Bridging Decisions and Alignment Review

New Route (Airport Parkway) from US 70/US 601 (Jake Alexander Boulevard) to SR 2538 (Peeler Road) at US 29 in Salisbury

Rowan County

STIP Project U-5901

North Carolina Department of Transportation

Division 9

MERGER CONCURRENCE POINT NUMBER 2A

October 15, 2025

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1. Meeting Purpose

The purpose of this Merger Team meeting is to discuss the proposed major hydraulic crossings on the project and to review Detailed Study Alternatives Carried Forward. The goal of the meeting is to achieve concurrence on the major hydraulic structures and alignment.

The lead federal agency for the proposed project is the Federal Highway Administration (FHWA).

The primary points of contact for the subject project are:

Agency	Name
Federal Highway Administration (FHWA)	Seth Wilcher
U.S. Army Corps of Engineers (USACE)	Steve Brumagin
North Carolina Department of Water Resources (NCDWR)	Kaylie Yankura
North Carolina Department of Transportation	Ryan Newcomb
NV5	Eric Midkiff

1.1 Project Description

The North Carolina Department of Transportation (NCDOT), in cooperation with the FHWA, proposes to construct the Airport Parkway in Rowan County. As described in the approved NCDOT *2024 – 2033 State Transportation Improvement Program* (September 2025), the proposed Airport Parkway (STIP No. U-5901, WBS No. 44705.1.1) would be a new route from US 70/US 601 (Jake Alexander Boulevard) to SR 2538 (Peeler Road) at US 29 (S. Main Street) in Salisbury. The proposed project is approximately 3.6 miles long and is anticipated to be a two-lane roadway. The project study area is shown in Figure 1 (Appendix A).

1.2 Project History and Merger Plan

The proposed project is included in the approved NCDOT 2024 – 2033 STIP (September 2025). The current costs for the project as estimated in the approved NCDOT 2024 – 2033 STIP (September 2025) are shown in Table 1. The draft project schedule is included in Table 2 and is based on the Merger Plan. The schedule and cost estimates are draft and subject to change.

Table 1. U-5901 Cost Estimates

Phase	Estimated Costs
Right-of-way	$8,900,000
Utilities	$6,900,000
Construction	$39,502,000
Total	**$55,302,000**

Table 2. Draft U-5901 Project Schedule

Milestone	Anticipated Date
CP 1 (Purpose and Need and Study Area Defined)	***4/17/24***
CP 2 (Detailed Study Alternatives Carried Forward)	***7/25/24, 5/30/25***
CP 2A (Bridging Decisions and Alignment Review)	October 15, 2025
Public Meeting	November 6, 2025
CP 3 (Proposed LEDPA/Preferred Alternative Selection)	February 2026
Type III CE	September 2026
CP 4A (Avoidance and Minimization)	TBD
CP 4B (Hydraulic Design Review)	TBD
CP 4C (Permit Drawings Review)	TBD
Begin ROW Acquisition	FY 2027
Begin Construction	FY 2030

*Draft, subject to change

2. Past Merger Meetings Summary

2.1 Concurrence Point 1 (CP 1)

The Merger Meeting for CP1 was held on April 17, 2024. During the meeting, the Purpose and Need for the project was created and the Project Study Area was defined. See the CP 1 packet for more information.

2.2 Concurrence Point 2 (CP 2)

The Merger Meeting for CP 2 was held on July 25, 2024. As a result of this meeting the following alternatives were carried forward for detailed study: No Build, Alternative 1, Alternative 1A, Alternative 2, Alternative 2A, Alternative 3, Alternative 3A. Descriptions of these alternatives were included in the CP 2 packet.

In May 2025, two additional design alternatives (Alternative 6 and Alternative 6A) were identified and proposed to the Merger Team via email. The Team agreed these two alternatives should also be carried forward for detailed study.

Figure 2 in Appendix A shows the eight build detail study alternative corridors.

3. Water Resources

Jurisdictional streams and wetlands are located in the study area and are shown on Figures 3A through 3E in Appendix A. Characteristics of these streams and their estimated impacts can also be found in Tables 5 and 6 in Appendix A.

Twenty-seven streams were identified within the study area and are located within the Yadkin Pee Dee River Basin. All 27 streams are considered jurisdictional surface waters under Section 404 of the Clean Water Act.

There are no designated High Quality Waters (HQW), Outstanding Resource Waters (ORW), or water supply watersheds (WS-I or WS-II) within, or within 1.0 mile downstream of, the study area. The North Carolina 2022 Final 303(d) list of impaired waters identifies Grants Creek as an impaired water due to DHHS Fish Consumption Advisory present in, or located within 1.0 mile downstream of, the study area.

Three jurisdictional wetlands were identified within the study area. All wetlands in the study area are located within the Yadkin Pee Dee River Basin. The locations of these wetlands are shown on Figures 3A through 3E in Appendix A. Characteristics of these wetlands and their estimated impacts can also be found in Tables 7 and 8 in Appendix A.

4. Major Hydraulic Crossings

Major hydraulic crossings are those with a contributing drainage area requiring conveyance greater than a 72-inch pipe. A Preliminary Hydraulics Study completed for the proposed project identified eight major hydraulic crossings, shown on Figures 2 and 3A-3E in Appendix A. There are no USGS Stream Gage sites on the identified streams; however, flood studies have been completed for several of the waterways. Stream SA has been redelineated. Limited Detail flood studies have been completed for Streams SC and SBB. A Detailed flood study has been completed for Grants Creek.

The hydraulic structures are described in Table 7, and additional information, including the individual site plan and photographs are included in Appendix B. All stream crossings are jurisdictional streams; therefore, the culvert and pipe recommendations are oversized to account for the buried depth of the structures to maintain depth requirements for hydraulic performance.

Table 3. Major Hydraulic Structure Recommendations

Site Number	Alternative ID	Route	Stream/ Wetland ID	Lat	Long	FEMA Study Type	Drainage Area (sq mi)	Existing Structure	Minimum Recommended Structure[1,2]	Structure Cost Estimate	Potential Impact[4]			
											Slope Stakes + 40 ft		Slope Stakes + 0 ft	
								Number, Size, Structure Type	Number, Size, Structure Type		Streams (lf)	Mitigation Cost Estimate[5]	Streams (lf)	Mitigation Cost Estimate
1	1, 1A, 2, 2A, 3, 3A, 6, 6A	L	SA	35.6685	-80.5005	Redelineation	1.06	New Alignment	(1) 13'x9' RCBC OAL = 190'	$722,000	321	$508,000	210	$332,000
2	1, 1A, 2, 2A, 3, 3A, 6, 6A	L	SC	35.6612	-80.5104	Limited Detailed Study	0.34	New Alignment	(1) 7'x7' RCBC OAL = 139' (Alts 1, 2, 3, 6)	$330,820	233 (Alts 1, 2, 3, 6)	$369,000 (Alts 1, 2, 3, 6)	148 (Alts 1, 2, 3, 6)	$234,000 (Alts 1, 2, 3, 6)
									(1) 7'x7' RCBC OAL = 309' (Alts 1A, 2A, 3A, 6A)	$735,420	388 (Alts 1A, 2A, 3A, 6A)	$614,000 (Alts 1A, 2A, 3A, 6A)	309 (Alts 1A, 2A, 3A, 6A)	$489,000 (Alts 1A, 2A, 3A, 6A)
3	1, 1A, 2, 2A, 6, 6A	L	SBB	35.6531	-80.5150	Limited Detailed Study	0.99	New Alignment	(1) 12'x7' RCBC OAL = 164'	$524,800	287	$454,000	169	$267,000
4	1, 1A, 2, 2A, 6, 6A	L	SP	35.6386	-80.5187	N/A	0.09	(1) 96" CMP Length = 64'	Retain & Extend OAL = 160'	$384,000	270	$427,000	196	$310,000
7	3, 3A	L ALT 3-2	SB	35.6581	-80.5156	Detailed Study	36.5	(1) 120' Bridge	Retain	N/A	N/A			
8	3, 3A	L ALT 3-1	SB	35.6565	-80.5210	Detailed Study	35.3	New Alignment	(1) 120' Bridge[3]	$1,944,000	0	0	0	0
12	3, 3A	L ALT 3-1	SG	35.6398	-80.5274	N/A	0.60	(2) 60" CMP Length = 54'	Retain & Extend OAL = 96'	$92,400	122	$193,000	49	$78,000
15	3, 3A	Y4 ALT 3	SG	35.6381	-80.5261	N/A	0.39	(1) 72" CMP Length = 49'	Retain & Extend OAL = 69'	$40,000	80	$127,000	20	$32,000

[1]Major Hydraulic Structures - conveyance greater than 72-inch pipe or have an opening equal to or greater than 30 square feet.
[2]Recommended culvert sizes were calculated based on HW/D=1.2, per NCDOT guidelines.
[3]Minimum bridge length is the minimum length required to span the floodway and have a "no rise". It is not the minimum length required for the hydraulic opening.
[4]Impacts have been calculated based on slope stakes limits plus 40 feet and slope stake limits only. No wetlands impacts are expected at these sites.
[5]Mitigation cost = stream length within impact area X $791.19 X 2.
RCBC – Reinforced Concrete Box Culvert; OAL – Overall Length

Site 1: It is recommended to utilize a proposed 13’ x9’ RCBC to convey Stream SA. Analysis of the 50-year design storm event at this new location crossing indicates that the 13’x9’ RCBC is sufficiently sized. Additionally, the culvert width matches the existing stream base width, and the downstream structure at US 70/601 is a 14’x7’ RCBC.

Site 2: It is recommended to utilize a proposed 7’x7’ RCBC to convey Stream SC. Analysis of the 50-year design storm event at this new location crossing indicates that the 7’x7’ RCBC is sufficiently sized. Additionally, the culvert width matches the existing stream base width.

Site 3: It is recommended to utilize a proposed 12’x7’ RCBC to convey Stream SBB. Analysis of the 50-year design storm event at this new location crossing indicates that the 12’x7’ RCBC is sufficiently sized. Additionally, the culvert width matches the existing stream base width.

Site 4: It is recommended to extend the existing 96” CMP to the proposed fill limits. Analysis of the 50-year design storm event indicates that the 96” CMP is adequately sized, and the downstream culvert is a 96” CMP; therefore, extension of the culvert is warranted.

Site 7: It is recommended to retain the existing bridge since the proposed typical section can be contained within the existing bridge typical section.

Site 8: It is recommended to utilize a proposed bridge to convey Stream SII. The drainage area at this new location crossing is over 36 square miles. Additionally, bridges are utilized as crossings both upstream and downstream.

Site 12: It is recommended to extend the existing 2 @ 60” CMP to the proposed fill limits. Analysis of the 50-year design storm event indicates that the double 60” CMP is adequately sized; therefore, extension of the culvert is warranted.

Site 15: It is recommended to extend the existing 72” CMP as needed to the proposed fill limits. Analysis of the 50-year design storm event indicates that the single 72” CMP is adequately sized; therefore, extension of the culvert is warranted.

5. Potential Environmental Effects

Potential environmental effects were evaluated for each of the eight Build Detailed Study Alternatives using the functional designs. Proposed slope stake limits were buffered by 40 feet to calculate potential natural and human environmental impacts for each alternative (see Table 8 below and Figures 3A through 3E in Appendix A). The impact categories for delineated streams, wetlands, known federally protected species, potential historic resources, and geoenvironmental sites are based on field investigations. All other impact categories are based on available desktop GIS data and will be further refined as additional technical reports are completed for the project.

Table 4. Summary of Potential Environmental Effects by Build Detail Study Alternative

Impact Category	Measure	Detailed Study Alternative							
		1	1A	2	2A	3	3A	6	6A
Length (L-line)	Miles	3.91	3.94	2.84	2.88	4.22	4.25	3.82	3.85
Proposed Major Hydraulic Sites	Number	4	4	4	4	6	6	4	4
Natural Resource Impacts									
Delineated Wetlands (Jurisdictional)	Acres	0.1	0.1	0.0	0.0	2.4	2.4	0.1	0.1
Delineated Streams (Jurisdictional)	Linear Feet	1,895	2,267	1,339	1,711	2,756	3,051	2,058	2,430
Potential Stream Crossings	Number	9	10	7	8	11	12	10	11
Known Federally Protected Species[2]	Number Occurrences	0	0	0	0	0	0	0	0
100-Year Floodplain	Acres	6.0	6.5	6.0	6.5	19.0	19.0	6.0	6.5
Floodway	Acres	0.0	0.0	0.0	0.0	3.9	3.8	0.0	0.0
Human Environment Impacts									
Residential Relocations	Number Structures	6	3	6	3	14	11	6	3
Commercial Relocations	Number Structures	3	3	1	1	1	1	3	3
Physical Environment Impacts									
Superfund Sites	Number Sites	1	1	0	0	1	1	1	1
Registered Underground Storage Tank	Number	0	0	4	4	0	0	0	0
Transmission Lines	Linear Feet	719	1,094	719	1,094	719	1,094	719	1,094
Old Landfill	Acres	0.0	0.0	0.0	0.0	2.0	2.0	0.0	0.0
Farmland of Statewide Importance	Acres	26.8	24.6	21.0	18.8	29.7	27.7	30.7	28.6
Airport Property	Acres	8.4	8.4	7.8	7.8	34.1	34.1	8.4	8.4
Conservation Easement	Acres	1.0	1.0	1.0	1.0	23.5	23.5	1.0	1.0

[1]Impacts based on slope stake limits plus 40 feet.

[2]IPaC lists Monarch Butterfly (PT)and Schweinitz's Sunflower (E). NV5 biologists conducted a habitat survey for Schweinitz's sunflower in September and October of 2024. While several sections of early successional habitat were identified within the study area, no Schweinitz's sunflower was found.

6. Avoidance and Minimization

Concurrence Point 1: See the CP 1 packet for previously identified avoidance and minimization items.

