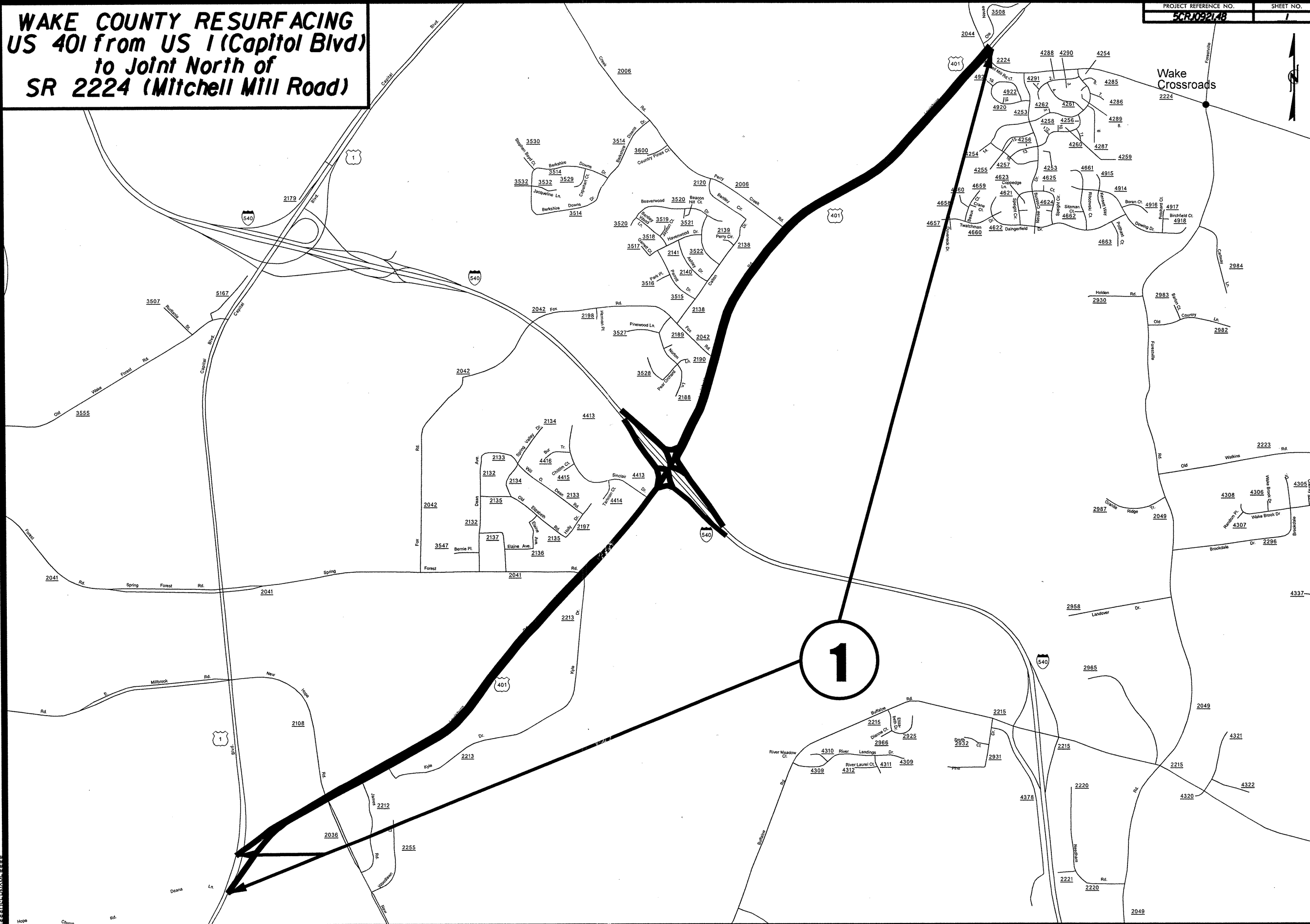


5/11/99

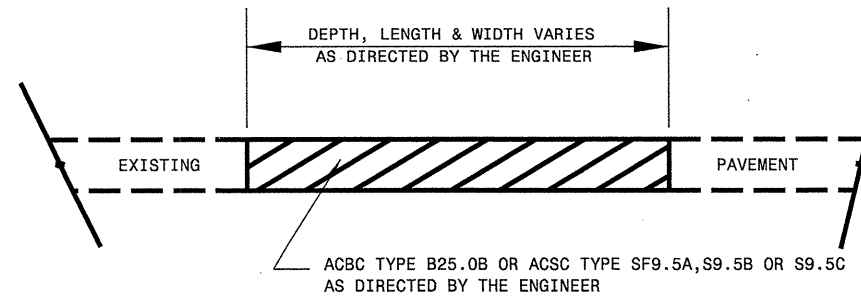
WAKE COUNTY RESURFACING US 401 from US 1 (Capitol Blvd) to Joint North of SR 2224 (Mitchell Mill Road)



