## B-3872

# PROJECT:

### STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

STATE PROJECT REFERENCE NO.	SHEET NO.
B-3872	TCP-1

### PLAN FOR PROPOSED TRAFFIC CONTROL, MARKING & DELINEATION

### MCDOWELL COUNTY

### INDEX OF SHEETS

### SHEET NO.

### TITLE

TCP-1	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS
	LEGEND, INDEX OF SHEETS AND PAVEMENT MARKING SCHEDULES
TCP-2	PROJECT NOTES
TCP-3	PHASE I PHASING AND DETAILS FOR STEP 2
TCP-4	PHASE I DETAILS FOR STEPS 3, 4, AND 5
TCP-5	PHASE II PHASING AND DETAILS
TCP-6	ADVANCED WORK ZONE WARNING SIGNS

### FINAL PAVEMENT MARKING SCHEDULE

	I TIVAL		TING SC	וטטוויי	Lan. Lan.
SYMBOL	DESCRIPTION	PAVEMENT MARKINGS PAINT (4")	BREAKD	OWN	TOTAL QUANTITY
PA	WHITE EDGELINE (2X)	.,,	3400	LF	
PI	YELLOW DOUBLE CENTER	(2X)	3400	LF	TOTAL 6800 LF
NOT	E: FOR EACH PAINT PAV 2X IMPLIES TWO APF	/EMENT MARKING ITEM, 1 PLICATIONS, AND 3X IMF			

### TEMPORARY PAVEMENT MARKING SCHEDULE SYMBOL PAVEMENT MARKINGS BREAKDOWN DESCRIPTION TOTAL QUANTITY REMOVABLE TAPE (4") 288 LF WHITE EDGELINE TOTAL 288 LF PAINT (4") WHITE EDGELINE (2X) TOTAL 3664 LF PAINT (24") WHITE STOPBAR (2X) 44 LF TEMPORARY RAISED PAVEMENT MARKERS CRYSTAL & CRYSTAL TOTAL 64 EA

NOTE: FOR EACH PAINT PAVEMENT MARKING ITEM, 1X IMPLIES A SINGLE APPLICATION, 2X IMPLIES TWO APPLICATIONS, AND 3X IMPLIES THREE APPLICATIONS.

### [ROADWAY STANDARD DRAWINGS]

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS"ROADWAY DESIGN 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
1101.05	WORK ZONE VEHICLE ACCESSES
1101.06	WARNING SIGNS FOR BLASTING ZONES
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	BARRICADE TYPE III
1150.01	FLAGGERS
1160.01	TEMPORARY CRASH CUSHION
1165.01	TRUCK MOUNTED IMPACT ATTENUATOR
1170.01	PORTABLE CONCRETE BARRIER
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE & MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	PAVEMENT MARKER SPACING
1251.01	RAISED PAVEMENT MARKERS
1261.01	GUARDRAIL & BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL & BARRIER DELINEATOR TYPES
1262.01	GUARDRAIL END DELINEATION

### LEGEND

### **GENERAL**

DIRECTION OF TRAFFIC FLOW

WORK AREA

REMOVAL OF EXISTING PAVEMENT

### TRAFFIC CONTROL DEVICES

T TYPE I BARRICADE

TYPE III BARRICADE

▲ CONE

DRUM

FLASHING ARROW PANEL (TYPE C)

- STATIONARY SIGN

STATIONARY OR PORTABLE SIGN

WARNING FLAGS

- CRASH CUSHION

CHANGEABLE MESSAGE SIGN

TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)

POLICE

**FLAGGER** 

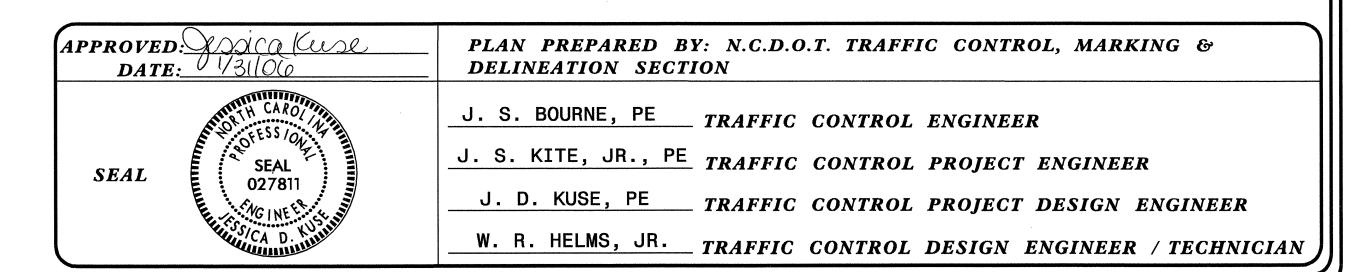
### PAVEMENT MARKINGS

CRYSTAL/CRYSTAL PAVEMENT MARKER

◆ YELLOW/YELLOW PAVEMENT MARKER

CRYSTAL/RED PAVEMENT MARKER

PAVEMENT MARKING SYMBOLS



### GENERAL NOTES

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

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.

