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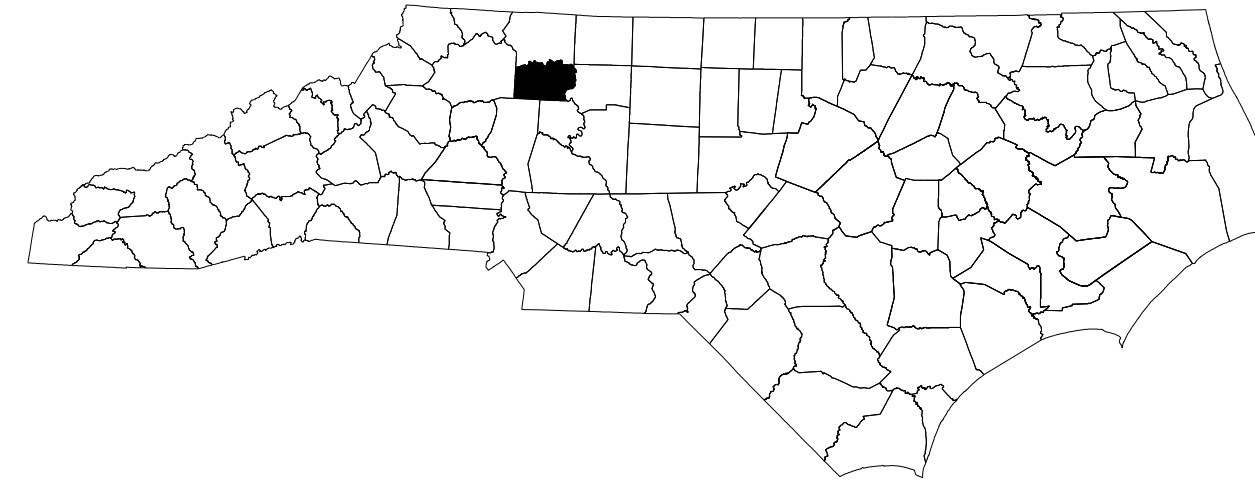
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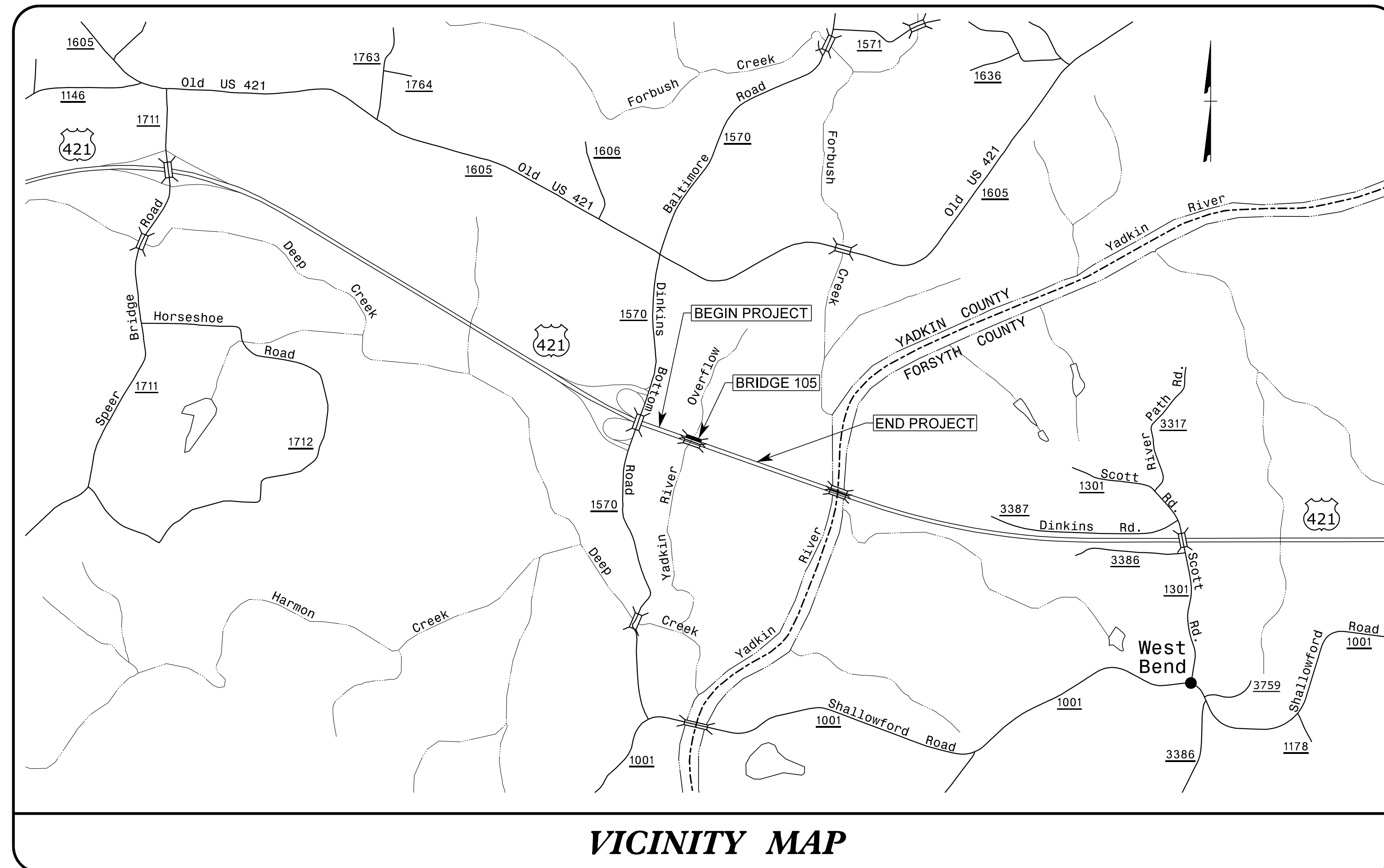
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

YADKIN COUNTY



LOCATION: BRIDGE NO.105 OVER YADKIN RIVER OVERFLOW ON US 421 NORTHBOUND LANES



VICINITY MAP

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
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TMP-1B	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES, GENERAL NOTES AND LOCAL NOTES)
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SHEET NO.

TMP-1

B-5389

TIP PROJECT:

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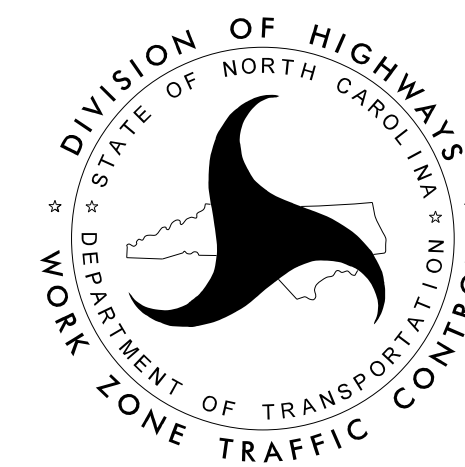
APPROVED: *Don A. Parker*
DATE: 5/28/2019

SEAL



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ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUM
1145.01	BARRICADES
1165.01	TRUCK MOUNTED ATTENUATOR
1180.01	SKINNY-DRUM
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

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
- USER DEFINED (IF NEEDED)
- USER DEFINED (IF NEEDED)

SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM
- SKINNY DRUM
- 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
- CRYSTAL/RED
- YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

TEMPORARY PAVEMENT MARKING

- C6 - WHITE EDGELINE - 6" - COLD APPLIED PLASTIC (TYPE 4)
- C7 - YELLOW EDGELINE - 6" - COLD APPLIED PLASTIC (TYPE 4)
- CJ - 10 FT. WHITE SKIP - 6" - COLD APPLIED PLASTIC (TYPE 4)
- Z7 - 10 FT. WHITE SKIP - 6" - WORK ZONE PERFORMANCE PM
- Z8 - WHITE SOLID LINE - 6" - WORK ZONE PERFORMANCE PM
- Z9 - YELLOW SOLID LINE - 6" - WORK ZONE PERFORMANCE PM

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APPROVED: DATE: 5/28/2019 		ROADWAY STANDARD DRAWINGS & LEGEND
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PROJECT NOTES

MANAGEMENT STRATEGIES

B-5389 IS THE REPLACEMENT OF BRIDGE NO.105 ON US 421 (NBL) OVER YADKIN RIVER OVERFLOW.

THE TRAFFIC MANAGEMENT STRATEGY CONSISTS OF FIRST CONSTRUCTING AN ON-SITE DETOUR FOR NORTHBOUND TRAFFIC (PHASE I). NORTHBOUND TRAFFIC IS SHIFTED ONTO THE DETOUR, ALLOWING FOR THE REMOVAL AND REPLACEMENT OF THE EXISTING NORTHBOUND STRUCTURE (PHASE II).

UPON COMPLETION, NORTHBOUND TRAFFIC IS SHIFTED BACK TO THE NORTHBOUND LANES, ALLOWING FOR THE REMOVAL OF THE ON-SITE DETOUR AND COMPLETION OF NORTHBOUND OUTSIDE PAVED SHOULDERS (PHASE III).

TO IMPROVE SPEED LIMIT COMPLIANCE, TEMPORARY SIGNING, TEMPORARY PAVEMENT MARKING AND DELINEATION OF THE FREEWAY WORK ZONE THE FOLLOWING APPLICATIONS ARE INCLUDED IN THIS TRAFFIC MANAGEMENT PLAN:

- SEQUENTIAL FLASHING LIGHTS ON DRUMS IN MERGE TAPERS
- WORK ZONE PERFORMANCE PAVEMENT MARKINGS
- HIGH VISIBILITY DEVICES

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 421 (NORTHBOUND)	MONDAY THRU FRIDAY 4:00 P.M. TO 6:00 P.M.

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

ROAD NAME
US 421 (NORTHBOUND)

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 7:00 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 6:00 A.M. THURSDAY TO 6:00 P.M. MONDAY.
4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 6:00 P.M. TUESDAY.
5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 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 6:00 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 6:00 A.M. FRIDAY TO 6:00 P.M. TUESDAY.
7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 6:00 P.M. MONDAY.
8. FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 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 CONDUCT SINGLE VEHICLE HAULING AS FOLLOWS; INGRESS AND EGRESS FROM RAMPS BE ALLOWED:

ROAD NAME	DAY AND TIME RESTRICTIONS
US 421 (-LNB-)	MONDAY THRU FRIDAY 4:00 P.M. TO 6:00 P.M.

D) DO NOT CONDUCT MULTI-VEHICLE HAULING AS FOLLOWS; INGRESS AND EGRESS FROM RAMPS BE ALLOWED:

ROAD NAME	DAY AND TIME RESTRICTIONS
US 421 (-LNB-)	MONDAY THRU FRIDAY 4:00 P.M. TO 6:00 P.M.

E) DO NOT CONDUCT ANY HAULING OPERATIONS AGAINST THE FLOW OF TRAFFIC OF AN OPEN TRAVELWAY UNLESS THE HAULING OPERATION IS PROTECTED BY BARRIER OR GUARDRAIL OR AS DIRECTED BY THE ENGINEER.

LANE AND SHOULDER CLOSURE REQUIREMENTS

F) 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.

G) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN 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.

H) 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.

I) 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.

J) 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

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 TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 350 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) 350 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) REFER TO HIGH VISIBILITY DEVICES SPECIAL PROVISION FOR DRUMS, STATIONARY WORK ZONE SIGNS, AND PORTABLE WORK ZONE SIGNS USED ON US 421.

S) SKINNY DRUMS SHALL NOT BE USED ON US 421 FOR ANY TRAFFIC CONTROL SET-UP, INCLUDING LANE CLOSURES OCCURRING AT NIGHT.

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

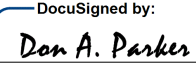
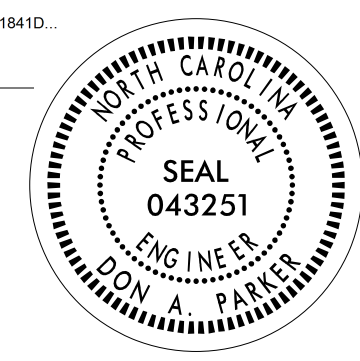

PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING	MARKER
US 421 (-LNB-)	WORK ZONE "PERFORMANCE" MARKINGS	TEMPORARY
US 421 (-DETNB-)	(SEE SPECIAL PROVISIONS)	
US 421 (-LNB-)	COLD APPLIED PLASTIC (IV) (STRUCTURE)	TEMPORARY

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.

