

INDEX OF SHEETS

1	TITLE SHEET
2	TYPICAL SECTIONS
3	STORMWATER MANAGEMENT DETAILS
4-5	QUANTITY SHEETS
6	EARTHWORK SHEET
7	SURVEY CONTROL AND TIES
8	RIGHT-OF-WAY PLAN
9	LAYOUT PLAN
10	GRADING PLAN
11	EPSC EXISTING CONDITIONS
12	EPSC CONSTRUCTION SITE PLAN
13	EPSC FINAL CONDITIONS
14-15	EPSC DETAILS
16	EPSC NARRATIVE
17	CONSTRUCTION APPROACH SIGNING
18	SIGNS & PAVEMENT MARKINGS
19	SIGN DETAILS
20	TRAFFIC SIGN SUMMARY SHEET
21	LIGHTING PLAN
22-24	LIGHTING DETAILS
25	LANDSCAPING PLAN
26	LANDSCAPING DETAILS
27-28	BUS SHELTER DETAILS
29-32	CROSS SECTIONS

INDEX OF STANDARDS

B-5	06/01/94
B-17	02/23/95
B-71	07/08/05
C-2A	10/14/05
C3-A	03/10/08
C3-B	03/10/08
C-10	02/11/08
D-20	03/03/03
E-100	01/02/04
E-100A	01/02/04
E-101	05/30/03
E-102	06/30/03
E-102A	05/01/04
E-106	03/01/04
E-107	06/30/03
E-107A	06/08/09
E-108	06/08/09
E-110	08/08/95
E-121	08/08/95
E-131	08/08/95
E-132	08/18/95
E-136B	08/08/95
E-142	09/20/95
E-143	06/15/04
E-144	03/29/99
E-146	09/20/95
E-160	05/20/99
E-164	06/08/09
E-173	08/09/95
E-175	06/08/09
E-180A	08/09/95
E-180B	08/09/95
E-191	02/01/99
E-192	10/12/00
E-193	08/18/95

RECORD PLANS

CONTRACTOR: S. D. IRELAND CONC. CONST. CORP - BURLINGTON, VT
 RESIDENT ENGINEER: CHRIS ACHILLES
 CONSTRUCTION BEGAN: APRIL 13, 2012
 CONSTRUCTION COMPLETE: JUNE 29, 2012
 RECORD PLANS BY: CHRIS ACHILLES

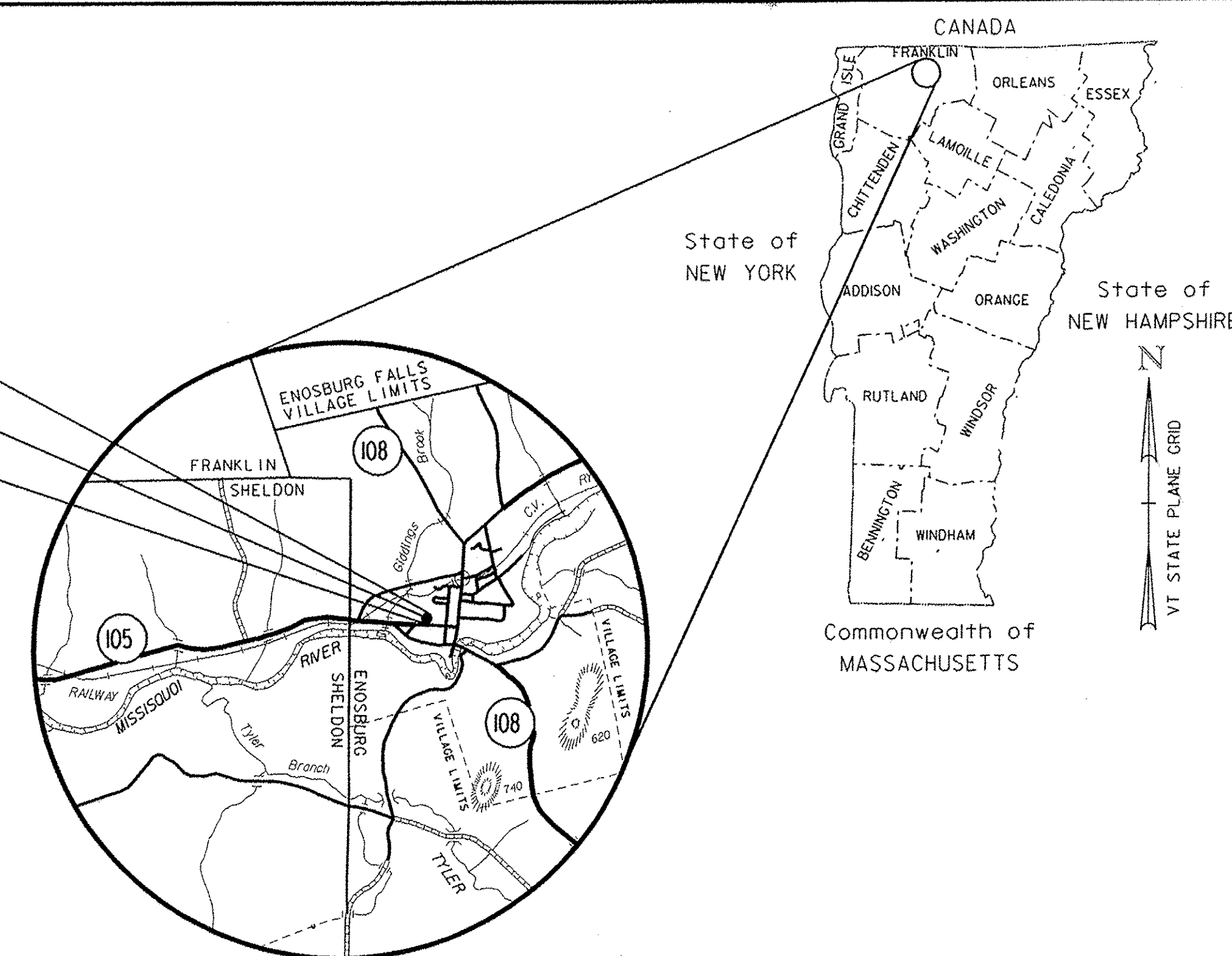
I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.

BY: Chris Achilles RESIDENT ENGINEER
 DATE: 8/29/14

NOTE: Any further information concerning final quantities, amounts or other details relative to this project may be found at Central Files in the electronic archives.

STATE OF VERMONT AGENCY OF TRANSPORTATION VILLAGE OF ENOSBURG COUNTY OF FRANKLIN COMMUTER PARK-AND-RIDE LOT

THIS PROJECT IS LOCATED ON VT. ROUTE 105 IN THE VILLAGE OF ENOSBURG, ON THE WEST SIDE OF THE NATIONAL GUARD ARMORY, ON THE NORTH SIDE OF VT ROUTE 105.
 WORK TO BE PERFORMED UNDER THIS PROJECT INCLUDES THE CONSTRUCTION OF A NEW 59 SPACE PARK-AND-RIDE LOT INCLUDING 3 HANDICAP SPACES. WORK WILL INCLUDE SUBBASE, PAVEMENT, PAVEMENT MARKINGS, SIGNING, LIGHTING, LANDSCAPING, BUS SHELTER AND MISCELLANEOUS APPURTENANCES.



LOCATION MAP

1" = 3/4 MILE (APPROX.)
 0.75 0 0.75

TRAFFIC DATA (ENOSBURG, VT ROUTE 105)		
	2011	2031
AADT	5100	5600
DHV (PM)	570	630
%D (PM)	65 (EB)	65 (EB)
DHV (AM)	430	470
%D (AM)	65 (WB)	65 (WB)
POSTED SPEED = 25 MPH DESIGN SPEED = 25 MPH		

QUALITY ASSURANCE PROGRAM: LEVEL 3

CONVENTIONAL SYMBOLS

COUNTY LINE	
TOWN LINE	
LIMITS OF ACCESS	
POINT OF ACCESS	
FENCE LINE	
STONE WALL	
TRAVELED WAY	
GUARD RAIL	
RAILROAD	
SURVEY LINE	
CULVERT	
POWER POLE	
TELEPHONE POLE	
TREES	
CONTROL OF ACCESS	
PROPERTY LINE	
R.O.W. TAKING LINE	
SLOPE RIGHTS	
TOP OF CUT	
TOE OF SLOPE	

SURVEYED BY: VERMONT SURVEY AND ENGINEERING, INC.
 SURVEYED DATE: 3/02

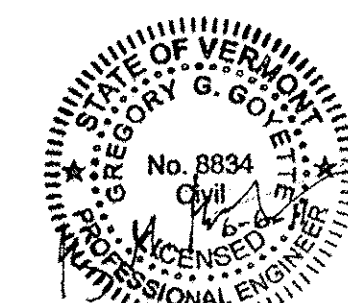
DATUM

VERTICAL: NAVD 88
 HORIZONTAL: NAD 83 (1996)
 VT SPC (FEET)

GRAPHIC SCALE
 (1" = 40')

100 0 100 FEET

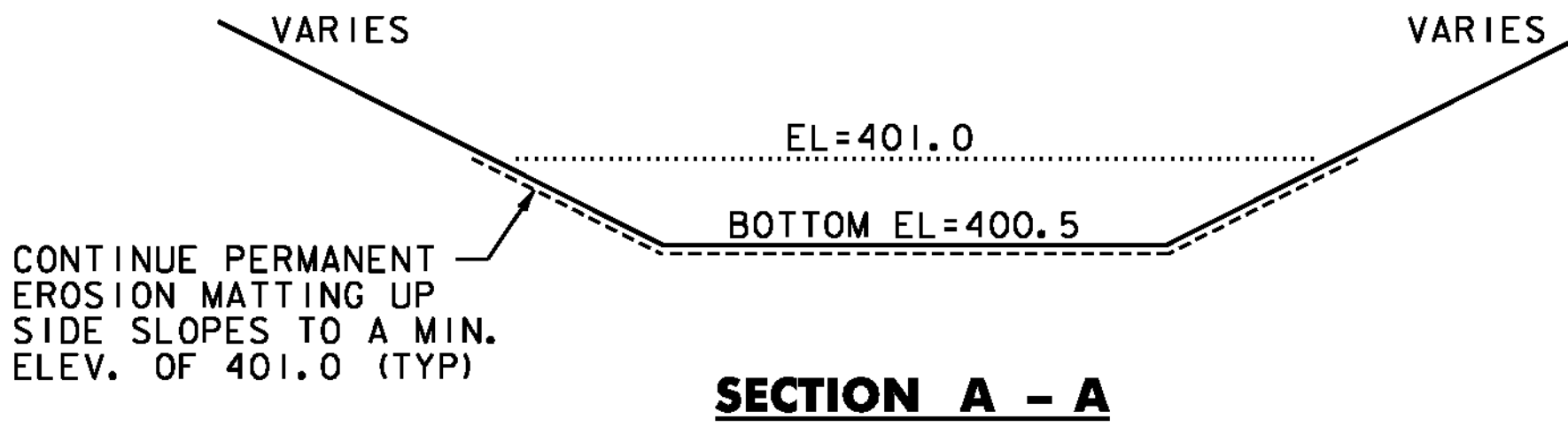
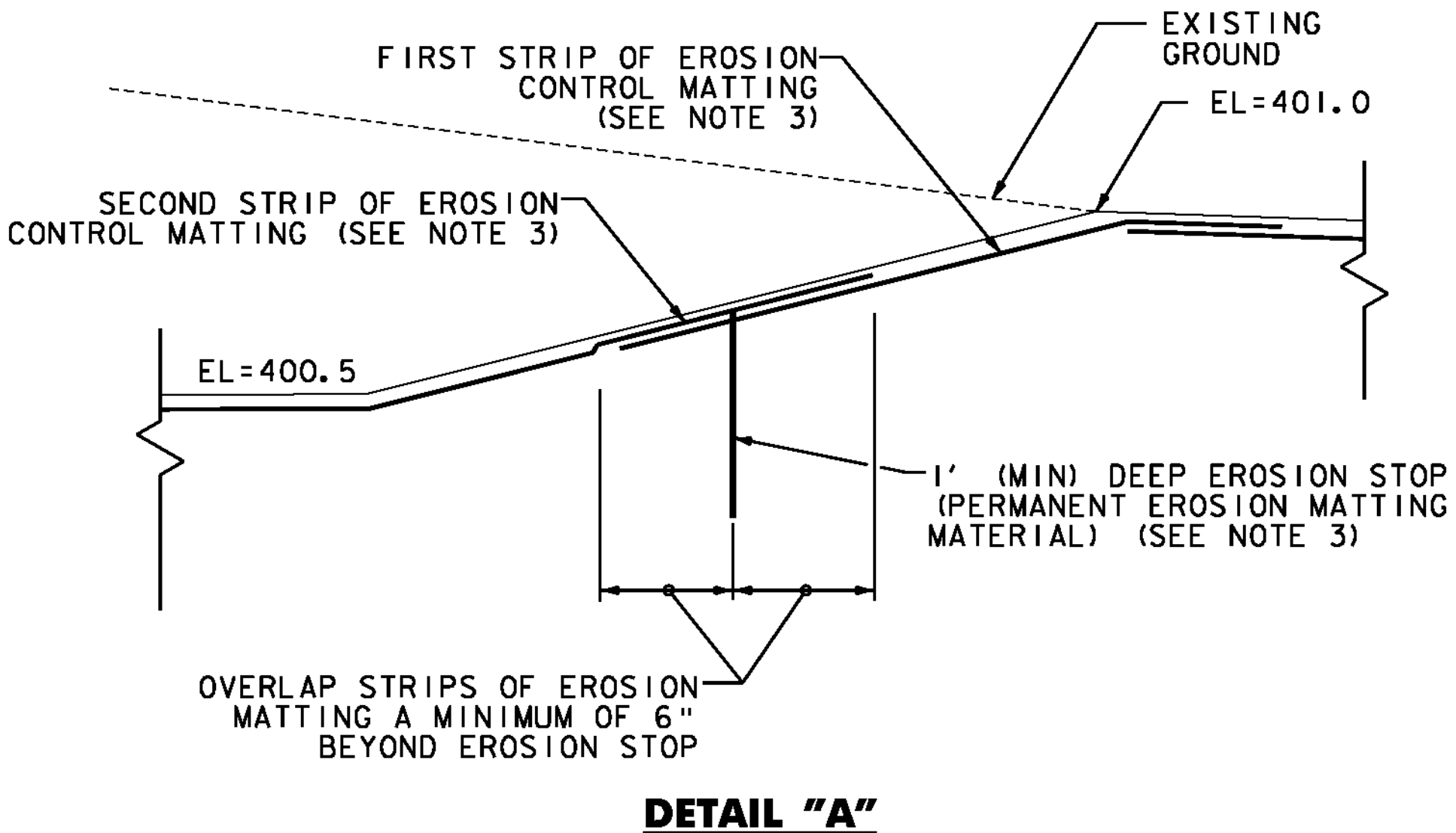
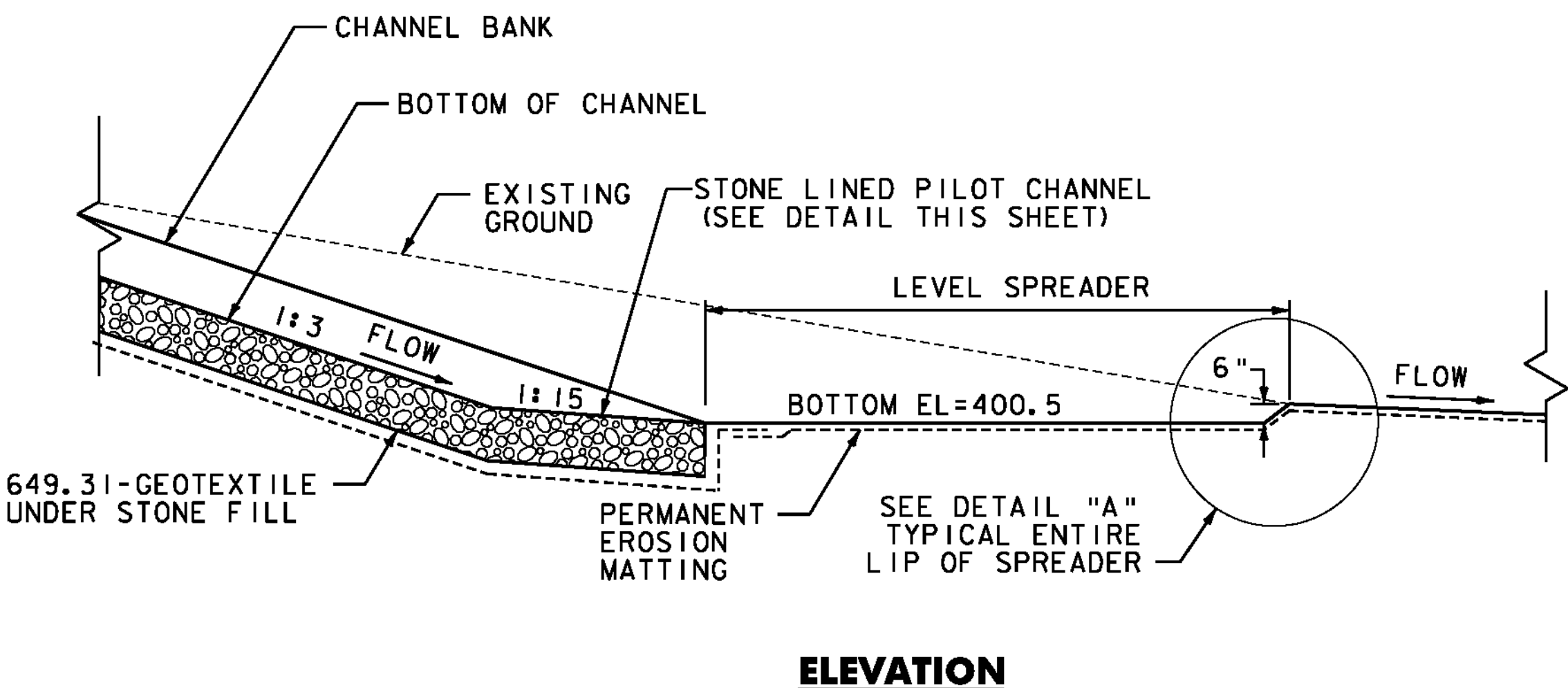
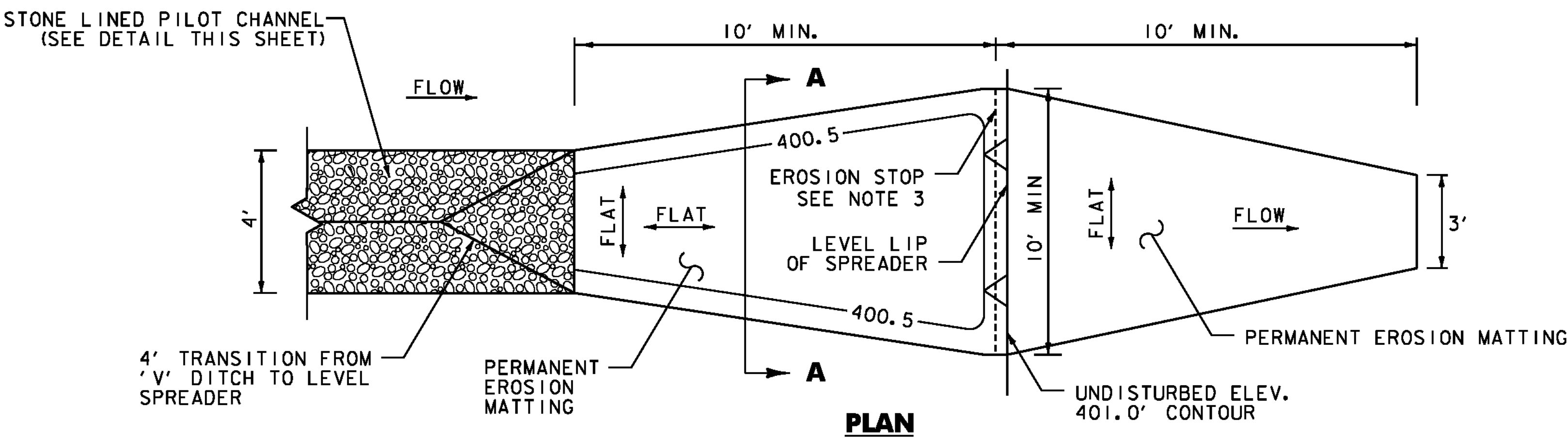
VT ROUTE 105
 STA. 12+73.00, 12.00' LT
 BEGIN PROJECT



DIRECTOR OF PROGRAM DEVELOPMENT	
APPROVED: <u>Wayne L. Davis</u>	DATE: <u>6-15-2014</u>
PROJECT MANAGER: WAYNE L. DAVIS	
PROJECT NAME: ENOSBURG	
PROJECT NUMBER: CMG PARK (20)	
SHEET 1 OF 32 SHEETS	

BUILT AS DESIGNED

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF PROGRAM DEVELOPMENT.
 CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2006, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JUNE 15, 2006 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

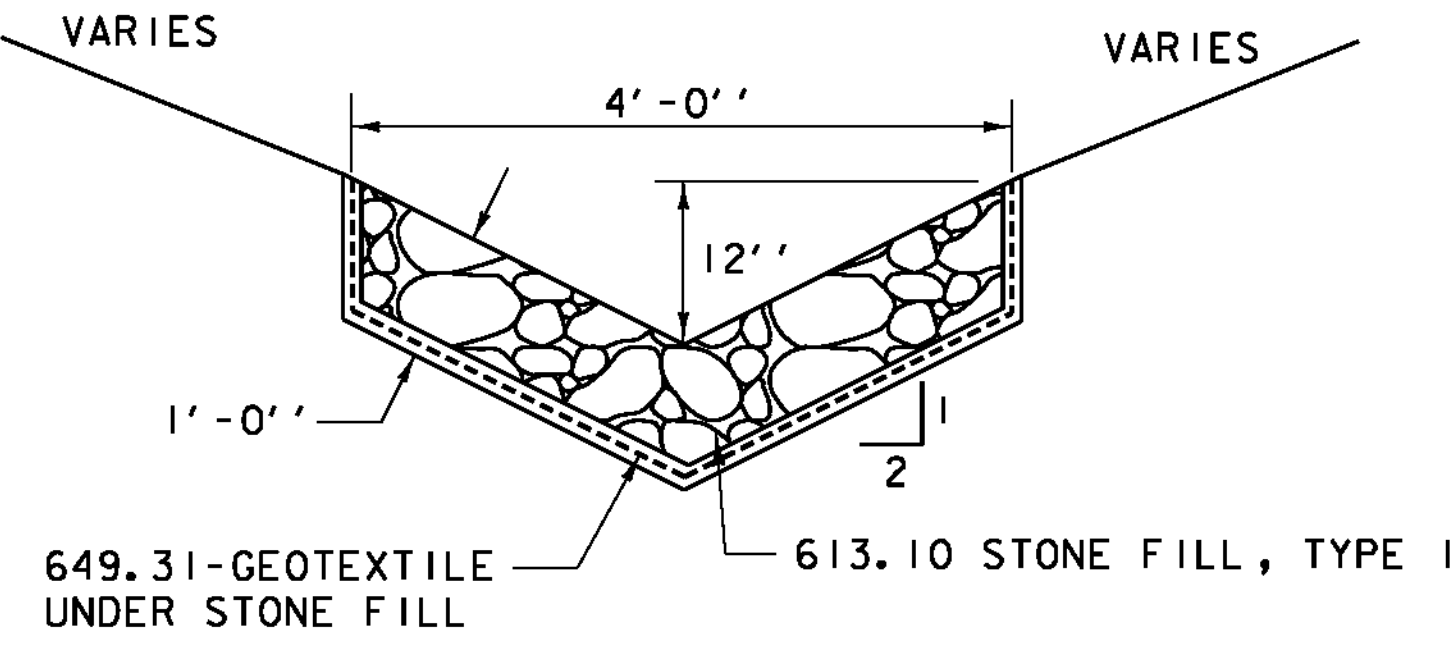


- NOTES:**
1. LEVEL SPREADER TO BE SEEDING IN ACCORDANCE WITH EPSC DETAIL 2, VAOT RURAL AREA MIX.
 2. CONSTRUCT THE LEVEL LIP OF SPREADER ON A ZERO PERCENT GRADE TO ENSURE UNIFORM SPREADING OF RUNOFF. LEVEL SPREADER SHALL BE CONSTRUCTED ON UNDISTURBED SOIL.
 3. AN EROSION STOP SHALL BE PLACED VERTICALLY A MINIMUM OF 1' DEEP IN A SLIT TRENCH 1' IN BACK OF THE LEVEL LIP AND PARALLEL TO THE LIP. THE EROSION STOP SHALL EXTEND THE ENTIRE LENGTH OF THE LEVEL LIP. THE ENTIRE LEVEL LIP AREA SHALL BE PROTECTED BY PLACING TWO STRIPS OF EROSION CONTROL MATTING, ITEM 653.21 - PERMANENT EROSION MATTING, ALONG THE LIP. EACH STRIP SHALL OVERLAP THE EROSION STOP BY AT LEAST 6".
 4. THE FLOW FROM THE SPREADER SHALL OUTLET ONTO A STABILIZED AREA. WATER SHOULD NOT RE-CONCENTRATE IMMEDIATELY BELOW THE SPREADER.
 5. ANY EXCAVATION REQUIRED FOR LEVEL SPREADER AND STONE LINED PILOT DITCH SHALL BE PAID AS ITEM 203.15 COMMON EXCAVATION.
 6. EROSION STOP PAID AS ITEM 653.21 PERMANENT EROSION MATTING.

NOTE: SEE GRADING PLAN FOR MORE INFORMATION

LEVEL SPREADER DETAILS

NOT TO SCALE



PROJECT NAME:	ENOSBURG
PROJECT NUMBER:	CMG PARK(20)
FILE NAME: ... \PlotFiles\03stwmgt_det.plt	PLOT DATE: 5/23/2011
PROJECT LEADER: WLD	DRAWN BY: STANTEC
DESIGNED BY: CSP/GGG	CHECKED BY: GAS
STORMWATER MANAGEMENT DETAILS	
SHEET 3 OF 32	

STATE OF VERMONT AGENCY OF TRANSPORTATION														QUANTITY SHEET 1											
SUMMARY OF ESTIMATED QUANTITIES														TOTALS		DESCRIPTIONS						DETAILED SUMMARY OF QUANTITIES			
										PARK-AND- RIDE	LANDSCAPING	EROSION CONTROL	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS			
														1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10	-			203.16 SOLID ROCK EXCAVATION			
														1280		CY	COMMON EXCAVATION	203.15	14			ESTIMATED QUANTITY - ASSUME MATERIAL NOT AVAILABLE FOR FILL			
														15		CY	SOLID ROCK EXCAVATION	203.16	EST.			SEE SHEET 6 FOR EARTHWORKS SUMMARY			
														1680		CY	EARTH BORROW	203.30	13						
														1560		CY	SAND BORROW	203.31	13						
														1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22	-						
														1440		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35	7						
														2		CY	AGGREGATE SURFACE COURSE	401.10	0.5						
														6		CWT	EMULSIFIED ASPHALT	404.65	1						
														500		TON	BITUMINOUS CONCRETE PAVEMENT	406.25	2						
														1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50	-						
														120		LB	REINFORCING STEEL	507.15	1						
														2		CY	CONCRETE, CLASS B	541.25	0.5						
														10		HR	POWER BROOM RENTAL, TYPE I	608.30	EST.						
														260		MGAL	DUST CONTROL WITH WATER	609.10	10						
														10		CY	STONE FILL, TYPE I	613.10	3						
														305		LF	VERTICAL GRANITE CURB	616.21	4						
														85		SY	PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH	618.10	3						
														10		SF	DETECTABLE WARNING SURFACE	618.30	-						
														50		HR	UNIFORMED TRAFFIC OFFICERS	630.10	EST.						
														300		HR	FLAGGERS	630.15	EST.						
													1	1		LS	FIELD OFFICE, ENGINEERS	631.10	-						
													1	1		LS	TESTING EQUIPMENT, CONCRETE	631.16	-						
													1	1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17	-						
													3000	3000		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26	-						
														1		LS	MOBILIZATION/DEMOBILIZATION	635.11	-						
														1		LS	TRAFFIC CONTROL	641.10	-						
														1975		LF	DURABLE 4 INCH WHITE LINE	646.400	20						
														100		LF	DURABLE 4 INCH YELLOW LINE	646.410	4						
														21		LF	DURABLE 24 INCH STOP BAR	646.480	-						
														8		EACH	DURABLE LETTER OR SYMBOL	646.490	-						
														3740		SY	GEOTEXTILE FOR ROADBED SEPARATOR	649.11	10						
														300		SY	GEOTEXTILE UNDER STONE FILL	649.31	2						
														110		SY	GEOTEXTILE FOR UNDERDRAIN TRENCH LINING	649.41	2						
												265		265		SY	GEOTEXTILE FOR SILT FENCE	649.51	12						
											100			100		LB	SEED	651.15	3						
											250			250		LB	FERTILIZER	651.18	6						
											1			1		TON	AGRICULTURAL LIMESTONE	651.20	-						
											1.5			1.5		TON	HAY MULCH	651.25	0.3						
											265			265		CY	TOPSOIL	651.35	5						
																		PROJECT NAME: ENOSBURG PROJECT NUMBER: CMG PARK(20) FILE NAME: ...\\04-05QuantitySheet.pxf PROJECT LEADER: WLD DESIGNED BY: CSP/GGG QUANTITY SHEET 1				PLOT DATE: 5/23/2011 DRAWN BY: STANTEC CHECKED BY: GAS SHEET 4 OF 32			

QUANTITY SHEET 2

[illegible]

EARTHWORKS



DRAWN BY: STANTEC
CHECKED BY: GAS
SHEET 6 OF 32

GPS CONTROL POINTS

EAST BERKSHIRE

DIRECTION	ACTUAL GRID POINTS		SHIFT TO FIT MICROSTATION DESIGN PLANE	PROJECT SPECIFIC COORDINATE POINTS
	METRIC	ENGLISH		
N	270397.879	887132.149'	-800,000	87132.149'
E	483558.275	1586477.280'	-1,500,000	86477.280'
Z	126.37 m	414.60'	N/A	414.60'

GENERAL LOCATION, EAST BERKSHIRE, VT.
TO REACH FROM THE INTERSECTION OF VT ROUTE 105 AND VT ROUTE 118 SOUTH IN EAST BERKSHIRE GO SOUTHEAST ALONG VT ROUTE 188 FOR 0.05 MI (0.08 KM) TO THE VT ROUTE 118 BRIDGE OVER THE MISSISQUOI RIVER. FROM THE SOUTHEAST END OF THE BRIDGE CONTINUE SOUTHEAST ALONG VT ROUTE 118 FOR ABOUT 164.0 FT (50 M) TO THE SITE OF THE MARK ON THE RIGHT IN A PASTURE. THE MARK IS SET 0.8 IN (2 CM) BELOW GROUND SURFACE IN THE TOP OF A 11.8 IN (30 CM) DIAMETER CONCRETE MONUMENT POURED 4.3 FT (1.3 M) DEEP. IT IS 21.3 FT (6.5 M) SOUTHWEST OF AND ABOUT 1.6 FT (0.5 M) LOWER THAN THE SOUTHWEST EDGE OF PAVEMENT OF VT ROUTE 118, 124.7 FT (38.0 M) NORTHWEST OF POLE NO. 153, AND 4.3 FT (1.3 M) EAST OF POLE NO. 4+1/2 AND A FIBERGLASS WITNESS POST.

- THE HORIZONTAL COORDINATES WERE ESTABLISHED BY GPS OBSERVATIONS AND ADJUSTED BY THE VERMONT GEODETIC SURVEY.
- THE ORTHOMETRIC HEIGHT WAS ESTABLISHED BY GPS OBSERVATIONS.

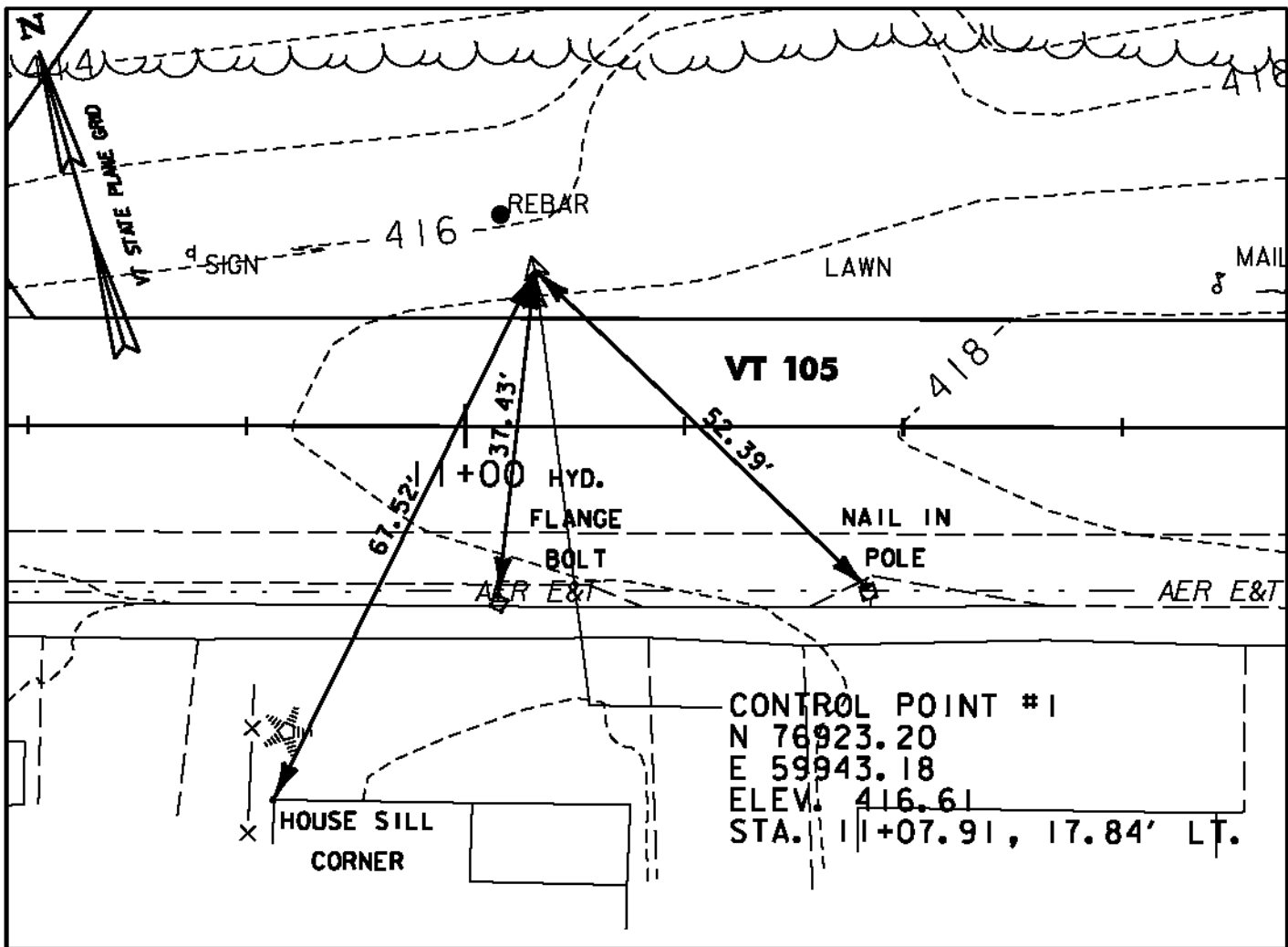
EAST BERKSHIRE AZ MK

DIRECTION	ACTUAL GRID POINTS		SHIFT TO FIT MICROSTATION DESIGN PLANE	PROJECT SPECIFIC COORDINATE POINTS
	METRIC	ENGLISH		
N	269583.690	884460.925	-800,000	84460.925'
E	484025.481	1588010.108	-1,500,000	1438010.108'
Z	74.51 m	244.50'	N/A	244.50'

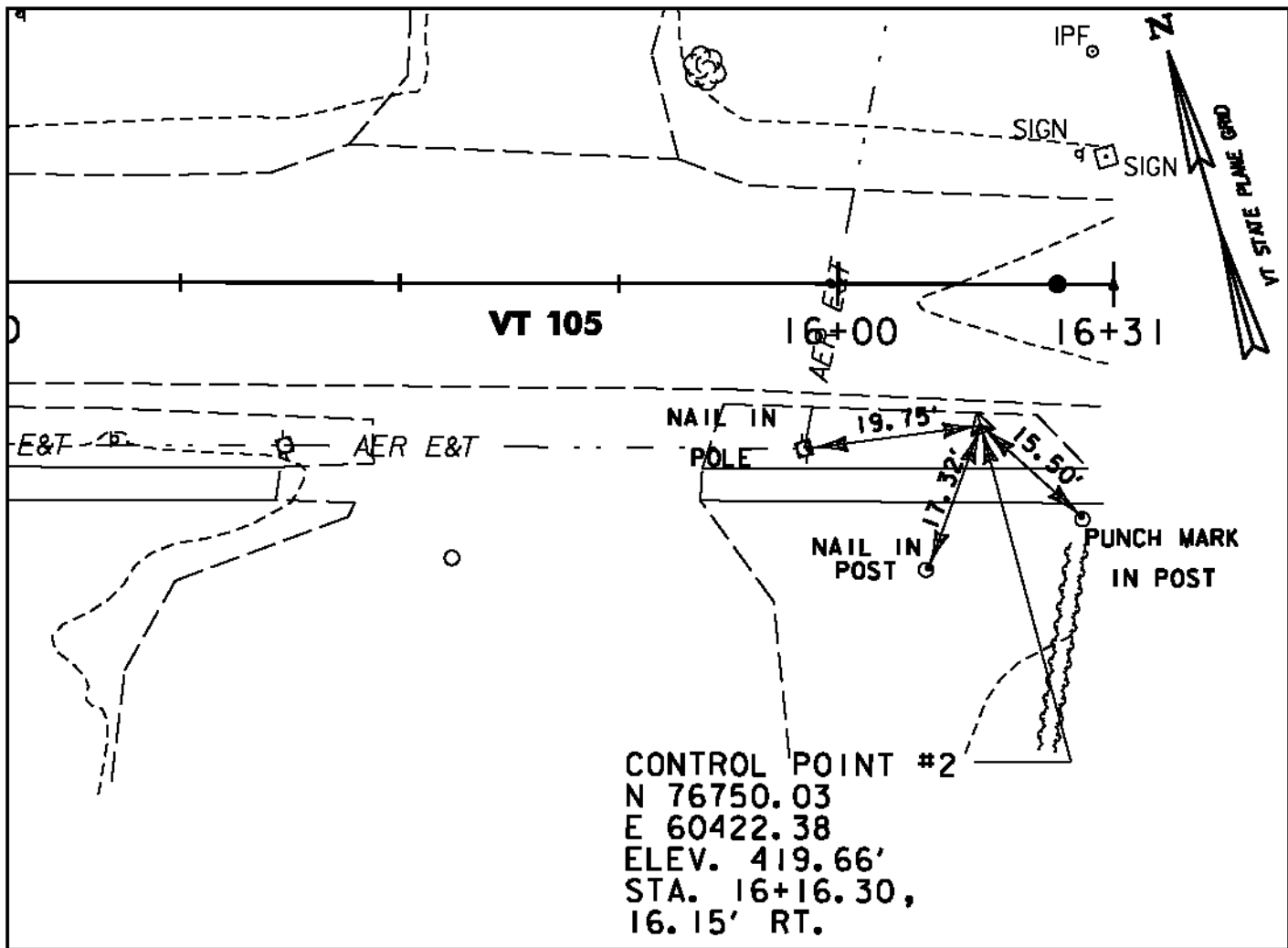
GENERAL LOCATION, ENOSBURG, VT.
TO REACH FROM THE INTERSECTION OF VT ROUTE 105 AND VT ROUTE 118 SOUTH IN EAST BERKSHIRE GO SOUTHEAST ALONG VT ROUTE 118 FOR 0.55 MI (0.89 KM) TO THE INTERSECTION OF PEARLY ROAD RIGHT. TURN RIGHT AND GO SOUTHWEST ALONG PEARLY ROAD FOR 0.2 MI (0.3 KM) TO THE INTERSECTION OF A GRAVEL DRIVE LEFT, LEADING TO THE WATSON SIGN COMPANY. TURN LEFT AND GO SOUTH ALONG THE GRAVEL DRIVE FOR ABOUT 164.0 FT (50 M) TO THE END OF THE DRIVE AT THE SIGN COMPANY BUILDING. PARK VEHICLE AND WALK SOUTHEAST, UPHILL THROUGH A PASTURE, FOR ABOUT 246.1 FT (75 M) TO THE SITE OF THE MARK. THE MARK IS SET IN THE TOP OF A MASSIVE ROCK OUTCROP ON THE NORTHWEST EDGE OF A KNOB, IN A PASTURE. IT IS 247.4 FT (75.4 M) (SLOPE) SOUTHEAST OF THE SOUTHEAST CORNER OF AN ATTACHED SHED ON THE SIGN COMPANY BUILDING, 162.1 FT (49.4 M) EAST OF THE EAST EDGE OF A POND, 27.9 FT (8.5 M) EAST OF A CLUMP APPLE, 213.3 FT (65.0 M) SOUTHWEST OF AN ANGLE POINT IN A WIRE FENCE, AND 225.7 FT (68.8 M) WEST OF ANOTHER ANGLE POINT IN THE SAME FENCE.

- THE HORIZONTAL COORDINATES WERE ESTABLISHED BY GPS OBSERVATIONS AND ADJUSTED BY THE VERMONT GEODETIC SURVEY.
- THE ORTHOMETRIC HEIGHT WAS ESTABLISHED BY GPS OBSERVATIONS.

TRAVERSE TIES



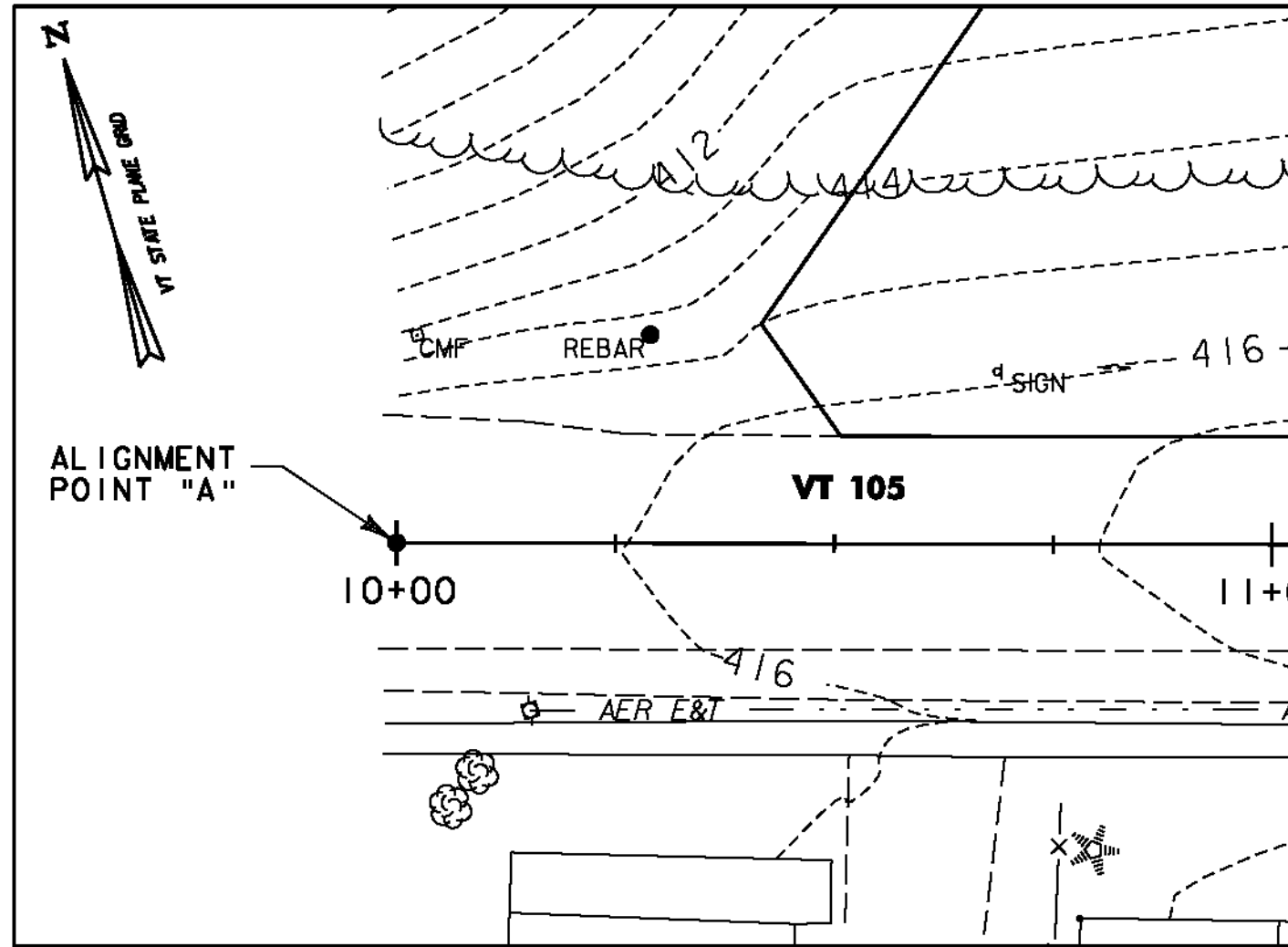
CONTROL POINT #1



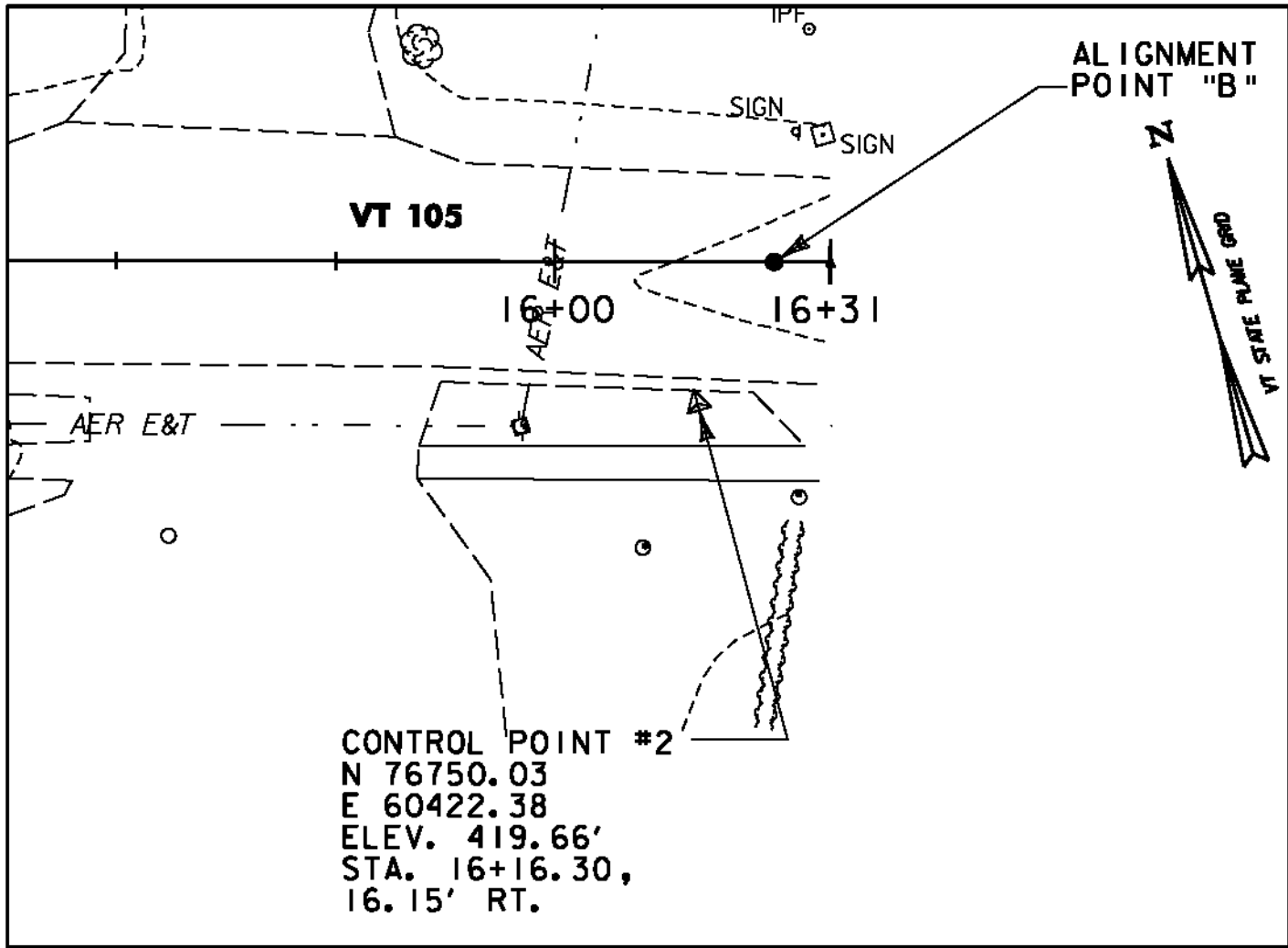
CONTROL POINT #2

CONTROL POINTS					
POINT	NORTHING	EASTING	STATION	OFFSET	ELEVATION
1	76923.20'	59943.18'	11+07.91	17.84' LT	416.61'
2	76750.03'	60422.38'	16+16.30	16.15' RT	419.66'
3	76985.04'	60495.23'	16+21.36	229.84' LT	418.01'
4	77062.59'	60184.53'	13+01.33	218.50' LT	413.39'

ALIGNMENT TIES



ALIGNMENT POINT A



ALIGNMENT POINT B

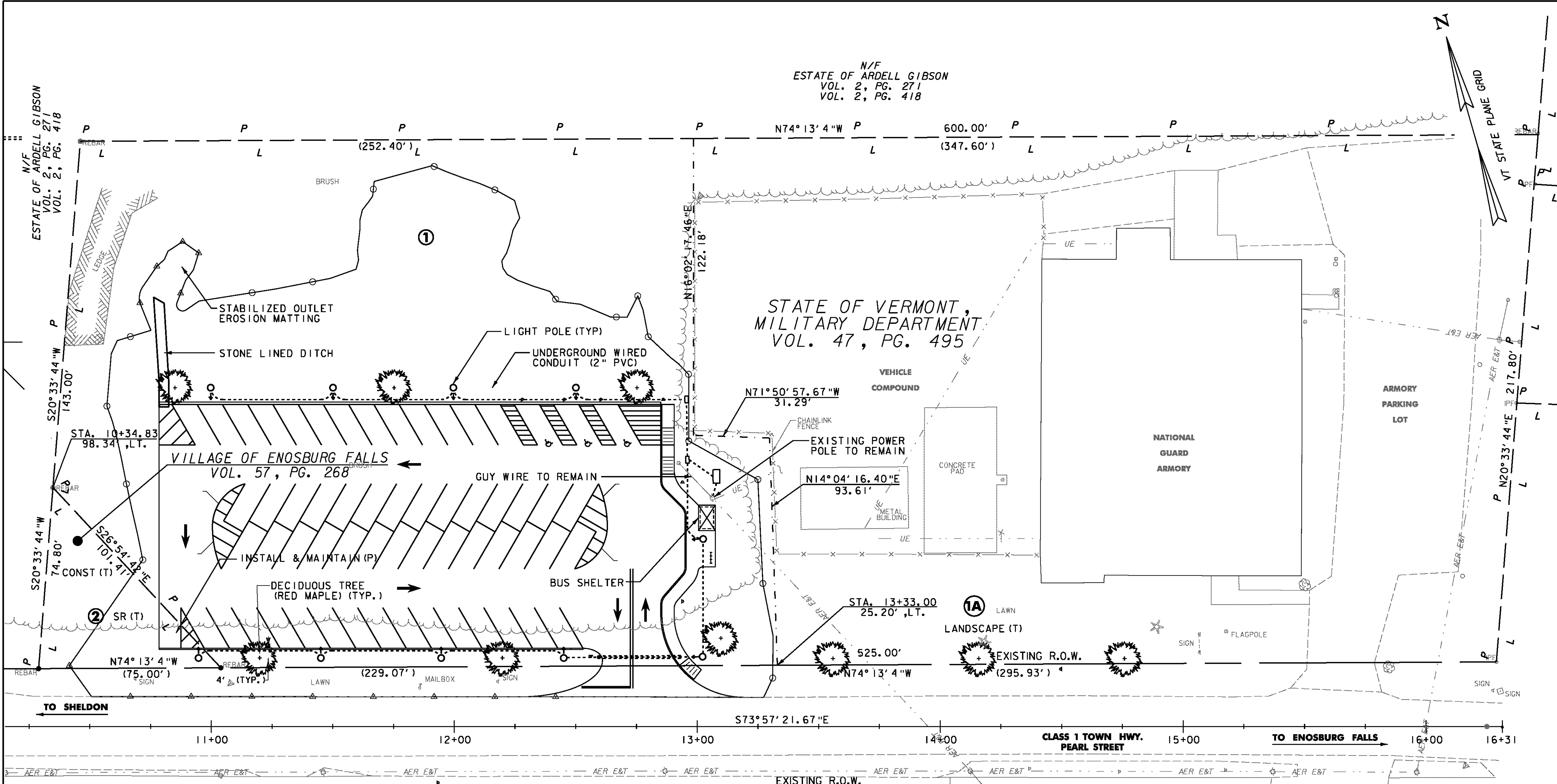
ALIGNMENT POINTS				
POINT	NORTHING	EASTING	STATION	ELEVATION
A	76935.88'	59834.54'	10+00	415.49'
B	76763.15'	60436.20'	16+25	420.06'

ALIGNMENT POINTS LOCATION

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83 (1996)
ADJUSTMENT none



PROJECT NAME: ENOSBURG
PROJECT NUMBER: CMG PARK(20)
FILE NAME: ...\\Trans\\PlotFiles\\07\\ties.ptf PLOT DATE: 5/23/2011
PROJECT LEADER: WLD DRAWN BY: STANTEC
DESIGNED BY: CSP/GGG CHECKED BY: GAS
SURVEY CONTROL AND TIES SHEET 7 OF 32



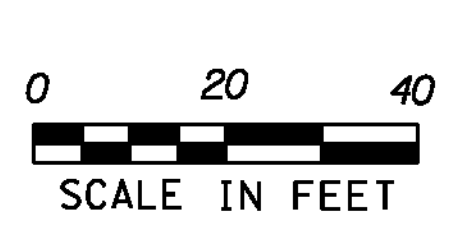
LEGEND	
— UE —	UNDERGROUND ELECTRIC
— AER E&T —	AERIAL ELEC. AND TEL.
-----	WIRED CONDUIT (2" PVC)
- - - - -	LEASE LINE
— PDF —	PROJECT DEMARCATION FENCE
— P —	APPROX. R.O.W. LINE
— L —	APPROX. PROPERTY LINE

DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (1996) VT SPC (FEET)

PARCEL NO.	GRANTOR	BEGINNING STATION	ENDING STATION	RIGHTS	AREA	TOWN OR CITY RECORDED	VOL.	PG.	DATE	REMARKS
1	STATE OF VERMONT, MILITARY DEPARTMENT	10+34.83 LT	13+33.00 LT		1.31 A+/-	ENOSBURG				EXECUTIVE ORDER FOR PARK AND RIDE FACILITY
1A		13+56 LT	14+76 LT	LANDSCAPE (T)						3 TREES
2	VILLAGE OF ENOSBURG FALLS	10+35 LT	10+68 LT	CONST (T)	1095.83SF	ENOSBURG				INC. PDF & EROSION CONTROL
		10+42 LT	11+04 LT	SLOPE (T)	1045.83SF					
		10+78 LT	11+04 LT	INSTALL & MAINTAIN (P)	182.60SF					PARK AND RIDE FACILITY, INC. LIGHT POLE & UNDERGROUND ELECTRIC

LINES SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES (P/L) ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

VERMONT AGENCY OF TRANSPORTATION
PARK AND RIDE FACILITY
ENOSBURG, VERMONT
R.O.W. SHEET 1 OF 1



FOR R.O.W. PURPOSE ONLY	
PROJECT NAME:	ENOSBURG
PROJECT NUMBER:	CMG PARK(20)
FILE NAME: ...Trans\PlotFiles\08rowplan.plt	PLOT DATE: 5/23/2011
PROJECT LEADER: WLD	DRAWN BY: STANTEC
DESIGNED BY: CSP/GGG	CHECKED BY: GAS
RIGHT-OF-WAY PLAN	
SHEET 8 OF 32	

1. SEE SURVEY TIE SHEET FOR A SUMMARY OF GPS CONTROL POINTS, TRAVERSE TIES, AND ALIGNMENT TIES.
2. BUS SHELTER TO BE PAID FOR UNDER ITEM 900.645 SPECIAL PROVISION (BUS SHELTER).
3. BICYCLE RACK TO BE PAID FOR UNDER ITEM 900.620 SPECIAL PROVISION (BICYCLE RACK). SEE DETAILS ON SHEET 2.
4. STONE DIAPHRAGM TO BE PAID FOR UNDER ITEM 900.608 SPECIAL PROVISION (STONE DIAPHRAGM).
5. SEE SURVEY CONTROL AND TIES SHEET FOR INFORMATION ON VT ROUTE 105 ALIGNMENT POINTS.
6. TRANSITION VERTICAL GRANITE CURB PER STANDARD DRAWING C-10
7. CURB AND SIDEWALK SHALL END A MINIMUM OF 18' FROM THE CENTERLINE OF VT ROUTE 105 DUE TO SNOW REMOVAL OPERATIONS.

LAYOUT POINT #1 - END OF CURB
N 76945.14
E 59918.86
VT ROUTE 105 STA. 10+78.47
OFF 32.20' LT.

LAYOUT POINT #2 - EDGE OF PAVEMENT
N 77041.63
E 59946.61
VT ROUTE 105 STA. 10+78.47
OFF 132.60' LT.

LAYOUT POINT #3 - 10' OFF EOP
N 76994.16
E 60147.85
VT ROUTE 105 STA. 12+85.00
OFF 142.60' LT.

LAYOUT POINT #4 - C.P. OF 5' RADIUS
N 76952.70
E 60141.14
VT ROUTE 105 STA. 12+90.00
OFF 100.90' LT.

LAYOUT POINT #5 - C.P. OF 5' RADIUS
N 76939.11
E 60137.23
VT ROUTE 105 STA. 12+90.00
OFF 86.76' LT.

LAYOUT POINT #6 - C.P. OF 5' RADIUS
N 76918.88
E 60131.41
VT ROUTE 105 STA. 12+90.00
OFF 65.70' LT.

LAYOUT POINT #7 - C.P. OF 5' RADIUS
N 76904.26
E 60127.21
VT ROUTE 105 STA. 12+90.00
OFF 50.50' LT.

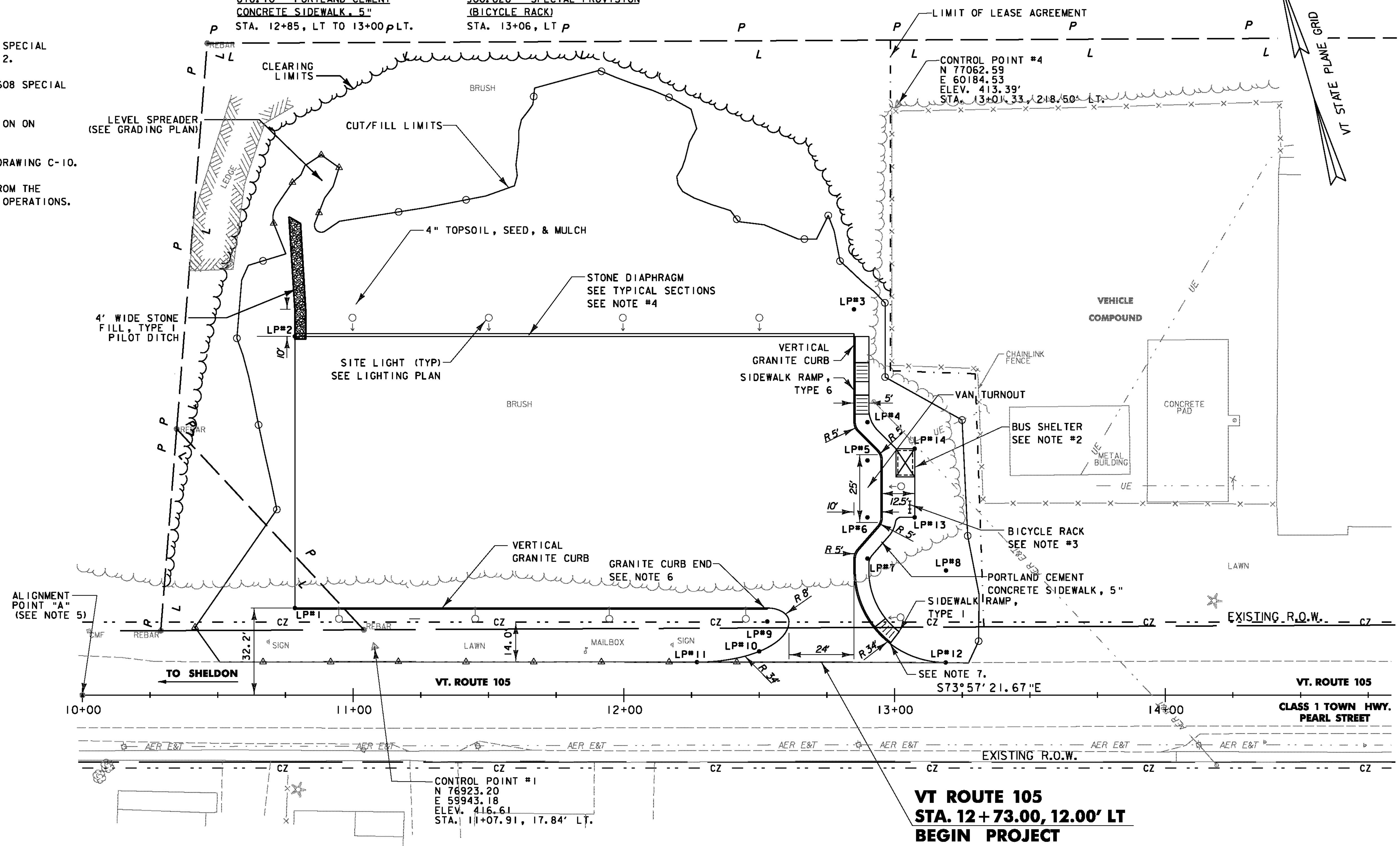
LAYOUT POINT #8 - C.P. OF 34' RADIUS
N 76891.99
E 60153.85
VT ROUTE 105 STA. 13+19.00
OFF 46.07' LT.

LAYOUT POINT #9 - C.P. OF 8' RADIUS
N 76892.10
E 60085.21
VT ROUTE 105 STA. 12+53.00
OFF 27.20' LT.

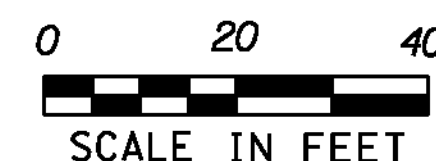
DATUM VERTICAL <u>NAVD 88</u> HORIZONTAL <u>NAD 83 (1996)</u> <u>VT SPC (FEET)</u>	
---	--

900.608 - SPECIAL PROVISION
(STONE DIAPHRAGM)
STA. 10+78. LT TO 12+85. LT

900.620 - SPECIAL PROVISION
(BICYCLE RACK)
STA. 13+06, LT *P*

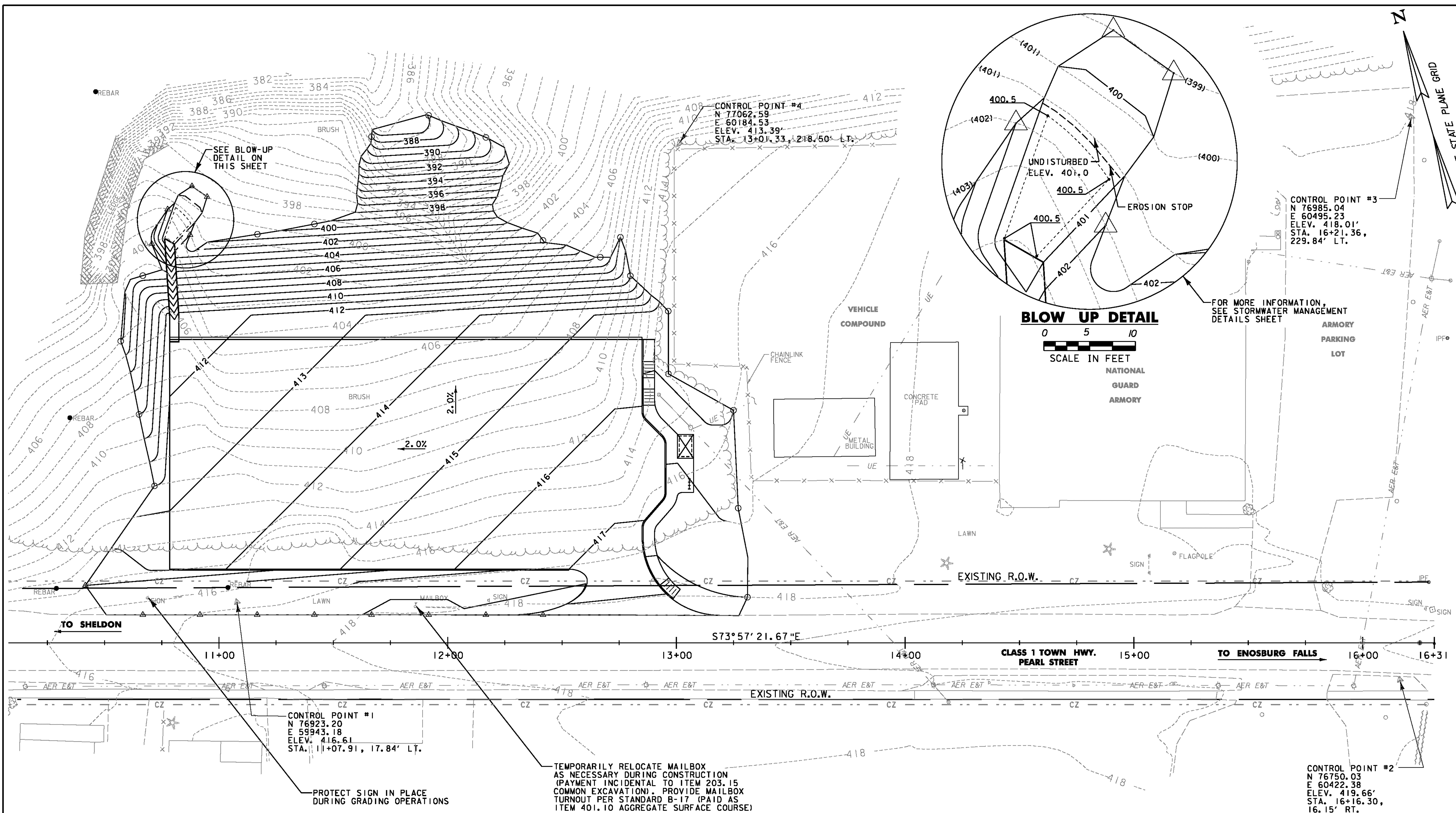


LAYOUT POINT #10 - POINT ON CURVE	LAYOUT POINT #12 - END RADIUS	LAYOUT POINT #14 - CORNER OF PAD
N 76882.31	N 76859.34	N 76938.46
E 60079.27	E 60144.35	E 60155.21
VT ROUTE 105 STA. 12+50.00	VT ROUTE 105 STA. 13+19.00	VT ROUTE 105 STA. 13+07.50
OFF 16.15' LT.	OFF 12.20' LT.	OFF 91.10' LT.
LAYOUT POINT #11 - END RADIUS	LAYOUT POINT #13 - CORNER OF PAD	
N 76884.87	N 76914.05	
E 60056.07	E 60148.19	
VT ROUTE 105 STA. 12+27.00	VT ROUTE 105 STA. 13+07.50	
OFF 12.20' LT.	OFF 65.70' LT.	



PROJECT NAME:	ENOSBURG
PROJECT NUMBER:	CMG PARK(20)

FILE NAME: ...\\Trans\\PlotFiles\\09layout.ptf PLOT DATE: 5/23/2011
PROJECT LEADER: WLD DRAWN BY: STANTEC
DESIGNED BY: CSP/GGG CHECKED BY: GAS
LAYOUT PLAN SHEET 9 OF 32



DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (1996) VT SPC (FEET)

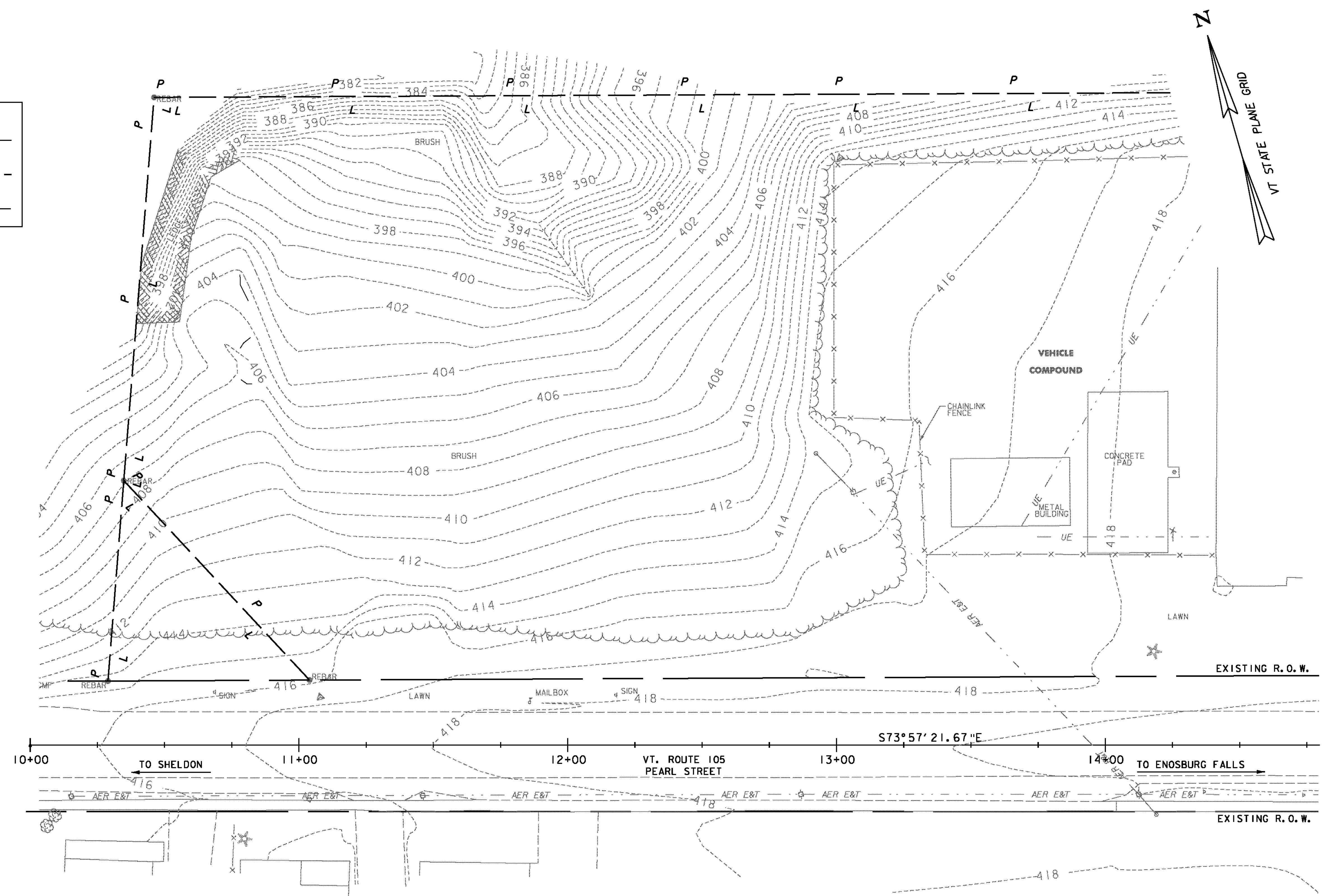
PROJECT NAME: ENOSBURG	
PROJECT NUMBER: CMG PARK(20)	
FILE NAME: ...\\PlotFiles\\IOgradingplan.ptf	PLLOT DATE: 5/23/2011
PROJECT LEADER: WLD	DRAWN BY: STANTEC
DESIGNED BY: CSP/GGG	CHECKED BY: GAS
GRADING PLAN	
SHEET 10 OF 32	

EXISTING CONDITIONS LEGEND:

PROPERTY LINE ——— P ———
 AERIAL ELECTRIC & TELEPHONE ——— AER E&T ———
 HIGHWAY RIGHT OF WAY ——— R.O.W. ———

SOIL CLASSIFICATION

ELDRIDGE LOAMY FINE SAND
 0-3% SLOPES
 K FACTOR = 0.24
 CLASSIFIED MODERATELY ERODIBLE



DATUM
 VERTICAL ——— NAVD 88
 HORIZONTAL ——— NAD 83 (1996)
 VT SPC (FEET)

0 20 40
 SCALE IN FEET



EPSC EXISTING CONDITIONS SITE PLAN

PROJECT NAME: ENOSBURG
 PROJECT NUMBER: CMG PARK(20)

FILE NAME: ...\\PlotFiles\\lepsc-existing.ptf PLOT DATE: 5/23/2011
 PROJECT LEADER: WLD DRAWN BY: STANTEC
 DESIGNED BY: CSP/GGG CHECKED BY: GAS
 EPSC EXISTING CONDITIONS SHEET II OF 32

CONSTRUCTION LEGEND:

SILT FENCE	
TEMPORARY EROSION MATTING	
TEMPORARY STONE CHECK DAM	
STABILIZED CONSTRUCTION ENTRANCE	
PROJECT DEMARCATION FENCE	
LIMITS OF SOIL DISTURBANCE	
CLEARING LIMITS	
PROPERTY LINE	
AERIAL ELECTRIC & TELEPHONE	

GENERAL CONSTRUCTION SEQUENCE

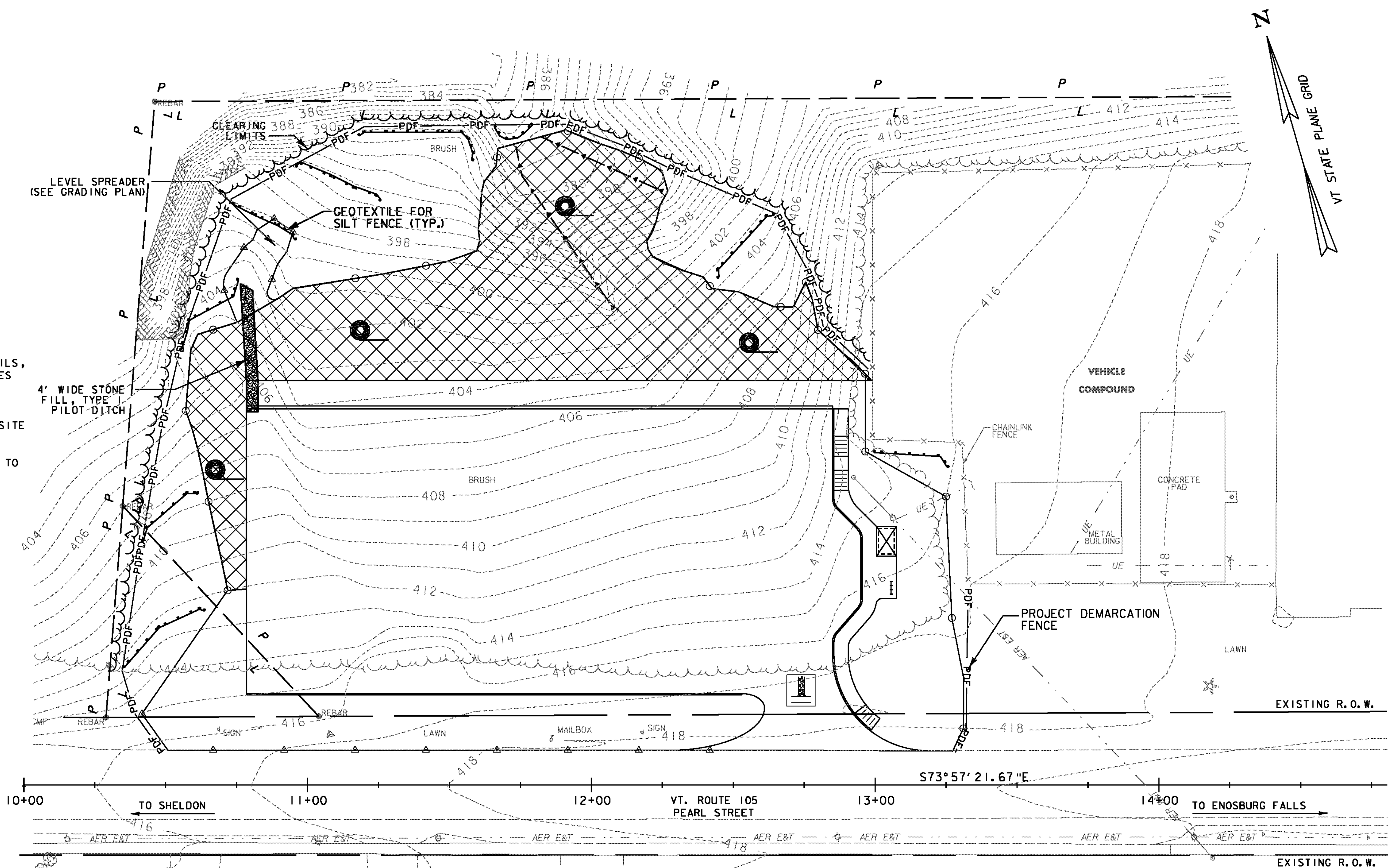
- CLEAR AND GRUB THE SITE. DO NOT REMOVE STUMPS, EXCESS SOILS, AND OTHER WASTE MATERIALS UNTIL TEMPORARY E.P.S.C. MEASURES HAVE BEEN INSTALLED.
- INSTALL TEMPORARY EROSION PREVENTION AND SEDIMENT CONTROL MEASURES, AS SHOWN, AS REQUIRED, OR AS DIRECTED BY THE ONSITE COORDINATOR, IN THE FOLLOWING ORDER:
 - STABILIZED CONSTRUCTION ENTRANCE (VEHICLES ARE REQUIRED TO DRIVE OVER THE 50' SCE BEFORE EXITING THE CONSTRUCTION LIMITS ONTO ROUTE 105).
 - STONE CHECK DAMS (SEE EPSC DETAILS 2) FOR CONSTRUCTION NOTES AND DETAILS).
 - SILT FENCE AND EROSION MATTING (SEE EPSC DETAILS 1) FOR CONSTRUCTION NOTES AND DETAILS).
- DISPOSE OF STUMPS, EXCESS SOILS AND OTHER WASTE MATERIAL IN A LOCATION APPROVED BY THE ONSITE COORDINATOR, THE AGENCY OF NATURAL RESOURCES, THE VTRANS BIOLOGIST AND THE VTRANS ARCHEOLOGIST.
- COMPLETE CONSTRUCTION OF NEW PARK-AND-RIDE LOT.
 - AS CONSTRUCTION PROGRESSES IMPLEMENT ADDITIONAL TEMPORARY EROSION CONTROLS AS SHOWN, AS REQUIRED, OR AS DIRECTED BY THE ONSITE COORDINATOR. THESE ADDITIONAL TEMPORARY MEASURES SHALL BE PAID FOR UNDER ITEM 652.30: MAINTENANCE OF EPSC PLAN. INSPECTION OF EROSION PREVENTION AND SEDIMENT CONTROL MEASURES TO BE PAID FOR UNDER 652.20: MONITORING OF EPSC PLAN. MAINTENANCE OF EROSION PREVENTION AND SEDIMENT CONTROL MEASURES SHALL BE PAID FOR UNDER ITEM 652.30: MAINTENANCE OF EPSC PLAN.
 - INSPECT AND MAINTAIN EROSION PREVENTION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THE SPECIFICATIONS AND SPECIAL PROVISIONS.
 - DISPOSE OF COLLECTED SEDIMENT AND OTHER POLLUTANTS IN A MANNER APPROVED BY THE ENGINEER THAT WILL NOT RESULT IN SEDIMENTS AND POLLUTANTS ENTERING WATERS OF THE STATE.
- PERMANENTLY STABILIZE ALL FINISHED GRADES AS EARTHWORK IS COMPLETED INCLUDING CHANNEL LININGS, SEEDING AND MULCHING (PERMANENT TURF ESTABLISHMENT).

SOIL CLASSIFICATION

ELDRIDGE LOAMY FINE SAND
0-3% SLOPES
"K" FACTOR = 0.24
CLASSIFIED MODERATELY ERODIBLE

DATUM

VERTICAL NAVD 88
HORIZONTAL NAD 83 (1996)
VT SPC (FEET)



EPSC GENERAL NOTES:

- THESE PLANS SHOW A CONCEPTUAL EROSION CONTROL PLAN, THE CONTRACTOR MUST SUBMIT A TEMPORARY EROSION CONTROL PLAN FOR APPROVAL.
- TEMPORARY EROSION CONTROL MEASURES ARE CONCEPTUALLY SHOWN, THE CONTRACTOR MAY RELOCATE TEMPORARY MEASURES TO IMPROVE EROSION CONTROL WITH APPROVAL OF THE RESIDENT ENGINEER AND ON SITE COORDINATOR. SILT FENCE SHALL NOT BE INSTALLED ACROSS CONTOURS.
- THE CONTRACTOR SHALL USE OTHER TEMPORARY EROSION CONTROL MEASURES AS NECESSITATED BY THE SEQUENCE OF CONSTRUCTION OR AS DIRECTED BY THE RESIDENT ENGINEER AND ON SITE COORDINATOR.
- REFER TO TEMPORARY EROSION CONTROL DETAIL SHEETS FOR ADDITIONAL DETAILS.

649.51 - GEOTEXTILE FOR SILT FENCE

STA. 10+35, 41' LT. - STA. 10+63, 61' LT.
STA. 10+42, 86' LT. - STA. 10+61, 103' LT.
STA. 10+55, 154' LT. - STA. 10+79, 170' LT.
STA. 10+72, 202' LT. - STA. 10+99, 188' LT.
STA. 10+97, 218' LT. - STA. 11+24, 206' LT.
STA. 11+20, 228' LT. - STA. 11+58, 222' LT.
STA. 11+65, 233' LT. - STA. 11+80, 233' LT.
STA. 12+45, 179' LT. - STA. 12+64, 201' LT.
STA. 13+03, 117' LT. - STA. 13+26, 114' LT.

653.55 - PROJECT DEMARCATION FENCE

STA. 10+49, LT. - STA. 13+00, LT.
STA. 13+28, LT. - STA. 13+33, LT.

653.25 - TEMPORARY STONE CHECK DAM, TYPE 1

STA. 11+73, LT. - STA. 12+08, LT.
STA. 11+87, LT. - STA. 12+18, LT.

653.35 - VEHICLE TRACKING PAD

STA. 12+75, LT.

653.20 - TEMPORARY EROSION MATTING

STA. 10+55, LT. - STA. 13+00, LT.

EPSC CONSTRUCTION SITE PLAN

PROJECT NAME: ENOSBURG
PROJECT NUMBER: CMG PARK(20)

FILE NAME: ...\\2epsc-construction.ptf
PROJECT LEADER: WLD
DESIGNED BY: CSP/GGG
EPSC CONSTRUCTION SITE PLAN

PLOT DATE: 5/23/2011
DRAWN BY: STANTEC
CHECKED BY: GAS
SHEET 12 OF 32

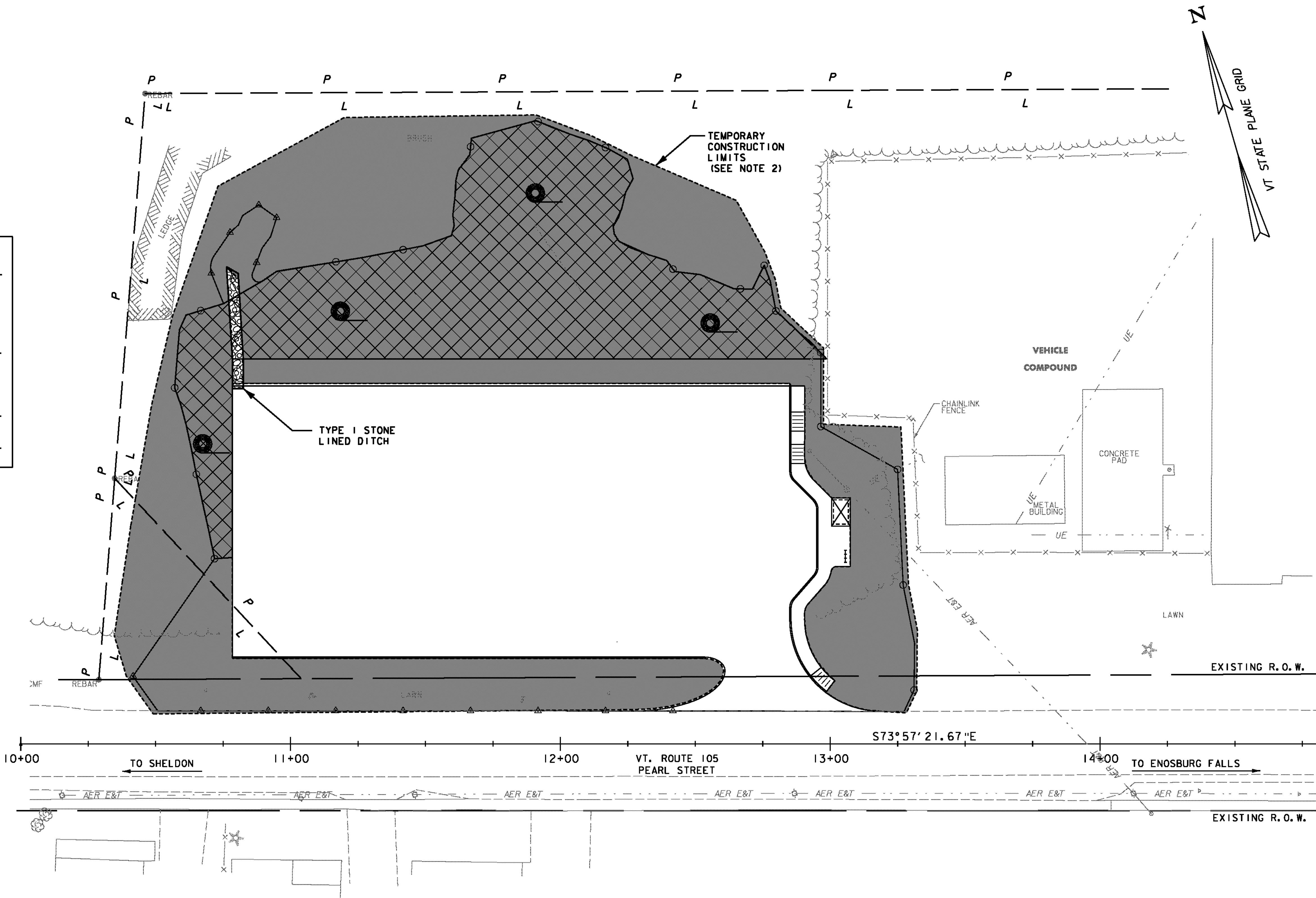
0 20 40
SCALE IN FEET



FINAL CONDITIONS LEGEND:

PROPERTY LINE	
DISTURBED AREAS REQUIRING RE-VEGETATION	
HIGHWAY RIGHT OF WAY	
TEMPORARY EROSION MATTING	
LIMITS OF SOIL DISTURBANCE	
TEMPORARY CONSTRUCTION LIMITS	

- NOTES:**
- SEE GRADING PLAN AND CROSS SECTIONS FOR PROPOSED TOPOGRAPHY.
 - THE TEMPORARY CONSTRUCTION LIMIT IS THE AREA WITHIN THE PROJECT DEMARCATION FENCE AS SHOWN ON THE EPSC CONSTRUCTION SITE PLAN.



DATUM

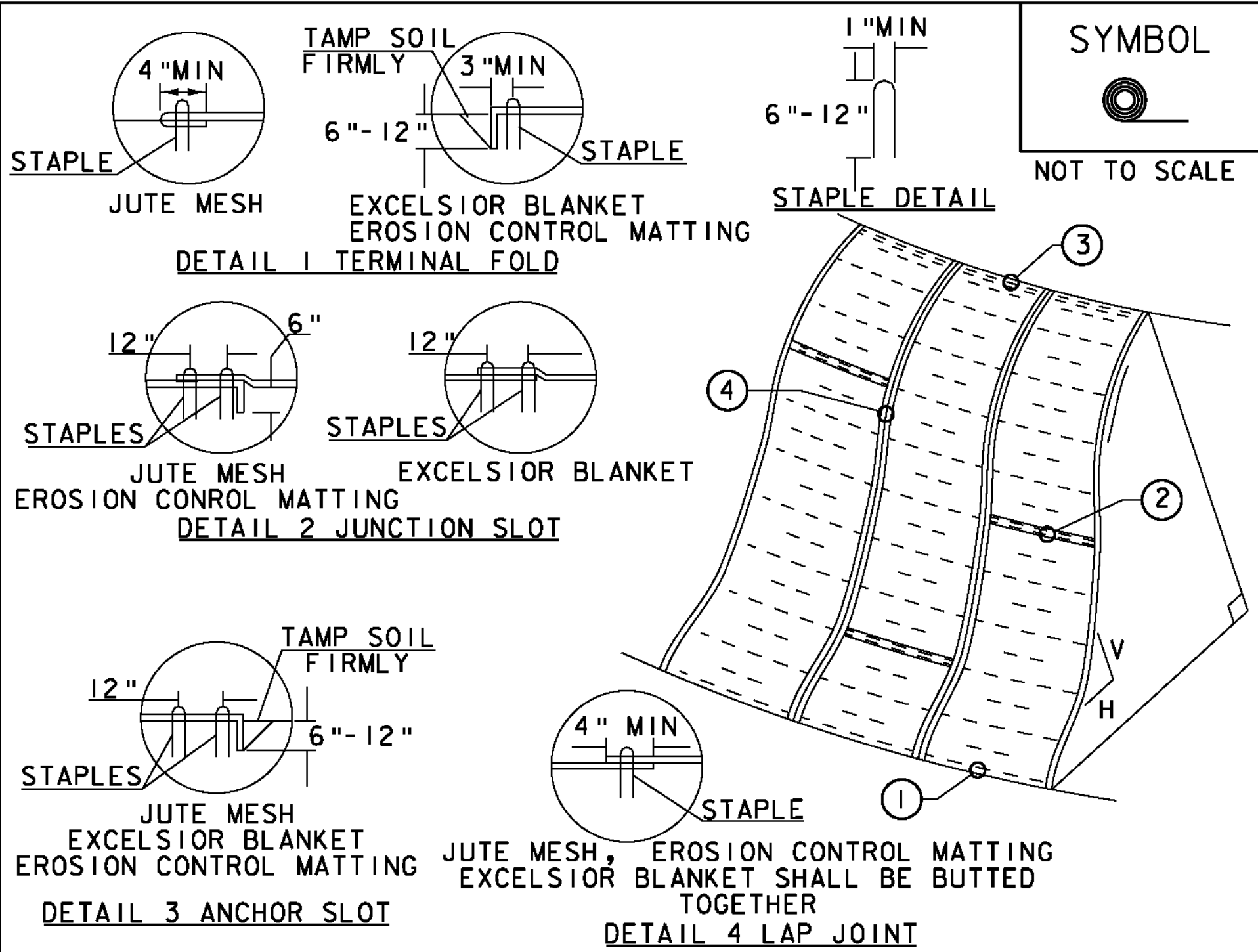
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (1996) VT SPC (FEET)

0 20 40
SCALE IN FEET



EPSC FINAL CONDITIONS SITE PLAN

PROJECT NAME:	ENOSBURG	PLOT DATE:	5/23/2011
PROJECT NUMBER:	CMG PARK(20)	DRAWN BY:	STANTEC
FILE NAME:	...\\PlotFiles\\13epsc-final.prf	CHECKED BY:	GAS
PROJECT LEADER:	WLD	DESIGNED BY:	CSP/GGG
DESIGNED BY:	CSP/GGG	EPSC FINAL CONDITIONS	SHEET 13 OF 32



CONSTRUCTION SPECIFICATIONS

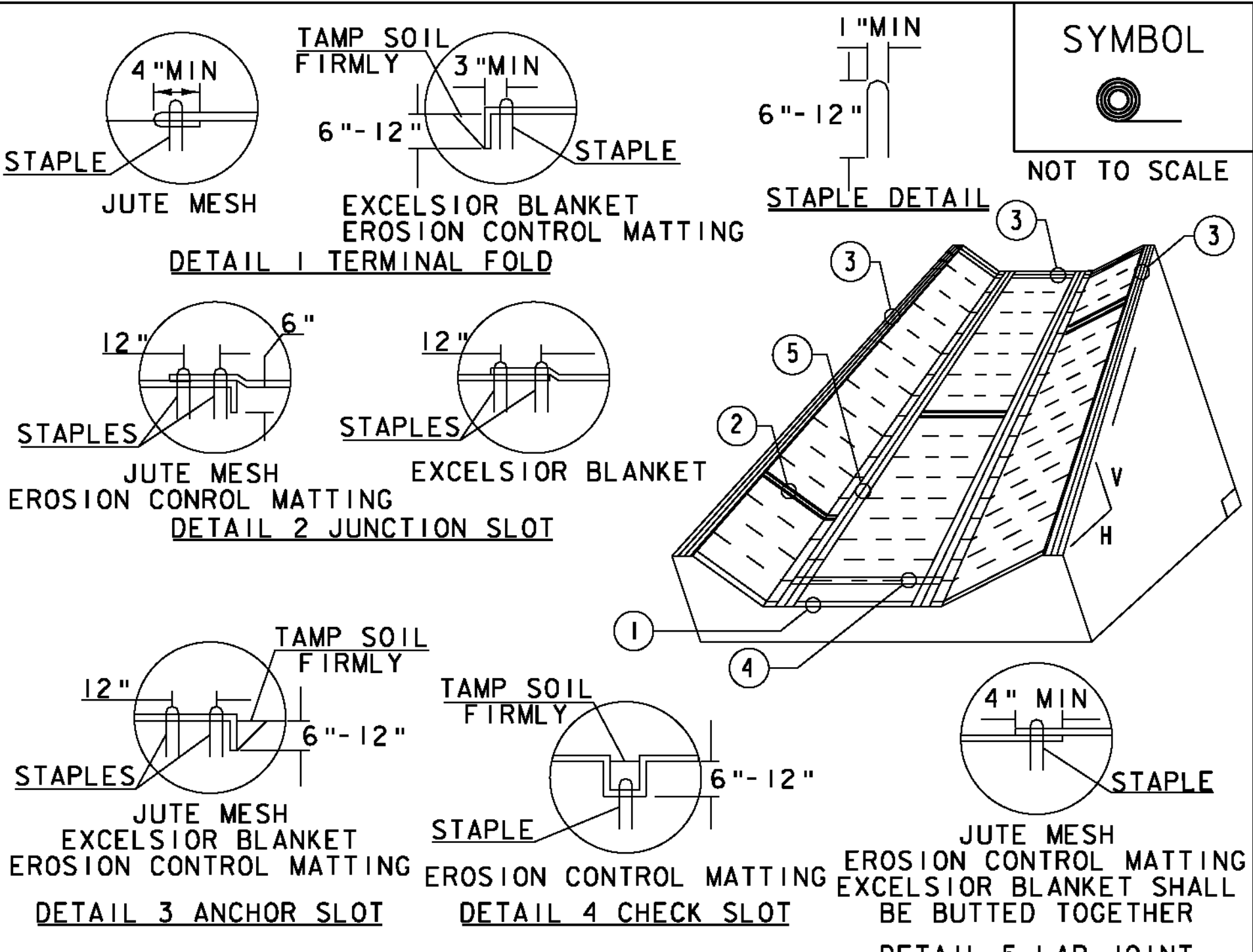
1. APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4'X225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4'X150' ROLL OF MATERIAL.
4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

ROLLED EROSION
CONTROL PRODUCT
(RECP) SIDE SLOPE

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006-" FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION MATTING (PAY ITEM 653.20) OR PERMANENT EROSION MATTING (PAY ITEM 653.21).

REVISIONS		
APRIL 16, 2007	JMF	
JANUARY 13, 2009	WHF	



CONSTRUCTION SPECIFICATIONS

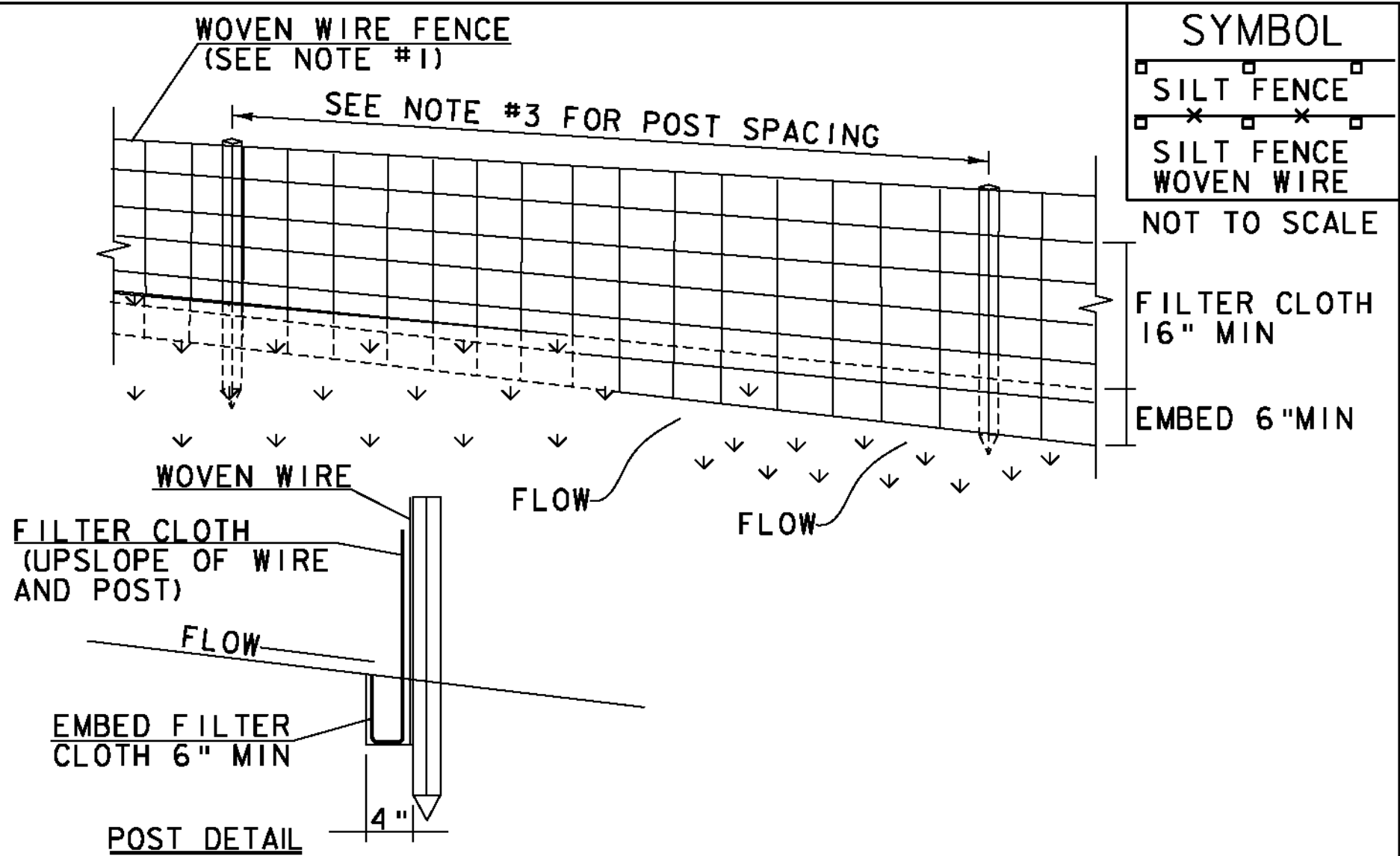
1. EROSION MATTING, CHECK SLOTS, SHALL BE SPACED IN DITCH CHANNEL SO THAT ONE OCCURS WITHIN EACH 50' ON SLOPES OF MORE THAN 4% AND LESS THAN 6%. ON SLOPES OF 6% OR MORE, THEY SHALL BE SPACED SO THAT ONE OCCURS WITHIN EACH 25'.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4'X225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4'X150' ROLL OF MATERIAL.
4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

ROLLED EROSION
CONTROL PRODUCT
(RECP) DITCH

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006-" FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION MATTING (PAY ITEM 653.20) OR PERMANENT EROSION MATTING (PAY ITEM 653.21).

REVISIONS		
MARCH 8, 2007	JMF	
APRIL 16, 2007	WHF	
JANUARY 13, 2009	WHF	



CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE REINFORCED FENCE IS REQUIRED WITHIN 100' UPSLOPE OF RECEIVING WATERS WHEN THE PROJECT FALLS UNDER A CONSTRUCTION STORMWATER PERMIT. WOVEN WIRE SHALL BE A MIN.14 GAUGE WITH A 6" MAX. MESH OPENING.
2. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAF100X, STABILINKA T140N OR APPROVED EQUIVALENT.
3. POST SPACING FOR WIRE-BACKED FENCE SHALL BE 10' MAXIMUM. FOR FILTER-CLOTH FENCE, WHEN ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 4' AND WHEN ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6'.
4. WOVEN WIRE FENCE IS TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES. FILTER CLOTH IS TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY 6" AND FOLDED.
6. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
7. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SILT FENCE

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006-" FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 AND AS SHOWN IN THE PLANS FOR GEOTEXTILE FOR SILT FENCE (PAY ITEM 649.51) OR GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED (PAY ITEM 649.515).

REVISIONS		
MARCH 21, 2008	WHF	
DECEMBER 11, 2008	WHF	
JANUARY 13, 2009	WHF	

EPSC DETAIL SHEET 1

PROJECT NAME: ENOSBURG
PROJECT NUMBER: CMG PARK(20)

FILE NAME: ...\\PlotFiles\\14erodetails.plt PLOT DATE: 5/23/2011
PROJECT LEADER: WLD DRAWN BY: STANTEC
DESIGNED BY: CSP/GGG CHECKED BY: GAS
EPSC DETAILS 1 SHEET 14 OF 32

VAOT RURAL AREA MIX					
		LBS/AC			
% WEIGHT	BROADCAST	HYDROSEED	NAME	GERM %	PURITY %
37.5%	22.5	45	CREEPING RED FESCUE	85%	98%
37.5%	22.5	45	TALL FESCUE	90%	95%
5.0%	3	6	RED TOP	90%	95%
15.0%	9	18	BIRDSFOOT TREFOIL	85%	98%
5.0%	3	6	ANNUAL RYE GRASS	85%	95%
100%	60	120			

VAOT URBAN AREA MIX					
		LBS/AC			
% WEIGHT	BROADCAST	HYDROSEED	NAME	GERM %	PURITY %
42.5%	34	68	CREEPING RED FESCUE	85%	98%
10.0%	8	16	PERENNIAL RYE GRASS	90%	95%
42.5%	34	68	KENTUCKY BLUE GRASS	85%	85%
5.0%	4	8	ANNUAL RYE GRASS	85%	95%
100%	80	160			

GENERAL GUIDANCE			
FERTILIZER		LIME	
BROADCAST	HYDROSEED	BROADCAST	HYDROSEED
10-20-10	19-19-19	PELLETIZED	LIQUID
500 LBS/AC		2 TONS/AC	4.4 GAL/AC

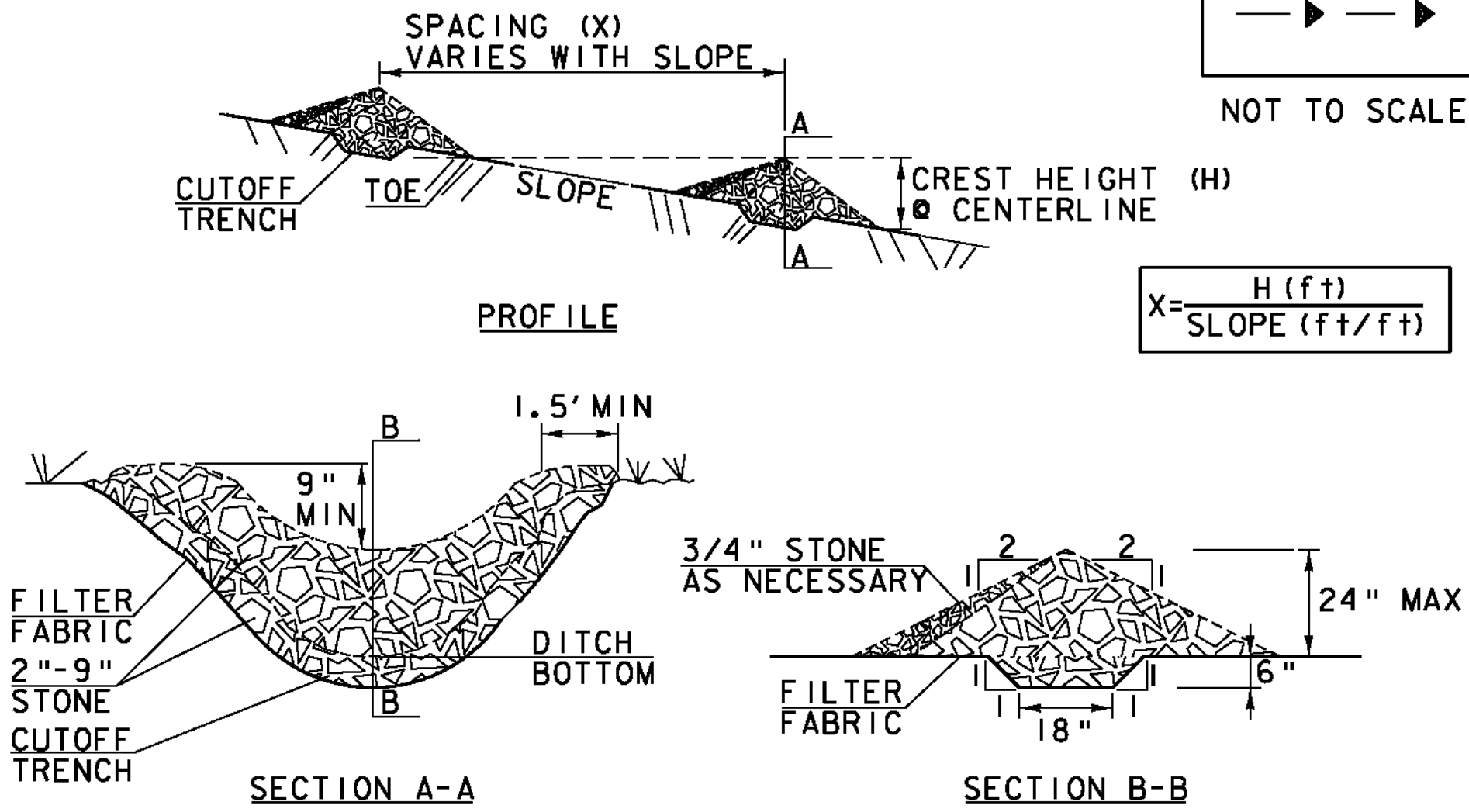
CONSTRUCTION GUIDANCE

- 1.RURAL SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED UPLAND (NON WETLAND) AREAS DISTURBED BY THE CONTRACTOR.
- 2.URBAN SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED LAWN AREAS DISTURBED BY THE CONTRACTOR.
- 3.ALL SEED MIXTURES: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
- 4.FERTILIZER AND LIMESTONE: SHALL FOLLOW RATES SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER
- 5.HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, ACHIEVE 90% GROUND COVER OR AS DIRECTED BY THE ENGINEER.
- 6.TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
- 7.HYDROSEEDING: ALTHOUGH GUIDANCE IS GIVEN ABOVE THE SITE CONDITIONS AND THE TYPE OF HYDROSEED WILL ULTIMATELY DICTATE THE AMOUNTS AND TYPES OF SOIL AMENDMENTS TO BE APPLIED
- 8.TURF ESTABLISHMENT: PLACING SEED, FERTILIZER, LIME AND MULCH PRIOR TO SEPTEMBER 15 AND AFTER APRIL 15 CAN BETTER ENSURE A VIGOROUS GROWTH OF GRASS.

ADAPTED FROM VTRANS TECHNICAL LANSCAPE MAUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES

TURF ESTABLISHMENT

REVISIONS		
JUNE 23, 2009	WHF	
JANUARY 15, 2010	WHF	



CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION.
2. CHECK DAMS SHALL BE SPACED SO THAT THE ELEVATION OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION AS THE TOE OF THE UPSTREAM DAM.
3. 3/4" FILTERING STONE MAY BE ADDED TO THE FACE OF THE CHECK DAM AS NECESSARY.
4. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
5. PROTECT CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
6. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.
7. MAXIMUM DRAINAGE AREA 2 ACRES.

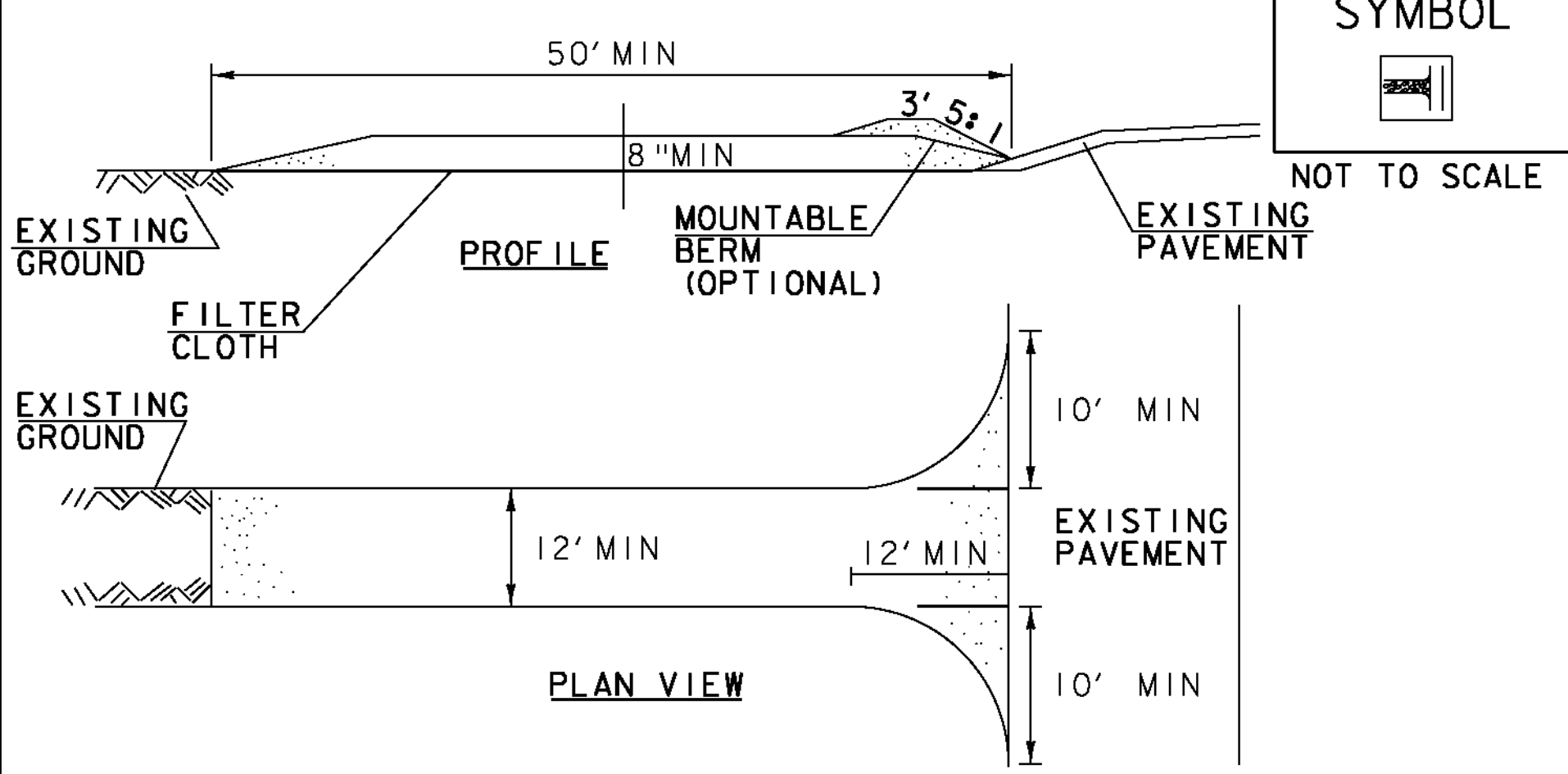
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

CHECK DAM

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR TEMPORARY STONE CHECK DAM, TYPE I (PAY ITEM 653.25)

REVISIONS		
MARCH 21, 2008	WHF	
JANUARY 8, 2009	WHF	



CONSTRUCTION SPECIFICATIONS

1. STONE SIZE- USE 1-4" STONE, RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH- NOT LESS THAN 50' (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30' MINIMUM LENGTH APPLIES).
3. THICKNESS- NOT LESS THAN 8".
4. WIDTH- 12' MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24' IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE MUST BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
6. SURFACE WATER- ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED ACCORDING TO PERMIT REQUIREMENTS.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

STABILIZED CONSTRUCTION ENTRANCE

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR VEHICLE TRACKING PAD (PAY ITEM 653.35) OR AS SPECIFIED IN THE CONTRACT.

REVISIONS		
MARCH 24, 2008	WHF	
JANUARY 13, 2009	WHF	

EPSC DETAIL SHEET 2

PROJECT NAME: ENOSBURG
PROJECT NUMBER: CMG PARK(20)

FILE NAME: ...\\PlotFiles\\15erodetails2.plt PLOT DATE: 5/23/2011
PROJECT LEADER: WLD DRAWN BY: STANTEC
DESIGNED BY: CSP/GGG CHECKED BY: GAS
EPSC DETAILS 2 SHEET 15 OF 32

EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT IS LOCATED ON VT ROUTE 105 IN THE VILLAGE OF ENOSBURG, ON THE WEST SIDE OF THE NATIONAL GUARD ARMORY, AND ON THE NORTH SIDE OF VT ROUTE 105. WORK TO BE PERFORMED ON THIS PROJECT INCLUDES THE CONSTRUCTION OF A NEW 59 SPACE PARK-AND-RIDE LOT, SUBBASE, PAVEMENT, PAVEMENT MARKINGS, LIGHTING, LANDSCAPING, BUS SHELTER AND MISCELLANEOUS APPURTENANCES.

NOTE: AREA OF DISTURBANCE SHALL INCLUDE LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA, INCLUDING ANY WASTE, STAGING AND BORROW AREAS WITHIN OR DIRECTLY ADJACENT TO THE PROJECT LIMITS.

TOTAL AREA OF DISTURBANCE IS APPROXIMATELY 1.24 ACRES.

IT IS ANTICIPATED THAT THIS PROJECT WILL LAST TWO CONSTRUCTION SEASONS.

1.2 SITE INVENTORY

1.2.1 OFF SITE DRAINAGE CHARACTERISTICS (UP AND DOWN-GRADIENT)

THE SITE SLOPES AWAY FROM VT ROUTE 105 AT GRADES RANGING FROM 10-30%. VEGETATION CONSISTS OF GRASS AND SCRUB BRUSH. THE SITE RECEIVES MINIMAL RUNOFF FROM OFFSITE AREAS (THE HALF-WIDTH OF VT ROUTE 105 FRONTING THE PROJECT SHEET FLOWS ONTO THE PROJECT). STORM WATER RUNOFF FROM THE PROJECT WILL SHEET FLOW IN A NORTHWESTERLY DIRECTION ACROSS A NATURALLY VEGETATED AREA AND EVENTUALLY INTO GIDDINGS BROOK.

1.2.2 DRAINAGE, WATERWAYS, BODIES OF WATER, AND PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES

GIDDINGS BROOK IS LOCATED APPROXIMATELY 700’ WEST OF THE SITE, FLOWS NORTH TO SOUTH AND SERVES AS A TRIBUTARY TO THE MISSISQUOI RIVER. THE MISSISQUOI RIVER IS LOCATED APPROXIMATELY ONE -HALF MILE SOUTHWEST OF THE SITE.

1.2.3 TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES

VT ROUTE 105 BORDERS THE PROJECT TO THE SOUTH AND RANGES IN GRADE FROM 0.5% TO 2.0%. IMMEDIATELY TO THE EAST OF THE PROJECT IS THE NATIONAL GUARD ARMORY VEHICLE COMPOUND YARD CONSISTING OF CONCRETE AND GRAVEL PARKING AREAS AND ASSOCIATED BUILDINGS. OVERHEAD UTILITY LINES ARE LOCATED ON THE EAST EDGE OF THE SITE, AND WILL BE THE POWER SOURCE FOR THE PROJECT LIGHTING.

1.2.4 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS MAINLY OF BRUSH AND GRASS, WITH SOME AREAS OF LAWN BORDERING ROUTE 105 AND LEDGE LOCATED ALONG THE SOUTHWEST PROJECT LIMITS.

DISTURBED VEGETATION OUTSIDE OF THE PROPOSED PAVED PARKING AND SIDEWALK AREAS WILL BE REESTABLISHED WITH LANDSCAPING AND STANDARD SEED AND MULCH/EROSION MATTING PRACTICES.

1.2.5 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF FRANKLIN, VERMONT. SOILS ON THE PROJECT SITE ARE AS FOLLOWS:

ELDRIDGE LOAMY FINE SAND, 0% TO 3% SLOPES, “K FACTOR” = 0.24. THE SOIL IS CONSIDERED MODERATELY ERODIBLE.

NOTE: K-VALUES GENERALLY INDICATE THE FOLLOWING: 0.0-0.23 = LOW EROSION POTENTIAL; 0.24-0.36 = MODERATE EROSION POTENTIAL; 0.37 AND HIGHER = HIGH EROSION POTENTIAL.

1.2.6 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: NO
HISTORICAL OR ARCHEOLOGICAL AREAS: NO
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: GIDDINGS BROOK
WETLANDS: NO

1.3 RISK EVALUATION

THIS PROJECT FALLS UNDER THE JURISDICTION OF GENERAL PERMIT 3-9020 FOR STORMWATER RUNOFF FROM CONSTRUCTION SITES FOR LOW RISK PROJECTS. ANY MODIFICATIONS TO THE PROJECT THAT INCREASE THE RISK TO ENVIRONMENTAL RESOURCES SHALL BE EVALUATED IN ACCORDANCE WITH THE PERMIT REQUIREMENTS. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY ADDITIONAL PERMITTING.

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

THE EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE PRINCIPLES OUTLINED IN THIS NARRATIVE CONSIST OF APPLYING MEASURES THROUGHOUT CONSTRUCTION OF THE PROJECT IN ORDER TO MINIMIZE SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM WATER CONTROLS AND OTHER POLLUTION PREVENTION PRACTICES. THEY HAVE BEEN PROPOSED BY THE DESIGNER AS A BASIS FOR PROTECTING RESOURCES AND WILL NEED TO BE BUILT UPON BASED ON THE SPECIFIC MEANS AND METHODS OF THE CONTRACTOR. REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR SPECIFIC GUIDANCE AND CONSTRUCTION DETAILING.

ALL MEASURES SHALL BE REGULARLY MAINTAINED AND SHALL BE CHECKED FOR SEDIMENT BUILD-UP. SEDIMENT SHALL BE DISPOSED OF AT AN APPROVED SITE WHERE IT WILL NOT BE SUBJECT TO EROSION.

1.4.1 MARK SITE BOUNDARIES

SITE BOUNDARIES AND AREAS CONSTRUCTION EQUIPMENT CAN ACCESS SHALL BE DELINEATED.

PROJECT DEMARCATION FENCING (PDF) SHALL BE USED TO PHYSICALLY MARK SITE BOUNDARIES. BECAUSE THIS PROJECT FALLS UNDER THE CGP 3-9020, BARRIER FENCE SHALL BE USED INSTEAD OF PROJECT DEMARCATION FENCE WITHIN 100 FEET OF A WATER RESOURCE (STREAM, BROOK, LAKE, POND, WETLAND, ETC). BARRIER FENCE IS NOT ANTICIPATED TO BE NEEDED AS WATER RESOURCE IS FARTHER THAN 100’ FROM PROJECT DISTURBANCE.

1.4.2 LIMIT DISTURBANCE AREA

PREVENTING INITIAL SOIL EROSION BY MINIMIZING THE EXPOSED AREA IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. EARTH DISTURBANCE CAN BE MINIMIZED THROUGH CONSTRUCTION PHASING BY ONLY OPENING UP EARTH AS NECESSARY. THIS CAN LIMIT THE AREA THAT WILL BE DISTURBED AND EXPOSED TO EROSION. EMPLOY TEMPORARY CONSTRUCTION STABILIZATION PRACTICES IN INCREMENTAL STAGES AS PHASES CHANGE. FOR PROJECTS WHICH FALL UNDER THE CONSTRUCTION GENERAL PERMIT, ONLY THE ACREAGE LISTED ON THE PERMIT AUTHORIZATION MAY BE EXPOSED AT ANY GIVEN TIME.

MAINTAINING VEGETATED BUFFERS ALONG STREAM BANKS, WETLANDS OR OTHER SENSITIVE AREAS IS A CRUCIAL EROSION AND SEDIMENT CONTROL MEASURE THAT SHOULD BE ESTABLISHED WHEREVER POSSIBLE.

1.4.3 SITE ENTRANCE/EXIT STABILIZATION

TRACKING OF SEDIMENT ONTO PUBLIC HIGHWAYS SHALL BE MINIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTORS PROGRESS SCHEDULE.

STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AS PROPOSED ON THE EPSC PLAN AND ANYWHERE EQUIPMENT WILL BE GOING FROM AREAS OF EXPOSED SOILS TO PAVED SURFACES.

1.4.4 INSTALL SEDIMENT BARRIERS

SEDIMENT BARRIERS SHALL BE UTILIZED TO INTERCEPT RUNOFF AND ALLOW SUSPENDED SEDIMENT TO SETTLE OUT. THEY SHALL BE INSTALLED PRIOR TO ANY UP SLOPE WORK.

SILT FENCE WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN. BECAUSE THIS PROJECT FALLS UNDER THE CGP 3-9020, WOVEN WIRE REINFORCED SILT FENCE SHALL BE USED INSTEAD OF SILT FENCE WITHIN 100 FEET UPSLOPE OF RECEIVING WATERS (NOT ANTICIPATED TO BE NEEDED).

1.4.5 DIVERT UPLAND RUNOFF

DIVERSIONARY MEASURES SHALL BE USED TO INTERCEPT RUNOFF FROM ABOVE THE CONSTRUCTION AND DIRECT IT AROUND THE DISTURBED AREA SO THAT CLEAN WATER DOES NOT BECOME MUDDIED WHILE TRAVELING OVER EXPOSED SOILS ON THE CONSTRUCTION SITE.

THE PROJECT IS ADJACENT TO VT ROUTE 105, THEREFORE, IT IS NOT ANTICIPATED THAT DIVERSION MEASURES WILL BE NECESSARY.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF

CHECK STRUCTURES SHALL BE UTILIZED TO REDUCE THE VELOCITY, AND THUS THE EROSION POTENTIAL, OF CONCENTRATED FLOW IN CHANNELS.

STONE CHECK DAMS WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN, AT A MINIMUM.

1.4.7 CONSTRUCT PERMANENT CONTROLS

PERMANENT STORMWATER TREATMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH PERMIT CONDITIONS.

SPECIFIC PERMANENT CONTROL MEASURES OF THE PROJECT INCLUDE TYPE I STONE FOR PILOT CHANNELS, SEED/MULCH AND A LEVEL SPREADER TO REDUCE VELOCITIES AND MINIMIZE CHANNELIZED RUNOFF.

1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION

ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY STABILIZATION IN PLACE WITHIN 48 HOURS OF DISTURBANCE OR IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT 3-9020 AUTHORIZATION.

SURFACE ROUGHENING OF ALL EXPOSED SLOPES, COMBINED WITH TEMPORARY MULCHING, SHALL BE UTILIZED ON A REGULAR BASIS. BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3. THE FORECAST OF RAINFALL EVENTS SHALL TRIGGER IMMEDIATE PROTECTION OF EXPOSED SOILS.

1.4.9 WINTER STABILIZATION

VARIOUS MEASURES SPECIFIC TO WINTER MAY BE NECESSARY SHOULD THE PROJECT EXTEND INTO WINTER (OCTOBER 15 THROUGH APRIL 15). REFER TO THE LOW RISK SITE HANDBOOK FOR GUIDANCE.

IT IS ANTICIPATED THAT THIS PROJECT WILL EXTEND INTO THE WINTER CONSTRUCTION SEASON.

1.4.10 STABILIZE SOIL AT FINAL GRADE

EXPOSED SOIL MUST BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

SEED, MULCH, FERTILIZER AND LIME SHALL BE USED TO ESTABLISH PERMANENT VEGETATION. FOR SLOPES STEEPER THAN 1:3, BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED INSTEAD OF MULCH.

1.4.11 DE-WATERING ACTIVITIES

DISCHARGE FROM DEWATERING ACTIVITIES THAT FLOWS OFF OF THE CONSTRUCTION SITE MUST NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF THE VERMONT WATER QUALITY STANDARDS.

DE-WATERING ACTIVITIES ARE NOT ANTICIPATED AS PART OF THIS PROJECT.

1.4.12 INSPECT YOUR SITE

INSPECT THE PROJECT SITE BASED ON SPECIAL PROVISION REQUIREMENTS OR CONSTRUCTION GENERAL PERMIT AUTHORIZATION STIPULATIONS.

1.5 SEQUENCE AND STAGING

THIS SECTION WILL BE DEVELOPED BY THE CONTRACTOR USING THE GUIDANCE OUTLINED IN THE VTRANS EPSC PLAN CONTRACTOR CHECKLIST.

1.5.1 CONSTRUCTION SEQUENCE

1.5.2 OFF-SITE ACTIVITIES

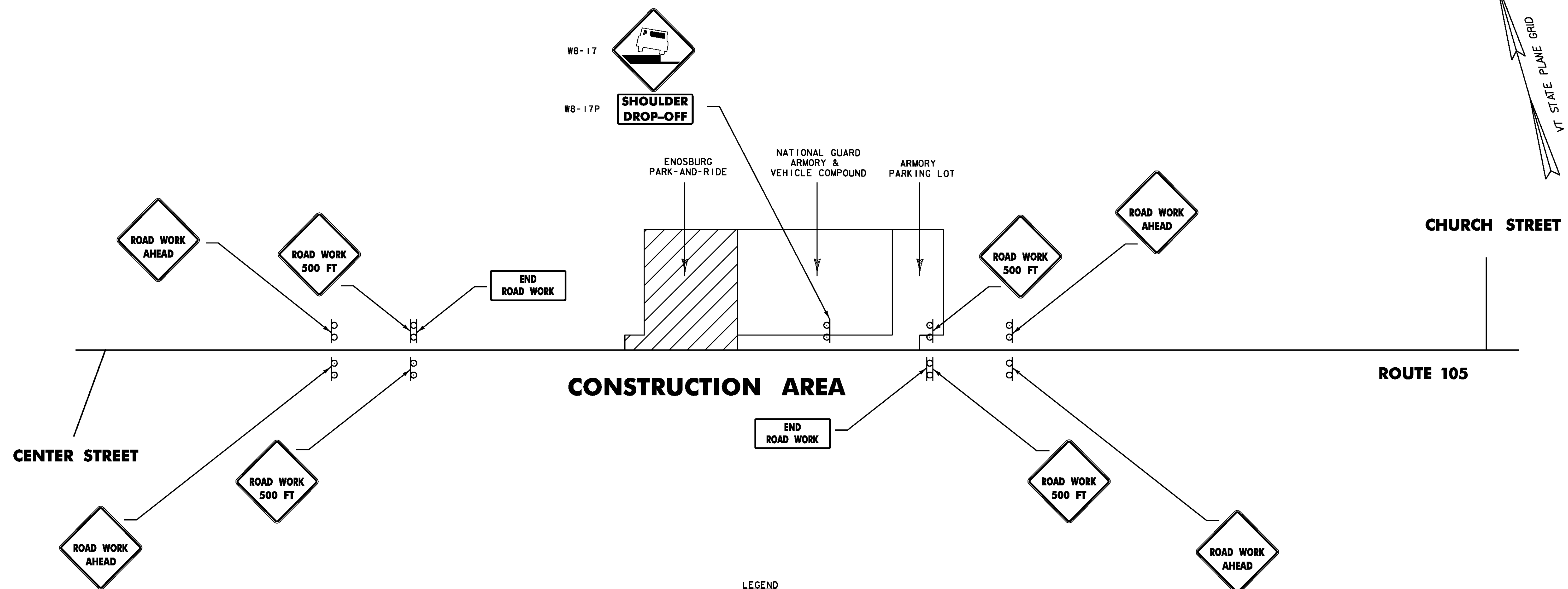
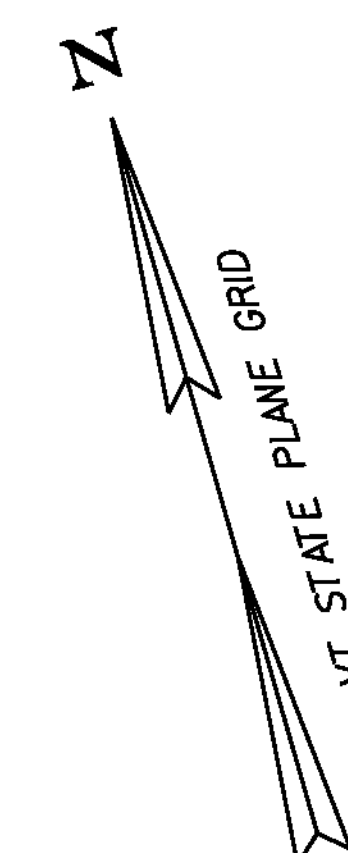
IN ADDITION TO THE CONTRACTOR CHECKLIST ANY ACTIVITIES OUTSIDE THE CONSTRUCTION LIMITS SHALL FOLLOW SUBSECTIONS 105.25- 105.29 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

1.5.3 UPDATES

EPSC NARRATIVE

PROJECT NAME: ENOSBURG	
PROJECT NUMBER: CMG PARK(20)	
FILE NAME: ...\\PlotFiles\\16eronarrative.ptf	PLOT DATE: 5/23/2011
PROJECT LEADER: WLD	DRAWN BY: STANTEC
DESIGNED BY: CSP/GGG	CHECKED BY: GAS
EPSC NARRATIVE	SHEET 16 OF 32





LEGEND
RWA = ROAD WORK AHEAD
RW500 = ROAD WORK 500'
ERW = END ROAD WORK
SDO = SHOULDER DROP-OFF

LOCATION	RWA	RW500	ERW	SDO
ROUTE 105				
BEGIN APPROACH	2	2	1	
END APPROACH	2	2	1	1
TOTALS	4	4	2	1

CONSTRUCTION APPROACH SIGNING
NOT TO SCALE
SEE VTrans STANDARDS E-100, E-100A, E-102A FOR SIGN PLACEMENT.

NOTE: PAYMENT FOR CONSTRUCTION SIGNING WILL BE MADE UNDER CONTRACT ITEM 641.10.



PROJECT NAME:	ENOSBURG
PROJECT NUMBER:	CMG PARK(20)
FILE NAME: ...\\PlotFiles\\17constapproach.plt	PLOT DATE: 5/23/2011
PROJECT LEADER: WLD	DRAWN BY: STANTEC
DESIGNED BY: CSP/GGG	CHECKED BY: GAS
CONSTRUCTION APPROACH SIGNING	SHEET 17 OF 32

646.490 - DURABLE LETTER OR SYMBOL

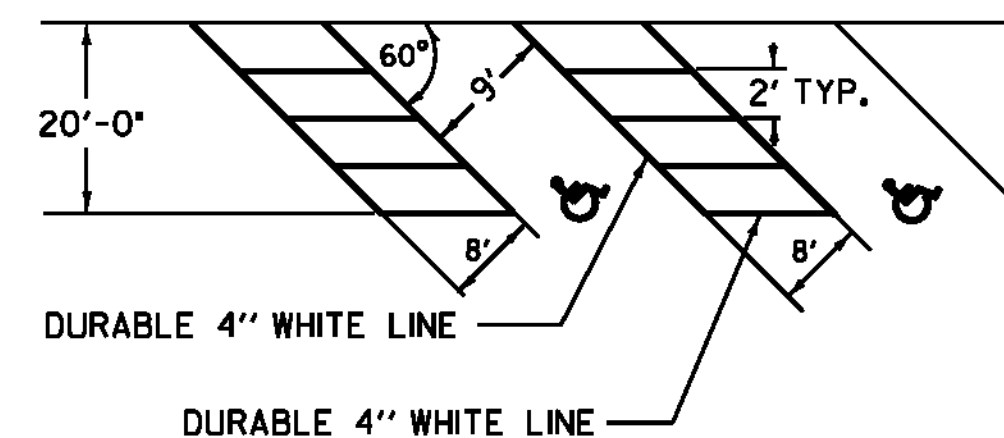
STA. 10+89, LT. - † STA. 12+55, LT. - †
 STA. 11+81, LT. - † STA. 12+67, LT. - †
 STA. 11+81, LT. - † STA. 12+71, LT. - †
 STA. 12+39, LT. - † STA. 12+79, LT. - †

646.410 - DURABLE 4" YELLOW LINE
 STA. 12+73, SOLID LT. (CENTER LINE)

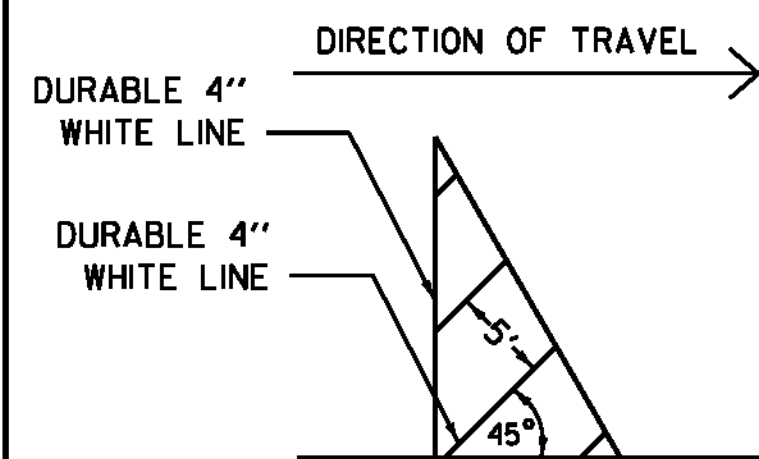
646.400 - DURABLE 4" WHITE LINE
 STA. 10+78 TO 12+85, SOLID LT.
 (PARKING SPACES AND DIAGONALS)

646.480 - DURABLE 24" STOP BAR
 STA. 12+52 TO 12+73, LT.

675.50 - REMOVING SIGNS
 AS SHOWN - 2



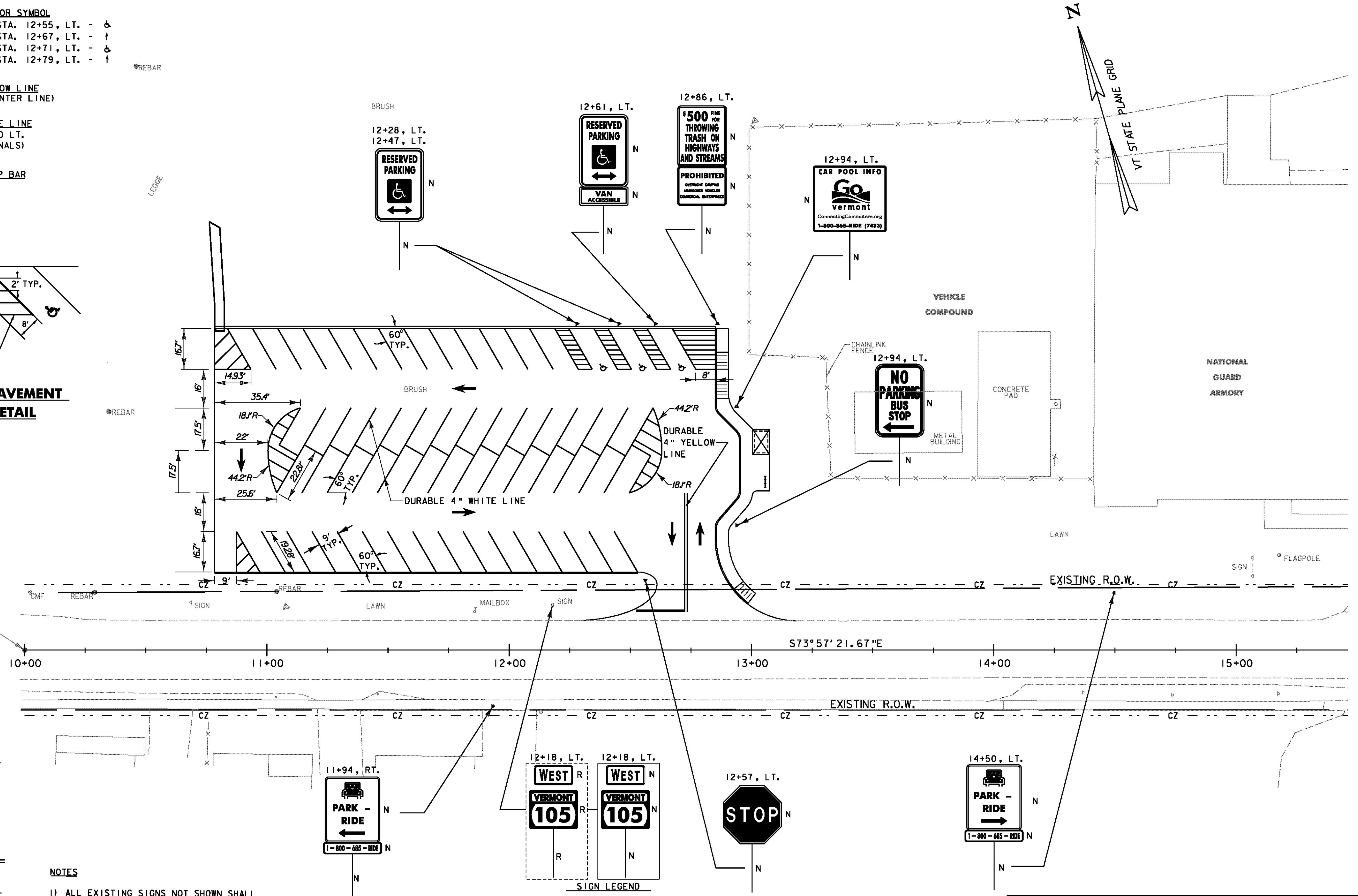
ACCESSIBILITY PAVEMENT MARKING DETAIL



END OF STALL STRIPING DETAIL

NOTES

- 1) ALL EXISTING SIGNS NOT SHOWN SHALL BE RETAINED AS DIRECTED BY THE RESIDENT ENGINEER.
- 2) FOR ANY TOWN HIGHWAY OR STREET DETAILS, SEE VTTRANS STANDARD E-193.
- 3) FOR ALL PAVEMENT MARKING DETAILS, SEE VTTRANS STANDARDS E-191, E-192, & E-193.



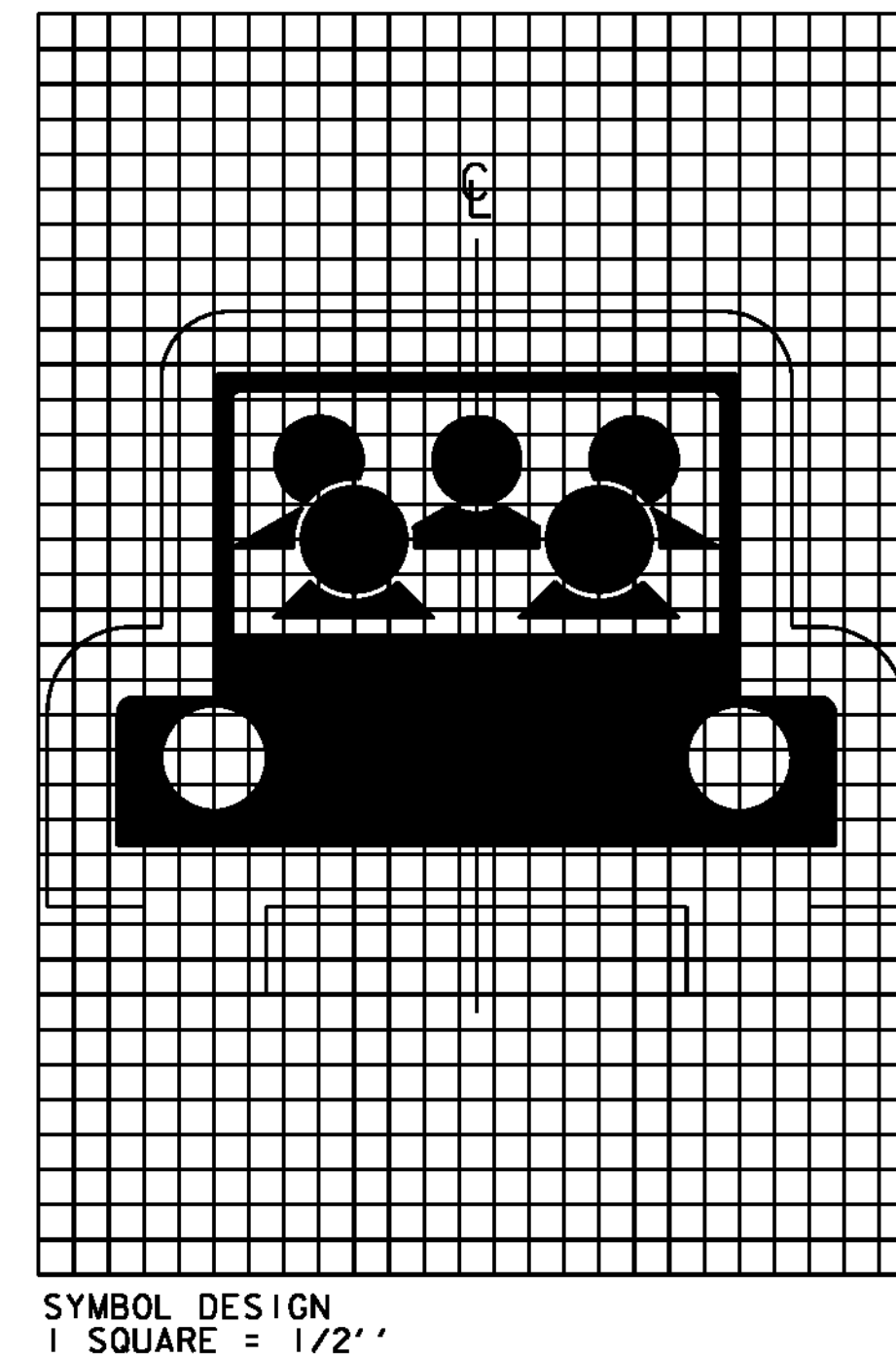
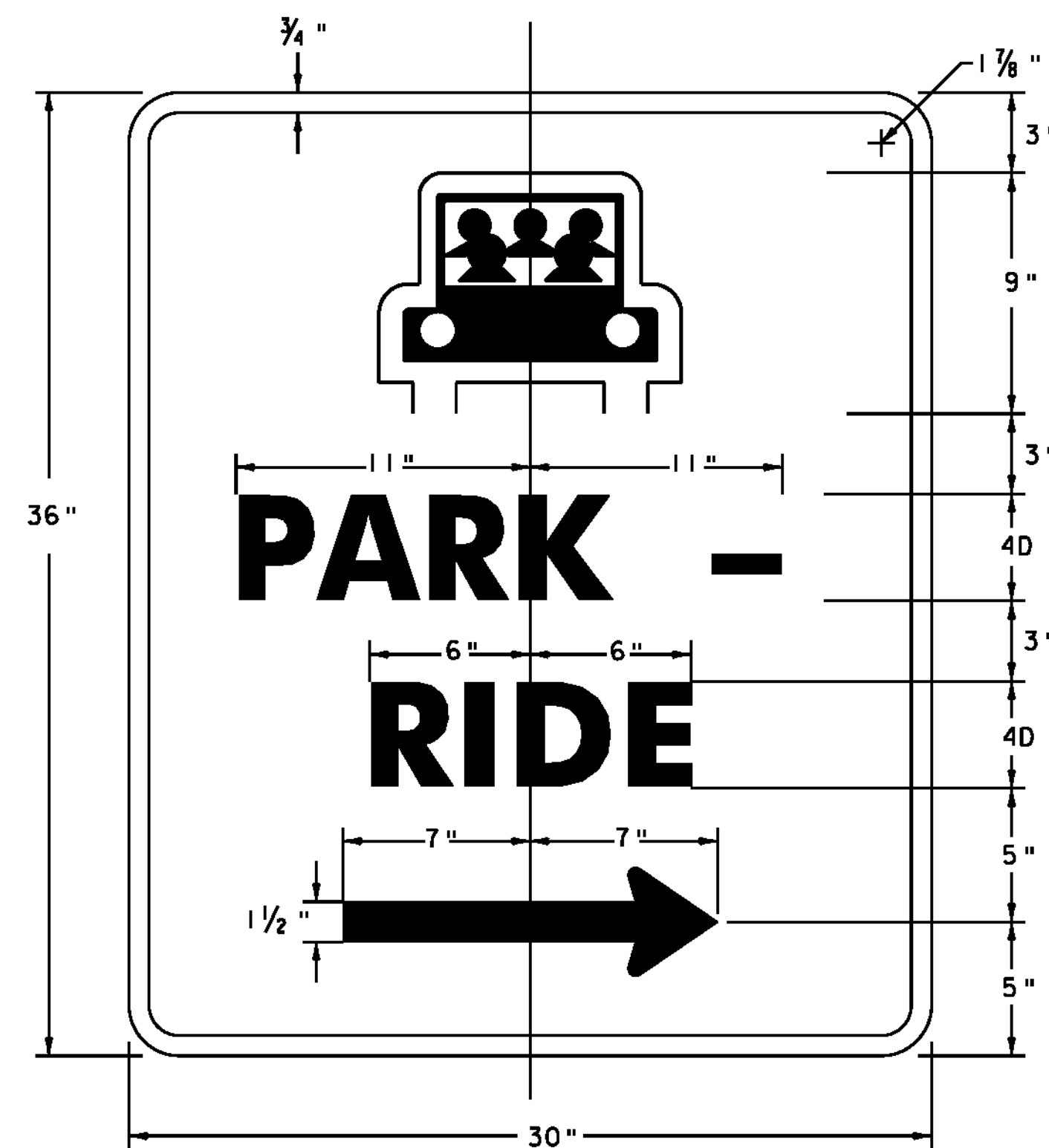
SIGN LEGEND
 N = NEW
 R = REMOVE
 R&S = REMOVE & SALVAGE
 S = SALVAGE SIGN
 RET = RETAIN
 B-B = BACK TO BACK

0 20 40
 SCALE IN FEET



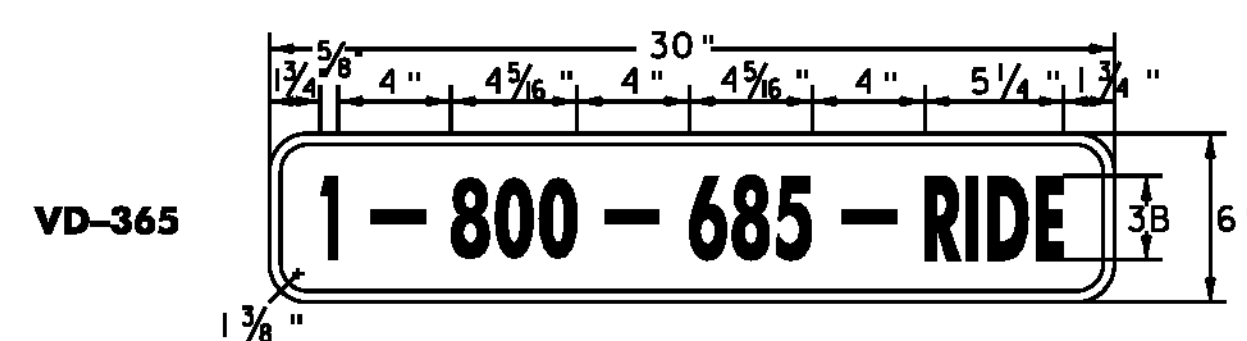
PROJECT NAME: ENOSBURG
 PROJECT NUMBER: CMG PARK(20)

FILE NAME: ...PlotFiles\8signmarkings.plt PLOT DATE: 5/23/2011
 PROJECT LEADER: WLD DRAWN BY: STANTEC
 DESIGNED BY: CSP/GGG CHECKED BY: GAS
 SIGNS & PAVEMENT MARKINGS SHEET 18 OF 32



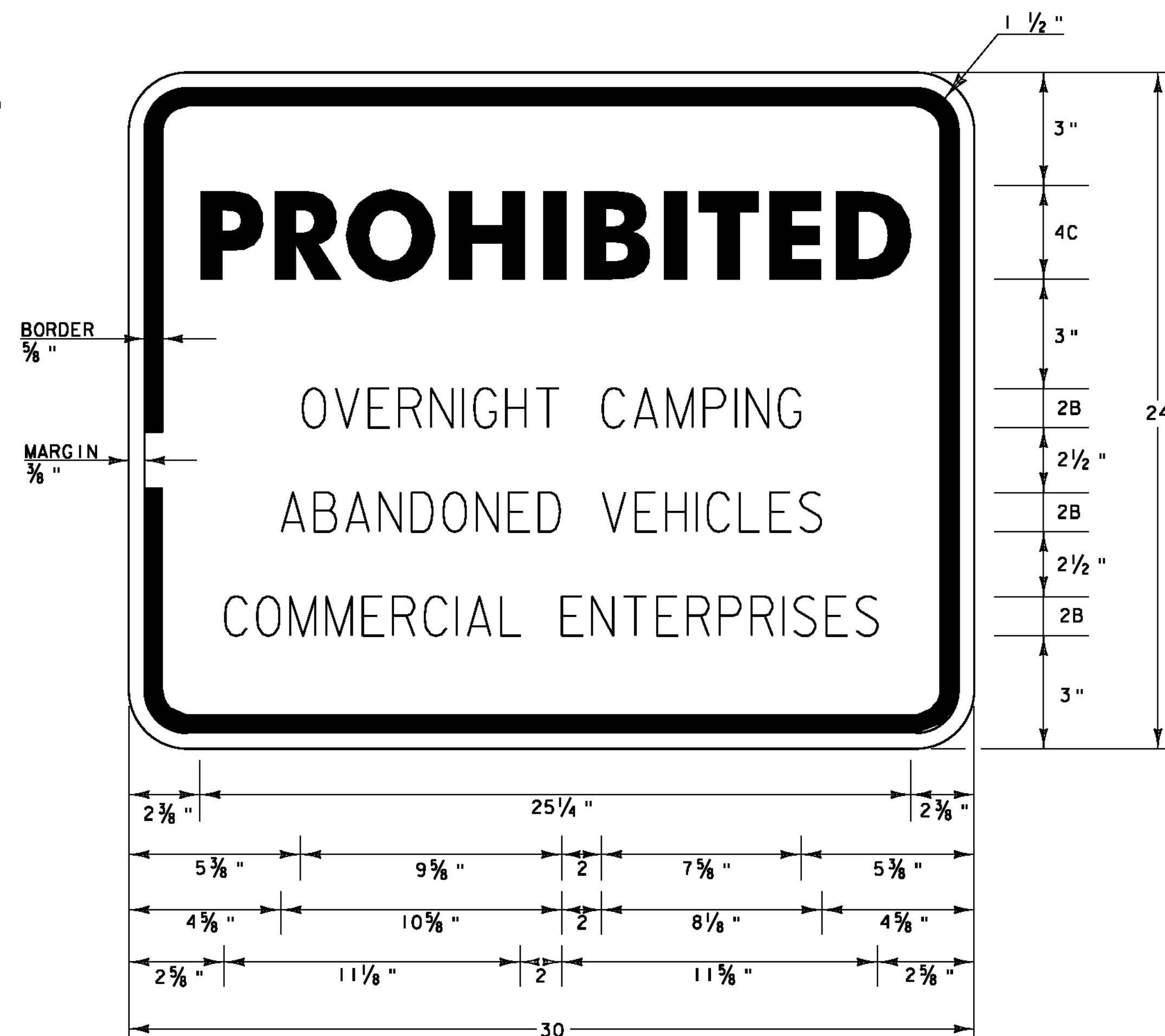
D4-2
WHITE (REFL.) LEGEND, ARROW & BORDER
WHITE & GREEN SYMBOL
GREEN (REFL.) BACKGROUND
SEE VTrans STANDARD E-131 FOR MATERIALS

LOCATIONS
 STA. 11+94, RT. (LEFT ARROW)
 STA. 14+50, LT. (RIGHT ARROW)



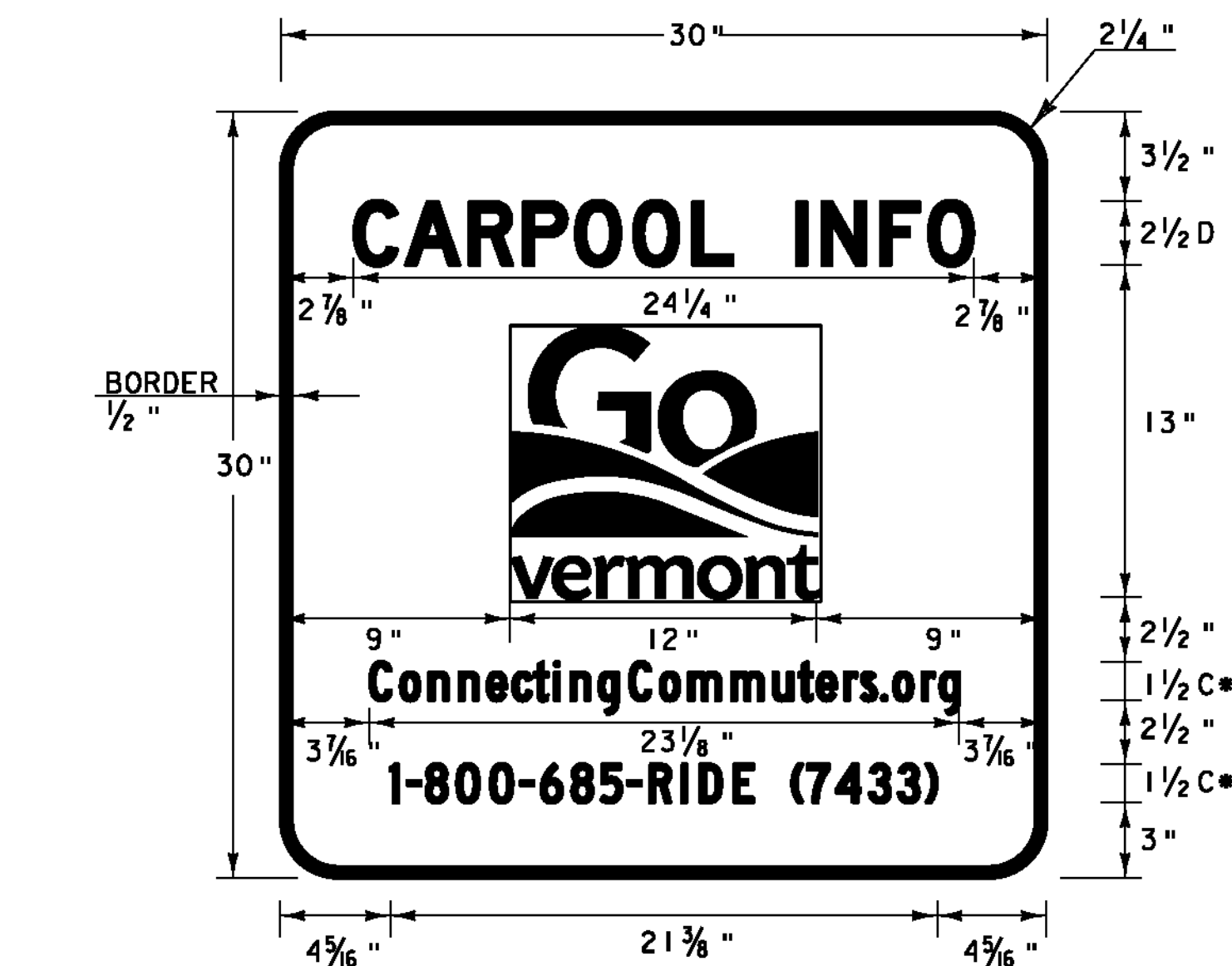
WHITE (REFL.) LEGEND, ARROW & BORDER
GREEN (REFL.) BACKGROUND
SEE VTrans STANDARD E-131 FOR MATERIALS

LOCATIONS
 STA. 11+94, RT.
 STA. 14+50, LT.