### LANE AND SHOULDER CLOSURE REQUIREMENTS

- A) 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.
- B) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT (1.5m) 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.
- C) 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.
- D) DO NOT WORK SIMULTANEOUSLY. ON BOTH SIDES OF AN OPEN TRAVELWAY. WITHIN THE SAME LOCATION, ON A TWO-LANE, TWO-WAY ROAD.

### PAVEMENT EDGE DROP OFF REQUIREMENTS

E) 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 A DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES (75mm) ON ROADWAYS WITH SPEEDS LESS THAN 45 MPH.

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

### TRAFFIC PATTERN ALTERATIONS

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

### SIGNING

- H) INSTALL ADVANCE WORK ZONE WARNING SIGNS NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- PROVIDE FOR PERMANENT SIGNING.
- J) PROVIDE FOR DETOUR SIGNING WITHIN AND OFF THE PROJECT LIMITS.
- K) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

### TRAFFIC BARRIER

- L) INSTALL PORTABLE CONCRETE BARRIER ACCORDING TO THE TRAFFIC CONTROL PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE PORTABLE CONCRETE BARRIER IS INSTALLED AT ANY LOCATION, PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRAFFIC CONTROL PLANS OR AS DIRECTED BY THE ENGINEER.
- M) PROTECT THE APPROACH END OF PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED IMPACT ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

OFFSET THE APPROACH END OF PORTABLE CONCRETE BARRIER A MINIMUM OF 40 FT (12m) FROM ONCOMING TRAFFIC OR PROTECT AT ALL TIMES BY A TEMPORARY CRASH CUSHION.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP CLOSED THE SECTION OF THE ROADWAY UNTIL THE BARRIER CAN BE PLACED OR AFTER BARRIER IS REMOVED.

### TRAFFIC CONTROL DEVICES

- N) WHEN USING ROADWAY STANDARD NO. 1101.02, SHEET 1 OF 7, DRUMS MAY BE USED IN LIEU OF CONES ON SR 1552.
- O) SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH), EXCEPT 10 FT (3m) ON-CENTER IN RADII, AND 3 FT (1m) OFF THE EDGE OF AN OPEN TRAVELWAY, WHEN LANE CLOSURES ARE NOT IN EFFECT.
- P) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY. STAGGER OR OVERLAP BARRICADES TO ALLOW FOR INGRESS OR EGRESS.

### PAVEMENT MARKINGS AND MARKERS

Q) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME

MARKING

**MARKER** 

1.SR 1552

PAINT

NONE

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

ROAD NAME

MARKING

**MARKER** 

RAISED

1.SR1552

PAINT/REMOVABLE TAPE

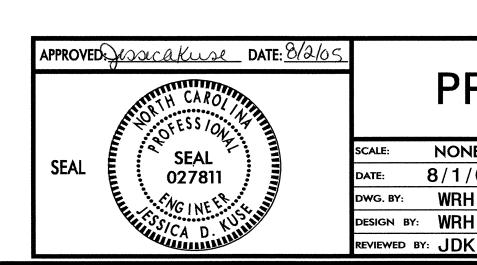
- S) PLACE AT LEAST TWO APPLICATIONS OF PAINT PAVEMENT MARKINGS ON THE FINAL WEARING SURFACE ON NEW ASPHALT PAVEMENT. PLACE ADDITIONAL APPLICATIONS OF PAINT UPON SUFFICIENT DRYING TIME, AS DETERMINED BY THE ENGINEER.
- T) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- U) REPLACE ANY PAVEMENT MARKINGS THAT HAVE BEEN DAMAGED BY THE END OF EACH DAY'S OPERATION.
- V) PLACE AT LEAST TWO APPLICATIONS OF PAINT ON NEW ASPHALT WITH TEMPORARY TRAFFIC PATTERNS WHICH WILL REMAIN IN PLACE OVER THREE (3) MONTHS. PLACE ADDITIONAL APPLICATIONS OF PAINT UPON SUFFICIENT DRYING TIME, AS DETERMINED BY THE ENGINEER.

### TEMPORARY SIGNALS

- W) NOTIFY THE ENGINEER TWO (2) MONTHS BEFORE A TRAFFIC SIGNAL INSTALLATION IS REQUIRED.
- X) SHIFT AND REVISE ALL SIGNAL HEADS AS SHOWN ON THE SIGNAL PLANS.