SECTION 1, TOWNSHIP 36 NORTH, RANGE 10 WEST, COUNTY OF WAKE, NORTH CAROLINA

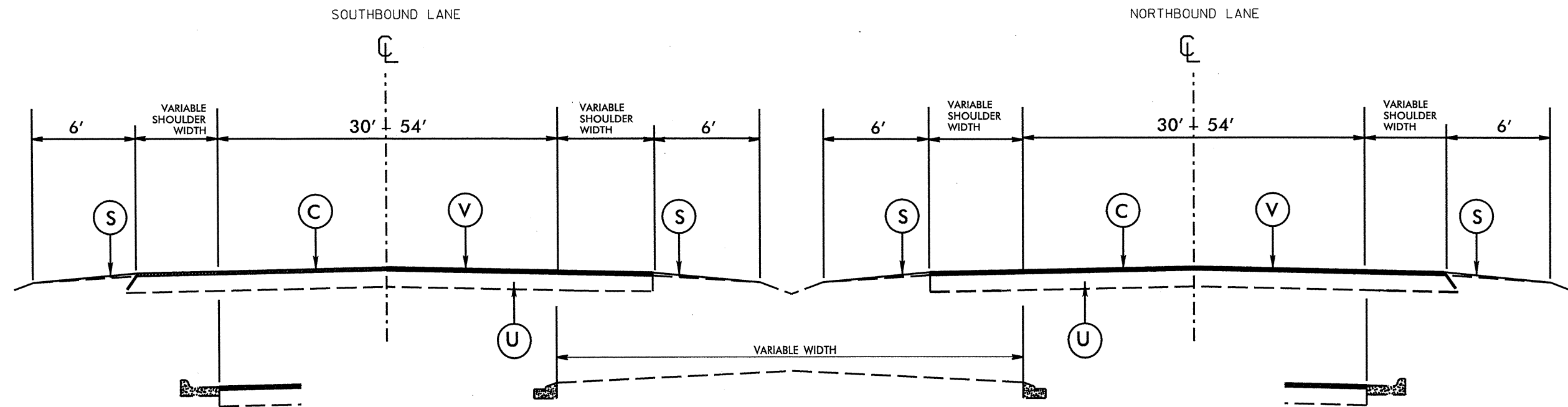
PAVEMENT SCHEDULE

(C)	PROP. APPROX. 2" ASPH. CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
(V)	PROP. MILL 2.0" IN DEPTH
(S)	PROP. SHOULDER GRADING
(U)	EXISTING PAVEMENT

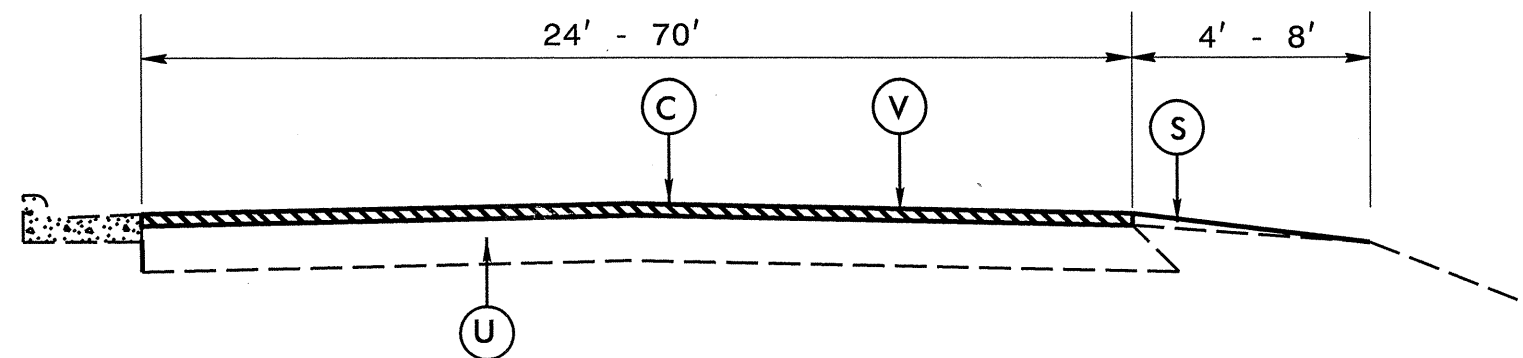


ALL UNPAVED S.R. ROADS TO BE RESURFACED 50' FROM EDGE OF PAVEMENT OF MAIN PROJECT
 ALL PAVED S.R. ROADS TO BE RESURFACED TO THE ENDS OF THE RADI, OR AS DIRECTED BY THE ENGINEER.
 EDGES, PAVEMENT WIDENING, INTERSECTIONS AND BRIDGE FLARES ARE INCLUDED IN THE TABLE OF QUANTITIES.
 BRIDGES TO BE RESURFACED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