VR-032A

LOCATIONS
 STA. 12+86, LT.

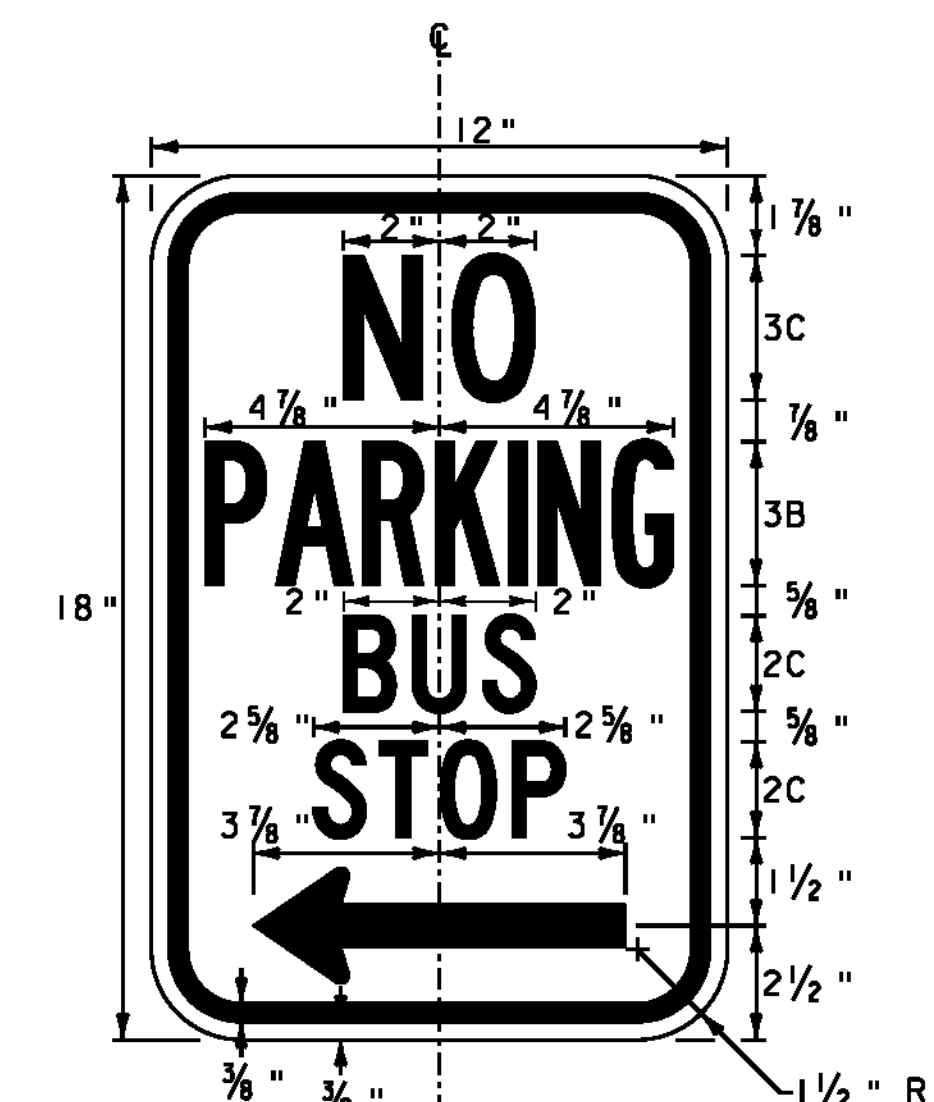


WHITE BORDER AND TEXT (RETROREFLECTIVE)
(MINIMUM TYPE IX) WITH BLUE BACKGROUND
(RETROREFLECTIVE) (MINIMUM TYPE III)
SEE VTrans STANDARD E-131 FOR MATERIALS

NOTE: THE "GO VERMONT" LOGO WILL BE PROVIDED TO THE CONTRACTOR BY
 VAOT IN JPEG FORMAT.

*INCREASE SPACING BY 60%

LOCATIONS
 STA. 12+94, LT.



RED LEGEND & ARROW
WITH WHITE (REFL.) BACKGROUND
SEE VTrans STANDARD E-146 FOR MATERIALS

LOCATIONS
 STA. 12+94, LT.

PROJECT NAME: ENOSBURG
 PROJECT NUMBER: CMG PARK(20)

FILE NAME: ...\\PlotFiles\\V9\\sign\\details.ptf
 PROJECT LEADER: WLD
 DESIGNED BY: CSP/GGG
SIGN DETAILS

PLOT DATE: 5/23/2011
 DRAWN BY: STANTEC
 CHECKED BY: GAS
 SHEET 19 OF 32

DETAILS NOT TO SCALE



TRAFFIC SIGN SUMMARY SHEET



FILE NAME: ...\\PlotFiles\\20signsumml.ptf	PLOT DATE: 5/23/2011
PROJECT LEADER: WLD	DRAWN BY: STANTEC
DESIGNED BY: CSP/GGG	CHECKED BY: GAS
TRAFFIC SIGN SUMMARY SHEET	SHEET 20 OF 32

LIGHTING NOTES:

1. MAXIMUM OF 270° IN TOTAL BENDS PERMITTED IN SINGLE RUN OF CONDUIT.
2. LIGHTS SHALL BE FUSED AT BASE WITH Y-TYPE FUSE KIT, WITH FLOOD-SEAL HOUSING, FUSE CLIPS, HARDWARE, SILICONE LUBRICANT SUITABLE FOR USE AS STREET AND HIGHWAY.
3. CIRCUIT CONDUCTORS INCLUDING NEUTRAL CONDUCTOR SHALL BE CLEARLY IDENTIFIED BY CORROSION RESISTANT TAGS INDICATING CIRCUIT NUMBER AND PANEL SOURCES AT EVERY POLE BASE AND HANDHOLE.
4. UTILIZE APPROVED DUAL-RATED PARALLEL TAP CONNECTOR WITH INSULATING COVER FOR TAPS AT POLE BASE.
5. EXPOSED PVC SHALL BE SCHEDULE 80.
6. ALL CONNECTIONS IN HANDHOLES SHALL BE MADE WITH INSULATED WATERPROOF MECHANICAL SCREW-TYPE CONNECTOR SUITABLE FOR DIRECT BURIAL. NO BARE OR COMPRESSION TYPE CONNECTORS MAY BE USED.
7. HAND HOLE TO BE PAID UNDER ITEM 678.26 JUNCTION BOX.
8. CONTRACTOR SHALL COMPLETE AND SUBMIT "ESTIMATE REQUEST FORM" AND "APPLICATION FOR SERVICE" FORM TO ELECTRIC UTILITY. THE CONTRACTOR SHALL PAY ALL FEES AND CHARGES REQUIRED BY THE TOWN TO COMPLETE THE ESTIMATE AND INSTALL THE NEW SERVICE. THE COST FOR THIS WORK WILL BE PAID UNDER ITEM 679.55 POWER DROP STANCHION, STREET LIGHTING.

GENERAL NOTES:

1. THE SCOPE OF WORK IS TO PROVIDE ALL LABOR, MATERIALS, SERVICES, SUPPLIES, TOOLS, EQUIPMENT, TRANSPORTATION, AND FACILITIES NECESSARY TO FURNISH AND INSTALL COMPLETE ELECTRICAL WORK AS CALLED FOR ON THE DRAWINGS, SPECIFIED, OR AS MAY REASONABLY BE IMPLIED AS BEING INCIDENTAL TO THIS WORK.
2. THE CONTRACTOR SHALL SECURE AND PAY COSTS OF PERMITS, CERTIFICATES, LICENSES, INSPECTIONS, AND APPROVALS AND ALL COSTS REQUIRED BY THE UTILITY.
3. DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF WORK. BASIC DESIGN CONCEPTS INDICATED ARE TO BE EITHER FOLLOWED OR BETTERED. WORK IS INTENDED TO INCLUDE ITEMS NECESSARY FOR PROPER OPERATION AND COMPLETION. FIELD VERIFY ALL LOCATIONS, ELEVATIONS, AND DIMENSIONS.
4. EXECUTE ALL WORK IN A NEAT AND WORKMANLIKE MANNER IN CONFORMANCE WITH BEST MODERN TRADE PRACTICE, BY COMPETENT, EXPERIENCED MECHANICS, PRESENTING A NEAT APPEARANCE WHEN COMPLETED. REPLACE WORK NOT APPROVED BY OWNER WITHOUT ADDITIONAL CHARGE.
5. ALL MATERIALS AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE, AND ALL CODES, REGULATIONS AND REQUIREMENTS OF ALL MUNICIPAL, STATE, FEDERAL AND OTHER PUBLIC OR PRIVATE AUTHORITIES WHICH HAVE JURISDICTION. IN EACH CASE, CODES ARE MINIMUM REQUIREMENTS.
6. FABRICATION DRAWINGS: SUBMIT COMPLETE CATALOG INFORMATION FOR ALL MATERIALS AND EQUIPMENT TO BE PURCHASED AND USED ON THIS PROJECT, AS SPECIFIED BY THE DRAWINGS. DO NOT INSTALL MATERIALS OR EQUIPMENT WITHOUT APPROVAL BY THE OWNER. UNAPPROVED MATERIAL ALREADY INSTALLED SHALL BE SUBJECT TO REMOVAL AND REPLACEMENT WITH APPROVED MATERIALS AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR IS RESPONSIBLE FOR INSURING THAT APPROVED SUBSTITUTE ITEMS WILL FIT INTO AVAILABLE SPACES AND FOR ANY EXTRA CHARGES BY OTHER TRADES.
7. AS THERE MAY BE VARIOUS CONDITIONS AT THE SITE WHICH DO NOT SHOW ON THE ACCOMPANYING DRAWINGS, OR WHICH ARE AT VARIANCE WITH THE CONDITIONS INDICATED ON THE DRAWINGS, IT IS IMPORTANT THAT EACH BIDDER VISIT THE SITE AND TO EXAMINE EXISTING CONDITIONS AND TAKE THESE CONDITIONS INTO CONSIDERATION WHEN PREPARING THEIR BID. EACH BIDDER SHALL OBTAIN INFORMATION OR MAKE ANY MEASUREMENT DESIRED. LACK OF KNOWLEDGE RELATIVE TO EXISTING SITE CONDITIONS WILL NOT BE ALLOWED AS A BASIS FOR EXTRA COMPENSATION.
8. THE FINISHED INSTALLATION SHALL BE COMPLETE IN EVERY RESPECT AND DETAIL, TESTED AND LEFT READY IN PERFECT OPERATING CONDITION FOR THE OWNER'S USE.
9. MATERIALS AND EQUIPMENT SHALL BE LISTED BY UNDERWRITERS' LABORATORIES AND SHALL BE INSTALLED IN ACCORDANCE WITH SUCH LISTINGS.
10. INSTALLATION SHALL BE MADE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
11. SEE UTILITIES SPECIAL PROVISION FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

STREET LIGHTING LEGEND

- ➔ SITE LIGHT (ARROW INDICATES DIRECTION OF DISTRIBUTION)
- WIRED CONDUIT (PVC)
- HAND HOLE / JUNCTION BOX
- ===== ELECTRICAL CONDUIT SLEEVE

CONDUIT & CONDUCTOR SCHEDULE

KEY	CONDUIT SIZE, TYPE	CONDUCTORS	
		FOR FIXTURES	FOR GROUND
A	2", PVC	3#6	1#6
B	2", PVC	2#6	1#6
C	3", PVC	3#3	1#6

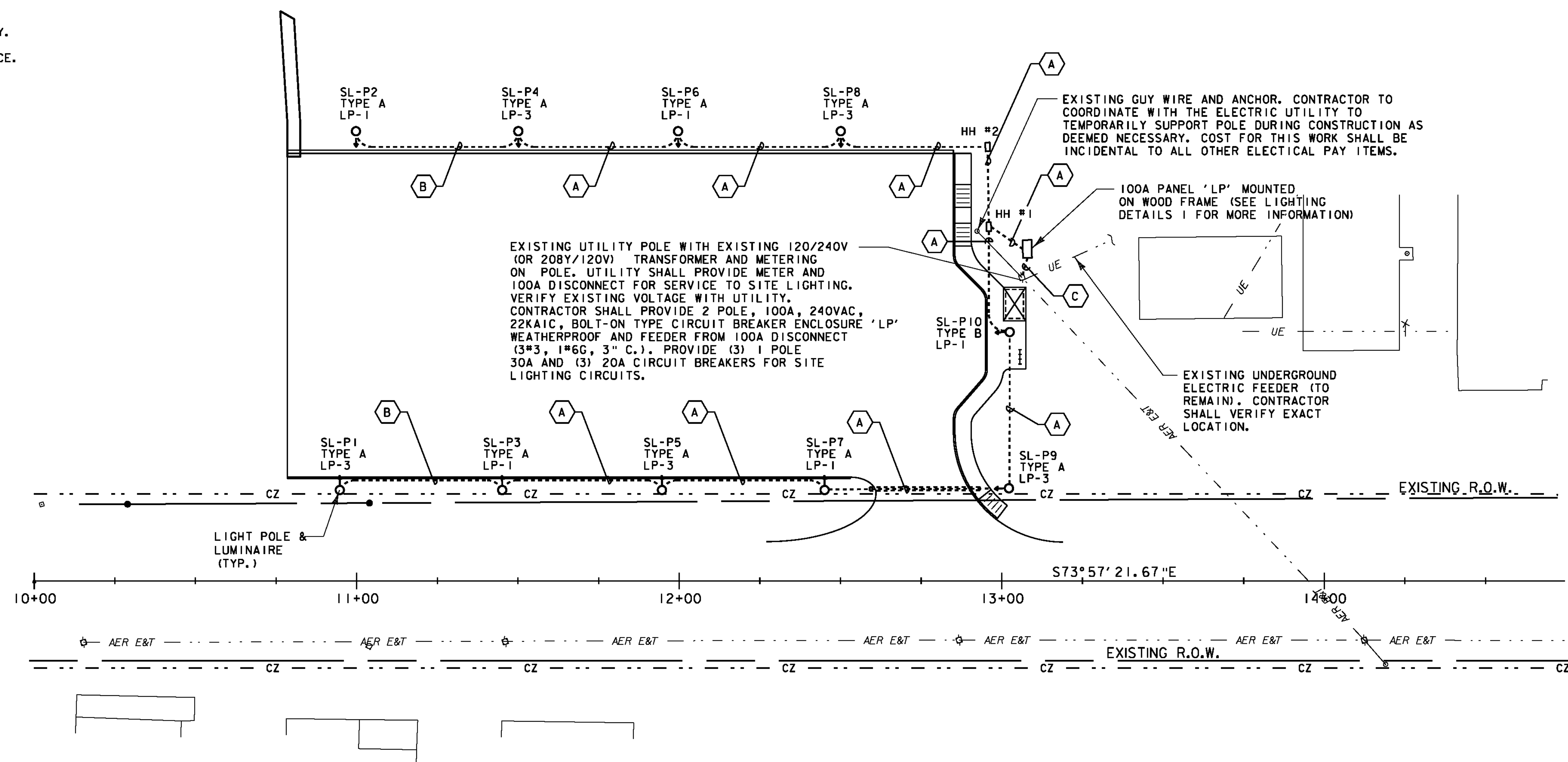
679.45 - LIGHT POLE,
679.21 - LIGHT POLE BASE
679.50 - LUMINAIRE
STA. 10+95, 28' LT.
STA. 11+00, 139' LT.
STA. 11+45, 28' LT.
STA. 11+50, 139' LT.
STA. 11+95, 28' LT.
STA. 12+00, 139' LT.
STA. 12+45, 28' LT.
STA. 12+50, 139' LT.
STA. 13+02, 28' LT.
STA. 13+02, 77' LT.

678.30 - ELECTRICAL CONDUIT SLEEVE (4 INCH) (PVC) (SCH 80)
STA. 12+57, LT. TO 12+94, LT.

678.23 - WIRED CONDUIT (2 INCH) (PVC)
STA. 10+96, LT. TO 13+10, LT.
STA. 13+00, LT. TO 13+06, LT.

678.23 - WIRED CONDUIT (3 INCH) (PVC)
STA. 13+06, LT. TO 13+08, LT.

678.26 - JUNCTION BOX
HH#1 STA. 12+96, 110' LT.
HH#2 STA. 12+95, 138' LT.



DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83 (1996)
VT SPC (FEET)

0 20 40
SCALE IN FEET



PROJECT NAME: ENOSBURG
PROJECT NUMBER: CMG PARK(20)

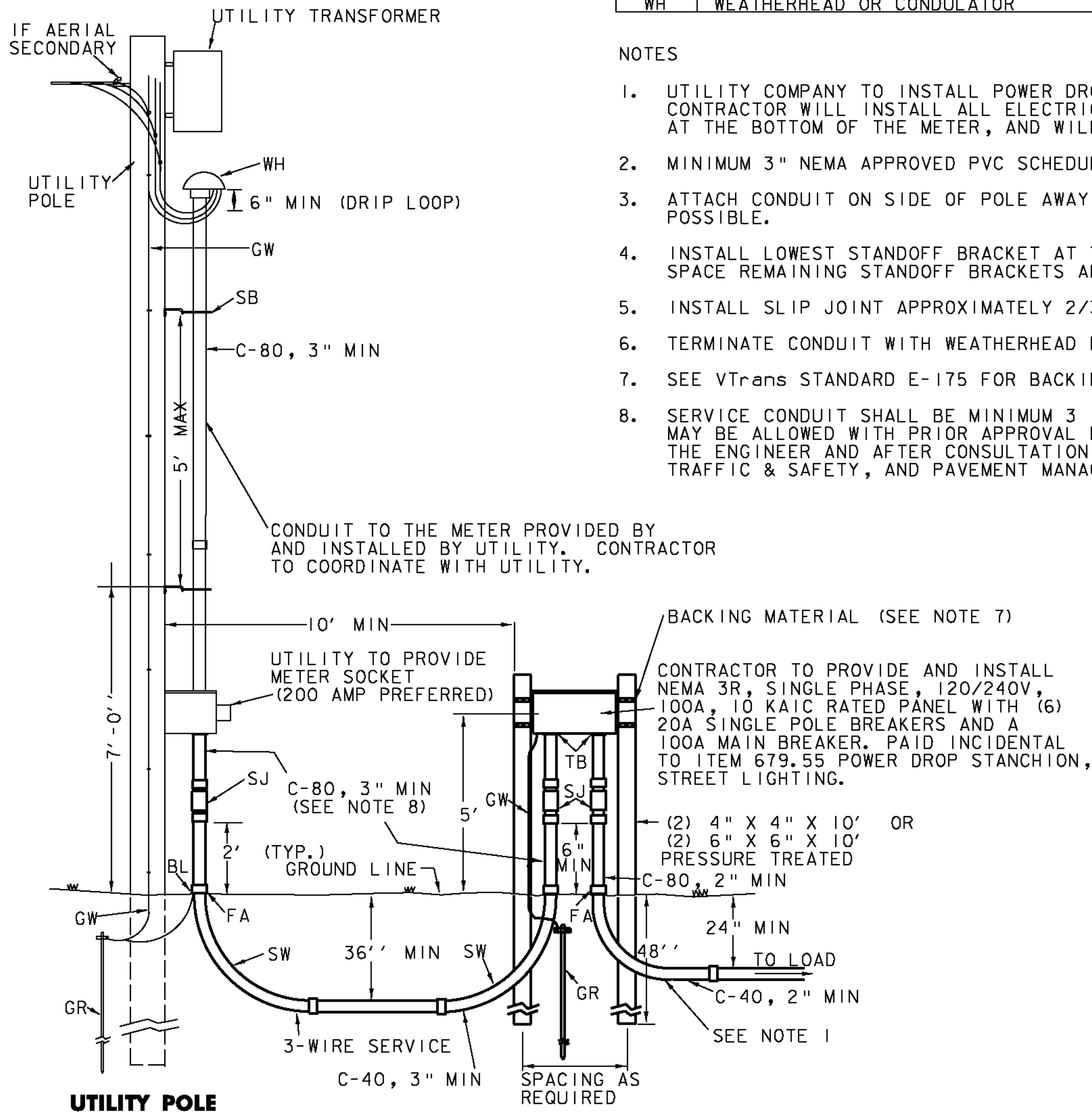
FILE NAME: ...\\PlotFiles\\21\\lighting\\lptf
PROJECT LEADER: WLD
DESIGNED BY: CSP/GGG
LIGHTING PLAN

PLOT DATE: 5/23/2011
DRAWN BY: STANTEC
CHECKED BY: GAS
SHEET 21 OF 32

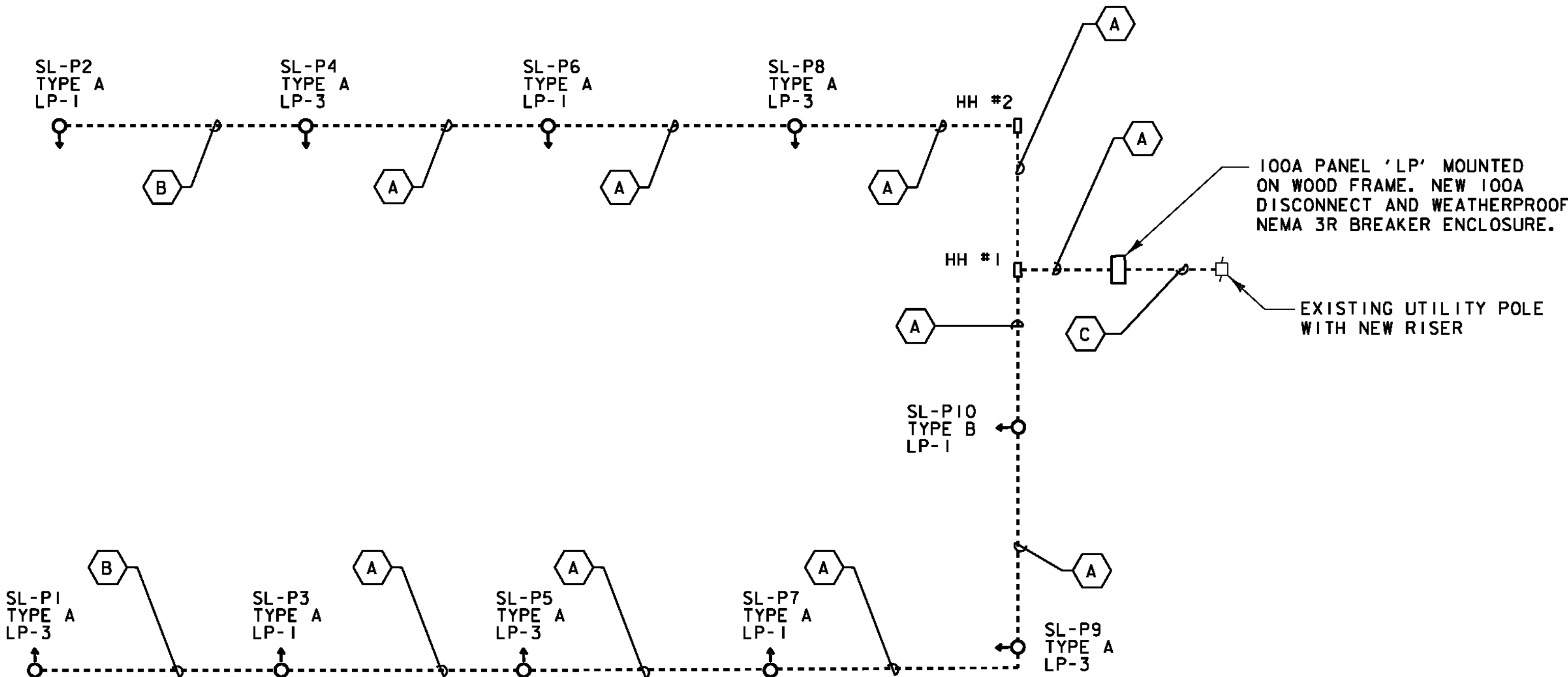
CONDUIT & CONDUCTOR SCHEDULE			
KEY	CONDUIT SIZE, TYPE	CONDUCTORS	
		FOR FIXTURES	FOR GROUND
A	2", PVC	3#6	1#6
B	2", PVC	2#6	1#6
C	3", PVC	3#3	1#6

LEGEND	
ITEM	MATERIAL
BL	BONDING LUG (IF STEEL CONDUIT)
C-40	CONDUIT - PVC SCHEDULE 40
C-80	CONDUIT - PVC SCHEDULE 80
CN	CONDUIT NIPPLE
FA	FEMALE ADAPTER OR COUPLINGS AS REQUIRED
GR	GROUND ELECTRODE, 5/8" X 8" (MIN) COPPER CLAD (2 REQ.)
GW	GROUND CONDUCTOR, #6 AWG CU (MIN)
SB	STANDOFF BRACKET (SEE DETAIL THIS SHEET)
SJ	SLIP JOINT, INSTALL 2/3 OPEN
SSS	STAINLESS STEEL STRAP (1" MIN)
SW	90° SWEEPS, (PVC) 36' R. - SERVICE, 24' R. - LOAD
TB	THREADED BUSHING
WH	WEATHERHEAD OR CONDUULATOR

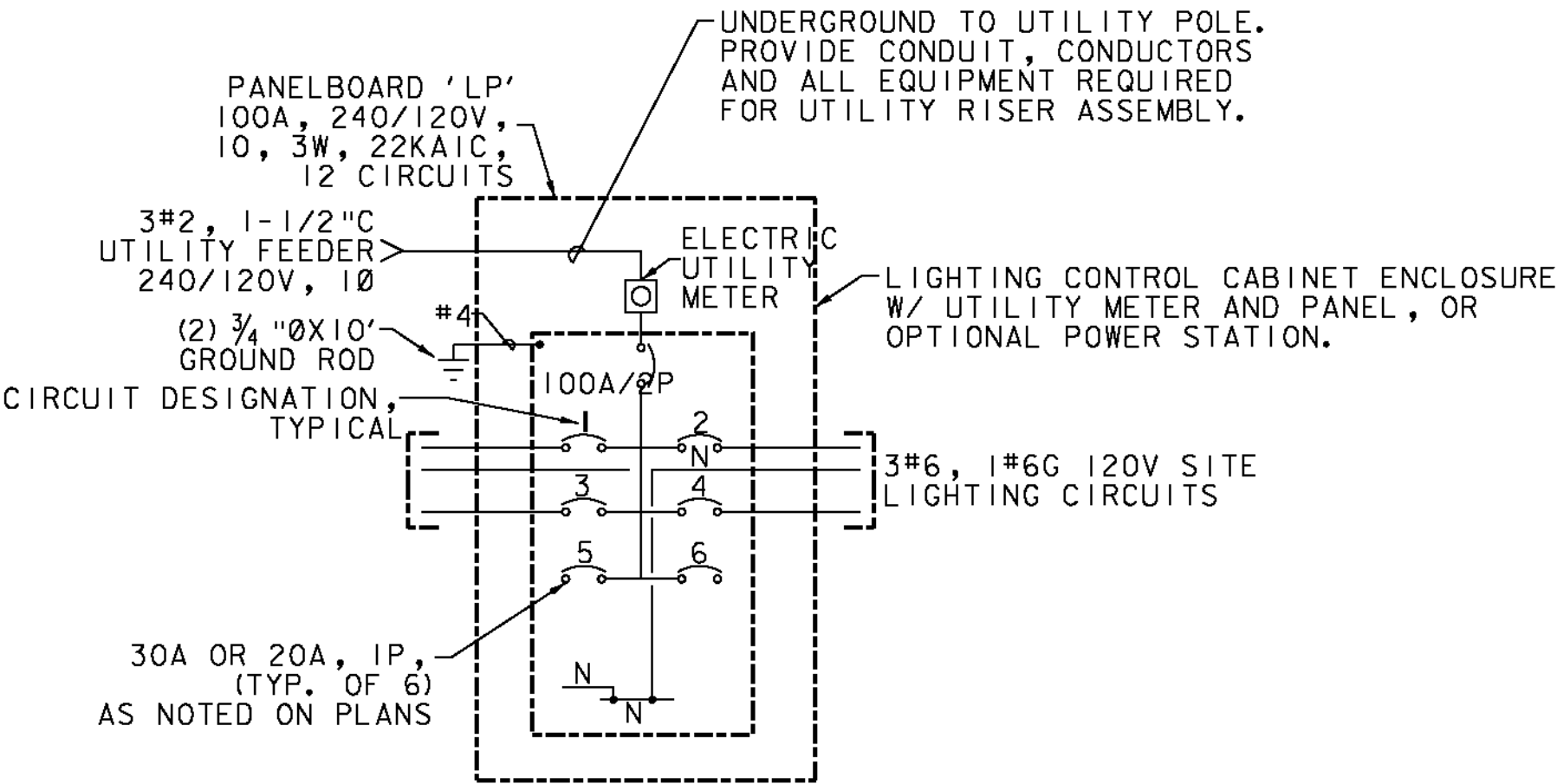
- NOTES
- UTILITY COMPANY TO INSTALL POWER DROP AND METER. CONTRACTOR WILL INSTALL ALL ELECTRICAL WORK BEGINNING AT THE BOTTOM OF THE METER, AND WILL ENERGIZE THE SYSTEM.
 - MINIMUM 3" NEMA APPROVED PVC SCHEDULE 80 SHALL BE USED.
 - ATTACH CONDUIT ON SIDE OF POLE AWAY FROM TRAFFIC WHEN POSSIBLE.
 - INSTALL LOWEST STANDOFF BRACKET AT 7 FEET ABOVE GRADE. SPACE REMAINING STANDOFF BRACKETS APPROX. 5 FEET APART.
 - INSTALL SLIP JOINT APPROXIMATELY 2/3 OPEN.
 - TERMINATE CONDUIT WITH WEATHERHEAD FOR SECONDARY CABLE.
 - SEE VTrans STANDARD E-175 FOR BACKING MATERIAL DETAIL.
 - SERVICE CONDUIT SHALL BE MINIMUM 3 INCH. SMALLER CONDUIT MAY BE ALLOWED WITH PRIOR APPROVAL FROM THE UTILITY AND THE ENGINEER AND AFTER CONSULTATION WITH THE ROADWAY, TRAFFIC & SAFETY, AND PAVEMENT MANAGEMENT SECTIONS.



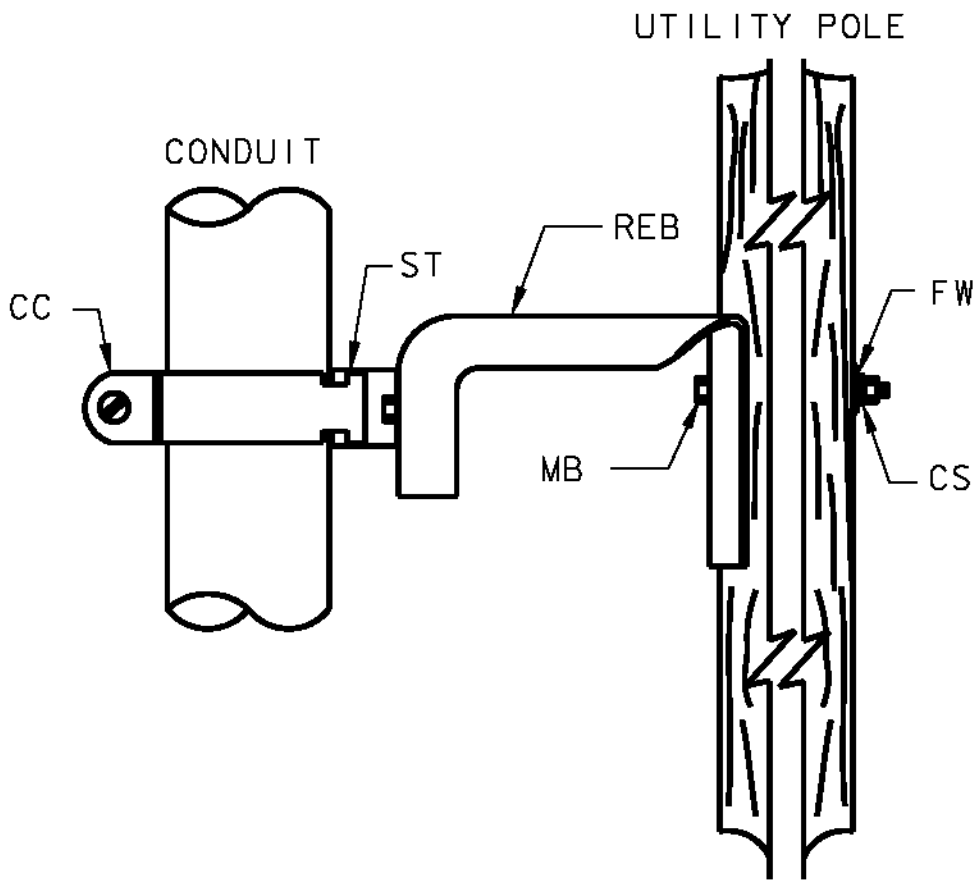
NOT TO SCALE



**ONE-LINE DIAGRAM
SIGHT LIGHTING**
NOT TO SCALE



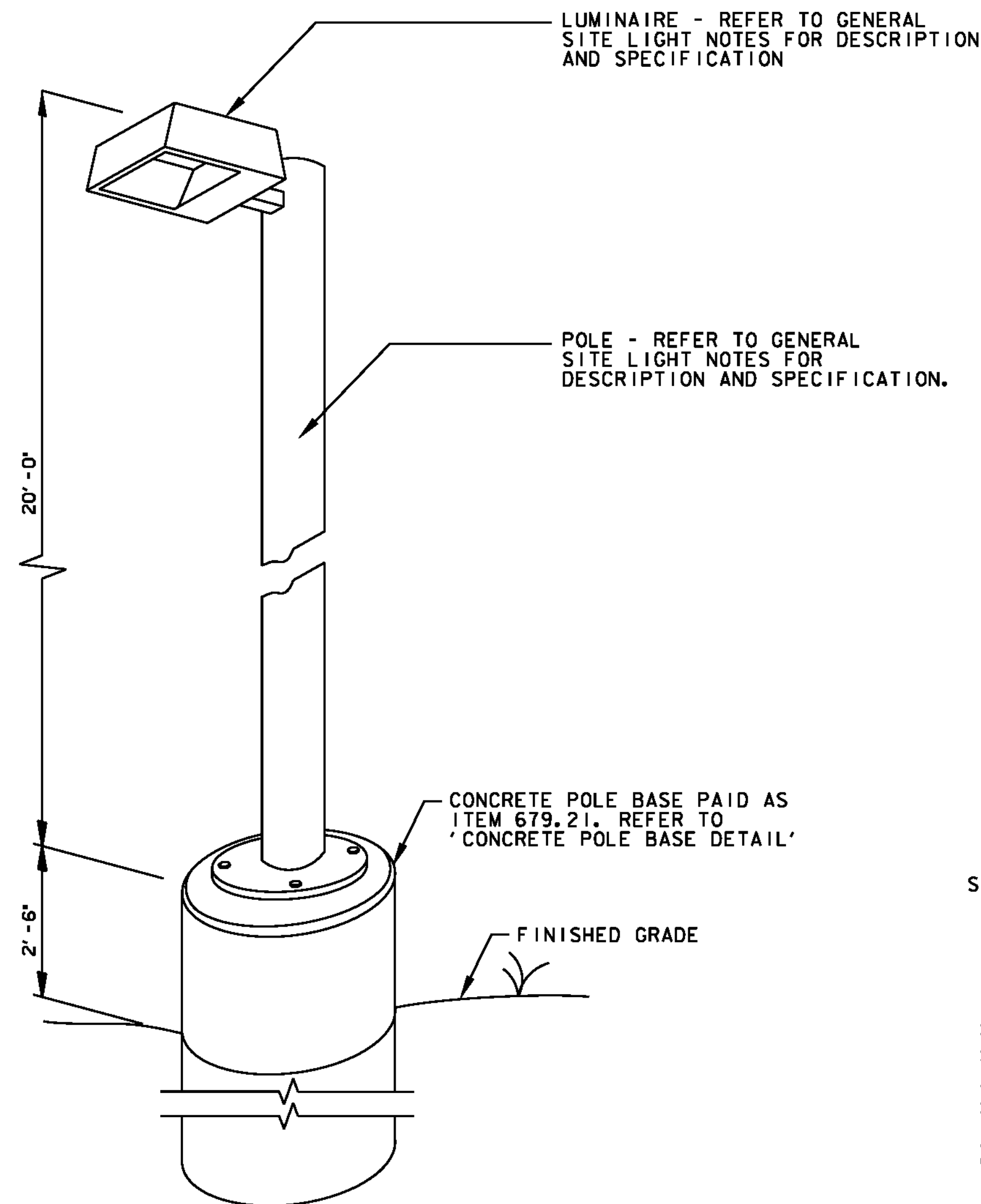
**ONE-LINE DIAGRAM ROADWAY
LIGHTING SERVICE PEDESTAL**
NOT TO SCALE
NOTE: NO RELAYS REQUIRED



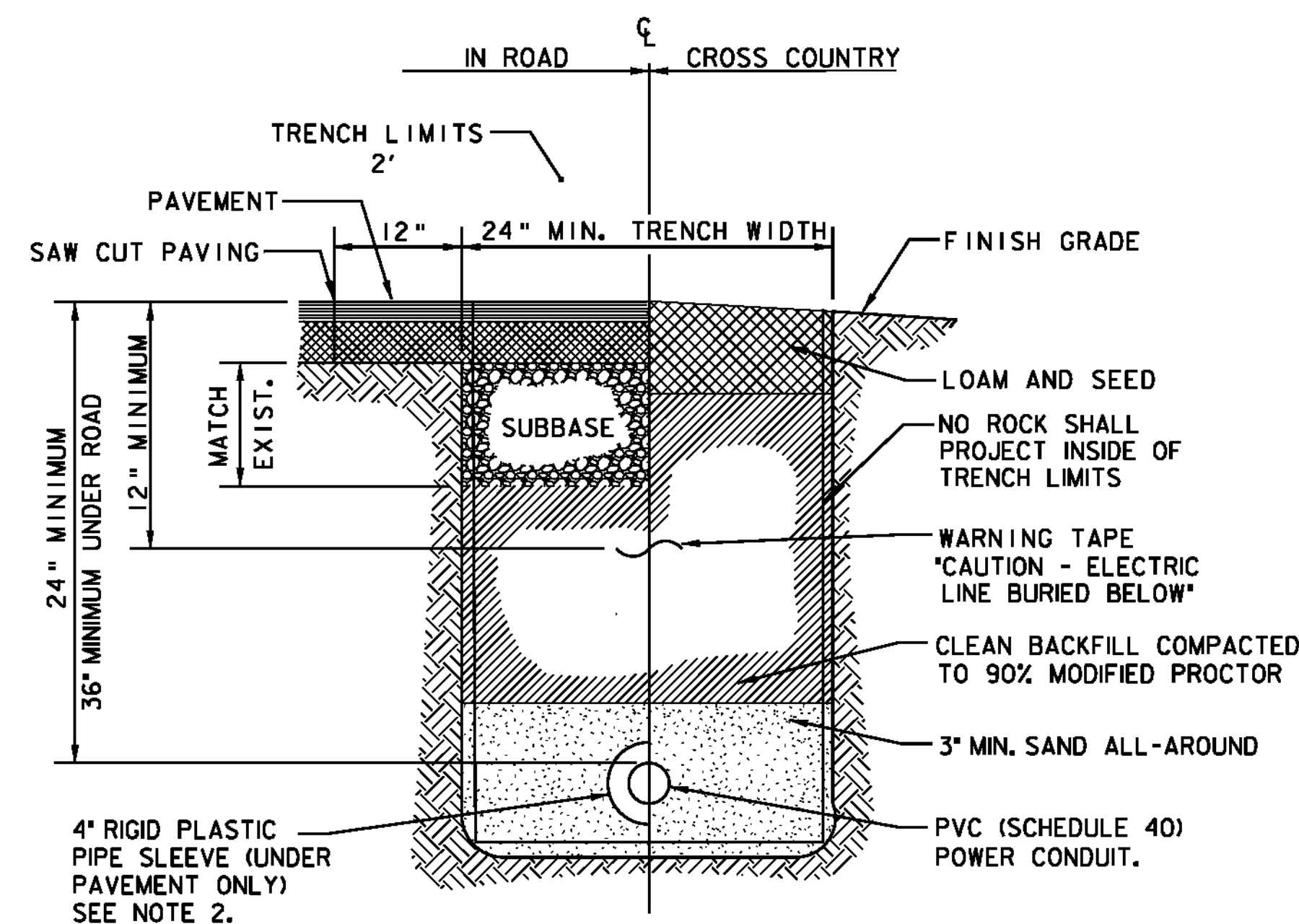
STANDOFF BRACKET
NOT TO SCALE



PROJECT NAME:	ENOSBURG
PROJECT NUMBER:	CMG PARK(20)
FILE NAME: ...\\22lightingdetailsl.prf	PLOT DATE: 5/23/2011
PROJECT LEADER: WLD	DRAWN BY: STANTEC
DESIGNED BY: CSP/GGG	CHECKED BY: GAS
LIGHTING DETAILS 1	SHEET 22 OF 32



SITE LIGHT TYPES 'A' AND 'B'
NOT TO SCALE

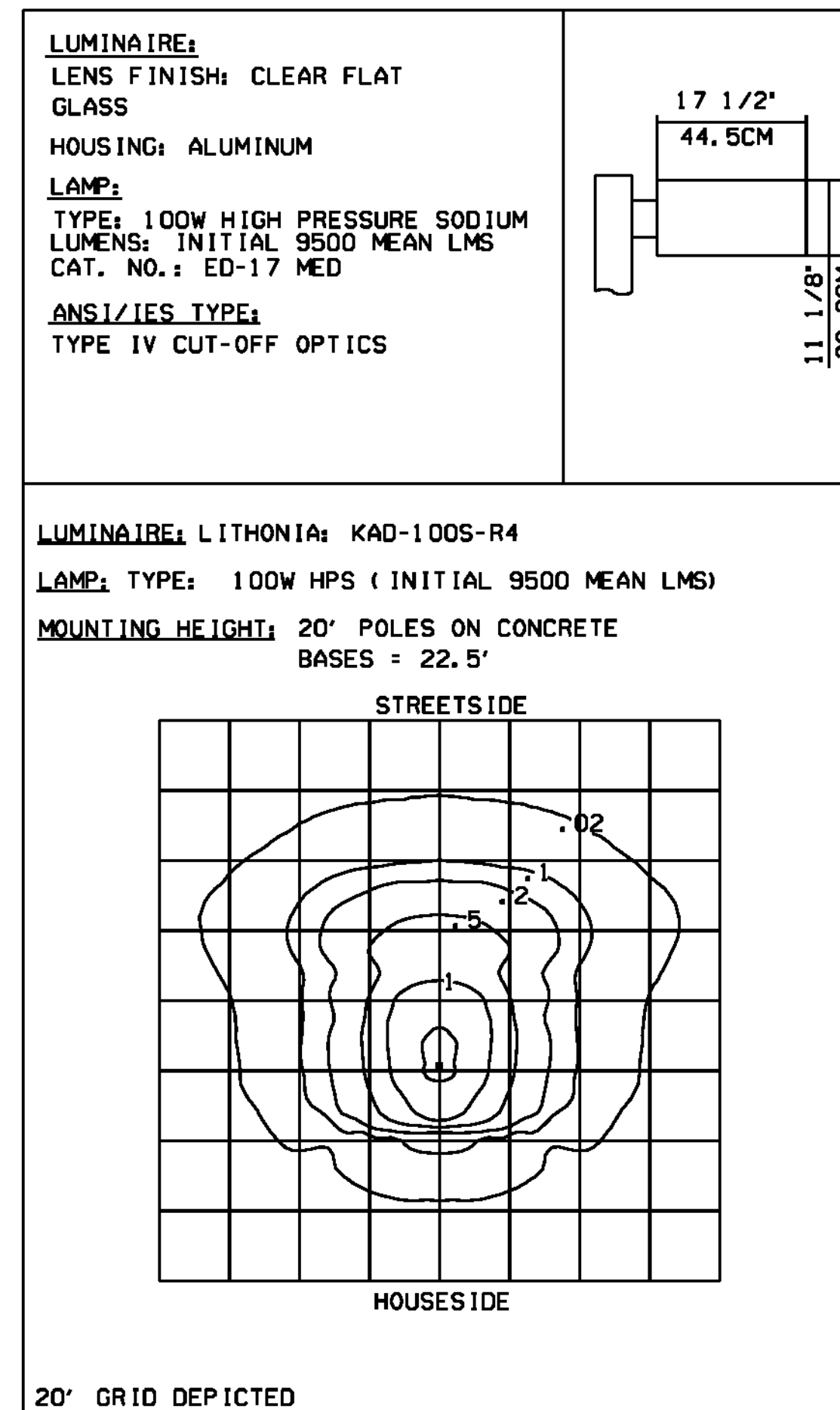


TYPICAL TRENCH SECTION
NOT TO SCALE

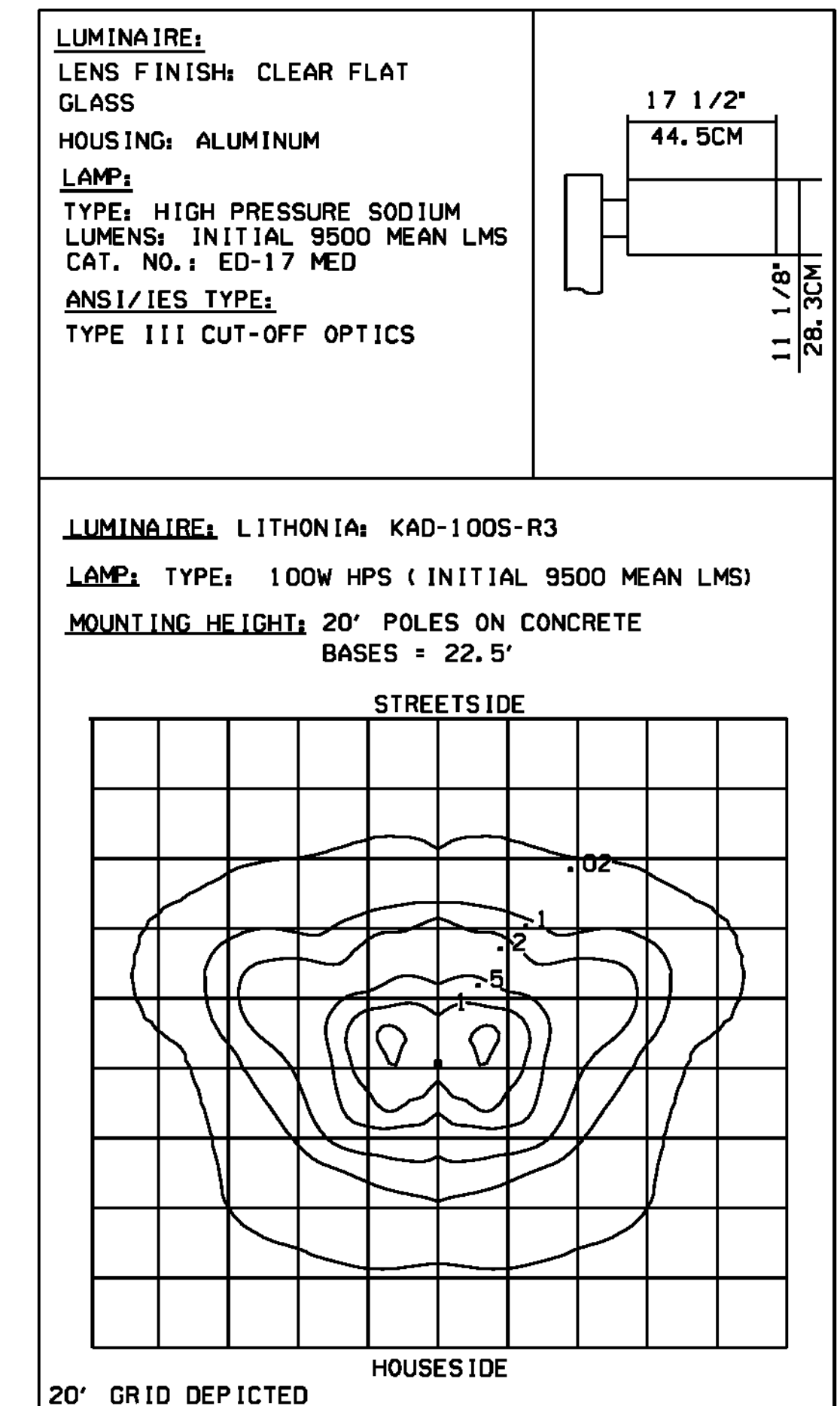
TRENCH NOTES:

1. BOTTOM OF TRENCH SHALL BE UNDISTURBED ORIGINAL GROUND OR FIRMLY COMPACTED EARTH FREE FROM VOIDS, ROCK OR RUBBLE AND OF RELATIVELY SMOOTH ARCH, AND LINED WITH A MINIMUM OF 3" OF CLEAN SAND.
2. CONDUIT UNDER AREAS SUBJECT TO VEHICULAR TRAFFIC SHALL BE ENCASED IN RIGID PLASTIC PIPE SLEEVES. 4" ENCASEMENT AROUND PVC CONDUITS TO 4' BEYOND EDGE OF PAVEMENT, TYPICAL.
3. A 3" SPACING SHALL BE MAINTAINED BETWEEN ADJACENT CONDUITS.
4. PVC CONDUIT SHALL BE PRIMED AND GLUED TO FORM A WATERTIGHT SEAL.
5. ANY EXCAVATION REQUIRED FOR INSTALLATION OF CONDUIT AND SLEEVE SHALL BE PAID INCIDENTAL TO ITEM 678.23 WIRED CONDUIT.

CONDUIT	SLEEVE
2"	4"
3"	5"
4"	6"



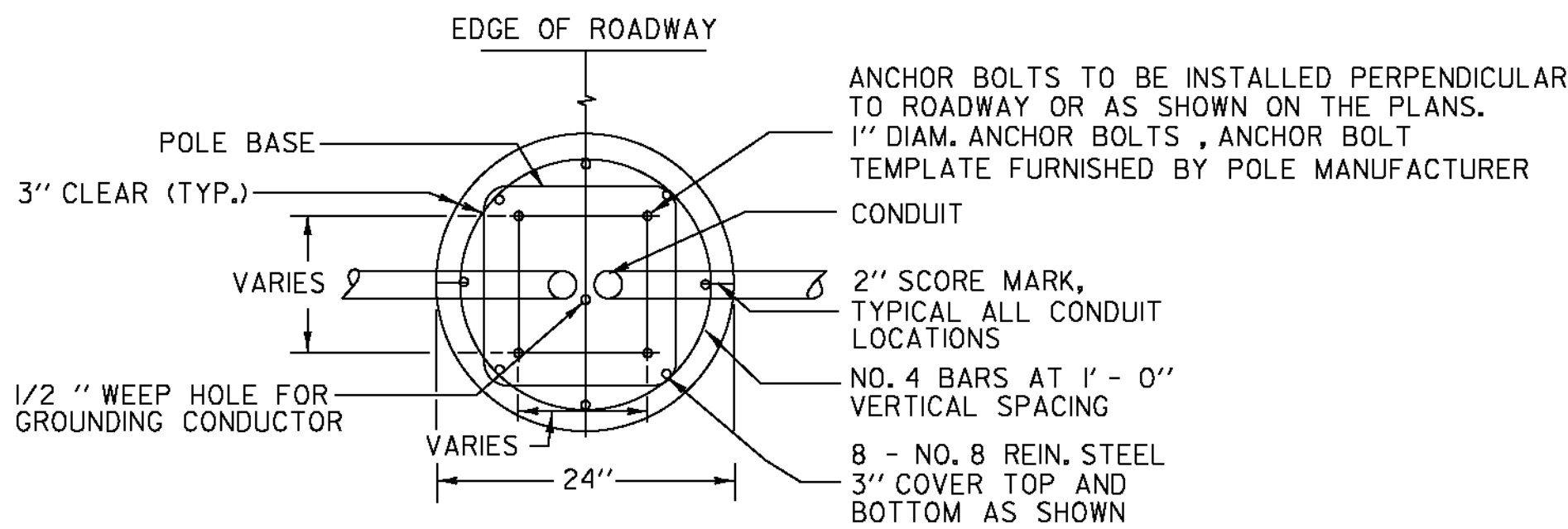
SITE LIGHT TYPE 'A'
ISO-FOOTCANDLE DATA
NO SCALE



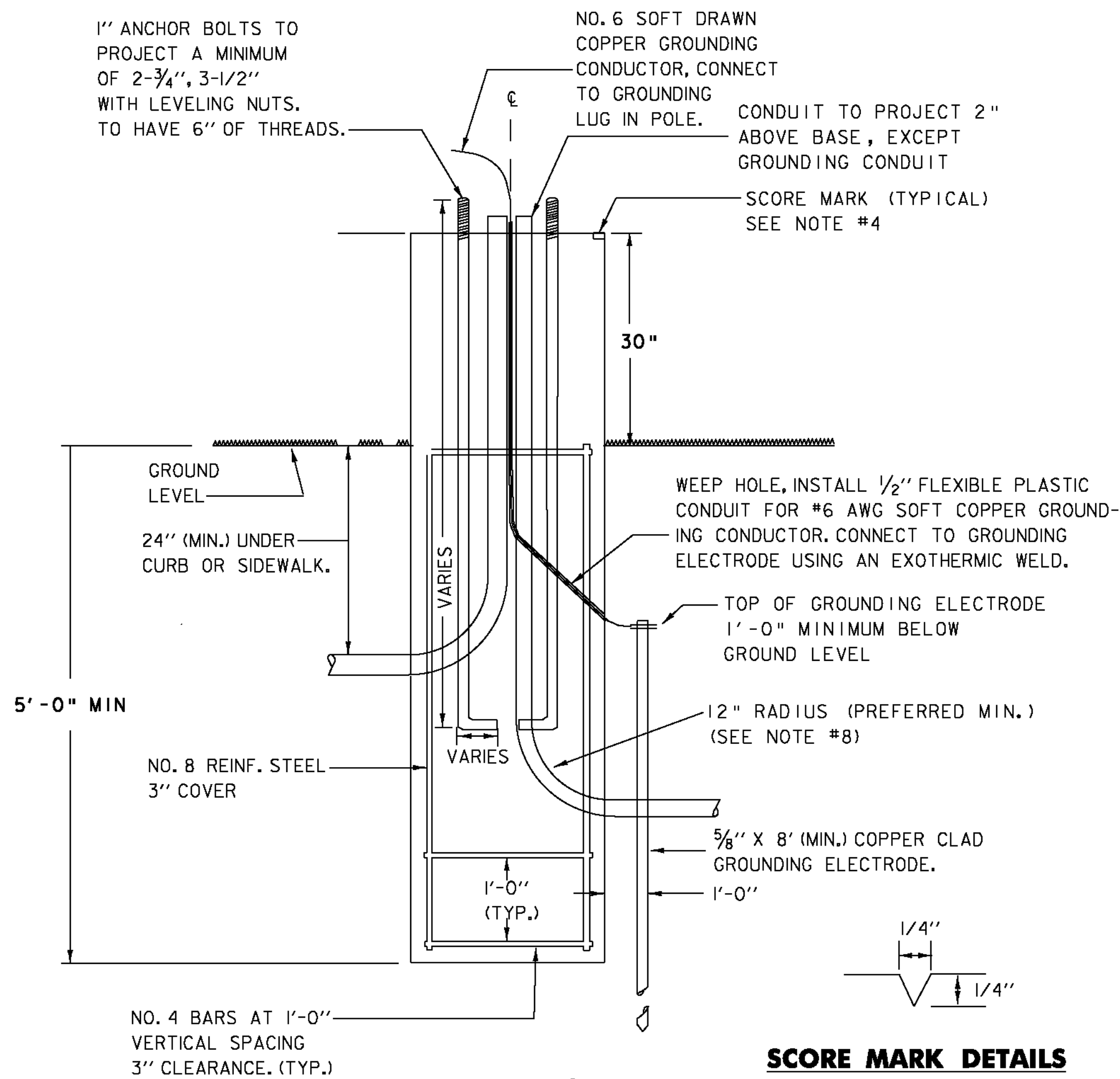
SITE LIGHT TYPE 'B'
ISO-FOOTCANDLE DATA
NO SCALE



PROJECT NAME: ENOSBURG	PLOT DATE: 5/23/2011
PROJECT NUMBER: CMG PARK(20)	DRAWN BY: STANTEC
FILE NAME: ...23lightingdetails2.pxf	CHECKED BY: GAS
PROJECT LEADER: WLD	SHEET 23 OF 32
DESIGNED BY: CSP/GGG	
LIGHTING DETAILS 2	



PLAN



ELEVATION

SCORE MARK DETAILS

CONCRETE POLE BASE DETAIL

NOT TO SCALE

NOTES

- ALL CONCRETE BASES TO BE CONCRETE, CLASS B, AND SHALL HAVE A SMOOTH LEVEL TOP SURFACE FINISHED WITH A 1/2 INCH RADIUS EDGING TOOL.
- ALL REINFORCING STEEL TO CONFORM TO THE REQUIREMENTS FOR VTRANS STANDARD SPECIFICATIONS SECTION 507 "REINFORCING STEEL."
- TEMPLATE FOR ANCHOR BOLTS, STAINLESS STEEL ANCHOR BOLTS, NUTS, AND WASHERS TO BE OBTAINED BY CONTRACTOR PRIOR TO CONSTRUCTION OF BASES.
- SCORE TOP OF CONCRETE BASE TO SHOW LOCATION OF CONDUIT(S).
- CONDUIT SIZE - AS SHOWN ON THE PLANS.
- ALL EXPOSED METAL HARDWARE SHALL BE GALVANIZED OR STAINLESS STEEL. REFER TO VTRANS STANDARD SPECIFICATIONS SECTION 714 "STRUCTURAL STEEL."
- IF THE ELECTRICAL CONDUIT IN THE CONCRETE BASE IS GALVANIZED STEEL, GROUNDING BUSHINGS SHALL BE USED.
- THE MINIMUM RADIUS FOR RIGID METALLIC OR NON-METALLIC ELECTRICAL CONDUIT SHALL BE SIX TIMES THE INSIDE DIAMETER OF THE CONDUIT.
- SEE VTRANS STANDARD SHEET E-173 FOR JUNCTION BOX DETAIL.
- SEE VTRANS STANDARD SHEETS E-180A AND E-180B FOR THE INSTALLATION OF SITE LIGHTING W/ CONCRETE BASES.

GENERAL SITE LIGHT NOTES

CONCRETE BASES

WHEN CONCRETE BASES ARE INSTALLED IN SLOPING GROUND, THE GREATEST EXPOSED HEIGHT TO KEEP ALL OF THE TOP ABOVE GROUND MUST BE DOUBLED AND THEN ADDED TO THE MINIMUM DEPTH FOR THE TOTAL BASE DEPTH.

CARE SHOULD BE TAKEN WHERE CONCRETE BASES, DRAIN-AGE STRUCTURES OR UTILITIES ARE CLOSE TOGETHER.

POLES, ANCHOR BASES AND ARMS

ALL NEW SITE LIGHT POLES AND LUMINAIRE ARMS SHALL BE ALUMINUM IN ACCORDANCE WITH SUBSECTION 753.01 (B) AND SHALL BE DARK BRONZE IN COLOR.

LUMINAIRES AND POLES

TYPE A: ALUMINUM, DARK BRONZE, 'SHOEBOX' TYPE 100W HIGH PRESSURE SODIUM, TYPE IV DISTRIBUTION EQUIVALENT TO: LITHONIA CATALOG NO. KAD-100S-R4-TB- RPD04-F-PD-PER-PE WITH PHOTO CELL.

TYPE B: ALUMINUM, DARK BRONZE, 'SHOEBOX' TYPE 100W HIGH PRESSURE SODIUM, TYPE III DISTRIBUTION EQUIVALENT TO: LITHONIA CATALOG NO. KAD-100S-R3-TB- RPD04-F-PD-PER-PE WITH PHOTO CELL.

POLES: ROUND ALUMINUM, 20 FT. DARK BRONZE, WITH BASE COVER EQUIVALENT TO: LITHONIA: RSA-20-5G-DM90-DDB-SBC5 LUMINAIRE SUBSTITUTIONS SHALL MEET THE ISO FOOTCANDLE DATA ON LIGHTING DETAILS 2 AND THE ILLUMINATION LEVELS AS DESCRIBED BELOW. POLES SHALL BE NON-BREAKAWAY.

ILLUMINATION LEVELS

PARK AND RIDE SHALL HAVE AN AVERAGE OF 1.0FC.

CONDUIT

A 2 INCH (I.D.) MINIMUM CONDUIT SHALL BE USED AT ALL LOCATIONS UNLESS OTHERWISE NOTED ON THE PLANS, ALL CONDUIT SHALL BE AT LEAST SCHEDULE 40 PVC AND EXPOSED CONDUIT SHALL BE SCHEDULE 80 PVC.

CONDUIT SLEEVE

MINIMUM WALL THICKNESS FOR RIGID PLASTIC PIPE SLEEVES SHALL BE 1/35TH THE DIAMETER. ALL CONDUIT RUNS UNDER ROADWAY SHALL BE INSTALLED IN RIGID PLASTIC OR STEEL PIPE SLEEVES. THE SLEEVE SHALL EXTEND TO WITHIN 2 FEET OF THE SIDE OF A CONCRETE BASE OR JUNCTION BOX. WHERE NO CONCRETE BASE OR JUNCTION BOX IS PRESENT, THE SLEEVE SHALL EXTEND 4 FEET BEYOND THE OUTSIDE EDGE OF SHOULDER OR FACE OF CURB. BACKFILLING AROUND A SLEEVE SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

WHEN JACKING A SLEEVE UNDER A ROADWAY IT SHALL BE STEEL WITH A MINIMUM DIAMETER OF 8 INCHES AND MINIMUM WALL THICKNESS OF 3/8 INCH. ACTUAL LENGTH TO BE DETERMINED IN THE FIELD BY THE RESIDENT ENGINEER.

WIRE

ALL WIRING BETWEEN THE METER AND/OR POWER SOURCE AND THE FIRST POLE AND/OR JUNCTION BOX AND BETWEEN POLES AND/OR PULLBOXES SHALL BE COPPER AND SIZED AS SPECIFIED ON THE PLANS. ALL WIRE SHALL HAVE TYPE XHHW INSULATION OR EQUIVALENT.

GROUNDING

ALL CONDUIT MUST INCLUDE A GROUNDING CONDUCTOR. RIGID STEEL CONDUIT SHALL BE PROPERLY CONNECTED AT THE JOINTS SO AS TO BE WATERTIGHT AND MAINTAIN ELECTRICAL CONTINUITY AND HAVE GROUNDING BUSHINGS SO AS TO ACT AS A GROUND CONDUCTOR.

ALUMINUM WIRE SHALL NOT BE USED FOR GROUND WIRE.

PULLBOXES /JUNCTION BOXES

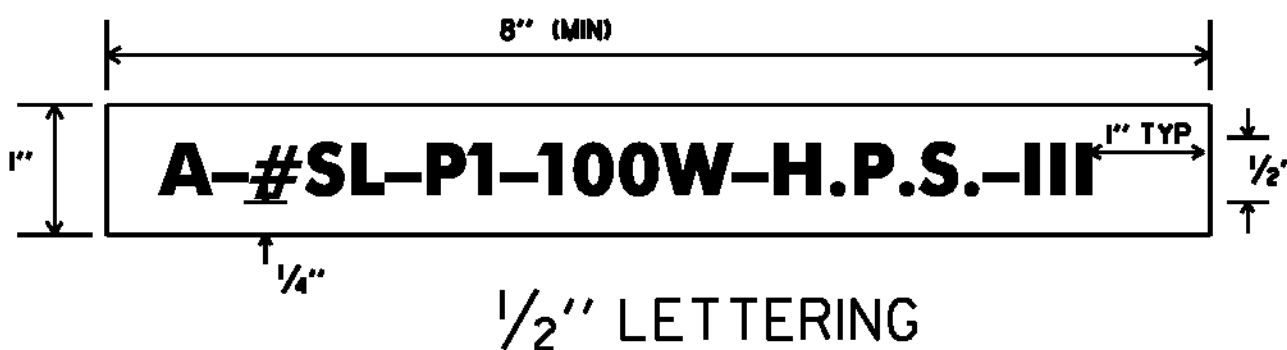
FOR DETAILS SEE VTRANS STANDARD SHEET E-173.

GENERAL

THE LOAD ON EACH BRANCH OF A THREE WIRE CIRCUIT SHALL BE AS BALANCED AS POSSIBLE, LOAD TO NEUTRAL.

THE LAST CONCRETE POLE BASE AT THE END OF EACH CIRCUIT AND SOME JUNCTION BOXES SHALL HAVE A CONDUIT SWEEP WITH CAP INSTALLED FOR FUTURE USE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING NECESSARY ELECTRICAL PERMITS.



LEGEND: BLACK OR WHITE (NON-REFL.) - STAMPED PRIOR TO PRINTING/PAINTING. BACKGROUND: NATURAL ALUMINUM OR FLAT BLACK SURFACE, SAME AS POLE FINISH.

DETAILS FOR TAGS ATTACHED TO SITE LIGHT POLES

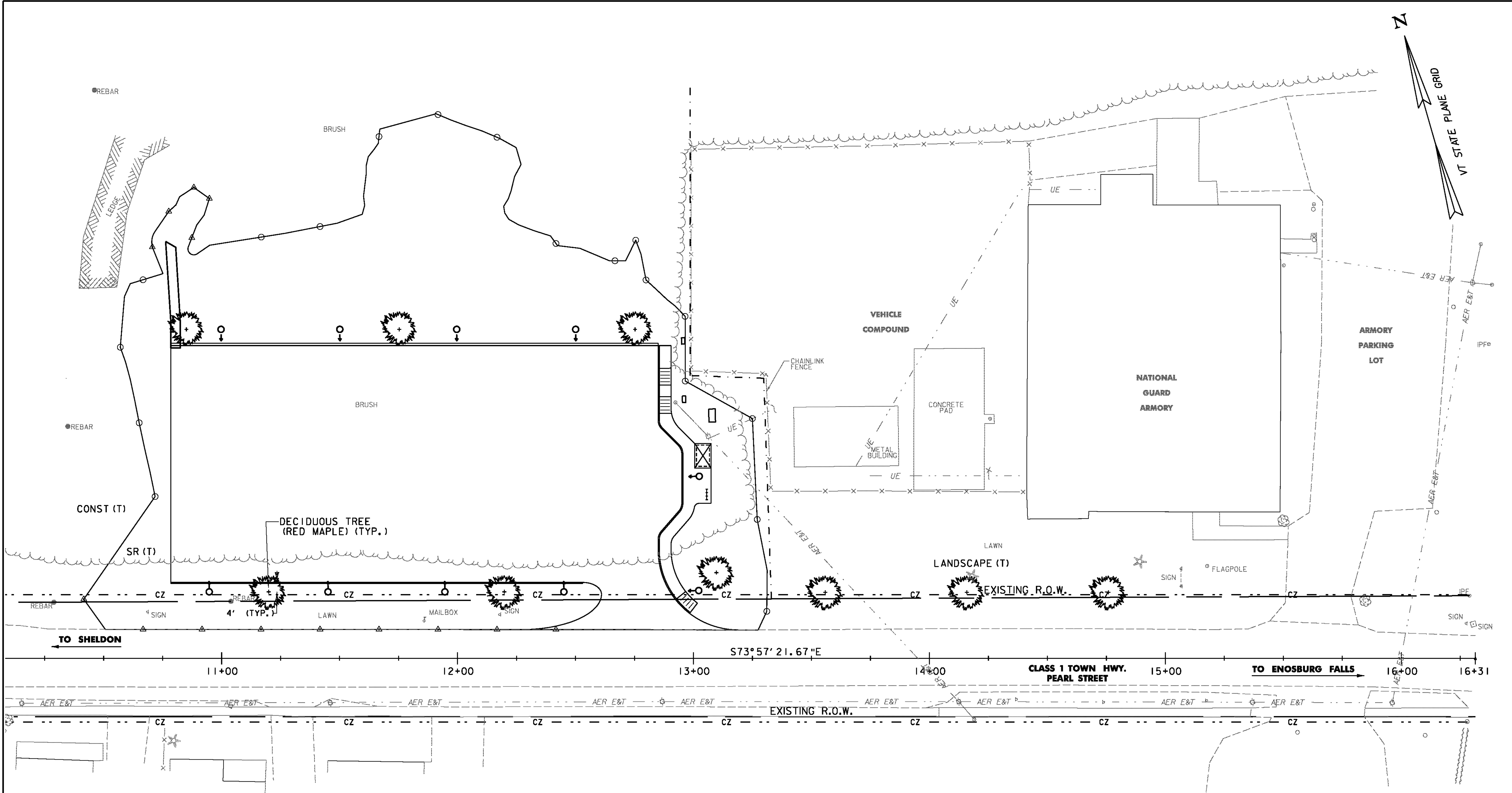
- THE TAG SHALL BE MOUNTED ON ALL STREET LIGHT POLES IN SUCH A MANNER AS TO NOT BE EASILY REMOVED, SUCH AS WELDED, RIVET-ED, OR BOLTED WITH VANDAL PROOF BOLTS.
- THE LETTERS SHALL BE PUNCHED, STAMPED, ENGRAVED, OR PHOTO-ETCHED. PUNCHING, STAMPING OR ENGRAVING SHALL PENETRATE AT LEAST 1/2 THE BASE MATERIAL THICKNESS.
- THE BASE MATERIAL FOR THE TAG SHALL BE ALUMINUM WITH A MINIMUM THICKNESS OF 0.100 INCHES.
- THE TAG SHALL BE ATTACHED TO THE POLE ABOVE THE HANDHOLE, 6 INCHES MAXIMUM. IF THE POLE HAS A TRANSFORMER BASE ATTACH TAG TO COVER.
- TYPE 'A' FIXTURE TAG SHALL READ: A-#-100W-H.P.S.-IV
TYPE 'B' FIXTURE TAG SHALL READ: B-#-100W-H.P.S.-III

PROJECT NAME: ENOSBURG
PROJECT NUMBER: CMG PARK(20)

FILE NAME: ...24lightingdetails3.pxf
PROJECT LEADER: WLD
DESIGNED BY: CSP/GGG
LIGHTING DETAILS 3

PLOT DATE: 5/23/2011
DRAWN BY: STANTEC
CHECKED BY: GAS
SHEET 24 OF 32





PLANT SCHEDULE:

QUANT	COMMON NAME	SCIENTIFIC NAME	SIZE	NOTES
9	RED MAPLE	ACER RUBRUM	2.5 - 3" CAL.	B&B

LANDSCAPING NOTES:

1. ALL DISTURBED SOILS SHALL BE REGRADED TO EXISTING CONDITIONS AND ALLOWED TO RESTABILIZE, AS DIRECTED BY THE ENGINEER.

DATUM

VERTICAL NAVD 88

HORIZONTAL NAD 83 (1996)
VT SPC (FEET)

656.30 - DECIDUOUS TREE (ACER RUBRUM) (B & B) (2.5"-3" CAL.)

STA. 10+85, 139.5' LT.
STA. 11+20, 28.0' LT.
STA. 11+75, 139.5' LT.
STA. 12+19, 28.0' LT.
STA. 12+75, 139.5' LT.
STA. 13+09, 36.0' LT.
STA. 13+56, 28.0' LT.
STA. 14+16, 28.0' LT.
STA. 14+76, 28.0' LT.

0 20 40
SCALE IN FEET

Stantec

PROJECT NAME: **ENOSBURG**

PROJECT NUMBER: **CMG PARK(20)**

FILE NAME: ...\\PlotFiles\\25landscaping\\lptf PLOT DATE: 5/23/2011

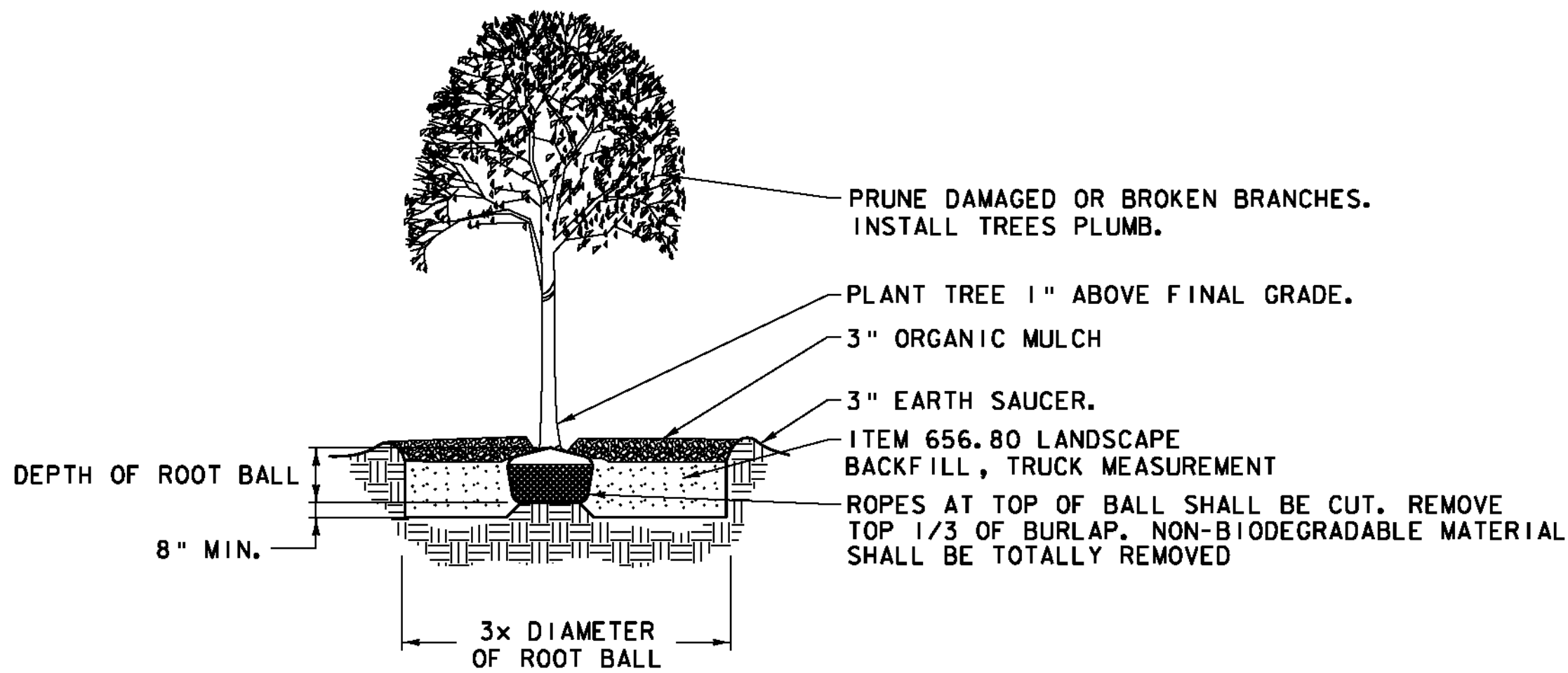
PROJECT LEADER: WLD DRAWN BY: STANTEC

DESIGNED BY: CSP/GGG CHECKED BY: GAS

LANDSCAPING PLAN SHEET 25 OF 32

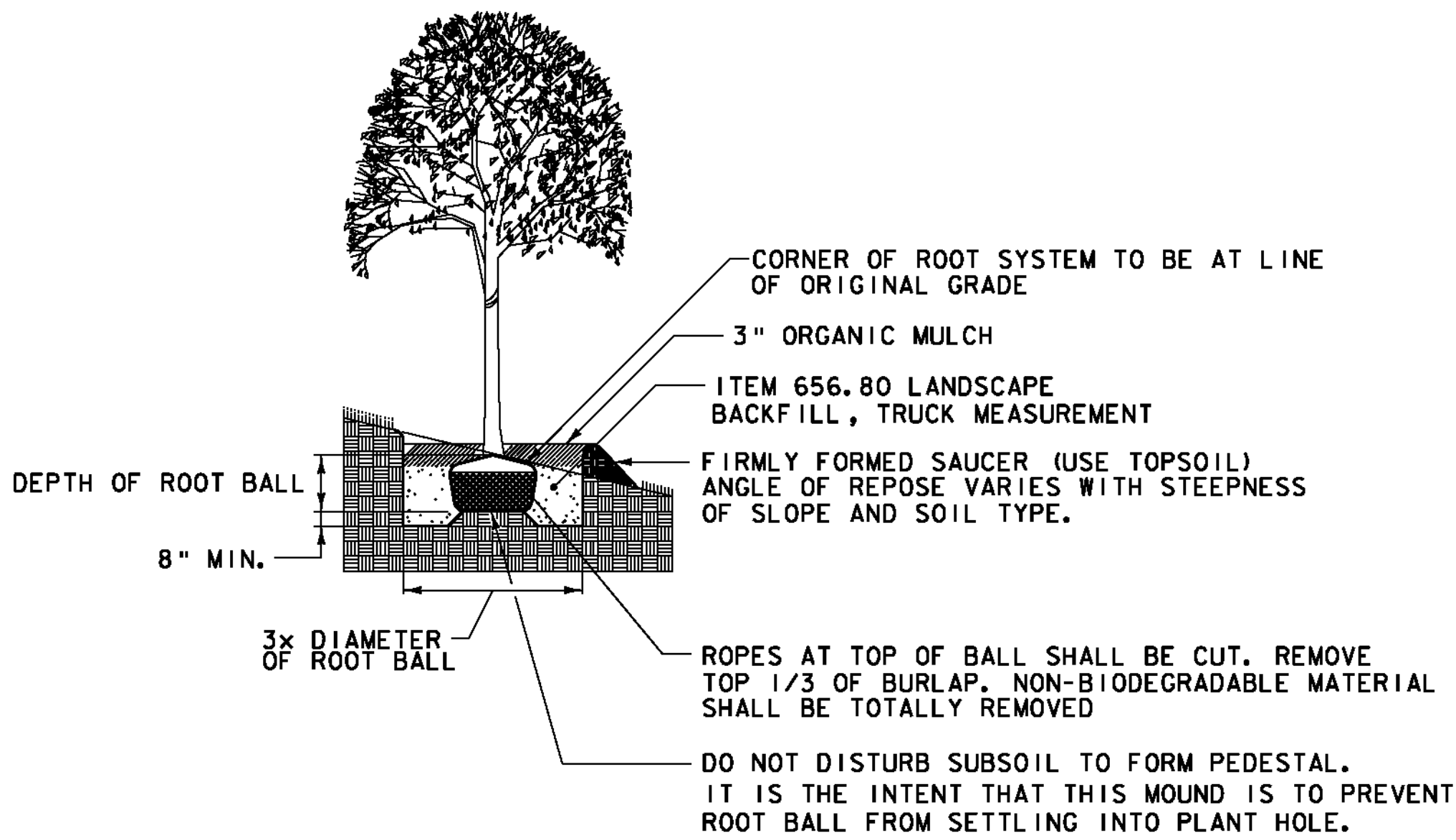
GENERAL NOTES

1. APPLICABLE STANDARDS: AMERICAN NATIONAL STANDARDS FOR TREE CARE OPERATIONS, ANSI A300. AMERICAN STANDARD FOR NURSERY STOCK, ANDSO Z60.1. HORTUS THIRD, THE STAFF OF THE L.H. BAILEY HORTORIUM. ALL STANDARDS SHALL INCLUDE THE LATEST ADDITIONS AND AMENDMENTS AS OF THE DATE OF ADVERTISEMENT FOR BIDS.
2. FERTILIZER: SLOW RELEASE TYPE, OR SUBSTITUTE APPROVED BY THE ENGINEER, APPLIED AS FOLLOWS:
TREES AND SHRUBS
MARCH-MAY 10-10-10
MAY-OCTOBER 6-10-10
OCTOBER-MARCH 4-12-12
RATE OF APPLICATION: 1lb./INCH IN CALIPER
3. EXCAVATE SOIL TO 3X WIDER THAN ROOT BALL DIAMETER FOR TREES AND 2X WIDER FOR SHRUBS. SET BALLED AND BURLAPPED (B&B) STOCK ON LAYER OF COMPACTED SOIL MIXTURE, STAND PLUMB AND IN CENTER OF PIT OR TRENCH WITH TOP OF BALL AT THE SAME ELEVATION AS ADJACENT FINISHED LANDSCAPE GRADES. REMOVE WIRE BASKET AND ALL TWINE, REMOVE BURLAP FROM UPPER HALF OF BALLS; RETAIN ON BOTTOMS. SET CONTAINER GROWN SOCK AS SPECIFIED FOR B&B MATERIAL, EXCEPT CUT CANS ON TWO SIDES WITH AN APPROVED CAN CUTTER.
4. DISH TOP OF BACKFILL TO ALLOW FOR MULCHING. MULCH PITS WITH NOT LESS THAN 3" OF ORGANIC MULCH.
5. ALL PLANTS SHALL BE CAREFULLY AND THOROUGHLY WATERED DURING PLANTING AND AS OFTEN AS NECESSARY THEREAFTER TO PROVIDE THE BEST GROWING CONDITIONS UNTIL ACCEPTANCE OF THE WORK.
6. BEGIN MAINTENANCE IMMEDIATELY AFTER PLANTING. MAINTAIN TREES, SHRUBS, AND OTHER PLANTS BY PRUNING, CULTIVATING, AND WEEDING AS REQUIRED FOR HEALTHY GROWTH. RESTORE PLANTING SAUCERS. RESTORE OR REPLACE DAMAGED WRAPPINGS. SPRAY AS REQUIRED TO KEEP TREES AND SHRUBS FREE OF INSECTS AND DISEASE, AT THE EXPENSE OF THE CONTRACTOR.
7. MAINTAIN LAWNS BY WATERING, FERTILIZING, WEEDING, MOWING (2" HEIGHT), TRIMMING, AND OTHER OPERATIONS SUCH AS ROLLING, REGRADING, AND REPLANTING AS REQUIRED TO ESTABLISH A SMOOTH, ACCEPTABLE LAWN, FREE OF ERODED OR BARE AREAS AT THE EXPENSE OFTHE CONTRACTOR.
8. SEE EPSC DETAILS 2 FOR TURF ESTABLISHMENT INFORMATION.



DECIDUOUS TREE PLANTING DETAIL

NOT TO SCALE



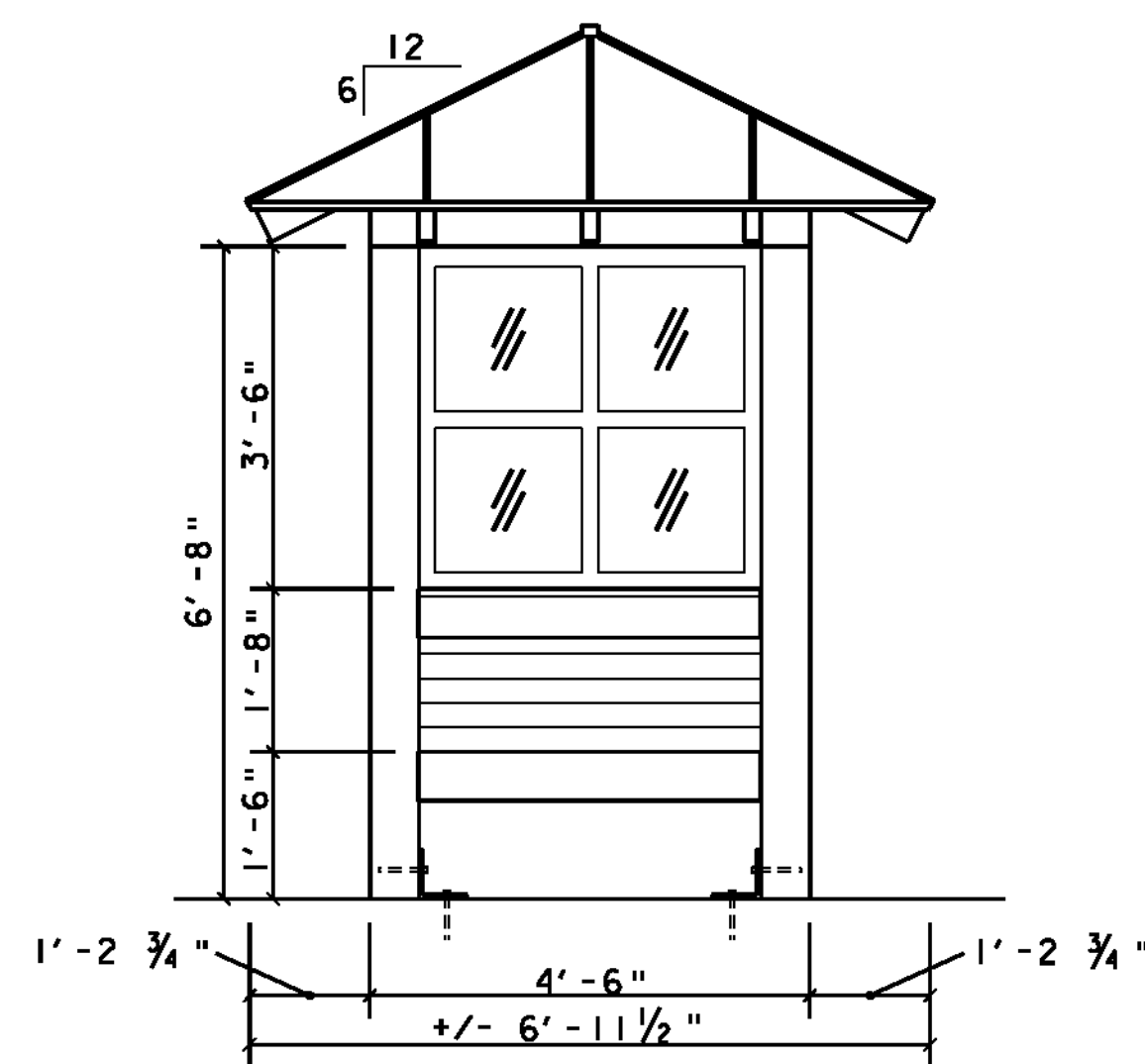
PLANTING ALONG SLOPE

NOT TO SCALE

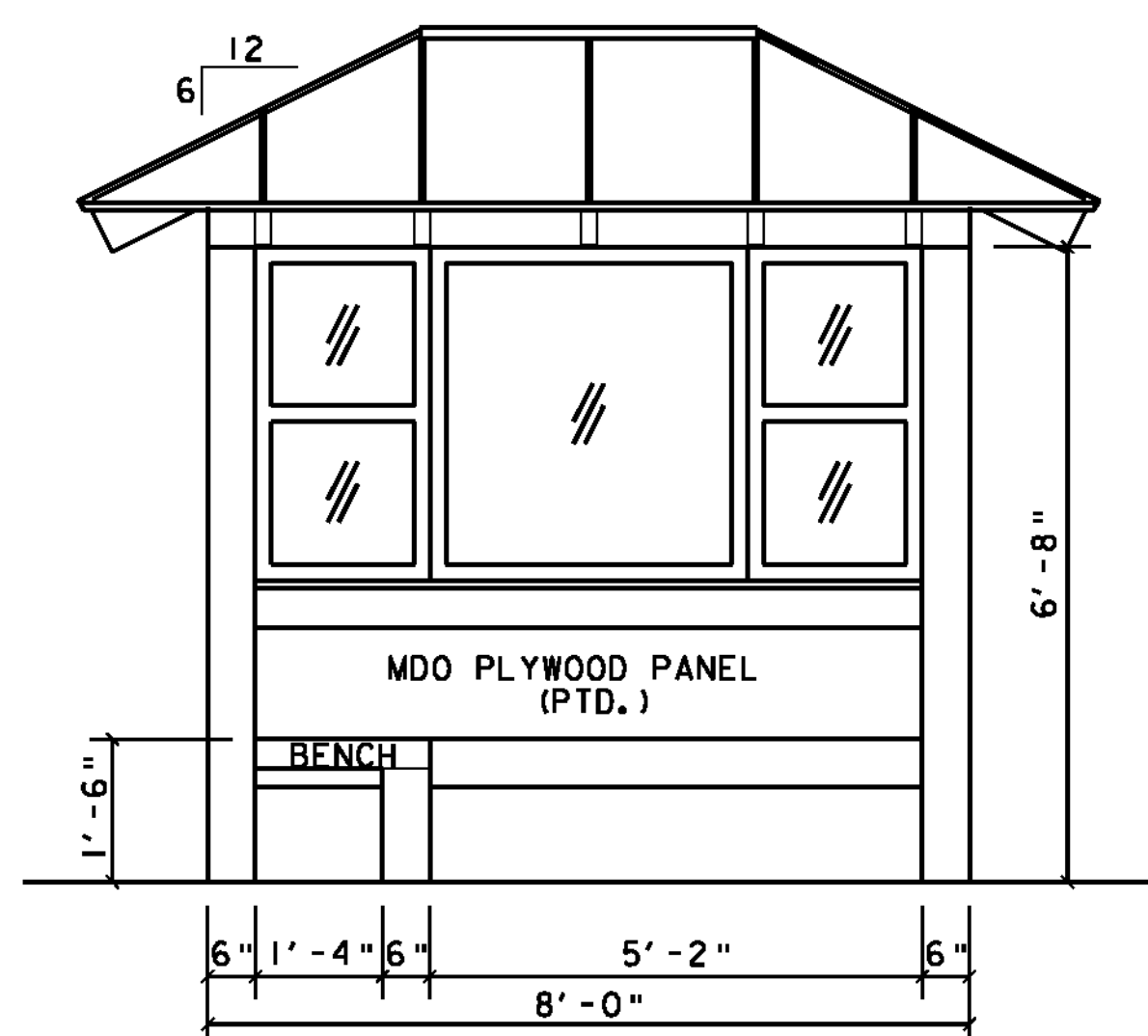
PROJECT NAME: ENOSBURG
PROJECT NUMBER: CMG PARK(20)

FILE NAME: ...\\26landscapingdetails.ptf PLOT DATE: 5/23/2011
PROJECT LEADER: WLD DRAWN BY: STANTEC
DESIGNED BY: CSP/GGG CHECKED BY: GAS
LANDSCAPING DETAILS SHEET 26 OF 32

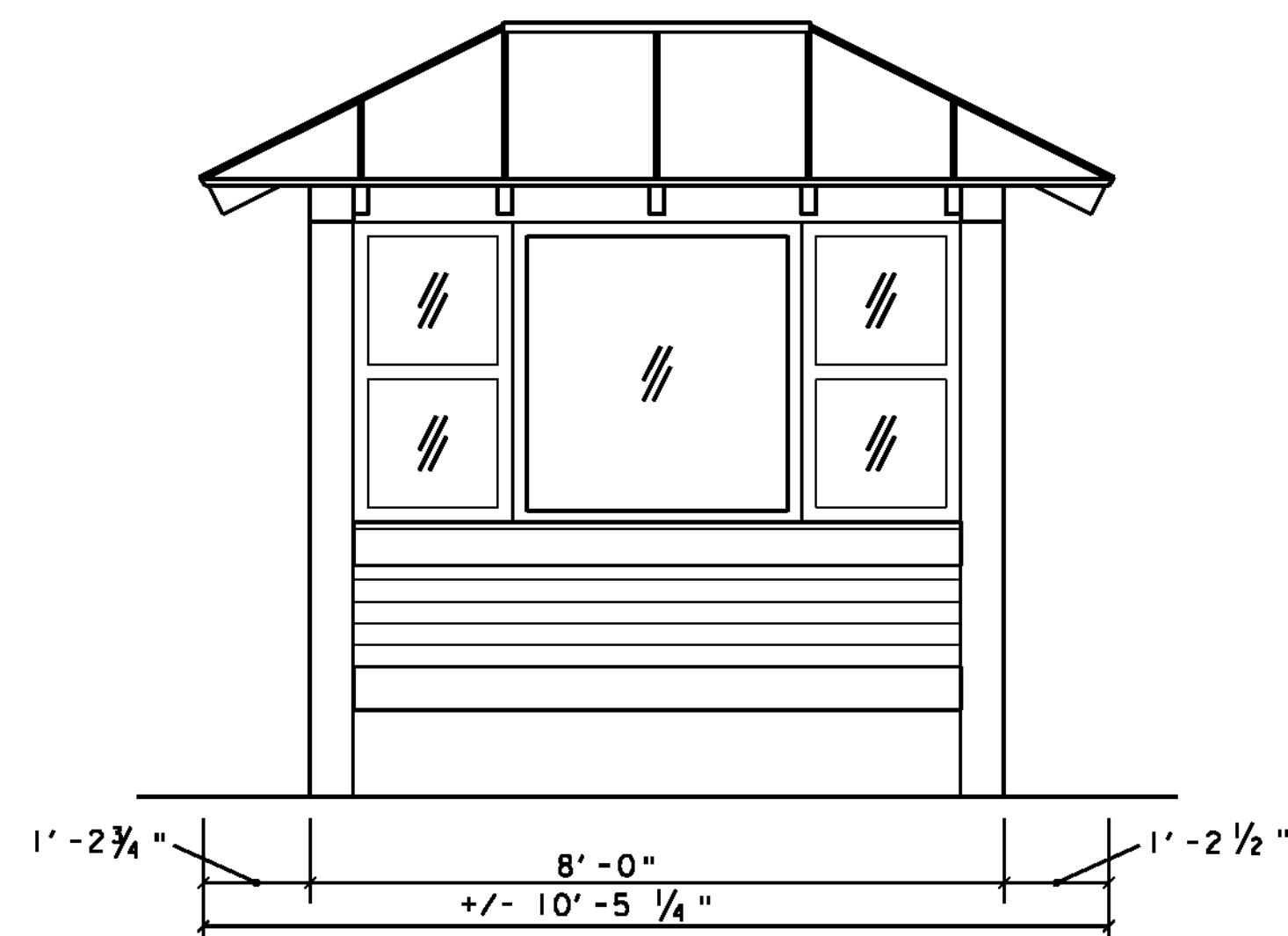




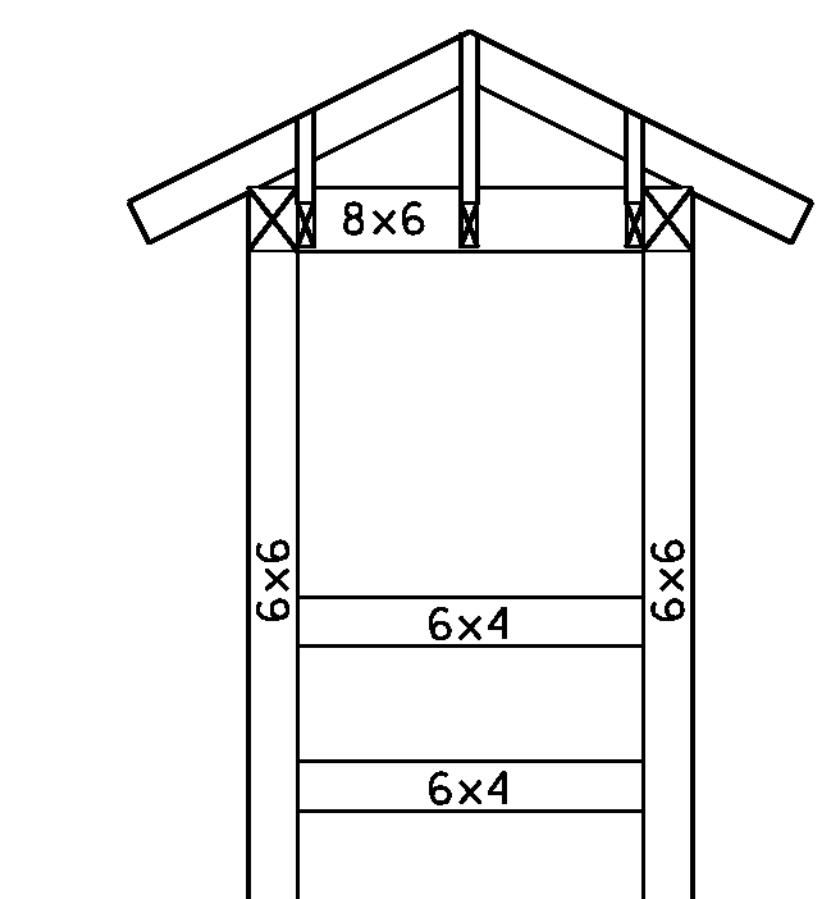
END ELEVATION (TYP.)
SCALE: 1/2" = 1'-0"



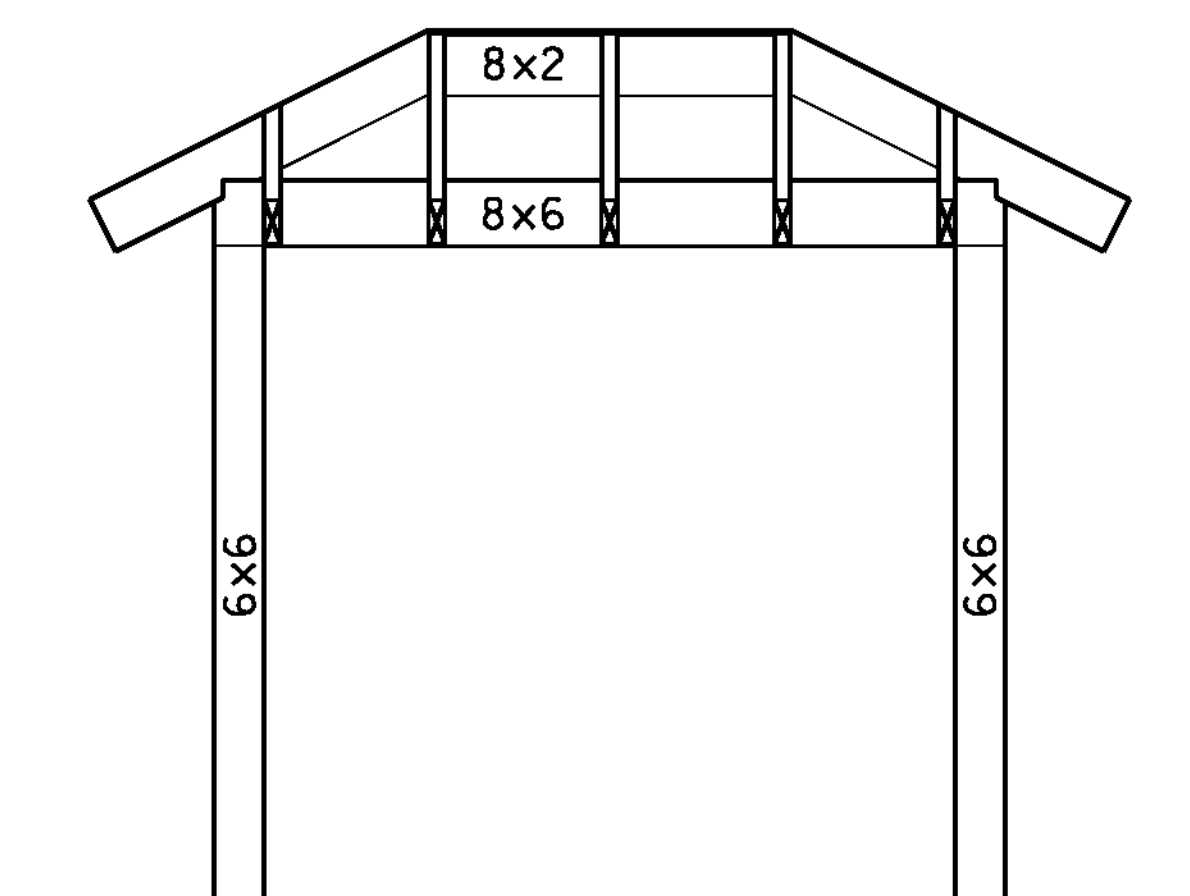
FRONT/INTERIOR ELEVATION
SCALE: 1/2" = 1'-0"



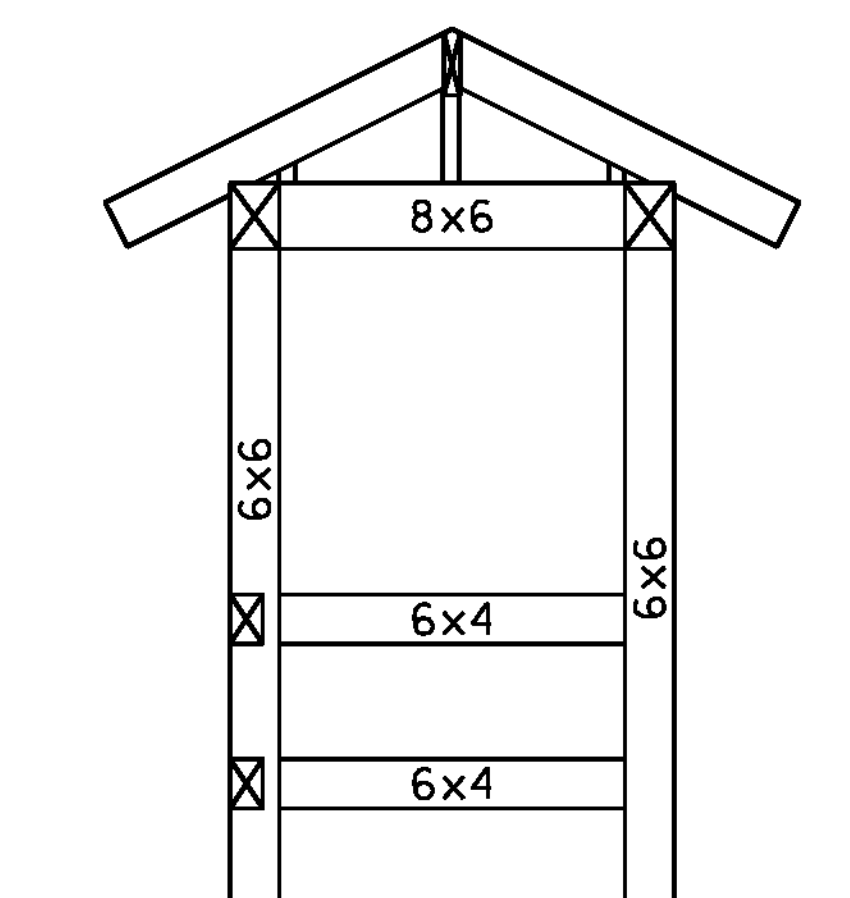
REAR ELEVATION
SCALE: 1/2" = 1'-0"



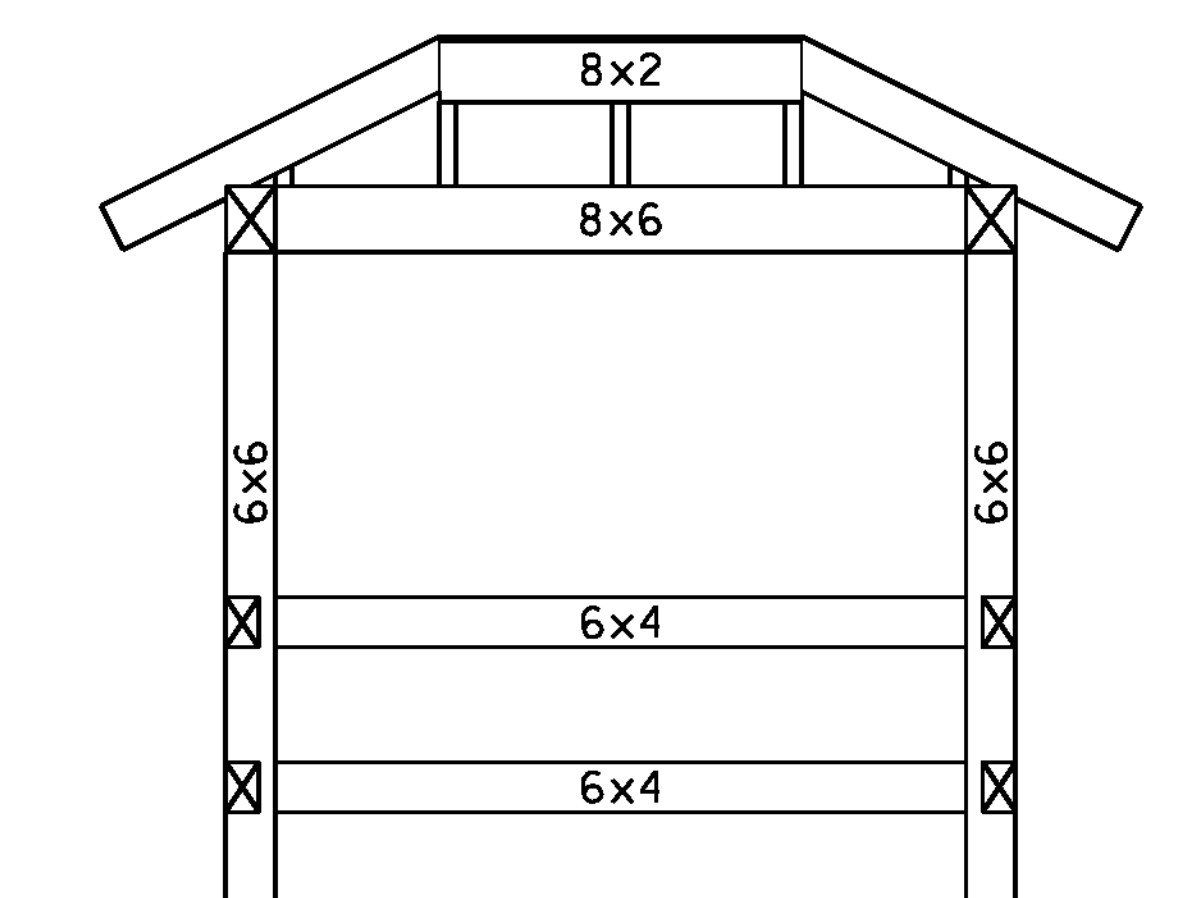
END FRAMING - ELEVATION
SCALE: 1/2" = 1'-0"



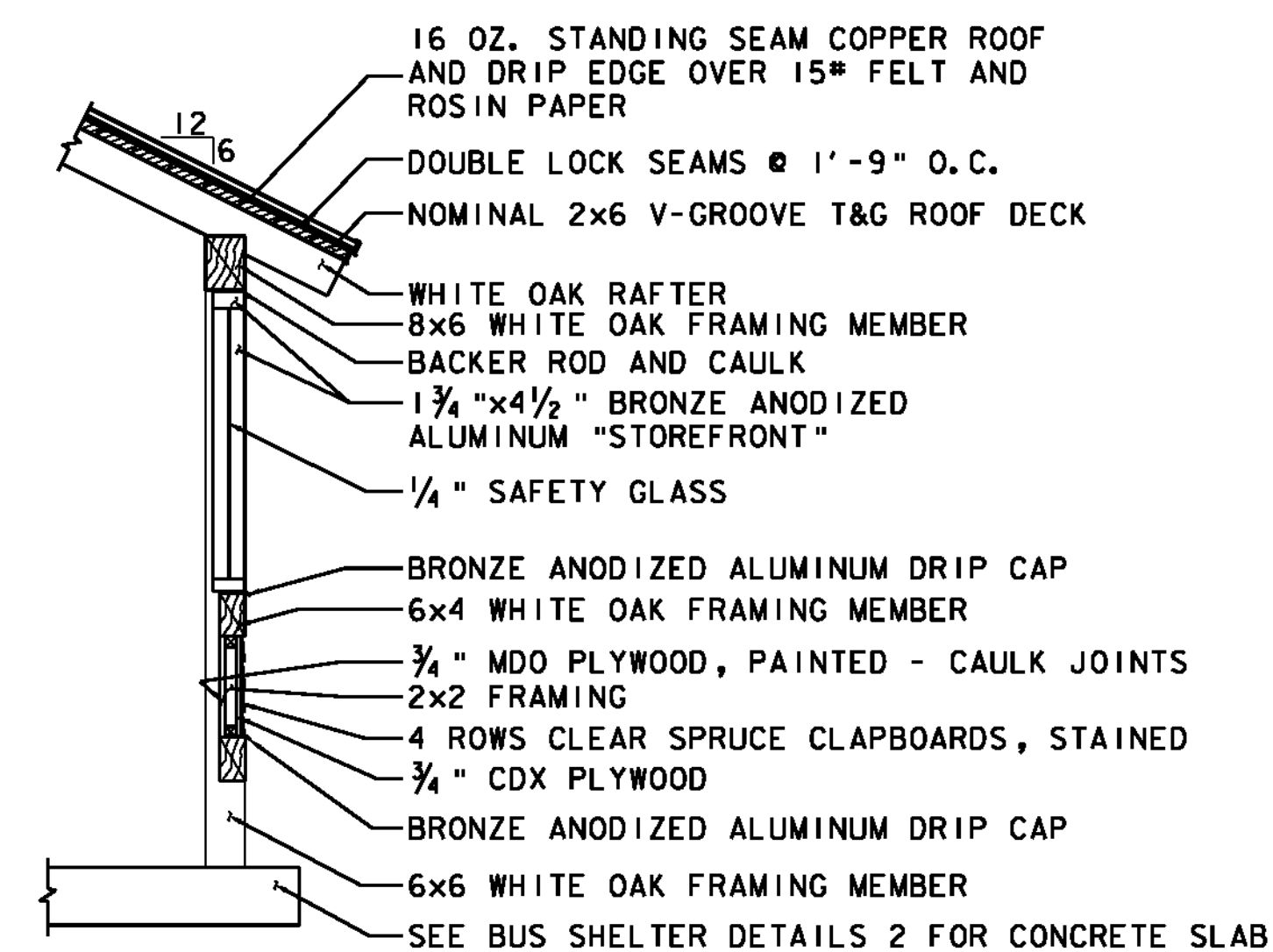
FRONT/REAR FRAMING - ELEVATION
SCALE: 1/2" = 1'-0"



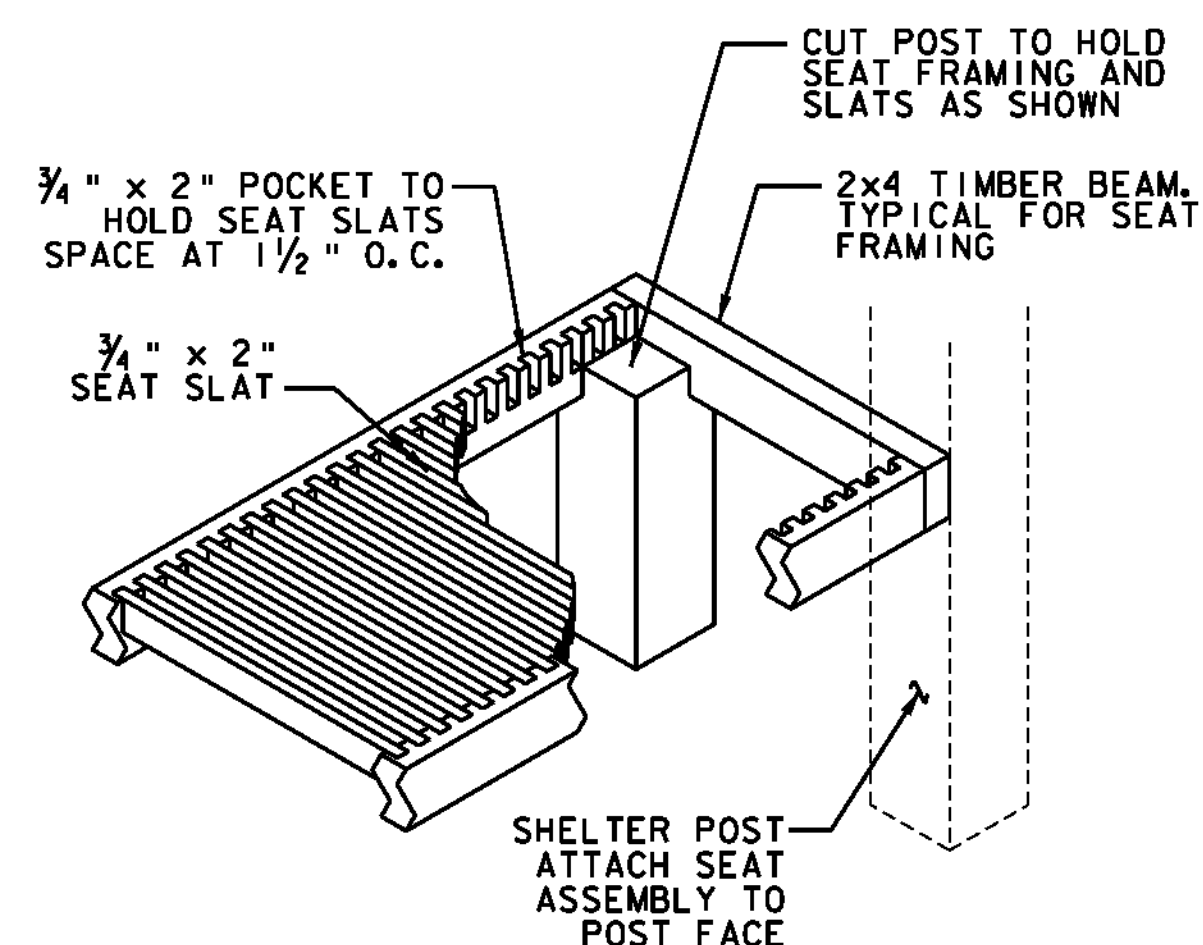
END FRAMING - SECTION
SCALE: 1/2" = 1'-0"



FRONT/REAR FRAMING - SECTION
SCALE: 1/2" = 1'-0"



TYPICAL WALL SECTION
SCALE: 1/2" = 1'-0"



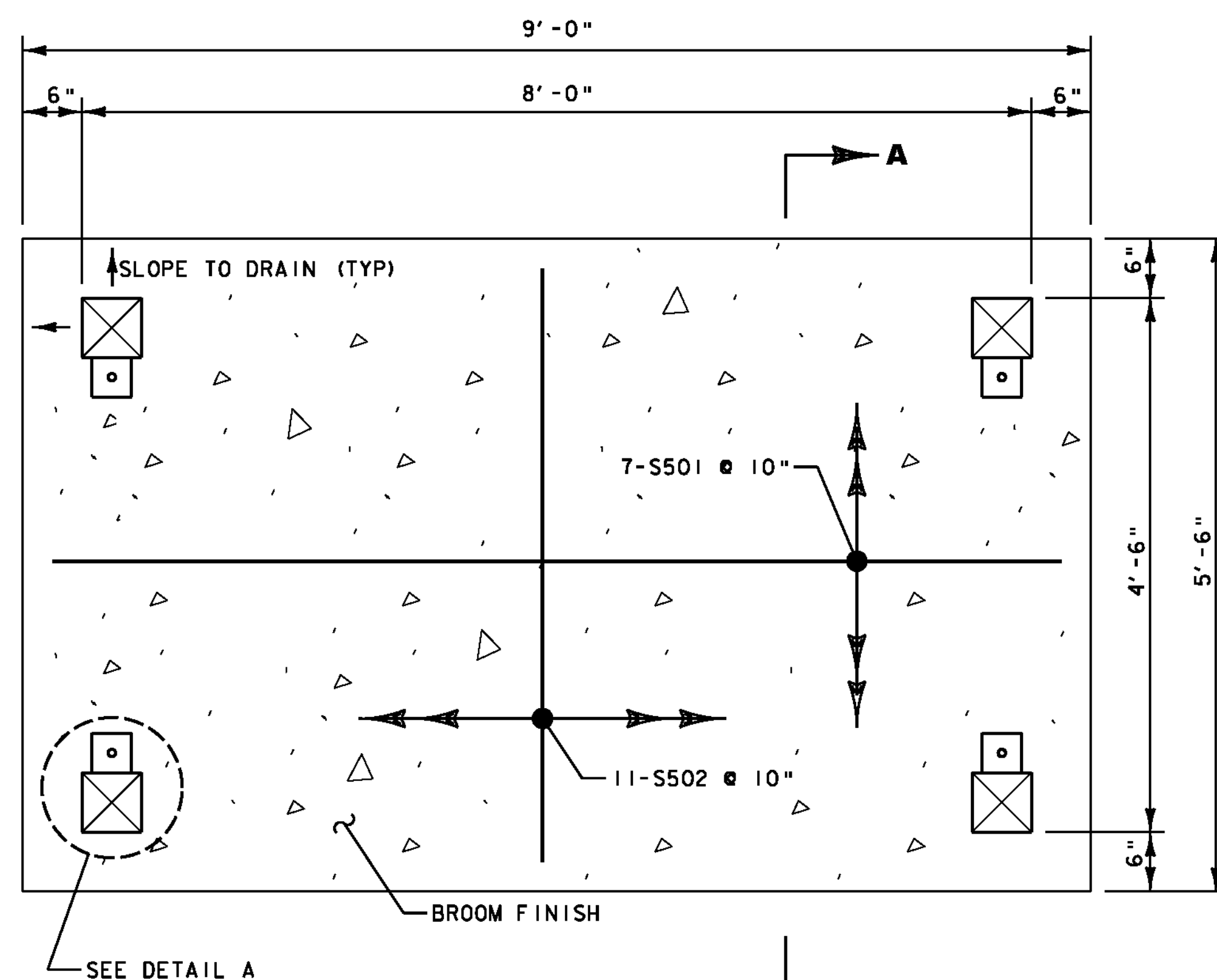
DETAIL - BENCH FRAMING
NOT TO SCALE

SEE NOTES ON NEXT PAGE

PROJECT NAME: ENOSBURG
PROJECT NUMBER: CMG PARK(20)

FILE NAME: ...\\PlotFiles\\27busshelter.rpt
PROJECT LEADER: WLD
DESIGNED BY: CSP/GGG
BUS SHELTER DETAILS 1
PLOT DATE: 5/23/2011
DRAWN BY: STANTEC
CHECKED BY: GAS
SHEET 27 OF 32



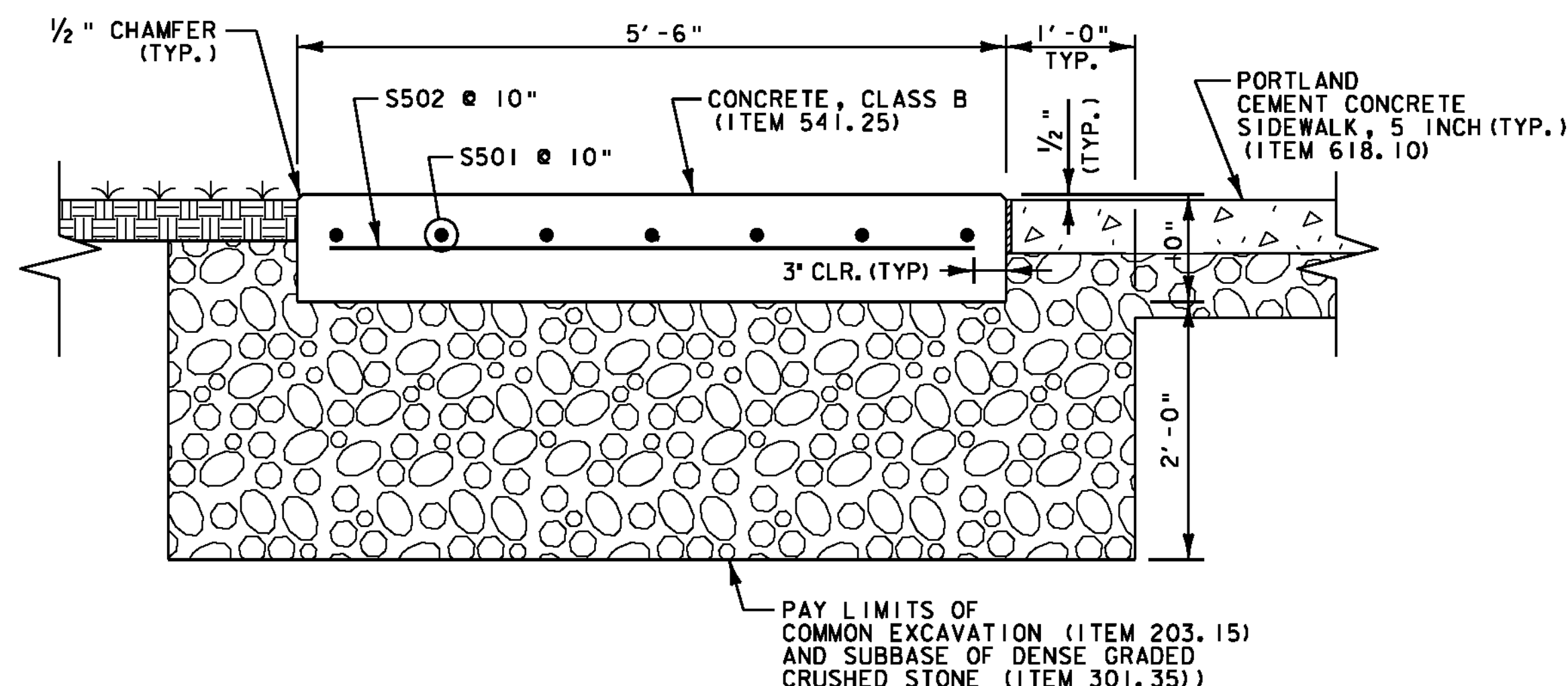


PLAN

BUS SHELTER SLAB DETAIL

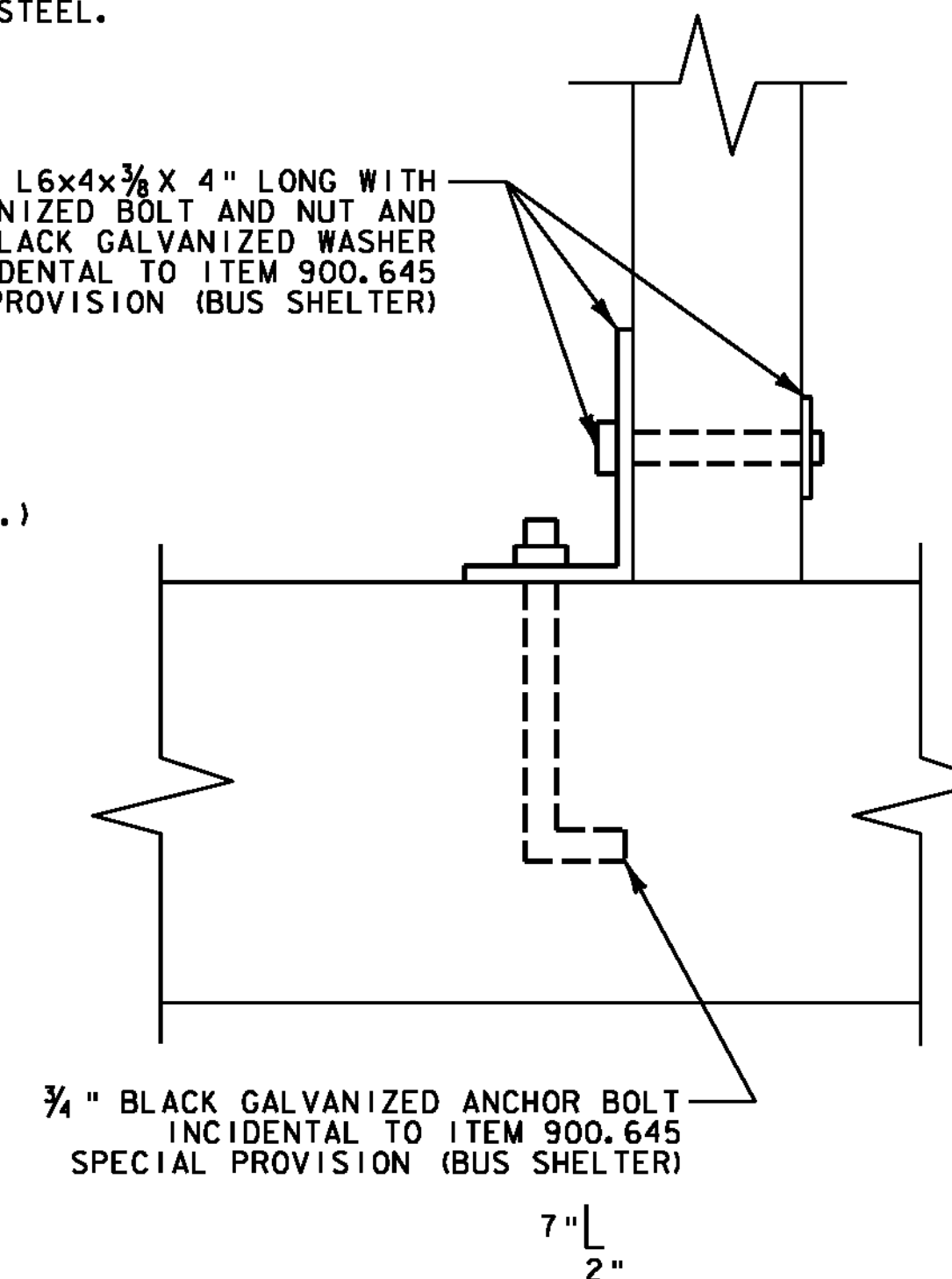
SCALE: 1" = 1'-0"

REINFORCING SCHEDULE					
NO.	PIECES	SIZE	LENGTH	MARK	TYPE
7	5	8'-6"	S501	STR.	
11	5	5'-0"	S502	STR.	



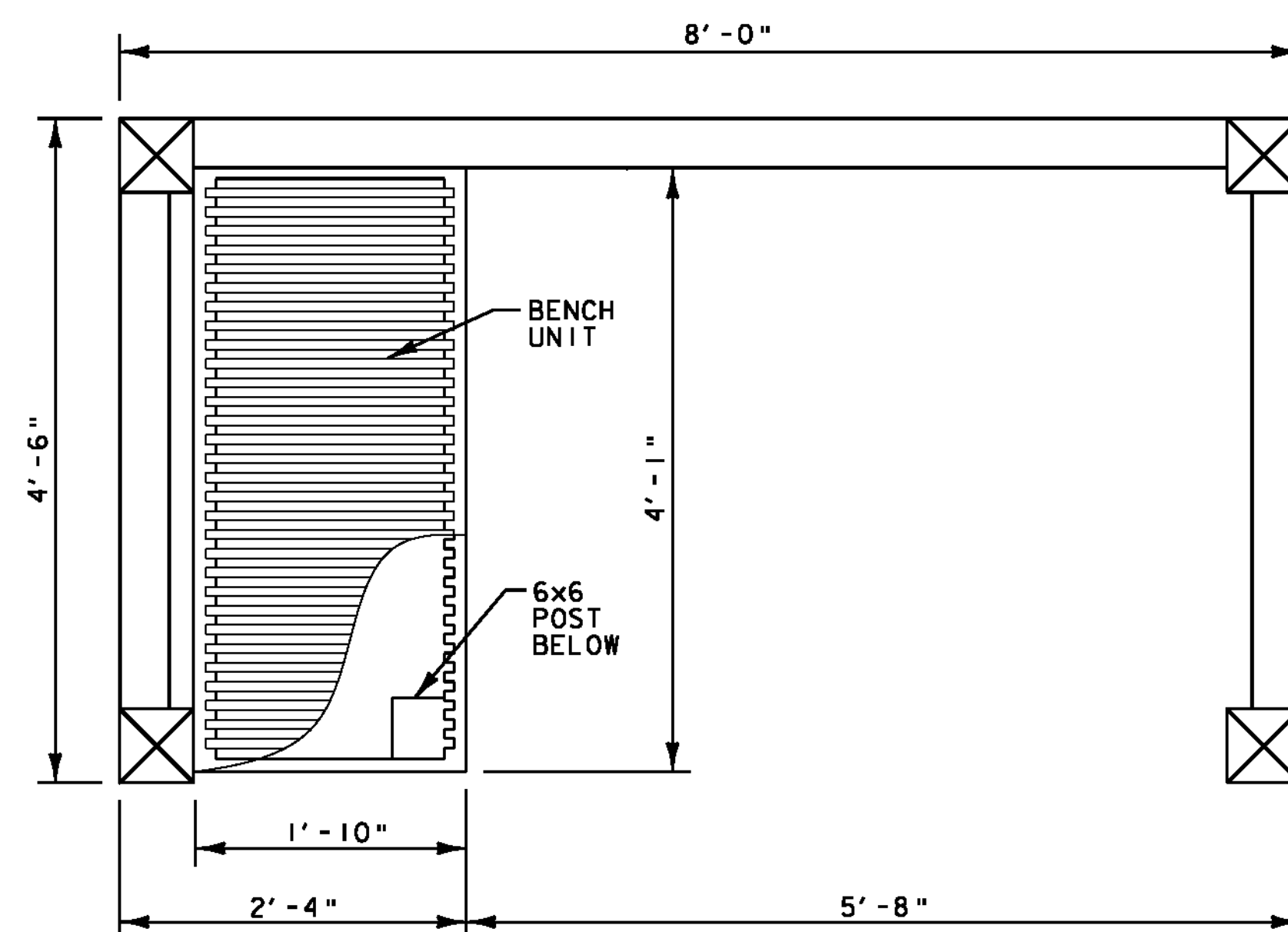
SECTION A-A

BLACK GALVANIZED L6x4x3/4 X 4" LONG WITH A 3/4" BLACK GALVANIZED BOLT AND NUT AND A 3" SQUARE BLACK GALVANIZED WASHER ALL ARE INCIDENTAL TO ITEM 900.645 SPECIAL PROVISION (BUS SHELTER)



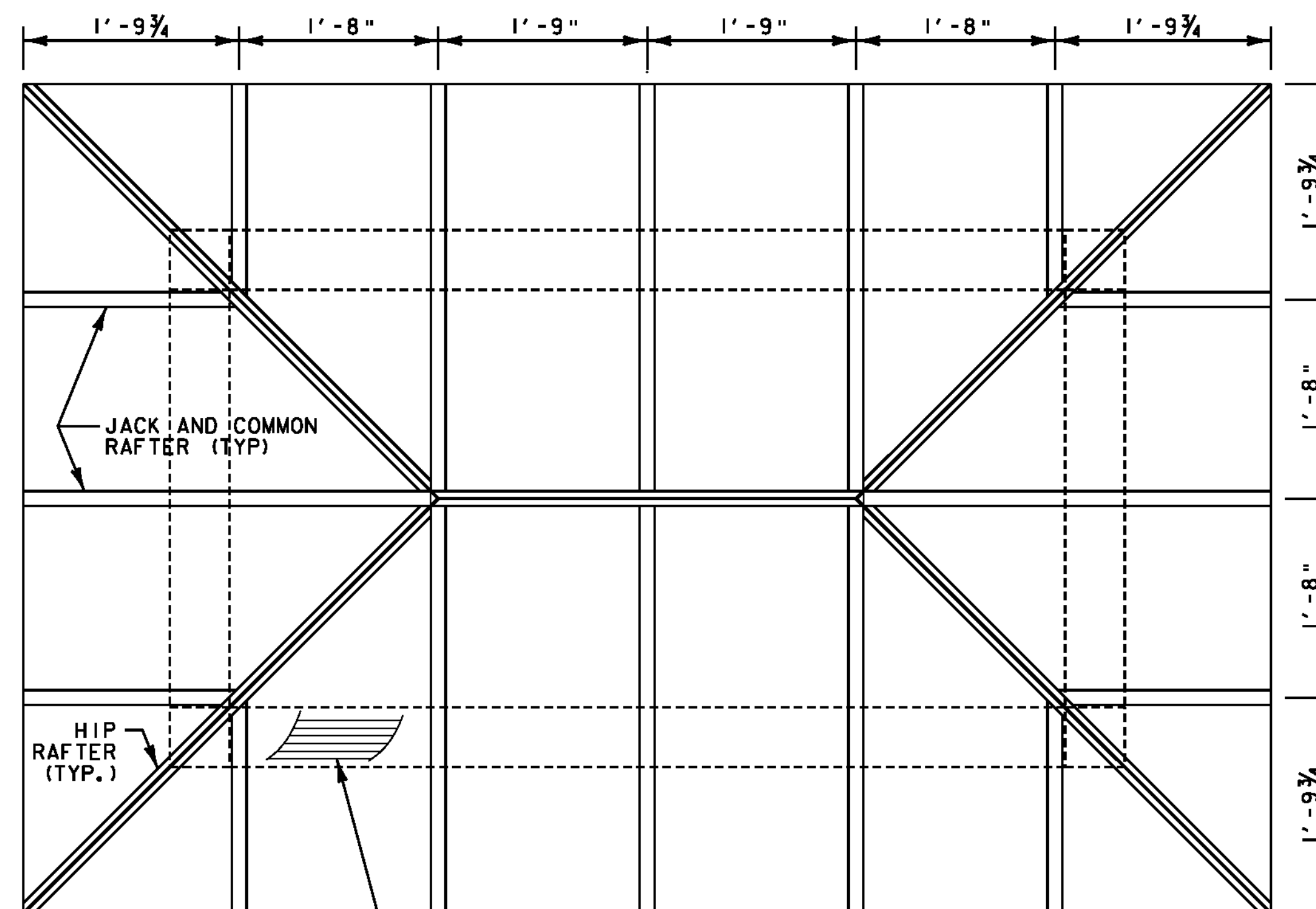
DETAIL A

NOT TO SCALE



BUS SHELTER PLAN VIEW

SCALE: 1" = 1'-0"



T&G ROOF DECKING TO BE NOMINAL 2x6 V-GROOVE.

NOTES:

1. JACK AND COMMON RAFTERS ARE 2x6.
2. HIP RAFTERS ARE 2x7
3. RIDGE BEAM IS 2x8

BUS SHELTER ROOF FRAMING

SCALE: 1" = 1'-0"

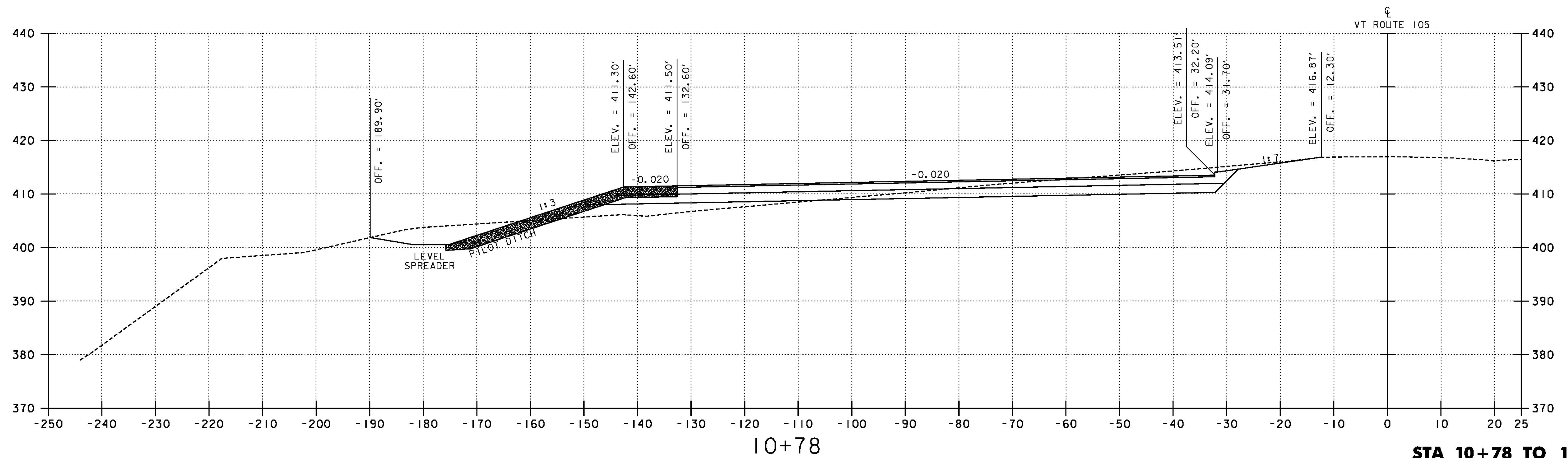
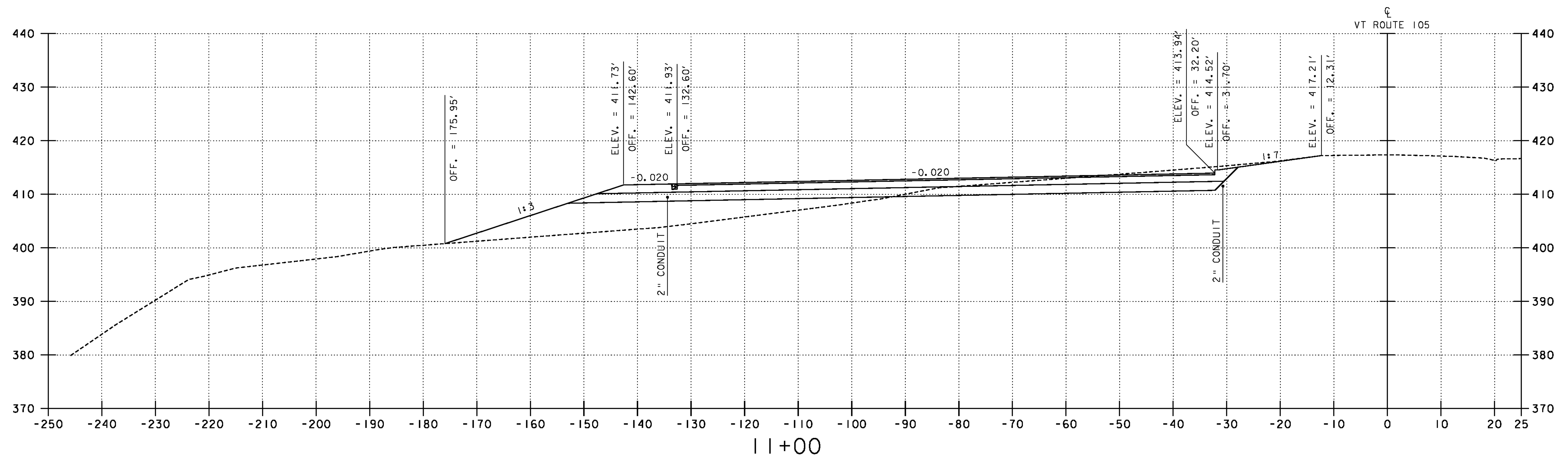
NOTES:

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, 2006 AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 2003 ed. WITH LATEST INTERIMS.
2. REINFORCING PLACEMENT TOLERANCES SHALL BE:
SPACING +/- 1"
CLEARANCE +/- 1/4"
3. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1/2" BY 1/2"
4. WATER REPELLENT SHALL BE APPLIED TO EXPOSED PORTION OF SLAB IN ACCORDANCE WITH SECTION 514. COST OF WATER REPELLENT SHALL BE CONSIDERED INCIDENTAL TO ITEM 541.25.
5. TIMBER FRAME BUS SHELTER SHALL BE CONSTRUCTED IN ACCORDANCE WITH ITEM 900.645 SPECIAL PROVISION (BUS SHELTER).

