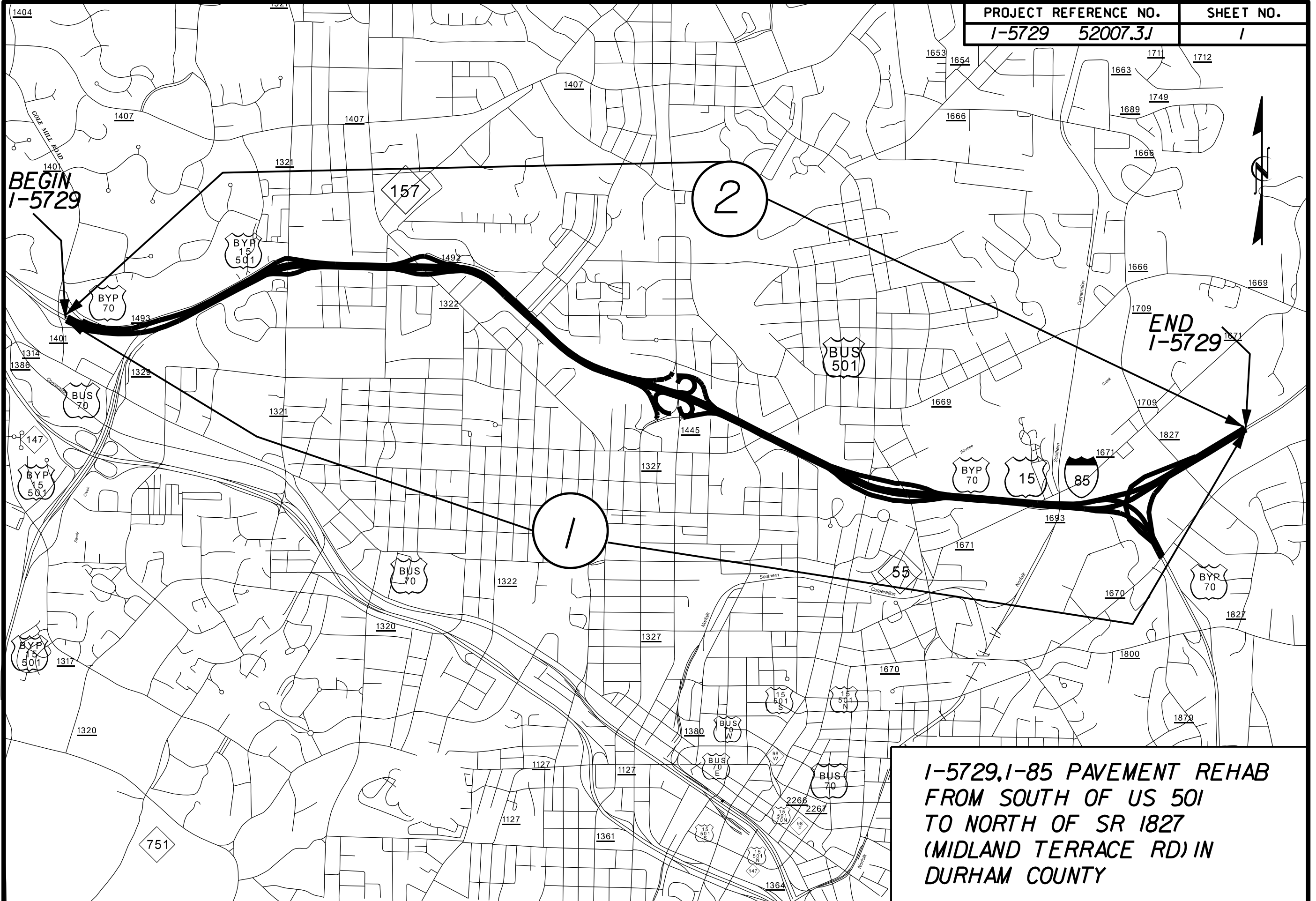
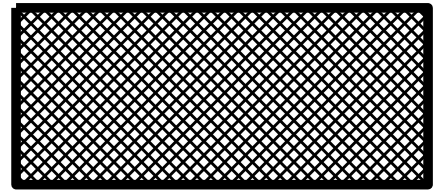
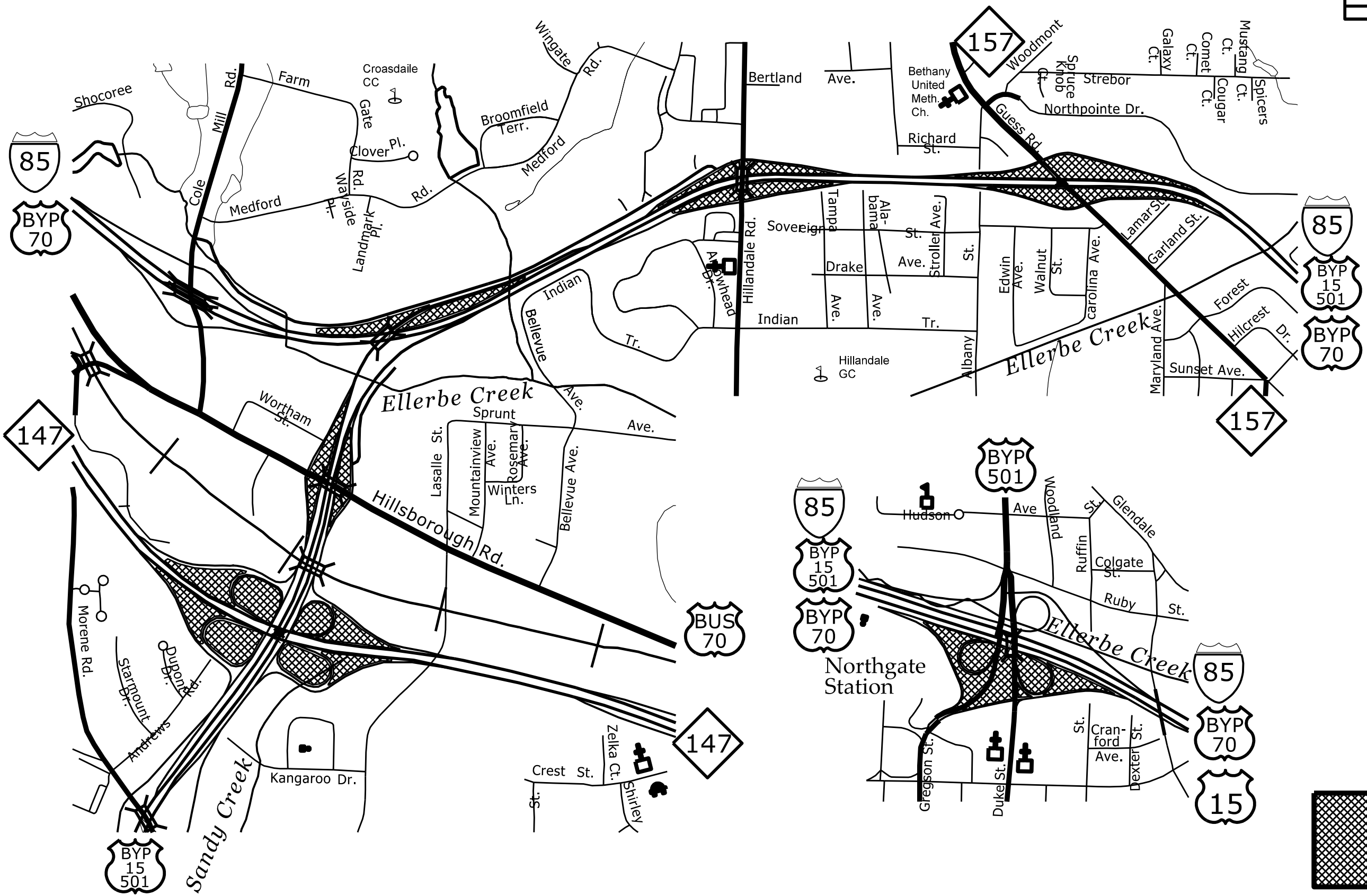


PROJECT REFERENCE NO.	SHEET NO.
I-5729 52007.3I	1



**I-5729, I-85 PAVEMENT REHAB
FROM SOUTH OF US 501
TO NORTH OF SR 1827
(MIDLAND TERRACE RD) IN
DURHAM COUNTY**



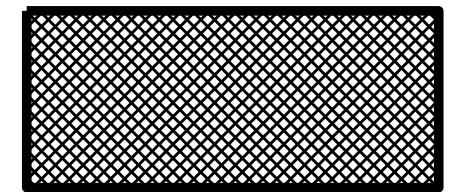
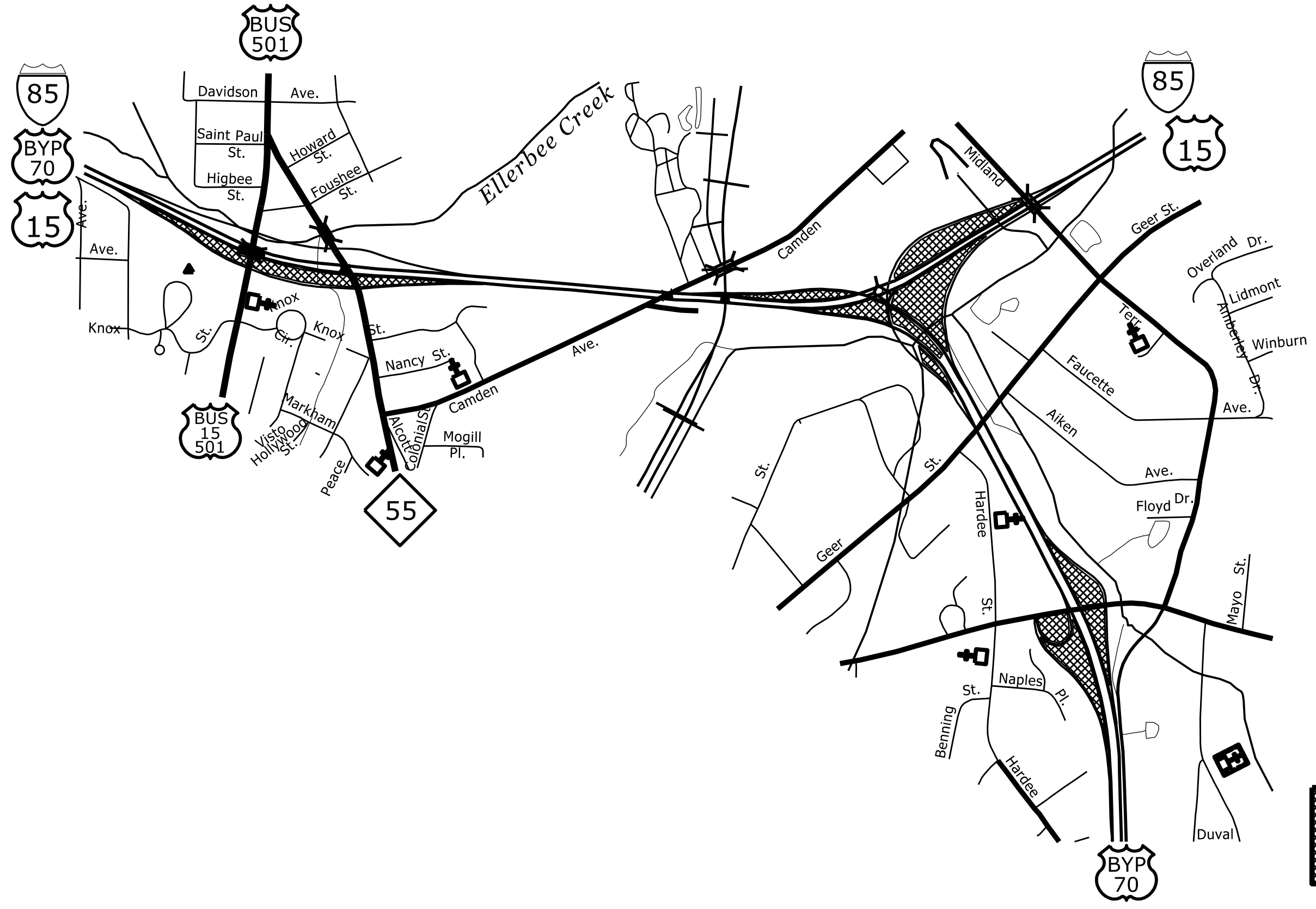
AVAILABLE LAND APPLICATION AREA

CONTRACTS STANDARDS AND DEVELOPMENT UNIT
 Office 919-707-6950 FAX 919-250-4119

DIAMOND GRINDING SLURRY LAND APPLICATION AREAS

ORIGINAL BY: K. KEMPF DATE: JULY 2017
 MODIFIED BY: DATE: _____
 CHECKED BY: DATE: _____
 FILE SPEC: details\kkempf\english\15729 diamond slurry.dgn

SYSTEM\$\$\$\$
 \$\$\$\$\$\$DGN\$\$\$\$\$\$
 \$\$\$\$\$\$SUPERNAME\$\$\$\$\$\$



AVAILABLE LAND APPLICATION AREA

CONTRACTS STANDARDS AND DEVELOPMENT UNIT
 Office 919-707-6950 FAX 919-250-4119

DIAMOND GRINDING SLURRY LAND APPLICATION AREAS

ORIGINAL BY: K. KEMPF DATE: JULY 2017
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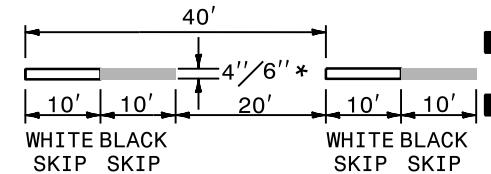
SYSTEMS DESIGN
 SUGGERNAME

PAVEMENT SCHEDULE

C	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVG. RATE OF 224 LBS PER SQ. YD.
J	PROP. 6" AGGREGATE BASE COURSE, AS DIRECTED BY THE ENGINEER
S	PROP. SHOULDER RECONSTRUCTION WITH AGGREGATE SHOULDER BORROW, AS DIRECTED BY THE ENGINEER
U1	EXISTING CONCRETE PAVEMENT
U2	EXISTING ASPHALT PAVEMENT
V1	PROP. 2" MILLING ASPHALT PAVEMENT
V2	PROP. CONTINUOUS MILLED RUMBLE STRIP (ASPHALT CONCRETE), AS DIRECTED BY THE ENGINEER
Y	PROPOSED DIAMOND GRINDING

BLACK - WHITE COMBINATION 10' WHITE SKIP LINES 10' BLACK SKIP LINES

FOR USE ON CONCRETE PAVEMENTS TO PROVIDE CONTRAST FOR THE WHITE LANE LINE, ALONG THRU LANES AND RAMP LANES.



