Type III Categorical Exclusion Action Classification Form

STIP Project No.	**U-4758**
WBS Element	**40251.1.1**
Federal Project No.	**HPP-0710(25)(26)(27)(28)**

A. Project Description:

The N.C. Department of Transportation (NCDOT) proposes to improve Johnson Street (SR 1818) and Sandy Ridge Road (SR 1850) from Skeet Club Road (SR 1820) to Interstate 40 (I-40) in the City of High Point and Guilford County. The project is approximately 4.4 miles long. **Figure 1** shows the project location and project study area.

B. Description of Need and Purpose:

The purposes of this project are to improve existing and projected traffic flow and capacity on Johnson Street and Sandy Ridge Road, to provide facilities for pedestrians and bicyclists along the corridor, and to provide a facility that conforms to NCDOT roadway design standards.

Johnson Street and Sandy Ridge Road are an important north-south transportation routes in the area that experiences traffic congestion and delays due to capacity deficiencies. The corridor is locally and regionally important as a connection between High Point and Greensboro, including major destinations such as the Piedmont Triad International Airport (PTIA) and Piedmont Triad Farmers Market. The existing roadways also lacks adequate facilities for pedestrians and bicyclists, which limits mobility for these types of travelers.

Addressing the need to increase capacity for vehicles as well as providing enhanced mobility for pedestrians and bicyclists are the main priorities of the proposed project. Another priority that will be addressed is to improve existing and future traffic flow. Another desired outcome is that the improved facility would serve as an alternative to NC 68 in accessing the PTIA.

C. Categorical Exclusion Action Classification: Type III

D. Proposed Improvements

Roadway

Johnson Street and Sandy Ridge Road will be widened along the full project corridor to a four-lane median divided facility. The typical section includes four 12-foot lanes, a 23-foot median, 4-foot bike lanes on each side, a 10-foot multi-use path on the west side (south of Gallimore Dairy Road), and a 5-foot sidewalk on the east side (**Figure 2**). North of Gallimore Dairy Road, the multi-use path will switch sides and be on the east side, with the sidewalk on the west side. A “best fit” widening scenario is proposed as shown in **Figure 3a-3l,** to avoid or minimize impacts to adjacent natural and community resources.

Median breaks will be provided at ten signalized intersections and five non-signalized intersections. Right-in / right-out access would be provided at seven locations. In addition, U-turn bulbs will be provided at four locations.

Structures

A new four-lane bridge will be built over the West Fork Deep River on the location of the existing bridge and to the east to avoid impacts to the Johnson Street Sports Complex, which is a Section 6(f) resource. The existing bridge will be used for traffic during the construction of half of the proposed bridge and then removed to build the other half. The bridge will have the same typical section as the roadway (**Figure 2**).

Design Speed and Speed Limit

A 50 mile per hour (MPH) design speed is proposed for Johnson Street and Sandy Ridge Road, and the posted speed limit will remain 45 MPH following construction.

Right-of-Way and Access Control

Right of way will be required along both sides of Johnson Street and Sandy Ridge Road to accommodate the widening. Additional right of way will also be required along the side streets to reconnect them to Johnson Street and Sandy Ridge Road:

Temporary construction easements will be required. Full control of access will be added at the four (4) U-turn bulbouts.

The project will physically impact and require the relocation of ten (10) single-family dwellings and two (2) businesses.

Bicycle Accommodations/Sidewalks

Four-foot striped bike lanes will be provided in both directions. A ten-foot multi-use path and five-foot sidewalk will also be provided on the opposite sides of the roadway.

Cost Estimates

Table 1 – Cost Estimates

	STIP (2018-2027)	Current Cost Estimates	Date
Roadway Cost		$33.7 M	March 2018
Structure Cost		$2.2 M	March 2018
Utilities		$1.2 M	March 2018
TOTAL	**$20.8 M**	**$35.9 M**	
R/W Cost	$5 M	$8.6 M	February 2018
TOTAL COST	**$25.8 M**	**$44.5 M**	

E. Special Project Information: (Provide a description of relevant project information, which may include: vicinity map, costs, alternative analysis (if any), traffic control and staging, and resource agency/public involvement).

