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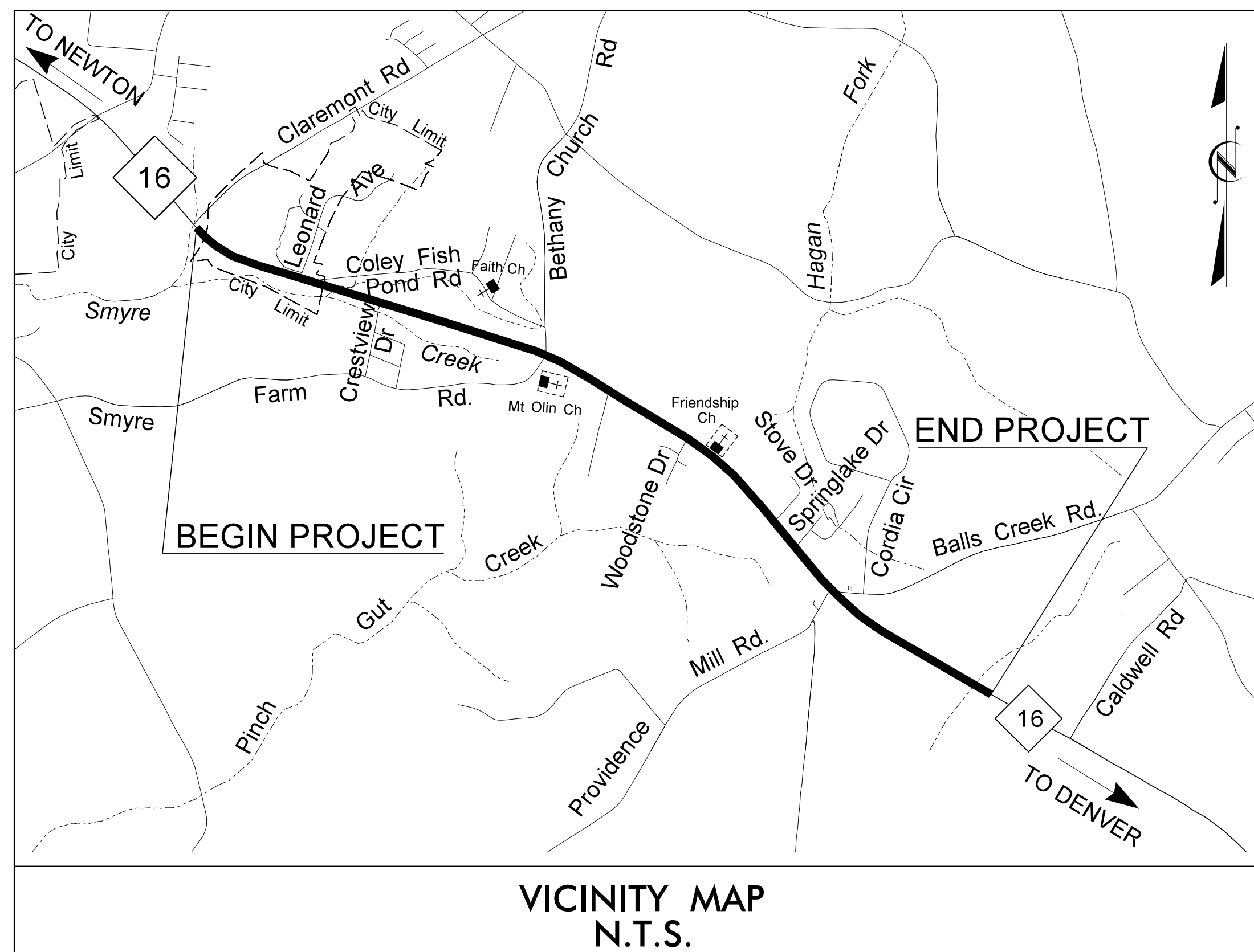
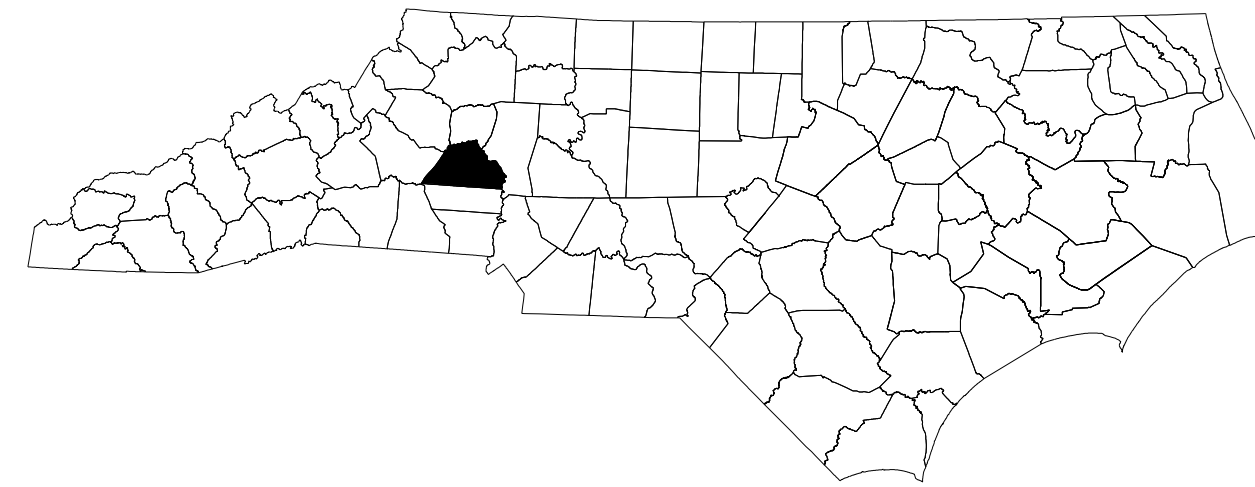
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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

CATAWBA COUNTY



LOCATION: NC 16 NORTH OF SR 1081 (CLAREMONT RD) AND NORTH OF SR 1814 (CALDWELL RD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING & SIGNALS

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND, INDEX OF SHEETS, TEMPORARY PAVEMENT MARKING SCHEDULE
TMP-2	GENERAL NOTES
TMP-2A THRU TMP-2C	TEMPORARY SHORING DATA
TMP-2D	SPECIAL SIGN DESIGNS
TMP-3	PHASING
TMP-4 THRU TMP-11	PHASE I DETAILS
TMP-12	COLEY FISH POND ROAD DETOUR
TMP-13 THRU TMP-20	PHASE II DETAILS
TMP-21	CRESTVIEW DRIVE DETOUR
TMP-22	PHASE III DETAIL

10/14/16 DATE SUBMITTED

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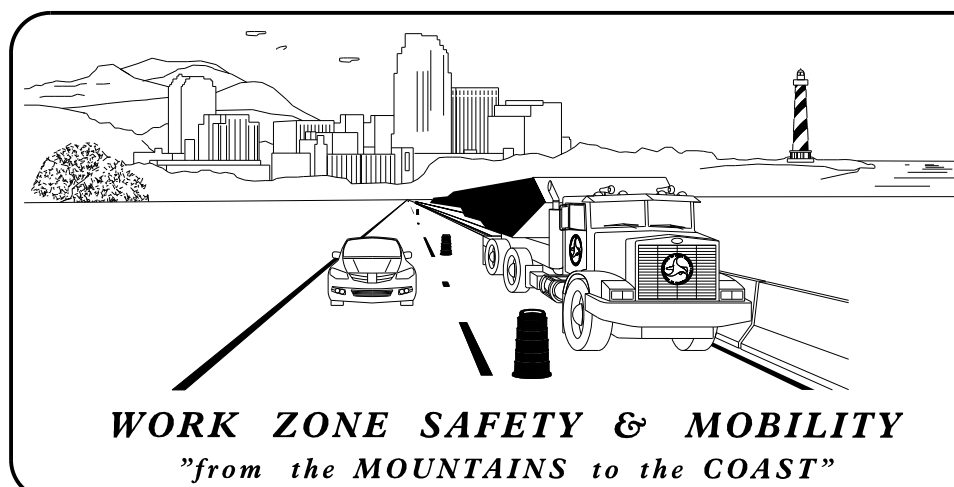
STAGING CONCEPT

MIDPOINT

PRE-FINAL

FINAL

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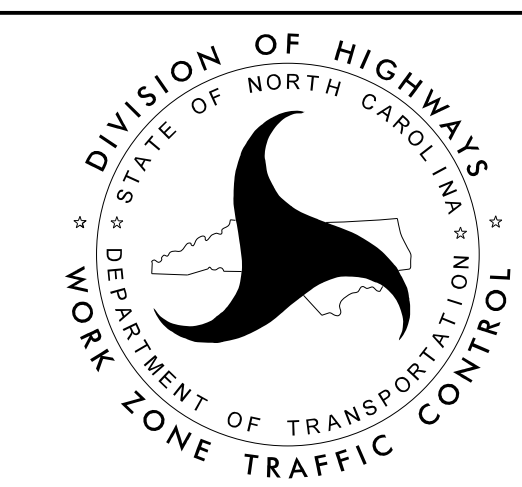
N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
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DATE: 2/9/2017

SEAL

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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 JULY 2012 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
1101.04	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
1115.01	FLASHING ARROW PANELS
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
1180.01	SKINNY-DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.06	PAVEMENT MARKINGS - LANE DROPS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1205.13	PAVEMENT MARKINGS - LANE REDUCTIONS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - (TEMPORARY AND PERMANENT)

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.

- FULL DEPTH CONSTRUCTION
- WEDGING & WIDENING
- TEMPORARY PAVEMENT
- PAVEMENT REMOVAL

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

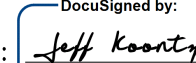
PAVEMENT MARKING SYMBOLS

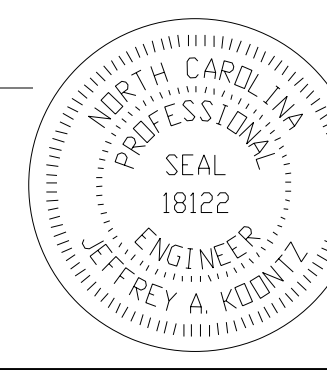
- PAVEMENT MARKING SYMBOLS

TEMPORARY PAVEMENT MARKING

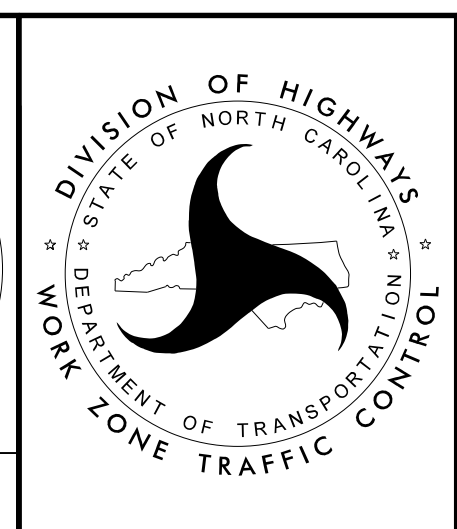
TEMPORARY PAVEMENT MARKING PAINT	
PA	WHITE EDGE LINE (4")
PB	YELLOW EDGE LINE (4")
PD	2' WHITE MINI SKIP (4")
PE	WHITE SOLID LANE LINE (4")
PI	YELLOW DOUBLE CENTERLINE (4")
PP	YELLOW DIAGONAL (8")
PO	WHITE DIAGONAL (8")
P4	WHITE STOP BAR (24")
QA	LEFT TURN ARROW
QB	RIGHT TURN ARROW
QC	STRAIGHT ARROW
QE	COMB STRT & LT TURN ARROW
QI	ALPHANUMERIC CHARACTER

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ROADWAY STANDARD
DRAWINGS & LEGEND

GENERAL /LOCAL NOTES

PROJ. REFERENCE NO.	SHEET NO.
R-3100B	TMP-02

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.

A) TIME RESTRICTIONS

DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
ALL ROADS	6:00 AM – 9:00 AM MONDAY-FRIDAY 4:00 PM – 7:00 PM MONDAY-FRIDAY

DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAY AND SPECIAL EVENTS AS FOLLOWS:

ROAD NAME
ALL ROADS

HOLIDAY

- 1) FOR UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
- 2) FOR NEW YEAR'S, BETWEEN THE HOURS OF 6:00 AM DECEMBER 31ST TO 7:00 PM JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY, THEN UNTIL 7:00 PM THE FOLLOWING TUESDAY.
- 3) FOR EASTER, BETWEEN THE HOURS OF 6:00 AM THURSDAY AND 7:00 PM MONDAY.
- 4) FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 AM FRIDAY AND 7:00 PM TUESDAY.
- 5) FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 AM THE DAY BEFORE INDEPENDENCE DAY AND 7:00 PM THE DAY AFTER INDEPENDENCE DAY. IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY, THEN BETWEEN THE HOURS OF 6:00 AM THE THURSDAY BEFORE INDEPENDENCE DAY AND 7:00 PM THE TUESDAY AFTER INDEPENDENCE DAY.
- 6) FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 AM FRIDAY AND 7:00 PM TUESDAY.
- 7) FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 AM TUESDAY AND 7:00 PM MONDAY.
- 8) FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 AM THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 7:00 PM THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

B) LANE AND SHOULDER CLOSURE REQUIREMENTS

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.

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 TRANSPORTATION MANAGEMENT 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 STOP TRAFFIC AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
ALL ROADS	6:00 AM-9:00 AM MONDAY-FRIDAY 4:00 PM-7:00 PM MONDAY-FRIDAY

DURATION AND OPERATIONS:

15 MIN DURING TRAFFIC SHIFTS

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 CONDUCT SINGLE VEHICLE HAULING AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
ALL ROADS	6:00 AM-9:00 AM MONDAY-FRIDAY 4:00 PM-7:00 PM MONDAY-FRIDAY

DO NOT CONDUCT MULTI-VEHICLE HAULING AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
ALL ROADS	6:00 AM-9:00 AM MONDAY-FRIDAY 4:00 PM-7:00 PM MONDAY-FRIDAY

C) 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 A 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) OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

D) TRAFFIC PATTERN ALTERATIONS

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

E) 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 TRANSPORTATION MANAGEMENT PLANS.

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRANSPORTATION MANAGEMENT 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 OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

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

INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-A) 200' IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

F) 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.

F (CONT.) TRAFFIC BARRIER

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

G) 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.

PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES

H) PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING	MARKER
NC 16	PAINT	TEMPORARY RAISED
ALL OTHER ROADS	PAINT	NONE

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.

TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

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

TRACE THE MONOLITHIC ISLAND LOCATIONS WITH PROPER COLOR PAVEMENT MARKINGS PRIOR TO PLACE TO DELINEATE ANY MONOLITHIC ISLANDS.

I) MISCELLANEOUS

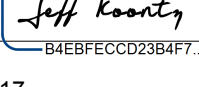
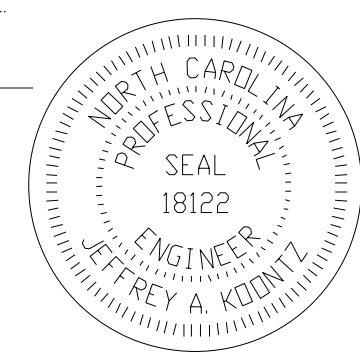

LAW ENFORCEMENT SHALL BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREAS AND /OR INTERSECTIONS AS DIRECTED BY THE ENGINEER.

LOCAL NOTES

1.) WHEN CONSTRUCTING DRAINAGE STRUCTURES ADJACENT TO TRAFFIC, INSTALL TEMPORARY STEEL PLATES, AS DIRECTED BY THE ENGINEER. THE CONTRACTOR MAY WORK EACH LOCATION INDEPENDENTLY OR CONCURRENTLY, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. WORK IN A CONTINUOUS MANNER TO PERFORM THE WORK IN THE FOLLOWING SEQUENCE, STEPS 'A' THRU 'E'.

- A: CLOSE THE APPROPRIATE TRAVEL LANE TO TRAFFIC USING ROADWAY STANDARD DRAWING NO. 1101.02 SHEETS 1, 2 & 3 OF 9.
- B: CONSTRUCT PROPOSED STRUCTURE OR INSTALL PRE-CAST DRAINAGE STRUCTURE AS SHOWN IN THE CONSTRUCTION PLANS AND COVER WITH STEEL PLATES TO PROTECT STRUCTURE DURING CURING.
- C: OPEN TRAVEL LANE TO EXISTING TRAFFIC PATTERN BY THE END OF EACH WORK PERIOD.
- D: WHEN PROPERLY CURED, CLOSE THE APPROPRIATE TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEETS 1, 2 & 3 OF 9. BACKFILL & PAYE, IF REQUIRED, UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT (SEE CONSTRUCTION PLANS).
- E: OPEN TRAVEL LANE TO EXISTING TRAFFIC PATTERN BY THE END OF THE WORK PERIOD.

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<p>APPROVED: </p> <p>DATE: 2/9/2017</p>			<p>PROJECT NOTES</p>
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Shoring Location No. 1

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

TEMPORARY SHORING IS REQUIRED FOR THE PIPE INSTALLATION FROM STATION -L- 28+50+/-, 0' LT, TO STATION -L- 29+50+/-, 0' LT.

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- 28+50+/-, 0' LT, TO STATION -L- 29+50+/-, 0' LT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 LB/CF
 FRICTION ANGLE (ϕ) = 30 DEGREES
 COHESION (c) = 0 LB/SF
 GROUNDWATER ELEVATION = 876 FT

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION -L- 28+50+/-, 0' LT, TO STATION -L- 29+50+/-, 0' LT. THE INFORMATION PROVIDED FOR TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

IT MAY BE PREFERRED TO USE A TEMPORARY SOIL NAIL WALL FOR TEMPORARY SHORING FROM STATION -L- 28+50+/-, 0' LT, TO STATION -L- 29+50+/-, 0' LT. FOR TEMPORARY SOIL NAIL WALLS, SEE TEMPORARY SOIL NAIL WALLS PROVISION.

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- 28+50+/-, 35.7' RT, TO STATION -L- 29+50+/-, 35.7' RT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 LB/CF
 FRICTION ANGLE (ϕ) = 30 DEGREES
 COHESION (c) = 0 LB/SF
 GROUNDWATER ELEVATION = 876 FT

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION -L- 28+50+/-, 35.7' RT, TO STATION -L- 29+50+/-, 35.7' RT. 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- 28+50+/-, 35.7' RT, TO STATION -L- 29+50+/-, 35.7' RT. SEE STANDARD DETAIL NO. 1801.02 FOR STANDARD TEMPORARY WALLS.

Shoring Location No. 3

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

TEMPORARY SHORING IS REQUIRED FOR THE PIPE INSTALLATION FROM STATION -L- 42+97+/-, 0' LT, TO STATION -L- 43+97+/-, 0' LT.

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- 42+97+/-, 0' LT, TO STATION -L- 43+97+/-, 0' LT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 LB/CF
 FRICTION ANGLE (ϕ) = 30 DEGREES
 COHESION (c) = 0 LB/SF
 GROUNDWATER ELEVATION = 882 FT

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION -L- 42+97+/-, 0' LT, TO STATION -L- 43+97+/-, 0' LT. THE INFORMATION PROVIDED FOR TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

IT MAY BE PREFERRED TO USE A TEMPORARY SOIL NAIL WALL FOR TEMPORARY SHORING FROM STATION -L- 42+97+/-, 0' LT, TO STATION -L- 43+97+/-, 0' LT. FOR TEMPORARY SOIL NAIL WALLS, SEE TEMPORARY SOIL NAIL WALLS PROVISION.

Shoring Location No. 4

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- 42+93+/-, 35.7' RT, TO STATION -L- 43+93+/-, 35.7' RT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 LB/CF
 FRICTION ANGLE (ϕ) = 30 DEGREES
 COHESION (c) = 0 LB/SF
 GROUNDWATER ELEVATION = 882 FT

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION -L- 42+93+/-, 35.7' RT, TO STATION -L- 43+93+/-, 35.7' RT. 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 STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION -L- 42+93+/-, 35.7' RT, TO STATION -L- 43+93+/-, 35.7' RT. SEE STANDARD DETAIL NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

AT THE CONTRACTOR'S OPTION, USE A STANDARD TEMPORARY WALL FOR TEMPORARY SHORING FROM STATION -L- 42+93+/-, 35.7' RT, TO STATION -L- 43+93+/-, 35.7' RT. SEE STANDARD DETAIL NO. 1801.02 FOR STANDARD TEMPORARY WALLS.

Shoring Location No. 5

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

TEMPORARY SHORING IS REQUIRED FOR THE PIPE INSTALLATION FROM STATION -L- 189+80+/-, 3' LT, TO STATION -L- 190+50+/-, 3' LT.

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- 189+80+/-, 3' LT, TO STATION -L- 190+50+/-, 3' LT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 LB/CF
 FRICTION ANGLE (ϕ) = 30 DEGREES
 COHESION (c) = 0 LB/SF
 GROUNDWATER ELEVATION = 958 FT

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION -L- 189+80+/-, 3' LT, TO STATION -L- 190+50+/-, 3' LT. THE INFORMATION PROVIDED FOR TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

IT MAY BE PREFERRED TO USE A TEMPORARY SOIL NAIL WALL FOR TEMPORARY SHORING FROM STATION -L- 189+80+/-, 3' LT, TO STATION -L- 190+50+/-, 3' LT. FOR TEMPORARY SOIL NAIL WALLS, SEE TEMPORARY SOIL NAIL WALLS PROVISION.

Shoring Location No. 6

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

TEMPORARY SHORING IS REQUIRED FOR THE PIPE INSTALLATION FROM STATION -L- 192+56+/-, 4' LT, TO STATION -L- 193+56+/-, 4' LT.

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- 192+56+/-, 4' LT, TO STATION -L- 193+56+/-, 4' LT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:


UNIT WEIGHT (γ) = 120 LB/CF
 FRICTION ANGLE (ϕ) = 30 DEGREES
 COHESION (c) = 0 LB/SF
 GROUNDWATER ELEVATION = 955 FT

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION -L- 192+56+/-, 4' LT, TO STATION -L- 193+56+/-, 4' LT. THE INFORMATION PROVIDED FOR TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

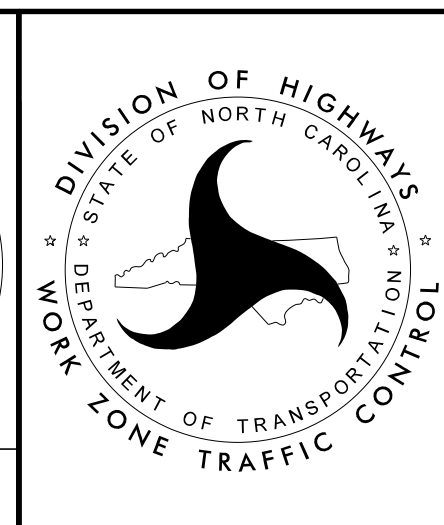
IT MAY BE PREFERRED TO USE A TEMPORARY SOIL NAIL WALL FOR TEMPORARY SHORING FROM STATION -L- 192+56+/-, 4' LT, TO STATION -L- 193+56+/-, 4' LT. FOR TEMPORARY SOIL NAIL WALLS, SEE TEMPORARY SOIL NAIL WALLS PROVISION.

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APPROVED: *Shipping Yang*
 DATE: 10/17/2016



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TEMPORARY SHORING NOTES

Shoring Location No. 7

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

TEMPORARY SHORING IS REQUIRED FOR THE PIPE INSTALLATION FROM STATION -L- 28+45+/-, 8' LT, TO STATION -L- 29+45+/-, 8' LT.

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- 28+45+/-, 8' LT, TO STATION -L- 29+45+/-, 8' LT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 LB/CF
 FRICTION ANGLE (ϕ) = 30 DEGREES
 COHESION (c) = 0 LB/SF
 GROUNDWATER ELEVATION = 876 FT

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION -L- 28+45+/-, 8' LT, TO STATION -L- 29+45+/-, 8' 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- 28+45+/-, 8' LT, TO STATION -L- 29+45+/-, 8' LT. SEE STANDARD DETAIL NO. 1801.02 FOR STANDARD TEMPORARY WALLS.

Shoring Location No. 8

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

TEMPORARY SHORING IS REQUIRED FOR THE PIPE INSTALLATION FROM STATION -L- 43+15+/-, 8' LT, TO STATION -L- 44+15+/-, 8' LT.

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- 43+15+/-, 8' LT, TO STATION -L- 44+15+/-, 8' LT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 LB/CF
 FRICTION ANGLE (ϕ) = 30 DEGREES
 COHESION (c) = 0 LB/SF
 GROUNDWATER ELEVATION = 882 FT

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION -L- 43+15+/-, 8' LT, TO STATION -L- 44+15+/-, 8' 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- 43+15+/-, 8' LT, TO STATION -L- 44+15+/-, 8' LT. SEE STANDARD DETAIL NO. 1801.02 FOR STANDARD TEMPORARY WALLS.

Shoring Location No. 9

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

TEMPORARY SHORING IS REQUIRED FOR THE PIPE INSTALLATION FROM STATION -L- 189+80+/-, 5' RT, TO STATION -L- 190+50+/-, 5' RT.

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- 189+80+/-, 5' RT, TO STATION -L- 190+50+/-, 5' RT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 LB/CF
 FRICTION ANGLE (ϕ) = 30 DEGREES
 COHESION (c) = 0 LB/SF
 GROUNDWATER ELEVATION = 958 FT

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION -L- 189+80+/-, 5' RT, TO STATION -L- 190+50+/-, 5' RT. 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- 189+80+/-, 5' RT, TO STATION -L- 190+50+/-, 5' RT. SEE STANDARD DETAIL NO. 1801.02 FOR STANDARD TEMPORARY WALLS.

Shoring Location No. 10

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

TEMPORARY SHORING IS REQUIRED FOR THE PIPE INSTALLATION FROM STATION -L- 192+52+/-, 4' RT, TO STATION -L- 193+52+/-, 4' RT.

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- 192+52+/-, 4' RT, TO STATION -L- 193+52+/-, 4' RT, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 LB/CF
 FRICTION ANGLE (ϕ) = 30 DEGREES
 COHESION (c) = 0 LB/SF
 GROUNDWATER ELEVATION = 955 FT


LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION -L- 192+52+/-, 4' RT, TO STATION -L- 193+52+/-, 4' RT. 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- 192+52+/-, 4' RT, TO STATION -L- 193+52+/-, 4' RT. SEE STANDARD DETAIL NO. 1801.02 FOR STANDARD TEMPORARY WALLS.

