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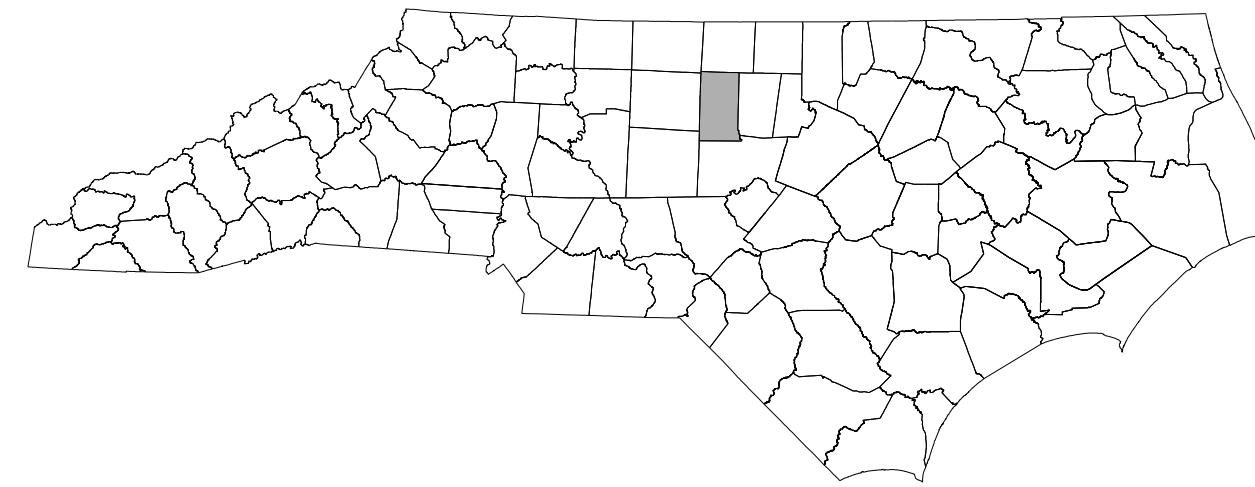
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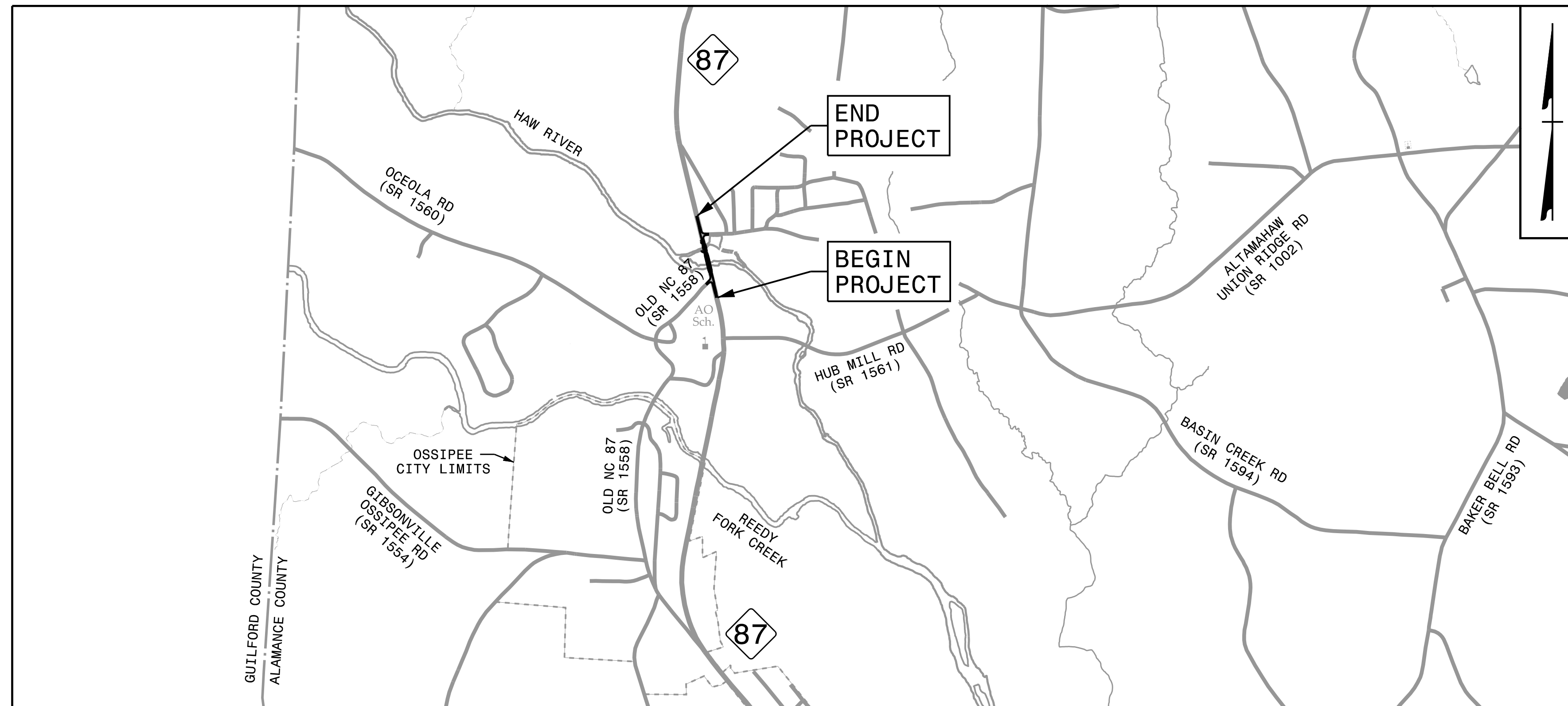
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**TRANSPORTATION MANAGEMENT PLAN**

**ALAMANCE COUNTY**



**LOCATION: BRIDGE NO. 126 OVER MILL RACE AND BRIDGE NO. 119 OVER HAW RIVER ON NC 87**



SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-1B AND TMP-1C	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES, GENERAL NOTES, AND LOCAL NOTES)
TMP-2	TEMPORARY SHORING DATA
TMP-2A	OLD NC 87 DETOUR
TMP-2B	SPECIAL SIGN DESIGN
TMP-2C	PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS
TMP-3	TEMPORARY TRAFFIC CONTROL PHASING
TMP-4 - TMP-6	TEMPORARY TRAFFIC CONTROL - TYPICAL SECTIONS
TMP-7	TEMPORARY TRAFFIC CONTROL - PHASE 1 DETAILS
TMP-8 - TMP-9	TEMPORARY TRAFFIC CONTROL - PHASE 2 DETAILS

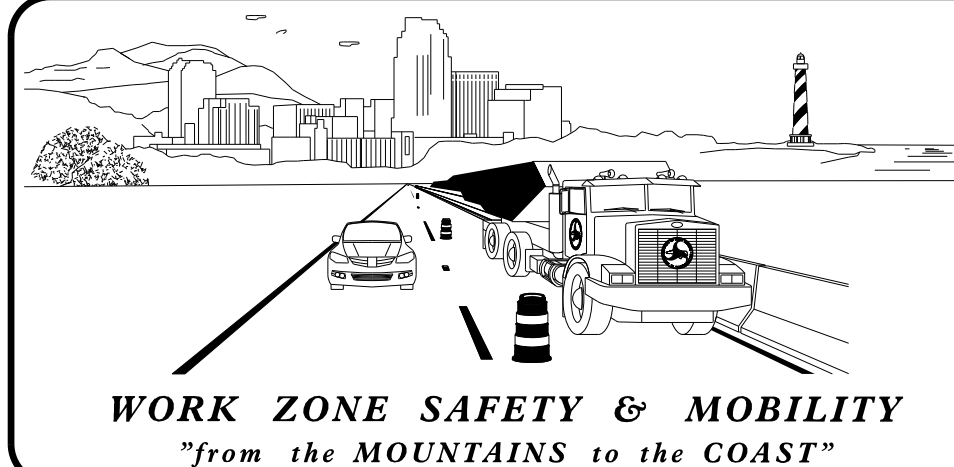
PLAN PREPARED BY:



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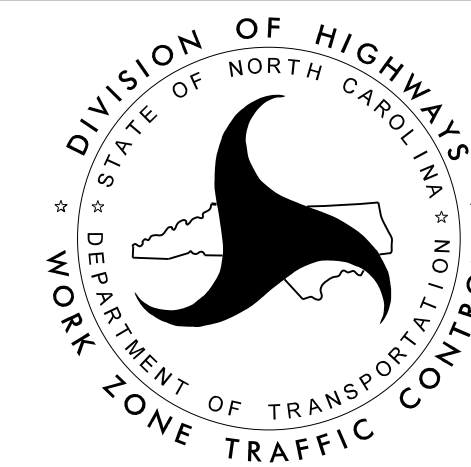


**N.C.D.O.T. WORK ZONE TRAFFIC CONTROL**  
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APPROVED: P. Erskine Brooks  
DATE: 10/30/2017

SEAL








# ROADWAY STANDARD DRAWINGS


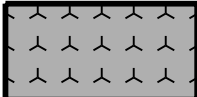
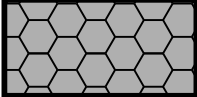
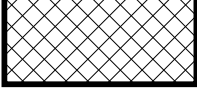


THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURE
1101.04	TEMPORARY SHOULDER CLOSURES
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	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1180.01	SKINNY-DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.10	PAVEMENT MARKINGS - SCHOOL AREAS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

# LEGEND

## GENERAL












-  DIRECTION OF TRAFFIC FLOW
-  EXIST. PVMT.
-  NORTH ARROW
-  PROPOSED PVMT.
-  TEMP. SHORING (LOCATION PURPOSES ONLY)

-  WORK AREA
-  ONGOING CONSTRUCTION
-  TEMPORARY PAVEMENT
-  REMOVAL
-  WEDGING
-  TEMPORARY WEDGING




## PAVEMENT MARKINGS

-  EXISTING LINES
-  TEMPORARY LINES




## TRAFFIC CONTROL DEVICES

-  BARRICADE (TYPE III)
-  CONE
-  DRUM
-  SKINNY DRUM
-  TUBULAR MARKER
-  TEMPORARY CRASH CUSHION
-  FLASHING ARROW BOARD
-  FLAGGER
-  LAW ENFORCEMENT
-  TRUCK MOUNTED ATTENUATOR (TMA)
-  CHANGEABLE MESSAGE SIGN

## TEMPORARY SIGNING

-  PORTABLE SIGN
-  STATIONARY SIGN
-  STATIONARY OR PORTABLE SIGN








## PAVEMENT MARKERS

-  CRYSTAL/CRYSTAL
-  CRYSTAL/RED
-  YELLOW/YELLOW



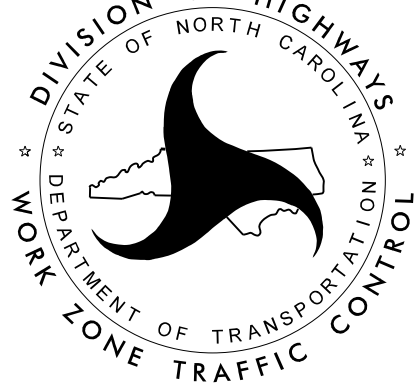
## PAVEMENT MARKING SYMBOLS

-  PAVEMENT MARKING SYMBOLS

## TEMPORARY PAVEMENT MARKING

-  CA COLD APPLIED PLASTIC, TYPE 4 - 4" WHITE EDGELINE
-  CI COLD APPLIED PLASTIC, TYPE 4 - 4" YELLOW DOUBLE CENTER
-  P2 PAINT 24" WHITE STOPBAR
-  P8 PAINT 4" 2'-6'/SP. WHITE MINI-SKIP
-  PA PAINT 4" WHITE EDGELINE
-  PI PAINT 4" YELLOW DOUBLE CENTER
-  QI PAINT ALPHANUMERIC CHARACTER

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APPROVED:  DATE: 10/30/2017			ROADWAY STANDARD DRAWINGS & LEGEND
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# PROJECT NOTES

PROJ. REFERENCE NO. B-5239	SHEET NO. TMP-1B
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**HDR** HDR Engineering, Inc. of the Carolinas  
 555 Fayetteville St., Suite 900 Raleigh, N.C. 27601  
 N.C.B.E.L.S. License Number: F-0116

## MANAGEMENT STRATEGIES

THIS PROJECT WILL BE COMPLETED BY MAINTAINING TRAFFIC ON EXISTING NC 87 TO CONSTRUCT AN ON-SITE DETOUR ALIGNMENT. NC 87 TRAFFIC WILL THEN BE SHIFTED TO THE ON-SITE DETOUR TO ALLOW THE PERMANENT BRIDGES TO BE CONSTRUCTED. NC 87 TRAFFIC WILL BE PLACED IN THE FINAL PATTERN FOR THE FINAL CONSTRUCTION PHASE TO ALLOW FOR REMOVAL OF THE DETOUR STRUCTURES, PAVEMENT, AND FILL MATERIAL. MOST WORK WILL BE ACCOMPLISHED AWAY FROM TRAFFIC BEHIND EXISTING AND TEMPORARY GUARDRAIL OR TEMPORARY BARRIER. FLAGGERS WILL BE USED FOR OPERATIONS THAT REQUIRE LANE CLOSURES, SUCH AS MATERIAL DELIVERY, TIE-INS TO EXISTING ROADS, AND WEDGING UNDER TRAFFIC. TEMPORARY WEDGING WILL BE REQUIRED TO TRANSITION FROM EXISTING PAVEMENT TO THE PERMANENT PAVEMENT WHERE THE PROPOSED GRADES DO NOT MATCH EXISTING.

ACCESS WILL BE MAINTAINED TO THE PARK BY USE OF A TEMPORARY DRIVEWAY.

OLD NC 87 WILL BE CLOSED DURING A PORTION OF PHASE 2 TO ALLOW FOR THE FINAL TIE-IN AND RECONSTRUCTION OF THE INTERSECTION WITH -L- (NC 87). COORDINATION WITH THE ELEMENTARY SCHOOL AND FIRE DEPARTMENT WILL BE NECESSARY DURING THIS CLOSURE TO MINIMIZE SCHOOL CALENDAR CONFLICTS AND EMERGENCY RESPONSE DELAYS.

## GENERAL NOTES

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
NC 87	MON-FRI: 7:00 A.M. TO 9:00 A.M. & 3:00 P.M. TO 6:00 P.M.

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

ROAD NAME
NC 87

### 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 7:00 A.M. DECEMBER 31st TO 6:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 6:00 P.M. THE FOLLOWING TUESDAY.
3. FOR EASTER, BETWEEN THE HOURS OF 7:00 A.M. THURSDAY AND 6:00 P.M. MONDAY.
4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 7:00 A.M. FRIDAY TO 6:00 P.M. TUESDAY.
5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 7:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 6:00 P.M. THE DAY AFTER INDEPENDENCE DAY.

IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 7:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 6:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.

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

C) DO NOT CLOSE ROADS AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
SR 1558 (OLD NC 87)	MONDAY-FRIDAY: 7:00 A.M. TO 4:00 P.M., AND ANY OTHER TIME SCHOOL IS IN SESSION

D) DO NOT STOP TRAFFIC AS FOLLOWS:



ROAD NAME	DAY AND TIME RESTRICTIONS	DURATION AND OPERATION
NC 87	MONDAY-FRIDAY: 7:00 A.M. TO 6:00 P.M.	30 MINUTES FOR GIRDER/MATERIAL DELIVERY
SR 1002 (ALTAMAHAW UNION RIDGE RD)		

E) DO NOT CONDUCT ANY HAULING OPERATIONS AGAINST THE FLOW OF TRAFFIC OF AN OPEN TRAVELWAY UNLESS THE HAULING OPERATION IS PROTECTED BY BARRIER OR GUARDRAIL OR AS DIRECTED BY THE ENGINEER.

### LANE AND SHOULDER CLOSURE REQUIREMENTS

- F) 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.
- G) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF 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.
- H) 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.
- I) 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.
- J) 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.

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APPROVED: <u>P. Eskine Brooks</u> <small>F068C9F748464EE</small> DATE: 10/30/2017			<h2 style="margin: 0;">TRANSPORTATION OPERATIONS PLAN</h2>
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# PROJECT NOTES

PROJ. REFERENCE NO. B-5239	SHEET NO. TMP-1C
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## GENERAL NOTES

### PAVEMENT EDGE DROP OFF REQUIREMENTS

K) 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.

L) 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) 500 FT IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

### TRAFFIC PATTERN ALTERATIONS

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

### SIGNING

N) 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.

O) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

P) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

Q) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

R) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 500 FT. IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

### TRAFFIC BARRIER

S) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE / RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

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

T) PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS: (SEE ALSO 1101.05)

<u>POSTED SPEED LIMIT</u>	<u>MINIMUM OFFSET</u>
40 OR LESS	15 FT
45 - 50	20 FT
55	25 FT
60 MPH or HIGHER	30 FT

### TRAFFIC CONTROL DEVICES

U) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

V) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

W) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES (DRUMS/CONES/SKINNY DRUMS) PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 500 FT CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

### PAVEMENT MARKINGS AND MARKERS

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

<u>ROAD NAME</u>	<u>MARKING</u>	<u>MARKER</u>
ALL ROADS	PAINT (ON ASPHALT AND TEMPORARY BRIDGES) COLD APPLIED PLASTIC - TYPE IV (ON CONCRETE)	TEMPORARY RAISED

Y) 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.

Z) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

AA) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

## LOCAL NOTES


LN-01) OLD NC 87 (-Y1-) SHALL NOT BE CLOSED DURING REGULAR SCHOOL DAYS SO THE OPERATIONS OF AND ACCESS TO ALAMANCE-OSSIPEE ELEMENTARY SCHOOL ARE NOT IMPACTED. CLOSURES OF OLD NC 87 SHALL OCCUR ONLY WHEN OUTSIDE OF NORMAL OPERATING HOURS OR WHEN SCHOOL IS NOT IN SESSION.

LN-02) CONTRACTOR SHALL COORDINATE WITH THE ENGINEER PRIOR TO CLOSURE OF OLD NC 87 (-Y1-) IN ORDER TO PROVIDE NOTIFICATION TO ALAMANCE-OSSIPEE VOLUNTEER FIRE DEPARTMENT.

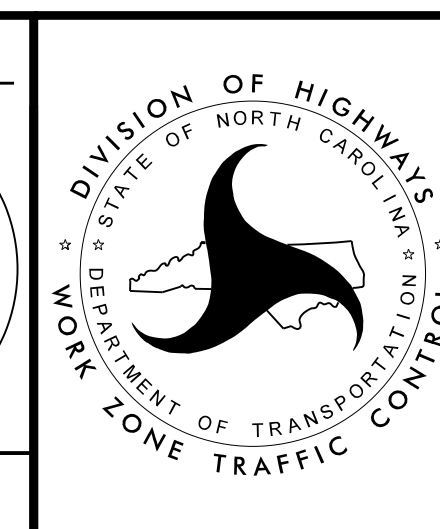
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**P. Erskine Brooks**  
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APPROVED: \_\_\_\_\_  
 DATE: 10/30/2017



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TRANSPORTATION  
OPERATIONS  
PLAN



# TEMPORARY SHORING DATA

## NOTES FOR TEMPORARY SHORING No. 1

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

DESIGN TEMPORARY SHORING FROM STATION 14+63 ± -LDET-, 20.00 FT. LT, TO 15+08 ± -LDET-, 20.00 FT. LT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

- UNIT WEIGHT OF SOIL ABOVE WATER TABLE,  $\gamma = 120$  PCF
- UNIT WEIGHT OF SOIL BELOW WATER TABLE,  $\gamma' = 60$  PCF
- FRICTION ANGLE,  $\phi = 30$
- COHESION,  $c = 0$  PSF
- GROUNDWATER ELEVATION = 593 FT. ±

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF THE TEMPORARY SHORING FROM STATION 14+63 ± -LDET-, 20.00 FT. LT, TO 15+08 ± -LDET-, 20.00 FT. LT. THE INFORMATION PROVIDED FOR DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

AT THE CONTRACTOR'S OPTION, USE A STANDARD TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION 14+63 ± -LDET-, 20.00 FT. LT, TO 15+08 ± -LDET-, 20.00 FT. LT SEE STANDARD DETAIL NO. 1801.02 FOR STANDARD TEMPORARY WALLS.