APPROVED:  DATE: 5/28/2019			<h2>TRANSPORTATION OPERATIONS PLAN</h2>
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SHORING LOCATION NO.	FROM STATION AND OFFSET	TO STATION AND OFFSET	ESTIMATED AVERAGE HEIGHT	ESTIMATED MAXIMUM HEIGHT	SHORING LOCATION TYPE
NO. 1	STA. 18+10+/- -LNB- 28 FT. LT.	STA. 18+45+/- -LNB- 28 FT. LT.	8.6 FT.	9.1 FT.	STRUCTURE
NO. 2	STA. 18+10+/- -LNB- 22 FT. RT.	STA. 18+45+/- -LNB- 22 FT. RT.	9.1 FT.	9.3 FT.	STRUCTURE
NO. 3	STA. 22+85+/- -LNB- 28 FT. LT.	STA. 23+20+/- -LNB- 28 FT. LT.	8.3 FT.	8.9 FT.	STRUCTURE
NO. 4	STA. 22+85+/- -LNB- 22 FT. RT.	STA. 23+20+/- -LNB- 22 FT. RT.	8.2 FT.	8.8 FT.	STRUCTURE

TEMPORARY SHORING NOTES

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 END BENT INSTALLATION FROM STA. 18+10+/- -LNB-, 28' LT., TO STA. 18+45+/- -LNB-, 28' 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 STA. 18+10+/- -LNB-, 28' LT. TO STA. 18+45+/- -LNB-, 28' LT. FOR THE FOLLOWING ASSUMED SOIL PARAMETERS:

UNIT WEIGHT (γ) = 120 LB/CF
 FRICTION ANGLE (ϕ) = 0 DEGREES
 COHESION (c) = 500 LB/SF
 GROUNDWATER ELEVATION = 720 FT.

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STA. 18+10+/- -LNB-, 28' LT. TO STA. 18+45+/- -LNB-, 28' LT.

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STA. 18+10+/- -LNB-, 28' LT. TO STA. 18+45+/- -LNB-, 28' LT. SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY WALLS.

IT MAY BE PREFERRED TO USE A TEMPORARY SOIL NAIL WALL FOR TEMPORARY SHORING FROM STA. 18+10+/- -LNB-, 28' LT. TO STA. 18+45+/- -LNB-, 28' 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.

TEMPORARY SHORING IS REQUIRED FOR THE END BENT INSTALLATION FROM STA. 18+10+/- -LNB-, 22' RT., TO STA. 18+45+/- -LNB-, 22' 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 STA. 18+10+/- -LNB-, 22' RT. TO STA. 18+45+/- -LNB-, 22' RT. FOR THE FOLLOWING ASSUMED SOIL PARAMETERS:

UNIT WEIGHT (γ) = 120 LB/CF
 FRICTION ANGLE (ϕ) = 0 DEGREES
 COHESION (c) = 500 LB/SF
 GROUNDWATER ELEVATION = 720 FT.

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STA. 18+10+/- -LNB-, 22' RT. TO STA. 18+45+/- -LNB-, 22' RT.

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STA. 18+10+/- -LNB-, 22' RT. TO STA. 18+45+/- -LNB-, 22' RT. SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY WALLS.

IT MAY BE PREFERRED TO USE A TEMPORARY SOIL NAIL WALL FOR TEMPORARY SHORING FROM STA. 18+10+/- -LNB-, 22' RT. TO STA. 18+45+/- -LNB-, 22' RT. FOR TEMPORARY SOIL NAIL WALLS, SEE TEMPORARY SOIL NAIL WALLS PROVISION.

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 END BENT INSTALLATION FROM STA. 22+85+/- -LNB-, 28' LT., TO STA. 23+20+/- -LNB-, 28' 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 STA. 22+85+/- -LNB-, 28' LT. TO STA. 23+20+/- -LNB-, 28' LT. FOR THE FOLLOWING ASSUMED SOIL PARAMETERS:

UNIT WEIGHT (γ) = 120 LB/CF
 FRICTION ANGLE (ϕ) = 0 DEGREES
 COHESION (c) = 500 LB/SF
 GROUNDWATER ELEVATION = 725 FT.

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STA. 22+85+/- -LNB-, 28' LT. TO STA. 23+20+/- -LNB-, 28' LT.

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STA. 22+85+/- -LNB-, 28' LT. TO STA. 23+20+/- -LNB-, 28' LT. SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY WALLS.

IT MAY BE PREFERRED TO USE A TEMPORARY SOIL NAIL WALL FOR TEMPORARY SHORING FROM STA. 22+85+/- -LNB-, 28' LT. TO STA. 23+20+/- -LNB-, 28' 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.

TEMPORARY SHORING IS REQUIRED FOR THE END BENT INSTALLATION FROM STA. 22+85+/- -LNB-, 22' RT., TO STA. 23+20+/- -LNB-, 22' 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 STA. 22+85+/- -LNB-, 22' RT. TO STA. 23+20+/- -LNB-, 22' RT. FOR THE FOLLOWING ASSUMED SOIL PARAMETERS:

UNIT WEIGHT (γ) = 120 LB/CF
 FRICTION ANGLE (ϕ) = 0 DEGREES
 COHESION (c) = 500 LB/SF
 GROUNDWATER ELEVATION = 725 FT.

DO NOT USE A TEMPORARY WALL FOR TEMPORARY SHORING FROM STA. 22+85+/- -LNB-, 22' RT. TO STA. 23+20+/- -LNB-, 22' RT.

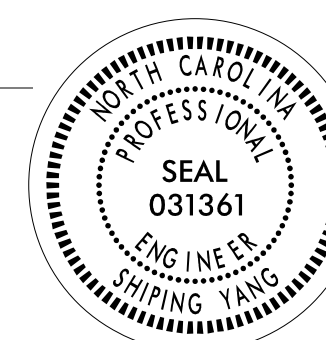
AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STA. 22+85+/- -LNB-, 22' RT. TO STA. 23+20+/- -LNB-, 22' RT. SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY WALLS.

IT MAY BE PREFERRED TO USE A TEMPORARY SOIL NAIL WALL FOR TEMPORARY SHORING FROM STA. 22+85+/- -LNB-, 22' RT. TO STA. 23+20+/- -LNB-, 22' RT. FOR TEMPORARY SOIL NAIL WALLS, SEE TEMPORARY SOIL NAIL WALLS PROVISION.

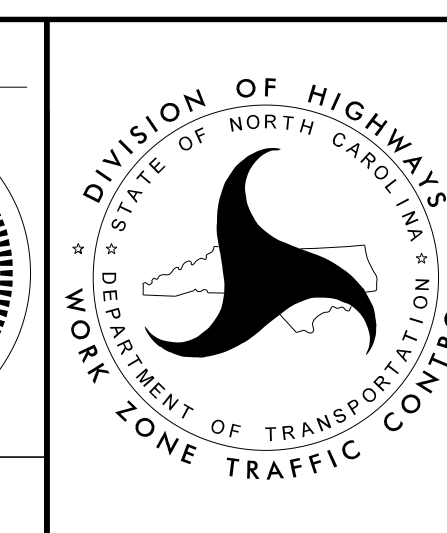
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APPROVED: *Shipping Yang*
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DATE: 5/28/2019



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TEMPORARY SHORING NOTES

TEMPORARY TRAFFIC CONTROL PHASING

NOTE: BEFORE BEGINNING CONSTRUCTION THE CONTRACTOR SHALL PLACE ADVANCE WORK ZONE WARNING SIGNS ALONG -LNB- LINE, SEE RSD 1101.01 (SHEETS 1 OF 3)

PHASE I

STEP 1. USING RSD 1102.02 SHEET 4, CONSTRUCT -DETNB- UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT (SEE TMP-4 AND 5.)

COMPLETE THE WORK OF PHASE I, STEPS 2 AND 3 BETWEEN 6:00 PM FRIDAY AND 4:00 PM THE FOLLOWING MONDAY. (SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES.)

STEP 2. USING RSD 1101.02, SHEET 4, CLOSE THE RIGHT NB LANE OF US 421.

- CONSTRUCT THE OUTSIDE NB LANE PAVED SHOULDER AT THE -DETNB- TIE INS (SEE TMP-4 AND TMP-5)
- TIE IN THE RIGHT LANE OF -DETNB- AND PLACE TEMPORARY WHITE EDGE LINE AND WHITE SOLID LANE LINE

STEP 3. USING RSD 1101.03, SHEET 9, PACE TRAFFIC AND REVERSE THE LANE CLOSURE AND SHIFT TRAFFIC TO THE RIGHT LANE OF -DETNB-.

- TIE IN THE LEFT LANE OF -DETNB- AND PLACE TEMPORARY YELLOW EDGE LINE. OPEN -DETNB- TO THE PHASE II TRAFFIC PATTERN (SEE TMP-6 AND TMP-7.)

PHASE II

STEP 1. AWAY FROM TRAFFIC, INSTALL TEMPORARY SHORING AND CONSTRUCT PROPOSED BRIDGE AND APPROACHES UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE AS SHOWN ON SHEETS TMP-6 AND TMP-7.

PHASE III

COMPLETE THE WORK OF PHASE III, STEPS 1 AND 2 BETWEEN 6:00 PM FRIDAY AND 4:00 PM THE FOLLOWING MONDAY. (SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES.)

STEP 1. USING RSD 1101.02, SHEET 4, CLOSE THE LEFT LANE OF -NBDET-.

- CONSTRUCT REMAINING FULL DEPTH PAVED SHOULDER UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE (SEE TMP-9)
- TIE IN THE LEFT LANE OF -NBL- UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE AND PLACE TEMPORARY YELLOW EDGELINE AND TEMPORARY WHITE SOLID LANE LINE.

STEP 2. USING RSD 1101.03, SHEET 9, PACE TRAFFIC AND REVERSE THE LANE CLOSURE AND SHIFT TRAFFIC TO THE LEFT LANE OF -NBL-.

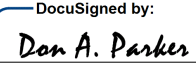
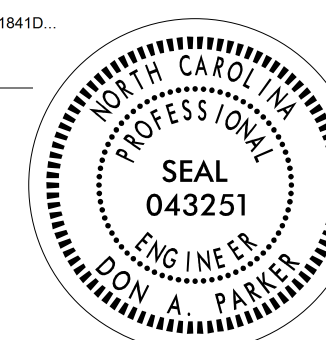
- TIE IN THE RIGHT LANE OF -NBL- UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE AND PLACE TEMPORARY WHITE EDGE LINE. OPEN -NBL- TO THE PHASE III TRAFFIC PATTERN. ENSURE ALL GUARDRAIL HAS APPROPRIATE TEMPORARY OR FINAL END TREATMENTS. (SEE TMP-8 AND TMP-9.)

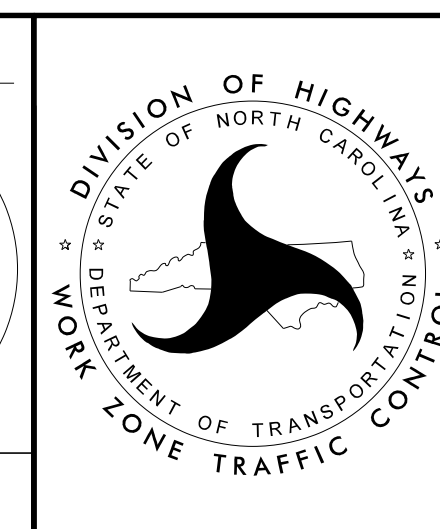
STEP 3. REMOVE -DETNB- (SEE RSD 1101.02, SHEET 4 AND TMP-8 AND TMP-9.)

STEP 4. USING RSD 1101.02 SHEET 4, PLACE THE FINAL LAYER OF SURFACE COURSE, FINAL PAVEMENT MARKINGS AND MARKERS THROUGHOUT THE PROJECT LIMITS.

