## STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

STATE PROJECT REFERENCE NO. B-4191 TCP-1

# PLAN FOR PROPOSED TRAFFIC CONTROL, MARKING & DELINEATION

# McDOWELL COUNTY

## ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" -PROJECT SERVICES UNIT-N.C. DEPARTMENT OF TRANSPORTATION-RALEIGH, N.C., DATED JULY 2006 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	<u>TITLE</u>
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUM
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1165.01	TRUCK MOUNTED IMPACT ATTENUATOR
1180.01	SKINNY-DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE & MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.06	PAVEMENT MARKINGS - THRU LANE DROPS
1205.08	PAVEMENT MARKINGS - SYMBOLS & WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1250.01	PAVEMENT MARKER SPACING
1251.01	RAISED PAVEMENT MARKERS (TEMPORARY & PERMANENT)
1253.01	SNOWPLOWABLE RAISED PAVEMENT MARKERS
1261.01	GUARDRAIL & BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL & BARRIER DELINEATOR TYPES
1262.01	GUARDRAIL END DELINEATION

## INDEX OF SHEETS

SHEET NO.	TITLE
TCP-1	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND AND INDEX OF SHEETS
TCP-2	PROJECT NOTES
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TCP-4	PHASE I DETAILS
TCP-5	PHASE II DETAILS
TCP-6	PHASE III DETAILS
TCP-7	WORK ZONE ADVANCE WARNING SIGNS

## **LEGEND**

### **GENERAL**

■ DIRECTION OF TRAFFIC FLOW

NORTH ARROW

— PROPOSED PVMT. ----- EXIST. PVMT.

**WORK AREA** 

REMOVAL OF EXISTING PAVEMENT

### TRAFFIC CONTROL DEVICES

T TYPE I BARRICADE

TYPE III BARRICADE

CONE

SKINNY DRUM

FLASHING ARROW PANEL (TYPE C)

STATIONARY SIGN

M PORTABLE SIGN

STATIONARY OR PORTABLE SIGN

---- CRASH CUSHION

CHANGEABLE MESSAGE SIGN

TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)

**FLAGGER** 

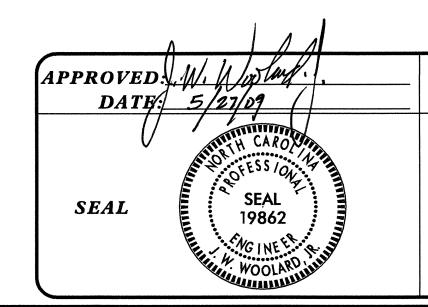
### PAVEMENT MARKINGS

CRYSTAL/CRYSTAL PAVEMENT MARKER

YELLOW/YELLOW PAVEMENT MARKER

CRYSTAL/RED PAVEMENT MARKER

PAVEMENT MARKING SYMBOLS



PLAN PREPARED BY: N.C.D.O.T. WORK ZONE TRAFFIC CONTROL UNIT

J.S. BOURNE, P.E. TRAFFIC CONTROL ENGINEER

G.L. GETTIER, P.E. TRAFFIC CONTROL PROJECT ENGINEER

J.W. WILLARD, P.E. TRAFFIC CONTROL PROJECT DESIGN ENGINEER

L.K. DONALDSON, P.E. TRAFFIC CONTROL DESIGN ENGINEER / TECHNICIAN

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS, OR RESULT IN DUPLICATE, OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING OR REMOVAL OF DEVICES, AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

#### TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

#### ROAD NAME

DAY AND TIME RESTRICTIONS

- -L- (NC 226) MONDAY THRU FRIDAY 6:00 AM TO 8:00 AM -L- (NC 226) MONDAY THRU FRIDAY 3:00 PM TO 6:00 PM
- B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL **EVENTS AS FOLLOWS:**

#### ROAD NAME

-L- (NC 226)

#### HOLIDAY

- 1. FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
- 2. FOR NEW YEAR'S, BETWEEN THE HOURS OF 3:00 P.M. DECEMBER 31st TO 8:00 A.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY. SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 8:00 A.M. THE FOLLOWING TUESDAY.
- 3. FOR EASTER, BETWEEN THE HOURS OF 3:00 P.M. THURSDAY AND 8:00 A.M. MONDAY.
- 4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 3:00 P.M. FRIDAY TO 8:00 A.M. TUESDAY.
- 5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 3:00 P.M. THE DAY BEFORE INDEPENDENCE DAY AND 8:00 A.M. THE DAY AFTER INDEPENDENCE DAY.

IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 3:00 P.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 8:00 A.M. THE TUESDAY AFTER INDEPENDENCE DAY.

- 6. FOR LABOR DAY, BETWEEN THE HOURS OF 3:00 P.M. FRIDAY AND 8:00 A.M. TUESDAY.
- 7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 3:00 P.M. TUESDAY TO 8:00 A.M. MONDAY.
- 8. FOR CHRISTMAS, BETWEEN THE HOURS OF 3:00 P.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 8:00 A.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

#### LANE AND SHOULDER CLOSURE REQUIREMENTS

C) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED, OR AS DIRECTED BY THE ENGINEER.

#### GENERAL NOTES CONTINUED:

- D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN AN OPEN TRAVEL LANE. CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
- E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

- F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- G) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.
- H) DO NOT INSTALL MORE THAN ONE LANE CLOSURE, IN ANY ONE DIRECTION, ON NC 226.

#### PAVEMENT EDGE DROP OFF REQUIREMENTS

I) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER. AT NO EXPENSE TO THE DEPARTMENT.

J) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

#### TRAFFIC PATTERN ALTERATIONS

K) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

#### SIGNING

- L) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- M) PROVIDE PERMANENT SIGNING.
- N) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

PROJ. REFERENCE NO.	SHEET NO.
B-4191	TCP-2
	105-2

#### **GENERAL NOTES CONTINUED:**

#### TRAFFIC CONTROL DEVICES

- O) SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH), EXCEPT 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY, WHEN LANE CLOSURES ARE NOT IN EFFECT. WHEN SKINNY DRUMS ARE ALLOWED, REFER TO SECTION 1180 OF STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES OR AS SHOWN IN THE PLANS.
- P) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.
- Q) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 500 FT CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

#### PAVEMENT MARKINGS AND MARKERS

R) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

ROAD NAME MARKING MARKER -L- (NC 226) PAINT TEMPORARY RAISED -DET- (NC 226) TEMPORARY RAISED PAINT

- S) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.
- T) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- U) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

### MISCELLANEOUS

V) IN THE EVENT A TIE-IN CANNOT BE MADE IN ONE DAYS TIME. BRING THE TIE-IN AREA TO AN APPROPRIATE ROADWAY ELEVATION, AS DETERMINED BY THE ENGINEER. PLACE BLACK ON ORANGE "LOOSE GRAVEL" SIGNS (W8-7) AND BLACK ON ORANGE "PAVEMENT ENDS" SIGNS (W8-3) AND RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.

APPROVED: W. W. May. DATE:5/27/09 SEAL 19862

## PROJECT NOTES

NONE SCALE: DWG. BY: LKD DESIGN BY: LKD REVIEWED BY: JWW



REVISIONS

## **PHASING**

NOTE: MAINTAIN ACCESS TO ALL DRIVEWAYS WITHIN THE PROJECT LIMITS.

PHASE I

STEP 1 USING TCP-7, INSTALL ALL WORK ZONE ADVANCE WARNING SIGNS ON NC 226.

STEP 2 USING RSD 1101.02 (SHEET 1 OF 9), FLAGGERS AND TCP-4, CONSTRUCT ON-SITE DETOUR ROUTE UP TO EXISTING EDGE OF PAVEMENT, INCLUDING DETOUR PIPES AND TEMPORARY GUARDRAIL, FROM -DET- STA 10+00+/- TO -DET- STA 19+36+/-.

INSTALL TYPE III BARRICADES AND DRUMS AS SHOWN ON TCP-4.
MAINTAIN TRAFFIC IN EXISTING TRAFFIC PATTERN ON NC 226.

PHASE II

- STEP 1 USING RSD 1101.02 (SHEET 1 OF 9), FLAGGERS AND TCP-4, PERFORM THE FOLLOWING:
  - -COORDINATE WITH ENGINEER FOR SIGNAL LOOPS TO BE CUT IN THE DETOUR ROUTE AT SR 1832 INTERSECTION.