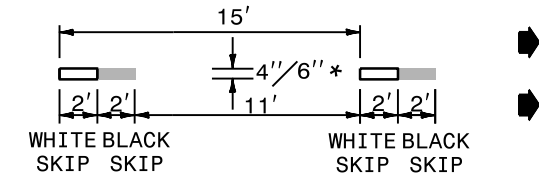
*NOTE:
WHERE TWO WIDTHS ARE INDICATED, THE FIRST WIDTH APPLIES TO A "NORMAL" WIDTH LINE, THE SECOND WIDTH APPLIES TO A "WIDE" LINE.

"WIDE" LINES ARE REQUIRED WHEN DESIGNATED IN THE PLANS, OR WHEN DIRECTED BY THE ENGINEER.

6" LINE REMOVAL SHALL BE USED TO REMOVE 100% OF THE 4" TEMPORARY PAINT ON THE CONCRETE SURFACE BY GRINDING METHOD ONLY. ALSO 6" LINE REMOVAL BY GRINDING SHALL BE USED IN THE AREA OF THE BLACK CONTRAST FOR SURFACE PREPARATION.

BLACK - WHITE COMBINATION 2' MINI WHITE SKIP LINES 2' MINI BLACK SKIP LINES

FOR USE ON CONCRETE PAVEMENTS TO PROVIDE CONTRAST FOR THE WHITE LANE LINE, ALONG THRU LANES AND RAMP LANES.

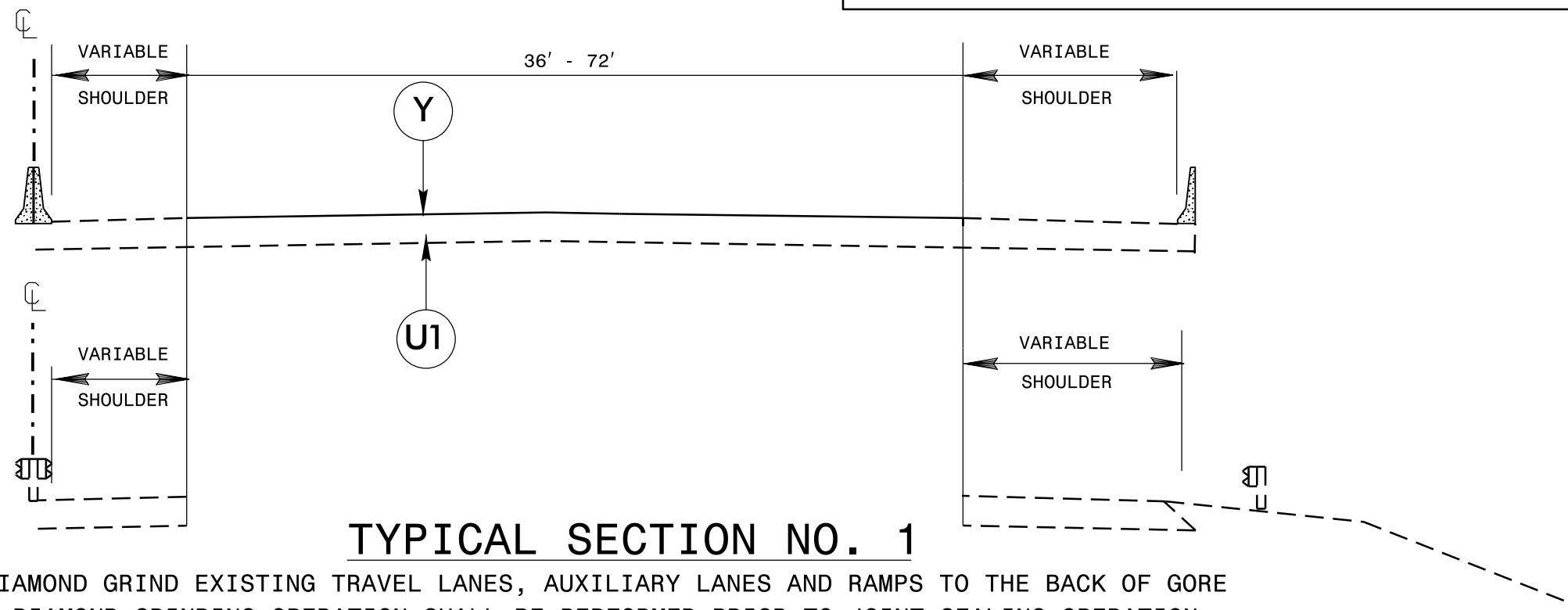


*NOTE:
WHERE TWO WIDTHS ARE INDICATED, THE FIRST WIDTH APPLIES TO A "NORMAL" WIDTH LINE, THE SECOND WIDTH APPLIES TO A "WIDE" LINE.

"WIDE" LINES ARE REQUIRED WHEN DESIGNATED IN THE PLANS, OR WHEN DIRECTED BY THE ENGINEER.

6" LINE REMOVAL SHALL BE USED TO REMOVE 100% OF THE 4" TEMPORARY PAINT ON THE CONCRETE SURFACE BY GRINDING METHOD ONLY. ALSO 6" LINE REMOVAL BY GRINDING SHALL BE USED IN THE AREA OF THE BLACK CONTRAST FOR SURFACE PREPARATION.

PRIOR TO PLACING FINAL PAVEMENT MARKING MATERIAL ON CONCRETE SURFACES THAT ARE DIAMOND GROUND, THE CONTRACTOR SHALL USE AN ACCEPTABLE METHOD TO GRIND RIDGES SMOOTH ONLY WHERE PAVEMENT MARKINGS WILL BE INSTALLED.



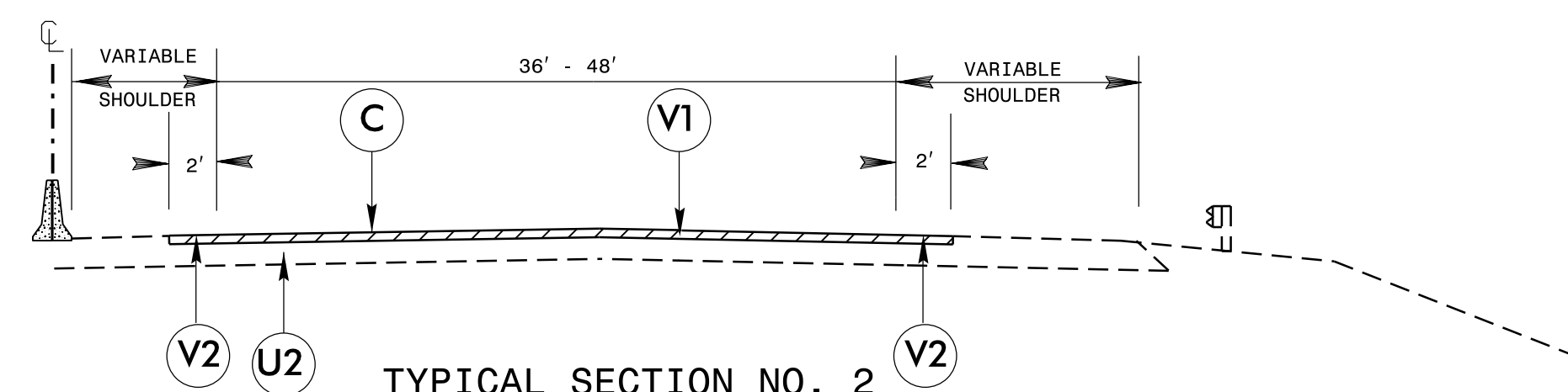
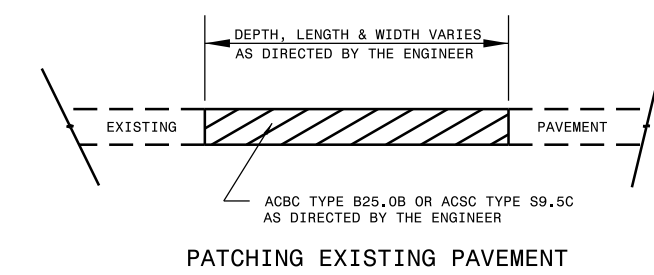
TYPICAL SECTION NO. 1

DIAMOND GRIND EXISTING TRAVEL LANES, AUXILIARY LANES AND RAMPS TO THE BACK OF GORE
DIAMOND GRINDING OPERATION SHALL BE PERFORMED PRIOR TO JOINT SEALING OPERATION

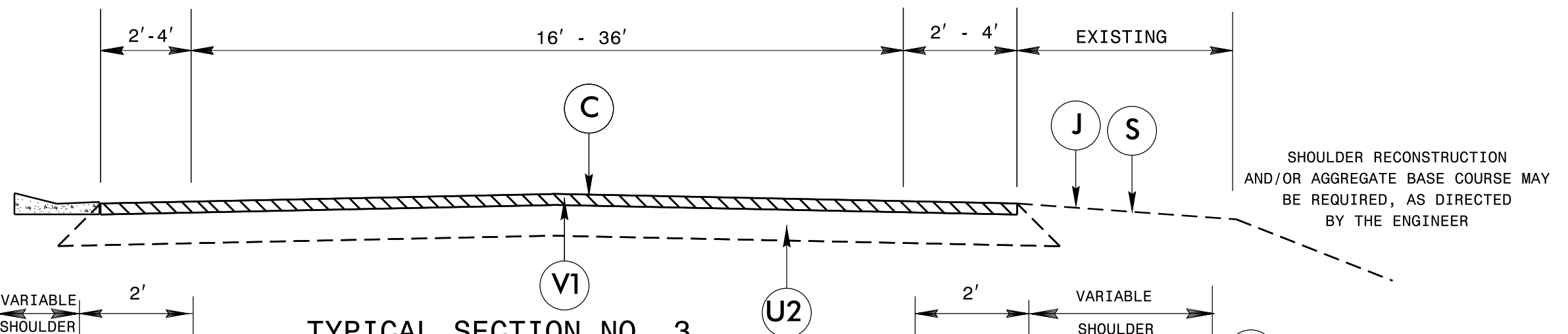
PAVEMENT SCHEDULE

PROJECT REFERENCE NO.	SHEET NO.
1-5729 52007.3J	5

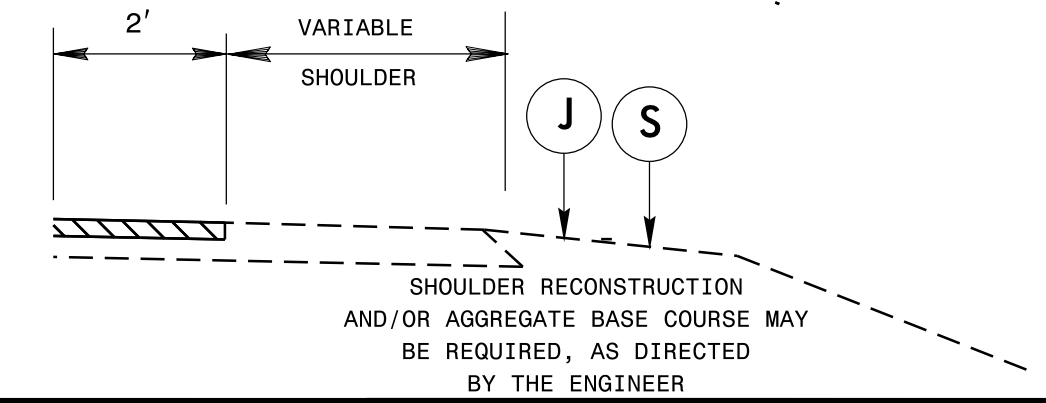
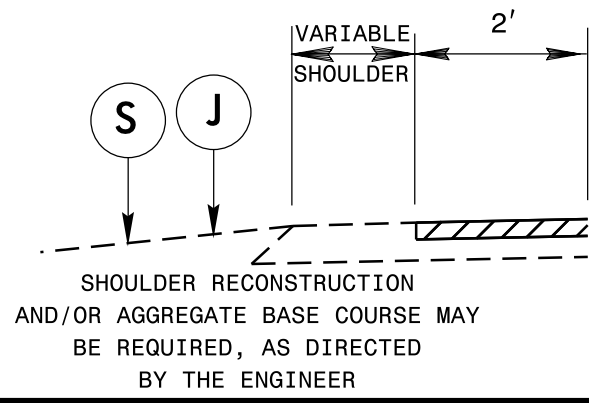
C	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVG. RATE OF 224 LBS PER SQ. YD.	U2	EXISTING ASPHALT PAVEMENT
J	PROP. 6" AGGREGATE BASE COURSE, AS DIRECTED BY THE ENGINEER	V1	PROP. 2" MILLING ASPHALT PAVEMENT
S	PROP. SHOULDER RECONSTRUCTION WITH AGGREGATE SHOULDER BORROW, AS DIRECTED BY THE ENGINEER	V2	PROP. CONTINUOUS MILLED RUMBLE STRIP (ASPHALT CONCRETE), AS DIRECTED BY THE ENGINEER
U1	EXISTING CONCRETE PAVEMENT	Y	PROPOSED DIAMOND GRINDING



TYPICAL SECTION NO. 2
TYPICAL SHALL BE USED FOR ASPHALT MAINLINE SECTION BETWEEN STRUCTURE OVER COLE MILL RD AND BEGINNING OF CONCRETE PAVEMENT

