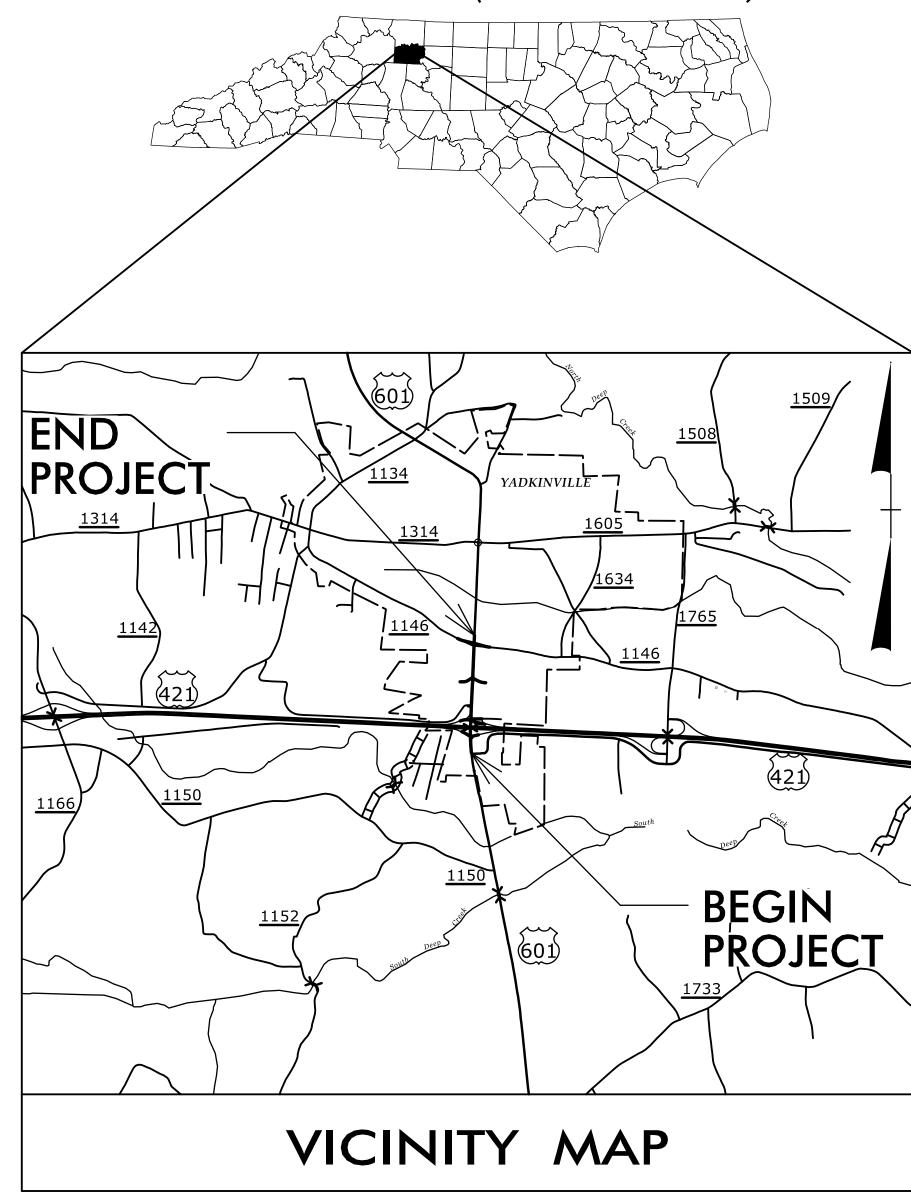
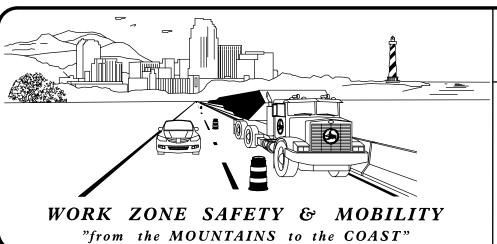
TRANSPORTATION MANAGEMENT PLAN

YADKIN COUNTY

LOCATION: US 601 FROM SR 1742 (SHARON DR) TO SR 1146 (LEE AVENUE)



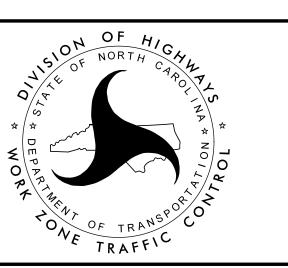
NCDOT CONTACT INFORMATION: Phone: 336 903 9134 Fax: 336 667 4549 RAMIE SHAW Division Project Manager



PLAN PREPARED FOR N.C.D.O.T. BY:



DON PARKER, PE PROJECT ENGINEER SANDRA MELVIN DESIGN ENGINEER



INDEX OF SHEETS

SHEET NO. <u>TITLE</u>

TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS TMP-1A LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND, AND TEMPORARY PAVEMENT MARKING SCHEDULE

TRANSPORTATION OPERATIONS PLAN: (GENERAL NOTES) TMP-1B TMP-2 DETOURS AT RAMP CLOSURES

TMP-2B PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING

BEROTH DR (-Y1-) DETOUR

LOCATIONS

TMP-2A

TMP-2C TEMPORARY SHORING DATA

TEMPORARY TRAFFIC CONTROL PHASING TMP-4 THRU TMP-6 TEMPORARY TRAFFIC CONTROL PHASE I TEMPORARY TRAFFIC CONTROL PHASE II TMP-7 THRU TMP-9

> **DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**



ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" 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:

TITLE STD. NO.

