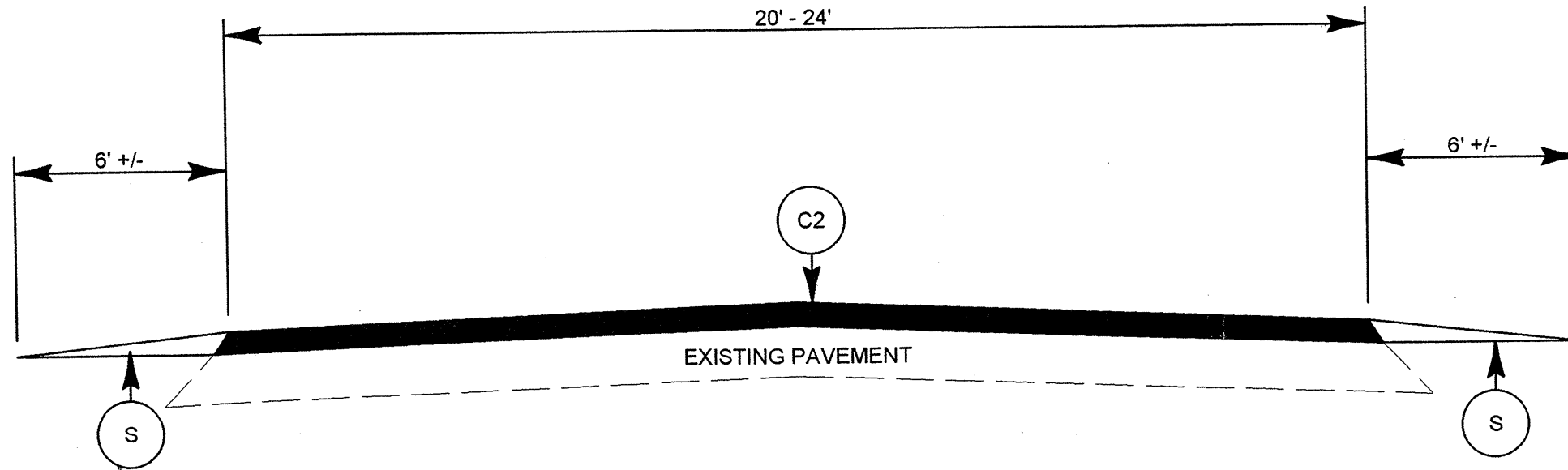
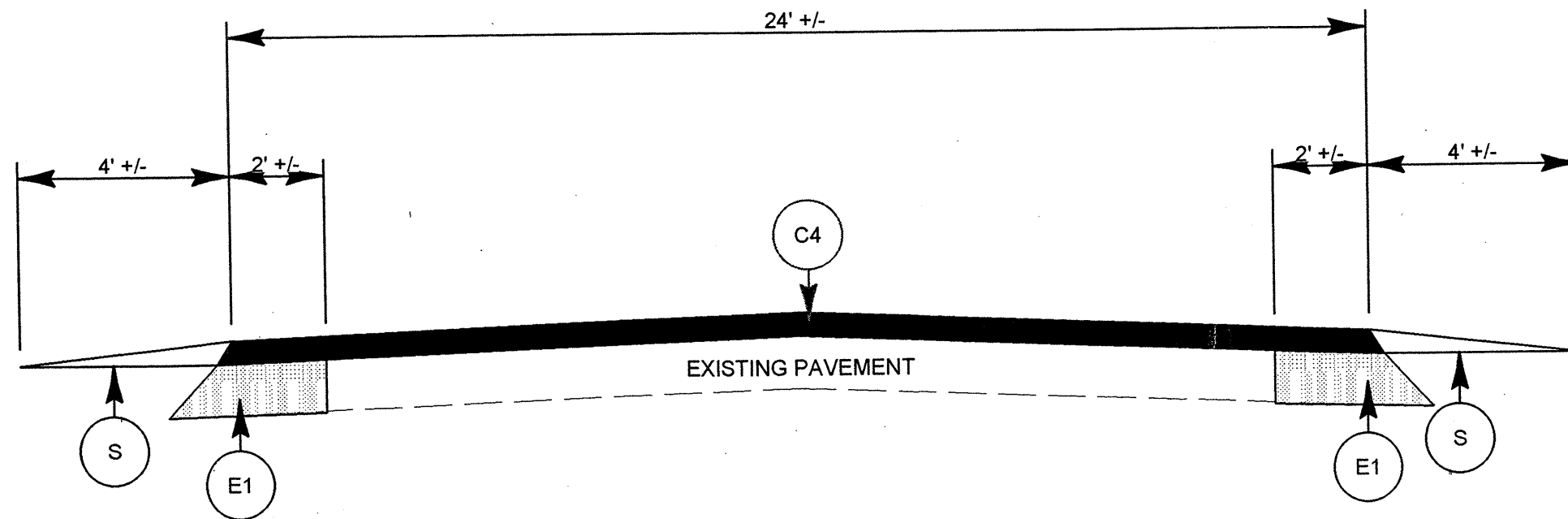


**2011 VANCE AND  
WARREN COUNTY  
ROAD IMPROVEMENTS  
AND RESURFACING**

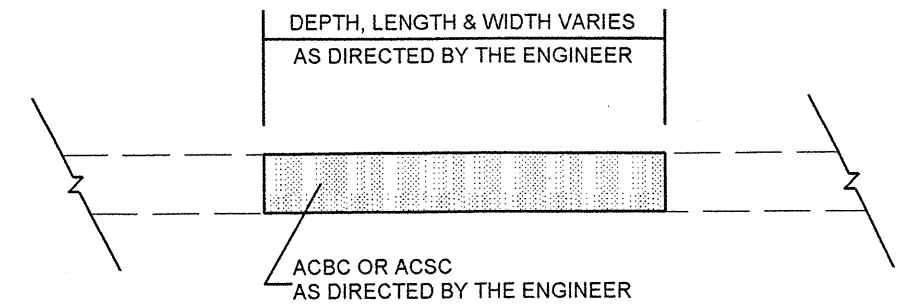
|   |                       |              |
|---|-----------------------|--------------|
| PROJECT NO.<br>43082, 5C.093054, 5C.093055,<br>ETC. | SHEET NO.<br><b>2</b> | TOTAL SHEETS |
|---|-----------------------|--------------|



