

PROJECT NO.	SHEET NO.	TOTAL NO.
2CR.10251.1, 2CR.10161.2	1	4



MILL FILL VS HIP ON US 70 FROM THE END OF CURB AND GUTTER NEAR THE EAST CITY LIMITS OF HAVELOCK TO MCCABE RD

PROJECT NO.	SHEET NO.	TOTAL NO.
2CR.10251.1, 2CR.10161.2	2	4

SUMMARY OF QUANTITIES								
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LENGTH MI	WIDTH FT	INDUCTIVE LOOP SAWCUT LF
2CR.10251.1	Craven	1	US70	FROM END CURB AND GUTTER EAST SIDE OF HAVELOCK TO CARTERET CO.	1	0.8	50	469
TOTAL FOR PROJ NO. 2CR.10251.1						0.8		469
2CR.10161.2	Carteret	2	US70	FROM COUNTY LINE TO MCCABE RD	1	8.8	50	2,150
TOTAL FOR PROJ NO. 2CR.10161.2						8.8		2,150
GRAND TOTAL						9.6		2,619

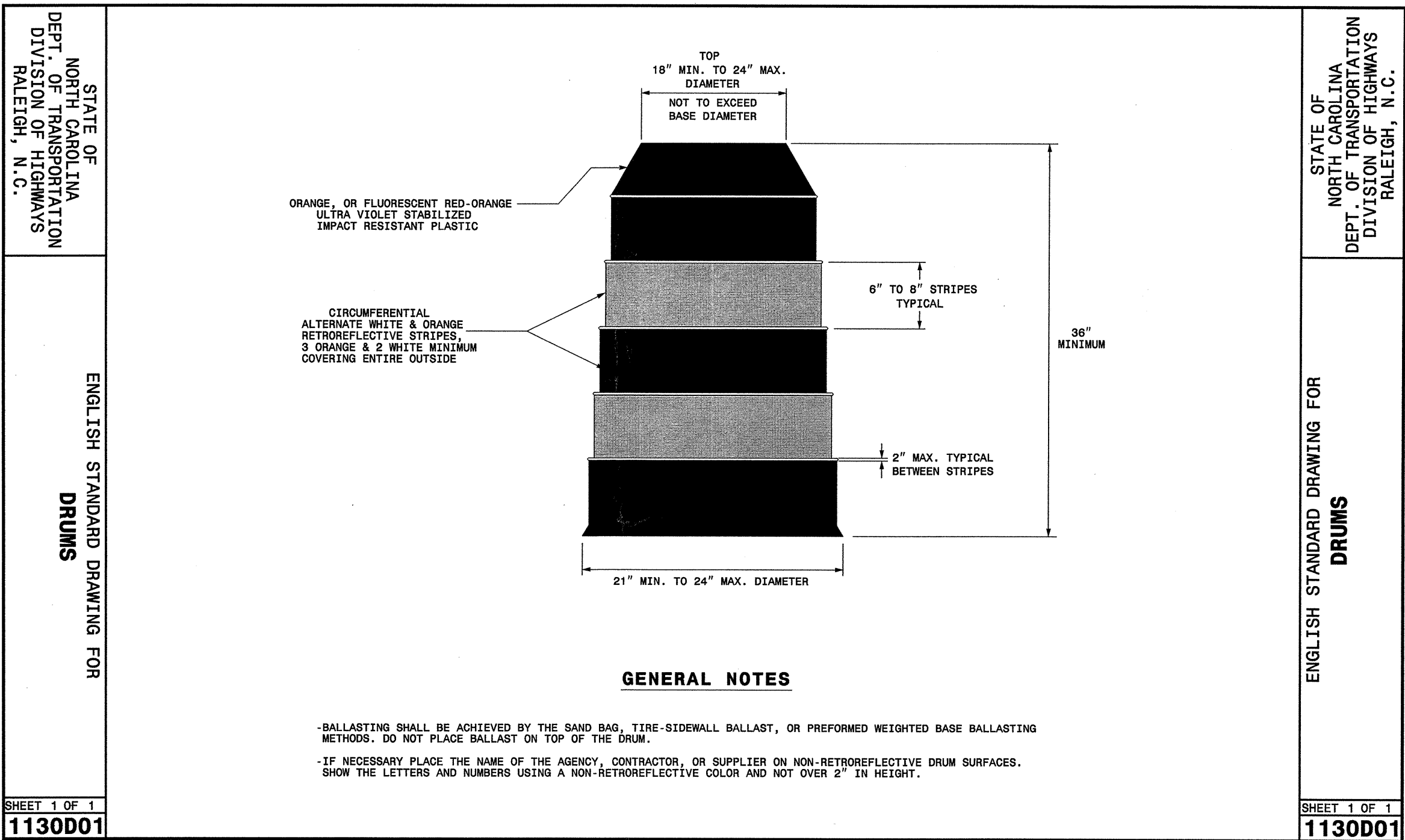
SUMMARY OF QUANTITIES - ALTERNATE ONE										
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LENGTH MI	WIDTH FT	2" MILLING SY	INTERMEDIATE COURSE, 119.0C TONS	PG 64-22 PLANT MIX TONS
2CR.10251.1	Craven	1	US70	FROM END CURB AND GUTTER EAST SIDE OF HAVELOCK TO CARTERET CO.	1	0.8	50	24,640	3,526	166
TOTAL FOR PROJ NO. 2CR.10251.1						0.8		24,640	3,526	166
2CR.10161.2	Carteret	2	US70	FROM COUNTY LINE TO MCCABE RD	1	8.8	50	271,040	38,784	1,823
TOTAL FOR PROJ NO. 2CR.10161.2						8.8		271,040	38,784	1,823
GRAND TOTAL						9.6		295,680	42,310	1,989