### LOCAL NOTES

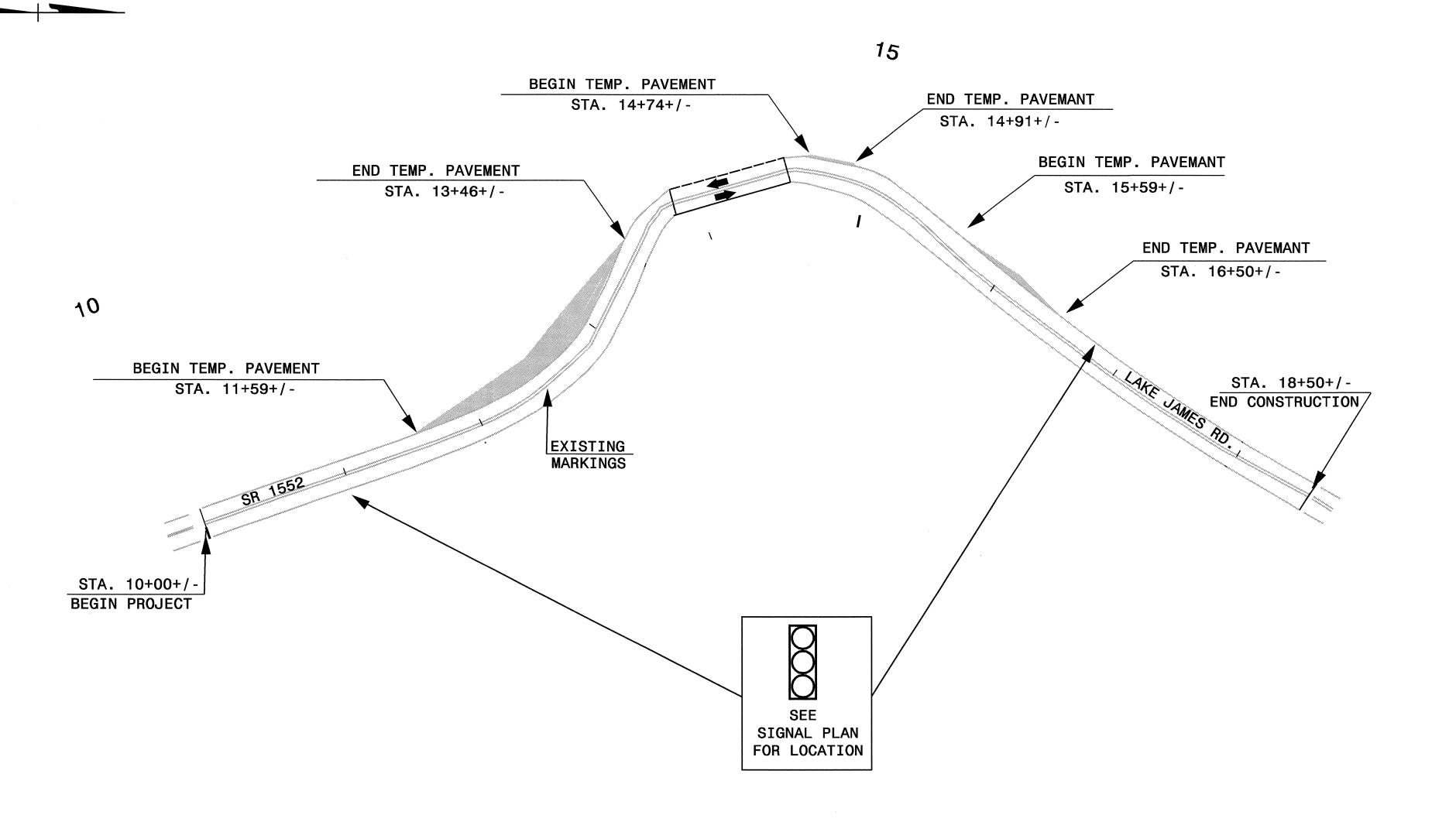
- 1) INSTALL AND MAINTAIN ADVANCE WORK ZONE WARNING SIGNS FOR WATER CRAFT ON THE EXISTING BRIDGE. MOVE SIGNS TO THE PROPOSED BRIDGE WHEN VISIBILITY BECOMES IMPAIRED AS DETERMINED BY THE ENGINEER
- 2) COVER OR REMOVE ADVANCE WORK ZONE WARNING SIGNS FOR SIGNALS WHEN SIGNALS ARE NOT IN USE.
- 3) MAINTAIN ACCESS TO ALL ADJOINING PROPERTIES DURING CONSTRUCTION.