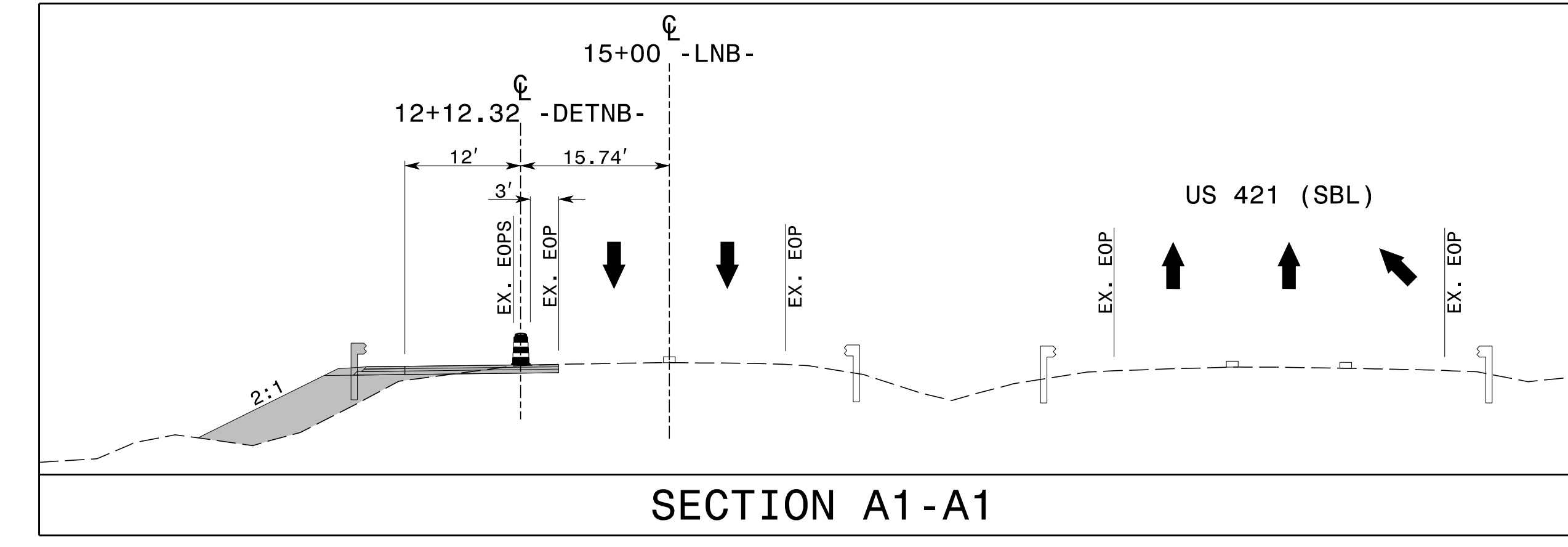
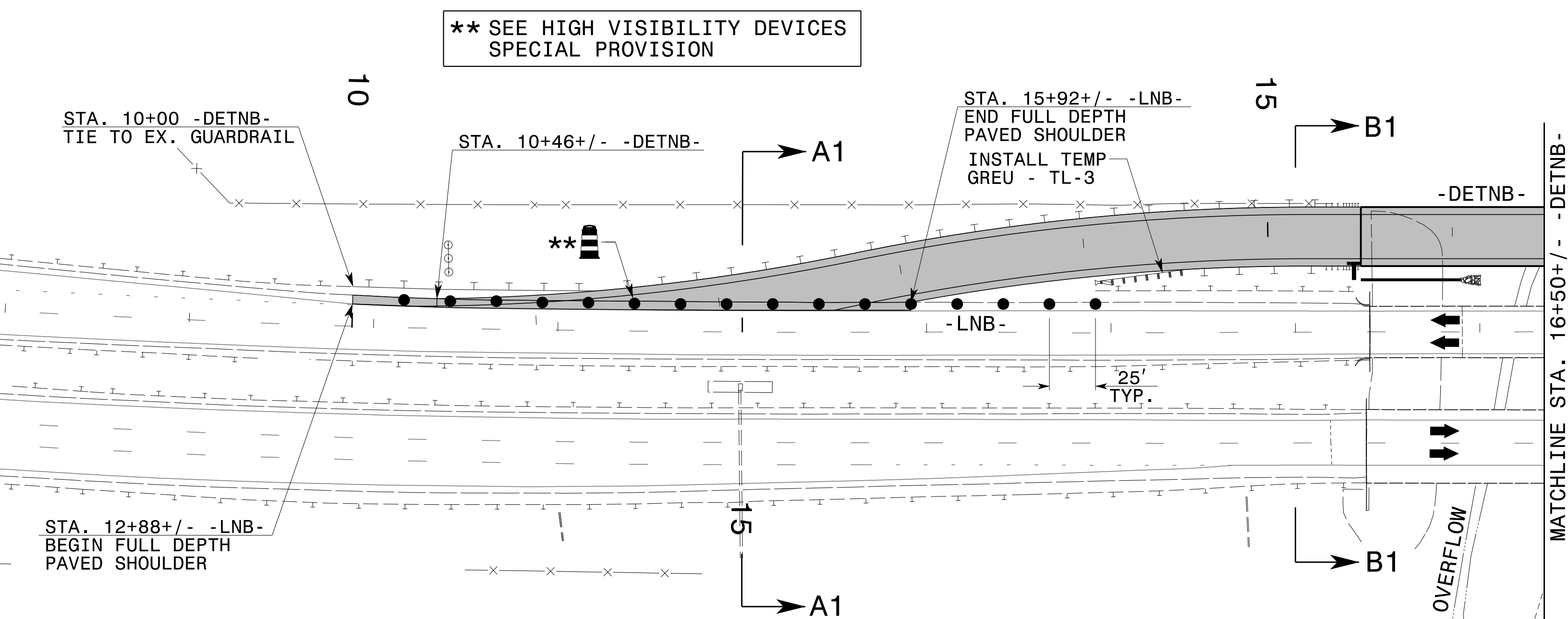
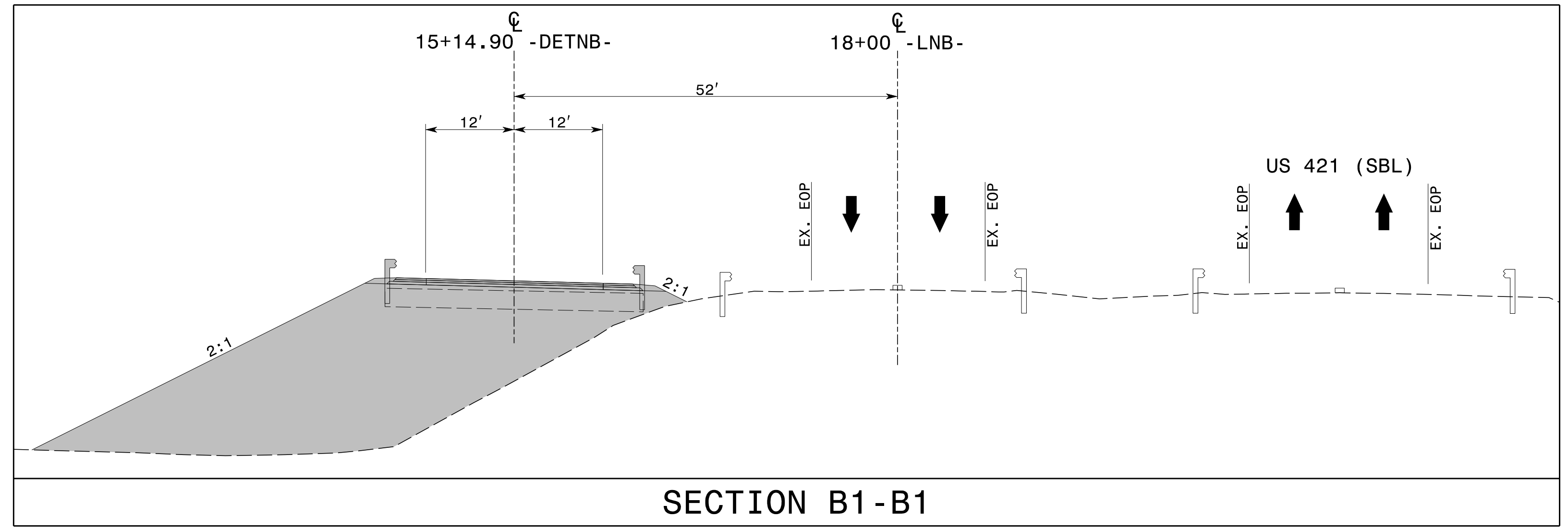
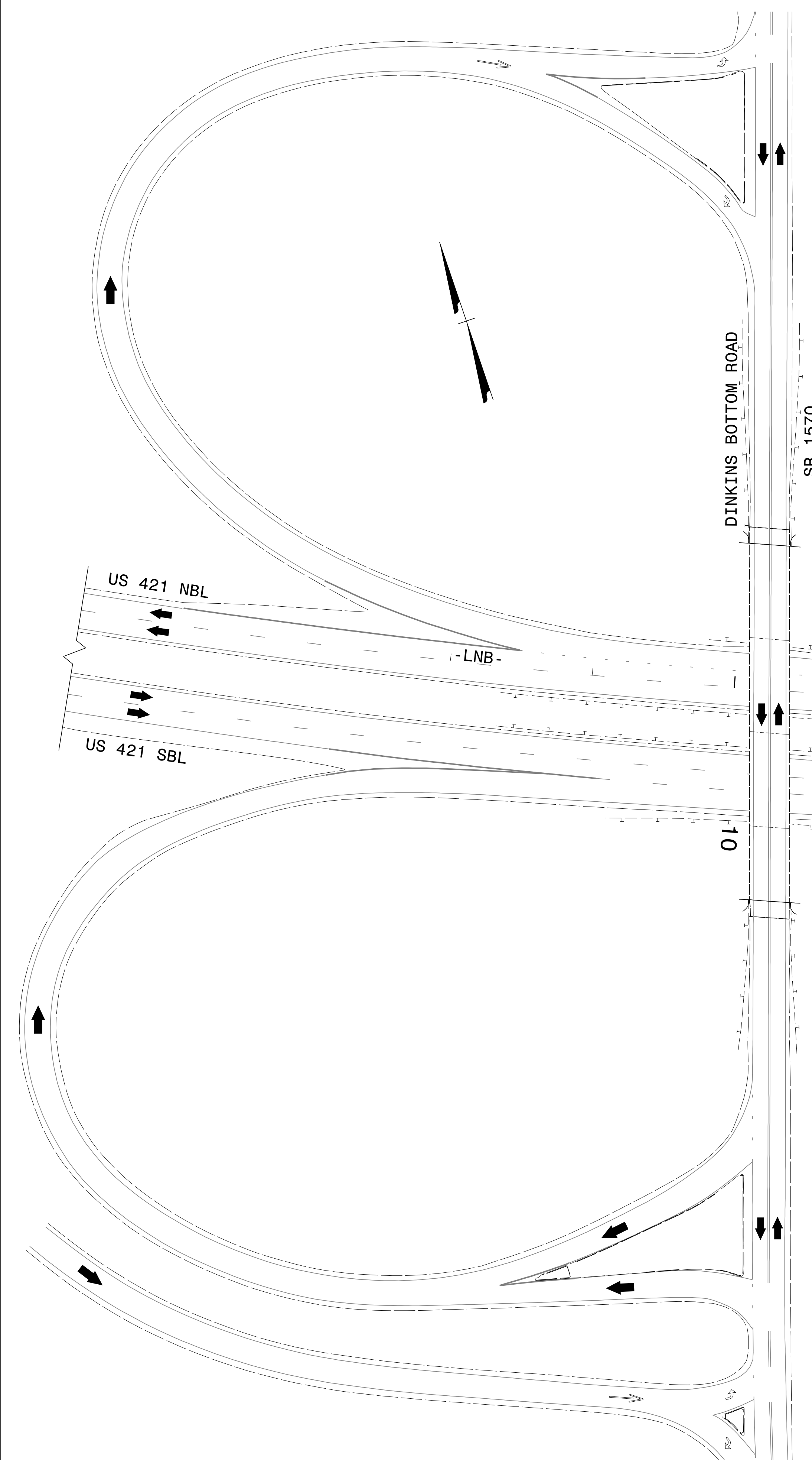
STEP 5. REMOVE ALL TRAFFIC CONTROL DEVICES.

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TEMPORARY TRAFFIC CONTROL PHASING