TYPICAL SECTION NO. 1

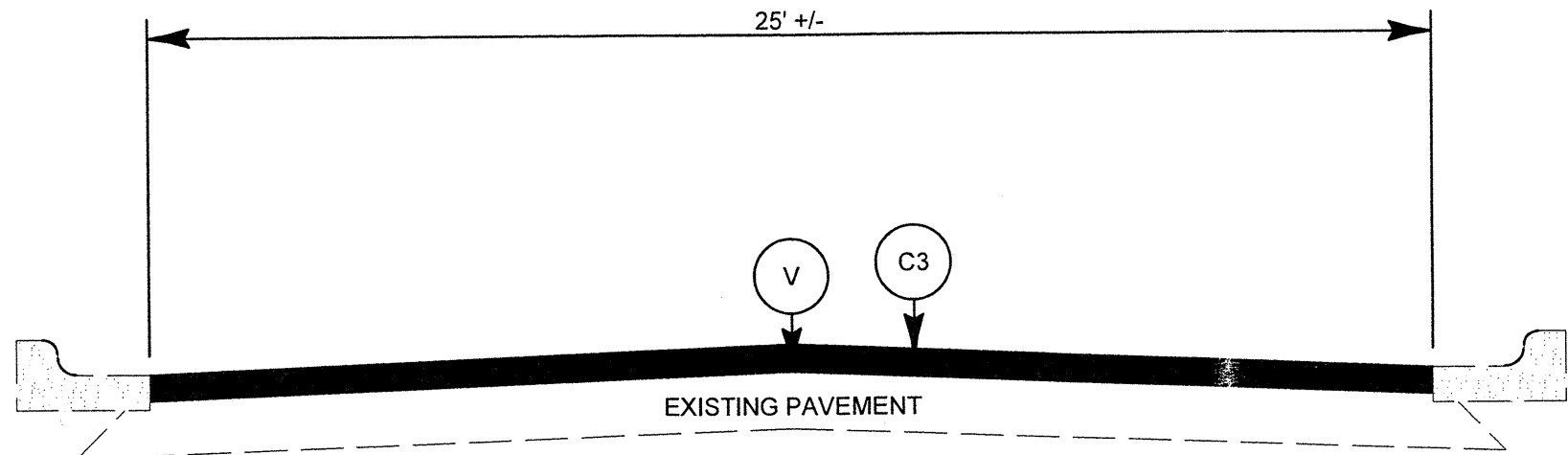


TYPICAL SECTION NO. 2

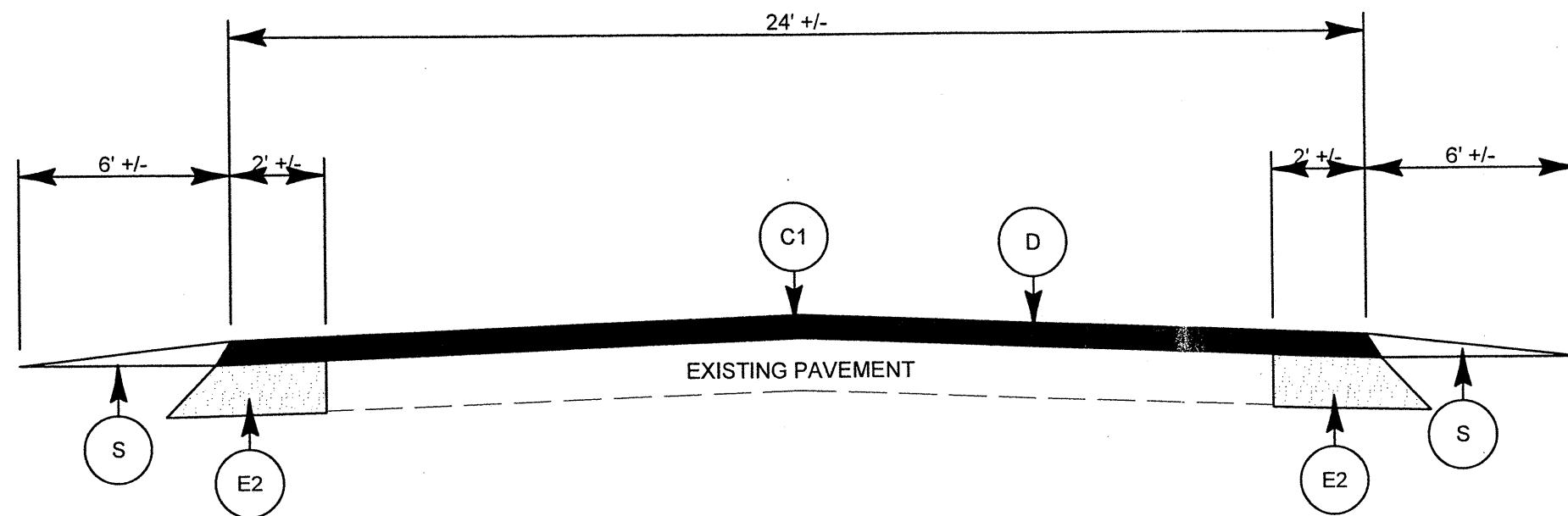


PATCHING EXISTING PAVEMENT

| PAVEMENT SCHEDULE |  |
|-------------------|--|
| C1                | PROP. APPROX 1.00" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110LBS A SQUARE YARD                              |
| C2                | PROP. APPROX. 1.25" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 138LBS PER SQUARE YARD                           |
| C3                | PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS PER SQUARE YARD                           |
| C4                | PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS PER SQUARE YARD                            |
| D                 | PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS PER SQUARE YARD                       |
| E1                | PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE WIDENING, TYPE B25.0B, AT AN AVERAGE RATE OF 399 LBS PER SQUARE YARD IN EACH OF TWO LAYERS |
| E2                | PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS PER SQUARE YARD                              |
| S                 | SHOULDER RECONSTRUCTION/ SEEDING AND MULCHING BY CONTRACTOR AS DIRECTED BY THE ENGINEER  |
| V                 | PROP. 1.5" MILLING ASPHALT PAVEMENT  |

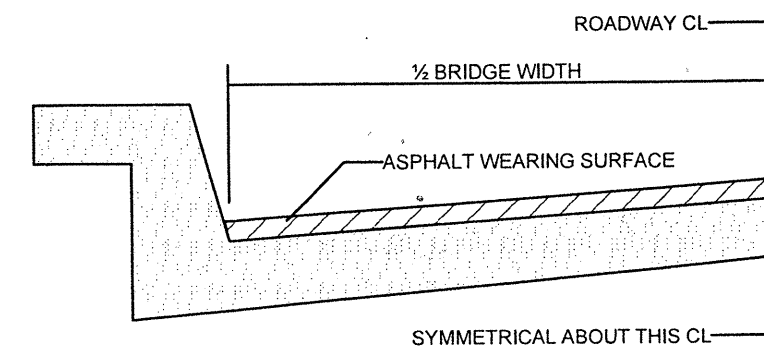


TYPICAL SECTION NO. 3



TYPICAL SECTION NO. 4

| PAVEMENT SCHEDULE |  |
|-------------------|--|
| C1                | PROP. APPROX. 1.00" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110LBS A SQUARE YARD                             |
| C2                | PROP. APPROX. 1.25" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 138LBS PER SQUARE YARD                           |
| C3                | PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS PER SQUARE YARD                           |
| D                 | PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS PER SQUARE YARD                       |
| E1                | PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE WIDENING, TYPE B25.0B, AT AN AVERAGE RATE OF 399 LBS PER SQUARE YARD IN EACH OF TWO LAYERS |
| E2                | PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS PER SQUARE YARD                              |
| S                 | SHOULDER RECONSTRUCTION/ SEEDING AND MULCHING BY CONTRACTOR AS DIRECTED BY THE ENGINEER  |
| V                 | PROP. 1.5" MILLING ASPHALT PAVEMENT  |



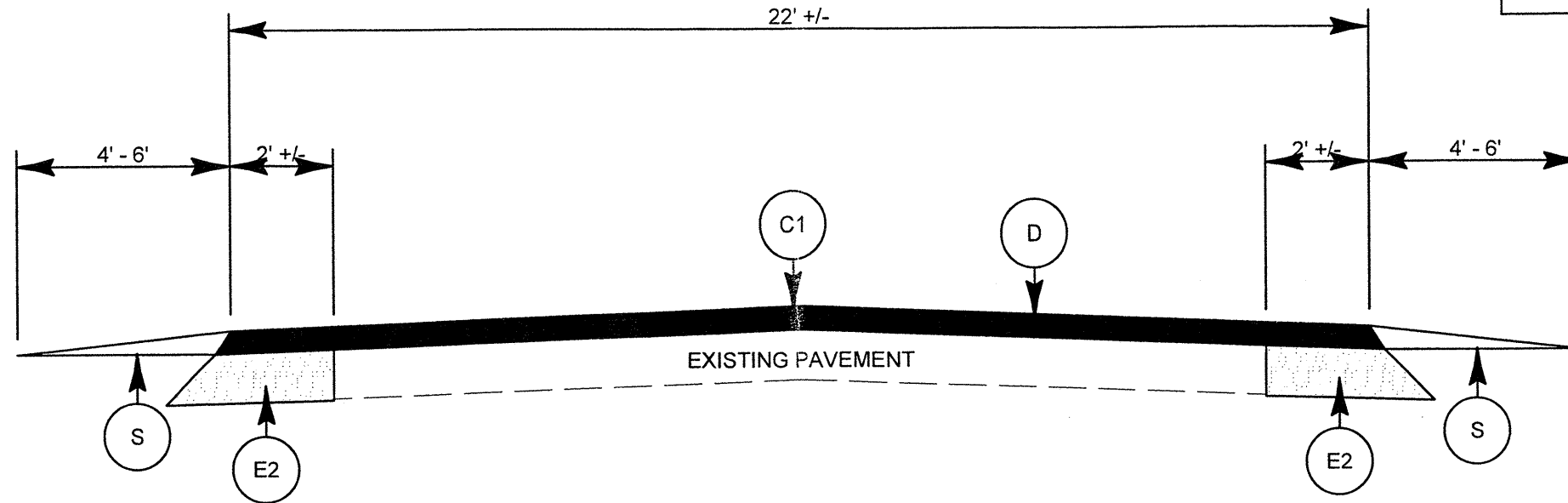
BRIDGE HALF TYPICAL SECTION

FOR BRIDGES WITH FLOOR DRAINS, CARE SHALL BE EXERCISED IN PLACING THE WEARING SURFACE AROUND FLOOR DRAINS SO AS NOT TO HINDER EFFECTIVE DRAINAGE. ALL DRAINS SHALL BE LEFT OPEN

THE PROPOSED WEARING SURFACE SHALL VARY IN THICKNESS AS NECESSARY TO PROVIDE A SMOOTH RIDING SURFACE. THE MINIMUM THICKNESS SHOULD DEPEND ON PAVEMENT TYPE AS FOLLOWS: S4.75A 1/2", SF9.5A 1.0", S9.5X 1.5", S12.5X 2.0", ULTRATHIN HOT MIX ASPHALT-TYPE A 1/2", ULTRATHIN HOT MIX ASPHALT-TYPE B 5/8", ULTRATHIN HOT MIX ASPHALT-TYPE C 1/2". THE MAXIMUM THICKNESS SHOULD DEPEND ON PAVEMENT TYPE AS FOLLOWS: S4.75A 1.0", SF9.5A 1.5", S9.5X 2.0", S12.5X 2.0", ULTRATHIN HOT MIX ASPHALT-TYPE A 1/2", ULTRATHIN HOT MIX ASPHALT-TYPE B 5/8", ULTRATHIN HOT MIX ASPHALT-TYPE C 1/2".

