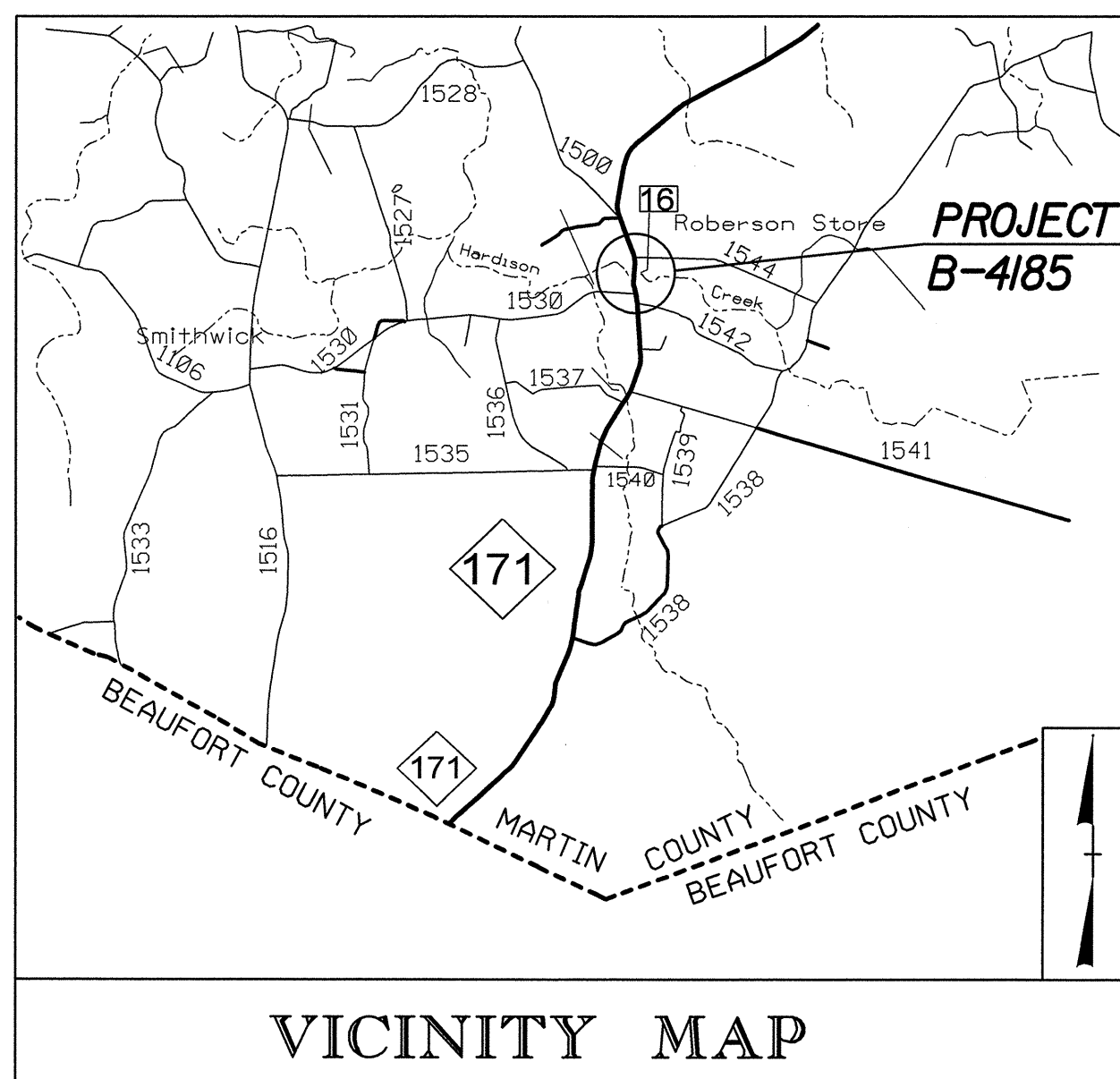


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

MARTIN COUNTY



**LOCATION: BRIDGE NO. 16 OVER HARDISON
MILL CREEK ON NC 171**

**TYPE OF WORK: GRADING, DRAINAGE,
PAVING, AND STRUCTURE**

INDEX OF SHEETS

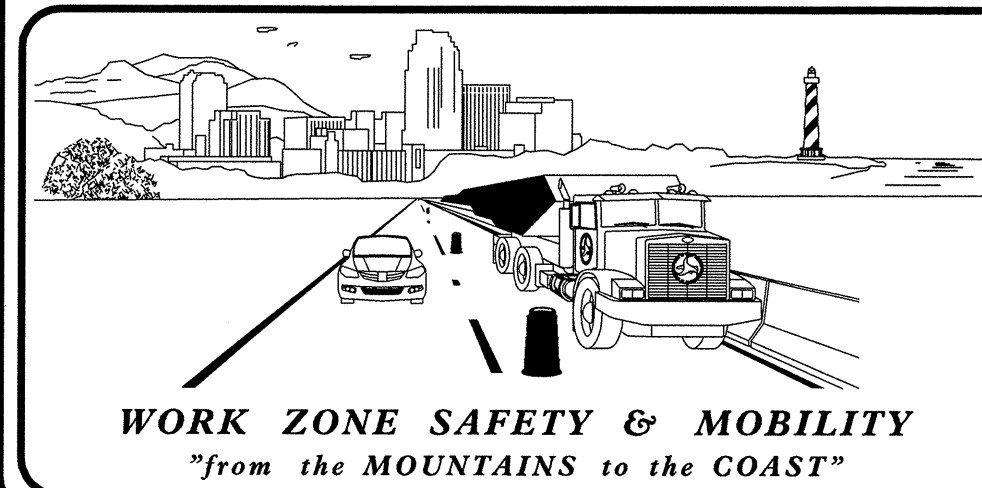
SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND, AND TEMPORARY PAVEMENT MARKING SCHEDULE
TMP-1B	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES AND GENERAL NOTES)
TMP-2	TEMPORARY SHORING DATA
TMP-3	PHASING
TMP-4	PHASE I DETAIL
TMP-5	PHASE II DETAIL