## NOTES FOR TEMPORARY SHORING No. 3

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

DESIGN TEMPORARY SHORING FROM STATION 18+50 ± -LDET-, 20.00 FT. LT, TO 18+95 ± -LDET-, 20.00 FT. LT., FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

- UNIT WEIGHT OF SOIL ABOVE WATER TABLE,  $\gamma = 120$  PCF
- UNIT WEIGHT OF SOIL BELOW WATER TABLE,  $\gamma' = 60$  PCF
- FRICTION ANGLE,  $\phi = 30$
- COHESION,  $c = 0$  PSF
- GROUNDWATER ELEVATION = 601 FT. ±

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF THE TEMPORARY SHORING FROM STATION 18+50 ± -LDET-, 20.00 FT. LT, TO 18+95 ± -LDET-, 20.00 FT. LT. THE INFORMATION PROVIDED FOR DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

AT THE CONTRACTOR'S OPTION, USE A STANDARD TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION 18+50 ± -LDET-, 20.00 FT. LT, TO 18+95 ± -LDET-, 20.00 FT. LT. SEE STANDARD DETAIL NO. 1801.02 FOR STANDARD TEMPORARY WALLS.

THE TEMPORARY SHORING NOTES SHOWN ON THIS SHEET WERE PROVIDED THROUGH SEALED DOCUMENT FROM THE GEOTECHNICAL ENGINEERING UNIT. THE DOCUMENT WAS SUBMITTED TO THE WZTC SECTION ON 08/16/2017 AND SEALED BY A PROFESSIONAL ENGINEER, DAVID L. TEAGUE, LICENSE # 027869.

## NOTES FOR TEMPORARY SHORING No. 2

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

DESIGN TEMPORARY SHORING FROM STATION 17+62 ± -LDET-, 20.00 FT. LT, TO 18+07 ± -LDET-, 20.00 FT. LT., FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

- UNIT WEIGHT OF SOIL ABOVE WATER TABLE,  $\gamma = 120$  PCF
- UNIT WEIGHT OF SOIL BELOW WATER TABLE,  $\gamma' = 60$  PCF
- FRICTION ANGLE,  $\phi = 30$
- COHESION,  $c = 0$  PSF
- GROUNDWATER ELEVATION = 593 FT. ±

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF THE TEMPORARY SHORING FROM STATION 17+62 ± -LDET-, 20.00 FT. LT, TO 18+07 ± -LDET-, 20.00 FT. LT. THE INFORMATION PROVIDED FOR DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

AT THE CONTRACTOR'S OPTION, USE A STANDARD TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION 17+62 ± -LDET-, 20.00 FT. LT, TO 18+07 ± -LDET-, 20.00 FT. LT. SEE STANDARD DETAIL NO. 1801.02 FOR STANDARD TEMPORARY WALLS.

## NOTES FOR TEMPORARY SHORING No. 4

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

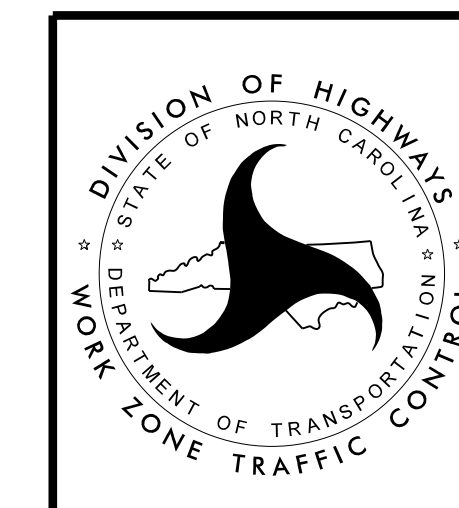
DESIGN TEMPORARY SHORING FROM STATION 19+57 ± -L-, 24.3 FT. RT., TO 20+02 ± -L-, 24.3 FT. RT. FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

- UNIT WEIGHT OF SOIL ABOVE WATER TABLE,  $\gamma = 120$  PCF
- UNIT WEIGHT OF SOIL BELOW WATER TABLE,  $\gamma' = 60$  PCF
- FRICTION ANGLE,  $\phi = 30$
- COHESION,  $c = 0$  PSF
- GROUNDWATER ELEVATION = 601 FT. ±

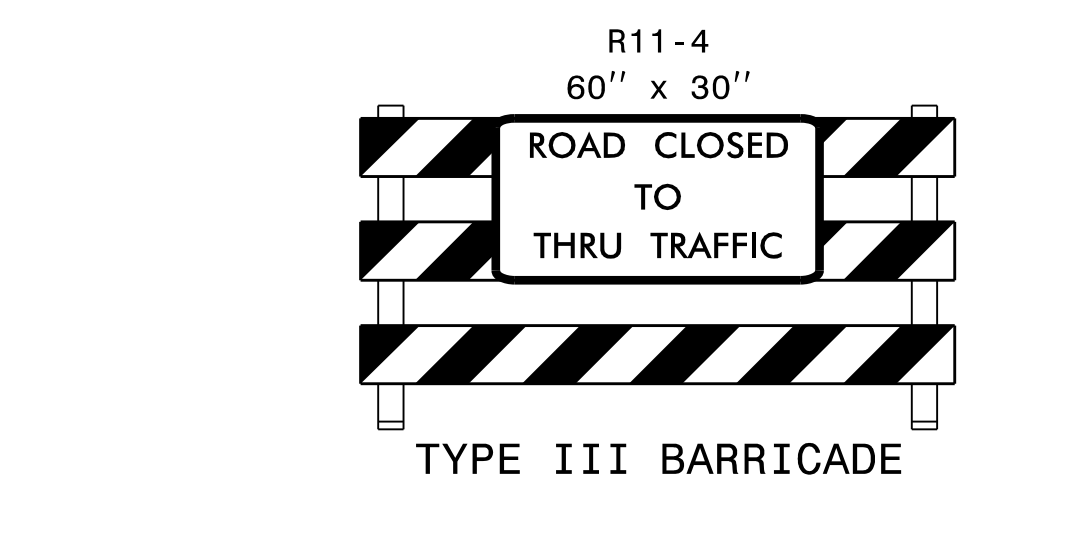
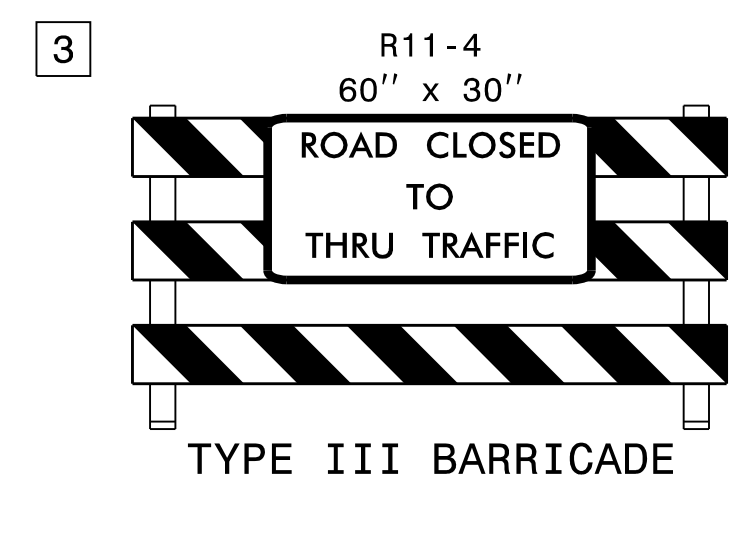
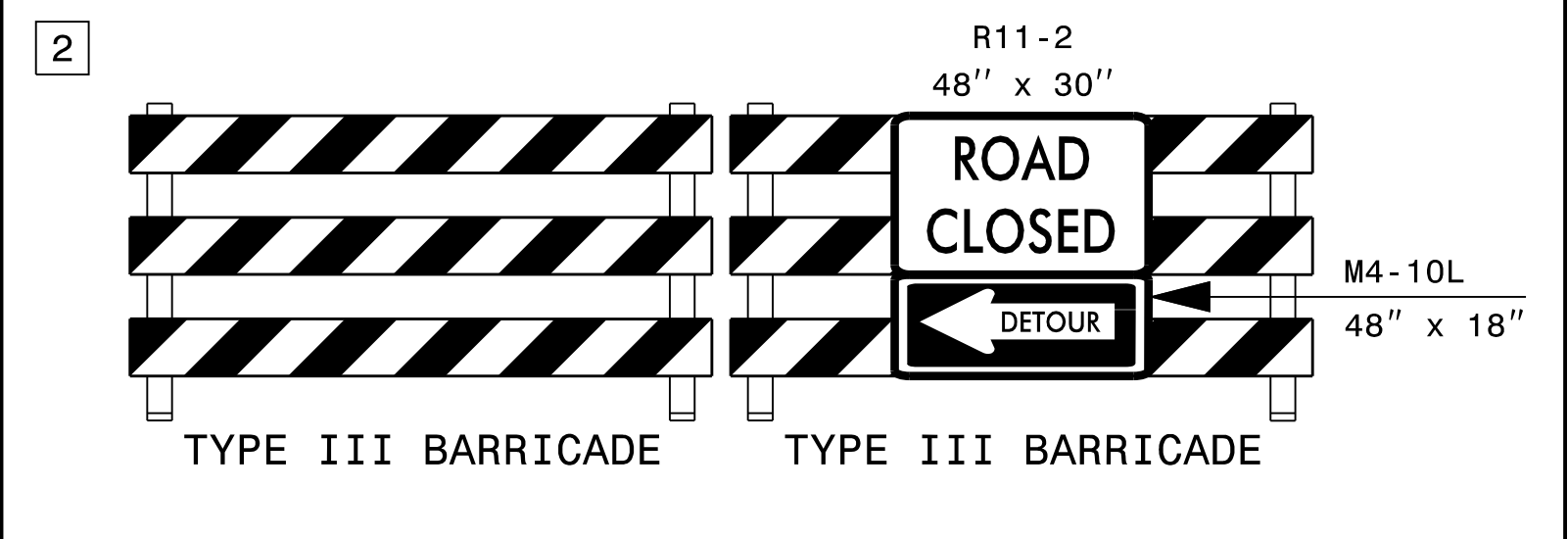
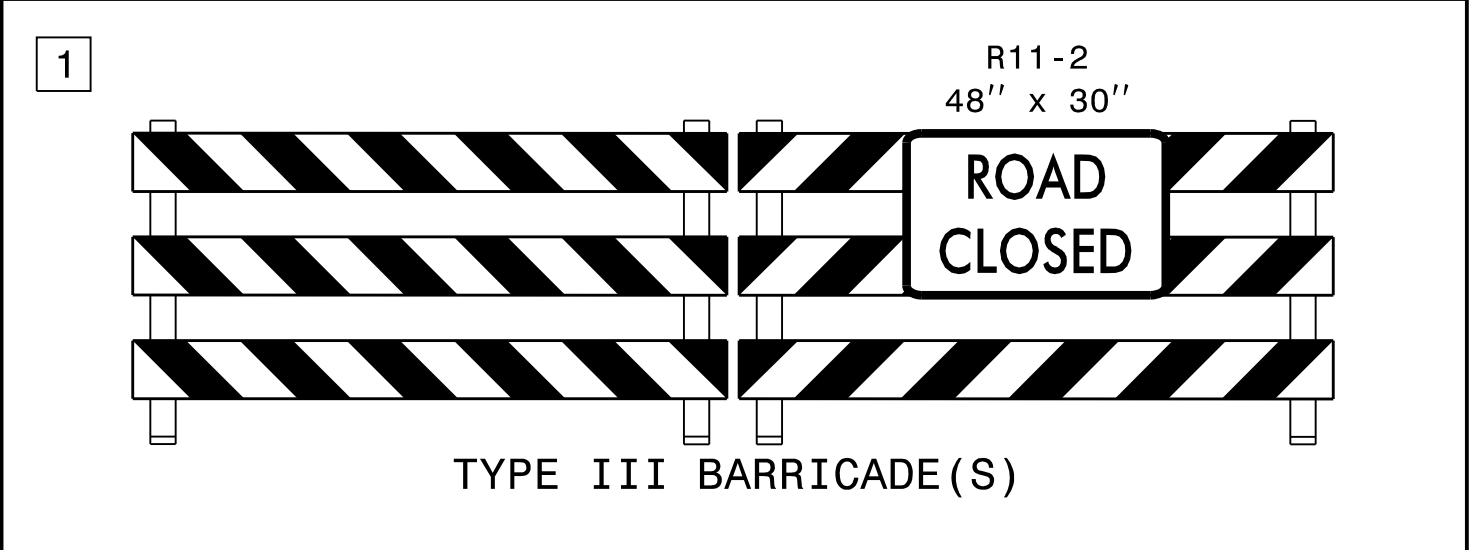
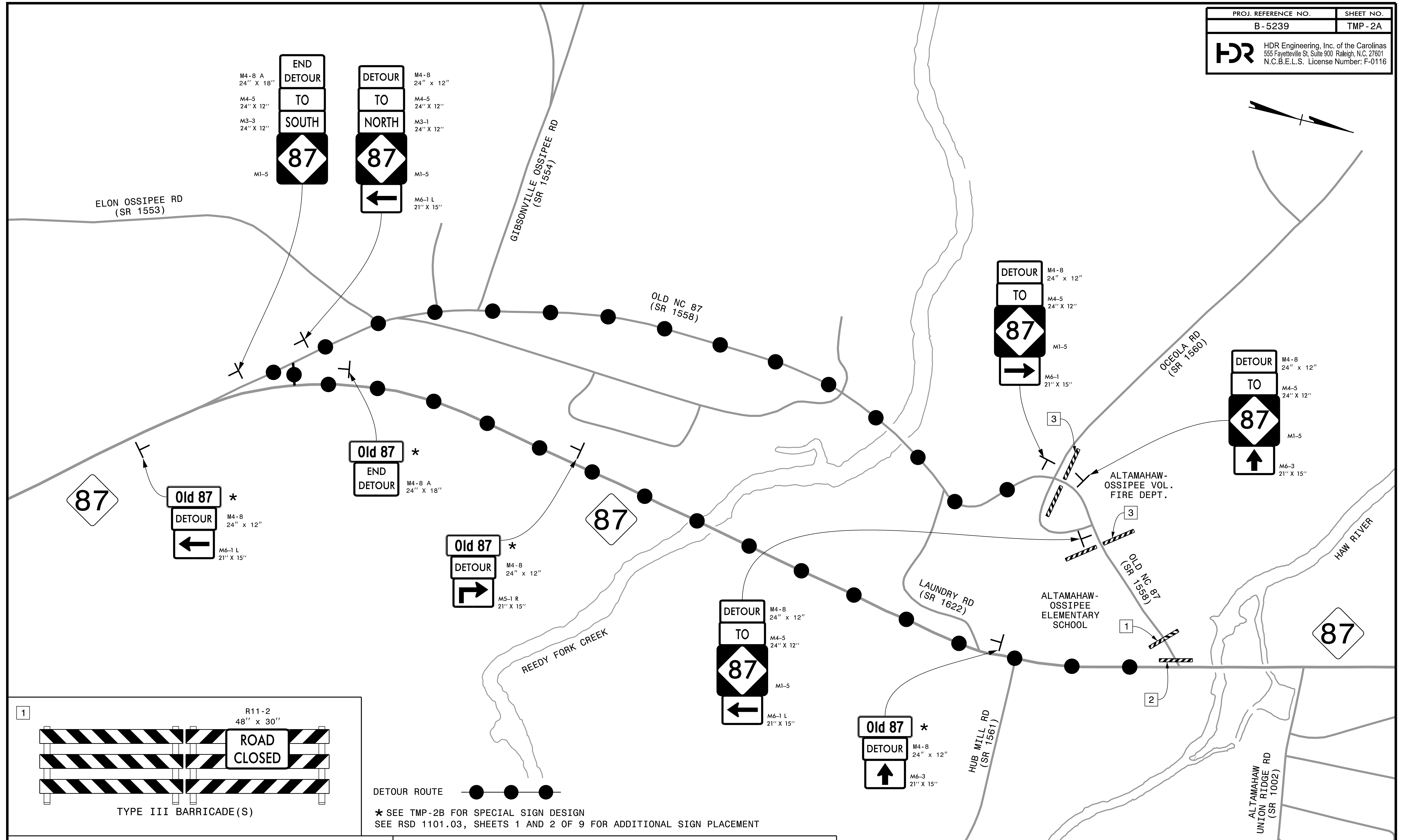
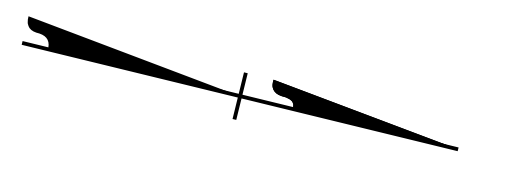
BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF THE TEMPORARY SHORING FROM STATION 19+57 ± -L-, 24.3 FT. RT., TO 20+02 ± -L-, 24.3 FT. RT. THE INFORMATION PROVIDED FOR DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

AT THE CONTRACTOR'S OPTION, USE A STANDARD TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION 19+57 ± -L-, 24.3 FT. RT., TO 20+02 ± -L-, 24.3 FT. RT. SEE STANDARD DETAIL NO. 1801.02 FOR STANDARD TEMPORARY WALLS.