**NOTES**

ALL UNPAVED 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. SHOULDERS AND DITCHES ARE TO BE CONSTRUCTED BY OTHERS UNLESS OTHERWISE INDICATED. BRIDGES ARE TO BE RESURFACED AT LOCATIONS AND TO DEPTH AS DIRECTED BY THE ENGINEER.



TYPICAL SECTION NO. 5

| PAVEMENT SCHEDULE |  |
|-------------------|--|
| C1                | PROP. APPROX. 1.00" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110LBS A SQUARE YARD                             |
| C2                | PROP. APPROX. 1.25" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 138LBS PER SQUARE YARD                           |
| C3                | PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS PER SQUARE YARD                           |
| D                 | PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS PER SQUARE YARD                       |
| E1                | PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE WIDENING, TYPE B25.0B, AT AN AVERAGE RATE OF 399 LBS PER SQUARE YARD IN EACH OF TWO LAYERS |
| E2                | PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS PER SQUARE YARD                              |
| S                 | SHOULDER RECONSTRUCTION/ SEEDING AND MULCHING BY CONTRACTOR AS DIRECTED BY THE ENGINEER  |
| V                 | PROP. 1.5" MILLING ASPHALT PAVEMENT  |

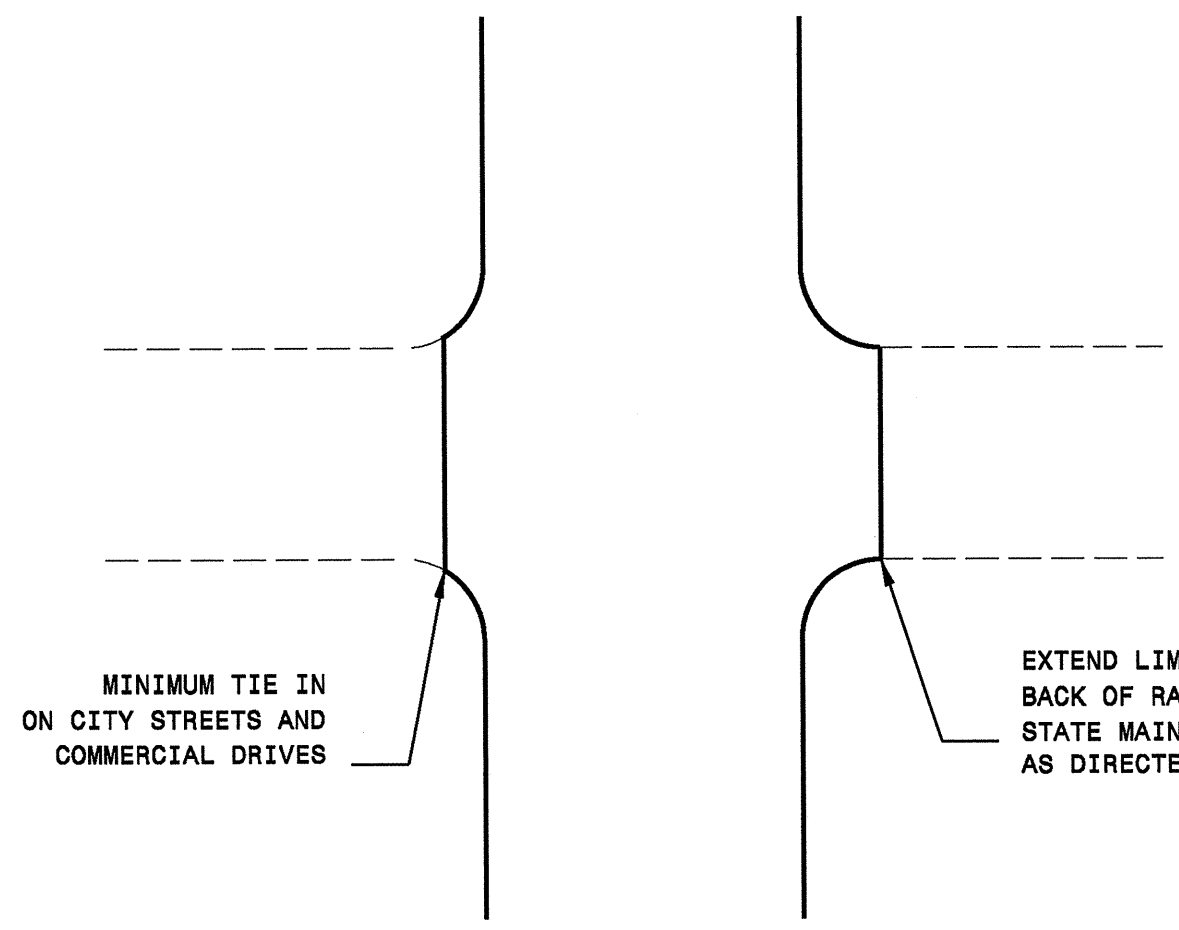
## SUMMARY OF QUANTITIES

| PROJECT NO                      | COUNTY | MAP NO | ROUTE                             | DESCRIPTION   | TYP | FINAL SURFACE TESTING REQUIRED | WARM MIX ASPHALT ALLOWED | LENGTH MI | WIDTH FT | BORROW CY | INCIDENTAL STONE BASE TONS | SHOULDER RECONSTRUCTION SMI | 1/2" MILLING SY | INCIDENTAL MILLING SY | BASE COURSE, B25.0B TONS | INTER-MEDIATE COURSE, I19.0B TONS | SURFACE COURSE, SF9.5A TON | SURFACE COURSE, S9.5B TON | PG 64-22 PLANT MIX TONS | PATCHING EXISTING PAVEMENT TONS | REMOVE & RESET EXISTING GUARDRAIL LF | TEMPORARY SILT FENCE LF | WATTLE LF | POLY-ACRYLAMIDE (PAM) LB | SEED & MULCHING AC |
|---------------------------------|--------|--------|-----------------------------------|---|-----|--------------------------------|--------------------------|-----------|----------|-----------|----------------------------|-----------------------------|-----------------|-----------------------|--------------------------|-----------------------------------|----------------------------|---------------------------|-------------------------|---------------------------------|--------------------------------------|-------------------------|-----------|--------------------------|--------------------|
| 43082                           | Warren | 1      | ARMORY DRIVE IN WARRENTON         | FROM US 158 BUS TO END CURB AND GUTTER                        | 3   | NO                             | YES                      | 0.042     | 25       |           | 10                         |                             | 616             |                       |                          |                                   | 53                         |                           | 3                       |                                 |                                      |                         |           |                          |                    |
| TOTAL FOR MAP NO. 1             |        |        |                                   |   |     |                                |                          | 0.042     |          |           | 10                         |                             | 616             |                       |                          |                                   | 53                         |                           | 3                       |                                 |                                      |                         |           |                          |                    |
| TOTAL FOR PROJ NO. 43082        |        |        |                                   |   |     |                                |                          | 0.042     |          |           | 10                         |                             | 616             |                       |                          |                                   | 53                         |                           | 3                       |                                 |                                      |                         |           |                          |                    |
| 5C.093054                       | Warren | 2      | SR 1100 (COOL SPRINGS SCHOOL RD.) | FROM SR 1001 (MARTIN LUTHER KING) TO SR 1125 (TOWER RD.)      | 5   | NO                             | YES                      | 1         | 22       | 40        | 24                         | 2.00                        |                 |                       | 950                      | 1,894                             | 734                        |                           | 178                     | 30                              |                                      |                         |           |                          | 1.40               |
| TOTAL FOR MAP NO. 2             |        |        |                                   |   |     |                                |                          | 1         |          | 40        | 24                         | 2.00                        |                 |                       | 950                      | 1,894                             | 734                        |                           | 178                     | 30                              |                                      |                         |           |                          | 1.40               |
| TOTAL FOR PROJ NO. 5C.093054    |        |        |                                   |   |     |                                |                          | 1         |          | 40        | 24                         | 2.00                        |                 |                       | 950                      | 1,894                             | 734                        |                           | 178                     | 30                              |                                      |                         |           |                          | 1.40               |
| 5C.093055                       | Warren | 3      | SR 1509 (ODELL-ARCOLA RD.)        | FROM SR 1521 (ODELL-LITTLETON RD) TO SR 1530 (SHEARIN ROAD)   | 4   | NO                             | YES                      | 1.9       | 24       | 76        | 46                         | 3.80                        | 700*            |                       | 1,750                    | 3,922                             | 1,476                      |                           | 356                     | 20                              | 700                                  | 1,000                   |           |                          |                    |
| TOTAL FOR MAP NO. 3             |        |        |                                   |   |     |                                |                          | 1.9       |          | 76        | 46                         | 3.80                        | 700*            |                       | 1,750                    | 3,922                             | 1,476                      |                           | 356                     | 20                              | 700                                  | 1,000                   |           |                          |                    |