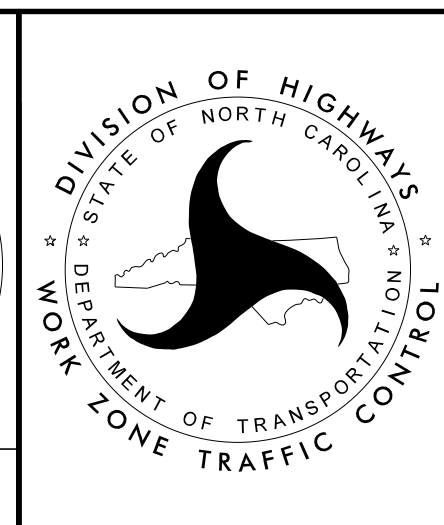
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DocuSigned by: Shipping Yang
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DATE: 10/17/2016



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TEMPORARY SHORING NOTES

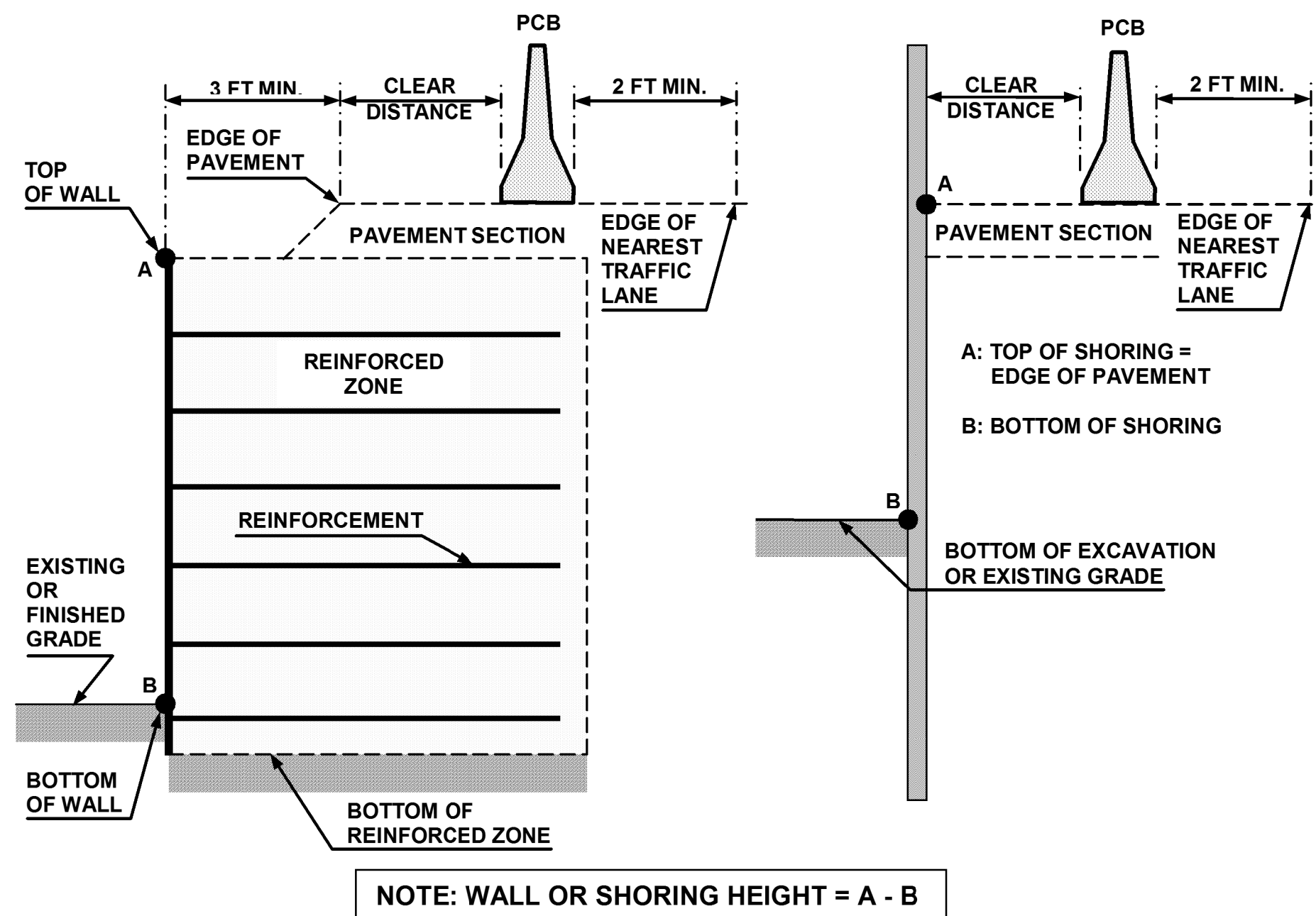


FIGURE A

NOTES

- REFER TO THE TRAFFIC CONTROL PLANS FOR TEMPORARY SHORING LOCATIONS AND NOTES.
- REFER TO THE "TEMPORARY SHORING" PROJECT SPECIAL PROVISION FOR INFORMATION ABOUT TEMPORARY SHORING AND PORTABLE CONCRETE BARRIER (PCB).
- 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).
- 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.
- 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.
- USE NCDOT PORTABLE CONCRETE BARRIER (PCB) IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1170.01 AND SECTION 1170 OF THE STANDARD SPECIFICATIONS.
- PCB REQUIREMENTS FOR TEMPORARY WALLS APPLY TO TEMPORARY MECHANICALLY STABILIZED EARTH (MSE) WALLS AND TEMPORARY SOIL NAIL WALLS.
- 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.
- 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.
- 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

	Pavement Type	Offset * ft	Design Speed, mph							
			<30	31-40	41-50	51-60	61-70	71-80		
Unanchored PCB	Asphalt	<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		
		26-32	29	32	36	39	42	45		
		32-38	30	34	38	41	43	46		
		38-44	31	34	41	43	45	48		
	Concrete	44-50	31	35	41	43	46	49		
		50-56	32	36	42	44	47	50		
		>56	32	36	42	45	47	51		
		<8	17	18	21	22	25	26		
		8-14	19	20	23	25	26	29		
		14-20	22	22	24	26	28	31		
		20-26	23	24	26	27	30	34		
Anchored PCB	Asphalt	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	Concrete (including bridge approach slabs)	All Offsets	24 for All Design Speeds					
				All Offsets	12 for All Design Speeds					

* See Figure Below

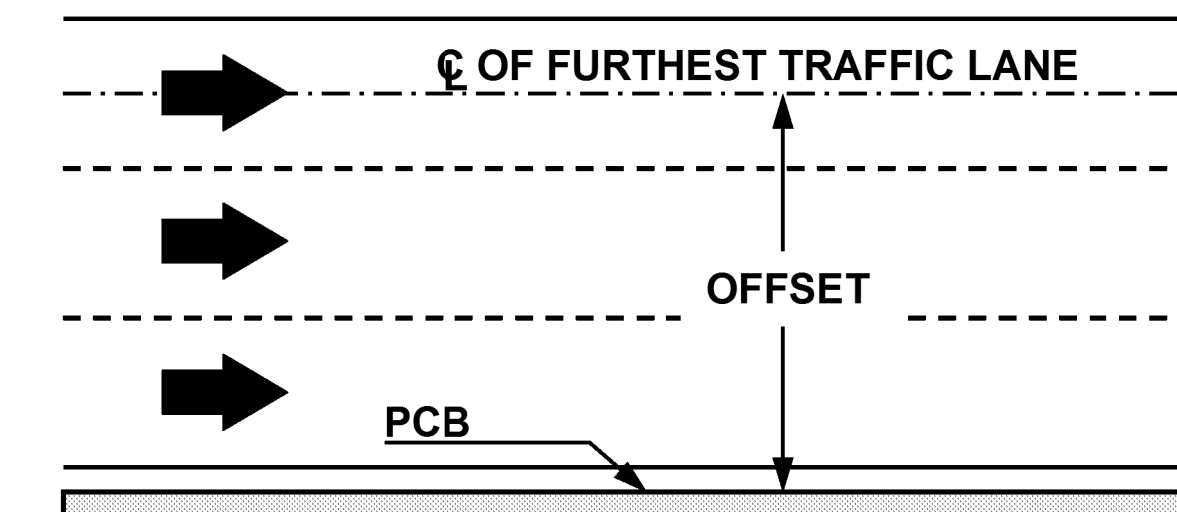
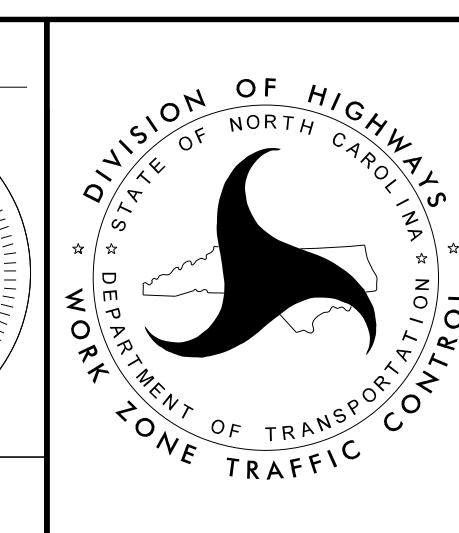


FIGURE B

APPROVED: *Jeff Koontz*
DocuSigned by:
 Jeff Koontz
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DATE: 2/9/2017

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PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS

SIGN NUMBER: SP-1
 TYPE: SP Ground
 QUANTITY: 1

BACKG. COLOR: Orange
 COPY COLOR: Black

DESIGN BY: GDS
 PROJECT ID: R-3100B

CHECKED BY: NJD

STD #:
 DATE: September 13, 2016

SIGN WIDTH: 4'-0"
 HEIGHT: 2'-0"
 TOTAL AREA: 4.9 Sq.Ft.

SYMBOL	X	Y	WID	HT

MAT'L: 0.125 in ALUMINUM

BORDER TYPE: FLUSH
 RECESS: 0.47"
 WIDTH: 0.63"
 RADII: 1.5"

NO. Z BARS:
 LENGTH:

USE NOTES: 1,2
 1. Legend and border shall be direct applied black non-reflective sheeting.
 2. Background shall be NC GRADE B fluorescent orange retroreflective sheeting.

BORDER
 R=1.5"
 TH=0.63"
 IN=0.47"

Panel Style: construction_guide.ssi
 M.U.T.C.D.: 2009 Edition

Letter spacings are to start of next letter

C	O	L	E	Y	F	I	S	H	Series/Size Text Length			
4.0	4.7	5.0	4.2	4	5.2	2.5	4.2	1.5	4.6	4.1	4.0	D6
P	O	N	D	R	O	A	D					D6
4.0	4.5	4.9	4.8	4.1	3.0	4.5	4.6	5.5	4.1	4.0		40.0

SIGN NUMBER: SP-2
 TYPE: SP Ground
 QUANTITY: 1

BACKG. COLOR: Orange
 COPY COLOR: Black

DESIGN BY: GDS
 PROJECT ID: R-3100B

CHECKED BY: NJD

STD #:
 DATE: September 13, 2016

SIGN WIDTH: 4'-0"
 HEIGHT: 2'-0"
 TOTAL AREA: 4.9 Sq.Ft.

SYMBOL	X	Y	WID	HT

MAT'L: 0.125 in ALUMINUM

BORDER TYPE: FLUSH
 RECESS: 0.47"
 WIDTH: 0.63"
 RADII: 1.5"

NO. Z BARS:
 LENGTH:

USE NOTES: 1,2
 1. Legend and border shall be direct applied black non-reflective sheeting.
 2. Background shall be NC GRADE B fluorescent orange retroreflective sheeting.

BORDER
 R=1.5"
 TH=0.63"
 IN=0.47"

Panel Style: construction_guide.ssi
 M.U.T.C.D.: 2009 Edition

Letter spacings are to start of next letter

C	R	E	S	T	V	I	E	W	Series/Size Text Length			
4.0	5.2	5.0	4.2	4.5	4.0	5.3	2.2	4.1	5.3	4.0	D6	
D	R	I	V	E								D6
13.5	5.2	5.0	1.7	5.3	3.7	13.5						21.0

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 User:bdwinn

APPROVED: *JH Keating*
 DATE: 2/9/2017

**TRAFFIC MANAGEMENT PLAN
 SPECIAL SIGN
 DESIGNS**

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PROJECT PHASING

MAINTAIN EXISTING DRIVEWAY CONNECTIONS THROUGH ALL PHASES.

PHASE I

STEP 1) PRIOR TO ANY CONSTRUCTION ACTIVITY, INSTALL WORK ZONE ADVANCE WARNING SIGNS, IN ACCORDANCE WITH ROADWAY STANDARD DRAWING 1101.01, ON ALL ROADS INVOLVED (NC 16, CLAREMONT RD, LEONARD AVE, COLEY FISH POND RD, CREST VIEW RD, BETHANY CHURCH RD, SMYRE FARM RD, SOUTH PARK DR, WOODSTONE DR, STOVE DR, SPRING LAKE DR, PROVIDENCE MILL RD AND BALLS CREEK RD).

STEP 2) USING ROADWAY STANDARD DRAWING 1101.02, SHEET 1 OF 15, BEGIN CLEARING AND GRADING OPERATIONS, AND CONSTRUCTION OF PROPOSED DRAINAGE (INCLUDING CURB AND GUTTER) ALONG AND ACROSS EXISTING NC 16 AND ALL -Y- LINES AND DRIVEWAYS, AS DIRECTED BY THE ENGINEER (SEE CONSTRUCTION PLANS AND LOCAL NOTE 1).

CONSTRUCT THE TEMPORARY SHORING ON THE SOUTH SIDE OF EXISTING NC 16 AND PLACE PCB USING THE SHORING DETAIL SHOWN ON TMP-2A AT THE FOLLOWING LOCATIONS:

- L- STA. 28+50 TO STA. 29+50, 35.67' RT
- L- STA. 42+93 TO STA. 43+93, 35.67' RT
- L- STA. 189+80 TO STA. 190+50, 3.00' LT
- L- STA. 192+56 TO STA. 193+56, 4.00' LT

STEP 3) WORKING AWAY FROM TRAFFIC OR USING ROADWAY STANDARD DRAWING 1101.02, SHEET 1 AND FLAGGERS, CONSTRUCT 5' (UNLESS OTHERWISE NOTED ON PLANS) TEMPORARY PAVEMENT WIDENING OF -L- (NC 16), ALONG WITH A 6' TURF SHOULDER ACCORDING TO THE FOLLOWING STATIONS (SEE TMP-04 THRU TMP-11 AND ROADWAY CONSTRUCTION PLANS):

- L- STA. 27+30 ± TO STA. 31+08± RT
- L- STA. 41+65 ± TO STA. 82+91± RT
- L- STA. 92+40 ± TO STA. 117+59 ± LT
- L- STA. 137+90 ± TO STA. 155+50 ± LT
- L- STA. 165+50 ± TO STA. 172+60 ± LT

CONSTRUCT TEMPORARY MEDIAN CROSS-OVER AS FOLLOWS (SEE TMP-11 AND ROADWAY CONSTRUCTION PLANS):

- L- STA. 196+17± TO STA. 198+28± MED

NOTE: TEMPORARY PAVEMENT WIDENING IS TO REMAIN IN PLACE AND IS CONSIDERED EXISTING PAVEMENT IN THE FUTURE PHASES.

STEP 4) PLACE TEMPORARY PAVEMENT MARKINGS (PAINT) AND MARKERS ON THE NEW CONSTRUCTED WIDENING FOR THE SHIFTED TRAFFIC PATTERN. OBLIERATE ANY CONFLICTING MARKINGS AND SHIFT TRAFFIC AS FOLLOWS:

USING ROADWAY STANDARD DRAWING 1101.02, SHEET 1 OF 15 AND FLAGGERS, RE-DIRECT THE EASTBOUND TRAFFIC ON THE NEWLY WIDENED PAVEMENT IN THE NEW TRAFFIC LANES. OBLITERATE ANY CONFLICTING MARKINGS AND RELOCATE ANY NECESSARY TRAFFIC CONTROL DEVICES. AFTER THE EASTBOUND LANES ARE SHIFTED AND USING FLAGGERS AS NECESSARY, SHIFT THE WESTBOUND TRAFFIC INTO THE NEW, SHIFTED TRAFFIC PATTERNS. RELOCATE AND NECESSARY TRAFFIC CONTROL DEVICES (SEE TMP-04 THRU TMP-11).

STEP 5) CONSTRUCT THE TEMPORARY SHORING ON THE NORTH SIDE OF EXISITNG NC 16 AND PLACE PCB USING THE DETAIL SHOWN ON SHEET TMP-2A AT THE FOLLOWING LOCATIONS:

- L- STA. 28+50 TO STA. 29+50, 0.00' LT
- L- STA. 42+97 TO STA. 43+97, 0.00' LT

STEP 6) WORKING AWAY FROM TRAFFIC OR USING ROADWAY STANDARD DRAWING 1101.02 SHEETS 1 AND 3 CONSTRUCT WIDENING AND WEDGING AWAY FROM TRAFFIC, EXCLUDING THE FINAL LAYER OF SURFACE COURSE AS FOLLOWS (SEE TMP-04 THRU TMP-11 & CONSTRUCTION PLANS):

- L- STA. 16+50± TO STA. 92+00± LT
- L- STA. 158+00± TO STA. 160+50± LT
- L- STA. 84+00± TO STA. 198+28± RT
- Y2- STA. 12+00± TO STA. 13+90±

CONSTRUCT THE FOLLOWING LOCATIONS UNDER EXISTING TRAFFIC USING ROADWAY STANDARD DRAWING 1101.02, SHEET 1 OF 15:

- L- STA. 84+00± TO STA. 92+40±
- Y5- STA. 11+00± TO STA. 14+63±
- Y6- STA. 10+37± TO STA. 13+39±

PHASE I CONTINUED

COMPLETE THE WORK OF PHASE I, STEP 7, COLEY FISH POND ROAD -Y3- WITHIN A PERIOD OF 60 DAYS.

COMPLETE THE WORK OF PHASE I, STEP 7, WOODSTONE DRIVE -Y8- WITHIN A PERIOD OF 30 DAYS.

STEP 7) WORKING AWAY FROM TRAFFIC OR USING ROADWAY STANDARD DRAWING 1101.02 SHEET 1 CONSTRUCT THE TEMPORARY SIGNALS ACCORDING TO THE SIGNAL PLANS AT THE FOLLOWING INTERSECTIONS:

NC 16 -L- / BETHANY CURCH RD -Y5- / SMYRE FARM RD -Y6-
NC 15 -L- / PROVIDENCE MILL RD -Y11- / BALLS CREEK RD -Y12-

NOTE: AFTER COMPLETION OF -Y5- BETHANY CHURCH RD, CLOSE -Y3- COLEY FISH POND RD. (SEE DETOUR SHEET TMP-12) USING ROADWAY STANDARD DRAWING 1101.03 SHEETS 1 AND 2 AND CONSTRUCT AS FOLLOWS (SEE DETAILS ON TMP-04 AND TMP-06 & CONSTRUCTION PLANS):

- Y3- STA. 13+20± TO STA. 16+50±
- Y7- STA. 10+39± TO STA. 13+00±
- Y8- STA. 10+37± TO STA. 13+84±
- Y11- STA. 10+36± TO STA. 14+63±
- Y12- STA. 10+06± TO STA. 18+18±

NOTE: THE CONSTRUCTION OF -Y8- WILL REQUIRE THAT THE EXISTING ROADWAY BE LOWER. SINCE THERE IS NO OUTLET, THE CONTRACTOR SHALL, AS DIRECTED BY THE ENGINEER, AND USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 9, PLACE AGGREGATE BASE COURSE, INCIDENTAL STONE OR ASPHALT BASE COURSE & BINDER COURSE TO MAINTAIN ACCESS.

CONTRACTOR SHALL PLACE TEMPORARY PAVEMENT MARKINGS (PAINT) ON ASPHALT BINDER/SURFACE COURSE, OR DRUMS, ON AGGREGATE BASE COURSE/INCIDENTAL STONE TO DELINEATE THE TRAVELWAY DURING CONSTRUCTION.

PHASE II

STEP 1) UPON COMPLETION OF THE WESTBOUND LANES IN PHASE I, PLACE TEMPORARY PAVEMENT MARKINGS (PAINT) AND MARKERS ON THE NEWLY CONSTRUCTED WESTBOUND LANES. PLACE PORTABLE CONCRETE BARRIER AND CONSTRUCT TEMPORARY SHORING AT:

- L- STA. 28+45 TO STA. 29+45, 8.00' LT
- L- STA. 43+15 TO STA. 44+15, 8.00' LT
- L- STA. 189+80 TO STA. 190+80, 4.00' LT
- L- STA. 192+52 TO STA. 193+52, 4.00' LT

STEP 2) OBLIERATE ANY CONFLICTING MARKINGS AND SHIFT TRAFFIC AS FOLLOWS:

USING ROADWAY STANDARD DRAWING 1101.02, SHEET 1 OF 15 AND FLAGGERS, RE-DIRECT THE WESTBOUND TRAFFIC ON TO THE NEWLY CONSTRUCTED OUTSIDE WESTBOUND LANE. AFTER THE WESTBOUND LANE IS SHIFTED, USE FLAGGERS AS NECESSARY, SHIFT THE EASTBOUND TRAFFIC ON TO THE INSIDE WESTBOUND LANE IN THE EASTBOUND DIRECTION. RELOCATE ANY NECESSARY TRAFFIC CONTROL DEVICES. (SEE TMP-13 THRU TMP-19).

NOTE: THE EASTBOUND LANES OF THE PROJECT ARE CONSTRUCTED FIRST ON THE EAST END OF THE PROJECT SO THE ABOVE TRAFFIC SHIFT IS FROM THE WESTBOUND TO EASTBOUND.

STEP 3) USING ROADWAY STANDARD DRAWING 1101.02 SHEET 1 OF 15 AND FLAGGERS AS NEEDED, ACTIVATE MODIFIED THE TRAFFIC SIGNALS TO ACCOMODATE THE NEW, SHIFTED TRAFFIC PATTERNS AT THE FOLLOWING INTERSECTIONS:

NC 16 -L- / BETHANY CURCH RD -Y5- AT SMYRE FARM RD -Y6-
NC 16 -L- / PROVIDENCE MILL RD -Y11- AT BALLS CREEK RD -Y12-
(SEE SHEETS TMP-15 & TMP-18)

STEP 4) USING ROADWAY STANDARD DRAWING 1101.02, SHEET 1 OF 15 AND FLAGGERS AS NEEDED, WEDGE UNDER TRAFFIC UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE AT THE FOLLOWING LOCATIONS (SEE TMP-23 AND THE ROADWAY CONSTRUCTION PLANS):

- L- STA. 153+50± TO STA. 158+00±
- L- STA. 161+50± TO STA. 165+50±

PHASE II CONTINUED

COMPLETE THE WORK OF PHASE II, STEP 5, CRESTVIEW DRIVE -Y4- WITHIN A PERIOD OF 60 DAYS.

STEP 5) USE BARRICADES TO CLOSE -Y4- CREST VIEW DR. USING ROADWAY STANDARD DRAWING 1101.03 SHEETS 1 AND 2. CONSTRUCT, EXCLUDING THE FINAL LAYER OF SURFACE COURSE, AS FOLLOWS: (SEE TMP-12, TMP-14, DETOUR SHEET TMP-21 & CONSTRUCTION PLANS):

- Y4- STA. 10+37± TO STA. 13+20±

STEP 6) WORKING AWAY FROM TRAFFIC OR USING ROADWAY STANDARD DRAWING 1101.02 SHEETS 1 AND 3 CONSTRUCT, EXCLUDING THE FINAL LAYER OF SURFACE COURSE, INCLUDING THE MEDIAN AS FOLLOWS (SEE TMP-13 THRU TMP-19 & CONSTRUCTION PLANS):

- L- STA. 15+35± TO STA. 84+00± RT & MED
- L- STA. 92+00± TO STA. 158+00± LT & MED
- L- STA. 160+70± TO STA. 198+28± LT & MED

USING ROADWAY STANDARD DRAWING 1101.02, SHEET 1 OF 15 AND FLAGGERS AS NEEDED, CONSTRUCT THE FOLLOWING -Y- LINES UNDER TRAFFIC:

- Y9- STA. 12+61± TO STA. 13+74±
- Y10- STA. 10+19± TO STA. 12+81±

STEP 7) WORKING AWAY FROM TRAFFIC OR USING ROADWAY STANDARD DRAWING 1101.02 SHEETS 1 AND 3, CONSTRUCT THE FOLLOWING TRAFFIC SIGNALS:

NC 16 -L- / BETHANY CURCH RD -Y5- / SMYRE FARM RD -Y6-
NC 15 -L- / PROVIDENCE MILL RD -Y11- / BALLS CREEK RD -Y12-

PHASE III

STEP 1) USING ROADWAY STANDARD DRAWING 1101.02 SHEET 3, ELIMINATE TEMPORARY CROSS OVERS AT THE FOLLOWING LOCATIONS (SEE TMP-20):

- L- STA. 196+17± TO STA. 198+28±

STEP 2) ACTIVATE THE PROPOSED SIGNALS ACCORDING TO THE SIGNAL PLANS. AT THE FOLLOWING INTERSECTIONS:

NC 16 -L- / BETHANY CURCH RD -Y5- / SMYRE FARM RD -Y6-
NC 15 -L- / PROVIDENCE MILL RD -Y11- / BALLS CREEK RD -Y12-

STEP 3) COMPLETE MONOLITHIC ISLAND CONSTRUCTION AND ANY REMAINING CURB AND GUTTER AT THE FOLLOWING INTERSECTIONS: (SEE DETAIL SHEET TMP-20 & CONSTRUCTION PLANS):

NC 16 -L- / BETHANY CURCH RD -Y5- / SMYRE FARM RD -Y6-
NC 15 -L- / PROVIDENCE MILL RD -Y11- / BALLS CREEK RD -Y12-

STEP 4) USING ROADWAY STANDARD DRAWING 1101.02 SHEETS 1 AND 3 AND FLAGGERS AS NEEDED, PLACE THE FINAL LAYER OF SURFACE COURSE, AND FINAL PAVEMENT MARKINGS AND MARKERS ACCORDING TO FINAL PAVEMENT MARKING PLANS.

STEP 5) REMOVE ALL REMAINING TRAFFIC CONTROL DEVICES AND OPEN THE PROJECT IN THE FINAL TRAFFIC PATTERN.