TEMPORARY SHORING NOTES



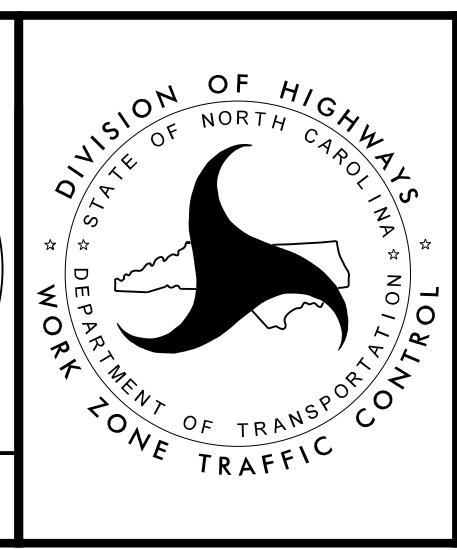
DETOUR ROUTE ●●●

\* SEE TMP-2B FOR SPECIAL SIGN DESIGN  
SEE RSD 1101.03, SHEETS 1 AND 2 OF 9 FOR ADDITIONAL SIGN PLACEMENT

APPROVED: *P. Erskine Brooks*  
DATE: 10/30/2017

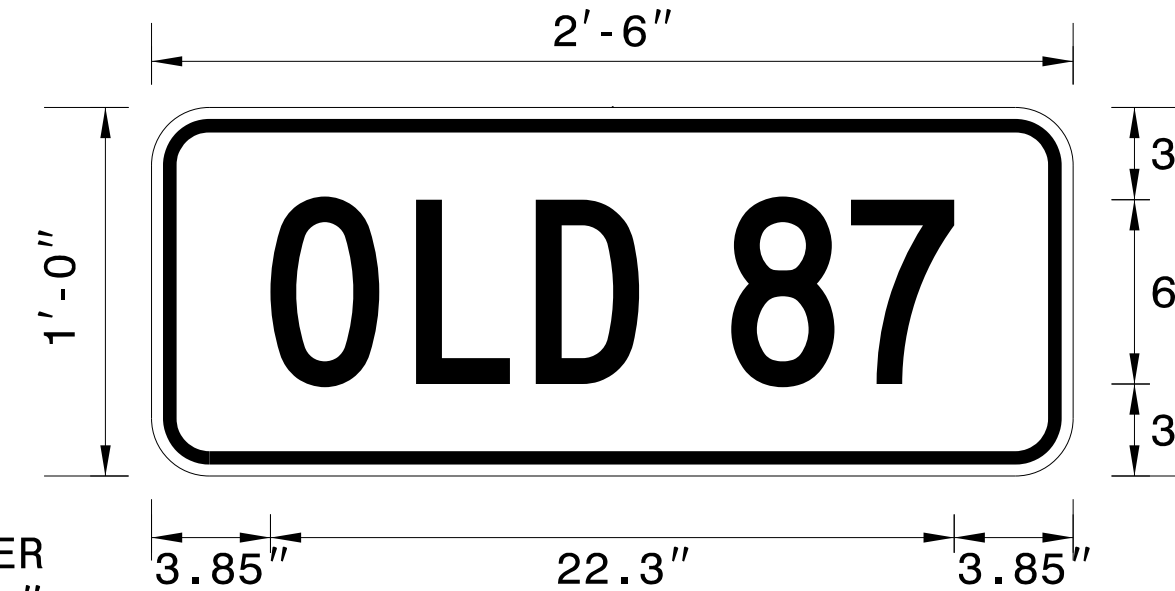


DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



DETOUR ROUTE  
FOR OLD NC 87 /  
NC 87 ACCESS

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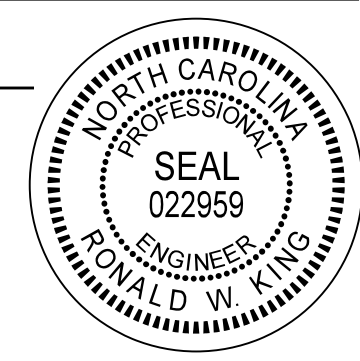
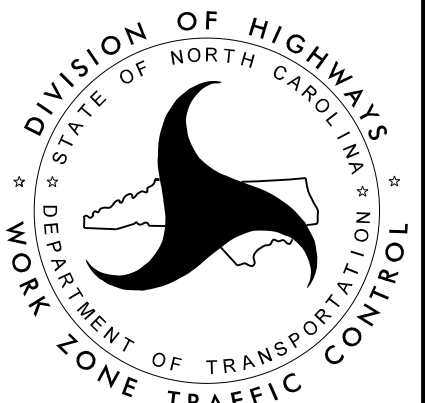
<p>SIGN NUMBER: SP-01 TYPE: D QUANTITY: 1</p> <p>SIGN WIDTH: 2'-6" HEIGHT: 1'-0" TOTAL AREA: 2.5 Sq.Ft.</p> <p>BORDER TYPE: RECESSED RECESS: 0.38" WIDTH: 0.44" RADII: 1.5"</p> <p>NO. Z BARS: LENGTH:</p>	<p>BACKG COLOR: Flourescent Orange COPY COLOR: Black</p> <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>SYMBOL</th> <th>X</th> <th>Y</th> <th>WIDTH</th> <th>HEIGHT</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> <p>MAT'L: 0.063" (1.6 mm) ALUMINUM</p>	SYMBOL	X	Y	WIDTH	HEIGHT																																				<p>DESIGN BY: CHRIS HARNDEN PROJECT ID: B-5239</p> <p>CHECKED BY: RON KING DIV: 7</p> <p>DATE: Aug 14, 2017</p> <div style="text-align: center;">  <p>BORDER R=1.5" TH=0.44" IN=0.38"</p> </div>
SYMBOL	X	Y	WIDTH	HEIGHT																																						

USE NOTES: 1,2

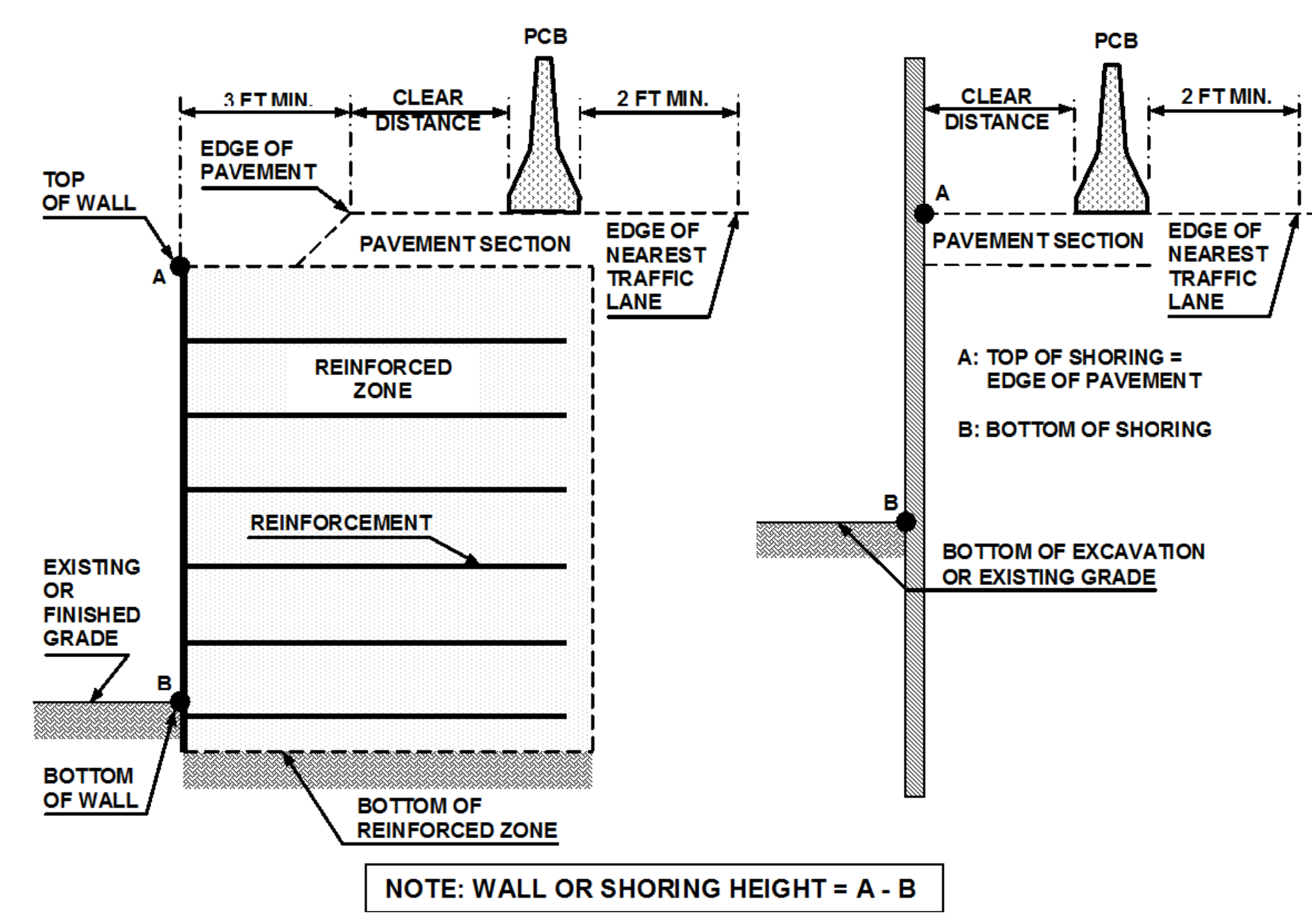
- Legend and border shall be direct applied non reflective sheeting.
- Background shall be Grade B reflective sheeting.

Letter spacings are to start of next letter										Series/Size Text Length
O	L	D			8	7				C 2000
3.9	4.7	3.9	3.4	3	3.9	3.4	3.9			22.3

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<p>APPROVED: <u>Ron King</u></p> <p>DATE: 8/31/2017</p>			<p><b>SPECIAL SIGN DESIGN</b></p>
<p><b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b></p>			





## FIGURE A

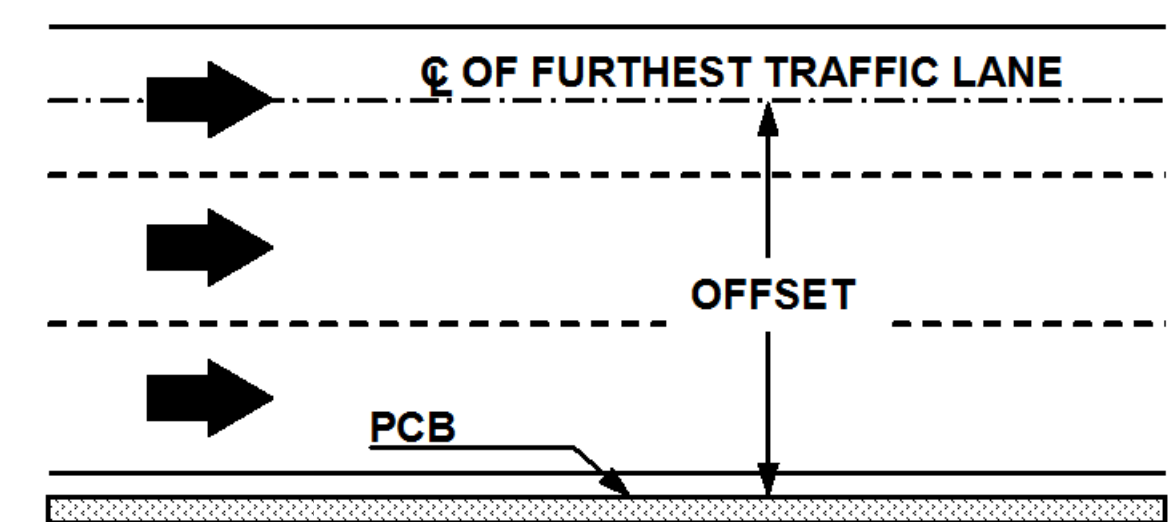
### NOTES

- REFER TO THE TRAFFIC CONTROL PLANS FOR TEMPORARY SHORING LOCATIONS AND NOTES.
- REFER TO THE "TEMPORARY SHORING" PROJECT SPECIAL PROVISION FOR INFORMATION ABOUT TEMPORARY SHORING AND PORTABLE CONCRETE BARRIER (PCB).
- PCB IS REQUIRED IF TEMPORARY SHORING IS LOCATED WITHIN THE CLEAR ZONE IN ACCORDANCE WITH THE AASHTO ROADSIDE DESIGN GUIDE. DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE. (CONTACT NCDOT PAVEMENT MANAGEMENT UNIT FOR APPLICABLE PAVEMENT DESIGN).
- BASED ON THE CLEAR DISTANCE, OFFSET, DESIGN SPEED AND PAVEMENT TYPE, CHOOSE AN UNANCHORED OR ANCHORED PCB FROM THE TABLE SHOWN IN FIGURE B. CLEAR DISTANCE IS DEFINED AS SHOWN IN FIGURE A AND OFFSET IS DEFINED AS SHOWN IN FIGURE B.
- AT THE CONTRACTOR'S OPTION OR IF THE MINIMUM REQUIRED CLEAR DISTANCE IS NOT AVAILABLE, SET PCB NEXT TO AND UP AGAINST THE TRAFFIC SIDE OF THE TEMPORARY SHORING EXCEPT FOR BARRIER ABOVE TEMPORARY WALLS. PCB WITH THE MINIMUM REQUIRED CLEAR DISTANCE IS REQUIRED ABOVE TEMPORARY WALLS.
- USE NCDOT PORTABLE CONCRETE BARRIER (PCB) IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1170.01 AND SECTION 1170 OF THE STANDARD SPECIFICATIONS.
- PCB REQUIREMENTS FOR TEMPORARY WALLS APPLY TO TEMPORARY MECHANICALLY STABILIZED EARTH (MSE) WALLS AND TEMPORARY SOIL NAIL WALLS.
- SET PCB WITH A MINIMUM HORIZONTAL DISTANCE OF 2 FT BETWEEN THE FRONT FACE OF THE BARRIER AND THE EDGE OF THE NEAREST TRAFFIC LANE AS SHOWN IN FIGURE A UNLESS OTHERWISE SHOWN IN THE PLANS AND OR AS APPROVED BY THE ENGINEER.
- FOR PCB ABOVE AND BEHIND TEMPORARY WALLS, PROVIDE A MINIMUM DISTANCE OF 3 FT BETWEEN THE EDGE OF PAVEMENT AND THE WALL FACE AS SHOWN IN FIGURE A. IF THESE MINIMUM REQUIRED DISTANCES ARE NOT AVAILABLE, CONTACT THE ENGINEER.
- TABLE SHOWN IN FIGURE B IS BASED ON NCDOT RESEARCH PROJECT NO. 2005-010 WITH VEHICLE TYPE USED FOR NCHRP 350 CRASH TESTS. BARRIER DEFLECTIONS AND RESULTING MINIMUM REQUIRED CLEAR DISTANCES MIGHT VARY SIGNIFICANTLY FOR LARGER HEAVIER VEHICLES, RUNS OF BARRIER LESS THAN 200 FT IN LENGTH AND WET OR DRY PAVEMENT.

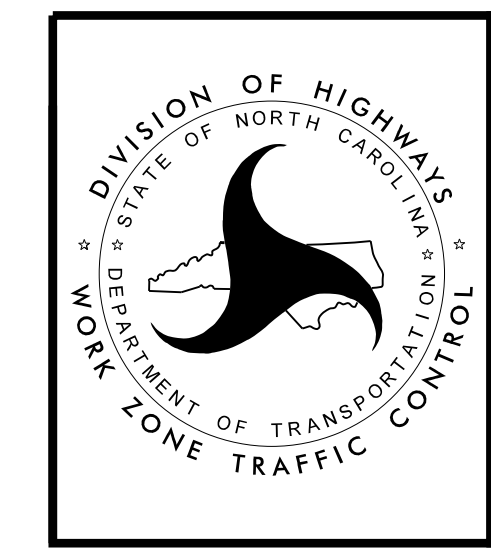
### MINIMUM REQUIRED CLEAR DISTANCE, inches

	Pavement Type	Offset * ft	Design Speed, mph					
			<30	31-40	41-50	51-60	61-70	71-80
Unanchored PCB	Asphalt	<8	24	26	29	32	36	40
		8-14	26	28	31	35	38	42
		14-20	27	29	34	36	39	43
		20-26	28	31	35	38	40	44
		26-32	29	32	36	39	42	45
		32-38	30	34	38	41	43	46
		38-44	31	34	41	43	45	48
		44-50	31	35	41	43	46	49
		50-56	32	36	42	44	47	50
	>56	32	36	42	45	47	51	
	Concrete	<8	17	18	21	22	25	26
		8-14	19	20	23	25	26	29
		14-20	22	22	24	26	28	31
		20-26	23	24	26	27	30	34
		26-32	24	25	27	28	32	35
		32-38	24	26	27	30	33	36
		38-44	25	26	28	30	34	37
		44-50	26	26	28	32	35	37
50-56		26	26	28	32	35	38	
>56	26	27	29	32	36	38		
Anchored PCB	Asphalt	All Offsets	24 for All Design Speeds					
Anchored PCB	Concrete (including bridge approach slabs)	All Offsets	12 for All Design Speeds					

\* See Figure Below

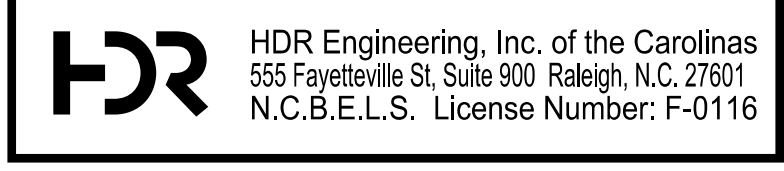


## FIGURE B



PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS

PROJ. REFERENCE NO.	SHEET NO.
B-5239	TMP-3



# PHASING

**NOTES:**

BEFORE BEGINNING ANY CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL INSTALL ALL ADVANCE WARNING SIGNS AND TRAFFIC CONTROL DEVICES. FIELD VERIFY LOCATIONS WITH THE RESIDENT ENGINEER PRIOR TO INSTALLATION.

MAINTAIN ACCESS TO ALL RESIDENCES AND BUSINESSES DURING THE LIFE OF THE CONTRACT, UNLESS OTHERWISE NOTED IN THE PHASING OR AS DIRECTED BY THE ENGINEER.

COMPLETE ANY PROPOSED OR TEMPORARY WIDENING IN SUCH A MANNER THAT NO PONDING OF WATER WILL OCCUR WITHIN THE TRAVEL LANE.

WHEN USING LANE CLOSURES (RSD 1101.02), RETURN TRAFFIC TO EXISTING PATTERN(S) AT THE END OF THE ALLOWABLE WORK PERIOD.

PAVE PROPOSED CONSTRUCTION UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE, IN ALL PHASES, UNLESS OTHERWISE NOTED IN THE PHASING, UNTIL STATED TO INSTALL THE FINAL LAYER OF SURFACE COURSE IN THE PHASING.

COVER ALL OPEN DRAINAGE STRUCTURES ADJACENT TO TRAFFIC WITH TEMPORARY STEEL PLATES, OR AS DIRECTED BY THE ENGINEER.

**PHASE 1 (SHEET TMP-7)**

**STEP 1:**

AWAY FROM TRAFFIC AND USING FLAGGERS (RSD 1101.02, SHEET 1 OF 15), AS NECESSARY, COMPLETE UNDERCUT OF EXISTING MATERIAL UNDER -LDET- FROM -LDET- STA. 17+67 +/- TO STA. 18+91 +/- . (SEE SECTION C-C, SHEET TMP-5)

USING FLAGGERS (RSD 1101.02, SHEET 1 OF 15), AS NECESSARY, COMPLETE PERMANENT UNDERCUT OF EXISTING SHOULDER FROM -L- STA. 10+00 TO STA. 11+75 +/- (RT).

USING FLAGGERS (RSD 1101.02, SHEET 1 OF 15), COMPLETE REMOVAL OF EXISTING GUARDRAIL AND INSTALL NEW TEMPORARY GUARDRAIL ON EXISTING NC 87 FROM -L- STA. 19+36 +/- (END BRIDGE) TO -L- STA. 20+36 +/- (RT).

**STEP 2:**

AWAY FROM TRAFFIC AND USING FLAGGERS (RSD 1101.02, SHEET 1 OF 15), AS NECESSARY, CONSTRUCT THE FOLLOWING:  
 - -LDET-, INCLUDING TEMPORARY BRIDGES OVER THE HAW RIVER AND MILL RACE, AND SHORING NOS. 1, 2, AND 3.  
 - -Y2DET-  
 - -DRV- (TEMPORARY DRIVEWAY TO THE PARK)  
 - TEMPORARY WEDGING, AS NECESSARY, ON EXISTING NC 87 AND -Y2DET- TO MAINTAIN TRAFFIC AND ALLOW FOR SMOOTH TRANSITIONS AND TIE-INS OF THE DETOUR TO EXISTING PAVEMENT.