1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUMS
1135.01	CONES
	BARRICADES
	FLAGGING DEVICES
	TRUCK MOUNTED ATTENUATOR
	PORTABLE CONCRETE BARRIER
	SKINNY - DRUMS
	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
	PAVEMENT MARKINGS - EXITS AND ENTRANCE RAMPS
	PAVEMENT MARKINGS - INTERSECTIONS
	PAVEMENT MARKINGS - TURN LANES
	PAVEMENT MARKINGS - PEDESTRIAN CROSSWALKS
	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1205.14	PAVEMENT MARKINGS - ROUNDABOUTS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

TROUT REFERENCE TO	
U-5809	TMP-1A

TGS ENGINEERS
201 W. MARION ST, STE 200
SHELBY, NC 28150
PH (704) 476–0003
CORP. LICENSE NO.: C-0275

LEGEND

GENERAL

DIRECTION OF TRAFFIC FLOW

DIRECTION OF PEDESTRIAN TRAFFIC FLOW

·--- EXIST. PVMT.

NORTH ARROW

— PROPOSED PVMT.

TEMP. SHORING (LOCATION PURPOSES ONLY)

WORK AREA

REMOVAL

SIGNALS







PAVEMENT MARKINGS

----EXISTING LINES ——TEMPORARY LINES

TRAFFIC CONTROL DEVICES

BARRICADE (TYPE III)

DRUM SKINNY DRUM O TUBULAR MARKER

TEMPORARY CRASH CUSHION

FLASHING ARROW BOARD

FLAGGER

LAW ENFORCEMENT

TRUCK MOUNTED ATTENUATOR (TMA)

CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

PORTABLE SIGN

STATIONARY SIGN

STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

CRYSTAL/CRYSTAL ◆ YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

PAVEMENT MARKING SYMBOLS

TEMPORARY PAVEMENT MARKING SCHEDULE

DESCRIPTION

PAVEMENT MARKINGS

PAINT (4")

(4") WHITE EDGELINE

(4") WHITE SOLID LANE LINE (4'') 3 FT. - 9 FT./SP WHITE MINISKIP

(4") 2 FT. - 6 FT./SP WHITE MINISKIP (4") YELLOW EDGELINE (4") YELLOW SINGLE CENTER

(4") 10 FT. YELLOW SKIP (4") YELLOW DOUBLE CENTER

PAINT (8")

(8") YELLOW DIAGONAL

PAINT (24")

(24") WHITE STOPBAR

DESCRIPTION

PAINT MARKING SYMBOLS

LEFT TURN ARROW P71 RIGHT TURN ARROW COMBO.STRAIGHT/RIGHT STRAIGHT ARROW

MERGE ARROW

APPROVED: Don A. Parker DATE: ___ ^{3/27/2024}

DOCUMENT NOT CONSIDERED FINAL **UNLESS ALL SIGNATURES COMPLETED**

ROADWAY STANDARD DRAWINGS, LEGEND, & TEMPORARY PAVEMENT MARKING SCHEDULE

PROJ. REFERENCE NO. SHEET NO. U-5809 TMP-1B

TGS ENGINEERS
201 W. MARION ST, STE 200
SHELBY, NC 28150
PH (704) 476–0003
CORP. LICENSE NO.: C–0275

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

NOTE: THE LANE CLOSURE RESTRICTIONS FOR US 601 (-L-) DESCRIBED BELOW APPLY AT ALL TIMES WITH THE EXCEPTION OF THE LONG-TERM LANE REDUCTIONS REQUIRED BY AND DETAILED IN THE TRANSPORTATION MANAGEMENT PLAN. THEY DO APPLY TO ANY SHORT-TERM LANE CLOSURES INSTALLED DURING THE LONG-TERM TEMPORARY PATTERNS WITH LANE REDUCTIONS. THE AFFECTED PHASING STEPS INCLUDE: PHASE I, STEP 4 THRU PHASE III, STEP 1 (SEE TMP-4 THRU 9)

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

ROAD NAME

DAY AND TIME RESTRICTIONS

US 601 (-L) US 421 AND RAMPS MONDAY THRU SUNDAY 6:00 AM TO 9:00 PM

PINE ST (-Y-)
BEROTH ST (Y1-)
MAPLE ST (-Y2- & -Y3-)

LEE AVE (-Y4- & -Y5-)

MONDAY THRU FRIDAY
6:00 AM TO 9:00 AM AND
4:00 PM TO 7:00 PM

....

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

ROAD NAME

US 601 (-L-) US 421 AND RAMPS

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 6:00 A.M. DECEMBER 31st TO 9:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 9:00 P.M. THE FOLLOWING TUESDAY.
- 3. FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 9:00 P.M. MONDAY.
- 4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 9:00 P.M. TUESDAY.
- 5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 9:00 P.M. THE DAY AFTER INDEPENDENCE DAY.

IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 6:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 9:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.