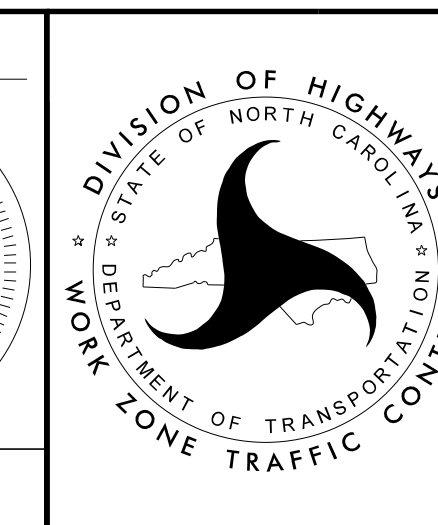
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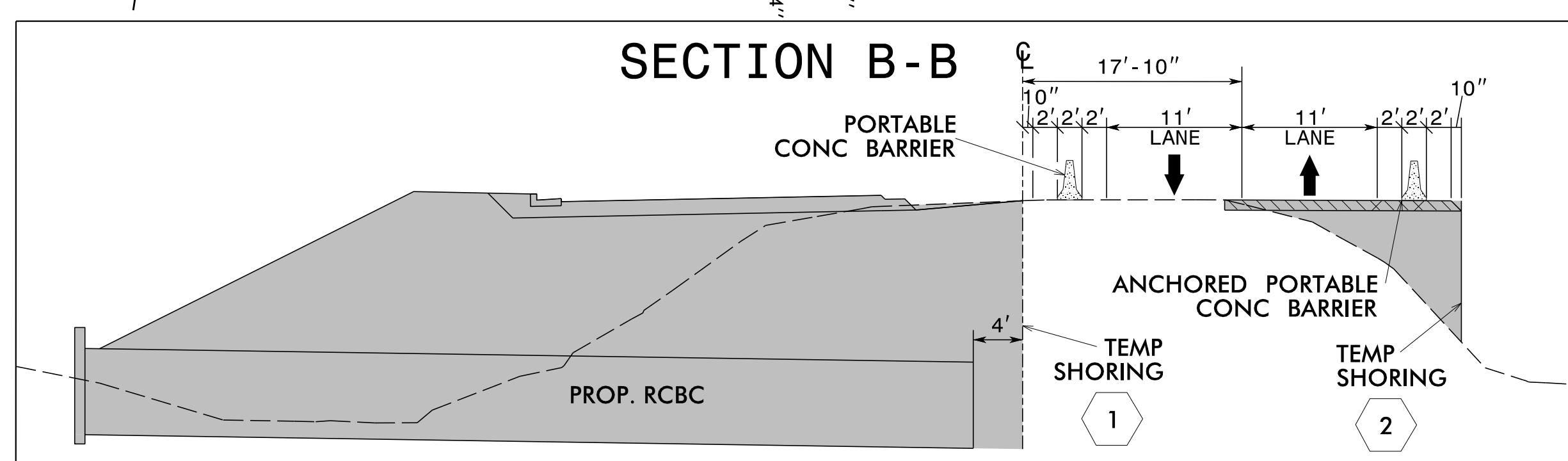
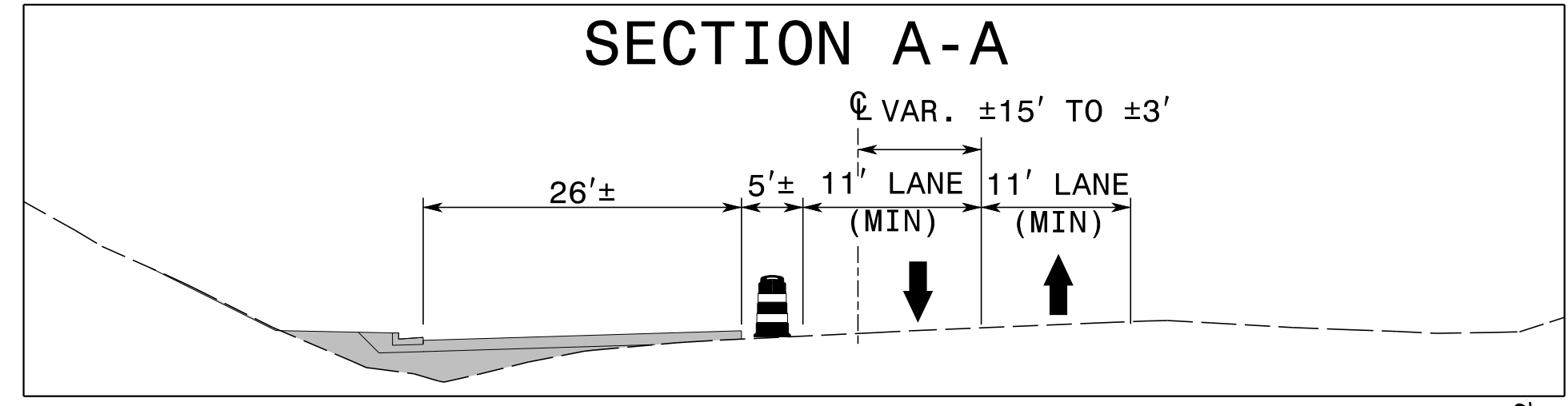
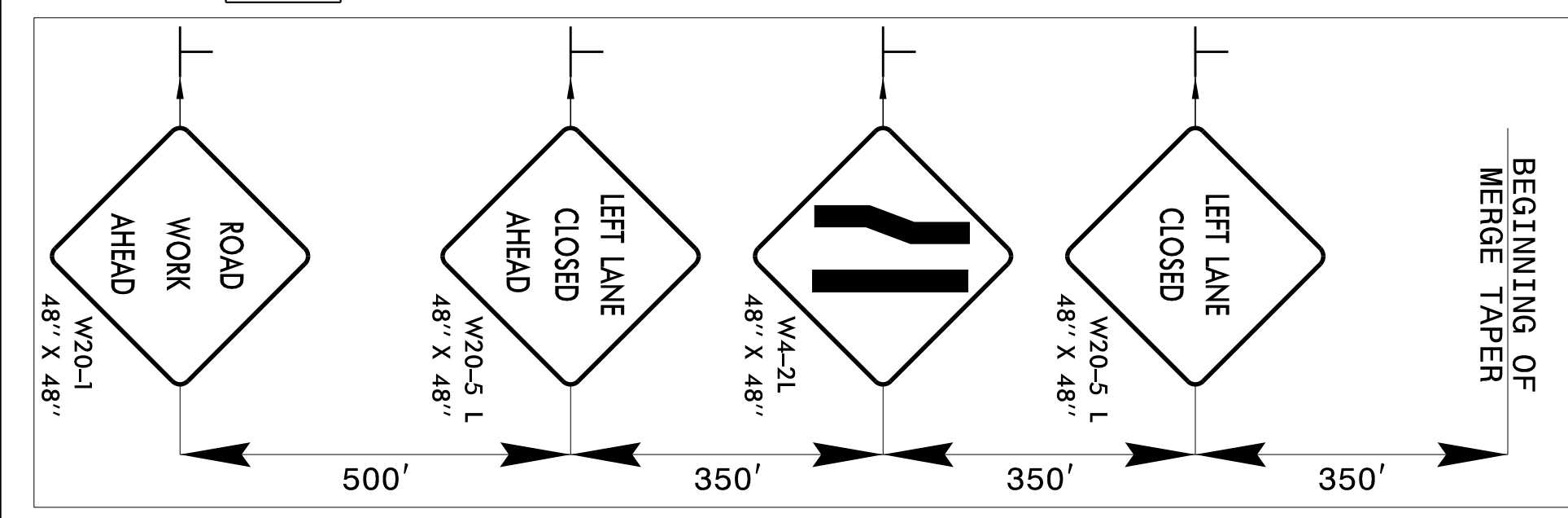
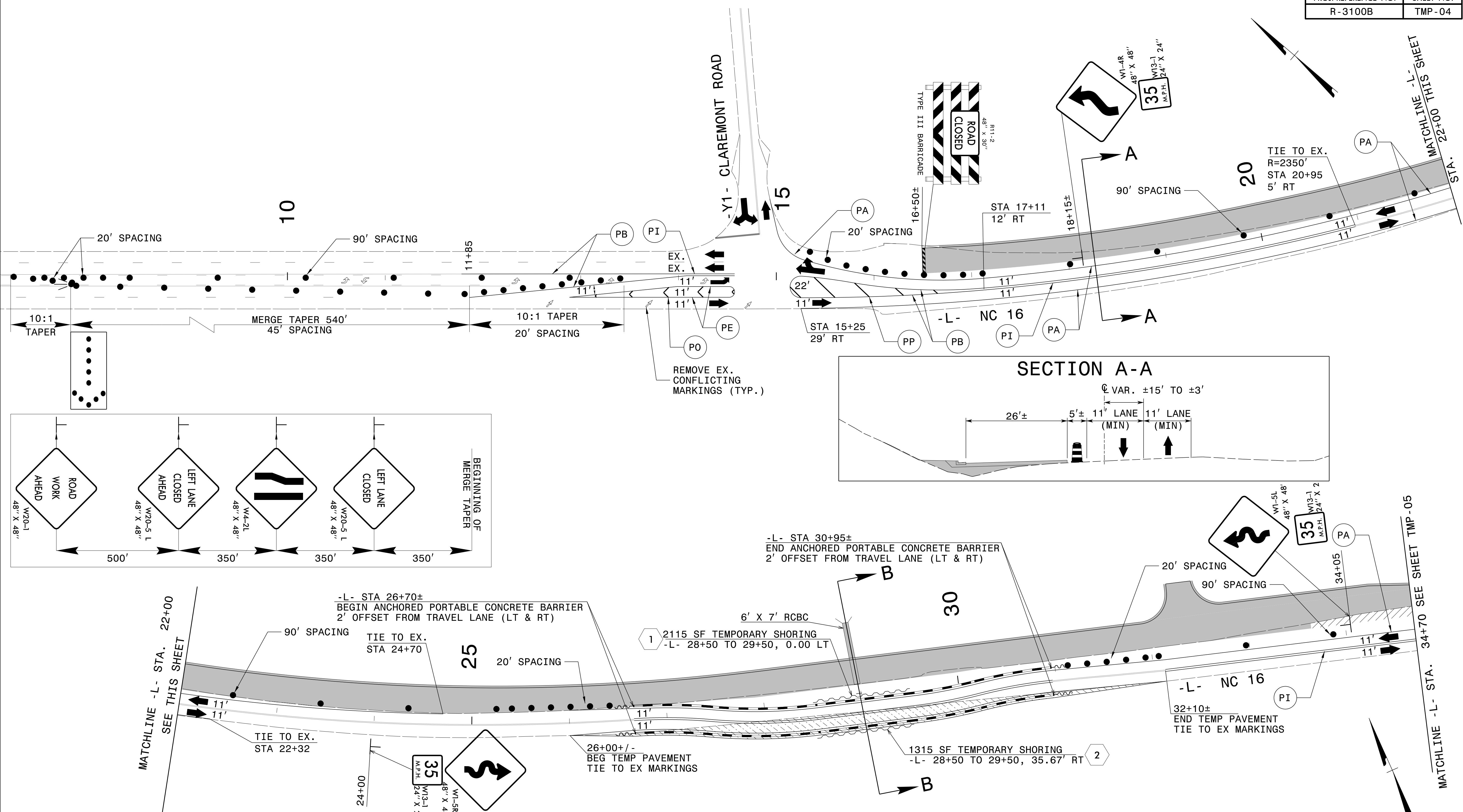
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DATE: 1/17/2017

JEFFREY A. KOONTZ
NORTH CAROLINA
PROFESSIONAL
SEAL
18122
ENGINEER

**DOCUMENT NOT CONSIDERED FINAL
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PROJECT PHASING



- FULL DEPTH CONSTRUCTION
- WEDGING & WIDENING
- TEMPORARY PAVEMENT

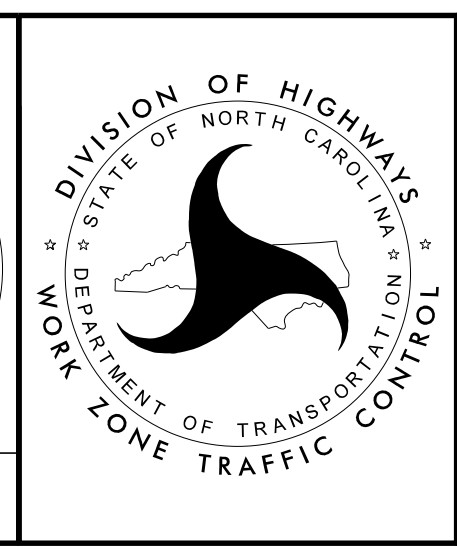
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2/8/2017

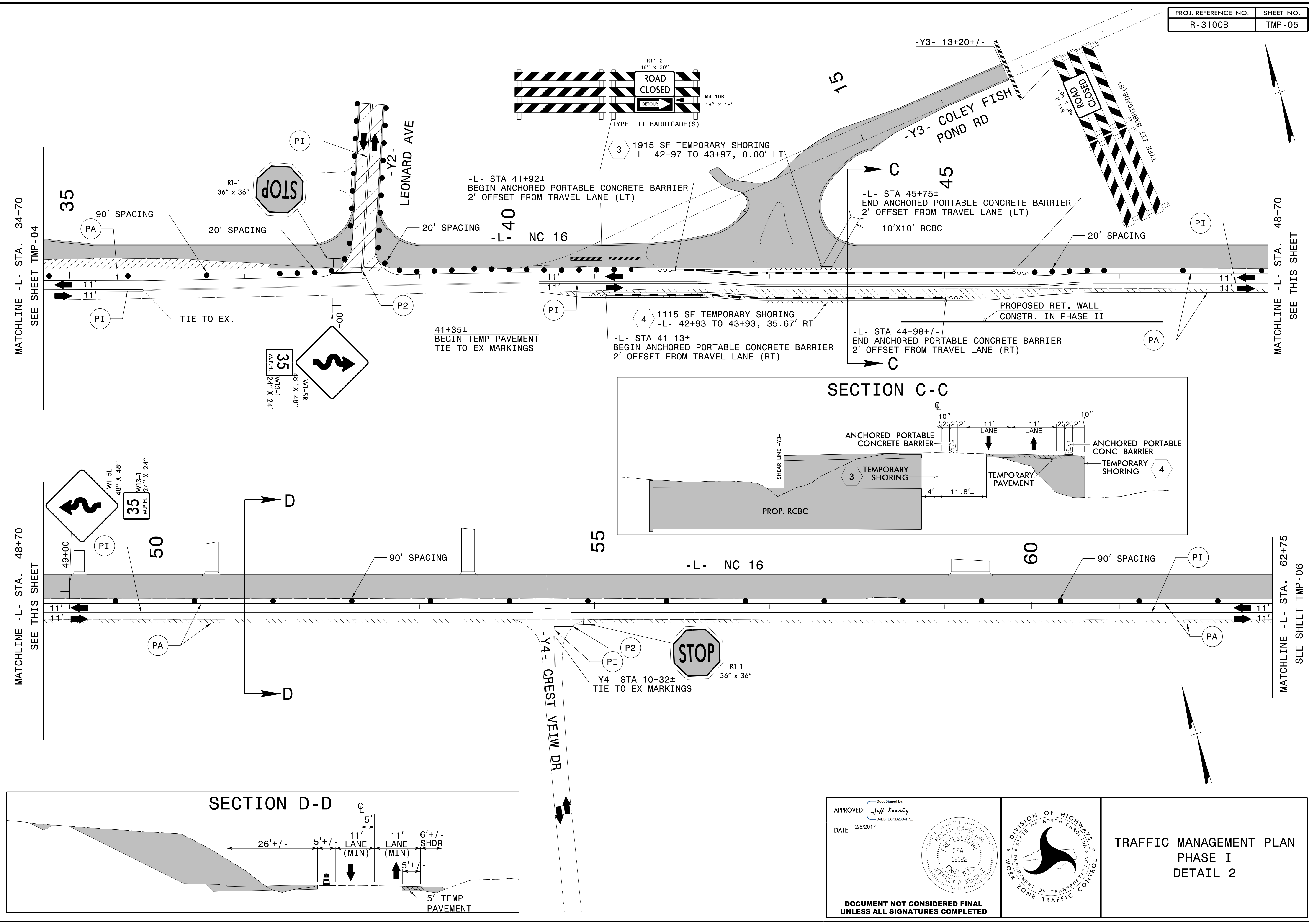
PROFESSIONAL SEAL
 18122
 JEFFREY A. KOONTZ

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TRAFFIC MANAGEMENT PLAN
 PHASE I
 DETAIL 1

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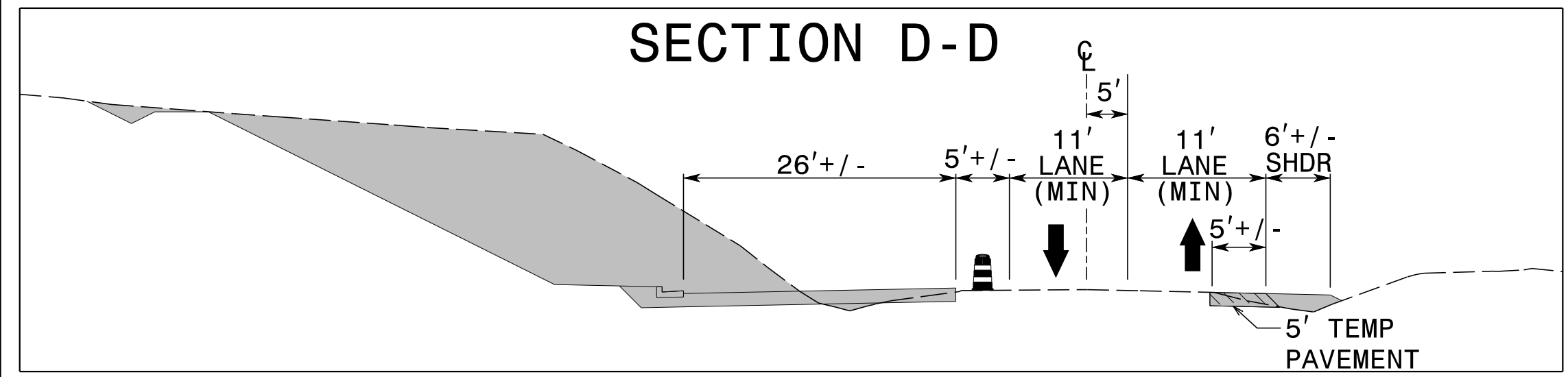
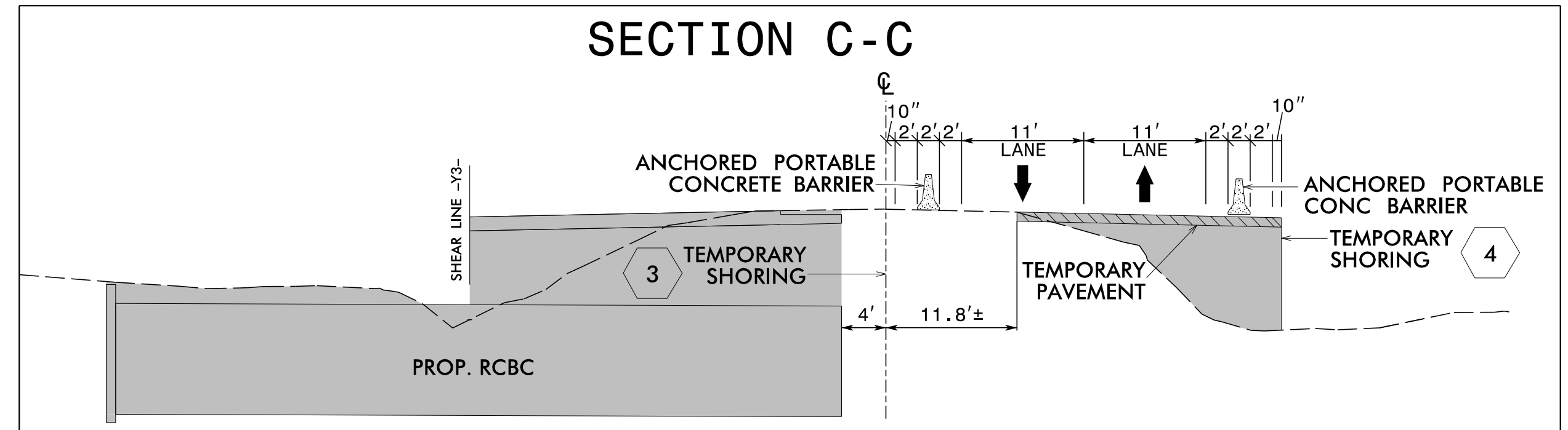


MATCHLINE - L- STA. 34+70
SEE SHEET TMP-04

MATCHLINE - L- STA. 48+70
SEE THIS SHEET

MATCHLINE - L- STA. 48+70
SEE THIS SHEET

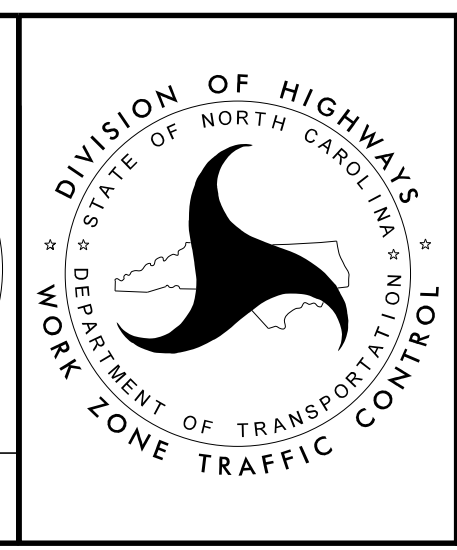
MATCHLINE - L- STA. 62+75
SEE SHEET TMP-06



APPROVED: *Jeff Koontz*
DATE: 2/8/2017

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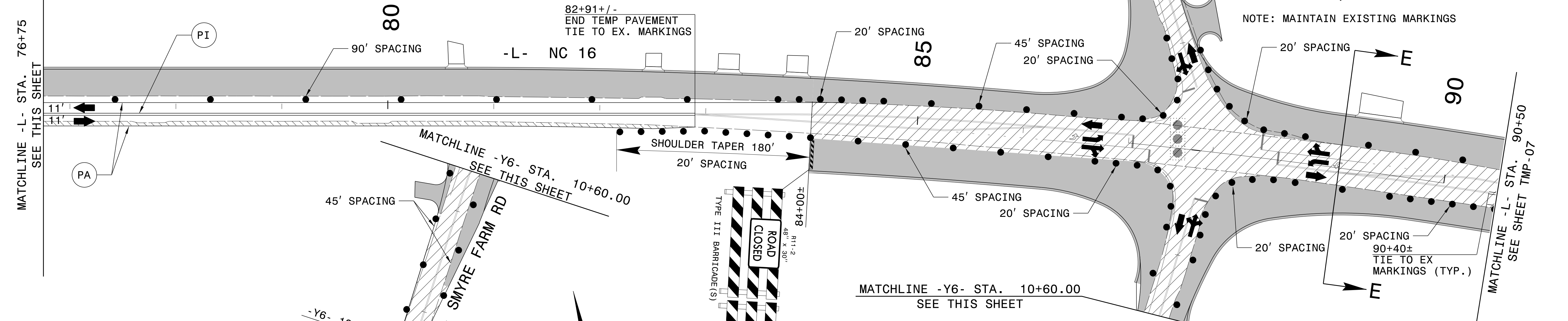
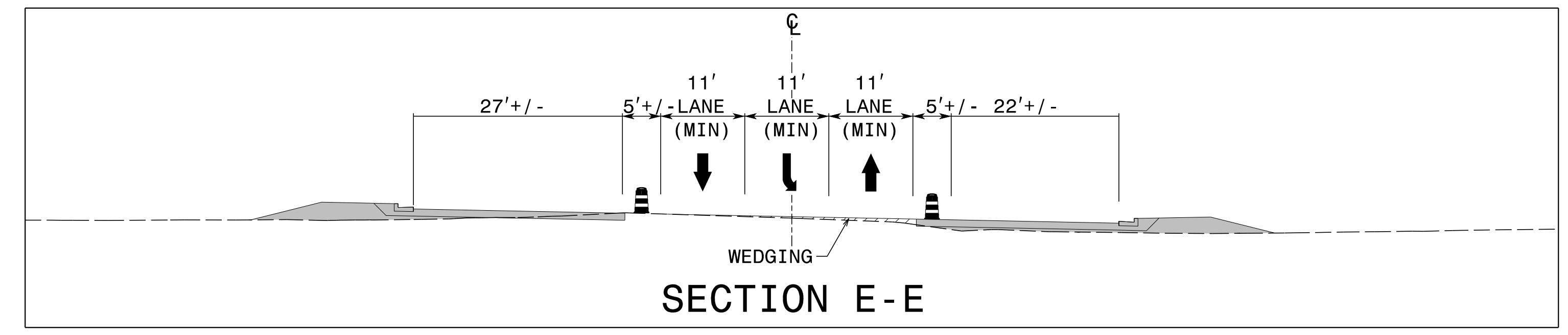
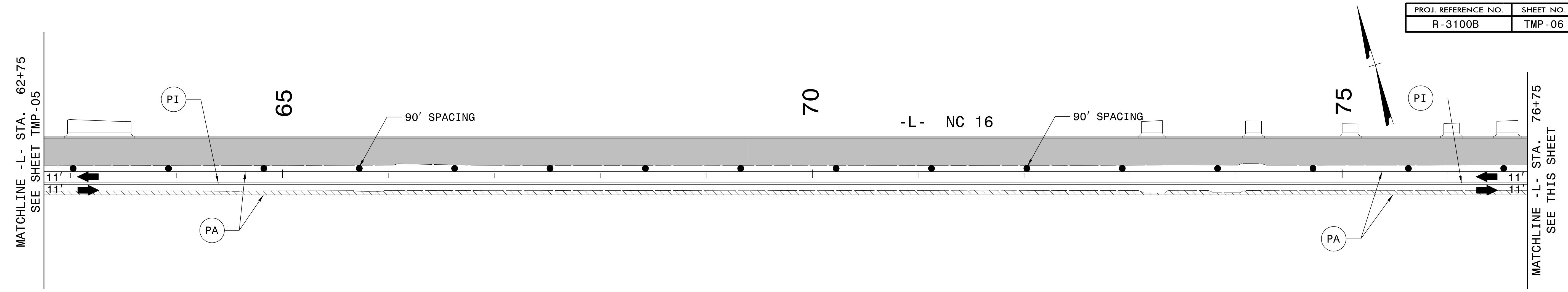


TRAFFIC MANAGEMENT PLAN
PHASE I
DETAIL 2

DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

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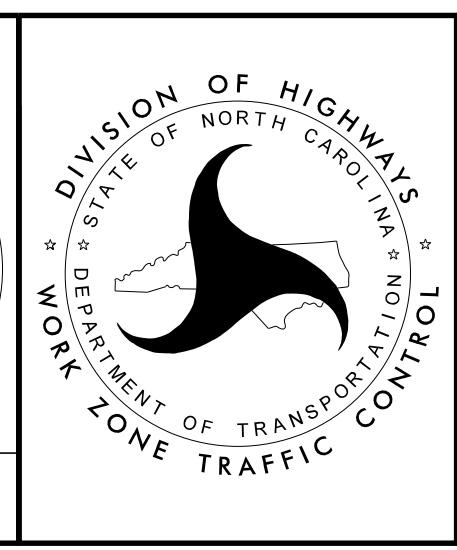


NOTE: MAINTAIN EXISTING MARKINGS

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DATE: 2/10/2017

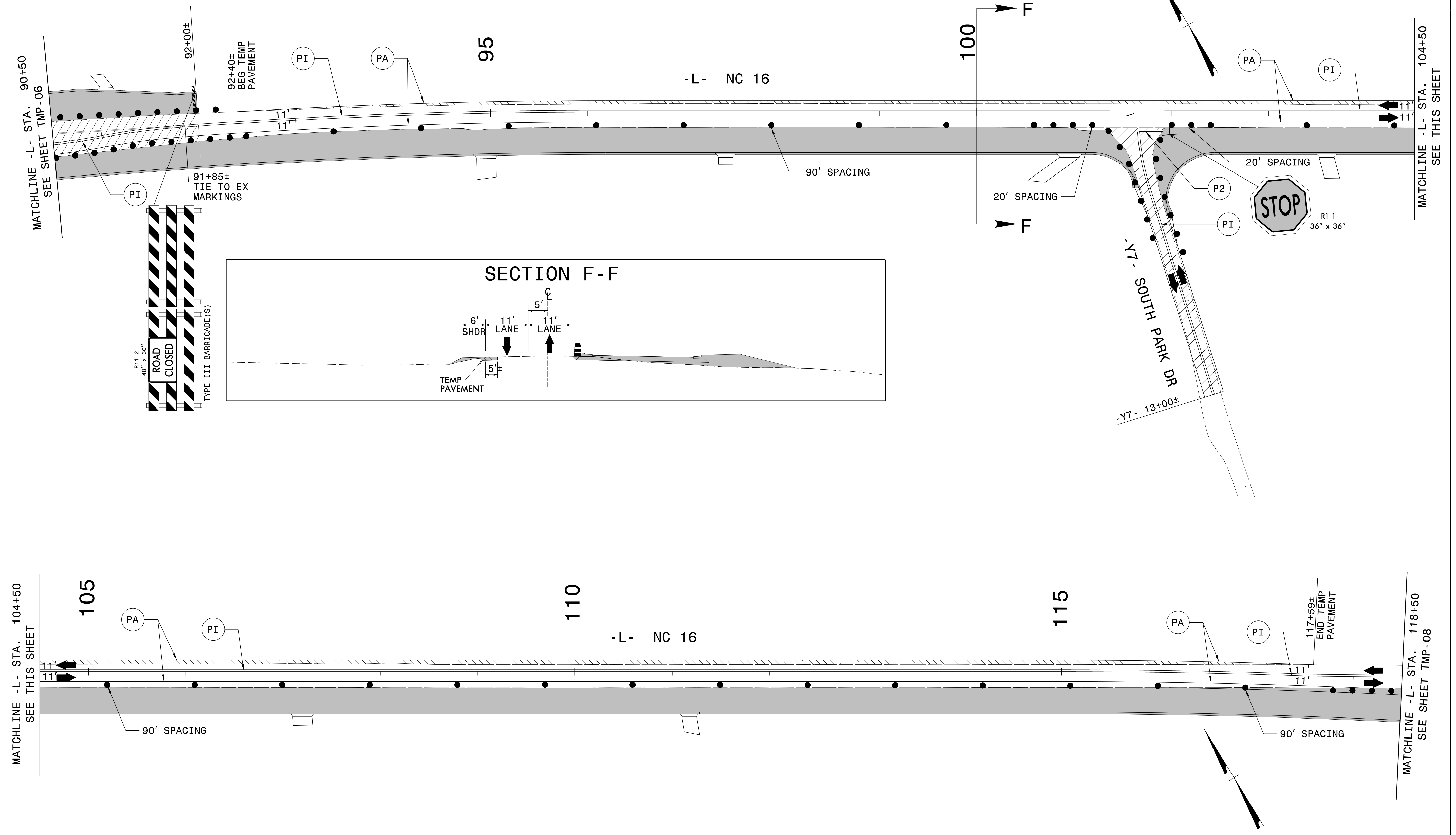
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**TRAFFIC MANAGEMENT PLAN
PHASE I
DETAIL 3**