PROJECT NAME: ENOSBURG
PROJECT NUMBER: CMG PARK(20)

FILE NAME: ...\\PlotFiles\\28busshelter2.ptf PLOT DATE: 5/23/2011
PROJECT LEADER: WLD DRAWN BY: STANTEC
DESIGNED BY: CSP/GGG CHECKED BY: GAS
BUS SHELTER DETAILS 2 SHEET 28 OF 32





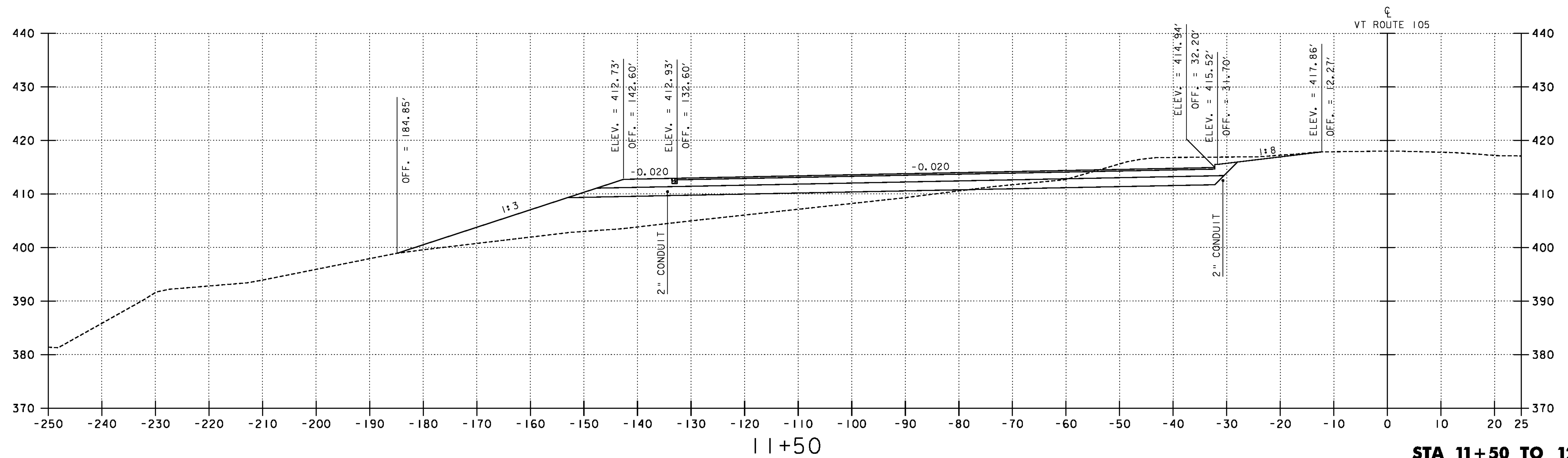
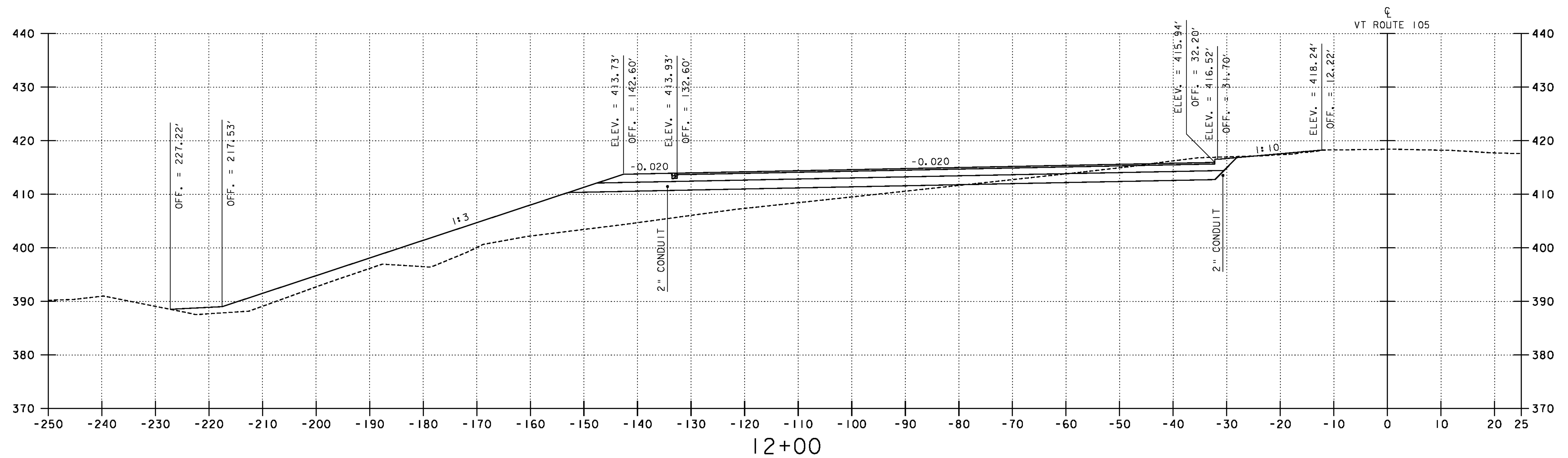
BEGIN PARK-AND-RIDE

STA 10+78 TO 11+00

0 10 20
SCALE IN FEET



PROJECT NAME:	ENOSBURG	PLOT DATE:	5/23/2011
PROJECT NUMBER:	CMG PARK(20)	DRAWN BY:	KJR
FILE NAME:	...\\PlotFiles\\29sections1.ptf	CHECKED BY:	GAS
PROJECT LEADER:	WLD		
DESIGNED BY:	GGG		
CROSS SECTIONS 1		SHEET	29 OF 32

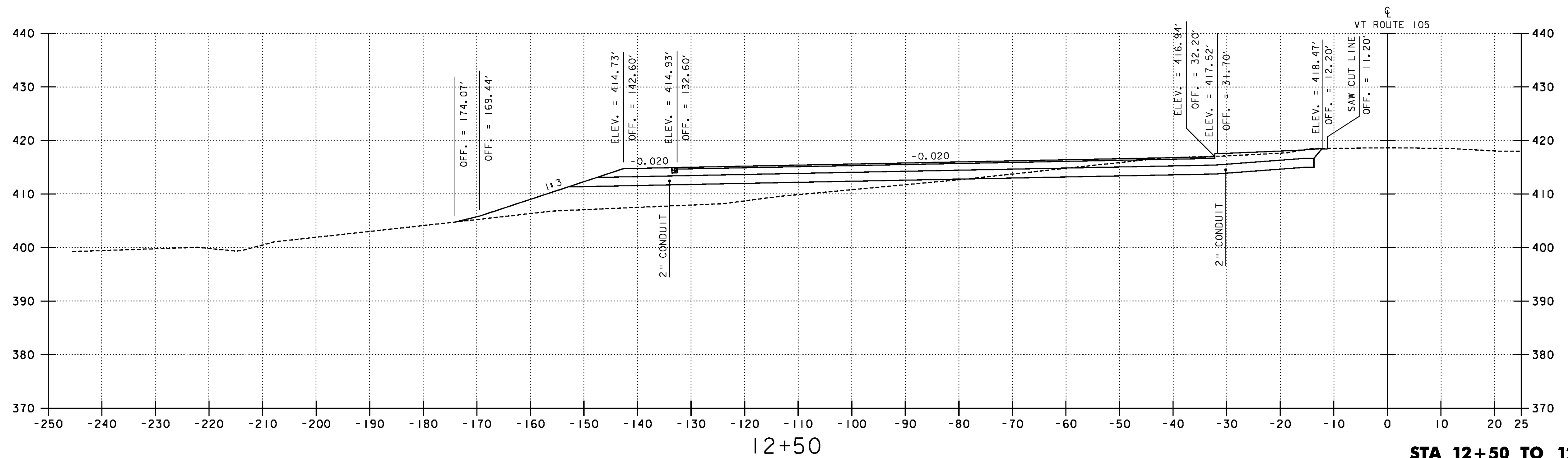
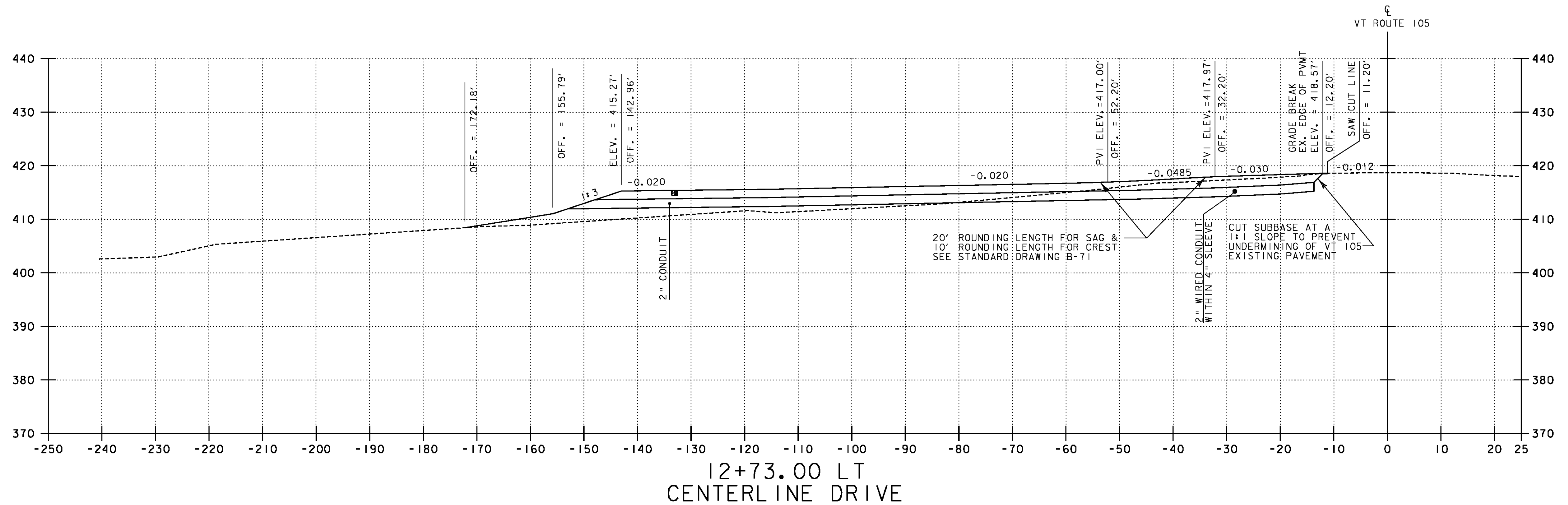


STA 11+50 TO 12+00

PROJECT NAME:	ENOSBURG
PROJECT NUMBER:	CMG PARK(20)
FILE NAME: ... \PlotFiles\30sections2.ptf	PLOT DATE: 5/23/2011
PROJECT LEADER: WLD	DRAWN BY: KJR
DESIGNED BY: GGG	CHECKED BY: GAS
CROSS SECTIONS 2	SHEET 30 OF 32

0 10 20
SCALE IN FEET



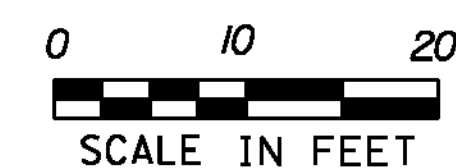
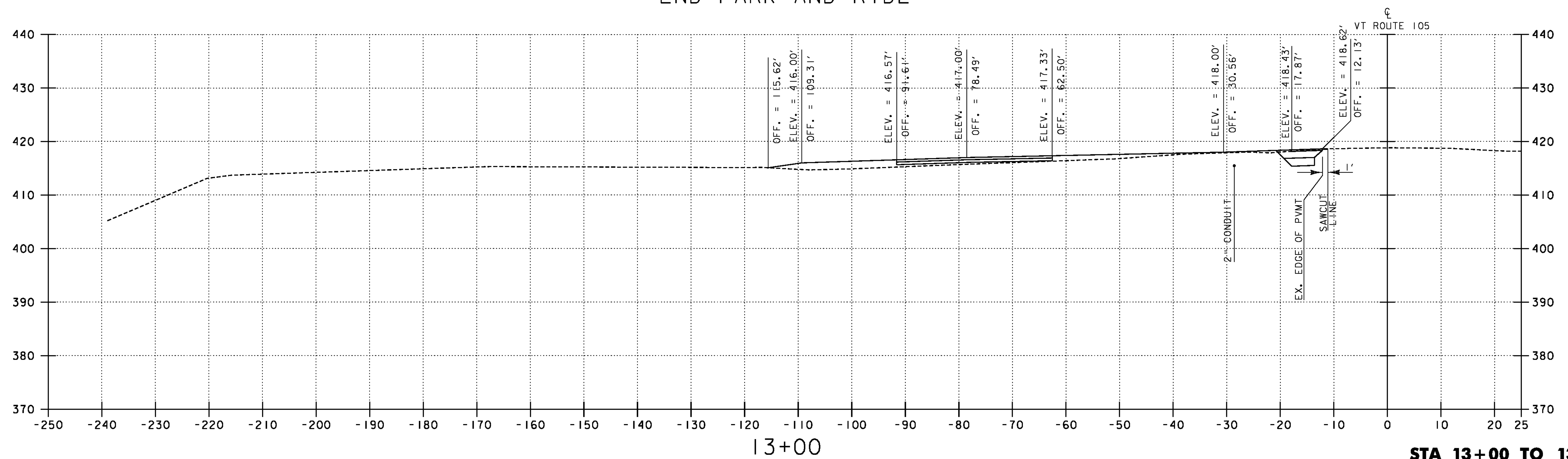
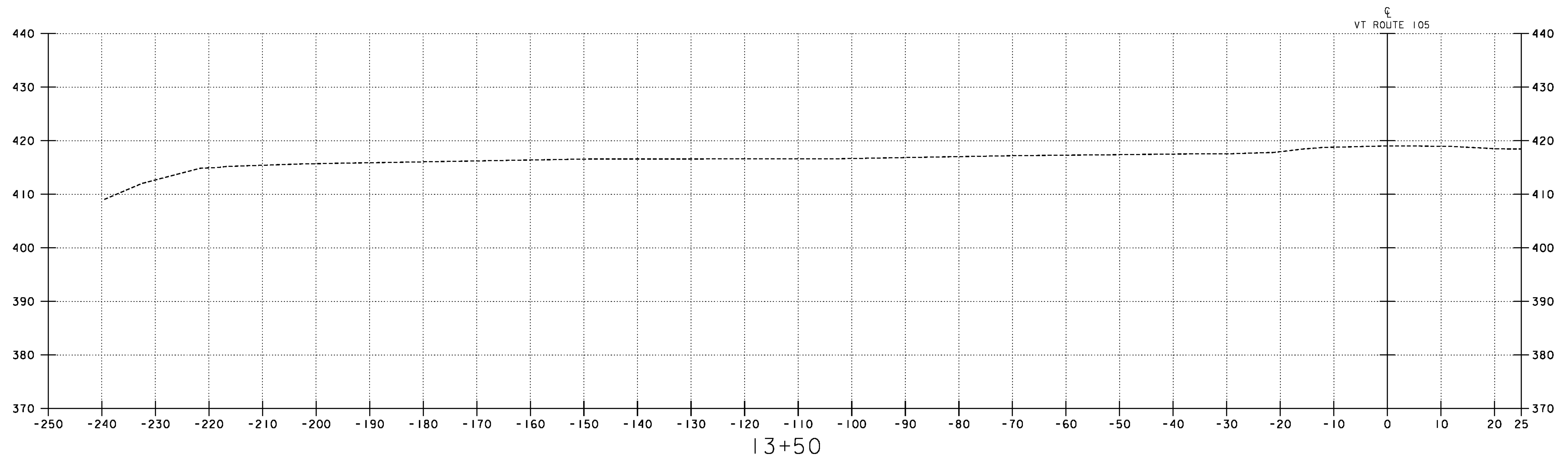


STA 12+50 TO 12+73

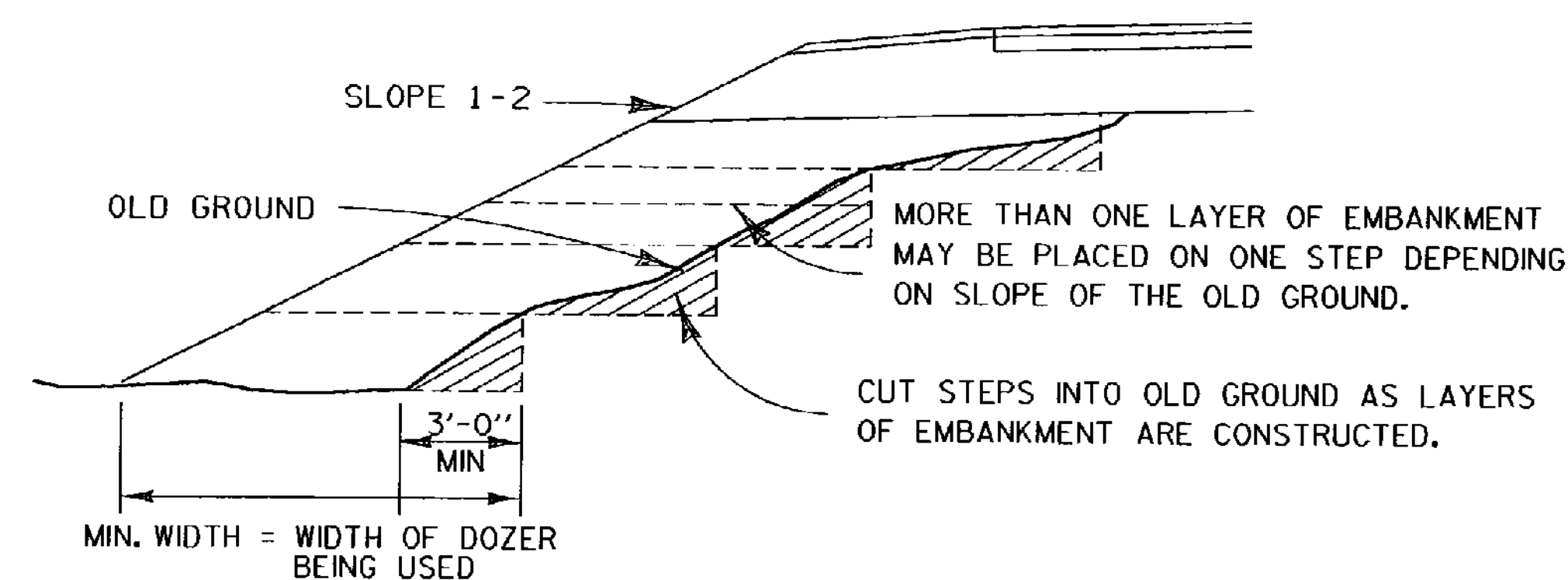
PROJECT NAME:	ENOSBURG
PROJECT NUMBER:	CMG PARK(20)
FILE NAME:	...\\PlotFiles\\3\\sections3.ptf
PROJECT LEADER:	WLD
DESIGNED BY:	GGG
CROSS SECTIONS 3	
PLOT DATE:	5/23/2011
DRAWN BY:	KJR
CHECKED BY:	GAS
SHEET	31 OF 32

0 10 20
SCALE IN FEET

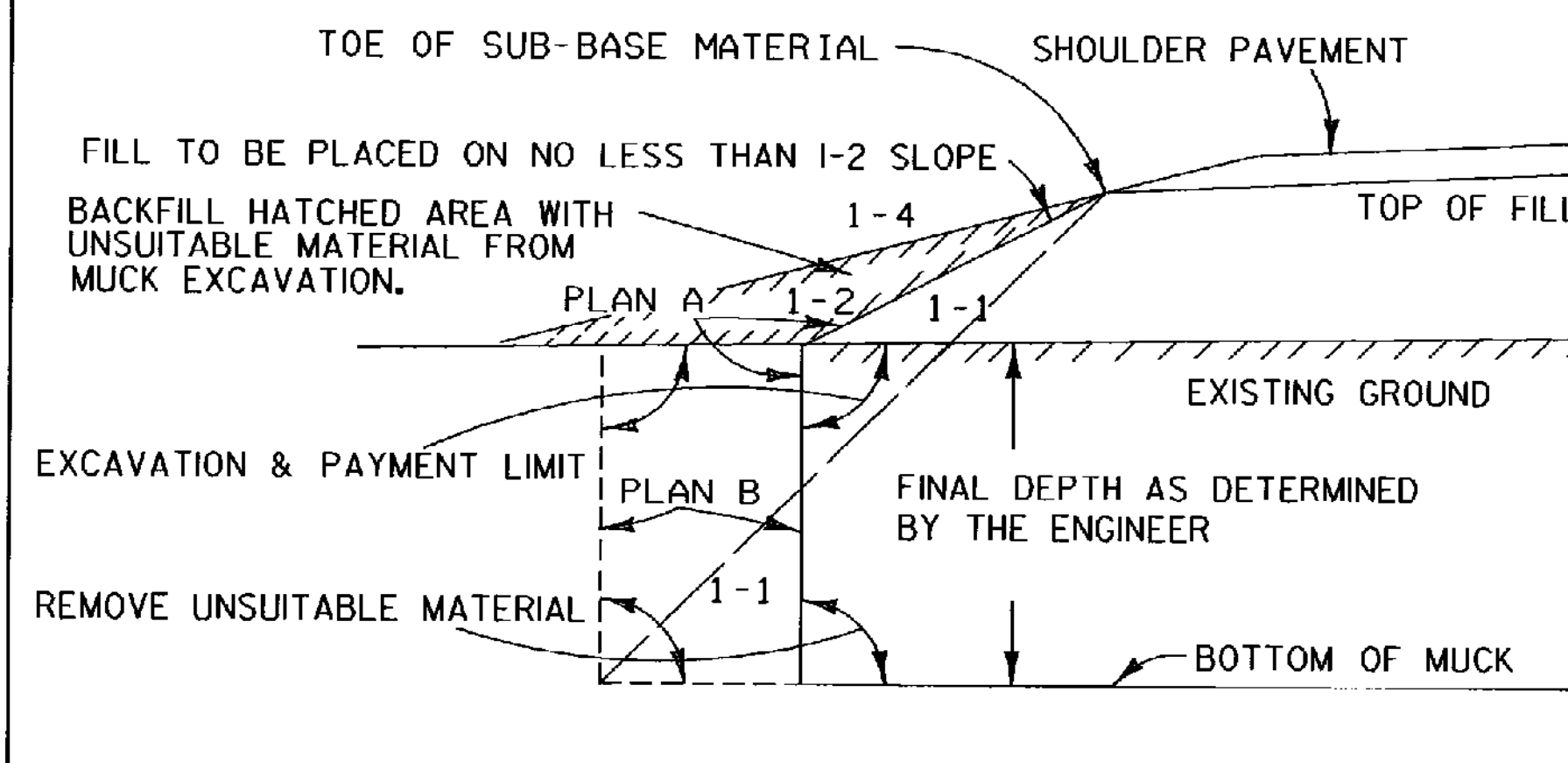




PROJECT NAME: ENOSBURG	
PROJECT NUMBER: CMG PARK(20)	
FILE NAME: ...\\PlotFiles\\32sections4.prf	PLOT DATE: 5/23/2011
PROJECT LEADER: WLD	DRAWN BY: KJR
DESIGNED BY: GGG	CHECKED BY: GAS
CROSS SECTIONS 4	SHEET 32 OF 32

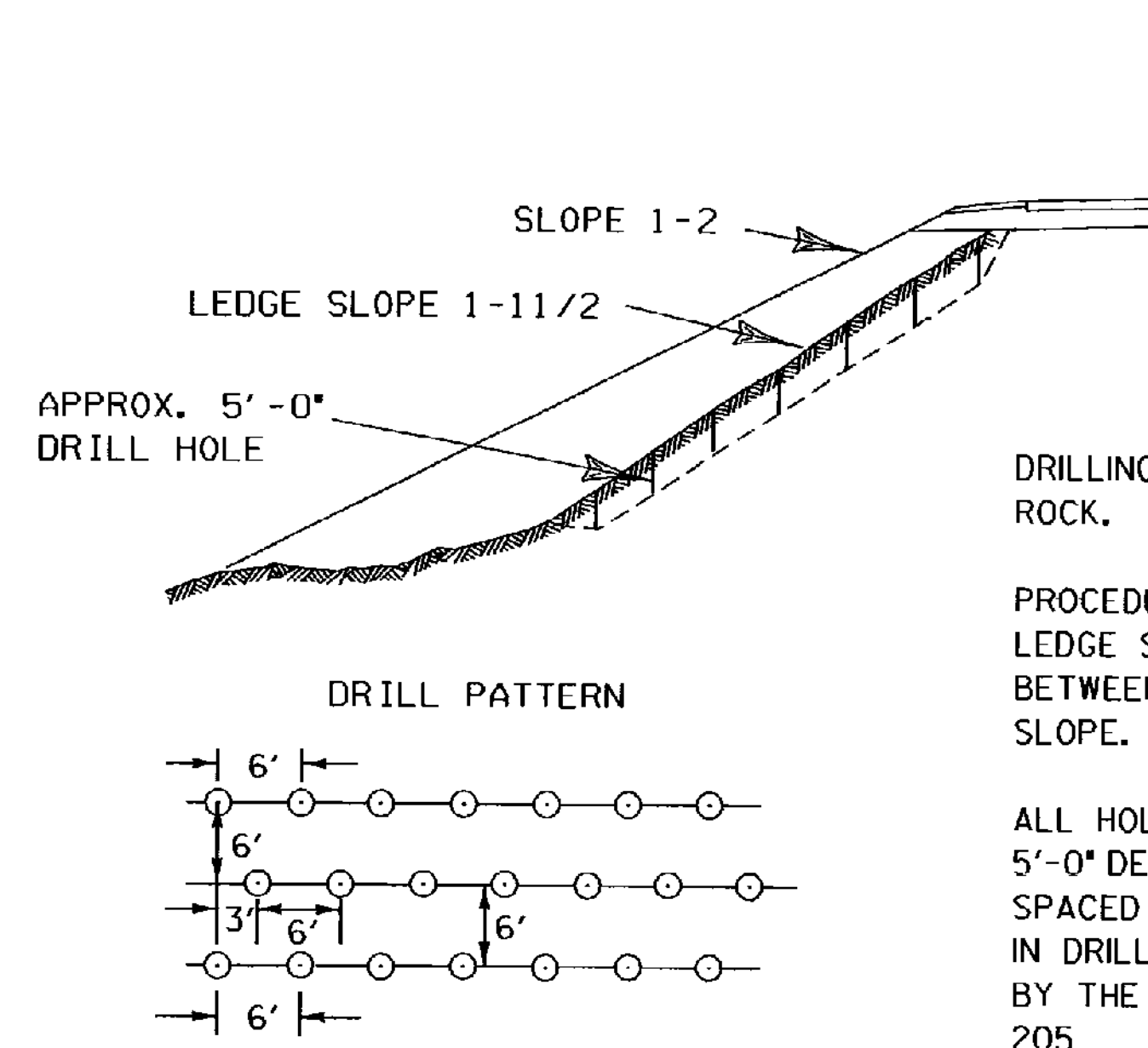


METHOD FOR CONSTRUCTING AN EMBANKMENT ON EARTH SLOPE



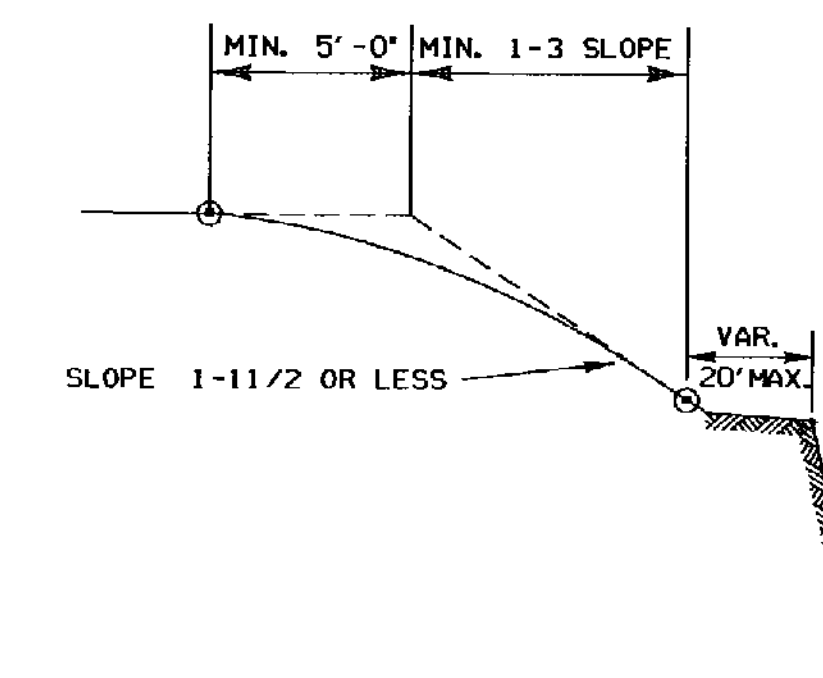
GENERAL NOTES :
 THE MUCK OR UNSUITABLE MATERIAL SHALL BE EXCAVATED TO THE NEAT LINES SHOWN ON THE PLANS OR AS DETERMINED BY THE ENGINEER.
 EXCAVATION AND PAYMENT LIMIT WILL BE DETERMINED FROM EITHER PLAN "A" OR PLAN "B", WHICHEVER PRODUCES THE GREATER WIDTH IN A GIVEN MUCK AREA.
 BACKFILL MATERIAL MUST MEET THE REQUIREMENTS SET FORTH UNDER MUCK EXCAVATION, SECTION 203

TYPICAL NEAT PAY LINES FOR MUCK EXCAVATION

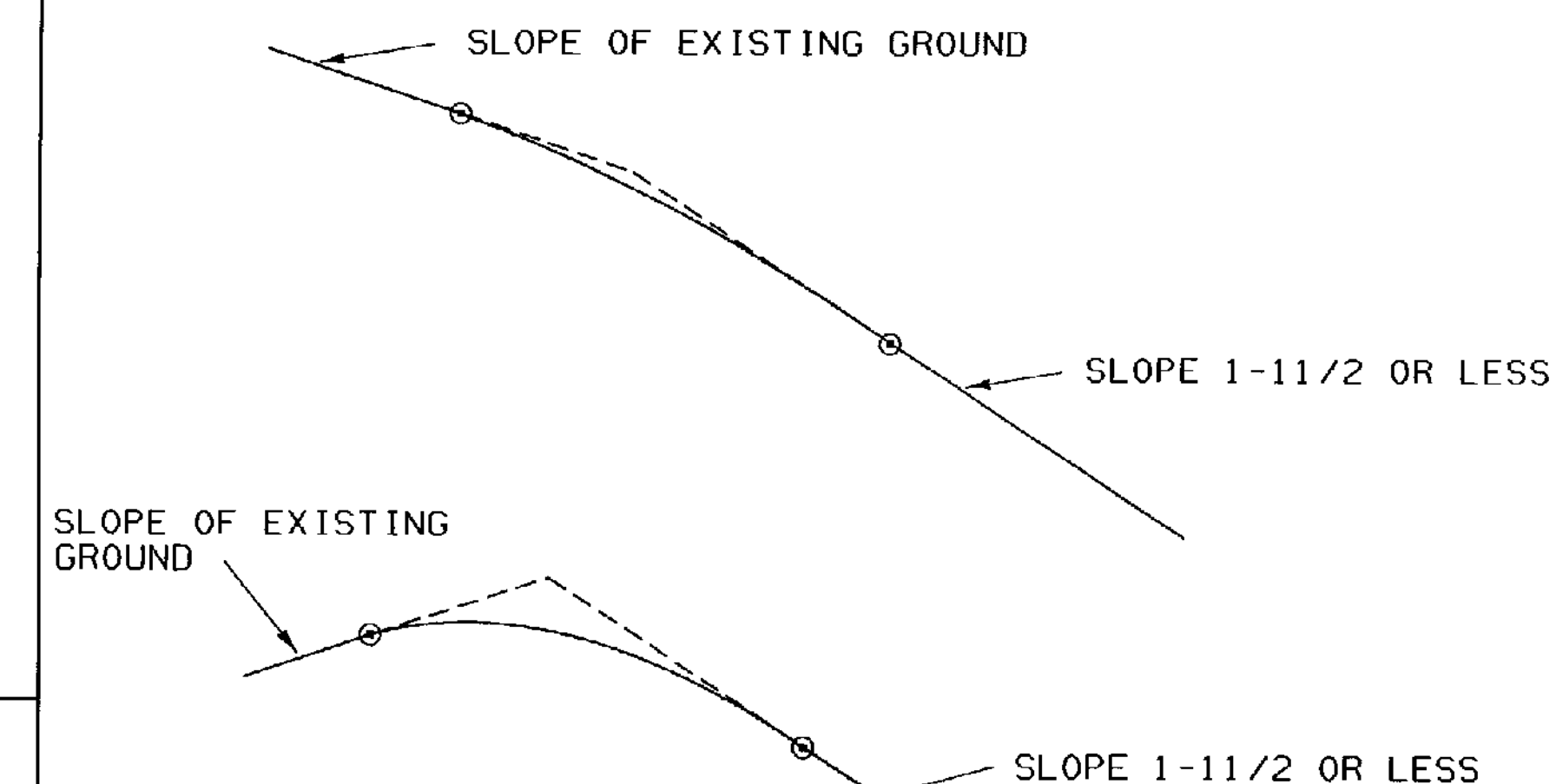


DRILLING AND BLASTING OF SOLID ROCK.
 PROCEDURE TO BE FOLLOWED WHEN LEDGE SLOPE ON OLD GROUND IS BETWEEN A 1-1 AND A 1-5 SLOPE.
 ALL HOLES TO BE APPROXIMATELY 5'-0" DEEP. HOLES TO BE IN ROWS, SPACED AND STAGGERED AS SHOWN IN DRILL PATTERN, OR AS DIRECTED BY THE ENGINEER, SEE SECTION 205

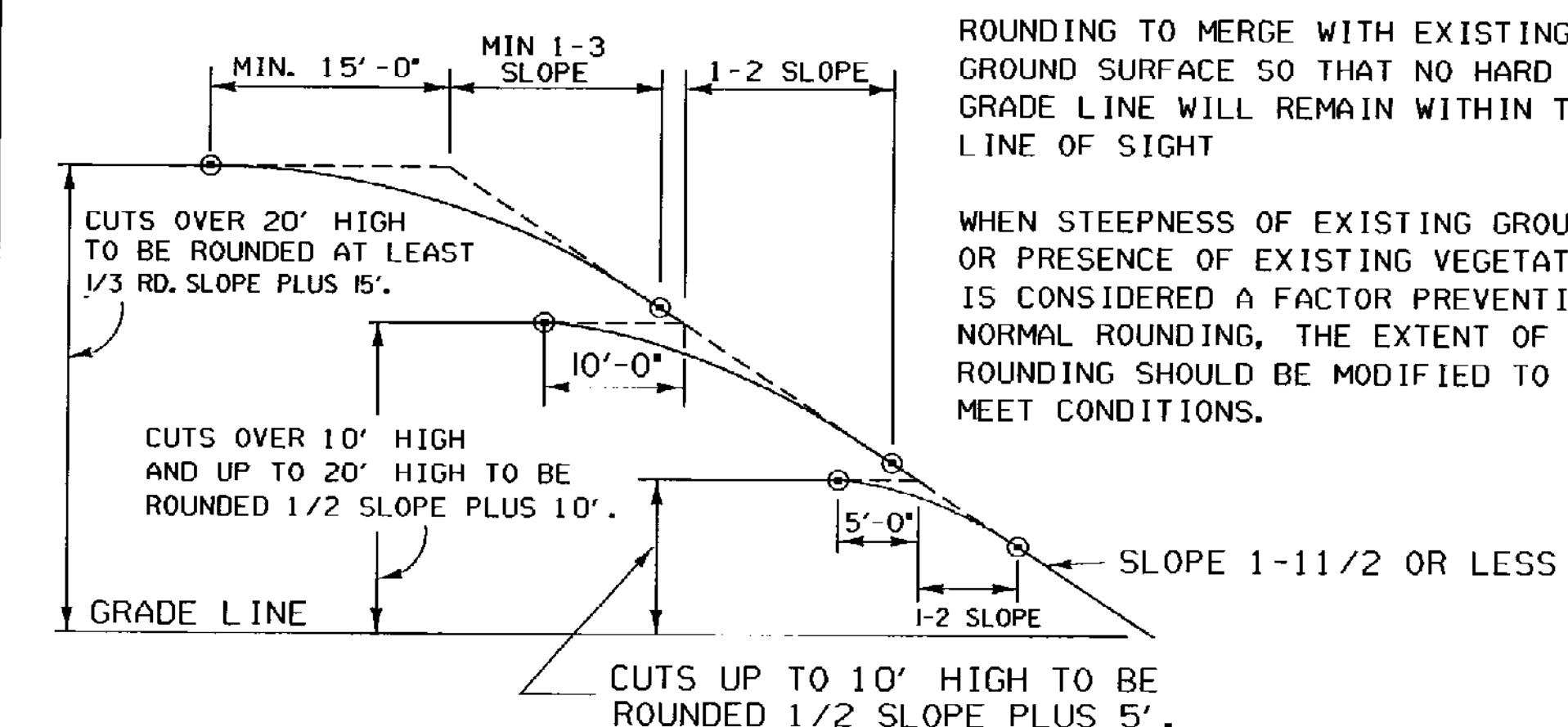
A METHOD FOR PREPARING LEDGE SLOPE BEFORE CONSTRUCTING AN EMBANKMENT



EARTH SECTIONS ABOVE STABLE ROCK OR EQUIVALENT OUTCROPS TO BE ROUNDED, AS FAR AS POSSIBLE AS THOUGH TOTAL HEIGHT OF SLOPE WAS IN EARTH CUT.



SLOPES TO BE ROUNDED AS SHOWN IN ORDER TO ALLOW FOR PERSPECTIVE FORESHORTENING AS SEEN FROM THE ROAD AND SO THAT FINISHED SLOPES WILL BETTER SUPPORT VEGETATIVE COVER.



ROUNDING TO MERGE WITH EXISTING GROUND SURFACE SO THAT NO HARD GRADE LINE WILL REMAIN WITHIN THE LINE OF SIGHT

WHEN STEEPNESS OF EXISTING GROUND OR PRESENCE OF EXISTING VEGETATION IS CONSIDERED A FACTOR PREVENTING NORMAL ROUNDING, THE EXTENT OF THE ROUNDING SHOULD BE MODIFIED TO MEET CONDITIONS.

TYPICAL SLOPE ROUNING

REVISIONS AND CORRECTIONS

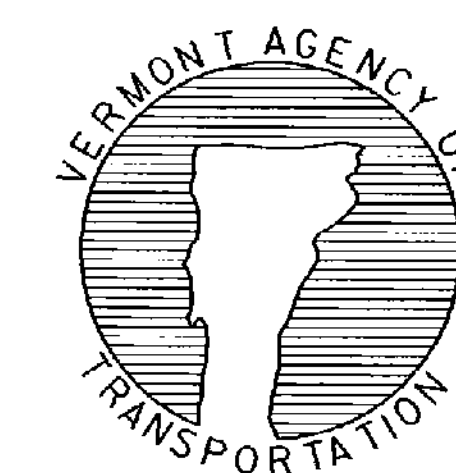
DEC. 6, 1971- ORIGINAL APPROVAL DATE
 JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

APPROVED

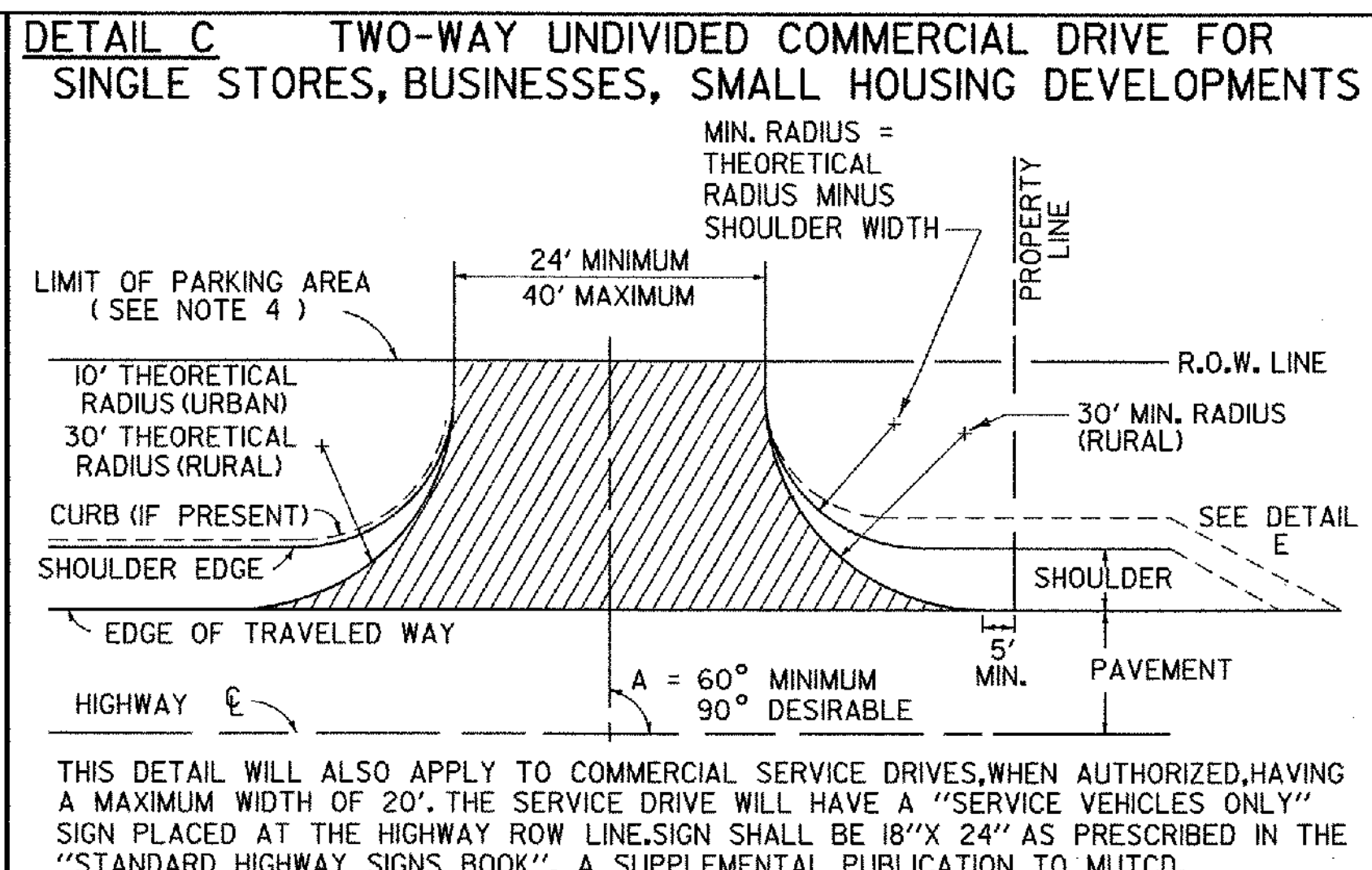
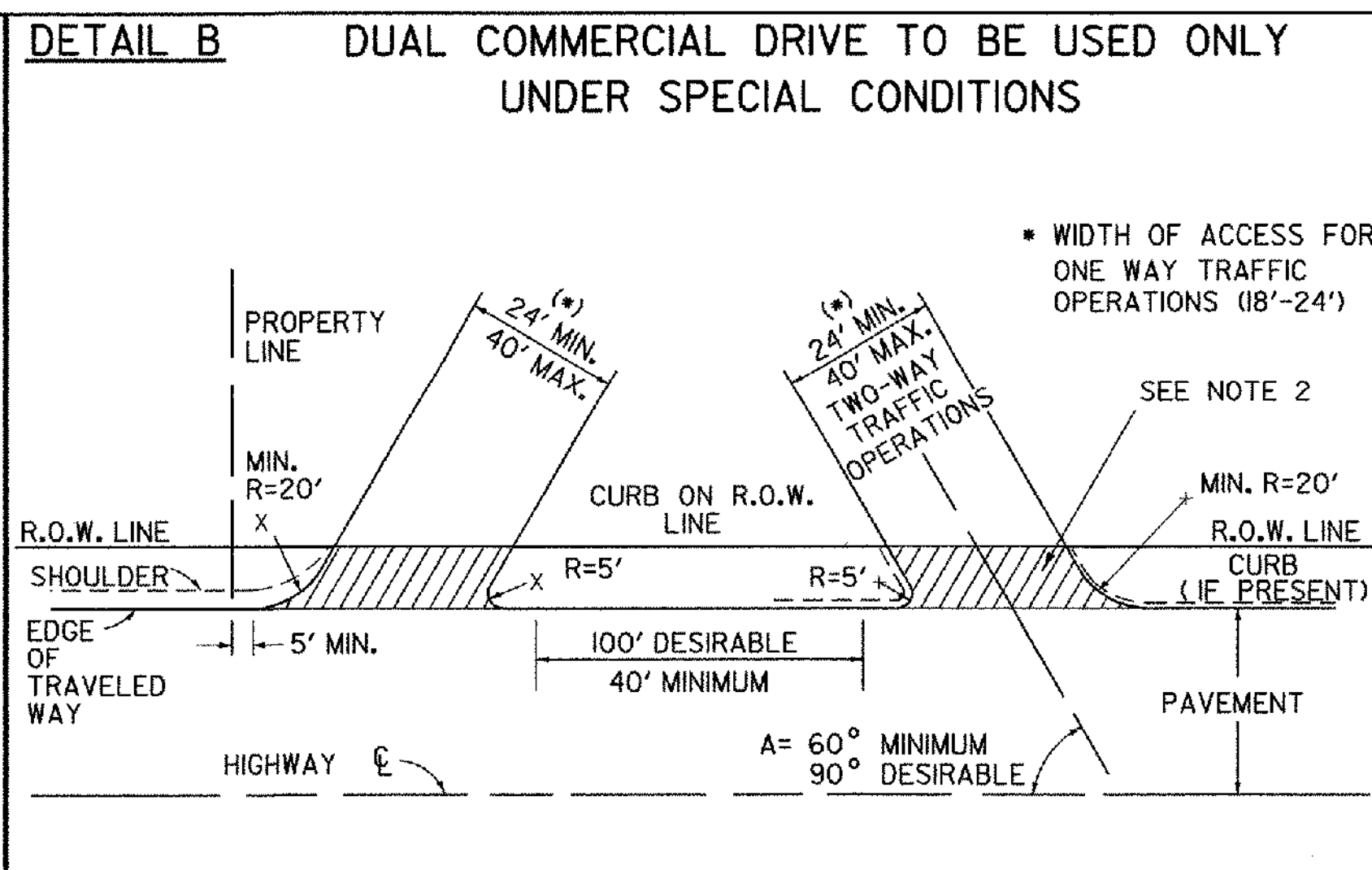
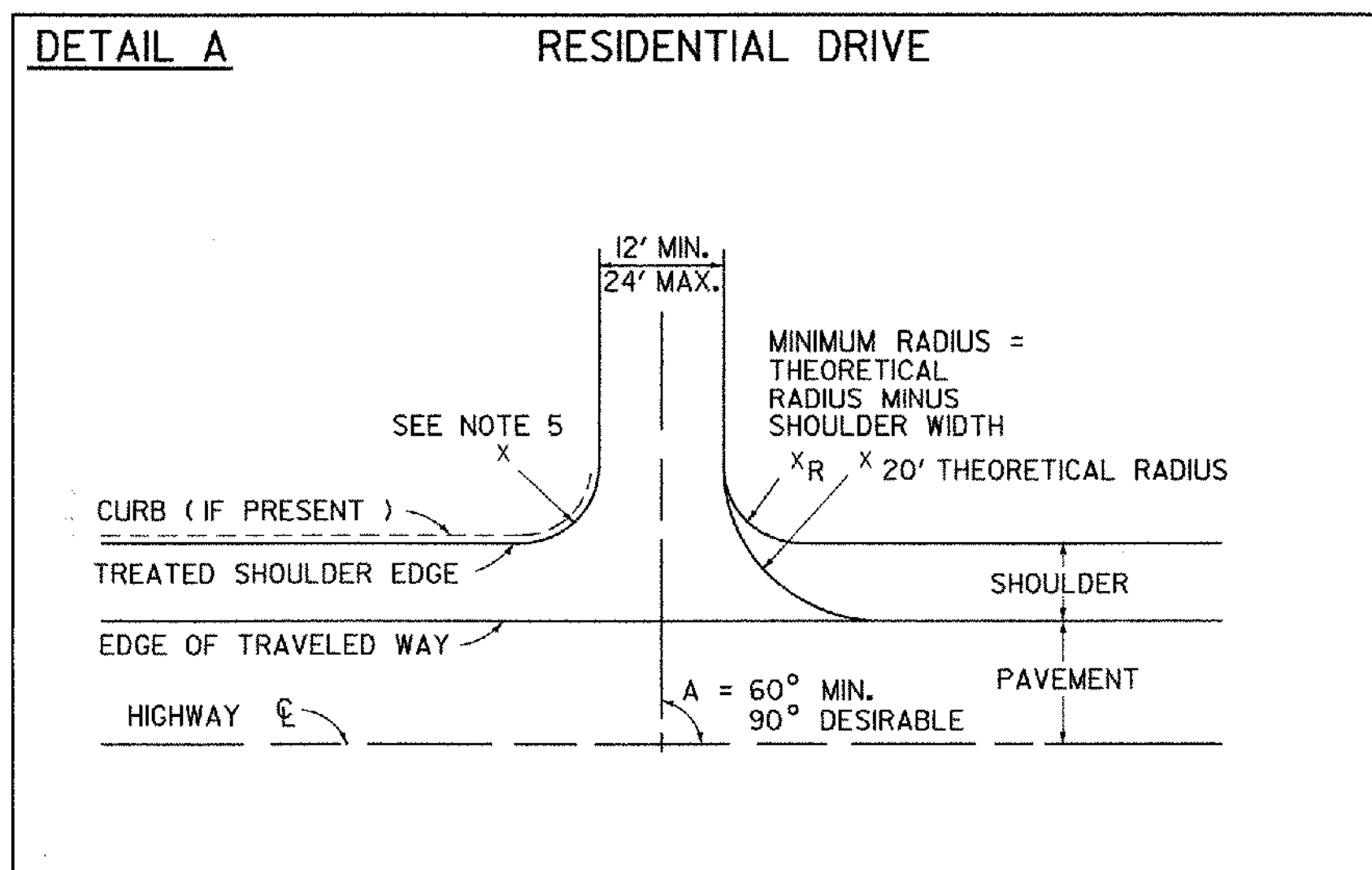
APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION, FHWA FINAL APPROVAL PENDING.

Stephen B. MacArthur, P.E.
 DIRECTOR OF ENGINEERING
Robert M. Murphy, P.E.
 DESIGN ENGINEER

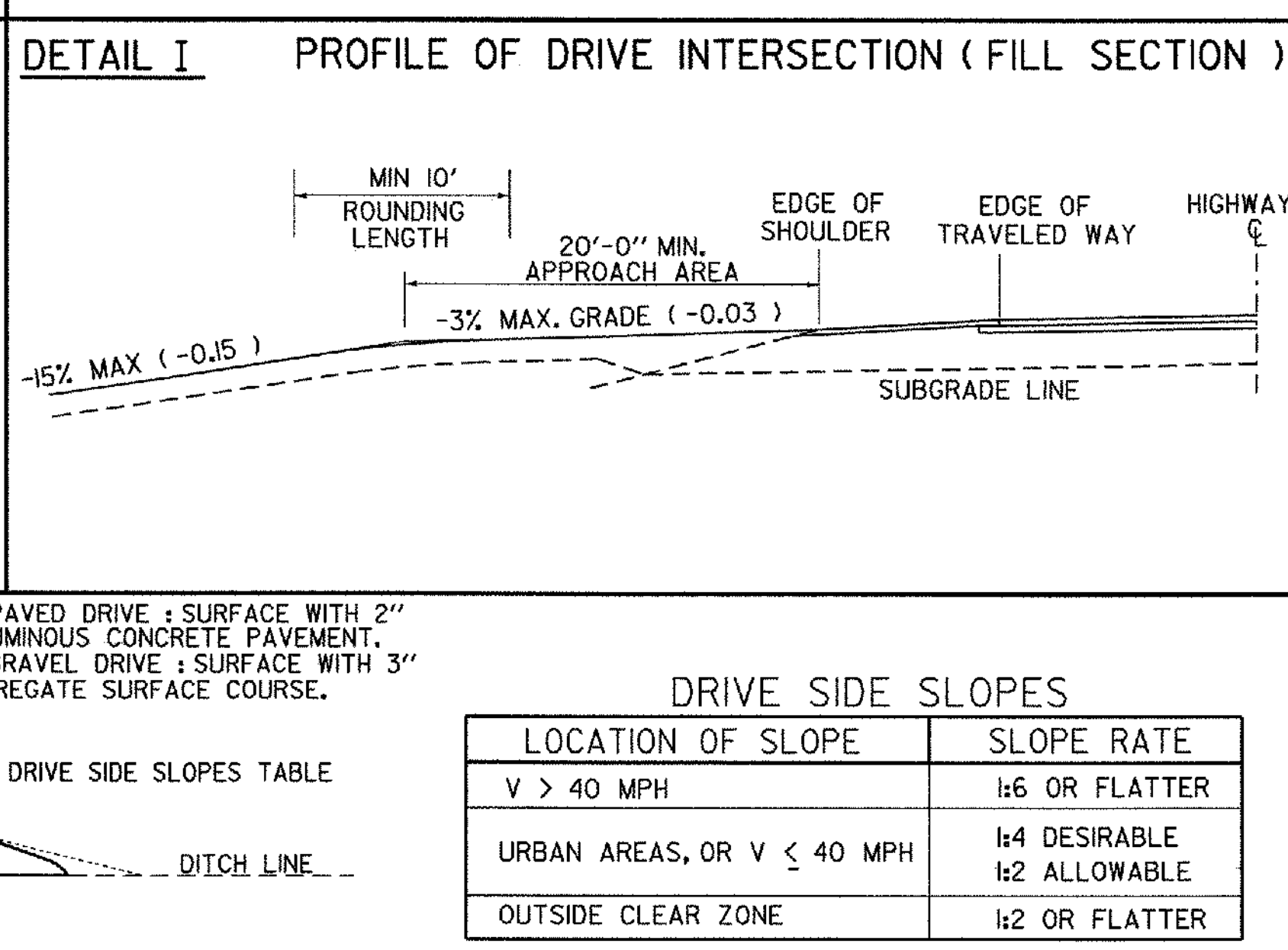
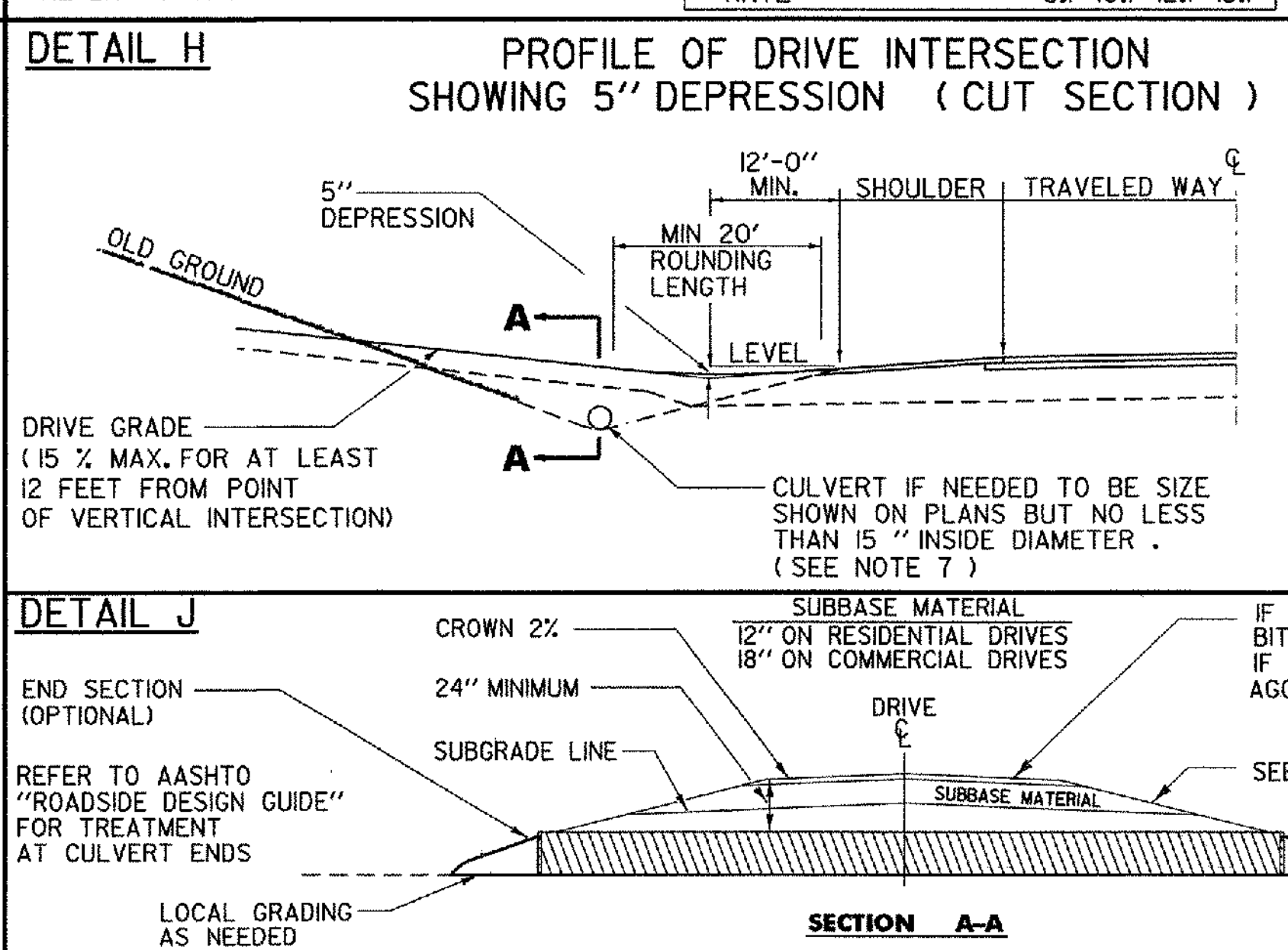
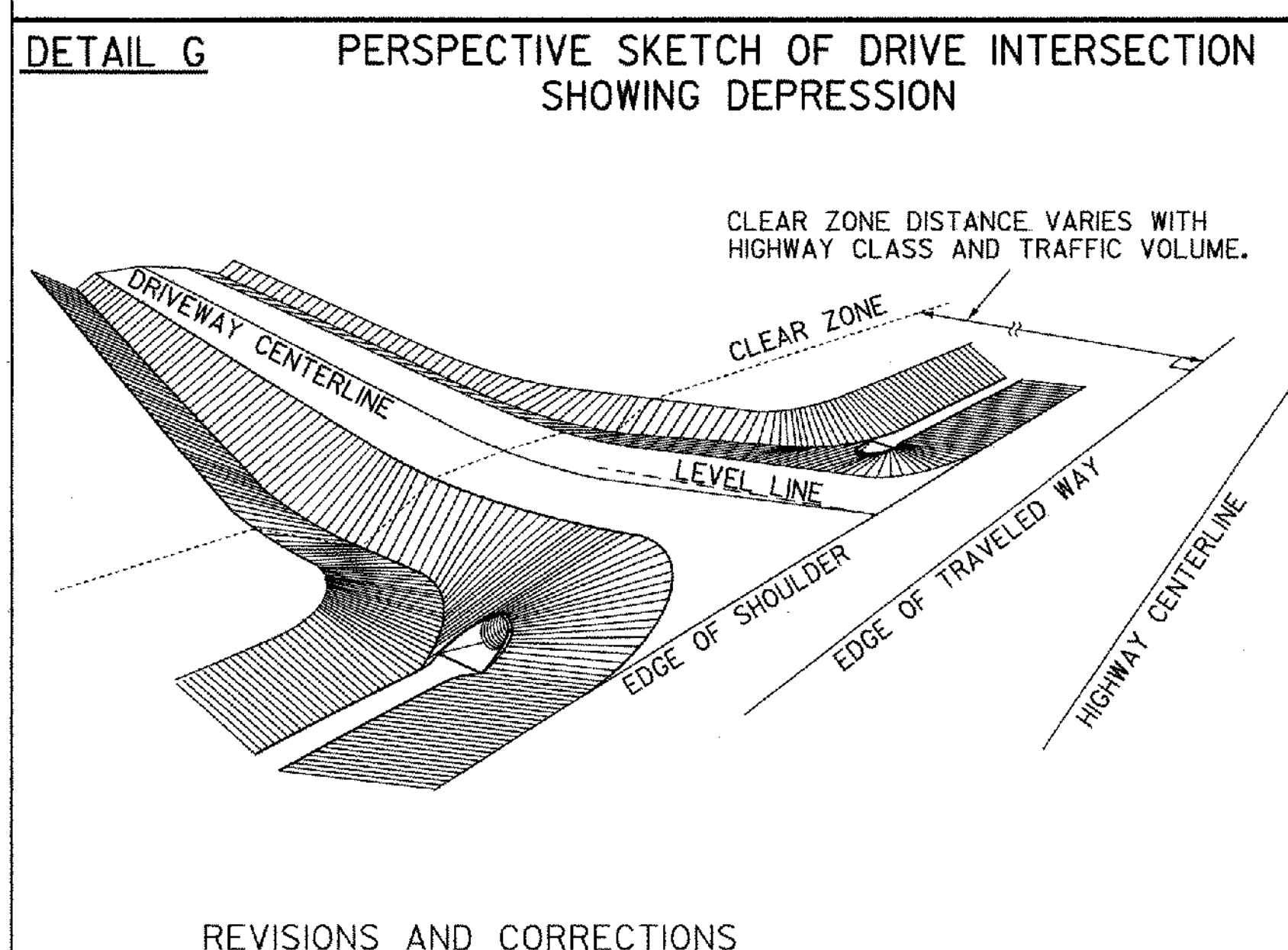
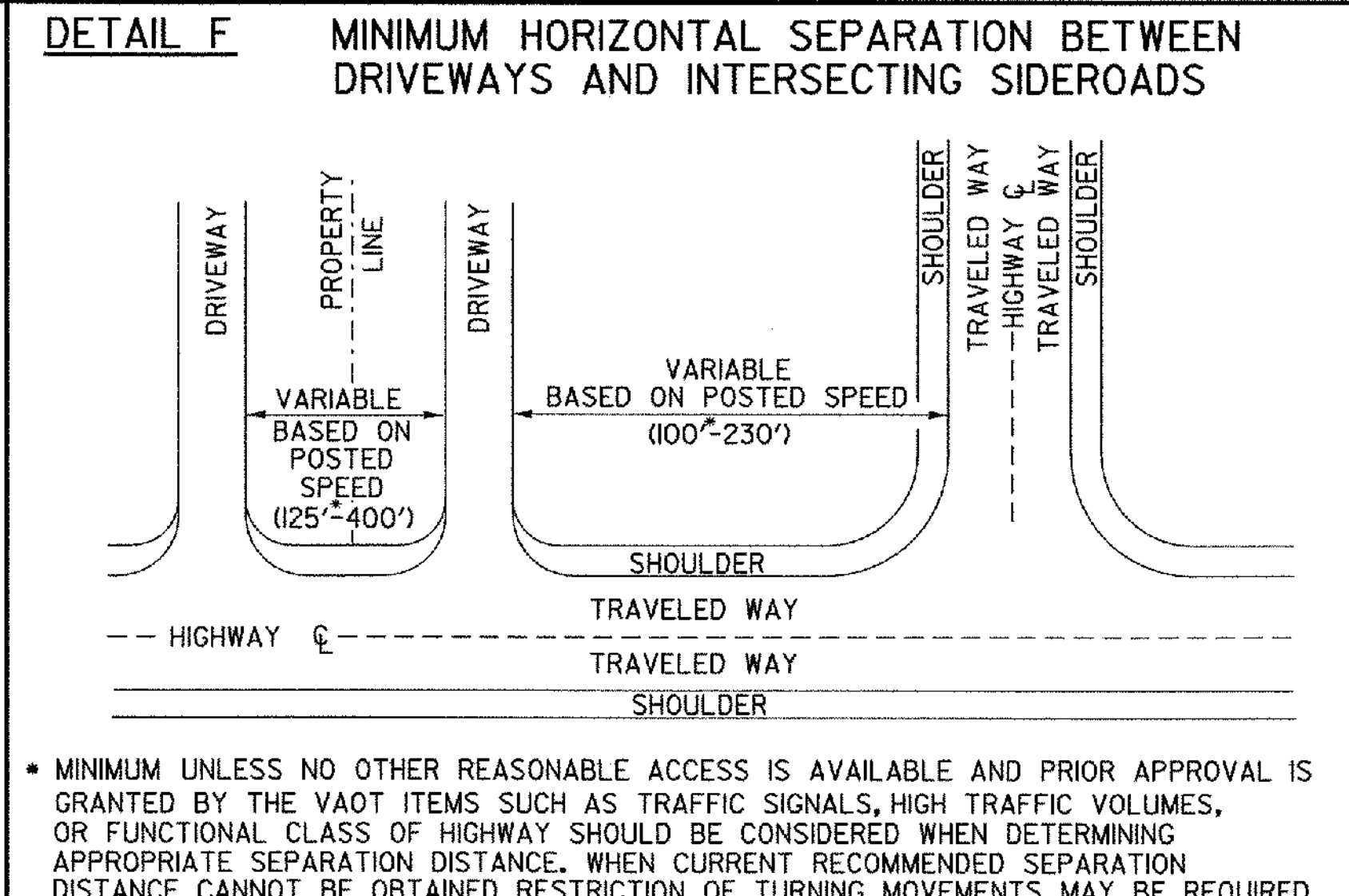
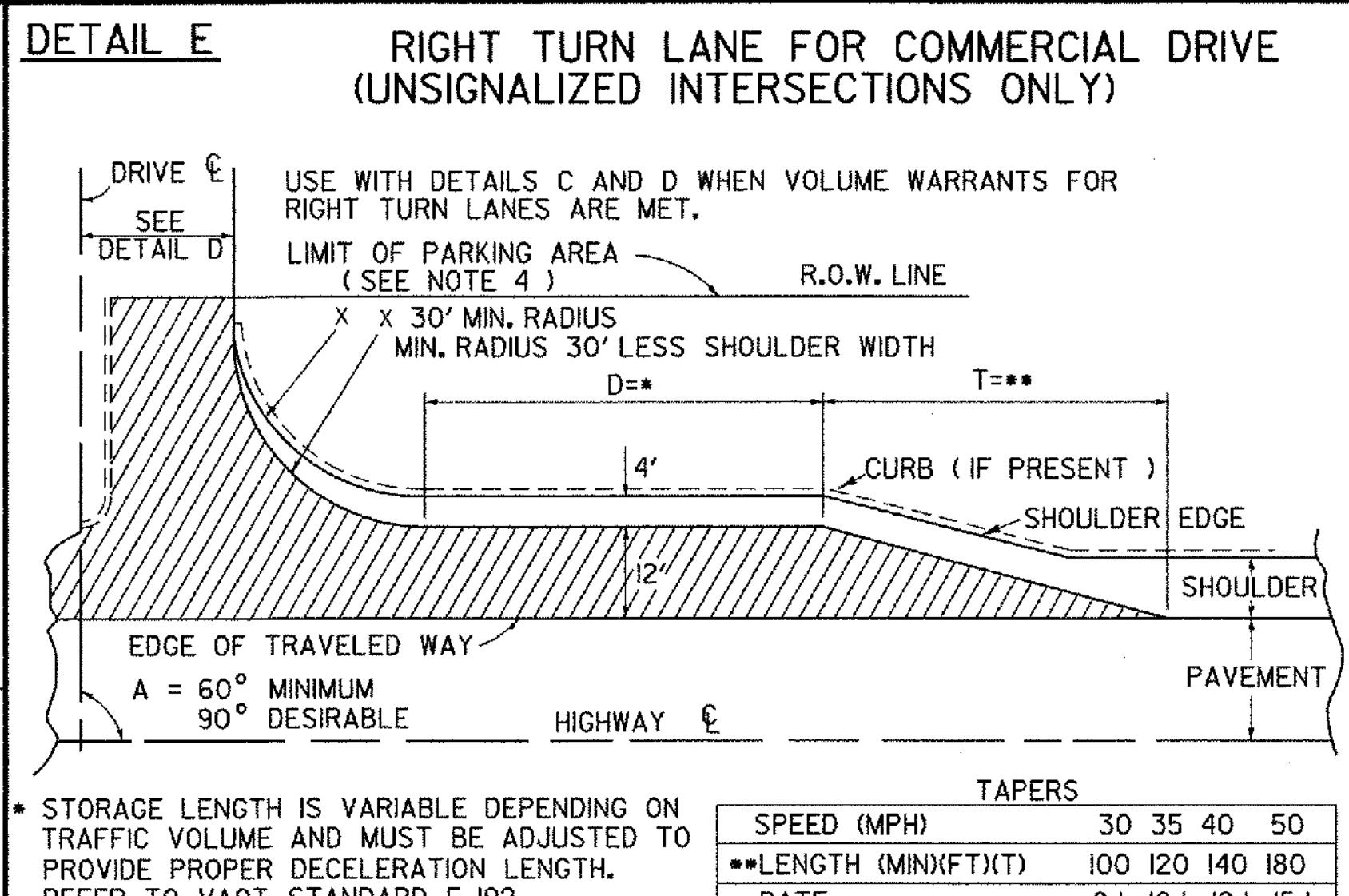
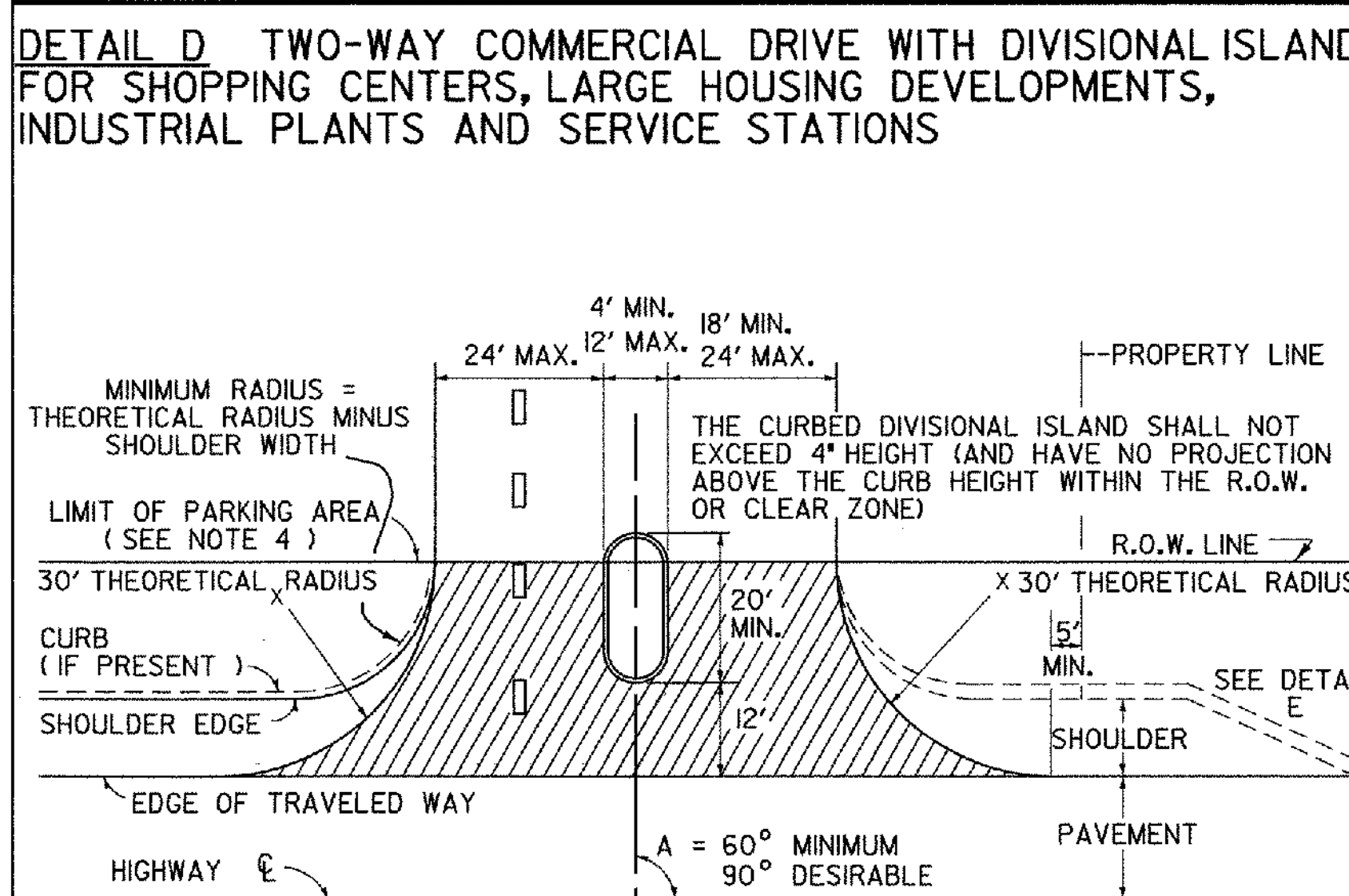
EMBANKMENT ON EARTH SLOPE
 EMBANKMENT ON ROCK SLOPE
 MUCK EXCAVATION
 TYPICAL SLOPE ROUNING



STANDARD
 B-5



- NOTES:**
- THIS SHEET IS INTENDED FOR USE BY DESIGNERS ON HIGHWAY PROJECTS AND IN CONJUNCTION WITH A PERMIT FOR WORK WITHIN HIGHWAY RIGHTS OF WAY (FORM TA 210). ALL CONSTRUCTION REQUIRED BY THE PERMIT AND INDICATED ON THIS SHEET SHALL BE THE RESPONSIBILITY OF THE APPLICANT AND IS SUBJECT TO THE APPROVAL OF THE VT. AGENCY OF TRANSPORTATION. WHEN USED WITH THE PLANS FOR A HIGHWAY CONSTRUCTION PROJECT, THIS SHEET IS INTENDED TO BE A GUIDE FOR THE DESIGNER CONCERNING DRIVE WIDTHS, HORIZONTAL, VERTICAL AND GEOMETRIC CHARACTERISTICS.
 - ALL COMMERCIAL DRIVES SHALL BE PAVED FROM THE EDGE OF THE TRAVELED WAY TO THE HIGHWAY RIGHT-OF-WAY, TO THE FARTHEST POINT OF CURVATURE ON THE DRIVEWAY EDGE OR AS DIRECTED BY THE DISTRICT TRANSPORTATION ADMINISTRATOR. THIS PAVING IS INDICATED IN DETAILS (B THRU E) BY HATCHING.
 - DEPTH OF SUBBASE AND PAVEMENT TO BE THE SAME AS HIGHWAY OR AS SHOWN IN DETAIL J WITHIN THE LIMITS OF THE HIGHWAY RIGHT-OF-WAY.
 - VEHICULAR ACCESS FROM PARKING AREAS TO THE RIGHT-OF-WAY AT OTHER THAN APPROVED ACCESS POINTS WILL BE PREVENTED BY THE CONSTRUCTION OF CURBING OR OTHER SUITABLE PHYSICAL BARRIER.
 - IF CURB IS PRESENT, SEE APPROPRIATE CURB DETAIL STANDARD OR MATCH TOWN/CITY STANDARD CURB TREATMENT.
 - WHERE TRAFFIC VOLUME FOR A PROJECT IS SUBSTANTIAL THE AGENCY MAY REQUIRE SPECIAL LANES FOR TURNING, SIGNALS OR OTHER MODIFICATIONS. BASED ON TRAFFIC STUDIES THE AGENCY WILL DETERMINE SPECIFIC TREATMENT TO BE USED. ON DEVELOPER PROJECTS THE AGENCY WILL WORK WITH THE APPLICANT TO IMPLEMENT CHANGES TO THE STATE HIGHWAY.
 - CIRCULAR DRAINAGE CULVERTS UNDER DRIVES SHALL HAVE A MINIMUM INSIDE DIAMETER (I.D.) OF 15". PIPE ARCHES USED UNDER DRIVES SHALL HAVE A MINIMUM INSIDE CROSS-SECTIONAL AREA EQUIVALENT TO THAT PROVIDED BY A 15" CIRCULAR PIPE.
 - THE OFFSET BETWEEN THE PROPERTY LINE AND THE EDGE OF THE DRIVEWAY MAY BE GOVERNED BY LOCAL ZONING LAWS. DRIVEWAY WIDTH RESTRICTIONS SHOWN PERTAIN ONLY TO THE AREA WITHIN THE HIGHWAY R.O.W. OR THE END OF THE TURNING RADIUS WHICHEVER IS GREATEST.
 - DRIVEWAY GRADES STEEPER THAN THOSE SHOWN MAY BE ALLOWED AS LONG AS A 20' APPROACH AREA IS ACHIEVED FOR THE VEHICLE TO PAUSE BEFORE ENTERING THE HIGHWAY. (WHERE CURB & SIDEWALKS EXIST, SEE STANDARDS C-2A & C-2B)
 - INTERSECTION SIGHT DISTANCES, EQUAL TO OR GREATER THAN THOSE SHOWN BELOW, SHOULD BE PROVIDED IN BOTH DIRECTIONS FOR ALL DRIVES ENTERING ON PUBLIC HIGHWAYS, UNLESS OTHERWISE APPROVED BY THE AGENCY OF TRANSPORTATION. INTERSECTION SIGHT DISTANCE IS MEASURED FROM A POINT ON THE DRIVE AT LEAST 15 FEET FROM THE EDGE OF TRAVELED WAY OF THE ADJACENT ROADWAY AND MEASURED FROM A HEIGHT OF EYE OF 3.5 FEET ON THE DRIVE TO A HEIGHT OF 3.50 FEET ON THE ROADWAY.



SIGHT DISTANCE CHART

POSTED SPEED OR DESIGN SPEED (M.P.H.)	MINIMUM STOPPING SIGHT DISTANCE (FT)	MINIMUM INTERSECTION SIGHT DISTANCE (FT)
25	155	280
30	200	335
35	250	390
40	305	445
45	360	500
50	425	555
55	495	610
60	570	665
65	645	720

THE ABOVE VALUES ARE TAKEN FROM THE 2004 AASHTO "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS & STREETS."

NOTE: ADVANCE WARNING SIGNS WILL BE REQUIRED IF OBTAINABLE INTERSECTION SIGHT DISTANCES ARE BELOW MINIMUM STOPPING SIGHT DISTANCES.

THE CHART IS ENTERED TO SELECT DESIGN VALUES BASED ON THE POSTED SPEED LIMIT IN MPH. VALUES FOR DESIGN ARE CALCULATED BASED ON THE DESIGN SPEED IN MPH.

* ASSUMES A GAP OF 7.5 SECONDS IN THE TRAFFIC STREAM ON THE HIGHWAY MAINLINE BASED ON THE HIGHWAY DESIGN SPEED IN MPH. THIS ALLOWS A STOPPED PASSENGER VEHICLE TO ENTER THE MAINLINE FROM THE DRIVE WITHOUT UNDESIRABLY INTERFERING WITH THE HIGHWAY OPERATIONS.

REVISIONS AND CORRECTIONS

DEC. 11, 1992 - THIS STANDARD SUPERCEDES B-71(7/23/80R), B-71A (3/12/90), AND B-13 (12/14/71).

JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

MAR. 10, 1995 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

NOV. 16, 2000 - CHANGES MADE TO CONFORM WITH LANGUAGE AND DIMENSIONS IN ACCESS MANAGEMENT PROGRAM GUIDELINES.

FEB 1, 2004 - CHANGES MADE TO SIGHT DISTANCE CHART TO CONFORM WITH NEWEST AASHTO CRITERIA.

JULY 8, 2005 - CHANGE MADE TO OBJECT HEIGHT TO CONFORM WITH NEWEST AASHTO CRITERIA

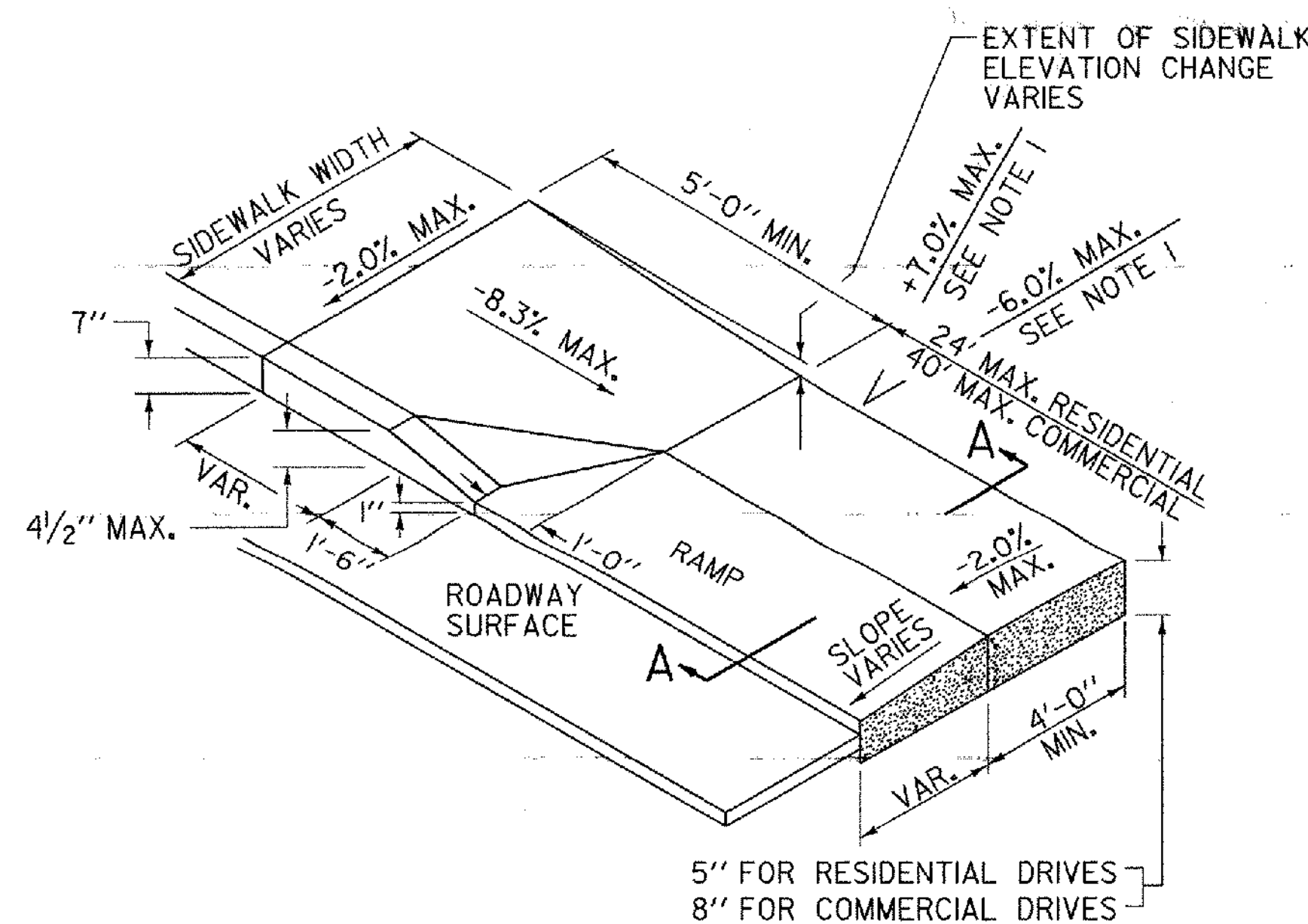
APPROVED

Richard F. Edwards
DIRECTOR OF PROGRAM DEVELOPMENT

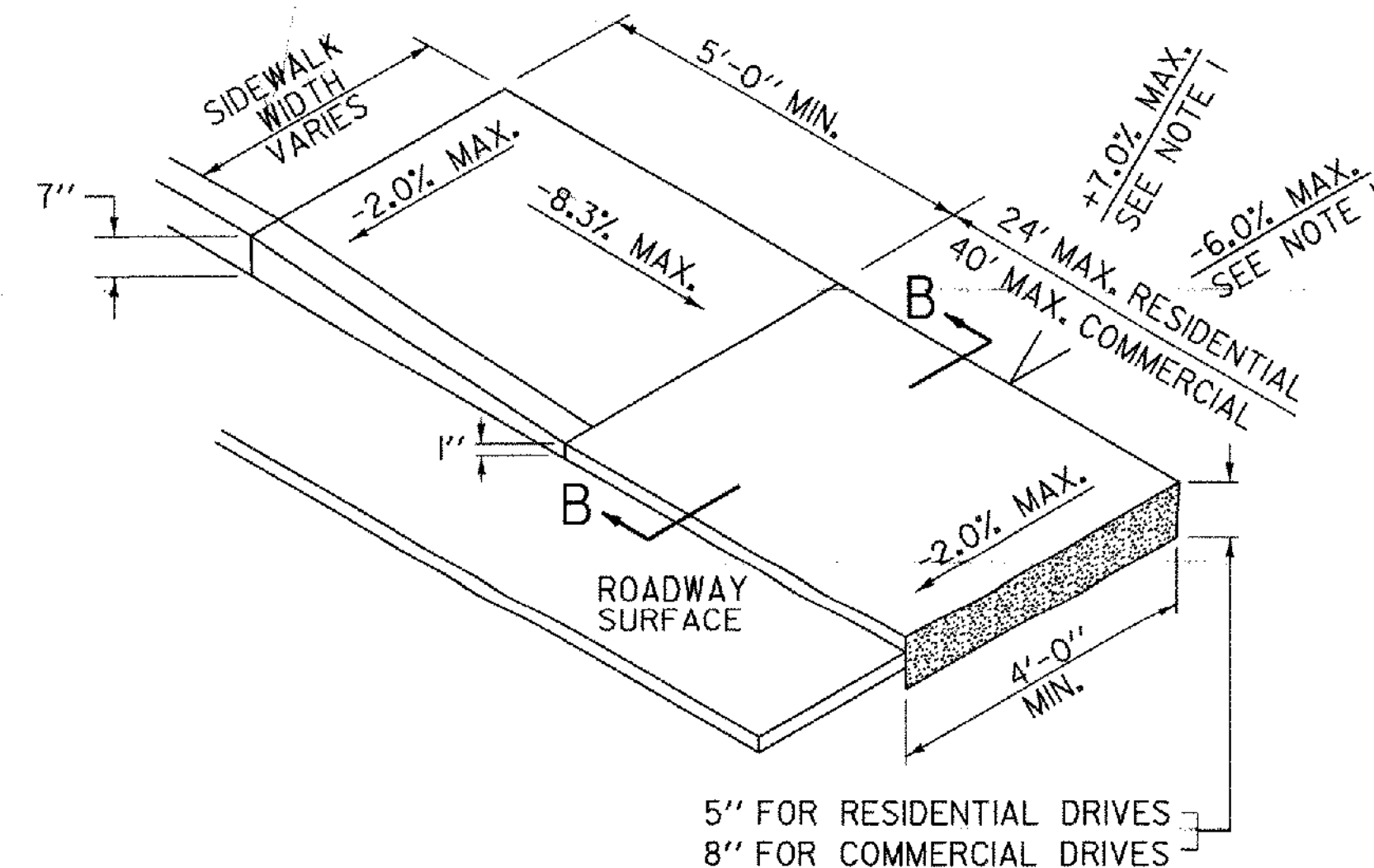
Wang S. Keller
CHIEF OF UTILITIES AND PERMITS

Michael Compton
FEDERAL HIGHWAY ADMINISTRATION

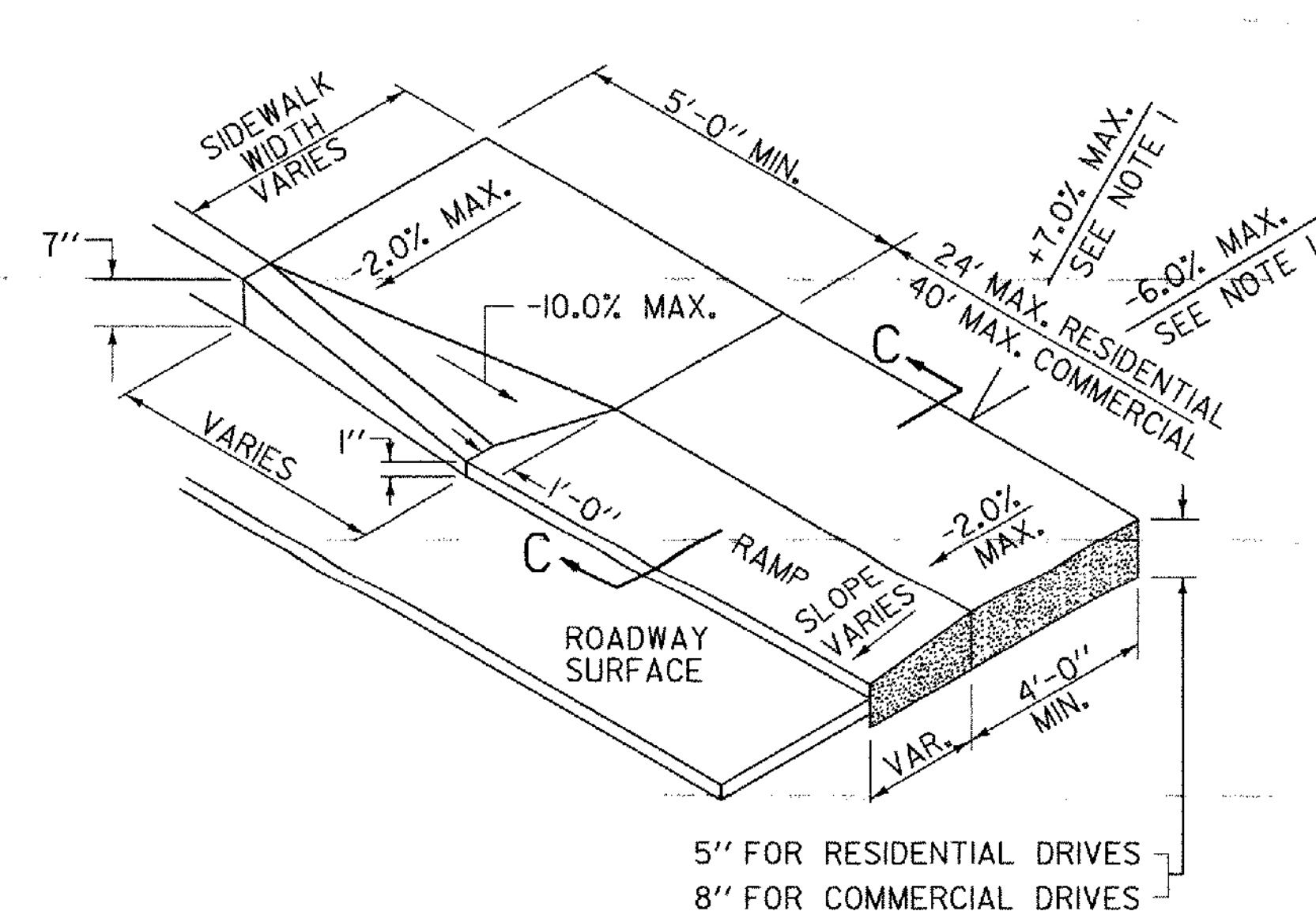
STANDARDS FOR RESIDENTIAL AND COMMERCIAL DRIVES



TYPE 1 - COMBINATION CROSSING WITH FLARE



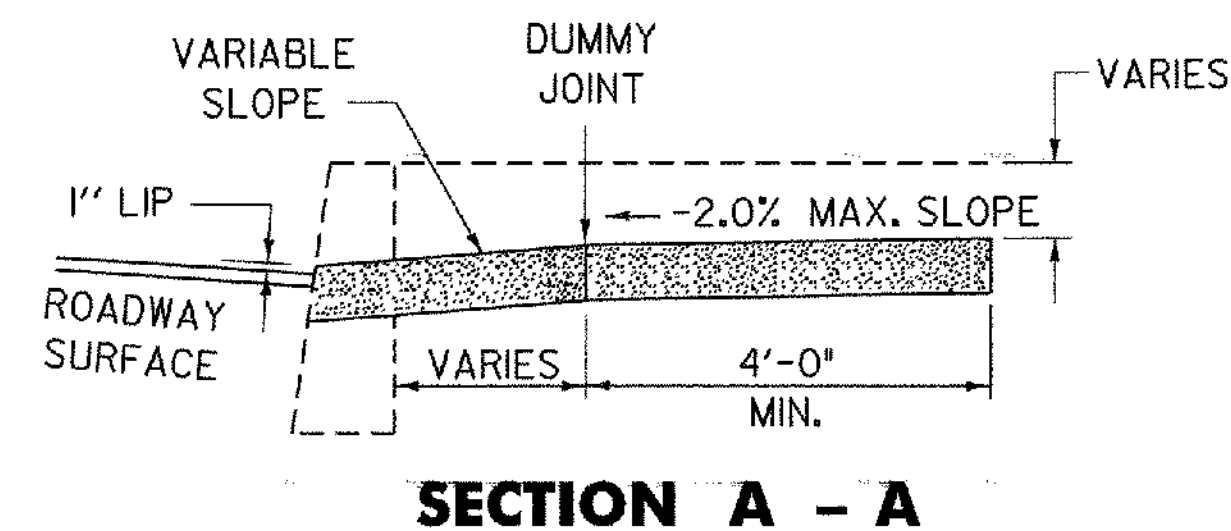
TYPE 2 - PARALLEL CROSSING WITH LANDING



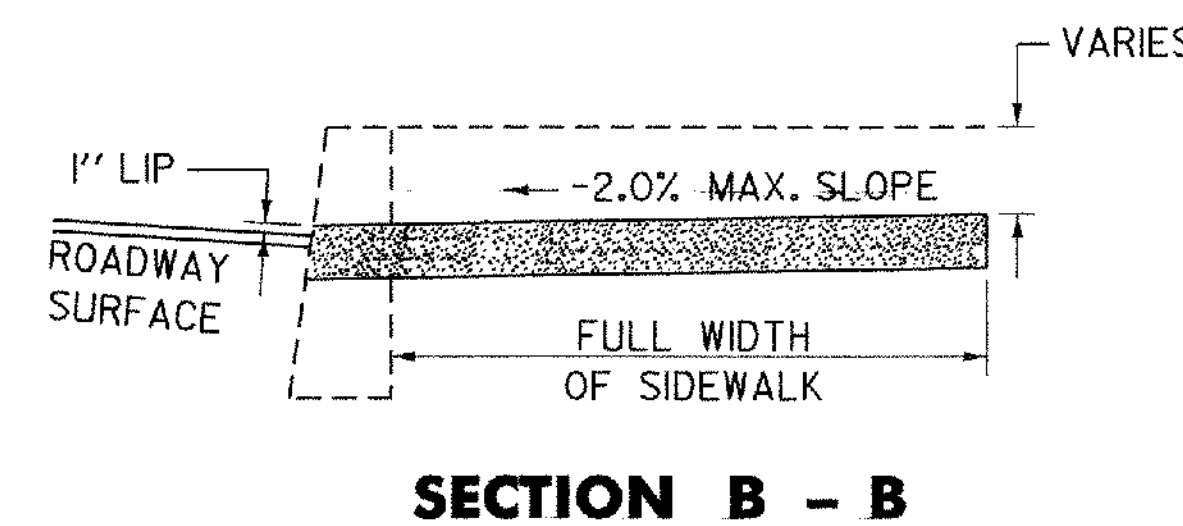
TYPE 3 - LEVEL LANDING WITH FLARE

GENERAL NOTES :

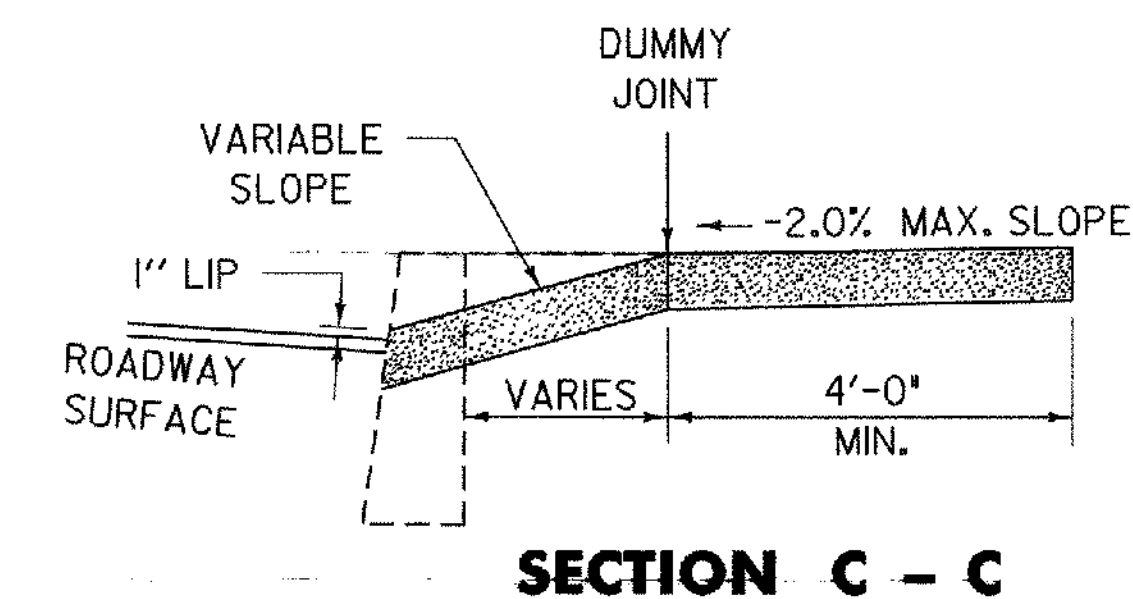
1. THESE TYPICALS APPLY WHERE GRADE OF DRIVE IS BETWEEN -6.0% AND +7.0%. FOR GRADES IN EXCESS OF THESE, ALTERNATIVE CROSS SECTION OF RAMP AND SIDEWALK MAY BE APPROVED BY THE ENGINEER.
2. DUMMY JOINTS SHALL BE PROVIDED AT TRANSITIONS (GRADE CHANGES) OF RAMP AND FLARES.
3. DRIVEWAY RAMP TO BE PAID FOR AS PORTLAND CEMENT CONCRETE SIDEWALK.
4. SIDEWALKS THAT ARE LESS THAN 5' WIDE REQUIRE 5' WIDE BY 5' LONG PASSING AREAS (NO GREATER THAN 2.0% CROSS SLOPE) AT INTERVALS NOT TO EXCEED 200'. DRIVEWAYS MEETING THESE REQUIREMENTS MAY BE USED AS A WHEELCHAIR PASSING AREA.
5. IN NO CASE SHALL THE CROSS SLOPE OF AN ACCESSIBLE ROUTE EXCEED 2.0%.



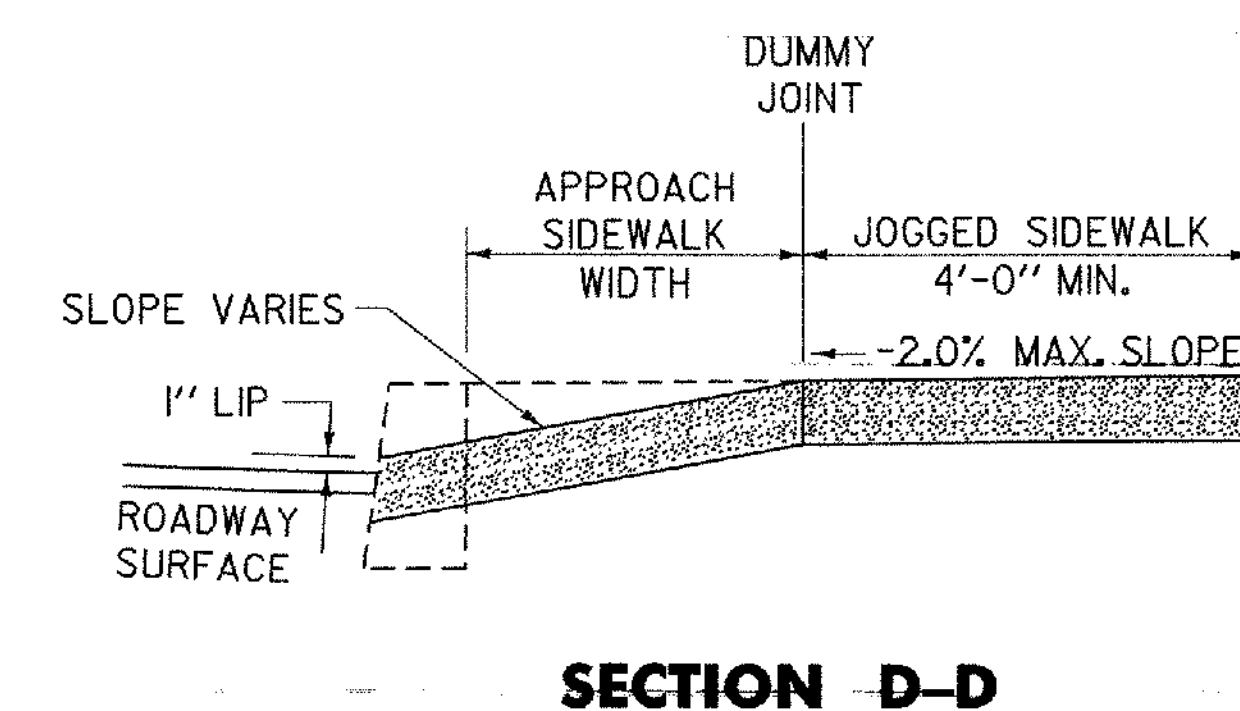
SECTION A - A



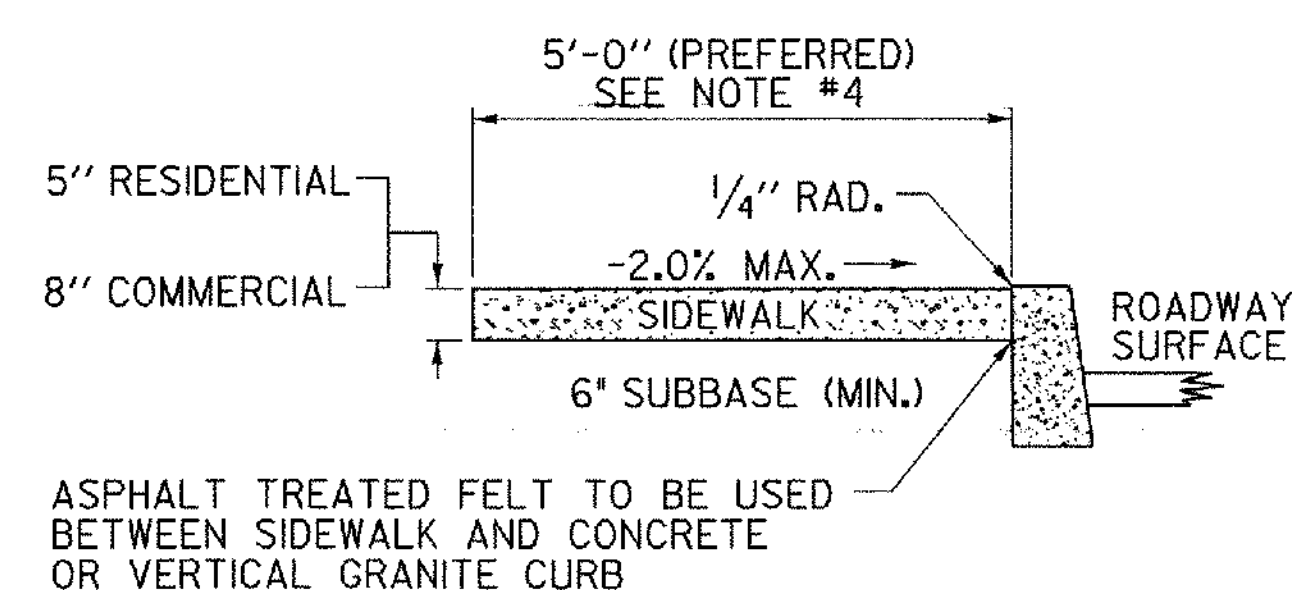
SECTION B - B



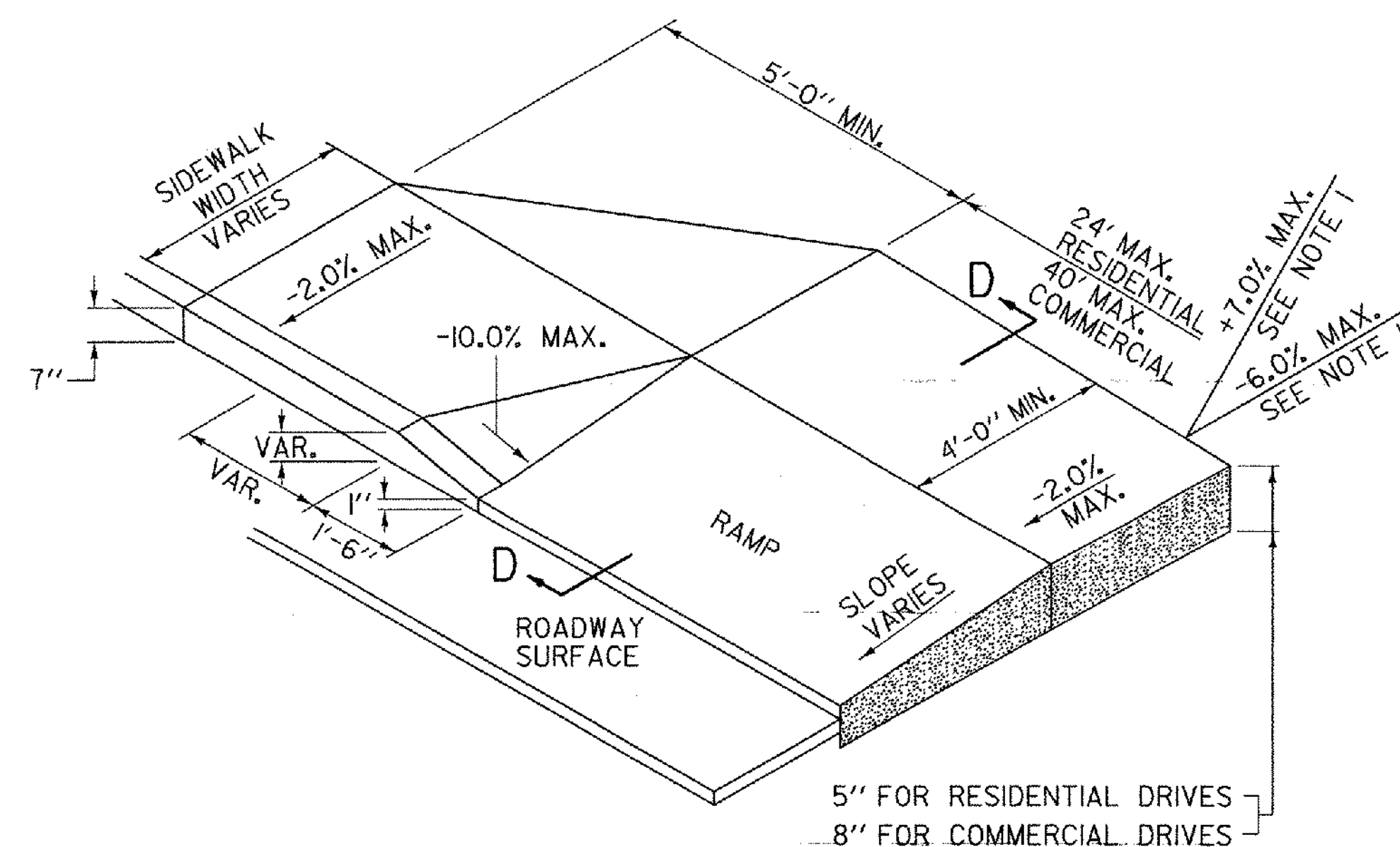
SECTION C - C



SECTION D-D



PORTLAND CEMENT CONCRETE SIDEWALK



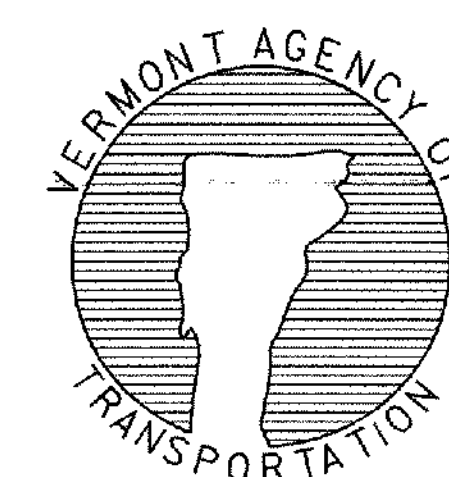
TYPE 4 - JOGGED CROSSING

OTHER STANDARDS REQUIRED: B-71

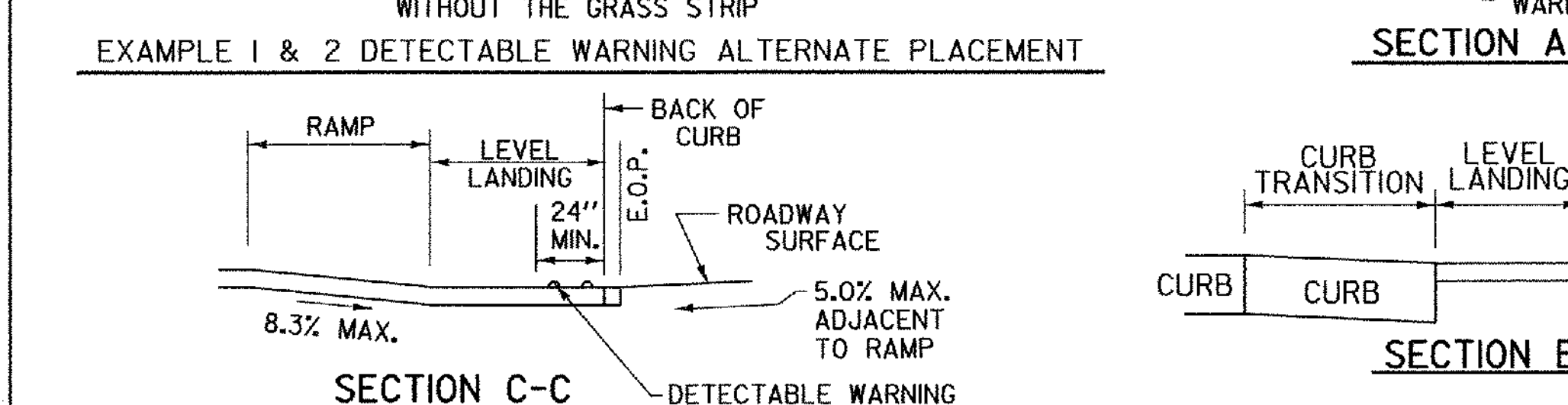
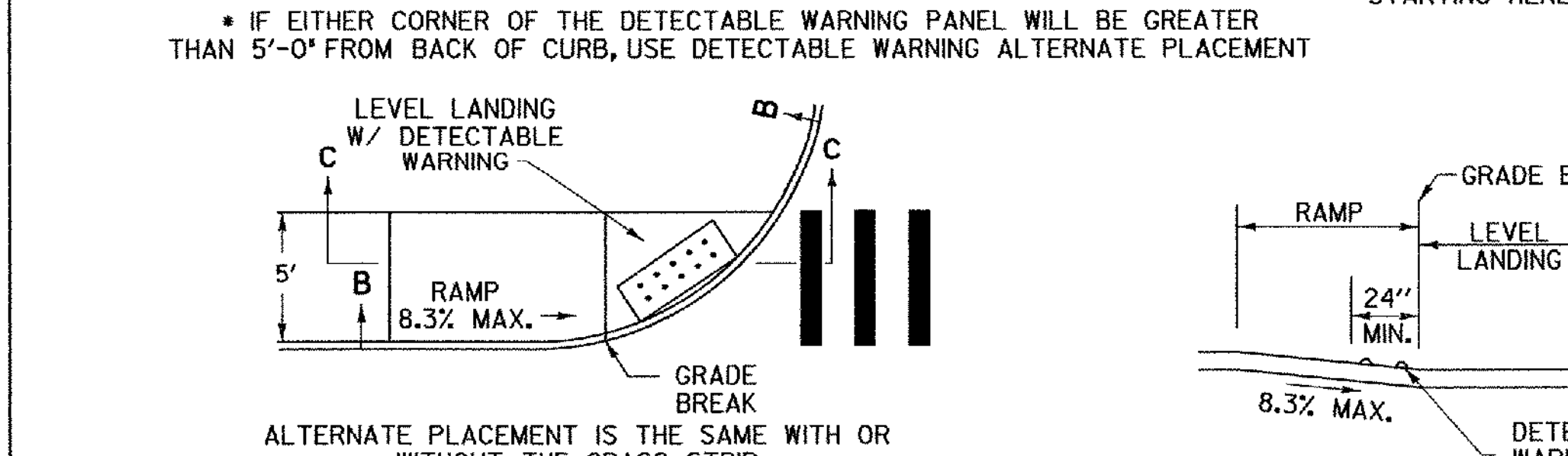
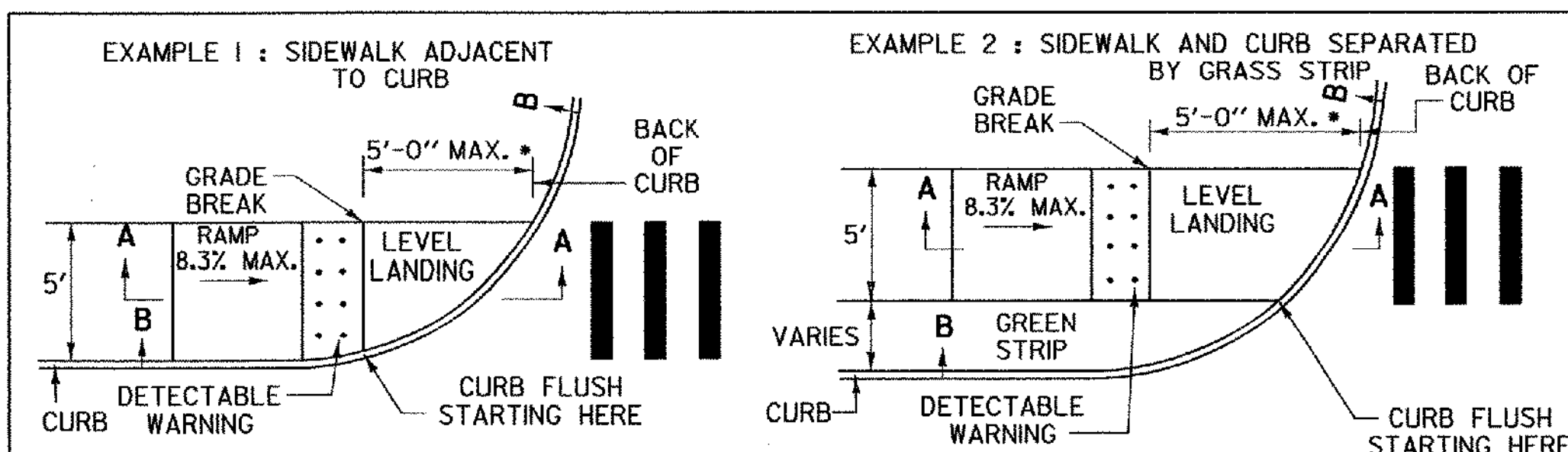
REVISIONS AND CORRECTIONS
 DEC. 14, 1971 - ORIGINAL APPROVAL DATE
 OCT. 25, 1985 - REVISED TO CONFORM TO 1986 SPECIFICATIONS
 JUNE 1, 1994 - REISSUED WITHOUT CHANGE, UNDER NEW SIGNATURES.
 JAN. 3, 2000 - UPDATED TO REFLECT METRIC STD. CHANGES.
 OCT. 14, 2005 - UPDATED TO REFLECT REVISED ADAAG STANDARDS

APPROVED
James D. Smith
 DIRECTOR OF PROGRAM DEVELOPMENT
Kevin A. Marshall
 ROADWAY PROGRAM MANAGER
Michael J. Smith
 FEDERAL HIGHWAY ADMINISTRATION

**PORTLAND CEMENT CONCRETE SIDEWALK
 DRIVE ENTRANCES WITH SIDEWALK ADJACENT
 TO CURB**

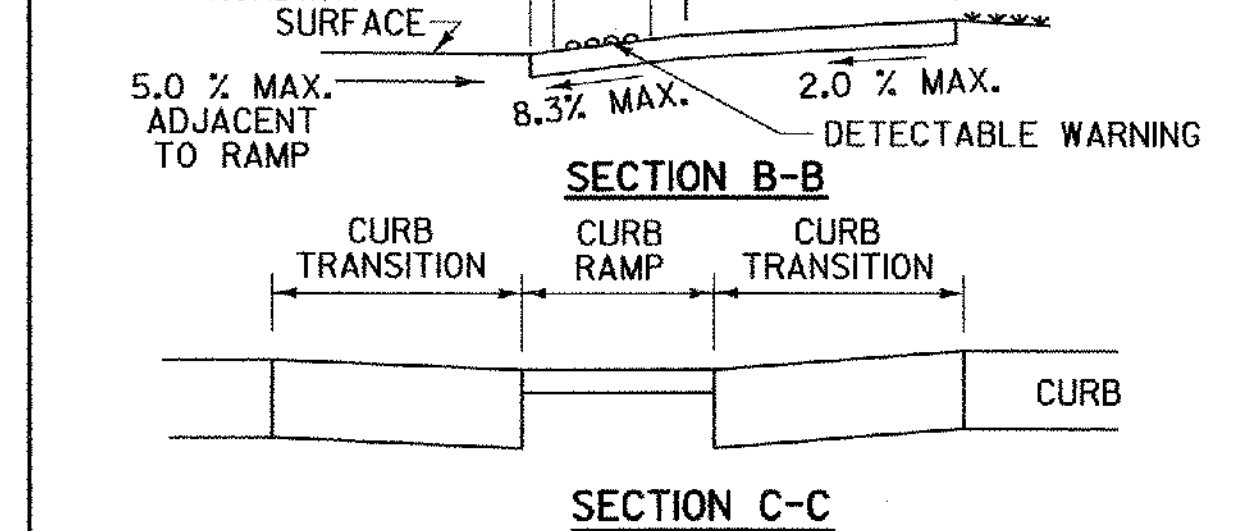
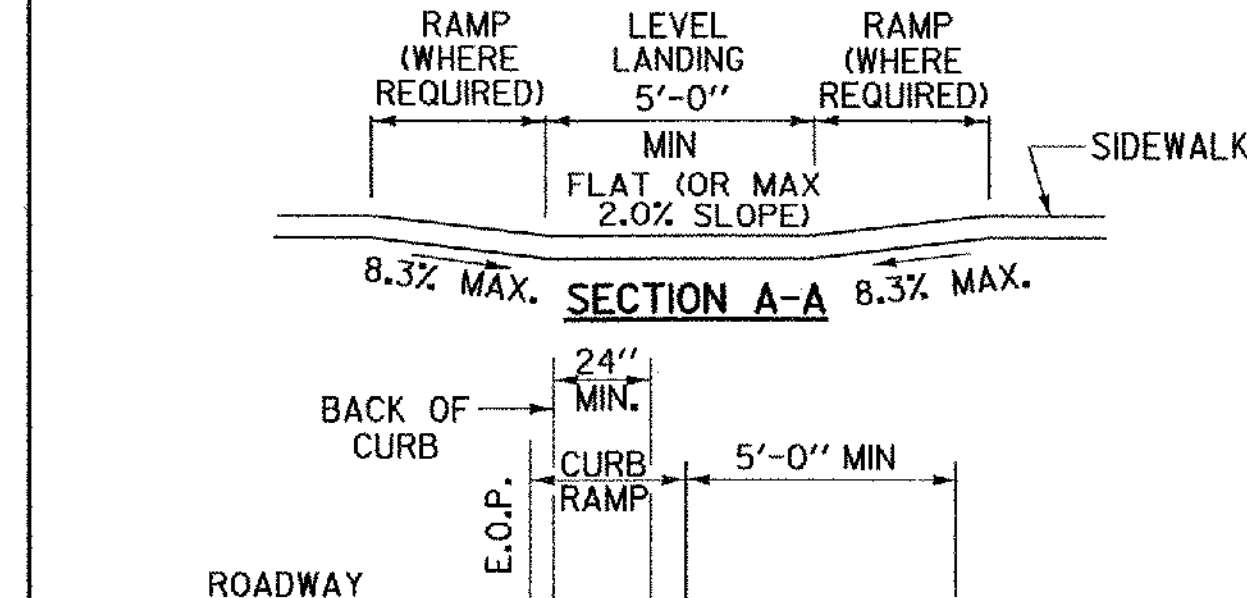
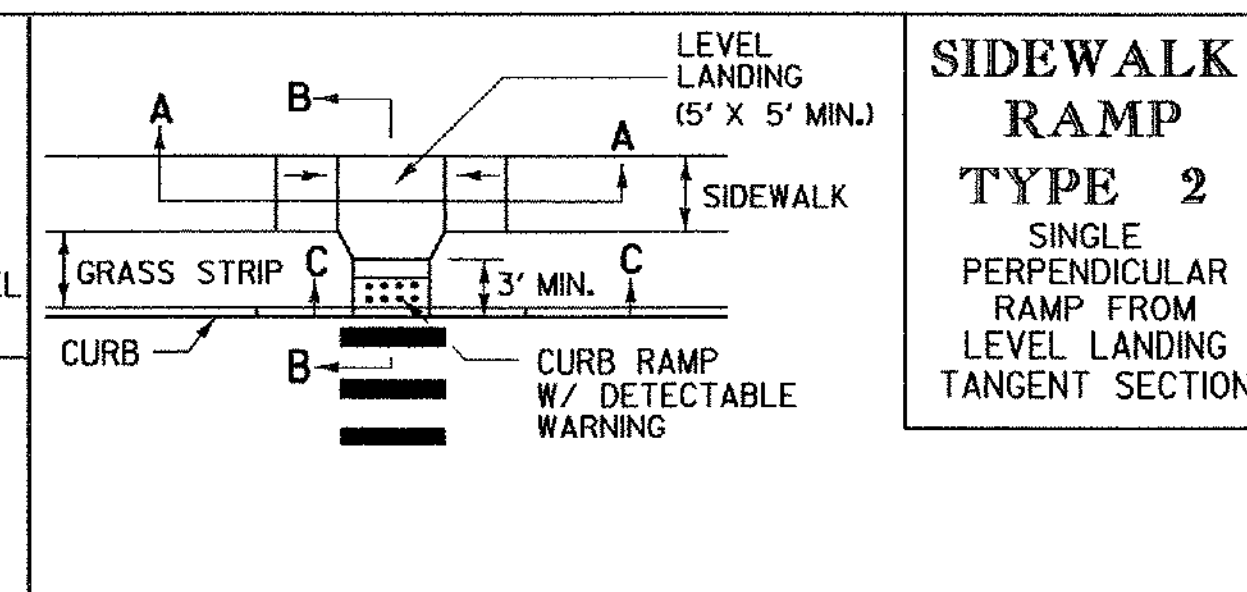


**STANDARD
 C-2A**



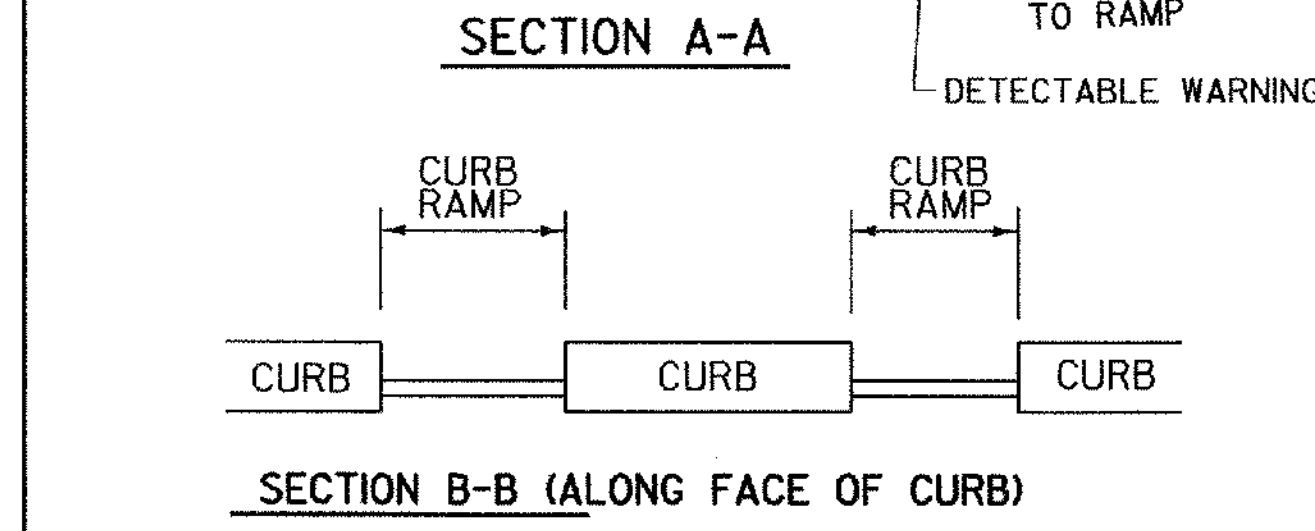
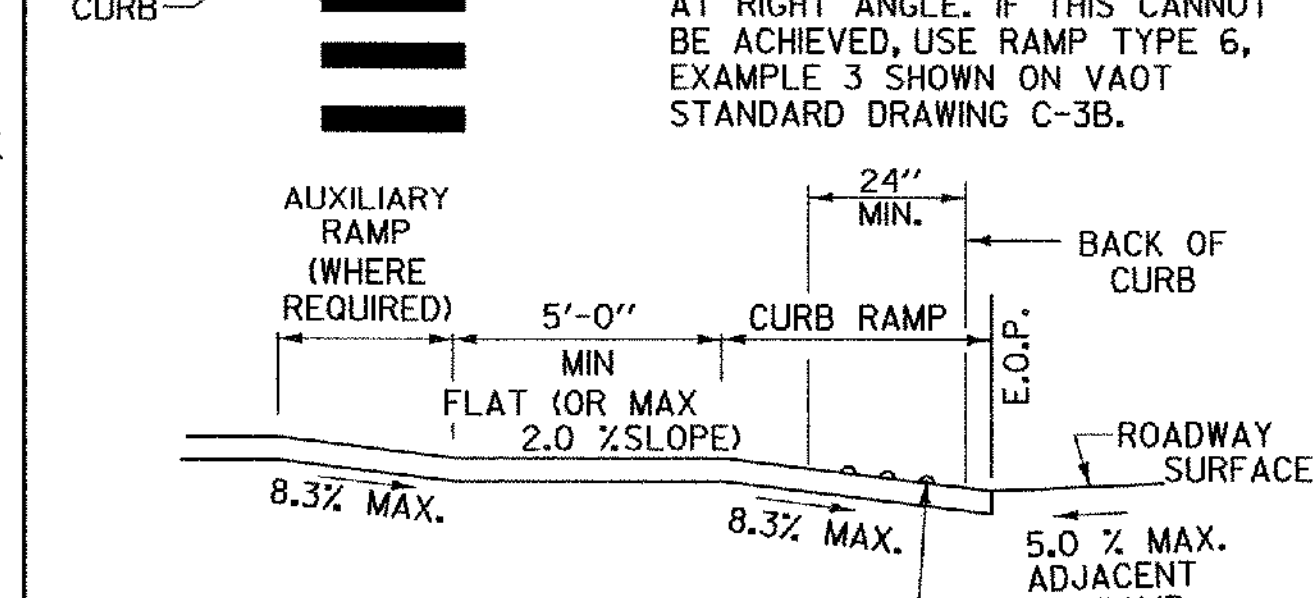
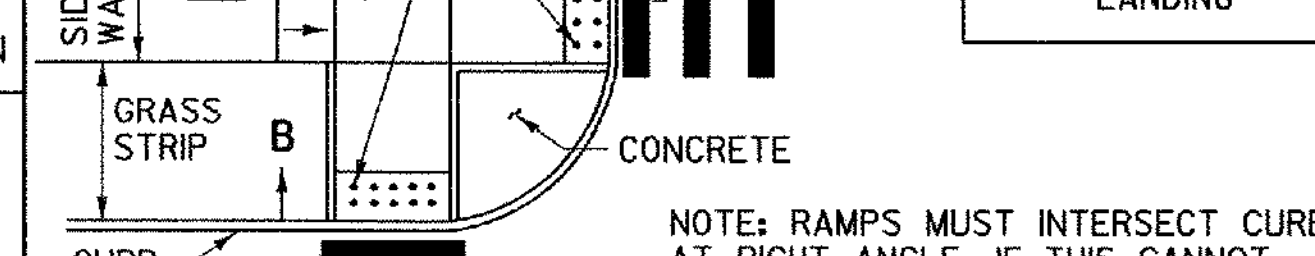
SIDEWALK RAMP TYPE 1

SINGLE WALK-STRAIGHT APPROACH TO PARALLEL RAMP.



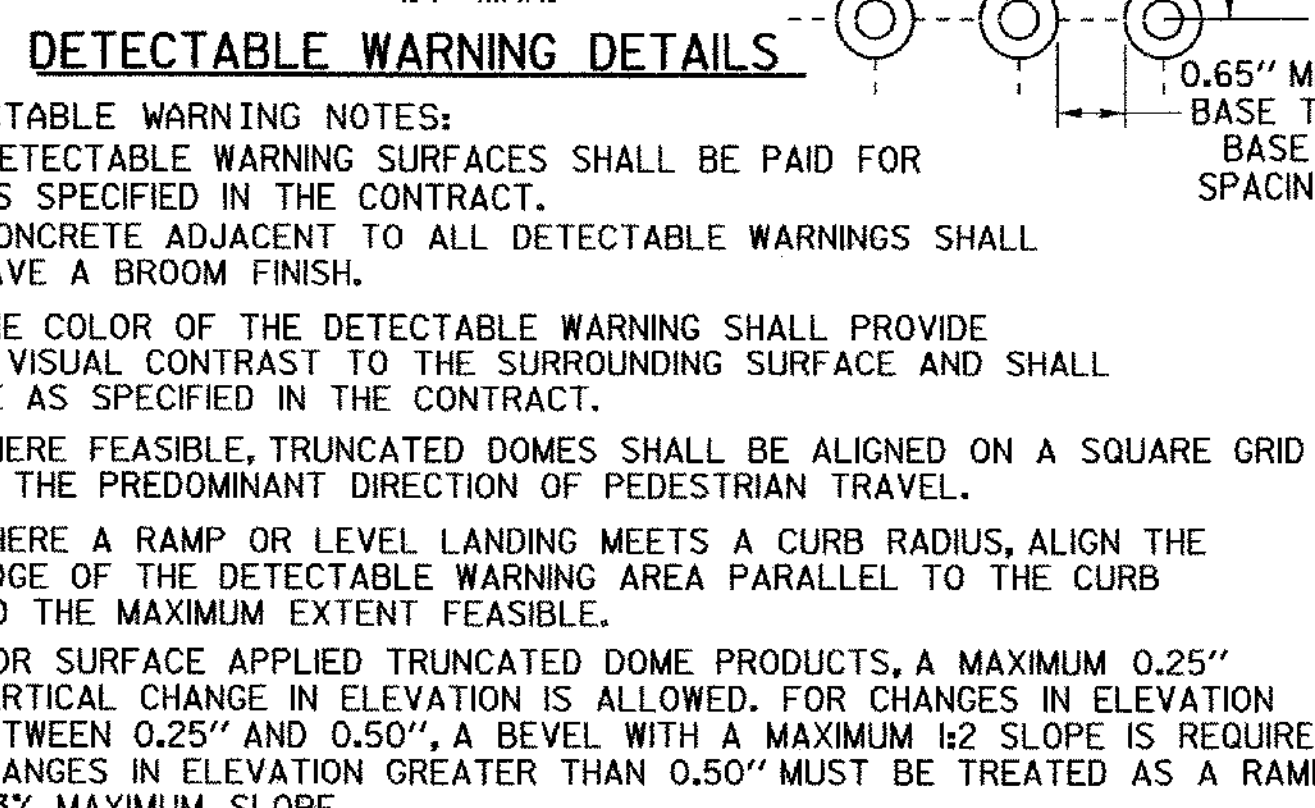
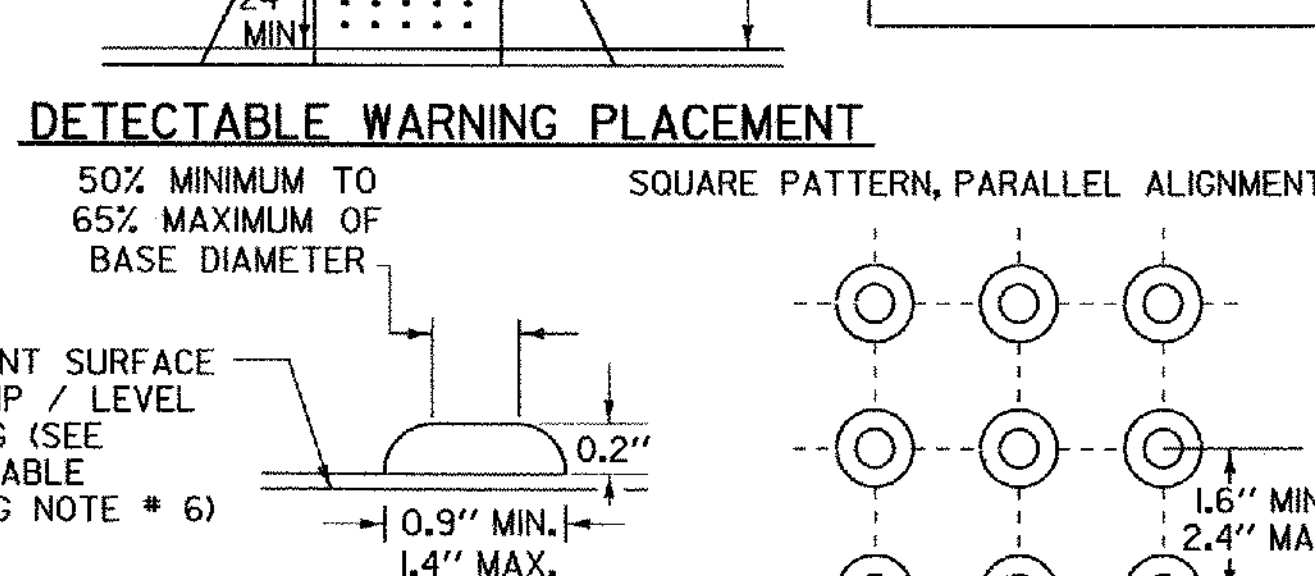
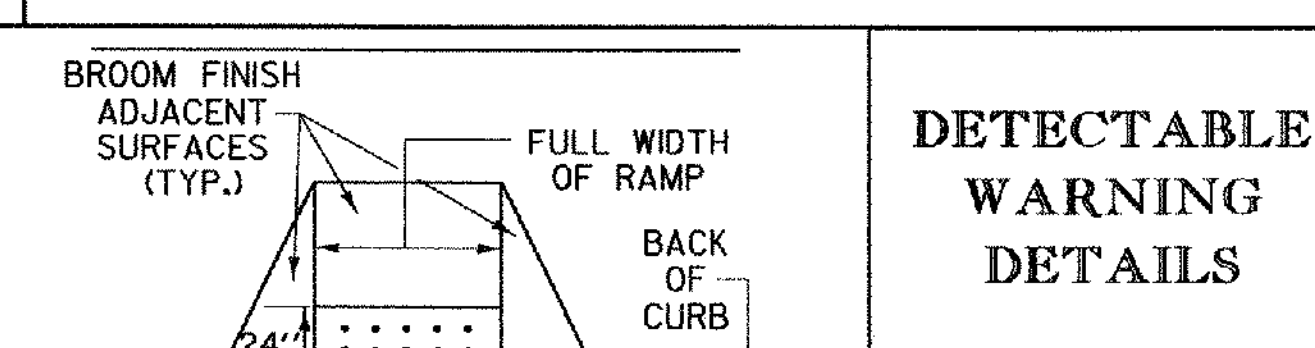
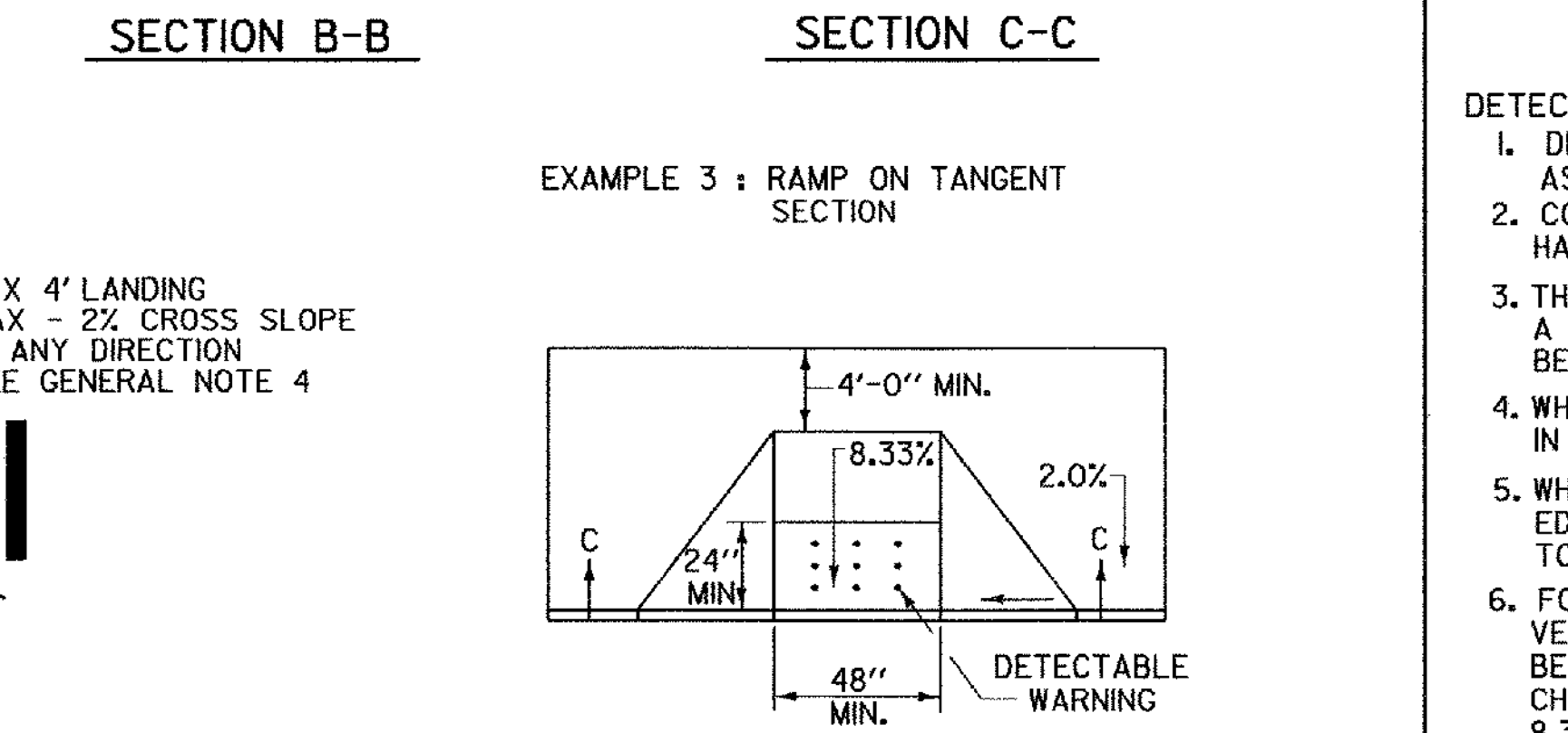
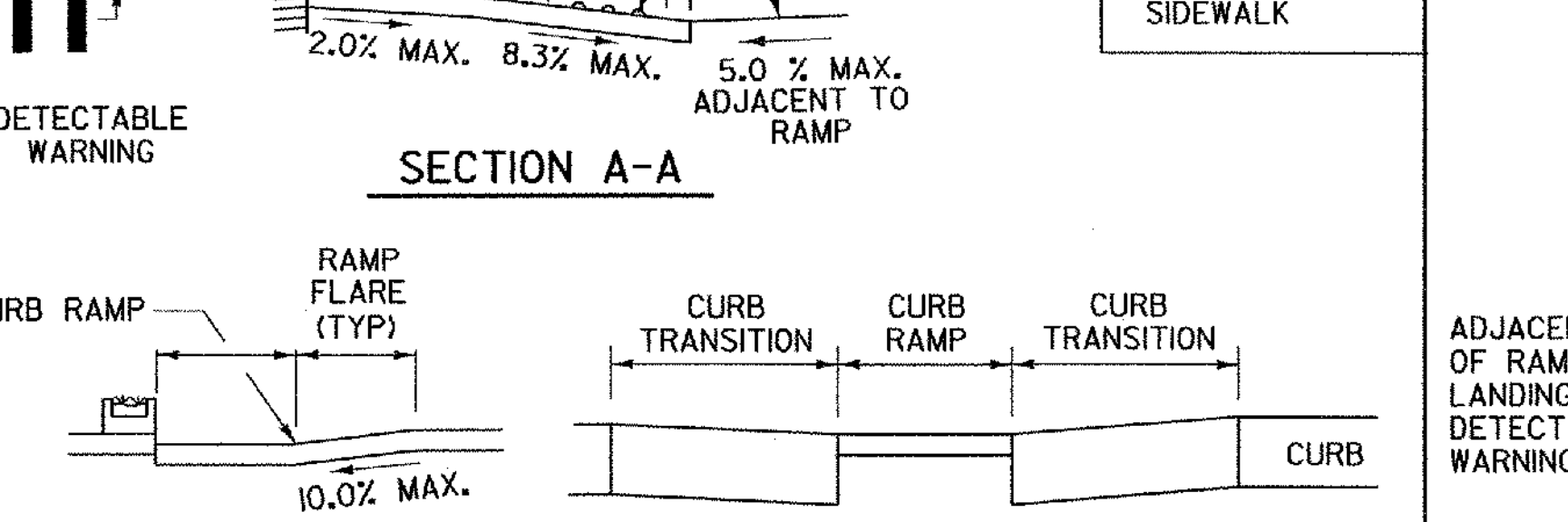
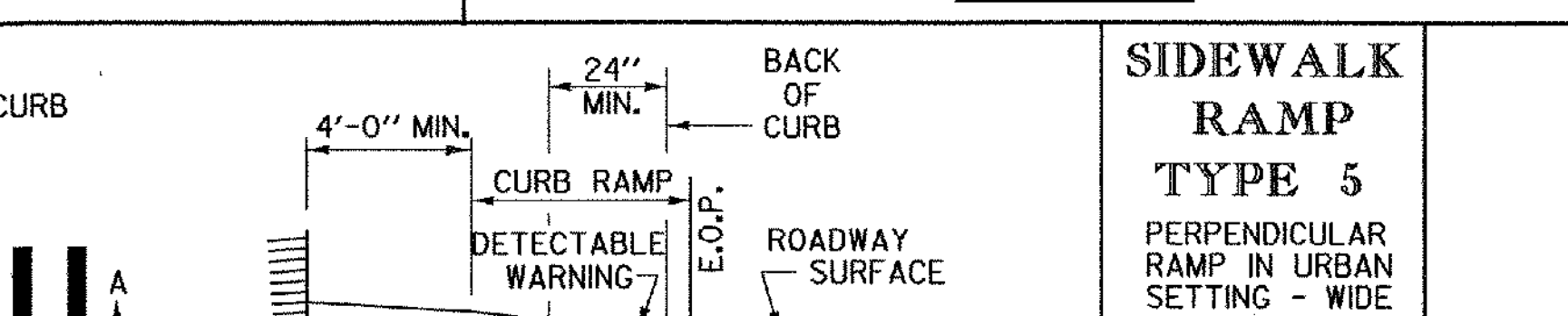
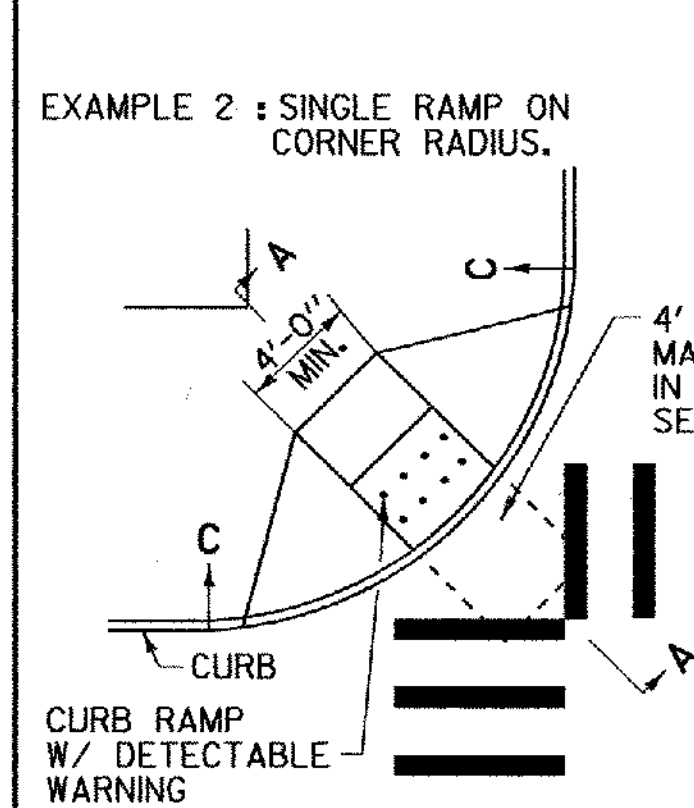
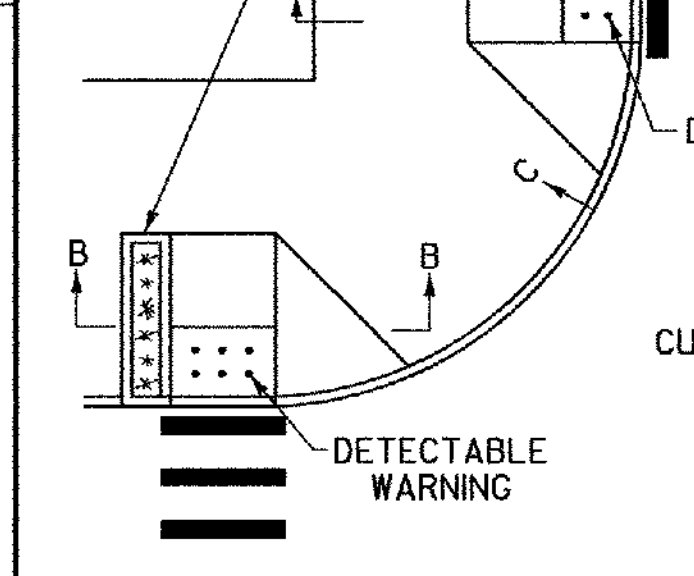
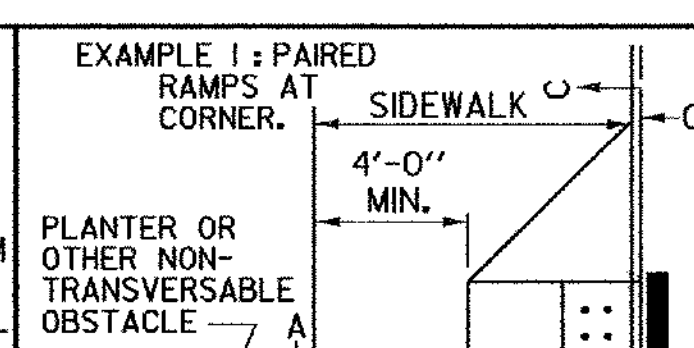
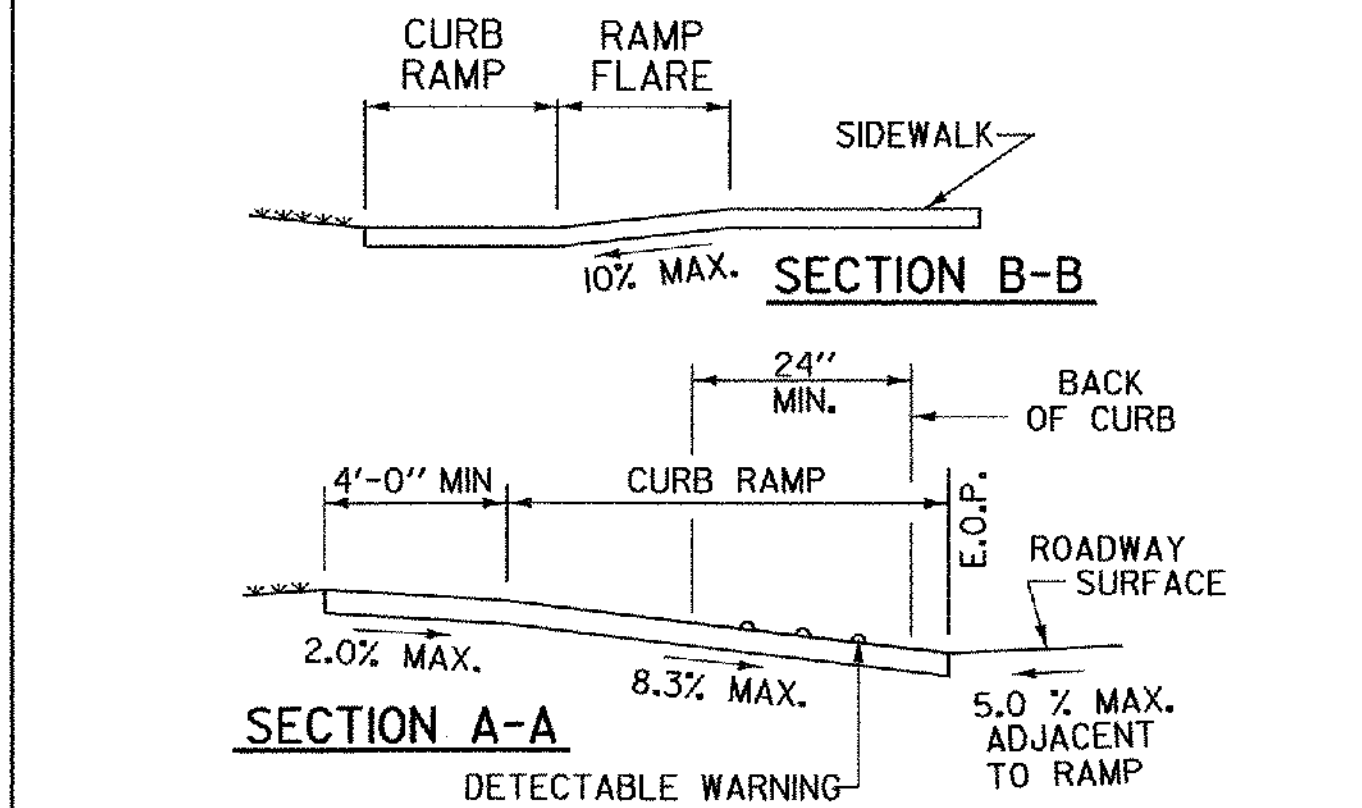
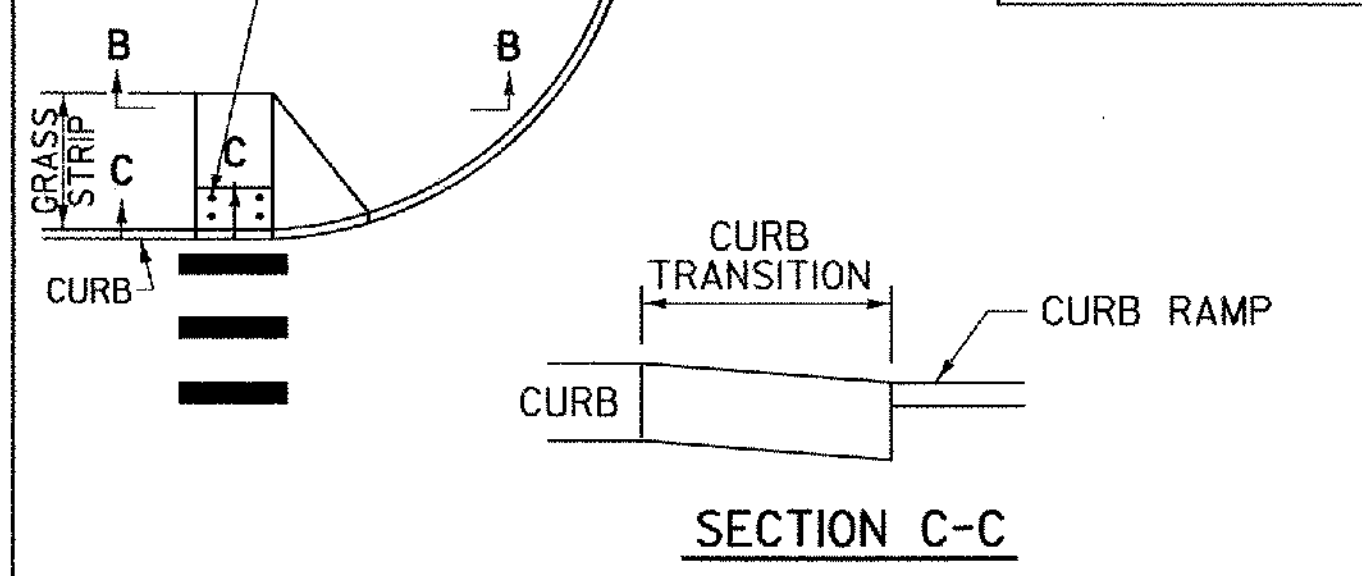
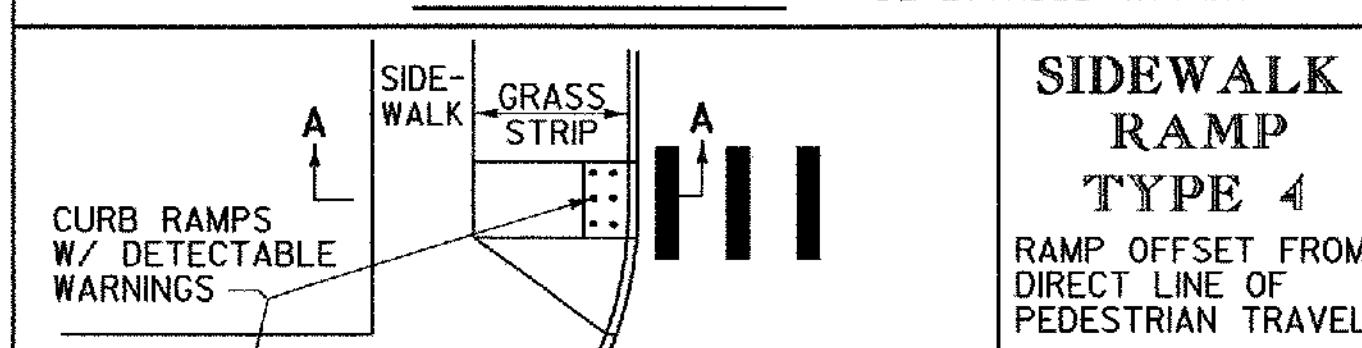
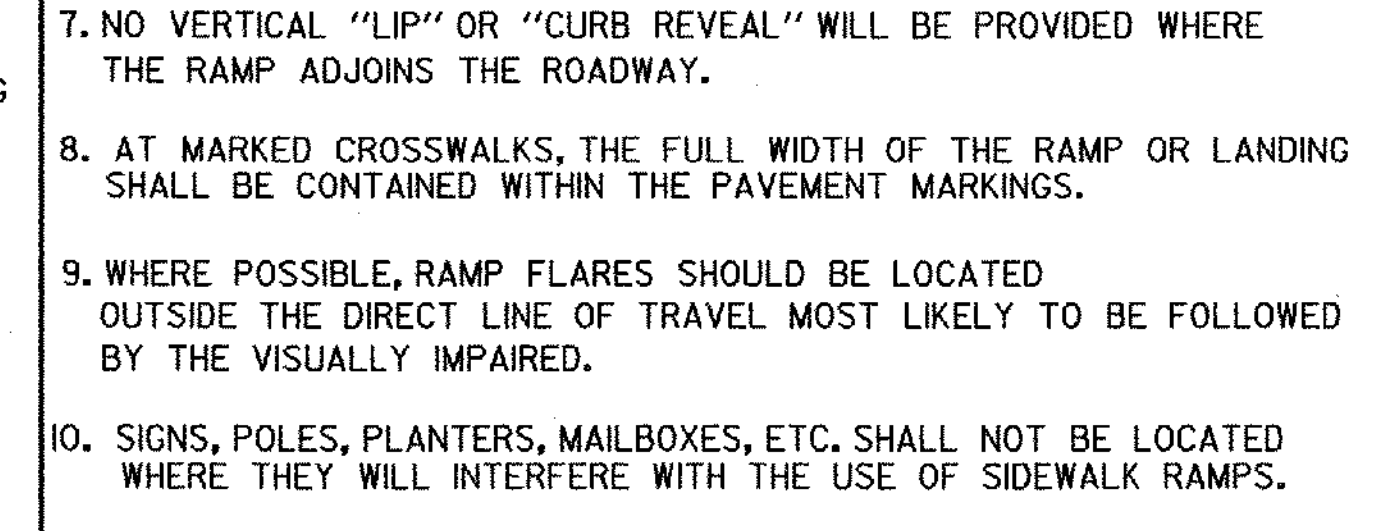
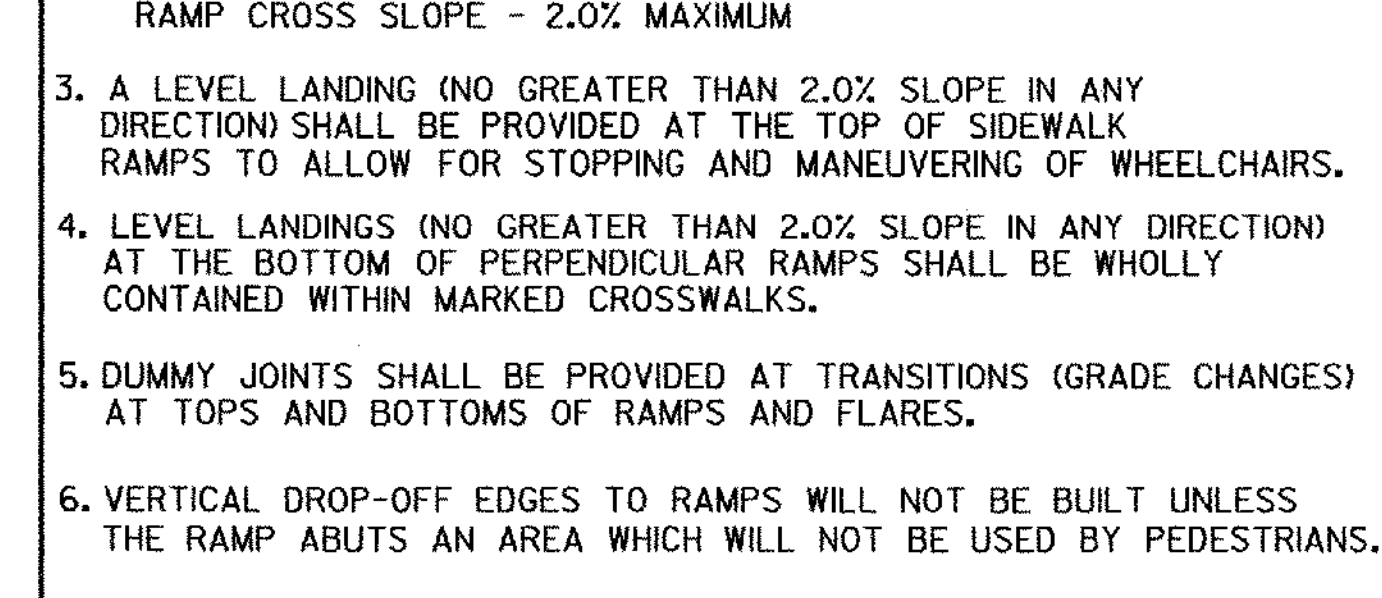
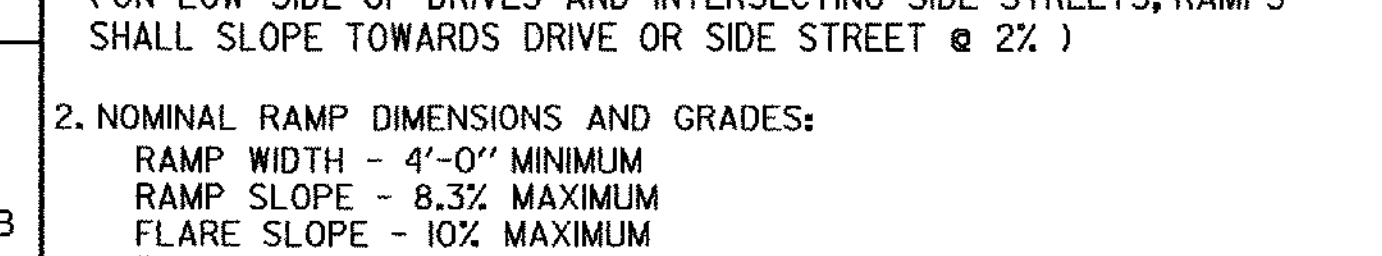
SIDEWALK RAMP TYPE 2

SINGLE PERPENDICULAR RAMP FROM LEVEL LANDING TANGENT SECTION



SIDEWALK RAMP TYPE 3

TWO PERPENDICULAR RAMPS FROM LEVEL LANDING



GENERAL NOTES:

1. THE DIMENSIONS AND GRADES SHOWN ON THIS STANDARD WILL BE ADHERED TO IN THE DESIGN AND THE CONSTRUCTION OF SIDEWALK RAMPS. WHERE SIDEWALKS RUN ADJACENT TO ROADWAYS ON STEEP (5% OR GREATER) GRADES, RAMP GRADES WILL BE AS FLAT AS POSSIBLE. (ON LOW SIDE OF DRIVES AND INTERSECTING SIDE STREETS, RAMPS SHALL SLOPE TOWARDS DRIVE OR SIDE STREET @ 2%.)
2. NOMINAL RAMP DIMENSIONS AND GRADES:
RAMP WIDTH - 4'-0" MINIMUM
RAMP SLOPE - 8.3% MAXIMUM
FLARE SLOPE - 10% MAXIMUM
RAMP CROSS SLOPE - 2.0% MAXIMUM
3. A LEVEL LANDING (NO GREATER THAN 2.0% SLOPE IN ANY DIRECTION) SHALL BE PROVIDED AT THE TOP OF SIDEWALK RAMPS TO ALLOW FOR STOPPING AND MANEUVERING OF WHEELCHAIRS.
4. LEVEL LANDINGS (NO GREATER THAN 2.0% SLOPE IN ANY DIRECTION) AT THE BOTTOM OF PERPENDICULAR RAMPS SHALL BE WHOLLY CONTAINED WITHIN MARKED CROSSWALKS.
5. DUMMY JOINTS SHALL BE PROVIDED AT TRANSITIONS (GRADE CHANGES) AT TOPS AND BOTTOMS OF RAMPS AND FLARES.
6. VERTICAL DROP-OFF EDGES TO RAMPS WILL NOT BE BUILT UNLESS THE RAMP ABUTS AN AREA WHICH WILL NOT BE USED BY PEDESTRIANS.
7. NO VERTICAL "LIP" OR "CURB REVEAL" WILL BE PROVIDED WHERE THE RAMP ADJOINS THE ROADWAY.
8. AT MARKED CROSSWALKS, THE FULL WIDTH OF THE RAMP OR LANDING SHALL BE CONTAINED WITHIN THE PAVEMENT MARKINGS.
9. WHERE POSSIBLE, RAMP FLARES SHOULD BE LOCATED OUTSIDE THE DIRECT LINE OF TRAVEL MOST LIKELY TO BE FOLLOWED BY THE VISUALLY IMPAIRED.
10. SIGNS, POLES, PLANTERS, MAILBOXES, ETC. SHALL NOT BE LOCATED WHERE THEY WILL INTERFERE WITH THE USE OF SIDEWALK RAMPS.
11. WHERE POSSIBLE, SIDEWALK RAMPS SHOULD NOT BE LOCATED WHERE USERS MUST CROSS DROP INLET GRATES, MANHOLE COVERS OR OTHER ACCESS LIDS. IF THIS CANNOT BE AVOIDED THEN GRATE DESIGN AND PLACEMENT SHALL CONFORM TO ADA REQUIREMENTS.
12. CURB DRAINAGE SHOULD BE CONSTRUCTED SO AS TO PRECLUDE THE FLOW OF WATER PAST THE SIDEWALK RAMP.
13. WHEREVER FEASIBLE, TWO SIDEWALK RAMPS ARE RECOMMENDED IN PREFERENCE TO A SINGLE RAMP.
14. JOINTS WILL BE CONSTRUCTED IN ACCORDANCE WITH CURRENT SIDEWALK SPECIFICATIONS, HOWEVER EXPANSION JOINTS WITHIN THE SIDEWALK RAMP AREA WILL BE AVOIDED WHEREVER POSSIBLE.
15. SIDEWALKS THAT ARE LESS THAN 5' WIDE REQUIRE 5' WIDE BY 5' LONG PASSING AREAS (NO GREATER THAN 2.0% CROSS SLOPE) AT INTERVALS NOT TO EXCEED 200 FEET.
16. E.O.P. = EDGE OF PAVEMENT
17. THE PUBLIC SIDEWALK CURB RAMP STANDARDS DEPICTED HERE MAY NOT BE APPROPRIATE FOR ALL LOCATIONS. FIELD CONDITIONS AT INDIVIDUAL LOCATIONS MAY REQUIRE SPECIFIC DESIGNS. DESIGNS MUST BE CONSISTENT WITH THE PROVISIONS OF THIS SHEET TO THE MAXIMUM EXTENT FEASIBLE ON ALTERATION PROJECTS AND WHEN STRUCTURALLY PRACTICABLE ON NEW CONSTRUCTION PROJECTS AS REQUIRED BY THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES.

