

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

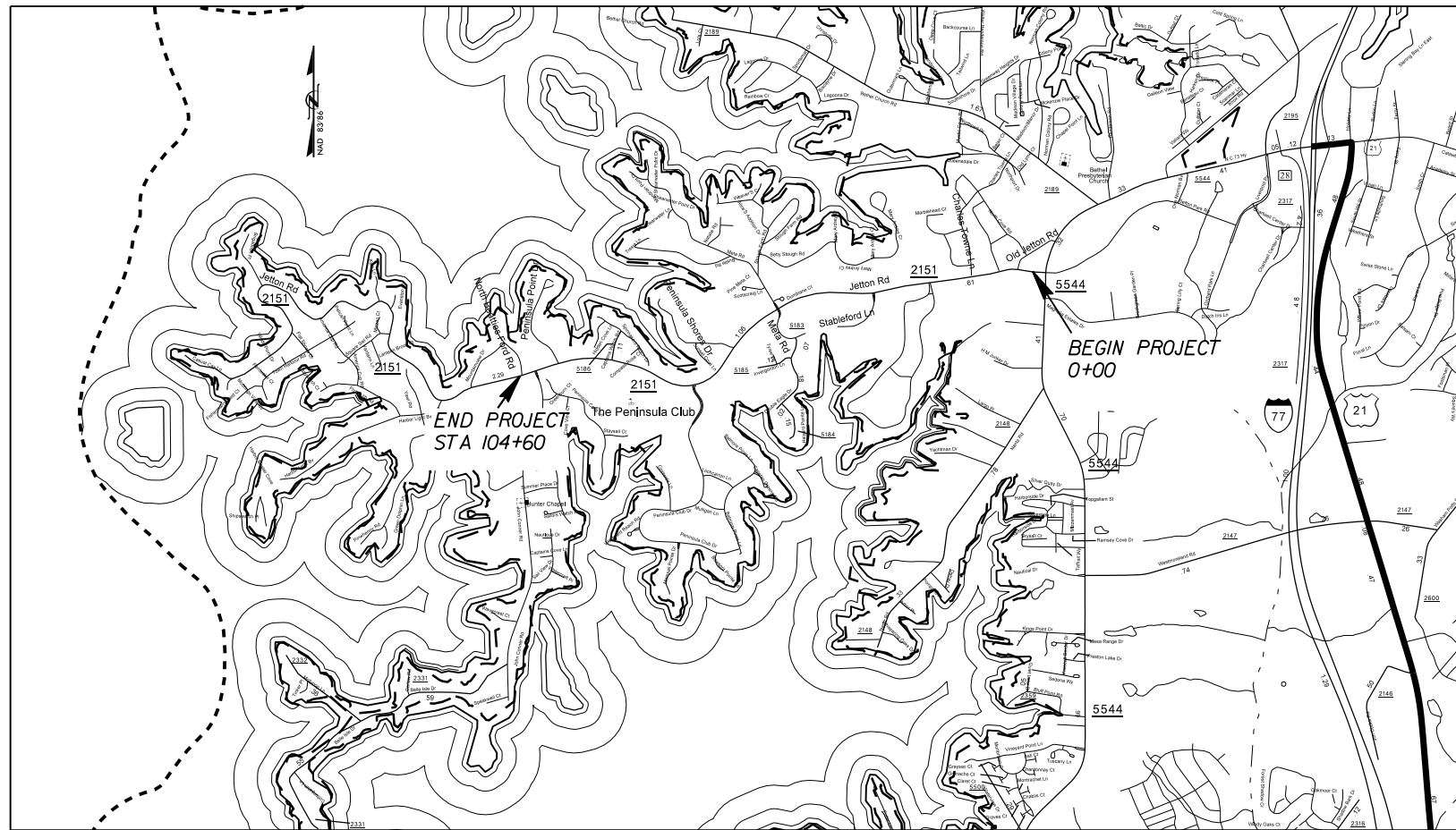
**MECKLENBURG COUNTY**

**LOCATION: SR2151 (JETTON RD) FROM THE PAV'T JOINT  
APPROX. 150' WEST OF SR 5544 (W.CATAWBA AVE.)  
TO N. BEATTIES FORD RD.**

**TYPE OF WORK: MILLING, FULL DEPTH RECLAMATION, PAVING  
AND THERMOPLASTIC PAVEMENT MARKINGS.**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	44228	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