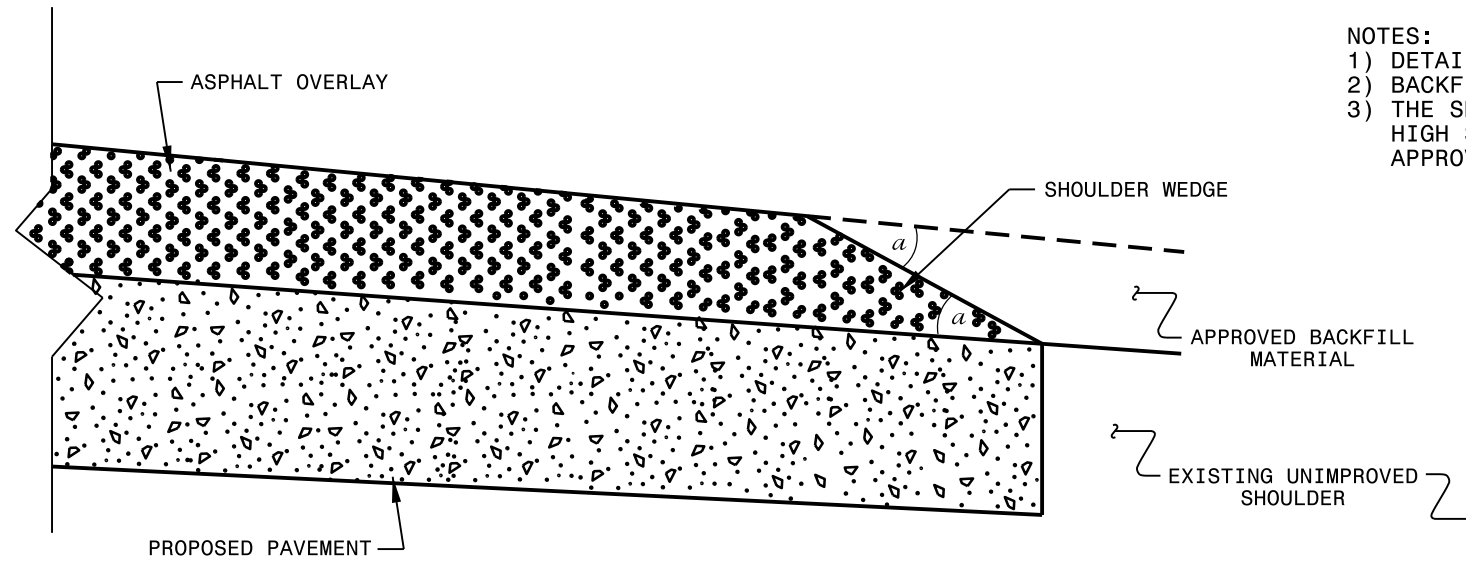


TYPICAL SECTION NO. 3
TYPICAL SHALL BE USED FOR ASPHALT RAMPS, LOOPS AND COLLECTORS

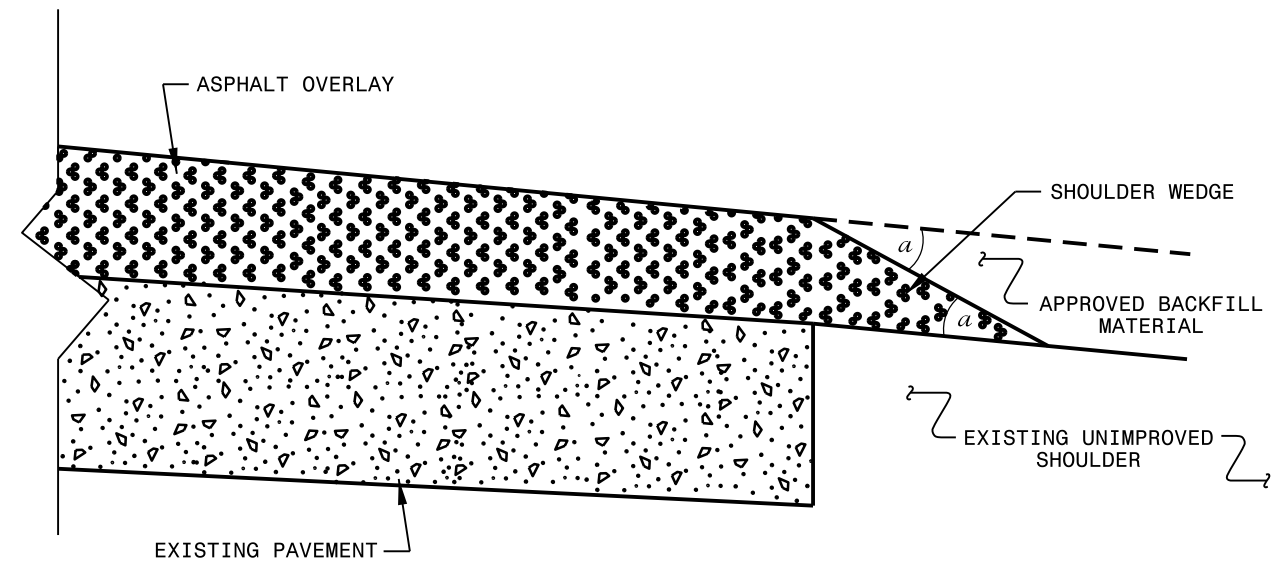


NOTES:

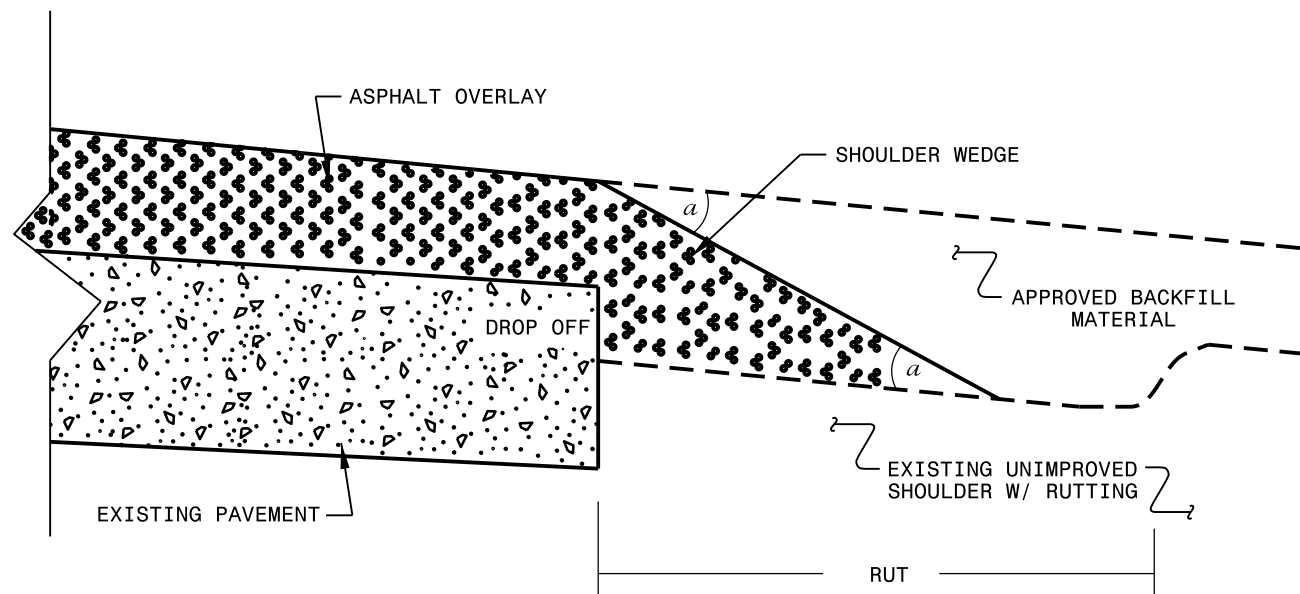
- 1) DETAIL DOES NOT APPLY TO OGAFB AND ULTRA-THIN BONDED WEARING COURSE.
- 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
- 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS, SIDE STREETS, HIGH SHOULDERS, AND OTHER LOCATIONS NOT FEASIBLE TO CONSTRUCT AS APPROVED BY THE ENGINEER.



SHOULDER WEDGE DETAIL
 (Resurfacing Projects w/ Widening or
 with Existing Paved Shoulder having no dropoffs)



SHOULDER WEDGE DETAIL
 (Resurfacing Projects w/ NO Widening)



SHOULDER WEDGE DETAIL
 (Resurfacing Adjacent to
 Rutted Shoulder)

- SHOULDER WEDGE ANGLE = 30°

CONTRACT STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950	FAX 919-250-4119
SHOULDER WEDGE DETAILS	
ORIGINAL BY: T.SPELL	DATE: 7-19-11
MODIFIED BY:	DATE: 2/2/16
CHECKED BY:	DATE:
FILE SPEC.: s:\usr\details\stand\shoulderwedgedetail.dgn	

PROJECT NO.		SHEET NO.	TOTAL NO.
I-5729	52007.3.1	7	

SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	FINAL SURFACE TESTING REQUIRED (CONCRETE PAVEMENT)	WARM MIX ASPHALT REQUIRED	LENGTH MI	WIDTH FT	DIAMOND GRINDING PCC PAVEMENT SY	BORROW CY	AGGREGATE BASE COURSE TONS	SHOULDER RECONSTRUCTION SMI	2" MILLING SY	SURFACE COURSE, S9.5C TONS	ASPHALT BINDER FOR PLANT MIX TON	PATCHING EXISTING PAVEMENT TONS	PATCHING CONCRETE PAVEMENT SPALLS SF	MILLED RUMBLE STRIPS (ASPHALT CEMENT CONCRETE) 665.01 LF	SEALING EXISTING CONCRETE PAVEMENT JOINTS LF	PORTABLE LIGHTING LS	TEMP. SILT FENCE LF	WATTLE LF	INDUCTIVE LOOP LF
I-5729 52007.3.1	Durham	1	I-85 NORTH BOUND	FROM STRUCTURE OVER COLE MILL RD TO ASPHALT PAVEMENT JOINT EAST OF SR 1827 (MIDLAND TERRACE RD)	1, 2, 3	5	YES	NO	5.61	36-72	177,708	187	350	1.87	53,909	6,340	374	100	20	3,325	339,303	*	50	50	3,016
		2	I-85 SOUTH BOUND	FROM ASPHALT JOINT EAST OF SR 1827 (MIDLAND TERRACE RD) TO STRUCTURE OVER COLE MILL RD	1, 2, 3	5	YES	NO	5.61	36-72	179,288	94	148	0.94	58,746	6,909	408	100	20	3,420	344,340		50	50	4,630
GRAND TOTAL									5.61		356,996	281	498	2.81	112,655	13,249	782	200	40	6,745	683,643	1	100	100	7,646

PROJECT NO.	SHEET NO.	TOTAL NO.
I-5729 52007.3.1	8	

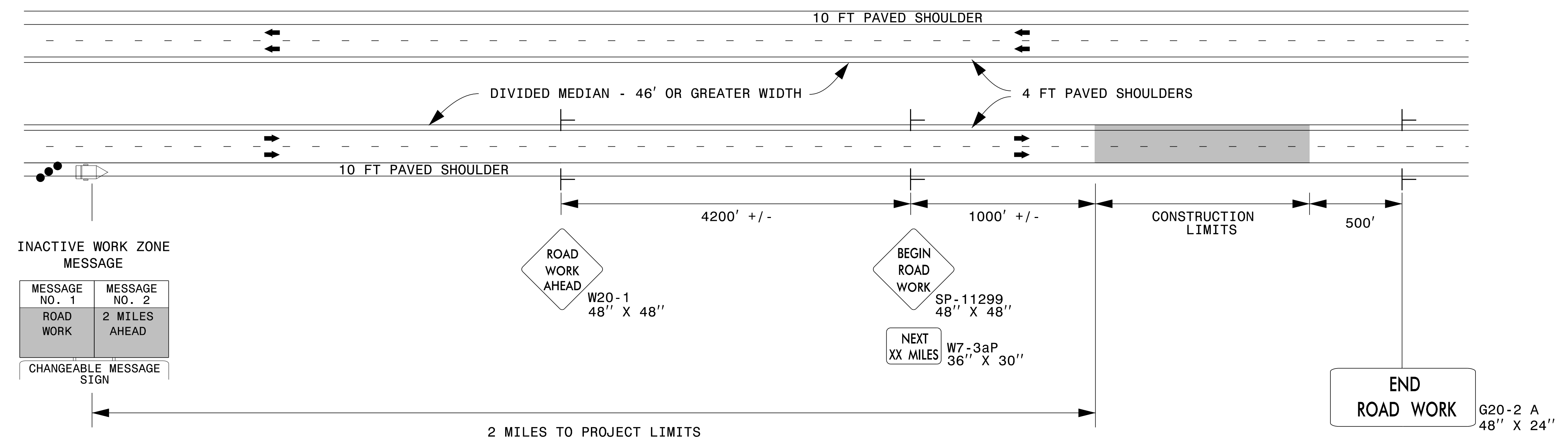
THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	LENGTH	WIDTH	44000000	44050000	44100000	44150000	44200000	44220000	44300000	44450000000	4480000000	45100000000	46000000000	46000000000	46000000000	46850000000-E	4686000000	46880000000-E	4690000000	4695000000	4697000000	4700000000-E			
										WORK ZONE SIGNS (STATIONARY) SF	WORK ZONE SIGNS (PORTABLE) SF	WORK ZONE SIGNS (BARRICADE MOUNTED) SF	FLASHING ARROW BOARD EA	PORTABLE CMS EA	PORTABLE CMS (SHORT TERM) DAY	DRUMS EA	BARRICADES (TYPE III) LF	TMA EA	LAW ENFORCEMENT HR	PRESENCE LIGHTING EA	SEQUENTIAL FLASHING WARNING LIGHTS EA	WORK ZONE DIGITAL SPEED LIMIT SIGNS EA	4" X 90 M YELLOW THERMO LF	4" X 90 M WHITE THERMO LF	4" X 120 M WHITE THERMO LF	6" X 90 M YELLOW THERMO LF	6" X 90 M WHITE THERMO LF	6" X 120 M WHITE THERMO LF	8" X 90 M WHITE THERMO LF	8" X 120 M WHITE THERMO LF	8" X 90 M WHITE THERMO LF	8" X 120 M WHITE THERMO LF
I-5729 52007.3.1	Durham	1	I-85 NORTH BOUND	FROM STRUCTURE OVER COLE MILL RD TO ASPHALT PAVEMENT JOINT EAST OF SR 1827 (MIDLAND TERRACE RD)	1, 2, 3	5		5.61	72	524	360	20	2	5	45	200	32	2	60	12	33	2	13,255	11,100	2,776	1,625	1,630	990	2,310	945	790	
			I-85 SOUTH BOUND	FROM ASPHALT JOINT EAST OF SR 1827 (MIDLAND TERRACE RD) TO STRUCTURE OVER COLE MILL RD	1, 2, 3	5		5.61	72												60				12,218	11,097	4,112	1,648	1,568	961	2,060	1,025
GRAND TOTAL									5.61																							
											524	360	20	2	5	45	200	32	2	120	12	33	2	25,473	22,197	6,888	3,273	3,198	1,951	4,370	1,970	1,830
																						47,670			6,471							