| TOTAL FOR PROJ NO. 5C.093055    |        |        |                                   |   |     |                                |                          | 1.9       |          | 76        | 46                         | 3.80                        | 700*            |                       | 1,750                    | 3,922                             | 1,476                      |                           | 356                     | 20                              | 700                                  | 1,000                   |           |                          |                    |
| 5CR.10931.10                    | Warren | 4      | NC 58                             | FROM US 158 BUS. TO NC 43                                     | 2   | NO                             | YES                      | 4.1       | 24       |           | 98                         | 8.20                        |                 | 700                   | 4,500                    |                                   | 4,931                      | 489                       | 700                     |                                 | 500                                  |                         |           |                          | 6.00               |
| TOTAL FOR MAP NO. 4             |        |        |                                   |   |     |                                |                          | 4.1       |          |           | 98                         | 8.20                        |                 | 700                   | 4,500                    |                                   | 4,931                      | 489                       | 700                     |                                 | 500                                  |                         |           |                          | 6.00               |
| TOTAL FOR PROJ NO. 5CR.10931.10 |        |        |                                   |   |     |                                |                          | 4.1       |          |           | 98                         | 8.20                        |                 | 700                   | 4,500                    |                                   | 4,931                      | 489                       | 700                     |                                 | 500                                  |                         |           |                          | 6.00               |
| 5CR.20911.10                    | Vance  | 5      | SR 1319 (SATTERWHITE POINT ROAD)  | FROM US 1/158 TO END STATE MAINTENANCE                        | 1   | NO                             | YES                      | 6.75      | 24       | 500       | 162                        | 13.50                       | 870*            |                       |                          | 6,562                             |                            | 427                       | 100                     |                                 | 400                                  | 40                      | 1         | 9.80                     |                    |
| TOTAL FOR MAP NO. 5             |        |        |                                   |   |     |                                |                          | 6.75      |          | 500       | 162                        | 13.50                       | 870*            |                       |                          | 6,562                             |                            | 427                       | 100                     |                                 | 400                                  | 40                      | 1         | 9.80                     |                    |
| TOTAL FOR PROJ NO. 5CR.20911.10 |        |        |                                   |   |     |                                |                          | 6.75      |          | 500       | 162                        | 13.50                       | 870*            |                       |                          | 6,562                             |                            | 427                       | 100                     |                                 | 400                                  | 40                      | 1         | 9.80                     |                    |
| 5CR.20931.10                    | Warren | 6      | SR 1110 (SNOW HILL RD)            | FROM SR 1107 (RIDGWAY/WARRENTON RD) TO SR 1118 (NO BOTTOM RD) | 1   | NO                             | YES                      | 1.75      | 20       | 150       | 42                         | 3.50                        |                 |                       |                          | 1,462                             |                            | 95                        | 3,000                   |                                 | 100                                  |                         |           | 2.54                     |                    |
| TOTAL FOR MAP NO. 6             |        |        |                                   |   |     |                                |                          | 1.75      |          | 150       | 42                         | 3.50                        |                 |                       |                          | 1,462                             |                            | 95                        | 3,000                   |                                 | 100                                  |                         |           | 2.54                     |                    |
|                                 |        | 7      | SR 1107 (RIDGWAY / WARRENTON RD)  | FROM US 158/401 TO US 1/158                                   | 1   | NO                             | YES                      | 4.65      | 22       | 375       | 112                        | 9.30                        | 400*            |                       |                          | 4,270                             |                            | 278                       | 500                     |                                 | 450                                  |                         |           | 5.58                     |                    |
| TOTAL FOR MAP NO. 7             |        |        |                                   |   |     |                                |                          | 4.65      |          | 375       | 112                        | 9.30                        | 400*            |                       |                          | 4,270                             |                            | 278                       | 500                     |                                 | 450                                  |                         |           | 5.58                     |                    |
| TOTAL FOR PROJ NO. 5CR.20931.10 |        |        |                                   |   |     |                                |                          | 6.4       |          | 525       | 154                        | 12.80                       | 400*            |                       |                          | 5,732                             |                            | 373                       | 3,500                   |                                 | 550                                  |                         |           | 8.12                     |                    |
| GRAND TOTAL                     |        |        |                                   |   |     |                                |                          | 20.192    |          | 1,141     | 494                        | 40.30                       | 2,586           | 700                   | 7,200                    | 5,816                             | 14,557                     | 4,931                     | 1,826                   | 4,350                           | 700                                  | 2,450                   | 40        | 1                        | 25.32              |

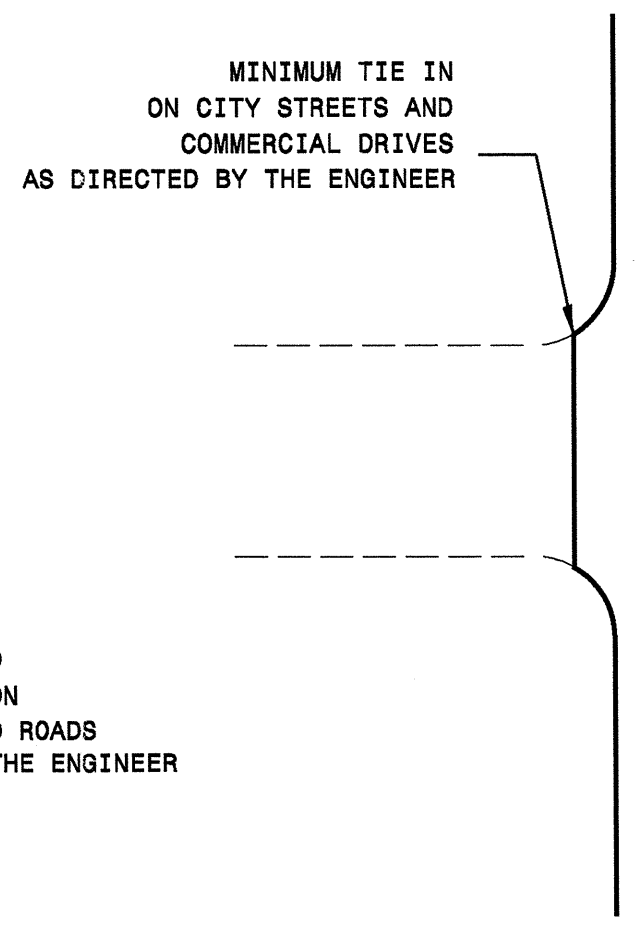
\*to be used on bridge decks, if directed by the engineer

