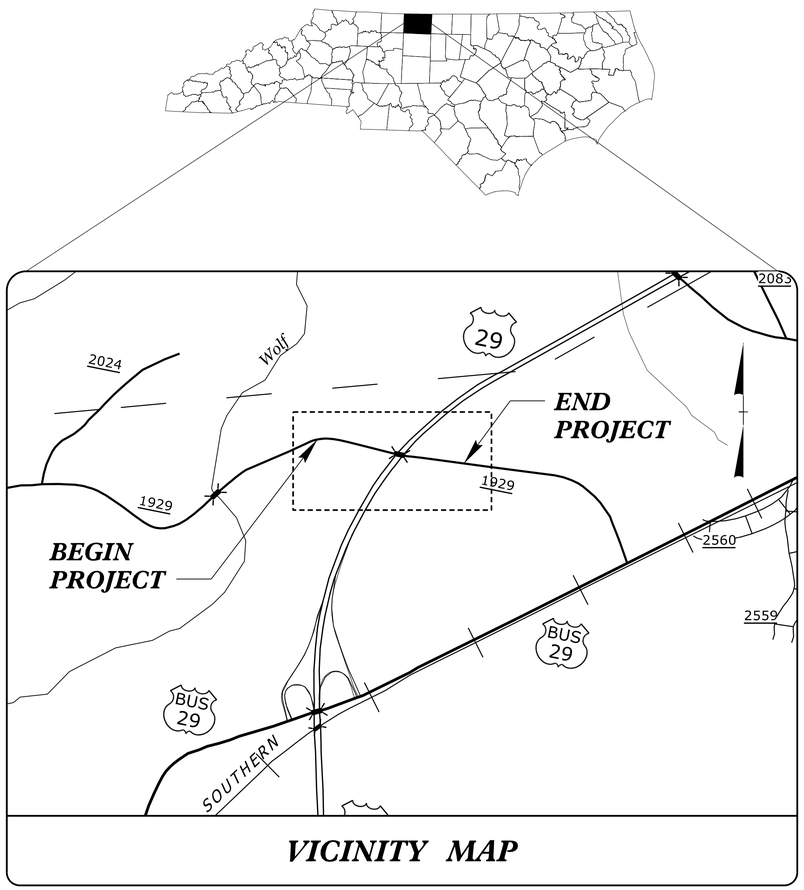
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

ROCKINGHAM COUNTY

LOCATION: BRIDGE NO. 780178 ON SR 1929 (ESTES RD) OVER US 29



VICINITY MAP

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND, AND TRAFFIC MANAGEMENT STRATEGY
TMP-1B	GENERAL NOTES
TMP-1C	LOCAL NOTES AND TRAFFIC CONTROL PHASING
TMP-2	PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATION
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TMP-14 THRU TMP-16	PHASE 3 DETAILS

SHEET NO.
TMP-1

TIP PROJECT: BR-0097

WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"

PLANS PREPARED BY:
moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
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DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

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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 JANUARY 2024 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
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUM
1145.01	BARRICADES
1150.01	FLAGGERS
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION
1264.01	OBJECT MARKERS - TYPES
1264.02	OBJECT MARKERS - INSTALLATION

PROJ. REFERENCE NO.	SHEET NO.
BR-0097	TMP-1A

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- WORK AREA
- PAVEMENT WEDGING
- REMOVAL
- TEMPORARY PAVEMENT

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- DRUM
- FLASHING ARROW BOARD
- CHANGEABLE MESSAGE SIGN
- TEMPORARY CRASH CUSHION

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN

PAVEMENT MARKERS

- CRYSTAL/RED
- YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

ONLY — PAVEMENT MARKING SYMBOLS

TRAFFIC MANAGEMENT STRATEGY

THE FOLLOWING LISTED WORK ZONE STRATEGIES ARE RECOMMENDED FOR INCLUSION WITHIN THIS TRANSPORTATION MANAGEMENT PLAN (TMP).

RECOMMENDED STRATEGIES:

TRAFFIC MANAGEMENT STRATEGIES:
- SHOULDER CLOSURES
- ONE-LANE, TWO WAY OPERATION (FLAGGING)
- NIGHT WORK
- WEEKEND WORK
- WORK HOUR RESTRICTIONS FOR PEAK TRAVEL

WORK ZONE SAFETY & MOBILITY STRATEGIES:
- SPEED LIMIT REDUCTION

TRAFFIC / INCIDENT MANAGEMENT & SPEED ENFORCEMENT STRATEGIES:
- INCREASED PENALTIES FOR WORK ZONE VIOLATIONS

CONTRACTING & INNOVATIVE CONTRUCTION STRATEGIES:
- INTERMEDIATE CONTRACT TIMES / LIQUIDATED DAMAGES

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APPROVED: DocuSigned by: Trent E. Huffman (8500487707170449...)

DATE: 5/22/2024

NORTH CAROLINA PROFESSIONAL SEAL 023912 ENGINEER TRENT E. HUFFMAN

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DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

ROADWAY STANDARD DRAWINGS, LEGEND & TRAFFIC MANAGEMENT STRATEGY

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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:

ROAD NAME	DAY AND TIME RESTRICTIONS
US 29 (-Y-)	MON. THRU FRI. 7:00 A.M. - 9:00 A.M.
US 29 (-Y-)	MON. THRU FRI. 4:00 P.M. - 6:00 P.M.

