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# ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - CONTRACT STANDARDS AND DEVELOPMENT 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
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUM
1145.01	BARRICADES - TYPE III
1150.01	FLAGGING DEVICES
1170.01	POSITIVE PROTECTION - PORTABLE CONCRETE BARRIER
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.03	PAVEMENT MARKINGS - EXIT AND ENTRANCE RAMP
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.06	PAVEMENT MARKINGS - THRU LANE DROPS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
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.
- TEMP. SHORING (LOCATION PURPOSES ONLY)
- WORK AREA
- WEDGING
- REMOVAL

## SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY

## PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

## TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- TUBULAR MARKER
- SKINNY DRUM
- TEMPORARY CRASH CUSHION
- TEMPORARY PORTABLE CONC. BARRIER
- 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

### PAVEMENT MARKING LINES

- P1 - PAINT (4" WHITE, 2X) EDGELINE
- P2 - PAINT (4" WHITE, 2X) SOLID LANE LINE
- P3 - PAINT (4" WHITE, 2X) 10 FT. SKIP
- P4 - PAINT (4" WHITE, 2X) 3 FT. - 9 FT./SP MINISKIP
- P11 - PAINT (4" YELLOW, 2X) SINGLE CENTER
- P40 - PAINT (8" WHITE, 2X) GORELINE
- P61 - PAINT (24" WHITE, 2X) STOP BAR

### PAVEMENT MARKING SYMBOLS

- P70 - PAINT 2X (LEFT TURN ARROW)
- P71 - PAINT 2X (RIGHT TURN ARROW)
- P72 - PAINT 2X (STRAIGHT ARROW)
- P73 - PAINT 2X (COMBO LEFT/STRAIGHT ARROW)
- P100 - ALPHANUMERIC CHARACTER

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# Kimley»Horn

APPROVED:  DATE: 3/11/2022 		<b>ROADWAY STANDARD DRAWINGS &amp; LEGEND</b>
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# MANAGEMENT STRATEGIES

**PROPOSED IMPROVEMENTS ALONG -L- BROOKSHIRE BLVD, -LRPA- I-485 RAMP A, -LRPB- I-485 RAMP B, -LRPC- I-485 RAMP C, AND -LLPA- I-485 LOOP A WILL BE CONSTRUCTED WHILE MAINTAINING TRAFFIC AND USING TEMPORARY TRAFFIC PATTERNS WITH TEMPORARY SIGNALS AND TEMPORARY LANE CLOSURES.**

## 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:**

<u>ROAD NAME</u>	<u>DAY AND TIME RESTRICTIONS</u>
NC-16 (BROOKSHIRE BLVD) I-485 RAMP A I-485 RAMP B I-485 RAMP C I-485 LOOP A	6:00 AM TO 7:00 PM MONDAY THRU SUNDAY

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

<u>ROAD NAME</u>
NC-16 (BROOKSHIRE BLVD) I-485 RAMP A I-485 RAMP C I-485 LOOP A

### HOLIDAY

- 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.**

### TIME RESTRICTIONS (CONT.)

- 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 CLOSE ROADS AS FOLLOWS:**

<u>ROAD NAME</u>	<u>DAY AND TIME RESTRICTIONS</u>
NC-16 (BROOKSHIRE BLVD) I-485 RAMP A I-485 RAMP C I-485 LOOP A	ANYTIME UNLESS OTHERWISE DIRECTED BY THE ENGINEER
I-485 RAMP B	6:00 AM TO 7:00 PM MONDAY THRU SUNDAY

**D) DO NOT STOP TRAFFIC AS FOLLOWS, OR AS OTHERWISE DIRECTED BY THE ENGINEER:**

<u>ROAD NAME</u>	<u>DAY AND TIME RESTRICTIONS</u>	<u>OPERATIONS</u>
NC-16 (BROOKSHIRE BLVD) I-485 RAMP A I-485 RAMP B I-485 RAMP C I-485 LOOP A	6:00 AM TO 7:00 PM MONDAY THRU SUNDAY	AT DIRECTION OF ENGINEER AT DIRECTION OF ENGINEER AT DIRECTION OF ENGINEER 30 MINS. FOR PIPE INSTALLATION AT DIRECTION OF ENGINEER

**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

- 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.**
- 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

**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.**

**K) 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

**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.**

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

**O) 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.**

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

**Q) 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.**

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			<h2>TRANSPORTATION OPERATIONS PLAN</h2>

## GENERAL NOTES (CONT.)

### TRAFFIC BARRIER

R) 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.

S) 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

T) 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.

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

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

### PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING	MARKER
ALL ROADS	PAINT	TEMPORARY RAISED

X) 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.

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

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

AA) 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

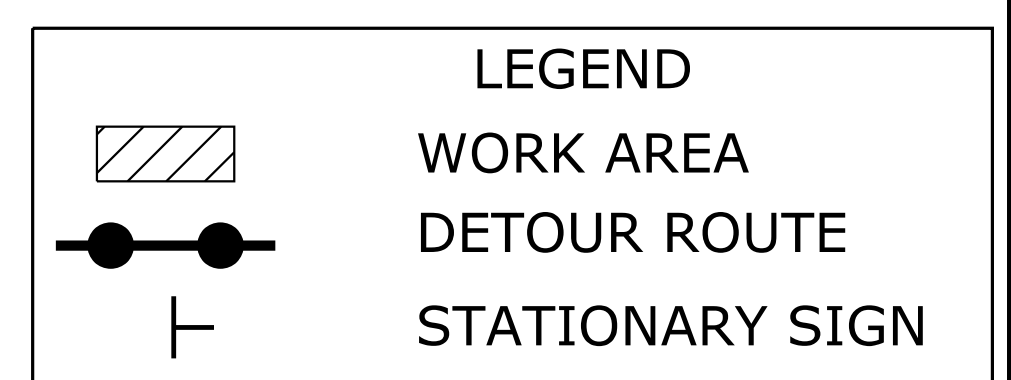
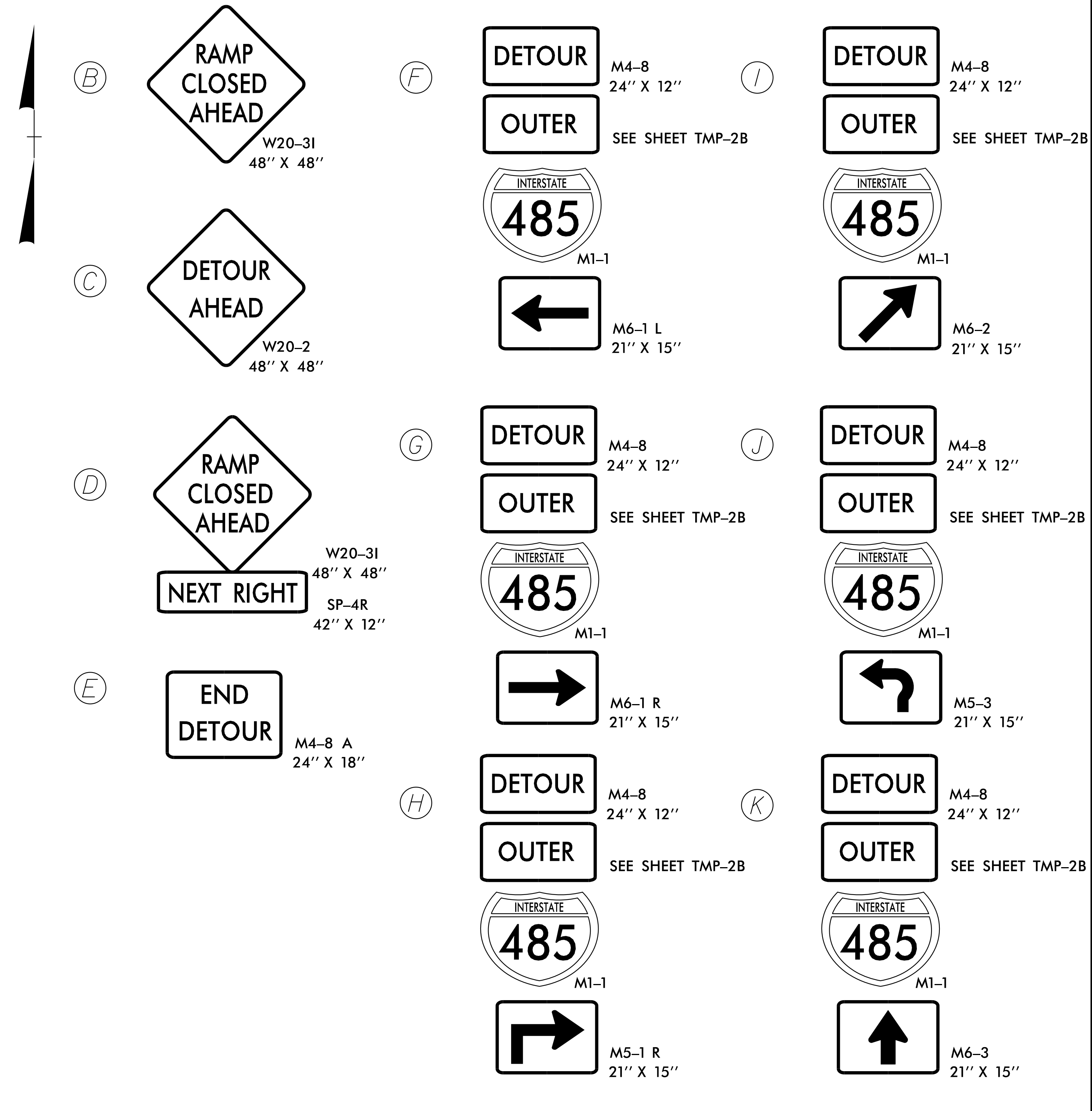
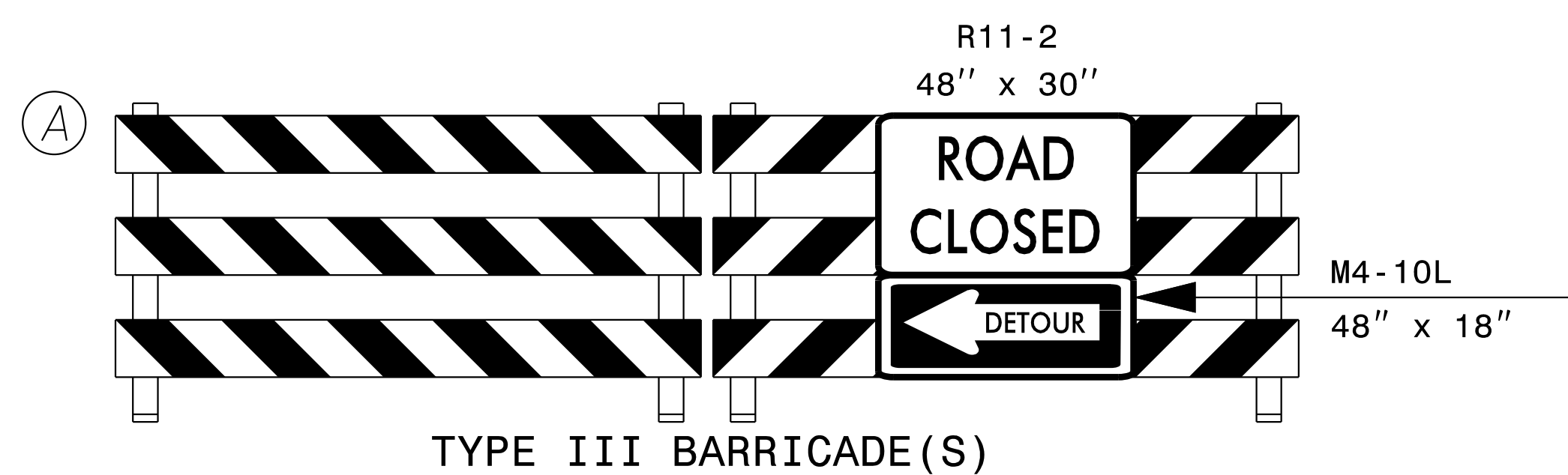
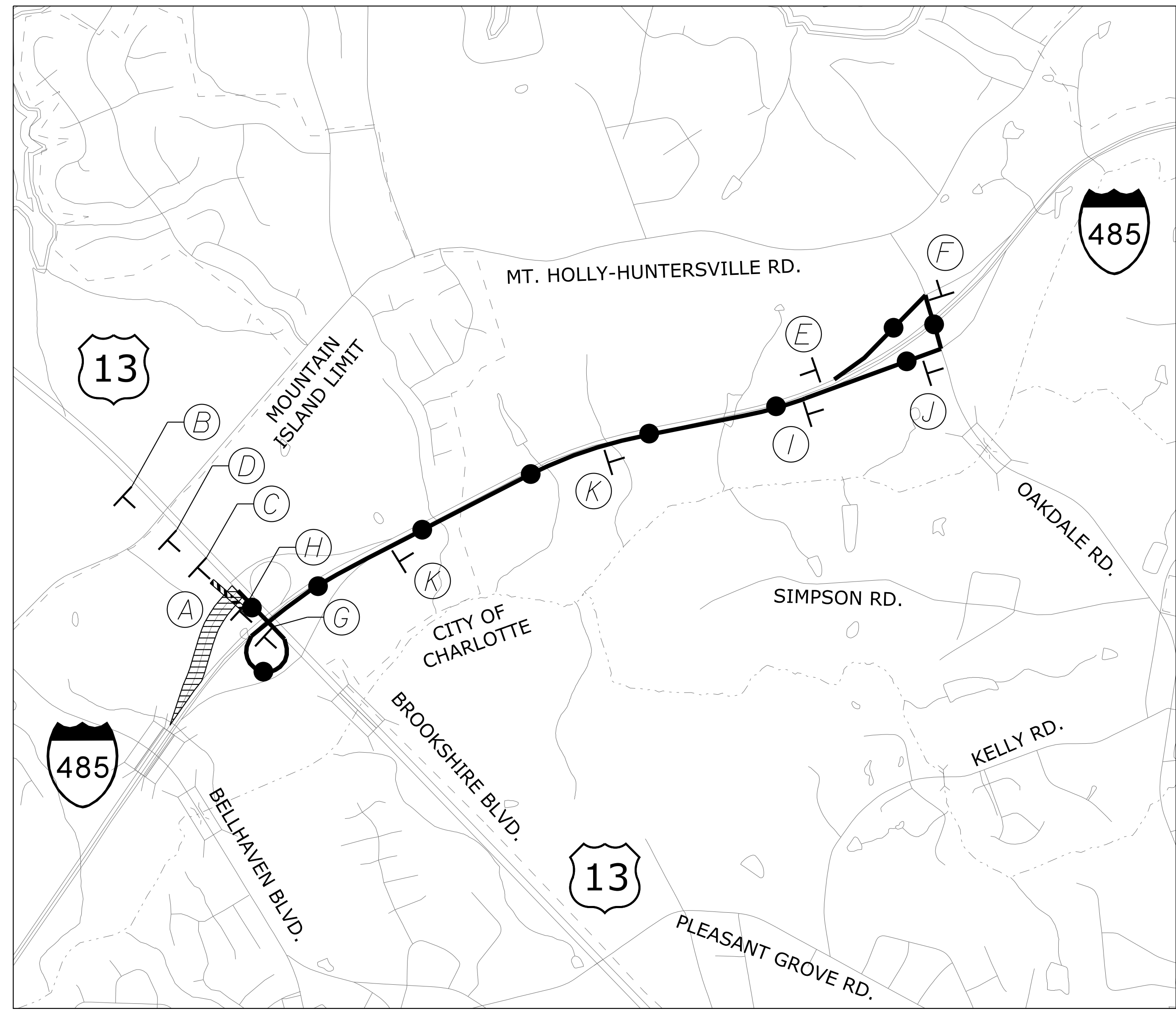
### MISCELLANEOUS