PATCHING EXISTING PAVEMENT
 PATCHING TO BE PERFORMED PRIOR TO MILL AND FILL OPERATION



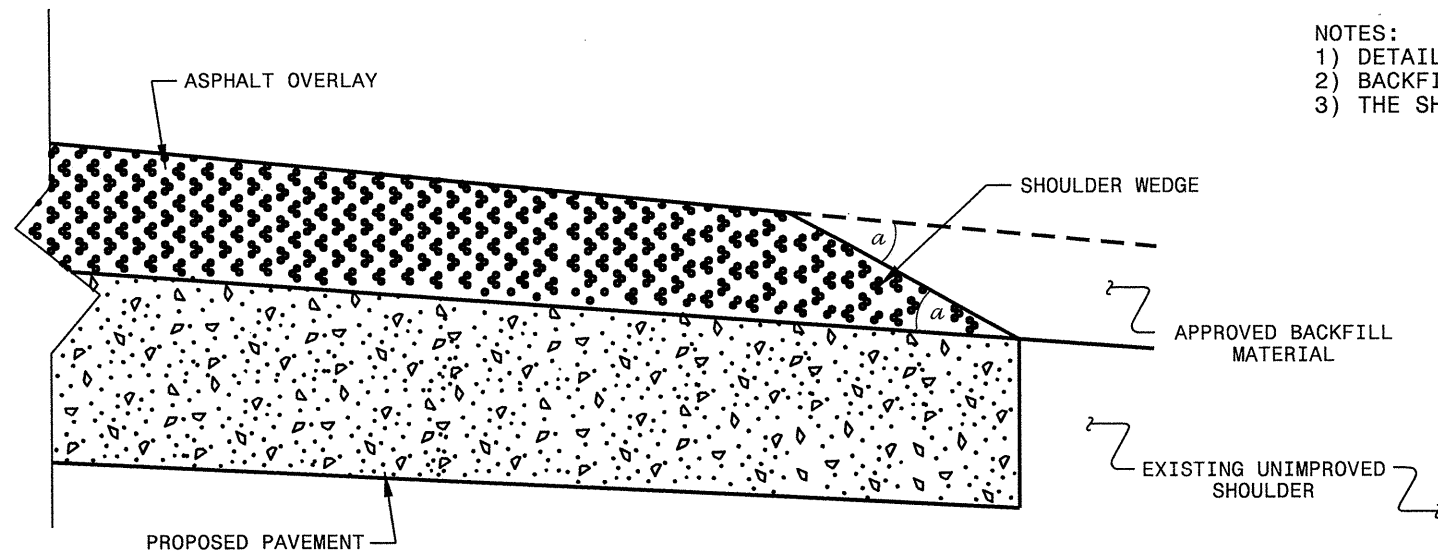
TYPICAL SECTION 1



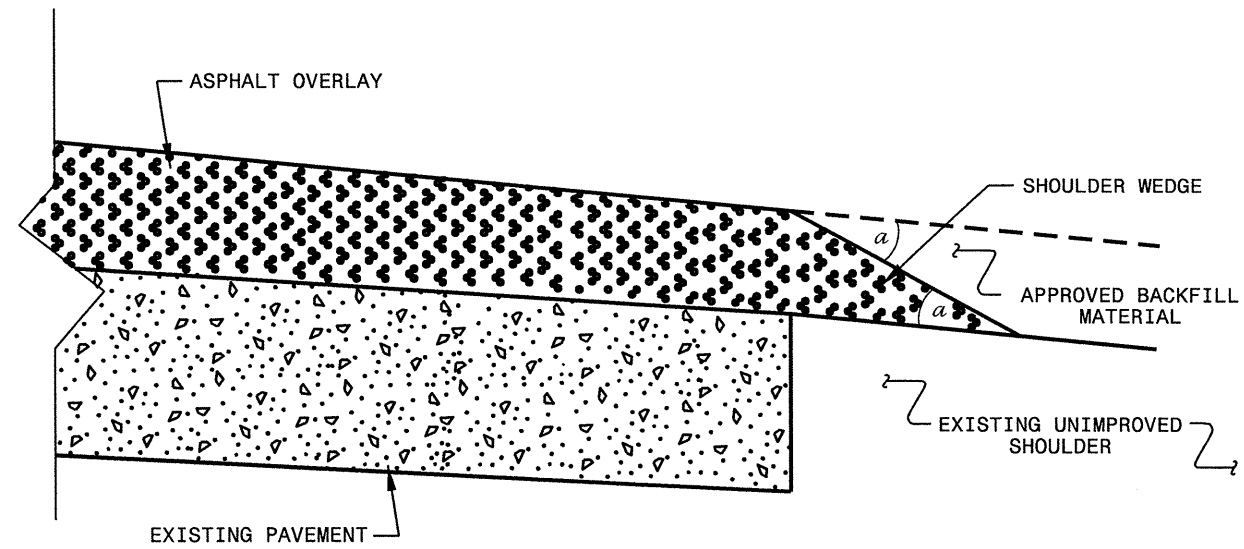
TYPICAL SECTION 2
 USE FOR RAMPS

NOTES:

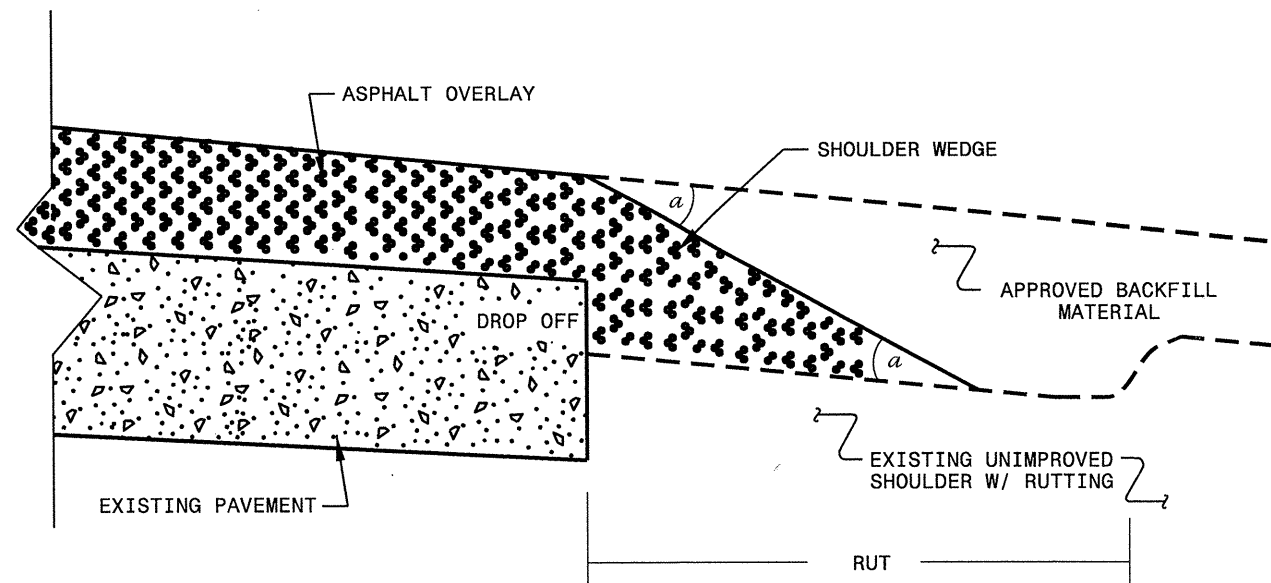
- 1) DETAIL DOES NOT APPLY TO OGAFC AND ULTRA-THIN BONDED WEARING COURSE.
- 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
- 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS AND SIDE STREETS.



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: 10/16/12
CHECKED BY:	DATE:
FILE SPEC.: s:\usr\details\stand\shoulderwedge\detail1.dgn	

 CONSTRUCTION
 STANDARDS
 UNIT

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

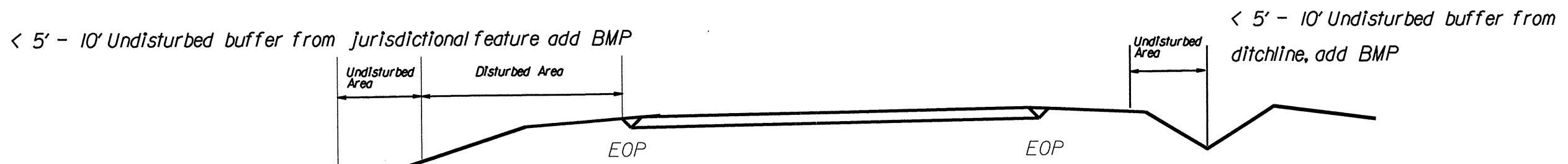
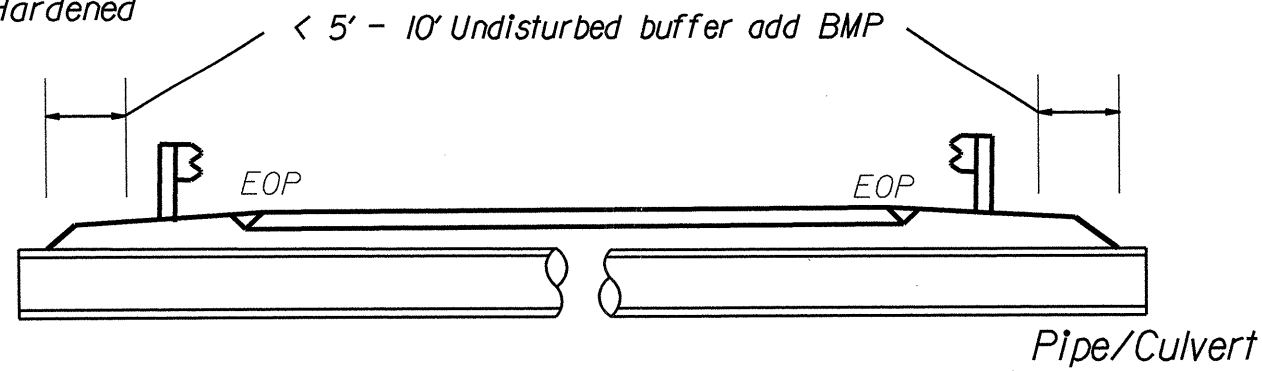
SOIL STABILIZATION TIMEFRAMES