-COMPLETE DETOUR TIE-INS, PLACE TEMPORARY PAVEMENT MARKING ON ON-SITE DETOUR ROUTE, SHIFT TRAFFIC TO ON-SITE DETOUR ROUTE. PLACE TYPE III BARRICADES AND ADDITIONAL TRAFFIC CONTROL DEVICES AS SHOWN ON TCP-5 AND RSD 1101.03 (SHEET 3 OF 9) TO CLOSE EXISTING ROADWAY AND MAINTAIN TRAFFIC ON ON-SITE DETOUR.

- STEP 2 USING RSD 1101.03 (SHEET 3 OF 9), FLAGGERS AND TCP-5 AS NEEDED, PERFORM THE FOLLOWING:
  - -REMOVE EXISTING BRIDGE AND APPROACHES AS REQUIRED FROM -L-STA 71+25+/- TO -L-STA 76+50+/- AND CONSTRUCT THE PROPOSED CULVERT AT -L-STA 75+36+/-.
  - -CONSTRUCT CURB AND GUTTER, GUARDRAIL, PAVEMENT MARKINGS AND WIDENING UP TO BUT NOT INCLUDING FINAL LAYER OF SURFACE COURSE FROM -L- STA 69+50 TO -L- STA 78+75 AS SHOWN ON TCP-5 EXCLUDING C&G ON RIGHT SIDE FROM -L- STA 69+50+/- TO STA 72+15+/- AND FROM -L- STA 76+54 TO STA 79+00.

PHASE III

- STEP 1 USING FLAGGERS, RSD 1101.02 (SHEET 1 OF 9) AND TCP-6, PERFORM THE FOLLOWING:
  - -COMPLETE TIE-INS UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE FROM -L- STA 69+50+/- TO -L- STA 72+15+/- AND -L- STA 76+54+/- TO -L- STA 78+75+/-, PLACE TEMPORARY PAVEMENT MARKINGS AND SHIFT TRAFFIC TO PROPOSED -L- IN A TWO-WAY 3-LANE TRAFFIC PATTERN.
  - -COMPLETE CONSTRUCTION OF CURB AND GUTTER, GUARDRAIL, AND WIDENING UP TO BUT NOT INCLUDING FINAL LAYER OF SURFACE COURSE ON RIGHT SIDE OF -L- FROM -L- STA 69+50+/- RT TO -L- STA 72+15+/- RT AND -L- FROM -L- STA 76+54+/- RT TO -L- STA 79+00+/- RT.

-REMOVE ON-SITE DETOUR ROUTE. IF THIS WORK CANNOT BE COMPLETED AT THE END OF THE WORK DAY, INSTALL A TMIA AT THE EXPOSED END OF THE GUARDRAIL.

- STEP 2 USING FLAGGERS, RSD 1101.02 (SHEET 1 OF 9) AND THE FINAL PAVEMENT MARKING PLANS, PERFORM THE FOLLOWING:
  - -PLACE FINAL LAYER OF SURFACE COURSE, PAVEMENT MARKINGS, AND MARKERS FROM -L- STA 69+50+/- TO -L- STA 78+75+/-.
  - -OPEN ALL LANES TO FINAL TRAFFIC PATTERN.

STEP 3 REMOVE ALL TRAFFIC CONTROL DEVICES AND SIGNAGE FROM PROJECT.

PROJ. REFERENCE NO. SHEET NO.

