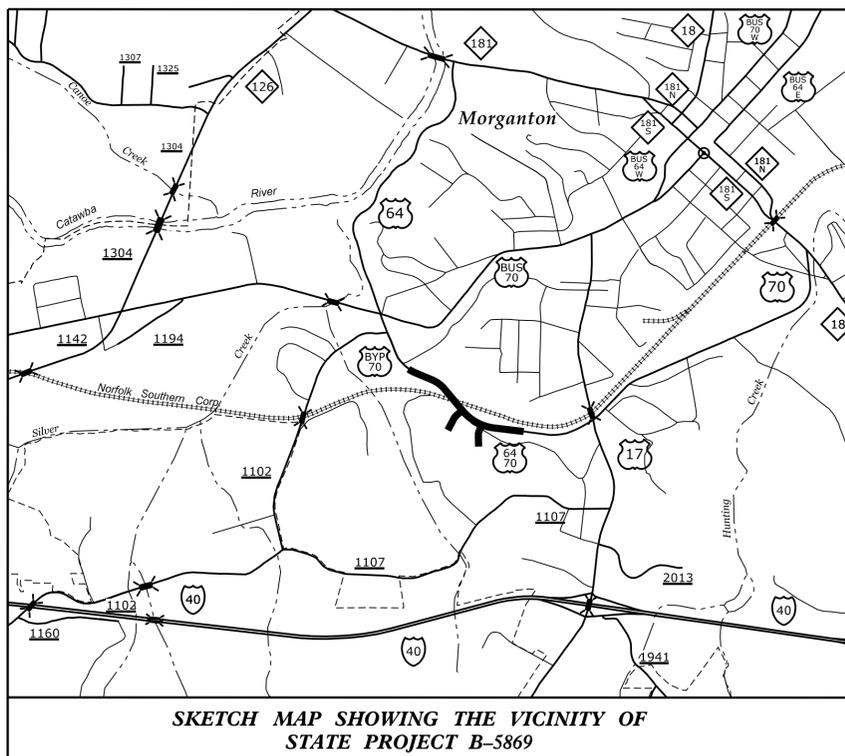
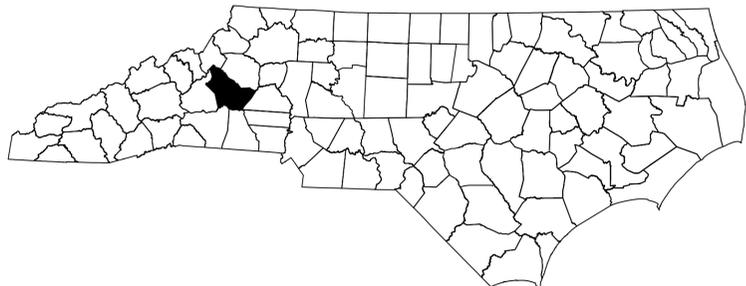


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

BURKE COUNTY



**LOCATION: BRIDGE NO. 99 ON US 64/US 70 (FLEMING DRIVE)
OVER SOUTHERN RAILROAD**

**TYPE OF WORK: GRADING, DRAINAGE, PAVING,
& STRUCTURES**

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TIME: 2:11:10 PM



PLANS PREPARED BY:

MIKE RZEPKA, P.E.
PROJECT ENGINEER
CHRIS HARNDEN
PROJECT DESIGN ENGINEER

NCDOT CONTACTS:

ZACHARY CLARK, P.E.
PROJECT ENGINEER
KARMEN DAIS, P.E.
PROJECT DESIGN ENGINEER



INDEX OF SHEETS

<u>SHEET NO.</u>	<u>TITLE</u>
TMP-1	INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND & TEMPORARY PAVEMENT MARKING SCHEDULE
TMP-2 & 2A	TRANSPORTATION OPERATIONS PLAN
TMP-2B	TEMPORARY SHORING DATA
TMP-3	PHASING
TMP-4 THRU TMP-5	PHASE I DETAILS
TMP-6 THRU TMP-7	PHASE II DETAILS
TMP-8 THRU TMP-9	PHASE III DETAILS
TMP-10 THRU TMP-11	PHASE IV DETAILS

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UNLESS ALL SIGNATURES COMPLETED**

APPROVED: Michael T. Rzepka
DATE: 3/27/2023



SHEET NO. TMP-1
TIP PROJECT: B-5869

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - 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 WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD 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	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGERS
1160.01	TEMPORARY CRASH CUSHION
1165.01	TRUCK MOUNTED ATTENUATOR
1170.01	PORTABLE CONCRETE BARRIER
1180.01	SKINNY - DRUMS
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
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
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- WORK AREA
- REMOVAL
- TEMPORARY PAVEMENT
- WEDGING

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM SKINNY DRUM TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW PANEL (TYPE C)
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)
- 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

TEMPORARY PAVEMENT MARKING

SYMBOL	DESCRIPTION
<u>PAINT (4")</u>	
P1	WHITE EDGELINE
P2	WHITE SOLID LANE LINE
P3	10 FT. WHITE SKIP
P4	3 FT.-9 FT./SP WHITE MINISKIP
P5	2 FT.-6 FT./SP WHITE MINISKIP
P10	YELLOW EDGELINE
P13	YELLOW DOUBLE CENTER
P14	2 FT.-6 FT./SP YELLOW MINISKIP
<u>PAINT (8")</u>	
P42	YELLOW DIAGONAL
<u>PAINT (24")</u>	
P61	WHITE STOPBAR
<u>SYMBOLS</u>	
P70	LEFT TURN ARROW
P71	RIGHT TURN ARROW
P72	STRAIGHT TURN ARROW
P74	COMBO RIGHT/STRAIGHT ARROW
P75	COMBO LEFT/RIGHT ARROW
<u>COLD APPLIED PLASTIC, TYPE 4 (4")</u>	
C1	WHITE EDGELINE
C3	10 FT. WHITE SKIP
C10	YELLOW EDGELINE
<u>COLD APPLIED PLASTIC, TYPE 4 (8")</u>	
C42	YELLOW DIAGONAL

TEMPORARY RAISED MARKERS

- MI CRYSTAL & RED

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APPROVED: *Michael T. Ryzga*

DATE: 3/27/2023



ROADWAY STANDARD DRAWINGS, LEGEND & TEMPORARY PAVEMENT MARKING SCHEDULE

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

MANAGEMENT STRATEGY

THE FOLLOWING LISTED STRATEGIES DERIVE FROM DETAILED DESIGN LEVEL ASSESSMENTS OF THE WORK ZONE IMPACTS CONDUCTED DURING THE DEVELOPMENTAL STAGES OF THIS TRANSPORTATION MANAGEMENT PLAN (TMP).