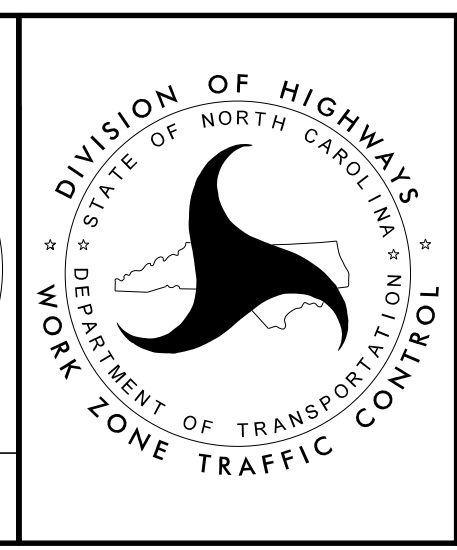


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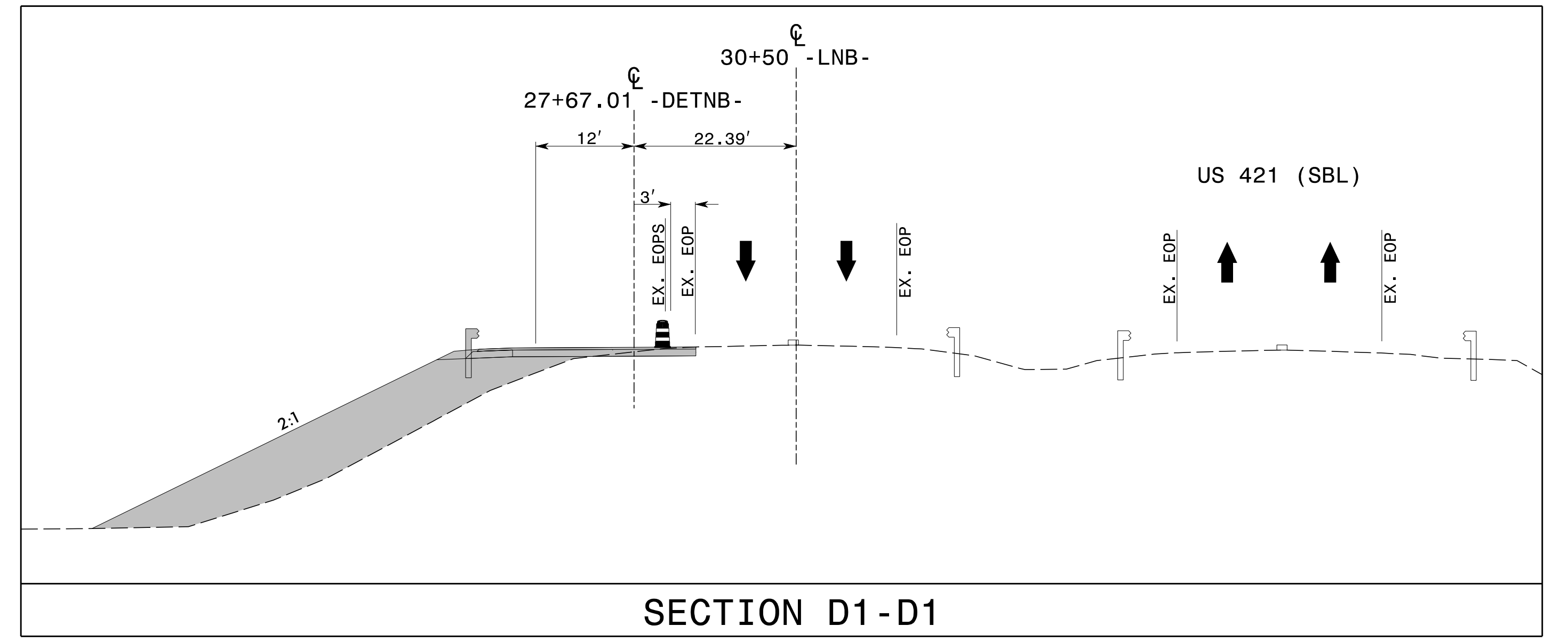
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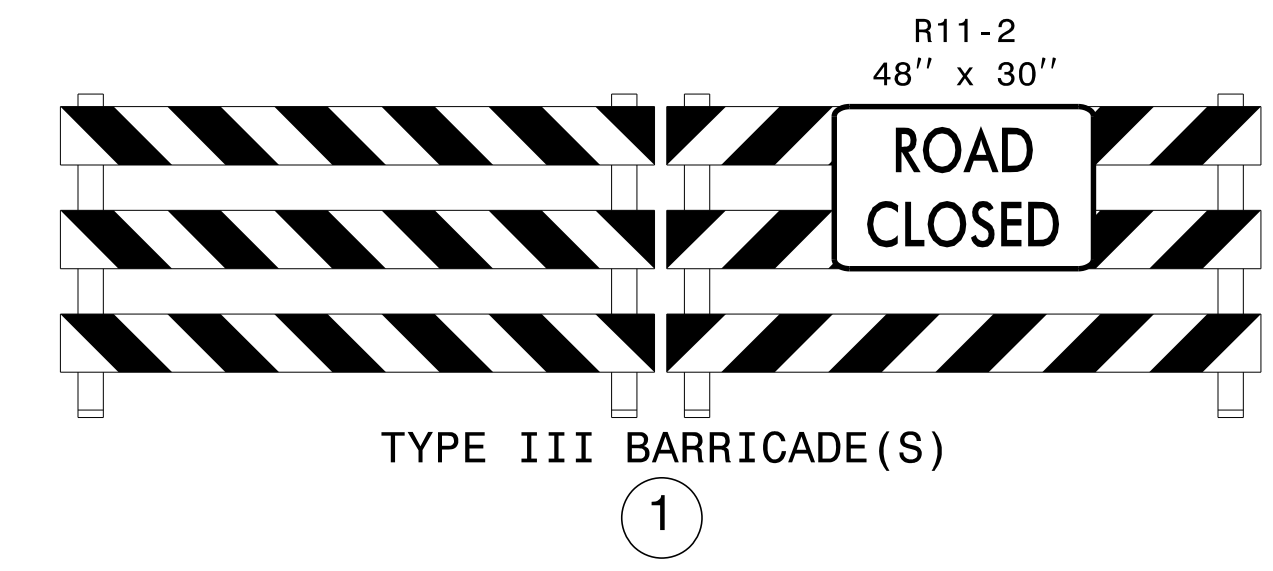
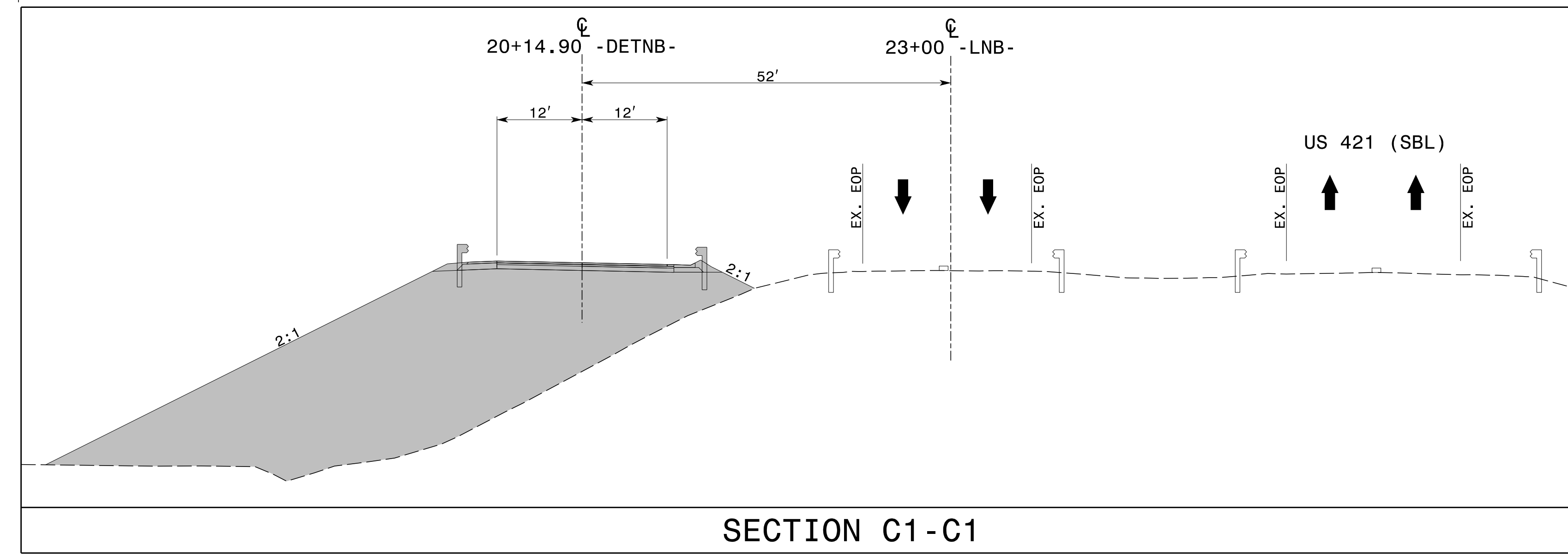
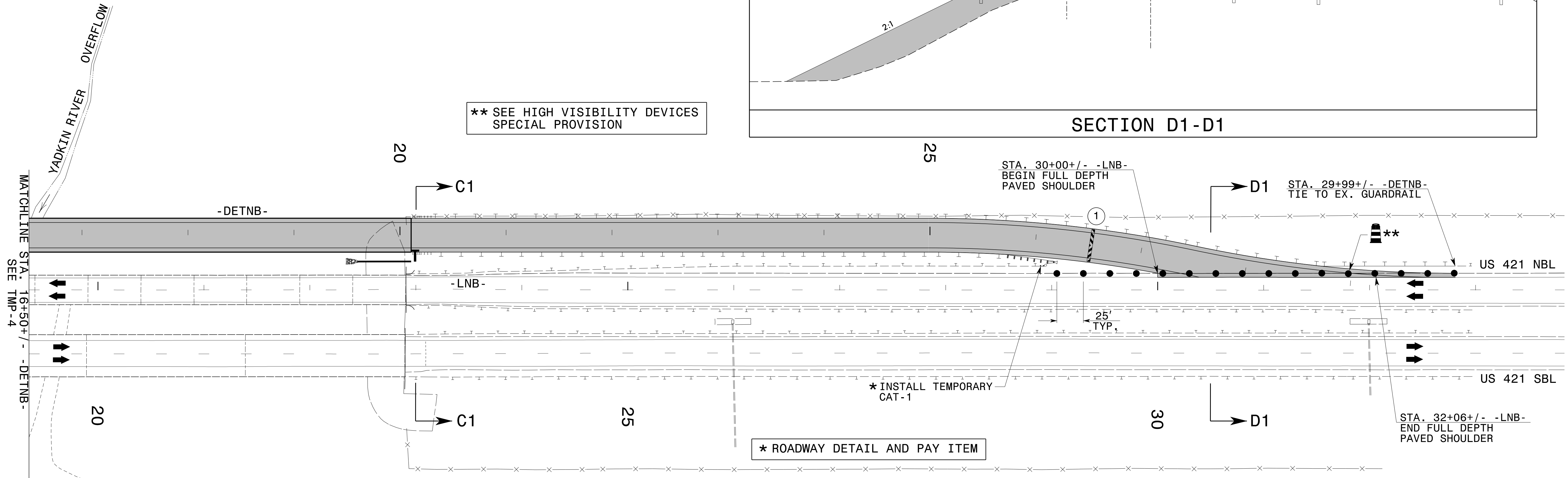