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

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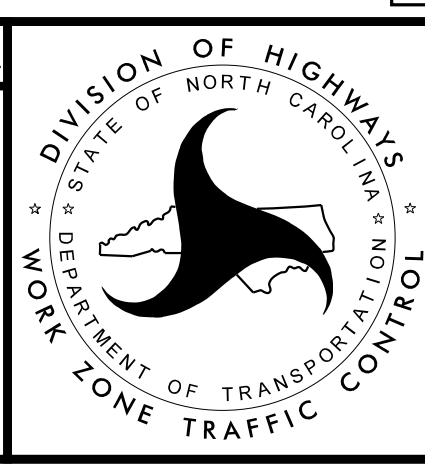
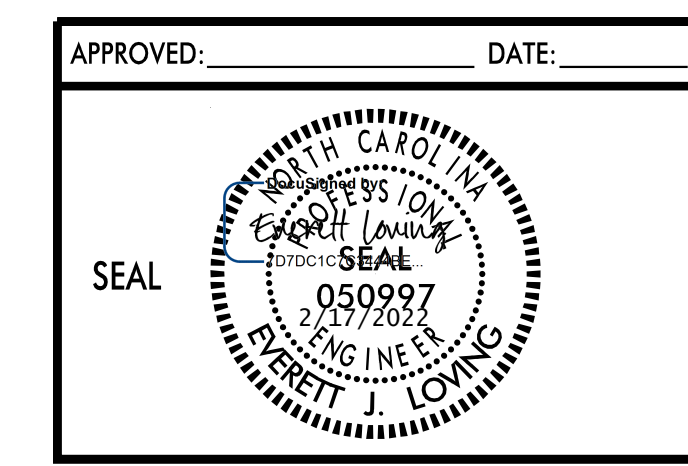
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DETOUR SHEET  
RAMP B



# CONSTRUCTION PHASING

## PHASE 1

**STEP 1:**

INSTALL ADVANCE WARNING SIGNS IN ACCORDANCE WITH RSD 1101.01

**STEP 2:**

INSTALL TEMPORARY TRAFFIC SIGNALS AT THE INTERSECTION OF RAMPS AND -L- NC-16 (BROOKSHIRE BOULEVARD).

**STEP 3:**

INSTALL TEMPORARY PAVEMENT MARKINGS AND SHIFT TRAFFIC ONTO TEMPORARY PATTERN.

**STEP 4:**

WHILE MAINTAINING TRAFFIC USING RSD 1101.02 FOR TEMPORARY LANE CLOSURES, CONSTRUCT PROPOSED IMPROVEMENTS ALONG THE FOLLOWING AS SHOWN ON SHEET TMP-4:

- L- NC-16 (BROOKSHIRE BOULEVARD) (MEDIAN)

AND ALL ASSOCIATED DRAINAGE AS SHOWN ON SHEET TMP-4.

PROVIDE WEDGING AS REQUIRED TO ACCOMMODATE FOR POSITIVE DRAINAGE AND SMOOTH TRANSITIONS BETWEEN EXISTING AND PROPOSED GRADES.

## PHASE 2A

**STEP 1:**

REMOVE TEMPORARY PAVEMENT MARKINGS FROM PHASE 1 THAT CONFLICT WITH THE PHASE 2A CONFIGURATION. INSTALL NEW TEMPORARY PAVEMENT MARKINGS AND SHIFT TRAFFIC ONTO NEW TEMPORARY PATTERN.

ADJUST TEMPORARY SIGNAL FROM PHASE 1 FOR PHASE 2A CONFIGURATION.

**STEP 2:**

WHILE MAINTAINING TRAFFIC USING RSD 1101.02 FOR TEMPORARY LANE CLOSURES, CONSTRUCT PROPOSED IMPROVEMENTS ALONG THE FOLLOWING AS SHOWN ON SHEETS TMP-5 THRU TMP-8:

- L- NC-16 (BROOKSHIRE BOULEVARD)
- LRPA- I-485 RAMP A (LEFT)
- LRPB- I-485 RAMP B (LEFT)
- LRPC- I-485 RAMP C (LEFT)
- LLPA- I-485 LOOP A (LEFT)

AND ALL ASSOCIATED DRAINAGE AS SHOWN ON SHEETS TMP-5 THRU TMP-8.

PROVIDE WEDGING ALONG THE FOLLOWING AS REQUIRED TO ACCOMMODATE FOR POSITIVE DRAINAGE AND SMOOTH TRANSITIONS BETWEEN EXISTING AND PROPOSED GRADES.

- L- NC-16 (BROOKSHIRE BOULEVARD)
- LRPA- I-485 RAMP A
- LRPB- I-485 RAMP B
- LLPA- I-485 LOOP A

**STEP 3:**

**INTERMEDIATE CONTRACT TIME #3:**  
PERFORM THE WORK ASSOCIATED WITH PHASE 2A, STEP 3 BETWEEN THE HOURS OF 7:00 PM AND 6:00 AM, MONDAY THRU SUNDAY. REFER TO PROJECT SPECIFICATIONS FOR LIQUIDATED DAMAGES.

WHILE MAINTAINING TRAFFIC USING RSD 1101.03 FOR TEMPORARY ROAD CLOSURES AND THE DETOUR ON SHEET TMP-2A, PROVIDE WEDGING ALONG -LRPB- I-485 RAMP B AS REQUIRED TO ACCOMMODATE FOR POSITIVE DRAINAGE AND SMOOTH TRANSITIONS BETWEEN EXISTING AND PROPOSED GRADES.

## PHASE 2B

**STEP 1:**

REMOVE TEMPORARY PAVEMENT MARKINGS FROM PHASE 2A THAT CONFLICT WITH THE PHASE 2B CONFIGURATION. INSTALL NEW TEMPORARY PAVEMENT MARKINGS AND SHIFT TRAFFIC ONTO NEW TEMPORARY PATTERN.

ADJUST TEMPORARY SIGNAL FROM PHASE 2A FOR PHASE 2B CONFIGURATION.

**STEP 2:**

WHILE MAINTAINING TRAFFIC USING RSD 1101.02 FOR TEMPORARY LANE CLOSURES, CONSTRUCT PROPOSED IMPROVEMENTS ALONG THE FOLLOWING AS SHOWN ON SHEETS TMP-9 THRU TMP-12:

- L- NC-16 (BROOKSHIRE BOULEVARD)
- LRPA- I-485 RAMP A (RIGHT)
- LRPB- I-485 RAMP B (RIGHT)
- LRPC- I-485 RAMP C (RIGHT)

AND ALL ASSOCIATED DRAINAGE AS SHOWN ON SHEETS TMP-9 THRU TMP-12.

PROVIDE WEDGING AS REQUIRED TO ACCOMMODATE FOR POSITIVE DRAINAGE AND SMOOTH TRANSITIONS BETWEEN EXISTING AND PROPOSED GRADES.

## PHASE 3

**STEP 1:**

INSTALL FINAL TRAFFIC SIGNALS AT THE INTERSECTIONS OF -L- NC-16 (BROOKSHIRE BOULEVARD) AND RAMPS FROM I-485.

**STEP 2:**

REMOVE TEMPORARY PAVEMENT MARKINGS FROM PHASE 2B THAT CONFLICT WITH THE FINAL STRIPING CONFIGURATION. INSTALL NEW TEMPORARY PAVEMENT MARKINGS TO MATCH FINAL STRIPING CONFIGURATION AND SHIFT TRAFFIC ONTO NEW TRAFFIC PATTERN.

**STEP 3:**

USING RSD 1101.02 SHEET 3 PLACE FINAL LAYER OF ASPHALT, FINAL PAVEMENT MARKINGS, MARKERS, AND SIGNING, FOR THE ENTIRE LENGTH, TO THE FOLLOWING:

- L- NC-16 (BROOKSHIRE BOULEVARD)
- LRPA- I-485 RAMP A
- LRPB- I-485 RAMP B
- LRPC- I-485 RAMP C
- LLPA- I-485 LOOP A

SHIFT TRAFFIC ONTO FINAL PATTERN, OPEN ALL LANES TO TRAFFIC, AND REMOVE ALL TRAFFIC CONTROL DEVICES.

