RECEIVER VARY.

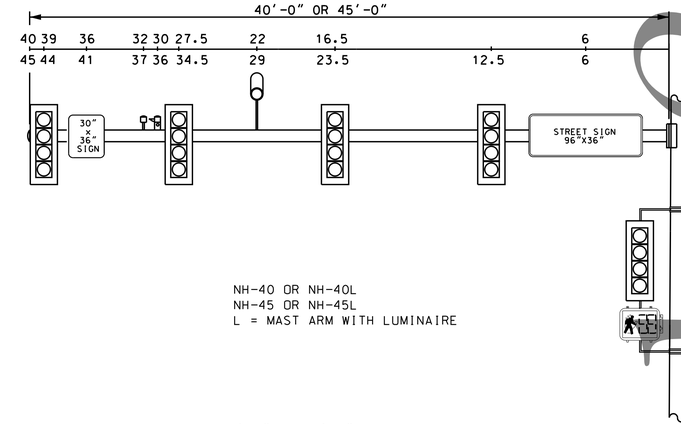


NO STREET SIGN SHALL BE INSTALLED ON A 20'-0" MAST ARM

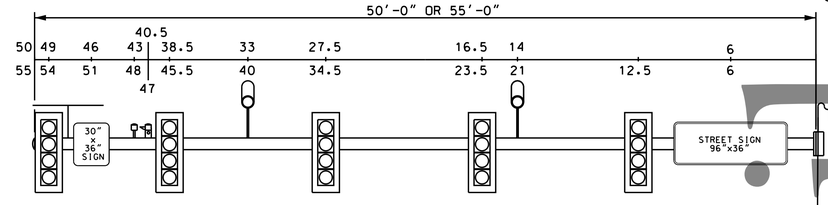
NH-20 OR NH-20L
NH-25 OR NH-25L
L = MAST ARM WITH LUMINAIRE



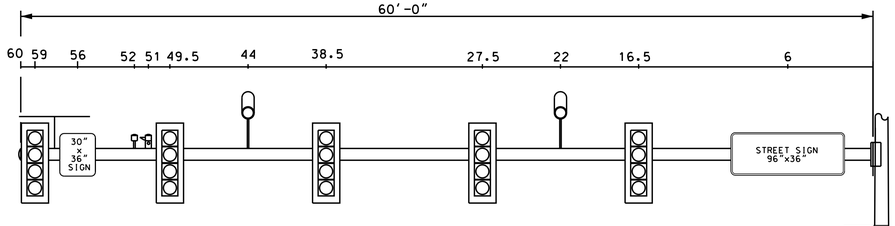
NH-30 OR NH-30L
NH-35 OR NH-35L
L = MAST ARM WITH LUMINAIRE



NH-40 OR NH-40L
NH-45 OR NH-45L
L = MAST ARM WITH LUMINAIRE



NH-50 OR NH-50L
NH-55 OR NH-55L
L = MAST ARM WITH LUMINAIRE



NH-60 OR NH-60L
L = MAST ARM WITH LUMINAIRE

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.

NOT TO SCALE
(TYP)

GENERAL NOTES

NOTES FOR TRAFFIC SIGNAL POLES, MAST ARMS AND PEDESTALS

1. 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.
2. STEEL STRUCTURES, UNLESS OTHERWISE INDICATED, SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A 123.
3. 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.
4. 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.
5. MAST ARM SIGNS SHALL BE INSTALLED ON THE MAST ARM ONE HALF THE SIGN WIDTH DISTANCE PLUS TWO FEET.
6. A MITIGATION DEVICE SHALL BE INSTALLED ON ALL MAST ARM LENGTHS GREATER THAN 50 FEET.
7. 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.
8. SEE STANDARD PLANS TS-1, TS-2, TS-3 AND TS-4 FOR STANDARD FOUNDATION PLANS.

STANDARD NO. TS-7

REVISION DATE
01-17-19

DGN FILE NAME
TS-7

2021 STANDARD PLANS

New Hampshire DOT Department of Transportation

TRAFFIC SIGNAL STANDARD

TRAFFIC SIGNAL MAST ARMS

STANDARD NO. TS-7

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 channleization 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 Paragrah 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

April

New Hampshire DOT Department of Transportation

WORK ZONE TRAFFIC CONTROL

AMENDMENTS TO PART VI MUTCD (2009)

STANDARD NO. TC-1

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.