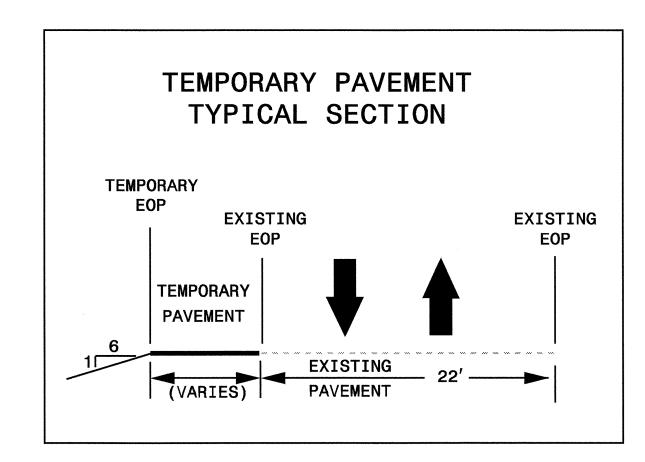


PROJECT NOTES

NONE 8/1/05 WRH

**REVISIONS** 





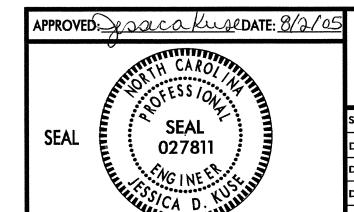
### PHASE I

- STEP 1. INSTALL ADVANCE WARNING SIGNS. (SEE GENERAL NOTES, LOCAL NOTES, AND TCP-6.)
- STEP 2. USING RSD 1102.01, SHEET 1 OF 7, AND RSD 1101.06, SHEET 1 OF 1, AS NEEDED,
  - COMPLETE THE FOLLOWING AS SHOWN ON TCP-3:
  - CONSTRUCT THE LEFT SIDE TEMPORARY PAVEMENT TO EDGE AND ELEVATION FROM STA. 11+59+/-
  - TO STA. 13+46+/- FROM STA. 14+74+/- TO STA. 14+91+/-, AND FROM STA. 15+59+/- TO STA. 16+50+/-.
  - INSTALL TEMPORARY SIGNALS AND BAG HEADS.
- STEP 3. USING RSD 1101.02, SHEET 1 OF 7, AND RSD 1165.01, SHEET 1 OF 1, WORKING IN A CONTINUOUS MANNER
  - COMPLETE THE FOLLOWING AS SHOWN ON TCP-4:
  - SHIFT TRAFFIC TO THE LEFT SIDE OF THE EXISTING ROADWAY IN A ONE LANE-TWO WAY PATTERN.
  - UNBAG AND ACTIVATE SIGNALS
  - CONSTRUCT TEMPORARY GUARDRAIL INCLUDING END TREATMENTS AT STA. 11+70+/- AND STA. 16+00+/-.
  - (NOTE: SEE ROADWAY PLAN FOR GUARDRAIL AND BRIDGE ATTACHMENT DETAILS.)
  - APPLY TEMPORARY PAVEMENT MARKING, PAVEMENT MARKERS AND OBLITERATE CONFLICTING MARKINGS. (NOTE: SEE TCP-4, FOR ONE LANE BRIDGE TRAFFIC PATTERN DELINEATION.)
- STEP 4. USING RSD 1101.02, SHEET 1 OF 7, RSD 1101.06, SHEET 1 OF 1, AND RSD 1165.01, SHEET 1 OF 1, DO THE FOLLOWING AS SHOWN ON TCP-4:
  - CONSTRUCT THE PROPOSED BRIDGE, END BENTS, AND STAGE 1 OF ROADWAY AND APPROACH SLABS.
  - (NOTE: THIS INCLUDES THE NAIL WALL, SHEET SHORING, AND RETAINING WALL.)
     BEGIN CONSTRUCTION OF DRAINAGE AT STA. 13+00+/-.
  - WIDEN THE RIGHT SIDE OF THE PROPOSED ALIGNMENT FROM STA. 11+50+/- TO STA. 13+00+/-
  - CONSTRUCT ALL PROPOSED RIGHT SIDE GUARDRAIL.

### SOIL PARAMETERS

FOR DESIGN OF TEMPORARY SHORING, USE THE FOLLOWING SOIL PARAMETERS:

UNIT WEIGHT OF SOIL ABOVE WATER TABLE, = 120 PCF UNIT WEIGHT OF SOIL BELOW WATER TABLE, = 60 PCF FRICTION ANGLE, = 28° COHESION, C = 0.0 PSF