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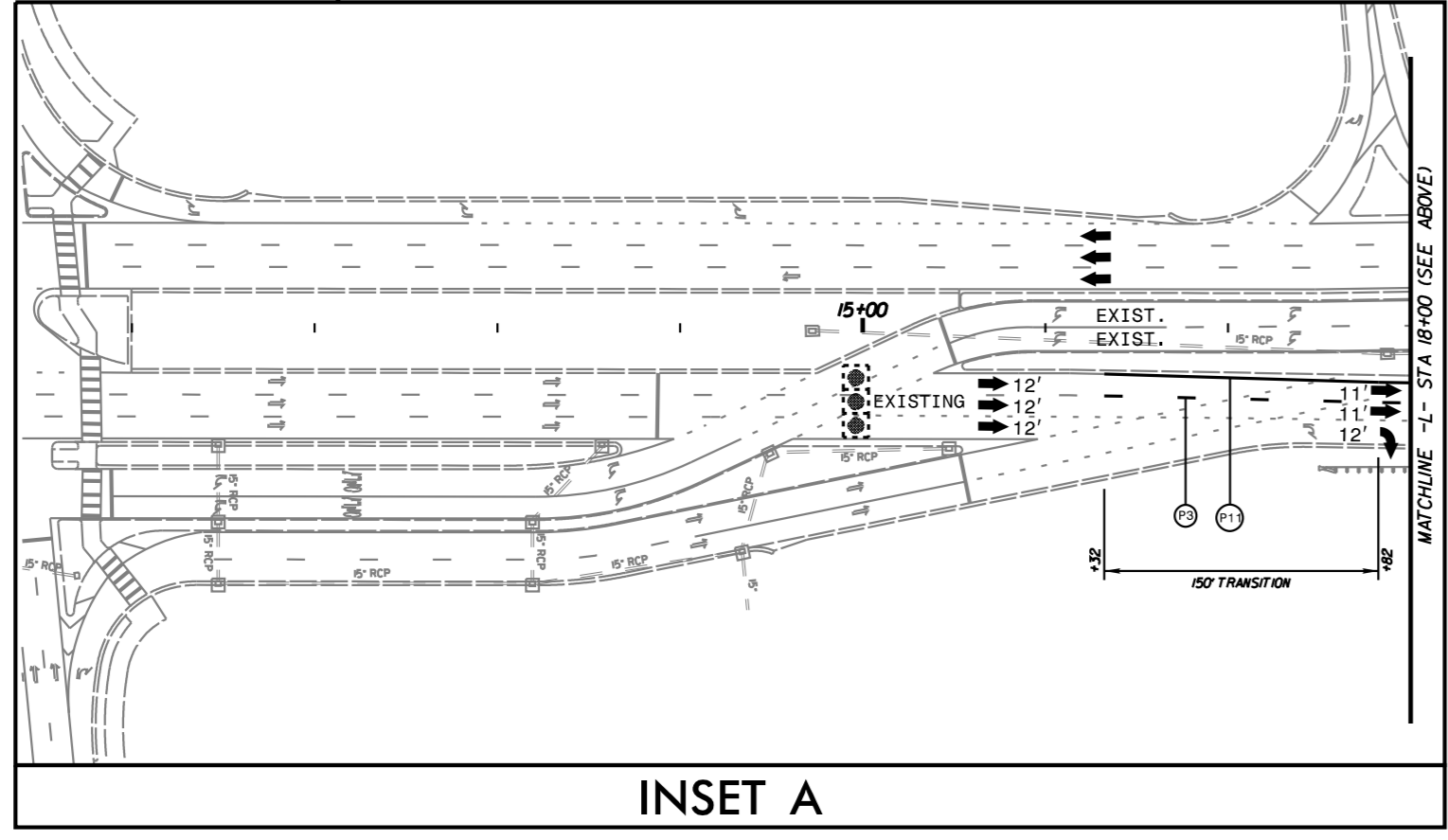
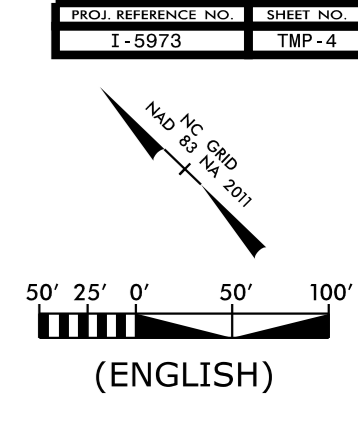
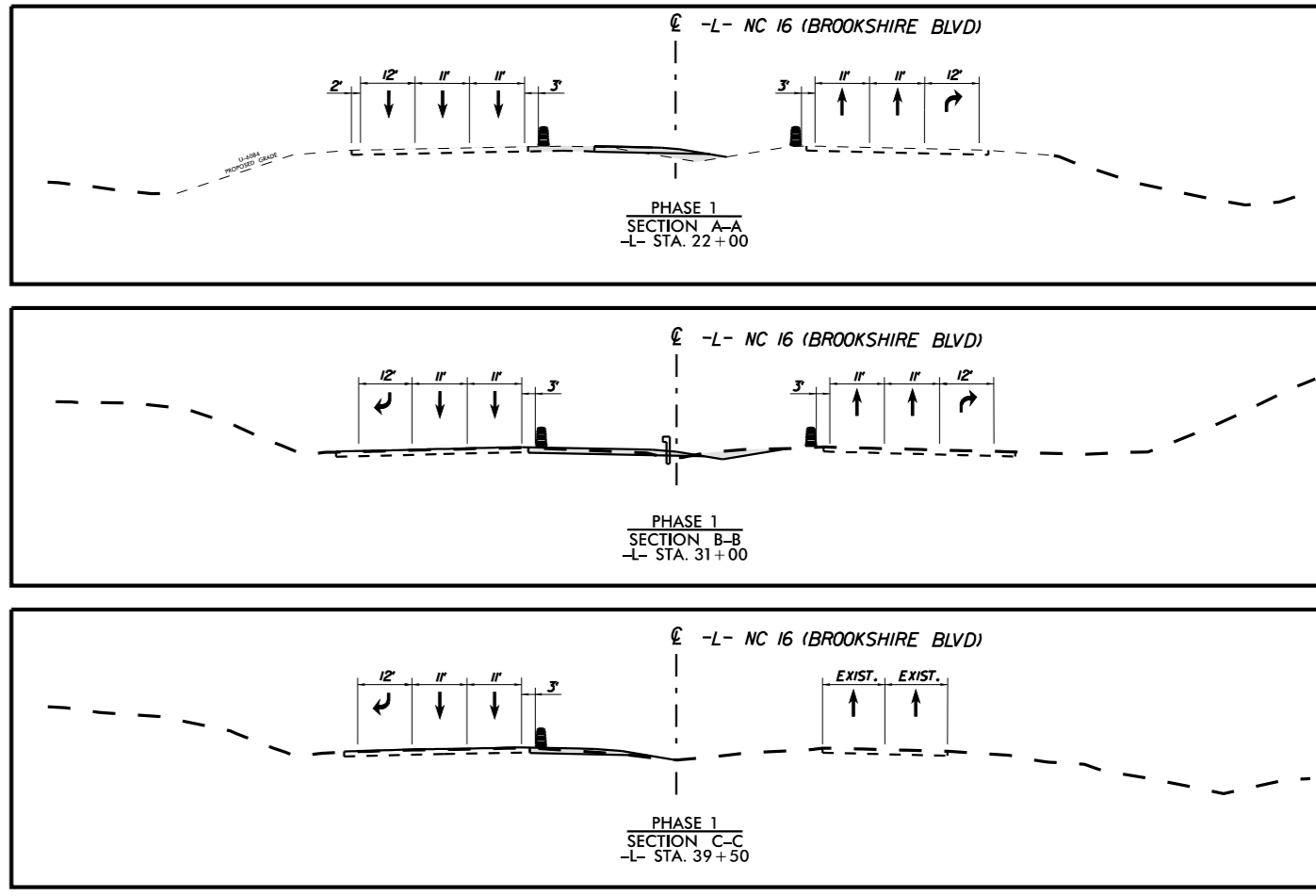
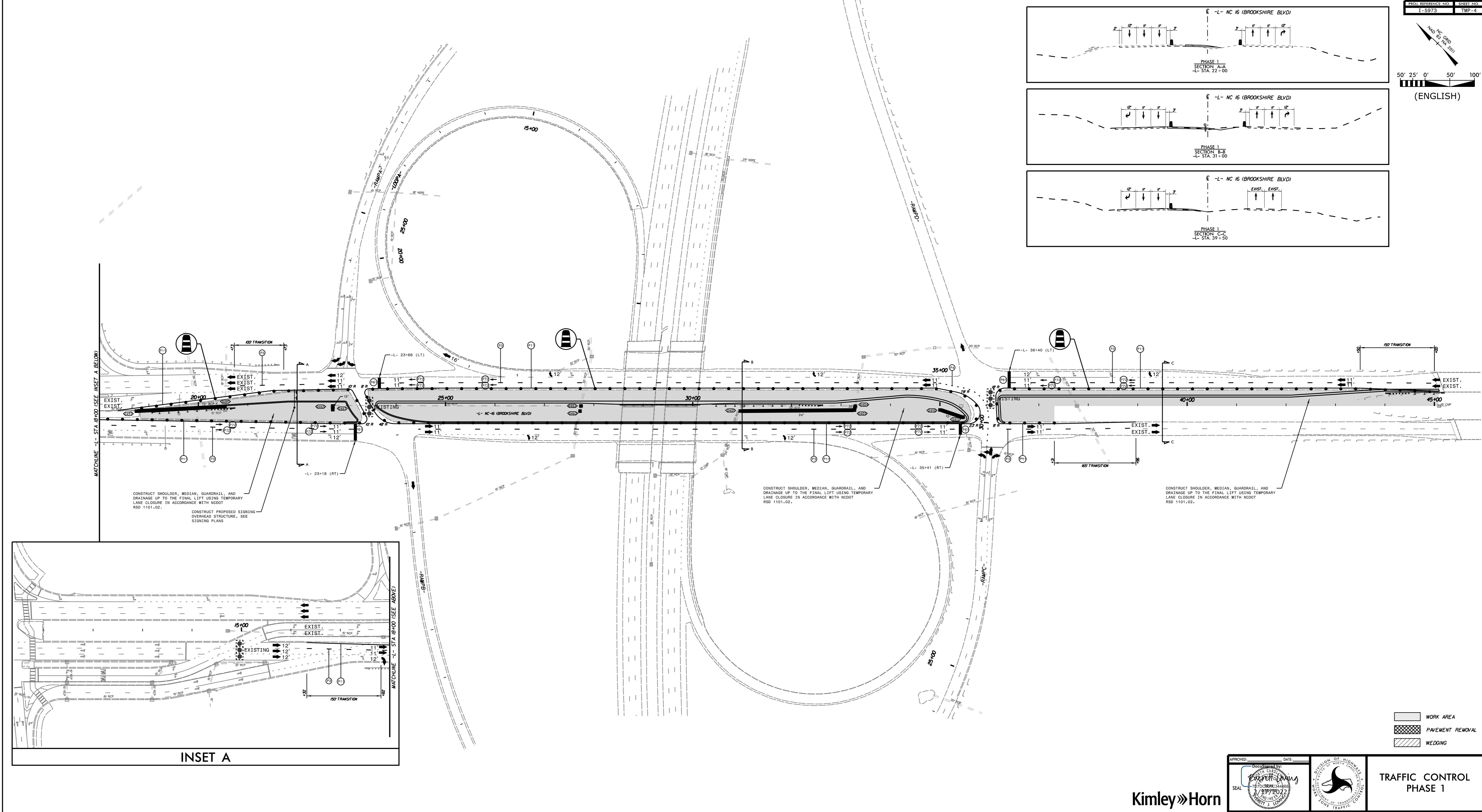
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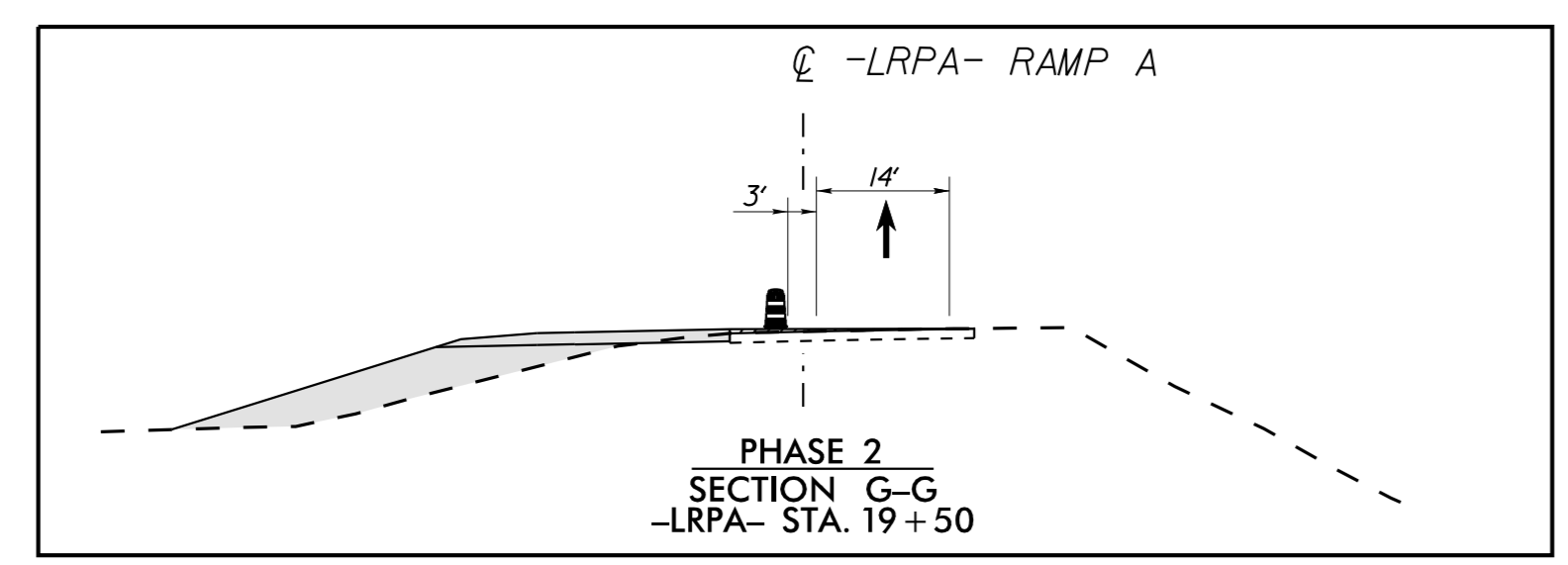
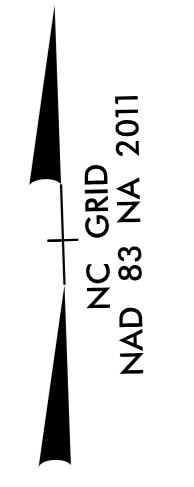