Concurrence Point 2: See the CP 2 packet for previously identified avoidance and minimization items. The following avoidance item was identified after the CP 2 meeting was held.

- The Alternatives 6 and 6A preliminary corridor alignment near the project terminus at Cedar Springs Road will avoid impacts on the operations of the Westlake Royal Building Products business.

Concurrence Point 2A:

- To the extent possible, the proposed detailed study alignments will utilize 2:1 fill slopes in jurisdictional areas to minimize impacts to streams and wetlands.
- Existing drainage patterns are being maintained to the extent practicable.

7. Merger Plan Review/Next Steps

NCDOT proposes the next Merger Meeting will be CP 3 (Least Environmentally Damaging Practicable Alternative/Preferred Alternative), currently proposed to be held in February 2026. Following concurrence on Bridging Decisions and Alignment Review at CP 2A, NCDOT will conduct a public meeting in November 2025 and calculate preliminary impacts in preparation for the CP 3 meeting. Merger Team members will be notified of any changes that require a revision of this timetable.

Section 404/NEPA Merger Project Team Meeting Agreement
Concurrence Point No. 2A
Bridging Decisions and Alignment Review

Project Title: Proposed Airport Parkway (STIP No. U-5901, WBS No. 44705.1.1) from US 70/US 601 (Jake Alexander Boulevard) to SR 2538 (Peeler Road) at US 29 (S. Main Street) in Salisbury, Rowan County

STIP Project No.: U-5901

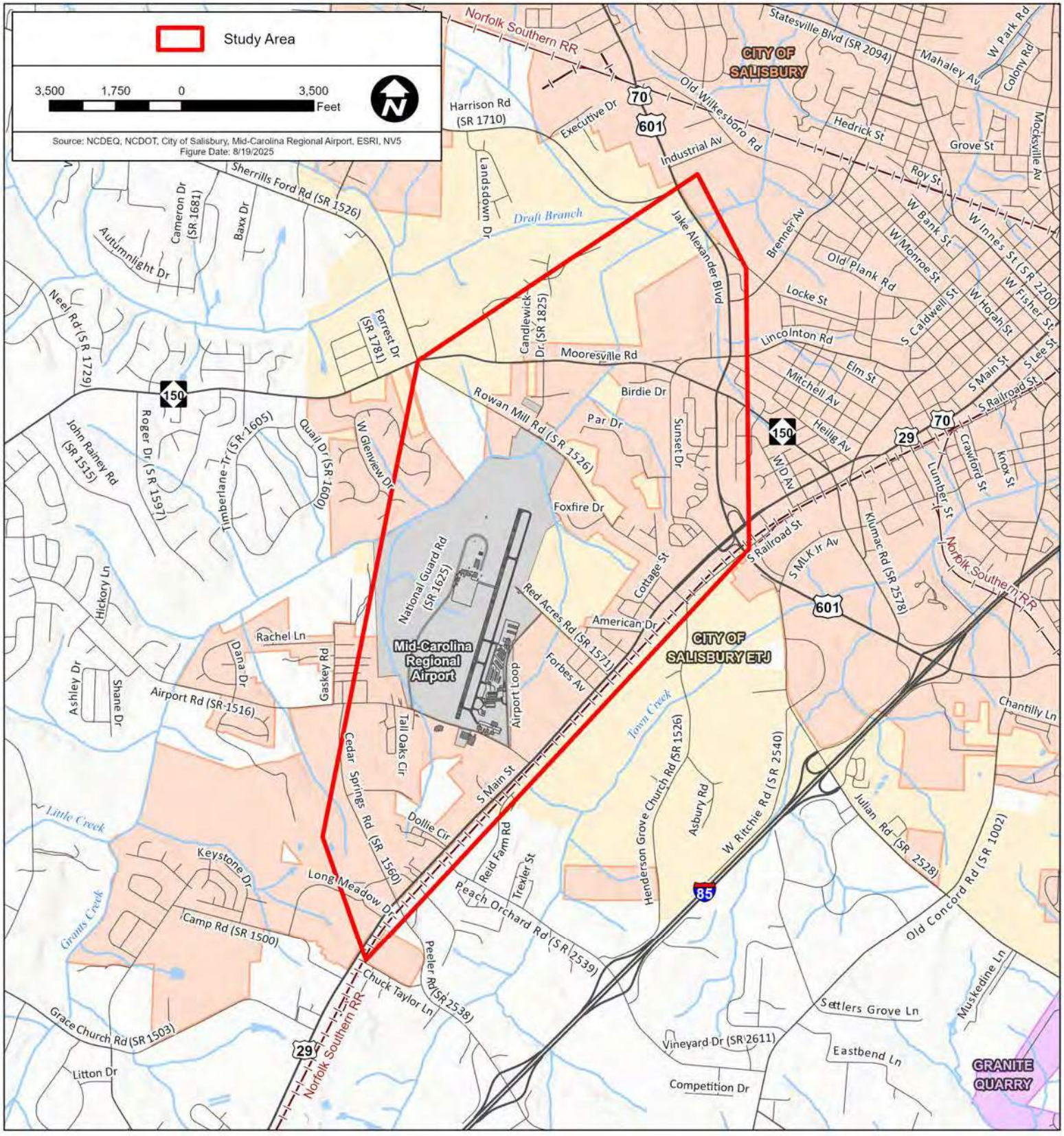
WBS No.: 44705.1.1

The Merger Team concurred on October 15, 2025, on the major hydraulics structures as shown in Table 3 of the CP 2A Merger Packet for NCDOT STIP Project No. U-5901.

Agency	Signature
USACE	
USEPA	
USFWS	
FHWA	
NCDOT	
NCWRC	
NCDEQ DWR	
NCHPO	
CRMPO	

Appendix A

Figures & Tables



NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION 9

New Route (Airport Parkway)
from US 70 / US 601 (Jake Alexander Blvd)
to SR 2538 (Peeler Rd) at US 29 in Salisbury.
Construct 2-Lane Roadway.

STIP Project U-5901

Rowan County

Figure 1 - Project Vicinity

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION 9

Source: NCDOT, NC OneMap, Rowan County Airport, RVS
Figure Date: 8/27/2026

New Route (Airport Parkway)
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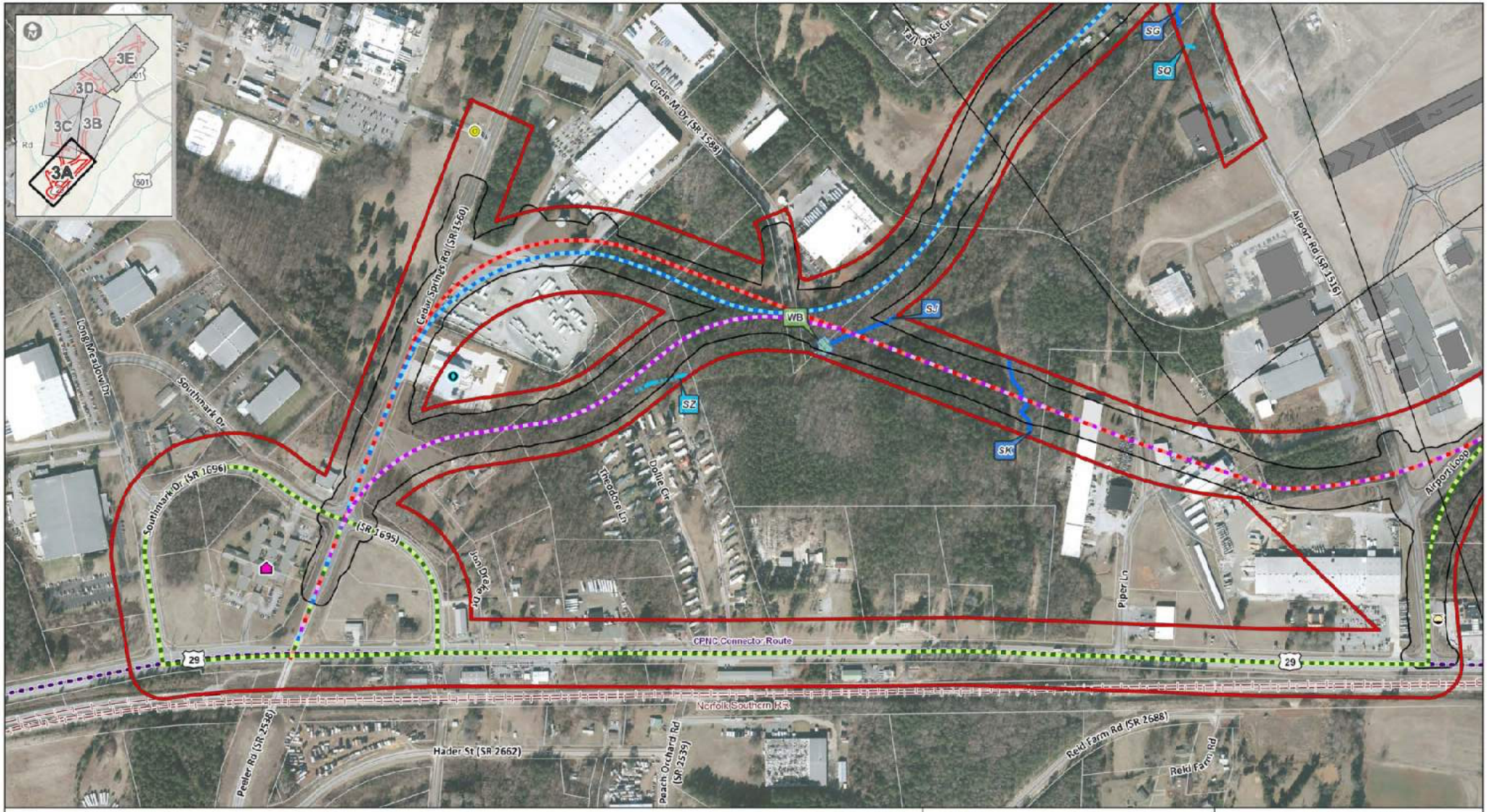
Construct 2-Lane Roadway.

STIP Project U-5901

Rowan County

Figure 2 - Detailed Study Alternatives (Overview)


3A
3B
3C
3D
3E
501
Fall Oaks Cir
Circle M Dr (SR 1589)
Cedar Springs Rd (SR 1560)
Airport Rd (SR 1516)
Long Meadow Dr
Southmark Dr
Southmark Dr (SR 1696)
(SR 1695)
Theodore Ln
Dollie Cir
Jodi Dee Dr
Piper Ln
Airport Loop
WB
SG
SQ
SJ
SZ
SK
CPNC Connector Route
29
Norfolk Southern RR
Peeler Rd (SR 2538)
Hader St (SR 2662)
Peach Orchard Rd (SR 2539)
Reid Farm Rd (SR 2688)
Reid Farm Rd
Detailed Study Alternatives
1
1A
2
2A
3
3A
6
6A
Slope Stakes + 40 ft
300 Ft Corridor
Church
Fire Station
Retirement Home
Registered UST
Superfund Site
Electric Substation
Transmission Line
Bicycle Route
Railroad
Hydraulic Site Structure
Bridge
Culvert or Pipe
Perennial Stream (delineated)
Intermittent Stream (delineated)
Wetland (delineated)
Floodway
100-Year Floodplain
Old Landfill (approx location)
Airport Layout
Airport Boundary
Conservation Easement
Parcel
Map Index Tile
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION 9
400 200 0 400 Feet
New Route (Airport Parkway)
from US 70 / US 601 (Jake Alexander Blvd)
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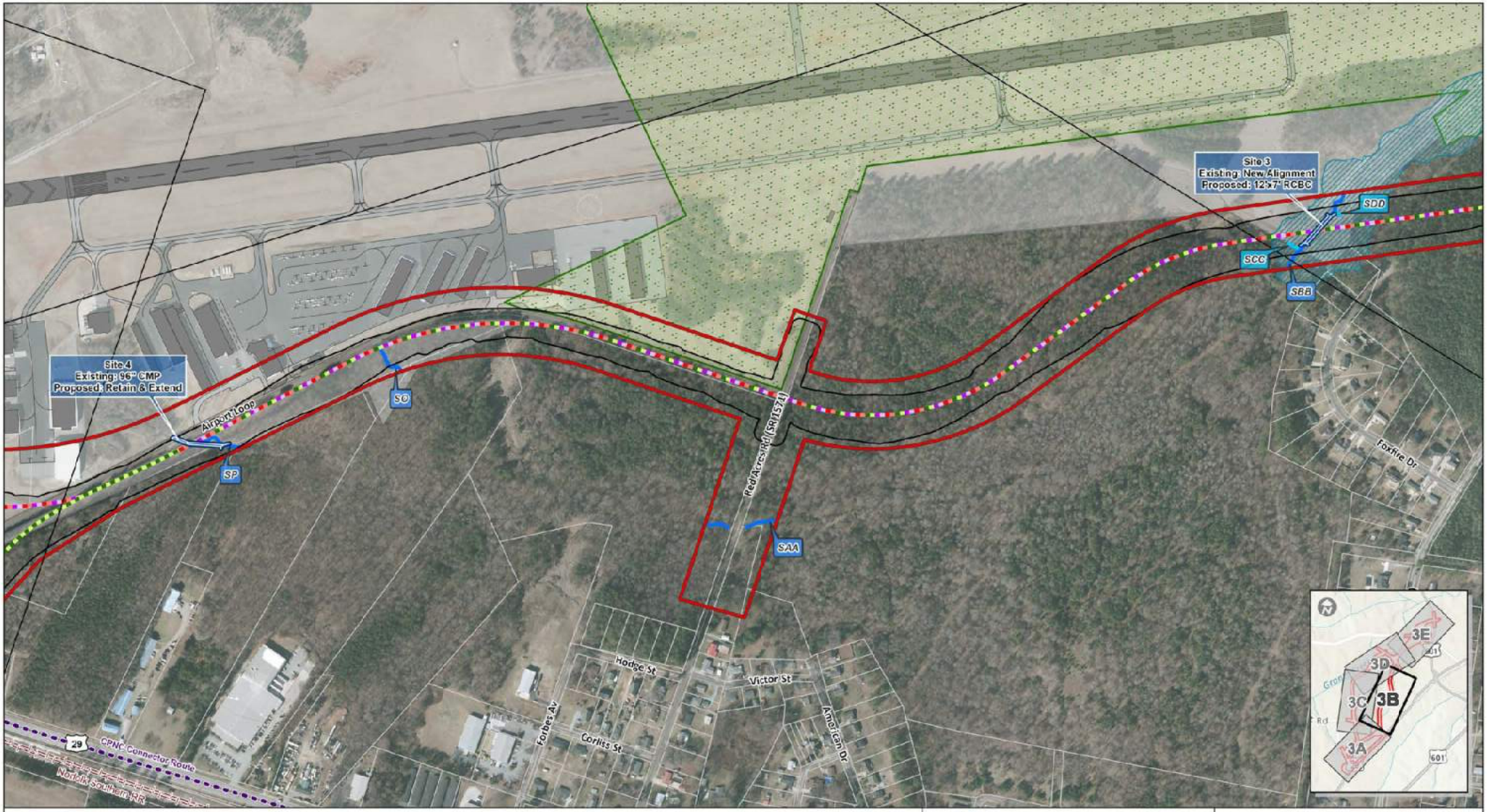
Construct 2-Lane Roadway.
STIP Project U-5901
Rowan County
Figure 3A - DSAs, Hydraulic Sites,
& Environmental Features