RECOMMENDED MANAGEMENT STRATEGIES RELATIVE TO THIS TMP ARE AS FOLLOWS:

THE PROPOSED US 70 BRIDGE WILL BE CONSTRUCTED IN TWO STAGES.

PHASE 1: LANE CLOSURES WILL BE USED TO CONSTRUCT A TEMPORARY BRIDGE WITH ROADWAY TIES TO EXISTING.

PHASE 2: WB TRAFFIC WILL BE SHIFTED TO TEMPORARY BRIDGE. EB TRAFFIC WILL BE SHIFTED TO EXISTING WB ON BRIDGE. PARTIAL BRIDGE REMOVAL WILL PRECEED CONSTRUCTION OF STAGE 1 OF NEW BRIDGE. PARTIAL ROADWAY WILL BE CONSTRUCTED TO MATCH STAGE 1 WIDTH AND WEDGED TO EXISTING, USING LANE CLOSURES TO MAINTAIN TRAFFIC PATTERNS.

PHASE 3: EB TRAFFIC WILL BE SHIFTED TO STAGE 1 BRIDGE WITH ROADWAY WEDGED TO TIE TO EXISTING. BEHIND BARRIER, STAGE 2 BRIDGE WILL BE BUILT ALONG WITH REMAINING ROADWAY APPROACH WIDTH. CONTINUED WEDGING OF EXISTING WILL BE NEED TO MAINTAIN TRAFFIC AND DRAINAGE AT TIE-INS.

PHASE 4: WB TRAFFIC WILL SHIFTED TO NEW BRIDGE. REMIANDER OF ROADWAY WORK WILL BE COMPLETED USING LANE CLOSURES, INCLUDING WEDGING OF EXISTING AND DETOUR REMOVAL WEST OF BRIDGE. LANE CLOSURES WILL BE USED TO MAINTAIN ACCESS TO SHOPPING CENTER WHILE WEDGING TO PROPOSED GRADE AND REPLACING CURB & GUTTER AND SIDEWALK.

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.

TIME RESTRICTIONS - REQUIRES INTERMEDIATE CONTRACT TIME PROJECT SPECIAL PROVISIONS

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

ROAD NAME	DAY AND TIME RESTRICTIONS
US 64/US 70	MONDAY-FRIDAY, 6:00 A.M. TO 9:00 A.M. 4:00 P.M. TO 7:00 P.M.

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

ROAD NAME	HOLIDAY
US 64/US 70	<ol style="list-style-type: none"> FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER. FOR NEW YEAR'S, BETWEEN THE HOURS OF 6:00 A.M. DECEMBER 31st TO 7:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 7:00 P.M. THE FOLLOWING TUESDAY. FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 7:00 P.M. MONDAY. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 7:00 P.M. TUESDAY. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 7:00 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 7:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY. FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 7:00 P.M. TUESDAY.

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

C) DO NOT STOP TRAFFIC AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS	DURATION AND OPERATION
US 64/US 70	MONDAY-FRIDAY, 6:00 A.M. TO 9:00 A.M. 4:00 P.M. TO 7:00 P.M.	15 MINUTES TRAFFIC SHIFTS

D) 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

- 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.
- 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.
- 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.
- 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.
- DO NOT INSTALL MORE THAN ONE LANE CLOSURE IN ANY ONE DIRECTION ON US 70.

PAVEMENT EDGE DROP OFF REQUIREMENTS

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

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

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

PROVIDE SIGNING REQUIRED FOR THE ON-SITE DETOUR AS SHOWN IN THE TRAFFIC CONTROL PLANS.
- 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 ON-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.
- ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC BARRIER

- 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.

- 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

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

APPROVED: *Michael T. Rzepka*

DATE: 3/27/2023

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**TRANSPORTATION
OPERATIONS
PLAN**

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GENERAL NOTES (CONT'D)

PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING	MARKER
ASPHALT SURFACE	PAINT	TEMPORARY RAISED
CONCRETE STRUCTURE	REMOVABLE TAPE	TEMPORARY RAISED

W) 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.

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

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

Z) TRACE THE EXISTING AND PROPOSED MONOLITHIC ISLAND LOCATIONS WITH PROPER COLOR PAVEMENT MARKINGS PRIOR TO REMOVAL AND INSTALLATION. PLACE DRUMS TO DELINEATE ANY EXISTING AND PROPOSED MONOLITHIC ISLANDS AFTER REMOVAL AND BEFORE INSTALLATION

MISCELLANEOUS

AA) LAW ENFORCEMENT MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS AS DIRECTED BY THE ENGINEER.

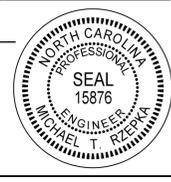
BB) ALL CURB RAMP LOCATIONS SHALL BE DERIVED FROM STATIONING SHOWN ON PAVEMENT MARKING PLANS OR AS DIRECTED BY THE ENGINEER IN COORDINATION WITH THE SIGNING AND DELINEATION UNIT.

CC) CONTRACTOR SHALL MAINTAIN SIDEWALK ACCESS AT ALL TIMES AS STATED IN THE PHASING. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE TEMPORARY SIDEWALKS (CONCRETE, ASPHALT, OR OTHER SUITABLE MATERIAL AS APPROVED BY THE ENGINEER) AT ALL LOCATIONS WHERE THE OPEN PEDESTRIAN TRAVELWAY HAS BEEN REMOVED FOR CONSTRUCTION OPERATIONS (UTILITIES, DRAINAGE, ETC.).

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APPROVED: *Michael T. Rzepka*

DATE: 3/27/2023



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**TRANSPORTATION
OPERATIONS
PLAN**

TEMPORARY SHORING DATA

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

PROJ. REFERENCE NO.	SHEET NO.
B-5869	TMP-2B

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 -DET- 10+76.72, 24.0' LT, TO STATION -DET- 17+28.00, 24.0' LT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 PCF
 FRICTION ANGLE (ϕ) = 30 DEGREES
 COHESION (c) = 0 PSF
 GROUNDWATER ELEVATION = 1,050 FT

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION -DET- 10+76.72, 24.0' LT, TO STATION -DET- 17+28.00, 24.0' LT. THE INFORMATION PROVIDED FOR TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

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- STA 20+26±, 4' LT, TO STATION -L- STA 20+54±, 4' LT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 PCF
 FRICTION ANGLE (ϕ) = 30 DEGREES
 COHESION (c) = 0 PSF
 GROUNDWATER ELEVATION = 1,050 FT

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION -L- STA 20+26±, 4' LT, TO STATION -L- STA 20+54±, 4' LT. THE INFORMATION PROVIDED FOR TEMPORARY SHORING 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 -L- STA 20+26±, 4' LT, TO STATION -L- STA 20+54±, 4' LT. SEE GEOTECHNICAL STANDARD DETAIL NO. 1801.02 FOR STANDARD TEMPORARY WALLS.