SHEET NO.
TMP-1

B-4185

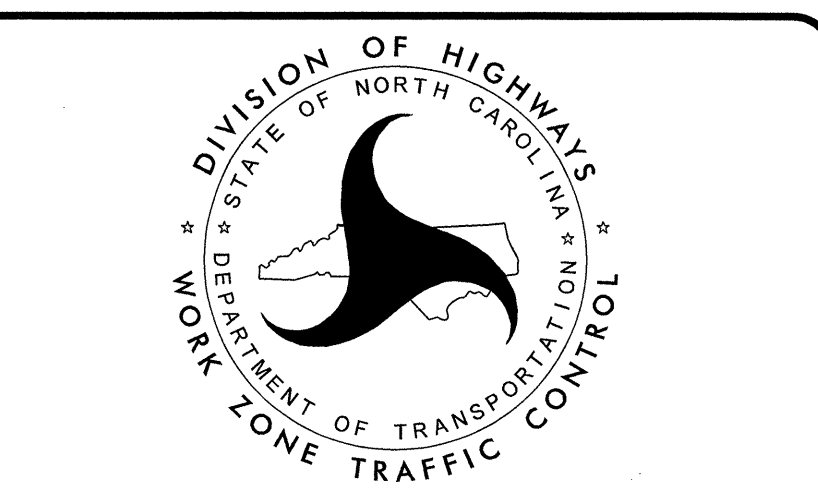
TIP PROJECT:

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\$\$\$\$\$USERNAME\$\$\$\$\$



N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
PHONE: (919) 773-2800 FAX: (919) 771-2745

J. S. BOURNE, P.E. STATE TRAFFIC MANAGEMENT ENGINEER
J. S. KITE, P.E. TRAFFIC CONTROL PROJECT ENGINEER
D. W. BISSETTE, P.E. TRAFFIC CONTROL PROJECT DESIGN ENGINEER
D. W. BISSETTE, P.E. TRAFFIC CONTROL DESIGN ENGINEER



Prepared in the Office of:
SEPI ENGINEERING & CONSTRUCTION
1025 Wade Avenue
Raleigh, NC 27605
Tel: 919-789-9977
Fax: 919-789-9591
License: C-2197

APPROVED: *Steve Miller*
DATE: 1-31-13

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 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 - TYPE III
1150.01	FLAGGING DEVICES
1180.01	SKINNY - DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- WORK AREA
- REMOVAL
- USER DEFINED (IF NEEDED)
- USER DEFINED (IF NEEDED)

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

SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

PAVEMENT MARKERS

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

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

TEMPORARY PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION
TEMPORARY PAVEMENT MARKINGS	
PAINT (4")	
PA	WHITE EDGELINE
PI	YELLOW DOUBLE CENTER
MARKERS	
TEMPORARY RAISED PAVEMENT MARKERS	
MH	YELLOW & YELLOW

\$\$\$\$\$SYTIME\$\$\$\$\$
\$\$\$\$\$SECTION\$\$\$\$\$
\$\$\$\$\$USERNAME\$\$\$\$\$

APPROVED:	DATE: 1-31-13		ROADWAY STANDARD DRAWINGS & LEGEND

MANAGEMENT STRATEGIES

- TRAFFIC WILL BE MAINTAINED ON THE EXISTING ALIGNMENT DURING CONSTRUCTION OF THE NEW ALIGNMENT
- LANE CLOSURES WILL BE USED TO MAINTAIN TRAFFIC DURING TIE-IN OPERATIONS
- DRIVEWAY ACCESS WITHIN PROJECT LIMITS WILL BE MAINTAINED

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 UNDESIRE 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.

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 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.
- C) 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.
- D) 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.
- E) 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.

PAVEMENT EDGE DROP OFF REQUIREMENTS

- F) 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.

- G) 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 OF THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

- I) INSTALL ADVANCE WORK ZONE WARNING SIGNS NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- J) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.
- K) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC CONTROL DEVICES

- L) 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 (DRUM), 1135 (CONES) AND 1180 (SKINNY-DRUM) FOR ADDITIONAL REQUIREMENTS.