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

ROAD NAME

US 29 (-Y-)

HOLIDAY

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

   IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 7:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 6:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.
6. FOR LABOR DAY, BETWEEN THE HOURS OF 7:00 A.M. FRIDAY AND 6:00 P.M. TUESDAY.
7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 7:00 A.M. TUESDAY TO 6:00 P.M. MONDAY.
8. FOR CHRISTMAS, BETWEEN THE HOURS OF 7:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 6:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

C) DO NOT STOP TRAFFIC AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS	DURATION AND OPERATION
US 29 (-Y-)	MONDAY THRU SUNDAY 5:00 A.M. - 12:00 A.M.	30 MINUTES FOR GIRDER PLACEMENT AND REMOVAL

LANE AND SHOULDER CLOSURE REQUIREMENTS

D) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.

E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

   WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

G) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

H) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

PAVEMENT EDGE DROP OFF REQUIREMENTS

I) 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.

J) 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

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

SIGNING

L) 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.

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

N) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

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

P) 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.

TRAFFIC BARRIER

Q) 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.

R) 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

S) 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.

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

U) 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

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

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

MISCELLANEOUS

X) IN THE EVENT A TIE-IN CANNOT BE MADE IN ONE DAY'S TIME, BRING THE TIE-IN AREA TO AN APPROPRIATE ROADWAY ELEVATION AS DETERMINED BY THE ENGINEER. PLACE BLACK ON ORANGE "LOOSE GRAVEL" SIGNS (W8-7) AND BLACK ON ORANGE "PAVEMENT ENDS" SIGNS (W8-3) 500 FT AND 500 FT RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.

Y) ACCESS TO ALL DRIVEWAYS MUST BE PROVIDED AT ALL TIMES WITHIN THE PROJECT LIMITS.

Z) UTILITY SERVICES SHALL BE MAINTAINED TO ALL FACILITIES DURING CONSTRUCTION.

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DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

GENERAL NOTES

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LOCAL NOTES

PROVIDE ONE MONTH NOTICE TO THE ENGINEER, ROCKINGHAM COUNTY EMERGENCY SERVICES, AND ROCKINGHAM COUNTY SCHOOL OFFICIALS PRIOR TO CONSTRUCTION.

PHASING

PHASE I

STEP 1

INSTALL ALL ADVANCE WARNING SIGNS ON -L- (SR 1929) PER RSD 1101.01 (3 OF 3) AND -Y- (US 29) PER RSD 1101.01 (1 OF 3).

STEP 2

USING RSD 1101.04 (1 OF 2) PLACE WARNING SIGNS AND INSTALL PORTABLE CONCRETE BARRIER TO CLOSE THE OUTSIDE SHOULDERS ON -Y-. INSTALL TEMPORARY SHORING #1 ALONG -L- AND CONSTRUCT THE NEW END BENTS.

STEP 3

MAINTAIN THE PORTABLE CONCRETE BARRIER AND OUTSIDE SHOULDER CLOSURE ON -Y-. AWAY FROM TRAFFIC CONSTRUCT -L- STA 24+00 +/- TO STA 37+00 +/- INCLUDING APPROACH GRADING AND AS MUCH PAVEMENT AS POSSIBLE UP TO THE FINAL LAYER.

PHASE II

STEP 1

USING RSD 1101.02 (3 OF 19) CONSTRUCT TEMPORARY PAVEMENT ALONG THE INSIDE SHOULDERS ON -Y-.

STEP 2

USING RSD 1101.04 (1 OF 2) PLACE PORTABLE CONCRETE BARRIER TO CLOSE THE INSIDE SHOULDERS ALONG -Y-. CONSTRUCT TEMPORARY SHORING #2 AND #3 ALONG -Y-. CONSTRUCT THE INTERIOR BENT AND THE BRIDGE SUPER STRUCTURE.

STEP 3

CONSTRUCT -L- STA 24+00 +/- TO 37+00 +/- UP TO FINAL PAVEMENT LAYER.

STEP 4

USING FLAGGERS AND SHIFTING TRAFFIC AS NECESSARY, CONSTRUCT -L- (SR 1929) STA 19+50 TO 45+00 AS SHOWN. PROVIDE A SMOOTH TRANSISITON BETWEEN EXISTING AND PROPOSED PAVEMENT.

PHASE III

STEP 1

PLACE FINAL GUARDRAIL ON PROPOSED -L-, AND COMPLETE MEDIAN WORK ON -Y-. SHIFT TRAFFIC TO FINAL PATTERN AND CLOSE EXISTING -L-. DEMOLISH STRUCTURE AND REMVOVE PAVEMENT ON EXISTING -L-.

STEP 2

MAKE FINAL DRIVEWAY CONNECTIONS, PLACE FINAL PAVEMENT LAYER, AND PLACE FINAL PAVEMENT MARKINGS ON PROPOSED -L-.

STEP 3

REMOVE ALL TRAFFIC CONTROL DEVICES.

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DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

LOCAL NOTES AND PHASING

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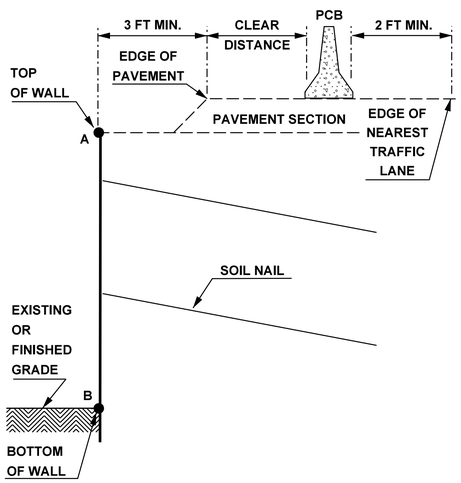
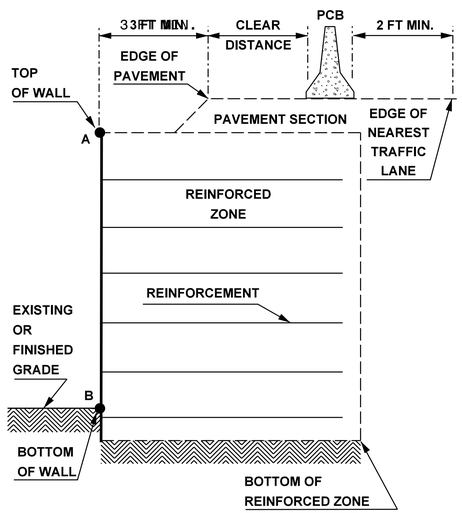
BR-0097	TMP-2