STANDARD NO. TC-2

REVISION DATE
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TC-2

2021 STANDARD PLANS

April

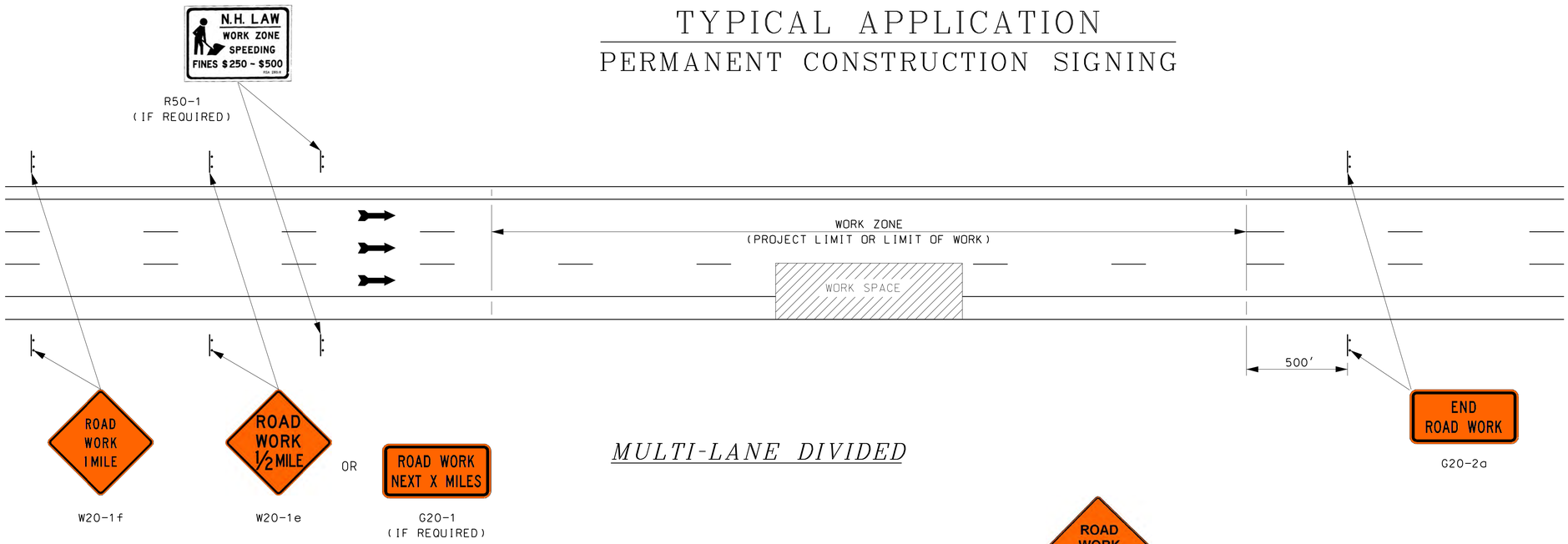
New Hampshire DOT Department of Transportation