**TIP PROJECT: -NA-**

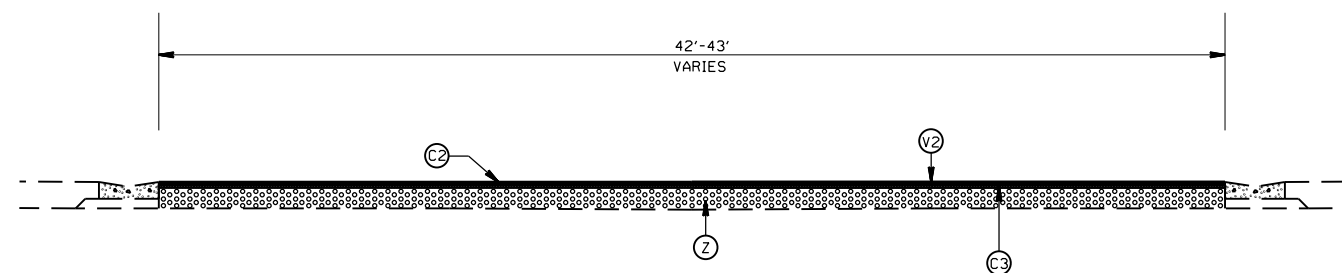


**WBS: 44228**

<p><b>GRAPHIC SCALES</b></p>	<p><b>DESIGN DATA</b></p> <p>ADT = _____ ADT = _____ DHV = _____ % D = _____ % T = _____ % * V = _____ MPH * TTST = DUAL FUNC CLASS = _____</p>	<p><b>PROJECT LENGTH</b></p> <p style="text-align: center;">LENGTH OF ROADWAY PROJECT 44228 = 1.98 MILES</p>	<p style="text-align: center;">Prepared in the Office of: <b>DIVISION OF HIGHWAYS</b> 1000 Birch Ridge Dr., Raleigh NC, 27610</p> <hr/> <p><small>2012 STANDARD SPECIFICATIONS</small></p> <p><b>RIGHT OF WAY DATE:</b> _____</p> <p><b>LETTING DATE:</b> SEPTEMBER 17, 2014</p>	<p><b>HYDRAULICS ENGINEER</b></p> <p>SIGNATURE: _____ P.E.</p> <p><b>ROADWAY DESIGN ENGINEER</b></p> <p>SIGNATURE: _____ P.E.</p>	
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29-AUG-2014 13:55 S:\DDC\ROY\misc\FDR\_Typicals.dgn jcharward AT D:\DIVC\AD27126

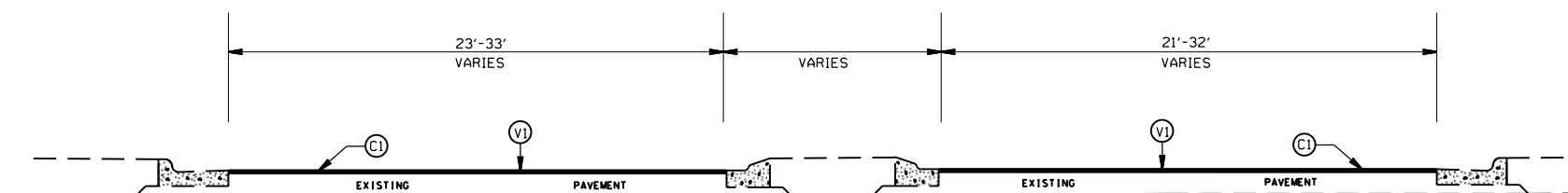
STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	44228	2	
F.A. PROJECT NO.			



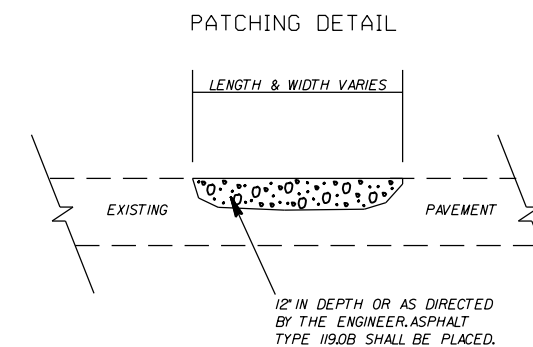
TYPICAL SECTION NO. 2  
 STA 12+00 TO 16+85  
 STA 23+85 TO 62+50  
 STA 84+70 TO 102+00 JOHN CONNOR RD

### PAVEMENT SCHEDULE

(C1)	PROP. APPROX. 1½" ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
(C2)	PROP. APPROX. 2" ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
(C3)	PROP. ASPHALT SURFACE TREATMENT
(T)	SHOULDER RECONSTRUCTION
(V1)	MILLING ASPHALT PAVEMENT, 1.5" IN DEPTH
(V2)	MILLING ASPHALT PAVEMENT, 3" IN DEPTH
(Z)	FULL DEPTH RECLAMATION