### PHASE I PHASING DETAILS FOR STEP 2

SCALE: NONE

DATE: 8/1/05

DWG. BY: WRH

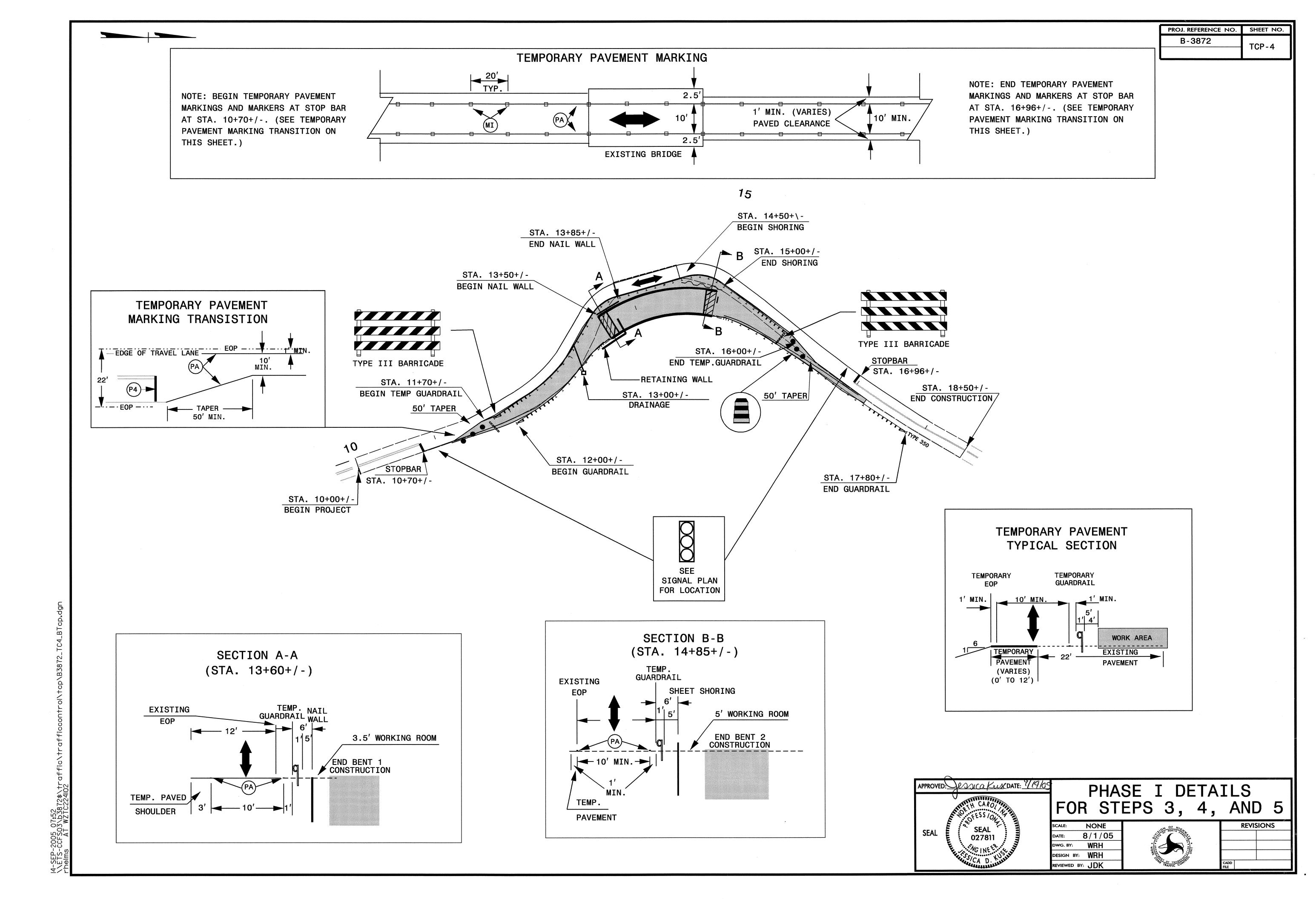
DESIGN BY: WRH

REVIEWED BY: JDK



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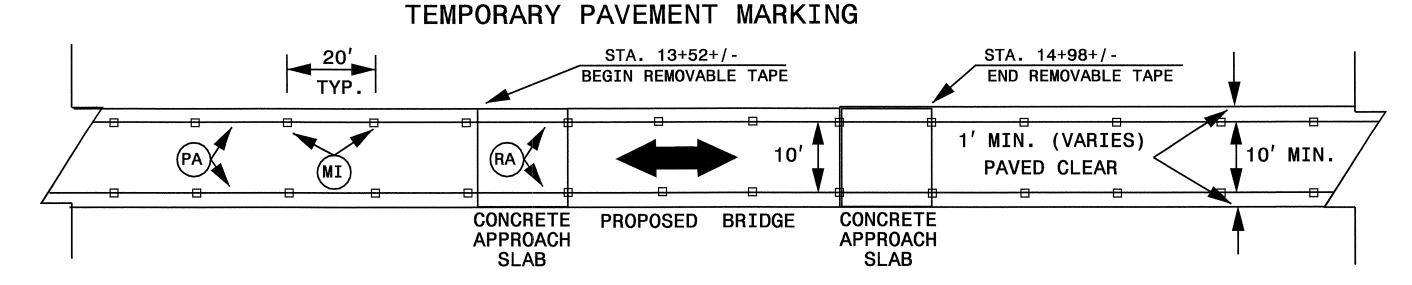
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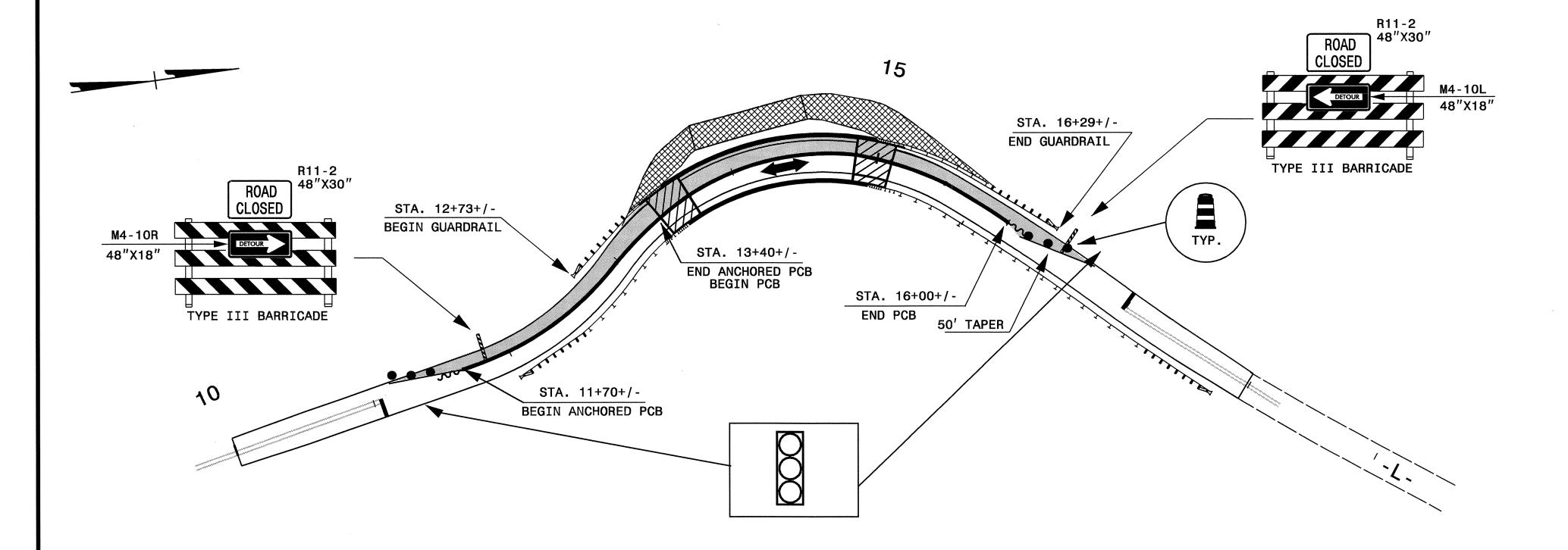