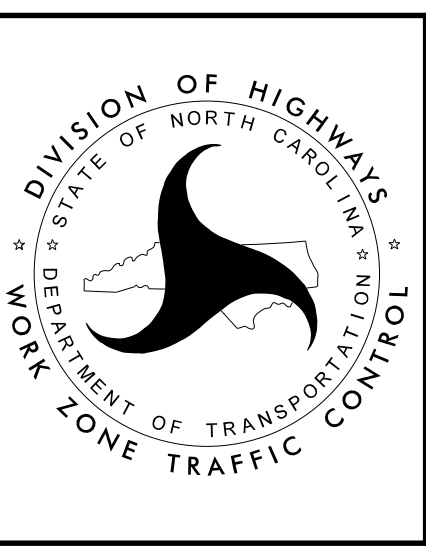
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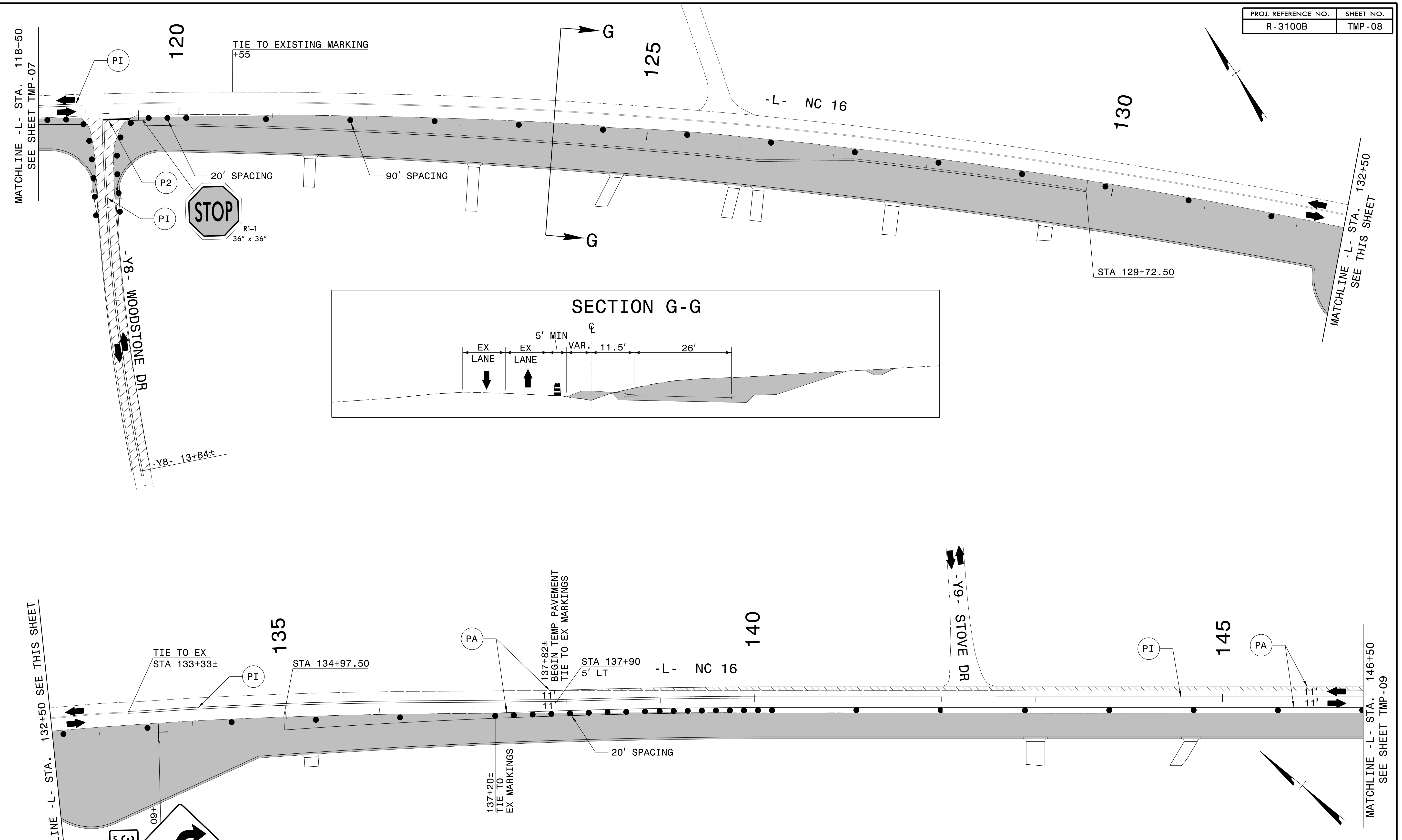
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**TRAFFIC MANAGEMENT PLAN
 PHASE I
 DETAIL 4**

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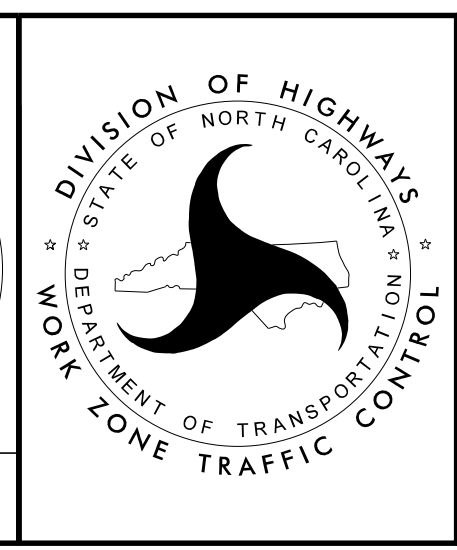
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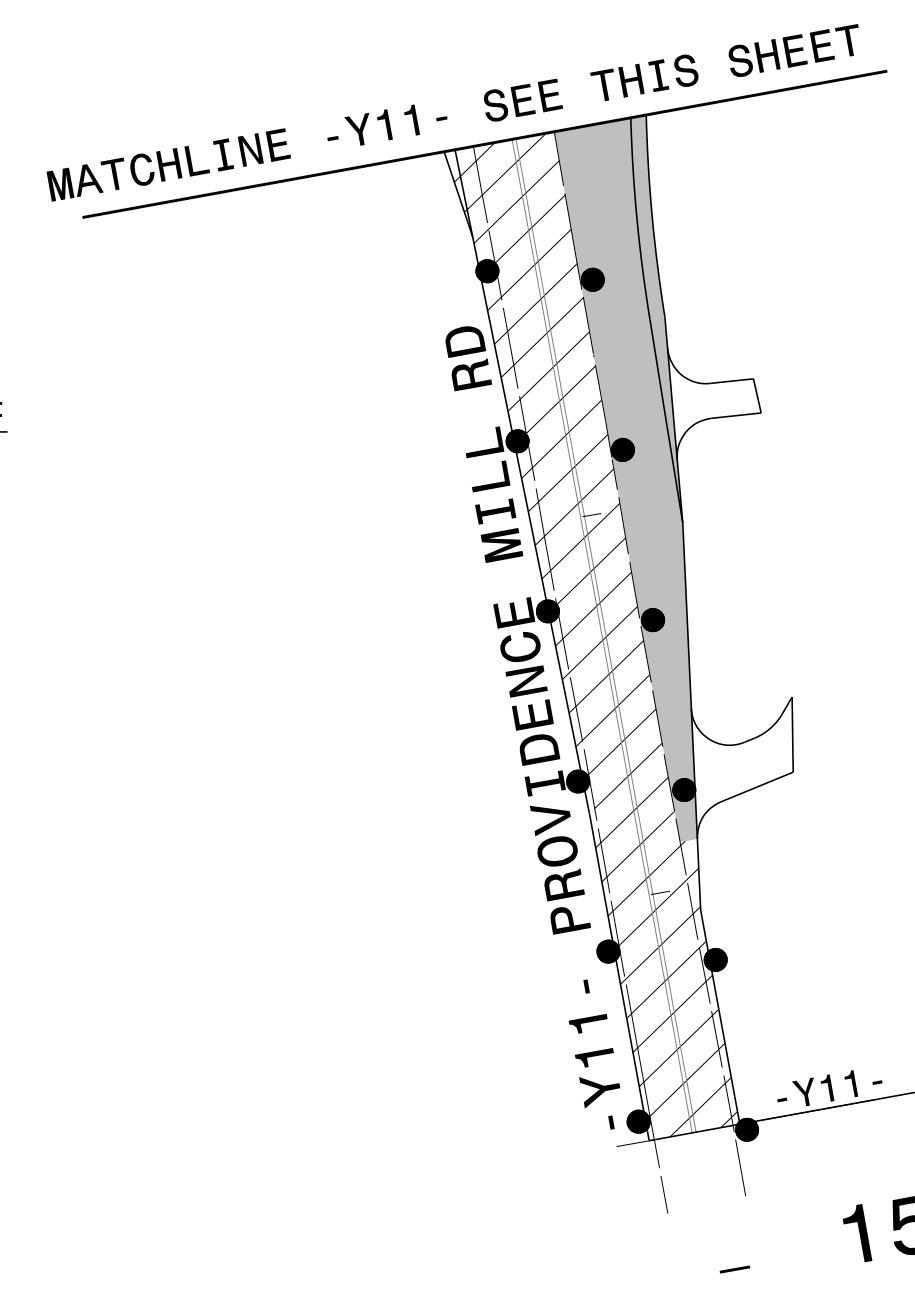
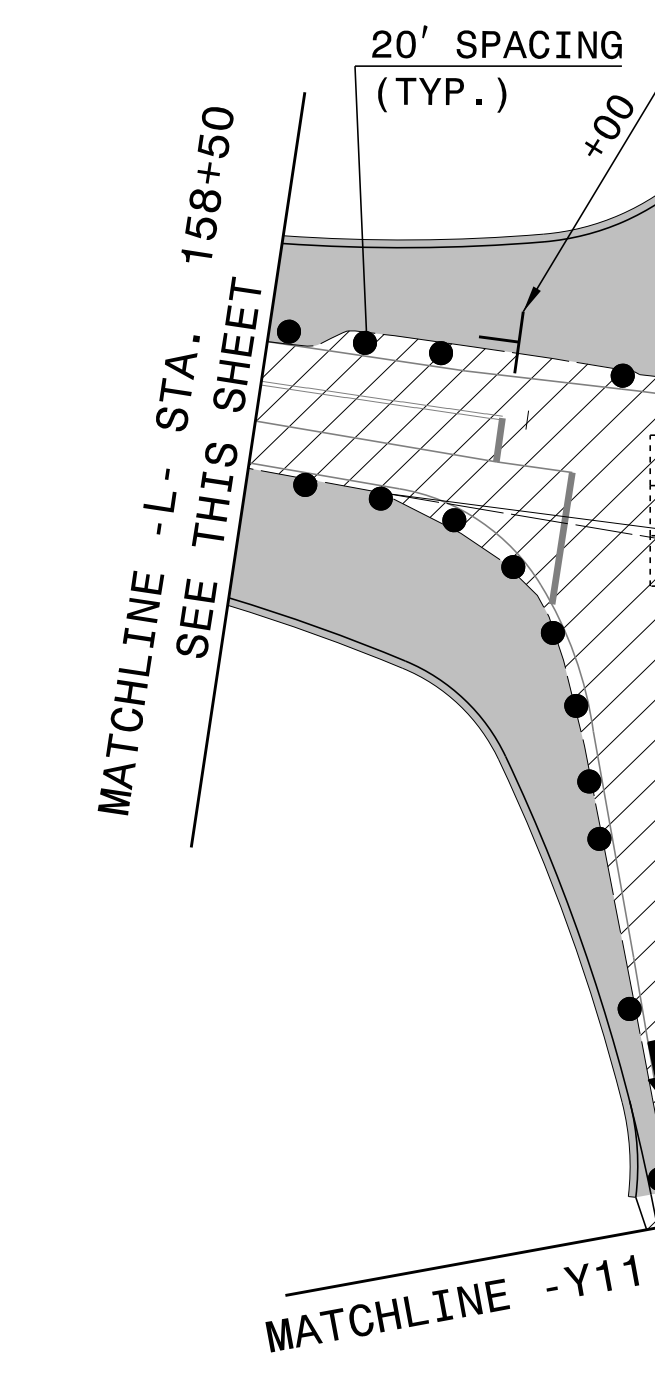
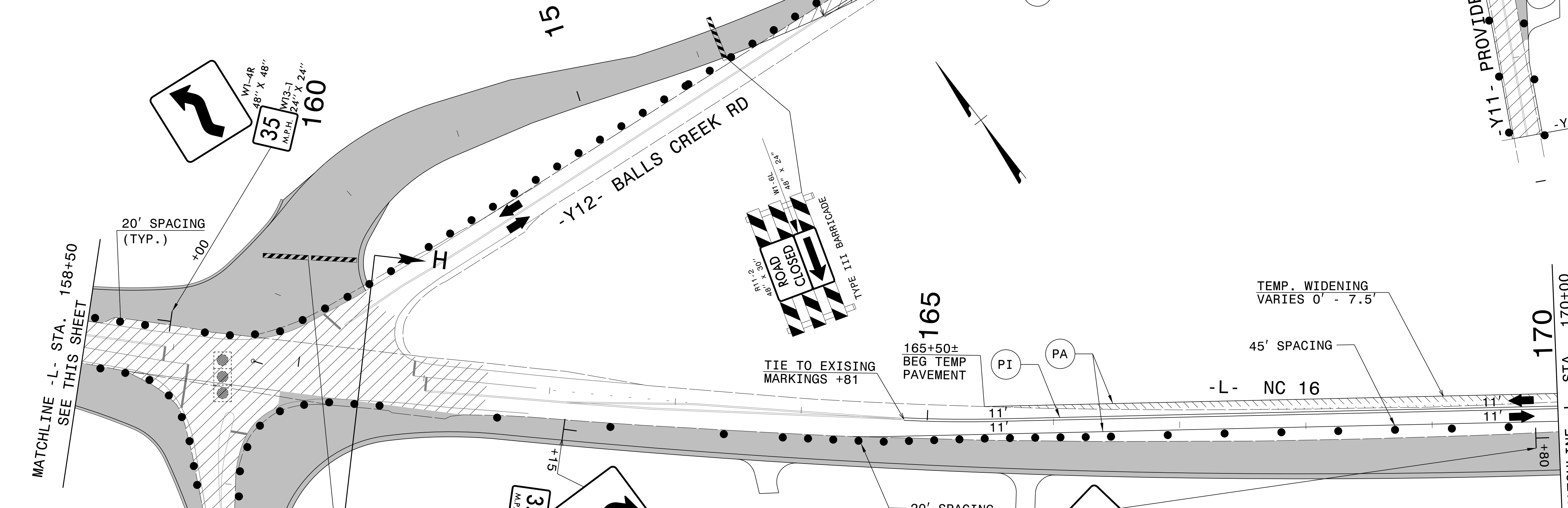
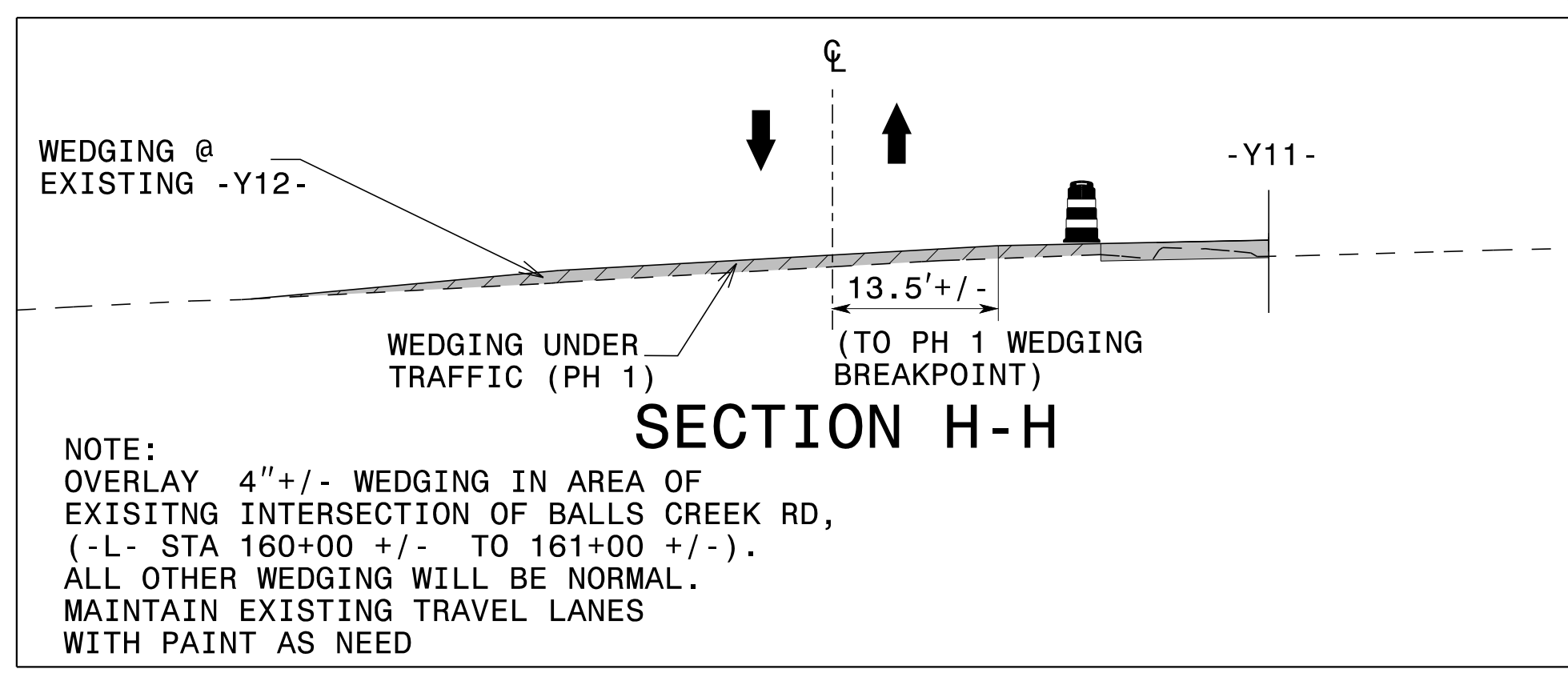
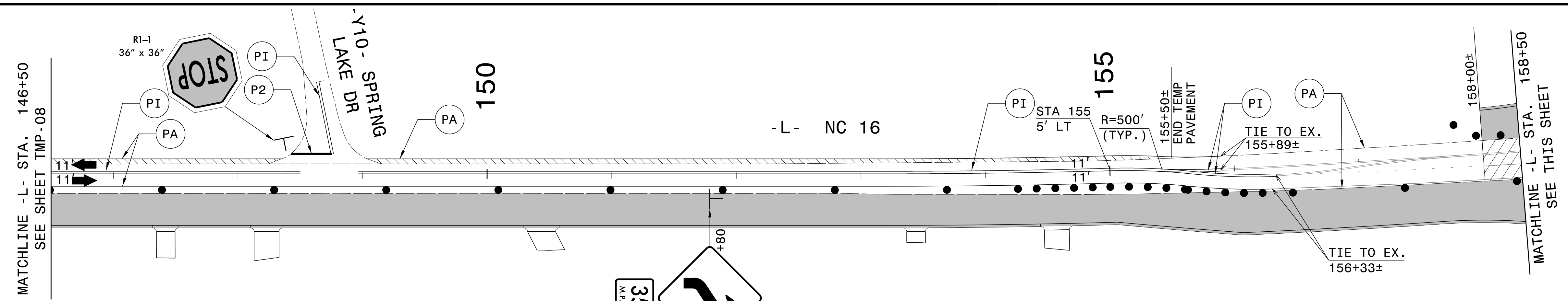
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Professional Engineer Seal:
 NORTH CAROLINA
 PROFESSIONAL
 SEAL
 18122
 JEFFREY A. KOONTZ

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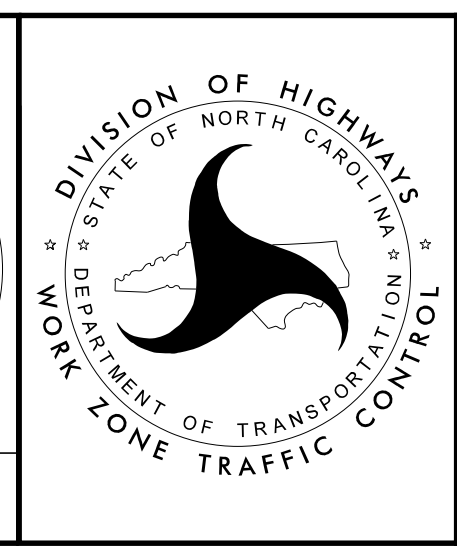
**TRAFFIC MANAGEMENT PLAN
 PHASE I
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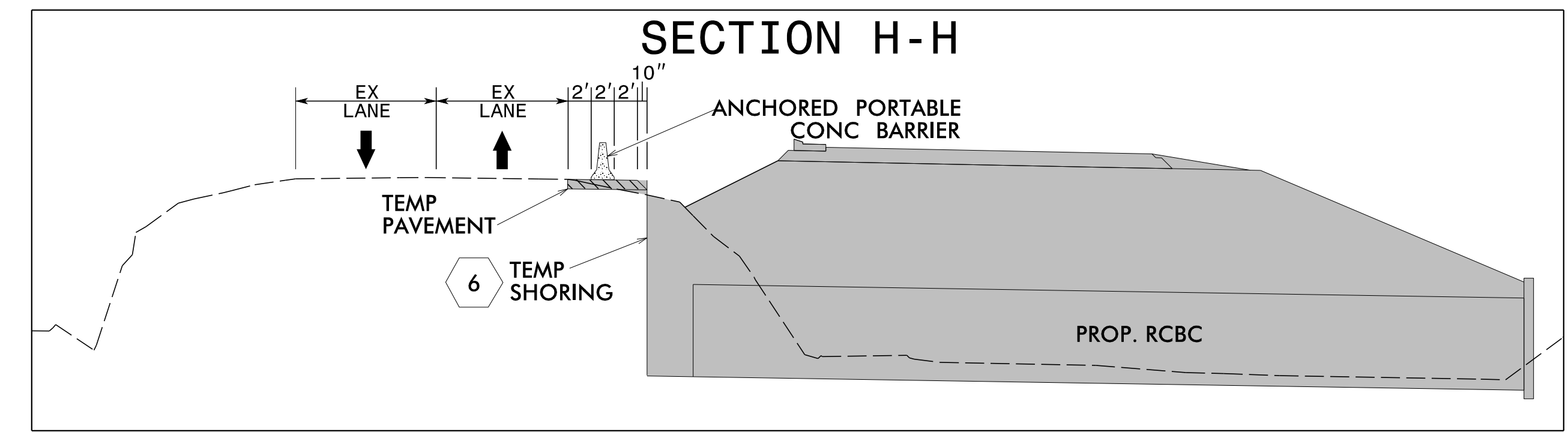
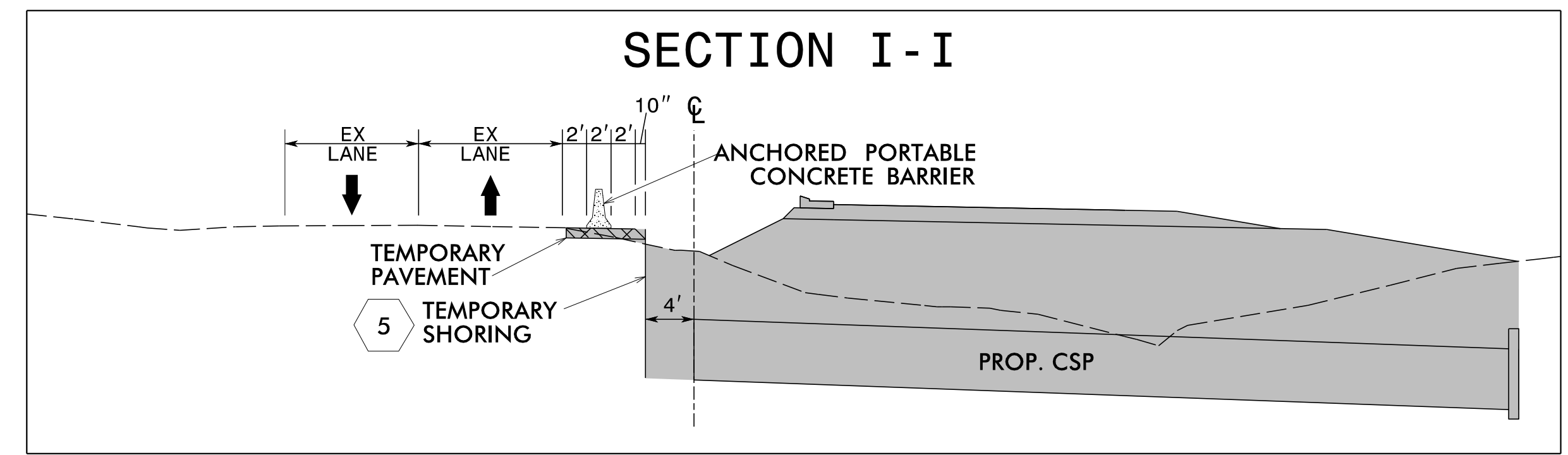
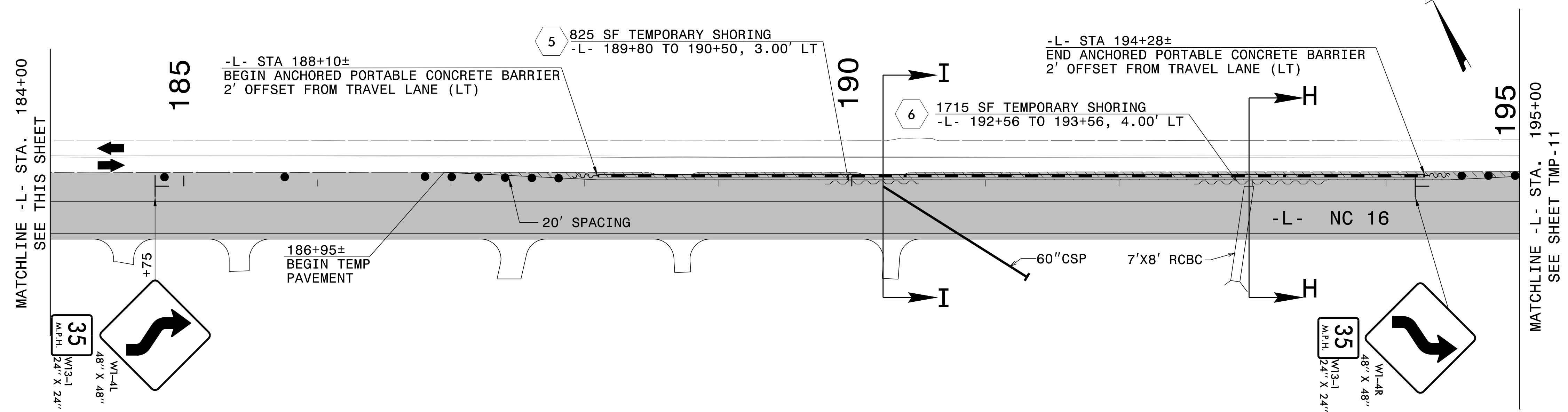
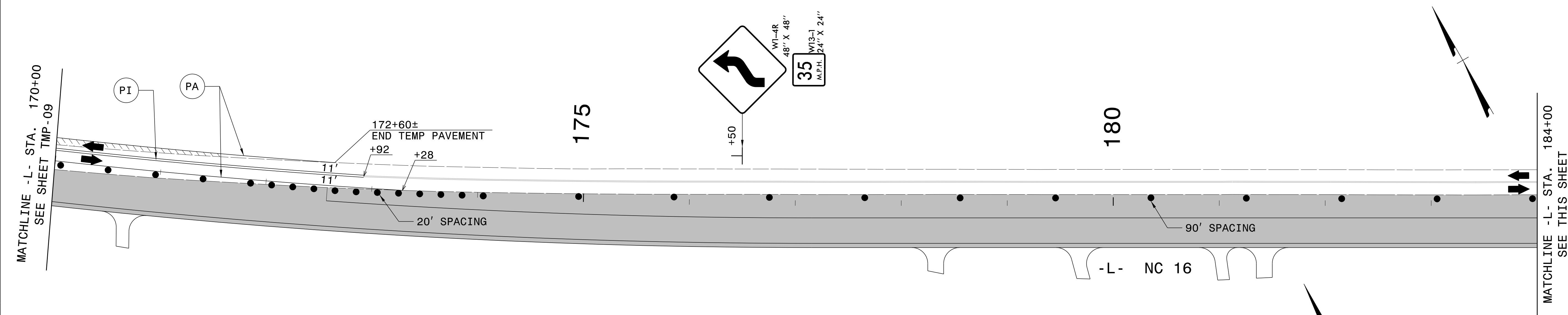
APPROVED: *Jeff Koontz*
DATE: 1/17/2017

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TRAFFIC MANAGEMENT PLAN
PHASE I
DETAIL 6

DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
WORK ZONE TRAFFIC CONTROL

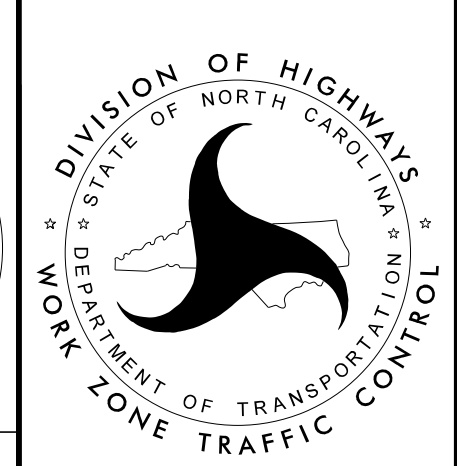
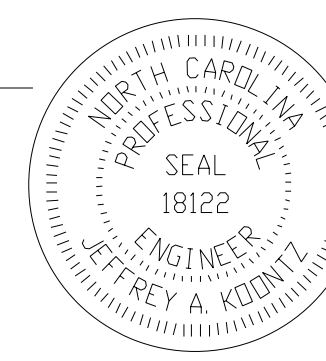