Site 4
Existing: 96" CMP
Proposed: Retain & Extend
Site 3
Existing: New Alignment
Proposed: 12'x7' RCBC
SD
SP
SAA
SCC
SDD
SBB
Airport Loop
Red Acres Rd (SR 1574)
Foxfire Dr
Hodge St
Victor St
Forbes Av
Corliss St
American Dr
29
CPNC Connector Route
Norfolk Southern RR
3E
3D
3C
3B
3A
601
Detailed Study Alternatives
1
1A
2
2A
3
3A
6
6A
Slope Stakes + 40 ft
300 Ft Corridor
Church
Fire Station
Retirement Home
Registered UST
Superfund Site
Electric Substation
Transmission Line
Bicycle Route
Railroad
Hydraulic Site Structure
Bridge
Culvert or Pipe
Perennial Stream (delineated)
Intermittent Stream (delineated)
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100-Year Floodplain
Old Landfill (approx location)
Airport Layout
Airport Boundary
Conservation Easement
Parcel
Map Index Tile
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
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400 200 0 400 Feet
Source: NCDEQ, NCDOT, NCFMP, NCMHP, NC OneMap, Rowan County Airport, Google, NYS
Figure Date: 5/30/2025
New Route (Airport Parkway)
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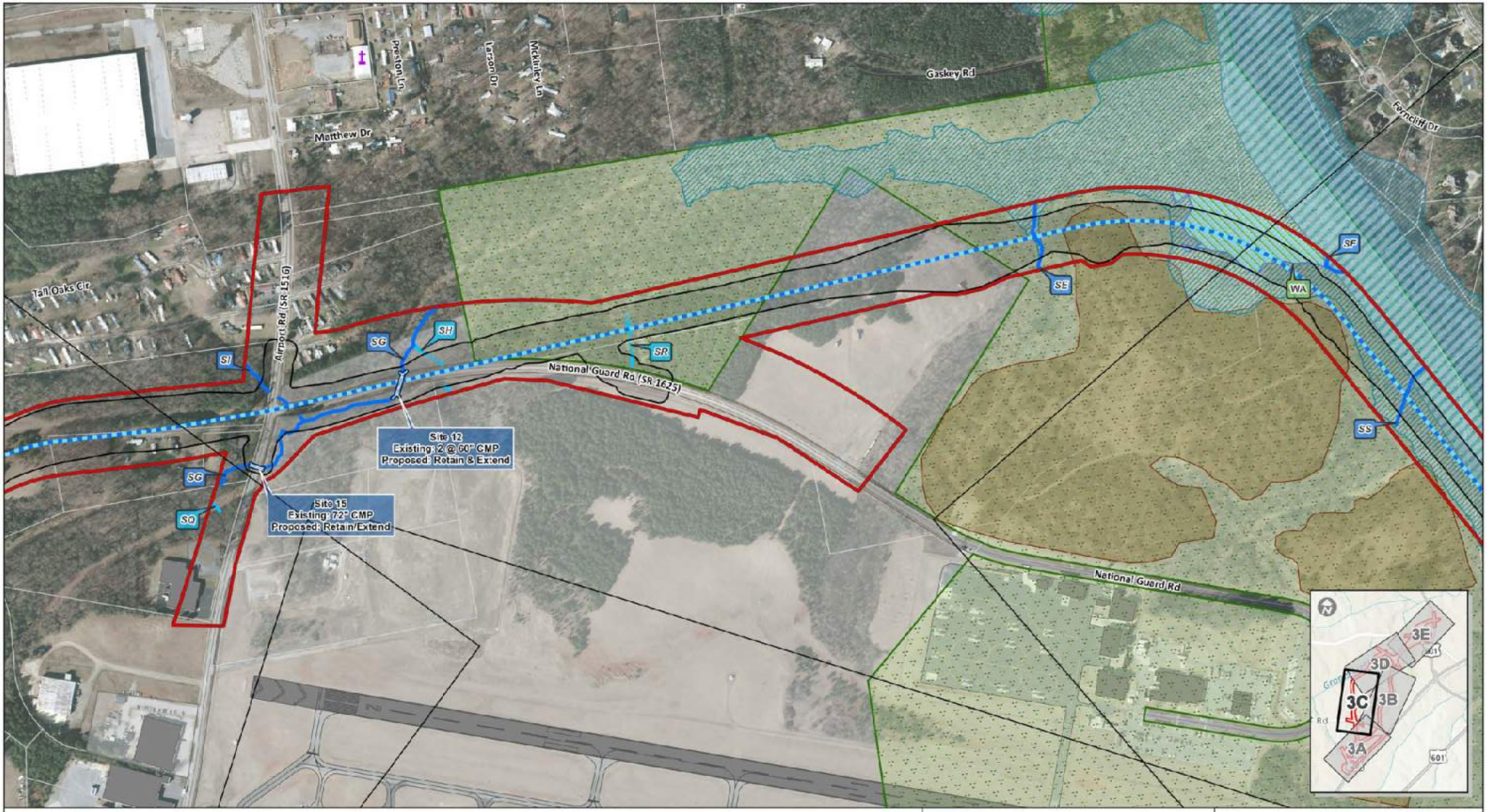
Construct 2-Lane Roadway.
STIP Project U-5901
Rowan County
Figure 3B - DSAs, Hydraulic Sites,
& Environmental Features


Gaskey Rd
Preston Ln
Larson Dr
McKinley Ln
Matthew Dr
Fayecliff Dr
Tall Oaks Cir
Airport Rd (SR 1516)
National Guard Rd (SR 1625)
National Guard Rd
SF
SE
WA
SH
SG
SR
SI
SS
SQ
Site 12
Existing: 2 @ 60" CMP
Proposed: Retain & Extend
Site 15
Existing: 72" CMP
Proposed: Retain/Extend
3E
3D
3C
3B
3A
601
Detailed Study Alternatives
1
1A
2
2A
3
3A
6
6A
Slope Stakes + 40 ft
300 Ft Corridor
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Source: NCDEQ, NCDOT, NCFMP, NCMHP, NC OneMap, Rowan County Airport, Google, NYS
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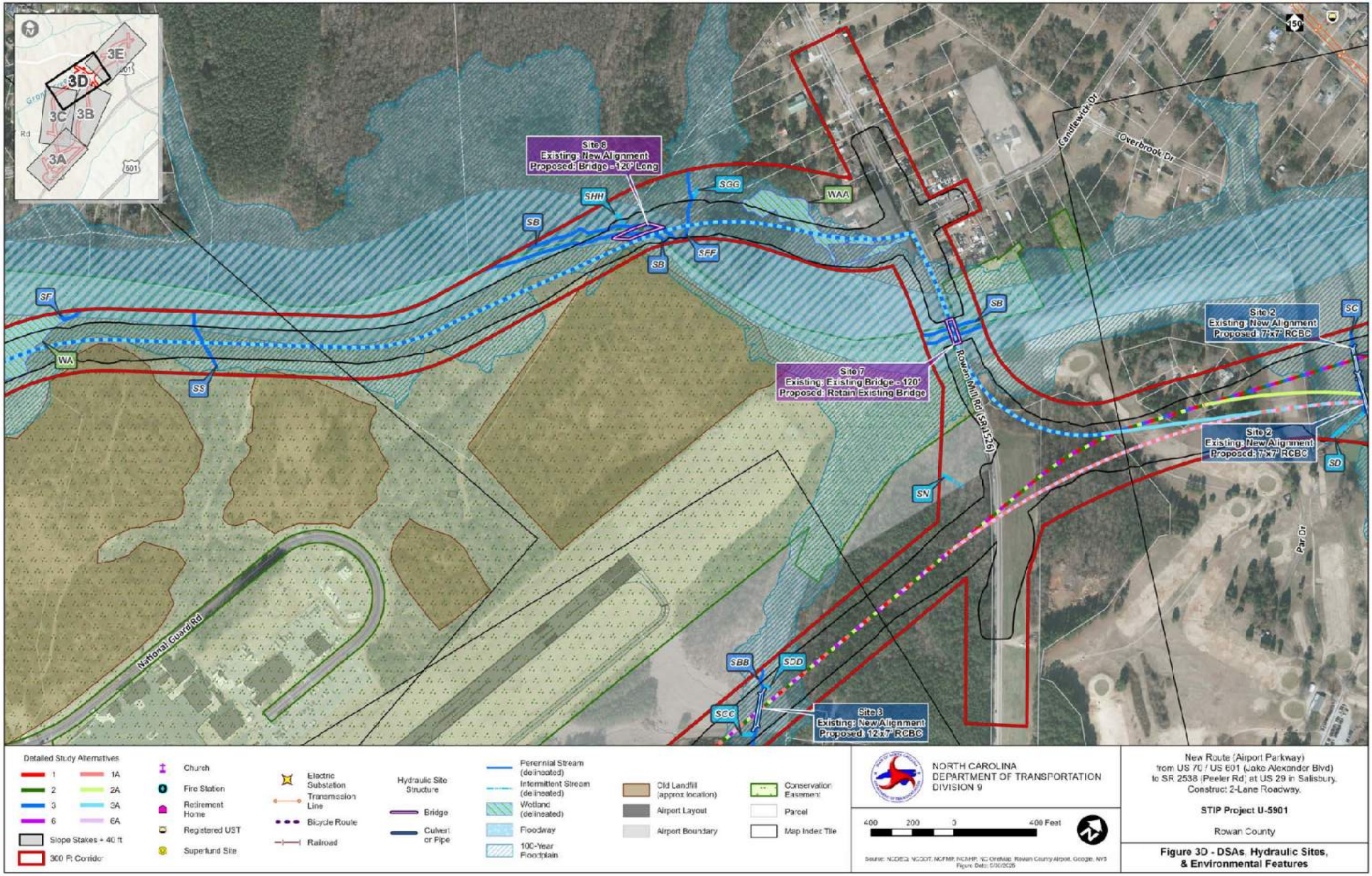
STIP Project U-5901
Rowan County
Figure 3C - DSAs, Hydraulic Sites,
& Environmental Features


