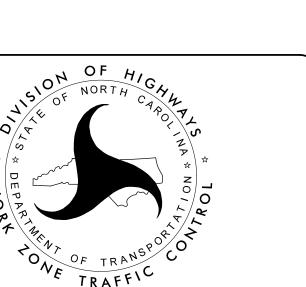
WORK ZONE SAFETY & MOBILITY

"from the MOUNTAINS to the COAST"

DON PARKER, PE TRAFFIC CONTROL PROJECT ENGINEER

TRAFFIC CONTROL PROJECT DESIGN ENGINEER

TRAFFIC CONTROL DESIGN ENGINEER



# INDEX OF SHEETS

SHEET NO. <u>TITLE</u>

TMP-01 TITLE SHEET, VICINITY MAP AND INDEX OF SHEETS

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TMP-01B GENERAL NOTES TMP-02A SHORING NOTES TMP-02B PCB AT SHORING

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TMP - 10 TEMPORARY TRAFFIC CONTROL PHASE III OVERVIEW

> 12/08/22 DATE SUBMITTED SUBMITTAL: 100% STAGING CONCEPT MIDPOINT

PRE-FINAL |X| FINAL

DO NOT USE FOR CONSTRUCTION

**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED** 



1001 Morehead Square Dr. Suite 610 Charlotte NC, 28203 NC LIC. NO. F-0165

RICHARD ODYNSKI, PE PROJECT ENGINEER DERRICK DOHM, EI DESIGN ENGINEER

Richard Odynski APPROVED:\_ DATE:\_

TMP-01

PROJ. REFERENCE NO. SHEET NO. TMP-01A

# 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 2018 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
1101.11	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
1170.01	PORTABLE CONCRETE BARRIER
1180.01	SKINNY-DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1801.01	STANDARD TEMPORARY SHORING

# **LEGEND**

## **GENERAL**

DIRECTION OF TRAFFIC FLOW

DIRECTION OF PEDESTRIAN TRAFFIC FLOW

----- EXIST. PVMT.

NORTH ARROW

----- PROPOSED PVMT.

WORK AREA

### TEMPORARY PAVEMENT MARKING

#### <u>PAINT</u>

P61 WHITE STOPBAR (24")

P5 2 FT.-6 FT./SP WHITE MINISKIP (4")

P1 WHITE EDGELINE (4'')

P4 3 FT.- 9 FT./SP WHITE MINISKIP (4'')

P2 WHITE SOLID LANE LINE (4")

P13 YELLOW DOUBLE CENTER (4")

P42 YELLOW DIAGONAL (8")

P70 LEFT TURN ARROW

P71 RIGHT TURN ARROW

#### COLD APPLIED PLASTIC

C1 WHITE EDGELINE (4")

C13 YELLOW DOUBLE CENTER (4")

## TRAFFIC CONTROL DEVICES

BARRICADE (TYPE III)

PORTABLE CONCRETE BARRIER

● DRUM ■ DRUM (SECTION VIEW)

TEMPORARY CRASH CUSHION

FLASHING ARROW BOARD

FLAGGER

LAW ENFORCEMENT

TRUCK MOUNTED ATTENUATOR (TMA)

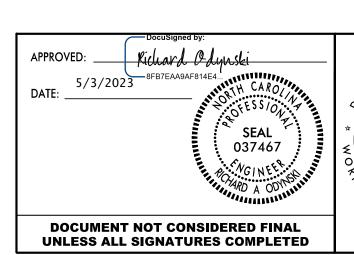
CHANGEABLE MESSAGE SIGN

## TEMPORARY SIGNING

PORTABLE SIGN

├─ STATIONARY SIGN

STATIONARY OR PORTABLE SIGN







TRAFFIC CONTROL PLANS
ROADWAY STANDARD
DRAWINGS & LEGEND

GENERAL NOTES

F) 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.

- 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.
- H) 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.
- I) CONTRACTOR SHALL PROVIDE ACCESS TO ALL RESIDENCES AT ALL TIMES. COORDINATE WITH PROPERTY OWNERS DURING CONSTRUCTION ACTIVITIES IMPACTING DRIVEWAYS.

PAVEMENT EDGE DROP OFF REQUIREMENTS

J) 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.

OD 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) 350 FT IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

L) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

- M) 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.
- N) PROVIDE SIGNING AND DEVICES
  REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS
  AND TRAFFIC CONTROL PLANS.
- O) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC BARRIER

DURATION AND OPERATION

P) 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.

PROJ. REFERENCE NO. SHEET NO. TMP-01B

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.

Q) 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)

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

TRAFFIC CONTROL DEVICES

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

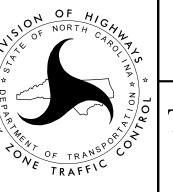
PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING	MARKER
ALL ROADS	PAINT	NONE

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED





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 - REQUIRES INTERMEDIATE CONTRACT TIME PROJECT SPECIAL PROVISIONS

A) DO NOT CLOSE TRAVEL LANES, UNLESS ALLOWED OTHERWISE, AS FOLLOWS:

ROAD NAME

DAY AND TIME RESTRICTIONS

NC 111 AND US 64

MONDAY THRU FRIDAY 6:00 TO 9:00 AM AND 4:00 TO 6:00 PM

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

ROAD NAME

NC 111 AND US 64

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 6:00 A.M. DECEMBER 31st TO 8:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 8:00 P.M. THE FOLLOWING TUESDAY.
- 3. FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 8:00 P.M. MONDAY.
- 4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 8:00 P.M. TUESDAY.
- 5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 8:00 P.M. THE DAY AFTER INDEPENDENCE DAY.

IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 6:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 8:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.

- 6. FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 8:00 P.M. TUESDAY.
- 7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 8:00 P.M. MONDAY.
- 8. FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 8:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.
- C) DO NOT CLOSE THE ROADWAY, UNLESS ALLOWED OTHERWISE, AS FOLLOWS:

ROAD NAME DAY AND TIME RESTRICTIONS

LANE AND SHOULDER CLOSURE REQUIREMENTS

NC 111 AND MONDAY THRU SUNDAY 30 MINUTES FOR OVERHEAD US 64 5:00 AM TO 12:00 AM (MIDNIGHT) WORK AND TRAFFIC SHIFTS

- D) 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.
- E) 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.