**STEP 3:**

AWAY FROM TRAFFIC AND USING FLAGGERS (RSD 1101.02, SHEET 1 OF 15), AS NECESSARY, INSTALL ANCHORED PCB ALONG -LDET- FROM STA. 14+30 +/- TO STA. 20+75 +/- (LT), AS SHOWN ON SHEET TMP-8. INSTALL CRASH CUSHIONS ON EACH END OF THE BARRIER AND ATTACH THE ANCHORED BARRIER TO THE TEMPORARY BRIDGES AT EACH APPROACH.

**STEP 4:**

WORKING IN A CONTINUOUS MANNER, AWAY FROM TRAFFIC AND USING FLAGGERS (RSD 1101.02, SHEET 1 OF 15), AS NECESSARY, PLACE TEMPORARY PAVEMENT MARKINGS ON -LDET-, -Y1DET-, AND -Y2DET- AS SHOWN ON SHEET TMP-8, AND SHIFT TRAFFIC TO THE TEMPORARY PATTERN.

**PHASE 2 (SHEETS TMP-8 AND TMP-9)**

**STEP 1:**

AWAY FROM TRAFFIC AND USING FLAGGERS (RSD 1101.02, SHEET 1 OF 15), AS NECESSARY, BEGIN CONSTRUCTION OF THE FOLLOWING: (SEE SHEET TMP-8)  
 - -L- FROM STA. 13+75 +/- TO STA. 22+50 +/-  
 \* INCLUDING BRIDGES OVER THE HAW RIVER AND MILL RACE, SHORING NO. 4, AND FINAL WEDGING FROM STA. 20+50 +/- TO STA. 22+50 +/- .  
 \* MAINTAIN ACCESS TO THE PARK THROUGH THE WORK AREA AT ALL TIMES  
 - -Y3-

**STEP 2:**

USING RSD 1101.03, SHEETS 1 AND 2 OF 9, AND AS SHOWN ON SHEET TMP-2A, CLOSE AND DETOUR -Y1- (OLD NC 87) (SEE LOCAL NOTES LN-01 AND LN-02, SHEET TMP-1C), THEN AWAY FROM TRAFFIC AND USING FLAGGERS AND LANE CLOSURES (RSD 1101.02, SHEET 1 OF 15), AS NECESSARY, CONSTRUCT THE FOLLOWING: (SEE SHEET TMP-9)  
 - -L- FROM STA. 10+00 +/- TO STA. 13+75 +/-  
 \* INCLUDING FINAL WEDGING FROM STA. 10+00 +/- TO STA. 11+75 +/-  
 - -Y1-  
 - TEMPORARY WEDGING, AS NECESSARY, ON -LDET- TO MAINTAIN TRAFFIC AND ALLOW FOR SMOOTH TRANSITIONS AND TIE-INS OF THE FINAL WEDGING TO THE DETOUR PAVEMENT.

USING FLAGGERS (RSD 1101.02, SHEET 1 OF 15), AS NECESSARY, CONSTRUCT THE FOLLOWING: (SEE SHEET TMP-9)  
 - -L- FROM STA. 22+50 +/- TO STA. 24+85 +/-  
 \* INCLUDING FINAL WEDGING  
 - -Y2-  
 - TEMPORARY WEDGING, AS NECESSARY, ON -LDET- TO MAINTAIN TRAFFIC AND ALLOW FOR SMOOTH TRANSITIONS AND TIE-INS OF THE FINAL WEDGING TO THE DETOUR PAVEMENT.

COMPLETE ALL WORK PREVIOUSLY BEGUN IN PHASE 2, STEP 1.

**STEP 3:**

WORKING IN A CONTINUOUS MANNER, AWAY FROM TRAFFIC AND USING FLAGGERS (RSD 1101.02, SHEET 1 OF 15), AS NECESSARY, PLACE TEMPORARY PAVEMENT MARKINGS IN THE FINAL PATTERN ON -L-, -Y1-, AND -Y2-, THEN REOPEN -Y1- AND SHIFT TRAFFIC TO THE FINAL PATTERN ON ALL ROADS.

**PHASE 3**

**STEP 1:**

AWAY FROM TRAFFIC AND USING FLAGGERS (RSD 1101.02, SHEET 1 OF 15), AS NECESSARY, COMPLETE ALL REMAINING SHOULDER WORK AND REMOVAL OF THE DETOUR BRIDGES, PAVEMENT, AND FILL MATERIAL. REMOVE PORTIONS OF SHORING NOS. 1, 2, AND 3 AS REQUIRED TO COMPLETE REMOVAL OF THE TEMPORARY BRIDGES, AND LEAVE THE REMAINDER IN PLACE.

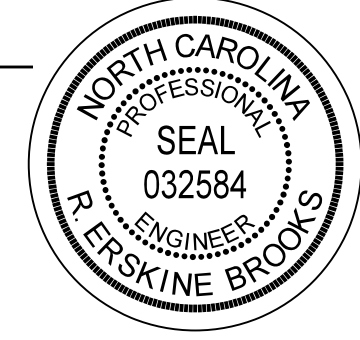

**STEP 2:**

USING FLAGGERS (RSD 1101.02, SHEET 1 OF 15), AS NECESSARY, PLACE THE FINAL LAYER OF ASPHALT SURFACE COURSE AND FINAL PAVEMENT MARKINGS AND MARKERS, THEN OPEN ALL LANES TO THE FINAL PATTERN.

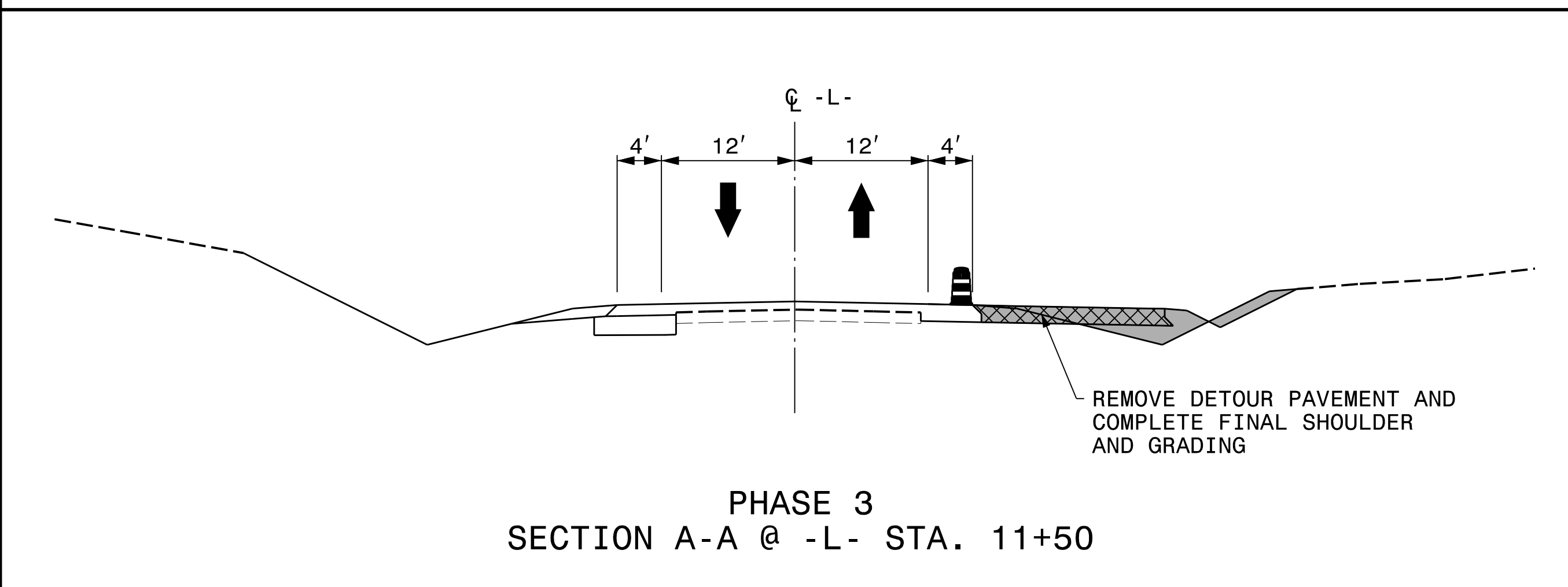
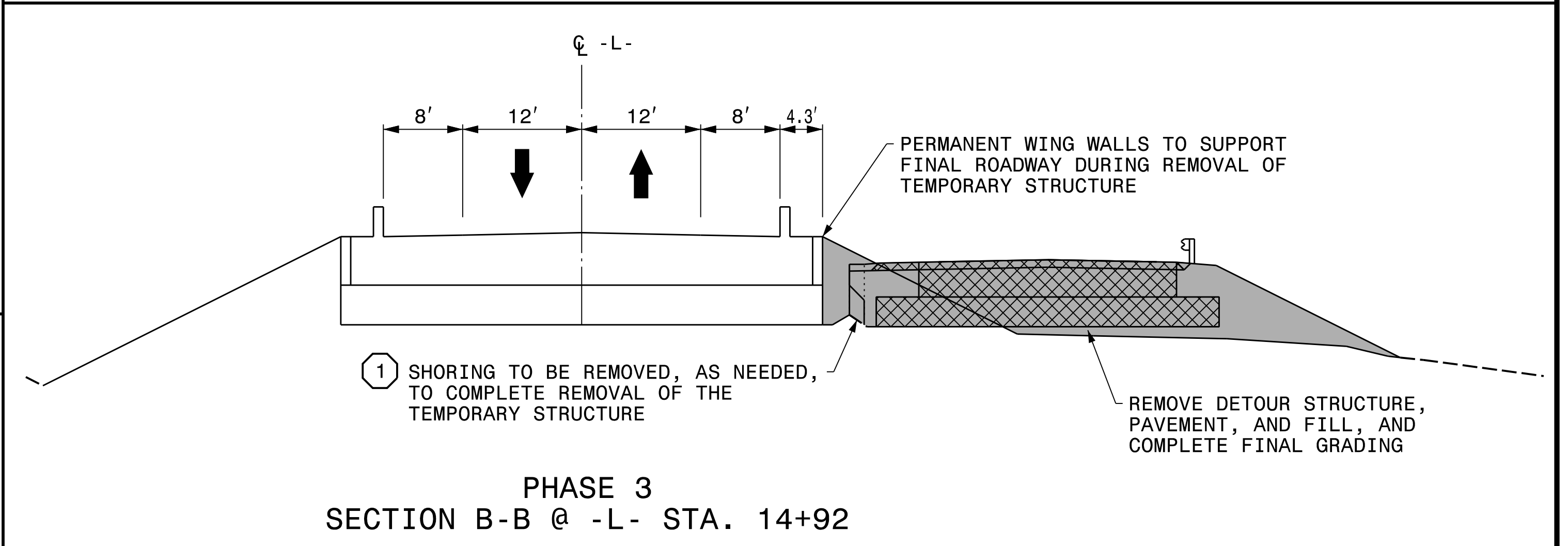
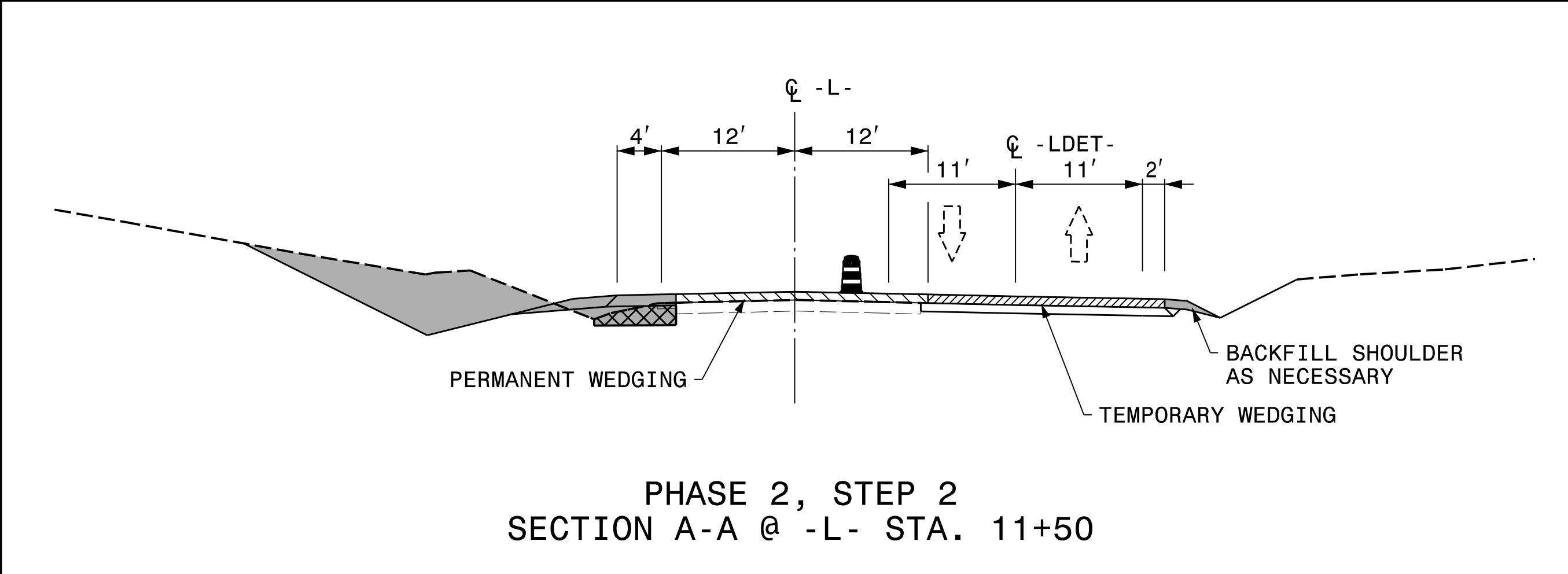
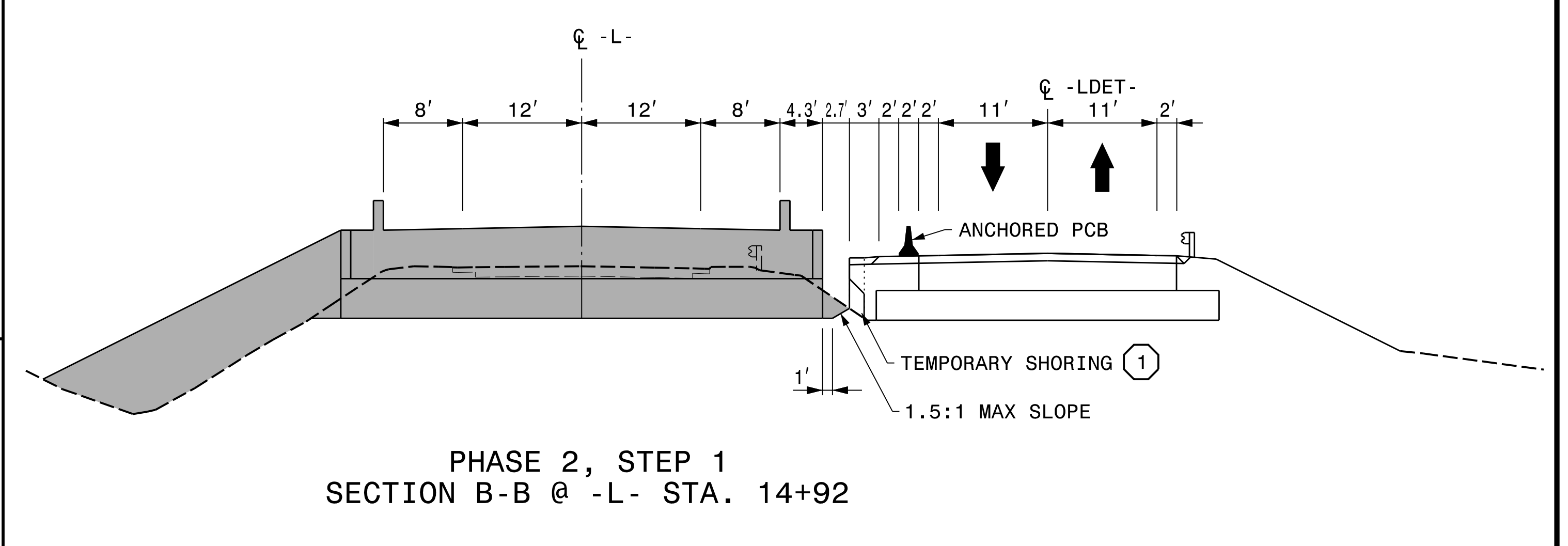
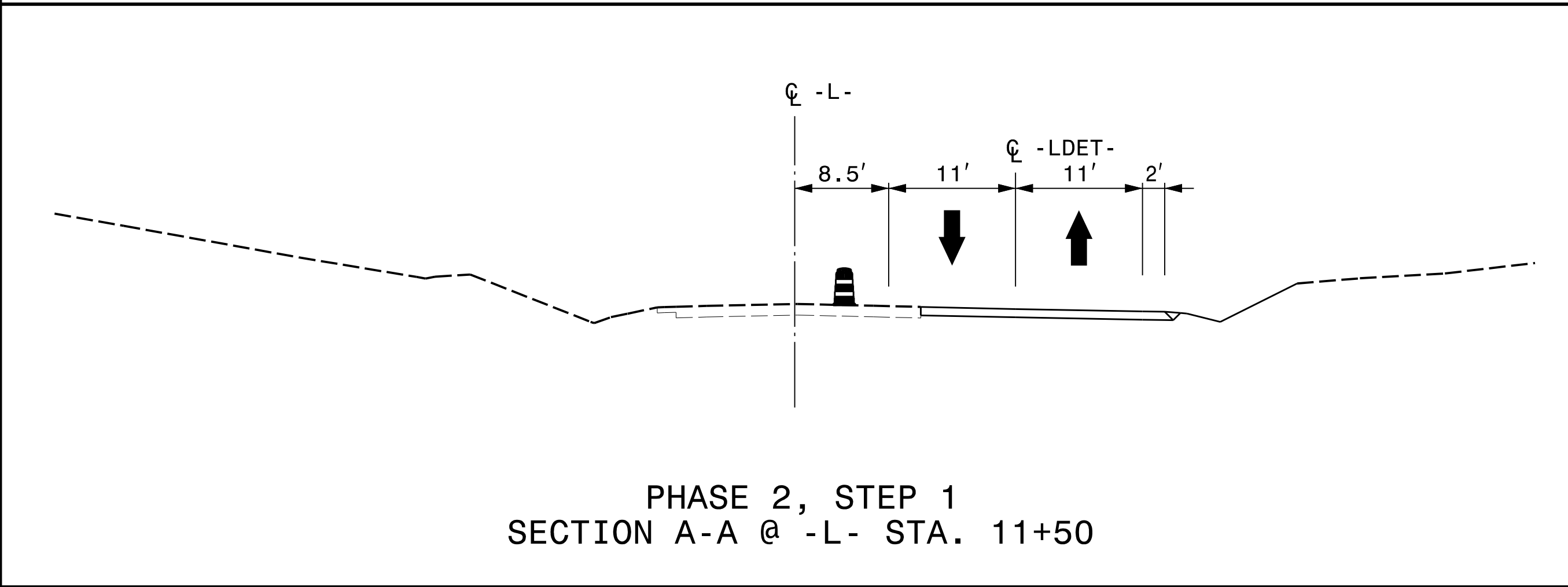
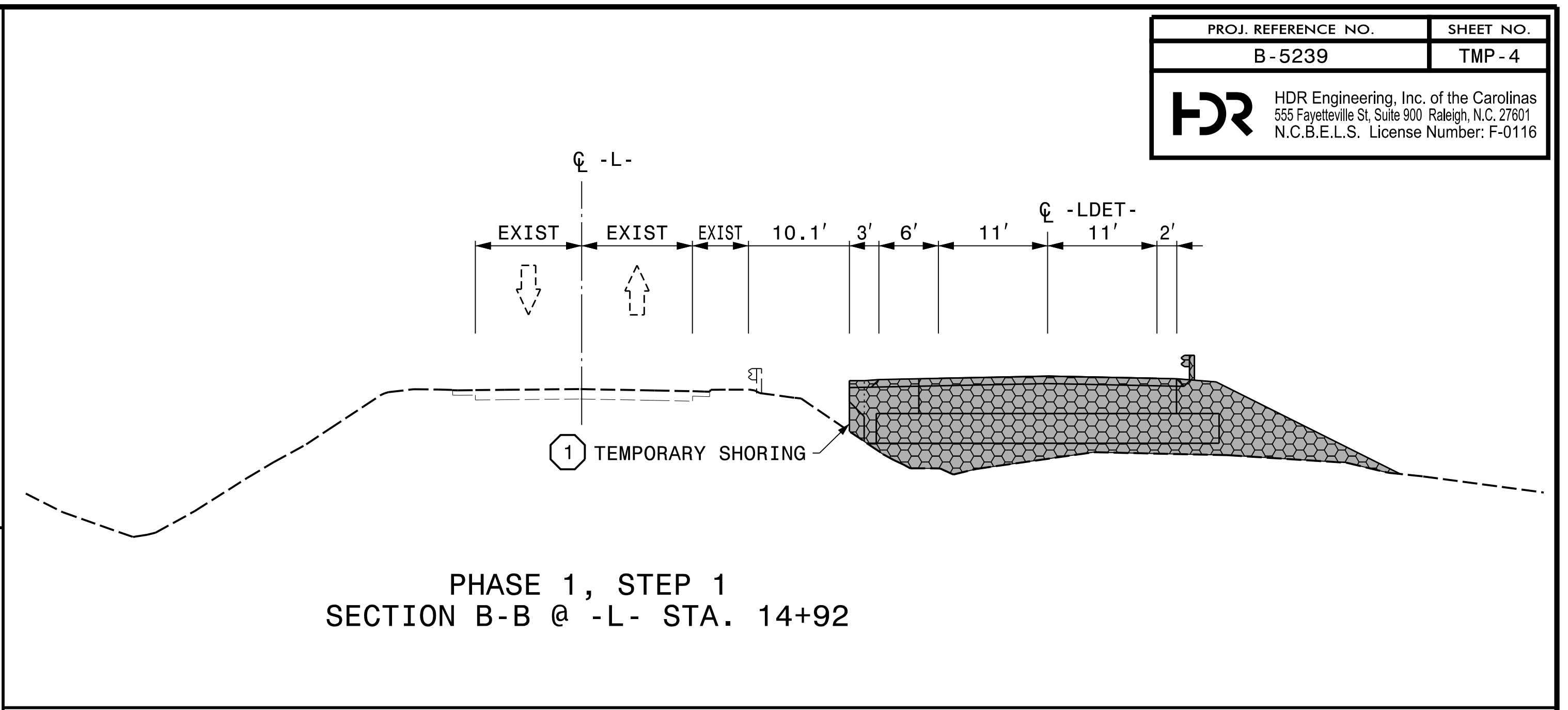
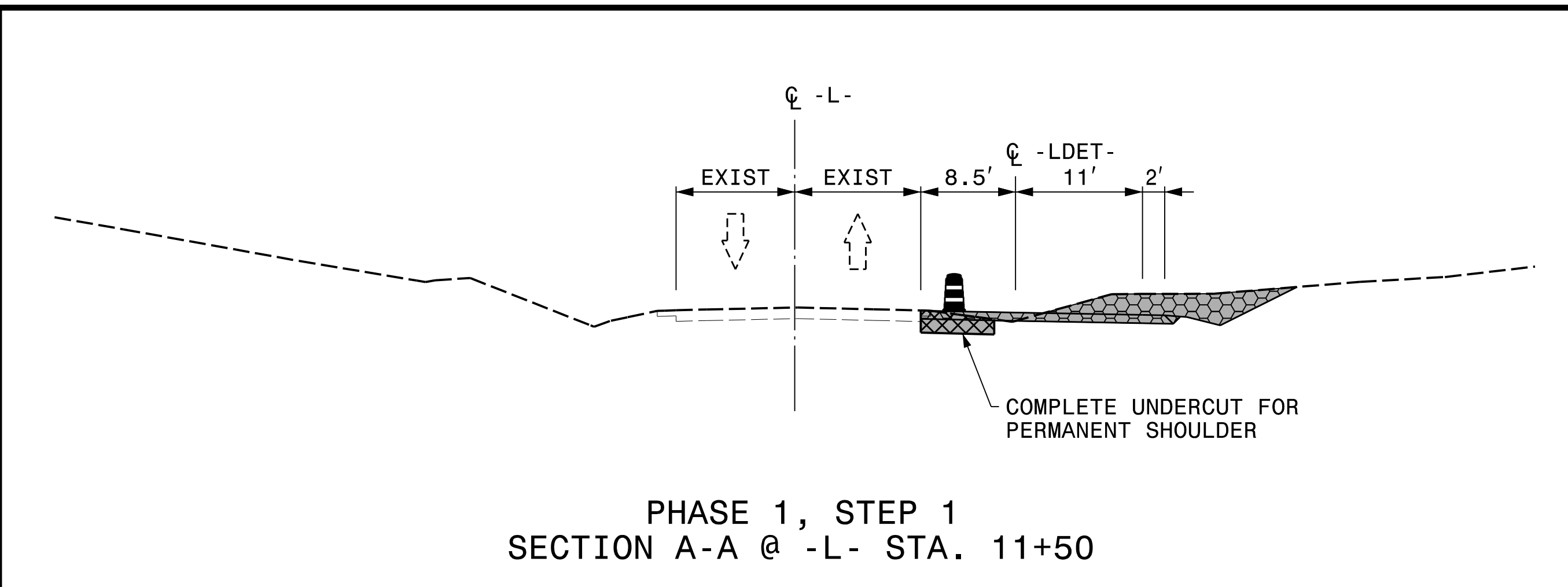
**STEP 3:**