WHEN BACKFILL FOR BRIDGE APPROACH FILLS OVERLAPS WITH THE REINFORCED ZONE OF TEMPORARY WALLS, USE SHORING BACKFILL OR BACKFILL MATERIAL REQUIRED FOR RETAINING WALLS and/or BRIDGE APPROACH FILLS, WHICHEVER IS BETTER, IN THE REINFORCED ZONE OF TEMPORARY WALLS.

SHORING LOCATION NO. 3

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- STA 23+20±, 4' LT, TO STATION -L- STA 23+48±, 4' LT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 PCF
 FRICTION ANGLE (ϕ) = 30 DEGREES
 COHESION (c) = 0 PSF
 GROUNDWATER ELEVATION = 1,050 FT

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION -L- STA 23+20±, 4' LT, TO STATION -L- STA 23+48±, 4' LT. THE INFORMATION PROVIDED FOR TEMPORARY SHORING 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 -L- STA 23+20±, 4' LT, TO STATION -L- STA 23+48±, 4' LT. SEE GEOTECHNICAL STANDARD DETAIL NO. 1801.02 FOR STANDARD TEMPORARY WALLS.

WHEN BACKFILL FOR BRIDGE APPROACH FILLS OVERLAPS WITH THE REINFORCED ZONE OF TEMPORARY WALLS, USE SHORING BACKFILL OR BACKFILL MATERIAL REQUIRED FOR RETAINING WALLS and/or BRIDGE APPROACH FILLS, WHICHEVER IS BETTER, IN THE REINFORCED ZONE OF TEMPORARY WALLS.

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APPROVED: <i>Michael T. Rzepka</i> DATE: 3/27/2023 		<h2 style="margin: 0;">TEMPORARY SHORING DATA</h2>
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		

PHASING

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

PROJ. REFERENCE NO.	SHEET NO.
B-5869	TMP-3

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 VEHICULAR ACCESS TO ALL RESIDENCES AND BUSINESSES DURING THE LIFE OF THE CONTRACT, UNLESS OTHERWISE NOTED IN THE PHASING PLANS OR DIRECTED BY THE RESIDENT 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 AND/OR TEMPORARY TRAFFIC PATTERN UPON ACTIVITIES COMPLETION, UNLESS OTHERWISE NOTED IN THE PHASING PLANS.

WHEN PHASING STATES TO USE LANE CLOSURES, REFER TO THE FOLLOWING FOR ALL EXISTING AND PROPOSED ROADS:

- ALL TWO-LANE/TWO-WAY FACILITIES SEE RSD 1101.02 SHEET 1 OF 14
- ALL 3-LANE ROADWAYS SEE RSD 1101.02 SHEET 2 OF 14
- ALL MULTI-LANE FACILITIES POSTED SEE RSD 1101.02 SHEETS 3 & 7 OF 14

COMPLETE PAVING UP TO, BUT NOT INCLUDING, THE FINAL LAYER OF SURFACE COURSE UNTIL STATED TO PLACE FINAL LAYER IN THE PHASING PLANS.

WHEN WEDGING OVER EXISTING PAVEMENT, WEDGE TO PROPOSED ELEVATION (LESS THE FINAL LAYER OF SURFACE COURSE), OR WEDGE AS NEEDED TO MAINTAIN TRAFFIC AND POSITIVE DRAINAGE.

REPLACE MARKINGS AND RETURN TRAFFIC TO THE CURRENT TRAFFIC PATTERN AT THE END OF EACH WORK PERIOD UNLESS OTHERWISE NOTED IN THE PHASING OR DIRECTED BY THE ENGINEER.

FOR ALL SHOULDER CLOSURES, SEE RSD 1101.04. WHEN PORTABLE CONCRETE BARRIER (PCB) IS PRESENT ON SHOULDERS, PLACE SHOULDER CLOSURE SIGNS & DEVICES IN ADVANCE OF PCB.

PHASE 1 (REFER TO SHEETS TMP-4 & 5)

USING LANE CLOSURES, RESTRIPE WB US 70 LANES AND SHIFT TOWARDS THE CENTER. INSTALL PORTABLE CONCRETE BARRIER (PCB).

BEHIND BARRIER AND AWAY FROM TRAFFIC, CONSTRUCT -DET-, INCLUDING TEMPORARY BRIDGE AND ROADWAY. USING LANE CLOSURES, TIE -DET- TO EXISTING PAVEMENT. (SEE ROADWAY PLANS)

INSTALL TEMPORARY SIGNAL FOR PHASE 2 TRAFFIC PATTERNS.

PHASE 2 (REFER TO SHEETS TMP-6 & 7)

USING LANE CLOSURES, COMPLETE THE FOLLOWING:

- REMOVE PCB, PLACE TEMPORARY PAVEMENT MARKINGS AND MARKERS AND SHIFT WB US 70 TRAFFIC TO -DET- ALIGNMENT
- OBLITERATE EXISTING MARKINGS, PLACE TEMPORARY PAVEMENT MARKINGS AND MARKERS AND SHIFT EB US 70 TRAFFIC TO THE PATTERN SHOWN, UTILIZING THE WB LANES ON THE EXISTING BRIDGE. CLOSE NEAR ENTRANCE (-DR-) TO THE SHOPPING CENTER
- ACTIVATE TEMPORARY SIGNAL

NOTE: FOR CONSTRUCTION FROM -L- STA 16+00± TO STA 19+75±, CONSTRUCT PROPOSED PAVEMENT AT TEMPORARY GRADE -L_TEMP1- (SEE ROADWAY PLANS).

USING LANE CLOSURES, INSTALL PCB AND BEHIND BARRIER, CONSTRUCT STAGE 1 OF NEW BRIDGE AND ROADWAY APPROACHES FROM -L- STA 18+00± TO STA 24+85±.

USING LANE CLOSURES, CONSTRUCT THE FOLLOWING:

- PROPOSED WIDENING RIGHT FROM -L- STA 12+50± TO STA 18+00±, INCLUDING WEDGING ADJACENT EXISTING PAVEMENT TO MAINTAIN CROSS SLOPE FOR TRAFFIC AND DRAINAGE
- REMOVE EXISTING CURB AND GUTTER AND SIDEWALK AND WIDEN TO EDGE AND ELEVATION OF EXISTING FROM -L- STA 24+85± TO STA 28+00±.

BEHIND CLOSURE, RECONSTRUCT -DR-.

