# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

STATE PROJECT REFERENCE NO. SHEET NO.

U - 5 0 1 8 A TCP-1

# PLAN FOR PROPOSED TRAFFIC CONTROL, MARKING & DELINEATION

### ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS"PROJECT SERVICES UNIT-N.C. DEPARTMENT OF TRANSPORTATION-RALEIGH, N.C.,
DATED JULY 2006 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE
CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE No. 19 Aug
1101.02	TEMPORARY LANE 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	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRASH CUSHION
1165.01	TRUCK MOUNTED IMPACT ATTENUATOR
1170.01	PORTABLE CONCRETE BARRIER
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE & MULTILANE ROADWAYS
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	PAVEMENT MARKER SPACING
1251.01	RAISED PAVEMENT MARKERS - (PERMANENT AND TEMPORARY)
1261.01	GUARDRAIL AND BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATOR TYPES
1262.01	GUARDRAIL END DELINEATION

# WORK ZONE PAVEMENT MARKING SCHEDULE

CA - COLD APPLIED PLASTIC - TYPE IV, 4" WHITE EDGE LINE

CI - COLD APPLIED PLASTIC - TYPE IV, 4" YELLOW DOUBLE CENTER LINE

PA - PAINT, 4" WHITE EDGELINE

PB - PAINT, 4" YELLOW EDGE LINE

PD - PAINT, 4" X 2' MINISKIP LINE

PE - PAINT, 4" WHITE LANE LINE

PI - PAINT, 4" YELLOW DOUBLE CENTER LINE

PV - PAINT, 4" YELLOW DIAGONAL LINE

P4 - PAINT, 24" WHITE STOPBAR

MH - TEMPORARY RAISED PAVEMENT MARKER, YELLOW/YELLOW

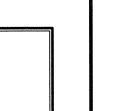
MI - TEMPORARY RAISED PAVEMENT MARKER, CRYSTAL/RED

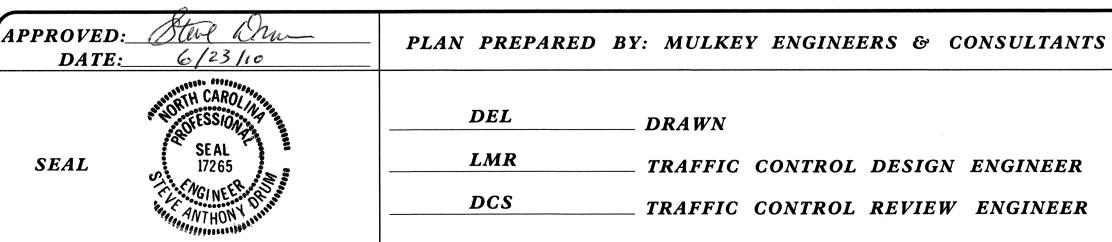
#### INDEX OF SHEETS

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TCP-10	WORK ZONE WARNING SIGNS DETAIL SHEET
PM-1 THRU 4	FINAL PAVEMENT MARKING DETAIL DRAWINGS

# **GENERAL** ← DIRECTION OF TRAFFIC FLOW NORTH ARROW PROPOSED PVMT. ————— EXIST. PVMT. **WORK AREA** REMOVAL OF EXISTING PAVEMENT TRAFFIC CONTROL DEVICES T TYPE I BARRICADE T TYPE II BARRICADE TYPE III BARRICADE FLASHING ARROW PANEL (TYPE C) TYPE 'B' WARNING LIGHT STATIONARY SIGN PORTABLE SIGN WARNING FLAGS - CRASH CUSHION CHANGEABLE MESSAGE SIGN TRUCK MOUNTED IMPACT ATTENUATOR (TMIA) POLICE FLAGGER TEMPORARY BARRIER

**LEGEND** 





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CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

#### TIME RESTRICTIONS

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

 ROAD NAME
 DAY AND TIME RESTRICTIONS

 NC 43
 7:00 AM TO 9:00 AM 4:00 PM TO 6:00 PM

#### LANE AND SHOULDER CLOSURE REQUIREMENTS

- B) 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.
- 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.

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.

- 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) 500 FT IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.
- H) 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.
- I) STATE FORCES WILL BE RESPONSIBLE FOR PROVIDING PERMANENT SIGNING.
- J) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

#### TRAFFIC BARRIER

K) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRAFFIC CONTROL 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 TRAFFIC CONTROL 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 TRAFFIC CONTROL 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.