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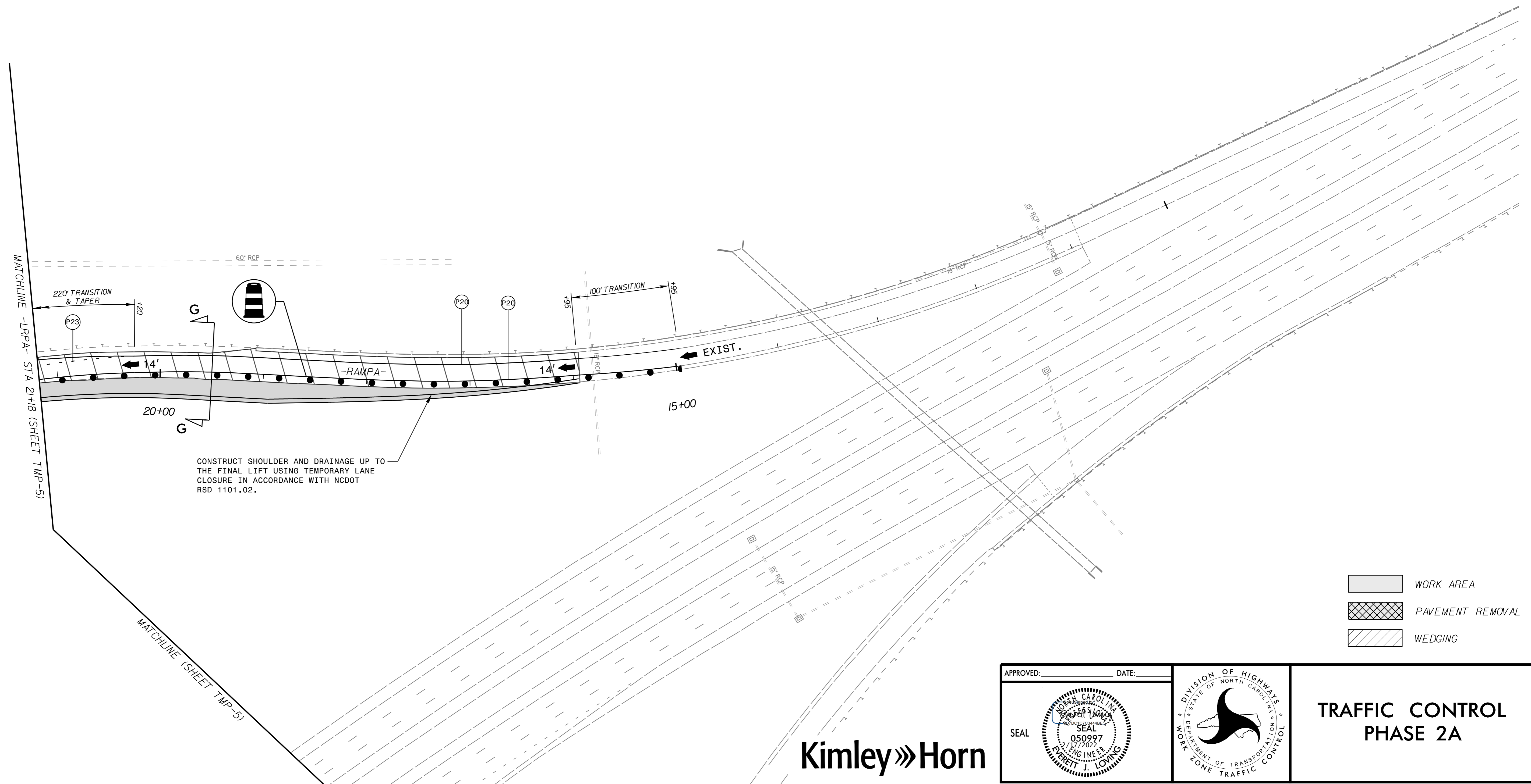
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SEAL	SEAL	SEAL			





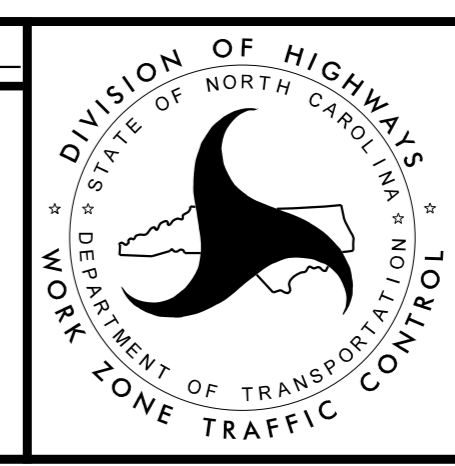
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- WORK AREA
- PAVEMENT REMOVAL
- WEDGING

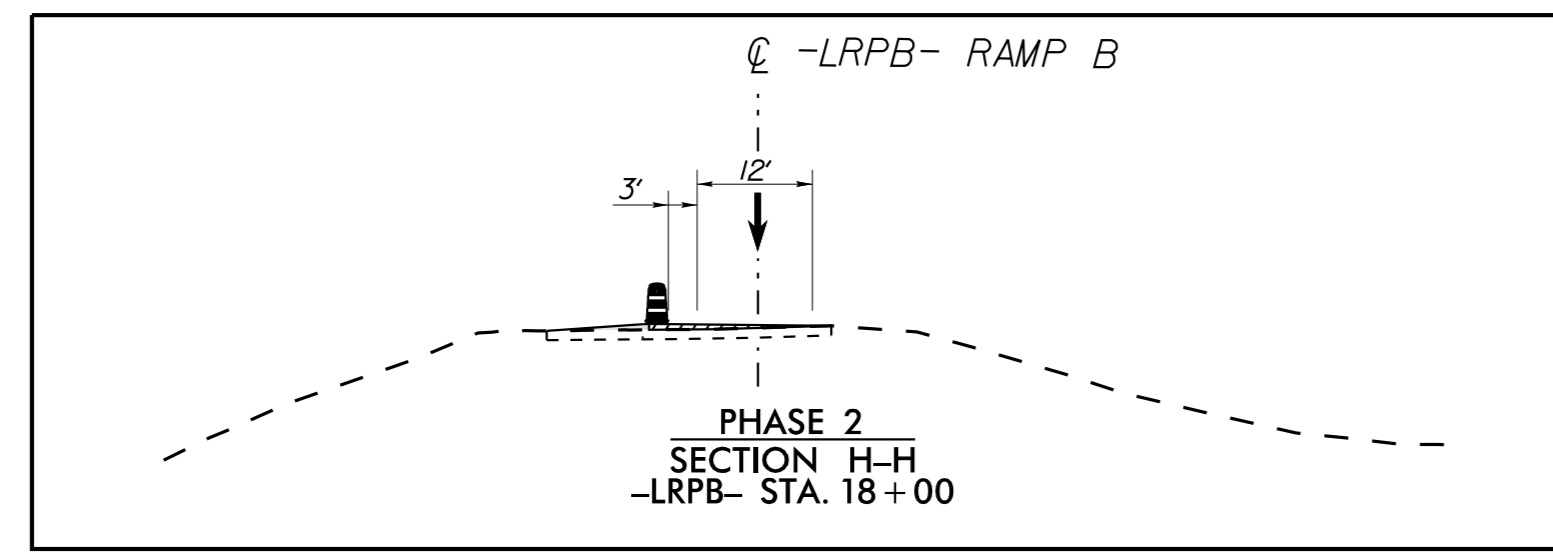
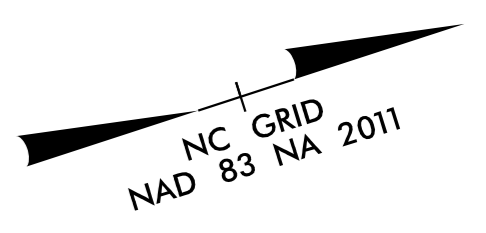
APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_

SEAL



**TRAFFIC CONTROL  
PHASE 2A**

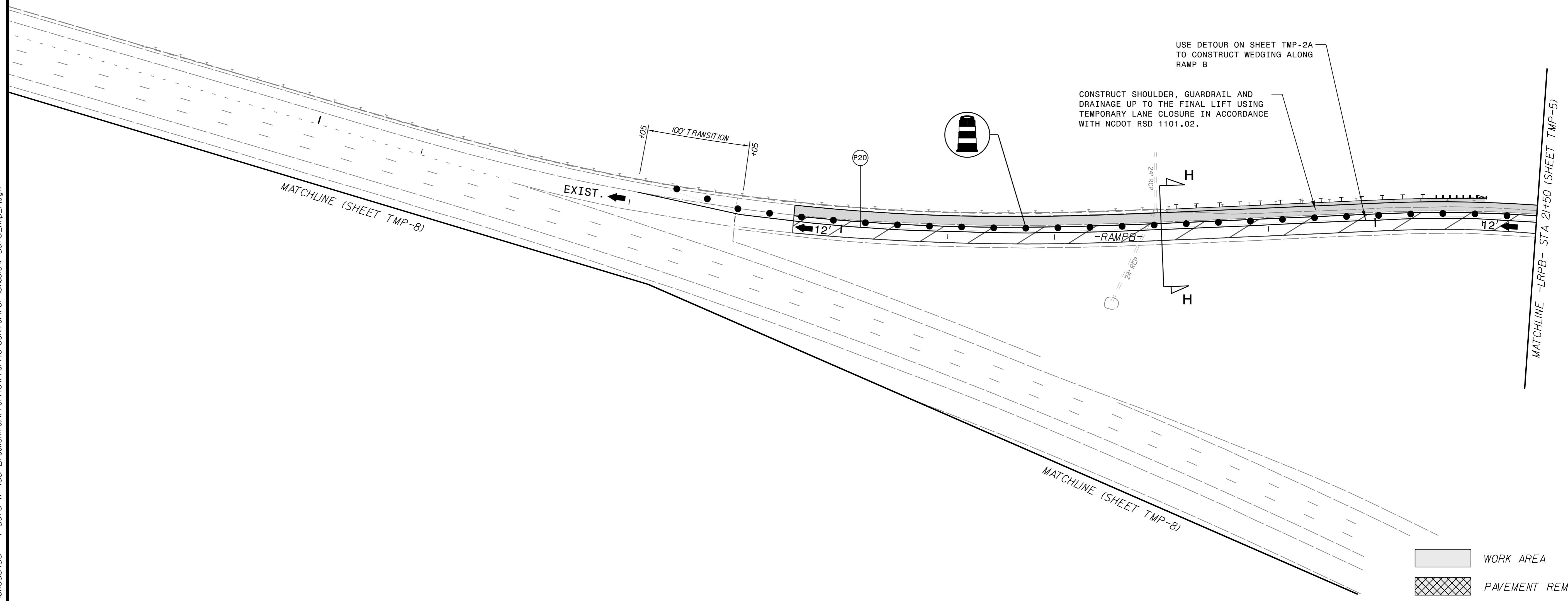
**Kimley»Horn**



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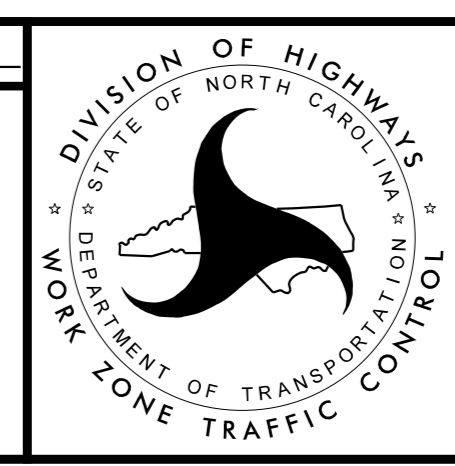
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- WORK AREA
- PAVEMENT REMOVAL
- WEDGING