REMOVE ALL REMAINING TRAFFIC CONTROL DEVICES.

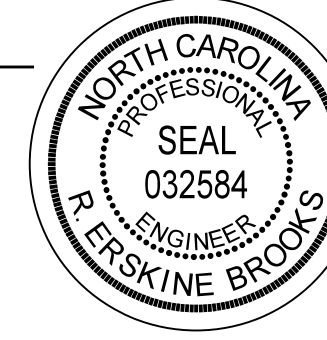
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APPROVED: <u>P. Erskine Brooks</u> <small>F088CSF74846AEE</small> DATE: 10/30/2017			<h2 style="margin: 0;">TEMPORARY TRAFFIC CONTROL PHASING</h2>
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>			

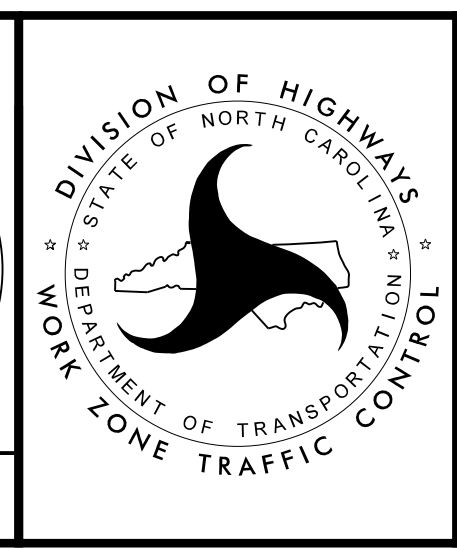




APPROVED: *P. Erskine Brooks*  
 DATE: 10/30/2017

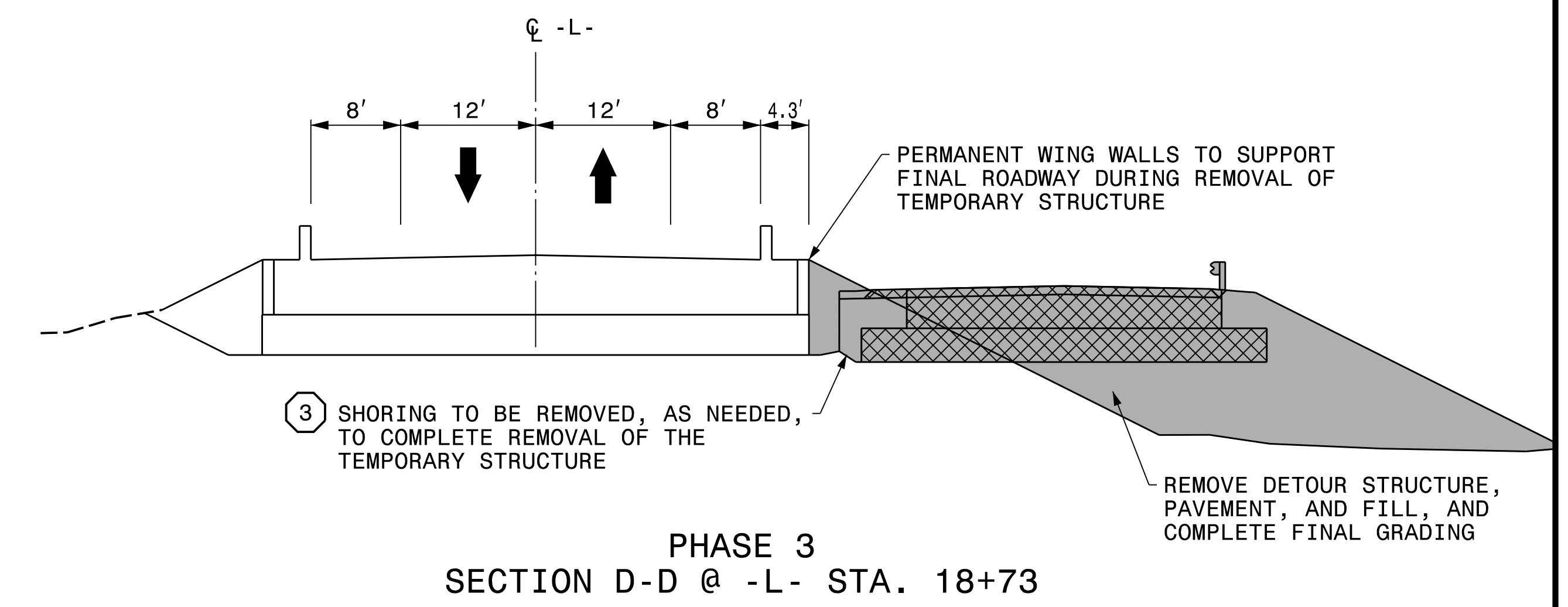
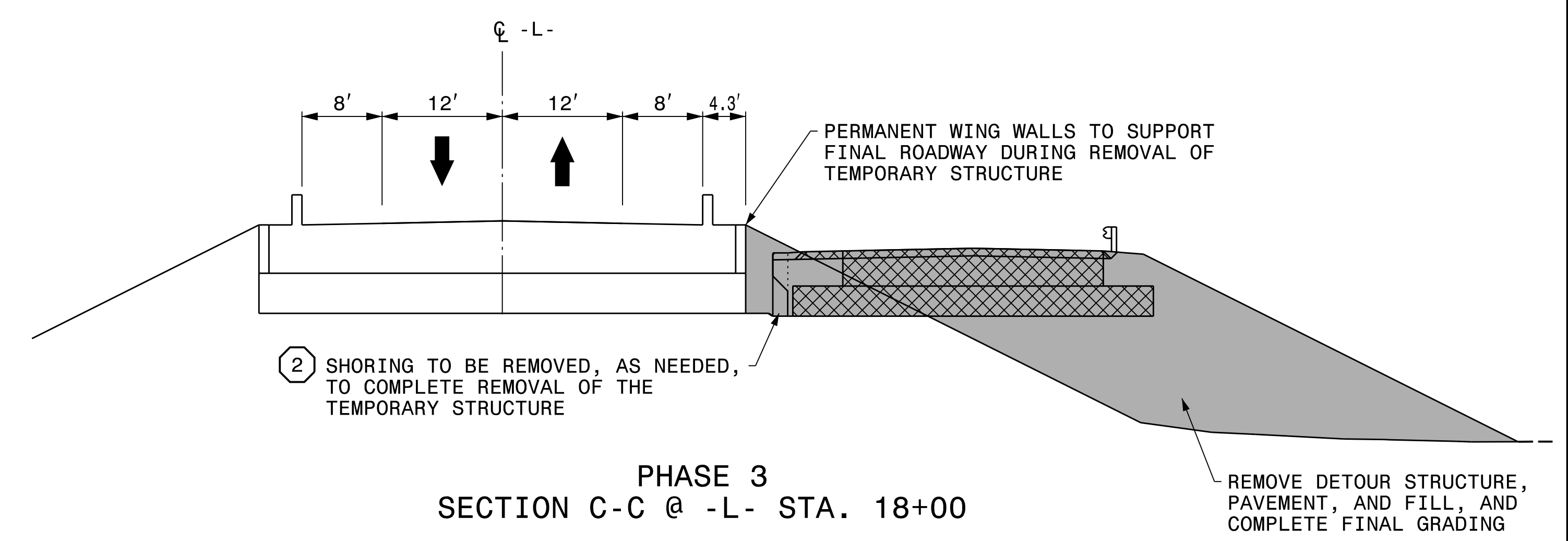
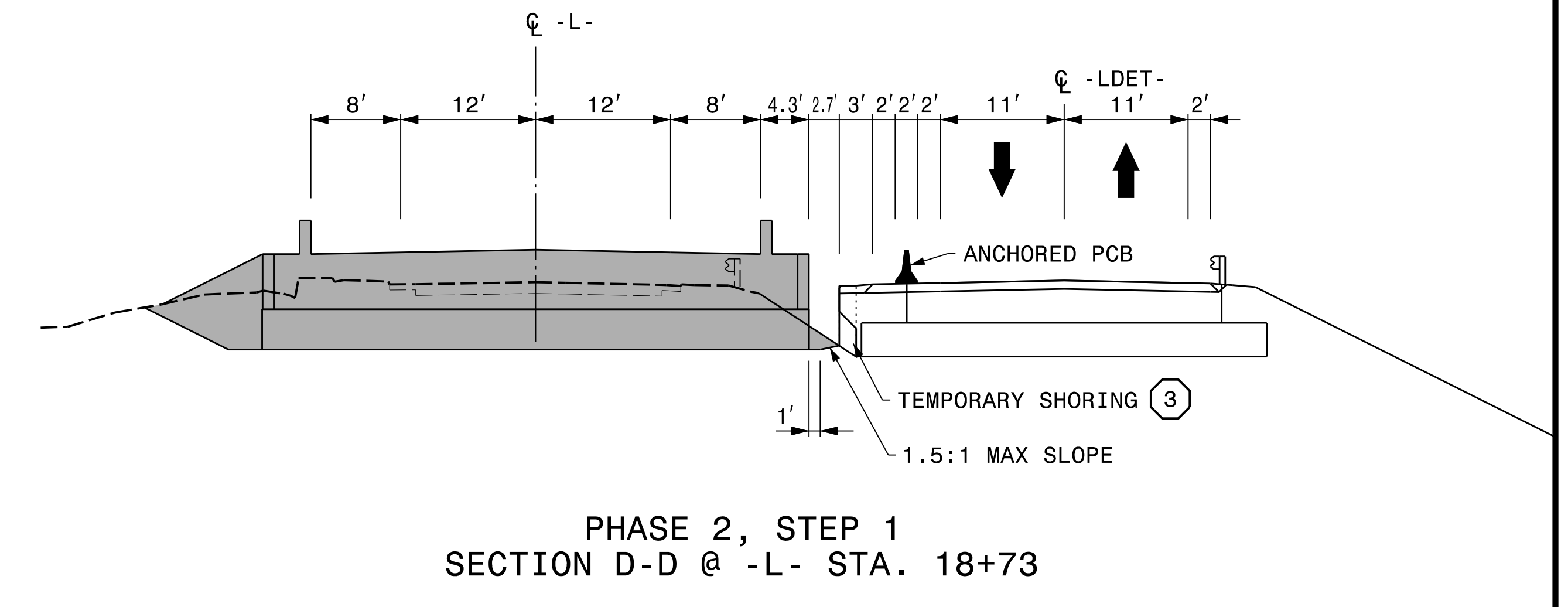
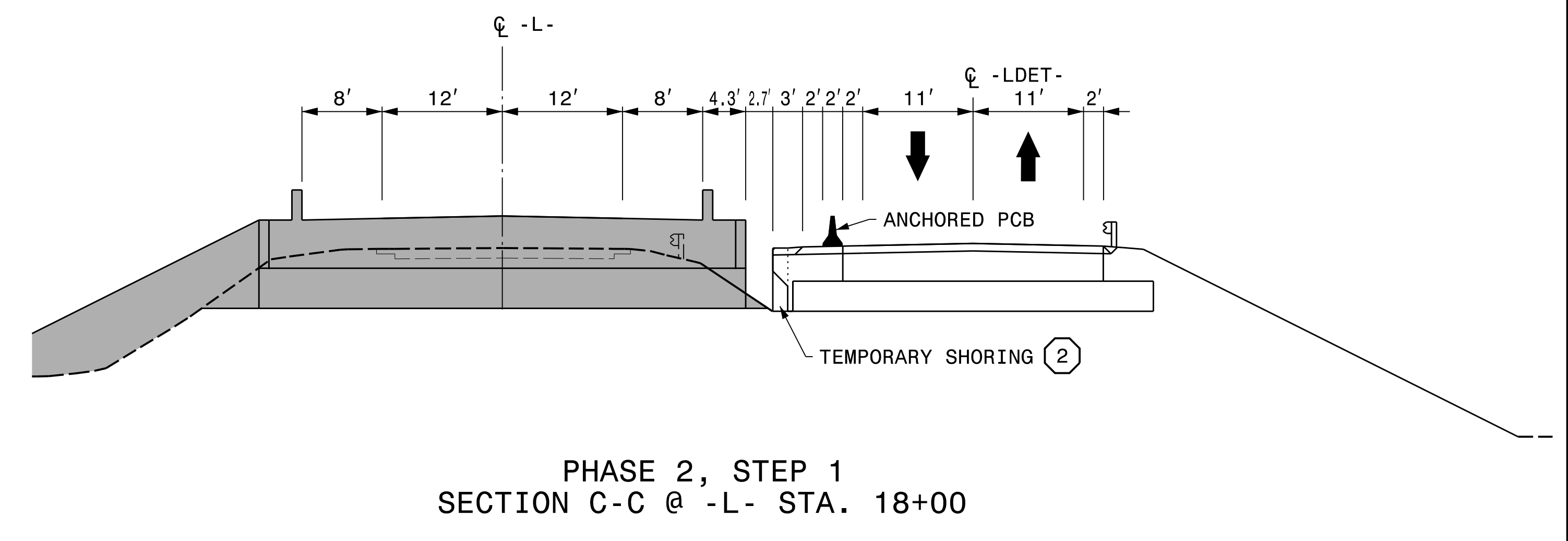
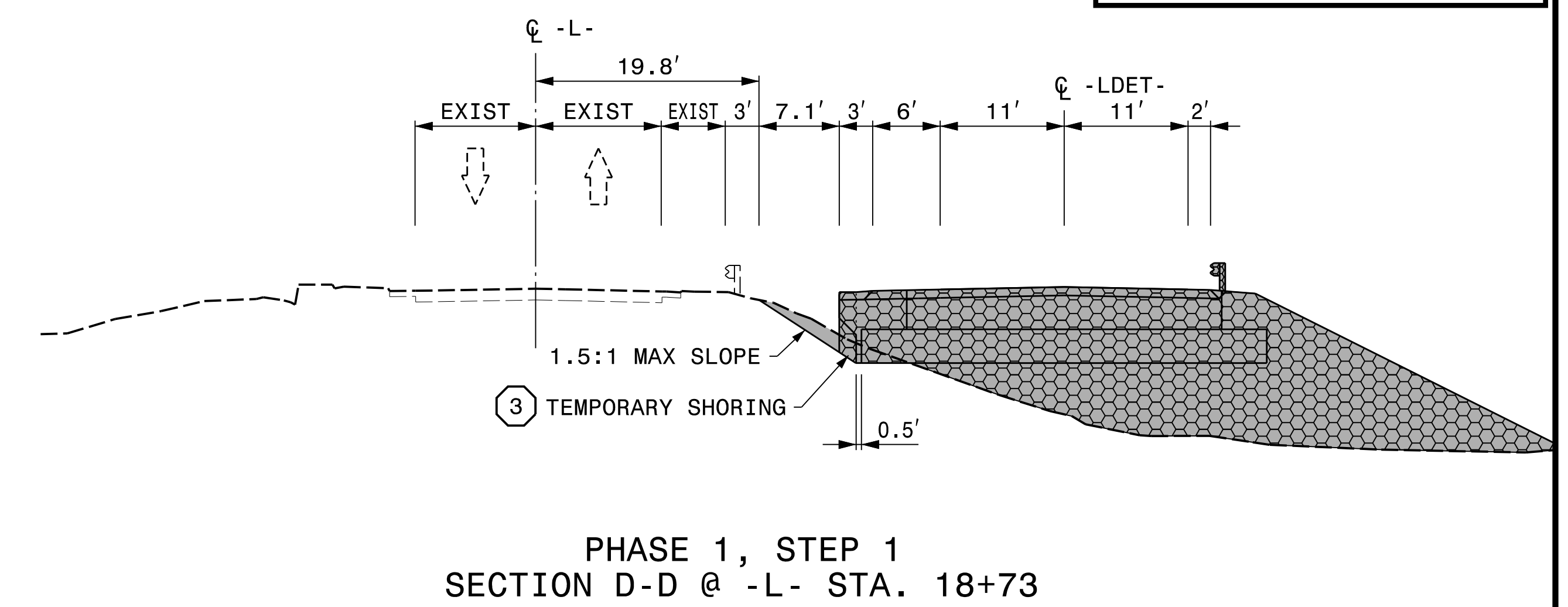
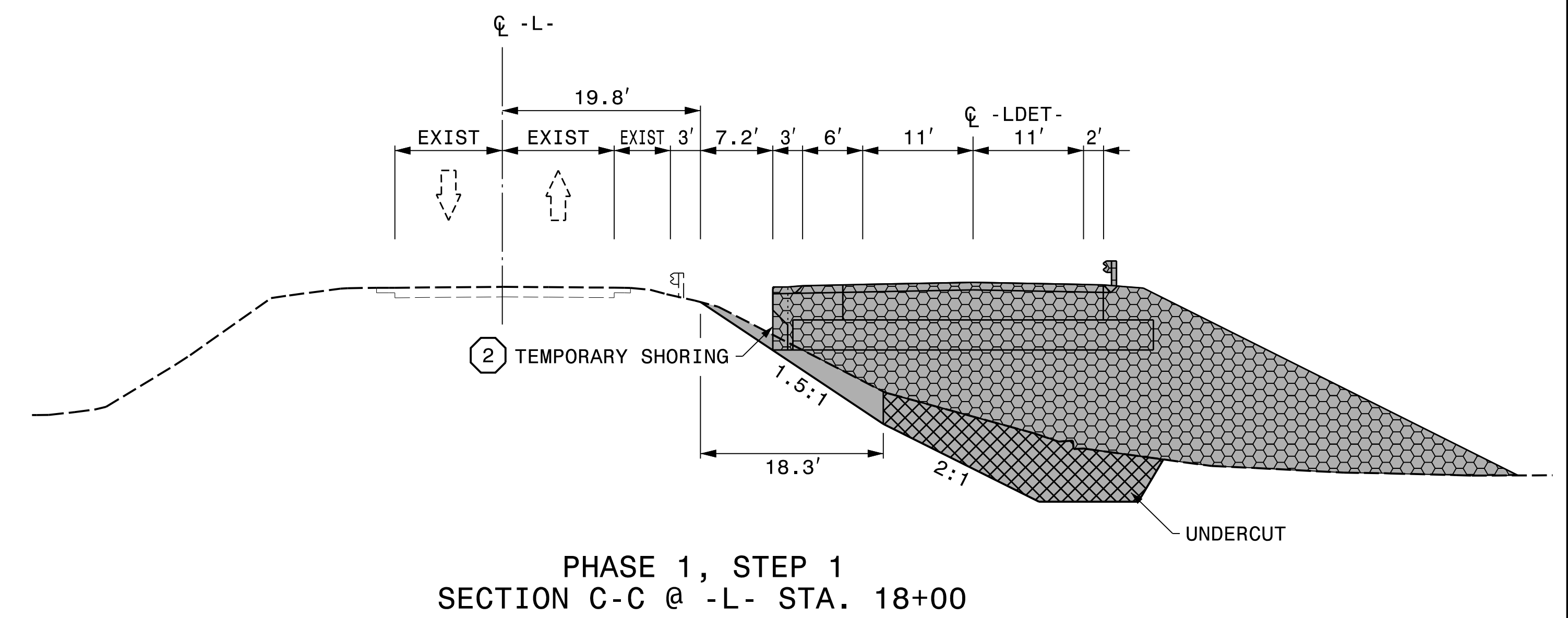