WORK ZONE TRAFFIC CONTROL

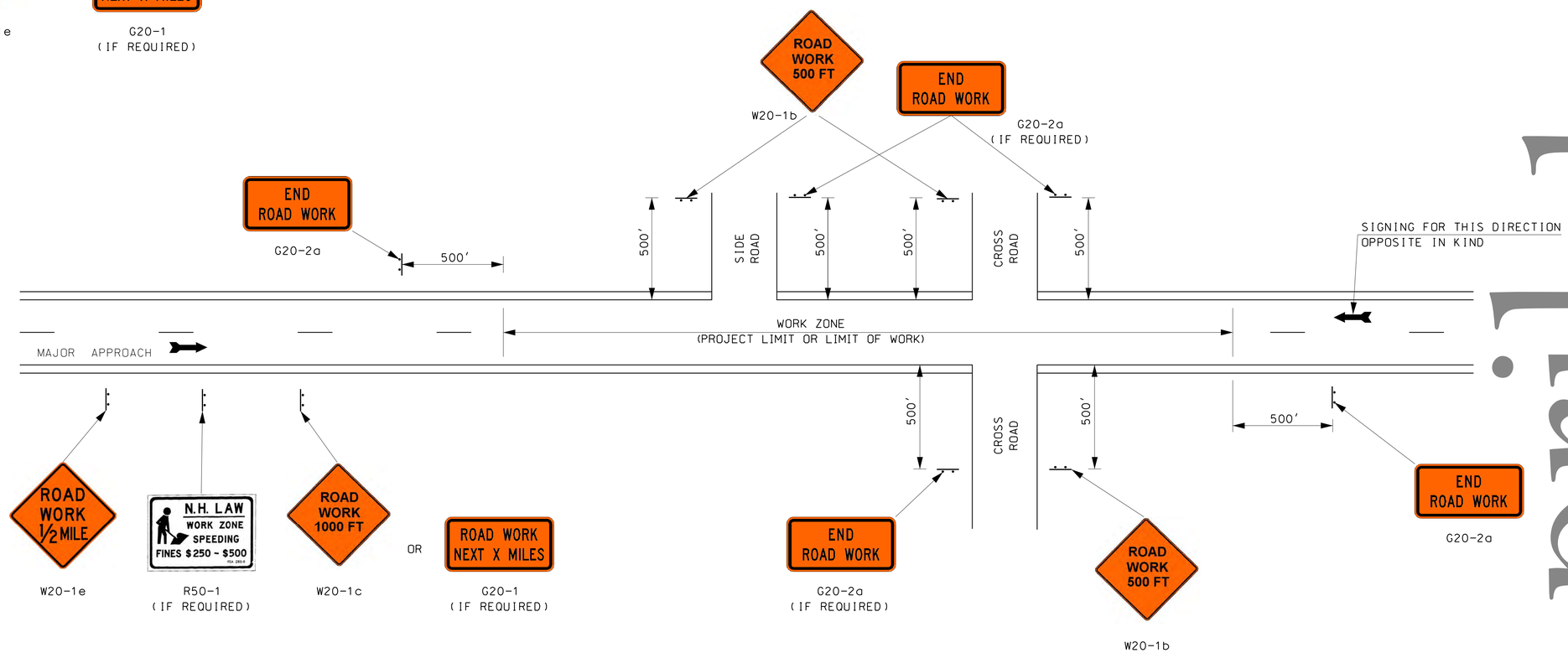
UNIFORMED OFFICERS AND FLAGGERS

STANDARD NO. TC-2

TYPICAL APPLICATION
PERMANENT CONSTRUCTION SIGNING



MULTI-LANE DIVIDED



TWO LANE UNDIVIDED

GENERAL NOTES

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

NOT TO SCALE

STANDARD NO. TC-3

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

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TC-3

2021 STANDARD PLANS

New Hampshire DOT Department of Transportation

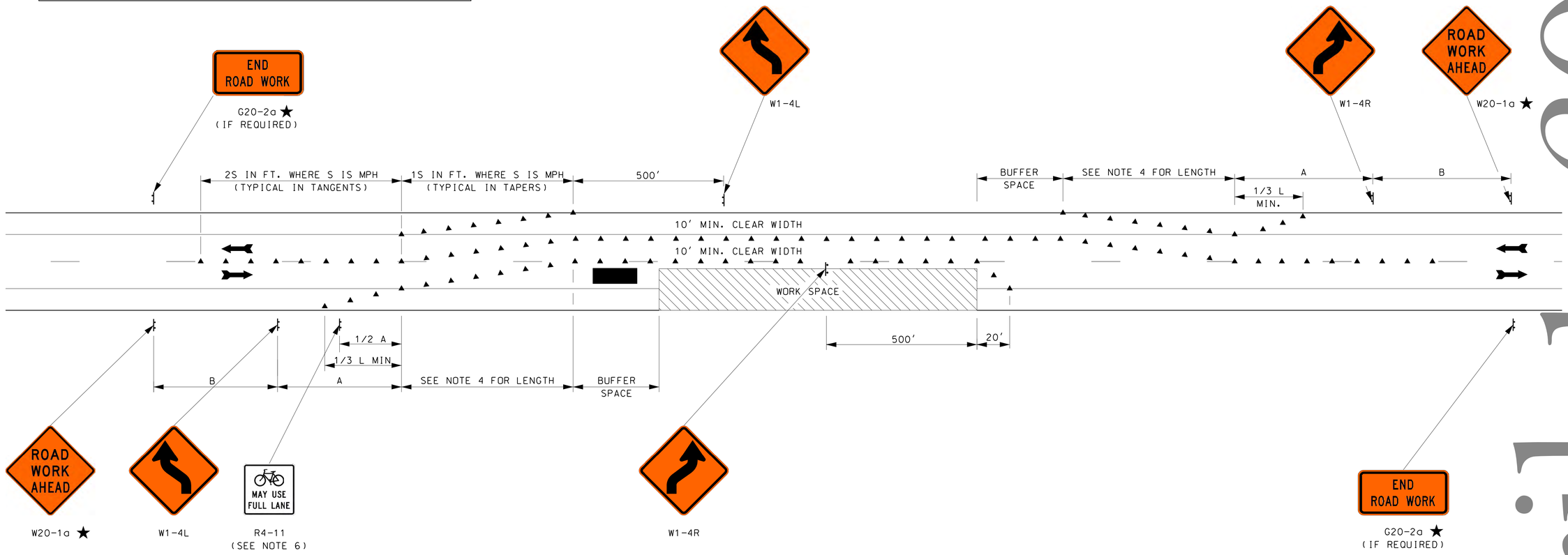
WORK ZONE TRAFFIC CONTROL

PERMANENT CONSTRUCTION SIGNING

STANDARD NO. TC-3

TYPICAL APPLICATION
TWO WAY TRAFFIC LANE SHIFT

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′



GENERAL NOTES

★ SEE AMENDMENT NO. 11 ON TC-1.

1. FOR OPERATIONS WHERE TWO-WAY TRAFFIC LANE SHIFT CAN BE MAINTAINED ON TWO 10′ MIN. CLEAR WIDTH LANES.
2. FOR LONG-TERM STATIONARY OR INTERMEDIATE-TERM STATIONARY WORK, PAVEMENT MARKINGS INDICATING NO PASSING SHALL BE USED. DO NOT PASS SIGNS (R4-1) MAY BE REQUIRED.
3. FOR TAPER LENGTH (L) CRITERIA, SEE MUTCD TABLES 6C-3 AND 6C-4.
4. FOR SPEEDS > 50 MPH, LENGTH = L. FOR SPEEDS ≤ 50 MPH LENGTH = 1/2L.
5. FOR BUFFER SPACE CRITERIA, SEE STOPPING SIGHT DISTANCE, MUTCD TABLE 6C-2.
6. INSTALL ON ALL APPROACHES IF THE CRITERIA IN AMENDMENT NO. 10 ON TC-1 APPLIES.

NOT TO SCALE

LEGEND

▲ CHANNELIZING DEVICES

▬ TMA (SEE TC-1, NOTE 9)

