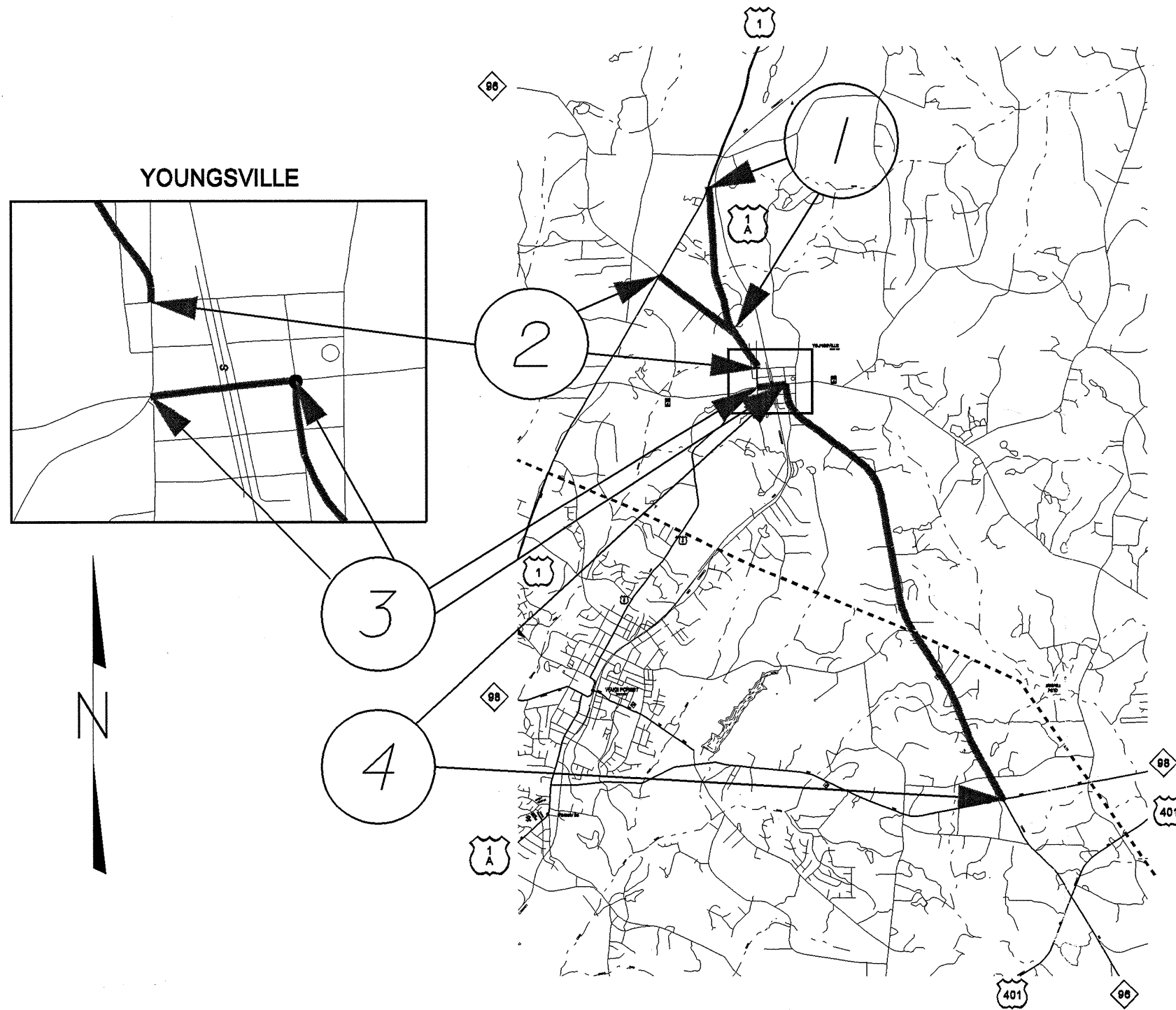


MA05022R

37669

WBS ELEMENT	SHEET NO.	TOTAL NO.
37669	1	
MA05022R		

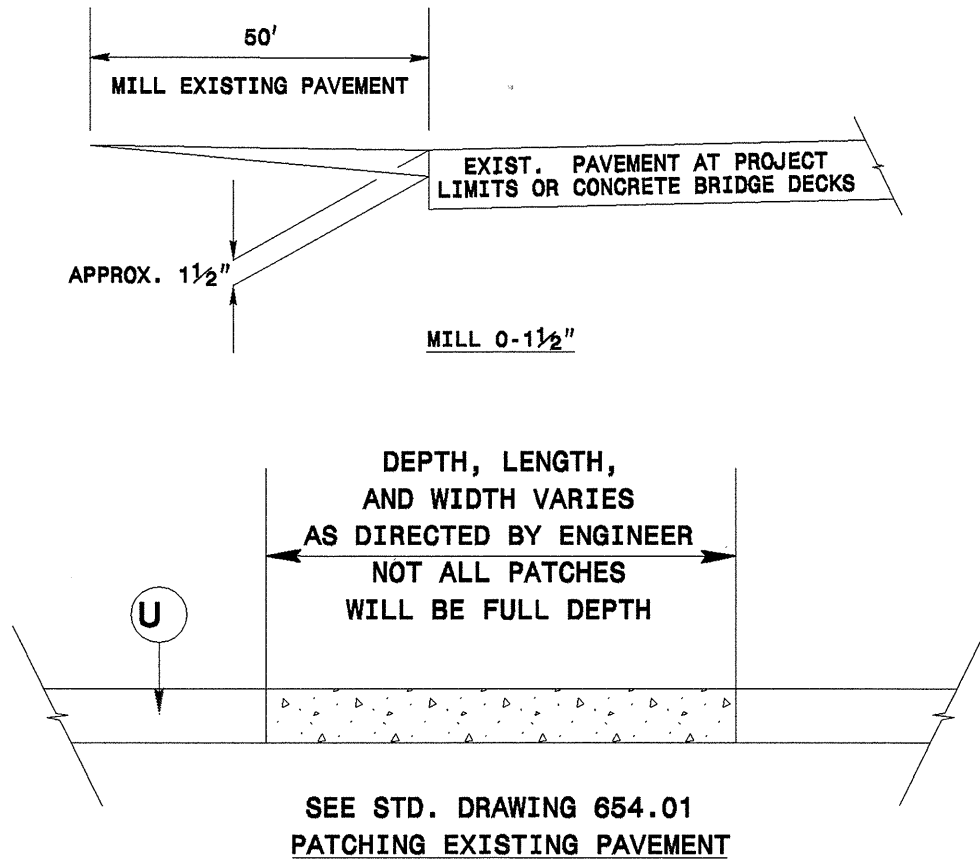


Franklin and Wake Counties

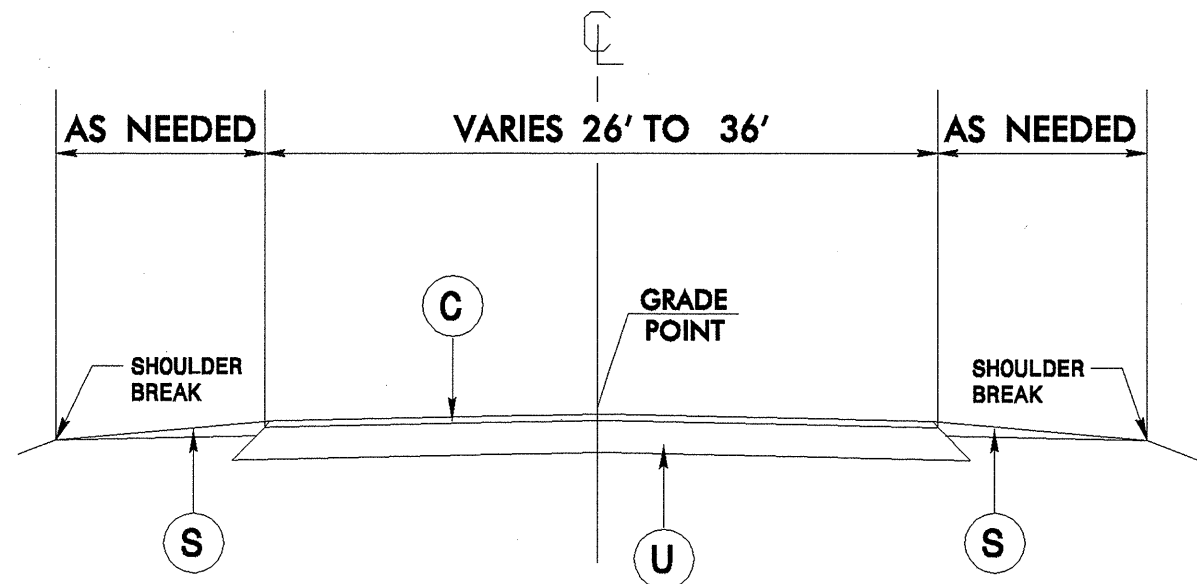
WBS Element	SHEET NO.	TOTAL SHEETS
37669	2	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
MA05022R		