Relationship to Adjacent STIP Projects

STIP Project U-4758 is located in Guilford County in proximity to three other STIP projects (**Table 2**).

Table 2 – Adjacent STIP Projects

STIP # (2018 -2027)	Project	Funding	Schedule
I-5712	I-40/US 421 – Sandy Ridge Road Interchange Improvements	$16.1 M	ROW: 2018 LET: 2020
U-6068	US 421 – Widen to 6 Lanes from Future I-74 in Kernersville to I-40	$110.9 M	ROW: 2025 LET: 2027
I-5981	I-40 – Widen to 6 Lanes from I-74/US 311 to US 421/Business 40	$142.7 M	ROW: 2024 LET: 2026

Alternatives

Five (5) general system approaches or alternatives were considered in addition to the No Build Alternative: New Location Alternative, Improve Existing Corridor Alternative, Transportation Demand Management, Transportation System Management, and Mass Transit/Multi-Modal Alternative were all evaluated.

An initial screening of the alternatives generally consisted of a “pass or fail” determination of the alternative’s ability to address transportation problems in meeting the purpose and need. If the approach “passed” qualitatively all elements of the purpose and need, then it would be retained for the next step in the alternatives screening process (**Table 3**).

No-Build Alternative

The No-Build Alternative serves as the baseline comparison for the design year (2040). This alternative assumes that the transportation system for Guilford County would evolve as currently planned in the High Point Metropolitan Planning Organization’s (MPO) 2035 Long-Range Transportation Plan (LRTP) in the project area.

Improve Existing Corridor Alternative

The Improve Existing Corridor Alternative would widen the roadway, improve intersections, and address geometric deficiencies from Skeet Club Road to I-40. This alternative also would provide facilities for pedestrians and bicyclists.

New-Location Alternative

The Johnson Street/Sandy Ridge Road Feasibility Study (October 2002) studied widening options for the corridor and recommended additional study of a new-location alignment for the northern section. The New-Location Alternative would involve construction of a new-location option in the northern section of the project.

Travel Demand Management (TDM) Alternative

TDM emphasizes regional means of reducing vehicle trips and vehicle miles traveled as well as increasing vehicle occupancy. It includes measures and activities that change traveler behavior by expanding traveler options in terms of travel method, travel time, travel route, travel costs, and travel quality/convenience. TDM measures usually do not involve major capital improvements. The TDM Alternative can include employer-based measures such as staggered work house or flex time and ridesharing (i.e. carpools/vanpools).

Transportation System Management (TSM) Alternative

The TSM Alternative approach typically consists of low-cost, minor transportation improvements to increase the efficiency of an existing facility without increasing the capacity (e.g. number of through lanes). TSM improvements can be operational (i.e. access control, turn prohibitions, speed restrictions, traffic signal timing optimization) or physical (turn lanes, intersection realignment, improved warning and information signs, new signals or stop signs, intersection geometric and signalization improvements).

Table 3 – Alternative Evaluation

	Primary Elements of the Purpose and Need			
ALTERNATIVES	Improve Existing & Projected Traffic Flow and Increases Capacity	Provides Facilities for Pedestrians and Bicyclists	Provides Facility that Conforms to Design Standards	Retain for Additional Study?
No-Build	FAIL	FAIL	FAIL	NO
Improve Existing Corridor (Alternative 1)	PASS	PASS	PASS	YES
New Location Alternative (Alternative 2)	PASS	PASS	PASS	YES
Transportation Demand Management (TDM)	FAIL	FAIL	FAIL	NO
Transportation System Management (TSM)	PASS	FAIL	PASS	NO
Mass Transit/Multi Modal	PASS	FAIL	FAIL	NO

Based on this evaluation, two alternatives were developed: Alternative 1, consisting of widening the existing corridor for the entire project; and Alternative 2, consisting of widening the existing corridor for the southern section and constructing part on new location in the northernmost section (north of Joe Drive).