WORK ZONE TRAFFIC CONTROL

TWO WAY TRAFFIC LANE SHIFT

STANDARD NO. TC-4

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

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TC-4

STANDARD PLANS 2021

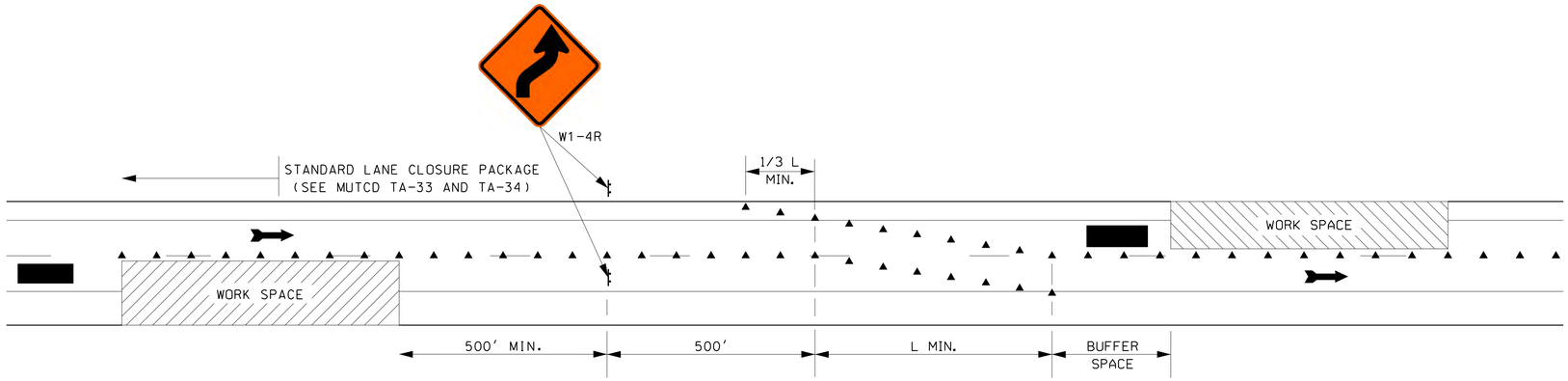
April 2021

New Hampshire DOT Department of Transportation

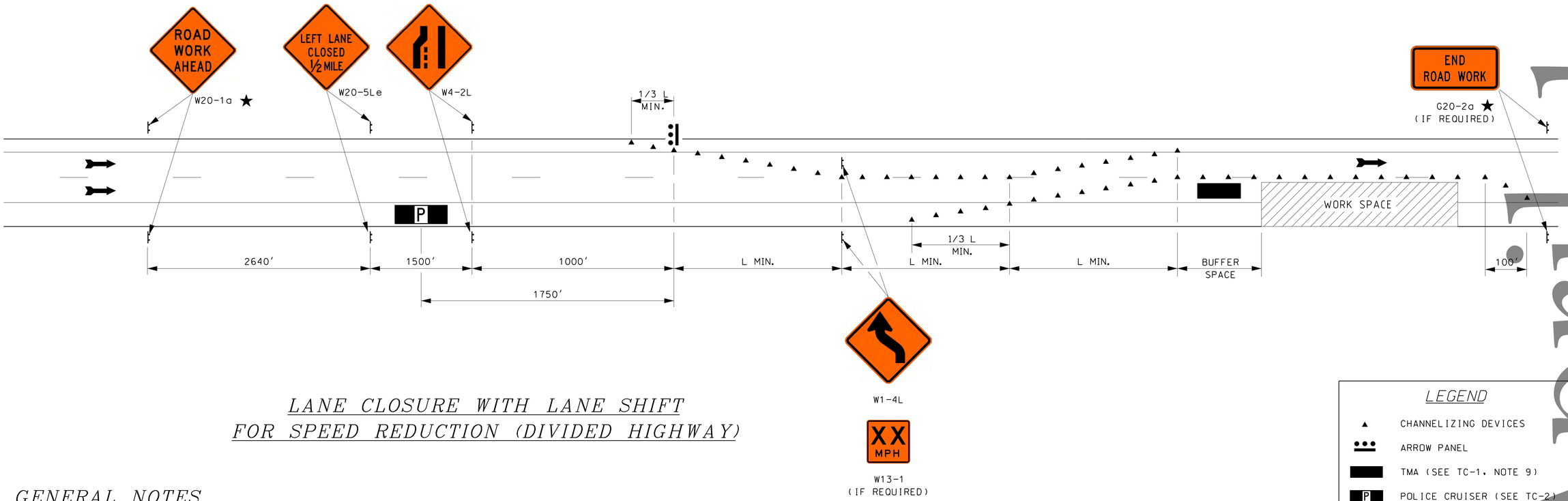
STANDARD NO. TC-4

TYPICAL APPLICATION

LANE SHIFTS - DIVIDED HIGHWAYS



SINGLE LANE SHIFT (DIVIDED HIGHWAY)



LANE CLOSURE WITH LANE SHIFT FOR SPEED REDUCTION (DIVIDED HIGHWAY)

LEGEND

- ▲ CHANNELIZING DEVICES
- ARROW PANEL
- TMA (SEE TC-1, NOTE 9)
- P POLICE CRUISER (SEE TC-2)

GENERAL NOTES

★ SEE AMENDMENT NO. 11 ON TC-1

1. FOR TAPER LENGTH (L) CRITERIA, SEE MUTCD TABLES 6C-3 AND 6C-4.
2. FOR BUFFER SPACE CRITERIA, SEE STOPPING SIGHT DISTANCE, MUTCD TABLE 6C-2.