NOTES

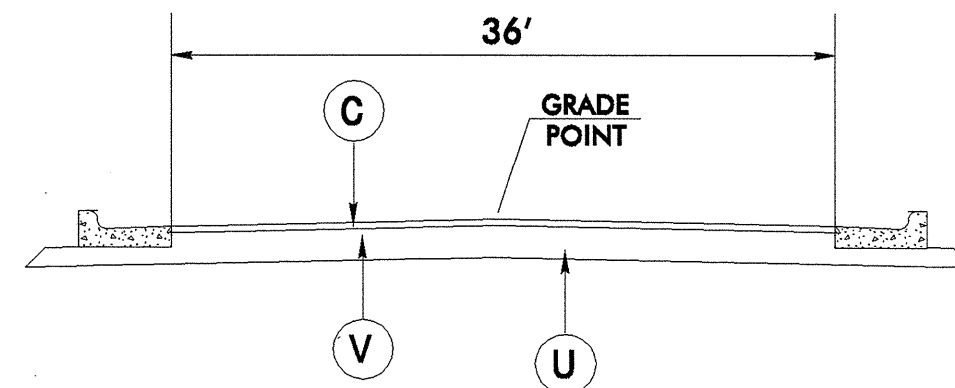
ALL UNPAVED S.R. ROADS TO BE RESURFACED 50' FROM EDGE OF PAVEMENT OF MAIN PROJECT
 ALL PAVED S.R. ROADS TO BE RESURFACED TO THE ENDS OF THE RADII, OR AS DIRECTED BY THE ENGINEER.
 EDGES, PAVEMENT WIDENING, INTERSECTIONS AND BRIDGE FLARES ARE INCLUDED IN THE TABLE OF QUANTITIES.