## THERMOPLASTIC AND PAINT QUANTITIES

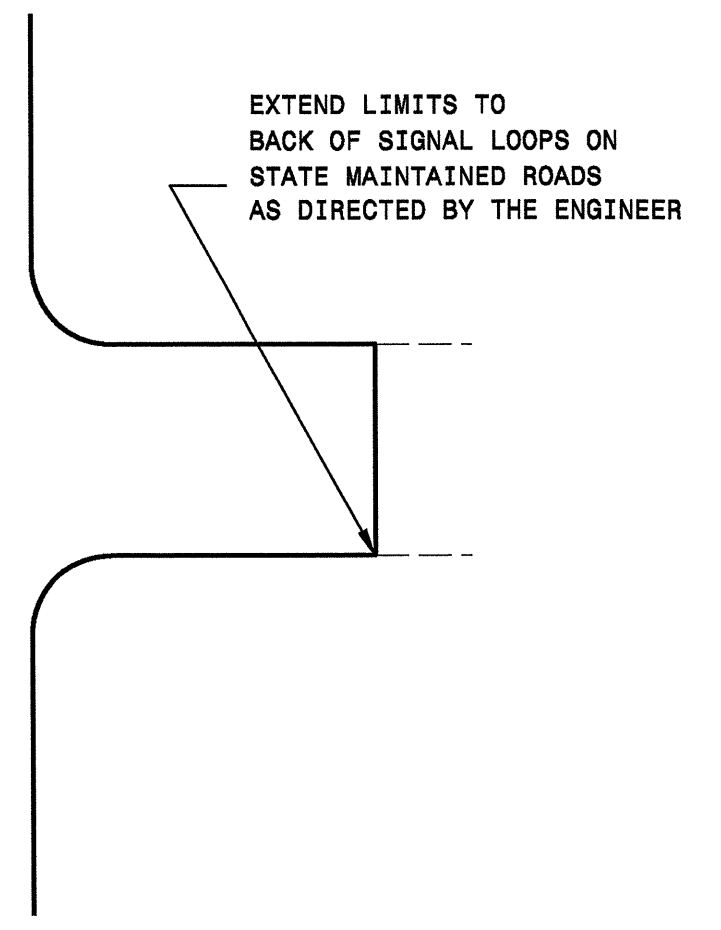
| PROJECT NO                      | COUNTY | MAP NO | ROUTE                             | DESCRIPTION   | 4685000000-E              | 4686000000-E                | 4705000000-E                | 4710000000-E                | 4721000000-E        | 4810000000-E      | 4845000000-N       |                         | 4900000000-N      | 4905000000-N               |                          |
|---------------------------------|--------|--------|-----------------------------------|---|---------------------------|-----------------------------|-----------------------------|-----------------------------|---------------------|-------------------|--------------------|-------------------------|-------------------|----------------------------|--------------------------|
|                                 |        |        |                                   |   | 4" X 90 M WHITE THERMO LF | 4" X 120 M YELLOW THERMO LF | 16" X 120 M WHITE THERMO LF | 24" X 120 M WHITE THERMO LF | THERMO RXR 120 M EA | 4" WHITE PAINT LF | 4" YELLOW PAINT LF | PAINT STR & LT ARROW EA | PAINT RT ARROW EA | YELLOW & YELLOW MARKERS EA | SNOW PLOWABLE MARKERS EA |
| 43082                           | Warren | 1      | ARMORY DRIVE IN WARRENTON         | FROM US 158 BUS TO END CURB AND GUTTER                        |                           |                             |                             |                             |                     |                   | 500                | 1,000                   | 1                 | 2                          |                          |
| TOTAL FOR MAP NO. 1             |        |        |                                   |   |                           |                             |                             |                             |                     |                   | 500                | 1,000                   | 1                 | 2                          |                          |
| TOTAL FOR PROJ NO. 43082        |        |        |                                   |   |                           |                             |                             |                             |                     |                   | 1,500              |                         |                   | 3                          |                          |
| 5C.093054                       | Warren | 2      | SR 1100 (COOL SPRINGS SCHOOL RD.) | FROM SR 1001 (MARTIN LUTHER KING) TO SR 1125 (TOWER RD.)      | 10,760                    | 6,600                       |                             |                             |                     |                   |                    |                         |                   |                            |                          |
| TOTAL FOR MAP NO. 2             |        |        |                                   |   | 10,760                    | 6,600                       |                             |                             |                     |                   |                    |                         |                   |                            |                          |
| TOTAL FOR PROJ NO. 5C.093054    |        |        |                                   |   | 10,760                    | 6,600                       |                             |                             |                     |                   |                    |                         |                   |                            |                          |
| 5C.093055                       | Warren | 3      | SR 1509 (ODELL-ARCOLA RD.)        | FROM SR 1521 (ODELL-LITTLETON RD) TO SR 1530 (SHEARIN ROAD)   | 20,444                    | 12,540                      |                             |                             |                     |                   |                    |                         |                   |                            |                          |
| TOTAL FOR MAP NO. 3             |        |        |                                   |   | 20,444                    | 12,540                      |                             |                             |                     |                   |                    |                         |                   |                            |                          |
| TOTAL FOR PROJ NO. 5C.093055    |        |        |                                   |   | 20,444                    | 12,540                      |                             |                             |                     |                   |                    |                         |                   |                            |                          |
| 5CR.10931.10                    | Warren | 4      | NC 58                             | FROM US 158 BUS. TO NC 43                                     | 44,116                    | 27,060                      |                             |                             |                     |                   |                    |                         |                   | 271                        |                          |
| TOTAL FOR MAP NO. 4             |        |        |                                   |   | 44,116                    | 27,060                      |                             |                             |                     |                   |                    |                         |                   | 271                        |                          |
| TOTAL FOR PROJ NO. 5CR.10931.10 |        |        |                                   |   | 44,116                    | 27,060                      |                             |                             |                     |                   |                    |                         |                   | 271                        |                          |
| 5CR.20911.10                    | Vance  | 5      | SR 1319 (SATTERWHITE POINT ROAD)  | FROM US 1/158 TO END STATE MAINTENANCE                        | 72,630                    | 44,550                      |                             |                             |                     |                   |                    |                         |                   | 446                        |                          |
| TOTAL FOR MAP NO. 5             |        |        |                                   |   | 72,630                    | 44,550                      |                             |                             |                     |                   |                    |                         |                   | 446                        |                          |
| TOTAL FOR PROJ NO. 5CR.20911.10 |        |        |                                   |   | 72,630                    | 44,550                      |                             |                             |                     |                   |                    |                         |                   | 446                        |                          |
| 5CR.20931.10                    | Warren | 6      | SR 1110 (SNOW HILL RD)            | FROM SR 1107 (RIDGWAY/WARRENTON RD) TO SR 1118 (NO BOTTOM RD) | 18,830                    | 11,550                      |                             |                             |                     |                   |                    |                         |                   |                            |                          |
| TOTAL FOR MAP NO. 6             |        |        |                                   |   | 18,830                    | 11,550                      |                             |                             |                     |                   |                    |                         |                   |                            |                          |
|                                 |        | 7      | SR 1107 (RIDGWAY / WARRENTON RD)  | FROM US 158/401 TO US 1/158                                   | 50,034                    | 30,690                      | 50                          | 25                          | 2                   |                   |                    |                         |                   | 307                        |                          |
| TOTAL FOR MAP NO. 7             |        |        |                                   |   | 50,034                    | 30,690                      | 50                          | 25                          | 2                   |                   |                    |                         |                   | 307                        |                          |
| TOTAL FOR PROJ NO. 5CR.20931.10 |        |        |                                   |   | 68,864                    | 42,240                      | 50                          | 25                          | 2                   |                   |                    |                         |                   | 307                        |                          |
| GRAND TOTAL                     |        |        |                                   |   | 216,814                   | 132,990                     | 50                          | 25                          | 2                   | 500               | 1,000              | 1                       | 2                 | 753                        | 271                      |



DETAIL OF PROJECT LIMITS AT UNSIGNALIZED Y LINES



DETAIL OF PROJECT LIMITS AT SIGNALIZED Y LINES

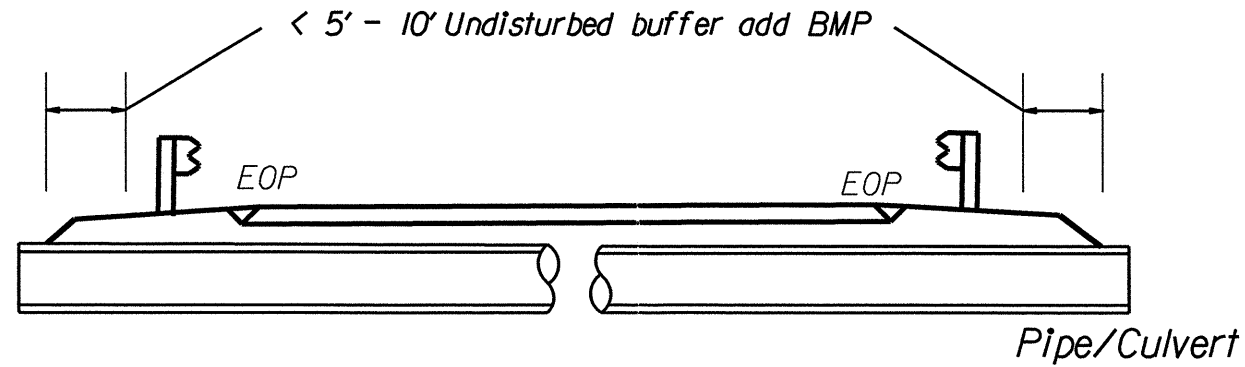


|                          |                     |
|--------------------------|---------------------|
| PROJECT REFERENCE NO.    | SHEET NO.           |
| 5C073056, 5CR107310, ETC | EC-1                |
| RW SHEET NO.             |                     |
| ROADWAY DESIGN ENGINEER  | HYDRAULICS ENGINEER |

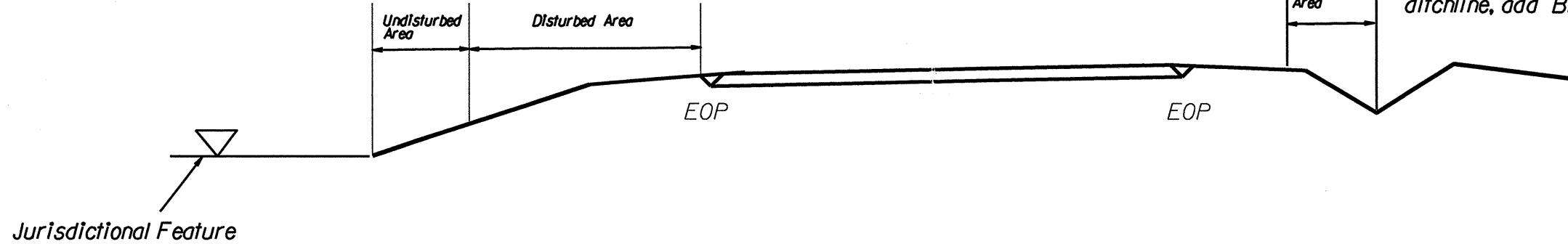
NOTES: Less than 5' - 10' undisturbed buffer from ROW, ditchline, water feature, or drainage inlet, add BMP.