PROJ. REFERENCE NO. SHEET NO. TMP-02A

# SHORING NOTES

SHORING LOCATION 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 STATION -L- 65+11±, 16' RT, TO STATION

-L- 65+71±, 16' RT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT ( $\gamma$ ) = 120 LB/CF FRICTION ANGLE ( $\phi$ ) = 30 DEGREES COHESION (c) = 0 LB/SF GROUNDWATER ELEVATION = 86.0 FT ±

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION

-L- 65+11±, 16' RT, TO STATION -L- 65+71±, 16' RT.

AT THE CONTRACTOR\*S OPTION AND WHEN APPLICABLE, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION -L-65+11±, 16' RT, TO STATION -L-65+71±, 16' RT. SEE GEOTECHNICAL STANDARD DETAIL NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

SHORING LOCATION 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 STATION -L- 67+12±, 16' RT, TO STATION

-L- 67+75±, 16' RT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT ( $\forall$ ) = 120 LB/CF FRICTION ANGLE ( $\oplus$ ) = 30 DEGREES COHESION (c) = 0 LB/SF GROUNDWATER ELEVATION = 86.0 FT ±

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION

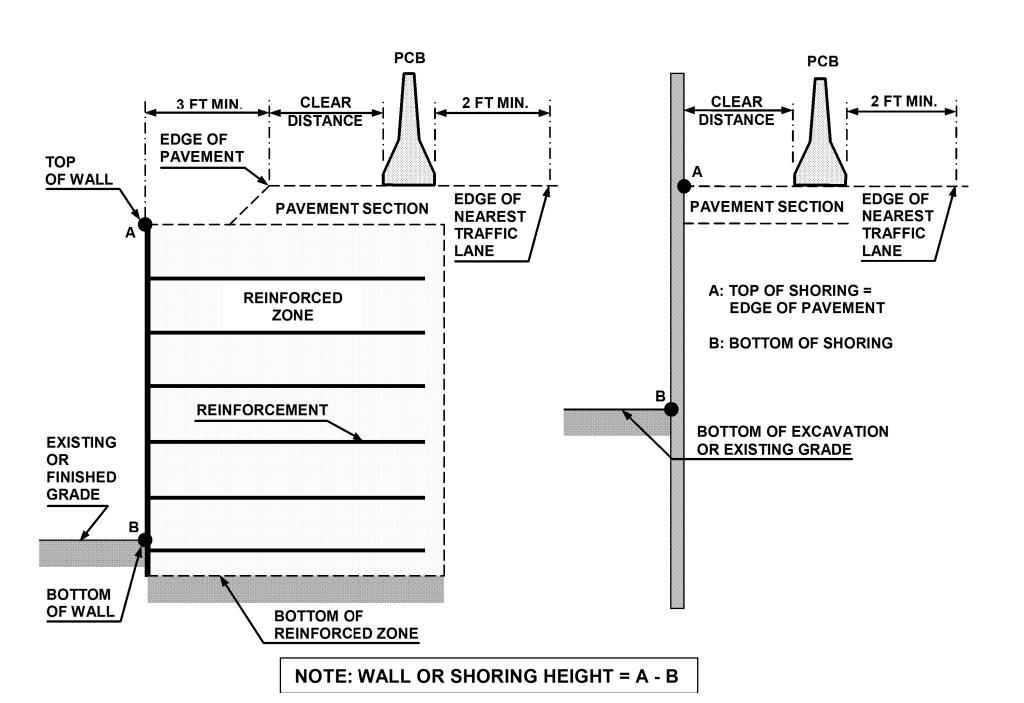
-L- 67+12±, 16' RT, TO STATION -L- 67+75±, 16' RT.

AT THE CONTRACTOR\*S OPTION AND WHEN APPLICABLE, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION -L-67+12±, 16' RT, TO STATION -L-67+75±, 16' RT. SEE GEOTECHNICAL STANDARD DETAIL NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

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 20, 2022 AND SEALED BY A PROFESSIONAL ENGINEER, JINYOUNG PARK, LICENSE # 032171.







# FIGURE A

# **NOTES**

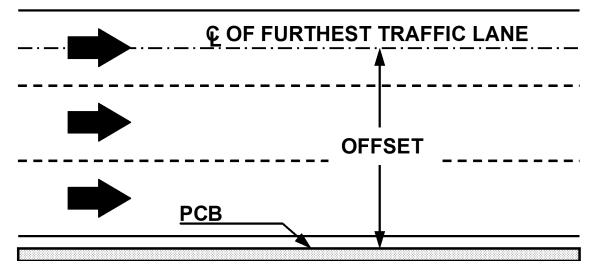
- 1- REFER TO THE TRAFFIC CONTROL PLANS FOR TEMPORARY SHORING LOCATIONS AND NOTES.
- 2- REFER TO THE "TEMPORARY SHORING" PROJECT SPECIAL PROVISION FOR INFORMATION ABOUT TEMPORARY SHORING AND PORTABLE CONCRETE BARRIER (PCB).
- 3- PCB IS REQUIRED IF TEMPORARY SHORING IS LOCATED WITHIN THE CLEAR ZONE IN 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).
- 4- 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.
- 5- 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.
- 6- USE NCDOT PORTABLE CONCRETE BARRIER (PCB) IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1170.01 AND SECTION 1170 OF THE STANDARD SPECIFICATIONS.
- 7- PCB REQUIREMENTS FOR TEMPORARY WALLS APPLY TO TEMPORARY MECHANICALLY STABILIZED EARTH (MSE) WALLS AND TEMPORARY SOIL NAIL WALLS.
- 8- 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.
- 9- 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.
- 10- 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.