NOT TO SCALE

WORK ZONE TRAFFIC CONTROL

LANE SHIFTS DIVIDED HIGHWAYS

STANDARD NO. TC-6

REVISION DATE
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03/16/2017
11/28/2018

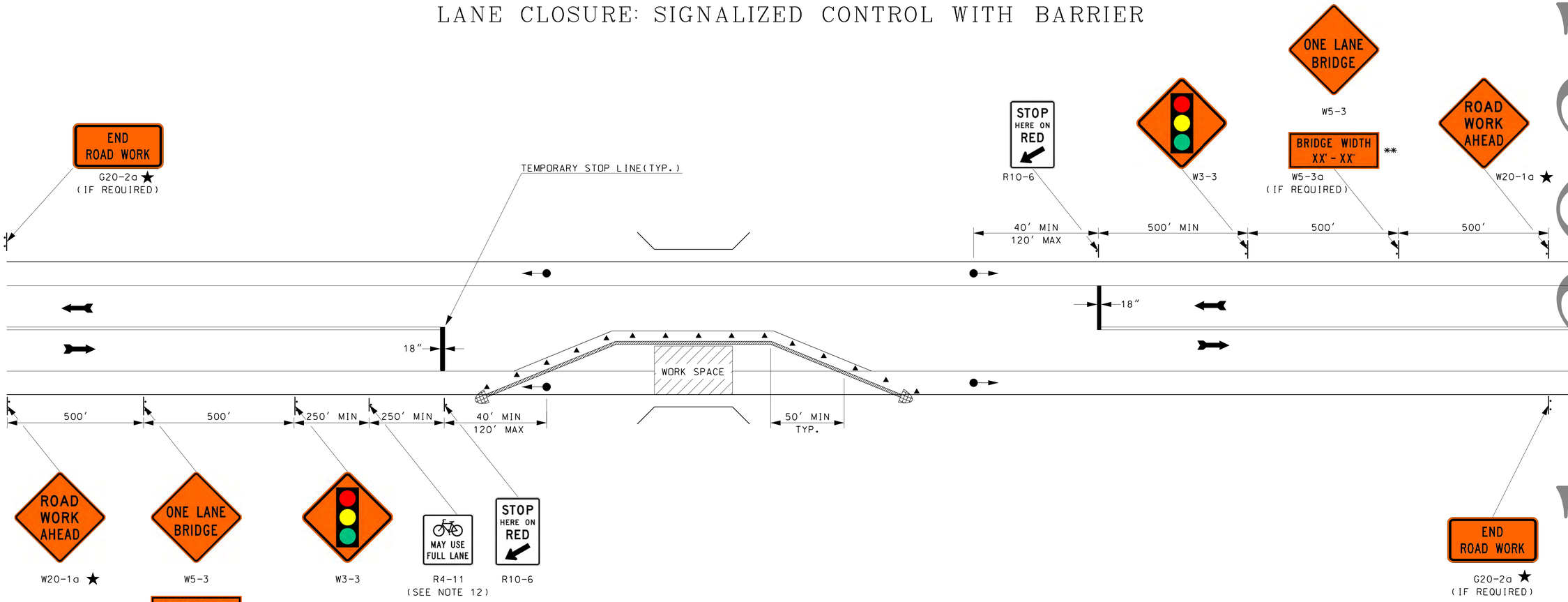
.DGN FILE NAME
TC-6

2021 STANDARD PLANS

New Hampshire DOT Department of Transportation

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.

NOT TO SCALE

LEGEND

- PORTABLE BARRIER
- SIGNAL HEAD
- IMPACT ATTENUATOR
- CHANNELIZING DEVICES

WORK ZONE TRAFFIC CONTROL

LANE CLOSURE: SIGNALIZED CONTROL WITH BARRIER

STANDARD NO. TC-7

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03/16/2017
11/28/2018
05/17/2019