TYPICAL SECTION NO. 1  
 PAVT JOINT STA 0+00 TO CHARLES TOWNE LN 12+00



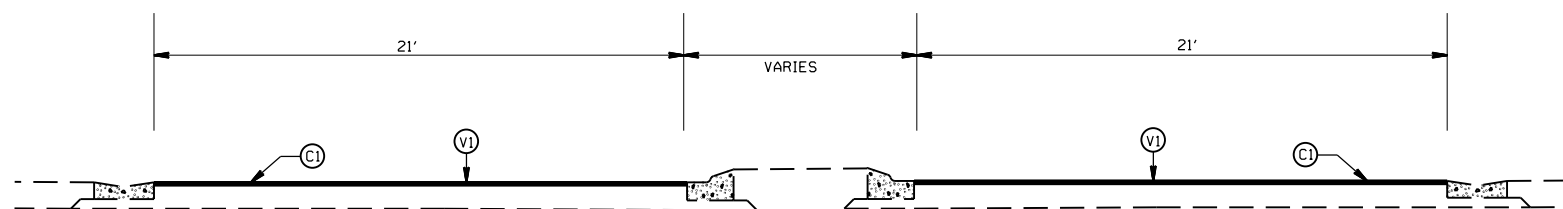
FULL DEPTH RECLAMATION  
 JETTON RD. IN MECKLENBURG COUNTY.

SCALE	1"=50'
DATE	8-2014
DWG. BY	JDH
DESIGN BY	TWB
APPROVED	TWB

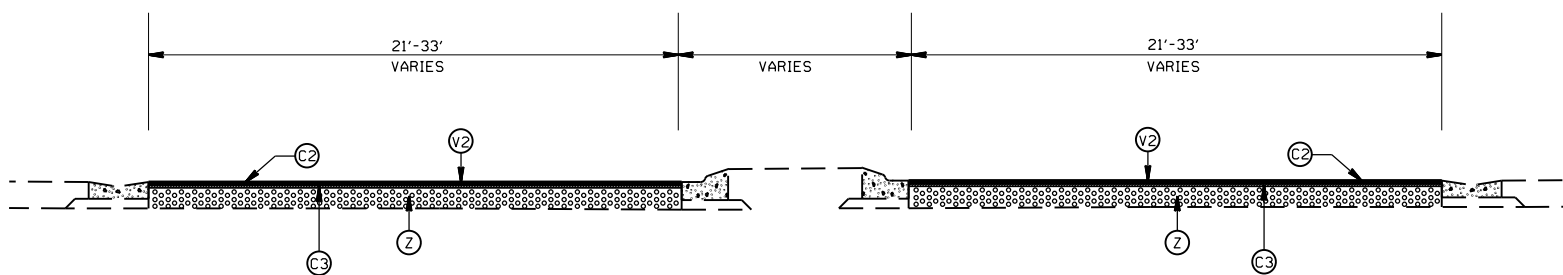


REVISIONS


STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
N.C.	44228	3	
F.A. PROJECT NO.			



TYPICAL SECTION NO. 4  
JOHN CONNOR RD STA 102+00 TO N. BEATTIES FORD RD 104+60



TYPICAL SECTION NO. 3  
STA 16+85 TO 23+85  
STA 62+50 TO 84+70

PAVEMENT SCHEDULE

(C1)	PROP. APPROX. 1½" ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
(C2)	PROP. APPROX. 2" ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
(C3)	PROP. ASPHALT SURFACE TREATMENT
(T)	SHOULDER RECONSTRUCTION
(V1)	MILLING ASPHALT PAVEMENT, 1.5" IN DEPTH
(V2)	MILLING ASPHALT PAVEMENT, 3" IN DEPTH
(Z)	FULL DEPTH RECLAMATION