TEMPORARY SOIL NAIL WALL



TEMPORARY MSE WALL



NOTE: WALL OR SHORING HEIGHT = A-B

TEMPORARY SHORING

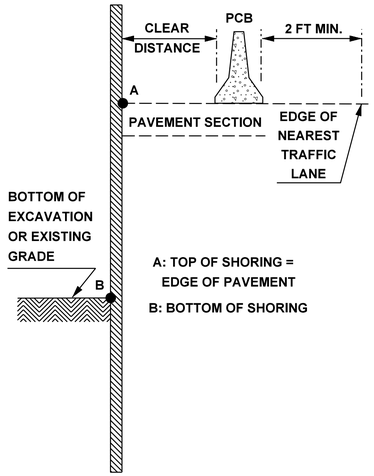


FIGURE A

NOTES

1- REFER TO THE TRAFFIC CONTROL PLANS FOR TEMPORARY SHORING LOCATIONS AND NOTES.

2- REFER TO THE "TEMPORARY SHORING" STANDARD PROVISION FOR INFORMATION ABOUT TEMPORARY SHORING AND PORTABLE CONCRETE BARRIER (PCB).

3- PCB IS REQUIRED IF TEMPORARY SHORING/WALL 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 FOR APPLICABLE PAVEMENT DESIGN).

4- BASED ON THE CLEAR DISTANCE, OFFSET, DESIGN SPEED AND PAVEMENT TYPE, CHOOSE AN UNANCHORED OR ANCHORED PCB FROM THE TABLE SHOWN IN FIGURE B. CLEAR DISTANCE IS DEFINED AS SHOWN IN FIGURE A AND OFFSET IS DEFINED AS SHOWN IN FIGURE B.

5- AT THE CONTRACTOR'S OPTION OR IF THE MINIMUM REQUIRED CLEAR DISTANCE IS NOT AVAILABLE, SET PCB NEXT TO AND UP AGAINST THE TRAFFIC SIDE OF THE TEMPORARY SHORING/WALLS EXCEPT FOR BARRIER ABOVE TEMPORARY WALLS. PCB WITH THE MINIMUM REQUIRED CLEAR DISTANCE IS REQUIRED ABOVE TEMPORARY WALLS.

6- USE NCDOT PORTABLE CONCRETE BARRIER (PCB) IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1170.01 AND SECTION 1170 OF THE STANDARD SPECIFICATIONS.

7- 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 OR APPROVED BY THE ENGINEER.

8- 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 THIS MINIMUM REQUIRED DISTANCE IS NOT AVAILABLE, CONTACT THE ENGINEER.

9- TABLE SHOWN IN FIGURE B IS BASED ON NCDOT RESEARCH PROJECT NO. 2005-010 WITH VEHICLE TYPE USED FOR NCHRP 350 CRASH TESTS.

MINIMUM REQUIRED CLEAR DISTANCE, inches

Barrier Type	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
		44-50	31	35	41	43	46	49
		50-56	32	36	42	44	47	50
		>56	32	36	42	45	47	51
	Concrete	<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
		26-32	24	25	27	28	32	35
		32-38	24	26	27	30	33	36
		38-44	25	26	28	30	34	37
		44-50	26	26	28	32	35	37
		50-56	26	26	28	32	35	38
		>56	26	27	29	32	36	38
Anchored PCB	Asphalt	All Offsets	24 for All Design Speeds					
Anchored PCB	Concrete (including bridge approach slabs)	All Offsets	12 for All Design Speeds					

* See Figure Below

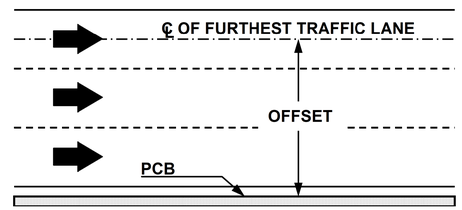


FIGURE B

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SEAL

NORTH CAROLINA PROFESSIONAL SEAL 023912 ENGINEER TRENT E. HUFFMAN

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DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS

5/16/2024
Q:\RAL\00II-II0\BR-0097\Traffic\TrafficControl\TCP\BR-0097_tc_tmp_02.dgn
THuffman

PROJ. REFERENCE NO.	SHEET NO.
BR-0097	TMP-2A

SHORING NOTES

Shoring Location No. 1

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

DESIGN TEMPORARY SHORING FROM StaTION 28+80 +/- -L-, 40 FT. RT. TO STATION 29+20 +/- -L-, 40 RT., FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT OF SOIL ABOVE WATER TABLE,
γ= 120 PCF
UNIT WEIGHT OF SOIL BELOW WATER TABLE,
γ' = 60 PCF
FRICTION ANGLE, φ= 30
COHESION, c = 0 PSF
GROUNDWATER ELEVATION = 598 FT

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM StaTION 28+80 +/- -L-, 40 FT. RT. TO STATION 29+20 +/- -L-, 40 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 28+80 +/- -L-, 40 FT. RT. TO STATION 29+20 +/- -L-, 40 RT. SEE GEOTECHNICAL STANDARD DETAIL NO. 1801.02 FOR STANDARD TEMPORARY WALLS.