AWAY FROM TRAFFIC, BEGIN WEDGING OF EXISTING PAVEMENT AND WIDENING BETWEEN -L- STA 24+85± TO STA 27+60±, USING TEMPORARAY GRADE -L_TEMP2- (SEE ROADWAY PLANS).

PHASE 3 (REFER TO SHEETS TMP-8 & 9)

USING LANE CLOSURES, COMPLETE WEDGING OF TEMPORARY GRADE TIE BEGUN IN PHASE 2 BETWEEN -L- STA 24+85± TO STA 27+60±. PLACE TEMPORARY PAVEMENT MARKINGS AND MARKERS AND SHIFT EB US 70 TRAFFIC TO PHASE 3 PATTERN. ADJUST TEMPORARY SIGNAL. REOPEN -DR- (RIGHT-IN ONLY).

USING LANE CLOSURES, INSTALL PCB AND BEHIND BARRIER CONSTRUCT REMAINING BRIDGE AND ROADWAY APPROACHES FROM -L- STA 18+00± TO STA 24+85±.

USING LANE CLOSURES, BEGIN WEDGING EXISTING PAVEMENT TO TIE TO PHASE 3 ROADWAY CONSTRUCTION ON EAST AND WEST ENDS. WEDGING ON EAST END TO MATCH THE PHASE 2 TEMPORARY WEDGING GRADE TIE FOR PHASE 3 WESTBOUND PATTERN.

PHASE 4 (REFER TO SHEETS TMP-10 & 11)

STEP 1

USING LANE CLOSURES, REMOVE PCB. COMPLETE WEDGING BEGUN IN PHASE 3. PLACE TEMPORARY PAVEMENT MARKINGS AND MARKERS AND SHIFT WB US 70 TRAFFIC TO PHASE 4 TEMPORARY PATTERN. ADJUST TEMPORARY SIGNAL.

USING LANE CLOSURES, CONSTRUCT THE FOLLOWING. CONSTRUCTION INCLUDES FINAL WEDGING OF EXISTING PAVEMENT UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE (PROVIDE TEMPORARY PEDESTRIAN ACCOMMODATIONS AS CONSTRUCTION PROGRESSES):

- FINAL CURB & GUTTER AND SHOULDER ALONG LEFT SIDE OF -L- FROM STA 12+50± TO STA 19+00±
- FINAL CURB & GUTTER AND SHOULDER ALONG RIGHT SIDE OF -L- FROM STA 16+00± TO STA 19+00±
- FINAL CURB & GUTTER AND SIDEWALKS ALONG -L- FROM STA 24+85± TO STA 36+00±
- FINAL CURB & GUTTER AND SIDEWALK ALONG -DR1-

USING LANE CLOSURES, REMOVE -DET- BRIDGE AND ROADWAY APPROACHES.

INSTALL PROPOSED SIGNAL FOR FINAL PATTERN.

STEP 2

USING LANE CLOSURES, PLACE FINAL LAYER OF SURFACE COURSE AND FINAL MARKINGS AND MARKERS. SHIFT TRAFFIC TO FINAL PATTERN, ACTIVATE PROPOSED SIGNAL AND REMOVE TEMPORARY SIGNAL AND REMAINING TRAFFIC CONTROL DEVICES.

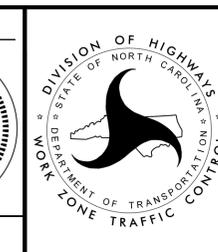
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APPROVED: *Michael T. Rzepka*

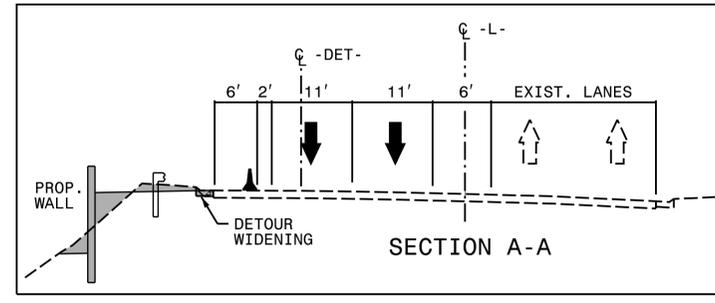
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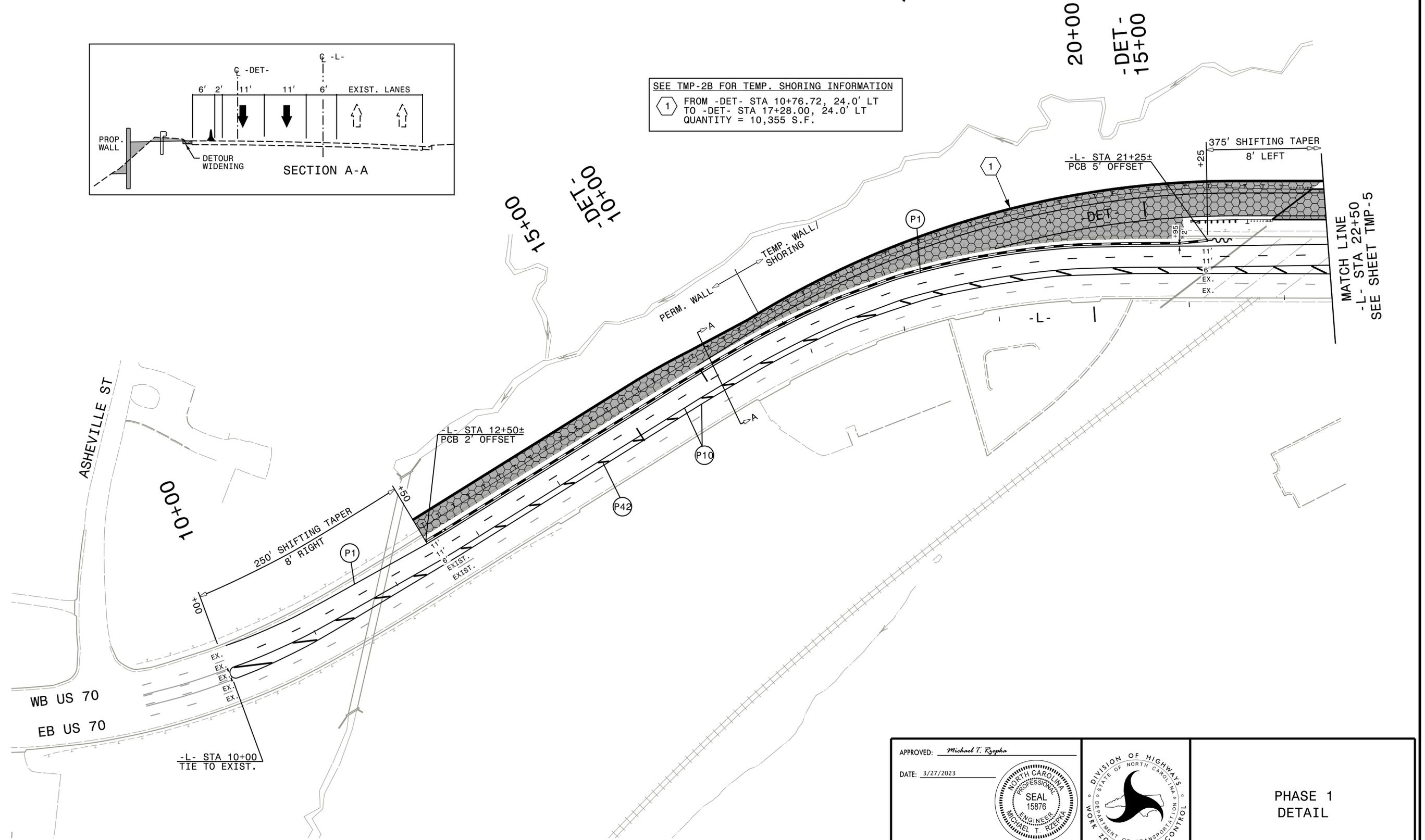
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UNLESS ALL SIGNATURES COMPLETED**