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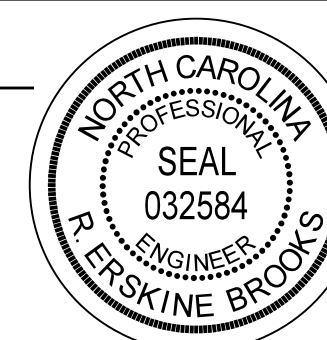
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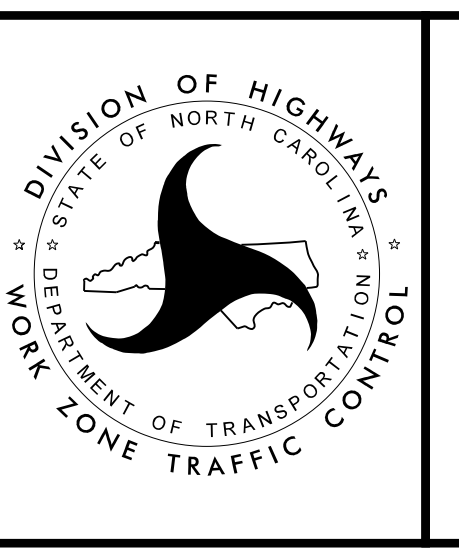


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APPROVED: *P. Erskine Brooks*  
 DATE: 10/30/2017

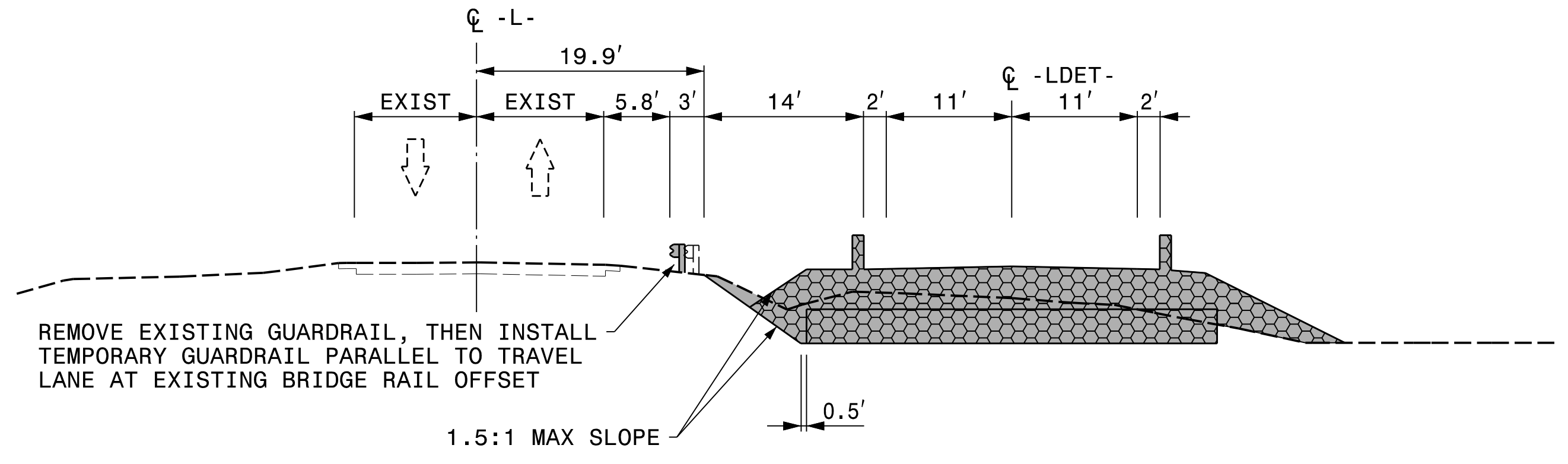


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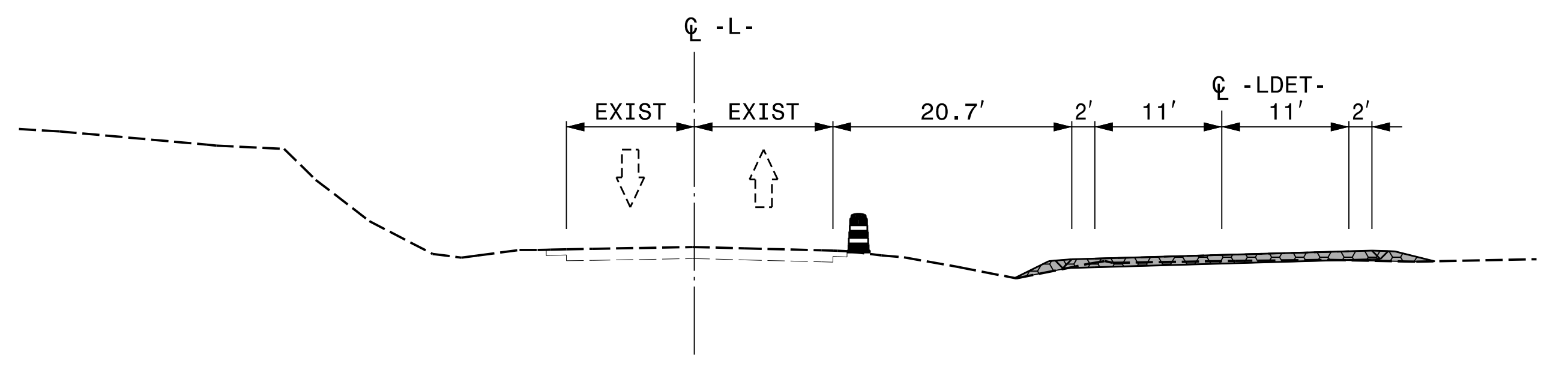
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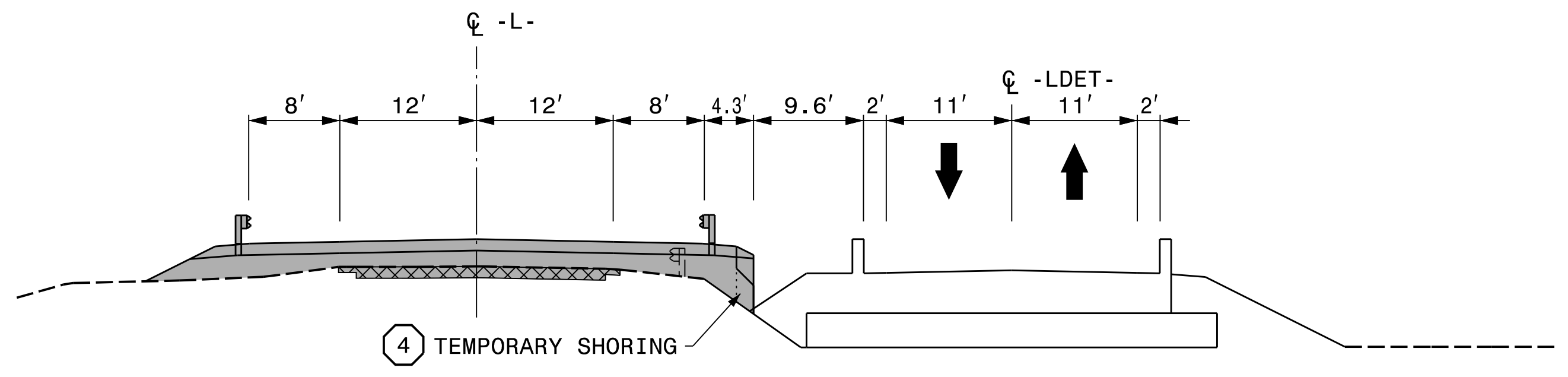


PHASE 1, STEP 1  
SECTION E-E @ -L- STA. 19+77

REMOVE EXISTING GUARDRAIL, THEN INSTALL TEMPORARY GUARDRAIL PARALLEL TO TRAVEL LANE AT EXISTING BRIDGE RAIL OFFSET

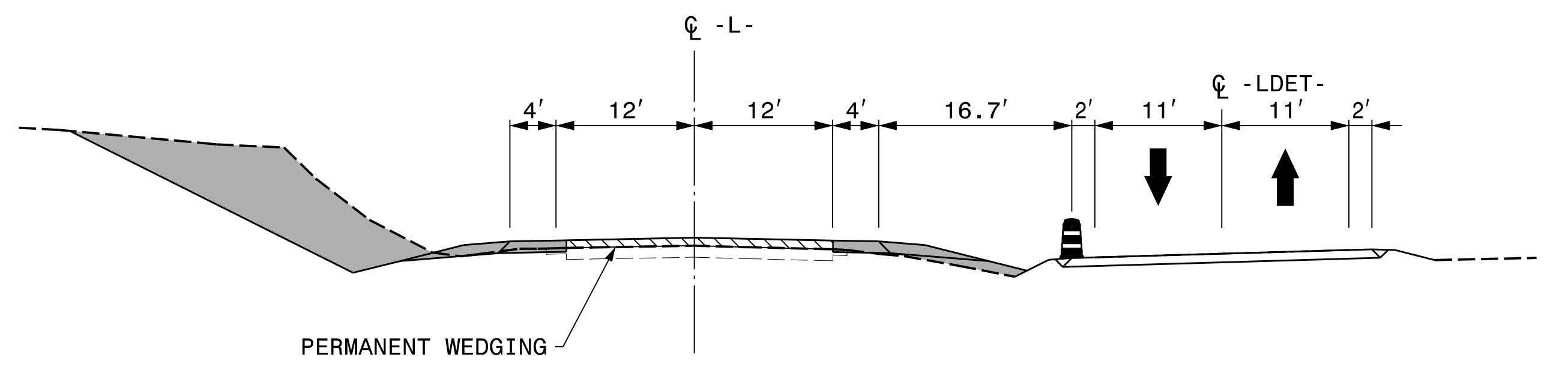


PHASE 1, STEP 1  
SECTION F-F @ -L- STA. 22+00



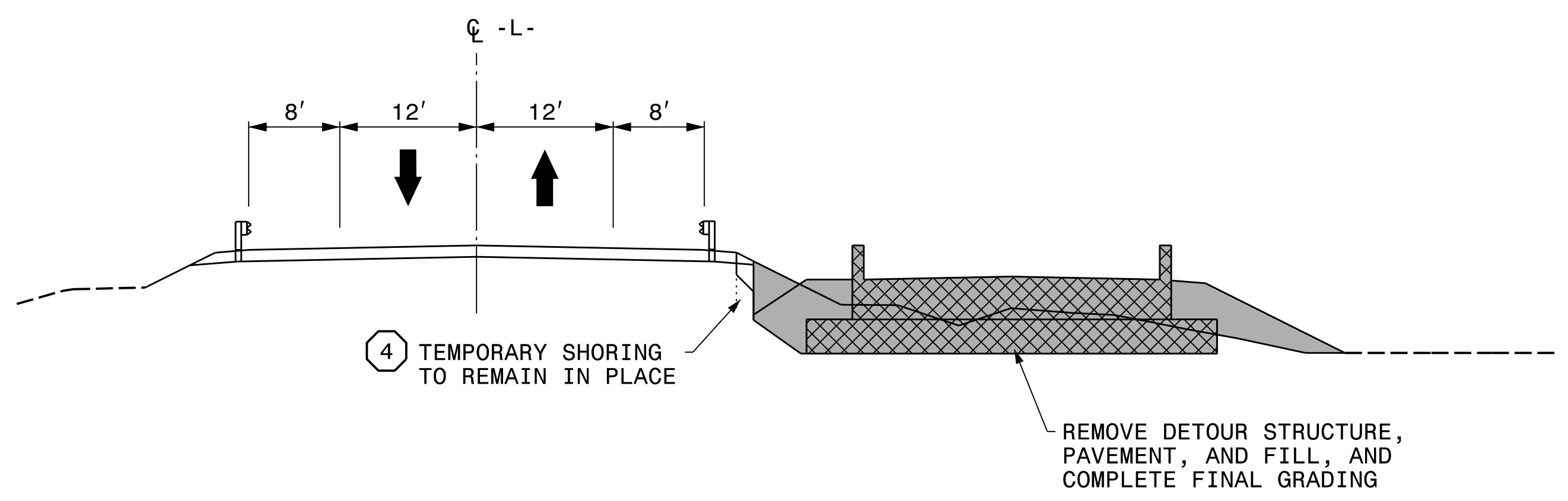
PHASE 2, STEP 1  
SECTION E-E @ -L- STA. 19+77