PAVEMENT SCHEDULE	
C	PROP. APPROX. 3.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
U	EXISTING PAVEMENT.
V	MILLING 2.5"
S	SHOULDER RECONSTRUCTION.



TYPICAL NO. 1



TYPICAL NO. 2

WBS Element	SHEET NO.	TOTAL NO.
37669	3	
MA05022R		

SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	LENGTH MI	WIDTH FT	INCIDENTAL STONE BASE TONS	SHOULDER RECONSTRUCTION SMI	2.5" MILLING SY	INCIDENTAL MILLING SY	SURFACE COURSE, S9.5B TONS	PG 64-22 PLANT MIX TONS	PATCHING EXISTING PAVEMENT TONS	MANHOLES EA	SEED & MULCHING AC	INDUCTIVE LOOP LF
37669	Franklin	1	US 1A	FROM US 1 TO NC 96	1	1.5	26	75	3		800	4,075	244	200		2.25	
		2	NC 96	FROM US 1 TO WINSTON ST	1	1.4	26	70	2.8		1050	3,803	228	200		2.10	1,200
		3	NC 96	C&G SECTION THROUGH YOUNGSVILLE	2	0.3	36			6336		1,072	64	30	5		2,400
	Franklin Wake	4	NC 96	FROM MAIN ST IN YOUNGSVILLE TO NC 98 IN WAKE CO.	1	5.09	26	255	10.18		3600	13,827	830	700		7.64	
TOTAL FOR PROJ NO. 37669						8.29		400	15.98	6336	5450	22,777	1,366	1,130	5	11.99	3,600.00
GRAND TOTAL						8.29		400	15.98	6336	5450	22,777	1,366	1,130	5	11.99	3,600.00

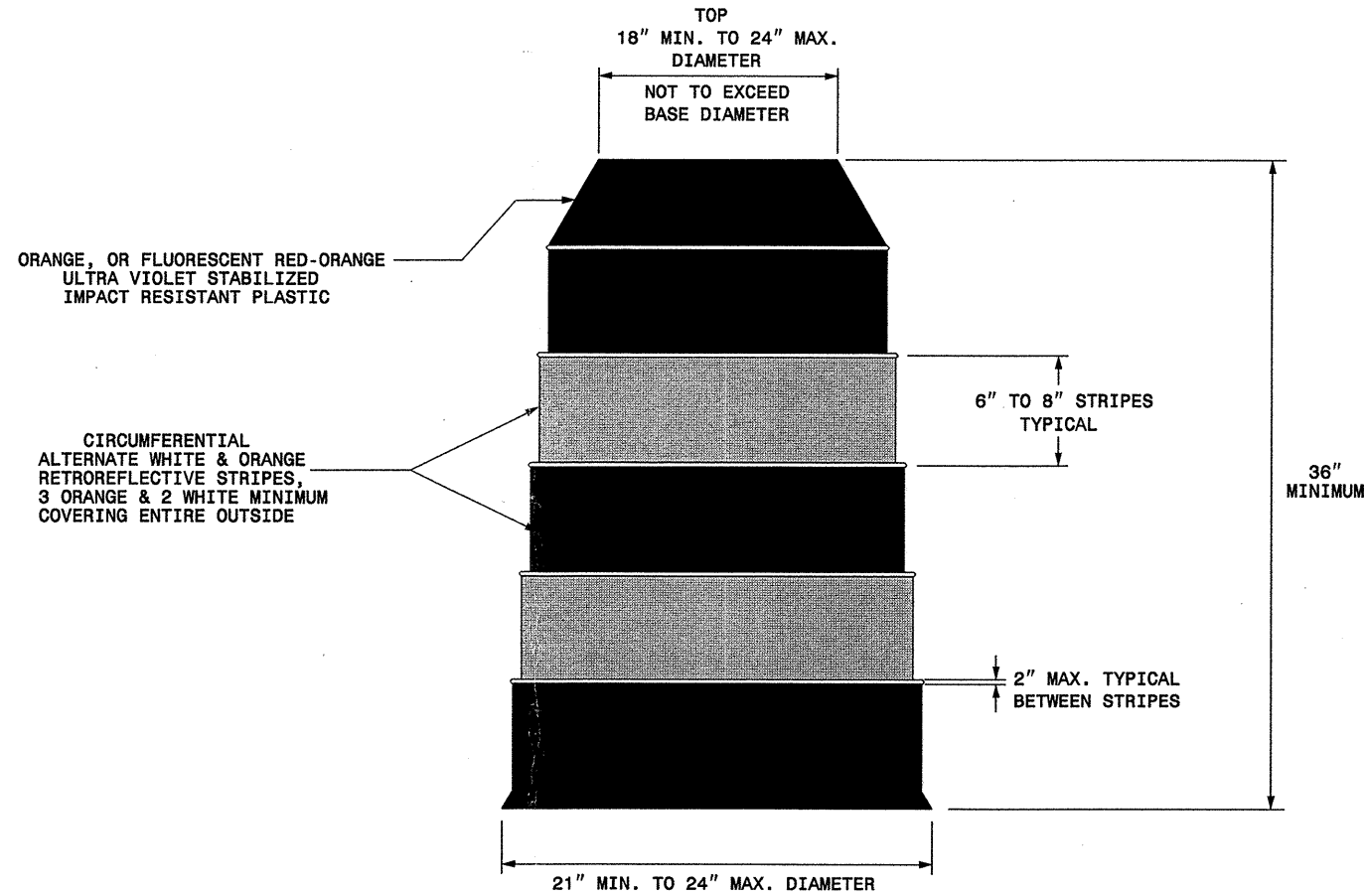
THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	4685000000-E	4686000000-E	4705000000-E	4721000000-E	4725000000-E	4810000000-E	4830000000-E	4835000000-E	4840000000-N	4900000000-N	4900000000-N	
					4" X 90 M WHITE THERMO LF	4" X 120 M YELLOW THERMO LF	4" X 120 M WHITE THERMO LF	16" X 120 M WHITE THERMO LF	THERMO RXR 120 M EA	THERMO LT ARROW 90 M EA	4" YELLOW PAINT LF	16" WHITE PAINT LF	24" WHITE PAINT LF	PAINT MSG RXR EA	YELLOW & YELLOW MARKERS EA	CRYSTAL & RED MARKERS EA
37669	Franklin	1	US 1A	FROM US 1 TO NC 96	16,140	15,840	100			2	15,840				99	10
		2	NC 96	FROM US 1 TO WINSTON ST	15,064	14,784	200			2	14,784				92	10
		3	NC 96	C&G SECTION THROUGH YOUNGSVILLE		3,168		200	4		3,168	100	122	4		
	Franklin Wake	4	NC 96	FROM MAIN ST IN YOUNGSVILLE TO NC 98 IN WAKE CO.	54,768	53,750					53,750				336	
TOTAL FOR PROJ NO. 37669					85,972	87,542	300	200	4	4	87,542	100	122	4	527	20
GRAND TOTAL					85,972	87,542	300	200	4	4	87,542	100	122	4	527	20