PHASING



SEE TMP-2B FOR TEMP. SHORING INFORMATION
1 FROM -DET- STA 10+76.72, 24.0' LT
TO -DET- STA 17+28.00, 24.0' LT
QUANTITY = 10,355 S.F.



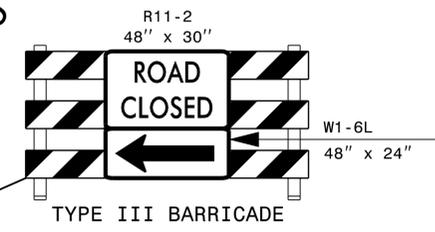
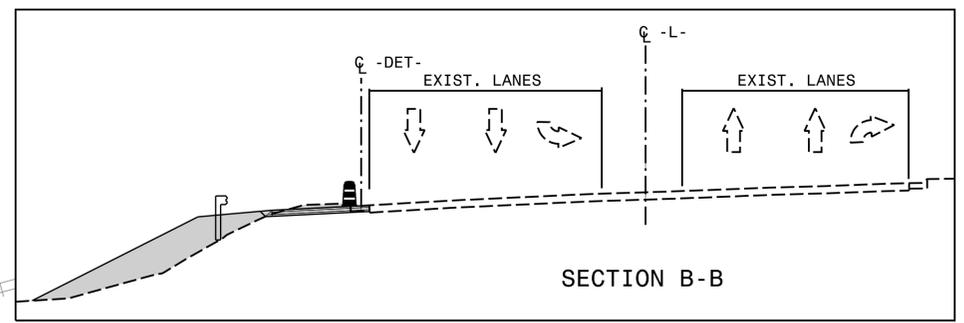
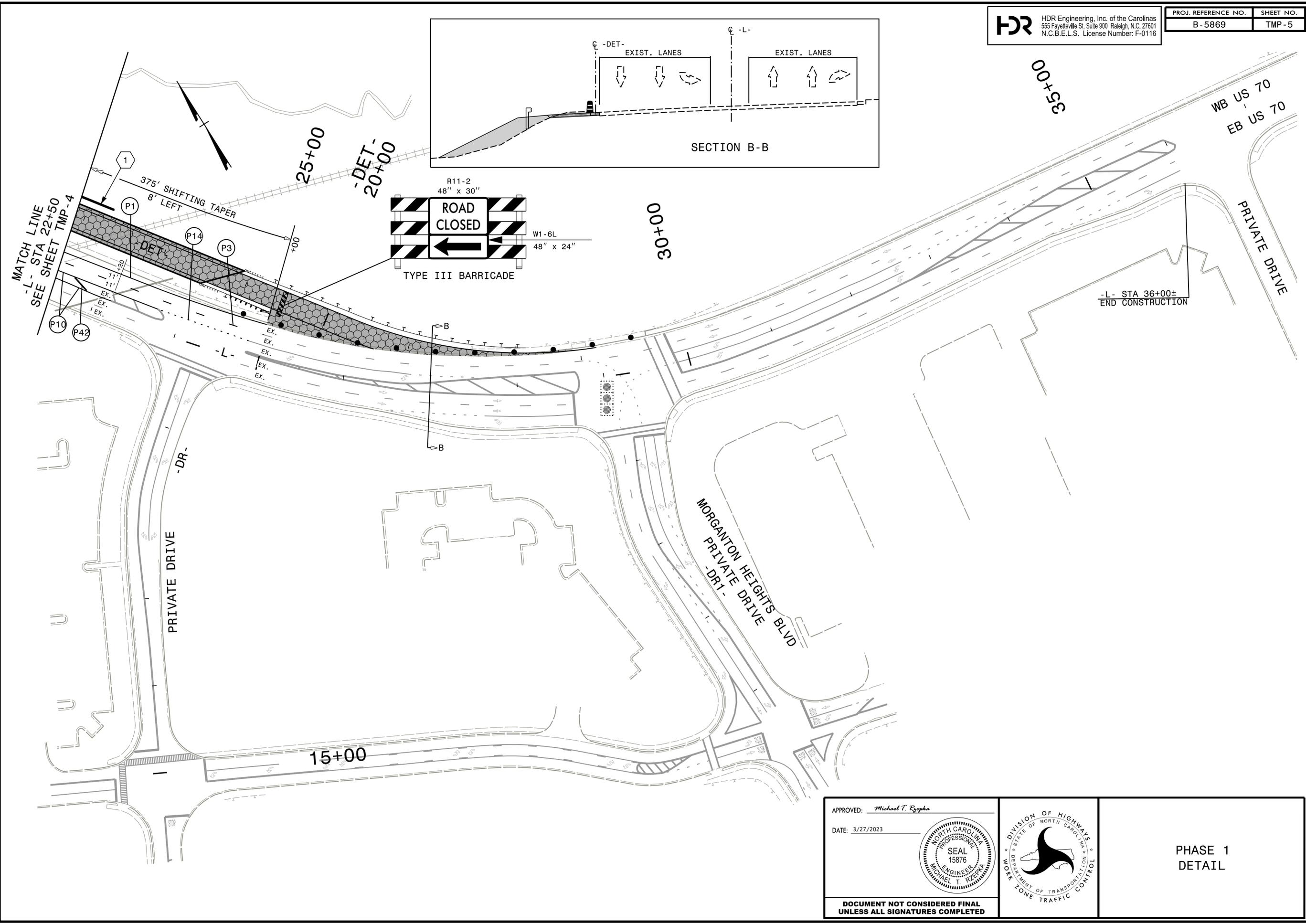
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DATE: 3/27/2023