4 TEMPORARY SHORING



PHASE 2, STEP 1  
SECTION F-F @ -L- STA. 22+00

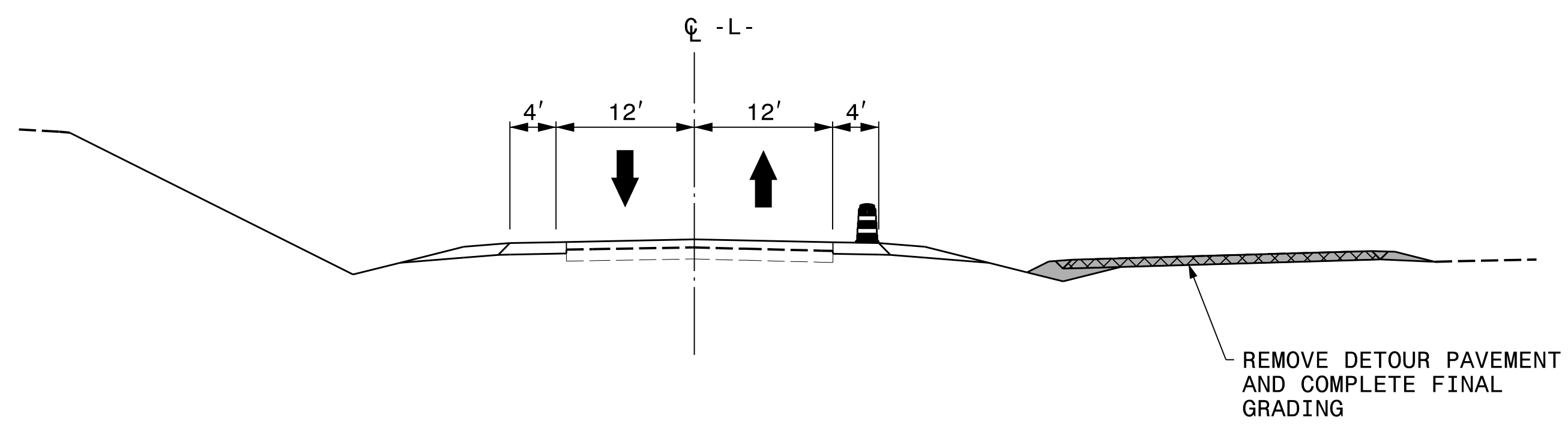
PERMANENT WEDGING



PHASE 3  
SECTION E-E @ -L- STA. 19+77

4 TEMPORARY SHORING TO REMAIN IN PLACE

REMOVE DETOUR STRUCTURE, PAVEMENT, AND FILL, AND COMPLETE FINAL GRADING

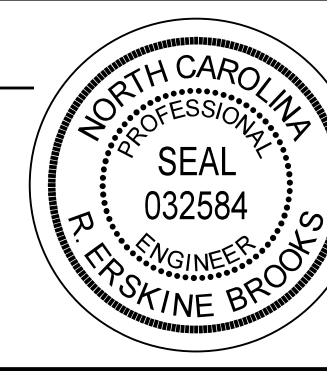


PHASE 3  
SECTION F-F @ -L- STA. 22+00

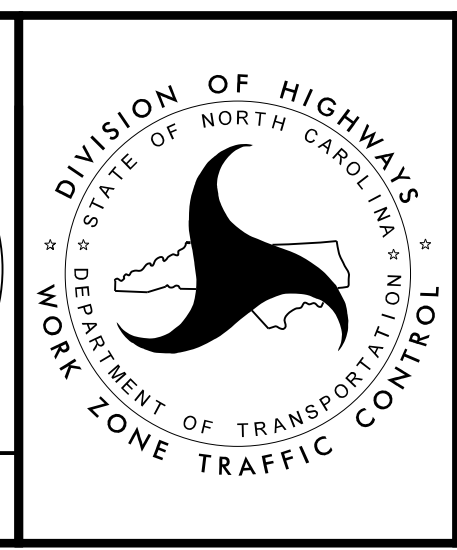
REMOVE DETOUR PAVEMENT AND COMPLETE FINAL GRADING

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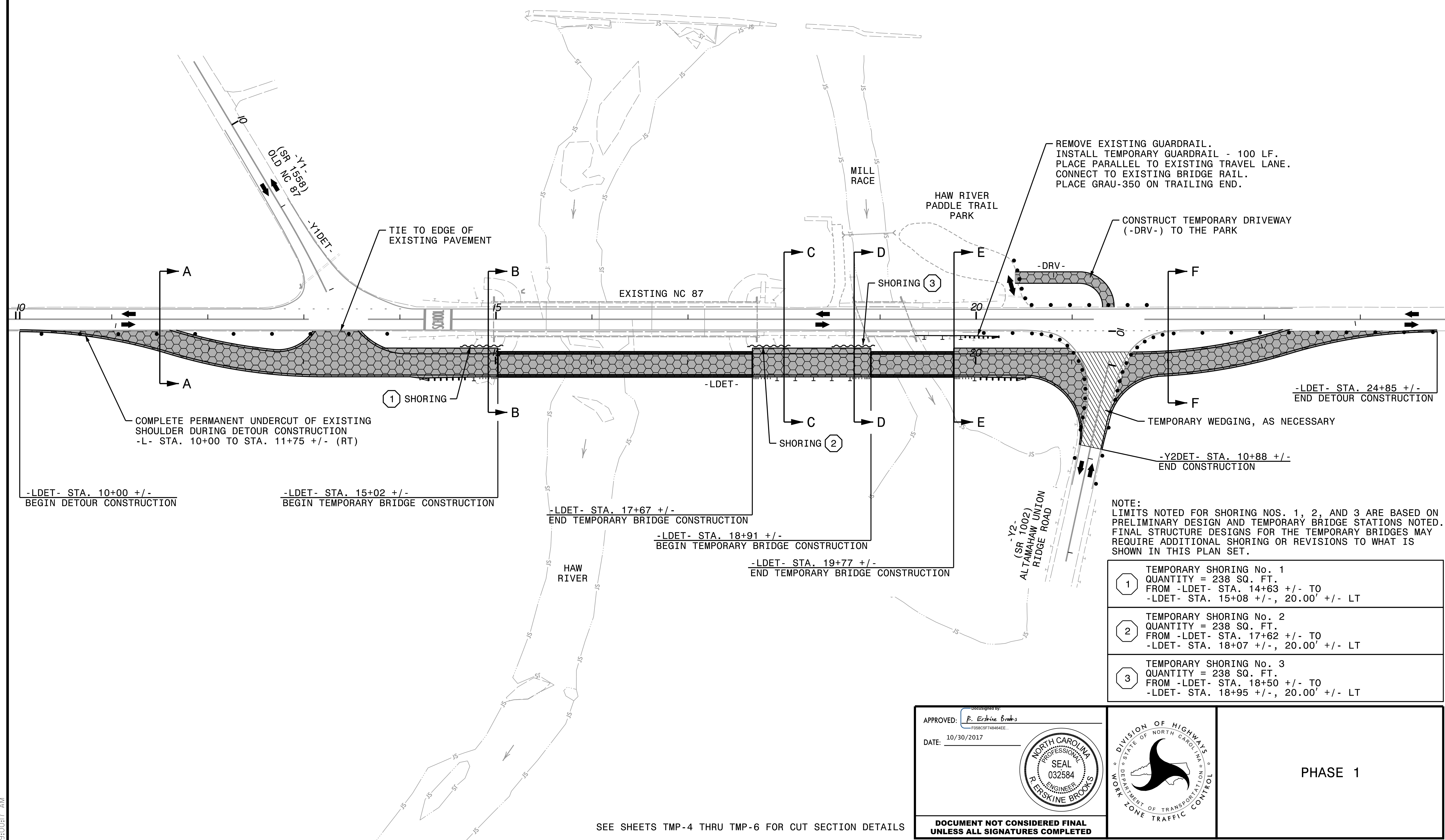
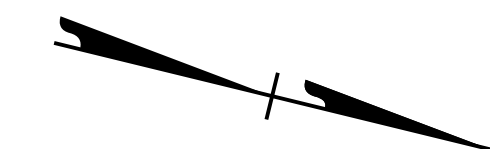
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 DATE: 10/30/2017



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TYPICAL SECTIONS



REMOVE EXISTING GUARDRAIL. INSTALL TEMPORARY GUARDRAIL - 100 LF. PLACE PARALLEL TO EXISTING TRAVEL LANE. CONNECT TO EXISTING BRIDGE RAIL. PLACE GRAU-350 ON TRAILING END.

CONSTRUCT TEMPORARY DRIVEWAY (-DRV-) TO THE PARK

TIE TO EDGE OF EXISTING PAVEMENT

COMPLETE PERMANENT UNDERCUT OF EXISTING SHOULDER DURING DETOUR CONSTRUCTION  
 -L- STA. 10+00 TO STA. 11+75 +/- (RT)

-LDET- STA. 10+00 +/- BEGIN DETOUR CONSTRUCTION

-LDET- STA. 15+02 +/- BEGIN TEMPORARY BRIDGE CONSTRUCTION

-LDET- STA. 17+67 +/- END TEMPORARY BRIDGE CONSTRUCTION

-LDET- STA. 18+91 +/- BEGIN TEMPORARY BRIDGE CONSTRUCTION

-LDET- STA. 19+77 +/- END TEMPORARY BRIDGE CONSTRUCTION

-LDET- STA. 24+85 +/- END DETOUR CONSTRUCTION

TEMPORARY WEDGING, AS NECESSARY

-Y2DET- STA. 10+88 +/- END CONSTRUCTION

NOTE:  
 LIMITS NOTED FOR SHORING NOS. 1, 2, AND 3 ARE BASED ON PRELIMINARY DESIGN AND TEMPORARY BRIDGE STATIONS NOTED. FINAL STRUCTURE DESIGNS FOR THE TEMPORARY BRIDGES MAY REQUIRE ADDITIONAL SHORING OR REVISIONS TO WHAT IS SHOWN IN THIS PLAN SET.

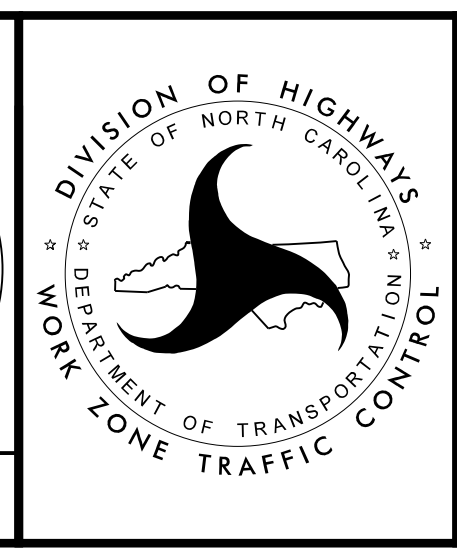
①	TEMPORARY SHORING No. 1 QUANTITY = 238 SQ. FT. FROM -LDET- STA. 14+63 +/- TO -LDET- STA. 15+08 +/-, 20.00' +/- LT
②	TEMPORARY SHORING No. 2 QUANTITY = 238 SQ. FT. FROM -LDET- STA. 17+62 +/- TO -LDET- STA. 18+07 +/-, 20.00' +/- LT
③	TEMPORARY SHORING No. 3 QUANTITY = 238 SQ. FT. FROM -LDET- STA. 18+50 +/- TO -LDET- STA. 18+95 +/-, 20.00' +/- LT

9/21/2017  
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APPROVED: *P. Erskine Brooks*  
 DATE: 10/30/2017

**PROFESSIONAL SEAL**  
 NORTH CAROLINA  
 032584  
 P. ERSKINE BROOKS

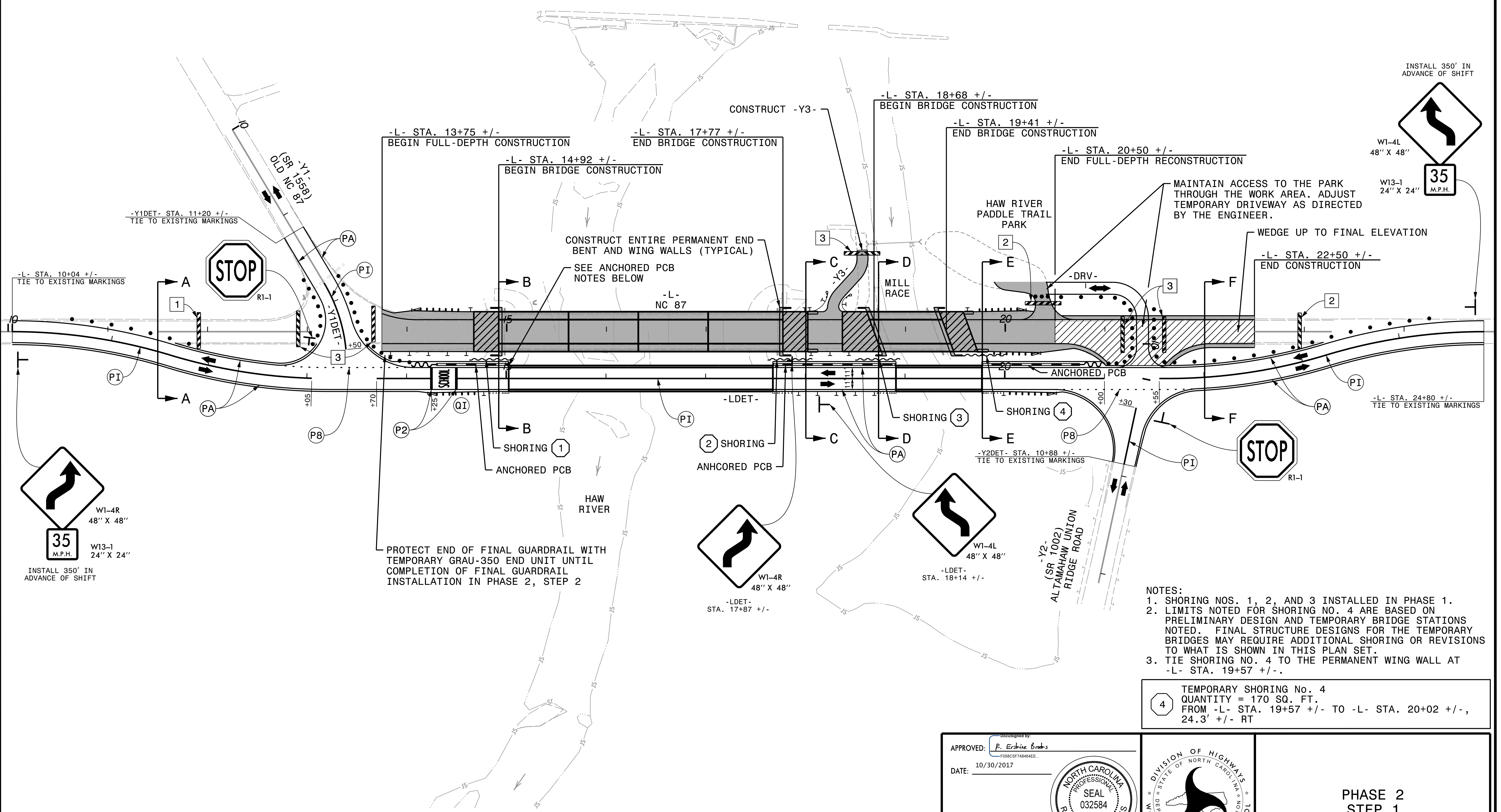
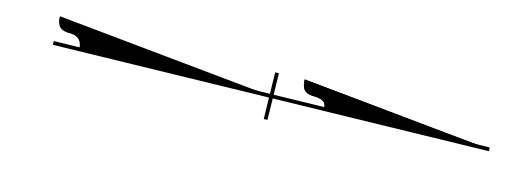
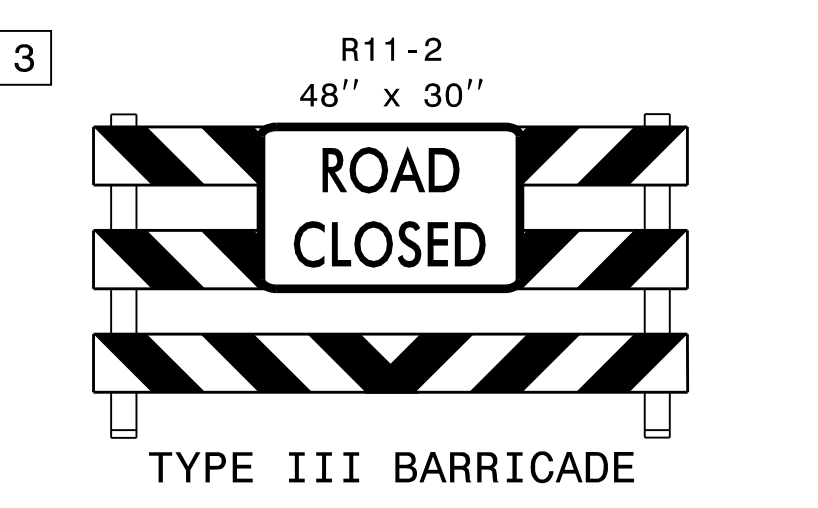
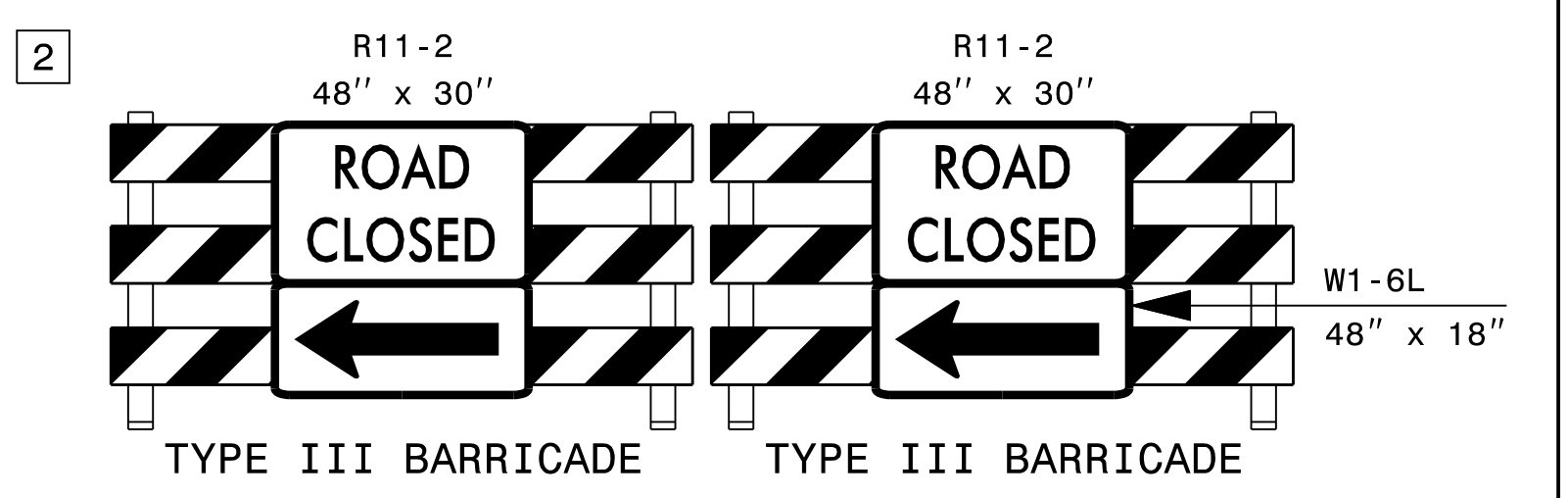
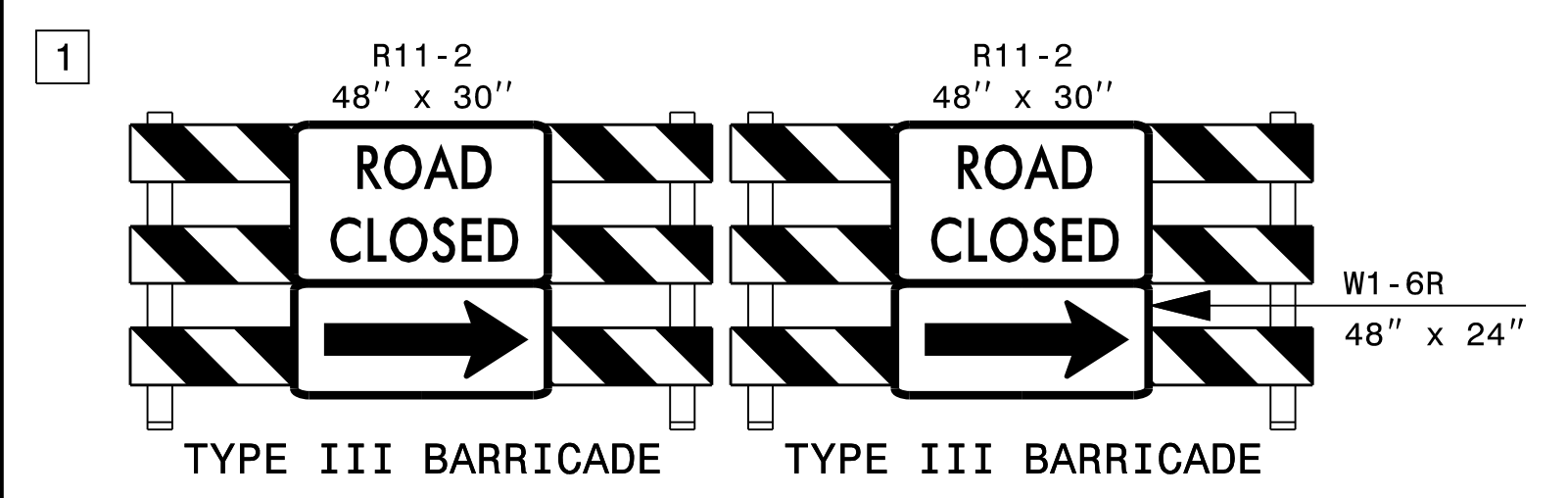
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**PHASE 1**

SEE SHEETS TMP-4 THRU TMP-6 FOR CUT SECTION DETAILS





**ANCHORED BARRIER NOTES:**  
 1. PLACE ANCHORED BARRIER FROM -LDET- STA. 14+30 +/- TO -LDET- STA. 20+75 +/-.  
 2. INSTALL A CRASH CUSHION ON EACH END OF BARRIER.  
 3. TIE ANCHORED BARRIER TO THE TEMPORARY STRUCTURES AT EACH APPROACH.