STATE OF
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DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
DRUMS

SHEET 1 OF 1
1130D01



GENERAL NOTES

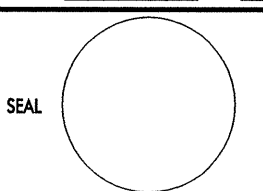

- BALLASTING SHALL BE ACHIEVED BY THE SAND BAG, TIRE-SIDEWALL BALLAST, OR PREFORMED WEIGHTED BASE BALLASTING METHODS. DO NOT PLACE BALLAST ON TOP OF THE DRUM.
- IF NECESSARY PLACE THE NAME OF THE AGENCY, CONTRACTOR, OR SUPPLIER ON NON-RETROREFLECTIVE DRUM SURFACES. SHOW THE LETTERS AND NUMBERS USING A NON-RETROREFLECTIVE COLOR AND NOT OVER 2" IN HEIGHT.

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RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
DRUMS

SHEET 1 OF 1
1130D01

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pseymore AT WZTCC06427

APPROVED: _____ DATE: _____	REPLACEMENT DETAIL FOR RSD 1130.01		<table border="1"> <tr> <td>SCALE: NONE</td> <td colspan="2">REVISIONS</td> </tr> <tr> <td>DATE: 4/02</td> <td>11/02</td> <td></td> </tr> <tr> <td>DWG. BY: MMM</td> <td></td> <td></td> </tr> <tr> <td>DESIGN BY: MMM</td> <td></td> <td></td> </tr> <tr> <td>REVIEWED BY: MMM</td> <td></td> <td></td> </tr> </table>		SCALE: NONE	REVISIONS		DATE: 4/02	11/02		DWG. BY: MMM			DESIGN BY: MMM			REVIEWED BY: MMM		
SCALE: NONE					REVISIONS														
DATE: 4/02	11/02																		
DWG. BY: MMM																			
DESIGN BY: MMM																			
REVIEWED BY: MMM																			
																			