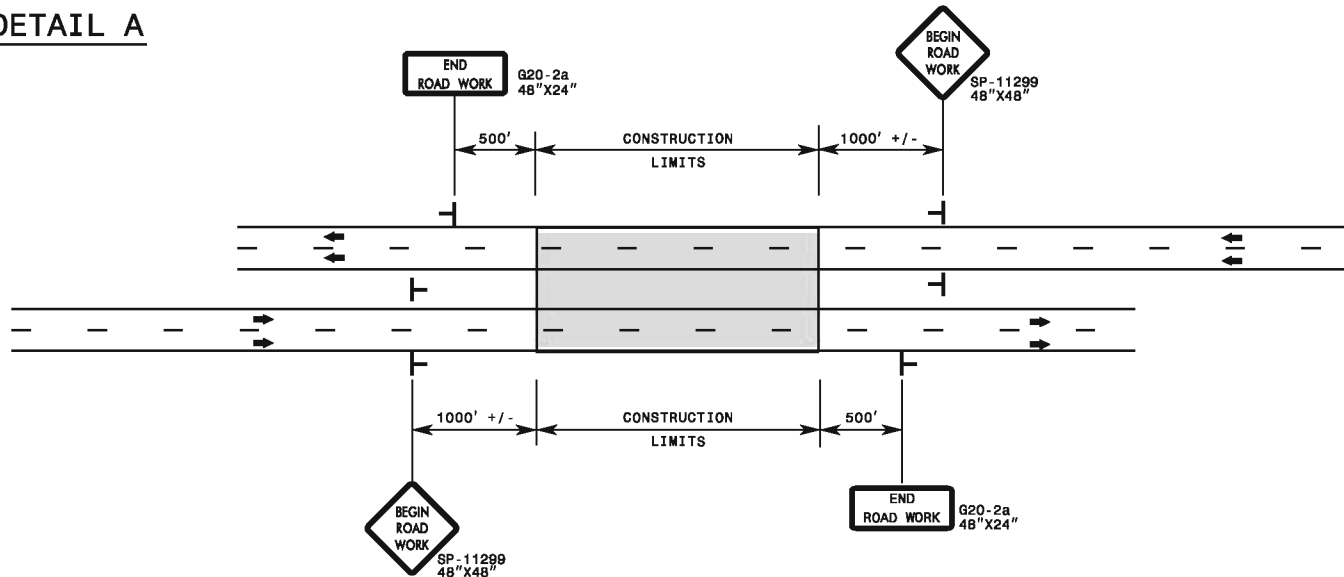
FULL DEPTH RECLAMATION  
JETTON RD. IN MECKLENBURG COUNTY.

SCALE	1"=50'
DATE	8-2014
DWG. BY	JDH
DESIGN BY	TWB
APPROVED	TWB



REVISIONS	

DETAIL A



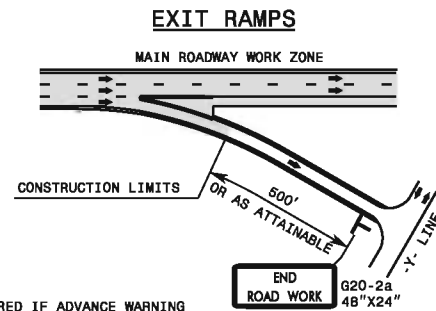
GENERAL NOTES

- 1- USE FLUORESCENT ORANGE SHEETING (TYPE VII OR HIGHER) ON ALL ADVANCED WORK ZONE SIGNS.
- 2- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK UNLESS COVERED.
- 3- SIGNS SHOWN ARE REQUIRED FOR WORK ZONES THAT WILL REMAIN IN EFFECT OVERNIGHT. FOR SHORT-TERM DAILY MAINTENANCE TYPE OPERATIONS, THIS SIGNING APPLICATION IS OPTIONAL; MAY USE ONLY APPLICABLE ROADWAY STANDARD DRAWINGS INSTEAD. HOWEVER, IF THIS SIGNING APPLICATION IS USED, SIGNS MAY BE PORTABLE MOUNTED.
- 4- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.
- 5- USE 3LB STEEL U-CHANNEL POST OR 4" X 4" WOOD POST FOR ALL WORK ZONE SIGNS. 3LB STEEL U-CHANNEL POSTS MUST MEET THE REQUIREMENTS OF STANDARD SPECIFICATION SECTION 1094-1(B), MAY BE GALVANIZED STEEL, OR MAY BE PAINTED GREEN BY THE POST MANUFACTURER. SQUARE STEEL TUBING POSTS HAVING EQUIVALENT STRENGTH OF THE 3 LB STEEL U-CHANNEL POST ARE ALSO ACCEPTABLE FOR USE. ERECT SIGNS PER ROADWAY STANDARD DRAWING 1110.01. PAYMENT FOR WOOD POSTS, 3LB STEEL U-CHANNEL AND SQUARE STEEL TUBING POSTS WITH SIGNS WILL BE MADE ACCORDING TO STANDARD SPECIFICATION "WORK ZONE SIGNS" SECTION 1110.
- 6- WHEN NECESSARY, USE SPLICING IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1110.01.
- 7- DO NOT BACK BRACE SIGN SUPPORTS.
- 8- TWO-WAY UNDIVIDED ADVANCE WARNING SIGN CONFIGURATION MAY BE USED ON URBAN MULTI-LANE FACILITIES WHERE CONDITIONS LIMIT THE USE OF DUAL MOUNTED SIGNS AS DETERMINED BY THE ENGINEER.