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PHASE 1
DETAIL



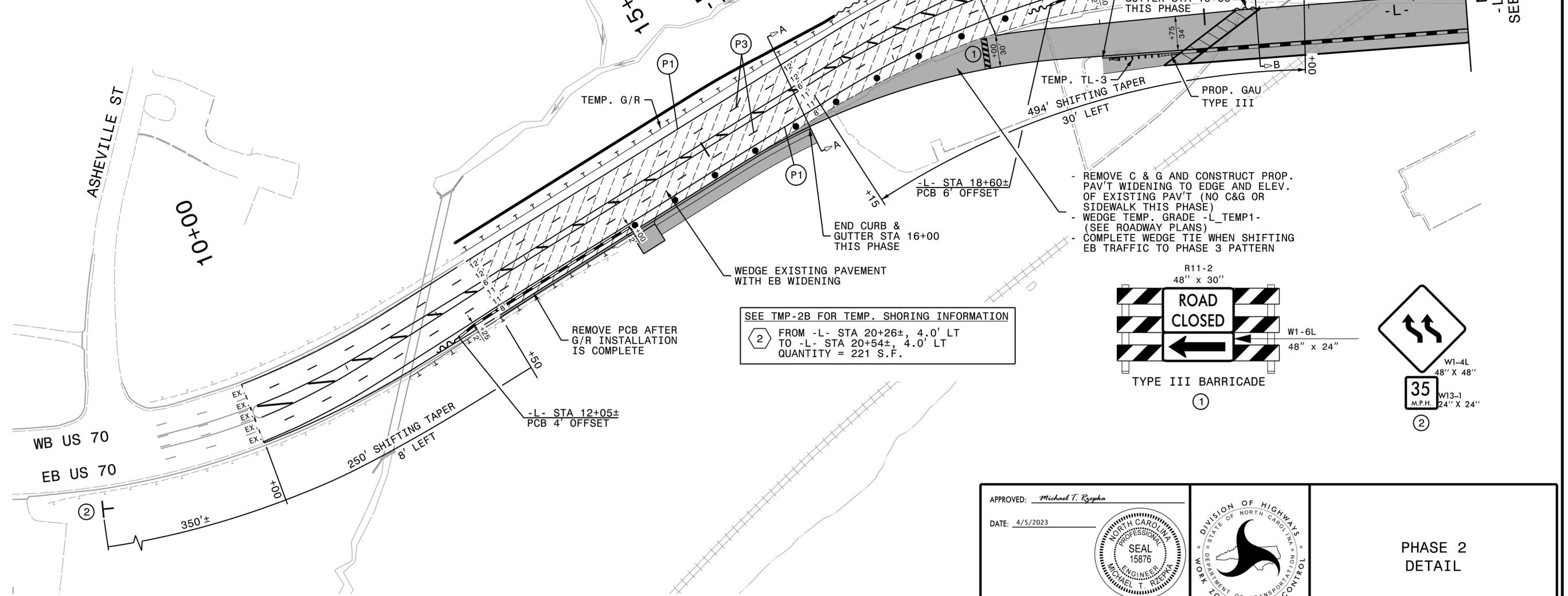
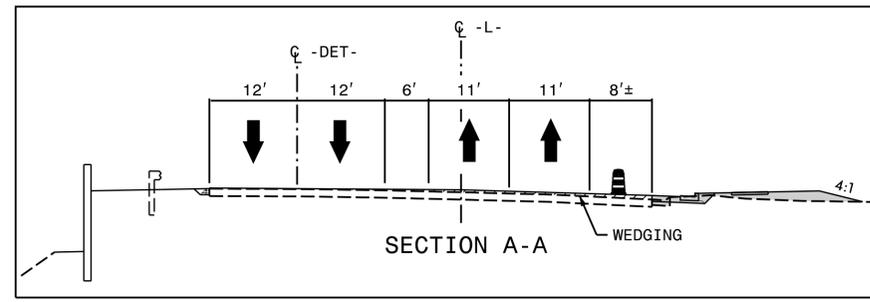
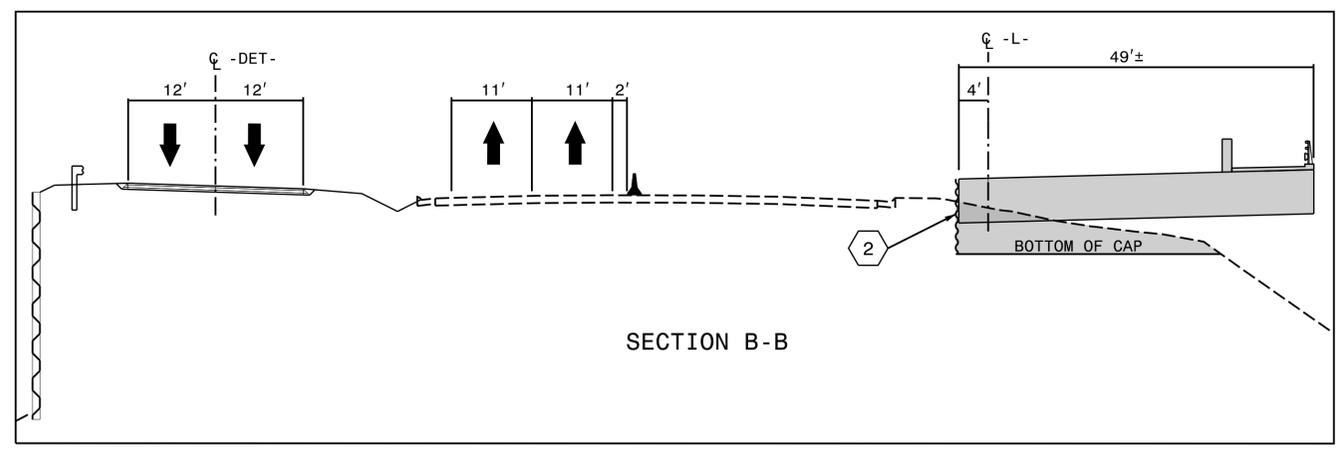
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APPROVED: *Michael T. Rzepka*
DATE: 3/27/2023

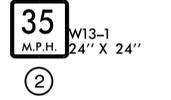
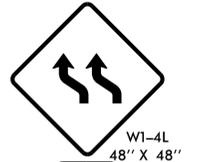
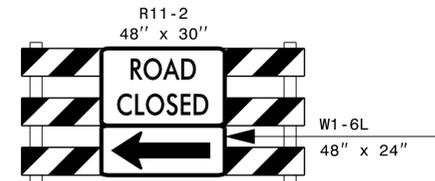
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**PHASE 1
DETAIL**