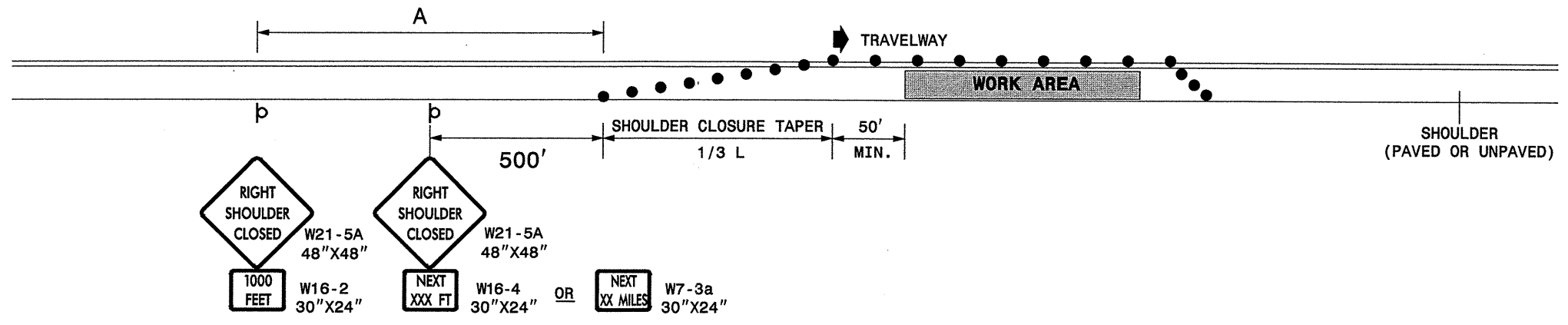
STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
TEMPORARY SHOULDER CLOSURES

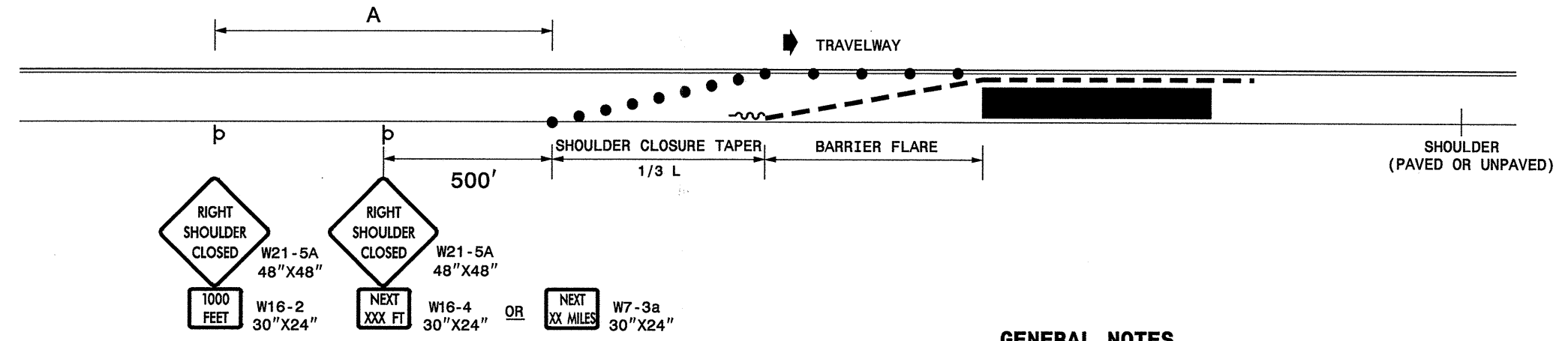
STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR
TEMPORARY SHOULDER CLOSURES

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

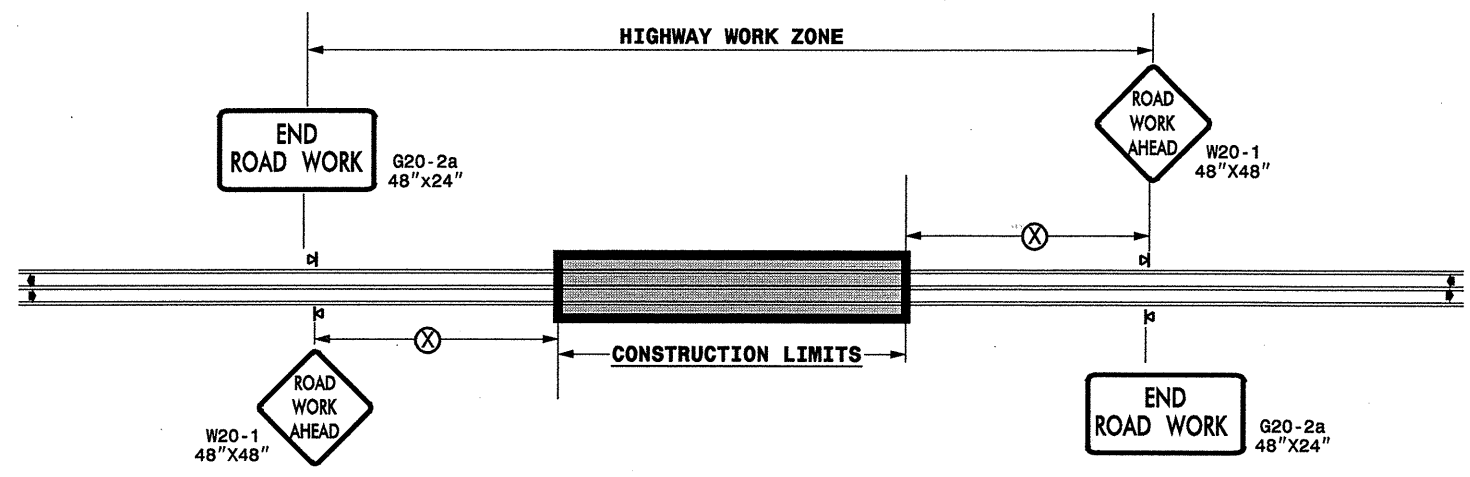
SHEET 1 OF 1
1101D04

SHEET 1 OF 1
1101D04

APPROVED: _____	DATE: _____	REPLACEMENT DETAIL FOR RSD 1101.04	
SCALE: NONE	DATE: 11/04		REVISIONS
DWG. BY: PS	DESIGN BY: JPG		08/05
REVIEWED BY: MMM			