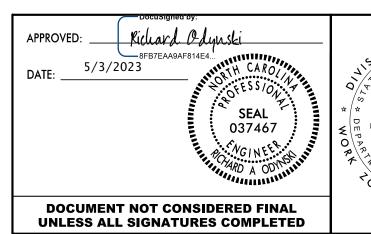
### MINIMUM REQUIRED CLEAR DISTANCE, inches

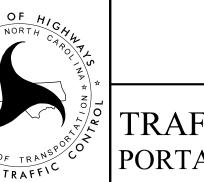
Barrier	Pavement	Offset *	Design Speed, mph					
Type	Type	ft	<30	31-40	41-50	51-60	61-70	71-80
PCB		<8	24	26	29	32	36	40
		8-14	26	28	31	35	38	42
		14-20	27	29	34	36	39	43
		20-26	28	31	35	38	40	44
	Asphalt	26-32	29	32	36	39	42	45
		32-38	30	34	38	41	43	46
		38-44	31	34	41	43	45	48
		44-50	31	35	41	43	46	49
		50-56	32	36	42	44	47	50
re		>56	32	36	42	45	47	51
<b>,</b>		<8	17	18	21	22	25	26
Unanchored		8-14	19	20	23	25	26	29
		14-20	22	22	24	26	28	31
		20-26	23	24	26	27	30	34
	Concrete	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