- REMOVE C & G AND CONSTRUCT PROP. PAV'T WIDENING TO EDGE AND ELEV. OF EXISTING PAV'T (NO C&G OR SIDEWALK THIS PHASE)
- WEDGE TEMP. GRADE -L_TEMP1- (SEE ROADWAY PLANS)
- COMPLETE WEDGE TIE WHEN SHIFTING EB TRAFFIC TO PHASE 3 PATTERN



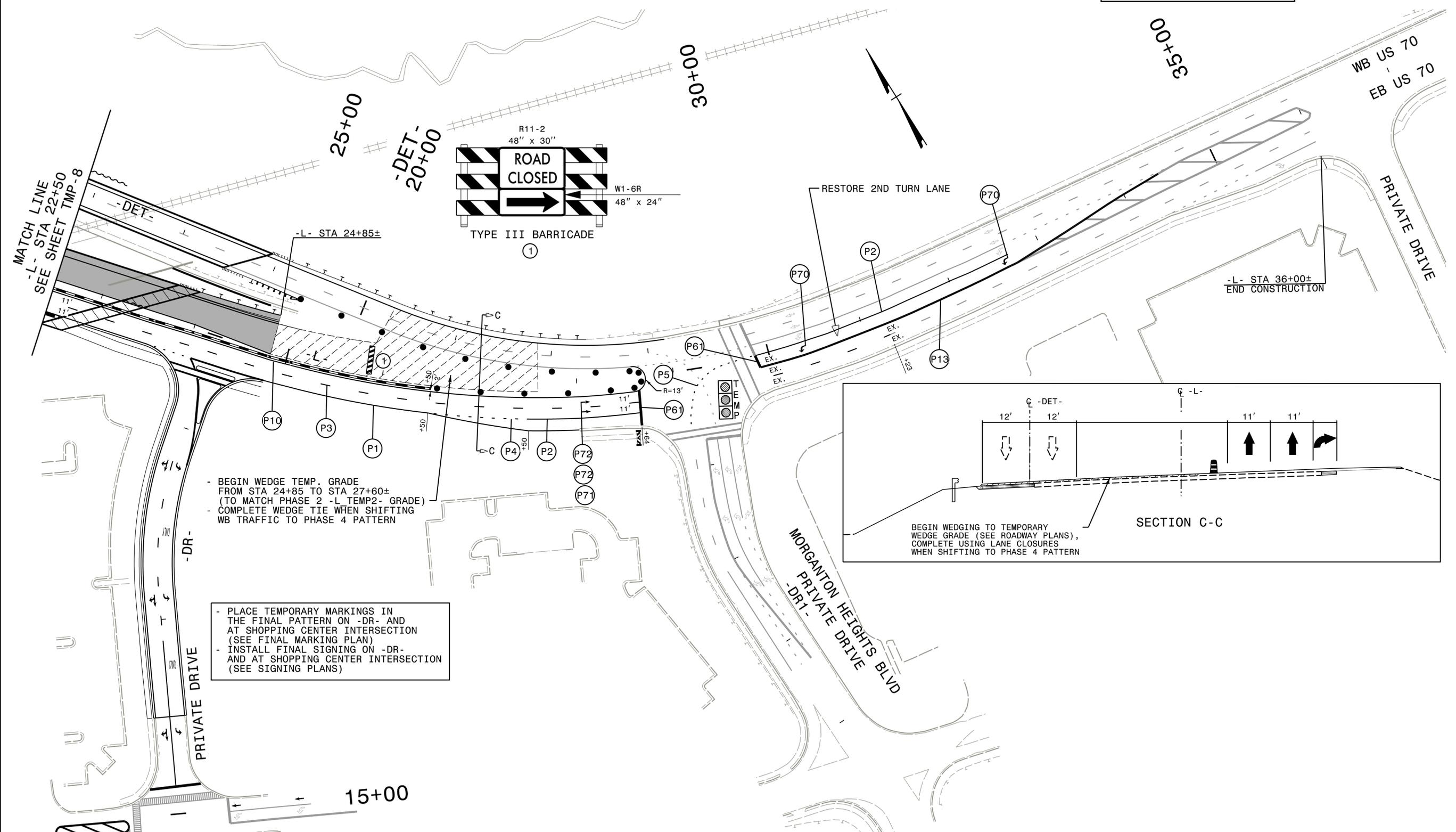
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APPROVED: *Michael T. Rzepka*
DATE: 4/5/2023

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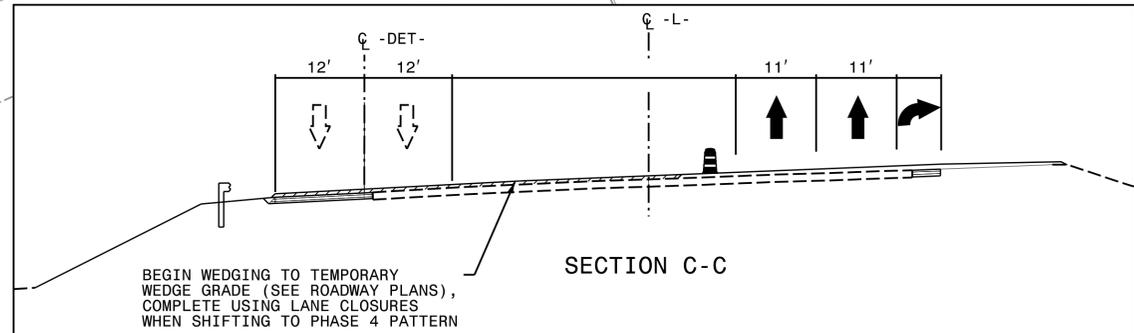


**PHASE 2
DETAIL**



- BEGIN WEDGE TEMP. GRADE FROM STA 24+85 TO STA 27+60± (TO MATCH PHASE 2 -L TEMP2- GRADE)
- COMPLETE WEDGE TIE WHEN SHIFTING WB TRAFFIC TO PHASE 4 PATTERN

- PLACE TEMPORARY MARKINGS IN THE FINAL PATTERN ON -DR- AND AT SHOPPING CENTER INTERSECTION (SEE FINAL MARKING PLAN)
- INSTALL FINAL SIGNING ON -DR- AND AT SHOPPING CENTER INTERSECTION (SEE SIGNING PLANS)