K:\CHL\PR\01036453 - I-5973 (I-485 Brookshire)\Traffic Control\CP\Sheets\I-5973\_tmp\_7.dgn

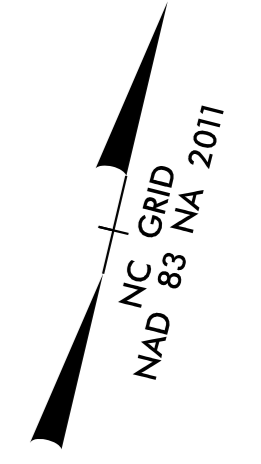
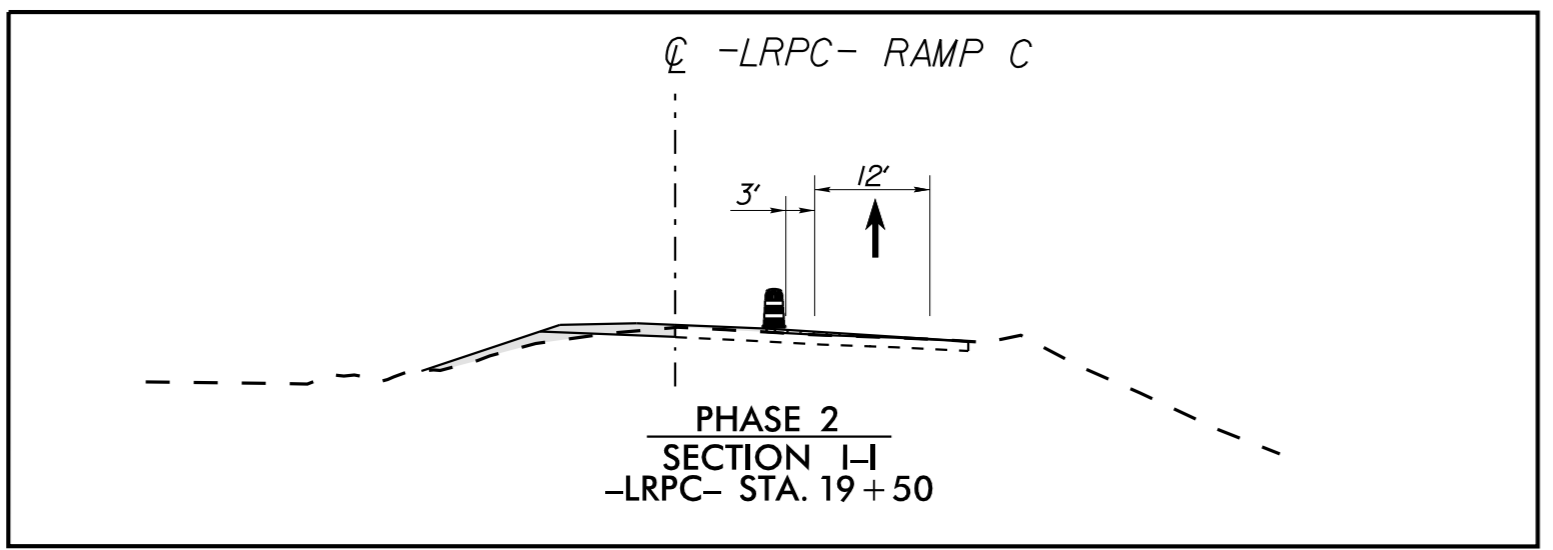
APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_



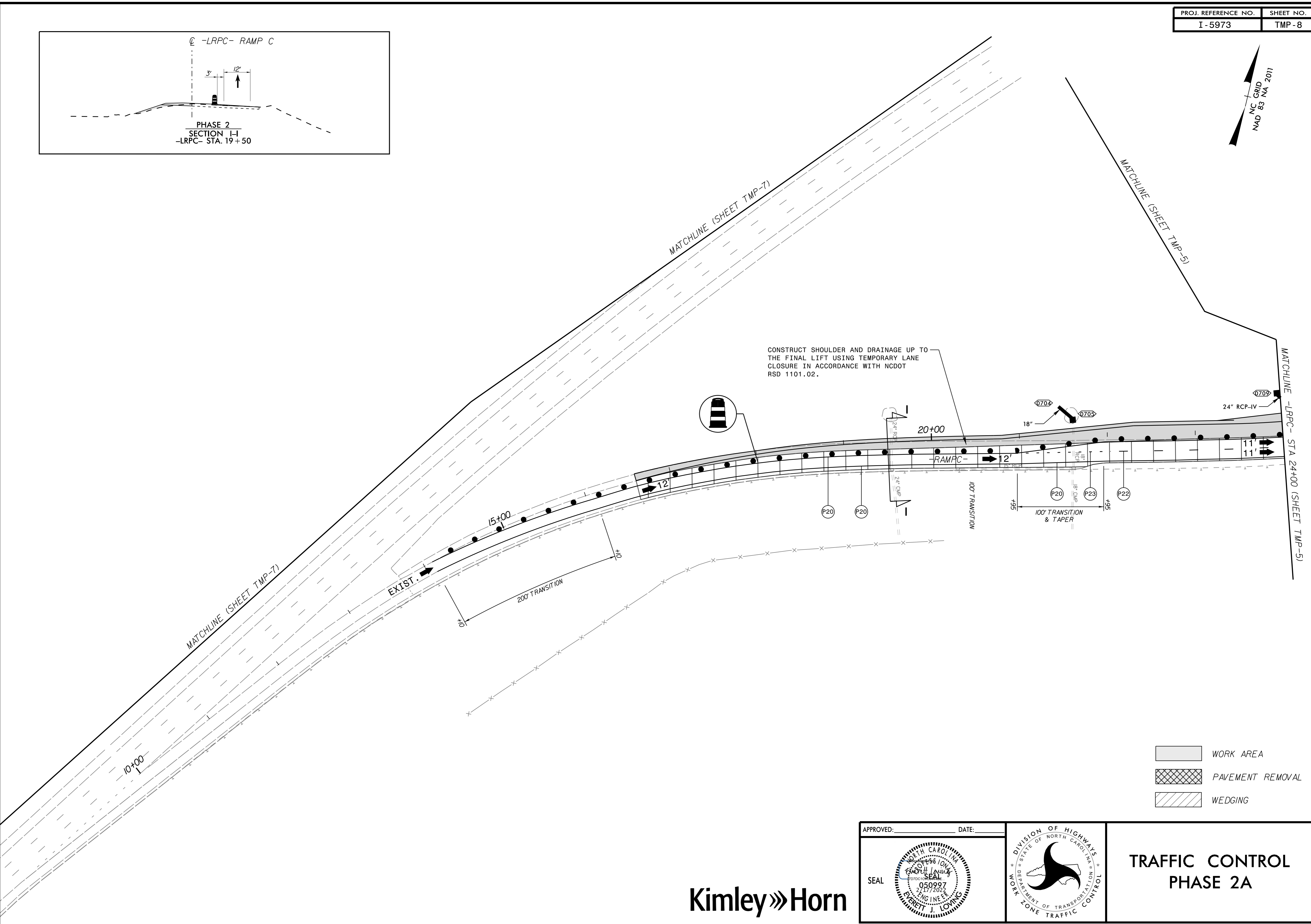
**TRAFFIC CONTROL  
PHASE 2A**



10/12/2021



K:\CHL\PR\101036453 - I-5973 (I-485 Brookshire)\Traffic\Traffic Control\TCP\Sheets\I-5973\_tmp\_8.dgn