LEGEND

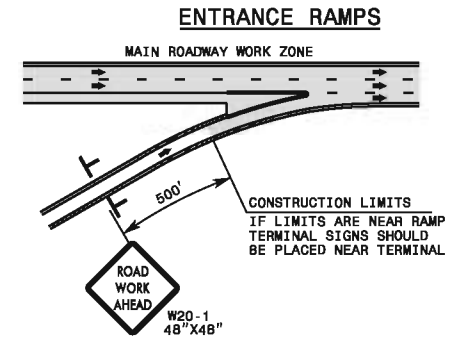
- STATIONARY SIGN
- ← DIRECTION OF TRAFFIC FLOW

DETAIL B

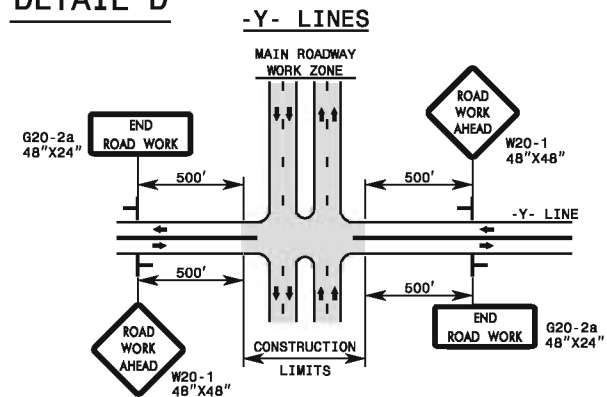


NOTE: SIGN NOT REQUIRED IF ADVANCE WARNING SIGNS HAVE BEEN PLACED ALONG -Y- LINE THAT RAMP INTERSECTS. IF CONSTRUCTION LIMITS ARE AT END OF RAMP, PLACE SIGN AT END OF RAMP.