BMP Options: Wattle or Silt Fence

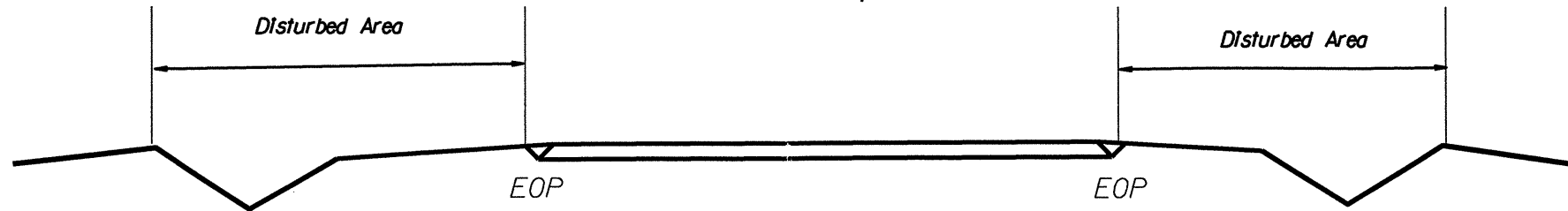
# EROSION CONTROL DETAIL



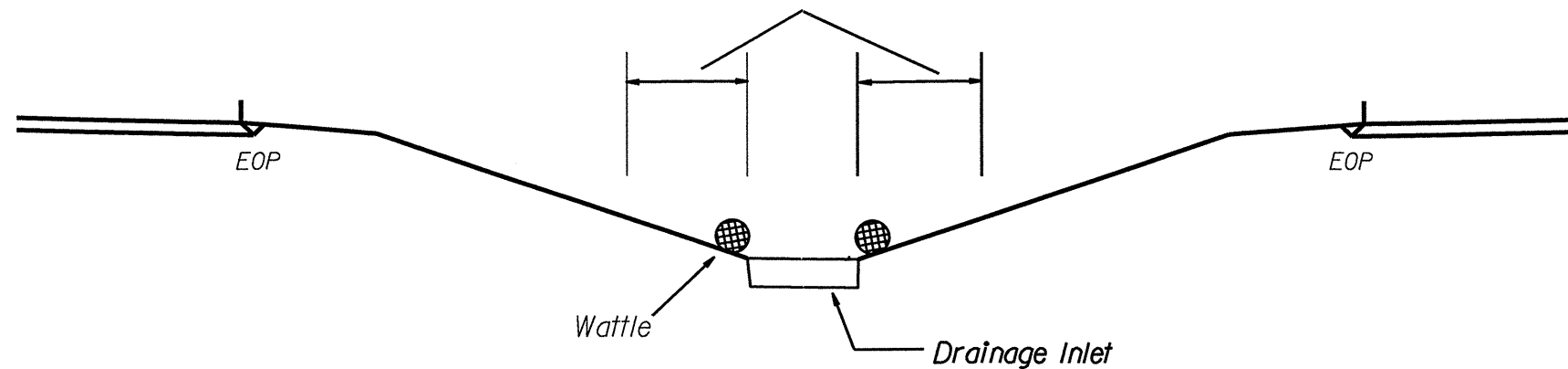
< 5' - 10' Undisturbed buffer from jurisdictional feature add BMP



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



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

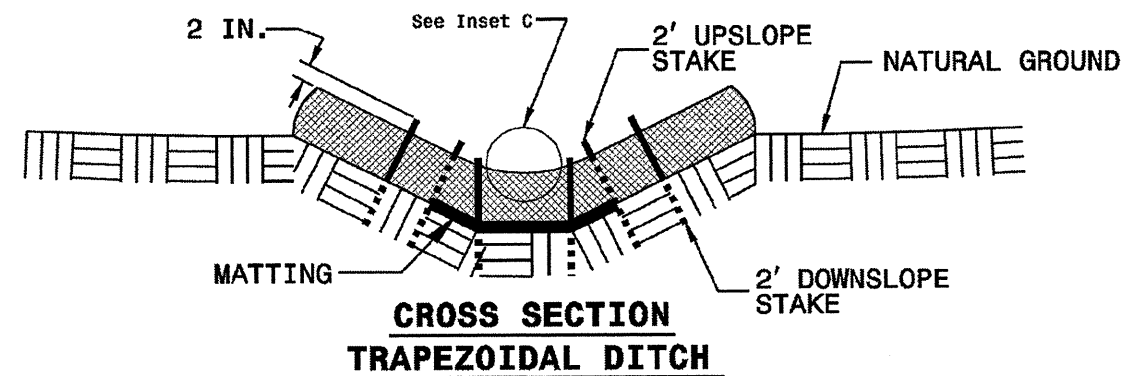
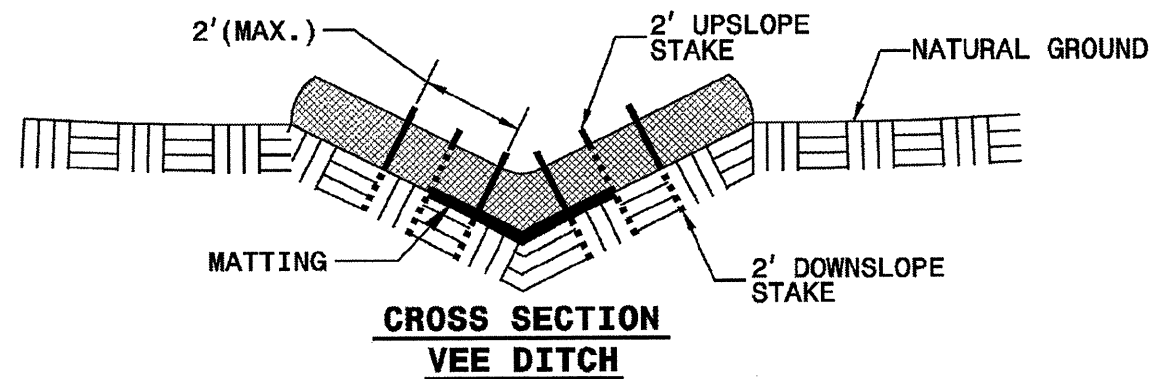
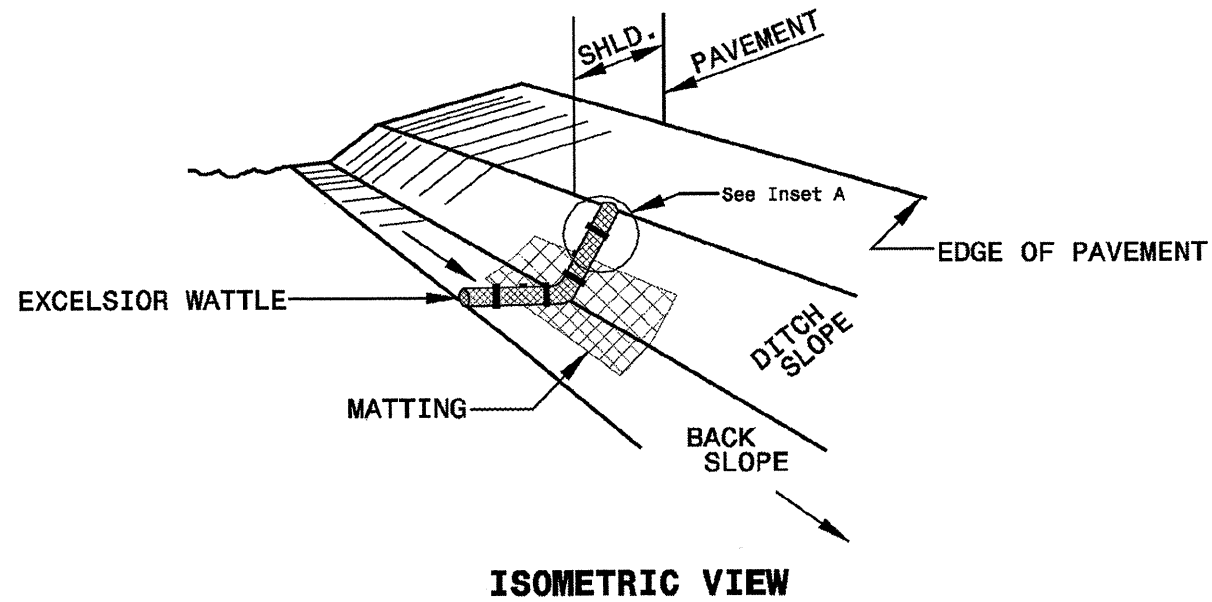