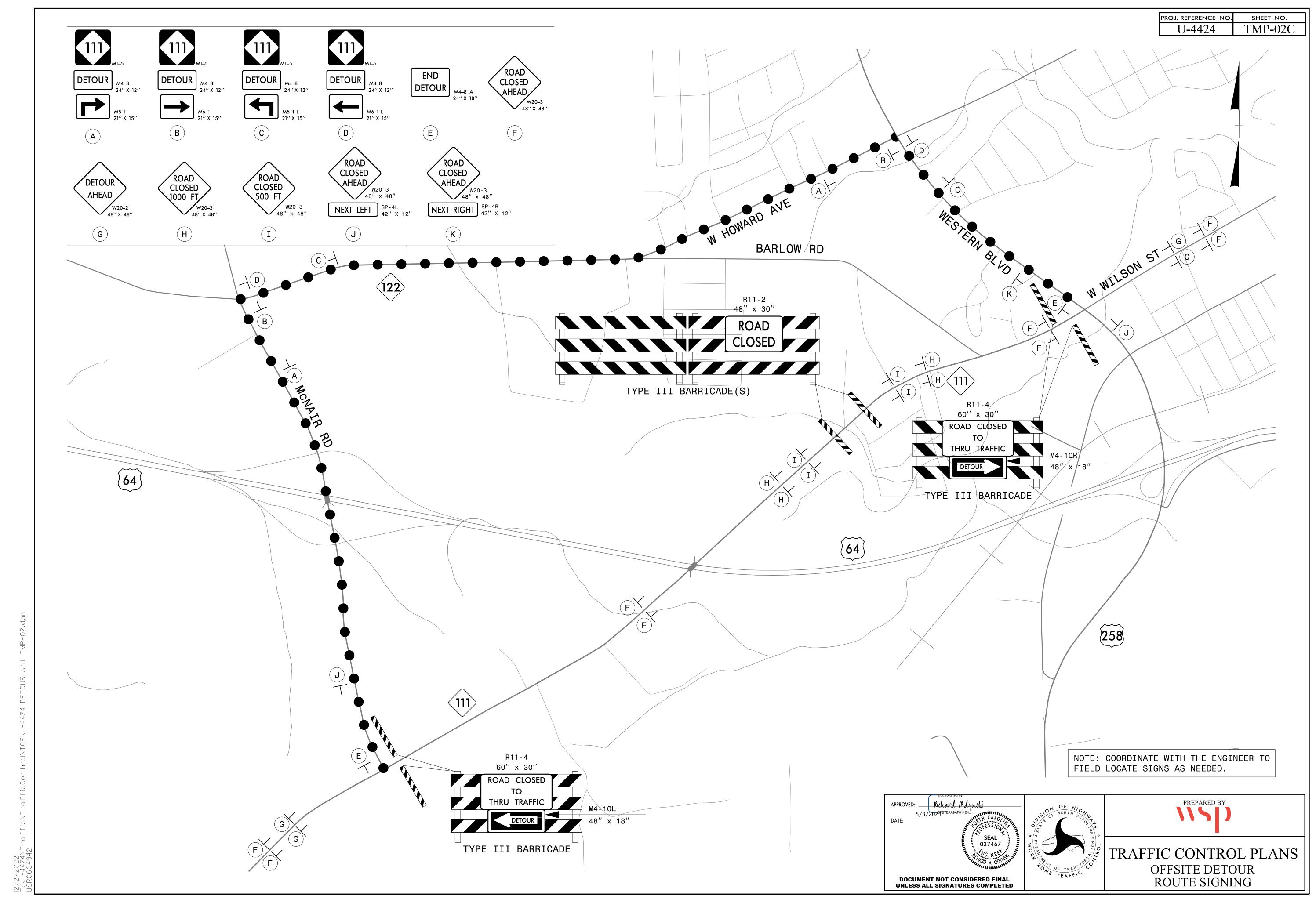
# FIGURE B

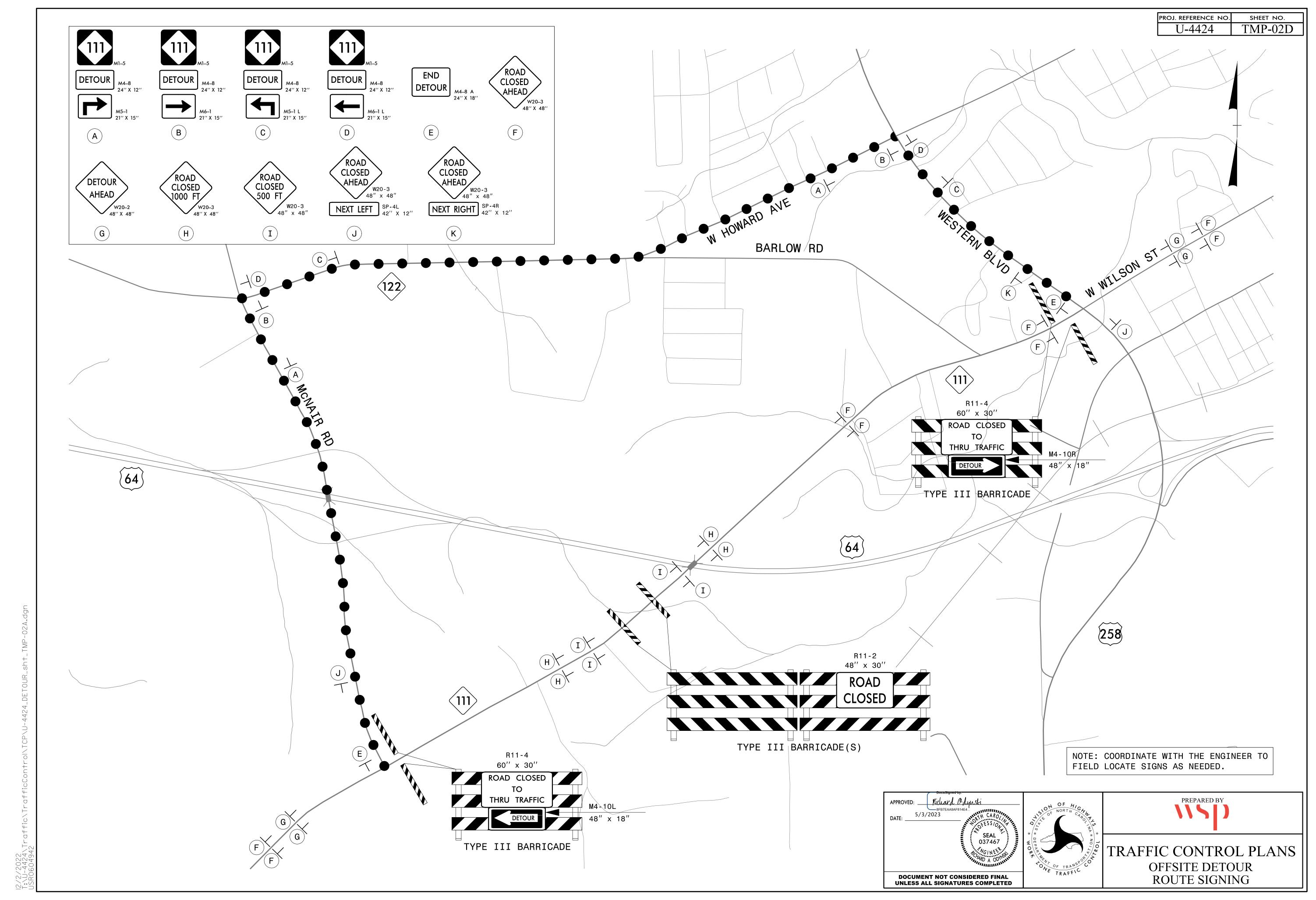






TRAFFIC CONTROL PLANS
PORTABLE CONCRETE BARRIER
AT SHORING DETAIL





#### PROJ. REFERENCE NO. SHEET NO. U-4424 TMP-03

# PHASING NOTES

#### PHASE I

- STEP 1: INSTALL WORK ZONE ADVANCE SIGNS ON NC 111, US 64 AND ALL Y LINES ACCORDING TO ROADWAY STANDARD DRAWING NO. 1101.01 WHERE WORK WILL BE OCCURRING NO MORE THAN THREE DAYS PRIOR TO BEGINNING CONSTRUCTION.
- STEP 2: USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 14, AS NEEDED, INSTALL TEMPORARY BARRIER, TEMPORARY PAVEMENT MARKINGS AND DEVICES ON NC 111 AND Y LINES AND SHIFT TRAFFIC, AS SHOWN ON TMP-04 TO TMP-06.
- STEP 3: USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 3 OF 14, AS NEEDED, INSTALL CONCRETE BARRIER ALONG US 64, AS SHOWN ON TMP-05. BEGIN CONSTRUCTION OF PROPOSED BRIDGE IMPROVEMENTS FOR NC 111 OVER US 64
- STEP 4: USING ROADWAY STANDARD DRAWING NO. 1101.03. SHEET 1 OF 9. AND TMP-02C INSTALL ROAD CLOSURE AND DETOUR SIGNS. COVER SIGNS UNTIL READY FOR OPERATION.

COMPLETE THE WORK DESCRIBED IN PHASE I, STEP 5 WITHIN 7 CONSECUTIVE DAYS OF THE CLOSURE AND RE-OPEN THE ROADWAY. SEE ICTS FOR LIQUIDATED DAMAGES.

STEP 5: USING ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 1 OF 9, AND TMP-02C CLOSE NC 111 TO TRAFFIC AND CONSTRUCT PROPOSED 54" PIPES UNDER NC 111. ONCE CONSTRUCTION IS COMPLETE, REMOVE ROAD CLOSURE SIGNS AND DEVICES AND REOPEN NC 111 TO TRAFFIC.

> COMPLETE THE WORK DESCRIBED IN PHASE I, STEP 6 WITHIN 7 CONSECUTIVE DAYS OF THE CLOSURE AND RE-OPEN THE ROADWAY. SEE ICTS FOR LIQUIDATED DAMAGES.