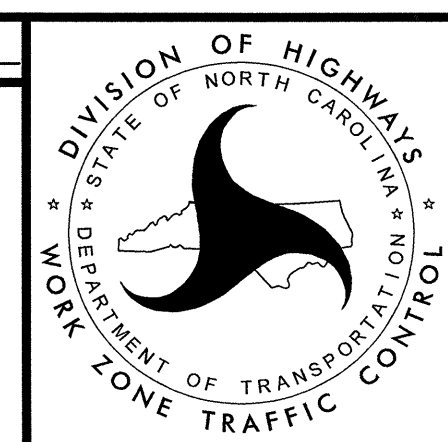
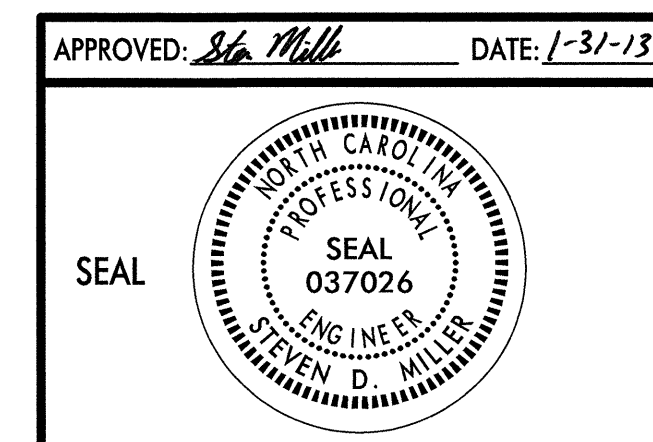
PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING	MARKER
NC 171	PAINT	TEMPORARY RAISED

- N) 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.
- O) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- P) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

\$\$\$SYTIME\$\$\$
 \$\$\$DCN\$\$\$
 \$\$\$USERNAM\$\$\$



**TRANSPORTATION
OPERATIONS
PLAN**

TEMPORARY SHORING NO. 1

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

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

DESIGN TEMPORARY SHORING FROM STA. 15+78± -L-, 25.3 FT (RT) TO STA. 16+19± -L-, 29.5 FT (RT), FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 LB/CF
 FRICTION ANGLE, (ϕ) = 30 DEGREES
 COHESION (c) = 0 LB/SF
 GROUNDWATER ELEVATION = 21.0 FT±

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STA. 15+78± -L-, 25.3 FT (RT) TO STA. 16+19± -L-, 29.5 FT (RT). THE INFORMATION PROVIDED FOR TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STA. 15+78± -L-, 25.3 FT (RT) TO STA. 16+19± -L-, 29.5 FT (RT).

AT CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STA. 15+78± -L-, 25.3 FT (RT) TO STA. 16+19± -L-, 29.5 FT (RT), WHERE APPLICABLE. SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

TEMPORARY SHORING NO.2

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

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

DESIGN TEMPORARY SHORING FROM STA. 17+18± -L-, 28.0 FT (RT), TO STA. 17+63± -L-, 28.0 FT (RT), FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 LB/CF
 FRICTION ANGLE, (ϕ) = 30 DEGREES
 COHESION (c) = 0 LB/SF
 GROUNDWATER ELEVATION = 20.0 FT±

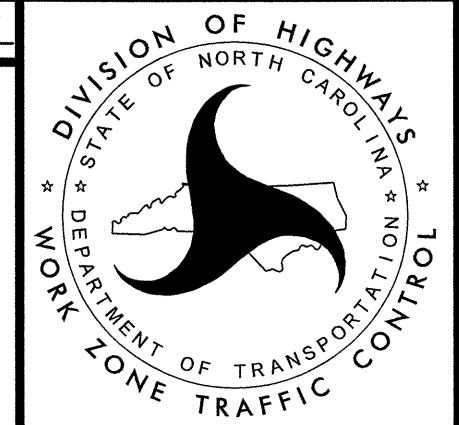

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STA. 17+18± -L-, 28.0 FT (RT), TO STA. 17+63± -L-, 28.0 FT (RT). THE INFORMATION PROVIDED FOR TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STA. 17+18± -L-, 28.0 FT (RT), TO STA. 17+63± -L-, 28.0 FT (RT).

AT CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STA. 17+18± -L-, 28.0 FT (RT), TO STA. 17+63± -L-, 28.0 FT (RT), WHERE APPLICABLE. SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

\$\$\$ SUSTAINABLE \$\$\$
 \$\$\$ GREEN \$\$\$
 \$\$\$ CONSTRUCTION \$\$\$
 \$\$\$ DESIGN \$\$\$
 \$\$\$ ENGINEERING \$\$\$

"THE TEMPORARY SHORING NOTES SHOWN ON THIS SHEET WERE PROVIDED THROUGH A SEALED DOCUMENT FROM THE GEOTECHNICAL ENGINEERING UNIT. THE DOCUMENT WAS SUBMITTED TO THE WZTC SECTION ON DECEMBER 10, 2012 AND SEALED BY A PROFESSIONAL ENGINEER, JINYOUNG PARK, LICENSE # 32171".

APPROVED: <i>Jim Mills</i> DATE: 1-31-13		<p>TEMPORARY SHORING DATA</p>
		

PHASING

MAINTAIN DRIVEWAY ACCESS THROUGHOUT THE ENTIRE PROJECT.

PHASE I

STEP 1: USING ROADWAY STANDARD DRAWING (RSD) 1101.01 SHEET 3 OF 3, INSTALL ADVANCE WARNING SIGNS ON NC 171.

STEP 2: PLACE TRAFFIC CONTROL DEVICES AS SHOWN ON TMP-4.