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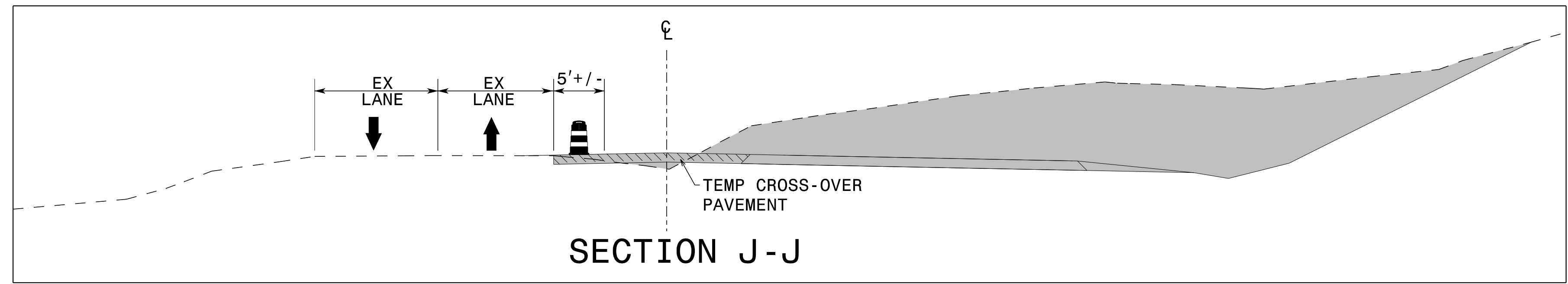
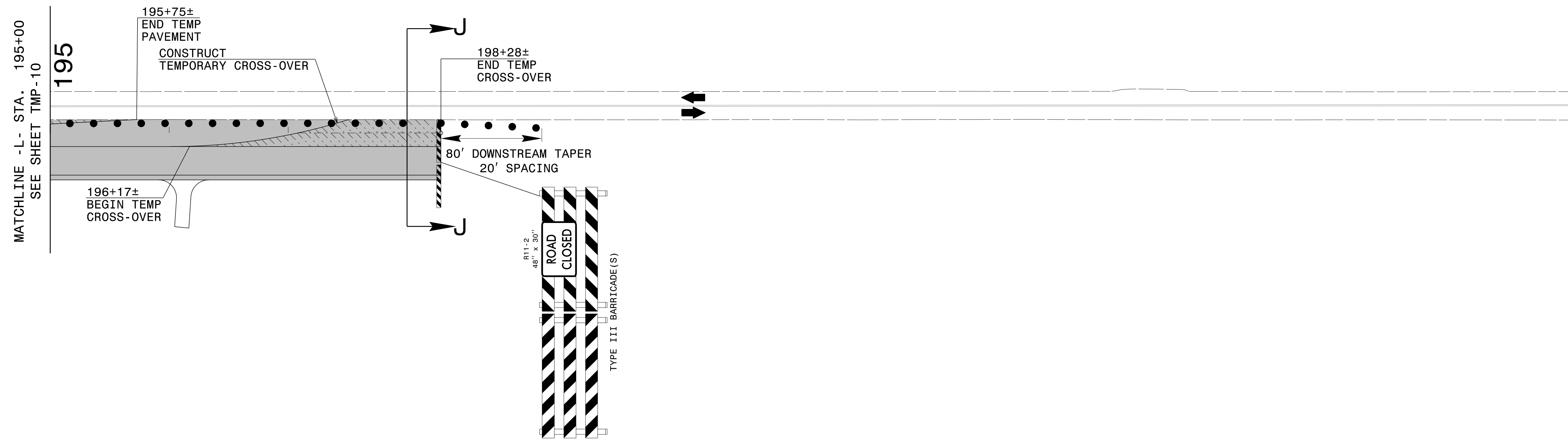
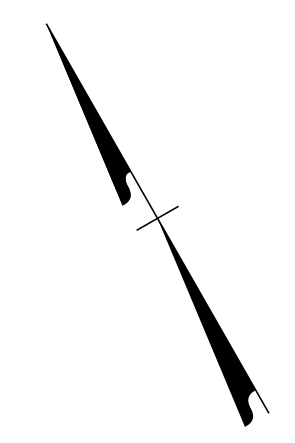
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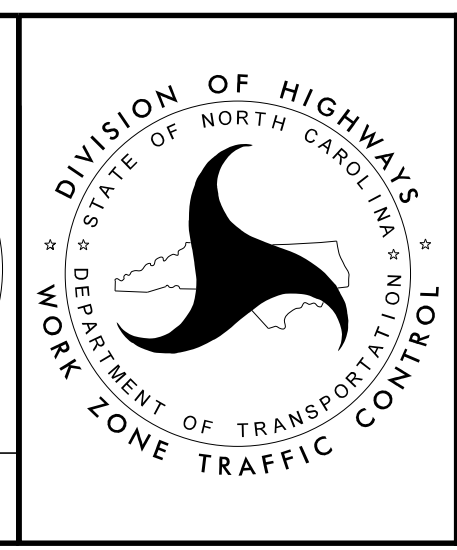
**TRAFFIC MANAGEMENT PLAN
PHASE I
DETAIL 7**



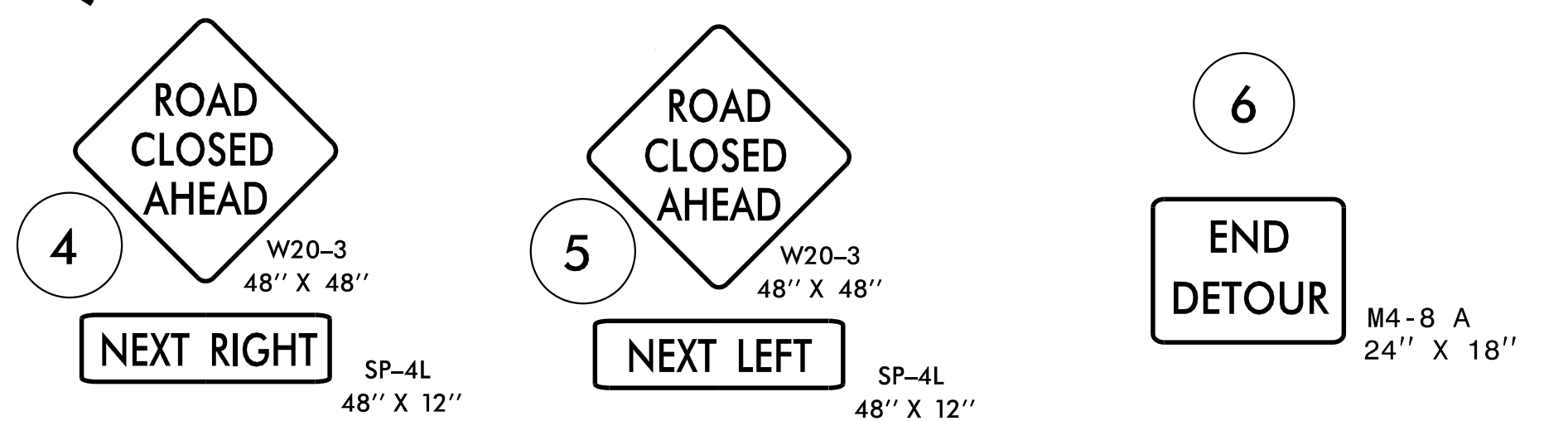
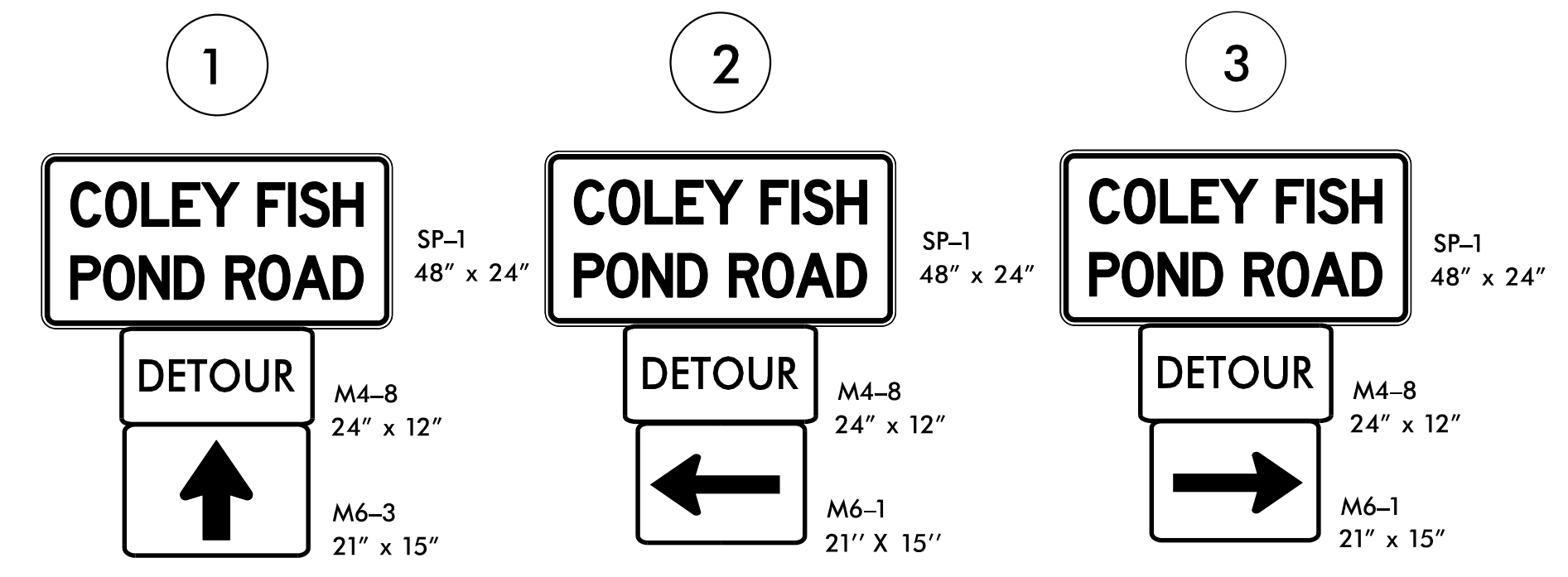
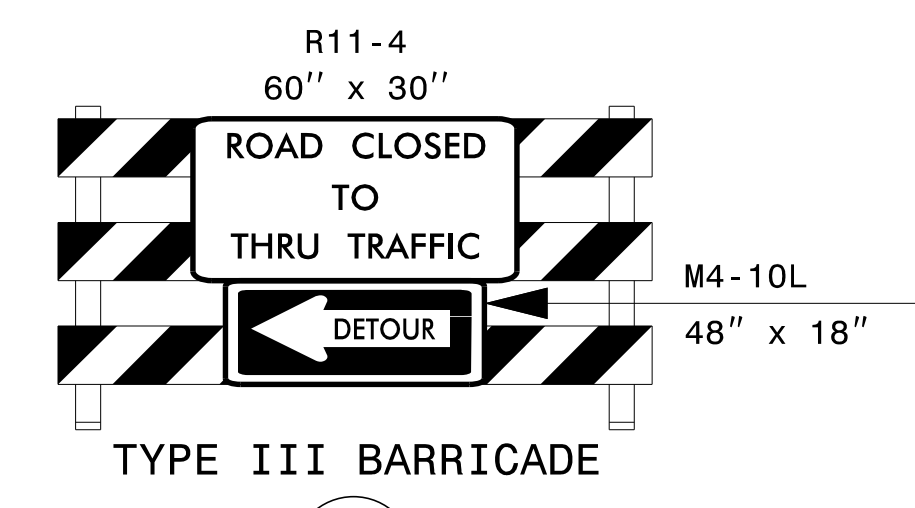
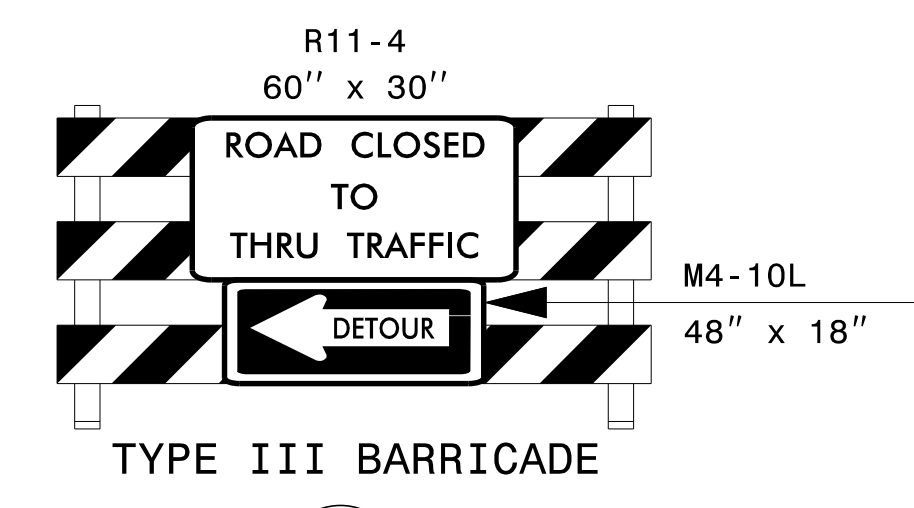
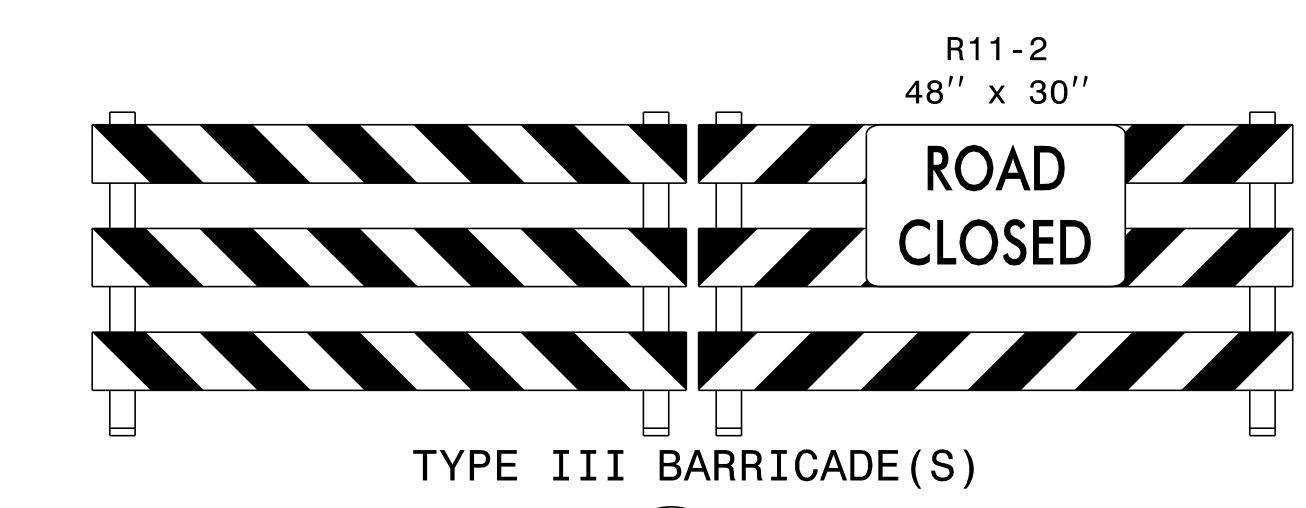
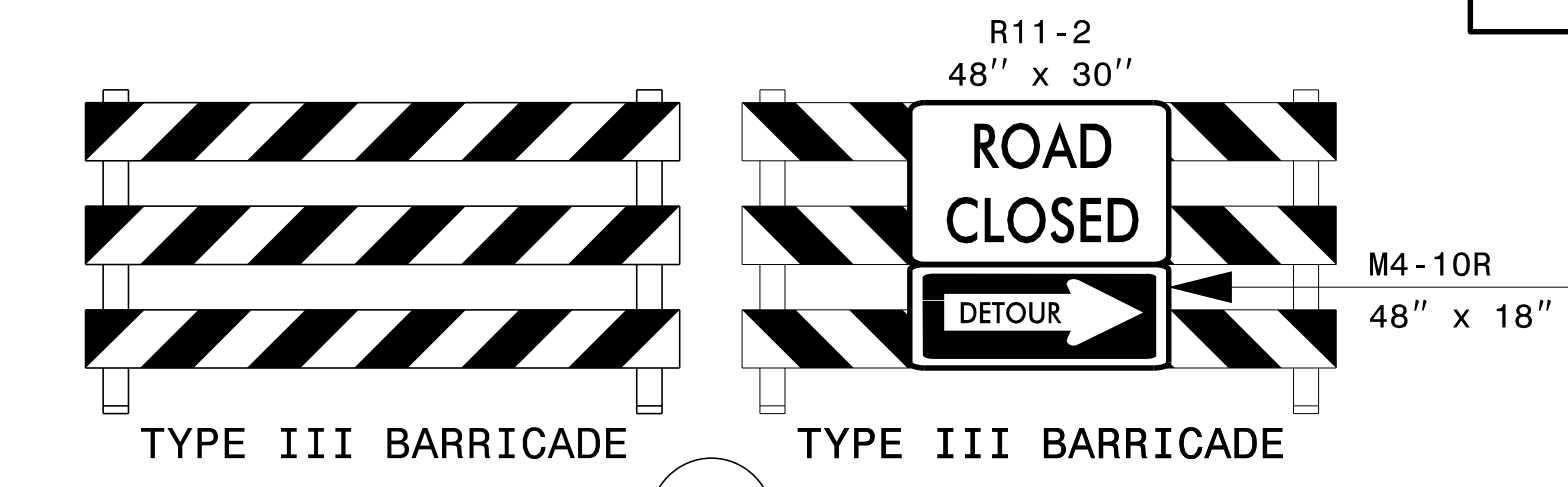
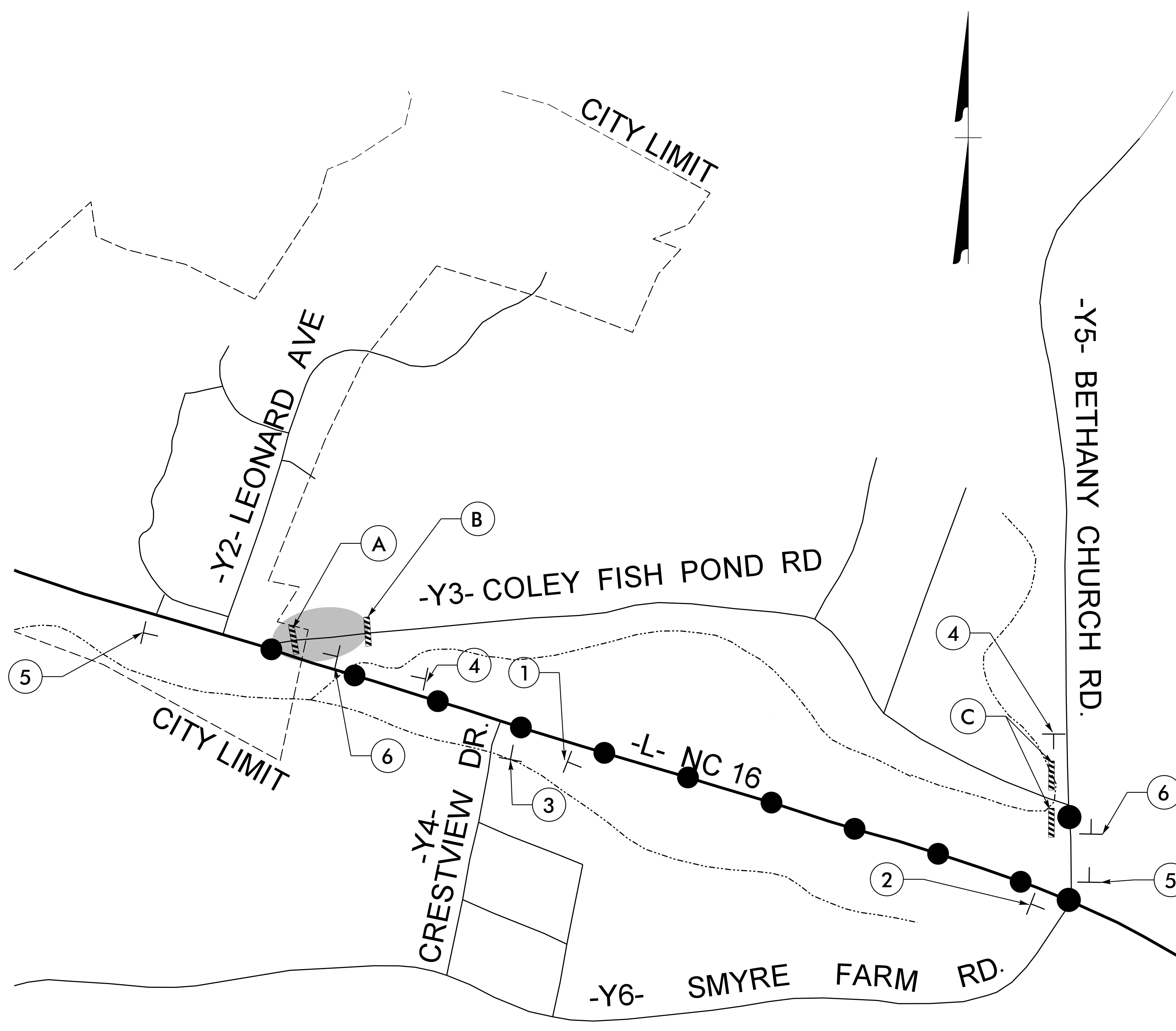
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TRAFFIC MANAGEMENT PLAN
PHASE I
DETAIL 8

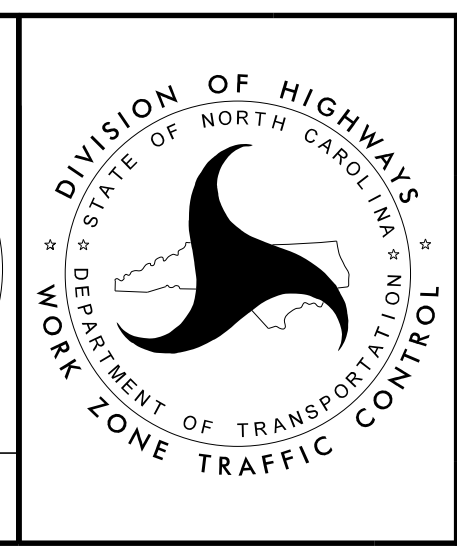


DETOUR ROUTE ● — ● — ●

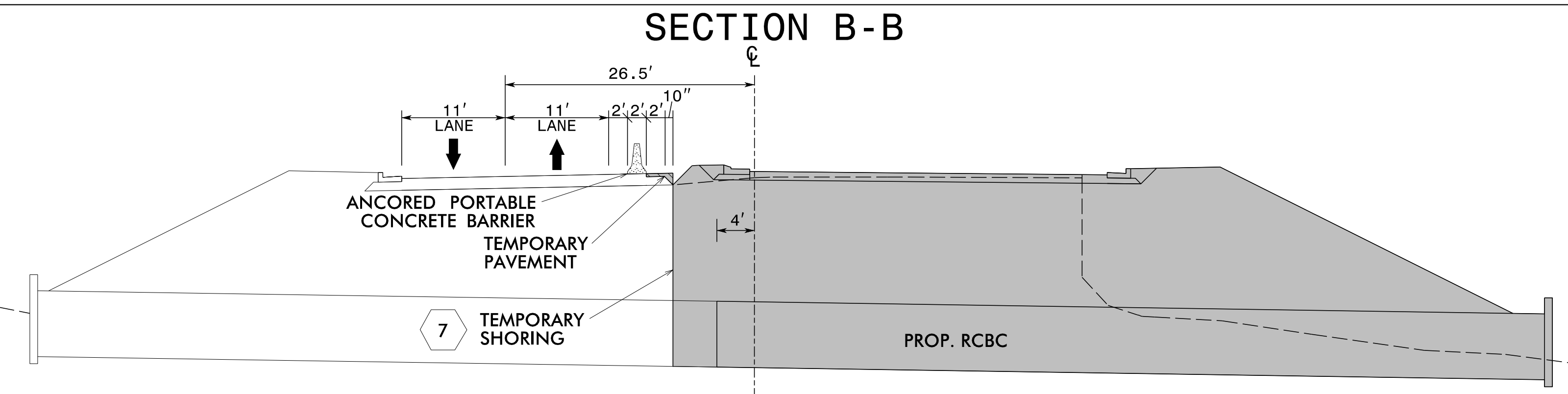
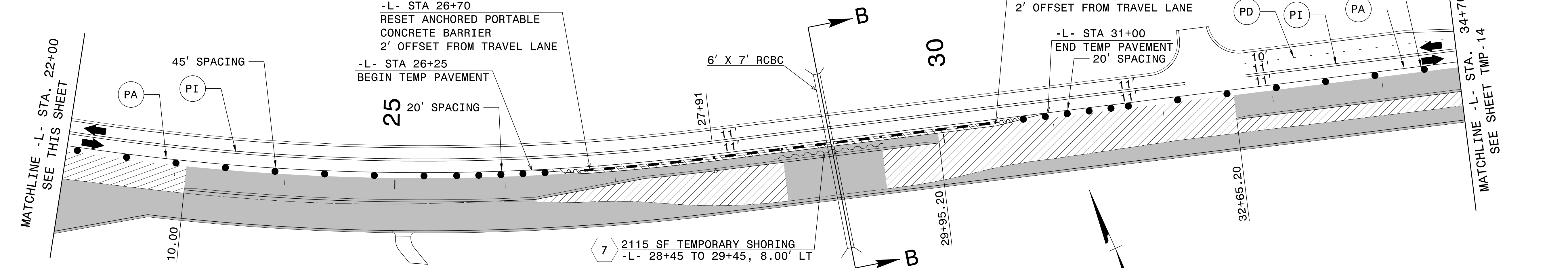
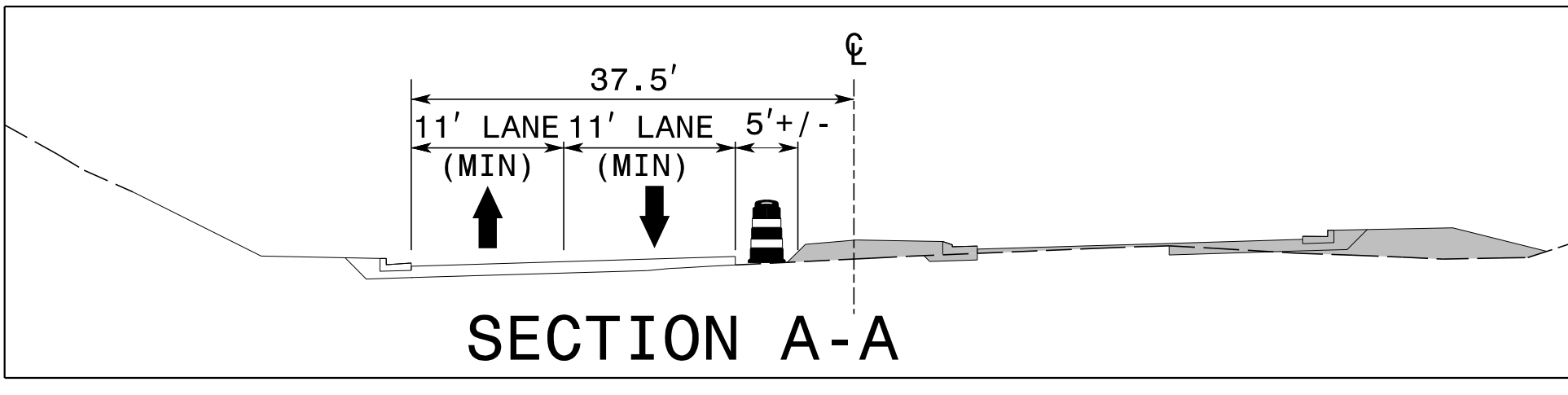
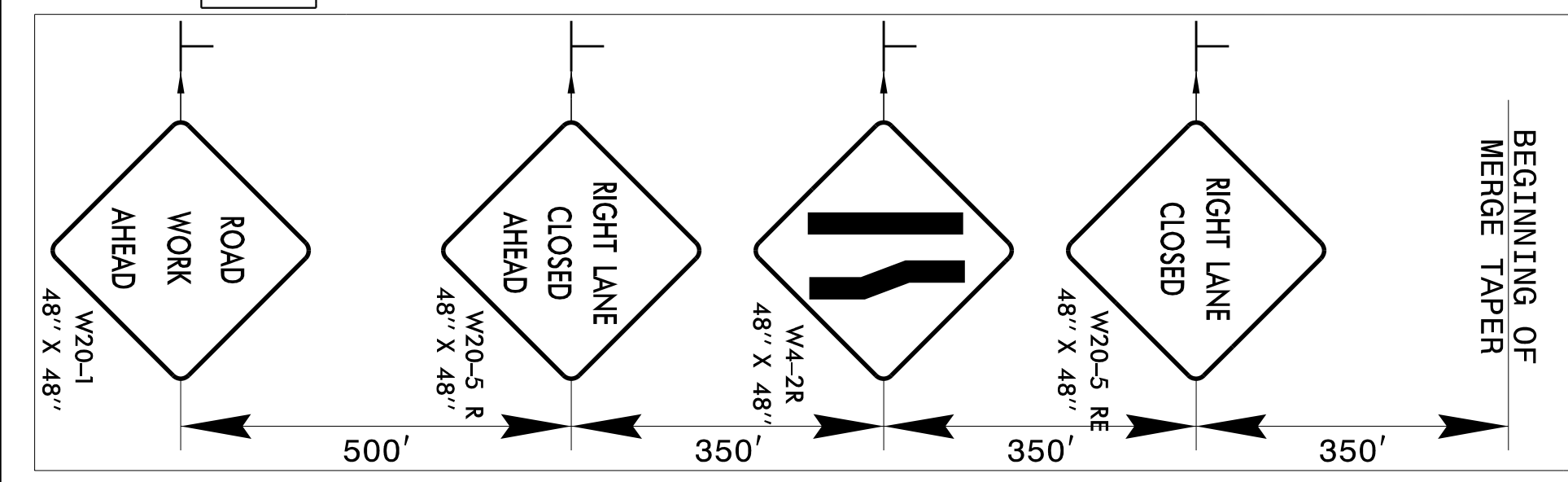
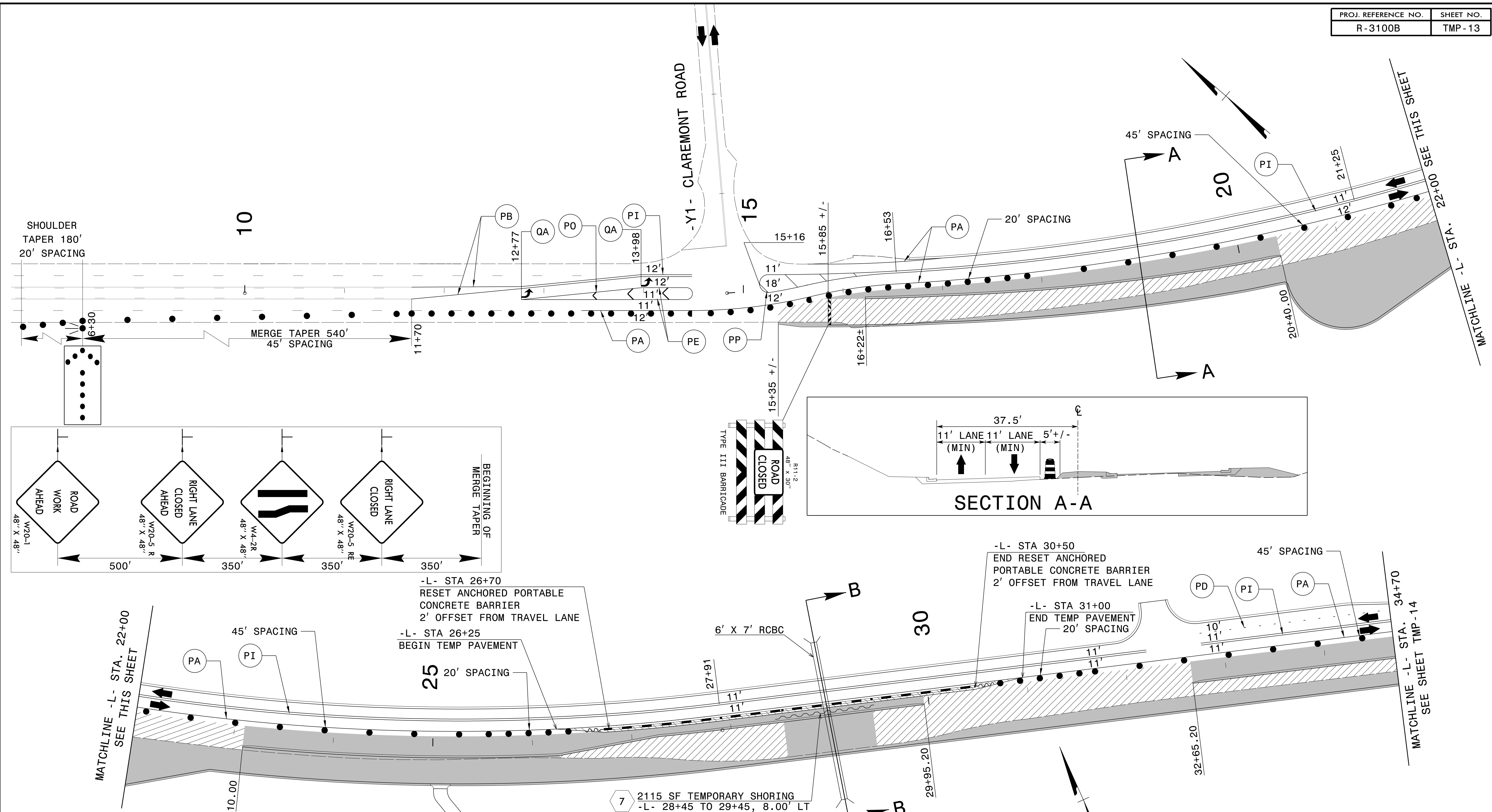
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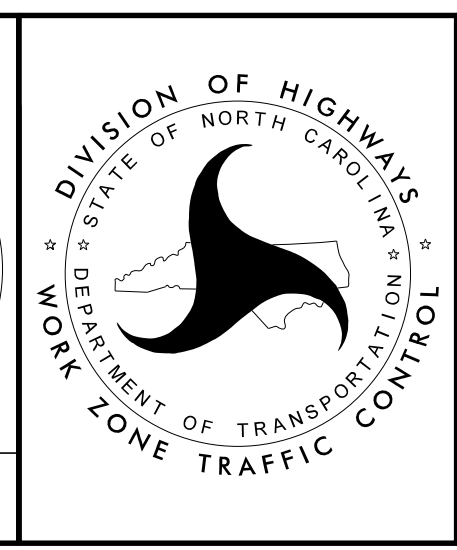
TRAFFIC MANAGEMENT PLAN
 COLEY FISH POND ROAD
 DETOUR