- STEP 6: USING ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 1 OF 9, AND TMP-02D CLOSE NC 111 TO TRAFFIC AND CONSTRUCT PROPOSED 48" PIPES UNDER NC 111. ONCE CONSTRUCTION IS COMPLETE, REMOVE ROAD CLOSURE SIGNS AND DEVICES AND REOPEN NC 111 TO TRAFFIC.
- STEP 7: USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 14, AS NEEDED, CONSTRUCT THE FOLLOWING IMPROVEMENTS PER BRIDGE AND ROADWAY PLANS ALONG -L- AND Y LINES, AS SHOWN ON TMP-04 TO TMP-06:
  - -L- RT IMPROVEMENTS FROM STA. 13+90 TO 107+90 +/-- -L- LT ASPHALT WIDENING FROM STA. 109+15 +/- TO -Y8-

  - -L- LT IMPROVEMENTS FROM -Y8- TO -Y9-- -Y2- IMPROVEMENTS, INCLUDING 15" RCP CROSS PIPE
  - -Y3- IMPROVEMENTS
  - -Y5- IMPROVEMENTS, INCLUDING 15" RCP CROSS PIPE
  - -Y8- RT ASPHALT WIDENING AND ALL LT IMPROVEMENTS
- PER GENERAL NOTE J, BACKFILL DROP-OFF AREAS ADJACENT TO OPENED TRAVEL LANES WITH STONE AS NEEDED. USE INCIDENTAL STONE OR STEEL PLATES, AS NEEDED, DURING CROSS PIPE INSTALLATION TO RE-OPEN ALL LANES AT THE END OF EACH WORK DAY. BAG OR COVER DRAINAGE STRUCTURE 0618 UNTIL CROSS PIPE AND PHASE II DRAINAGE IS INSTALLED.
- STEP 8: FOR OVERHEAD WORK AND GIRDER ERECTION ALONG US 64, USE ROADWAY STANDARD DRAWING 1101.03. SHEET 9 OF 9. TO CLOSE THE ROAD FOR UP TO 30 MINUTES AT A TIME. SEE ICTS FOR LIQUIDATED DAMAGES.

COMPLETE THE WORK DESCRIBED IN PHASE I, STEP 9 WITHIN 10 CONSECUTIVE DAYS OF THE CLOSURE AND RE-OPEN THE ROADWAY. SEE ICTS FOR LIQUIDATED DAMAGES.

- STEP 9: USING RSD 1101.02, SHEET 14 OF 14, REDUCE NC 111 TRAFFIC TO A SINGLE LANE FOR UP TO 10 DAYS AND INSTALL BRIDGE OVERLAY ALONG RIGHT SIDE OF EXISTING BRIDGE.
- CONTRACTOR IS RESPONSIBLE FOR INSTALLATION, OPERATION, AND MAINTENANCE OF PORTABLE SIGNAL SYSTEM AT ALL TIMES.

PHASE II

- STEP 1: USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 14, AS NEEDED, INSTALL TEMPORARY PAVEMENT MARKINGS AND DEVICES ON NC 111 AND Y LINES AND SHIFT TRAFFIC. AS SHOWN ON TMP-07 TO TMP-09.
- STEP 2: USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 14, AS NEEDED, CONSTRUCT THE FOLLOWING IMPROVEMENTS PER ROADWAY PLANS, AS SHOWN ON TMP-07 TO TMP-09:
  - -L- LT IMPROVEMENTS FROM STA. 13+90 +/- TO -Y6-
  - -L- RT IMPROVEMENTS FROM 107+90 +/- TO -Y9-
  - INSTALL DRAINAGE CROSS PIPES ALONG -L- AS NEEDED TO MAINTAIN DRAINAGE
  - -Y1- 24" DUAL CROSS PIPES
  - -Y4- IMPROVEMENTS
  - -Y6- LT IMPROVEMENTS
  - -Y7- IMPROVEMENTS, INCLUDING 15" RCP CROSS PIPE

PER GENERAL NOTE J. BACKFILL DROP-OFF AREAS ADJACENT TO OPENED TRAVEL LANES WITH STONE AS NEEDED. USE INCIDENTAL STONE OR STEEL PLATES, AS NEEDED, DURING CROSS PIPE INSTALLATION TO RE-OPEN ALL LANES AT THE END OF EACH WORK DAY.

> COMPLETE THE WORK DESCRIBED IN PHASE II, STEP 3 WITHIN 10 CONSECUTIVE DAYS OF THE CLOSURE AND RE-OPEN THE ROADWAY. SEE ICTS FOR LIQUIDATED DAMAGES.

STEP 3: USING RSD 1101.02, SHEET 14 OF 14, REDUCE NC 111 TRAFFIC TO A SINGLE LANE FOR UP TO 10 DAYS AND INSTALL BRIDGE OVERLAY ALONG LEFT SIDE OF EXISTING BRIDGE.

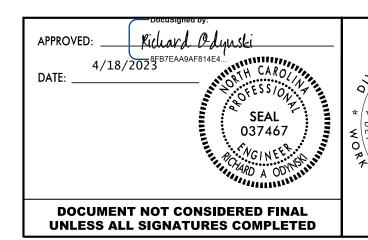
CONTRACTOR IS RESPONSIBLE FOR INSTALLATION, OPERATION, AND MAINTENANCE OF PORTABLE SIGNAL SYSTEM AT ALL TIMES.

#### PHASE III

- STEP 1: USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 14, AS NEEDED, INSTALL TEMPORARY PAVEMENT MARKINGS AND DEVICES ON NC 111 AND Y LINES AND SHIFT TRAFFIC, AS SHOWN ON TMP-10.
- STEP 2: USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 14, AS NEEDED, CONSTRUCT THE FOLLOWING IMPROVEMENTS PER ROADWAY PLANS, AS SHOWN ON TMP-10:
  - -L- LT IMPROVEMENTS FROM -Y6- TO -Y8-
  - INSTALL DRAINAGE CROSS PIPES ALONG -L- AS NEEDED TO MAINTAIN DRAINAGE
  - -Y6- RT IMPROVEMENTS
  - -Y8- RT IMPROVEMENTS

PER GENERAL NOTE J, BACKFILL DROP-OFF AREAS ADJACENT TO OPENED TRAVEL LANES WITH STONE AS NEEDED. USE INCIDENTAL STONE OR STEEL PLATES, AS NEEDED, DURING CROSS PIPE INSTALLATION TO RE-OPEN ALL LANES AT THE END OF EACH WORK DAY.