- 6. FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 9:00 P.M. TUESDAY.
- 7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 9:00 P.M. MONDAY.
- 8. FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 9:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.
- C) DO NOT CLOSE ROADS AS FOLLOWS:

ROAD NAME DAY AND TIME RESTRICTIONS

US 601 RAMPS MONDAY THRU SUNDAY
BEROTH DR (-Y1-) 5:00 AM TO 10:00 PM

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

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

- WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL
 OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO
 THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED
 BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR
 EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
-) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.
- DO NOT INSTALL MORE THAN ONE LANE CLOSURE IN ANY ONE DIRECTION ON US 601.
- J) PROVIDE TRAFFIC CONTROL FOR APPROPRIATE LANE CLOSURES FOR SURVEYING DONE BY THE DEPARTMENT.

PAVEMENT EDGE DROP OFF REQUIREMENTS

K) 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.

L) 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) 100 FT IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

- N) 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.
- 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) 100 FT IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC CONTROL DEVICES

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

PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING	MARKER
US 601 (-L-) US 421 RAMPS	PAINT PAINT	TEMPORARY RAISED NONE
PINE ST (-Y-)	PAINT	NONE
MAPLE ST (-Y2- & -Y3-)	PAINT	NONE
LEE AVENUE (-Y4- & -Y5-)	PAINT	NONE

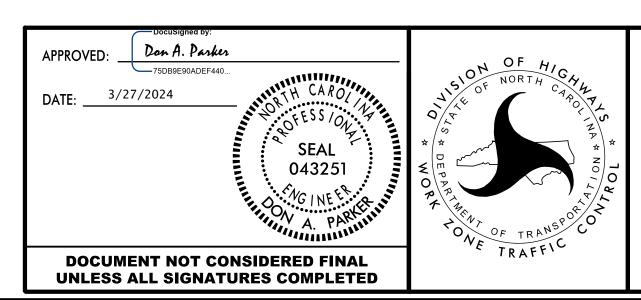
- T) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.
- U) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- V) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.
- W) TRACE THE PROPOSED MONOLITHIC ISLAND LOCATIONS WITH PROPER COLOR PAVEMENT MARKINGS PRIOR TO INSTALLATION.
 PLACE DRUMS TO DELINEATE ANY PROPOSED MONOLITHIC ISLANDS

MISCELLANEOUS

- X) LAW ENFORCEMENT MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS AS DIRECTED BY THE ENGINEER.
- Y) ALL CURB RAMP LOCATIONS SHALL BE DERIVED FROM STATIONING SHOWN ON PAVEMENT MARKING PLANS OR AS DIRECTED BY THE ENGINEER IN COORDINATION WITH THE SIGNING AND DELINEATION UNIT.
- Z) CONTRACTOR SHALL MAINTAIN SIDEWALK ACCESS AT ALL TIMES AS STATED IN THE PHASING.

MANAGEMENT STRATEGIES

THE PROPOSED US 601 (-L-), US 421 ON AND OFF RAMPS, PINE ST (-Y-), MAPLE ST (-Y2- & -Y3-), AND LEE AVENUE (-Y4- & -Y5-), INCLUDING THE PROPOSED ROUNDABOUTS WILL BE CONSTRUCTED USING TEMPORARY LANE CLOSURES AND FLAGGERS AS NEEDED.

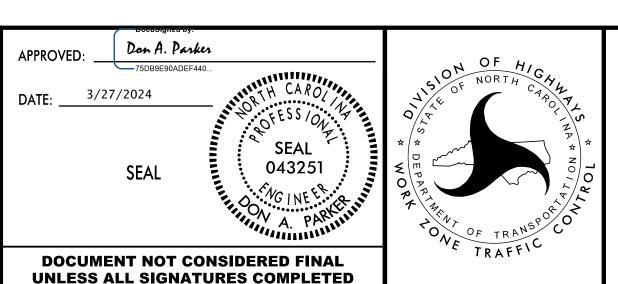


TRANSPORTATION OPERATIONS PLAN

PORTABLE SIGN

DETOUR ROUTE

- 1. THIS DRAWING IS INTENDED FOR USE DURING SHORT TERM (72 HOURS OR LESS) CLOSURES OF RAMPS.
- 2. THIS SHEET SHALL BE USED IN CONJUNCTION WITH RSD 1101.02, SHEETS 12 OR 13, FOR TRAFFIC CONTROL DEVICES REQUIRED TO CLOSE RAMPS.
- 3. RAMP CLOSURES SHALL BE APPROVED BY THE ENGINEER.
- 4. IF RAMP CLOSURE RESTRICTIONS APPLY, SEE "INTERMEDIATE CONTRACT TIMES AND LIQUIDATED DAMAGES".