SUMMARY OF QUANTITIES - ALTERNATE TWO											
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LENGTH MI	WIDTH FT	HIP RECYCLED ASPHALT CONC, TYPE 119.0C SY	EMULSIFIED ASPHALT REJUVENATING AGENT GAL	HOT MIX ASPHALT ADMIXTURE TON	PG 64-22 PLANT MIX TON
2CR.10251.1	Craven	1	US70	FROM END CURB AND GUTTER EAST SIDE OF HAVELOCK TO CARTERET CO.	1	0.8	50	24,640	3,696	616	37
TOTAL FOR PROJ NO. 2CR.10251.1						0.8		24,640	3,696	616	37
2CR.10161.2	Carteret	2	US70	FROM COUNTY LINE TO MCCABE RD	1	8.8	50	271,040	40,656	6,776	407
TOTAL FOR PROJ NO. 2CR.10161.2						8.8		271,040	40,656	6,776	407
GRAND TOTAL						9.6		295,680	44,352	7,392	444

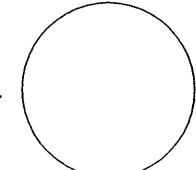

PROJECT NO.	SHEET NO.	TOTAL NO.
2CR.10251.1, 2CR.10161.2	3	4

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	4815000000-E		4835000000-E	4845000000-N
					6" WHITE PAINT LF	6" YELLOW PAINT LF	24" WHITE PAINT LF	PAINT STR ARROW EA
2CR.10251.1	Craven	1	US 70	FROM END CURB AND GUTTER EAST SIDE OF HAVELOCK TO CARTERET CO.	12,500	8,500	200	12
TOTAL FOR PROJ NO. 2CR.10161.2					21,000		200	12
2CR.10161.2	Carteret	2	US 70	FROM COUNTY LINE TO MCCABE RD	139,500	93,000	400	18
TOTAL FOR PROJ NO. 2CR.10161.2					232,500		400	18
GRAND TOTAL					152,000	101,500	600	30
					253,500			



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APPROVED: _____	DATE: _____	REPLACEMENT DETAIL FOR RSD 1130.01	
SEAL 	SCALE: NONE		
	DATE: 4/02		
	DWG. BY: MMM		
	DESIGN BY: MMM		
REVIEWED BY: MMM	REVISIONS	11/02	