REVISIONS AND CORRECTIONS

FEB. 2, 2004 - DATE OF ORIGINAL ISSUE

SEPT. 1, 2004 - MINOR REVISIONS TO COMPLY WITH ADAAG

MAR. 10, 2008 - MINOR REVISIONS TO COMPLY WITH ADA STANDARDS

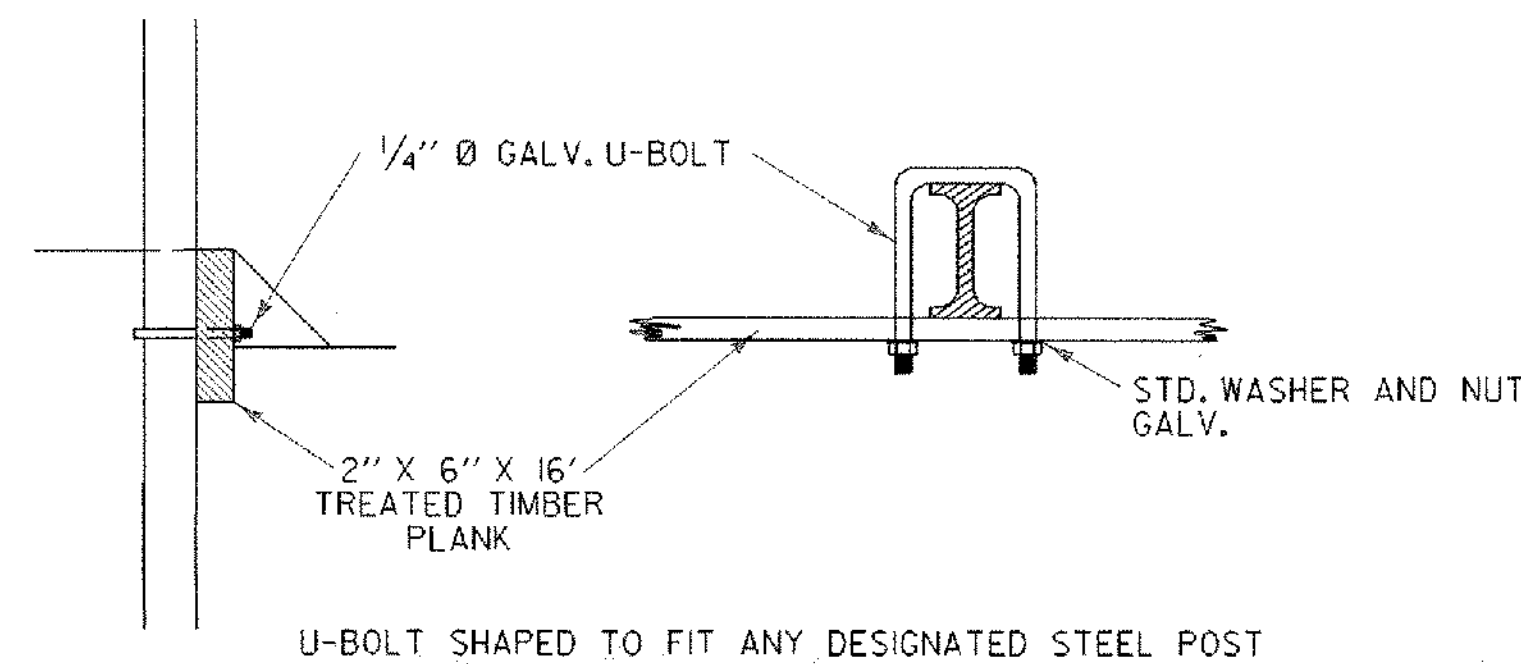
APPROVED

Alan E. Dureau
LOCAL TRANSPORTATION FACILITIES
PROGRAM MANAGER

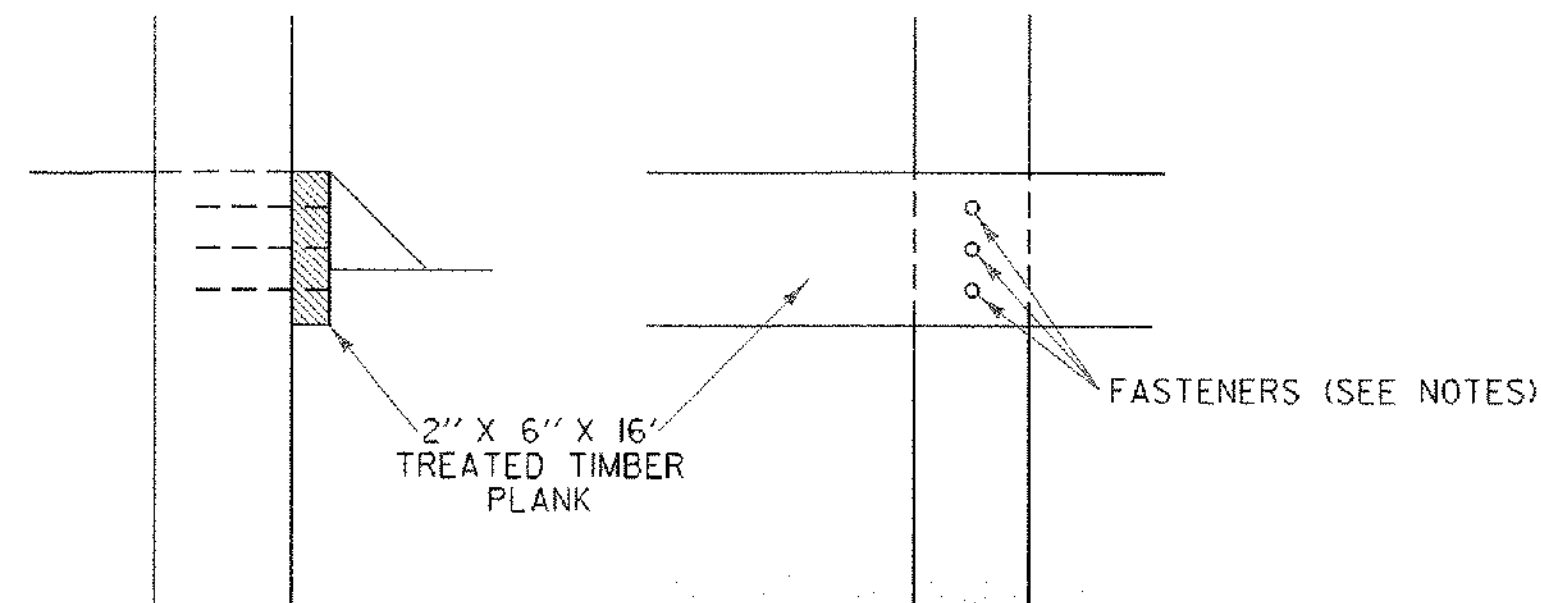
Mark D. Kiehl
DIRECTOR OF PROGRAM DEVELOPMENT

Mark D. Kiehl
FEDERAL HIGHWAY ADMINISTRATION

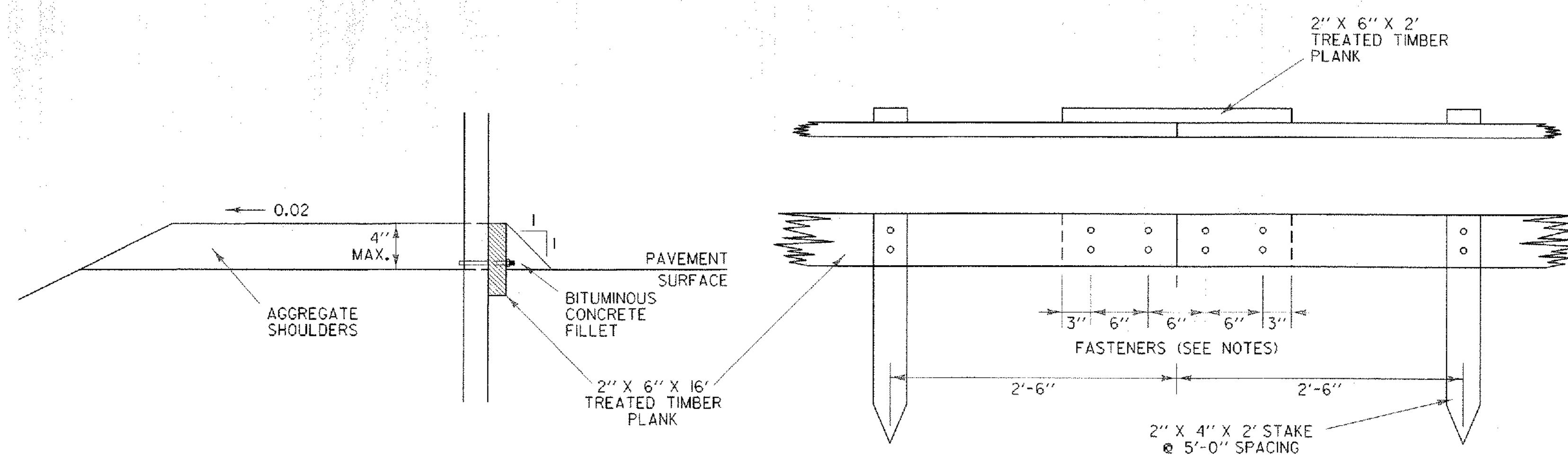
SIDEWALK RAMPS



WITH STEEL POSTS



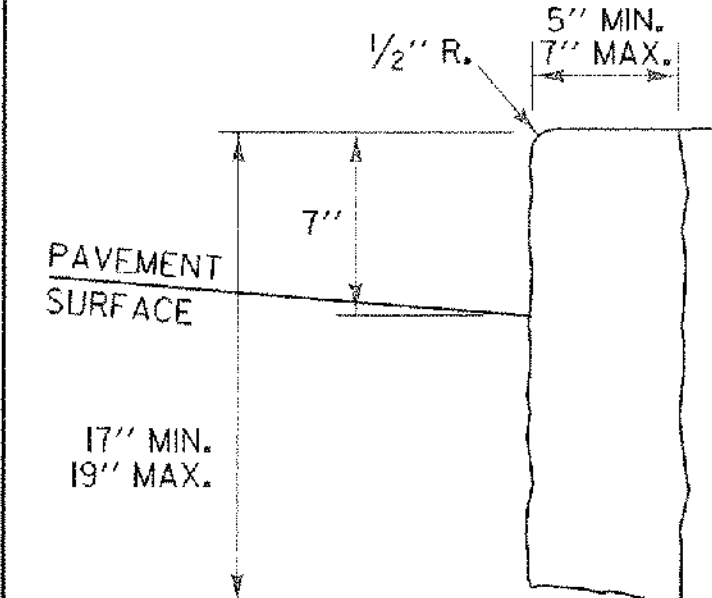
WITH WOOD POSTS (EXISTING CONDITION)



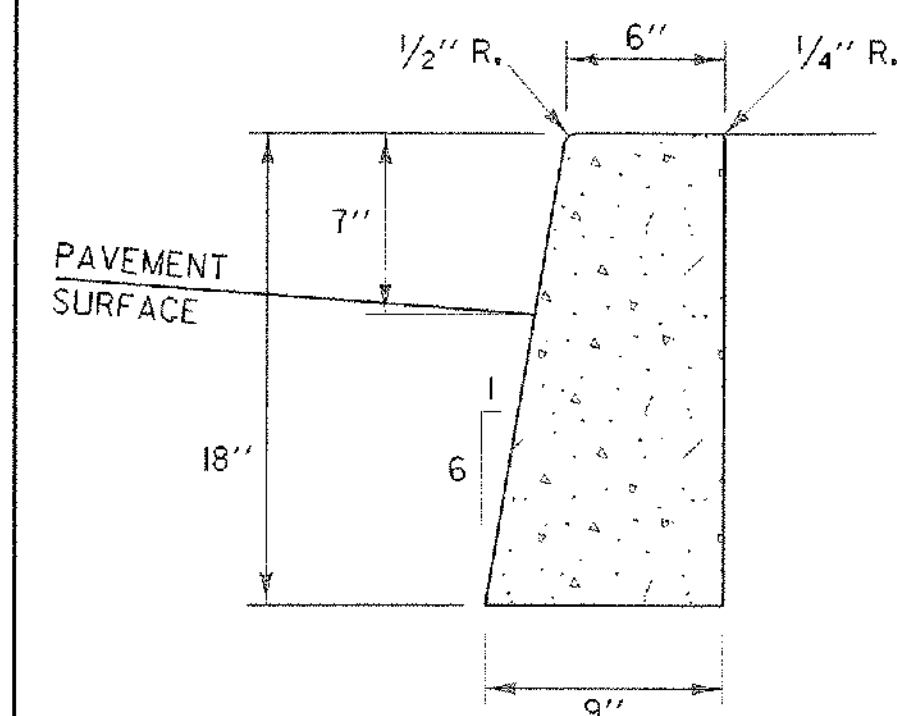
BITUMINOUS CONCRETE FILLET DETAIL

TREATED TIMBER CURB

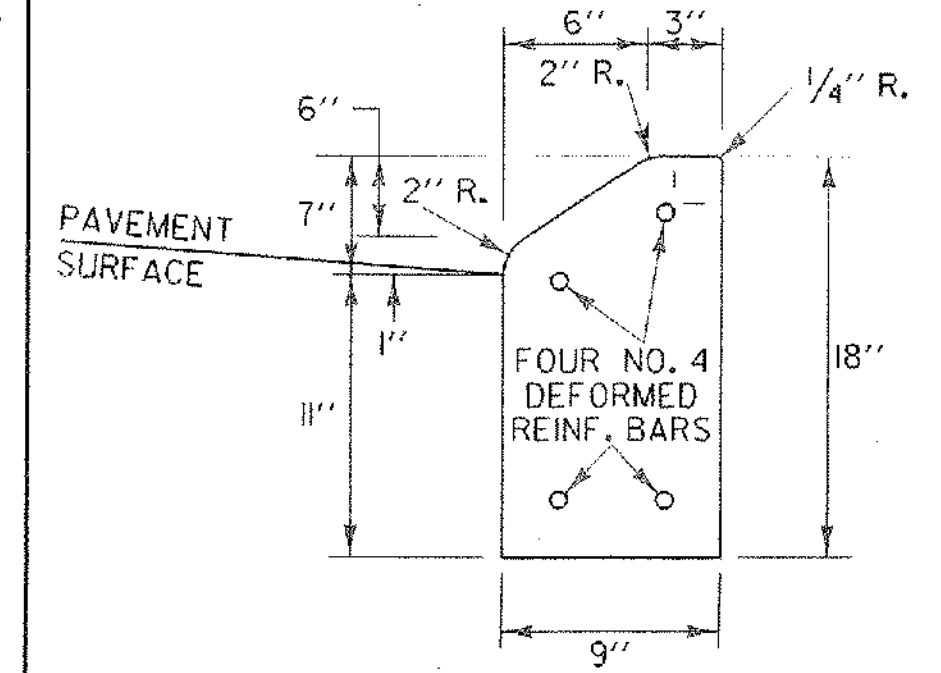
SPLICE DETAIL



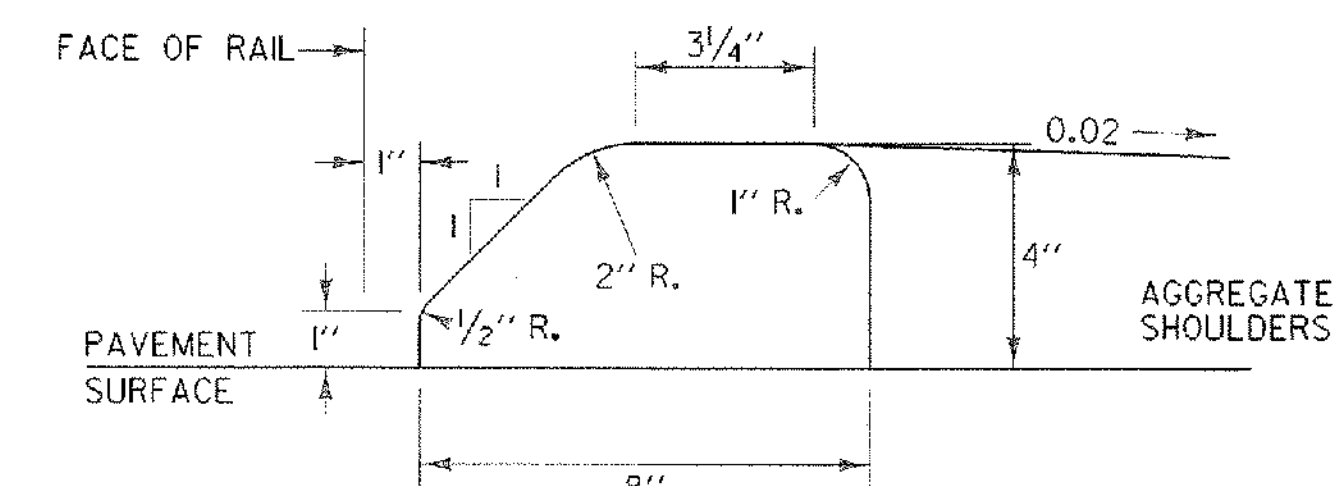
VERTICAL GRANITE CURB



CAST IN PLACE CONCRETE CURB, TYPE B

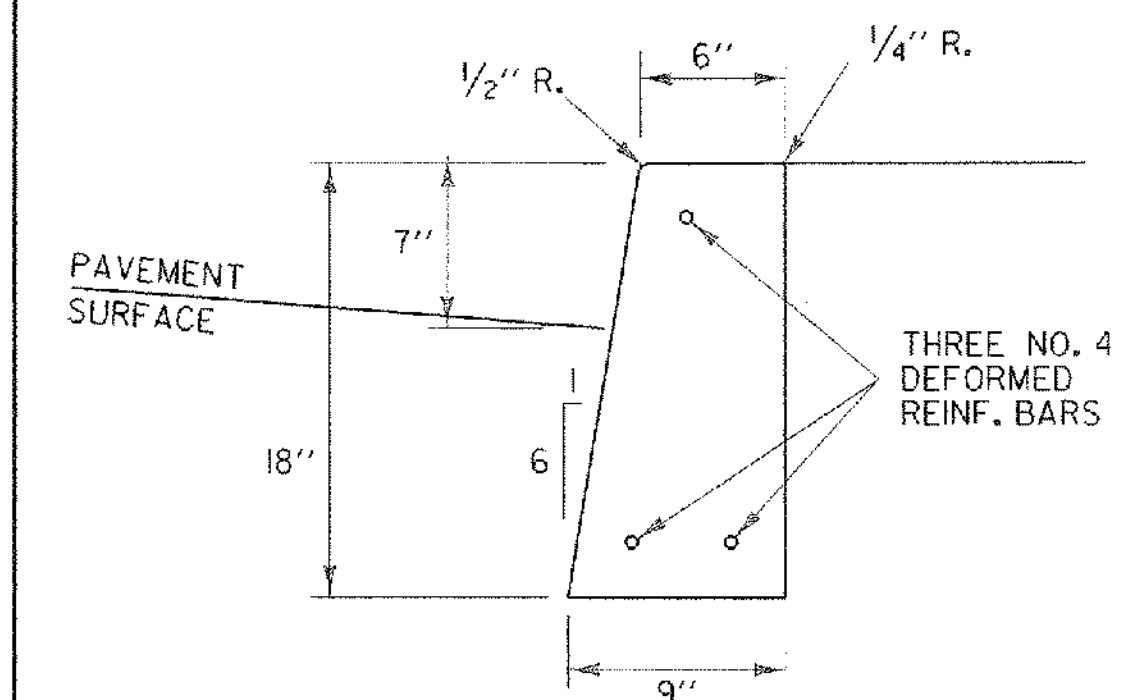


PRECAST REINFORCED CONCRETE CURB, TYPE A

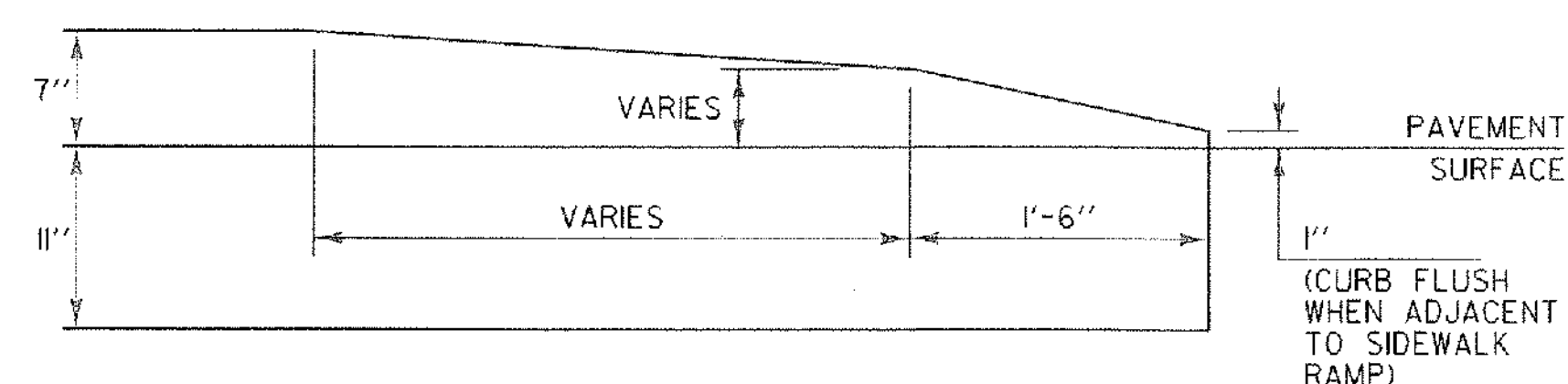


USE ONLY WITH STEEL BEAM GUARDRAIL

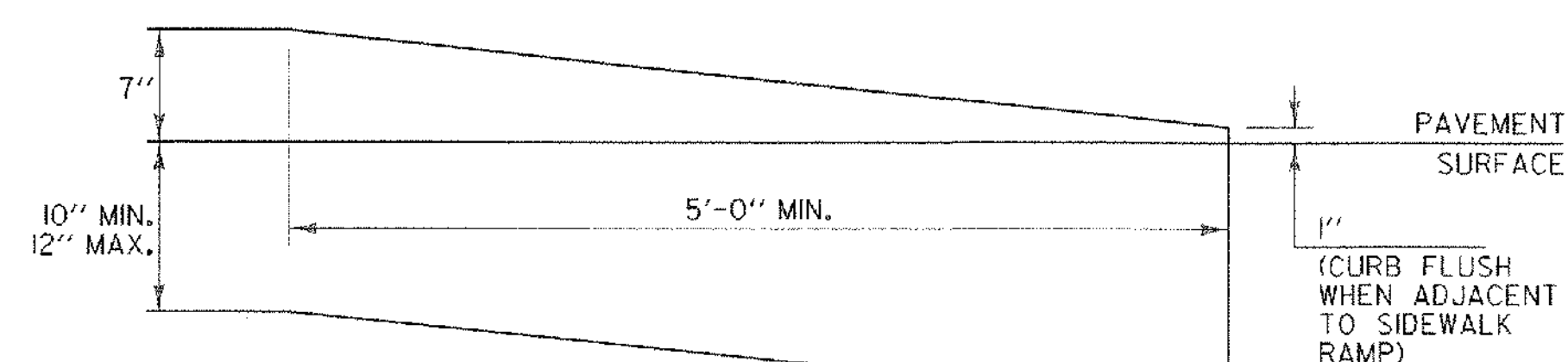
BITUMINOUS CONCRETE CURB, TYPE A



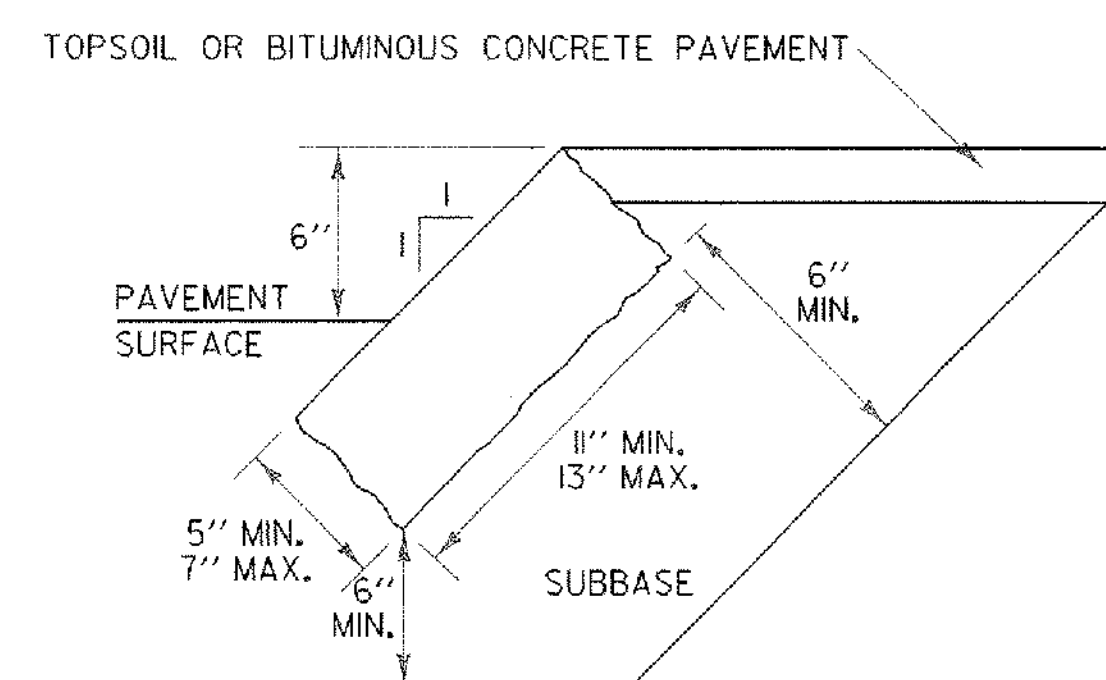
PRECAST REINFORCED CONCRETE CURB, TYPE B



CONCRETE CURB END



VERTICAL GRANITE CURB END



EDGING TO BE PLACED PRIOR TO PLACING TOP SURFACE COURSE.

GRANITE SLOPE EDGING

GENERAL NOTES:

1. HEIGHT OF REVEAL OF CURB SHALL NOT EXCEED FOUR INCHES WHERE DESIGN OR POSTED SPEED IS EQUAL TO OR GREATER THAN 40 MPH AND WHEN INSTALLED WITH GUARDRAIL (STANDARD SHAPE TO BE BURIED TO THIS DEPTH).
2. WHEN CONCRETE SIDEWALK IS CONSTRUCTED ADJACENT TO CONCRETE OR VERTICAL GRANITE CURB, ASPHALT TREATED FELT SHALL BE PLACED BETWEEN THE SIDEWALK AND CURB FOR THE TOTAL DEPTH OF THE SIDEWALK.
3. FASTENERS (20d NAILS OR SCREWS) SHALL BE CORROSION RESISTANT TO THE TREATED LUMBER.
4. FOR SPECIFICATIONS FOR EXPANSION/CONTRACTION JOINTS AND LENGTHS OF SECTIONS, SEE SECTION 616.
5. JOINTS BETWEEN CURB SECTIONS SHALL BE MORTARED IN CONFORMANCE WITH SECTION 616.
6. BITUMINOUS CONCRETE AND TREATED TIMBER CURB SHALL BE IN CONFORMANCE WITH SECTION 616.
7. TWO INCH MINIMUM CLEARANCE FROM FACE OF CONCRETE TO EDGE OF REINFORCING STEEL.

OTHER STDS. REQUIRED: **NONE**

REVISIONS AND CORRECTIONS
FEB. 11, 2008 - ORIGINAL APPROVAL DATE

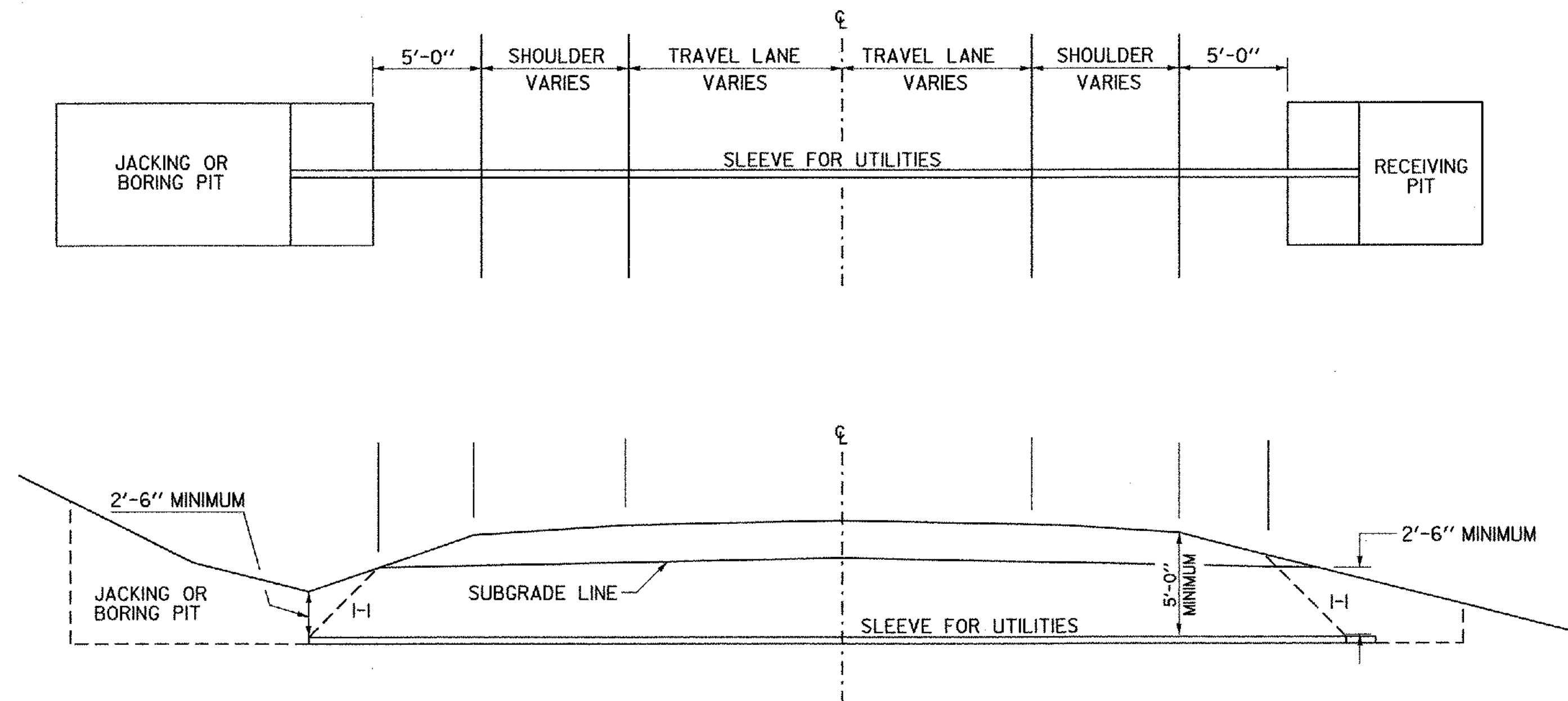
APPROVED
Kevin J. Mawhin
ROADWAY, TRAFFIC & SAFETY ENGINEER
Ruth S. Thomas
DIRECTOR OF PROGRAM DEVELOPMENT
Mark D. Kuntz
FEDERAL HIGHWAY ADMINISTRATION

CURBING

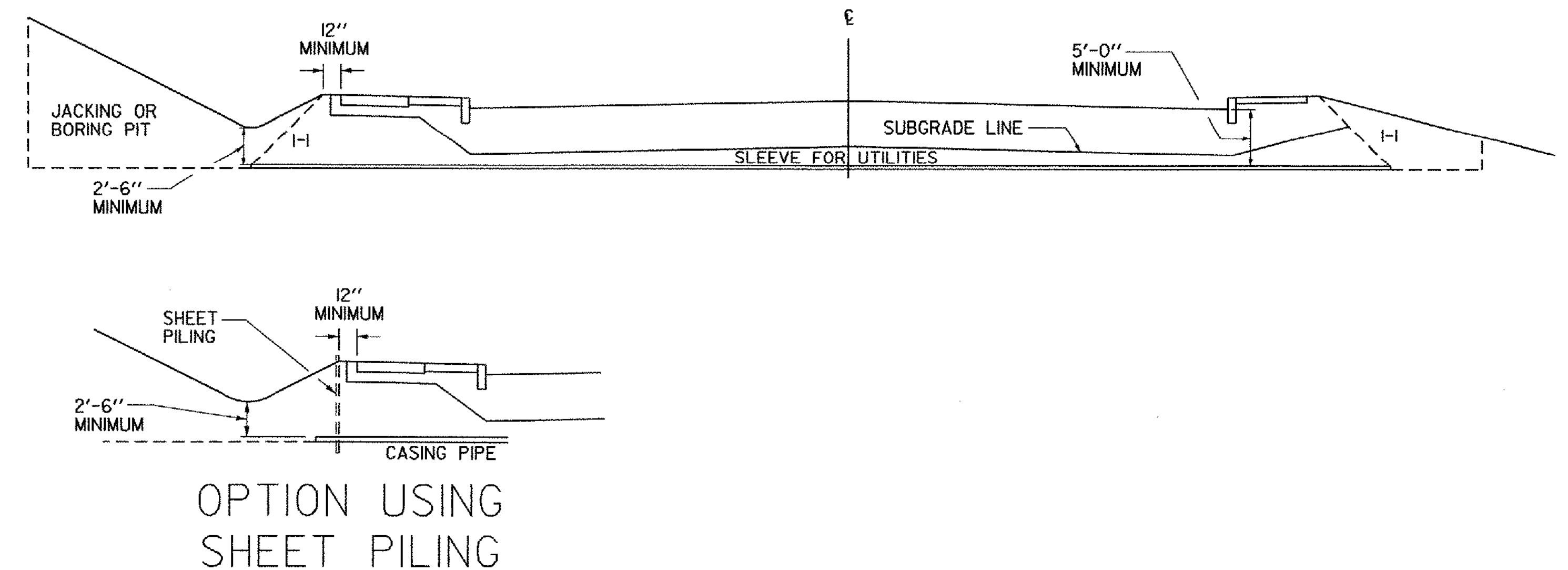


STANDARD
C-10

DETAIL "A" JACKING, BORING, AND DIRECTIONAL BORE - UNCURBED TYPICAL

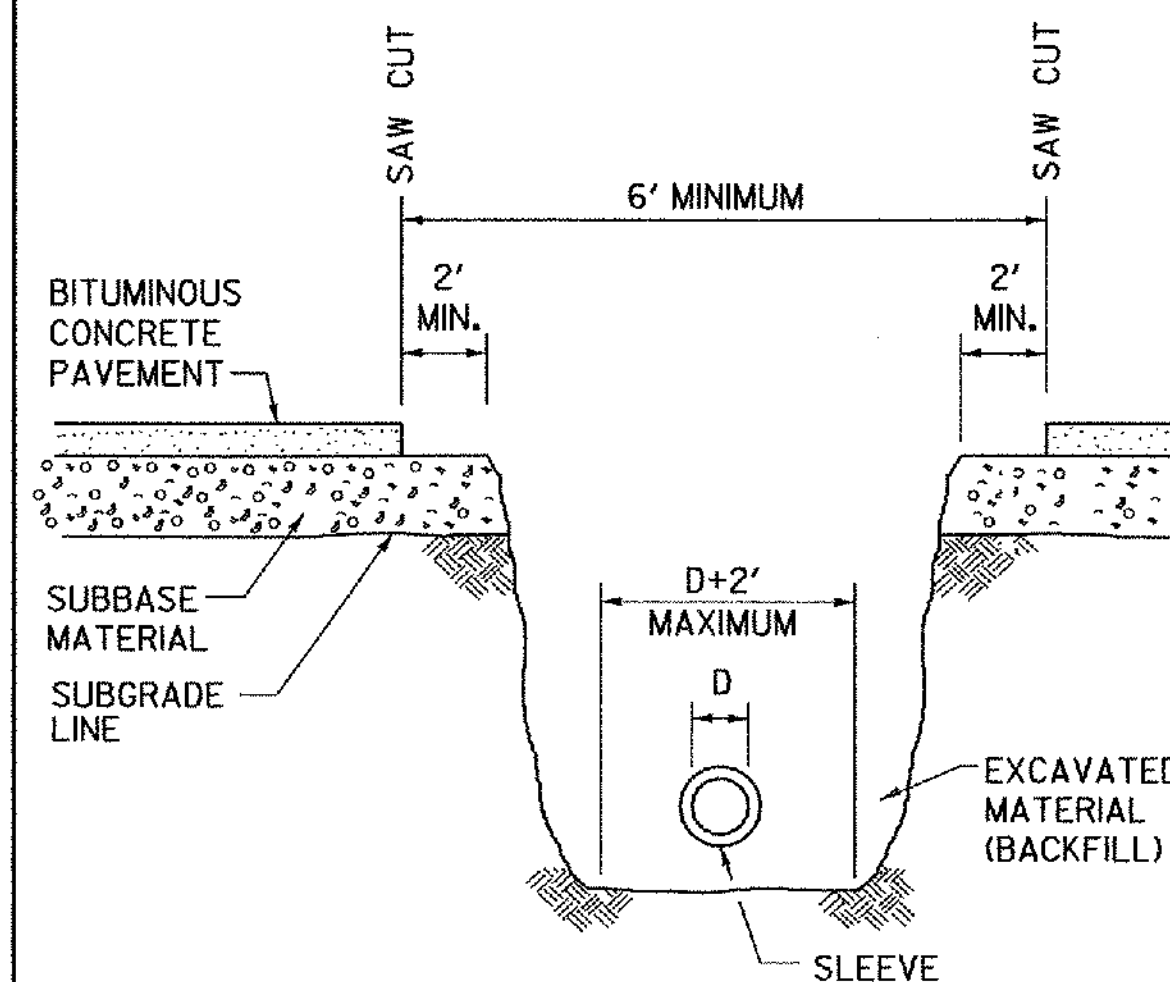


DETAIL "B" JACKING, BORING, AND DIRECTIONAL BORE - CURBED TYPICAL



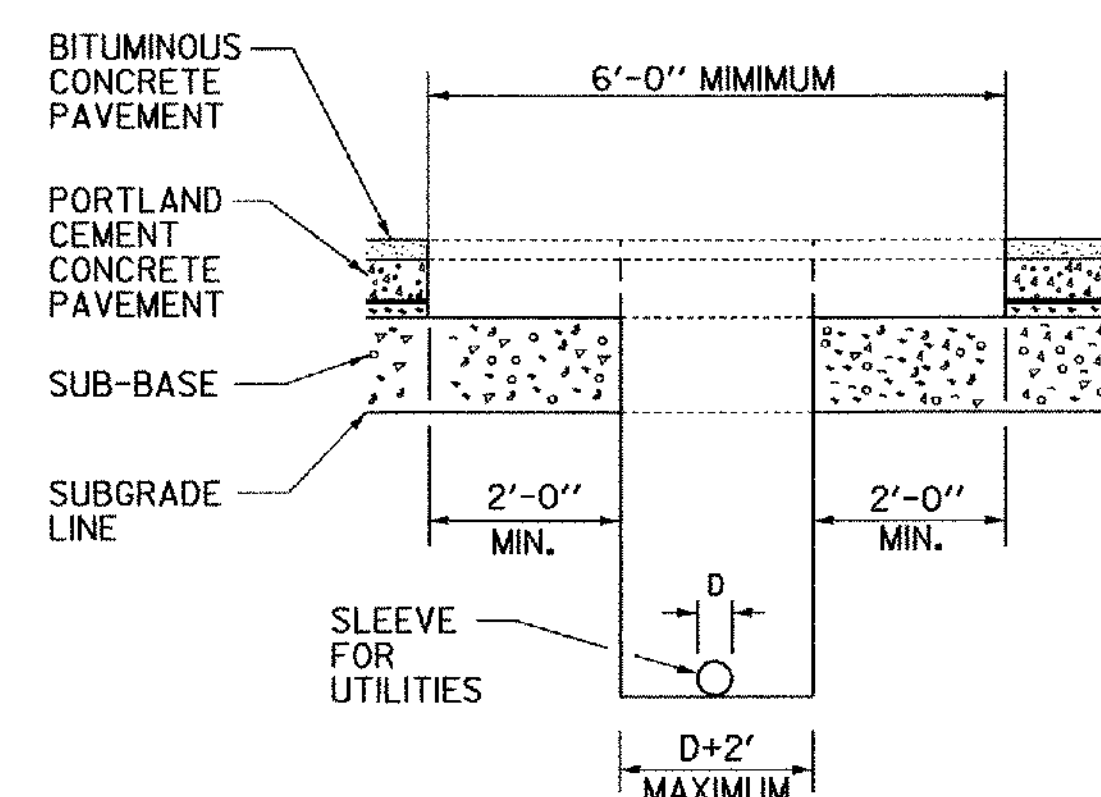
OPEN CUT AND PAVEMENT REPLACEMENT
APPLICABLE ONLY WHEN SPECIFICALLY AUTHORIZED BY HIGHWAY PERMIT

DETAIL "C" OPEN CUT EXCAVATION ACROSS BITUMINOUS CONCRETE PAVEMENT

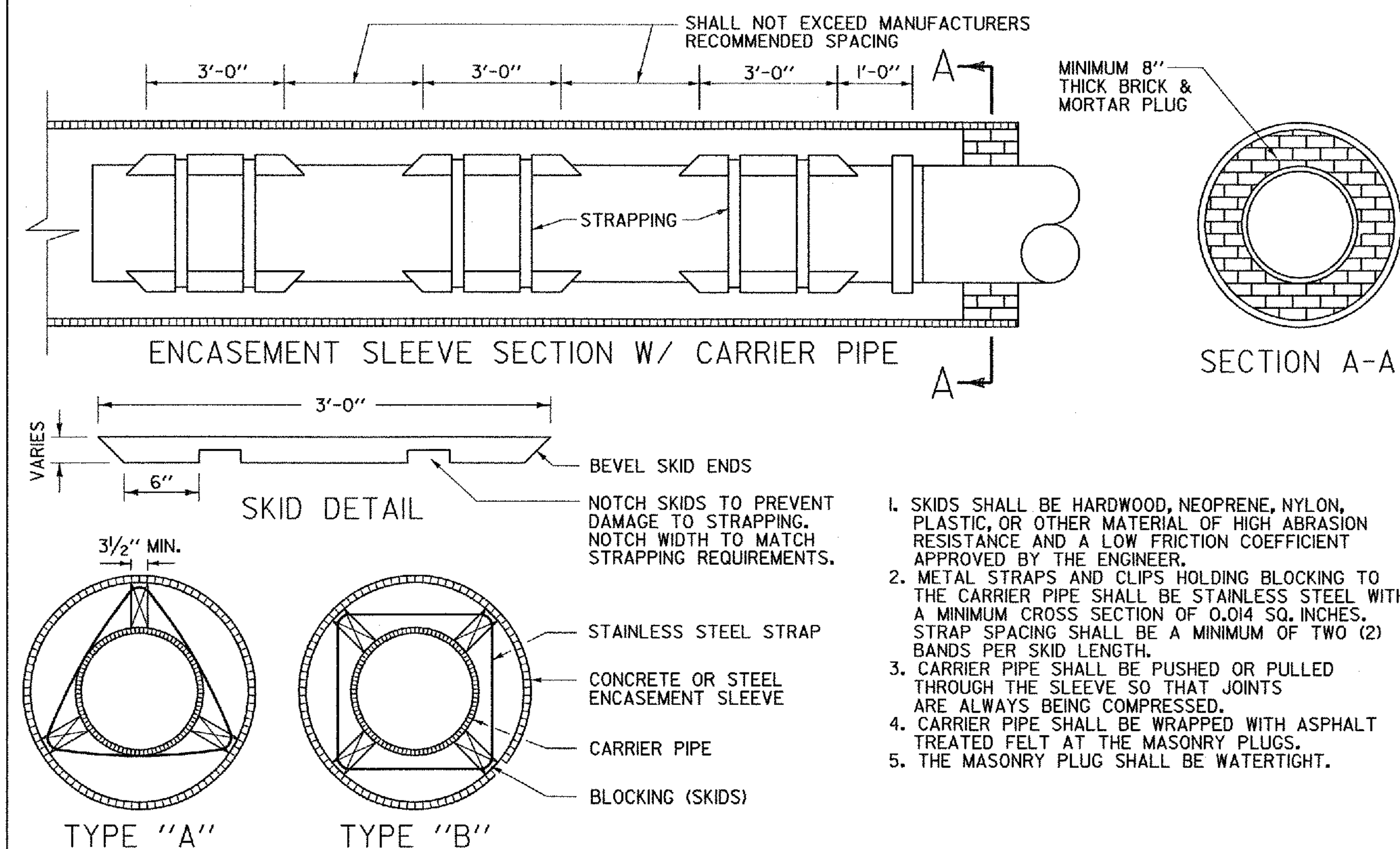


DETAIL "D" OPEN CUT W/ PORTLAND CEMENT CONC. PAVEMENT

IN THE EVENT THAT AN ADJACENT TRANSVERSE JOINT IS LESS THAN FOUR FEET FROM THE CUT, THE PAVEMENT SHALL BE REMOVED TO THAT JOINT.
DRILL & GROUT 4' LONG #5 BARS INTO 2' DEEP HOLES DRILLED EVERY 18" ALONG BOTH SIDES OF SAWN CONCRETE. TIE TOGETHER WITH #5 BARS.



DETAIL "E" CONCRETE OR STEEL SLEEVE



GENERAL NOTES

1. SHEET PILING MAY BE DRIVEN VERTICALLY FIVE (5) FEET OUTSIDE THE SHOULDER POINT, OR ONE (1) FOOT BACK OF THE SIDEWALK, TO ALLOW FOR A SHORTER SLEEVE.
2. SEE DETAIL 'A' OR 'B' FOR DETERMINING SLEEVE LENGTH.
3. IN THE EVENT THAT PERMISSION IS GRANTED TO CUT AN EXISTING PORTLAND CEMENT CONCRETE PAVEMENT, ALL CUTS SHALL BE MADE WITH A SAW TO FULL DEPTH.
4. PORTLAND CEMENT CONCRETE PATCHES SHALL BE PROPERLY CURED FOR SEVEN (7) DAYS BEFORE BEING SUBJECTED TO TRAFFIC LOADS. WHEN HIGH EARLY STRENGTH CEMENT IS USED, PROPER CURING FOR THREE (3) DAYS SHALL BE REQUIRED BEFORE BEING SUBJECTED TO TRAFFIC LOADS. WHEN A HIGH STRENGTH, QUICK SETTING CONCRETE PATCHING COMPOUND IS APPROVED, IT SHALL BE PROPERLY CURED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS BEFORE BEING SUBJECTED TO TRAFFIC LOADS.
5. ALL EXPOSED BITUMINOUS SURFACES SHALL BE COATED WITH EMULSIFIED ASPHALT PRIOR TO PLACEMENT OF NEW BITUMINOUS PAVEMENT.
6. BITUMINOUS CONCRETE PAVEMENTS SHALL BE REPLACED WITH BITUMINOUS CONCRETE PAVEMENT AT THE SAME THICKNESS OF THE PAVEMENT BEING REMOVED, AND IN ACCORDANCE WITH THE VAOT STANDARD SPECIFICATIONS FOR CONSTRUCTION, SECTION 406. PORTLAND CEMENT CONCRETE PAVEMENT AND SUBBASE ARE TO BE REPLACED IN KIND. MATERIAL BELOW SUBGRADE TO BE REPLACED WITH EXCAVATED MATERIAL, OR AS DIRECTED BY THE ENGINEER. ALL BACKFILL MATERIAL SHALL BE MADE IN SIX (6) INCH MAXIMUM LIFTS AND COMPACTED TO NOT LESS THAN 95% MAXIMUM DRY DENSITY.
7. THE DIAMETER OF THE ENCASEMENT SLEEVE SHALL BE EQUAL TO THE DIAMETER OF THE CARRIER PIPE PLUS TWELVE (12) INCHES. (SEE VAOT SPECIFICATIONS, SECTION 625, FOR EXCEPTIONS.)

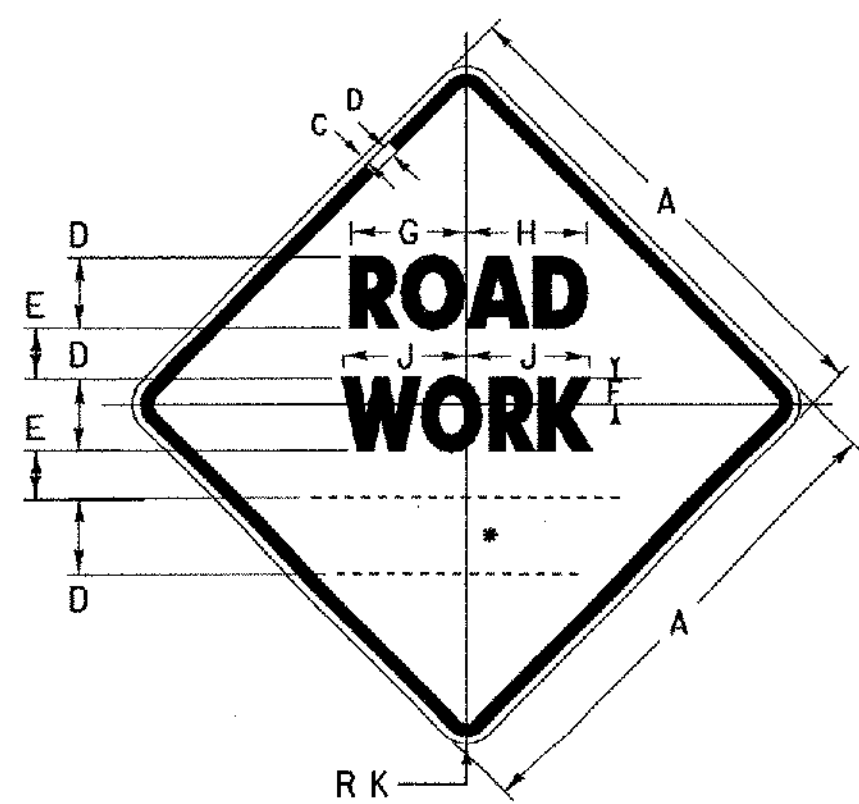
REVISIONS AND CORRECTIONS
DEC. 23, 1974 - ORIGINAL APPROVAL
SEPT. 9, 1975 - CARRIER PIPE AND PORTLAND CEMENT NOTES REVISED
OCT. 30, 1985 - REVISED TO CONFORM WITH 1986 SPECIFICATIONS
JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.
MAR. 10, 1995 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.
MARCH 3, 2003 - REVISED TO REFLECT CURRENT DESIGN CRITERIA

APPROVED
[Signature]
DIRECTOR OF PROGRAM DEVELOPMENT
[Signature]
CHIEF OF UTILITIES
[Signature]
FEDERAL HIGHWAY ADMINISTRATION

HIGHWAY CROSSING SLEEVES FOR UNDERGROUND UTILITIES

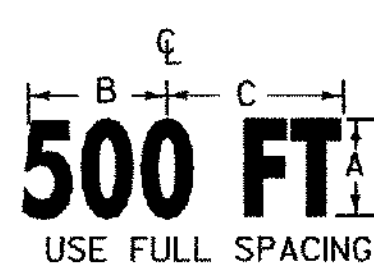


STANDARD
D-20

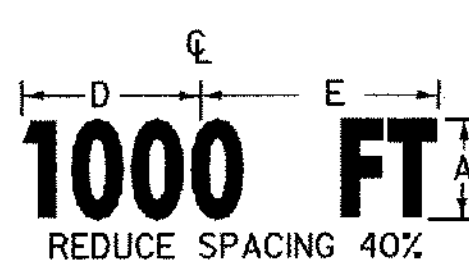


W20-1

• SEE DISTANCE DETAILS



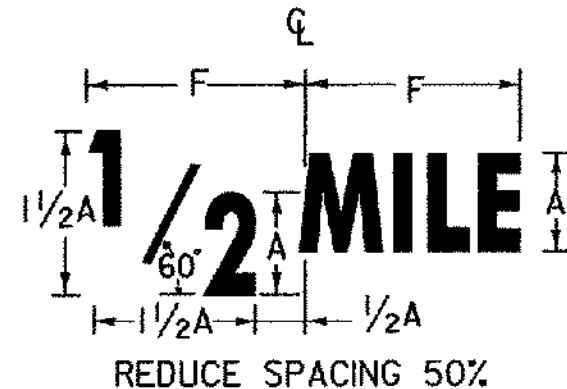
USE FULL SPACING



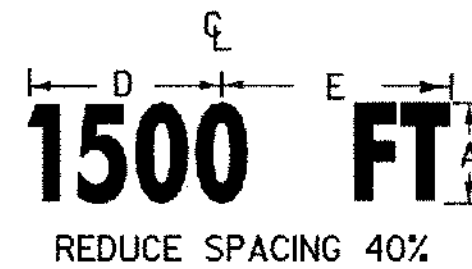
REDUCE SPACING 40%



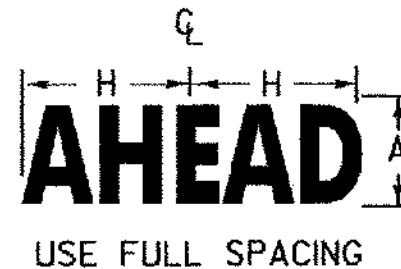
USE FULL SPACING



REDUCE SPACING 50%

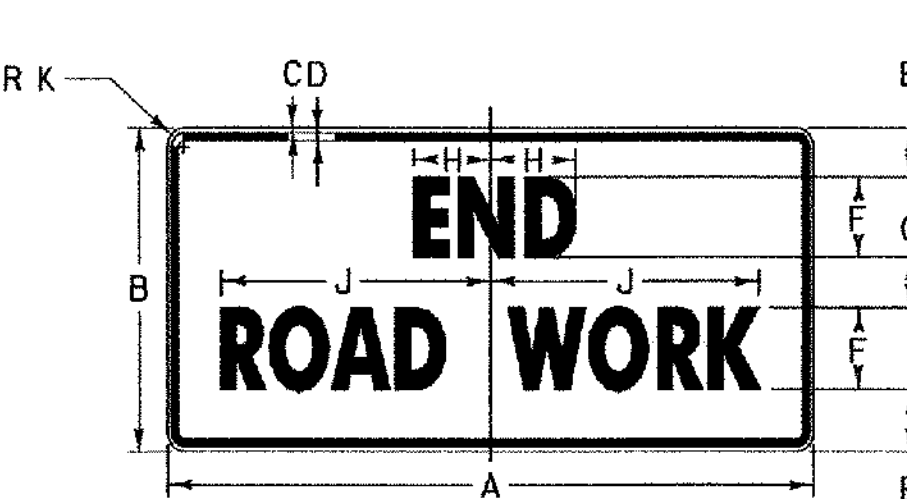


REDUCE SPACING 40%

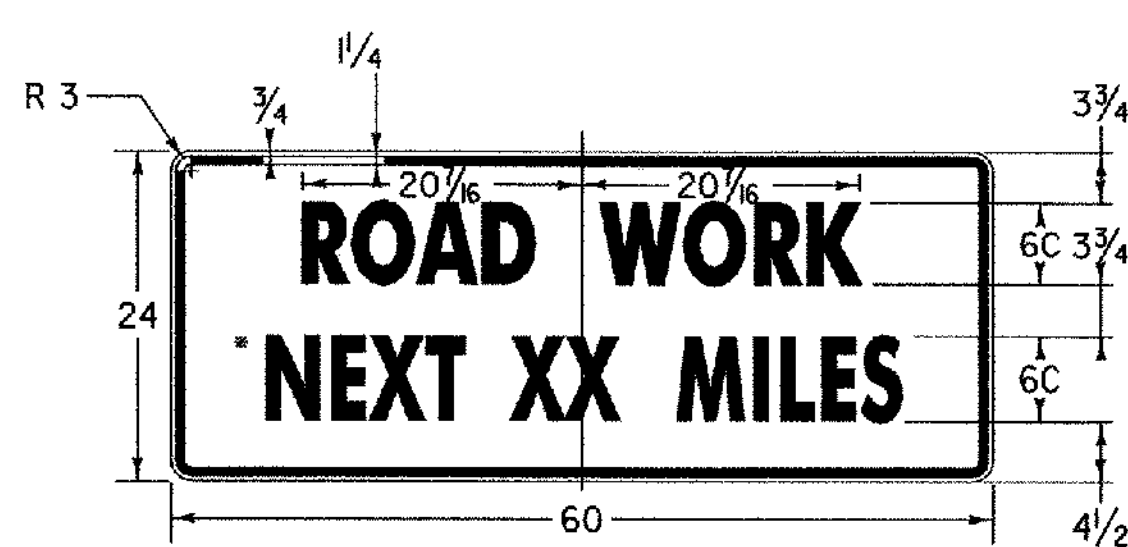


USE FULL SPACING

DISTANCE DETAILS



G20-2A



G20-1

• OPTICALLY CENTER

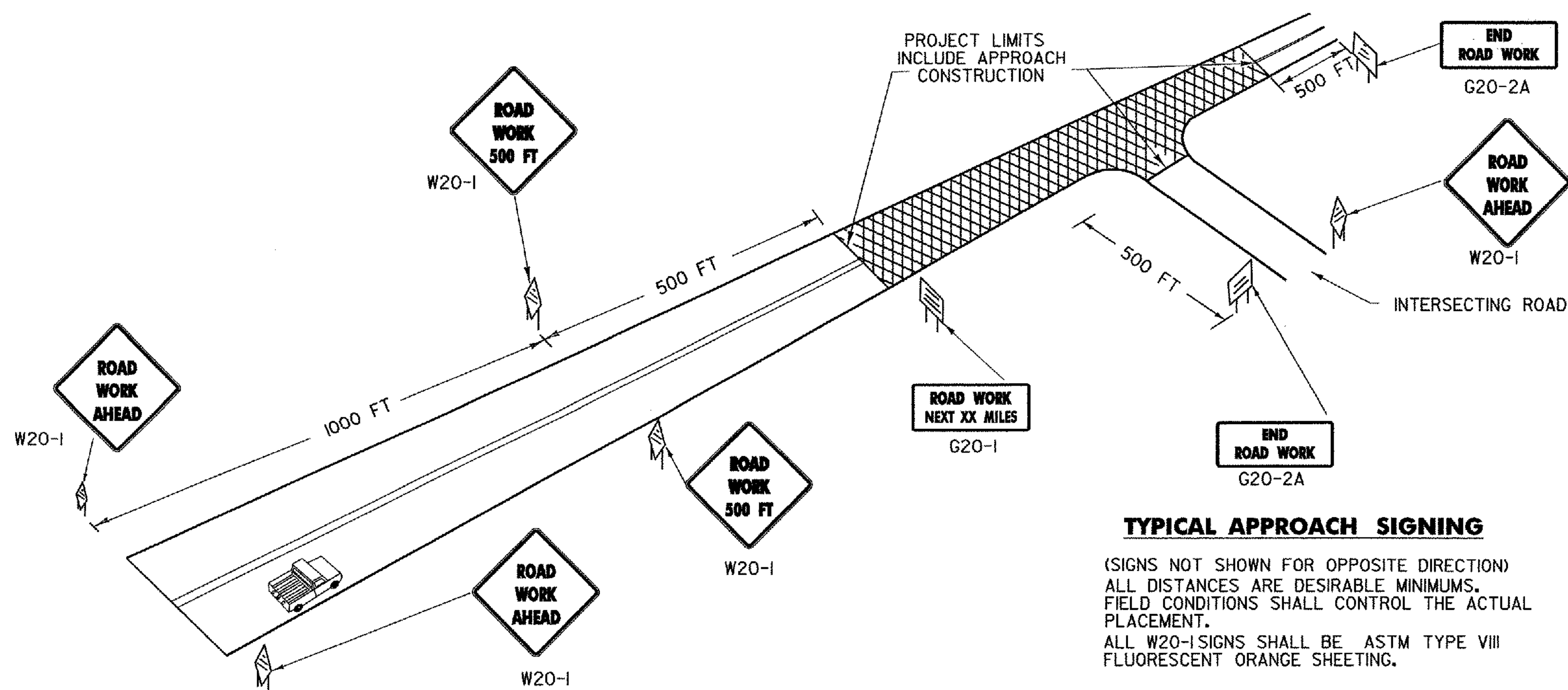
THIS SIGN TO BE USED WHEN PROJECT LENGTH EXCEEDS 2 MILES OR AS REQUESTED BY THE RESIDENT ENGINEER. SHOW MILEAGE TO NEAREST 1/4 MILE USING FRACTIONS, NOT DECIMALS. HAND LETTERING OF MILEAGE WILL NOT BE ALLOWED.

SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
MIN.	36	18	5/8	7/8	3 3/4	4C	2 1/2	4	12 5/8	2 1/4
STD.	48	24	3/4	1 1/4	4 1/8	6C	3 3/4	5 7/8	22	3

SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
MIN.	36	5/8	7/8	5D	3 1/2	3 3/4	8 3/8	8 7/8	9	2 1/4
STD.	48	3/4	1 1/4	7D	4 3/4	4 1/2	11 1/8	12 1/8	12 5/8	3

DIMENSIONS (INCHES)							
A	B	C	D	E	F	G	H
5D	10 3/8	10 3/8	11 5/8	11 1/4	11 1/4	9 1/2	10 7/8
7D	14 1/4	15 1/8	14 3/8	15 3/4	15 3/4	13 1/8	15 1/2

(ALL DIMENSIONS SHOWN IN INCHES)



TYPICAL APPROACH SIGNING

(SIGNS NOT SHOWN FOR OPPOSITE DIRECTION)
ALL DISTANCES ARE DESIRABLE MINIMUMS.
FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT.
ALL W20-1 SIGNS SHALL BE ASTM TYPE VIII FLUORESCENT ORANGE SHEETING.

NOTES

THE SIGNS SHOWN ON THIS SHEET ARE INTENDED FOR USE IN PROVIDING ADVANCE WARNING AND INFORMATION ON CONSTRUCTION PROJECTS OVER WHICH TRAFFIC WILL BE MAINTAINED. WHEN ADDITIONAL APPROACH SIGNS OR OTHER TYPES OF ADVANCE SIGNING OR CONTROL ARE NECESSARY, THE PLANS AND/OR THE SPECIFICATIONS FOR THAT PROJECT WILL GIVE THE DETAILS OF THE SIGNS AND DEVICES REQUIRED. FOR ON-PROJECT CONSTRUCTION SIGNS, REFER TO APPROPRIATE STANDARD SHEETS.

APPLICATION OF STANDARDS

SINCE IT IS NOT POSSIBLE TO PRESCRIBE DETAILED STANDARDS OF APPLICATION FOR ALL OF THE SITUATIONS THAT MAY CONCEIVABLY ARISE ON A CONSTRUCTION PROJECT, REFERENCE SHALL BE MADE TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" FOR THE PRINCIPLES, PROCEDURES, AND STANDARDS THAT WILL BE REQUIRED IN CONNECTION WITH ADVANCED WARNING AND ON-PROJECT CONSTRUCTION SIGNS AND BARRICADES. THE SIGNS SHOWN IN E-101 AND E-102 REPRESENT A SAMPLE OF THOSE MORE COMMONLY USED.

LOCATION

THE SIGNS SHALL BE LOCATED AS DETAILED ON THIS SHEET OR AS OTHERWISE SHOWN ON THE PLANS. THEY SHALL APPEAR AT EACH END OF THE HIGHWAY UNDER CONSTRUCTION AND ON ALL INTERSECTING PUBLIC HIGHWAYS. THE ENGINEER SHALL DETERMINE THE EXACT LOCATIONS.

DESIGN

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE "STANDARD HIGHWAY SIGNS BOOK" AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION (FHWA).

MATERIALS

THE SIGN BASE MATERIAL USED FOR THE SIGNS ON THIS SHEET MAY BE ANY OF THE FOLLOWING, WITH MINIMUM THICKNESS AS NOTED.
FLAT SHEET ALUMINUM 0.125 INCHES
HIGH DENSITY OVERLAYED PLYWOOD 5/8 INCHES

REFLECTORIZATION

ALL LEAD SIGNS (W20-1) ON THIS SHEET SHALL BE ASTM TYPE VIII FLUORESCENT ORANGE SHEETING. ALL OTHER SIGNS ON THIS SHEET SHALL BE ASTM TYPE III RETROREFLECTORIZED SHEETING.

COLORS

THE COLORS SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY AASHTO AND APPROVED BY THE FHWA. COLORS SHOWN ON THIS SHEET CONSIST OF BLACK TEXT AND BORDER ON A RETROREFLECTORIZED ASTM TYPE III OR TYPE VIII ORANGE BACKGROUND.

INSTALLATION

THE SIGNS SHALL BE ERECTED BEFORE THE START OF ANY WORK AND SHALL BE COVERED UNTIL WORK COMMENCES. DURING PERIODS OF INACTIVITY, OR UPON COMPLETION OF THE WORK, EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER ON POSTS SET SECURELY IN THE GROUND. THE BOTTOM OF A SIGN SHALL BE AT LEAST 7 FEET ABOVE THE EDGE OF PAVEMENT, AND THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST 6 FEET OUTSIDE THE SHOULDER POINT, 4 FEET OUTSIDE GUARD RAIL, OR 2 FEET OUTSIDE CURBING, OR SIDEWALK. THE INSTALLATION OF SIGNS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER. IN URBAN AREAS, THE BOTTOM OF THE SIGN SHALL BE AT LEAST 7 FEET ABOVE THE SIDEWALK. SIGNS MAY BE REMOVED UPON COMPLETION OF THE WORK AT THE DISCRETION OF THE ENGINEER.

NOTES CONT.

MAINTENANCE

SIGNS SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION SATISFACTORY TO THE ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO APPROACHING TRAFFIC AT ALL TIMES. THEY SHALL BE KEPT PLUMB AND LEVEL, AND ALWAYS PRESENT A NEAT APPEARANCE. DAMAGED, DEFACED, OR DIRTY SIGNS SHALL BE REPAIRED, CLEANED OR REPLACED AS ORDERED BY THE ENGINEER.

GENERAL

THE COST OF FURNISHING, INSTALLING, MAINTAINING AND REMOVING ALL CONSTRUCTION APPROACH SIGNS WILL BE CONSIDERED INCIDENTAL WORK PERTAINING TO THE PROJECT AS A WHOLE AND SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR VARIOUS ITEMS INVOLVED IN THE CONTRACT. DURING ALL PHASES OF CONSTRUCTION THE REQUIREMENTS SET FORTH IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" SHALL BE MET.

SIGN COVERS

SIGN COVERS SHALL CONSIST OF A PANEL PAINTED FLAT BLACK, THE SAME SIZE AS THE SIGN IT COVERS. THE PANEL SHALL BE OF WOOD, PLYWOOD, HARDBOARD OR ANY MATERIAL SATISFACTORY TO THE ENGINEER. NO MATERIAL WILL BE APPROVED THAT WILL DETERIORATE BY EXPOSURE TO THE WEATHER DURING THE PROJECT. MOUNTING OF THE PANEL SHALL BE DONE IN SUCH A WAY AS NOT TO DAMAGE THE SIGN FACE MATERIAL.

CONTRACTORS SHALL COORDINATE THEIR SIGNING ACTIVITIES WITH OTHER CONTRACTORS WITHIN THE PROJECT LIMITS, AS DIRECTED BY THE REGIONAL CONSTRUCTION ENGINEER.

SIGN POSTS

WHERE CONSTRUCTION SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARD RAIL OR OTHER APPROVED TRAFFIC BARRIERS, THE POSTS ON WHICH THE SIGNS ARE MOUNTED SHALL BE YIELDING METAL POSTS AS DESIGNATED IN THE E SERIES OF STANDARD DRAWINGS OR YIELDING WOODEN POSTS IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:

WOODEN POSTS ARE ACCEPTABLE FOR USE WITH CONSTRUCTION SIGNS. THESE POSTS SHALL HAVE A UNIFORM CROSS-SECTION AND SHALL BE MADE FROM GRADE 2, AIR-DRIED SOUTHERN YELLOW PINE OR ANOTHER EQUIVALENT SOFTWOOD. AN ACCEPTABLE EQUIVALENT SOFTWOOD SHALL HAVE AN EXTREME FIBER IN BENDING "Fb" DESIGN VALUE NOT TO EXCEED 1400 psi AND HORIZONTAL SHEAR "Fv" DESIGN VALUE NOT TO EXCEED 90 psi SPECIFICATION. DESIGN VALUES FOR WOOD CONSTRUCTION AND RELATED SUPPLEMENT, LATEST EDITION.

AS ESTABLISHED BY THE NATIONAL FOREST PRODUCTS ASSOCIATION IN THEIR NATIONAL DESIGN. THE FOLLOWING ARE CONSIDERED TO BE ACCEPTABLE WOODEN POSTS:

1. 4" X 4" (ACTUAL DIMENSIONS ARE 3.5" X 3.5")
2. ACCEPTABLE FOR SINGLE OR DUAL POSTS INSTALLATION WITH NO MODIFICATIONS.

ALL WOODEN POSTS SHALL HAVE AN EMBEDMENT DEPTH OF 4 FEET. NO CROSS-BRACING OR BACK-BRACING TO KEEP THE POSTS PLUMB WILL BE ALLOWED. CONCRETE FOUNDATIONS, COLLARS, OR SOIL BEARING PLATES ARE NOT PERMITTED. CONSTRUCTION SIGNS SHALL BE PLACED ON TWO OR MORE POSTS WHEN ANY OF THE FOLLOWING CONDITIONS GOVERN:

1. THE SIGN WIDTH (HORIZONTAL DIMENSIONS FOR DIAMOND SHAPED SIGNS) EXCEEDS 3 1/2 FEET.
2. THE EXPOSED SIGN AREA OF ANY SINGLE SIGN OR ASSEMBLY EXCEEDS 7 SQ. FEET.
3. THE SV OF A SINGLE POST IS 64.

OTHER STDS. E-100A, E-101, E-102
REQUIRED:

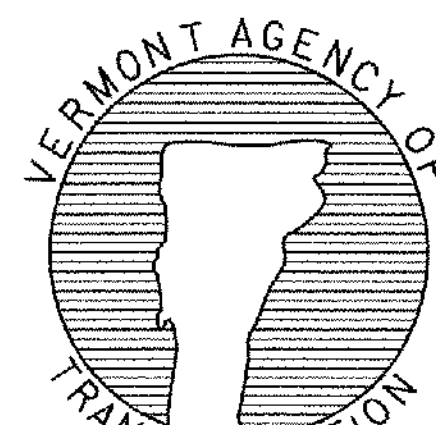
REVISIONS AND CORRECTIONS

MAY 26, 1989 - DATE OF ORIGINAL ISSUE
OCT 21, 1992 - REVISED WOOD POST REQUIREMENTS, ADDED SIGN DETAILS, & REVISED TITLE BLOCK
AUG. 08, 1995 - MINOR NOTE REVISIONS
JAN. 06, 1997 - MINOR NOTE AND DIMENSION REVISIONS
JAN. 2, 2004 - CHANGED REFLECTIVE SHEETING TO ASTM TYPE III OR TYPE VIII

APPROVED

DIRECTOR OF PROGRAM DEVELOPMENT
TRAFFIC OPERATIONS ENGINEER
FEDERAL HIGHWAY ADMINISTRATION

**CONSTRUCTION APPROACH
SIGNS**



**STANDARD
E-100**

NOTES CONT.

MATERIALS

THE SIGN BASE MATERIAL USED FOR THE SIGNS ON THIS SHEET MAY BE ANY OF THE FOLLOWING, WITH MINIMUM THICKNESS AS NOTED.

FLAT SHEET ALUMINUM	0.125 INCHES
HIGH DENSITY OVERLAYED PLYWOOD	5/8 INCHES

REFLECTORIZATON

ALL LEAD SIGNS (W20-1, VC-839) ON THIS SHEET SHALL BE ASTM TYPE VII FLUORESCENT ORANGE SHEETING. ALL OTHER SIGNS ON THIS SHEET SHALL BE ASTM TYPE III RETROREFLECTORIZED SHEETING.

COLORS

THE COLORS SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY AASHTO AND APPROVED BY THE FHWA. COLORS SHOWN ON THIS SHEET CONSIST OF BLACK TEXT AND BORDER ON A RETROREFLECTORIZED ASTM TYPE III OR TYPE VII ORANGE BACKGROUND.

INSTALLATION

THE SIGNS SHALL BE ERECTED BEFORE THE START OF ANY WORK AND SHALL BE COVERED UNTIL WORK COMMENCES, DURING PERIODS OF INACTIVITY, OR UPON COMPLETION OF THE WORK. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER ON POSTS SET SECURELY IN THE GROUND. THE BOTTOM OF A SIGN SHALL BE AT LEAST 7 FEET ABOVE THE EDGE OF PAVEMENT, AND THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST 6 FEET OUTSIDE THE SHOULDER POINT, 4 FEET OUTSIDE GUARD RAIL, OR 2 FEET OUTSIDE CURBING, OR SIDEWALK. THE INSTALLATION OF SIGNS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER. IN URBAN AREAS, THE BOTTOM OF THE SIGN SHALL BE AT LEAST 7 FEET ABOVE THE SIDEWALK. SIGNS MAY BE REMOVED UPON COMPLETION OF THE WORK AT THE DISCRETION OF THE ENGINEER.

MAINTENANCE

SIGNS SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION SATISFACTORY TO THE ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO APPROACHING TRAFFIC AT ALL TIMES. THEY SHALL BE KEPT PLUMB AND LEVEL, AND ALWAYS PRESENT A NEAT APPEARANCE. DAMAGED, DEFACED, OR DIRTY SIGNS SHALL BE REPAIRED, CLEANED OR REPLACED AS ORDERED BY THE ENGINEER.

GENERAL

THE COST OF FURNISHING, INSTALLING, MAINTAINING AND REMOVING ALL CONSTRUCTION APPROACH SIGNS WILL BE CONSIDERED INCIDENTAL WORK PERTAINING TO THE PROJECT AS A WHOLE AND SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR VARIOUS ITEMS INVOLVED IN THE CONTRACT. DURING ALL PHASES OF CONSTRUCTION THE REQUIREMENTS SET FORTH IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" SHALL BE MET.

SIGN COVERS

SIGN COVERS SHALL CONSIST OF A PANEL PAINTED FLAT BLACK, THE SAME SIZE AS THE SIGN IT COVERS. THE PANEL SHALL BE OF WOOD, PLYWOOD, HARDBOARD OR ANY MATERIAL SATISFACTORY TO THE ENGINEER. NO MATERIAL WILL BE APPROVED THAT WILL DETERIORATE BY EXPOSURE TO THE WEATHER DURING THE PROJECT. MOUNTING OF THE PANEL SHALL BE DONE IN SUCH A WAY AS NOT TO DAMAGE THE SIGN FACE MATERIAL.

CONTRACTORS SHALL COORDINATE THEIR SIGNING ACTIVITIES WITH OTHER CONTRACTORS WITHIN THE PROJECT LIMITS, AS DIRECTED BY THE REGIONAL CONSTRUCTION ENGINEER.

SIGN POSTS

WHERE CONSTRUCTION SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARD RAIL OR OTHER APPROVED TRAFFIC BARRIERS, THE POSTS ON WHICH THE SIGNS ARE MOUNTED SHALL BE YIELDING METAL POSTS AS DESIGNATED IN THE E SERIES OF STANDARD DRAWINGS OR YIELDING WOODEN POSTS IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:

WOODEN POSTS ARE ACCEPTABLE FOR USE WITH CONSTRUCTION SIGNS. THESE POSTS SHALL HAVE A UNIFORM CROSS-SECTION AND SHALL BE MADE FROM GRADE 2, AIR-DRIED SOUTHERN YELLOW PINE OR ANOTHER EQUIVALENT SOFTWOOD. AN ACCEPTABLE EQUIVALENT SOFTWOOD SHALL HAVE AN EXTREME FIBER IN BENDING "Fb" DESIGN VALUE NOT TO EXCEED 1400 psi AND HORIZONTAL SHEAR "Fv" DESIGN VALUE NOT TO EXCEED 90 psi SPECIFICATION; "DESIGN VALUES FOR WOOD CONSTRUCTION" AND RELATED SUPPLEMENT, LATEST EDITION.

AS ESTABLISHED BY THE NATIONAL FOREST PRODUCTS ASSOCIATION IN THEIR NATIONAL DESIGN THE FOLLOWING ARE CONSIDERED TO BE ACCEPTABLE WOODEN POSTS:

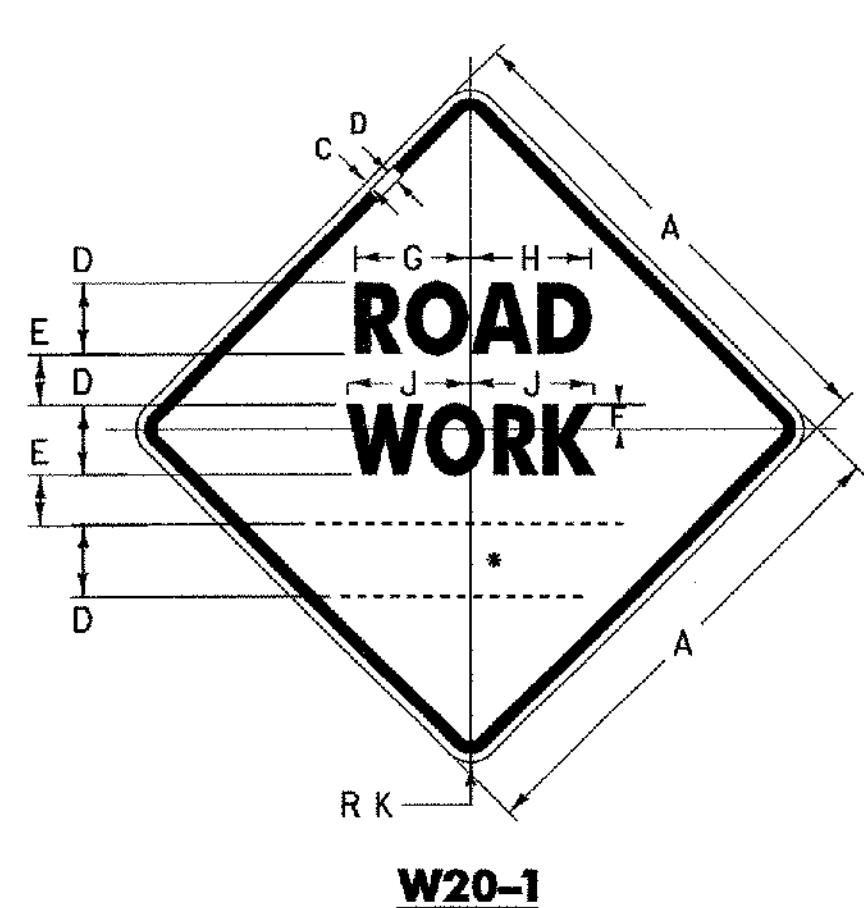
1. 4" X 4" (ACTUAL DIMENSIONS ARE 3.5" X 3.5")

A) ACCEPTABLE FOR SINGLE OR DUAL POSTS INSTALLATION WITH NO MODIFICATIONS.

ALL WOODEN POSTS SHALL HAVE AN EMBEDMENT DEPTH OF 4 FEET. NO CROSS-BRACING OR BACK-BRACING TO KEEP THE POSTS PLUMB WILL BE ALLOWED. CONCRETE FOUNDATIONS, COLLARS OR SOIL BEARING PLATES ARE NOT PERMITTED. CONSTRUCTION SIGNS SHALL BE PLACED ON TWO OR MORE POSTS WHEN ANY OF THE FOLLOWING CONDITIONS GOVERN:

- A) THE SIGN WIDTH (HORIZONTAL DIMENSIONS FOR DIAMOND SHAPED SIGNS) EXCEEDS 3 1/2 FEET.
- B) THE EXPOSED SIGN AREA OF ANY SINGLE SIGN OR ASSEMBLY EXCEEDS 7 SQ. FEET.
- C) THE SV OF A SINGLE POST IS 64

OTHER STDS. E-100, E-101, E-102
REQUIRED:



• SEE DISTANCE DETAILS

500 FT
USE FULL SPACING

1 MILE
USE FULL SPACING

1500 FT
REDUCE SPACING 40%

1000 FT
REDUCE SPACING 40%

1 1/2 MILE
REDUCE SPACING 50%

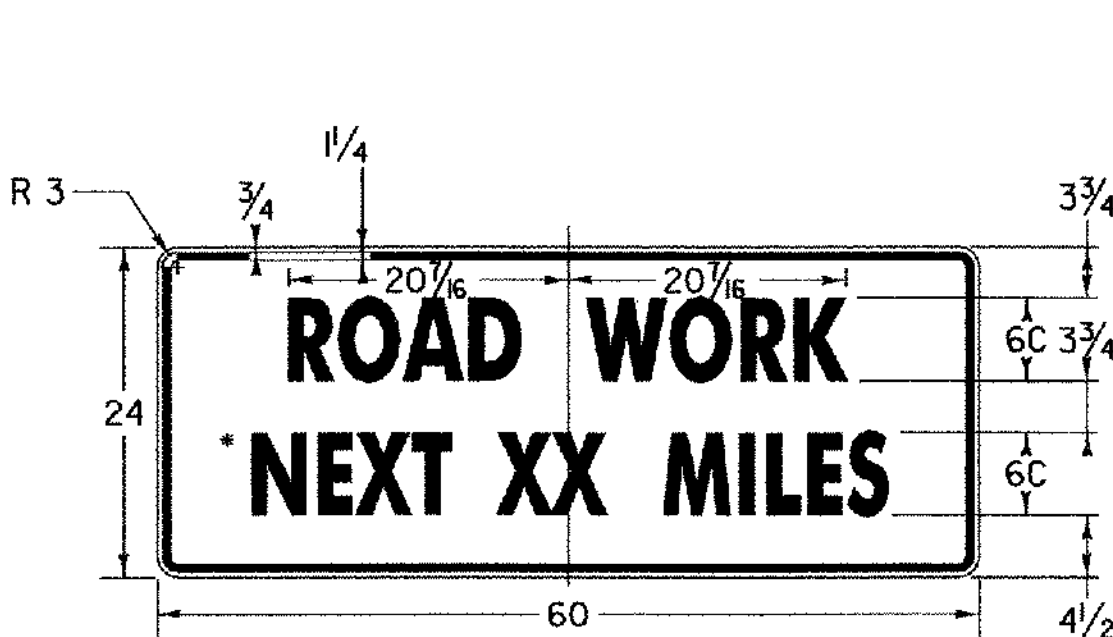
AHEAD
USE FULL SPACING

DISTANCE DETAILS

SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
MIN.	36	5/8	7/8	5D	3 1/2	3 1/4	8 3/8	8 7/8	9	2 1/4
STD.	48	3/4	1 1/4	7D	4 3/4	4 1/2	11 1/8	12 1/8	12 5/8	3

DIMENSIONS (INCHES)							
A	B	C	D	E	F	G	H
5D	10 3/8	10 3/8	11 5/8	11 1/4	11 1/4	9 1/2	10 7/8
7D	14 1/4	15 1/8	14 7/8	15 3/4	15 3/4	13 1/8	15 1/2

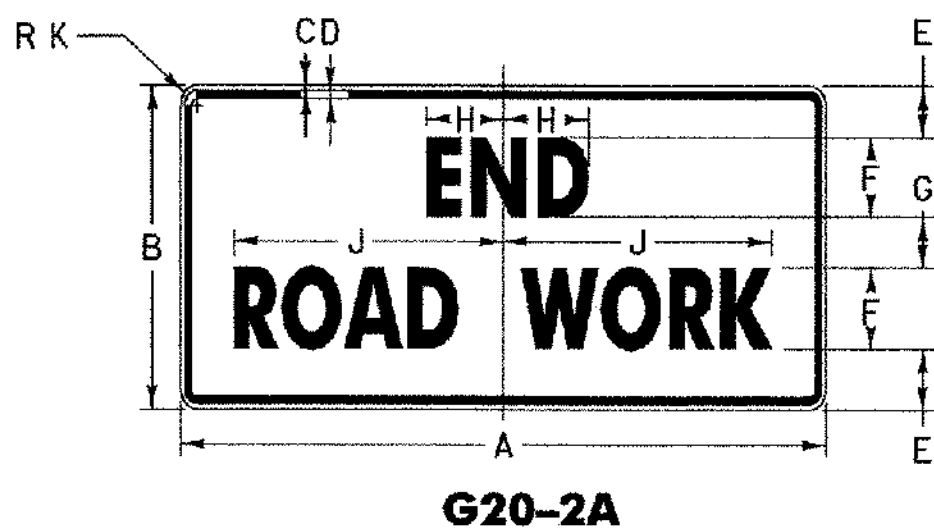
(ALL DIMENSIONS SHOWN IN INCHES)



G20-1

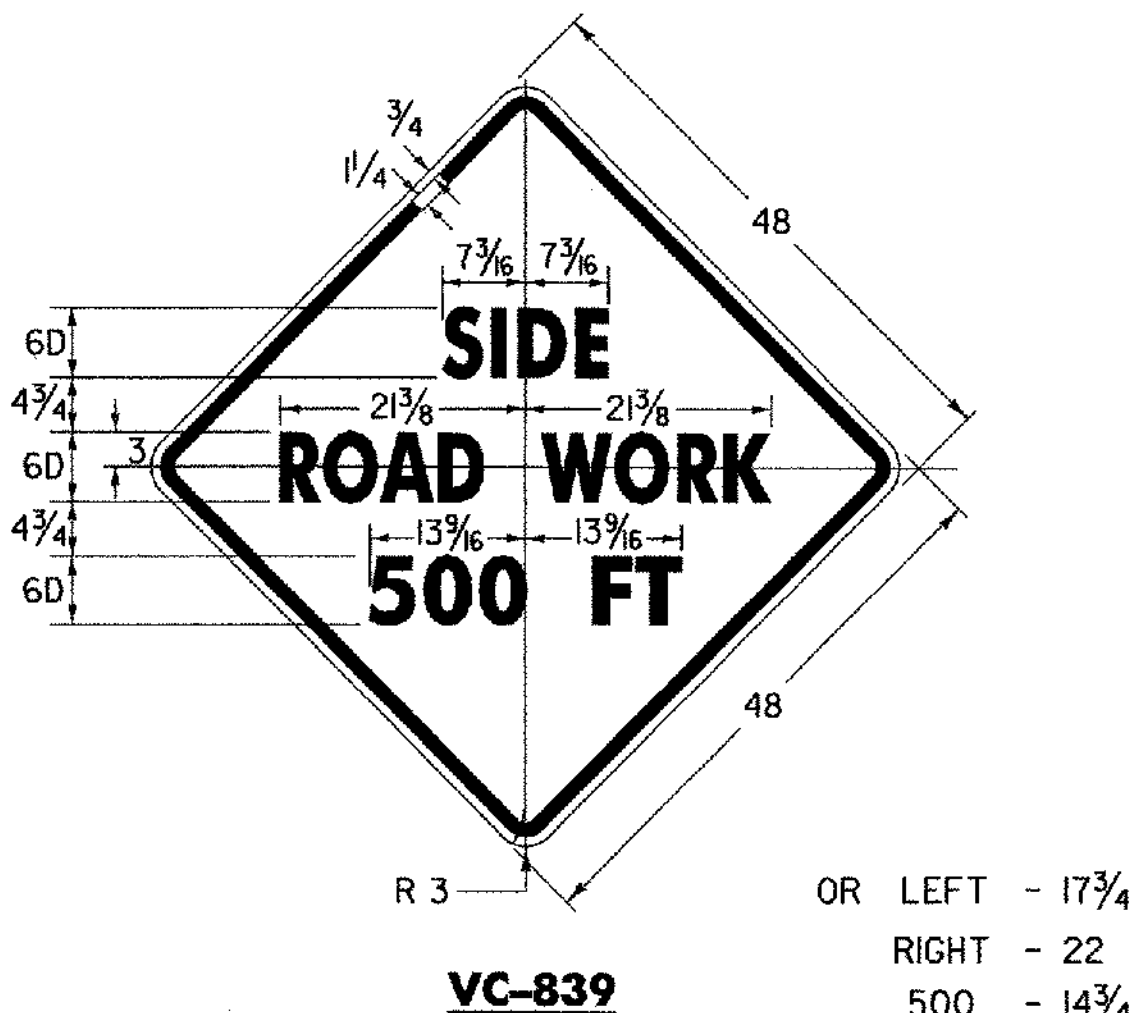
• OPTICALLY CENTER

THIS SIGN TO BE USED WHEN PROJECT LENGTH EXCEEDS 2 MILES OR AS REQUESTED BY THE RESIDENT ENGINEER. SHOW MILEAGE TO NEAREST 1/4 MILE USING FRACTIONS, NOT DECIMALS. HAND LETTERING OF MILEAGE WILL NOT BE ALLOWED.



G20-2A

SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
MIN.	36	18	5/8	7/8	3 3/4	4C	2 1/2	4	12 5/8	2 1/4
STD.	48	24	3/4	1 1/4	4 1/8	6C	3 3/4	5 7/8	22	3



VC-839

OR LEFT - 17 3/4
RIGHT - 22
500 - 14 3/4
FT - 8 1/8

NOTES

THE SIGNS SHOWN ON THIS SHEET ARE INTENDED FOR USE IN PROVIDING ADVANCE WARNING AND INFORMATION ON CONSTRUCTION PROJECTS OVER WHICH TRAFFIC WILL BE MAINTAINED. WHEN ADDITIONAL APPROACH SIGNS OR OTHER TYPES OF ADVANCE SIGNING OR CONTROL ARE NECESSARY, THE PLANS AND/OR THE SPECIFICATIONS FOR THAT PROJECT WILL GIVE THE DETAILS OF THE SIGNS AND DEVICES REQUIRED. FOR ON-PROJECT CONSTRUCTION SIGNS, REFER TO APPROPRIATE STANDARD SHEETS.

APPLICATION OF STANDARDS

SINCE IT IS NOT POSSIBLE TO PRESCRIBE DETAILED STANDARDS OF APPLICATION FOR ALL OF THE SITUATIONS THAT MAY CONCEIVABLY ARISE ON A CONSTRUCTION PROJECT, REFERENCE SHALL BE MADE TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" FOR THE PRINCIPLES, PROCEDURES, AND STANDARDS THAT WILL BE REQUIRED IN CONNECTION WITH ADVANCED WARNING AND ON-PROJECT CONSTRUCTION SIGNS AND BARRICADES. THE SIGNS SHOWN IN E-101 AND E-102 REPRESENT A SAMPLE OF THOSE MORE COMMONLY USED.

LOCATION

THE SIGNS SHALL BE LOCATED AS DETAILED ON THIS SHEET OR AS OTHERWISE SHOWN ON THE PLANS. THEY SHALL APPEAR AT EACH END OF THE HIGHWAY UNDER CONSTRUCTION AND ON ALL INTERSECTING PUBLIC HIGHWAYS. THE ENGINEER SHALL DETERMINE THE EXACT LOCATIONS.

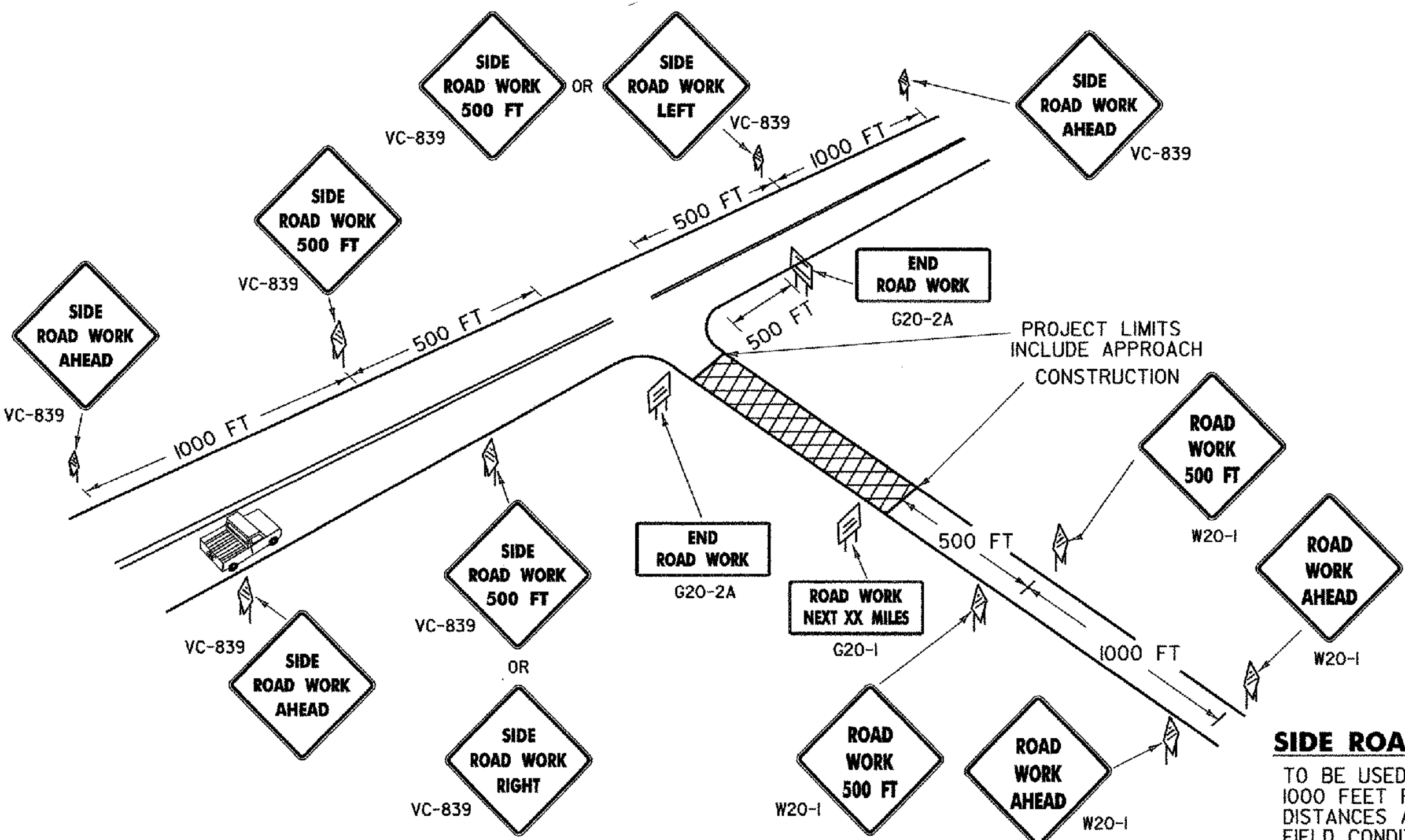
DESIGN

LETTERS, DIGITS, ARROWS SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE "STANDARD HIGHWAY SIGNS BOOK" AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION (FHWA).

SIDE ROAD APPROACH SIGNING

TO BE USED WHEN CONSTRUCTION IS UP TO 1000 FEET FROM THE INTERSECTION. ALL DISTANCES ARE DESIRABLE MINIMUMS. FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT.

ALL W20-1 AND VC-839 SIGNS SHALL BE ASTM TYPE VIII FLUORESCENT ORANGE SHEETING.



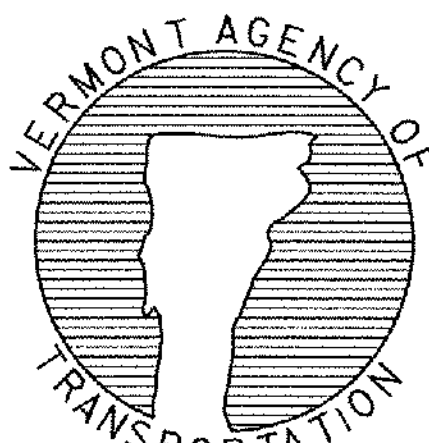
REVISIONS AND CORRECTIONS

JAN. 06, 1997 - DATE OF ORIGINAL ISSUE
JAN. 2, 2004 - CHANGED REFLECTIVE SHEETING TO
ASTM TYPE III OR TYPE VII

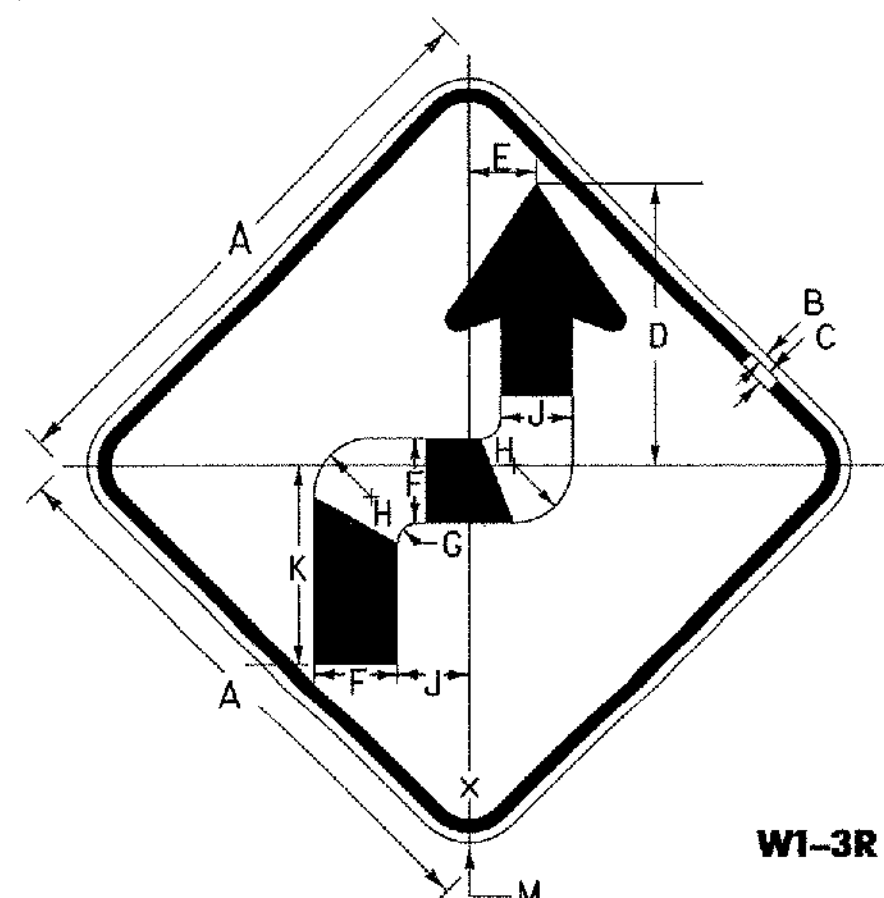
APPROVED

DIRECTOR OF PROGRAM DEVELOPMENT
TRAFFIC OPERATIONS ENGINEER
FEDERAL HIGHWAY ADMINISTRATION

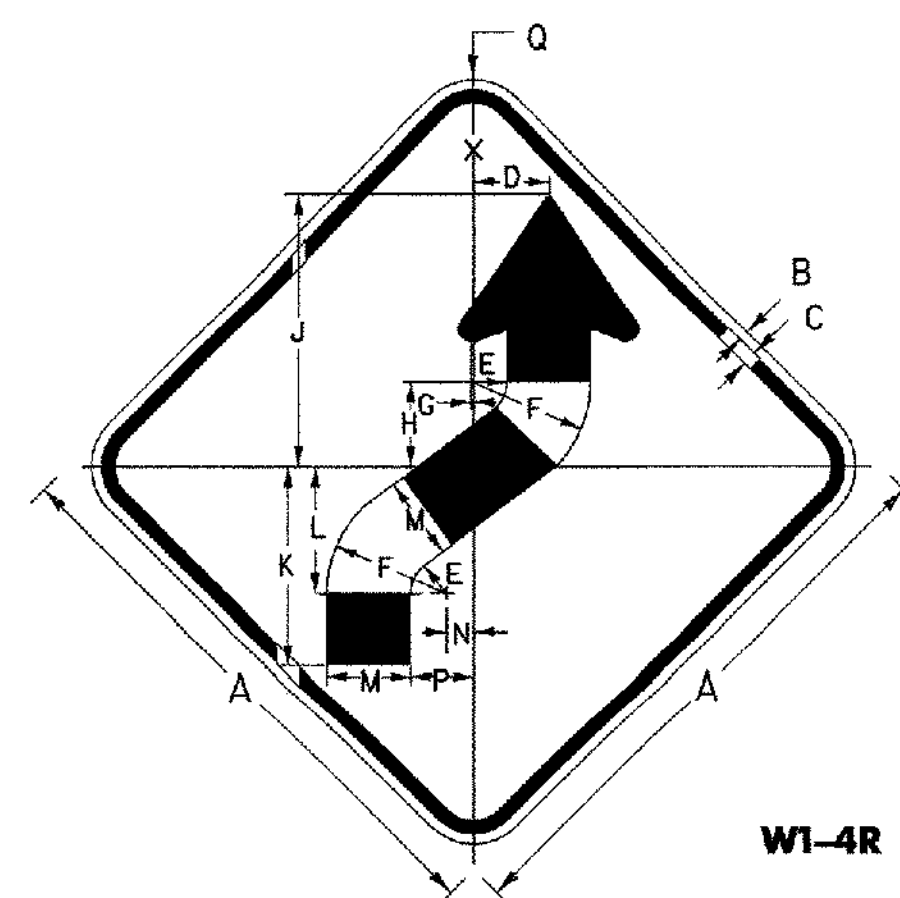
SIDE ROAD CONSTRUCTION
APPROACH SIGNS



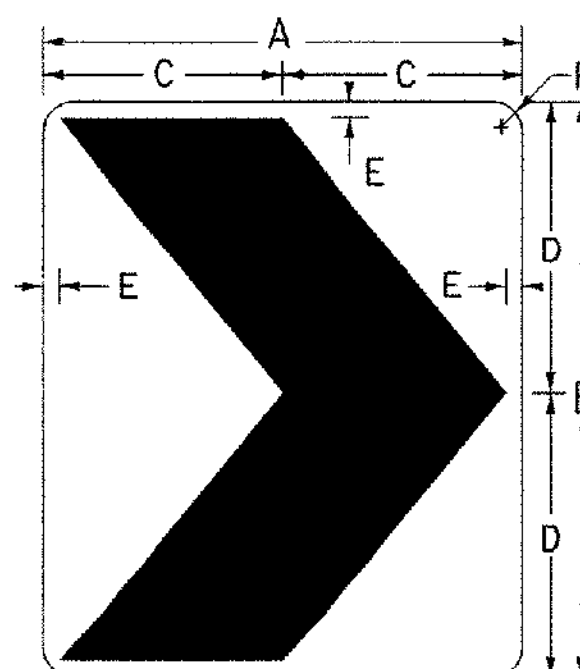
STANDARD
E-100A



W1-3R

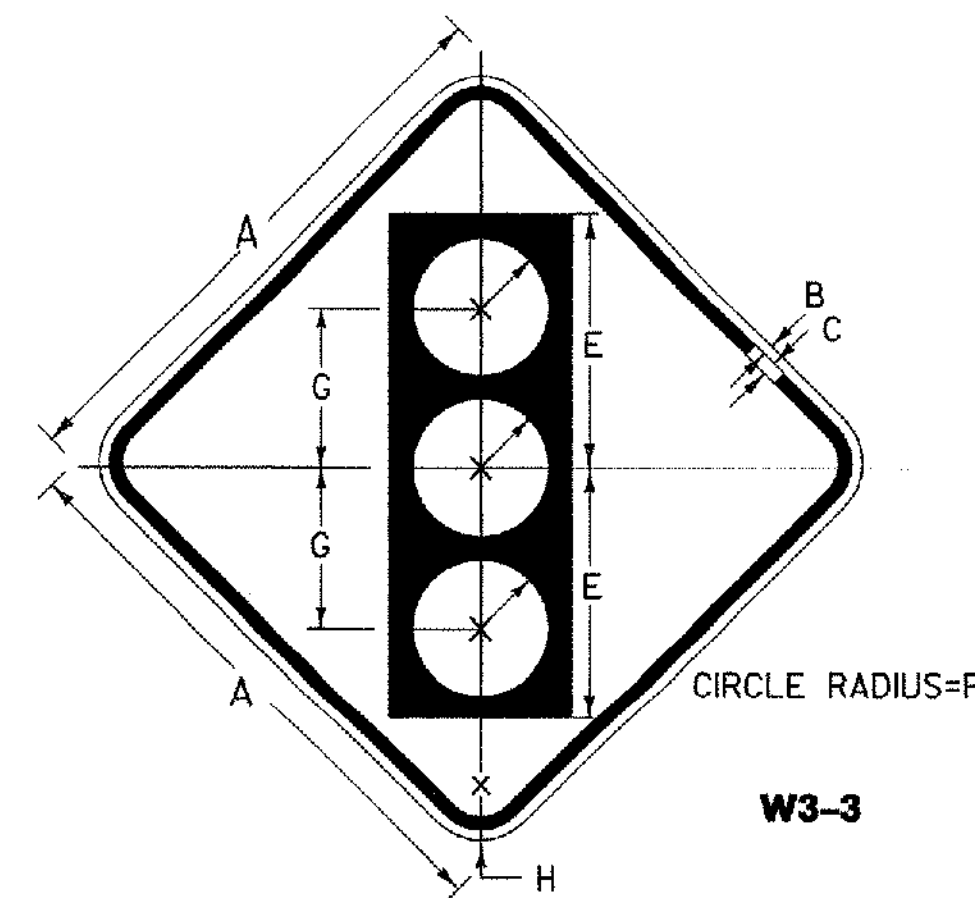


W1-4R



W1-8

SIGN	A	B	C	D	E	F
STD.	18	24	9	12	3/4	1 1/2
SPECIAL	24	30	12	15	1 1/8	1 3/4
EXPWY.	30	36	15	18	1 1/8	1 3/4
FRWY.	36	48	18	24	1 1/8	2 1/4

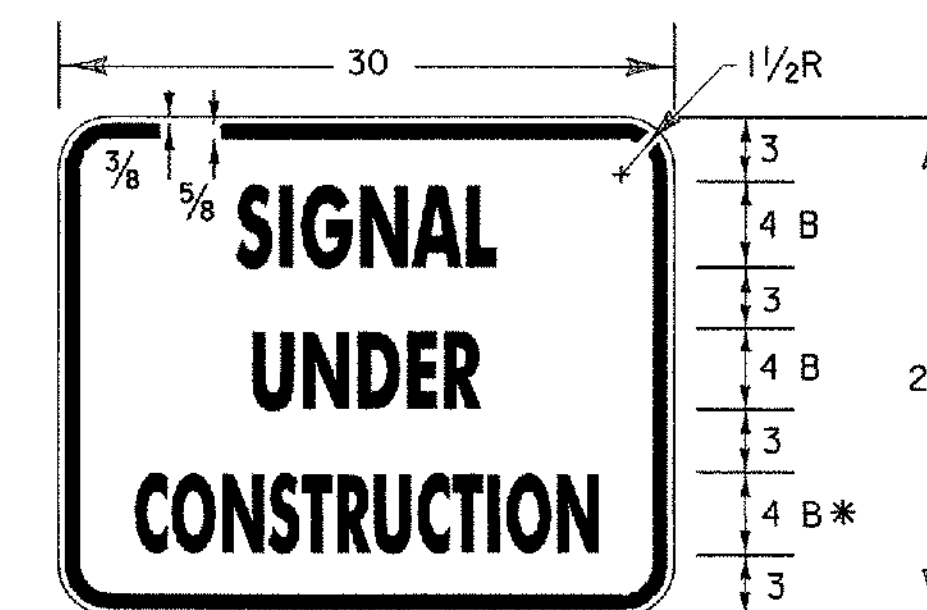


W3-3

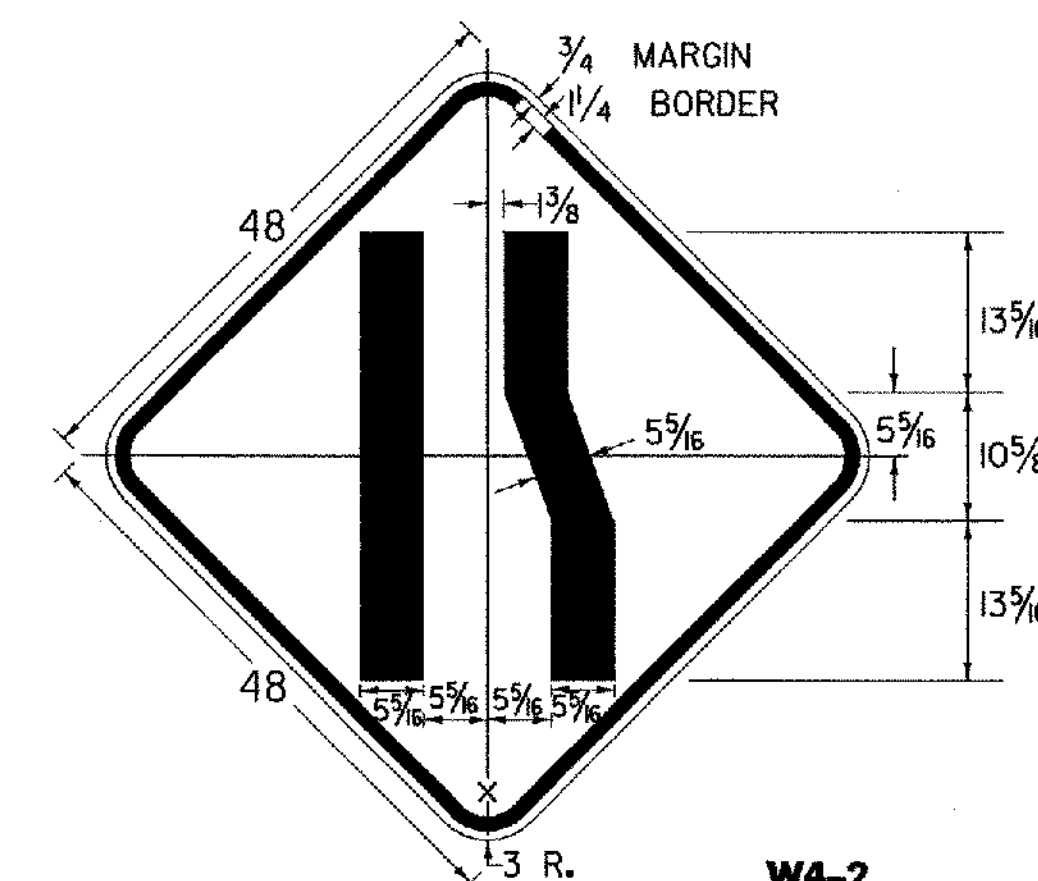
SIGN	A	B	C	D	E	F	G	H
STD. & MIN.	36	5/8	7/8	5 3/4	15 3/4	4 1/4	10	2 1/4
SPECIAL	48	3/4	1 1/4	7 1/2	20	5	12 1/2	3

COLORS

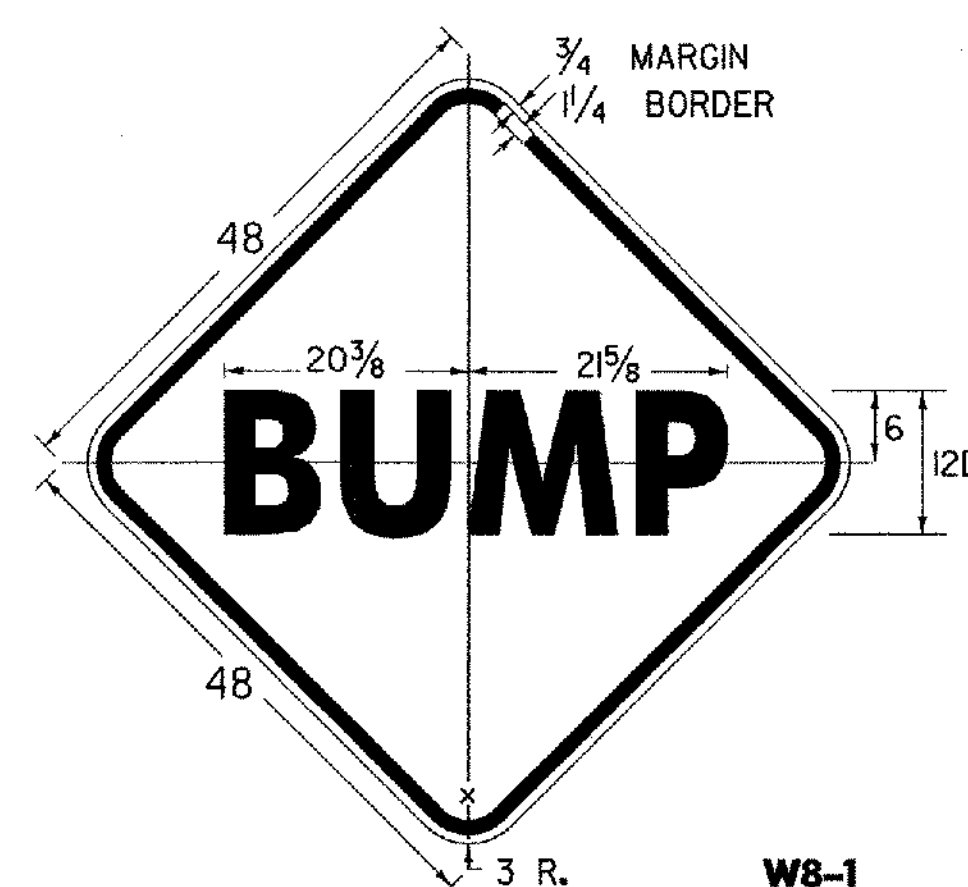
SYMBOL & LEGEND - BLACK (NON-REFL)
BACKGROUND - ORANGE (REFL)
TOP CIRCLE - RED (REFL)
MIDDLE CIRCLE - YELLOW (REFL)
BOTTOM CIRCLE - GREEN (REFL)



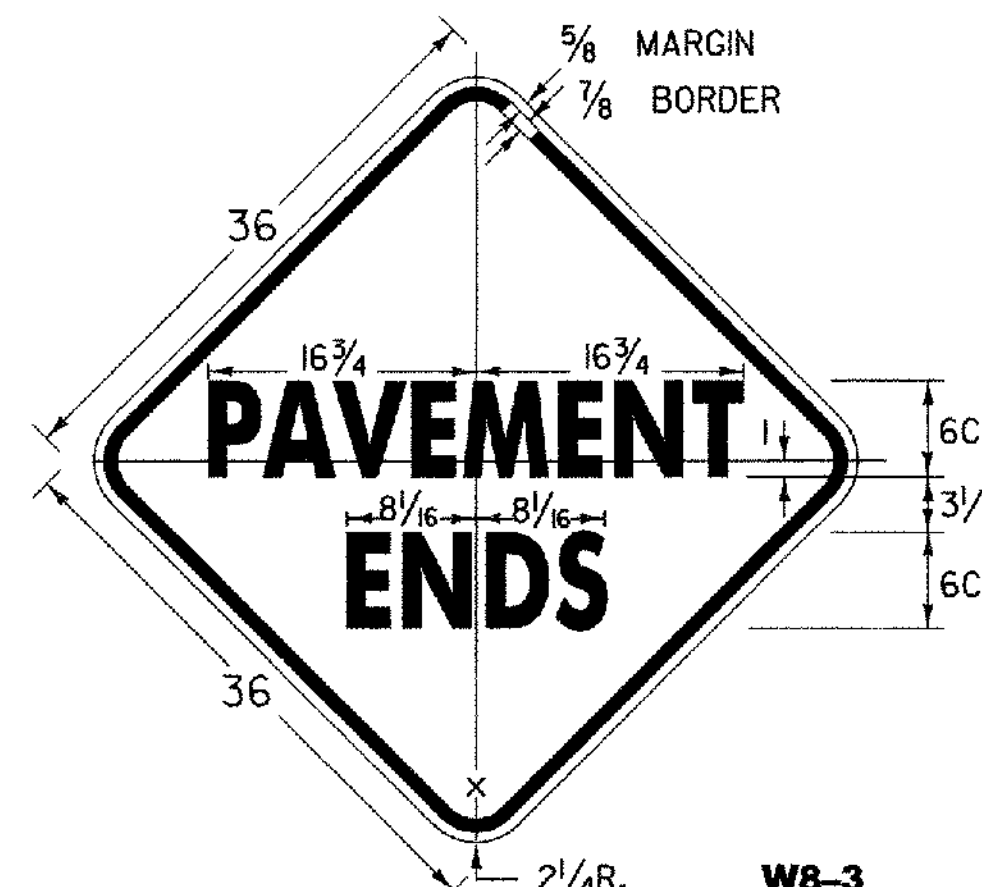
* REDUCE SPACING 50%



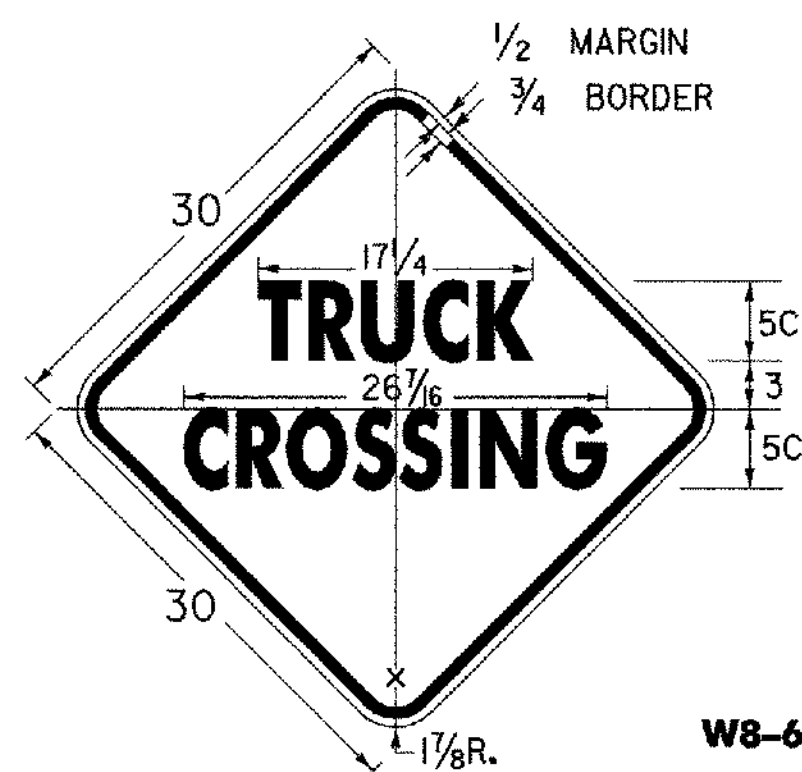
W4-2



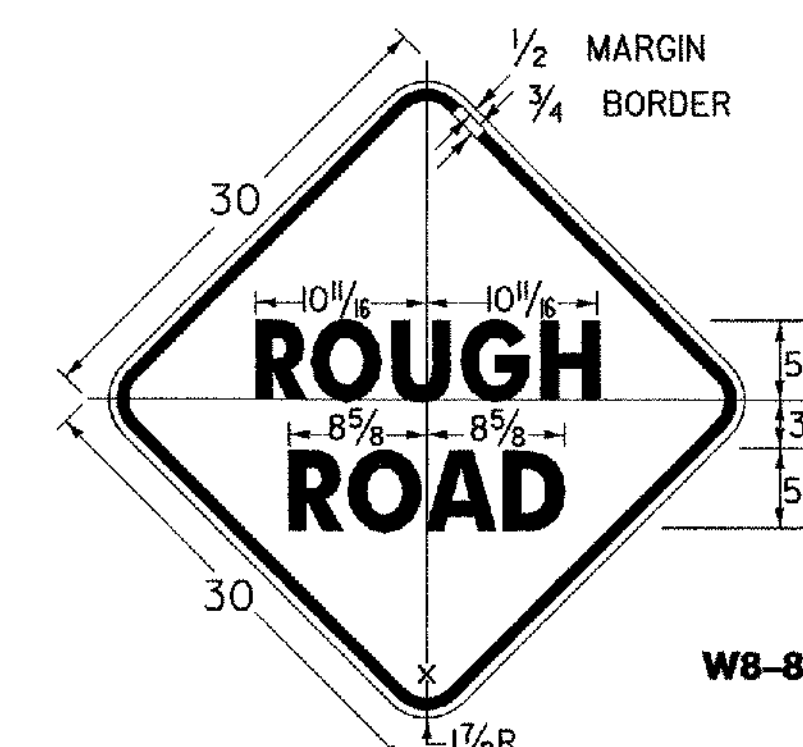
W8-1



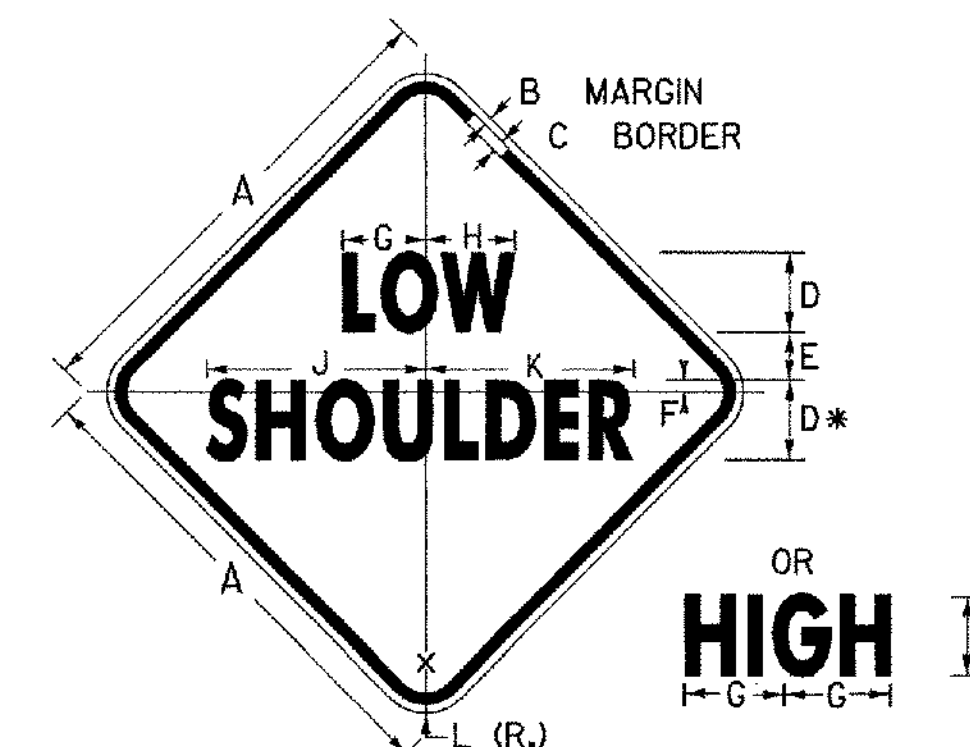
W8-3



W8-6



W8-8



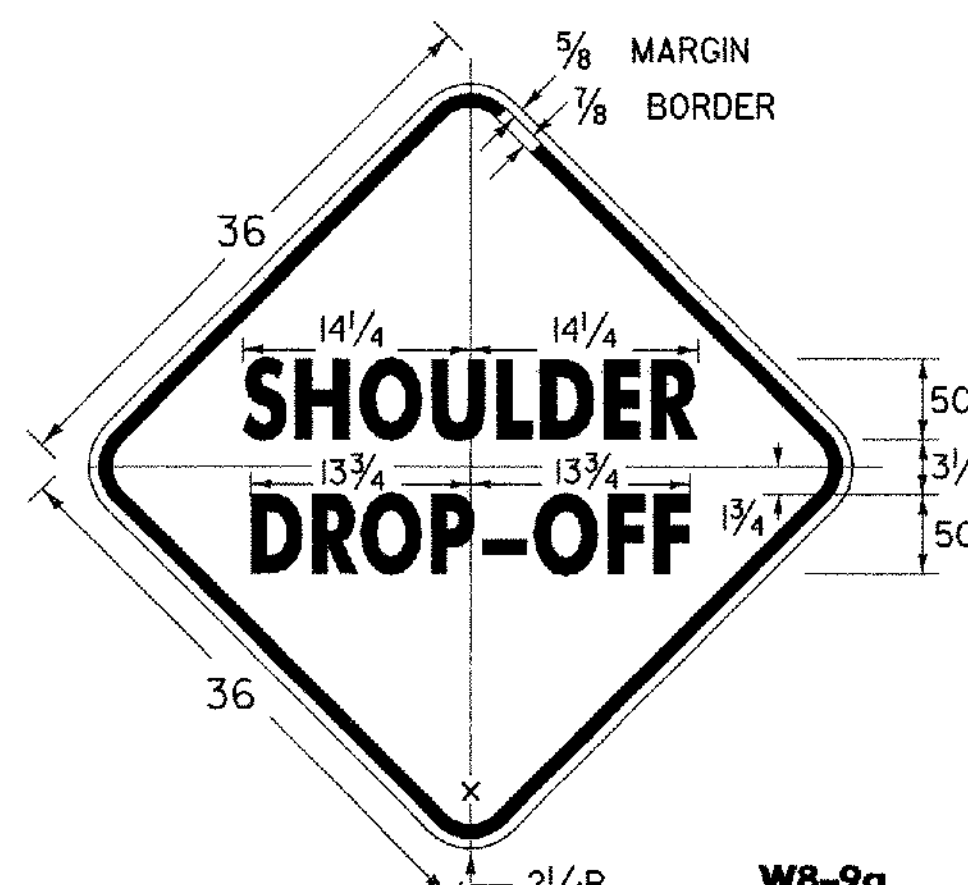
W8-9

* REDUCE SPACING 25%

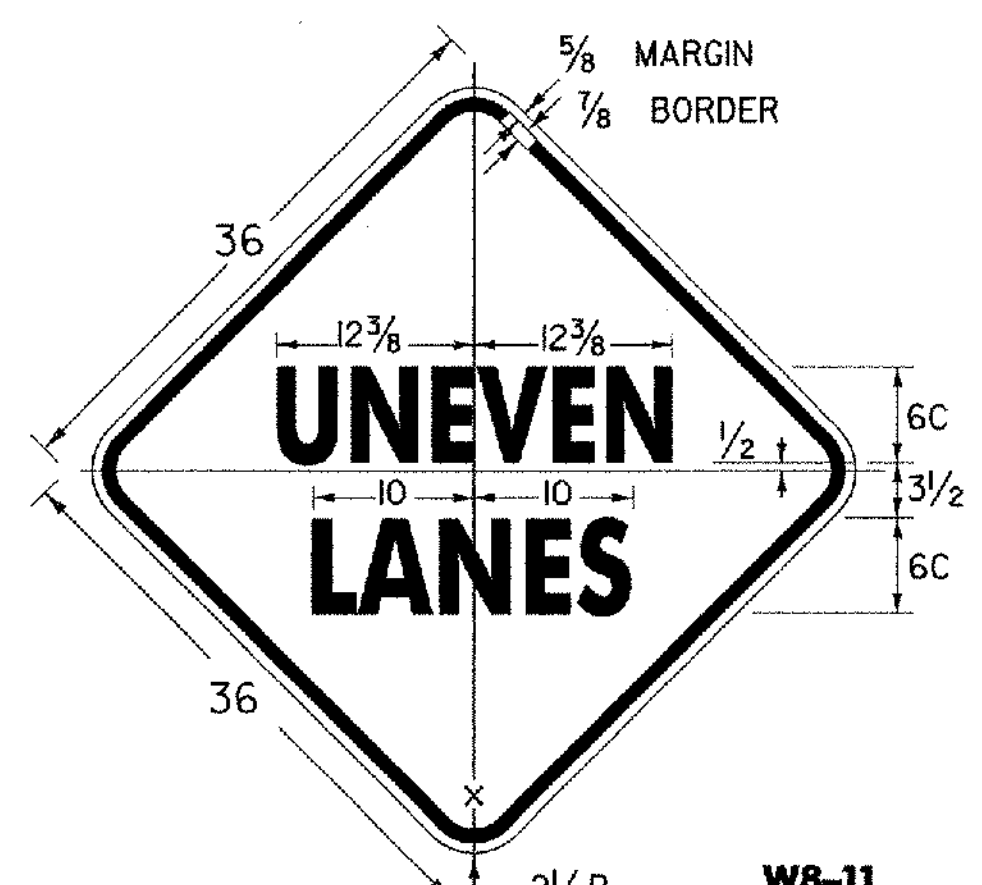
SIGN	A	B	C	D	E	F	G	H	J	K	L
STD.	30	1/2	3/4	5 C	3	3/4	5 1/8	5 1/8	13 1/8	13 1/8	1 1/8
FWY.	48	3/4	1 1/4	8 C	5	1 1/4	8 1/4	9	21 1/8	20 1/8	3

NOTES

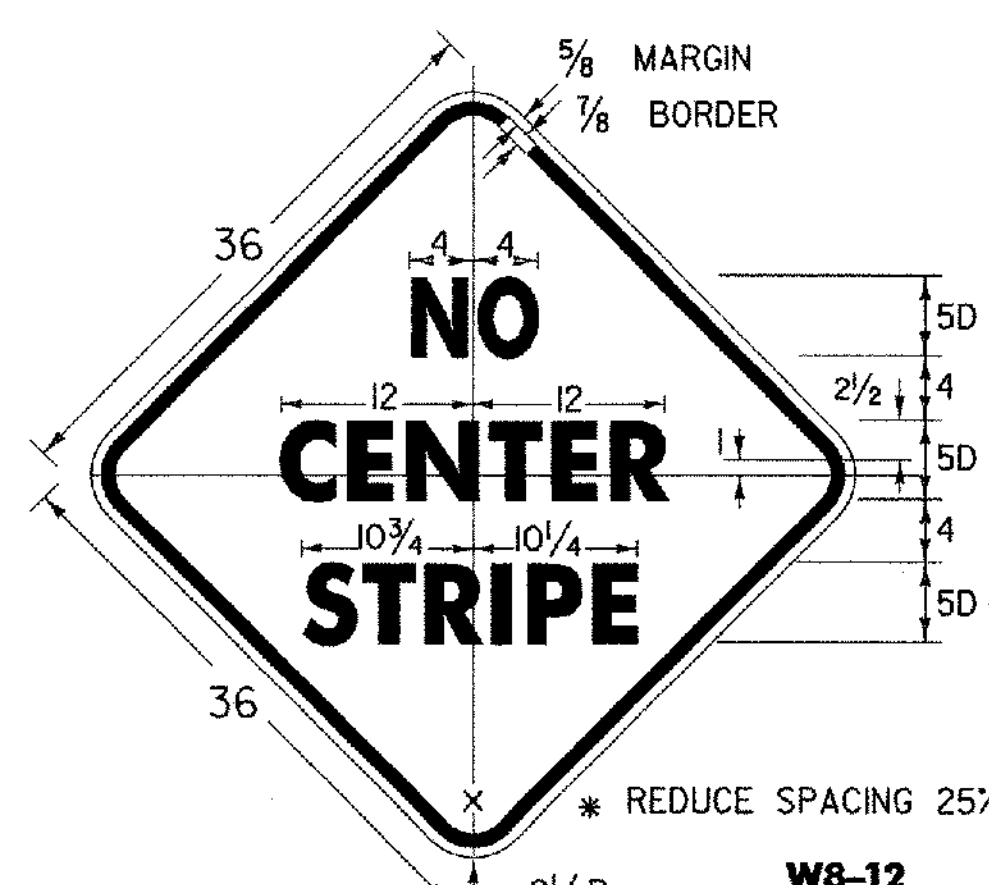
SEE STANDARD SHEET E-100 FOR NOTES AND TEXT DETAILS
COLORS FOR SIGNS SHOWN ON THIS SHEET SHALL BE BLACK TEXT,
BORDER AND SYMBOLS ON ASTM TYPE III OR TYPE VI
RETROREFLECTORIZED ORANGE BACKGROUND, UNLESS OTHERWISE NOTED.