APPROVED: *Jeff Koontz*
 DATE: 2/8/2017

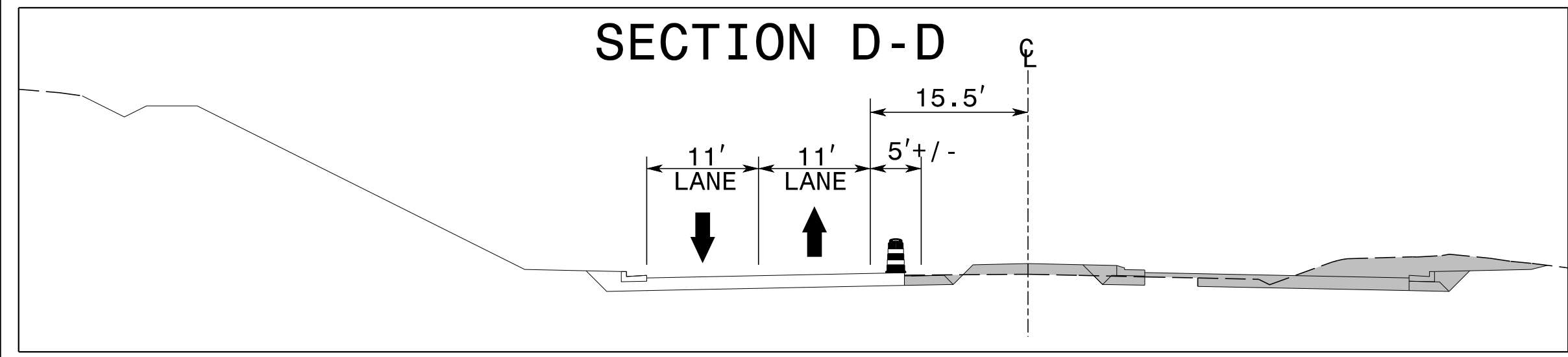
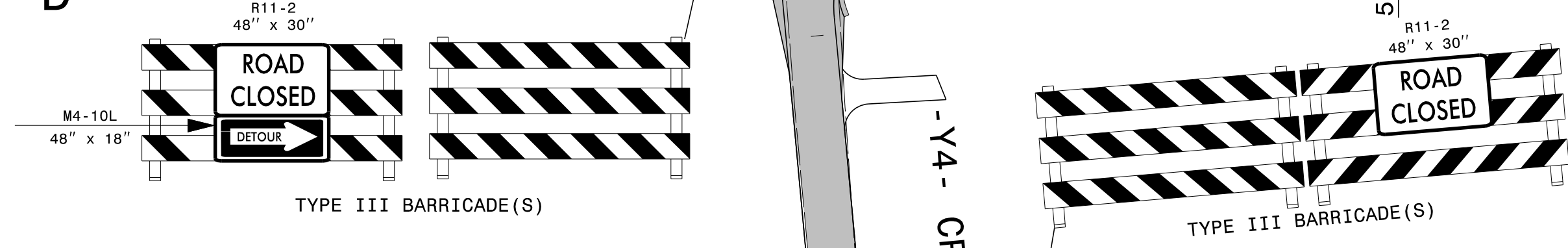
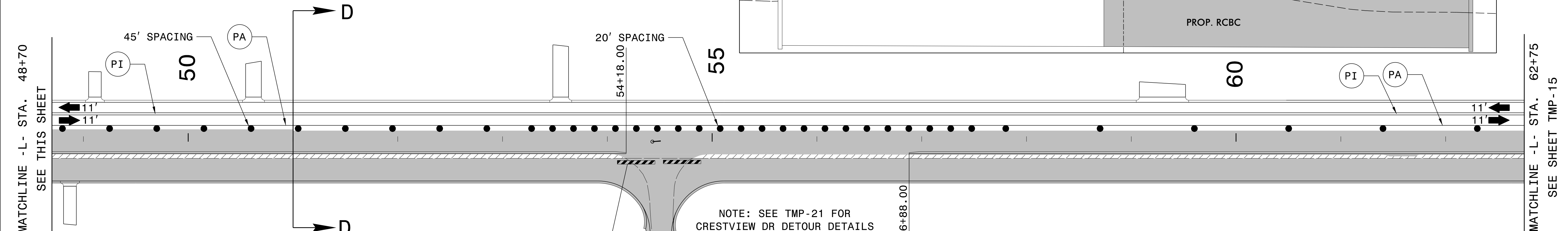
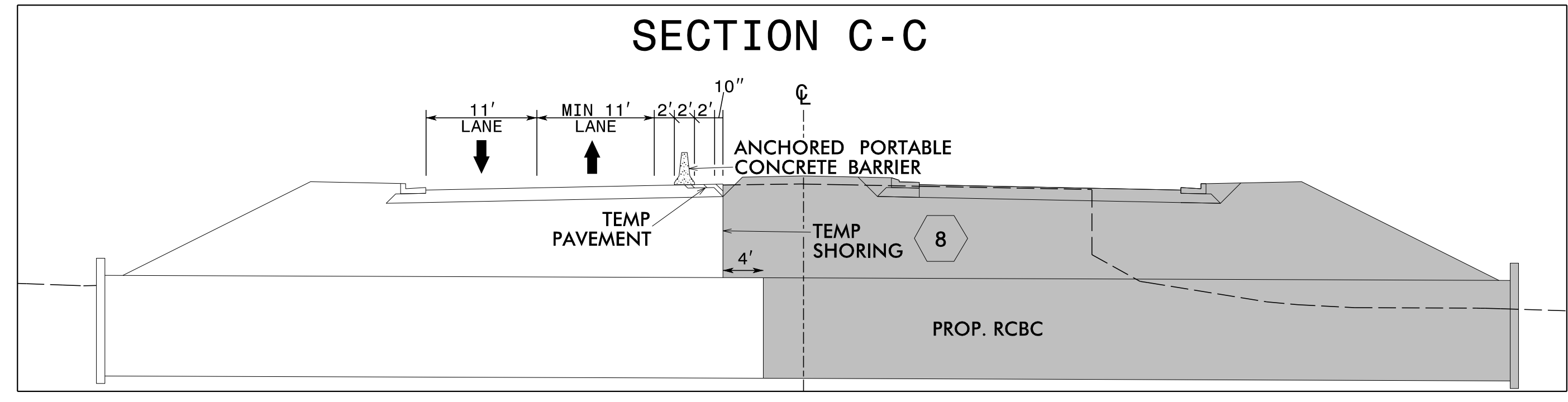
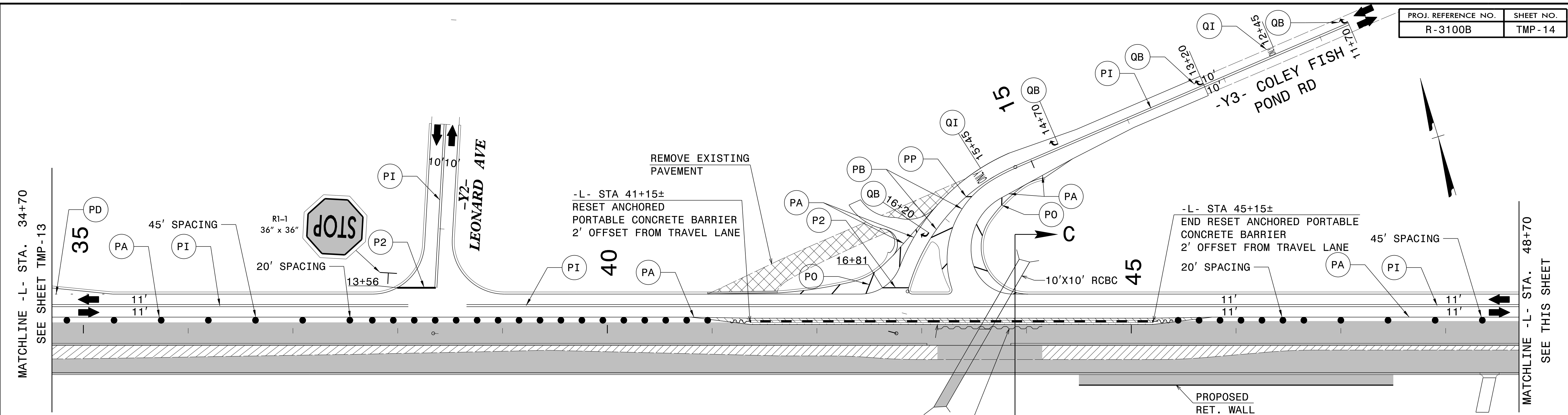
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2/8/2017



TRAFFIC MANAGEMENT PLAN
 PHASE II
 DETAIL 1

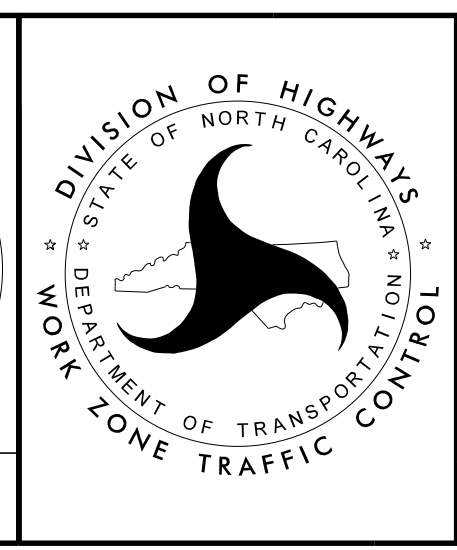
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NOTE: SEE TMP-21 FOR CRESTVIEW DR DETOUR DETAILS

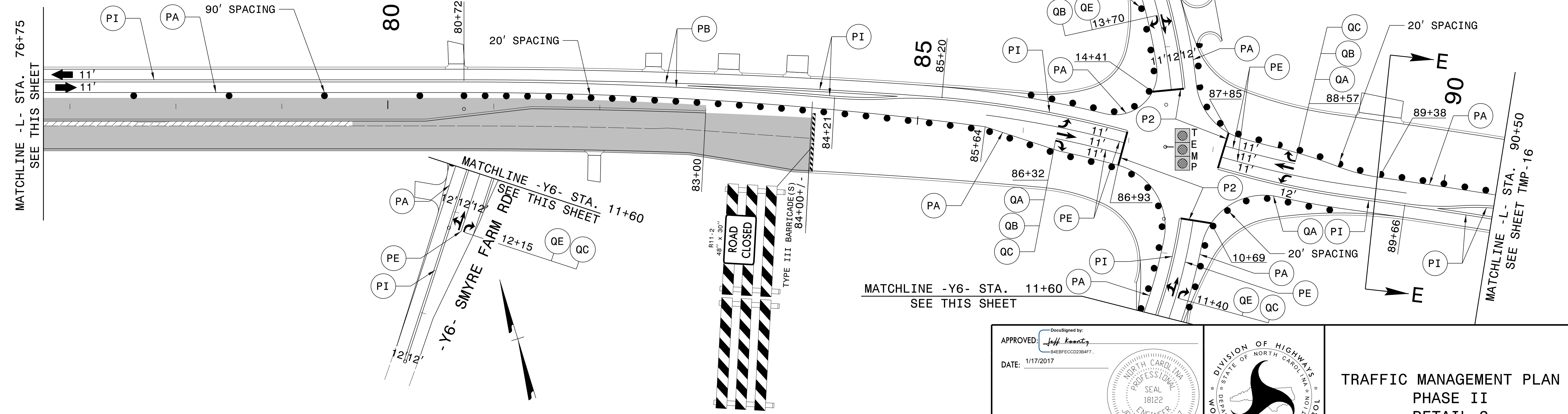
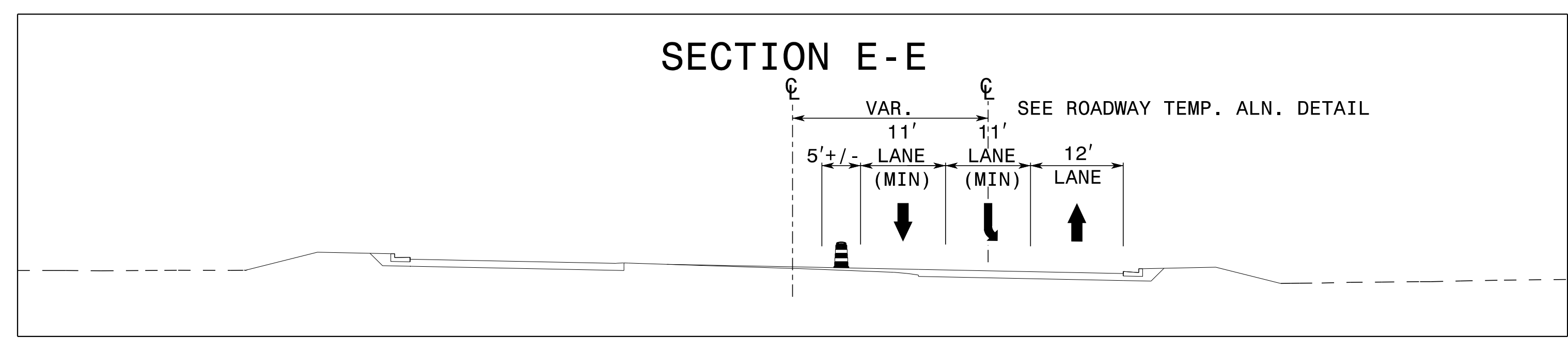
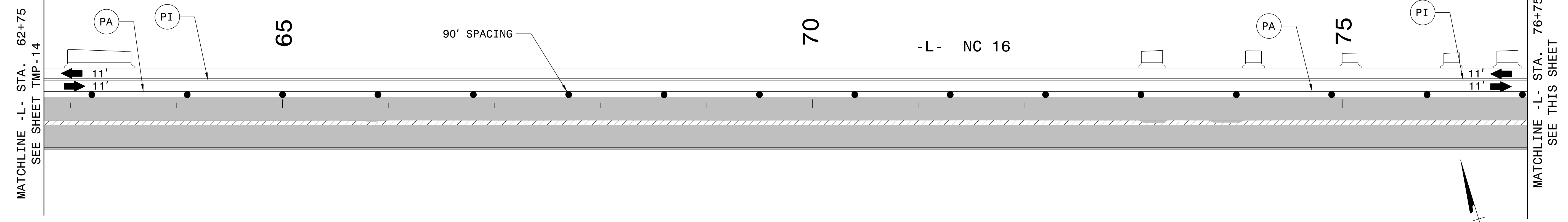
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APPROVED: *Jeff Koontz*
 DATE: 2/8/2017
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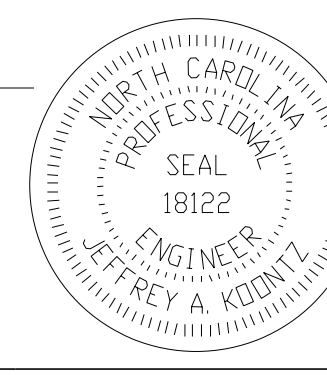


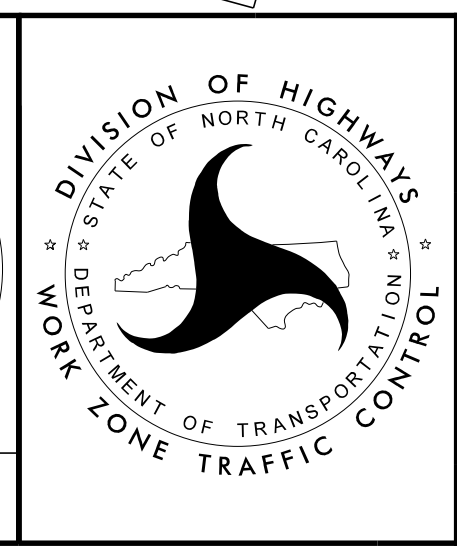
TRAFFIC MANAGEMENT PLAN
PHASE II
DETAIL 2

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 User: baldwin



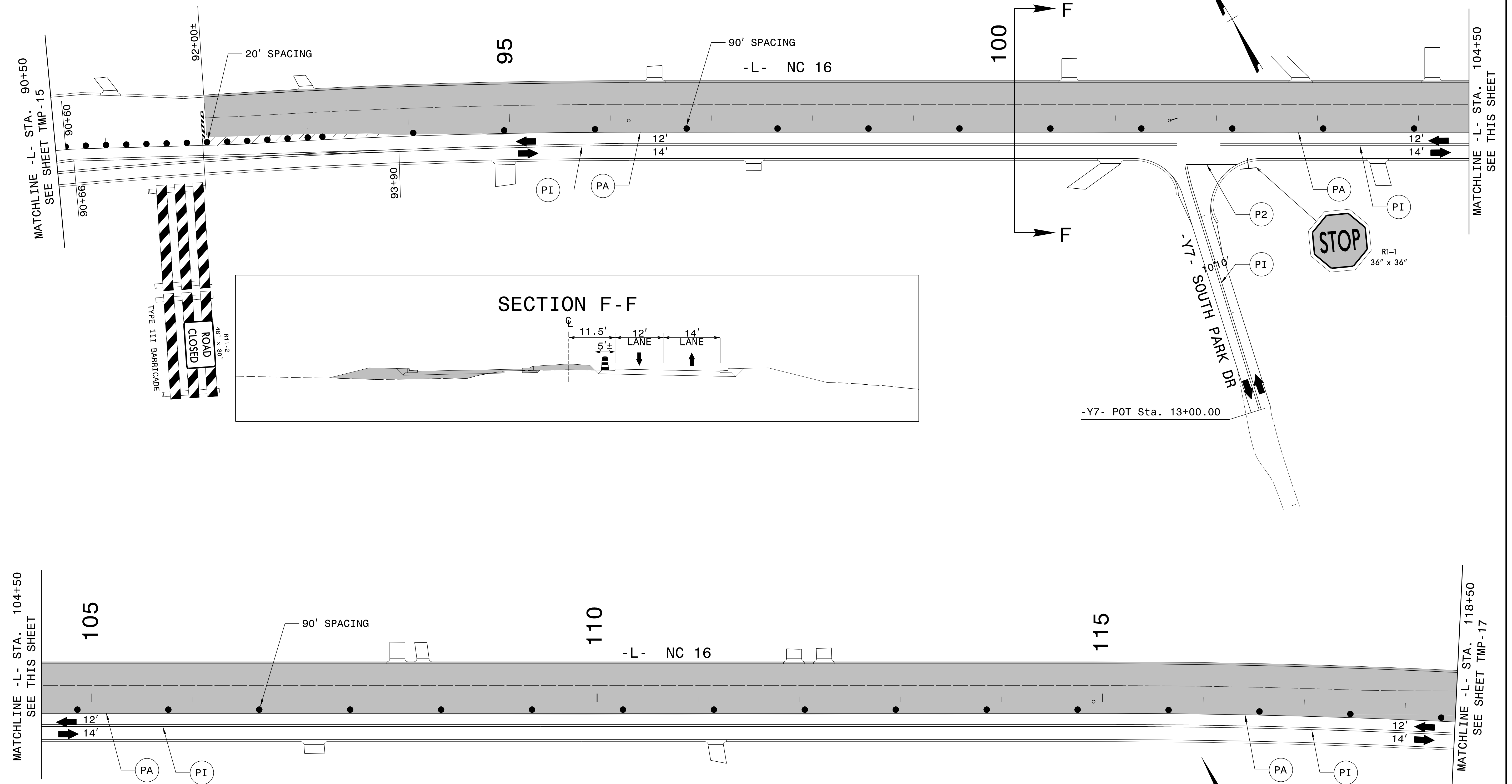
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 User:bdwinn

APPROVED: *Jeff Koontz*
 DATE: 1/17/2017

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**TRAFFIC MANAGEMENT PLAN
PHASE II
DETAIL 3**

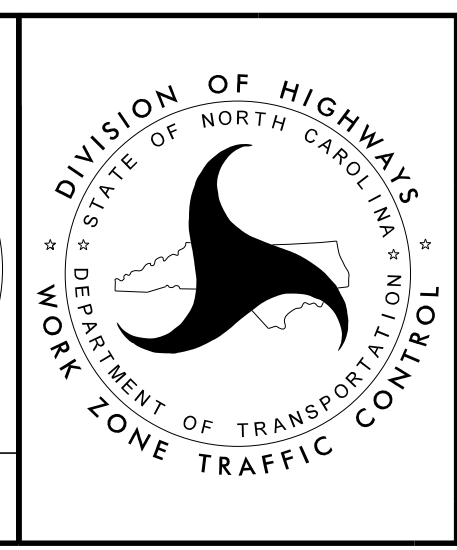
PROJ. REFERENCE NO.	SHEET NO.
R-3100B	TMP-16