PHASE I DETAILS

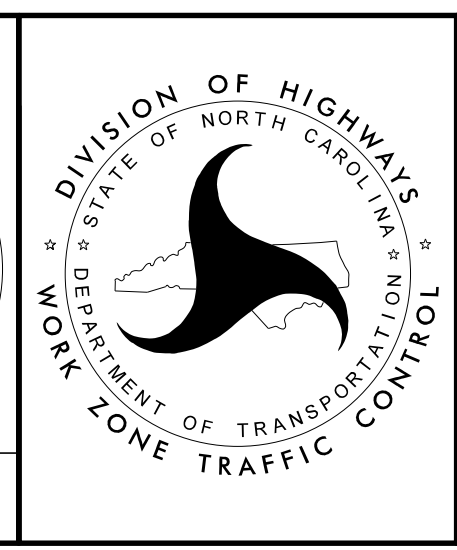
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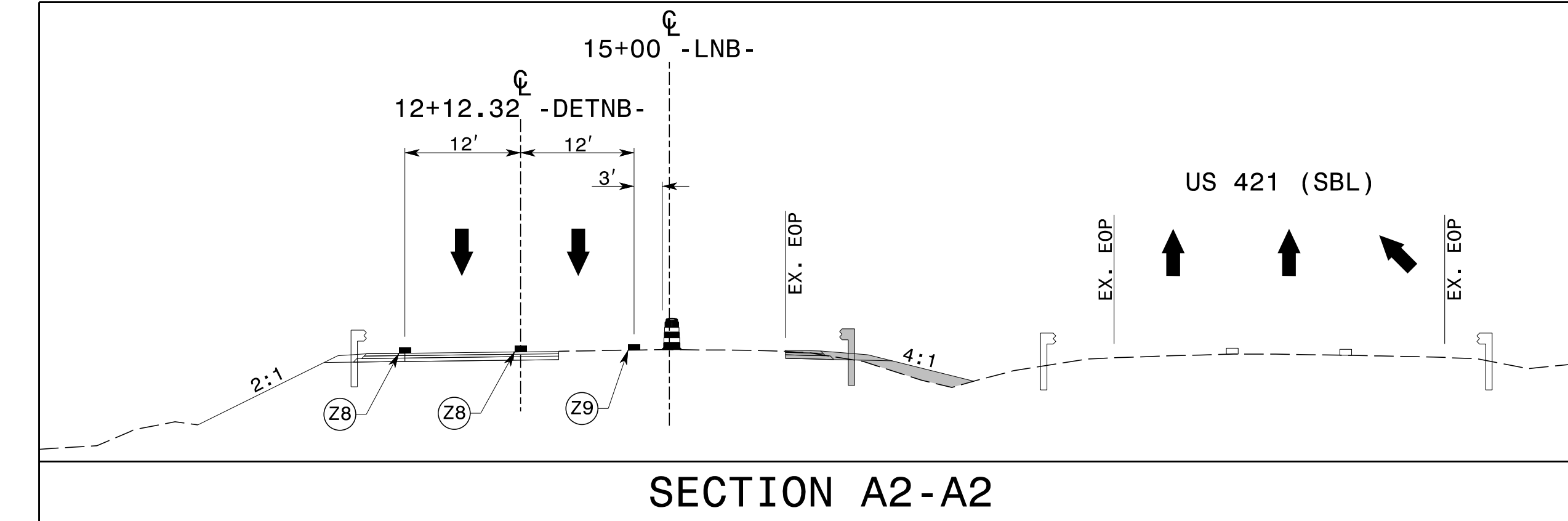
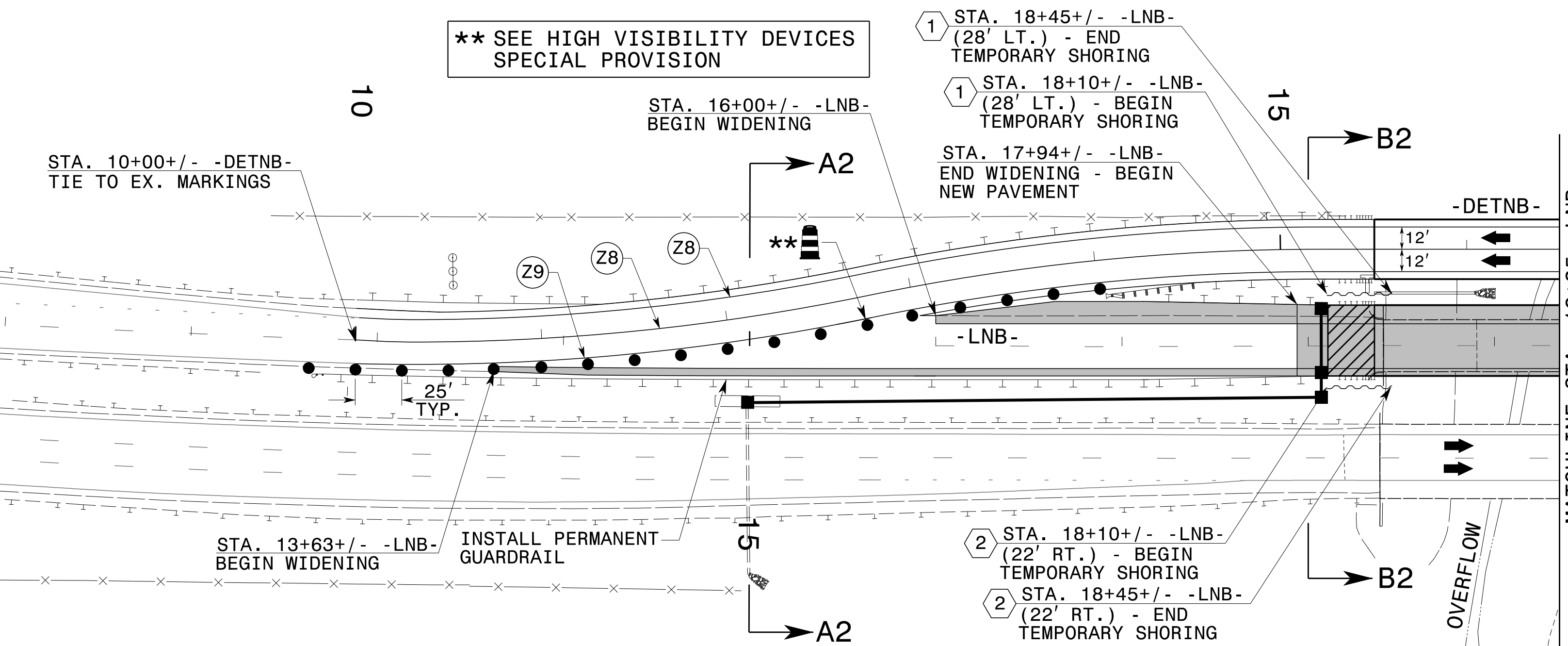
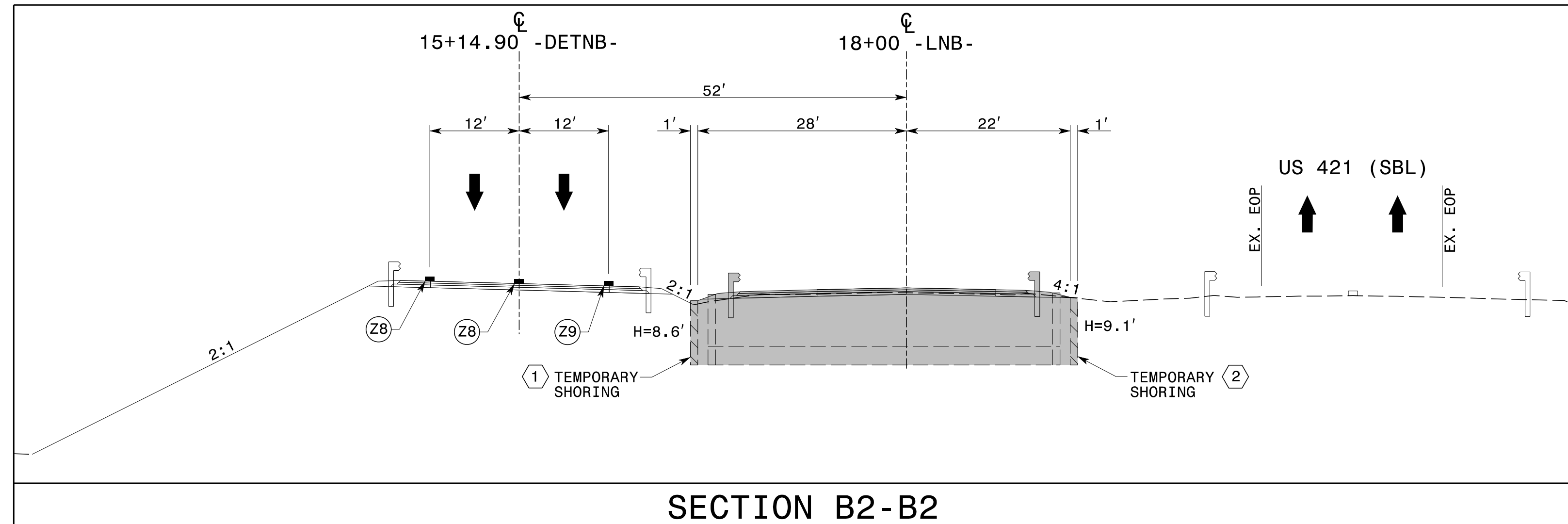
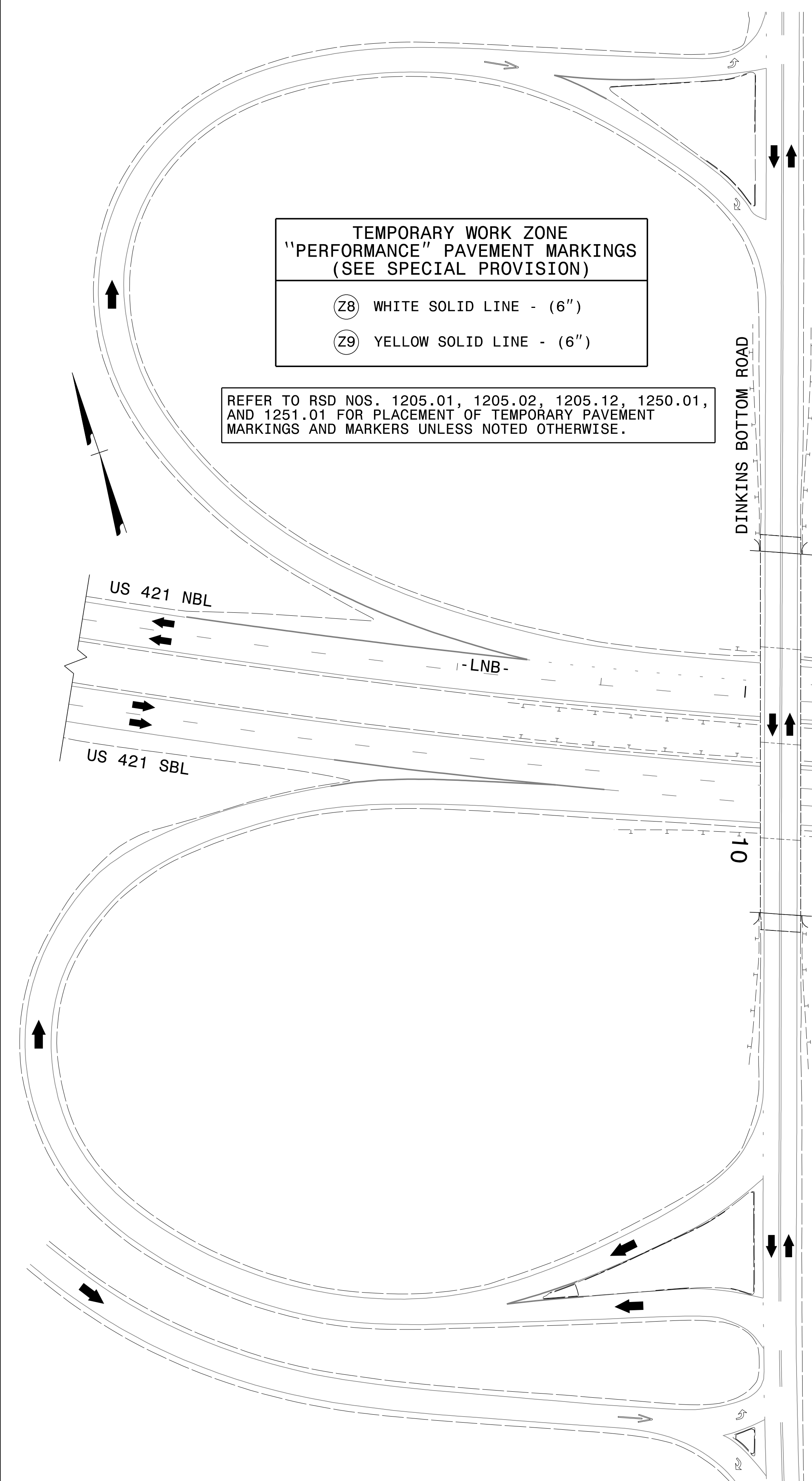
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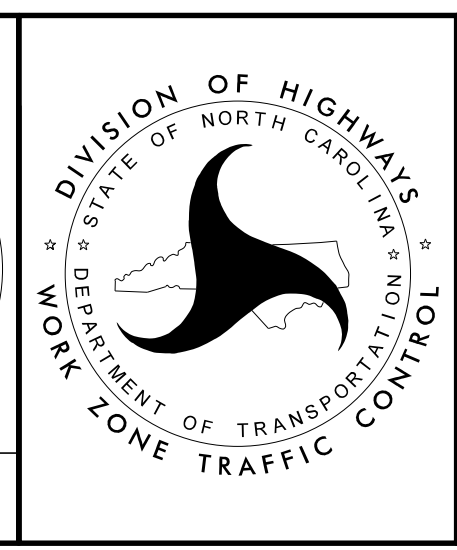


Shoring I.D. No.	Estimated Average Height (ft.)	Quantity (sq. ft.)
①	8.6 FT.	301 SQ. FT.
②	9.1 FT.	319 SQ. FT.