3E
3D
3C
3B
3A
Site 8
Existing: New Alignment
Proposed: Bridge - 120' Long
Site 7
Existing: Existing Bridge - 120'
Proposed: Retain Existing Bridge
Site 2
Existing: New Alignment
Proposed: 7'x7' RCBC
Site 2
Existing: New Alignment
Proposed: 7'x7' RCBC
Site 3
Existing: New Alignment
Proposed: 12'x7' RCBC
Rowan Mill Rd (SR 1526)
National Guard Rd
Candlewick Dr
Overbrook Dr
Par Dr
SHH
SGG
WAA
SB
SFF
SF
WA
SS
SC
SD
SN
SBB
SDD
SGC
Detailed Study Alternatives
1
1A
2
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Slope Stakes + 40 ft
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Rowan County
Figure 3D - DSAs, Hydraulic Sites,
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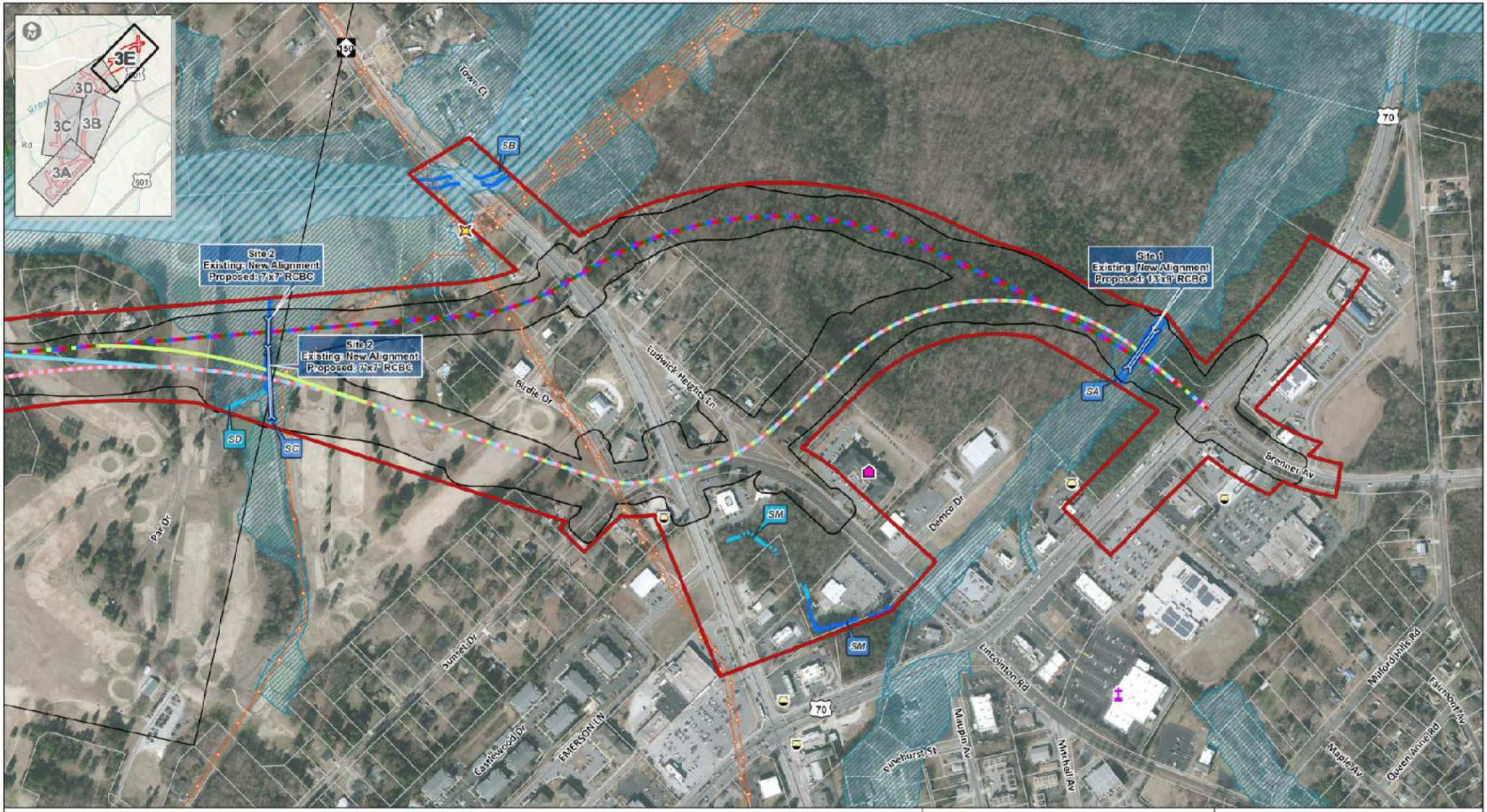
3E
3D
3C
3B
3A
Site 2
Existing: New Alignment
Proposed: 7'x7' RCBC
Site 2
Existing: New Alignment
Proposed: 7'x7' RCBC
Site 1
Existing: New Alignment
Proposed: 13'x9' RCBC
SB
SC
SD
SA
SM
SM
Town Ct
Birdie Dr
Ludwick Heights Ln
Par Dr
Sunset Dr
Castlewood Dr
EMERSON LN
Pinehurst St
Mauplin Av
Mitchell Av
Lincolnton Rd
Demco Dr
Brenner Av
Milford Hills Rd
Fairmont Av
Maple Av
Queen Anne Rd
70
150
601
501
Detailed Study Alternatives
1
1A
2
2A
3
3A
6
6A
Slope Stakes + 40 ft
300 Ft Corridor
Church
Fire Station
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Registered UST
Superfund Site
Electric Substation
Transmission Line
Bicycle Route
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400 200 0 400 Feet
Source: NCDEQ, NCDOT, NCFMP, NCMHP, NC OneMap, Rowan County Airport, Google, NYS
Figure Date: 5/30/2025
New Route (Airport Parkway)
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STIP Project U-5901
Rowan County
Figure 3E - DSAs, Hydraulic Sites,
& Environmental Features

Table 5. Characteristics of Jurisdictional* Streams in the Study Area

Figure No.	Stream ID	NCSAM Rating		Bank Height (ft)	Bankfull width (ft)	Depth (ft)	Length (ft.)	Classification
		USACE All Streams	NCDWR Intermittent					
3E	SA	High	N/A	5-10	12	6	387.1	Perennial
3D, 3E	SB	High	N/A	Unable To Assess	25-30	Unable To Assess	297.2	Perennial
3D, 3E	SC	Low	N/A	2-3	1-2	0.5-1	568.6	Perennial
3D, 3E	SD	Low	Low	1-2	0.5-1.5	0.5-1	218.6	Intermittent
3C	SE	Medium	N/A	4-6	4	0.5	329.7	Perennial
3C, 3D	SF	Medium	N/A	0.5-1	3	0.5	137.8	Perennial
3A, 3C	SG	Low	N/A	0.5	4-5	0.5	1390.2	Perennial
3C	SH	Medium	High	0.5	2-4	0.5	213.4	Intermittent
3C	SI	Medium	N/A	1	0.5-1	0.5	245.2	Perennial
3A	SJ	Medium	N/A	1	2-3	0.5-1	329.1	Perennial
3A	SK	Low	N/A	4	4-6	1-3	406.4	Perennial
3E	SM	High	High	3	1-2	0.5	371.4	Intermittent
3E	SM	Low	N/A	3	1-2	0.5	458.3	Perennial
3D	SN	Medium	N/A	0.5	1	0.5	130.4	Intermittent
3B	SO	Medium	N/A	2-4	7	0.5	164.9	Perennial
3B	SP	Medium	N/A	3	2-4	0.5-1.5	289.1	Perennial
3A, 3C	SQ	Low	N/A	0.5-1.5	1-3	0.5-1.5	61.0	Intermittent
3C	SR	Medium	N/A	1	0.5-1	0.5-1	247.4	Intermittent
3C, 3D	SS	Medium	N/A	0.5	1-2	0.5	297.8	Perennial
3B	SAA	Low	N/A	5-10	2-10	0.5-1.5	251.6	Perennial
3B, 3D	SBB	Medium	N/A	0.5-2	8	0.5-1	440.6	Perennial
3B, 3D	SCC	High	High	0.5-2	1	0.5-1	67.8	Intermittent
3B, 3D	SDD	Medium	High	0.5-1	1	0.5	41.9	Intermittent
3D	SFF	Medium	N/A	0.5-1.5	4-5	0.5-1.5	373.5	Perennial
3D	SGG	Medium	Medium	0.5	0.5-1	0.5	67.5	Intermittent
3D	SHH	Medium	Medium	0.25	1-3	0.5	78.2	Intermittent
3A	SZ	Low	Low	1	2-3	0.5-1	255.2	Intermittent

*These streams have been delineated in the field but not verified.

Note: All streams are unnamed tributaries to Grants Creek, except Stream SB, which is Grants Creek. Additionally, all streams have an NCDWR Index Number of 12-110 and a Best Usage Classification of C. Compensatory mitigation is assumed to be required for all streams, and no streams are subject to state riparian buffer rules.

Table 6. Detailed Stream Impacts by Build Detail Study Alternative

Stream ID	Figure No.	Detailed Study Alternative (impacts[1] in linear feet)							
		1	1A	2	2A	3	3A	6	6A
SA	3E	**341**	**340**	**341**	**340**	**341**	**340**	**341**	**340**
SB	3D, 3E	0	0	0	0	**436**	**436**	0	0
SC	3D, 3E	**233**	**388**	**233**	**388**	**233**	**354**	**233**	**388**
SD	3D, 3E	0	**218**	0	**218**	0	**175**	0	**218**
SE	3C	0	0	0	0	**199**	**199**	0	0
SF	3C, 3D	0	0	0	0	0	0	0	0
SG	3A, 3C	0	0	0	0	**731**	**731**	0	0
SH	3C	0	0	0	0	**105**	**105**	0	0
SI	3C	0	0	0	0	**135**	**135**	0	0
SJ	3A	**255**	**255**	0	0	0	0	**255**	**255**
SK	3A	**298**	**298**	0	0	0	0	**298**	**298**
SM (Intermittent)	3E	0	0	0	0	0	0	0	0
SM (Perennial)	3E	0	0	0	0	0	0	0	0
SN	3D	0	0	0	0	0	0	0	0
SO	3B	**101**	**101**	**100**	**100**	0	0	**101**	**101**
SP	3B	**270**	**270**	**268**	**268**	0	0	**270**	**270**
SQ	3A, 3C	0	0	0	0	0	0	0	0
SR	3C	0	0	0	0	**176**	**176**	0	0
SS	3C, 3D	0	0	0	0	**178**	**178**	0	0
SAA	3B	0	0	0	0	0	0	0	0
SBB	3B, 3D	**287**	**287**	**287**	**287**	0	0	**287**	**287**
SCC	3B, 3D	**68**	**68**	**68**	**68**	0	0	**68**	**68**
SDD	3B, 3D	42	**42**	**42**	**42**	0	0	**42**	**42**
SFF	3D	0	0	0	0	**186**	**186**	0	0
SGG	3D	0	0	0	0	0	0	0	0
SHH	3D	0	0	0	0	**36**	**36**	0	0
SZ	3A	0	0	0	0	0	0	**163**	**163**
Total		**1,895**	**2,267**	**1,339**	**1,711**	**2,756**	**3,051**	**2,058**	**2,430**

[1]Impacts based on slope stake limits plus 40 feet.

Table 7. Characteristics of Jurisdictional Wetlands in the Study Area

Map ID	Figure No.	NCWAM Classification	NCWAM Rating	Hydrologic Classification	Area (ac.) in Study Area
WAA	3D	Bottomland Hardwood Forest	Medium	Riparian	1.42
WA	3C, 3D	Floodplain Pool	High	Riparian	2.81
WB	3A	Hardwood Flat	Medium	Riparian	0.11

Table 8. Detailed Wetland Impacts by Build Detail Study Alternative

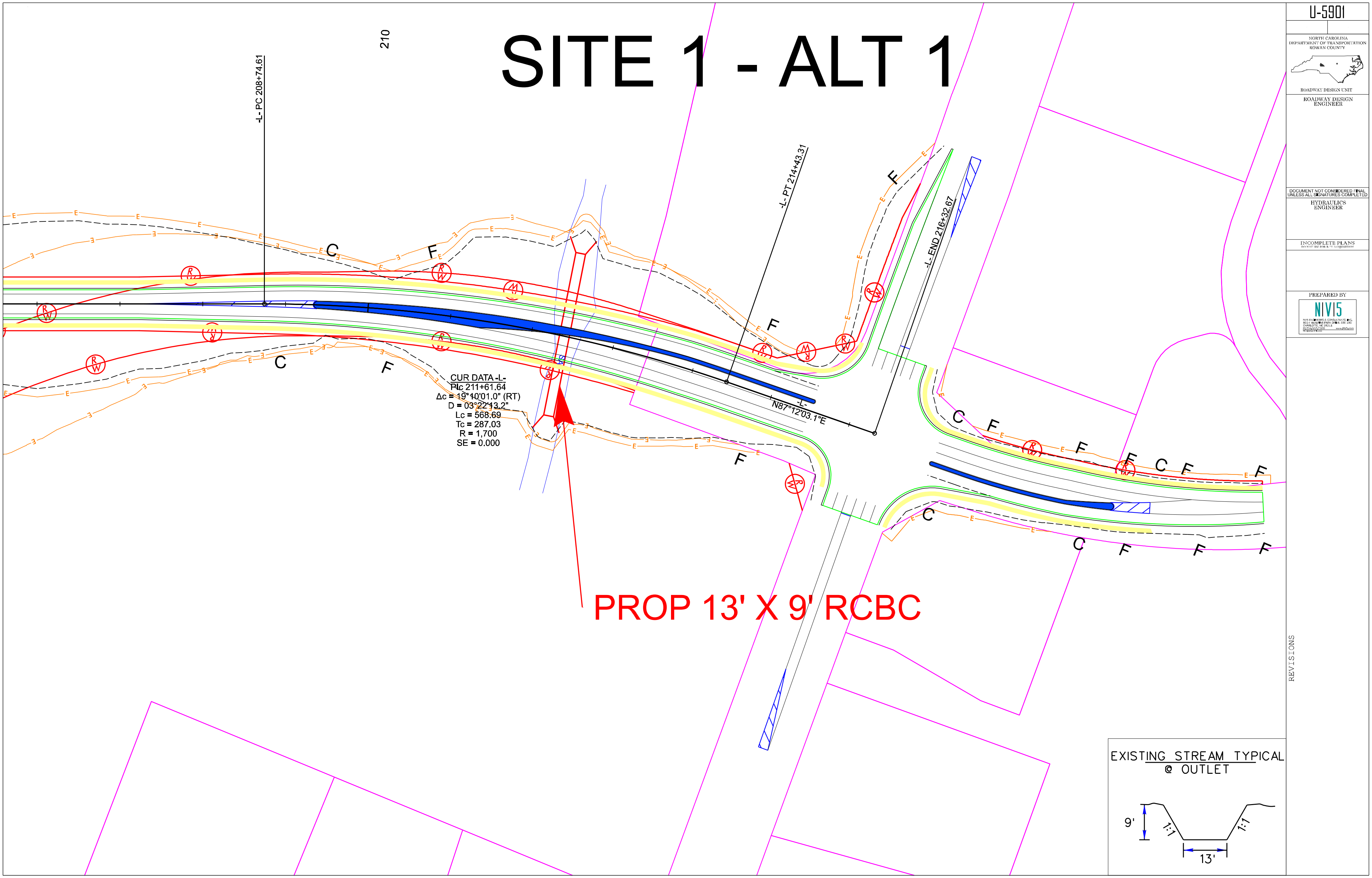
Wetland ID	Figure No.	Detailed Study Alternative (impacts[1] in acres)							
		1	1A	2	2A	3	3A	6	6A
WAA	3D	0.0	0.0	0.0	0.0	**0.7**	**0.7**	0.0	0.0
WA	3C, 3D	0.0	0.0	0.0	0.0	**1.7**	**1.7**	0.0	0.0
WB	3A	**0.1**	**0.1**	0.0	0.0	0.0	0.0	**0.1**	**0.1**
Total		**0.1**	**0.1**	**0.0**	**0.0**	**2.4**	**2.4**	**0.1**	**0.1**

[1]Impacts based on slope stake limits plus 40 feet.