Shoring Location No. 2

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

DESIGN TEMPORARY SHORING FROM StaTION 16+21 +/- -y-, 6 FT. rT. TO STATION 16+76 +/- -y-, 6 rT., FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT OF SOIL ABOVE WATER TABLE,
γ= 120 PCF
UNIT WEIGHT OF SOIL BELOW WATER TABLE,
γ' = 60 PCF
FRICTION ANGLE, φ= 30
COHESION, c = 0 PSF
GROUNDWATER ELEVATION = 603 FT

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM StaTION 16+21 +/- -y-, 6 FT. rT. TO STATION 16+76 +/- -y-, 6 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 16+21 +/- -y-, 6 FT. rT. TO STATION 16+76 +/- -y-, 6 rT. SEE GEOTECHNICAL STANDARD DETAIL 1801.01 FOR STANDARD TEMPORARY SHORING.

DRIVEN PILING FOR TEMPORARY SHORING FROM StaTION 16+21 +/- -y-, 6 FT. rT. TO STATION 16+76 +/- -y-, 6 rT. MAY NOT PENETRATE BELOW ELEVATION 565 FT. DUE TO OBSTRUCTIONS, VERY DENSE OR HARD SOIL, BOULDERS OR WEATHERED OR HARD ROCK.

Shoring Location No. 3

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

DESIGN TEMPORARY SHORING FROM StaTION 16+21 +/- -y-, 6 FT. lT. TO STATION 16+76 +/- -y-, 6 lT., FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT OF SOIL ABOVE WATER TABLE,
γ= 120 PCF
UNIT WEIGHT OF SOIL BELOW WATER TABLE,
γ' = 60 PCF
FRICTION ANGLE, φ= 30
COHESION, c = 0 PSF
GROUNDWATER ELEVATION = 603 FT

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM StaTION 16+21 +/- -y-, 6 FT. lT. TO STATION 16+76 +/- -y-, 6 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 STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION 16+21 +/- -y-, 6 FT. lT. TO STATION 16+76 +/- -y-, 6 lT. SEE GEOTECHNICAL STANDARD DETAIL 1801.01 FOR STANDARD TEMPORARY SHORING.

DRIVEN PILING FOR TEMPORARY SHORING FROM StaTION 16+21 +/- -y-, 6 FT. lT. TO STATION 16+76 +/- -y-, 6 lT. MAY NOT PENETRATE BELOW ELEVATION 565 FT. DUE TO OBSTRUCTIONS, VERY DENSE OR HARD SOIL, BOULDERS OR WEATHERED OR HARD ROCK.

moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX
NC License NO.: F-0105

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DATE: 5/22/2024
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 023912 ENGINEER BRENT E. HUFFMAN

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DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

TEMPORARY SHORING NOTES

PROJ. REFERENCE NO.	SHEET NO.
BR-0097	TMP-04

NAD 83 NA 2011

25

30

35

SEE RSD 1101.04 (1 OF 2)
FOR ADVANCED WARNING SIGNS

280' SHOULDER TAPER

-Y- US 29

200 SF
TEMP SHORING #1

-L- SR 1929

20

280' SHOULDER TAPER

SEE RSD 1101.04 (1 OF 2)
FOR ADVANCED WARNING SIGNS

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PHASE 1 STEP 2 DETAILS

1/4/2024
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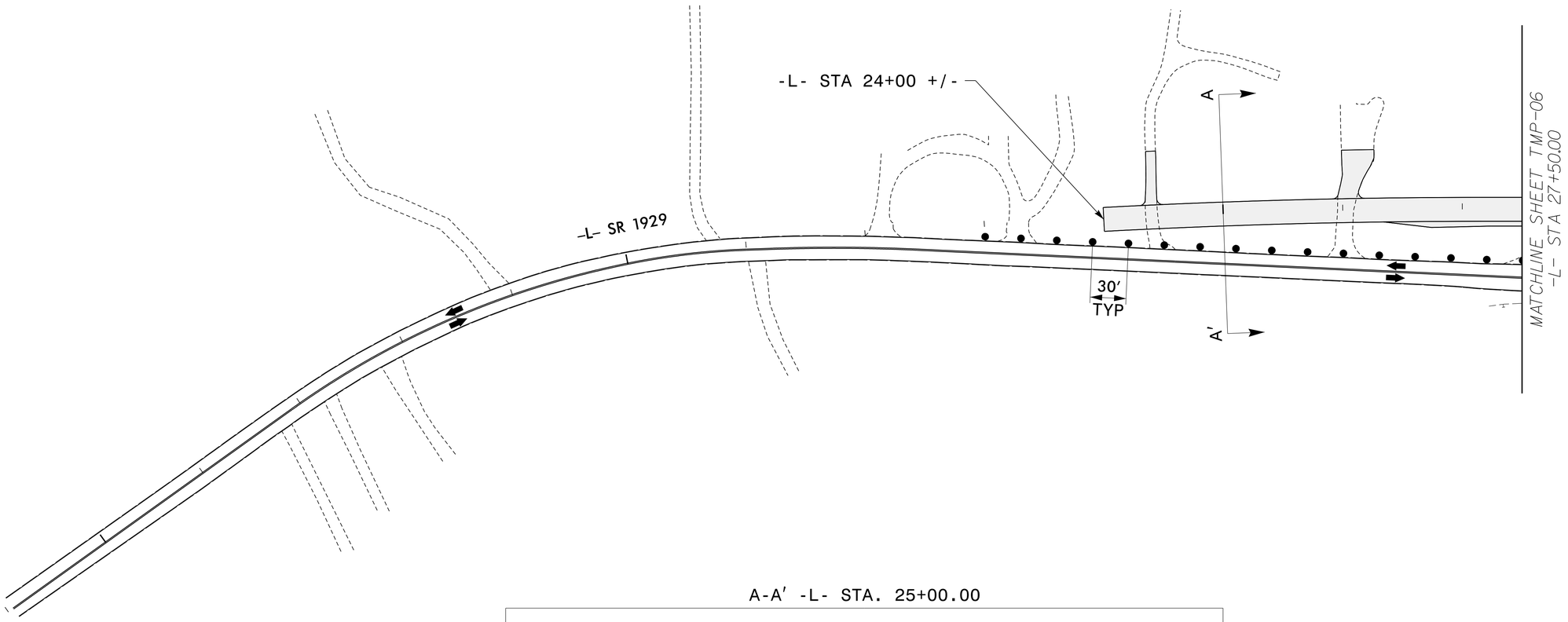
gmcallin