DETOURS AT RAMP CLOSURES

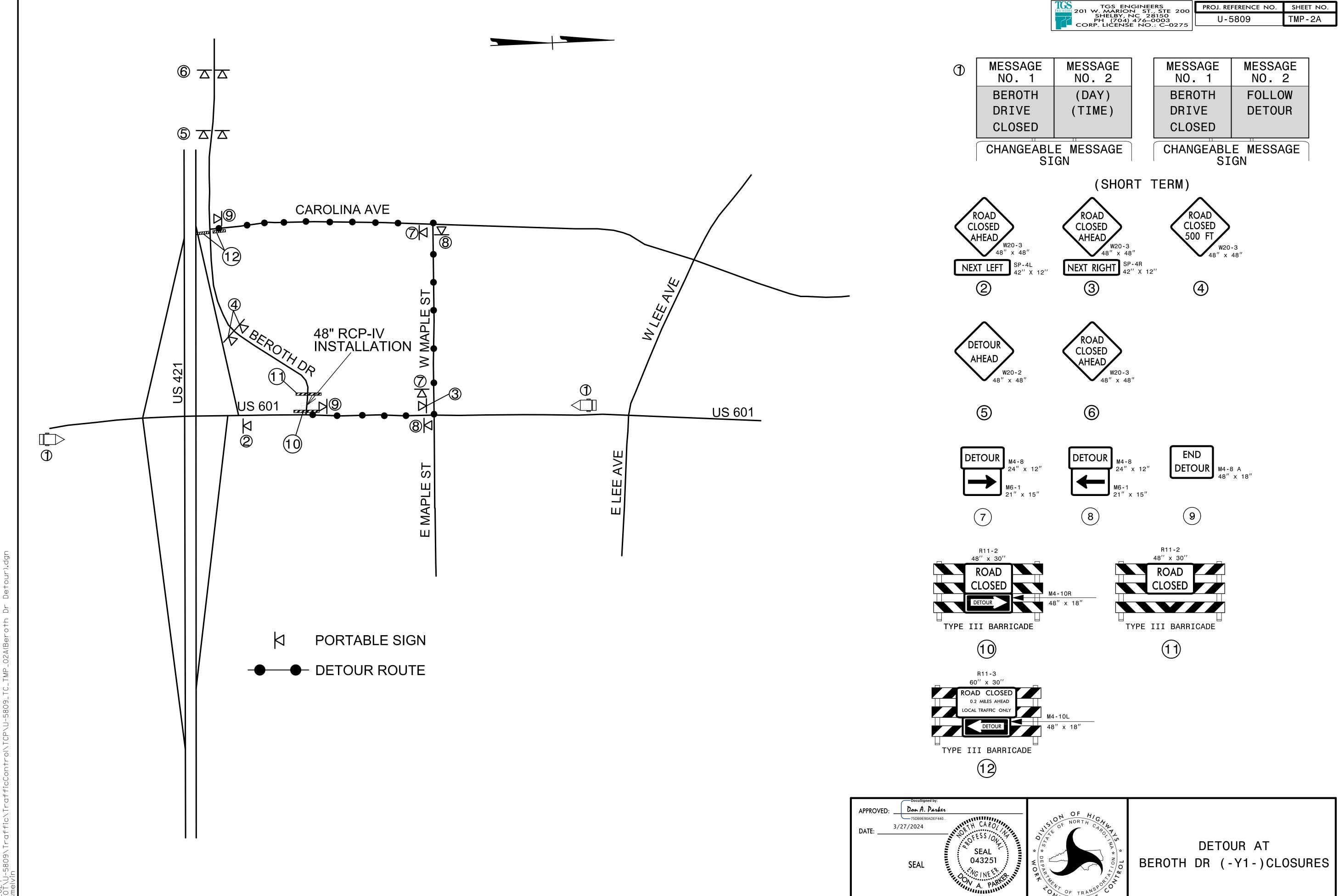
PROJ. REFERENCE NO.

U-5809

SHEET NO.