STEP 3: USING RSD 1101.02 SHEET 1 OF 15 INSTALL LANE CLOSURES AS NECESSARY, BEGIN CONSTRUCTION OF THE PROPOSED ROADWAY SHOWN ON TMP-4 FROM STA 12+00 TO STA 23+75 UP TO BUT NOT INCLUDING THE FINAL SURFACE LAYER. ENSURE THAT RUNOFF DRAINS AND THAT PONDING IS PREVENTED. REMOVE EXISTING GUARDRAIL PORTIONS THAT CONFLICT WITH CONSTRUCTION AND INSTALL TEMPORARY ANCHOR UNITS GRAU-350. DO NOT INSTALL THE PROPOSED GUARDRAIL PORTION RIGHT OF -L- FROM STATION 13+75± TO 15+65±.

STEP 4: INSTALL TEMPORARY SHORING LOCATION 1 FROM -L- STA 15+75±, 25.3 FT RIGHT TO 16+10± 29.5 FT RIGHT AND TEMPORARY SHORING LOCATION 2 FROM -L- STA 17+35±, 28 FT RIGHT TO 17+75± 28 FT RIGHT.

STEP 5: CONSTRUCT THE PROPOSED STRUCTURE.

STEP 6: COMPLETE CONSTRUCTION OF THE ROADWAY SECTIONS SHOWN ON TMP-4 FROM STA 12+00 TO STA 23+75 UP TO BUT NOT INCLUDING THE FINAL SURFACE LAYER.

STEP 7: USING RSD 1101.02 SHEET 1 OF 15 INSTALL LANE CLOSURES AS NECESSARY, PERFORM THE FOLLOWING IN A CONTINUOUS MANNER:
 -CONSTRUCT A TIE IN FROM THE EXISTING ROADWAY TO THE NEW ALIGNMENT AS SHOWN ON TMP-5 USING WEDGING AS NECESSARY.
 -PLACE TEMPORARY PAVEMENT MARKINGS AS SHOWN ON TMP-5 AND IN ACCORDANCE WITH THE TEMPORARY PAVEMENT MARKING SCHEDULE ON TMP-1A. REMOVE CONFLICTING MARKINGS. PLACE TEMPORARY MARKERS IN ACCORDANCE WITH RSD 1250.01.
 -PLACE TRAFFIC CONTROL DEVICES AS SHOWN ON TMP-5.
 -SHIFT TRAFFIC TO A 1-LANE, 2-WAY PATTERN ON THE LEFT SIDE OF THE NEW ALIGNMENT.
 -COMPLETE GUARDRAIL INSTALLATION RIGHT OF -L- FROM STATION 13+75± TO 15+65±.
 -RETURN TRAFFIC TO A TWO-LANE, TWO-WAY PATTERN ON THE NEW ALIGNMENT BY END OF WORK DAY.


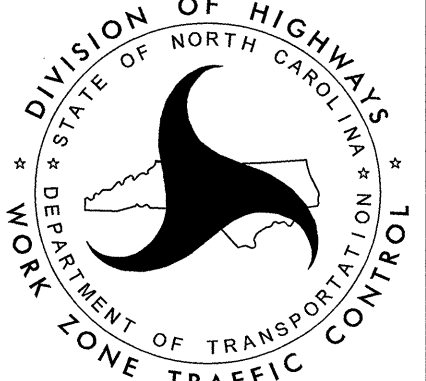
PHASE II

STEP 1: WHILE MAINTAINING TRAFFIC ON THE NEW ALIGNMENT AND USING RSD 1101.02 SHEET 1 OF 15 AND FLAGGERS AS NECESSARY, REMOVE THE EXISTING STRUCTURE AND REMOVE EXISTING PAVEMENT AS INDICATED IN THE ROADWAY PLANS. REMOVE TEMPORARY SHORING. COMPLETE ALL ROADWAY CONSTRUCTION UP TO BUT NOT INCLUDING THE FINAL SURFACE LAYER.

STEP 2: USING RSD 1101.02 SHEET 1 OF 15 AND FLAGGERS AS NECESSARY, PLACE THE FINAL SURFACE LAYER AND FINAL PAVEMENT MARKINGS AS SHOWN ON THE PAVEMENT MARKING PLANS.