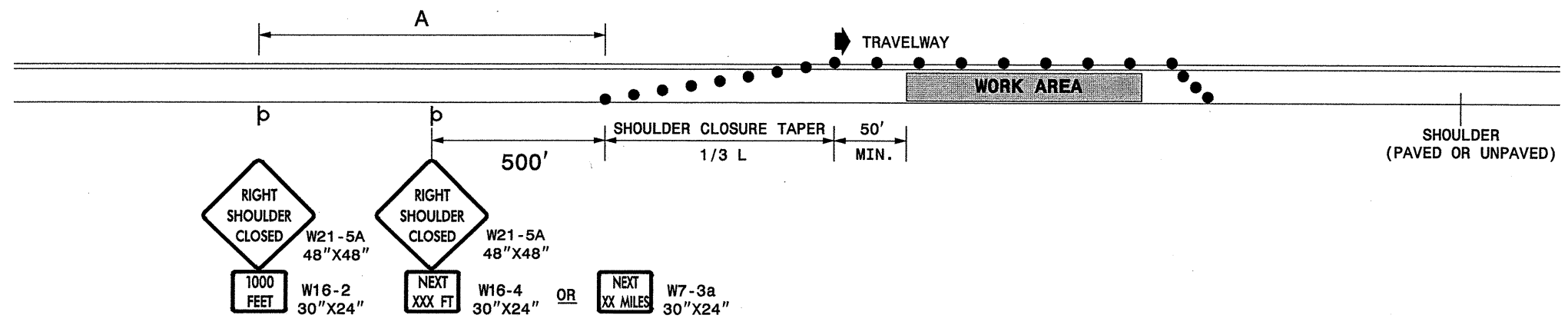
STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

1-05

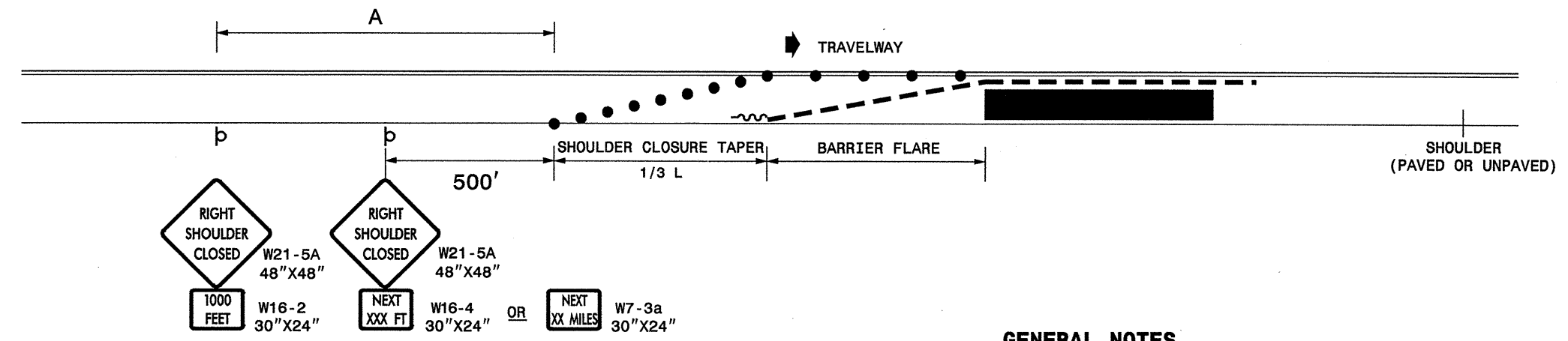
ENGLISH STANDARD DRAWING FOR
TEMPORARY SHOULDER CLOSURES

SHEET 1 OF 1
1101D04

SHOULDER CLOSURES UTILIZING DRUMS



SHOULDER CLOSURES UTILIZING TEMPORARY BARRIER



GENERAL NOTES

- PLACE SHOULDER CLOSURE SIGNS ON THE SAME SIDE AS THE SHOULDER THAT IS CLOSED.
- PLACE DRUMS IN THE SHOULDER TAPER AT THE MAXIMUM SPACING EQUAL IN FEET TO THE POSTED SPEED LIMIT. THE MAXIMUM SPACING OF DRUMS ALONG THE WORK AREA AND BARRIER FLARE IS EQUAL IN FEET TO 2 TIMES THE POSTED SPEED LIMIT.
- FLARE THE APPROACH END OF PORTABLE CONCRETE BARRIER BEYOND THE SHOULDER AND USE A CRASH CUSHION FOR PROTECTION IF THE EXPOSED END OF THE BARRIER IS WITHIN THE "CLEAR ZONE".
- USE STATIONARY SIGNS FOR LONG TERM OPERATIONS (LONGER THAN 3 DAYS).
- REFER TO STD. 1101.11 SHEETS 1, 3, & 4, FOR "L" DISTANCE, BARRIER FLARE RATES, AND SIGN SPACING.

