

Pre-Construction Notification



Pre-Construction Notification (PCN) Form

For Nationwide Permits and Regional General Permits
(along with corresponding Water Quality Certifications)

December 4, 2023 Ver 4.3

Please note: fields marked with a red asterisk * below are required. You will not be able to submit the form until all mandatory questions are answered.

Also, if at any point you wish to print a copy of the E-PCN, all you need to do is right-click on the document and you can print a copy of the form.

Below is a link to the online help file.

<https://edocs.deq.nc.gov/WaterResources/DocView.aspx?dbid=0&id=2196924>

A. Processing Information



If this is a courtesy copy, please fill in this with the submission date.

Does this project involve maintenance dredging funded by the Shallow Draft Navigation Channel Dredging and Aquatic Weed Fund, electric generation projects located at an existing or former electric generating facility, or involve the distribution or transmission of energy or fuel, including natural gas, diesel, petroleum, or electricity? *

Yes No

Is this application for a project associated with emergency response/repairs from Hurricane Helene impacts to your project or property?

Yes No

Is this project connected with ARPA funding? *

Yes No

County (or Counties) where the project is located: *

Mecklenburg

Is this a NCDMS Project? *

Yes No

Click Yes, only if NCDMS is the applicant or co-applicant.

DON'T CHECK YES, UNLESS YOU ARE DMS OR CO-APPLICANT.

Is this project a public transportation project? *

Yes No

This is any publicly funded by municipal, state or federal funds road, rail, airport transportation project.

Is this a NCDOT Project? *

Yes No

(NCDOT only) T.I.P. or state project number:

I-6016

WBS # *

47968.1.1

(for NCDOT use only)

1a. Type(s) of approval sought from the Corps: *

- Section 404 Permit (wetlands, streams and waters, Clean Water Act)
 Section 10 Permit (navigable waters, tidal waters, Rivers and Harbors Act)

Has this PCN previously been submitted? *

Yes
 No

1b. What type(s) of permit(s) do you wish to seek authorization? *

- Nationwide Permit (NWP)
 Regional General Permit (RGP)
 Standard (IP)

1c. Has the NWP or GP number been verified by the Corps? *

Yes No

NWP Numbers (for multiple NWPS):

List all NW numbers you are applying for not on the drop down list.

1d. Type(s) of approval sought from the DWR: *

check all that apply

- 401 Water Quality Certification - Regular
- Non-404 Jurisdictional General Permit
- Individual 401 Water Quality Certification
- 401 Water Quality Certification - Express
- Riparian Buffer Authorization

1e. Is this notification solely for the record because written approval is not required?

*

For the record only for DWR 401 Certification:

Yes No

For the record only for Corps Permit:

Yes No

1f. Is this an after-the-fact permit application? *

Yes No

1g. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts?

If so, attach the acceptance letter from mitigation bank or in-lieu fee program.

Yes No

Acceptance Letter Attachment

Click the upload button or drag and drop files here to attach document

FILE TYPE MUST BE PDF

1h. Is the project located in any of NC's twenty coastal counties? *

Yes No

1j. Is the project located in a designated trout watershed? *

Yes No

Link to trout information: <http://www.saw.usace.army.mil/Missions/Regulatory-Permit-Program/Agency-Coordination/Trout.aspx>

B. Applicant Information



1a. Who is the Primary Contact? *

William A. Barrett

1c. Primary Contact Phone: *

(xxx)xxx-xxxx
(919)707-6103

1b. Primary Contact Email: *

wabarrett@ncdot.gov

1d. Who is applying for the permit? *

- Owner
(Check all that apply)
- Applicant (other than owner)

1e. Is there an Agent/Consultant for this project? *

Yes No

2. Owner Information

2a. Name(s) on recorded deed: *

NCDOT

2b. Deed book and page no.:

2c. Contact Person:

(for Corporations)

2d. Address *

Street Address

1598 Mail Service Center

Address Line 2

City

Raleigh

Postal / Zip Code

27699-1598

State / Province / Region

NC

Country

US

2e. Telephone Number: *

(xxx)xxx-xxxx

(919)707-6103

2f. Fax Number:

(xxx)xxx-xxxx

2g. Email Address: *

ekcheely@ncdot.gov

3. Applicant Information (if different from owner)

3a. Name: *

William A. Barrett

3b. Business Name:

(if applicable)

3c. Address *

Street Address

1598 Mail Service Center

Address Line 2

City

Raleigh

Postal / Zip Code

27699-1598

State / Province / Region

NC

Country

US

3d. Telephone Number: *

(919)707-6103

(xxx)xxx-xxxx

3e. Fax Number:

(xxx)xxx-xxxx

3f. Email Address: *

wabarrett@ncdot.gov

C. Project Information and Prior Project History



1. Project Information



1a. Name of project: *

I-6016 - I-85/I-485 Interchange Improvements

1b. Subdivision name:

(if appropriate)

1c. Nearest municipality / town: *

Charlotte

2. Project Identification



2a. Property Identification Number:

(tax PIN or parcel ID)

2b. Property size:

(in acres)

2c. Project Address

Street Address

Address Line 2

City

Postal / Zip Code

State / Province / Region

Country

2d. Site coordinates in decimal degrees

Please collect site coordinates in decimal degrees. Use between 4-6 digits (unless you are using a survey-grade GPS device) after the decimal place as appropriate, based on how the location was determined. (For example, most mobile phones with GPS provide locational precision in decimal degrees to map coordinates to 5 or 6 digits after the decimal place.)

Latitude: *

35.249512

ex: 34.208504

Longitude: *

-80.969141

-77.796371

3. Surface Waters

3a. Name of the nearest body of water to proposed project: *

Paw Creek

3b. Water Resources Classification of nearest receiving water: *

C

[Surface Water Lookup](#)

3c. What river basin(s) is your project located in? *

Catawba

3d. Please provide the 12-digit HUC in which the project is located. *

030501011404

[River Basin Lookup](#)

4. Project Description and History

4a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: *

On site: The project is primarily comprised of the I-85 / I-485 interchange. Some patches of forested land persist along and between road facilities, located among commercial development. Several streams are located throughout the PSA.

General Vicinity: The project is located in a highly urbanized city a short distance from the Charlotte Douglas International Airport.

4b. Have Corps permits or DWR certifications been obtained for this project (including all prior phases) in the past? *

Yes No Unknown

4f. List the total estimated acreage of all existing wetlands on the property:

0.37

4g. List the total estimated linear feet of all existing streams on the property:

(intermittent and perennial)

4198

4h. Explain the purpose of the proposed project: *

The purpose of this project is to improve the traffic flow, reduce travel delays, and increase the LOS along the busy I-485 ramp to I-85 southbound. The project is consistent with the North Carolina Strategic Highway Corridor vision, which is to create a network of safe, reliable, efficient highways throughout the state of North Carolina.

4i. Describe the overall project in detail, including indirect impacts and the type of equipment to be used: *

Under existing conditions, the exit ramps from I-485 Inner (northbound) and Outer (southbound) to southbound I-85 merge into a single three-lane on-ramp. This on-ramp narrows to one lane by the time traffic enters I-85, about 1,600 feet west of the merge and 1,300 feet east of the Sam Wilson Road overpass. The transition from three lanes to one lane increases traffic congestion, vehicle conflicts, and prevents travelers from maintaining speed to safely merge onto I-85 South particularly during peak hours. The project proposes to build a new two-lane collector-distributor (C-D) road allowing vehicles to exit I-485 Inner and Outer to I-85 South with more room to improve traffic flow. The C-D road will parallel I-85 South and pass under a new grade separated bridge on Sam Wilson Road between the existing I-85 grade separated bridge and existing interchange ramps. The existing on-ramp from Sam Wilson Road to I-85 South will be realigned so that traffic will enter the C-D road. Traffic from the C-D road will enter I-85 about one-half mile west of Sam Wilson Road. The new C-D road will be two lanes as it merges back into I-85 South and then will narrow to one lane that will continue along I-85 South as an auxiliary lane that ties into the weigh station off ramp.

Standard road and bridge building equipment such as trucks, dozers, and cranes will be used.

Roadway improvements are not proposed on northbound I-85; however, a noise wall is proposed along the I-85 North exit ramp to Sam Wilson Road at the residential area south of N. Lakebrook Road and west of Oakland Terrace.

5. Jurisdictional Determinations

5a. Have the wetlands or streams been delineated on the property or proposed impact areas? *

Yes No Unknown

Comments:

No wetlands being impacted. Impacts only to streams.

5b. If the Corps made a jurisdictional determination, what type of determination was made? *

Preliminary Approved Not Verified Unknown N/A

Corps AID Number:

Example: SAW-2017-99999

5c. If 5a is yes, who delineated the jurisdictional areas?

Name (if known): Jim Mason, Haley Wood, and Elizabeth Workman-Maurer

Agency/Consultant Company: Three Oaks Engineering

Other:

6. Future Project Plans

6a. Is this a phased project? *

Yes No

Are any other NWP(s), regional general permit(s), or individual permits(s) used, or intended to be used, to authorize any part of the proposed project or related activity? This includes other separate and distant crossing for linear projects that require Department of the Army authorization but don't require pre-construction notification.

D. Proposed Impacts Inventory



1. Impacts Summary

1a. Where are the impacts associated with your project? (check all that apply):

Wetlands Streams-tributaries Buffers
 Open Waters Pond Construction

3. Stream Impacts

If there are perennial or intermittent stream impacts (including temporary impacts) proposed on the site, then complete this question for all stream sites impacted.

"S." will be used in the table below to represent the word "stream".

	3a. Reason for impact* (?)	3b. Impact type *	3c. Type of impact *	3d. S. name *	3e. Stream Type* (?)	3f. Type of Jurisdiction *	3g. S. width *	3h. Impact length*
S1	Site 1 - Spin Casting Installation	Temporary	Other	SD: UT to Catawba River	Perennial	Both	3 Average (feet)	53 (linear feet)
S2	Site 2 - RCBC extension	Permanent	Culvert	SA: UT to Catawba River	Perennial	Both	9 Average (feet)	49 (linear feet)
S3	Site 2 - Bank Stabilization	Permanent	Bank Stabilization	SA: UT to Catawba River	Perennial	Both	9 Average (feet)	36 (linear feet)
S4	Site 2 - Bank Stabilization	Temporary	Bank Stabilization	SA: UT TO Catawba River	Perennial	Both	9 Average (feet)	36 (linear feet)
S5	Site 3 - Roadway Fill/Channel Change	Permanent	Fill	SB: UT to Catawba River	Intermittent	Both	3 Average (feet)	167 (linear feet)
S6	Site 3 - Roadway Fill/Channel Change	Temporary	Fill	SB: UT to Catawba River	Intermittent	Both	3 Average (feet)	55 (linear feet)

** All Perennial or Intermittent streams must be verified by DWR or delegated local government.

3i. Total jurisdictional ditch impact in square feet:

0

3i. Total permanent stream impacts:

252

3i. Total temporary stream impacts:

144

3i. Total stream and ditch impacts:

396

3j. Comments:

E. Impact Justification and Mitigation



1. Avoidance and Minimization

1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing the project: *

Avoidance and minimization measures include steepening fill slopes and adding guardrail to avoid stream impacts between 21+75 and 23+25 -LSB- LT and adding a dogleg in the proposed 2@6'x6' RCBC extensions to align with the existing channel in order to avoid a channel realignment upstream of the culvert extension.

Potential impacts to Mount Zion Cemetery were avoided.

1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques: *

NCDOT will utilize Best Management Practices (BMPs) during construction.

2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State

2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?

Yes No

2c. If yes, mitigation is required by (check all that apply):

DWR Corps

2d. If yes, which mitigation option(s) will be used for this project?

Mitigation bank Payment to in-lieu fee program Permittee Responsible Mitigation

4. Complete if Making a Payment to In-lieu Fee Program

4a. Approval letter from in-lieu fee program is attached.

Yes No

4b. Stream mitigation requested:

(linear feet)

216

4c. If using stream mitigation, what is the stream temperature:

warm

NC Stream Temperature Classification Maps can be found under the Mitigation Concepts tab on the Wilmington District's RIBITS website.

4d. Buffer mitigation requested (DWR only):

(square feet)

4e. Riparian wetland mitigation requested:

(acres)

4f. Non-riparian wetland mitigation requested:

(acres)

4g. Coastal (tidal) wetland mitigation requested:

(acres)

4h. Comments

The temporary and bank stabilization impacts associated with this project do not constitute a loss of Waters of the US, and therefore do not require mitigation.

F. Stormwater Management and Diffuse Flow Plan (required by DWR)

*** Recent changes to the stormwater rules have required updates to this section .***

1. Diffuse Flow Plan

1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?

Yes No

For a list of options to meet the diffuse flow requirements, click [here](#).

If no, explain why:

The Catawba Riparian Buffer rules are applicable to only the mainstem of the Catawba River and mainstem lakes.

2. Stormwater Management Plan

2a. Is this a NCDOT project subject to compliance with NCDOT's Individual NPDES permit NCS000250? *

Yes No

Comments:

G. Supplementary Information

1. Environmental Documentation

1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land? *

Yes No

1b. If you answered "yes" to the above, does the project require preparation of an environmental document pursuant to the requirements of the National or State (North Carolina) Environmental Policy Act (NEPA/SEPA)? *

Yes No

1c. If you answered "yes" to the above, has the document review been finalized by the State Clearing House? (If so, attach a copy of the NEPA or SEPA final approval letter.) *

Yes No

2. Violations (DWR Requirement)

2a. Is the site in violation of DWR Water Quality Certification Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), or DWR Surface Water or Wetland Standards or Riparian Buffer Rules (15A NCAC 2B .0200)? *

Yes No

3. Cumulative Impacts (DWR Requirement)

3a. Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality? *

Yes No

3b. If you answered "no," provide a short narrative description.

Due to the minimal transportation impact resulting from this Collector Distributor road, this project will not stimulate growth but may influence nearby land use.

4. Sewage Disposal (DWR Requirement)

4a. Is sewage disposal required by DWR for this project? *

Yes No N/A

5. Endangered Species and Designated Critical Habitat (Corps Requirement)

5a. Will this project occur in or near an area with federally protected species or habitat? *

Yes No

5b. Have you checked with the USFWS concerning Endangered Species Act impacts? *

Yes No

5c. If yes, indicate the USFWS Field Office you have contacted.

Asheville

5d. Is another Federal agency involved? *

Yes No Unknown

What Federal Agency is involved?

FHWA

5e. Is this a DOT project located within Division's 1-8? *

Yes No

5f. Will you cut any trees in order to conduct the work in waters of the U.S.? *

Yes No

5g. Does this project involve bridge maintenance or removal? *

Yes No

Link to the NLEB SLOPES document: http://saw-reg.usace.army.mil/NLEB/1-30-17-signed_NLEB-SLOPES&apps.pdf

5h. Does this project involve the construction/installation of a wind turbine(s)?* *

Yes No

5i. Does this project involve (1) blasting, and/or (2) other percussive activities that will be conducted by machines, such as jackhammers, mechanized pile drivers, etc.? *

Yes No

5j. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? *

USFWS Information for Planning and Consultation (IPaC) and on-site survey for plant species: Michaux's sumac, Schweinitz's sunflower, and smooth coneflower. Initial surveys for these species were conducted on September 29, 2021, with negative results. Subsequent surveys were conducted on September 18, 2024, with negative results. The Biological Conclusion for these plant species remains "No Effect".

The USFWS issued informal concurrence on January 2, 2025 (attached) for a "May Affect, Not Likely to Adversely Affect" biological conclusion for the Proposed tricolored bat.

6. Essential Fish Habitat (Corps Requirement)

6a. Will this project occur in or near an area designated as an Essential Fish Habitat? *

Yes No

6b. What data sources did you use to determine whether your site would impact an Essential Fish Habitat? *

Review of online mapping sources.

7. Historic or Prehistoric Cultural Resources (Corps Requirement)

Link to the State Historic Preservation Office Historic Properties Map (does not include archaeological data: <http://gis.ncdcr.gov/hpweb/>)

7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)? *

Yes No

7b. What data sources did you use to determine whether your site would impact historic or archeological resources? *

See Archaeological Form and associated Report, and Historic Properties and Landscapes Form/Letter, attachments to this application.

8. Flood Zone Designation (Corps Requirement)

Link to the FEMA Floodplain Maps: <https://msc.fema.gov/portal/search>

8a. Will this project occur in a FEMA-designated 100-year floodplain? *

Yes No

8c. What source(s) did you use to make the floodplain determination? *

FEMA Floodmaps: FIRM Panels 4515 and 4505.

Miscellaneous

Comments

see I-6016 PCN Attachment Package

Please use the space below to attach all required documentation or any additional information you feel is helpful for application review. Documents should be combined into one file when possible, with a Cover Letter, Table of Contents, and a Cover Sheet for each Section preferred.

[Click the upload button or drag and drop files here to attach document](#)

I-6016 Mecklenburg January 7 2025.pdf

29.76MB

File must be PDF or KMZ

Signature

*

By checking the box and signing below, I certify that:

- The project proponent hereby certifies that all information contained herein is true, accurate, and complete to the best of my knowledge and belief; and
- The project proponent hereby requests that the certifying authority review and take action on this CWA 401 certification request within the applicable reasonable period of time.
- I have given true, accurate, and complete information on this form;
- I agree that submission of this PCN form is a "transaction" subject to Chapter 66, Article 40 of the NC General Statutes (the "Uniform Electronic Transactions Act");
- I agree to conduct this transaction by electronic means pursuant to Chapter 66, Article 40 of the NC General Statutes (the "Uniform Electronic Transactions Act");
- I understand that an electronic signature has the same legal effect and can be enforced in the same way as a written signature; AND
- I intend to electronically sign and submit the PCN form.

Full Name: *

Erin K. Cheely

Signature *



Erin K. Cheely

Date

1/7/2025

Permit Drawings



North Carolina Department of Transportation
 Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
 FOR NCDOT PROJECTS



(Version 3.02; Released April 23, 2024)

WBS Element: 47968.1.1 **TIP/Proj No:** I-6016 **County(ies):** Mecklenburg **Page** 1 **of** 2

General Project Information

WBS Element:	47968.1.1	TIP Number:	I-6016	Project Type:	Roadway Widening	Date:	8/7/2024
NCDOT Contact:	Brook Anderson, PE			Contractor / Designer:	Eric M. Leonhart, PE		
Address:	1000 Birch Ridge Drive Raleigh, NC 27610			Address:	111 E. Hargett Street Suite 300 Raleigh, NC 27601		
Phone:	(919) 707-6706			Phone:	(919) 526-1001		
Email:	beanderson1@ncdot.gov			Email:	eric.leonhart@meadhunt.com		
City/Town:	Charlotte			County(ies):	Mecklenburg		
River Basin(s):	Catawba			CAMA County?	No		
Wetlands within Project Limits?	No						

Project Description

Project Length (lin. miles or feet):	1.42	Surrounding Land Use:	Low Density Residential, Commercial, Industrial					
Project Built-Up Area (ac.)	37.1 ac.		Proposed Project		Existing Site			
Typical Cross Section Description:	I-85: varying 4-6 lanes with 22' median and concrete median barrier. Additional 14' shoulder (10' paved) will be provided in southbound direction. Collector Distributor (C-D): Varying 2-3 lanes (12' lanes) with varying paved/grass shoulder widths (see project cross sections for additional detail). RPB: 16' lane with 12' paved shoulder w/ expressway gutter on LT side.			I-85: varying 4-6 lanes with 22' median and concrete median barrier, 14' shoulder (10' paved). RPB: 16' paved lane w/ 6' shoulders (4' paved) on each side.				
Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	158,125	Year:	2030	Existing:	152,500	Year:	2025

General Project Narrative:
(Description of Minimization of Water Quality Impacts)

NCDOT is proposing a Collector Distributor (C-D) Road along I-85 SB in Mecklenburg county to help relieve traffic congestion from both directions of I-485 to I-85 SB. The proposed roadway improvements will result in proposed slopes filling in existing ditches and covering existing storm drainage systems. There is an existing 2@6'x6' Reinforced Concrete Box Culvert within the proposed project limits beneath existing I-85 SB. The existing culvert requires an extension on the upstream side. The culvert extension will require minor channel improvements on the upstream side. The channel improvements will smoothly tie the existing channel to the box culvert extension. Class II Rip Rap will be used as bank stabilization. All major structures have been designed to have as little environmental and surface water impacts as possible. Avoidance and minimization measures include steepening fill slopes and adding guardrail to avoid stream impacts between 21+75 and 23+25 -LSB- LT and adding a dogleg in the proposed 2@6'x6' RCBC extensions to align with the existing channel in order to avoid a channel realignment upstream of the culvert extension.



North Carolina Department of Transportation
 Highway Stormwater Program
STORMWATER MANAGEMENT PLAN
 FOR NCDOT PROJECTS



(Version 3.02; Released April 23, 2024)

WBS Element: 47968.1.1 TIP/Proj No.: I-6016 County(ies): Mecklenburg Page 2 of 2

General Project Information

Waterbody Information

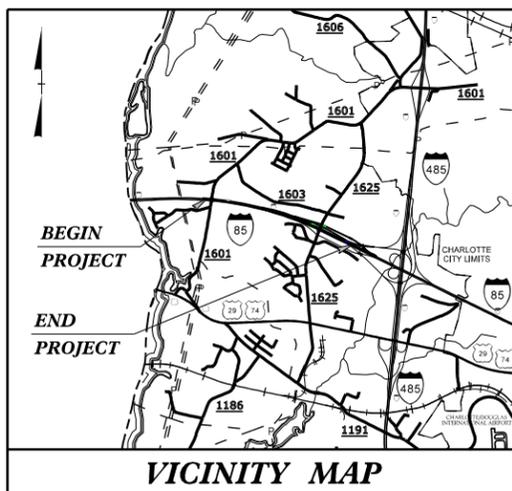
Surface Water Body (1):	UT To Catawba River		NCDWR Stream Index No.:	11-(122)	
NCDWR Surface Water Classification for Water Body	Primary Classification:	Water Supply IV (WS-IV)		Class B	
	Supplemental Classification:	CA			
Other Stream Classification:					
Impairments:	None				
Aquatic T&E Species?	No	Comments:			
NRTR Stream ID:	SD, SA, SB		Buffer Rules in Effect:	N/A	
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	N/A	Dissipator Pads Provided in Buffer?	
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					

Surface Water Body (2):	Catawba River		NCDWR Stream Index No.:	11-(122)	
NCDWR Surface Water Classification for Water Body	Primary Classification:	Water Supply IV (WS-IV)		Class B	
	Supplemental Classification:	CA			
Other Stream Classification:	NC Natural and Scenic Rivers				
Impairments:	None				
Aquatic T&E Species?	No	Comments:			
NRTR Stream ID:			Buffer Rules in Effect:	Catawba	
Project Includes Bridge Spanning Water Body?	No	Deck Drains Discharge Over Buffer?	N/A	Dissipator Pads Provided in Buffer?	
Deck Drains Discharge Over Water Body?	N/A	(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					

Surface Water Body (3):			NCDWR Stream Index No.:		
NCDWR Surface Water Classification for Water Body	Primary Classification:				
	Supplemental Classification:				
Other Stream Classification:					
Impairments:					
Aquatic T&E Species?		Comments:			
NRTR Stream ID:			Buffer Rules in Effect:		
Project Includes Bridge Spanning Water Body?		Deck Drains Discharge Over Buffer?		Dissipator Pads Provided in Buffer?	
Deck Drains Discharge Over Water Body?		(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)	
(If yes, provide justification in the General Project Narrative)					

09/08/99

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Plan Sheet Symbols



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PERMIT DRAWING
SHEET 1 OF 14

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-6016	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
47968.1.1	NA	PE	
47968.2.1	NA	ROW	
47968.2.2	NA	UTILITIES	

MECKLENBURG COUNTY

LOCATION: I-85/I-485 INTERCHANGE WEST OF CHARLOTTE.
IMPROVE INTERCHANGE.

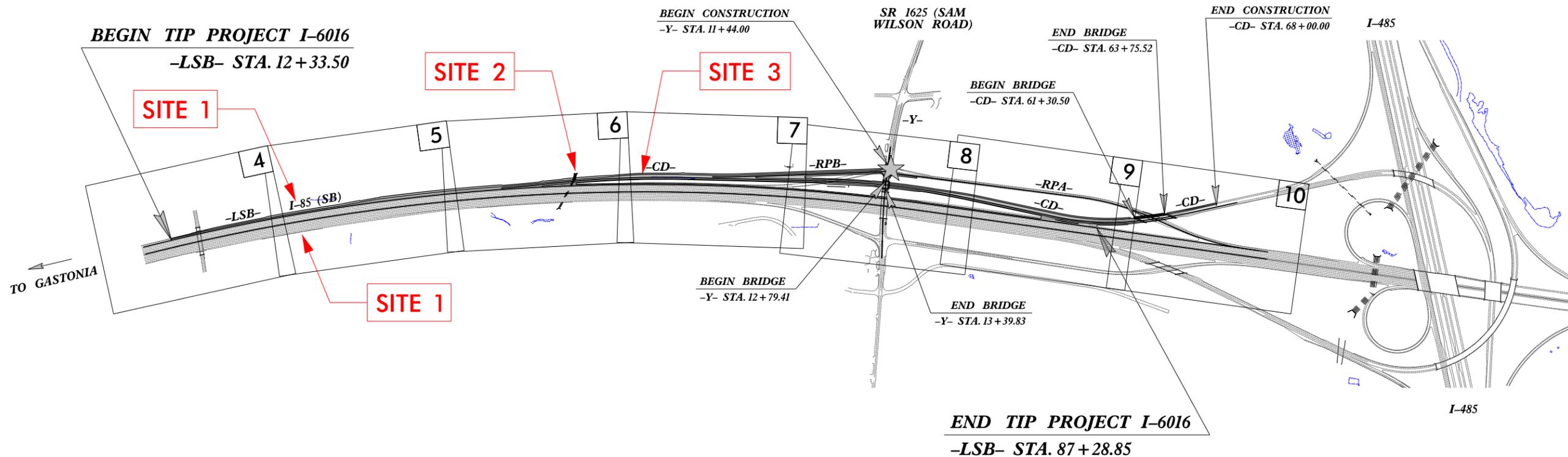
TYPE OF WORK: GRADING, PAVING, DRAINAGE, RETAINING WALLS,
SIGNALS AND STRUCTURES

RIGHT-OF-WAY PLAN SET

WETLAND AND SURFACE WATER IMPACTS PERMIT



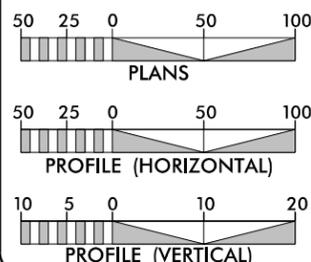
CONTRACT: TIP PROJECT: I-6016



THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

★ PROPOSED SIGNAL
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2025 = 152,500
 ADT 2030 = 158,125
 K = 7 %
 D = 55 %
 T = 15 % *
 V = 65 MPH
 * TTST=11% DUAL=4%
 FUNC CLASS =
 INTERSTATE
 STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I-6016 = 1.420 MILES
 LENGTH STRUCTURE TIP PROJECT I-6016 = 0.000 MILES
 TOTAL LENGTH TIP PROJECT I-6016 = 1.420 MILES

-LSB- USED FOR PROJECT LENGTH

Prepared for NCDOT in the Office of:

Mead&Hunt

111 E. Hargett Street, Suite 300
 Raleigh, North Carolina 27601
 919-714-8670 | meadhunt.com
 NC License No. F-1235

2024 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

JUNE 21, 2024

LETTING DATE:

JULY 15, 2025

RICK DECOLA, PE
 PROJECT ENGINEER

FISHER REESE, PE
 PROJECT DESIGN ENGINEER

JON GAILLARD
 NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

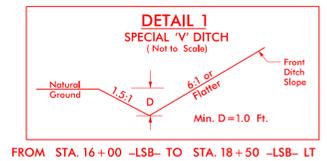
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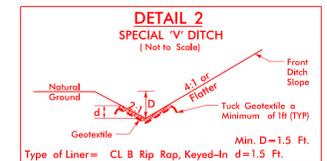


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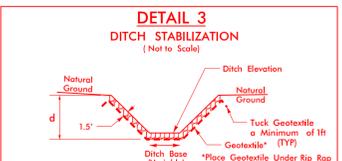
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1-6016		20-1	
RW SHEET NO.			
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INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
Mead&Hunt		111 E. Hargett Street, Suite 300 Raleigh, North Carolina 27601 919-774-8870 meadhunt.com NC License No. F-1235	
PERMIT DRAWING SHEET 2 OF 14			



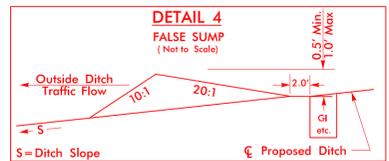
FROM STA. 16+00 -LSB- TO STA. 18+50 -LSB- LT



FROM STA. 20+00 -LSB- TO STA. 20+69 -LSB- LT



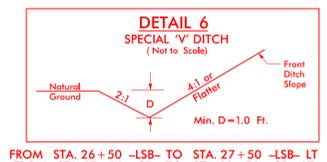
FROM STA. 20+69 -LSB- TO STA. 21+00 -LSB- LT



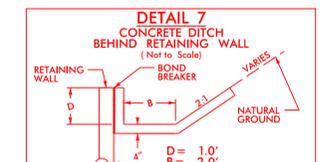
FROM STA. 15+88 -LSB- LT



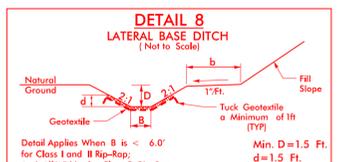
FROM STA. 21+00 -LSB- TO STA. 22+42 -LSB- LT



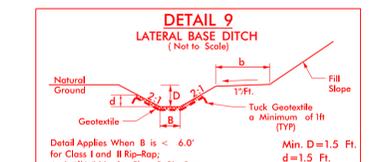
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FROM STA. 17+00 -CD- TO STA. 18+50 -CD- LT



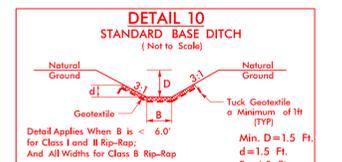
FROM STA. 29+40 -LSB- TO STA. 36+00 -LSB- LT
FROM STA. 40+25 -CD- TO STA. 40+75 -CD- LT
FROM STA. 41+25 -CD- TO STA. 42+24 -CD- LT



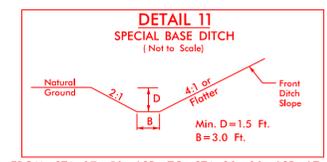
FROM STA. 36+50 -LSB- TO STA. 36+79 -LSB- LT



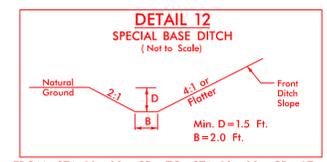
FROM STA. 36+79 -LSB- TO STA. 37+50 -LSB- LT



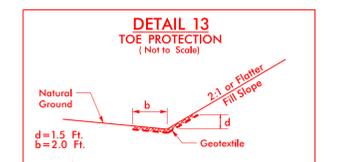
FROM STA. 36+76 -LSB- TO STA. 36+83 -LSB- LT