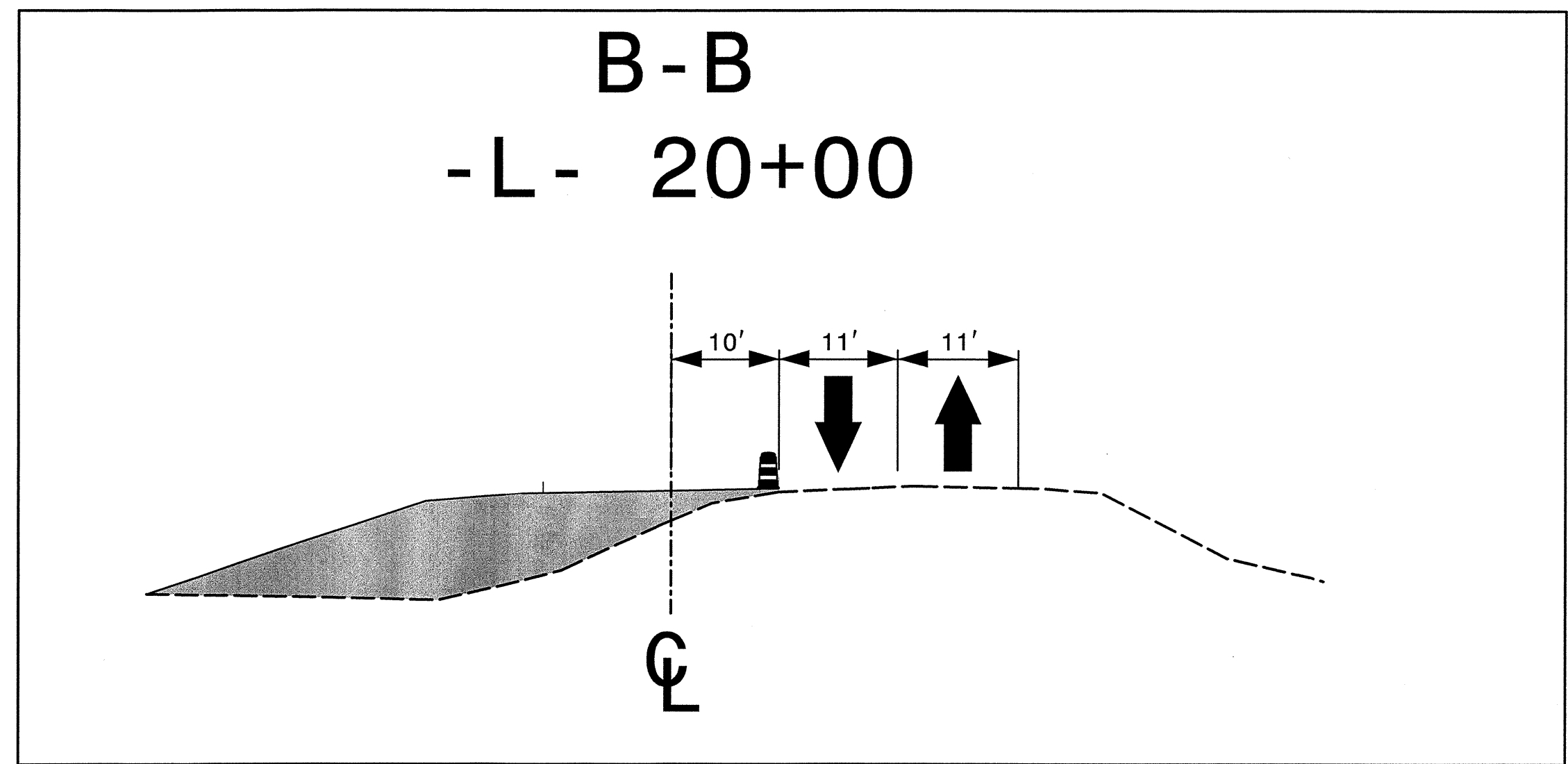
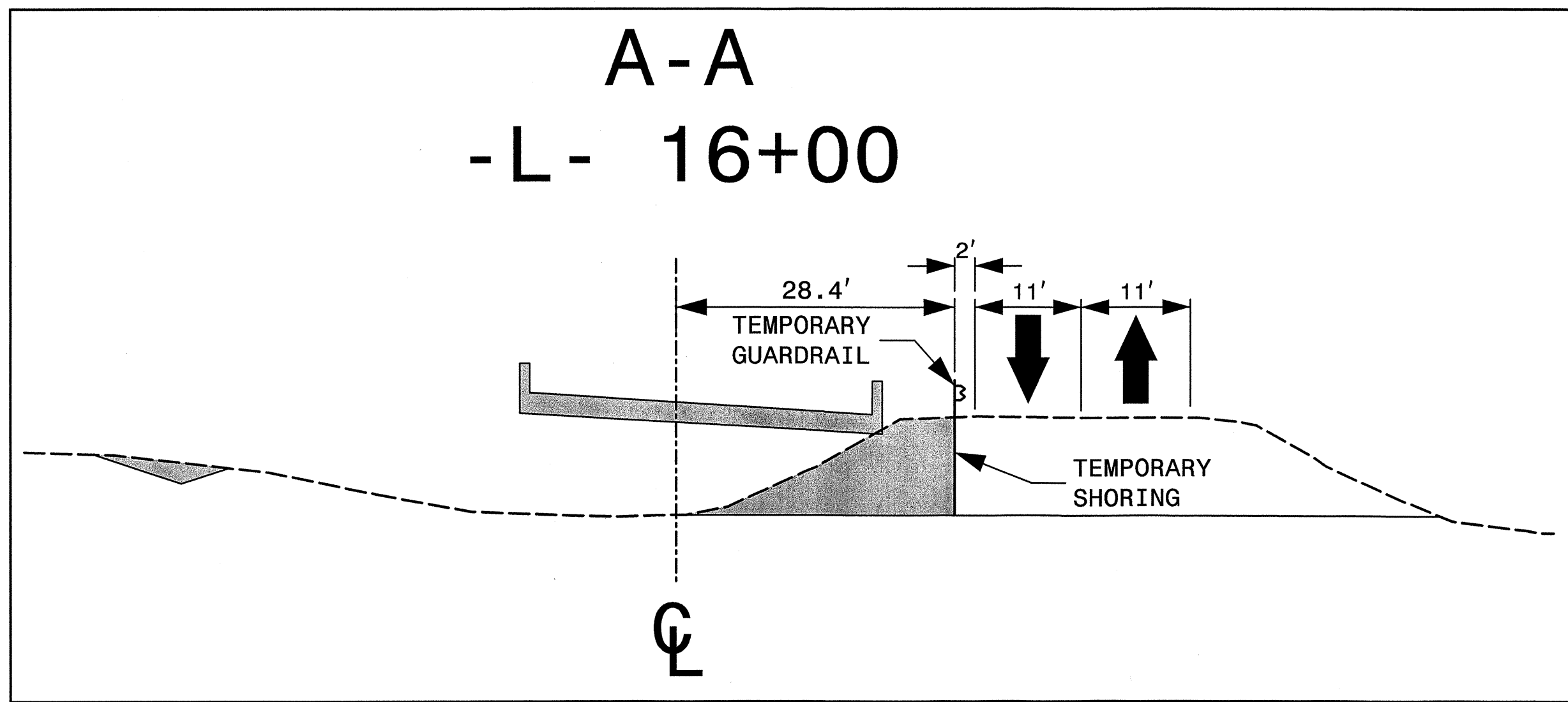
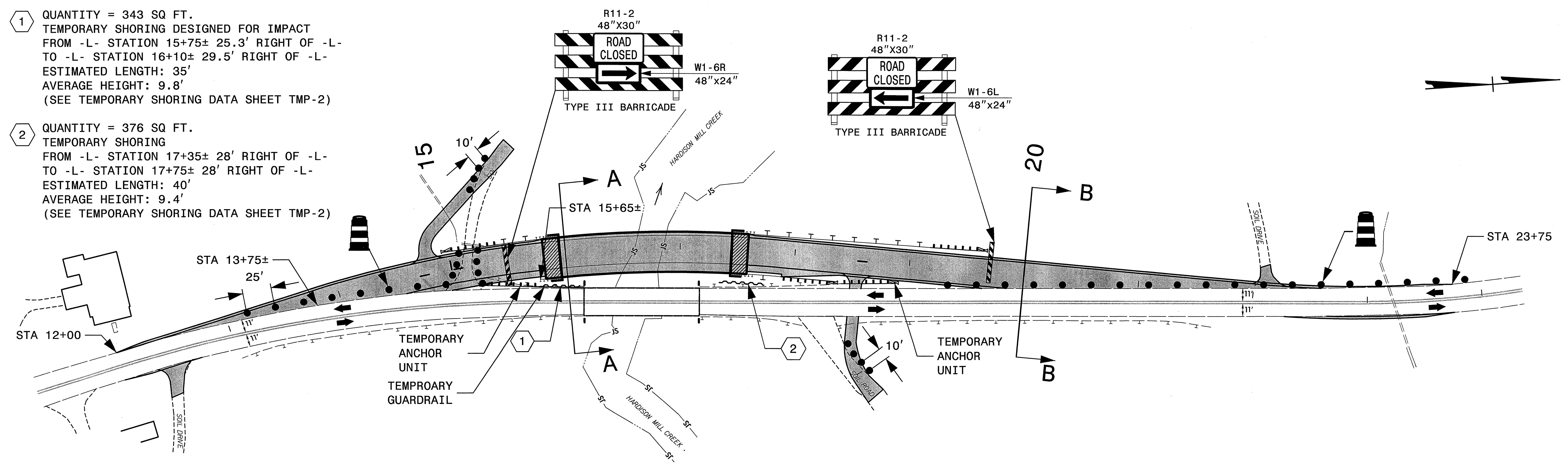
STEP 3: REMOVE ALL TRAFFIC CONTROL DEVICES.