L) 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 IMPACT 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:

POSTE	D 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

- M) 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 WHEN LANE CLOSURES ARE NOT IN EFFECT. WHEN SKINNY DRUMS ARE ALLOWED REFER TO SECTION 1180 OF STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES OR AS SHOWN IN THE PLANS.
- N) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2
  ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.
- O) 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

- P) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS SHOWN IN THE PAVEMENT MARKING PLAN.
- Q) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

	ROAD NAME	MARKING	MARKER
	ALL ROADS STRUCTURES	PAINT REMOVEABLE TAPE	TEMPORARY RAISED TEMPORARY RAISED
R)	SECOND APPLICATION OF	OF PAINT FOR TEMPORARY TRAFFIC PAINT SIX (6) MONTHS AFTER THE SIX MONTHS AS DIRECTED BY THE	INITIAL

- S) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- T) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

APPROVED: State Almanda DATE: 6/23/10

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# PROJECT NOTES

SCALE: NONE	OF HIGH	REVISIO
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DESIGN BY: LMR		
REVIEWED BY: DCS	PRAFFIC CONTA	CADD FILE

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PROJ. REFERENCE NO. SHEET NO. U-5018A TCP-3

# TRAFFIC CONTROL PHASING

#### PHASE I

STEP 1:

ERECT WORK ZONE ADVANCE WARNING SIGNS ON THE NC 43 AND ALL -Y- LINES IN ACCORDANCE WITH WORK ZONE ADVANCE WARNING SIGN DETAILS. (SEE TCP-10)

USING RDWY STD 1101.02 SHEET 1, CONSTRUCT EXCLUDING THE FINAL LAYER OF SURFACE COURSE AS

-L- STA 12+25 TO -L- STA 50+00 LT AND RT SIDE WIDENING -L- STA 50+00 TO -L- STA 62+50 RT SIDE WIDENING - INCLUDING STAGE 1 OF THE PROPOSED

USING RDWY STD 1101.02 SHEET 1 (ALTERNATING LANE CLOSURES), WEDGE THE EXISTING PAVEMENT TO THE SAME ELEVATION AS THE WIDENED AREAS FROM -L- STA 41+20 TO -L- STA 50+00.

SEE TCP-4 AND 5

IT MAY BE NECESSARY TO WEDGE THE EXISTING PAVEMENT IN OTHER AREAS ALONG THE PROJECT TO PREVENT DRAINAGE ISSUES AND HYDROPLANING. THESE AREAS WILL BE DETERMINED BY THE ENGINEER.

#### PHASE II

PLACE TEMPORARY BARRIER AND CRASH CUSHIONS FROM -L- STA 54+00 TO -L- STA 59+00. (SEE

STEP 2:

USING RDWY STD 1101.02 SHEET 1, PLACE PAVEMENT MARKINGS AND PAVEMENT MARKERS AS SHOWN, AND DIRECT NC 43 TRAFFIC INTO A TEMPORARY TRAFFIC PATTERN. (SEE TCP-6 AND 7)

USING RDWY STD 1101.02 SHEET 1 AS REQUIRED, CONSTRUCT EXCLUDING THE FINAL LAYER OF SURFACE COURSE AS FOLLOWS:

-L- STA 12+25 TO -L- STA 42+00 INSIDE LANES AND MEDIAN -L- STA 50+00 TO -L- STA 62+50 LT - INCLUDING STAGE 2 AND THE CLOSURE POUR OF THE PROPOSED STRUCTURE

SEE TCP-6 AND 7

USING RDWY STD 1101.02 SHEET 1, REMOVE THE PORTABLE CONCRETE BARRIER AND CRASH CUSHIONS AS PLACE IN PHASE II - STEP 1, AND REPLACE WITH DRUMS ON 90' CENTERS.

#### PHASE III

STEP 1:

USING RDWY STD 1101.02 SHEET 1, PLACE PAVEMENT MARKINGS AND PAVEMENT MARKERS AS SHOWN, AND DIRECT NC 43 TRAFFIC INTO A TEMPORARY TRAFFIC PATTERN. (SEE TCP-8 AND 9)

USING RDWY STD 1101.02, CONSTRUCT THE FOLLOWING EXCLUDING THE FINAL LAYER OF SURFACE COURSE:

-L- STA 42+00 TO -L- STA 50+00 INSIDE LANES AND MEDIAN

SEE TCP-8 AND 9

STEP 3:

USING FLAGGERS AND FLAGGER AHEAD SIGNS (W20-7A) AS DIRECTED BY THE ENGINEER, PLACE THE FINAL LAYER OF SURFACE COURSE ON THE INSIDE LANES FROM -L- STA 12+25 TO -L- STA 62+50. NC 43 TRAFFIC SHALL BE MAINTAINED ON THE OUTSIDE LANES.

STEP 4:

USING FLAGGERS AND FLAGGER AHEAD SIGNS (W20-7A), REDIRECT NC 43 TRAFFIC ONTO THE INSIDE LANES, AND PLACE THE FINAL LAYER OF SURFACE COURSE ON THE OUTSIDE LANES FROM -L- STA 12+25 TO -L- STA 62+50. TRAFFIC SHALL BE MAINTAINED ON THE INSIDE LANES.

STEP 5:

USING FLAGGERS AND FLAGGER AHEAD SIGNS (W20-7A) AS DIRECTED BY THE ENGINEER, PLACE THE FINAL PAVEMENT MARKINGS AS SHOWN ON SHEETS PM-1 THROUGH PM-4 AND OPEN ALL LANES TO TRAFFIC.