- STEP 3: USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 14, INSTALL CONCRETE ISLANDS, FINAL OVERLAY, AND PAVEMENT MARKINGS PER FINAL PAVEMENT MARKING PLANS.
- STEP 4: ONCE CONSTRUCTION IS COMPLETE, REMOVE ALL SIGNS AND DEVICES AND PLACE TRAFFIC IN ITS FINAL PATTERN.







U-4424 TMP-04 R9-9 24" X 12" Y4-CENTEI 24" X 12" -Y1-(MCNAIR **SIDEWALK** (COMMERCE PEDESTRIAN BARRICADE \*MUST BE ADA-COMPLIANT\* PEDESTRIAN BARRICADE \*MUST BE ADA-COMPLIANT\* -L- (NC 111) KEEP SIDEWALK CLOSED AFTER CONSTRUCTION UNTIL READY KEEP SIDEWALK CLOSED AFTER FOR USE AND COMPLETED TO CONSTRUCTION UNTIL READY -L- STA. 13+90 +/-LOGIC TERMINUS -Y2- STA. 11+11 +/-FOR USE AND COMPLETED TO BEGIN CONSTRUCTION END CONSTRUCTION LOGIC TERMINUS -Y3- STA. 11+30 +/--Y2- STA. 11+11 +/-END CONSTRUCTION BEGIN CONSTRUCTION -Y3- STA. 11+30 +/-BEGIN CONSTRUCTION USE FLAGGERS AS NEEDED, TO INSTALL ASPHALT WEDGING AS NEEDED FOR TRAFFIC SHIFT AND POSITIVE DRAINAGE -L- STA. 44+00 +/-SECTION A - A USE NCDOT RSD 1101.02 SHEET 14 OF 14 FOR SIGNS AND DETAILS FOR PORTABLE SIGNAL SYSTEMS. PORTABLE SIGNAL SYSTEM MATCHL TO BE USED FOR BRIDGE OVERLAY WORK FOR UP TO 7 DAYS. DO NOT OPERATE AT THE -L- STA. 49+89 +/-SAME TIME AS PORTABLE SIGNAL SYSTEM BEGIN CONSTRUCTION -L- STA. 49+16 +/-FOR DRAINAGE INSTALLATION. END CONSTRUCTION

UNLESS OTHERWISE NOTED: ALL PAVEMENT MARKINGS ARE EXISTING OR FROM PREVIOUS PHASE, ALL LANE WIDTHS ARE 11'. SEE GENERAL NOTE R FOR DRUM SPACING.

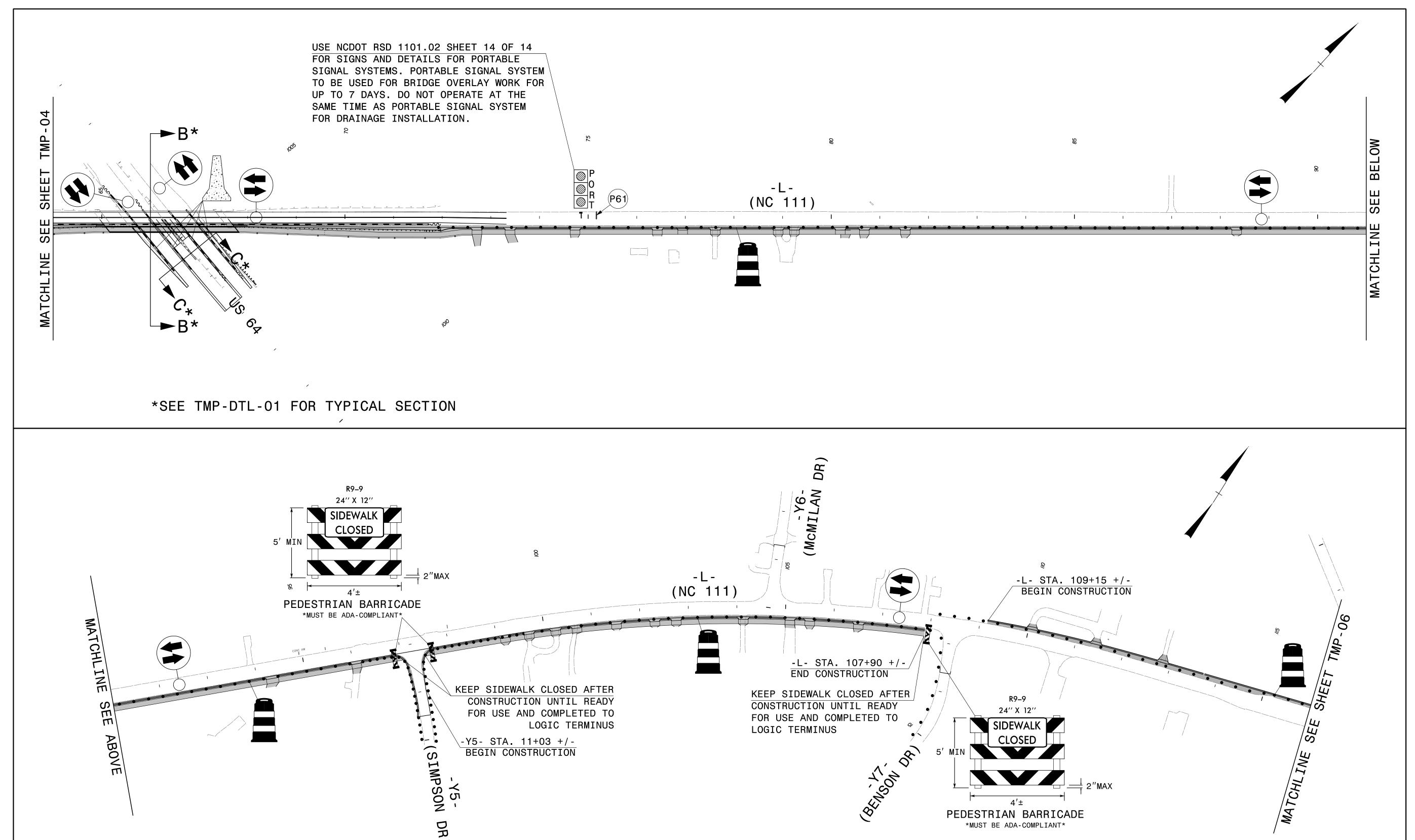




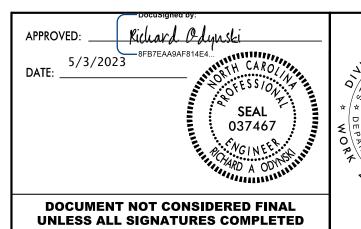
TRAFFIC CONTROL PLANS
PHASE I
OVERVIEW

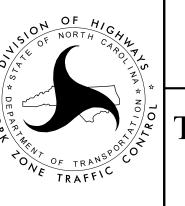
PROJ. REFERENCE NO.