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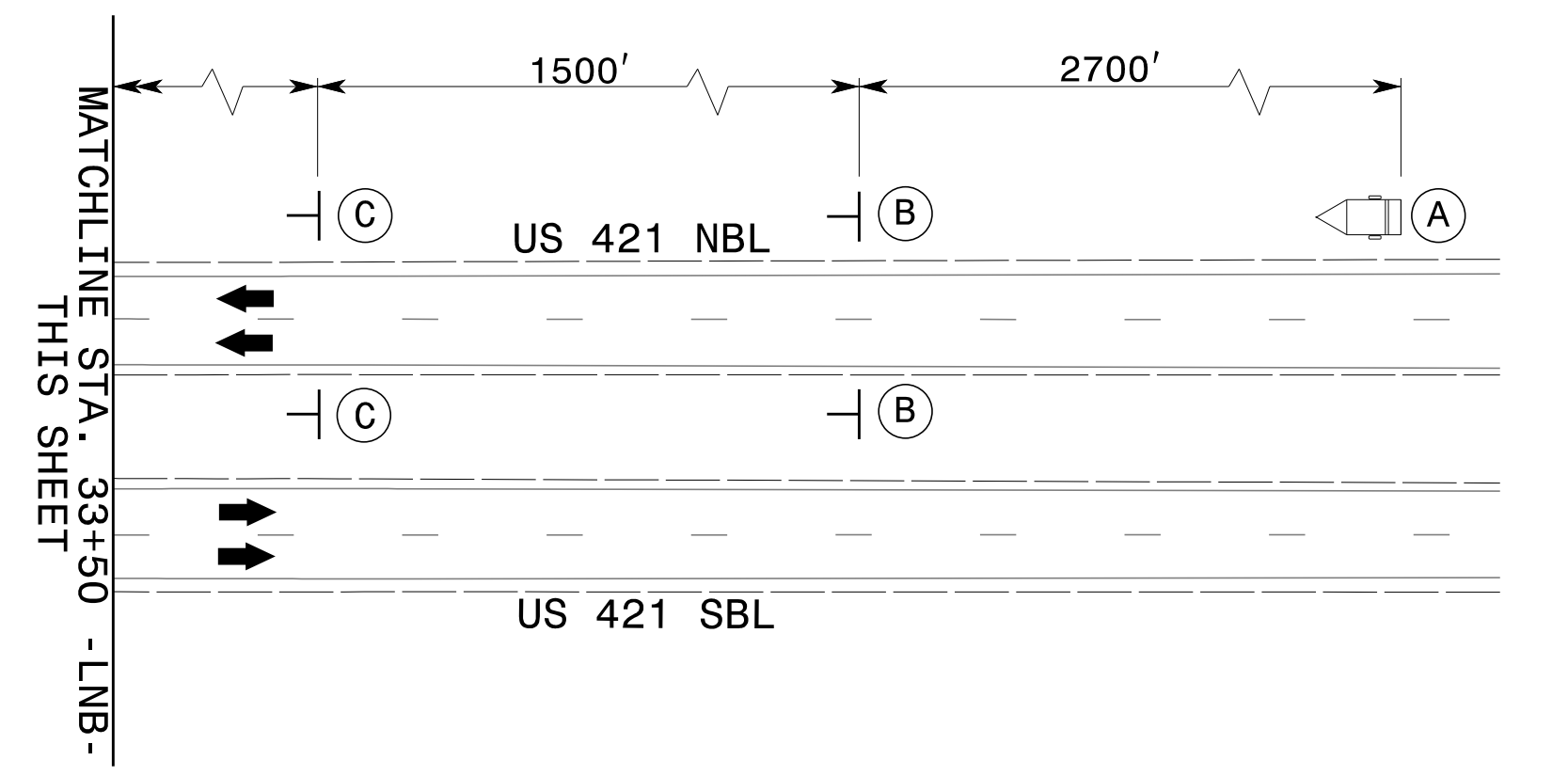
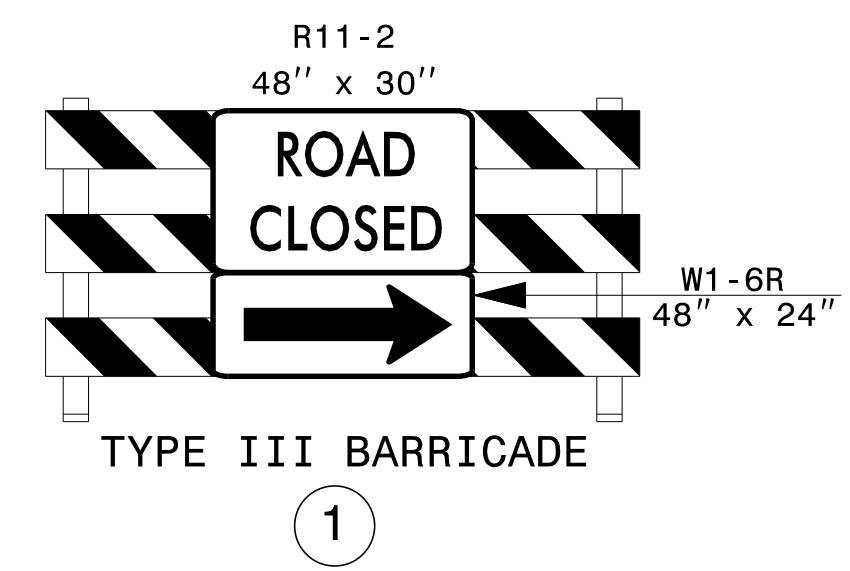
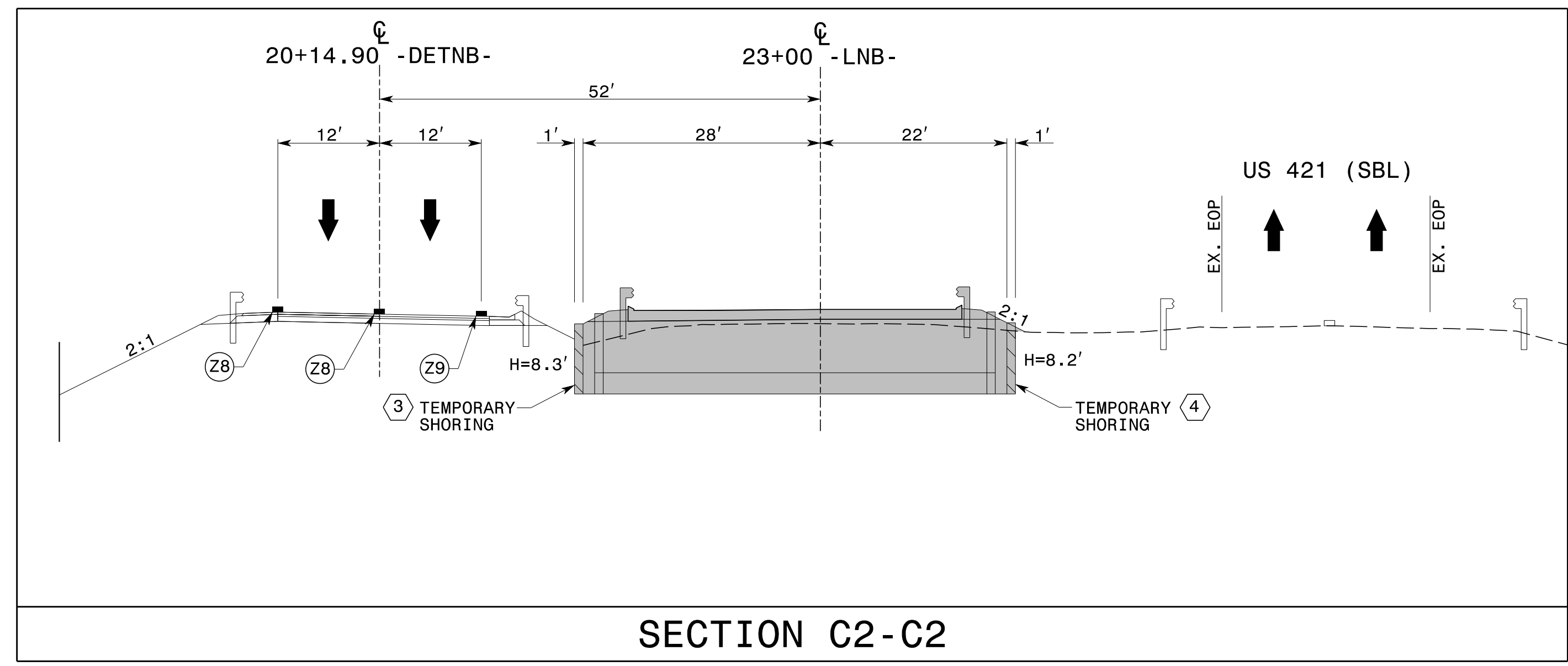
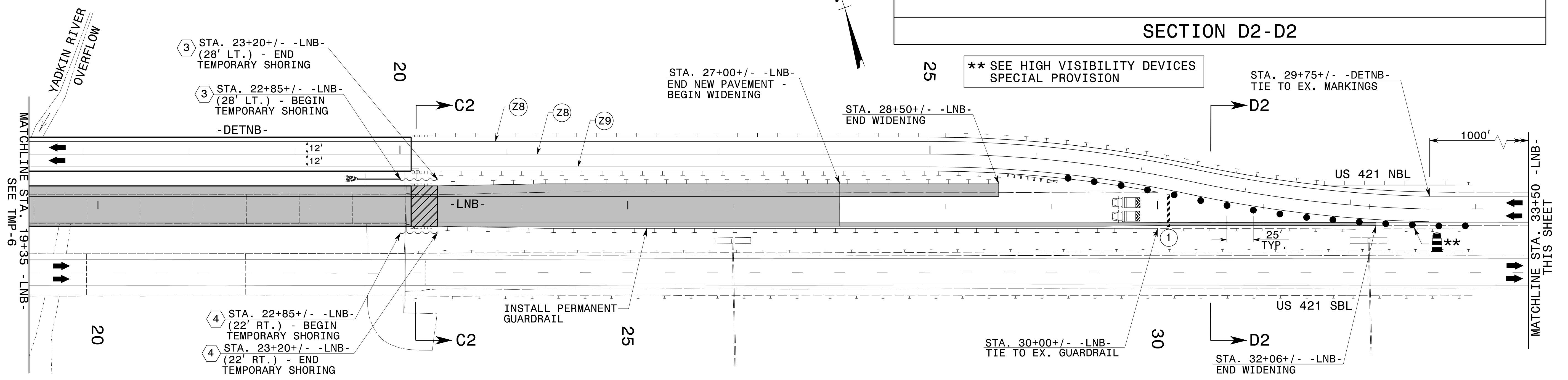
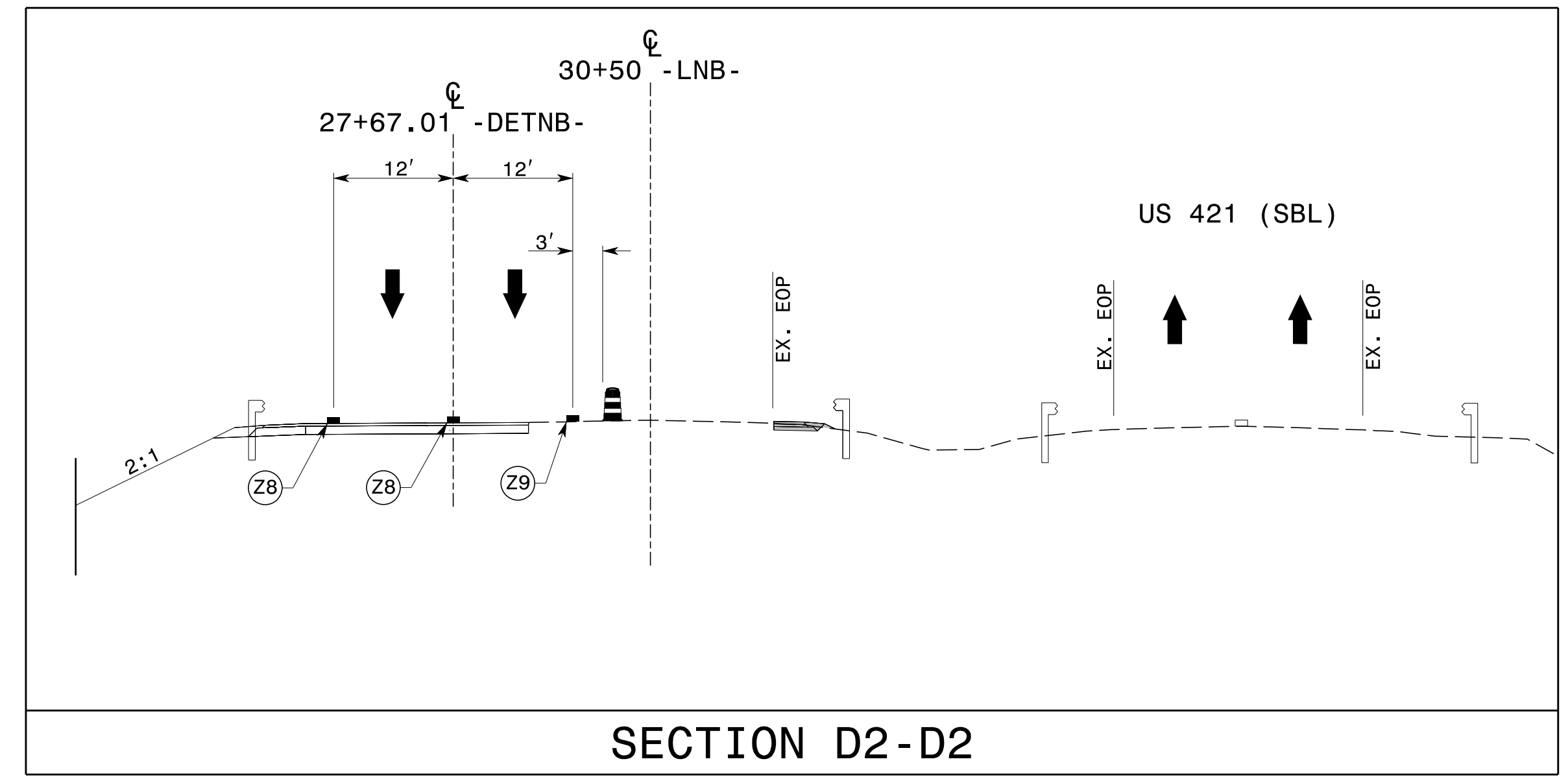
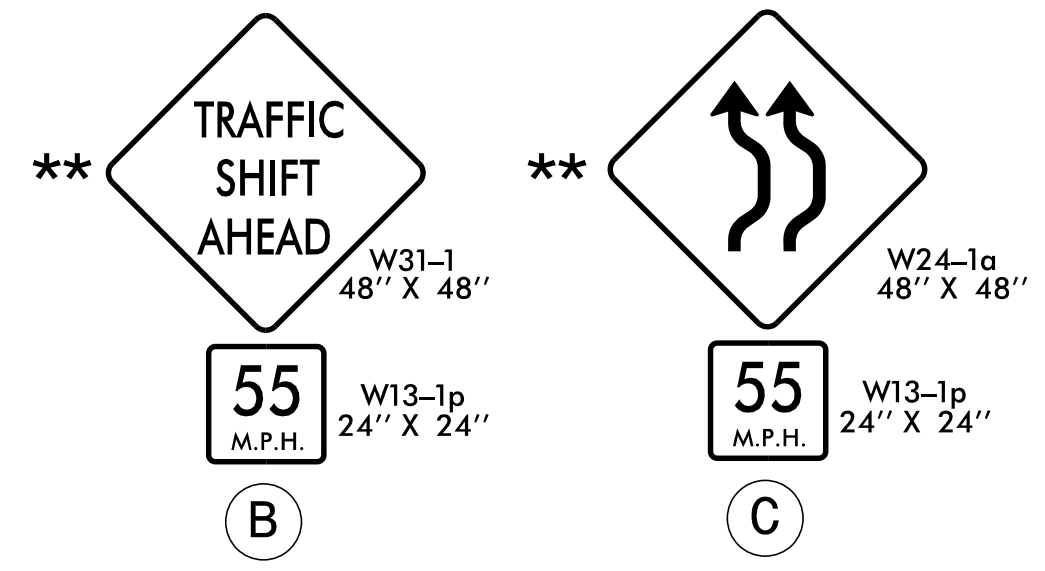
TEMPORARY WORK ZONE
"PERFORMANCE" PAVEMENT MARKINGS
(SEE SPECIAL PROVISION)

(Z8) WHITE SOLID LINE - (6")
(Z9) YELLOW SOLID LINE - (6")

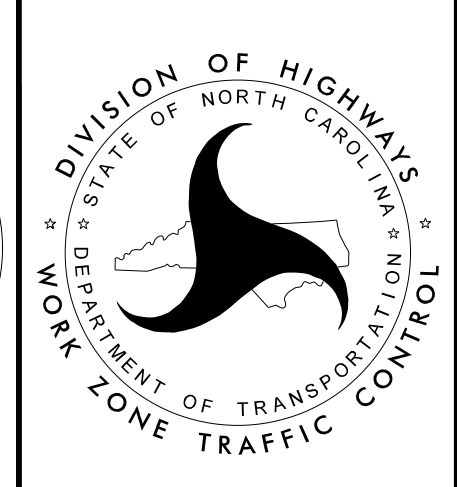
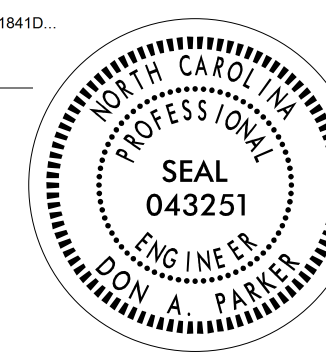
REFER TO RSD NOS. 1205.01, 1205.02, 1205.12, 1250.01, AND 1251.01 FOR PLACEMENT OF TEMPORARY PAVEMENT MARKINGS AND MARKERS UNLESS NOTED OTHERWISE.