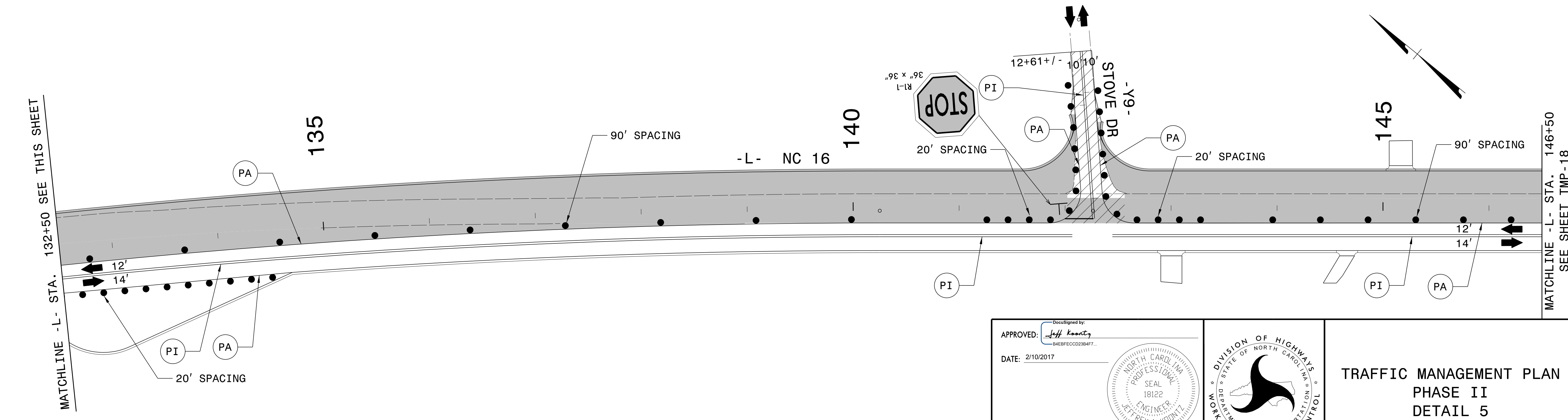
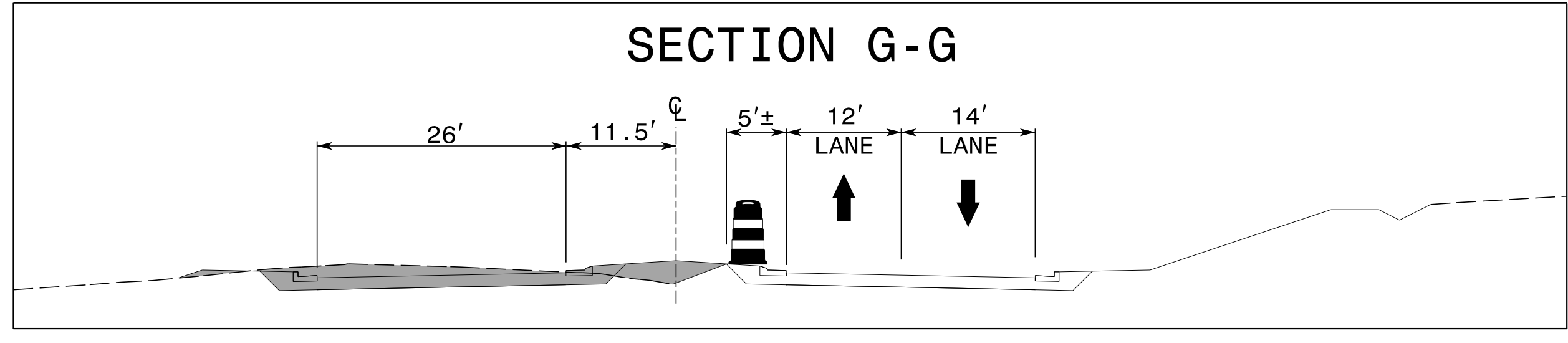
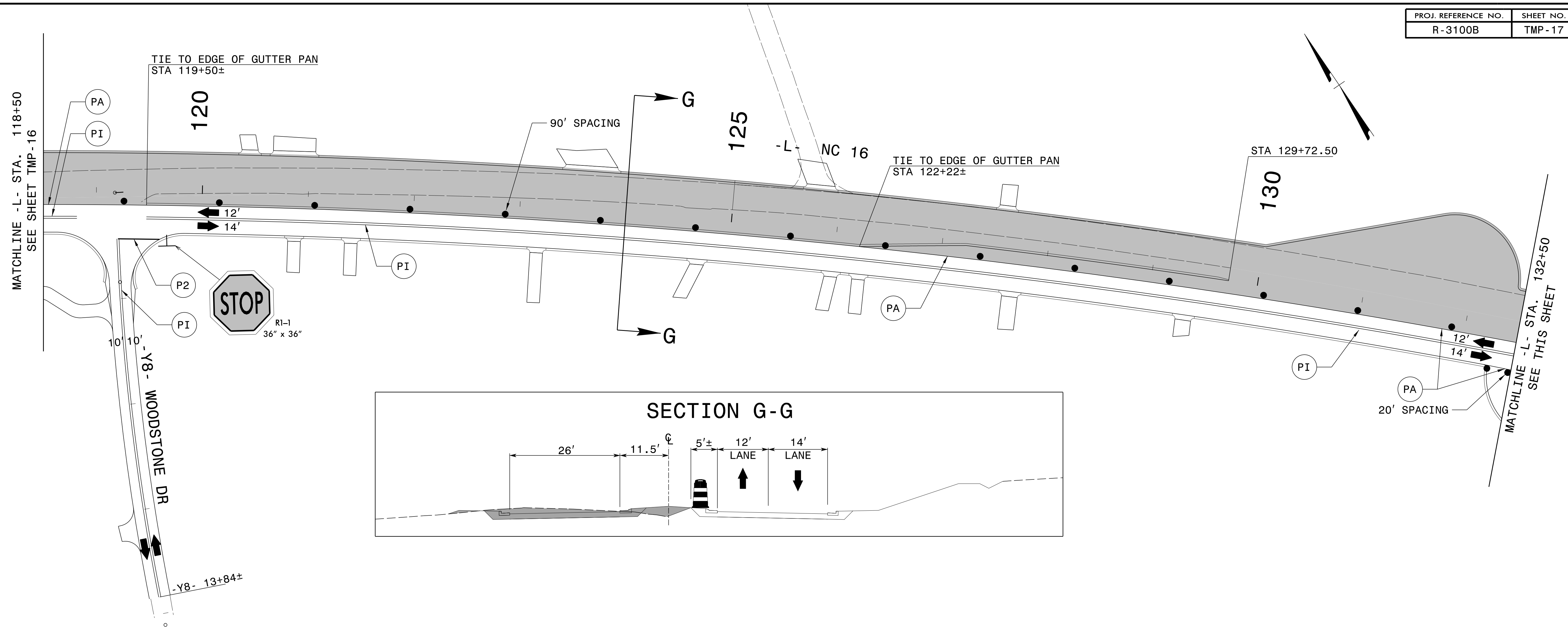
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 User:bdwinn

APPROVED: *Jeff Keenly*
BAE8FECCD2384F7...
 DATE: 2/10/2017

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**TRAFFIC MANAGEMENT PLAN
 PHASE II
 DETAIL 4**

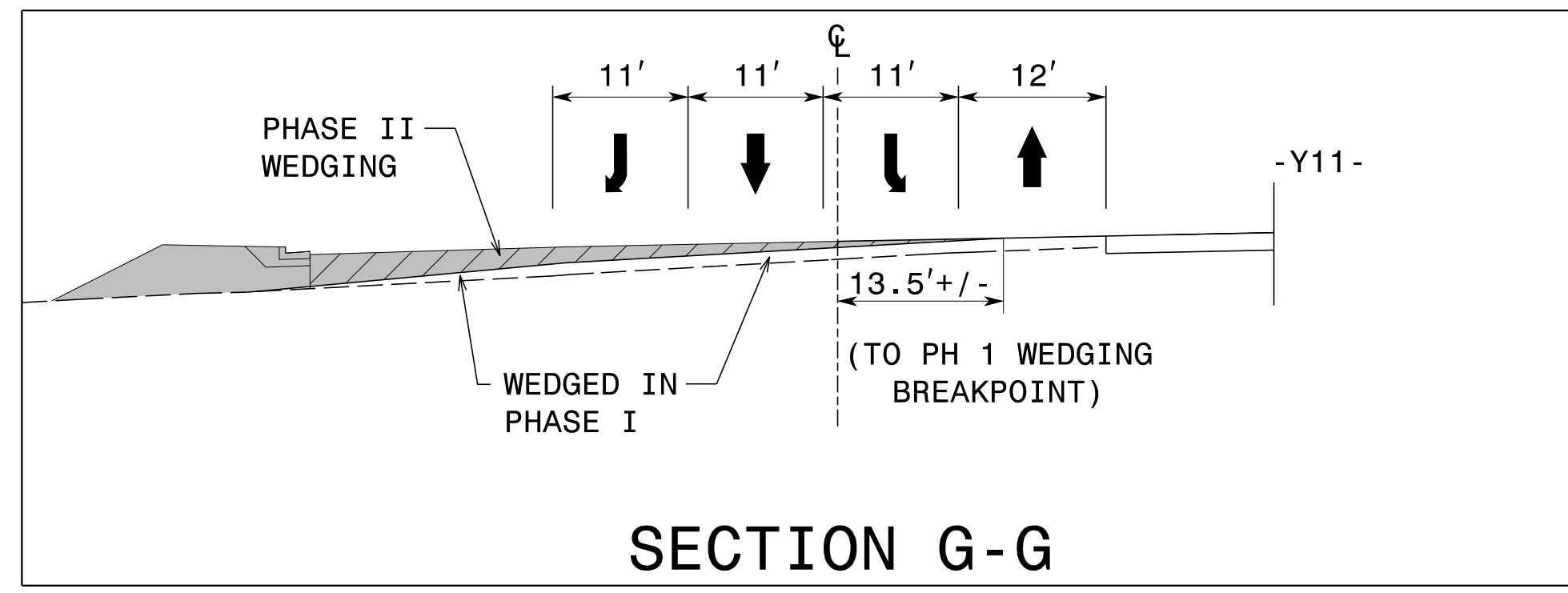
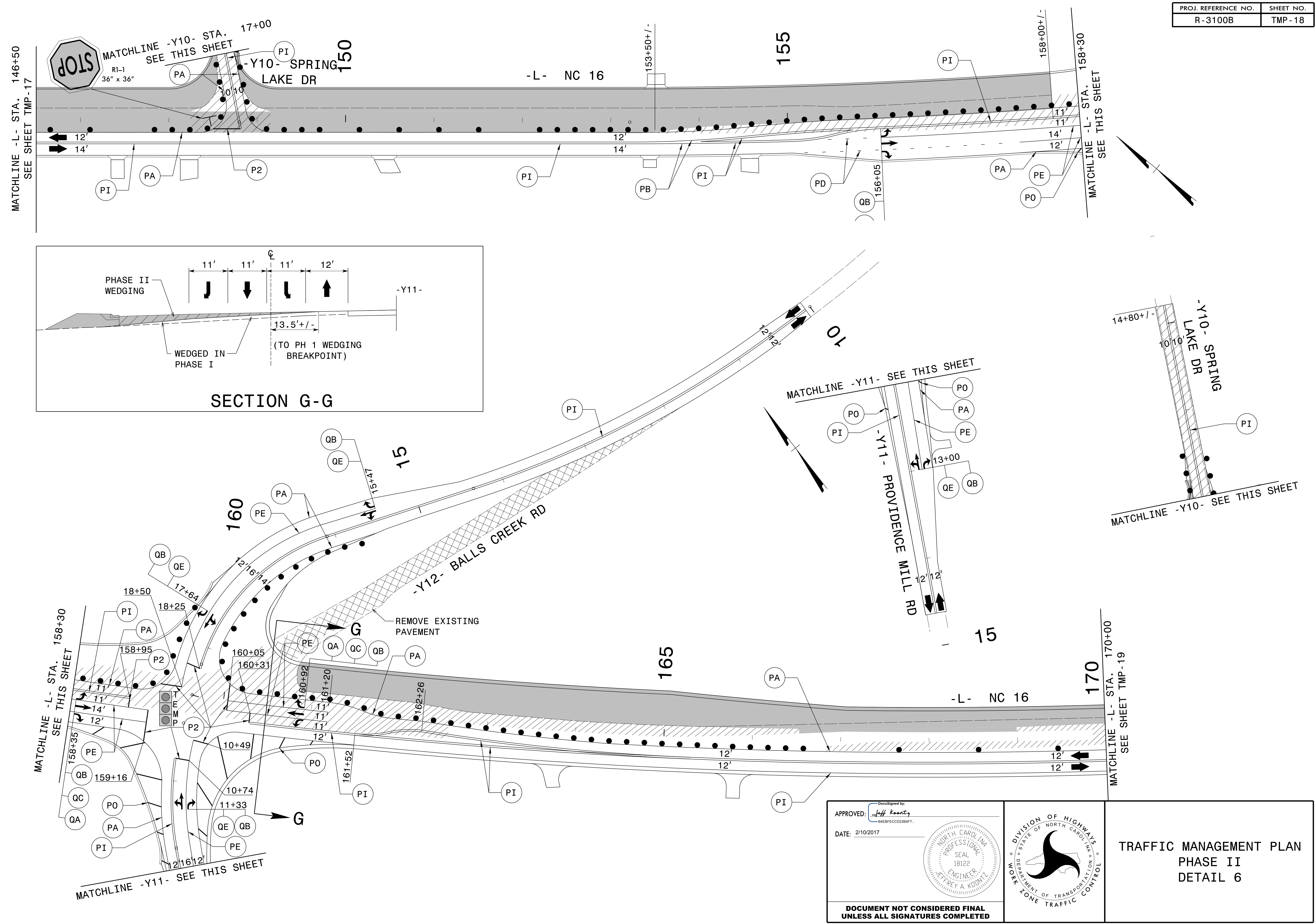


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APPROVED: *Jeff Koontz*
 DATE: 2/10/2017
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DIVISION OF HIGHWAYS
 DEPARTMENT OF TRANSPORTATION
 WORK ZONE TRAFFIC CONTROL
TRAFFIC MANAGEMENT PLAN
PHASE II
DETAIL 5



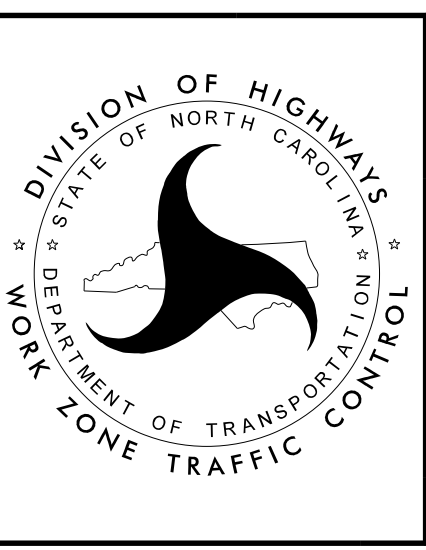
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 User: baldwin

APPROVED: *Jeff Koontz*
 DATE: 2/10/2017

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 Jeff Koontz
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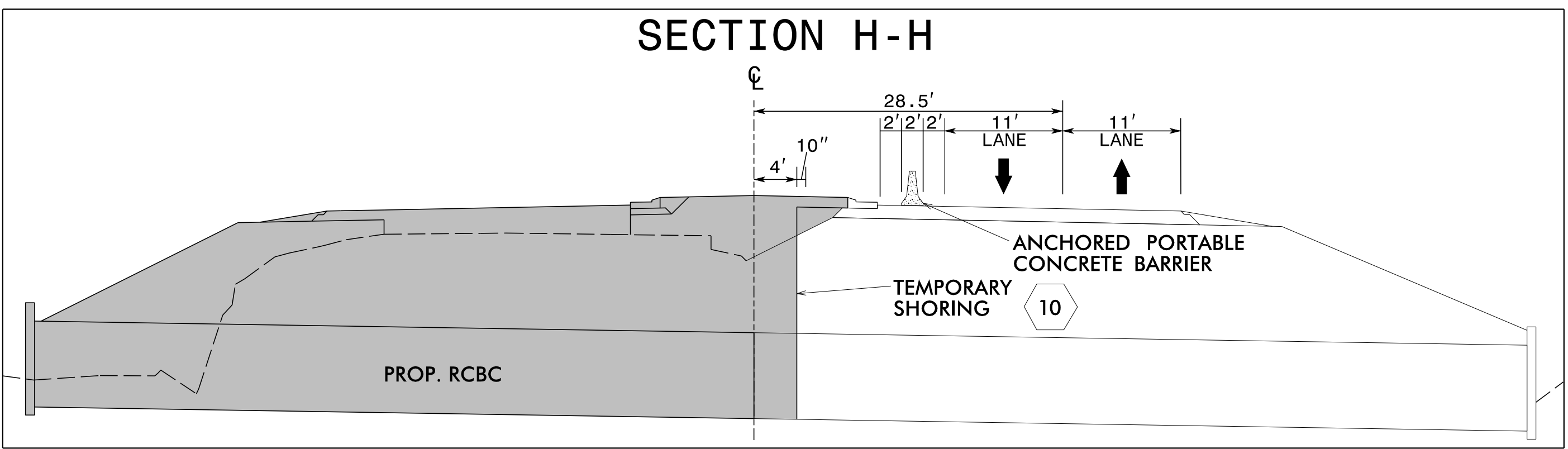
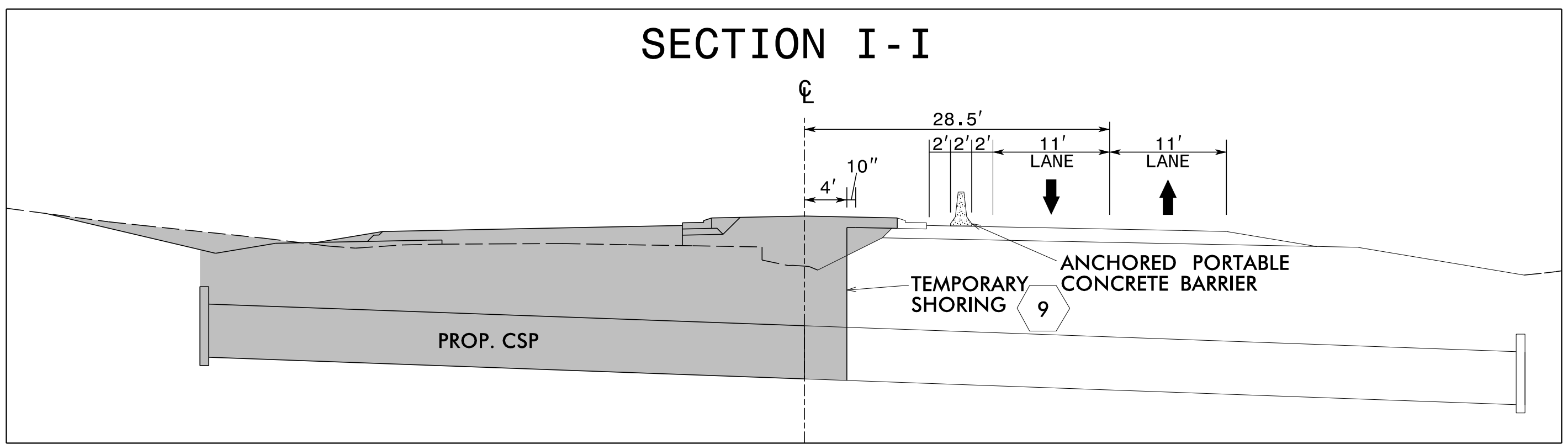
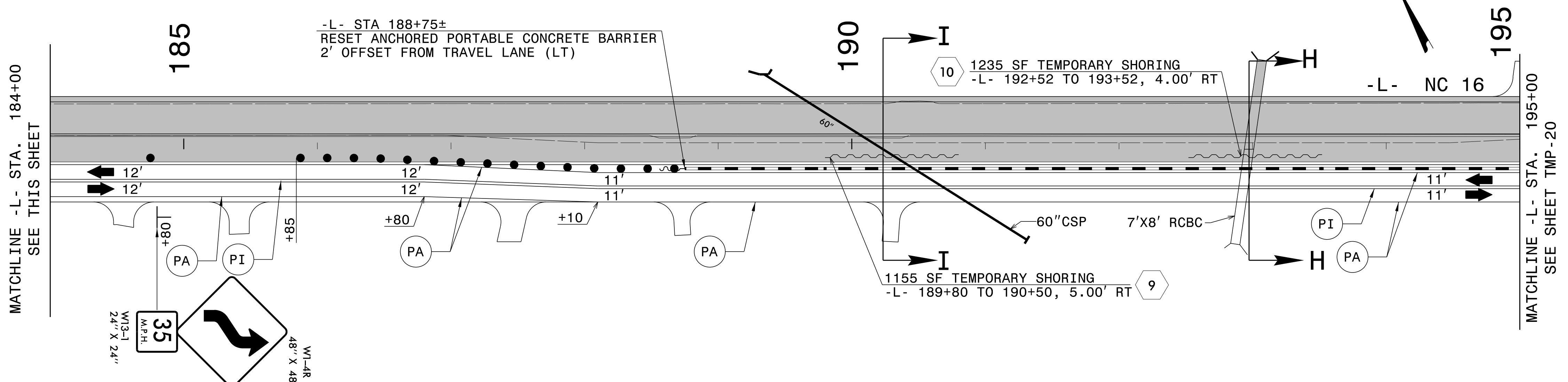
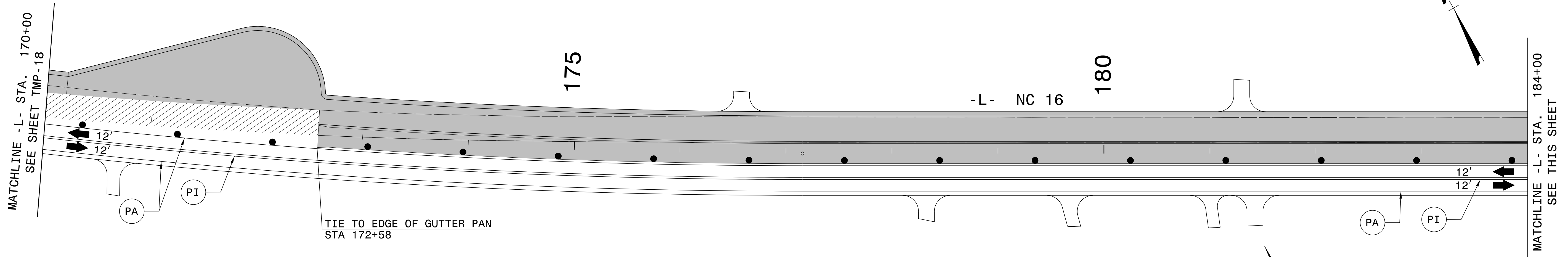
JEFFREY A. KOONTZ



TRAFFIC MANAGEMENT PLAN
PHASE II
DETAIL 6

WORK ZONE TRAFFIC CONTROL

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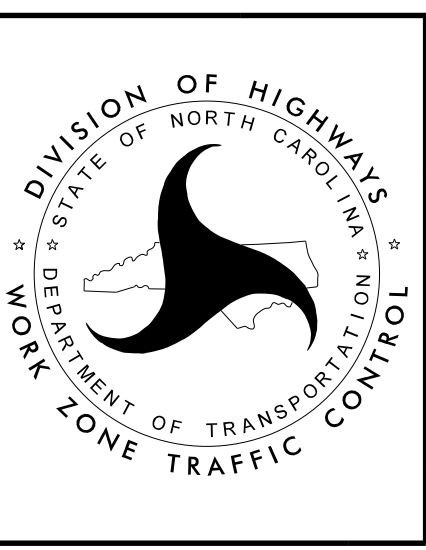


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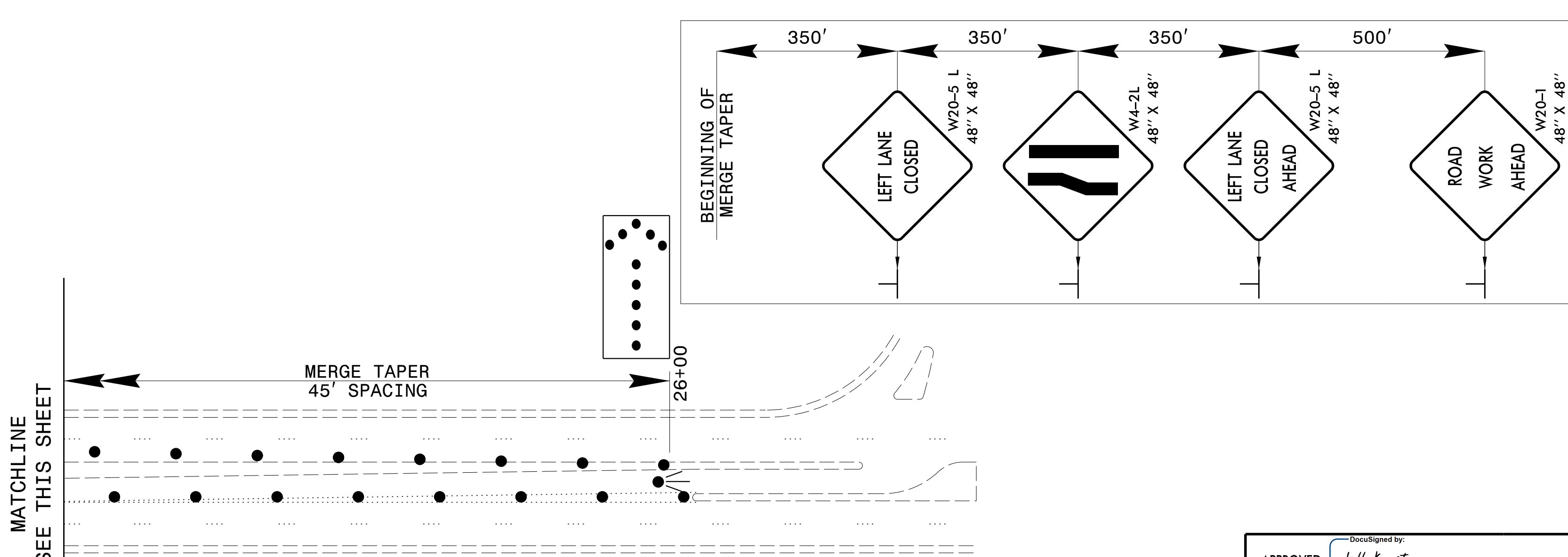
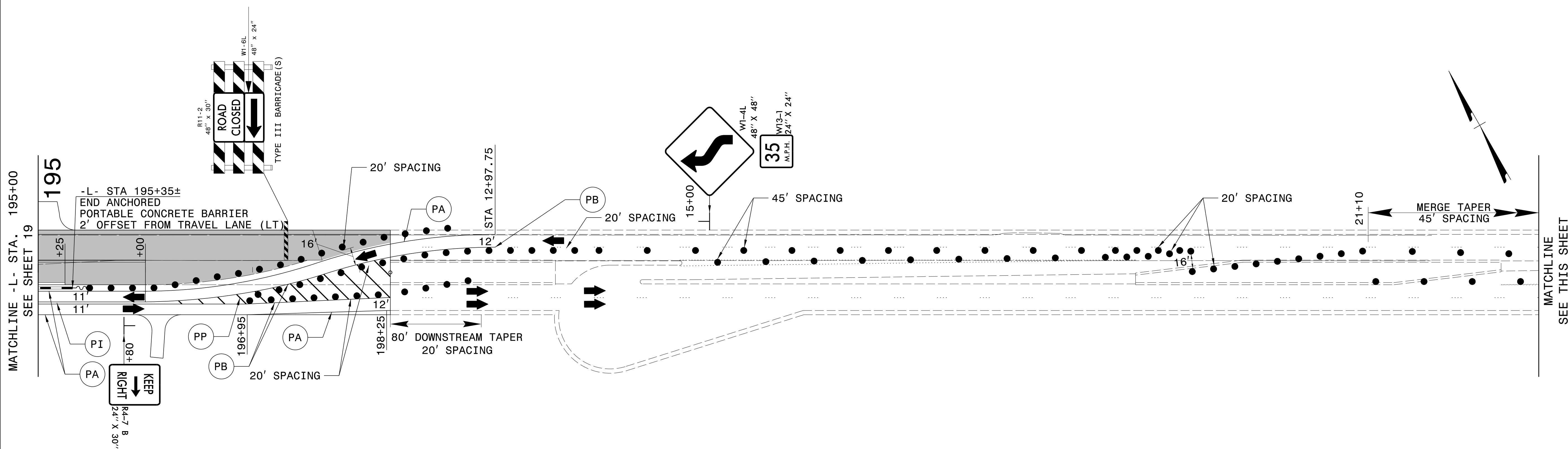
APPROVED: *[Signature]*
DATE: 2/9/2017

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SEAL
18122
JEFFREY A. KOONTZ
ENGINEER

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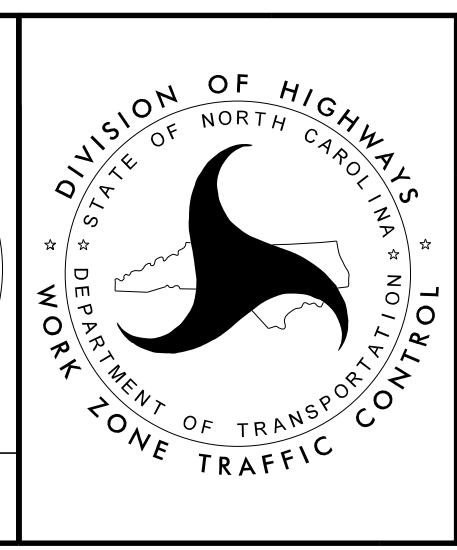