Appendix B

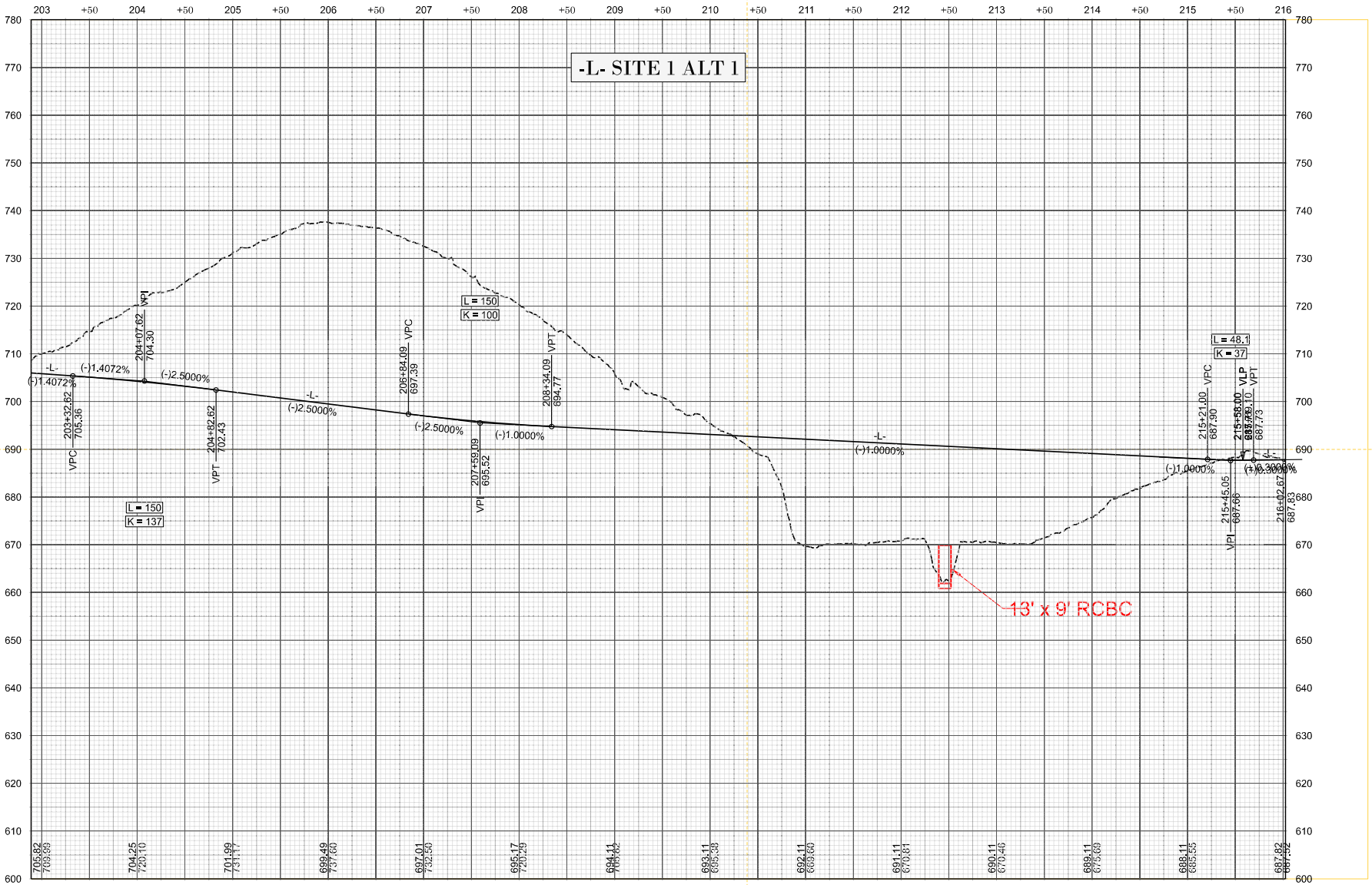
Hydraulic Site Information

SITE 1 - ALT 1



210
-L- PC 208+74.61
-L- PT 214+43.31
-L- END 216+32.67
-L-
N87°12'03.1"E
CUR DATA -L-
PI c 211+61.64
Δc = 19°10'01.0" (RT)
D = 03°22'13.2"
Lc = 568.69
Tc = 287.03
R = 1,700
SE = 0.000
PROP 13' X 9' RCBC
EXISTING STREAM TYPICAL
@ OUTLET
9'
1:1
1:1
13'
U-5901
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION ROWAN COUNTY
ROADWAY DESIGN UNIT
ROADWAY DESIGN ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
HYDRAULICS ENGINEER
INCOMPLETE PLANS
PREPARED BY
NV5
REVISIONS

11/14/23



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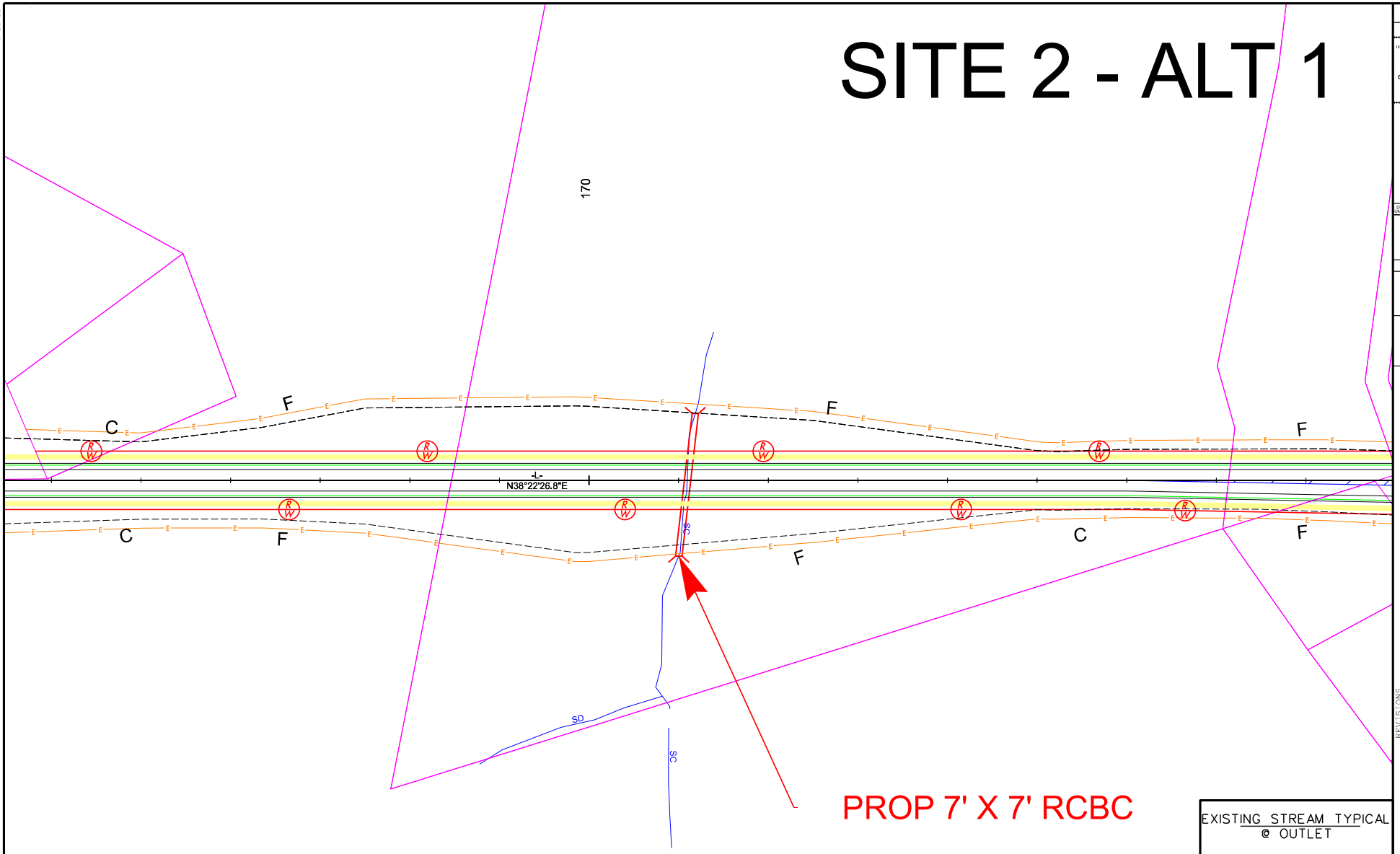
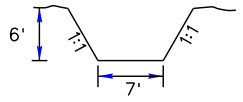
Site 1 Photos

5/26/20

SITE 2 - ALT 1



EXISTING STREAM TYPICAL @ OUTLET



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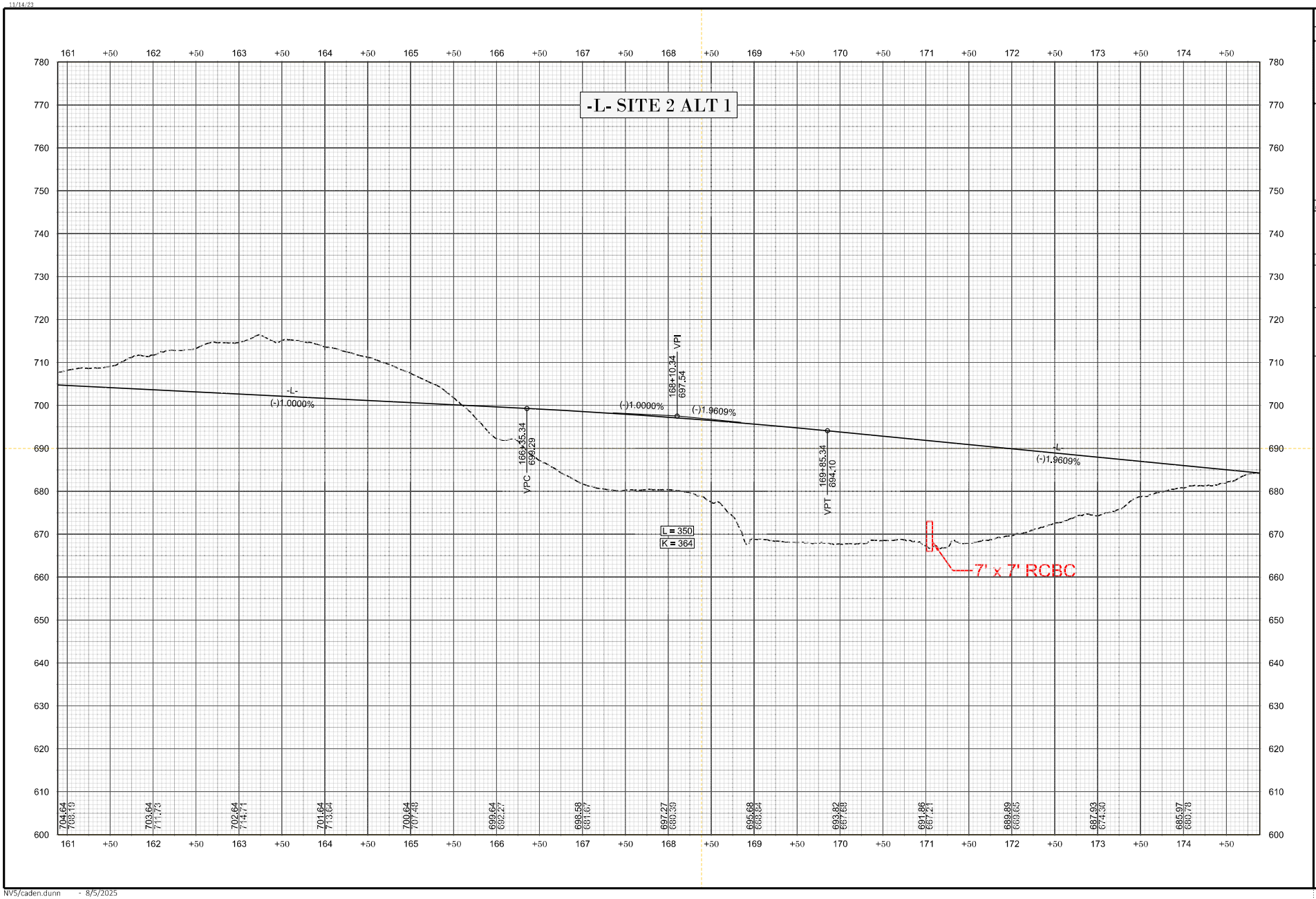