SHEET NO.



UNLESS OTHERWISE NOTED: ALL PAVEMENT MARKINGS ARE EXISTING OR FROM PREVIOUS PHASE, ALL LANE WIDTHS ARE 11', TEMPORARY PORTABLE CONCRETE BARRIER TO BE SET 2' OFF EXISTING EDGE LINES. SEE GENERAL NOTE R FOR DRUM SPACING.







PHASE I OVERVIEW

PROJ. REFERENCE NO. SHEET NO. TMP-06

USE FLAGGERS AS NEEDED
TO INSTALL ASPHALT WEDGING
AS NEEDED FOR TRAFFIC SHIFT
AND POSITIVE DRAINAGE

-L- STA. 127+00 +/-

SECTION E - E

-Y8- STA. 12+58 +/BEGIN CONSTRUCTION

-Y8- STA. 12+58 +/END CONSTRUCTION

-DR1- STA. 11+45 +/END CONSTRUCTION

-L- (NC 111)

DATE:

| SEAL | O37467 | O3746

-Y9- STA. 13+95 +/-END CONSTRUCTION

TRANSPORO

PREPARED BY

TRAFFIC CONTROL PLANS
PHASE I
OVERVIEW

UNLESS OTHERWISE NOTED: ALL PAVEMENT MARKINGS ARE EXISTING OR FROM PREVIOUS PHASE, ALL LANE WIDTHS ARE 11'. SEE GENERAL NOTE R FOR DRUM SPACING.

CRASH CUSHION

-L- STA. 65+04, 11.9' RT +/-/ -L- STA. 61+46, 12.1' RT +/-BEGIN ANCHORED CONCRETE BARRIER CRASH CUSHION QUANTITY = 330 SQ FT TEMPORARY SHORING FROM STA. 65+11, 16' RT +/-TO STA. 65+71, 16' RT +/-(SEE SHEET TMP-2A FOR TEMPORARY SHORING NOTES) -L- STA. 66+49, 107.7' RT +/-END PORTABLE CONCRETE BARRIER -L- STA. 66+84, 104.1' RT +/-END ANCHORED CONCRETE BARRIER -L- STA. 67+40, 108.4' RT +/-END ANCHORED CONCRETE BARRIER CRASH CUSHION -L- STA. 67+75, 103.7' RT +/-END PORTABLE CONCRETE BARRIER

UNLESS OTHERWISE NOTED: ALL PAVEMENT MARKINGS ARE EXISTING OR FROM PREVIOUS PHASE, ALL LANE WIDTHS ARE 11', TEMPORARY PORTABLE CONCRETE BARRIER AND ANCHORED CONCRETE BARRIER TO BE SET 2' OFF EXISTING EDGE LINES. SEE GENERAL NOTE R FOR DRUM SPACING.



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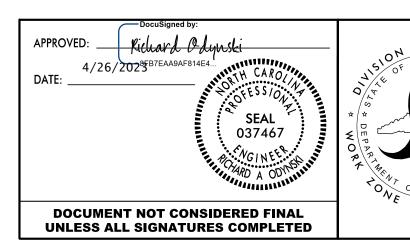
-L- STA. 71+97, 8.4' RT +/-/



TRAFFIC CONTROL PLANS
PHASE I
DETAIL

PROJ. REFERENCE NO. SHEET NO. U-4424 **TMP-07** -Y4- STA. 11+00 +/--Y-(MCNAIR BEGIN CONSTRUCTION -Y4- STA. 10+99 +/-END CONSTRUCTION -Y4- STA. 10+50 +/--L- STA. 28+00 +/-TIE TO EXISTING SECTION F - F PAVEMENT MARKINGS -Y- STA. 10+97 +/-BEGIN CONSTRUCTION -Y4- STA. 10+56 +/-TIE TO EXISTING PAVEMENT MARKINGS -L- (NC 111) R = 40'(P13) KEEP SIDEWALK CLOSED AFTER -L- STA. 21+45 +/-CONSTRUCTION UNTIL READY TIE TO EXISTING -Y2- STA. 11+57 +/ FOR USE AND COMPLETED TO PAVEMENT MARKINGS TIE TO FINAL DESIGN -L- STA. 26+45 +/-LOGIC TERMINUS TIE TO FINAL DESIGN Y2-(SPENCER 24" X 12" \R= 27' SIDEWALK CLOSED -Y2- STA. 11+59 +/-TIE TO FINAL DESIGN PEDESTRIAN BARRICADE \*MUST BE ADA-COMPLIANT\* -L- STA. 62+46 +/-TIE TO EXISTING PAVEMENT MARKINGS P13 -L- STA. 46+39 +/-TIE TO EXISTING PAVEMENT MARKINGS -L- STA. 43+24, 4.0' LT +/-USE NCDOT RSD 1101.02 SHEET 14 OF 14 MATCHLIN FOR SIGNS AND DETAILS FOR PORTABLE P1 P13 (P1) SIGNAL SYSTEMS. PORTABLE SIGNAL SYSTEM TO BE USED FOR BRIDGE OVERLAY WORK FOR -L- STA. 43+24 +/-UP TO 10 DAYS. DO NOT OPERATE AT THE TIE TO FINAL DESIGN SAME TIME AS PORTABLE SIGNAL SYSTEM FOR DRAINAGE INSTALLATION.