LEGEND

- ~ TEMPORARY CRASH CUSHION
- - - PORTABLE CONCRETE BARRIER
- DRUM
- ⊔ STATIONARY OR PORTABLE SIGN
- ➔ DIRECTION OF TRAFFIC FLOW

STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

1-05

ENGLISH STANDARD DRAWING FOR
TEMPORARY SHOULDER CLOSURES

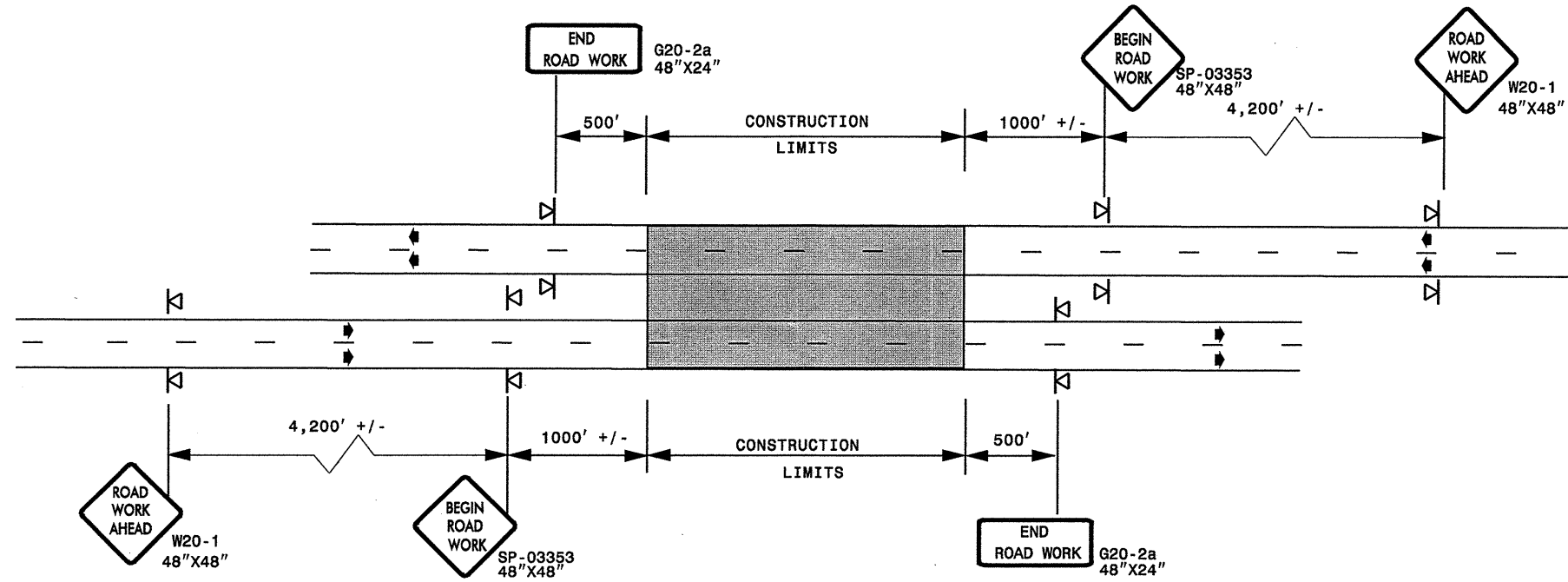
SHEET 1 OF 1
1101D04

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DESIGN BY:	JPG		
REVIEWED BY:	MMM		

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ADVANCED WORK ZONE WARNING SIGNING FOR FREEWAYS (4 LANES OR GREATER)

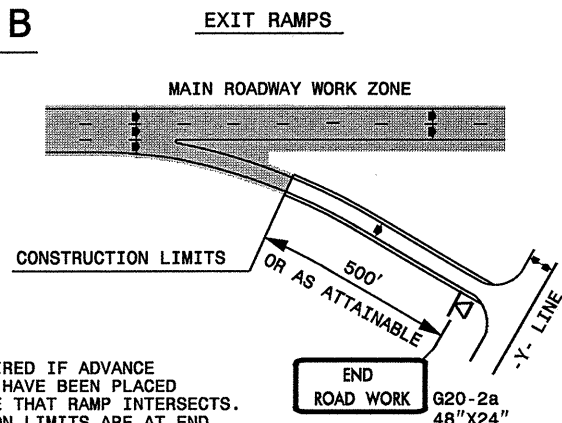
DETAIL A



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RALEIGH, N.C.