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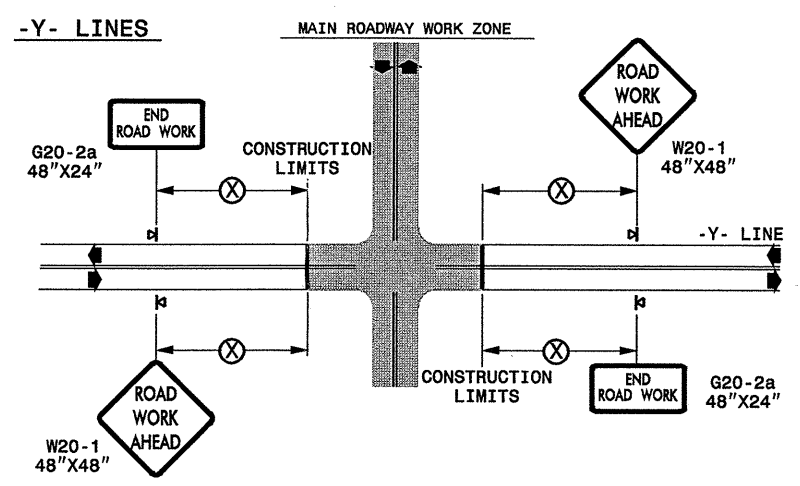
TWO-WAY UNDIVIDED ** (L-LINES)



POSTED SPEED LIMIT (M.P.H.)	RECOMMENDED MINIMUM SIGN SPACING
≤ 50	500'
≥ 55	1000'

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

ROADWAYS INTERSECTING ALONG 2 WAY UNDIVIDED WORK ZONE (Y-LINES)



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 URBAN 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 TWO-WAY UNDIVIDED
WORK ZONE WARNING SIGNS


SHEET 1 OF 1

APPROVED: _____	DATE: _____	DETAIL DRAWING FOR TWO-WAY UNDIVIDED ADVANCED 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: _____	CADD FILE		

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 pseymore AT WZTC206421

TWO LANE, TWO WAY WORK ZONE (L-LINES)

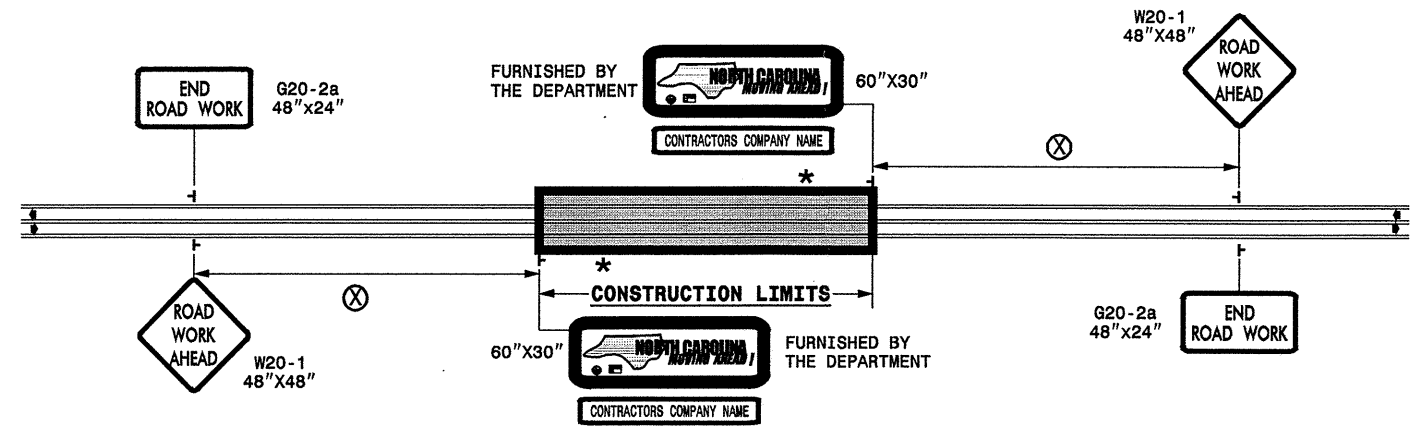
FURNISHED BY THE DEPARTMENT



60" X 30"

CONTRACTORS COMPANY NAME

60" Max. X 12"



POSTED SPEED LIMIT (M.P.H.)	RECOMMENDED MINIMUM SIGN SPACING
P.S.L. ≤ 50	⊗
P.S.L. ≥ 55	350'
	500'