Shoring I.D. No.	Estimated Average Height (ft.)	Quantity (sq. ft.)
3	8.3 FT.	291 SQ. FT.
4	8.2 FT.	287 SQ. FT.

MESSAGE NO. 1	MESSAGE NO. 2
TRAFFIC SHIFT RT 1 MILE	MAX SPEED 55MPH
CHANGEABLE MESSAGE SIGN	

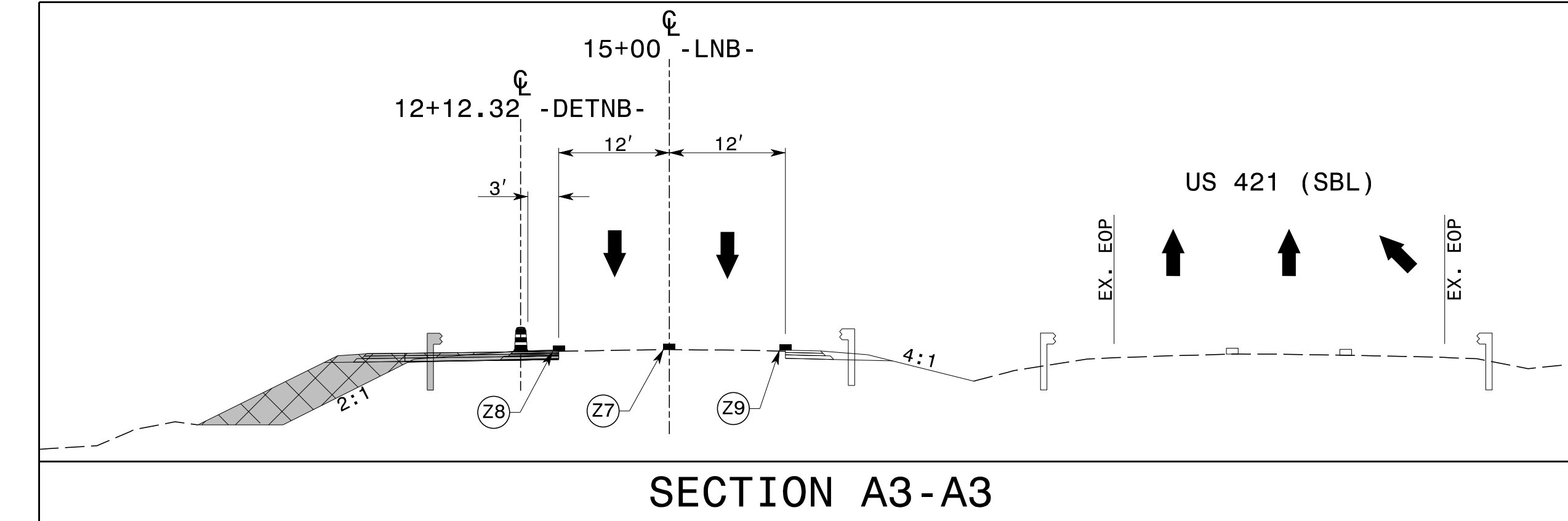
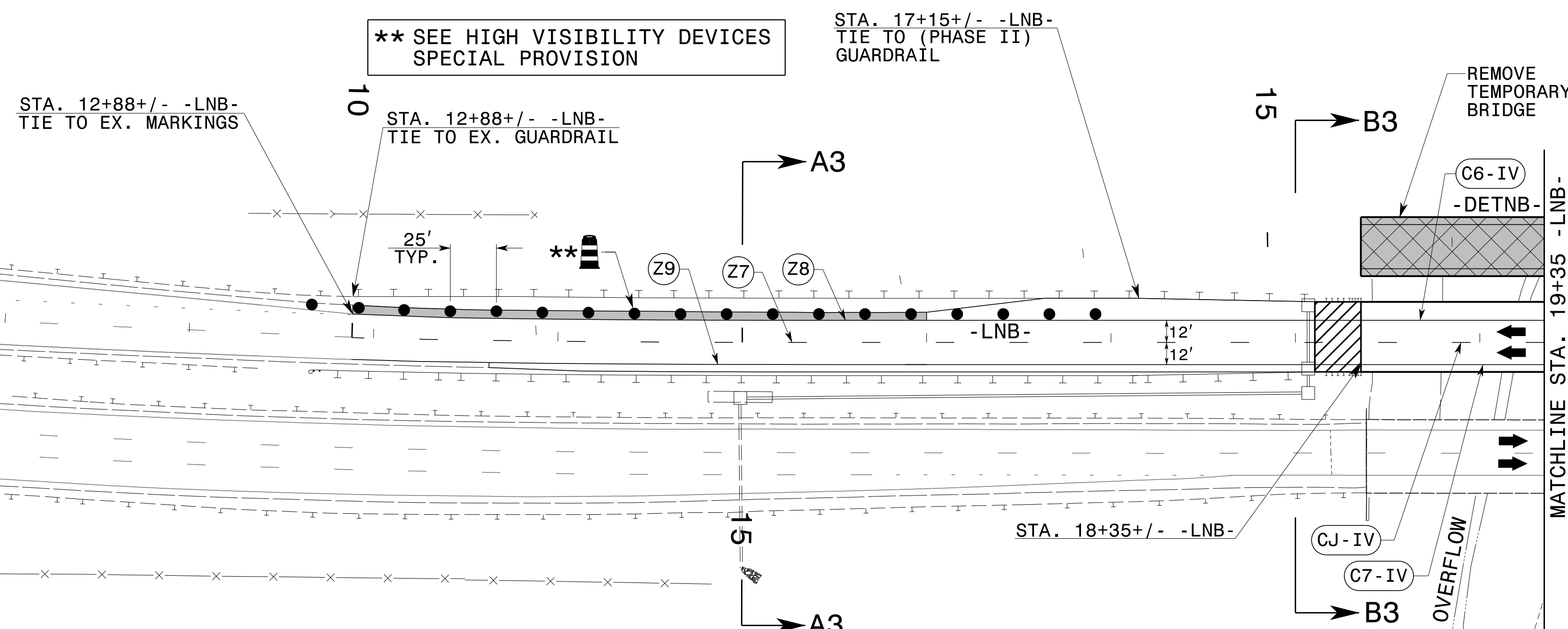
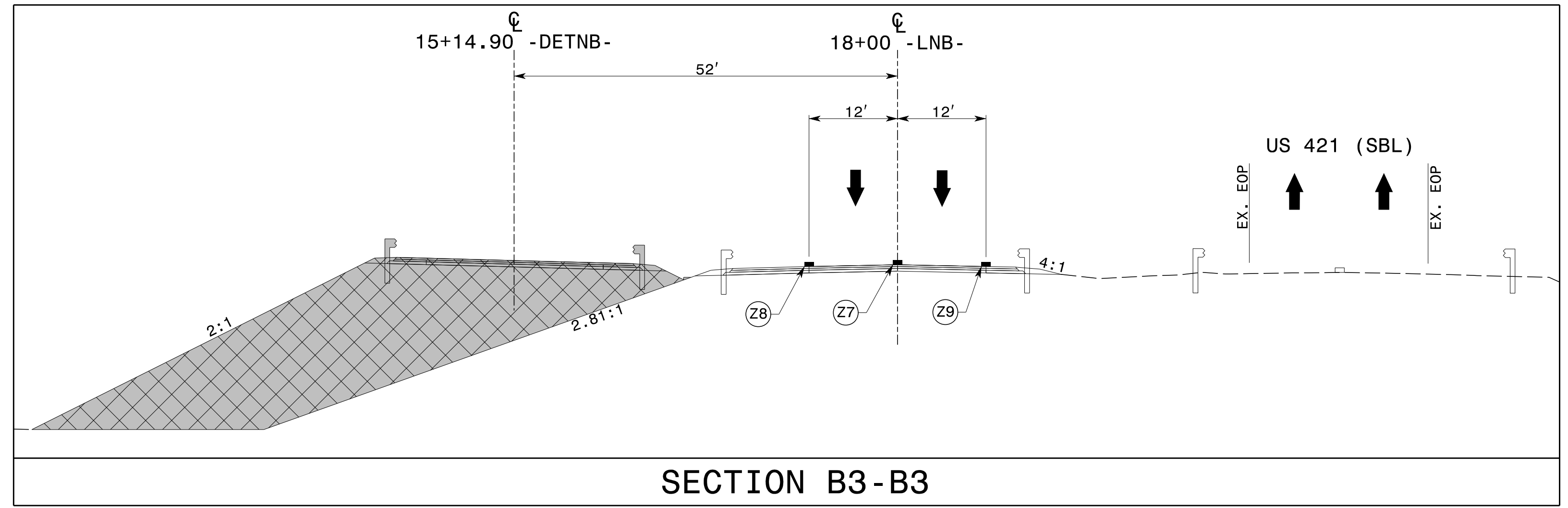
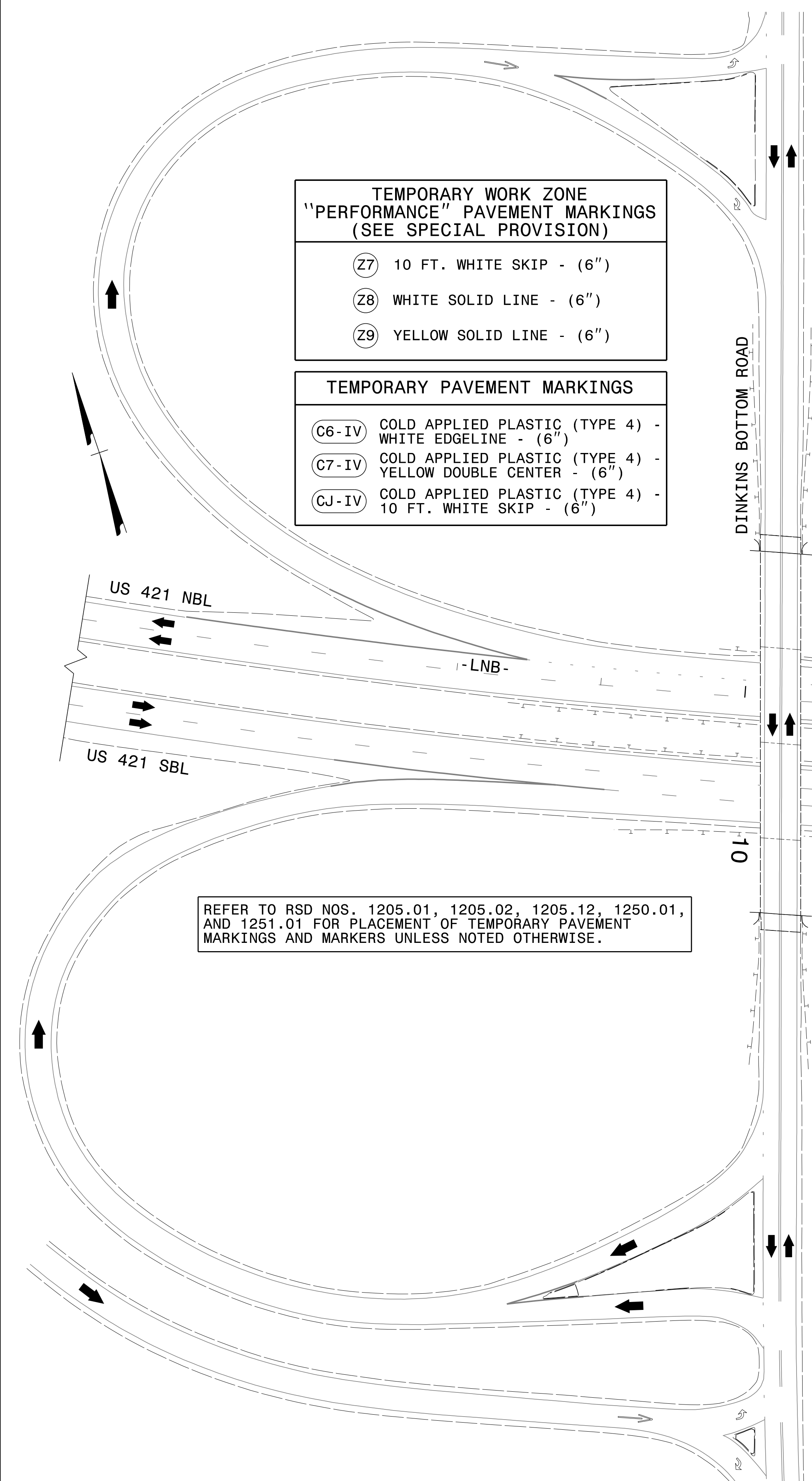