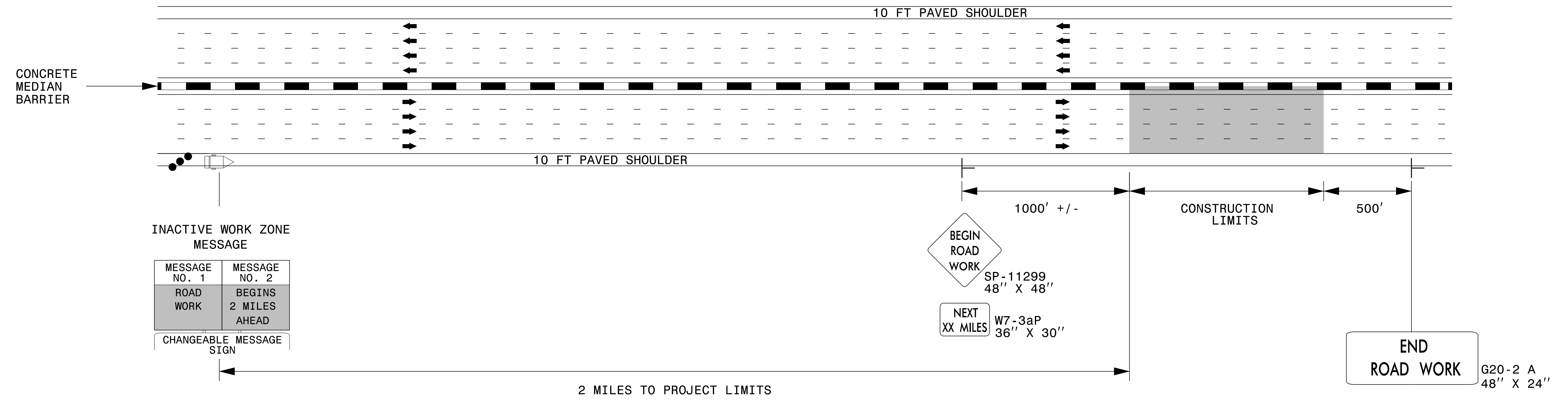
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	LENGTH	WIDTH	47100000	47210000	4725000000-E							4785000000	4800000000-N					4805000000-N					4810000000-E		4815000000-E		4820000000	4825000000	4835000000-E
										24" X 120 M WHITE THERMO LF	THERMO MSG ONLY 120 M EA	THERMO RT ARROW 90 M EA	THERMO LT ARROW 90 M EA	THERMO STR & LT ARROW 90 M EA	THERMO O STR ARROW 90 M EA	THERMO O STR ARROW 90 M EA	THERMO YIELD TRI-ANGLE 90 M EA	12" WHITE COLD APPL. PLAS., TYPE II LF	COLD APPLIED MSG ONLY, TYPE II EA	COLD APPLIED PLASTIC RT ARROW, TYPE II EA	COLD APPLIED PLASTIC STR ARROW, TYPE II EA	COLD APPLIED PLASTIC STRAIGHT RIGHT ARROW, TYPE II EA	COLD APPLIED PLASTIC MERGE ARROW, TYPE II EA	4" WHITE PAINT LF	4" YELLOW PAINT LF	6" YELLOW PAINT LF	6" WHITE PAINT LF	8" WHITE PAINT LF	12" WHITE PAINT LF	24" WHITE PAINT LF						
I-5729 52007.3.1	Durham	1	I-85 NORTH BOUND	FROM STRUCTURE OVER COLE MILL RD TO ASPHALT PAVEMENT JOINT EAST OF SR 1827 (MIDLAND TERRACE RD)	1, 2, 3	5		5.61	72	218		7	6	7	6	4	18	340	35	14	8	10	16	70,036	41,245	1,625	2,620	13,485	1,130	218						
			I-85 SOUTH BOUND	FROM ASPHALT JOINT EAST OF SR 1827 (MIDLAND TERRACE RD) TO STRUCTURE OVER COLE MILL RD	1, 2, 3	5		5.61	72	330	8	18	10	8	4	7	354	75	31	16	14	9	76,690	42,498	1,648	2,529	12,440	1,394	330							
GRAND TOTAL									5.61																											
											548	8	25	16	15	6	8	25	694	110	45	24	24	25	146,726	83,743	3,273	5,149	25,925	2,524	548					
											95							118					230,469		8,422											

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	LENGTH	WIDTH	484000000	4845000000-N							48470000000	4890000000	4847100000-E		4890000000	4847120000	4850000000	4865000000	4900000000	49050000000-N
										PAINT MSG ONLY EA	PAINT RT ARROW EA	PAINT LT ARROW EA	PAINT STR & LT ARROW EA	PAINT MERGE ARROW EA	PAINT STR ARROW EA	PAINT YIELD TRI-ANGLE EA	4" WHITE POLYUREA (HIGHLY REFLECTIVE ELEMENTS) LF	4" BLACK POLYUREA PAV. MARKING LINES LF	6" WHITE POLYUREA (HIGHLY REFLECTIVE ELEMENTS) LF	6" YELLOW POLYUREA (HIGHLY REFLECTIVE ELEMENTS) LF	6" BLACK POLYUREA PAV. MARKING LINES LF	12" WHITE POLYUREA (HIGHLY REFL. ELEMENTS) LF	6" LINE REMOVAL LF	12" LINE REMOVAL LF	CRYSTAL & RED MARKERS EA	SNOW PLOWABLE MARKERS EA	
I-5729 52007.3.1	Durham	1	I-85 NORTH BOUND	FROM STRUCTURE OVER COLE MILL RD TO ASPHALT PAVEMENT JOINT EAST OF SR 1827 (MIDLAND TERRACE RD)	1, 2, 3	5		5.61	72	7	6	7	6	4	18			56,160	27,990	25,910	10,230	110,060	10,570	64	2,212		
			I-85 SOUTH BOUND	FROM ASPHALT JOINT EAST OF SR 1827 (MIDLAND TERRACE RD) TO STRUCTURE OVER COLE MILL RD	1, 2, 3	5		5.61	72	8	18	10	8	4	7	525	525	61,481	30,280	26,516	9,355	118,277	9,709	150	2,211		
GRAND TOTAL									5.61																		
											8	25	16	15	6	8	25	525	525	117,641	58,270	52,426	19,585	228,337	20,279	214	4,423
											95							175,911									

DIVIDED MEDIANS WITH WIDTHS 46' OR GREATER



DIVIDED MEDIANS WITH WIDTHS LESS THAN 46' OR WITH PERMANENT MEDIAN BARRIER

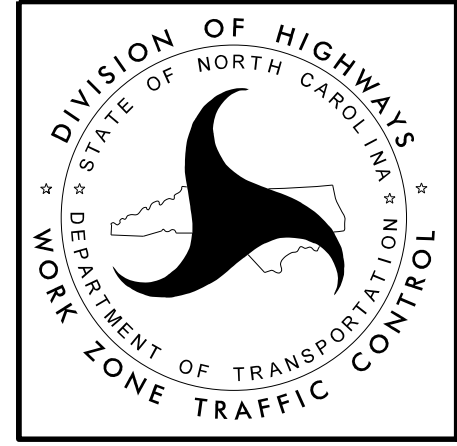


NOTES:

- 1) LATERAL CLEARANCE AT ALL SIGN LOCATIONS SHALL BE 6' AS MEASURED FROM THE EDGE OF PAVEMENT.
- 2) MOUNT SIGNS THAT ARE LARGER THAN 10 SQUARE FEET IN AREA ON TWO OR MORE WOOD OR U-CHANNEL SUPPORTS. PERFORATED SQUARE TUBING SUPPORT SYSTEMS MAY SUPPORT LARGER AREAS ON A SINGLE SUPPORT. FOLLOW MANUFACTURER'S RECOMMENDATIONS. THESE SYSTEMS SHALL BE NCHRP 350 COMPLIANT AND NCDOT APPROVED.
- 3) FOR MEDIAN WIDTHS LESS THAN 46' (MEASURED EDGELINE TO EDGELINE) USE THE BOTTOM DRAWING.
- 4) IF STATIONARY GENERAL WARNING SIGNS ARE USED, THEY WILL BE PAID FOR PER SECTION 104 OF THE NCDOT STANDARD SPECIFICATIONS AS EXTRA WORK.
- 5) INSTALL "ROAD WORK AHEAD" (W20-1) ALONG ENTRANCE RAMPS 500' PRIOR TO RAMP TERMINAL, AND "END ROAD WORK" (G20-2a) AT THE END OF EXIT RAMPS WITHIN THE WORK ZONE.

LEGEND

- CHANGEABLE MESSAGE SIGN (CMS)
- STATIONARY SIGN
- DIRECTION OF TRAFFIC FLOW
- TRAFFIC DRUM



**RESURFACING ADVANCE
WARNING SIGNS FOR
HIGH SPEED FACILITIES
≥ 60 MPH**

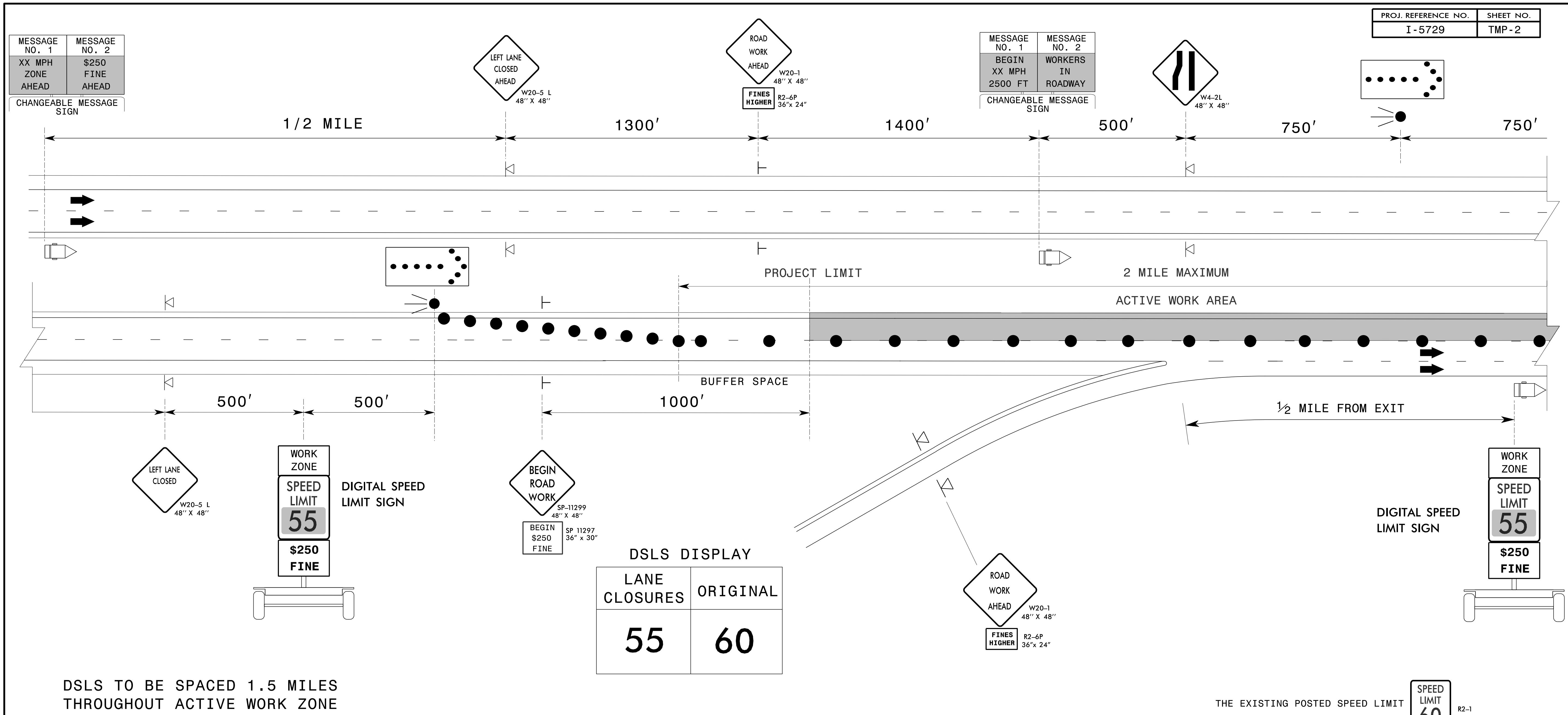
8/12/2016 S:\T\U\WZTC\DesignGroup3\Squad3B\0Data\Projects\I-5729\I5729_Resurfacing_AdvWarn_HSpd.dgn User:kedds