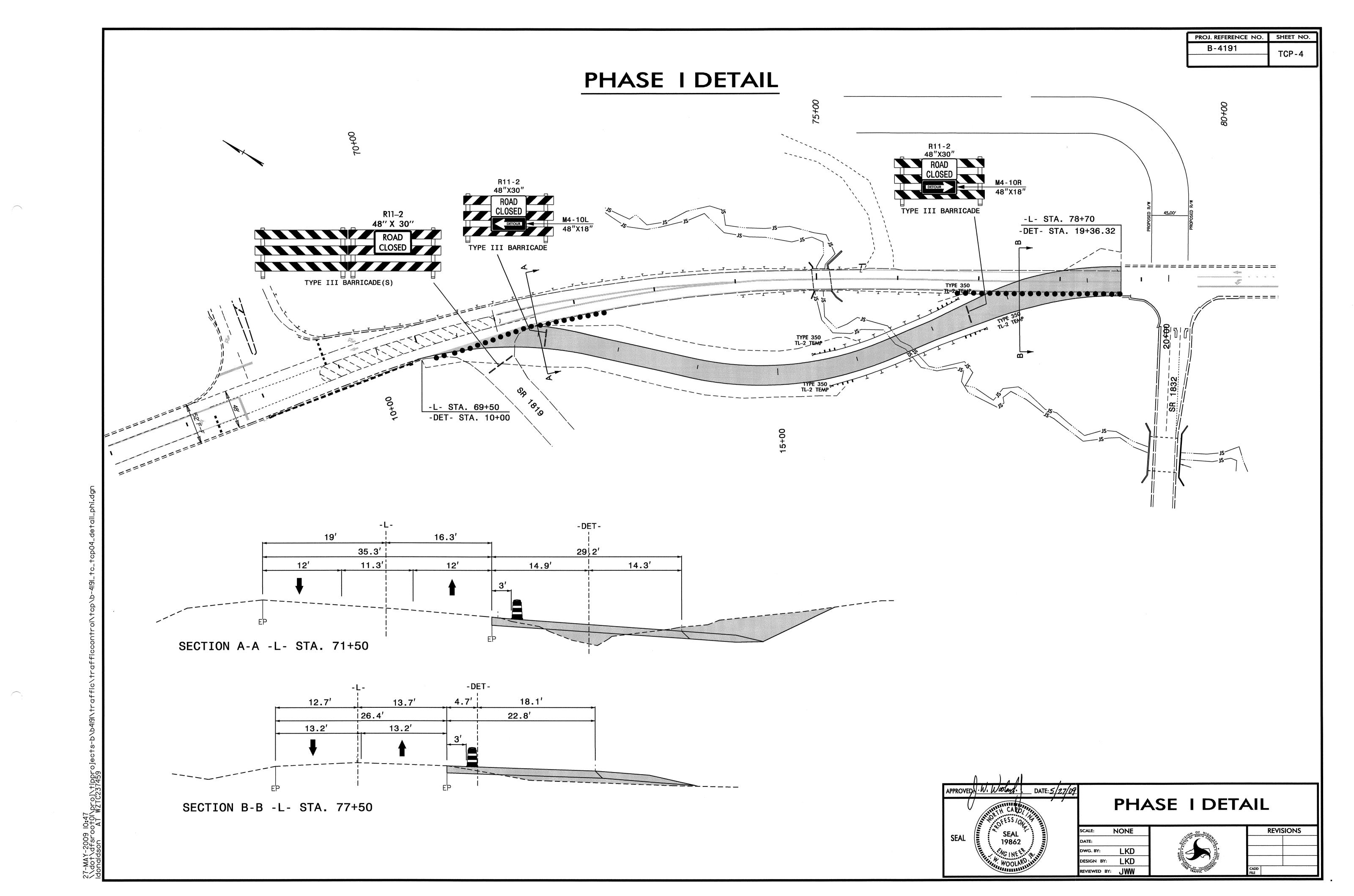
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