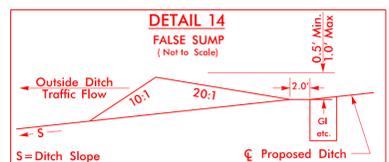
FROM STA. 37+50 -LSB- TO STA. 39+20 -LSB- LT



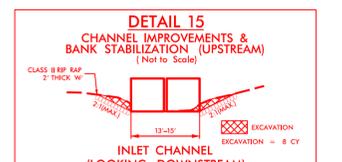
FROM STA. 10+00 -CD- TO STA. 13+00 -CD- LT
FROM STA. 54+00 -CD- TO STA. 55+50 -CD- LT



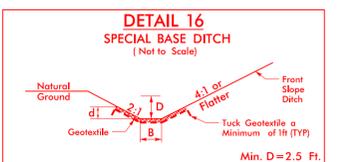
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FROM STA. 16+23 -CD- TO STA. 16+50 -CD- LT



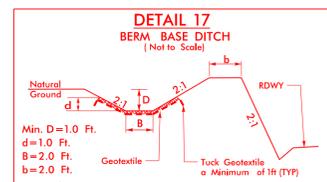
FROM STA. 16+88 -CD- LT
FROM STA. 22+18 -CD- RT
FROM STA. 31+37 -CD- RT
FROM STA. 36+87 -CD- RT
FROM STA. 44+50 -CD- RT
FROM STA. 19+35 -RPB- LT



FROM STA. 45+20 -LSB- LT



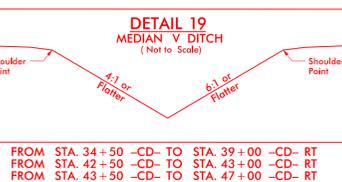
FROM STA. 20+76 -CD- TO STA. 24+00 -CD- LT



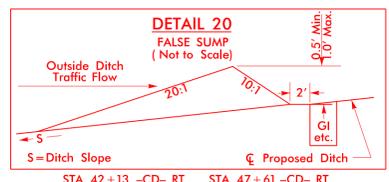
FROM STA. 10+25 -RPB- TO STA. 14+20 -RPB- LT
FROM STA. 16+60 -RPB- TO STA. 21+04 -RPB- LT



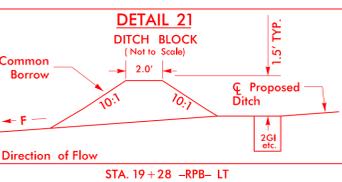
FROM STA. 22+05 -RPB- TO STA. 23+37 -RPB- LT



FROM STA. 34+50 -CD- TO STA. 39+00 -CD- RT
FROM STA. 42+50 -CD- TO STA. 43+00 -CD- RT
FROM STA. 43+50 -CD- TO STA. 47+00 -CD- RT



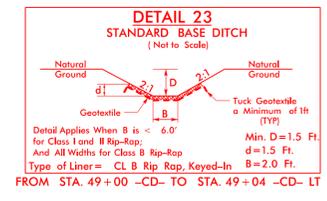
FROM STA. 42+13 -CD- RT
FROM STA. 47+63 -CD- LT
FROM STA. 52+13 -CD- LT



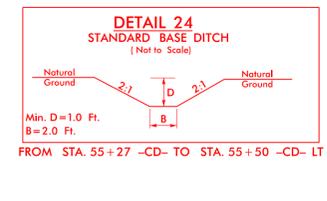
FROM STA. 19+28 -RPB- LT



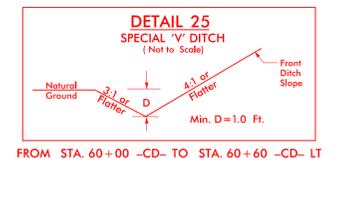
FROM STA. 48+00 -CD- TO STA. 49+50 -CD- LT
FROM STA. 51+50 -CD- TO STA. 52+50 -CD- LT
FROM STA. 55+50 -CD- TO STA. 56+00 -CD- LT
FROM STA. 59+00 -CD- TO STA. 59+50 -CD- LT



FROM STA. 49+00 -CD- TO STA. 49+04 -CD- LT



FROM STA. 55+27 -CD- TO STA. 55+50 -CD- LT



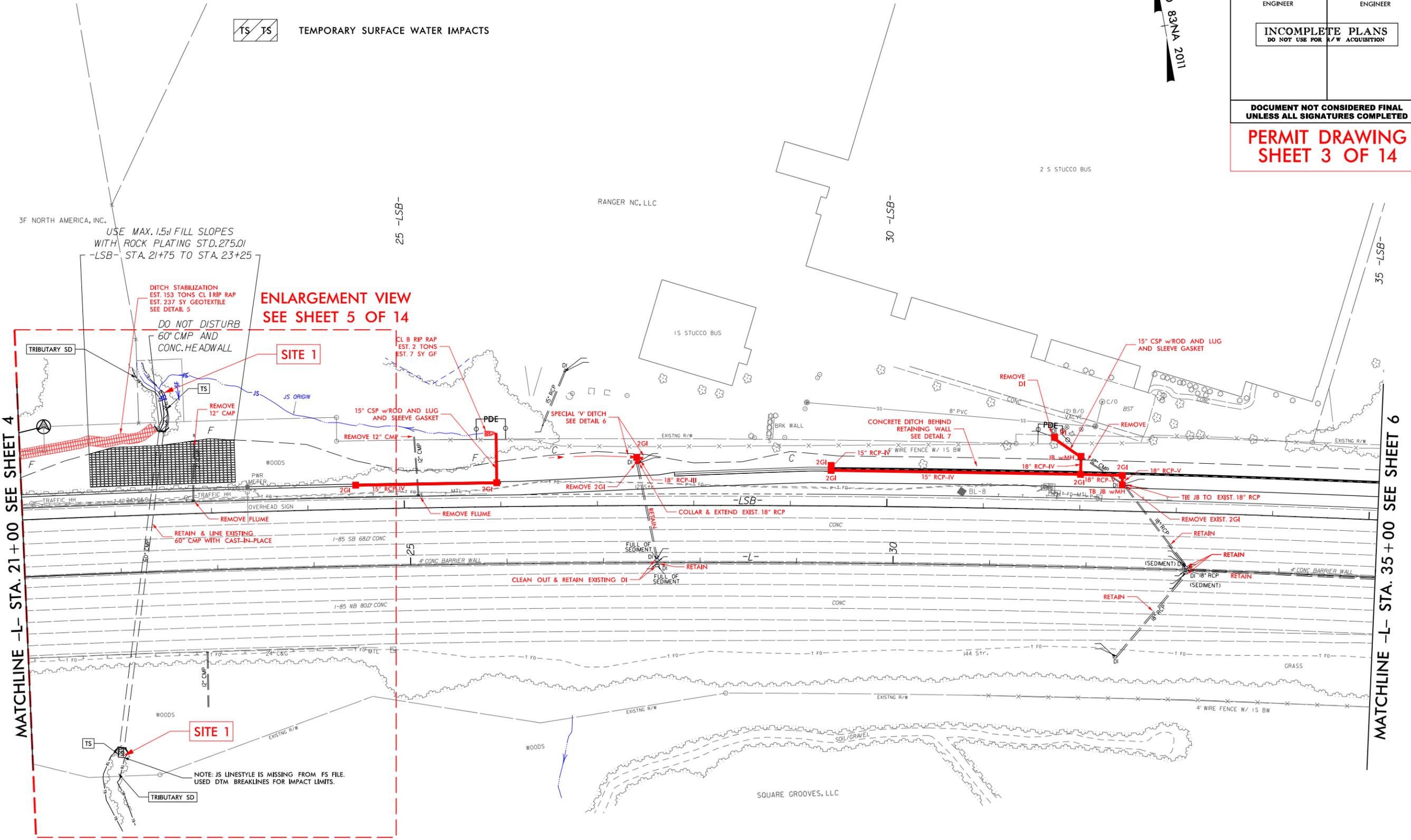
FROM STA. 60+00 -CD- TO STA. 60+60 -CD- LT

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NAD
83NA
2011

PROJECT REFERENCE NO. 1-6016	SHEET NO. 5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
PERMIT DRAWING SHEET 3 OF 14	



MATCHLINE -L- STA. 21+00 SEE SHEET 4

MATCHLINE -L- STA. 35+00 SEE SHEET 6

TS TS TEMPORARY SURFACE WATER IMPACTS

USE MAX. 1.5:1 FILL SLOPES WITH ROCK PLATING STD. 275.01
-LSB- STA. 21+75 TO STA. 23+25

ENLARGEMENT VIEW
SEE SHEET 5 OF 14

SITE 1

SITE 1

NOTE: JS LIFESTYLE IS MISSING FROM FS FILE.
USED DTM BREAKLINES FOR IMPACT LIMITS.

FOR -LSB- PROFILE, SEE SHEET 11

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
1-6016	5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
PERMIT DRAWING SHEET 4 OF 14	

NAD 83 N.A. 2011

TS TS TEMPORARY SURFACE WATER IMPACTS

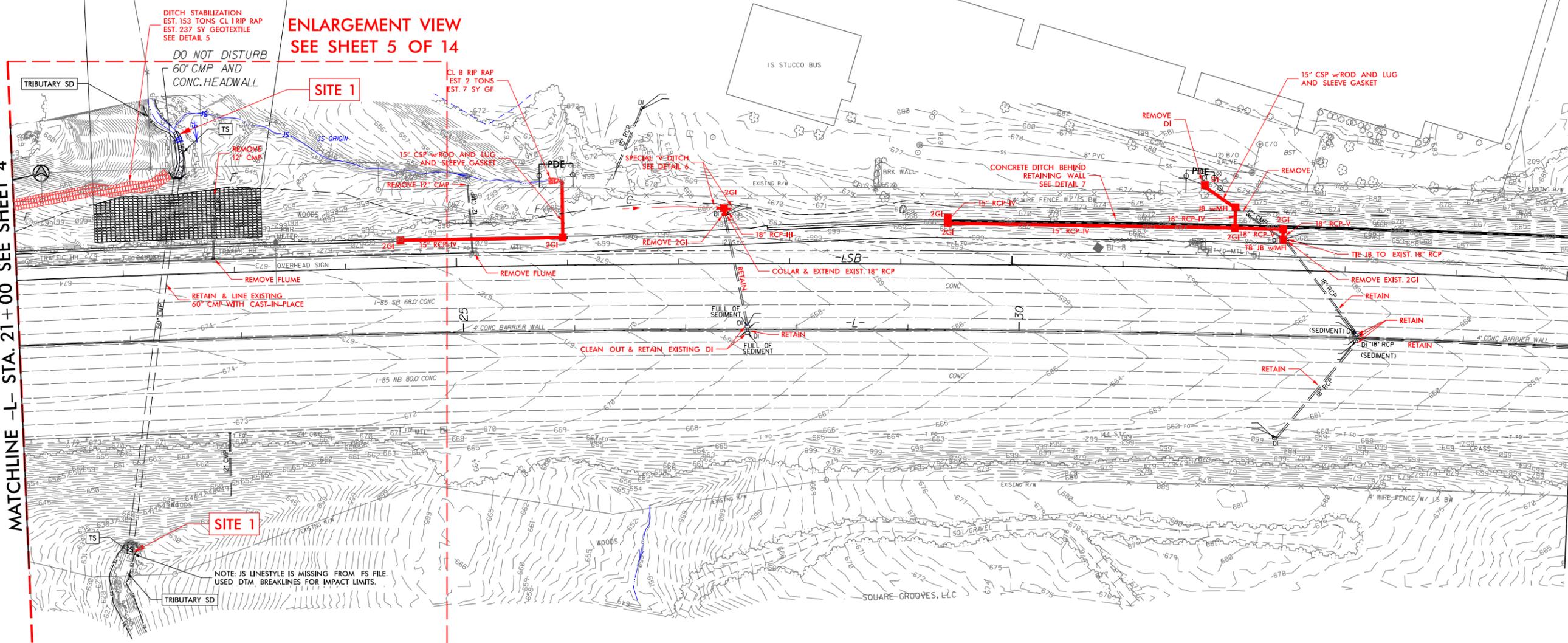
3F NORTH AMERICA, INC.

USE MAX. 1.5:1 FILL SLOPES WITH ROCK PLATING STD. 275.01
-LSB- STA. 21+75 TO STA. 23+25

ENLARGEMENT VIEW
SEE SHEET 5 OF 14

MATCHLINE -L- STA. 21+00 SEE SHEET 4

MATCHLINE -L- STA. 35+00 SEE SHEET 6



SITE 1
NOTE: JS LIFESTYLE IS MISSING FROM FS FILE. USED DTM, BREAKLINES FOR IMPACT LIMITS.

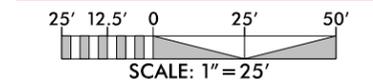
FOR -LSB- PROFILE, SEE SHEET 11

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RW SHEET NO.	
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INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	

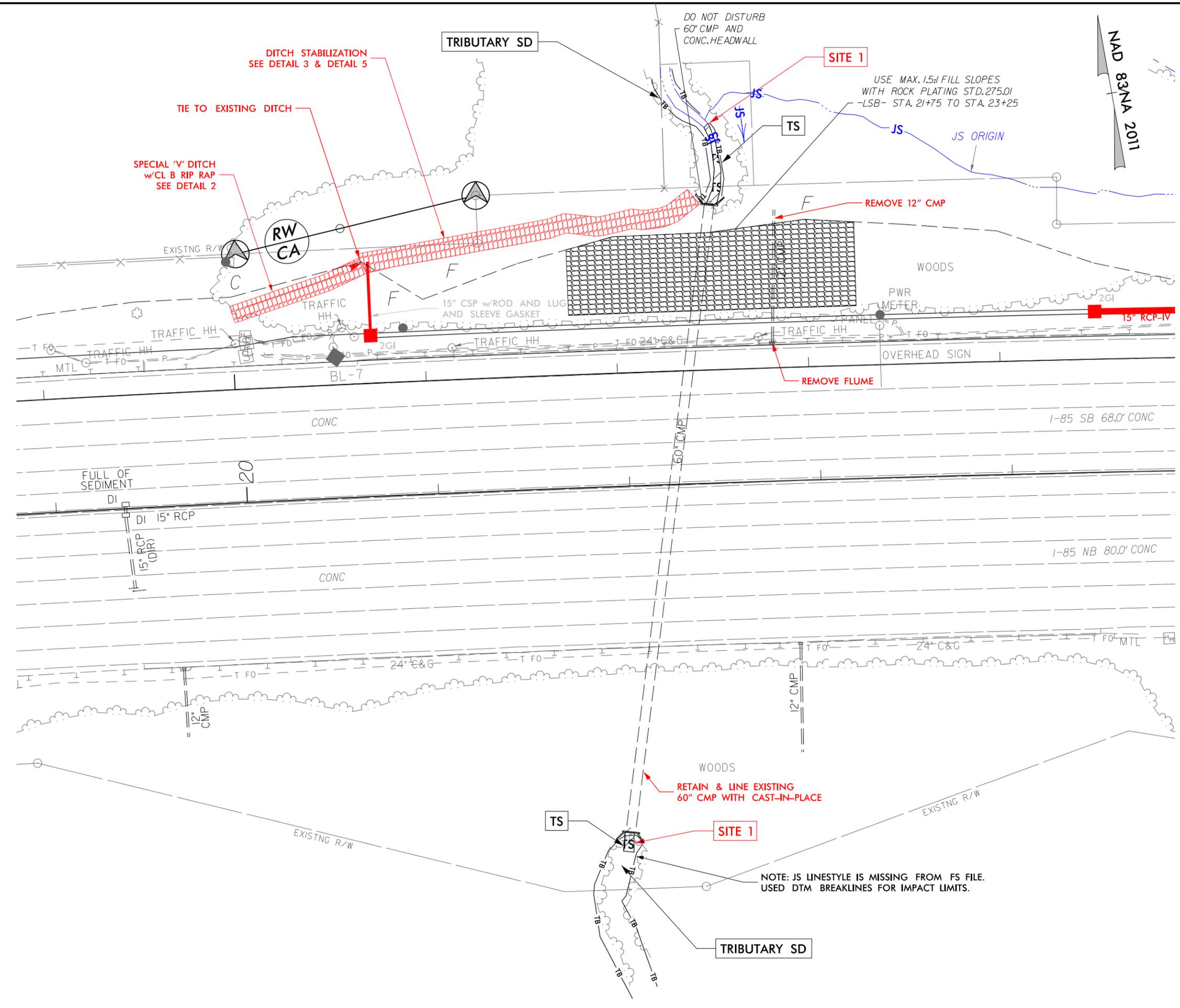
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING SHEET 5 OF 14



TS JS TEMPORARY SURFACE WATER IMPACTS

ENLARGEMENT VIEW PLAN SHEET 05



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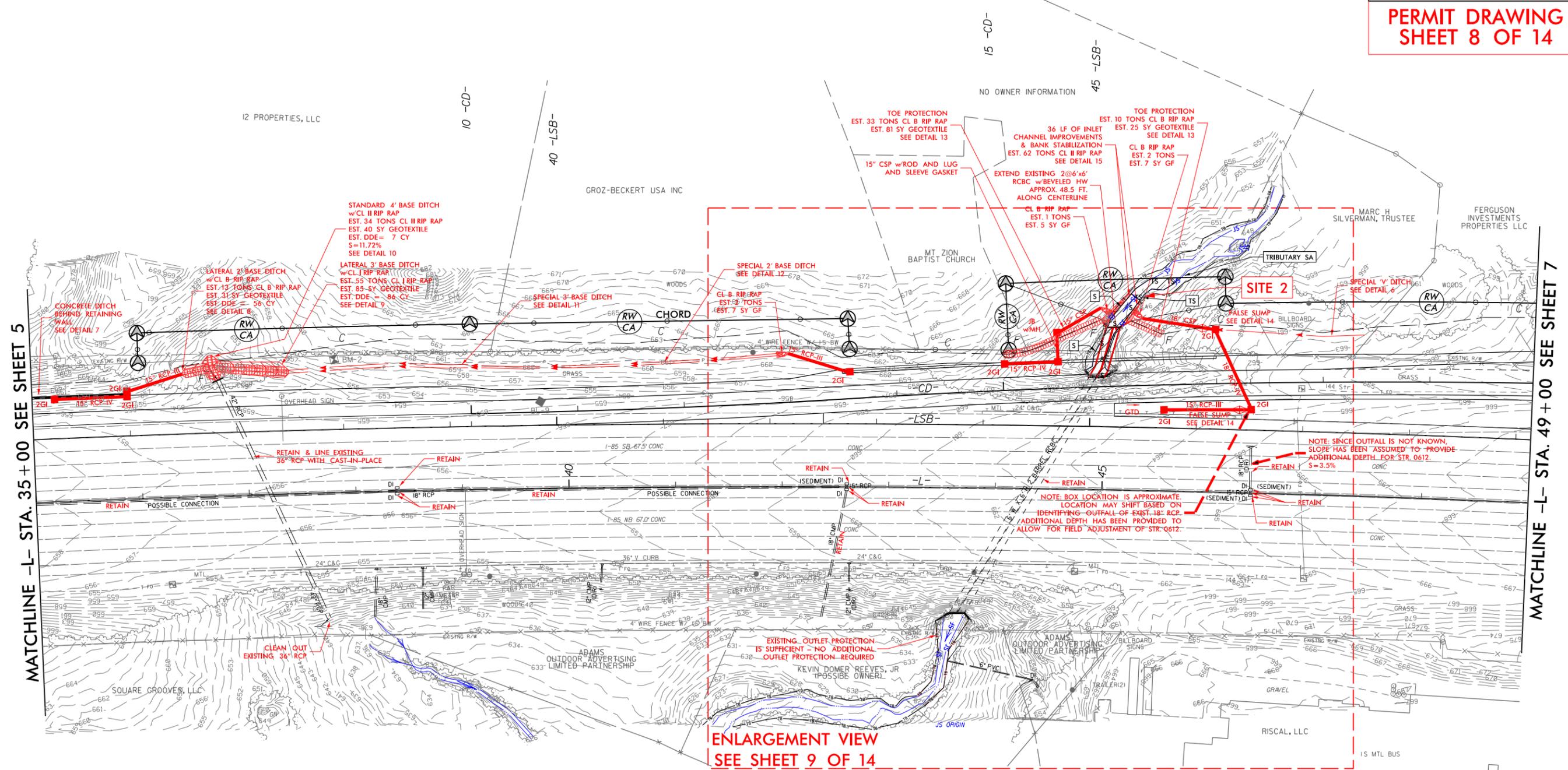
 SURFACE WATER IMPACTS
 TEMPORARY SURFACE WATER IMPACTS

NAD 83 NA 2011

PROJECT REFERENCE NO. 1-6016	SHEET NO. 6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	

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

**PERMIT DRAWING
SHEET 8 OF 14**



MATCHLINE -L- STA. 35+00 SEE SHEET 5

MATCHLINE -L- STA. 49+00 SEE SHEET 7

**ENLARGEMENT VIEW
SEE SHEET 9 OF 14**

FOR -CD- PROFILE, SEE SHEET 14
FOR -LSB- PROFILE, SEE SHEET 12
FOR STRUCTURES PLANS, SEE SHEETS C-01 THRU C-XX

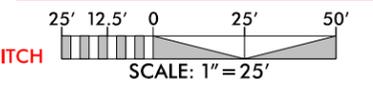
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PROJECT REFERENCE NO. 1-6016	SHEET NO.
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	

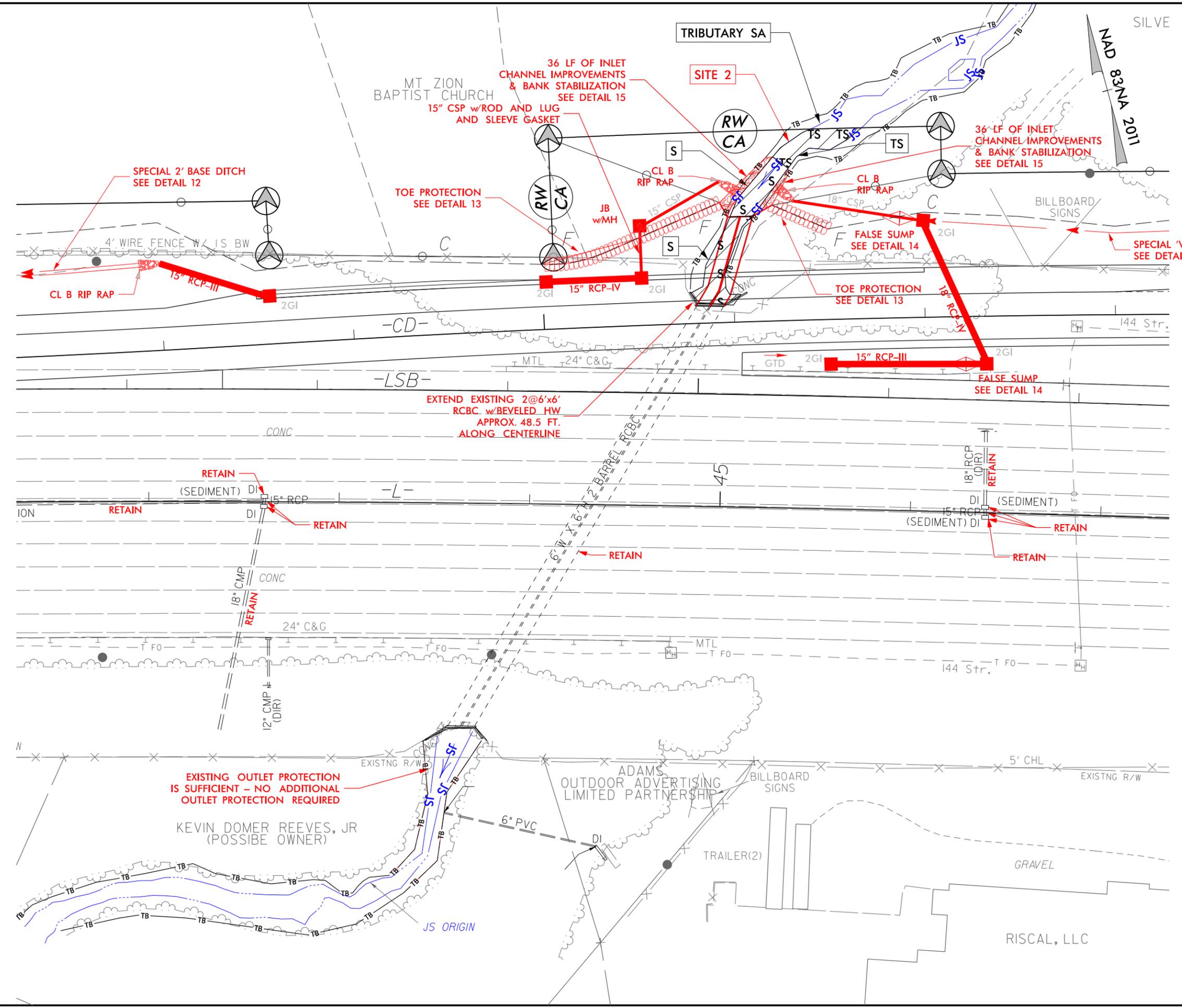
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PERMIT DRAWING SHEET 9 OF 14



- SURFACE WATER IMPACTS
- TEMPORARY SURFACE WATER IMPACTS

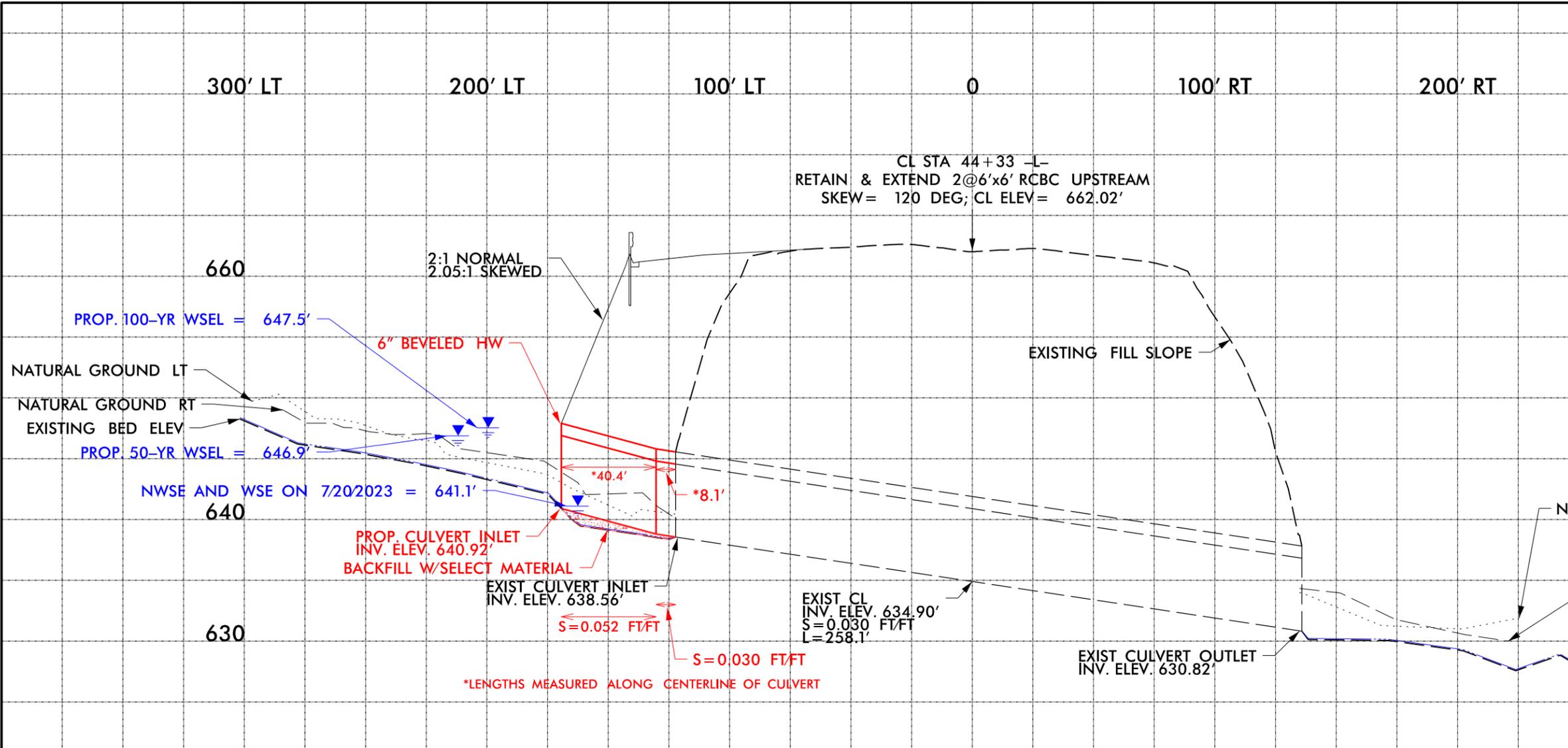
ENLARGEMENT VIEW PLAN SHEET 06



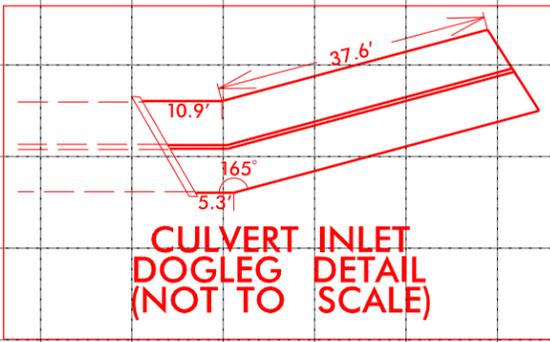
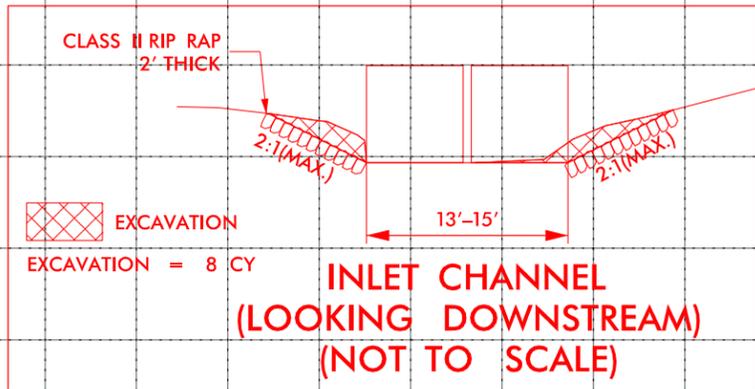
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PROJECT REFERENCE NO. 1-6016	SHEET NO.
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
PERMIT DRAWING SHEET 10 OF 14	



SITE 2



SCALE HORIZONTAL 1" = 25'
SCALE VERTICAL 1" = 2.5'