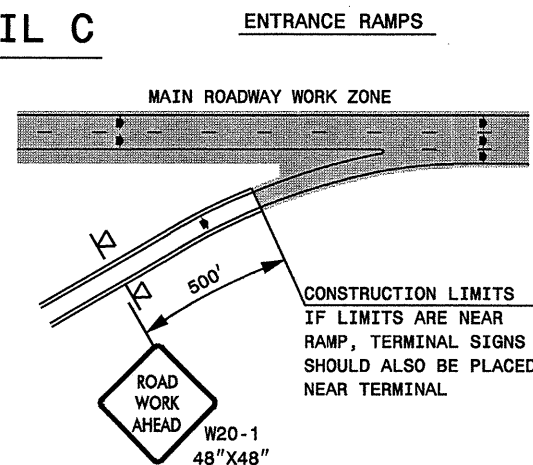
ROADWAYS INTERSECTING ALONG FREEWAY WORK ZONE (Y-LINES)

DETAIL B

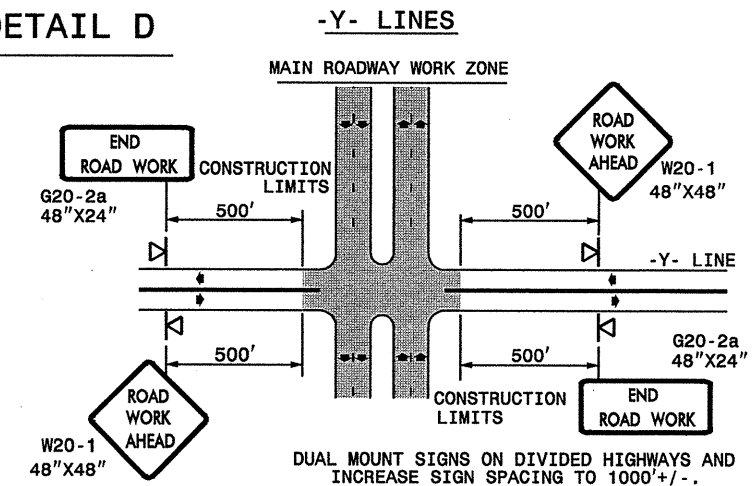


NOTE:
SIGN NOT REQUIRED IF ADVANCE WARNING SIGNS HAVE BEEN PLACED ALONG -Y- LINE THAT RAMP INTERSECTS. IF CONSTRUCTION LIMITS ARE AT END OF RAMP, PLACE SIGN AT END OF RAMP.

DETAIL C



DETAIL D



GENERAL NOTES

- USE FLUORESCENT ORANGE SHEETING (TYPE VII OR HIGHER) ON ALL ADVANCED WORK ZONE SIGNS.
- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK.
- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.
- USE PORTABLE WORK ZONE SIGNS ONLY WITH PORTABLE WORK ZONE SIGN STANDS SPECIFICALLY DESIGNED FOR ONE ANOTHER. PORTABLE WORK ZONE SIGNS MAY BE ROLL UP OR APPROVED COMPOSITE.
- PROVIDE PORTABLE WORK ZONE SIGN STANDS, PORTABLE SIGNS AND SIGN SHEETING WHICH ARE LISTED ON THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION'S APPROVED PRODUCT LIST OR ACCEPTED AS TRAFFIC QUALIFIED BY THE TRAFFIC CONTROL UNIT.
- ** TWO-WAY UNDIVIDED ADVANCE WARNING SIGN CONFIGURATION MAY BE USED ON MULTI-LANE FACILITIES WHERE CONDITIONS LIMIT THE USE OF DUAL MOUNTED SIGNS AS DETERMINED BY THE ENGINEER.