MESSAGE NO. 1	MESSAGE NO. 2
XX MPH ZONE AHEAD	\$250 FINE AHEAD

CHANGEABLE MESSAGE SIGN

MESSAGE NO. 1	MESSAGE NO. 2
BEGIN XX MPH ZONE AHEAD	WORKERS IN ROADWAY

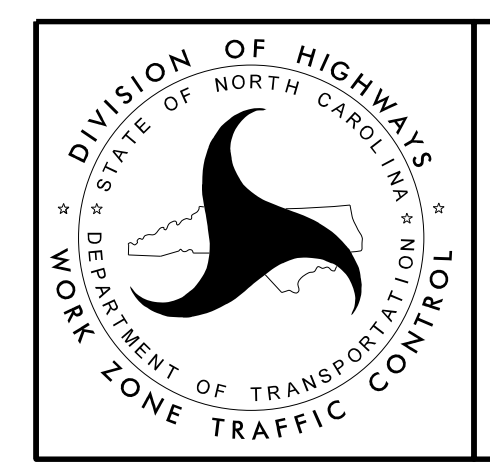
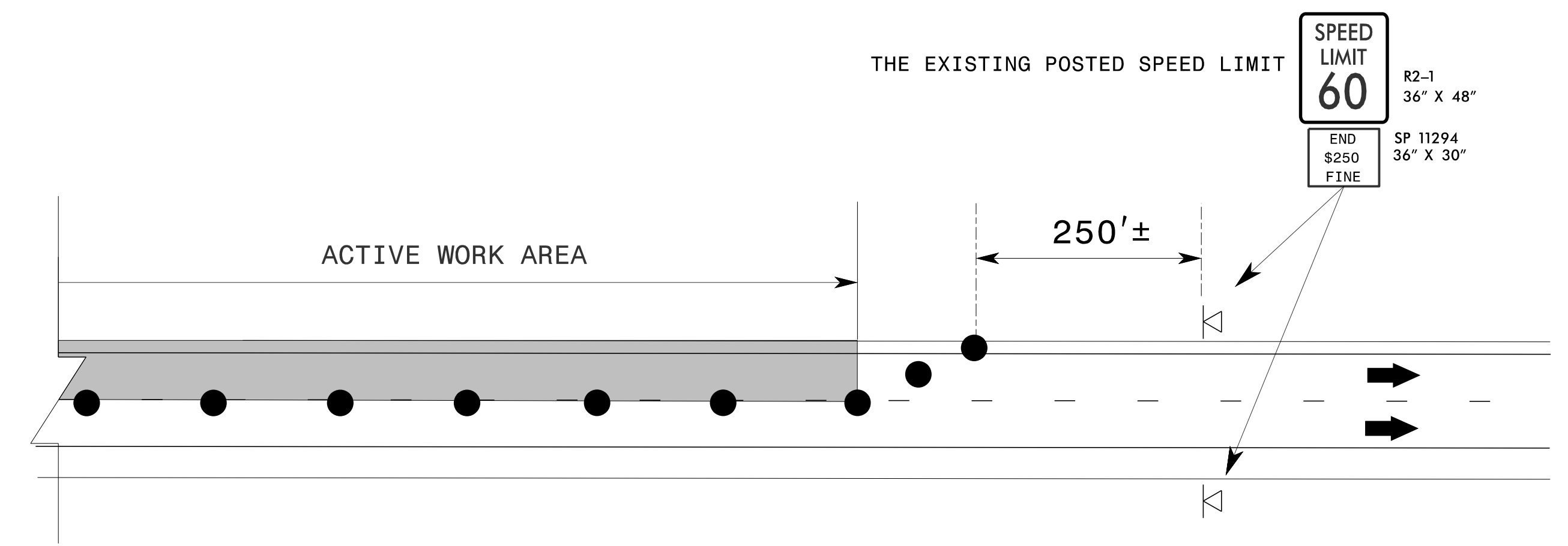
CHANGEABLE MESSAGE SIGN



DSLS TO BE SPACED 1.5 MILES THROUGHOUT ACTIVE WORK ZONE

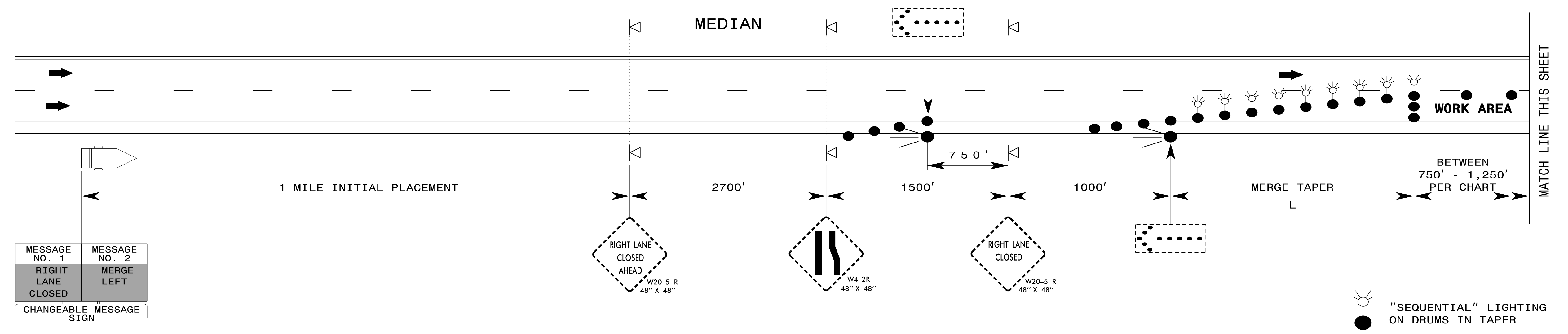
GUIDELINES

1. NCDOT HAS SOLE AUTHORITY OF THE SPEED LIMITS DISPLAYED ON THE DIGITAL SPEED LIMIT SIGNS.
2. THE WORK ZONE VARIABLE SPEED LIMIT REDUCTION ("WZVSLR") IS FOR USE ONLY AFTER AN ENGINEERING INVESTIGATION HAS BEEN PERFORMED BY THE REGIONAL TRAFFIC ENGINEER, THE DIVISION AND THE WORK ZONE TRAFFIC CONTROL SECTION.
3. THE "WZVSLR" IS INTENDED FOR USE ON FREEWAYS WITH ORIGINAL SPEED LIMITS 60 MPH OR GREATER. THE POSTED SPEED LIMITS DISPLAYED WITHIN THE ACTIVE WORK ZONE MAY VARY BETWEEN 55 MPH TO 70 MPH, DEPENDENT UPON ROAD WORK CONDITIONS AND THE ORIGINAL SPEED LIMIT OF THE FACILITY.
4. THIS APPLICATION IS FOR SHORT-TERM ACTIVITIES (i.e. LANE CLOSURES AND ROAD CLOSURES). THE MAXIMUM LANE CLOSURE LENGTH IS 2 MILES UNLESS OTHERWISE SHOWN IN THE PLANS. THE "WZVSLR" SHALL NOT BE IN OPERATION CONTINUOUSLY (24/7) FOR A PERIOD EXCEEDING 30 CALENDAR DAYS.
5. ALL ORIGINAL SPEED LIMIT SIGNS SHALL BE COVERED OR REMOVED. THE DIGITAL SPEED LIMIT SIGNS WILL TAKE THE PLACE OF ALL ORIGINAL STATIONARY SPEED LIMIT SIGNS. THE DIGITAL SPEED LIMIT SIGNS MAY BE TRAILER MOUNTED OR STATIONARY MOUNTED.
6. THE STATE TRAFFIC ENGINEER HAS TO ORDINANCE THE "WZVSLR" IN ORDER FOR THE REDUCTION AND/OR \$250 SPEEDING FINE TO BE VALID AND ENFORCEABLE. NO SPEED LIMIT MESSAGES/SIGNS SHALL BE INSTALLED PRIOR TO RECEIVING A SIGNED ORDINANCE. IN ADDITION, THE \$250 SPEEDING FINE ALSO REQUIRES A SEPARATE SIGNED ORDINANCE BY THE STATE TRAFFIC ENGINEER.
6. EACH DIRECTION OF THE PROJECT IS TO BE EVALUATED FOR THE "WZVSLR". THIS DRAWING INTENTIONALLY HAS 1 DIRECTION SIGNED AS A REMINDER TO CAREFULLY CONSIDER WHETHER BOTH DIRECTIONS OF THE PROJECT NEED TO HAVE THE SPEED LIMIT REDUCED.

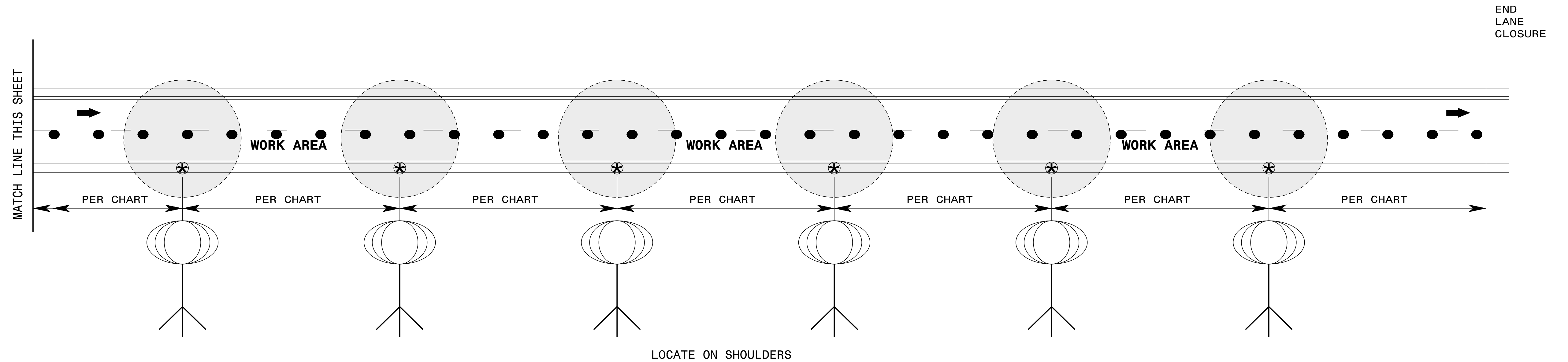


WORK ZONE "VARIABLE" SPEED LIMIT REDUCTION USING DIGITAL SPEED LIMIT SIGNS

ADVANCE WARNING AREA



WORK ZONE AREA

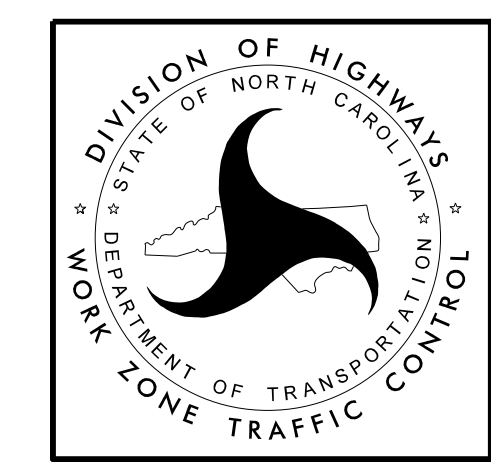


SPACING CHART

LIGHT OUTPUT (LUMENS)	MINIMUM LIGHTED FIXTURE AREA (SQUARE FEET)	MAXIMUM SPACING (FEET)	LIGHT UNITS (PER MILE)
50,000 TO 65,000	5.5	750'	6
66,000 TO 80,000	5.5	1,000'	5
81,000 TO 100,000	36	1,250'	4

NOTES

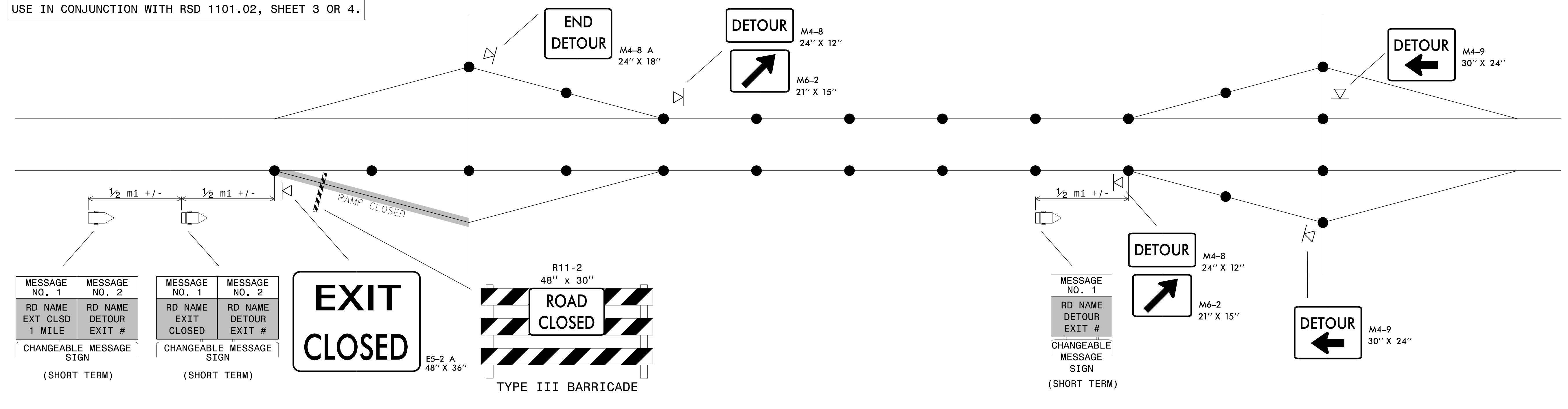
- 1) SPACE LIGHT UNITS ACCORDING TO THE CHART.
- 2) EACH LIGHT UNIT SHALL BE CAPABLE OF ELEVATING TO A MINIMUM HEIGHT OF 14' ABOVE THE PAVEMENT.
- 3) PLACE ON PAVED SHOULDER IF POSSIBLE.