NOT TO SCALE

# WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL

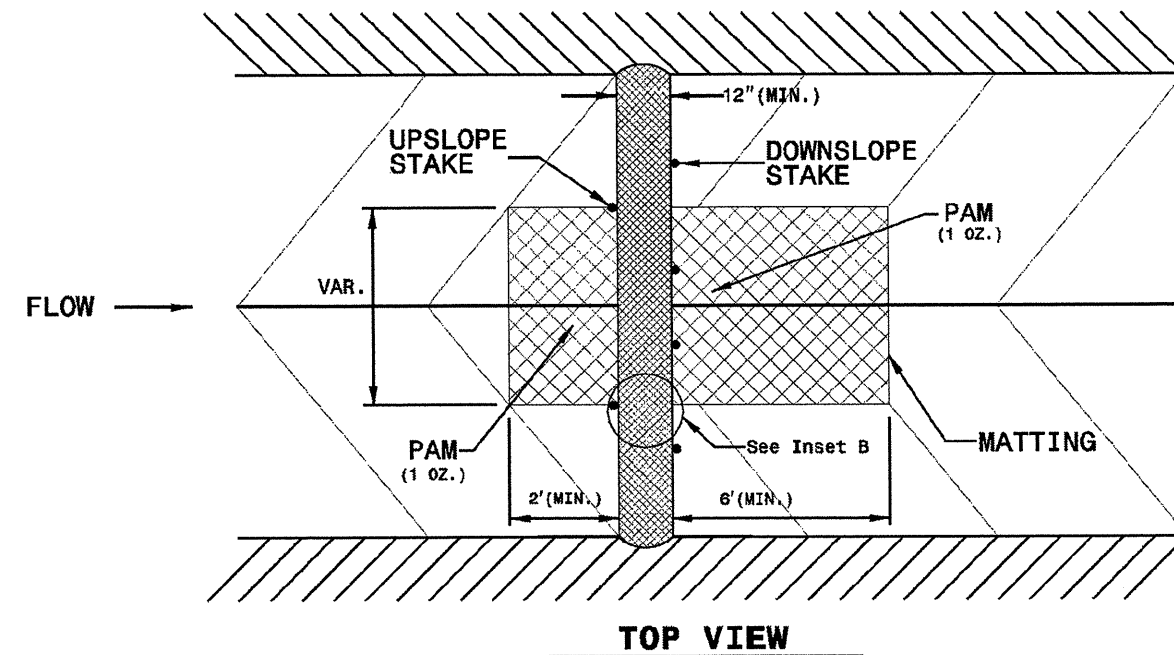
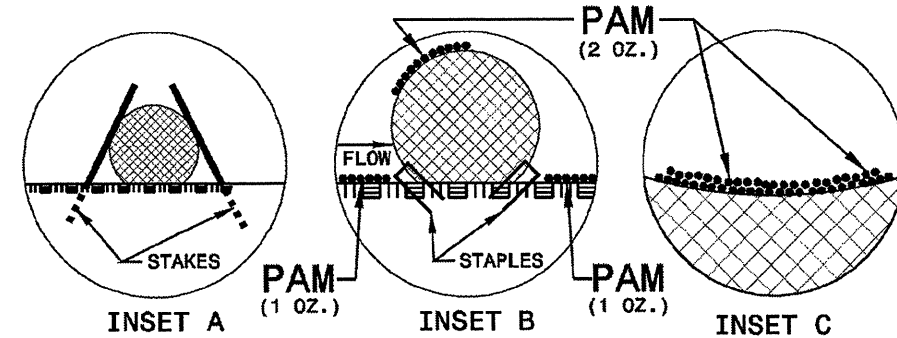
|                         |                     |
|-------------------------|---------------------|
| PROJECT REFERENCE NO.   | SHEET NO.           |
| R/W SHEET NO.           |                     |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

5CR.20911.10, ETC  
EC-2



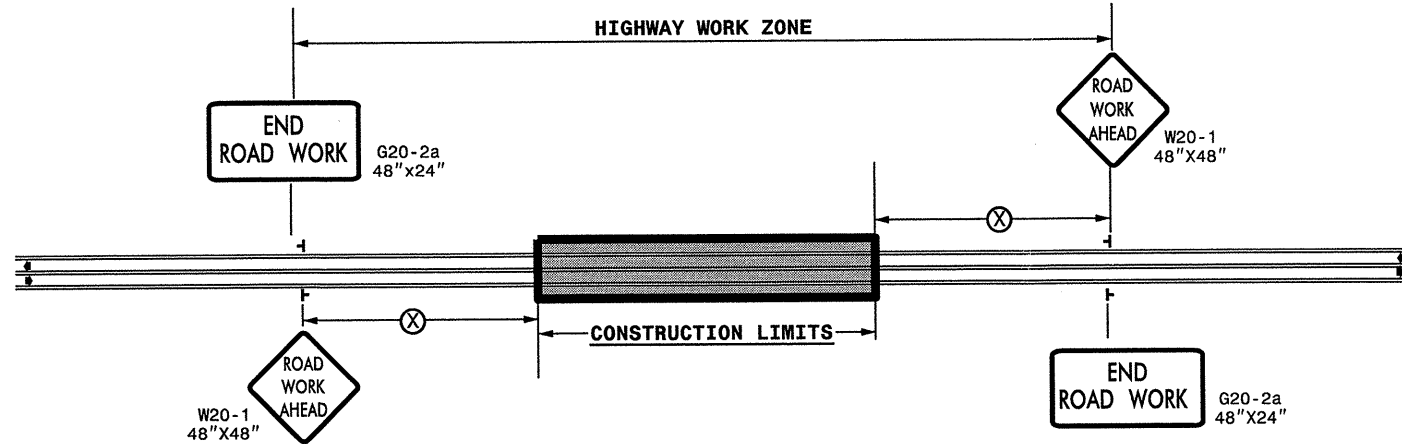
**NOTES:**

- 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.
- PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.
- INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.





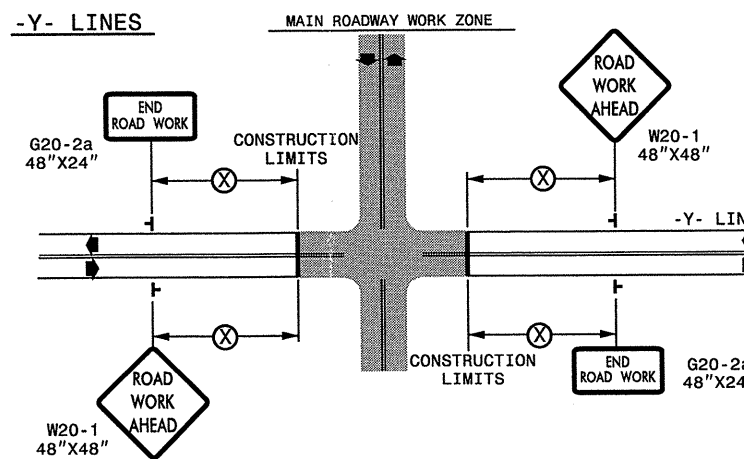
**TWO-WAY UNDIVIDED \*\* (L-LINES)**



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

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

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



DETAIL DRAWING FOR  
TWO-WAY UNDIVIDED  
WORK ZONE WARNING SIGNS


**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.
- 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.
- \*\* 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

SHEET 1 OF 1






|                             |  |             |
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| APPROVED: _____ DATE: _____ | DETAIL DRAWING FOR TWO-WAY UNDIVIDED AND URBAN FREEWAYS 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: _____          |     |             |