\$\$\$SYSTIME\$\$\$\$
 \$\$\$EDON\$\$\$\$
 \$\$\$SERNAME\$\$\$\$

APPROVED: <i>St. Miller</i> DATE: 1-31-13			<h1 style="margin: 0;">PHASING</h1>
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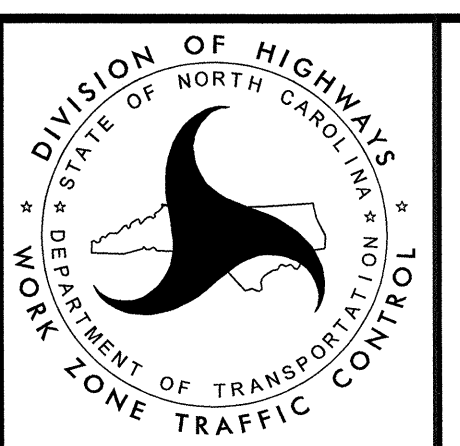
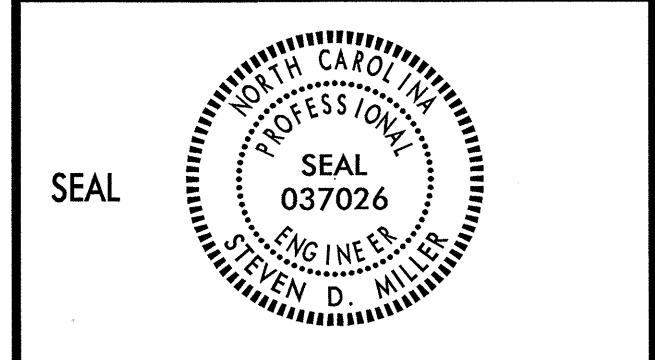
1 QUANTITY = 343 SQ FT.
 TEMPORARY SHORING DESIGNED FOR IMPACT
 FROM -L- STATION 15+75± 25.3' RIGHT OF -L-
 TO -L- STATION 16+10± 29.5' RIGHT OF -L-
 ESTIMATED LENGTH: 35'
 AVERAGE HEIGHT: 9.8'
 (SEE TEMPORARY SHORING DATA SHEET TMP-2)