PROJ. REFERENCE NO. SHEET NO.

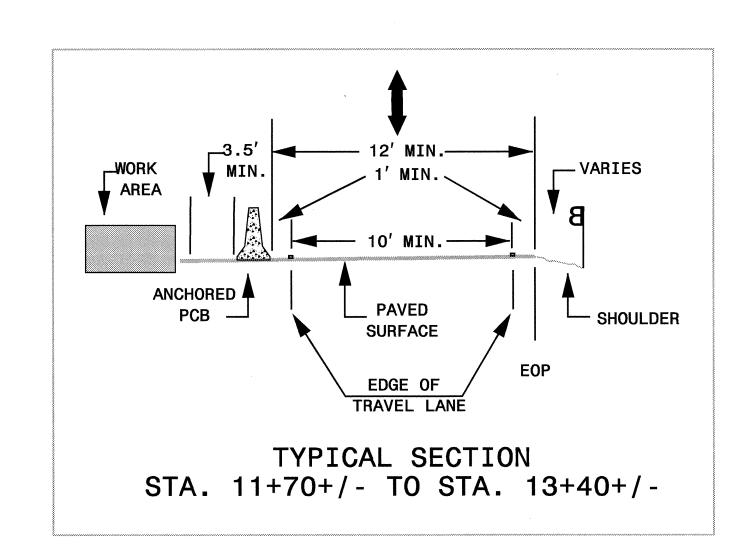
B-3872
TCP-5

NOTE: BEGIN TEMPORARY PAVEMENT MARKINGS AND MARKERS AT STOP BAR AT STA. 10+70+/-. (SEE TEMPORARY PAVEMENT MARKING TRANSITION ON TCP-4.)



NOTE: END TEMPORARY PAVEMENT
MARKINGS AND MARKERS AT STOP BAR
AT STA. 16+96+/-. (SEE TEMPORARY
PAVEMENT MARKING TRANSITION ON
TCP-4.)