WORK ZONE
"PRESENCE"
LIGHTING

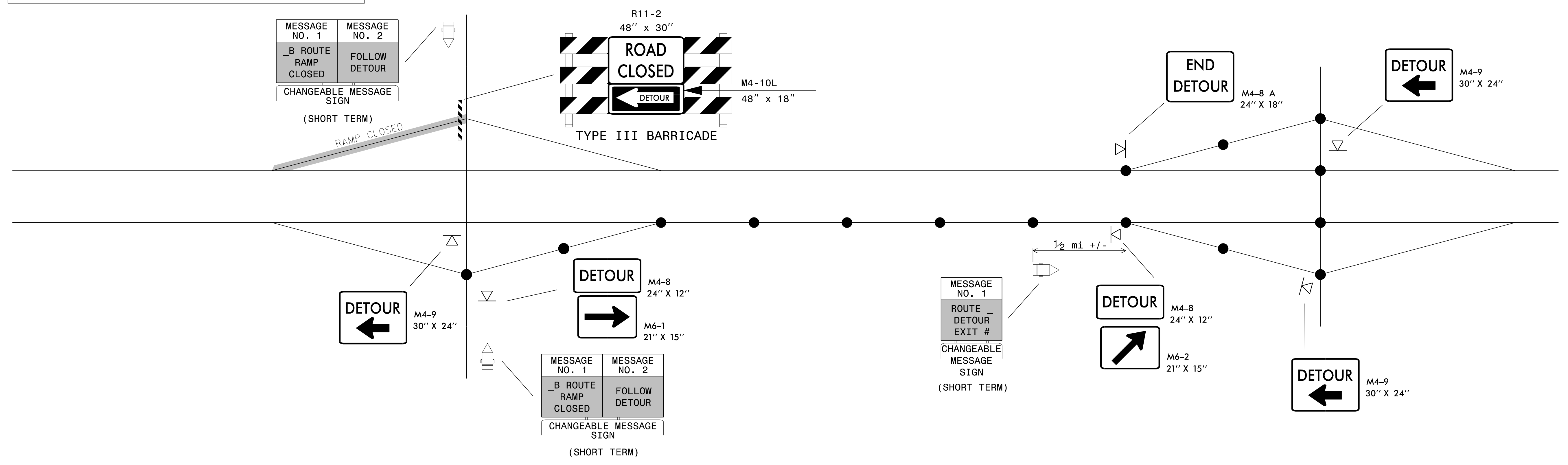
SHORT TERM CLOSURE AND DETOUR OF OFF-RAMP TO ADJACENT INTERCHANGE

USE IN CONJUNCTION WITH RSD 1101.02, SHEET 3 OR 4.



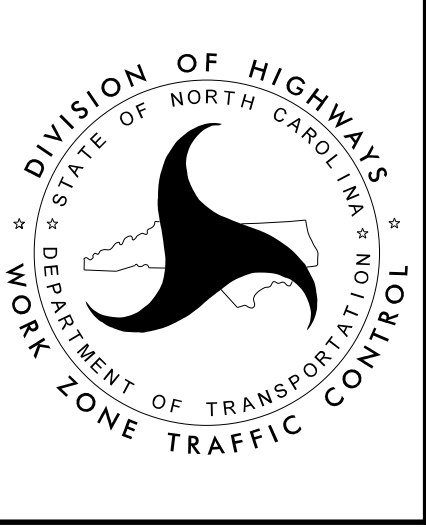
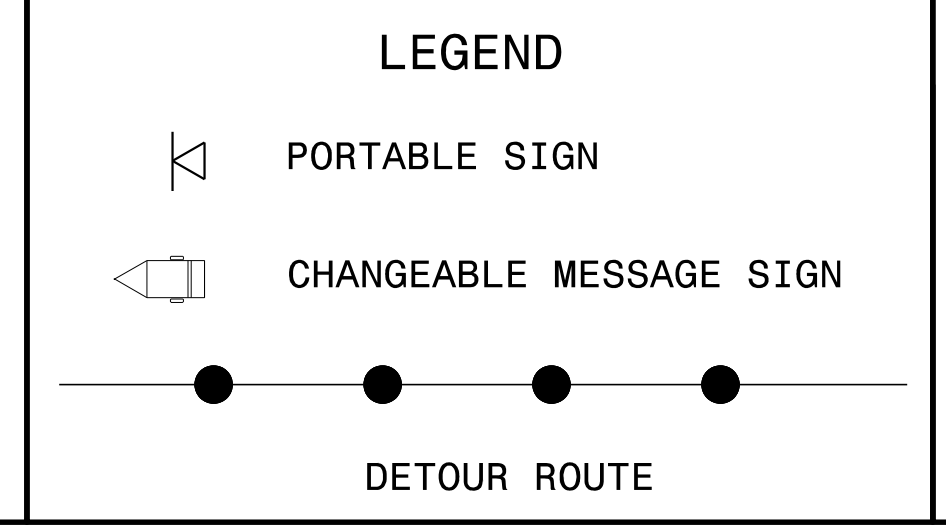
SHORT TERM CLOSURE AND DETOUR OF ON-RAMP TO ADJACENT INTERCHANGE

USE IN CONJUNCTION WITH RSD 1101.02, SHEET 3 OR 4.



GENERAL NOTES:

1. THIS DRAWING IS INTENDED FOR USE DURING SHORT TERM CLOSURES OF INTERSTATE AND FREEWAY RAMPS.
2. RAMP CLOSURES SHALL BE APPROVED BY THE ENGINEER.
3. IF RAMP CLOSURE RESTRICTIONS APPLY, SEE SPECIAL PROVISION, "INTERMEDIATE CONTRACT TIMES AND LIQUIDATED DAMAGES".
4. ADDITIONAL CHANGEABLE MESSAGE SIGNS AND POSSIBLE DETOUR SIGNS MAY BE NECESSARY FOR MORE COMPLEX CLOSURES/DETOURS. COMPENSATION FOR ADDITIONAL DEVICES SHALL BE MADE BASED ON THE UNIT BID PRICE FOR THE RESPECTIVE DEVICE.



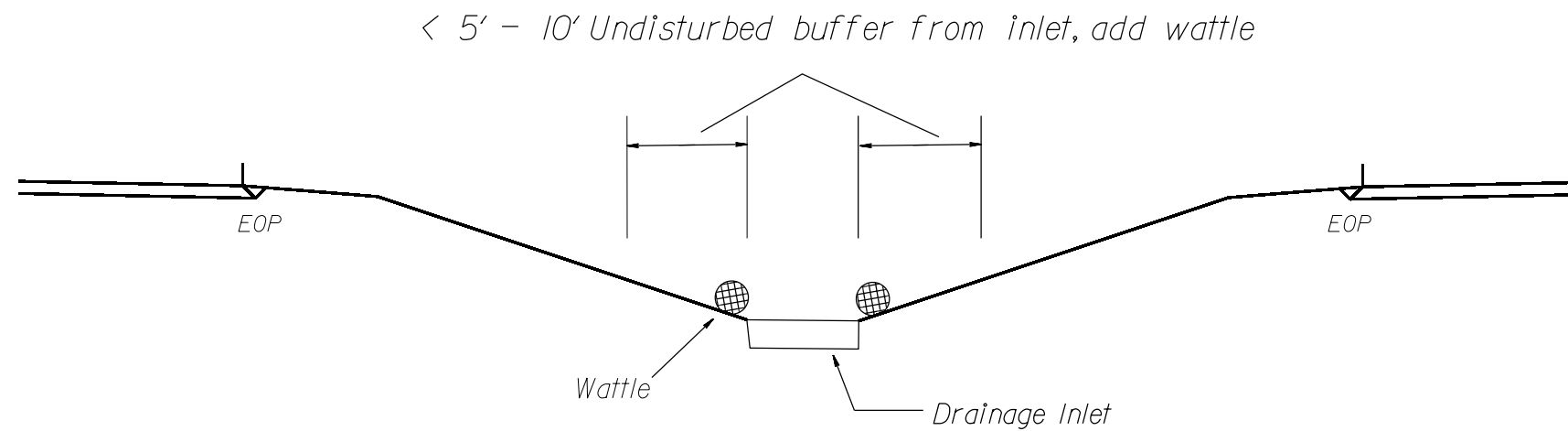
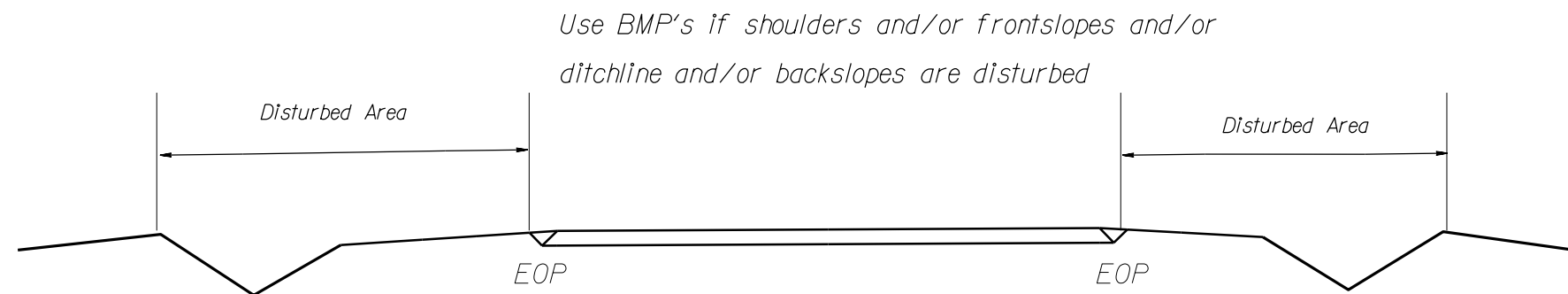
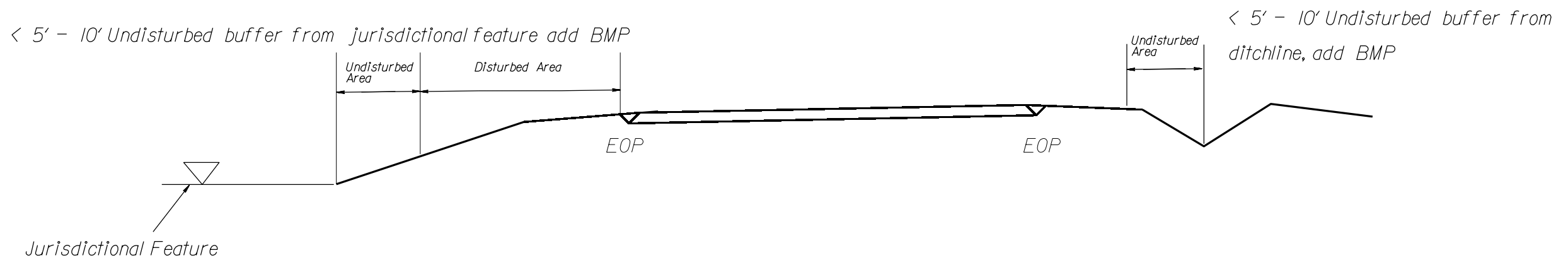
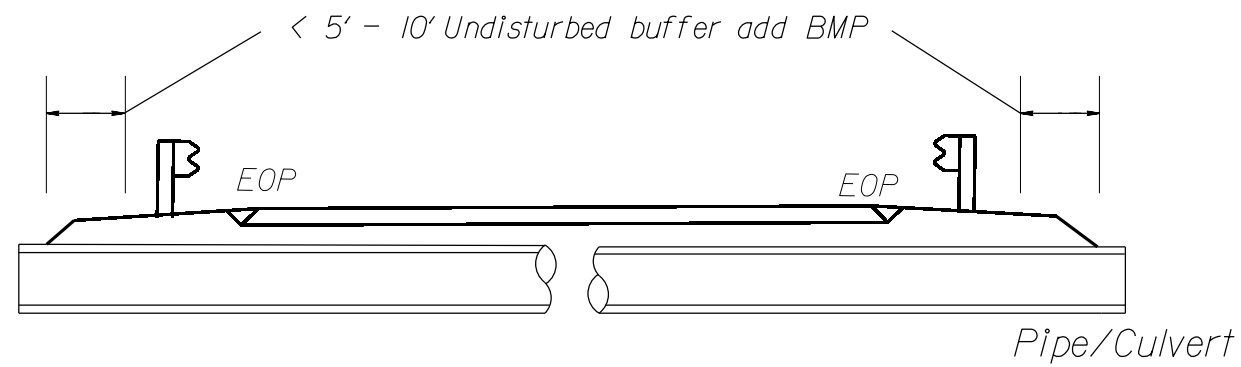
SHORT TERM CLOSURE AND DETOUR OF INTERSTATE/FREEWAY RAMPS

8/12/2016 S:\TMD\WZTC\DesignGroup3\Squad3B\0Data\Projects\I-5729\Typical\Off-Ramp_Detour.dgn User:keddis

NOTES: Less than 5' - 10' undisturbed buffer from ROW, ditchline, water feature, or drainage inlet, add BMP.