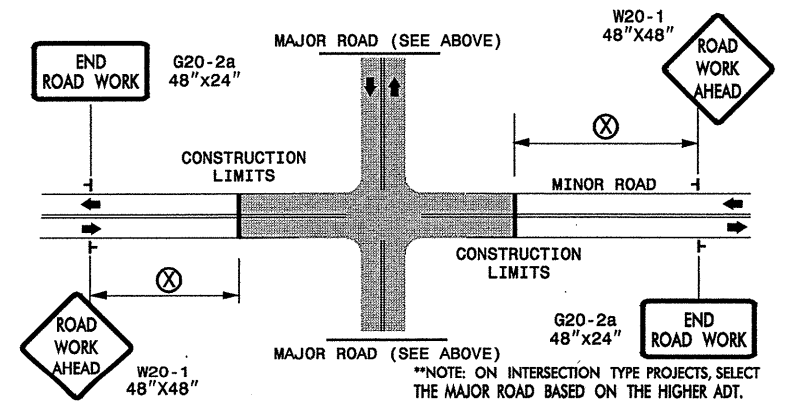
*** ROAD WORK NEXT XX MILES** G20-1A, 60"x24"

THIS SIGN TO BE USED ON PROJECTS LONGER THAN 2 MILES. THE NUMBER DISPLAYED ON THE SIGN IS TO BE A WHOLE NUMBER ROUNDED UP TO THE NEXT MILE. IT'S TO BE LOCATED 1,500 FEET INSIDE OF THE CONSTRUCTION LIMITS.

PROJ. REFERENCE NO. 37669	SHEET NO. NCMA-1
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STATE OF NORTH CAROLINA
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 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

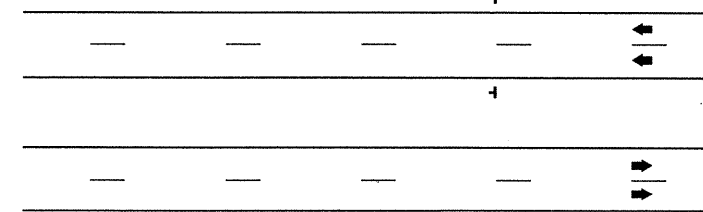
INTERSECTIONS (-Y- LINES)



FREEWAYS / INTERSTATES

DUAL MOUNT "ROAD WORK AHEAD" SIGNS 1,000' IN ADVANCE OF PROJECT LIMITS

DUAL MOUNT "MOVING AHEAD" SIGNS 500' IN ADVANCE OF PROJECT LIMITS



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.
- 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. 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.
- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.
- 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.
- WHEN NECESSARY, USE SPLICING IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1110.01. REMOVE ENTIRE POST WHEN REMOVING SIGNS WITH SPLICED POSTS.
- DO NOT BACK BRACE SIGN SUPPORTS.


LEGEND

└ STATIONARY SIGN

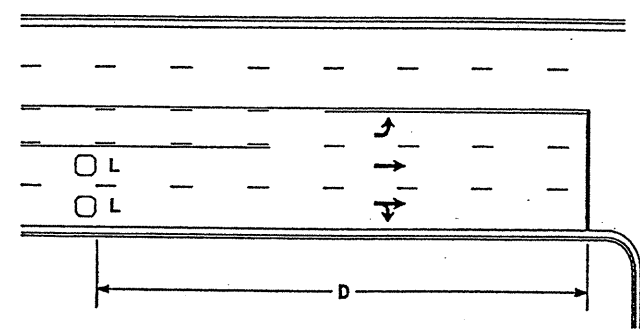
◀ DIRECTION OF TRAFFIC FLOW

DETAIL DRAWING FOR ADVANCE
 WARNING WORK ZONE SIGNS

SHEET 1 OF 1

APPROVED: _____	DATE: _____	ADVANCE WARNING WORK ZONE SIGNS FOR "MOVING AHEAD"						
SEAL	SCALE: NONE							
	DATE: 07/03							
	DWG. BY: JSK							
	DESIGN BY: JSK							
REVIEWED BY: SK	<table border="1" style="width: 100%;"> <thead> <tr> <th colspan="2">REVISIONS</th> </tr> </thead> <tbody> <tr> <td style="width: 50%;">11/04</td> <td style="width: 50%;"></td> </tr> <tr> <td>12/04</td> <td></td> </tr> </tbody> </table>		REVISIONS		11/04		12/04	
REVISIONS								
11/04								
12/04								

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

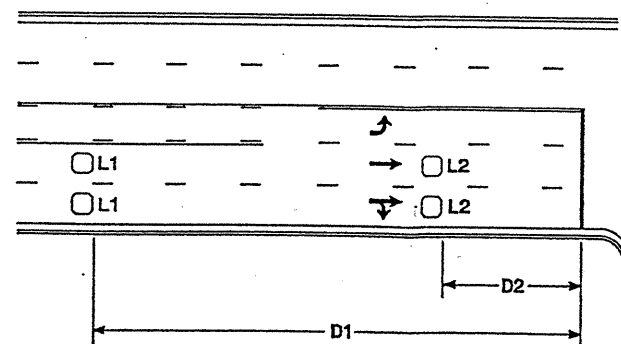


Speed Limit mph (km/hr)	D ft (m)
40 (64)	250 (75)
45 (72)	300 (90)
50 (80)	355 (110)
55 (88)	420 (130)