DETAIL C

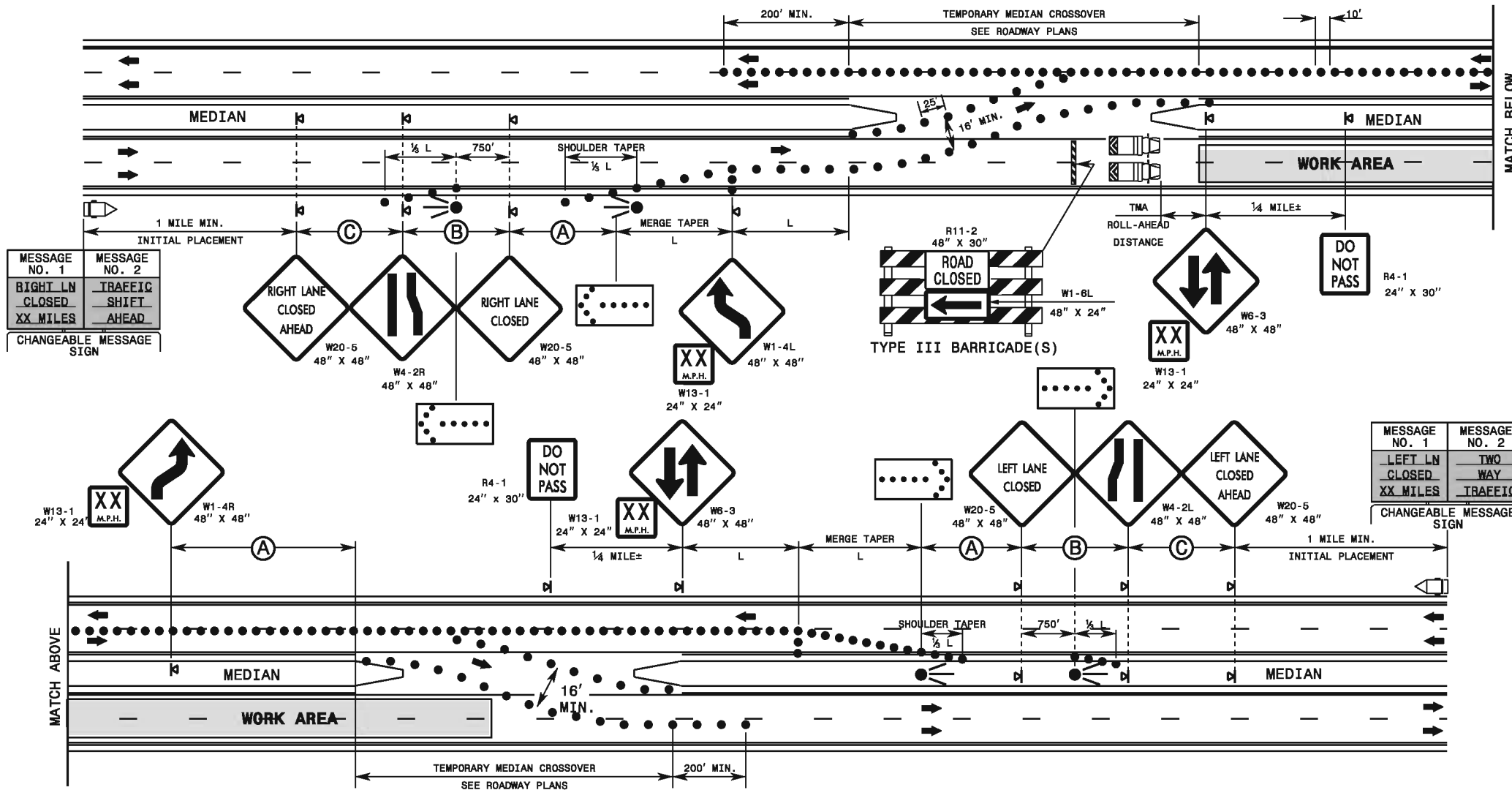


DETAIL D



DUAL MOUNT SIGNS ON DIVIDED HIGHWAYS AND INCREASE SIGN SPACING TO 1000'+/-.

1-12



**GENERAL NOTES**

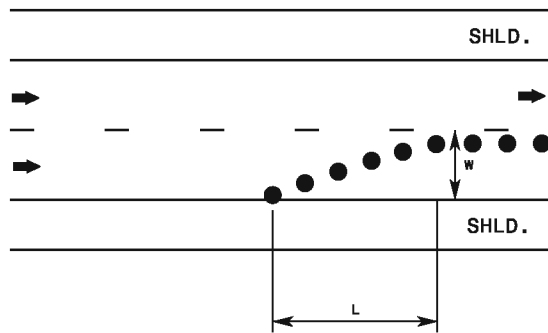
- 1- USE THIS STD. FOR OPERATIONS LASTING 3 DAYS OR LESS AND USING LOW SPEED CROSSOVERS DESIGNED FOR AT LEAST 20 MPH BELOW THE POSTED SPEED LIMIT.
- 2- LIMIT THE DISTANCE BETWEEN TEMPORARY CROSSOVERS TO 1/2 MILE.
- 3- REFER TO STD. 1101.02 SHEET 3 FOR RIGHT LANE CLOSURE NOTES.
- 4- SEPARATE 2 WAY TRAFFIC USING DRUMS OR ORANGE TUBULAR MARKERS WITH WHITE RETROREFLECTIVE SHEETING FIXED TO THE PAVEMENT.
- 5- DISPLAY CHANGEABLE MESSAGE SIGN (CMS) MESSAGES AS SHOWN OR AS DIRECTED BY THE ENGINEER. USE NO MORE THAN TWO (2) MESSAGE DISPLAYS WITH ANY CYCLE.
- 6- CHANGEABLE MESSAGE BOARDS AND FIRST FLASHING ARROW BOARDS ARE NOT REQUIRED ON FACILITIES ≤ 55 MPH.

**LEGEND**

	CHANGEABLE MESSAGE SIGN (CMS)
	TRUCK MOUNTED ATTENUATOR
	DRUM
	TYPE III BARRICADE
	PORTABLE SIGN
	FLASHING ARROW BOARD (TYPE C)
	DIRECTION OF TRAFFIC FLOW

1-12

**EXAMPLE OF "L" & "W" DESIGNATIONS**



**TAPER LENGTH CRITERIA FOR CHANNELIZING DEVICES IN WORK ZONES**

**TYPES OF TAPERS**

**TAPER LENGTH**

UPSTREAM TAPER

- MERGING TAPER.....L MINIMUM
- SHIFTING TAPER.....½ L MINIMUM
- SHOULDER TAPER.....½ L MINIMUM
- TWO-WAY TRAFFIC TAPER.....50 - 100 FEET MAXIMUM

DOWNSTREAM TAPER.....100 FEET MAXIMUM

**QUICK REFERENCE - "L" DISTANCE TABLE**

MINIMUM LONGITUDINAL DISTANCE "L" (FEET) (ROUNDED VALUES)												
POSTED SPEED "S" (MPH)	LATERAL WIDTH "W" (FEET)											
	1	2	3	4	5	6	7	8	9	10	11	12
20	10	15	20	30	35	40	50	55	60	70	75	80
25	15	25	35	45	55	65	75	85	95	105	115	125
30	15	30	45	60	75	90	105	120	135	150	165	180
35	25	45	65	85	105	125	145	165	185	205	225	245
40	30	55	80	110	135	160	190	215	240	270	295	320
45	45	90	135	180	225	270	315	360	405	450	495	540
50	50	100	150	200	250	300	350	400	450	500	550	600
55	55	110	165	220	275	330	385	440	495	550	605	660
60	60	120	180	240	300	360	420	480	540	600	660	720
65	65	130	195	260	325	390	455	520	585	650	715	780
70	70	140	210	280	350	420	490	560	630	700	770	840