UNLESS OTHERWISE NOTED: ALL PAVEMENT MARKINGS ARE EXISTING OR FROM PREVIOUS PHASE, ALL LANE WIDTHS ARE 11'. SEE GENERAL NOTE R FOR DRUM SPACING.





TRAFFIC CONTROL PLANS
PHASE II
OVERVIEW

PROJ. REFERENCE NO. SHEET NO. U-4424 TMP-08 USE NCDOT RSD 1101.02 SHEET 14 OF 14 FOR SIGNS AND DETAILS FOR PORTABLE SIGNAL SYSTEMS. PORTABLE SIGNAL SYSTEM TO BE USED FOR BRIDGE OVERLAY WORK FOR UP TO 10 DAYS. DO NOT OPERATE AT THE SAME TIME AS PORTABLE SIGNAL SYSTEM -L- STA. 86+00 +/-FOR DRAINAGE INSTALLATION. SECTION H - H BELOW -L- STA. 71+97 +/-TIE TO FINAL DESIGN 24" X 12" SIDEWALK -Y6--Y6- STA. 11+24 +/-END CONSTRUCTION -Y6- STA. 10+46 +/-TIE TO EXISTING -Y6- STA. 10+30 +/-PEDESTRIAN BARRICADE PAVEMENT MARKINGS TIE TO EXISTING \*MUST BE ADA-COMPLIANT\* PAVEMENT MARKINGS -L- STA. 115+42 +/-TIE TO PROPOSED EDGE OF PAVEMENT (P13) -L- STA. 107+90 +/-BEGIN CONSTRUCTION KEEP SIDEWALK CLOSED AFTER -Y7- STA. 12+01 +/-CONSTRUCTION UNTIL READY TIE TO EXISTING FOR USE AND COMPLETED TO PAVEMENT MARKINGS LOGIC TERMINUS -Y7- STA. 11+93 +/--L- STA. 113+73, 1.9' RT +/-TIE TO EXISTING

PAVEMENT MARKINGS

-Y7- STA. 11+41 +/-

BEGIN CONSTRUCTION

UNLESS OTHERWISE NOTED: ALL PAVEMENT MARKINGS ARE EXISTING OR FROM PREVIOUS PHASE, ALL LANE WIDTHS ARE 11'. SEE GENERAL NOTE R FOR DRUM SPACING.

MATCHLINE

-L- STA. 64+84 +/-

-L- STA. 65+04 +/-

MATCHLINE

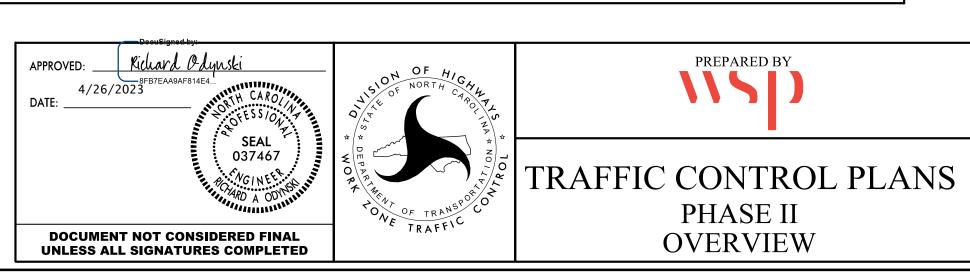
END CONSTRUCTION

-L- STA 6 67+47 +/-BEGIN CONSTRUCTION

(P13)

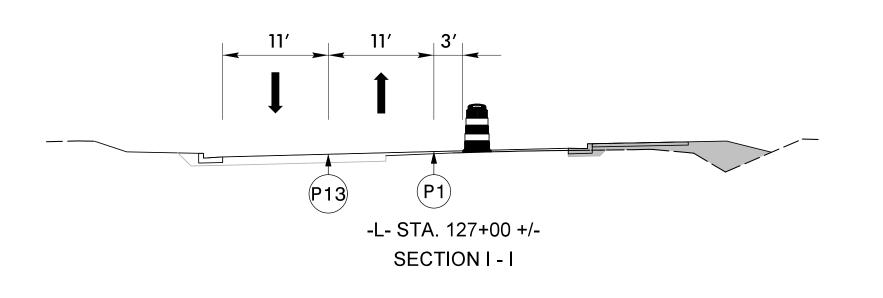
(P1)

DR)



-L- STA. 115+42, 15.0' RT +/-/

PROJ. REFERENCE NO. SHEET NO. TMP-09



-L- STA. 116+75 +/-TIE TO FINAL DESIGN -L- STA. 118+15, 18.0' LT +/--L- STA. 128+16, 13.0' LT +/--L- STA. 118+94, 20.0' LT +/--L- STA. 133+55 +/-<u>-L- (NC 111)</u> P13 P42 -L- STA. 123+06 +/-TIE TO FINAL DESIGN -L- STA. 131+46, 9.0' RT +/--L- STA. 132+46, 13.0' LT +/--L- STA. 132+95, 2.0' LT +/--L- STA. 133+41, 9.0' RT +/--L- STA. 133+69, 13.4' RT +/--L- STA. 117+32 4.0' RT +/--Y9- STA. 15+59, 30.7' RT +/--Y9- STA. 15+76 +/-END CONSTRUCTION -L- STA. 118+57, 13.9' RT +/ TIE TO EXISTING
PAVEMENT MARKINGS -L- STA. 121+44, 14.0' LT +/-

DATE: 5/3/2023

DATE: 5/3/2023

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TRAFFIC C

TRAFFIC CONTROL PLANS
PHASE II
OVERVIEW

UNLESS OTHERWISE NOTED: ALL PAVEMENT MARKINGS ARE EXISTING OR FROM PREVIOUS PHASE, ALL LANE WIDTHS ARE 11'. SEE GENERAL NOTE R FOR DRUM SPACING.