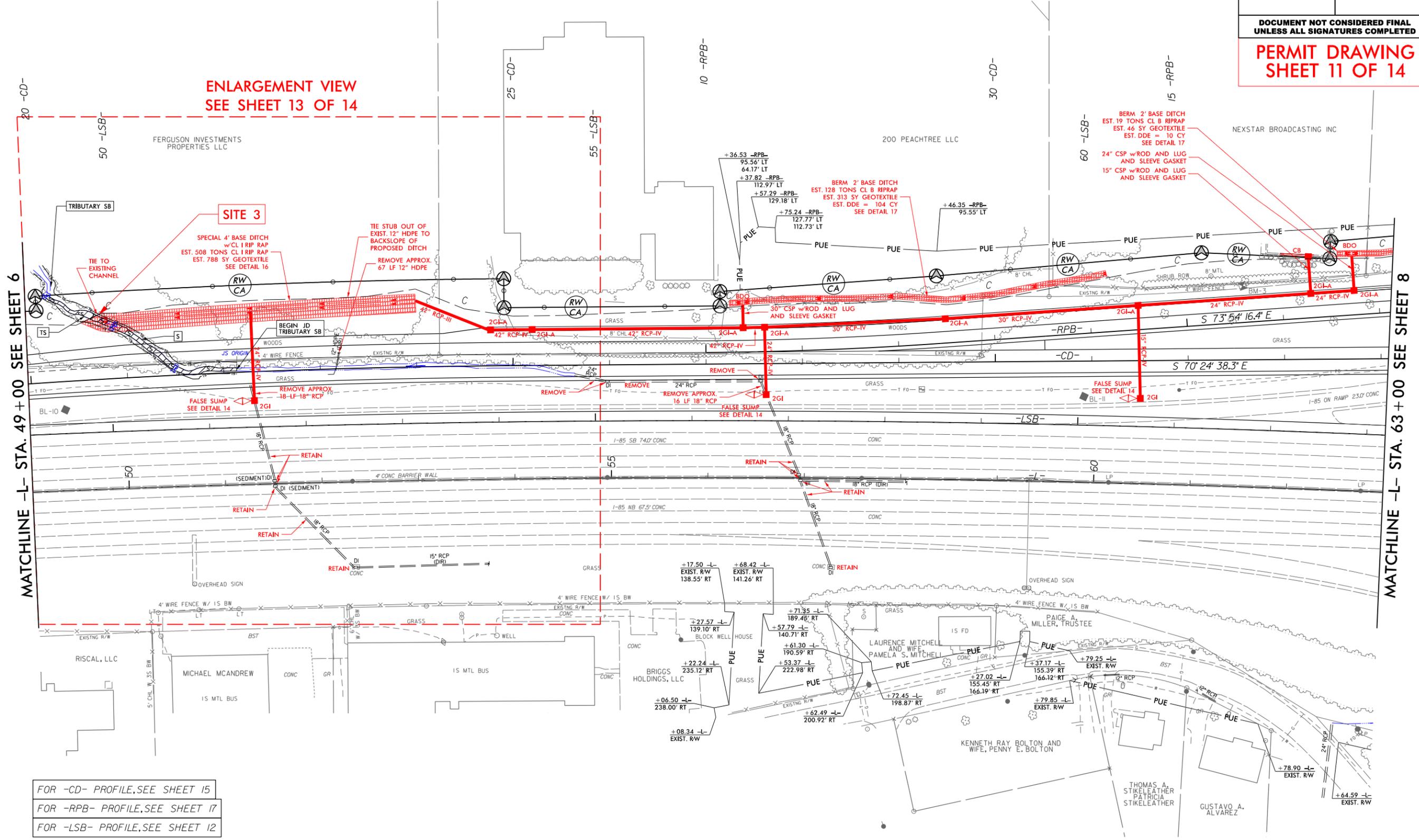
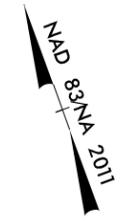
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 SURFACE WATER IMPACTS
 TEMPORARY SURFACE WATER IMPACTS

PROJECT REFERENCE NO. 1-6016	SHEET NO. 7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING
SHEET 11 OF 14



MATCHLINE -L- STA. 49 + 00 SEE SHEET 6

MATCHLINE -L- STA. 63 + 00 SEE SHEET 8

FOR -CD- PROFILE, SEE SHEET 15
 FOR -RPB- PROFILE, SEE SHEET 17
 FOR -LSB- PROFILE, SEE SHEET 12

8/7/2024 03:49

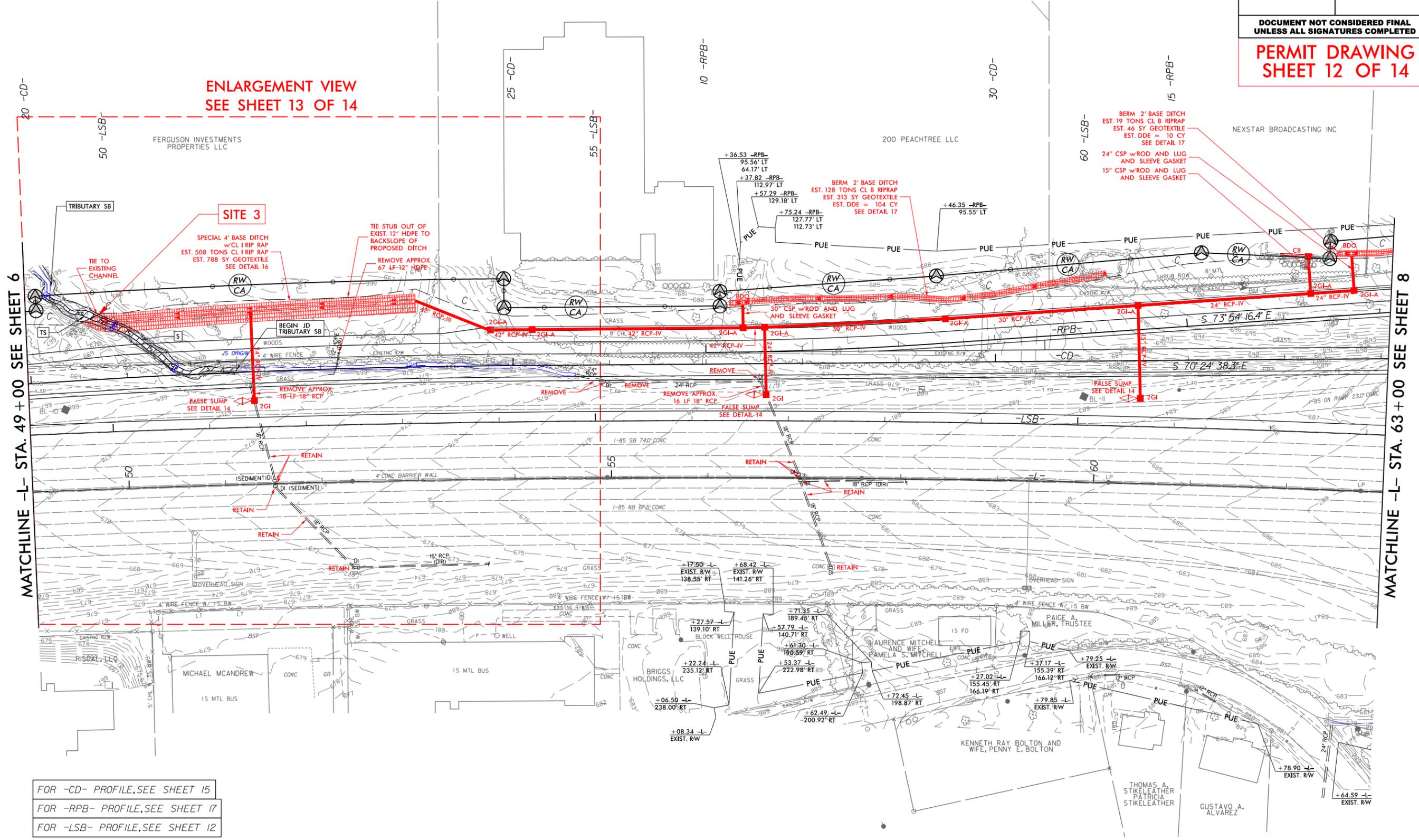
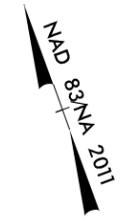
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8/17/99

 SURFACE WATER IMPACTS
 TEMPORARY SURFACE WATER IMPACTS

PROJECT REFERENCE NO. 1-6016	SHEET NO. 7
RW SHEET NO.	
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INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED
PERMIT DRAWING
SHEET 12 OF 14



FOR -CD- PROFILE, SEE SHEET 15
 FOR -RPB- PROFILE, SEE SHEET 17
 FOR -LSB- PROFILE, SEE SHEET 12

8/7/2024
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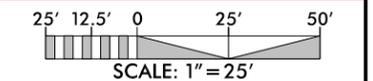
FERGUSON INVESTMENTS
PROPERTIES LLC

NAD 83/NA 2011

PROJECT REFERENCE NO. 1-6016	SHEET NO.
RW SHEET NO.	
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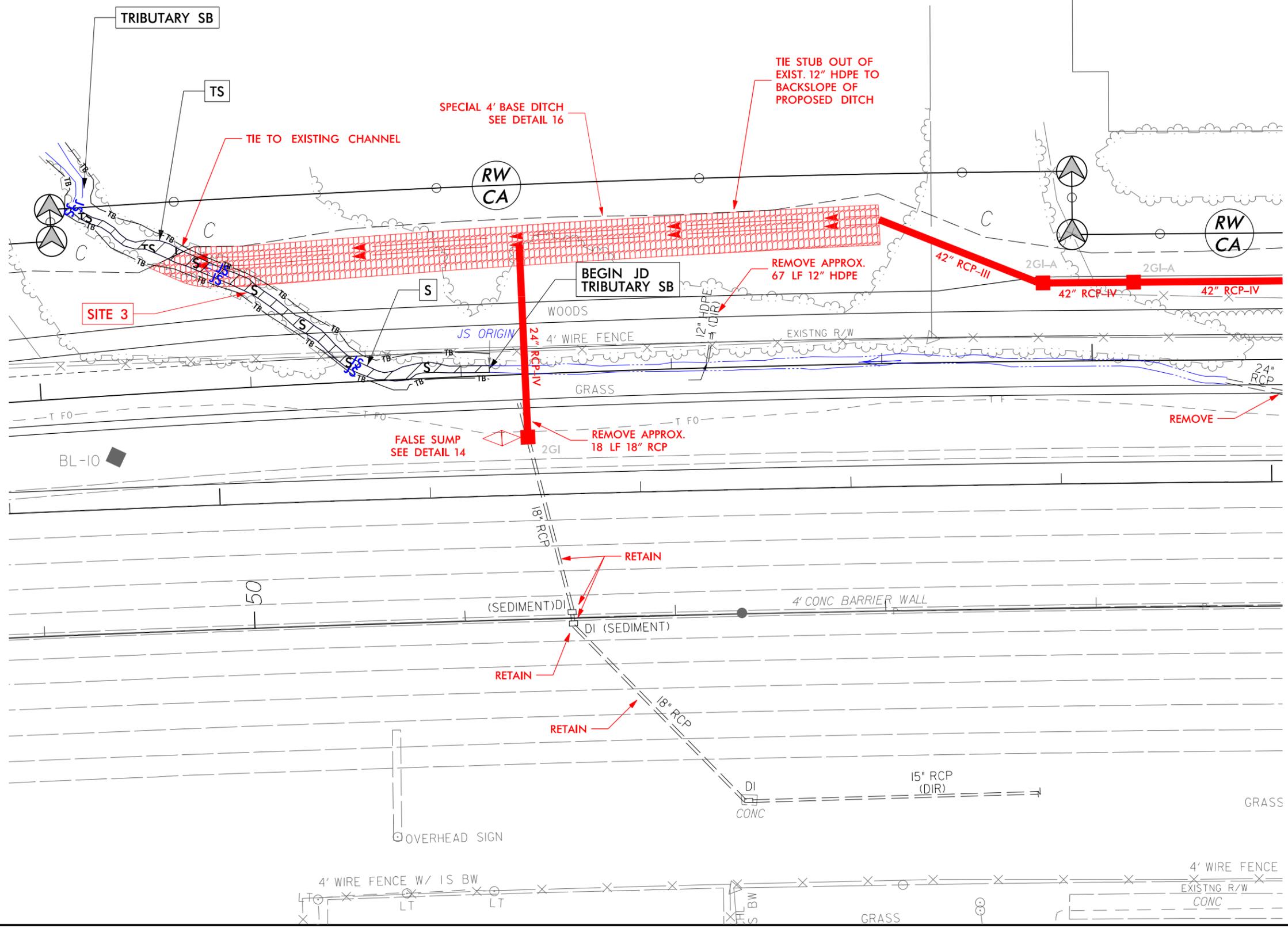
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 13 OF 14



	SURFACE WATER IMPACTS
	TEMPORARY SURFACE WATER IMPACTS

ENLARGEMENT VIEW
PLAN SHEET 07



WETLAND AND SURFACE WATER IMPACTS SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS					SURFACE WATER IMPACTS				
			Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-LSB- Sta. 22+49 - 22+58 LT	Spin Casting Installation						< 0.01		43		
	-LSB- Sta. 21+94 - 22+00 RT	Spin Casting Installation						< 0.01		10		
2	-CD- Sta. 15+78 - 16+11 LT	Extend 2@6'x6' RCBC						0.01		49		
	-CD- Sta. 15+99 - 16+36 LT	Bank Stabilization						< 0.01	< 0.01	36	36	
3	-CD- Sta. 20+28 - 22+13 LT	Roadway Fill & Channel Change						0.02	< 0.01	167	55	
TOTALS*:								0.04	0.02	252	144	0

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 8/7/2024
 MECKLENBURG COUNTY
 I-6016
 47968.1.1

Mitigation



NORTH CAROLINA
Environmental Quality

September 23, 2024

ROY COOPER
Governor
MARY PENNY KELLEY
Secretary
MARC RECKTENWALD
Director

Mr. Jamie Lancaster, P.E.
Environmental Analysis Unit
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Lancaster:

Subject: Mitigation Acceptance Letter:

TIP Project I-6016 – I-85 / I-485 Interchange Improvements, Mecklenburg County

The purpose of this letter is to notify you that the North Carolina Division of Mitigation Services (NCDMS) will provide the mitigation for the subject project. Based on the information received from you on September 23, 2024, the impacts are located in CU 03050101 of the Catawba River basin in the Southern Piedmont (SP) Eco-Region, and are as follows:

Catawba 03050101	Stream			Wetlands			Buffer (Sq. Ft.)	
	Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh	Zone 1	Zone 2
Impacts (feet/acres)	0	0	216.000	0	0	0	0	0

NCDMS commits to implementing sufficient mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies in accordance with the In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from NCDEQ – DMS.

If you have any questions or need additional information, please contact Ms. Beth Harmon at 919-707-8420.

Sincerely,

Elizabeth A. Harmon
DMS NCDOT ILF Coordinator

cc: Mr. Scott Jones, USACE
Ms. Kristie Carpenter, NCDWR
Mr. Brad Chilton, NCDOT – EAU
File: I-6016



North Carolina Department of Environmental Quality | Division of Mitigation Services
217 West Jones Street | 1652 Mail Service Center | Raleigh, North Carolina 27699-1652
919.707.8976

Protected Species/ Section 7

From: [Youngman, Holland J](#)
To: [Barrett, William A](#)
Subject: Re: [EXTERNAL] I-6016 Informal Concurrence Request
Date: Thursday, January 2, 2025 2:23:49 PM
Attachments: [image001.png](#)

CAUTION: External email. Do not click links or open attachments unless verified. Report suspicious emails with the Report Message button located on your Outlook menu bar on the Home tab.

Hi Bill, A response to your request for informal conference on tricolored bat is provided below. Please let me know if anything additional is needed for this project.

[Informal Conference for Tricolored Bat \(*Perimyotis subflavus*\) Relating to the Subject Project - FWS Log # 25-118](#)

We have reviewed the information you submitted and the following is provided in accordance with the provisions of the National Environmental Policy Act (42 U.S.C. § 4321 et seq.); the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661 - 667e); and section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 - 1543) (Act).

NCDOT proposes improvements to the I-85/I-485 Interchange in Charlotte near Belmont, Mecklenburg County. The action area is within a developed interstate corridor interspersed with portions of intact forest. Tree clearing was previously completed within the action area. Bridge and culvert replacement, percussive actions, lighting replacement, and night work with temporary lighting will occur. According to the information provided, suitable bat roosting structures were surveyed for bats and signs of bats on August 1, 2024, and results were negative. No conservation measures associated with the proposed work were provided, though the following is assumed based on NCDOT's operational procedures:

1. Should two years pass between the completed structure surveys for bats and the start of construction, surveys will be repeated to ensure absence of roosting bats.

The information provided indicates that “No Effect” (NE) determinations have been made for Michaux's sumac (*Rhus michauxii*), smooth coneflower (*Echinacea laevigata*), and Schweinitz's sunflower (*Helianthus schweinitzii*). In instances of suitable habitat being absent from the action area, we would agree that NE determinations are appropriate. In instances where suitable habitat is present and botanical surveys conducted during the optimal survey window and within the past 1 or 2 years (depending on the species) have negative results, we would concur with a biological determination of “may affect, not likely to adversely affect” (NLAA). This information is provided for the sake of the administrative record.

On September 14, 2022, the U.S. Fish and Wildlife Service published a proposal in the Federal Register to list the tricolored bat (*Perimyotis subflavus*) as endangered under the Act. As a result, NCDOT has requested a conference for the tricolored bat as the project may be on-going after the effective date of any final listing rule, if one is published. Based on the information provided, the negative survey results, and the existing conditions within the action area, we have determined that the proposed project will not jeopardize the continued existence of the tricolored bat. Additionally, we would concur with the NCDOT's determination that the project is NLAA the tricolored bat should

it become listed.

Conservation Recommendations: Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed/proposed species or critical habitat, to help implement recovery plans, or to develop information.

- **Structure Demolition**: Avoid conducting demolition of suitable bat roosting structures during the pup season (May 1 - July 15). These dates are for the year-round active zone 1, as explained in Appendix L of the Service's Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>. This guidance includes tricolored bat.

- **Lighting**:

- Should night work occur from April 1 - July 15, direct temporary lighting at the work area and shield lighting from illuminating the surrounding landscape, especially any waterbodies and riparian areas. Turn lighting off when not needed for safety or ongoing work.
- When installing new or replacing existing permanent lights, use downward-facing, full cut-off lens lights (with same intensity or less for replacement lighting); or for those transportation agencies using the Backlight-Uplight-Glare (BUG) system developed by the Illuminating Engineering Society, the goal is to be as close to 0 for all three ratings with a priority of "uplight" of 0 and "backlight" as low as practicable.
- Use light fixtures with a lower lumen output, reducing overall brightness, and use the shortest light poles that meet highway and safety requirements.
- Prioritize use of low-pressure sodium (LPS), high-pressure sodium (HPS), or LED light sources that emit "warm" light. "Warm" light sources are those that contain low amounts of blue light in their spectrum. Choosing light sources with a color temperature of no more than 3,000 Kelvins will minimize the effects of blue light exposure. If using LEDs, use lights with Type I or II distribution patterns that create rectangular lighting patterns that limit light spill into adjacent habitats.

-**Riparian Replanting**: Because the removal of forested riparian habitat can affect the quality and suitability of foraging and commuting habitat for bats, we recommend replanting any impacted riparian zones with native, fast-growing trees and shrubs that would serve to block light pollution and improve the quality of the habitat not only for bats but for aquatic species. Examples of potential native tree species to plant include: Sycamore, tulip poplar, black cherry and river birch. Planting with established (e.g. containerized) young trees can increase the survival rate of plantings and contribute to faster improvement of riparian habitat.

We believe the requirements under section 7 of the Act are fulfilled for the federally listed species discussed above. However, obligations under section 7 must be reconsidered if: (1) new information reveals impacts of this proposed action may affect listed species or critical habitat in a manner not previously considered, (2) this proposed action is subsequently modified in a manner that was not considered in this review, or (3) a new species is listed, or critical habitat is determined that may be affected by the proposed action.

We appreciate the opportunity to provide these comments. In any future correspondence on this project, please reference FWS Log # 25-118.

Sincerely,

Holland Youngman
(she/her)
Wildlife Biologist
U.S. Fish and Wildlife Service
Asheville Ecological Services Field Office
160 Zillicoa Street, Asheville, North Carolina, 28801
Cell: 828-575-3920

From: Barrett, William A <wabarrett@ncdot.gov>
Sent: Thursday, October 31, 2024 8:48 AM
To: Youngman, Holland J <holland_youngman@fws.gov>
Subject: RE: [EXTERNAL] I-6016 Informal Concurrence Request

Hi Holland,

Thanks for the verification of receipt!

Regards,
Bill

William A. Barrett
ECAP Environmental Coordinator
Environmental Analysis Unit
North Carolina Department of Transportation

919 707 6103 office
919 302 1908 mobile
wabarrett@ncdot.gov

1598 Mail Service Center (Mail)
Raleigh, NC 27699-1598

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Raleigh, NC 27610



Email correspondence to and from this address is subject to the North Carolina Public Records Law and may be disclosed to third parties.

From: Youngman, Holland J <holland_youngman@fws.gov>
Sent: Thursday, October 31, 2024 8:44 AM
To: Barrett, William A <wabarrett@ncdot.gov>
Subject: Re: [EXTERNAL] I-6016 Informal Concurrence Request

CAUTION: External email. Do not click links or open attachments unless verified. Report suspicious emails with the Report Message button located on your Outlook menu bar on the Home tab.

Thank you, Bill - received and added to my project list. Pardon the delay in receipt verification. I'll get back to you with any questions once I've had a chance to review.

Best,

Holland Youngman
(she/her)
Wildlife Biologist
U.S. Fish and Wildlife Service
Asheville Ecological Services Field Office
160 Zillicoa Street, Asheville, North Carolina, 28801
Cell: 828-575-3920

From: Barrett, William A <wabarrett@ncdot.gov>
Sent: Wednesday, October 16, 2024 10:38 AM
To: Youngman, Holland J <holland_youngman@fws.gov>
Cc: Wescott, William G <wgwescott@ncdot.gov>; Crocker, Lindsay H <lhcrocker@ncdot.gov>; Stanton, Tyler P <tpstanton@ncdot.gov>; NCDOT_Service_Account_ECAP <ECAP@ncdot.gov>
Subject: [EXTERNAL] I-6016 Informal Concurrence Request

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Hi Holland,

I hope that you, and yours, are safe!

Please find attached the Concurrence Request Letter for **TIP I-6016**, proposed improvements to the westernmost interchange of Interstate 85 with Interstate 485 in Charlotte near Belmont, Mecklenburg County.

Please let me know if there is anything else that is needed or if you would like to discuss.

Thanks!
Bill

William A. Barrett
ECAP Environmental Coordinator
Environmental Analysis Unit
North Carolina Department of Transportation

919 707 6103 office
919 302 1908 mobile
wabarrett@ncdot.gov

1598 Mail Service Center (Mail)
Raleigh, NC 27699-1598

1000 Birch Ridge Drive (Delivery)
Raleigh, NC 27610



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Post-NRTR Protected Species Survey Form

Project	
TIP/Project ID	I-6016, I-85/I-485 INTERCHANGE WEST OF CHARLOTTE, MECKLENBURG COUNTY

Species		
<input type="checkbox"/> American chaffseed [May-Aug]	<input type="checkbox"/> Bunched arrowhead [May-Jul]	<input type="checkbox"/> Canby's dropwort [Jul-Sep]
<input type="checkbox"/> Cooley's meadowrue [Jun-Jul]	<input type="checkbox"/> Dwarf flowered heartleaf [Mar-May]	<input type="checkbox"/> Golden sedge [Apr-Jun]
<input type="checkbox"/> Green pitcher plant [Apr-Oct]	<input type="checkbox"/> Harperella [Jul-Sep]	<input type="checkbox"/> Mtn sweet pitcher plant [May-Jun]
<input checked="" type="checkbox"/> Michaux's sumac [May-Oct]	<input type="checkbox"/> Pondberry [Feb-Mar/Sep-Oct]	<input type="checkbox"/> Rough-leaved loosestrife [May-Sep]
<input checked="" type="checkbox"/> Schweinitz's sunflower [Sep-Oct]	<input type="checkbox"/> Seabeach amaranth [Jul-Oct]	<input type="checkbox"/> Sensitive joint-vetch [Jul-Oct]
<input type="checkbox"/> Small-anthered bittercress [Apr-May]	<input type="checkbox"/> Small whorled pogonia [May-Jun]	<input checked="" type="checkbox"/> Smooth coneflower [May-Oct]
<input type="checkbox"/> Swamp pink [Apr-May]	<input type="checkbox"/> Virginia spiraea [May-Jul]	<input type="checkbox"/> White irisette [May-Jul]
<input checked="" type="checkbox"/> Other: bald eagle		

Survey Date Time Information	
Date(s) of Survey	9/18/2024
Person Hours	2.5hr bald eagle x 2 staff, 4.5 hr. S. sunflower/ M. sumac/ smooth coneflower x 2 staff
Surveyors	Gordon Marsh, Nat Blackford (RK&K)
Habitat Present	Yes, for all three plants throughout most of the study areas. Bald eagle habitat was present though limited.
Remarks	<p>Neither of the three plants were observed in the red or orange boundaries. No bald eagles or bald eagle nests were observed within the red or orange boundaries or the additional 660' limits.</p> <p>A review of NHP records updated 7/1/2024 indicates no known occurrences of either of the species within 1.0 mile (or 1.13 miles for bald eagle) of the study areas.</p>

Included graphic/drawing of survey limits and habitat.

Reference Population(s) Visited <i>(optional/encouraged)</i>	
Locations/ Date	N/A
In-flower	
Remarks	



Sources: ESRI, USGS, County and Municipality Data

Mead & Hunt

Mead & Hunt
111 E Hargett Street
Raleigh, NC 27601
Tel. 919.714.8670
www.meadhunt.com



**I-85/I-485 INTERCHANGE WEST OF CHARLOTTE
IMPROVE INTERCHANGE
MECKLENBURG COUNTY**

TIP NO.: I-6016
WBS NO.: 47968.1.1

DATE: 9/10/2024

FIGURE 1

REVISED STUDY AREA MAP

LEGEND

- County Boundaries
- Original Study Area
- Expanded Study Area
- East Route Detour
- West Route Detour

Archaeology

indicates that in the event that unmarked human burials are encountered during construction, work in that area must cease and cannot resume without authorization from either the County medical examiner or the State Archaeologist. If impacts to this portion of the cemetery and/or potential unmarked graves cannot be avoided, affected graves would need to be investigated and relocated in accordance with NCGS 65-12 Part 4 (Removal of Graves) or NC GS 70-3 (Unmarked Human Burial and Human Skeletal Remains Protection Act).

(This project falls within a North Carolina County in which the following federally recognized tribes have expressed an interest: Catawba Nation and the Cherokee Nation. We recommend that you ensure that this documentation is forwarded to these tribes using the process described in the current NCDOT Tribal Protocol and PA Procedures Manual.)

SUPPORT DOCUMENTATION

See attached: Map(s) Previous Survey Info Photos Correspondence

Other: technical report

Signed:

SCOTT HALVORSEN

Scott Halvorsen

3/21/2024

NCDOT ARCHAEOLOGIST

Date

MOUNT ZION CEMETERY REMOTE SENSING SURVEY

I-6016

WBS No. 47968.1.1; PA No. 21-11-0031

Division 10

Mecklenburg County, North Carolina

March 2024 | Terracon Project No. HL197000 Task 20

Prepared for:

North Carolina Department of Transportation

Prepared by:

Terri Russ, RPA,

and

Alex Corkum, RPA

Terracon Consultants, Inc.

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Nationwide

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- Facilities
- Environmental
- Geotechnical
- Materials

MANAGEMENT SUMMARY

This report presents the findings of a remote sensing (geophysical) survey of portions of the Mount Zion Cemetery in Mecklenburg County, North Carolina. The purpose of this investigation was to identify potential unmarked burials within the project's Area of Potential Effects (APE) and to record extant grave markers for analysis and interpretation of the cemetery.

The North Carolina Department of Transportation (NCDOT) Division 10 is proposing improvements to the I-85/I-485 interchange in Mecklenburg County, North Carolina (TIP No. I-6016; WBS No. 47968.1.1; PA No. 21-11-0031). The remote sensing project was limited to a small portion of the proposed right of way (ROW) for the I-6016 project. For the purposes of this remote sensing survey, the NCDOT established an APE of approximately 0.08 acres within the parcel boundaries for the Mount Zion Cemetery.

This investigation was conducted by Terracon Consultants, Inc. (Terracon) of Raleigh, North Carolina, on behalf of NCDOT. Work was performed in accordance with procedures and policies established by the North Carolina Office of State Archaeology (OSA) for compliance with Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended and in consultation with NCDOT (Halvorsen 2023).

Field methods used during the investigation included pedestrian inspection, a ground penetrating radar (GPR) survey of the project APE, and mapping of visible graves within the cemetery. The GPR investigation was conducted on January 29 and 30, 2024, by Terri Russ, RPA (Principal Investigator), Kristin Doshier, RPA (Project Archaeologist), and Joseph Snider (archaeologist/geophysicist). GPR data processing and interpretation was provided by Alex Corkum, PhD, RPA (lead geophysicist).

As a result of the investigations, 23 anomalies consistent with graves were identified by the GPR survey. Fifteen of these appear to be associated with known graves; however, eight anomalies did not have corresponding above ground visual indicators of a grave. In accordance with OSA guidelines, Terracon recommends a minimum 10 m (32.8 ft) buffer of avoidance around the extent of grave-like anomalies identified in this survey. Should avoidance be impossible, we recommend archaeological monitoring of subsurface disturbance within the area surveyed to minimize the risk of encountering human remains or other evidence of burials.



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1. INTRODUCTION

This report presents the findings of a Ground Penetrating Radar (GPR) investigation of portions of the Mount Zion Cemetery in Mecklenburg County, North Carolina (Site 31MK1329). The purpose of this investigation was to identify potential unmarked burials within the project's Area of Potential Effects (APE) and to record extant grave markers for analysis and interpretation of the cemetery.

NCDOT Division 10 is proposing improvements to the I-85/I-485 interchange in Mecklenburg County, North Carolina (TIP No. I-6016; WBS No. 47968.1.1; PA No. 21-11-0031). For the purposes of this remote sensing survey, the NCDOT has established an APE of approximately 0.08 acres as shown in shapefiles provided by NCDOT (Figures 1 and 2).

Prior to the initiation of fieldwork, background research was conducted in an attempt to find out information about the historic period use of the Mount Zion Cemetery. Field methods employed by Terracon during the investigation included systematic visual (pedestrian) inspection combined with a GPR survey.

The GPR investigation was conducted on January 29 and 30, 2024, by Terri Russ, RPA (Principal Investigator), Kristin Doshier, RPA (Project Archaeologist), and Joseph Snider (archaeologist/geophysicist). GPR data processing and interpretation was provided by Alex Corkum, PhD, RPA (lead geophysicist).

2. ENVIRONMENTAL BACKGROUND

Physiography and Hydrology

The project APE is located within the Piedmont physiographic region and falls within the Charlotte terrace (NCDENR 2015). The project area is within the Catawba River Basin; an unnamed tributary of the Catawba River is located east of the project area and flows into an area marked as Lake Kathleen south of I-85 on topographic maps (the lake does not appear to be extant based on current aerial photographs).