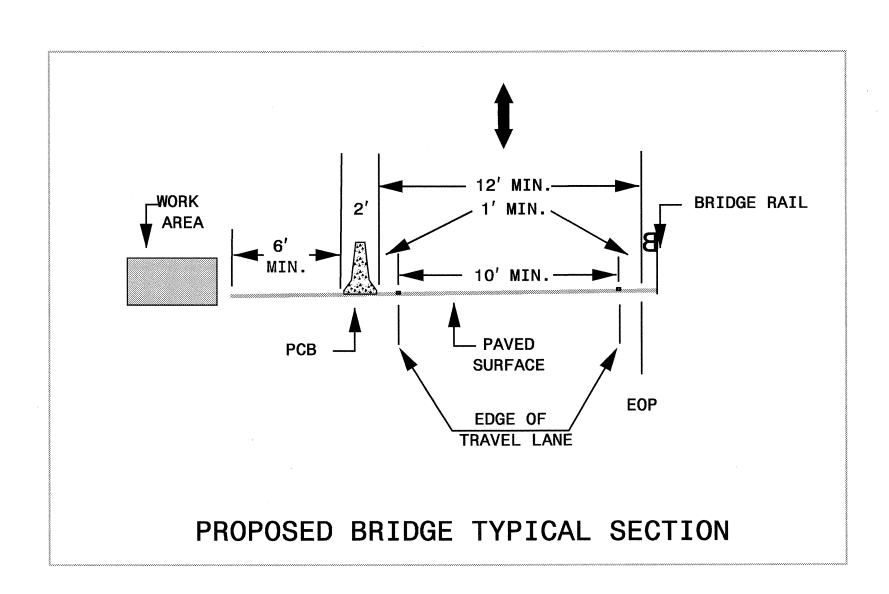


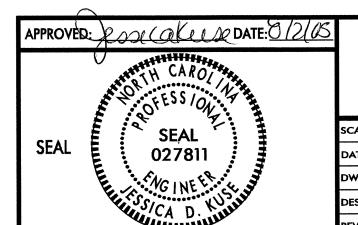
### PHASING

### PHASE II

- STEP 1. USING RSD 1101.02, SHEET 1 OF 7, AND RSD 1165.01, SHEET 1 OF 1, WORK IN A CONTINUOUS MANNER TO DO THE FOLLOWING AS SHOWN ON TCP-5: (NOTE: SEE LOCAL NOTE 3)
  - PLACE ANCHORED PORTABLE CONCRETE BARRIER, PORTABLE CONCRETE BARRIER, CRASH CUSHIONS, AND DRUMS, SHIFTING TRAFFIC TO THE RIGHT SIDE IN A ONE LANE-TWO WAY PATTERN
  - APPLY TEMPORARY PAVEMENT MARKINGS AND MARKERS
- STEP 2. AWAY FROM TRAFFIC COMPLETE THE FOLLOWING:
  - STAGE 2 OF THE PROPOSED BRIDGE WING WALL, APPROACH SLAB,
  - AND ROADWAY, UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE
  - CONSTRUCTION OF THE DRAINAGE BEGUN IN PHASE I
  - REMOVEAL OF THE EXISTING BRIDGE AND APPROACHES
  - CONSTRUCT PROPOSED LEFT SIDE GUARDRAIL, BEGINNING AT STA. 12+73+/TO STA 16+29+/-
- STEP 3. USE RSD 1101.02, SHEET 1 OF 7, AND WORK IN A CONTINUOUS MANNER,
  - TO COMPLETE THE FOLLOWING:
  - REMOVE THE PORTABLE CONCRETE BARRIER
  - BAG TEMPORARY SIGNAL HEADS, PUTTING TRAFFIC IN THE FINAL PATTERN
  - PAVE THE FINAL LAYER OF SURFACE COURSE
  - APPLY FINAL PAVEMENT MARKINGS

STEP 4. USING RSD 1101.02, SHEET 1 OF 7, AS NEEDED, REMOVE ALL SIGNAL POLES, HARDWARE, AND OTHER TRAFFIC CONTROL DEVICES.

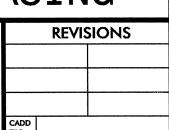




### PHASE II DETAILS AND PHASING

SCALE:	NONE
DATE:	8/1/05
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DESIGN BY:	WRH
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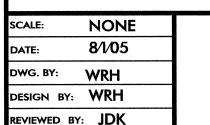
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### SHEET 1 OF 1