PROJ. REFERENCE NO.	SHEET NO.
BR-0097	TMP-05

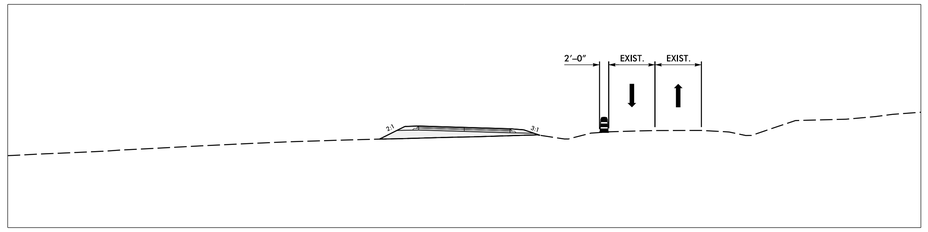
NAD 83 NA 2011

MAINTAIN ACCESS TO DRIVES USING INCIDENTAL STONE

SEE RSD 1101.01 (3 OF 3)
FOR ADVANCED WARNING SIGNS



A-A' -L- STA. 25+00.00



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PHASE 1 STEP 3
DETAILS

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gmoslin

PROJ. REFERENCE NO.	SHEET NO.
BR-0097	TMP-06

NAD 83 NA 2011

MAINTAIN ACCESS TO DRIVES USING INCIDENTAL STONE

SEE RSD 1101.01 (3 OF 3)
FOR ADVANCED WARNING SIGNS

R11-2
48" x 30"
ROAD CLOSED
TYPE III BARRICADE(S)

R11-2
48" x 30"
ROAD CLOSED
TYPE III BARRICADE(S)

-Y- US 29

-L- SR 1929

-L- STA 37+00 +/-

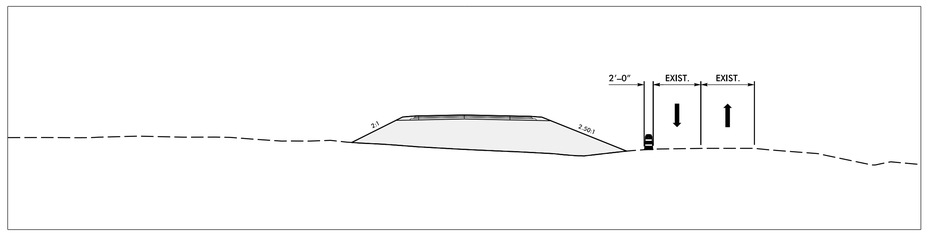
30'
TYP.

A

A'

MATCHLINE SHEET TMP-05
-L- STA 27+50.00

A-A' -L- STA. 33+00.00



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DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

PHASE 1 STEP 3
DETAILS

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gmcallin

PROJ. REFERENCE NO.	SHEET NO.
BR-0097	TMP-07

MAINTAIN ACCESS TO DRIVES USING INCIDENTAL STONE

R11-2
48" x 30"
ROAD CLOSED
TYPE III BARRICADE(S)

SEE RSD 1101.02 (3 OF 19)
FOR ADVANCED WARNING SIGNS

-Y- US 29

-L- SR 1929

R11-2
48" x 30"
ROAD CLOSED
TYPE III BARRICADE(S)

30'
TYP

30'
TYP.

SEE RSD 1101.02 (3 OF 19)
FOR ADVANCED WARNING SIGNS

NAD 83 NA 2011

25 30 35 20

6/17/2024
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DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

PHASE 2 STEP 1 DETAILS

PROJ. REFERENCE NO.	SHEET NO.
BR-0097	TMP-08

MAINTAIN ACCESS TO DRIVES USING INCIDENTAL STONE

R11-2
48" x 30"
ROAD CLOSED
TYPE III BARRICADE(S)

SEE RSD 1101.04 (1 OF 1)
FOR ADVANCED WARNING SIGNS

280' SHOULDER TAPER

247.5 SF
TEMP SHORING #2

247.5 SF
TEMP SHORING #3

-Y- US 29

-L- SR 1929

30'
TYP.