Soils

Soil development is dependent upon biotic and abiotic factors that include past geologic activities, nature of parent material, environmental and human influences, plant and animal activity, age of sediments, climate, and topographic position. A general soil association contains one or more mapping units occupying a unique natural landscape position. The map units (soil series) are named for the major soil or soils within the unit but may have minor inclusions of other soils. The soil map for Mecklenburg County shows three soil units mapped



 Project Location

Data Sources: Project Location based on information provided by NCDOT; Esri World Street Map

Drwn:	MM
Chkd:	TR
Project No.:	HL197000 Tsk 20
Date:	March 2024



Project Vicinity
Mount Zion Cemetery TIP No. I-6016; PA No. 21-11-0031 Mecklenburg County, North Carolina

FIGURE NO.
1



Data Sources: Survey Area provided by NCDOT; USA Topo Maps

 Survey Area

Drwn:	MM
Chkd:	TR
Project No.:	HL197000 Tsk 20
Date:	March 2024



Topographic Map
Mount Zion Cemetery TIP No. I-6016; PA No. 21-11-0031 Mecklenburg County, North Carolina

FIGURE NO.
2

for the cemetery area (NRCS 2023). Wilkes loam (WkD, 4–8% slopes and WkE, 8–15% slopes) occur within the current APE and consist of well drained sandy loam soils over clay subsoil or weathered bedrock. The northern portion of the cemetery (outside of the current APE) is mapped as well drained Mecklenburg fine sandy loam.

Current Land Use

The current project study area consists of a cemetery (currently in use but not maintained) which is generally wooded with some overgrown areas and some maintained lawn. A homeless encampment is located immediately north and west of the cemetery. The area to the north and east of the cemetery (the former church location) is currently maintained lawn. Representative project area photographs can be seen in Section 5.

3. BACKGROUND RESEARCH

Prior to the initiation of field investigations, Terracon conducted background research sufficient to acquire a working familiarity with the relevant background associated with the Mount Zion Cemetery. This research included an examination of the archaeological site files at the OSA to identify previously recorded cultural resources and cultural resource surveys within the project vicinity as well as a search of historic structure reports and resources on file at the SHPO. A search of the site files at the OSA indicated no previously recorded archaeological sites have been recorded within 0.5-miles of the project area. One previous survey, a 1990 reconnaissance survey for an approximately 13-mile section of the then-proposed Charlotte Outer Loop, included the current project area but recorded no sites in the vicinity (Hargrove 1990). No above ground historic period structures have been recorded within one-half mile of the project vicinity.

According to the published history of Mount Zion Baptist Missionary Church (Mount Zion Baptist Missionary Church n.d.), the church was established in 1895. The first church was built in the Dixie River Community (west of the Charlotte Douglas International Airport) but relocated to Performance Road (the site of the cemetery) in 1938. The church was rebuilt in 1946 in the same location. In 1990 the church moved to Hawley Street; however, the cemetery appears to still be in use.

The website [FindAGrave.com](https://www.findagrave.com) lists 52 interments in the cemetery. A 2003 survey by Jane Johnson (Charlotte Mecklenburg Library 2024) listed 46 interments. The current investigation recorded 85 graves or possible graves. Of the named graves recorded in the online census, 27 could not be relocated; however, 39 of the graves recorded during the current investigation were unmarked or were not marked with legible inscriptions.

Although the church was purportedly built in 1938, there are four purported graves listed in the online census Find-A-Grave with death dates prior to this time (Table 1). These were not located during the current investigation; however, research indicated there was a second Mount Zion Church in the area (Mount Zion United Methodist Church). Two of the four purported graves were confirmed to be located in the Mount Zion United Methodist Church cemetery and not within the Mount Zion Baptist Church Cemetery. The other two could not be confirmed, as no marked graves were recorded in either cemetery and the death certificates for each merely noted the cemetery as “Mount Zion” without specifying which of the Mount Zion cemeteries. Neither individual had other family members in the Mount Zion Baptist Church cemetery, so it is possible that these interments are located elsewhere (particularly given the knowledge that the church was not constructed until 1938).

Table 1. Purported Graves Predating the 1938 Construction of the Mount Zion Baptist Church (from Find-A-Grave)

First Name	Last Name	Birth	Death	Comments
Alma Earl	Bolick	7 Mar 1907	17 Oct 1932	from Find-A-Grave; Actually buried at Mt. Zion Methodist Church
Robert	Caldwell	1850	25 Mar 1930	from Find-A-Grave; not relocated (possible burial at Mt. Zion Methodist)
Augustus	Smith	1871	29 Dec 1929	from Find-A-Grave; Actually buried at Mt. Zion Methodist Church
Ernest	Williams	Oct 1933	8 Feb 1934	from Find-A-Grave; not relocated (possible burial at Mt. Zion Methodist)

In 1989, Grob Corporation (now Groz-Beckert) purchased the parcel to the north of the cemetery from the Mount Zion Baptist Church of Charlotte trustees (Deed Book [DB] 5989 Page 569). The deed retained a 15-foot easement to access the adjacent cemetery and indicated that the cemetery parcel was restricted for use solely as a cemetery. Exhibit C of the deed describes the cemetery boundaries; however, no earlier deed reference was provided or located.

Historical Maps and Aerial Photographs

Historical aerial photographs from 1969 and 1977 show the former church location (Figure 3). By 1992, two years after the new church had been constructed, the church appears to have been demolished (Figure 4). Similarly, topographic quadrangle maps dated 1952 and 1973 also show the location of the church (Figure 5). The 1977 topographic map depicts the church, cemetery, and a smaller structure to the east (possibly a rectory or outbuilding). The church is still depicted on the 1988 edition of the topographic map; however, by the 1996 edition the structures are no longer depicted (Figure 6).



1969 Aerial Imagery Showing Mount Zion Church and Cemetery
 (Source: NCDOT Aerial Imagery m0774_9098_t)



1977 Aerial Imagery Showing Mount Zion Church and Cemetery
 (Source: NCDOT Aerial Imagery m1303_7713_t)



Historical Aerial Photographs
 Mount Zion Cemetery
 TIP No. I-6016; PA No. 21-11-0031
 Mecklenburg County, North Carolina

Project: HL197000 Tsk 20
 Date: Mar 2024
 Drwn/Chkd: TR/MM
 Figure: 3



1992 Aerial Imagery Showing Mount Zion Cemetery
 (Source: NCDOT Aerial Imagery m2897_0028_t)

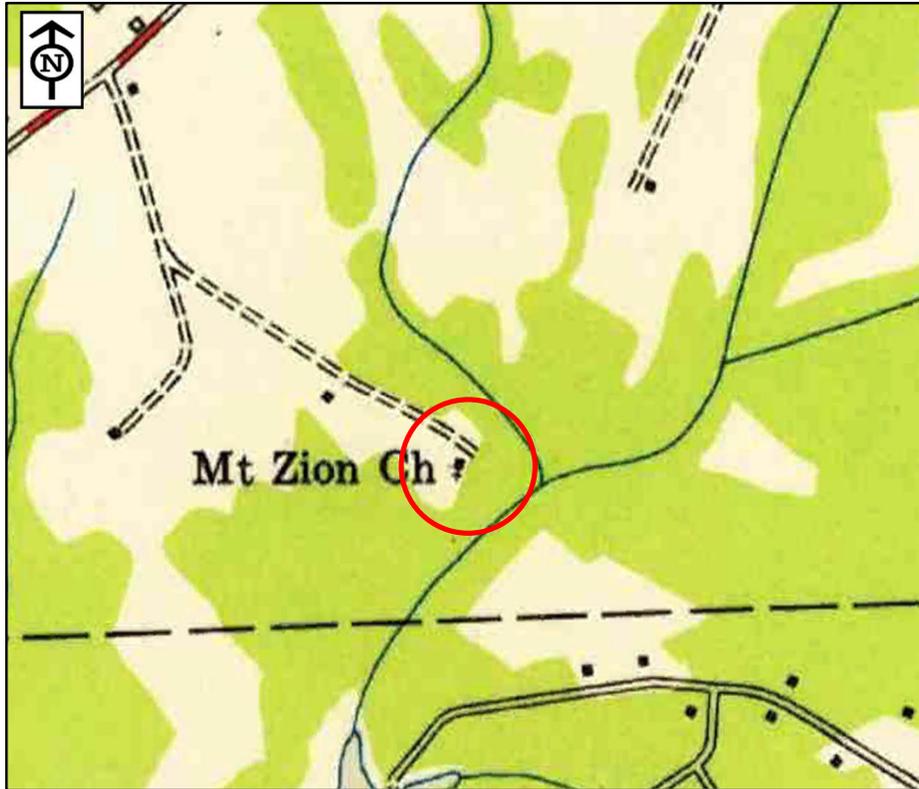


1995 Aerial Imagery Showing Mount Zion Cemetery
 (Source: NCDOT Aerial Imagery m3496_5105_t)



Historical Aerial Photographs
 Mount Zion Cemetery
 TIP No. I-6016; PA No. 21-11-0031
 Mecklenburg County, North Carolina

Project: HL197000 Tsk 20
 Date: Mar 2024
 Drwn/Chkd: TR/MM
 Figure: 4



1948 (1952 ed.) Paw Creek, NC 1:24,000 USGS Topographic Quadrangle

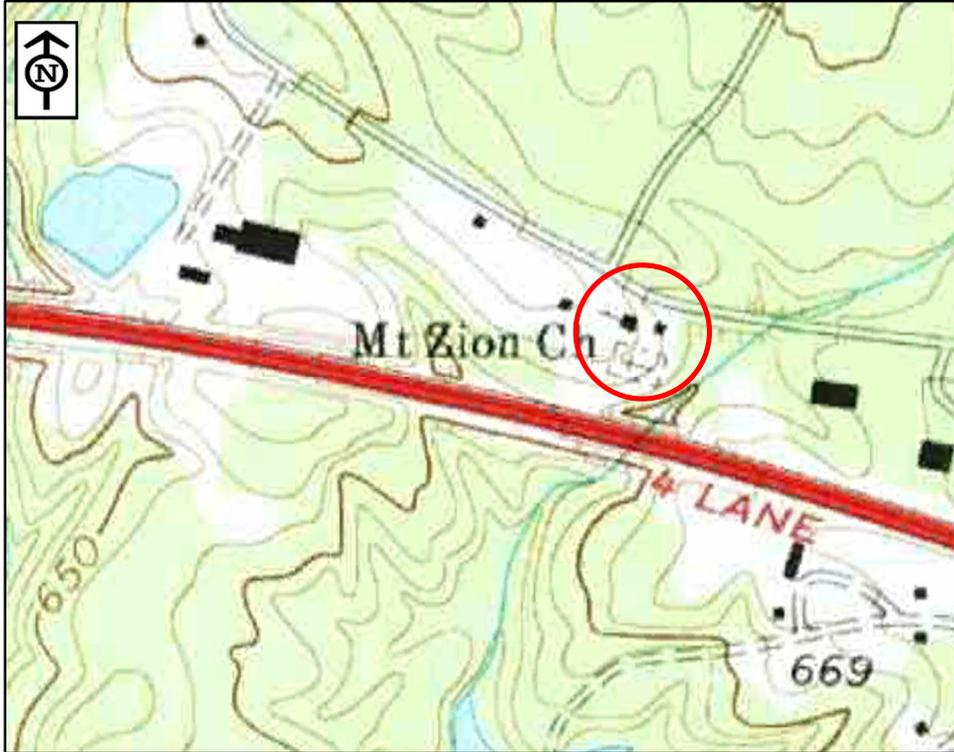


1969 (1973 ed.) Mountain Island Lake, NC 1:24,000 USGS Topographic Quadrangle



Historical Topographic Maps
 Mount Zion Cemetery
 TIP No. I-6016; PA No. 21-11-0031
 Mecklenburg County, North Carolina

Project: HL197000 Tsk 20
 Date: Mar 2024
 Drwn/Chkd: TR/MM
 Figure: 5



1969 (1988 ed.) Mountain Island Lake, NC 1:24,000 USGS Topographic
Quadrangle



1993 (1996 ed.) Mountain Island Lake, NC 1:24,000 USGS Topographic
Quadrangle



Historical Topographic Maps
Mount Zion Cemetery
TIP No. I-6016; PA No. 21-11-0031
Mecklenburg County, North Carolina

Project: HL197000 Tsk 20
Date: Mar 2024
Drwn/Chkd: TR/MM
Figure: 6

4. RESEARCH DESIGN AND METHODOLOGY

The main goal of the investigation was to identify anomalies within the project area that could be associated with unmarked graves. Work towards this goal took place in two stages: background research and field investigations.

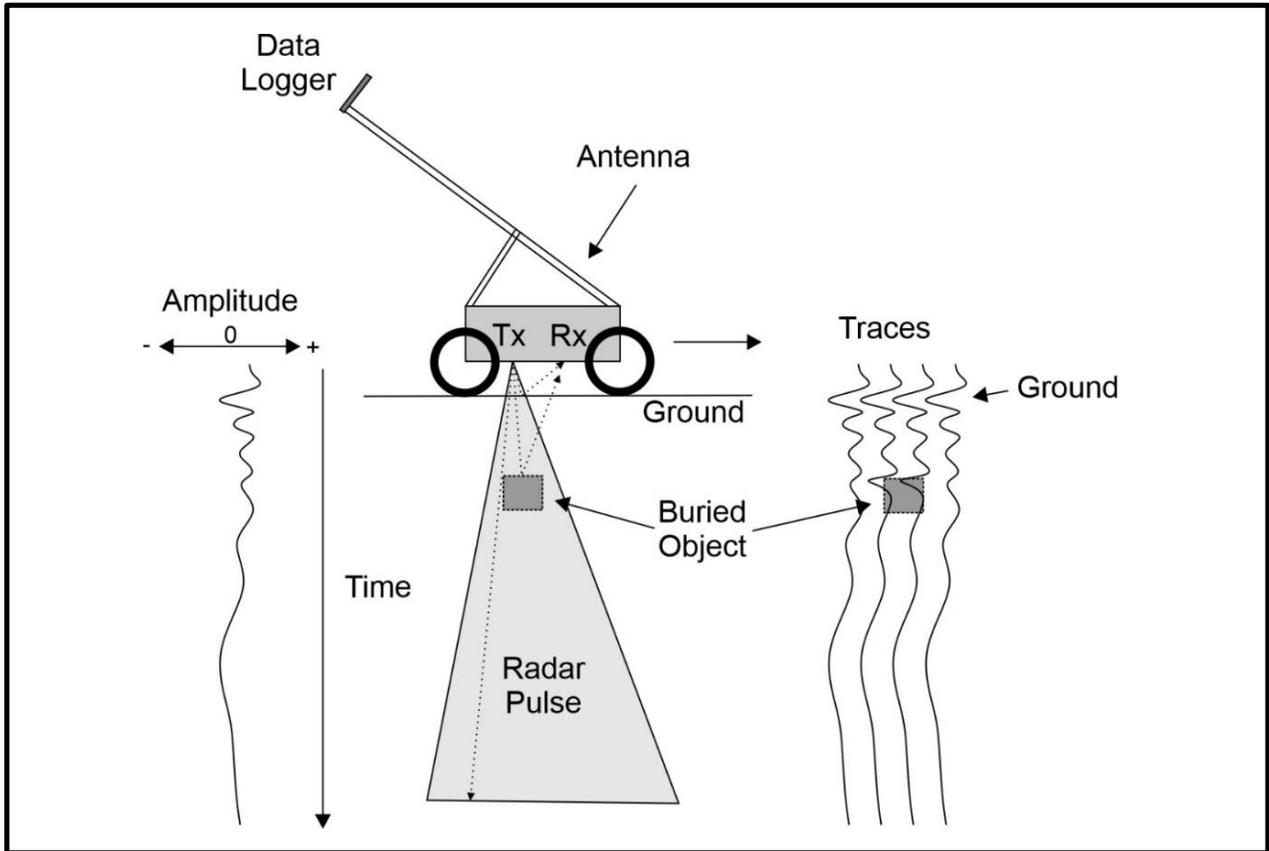
Background Research

The goal of the background research was to attempt to find records pertaining to the Mount Zion Cemetery. Background research included a search of the North Carolina Archaeological Site Files, as well as an examination of reports of previous investigations of cultural resources in the vicinity of the project area. Other sources consulted included the Mecklenburg County Register of Deeds, census records, death certificates, genealogical records, online cemetery surveys, and historic period newspapers.

Field Methodology

Although the GPR survey was limited to the project APE, the entire cemetery was subjected to visual inspection and the locations of visible or likely burials (as well as information from marked graves) were recorded. Information recorded for grave locations included name, birth and death date (if present), orientation of grave (if apparent), and marker type. Information recorded in the field was compiled into a spreadsheet; grave locations were assigned a number which was tied to the map location and photographs.

GPR utilizes high frequency electromagnetic waves to detect certain electrical property changes in the subsurface of the area being scanned. Data is typically collected in uniform grids, which consist of parallel lines called transects, and each transect is composed of a series of radar pulses called a trace (Figure 7). These two intervals define the survey resolution (X and Y), which is chosen to maximize detection of features in the shortest survey window. Data in the field are often displayed as multiple traces displayed over distance which are combined to form a radargram. Once the data have been processed, the data can be viewed in profile (radargram), or multiple profiles can be combined to create a pseudo-3D model of the data that is "sliced" at specific time intervals in plan-view (time-slice). If a radar velocity has been calculated (typically through hyperbola matching, either in the field or during data processing), this time-slice can be displayed with approximated depths and is referred to as a depth-slice. Switching between these two views (radargrams and depth-slices) can aid in the interpretation of anomalies. Interpretation of changes or reflections in the signal can generally indicate material property changes, including electromagnetic conductivity and dielectric constant, which in some cases can be qualitatively linked to other material properties (e.g., density). These changes can be effective in identifying the presence and location of numerous subsurface anomalies (e.g., subsurface voids, buried concrete, underground tanks, disturbed soils, underground utilities, and embedded objects).



Simplified Example of the Creation of Radargrams

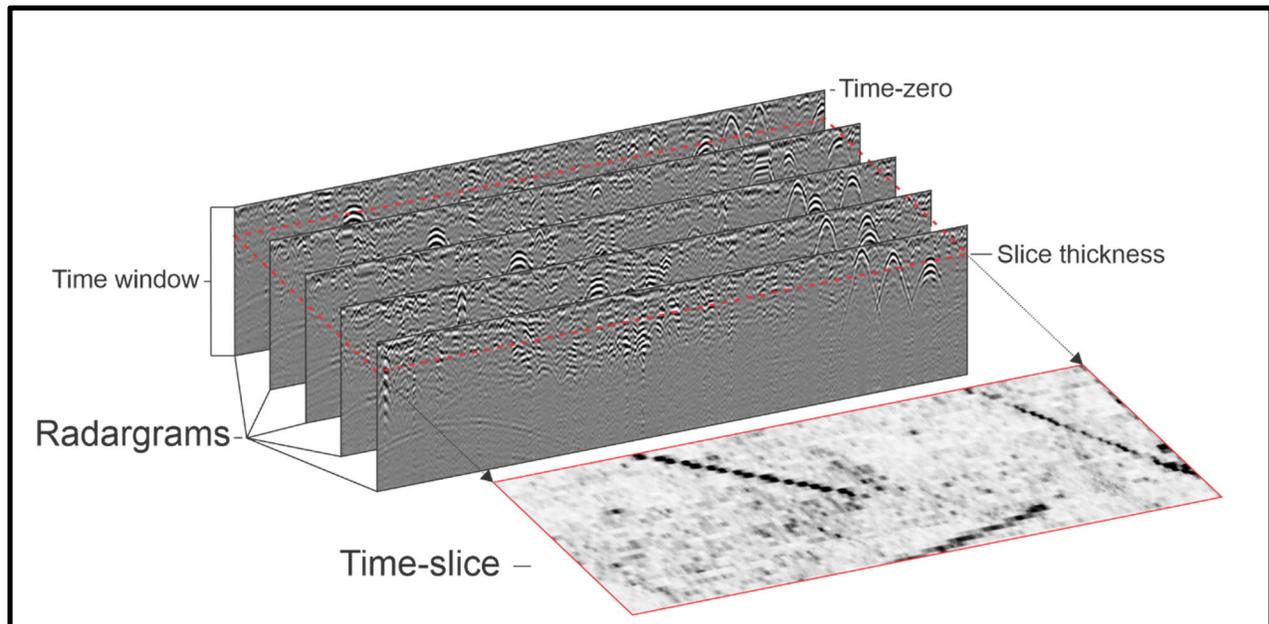


Diagram of the Creation of a Time-Slice from Multiple Radargrams



GPR Methodology Examples
 Mount Zion Cemetery
 TIP No. I-6016; PA No. 21-11-0031
 Mecklenburg County, North Carolina

Project: HL197000 Tsk 20
 Date: Mar 2024
 Drwn/Chkd: AC/TR
 Figure: 7

Although large communal graveyards are common today, most historical graveyards across the United States are small family or congregation-managed plots. It is common amongst these small cemeteries, as the surrounding communities change and people move away, that they become marginalized or abandoned. If enough time passes without maintenance, these cemeteries will become “lost”, grave markers may become displaced or removed, and the boundary of the cemetery becomes indistinguishable from the surrounding landscape. Geophysical survey can provide a non-invasive means of identifying the location of “lost” graves and delineating cemetery boundaries.

Success in identifying graves in GPR surveys is entirely dependent on a variety of circumstances including, but not limited to, soil type, soil moisture content, and grave shaft contents. Geophysical instruments are especially equipped to detect changes in soil moisture, variability in soil composition such as sand, gravel, or clay, and in general, disturbed earth. In almost all geophysical data, the actual anomalies identified are not human remains or even burial containers, but the grave shaft fill. When a grave is excavated, soil is removed and set aside. Upon reaching the desired depth, excavation is terminated, and the deceased are placed in the bottom of the grave shaft. Despite some care in sorting the topsoil and underlying clayey subsoil, the two are typically mixed when the grave shaft is backfilled. The result of this mixing is that the grave shaft fill material is different from the surrounding natural soils, and thus detectable through geophysical survey.

Historic period graves are typically oriented east-west, with the head situated on the west side so that the remains are facing east. While the tradition of east-facing burial is often compromised in urban settings, where town lot orientation sometimes dictates grave orientation, in rural and small private cemeteries, the tradition typically applies. Grave orientation, when known, should dictate the orientation of the geophysical survey grids. In order to maximize the number of transects that bisect a possible grave, transect orientation should be perpendicular to the long axis of graves. Since the long axis of graves is most often east-west, survey transects should be oriented north-south. This is of course in the absence of extant grave markers or obvious surface depressions. If local observations such as extant grave markers or depressions suggest an orientation other than east-west, those observations should inform survey transect orientation.

Generally speaking, human remains are traditionally enclosed in some form of material prior to burial, whether a simple cloth shroud, a coffin, or a coffin and a burial vault combination. A shroud burial includes wrapping the deceased in a cloth which is sometimes fastened together with straight or safety pins. Depending on preservation conditions, these pin fasteners are often the only remnants of historic period burials of this type. Shroud wrappings were often also included in the burial of individuals buried inside caskets.

Coffin burials, perhaps the most common form of burial, include a rigid container, traditionally made of wood, that encloses the remains. In most instances, wooden coffins alone cannot be detected with geophysical instruments. Without iron or concrete burial vaults, wooden caskets

decompose and eventually collapse. This collapse allows for sediment in the grave shaft to percolate into the coffin, making it similar enough to the soil in the shaft that it cannot be distinguished with geophysics. This collapse often correlates with depressions visible on the ground surface at a cemetery; however, these depressions were often filled in by family members or cemetery staff as part of routine maintenance.

Wood coffins were fastened together with a variety of metal hardware including nails, screws, hinges, latches, etc. Additional ferrous material was used for coffin accessories such as handles, upholstery tacks, plaques, etc. Despite the presence of this ferrous material, geophysical detection is rare. This is due to the small size and depth of these objects, which makes them very challenging to distinguish from the soil which surrounds them.

Cast iron coffins, conversely, are easily identified through geophysics. Beginning in the late 1840s, cast iron coffins began to emerge as a coffin option for consumers. These burial containers grew in popularity during the American Civil War when they were utilized to transport men killed in action from distant battlefields to their hometown burying grounds.

Today, most municipal and commercial cemeteries require that human remains be deposited in burial vaults, typically a reinforced concrete vault; however, smaller church cemeteries or family cemeteries do not often have these requirements. Historic period vaults can range from simple wooden containers to commercially produced products made of cast iron. Vaults have an undeniable impact on soil moisture in grave shafts. Vaults often prevent the collapse of coffins and the settling of grave shaft fill material. Thus, they are often visible in geophysical data as air or water-filled voids.

Aside from graves themselves, cemeteries often contain a variety of historical subsurface materials and archaeological features. These include, but are not limited to, fence posts, plot markers, masonry walls, paved surfaces such as paths and roads, drainage tile, wells, small buildings such as mausoleums, and cosmetic landscaping features such as planting beds, planting holes, and irrigation systems.

Site conditions that were considered when designing the GPR survey included:

- Age of the cemetery
- Burial practices
- Types of monuments and surrounding landscape features
- The presence of metal as debris, fences, utilities, etc.
- The use of metal and igneous rock in monuments and burial features
- Soil types
- The presence and composition of rock and gravel
- Vegetation
- Orientation of the graves with regard to the survey area
- Physical obstacles that would potentially hinder or prevent the GPR investigations

GPR Field Methodology

Prior to initiation of the GPR survey, geophysical survey grid was established in GIS consisting of a series of 10 x 20 m blocks. The survey transects were conducted north to south to maximize the potential for crossing unmarked graves, which appeared to have been largely oriented east to west. GPR field data collection followed standards referenced in ASTM D6432. The GPR survey utilized a Sensors and Software Noggin Plus 250 MHz GPR system, collecting data along transects spaced 25 cm apart with a trace interval of 2.5 cm (while wider transect spacing can be utilized, Terracon geophysicists have determined that 25 cm spacing provides the most comprehensive dataset for unmarked grave identification). Transects were terminated when the GPR system reached an obstacle, or when the grid limits were reached.

Field data were taken back to the office to be processed utilizing Geolix, a cloud-based GPR processing program engineered by Geolix Technologies, Inc. Geophysical interpretation and figure production were conducted on georeferenced data in the GIS program QGIS 3.22.8. The resulting data set included processed geophysical data, Esri Shapefiles (Point, Line, and Polygon), and an interpretive map with anomaly locations and classification (Rank 1–Rank 4), which is accompanied by an anomaly table that includes comments and location information.

5. RESULTS OF INVESTIGATIONS

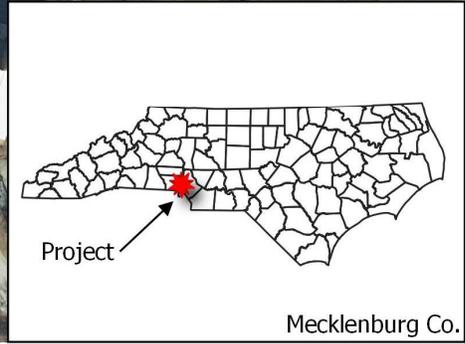
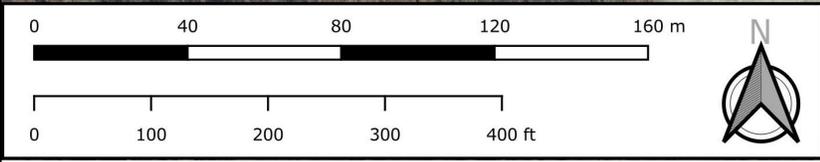
The GPR survey was undertaken on January 29 and 30, 2024. Terri Russ, RPA (Principal Investigator) and Kristin Doshier, RPA recorded the marked burial locations and assisted in establishing the GPR grid. Joseph Snider (archaeologist/geophysicist) conducted the GPR survey within the project APE. The project APE consisted of approximately 0.08 acres (see Figures 1 and 2). An approximately 0.132-acre area was surveyed with GPR (Figures 8 and 9).

Prior to initiation of the GPR survey, a survey grid was established within the project APE and the area was hand cleared of undergrowth, saplings, and other vegetative obstructions. The locations of marked graves within the APE as well as the surrounding cemetery were recorded.

The Mount Zion Cemetery is still in use but does not appear to be regularly maintained. The project area was generally wooded; however, a small portion of the cemetery to the north is located in a grassy field. Some parts of the cemetery are overgrown; it appears that individual families are responsible for the upkeep of their plots. Representative project area photographs can be seen in Figures 10 and 11.