Alternative 2 was eliminated from further consideration due to increased stream and wetland impacts, higher right of way costs and impacts, and lack of local support. Alternative 1 was retained as the alternative for detailed study and ultimately the build alternative. It consists of widening Johnson Street and Sandy Ridge Road along the full project corridor to a four-lane median divided facility with the "best fit" widening scenario to avoid or minimize impacts to adjacent natural and community resources. At the northern end of the project where there are closely spaced side streets and adjacent businesses between Tyner Road and I-40, various design options were evaluated.

The selection of a northern option is complicated by several adjacent projects which are in the project development stage and may impact the ramp locations and reconfigure the whole roadway network in the area.

Other projects within the same area, which may impact both the I-5712 and U-4758 projects, are U-6068 and I-5981 projects. U-6068 project is widening US 421 (Salem Parkway) to 6 lanes. The limits of the project include the connect to I-40, which is just east of the Sandy Ridge Road Interchange. I-5981 project is the widening of I-40 from I-74 to US 421. Adding any necessary additional lanes to these projects may impact the bridge structure of Sandy Ridge Road over I-40, which also may impact the configuration of the Sandy Ridge Road Interchange.

As a result of the complexity of the adjacent projects, the interim solution for U-4758 is the following configuration: Norcross Road would be a right-in/right-out on Sandy Ridge Road. Because of the heavy truck traffic on Norcross Road, it was recommended to realign Norcross Road south to intersect with the Piedmont Triad Farmers Market Entrance. Endicott Road would intersect with the realigned Norcross Road.

Due to complexity and schedule of the adjacent projects (I-5712, U-6068, and I-5981), additional coordination will be necessary in order to finalize the roadway configurations of Norcross Road, Endicott Road, and the Piedmont Triad Farmers Market entrance.

Public Involvement Summary

The project initially started out in 2012 as a City of High Point managed project under a Federal Highway Administration (FHWA) grant. Public outreach and involvement was a very important component of the project and included a project logo contest with the local high school, development of a Community Advisory Committee (CAC) and an Agency Steering Committee (ASC), small group meetings, website, newsletters, and three (3) public workshops.

The ASC included local staff from planning, engineering, parks and recreation, PART (Piedmont Authority for Regional Transportation), the MPO, and others, as well as state and federal agency representatives. The CAC members represent neighborhood's, business leaders, and other property owners along the corridor.

A timeline of the public involvement activities used in the identification, development, evaluation, and elimination of alternatives is provided below.

- January 2012 – River Landing Small Group Meeting
- February 2013 – Sandy Ridge United Methodist Church Meeting
- April 2013 - Public Workshop #1
- August 2013 - Design Alternatives Work Session - Joint meeting with Steering Committees (ASC and CAC) for input on development of Build Alternative Concepts
- February 2014 - Alternatives Review Meeting with City of High Point
- May 2014 - Design Review Meeting with City of High Point
- July 2014 - Design Alternatives Review Meeting with ASC and CAC
- September 2014 - Public Workshop #2
- November 2014 – Small Group Meeting with Northern Property Owners
- July 2015 - Detailed Study Alternative (DSA) Meeting with ASC and CAC
- March 2016 – Project Update Newsletter
- June 2016 – Project Status Meeting with Smith Grove Baptist Church, Zion Hill Methodist Church, and Sandy Ridge United Methodist
- August 2016 – Preferred Alternative Meeting with ASC and CAC
- February 2018 – Wesleyan Academy Meeting
- March 2018 - Sandy Ridge United Methodist Church Meeting
- August 2018 – Public Workshop #3

Agency Coordination

The NCDOT has continuously worked with the City of High Point, Guilford County, and other governmental agencies throughout the planning process. In June of 2012, a scoping packet was sent from the City of High Point to local, state, and federal agencies to solicit comments and collect pertinent project information early in the project development process. Agencies that comments were received from include:

- City of High Point Fire Department
- City of High Point Planning and Development Department
- City of High Point Parks and Recreation
- NC Department of Environment and Natural Resources
- NC Department of Agriculture and Consumer Services
- NC Department of Cultural Resources
- NCDOT
- NC Department of Public Safety, Emergency Management, and Geospatial and Technology
- NC Wildlife Resources Commission
- Federal Highway Administration
- US Environmental Protection Agency
- US Fish and Wildlife Service

In addition to the involvement of the Agency Steering Committee, the project development team also met with the NEPA/404 Merger Team in November 2014 and gained formal concurrence on Concurrence Point 1 (Purpose and Need) and Concurrence Point 2 (Detailed Study Alternatives to Carry Forward). Due to minimization and avoidance efforts during the design, the Merger Team concurred in February 2017 with removing the project from the Merger Process.

F. Project Impact Criteria Checklists:

Type III Actions		Yes	No
If the proposed improvement is identified as a Type III Class of Action answer all questions. • The Categorical Exclusion will require FHWA approval. • If any questions are marked "yes" then additional information will be required for those question in Section G.			
1	Does the project involve potential effects on species listed with the US Fish and Wildlife Service (USFWS) or National Marine Fisheries (NMFS)?	☒	☐
2	Does the project result in impacts subject to the conditions of the Bald and Golden Eagle Protection Act (BGPA)?	☐	☒
3	Does the project generate substantial controversy or public opposition, for any reason, following appropriate public involvement?	☐	☒
4	Does the project cause disproportionately high and adverse impacts relative to low-income and/or minority populations?	☐	☒
5	Does the project involve substantial residential or commercial displacements or right of way acquisition?	☐	☒
6	Does the project include a determination under Section 4(f)?	☒	☐
7	Is a project-level analysis for direct, indirect, or cumulative effects required based on the NCDOT community studies screening tool?	☐	☒
8	Is a project level air quality Mobile Source Air Toxics (MSAT) analysis required?	☐	☒
9	Is the project located in anadromous fish spawning waters?	☐	☒
10	Does the project impact waters classified as Outstanding Resource Water (ORW), High Quality Water (HQW), Water Supply Watershed Critical Areas, 303(d) listed impaired water bodies, buffer rules, or Submerged Aquatic Vegetation (SAV)?	☒	☐
11	Does the project impact waters of the United States in any of the designated mountain trout streams?	☐	☒
12	Does the project require a U.S. Army Corps of Engineers (USACE) Individual Section 404 Permit?	☐	☒
13	Will the project require an easement from a Federal Energy Regulatory Commission (FERC) licensed facility?	☐	☒
14	Does the project include Section 106 of the National Historic Preservation Act (NHPA) effects determination other than a no effect, including archaeological remains? Are there project commitments identified?	☒	☐
15	Does the project involve hazardous materials and/or landfills?	☒	☐
16	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?	☒	☐

17	Is the project in a Coastal Area Management Act (CAMA) county and substantially affects the coastal zone and/or any Area of Environmental Concern (AEC)?	☐	☒
18	Does the project require a U.S. Coast Guard (USCG) permit?	☐	☒
19	Does the project involve construction activities in, across, or adjacent to a designated Wild and Scenic River present within the project area?	☐	☒
20	Does the project involve Coastal Barrier Resources Act (CBRA) resources?	☐	☒
Type III Actions (continued)		Yes	No
21	Does the project impact federal lands (e.g. USFS, USFWS, etc.) or Tribal Lands?	☐	☒
22	Does the project involve any changes in access control?	☐	☒
23	Does the project have a permanent adverse effect on local traffic patterns or community cohesiveness?	☐	☒
24	Will maintenance of traffic cause substantial disruption?	☐	☒
25	Is the project inconsistent with the STIP or the Metropolitan Planning Organization's (MPO's) Transportation Improvement Program (TIP) (where applicable)?	☐	☒
26	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, Tennessee Valley Authority (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?	☒	☐
27	Does the project involve Federal Emergency Management Agency (FEMA) buyout properties under the Hazard Mitigation Grant Program (HMGP)?	☐	☒
28	Is the project considered a Type I under the NCDOT's Noise Policy?	☒	☐
29	Is there prime or important farmland soil impacted by this project as defined by the Farmland Protection Policy Act (FPPA)?	☒	☐
30	Are there other issues that arose during the project development process that effected the project decision?	☒	☐