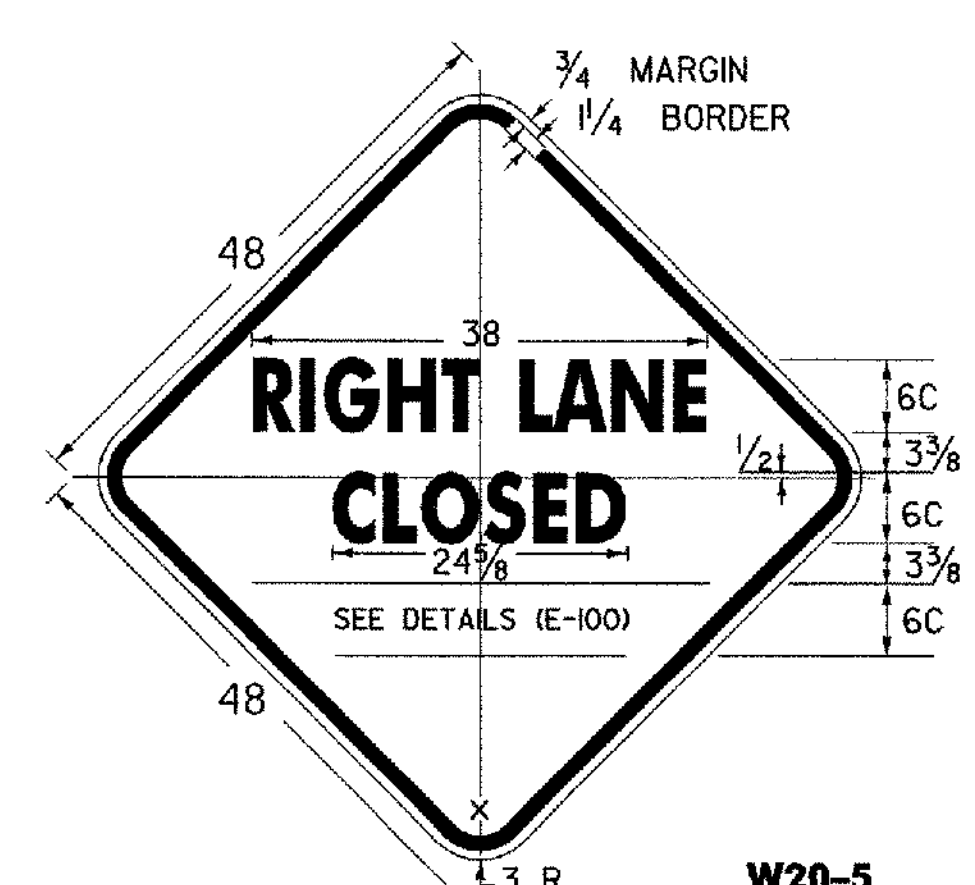
W8-9a



W8-11



W8-12



W20-5

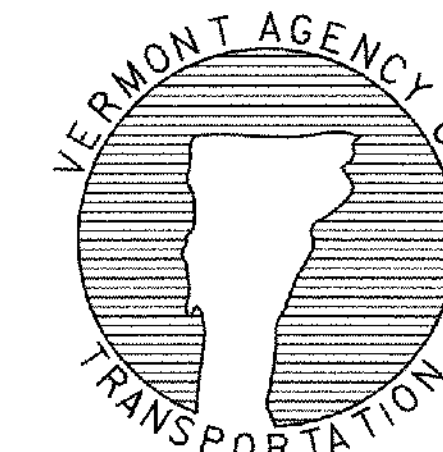
(ALL DIMENSIONS SHOWN IN INCHES) LEFT LANE

OTHER STDS. E-100
REQUIRED:

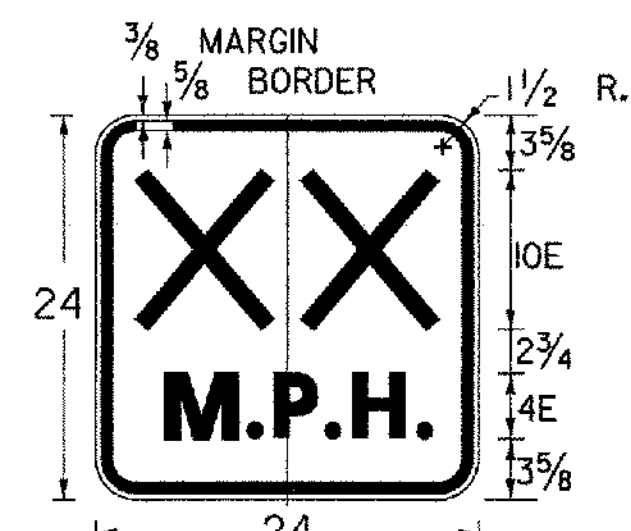
REVISIONS AND CORRECTIONS
OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
OCT. 21, 1992 - ADDED ADDITIONAL SIGN DIMENSIONS,
REVISED CHEVRON BACKGROUND TO ORANGE,
& REVISED TITLE BLOCK
AUG. 08, 1995 - ADDED AND DELETED VARIOUS
SIGN DETAILS
MAR. 10 1997 - REVISED SIGN DETAILS
MAY 30, 2003 - CHANGED REFLECTIVE SHEETING TO ASTM
TYPE III OR TYPE VI

APPROVED
[Signature]
DIRECTOR OF PROGRAM DEVELOPMENT
[Signature]
TRAFFIC OPERATIONS ENGINEER
[Signature]
FEDERAL HIGHWAY ADMINISTRATION

CONSTRUCTION SIGN
DETAILS

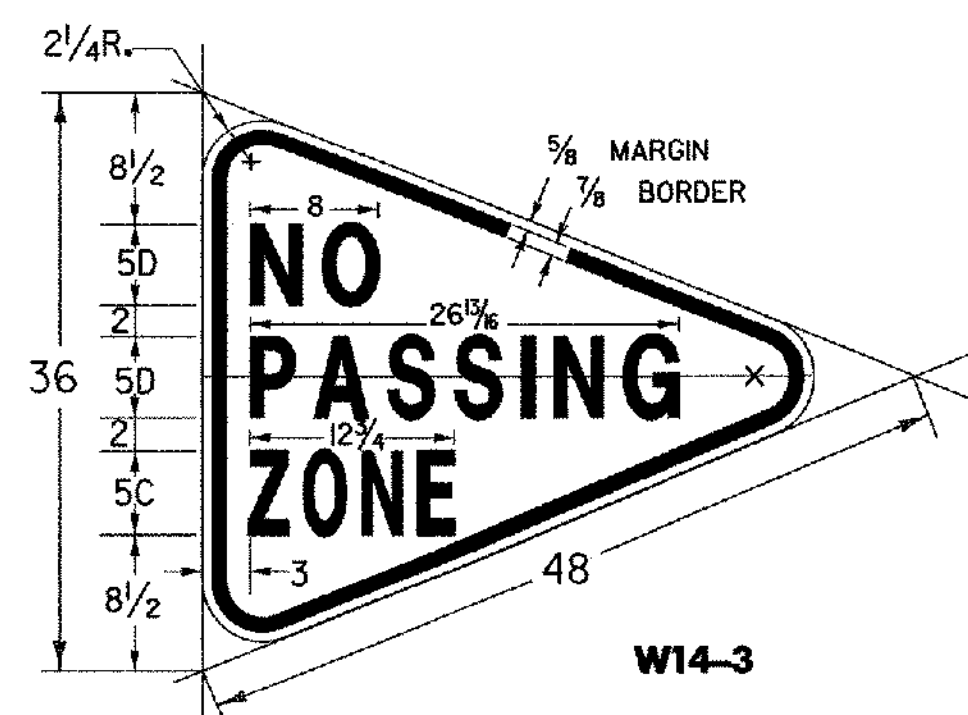


STANDARD
E-101

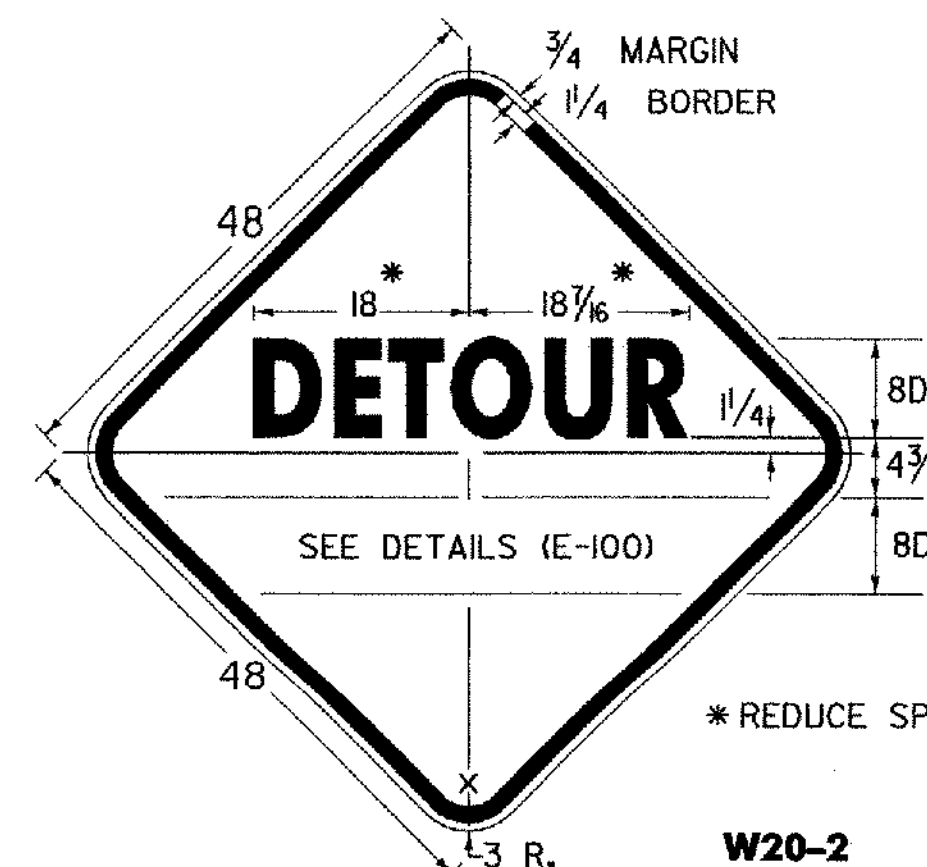


XX DENOTES ADVISORY SPEED AS SHOWN ON THE PLANS

W13-1

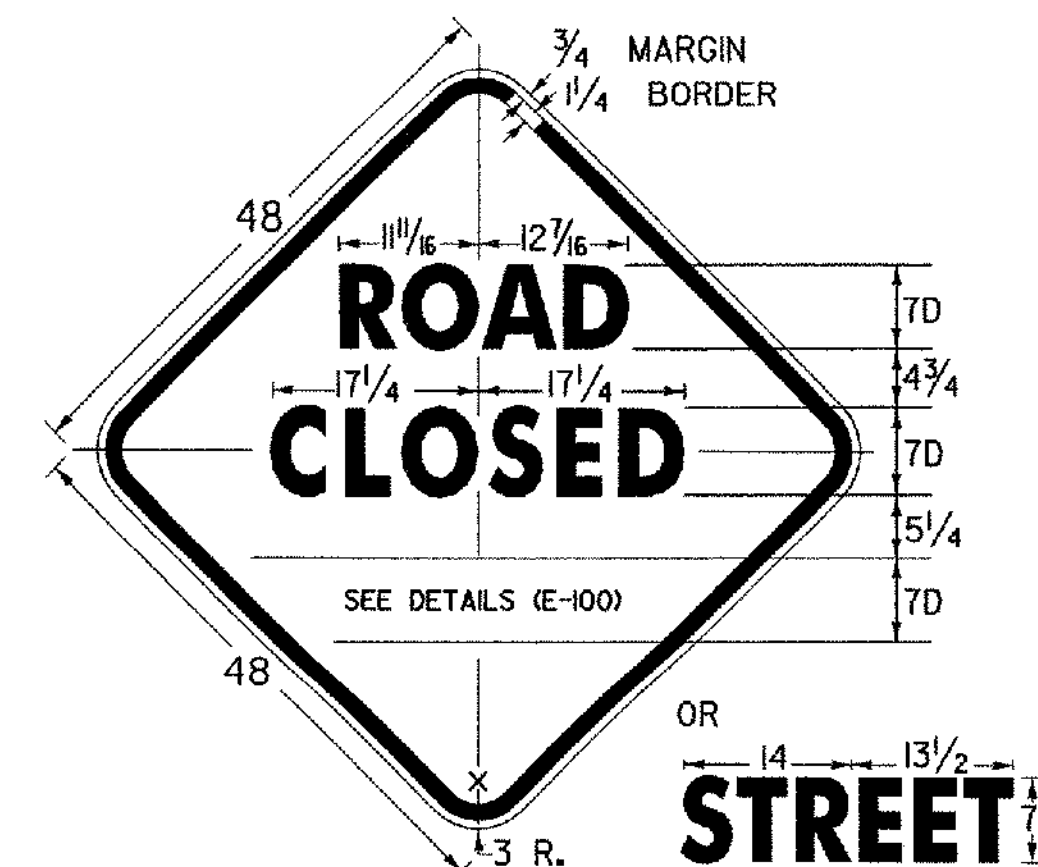


W14-3



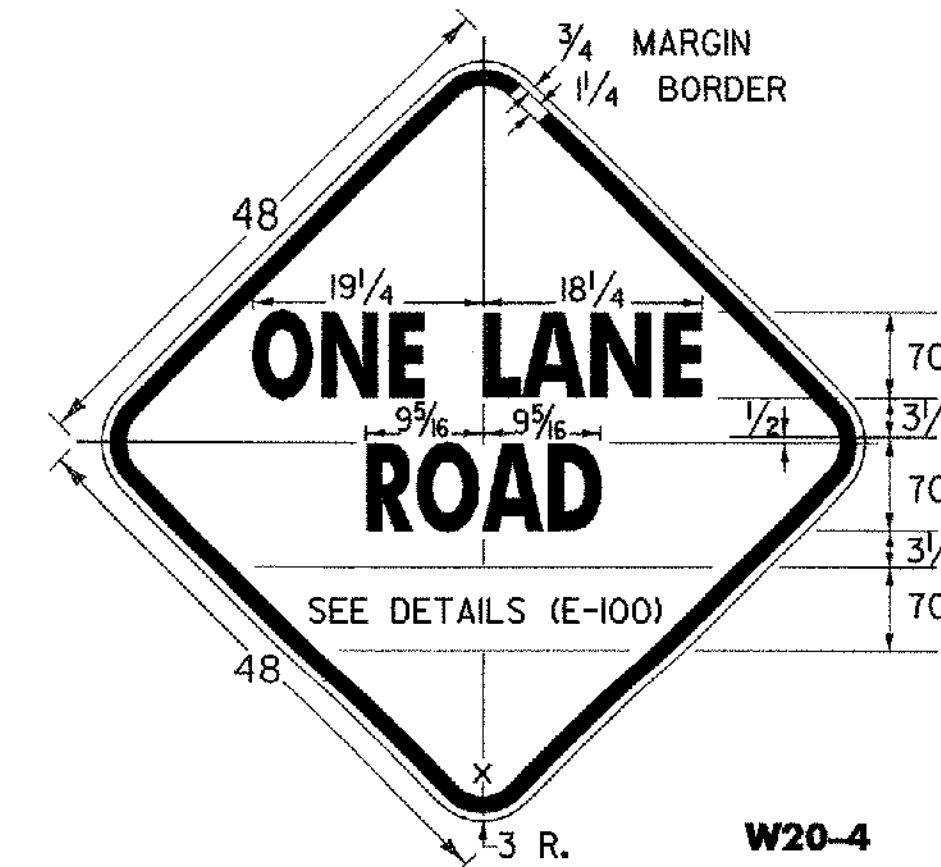
* REDUCE SPACING 40%

W20-2

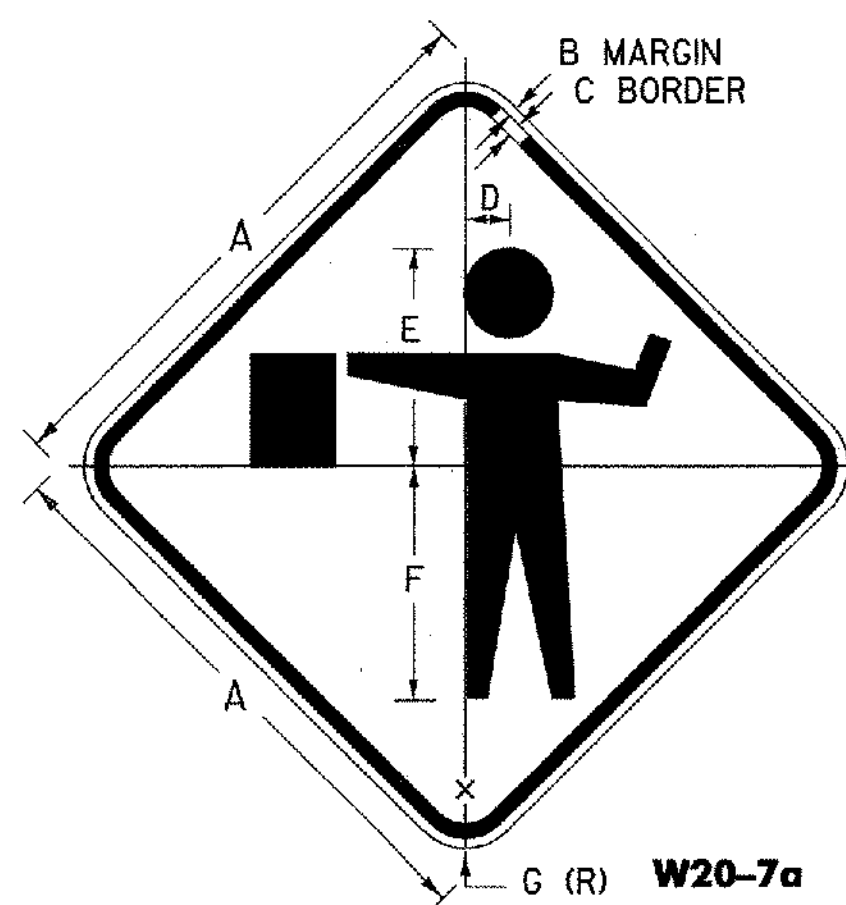


OR
STREET

W20-3



W20-4



W20-7a

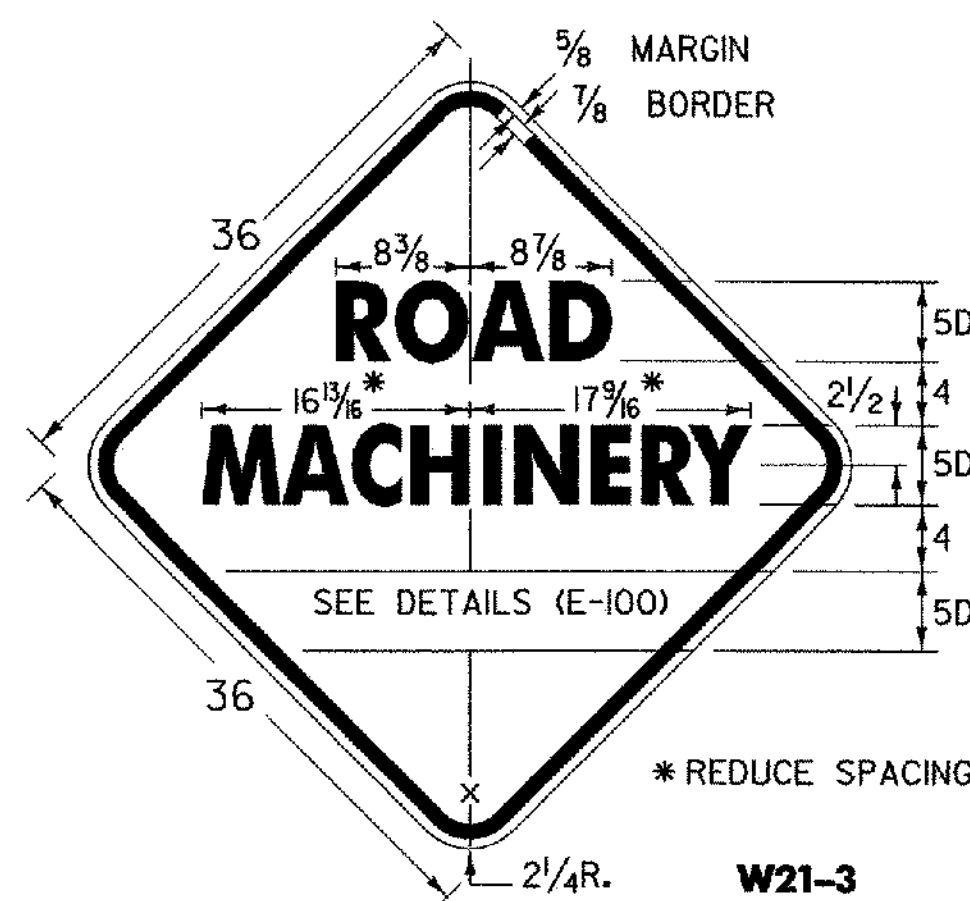


W20-7b

COLORS:
BLACK BORDER AND TEXT (NON RETRORFL.)
ORANGE BACKGROUND (RETRORFL.)

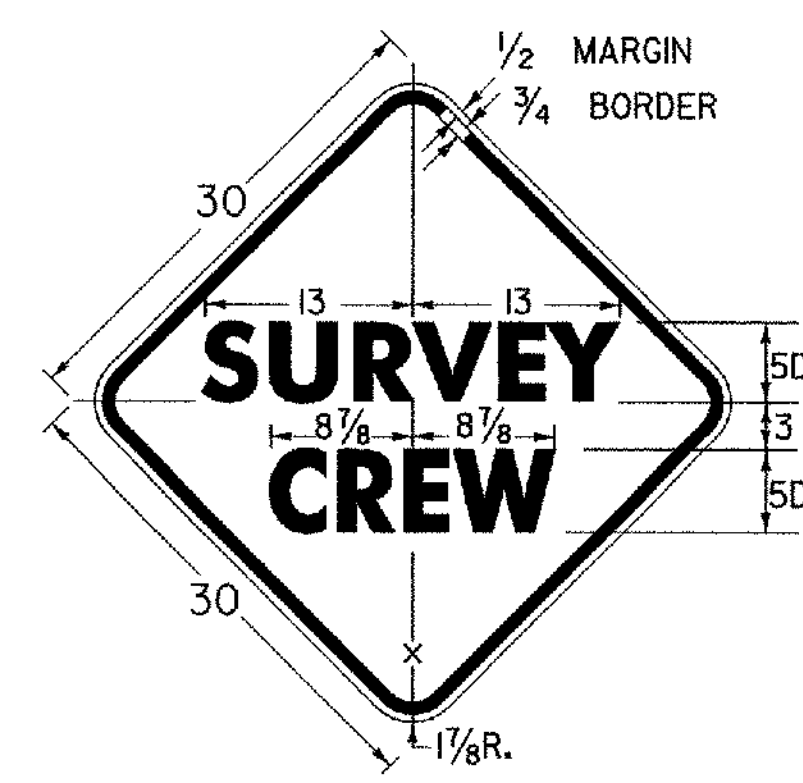
W3-4

COLORS:
BLACK BORDER AND TEXT (NON RETRORFL.)
YELLOW BACKGROUND (RETRORFL.)



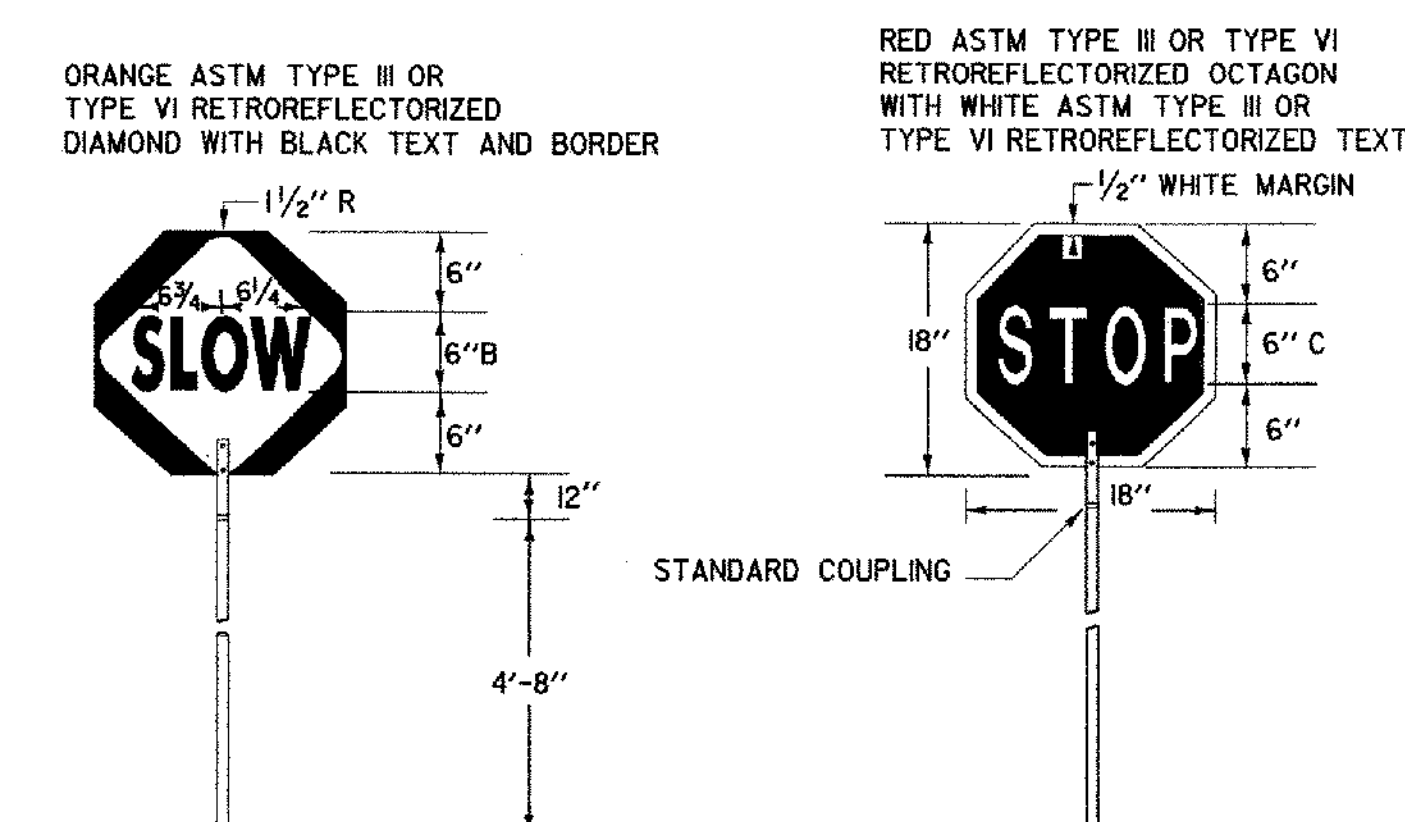
* REDUCE SPACING 40%

W21-3

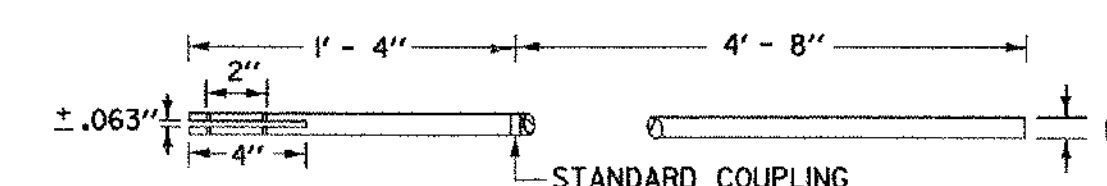


W21-6

SIGN PADDLE FOR FLAGPERSON



SIGN DETAIL



STAFF DETAIL

MATERIALS
THE SIGN MATERIALS SHALL BE 0.063" ALUMINUM WITH COLORS AS INDICATED ON DETAILS.
THE STAFF SHALL BE 3/4" TO 1 1/4" DIAMETER RIGID ALUMINUM CONDUIT/TUBING WITH A WALL THICKNESS OF 0.125" OR 1" TO 1 1/2" DIAMETER RIGID PVC CONDUIT/TUBING WITH 0.125" WALL THICKNESS

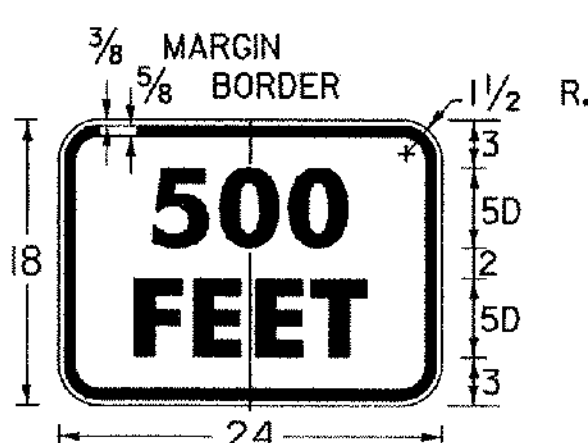
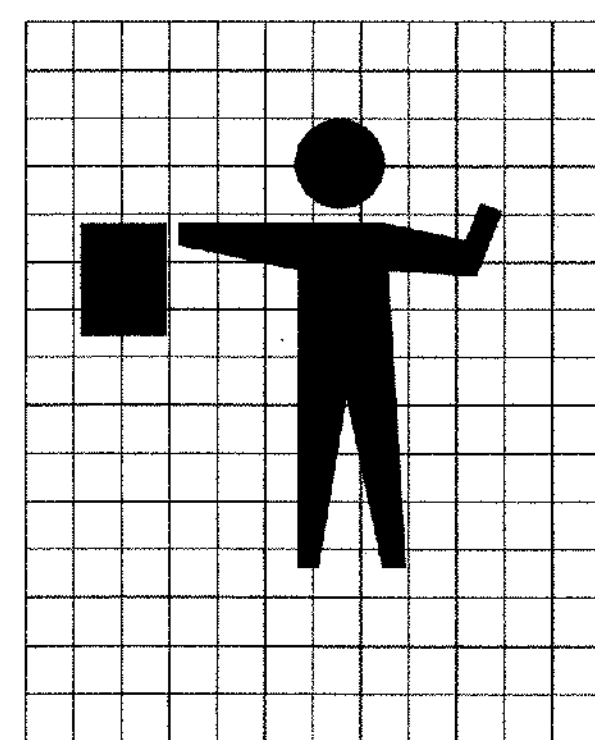
MOUNTING
THE STAFF SHALL BE MOUNTED WITH EITHER TWO 1/4" DIAMETER ALUMINUM BOLTS OR TWO 1/4" DIAMETER ALUMINUM RIVETS.

NOTES

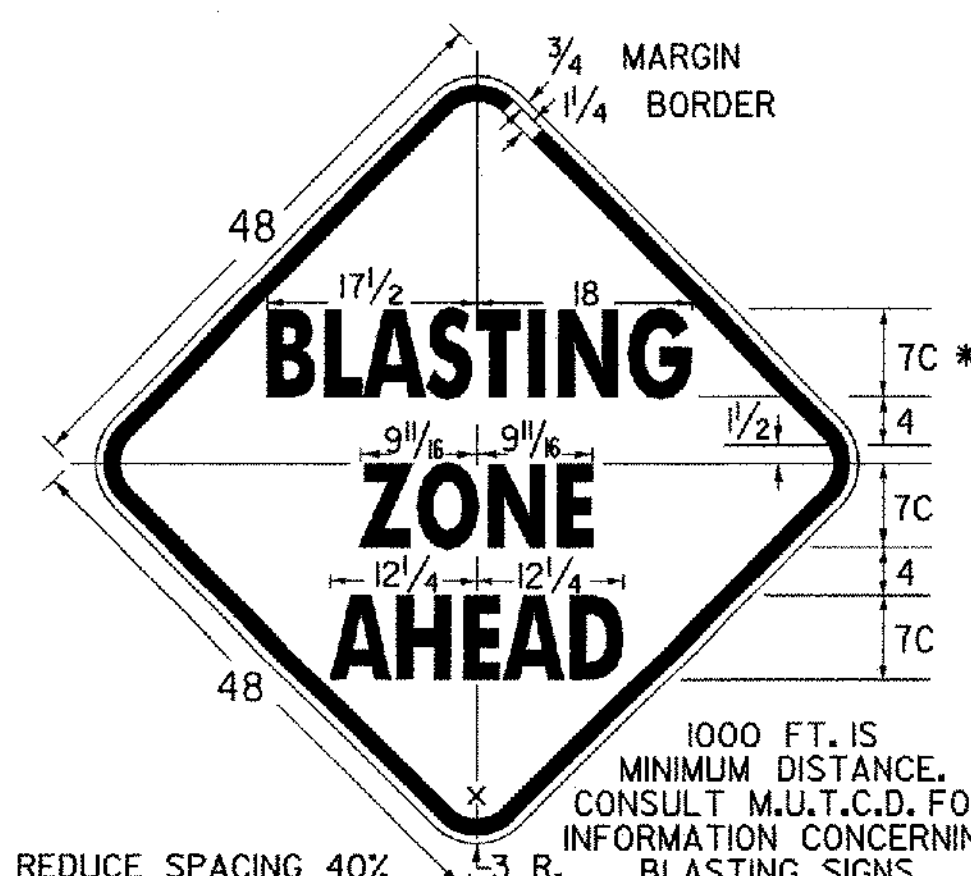
SEE STANDARD SHEET E-100 FOR NOTES AND TEXT DETAILS
COLORS FOR SIGNS SHOWN ON THIS SHEET SHALL BE BLACK TEXT, BORDER AND SYMBOLS ON ASTM TYPE III OR TYPE VI RETROREFLECTORIZED ORANGE BACKGROUND, UNLESS OTHERWISE NOTED
SIGN DETAILS INDICATE THE APPROPRIATE COLOR.

SIGN	A	B	C	D	E	F	G
STD.	36	5/8	7/8	2 3/4	13 1/2	14 5/8	2 1/4
FWY.	48	3/4	1 1/4	3 3/4	18	19 1/2	3

SIGN	A	B	C	D	E	F	G	H	J	K	L
MIN.	36	5/8	7/8	6C	3 3/8	7/8	3 3/4	16 3/8	13	13 3/8	2 1/4
STD.	48	3/4	1 1/4	8C	4 7/8	1 1/4	5	21 3/8	17 3/8	18 1/2	3
EXPWY.	60	3/4	1 1/4	9C	5 3/8	1 3/8	5 5/8	24 3/8	19 3/8	20 1/4	3

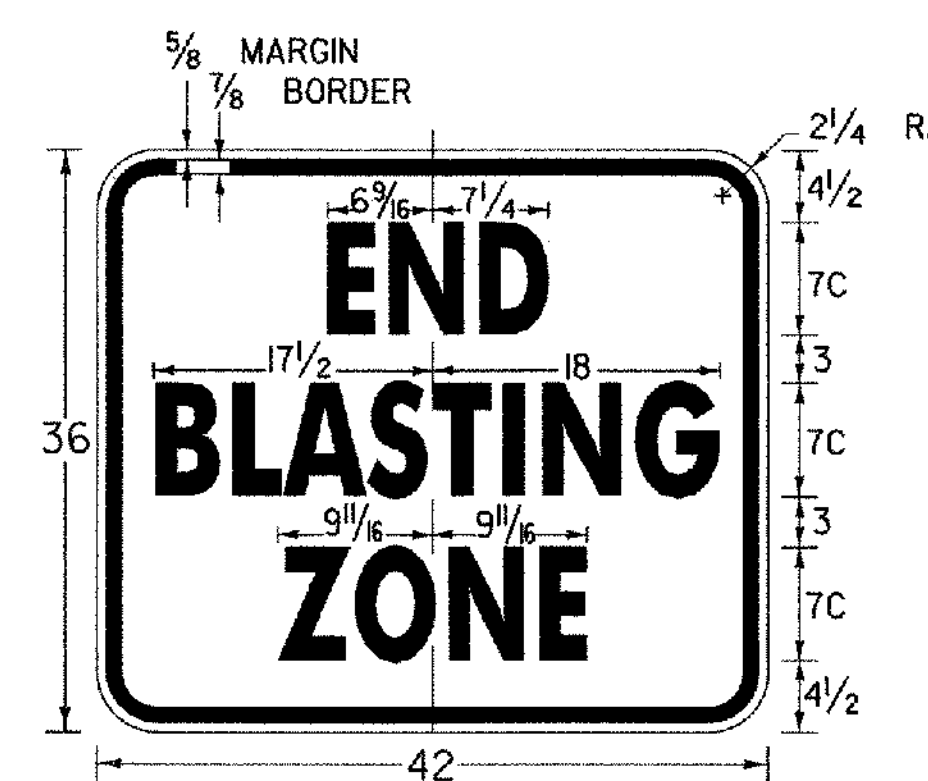


W16-2a

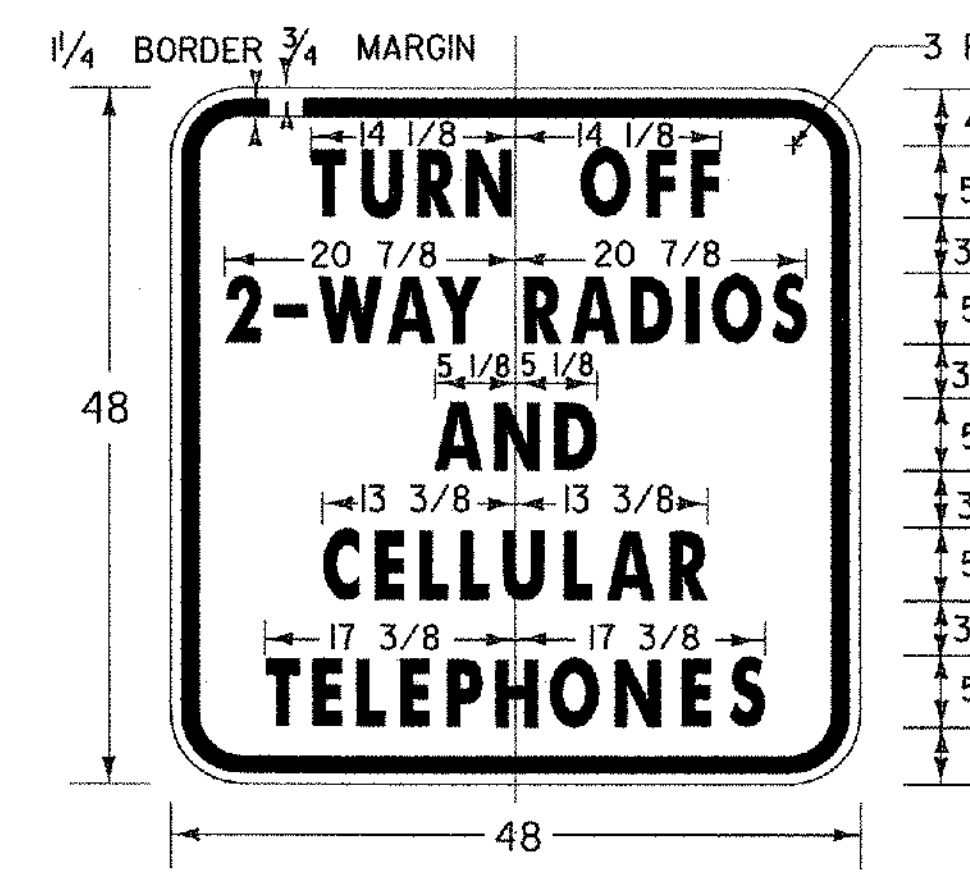


* REDUCE SPACING 40%

W22-1



W22-3



VW22-1

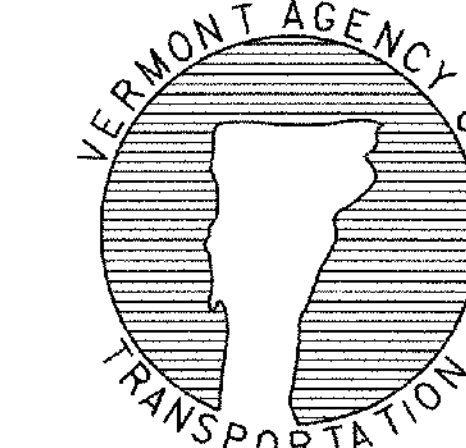
REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
JAN. 23, 1989 - DELETE MOTORCYCLE SYMBOL SIGN AND SPEED SIGN, ADDED TWO SIGNS
OCT. 21, 1992 - ADDED A SIGN, REVISED A SIGN DIMENSION & TYPE ERROR & REVISED TITLE BLOCK
AUG. 08, 1995 - ADDED FLAGGER GRID
JUNE 30, 2003 - CHANGED REFLECTIVE SHEETING TO ASTM TYPE III OR TYPE VI CHANGED TEXT ON W20-7b SIGN

APPROVED

David J. [Signature]
DIRECTOR OF PROGRAM DEVELOPMENT
John K. [Signature]
TRAFFIC OPERATIONS ENGINEER
Michael [Signature]
FEDERAL HIGHWAY ADMINISTRATION

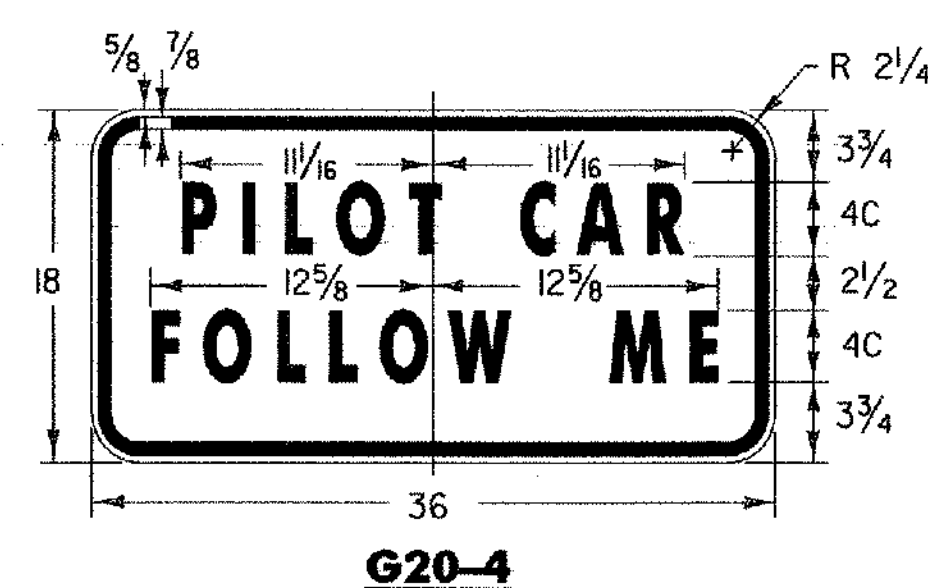
CONSTRUCTION SIGN DETAILS



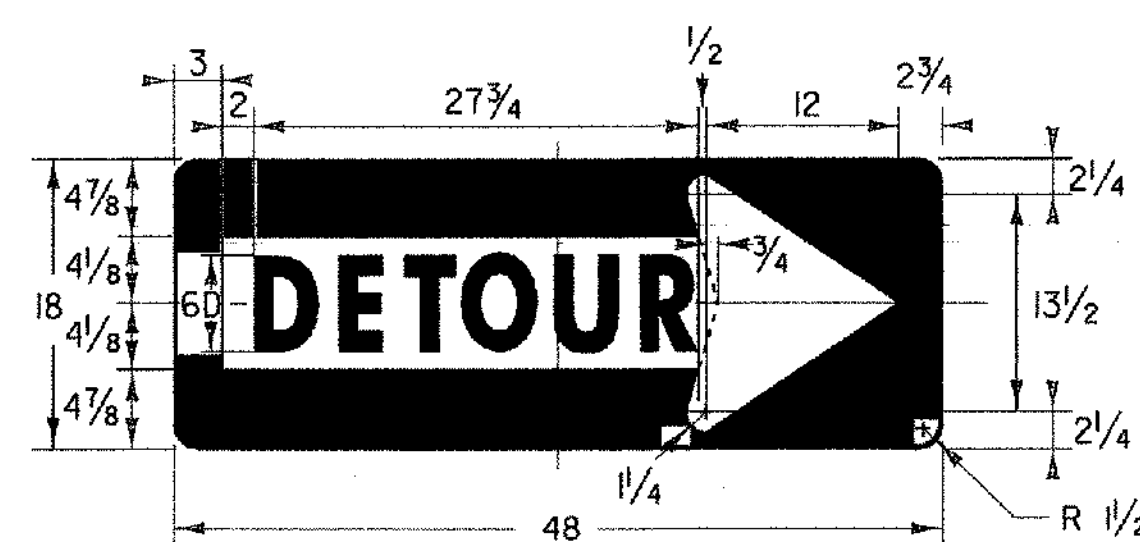
STANDARD E-102

OTHER STDS. E-100 REQUIRED:

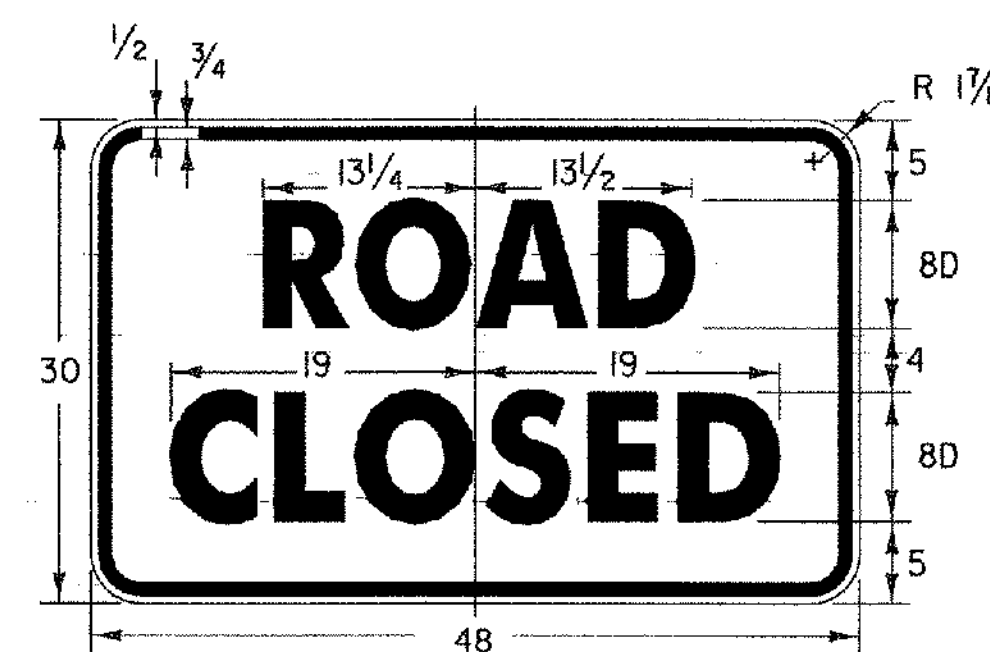
NOTE: ALL DIMENSIONS SHOWN IN INCHES EXCEPT WHERE NOTED



G20-4

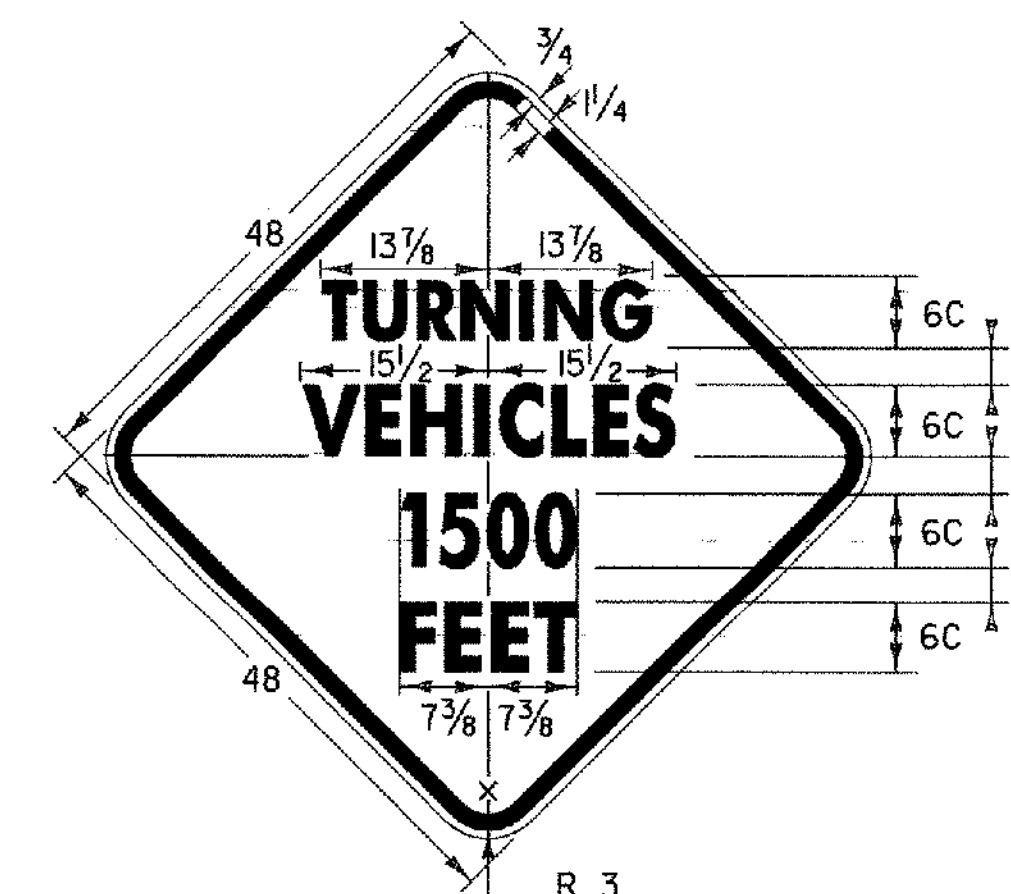


M4-10(R)

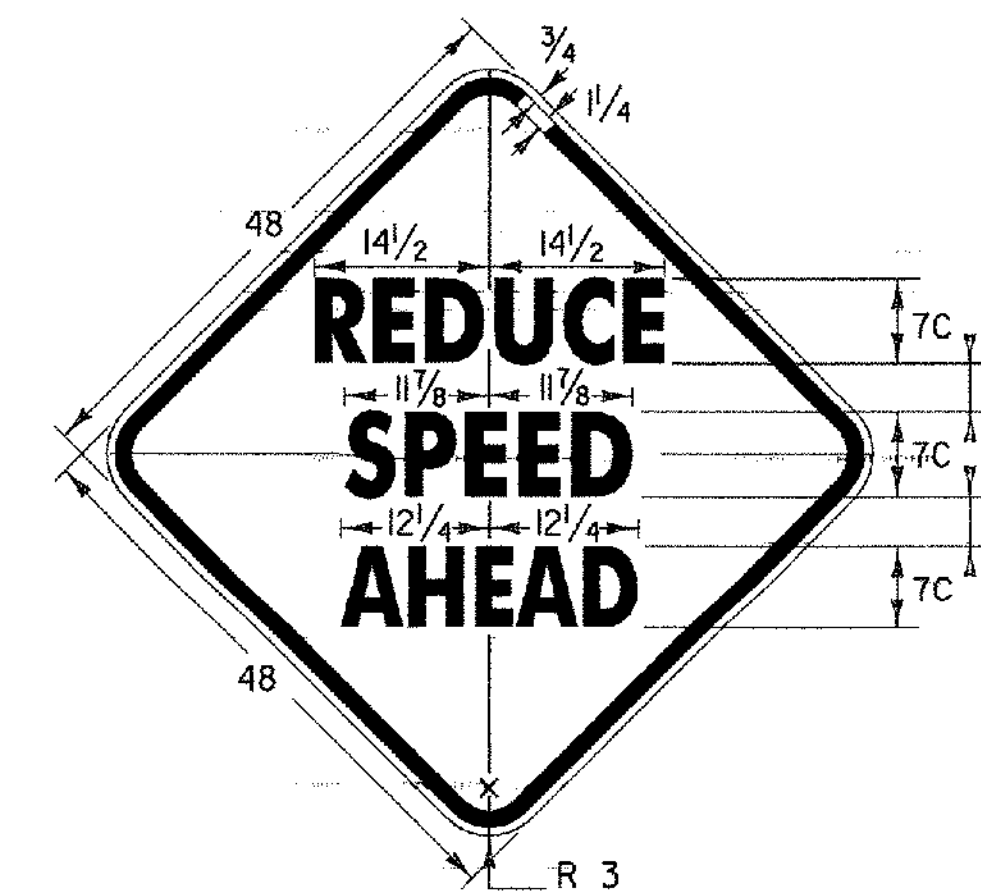


R11-2

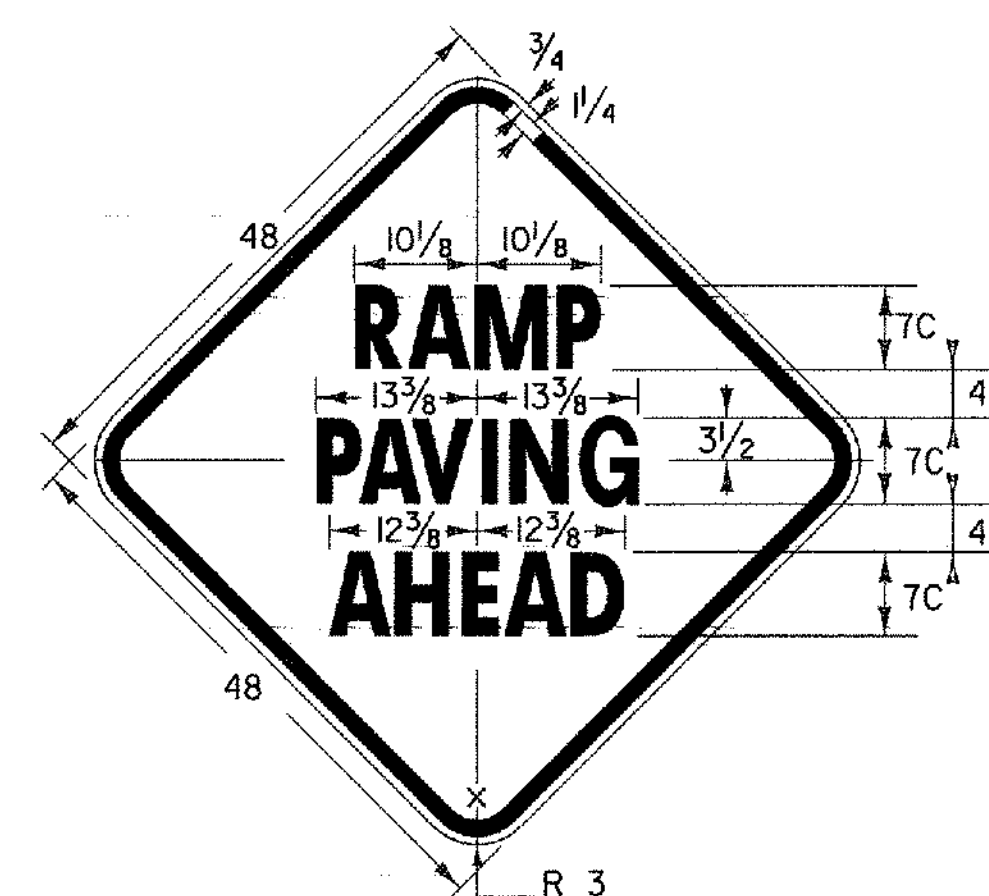
COLORS:
BLACK TEXT AND BORDER
WHITE RETROREFLECTORIZED BACKGROUND



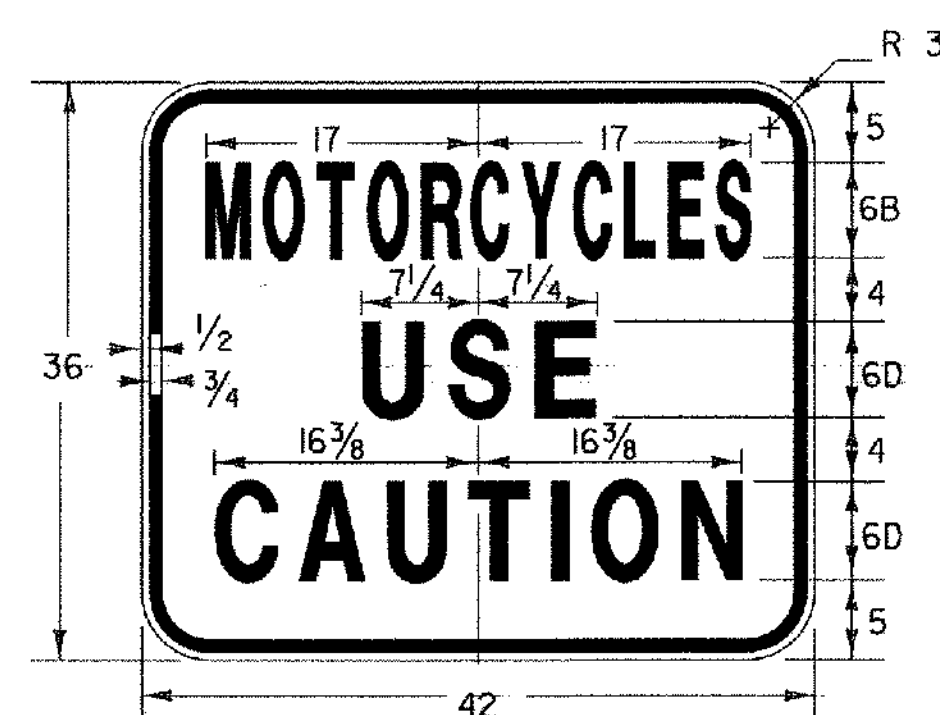
VC-001



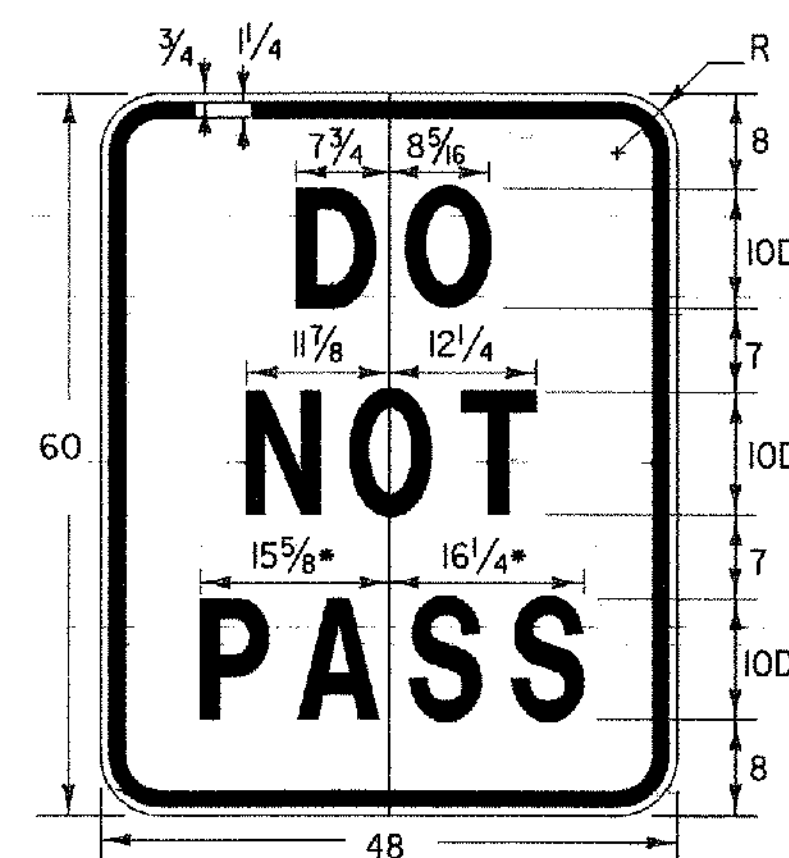
VC-002



VC-003

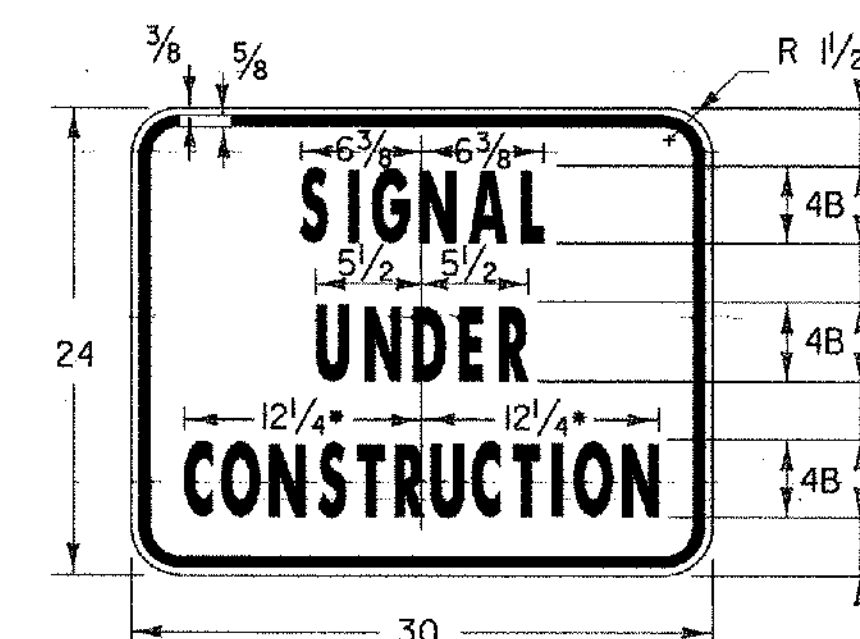


VC-004



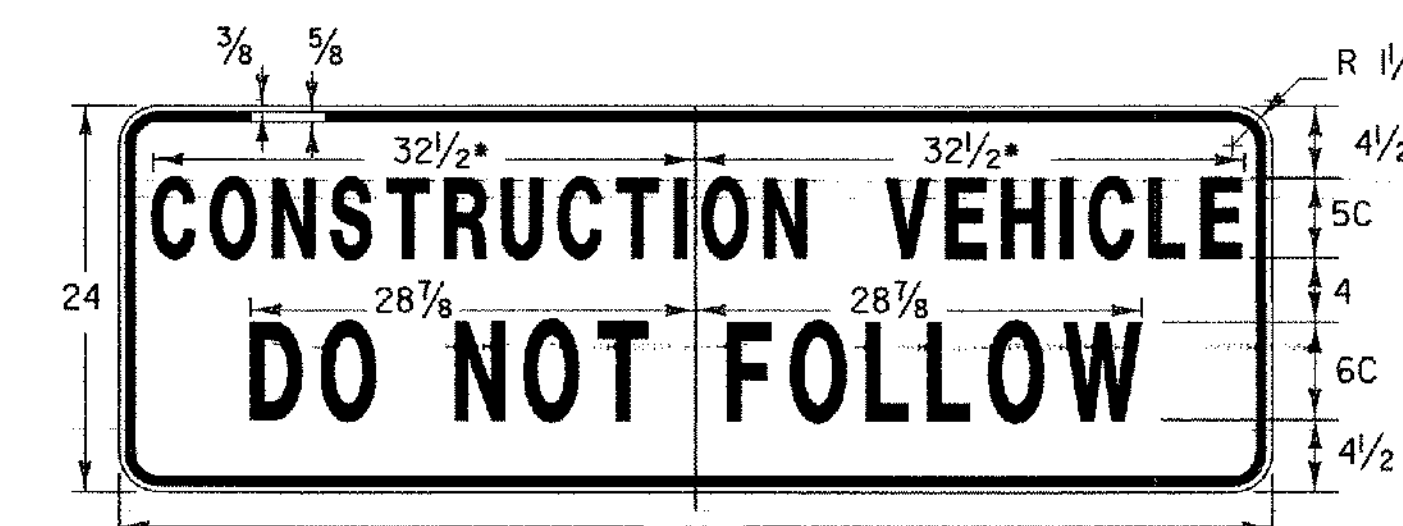
VC-005

* REDUCE SPACING BY 40%



VC-820

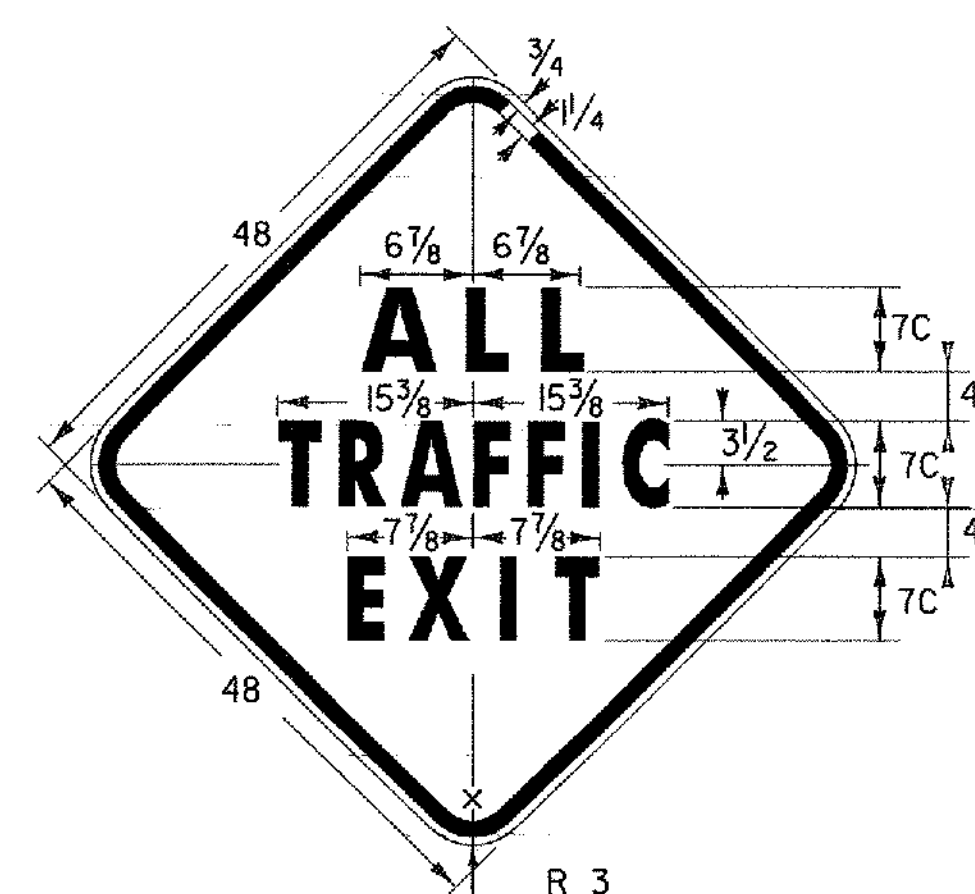
* REDUCE SPACING 25%



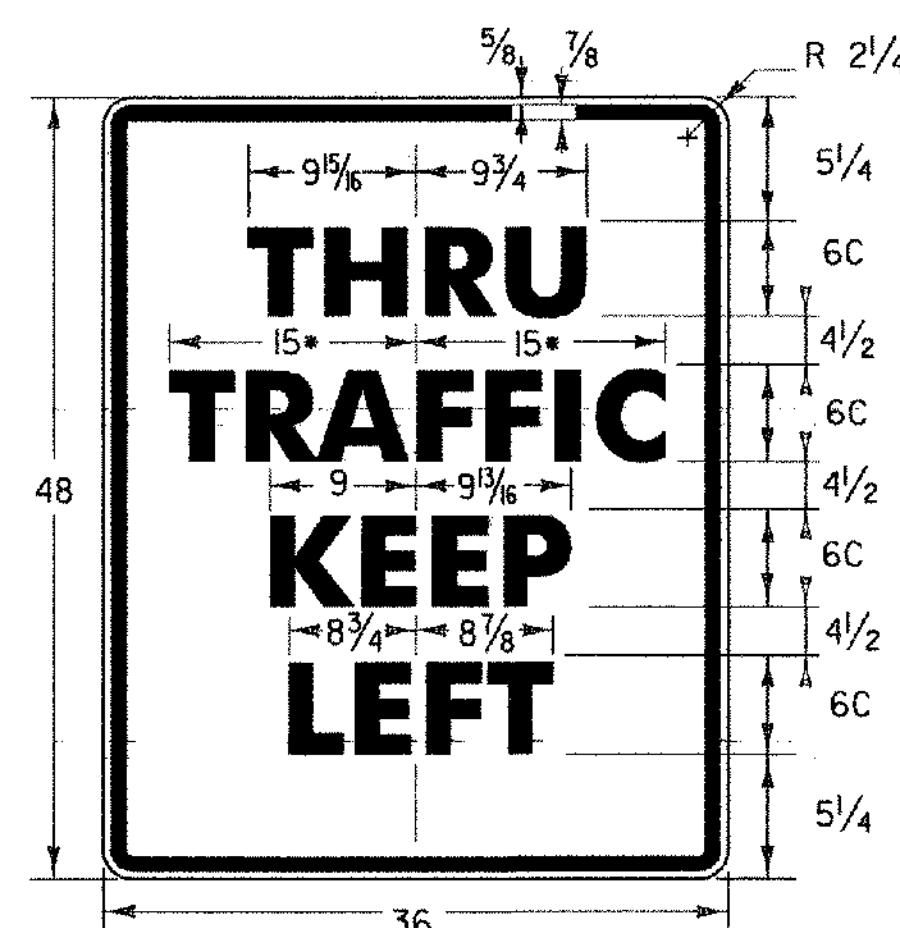
VC-007

* REDUCE SPACING 20%

IT IS SUGGESTED THAT THIS SIGN BE DESIGNED TO FOLD, (DOWN OR ACROSS), BE COVERED, OR BE REMOVED WHEN NOT IN USE. THE SIGN SHOULD ALSO BE MOUNTED AS TO NOT INTERFERE WITH THE VISIBILITY OF DIRECTIONAL OR TAIL LIGHTS AS REQUIRED BY LAW.



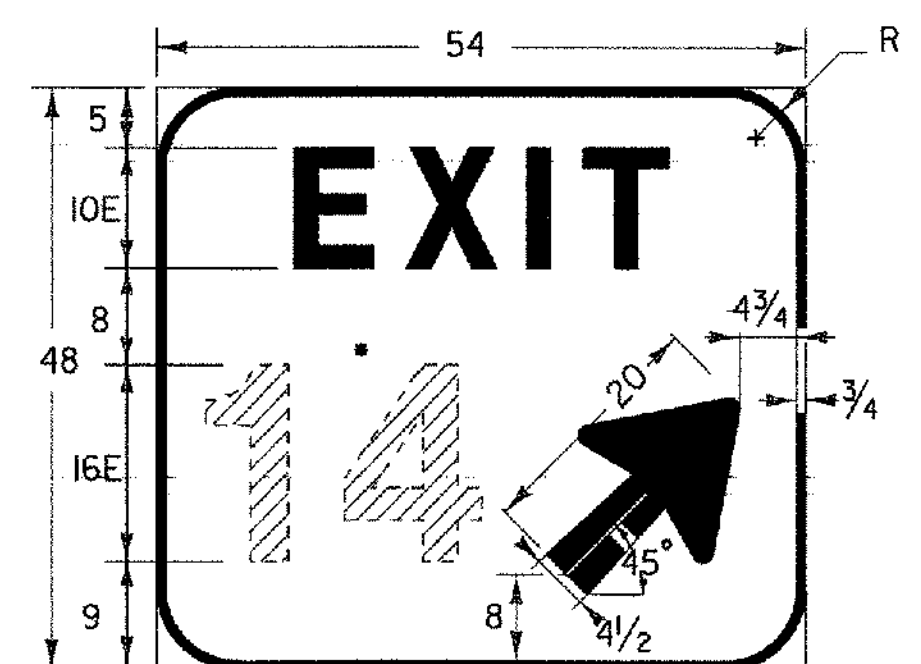
VC-008



VR-118L

* REDUCE SPACING 25 %

COLORS:
BLACK TEXT AND BORDER
WHITE (RETROREFLECTORIZED) BACKGROUND



E5-1a

* EXIT NUMBER AS PER PLANS OPTICALLY SPACED

COLORS:
WHITE RETROREFLECTORIZED BORDER, ARROW AND LEGEND
GREEN RETROREFLECTORIZED BACKGROUND

(ALL DIMENSIONS SHOWN IN INCHES EXCEPT WHERE NOTED)

NOTES

SEE STANDARD SHEET E-100 FOR NOTES AND TEXT DETAILS

COLORS FOR SIGNS SHOWN ON THIS SHEET SHALL BE BLACK TEXT, BORDER AND SYMBOLS ON ASTM TYPE III OR TYPE VIII RETROREFLECTIVE ORANGE BACKGROUND, UNLESS OTHERWISE NOTED.

SIGN DETAILS INDICATE THE PROPER COLOR.

OTHER STDS. E-100, E-151
REQUIRED:

REVISIONS AND CORRECTIONS

AUG 08, 1995 - DATE OF ORIGINAL ISSUE
MAY 01, 2004 - CHANGED REFLECTIVE SHEETING TO TYPE III

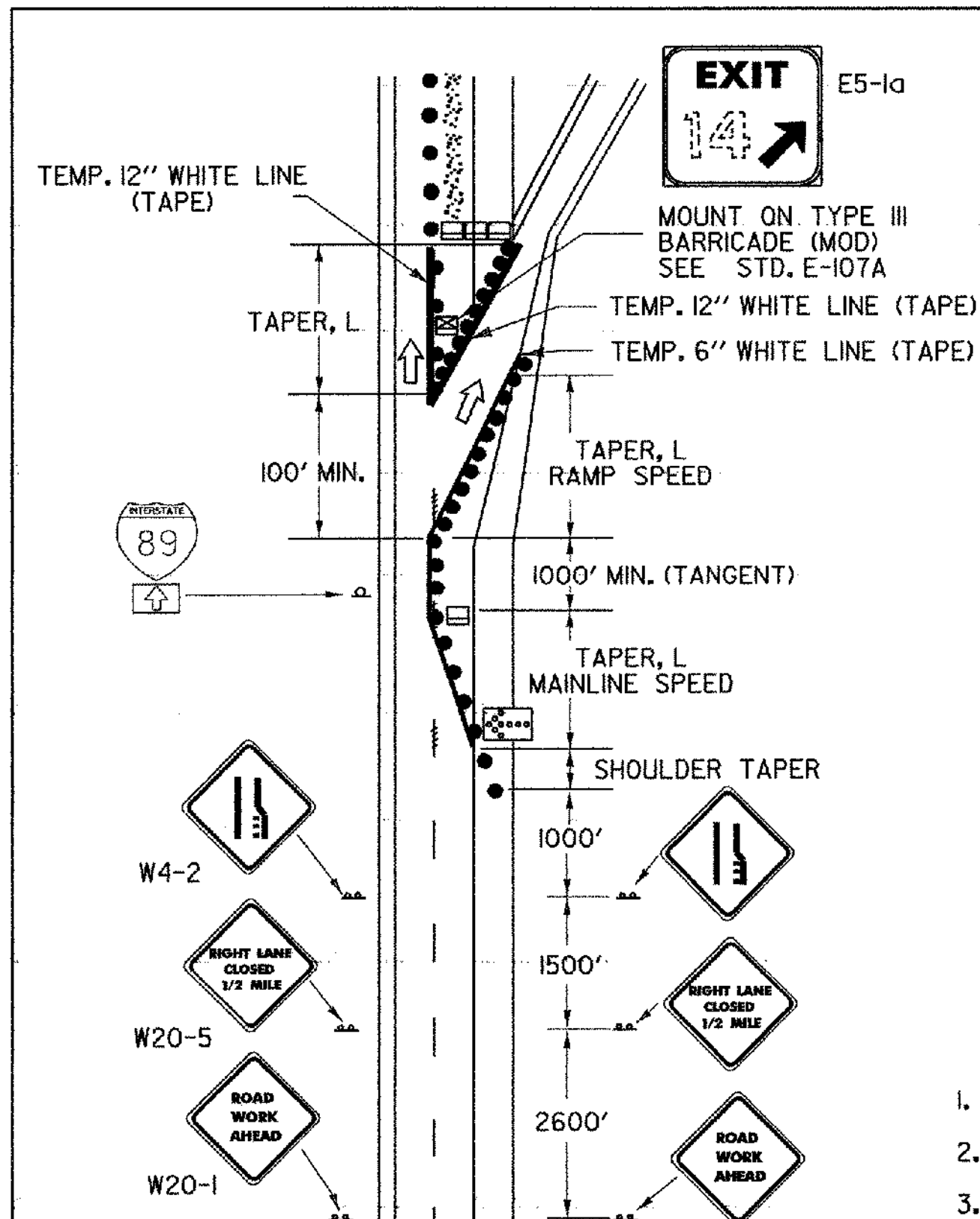
APPROVED

DIRECTOR OF PROGRAM DEVELOPMENT
TRAFFIC OPERATIONS ENGINEER
FEDERAL HIGHWAY ADMINISTRATION

CONSTRUCTION SIGN DETAILS



STANDARD
E-102A



MAINLINE LANE CLOSURE AT AN EXIT RAMP

NOT TO SCALE

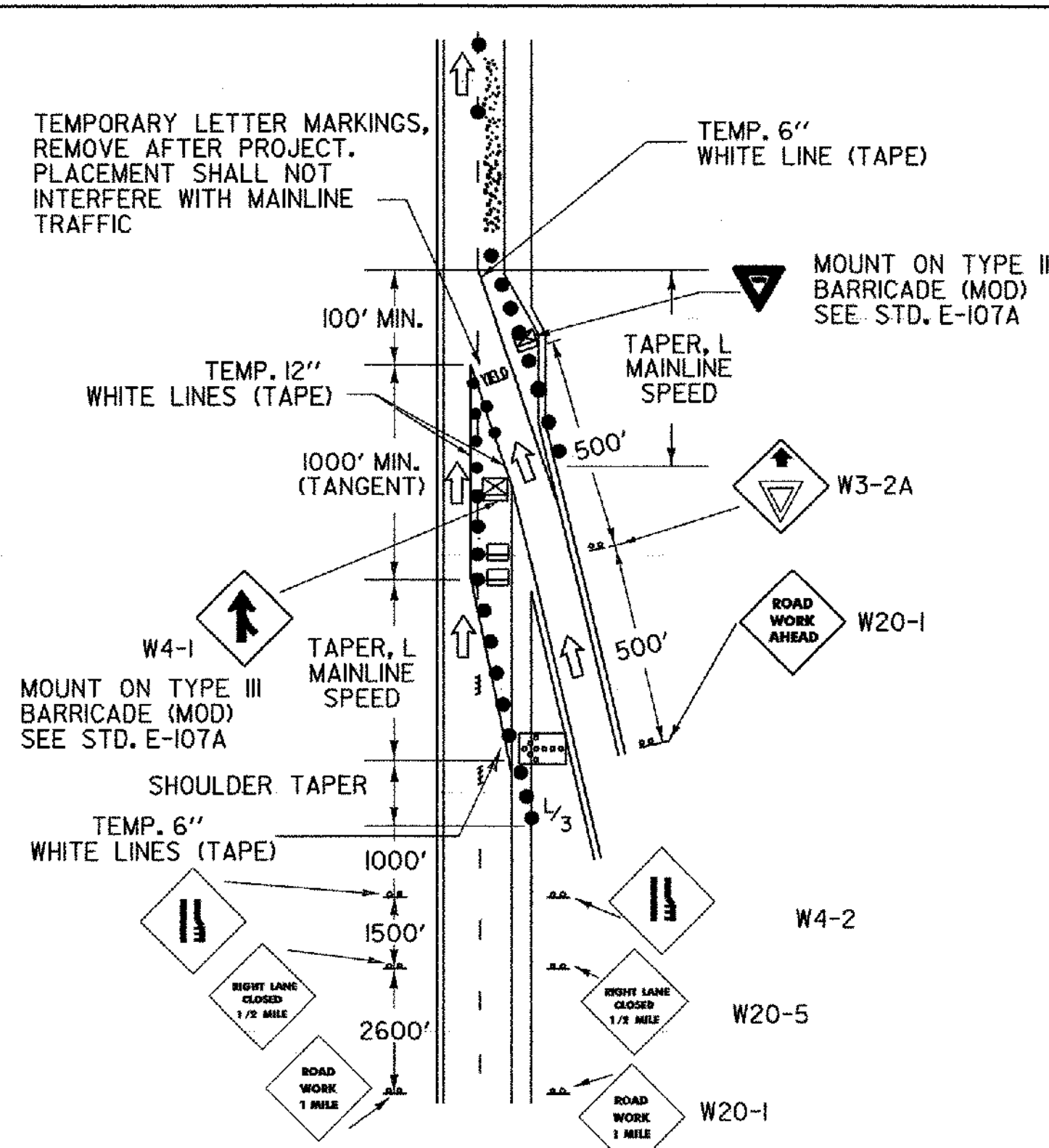
THIS DETAIL SHALL BE USED WHEN THE WORK ZONE BEGINS AT THE GORE OR THE MAINLINE LANE CLOSURE DRUM PLACEMENT INTERFERES WITH THE EXIT RAMP.

LEGEND

- REFL. PLASTIC DRUMS
- PAVEMENT MARKING REMOVAL
- ↑ INDICATES TRAFFIC FLOW
- WORK AREA
- FLASHING ARROW PANEL
- TYPE III BARRICADES
- TYPE III BARRICADES (MOD.)

NOTES

- ALL SIGNS SHALL BE MOUNTED ON FIXED POSTS (YIELDING TYPE) UNLESS OTHERWISE NOTED.
- CHANNELIZING DEVICES SHALL BE PLACED IN ACCORDANCE WITH THE TABLE ON THIS SHEET
- ALL DISTANCES ARE DESIRABLE MINIMUMS, FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT.
- TAPER RATES ARE BASED ON THE POSTED MAINLINE AND EXIT SPEEDS.
- TEMPORARY PAVEMENT MARKINGS ARE REQUIRED WHEN THE LAYOUT IS TO BE IN EFFECT FOR THREE DAYS OR MORE.
- LANE CLOSURES AND TAPER LENGTHS, L, AS DETAILED ON THIS SHEET.
- EXIT SIGN SHALL BE MOUNTED A MINIMUM OF 7 FEET ABOVE THE GROUND AND HIGH ENOUGH TO BE SEEN ABOVE CHANNELIZING DEVICES.



MAINLINE LANE CLOSURE AT AN ENTRANCE RAMP

NOT TO SCALE

THIS DETAIL SHALL BE USED WHEN THE WORK ZONE BEGINS AT THE END OF THE ACCELERATION LANE OR THE MAINLINE LANE CLOSURE DRUM PLACEMENT INTERFERES WITH THE ON-RAMP TRAFFIC. IF THE LENGTH OF THE ACCELERATION LANE IS NOT ADEQUATE, THE YIELD SIGN SHALL BE REPLACED WITH A STOP SIGN IF A STOP SIGN IS USED, IT SHOULD BE ACCOMPANIED BY A STOP BAR.

NOTES

- AT THE CONTRACTOR'S OPTION:
 - THE POWER SUPPLY MAY BE AERIAL OR UNDERGROUND (SEE DETAIL).
 - POWER FOR A FLASHING BEACON MAY BE COMBINED WITH POWER FOR A TRAFFIC SIGNAL OR THEY MAY HAVE SEPARATE POWER SOURCES.
 - THE FLASHER MAY BE INSTALLED ON A STANCHION NEAR THE SIGN, ON A UTILITY POLE (WITH UTILITY COMPANY APPROVAL) OR AT THE SAME LOCATION AS A TRAFFIC SIGNAL CONTROLLER.
- THE FLASHER UNIT SHALL BE ONE CIRCUIT AND INCLUDE A RADIO INTERFERENCE FILTER.
- BATTERY OPERATED FLASHERS WILL NOT BE ALLOWED.
- BOTTOM OF THE BEACON SHALL BE A MIN. OF 8' AND A MAX. OF 12' ABOVE THE EDGE OF THE PAVEMENT.
- FOR URBAN AREA PLACEMENT SEE STD. E-121.
- FOR POWER DROP STANCHIONS SEE STD. E-175

UNDERGROUND SERVICE DETAIL

CHANNELIZING DEVICES

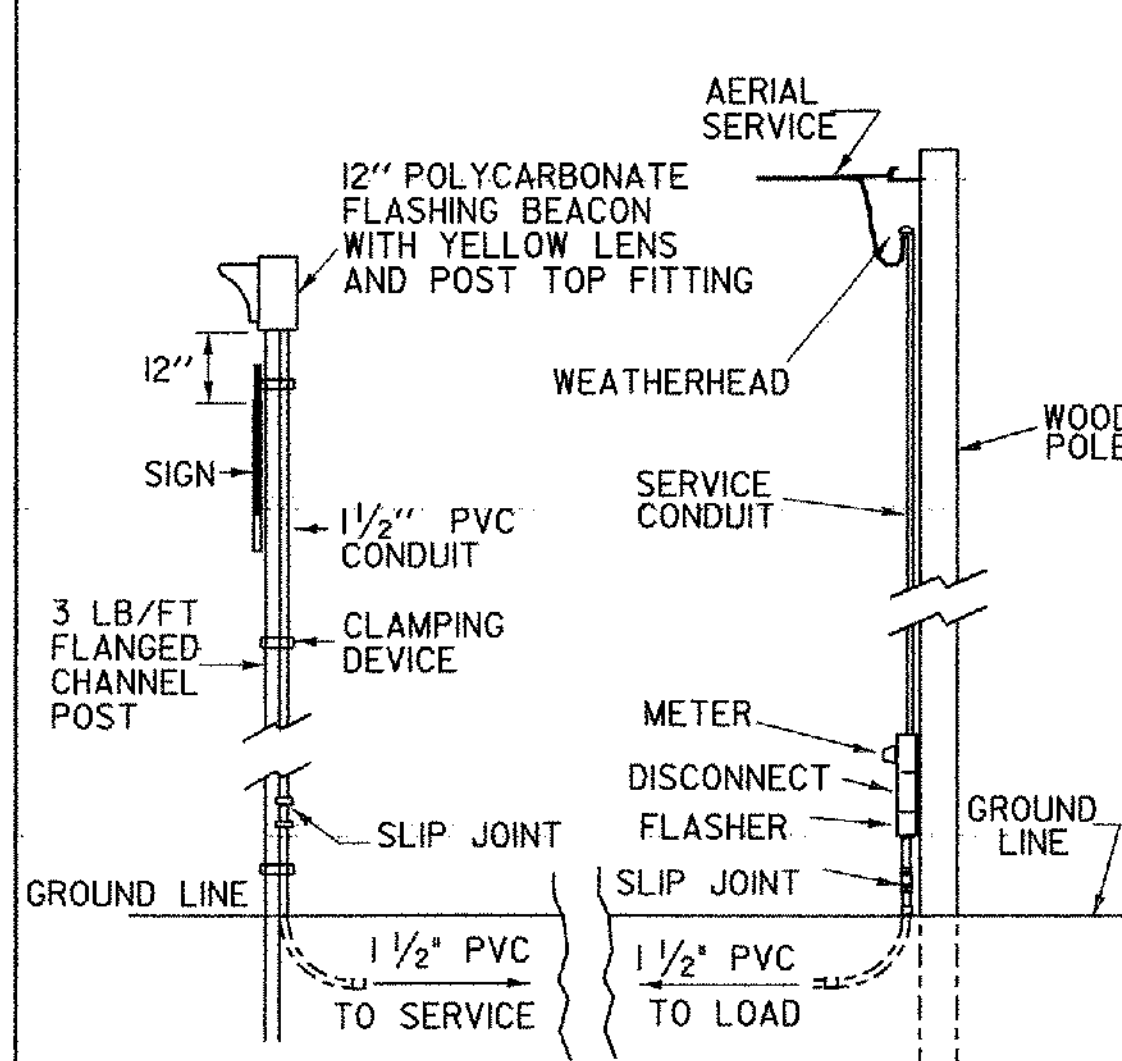
TAPER RATES ARE DETERMINED USING THE FOLLOWING EQUATION:
 $L = WS$ FOR DESIGN SPEEDS OF 45 MPH OR GREATER
 $L = WS^2/60$ FOR DESIGN SPEEDS OF 40 MPH OR LESS

WHERE: L = MINIMUM LENGTH OF TAPER IN FEET

W = WIDTH OF OFFSET (USUALLY LANE WIDTH) IN FEET
 S = DESIGN SPEED IN MPH

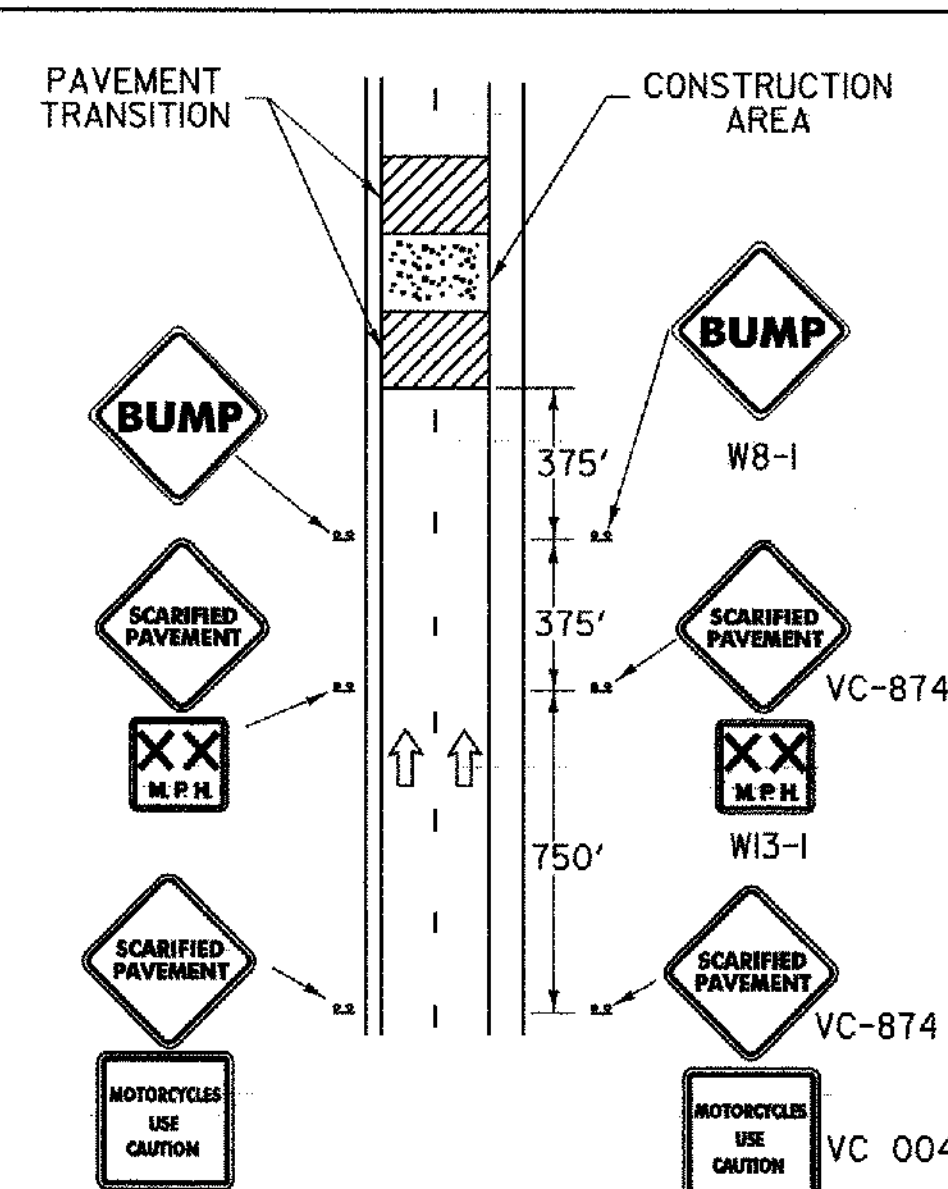
SIGN PLACEMENT DETAIL

POSTED SPEED OR 85TH PERCENTILE (mph)	DESIGN SPEED (mph)	TAPER LENGTHS (ft)			TANGENT SECTION LENGTHS (L/2) (ft)	MINIMUM BUFFER SPACE LENGTH (ft)	MAXIMUM CHANNELIZING DEVICE SPACING (ft)		BARRIER FLARE RATE (MIN)
		MERGING 12ft LANE (L)	SHIFTING W=16ft (L/2)	SHOULDER W=10ft (L/3)			TAPER	ALONG LANE LINE & WORK ZONE	
≤40	40	320	215	90	160	160	35	70	1:9
45	45	540	360	150	270	270	40	80	1:9
50	50	600	400	170	300	300	50	100	1:11
55	55	660	440	185	330	330	55	110	1:13
60 & 65	60	720	480	200	360	360	60	120	1:13
70	70	840	560	235	420	440	65	130	1:13



FLASHING BEACON DETAIL

AERIAL SERVICE WITHOUT LUMINAIRE

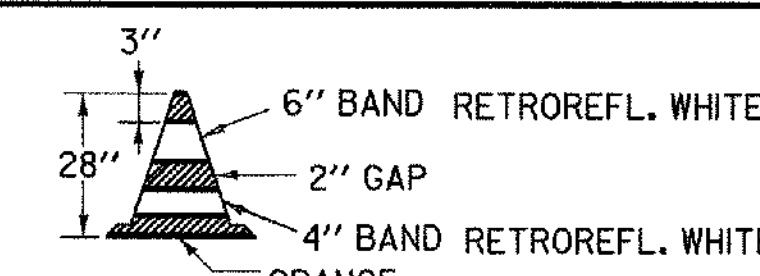


ADVANCED WARNING SIGN PACKAGE FOR COLD PLANED (SCARIFIED) SURFACES DIVIDED HIGHWAY

NOT TO SCALE

NOTES

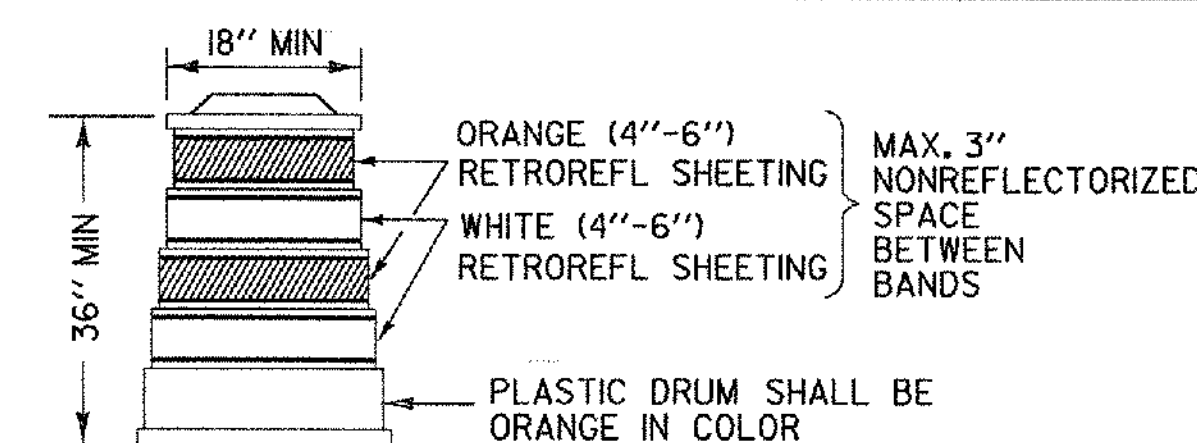
- ADVISORY SPEED AS DETERMINED BY THE RESIDENT ENGINEER (40 MPH MINIMUM RECOMMENDED).
- ALL SIGNS SHALL BE MOUNTED ON FIXED POSTS (YIELDING TYPE).
- ALL DISTANCES ARE DESIRABLE MINIMUMS, FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT.
- THE BUMP SIGN MAY BE ELIMINATED WHEN THERE IS NO BUMP. WHEN THE CONTRACTOR IS WORKING IN THE CONSTRUCTION AREA THE APPROPRIATE ADVANCED WARNING SIGN PACKAGE SHALL BE USED, SEE STD. E-103.
- GATE POSTING OF SIGNS IS AN OPTION AS DETERMINED BY THE RESIDENT ENGINEER (WHEN PASSING, TURNING OR CLIMBING LANES LIMIT VISIBILITY).



28" REFLECTORIZED CONE

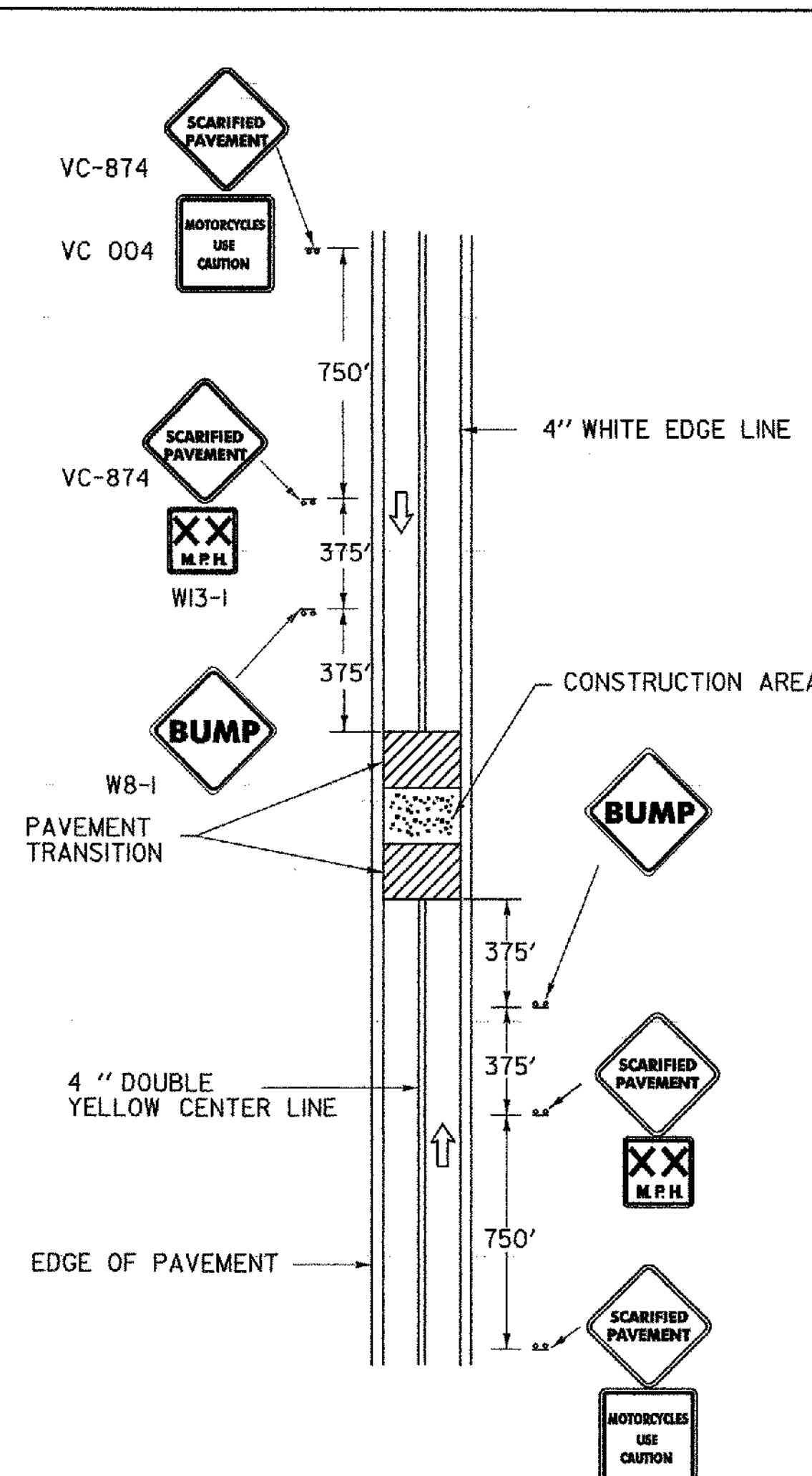
NOTES

- 28" CONES SHALL BE USED ON ROADWAYS WITH SPEED LIMITS OF 35 MPH OR MORE AND ON ALL ROADWAYS DURING HOURS OF DARKNESS.
- CONES MAY BE WEIGHTED TO PREVENT OVERTURNING, HOWEVER THE WEIGHTS SHALL NOT PRESENT A HAZARD IF THE CONE IS STRUCK.
- RETROREFLECTIVE SHEETING SHALL BE ASTM TYPE III OR TYPE VI.



REFLECTORIZED PLASTIC DRUM

SAND BAGS OR AN APPROPRIATE BALLASTING DEVICE, WHICH DOES NOT PRESENT A HAZARD TO THE IMPACTING VEHICLE OR BECOME A PROJECTILE UPON IMPACT, SHALL BE USED TO WEIGHT DRUMS. RETROREFLECTIVE SHEETING SHALL BE ASTM TYPE III OR TYPE VI.



ADVANCED WARNING SIGN PACKAGE FOR COLD PLANED (SCARIFIED) SURFACES 2 LANE ROADWAY

NOT TO SCALE

NOTES

- ADVISORY SPEED AS DETERMINED BY THE RESIDENT ENGINEER (40 MPH MINIMUM RECOMMENDED).
- ALL SIGNS SHALL BE MOUNTED ON FIXED POSTS (YIELDING TYPE).
- ALL DISTANCES ARE DESIRABLE MINIMUMS, FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT.
- THE BUMP SIGN MAY BE ELIMINATED WHEN THERE IS NO BUMP. WHEN THE CONTRACTOR IS WORKING IN THE CONSTRUCTION AREA THE APPROPRIATE ADVANCED WARNING SIGN PACKAGE SHALL BE USED, SEE STD. E-110.
- GATE POSTING OF SIGNS IS AN OPTION AS DETERMINED BY THE RESIDENT ENGINEER (WHEN PASSING, TURNING OR CLIMBING LANES LIMIT VISIBILITY).

OTHER STDs. E-101, E-102, E-102A, E-103, E-107A, E-110, E-121, E-136, REQUIRED: E-150, E-175

REVISIONS AND CORRECTIONS

APR 12, 1988 - DATE OF ORIGINAL ISSUE
 JAN 23, 1989 - REVISED EXIT SIGN - CLARIFIED EXIT TAPER
 SEPT 20, 1993 - REVISED RAMP CLOSURES, FLASHING BEACON DETAILS AND MOVED TYPE III BARRICADE (MOD) TO STD. E-107A
 AUG 08, 1995 - REVISED BEACON SIZE
 MAR. 01, 2004 - ADDED ADVANCED WARNING SIGN PACKAGE FOR COLD PLANED TWO WAY HIGHWAYS, CHANNELIZING DEVICES CHART

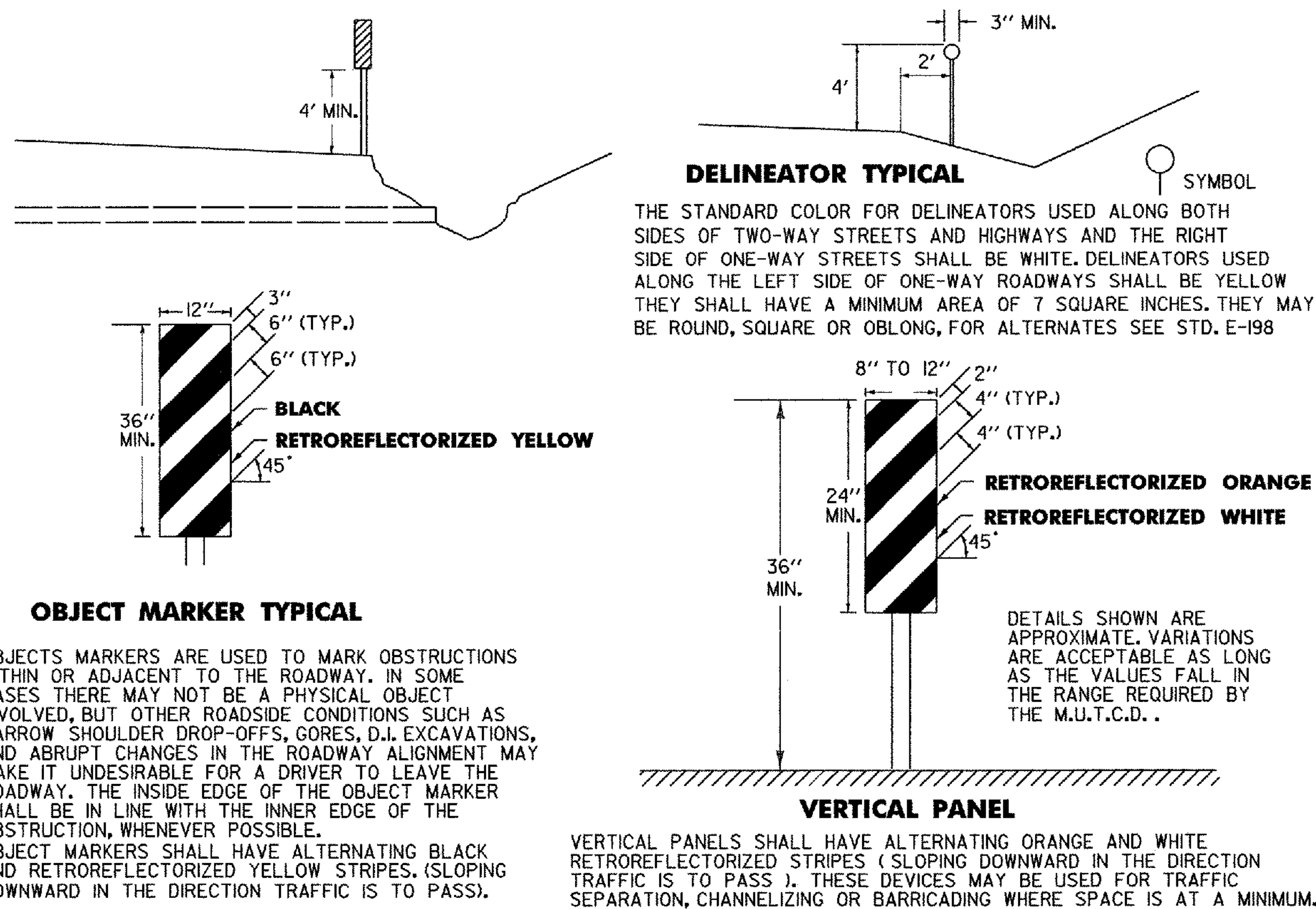
APPROVED

DIRECTOR OF PROGRAM DEVELOPMENT
 TRAFFIC OPERATIONS ENGINEER
 FEDERAL HIGHWAY ADMINISTRATION

TRAFFIC CONTROL MISCELLANEOUS DETAILS

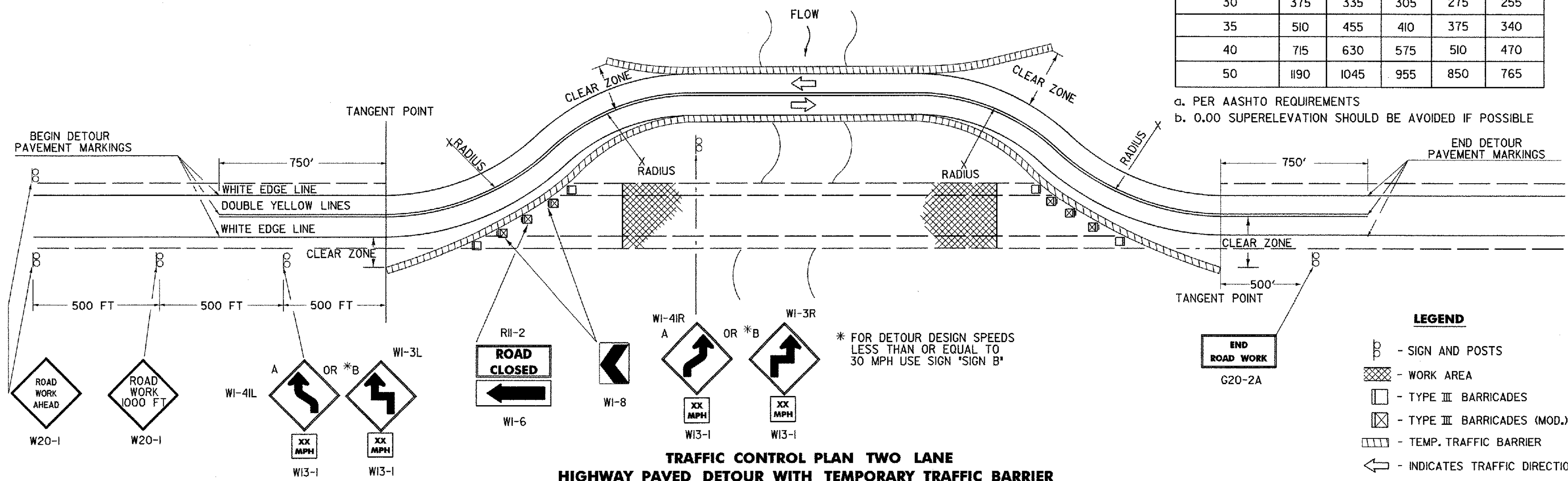


STANDARD
E-106

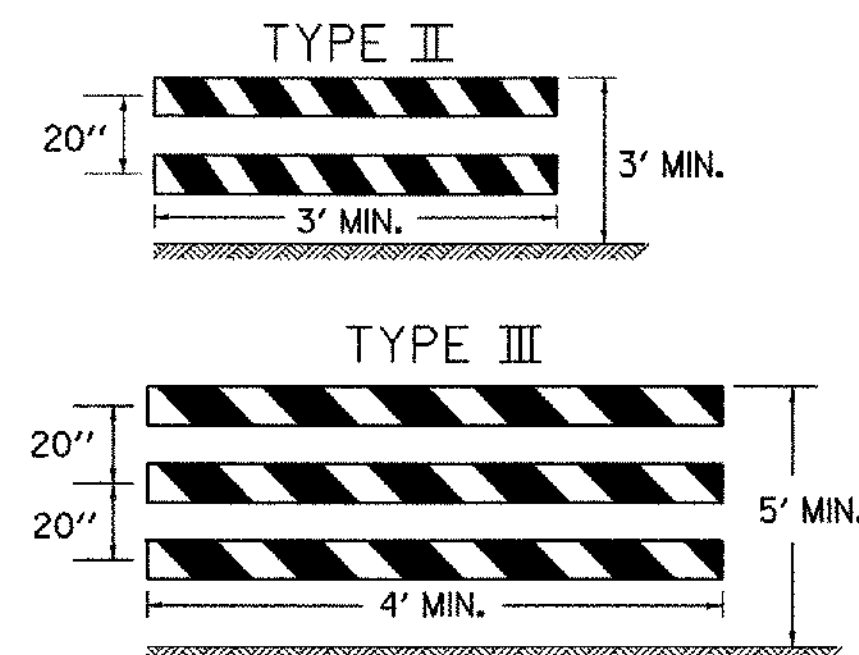
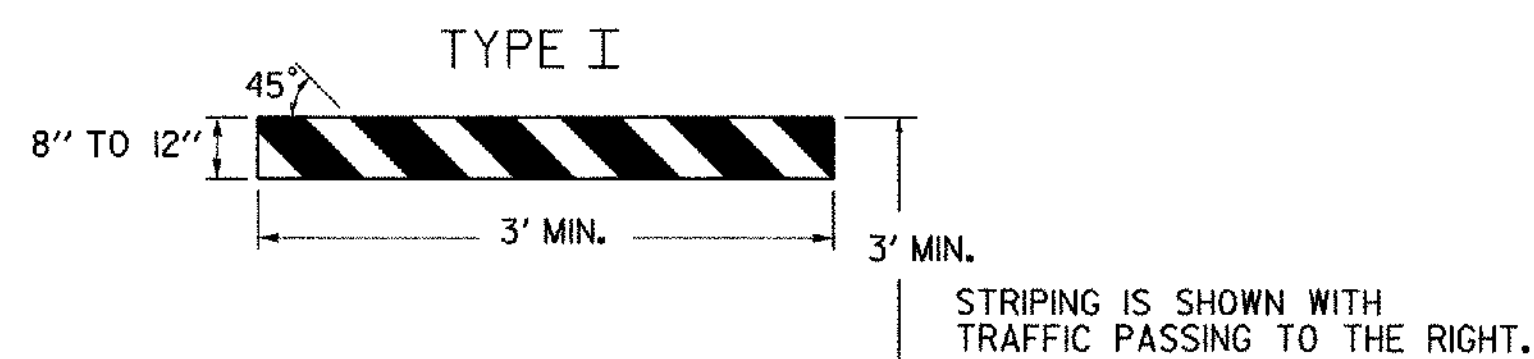


DELINEATOR, VERTICAL PANEL AND OBJECT MARKER DETAILS FOR CONSTRUCTION AREAS WHERE TRAFFIC IS MAINTAINED

ALL SIGN PLACEMENT DISTANCES ARE DESIRABLE SPECIFICATIONS. FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT. PROJECT CONSTRUCTION APPROACH SIGNING PLACEMENT SHALL TAKE INTO CONSIDERATION SPACING REQUIREMENTS FOR THE DETOUR SIGN LAYOUT REQUIREMENTS.



TRAFFIC CONTROL PLAN TWO LANE HIGHWAY PAVED DETOUR WITH TEMPORARY TRAFFIC BARRIER



A TYPE III (MODIFIED) BARRICADE SHALL CONSIST OF TYPE II RAILS MOUNTED ON A BREAKAWAY BARRICADE AS SHOWN ON STANDARD SHEET E-107A.

BARRICADE CHARACTERISTICS			
	I	II	III
WIDTH OF RAIL	8" MIN. 12" MAX.	8" MIN. 12" MAX.	8" MIN. 12" MAX.
LENGTH OF RAIL	3' MIN.	3' MIN.	4' MIN.
WIDTH OF STRIPES	6"	6"	6"
HEIGHT	3' MIN.	3' MIN.	5' MIN.
TYPE OF FRAME	SEE E-107A	SEE E-107A	SEE E-107A
FLEXIBILITY	PORTABLE	PORTABLE	PORTABLE
ANGLE OF STRIPE	45°	45°	45°
COLOR OF STRIPES	ORANGE AND WHITE	ORANGE AND WHITE	ORANGE AND WHITE

BARRICADE CHARACTERISTICS

DETOUR DESIGN SPEED (M.P.H.)	MINIMUM RADIUS (FT.) ^a				
	SUPERELEVATION (FT./FT.)				
	0.00 ^b	0.02	0.04	0.06	0.08
20	160	140	130	120	110
25	245	220	200	185	170
30	375	335	305	275	255
35	510	455	410	375	340
40	715	630	575	510	470
50	1190	1045	955	850	765

a. PER AASHTO REQUIREMENTS
b. 0.00 SUPERELEVATION SHOULD BE AVOIDED IF POSSIBLE

BARRICADES

APPLICATION NOTES

TYPE I BARRICADES SHALL BE USED ON CONVENTIONAL ROADS OR URBAN STREETS AND ARTERIALS TO MARK A SPECIFIC HAZARD.

TYPE II BARRICADES SHALL BE USED ON EXPRESSWAYS AND FREEWAYS, SERVING THE SAME FUNCTIONS AS TYPE I BARRICADES.

TYPE III BARRICADES (SEE STD. E-107A) SHALL ONLY BE USED WHEN A ROAD SECTION OR LANE IS CLOSED TO TRAFFIC AND ARE TO BE ERECTED AT THE POINT OF CLOSURE.

MATERIALS

THE BARRICADES SHOWN ON THIS SHEET SHOULD BE OF LIGHTWEIGHT MATERIAL. IF WOOD IS USED THE FOLLOWING CONDITIONS SHALL APPLY:

1. WOODEN BARRICADES (TYPE I AND II)

A) SHALL NOT BE USED TO CHANNELIZE OR DELINEATE WORK AREAS WITHIN THE CLEAR ZONE OF ANY HIGHWAY WHERE OPERATING SPEEDS IN EXCESS OF 20 M.P.H. ARE EXPECTED UNLESS INSTALLED FOR PEDESTRIAN CONTROL BEHIND APPROVED POSITIVE BARRIERS.

B) MAY BE USED WHERE OPERATING SPEEDS OF 20 M.P.H. OR LESS ARE EXPECTED.

2. TYPE III WOODEN BARRICADES SHALL NOT BE USED.

COLORS

THE BARRICADE PANELS SHOWN ON THIS SHEET SHALL HAVE ALTERNATING RETRO-REFLECTORIZED WHITE AND ORANGE STRIPES. THE ORANGE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE US DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION. THE BARRICADE COMPONENTS SHALL BE WHITE UNLESS UNPAINTED METAL OR ALUMINUM IS USED.

REFLECTORIZATION

THE RETROREFLECTIVE SHEETING ON BARRICADE PANELS SHALL BE ASTM TYPE III.

LOCATION

THE BARRICADES SHOWN ON THIS SHEET WILL BE LOCATED BY THE RESIDENT ENGINEER IN THE FIELD OR AS SHOWN ON THE PLANS. THE LOCATION OF THE BARRICADES SHALL FOLLOW THE PROCEDURES SET FORTH IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", OR AS OTHERWISE NOTED.

MAINTENANCE

BARRICADES SHALL BE MAINTAINED IN CLEAN CONDITION, SATISFACTORY TO THE RESIDENT ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO THE APPROACHING TRAFFIC AT ALL TIMES. DAMAGED, DEFACED, OR DIRTY BARRICADES SHALL BE REPAIRED, CLEANED, OR REPLACED AS ORDERED BY THE RESIDENT ENGINEER.

DETOUR NOTES

- 1.) SIGNS AND DELINEATION SHOWN FOR ONE DIRECTION OF TRAFFIC ONLY.
- 2.) THE CONTRACTOR IS RESPONSIBLE FOR PAVEMENT MARKING AND SHALL REMOVE ANY CONFLICTING OR CONFUSING EXISTING MARKINGS.
- 3.) ADDITIONAL SIGNING MAY BE REQUIRED AT THE DISCRETION OF THE RESIDENT ENGINEER.
- 4.) UNPAVED DETOURS REQUIRE PAVEMENT MARKINGS FOR TRANSITIONS FROM EXISTING PAVEMENT.
- 5.) THE NUMBER OF CHANNELIZING DEVICES, BARRICADES AND OTHER TRAFFIC CONTROL DEVICES SHOWN ON THIS SHEET ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED SHALL BE DETERMINED BASED ON INDIVIDUAL DETOUR CONDITIONS (TAPERS, SPEED LIMITS, LENGTH OF DETOUR CURVE, ETC.).
- 6.) AASHTO CLEAR ZONE REQUIREMENTS SHOULD BE MET. IF NOT THEN AN APPROVED ENERGY ABSORPTION ATTENUATOR (SUITABLE FOR THE TEMPORARY TRAFFIC BARRIER USED AND FOR THE DESIGN SPEED) SHALL BE INSTALLED PER THE CURRENT AASHTO ROADSIDE DESIGN GUIDE.
- 7.) THE DETOUR DESIGN SPEED SHOULD BE NO LESS THAN 10 M.P.H. BELOW THE POSTED SPEED LIMIT, UNLESS PHYSICAL RESTRICTIONS PREVENT THIS.
- 8.) SEE STANDARD SHEETS E-100, E-101 AND E-102 FOR SIGN DETAIL AND MATERIAL REQUIREMENTS.
- 9.) IF THE USE OF TEMPORARY TRAFFIC BARRIER IS NOT REQUIRED, THEN REFLECTORIZED PLASTIC DRUMS SHALL BE USED.

OTHER STDS. REQUIRED: E-100 E-101 E-102 E-102a E-107a E-198

REVISIONS AND CORRECTIONS
SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
APRIL 29, 1988 - FHWA REVIEW COMMENTS
SEPT. 20, 1993 - NEW RADIUS CHART, BARRICADE ALIGNMENT AND USE OF TEMPORARY TRAFFIC BARRIER
AUG. 08, 1995 - REVISED SIGNING PER MUTCD
JUNE 30, 2003 - CHANGED REFLECTIVE SHEETING TO TYPE III

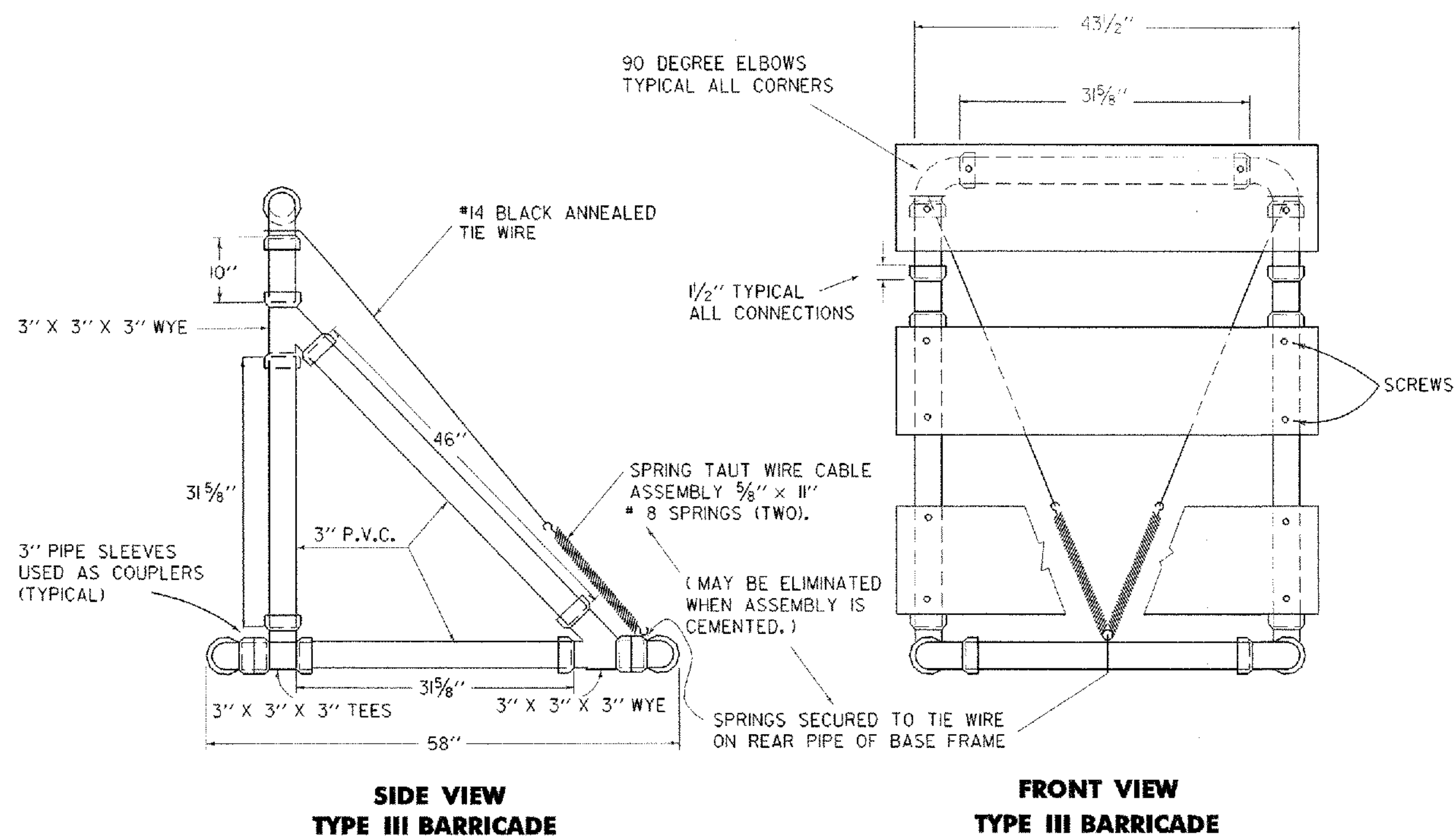
APPROVED

DIRECTOR OF PROGRAM DEVELOPMENT
TRAFFIC OPERATIONS ENGINEER
FEDERAL HIGHWAY ADMINISTRATION

DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS

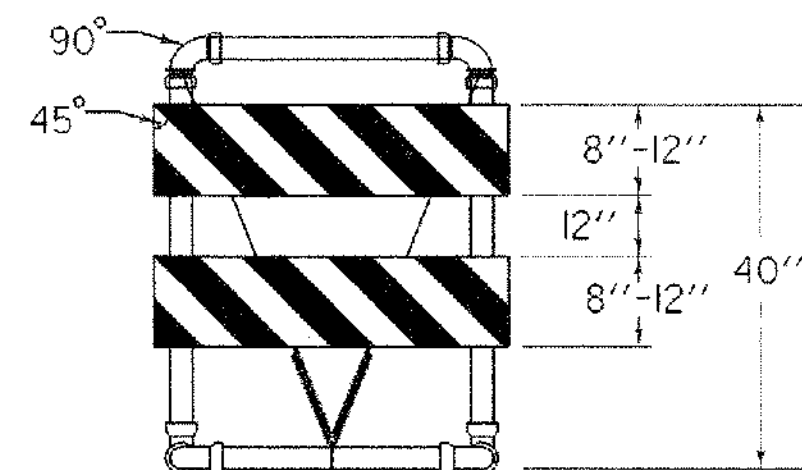


STANDARD
E-107

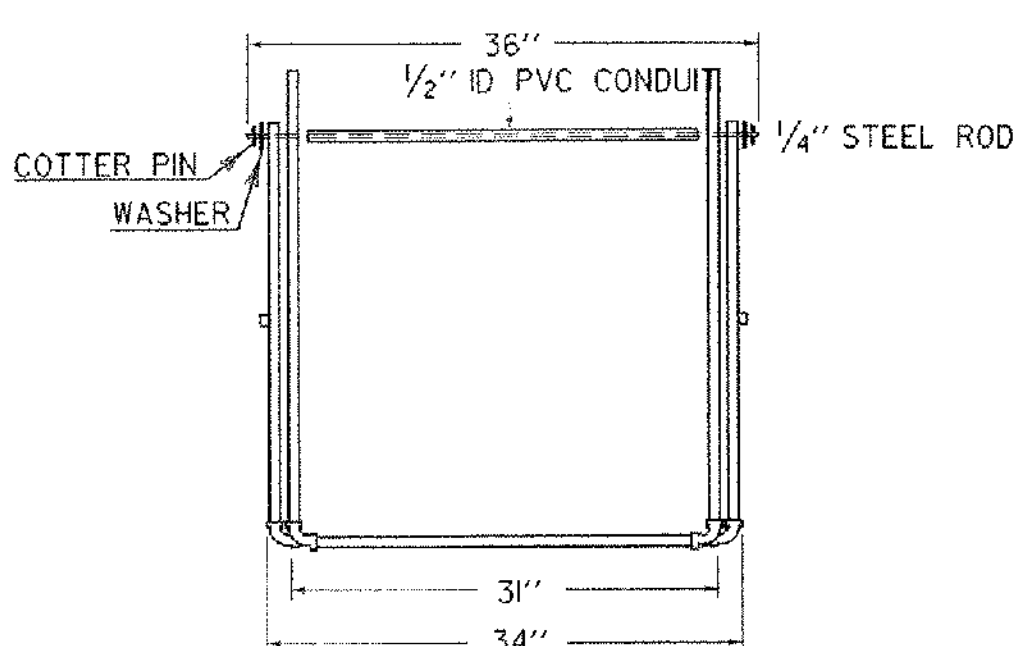
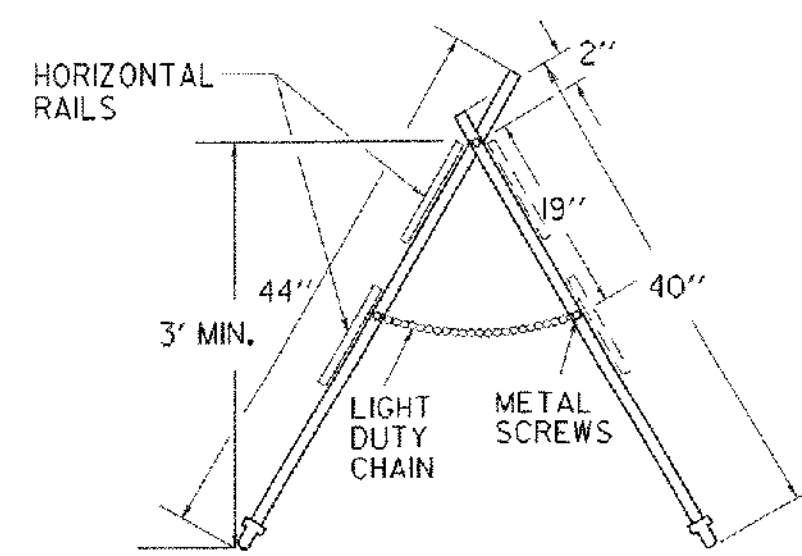


- MATERIALS FOR TYPE I AND II BARRICADES**
- 20' - 1" PVC
 - 4 - 1" PVC 90° ELBOWS
 - 30" - 1/2" ID THINWALL PVC CONDUIT
 - 36" - 1/4" STEEL ROD
 - 4 - 1" WASHERS
 - 24" - LIGHT DUTY CHAIN
 - 1/2" - #14 PAN HEAD METAL SCREWS (AS REQUIRED)
 - 2 - 3/4" COTTER PINS
 - 2 OR 4 - 8" OR 12" X 36" X 0.025" BARRICADE RAILS (AS REQUIRED)

- MATERIALS FOR TYPE III BARRICADES**
- 30 LF - 3" I.D. PVC PIPE
 - 6 - 3" 90° ELBOWS
 - 2 - 3" TEES
 - 4 - 3" WYES
 - 3 - 8" OR 12" X 48" X 0.025" BARRICADE RAILS
 - 2 - 5/8" X 11" #8 SPRING (IF ASSEMBLY IS NOT CEMENTED)
 - 12 - 1" #14 PAN HEAD METAL SCREWS
 - 15 LF - #14 BLACK ANNEALED TIE WIRE (IF ASSEMBLY IS NOT CEMENTED)



- MATERIALS FOR METAL TYPE III BARRICADES**
- PANELS (3):**
8" X 48" GALVANIZED STEEL, COVERED 1 OR 2 SIDES WITH WHITE/ORANGE, DIAGONALLY STRIPED REFLECTIVE SHEETING
- VERTICAL SUPPORTS (2):** 14 GAGE GALVANIZED TUBING 1 3/4" X 1 3/4" X 60"
- HORIZONTAL SUPPORTS (2):** 14 GAGE GALVANIZED TUBING 1 3/4" X 1 3/4" X 48"
- CROSS BEAM SUPPORT (1):** COLD GALVANIZED STEEL 1/4" X 3" X 43 3/4"
- BREAKAWAY BRACKETS (4):** COLD GALVANIZED STEEL 1/4" X 3" X 5"
- FASTENERS:**
6 - SHEAR BOLTS WITH LOCK NUTS 1/4" D X 2 3/4"
4 - FULCRUM BOLTS WITH LOCK NUTS 3/8" D X 2 3/4"
4 - FASTENER BOLTS WITH LOCK NUTS 3/8" D X 2 3/4"
6 - PANEL BOLTS WITH LOCK NUTS AND WASHERS 1/4" D X 2"
- ALL FASTENERS GALVANIZED STEEL.
ALL BOLTS HEX HEAD.



MATERIALS

THE PIPE, WYES, TEES AND ELBOWS USED TO CONSTRUCT BARRICADES SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION D 2241 FOR P.V.C. 1120 OR 1220 SDR-21, PRESSURE RATING 200 PSI. THE WYES, TEES AND ELBOWS SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION D 2466, TYPE II, GRADE I. ALL JOINTS SHALL BE SLIP-FIT AND MAY BE LIGHTLY CEMENTED. THE BARRICADE RAILS SHALL BE FABRICATED FROM 0.025" ANODIZED ALUMINUM AND SHALL HAVE REFLECTORIZED ALTERNATING ORANGE AND WHITE STRIPES (SLOPING DOWNWARD AT AN ANGLE OF 45 DEGREES IN THE DIRECTION TRAFFIC IS TO PASS).

MAINTENANCE

BARRICADES SHALL BE MAINTAINED IN CLEAN AND LEGIBLE CONDITIONS SATISFACTORY TO THE ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO APPROACHING TRAFFIC AT ALL TIMES. DAMAGED, DEFACED, OR DIRTY BARRICADES SHALL BE REPAIRED, CLEANED OR REPLACED AS ORDERED BY THE ENGINEER. THE P.V.C. PIPE AND FITTINGS SHALL BE WHITE IN COLOR. AT LEAST TWO (2) HOLES SHALL BE DRILLED (3/16" DIAM.) IN EACH SECTION OF PIPE AND FITTINGS IF THE ASSEMBLY IS NOT CEMENTED.

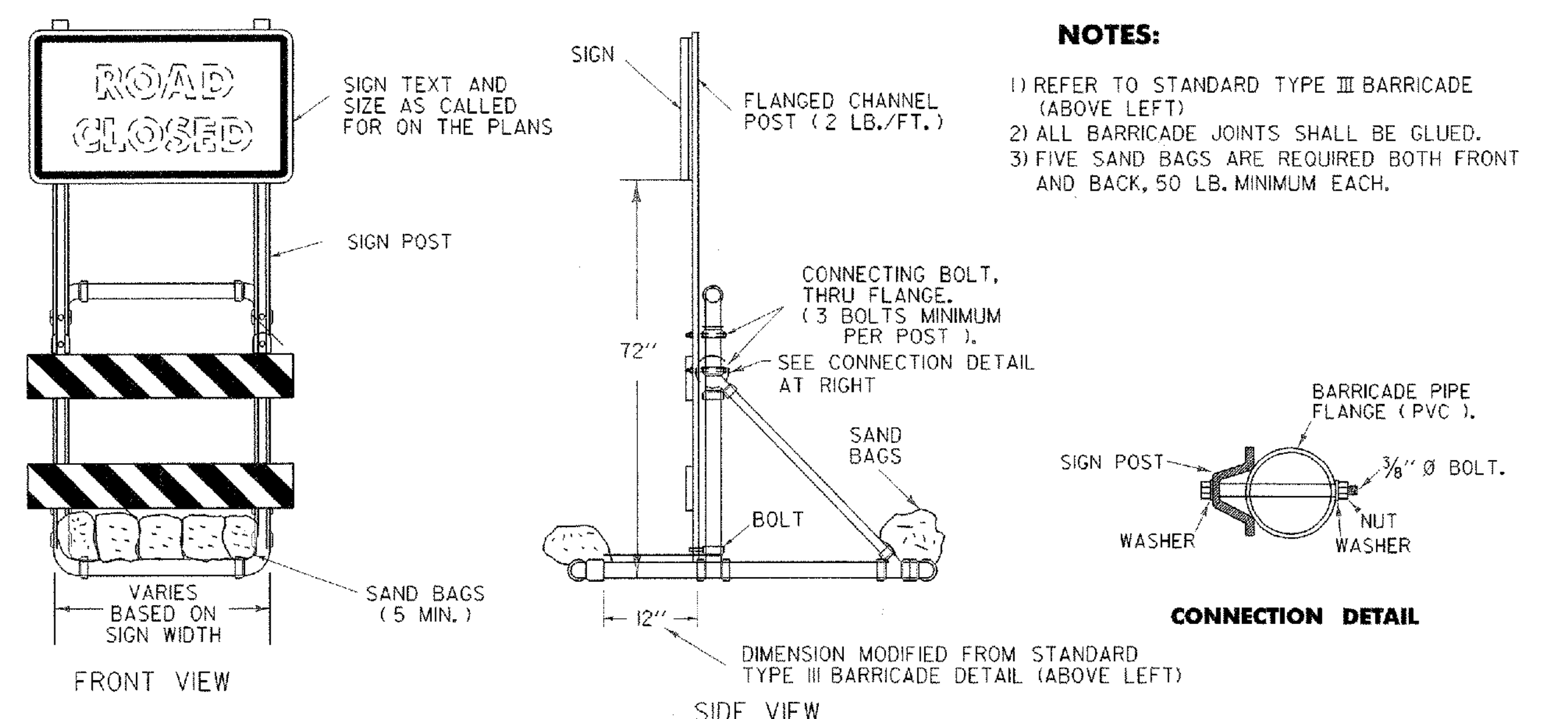
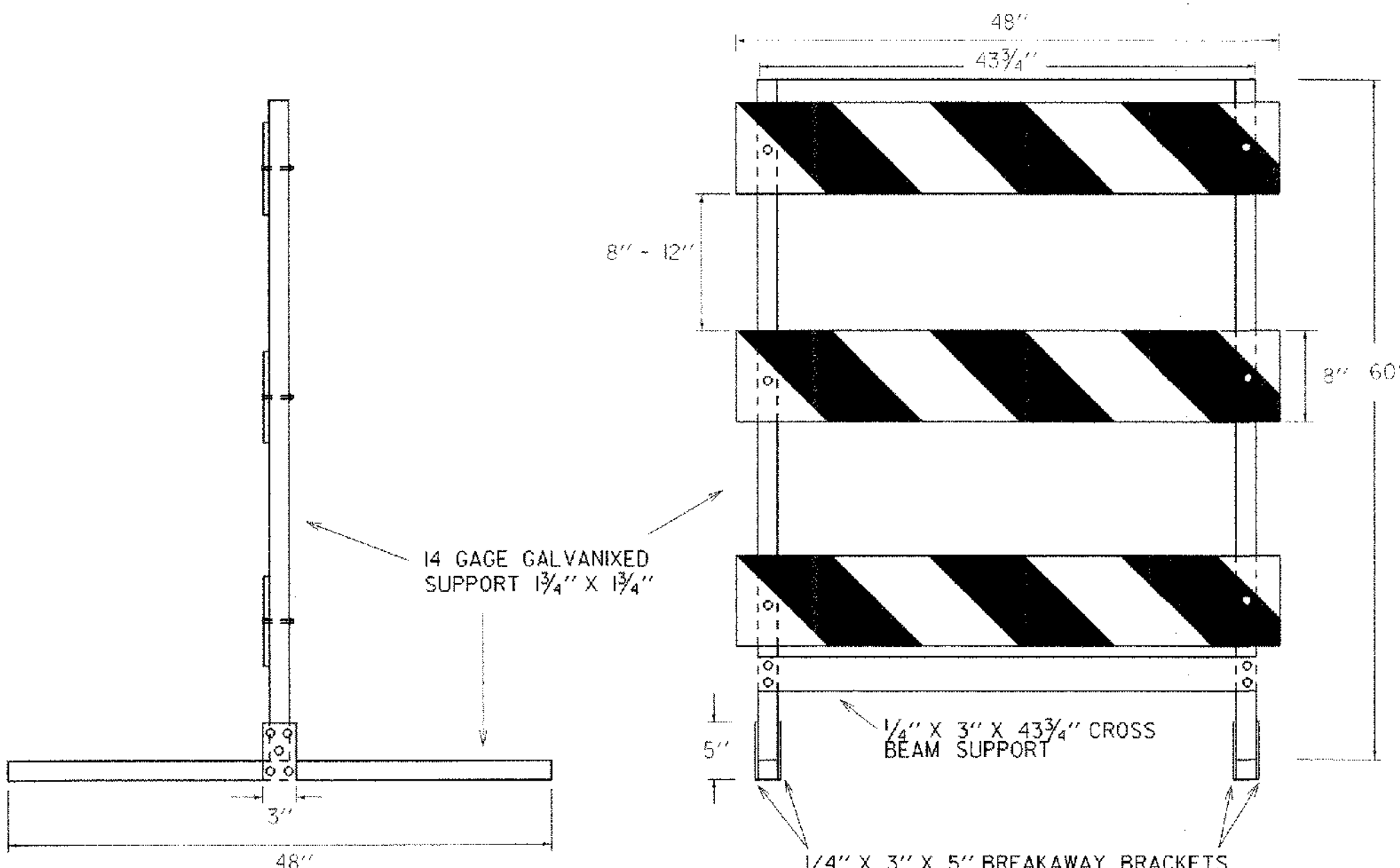
BARRICADES SHALL BE STABILIZED WITH SAND BAGS OF MINIMUM WEIGHT WHICH WILL NOT CONSTITUTE A HAZARD IF THE BARRICADE IS HIT. THESE SHALL BE PLACED ONLY ON THE FRONT AND REAR PIPES OF THE BASE FRAME OF THE BARRICADE. SAND BAG STABILIZERS SHALL BE SO PLACED AS NOT TO BE A HAZARD TO VEHICLES PASSING ON EITHER SIDE. IF BARRICADE REPLACEMENT COSTS CAN BE CONSIDERED NEGLIGIBLE, GLOUED JOINTS MAY PROVIDE ADDITIONAL STABILITY TO THE INSTALLATION.

TYPE I BARRICADES SHALL UTILIZE ONE HORIZONTAL RAIL IN EACH DIRECTION.

TYPE II BARRICADES SHALL BE A TYPE I BARRICADE WITH AN ADDITIONAL HORIZONTAL RAIL MOUNTED BELOW THE OTHER IN EACH DIRECTION.

TYPE III BARRICADES (MODIFIED) SHALL CONSIST OF THE BREAKAWAY 3" PVC DESIGN SHOWN ON THIS SHEET WITH THE TWO RAIL LAYOUT DETAILED ABOVE LEFT.

SEE STD E-107 FOR ADDITIONAL INFORMATION.



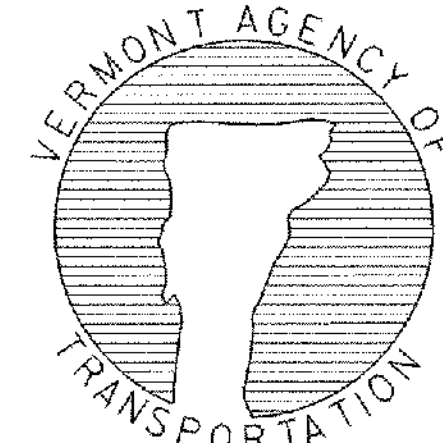
**SIGN MOUNTING ON
TYPE III BARRICADE (MODIFIED)**

OTHER STDS. REQUIRED: E-107

REVISIONS AND CORRECTIONS
SEPT. 10, 1987 - ORIGINAL APPROVAL DATE
SEPT. 20, 1993 - REVISED NOTES AND TYPE III (MOD.) BARRICADE DETAIL
AUG. 08, 1995 - ADDED METAL TYPE III BARRICADE
JUN. 08, 2009 - MINOR CORRECTIONS

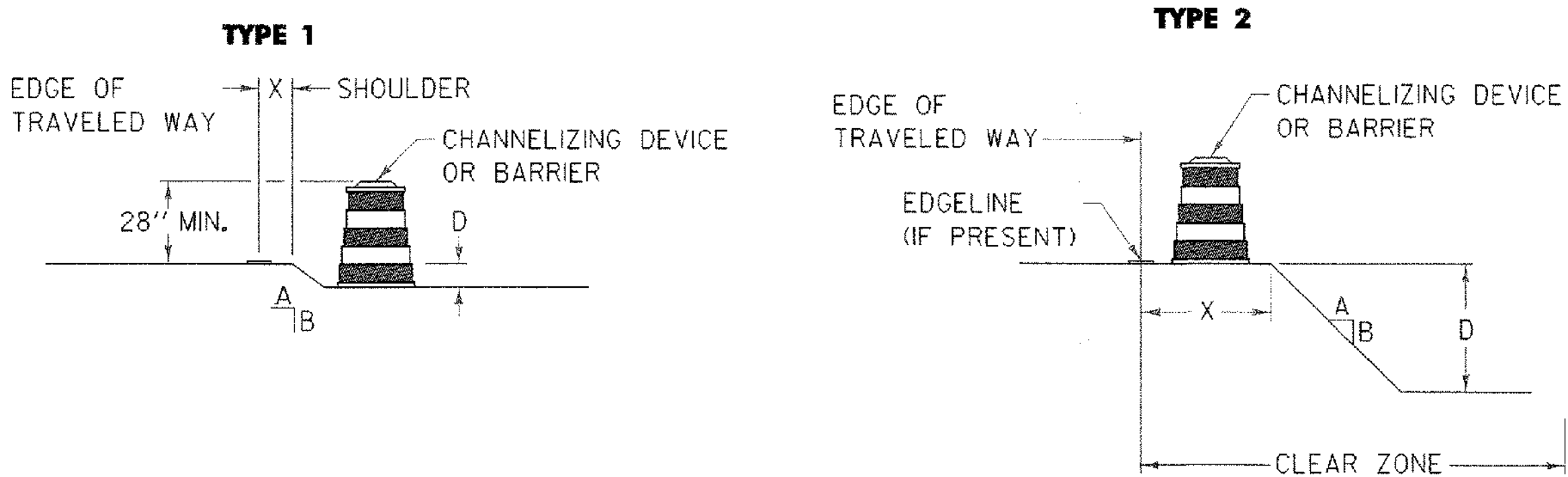
APPROVED
Kevin A. Mariska
HIGHWAY, SAFETY & DESIGN ENGINEER
Richard J. Fetherall
DIRECTOR OF PROGRAM DEVELOPMENT
Mark D. Riedler
FEDERAL HIGHWAY ADMINISTRATION

BREAKAWAY BARRICADE DETAILS



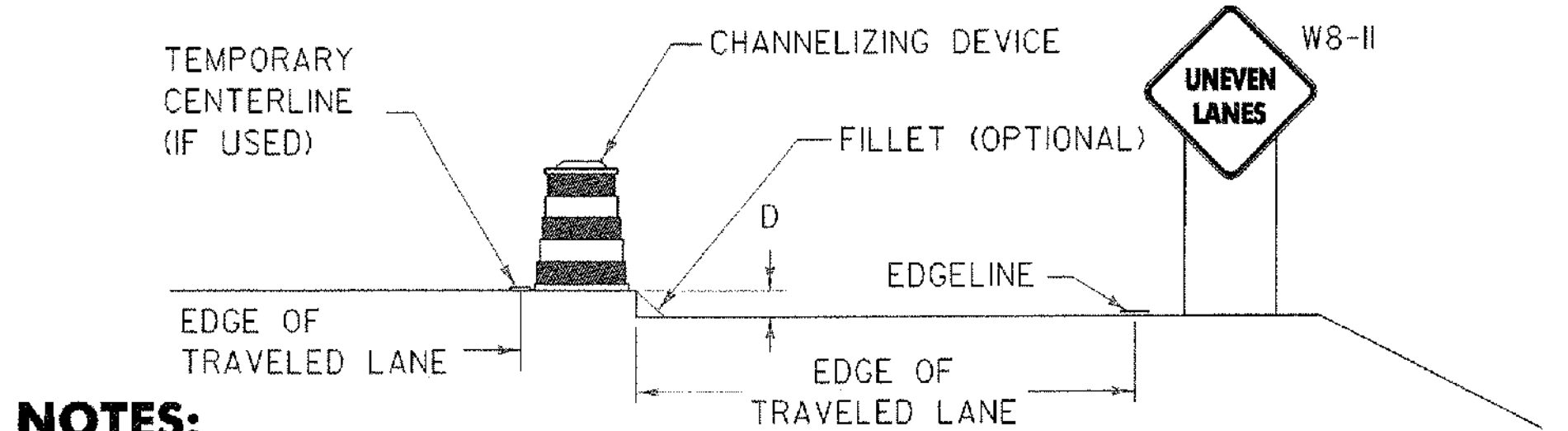
STANDARD
E-107 A

DROP-OFF ADJACENT TO TRAVELED WAY



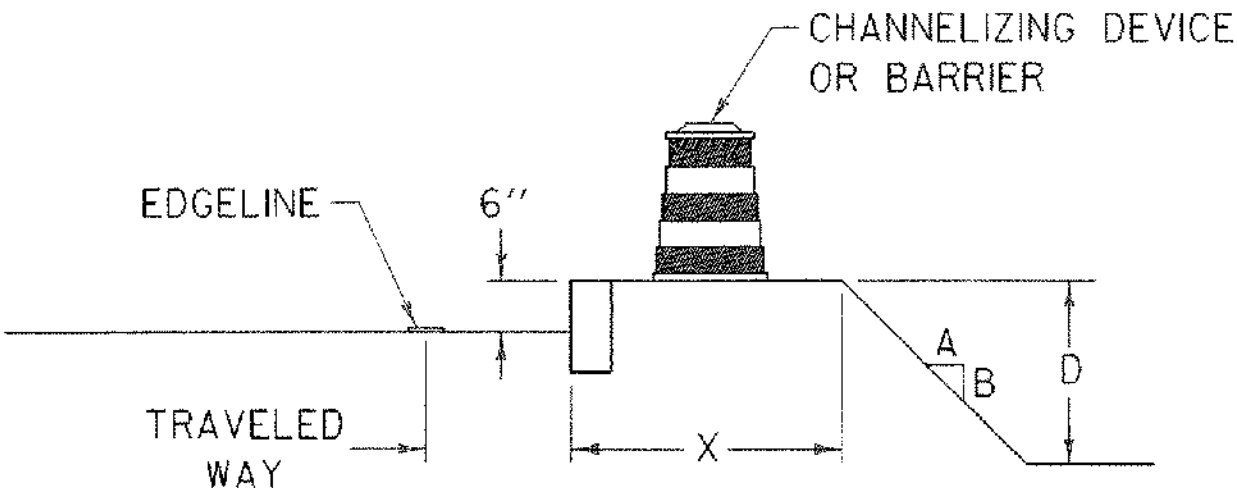
- NOTES:**
- 1. CHANNELIZING DEVICES OR BARRIER SHOULD BE PLACED TO MAXIMIZE THE WIDTH OF THE TRAVELED WAY.
 - 2. FOR SPECIFIC REQUIREMENTS USE CHART "A".
 - 3. IF THE DROP-OFF REQUIRES CHANNELIZING DEVICES TO REMAIN IN PLACE OVERNIGHT THEN "LOW SHOULDER" (W8-9) OR "SHOULDER DROP OFF" (W8-9A) SIGNS SHOULD BE INSTALLED.

DROP-OFF BETWEEN ADJACENT TRAVELED LANE



- NOTES:**
- 1. WHENEVER A LONGITUDINAL DROP-OFF BETWEEN ADJACENT TRAVELED LANES IS TO BE LEFT OVERNIGHT THEN "UNEVEN LANES" (W8-II) SIGNS AND CHANNELIZING DEVICES SHOULD BE INSTALLED.
 - 2. IF REQUIRED, THE CHANNELIZING DEVICES USED SHALL BE THOSE WHICH MAXIMIZE THE TRAVELED LANE (I.E. CONES, VERTICAL PANELS OR TUBULAR MARKERS).
 - 3. A BITUMINOUS CONCRETE FILLET WITH A 1.5:1 SLOPE MAY BE USED IN PLACE OF CHANNELIZING DEVICES, HOWEVER THE "UNEVEN LANES" (W8-II) SIGNS SHOULD BE INSTALLED REGARDLESS.
 - 4. FOR SPECIFIC REQUIREMENTS USE CHART "A".

DROP-OFF BEYOND SHOULDER OR CURB



- NOTES:**
- 1. CHANNELIZING DEVICES OR BARRIER SHOULD BE PLACED TO MAXIMIZE THE WIDTH OF THE TRAVELED WAY.
 - 2. FOR SPECIFIC REQUIREMENTS USE CHART "A" OR "B" AS APPLICABLE.

CHART "A"
ALL SPEEDS WITH NO CURB

X (FEET)	DROP (D) (INCHES)	A/B SLOPE	DEVICE REQUIRED
0 TO 4'	LESS THAN 2"	ANY	NONE
	2" TO 6"	1.5:1 OR FLATTER	NONE
		STEEPER THAN 1.5:1	CHANNELIZING DEVICE
	GREATER THAN 6"	3:1 OR FLATTER	NONE
		STEEPER THAN 3:1	BARRIER/CHANNELIZING DEVICE
4' TO 10'	LESS THAN 6"	ANY	NONE
	6" TO 12"	3:1 OR FLATTER	NONE
		STEEPER THAN 3:1	BARRIER/CHANNELIZING DEVICE
	GREATER THAN 12"	3:1 OR FLATTER	NONE
		STEEPER THAN 3:1	BARRIER/CHANNELIZING DEVICE
10' TO CZ	LESS THAN OR EQUAL TO 12"	ANY	NONE
	GREATER THAN 12"	3:1 OR FLATTER	NONE
		STEEPER THAN 3:1	BARRIER

- NOTES:**
- 1. THE MINIMUM CLEAR ZONE FOR FREEWAYS IS TO BE DETERMINED PER THE CURRENT "AMERICAN ASSOCIATION OF STATE HIGHWAY TRANSPORTATION OFFICIALS" (AASHTO) ROADSIDE DESIGN GUIDE. ALL OTHER HIGHWAYS WILL BE DETERMINED PER THE CURRENT "VERMONT STATE STANDARDS" BOOK.
 - 2. CHANNELIZING DEVICES MAY BE USED INSTEAD OF BARRIER FOR SHORT TERM (ONE-DAY) OPERATIONS.
 - 3. ON BORDERLINE CONDITIONS, THE ENGINEER SHOULD DETERMINE WHICH TREATMENT IS ADEQUATE FOR THE EXISTING CONDITIONS.

CHART "B"
40 MPH OR LESS WITH CURB

X (FEET)	DROP (D) (INCHES)	DEVICE REQUIRED
0-10'	LESS THAN OR EQUAL TO 12"	NONE
0-10'	GREATER THAN 12"	CHANNELIZING DEVICE
GREATER THAN 10'	ANY	NONE

- NOTES:**
- 1. USE THIS CHART FOR DROP-OFF BEYOND SHOULDER OR CURB.
 - 2. USE THIS CHART FOR VERTICAL CURBS OF SIX INCHES OR GREATER. FOR LOWER OR MOUNTABLE CURBS USE CHART "A".
 - 3. FOR CURBED SECTIONS WITH POSTED SPEED ABOVE 40 MPH, USE CHART "A".

- GENERAL NOTES:**
- 1. THESE CONDITIONS AND TREATMENTS ARE ONLY PART OF THE TRAFFIC CONTROL SYSTEM AND SHOULD BE USED IN ADDITION TO THE PROPER WORK ZONE SIGNING.
 - 2. THE FOLLOWING ARE ACCEPTABLE CHANNELIZING DEVICES:
 - A. VERTICAL PANEL
 - B. TYPE I OR TYPE II BARRICADE
 - C. PLASTIC DRUM
 - * D. CONE - WHERE APPLICABLE
 - E. TUBULAR MARKERS (MUTCD)

* IF CHANNELIZING DEVICES ARE REQUIRED TO REMAIN IN PLACE DURING NIGHTTIME HOURS, CONES SHALL BE A MINIMUM OF 36 INCHES HIGH.
 - 3. WHERE BARRIER IS CALLED FOR, EITHER CONCRETE BARRIER (JERSEY SHAPE), STEEL BEAM GUARDRAIL OR OTHER FEDERAL HIGHWAY ADMINISTRATION (FHWA) APPROVED BARRIER MAY BE USED.

BARRIER ENDS FACING ONCOMING TRAFFIC SHALL BE TAPERED BEYOND THE CLEAR ZONE OR PROTECTED WITH AN APPROVED END TREATMENT DESIGNED FOR THE POSTED SPEED LIMIT OF THE ROADWAY.
 - 4. CHANNELIZING DEVICE SPACING ALONG A LONGITUDINAL DROP-OFF (TANGENT) SHALL BE AS FOLLOWS:

TANGENT - CHANNELIZING DEVICES SHALL BE SPACED "2S"
("S" IS THE POSTED SPEED LIMIT IN FEET) APART.
 - 5. "LOW SHOULDER" (W8-9), "SHOULDER DROP OFF" (W8-9A) OR "UNEVEN LANES" (W8-II) SIGNS, WHEN USED, SHOULD BEGIN PRIOR TO THE DROP-OFF CONDITION AND SHOULD BE REPEATED EVERY 1500 FEET.
 - 6. USE CHART "A" FOR DROP OFFS CREATED BY PROJECT ACTIVITIES.