 Geophysical Survey Limit
 I6016 Survey Area

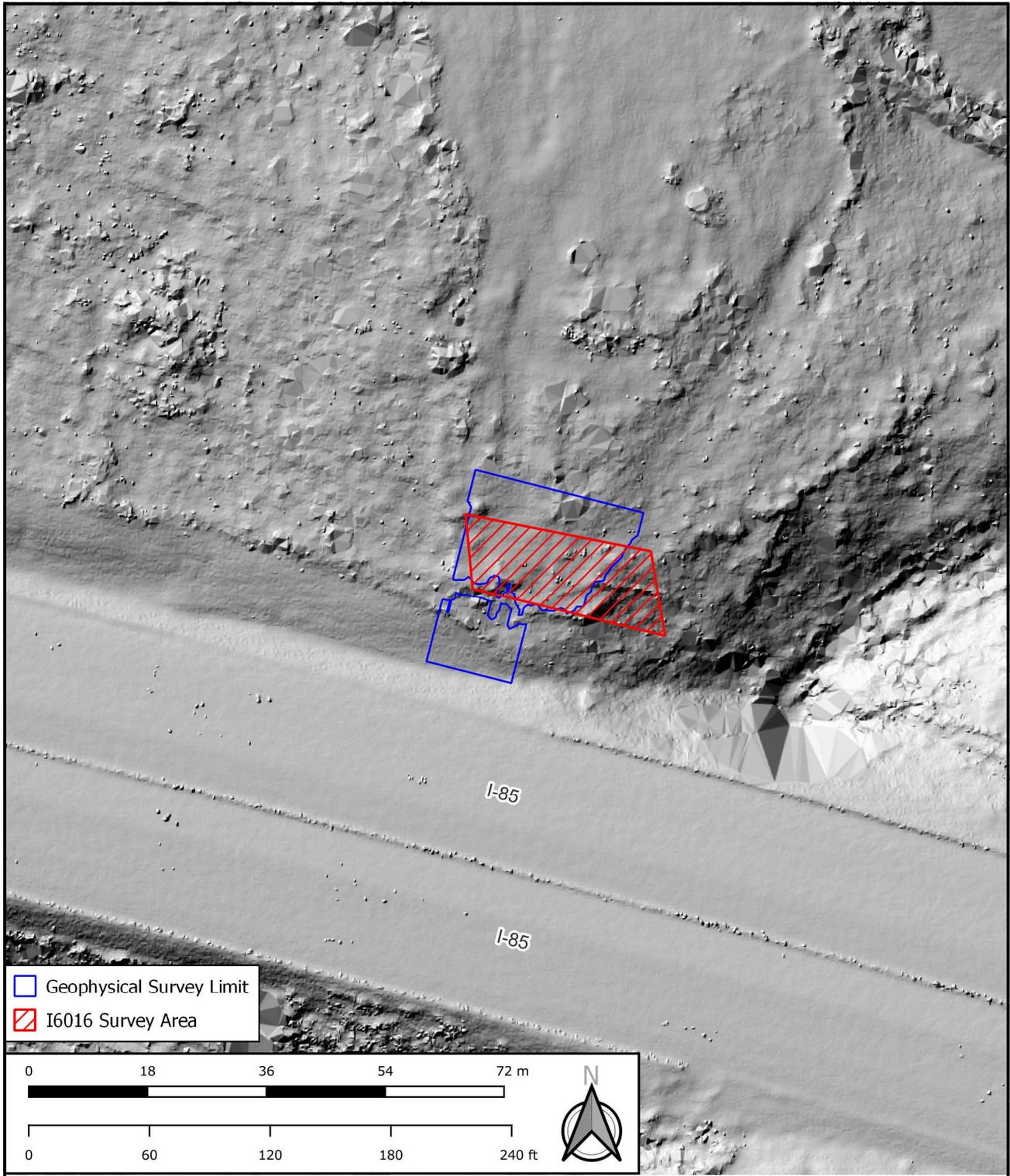


GPR Survey Location
NC OneMap 2023



GPR Survey Location
 Mount Zion Cemetery
 TIP No. I-6016; PA No. 21-11-0031
 Mecklenburg County, North Carolina

Project: HL197000 Tsk 20
 Date: Mar 2024
 Drwn/Chkd: TR/MM
 Figure: 8



GPR Survey Location
Hillshaded LiDAR



GPR Survey Location-LiDAR
Mount Zion Cemetery
TIP No. I-6016; PA No. 21-11-0031
Mecklenburg County, North Carolina

Project: HL197000 Tsk 20
Date: Mar 2024
Drwn/Chkd: AC/TR
Figure: 9



View of Southern Portion of Cemetery within Project APE, facing Southwest



View of Southern Portion of Cemetery within Project APE, facing South
(after clearing)



Project Area Photographs
Mount Zion Cemetery
TIP No. I-6016; PA No. 21-11-0031
Mecklenburg County, North Carolina

Project: HL197000 Tsk 20
Date: Mar 2024
Drwn/Chkd: TR/MM
Figure: 10



View of Northern Portion of Cemetery (outside of Project APE), facing Northeast



View of Southern Portion of Cemetery, facing South-Southeast



Project Area Photographs
Mount Zion Cemetery
TIP No. I-6016; PA No. 21-11-0031
Mecklenburg County, North Carolina

Project: HL197000 Tsk 20
Date: Mar 2024
Drwn/Chkd: TR/MM
Figure: 11

Cemetery Mapping

A total of 85 graves were recorded during the current investigation (Figure 12; See Appendix A). Of these, only 44 had legible death dates. Chart 1 shows the distribution of graves with known dates; however, it should be noted that this is merely a reflection of recorded burials with inscribed, legible grave markers. Forty-one graves were noted that had no marker, no legible inscription, or were marked with uninscribed or illegible temporary metal funeral home markers. A cursory examination of the distribution of inscribed grave markers suggests that graves were loosely arranged in family plots rather than chronologically.

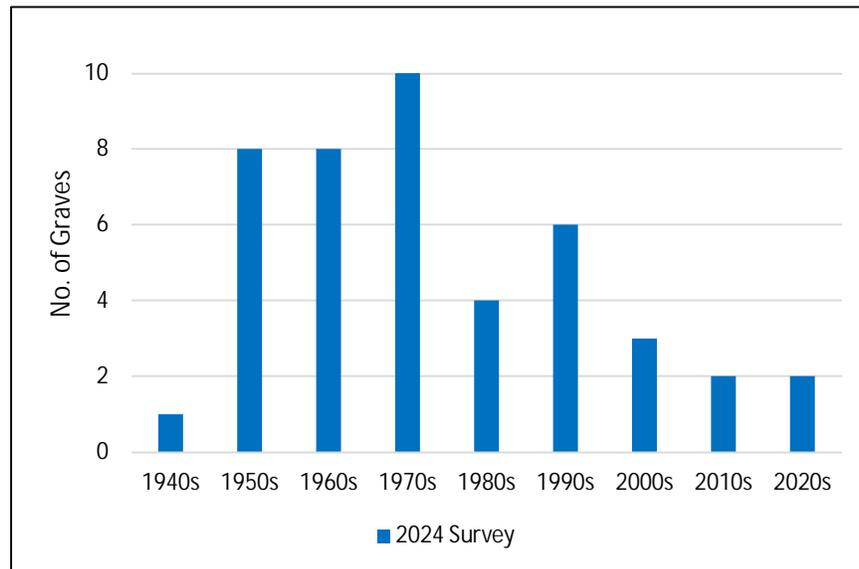
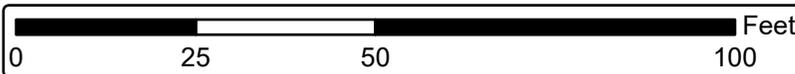
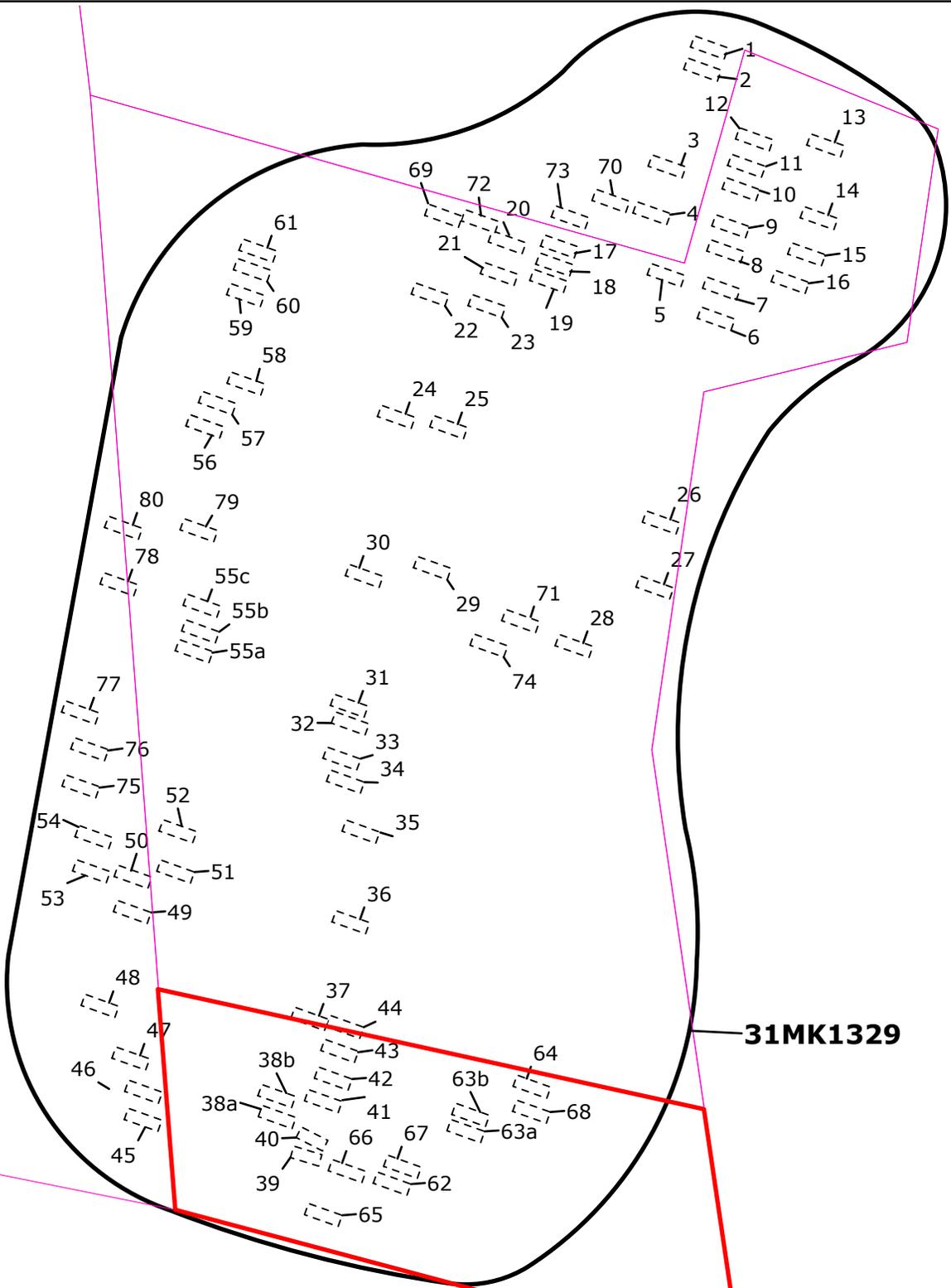


Chart 1: Distribution of Recorded Interments by Decade

The earliest recorded grave noted during the current survey was a granite marker noting the burial of James H. Erwin, who died in 1943. The most recent marked interment was the grave of Lillie M. Boyd, who died in March 2021; however, a recently excavated unmarked grave with several floral arrangements suggests a more recent interment. Representative photographs of grave markers can be seen on Figure 13.

Fifteen of the graves appear to be located within the current APE. The earliest marked grave in this section of the cemetery is that of James Falls (1913–1965). Other marked graves in the APE include Isiah Cherry (1921–1975) and his wife Lucina Cherry (1937–2011), David Robinson (1942–2001) and his wife Ella Mae (1939–unk.), and Sara Adams (1920–1976). The remaining nine graves are marked with uninscribed wooden crosses or are represented by unmarked depressions.

Formally carved granite or marble grave markers made up 50 percent of the marked graves. Of the remaining marked graves, 13 (20.3%) were marked with metal funeral home markers,



- Cemetery Site Boundary
- Survey Area
- Grave
- Parcel Boundary

Data Sources: Survey Area provided by NCDOT; Terracon Field Data (2024); NC OneMap.
 Disclaimer: The information depicted on this figure is for informational purposes only and was not prepared for, and is not suitable for, legal or engineering purposes.

Drwn:	MM
Chkd:	TR
Project No.:	HL197000 Tsk 20
Date:	March 2024



Cemetery Plan
Mount Zion Cemetery TIP No. I-6016; PA No. 21-11-0031 Mecklenburg County, North Carolina

FIGURE NO.
12



G35



G32



G29



G23



G11



G63



G22



Project Area Photographs- Representative Grave Markers
Mount Zion Cemetery
TIP No. I-6016; PA No. 21-11-0031
Mecklenburg County, North Carolina

Project: HL197000 Tsk 20
Date: Mar 2024
Drwn/Chkd: TR/MM
Figure: 13

nine (14.1%) were marked with poured, stamped, or molded cement markers, six (9.4%) were marked with wooden crosses, and four (6.3%) were marked informally (flowers, cinderblocks, rocks, or other decorative items).

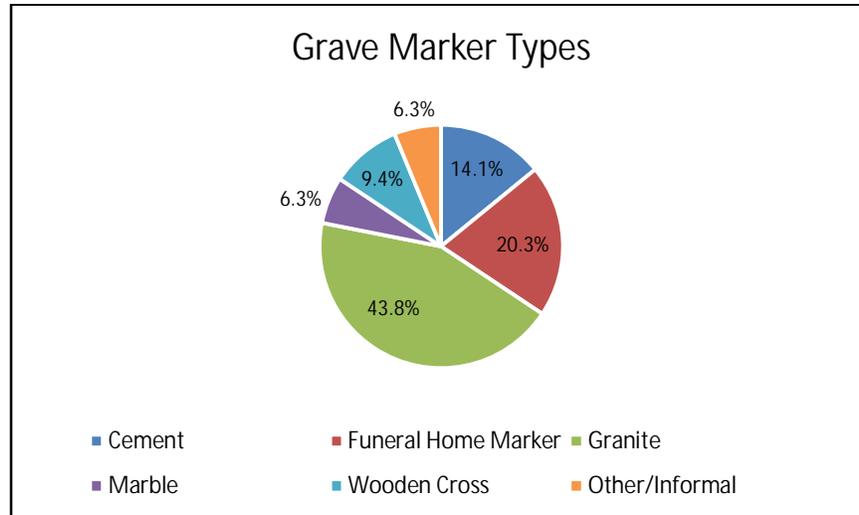


Chart 2: Grave Marker Types
(does not include unmarked depressions)

GPR Results

The GPR survey covered a total of 534.18 m² (0.132 acres). The survey was limited by the fence central to the survey area which runs east to west along the I-85 right of way and dense brush and slope along the east portion of the survey area (see Figures 8 and 9). General project area photographs of the GPR survey area can be seen on Figures 14–16. Radar velocity was calculated by hyperbola matching during data processing. A velocity of 0.121 m/ns was found to be consistent with representative hyperbola from the dataset and was used to calculate depth. This velocity produced a calculated dielectric constant of 6.1. As the radar energy was found to have largely attenuated below a depth of 3 m below surface, the radar volume used to generate the depth-slices was clipped to 3 m below surface.

Figure 17 shows a representative depth-slice at 0.75 m (1.97 ft) below ground surface and illustrates several grave-like anomalies in plan view. Figure 18 shows a Multi-Depth-Slice view of grave-like anomalies from a depth range of 0.2 to 1.8 m (0.66 to 5.9 ft) below the ground surface. Figure 19 shows three representative radargrams demonstrating several identified grave-like anomalies in profile. Figure 20 shows an interpretive map of the identified geophysical anomalies.

A total of 22 grave markers or grave depressions were visible within the geophysical survey limits. A total of 23 grave-like anomalies were identified in the area surveyed; 15 of these appear to be associated with marked graves. The remaining eight anomalies (Anomalies 1, 4,



Overview of GPR Survey Area, facing East



GPR Survey Area, facing West



Project Area Photographs
Mount Zion Cemetery
TIP No. I-6016; PA No. 21-11-0031
Mecklenburg County, North Carolina

Project: HL197000 Tsk 20
Date: Mar 2024
Drwn/Chkd: TR/MM
Figure: 14



Fence along ROW, facing Overview of GPR Survey Area, facing West



Southeastern Portion of GPR Survey Area, facing East



Project Area Photographs
Mount Zion Cemetery
TIP No. I-6016; PA No. 21-11-0031
Mecklenburg County, North Carolina

Project: HL197000 Tsk 20
Date: Mar 2024
Drwn/Chkd: TR/MM
Figure: 15



View from ROW towards Cemetery, facing North-Northeast

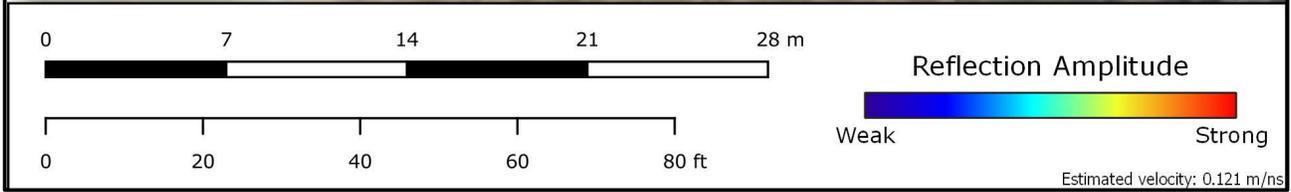
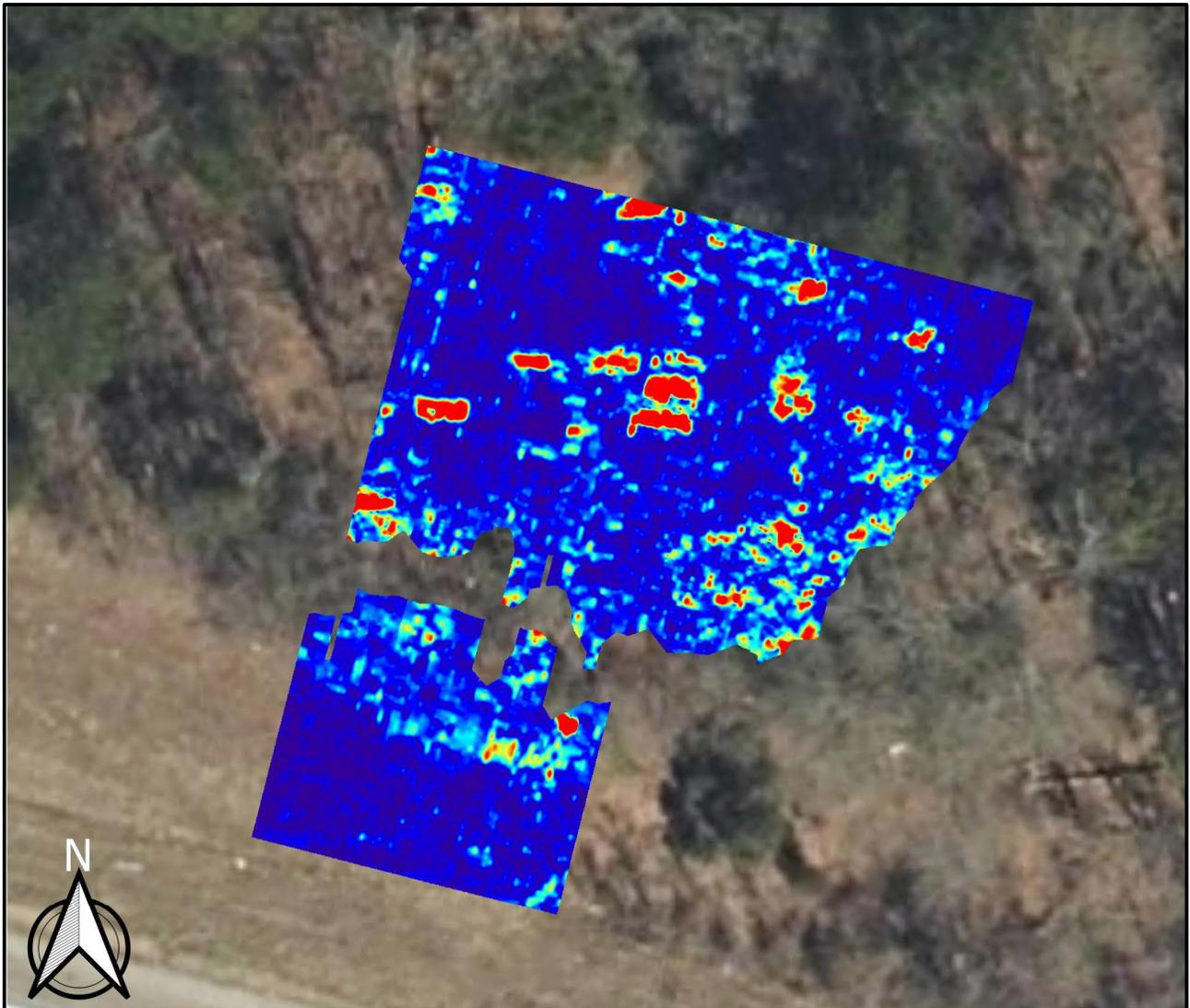


GPR Survey in Progress, facing Southeast



Project Area Photographs
Mount Zion Cemetery
TIP No. I-6016; PA No. 21-11-0031
Mecklenburg County, North Carolina

Project: HL197000 Tsk 20
Date: Mar 2024
Drwn/Chkd: TR/MM
Figure: 16

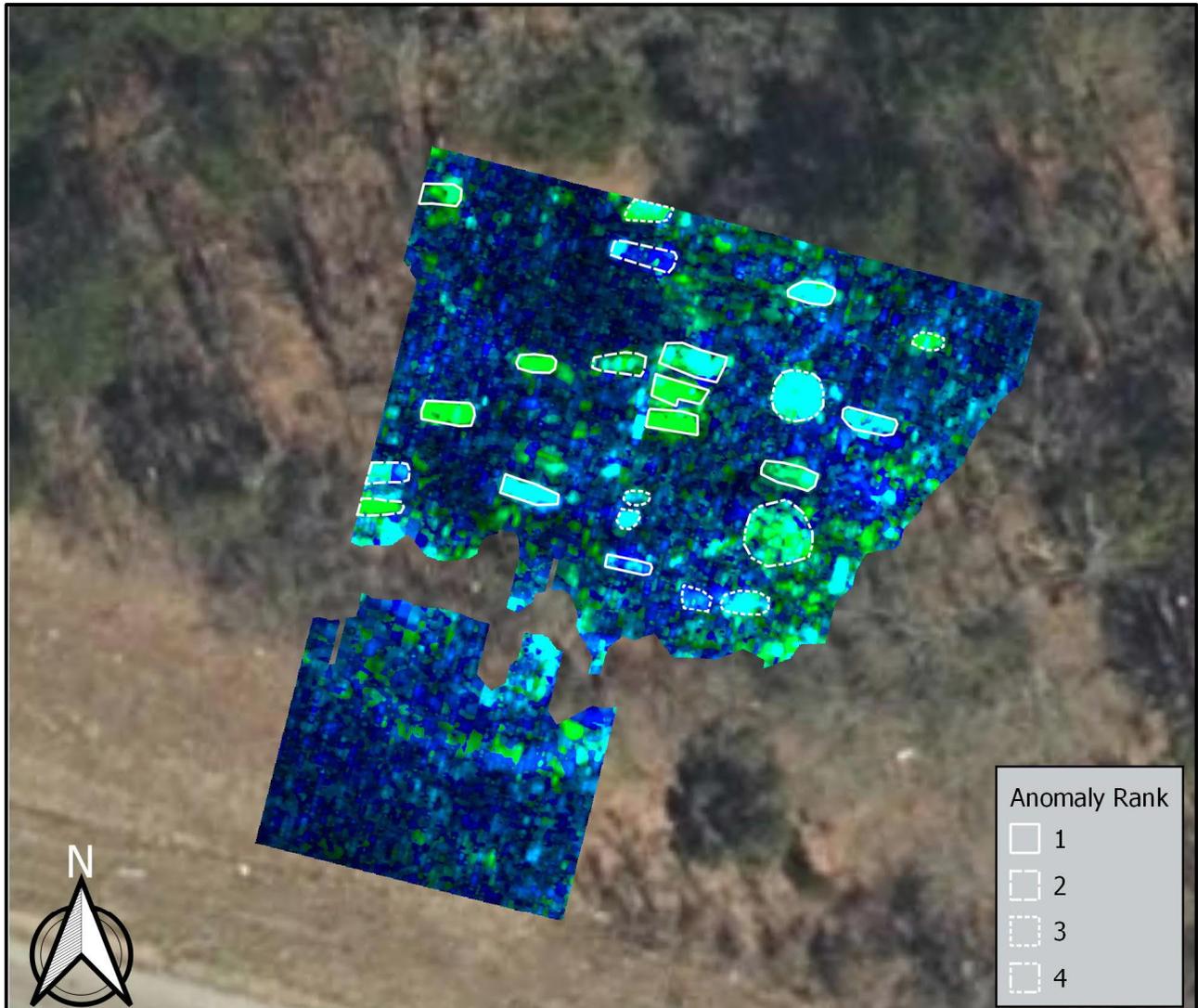


GPR Depth Slice Example (0.75 m below surface)



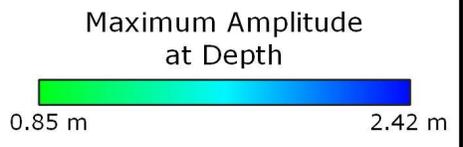
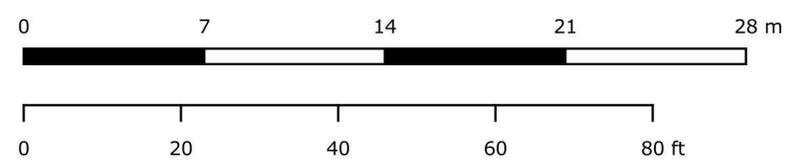
GPR Depth Slice
 Mount Zion Cemetery
 TIP No. I-6016; PA No. 21-11-0031
 Mecklenburg County, North Carolina

Project: HL197000 Tsk 20
 Date: Mar 2024
 Drwn/Chkd: AC/TR
 Figure: 17



Anomaly Rank

- 1
- 2
- 3
- 4



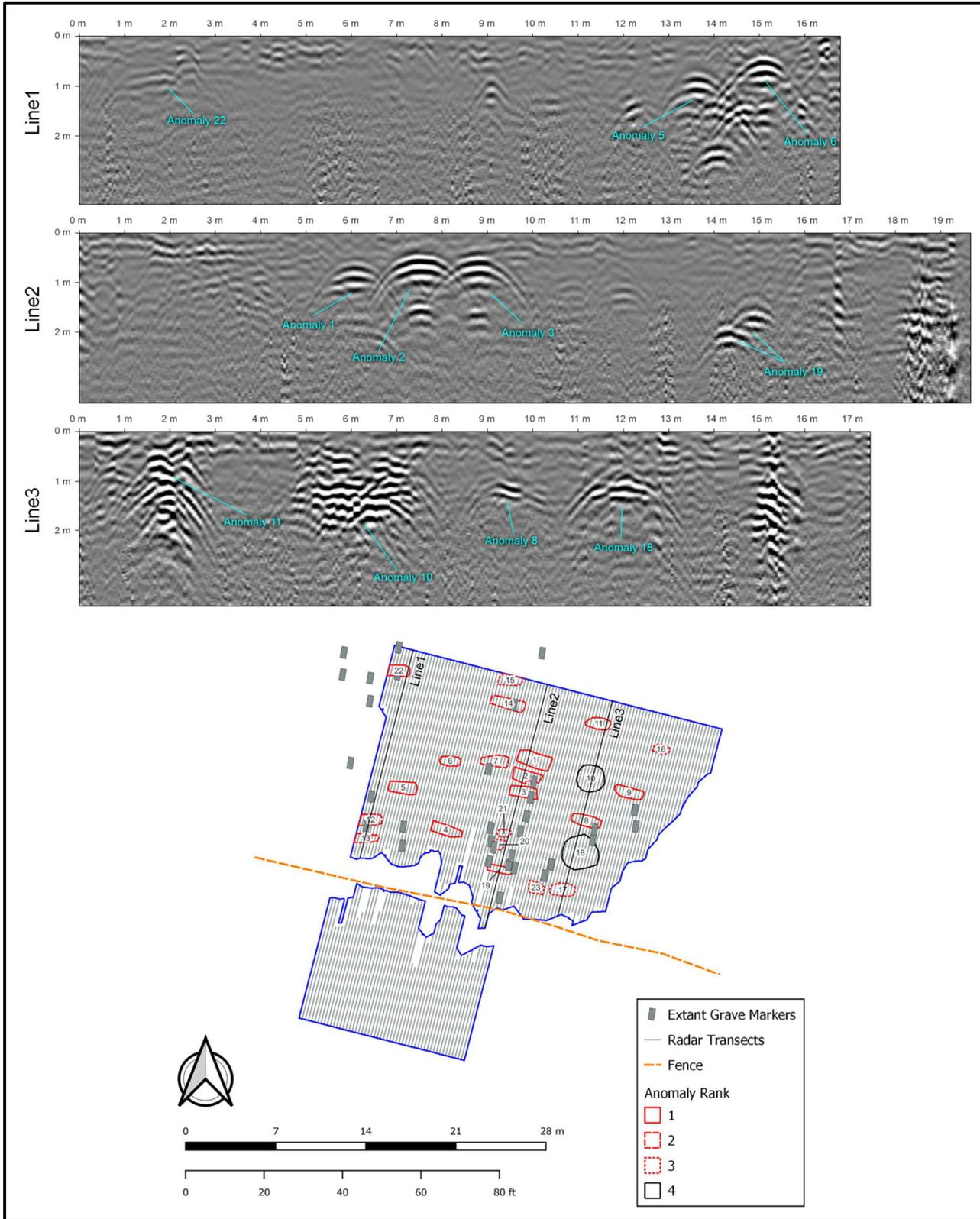
Estimated velocity: 0.121 m/ns

GPR Multi-Depth Slice Example



GPR Multi-Depth Slice
 Mount Zion Cemetery
 TIP No. I-6016; PA No. 21-11-0031
 Mecklenburg County, North Carolina

Project: HL197000 Tsk 20
 Date: Mar 2024
 Drwn/Chkd: AC/TR
 Figure: 18

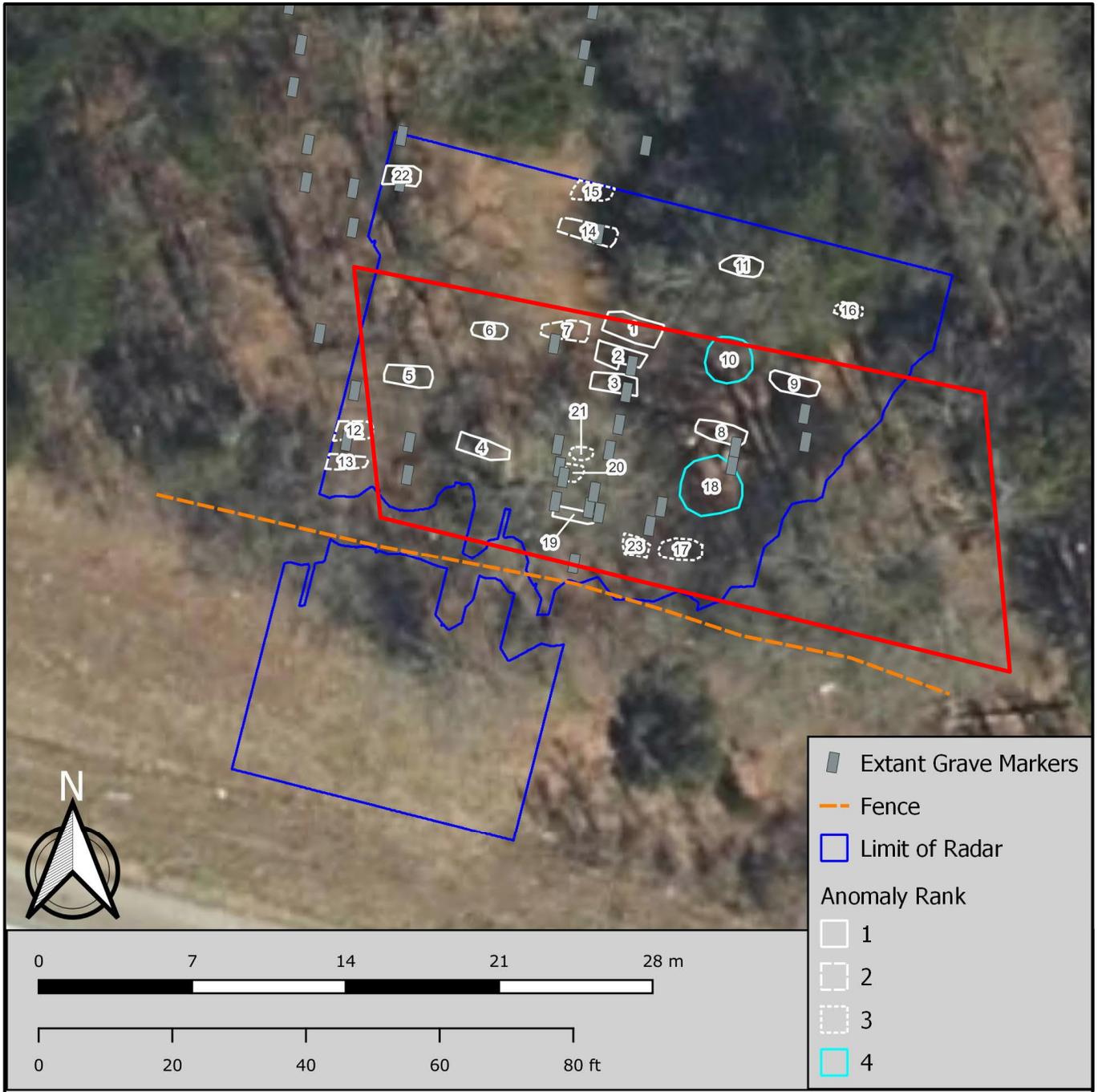


GPR Radargram Examples



GPR Radargram Examples
 Mount Zion Cemetery
 TIP No. I-6016; PA No. 21-11-0031
 Mecklenburg County, North Carolina

Project: HL197000 Tsk 20
 Date: Mar 2024
 Drwn/Chkd: AC/TR
 Figure: 19



GPR Radargram Examples
(Study Area in Red)



GPR Radargram Examples
Mount Zion Cemetery
TIP No. I-6016; PA No. 21-11-0031
Mecklenburg County, North Carolina

Project: HL197000 Tsk 20
Date: Mar 2024
Drwn/Chkd: AC/TR
Figure: 20

6, 10, 11, 15–17) were not clearly associated with above ground markers or visible depressions. No anomalies were identified to the south of the fence within the current ROW.