<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HOW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HOW ZONES.

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

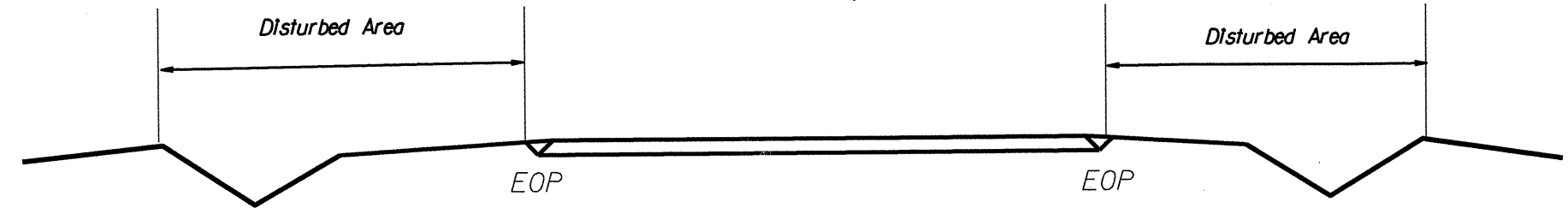
BMP Options: Wattle, Silt Fence or Hardened Aggregate.

EROSION CONTROL DETAIL

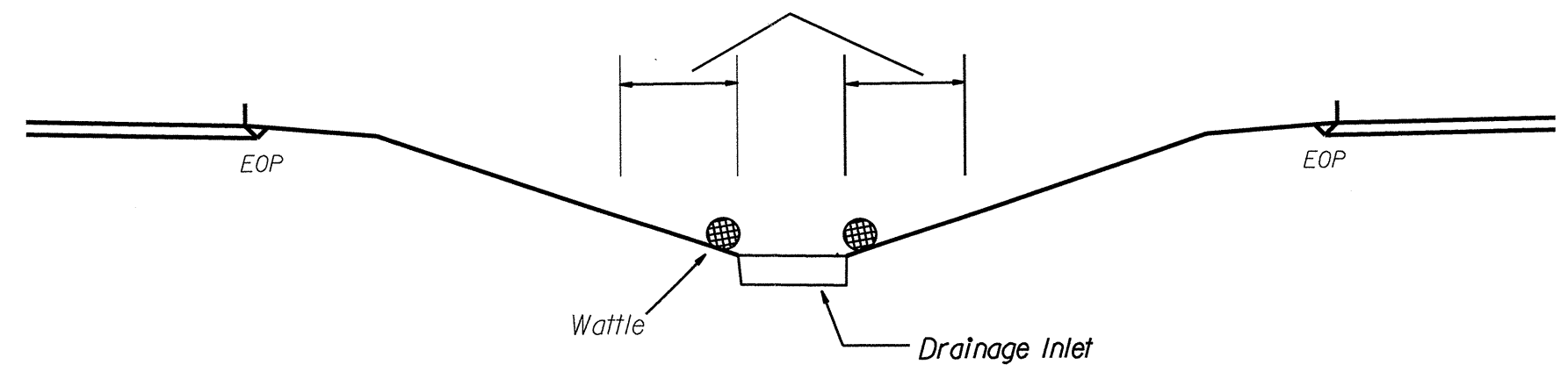


Jurisdictional Feature

Use BMP's if shoulders and/or frontslopes and/or ditchline and/or backslopes are disturbed