OTHER STDS. REQUIRED: E-101, E-106, E-107, E-107A

REVISIONS AND CORRECTIONS

SEPT. 20, 1993- ORIGINAL APPROVAL DATE

AUG. 18, 1995 - ADDED SHOULDER WARNING NOTE

DEC. 8, 2008 - GENERAL UPDATE

JUN. 8, 2009 - MINOR REVISIONS

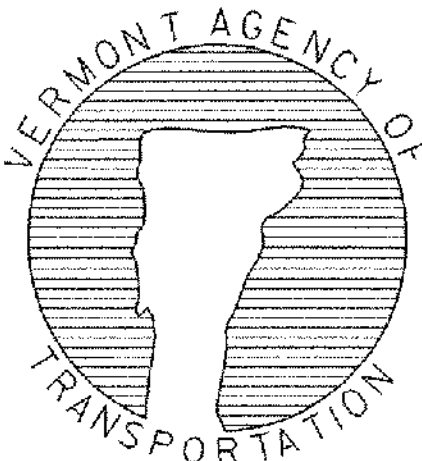
APPROVED

Kevin A. Nausha
HIGHWAY, SAFETY & DESIGN ENGINEER

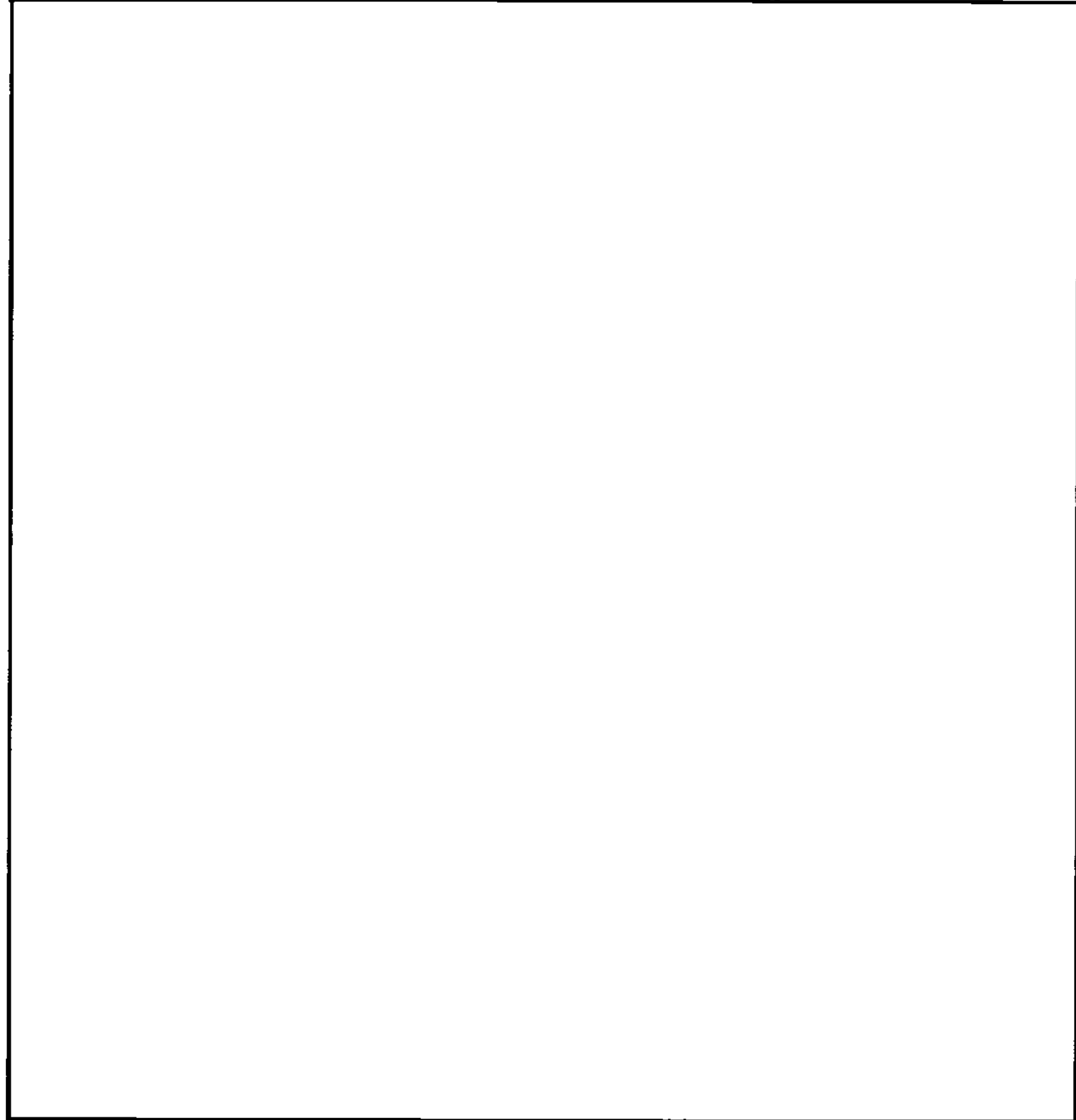
Robert F. Fernald
DIRECTOR OF PROGRAM DEVELOPMENT

Mark D. Riehl
FEDERAL HIGHWAY ADMINISTRATION

CONSTRUCTION ZONE
LONGITUDINAL DROP OFFS

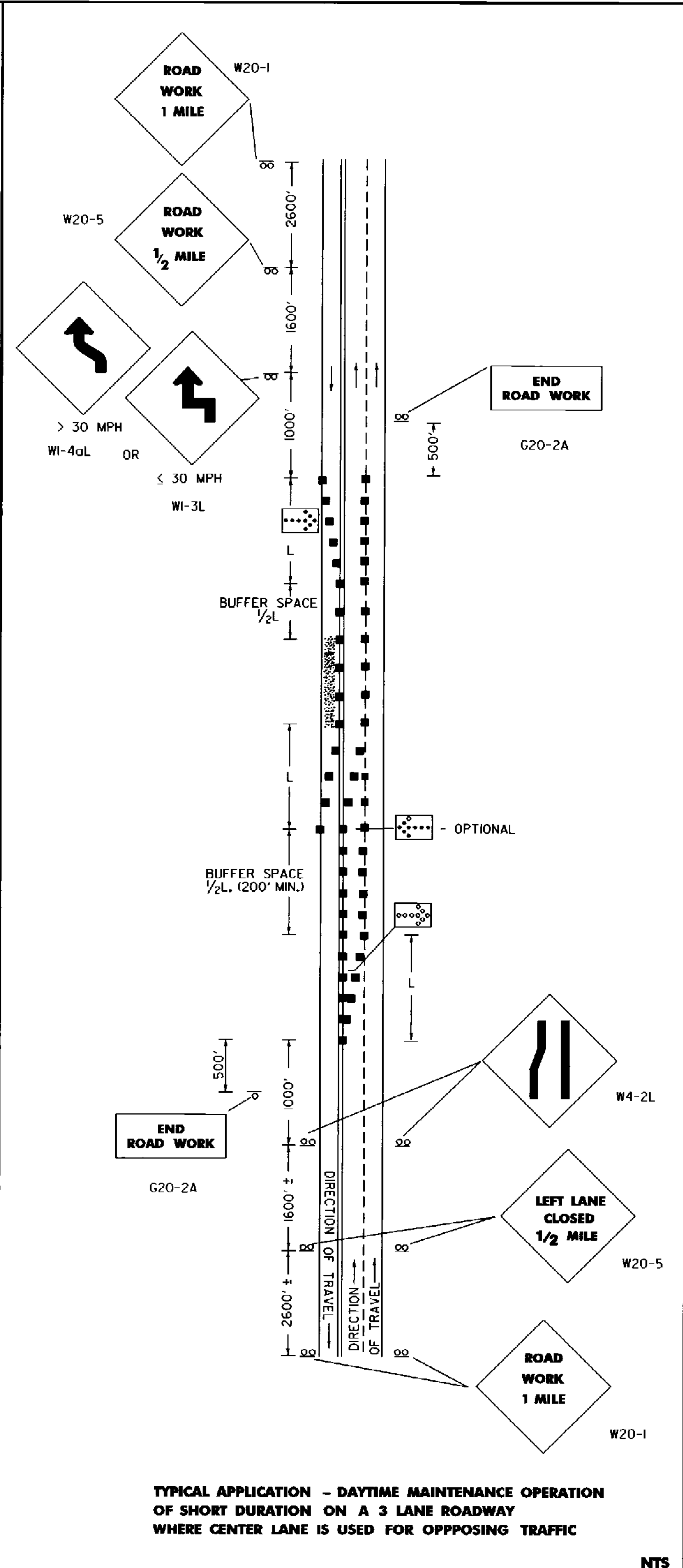


STANDARD
E-108



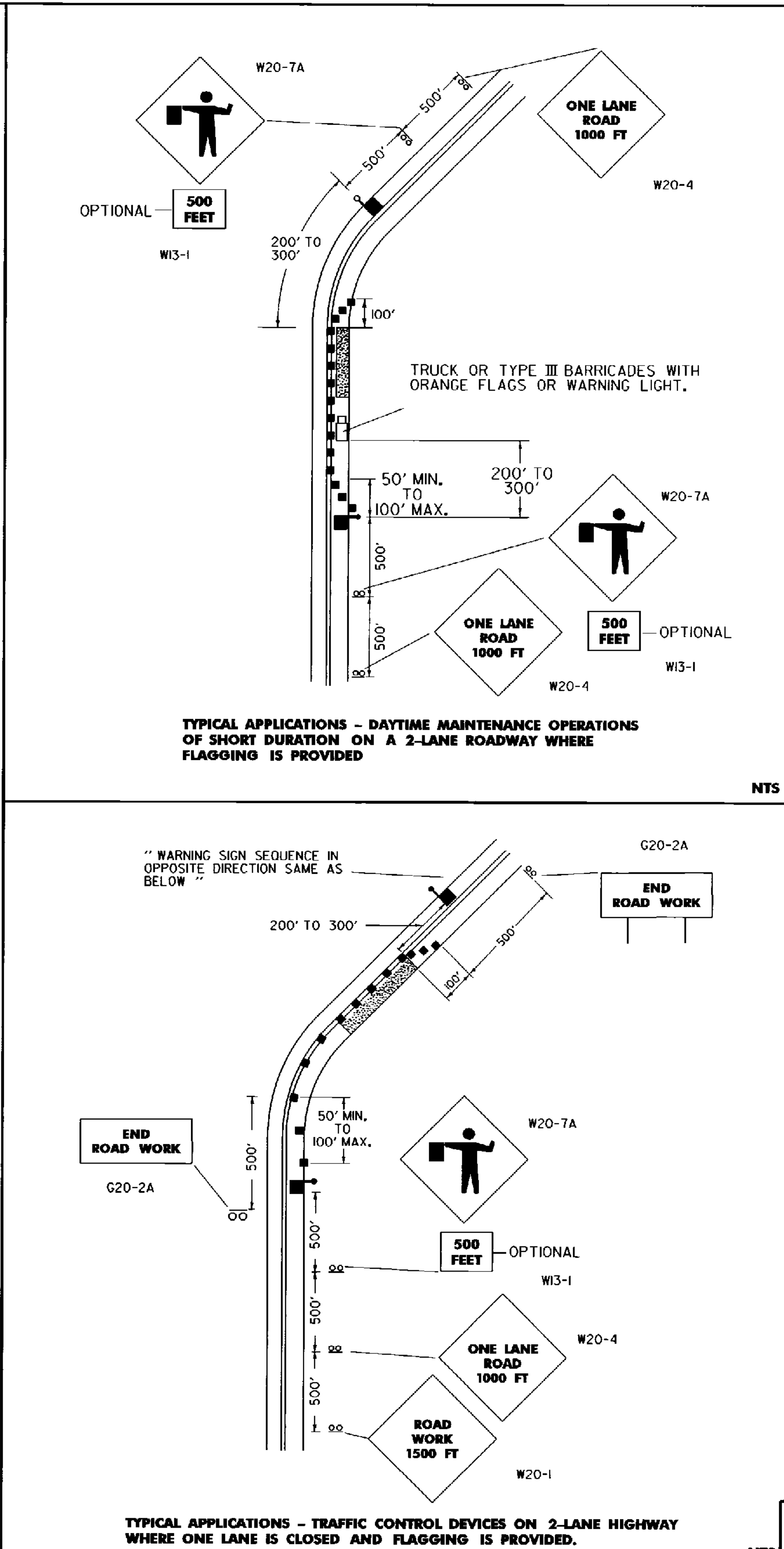
TYPICAL APPLICATION - DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF ROADWAY IS CLOSED.

NTS



TYPICAL APPLICATION - DAYTIME MAINTENANCE OPERATION OF SHORT DURATION ON A 3 LANE ROADWAY WHERE CENTER LANE IS USED FOR OPPOSING TRAFFIC

NTS



TYPICAL APPLICATIONS - TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.

NTS

NOTES

REFLECTORIZATION
ALL SIGNS USED DURING THE HOURS OF DARKNESS SHALL BE REFLECTORIZED (TYPE II OR III). CONES USED FOR TRAFFIC CONTROL AT NIGHT SHALL COMPLY WITH STANDARD E-106.

COLORS
THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT, BORDER, AND SYMBOLS ON AN ORANGE BACKGROUND. THE TEXT AND BORDERS MAY BE SCREENED, LETTERING FILM, OR HAND PAINTED. THE ORANGE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

TEXT DESIGN
LETTERS, DIGITS, SPACING, AND TEXT DIMENSIONS SHALL CONFORM WITH THE "STANDARD ALPHABETS FOR HIGHWAY SIGNS" AS REFERENCED IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

SPECIFICATIONS
WARNING SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

SIGN BASE MATERIAL
THE SIGN BASE MATERIAL USED FOR THE WARNING SIGNS ON THIS SHEET MAY BE OF ANY OF THE FOLLOWING, WITH MINIMUM THICKNESS AS NOTED:
FLAT STEEL OR ALUMINUM 0.125 INCHES
HIGH DENSITY OVERLAYED PLYWOOD 1/2, 5/8, OR 3/4 INCHES
GALVANIZED SHEET STEEL 12 GAGE

- SIGNS WITH "ROAD WORK 1500 FT. AND "END ROAD WORK" TEXT SHALL BE USED WHEN THE WORK IS NOT COMPLETE AND A HAZARD REMAINS OVERNIGHT.
- THE FLAGPERSON SHALL USE THE SIGN PADDLE DETAILED ON STANDARD SHEET E-102.
- ALL SIGNS SHALL BE COVERED OR REMOVED AT THE END OF THE WORKING DAY UNLESS REQUIRED FOR THE PROTECTION AND SAFETY OF THE TRAVELING PUBLIC.
- INSTALLATION: SIGNS AND BARRICADES SHALL BE IN PLACE PRIOR TO THE START OF THE MAINTENANCE OPERATION TO WHICH THEY APPLY AND SHALL BE REMOVED PROMPTLY WHEN THE NEED NO LONGER EXISTS. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER ON YIELDING WOOD OR METAL POSTS SET SECURELY IN THE GROUND (IN ACCORDANCE WITH STD. E-121), OR ON PORTABLE SUPPORTS WHEN APPROPRIATE. THE INSTALLATION OF SIGNS AND BARRICADES SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.
- ALTHOUGH LISTED AS A MAINTENANCE OPERATION STANDARD SIGN SHEET, THE APPROACH SIGNS SHOWN SHALL BE USED BY CONTRACTORS WHEN WORKING WITHIN OR OUTSIDE PROJECT LIMITS.
- ALL DISTANCES ARE DESIRABLE SPECIFICATIONS. FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT.
- SIGN DETAILS NOT SHOWN ON THIS SHEET CAN BE FOUND ON STANDARD SHEETS E-100, E-101, AND E-102.
- TAPER FORMULA
 $L = \frac{S^2}{W}$ FOR SPEEDS OF 45 OR MORE
 $L = \frac{W^2}{60}$ FOR SPEEDS OF 40 OR LESS
WHERE
L = MINIMUM LENGTH OF TAPER
S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85 PERCENTILE SPEED.
W = WIDTH OF OFFSET.
- THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT IN M.P.H. ON TANGENT SECTIONS THE MAXIMUM SPACING SHOULD BE APPROXIMATELY EQUAL TO TWICE THE POSTED SPEED LIMIT.
- FLOOD LIGHTS SHOULD BE PROVIDED TO MARK THE FLAGPERSON STATIONS AT NIGHT AS NEEDED.
- AT SHORT WORK ZONES WHERE ADEQUATE SIGHT DISTANCE IS AVAILABLE FOR THE SAFE HANDLING OF TRAFFIC ONE FLAGGER MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
- CHANNELIZING DEVICES SHALL BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
- THE NUMBER OF CHANNELIZING AND OTHER TRAFFIC CONTROL DEVICES SHOWN ON THIS SHEET ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED SHALL BE DETERMINED BASED ON INDIVIDUAL DETOUR CONDITIONS (TAPERS, SPEED LIMITS, LENGTH OF DETOUR CURVE, ETC.).

LEGEND:

- | | |
|---------------------------------------|---------------------|
| FLAGPERSON | WORK AREA |
| CHANNELIZING DEVICES (CONES OR DRUMS) | SIGN & POSTS |
| FLASHING ARROW PANEL | TYPE III BARRICADES |

REVISIONS AND CORRECTIONS

SEPT 10, 1987 - DATE OF ORIGINAL ISSUE
MAR 01, 1988 - FHWA REVIEW COMMENTS

SEP 20, 1993 - REVISED NOTES & MISC. DETAILS

AUG 08, 1995 - DELETED SIGN DETAILS

APPROVED FOR THIS PROJECT
AND/OR DESIGN IMPLEMENTATION,
FHWA FINAL APPROVAL PENDING.

APPROVED

Stephen D. MacArthur
DIRECTOR OF ENGINEERING

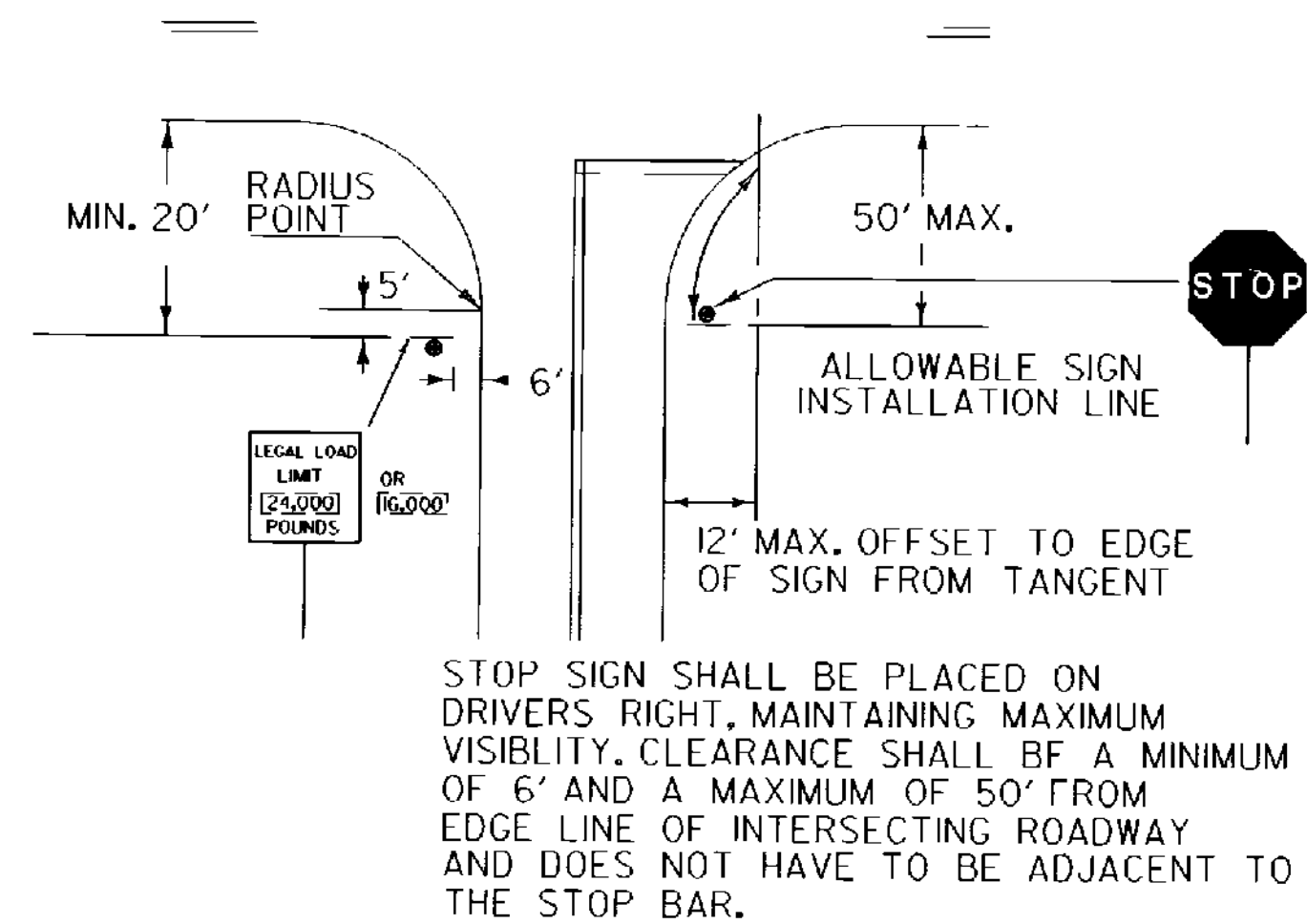
David A. Ross
TRAFFIC AND SAFETY ENGINEER

MAJOR MAINTENANCE
OPERATION LANE CLOSURE

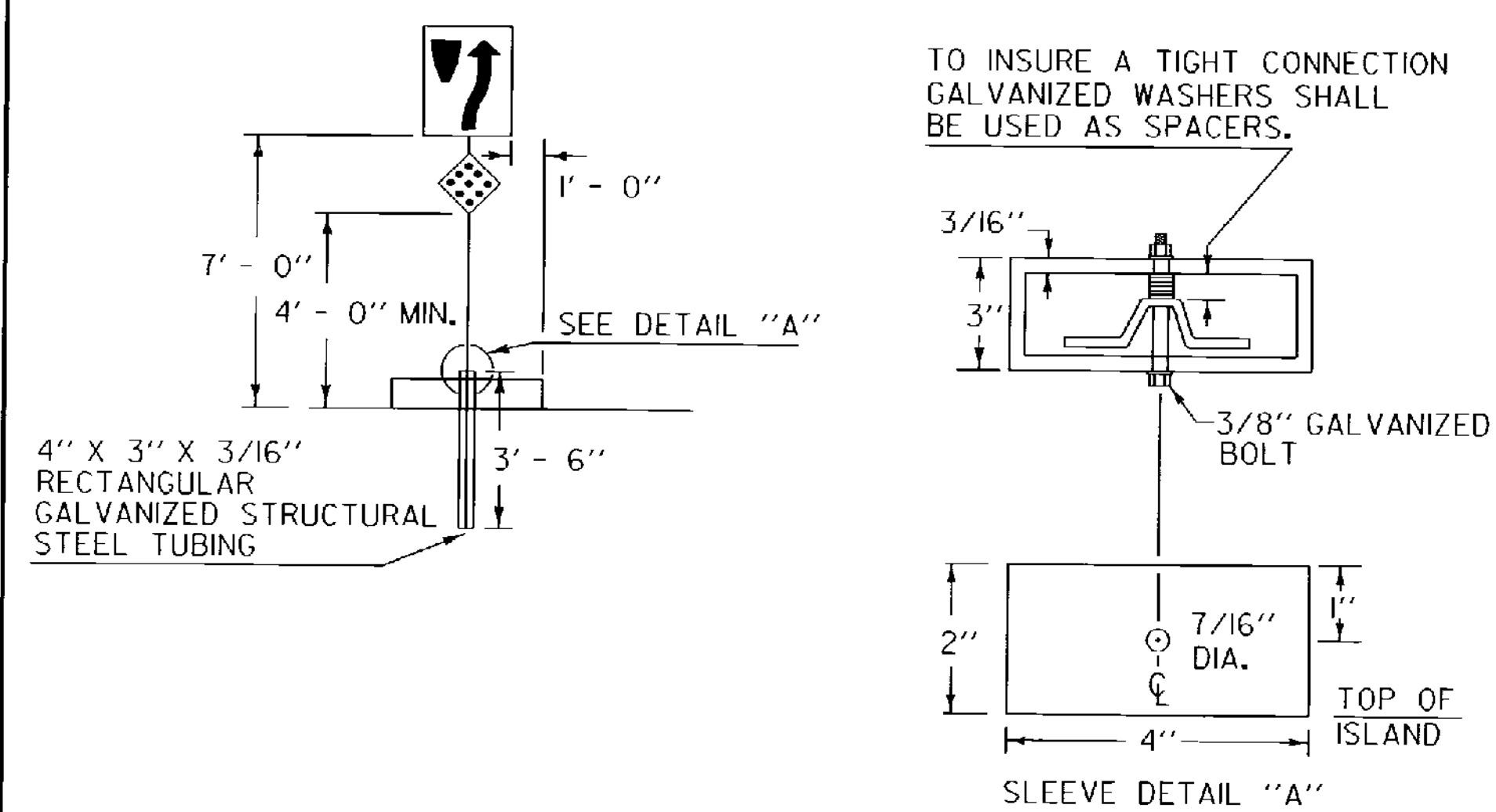
/traf/std/stdell0.dgn : stdell0.l



STANDARD
E-110

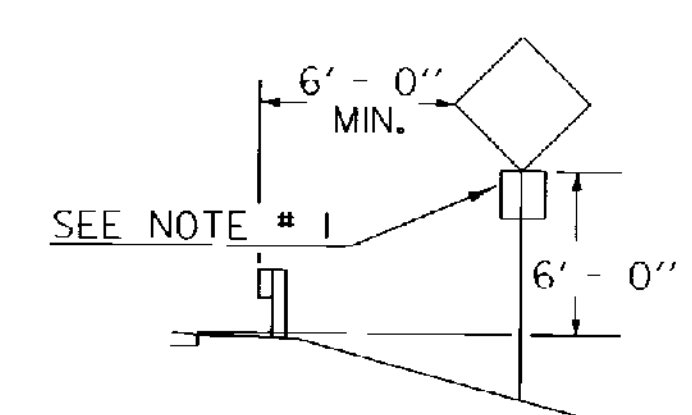
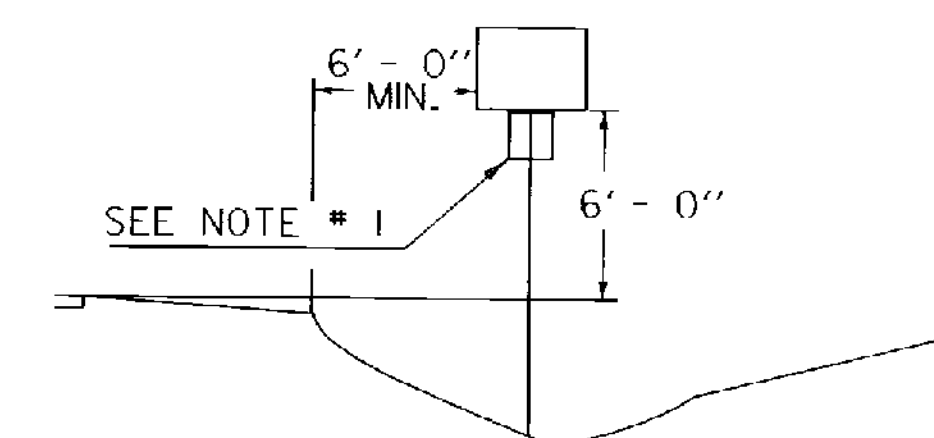
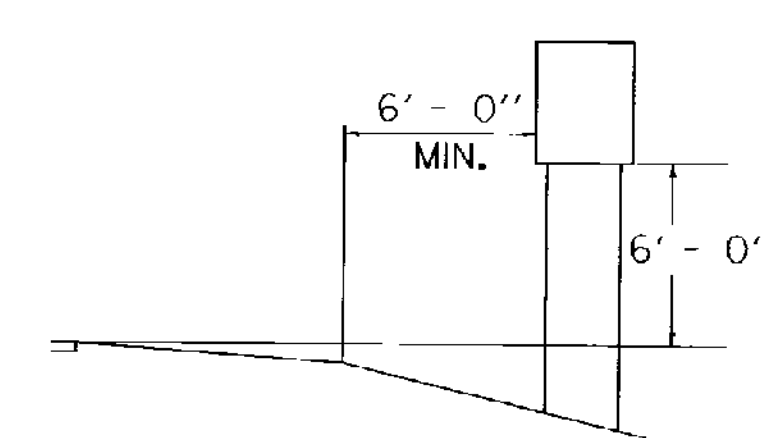


LEGAL LOAD LIMIT AND STOP SIGNS AT INTERSECTIONS WITH TOWN HIGHWAYS

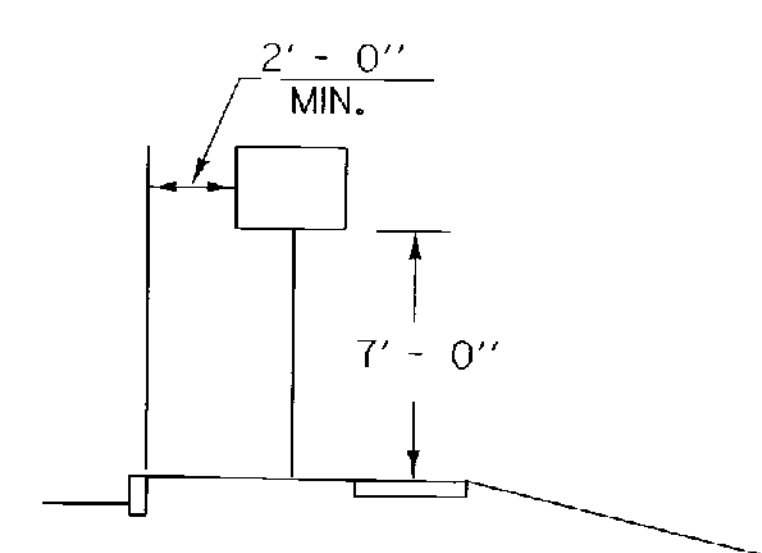
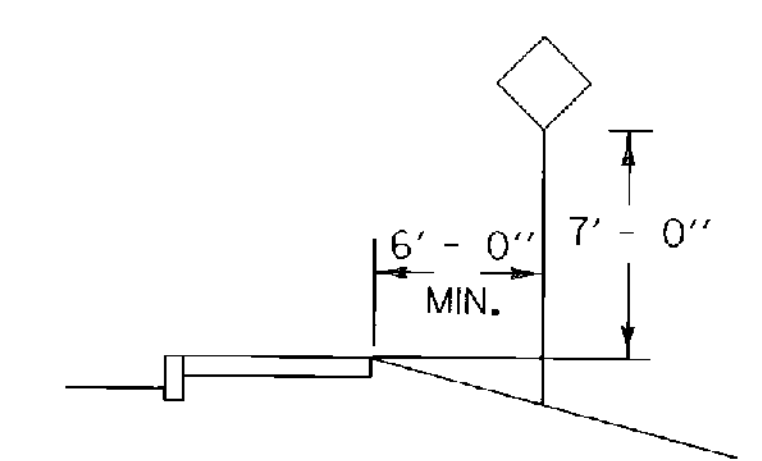


SIGNS ON MEDIAN ISLANDS IN THE LINE OF TRAFFIC

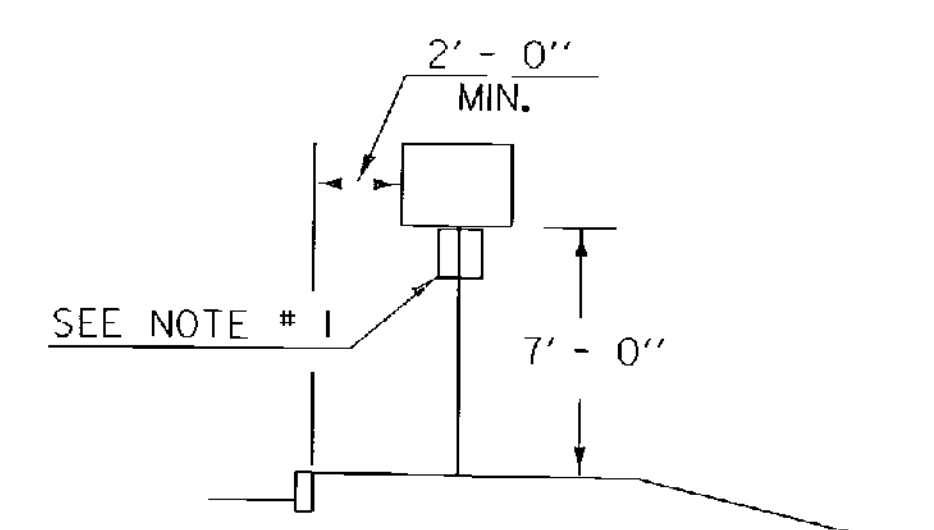
INCREASE VERTICAL CLEARANCE TO 7' IN AREAS OF FREQUENT ROADSIDE PARKING OR PEDESTRIAN ACTIVITY



RURAL



IF SUFFICIENT CLEARANCE IS NOT AVAILABLE BETWEEN CURB AND SIDEWALK MOUNT SIGN BEHIND SIDEWALK AS SHOWN AT TOP. CHECK FOR ADEQUATE R.O.W..



URBAN

NOTES:

1. IN BOTH RURAL AND URBAN LOCATIONS, IF A SECONDARY SIGN IS MOUNTED BELOW ANOTHER SIGN, THE MINIMUM CLEARANCE MAY BE REDUCED BY ONE FOOT.
2. IN RURAL AREAS WITH NO OR MINIMAL SHOULDER, THE LATERAL CLEARANCE TO THE EDGE OF A SIGN SHOULD BE A MINIMUM OF 12' FROM THE EDGE OF THE TRAVELED WAY.
3. ALSO SEE OTHER STANDARD SHEETS FOR MOUNTING CLEARANCE AND SPACING OF DESTINATION AND ROUTE MARKER ASSEMBLIES AND TOWN LINE SIGNS.

POST REFERENCE:

REFER TO THE DETAILS ON THE APPROPRIATE STANDARD DRAWING FOR INFORMATION CONCERNING THE PROPER MOUNTING OF SIGNS ON APPROPRIATE POSTS.

OTHER STDS. E-160 E-161 E-162 E-163 E-164 REQUIRED:

REVISIONS AND CORRECTIONS

JAN. 23, 1995 - DATE OF ORIGINAL ISSUE

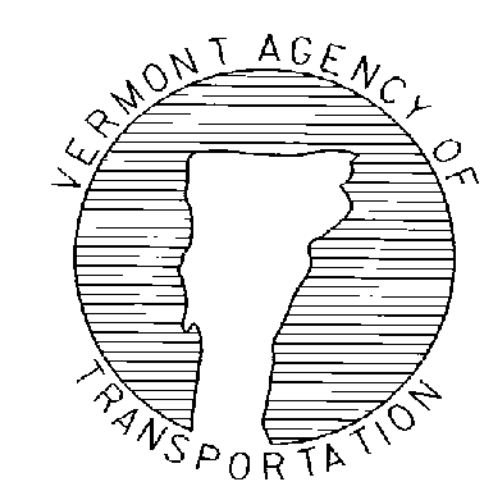
AUG. 08, 1995 - VARIOUS MINOR NOTE REVISIONS

APPROVED

Stephen D. McArthur
DIRECTOR OF ENGINEERING

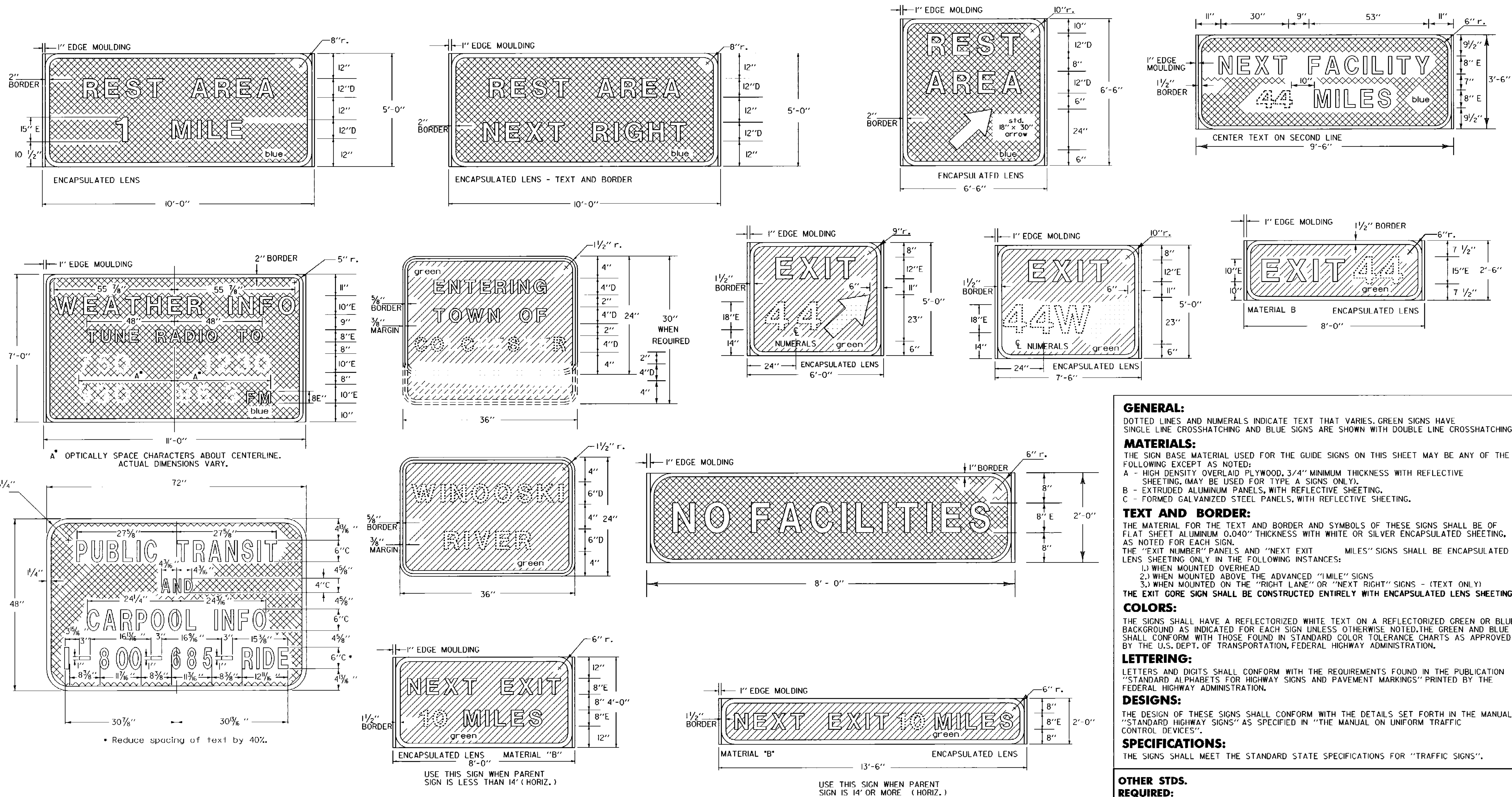
David A. Bass
TRAFFIC AND SAFETY ENGINEER

**STANDARD SIGN PLACEMENT
CONVENTIONAL ROAD**



**STANDARD
E-121**

APPROVED FOR THIS PROJECT
AND/OR DESIGN IMPLEMENTATION,
FHWA FINAL APPROVAL PENDING.



REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
 DEC. 18, 1989 - CHANGE DIMENSION ERRORS
 CHANGE 2 DIGIT EXIT SIGN SIZE.
 AUG. 08, 1995 - REVISED CARPOOL SIGN DETAIL

APPROVED FOR THIS PROJECT
 AND/OR DESIGN IMPLEMENTATION.
 FHWA FINAL APPROVAL PENDING.

APPROVED

Stephen D. McArthur
 DIRECTOR OF ENGINEERING

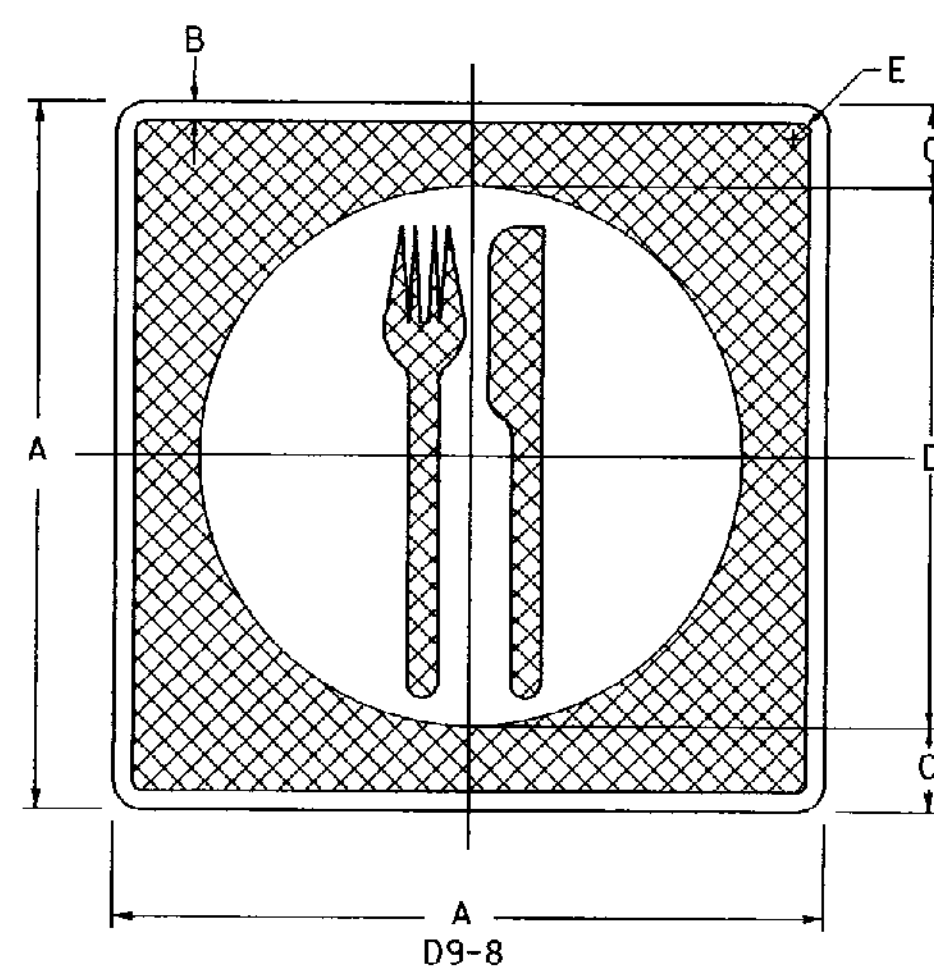
David A. Ross
 TRAFFIC AND SAFETY ENGINEER

GUIDE SIGN DETAILS

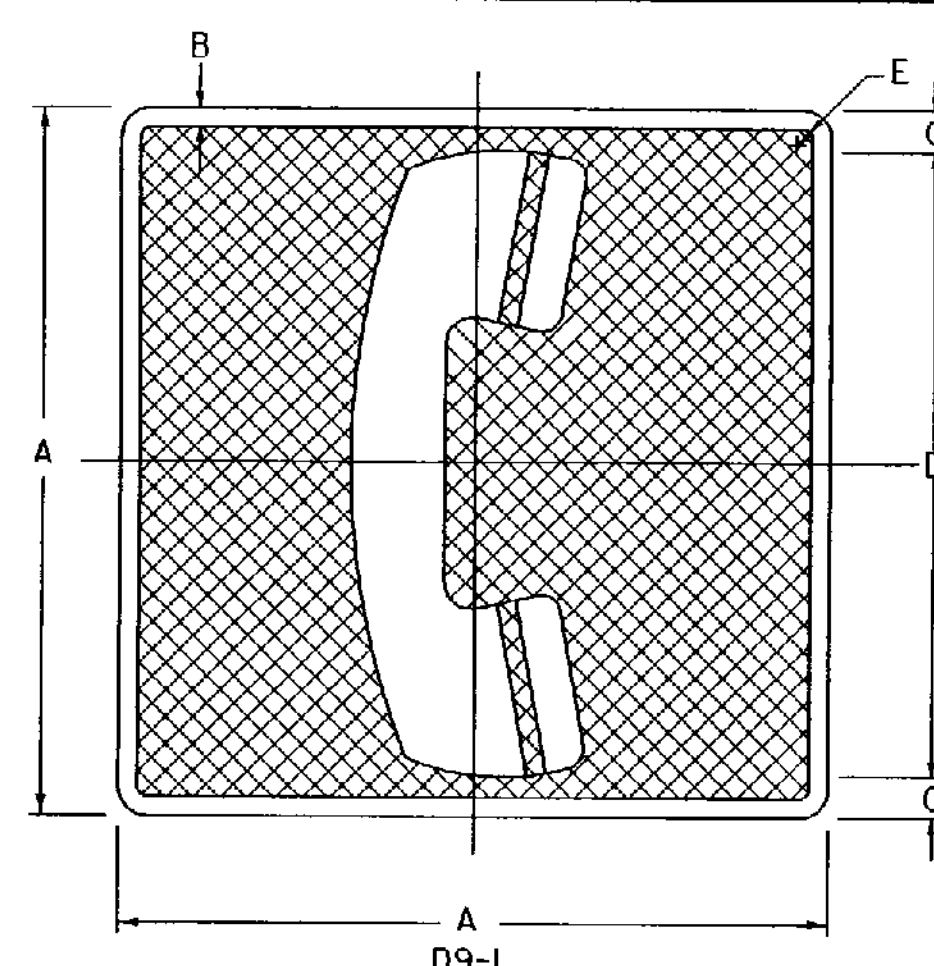
/traf/std/stdel3l.dgn : stdel3l.l



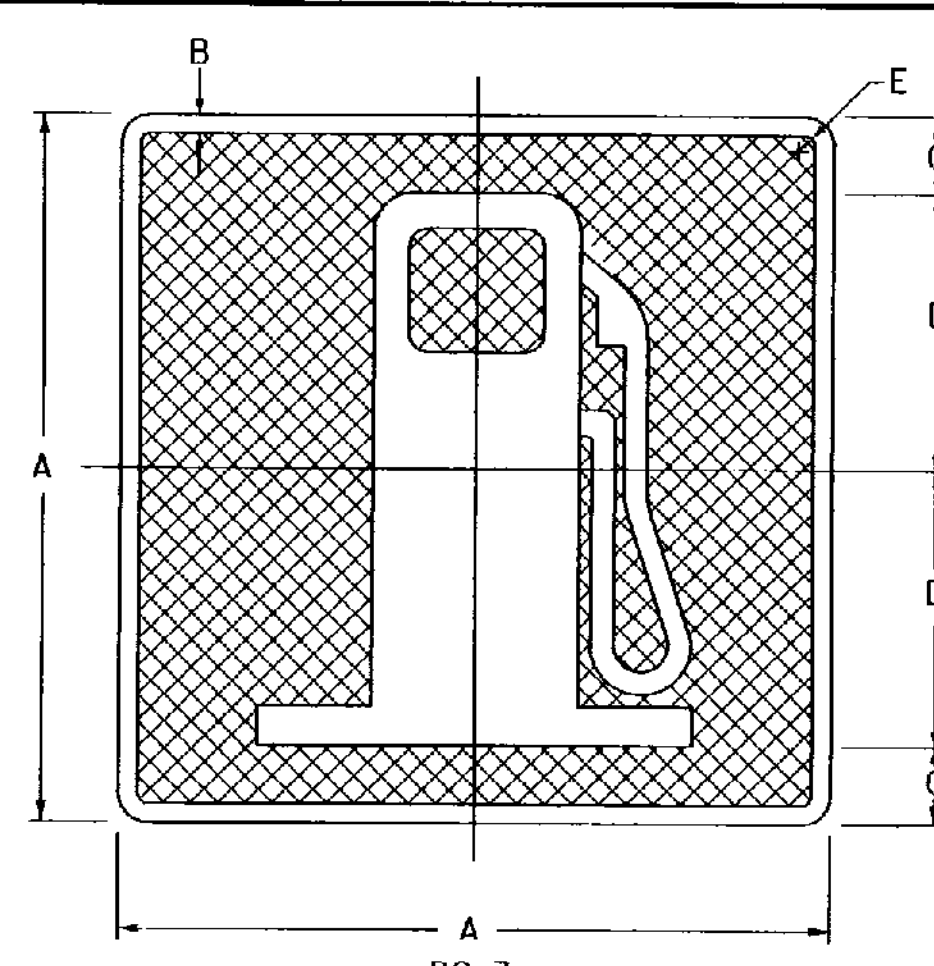
STANDARD E-131



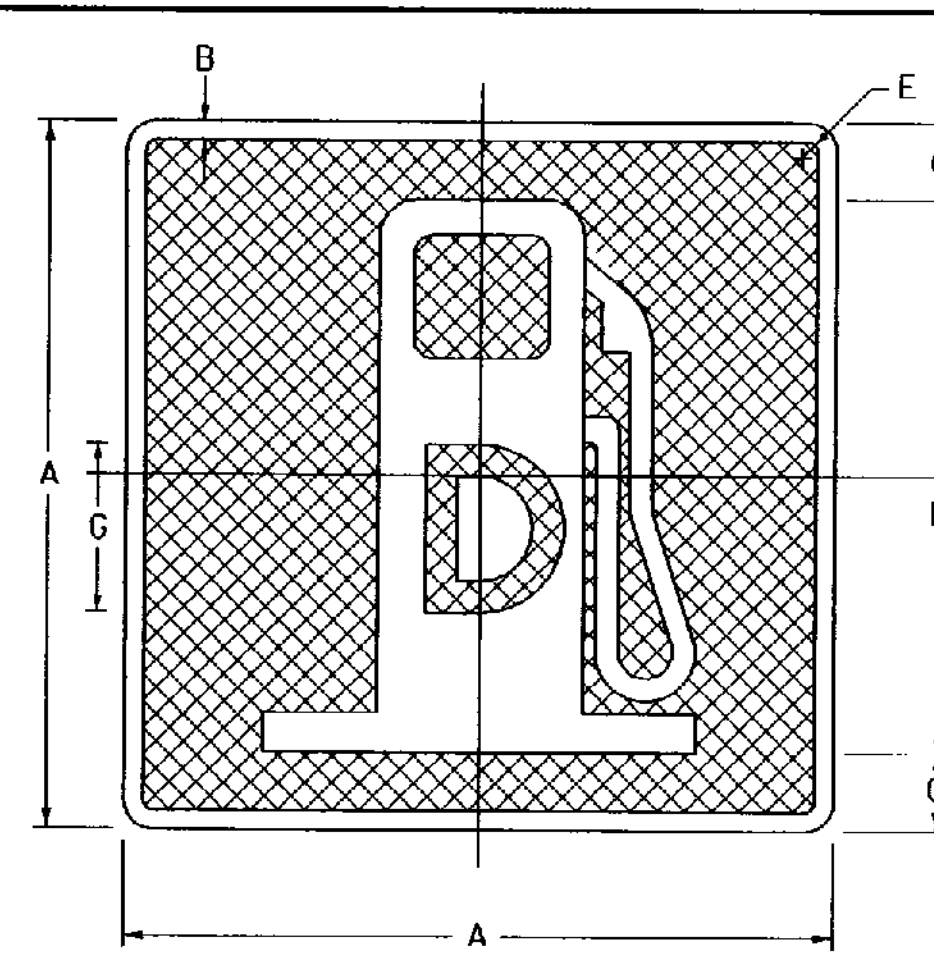
SIGN	DIMENSIONS (INCHES)				
	A	B	C	D	E
MIN	18	1/2	1/2	15	1/2
STD	24	1/2	2	20	1/2
SPECIAL	30	3/4	2 1/2	25	1 1/8



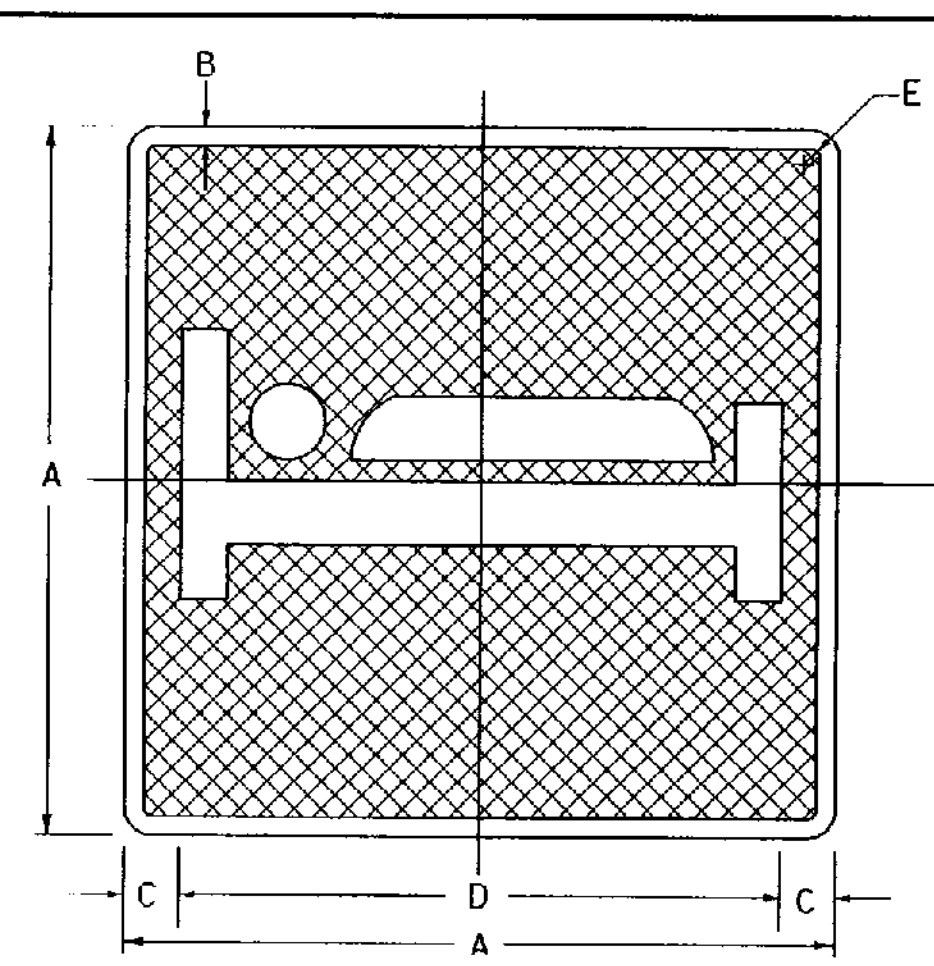
SIGN	DIMENSIONS (INCHES)				
	A	B	C	D	E
MIN	18	1/2	1/2	15	1/2
STD	24	1/2	2	20	1/2
SPECIAL	30	3/4	2 1/2	25	1 1/8



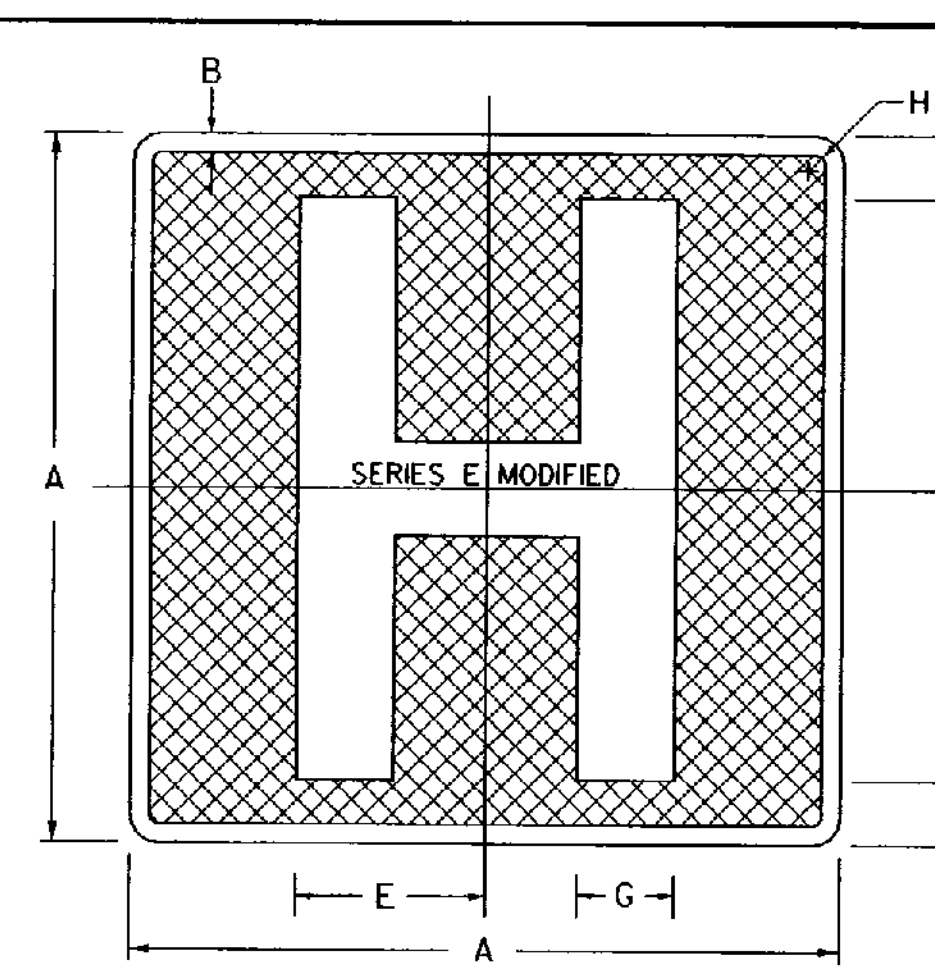
SIGN	DIMENSIONS (INCHES)				
	A	B	C	D	E
MIN	18	1/2	3	6	1/2
STD	24	1/2	3	9	1/2
SPECIAL	30	3/4	3 3/4	11 1/4	1 1/8



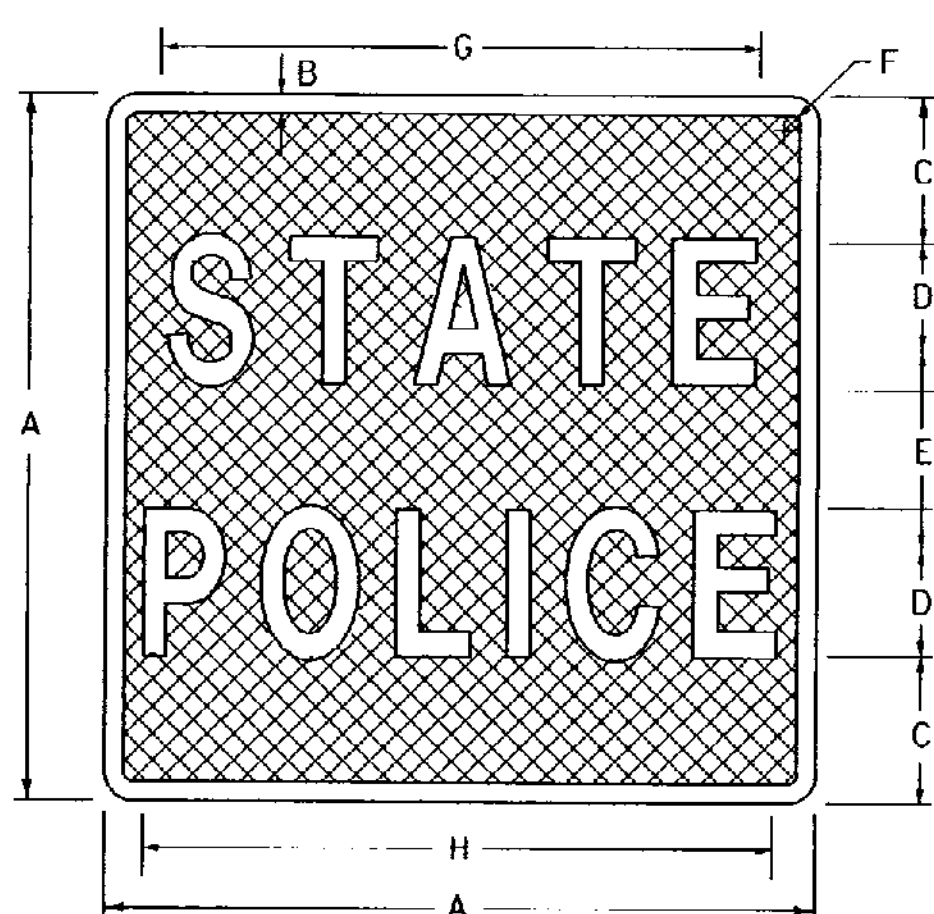
SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	G
MIN	18	1/2	1 1/2	15	1 1/2	4E(M)
STD	24	1/2	2	20	1 1/2	6E(M)
SPECIAL	30	3/4	2 1/2	25	1 1/8	8E(M)



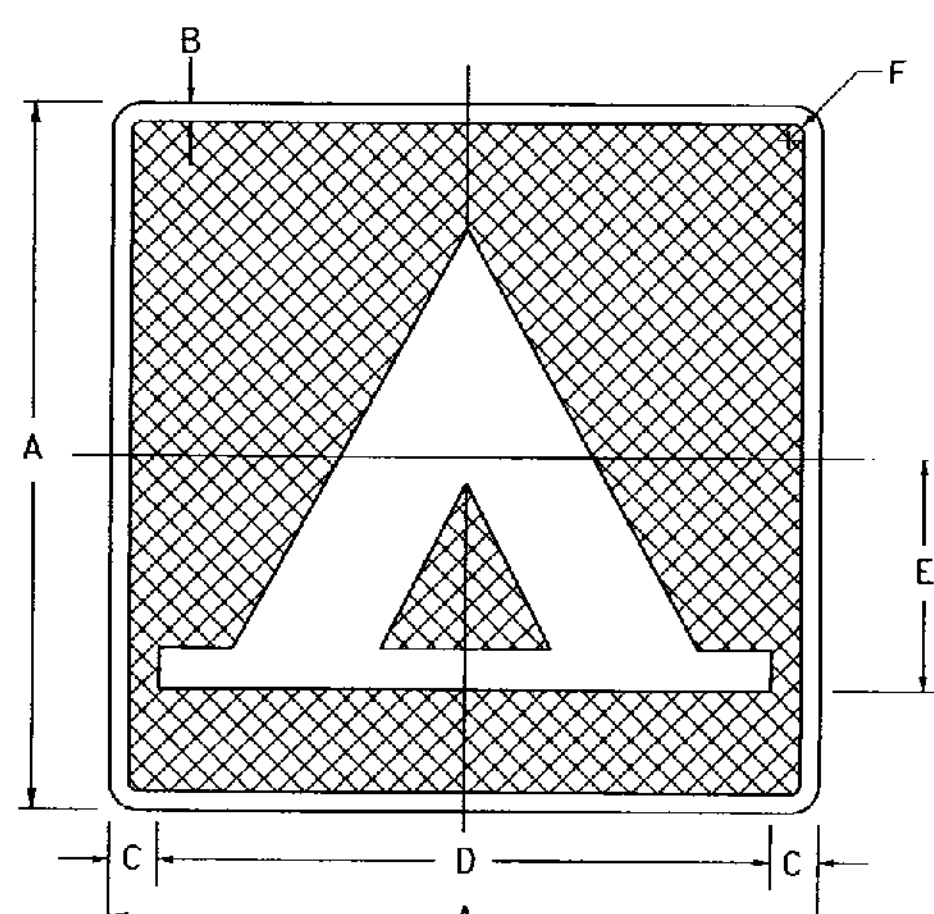
SIGN	DIMENSIONS (INCHES)				
	A	B	C	D	E
MIN	18	1/2	1 1/2	15	1 1/2
STD	24	1/2	2	20	1 1/2
SPECIAL	30	3/4	2 1/2	25	1 1/8



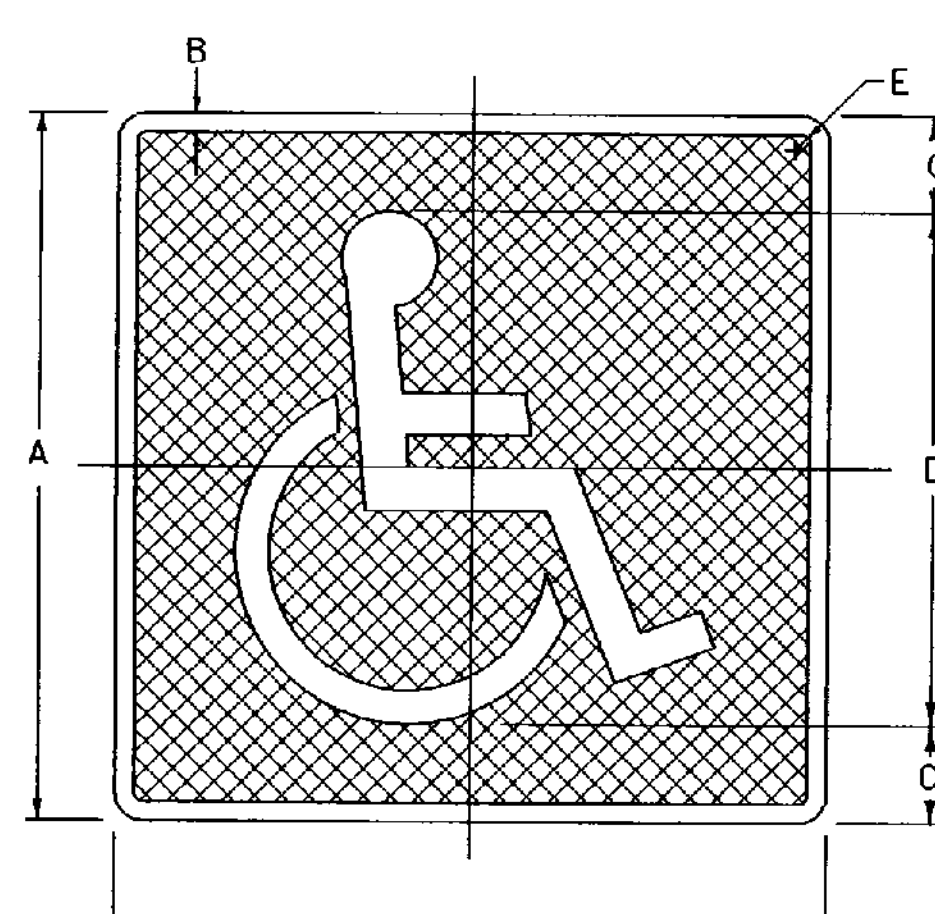
SIGN	DIMENSIONS (INCHES)						
	A	B	C	D	E	G	H
MIN	18	1/2	1 1/2	15			1 1/2
STD	24	1/2	2	20	6 3/8	3 1/5	1 1/2
SPECIAL	30	3/4	2 1/2	25	8	4	1 1/8



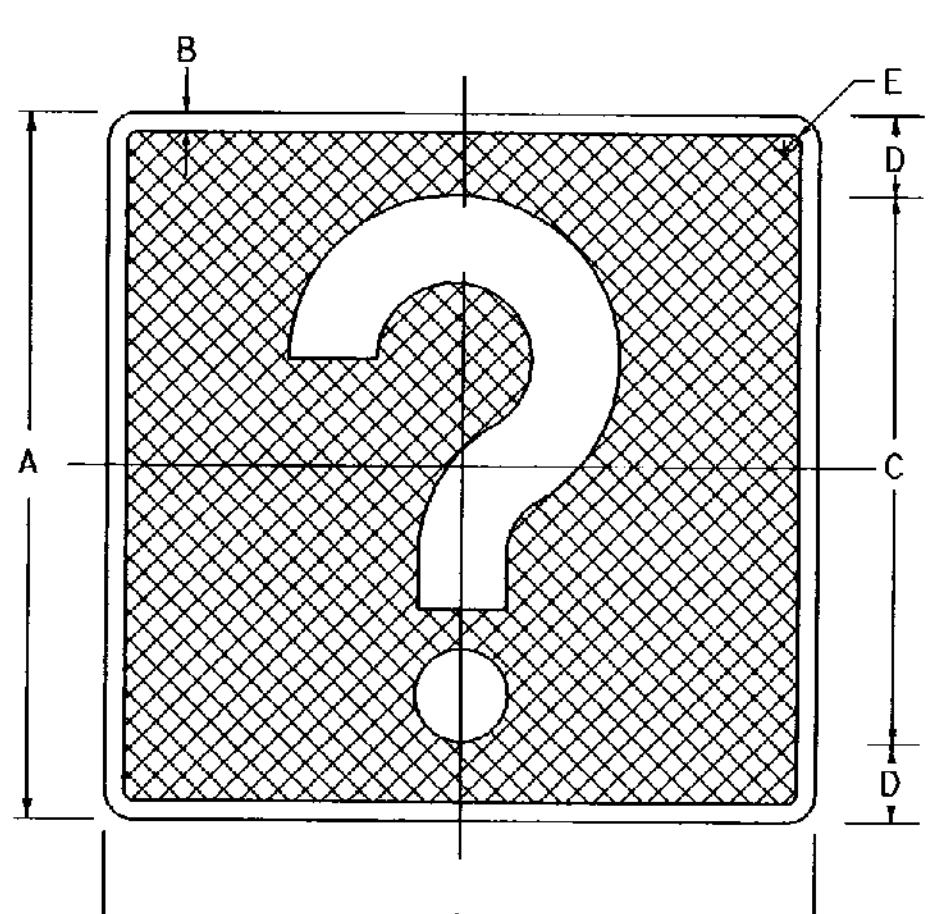
SIGN	DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	H
MIN AND STD	24	1/2	5	5C	4	1 1/2	14 3/16	18
SPECIAL	30	1/2	6	6C	6	1 1/2	18 3/4	22 1/16



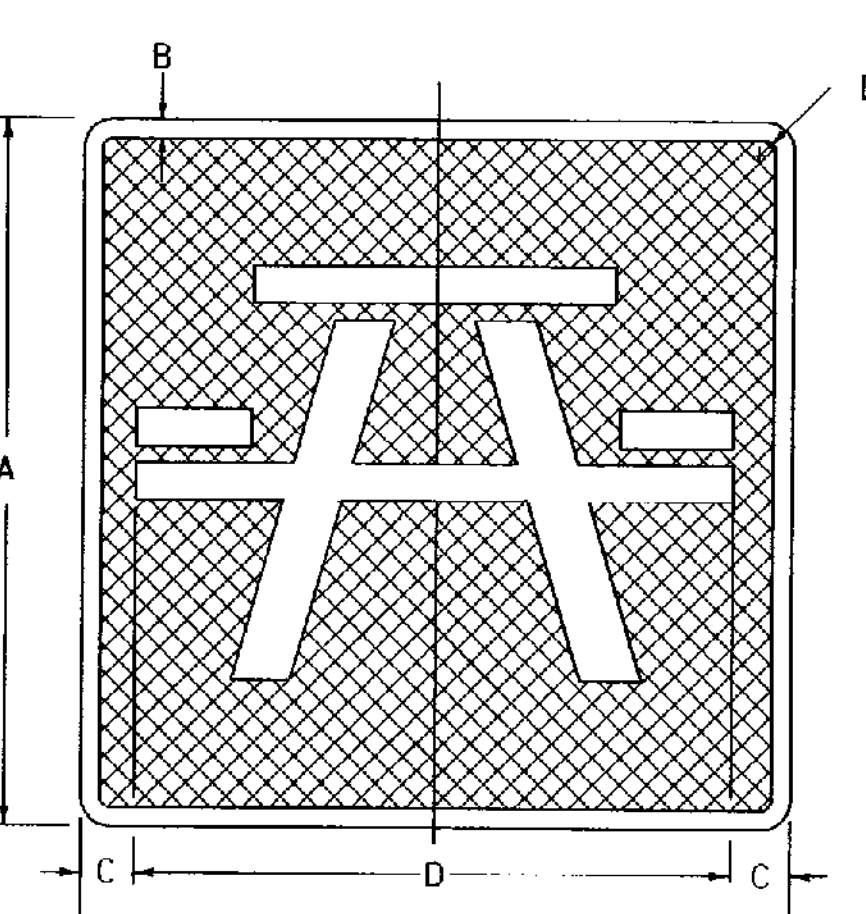
SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
MIN	18	1/2	1 1/2	15	6	1 1/2
STD	24	1/2	2	20	8	1 1/2
SPECIAL	30	3/4	2 1/2	25	10	1 1/8



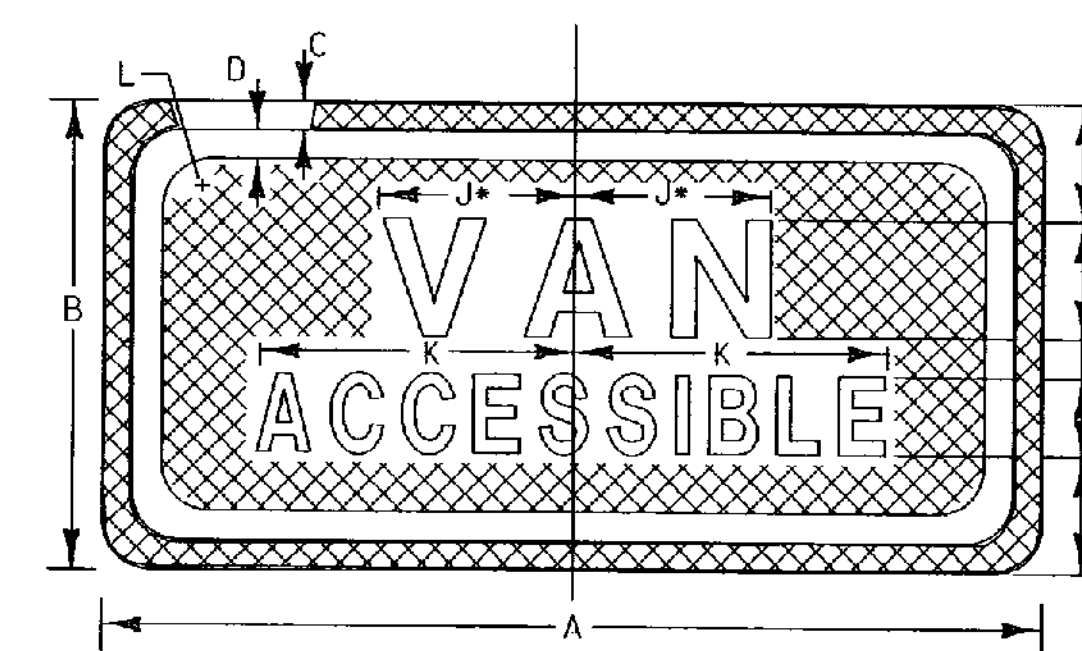
SIGN	DIMENSIONS (INCHES)				
	A	B	C	D	E
MIN	18	1/2	1 1/2	15	1 1/2
STD	24	1/2	2	20	1 1/2
SPECIAL	30	3/4	2 1/2	25	1 1/8



SIGN	DIMENSIONS (INCHES)				
	A	B	C	D	E
MIN	18	1/2	1 1/2	15	1 1/2
STD	24	1/2	2	20	1 1/2
SPECIAL	30	3/4	2 1/2	25	1 1/8



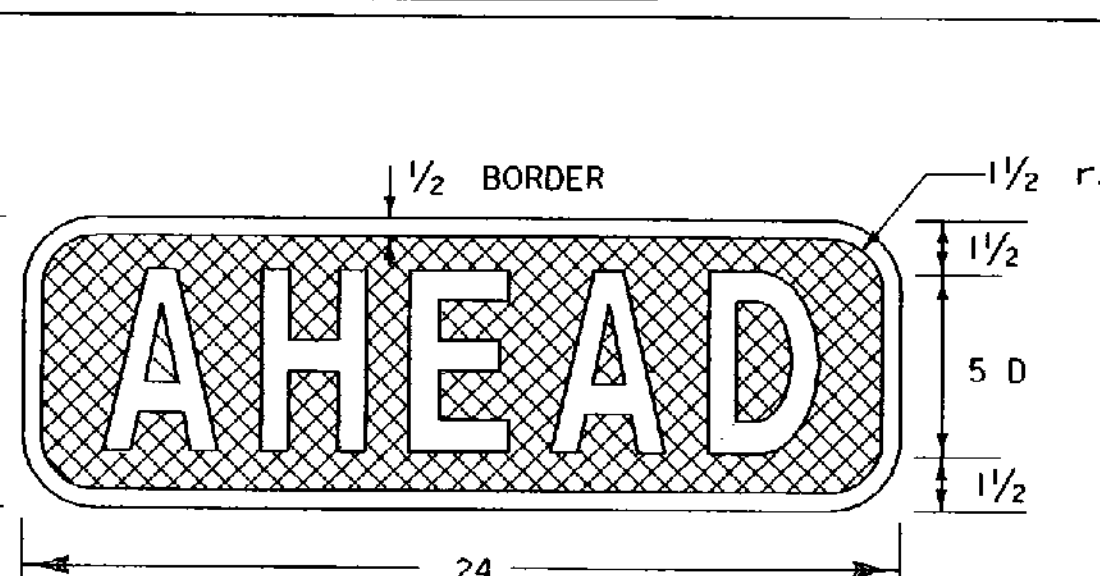
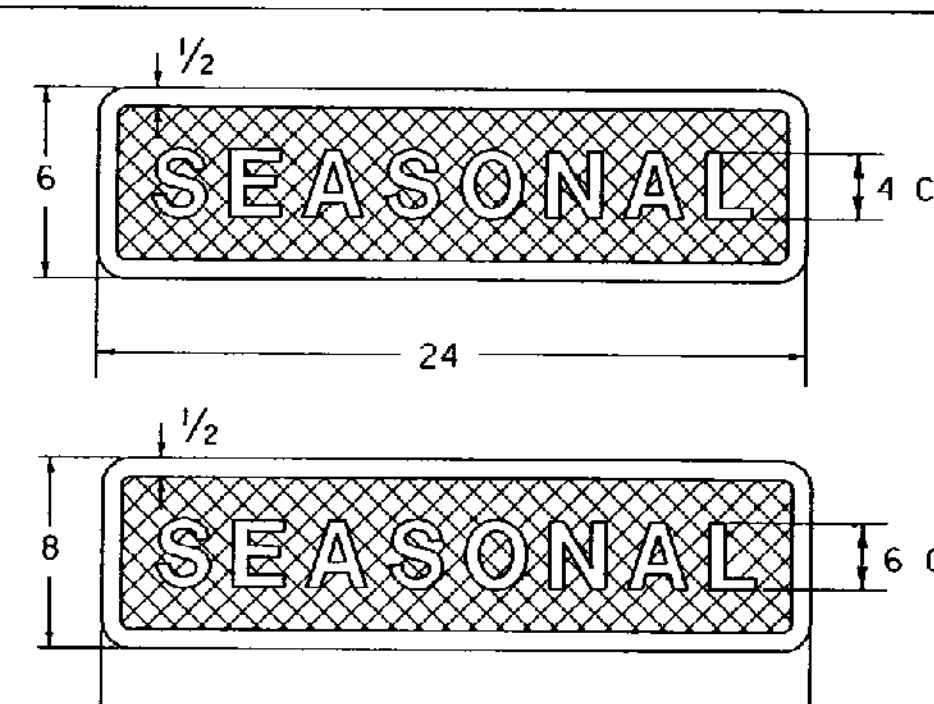
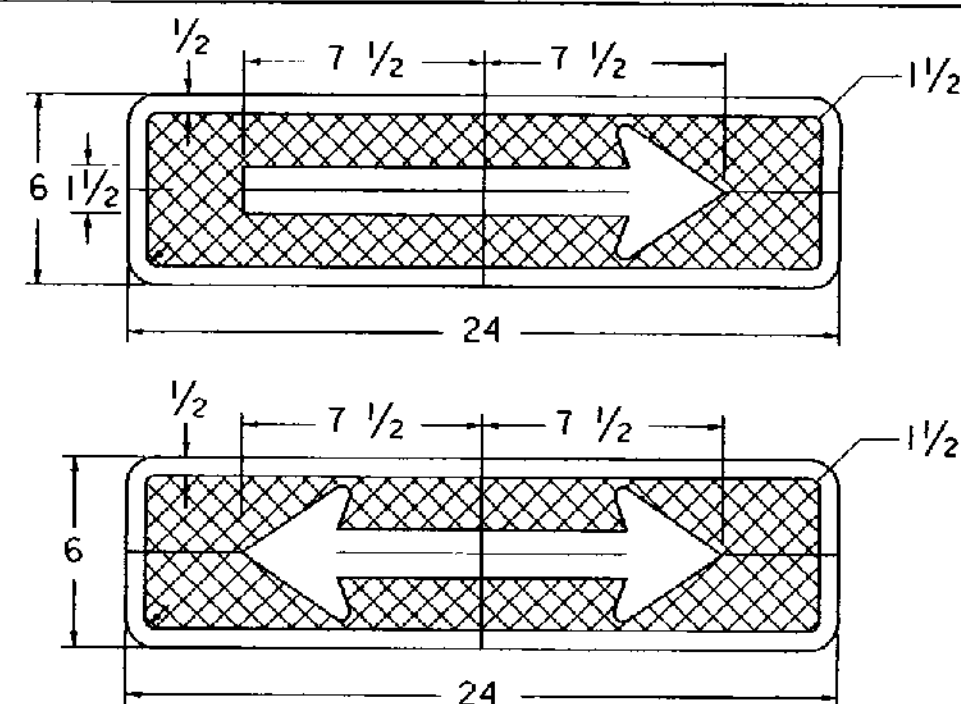
SIGN	DIMENSIONS (INCHES)				
	A	B	C	D	E
MIN	18	1/2	1 1/2	15	1 1/2
STD	24	1/2	2	20	1 1/2
SPECIAL	30	3/4	2 1/2	25	1 1/8



• INCREASE SPACING 50%

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J	K	L
STD	12	6	3/8	3/8	1 1/2	1 1/2 D	1/2	1 D	2 1/4	4	1 1/2
SPECIAL	18	9	3/8	3/8	2 1/4	2 D	1	1 1/2 D	2 3/4	7	1 1/2

NOTE :
ALL DIMENSIONS SHOWN IN INCHES



NOTES

MATERIALS

THE SIGN BASE MATERIAL USED FOR THE GUIDE SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING MINIMUM THICKNESSES NOTED.

- A - FLAT SHEET ALUMINUM - 0.060
- B - HIGH DENSITY OVERLAP PLYWOOD - 1/2"
- C - GALVANIZED FLAT SHEET STEEL - 16 GA.

COLORS

THE SIGNS SHALL BE WHITE OR SILVER REFLECTORIZED SHEETING WITH A REVERSE SCREENED BLUE BACKGROUND. THE BLUE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS AND APPROVED BY THE U.S. DEPT. OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

LETTERING

LETTERS SHALL CONFORM WITH THE REQUIREMENTS FOUND IN THE PUBLICATION "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" PRINTED BY THE FEDERAL HIGHWAY ADMINISTRATION.

DESIGN

THE DESIGN OF THESE SIGNS SHALL CONFORM WITH THE DETAILS SET FORTH IN THE MANUAL "STANDARD HIGHWAY SIGNS" AS SPECIFIED IN "THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES." LETTER-NUMERAL DESIGNATION UNDER EACH SYMBOL IS IDENTIFICATION IN MANUAL.

THESE SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR "TRAFFIC SIGNS."

OTHER STDS.
REQUIRED:

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
DEC. 18, 1989 - DELETED SERVICE MOUNTING DETAIL
REVISED "STATE POLICE" SIGN
ADDED "AHEAD" SIGN
AUG. 18, 1995 - SIGN DETAIL REVISIONS PER STANDARD
HIGHWAY SIGNS MANUAL

APPROVED FOR THIS PROJECT
AND/OR DESIGN IMPLEMENTATION.
FHWA FINAL APPROVAL PENDING.

APPROVED

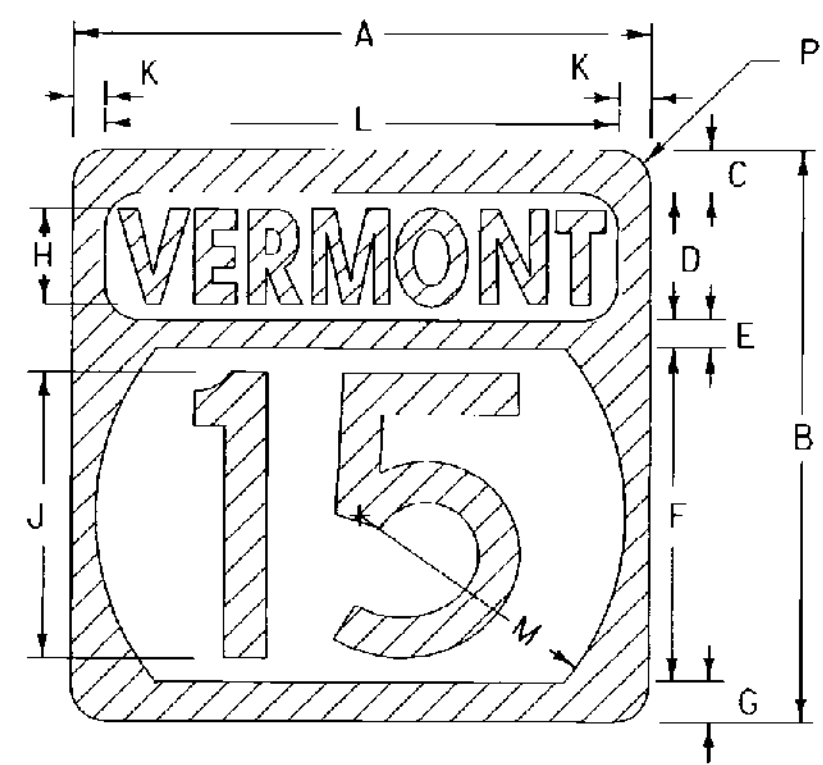
Stephen P. MacArthur
DIRECTOR OF ENGINEERING

Dan A. Ross
TRAFFIC AND SAFETY ENGINEER

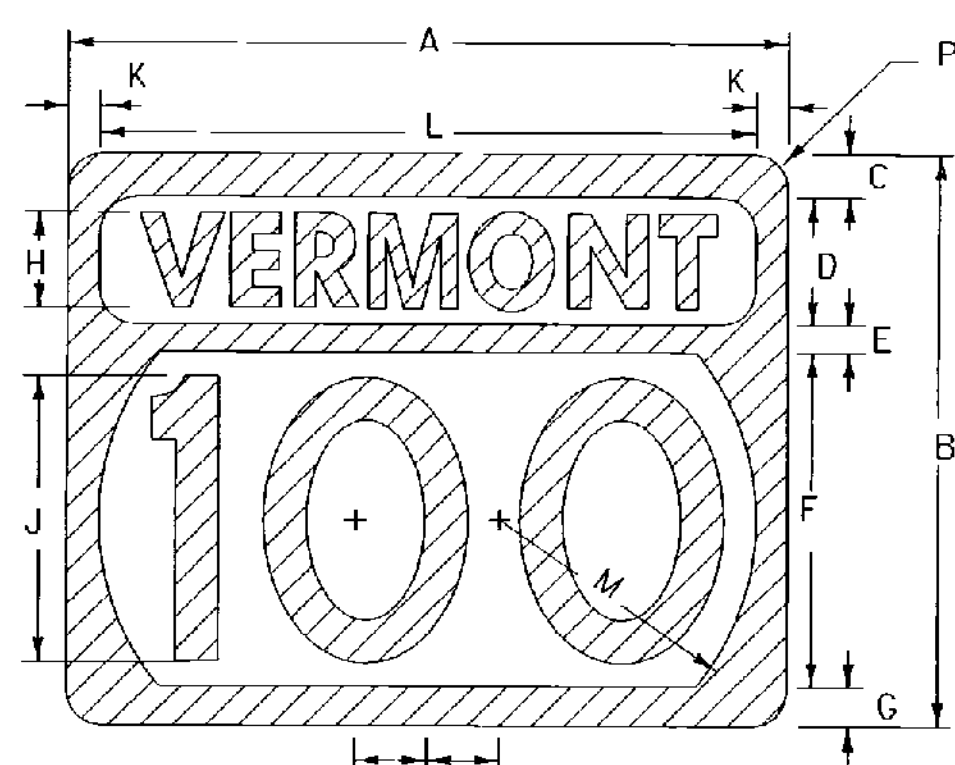
GENERAL MOTORIST SERVICES SIGN DETAILS



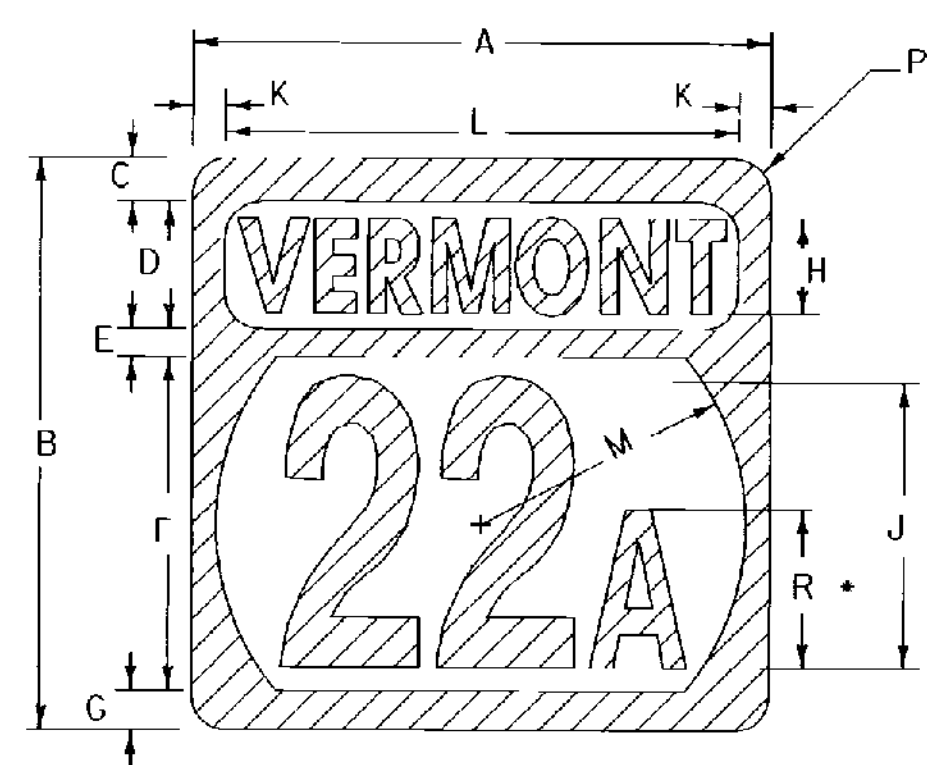
STANDARD
E-132



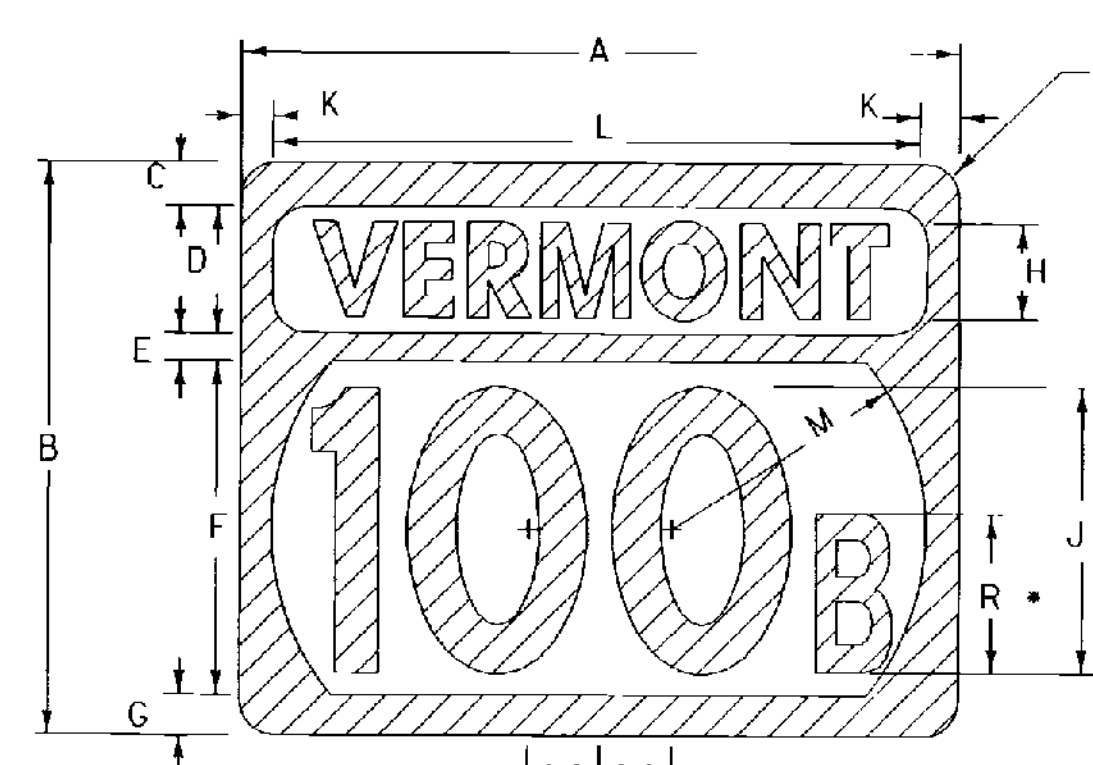
1 OR 2 DIGIT
STATE ROUTE MARKER



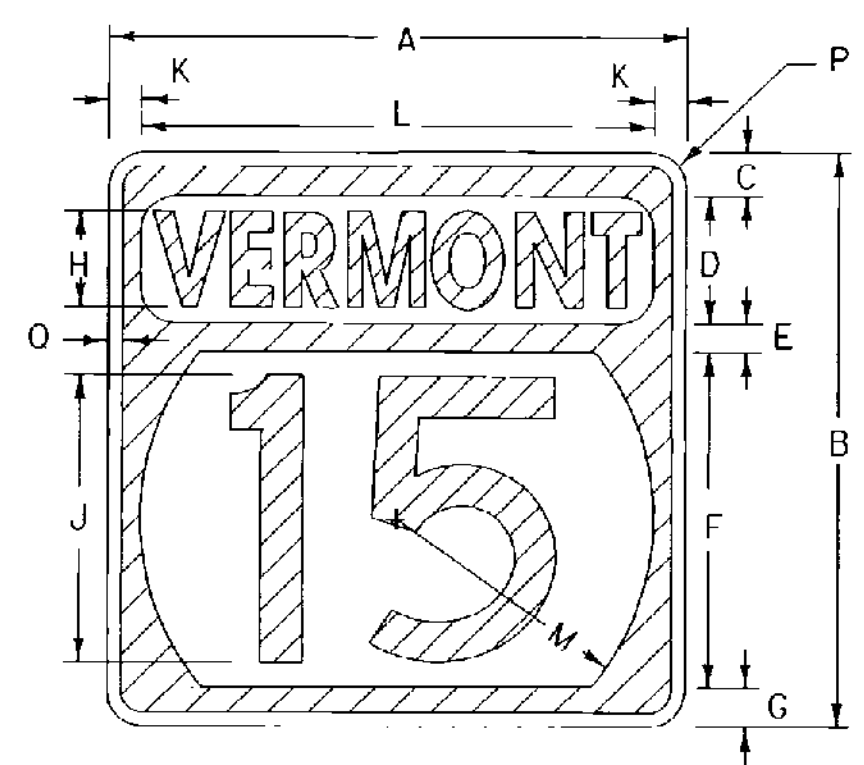
3 DIGIT
STATE ROUTE MARKER



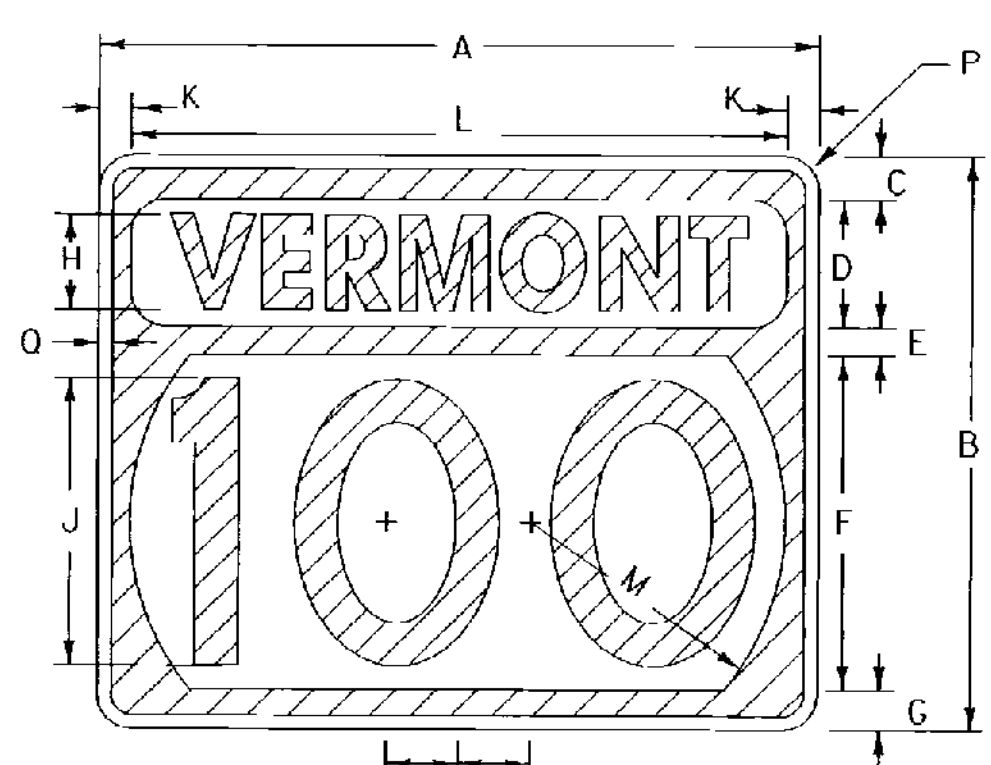
1 OR 2 DIGIT
ALTERNATE STATE
ROUTE MARKER



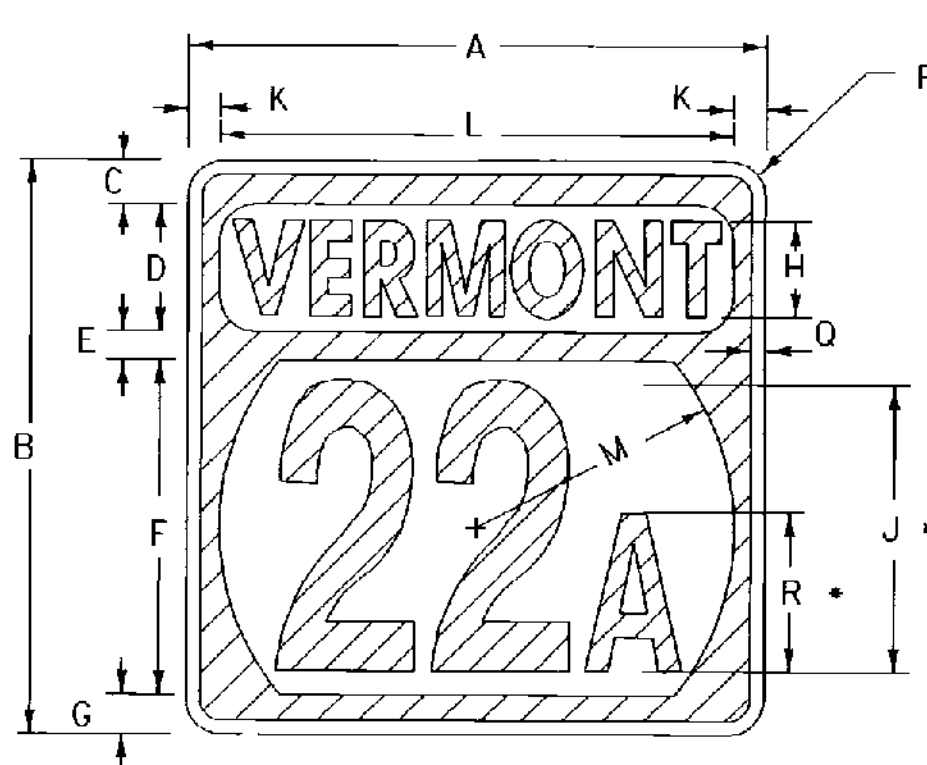
3 DIGIT
ALTERNATE STATE
ROUTE MARKER



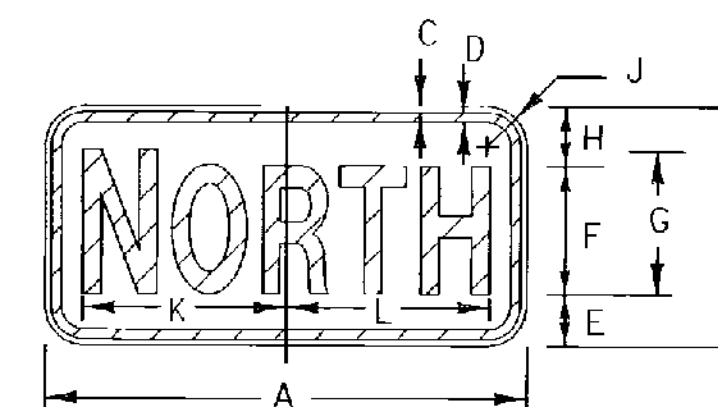
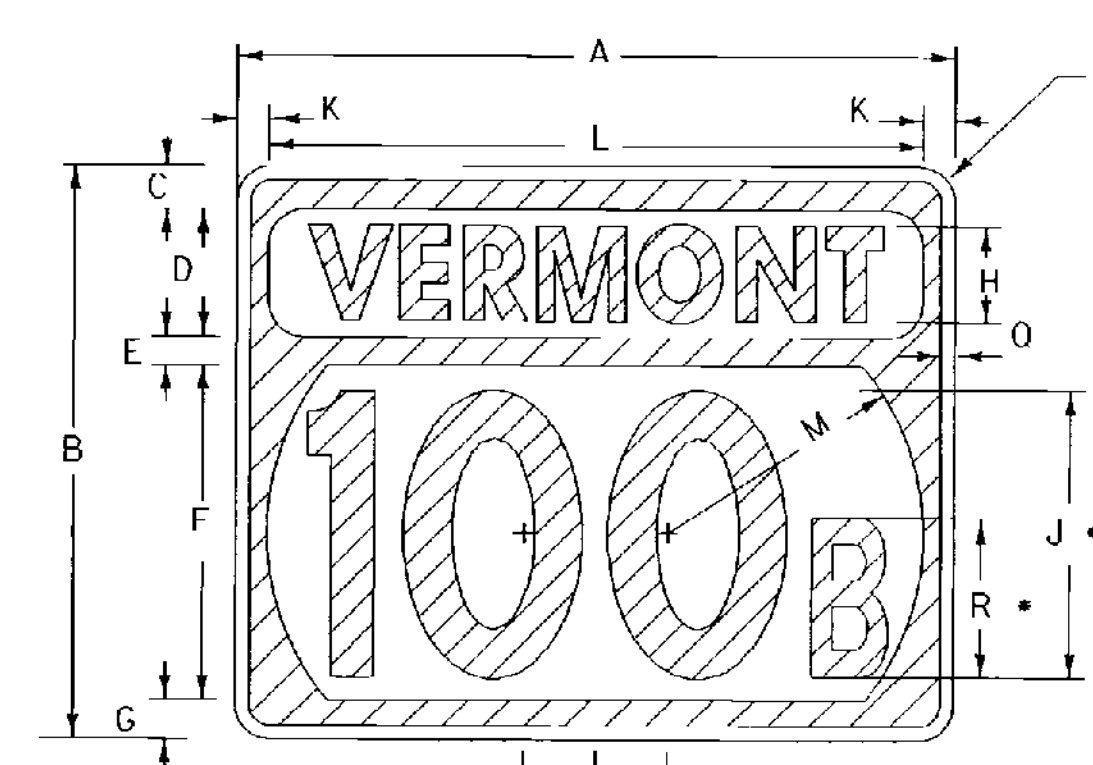
STATE ROUTE MARKER
FOR GUIDE SIGN USE.
(INTERSTATE TYPICAL)



- ALTERNATE ROUTE SIGNS:
OPTICALLY SPACE NUMERALS
ABOUT VERTICAL CENTER-
LINE AND REDUCE SPACING AS
NECESSARY FOR EACH ROUTE



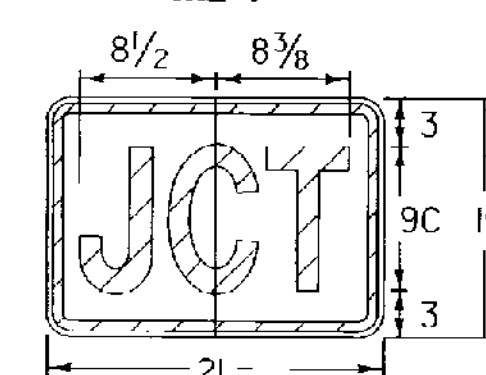
ALTERNATE STATE ROUTE MARKER
FOR GUIDE SIGN USE.
(INTERSTATE TYPICAL)



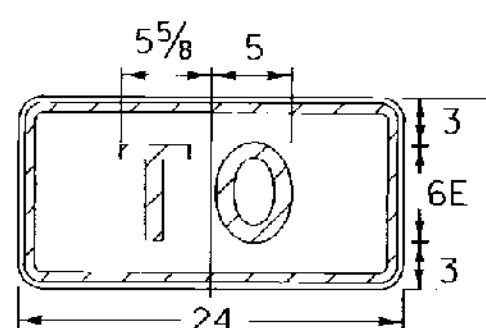
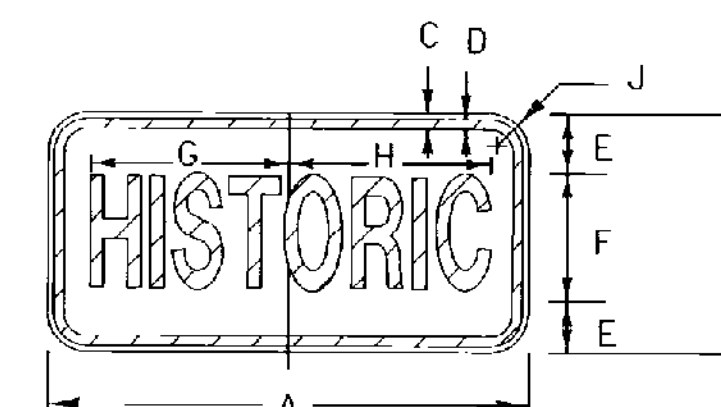
M3-1 M3-3 M3-2 M3-4

SIGN	DIMENSIONS (INCHES)												NORTH		SOUTH		EAST		WEST	
	A	B	C	D	E	F	G	H	J	K	L	K	L	K	L	K	L			
MIN. & STD.	24	12	3/8	5/8	2 3/4	6C	7C	3 3/4	1 1/2	10 1/4	10 1/4	10 1/4	9 3/4	7 1/8	8 3/8	8 3/4	8 3/4			
SPECIAL	30	15	3/8	5/8	3 3/4	8C	9C	3 3/4	1 1/2	12 1/4	12 1/4	12 1/4	12 1/2	10 3/8	11 1/8	11 1/8	11 3/8			

M2-1



CARDINAL DIRECTION MARKER



M4-5

TRAILBLAZER

SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	
MIN. & STD.	24	12	3/8	5/8	3 1/2	5B	10 1/8	9 7/8	1 1/2	
SPECIAL	30	15	3/8	5/8	4	7D *	12 3/8	12 5/8	1 1/2	

* REDUCE SPACING 35%

MATERIALS

THE SIGN BASE MATERIAL MAY BE ANY OF THE FOLLOWING, WITH THE MINIMUM THICKNESSES AS NOTED:

FLAT SHEET ALUMINUM	THICKNESS
LESS THAN 24" X 24"	0.060"
WHEN USED ON GUIDE SIGNS	0.060"
24" X 24", 30" X 24"	0.080"
36" X 36", 45" X 36"	0.100"

GALVANIZED FLAT SHEET STEEL

LESS THAN 24" X 24"	GAGE
WHEN USED ON GUIDE SIGNS	18 GAGE
24" X 24", 30" X 24"	16 GAGE
36" X 36", 45" X 36"	14 GAGE

THE REFLECTIVE MATERIAL SHALL BE WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND. THE TEXTS MAY BE LETTERING FILM, SILK SCREENED, OR HAND PAINTED.

COLORS

COLORS FOR GUIDE USE: TEXT AND SHIELD - GREEN (REFL.) BACKGROUND AND BORDER - WHITE (REFL.)
STATE ROUTE MARKERS SHALL HAVE REFLECTIVE GREEN TEXT AND BORDERS ON REFLECTORIZED WHITE BACKGROUNDS.
GREEN AREAS ARE INDICATED BY SINGLE LINE CROSSHATCHING

LETTERING

LETTERS AND DIGITS SHALL CONFORM WITH THE "STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FHWA.

SPECIFICATIONS

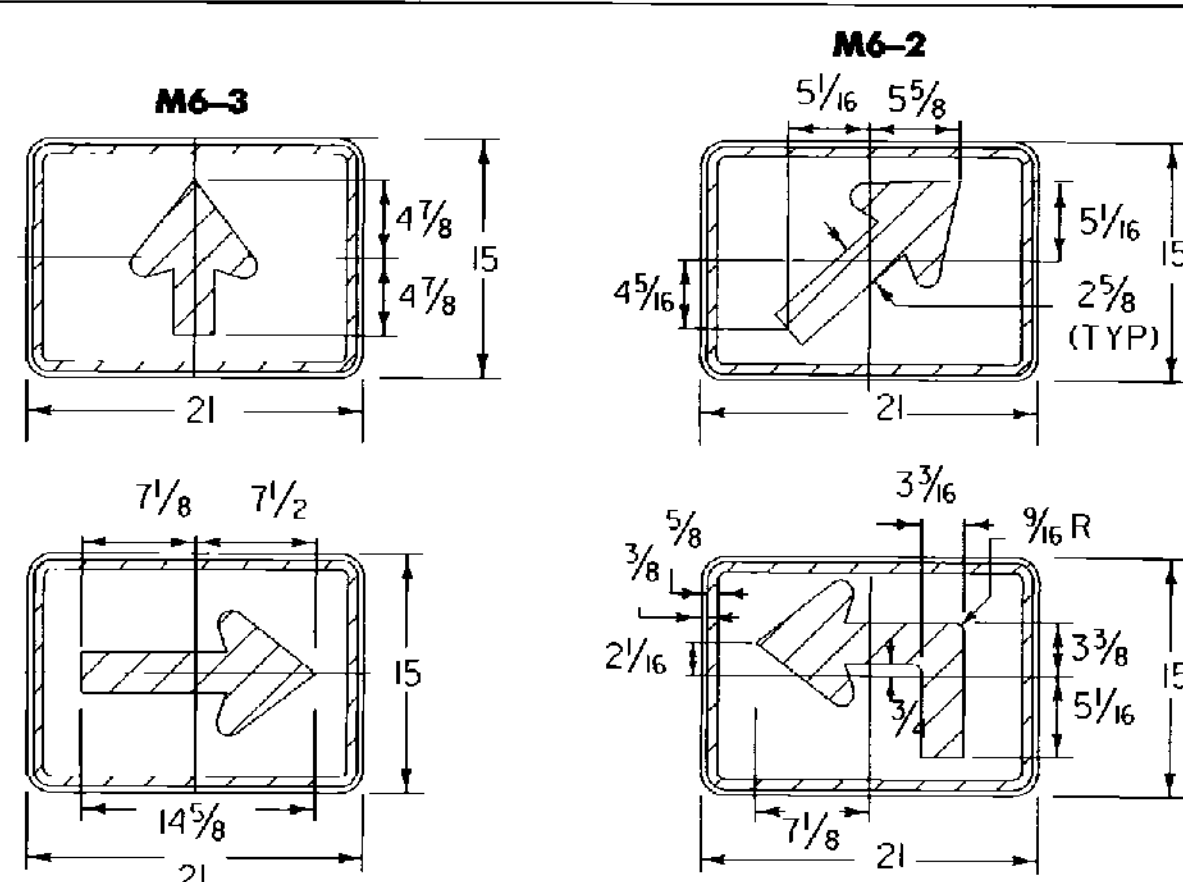
STATE ROUTE MARKERS AND AUXILIARY ROUTE MARKERS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

DESIGNS

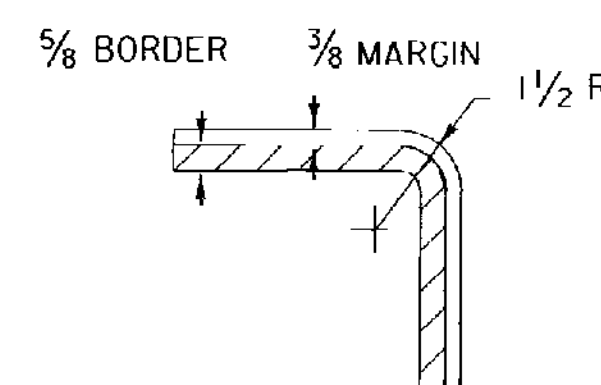
THE DESIGNS OF STATE ROUTE MARKERS AND AUXILIARY MARKERS SHALL CONFORM WITH THE REQUIREMENTS SET FORTH IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FHWA.

OTHER STDS.
REQUIRED:

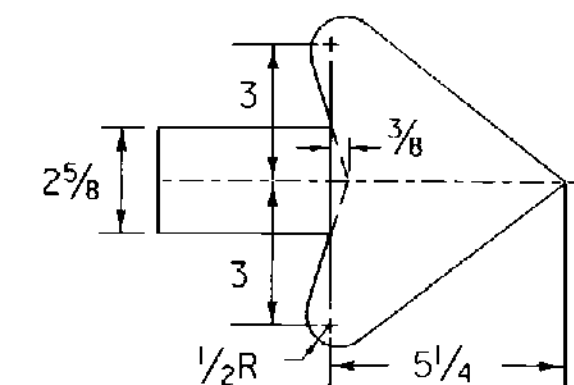
SIGN	DIMENSIONS (INCHES)																	
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R		
1,2-digits	24	24	1 1/2	6	1	14	1 1/2	4C	12D	1	22	11	-	1 1/2	1/2	7B		
1,2-digits	36	36	2 3/8	8	1 3/4	21	2 3/8	6C	18D	2	32	16 1/2	-	2 1/4	3/8	10B		
3-digits	30	24	1 1/2	6	1	14	1 1/2	4D	12D	1	28	11	3	1 1/2	1/2	7B		
3-digits	45	36	2 3/8	8	1 3/4	21	2 3/8	6D	18D	2	41	16 1/2	4 1/2	2 1/4	3/8	10B		



M6-1
DIRECTION ARROW OR ADVANCE TURN ARROWS



TYPICAL RADIUS DETAIL



TYPICAL ARROW DETAIL

(ALL DIMENSIONS IN INCHES)

REVISIONS AND CORRECTIONS

AUG. 08, 1995 - DATE OF ORIGINAL ISSUE

APPROVED

Stephen B. Mac Allen
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

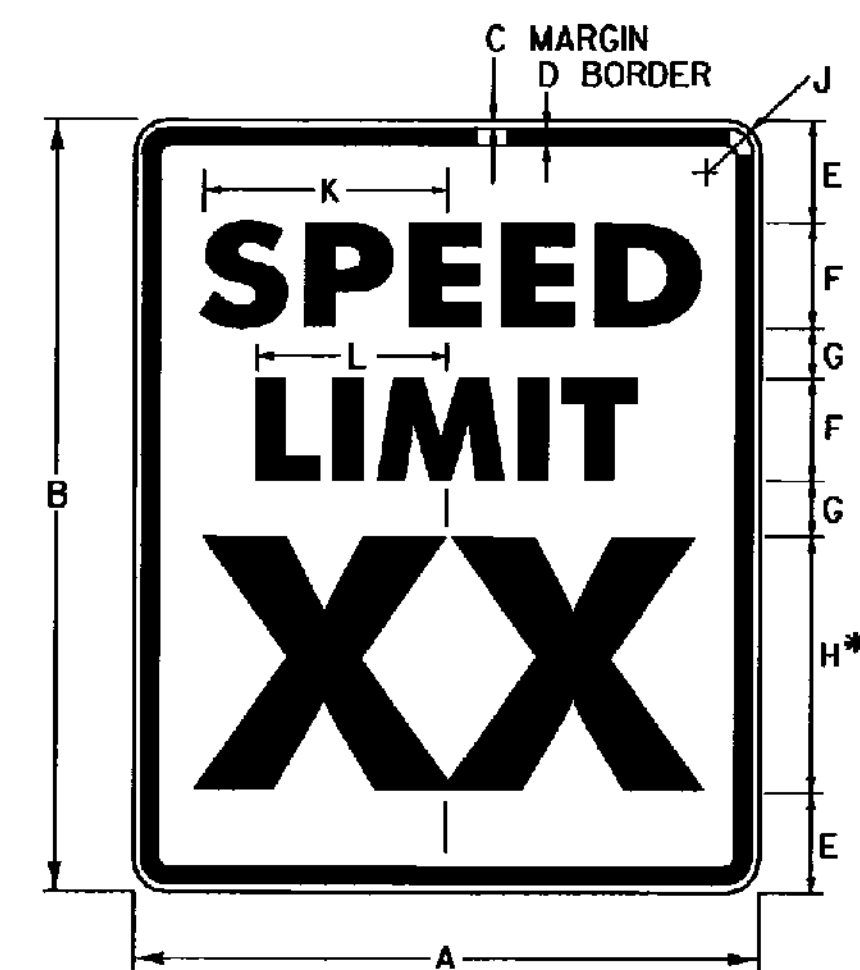
STATE ROUTE MARKER SIGN DETAILS

APPROVED FOR THIS PROJECT
AND/OR DESIGN IMPLEMENTATION.
FHWA FINAL APPROVAL PENDING.

/traf/std/stdel36b.dgn : stdel36b.i



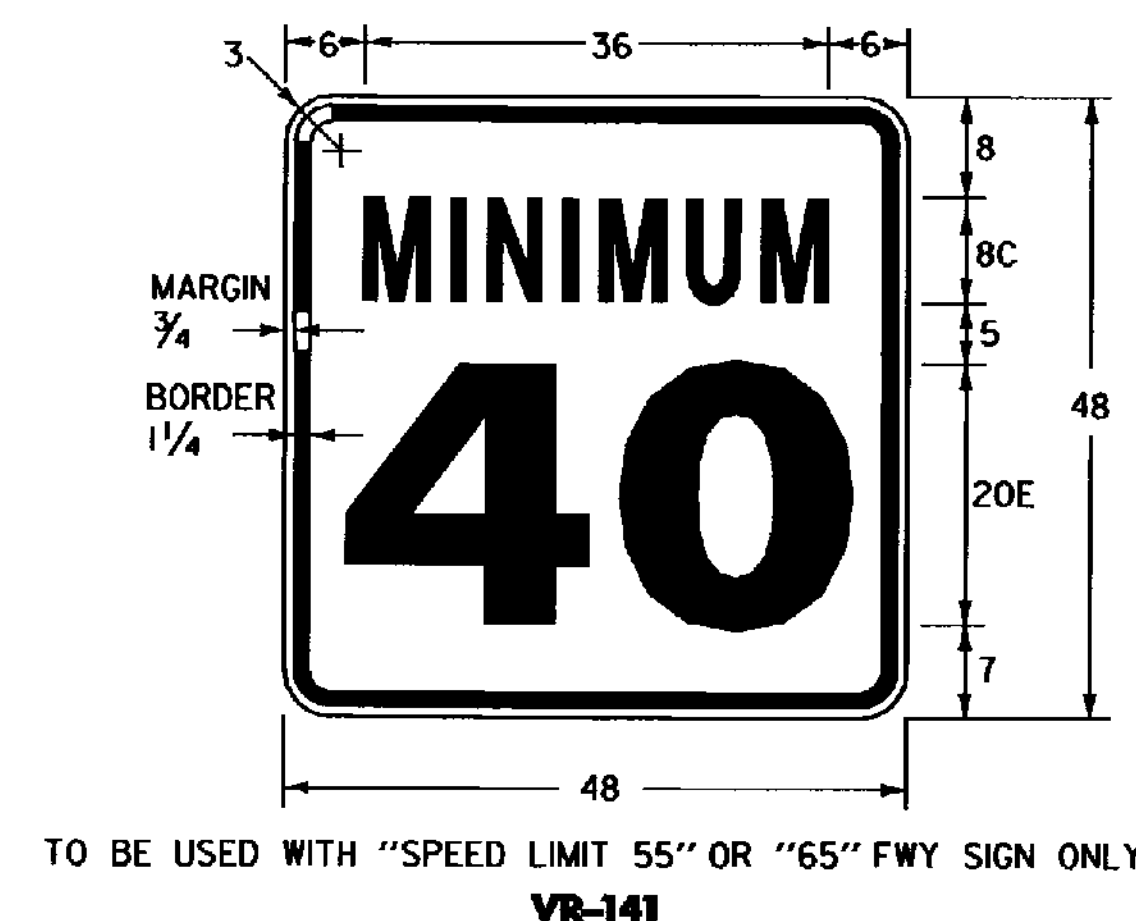
STANDARD
E-136 B



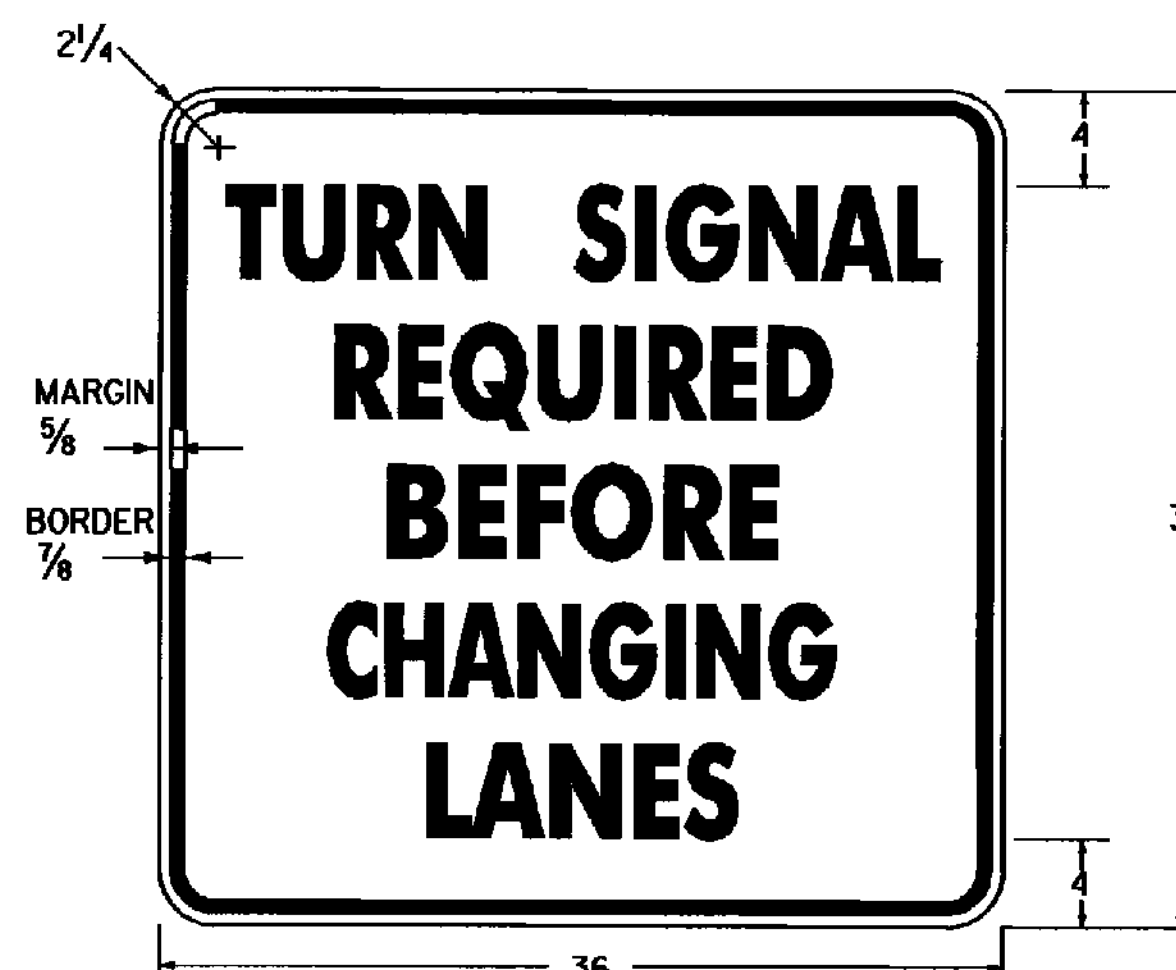
* OPTICALLY SPACE NUMERALS ABOUT VERTICAL CENTERLINE.

R2-1

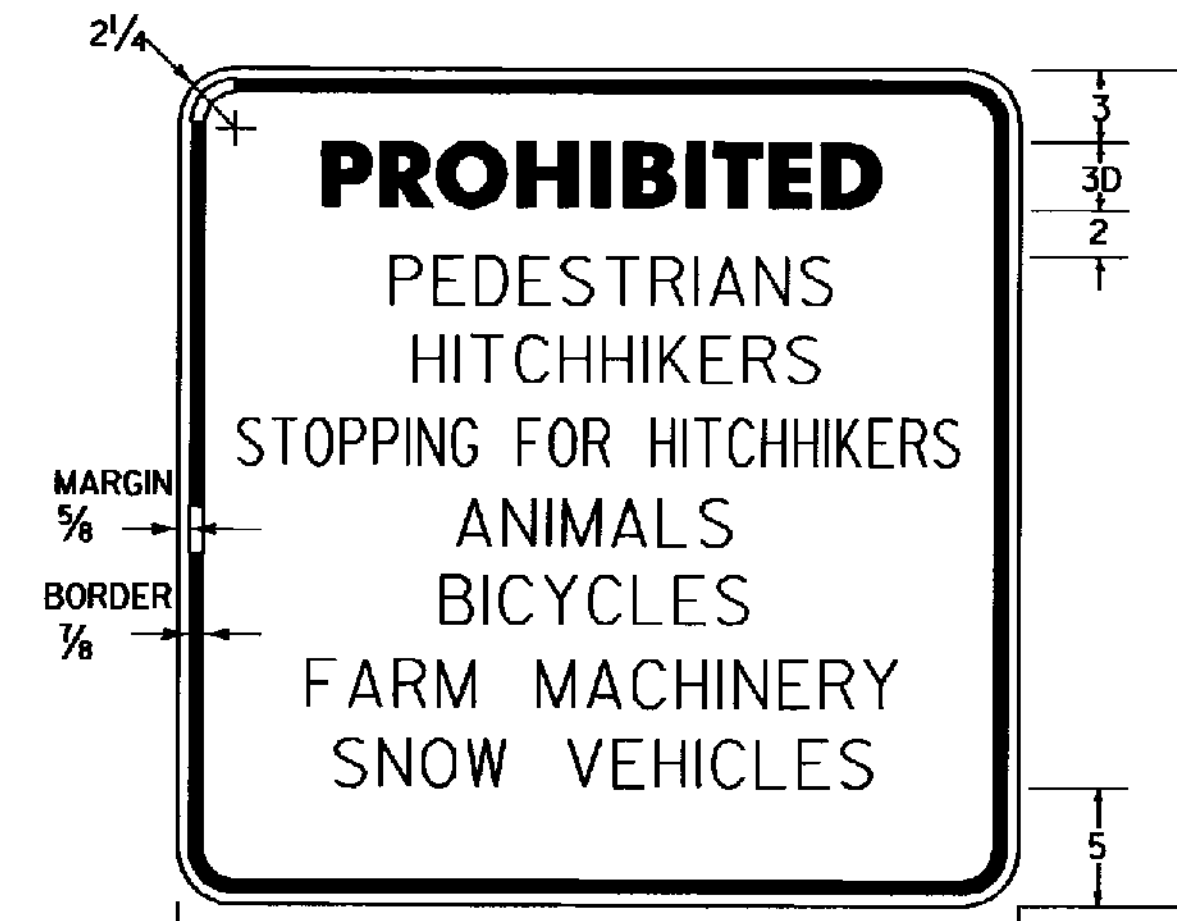
SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	
MIN	18	24	3/8	3/8	3	3E	2	8E	1/2	7 3/8	5 1/2	
STD	24	30	3/8	3/8	4	4E	2	10E	1/2	9 3/8	7 3/8	
EXPWY	36	48	3/8	3/8	6	6E	5	14E	2 1/4	14 3/8	11	
FWY	48	60	3/4	1/4	8	8E	4	20E	3	19 1/8	14 5/8	



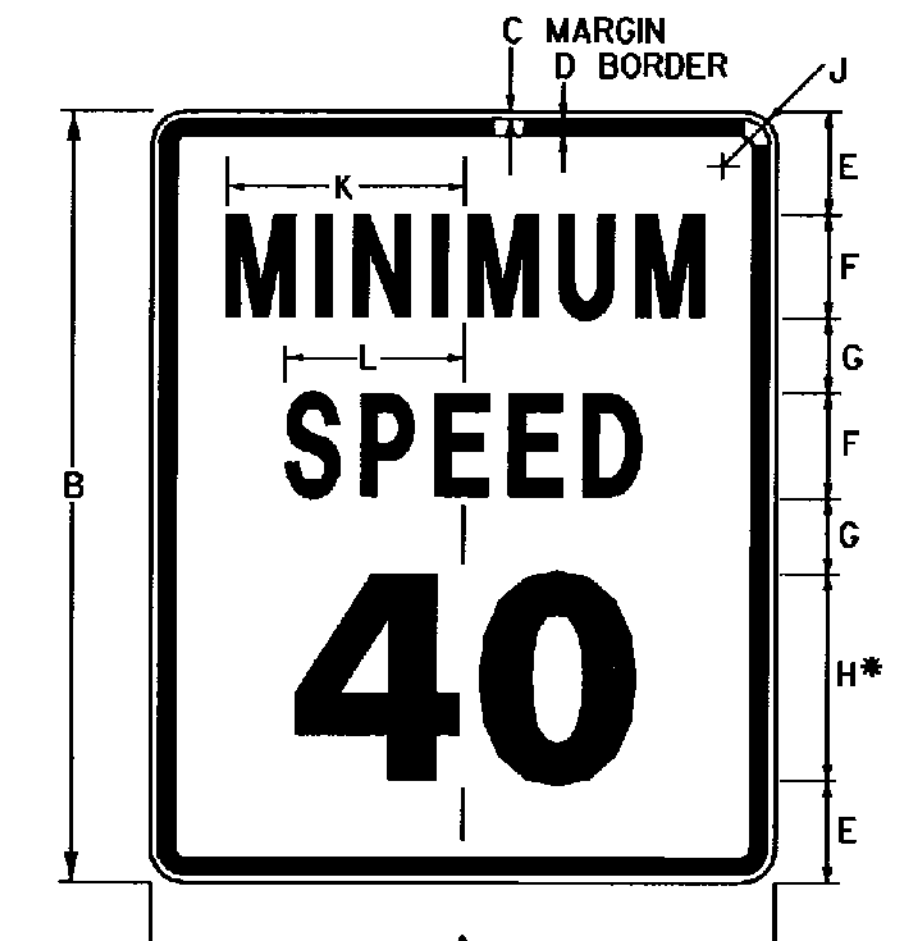
TO BE USED WITH "SPEED LIMIT 55" OR "65" FWY SIGN ONLY
VR-141



TEXT 4" C; SPACING 2"
VR-002



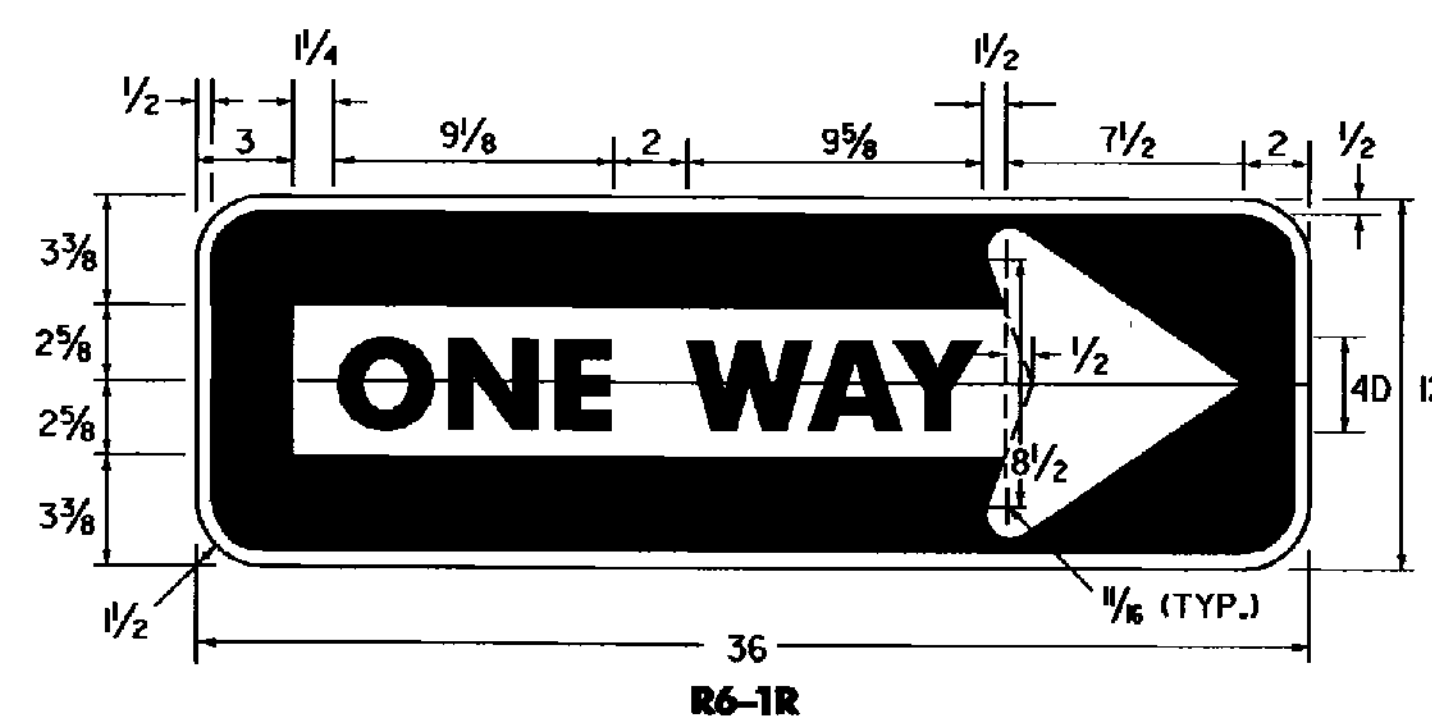
TEXT 2" C, SPACING 1 1/2", EXCEPT WHERE NOTED.
VR-046



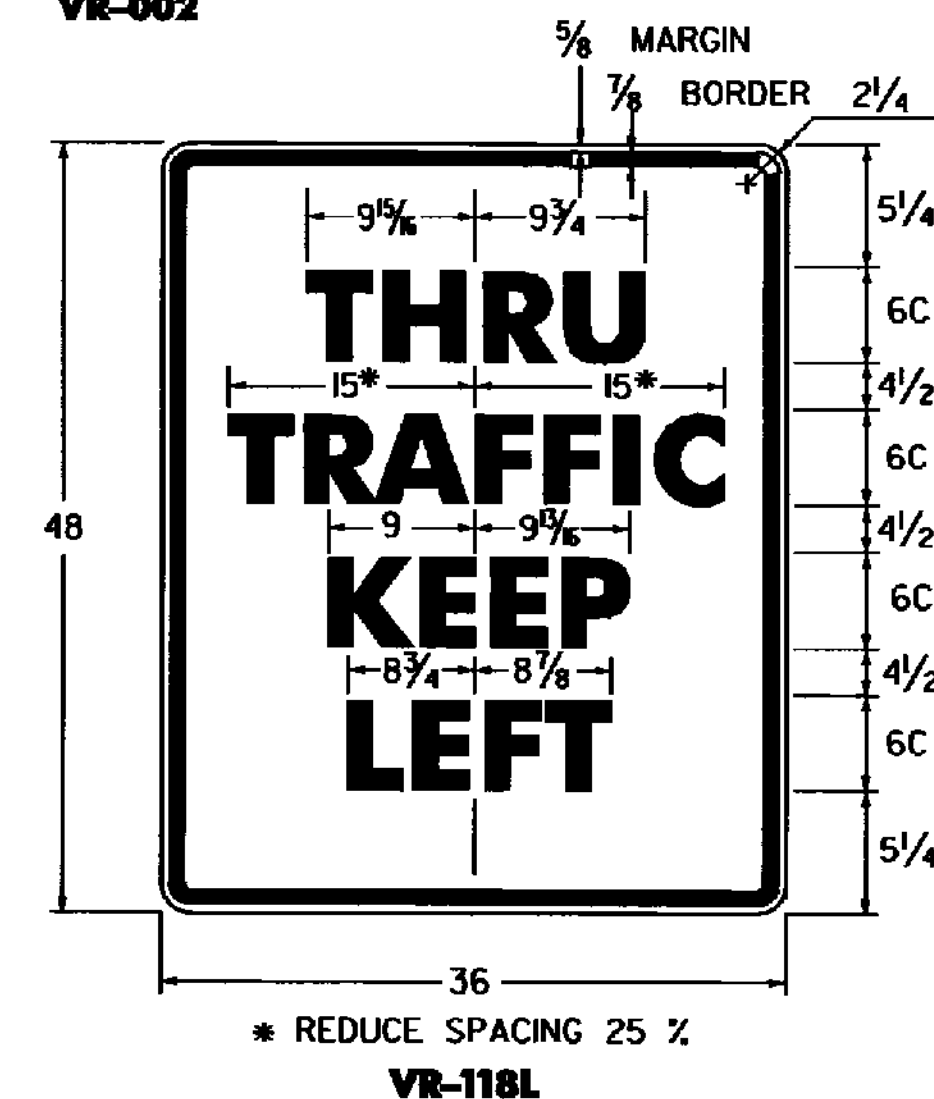
* OPTICALLY SPACE NUMERALS ABOUT VERTICAL CENTERLINE.

R2-4

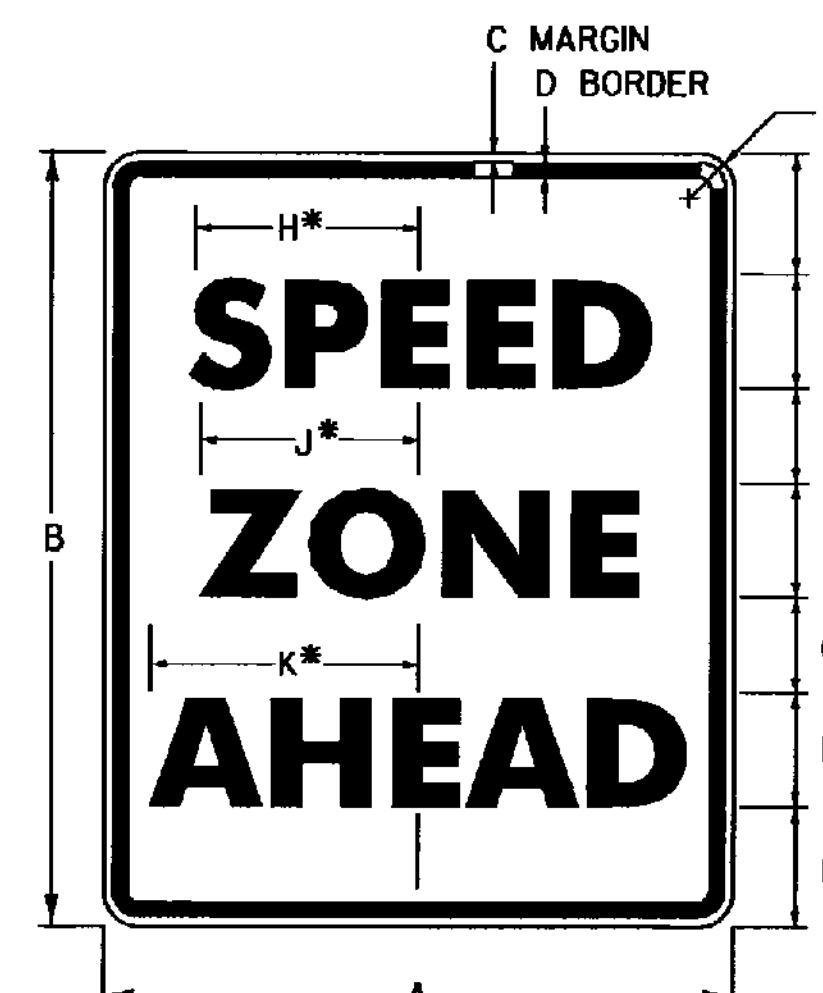
SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	
STD	24	30	3/8	3/8	4	4E	2	10E	1/2	9 3/8	6 3/8	
EXPWY	36	48	3/8	3/8	6	6E	5	14E	2 1/4	13 3/8	10 3/8	
FWY	48	60	3/4	1/4	8	8E	4	20E	3	18 3/8	13 3/8	



R6-1R



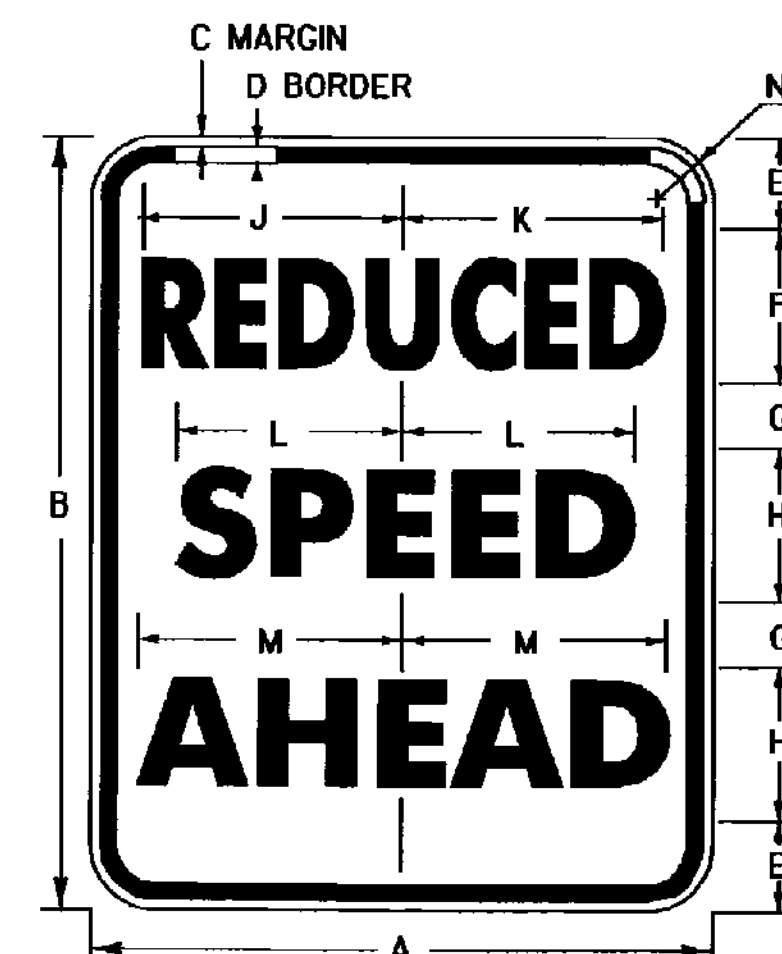
* REDUCE SPACING 25 %
VR-118L



* FOR STD SIZE, REDUCE SPACING 40 %

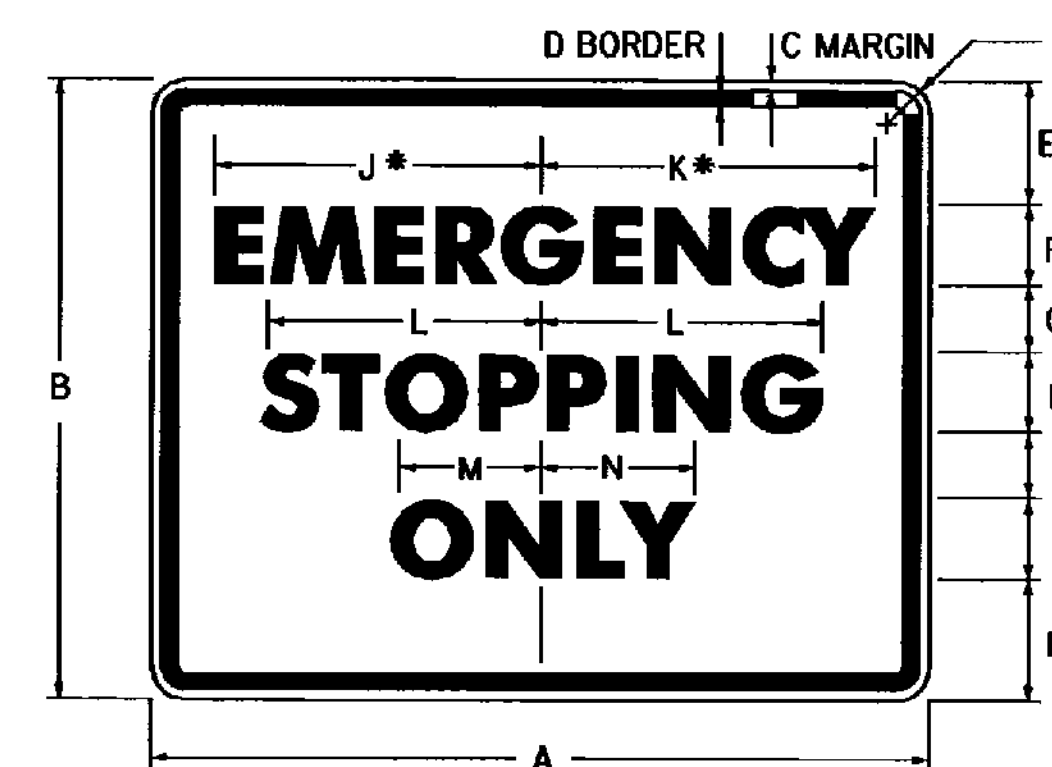
R2-5C

SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	
MIN.	18	24	3/8	3/8	3 1/2	4C	2 1/2	6 3/8	5/2	7	1 1/2	
STD.	24	30	3/8	3/8	3 1/2	6C	2 1/2	9 3/8	7 3/8	9 3/4	1 1/2	
EXPWY.	36	48	3/8	3/8	7	8C	5	13 3/8	11 1/8	14	2 1/4	
FWY.	48	60	3/4	1/4	9	10C	6	17	13 3/8	17 1/2	3	



R2-5A

SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	
MIN.	18	24	3/8	3/8	3 1/2	4B	2 1/2	4C	6 3/8	7	6 3/8	7	1 1/2	
STD.	24	30	3/8	3/8	3 1/2	6B	2 1/2	6C	10	10 3/4	9 3/8	9 3/4	1 1/2	
EXPWY.	36	48	3/8	3/8	7	8B	5	8C	14 1/4	14 3/4	13 3/8	14	2 1/4	
FWY.	48	60	3/4	1/4	9	10B	6	10C	17 3/4	18 3/8	17	17 1/2	3	



* FOR FWY SIZE, REDUCE SPACING 50 %

R8-7

SIGN	DIMENSIONS (INCHES)															
	A	B	C	D	E	F	G	H	J	K	L	M	N	P		
EXPWY.	30	24	3/8	3/8	3 1/2	4C	2 1/2	4D	12 1/2	13	12 3/4	6 3/8	7	1 1/2		
FWY.	48	36	3/8	3/8	5	6D	4	6D	20 1/8	21 1/8	19 1/8	10 1/8	10 3/8	2 1/4		

GENERAL:

1. ALL DIMENSIONS IN INCHES.

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND, UNLESS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

	18' X 24'	24' X 30'	30' X 24'
FLAT SHEET ALUMINUM	0.060"	0.080"	0.100"
HIGH DENSITY OVERLAIN PLYWOOD	1/2"	1/2"	5/8"
GALVANIZED FLAT SHEET STEEL	18 GAGE	16 GAGE	14 GAGE

THE REFLECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE AASHTO TYPE II OR III WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. HAND PAINTING MUST BE COMPARABLE IN QUALITY TO THE RESULTS OBTAINED BY SILK SCREENING.

SPECIFICATIONS:

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR TRAFFIC SIGNS.

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE "STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" AND DESIGNS PRESCRIBED IN THE STANDARD HIGHWAY SIGNS AS SPECIFIED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
SEPT. 20, 1995 - ADDED AND DELETED SIGN DETAILS,
ADDED SIGN ID NUMBERS, MINOR NOTE
REVISIONS.

APPROVED FOR THIS PROJECT
AND/OR DESIGN IMPLEMENTATION.
FHWA FINAL APPROVAL PENDING.