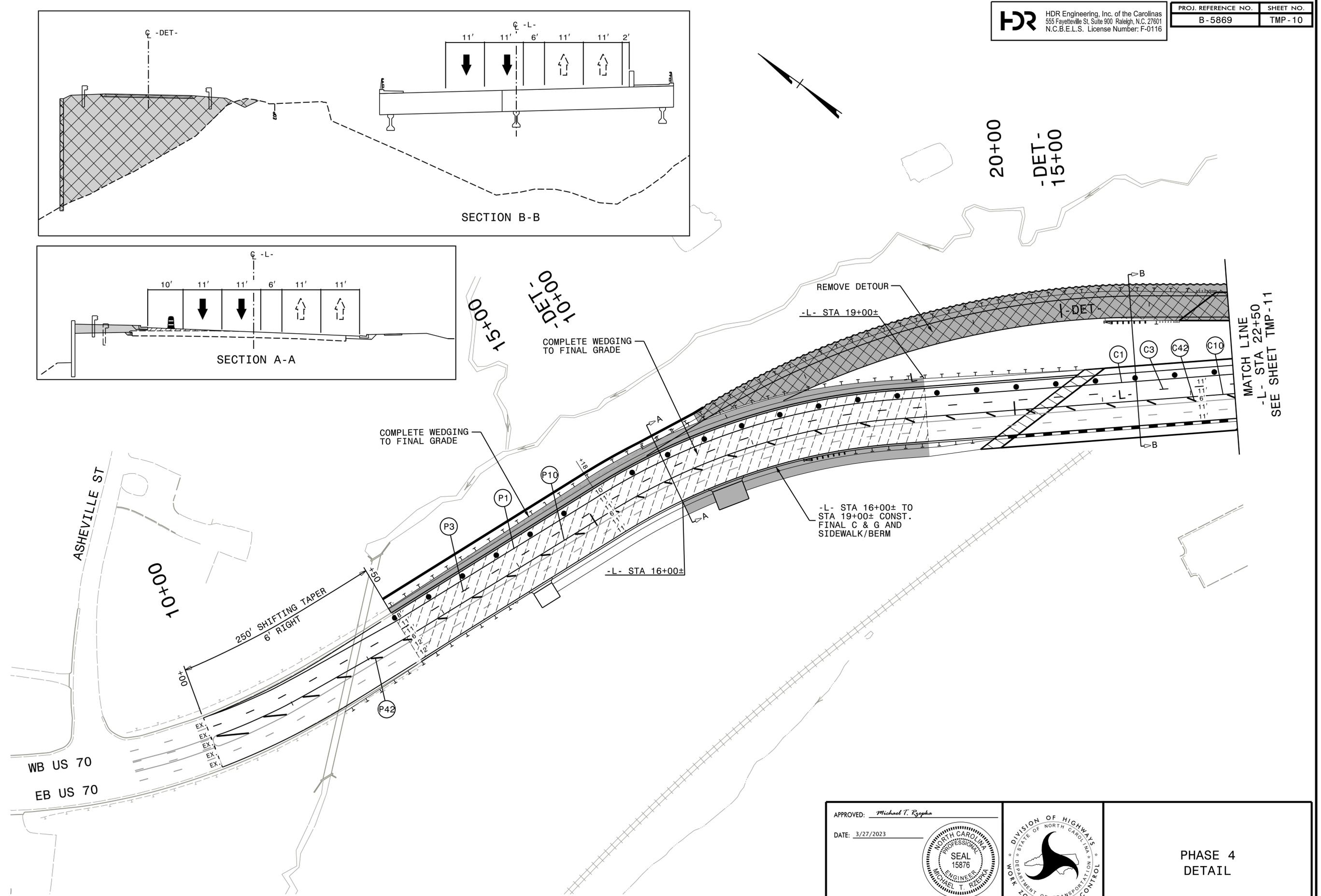
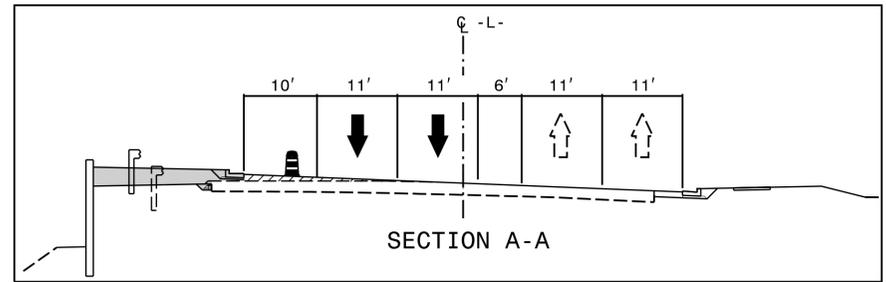
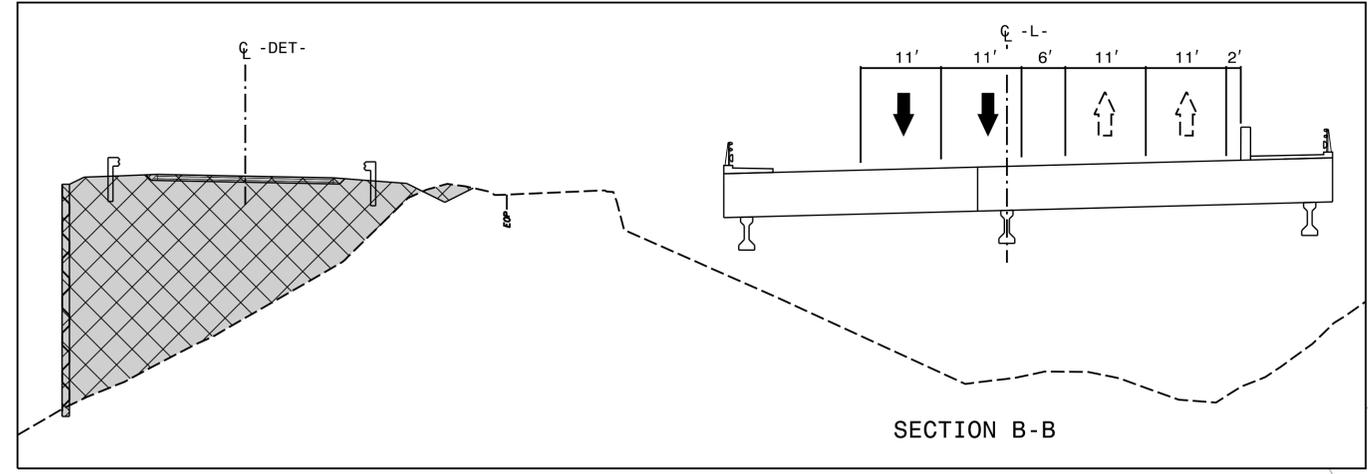
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APPROVED: *Michael T. Rzepka*
DATE: 3/27/2023
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15876
MICHAEL T. RZEPKA



PHASE 3
DETAIL

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DATE: 3/27/2023

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**PHASE 4
DETAIL**