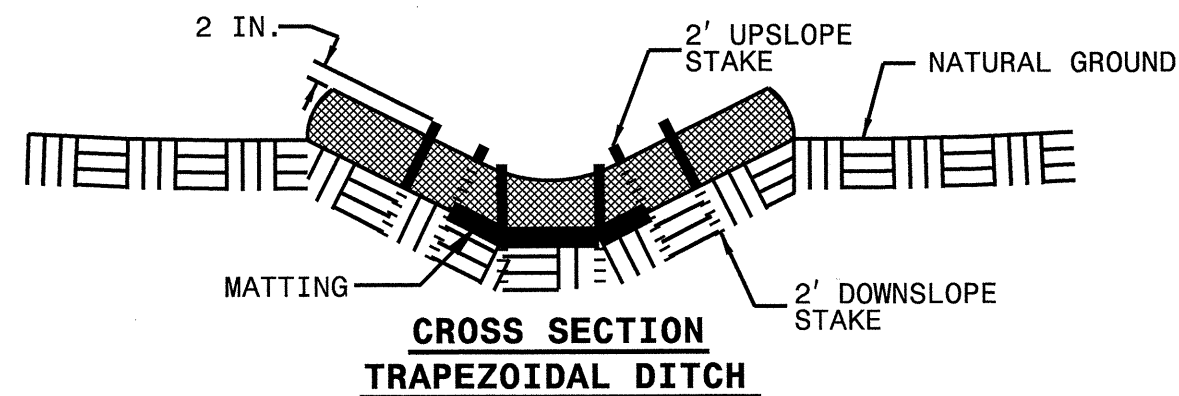
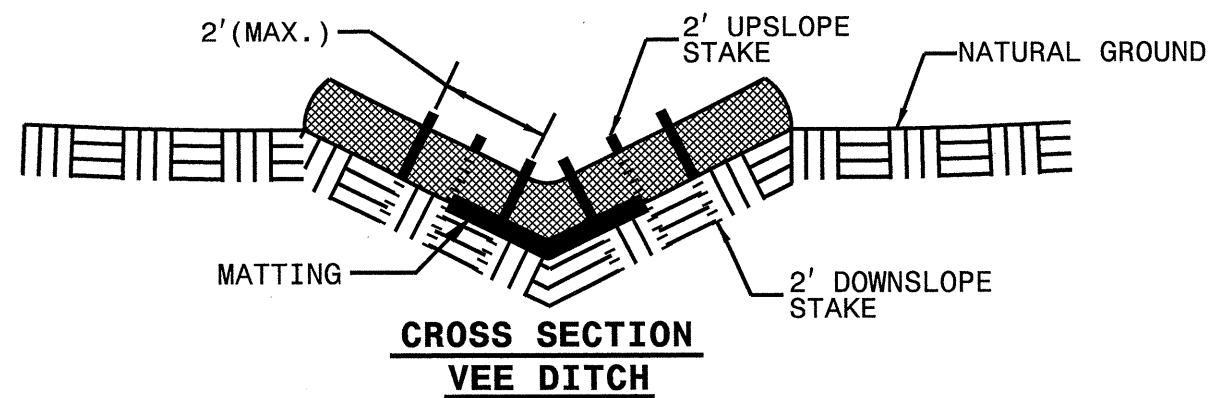
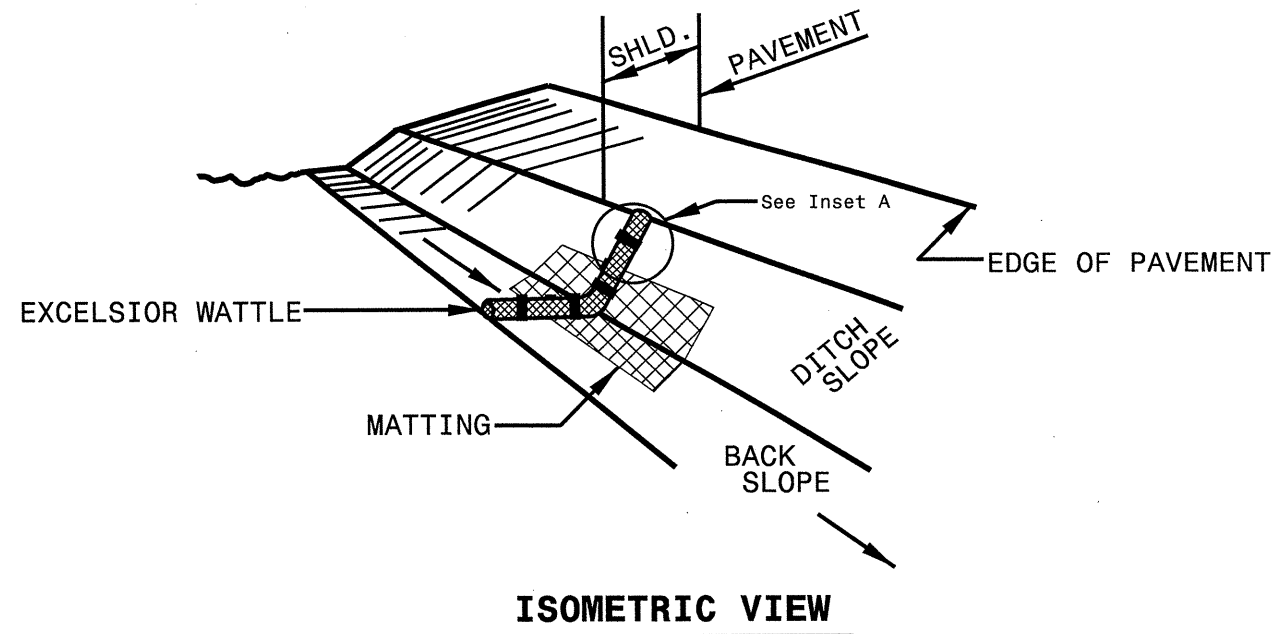


< 5' - 10' Undisturbed buffer from inlet, add wattle



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.

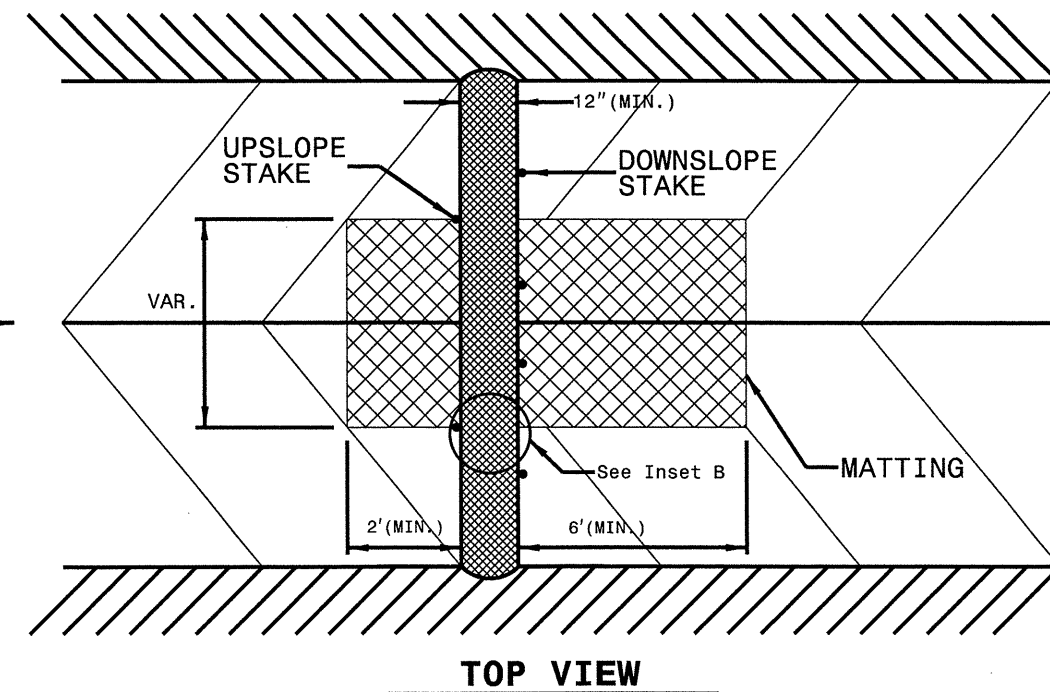
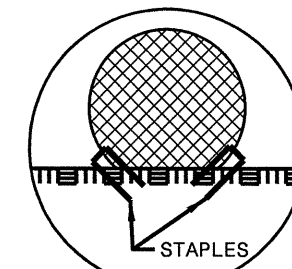
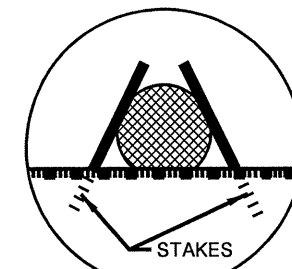
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

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.