TMP-2

TGS ENGINEERS 201 W. MARION ST., STE 200 SHELBY, NC 28150 PH (704) 476–0003 CORP. LICENSE NO.: C–0275



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

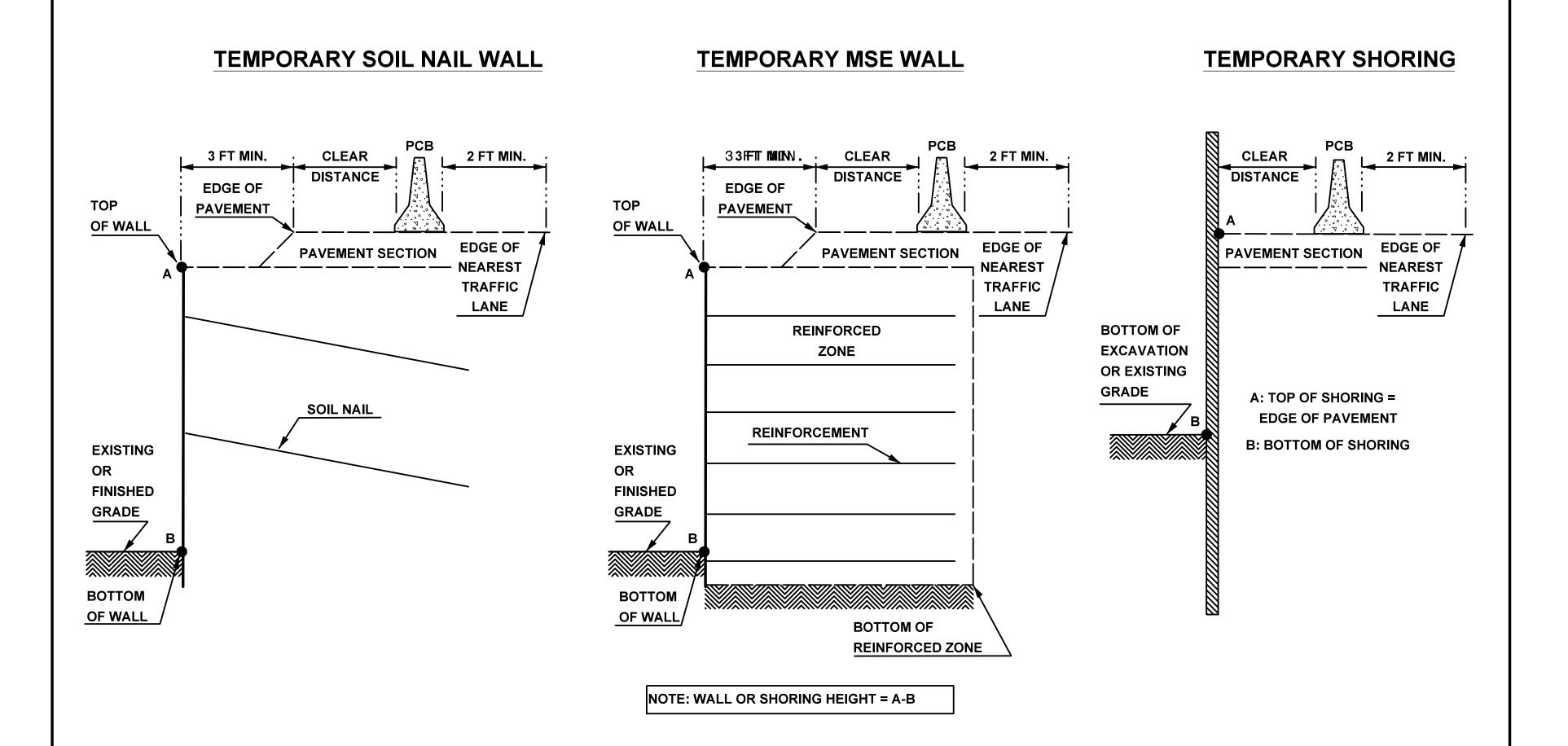


FIGURE A

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.

MINIM	UM RE	QUIRED	CLEAR	DISTA	NCE.	inche
144 4 1 4 4 14		QUILLD	CLLIII		\mathbf{L}_{1}	

Barrier	Pavement	Offset *	Design Speed, mph					
Type	Type	ft	<30	31-40	41-50	51-60	61-70	71-80
		<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
	Asphalt	26-32	29	32	36	39	42	45
	T I	32-38	30	34	38	41	43	46
PCB		38-44	31	34	41	43	45	48
P(44-50	31	35	41	43	46	49
		50-56	32	36	42	44	47	50
Unanchored		>56	32	36	42	45	47	51
, ho		<8	17	18	21	22	25	26
nc		8-14	19	20	23	25	26	29
n a		14-20	22	22	24	26	28	31
n		20-26	23	24	26	27	30	34
	Concrete	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

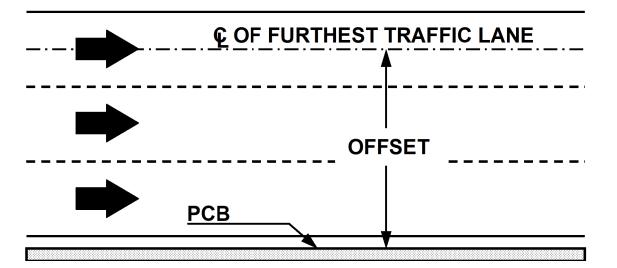
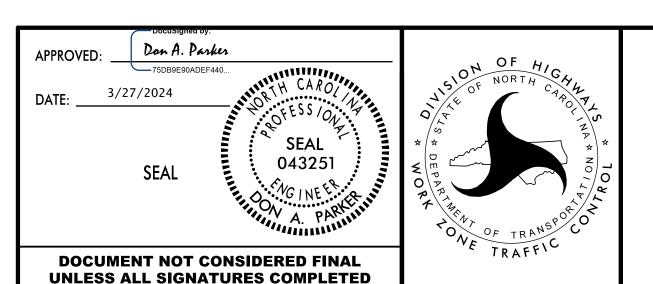


FIGURE B



PORTABLE CONCRETE BARRIER
AT
TEMPORARY SHORING LOCATIONS

TEMPORARY SHORING DATA

PROJ. REFERENCE NO. SHEET NO. U-5809 TMP-2C

Shoring Location No. 1 (CUT SHORING):

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

TEMPORARY SHORING IS REQUIRED FOR 48-INCH PIPE CONSTRUCTION BETWEEN EXISTING US 421 AND RPB, FROM -RPB- STATION 9+25, 57 FT RT TO -RPB- STATION 10+40, 57 FT 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 -RPB- STATION 9+25 TO -RPB- STATION 10+15, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

ABOVE ELEVATION 893 FT
UNIT WEIGHT (γ) = 120 LB/CF
FRICTION ANGLE (φ) = 30 DEGREES
COHESION (c) = 0 LB/SF

ELEVATION 893 TO ELEVATION 882 FT UNIT WEIGHT (γ) = 110 LB/CF FRICTION ANGLE (φ) = 24 DEGREES COHESION (c) = 0 LB/SF GROUNDWATER ELEVATION = 884FT