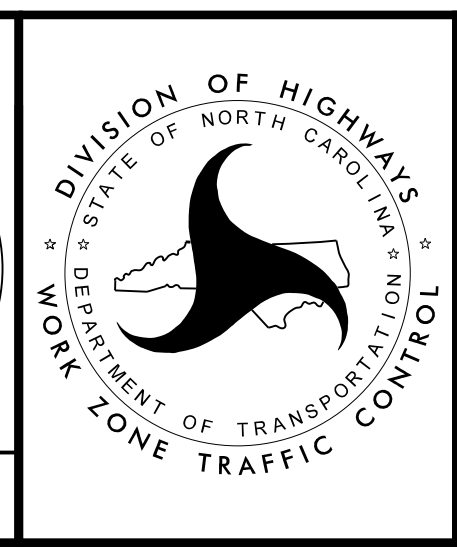
SEE SHEETS TMP-4 THRU TMP-6 FOR CUT SECTION DETAILS

- NOTES:**
- SHORING NOS. 1, 2, AND 3 INSTALLED IN PHASE 1.
  - LIMITS NOTED FOR SHORING NO. 4 ARE BASED ON PRELIMINARY DESIGN AND TEMPORARY BRIDGE STATIONS NOTED. FINAL STRUCTURE DESIGNS FOR THE TEMPORARY BRIDGES MAY REQUIRE ADDITIONAL SHORING OR REVISIONS TO WHAT IS SHOWN IN THIS PLAN SET.
  - TIE SHORING NO. 4 TO THE PERMANENT WING WALL AT -L- STA. 19+57 +/-.
- 4** TEMPORARY SHORING No. 4  
 QUANTITY = 170 SQ. FT.  
 FROM -L- STA. 19+57 +/- TO -L- STA. 20+02 +/-,  
 24.3' +/- RT

APPROVED: *P. Erskine Brooks*  
 DATE: 10/30/2017

**PROFESSIONAL SEAL**  
 P. ERSKINE BROOKS  
 ENGINEER  
 032584

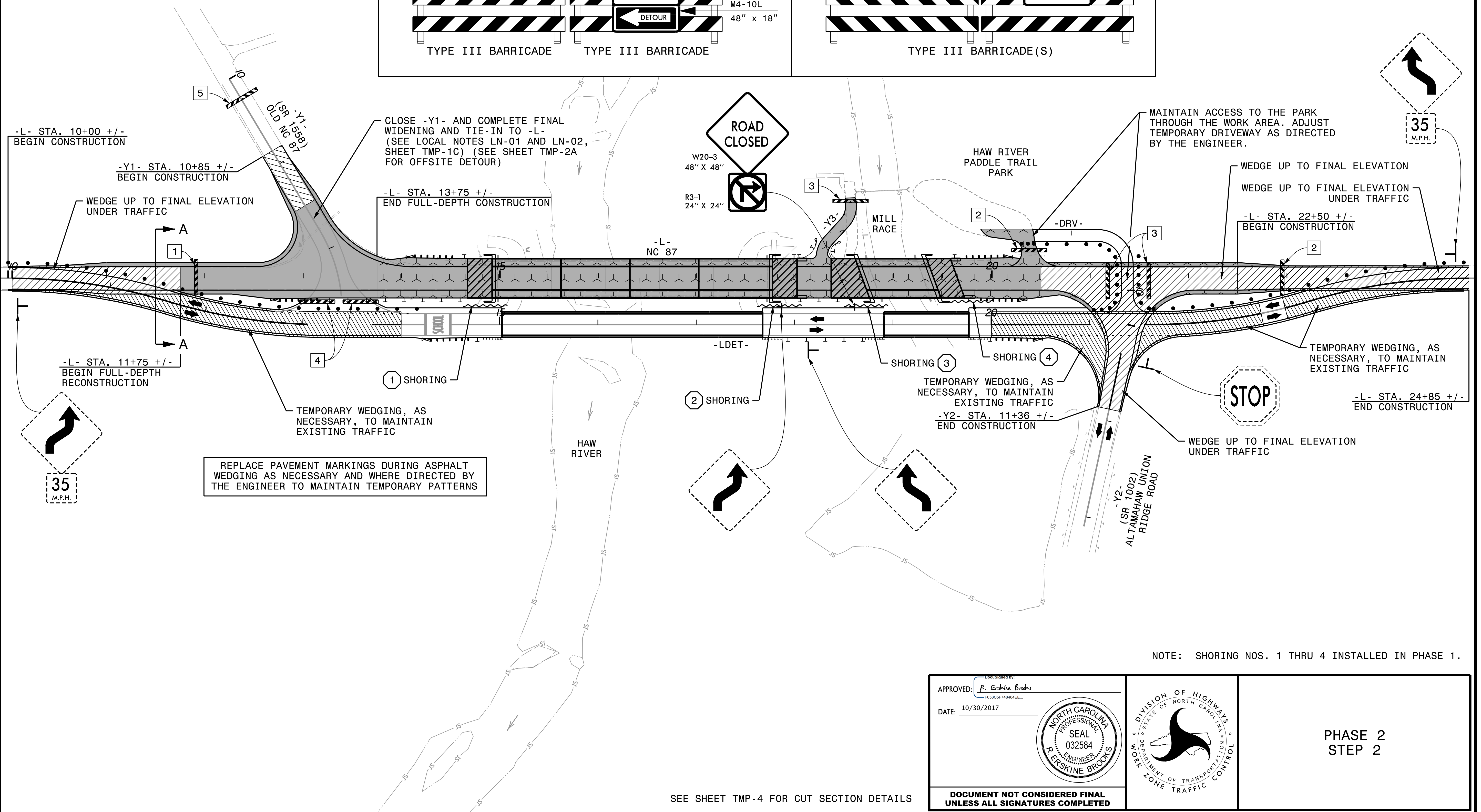
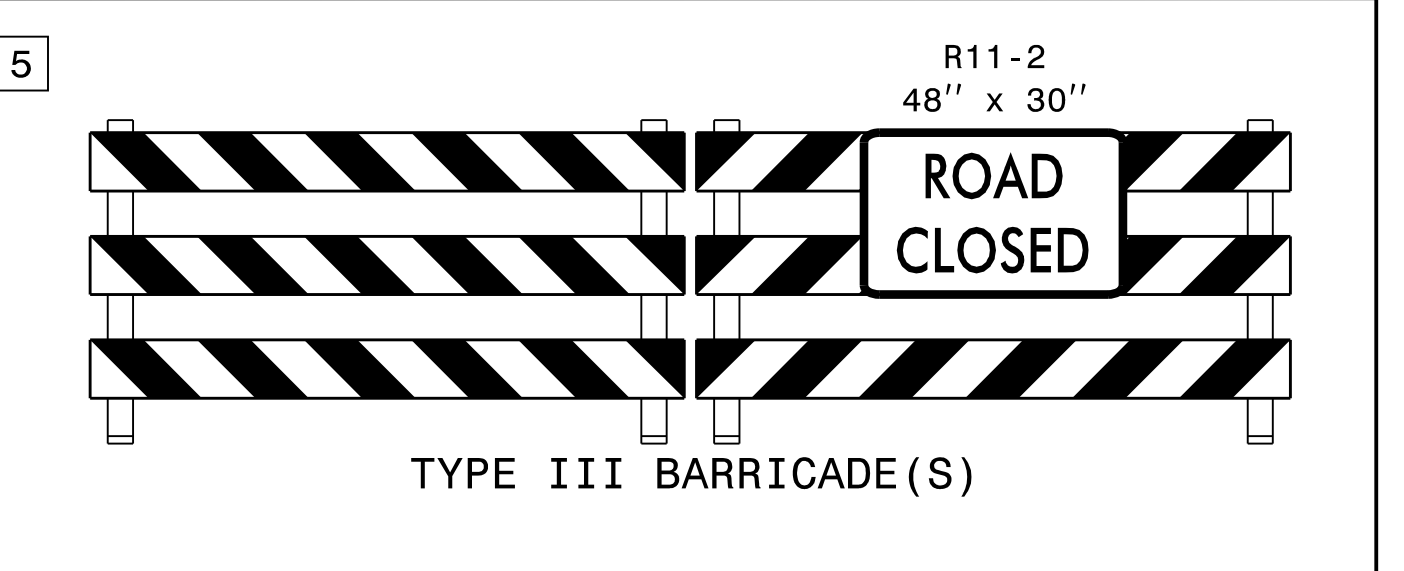
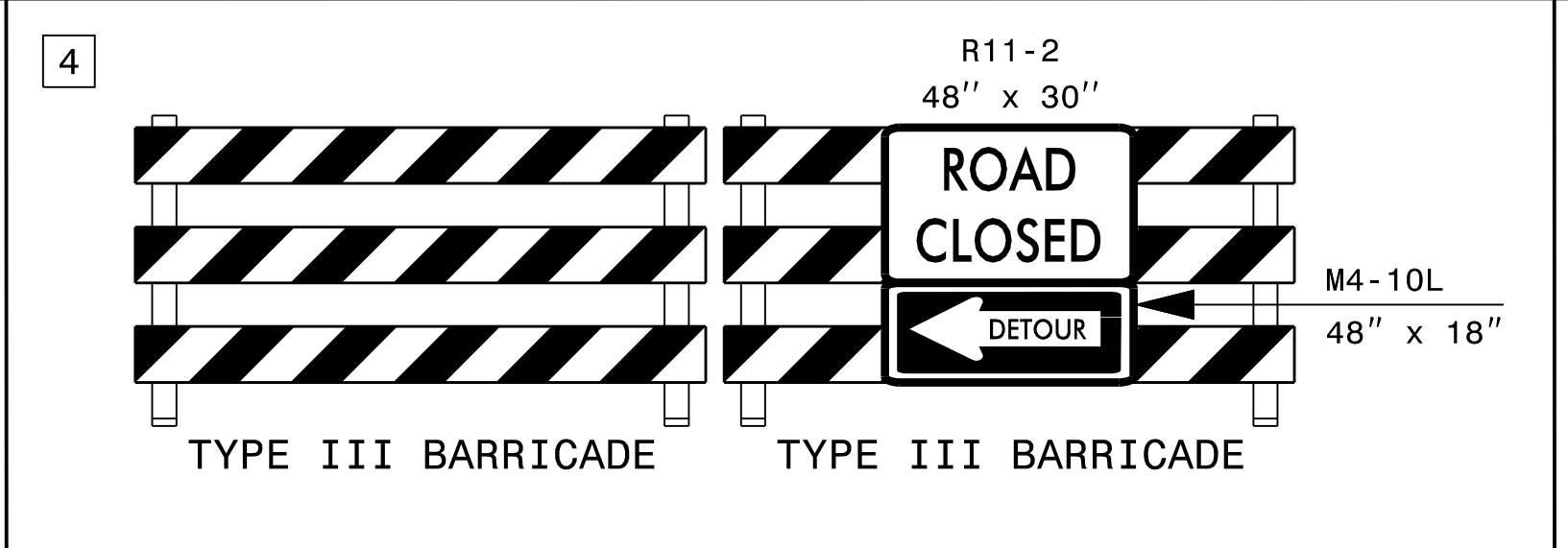
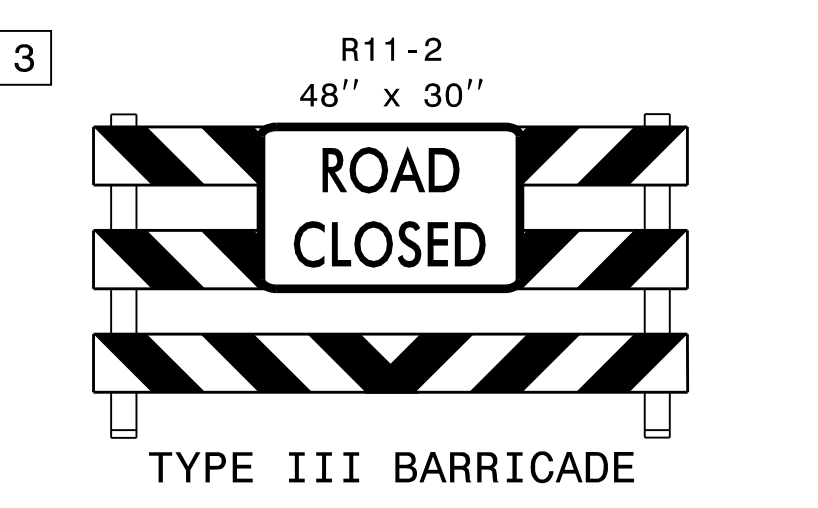
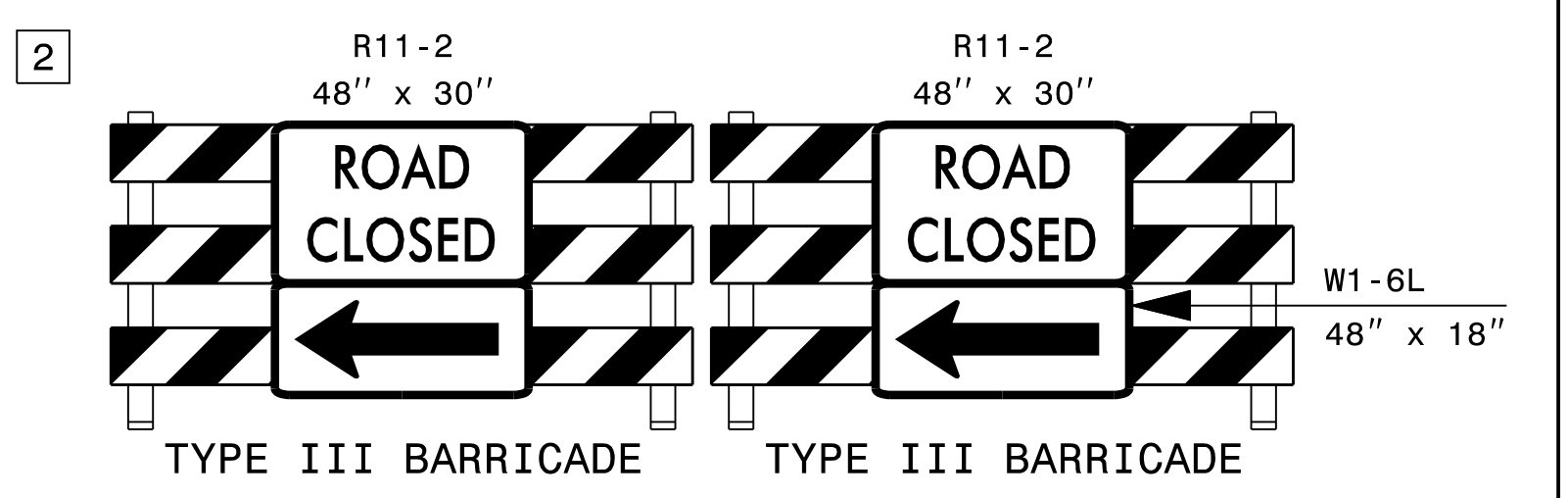
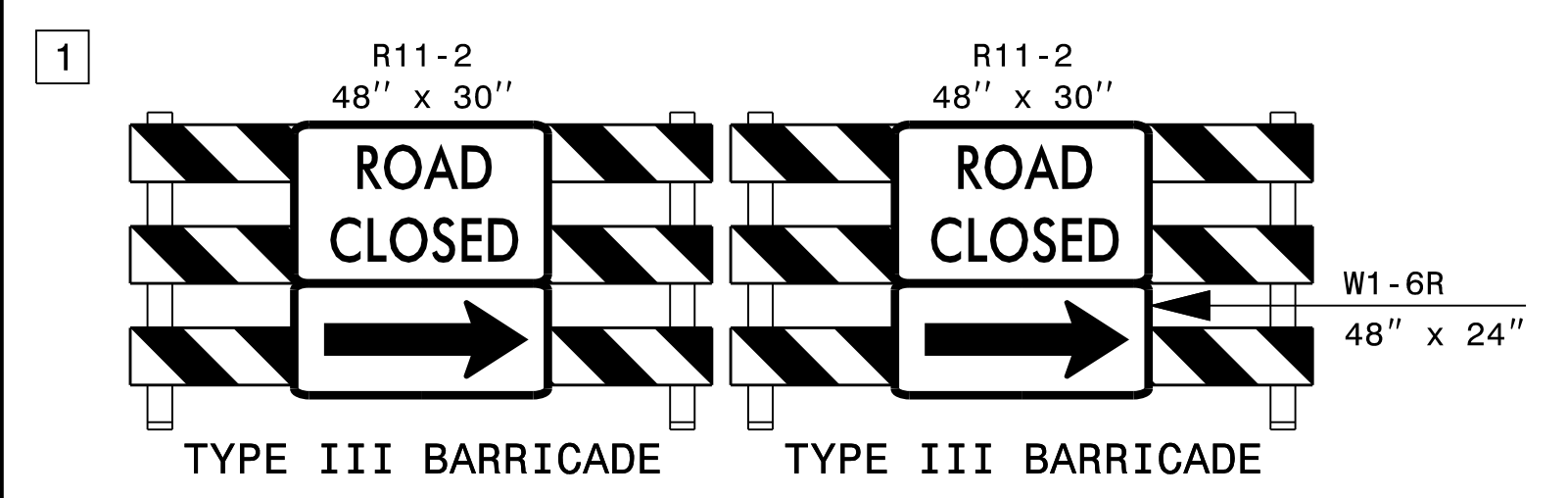
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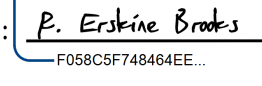
**PHASE 2  
STEP 1**

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NOTE: SHORING NOS. 1 THRU 4 INSTALLED IN PHASE 1.

APPROVED:   
P. Erskine Brooks  
F088CF748484EE

DATE: 10/30/2017



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PHASE 2  
STEP 2

SEE SHEET TMP-4 FOR CUT SECTION DETAILS

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