**GENERAL NOTES**

1- TABLE FOR "L" DISTANCE IS BASED ON CHANNELIZATION TAPER FORMULA FROM THE M.U.T.C.D. WHERE:

SPEED LIMIT

FORMULA

40 MPH OR LESS

$$L_{MIN} = \frac{W \times S^2}{60}$$

45 MPH OR GREATER

$$L_{MIN} = W \times S$$

L = MINIMUM TAPER LENGTH IN FEET (LONGITUDINAL DISTANCE)

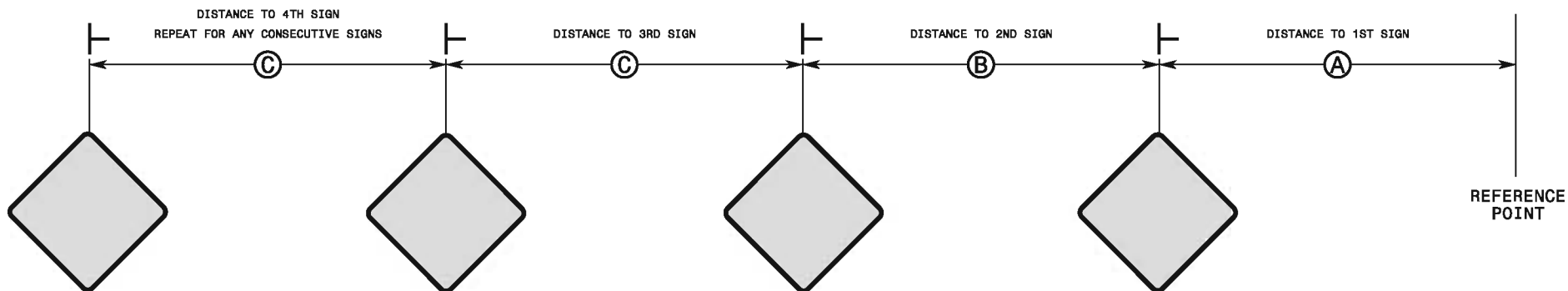
W = WIDTH OF OFFSET IN FEET (LATERAL DISTANCE)

S = POSTED SPEED LIMIT, OR OFF-PEAK 85 PERCENTILE SPEED IN MPH PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED IN MPH

2- "L" DISTANCE IS FOR APPLICATION WITH CHANNELIZING DEVICE AND PAVEMENT MARKING TAPERS AND TRANSITIONS. CHANNELIZING DEVICES INCLUDE DRUMS, CONES, TUBULAR MARKERS, BARRICADES, RAISED ASPHALT ISLANDS, AND VERTICAL PANELS.

ADVANCE WARNING SIGN SPACING CHART			
POSTED SPEED LIMIT (MPH)	RECOMMENDED DISTANCE BETWEEN SIGNS (FEET) ±		
	(A)	(B)	(C)
≤ 35	200	200	200
40-50	350	350	350
55	500	500	500
CONTROLLED ACCESS ROADS (≥ 55)	1000	1500	2700