**TRAFFIC MANAGEMENT PLAN
PHASE II
DETAIL 7**

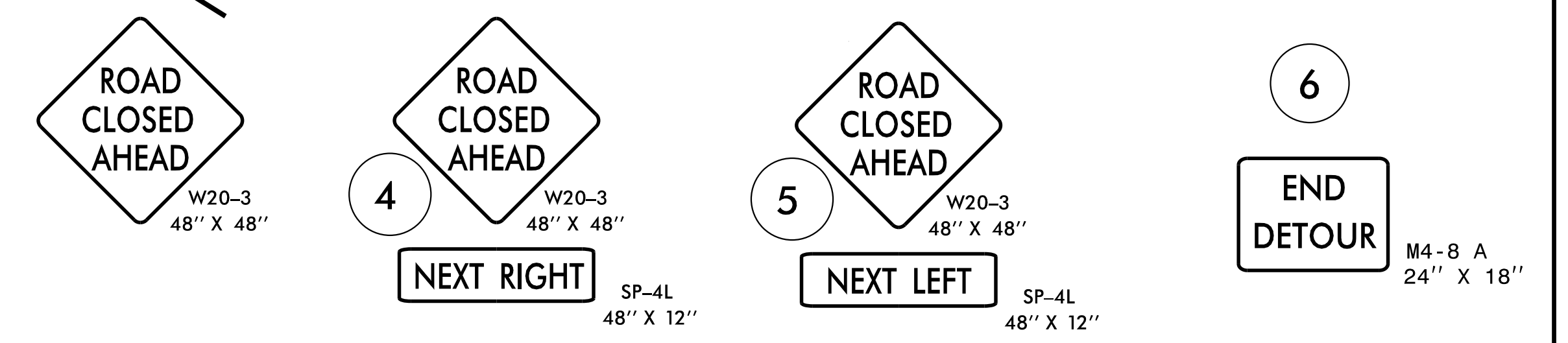
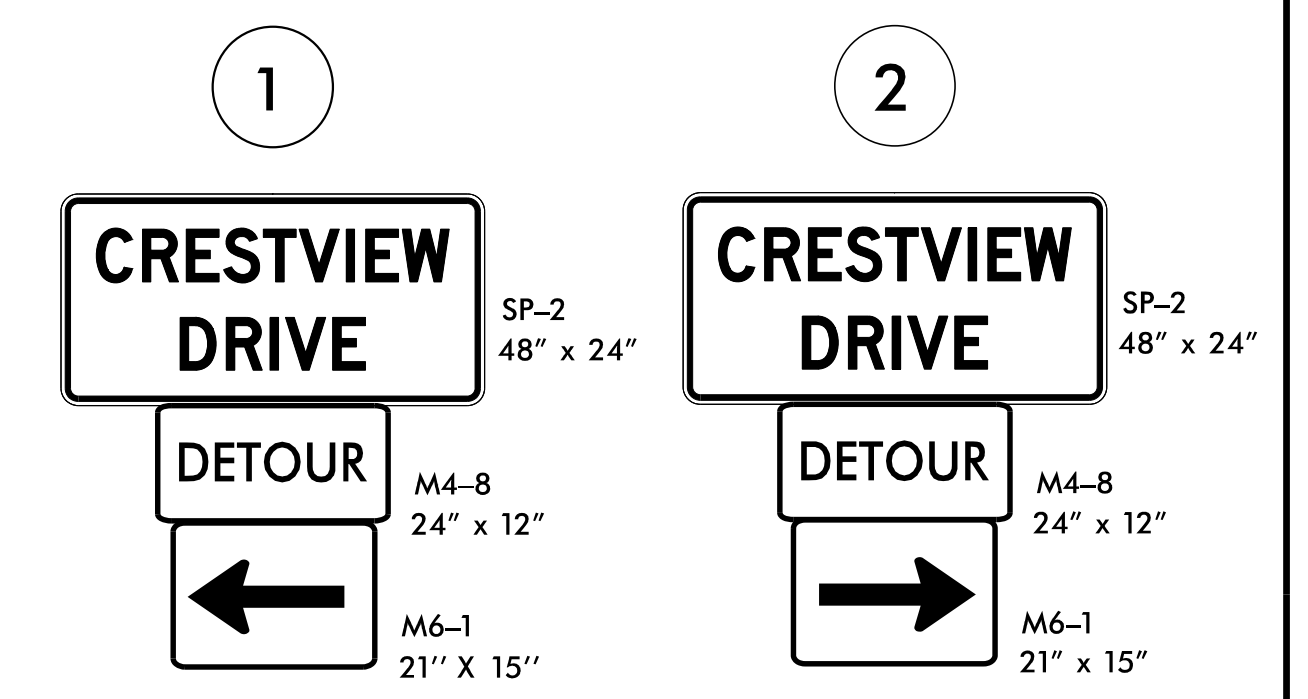
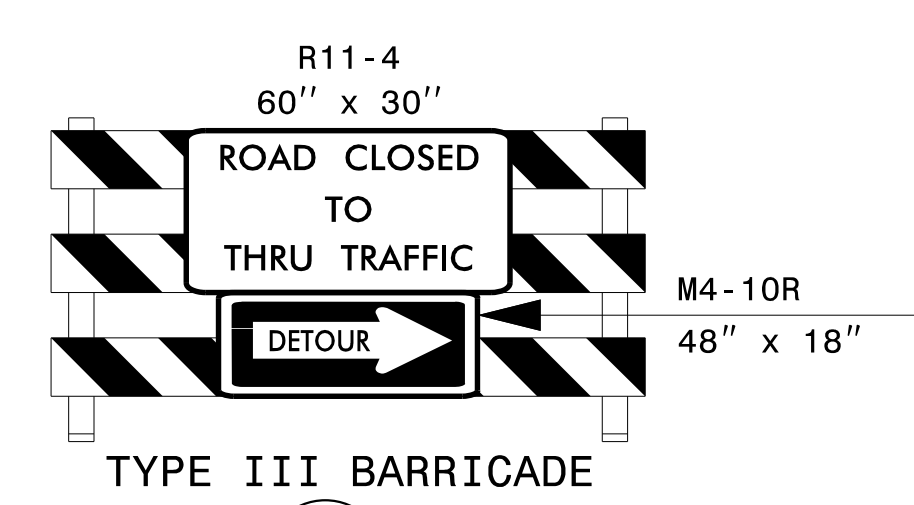
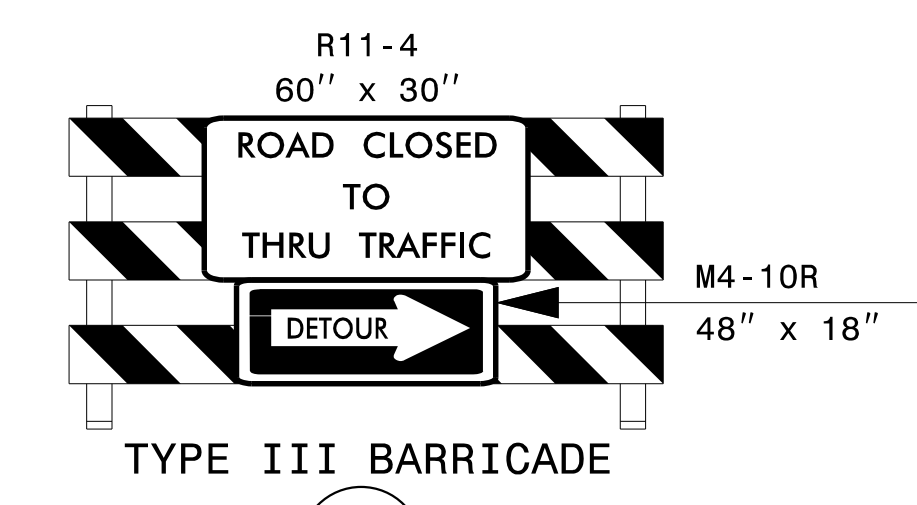
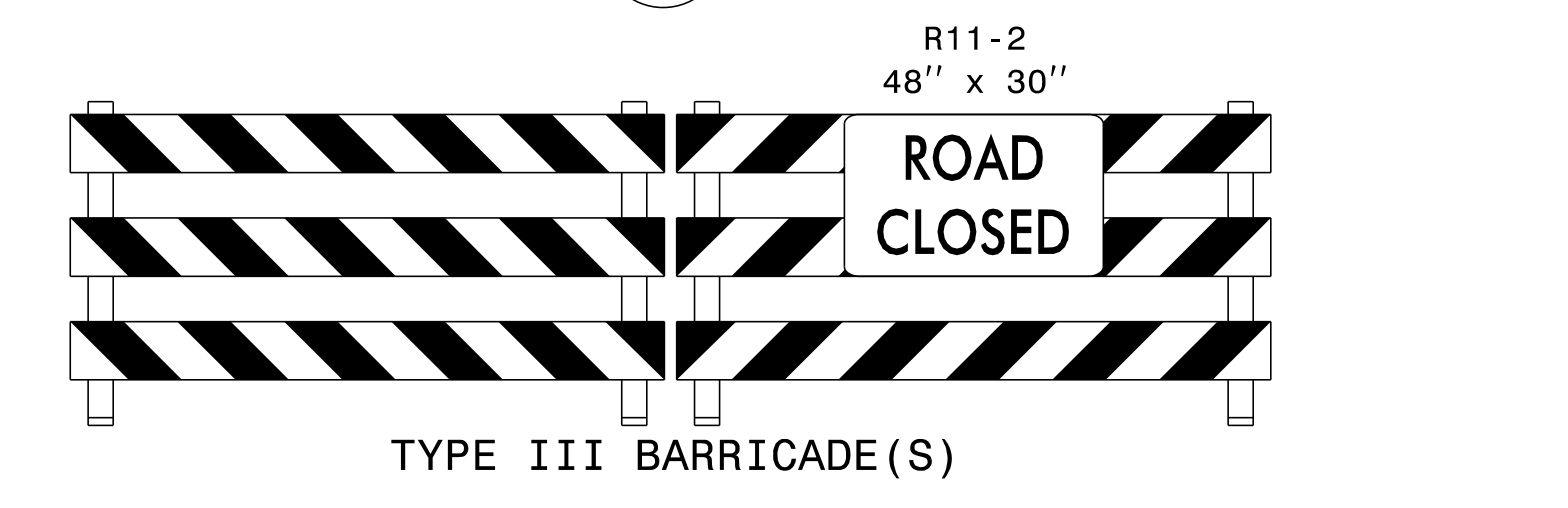
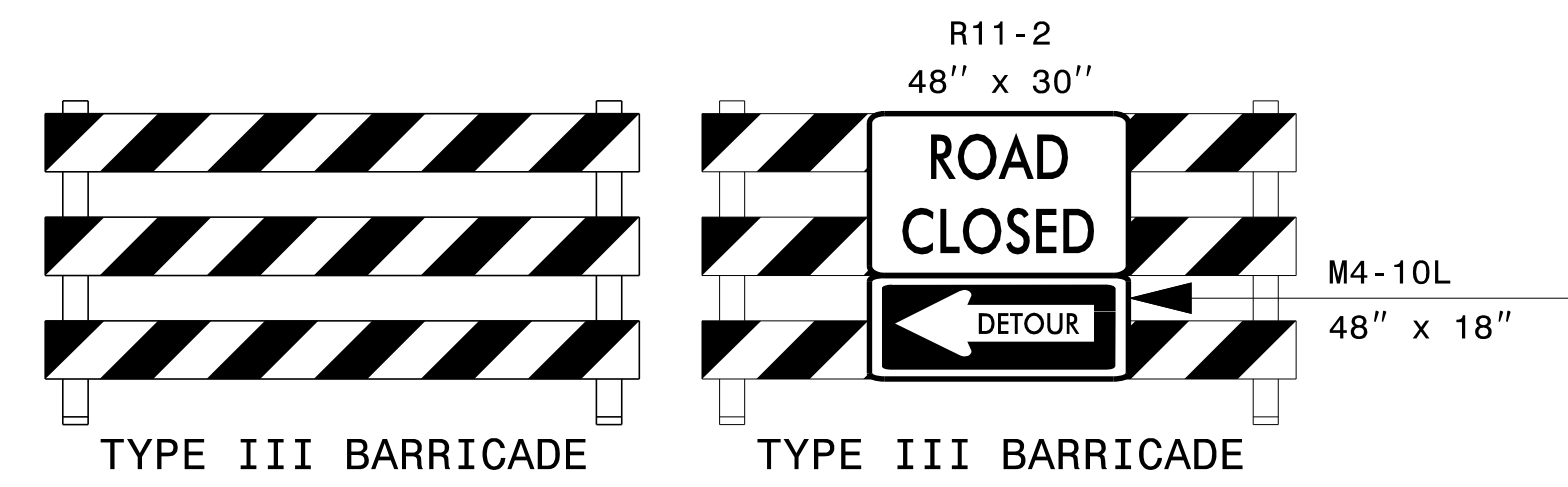
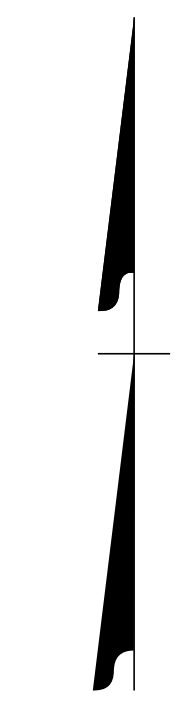
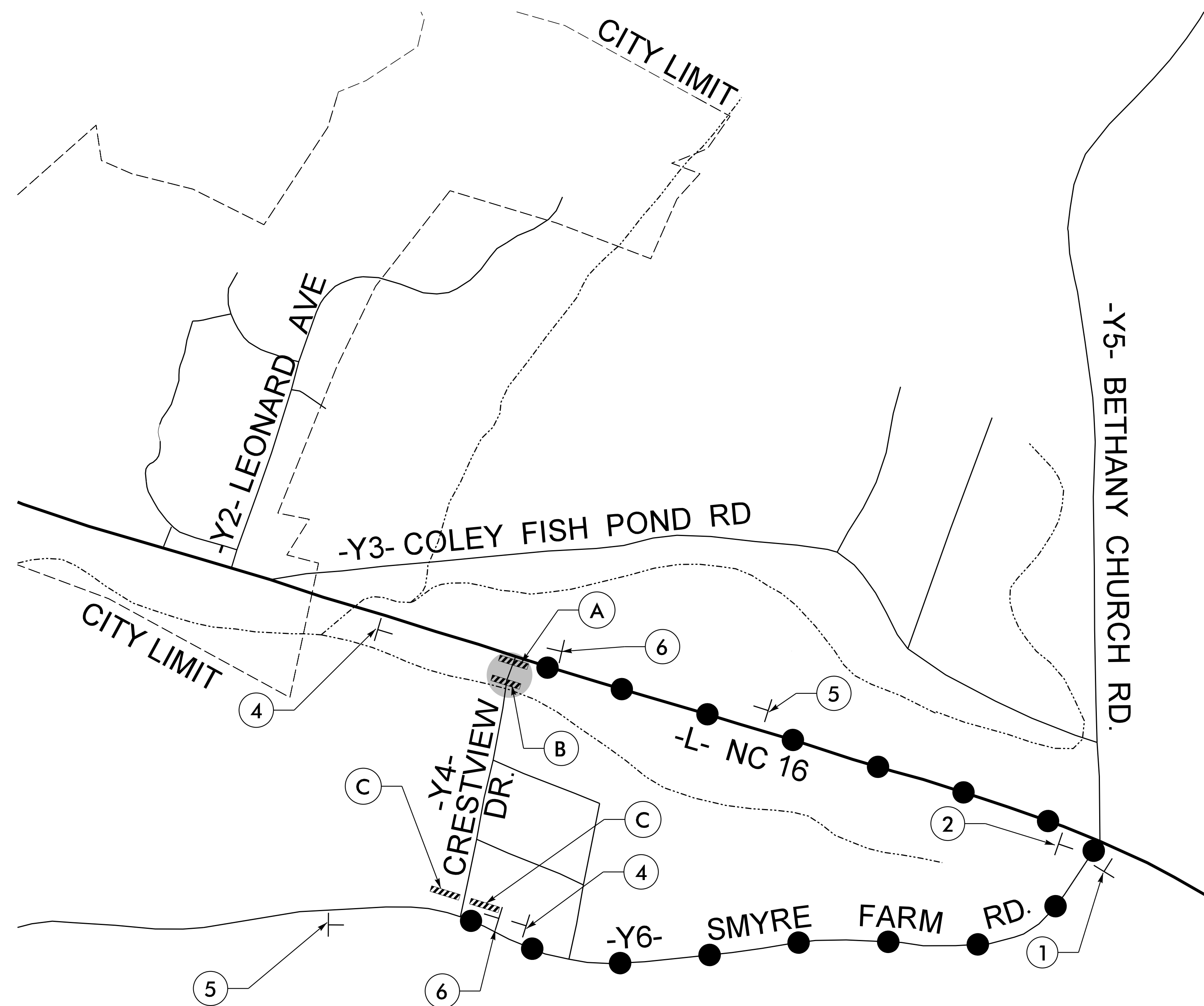


2/10/2017 10:02:48 AM
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 User:bdwinn

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 DATE: 2/10/2017
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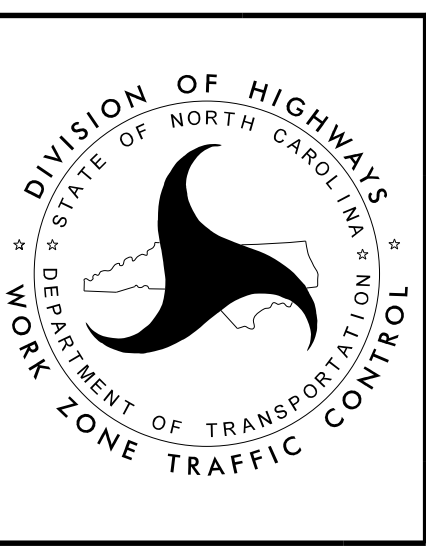
TRAFFIC MANAGEMENT PLAN
 PHASE II
 DETAIL 8



DETOUR ROUTE ● — ● — ●

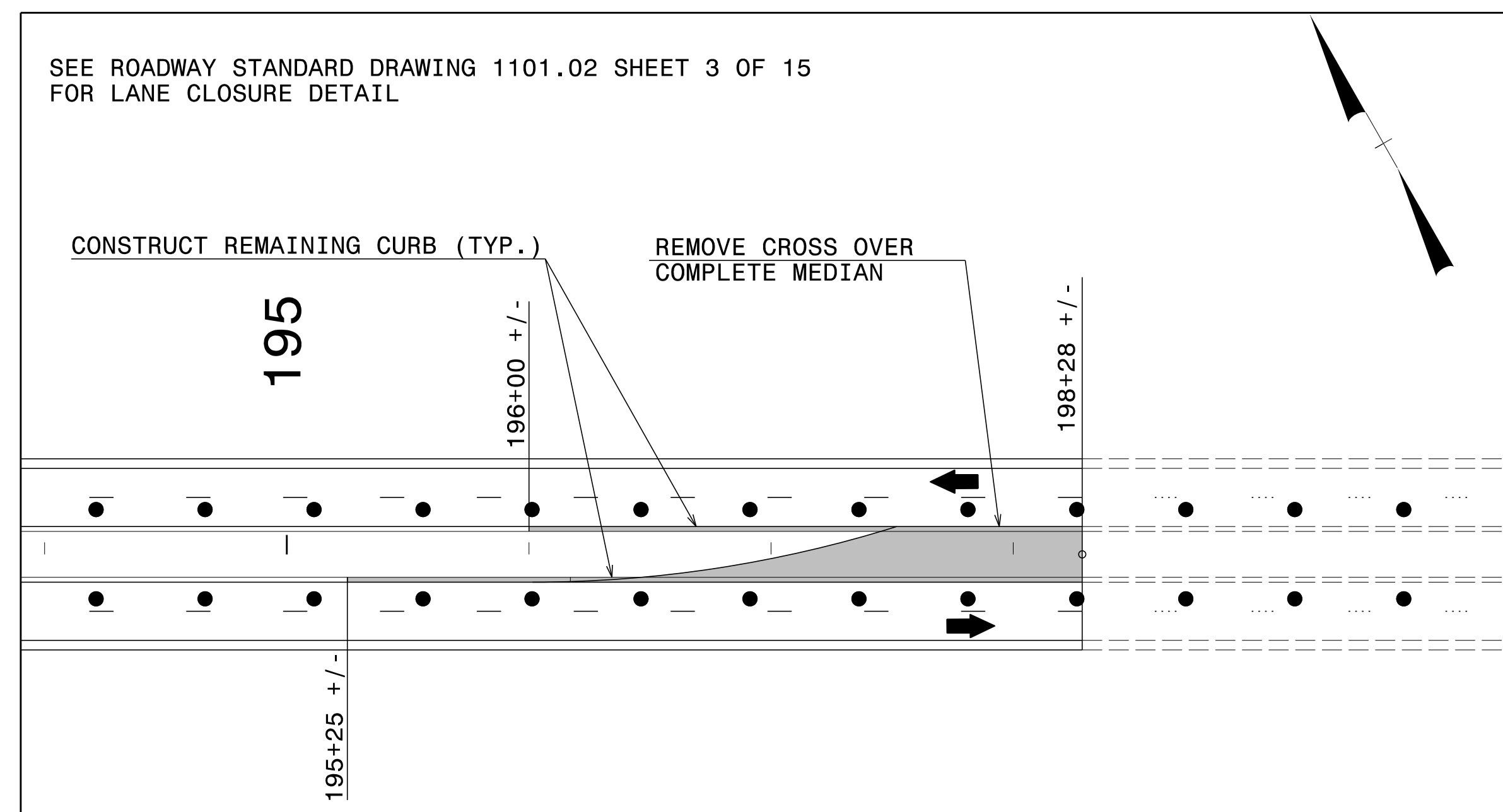
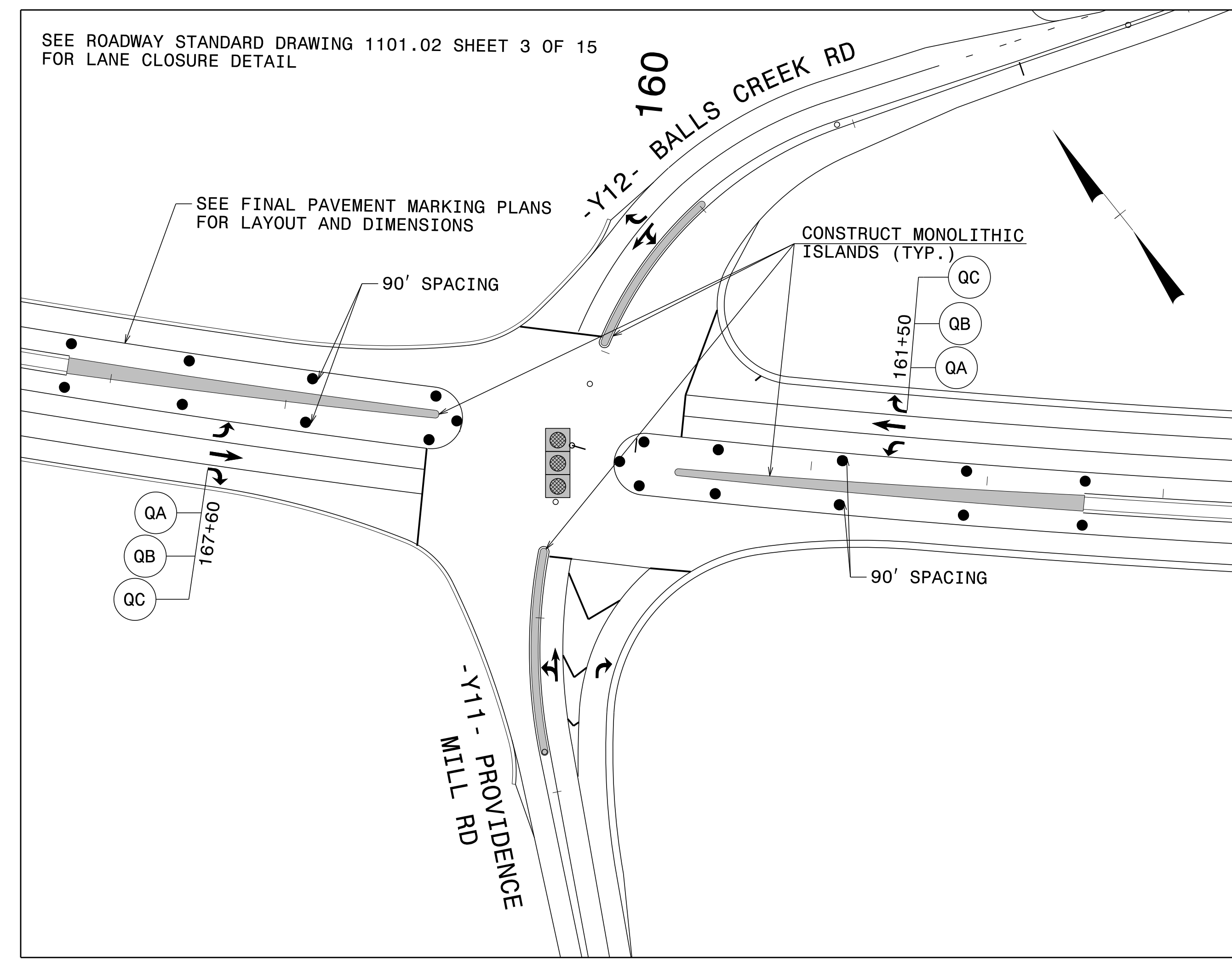
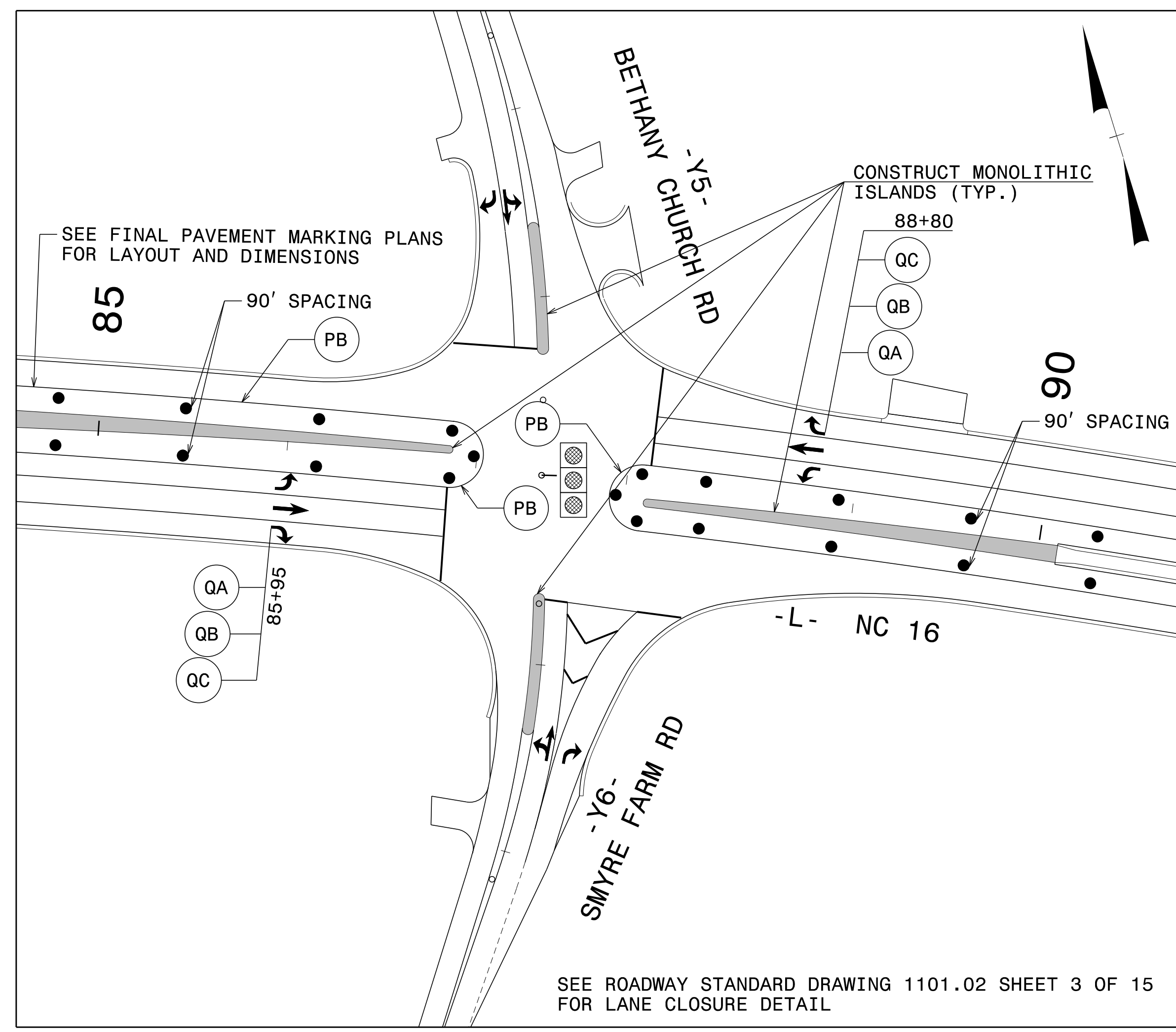
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**TRAFFIC MANAGEMENT PLAN
CRESTVIEW DRIVE
DETOUR**

2/1/2017 10:42:38 AM P:\P\Projects\2017\3100_NC16\Traffic\TCP\3100B_TC_TMP_21.dgn User:bdwinn

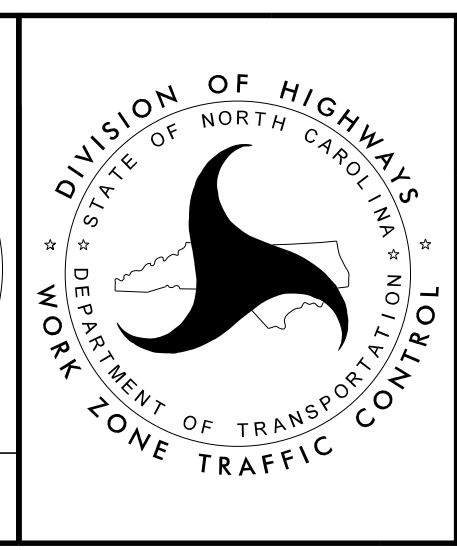


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User:bdwinn

APPROVED: *Jeff Koontz*
DATE: 2/10/2017

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ENGINEER



TRAFFIC MANAGEMENT PLAN
PHASE III

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