PROJECT NO.	SHEET NO.	TOTAL NO.
SCR.10921.48	7	

SUMMARY OF QUANTITIES

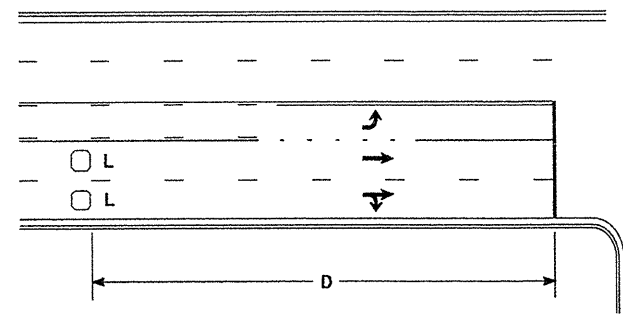
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH MI	WIDTH FT	BORROW CY	SHOULDER GRADING SMI	INCIDENTAL STONE BASE TONS	2" MILLING SY	SURFACE COURSE, S9.5C TONS	ASPHALT BINDER FOR PLANT MIX TON	PATCHING EXISTING PAVEMENT TONS	ADJUST MANHOLES EA	ADJUST METER OR VALVE BOX EA	PORTABLE LIGHTING LS	TEMPORARY SILT FENCE LF	WATTLE LF	SEED & MULCHING AC	INDUCTIVE LOOP LF
5CR.10921.48	Wake	1	US 401 (LOUISBURG ROAD)	FROM US 1 (CAPITAL BLVD) TO JOINT NORTH OF SR 2224 (MITCHELL MILL RD)	1,2	2		NO	NO	4.65	72	213	2.13	107	278,667	32,805	1,935	1,396	10	10	1.00	155	390	1.55	8,650
TOTAL FOR PROJ NO. 5CR.10921.48										4.65		213	2.13	107	278,667	32,805	1,935	1,396	10	10	1.00	155	390	1.55	8,650
GRAND TOTAL										4.65		213	2.13	107	278,667	32,805	1,935	1,396	10	10	1.00	155	390	1.55	8,650

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	LENGTH	WIDTH	4589000000-N	4510000000-N	4595000000-E	4685000000-E		4686000000-E		4688000000-E		4690000000-E	4695000000-E	4697000000-E
										GENERIC TRAFFIC CONTROL ITEM TEMPORARY TRAFFIC CONTROL	LAW ENFORCEMENT	GENERIC TRAFFIC CONTROL ITEM ADVANCE/ GENERAL WARNING SIGNING	4" X 90 M YELLOW THERMO	4" X 90 M WHITE THERMO	4" X 120 M WHITE THERMO	4" X 120 M YELLOW THERMO	6" X 90 M WHITE THERMO	6" X 90 M YELLOW THERMO	6" X 120 M WHITE THERMO	8" X 90 M WHITE THERMO	8" X 120 M WHITE THERMO
5CR.10921.48	Wake	1	US 401 (LOUISBURG ROAD)	FROM US 1 (CAPITAL BLVD) TO JOINT NORTH OF SR 2224 (MITCHELL MILL RD)	1,2	2		4.65	72	1	240	206	4,150	828	37,005	1,646	4,985	4,650	1,540	6,825	2,025
TOTAL FOR PROJ NO. 5CR.10921.48							4.65		1	240	206	4,150	828	37,005	1,646	4,985	4,650	1,540	6,825	2,025	
GRAND TOTAL							4.65		1	240	206	4,150	828	37,005	1,646	4,985	4,650	1,540	6,825	2,025	

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	LENGTH	WIDTH	4710000000-E	4721000000-E	4725000000-E						4770000000-E		4850000000-E	4900000000-N	4905000000-N
										24" X 120 M WHITE THERMO	THERMO MSG ONLY 120 M	THERMO MERGE ARROW 90 MILS	THERMO LT STR RT ARROW 90 M	THERMO STR & RT ARROW 90 M	THERMO STR ARROW 90 M	THERMO RT ARROW 90 M	THERMO LT ARROW 90 M	4" YELLOW COLD APPLIED PLASTIC, TYPE III	4" WHITE COLD APPLIED PLASTIC, TYPE III	4" LINE REMOVAL	CRYSTAL & RED MARKERS	SNOW PLOWABLE MARKERS
5CR.10921.48	Wake	1	US 401 (LOUISBURG ROAD)	FROM US 1 (CAPITAL BLVD) TO JOINT NORTH OF SR 2224 (MITCHELL MILL RD)	1,2	2		4.65	72	1,710	8	7	2	15	171	53	141	400	505	905	45	2,202
TOTAL FOR PROJ NO. 5CR.10921.48							4.65		1,710	8	7	2	15	171	53	141	400	505	905	45	2,202	
GRAND TOTAL							4.65		1,710	8	7	2	15	171	53	141	400	505	905	45	2,202	

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

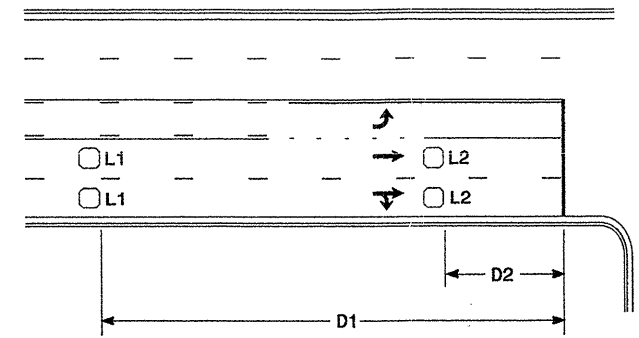


Speed Limit mph (km/hr)	D ft (m)
40 (64)	250 (75)
45 (72)	300 (90)
50 (80)	355 (110)
55 (88)	420 (130)