30'
TYP

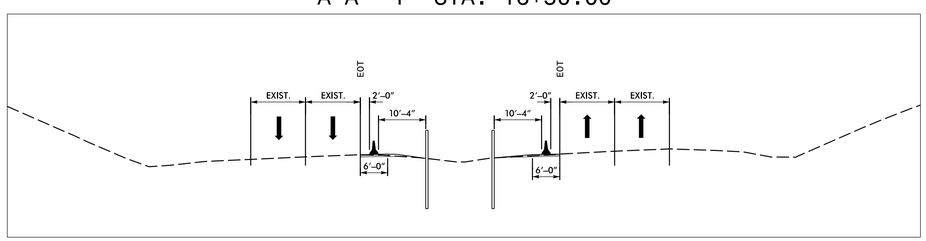
NAD 83 NA 2011

R11-2
48" x 30"
ROAD CLOSED
TYPE III BARRICADE(S)

SEE RSD 1101.04 (1 OF 1)
FOR ADVANCED WARNING SIGNS

280' SHOULDER TAPER

A-A' -Y- STA. 16+50.00



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PHASE 2 STEP 2 DETAILS

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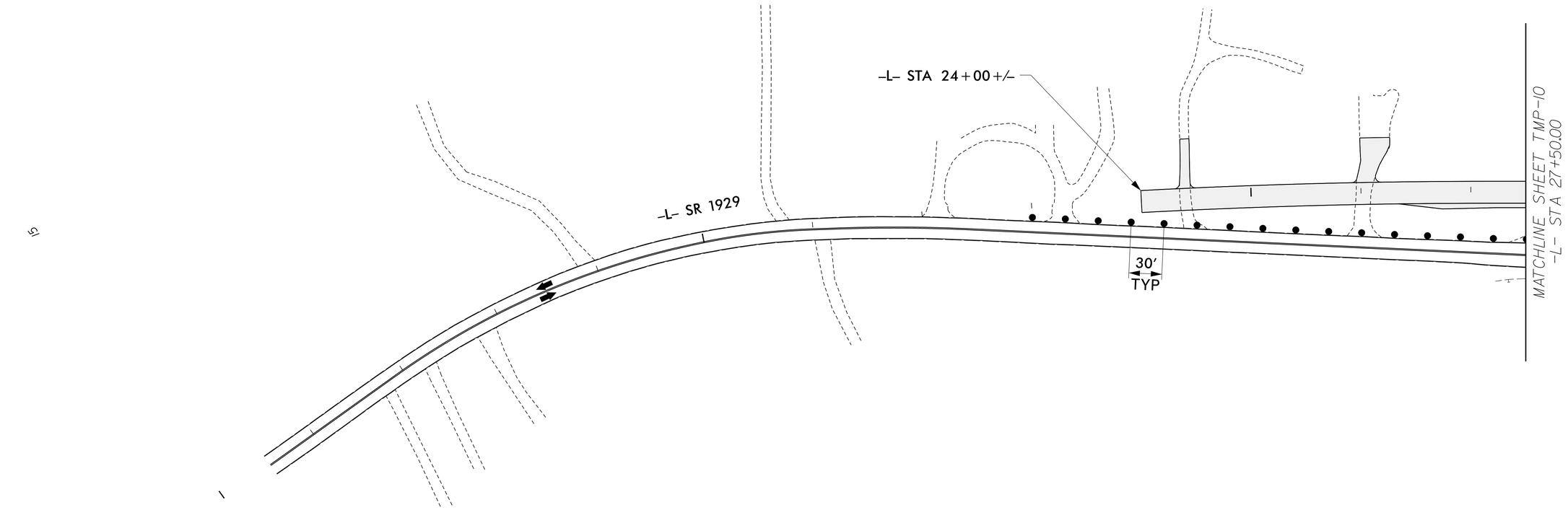
PROJ. REFERENCE NO.	SHEET NO.
BR-0097	TMP-09

NAD 83 NA 2011

MAINTAIN ACCESS TO DRIVES USING INCIDENTAL STONE



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PHASE 2 STEP 3 DETAILS

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gmoslin

PROJ. REFERENCE NO.	SHEET NO.
BR-0097	TMP-10

NAD 83 NA 2011

MAINTAIN ACCESS TO DRIVES USING INCIDENTAL STONE

R11-2
48" x 30"
ROAD CLOSED
TYPE III BARRICADE(S)

R11-2
48" x 30"
ROAD CLOSED
TYPE III BARRICADE(S)

-Y- US 29

-L- STA 37+00 +/-

-L- SR 1929

30'
TYP.