LEGEND

◁ PORTABLE SIGN

➔ DIRECTION OF TRAFFIC FLOW

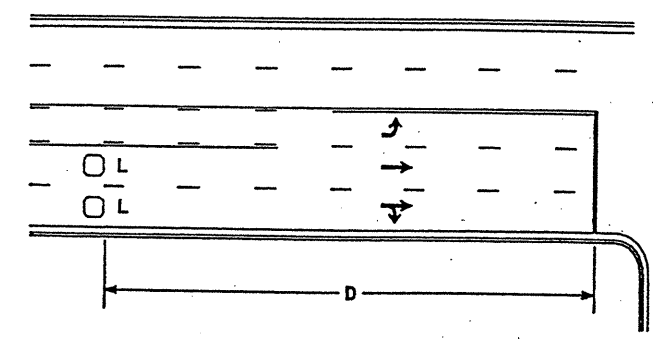
**DETAIL DRAWING
FOR FREEWAYS
WORK ZONE WARNING SIGNS
(SHORT-DURATION LANE CLOSURES)**

SHEET 1 OF 1

APPROVED:	DATE:	DETAIL DRAWING FOR FREEWAYS WORK ZONE WARNING SIGNS	
SEAL			
SCALE: NONE	REVISIONS		
DATE:	7-98	10/01	
DWG. BY:	10-98	03/04	
DESIGN BY:	01/01	11/04	
REVIEWED BY:			

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High Speed Detection [≥40 mph (64 km/hr)]

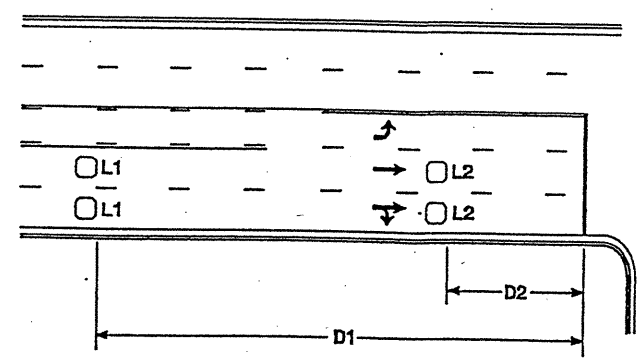


Speed Limit mph (km/hr)	D ft (m)
40 (64)	250 (75)
45 (72)	300 (90)
50 (80)	355 (110)
55 (88)	420 (130)

L = 6ft X 6ft (1.8m X 1.8m)
Wired in series for TS1
Controllers
Wired separately for TS2,
170, and 2070L Controllers

Volume Density Operation

OR

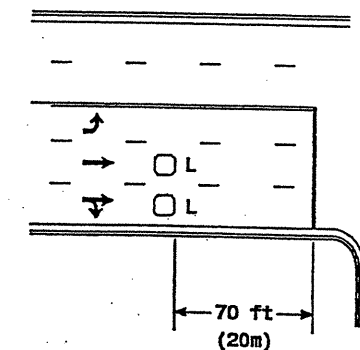


Speed Limit mph (km/hr)	D1 ft (m)	D2 ft (m)
40 (64)	250 (75)	80 (25)
45 (72)	300 (90)	90 (27)
50 (80)	355 (110)	100 (30)
55 (88)	420 (130)	110 (35)

L1 = 6ft X 6ft
(1.8m X 1.8m)
Wired in series
L2 = 6ft X 6ft
(1.8m X 1.8m)
Wired in series

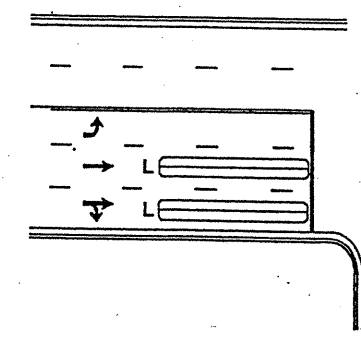
"Stretch" Operation

Low Speed Detection [≤35 mph (56 km/hr)]



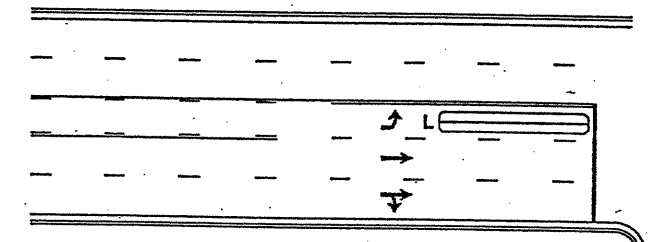
L = 6ft X 6ft (1.8m X 1.8m)
Wired in series