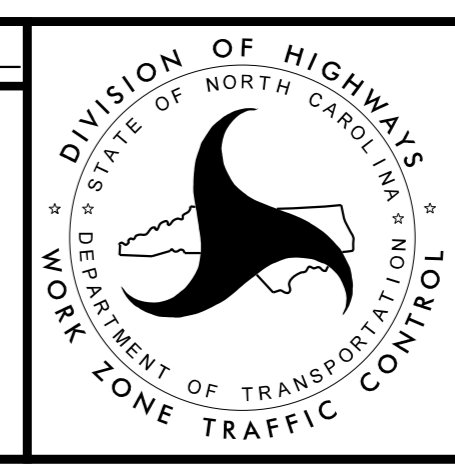


- WORK AREA
- PAVEMENT REMOVAL
- WEDGING



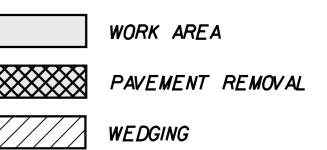
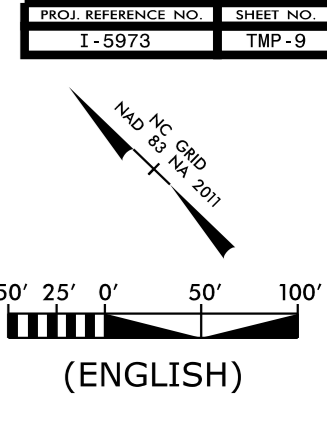
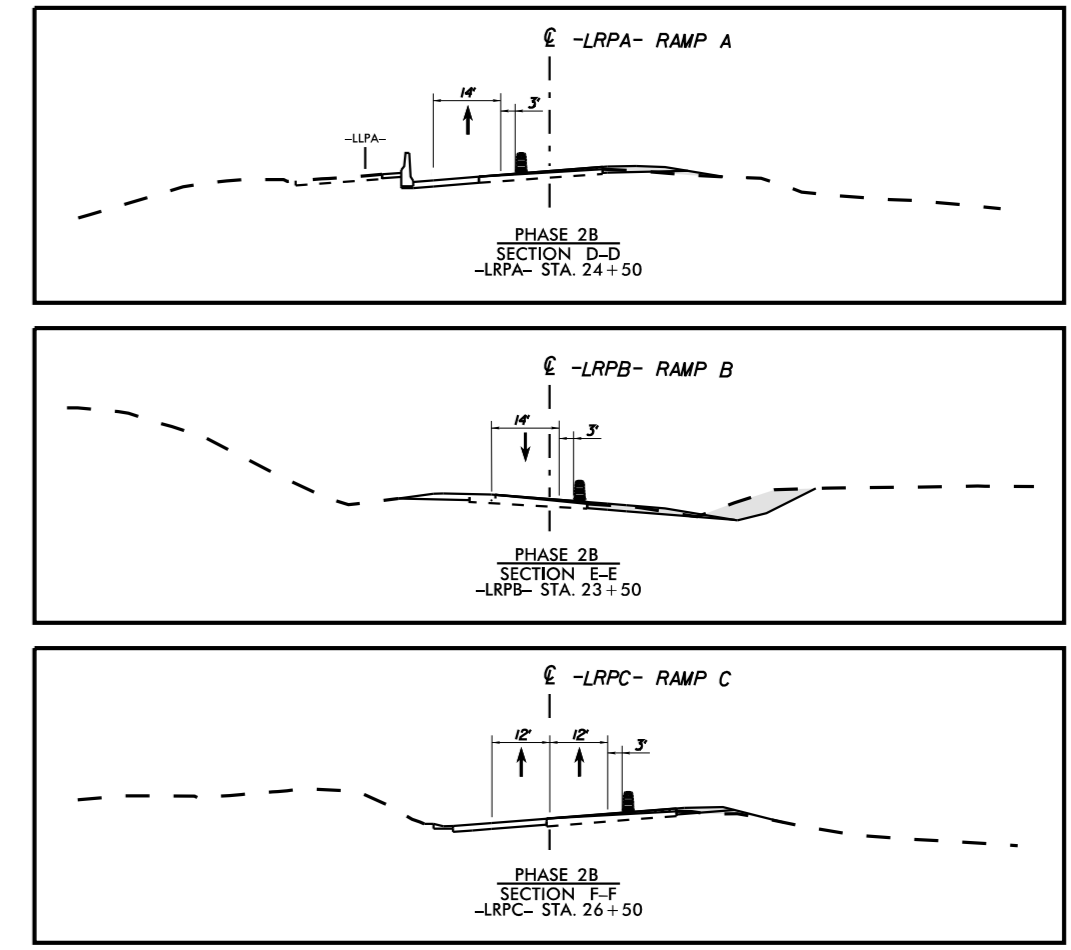
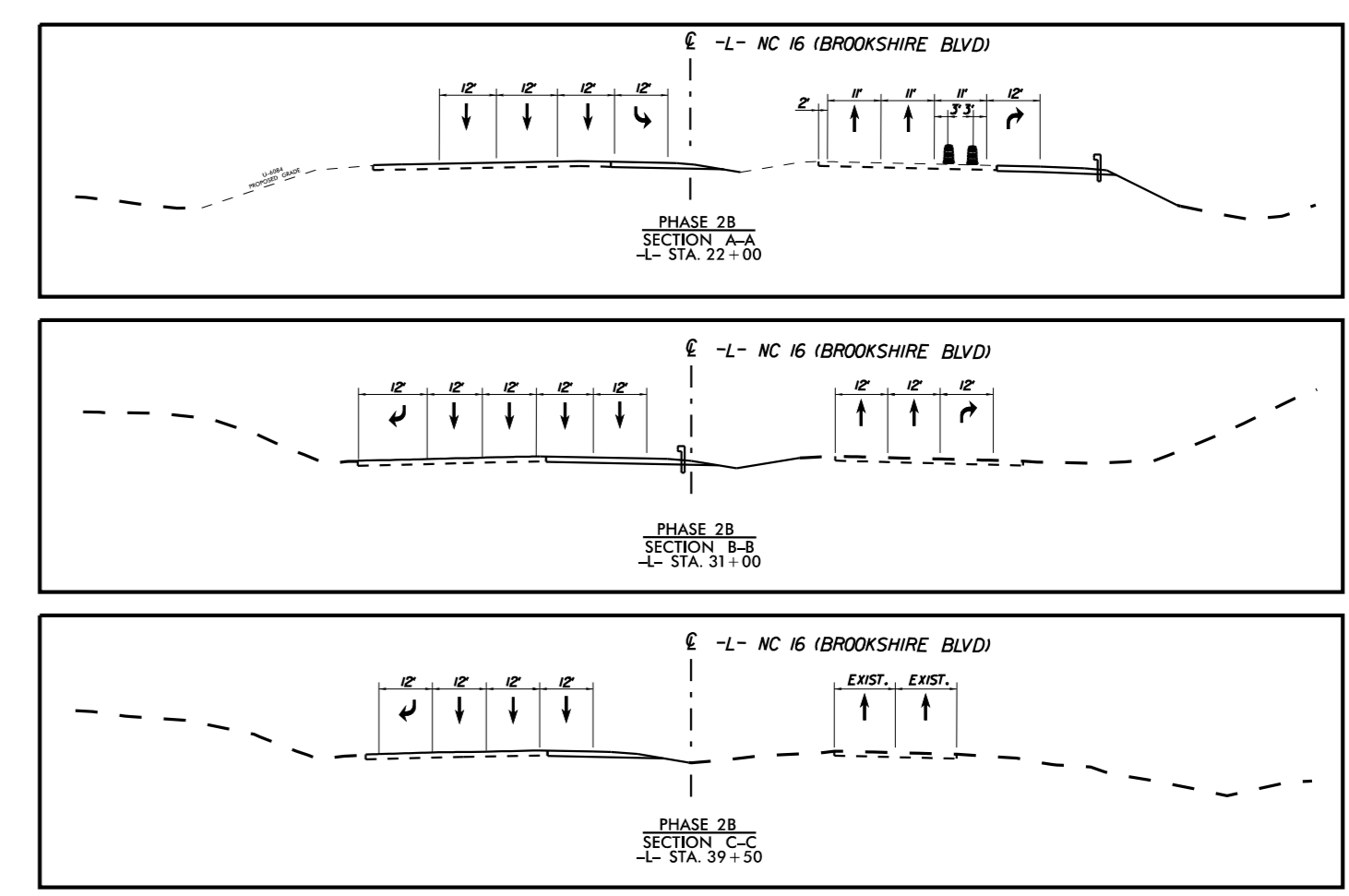
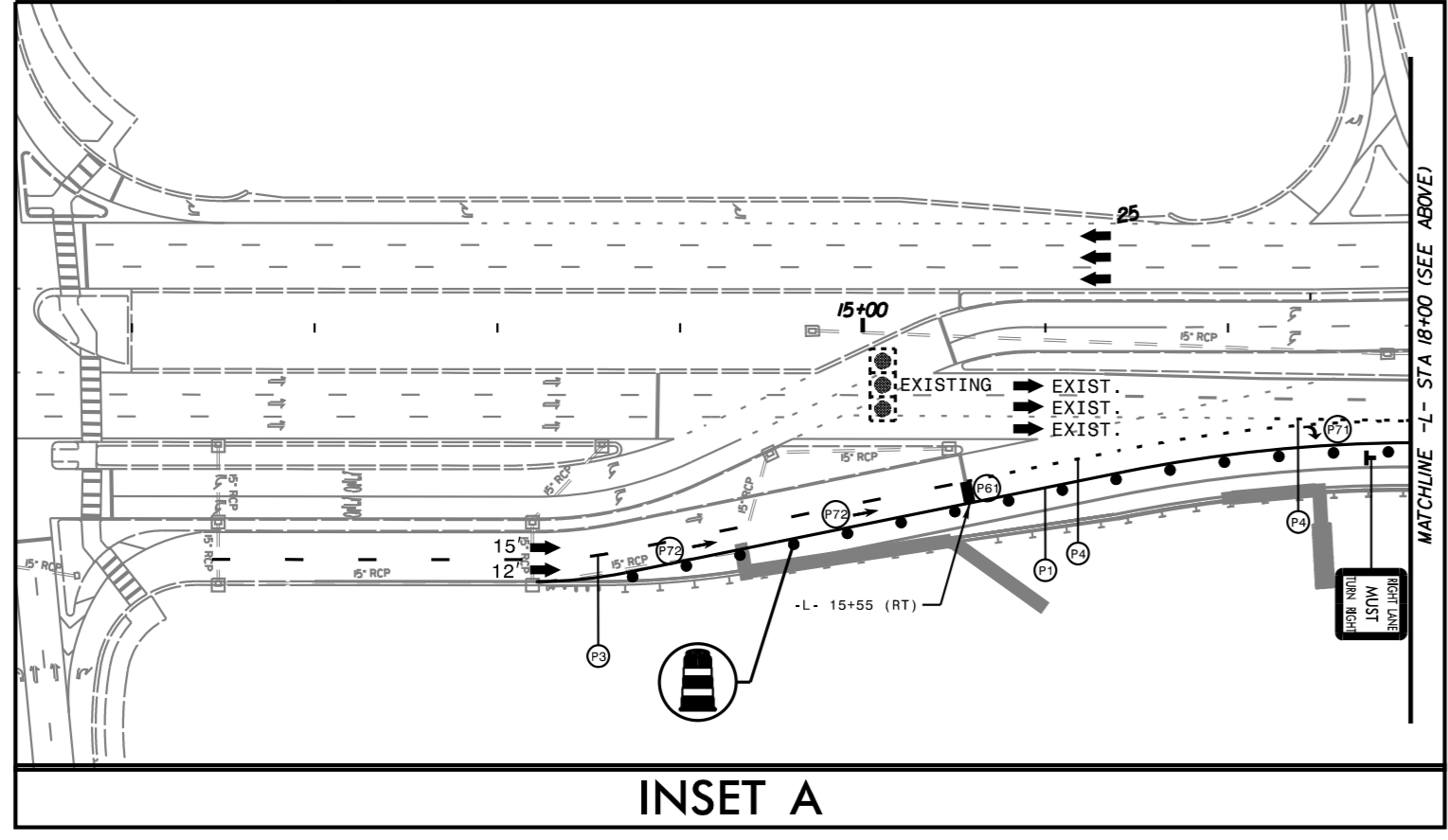
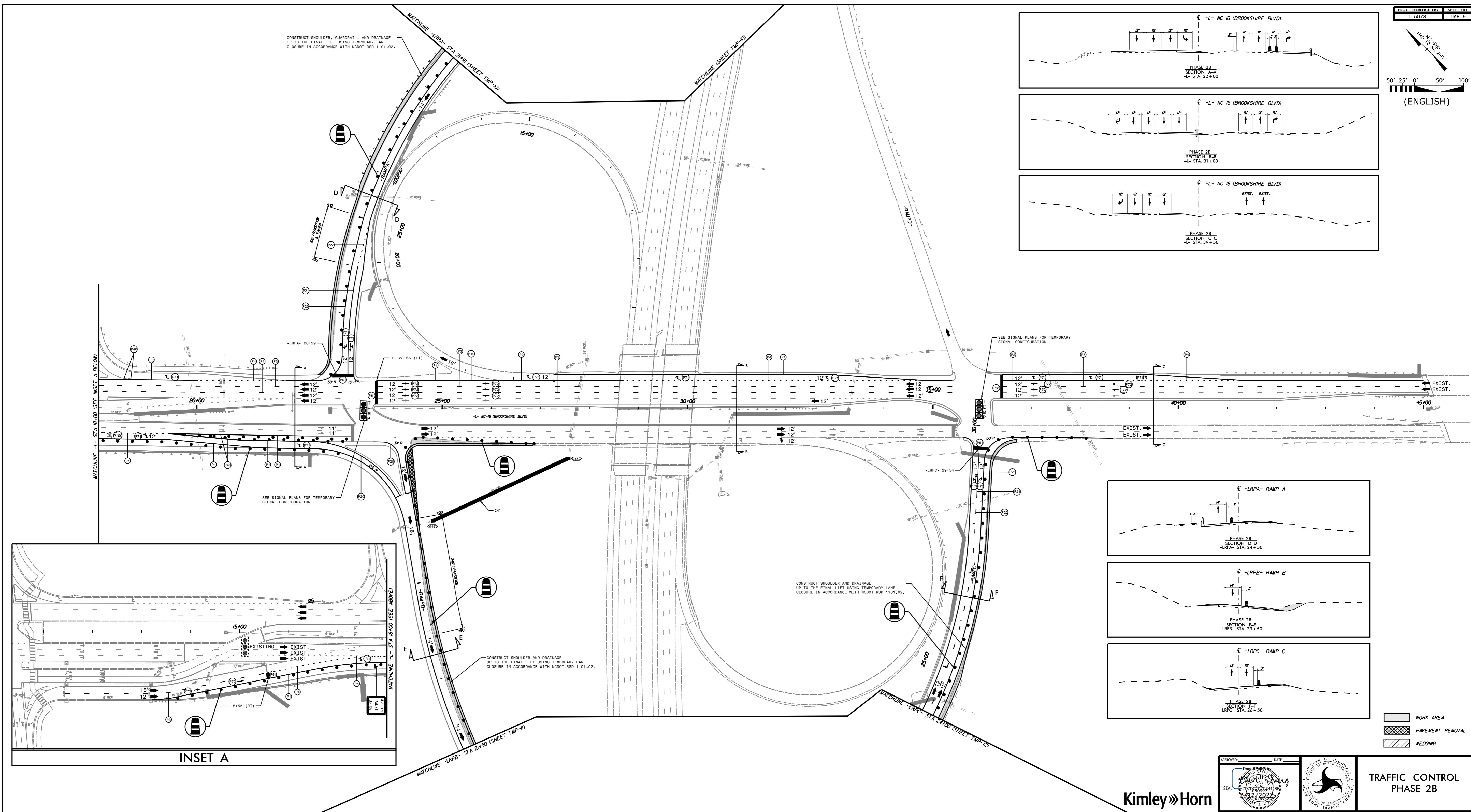
APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_