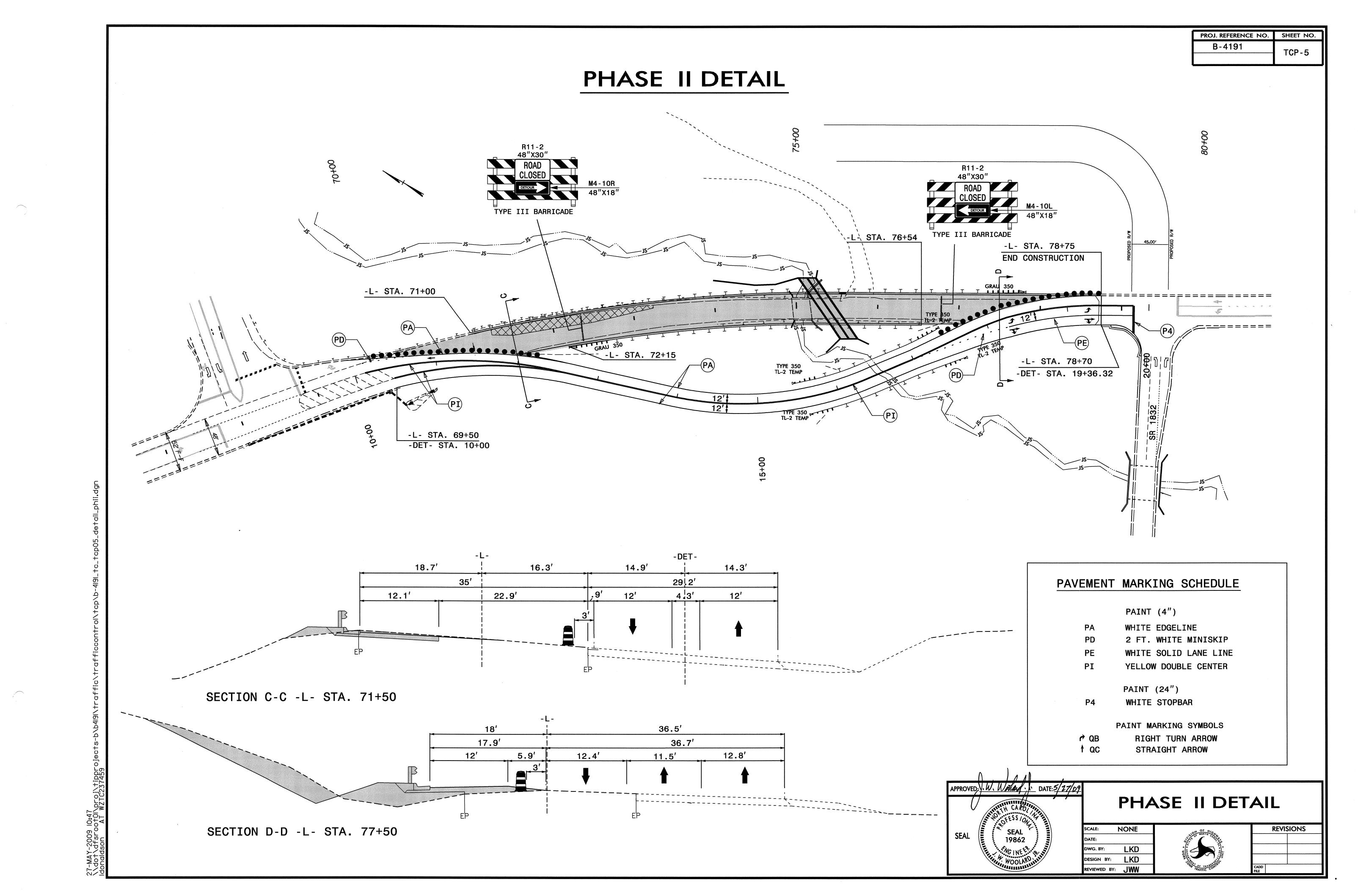
TCP-3