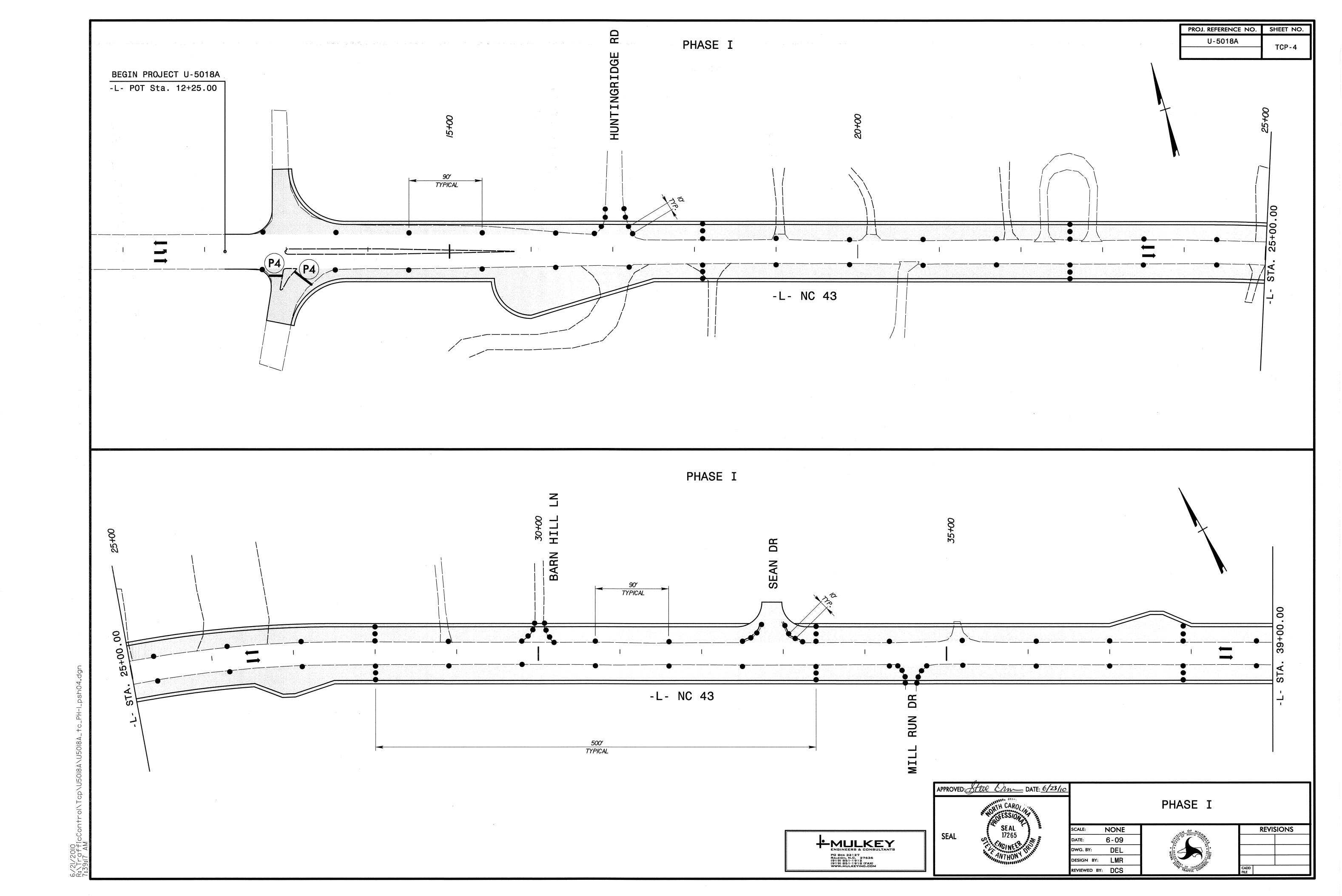
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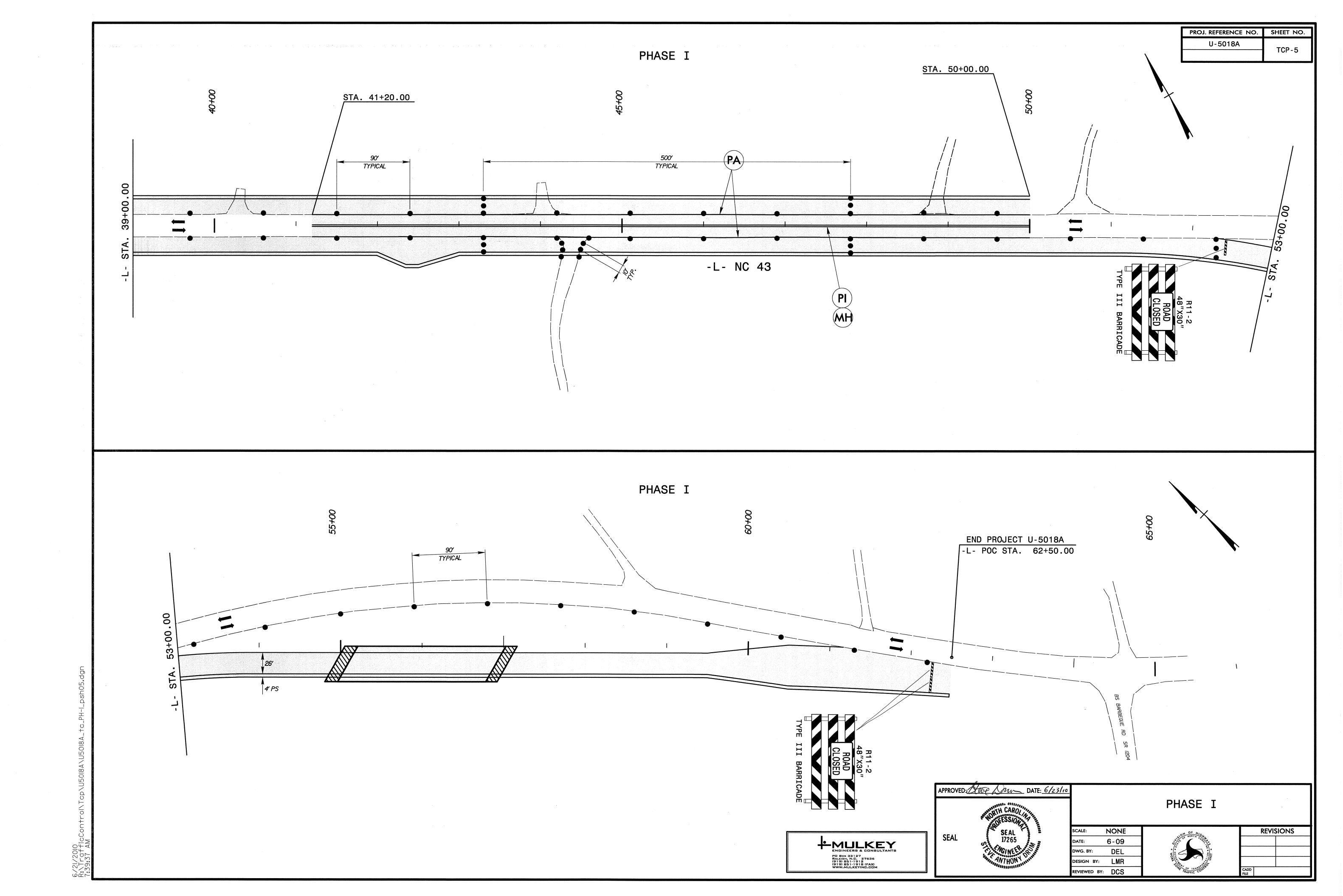