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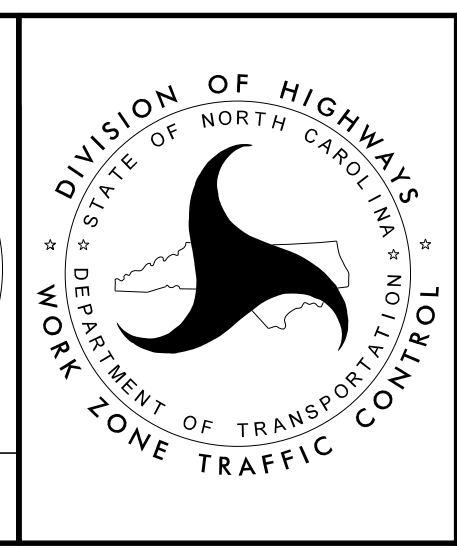
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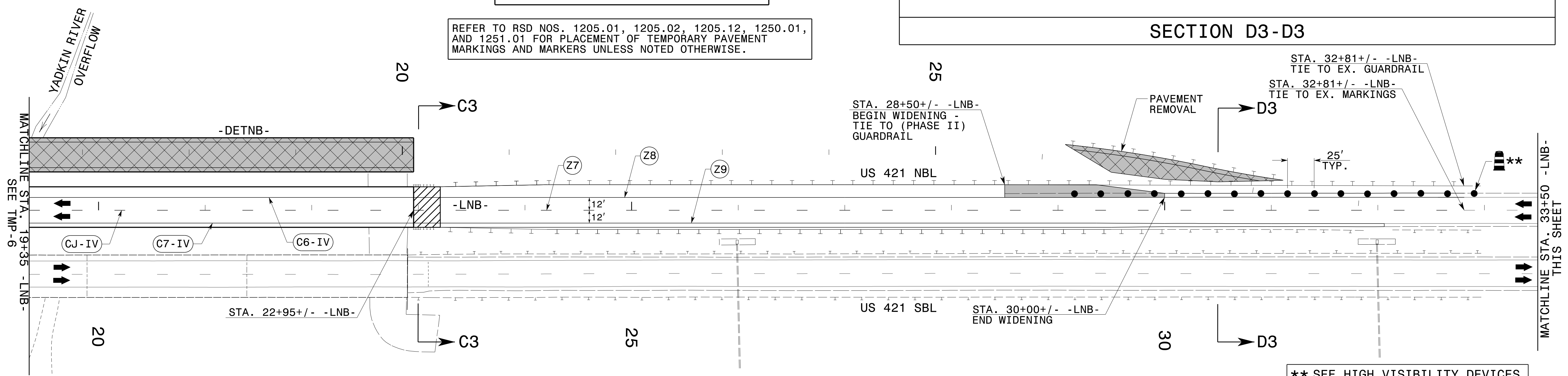
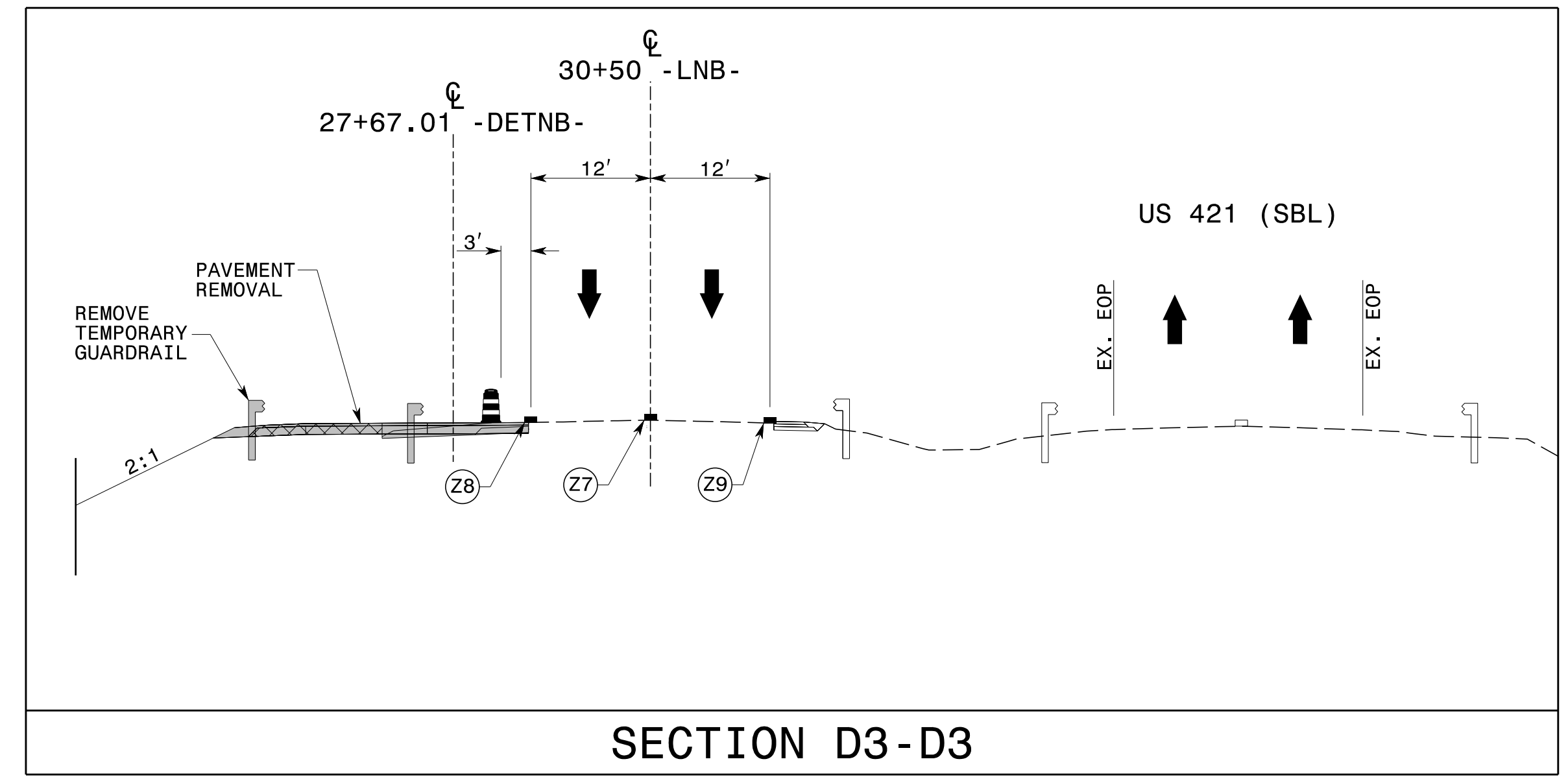


PHASE III DETAILS

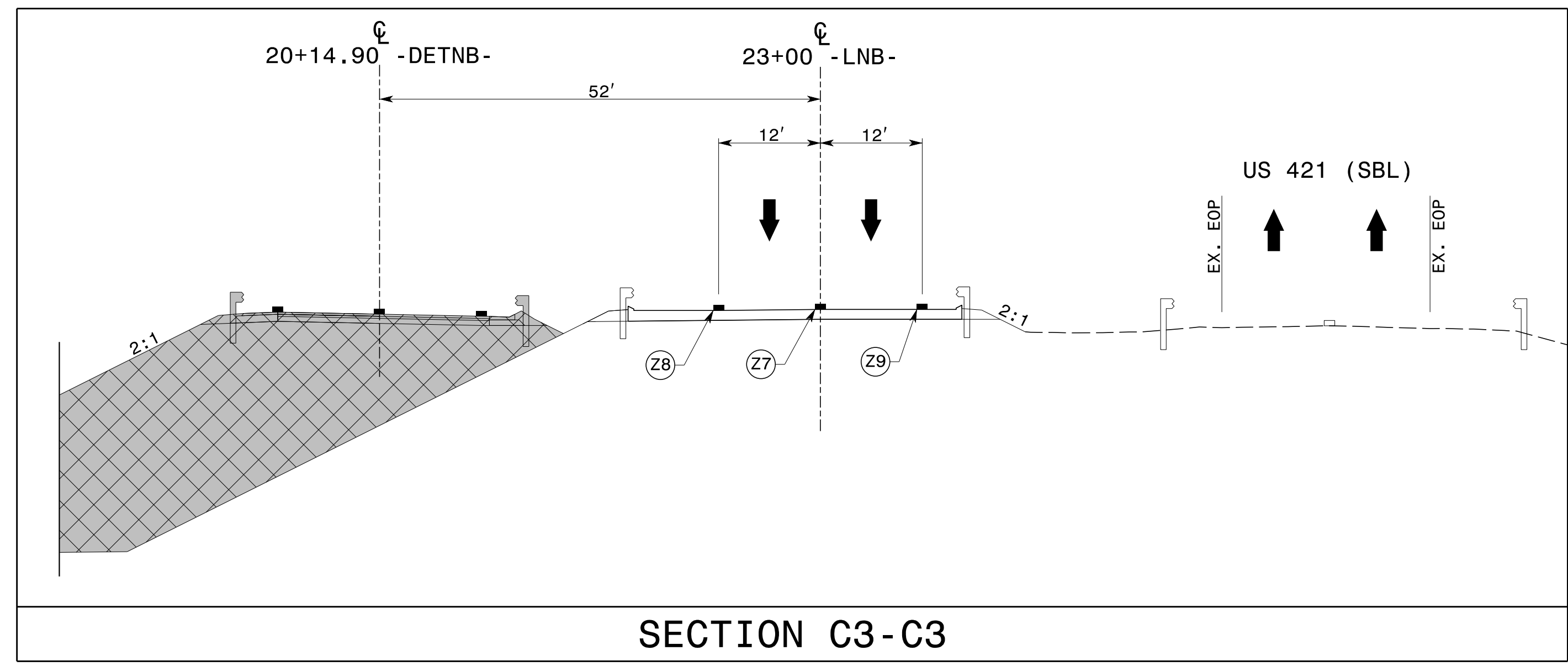
TEMPORARY WORK ZONE "PERFORMANCE" PAVEMENT MARKINGS (SEE SPECIAL PROVISION)	
(Z7)	10 FT. WHITE SKIP - (6")
(Z8)	WHITE SOLID LINE - (6")
(Z9)	YELLOW SOLID LINE - (6")

TEMPORARY PAVEMENT MARKINGS	
(C6-IV)	COLD APPLIED PLASTIC (TYPE 4) - WHITE EDGELINE - (6")
(C7-IV)	COLD APPLIED PLASTIC (TYPE 4) - YELLOW DOUBLE CENTER - (6")
(CJ-IV)	COLD APPLIED PLASTIC (TYPE 4) - 10 FT. WHITE SKIP - (6")

REFER TO RSD NOS. 1205.01, 1205.02, 1205.12, 1250.01, AND 1251.01 FOR PLACEMENT OF TEMPORARY PAVEMENT MARKINGS AND MARKERS UNLESS NOTED OTHERWISE.

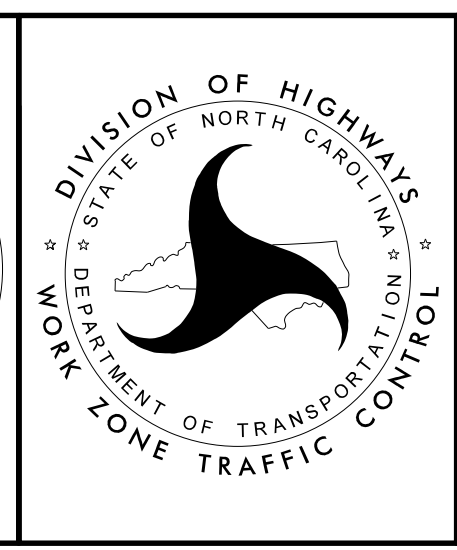


** SEE HIGH VISIBILITY DEVICES SPECIAL PROVISION



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PHASE III DETAILS

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