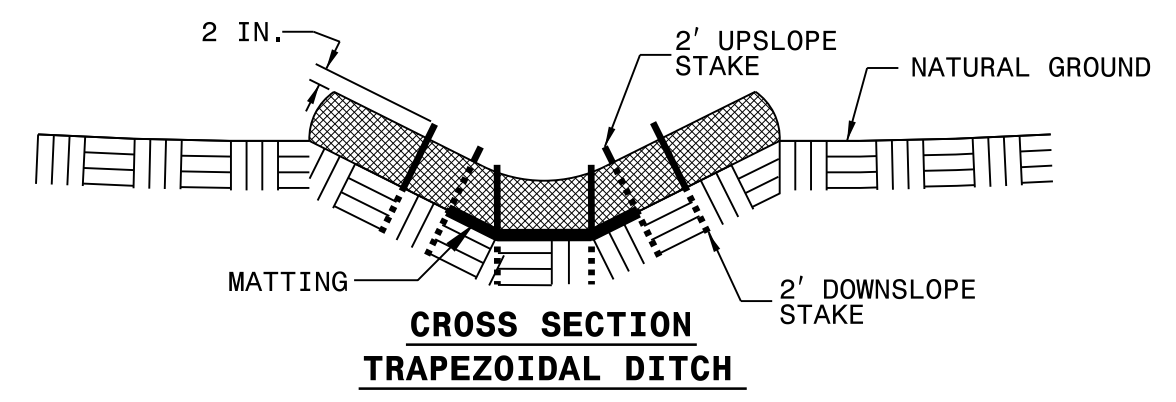
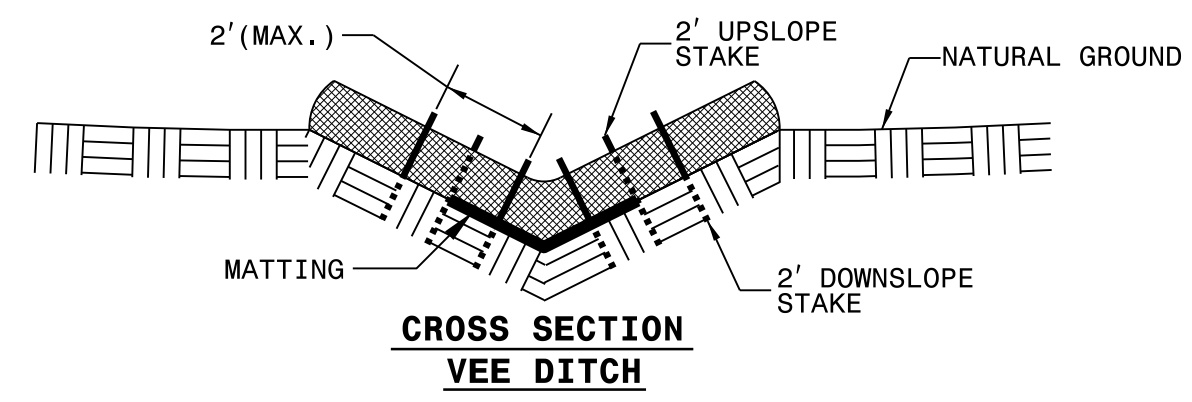
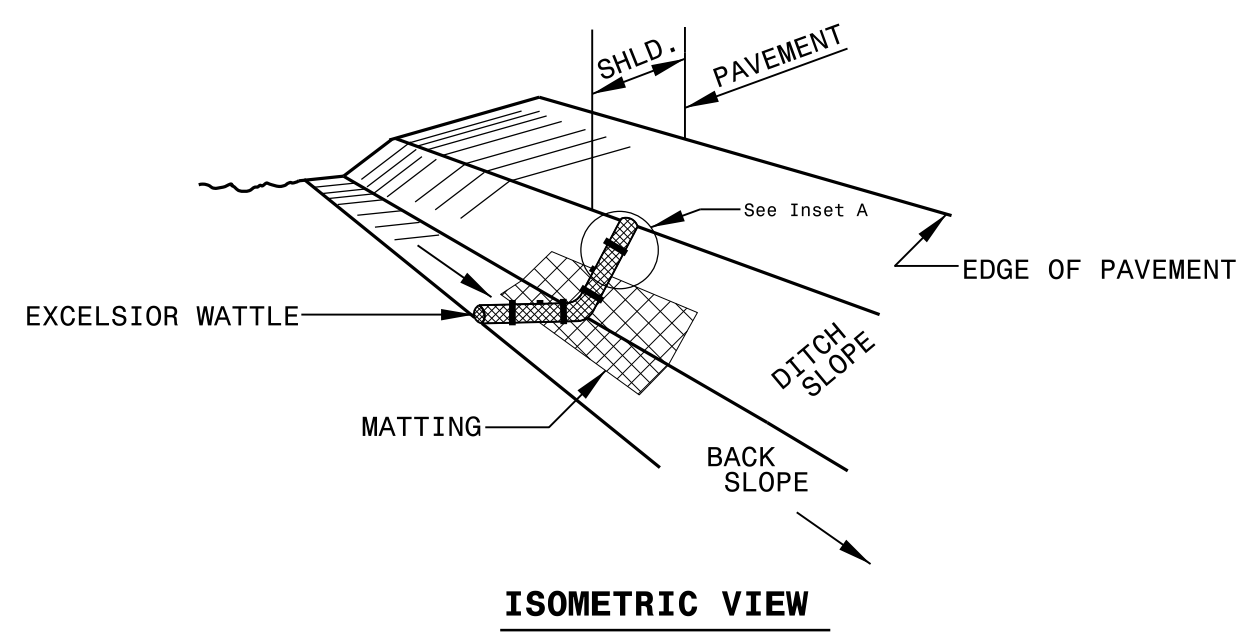
BMP Options: Wattle, Silt Fence or Hardened Aggregate.

EROSION CONTROL DETAIL

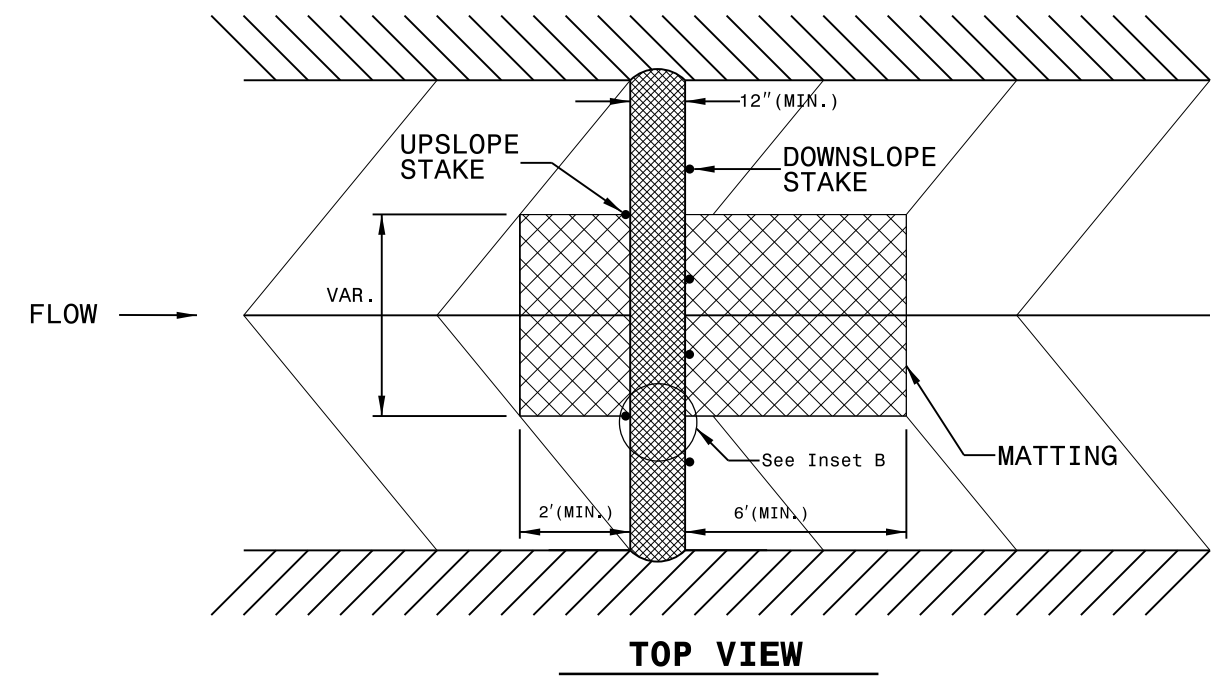
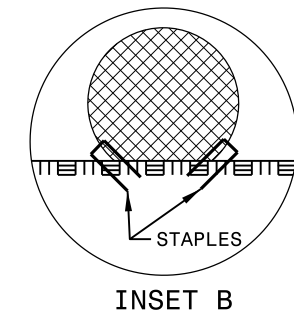
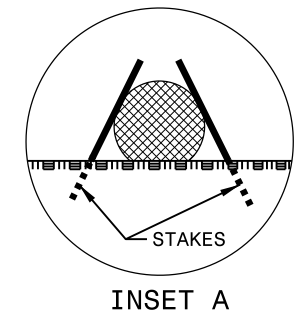


NOT TO SCALE

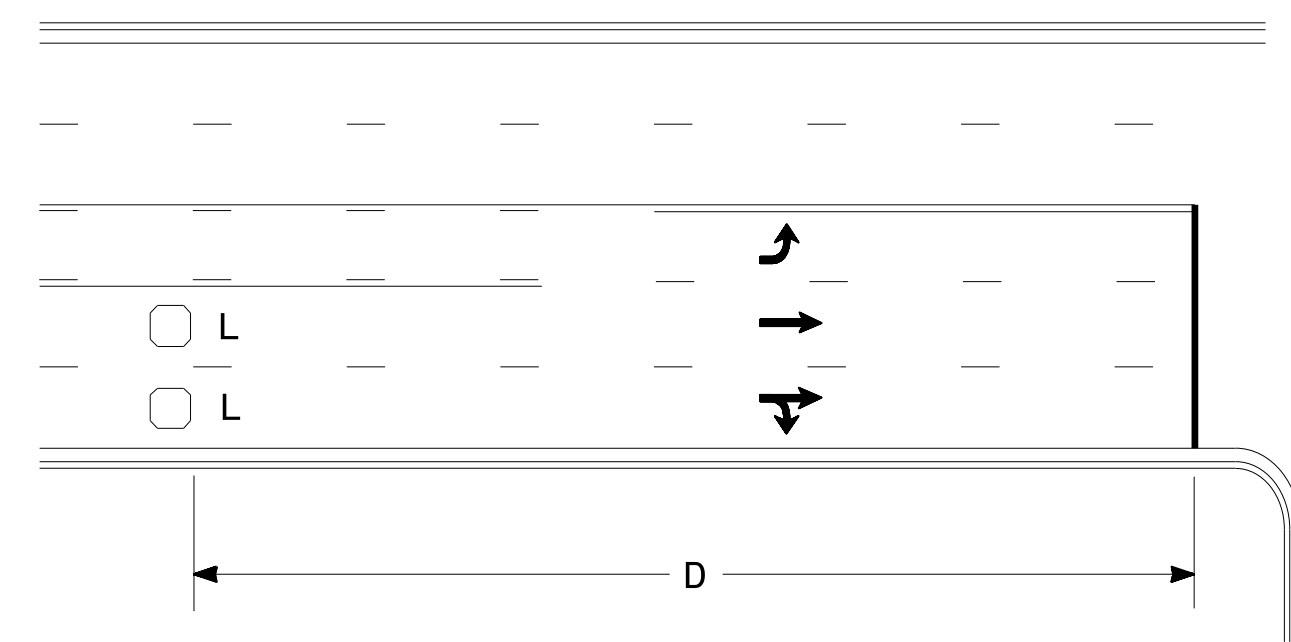
WATTLE DETAIL



- NOTES:**
- USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.
 - USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
 - ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.
 - INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.
 - PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.
 - INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
 - INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.



High Speed Detection (≥40 mph)

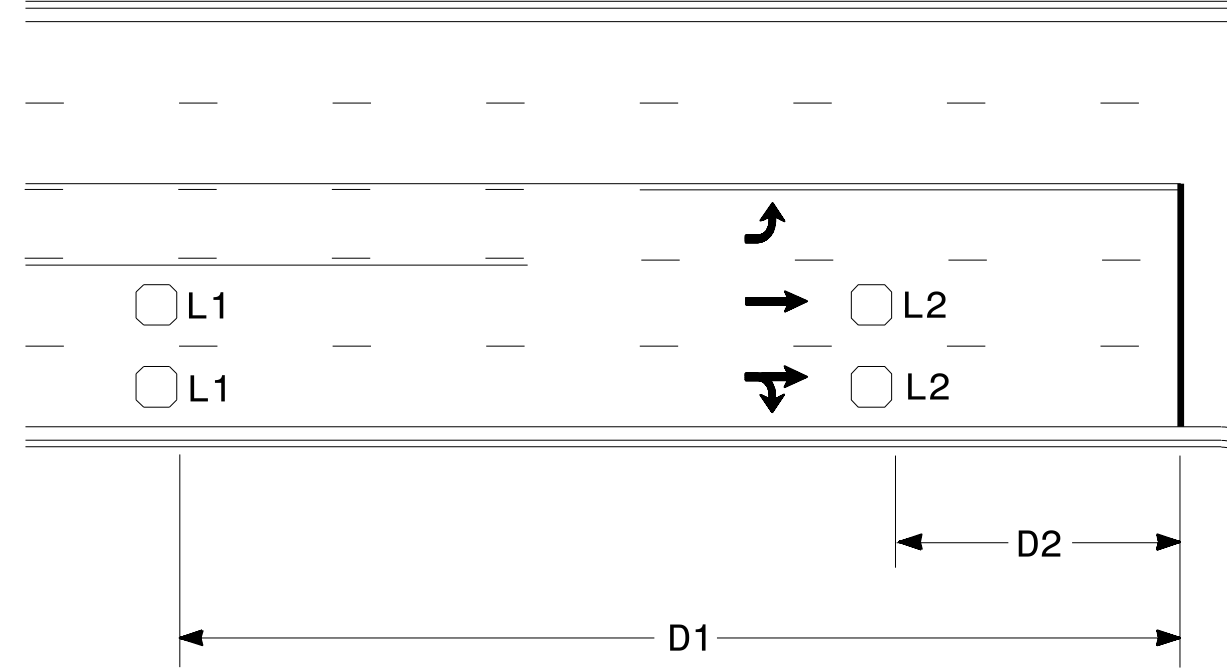


Speed Limit mph	D ft
40	250
45	300
50	355
55	420

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

Volume Density Operation

OR

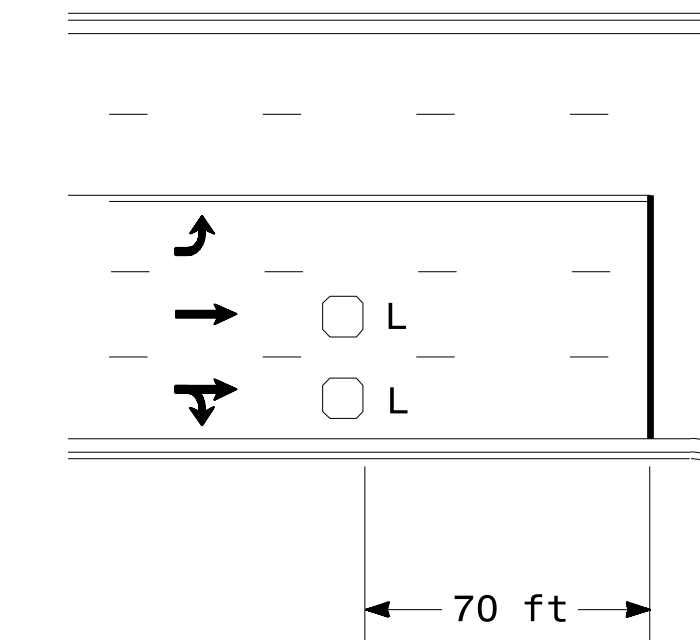


Speed Limit mph	D1 ft	D2 ft
40	250	80
45	300	90
50	355	100
55	420	110

L1 = 6ft X 6ft
Wired in series
L2 = 6ft X 6ft
Wired in series

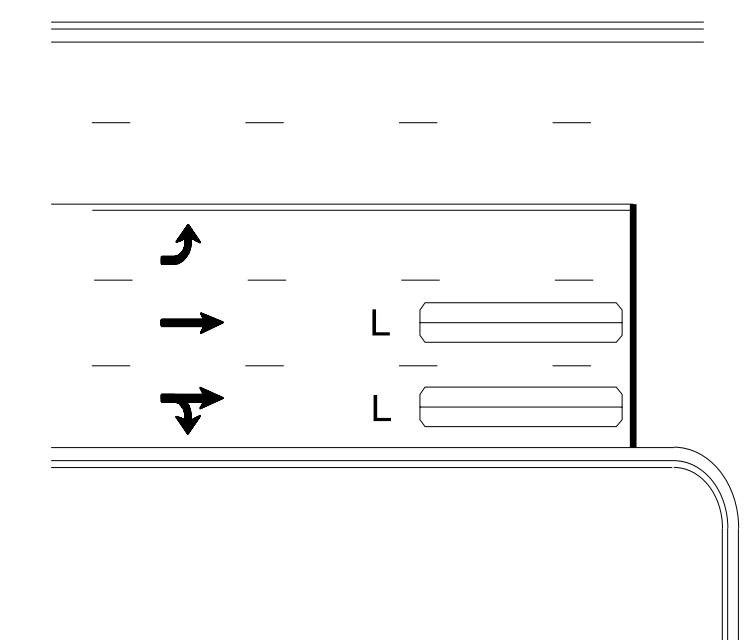
"Stretch" Operation

Low Speed Detection (≤35 mph)