### APPROVED: Jessica Kuse DATE: 8/2/05 ADVANCED WORK ZONE WARNING SIGNS SEAL

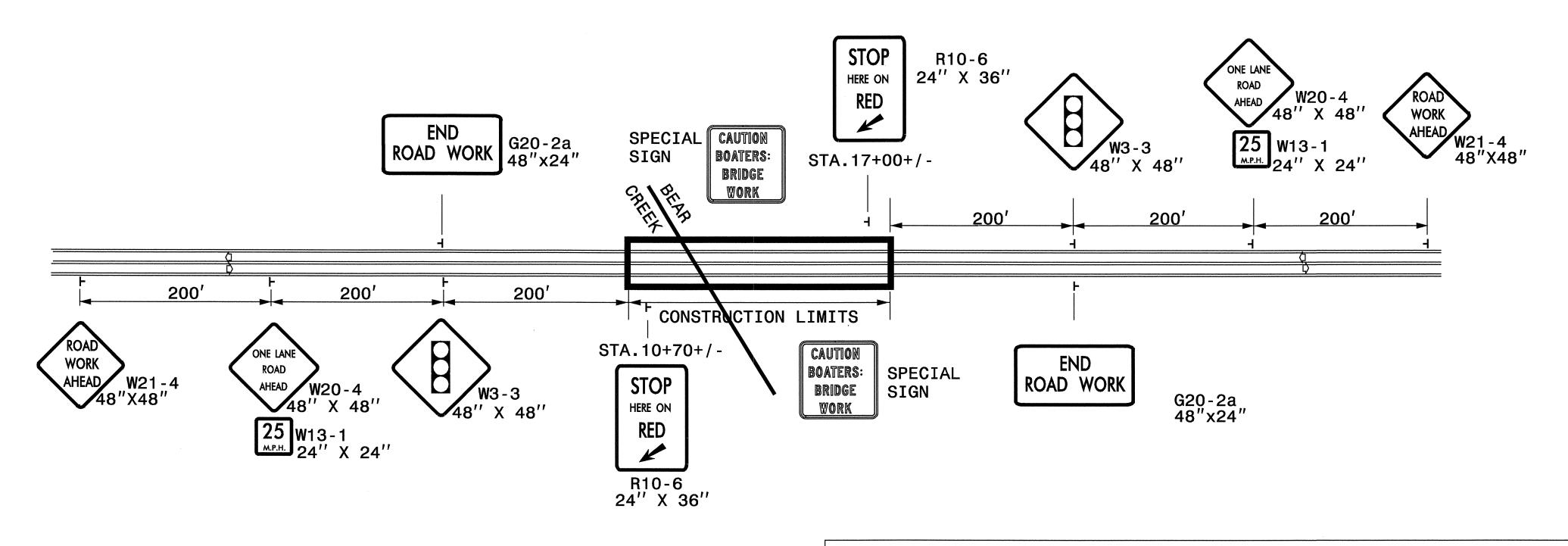
├ STATIONARY SIGN

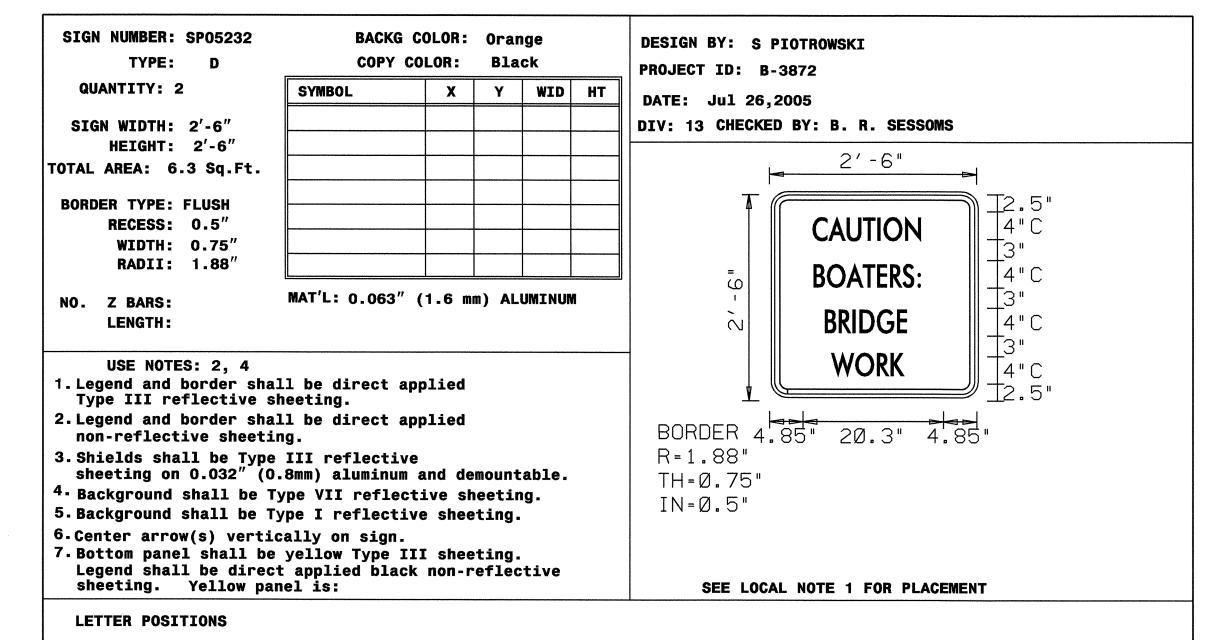
DIRECTION OF TRAFFIC FLOW



**REVISIONS** 7\_98 | 10/01 10-98 03/04 01/01

### TWO-WAY UNDIVIDED & URBAN FREEWAYS (L-LINES)





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### **GENERAL NOTES**

- USE FLUORESCENT ORANGE SHEETING (TYPE VII OR IX) 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.

SEAL

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- DO NOT BACK BRACE SIGN SUPPORTS.