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TC-7

April 2021

STANDARD PLANS

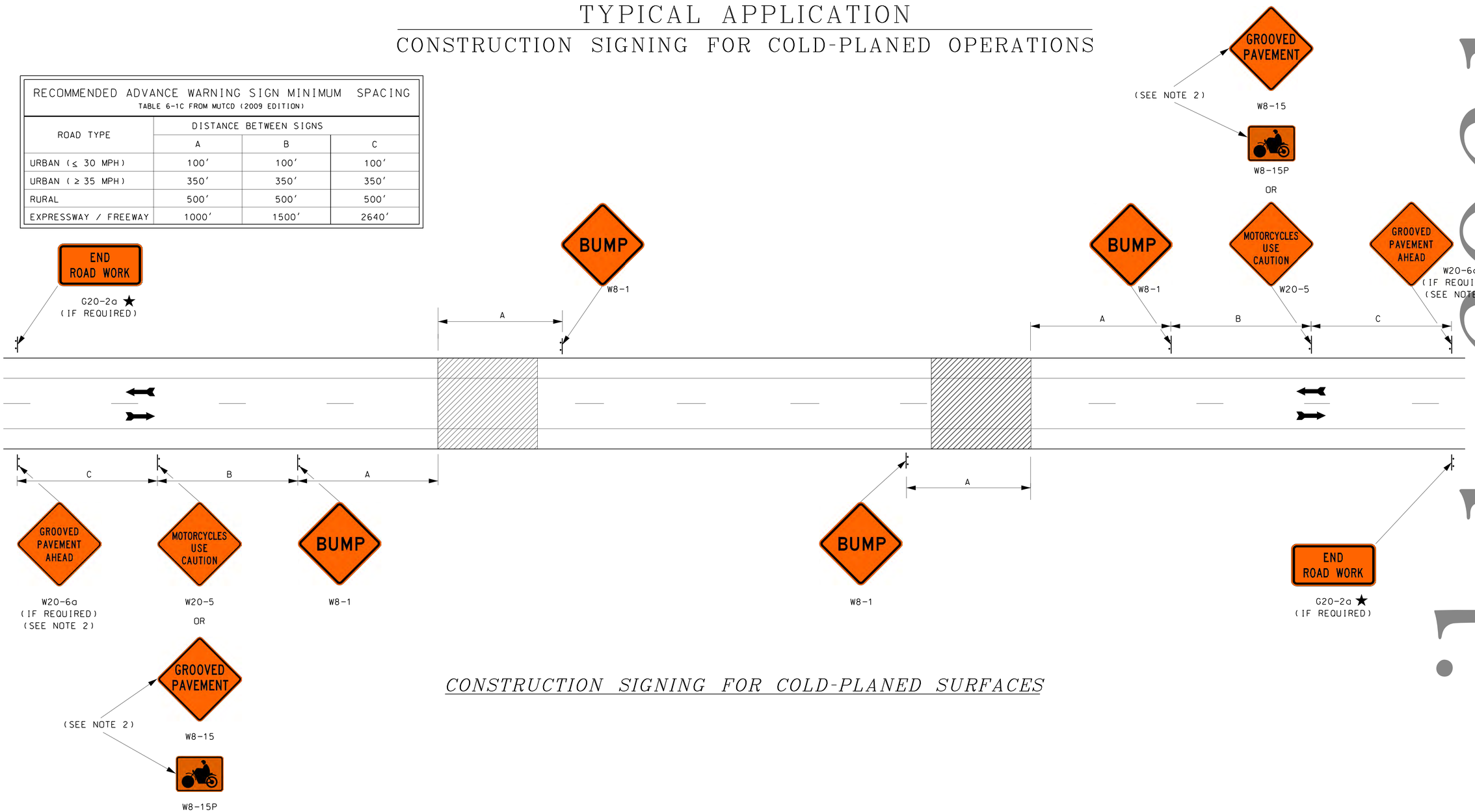
New Hampshire DOT Department of Transportation

STANDARD NO. TC-7

TYPICAL APPLICATION

CONSTRUCTION SIGNING FOR COLD-PLANED OPERATIONS

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′



CONSTRUCTION SIGNING FOR COLD-PLANED SURFACES

GENERAL NOTES

★ SEE AMENDMENT NO. 11 ON TC-1.

1. THE ABOVE DIAGRAM ILLUSTRATES COLD-PLANED SURFACES FOR PAVEMENT MATCHES. THIS SAME SIGN PACKAGE SHALL BE USED FOR ANY COLD-PLANED SURFACE WITHIN THE LIMITS OF THE TRAVELED WAY. SEE PAVEMENT MATCH TYPICAL INCLUDED IN THE PLANS FOR LENGTH OF PAVEMENT MATCH, FILLET DETAIL, ETC.

2. THE GROOVED PAVEMENT AHEAD (W20-6a) SIGN MAY BE ELIMINATED FOR RELATIVELY SHORT PAVEMENT MATCHES AT THE DISCRETION OF THE ENGINEER. IF W20-6a IS NOT USED W8-15 & 18-15P MUST BE PLACED.

NOT TO SCALE

LEGEND

COLD-PLANED SURFACE

WORK ZONE TRAFFIC CONTROL

CONSTRUCTION SIGNING FOR COLD-PLANED OPERATIONS

STANDARD NO. TC-8

REVISION DATE
08/03/2004
03/16/2017
11/28/2018

LDGN FILE NAME
TC-8

2021 STANDARD PLANS

April

New Hampshire DOT Department of Transportation