2 QUANTITY = 376 SQ FT.
 TEMPORARY SHORING
 FROM -L- STATION 17+35± 28' RIGHT OF -L-
 TO -L- STATION 17+75± 28' RIGHT OF -L-
 ESTIMATED LENGTH: 40'
 AVERAGE HEIGHT: 9.4'
 (SEE TEMPORARY SHORING DATA SHEET TMP-2)

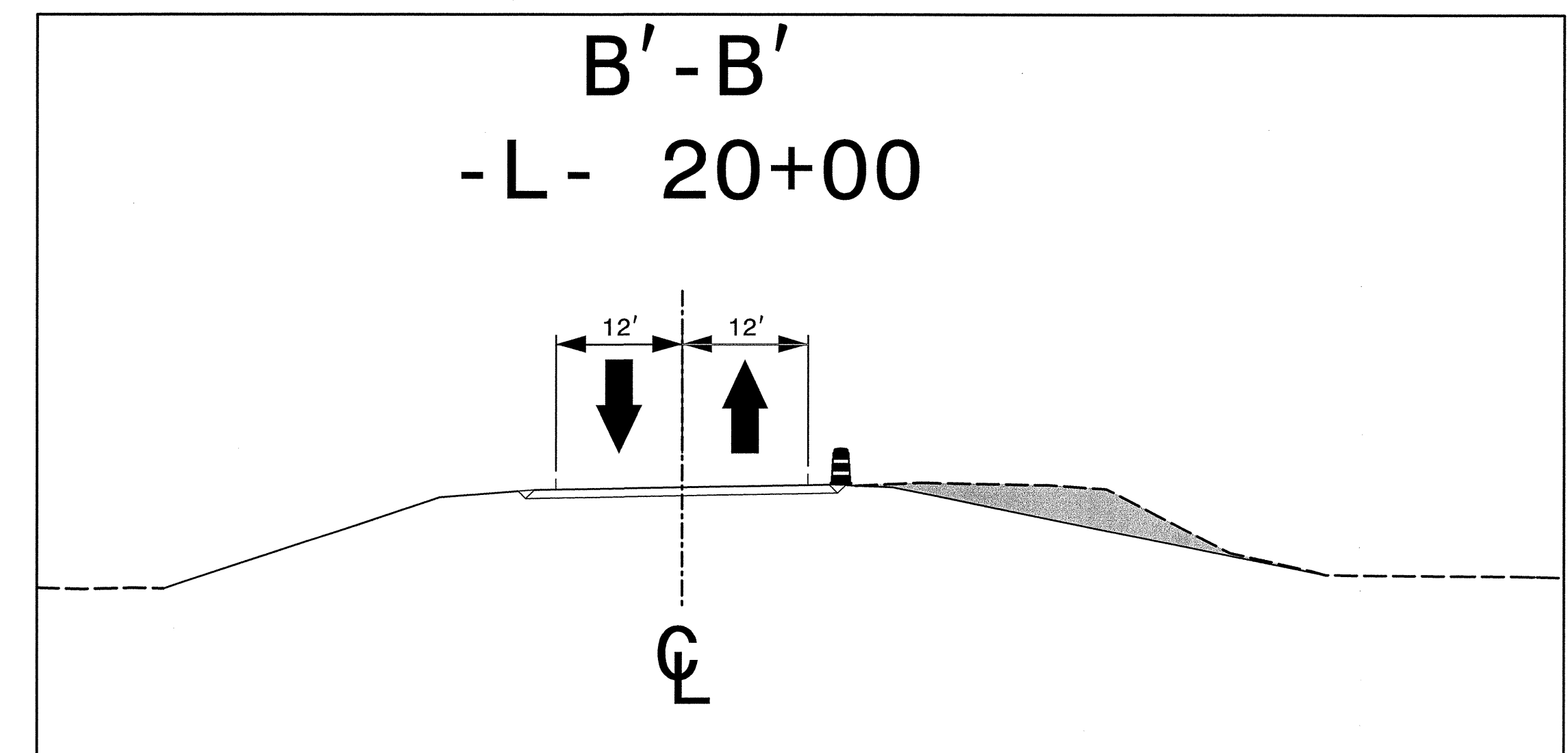
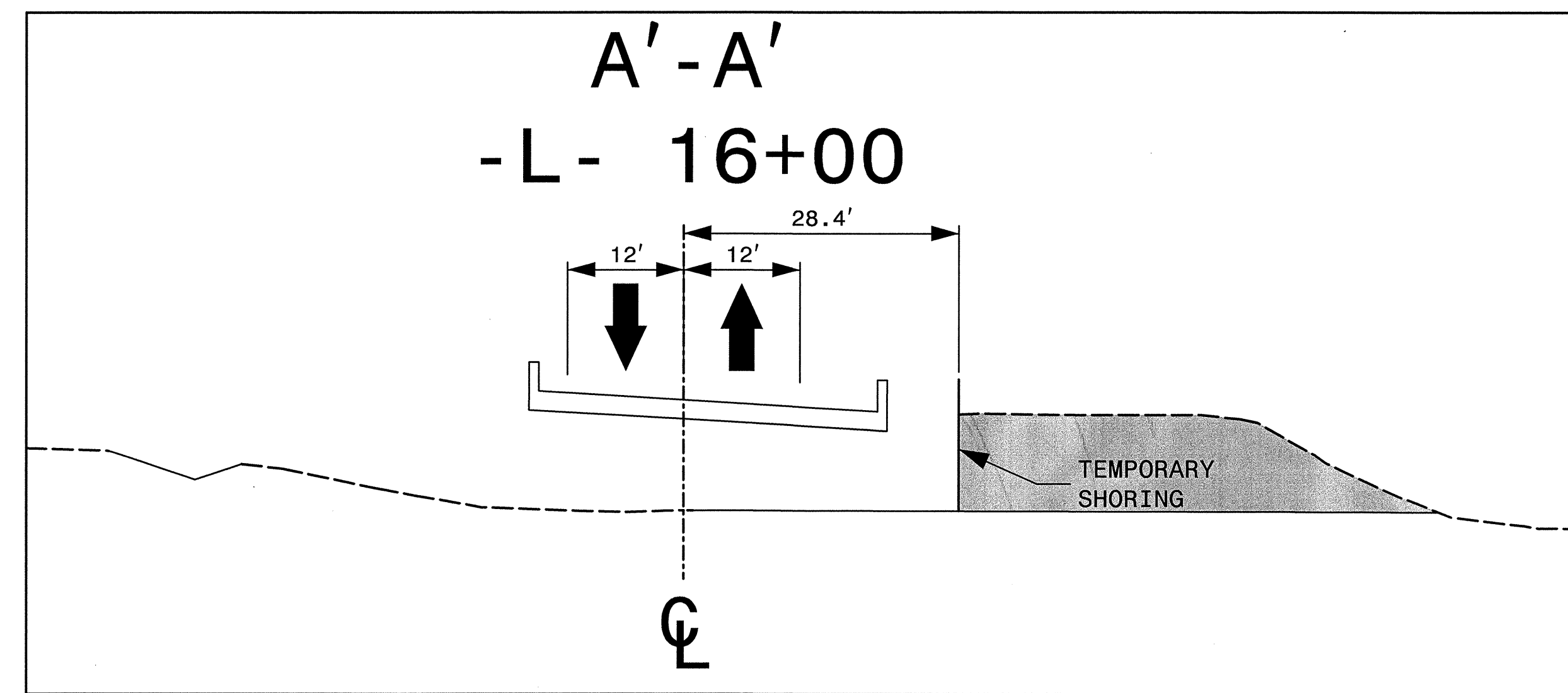