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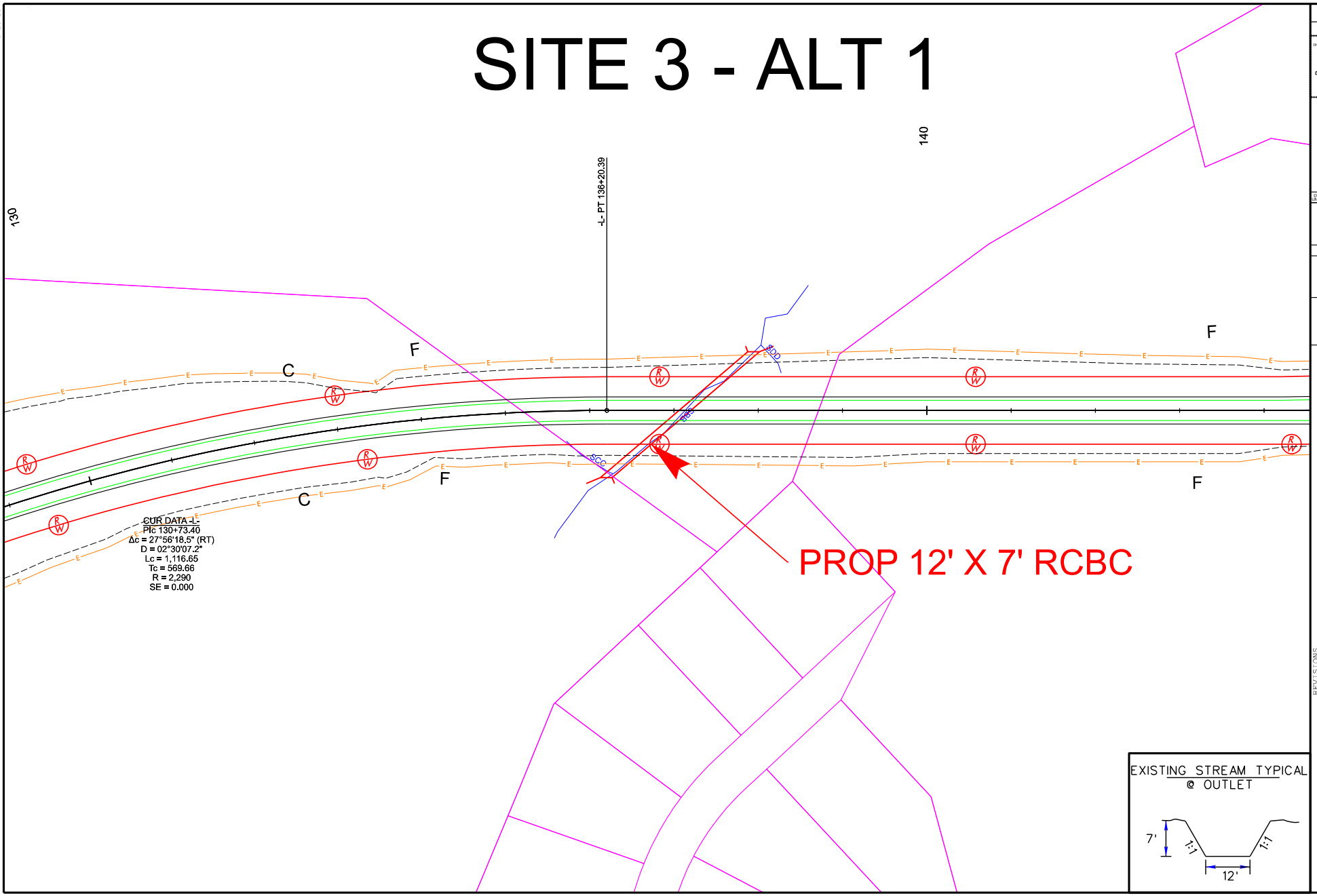
SITE 3 - ALT 1



EXISTING STREAM TYPICAL @ OUTLET

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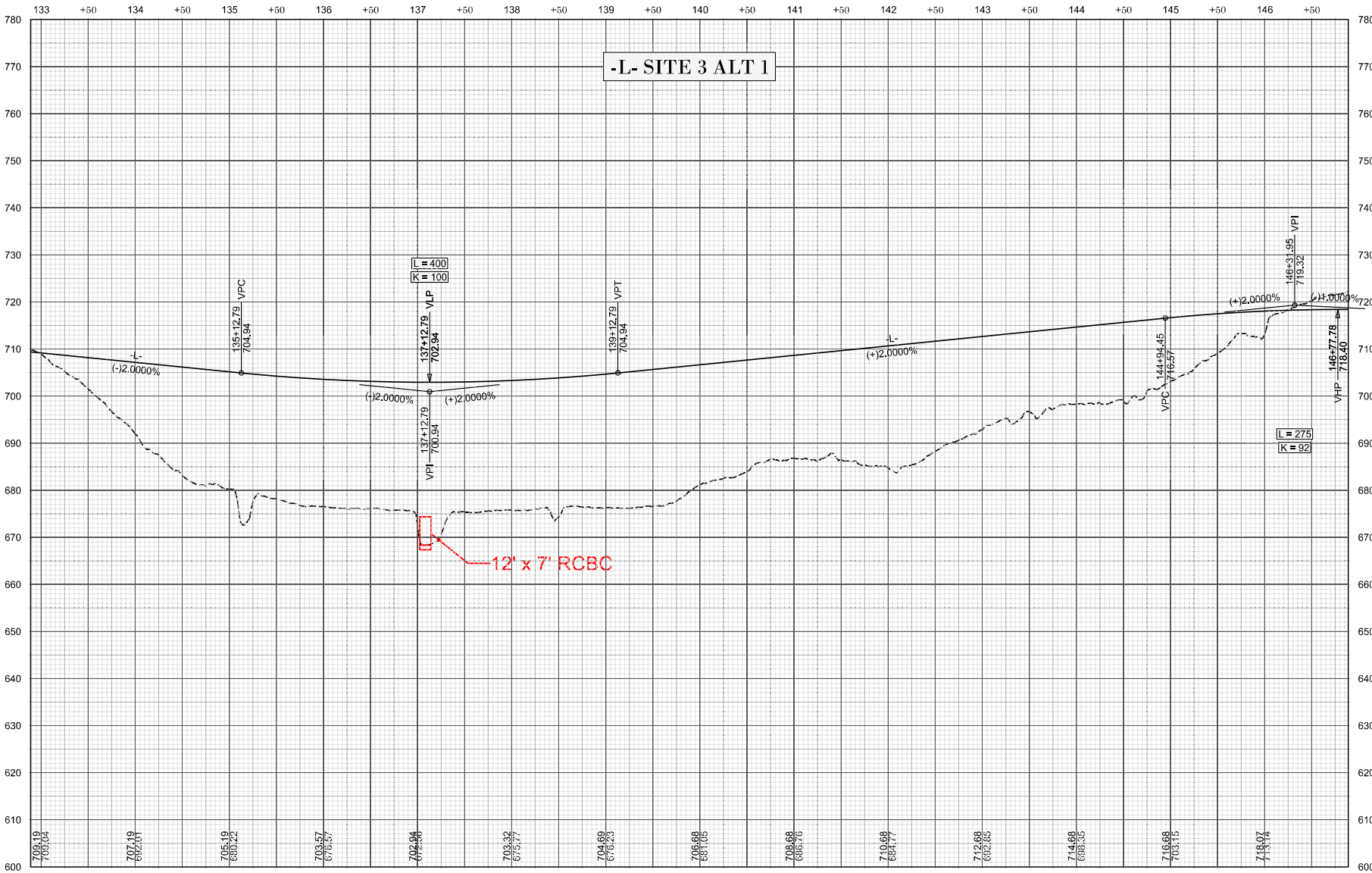

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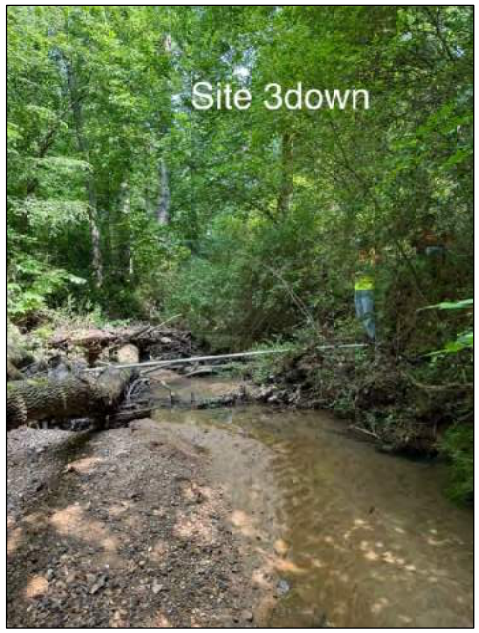
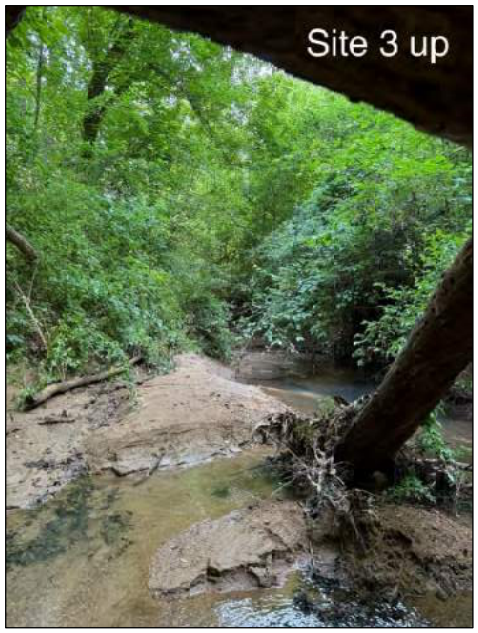
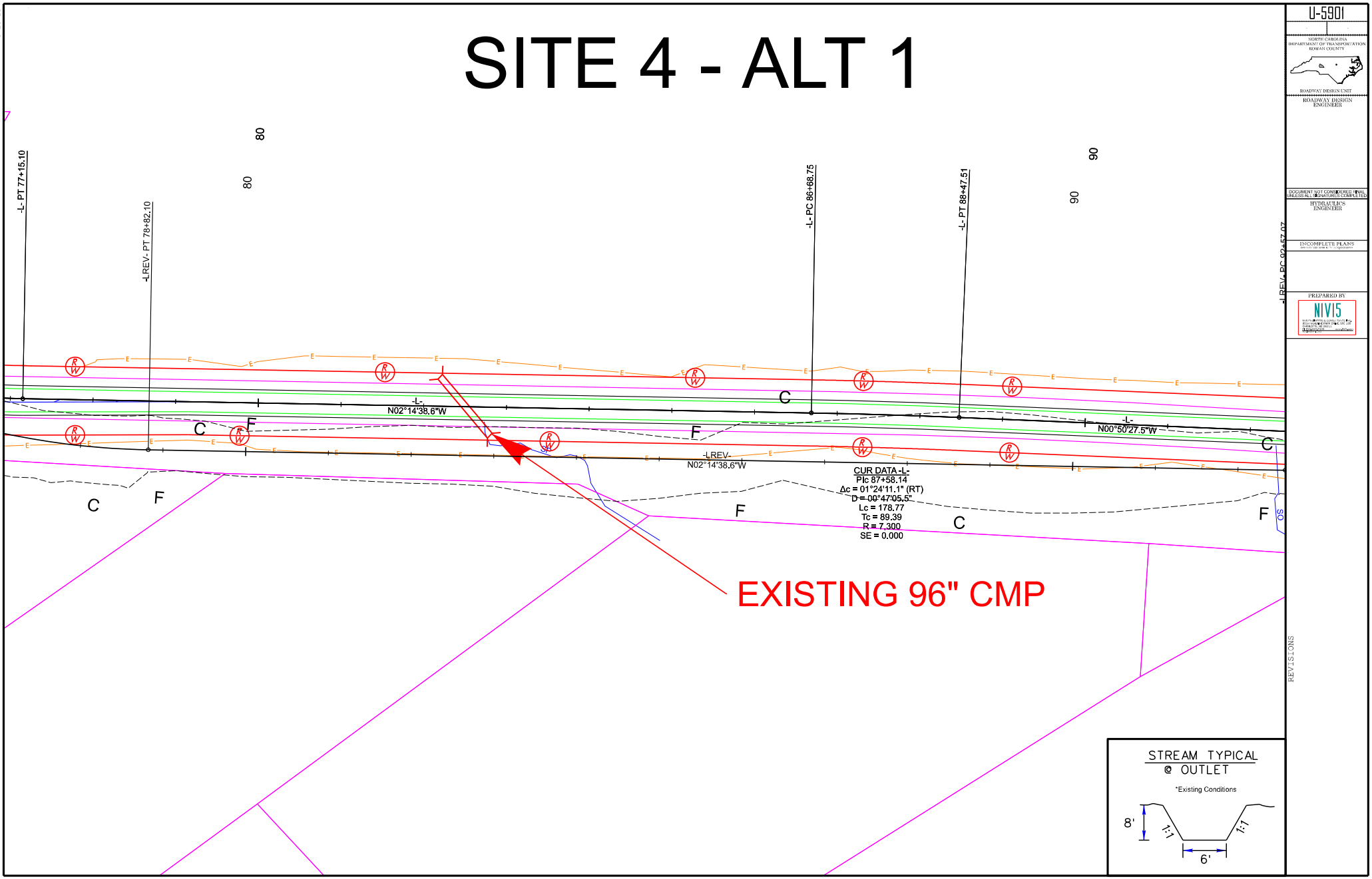