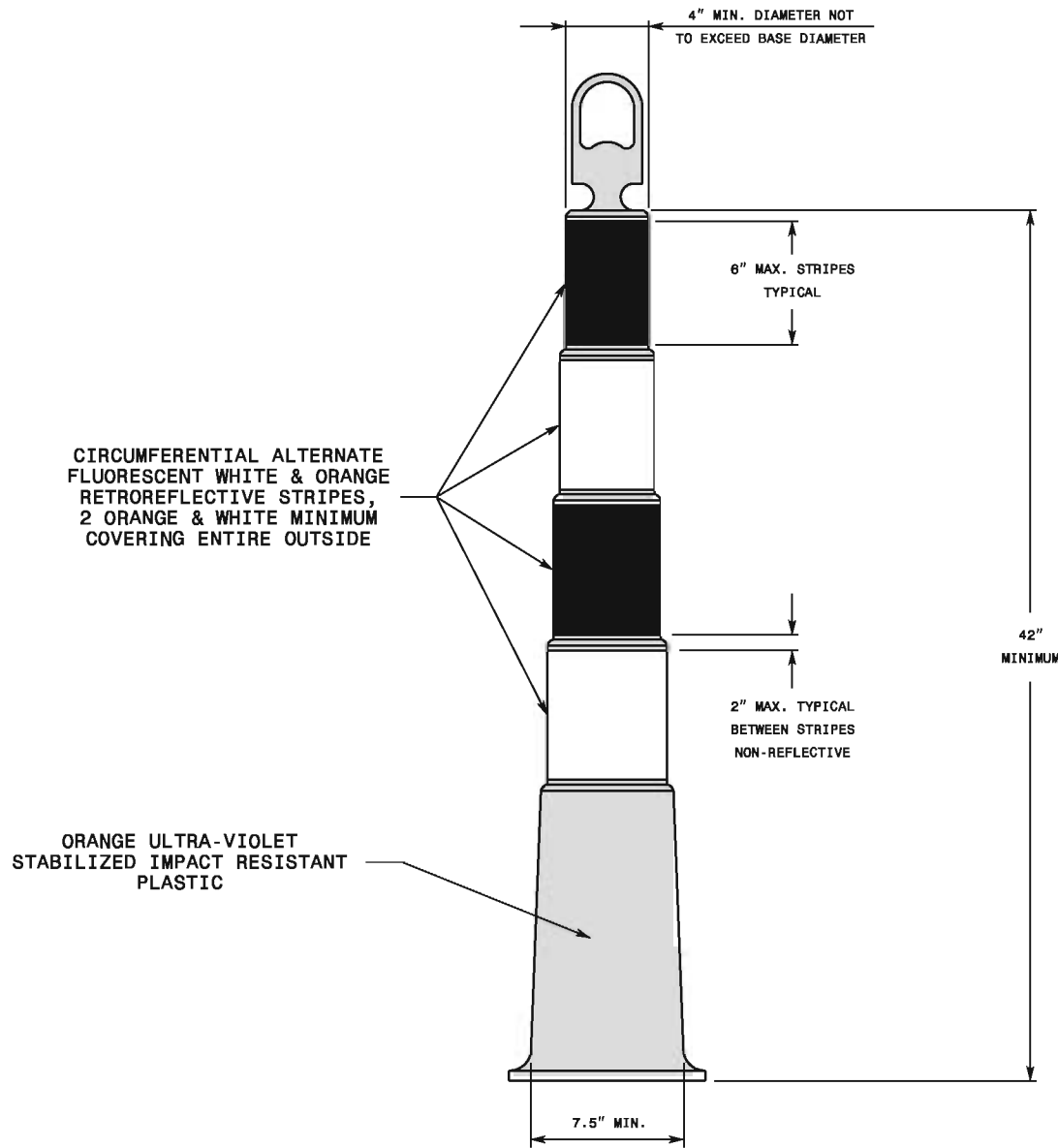
STATIONARY OR PORTABLE SIGNS



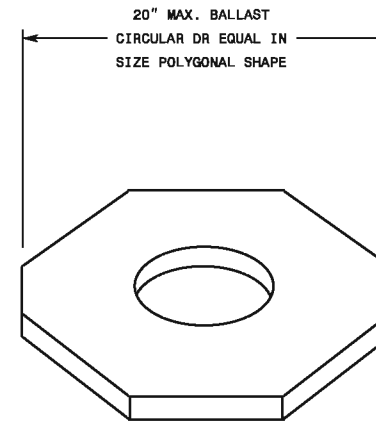
GENERAL NOTES

- 1- REFER TO 2009 MUTCD.
- 2- USE THIS STANDARD DRAWING IN CONJUNCTION WITH OTHER TRAFFIC CONTROL ROADWAY STANDARD DRAWINGS WHERE SIGN SPACING DISTANCES A, B, C, ARE SPECIFIED.
- 3- APPLY THE ADVANCE WARNING SIGN SPACING CHART WHERE A SERIES OF 2 OR MORE SIGNS ARE USED. ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE. FIELD ADJUST AS VARIOUS CONDITIONS OCCUR, SUCH AS LIMITED SIGHT DISTANCE, OBSTRUCTION INTERFERENCE, ETC.

ENGLISH STANDARD DRAWING FOR  
**SKINNY - DRUM**



TYPICAL BALLAST



BALLAST WILL BE A MINIMUM OF 15 POUNDS

**GENERAL NOTES**

- 1- USE BALLAST AS SPECIFIED BY THE MANUFACTURER. DO NOT PLACE BALLAST ON TOP OF THE DRUM.
- 2- IF NECESSARY, PLACE THE NAME OF THE AGENCY, CONTRACTOR, OR SUPPLIER ON NON-RETROREFLECTIVE SURFACES. SHOW THE LETTERS AND NUMBERS USING A NON-RETROREFLECTIVE COLOR AND NOT OVER 2" IN HEIGHT.
- 3- REFER TO SECTION 1180, STANDARD SPECIFICATIONS FOR ROADS AND INSTRUCTIONS FOR ADDITIONAL REQUIREMENTS.
- 4- USE TYPE 3 OR HIGHER HIGH INTENSITY PRISMATIC SHEETING.
- 5- SEE THE DEPARTMENT'S APPROVED PRODUCTS LIST AT <https://apps.dot.state.nc.us/vendor/approvedproducts>.

ENGLISH STANDARD DRAWING FOR  
**SKINNY - DRUM**