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

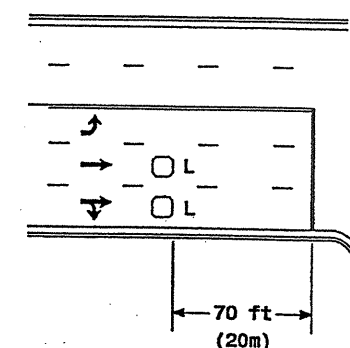


Speed Limit mph (km/hr)	D1 ft (m)	D2 ft (m)
40 (64)	250 (75)	80 (25)
45 (72)	300 (90)	90 (27)
50 (80)	355 (110)	100 (30)
55 (88)	420 (130)	110 (35)

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

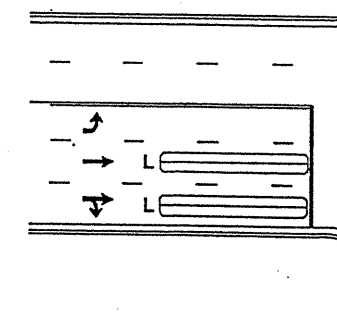
"Stretch" Operation

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



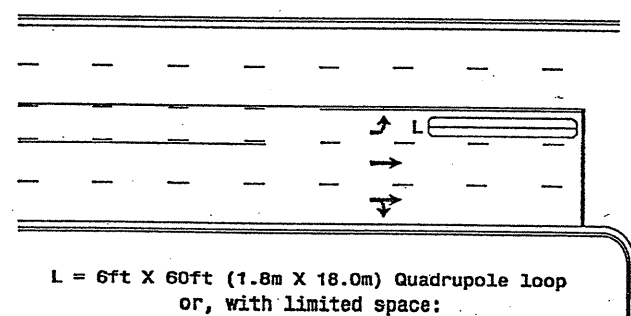
L = 6ft X 6ft (1.8m X 1.8m)
Wired in series

OR



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

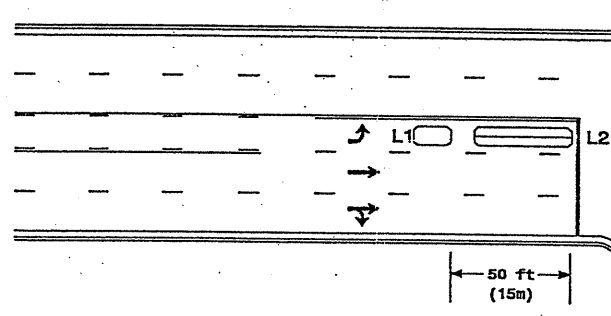
Left Turn Lane Detection



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

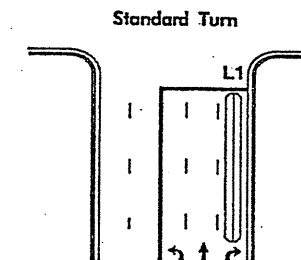
OR



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

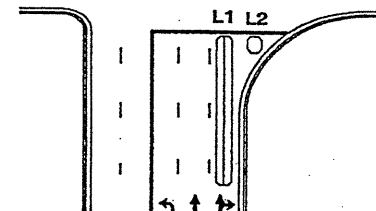
Queue Loop Detection

Right Turn Lane Detection

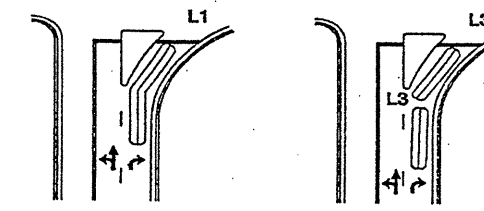


L1 = 6ft X 60ft (1.8m X 18.0m) Quadrupole loop
L2 = 6ft X 6ft (1.8m X 1.8m) [Minimum] Presence loop
Wired separately
L3 = 6ft X 30ft (1.8m X 9.0m) Quadrupole loop
Wired in series

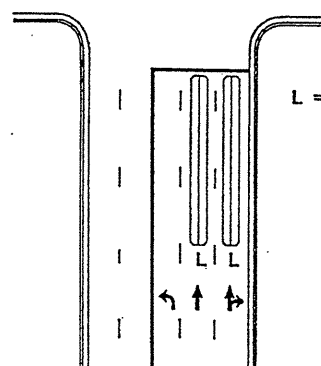
Wide Radius Turn



Channelized Turn



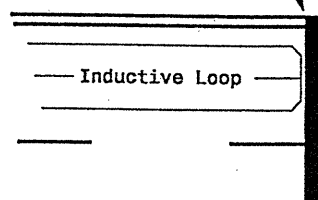
Side Street Detection



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

	<p>Typical Loop Locations</p>		
	<p>PLAN DATE: July 2003</p>	<p>REVIEWED BY:</p>	
<p>PREPARED BY: P. L. Alexander</p>	<p>REVIEWED BY:</p>	<p>REVISIONS</p>	<p>INIT. DATE</p>
<p>7/15/03</p>	<p>SIGNATURE</p>	<p>DATE</p>	<p>SIG. INVENTORY NO.</p>