SITE 4 - ALT 1



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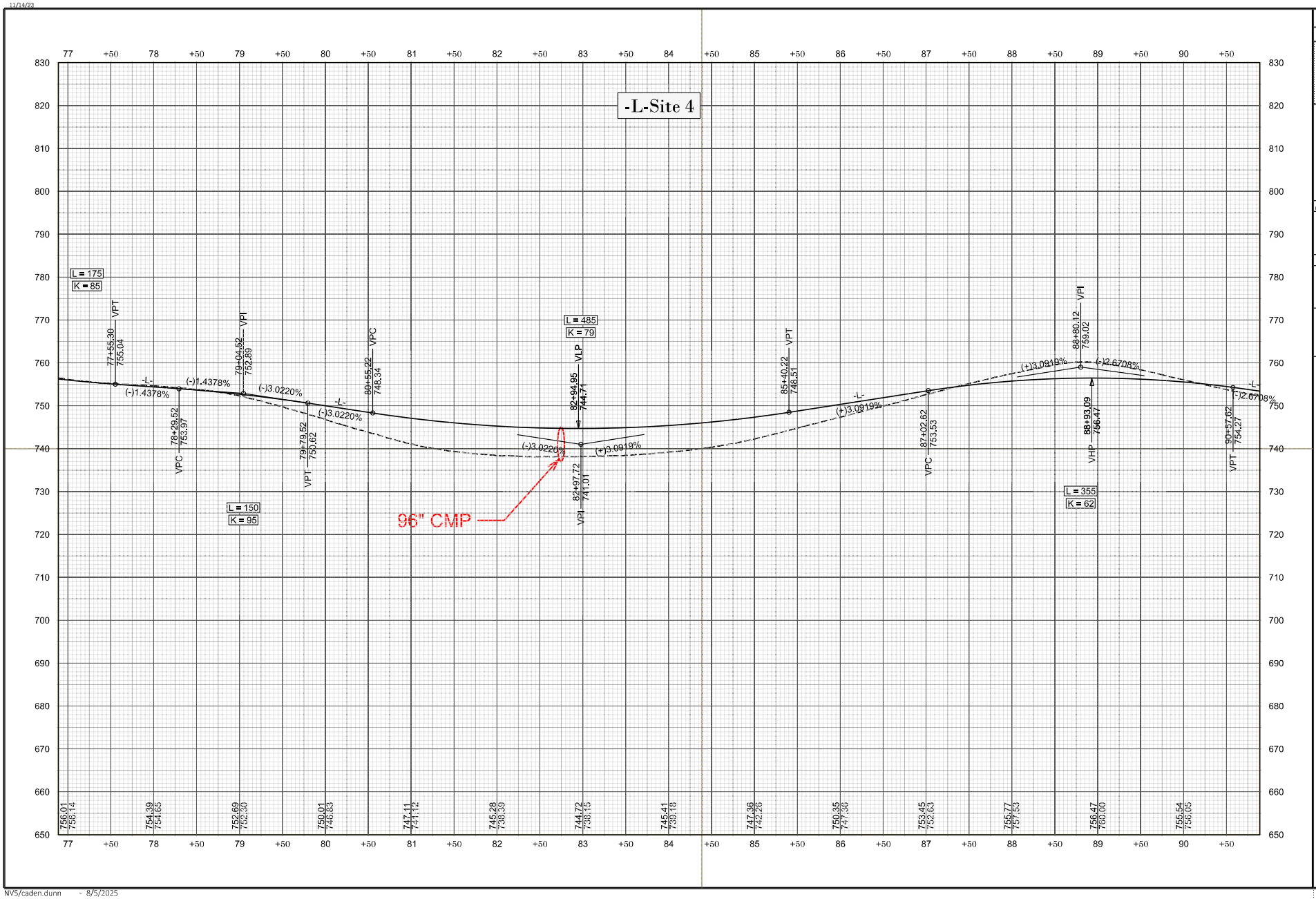

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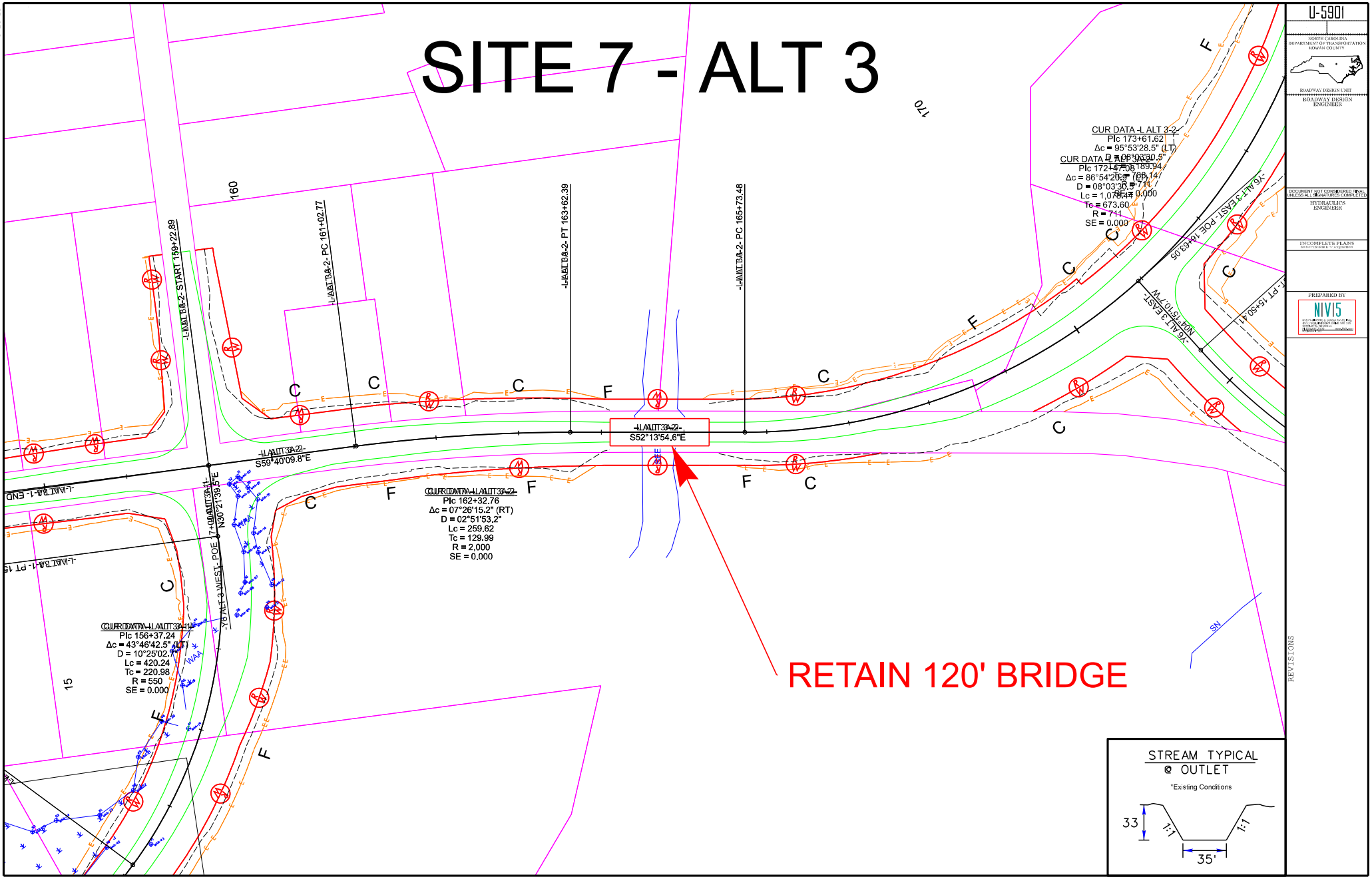
Site 4 Photos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U-5901
-L- ALT 3A-2- START 159+22.89
-L- ALT 3A-2- PC 161+02.77
-L- ALT 3A-2- PT 163+62.39
-L- ALT 3A-2- PC 165+73.48
-L- ALT 3A-2- END
-L- ALT 3A-1- PT 15+50.41
-L- ALT 3A-1- PT 16
-L- ALT 3A-22-
S59°40'09.8"E
-L- ALT 3A-22-
S52°13'54.6"E
-Y6 ALT 3 WEST- POE 17+00.00
N30°21'39.5"E
-Y6 ALT 3 EAST- POE 16+63.05
N64°51'07"W
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Plc 162+32.76
Δc = 07°26'15.2" (RT)
D = 02°51'53.2"
Lc = 259.62
Tc = 129.99
R = 2,000
SE = 0.000
CUR DATA -L- ALT 3A-1-
Plc 156+37.24
Δc = 43°46'42.5" (LT)
D = 10°25'02.7"
Lc = 420.24
Tc = 220.98
R = 550
SE = 0.000
CUR DATA -L- ALT 3-2-
Plc 173+61.62
Δc = 95°53'28.5" (LT)
CUR DATA -L- ALT 3-2-
Plc 172+47.08
Δc = 86°54'20.9" (RT)
D = 08°03'30.5"
Lc = 1,078.48
Tc = 673.60
R = 711
SE = 0.000
RETAIN 120' BRIDGE
STREAM TYPICAL
@ OUTLET
*Existing Conditions
33
1:1
1:1
35'
160
170
15
NORTH CAROLINA
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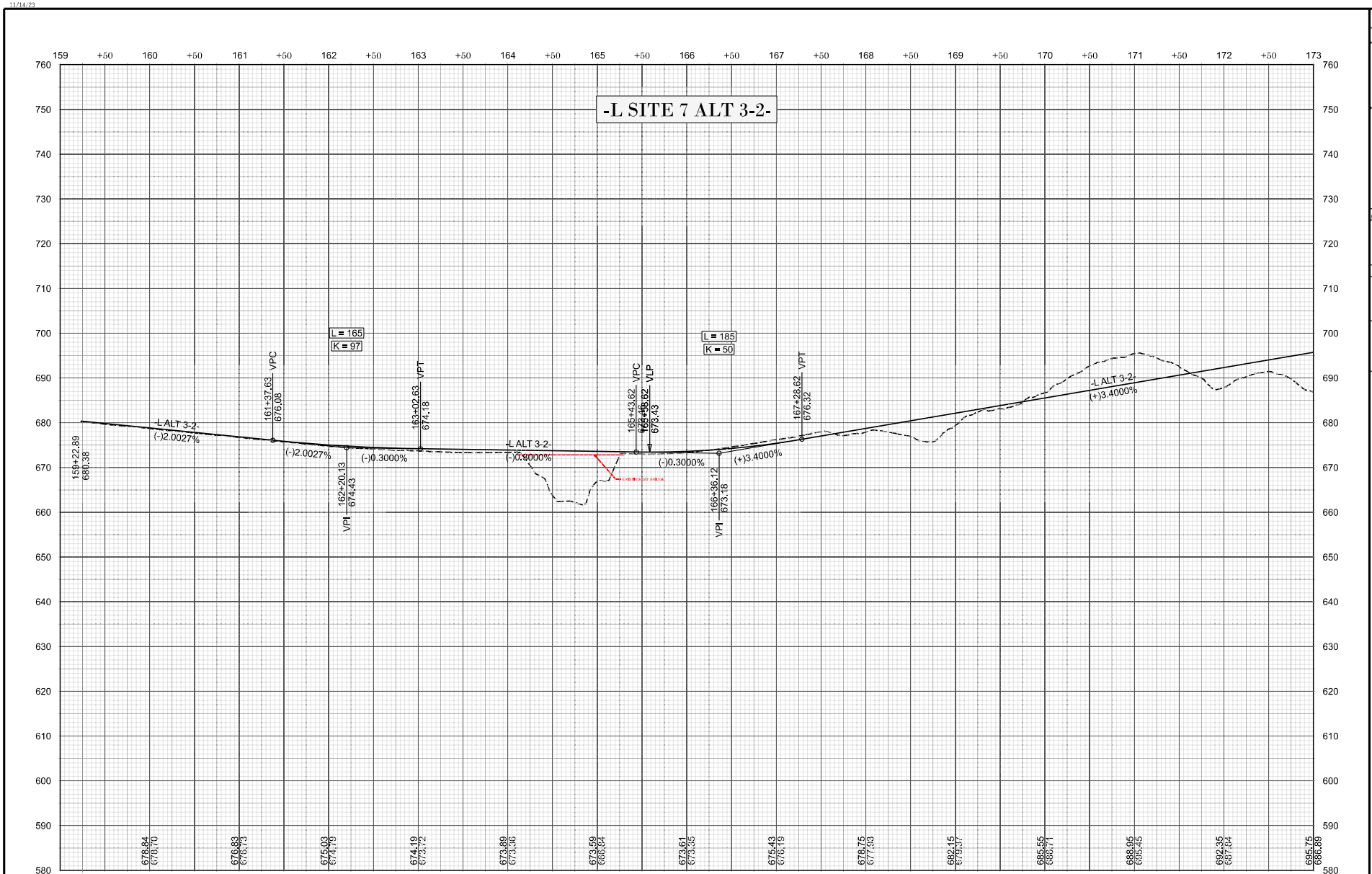

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Site 7 Photos (continued)

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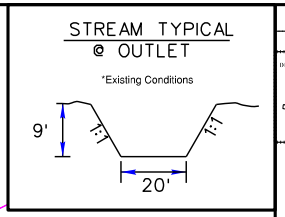
SITE 8 - ALT 3



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PROP 120' BRIDGE

-L- ALIGNMENT 1 - PC 144+76.29

-L- ALIGNMENT 1 - PT 152+00.27

-L- ALIGNMENT 3A-11
N29°20'37.0"E

-L- ALIGNMENT 3A-11
N41°08'22.0"E

CURVE DATA -L- ALIGNMENT 3A-11
PIc 148+57.93
Δc = 44°47'45.0" (RT)
D = 06°11'14.8"
Lc = 723.98
Tc = 381.63
R = 926
SE = 0.000