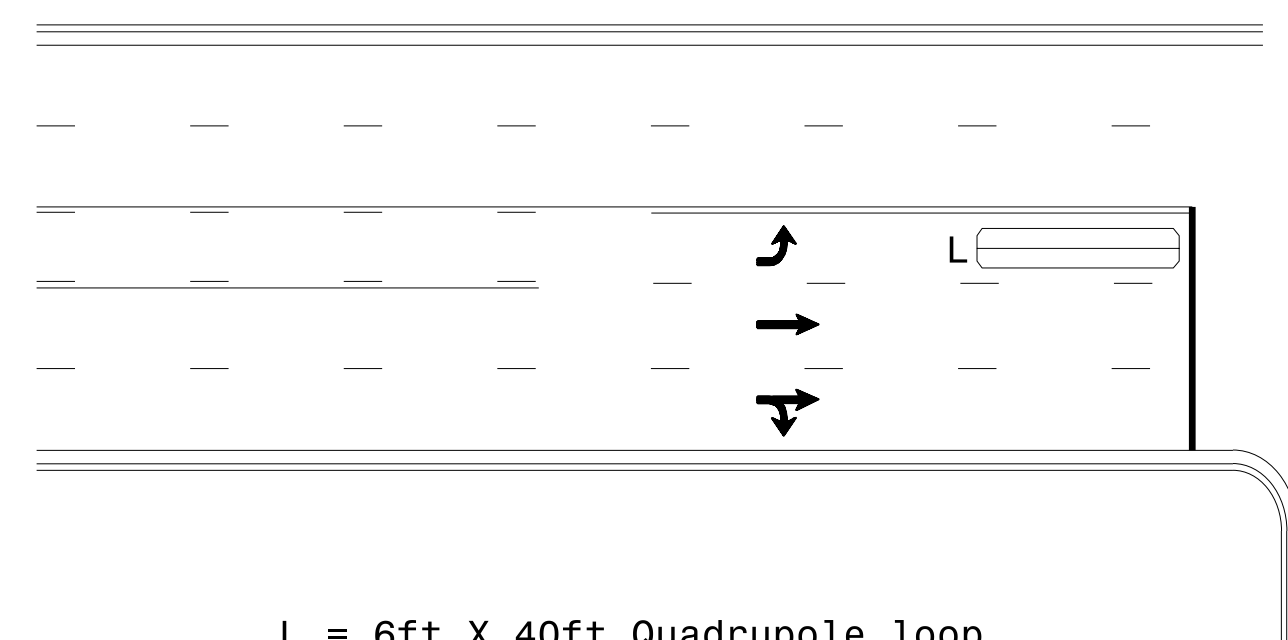
L = 6ft X 6ft
Wired in series

OR



L = 6ft X 40ft
Quadrupole loop, wired separately

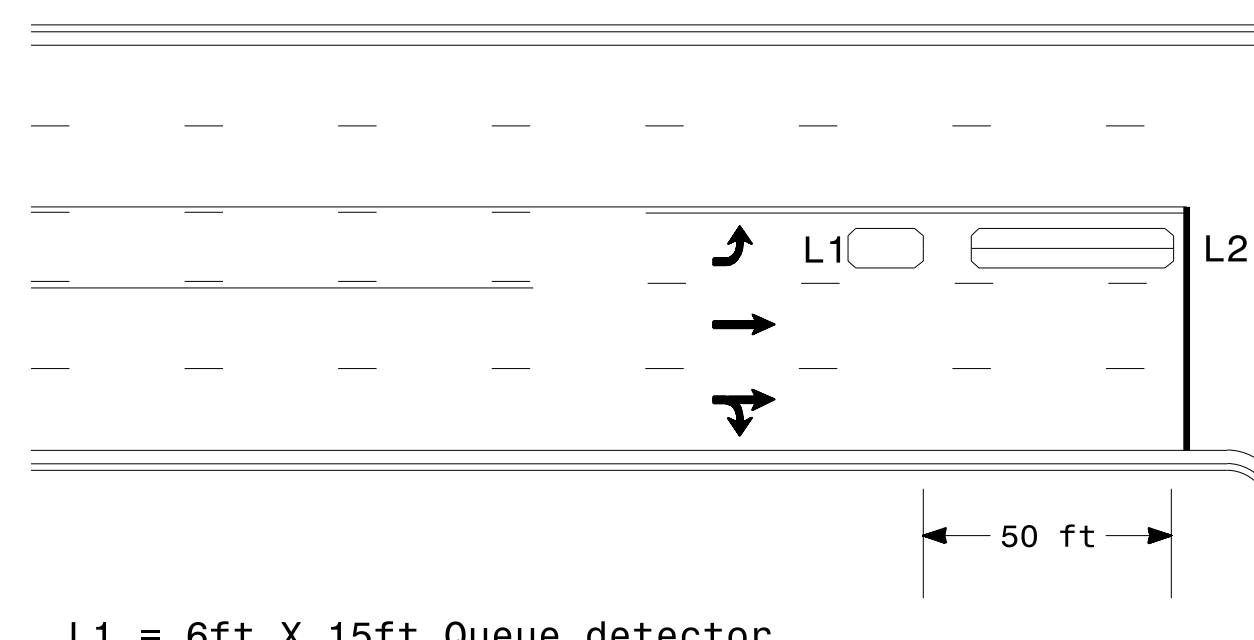
Left Turn Lane Detection



L = 6ft X 40ft Quadrupole loop

Presence Loop Detection

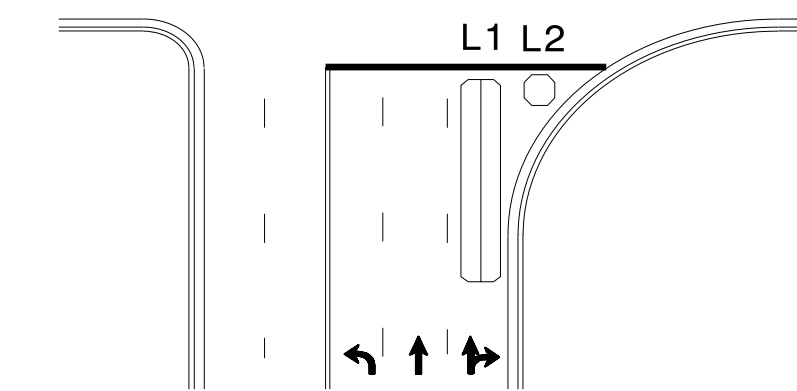
OR



L1 = 6ft X 15ft Queue detector
L2 = 6ft X 40ft Quadrupole loop

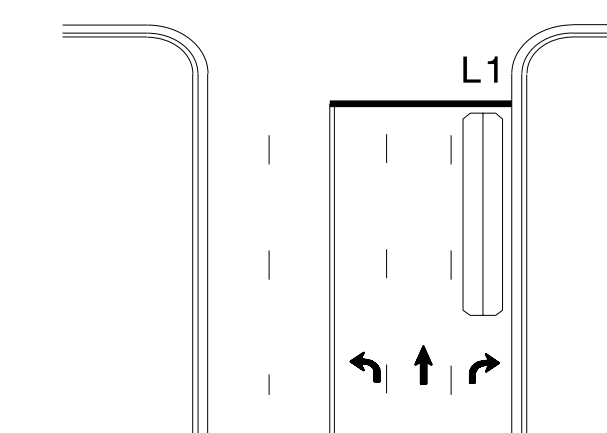
Queue Loop Detection

Right Turn Lane Detection

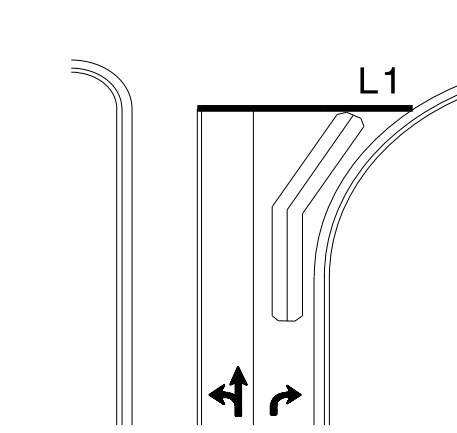


Shared Lane/
Wide Radius Turn

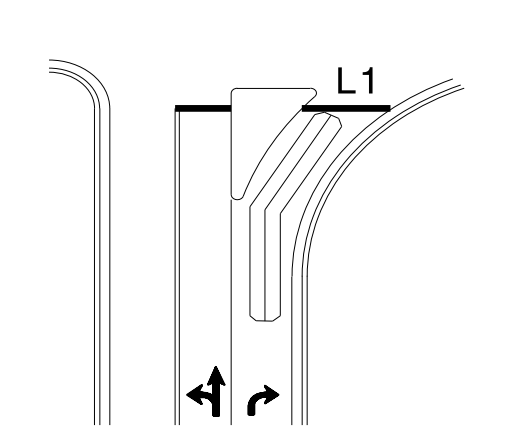
L1 = 6ft X 40ft Quadrupole loop
L2 = 6ft X 6ft [Minimum] Presence loop
Wired separately



Standard Turn

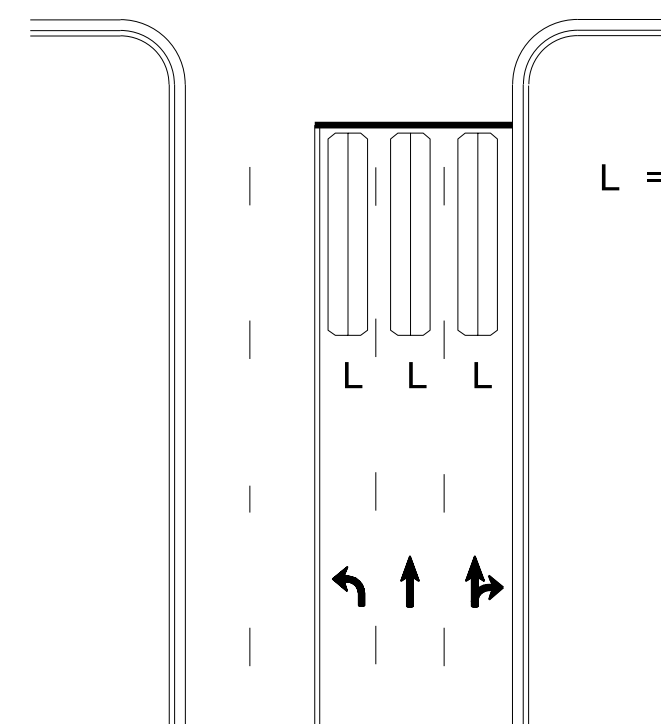


Wide Radius Turn



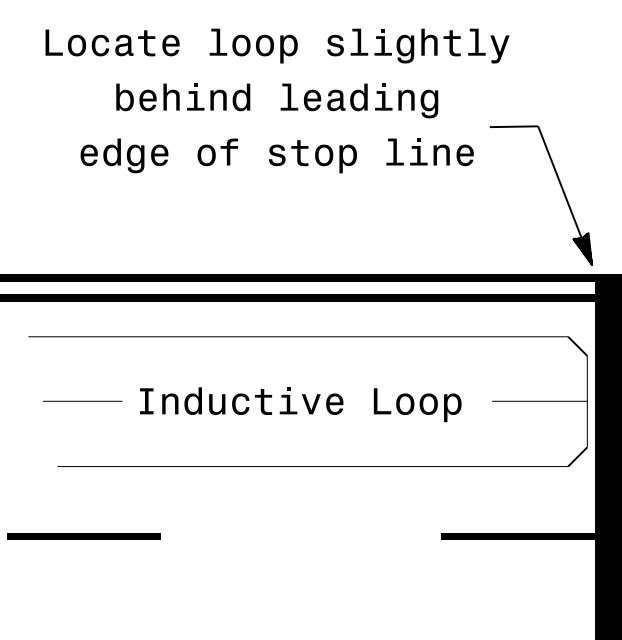
Channelized Turn

Side Street Detection



L = 6ft X 40ft
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 under any of the
following conditions:
1) stop line is greater than 15'
from edge of intersecting
roadway
2) loop detects a permissive or
protected/permissive left turn
3) for an exclusive right turn
lane

Recommended Number of Turns

Single 6' X 6' loop
(when wired separately):

Length of Lead-in ft	Number of Turns
< 250	3
250-375	4
375-525	5
> 525	6

Quadrupole loops: Use 2-4-2 turns

6' X 15' Loops:
Lead-in < 150', use 2 turns
Lead-in > 150', use 3 turns

750 N. Greenfield Pkwy, Garner, NC 27529

Seal of the State of North Carolina

Typical Signal Loop Locations	
PLAN DATE: January 2015	REVIEWED BY: JPG
PREPARED BY: PLA	REVIEWED BY:
SCALE: N/A	
REVISIONS	INIT. DATE

DocuSigned by:
P. Alexander
1/30/2015

SIG. INVENTORY NO.