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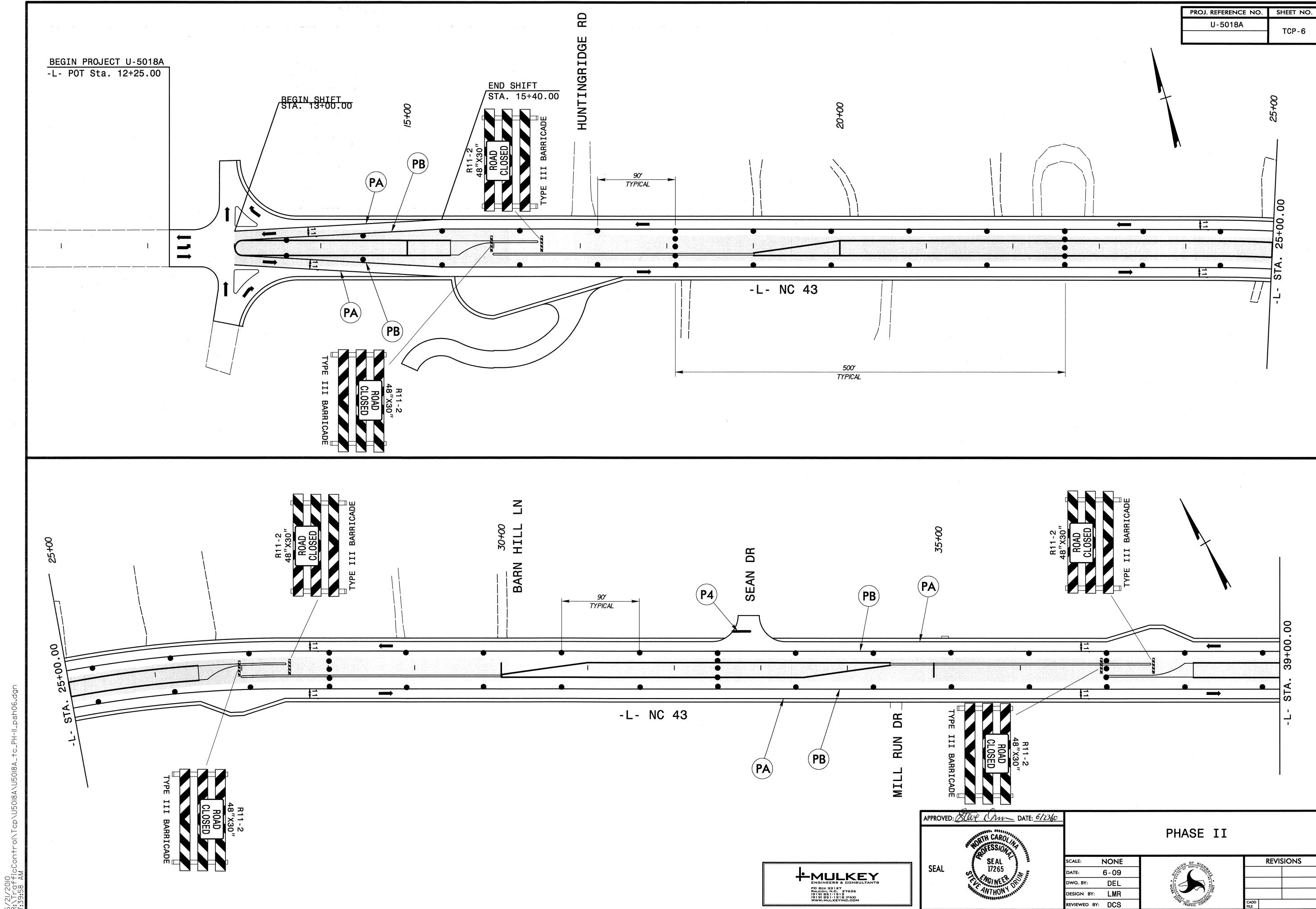
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