ELEVATION 882 TO ELEVATION 873 FT UNIT WEIGHT (γ) = 115 LB/CF FRICTION ANGLE (φ) = 26 DEGREES COHESION (c) = 0 LB/SF

BELOW ELEVATION 873 FT UNIT WEIGHT (γ) = 120 LB/CF FRICTION ANGLE (φ) = 30 DEGREES COHESION (c) = 0 LB/SF

DESIGN TEMPORARY SHORING FROM -RPB- STATION 10+15 TO -RPB- STATION 10+40, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

ABOVE ELEVATION 886 FT

UNIT WEIGHT $(\gamma) = 115 \text{ LB/CF}$ FRICTION ANGLE $(\phi) = 26 \text{ DEGREES}$ COHESION (c) = 0 LB/SF

BELOW ELEVATION 886 FT

UNIT WEIGHT (γ) = 120 LB/CF

FRICTION ANGLE (φ) = 30 DEGREES

COHESION (c) = 0 LB/SF

GROUNDWATER ELEVATION = 884 FT

DRIVEN PILING FOR TEMPORARY SHORING FROM -RPB- STATION 9+25, 31 FT RT TO -RPB- STATION 10+40, 57 FT RT MAY NOT PENETRATE BELOW ELEVATION 865 FT DUE TO OBSTRUCTIONS, VERY DENSE OR HARD SOIL, BOULDERS OR WEATHERED OR HARD ROCK.

Shoring Location No. 2 (CUT SHORING):

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

TEMPORARY SHORING IS REQUIRED FOR 48-INCH PIPE CONSTRUCTION BETWEEN EXISTING US 421 AND RPB, FROM -RPB- STATION 9+25, 55 FT RT TO -RPB- STATION 10+40, 81 FT 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 -RPB- STATION 9+25 TO -RPB- STATION 10+15, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

ABOVE ELEVATION 893 FT

UNIT WEIGHT (γ) = 120 LB/CF

FRICTION ANGLE (φ) = 30 DEGREES

COHESION (c) = 0 LB/SF

ELEVATION 893 TO ELEVATION 882 FT UNIT WEIGHT (γ) = 110 LB/CF FRICTION ANGLE (φ) = 24 DEGREES COHESION (c) = 0 LB/SF GROUNDWATER ELEVATION = 884FT

ELEVATION 882 TO ELEVATION 873 FT UNIT WEIGHT (γ) = 115 LB/CF FRICTION ANGLE (φ) = 26 DEGREES COHESION (c) = 0 LB/SF

BELOW ELEVATION 873 FT UNIT WEIGHT (γ) = 120 LB/CF FRICTION ANGLE (φ) = 30 DEGREES COHESION (c) = 0 LB/SF

DESIGN TEMPORARY SHORING FROM -RPB- STATION 10+15 TO -RPB- STATION 10+40, FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

ABOVE ELEVATION 886 FT
UNIT WEIGHT (γ) = 115 LB/CF
FRICTION ANGLE (φ) = 26 DEGREES
COHESION (c) = 0 LB/SF

BELOW ELEVATION 886 FT

UNIT WEIGHT (γ) = 120 LB/CF

FRICTION ANGLE (φ) = 30 DEGREES

COHESION (c) = 0 LB/SF

GROUNDWATER ELEVATION = 884 FT

DRIVEN PILING FOR TEMPORARY SHORING FROM -RPB- STATION 9+25, 55 FT RT TO -RPB- STATION 10+40, 81 FT RT MAY NOT PENETRATE BELOW ELEVATION 867 FT DUE TO OBSTRUCTIONS, VERY DENSE OR HARD SOIL, BOULDERS OR WEATHERED OR HARD ROCK.

DO NOT USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM -RPB- STATION 9+25, 55 FT RT TO -RPB- STATION 10+40, 81 FT RT. CONTRACTOR DESIGNED SHORING IS REQUIRED. SEE TEMPORARY SHORING SPECIAL PROVISION.

DO NOT USE A TEMPORARY SOIL NAIL WALL FOR TEMPORARY SHORING FROM -RPB- STATION 9+25, 55 FT RT TO -RPB- STATION 10+40, 81 FT RT.



TEMPORARY
SHORING DATA

TGS ENGINEERS
804–C N. LAFAYETTE ST
SHELBY, NC 28150
PH (704) 476–0003
CORP. LICENSE NO.: C–0275

PHASE I

STEP 1

INSTALL WORK ZONE ADVANCE WARNING SIGNS IN ACCORDANCE WITH RSD 1101.01.

STEP 2

USING LANE CLOSURES AND LAW ENFORCEMENT, INSTALL TEMPORARY SIGNAL AT US 601/RAMP C AND D, US 601/RAMP A AND B, AND US 601/LEE ST. COVER SIGNAL HEADS. (SEE RSD 1101.02, SHEET 1-3 AND SIGNAL PLANS).

USING LANE CLOSURES, INSTALL GUARDRAIL ALONG US 421 WB, PORTABLE CONCRETE BARRIER ALONG RAMP B, AND TEMPORARY SHORING FOR DRAINAGE INSTALLATION.