OR



L = 6ft X 60ft (1.8m X 18.0m)
Quadrupole loop, wired separately

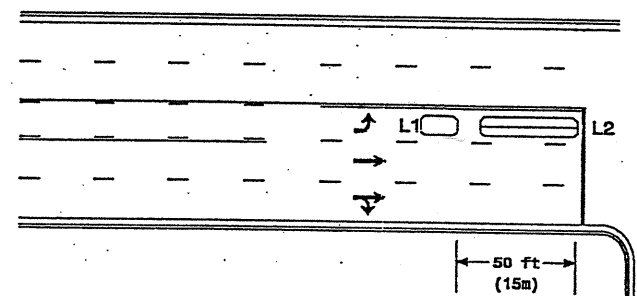
Left Turn Lane Detection



L = 6ft X 60ft (1.8m X 18.0m) Quadrupole loop
or, with limited space:
6ft X 50ft (1.8m X 15.0m) Quadrupole loop
or
6ft X 40ft (1.8m X 12.0m) Quadrupole loop

Presence Loop Detection

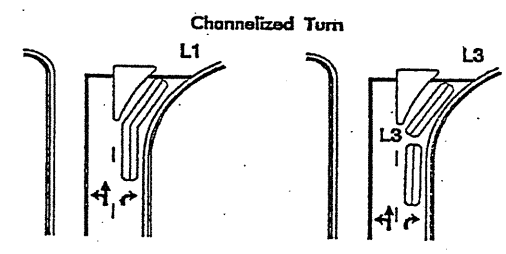
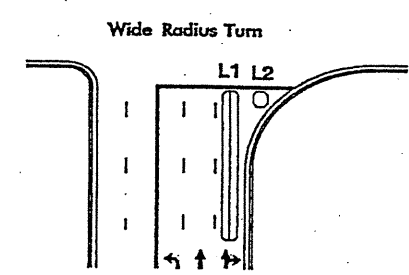
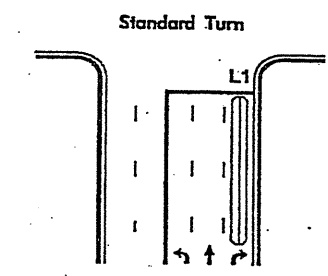
OR



L1 = 6ft X 15ft (1.8m X 4.6m) Queue detector
L2 = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop

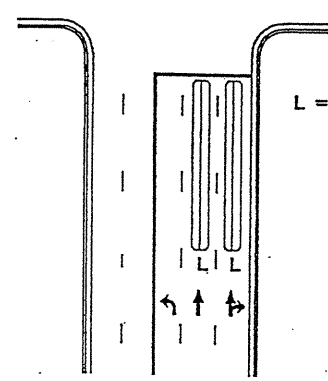
Queue Loop Detection

Right Turn Lane Detection



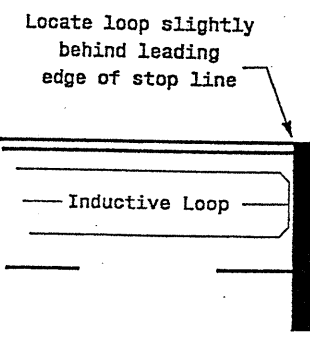
L1 = 6ft X 60ft (1.8m X 18.0m) Quadrupole loop
L2 = 6ft X 6ft (1.8m X 1.8m) [Minimum] Presence loop
Wired separately
L3 = 6ft X 30ft (1.8m X 9.0m) Quadrupole loop
Wired in series

Side Street Detection



L = 6ft X 60ft (1.8m X 18.0m)
Quadrupole loop
Wired to separate
detectors/channels

Presence Loop Placement at Stop Lines



Locate loop slightly
behind leading
edge of stop line

Note:
Loop may be located in advance
of stop line when stop line is
greater than 15' (4.5m) from edge
of intersecting roadway; or, when
loop detects a permitted or
exclusive/permitted left turn.

Recommended Number of Turns

Single 6' X 6' (1.8m X 1.8m)
loop (wired separately):

Length of Lead-in ft (m)	Number of Turns
< 250 (75)	3
250-375 (75-115)	4
375-525 (115-160)	5
> 525 (160)	6

Quadrupole loops: Use 2-4-2 turns
6' X 15' (1.8m X 4.6m) Loops:
Lead-in < 150' (45 m), use 2 turns
Lead-in > 150' (45 m), use 3 turns



Typical Loop Locations	
PLAN DATE: July 2003	REVIEWED BY:
PREPARED BY: P. L. Alexander	REVIEWED BY:
REVISIONS	INIT. DATE