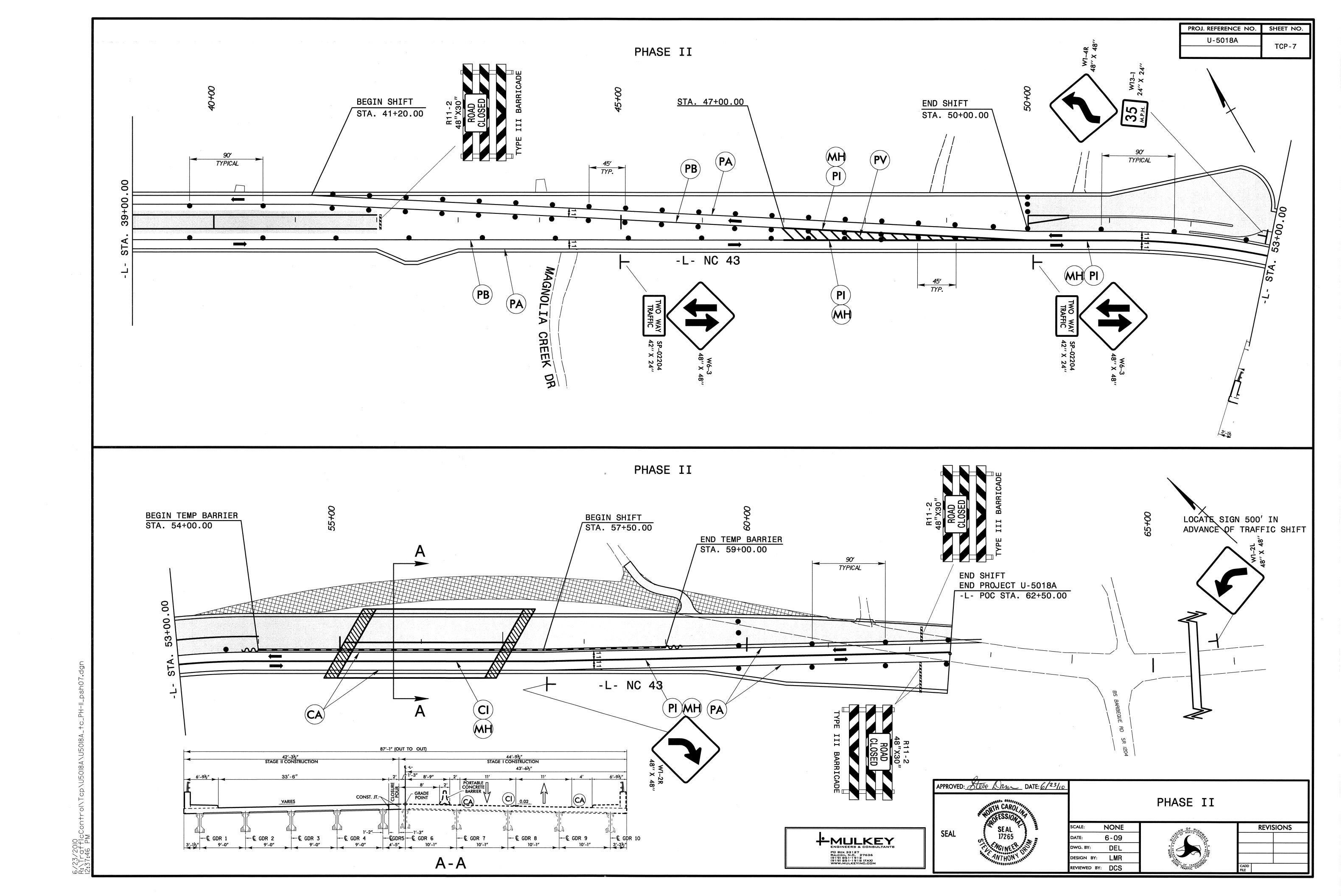
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