APPROVED

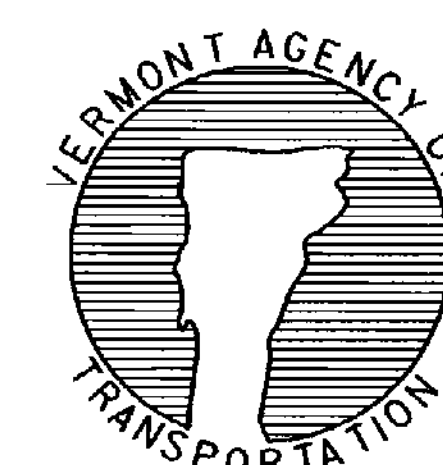
Jonathan D. MacArthur
DIRECTOR OF ENGINEERING

David A. Brown
TRAFFIC AND SAFETY ENGINEER

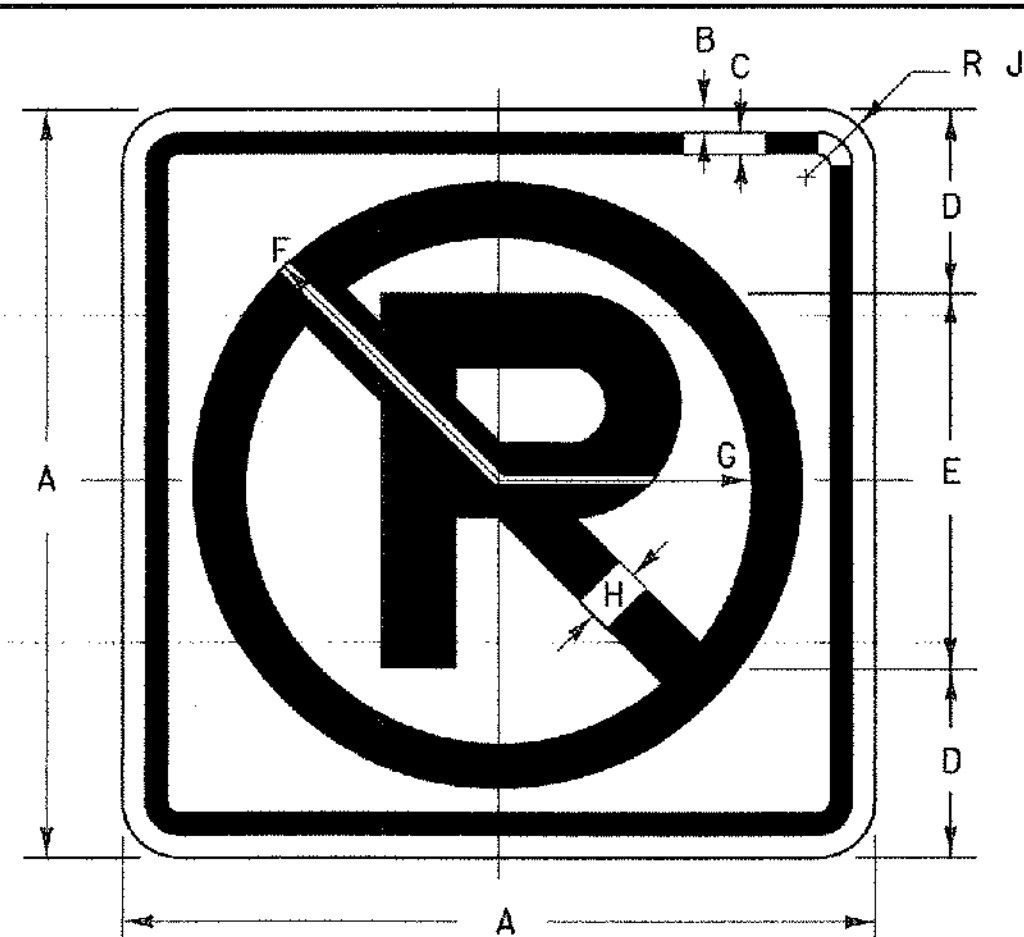
REGULATORY SIGN DETAILS

/traf/std/stdel42.dgn : stdel42.1

OTHER STDS.: NONE
REQUIRED



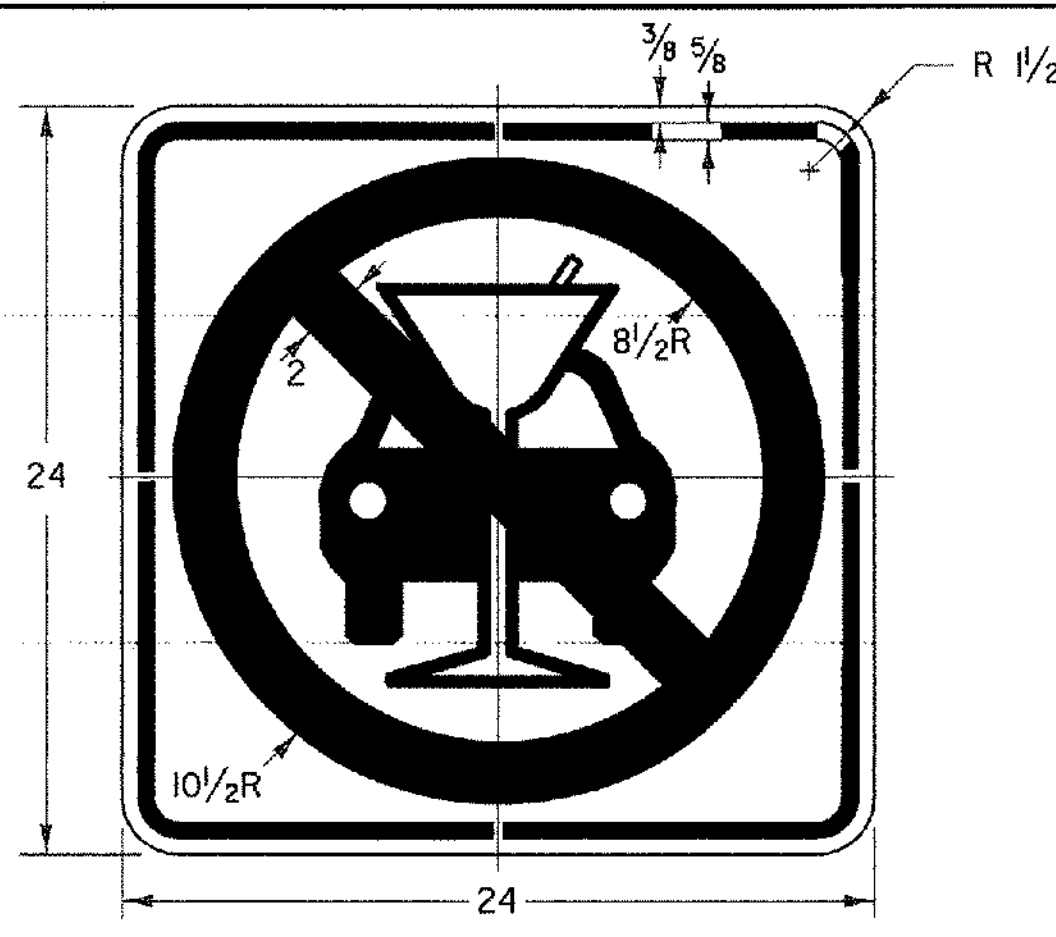
STANDARD
E-142



R8-3A

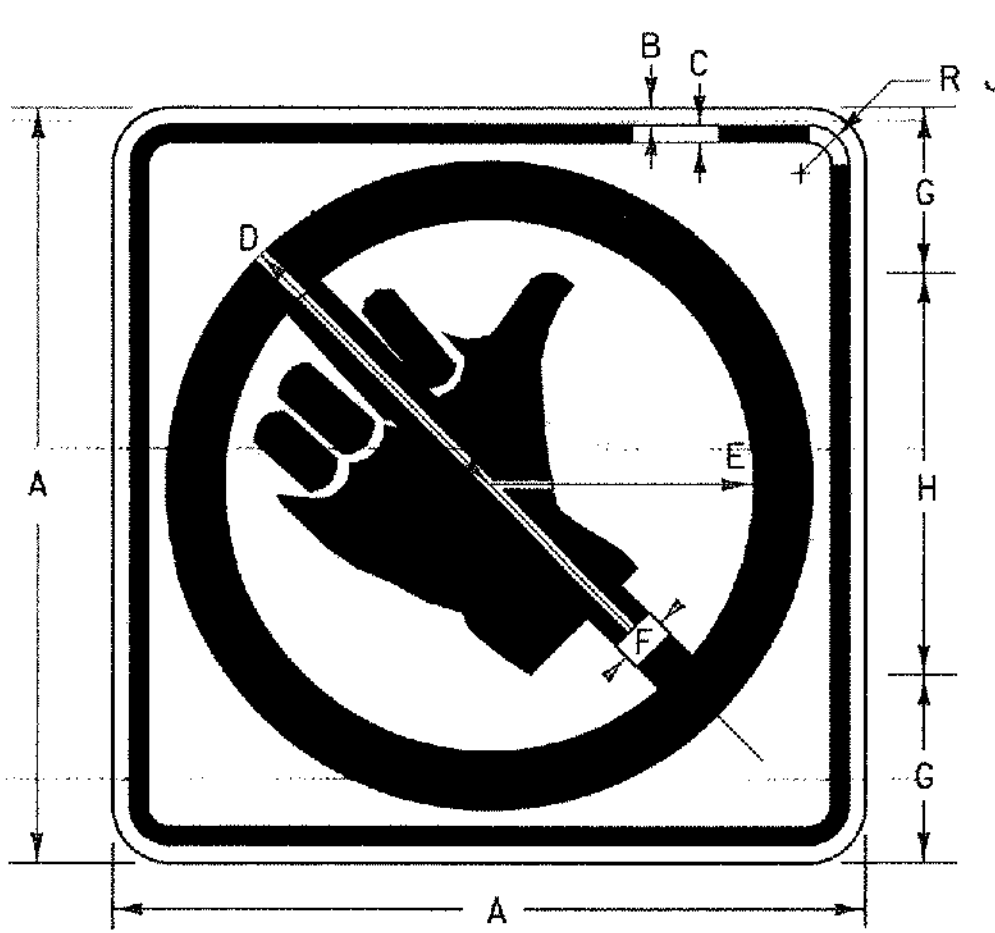
COLORS:
CIRCLE AND DIAGONAL - RED (RETROREFL)
SYMBOL AND BORDER - BLACK (NON - REFL)
BACKGROUND - WHITE (RETROREFL)

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	I	J	
URBAN MIN. AND STD.	12	3/8	3/8	3	6E(M)	4 7/8	3 7/8	1	1 1/2		
RURAL MIN. AND STD.	24	3/8	5/8	6	12E(M)	10 1/2	8 1/2	2	1 1/2		
EXPWY.	36	3/8	7/8	9	18E(M)	15 3/4	12 3/4	3	2 1/4		
FWY.	48	3/4	1 1/4	12	24E(M)	21	17	4	3		



VR-654

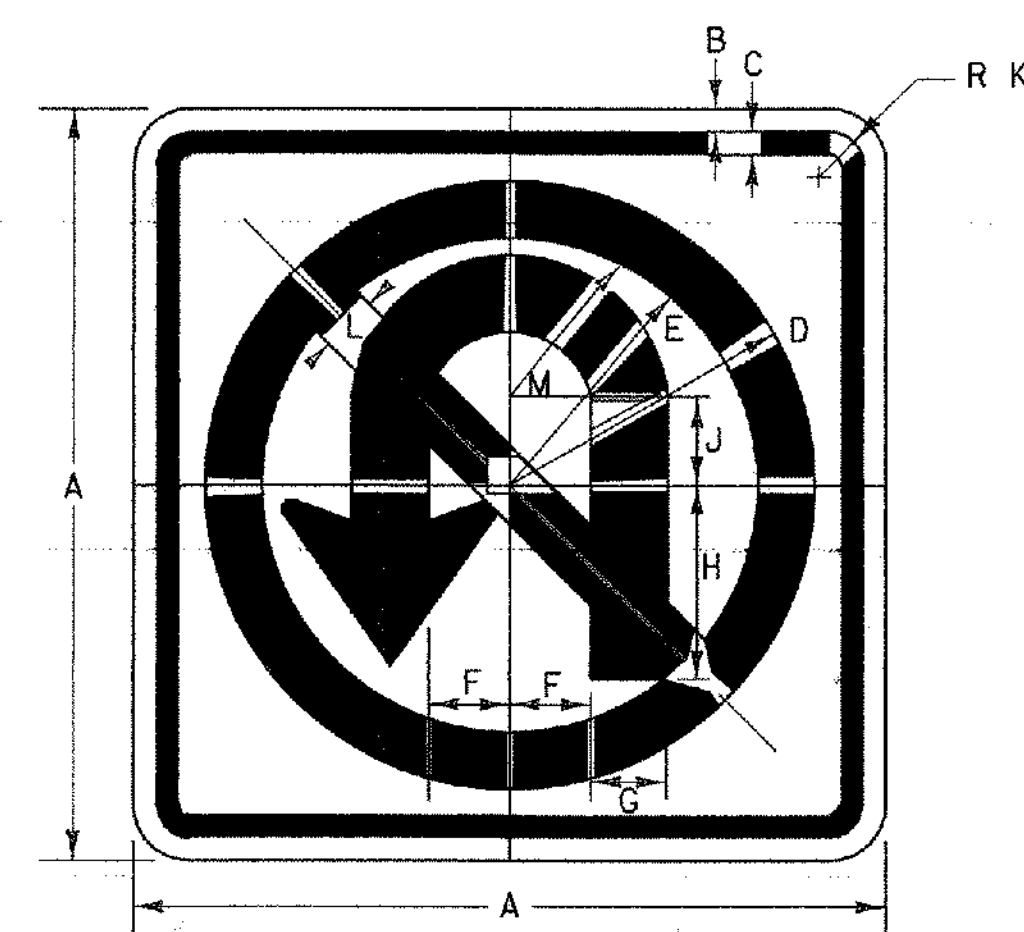
COLORS:
CIRCLE AND DIAGONAL - RED (RETROREFL)
SYMBOL AND BORDER - BLACK (NON - REFL)
BACKGROUND - WHITE (RETROREFL)



R9-4A

COLORS:
CIRCLE AND DIAGONAL - RED (RETROREFL)
SYMBOL AND BORDER - BLACK (NON - REFL)
BACKGROUND - WHITE (RETROREFL)

SIGN	DIMENSIONS (INCHES)										
	A	B	C	D	E	F	G	H	J		
MIN.	18	3/8	5/8	7 1/8	6 3/8	1 1/2	3 3/4	10 1/2	1 1/2		
STD.	24	3/8	5/8	10 1/2	8 1/2	2	5	14	1 1/2		

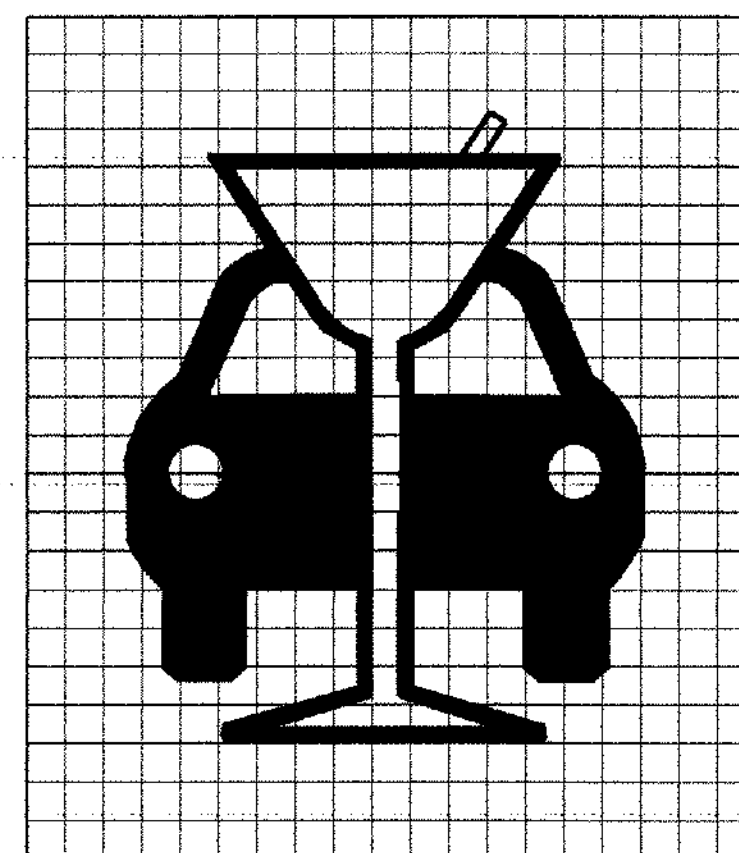


R3-4

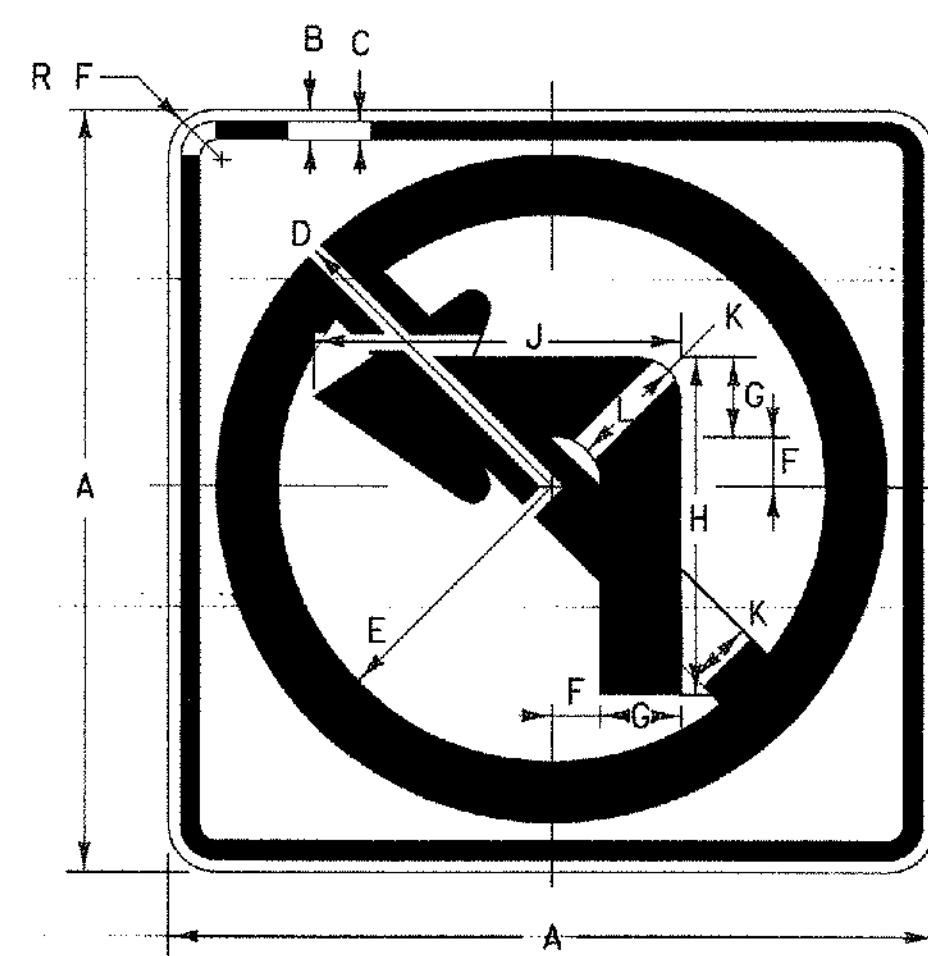
SEE STANDARD E-151 FOR ARROW DETAIL

COLORS:
CIRCLE AND DIAGONAL - RED (RETROREFL)
ARROW AND BORDER - BLACK (NON - REFL)
BACKGROUND - WHITE (RETROREFL)

SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L	M	
MIN. AND STD.	24	3/8	5/8	10 1/2	8 1/2	2 1/2	2 1/2	6	2 1/4	1 1/2	2	5	
SPECIAL	30	1/2	3/4	13 1/8	10 5/8	3 3/8	3 1/8	7 1/2	2 3/8	1 7/8	2 1/2	6 1/4	
EXPWY.	36	5/8	7/8	15 3/4	12 3/4	3 3/4	3 3/4	9	3 3/8	2 1/4	3	7 1/2	
SPECIAL	48	3/4	1 1/4	21	17	5	5	12	4 1/2	3	4	10	



R3-2

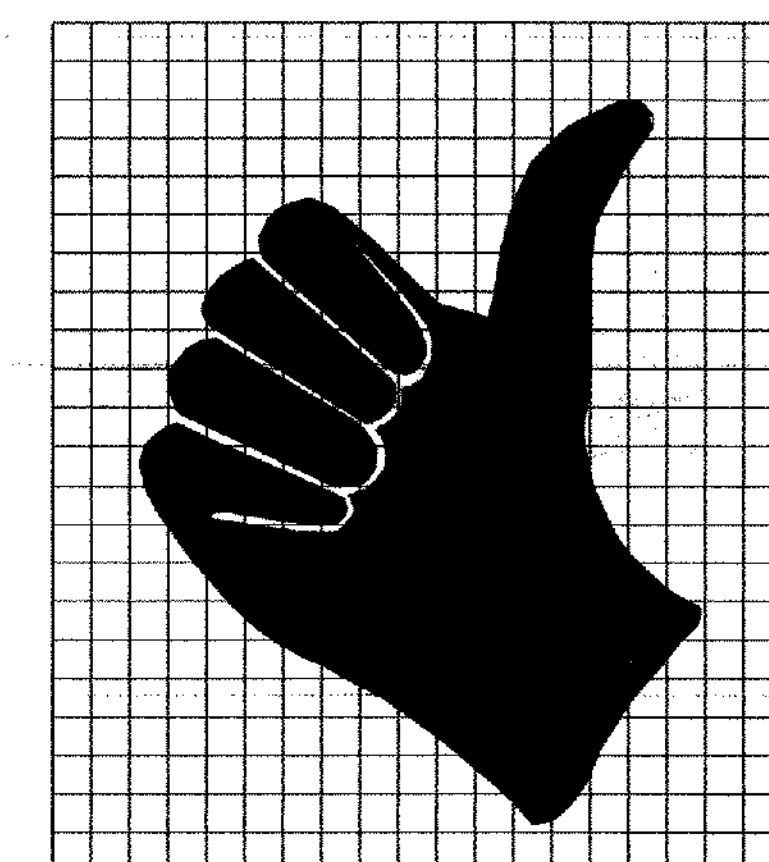


R3-1

NOTE:
SEE STANDARD E-151 FOR ARROW DETAIL
USE SAME ARROW DETAIL FOR R3-1 AND R3-2

COLORS:
CIRCLE AND DIAGONAL - RED (RETROREFL)
ARROW AND BORDER - BLACK (NON - REFL)
BACKGROUND - WHITE (RETROREFL)

SIGN	DIMENSIONS (INCHES)												
	A	B	C	D	E	F	G	H	J	K	L		
MIN. AND STD.	24	3/8	5/8	10 1/2	8 1/2	1 1/2	2 1/2	10 1/2	1 1/2	2	1 1/2		
SPECIAL	30	1/2	3/4	13 1/8	10 5/8	1 7/8	3 1/8	13 1/8	1 1/2	2 1/2	5/8		
EXPWY.	36	5/8	7/8	15 3/4	12 3/4	2 1/4	3 3/4	15 3/4	1 7/4	3	3/4		
SPECIAL	48	3/4	1 1/4	21	17	3	5	21	23	4	1		

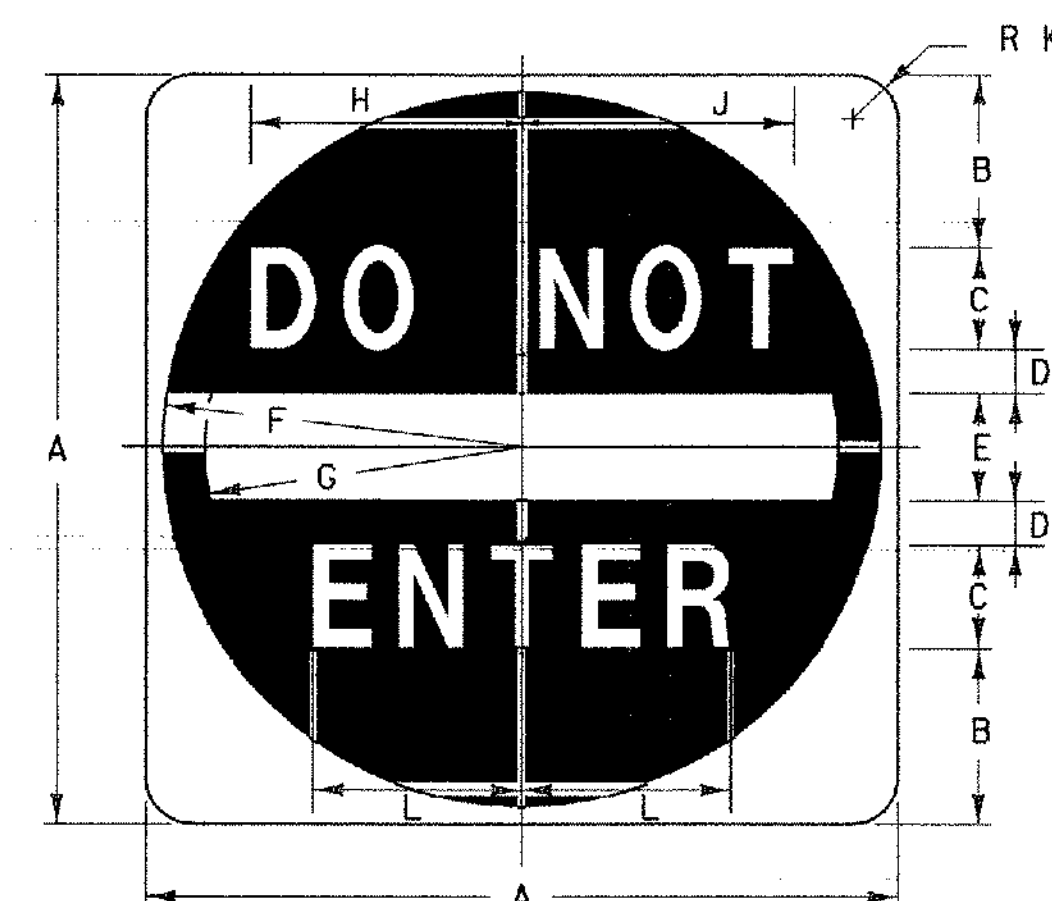


R5-1A

COLORS:
LEGEND - WHITE (RETROREFL)
BACKGROUND - RED (RETROREFL)

SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	
STD.	36	24	3/4	4 1/2	60	3	13 3/8	8 1/16	1 1/2	
SPECIAL	42	30	7/8	5	80	4	17 3/4	10 3/4	1 7/8	

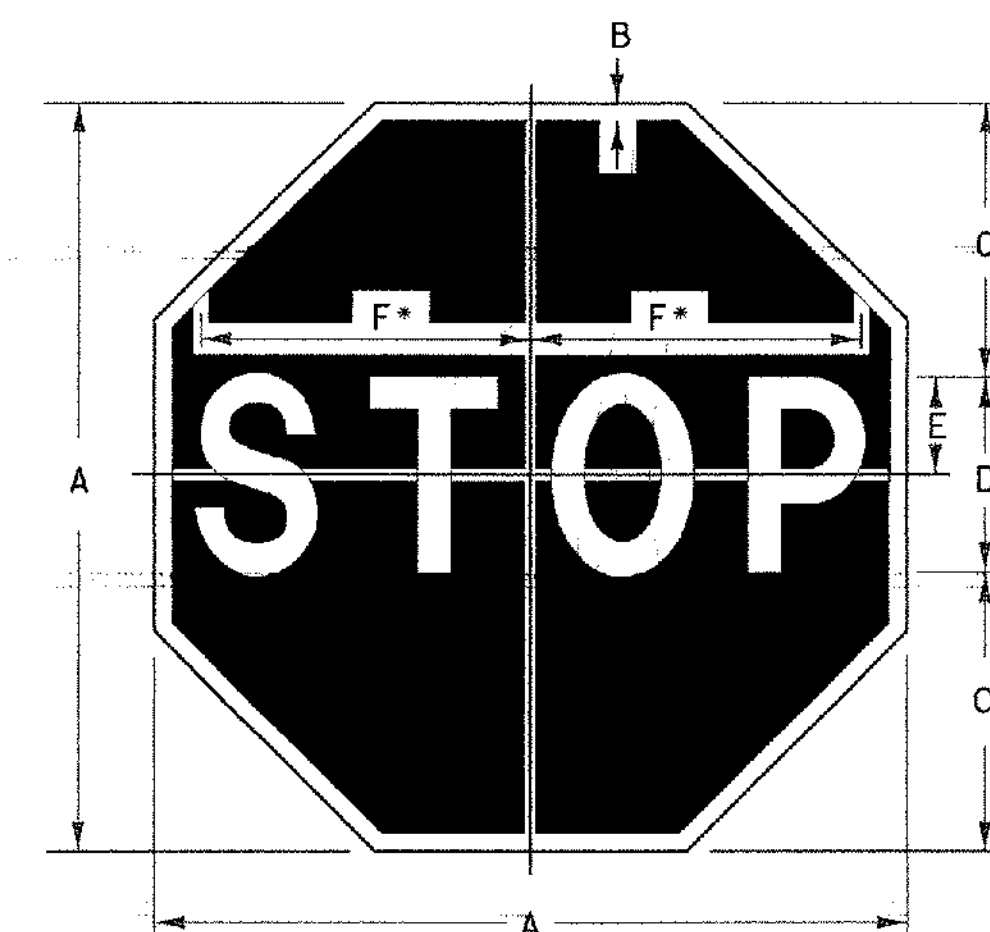
(ALL DIMENSIONS SHOWN IN INCHES EXCEPT WHERE NOTED)



R5-1

COLORS:
SYMBOL - RED (RETROREFL)
LEGEND AND BACKGROUND - WHITE (RETROREFL)

SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	
MIN. AND STD.	30	6 1/2	40	2	5	14 1/2	12 1/2	9 3/4	10	1 7/8	7 7/8	
EXPWY.	36	7 1/2	50	2 1/2	6	17 1/2	15	12	12 3/8	2 1/4	9 9/16	
SPECIAL	48	11	60	3	8	23 1/2	20	14 1/2	15	3	11 3/4	



R1-1

* REDUCE SPACING 40 %

COLORS:
LEGEND - WHITE (RETROREFL)
BACKGROUND - RED (RETROREFL)

SIGN	DIMENSIONS (INCHES)					
	A	B	C	D	E	F
PATH	18	3/8	6	6C	3	7 3/4
MIN.	24	3/8	8	8C	4	10
STD.	30	3/4	10	10C	5	12 1/2
EXPWY.	36	7/8	12	12C	6	15
SPECIAL	48	1 1/4	16	16C	8	20

NOTES

DESIGN

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE "STANDARD HIGHWAY SIGNS BOOK" AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION (FHWA). SEE STANDARD E-144 FOR ARROWHEAD DETAILS.

MATERIALS

THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

12" X 12"	24" X 24"	36" X 24"	
18" X 18"	30" X 18"	36" X 36"	
	30" X 30"	42" X 30"	48" X 48"
0.060"	0.080"	0.100"	0.125"

FLAT SHEET ALUMINUM

REFLECTORIZATION

THE BACKGROUND RETROREFLECTIVE MATERIAL SHALL BE ASTM TYPE III OR TYPE VIII RETROREFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE BLACK PORTIONS OF SIGNS MAY BE LETTERING FILM OR SILK SCREENED.

COLORS

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL BE AS DETAILED FOR EACH SIGN. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY AASHTO AND APPROVED BY THE FHWA.

SPECIFICATIONS

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR CONSTRUCTION "TRAFFIC SIGNS".

OTHER STDS. E-144, E-151
REQUIRED:

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
SEPT. 20, 1995 - ADDED AND DELETED SIGN DETAILS,
ADDED SIGN ID NUMBERS, MINOR NOTE
REVISIONS.
JUNE 15, 2004 - CHANGED REFLECTIVE SHEETING TO
TYPE III OR TYPE VIII

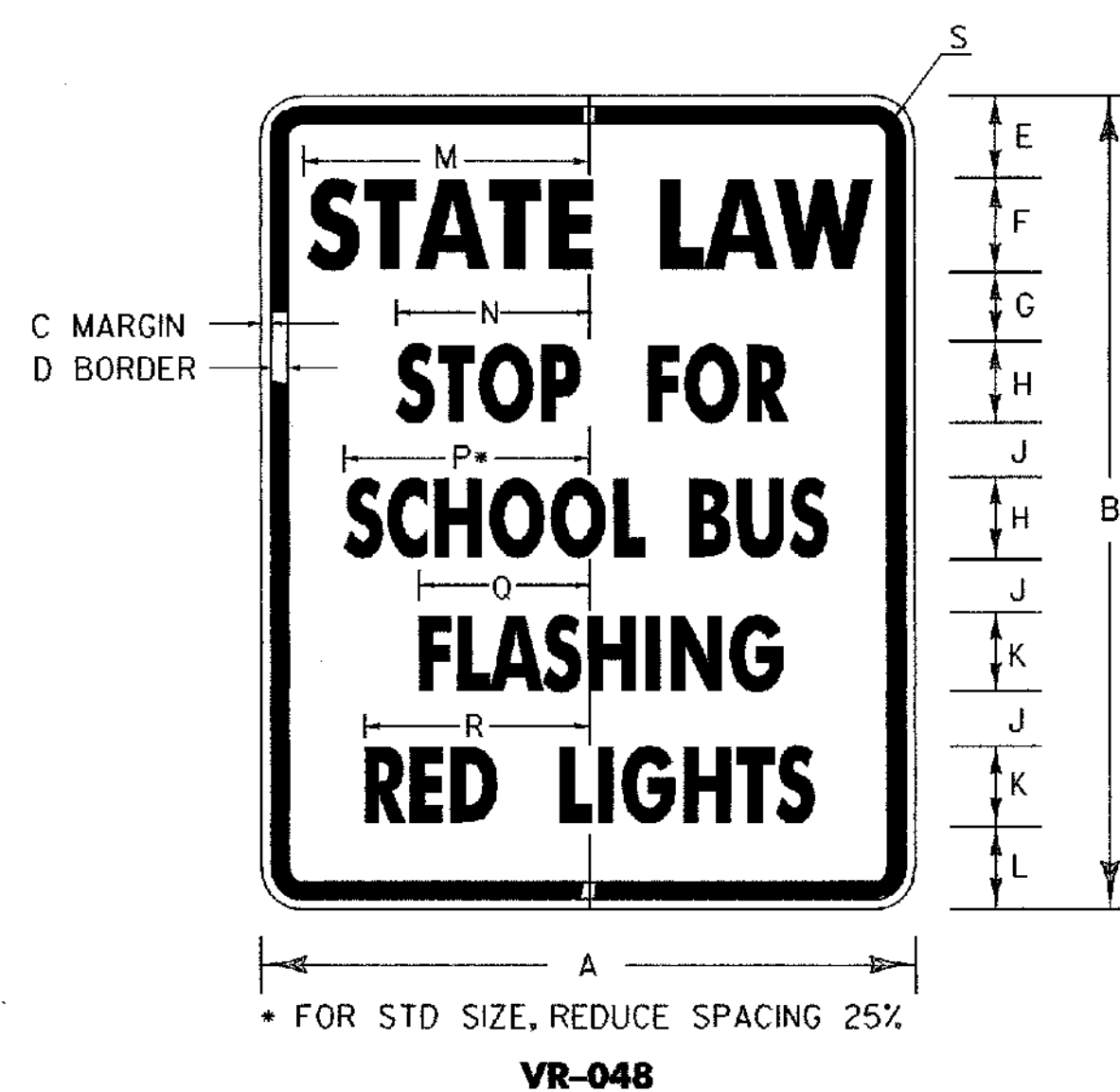
APPROVED

DIRECTOR OF PROGRAM DEVELOPMENT
TRAFFIC OPERATIONS ENGINEER
FEDERAL HIGHWAY ADMINISTRATION

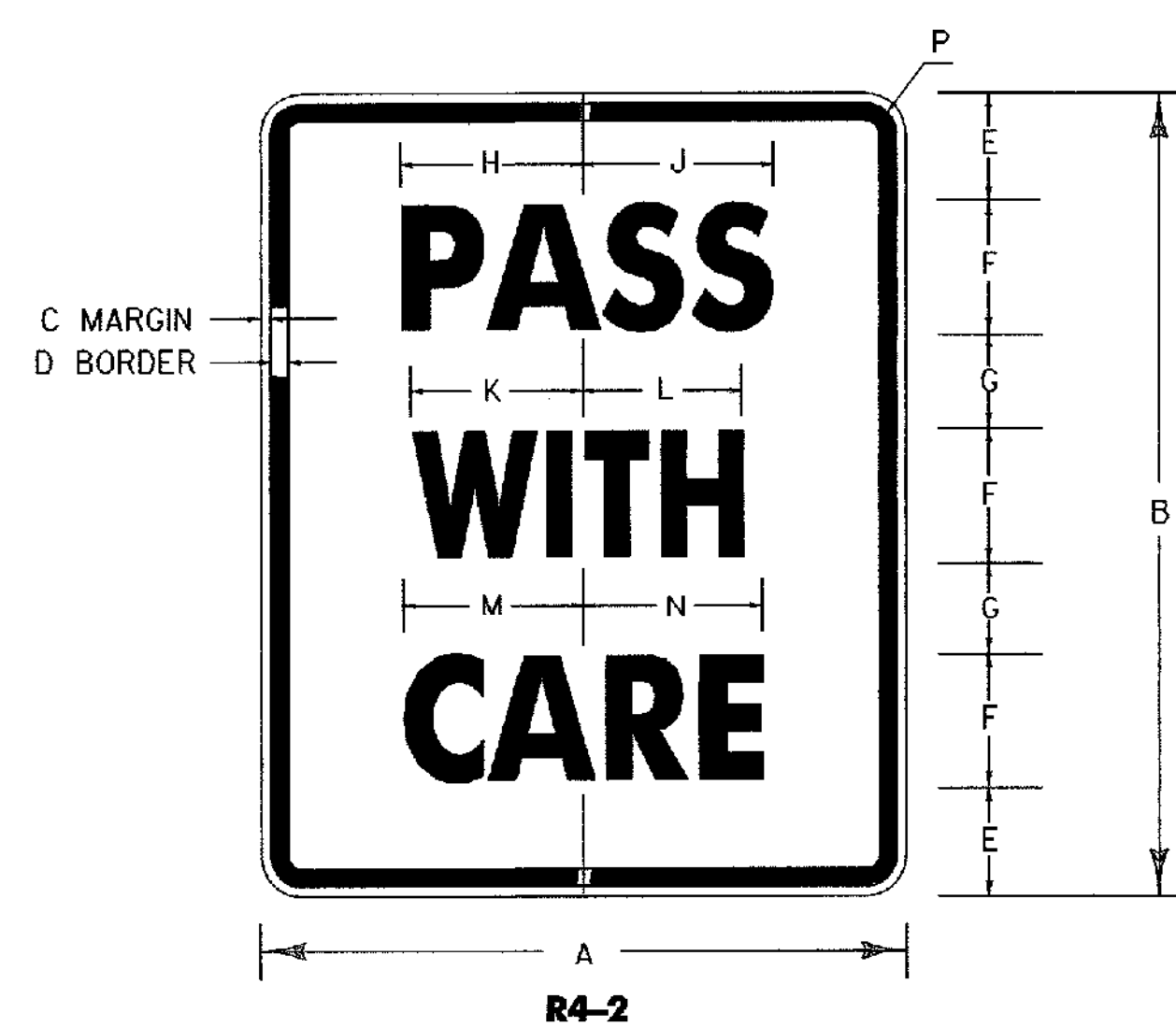
REGULATORY SIGN DETAILS



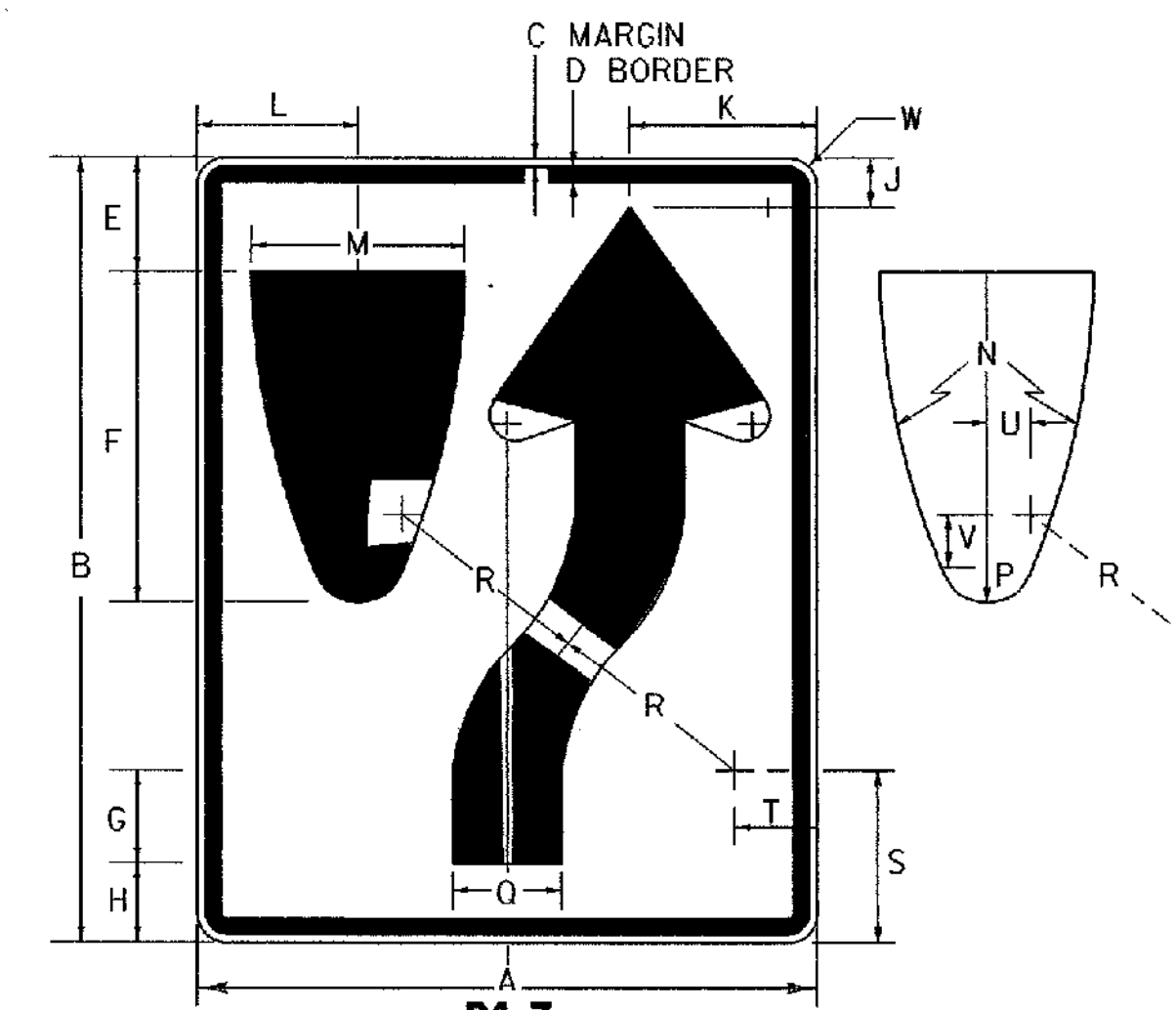
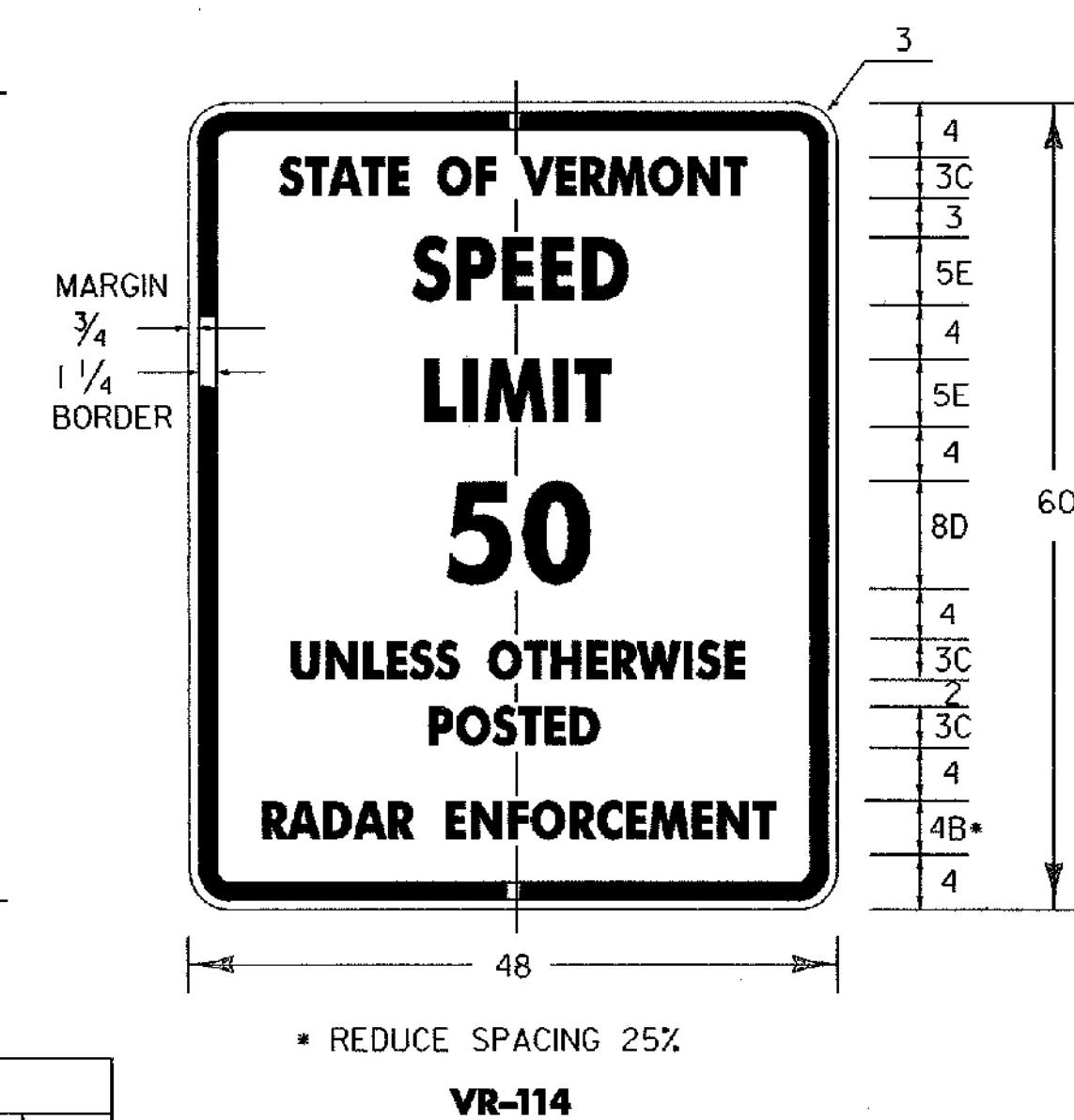
STANDARD
E-143



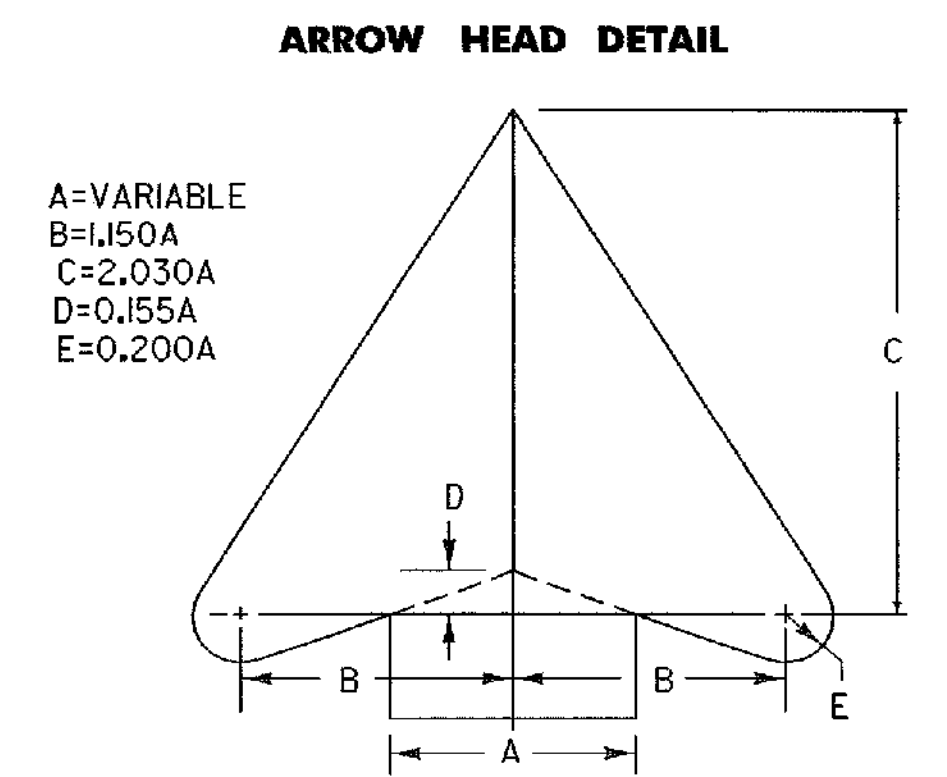
SIGN	DIMENSIONS (INCHES)														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	T
STD.	24	30	3/8	5/8	3	4B	3	3B	1 1/2	3B	2 1/2	9 1/2	10 7/16	6 3/16	8 1/2
EXPWY. & FWY.	48	60	3/4	1 1/4	6	7C	5	6B	4	6B	6	21	14 1/4	18 1/16	12 3/16



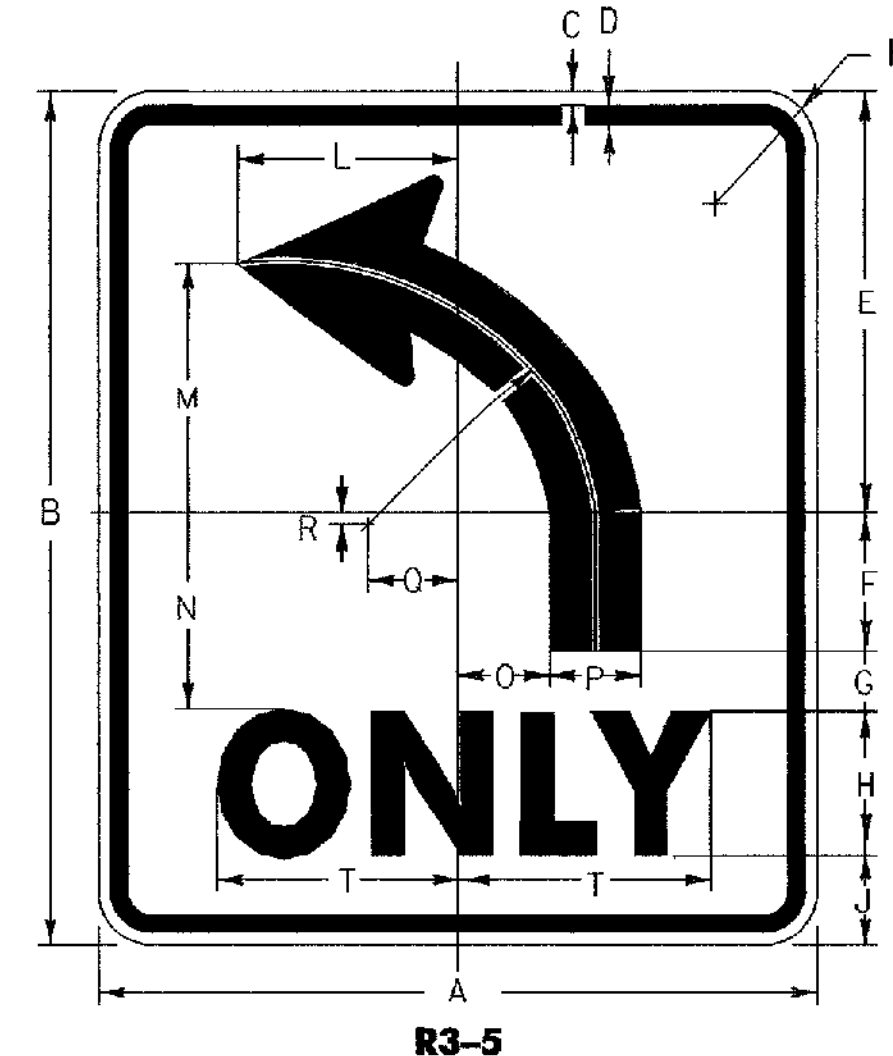
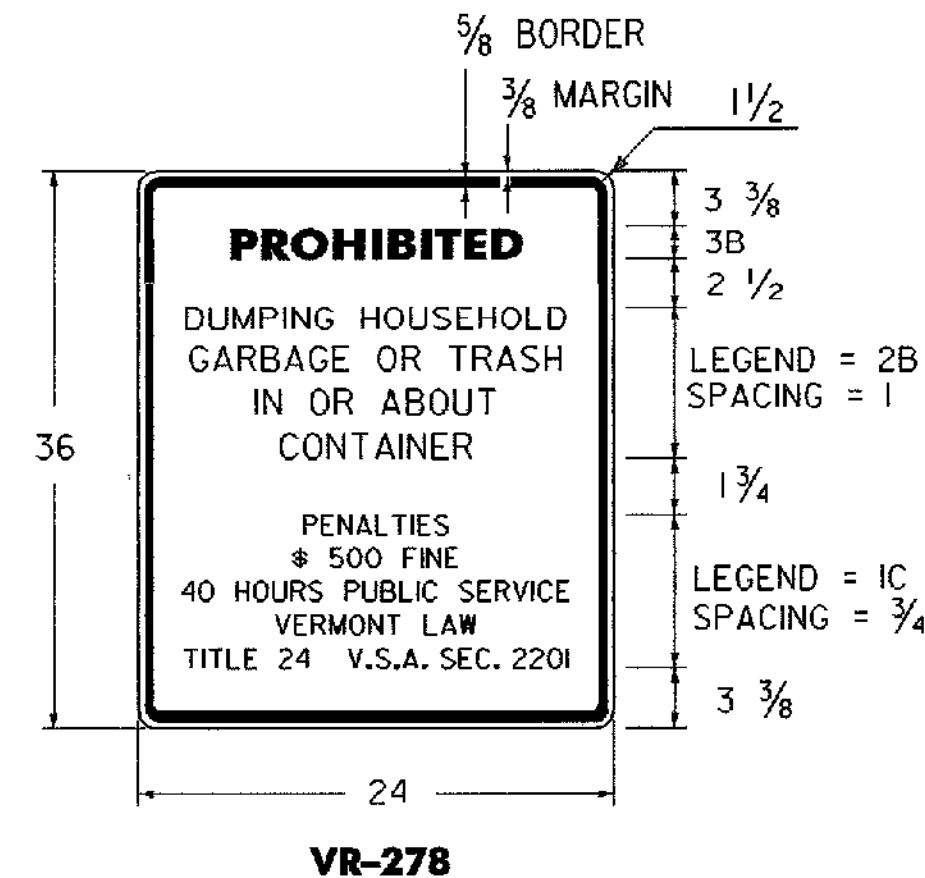
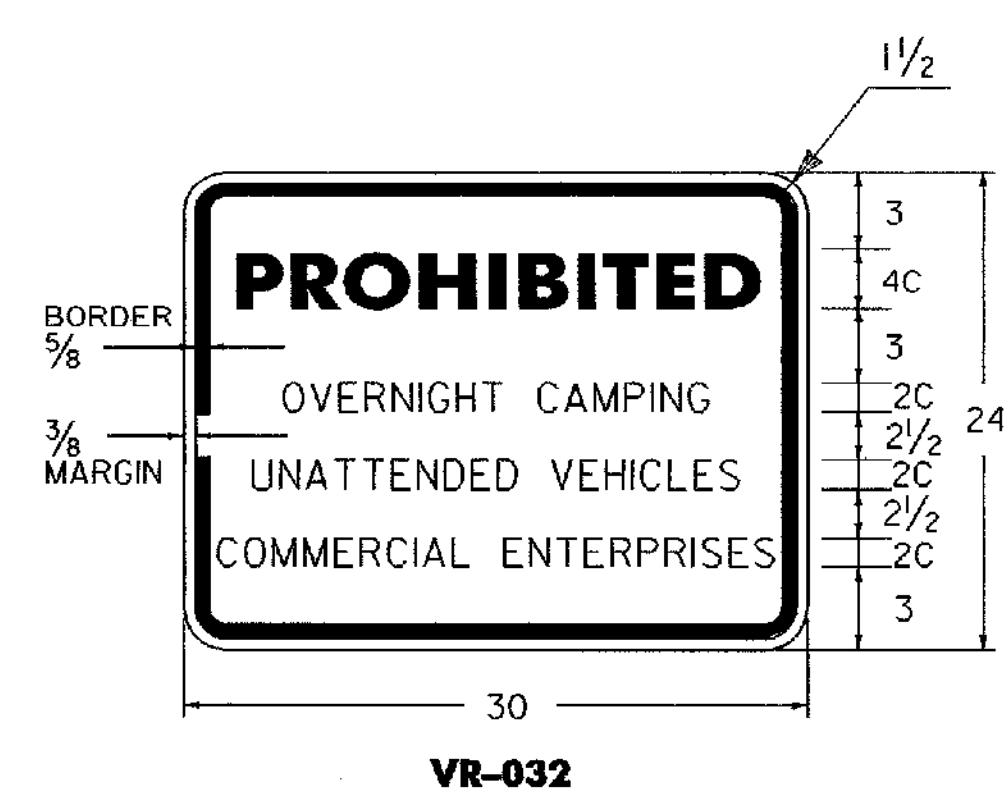
SIGN	DIMENSIONS (INCHES)														
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	
MIN.	18	24	3/8	5/8	3 1/2	4C	2 1/2	5 3/8	5 3/8	5	4 3/4	5 3/8	5 1/2	1 1/2	
STD.	24	30	3/8	5/8	3 1/2	6C	2 1/2	8 3/8	8 3/8	7 1/2	7 3/8	8	8 1/4	1 1/2	
EXPWY.	36	48	5/8	7/8	7	8C	5	10 7/8	11 1/4	10	9 1/2	10 1/16	11	2 1/4	
FWY.	48	60	3/4	1 1/4	8	10C	7	13 5/8	14 1/16	12 1/2	11 5/8	13 3/8	13 3/4	3	



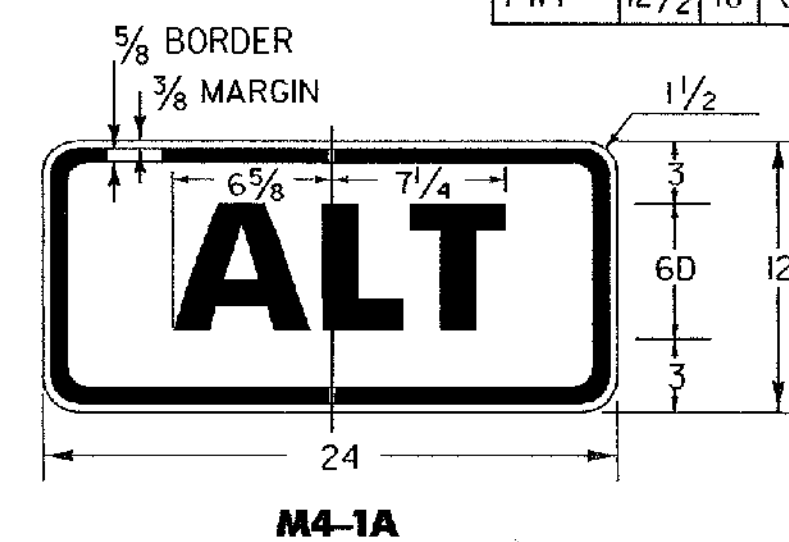
SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	K
MIN	18	24	3/8	5/8	3 3/8	9 3/8	1 7/8	2 1/4	1 3/8	5 1/2
STD	24	30	3/8	5/8	4 1/2	12 1/2	2 1/2	3	1 7/8	7 3/8
EXPWY	36	48	5/8	7/8	6 3/4	18 3/4	3 3/4	4 1/2	2 1/16	11 1/8
FWY	48	60	3/4	1 1/4	9	25	5	6	3 3/4	14 1/16
	L	M	N	P	Q	R	S	T	U	V
MIN	4 1/16	6	22 1/2	1 1/2	3	6 3/4	4 1/8	2 1/4	1 1/16	7 1/16
STD	6 1/4	8	30	2	4	9	5 1/2	3	1 3/8	2 1/16
EXPWY	9 3/8	12	45	3	6	13 1/2	8 1/4	4 1/2	2	2 3/4
FWY	12 1/2	16	60	4	8	18	11	6	2 1/16	5



DIMENSIONS (INCHES)					DIMENSIONS (INCHES)				
A	B	C	D	E	A	B	C	D	E
2	2 3/16	4 1/16	5/16	3/8	4 1/4	4 7/8	8 5/8	5/8	1 1/16
2 1/4	2 5/8	4 1/2	3/8	7/16	4 3/8	5	8 1/8	1 1/8	7/8
2 1/2	2 7/8	5 1/16	3/8	1/2	4 1/2	5 3/16	9 1/8	1 1/16	7/8
2 5/8	3	5 1/4	3/8	1/2	4 3/4	5 1/16	9 5/8	3/4	1
2 3/4	3 3/16	5 5/16	7/16	9/16	4 7/8	5 5/8	9 7/8	3/4	1
3	3 1/2	6 1/8	7/16	9/16	5	5 3/4	10 1/8	3/4	1
3 1/8	3 5/8	6 3/8	1/2	5/8	5 1/4	6	10 5/8	9/16	1 1/16
3 1/4	3 3/4	6 5/8	1/2	5/8	5 1/2	6 3/8	11 1/8	7/8	1 1/8
3 3/8	3 13/16	6 11/16	1/2	5/8	5 3/4	6 5/8	11 1/16	7/8	1 1/8
3 1/2	4	7 1/8	9/16	1 1/16	6	6 7/8	12 3/16	9/16	1 3/16
3 3/4	4 1/16	7 5/8	9/16	3/4	6 1/2	7 1/2	13 3/16	1	1 5/16
4	4 5/8	8 1/8	5/8	1 1/16	7	8	14 3/16	1 1/16	1 3/8
4 1/16	4 3/4	8 1/4	5/8	1 1/16	7 1/2	8 5/8	15 3/16	1 1/8	1 1/2
					8	9 3/16	16 1/4	1 1/4	1 5/8



SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	
STD	30	36	1/2	3/4	18	5 3/4	2 1/2	6D	3 3/4	
EXPWY	36	48	5/8	7/8	24	6 3/8	2 9/32	8D	11 1/8	
FWY	48	60	3/4	1 1/4	6 3/4	3 1/4	4	10D	8	
	K	L	M	N	O	P	Q	R	S	T
STD	1 7/8	9 1/4	11 1/4	8 1/4	3 7/8	3 3/4	3 3/4	1/2	9 1/2	10 1/16
EXPWY	2 1/4	9 1/4	13 1/16	9 3/16	4 3/16	4 1/2	4 1/2	5/8	11 1/2	13 1/16
FWY	3	14 1/32	23 1/8	13	6 1/32	5	6	1 3/16	15 3/32	16 5/16



GENERAL:
1. ALL DIMENSIONS IN INCHES.

COLORS:
THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND, UNLESS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:
THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

24' x 12'	0.060"	0.080"	0.100"
24' x 24'	1/2"	1/2"	5/8"
24' x 30'	18 GAGE	16 GAGE	14 GAGE
24' x 36'			
30' x 24'			
36' x 48'			
48' x 60'			

FLAT SHEET ALUMINUM
HIGH DENSITY OVERLAID PLYWOOD
GALVANIZED FLAT SHEET STEEL

SPECIFICATIONS:
REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR TRAFFIC SIGNS.

TEXT DESIGN:
LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE "STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" AND DESIGNS PRESCRIBED IN THE STANDARD HIGHWAY SIGNS AS SPECIFIED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

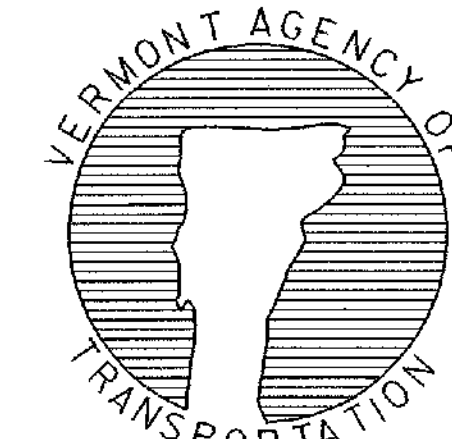
OTHER STDS.: NONE REQUIRED

REVISIONS AND CORRECTIONS
JAN. 23, 1989 - DATE OF ORIGINAL ISSUE
SEPT. 20, 1995 - ADDED AND DELETED SIGN DETAILS, ADDED SIGN ID NUMBERS, MINOR NOTE REVISIONS
FEB. 2, 1998 - REMOVED VR-023, REPLACED WITH VR-278
MARCH 29, 1999 - ADDED SIZE CHART TO R3-5

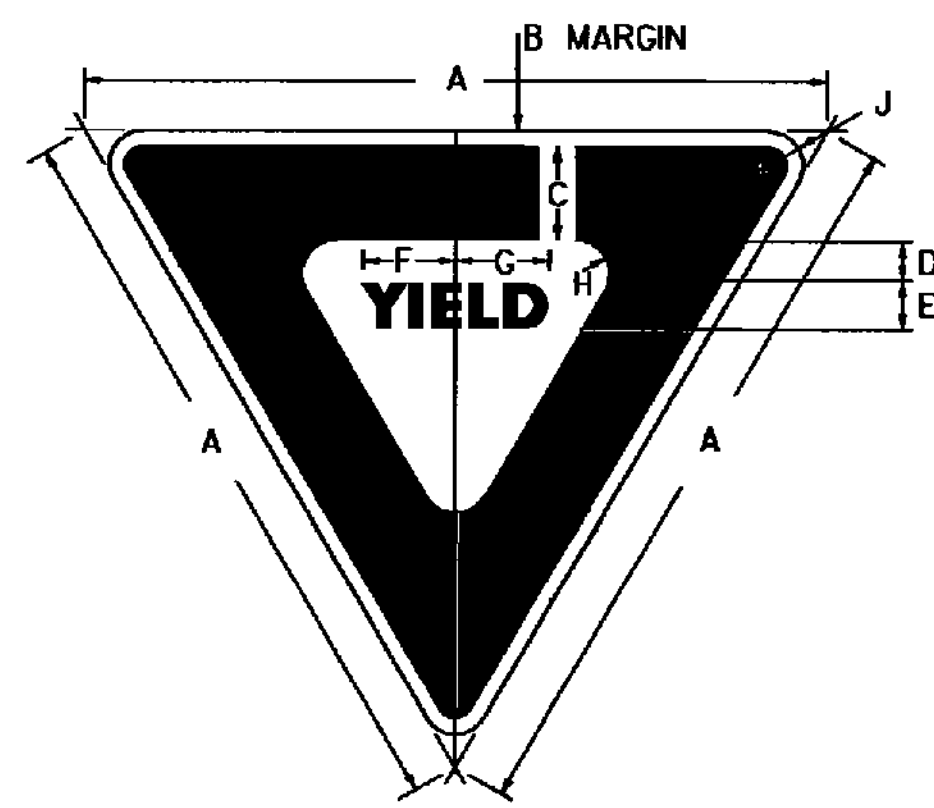
APPROVED

DIRECTOR OF PROJECT DEVELOPMENT

REGULATORY SIGN DETAILS



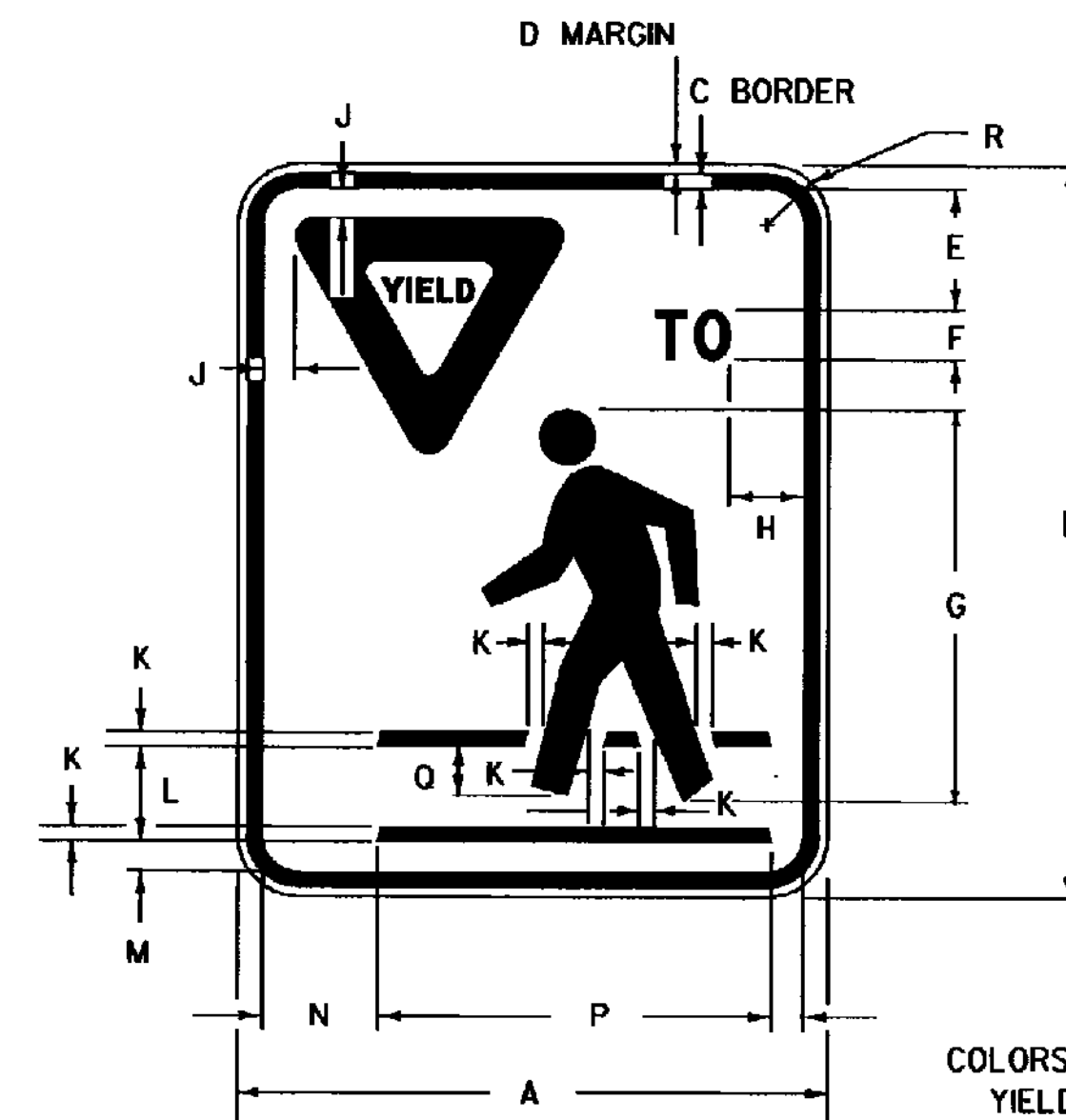
STANDARD E-144



COLORS
LEGEND AND BORDER - RED (REFL.)
BACKGROUND - WHITE (REFL.)
ENCAPSULATED LENS

R1-2

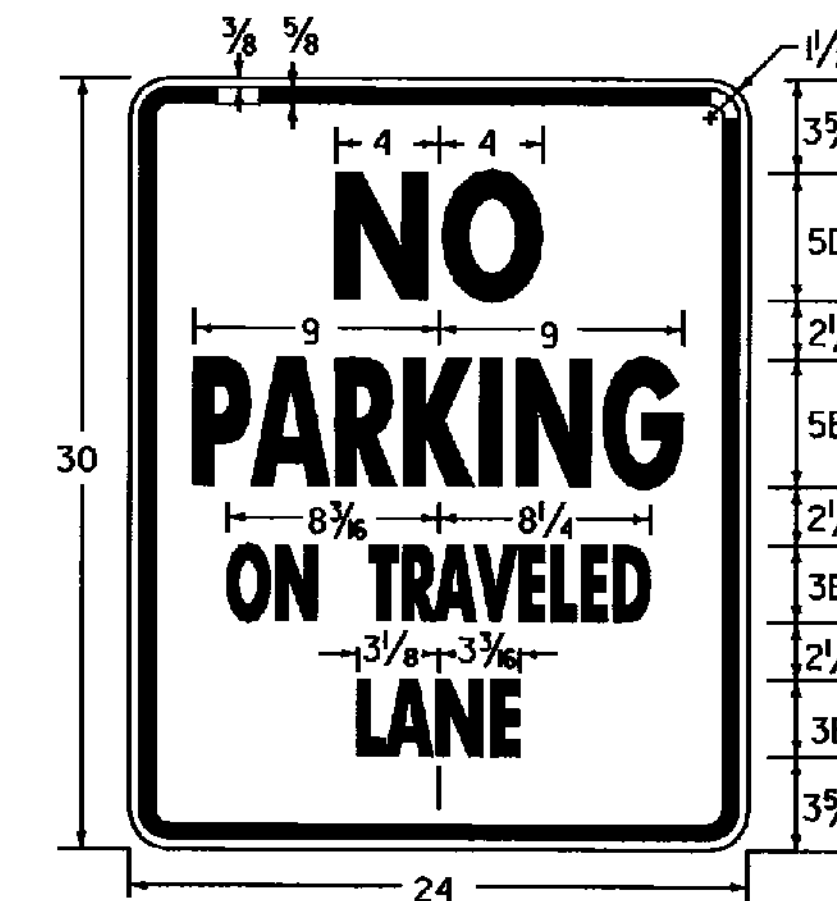
SIGN	DIMENSIONS (INCHES)									
	A	B	C	D	E	F	G	H	J	
BIKE	24	3/8	3	1 1/8	2C	3 1/4	3	1/8	1 1/2	
MIN.	30	5/8	4	1 3/4	2 1/2	3 3/8	3 3/8	7/8	1 1/2	
STD.	36	3/4	5	2	3C	4 1/8	4 3/8	1 1/4	2	
EXPWY.	48	1	6	2 3/4	4C	6 1/4	5 3/8	2	3	
SPECIAL	60	1 1/2	8	3 1/2	5C	7 1/8	7 1/4	2 1/2	4	



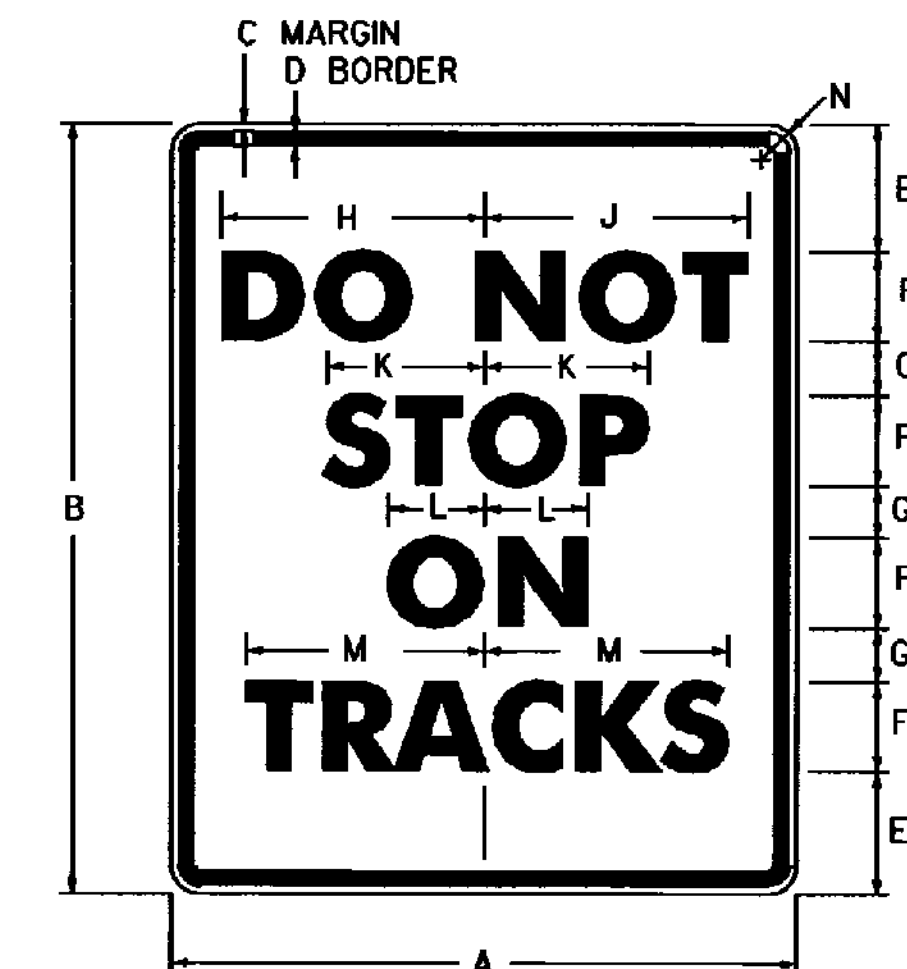
VR-004A

COLORS:
YIELD TO PEDESTRIAN SIGNS HAVE A BLACK
PEDESTRIAN SYMBOL, BLACK TEXT, A BLACK
BORDER AND A REFLECTORIZED RED YIELD
SYMBOL ON A REFLECTORIZED WHITE BACKGROUND

SIGN	DIMENSIONS (INCHES)											
	A	B	C	D	E	F	G	H	J	K	L	
STD.	24	30	5/8	3/8	5	2D	12	2 1/4	5/8	3/8	3 1/4	
SIGN	M	N	P	Q	R	S	T	U	V	W	X	
STD.	1 1/4	4 3/4	16	2	1 1/2	12	3/4	1 3/4	1/8	1/8	1D	

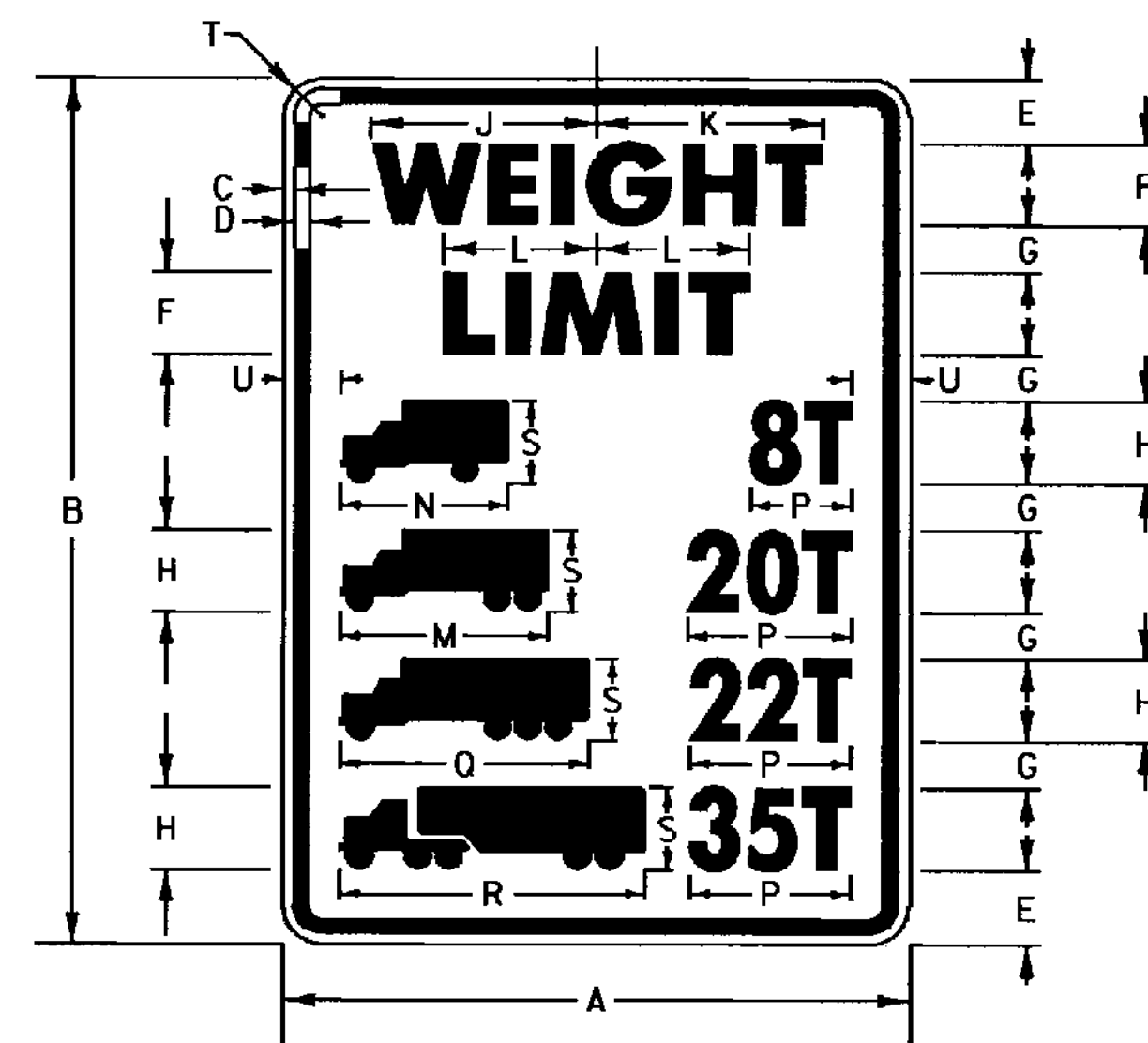


COLORS
LEGEND - RED (REFL.)
BACKGROUND - WHITE (REFL.)
VR - 020



R8-8

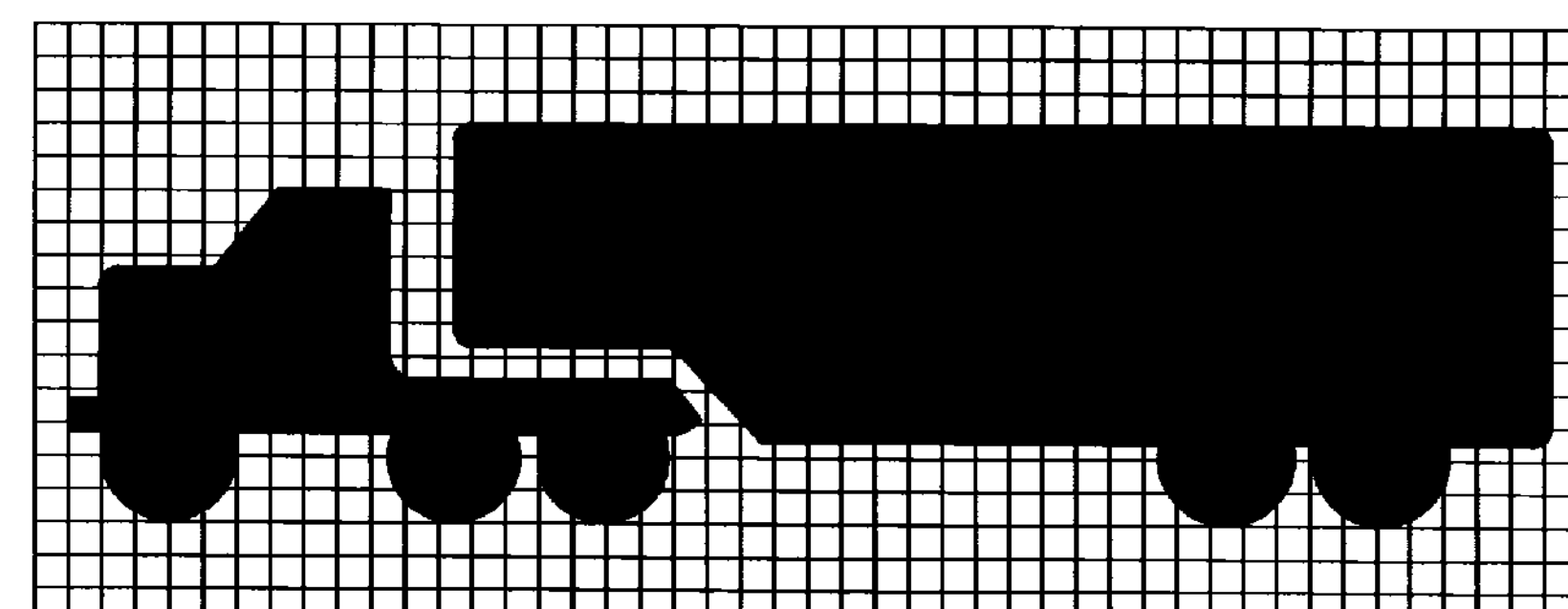
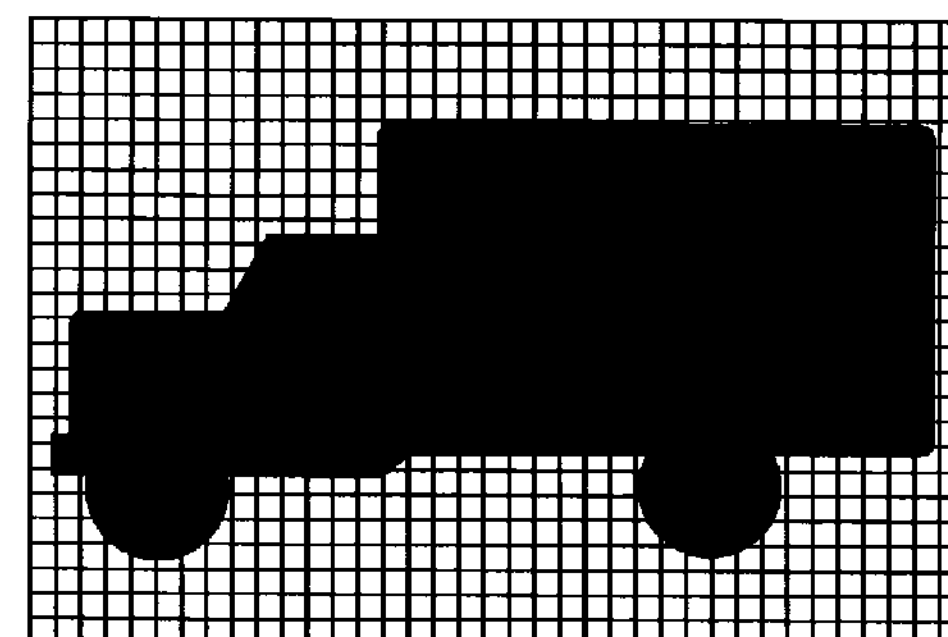
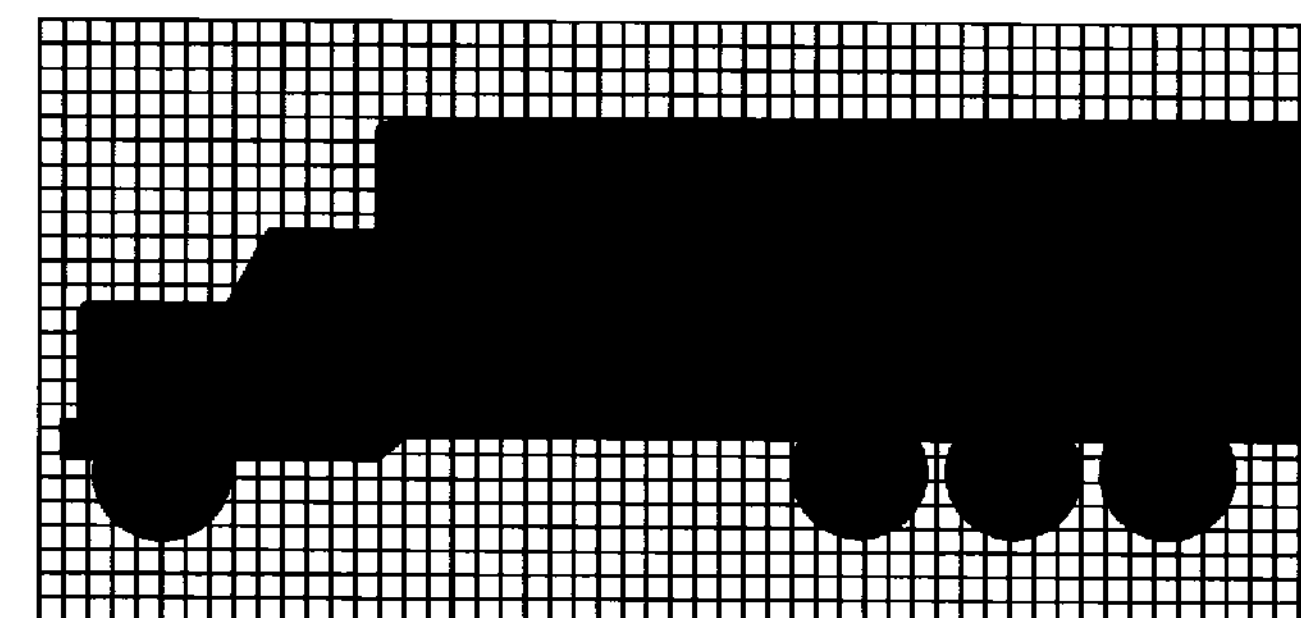
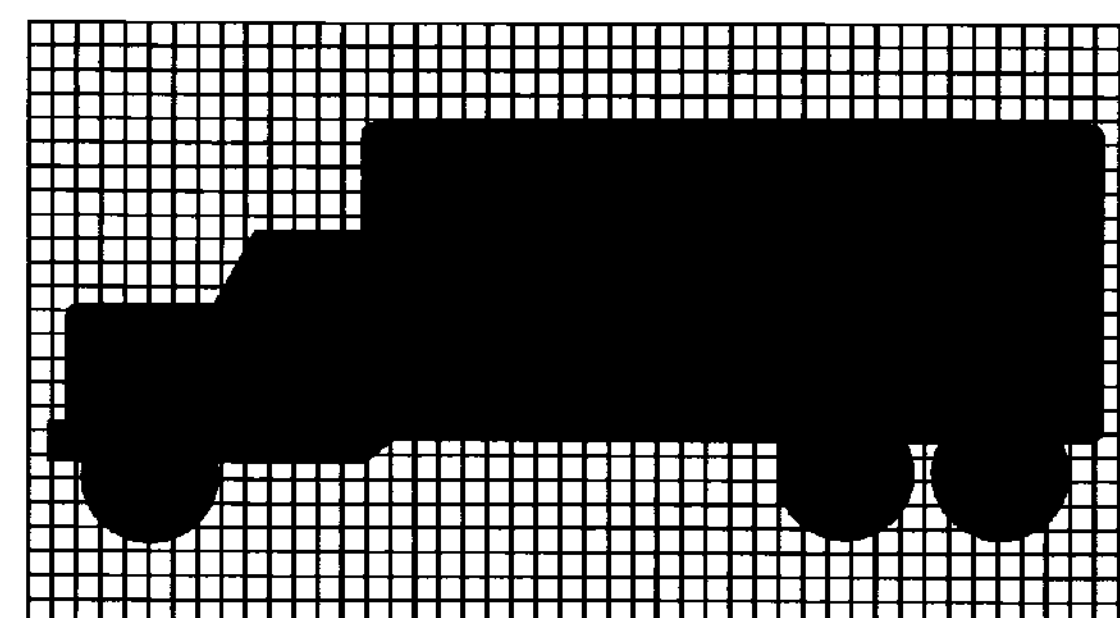
SIGN	DIMENSIONS (INCHES)													
	A	B	C	D	E	F	G	H	J	K	L	M	N	
STD.	24	30	3/8	5/8	3 3/8	4D	2 1/4	9 1/4	9 5/8	6 3/8	3 1/2	10	1 1/2	
SPECIAL	36	48	5/8	7/8	6	6D	4	14	14 1/8	9 3/4	5 1/4	15	2 1/4	
SPECIAL	48	60	3/4	1 1/4	7 1/4	8D	4 1/2	18 1/2	19 1/4	13 3/8	7	20	3	



COLORS
LEGEND - BLACK (NON-REFL.)
BACKGROUND - WHITE (REFL.)

VR-015

SIGN	DIMENSIONS (INCHES)																			
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	
MIN.	24	36	3/8	5/8	2 3/4	3E	2 1/2	3C	7 1/8	8 3/8	5 3/4	7 1/4	6	var	9 1/2	11	3	1 1/2	2 1/2	
STD.	30	42	1/2	3/4	3 3/8	4E	2 1/4	4C	10 1/2	11 1/8	7 3/8	10	8	var	12	14 3/8	4	1 3/8	2 3/4	
EXPWY.	36	54	5/8	7/8	3 3/8	5E	3 1/4	5C	13 3/8	14	9 1/8	12 1/2	10	var	15	18 3/8	5	2 1/4	3	
FWY.	48	66	3/4	1 1/4	3 3/4	6E	4 1/2	6C	15 3/4	16 3/4	11 1/2	16	12	var	18	22	6	3	5	



GENERAL:

1. ALL DIMENSIONS IN INCHES.

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL BE AS DETAILED FOR EACH SIGN. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

24' x 30'	24' x 36'	24' x 42'	30' x 30'	30' x 36'	30' x 42'	36' x 36'	36' x 48'	36' x 54'	36' x 60'	36' x 66'	48' x 48'	48' x 60'	48' x 66'	60' x 60'
0.080"	0.080"	0.080"	0.100"	0.100"	0.100"	0.100"	0.100"	0.100"	0.100"	0.100"	0.125"	0.125"	0.125"	0.125"
14 GAGE	14 GAGE	14 GAGE	14 GAGE	14 GAGE	14 GAGE	14 GAGE	14 GAGE	14 GAGE	14 GAGE	14 GAGE	12 GAGE	12 GAGE	12 GAGE	12 GAGE

FLAT SHEET ALUMINUM 0.080"
HIGH DENSITY OVERLAIN PLYWOOD 1/2"
GALVANIZED FLAT SHEET STEEL 16 GAGE

THE REFLECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE FLAT TOP WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN.

TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION.

SPECIFICATIONS:

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS."

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE "STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" AND DESIGNS PRESCRIBED IN THE STANDARD HIGHWAY SIGNS AS SPECIFIED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FEDERAL HIGHWAY ADMINISTRATION.

OTHER STDS.: NONE
REQUIRED

REVISIONS AND CORRECTIONS

SEPT. 20, 1995 - DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT
AND/OR DESIGN IMPLEMENTATION.
FHWA FINAL APPROVAL PENDING.

APPROVED

Frederick D. MacArthur
DIRECTOR OF ENGINEERING

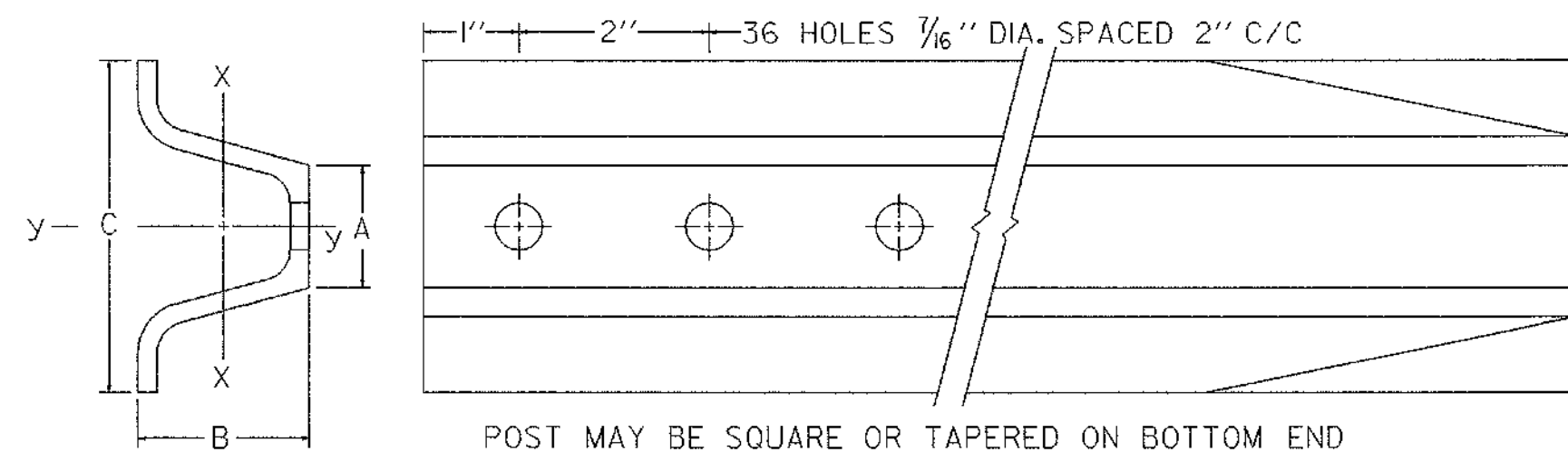
David A. Ben
TRAFFIC AND SAFETY ENGINEER

REGULATORY SIGN DETAILS

/traf/std/stdel46.dgn :stdel46.1

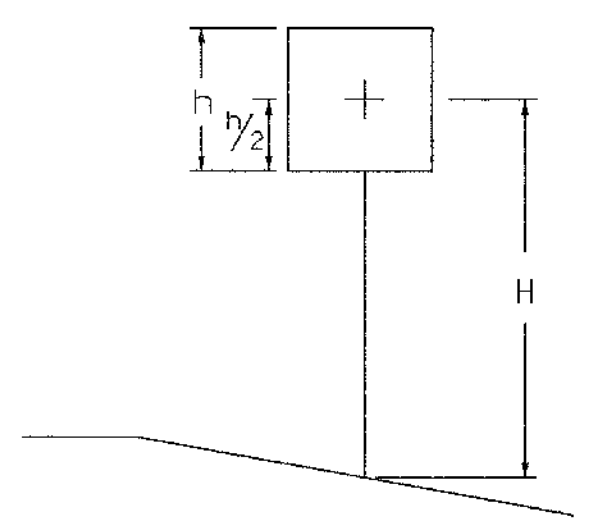


STANDARD
E-146



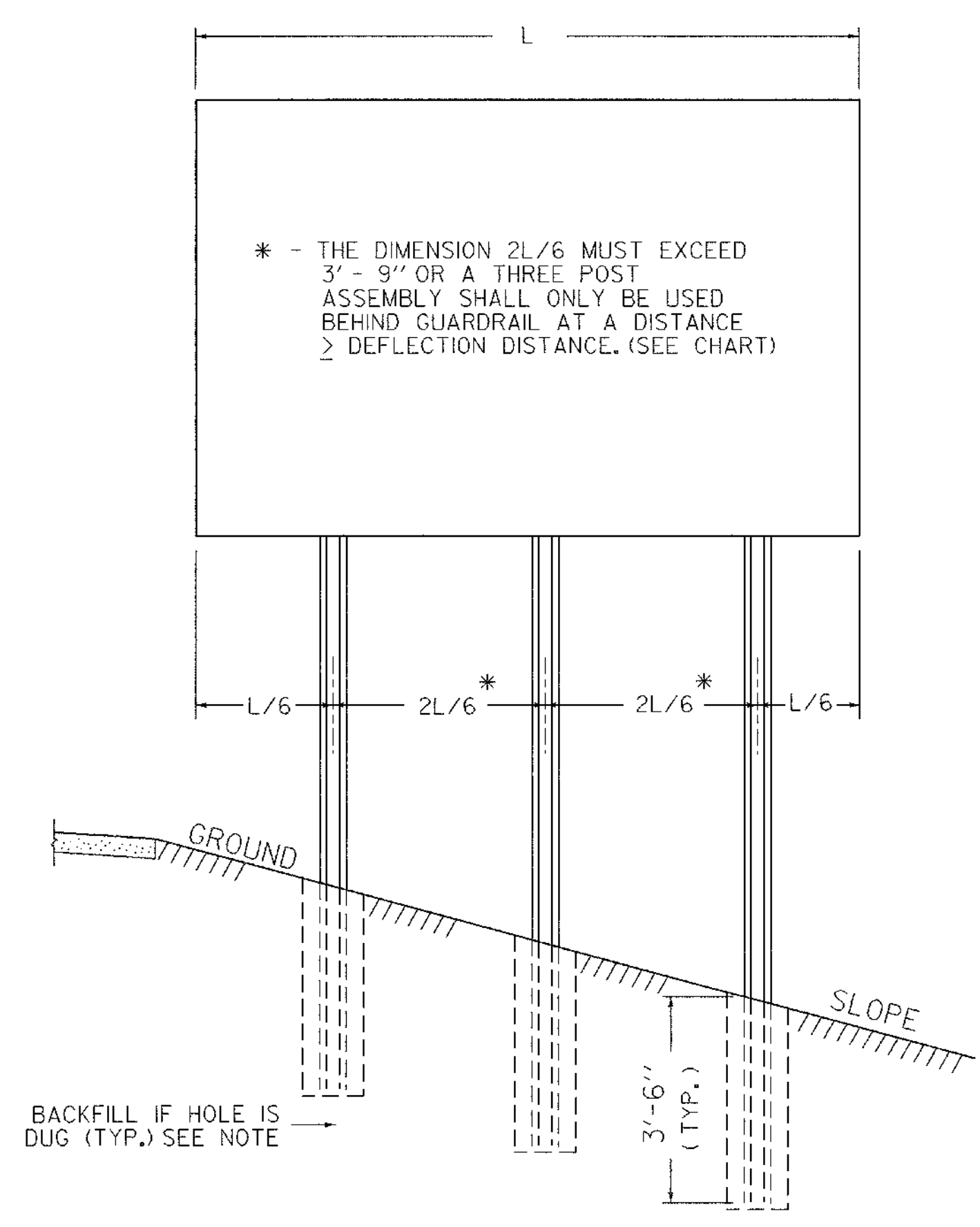
POST SIZE (LB/FT.)	DIMENSIONS			SECTION MODULUS, X-X
	A	B	C	
2	1 1/32"	1 3/64"	3 1/16"	0.225 IN. ³
3	1 5/16"	1 7/8"	3 1/2"	0.403 IN. ³

SIMILAR DIMENSIONS ARE ACCEPTABLE, HOWEVER
SECTION MODULUS VALUES SHALL NOT BE EXCEEDED.



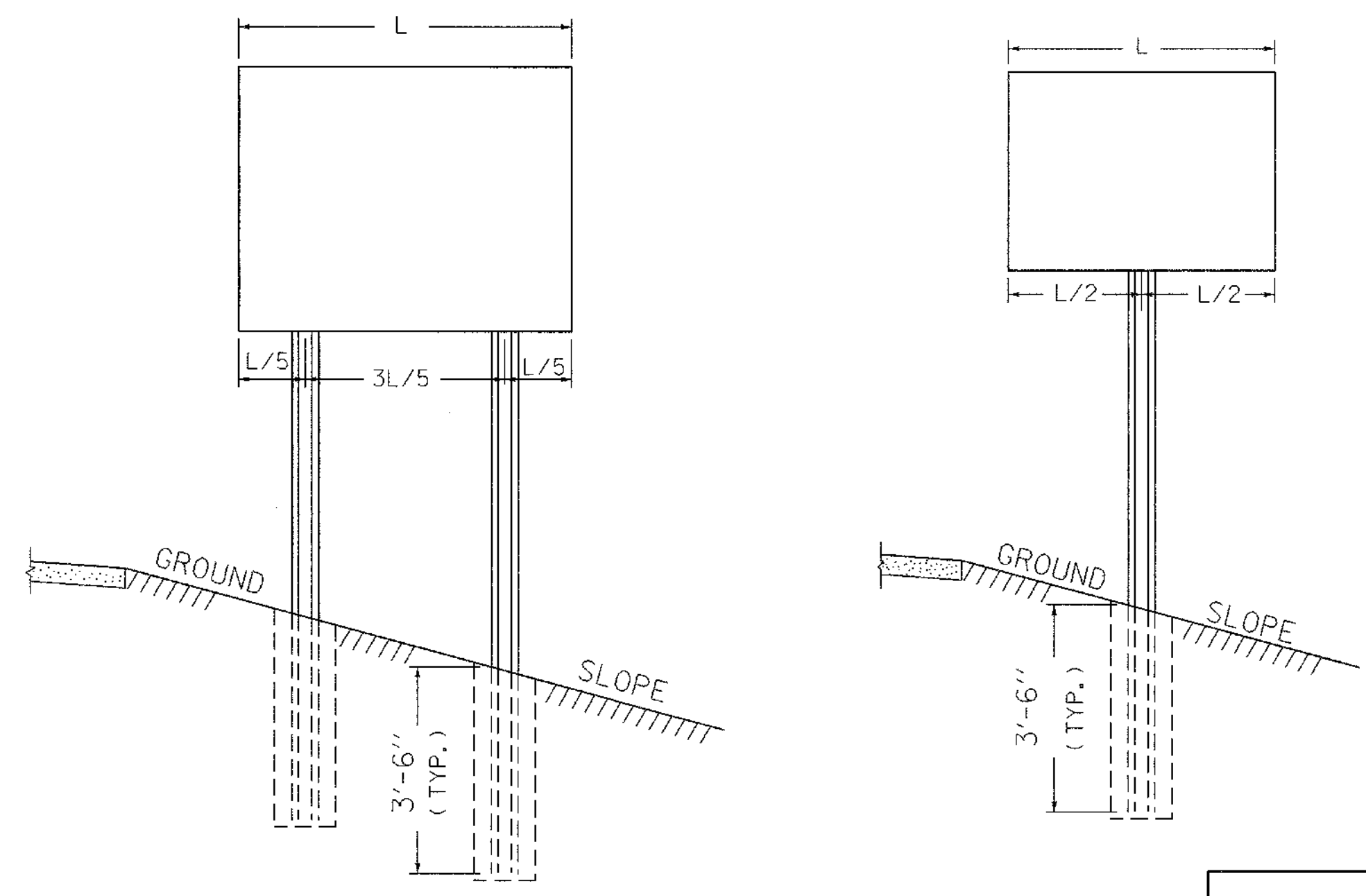
POST SELECTION CHART		
SIGN AREA (FT ²) x H (FT) ≤ SV (SELECTION VALUE)		
POST SIZE	SV	DESIGN CRITERIA
2 LB/FT. (ONE POST INSTALLATION)	32	WIND SPEED = 60 MPH (10-YEAR MEAN RECURRENCE INTERVAL) WIND PRESSURE = 14 PSF STEEL MIN YIELD F _y = 50,000 PSI ALLOWABLE STRESS = (1.4) 0.60 F _y
2 LB/FT. (TWO POST INSTALLATION)	56	
3 LB/FT.	101	

SINGULAR 2 LB./FT. POSTS SHALL ONLY TO BE USED IN URBAN AREAS.



MULTI-POST INSTALLATIONS

WHEN SIGN POSTS ARE INSTALLED WITH A POST SPACING OF LESS THAN 8 FEET, POST SIZES MUST BE SELECTED TO INSURE THAT WHEN ACTING TOGETHER THE POSTS DO NOT CREATE A HAZARD, REFER TO V.A.O.T. SIGN POST DESIGN GUIDELINE FOR ADDITIONAL DETAILS.



GENERAL NOTES

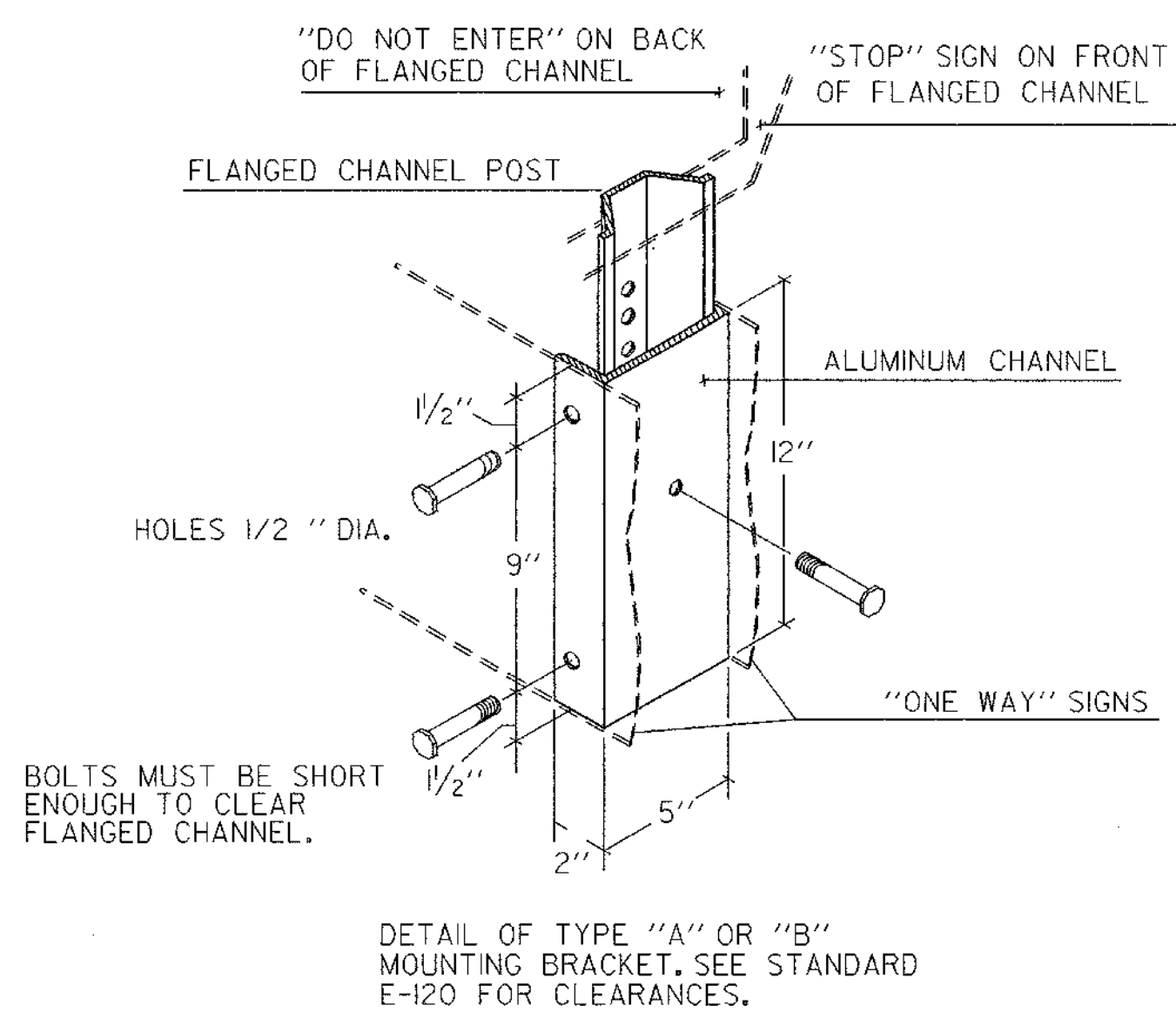
CONSTRUCTION METHODS - POSTS MAY BE DRIVEN OR SET IN A DUG HOLE AND BACKFILLED. IF DRIVEN, A DRIVING CAP SHALL BE USED. THE DUG HOLE INSTALLTION SHALL BE USED IN AREAS OF POOR SOIL CONDITIONS OR AS DIRECTED BY THE RESIDENT ENGINEER. BACKFILL SHALL BE COMPACTED AS DIRECTED BY THE RESIDENT ENGINEER.

IN AREAS WHERE LEDGE ROCK IS ENCOUNTERED, POSTS WILL BE SET IN A HOLE WITH 2" CLEARANCE AND GROUTED WITH TYPE 4 MORTAR 24" BELOW THE SURFACE OF THE SOLID ROCK, UNLESS THE POSTS PENETRATE THE GROUND A MINIMUM OF 3' - 6". THE PORTION OF THE POST IN CONTACT WITH THE MORTAR SHALL BE COATED WITH AN APPROVED COATING.

SIGN CLEARANCES - HORIZONTAL AND VERTICAL SIGN CLEARANCES SHALL BE SHOWN ON THE PLANS OR THE APPROPRIATE STD. SHEETS.

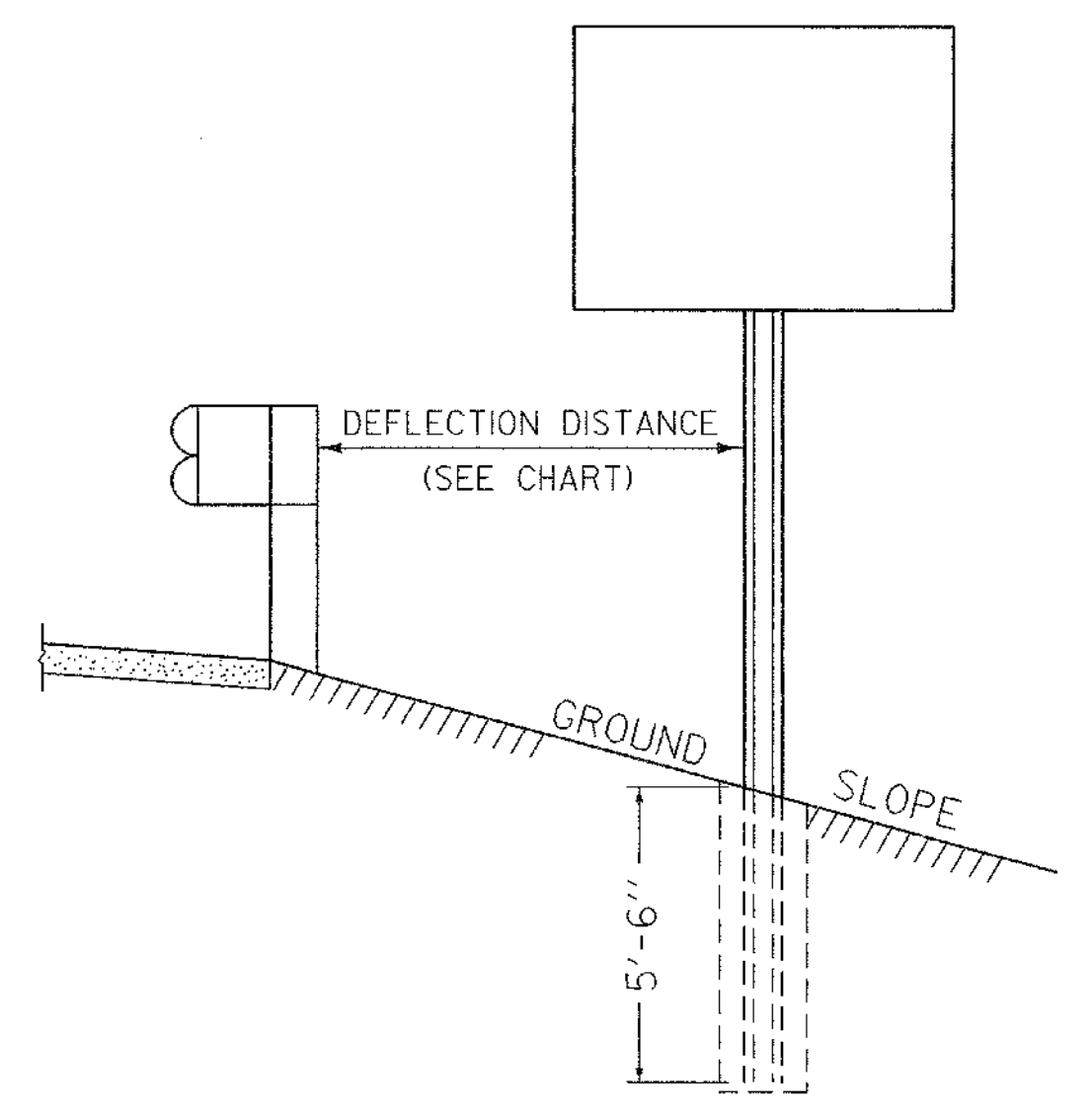
SINGLE POST INSTALLATIONS SHALL BE LIMITED TO A SIGN AREA OF 12-1/2 SQ. FT. OR LESS.

POST SPACING DETAILS



GUARDRAIL DEFLECTION CHART (PER AASHTO - ROADSIDE DESIGN GUIDE - 1988)		
TYPE	GR POST SPACING	DEFLECTION
THREE CABLE W/STEEL POSTS	16' - 0"	12'
W/WOODEN POSTS	12' - 6"	12'
W-BEAM	12' - 6"	7'
W/WEAK POST	6' - 3"	3'
BOX BEAM	6' - 0"	5'
THRIE BEAM	12' - 6"	4'
W/WEAK POST	6' - 3"	2'
W/STRONG POST		

THIS CHART LISTS THE THEORETICAL DEFLECTION DISTANCE UPON IMPACT OF VARIOUS GUARDRAIL WITH DIFFERENT TYPES AND SPACING OF POSTS.



WHEN USING FLANGED CHANNEL POSTS ON STEEP SLOPES (10N 2 OR STEEPER FILL SLOPES BEHIND GUARDRAIL), ADD 2' EMBEDMENT TO THE POST LENGTH TO GIVE THE ASSEMBLY MORE STABILITY. HOWEVER IF SIGN POST IS LOCATED INSIDE THE DEFLECTION DISTANCE, THE SIGN POST SHALL BE SET AT A DEPTH OF 3' - 6".

OTHER STDs.
REQUIRED:

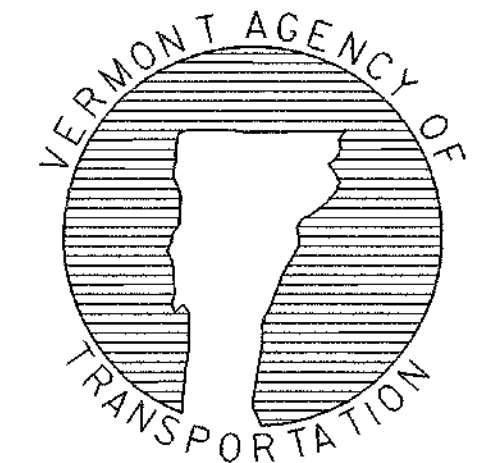
REVISIONS AND CORRECTIONS

SEP. 10, 1987 - DATE OF ORIGINAL ISSUE
MAR. 01, 1988 - FHWA REVIEW COMMENTS
OCT. 21, 1992 - ADDED DETAILS, REVISED NOTES & REVISED TITLE BLOCK
AUG. 18, 1995 - DELETION OF 2.5 #/FT. POST AND TWO-RAIL ALUMINUM. ADDED ADDITIONAL NOTE.
MAR. 11, 1996 - REVISED POST SELECTION CHART
MAY 20, 1999 - ORIGINAL LOST NEEDED NEW SIGNATURE

APPROVED

[Signature]
DIRECTOR OF PROJECT DEVELOPMENT

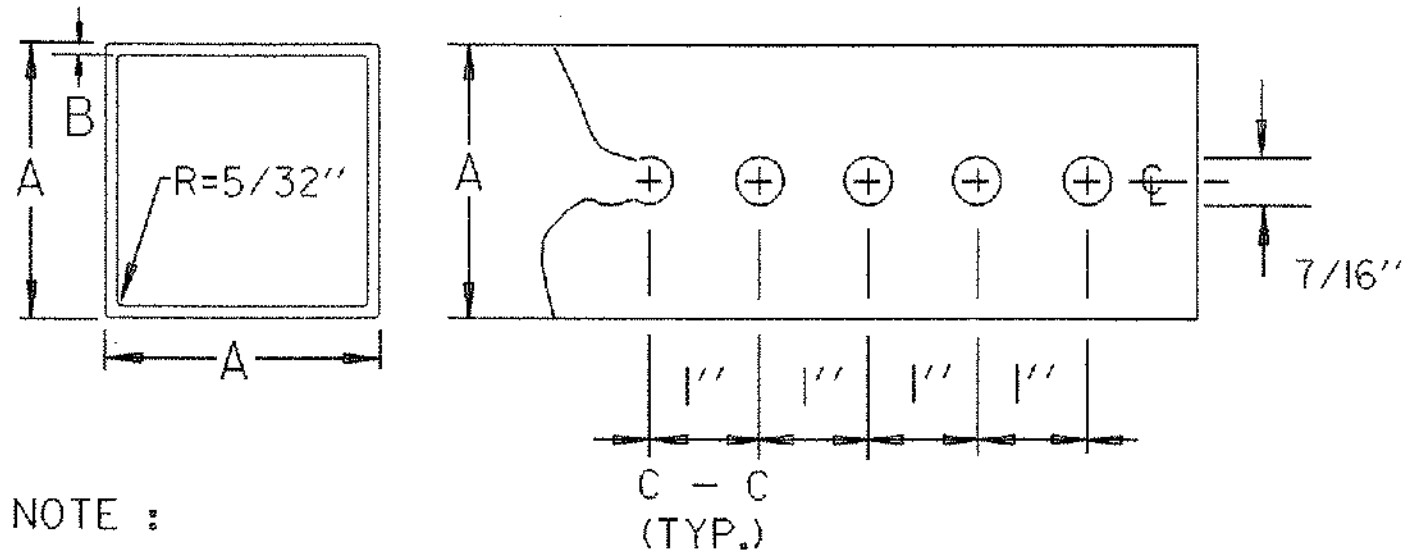
FLANGED CHANNEL STEEL SIGN POST



STANDARD
E-160

GUARDRAIL DEFLECTION CHART (PER AASHTO - ROADSIDE DESIGN GUIDE - LATEST EDITION)		
TYPE	GR POST SPACING	DEFLECTION
THREE CABLE W/STEEL POSTS	16' - 0"	11' - 6"
W/WOODEN POSTS	12' - 6"	11' - 6"
W-BEAM W/STRONG POST	6' - 3"	3'
BOX BEAM	6' - 0"	5'
THRIE BEAM W/STRONG POST	6' - 3"	2'

THIS CHART LISTS THE THEORETICAL MAXIMUM DEFLECTION DISTANCE, UPON IMPACT, OF DIFFERENT TYPES OF GUARDRAIL AND VARIOUS POST SPACINGS.



NOTE :

THE POSTS SHALL BE CAREFULLY FORMED OF STEEL WITH A MINIMUM YIELD OF 55,000 PSI, INTO A SIZE AND SHAPE WITH CORNERS INDUCTION WELDED IN SUCH A MANNER THAT NEITHER FLASH NOR WELD SHALL INTERFERE WITH THE TELESCOPING PROPERTIES, NOR DAMAGE THE GALVANIZING.

* THE WALL THICKNESS TOLERANCES SHALL BE +.005" AND -.010" FOR THE 12 GAUGE.

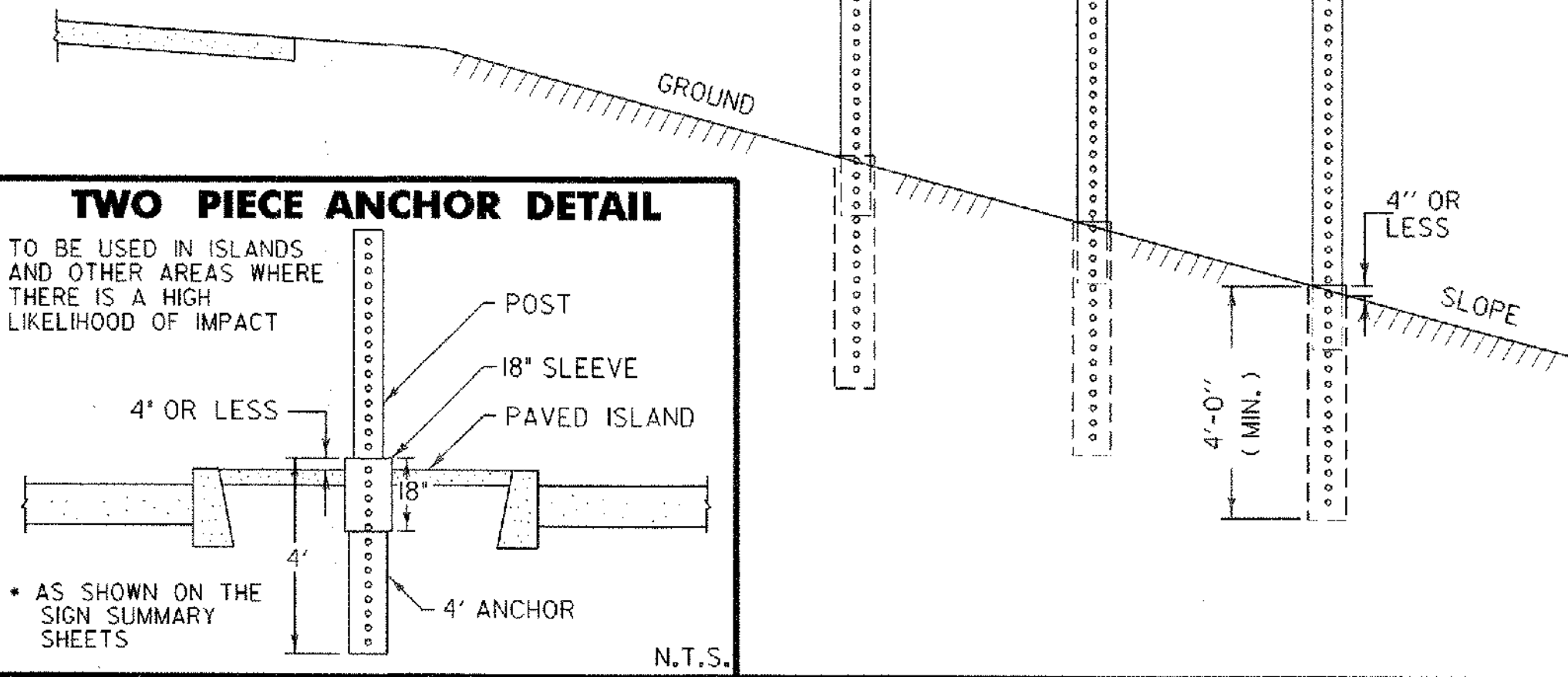
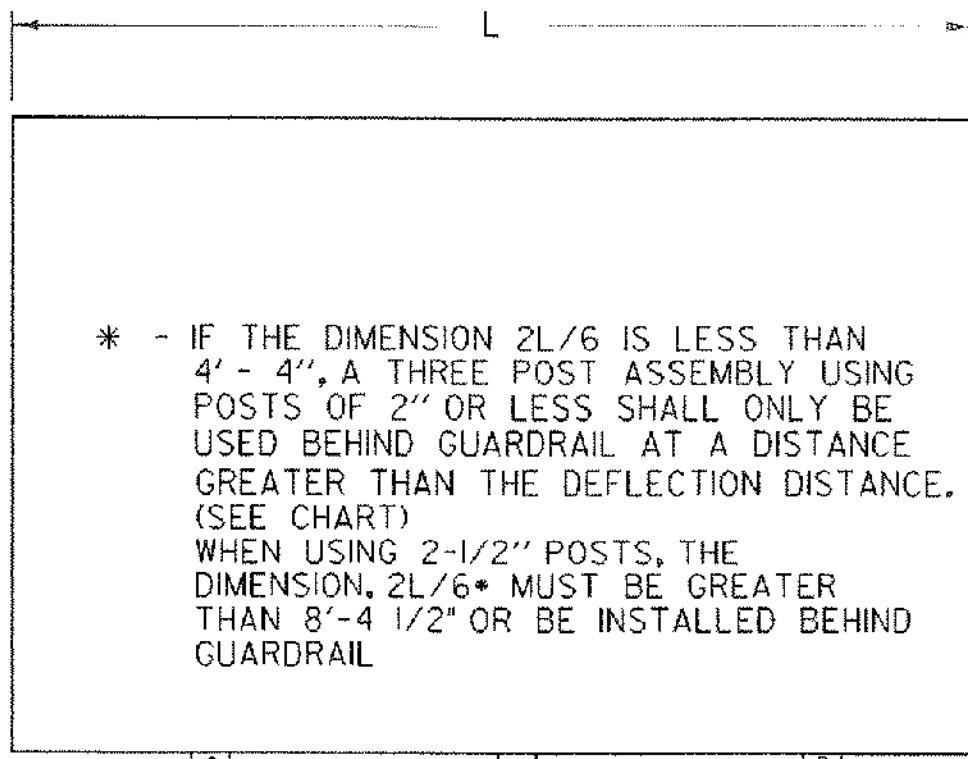
* THE WALL THICKNESS TOLERANCES SHALL BE +.002" AND -.008" FOR THE 14 GAUGE.

DIMENSION DETAILS AND POST SELECTION CHART

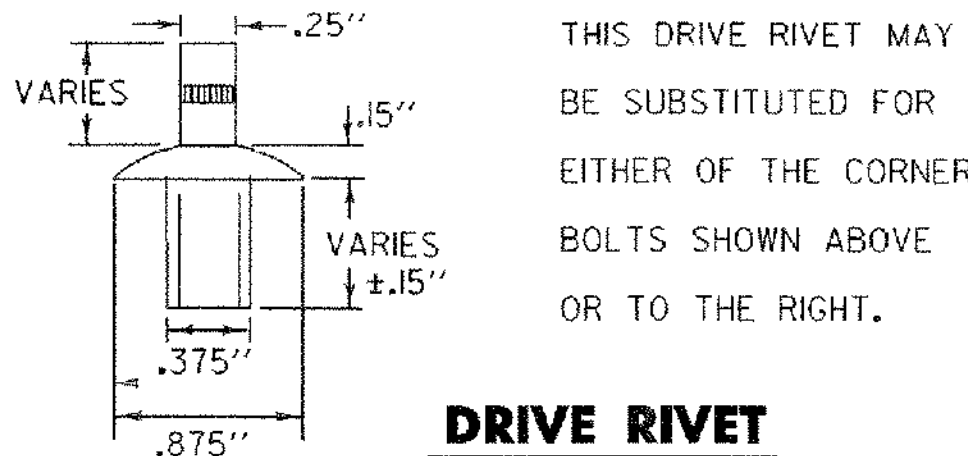
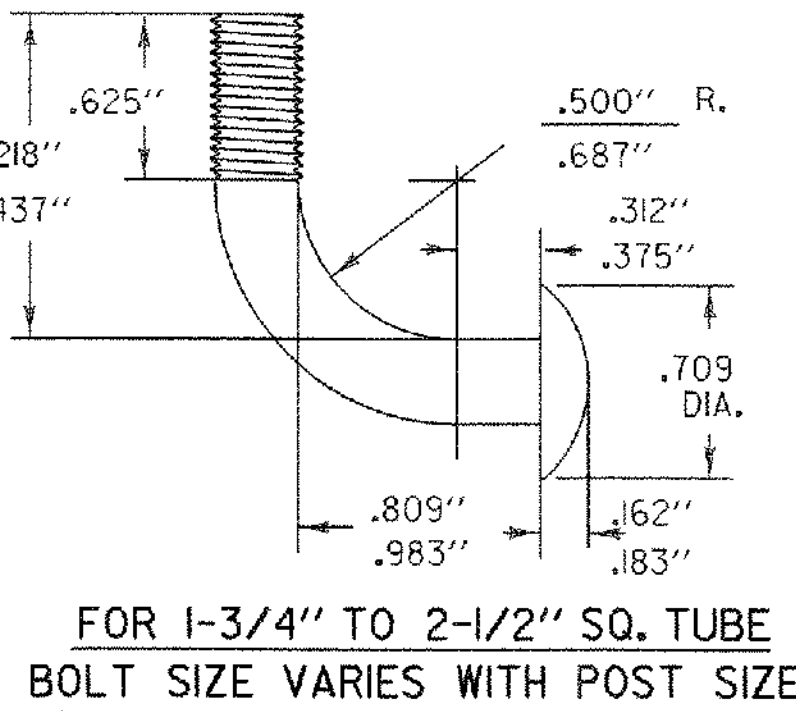
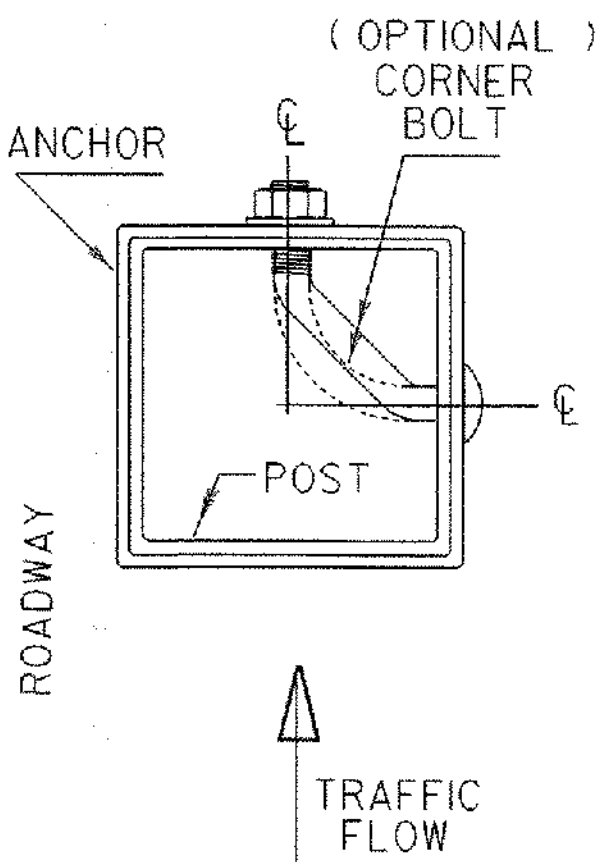
POST SELECTION CHART								
SIGN AREA (FT ²) X H (FT) ≤ SV (SELECTION VALUE)								
POST SIZE	DIMENSIONS			SECTION MODULUS IN ³	ONE POST S _v	TWO POST S _v	THREE POST S _v	NUMBER PERMITTED IN 8' PATH
LBS/FT.	A	*B	GAUGE					
1.88	1-3/4"	.083	14	0.230	46	92	138	TWO
2.42	2"	.083	12	0.380	77	154	231	TWO
3.35	2-1/2"	.105	12	0.642	130	260	390	ONE

DESIGN CRITERIA:

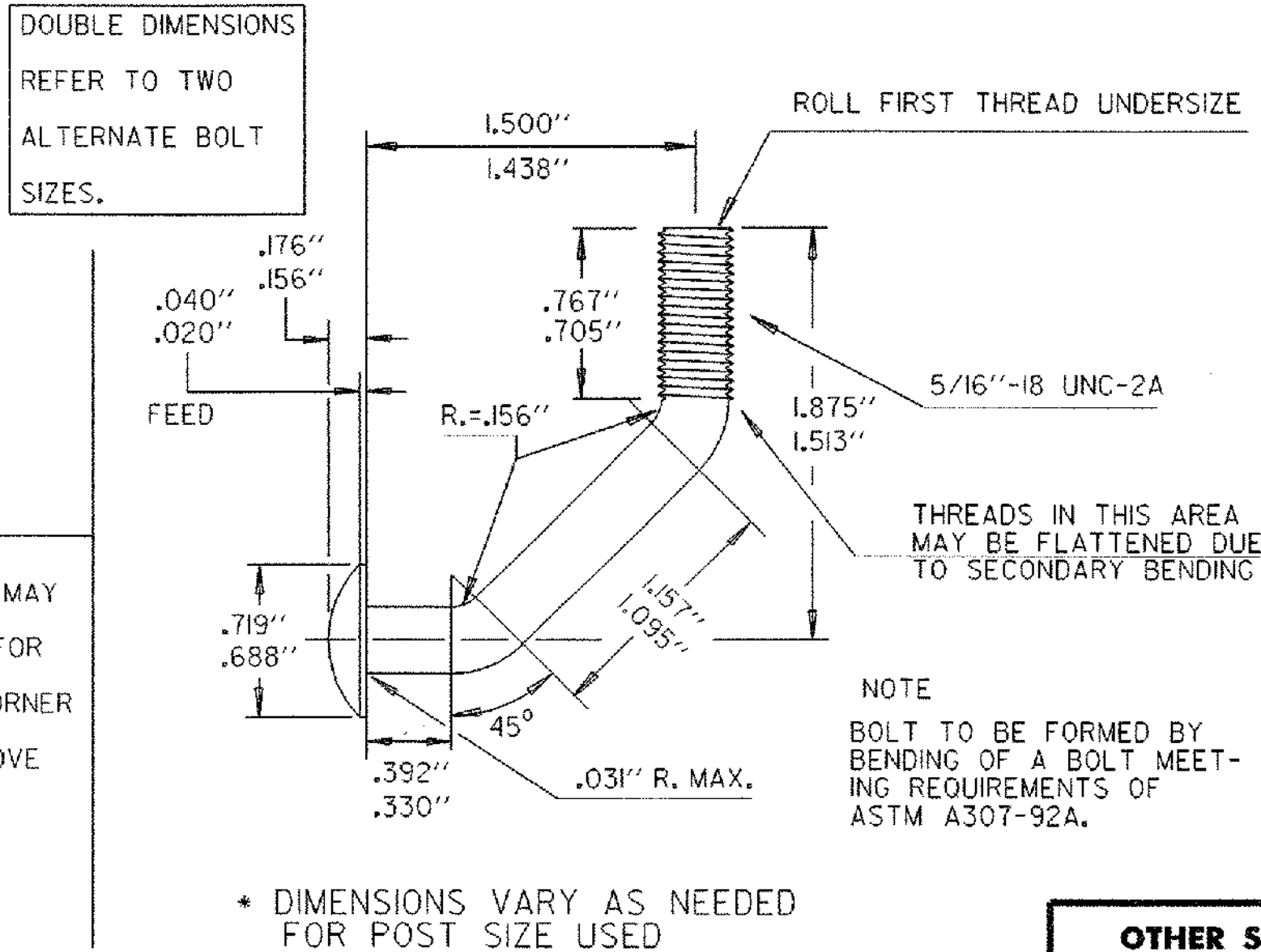
WIND SPEED = 70 MPH (10 -YEAR MEAN RECURRENCE INTERVAL)
WIND PRESSURE = 19 PSF
STEEL MINIMUM YIELD = 55,000 PSI
ALLOWABLE STRESS = (1.4) 0.60 FY



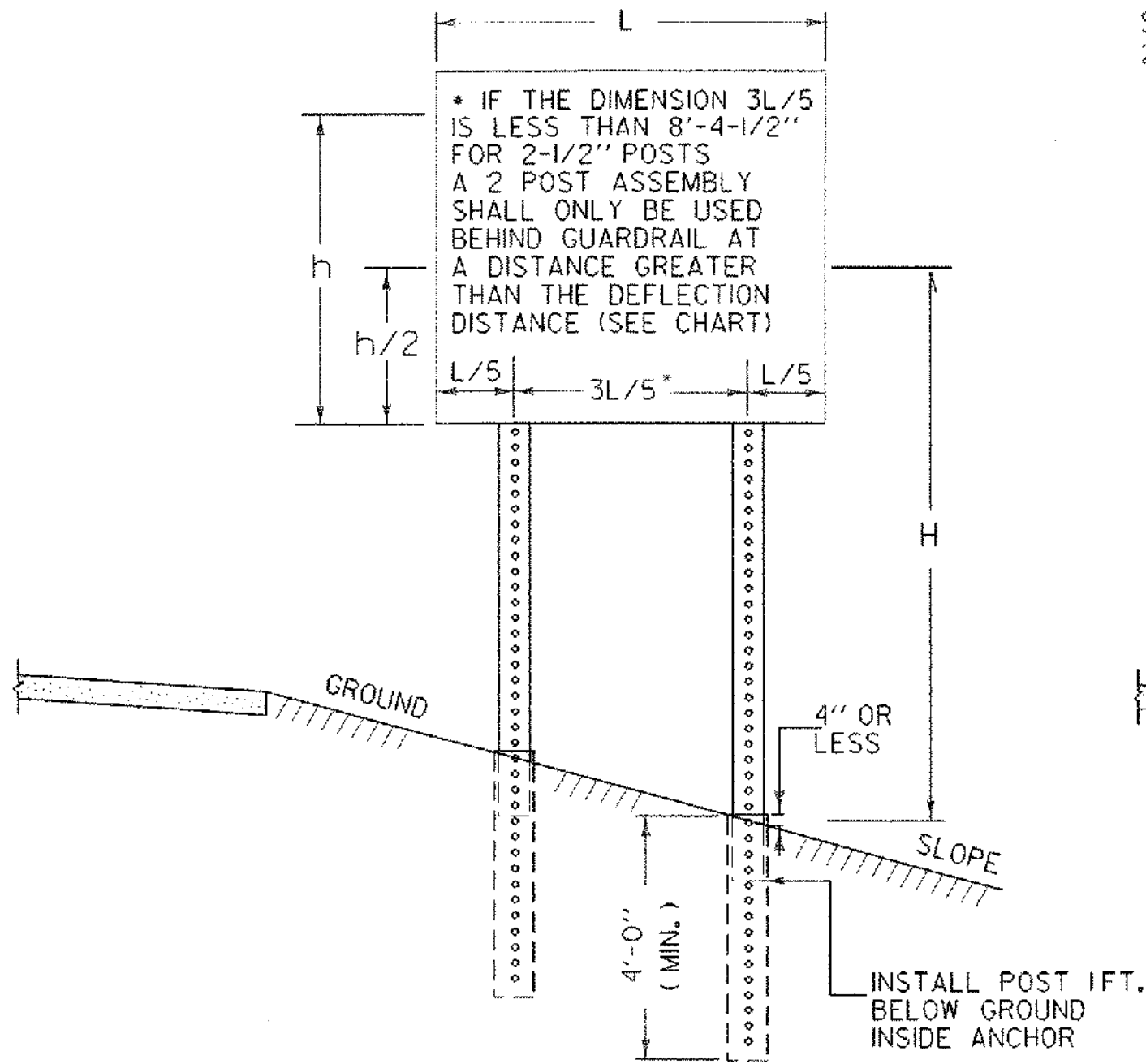
TOP VIEW OF ANCHOR, POST AND BOLT



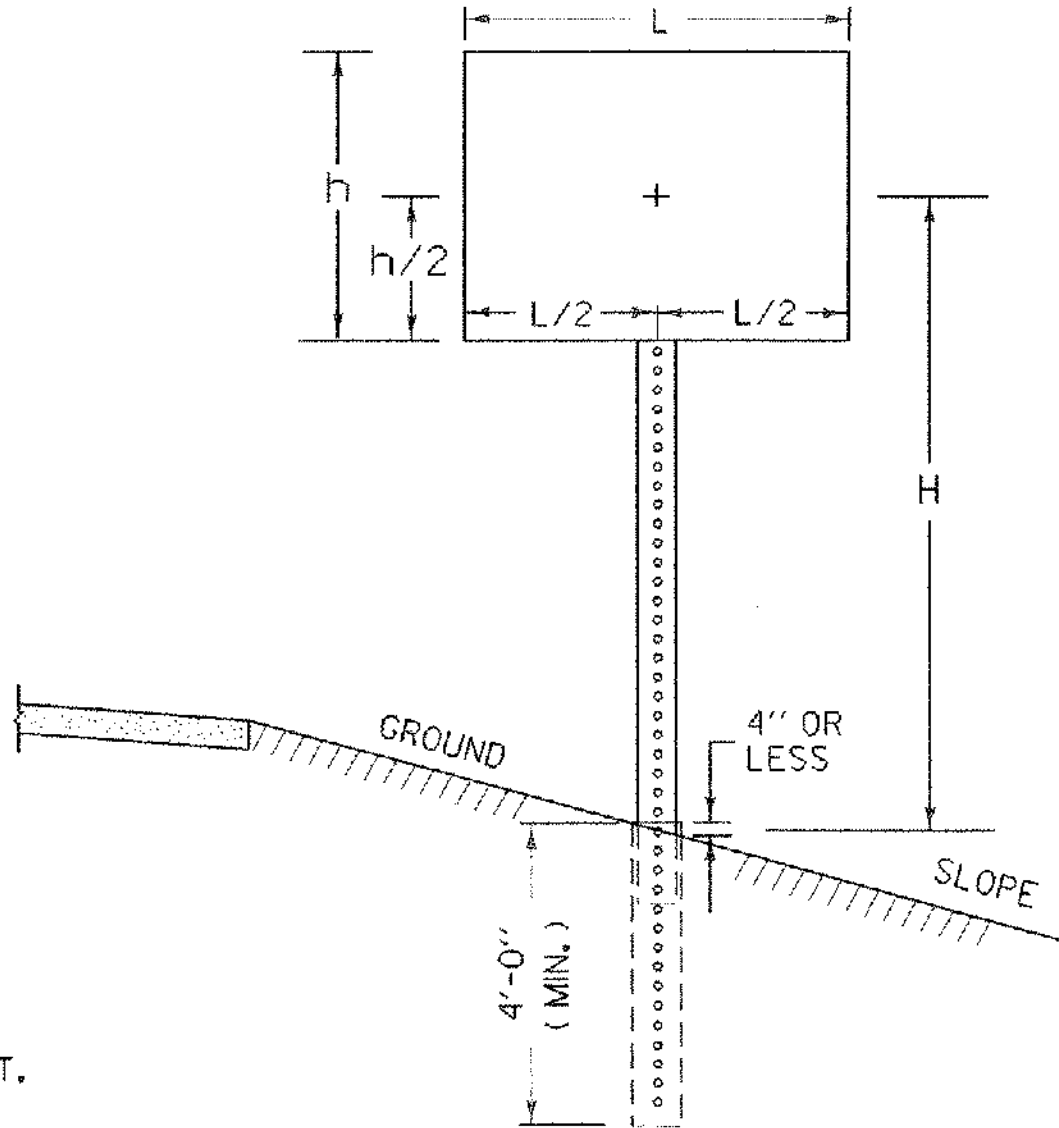
OPTIONAL CORNER BOLT DETAILS



MULTI-POST INSTALLATIONS



POST SPACING DETAILS



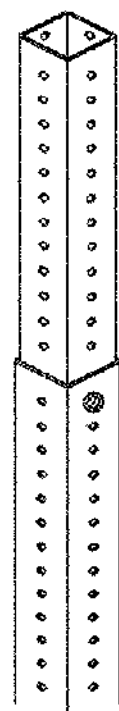
GENERAL NOTES

CONSTRUCTION METHODS - POSTS MAY BE DRIVEN OR SET IN A DUG HOLE AND BACKFILLED. IF DRIVEN, A DRIVING CAP SHALL BE USED. THE DUG HOLE INSTALLATION SHALL BE USED IN AREAS OF POOR SOIL CONDITIONS OR AS DIRECTED BY THE RESIDENT ENGINEER. BACKFILL SHALL BE COMPACTED AS DIRECTED BY THE RESIDENT ENGINEER.

SIGN CLEARANCES - HORIZONTAL AND VERTICAL SIGN CLEARANCES SHALL BE SHOWN ON THE PLANS OR THE APPROPRIATE STD. SHEETS.

SINGLE POST INSTALLATIONS SHALL BE LIMITED TO A SIGN AREA OF 20 SQ. FT. OR LESS

CONNECTION DETAIL



POST IS TO BE INSERTED INTO ANCHOR ONE FOOT BELOW GROUND LEVEL. ANCHOR IS TO BE 4'-0" MINIMUM LENGTH WITH NO MORE THAN 4" ABOVE GROUND. ANCHOR IS ONE SIZE (1/4") GREATER THAN THE POST AND ALL ANCHORS ARE TO BE 12 GAGE, EXCEPT ANCHORS FOR 2-1/2" POSTS ARE TO BE 3" AND 7 GAGE. CONNECTION IS TO BE MADE USING THE BOLT PROVIDED WITH THE SIGN SYSTEM (SEE DETAILS LEFT), AT THE TOP HOLE IN THE ANCHOR (APPROXIMATELY 3-1/2" ABOVE GROUND). THREE INCH ANCHORS WHICH DO NOT HAVE HOLES ON 1" CENTERS WILL REQUIRE DRILLING OF 7/16" HOLES FOR CONNECTIONS.