Anomalies were ranked 1–4, with Rank 1 anomalies being the most probable graves with the correct size, depth, and orientation and context. Rank 2 anomalies represent possible grave-like anomalies which share some traits expected of a grave, but not all. Rank 3 anomalies indicate anomalies with the lowest probability, typically only exhibiting a single trait (e.g., size or orientation) Rank 4 anomalies have been identified as likely cultural, exhibiting as nearly perfectly circular, with a response consistent with stone or brick. These anomalies may represent damaged grave markers or other cemetery infrastructure. Of the 23 grave-like anomalies identified, eleven are Rank 1, four are Rank 2, and six are Rank 3 and two are Rank 4. Geophysical anomalies (as well as associated grave ID numbers) identified are presented in Table 2.

Table 2. Anomaly List

Anomaly Number	Grave ID #	Comments	Centroid UTM*		Rank
			Easting (m)	Northing (m)	
1	n/a	n/a	500849.03	3901561.528	1
2	G44	Wooden cross	500848.345	3901560.287	1
3	G33	Wooden cross	500848.177	3901559.039	1
4	n/a	n/a	500842.132	3901556.1	1
5	G47	Willie Boyd (1915–1991)	500838.813	3901559.384	1
6	n/a	n/a	500842.482	3901561.446	1
7	G37	Calvin Polk (1944–2006)	500846.017	3901561.437	2
8	G63	Isiah Cherry (1921–1975)	500853.058	3901556.803	1
9	G64 ¹	Sara Adams (1920–1976)	500856.369	3901559.001	1
10	n/a	n/a	500853.389	3901560.096	4
11	n/a	n/a	500854.01	3901564.413	1
12	G46	cement headstone and footstone	500836.286	3901556.885	2
13	G45	Metal funeral home marker	500835.912	3901555.454	2

Anomaly Number	Grave ID #	Comments	Centroid UTM*		Rank
			Easting (m)	Northing (m)	
14	G36	Cement headstone and footstone	500847.004	3901565.97	2
15	n/a	n/a	500847.125	3901567.783	3
16	n/a	n/a	500858.853	3901562.357	3
17	n/a	n/a	500851.208	3901551.452	3
18	G63	Lucina Cherry (1937–2011)	500852.576	3901554.324	4
19	G39	Wooden cross	500846.313	3901553.045	1
20	G38	David Robinson (1942–2001)	500846.302	3901554.972	3
21	G38	Ella Mae Robinson (1939–???)	500846.669	3901555.847	3
22	G51	Robert Boyd (1941–1996)	500838.486	3901568.513	1
23	G62 ¹	James Falls (1915–1991)	500849.125	3901551.614	3

*WGS84 - UTM Zone 17N

¹mapped locations of G62 and G64 were based on temporary funeral home markers which may have been moved; anomalies are not definitively associated with these grave markers

Anomalies in Bold located within the ROW Study Area

6. SUMMARY AND RECOMMENDATIONS

In summary, 23 anomalies consistent with graves were identified by the GPR survey. Fifteen of these appear to be associated with known graves; however, eight anomalies did not have corresponding above ground visual indicators of a grave. Sixteen of the anomalies appear to be within the ROW study area (see Figure 20). Fifteen marked graves were recorded within this area; however, four of the 16 anomalies in this area could not confidently be associated with the marked graves (some marked graves exhibited no subsurface anomalies, suggesting that either the grave markers were displaced from their original location or the condition of the burial was such that geophysical detection of anomalies was not possible).

In accordance with OSA guidelines, Terracon recommends a minimum 10 m (32.8 ft) buffer of avoidance around the extent of grave-like anomalies identified in this survey. Should avoidance be impossible, we recommend archaeological monitoring of any subsurface disturbance within the area surveyed to minimize the risk of encountering human remains or other evidence of burials.

Geophysical testing methods rely on instrument signals to indicate physical conditions in the field. Signal information can be affected by on-site conditions beyond the control of the operator, such as, but not limited to, cultural features, standing water, high subsurface moisture content, and other buried objects. Interpretation of those signals is based on a combination of known factors combined with the experience of the operator and geophysical scientist evaluating the results.

The fieldwork for this report was conducted in accordance with generally accepted geophysical practices. No warranties, expressed or implied, are intended or made. The findings presented in this report are based upon the data obtained from the geophysical surveys and from other information discussed in this report. This report does not reflect variations that may occur in areas not tested or inaccessible to the geophysical equipment across the APE, or due to the modifying effects of construction or weather.

Cemeteries and human remains are protected under several North Carolina General Statutes (NC GS). In particular, NC GS 70-29 (Discovery of Remains and Notification of Authorities) indicates that in the event that unmarked human burials are encountered during construction, work in that area must cease and cannot resume without authorization from either the County medical examiner or the State Archaeologist.

If impacts to this portion of the cemetery and/or potential unmarked graves cannot be avoided, affected graves would need to be investigated and relocated in accordance with NC GS 65-12 Part 4 (Removal of Graves) or NC GS 70-3 (Unmarked Human Burial and Human Skeletal Remains Protection Act).

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APPENDIX A: MOUNT ZION CEMETERY BURIALS

Mount Zion Cemetery Investigation
 TIP I-6016 (WBS 47968.1.1) | Mecklenburg County, North Carolina
 March 2024 | Terracon Project No. HL197000 Task 20

First Name	Last Name	Birth	Death	Map ID #	Comments	Marker Type
Unknown	Unknown	Unknown	Unknown	1	1 & 2 share plot	unmarked; depression
Unknown	Unknown	Unknown	Unknown	3		unmarked
Unknown	Unknown	Unknown	Unknown	4		unmarked; depression
Unknown	Unknown	Unknown	Unknown	5		unmarked
Unknown	Unknown	Unknown	Unknown	17	17, 18, 19 in plot surrounded by brick	cinderblock
Unknown	Unknown	Unknown	Unknown	18	17, 18, 19 in plot surrounded by brick	cinderblock
Unknown	Unknown	Unknown	Unknown	19	17, 18, 19 in plot surrounded by brick	cinderblock
Unknown	Unknown	Unknown	Unknown	20	20, 21 in shared plot	metal funeral home marker; illeg
Unknown	Unknown	Unknown	Unknown	21	20, 21 in shared plot	unmarked
Unknown	Unknown	Unknown	Unknown	24		metal funeral home marker; illeg
Unknown	Unknown	Unknown	Unknown	25		metal funeral home marker; illeg
Unknown	Unknown	Unknown	Unknown	36		cement hs & fs
Unknown	Unknown	Unknown	Unknown	39	grave faces West, 39 & 40 share plot	wooden cross
Unknown	Unknown	Unknown	Unknown	40	grave faces West, 39 & 40 share plot	wooden cross
Unknown	Unknown	Unknown	Unknown	41	grave faces West, 41 & 42 share plot	wooden cross
Unknown	Unknown	Unknown	Unknown	42	grave faces West, 41 & 42 share plot	wooden cross
Unknown	Unknown	Unknown	Unknown	43	grave faces West, 43 & 44 share plot	wooden cross
Unknown	Unknown	Unknown	Unknown	44	grave faces West, 43 & 44 share plot	wooden cross
Unknown	Unknown	Unknown	Unknown	45	grave faces West	metal funeral home marker; illeg
Unknown	Unknown	Unknown	Unknown	46		cement hs & fs
Unknown	Unknown	Unknown	Unknown	48		metal funeral home marker; illeg
Unknown	Unknown	Unknown	Unknown	54		metal funeral home marker; illeg
Unknown	Unknown	Unknown	Unknown	65		unmarked/depression
Unknown	Unknown	Unknown	Unknown	66		unmarked/depression

Mount Zion Cemetery Investigation
 TIP I-6016 (WBS 47968.1.1) | Mecklenburg County, North Carolina
 March 2024 | Terracon Project No. HL197000 Task 20

First Name	Last Name	Birth	Death	Map ID #	Comments	Marker Type
Unknown	Unknown	Unknown	Unknown	67		unmarked/depression
Unknown	Unknown	Unknown	Unknown	68		unmarked/depression
Unknown	Unknown	Unknown	Unknown	69		unmarked/depression
Unknown	Unknown	Unknown	Unknown	70		unmarked/depression
Unknown	Unknown	Unknown	Unknown	71		unmarked/depression
Unknown	Unknown	Unknown	Unknown	72		unmarked/depression
Unknown	Unknown	Unknown	Unknown	73		unmarked/depression
Unknown	Unknown	Unknown	Unknown	74		unmarked/depression
Unknown	Unknown	Unknown	Unknown	75		unmarked/depression
Unknown	Unknown	Unknown	Unknown	76		unmarked/depression
Unknown	Unknown	Unknown	Unknown	77		unmarked/depression
Unknown	Unknown	Unknown	Unknown	78		unmarked/depression
Unknown	Unknown	Unknown	Unknown	79		unmarked/depression
Unknown	Unknown	Unknown	Unknown	80		unmarked/depression
Sara	Adams	abt 1920	29 Feb 1976	64	Age 56	funeral home marker
Lomous	Belk	4 Jul 1905	14 Mar 1970	n/a	from Find-A-Grave; also listed on death cert	NOT LOCATED
Maggie Robinson Wiley	Blackman	15 Sep 1874	16 Sep 1968	60	60 & 61 share plot	stamped cement
Alma Earl	Bolick	7 Mar 1907	17 Oct 1932	n/a	from Find-A-Grave; actually buried in Mt Zion United Methodist Church	Not Buried Here
Joe	Boyce	26 May 1916	24 Jul 1971	16	NC Sgt US Army WWII	marble
Collie	Boyd	15 May 1921	14 Aug 1974	50	TEC5 US Army	marble-upright
Frances Tate	Boyd	10 Dec 1899	16 Dec 1957	n/a	burial location from death certificate	NOT LOCATED
Lenora W	Boyd	11 Nov 1953	15 Jun 1998	52		upright granite
Lillie M.	Boyd	14 Jun 1923	24 Mar 2021	49		upright granite
PFC Robert	Boyd	19 Jun 1941	20 Feb 1996	51		upright granite
Rachel	Boyd	27 Dec 1935	Unknown	26	grave faces West	lots of stuff, no formal marker

Mount Zion Cemetery Investigation
 TIP I-6016 (WBS 47968.1.1) | Mecklenburg County, North Carolina
 March 2024 | Terracon Project No. HL197000 Task 20

First Name	Last Name	Birth	Death	Map ID #	Comments	Marker Type
Willie	Boyd	15 May 1915	6 May 1991	47		funeral home marker
Willie Sr.	Boyd	1898	25 Feb 1949	n/a	burial location from death certificate	NOT LOCATED
Robert	Caldwell	1850	25 Mar 1930	n/a	from Find-A-Grave; possibly buried in Mt Zion United Methodist Church	NOT LOCATED
Joe Louis	Chambers	27 Jun 1948	13 Sept 1970	n/a	from Jane Johnson 2003 survey	NOT LOCATED
Gertrude Matthews	Cherry	1 Nov 1910	22 Sep 1972	57	56,57,58 share plot	upright granite
Gloria Dean	Cherry	31 Oct 1953	21 Dec 1953	58	dau of Gertrude & Dock Cherry; 56,57,58 share plot	marble upright
Isiah	Cherry	27 Nov 1921	19 Mar 1975	63	shares stone with Lucina	shared upright granite tablet
James A.	Cherry	29 Dec 1904	29 May 1990	56	56, 57, 58 share plot	upright granite
Joe	Cherry	25 Sep 1894	27 May 1963	2	1 & 2 share plot	marble
Lucina A.	Cherry	24 Aug 1937	28 Mar 2011	63	shares stone with Isiah	shared upright granite tablet
Robert James	Cureton	13 Jan 1932	5 Dec 1945	n/a	from Find-A-Grave	NOT LOCATED
Beverly	Erwin	7 Feb 1952	25 Jun 1952	n/a	from Jane Johnson 2003 survey; poss same plot as 13-15	NOT LOCATED
Evia Reese	Erwin	26 Aug 1889	16 Aug 1965	14	"mother"; 13, 14, 15 share plot	shared upright granite tablet w/ fs
James H	Erwin	7 Feb 1923	21 Nov 1943	13	13,14,15 share plot	granite
Thomas Arthur	Erwin	28 Nov 1882	2 Apr 1958	14	"father"; 13, 14, 15 share plot	shared upright granite tablet w/ fs
David Harry Falls	Falls	2 Jan 1926	23 Jun 1965	n/a	from Find-A-Grave	NOT LOCATED
Hattie Wilkes	Falls	7 Aug 1888	12 Dec 1948	n/a	burial location from death certificate	NOT LOCATED
James	Falls	1 Oct 1913	21 Jun 1965	62		funeral home marker
James Garland	Falls	1918	16 Oct 2007	28		metal funeral home marker
Jannie Mae Cherry	Falls	20 Jul 1920	7 Mar 2011	n/a	from Find-A-Grave	NOT LOCATED
Viola	Falls	1908	8 Oct 1949	n/a	from Find-A-Grave	NOT LOCATED

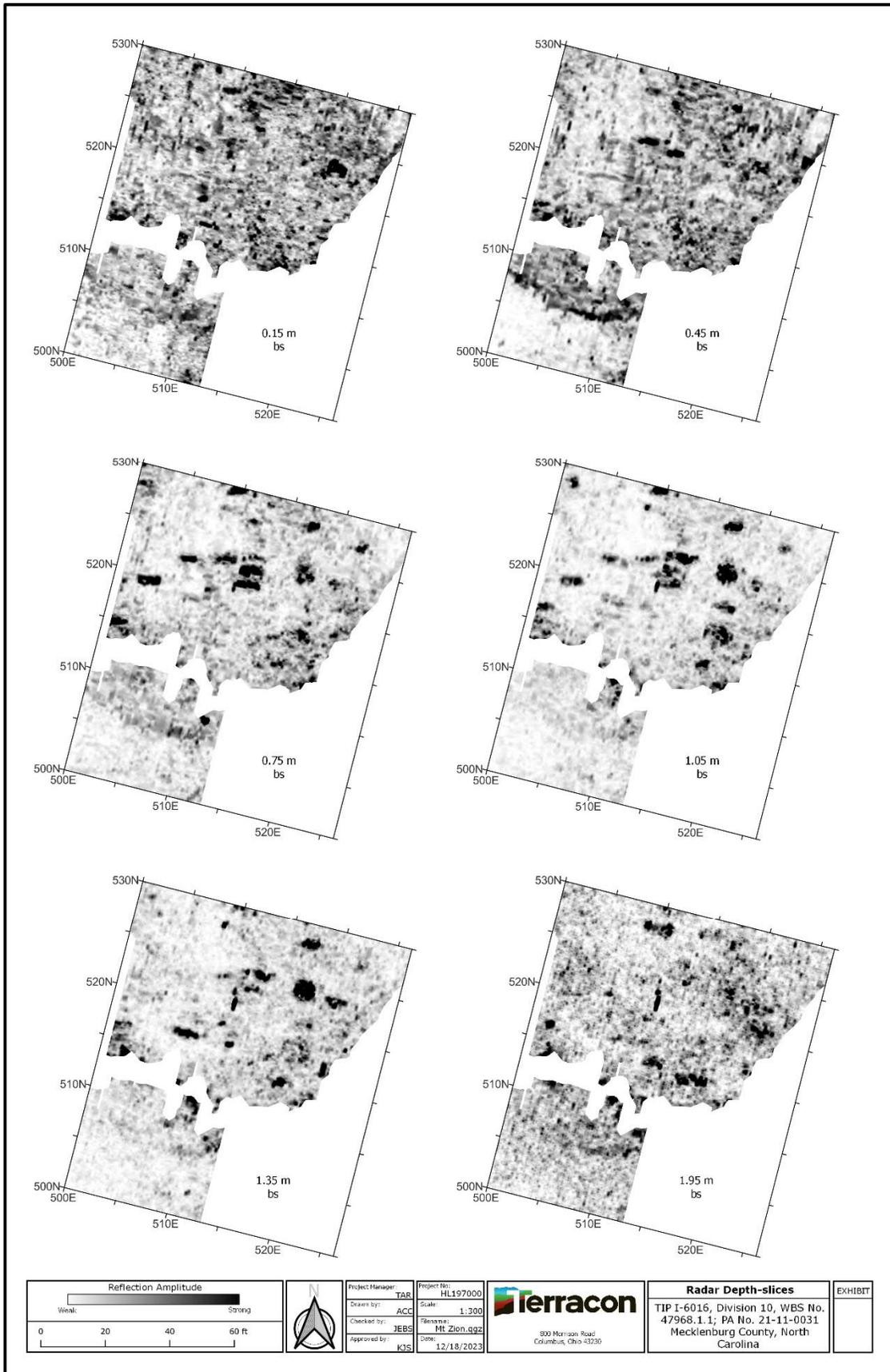
Mount Zion Cemetery Investigation
 TIP I-6016 (WBS 47968.1.1) | Mecklenburg County, North Carolina
 March 2024 | Terracon Project No. HL197000 Task 20

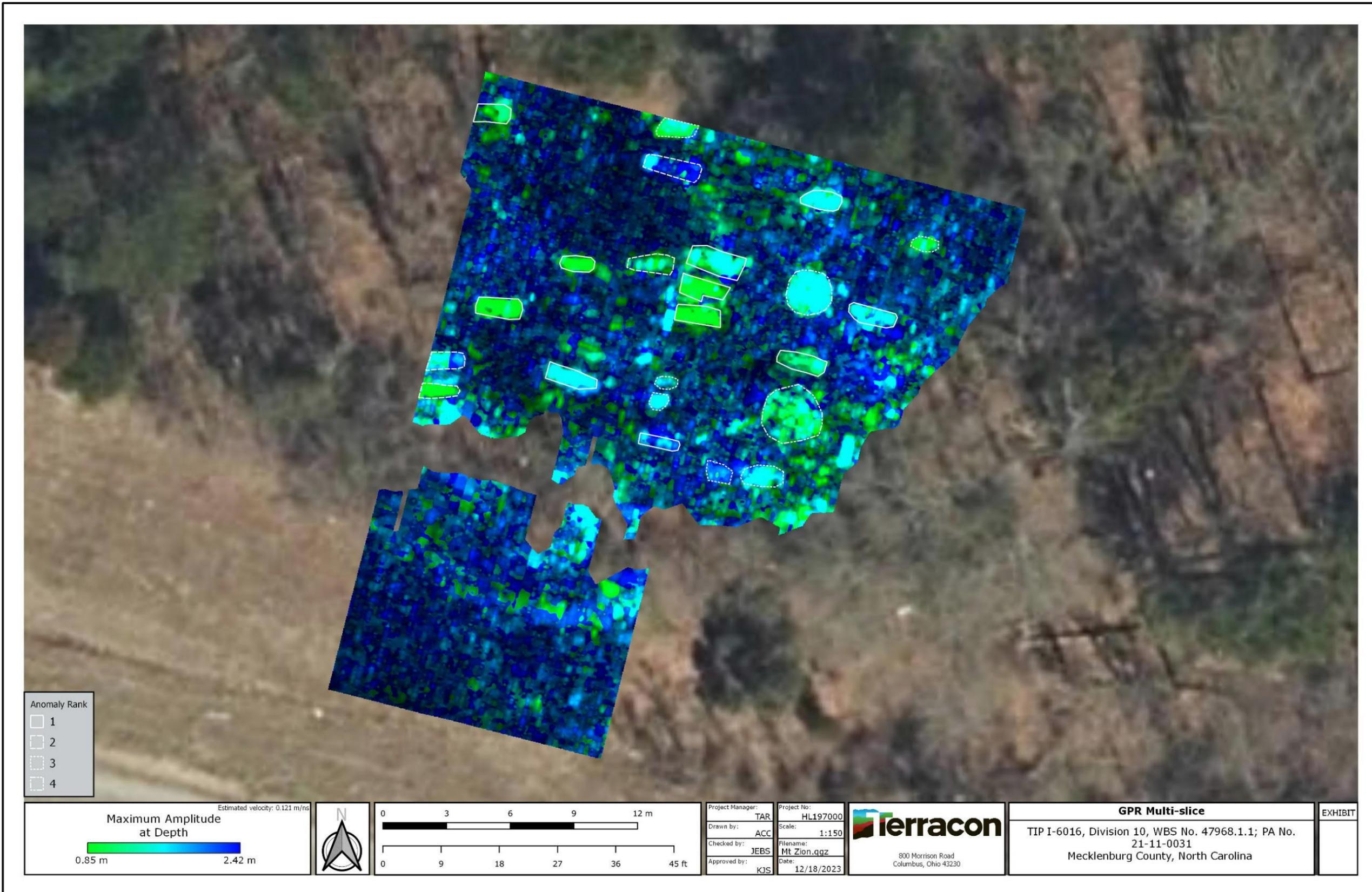
First Name	Last Name	Birth	Death	Map ID #	Comments	Marker Type
Baby	Fewell	3 Apr 1952	3 Apr 1952	32	birth/death date from Jane Johnson 2003 survey; 31 & 32 share plot	cement marker with metal band & stickers? With "Baby Fewell"
Baby	Fewell	Unknown	Unknown	31?	from Jane Johnson 2003 survey	NOT LOCATED
George	Fewell	23 Sep 1909	6 Nov 1982	n/a	from Find-A-Grave	NOT LOCATED
Gwendolyn Lorraine	Fewell	31 Mar 1962	12 Aug 1971	33	33 & 34 share plot	cement marker with inset metal plaque
Johnny Lee	Fewell	23 Apr 1943	18 Aug 1974	34	33 & 34 share plot	cement marker with stickers
Unknown	Fewell	Unknown	Unknown	31	likely Fewell; probably infant; 31 & 32 share plot	cement
Wendell	Fewell	1962	Unknown	n/a	from Jane Johnson 2003 survey	NOT LOCATED
Brenda Yvonne Reese	Frazier	24 Sep 1947	29 Nov 1998	6	6 & 7 share plot	granite
William	Guy	10 Mar 1893	9 Aug 1953	n/a	from Jane Johnson 2003 survey	NOT LOCATED
Zandy Edward	Ivey	Unknown	9 Dec 1950	n/a	from Jane Johnson 2003 survey	NOT LOCATED
Robert	Jones	19 May 1909	23 Jun 1951	23	TEC 3673 QM Truck Co WWII	upright granite
Will Jr.	McCray	20 Jan 1880	21 Feb 1968	n/a	from Find-A-Grave	NOT LOCATED
Namon Sam	McKinney	18 Feb 1896	8 Jan 1981	30		funeral home marker
Beatrice Wiley	Miller	13 Apr 1908	19 Apr 1952	61	60 & 61 share plot	stamped cement
Joe	Miller	4 Jul 1904	6 Jul 1975	59	poss +1 adj	upright granite
Mary	Miller	12 Aug 1923	21 Apr 1950	n/a	from Jane Johnson 2003 survey; prob next to Joe Miller; prob #59	NOT LOCATED
Evia Hestena Reese	Murray	29 Feb 1920	20 Dec 1996	7	"Aunt Evia"; 6 & 7 share plot	granite
MSGT Calvin Walker Sr.	Polk	2 Mar 1944	12 Oct 2006	37		upright granite
Hattie Lucinda Patterson	Ramsey	16 May 1879	4 Mar 1940	n/a	from Find-A-Grave	NOT LOCATED
Sarah S	Reece	1 Nov 1894	29 Jul 1980	15	13, 14, 15 share plot	upright granite
Henrietta	Reese	10 Feb 1897	7 Nov 1983	10	8-12 share plot	granite
Lola B.	Reese	13 Jan 1918	12 Apr 1958	12	"Mother", 8-12 share plot	granite

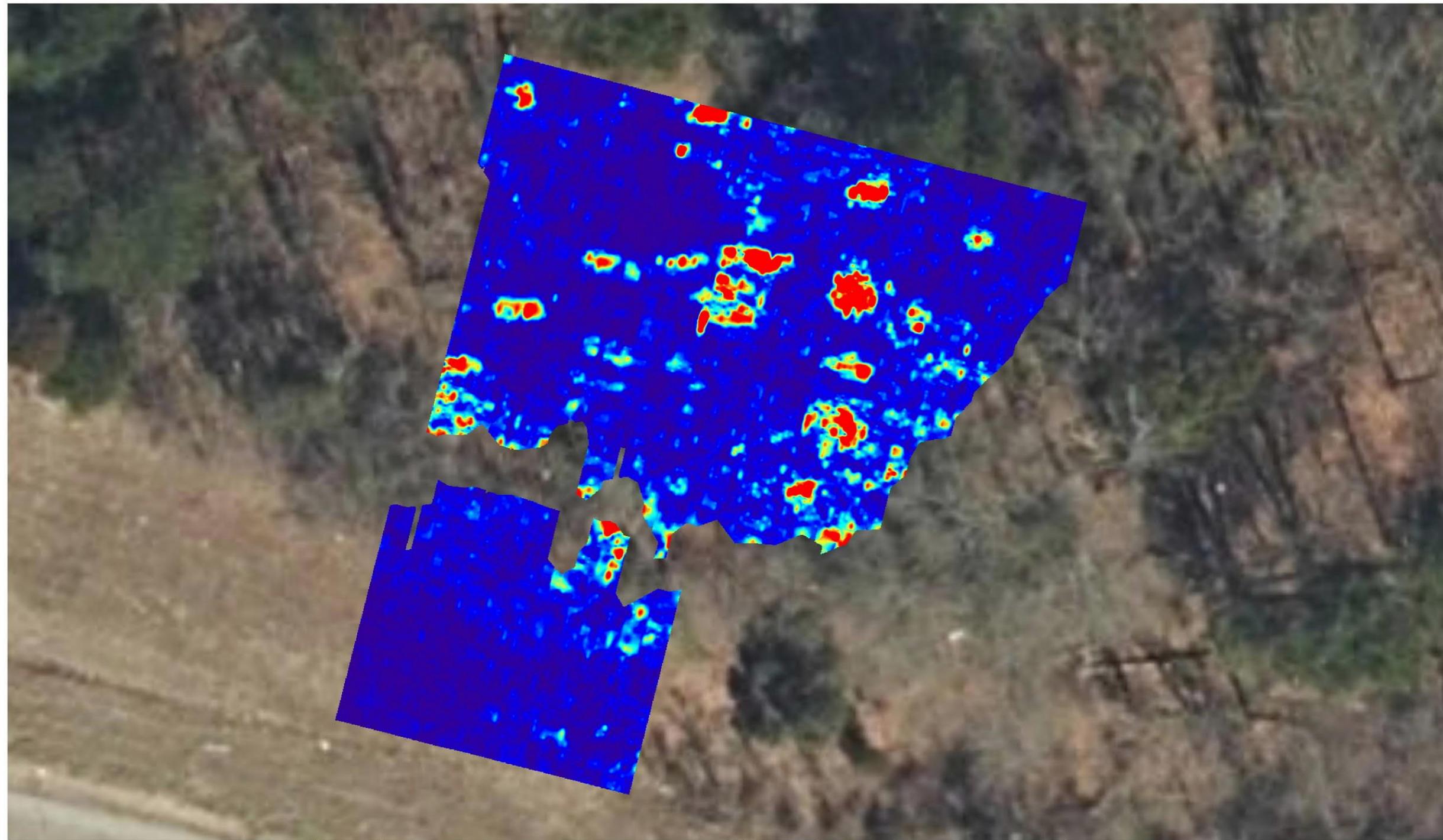
Mount Zion Cemetery Investigation
 TIP I-6016 (WBS 47968.1.1) | Mecklenburg County, North Carolina
 March 2024 | Terracon Project No. HL197000 Task 20

First Name	Last Name	Birth	Death	Map ID #	Comments	Marker Type
Walter A.	Reese	24 Jun 1915	24 Apr 1980	8	8-12 share plot	granite
Laney B.	Reese	18 Feb 1892	23 Nov 1959	11	8-12 share plot	granite
Charlotte Woodard	Reid	5 Apr 1902	18 Jan 1973	55	"Mother"	shared upright granite tablet w/ fs
David III	Robinson	20 May 1942	18 Nov 2001	38	grave faces West	red granite; shared marker
Ella Mae C.	Robinson	26 Apr 1939	unknown	38	grave faces West	red granite; shared marker
Augustus	Smith	1871	29 Dec 1929	n/a	from Find-A-Grave; actually buried in Mt Zion United Methodist Church	Not Buried Here
George Cleveland	Smith	7 Jun 1885	22 Jun 1964	55	"Uncle"	shared upright granite tablet w/ fs
Gladys Viola J.	Smith	17 Oct 1955	10 Aug 2020	29		granite
Lula Woodard	Smith	16 Oct 1889	14 Nov 1951	55	"Aunt"	shared upright granite tablet w/ fs
Thelma	Stevenson	11 Sept 1924	19 Aug 2018	27	grave faces West	upright granite
Amelia Tillman	Stewart	28 Jul 1889	12 Feb 1963	n/a	from Find-A-Grave	NOT LOCATED
Ray Lee	Stradford	25 Feb 1928	25 May 1951	n/a	from Jane Johnson 2003 survey	NOT LOCATED
George Murray	Switzer	1 Jun 1896	22 May 1958	n/a	from Jane Johnson 2003 survey; confirmed by death certificate	NOT LOCATED
Howard	Thomas	Unknown	1967	22		metal funeral marker
Robert Jr.	Thompson	2 Dec 1907	7 Sep 1985	n/a	from Find-A-Grave	NOT LOCATED
Fate James	Wiley	8 Jul 1926	25 Apr 1991	n/a	from Find-A-Grave	NOT LOCATED
Delmo	Wiley	18 Aug 1907	2 Oct 1971	35	grave faces West	cement with metal plaque
Ernest	Williams	Oct 1933	8 Feb 1934	n/a	from Find-A-Grave; possibly buried in Mt Zion United Methodist Church	NOT LOCATED
Johnny L.	Woods	19 Nov 1942	5 Mar 1967	9	8-12 share plot	granite
Trecola	Wright	3 Jul 1968	21 Aug 1968	53		metal funeral home marker

APPENDIX B: MOUNT ZION CEMETERY GPR EXHIBITS







<p>Estimated velocity: 0.121 m/ns</p> <p>Reflection Amplitude</p> <p>Weak Strong</p>		<p>0 3 6 9 12 m</p>	<p>Project Manager: TAR</p>	<p>Project No: HL197000</p>	<p>800 Morrison Road Columbus, Ohio 43230</p>	<p>GPR Depth-slice at 1.05 m Below Surface</p> <p>TIP I-6016, Division 10, WBS No. 47968.1.1; PA No. 21-11-0031 Mecklenburg County, North Carolina</p>	<p>EXHIBIT</p>
		<p>0 9 18 27 36 45 ft</p>	<p>Drawn by: ACC</p> <p>Checked by: JEBS</p> <p>Approved by: KJS</p>	<p>Scale: 1:150</p> <p>Filename: Mt Zion.gqz</p> <p>Date: 12/18/2023</p>			

Historic Architecture and Landscapes

21-11-0031



HISTORIC ARCHITECTURE AND LANDSCAPES NO HISTORIC PROPERTIES PRESENT

This form only pertains to Historic Architecture and Landscapes for this project. It is not valid for Archaeological Resources. You must consult separately with the Archaeology Group.