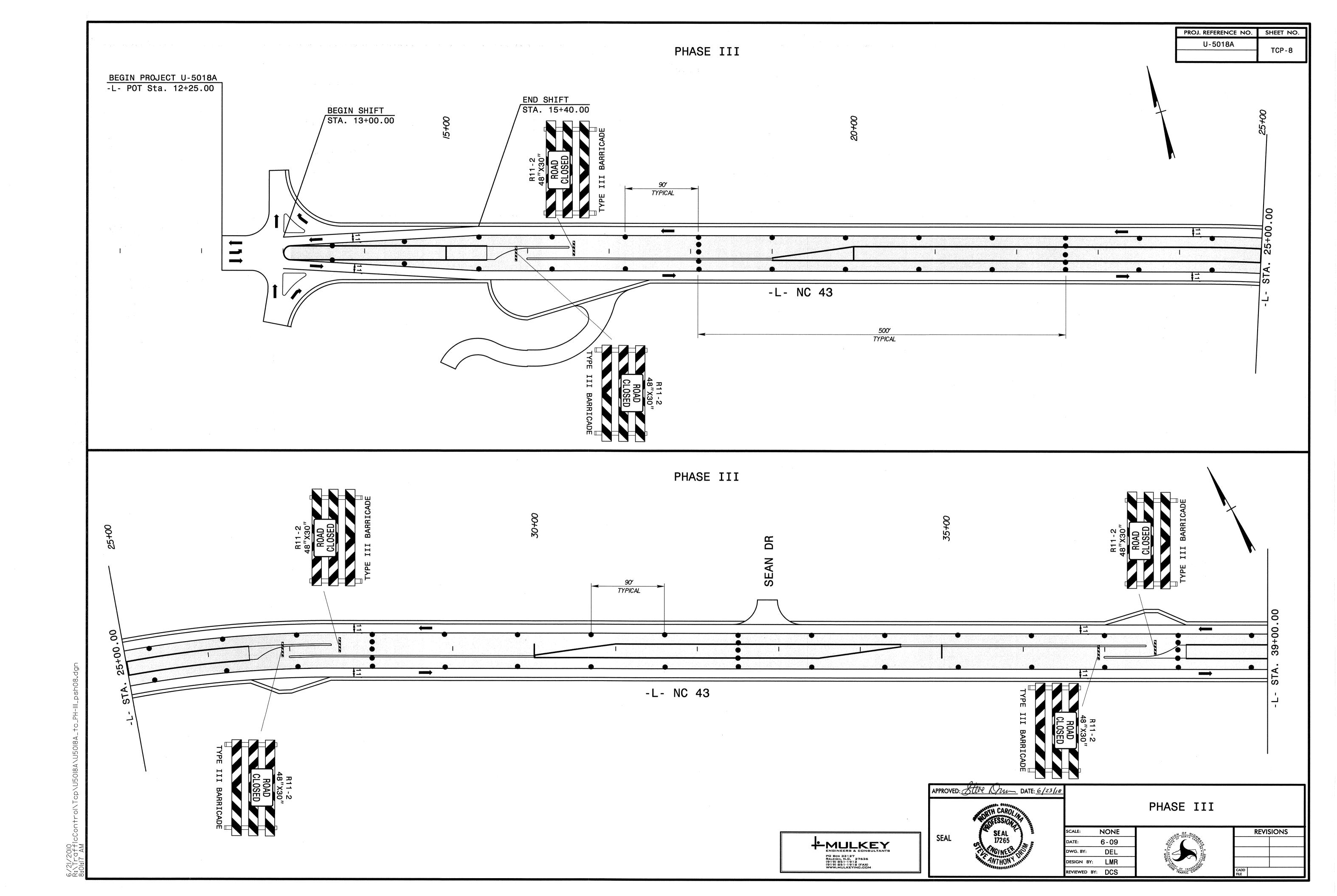
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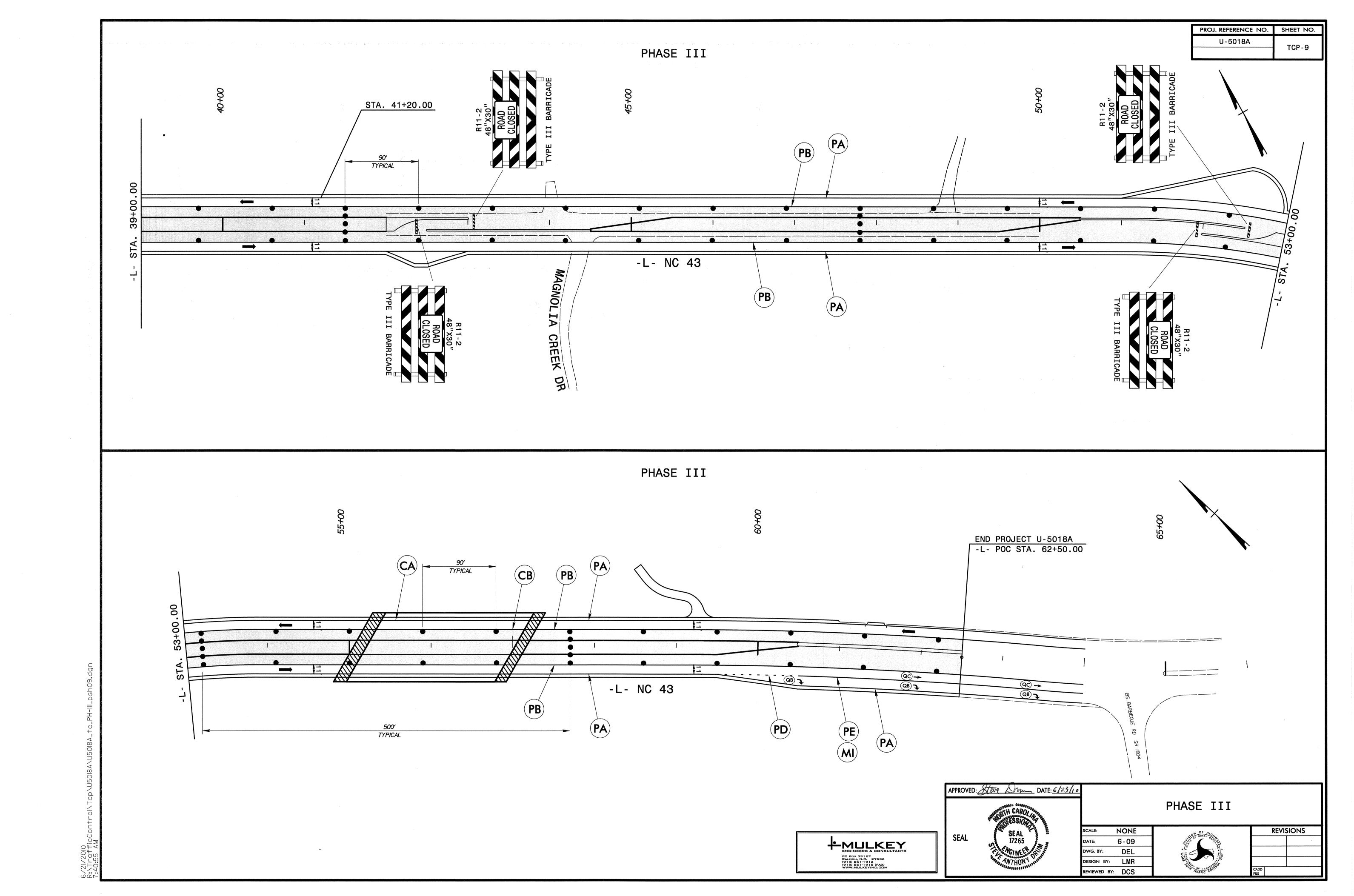