PRIOR TO SHIFTING TRAFFIC INTO PHASE I TEMPORARY TRAFFIC PATTERN AND USING LANE CLOSURES AND RAMP CLOSURES, BEGIN ROADWAY DRAINAGE AND UTILITY CONSTRUCTION INCLUDING DRAINAGE STRUCTURES 401-404, 408-430, 447-455, 466-467, 471-472, 510,555, 564-566, 571, 604-605, and 618. (SEE RSD 1101.02, 1-3, AND TMP-2).

FOR DRAINAGE STRUCTURES 404, 410-412, 418, 422-427, 430, 510,555, 566,571,604-605, AND 618, USE PRECAST STRUCTURES INSTALLED TO A TEMPORARY ELEVATION. COVER WITH STEEL PLATE, BACKFILL, AND PAVE. FIELD VERIFY ELEVATIONS PRIOR TO MANUFACTURE.

STEP 3

USING LANE CLOSURES AND LAW ENFORCEMENT, REMOVE CONFLICTING PAVEMENT MARKINGS AND INSTALL TEMPORARY PHASE I MARKINGS, UNCOVER SIGNAL HEADS AND SHIFT TRAFFIC TO THE PHASE I PATTERN. (SEE RSD 1101.02, SHEET 1-3 AND TMP-4 THRU 6.)

STEP 4

AWAY FROM TRAFFIC AND USING LANE, RAMP, AND ROAD CLOSURES AS NEEDED, INSTALL REMAINING LEFT SIDE DRAINAGE, CURB AND GUTTER, PAVING TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT, SIDEWALK, AND BERM AS SHOWN ON TMP-4 THRU 6 FROM -L- STA. 10+23 +/- TO -L- STA. 38+96 +/- (SEE RSD 1101.02, SHEET 1-3, TMP-2 & TMP-2A).

PAVE AND WEDGE AS DIRECTED BY THE ENGINEER TO MAINTAIN DRAINAGE AND MITIGATE PAVING EDGE DROP OFFS.

DURING LEFT SIDE SIDEWALK CONSTRUCTION, USE ADA COMPLIANT PEDESTRIAN BARRICADES TO KEEP PROPOSED SIDEWALK CLOSED UNTIL CONNECTIVITY IS ACHIEVED (SEE SPECIAL PROVISION).

USING LANE CLOSURES, FLAGGERS, AND LAW ENFORCEMENT, INSTALL AND COVER TEMPORARY PHASE II SIGNAL HEADS (SEE RSD 1101.02, SHEET 1-3 AND SIGNAL PLANS).

STEP 5

PRIOR TO SEVERING THE EXISTING LEFT SIDEWALK BETWEEN FOOD LION AND LEE ST., IMPLEMENT A PEDESTRIAN TRANSPORT SERVICE TO MAINTAIN THIS ACCESS (SEE SPECIAL PROVISION). ESTABLISH PICK UP/DROP OFF LOCATIONS AS DIRECTED BY THE ENGINEER.

STEP 6

AWAY FROM TRAFFIC AND USING LANE CLOSURES AS NEEDED, INSTALL REMAINING LEFT SIDE DRAINAGE, CURB AND GUTTER, PAVING TO THE EDGE AND ELEVATION OF EXITING PAVEMENT, SIDEWALK, AND BERM AS SHOWN ON TMP-6 -L- STA. 38+96 +/- TO -L- STA. 44+45 +/-. (SEE RSD 1101.02, SHEET 1-3).

PAVE AND WEDGE AS DIRECTED BY THE ENGINEER TO MAINTAIN DRAINAGE AND MITIGATE PAVING EDGE DROP OFFS.

RE-ESTABLISH SIDEWALK CONNECTIVITY BETWEEN FOOD LION AND LEE ST. AND DISCONTINUE PEDESTRIAN TRANSPORT SERVICE.

PHASE II

STEP 1

USING LANE CLOSURES AND LAW ENFORCEMENT, REMOVE CONFLICTING PAVEMENT MARKINGS AND INSTALL TEMPORARY PHASE II MARKINGS, UNCOVER SIGNAL HEADS AND SHIFT TRAFFIC TO THE PHASE II PATTERN. (SEE RSD 1101.02, SHEET 1-3 AND TMP-7 THRU 9.)

STEP 2

USE ADA COMPLIANT PEDESTRIAN BARRICADES TO CLOSE EXISTING RIGHT SIDEWALK SOUTH OF MAPLE ST. (SEE SPECIAL PROVISION AND TMP-7-9).

AWAY FROM TRAFFIC AND USING LANE AND RAMP CLOSURES AS NEEDED, INSTALL RIGHT SIDE DRAINAGE, CURB AND GUTTER, PAVING TO THE EDGE AND ELEVATION OF EXITING PAVEMENT, SIDEWALK, AND BERM AS SHOWN ON TMP-7 AND 8 FROM -L- STA. 10+14 +/- TO -L- STA. 31+70 +/- (SEE RSD 1101.02, SHEET 1-3, TMP-2).

PAVE AND WEDGE AS DIRECTED BY THE ENGINEER TO MAINTAIN DRAINAGE AND MITIGATE PAVING EDGE DROP OFFS.

DURING RIGHT SIDE SIDEWALK CONSTRUCTION, USE ADA COMPLIANT PEDESTRIN BARRICADES TO KEEP PROPOSED SIDEWALK CLOSED UNTIL CONNECTIVITY IS ACHIEVED (SEE SPECIAL PROVISION).