G. Additional Documentation as Required from Section F

Response to Question #1 – Potential Effects on Listed Species

The US Fish and Wildlife Service has developed a programmatic biological opinion (PBO) in conjunction with the Federal Highway Administration, the US Army Corps of Engineers, and NCDOT for the northern long-eared bat (*Myotis septentrionalis*) in eastern North Carolina. The PBO covers the entire NCDOT program in Divisions 1-8, including all NCDOT projects and activities. The programmatic determination for the northern long-eared bat for the NCDOT program is "May Affect Likely to Adversely Affect." The PBO provides incidental take coverage for northern long-eared bats and will ensure compliance with Section 7 of the Endangered Species Act for five years for all NCDOT projects with a federal nexus in Divisions 1-8, which includes Guilford County.

Response to Question #6 – Section 4(f)

Section 4(f) is not applicable in this project due to "Joint Development". The project and the Regency Parkway to Interstate 40 Greenway, which extends across Johnson Street along the West Fork Deep River, are essentially being jointly developed since planning for the greenway has accounted for the future widening of Johnson Street and vice versa. Furthermore, the proposed greenway was considered in the bridging decision due to High Point's preference that the greenway be accommodated under the bridge. Finally, the new wider and higher bridge and multi-use path or sidewalk proposed throughout the project would provide a betterment to the resource by enhancing access and connectivity to the planned greenway and overall greenway system.

On March 8th and 21st, 2017, the City of High Point concurred with the determination that the greenway and future park component around the crossing are part of joint development and Section 4(f) is not applicable. FHWA also agreed with this determination. **Appendix A** includes the concurrence from the City of High Point.

Response to Question #8 – MSAT Analysis

The purpose of this project is to improve existing and projected traffic flow and capacity on Johnson Street and Sandy Ridge Road, and to provide facilities for pedestrians and bicyclists along the corridor by constructing a four-lane median divided roadway with bike lanes, sidewalk, and multi-use path. This project has been determined to generate minimal air quality impacts for Clean Air Act criteria pollutants and has not been linked with any special mobile source air toxic (MSAT) concerns. As such, this project will not result in changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause a meaningful increase in MSAT impacts of the project from that of the no-build alternative.

Response to Question #10 - Waters

West Fork Deep River is classified as Class WS IV and Critical Supply Watershed. Class WS-IV (Water Supply) waters are protected for uses such as drinking, culinary or food processing purposes. Since the proposed project corridor is partially located in a Critical Area, Hazardous Spill Basins will be required.

An identified Critical Area (CA) water associated with the West Fork Deep River (Oak Hollow Reservoir, Index No. 17-3-[0.7]) is located within the project vicinity. West Fork Deep River is also identified as impaired by the North Carolina 2014 Final 303(d) list of impaired waters due to Fish Community Poor (Nar, AL, FW).

131 linear feet of streams and 368 square feet (0.008 acres) of wetlands will be permanently impacted. These impacts will be assessed during final design and measures will be taken to minimize impacts to the extent practicable. 93 linear feet of streams and 1,385 square feet of ponds and wetlands will be temporarily impacted by the proposed construction easement. The project is located within the Randleman Lake Watershed Riparian Buffer Protection Program, and a total of 71,013 square feet (1.63 acres) of riparian buffers to streams and ponds will be impacted from this project.

Due to total wetland and surface water impacts being less than one-half acre and permanent impacts to any given stream are less than 300 linear feet, a Nationwide 14 permit for Linear Transportation Projects or General Permit may be used. A NCDWR Water Quality Certification No. 3886 would also be required. If the above-stated thresholds are exceeded, the project will require Individual Section 404 and 401 permits. The USACE holds the final discretion as to what permit will be required to authorize project construction. If a Section 404 permit is required, then a Section 401 Water Quality Certification (WQC) from the NCWR will be needed.