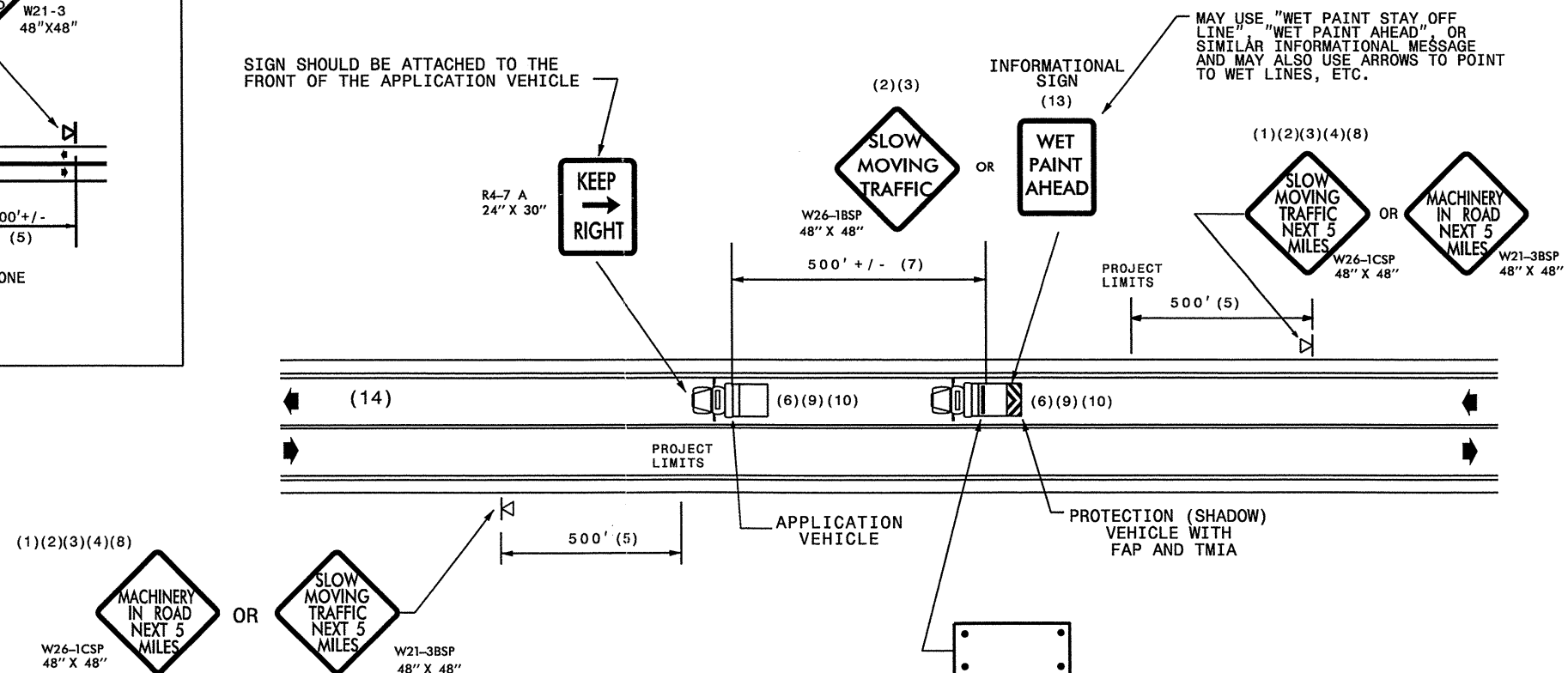
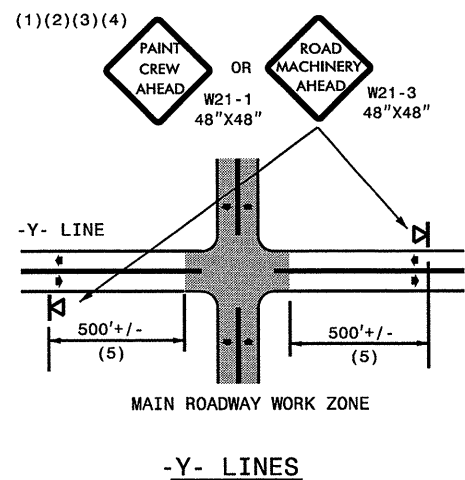
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### GENERAL NOTES

- (1) THE FOLLOWING OPTIONS MAY BE USED FOR ADVANCE WARNING SIGNS:
  - A. TRUCK MOUNTED SIGNS
  - B. TRUCK MOUNTED CHANGEABLE MESSAGE SIGN (CMS)
  - C. GROUND MOUNTED ADVANCE WARNING SIGNS (MUST CIRCLE TO PICK UP SIGNS)
  - D. GROUND MOUNTED CHANGEABLE MESSAGE SIGN (CMS) (MUST USE CIRCLE TO PICK UP SIGNS)
- (2) ALL ADVANCE WARNING SIGNS MUST BE 48" X 48" WITH FLUORESCENT ORANGE TYPE VII, VIII OR IX SHEETING. IF SPACE LIMITATIONS ON SHOULDER PROHIBIT A 48" X 48" SIGN, A SMALLER SIGN CAN BE USED WITH APPROVAL FROM ENGINEER.
- (3) SIGNS ON VEHICLES SHOULD BE MOUNTED A MINIMUM OF ONE (1) FOOT FROM THE GROUND AND SHOULD NOT BLOCK THE MOTORIST'S SIGHT OF THE FLASHING ARROW PANEL AND/OR LIGHTBAR.
- (4) GROUND MOUNTED ADVANCED WARNING SIGNS SHOULD BE MOUNTED A MINIMUM OF ONE (1) FOOT FROM THE GROUND TO BOTTOM OF SIGN.
- (5) SIGN SPACING SHOULD BE ADJUSTED FOR HORIZONTAL AND VERTICAL CURVES, ETC. TO IMPROVE SIGHT DISTANCES.
- (6) ADDITIONAL VEHICLES SHOULD BE USED IN WORK CARAVAN TO FACILITATE DRYING OF PAVEMENT MARKING MATERIAL (TMIA'S ARE OPTIONAL ON THESE ADDITIONAL VEHICLES). HOWEVER, THE FIRST VEHICLE MOTORISTS SEE IN THE TRAVEL LANE SHALL HAVE A TMIA.
- (7) ADJUST DISTANCE AS NEEDED TO PREVENT MOTORISTS FROM ENTERING SPACE BETWEEN THE APPLICATION AND PROTECTION VEHICLE. DISTANCE CAN BE LENGTHENED TO ACCOMMODATE SIGHT DISTANCE NEEDS.
- (8) ROUND UP MILEAGE TO NEXT WHOLE MILE. WORK ZONE SHOULD NOT EXCEED FIVE (5) MILES IN LENGTH.
- (9) RADIO COMMUNICATION BETWEEN VEHICLES IS REQUIRED.
- (10) USE OF A LIGHT BAR ON ALL VEHICLES IS PREFERRED, BUT A ROTATING BEACON MAY BE USED INSTEAD.
- (11) IF WORK IS PERFORMED AT NIGHT, THE WORK AREA MUST BE ILLUMINATED WITH MACHINE AND/OR TOWER LIGHTS AS APPROVED BY THE ENGINEER.
- (12) ALL TRAFFIC CONTROL DEVICES WILL BE CONSIDERED INCIDENTAL TO THE PAY ITEMS FOR PAVEMENT MARKING AND MARKERS.
- (13) INFORMATIONAL SIGNS SHOULD BE ACTIVITY SPECIFIC, i.e. "PAINT CREW IN ROAD". SIGNS MAY BE RECTANGULAR OR DIAMOND SHAPE. SIGN SIZE SHOULD BE BASED ON THE MOTORIST ABILITY TO RECOGNIZE SIGN WHEN TRAVELING FIVE (5) MILES ABOVE POSTED SPEED LIMIT.
- (14) IF A LEAD VEHICLE IS ADDED TO OPERATION, IT SHOULD HAVE THE SAME ADVANCE WARNING SIGNS AS THE APPLICATION VEHICLE SHOWN BELOW.

### LEGEND

-  PORTABLE SIGN. SIGNS MUST BE NCHRP-350 AND NCDOT APPROVED.
-  DIRECTION OF TRAFFIC FLOW
-  APPLICATION VEHICLE WITH LIGHT BAR
-  PROTECTION VEHICLE WITH TRUCK MOUNTED IMPACT ATTENUATOR (TMIA) AND LIGHT BAR (SEE ROADWAY STANDARD NO. 1165.01). TMIA MUST BE NCHRP-350 TEST LEVEL 3 (60+MPH) APPROVED.
-  FLASHING ARROW PANEL, TYPE "B" (60"X30" MIN.), "CAUTION MODE"



## MOVING OPERATION CARAVAN

(OPERATIONS TRAVELING 3 MPH OR FASTER)  
PLACING PAVEMENT MARKING OR MARKERS  
ON TWO-LANE TWO-WAY ROADWAYS

**DRAWING NUMBER 6**  
IMPLEMENTATION DATE: 07/01/97  
REVISED: 11/03/04