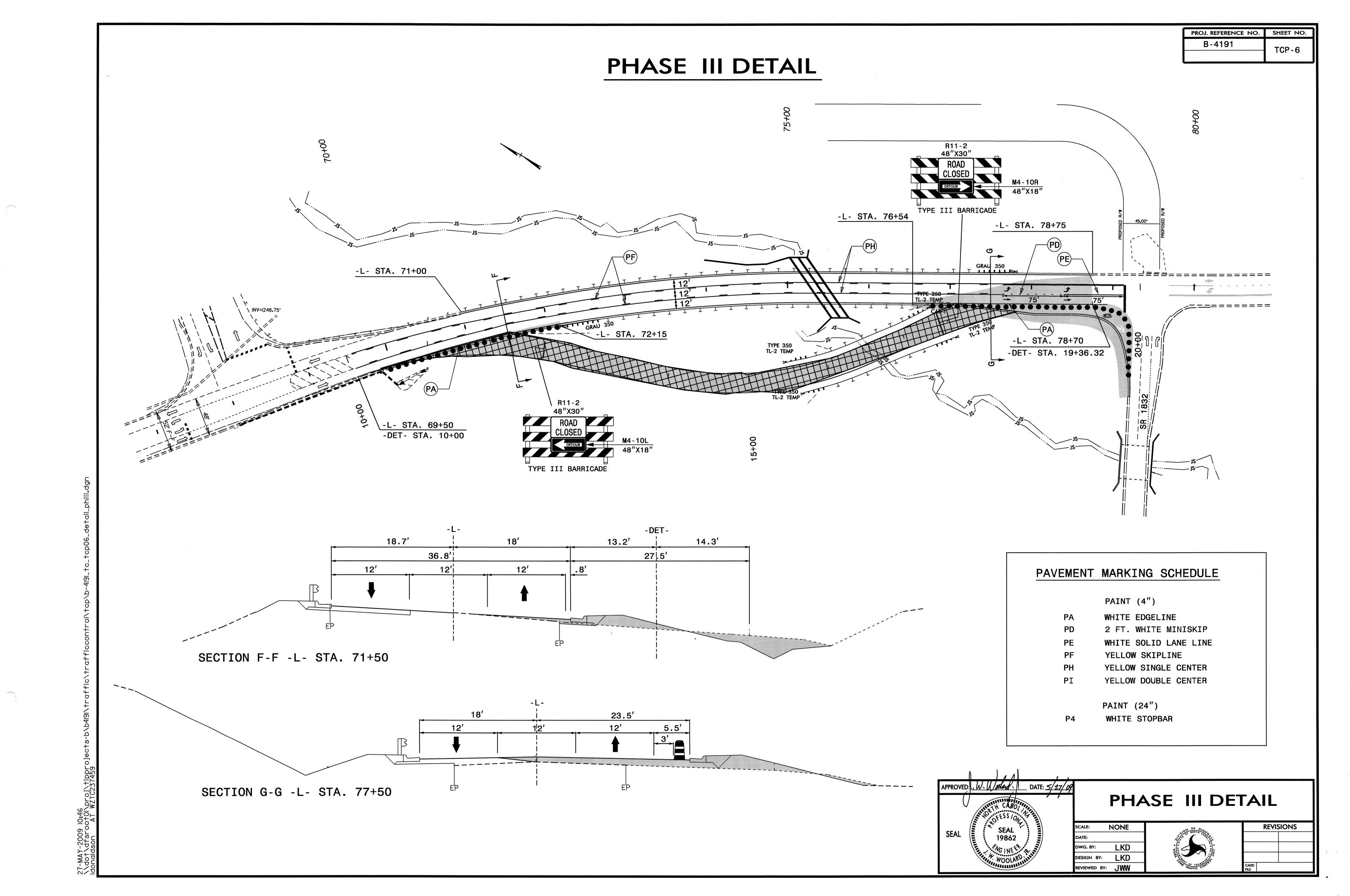
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## PHASING