PROJ. REFERENCE NO. SHEET NO.

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TCP-10

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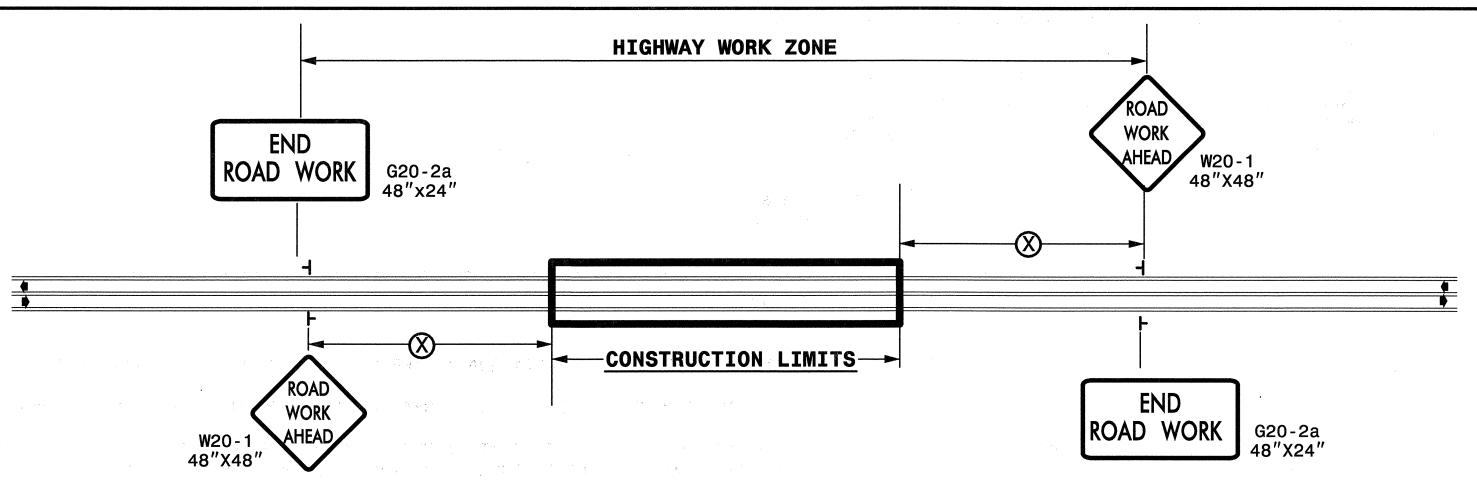
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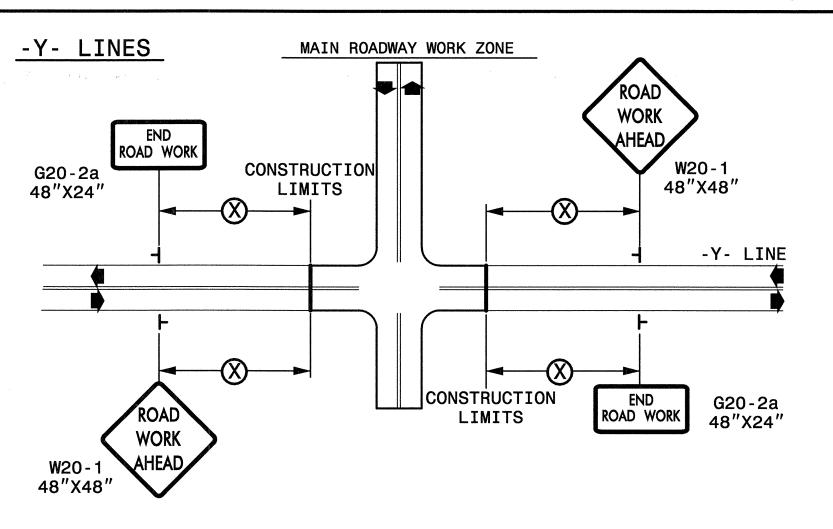
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STATE