PROJECT INFORMATION

Project No:	I-6016	County:	Mecklenburg
WBS No.:	47968.1.1	Document Type:	Federal CE
Fed. Aid No:	0085062	Funding:	<input type="checkbox"/> State <input checked="" type="checkbox"/> Federal
Federal Permit(s):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Permit Type(s):	USACE
<u>Project Description:</u>			
Improve interchanges and add a southbound auxiliary lane or Collector Distributer road parallel to I-85 at I-485			

SUMMARY OF HISTORIC ARCHITECTURE AND LANDSCAPES REVIEW

<u>Description of review activities, results, and conclusions:</u>
Review of HPOGIS web service was undertaken on December 19, 2021. Based on this review, there are no NR, DE, LL, SL, or SS in the project area. There are a number of structures over 50 years of age in the Area of Potential Effect (APE). An NCDOT architectural historian conducted a site visit on January 12, 2022. There are no properties in the APE which warrant further evaluation for National Register eligibility.

SUPPORT DOCUMENTATION

Map(s) Previous Survey Info. Photos Correspondence Design Plans

FINDING BY NCDOT ARCHITECTURAL HISTORIAN

Historic Architecture and Landscapes -- ****NO HISTORIC PROPERTIES PRESENT****

Shelby Reap

February 3, 2022

NCDOT Architectural Historian

Date



Tribal Coordination



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JOSEPH R. HOPKINS
SECRETARY

January 9, 2024

Dr. Wenonah Haire
Catawba Indian Nation
Tribal Historic Preservation Office
1536 Tom Steven Road
Rock Hill, SC 29730

Dear Dr. Haire,

The North Carolina Department of Transportation is starting the project development, environmental, and engineering studies for the STIP project I-6016: I-85/I-485 Interchange Improvements, West of Charlotte, Mecklenburg County. The project proposes to build a new road allowing vehicles to exit I-485 to I-85 with more room to improve traffic flow. The proposed improvements include:

- Widening the existing bridge from the I-485 off-ramp to I-85 South, located over the I-85 southbound off-ramp to Sam Wilson Road
- Building a new roadway along I-85 South to carry the I-485 off-ramp traffic to I-85 South
- Building a new bridge on Sam Wilson Road over the new roadway
- Relocating the existing Sam Wilson ramp to I-85

The Federal Highway Administration (FHWA) is the lead federal agency for compliance with the National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act (NHPA) and a Permit is anticipated under the Section 404 Process with the USACE. A project vicinity map, historic architecture and landscape review, and an archeological review are attached. The coordinates of this project are approximately 35.254336, -80.982506.

We would appreciate any information you might have that would be helpful in evaluating potential environmental impacts of the above listed project. Your comments may be used in the preparation of the NEPA Environmental Document.

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
PROJECT MANAGEMENT UNIT
1548 MAIL SERVICE CENTER
RALEIGH, NC 27699-1548

Telephone: (919) 707-6000
Customer Service: 1-877-368-4968

Website: www.ncdot.gov

Location:
CENTURY CENTER, BUILDING A
1000 BIRCH RIDGE DRIVE
RALEIGH, NC 27610

In accordance with Section 106 of the NHPA, we also request that you inform us of any historic properties of traditional, religious, or cultural importance that you are aware of that may be affected by the proposed project. Be assured that, in accordance with confidentiality and disclosure stipulations in Section 304 of the NHPA, we will maintain strict confidentiality about certain types of information regarding historic properties.

Please respond by February 9, 2024, so that your comments can be used in the engineering studies of this project. If you have any questions concerning these projects, or would like any additional information, please contact me at rattaluri@ncdot.gov or 919-707-6038.

Thank you,

DocuSigned by:
Radha Attaluri
C62C197BF28E462...

Radha Attaluri, P.E.
Senior Project Manager, NCDOT Project Management Unit

Cc: Matt Wilkerson, NCDOT Archaeology Team Leader



Sources: ESRI, USGS, County and Municipality Data



Mead & Hunt

Mead & Hunt
111 E Hargett Street
Raleigh, NC 27601
Tel. 919.714.8670
www.meadhunt.com



**I-85/I-485 INTERCHANGE WEST OF CHARLOTTE.
IMPROVE INTERCHANGE.**

MECKLENBURG COUNTY

TIP NO.: I-6016
WBS NO.: 47968.1.1

DATE: 03/21/2022

FIGURE 1

VICINITY MAP

LEGEND

- Project Study Area (~383 acres)
- County Boundaries

21-11-0031



HISTORIC ARCHITECTURE AND LANDSCAPES NO HISTORIC PROPERTIES PRESENT

This form only pertains to Historic Architecture and Landscapes for this project. It is not valid for Archaeological Resources. You must consult separately with the Archaeology Group.

PROJECT INFORMATION

Project No:	I-6016	County:	Mecklenburg
WBS No.:	47968.1.1	Document Type:	Federal CE
Fed. Aid No:	0085062	Funding:	<input type="checkbox"/> State <input checked="" type="checkbox"/> Federal
Federal Permit(s):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Permit Type(s):	USACE
<u>Project Description:</u>			
Improve interchanges and add a southbound auxiliary lane or Collector Distributer road parallel to I-85 at I-485			

SUMMARY OF HISTORIC ARCHITECTURE AND LANDSCAPES REVIEW

<u>Description of review activities, results, and conclusions:</u>
Review of HPOGIS web service was undertaken on December 19, 2021. Based on this review, there are no NR, DE, LL, SL, or SS in the project area. There are a number of structures over 50 years of age in the Area of Potential Effect (APE). An NCDOT architectural historian conducted a site visit on January 12, 2022. There are no properties in the APE which warrant further evaluation for National Register eligibility.

SUPPORT DOCUMENTATION

Map(s) Previous Survey Info. Photos Correspondence Design Plans

FINDING BY NCDOT ARCHITECTURAL HISTORIAN

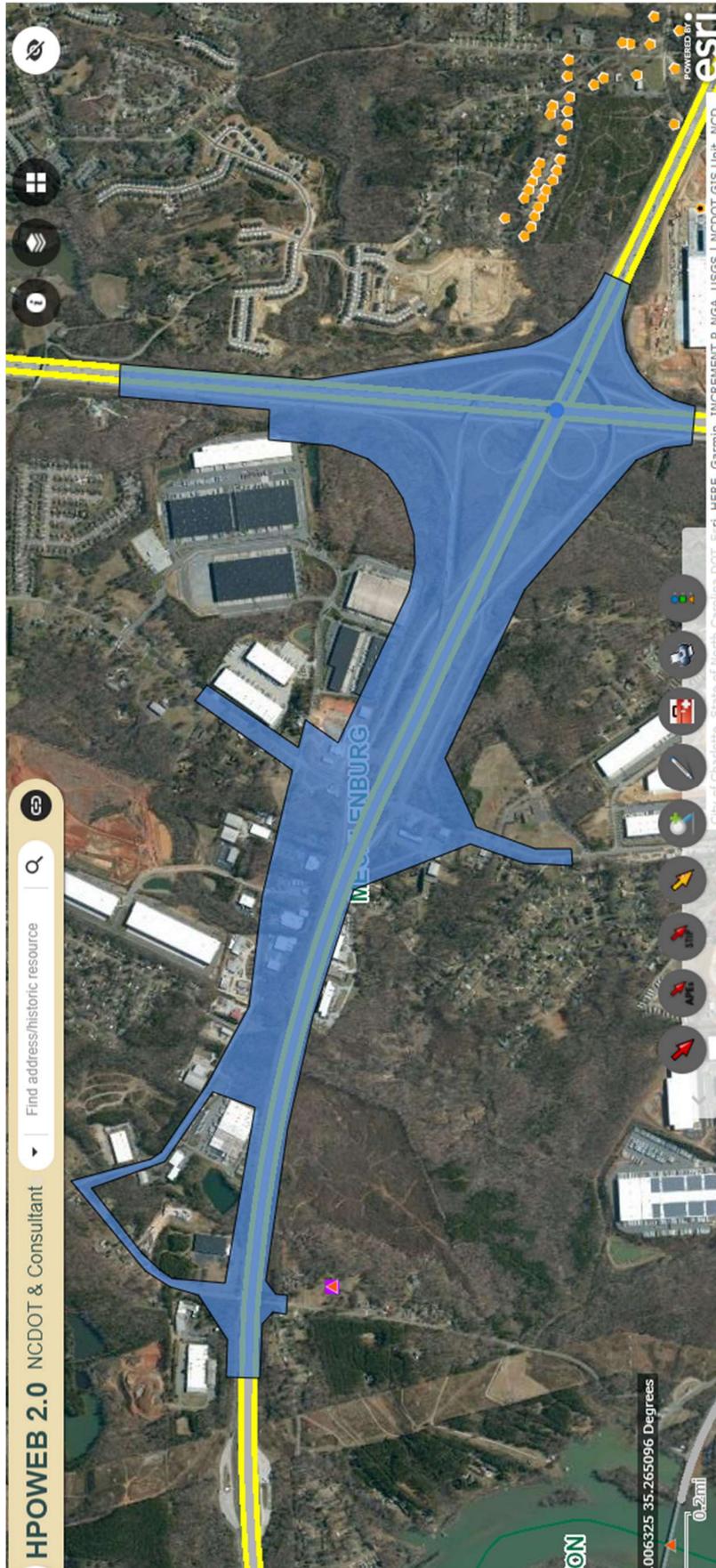
Historic Architecture and Landscapes -- ****SURVEY REQUIRED****

Shelby Reap

February 3, 2021

NCDOT Architectural Historian

Date





ARCHAEOLOGICAL SURVEY REQUIRED FORM

This form only pertains to ARCHAEOLOGICAL RESOURCES for this project. It is not valid for Historic Architecture and Landscapes. You must consult separately with the Historic Architecture and Landscapes Team.



PROJECT INFORMATION

Project No: **I-6016** County: Mecklenburg
WBS No: 47968.1.1 Document: Federal CE
F.A. No: 0085062 Funding: State Federal
Federal Permit Required? Yes No Permit Type: NWP 3 / NWP 14

Project Description:

The project proposes to improve the interchange of I-85 and I-485 west of Charlotte in Mecklenburg County, North Carolina. The archaeological Area of Potential Effects (APE) encompasses all areas of potential disturbance as presented on the accompanying ARC-GIS mapping. For purposes of this study, only the proposed and existing right-of-ways in the vicinity of Mount Zion Cemetery will be inspected. The APE measures roughly 8.00 acres in area.

SUMMARY OF ARCHAEOLOGICAL RESOURCES REVIEW: SURVEY REQUIRED

Brief description of review activities, results of review, and conclusions:

Permitting and funding information was reviewed for determining the level of archaeological input required by state and federal laws. Section 106 of the National Historic Preservation Act will apply because the project will utilize federal documentation and permits. The (FHWA) will serve as the lead federal agency. Next, construction design and other data was examined (when applicable) to define the character and extent of potential impacts to the ground surfaces embracing the improvement work. At this juncture, the APE was designed to capture all areas of potential impact within the Mt. Zion Cemetery locale.

Once an APE was defined, a map review and site file search was conducted utilizing on-line resources available from the Office of State Archaeology on Thursday, November 9, 2023. No previously documented archaeological sites are situated within the APE.

Examination of National Register of Historic Places (NRHP), State Study Listed (SL), Locally Designated (LD), Determined Eligible (DE), and Surveyed Site (SS) properties employing resources available on the NCSHPO website is important in establishing the location of noteworthy historic occupations related to a perspective construction impact area. A cross-check of these mapped resources concluded that none of the above properties with potential contributing archaeological components are situated within the APE.

In addition, historic maps of Mecklenburg County were appraised to review Mt. Zion Cemetery more closely. Archaeological/historical reference materials were inspected as well. In general, the cultural background review established that Mt. Zion Cemetery contains between 26 and 49 marked graves and additional unmarked grave locations. The majority of the burial interments date to the 1950s and 1960s with a few dating as late as the mid 1990s.

Also, aerial photographs (NCDOT Spatial Data Viewer & other on-line sources) were examined and the Google Street View map application was utilized (when amenable) for gaining a virtual, first-hand perspective of the overall study area and for assessing disturbances, both natural and human induced, which compromise the integrity of archaeological sites/deposits. Photographs reveal that there is a very high likelihood of the proposed right-of-way containing marked and unmarked graves.

An archaeological ground penetrating radar survey is recommended prior to construction activities. This work will seek to determine if gravesites are contained within the project APE which includes both the proposed and existing rights of way. All documented sites will be evaluated for NRHP eligibility. Once we have a better idea of what is contained and present in the APE, we can then take steps to either avoid the cemetery, or remove and rebury the affected remains through consultation with the Office of State Archaeology.

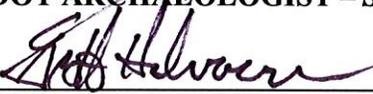
We can complete these investigations using one of the Archaeology Team's on-call firms or if Division 10 would like to manage and complete the survey they can use a NCDOT prequalified archaeologist under contract with one of Division's on-call firms. We can provide a scope of work for the Division to use, but we do need to know within seven days which path the Division plans to follow. All products produced by the Division's consultant will need to be submitted to the Archaeology Team for review, acceptance, and submittal to the Office of State Archaeology as per the Programmatic Agreement. We would be happy to discuss this approach with you.

(This project falls within a North Carolina County in which the following federally recognized tribes have expressed an interest: Catawba Nation and the Cherokee Nation. We recommend that you ensure that this documentation is forwarded to these tribes using the process described in the current NCDOT Tribal Protocol and PA Procedures Manual.)

SUPPORT DOCUMENTATION

See attached: Map(s) Previous Survey Info Photos Correspondence
Other:

FINDING BY NCDOT ARCHAEOLOGIST – SURVEY REQUIRED

Scott Halvorsen  11/16/2023

NCDOT ARCHAEOLOGIST

Date

Winter 2023/2024

Proposed fieldwork completion date



Sources: ESRI, USGS, County and Municipality Data

Mead & Hunt

Mead & Hunt
111 E Hargett Street
Raleigh, NC 27601
Tel. 919.714.8670
www.meadhunt.com



**I-85/I-485 INTERCHANGE WEST OF CHARLOTTE.
IMPROVE INTERCHANGE.**

MECKLENBURG COUNTY

TIP NO.: I-6016
WBS NO: 47968.1.1

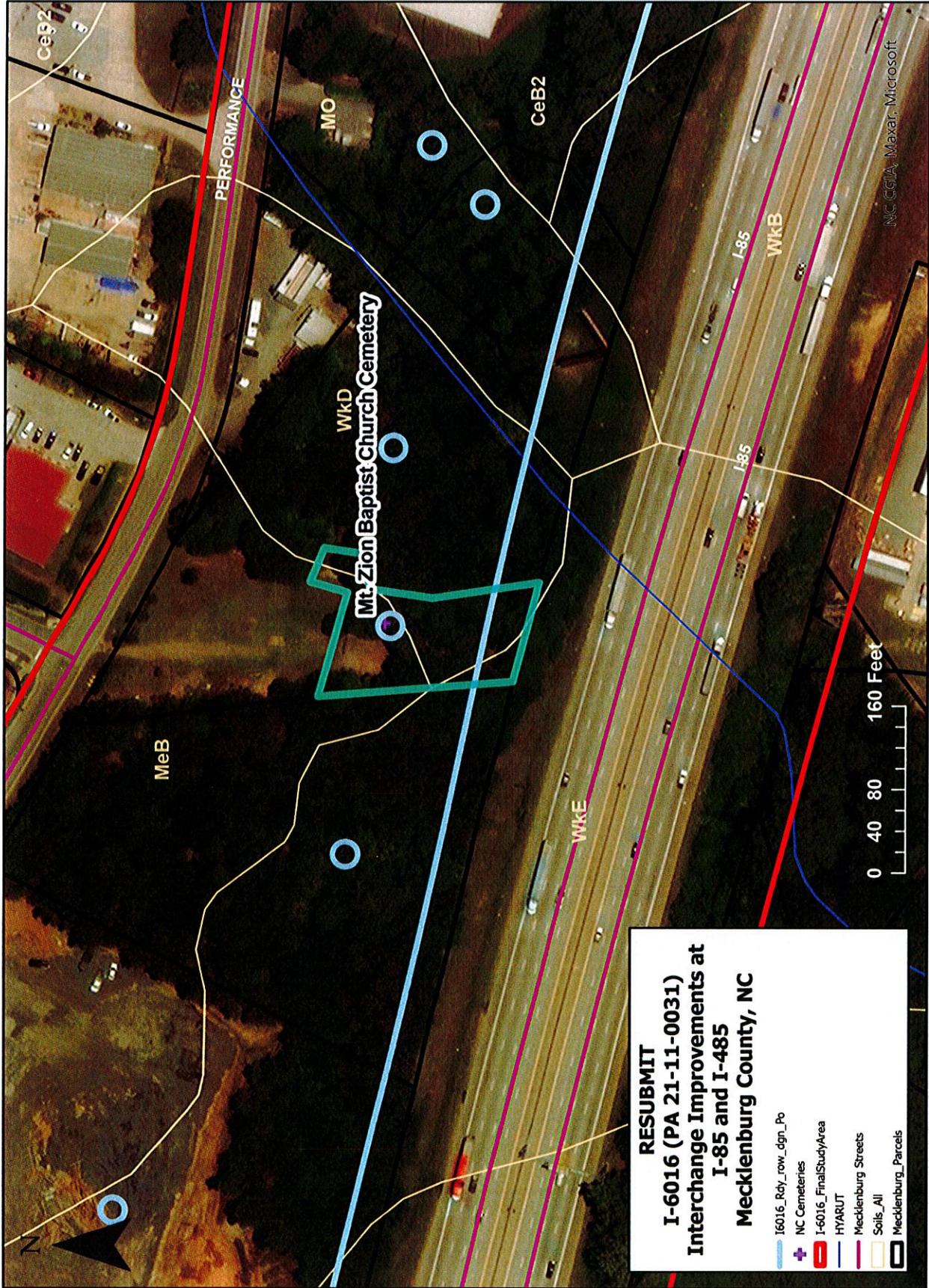
DATE: 03/21/2022

FIGURE 1

VICINITY MAP

LEGEND

- Project Study Area (~383 acres)
- County Boundaries



RESUBMIT
I-6016 (PA 21-11-0031)
Interchange Improvements at
I-85 and I-485
Mecklenburg County, NC

- I6016_Rdy_row_dgn_Po
- + NC Cemeteries
- I-6016_FinalStudyArea
- HYARUT
- Mecklenburg Streets
- Soils_All
- Mecklenburg_Parcels

NC CGIA, Maxar, Microsoft

NEPA/SEPA Document

Type III Categorical Exclusion Action Classification Form

STIP Project No.	<u>I-6016</u>
WBS Element	<u>47968.1.1</u>
Federal Project No.	<u>N/A</u>

A. Project Description:

State Transportation Improvement Program (STIP) Project No. I-6016 proposes to improve the I-85/I-485 interchange. The project is in western Mecklenburg County, northwest of Charlotte Douglas International Airport. A vicinity map is located in **Appendix A, Figure 1**.

Under existing conditions, the exit ramps from I-485 Inner (northbound) and Outer (southbound) to southbound¹ I-85 merge into a single three-lane on-ramp. This on-ramp narrows to one lane by the time traffic enters I-85, about 1,600 feet west of the merge and 1,300 feet east of the Sam Wilson Road overpass. The transition from three lanes to one lane increases traffic congestion, vehicle conflicts, and prevents travelers from maintaining speed to safely merge onto I-85 South particularly during peak hours.

The project proposes to build a new two-lane collector-distributor (C-D) road allowing vehicles to exit I-485 Inner and Outer to I-85 South with more room to improve traffic flow. The C-D road will parallel I-85 South and pass under a new grade separated bridge on Sam Wilson Road between the existing I-85 grade separated bridge and existing interchange ramps. The existing on ramp from Sam Wilson Road to I-85 South will be realigned so that traffic will enter the C-D road. Traffic from the C-D road will enter I-85 about one-half mile west of Sam Wilson Road. The new C-D road will be two lanes as it merges back into I-85 South and then will narrow to one lane that will continue along I-85 South as an auxiliary lane that ties into the weigh station off ramp.

Roadway improvements are not proposed on northbound I-85; however a noise wall is proposed along the I-85 North exit ramp to Sam Wilson Road at the residential area south of N. Lakebrook Road and west of Oakland Terrace.

B. Description of Need and Purpose:

The identified need for the project is increased traffic congestion at the I-485/I-85 interchange west of Charlotte, especially along the movement from I-485 to I-85 southbound. A Traffic Simulation Analysis was completed in May 2023 which shows substantial delays and inadequate Level of Service (LOS)*. During the PM Peak for I-85 southbound, the current LOS is F beginning around 3PM and continuing through 7PM. The congestion also continues back to the I-485 Outer and Inner ramps. During the PM Peak hours, this congestion causes between 609.2 hours and 1,055.0 hours of total delays based on vehicles making a complete trip through the project corridor.

The purpose of this project is to improve the traffic flow, reduce travel delays, and increase the LOS along the busy I-485 ramp to I-85 southbound. The project is consistent with the North Carolina Strategic Highway Corridor vision, which is to create a network of safe, reliable, efficient highways throughout the state of North Carolina.

*Level of Service is a measure of drivers' experience on the road. Sections of roadway are scored based on speed, traffic delay, safety, and maneuverability.

¹ Although I-85 runs west to east in the project area, the highway is signed as either south (toward South Carolina) or north (toward Greensboro), and those directional designations are used in this report.

C. Categorical Exclusion Action Classification:

Type III

D. Proposed Improvements:

Type III

E. Special Project Information:

Cost Estimate:

The 2024-2033 STIP allocated preliminary engineering funds for this project. On November 2, 2023, the project received funding from the N.C. House Speaker's discretionary funds to advance the project from the design stage to construction in Fall 2025.

The estimated cost of the proposed project is as follows:

Right of Way	\$2,000,000.00
Construction	\$43,000,000.00
Total Project Cost	\$45,000,000.00

Annual Average Daily Traffic (AADT):

Roadway	Existing AADT (2024)	Projected AADT (2030)
I-85	151,400	158,125
I-485 to I-85 SB Ramp	32,800	34,325
SR 1625 (Sam Wilson Road)	17,350	18,450
Sam Wilson to I-85 SB On Ramp	4,675	4,800

Alternative Discussion:

NCDOT considered two build concepts in the project scoping phase (Concept 1B-1 and Concept 1B-2). The difference between these two concepts is how the collector-distributor (C-D) road carrying the I-485 off ramp traffic would travel under Sam Wilson Road. The construction of a new, longer Sam Wilson Road bridge over I-85 and the proposed C-D road was considered in Concept 1B-2. This concept would be more costly than Concept 1B-1 and would involve complicated construction logistics which would result in additional traffic impacts to I-85 during construction. Therefore, Concept 1B-2 was not carried forward into project development or NEPA analysis.

Two alternatives were considered during NEPA analysis: No build and Concept 1B-1.

No Build:

- No improvements would be made and there would be no construction impacts to the environment.

Concept 1B-1:

This concept proposes the following improvements:

- Widen the existing I-485 off ramp bridge over Sam Wilson Road off ramp.
- Construct a new C-D road parallel to I-85 South that passes under Sam Wilson Road via a new grade separation bridge to be constructed between the existing I-85 grade separation bridge and existing interchange ramps.
- Relocate the Sam Wilson Road to I-85 South on ramp to tie into C-D road.
- Widen along I-85 South as necessary for merging/traffic operations.

Although the no build alternative has no environmental impacts, it does not satisfy the purpose and need of the project. Concept 1B-1 is constructable and satisfies the purpose and need of the project, so it is identified as the preferred alternative.

Human Environment

Community Studies:

A Short Form Community Impact Assessment (CIA) was prepared in December 2021 and includes the following recommendations:

- The NCDOT Project Manager should shorten the durations of any road and ramp closures to the extent possible, so as to minimize impacts on business operations, EMS response times, and access to churches and schools.
 - The Sam Wilson Road bridge over I-85 is anticipated to be closed for approximately one year during construction. Additional details are provided below in response to question 23. Temporary interstate lane and ramp closures may be necessary, but the duration of these will be minimal.
- The NCDOT Project Manager should coordinate with NCDOT Public Involvement about the need for a project website, public meetings, and small group meetings to inform residents and business owners about detours and higher traffic volumes.
 - Public outreach efforts included a project website, postcards, phone calls and emails. Additional details are provided below in the Public Involvement section.
- The NCDOT Project Manager should coordinate with the owner of Shell regarding permanent access. Accommodating U turns at or before Performance Road may minimize effects.
 - Improvements along Sam Wilson Road will not alter the existing access to the Shell gas station.
- The NCDOT Project Manager should arrange for wayfinding directional signage to be placed on I-85 and I-485 informing motorists as to how they can reach Sam Wilson Road if the north side ramps (to/from southbound I-85) at the I-85/Sam Wilson Road interchange are closed.
 - **(Commitment – See Green Sheet)**
- The NCDOT Project Manager should communicate with EMS providers prior to any road closures so that they can prepare accordingly.
 - **(Commitment – See Green Sheet)**
- The NCDOT Project Manager should coordinate construction activities with Charlotte-Mecklenburg Schools staff to avoid travel time delays during arrival and dismissal times of the school day. In addition, the local school transportation official recommended contacting local area school principals so that they are kept informed of the project.
 - **(Commitment – See Green Sheet)**
- Because notable Spanish, Other Indo-European, and Asian/Pacific language-speaking populations are located in the project vicinity, the NCDOT Project Manager should consult with NCDOT Public Involvement to determine appropriate measures assuring meaningful public involvement to satisfy the requirements of Executive Order 12898.
 - Since LEP and LA thresholds did not meet the requirements for a translator, NCDOT Public Involvement determined one was not warranted at the public information meeting. However, a bilingual postcard was mailed to a Hispanic church due to its proximity to the project.

Noise:

Ambient noise measurements were performed on September 19, 2022 and the results ranged from approximately 60 dB(A) Leq to 79 dB(A) Leq as documented in the Design Noise Report (December 2023). One (1) traffic noise abatement measure assessed in this traffic noise analysis preliminarily meets NCDOT Policy feasibility and reasonableness criteria and is considered likely to be installed for the Improvements to the I-485/I-85 Interchange, I-6016 project. Additional information is provided below in response to question 27.

Agency and Public Involvement:

NCDOT sought input from residents/property owners, businesses and non-profits within the study area and along the proposed detour routes. In addition, local officials and agencies that may have a vested interest in the project area were notified. Key components of the engagement efforts implemented during project development are summarized below.

Postcards – A postcard was mailed on January 23, 2024 to 569 residents, businesses, and non-profits located near the project corridor and along the detour routes to notify them of the public meeting. The postcard contained a link to the project webpage, described below.

Website - A project webpage was established on NCDOT's website: [NCDOT: I-85/I-485 Interchange Improvements, West of Charlotte](#). The webpage provides a summary of the planning process, proposed improvements, detour routes and downloadable copies of the public meeting maps.

Public Meeting – A public meeting was held at Mount Camel Baptist Church between 4-7 PM on February 8, 2024. In addition to the postcards described above, the public was notified about the meeting through advertisements placed in the local print and on-line media. NCDOT Communications Office coordinated with WBTV, WJZ, QCNews, WJZY, Spectrum News and neighborhood TV to provide coverage about the project and public meeting. Approximately 43 people attended the meeting.

Local Officials Informational Meeting – A Local Officials Informational Meeting was held the afternoon of the public meeting.

Business Outreach – A business outreach plan was developed due to the high concentration of businesses within the corridor. A total of 56 local businesses were contacted via phone and/or email. A virtual small group meeting with local business owners was held on February 12, 2024.

Public Comments – Public comments were accepted until February 27, 2024. A total of 7 comments were received from the public. In addition to these written and verbal comments, the local volunteer fire department expressed concerns about their emergency response times on the northern side of I-85 while Sam Wilson Road bridge is closed during construction. Coordination is ongoing to address these concerns. (**Commitment – See Green Sheet**)

Agency Involvement – Email coordination occurred with external agencies with potential resources within the project study area. Comments were received from the following agencies:

- NC Department Division of Water Resources (NCDWR) (January 29, 2024)
- Federal Highway Administration (FHWA) (January 31, 2024)
- NC Wildlife Resources Commission (NCWRC) (January 31, 2024)
- US Army Corps of Engineers (USACE) (February 2, 2024)

Right of Way Impacts:

Additional right of way will be necessary for the construction and maintenance of the proposed project, but no relocations are anticipated.

Cultural Resources:

Tribal Coordination – Coordination letters/emails were sent to the Cherokee Nation and the Catawba Indian Nation on January 9, 2024 with a response requested by February 9, 2024. The Cherokee Nation provided a response on February 5, 2024 indicating they do not foresee the project impacting Cherokee Resources at this time. A response was not received by the Catawba Indian Nation, so a follow up letter was sent through certified mail and email on February 26, 2024. To date, a response has not been received.

Historic Architecture – The project was reviewed by a NCDOT architectural historian. Following desktop review of the project area, a survey required form was issued on December 19, 2021 due

to a number of structures over 50 years of age within the Area of Potential Effect (APE). On January 12, 2022, a survey of the APE was conducted by NCDOT architectural historian and concluded there are no properties which warrant further evaluation for National Register eligibility. A finding of "No Historic Properties Present" is deemed appropriate. This project was evaluated to comply with Section 106 of the National Historic Preservation Act and NC GS 121 (12)a. The signed Survey Required and survey forms are presented in **Appendix B**. As of March 26, 2024, the conditions have not changed.