MATCHLINE SHEET TMP-09
-L- STA 27+50.00

30
35
40
15
20

6/17/2024
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gmcclim

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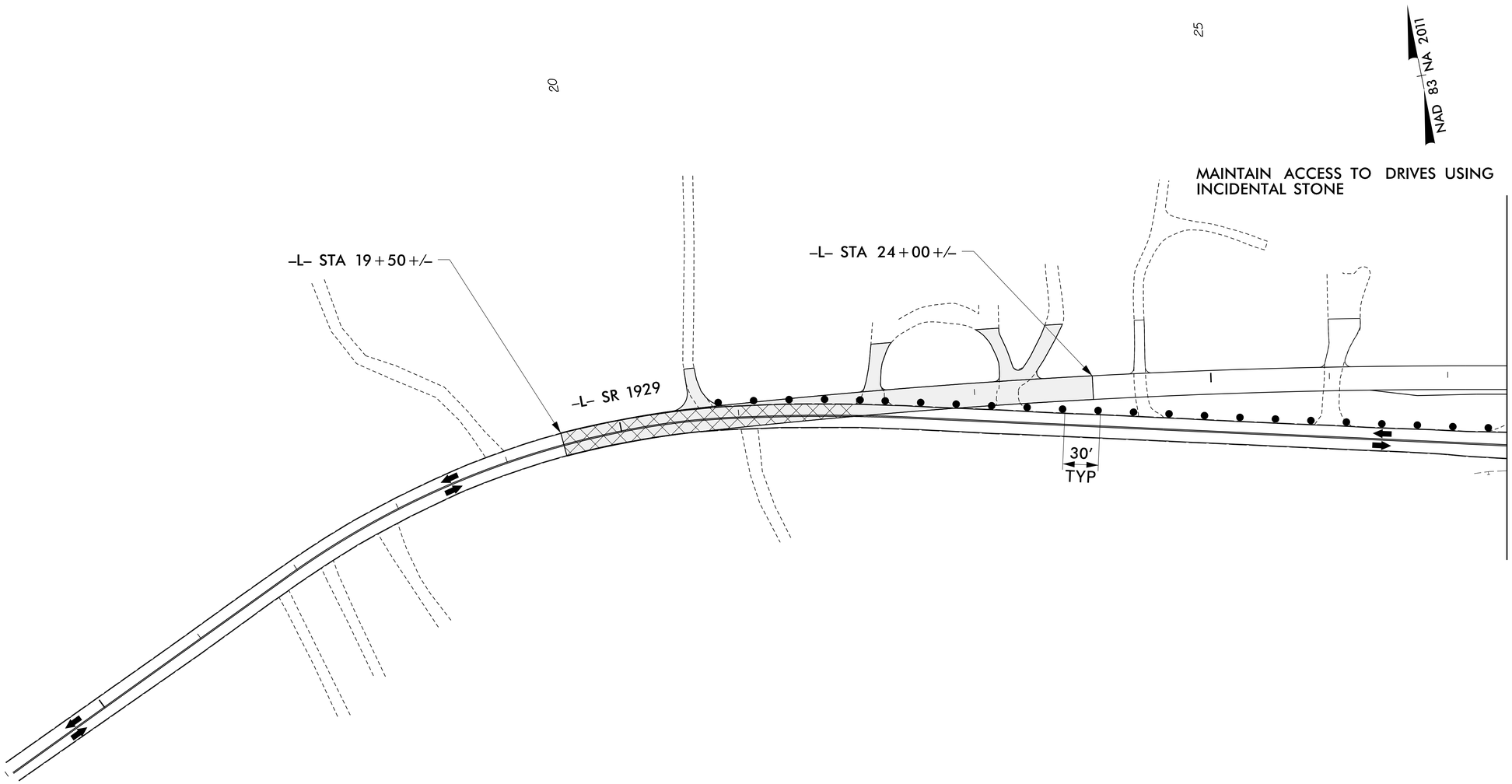
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

PHASE 2 STEP 3 DETAILS

PROJ. REFERENCE NO.	SHEET NO.
BR-0097	TMP-11



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PHASE 2 STEP 4 DETAILS

PROJ. REFERENCE NO.	SHEET NO.
BR-0097	TMP-12

MAINTAIN ACCESS TO DRIVES USING INCIDENTAL STONE

NAD 83 NA 2011

R11-2
48" x 30"
ROAD CLOSED
TYPE III BARRICADE(S)

R11-2
48" x 30"
ROAD CLOSED
TYPE III BARRICADE(S)

-Y- US 29

-L- SR 1929

-L- STA 37+00+/-

30'
TYP

MATCHLINE SHEET TMP-11
-L- STA 27+50.00

MATCHLINE SHEET TMP-13
-L- STA 41+50.00

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RALEIGH, NORTH CAROLINA 27609
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PHASE 2 STEP 4 DETAILS

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gmcclin

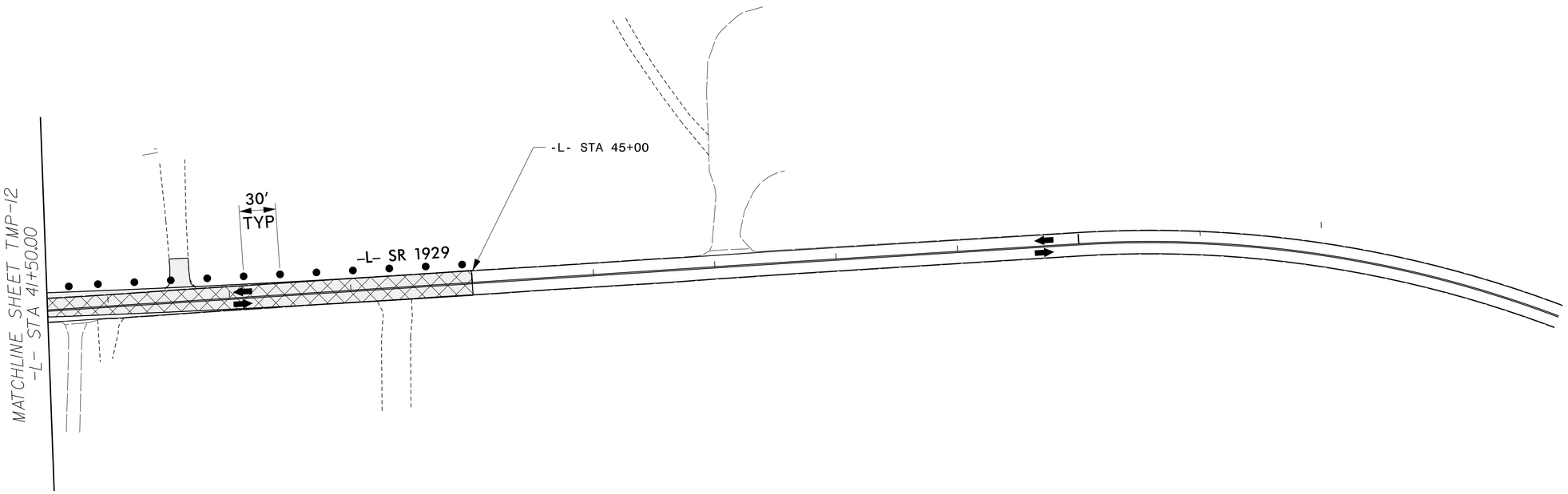
PROJ. REFERENCE NO.	SHEET NO.
BR-0097	TMP-13