TWO-WAY UNDIVIDED \*\* (L-LINES)



#### ROADWAYS INTERSECTING ALONG 2 WAY UNDIVIDED WORK ZONE (Y-LINES)



#### **GENERAL NOTES**

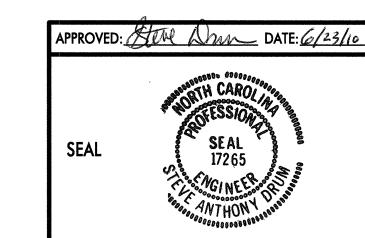
- USE FLUORESCENT ORANGE SHEETING (TYPE VII OR HIGHER) ON ALL ADVANCED WORK ZONE SIGNS.
- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK.
- SIGNS SHOWN ARE REQUIRED FOR WORK ZONES THAT WILL REMAIN IN EFFECT OVERNIGHT. FOR SHORT-TERM DAILY MAINTENANCE TYPE OPERATIONS, THIS SIGNING APPLICATION IS OPTIONAL; MAY USE ONLY APPLICABLE ROADWAY STANDARD DRAWINGS INSTEAD. HOWEVER, IF THIS SIGNING APPLICATION IS USED, SIGNS MAY BE PORTABLE MOUNTED.
- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.
- USE 3LB STEEL U-CHANNEL POST OR 4" X 4" WOOD POST FOR ALL WORK ZONE SIGNS. 3LB STEEL U-CHANNEL POSTS MUST MEET THE REQUIREMENTS OF STANDARD SPECIFICATION SECTION 1094-1(B), MAY BE GALVANIZED STEEL, OR MAY BE PAINTED GREEN BY THE POST MANUFACTURER. SQUARE STEEL TUBING POSTS HAVING EQUIVALENT STRENGTH OF THE 3 LB STEEL U-CHANNEL POST ARE ALSO ACCEPTABLE FOR USE. ERECT SIGNS PER ROADWAY STANDARD DRAWING 1110.01. PAYMENT FOR WOOD POSTS, 3LB STEEL U-CHANNEL AND SQUARE STEEL TUBING POSTS WITH SIGNS WILL BE MADE ACCORDING TO STANDARD SPECIFICATION "WORK ZONE SIGNS" SECTION 1110.
- WHEN NECESSARY, USE SPLICING IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1110.01. REMOVE ENTIRE POST WHEN REMOVING SIGNS WITH SPLICED POSTS.
- DO NOT BACK BRACE SIGN SUPPORTS.
- \*\* TWO-WAY UNDIVIDED ADVANCE WARNING SIGN CONFIGURATION MAY BE USED ON URBAN MULTI-LANE FACILITIES WHERE CONDITIONS LIMIT THE USE OF DUAL MOUNTED SIGNS AS DETERMINED BY THE ENGINEER.

# **LEGEND**

- STATIONARY SIGN

d DIRECTION OF TRAFFIC FLOW

SHEET 1 OF 1



DETAIL	DRAWIN	G FOR	TWO - V	VAY
UNDIVIDE	D AND	<b>URBAN</b>	FREE'	WAYS
ADVANCED V	WORK ZO	NE WAF	RNING	SIGNS

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