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LKD	A NO	
BY: LKD		
BY: JWW	TRAFFIC CONTRACTOR	CADD





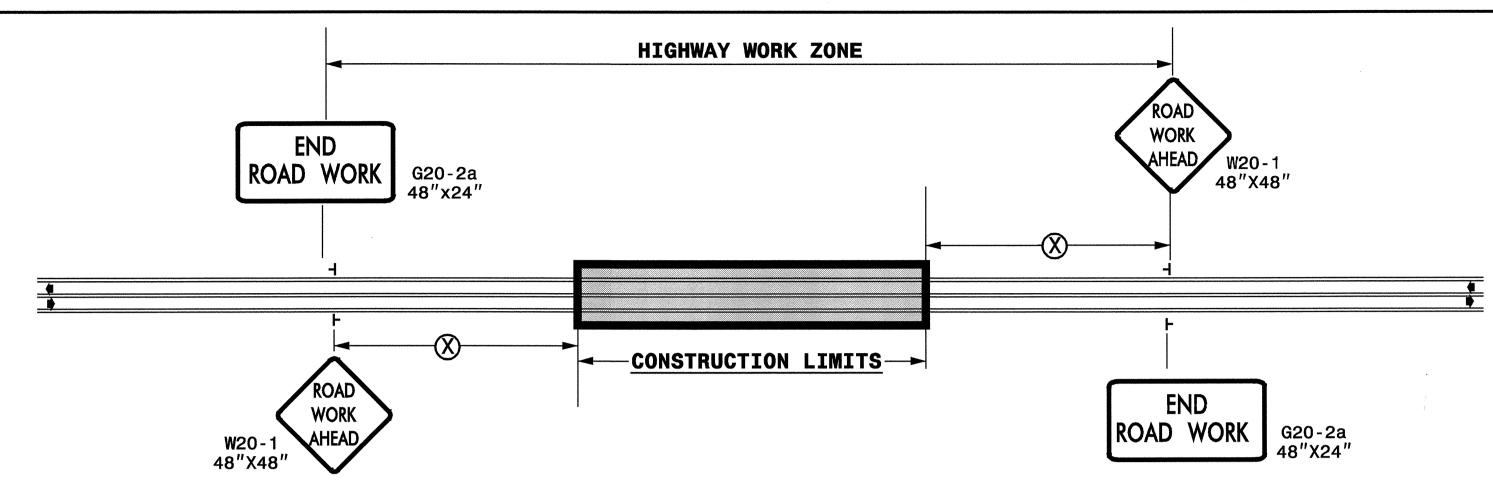


PROJ. REFERENCE NO. SHEET NO.

B-4191

TCP-7

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

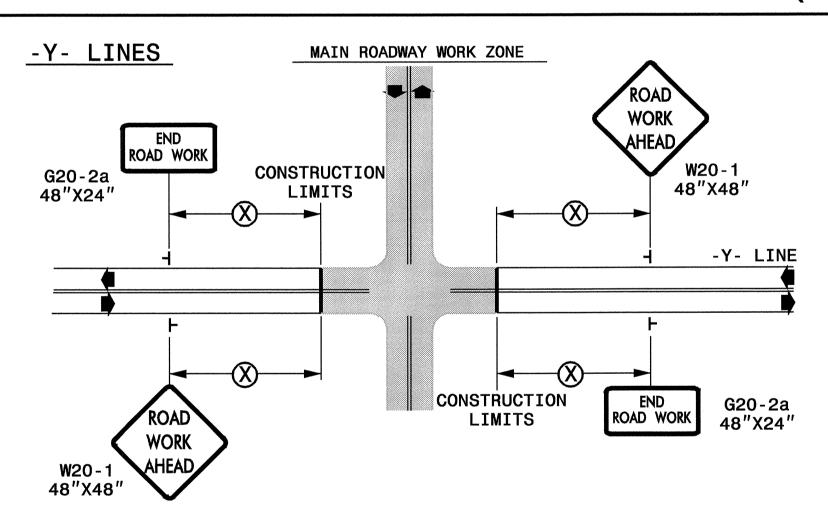


	RECOMMENDED MINIMUM SIGN SPACING
POSTED SPEED LIMIT (M.P.H.)	⊗
≤ 50	500′
≥ 55	1000′

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

IGH

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



### **GENERAL NOTES**

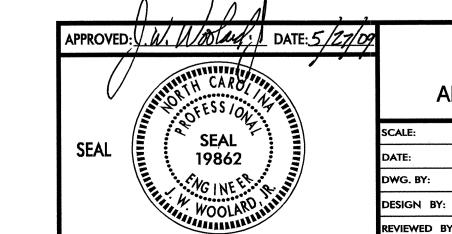
- USE FLUORESCENT ORANGE SHEETING (TYPE VII OR HIGHER) ON ALL ADVANCED WORK ZONE SIGNS.
- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK.
- SIGNS SHOWN ARE REQUIRED FOR WORK ZONES THAT WILL REMAIN IN EFFECT OVERNIGHT. FOR SHORT-TERM DAILY MAINTENANCE TYPE OPERATIONS, 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



DETAIL	DRAWING	FOR TWO	-WAY
UNDIVIDE	D AND L	JRBAN FRE	EWAYS
ADVANCED V	WORK ZON	E WARNING	G SIGNS

NONE	OHGINEER OHGINEER
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C CONTROL	CADD

REVISIONS
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10–98 03/04
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CADD FILE