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

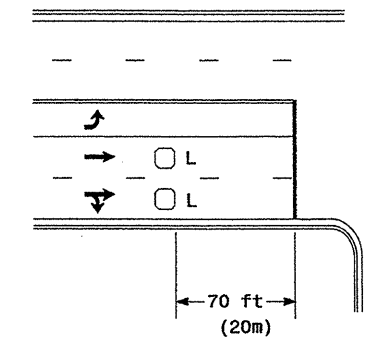


Speed Limit mph (km/hr)	D1 ft (m)	D2 ft (m)
40 (64)	250 (75)	80 (25)
45 (72)	300 (90)	90 (27)
50 (80)	355 (110)	100 (30)
55 (88)	420 (130)	110 (35)

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

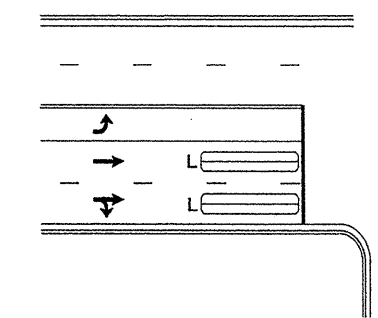
"Stretch" Operation

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



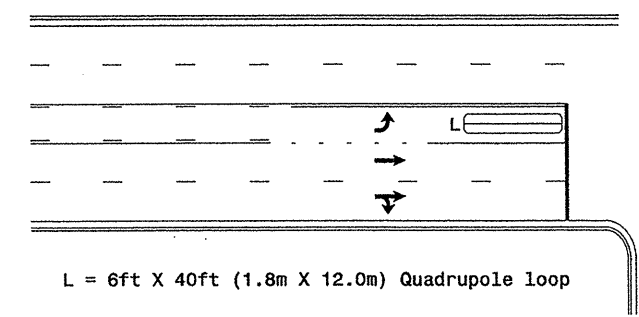
L = 6ft X 6ft (1.8m X 1.8m)
Wired in series

OR



L = 6ft X 40ft (1.8m X 12.0m)
Quadrupole loop, wired separately

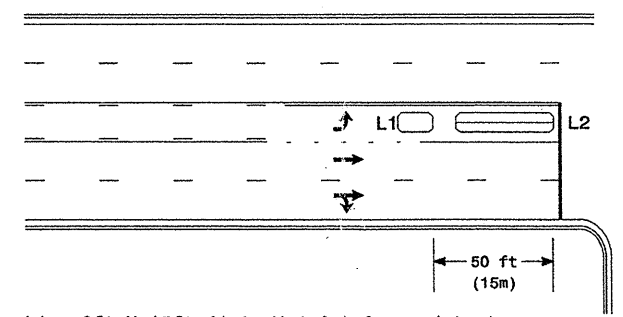
Left Turn Lane Detection



L = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop

Presence Loop Detection

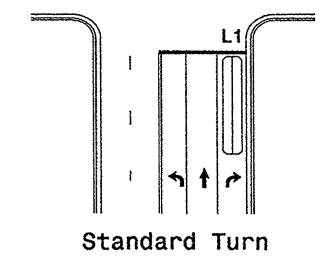
OR



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

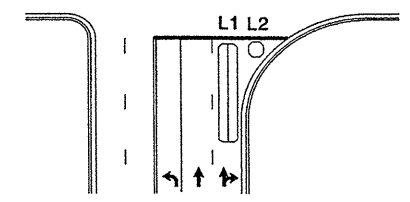
Queue Loop Detection

Right Turn Lane Detection

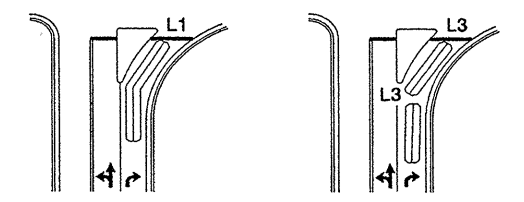


Standard Turn

L1 = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop
L2 = 6ft X 6ft (1.8m X 1.8m) [Minimum] Presence loop
Wired separately
L3 = 6ft X 20ft (1.8m X 6.0m) Quadrupole loop
Wired in series

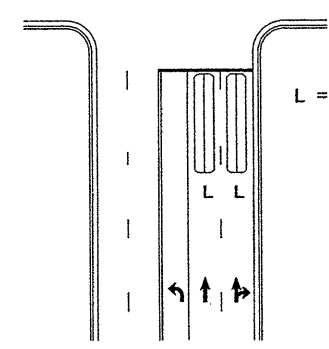


Wide Radius Turn



Channelized Turn

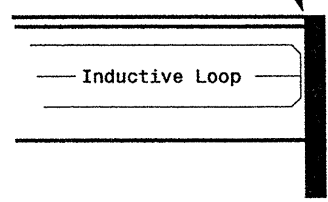
Side Street Detection



L = 6ft X 40ft (1.8m X 12.0m)
Quadrupole loop
Wired to separate
detectors/channels

Presence Loop Placement at Stop Lines

Locate loop slightly
behind leading
edge of stop line



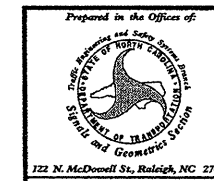
Note:
Loop may be located in advance
of stop line when stop line is
greater than 15' (4.5m) from edge
of intersecting roadway; or, when
loop detects a permissive or
protected/permissive left turn.