NAD 83 NA 2011

MAINTAIN ACCESS TO DRIVES USING INCIDENTAL STONE

45

50



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PHASE 2 STEP 4 DETAILS

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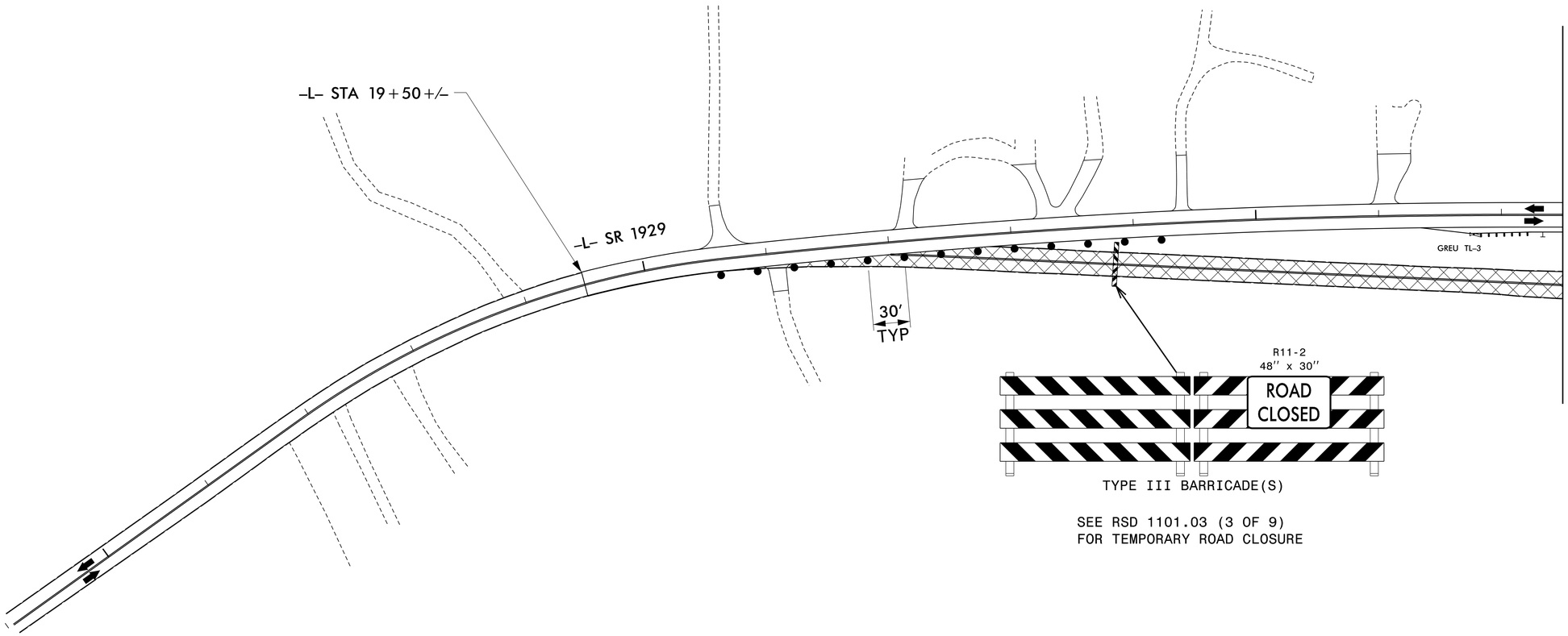
PROJ. REFERENCE NO.	SHEET NO.
BR-0097	TMP-14

NAD 83 NA 2011



TYPE III BARRICADE(S)

SEE RSD 1101.03 (3 OF 9)
FOR TEMPORARY ROAD CLOSURE

MATCHLINE SHEET TMP-15
–L– STA 27+50.00

15 20 25

1/4/2024
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PHASE 3 STEP 1 DETAILS

PROJ. REFERENCE NO.	SHEET NO.
BR-0097	TMP-15

NAD 83 NA 2011

30

35

40

-Y- US 29

TYPE 350
ATTENUATOR

-L- SR 1929

GREU TL-3

B-77

B-77

B-77

B-77

GREU TL-3

GREU TL-3

MATCHLINE SHEET TMP-14
-L- STA 27+50.00

MATCHLINE SHEET TMP-16
-L- STA 41+50.00

30'
TYP

TYPE 350
ATTENUATOR

REMOVE EXISTING
STRUCTURE

R11-2
48'' x 30''

ROAD
CLOSED

TYPE III BARRICADE(S)
SEE RSD 1101.03 (3 OF 9)
FOR TEMPORARY ROAD CLOSURE

15

20

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DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

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PHASE 3 STEP 1
DETAILS

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gmcallin

PROJ. REFERENCE NO.	SHEET NO.
BR-0097	TMP-16

NAD 83 NA 2011

45

50

-L- STA 45+00

-L- SR 1929

MATCHLINE SHEET TMP-15
-L- STA 41+50.00

30'
TYP

1/4/2024
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gmcclin

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PHASE 3 STEP 1 DETAILS