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**TRAFFIC CONTROL  
PHASE 2A**

10/12/2021 K:\CHL\_PRA\01036453 - I-5973 (I-485 Brookshire)Traffic Control\TSP\Sheets\5973\_tmp\_9.dgn



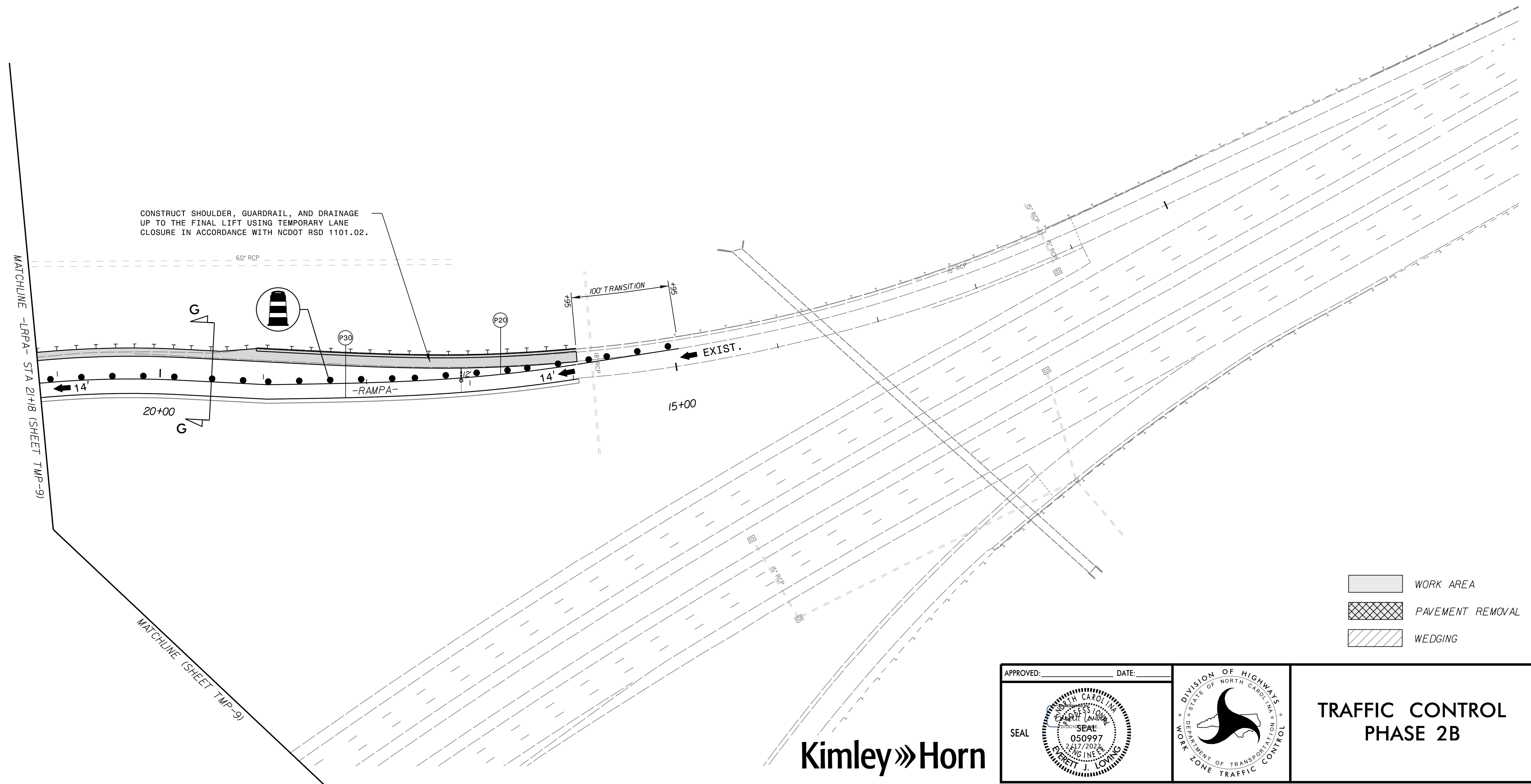
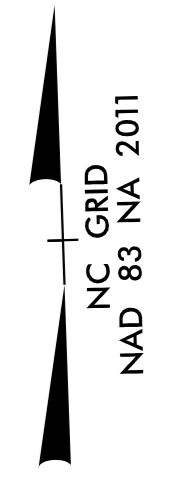
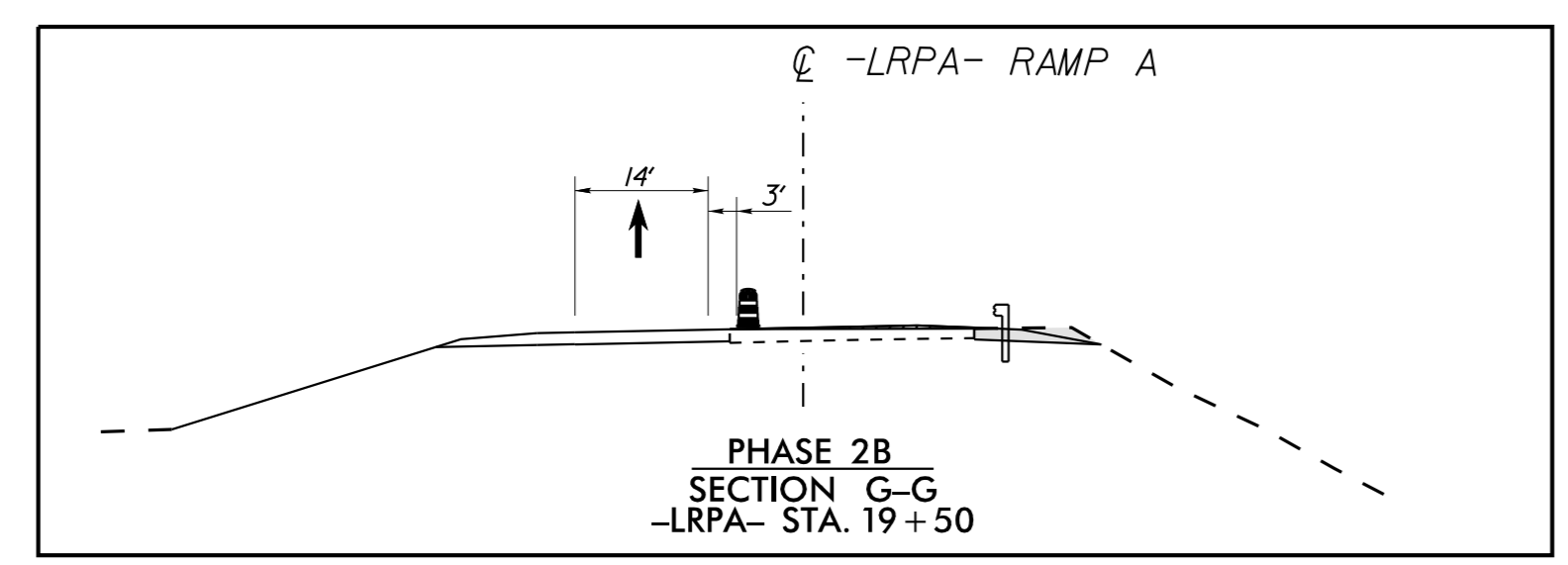
APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_

SEAL:  EXHIBIT 177023

**Kimley-Horn**

 DIVISION OF HIGHWAYS  
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

**TRAFFIC CONTROL PHASE 2B**



- WORK AREA
- PAVEMENT REMOVAL
- WEDGING

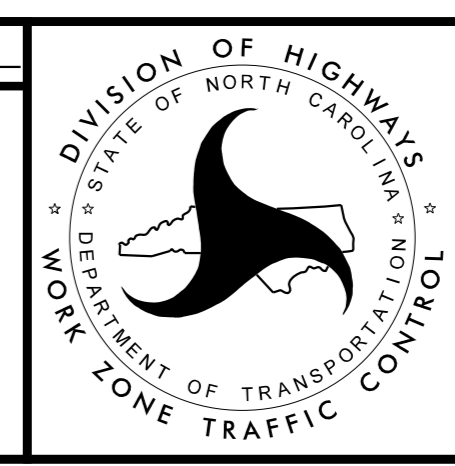
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10/12/2021

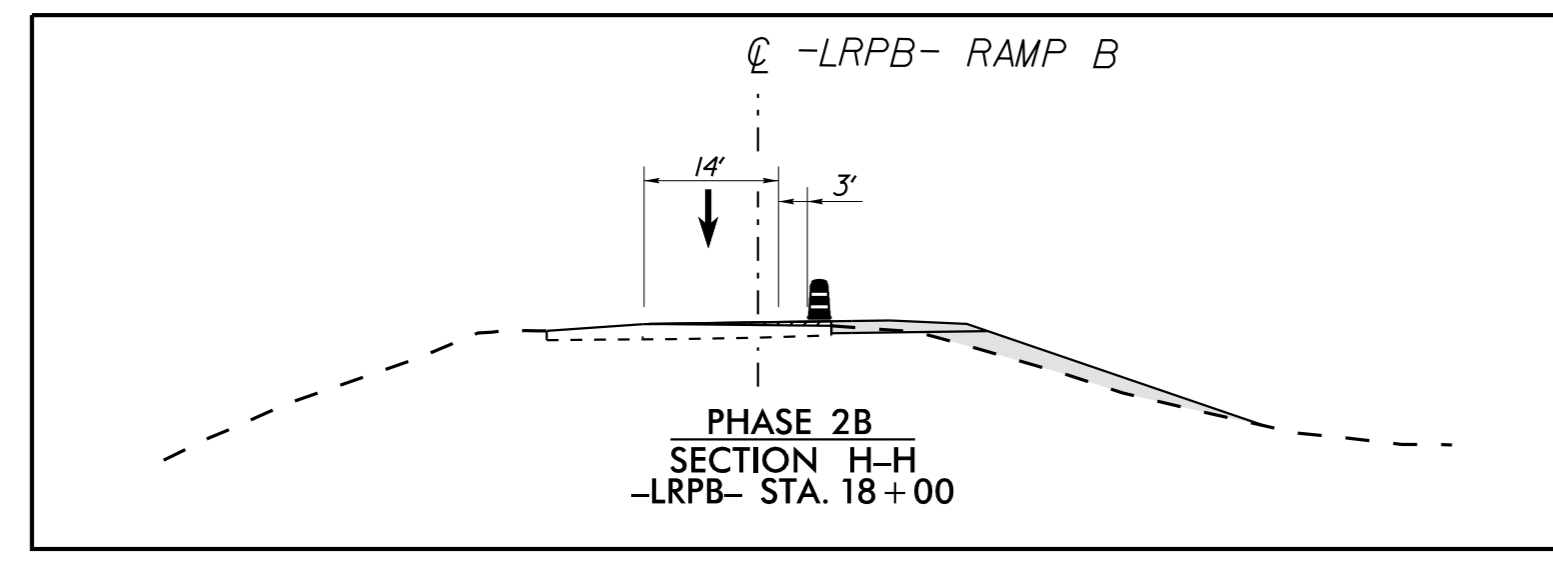
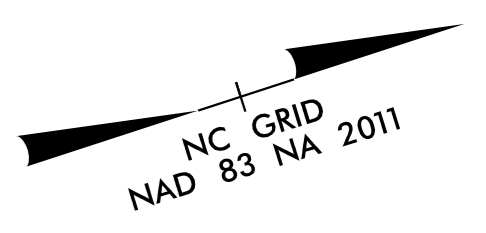


APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_

SEAL



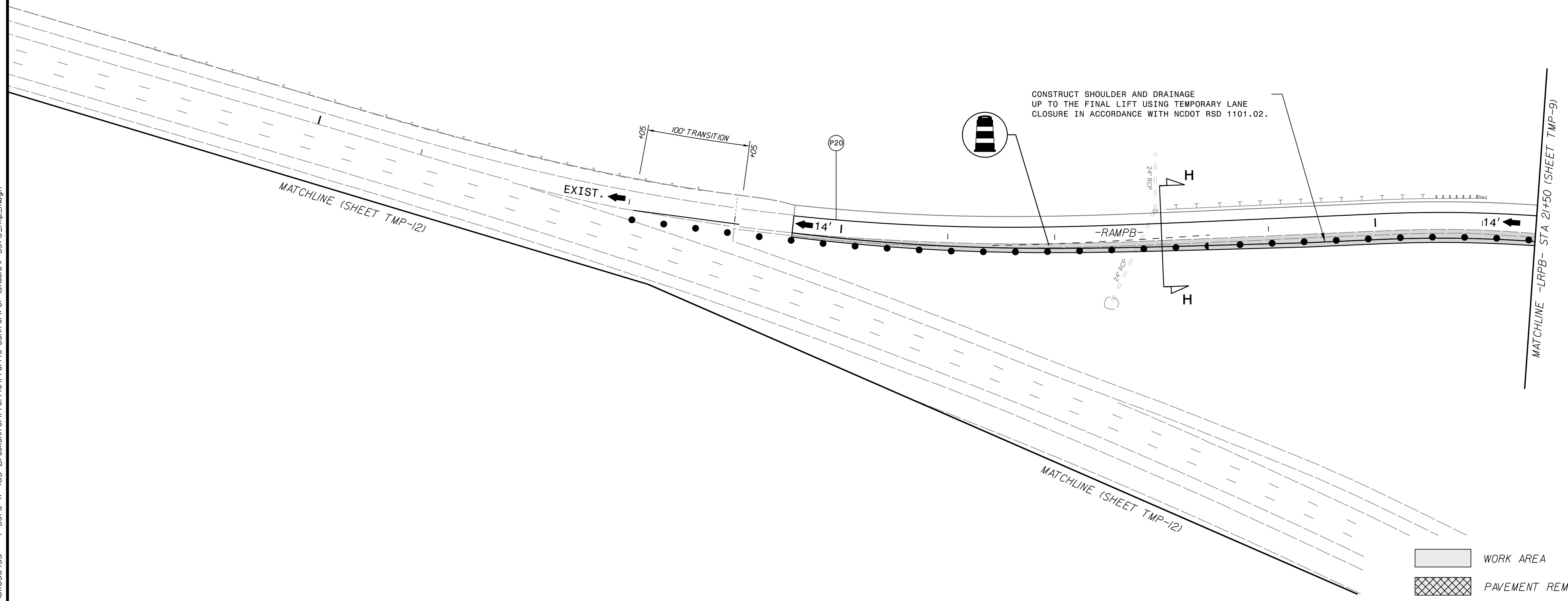
**TRAFFIC CONTROL  
PHASE 2B**



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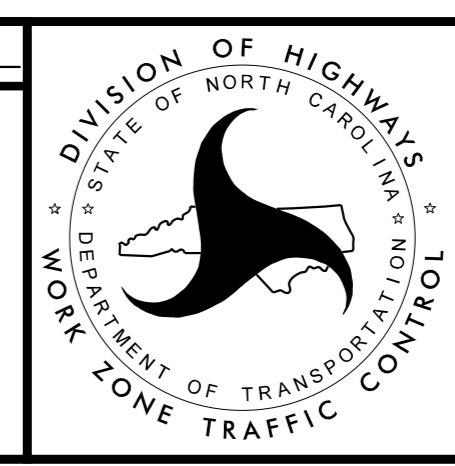


- WORK AREA
- PAVEMENT REMOVAL
- WEDGING

K:\CHL\PR\01036453 - I-5973 (I-485 Brookshire)\Traffic Control\TCP\Sheets\I-5973\_tmp\_11.dgn 10/12/2021

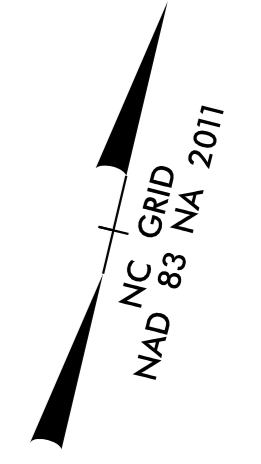
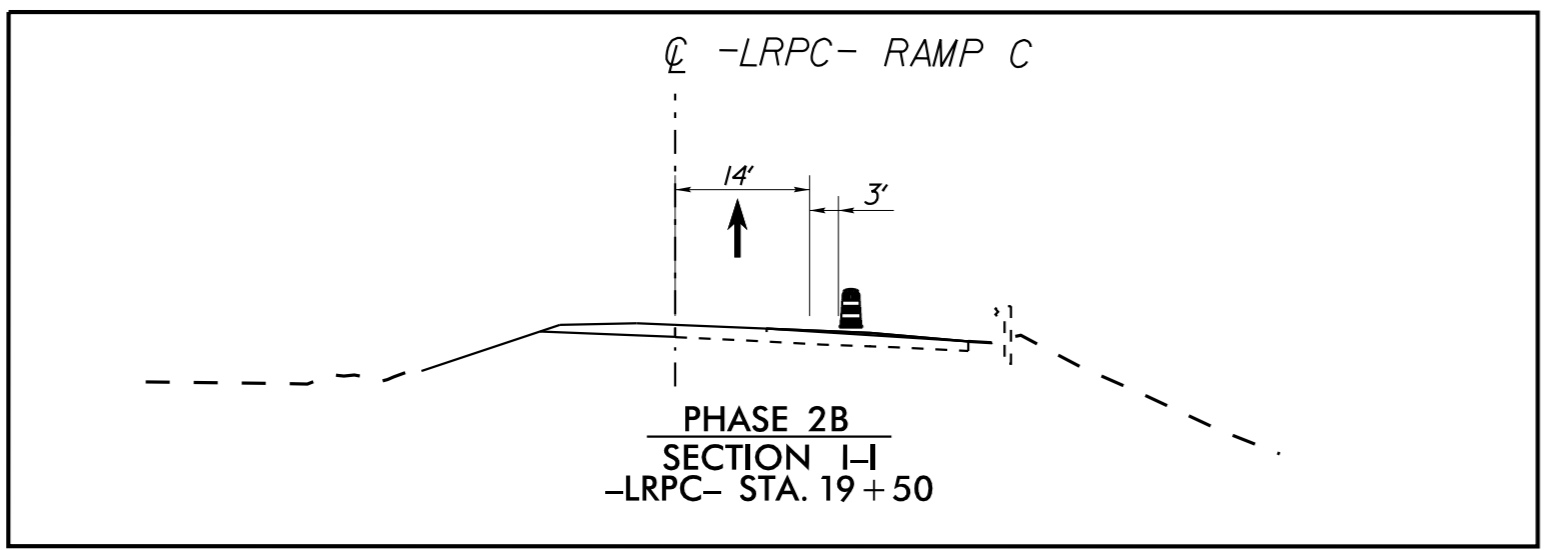
# Kimley»Horn

APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_

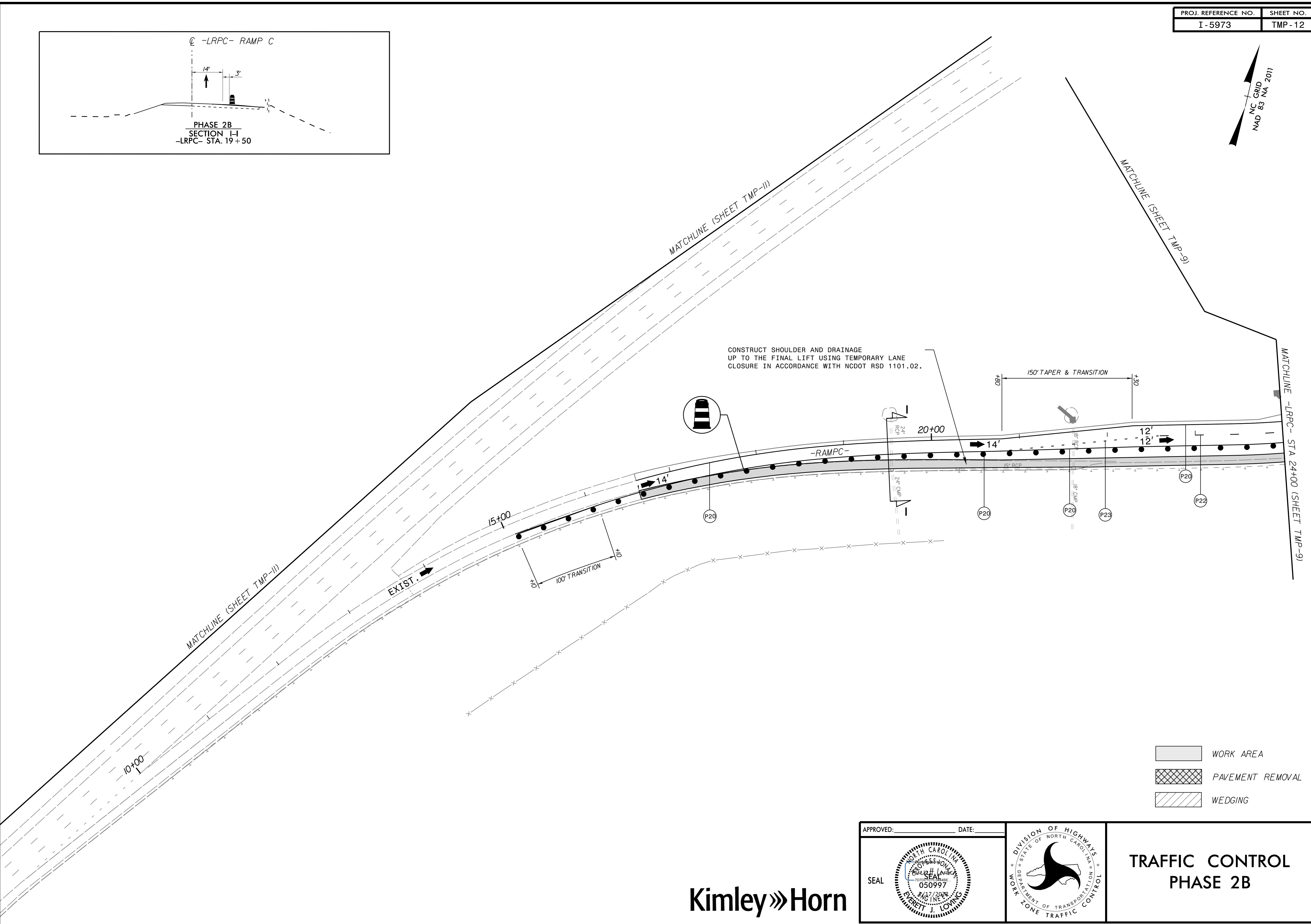


## TRAFFIC CONTROL PHASE 2B





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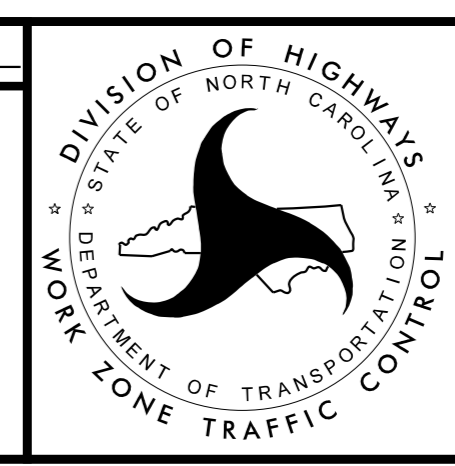


- WORK AREA
- PAVEMENT REMOVAL
- WEDGING



APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_

SEAL



**TRAFFIC CONTROL  
PHASE 2B**