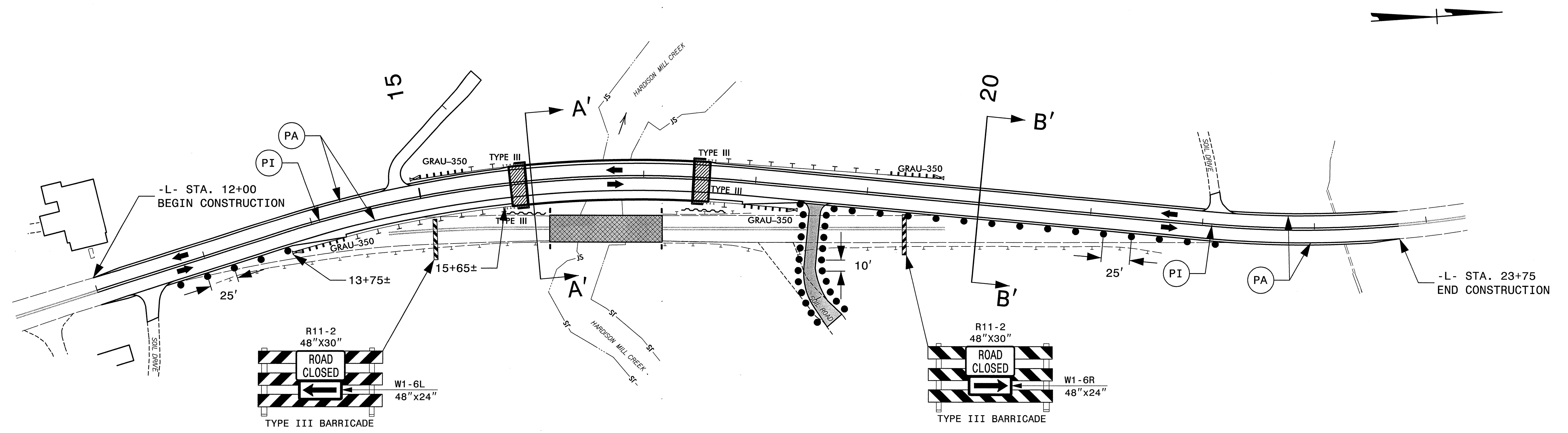


\$\$\$\$\$SYSTEM\$\$\$\$\$
 \$\$\$DDON\$\$\$\$\$
 \$\$\$USERNAME\$\$\$\$\$

APPROVED: *[Signature]* DATE: 3-15-15



**PHASE I
DETAIL**



\$\$\$\$\$SYTIME\$\$\$\$\$
 \$\$\$DESIGN\$\$\$\$\$
 \$\$\$USERNAME\$\$\$\$\$

APPROVED: <i>St. Miller</i> DATE: 1-31-13		<p>PHASE II DETAIL</p>