140

150

SII

SHH

SSG

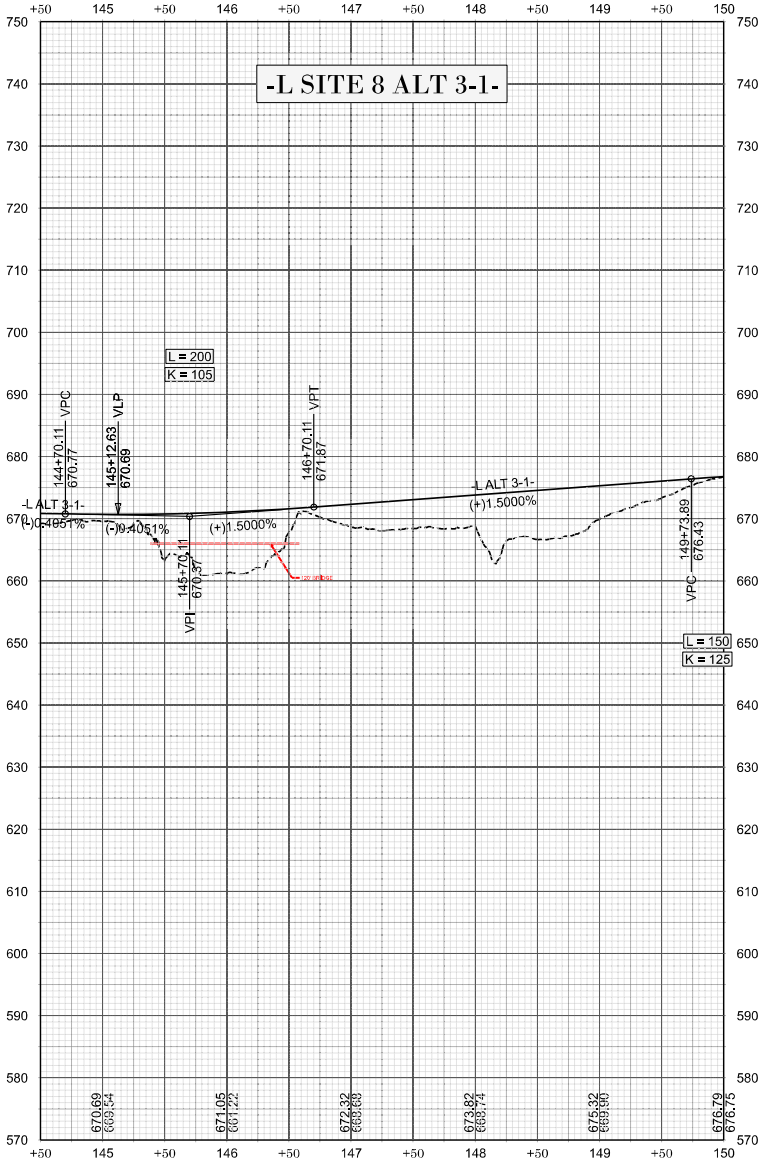
SFP

WAA

F

C

11/14/23



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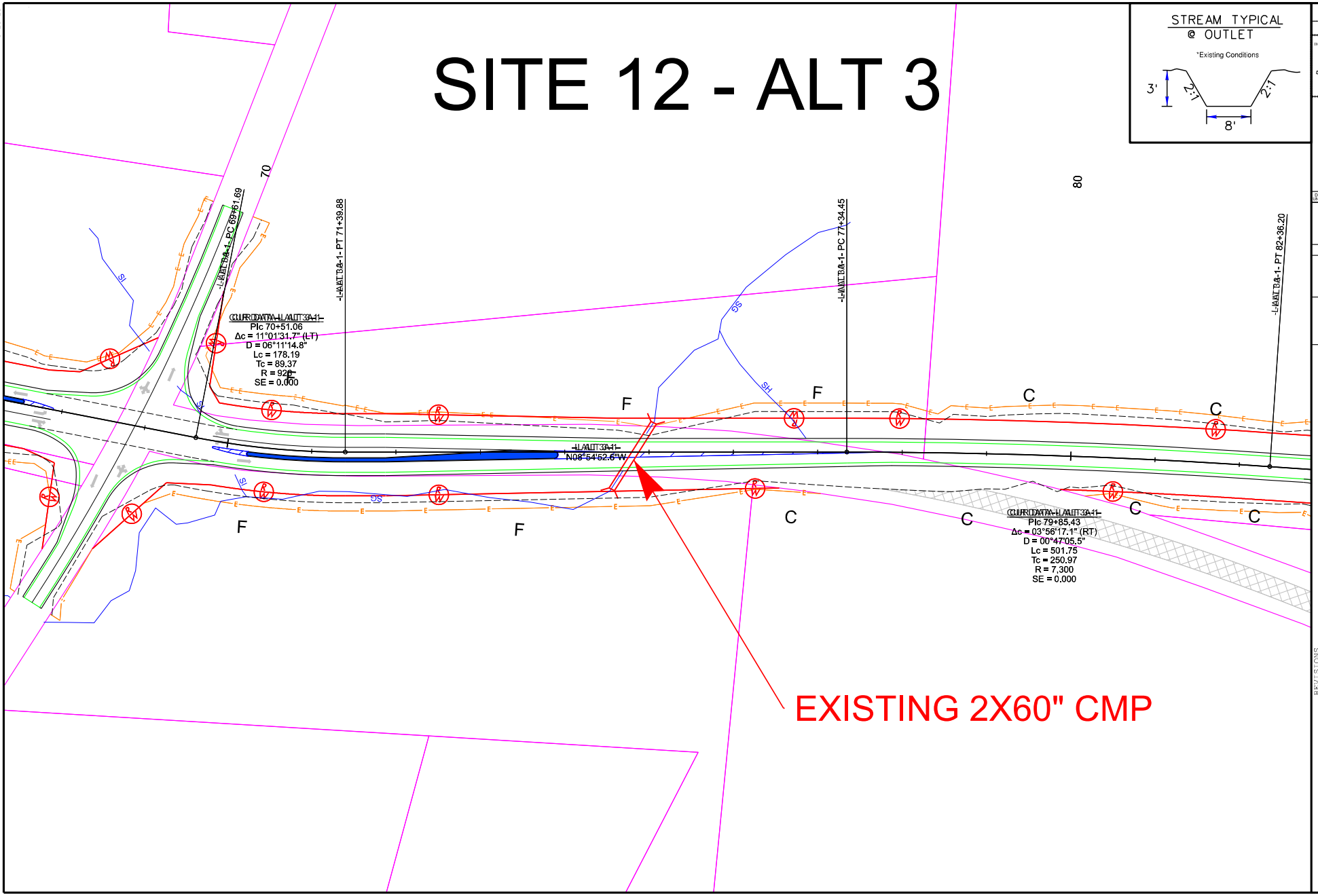
Site 8 Photos

SITE 12 - ALT 3


STREAM TYPICAL
@ OUTLET
*Existing Conditions
3'
2:1
2:1
8'
U-5901
ROWAN COUNTY
ROADWAY DESIGN UNIT
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
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5/26/20
70
80
-L-ALT 3A-1- PC 69+61.69
-L-ALT 3A-1- PT 71+39.88
-L-ALT 3A-1- PC 77+34.45
-L-ALT 3A-1- PT 82+36.20
CURVE DATA -L-ALT 3A-1-
PI= 70+51.06
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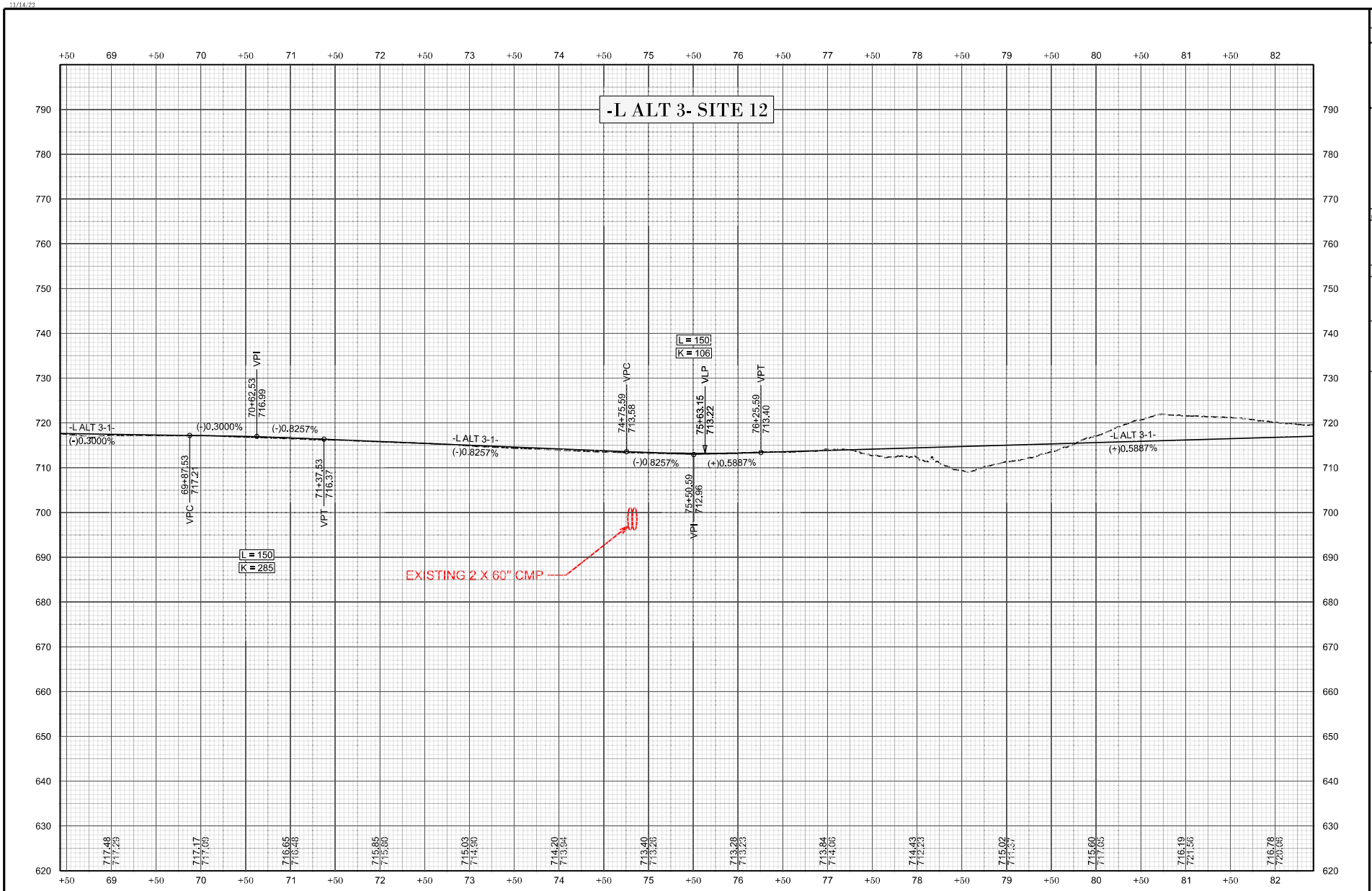
D = 06°11'14.8"
Lc = 178.19
Tc = 89.37
R = 926
SE = 0.000
-L-ALT 3A-1-
N08°54'52.6"W
CURVE DATA -L-ALT 3A-1-
PI= 79+85.43
Δc = 03°56'17.1" (RT)
D = 00°47'05.5"
Lc = 501.75
Tc = 250.97
R = 7,300
SE = 0.000
F
C
SL
SH
OS
EXISTING 2X60" CMP

11/14/23



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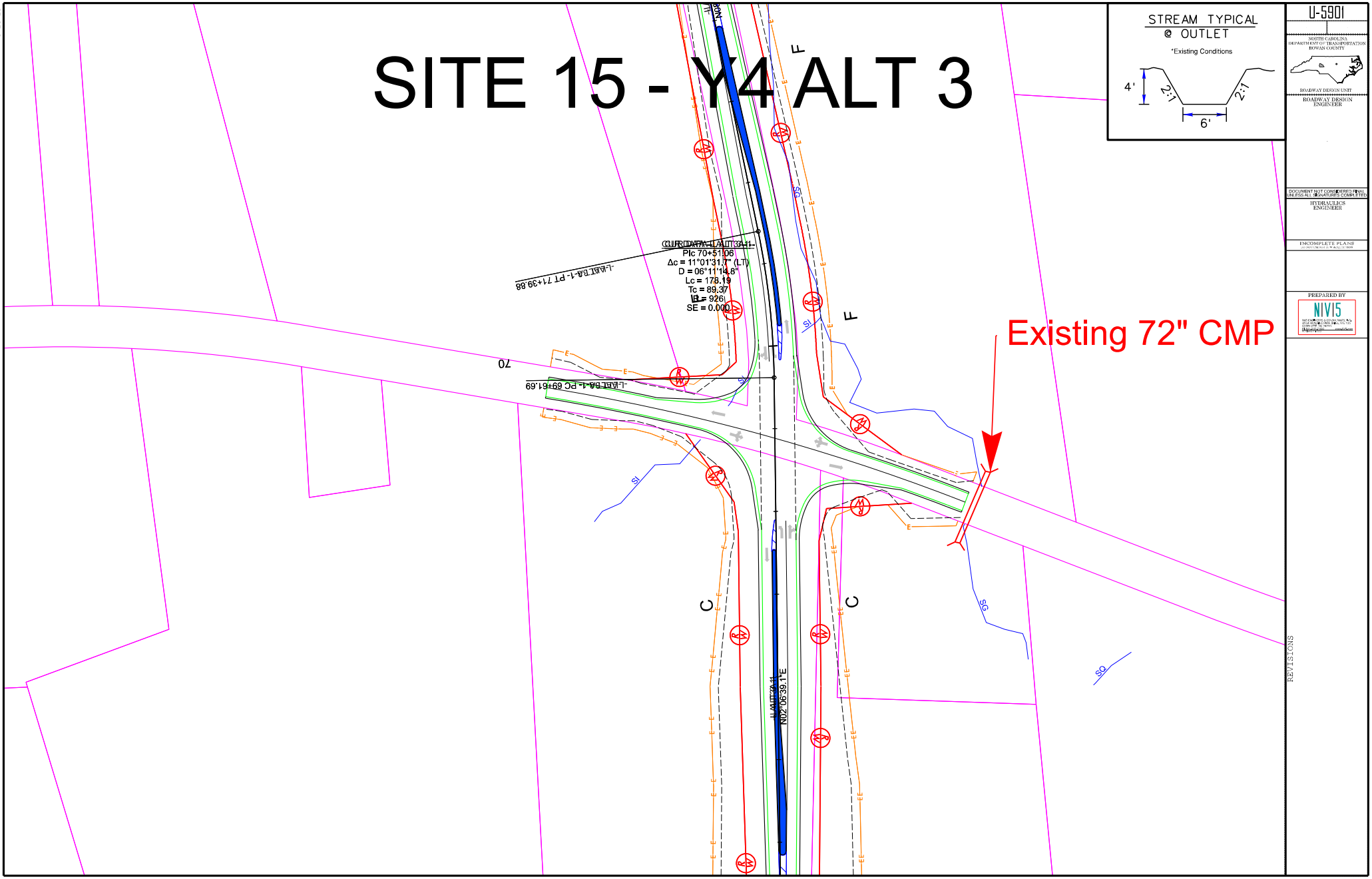
Site 12 Photos

SITE 15 - Y4 ALT 3



Site 15 Photos