Recommended Number of Turns

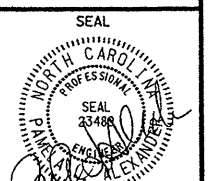
Single 6' X 6' (1.8m X 1.8m)
loop (wired separately):

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

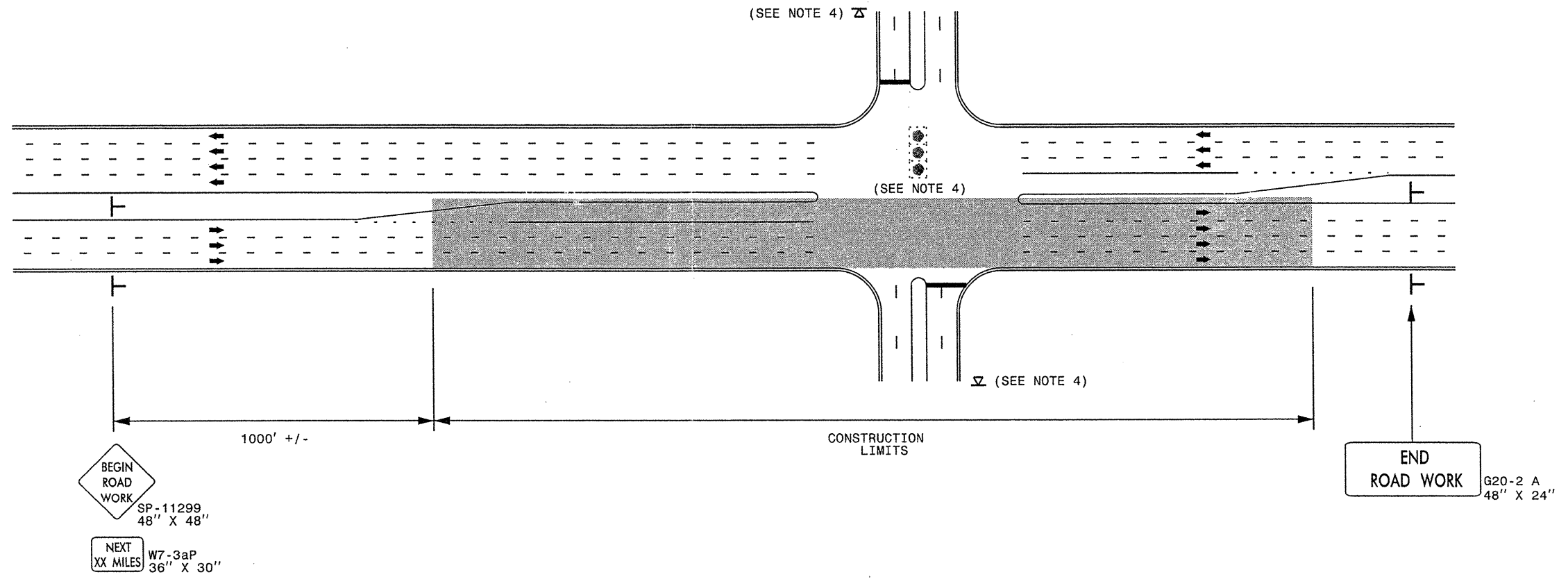


Typical Loop Locations	
PLAN DATE: June 2006	REVIEWED BY:
PREPARED BY: P. L. Alexander	REVIEWED BY:
REVISIONS	INIT. DATE
1. Revise pavement markings	PLA 12/1/06



15 DEC-2006 14:25
c:\pwork\2006\10921\1b turn_invent\loop\typical\2006.dgn
p.l.alexander

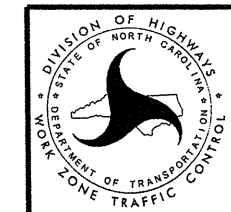
URBAN / SUBURBAN WORKZONES



NOTES:

- 1) 48" x 48" SIZED SIGNS (SP- 11299) MAY BE REDUCED TO 36" X 36" ON ROADWAYS WITH SPEED LIMITS OF 40 MPH OR LESS.
- 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) ADVANCE WARNING SIGNS NOT REQUIRED ON NON-SIGNALIZED SIDE STREETS.
- 4) USE LAW ENFORCEMENT TO CONTROL TRAFFIC AT SIGNALIZED INTERSECTIONS AND PROVIDE PORTABLE "ROAD WORK AHEAD" (W20-1) SIGNS 500' IN ADVANCE ALONG BOTH APPROACHES FROM THE SIDE STREETS WHEN PAVING PROCEEDS THROUGH THE INTERSECTION.
- 5) LATERAL CLEARANCE AT ALL SIGN LOCATIONS SHALL BE 2' AS MEASURED FROM THE EDGE OF PAVEMENT OR THE FACE OF THE CURB. WHEN UNABLE TO OBTAIN THE LATERAL CLEARANCE WITHIN THE MEDIAN AREA USE SHOULDER MOUNTS ONLY.
- 6) SIGN MOUNT LOCATIONS SHALL NOT BLOCK SIDEWALKS OR DRIVEWAYS.
- 7) IF STATIONARY GENERAL WARNING SIGNS ARE USED, THEY WILL BE PAID FOR PER SECTION 104 OF THE NCDOT STANDARD SPECIFICATIONS AS EXTRA WORK.
- 8) IF MILLED AREAS ARE NOT PAVED BACK BY THE END OF THE WORK DAY, PORTABLE SIGNS SHALL BE USED TO WARN DRIVERS OF THE PRESENT CONDITIONS. THESE ARE TO INCLUDE, BUT NOT LIMITED TO "ROUGH ROAD" W8-8, "UNEVEN LANES" W8-11, "GROOVED PAVEMENT" W8-15 w/MOTORCYCLE PLAQUE MOUNTED BELOW. THESE ARE TO BE DOUBLE INDICATED ON MULTI-LANE ROADWAYS WITH SPEED LIMITS 45 MPH AND GREATER WHERE LATERAL CLEARANCE CAN BE OBTAINED WITHIN THE MEDIAN AREAS. THESE PORTABLE SIGNS ARE INCIDENTAL TO THE OTHER ITEMS OF WORK INCLUDED IN THE TEMPORARY TRAFFIC CONTROL (LUMP SUM) PAY ITEM.

LEGEND	
└	STATIONARY SIGN
➔	DIRECTION OF TRAFFIC FLOW



**RESURFACING ADVANCE
WARNING SIGNS FOR
URBAN / SUBURBAN
FACILITIES**

8/16/2013 10:23:16 AM Resurfacing\2013Resurfacing\2013Centr-d\2013_Div05\C203327B-RW_5CR.10921.48_Wake_US40L_DAH\Documents_Out\Resurfacing_AdvWarn_Ur-Su.dgn User:chayes16