STEP 3

PRIOR TO SEVERING THE EXISTING RIGHT SIDEWALK BETWEEN MAPLE AND LEE ST., IMPLEMENT A PEDESTRIAN TRANSPORT SERVICE TO MAINTAIN THIS ACCESS (SEE SPECIAL PROVISION. ESTABLISH PICK UP/DROP OFF LOCATIONS AS DIRECTED BY THE ENGINEER.

STEP 4

AWAY FROM TRAFFIC AND USING LANE CLOSURES AS NEEDED INSTALL REMAINING RIGHT SIDE DRAINAGE, CURB AND GUTTER, PAVING TO THE EDGE AND ELEVATION OF EXITING PAVEMENT, SIDEWALK, AND BERM AS SHOWN ON TMP 8 AND 9 FROM -L- STA. 31+92 +/- TO STA. 44+64 +/- (SEE RSD 1101.02, SHEET 1-3)

PAVE AND WEDGE AS DIRECTED BY THE ENGINEER TO MAINTAIN DRAINAGE AND MITIGATE PAVING EDGE DROP OFFS.

PHASE III

STEP 1

UNLESS DIRECTED OTHERWISE BY THE ENGINEER, WORK NORTH TO SOUTH ALONG US 601 TO INSTALL THE PHASE III TRAFFIC PATTERN

A.
USING FLAGGERS, INSTALL TEMPORARY PAINT PAVEMENT MARKINGS IN
THE FINAL PATTERN AND OPEN THE US 601/LEE ST. INTERSECTION TO
THE RAB PATTERN WITH PROPOSED APRON AND SPLITTER ISLANDS DRUMMED OFF.
(SEE SHEETS 1101.02, SHEET 1 AND 18, AND FINAL PAVEMENT MARKING PLAN.)

SEE RSD 1101.11, SHEET 1 FOR SHIFTING TAPERS TO TIE TEMPORARY MARKINGS BACK TO US 601 PHASE II PATTERN

REMOVE EXISTING SIGNAL.

USING FLAGGERS, INSTALL TEMPORARY PAINT PAVEMENT MARKINGS IN THE FINAL PATTERN AND OPEN THE US 601/MAPLE ST. INTERSECTION TO THE RAB PATTERN WITH PROPOSED APRON AND SPLITTER ISLANDS DRUMMED OFF. (SEE SHEETS 1101.02, SHEET 1, 18, AND 19, AND FINAL PAVEMENT MARKING PLAN).

SEE RSD 1101.11, SHEET 1 FOR SHIFTING TAPERS TO TIE TEMPORARY MARKINGS BACK TO US 601 PHASE II PATTERN

USING FLAGGERS, INSTALL TEMPORARY PAINT PAVEMENT MARKINGS IN THE FINAL PATTERN AND OPEN THE US 601/RAMP A AND B/PINE ST INTERSECTION TO THE RAB PATTERN WITH PROPOSED APRON AND SPLITTER ISLANDS DRUMMED OFF. (SEE SHEETS 1101.02, SHEET 1, 18, AND 19, AND FINAL PAVEMENT MARKING PLAN.)

SEE RSD 1101.11, SHEET 1 FOR SHIFTING TAPERS TO TIE TEMPORARY MARKINGS BACK TO US 601 PHASE II PATTERN

REMOVE EXISTING SIGNAL.

D.
USING FLAGGERS, INSTALL TEMPORARY PAINT PAVEMENT MARKINGS IN
THE FINAL PATTERN AND OPEN THE US 601/RAMP C AND D
INTERSECTION TO THE RAB PATTERN WITH PROPOSED APRON AND SPLITTER
ISLANDS DRUMMED OFF. (SEE SHEETS 1101.02, SHEET 1,
18, AND 19, AND FINAL PAVEMENT MARKING PLAN.)

REMOVE EXISTING SIGNAL.

STEP 2

USING LANE CLOSURES, INSTALL REMAINING CURB AND GUTTER, CONCRETE APRONS AND SPLITTER ISLANDS (SEE SHEETS 1101.02, SHEET 1, 18, AND 19).

COMPLETE AND MAKE OPERATIONAL DRAINAGE STRUCTURES 404, 410-412, 422-427, 510,555, 566,571,604-605, AND 618.

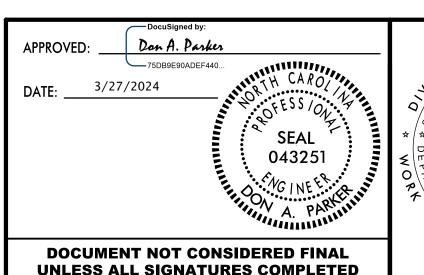
COMPLETE REMAINING SIDEWALK AND FULLY OPEN TO PEDESTRIANS. DISCONTINUE PEDESTRIAN TRANSPORT SERVICE.

STEP 3

USING LANE CLOSURES, PAVE FINAL LAYER OF SURFACE COURSE AND INSTALL FINAL PAVEMENT MARKINGS (SEE RSD 1101.02, SHEET 1, 18, AND 19 AND FINAL PAVEMENT MARKING PLAN.)

STEP 4

REMOVE ALL TRAFFIC CONTROL DEVICES





TEMPORARY TRAFFIC CONTROL PHASING

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