Archaeological Resources – The project was reviewed by a NCDOT Archaeologist and a finding of "Survey Required" was determined on November 16, 2023. There are no known existing National Register of Historic Places (NRHP) eligible archaeological sites within the project APE, however the project includes proposed right of way within Mt. Zion Cemetery. The cultural background review established that the cemetery contains between 26 and 49 marked graves and additional unmarked grave locations. An archaeological ground penetrating radar (GPR) survey was recommended. The signed Survey Required Form is presented in **Appendix B**. Additional details are provided in response to question 13 below. (**Commitment – See Green Sheet**)

Natural Environment

Water Resources:

The study area is part of the Catawba River Basin (United States Geological Survey [USGS] Hydrologic Unit [HUC] 03050101). Eleven streams, three wetlands and one surface water were identified in the study area.

There are no designated Outstanding Resource Waters (ORW), High-Quality Waters (HQW), or Water Supply I or II Watersheds (WS-I or WS-II) within the study area or within 1.0 mile downstream of the study area. The North Carolina 2020 Final 303(d) list of impaired waters identifies the Catawba River within 1.0 mile downstream of the study area as an impaired water due to Polychlorinated biphenyl (PCB) Fish Tissue Advisory.

Streamside riparian zones within the study area are not protected under provisions of any riparian buffer rules administered by NCDWR. No streams have been designated by the USACE as a Navigable Water under Section 10 of the Rivers and Harbors Act.

Jurisdictional Impacts:

Impacts to three unnamed tributaries to the Catawba River are anticipated, but impacts to wetlands have been avoided. The total impacts to tributaries include approximately 180 linear feet of permanent impacts and 140 linear feet of temporary impacts.

Floodplain:

A floodplain is present within the project study area through the I-85 and I-485 system to system interchange, however the proposed roadway improvements avoid impacts to the floodplain.

Protected Species:

A Natural Resources Technical Report (NRTR) was prepared in November 2021 which evaluated potential impacts to federally protected species. It was determined there would be no effect to four species: Smooth coneflower (*Echinacea laevigata* - Endangered), Schweinitz's sunflower (*Helianthus schweinitzii* – Endangered), Michaux's sumac (*Rhus michauxii* – Endangered), and the Bald Eagle (*Haliaeetus leucocephalus* – protected under the Bald and Golden Eagle Protection Act). The biological conclusion for Northern long-eared bat (*Myotis septentrionalis* – Endangered) and Carolina heelsplitter (*Lasmigona decorata* – Endangered) were unresolved in the NRTR. An updated protected species list was retrieved from US Fish and Wildlife (USFWS) Information for Planning and Consultation (IPaC) which indicated the Northern long-eared bat and Carolina heelsplitter are no longer listed within the project area, however the Tricolored bat (*Perimyotis*

subflavus) is proposed for listing as endangered. A memo to update the species list was prepared by NCDOT Environmental Coordination and Permitting (ECAP) on January 10, 2024.

GeoEnvironmental:

A GeoEnvironmental Phase 1 Report prepared on April 28, 2022, and right of way plans will be reviewed to determine if a Phase 2 assessment is needed. Additional details are provided in response to question 14 below.

Anticipated Permits or Consultation Requirements:

The proposed project has been designated as a Categorical Exclusion (CE) for the purposes of National Environmental Policy Act (NEPA) documentation. A USACE Section 404 Regional General Permit, and corresponding NC 401 Water Quality Certification, will be applicable for anticipated impacts to "Waters of the United States" resulting from the proposed project.

Interaction with other nearby projects:

- **B-6051 – US 29/74 replace bridge 350091 over Catawba River**
Project B-6051 is located approximately 1.5 miles southwest from the center of I-6016 and is expected to go to construction in 2024. Improvements for B-6051 overlap the I-6016 western detour route. Project teams for B-6051 and I-6016 will continue to coordinate regularly.
- **I-5719 and U-5800 – I-85 Widening from US 321 to NC 273**
Project I-5719 and U-5800 is a Design Build project located approximately 1.25 miles west of I-6016 and is anticipated be let on February 18, 2025. The construction schedule could overlap with I-6016.
- **Square Grooves Development**
The Keith Corporation proposes to develop 1,530,000 SF of warehousing. The proposed site is located east of Moores Chapel Road between I-85 and Wilkinson Boulevard in Charlotte, NC. Site development includes realignment of Moores Chapel Road to tie into Old Dowd Road and the removal of Moores Chapel Loop which is anticipated to occur in 2024. Traffic volumes for the development are included in I-6016 detour traffic analysis.
- **I-85 Southbound Weigh station**
A truck weigh station is located along I-85 South immediately east of I-6016. The project team has been coordinating with the NC State Highway Patrol on potential options to address congestion related to trucks entering and exiting the weigh station.

F. Project Impact Criteria Checklists:

F3. Type III Actions				
<p>Proposed improvement(s) that fit Type III Actions (NCDOT-FHWA CE Programmatic Agreement, Appendix C) answer questions below.</p> <ul style="list-style-type: none"> • <i>NCDOT will certify the Categorical Exclusion for FHWA approval.</i> • <i>If any questions are marked "Yes" then additional information will be required for those questions in Section G.</i> 				
			Yes	No
1	Does the project involve potential effects to Threatened or Endangered species listed by the US Fish and Wildlife Service (USFWS) or National Marine Fisheries Service (NMFS)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2	Does the project result in impacts subject to the conditions of the Bald and Golden Eagle Protection Act (BGEPA)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3	Does the project generate substantial controversy or public opposition, for any reason, following appropriate public involvement?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4	Does the project cause disproportionately high and adverse impacts relative to low-income and/or minority populations?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
5	Does the project involve substantial residential or commercial displacements or right of way acquisition?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
6	Does the project include a determination under Section 4(f)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
7	Is a project-level analysis for direct, indirect, or cumulative effects required based on the NCDOT community studies screening tool?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
8	Does the project impact anadromous fish spawning waters?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
9	Does the project impact waters classified as Outstanding Resource Waters (ORW), High Quality Waters (HQW), Water Supply Watershed Critical Areas, 303(d)-listed impaired water bodies, buffer rules, or submerged aquatic vegetation (SAV)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
10	Does the project impact Waters of the United States in any of the designated mountain trout streams?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
11	Does the project require a US Army Corps of Engineers (USACE) Individual Section 404 Permit?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
12	Will the project require an easement from a Federal Energy Regulatory Commission (FERC) licensed facility?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
13	Does the project include Section 106 of the National Historic Preservation Act (NHPA) effects determination other than a No Effect, including archaeological remains?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
14	Does the project involve GeoEnvironmental Sites of Concerns such as gas stations, dry cleaners, landfills, etc.?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
15	Does the project require work encroaching and adversely effecting a regulatory floodway or work affecting the base floodplain (100-year flood) elevations of a water course or lake, pursuant to Executive Order 11988 and 23 CFR 650 subpart A?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
16	Is the project in a Coastal Area Management Act (CAMA) county and substantially affects the coastal zone and/or any Areas of Environmental Concern (AEC)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

<u>Type III Actions (continued)</u>		Yes	No
17	Does the project require a US Coast Guard (USCG) permit?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
18	Does the project involve construction activities in, across, or adjacent to a designated Wild and Scenic River present within the project area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
19	Does the project involve Coastal Barrier Resource Act (CBRA) resources?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
20	Does the project impact federal lands (e.g. US Forest Service (USFS), US Fish and Wildlife Service (USFWS), etc.) or Tribal (Trust) Lands?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
21	Does the project involve any changes in access control or the modification or construction of an interchange on an interstate?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
22	Does the project have a permanent adverse effect on local traffic patterns or community cohesiveness?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
23	Will maintenance of traffic cause substantial disruption?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
24	Is the project inconsistent with the STIP, and where applicable, the Metropolitan Planning Organization's (MPO's) Transportation Improvement Program (TIP)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
25	Does the project require the acquisition of lands under the protection of Section 6(f) of the Land and Water Conservation Act, the Federal Aid in Fish Restoration Act, the Federal Aid in Wildlife Restoration Act, TVA, Tribal Lands, or other unique areas or special lands that were acquired in fee or easement with public-use money and have deed restrictions or covenants on the property?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
26	Does the project involve Federal Emergency Management Act (FEMA) buyout properties under the Hazard Mitigation Grant Program (HMGP)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
27	Is the project considered a Type I under the NCDOT's Noise Policy?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
28	Is there prime or important farmland soil impacted by this project as defined by the Farmland Protection Policy Act (FPPA)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
29	Is the project in an Air Quality non-attainment or maintenance area for a National Ambient Air Quality Standard (NAAQS)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
30	Are there other issues that arose during the project development process that affected the project decision?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

G. Additional Documentation as Required from Section F (ONLY for questions marked 'Yes'):

Response to Question 1 – On September 14, 2022, the U.S. Fish and Wildlife Service announced a proposal to list the tricolored bat (*Perimyotis subflavus* - PESU) as endangered under the Endangered Species Act. If listed, NCDOT will resolve Section 7 prior to let as appropriate. Construction activities for this project will not take place until NCDOT (in coordination with our lead federal agency) satisfies Endangered Species Act compliance for PESU.

Response to Question 13 – There are no known existing NRHP eligible archaeological sites within the project APE, however the project includes proposed right of way within Mt. Zion Cemetery. The cultural background review established that the cemetery contains between 26 and 49 marked graves and additional unmarked grave locations. An archaeological ground penetrating radar (GPR) survey was recommended.

The initial reconnaissance by the archaeological consulting firm hired to perform GPR survey confirmed the presence of approximately 15 gravesites in the presently defined APE. GPR survey of Mt Zion Cemetery was performed the week of February 5, 2024. Following GPR interpretation, the location of subsurface anomalies was provided to the design team and plans were revised in an effort to avoid impacts to the cemetery resource. If the cemetery cannot be avoided, per state law GS65, NCDOT right of way may be responsible for the removal and relocation of the graves. Consultation with the Office of State Archaeology (OSA) will be conducted by the NCDOT Archaeology Unit on the resources identified. **(Commitment – See Green Sheet)**

Response to Question 14 – The GeoEnvironmental Phase 1 Report prepared on April 28, 2022, identified four (4) sites of concern within the project area.

- Ramsey Products – 3701 Performance Road, Charlotte, NC
- Mc Food Mart, Shell – 2624 Sam Wilson Road, Charlotte, NC
- Loves Travel Center 714 AKA Phillips 66 021647 – 2627 Sam Wilson Road, Charlotte, NC
- Abandoned Gas Station – 2900 Sam Wilson Road, Charlotte, NC

Sites of concern should be reviewed by the NCDOT GeoEnvironmental Section once the Final Right of Way plans are complete to determine if Phase II Investigations are necessary.

Response to Question 21 – Full control of access will be maintained along I-85. The design of two existing interchanges will be modified: I-485 Inner and Outer exit ramps to I-85 and I-85 at Sam Wilson Road. A detailed analysis is documented in the Interchange Access Request (IAR) prepared on June 21, 2023.

Response to Question 23 – As the project developed, it was determined that a temporary closure of the Sam Wilson Road bridge over I-85 is necessary to construct a new bridge to the north of the existing bridge over the new C-D road. The detour is anticipated to be in place for one year.

Two detour routes were developed for when the Sam Wilson bridge over I-85 is closed for construction as seen in **Appendix A, Figure 2**. Impacts to traffic patterns and potential improvements along these routes are being considered.

- West Detour – From the north end of Sam Wilson Road bridge, travel north 560-feet then turn left onto Performance Road and continue until its intersection with Moores Chapel Road. Turn left onto Moores Chapel Road and continue until its intersection with Andrew Jackson Highway/Wilkinson Boulevard (US 29/74). Continue on US 29/74 for 1.1-miles until its intersection with Sam Wilson Road.
- East Detour – From the north end of the Sam Wilson Road bridge, travel north to the intersection of Moores Chapel Road and turn right. Follow Moores Chapel Road 0.6-miles to the I-485 interchange and use the on-ramp to travel along I-485 Outer (southbound) to exit 9. Turn left onto US 29/74 and continue 0.67-miles until its intersection with Sam Wilson Road.

Temporary lane and ramp closures may be necessary, but if needed they are anticipated to be in place for short durations.

Response to Question 27 – The source of this traffic noise information is Design Noise Report (DNR) for Improvements to the I-485/I-85 Interchange in West Charlotte, Mecklenburg County prepared by Stantec in December 2023.

Traffic Noise Impacts

The maximum number of receptors in each project alternative predicted to become impacted by future traffic noise is shown in the table below. The table includes those receptors expected to experience traffic noise impacts by either approaching or exceeding the FHWA Noise Abatement Criteria or by a substantial increase in exterior noise levels as defined in the NCDOT Traffic Noise Policy.

Predicted Traffic Noise Impacts by Alternative*

Traffic Noise Impacts				
Alternative	Residential (NAC B)	Places of Worship/Schools, Parks, etc. (NAC C & D)	Businesses (NAC E)	Total
Build 1	22	1	0	23

*Per TNM 2.5 and in accordance with 23 CFR Part 772

Traffic Noise Abatement Measures

Measures for reducing or eliminating the traffic noise impacts, including noise barriers, were considered for all impacted receptors in each alternative. Noise barriers include two basic types: earthen berms and noise walls. These structures act to diffract, absorb, and reflect highway traffic noise.\

Noise Barriers

A noise barrier evaluation was conducted for this project utilizing the Traffic Noise Model (TNM 2.5) software developed by the FHWA. The following table summarizes the results of the evaluation.

Preliminary Noise Barrier Evaluation Results*

NSA	Noise Barrier Location	Length / Height ¹ (feet)	Square Footage	Number of Benefited Receptors	Square Feet per Benefited Receptor / Allowable Square Feet per Benefited Receptor	Preliminarily Feasible and Reasonable (“Likely”) for Construction ²
NSA 2	NW 2 - Along Northbound of I-85 and east of Moores Chapel Road	1,290 / 26	33,899	2	11,300 / 1,500	No ³
NSA 4	NW 4 – Along Northbound of I-85 and west of Sam Wilson Road	660 / 9	5,752	4	1,438 / 1,500	Yes

¹Average wall height. Actual wall height at any given location may be higher or lower.

²The likelihood of a barrier’s construction is preliminary and subject to change, pending completion of final design and the public involvement process.

³Barrier is not reasonable due to the quantity per benefited receptor exceeding the allowable quantity per benefited receptor.

A traffic noise evaluation was performed that identified one (1) noise barrier that preliminarily meets feasibility and reasonableness criteria found in the NCDOT Traffic Noise Policy. A more detailed analysis will be completed during project final design. Noise barriers preliminarily found to be feasible and reasonable during the preliminary noise analysis may not be found to be feasible and reasonable during the final design noise analysis due to changes in proposed project alignment and other design considerations, surrounding land use development, or utility conflicts, among other factors. Conversely, noise barriers that preliminarily were not considered feasible and reasonable may meet the established

criteria and be recommended for construction. This evaluation was conducted in accordance with the highway traffic noise requirements of Title 23 CFR Part 772.

In accordance with NCDOT Traffic Noise Policy, the Federal/State governments are not responsible for providing noise abatement measures for new development for which building permits are issued after the Date of Public Knowledge. The Date of Public Knowledge of the proposed highway project will be the approval date of the Categorical Exclusion (CE). NCDOT strongly advocates the planning, design and construction of noise-compatible development and encourages its practice among planners, building officials, developers and others.

Streamlined text is based on draft DNR and cannot be finalized until DNR is final.

Response to Question 29 – The project is in Mecklenburg County, which is within the Charlotte maintenance area for the prior 1997 ozone National Ambient Air Quality Standard (NAAQS) as defined by the EPA. This area was designated moderate nonattainment under the 1997 ozone NAAQS on June 15, 2004, and due to improved air quality in the region was re-designated maintenance on January 2, 2014. The Charlotte area was designated for the 2008 ozone NAAQS resulting in the 1997 ozone NAAQS being revoked on April 6, 2015. On February 16, 2018, the United States Court of Appeals for the District of Columbia Circuit in *South Coast Air Quality Mgmt. District v. EPA* (“South Coast II,” 882 F.3d 1138) held that transportation applies for the revoked 1997 ozone NAAQS areas. Transportation conformity for plans and TIPs for the 1997 Ozone NAAQS can be demonstrated without a regional emissions analysis pursuant to 40 CFR 93.109(c).

The project is in Mecklenburg County, which is within the Charlotte maintenance area for the 2008 ozone NAAQS as defined by the EPA. The Charlotte area was designated marginal nonattainment under the 2008 ozone NAAQS on July 20, 2012, and due to improved air quality in the region was re-designated maintenance on August 27, 2015. Section 176(c) of the CAAA requires that transportation plans, programs, and projects conform to the intent of the state air quality implementation plan (SIP). The current SIP does not contain any transportation control measures for Mecklenburg County. The Charlotte Region Transportation Planning Organization 2050 Metropolitan Transportation Plan (MTP) and the FY 2024-2027 Transportation Improvement Program (TIP) conform to the intent of the SIP. The USDOT made a conformity determination on the MTP on 09/28/2023 and the TIP on 09/28/2023. The current conformity determination is consistent with the final conformity rule found in 40 CFR Parts 51 and 93. There are no significant changes in the project’s design concept or scope, as used in the conformity analyses.

PROJECT COMMITMENTS

I-85 AT I-485 INTERCHANGE WEST OF CHARLOTTE. IMPROVE INTERCHANGE.

T.I.P Number:I-6016

Mecklenburg

Federal Aid Number: N/A

WBS:47968.1.1

COMMITMENTS FROM PROJECT DEVELOPMENT AND DESIGN

Division Office - Coordinate with Fire Department

The NCDOT Team will continue coordination with the West Mecklenburg Volunteer Fire Department throughout final design and into the beginning of construction to address emergency response concerns during the Sam Wilson Road overpass closure.

Project Management (PMU/SMU/Division), NCDOT Work Zone Traffic Control and Signing and Delineation Unit - Directional Signage

NCDOT Project Manager should investigate the use of directional guide signage through coordination with the NCDOT Work Zone Traffic Control and Signing and Delineation Unit.

Project Management (PMU/SMU/Division), EAU – Cultural Resources - Mt Zion Cemetery Impacts

NCDOT Project Manager should continue coordination with NCDOT Cultural Resources Group to minimize impacts to gravesites identified within Mt Zion Cemetery and develop a plan for potential relocations if impacts cannot be avoided.

Project Management (PMU/SMU/Division) - School and EMS Coordination

NCDOT should provide Charlotte-Mecklenburg Schools and Mecklenburg EMS with the proposed detour map and project website link. This will allow the schools and EMS sufficient time to plan and request additional coordination with NCDOT prior to construction, if necessary.

COMMITMENTS FROM PERMITTING

No commitments developed during project permitting.

*******END OF PROJECT COMMITMENTS*******

I-85 MECKLENBURG COUNTY AT I-485 INTERCHANGE WEST OF CHARLOTTE. IMPROVE INTERCHANGE.

47968.1.1

I. Categorical Exclusion Approval:

STIP Project No.	<u>I-6016</u>
WBS Element	<u>47968.1.1</u>
Federal Project No.	<u>N/A</u>

Prepared By:

04/24/2024

Date

DocuSigned by:



74DA6E93AD49436...

Siobhan Gordon, Senior Environmental Planner
Mead & Hunt

Prepared For:

Radha Attaluri, PE, NCDOT Project Management Unit

Reviewed By:

04/24/2024

Date

DocuSigned by:



CA004B4A6412432...

for Marissa Cox, Western Regional Team Lead
NCDOT Environmental Policy Unit

Approved

Certified

- If classified as Type III Categorical Exclusion.

04/24/2024

Date

DocuSigned by:



CA084B4A6412432...

John Jamison, PWS, CPM, Unit Manager
NCDOT Environmental Policy Unit

FHWA Approved: For Projects Certified by NCDOT (above), FHWA signature required.

04/25/2024

Date

DocuSigned by:



68D0E254A36D46A...

for Yolonda K. Jordan, Division Administrator
Federal Highway Administration

Note: Prior to ROW or Construction authorization, a consultation may be required (please see Section VII of the NCDOT-FHWA CE Programmatic Agreement for more details).

I-85/I-485 Interchange Improvement
West of Charlotte
STIP No. I-6016
Mecklenburg County, North Carolina
Type III Categorical Exclusion



APPENDIX A

Project Maps



Mead & Hunt
 Mead & Hunt
 111 E Hargett Street
 Raleigh, NC 27601
 Tel. 919.714.8670
 www.meadhunt.com



Study Area Map
STIP No. I-6016
I-85/I-485 Interchange West of Charlotte
Improve Interchange
Mecklenburg County

TIP NO.: I-6016
 WBS NO 47968.1.1

DATE: 03/15/2022

FIGURE 1

VICINITY MAP

LEGEND

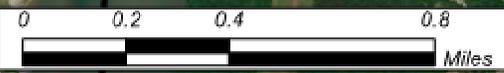
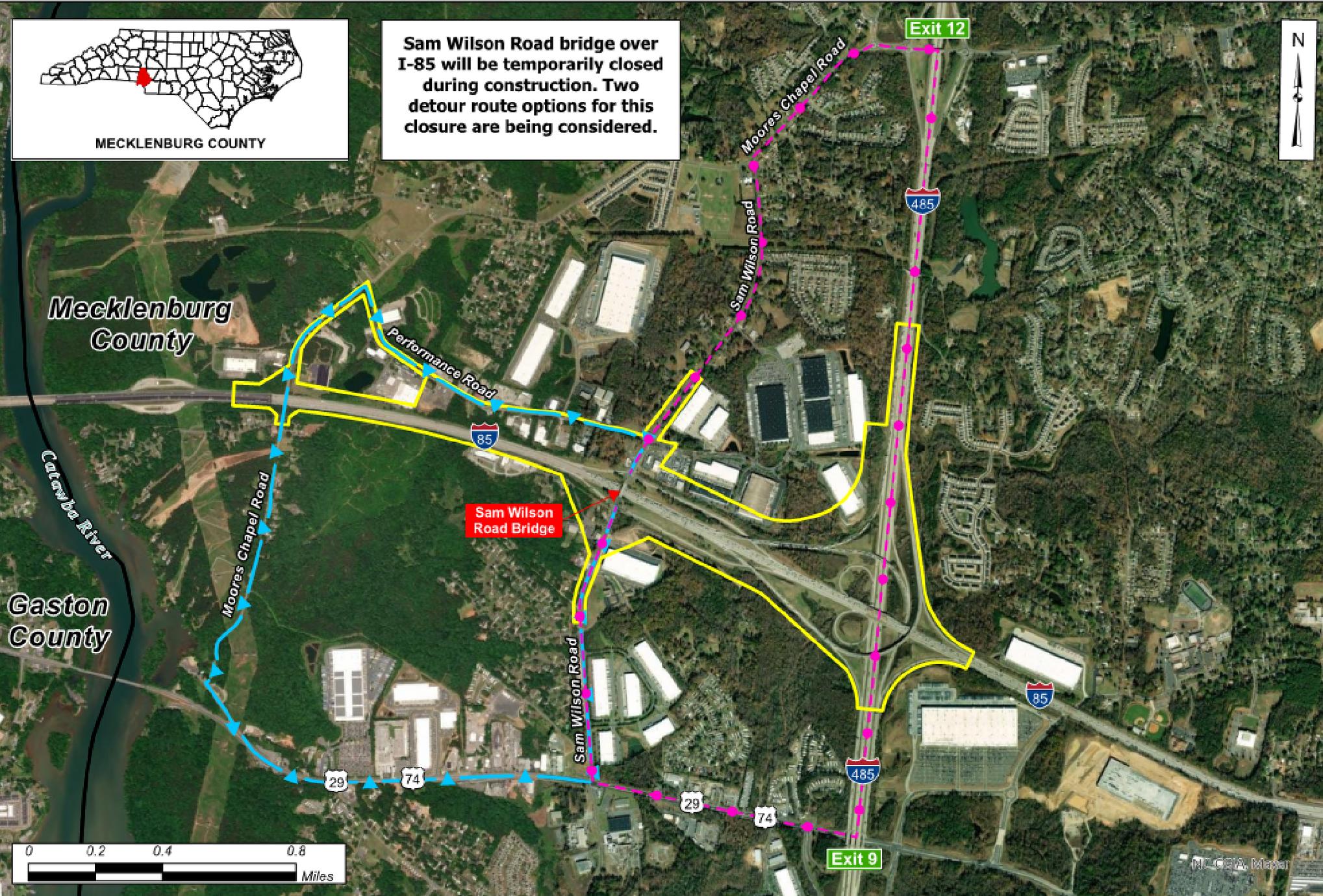
- Project Study Area (~383 acres)
- County Boundaries

Sources: ESRI, USGS, County and Municipality Data



MECKLENBURG COUNTY

Sam Wilson Road bridge over I-85 will be temporarily closed during construction. Two detour route options for this closure are being considered.



Mead & Hunt
Mead & Hunt
111 E Hargett Street
Raleigh, NC 27601
Tel. 919.714.8670
www.meadhunt.com



I-85/I-485 INTERCHANGE IMPROVEMENTS
WEST OF CHARLOTTE

MECKLENBURG COUNTY

TIP NO.: I-6016
WBS NO.: 47968.1.1

DATE: 12/20/2023
Figure 2

PROPOSED DETOUR MAP

- LEGEND
- Project Study Area
 - West Route Detour
 - County Boundaries
 - East Route Detour

Sources: ESRI, USGS, County and Municipality Data

I-85/I-485 Interchange Improvement
West of Charlotte
STIP No. I-6016
Mecklenburg County, North Carolina
Type III Categorical Exclusion



APPENDIX B

Cultural Resources Survey Forms

**ARCHAEOLOGICAL SURVEY REQUIRED FORM**

This form only pertains to ARCHAEOLOGICAL RESOURCES for this project. It is not valid for Historic Architecture and Landscapes. You must consult separately with the Historic Architecture and Landscapes Team.

**PROJECT INFORMATION**

Project No: **I-6016** *County:* Mecklenburg
WBS No: 47968.1.1 *Document:* Federal CE
F.A. No: 0085062 *Funding:* State Federal
Federal Permit Required? Yes No *Permit Type:* NWP 3 / NWP 14

Project Description:

The project proposes to improve the interchange of I-85 and I-485 west of Charlotte in Mecklenburg County, North Carolina. The archaeological Area of Potential Effects (APE) encompasses all areas of potential disturbance as presented on the accompanying ARC-GIS mapping. For purposes of this study, only the proposed and existing right-of-ways in the vicinity of Mount Zion Cemetery will be inspected. The APE measures roughly 8.00 acres in area.

SUMMARY OF ARCHAEOLOGICAL RESOURCES REVIEW: *SURVEY REQUIRED****Brief description of review activities, results of review, and conclusions:***

Permitting and funding information was reviewed for determining the level of archaeological input required by state and federal laws. Section 106 of the National Historic Preservation Act will apply because the project will utilize federal documentation and permits. The (FHWA) will serve as the lead federal agency. Next, construction design and other data was examined (when applicable) to define the character and extent of potential impacts to the ground surfaces embracing the improvement work. At this juncture, the APE was designed to capture all areas of potential impact within the Mt. Zion Cemetery locale.

Once an APE was defined, a map review and site file search was conducted utilizing on-line resources available from the Office of State Archaeology on Thursday, November 9, 2023. No previously documented archaeological sites are situated within the APE.

Examination of National Register of Historic Places (NRHP), State Study Listed (SL), Locally Designated (LD), Determined Eligible (DE), and Surveyed Site (SS) properties employing resources available on the NCSHPO website is important in establishing the location of noteworthy historic occupations related to a perspective construction impact area. A cross-check of these mapped resources concluded that none of the above properties with potential contributing archaeological components are situated within the APE.

In addition, historic maps of Mecklenburg County were appraised to review Mt. Zion Cemetery more closely. Archaeological/historical reference materials were inspected as well. In general, the cultural background review established that Mt. Zion Cemetery contains between 26 and 49 marked graves and additional unmarked grave locations. The majority of the burial interments date to the 1950s and 1960s with a few dating as late as the mid 1990s.

Also, aerial photographs (NCDOT Spatial Data Viewer & other on-line sources) were examined and the Google Street View map application was utilized (when amenable) for gaining a virtual, first-hand perspective of the overall study area and for assessing disturbances, both natural and human induced, which compromise the integrity of archaeological sites/deposits. Photographs reveal that there is a very high likelihood of the proposed right-of-way containing marked and unmarked graves.

An archaeological ground penetrating radar survey is recommended prior to construction activities. This work will seek to determine if gravesites are contained within the project APE which includes both the proposed and existing rights of way. All documented sites will be evaluated for NRHP eligibility. Once we have a better idea of what is contained and present in the APE, we can then take steps to either avoid the cemetery, or remove and rebury the affected remains through consultation with the Office of State Archaeology.

We can complete these investigations using one of the Archaeology Team's on-call firms or if Division 10 would like to manage and complete the survey they can use a NCDOT prequalified archaeologist under contract with one of Division's on-call firms. We can provide a scope of work for the Division to use, but we do need to know within seven days which path the Division plans to follow. All products produced by the Division's consultant will need to be submitted to the Archaeology Team for review, acceptance, and submittal to the Office of State Archaeology as per the Programmatic Agreement. We would be happy to discuss this approach with you.

(This project falls within a North Carolina County in which the following federally recognized tribes have expressed an interest: Catawba Nation and the Cherokee Nation. We recommend that you ensure that this documentation is forwarded to these tribes using the process described in the current NCDOT Tribal Protocol and PA Procedures Manual.)

SUPPORT DOCUMENTATION

See attached: Map(s) Previous Survey Info Photos Correspondence
Other:

FINDING BY NCDOT ARCHAEOLOGIST – SURVEY REQUIRED

Scott Halvorsen



11/16/2023

NCDOT ARCHAEOLOGIST

Date

Winter 2023/2024

Proposed fieldwork completion date

21-11-0031



HISTORIC ARCHITECTURE AND LANDSCAPES NO HISTORIC PROPERTIES PRESENT

This form only pertains to Historic Architecture and Landscapes for this project. It is not valid for Archaeological Resources. You must consult separately with the Archaeology Group.

PROJECT INFORMATION

Project No:	I-6016	County:	Mecklenburg
WBS No.:	47968.1.1	Document Type:	Federal CE
Fed. Aid No:	0085062	Funding:	<input type="checkbox"/> State <input checked="" type="checkbox"/> Federal
Federal Permit(s):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Permit Type(s):	USACE
<u>Project Description:</u>			
Improve interchanges and add a southbound auxiliary lane or Collector Distributer road parallel to I-85 at I-485			

SUMMARY OF HISTORIC ARCHITECTURE AND LANDSCAPES REVIEW

<u>Description of review activities, results, and conclusions:</u>
Review of HPOGIS web service was undertaken on December 19, 2021. Based on this review, there are no NR, DE, LL, SL, or SS in the project area. There are a number of structures over 50 years of age in the Area of Potential Effect (APE). An NCDOT architectural historian conducted a site visit on January 12, 2022. There are no properties in the APE which warrant further evaluation for National Register eligibility.

SUPPORT DOCUMENTATION

Map(s) Previous Survey Info. Photos Correspondence Design Plans

FINDING BY NCDOT ARCHITECTURAL HISTORIAN

Historic Architecture and Landscapes -- ****SURVEY REQUIRED****

Shelby Reap

February 3, 2021

NCDOT Architectural Historian

Date