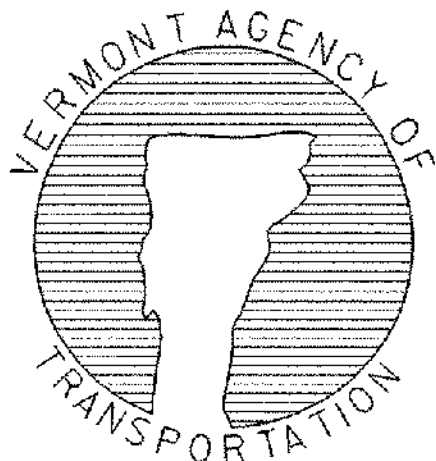
(SEE DETAIL LEFT FOR BOLT PLACEMENT)

REVISIONS AND CORRECTIONS
APR. 27, 1994 - ORIGINAL APPROVAL DATE
JUL. 21, 1994 - REVISED POST GAUGES
AUG. 18, 1995 - ADDED TWO PIECE ANCHOR DETAIL
MAR. 26, 1996 - REVISED POST SELECTION CHART
MAY 20, 1999 - REPLACE LOST ORIGINAL
JUN. 08, 2009 - POST SELECTION REVISIONS

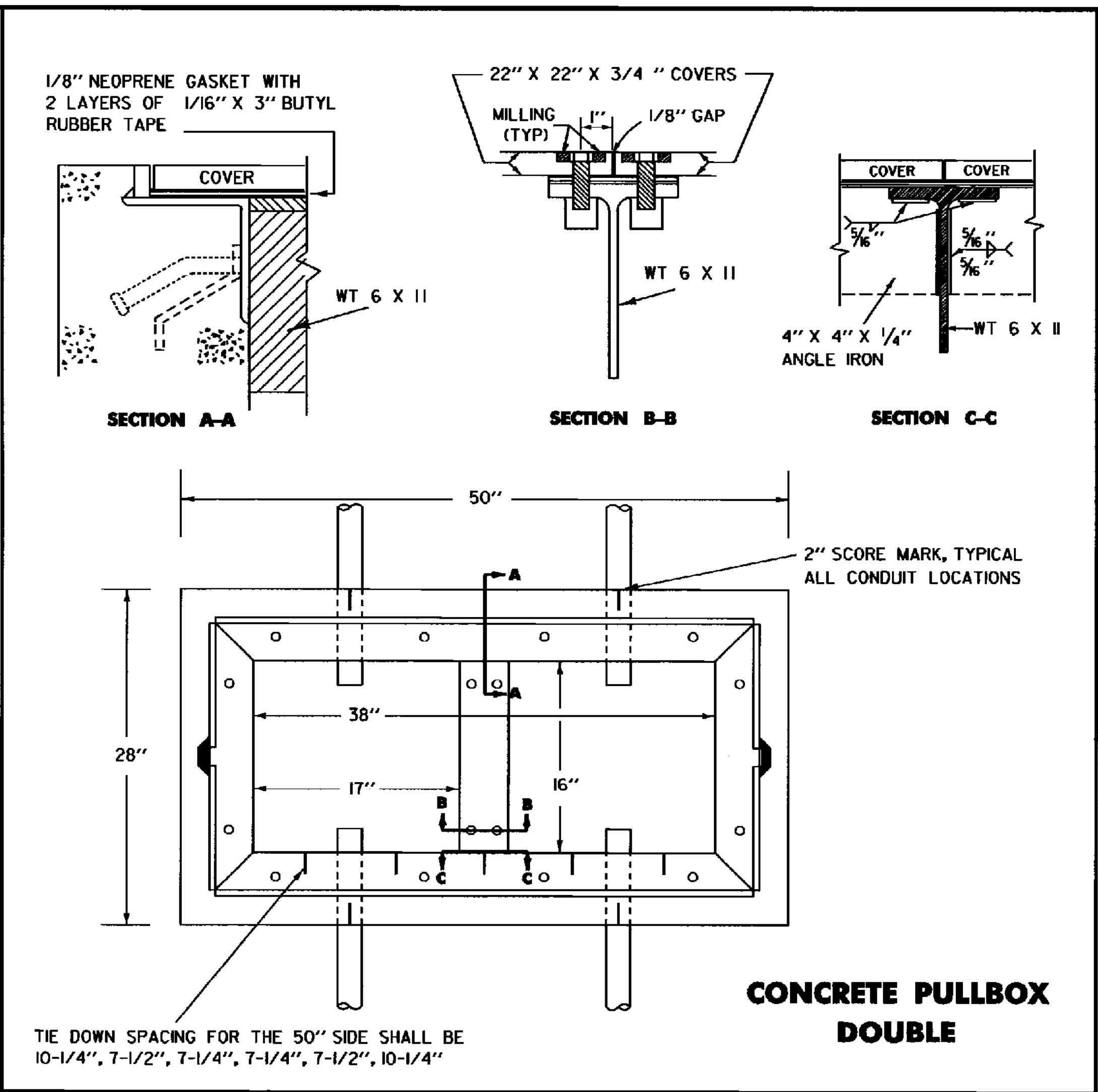
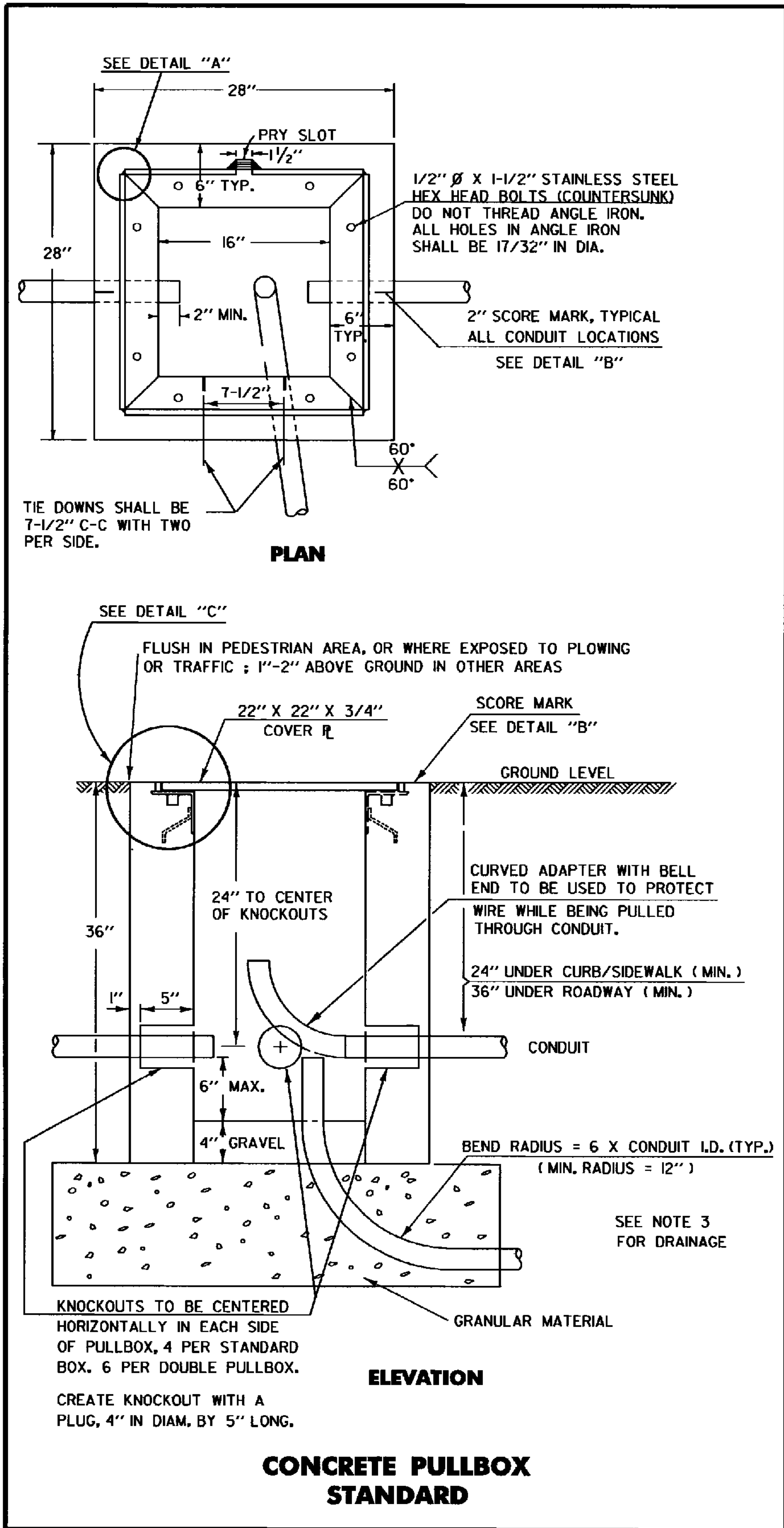
APPROVED

Kevin S. Marchie
HIGHWAY, SAFETY & DESIGN ENGINEER
Robert J. Fitch
DIRECTOR OF PROGRAM DEVELOPMENT
Mark D. Riehl
FEDERAL HIGHWAY ADMINISTRATION

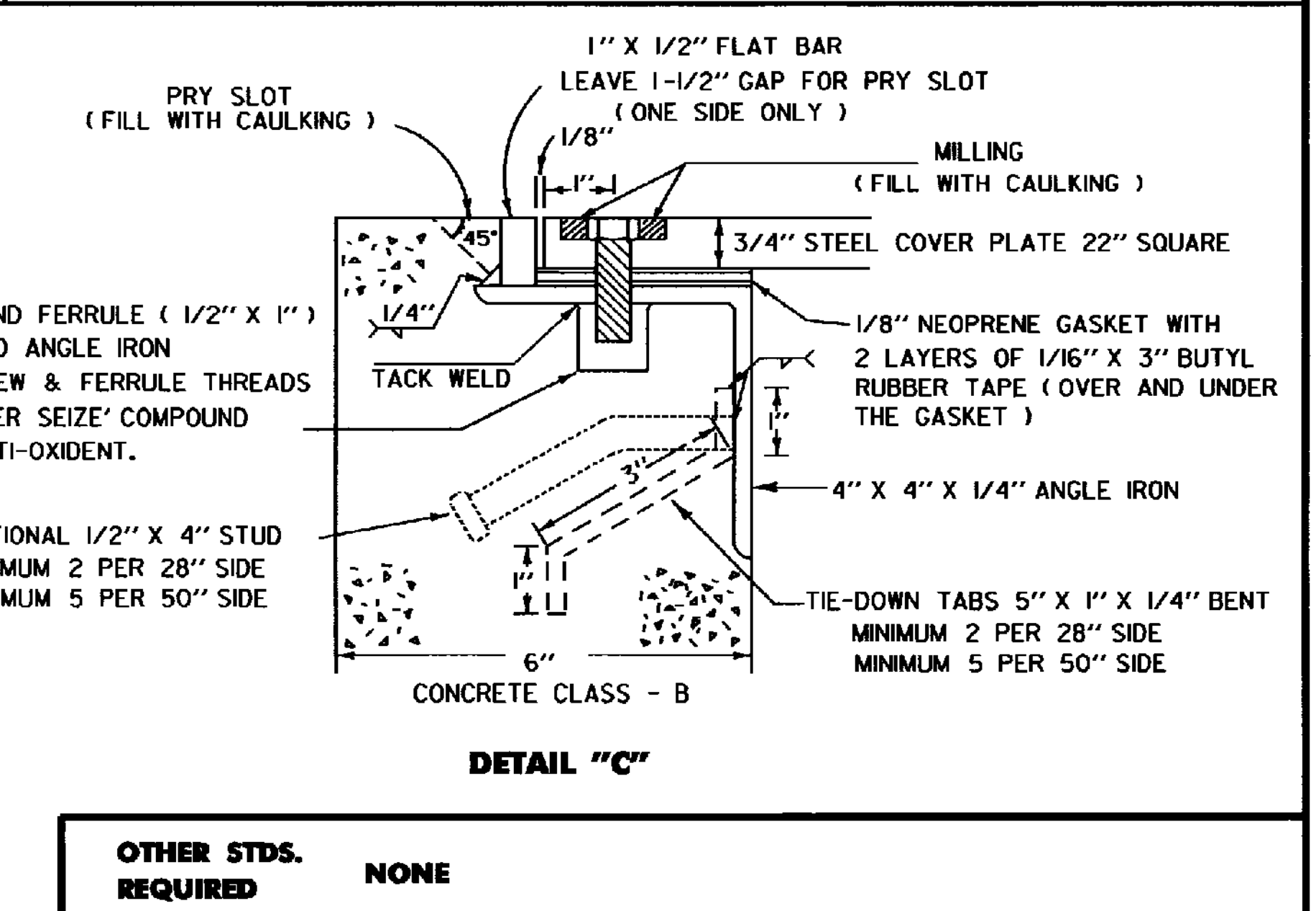
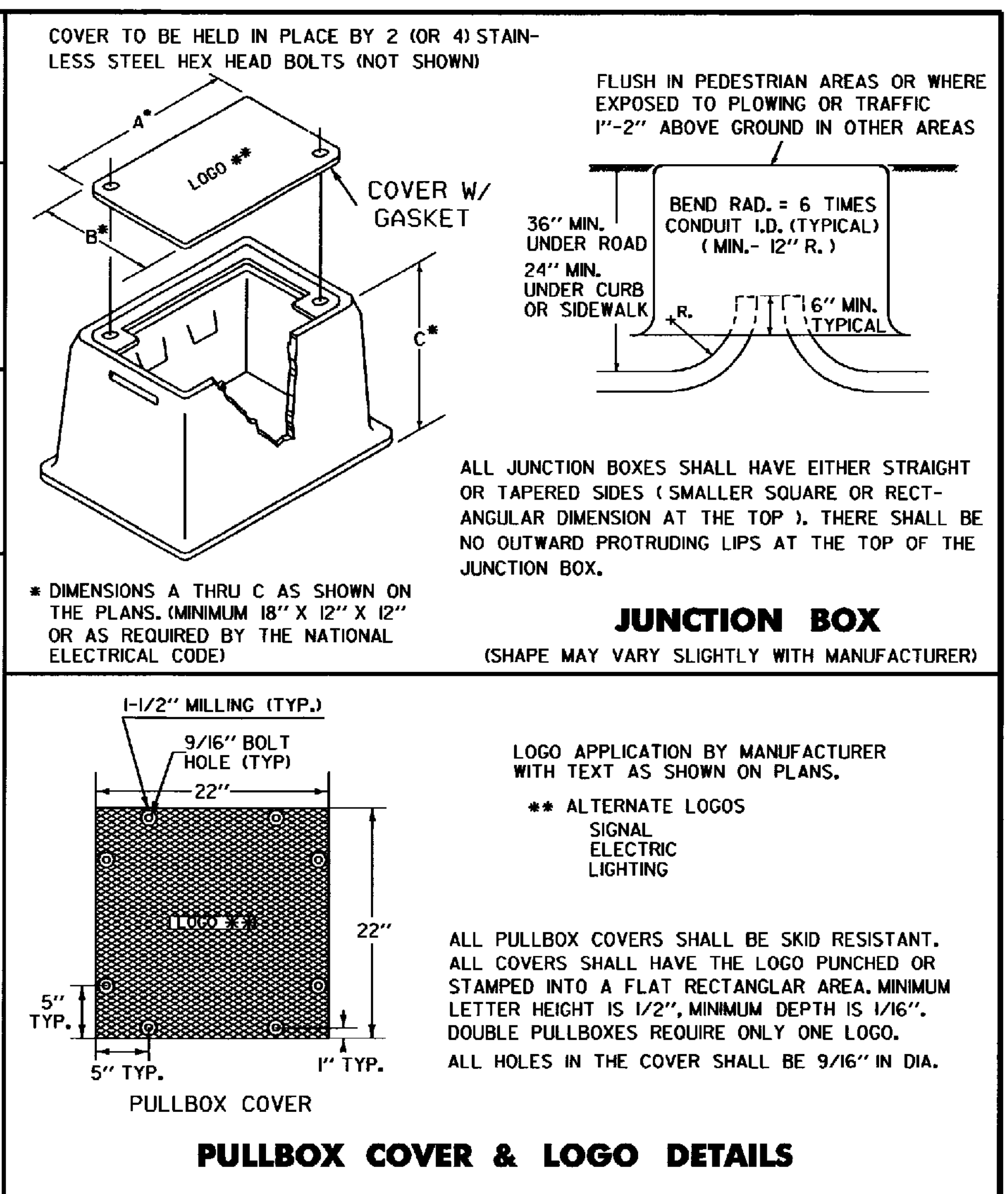
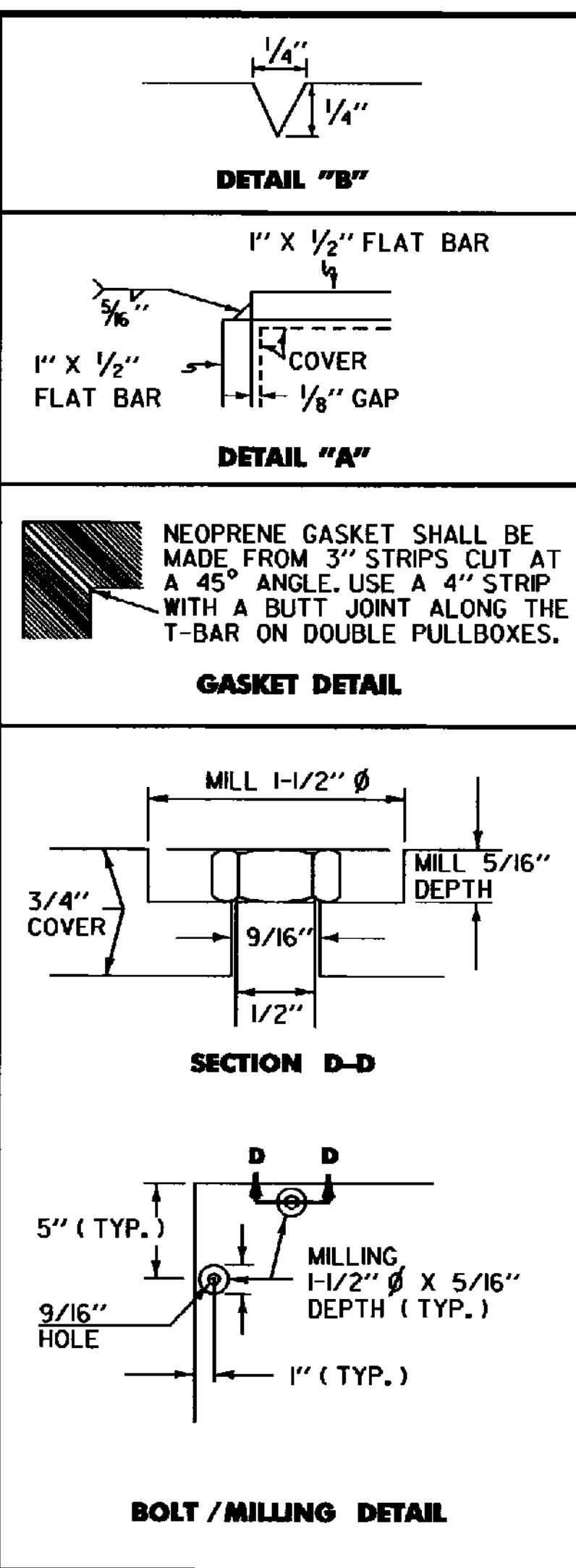
SQUARE STEEL SIGN POST



STANDARD
E-164

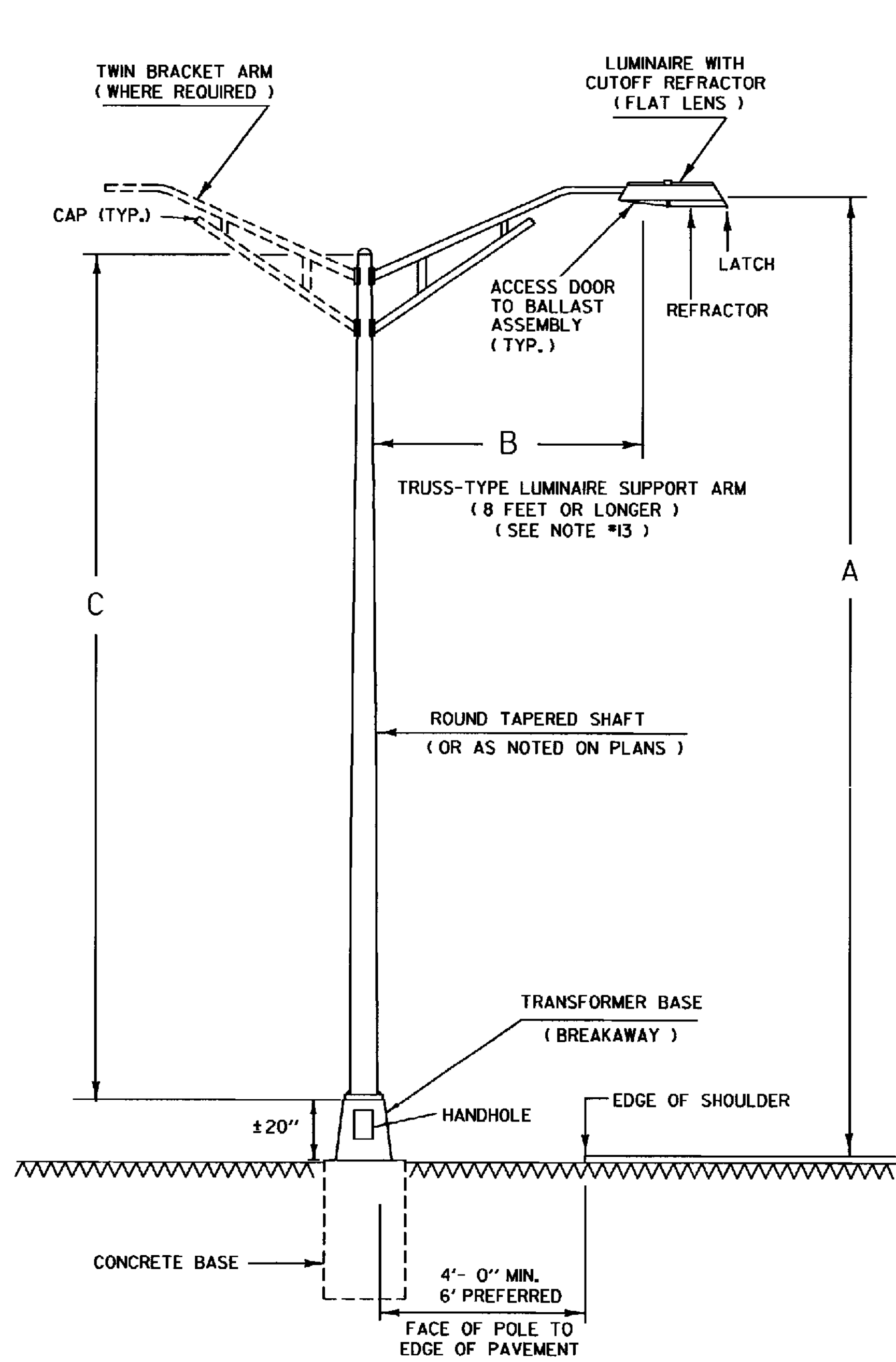


- PULLBOX & JUNCTION BOX NOTES**
1. ALL PULLBOXES SHALL BE CONSTRUCTED WITH CONCRETE, CLASS B.
 2. CONDUIT SIZE AS SHOWN ON THE PLANS.
 3. EXCAVATION FOR THE UNITS SHALL INCLUDE EXCAVATION OF AN AREA ONE FOOT OUTSIDE THE UNITS AND EXTENDING ONE FOOT BELOW THE FINISH GRADE OF THE BOTTOM OF THE UNITS. ONE FOOT OF GRANULAR MATERIAL SHALL BE PLACED IN THE EXCAVATED AREA AND PROPERLY COMPACTED PRIOR TO INSTALLATION. WHERE NECESSARY AND AT THE DISCRETION OF THE ENGINEER, A DRAINAGE PIPE (MINIMUM 3" PERFORATED PVC) SHALL BE PROVIDED FROM THE UNIT TO THE NEAREST APPROPRIATE OUTLET. DRAINAGE WORK SHALL NOT BE PAID DIRECTLY, BUT WILL BE CONSIDERED PART OF THE PULLBOX OR JUNCTION BOX ITEM.
 4. ALL EXPOSED METAL HARDWARE, INCLUDING PULLBOX COVERS, FRAMES & ANGLES, SHALL BE GALVANIZED OR STAINLESS STEEL.
 5. ALL CONDUIT SHALL ENTER JUNCTION BOXES FROM THE BOTTOM, NOT THROUGH THE SIDE WALL.
 6. CONDUITS SHALL NOT ENTER DOUBLE PULLBOXES, DIRECTLY UNDER THE "T" BAR.
 7. THE PRY SLOT AND THE COVER GAPS SHALL BE FILLED WITH CAULKING JUST PRIOR TO PROJECT COMPLETION.
 8. WHEN INSTALLED ON SLOPES, PULLBOXES AND JUNCTION BOXES SHALL BE TIPPED TO MATCH THE EXISTING SLOPE UP TO A 1 ON 4 SLOPE. ON STEEPER SLOPES, THEY SHALL BE INSTALLED AS ON A 1 ON 4 SLOPE. A SUFFICIENT AMOUNT OF THE EXCAVATED MATERIAL SHALL BE USED TO SHAPE AROUND THE LOW SIDE OF THE BOX SUCH THAT THE MAXIMUM EXPOSURE IS 2'. THE MATERIAL SHALL BE TAPERED OVER AN AREA EXTENDING ABOUT 5' FROM THE BOX. IF SUFFICIENT MATERIAL IS NOT AVAILABLE, MATERIAL MEETING THE REQUIREMENTS OF EARTH BORROW (SUBSECTION 703.02) SHALL BE USED. PAYMENT SHALL BE CONSIDERED PART OF THE PULLBOX OR JUNCTION BOX ITEM.
 9. ALL COVERS SHALL BE FLUSH WITH THE BOXES AND FRAMES.
 10. ALL CONDUITS ENTERING A PULLBOX OR JUNCTION BOX SHALL HAVE BUSHINGS TO PROTECT THE CABLES.



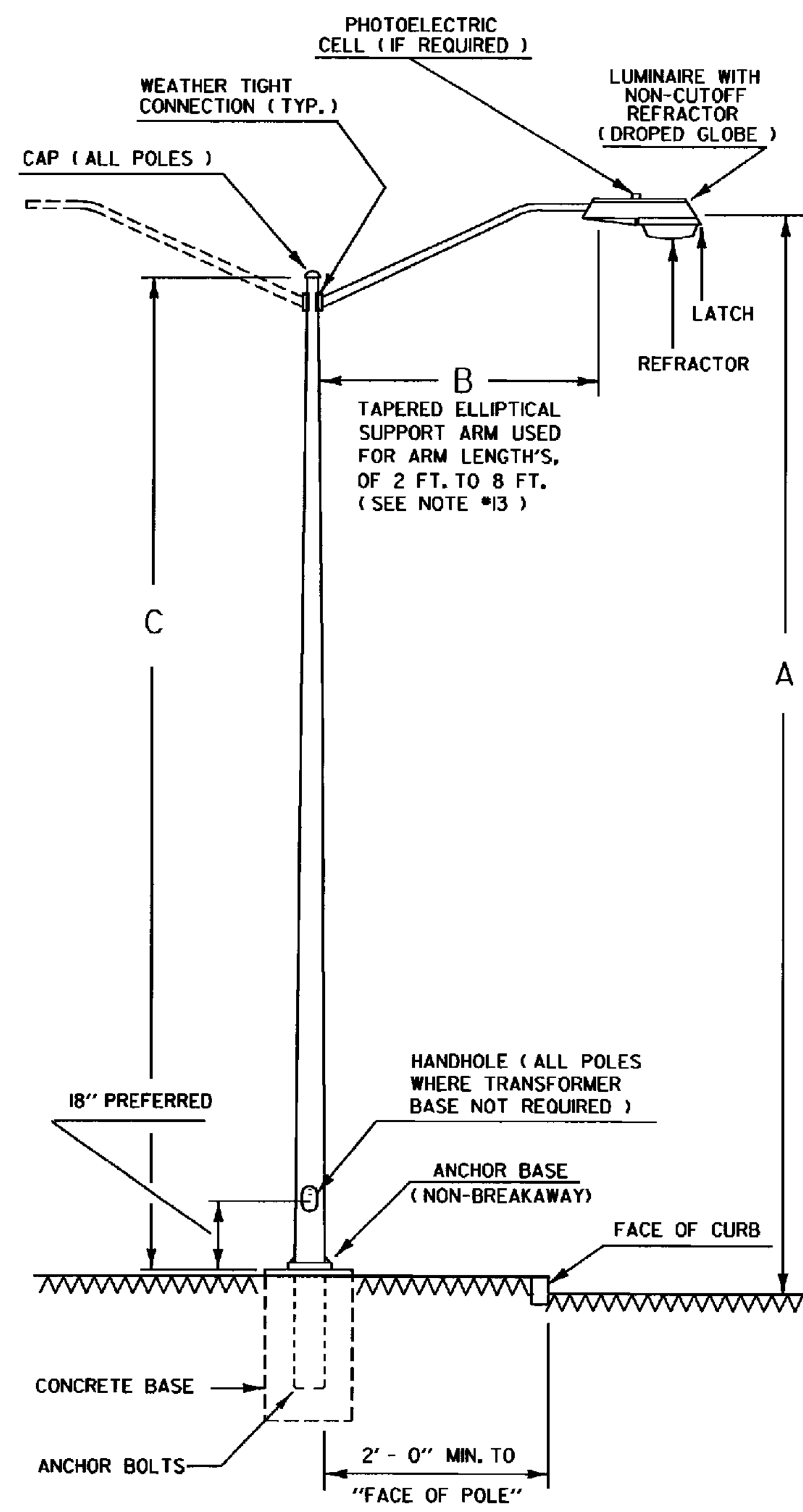
REVISIONS AND CORRECTIONS SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE APRIL 1, 1989 - REVISED COVER DIMENSIONS MAY 26, 1989 - FHWA COMMENTS NOV. 17, 1993 - MAJOR REVISIONS, STANDARDIZATION OF PULLBOX COVERS AUG. 9, 1995 - REVISED NOTE 8, CHANGED LOGO OPTIONS APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.	APPROVED <i>Jonathan S. MacArthur</i> DIRECTOR OF ENGINEERING <i>David A. Ross</i> TRAFFIC AND SAFETY ENGINEER	PULLBOXES AND JUNCTION BOXES	VERMONT AGENCY OF TRANSPORTATION STANDARD E-173
---	--	--	---

ROUND - TAPERED, ALUMINUM OR STEEL POLES



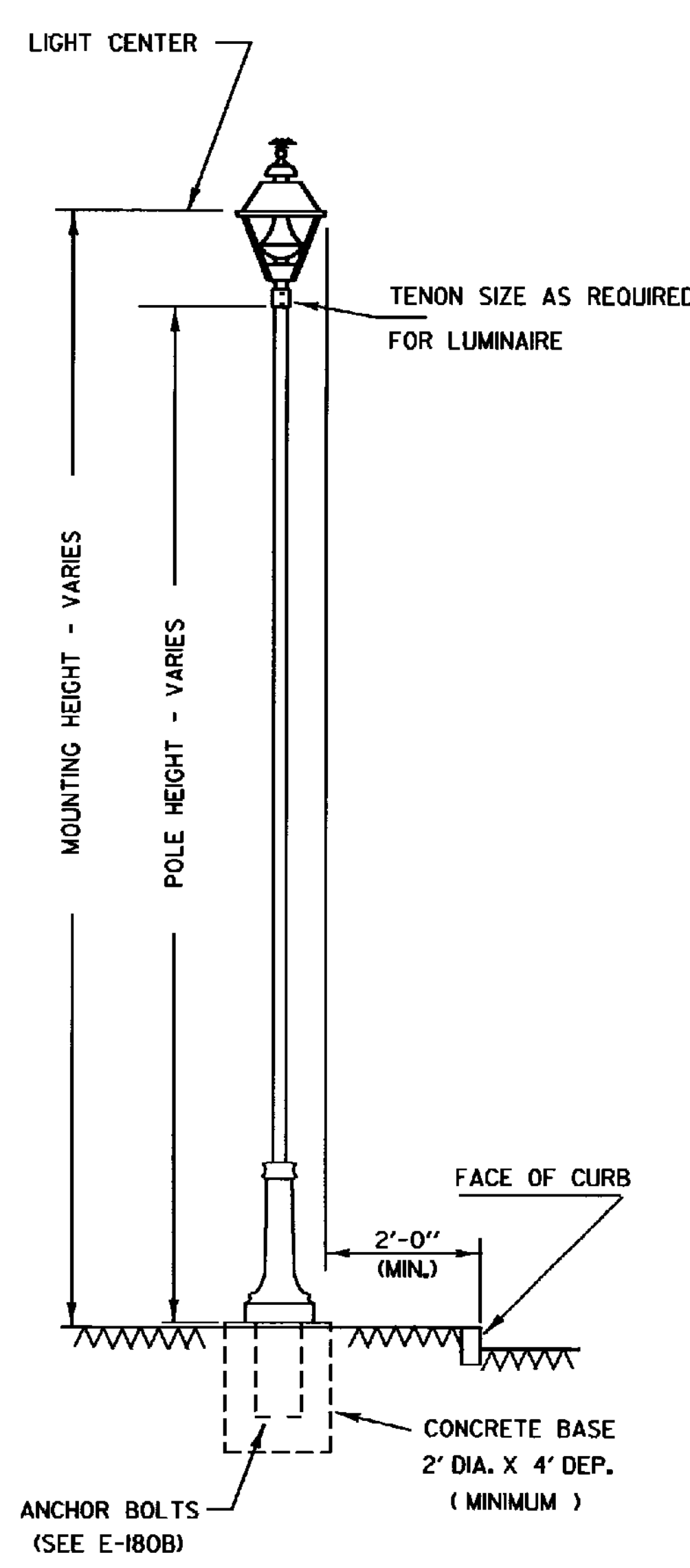
DIMENSIONS:
A = MOUNTING HEIGHT
B = LUMINAIRE SUPPORT ARM LENGTH
C = POLE HEIGHT

FOR OTHER BREAKAWAY SUPPORTS SEE STANDARD SHEET E-180B



NOTES:
ALL SUPPORT ARMS TO BE EQUIPPED WITH 2" SLIPFITTER FOR MOUNTING LUMINAIRE UNLESS OTHERWISE INDICATED.

NON-BREAKAWAY SUPPORTS ARE APPROPRIATE IN SOME URBAN AREAS AS OUTLINED IN THE AASHTO "ROADSIDE DESIGN GUIDE".



ORNAMENTAL LIGHTING

POLES, ANCHOR BASES, ARMS, AND LUMINAIRES.
GENERAL NOTES

1. NO POLE SHALL BE INSTALLED WITHOUT A LUMINAIRE ALREADY ATTACHED.
2. ANCHOR BASE AND ANCHOR BOLT DIMENSIONS ARE SHOWN ON STANDARD SHEET E-180B.
3. ALL LIGHT POLES WHICH ARE PROVIDED WITH A BREAKAWAY FEATURE SHALL CONFORM TO THE REQUIREMENTS OF THE AASHTO 1985 STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, SECTION 7 AND SUBSEQUENT REVISIONS.
4. A 12 FOOT OR LONGER ARM REQUIRES A 6 INCH OUTSIDE DIAMETER POLE TOP.
5. LUMINAIRES SHALL MEET SPECIFICATIONS AS SHOWN ON THE PLANS.
6. ALL ELECTRICAL MATERIAL AND ELECTRICAL WORK SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE AREA ELECTRICAL INSPECTOR AND/OR THE POWER COMPANY WITH JURISDICTION IN THE PROJECT AREA.
7. ALL WORK MUST MEET THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE, AS WELL AS LOCAL AND STATE CODES.
8. ALL STREET LIGHT POLES (EXCEPT ORNAMENTAL POLES) SHALL HAVE A METAL TAG ATTACHED TO THE POLE, SEE PLAN DETAIL SHEET. PAYMENT FOR TAGS WILL BE SUBSIDIARY TO OTHER STREET LIGHTING ITEMS.
9. POLES, BASE PLATES, AND ARMS SHALL MEET THE SPECIFICATION OF THE LATEST EDITION OF AASHTO-AGC-ARTBA'S "GUIDE TO STANDARDIZED HIGHWAY LIGHTING POLE HARDWARE" OR AS OTHERWISE NOTED ON THE PLANS.
10. ANCHOR BOLTS WILL BE ACCEPTABLE WITH EITHER ROLLED OR CUT-IN THREADS WITH MINOR VARIATIONS FROM THE SPECIFIED DIAMETER.
11. ALL LIGHT POLES SHALL HAVE A BREAKAWAY DESIGN FEATURE UNLESS OTHERWISE NOTED ON THE PLANS.
12. ALL WELDS SHALL BE AT LEAST AS STRONG AS THE MATERIAL BEING WELDED.
13. LUMINAIRE SUPPORT ARMS IN A LENGTH OF 8 FEET ARE AVAILABLE IN EITHER SINGLE MEMBER OR TRUSS TYPE. PLAN SHEET SHALL SPECIFY WHICH IS TO BE USED. IF NOT SPECIFIED, OPTIONAL, OR IF REPLACEMENT, MATCH EXISTING OR SURROUNDING TYPE.
14. POLE OFFSET (FACE OF POLE TO BACK OF GUARDRAIL) SHALL BE EQUAL TO OR GREATER THAN THE DEFLECTION DISTANCE SHOWN IN THE CHART. (SEE E-180B)
15. POLES FOR ORNAMENTAL LIGHTING ARE AVAILABLE IN MANY MATERIALS, SHAPES, STYLES AND LENGTHS, PLANS SHALL SPECIFY.

REVISIONS AND CORRECTIONS

AUG. 9, 1995 - DATE OF ORIGINAL ISSUE

APPROVED

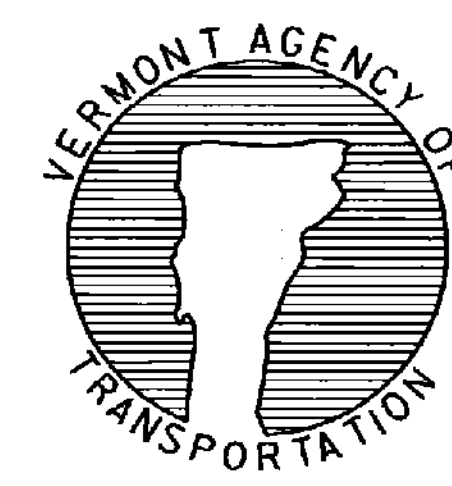
Ernest B. MacArthur
DIRECTOR OF ENGINEERING

David A. Rose
TRAFFIC AND SAFETY ENGINEER

STREET LIGHTING DETAILS

THIS SHEET
NOT TO SCALE

OTHER STDS.
REQUIRED
E-180B, E-181

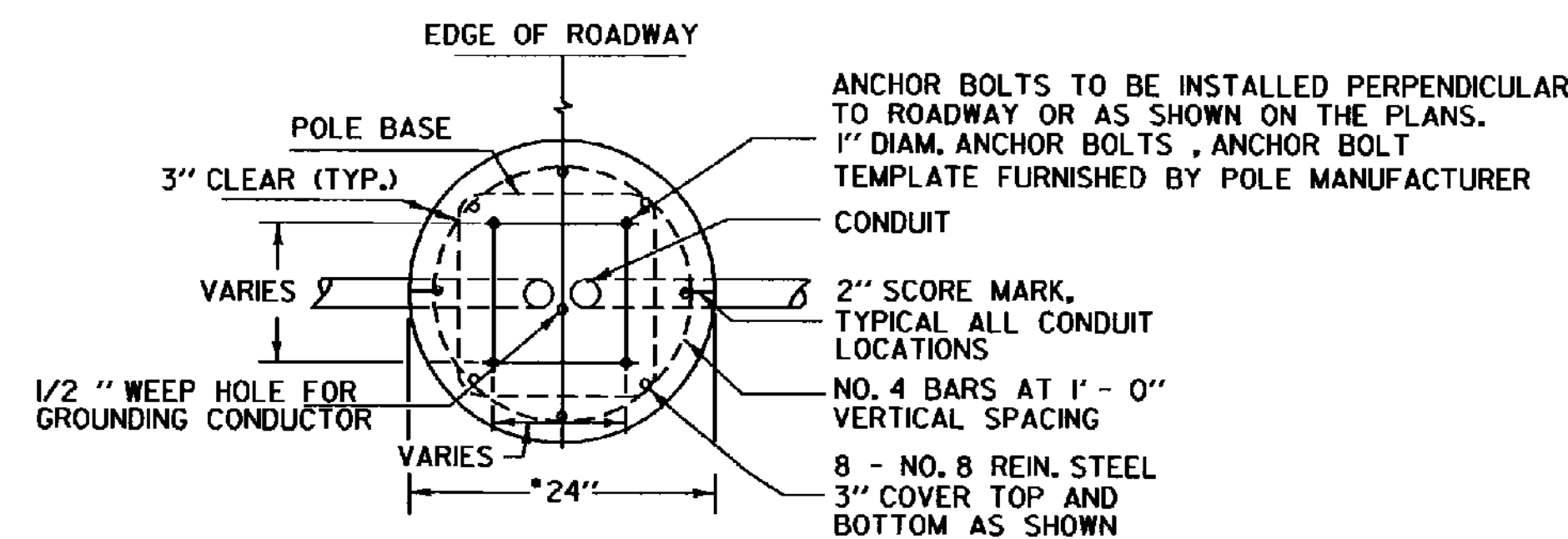


STANDARD
E-180A

APPROVED FOR THIS PROJECT
AND/OR DESIGN IMPLEMENTATION.
FHWA FINAL APPROVAL PENDING.

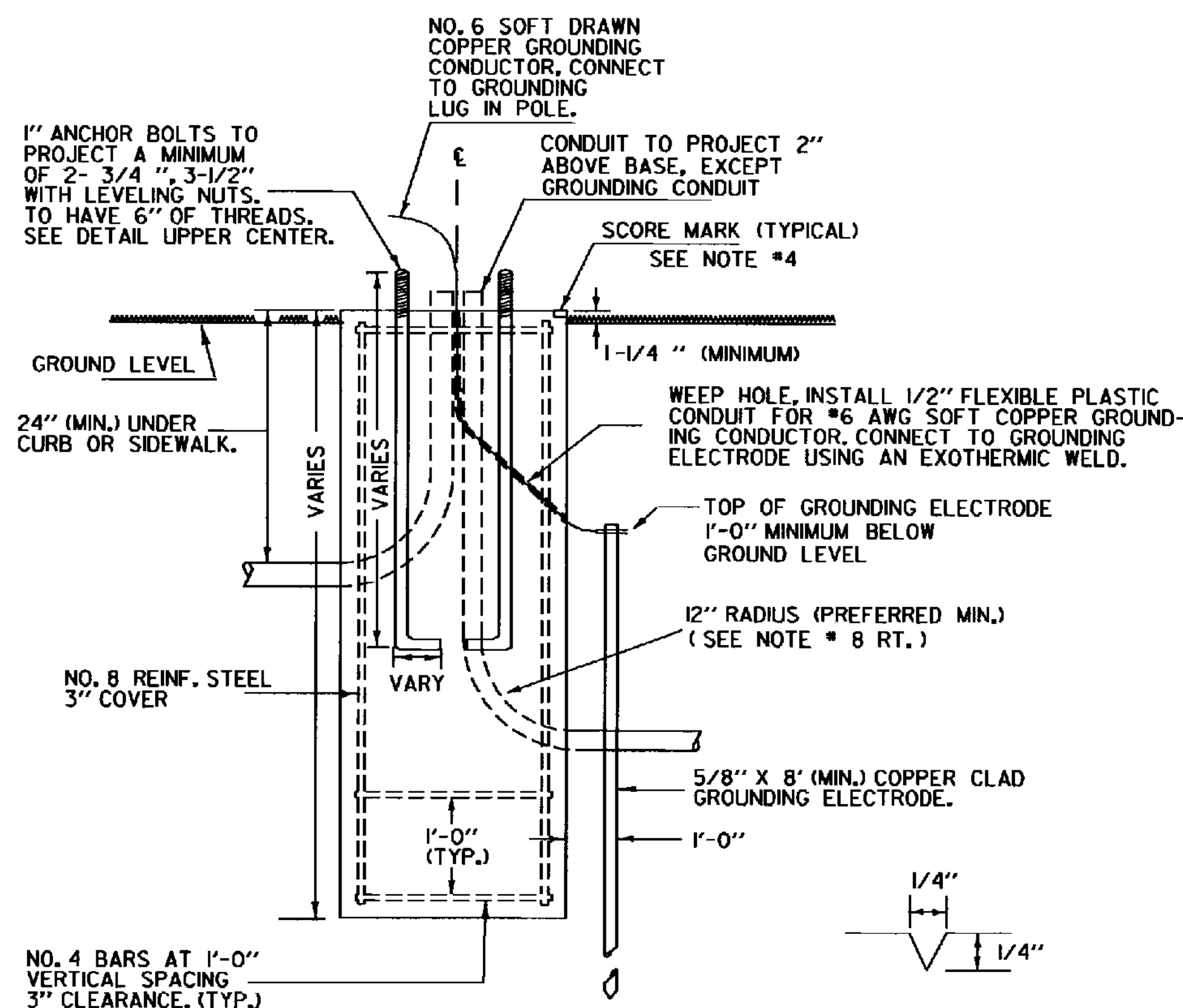
/trac/std/stdel80a.dgn/stdel80a.i

CONCRETE BASE



PLAN VIEW

NOTE: SEE CHART AT RIGHT AND NOTE BELOW CHART FOR OTHER ANCHOR BOLT DIMENSIONS.

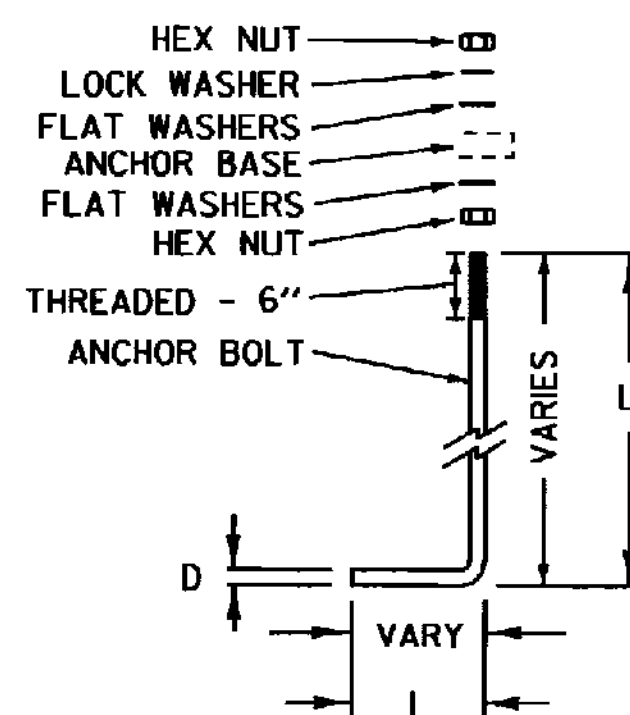


ELEVATION

SCORE MARK DETAILS

NOTES:

THERE ARE FOUR BASIC SIZES FOR CONCRETE BASES, 2 FEET X 4 FEET TO BE USED WITH POLE TOP MOUNTED LUMINAIRES WITH A MOUNTING HEIGHT OF LESS THAN 20 FEET. A CONCRETE BASE SIZE OF 2 FEET X 6 FEET FOR POLES WITH LESS THAN 40 FOOT MOUNTING HEIGHT AND ARMS UP TO 8 FEET IN LENGTH. THIRD, A BASE SIZE OF 2-1/2 FEET X 6 FEET FOR POLES WITH LESS THAN 40 FOOT MOUNTING HEIGHT AND ARMS LESS THAN 10 FEET IN LENGTH WHICH WILL BE INSTALLED ON A TRANSFORMER BASE. FORTH, A BASE SIZE 2-1/2 FEET X 8 FEET FOR A 40 FOOT OR GREATER MOUNTING HEIGHT, A 10 FOOT OR GREATER ARM LENGTH WITH OR WITHOUT TRANSFORMER BASE.



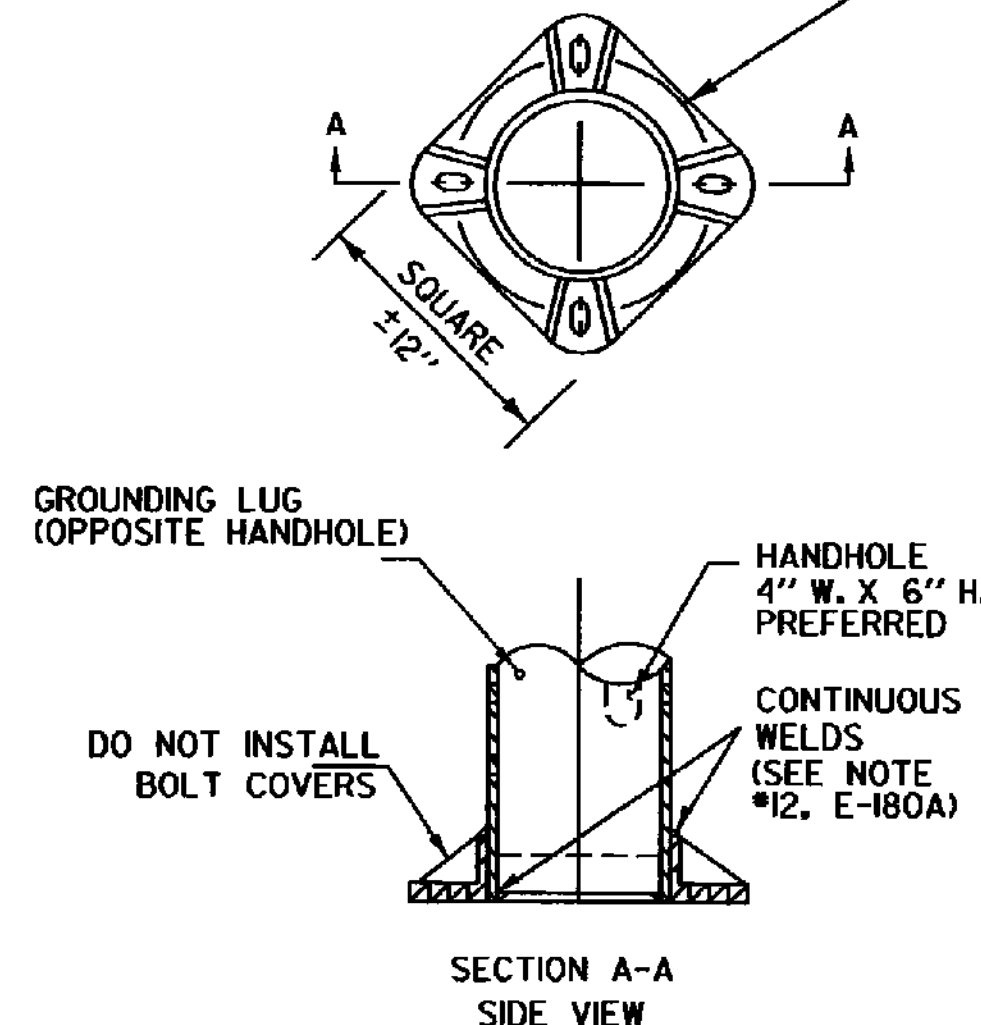
ALL ANCHOR BOLTS TO BE STAINLESS STEEL

MOUNTING HEIGHT	NO. OF ARMS	ANCHOR BASE				SLIP BASE			
		D	L	I	UNC	D	L	I	UNC
30	1	1	36	4	8	1-1/4	42	6	7
	2	1	36	4	8	1-1/4	42	6	7
35	1	1	36	4	8	1-1/4	42	6	7
	2	1-1/4	42	6	7	1-1/4	42	6	7
40	1	1	36	4	8	1-1/4	42	6	7
	2	1-1/4	42	6	7	1-1/4	42	6	7

NOTE:

FOR MOUNTING HEIGHTS LESS THAN 30 FEET, USE THE ANCHOR BOLT DIMENSIONS AS RECOMMENDED BY THE POLE MANUFACTURER. LENGTH, HOOK, DIAMETER AND BOLT PROJECTION.

TOP VIEW OF ANCHOR BASE (NON-BREAKAWAY)



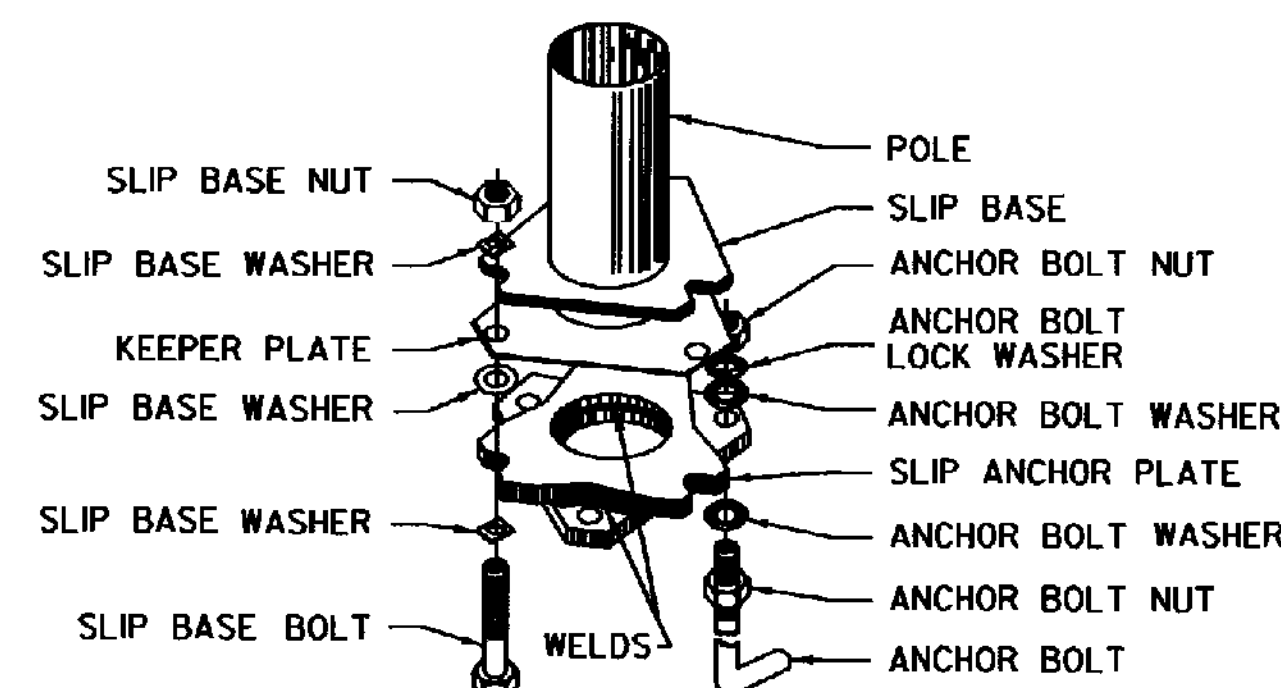
ANCHOR BASE

NOTES:

- DIMENSIONS SHOWN FOR ANCHOR BASE AND TRANSFORMER BASE MAY VARY SLIGHTLY WITH DIFFERENT MANUFACTURERS.
- ANCHOR BOLT TEMPLATE FURNISHED BY POLE MANUFACTURER.

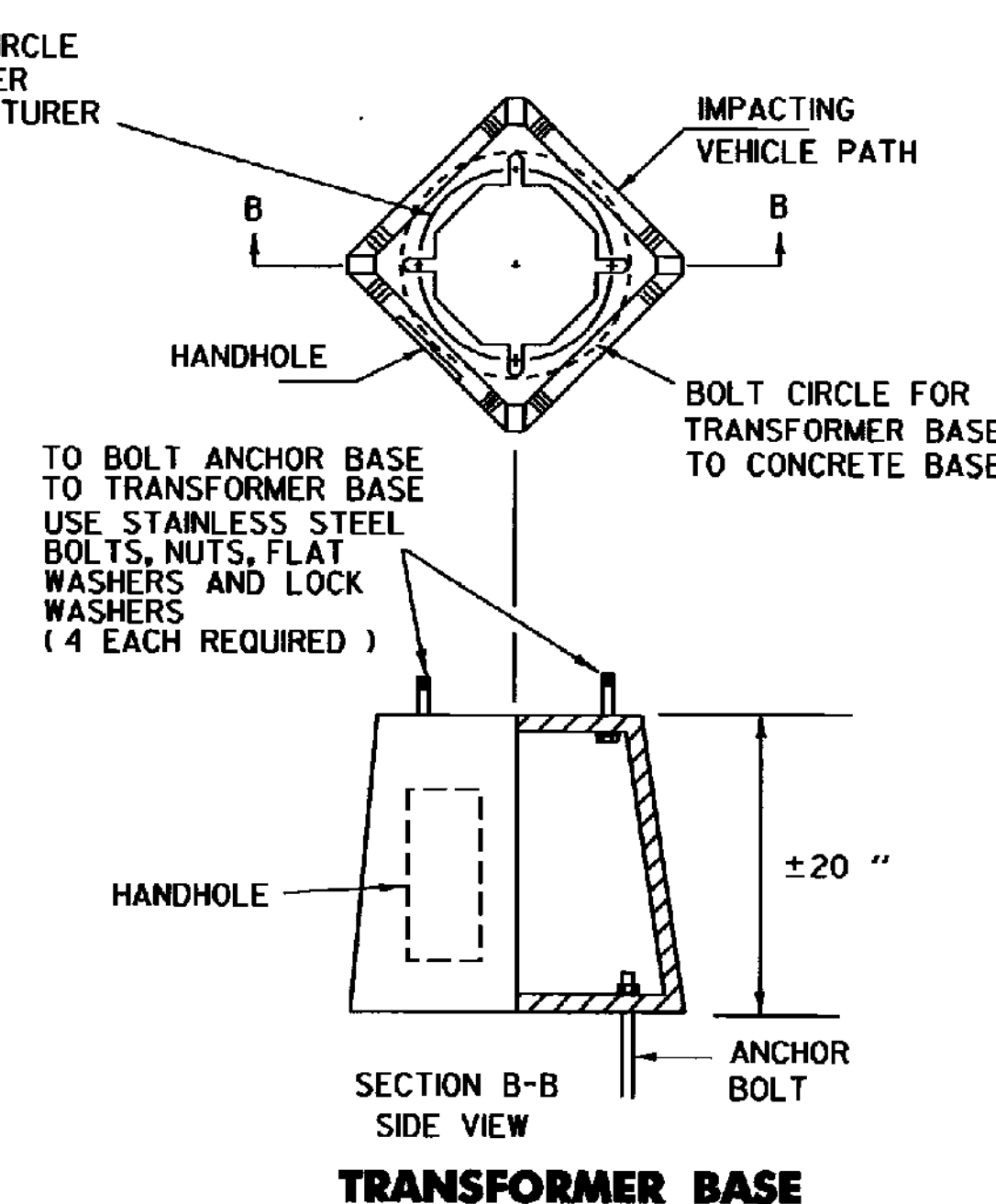
VARIOUS BREAKAWAY OPTIONS

TYPE SHALL BE SPECIFIED ON PROJECT PLANS



SLIP BASE ASSEMBLY (BREAKAWAY)

TOP VIEW OF TRANSFORMER BASE (RECOMMENDED BREAKAWAY FEATURE)



TRANSFORMER BASE

- FOR BREAKAWAY DESIGN A TRANSFORMER BASE, BREAKAWAY COUPLINGS, SLIP BASE OR OTHER APPROVED METHOD SHALL BE INSTALLED BETWEEN THE ANCHOR BASE AND THE CONCRETE BASE.

CONCRETE BASE AND GENERAL NOTES

- ALL CONCRETE BASES TO BE CONCRETE, CLASS B, AND SHALL HAVE A SMOOTH LEVEL TOP SURFACE FINISHED WITH A 1/2 INCH RADIUS EDGING TOOL.
- ALL REINFORCING STEEL TO CONFORM TO THE REQUIREMENTS FOR "REINFORCING STEEL."
- TEMPLATE FOR ANCHOR BOLTS, STAINLESS STEEL ANCHOR BOLTS, NUTS, AND WASHERS TO BE OBTAINED BY CONTRACTOR PRIOR TO CONSTRUCTION OF BASES.
- SCORE TOP OF CONCRETE BASE TO SHOW LOCATION OF CONDUIT(S).
- CONDUIT SIZE - AS SHOWN ON THE PLANS.
- ALL EXPOSED METAL HARDWARE SHALL BE GALVANIZED OR STAINLESS STEEL.
- IF THE ELECTRICAL CONDUIT IN THE CONCRETE BASE IS GALVANIZED STEEL, GROUNDING BUSHINGS SHALL BE USED.
- THE MINIMUM RADIUS FOR RIGID METALLIC OR NON-METALLIC ELECTRICAL CONDUIT SHALL BE SIX TIMES THE INSIDE DIAMETER OF THE CONDUIT.
- SEE STANDARD SHEET E-173 FOR PULL BOX DETAIL.
- ANY BREAKAWAY FEATURE WHICH HAS BEEN APPROVED FOR USE ON FEDERAL AID HIGHWAY PROJECTS AND MEET THE 1985 "AASHTO" REQUIREMENT FOR A BREAKAWAY FEATURE MAY BE USED UNLESS A SPECIFIC TYPE IS STATED ON THE PLANS.

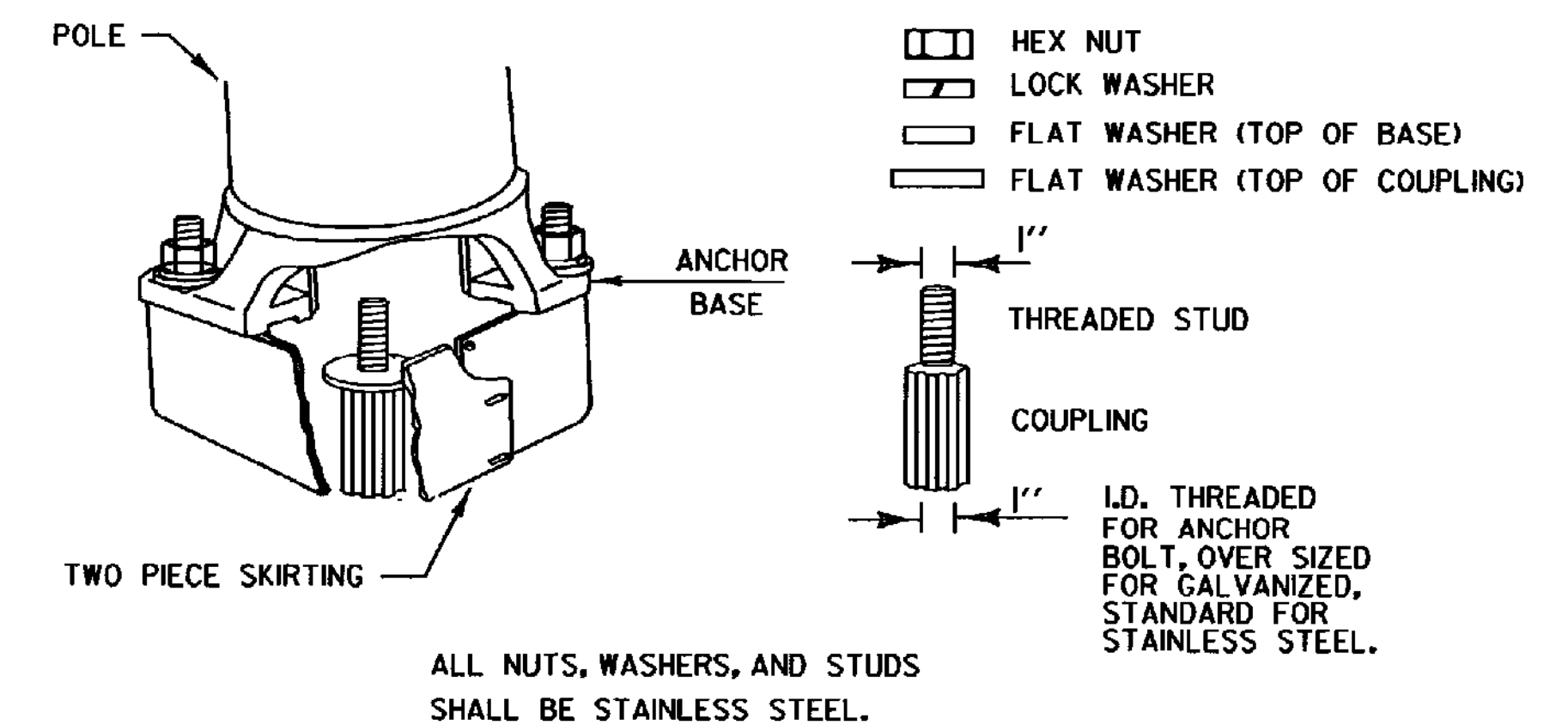
GUARDRAIL DEFLECTION CHART

PER AASHTO - ROADSIDE DESIGN GUIDE 1988

TYPE	GR POST SPACING	DEFLECTION
THREE CABLE W/STEEL POSTS	16' - 0"	12'
W/WOODEN POSTS	12' - 6"	12'
W-BEAM	W/WEAK POST	12' - 6"
	W/STRONG POST	6' - 3"
BOX BEAM		6' - 0"
THREE BEAM	W/WEAK POST	12' - 6"
	W/STRONG POST	6' - 3"

THIS CHART LISTS THE THEORETICAL DEFLECTION DISTANCE UPON IMPACT OF VARIOUS GUARDRAIL WITH DIFFERENT TYPES AND SPACINGS OF POSTS.

STAINLESS STEEL BREAKAWAY SUPPORT COUPLINGS



ALL NUTS, WASHERS, AND STUDS SHALL BE STAINLESS STEEL.

REVISIONS AND CORRECTIONS

AUG. 9, 1995 - DATE OF ORIGINAL ISSUE

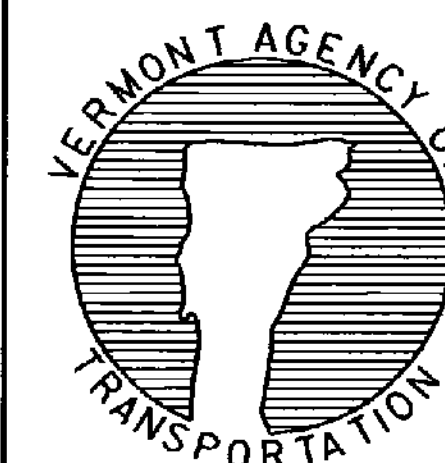
APPROVED

Stephen D. MacArthur
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

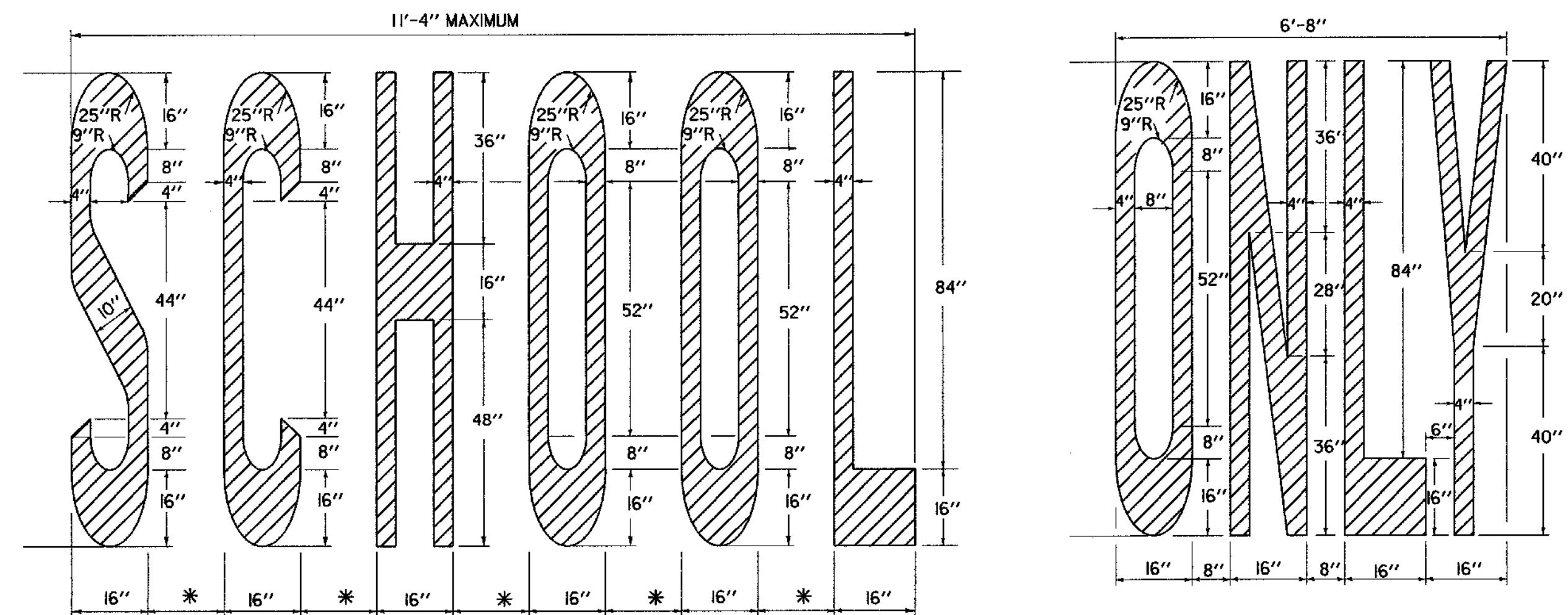
STREET LIGHTING DETAILS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

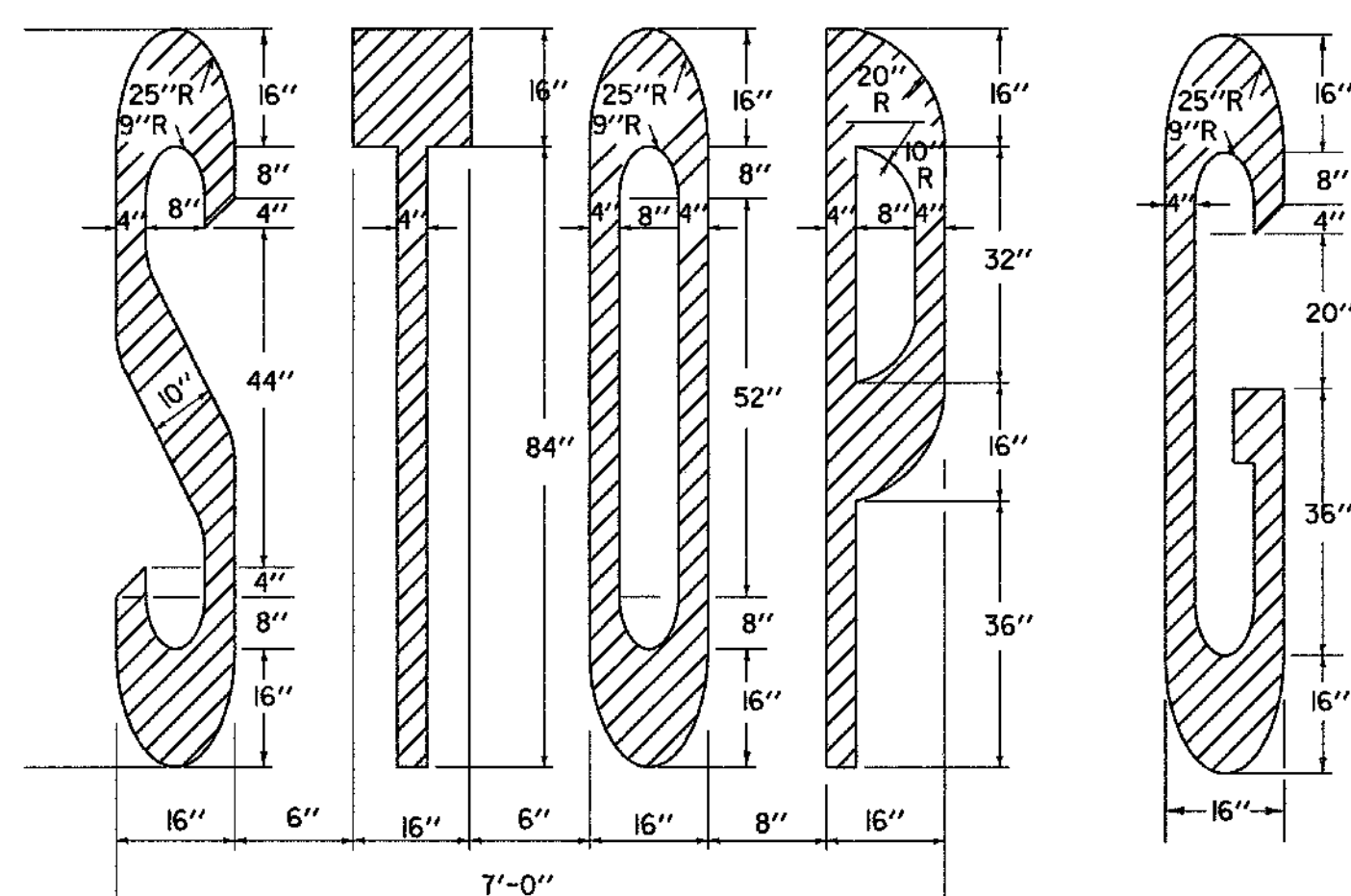
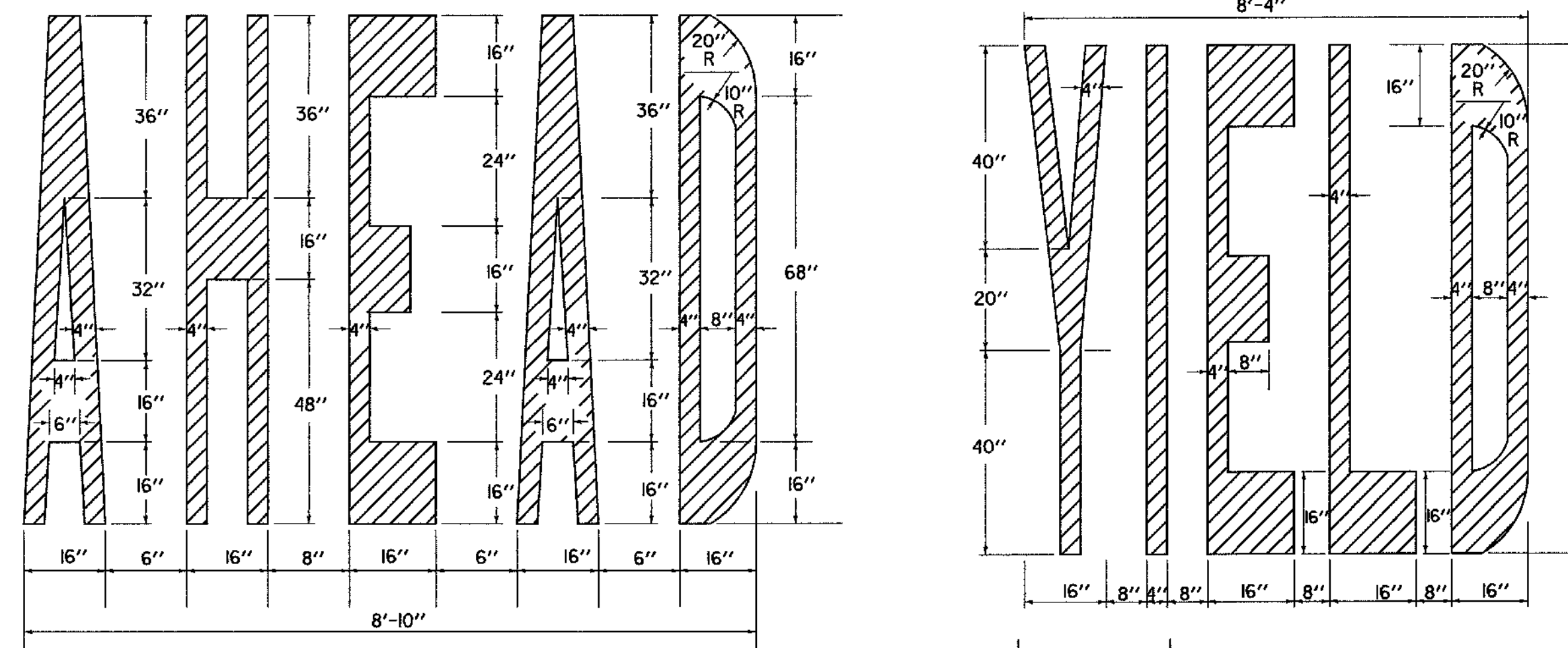


STANDARD
E-180B

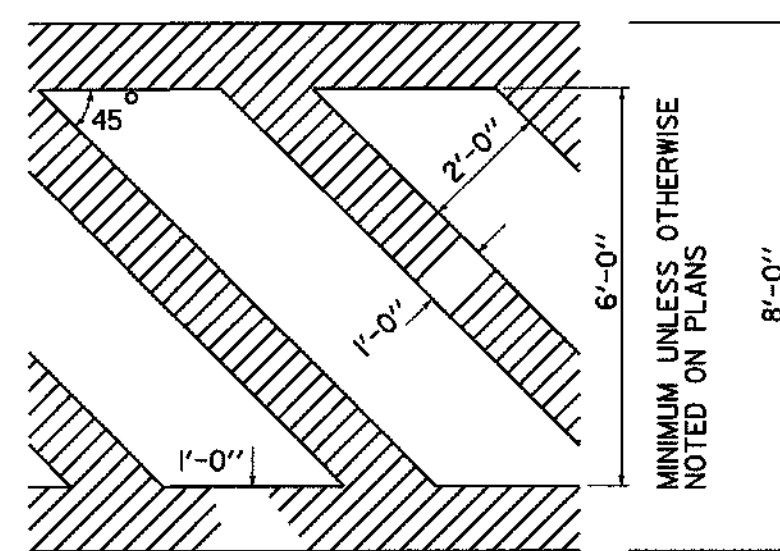
/trac/std/stdel80b.dgn/stdel80b.1



* (4''-8'') - ADJUST TO AVAILABLE PAVEMENT WIDTH

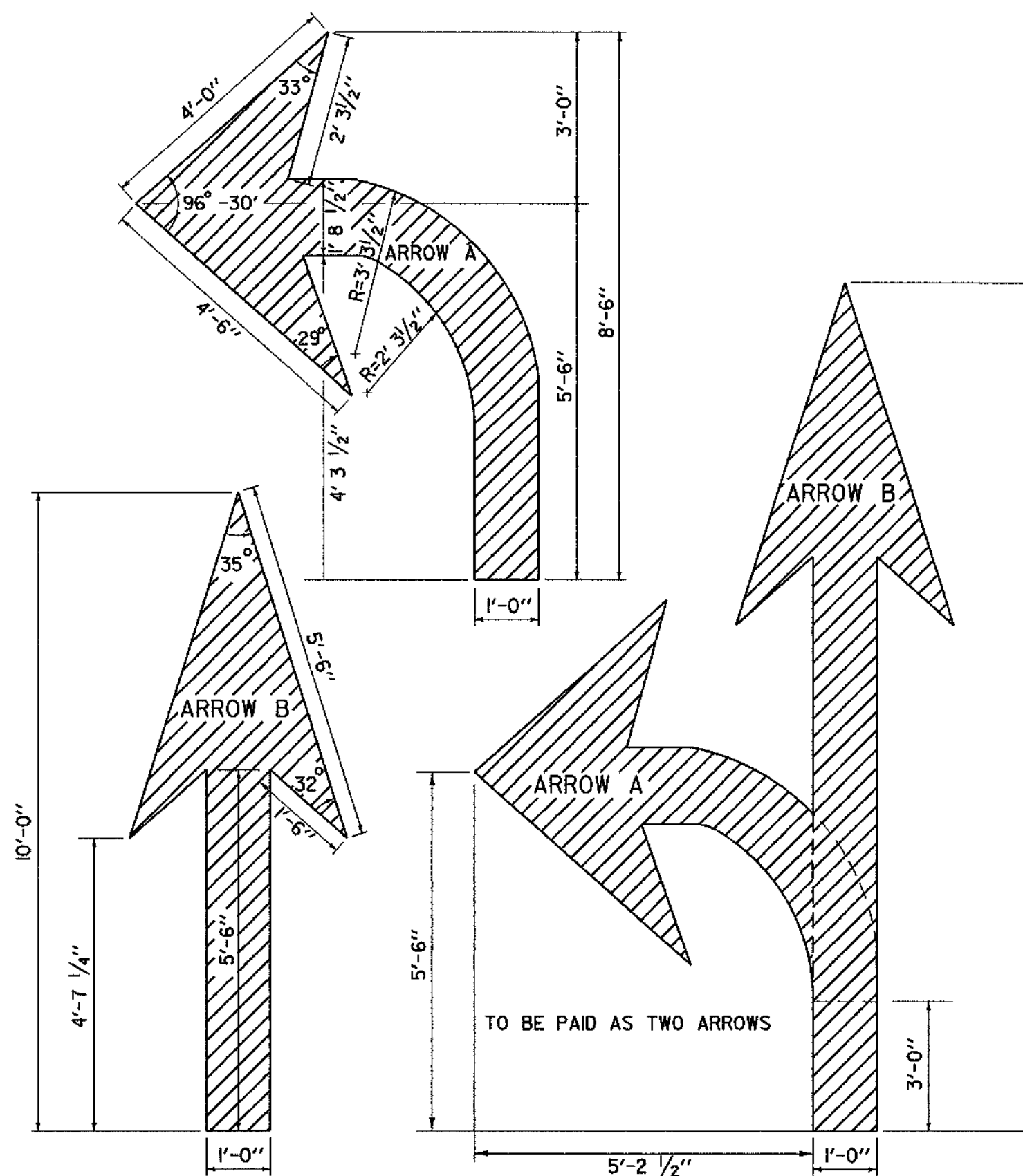


THE LETTER "G"
PERTAINS TO THE
WORD "SIGNAL"
FOR OTHER
LETTERS, SEE
ABOVE.

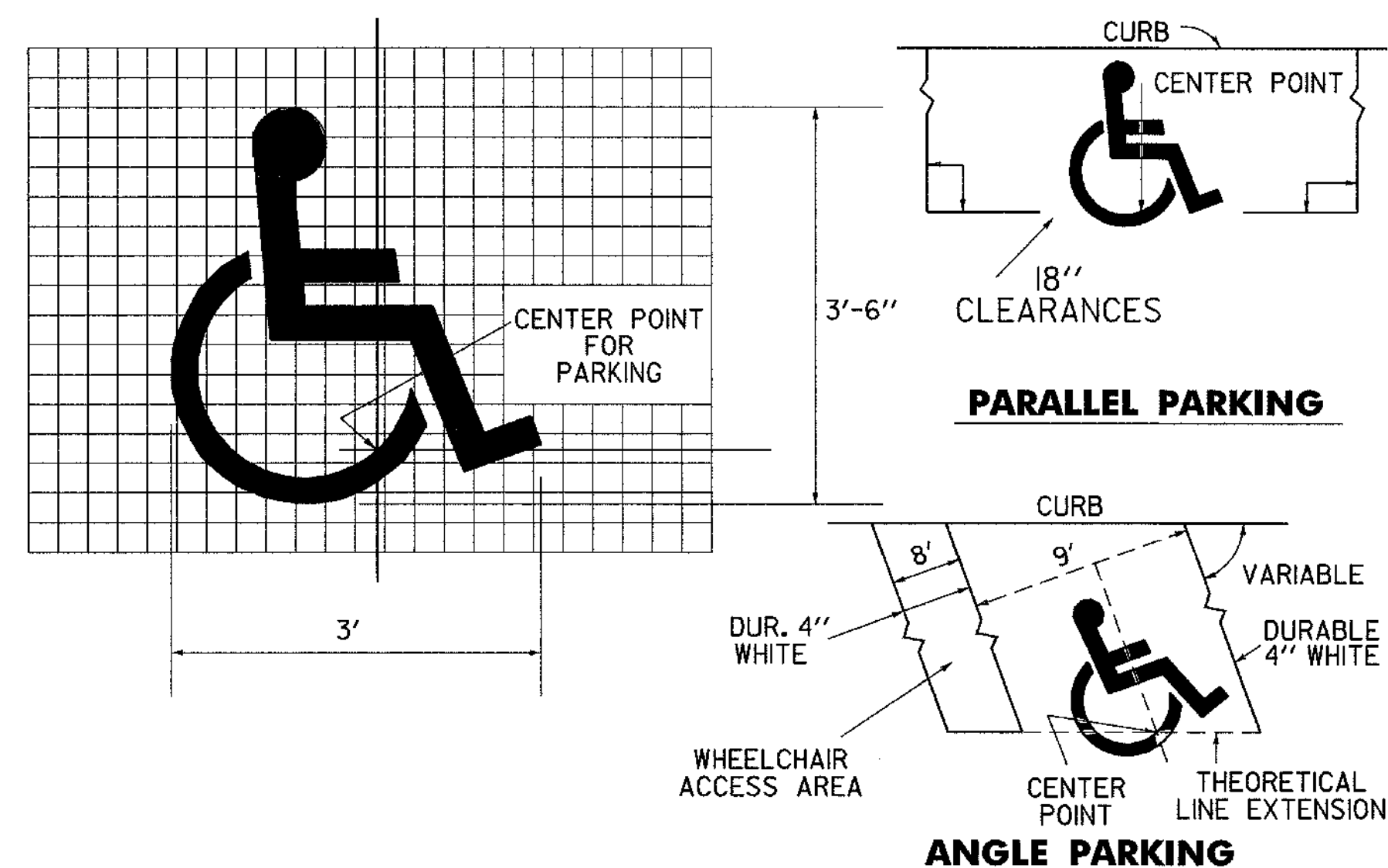


ARROWS AND WORD MARKINGS THAT CONFORM TO THE DIMENSIONS SHOWN ON THIS SHEET OR AS DETAILED IN THE BOOKLET ENTITLED "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" AND THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (CURRENT EDITION) PREPARED BY THE FEDERAL HIGHWAY ADMINISTRATION WILL BE ACCEPTABLE.

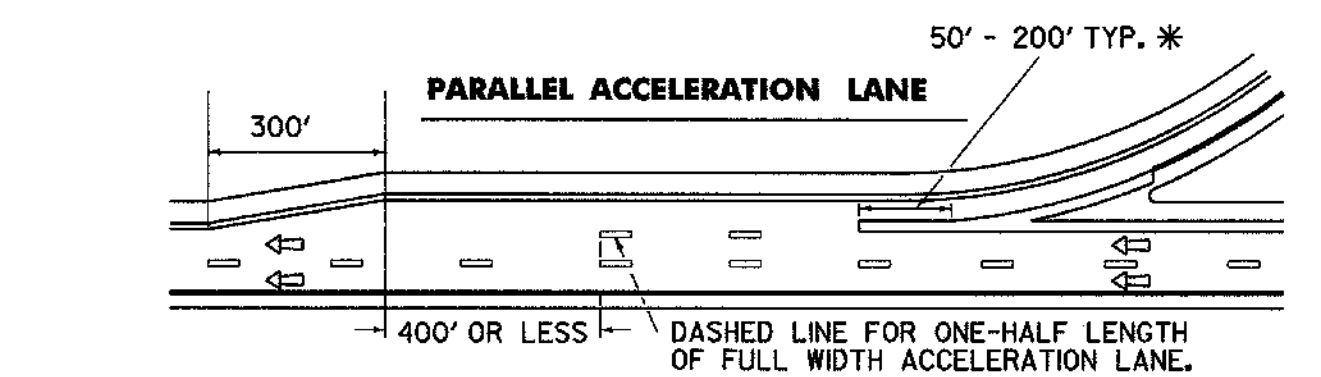
LETTER IN WORD MARKING AND CROSSWALK DETAILS



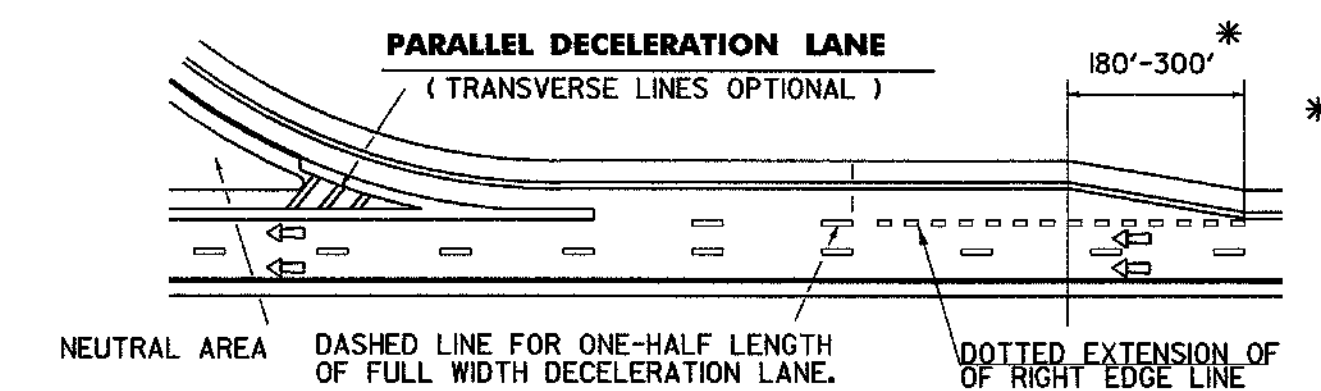
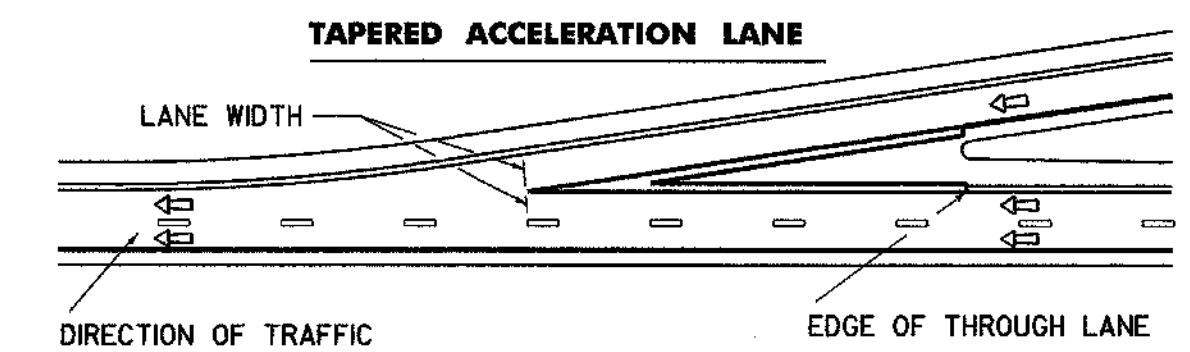
ARROW DETAILS



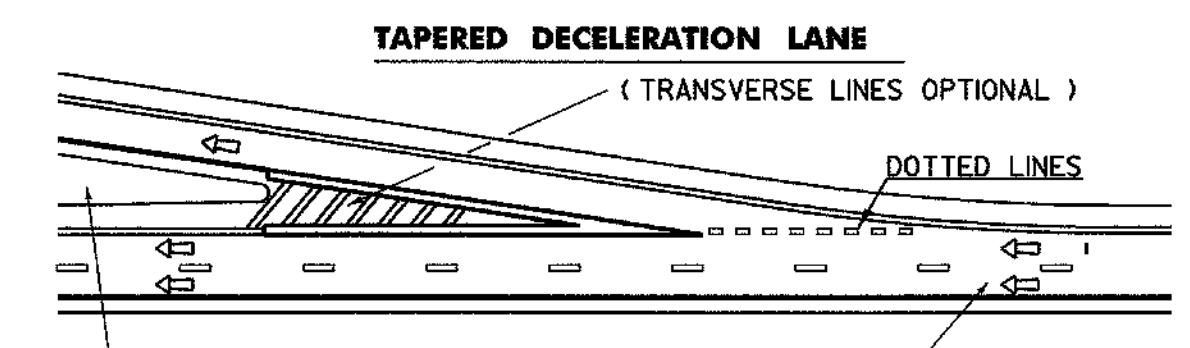
HANDICAPPED PAVEMENT MARKING DETAILS



* USE LONGER LENGTH
TO EMPHASIZE SITUATIONS
WHERE THE CROSSING
REQUIRES UNUSUAL CARE
SUCH AS HIGH VOLUME
MERGE AREAS.



*
SHORTER TAPERS GIVE
A BETTER TARGET
VALUE, HOWEVER ALIGN-
MENT MAY DICTATE A
LONGER TAPER. RESIDENT
ENGINEER SHALL ESTIMATE
LENGTH.



NEUTRAL AREA DIRECTION OF TRAFFIC

TRANSVERSE LINES SHALL CONSIST OF A WHITE LINE 2 TIMES WIDER THAN THE MAIN LINE MARKING WIDTH SPACED 5'-0" C-C

AND SET AT 45° TO MAIN LINE EDGE LINES. THESE MARKINGS SHALL BE USED TO INCREASE VISIBILITY DUE TO DIFFICULT VERTICAL OR HORIZONTAL ALIGNMENT, AS DIRECTED BY THE RESIDENT ENGINEER.

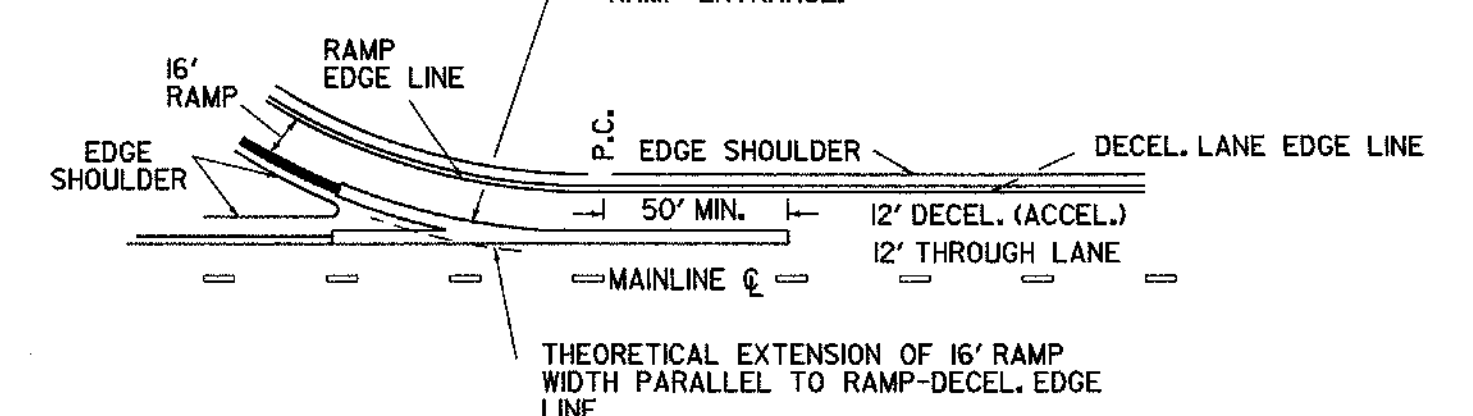
LEGEND

- | | |
|---|--|
|  | WHITE LINES |
|  | YELLOW LINES |
|  | CHANNELIZATION WHITE LINES |
|  | WHITE DOTTED LINES (2' SOLID - 4' GAP) |
|  | DIRECTION OF TRAFFIC FLOW |

RAMP MARKINGS

IMPORTANT NOTE

ACTUAL LOCATION OF GORE MARKING
TRANSITION CURVE MUST BE OFFSET
FROM THE THEORETICAL RAMP EXTENSION
LINE TO PROVIDE A VISUALLY SMOOTH
RAMP ENTRANCE.



DETAIL - GORE MARKING TRANSITION CURVE

REVISIONS AND CORRECTIONS

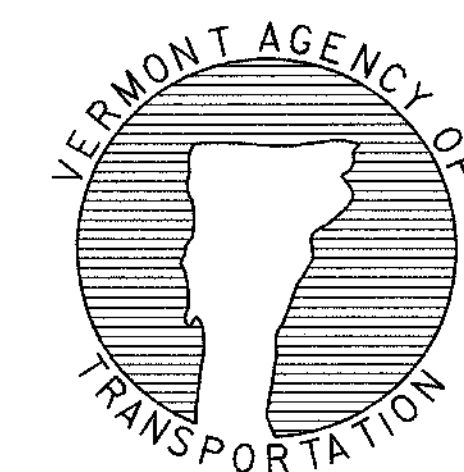
SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
JAN. 23, 1989 - ADDED DOTTED LINES, "SIGNAL"
DIMENSIONS, CLARIFIED LETTER HEIGHT.
AUG. 18, 1995 - MISC. NOTE CHANGES
FEB. 1, 1999 - CHANGED NOTES FOR ACCELERATION
& DECELERATION LANES

APPROVED

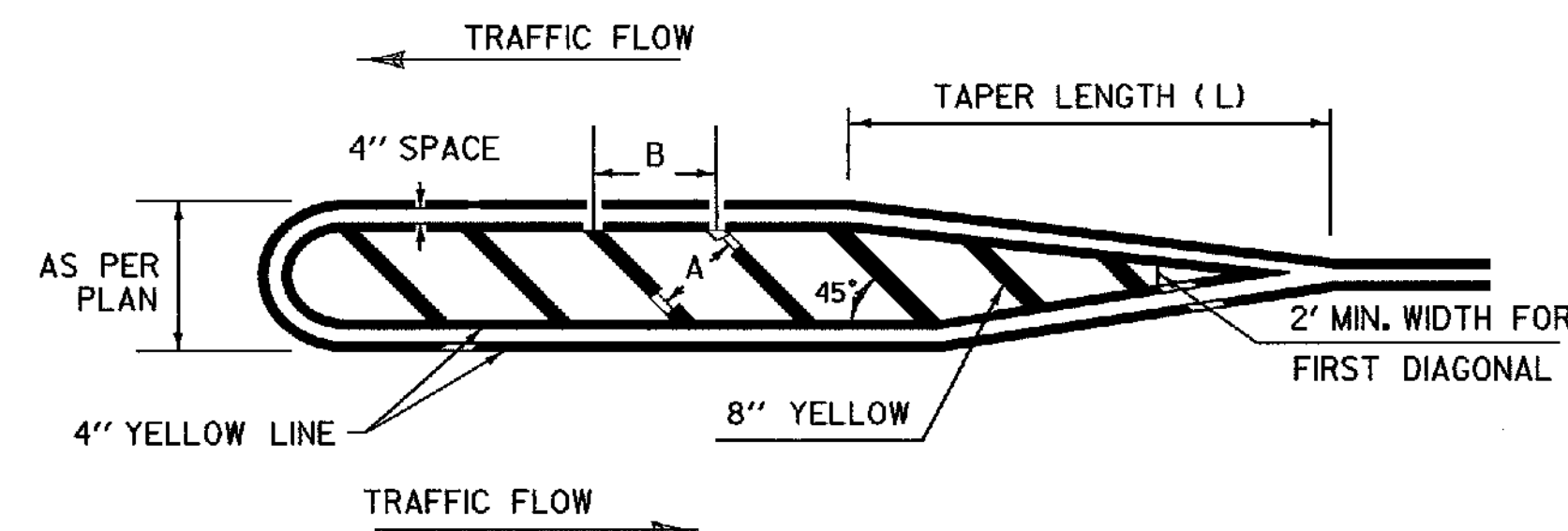
Robert F. Stallworth Acting
DIRECTOR OF PROJECT DEVELOPMENT

PAVEMENT MARKING DETAILS

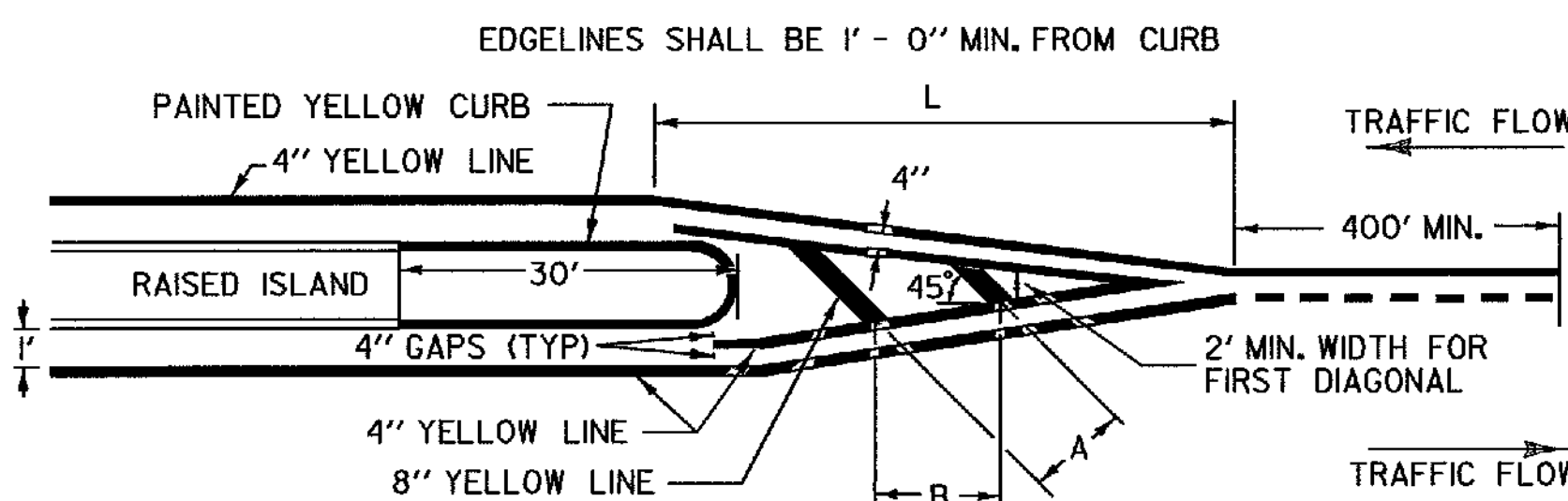
```
/traf/std/stdel9l.dgn/stdel9l.i
```



STANDARD E-191



PAINTED ISLAND DETAIL



ISLAND APPROACH MARKINGS

DIMENSIONS		CONDITIONS FOR USE	
A	B		
5'	7'	LOW SPEED OR HIGH SPEED/W POOR SIGHT DISTANCE, <200'	WHERE LENGTH OF DIAGONAL AREA IS 75' MAX.
10'	14'	HIGH SPEED AND GOOD SIGHT DISTANCE, ≥200'	WHERE LENGTH OF DIAGONAL AREA EXCEEDS 75'

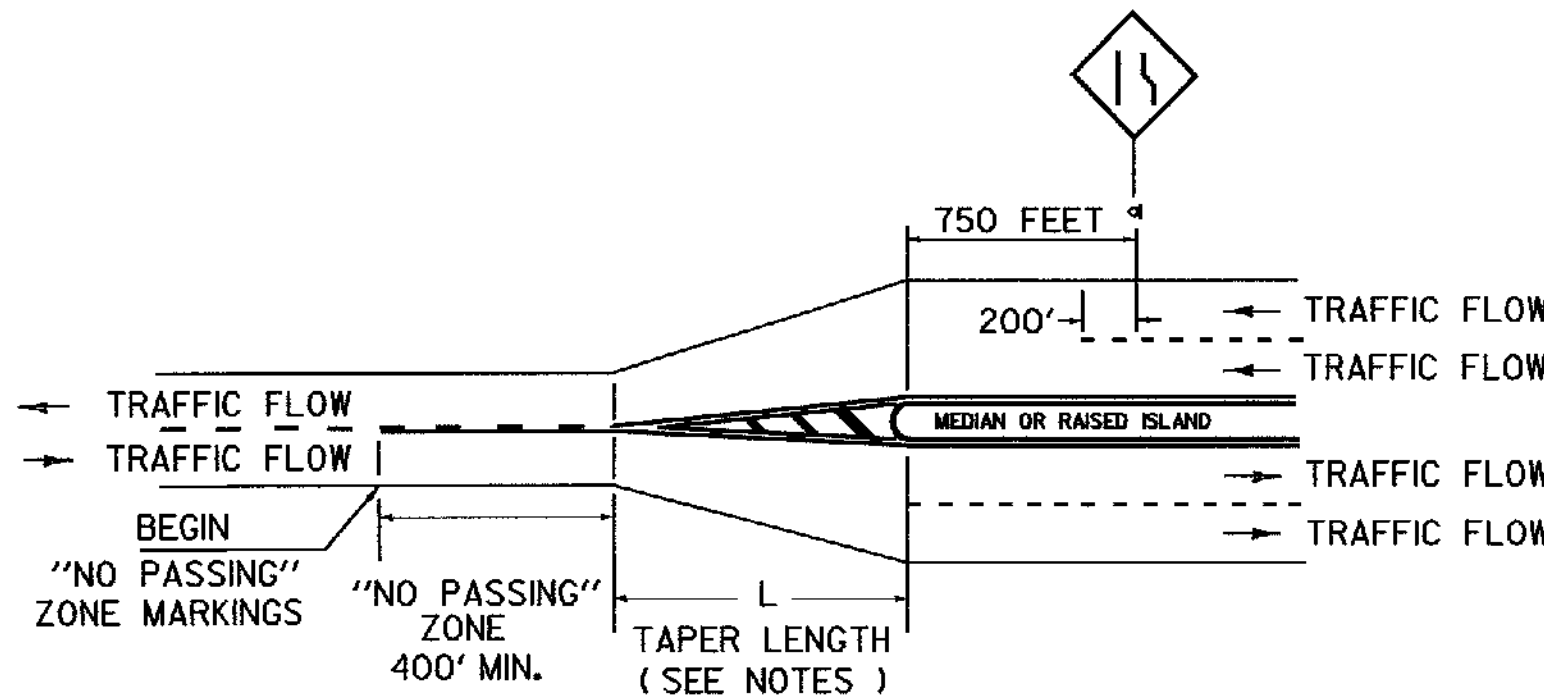
TAPER LENGTH NOTES

- FOR DESIGN OF LEFT OR RIGHT TURN LANES REFER TO VTRANS *GUIDELINE FOR DETERMINING STORAGE, TAPER AND DECELERATION LENGTHS FOR LEFT AND RIGHT-TURN LANES AT INTERSECTIONS*
- MINIMUM LENGTH OF TAPER = (L)
L = 100 FEET ≤ 30 mph
L = 180 FEET > 30 mph
- THE ENTIRE TAPER LENGTH MAY BE USED FOR DECELERATION.

NOTE:

A SOLID LINE IN THE DIRECTION OF TRAVEL IS BEGUN AT A LOCATION 400 FEET MIN. IN ADVANCE OF THE BEGIN TAPER FOR THE PAVEMENT WIDTH TRANSITION.

PASSING ZONE SHOWN FOR REFERENCE ONLY, ACTUAL MARKINGS BASED ON FIELD CONDITIONS.



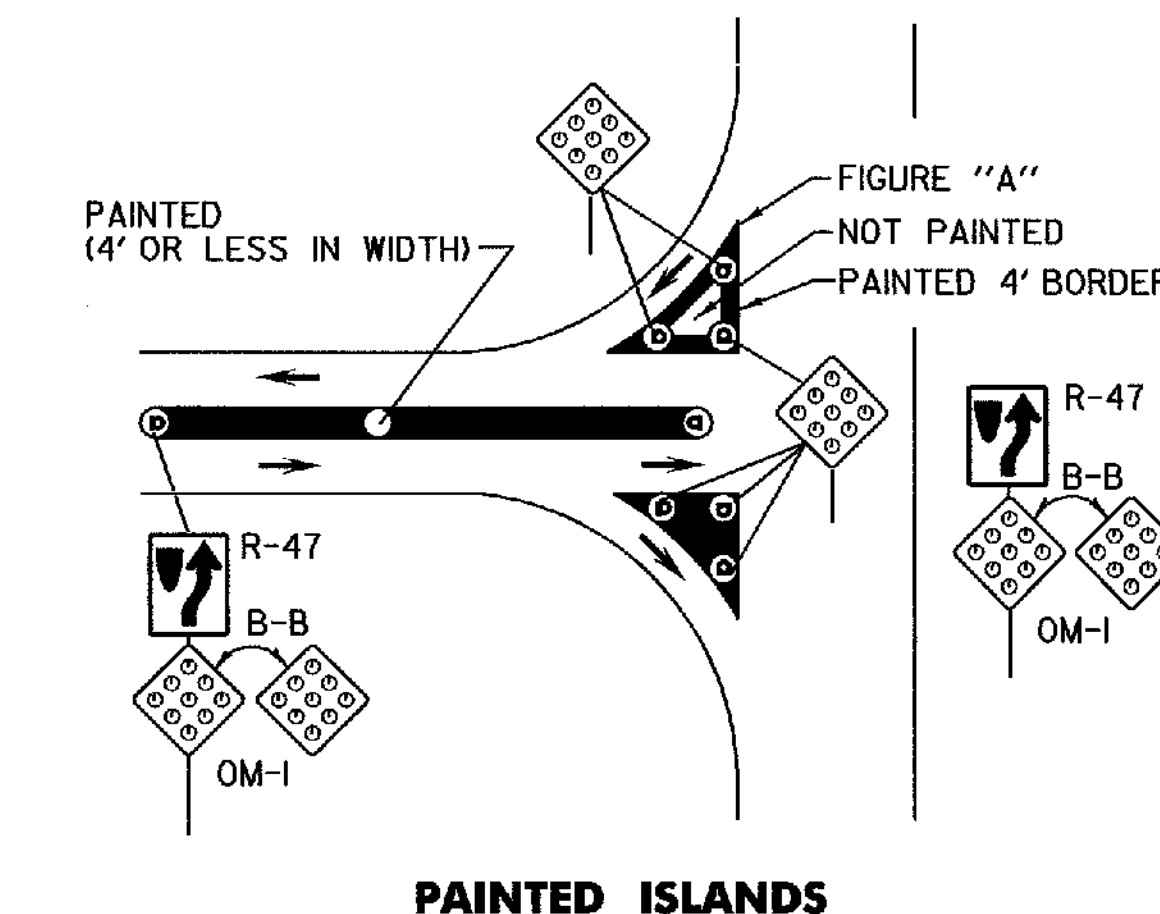
"NO PASSING" ZONE LAYOUT IN PAVEMENT WIDTH TRANSITIONS, TWO LANE HIGHWAY TO DIVIDED HIGHWAY

THE FOLLOWING GUIDELINES WILL BE USED WHEN PAINTING ISLAND ON STATE HIGHWAYS AND RECOMMENDED FOR ISLANDS ON OTHER SYSTEMS WITHIN THE STATE.

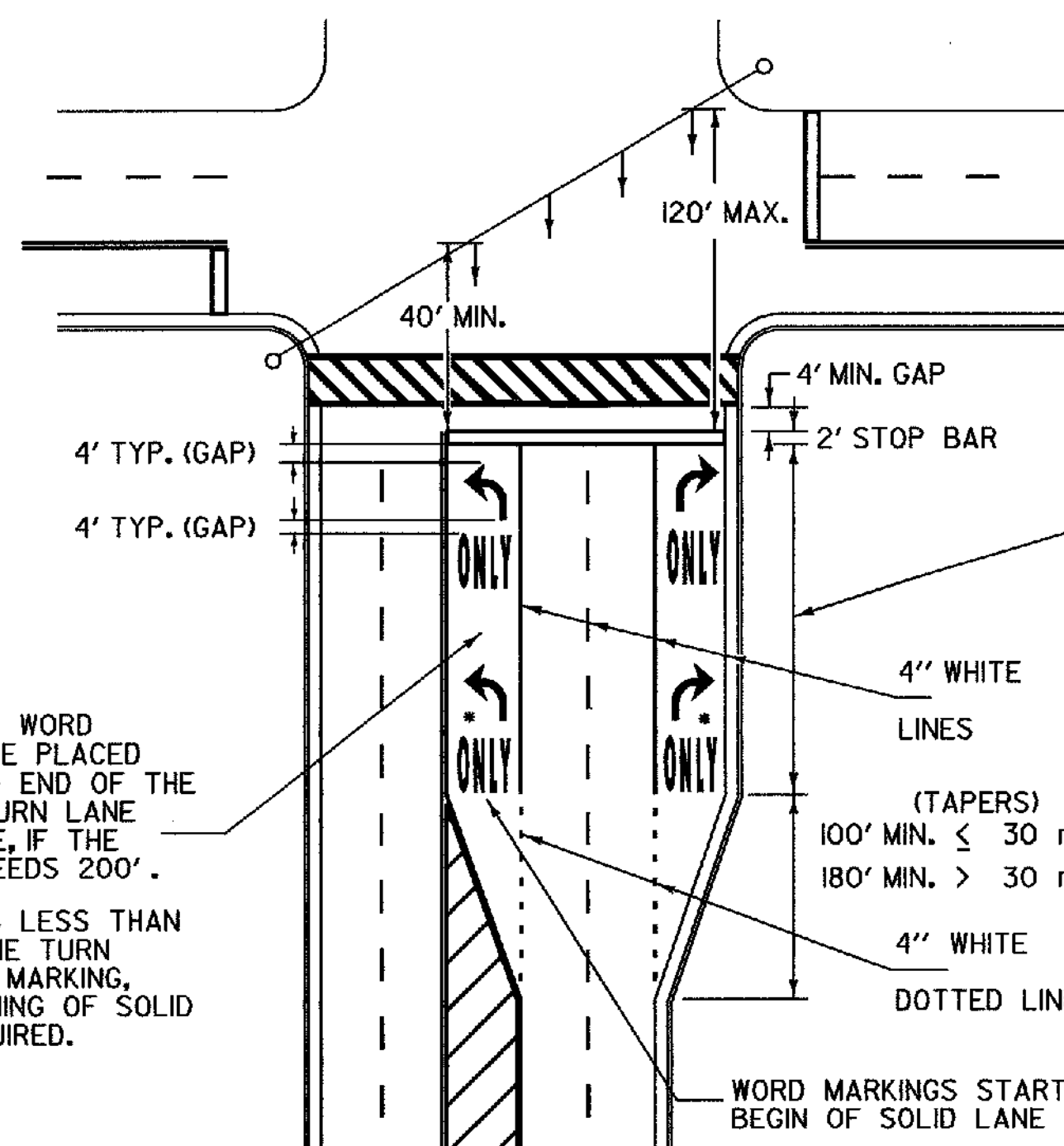
I. PAINTING: ISLANDS WHICH ARE FOUR FEET IN WIDTH AND TRIANGLE ISLANDS WHICH ARE LESS THAN FOUR HUNDRED AND FIFTY SQUARE FEET SHALL BE PAINTED ENTIRELY. TRIANGLES WHICH ARE FOUR HUNDRED AND FIFTY SQUARE FEET AND LARGER SHALL BE PAINTED WITH A FOUR FOOT BORDER AS SHOWN ON FIGURE "A" OF THE PAINTED ISLAND DETAIL.

II. SIGNS: ALL APPROACH NOSES TO THE ISLANDS IN THE LINE OF TRAFFIC WILL BE SIGNED WITH A KEEP RIGHT (R-47) SIGN AS WELL AS OBJECT MARKERS PLACED BACK TO BACK TO INDICATE THE BEGINNING (END) OF THE ISLAND.

III. EXCEPTIONS: THERE WILL BE SPECIAL CASES WHICH REQUIRE AN EXCEPTION TO, OR MODIFICATION OF THIS GUIDELINE. THESE QUESTIONS SHOULD BE REFERRED TO THE TRAFFIC DESIGN ENGINEER OR DELEGATED REPRESENTATIVE.



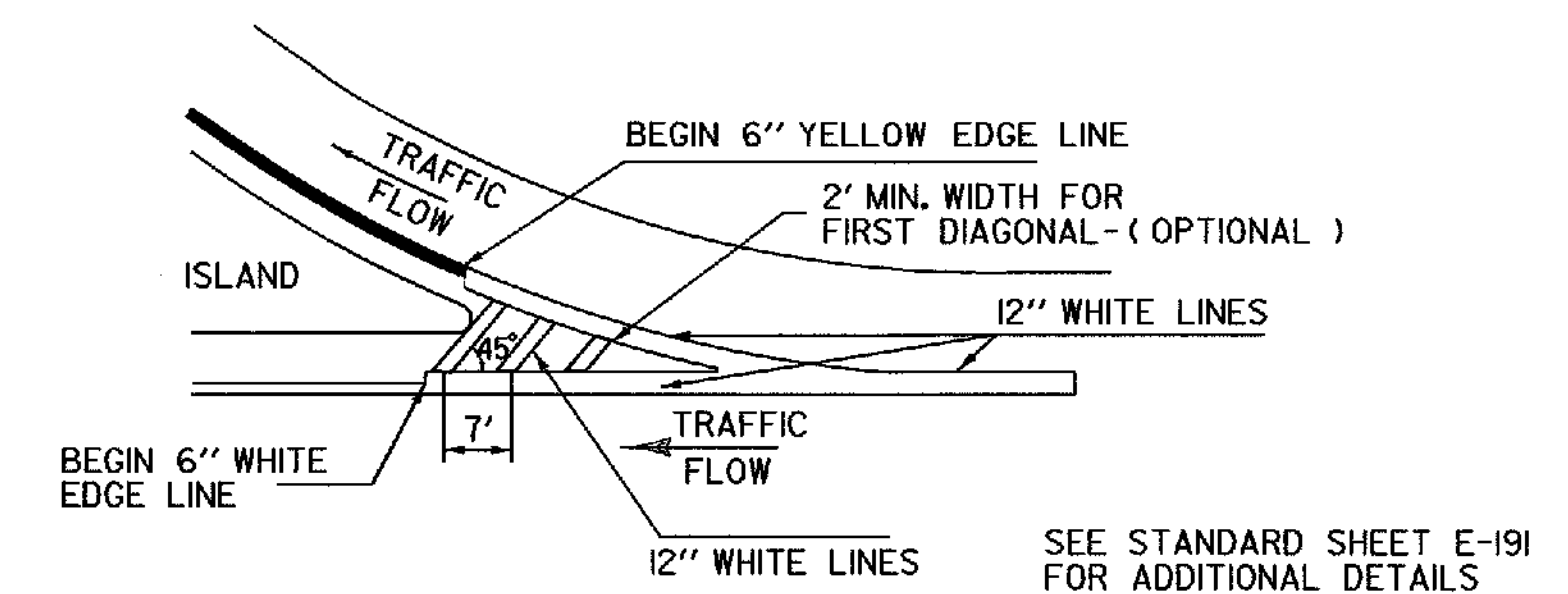
PAINTED ISLANDS



TYPICAL MARKINGS FOR SIGNALIZED INTERSECTION

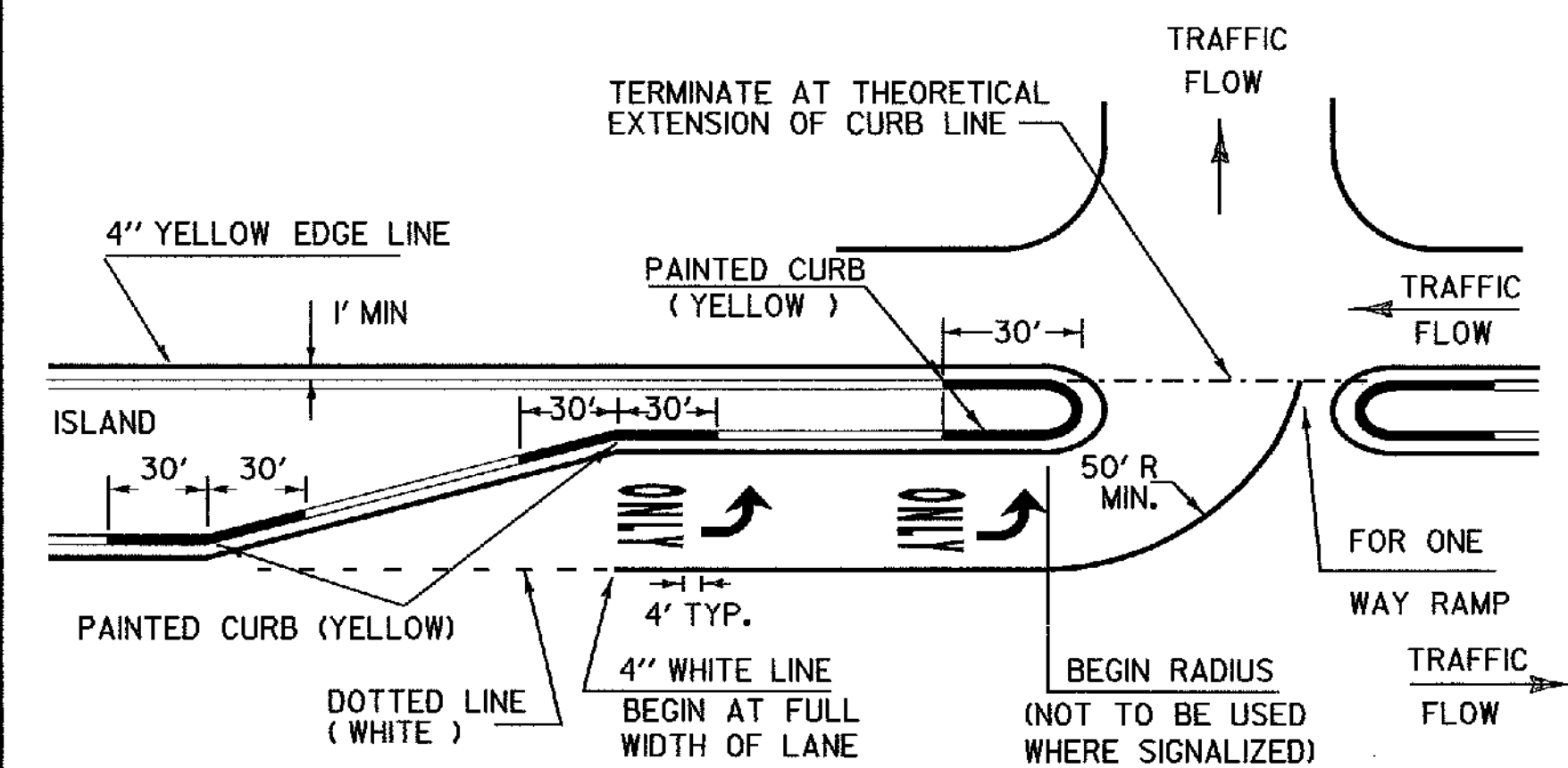
EXCLUSIVE TURN LANES (LEFT OR RIGHT) LANE LINES SHALL BE SOLID AND EXTEND BACK FROM THE STOP LINE TO THE POINT OF FULL LANE WIDTH OF THE TURN LANE.

FOR DESIGN OF LEFT OR RIGHT TURN LANES REFER TO VTRANS *GUIDELINE FOR DETERMINING STORAGE, TAPER AND DECELERATION LENGTHS FOR LEFT AND RIGHT-TURN LANES AT INTERSECTIONS*

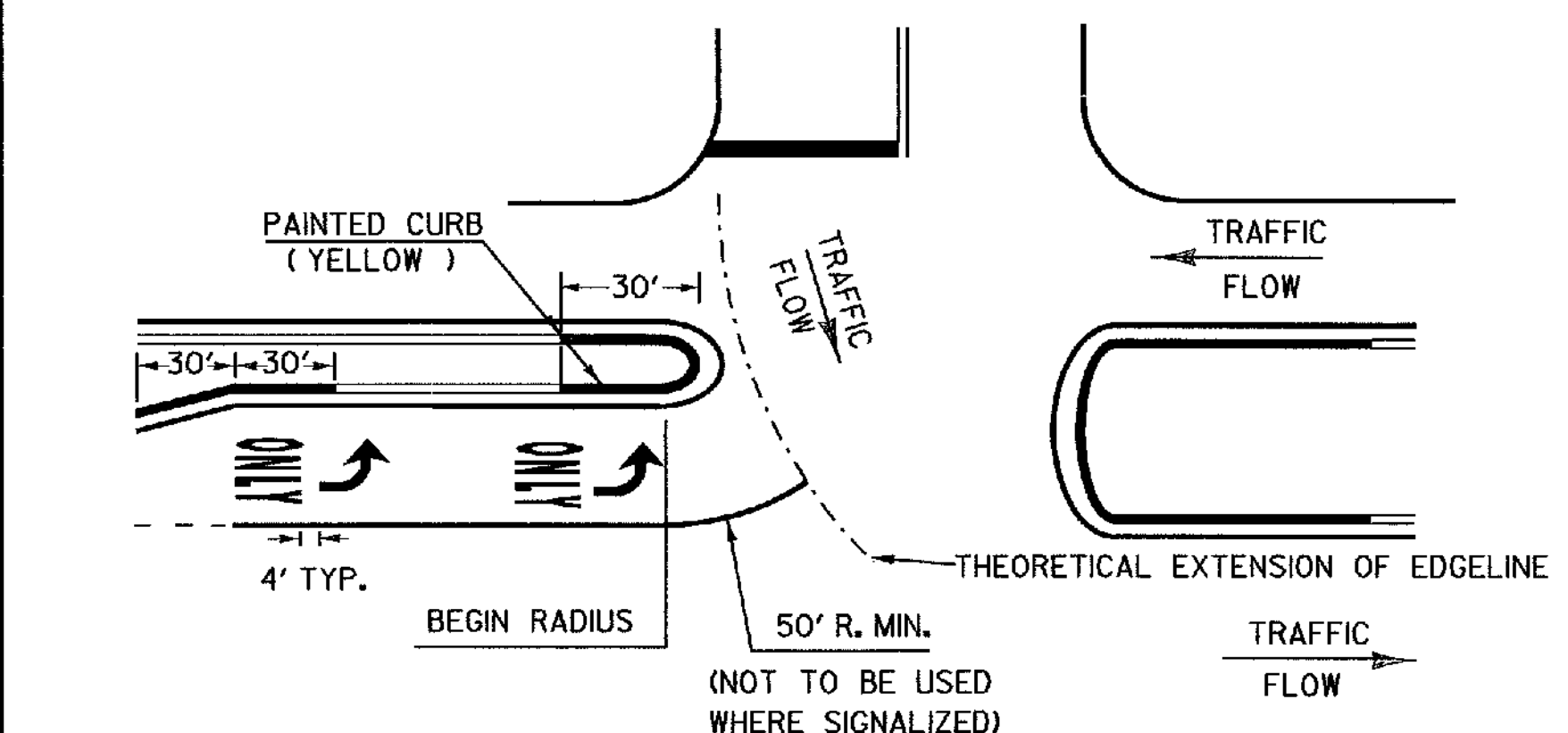


GORE MARKING DETAIL - EXIT

TRANSVERSE LINES



TURN LANE AND PAINTED CURB DETAIL



CURB PAINTING: CURB SHALL BE PAINTED ON THE ISLAND NOSE AND TO A POINT 30 FEET FROM THE END OF THE ISLAND. IN ADDITION, CURB SHALL BE PAINTED 30 FEET FROM ANY CHANGE IN CURB DIRECTION.

REVISIONS AND CORRECTIONS

AUG. 18, 1995 - DATE OF ORIGINAL ISSUE
OCT. 14, 1998 - CHANGED GORE MARKING DETAIL
DEC. 28, 1998 - CHANGED GORE MARKING HATCHING TO 12" PER FHWA
OCT. 12, 2000 - CHANGED TURN LANE CRITERIA

APPROVED

DIRECTOR OF PROJECT DEVELOPMENT
ROADWAY & TRAFFIC DESIGN ENGINEER

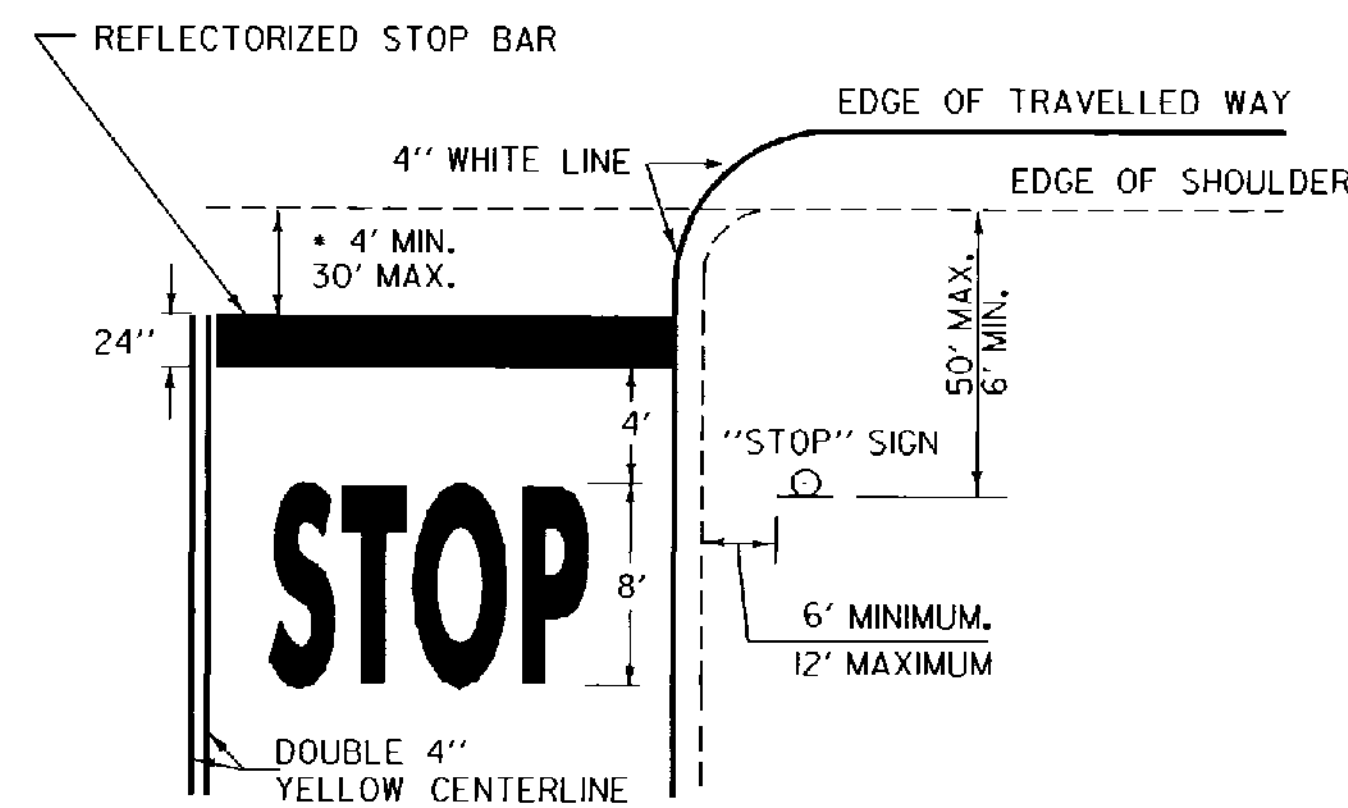
PAVEMENT MARKING DETAILS

THIS SHEET NOT TO SCALE

OTHER STDs. E-191 E-193 REQUIRED

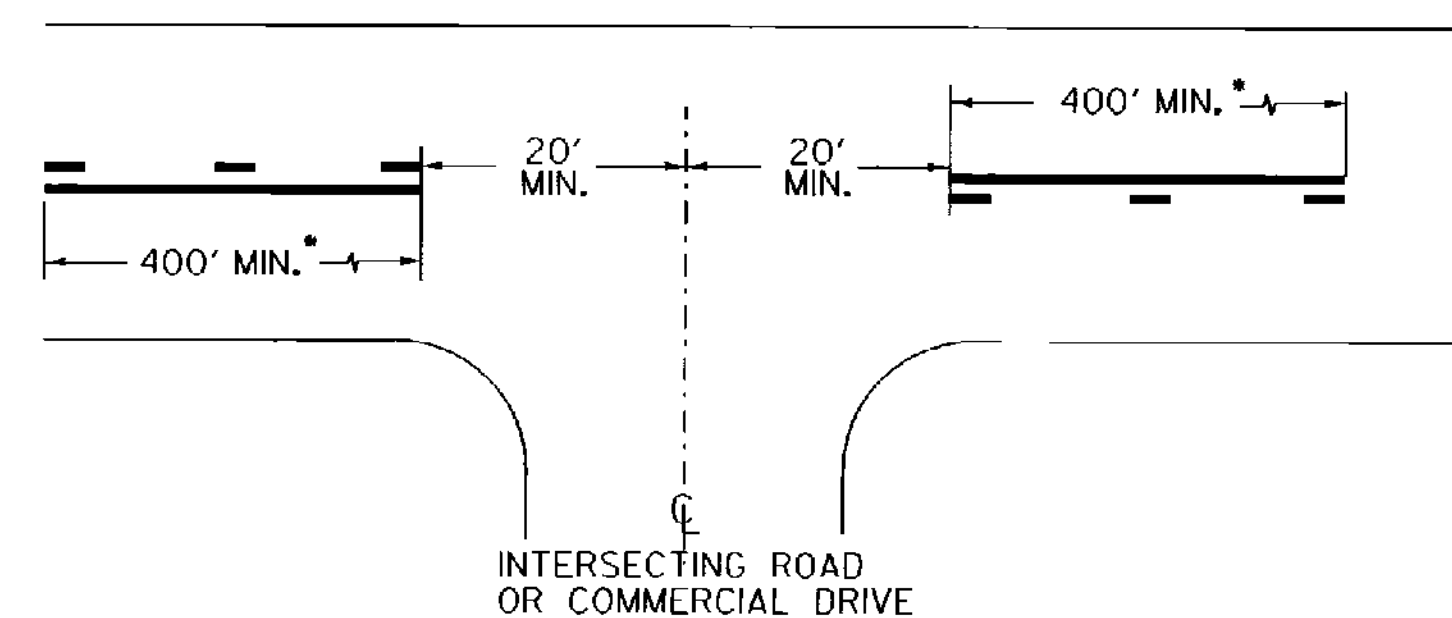


STANDARD E-192



* THE "DESIRED STOPPING POINT" IS THE LOCATION BASED ON SITE CONDITIONS THAT BEST ALLOWS THE STOPPED VEHICLE TO VIEW THE APPROACHING TRAFFIC.

STOP BAR LAYOUT

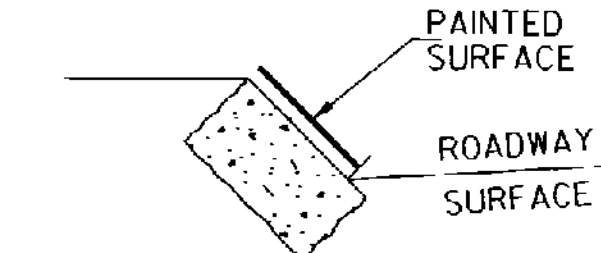


* THE SOLID LINE SHALL BE PAIRED WITH EITHER A SOLID OR DASHED LINE DEPENDING ON SIGHT DISTANCE AVAILABILITY IN THE OPPOSING DIRECTION. ADJUSTMENTS TO THE 40 FOOT CENTERLINE OPENING MAY BE MADE TO ACCOMMODATE SKEWED INTERSECTIONS.

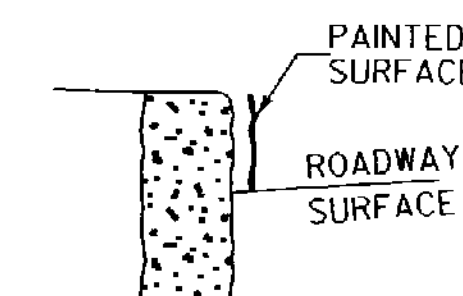
CENTERLINE BREAKS:

- AT ALL STATE HIGHWAYS AND TOWN HIGHWAYS, INCLUDING CLASS 4 TH'S, THAT HAVE STOP AND LEGAL LOAD LIMIT SIGNS INSTALLED
- COMMERCIAL DRIVES:
 - WHERE A SEPARATE TURN LANE EXISTS ON THE MAIN LINE (LT. OR RT.)
 - SIGNIFICANT TRAFFIC VOLUMES EXISTS.
 - IF MOTORISTS NEED ASSISTANCE TO DEFINE ENTRANCE POINTS.

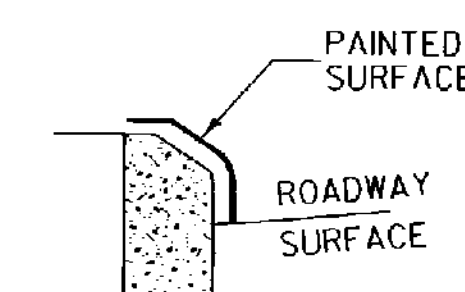
CENTERLINE LAYOUT



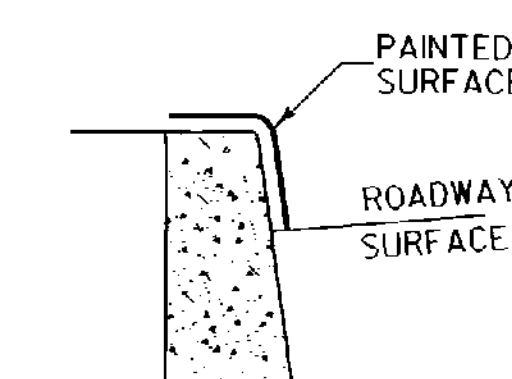
GRANITE SLOPE EDGING



VERTICAL GRANITE CURB

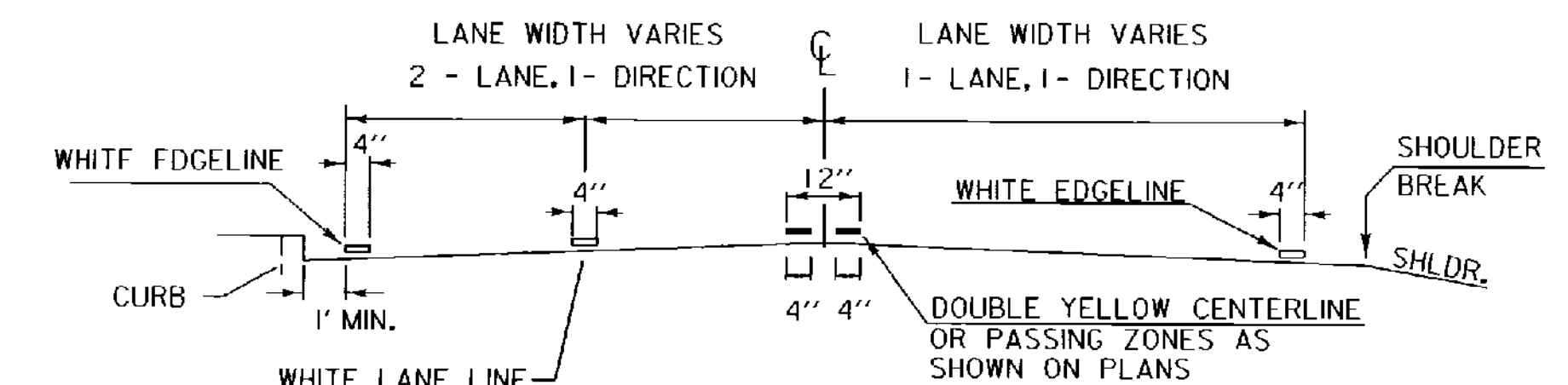


TYPE A (CONCRETE)

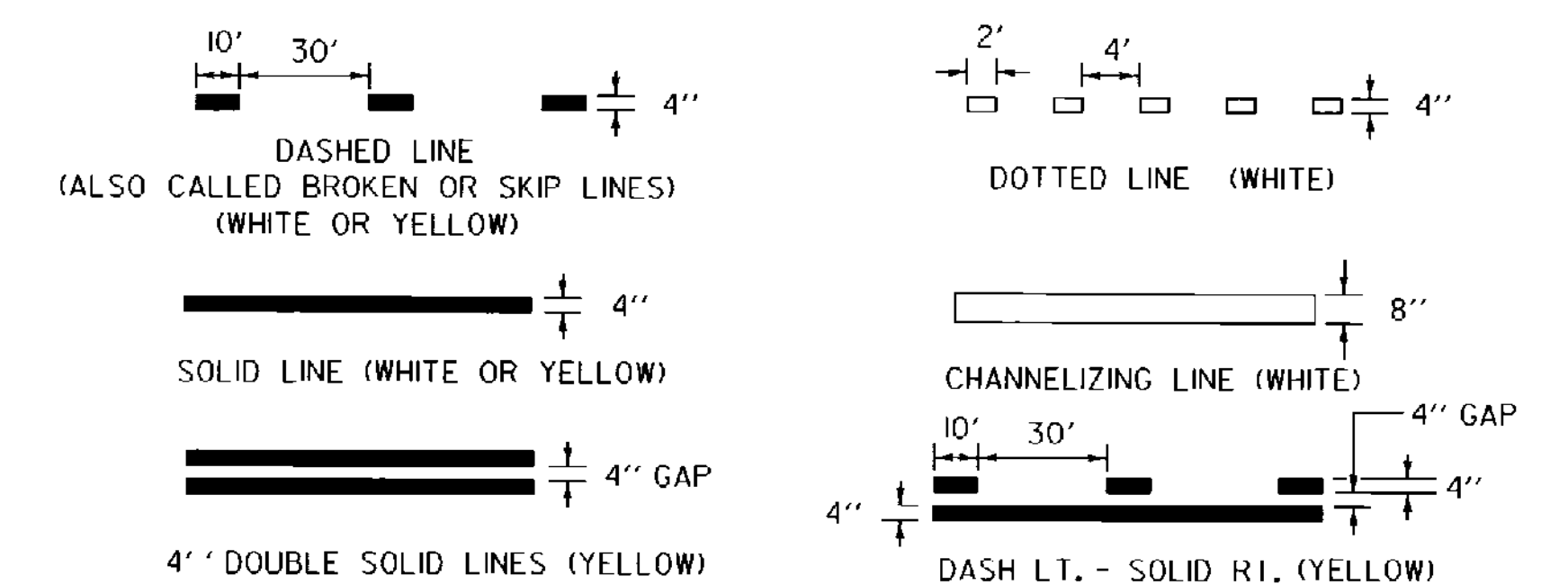


TYPE B (CONCRETE)

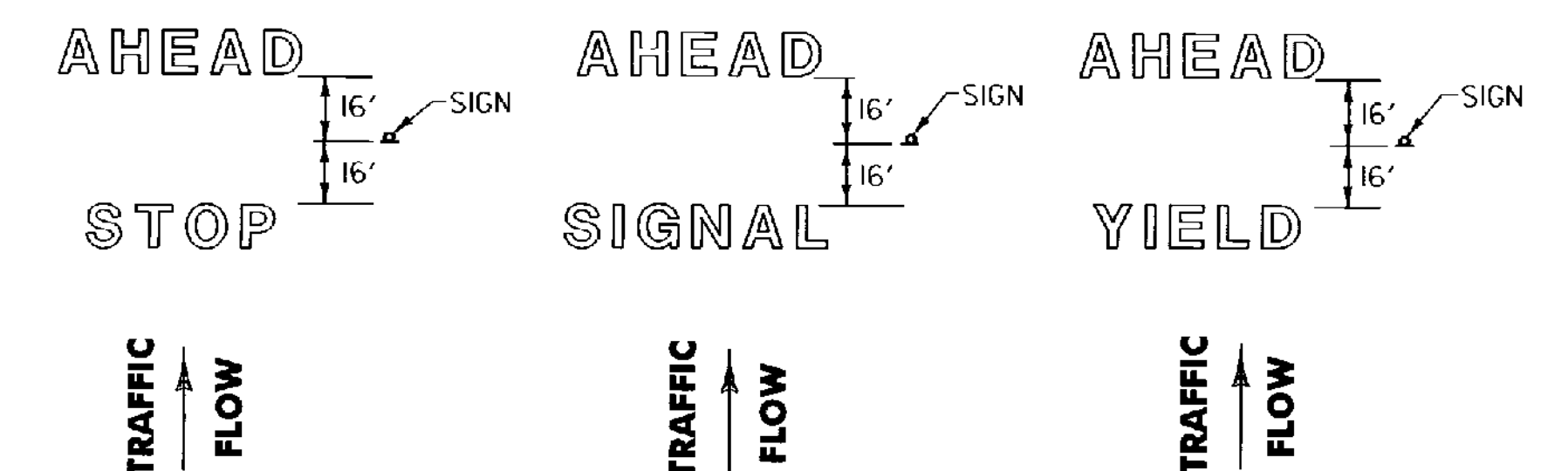
PAINTED CURB



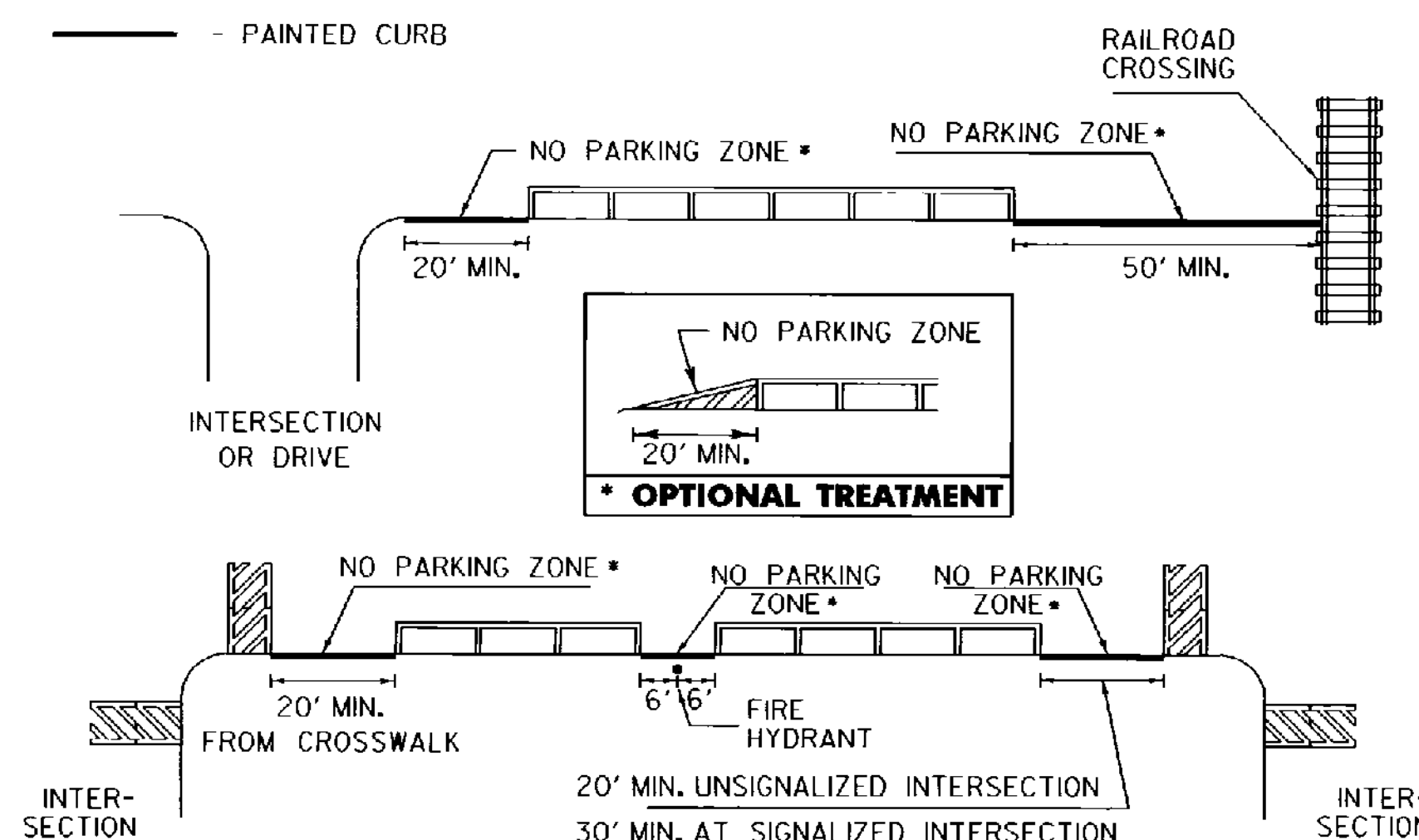
PAVEMENT MARKING PLACEMENT DETAIL



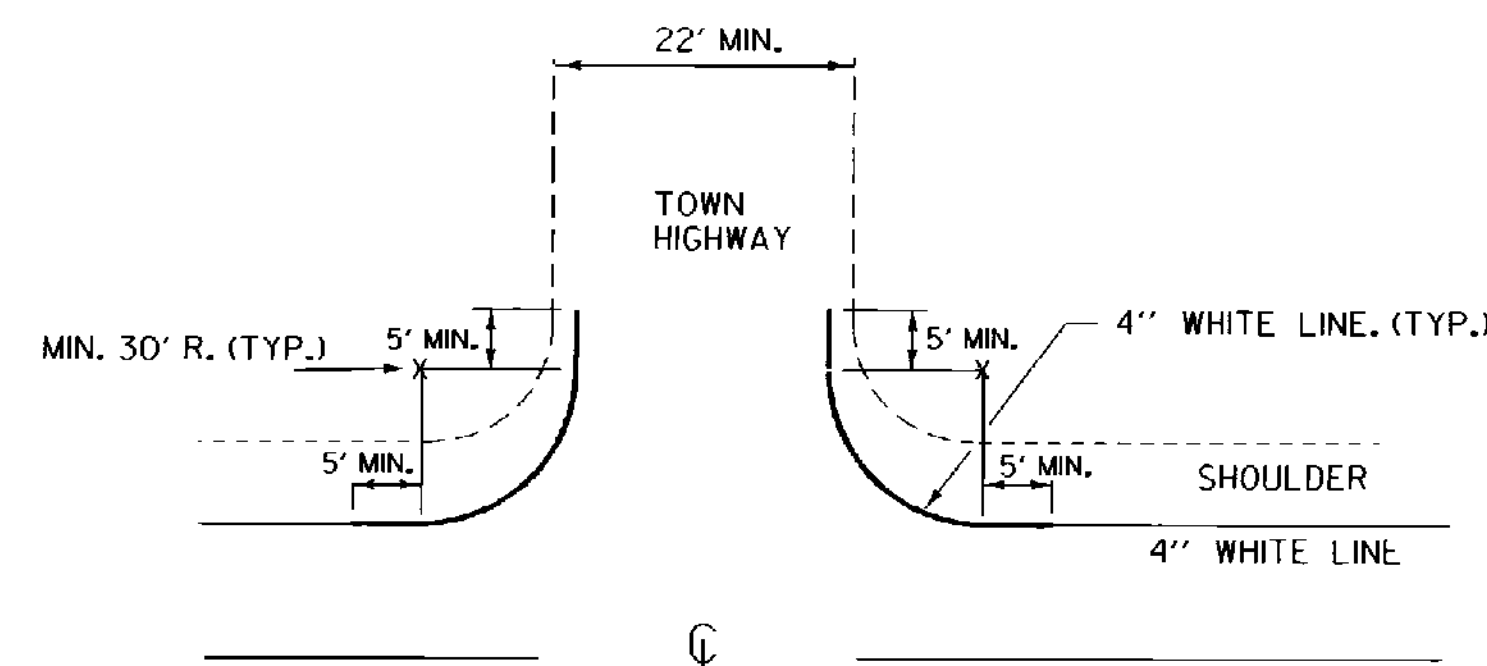
PAVEMENT MARKING LINE DETAILS



LETTER IN WORD MARKING SPACING DETAIL
NOTE: SINGLE WORDS CENTERED ON SIGN ie: SCHOOL OR YIELD



NO PARKING LAYOUT DETAILS

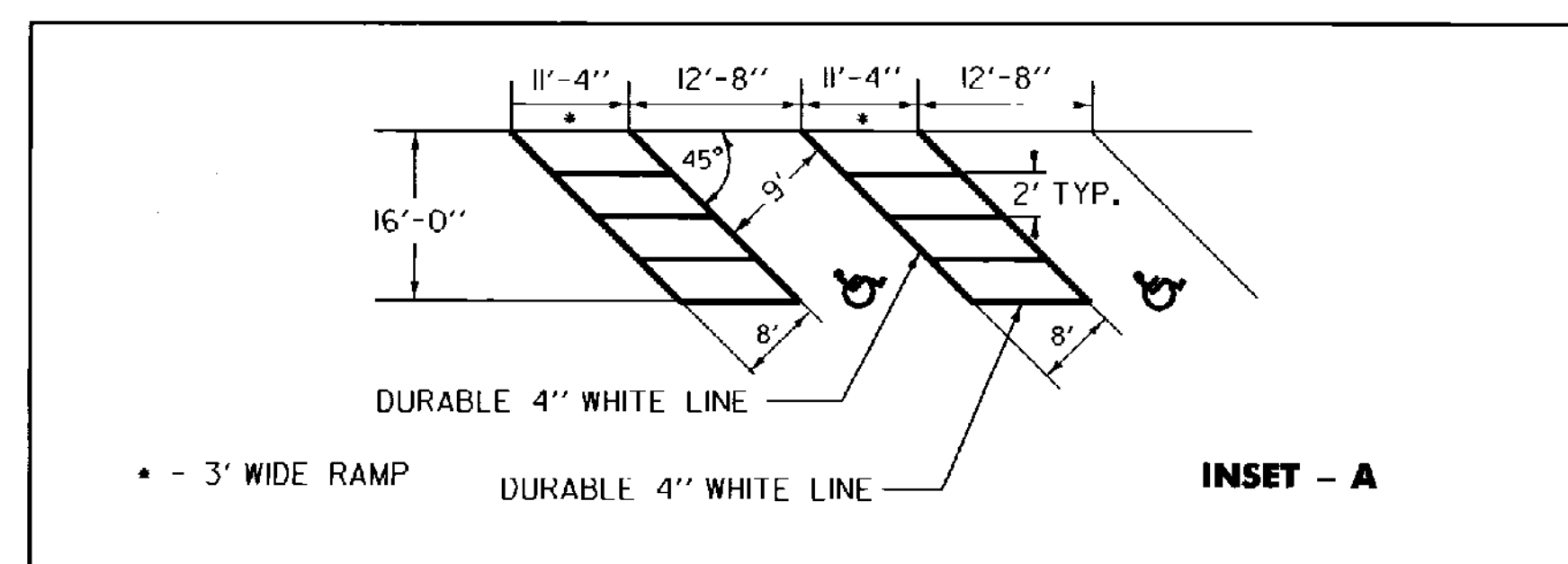


EDGE LINES SHALL BE APPLIED TO ALL STATE HIGHWAYS AND SHOULD BE MAINTAINED AT A CONSTANT DISTANCE FROM THE CENTERLINE UNLESS PAVEMENT WIDTH INCREASES TO ALLOW WIDER LANES.

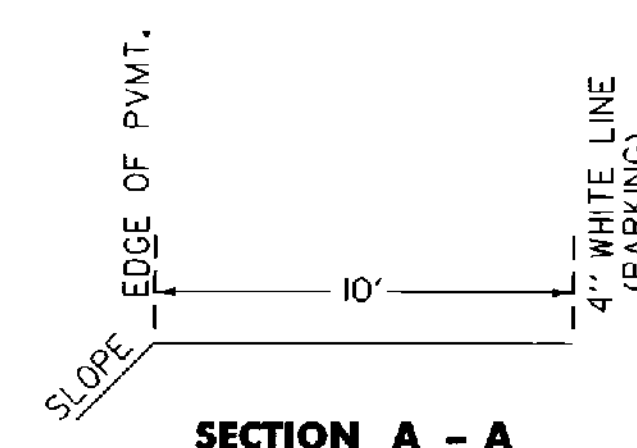
APPLY EDGE LINE AS DETAILED ON ALL PAVED CLASS 1 & CLASS 2 TOWN HIGHWAYS AND ANY CLASS 3 TOWN HIGHWAY 22 FEET OR MORE IN WIDTH.

IF MIN. 30 FOOT RADIUS CANNOT BE OBTAINED, OR THE TOWN HIGHWAY IS NOT PAVED, BREAK THE EDGE LINE USING AN 80 FOOT GAP AT INTERSECTION.

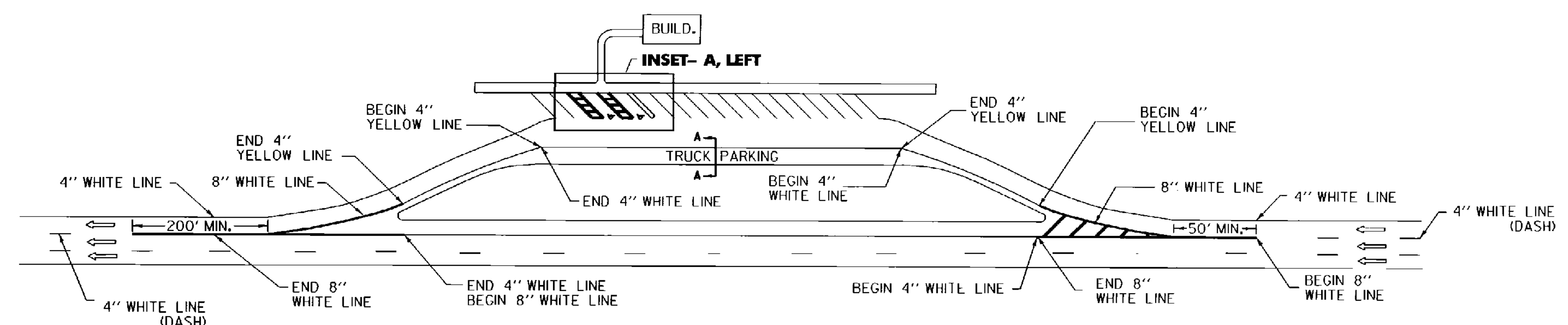
EDGE LINE LAYOUTS



NOTE:
SEE STANDARD SHEET E-191 FOR
HANDICAP SYMBOL POSITIONING AND DETAIL.



TRUCK PARKING DETAIL



REST AREA PARKING DETAILS

THIS SHEET IS
NOT TO SCALE

OTHER STDS. E - 191, E - 192
REQUIRED

REVISIONS AND CORRECTIONS
AUG. 18, 1995 - DATE OF ORIGINAL ISSUE

APPROVED

Stephen D. McCall
DIRECTOR OF ENGINEERING

Dwight A. Ross
TRAFFIC AND SAFETY ENGINEER

APPROVED FOR THIS PROJECT
AND/OR DESIGN IMPLEMENTATION.
FHWA FINAL APPROVAL PENDING.

PAVEMENT MARKING DETAILS

/traf/std/stdel93.dgn/stdel93.1



STANDARD
E-193