Response to Question #14 – Section 106

There is one Historic Architecture resource, the Elihu and Abigail Mendenhall House (GF1544), within the project's Area of Potential Effects (APE); however, the resource will not be impacted. There are no National Register listed or eligible Archaeological Sites present within the APE.

Three cemeteries are located within the APE:

- Zion Hill Methodist Cemetery (Site 31GF5700)
- Smith Grove Baptist Cemetery (Site 31GF571)
- Sandy Ridge Methodist Cemetery (Site 31GF572)

During the archaeological survey, the Sandy Ridge Methodist Cemetery was identified as having a high potential for the presence of unmarked graves. Ground penetrating radar survey of a portion of the Sandy Ridge Methodist Cemetery identified the presence of three marked graves and 24 unmarked probable graves.

All three cemeteries should be avoided by proposed construction activities. North Carolina General Statute, Chapter 65, Article 12 and North Carolina General Statute, Chapter 70, provide additional protections for the cemeteries. If avoidance is not possible, it will be

necessary to comply with these statutes after consultation with the State Archaeologist to determine the method any burials are to be removed and relocated. Relevant historic resources documents are attached in **Appendix B**. Due to the number of pages, the Archaeological Form in the appendix is the report only. The complete document is located at https://connect.ncdot.gov/site/Preconstruction/division/div07/U-4758/Human%20Environment/U-4758%20Guilford%20No%20NRHP%20Archaeological%20Sites%20Present%20Form.pdf

Response to Question #15 – Hazardous Waste

Two petroleum storage tanks are located within the project vicinity; one is located off of Sandy Camp Road and the other is located at the Circle K on Norcross Road.

Three underground storage tanks incidents, two of which are ranked as a low risk and one ranked as high risk, have occurred off of Norcross Road. Two other underground storage tank incidents (one high risk and one low risk) occurred off of Sandy Camp Road.

No other hazardous waste sites are located near the project.

Response to Question #16 – Floodways and Floodplains

The project encroaches upon a regulatory floodway (Zone AE) that is associated with the West Fork River, just south of the Johnson Street Sports Complex. Impacts to the floodway due to the project will be further evaluated during final design.

Response to Question #26 – Section 6(f)

The project does require the acquisition of lands under the protection of Section 6(f) of the Land and Water Conservation Act (LWCF). The project requires additional right of way from Oak Hollow Park (LWCF Project # 37-00174) property along the east side of the roadway at the West Fork Deep River Crossing in order to avoid the Johnson Street Sports Complex. A temporary easement will also need to be acquired from the Johnson Street Sports Complex in order to construct the widening of Johnson Street from two lanes to four lanes.

The proposed roadway and bridge improvements will require the conversion of use for approximately 0.8 acre of right of way and 0.9 acre of temporary easement from the Oak Hollow Park. The proposed non-conforming use for the temporary easement will require approximately 0.12 acre from the Johnson Street Sports Complex to reconstruct the entrance in its existing location. No replacement land will need to be acquired since the project will not permanently convert park property to non-recreation use.

This process has been initiated by the City of High Point, Parks and Recreation Director. Letters requesting the conversion of use and non-conforming use were submitted to the NC Division of Parks and Recreation.

The NCDOT Project Management Unit will continue to coordinate and support the City with these LWCF conversion of use and non-conforming use requests to ensure process completion.

Response to Question #28 – Traffic Noise

The source of this traffic noise information is from the "*Traffic Noise Report – Johnson Street Sandy Ridge Road Widening*" (October 2018) completed by Atkins.

Summary

A traffic noise evaluation was performed that preliminarily identified three noise barriers (NW5A, NW5B, and NW10) meet feasible and reasonable criteria found in the NCDOT Traffic Noise Policy. A more detailed analysis will be completed during project final design. Noise barriers 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 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).

Traffic Noise Impacts

The maximum number of receptors in each project alternative predicted to become impacted by future traffic noise is shown in **Table 4**. 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.

Table 4 - Predicted Traffic Noise Impacts by Alternative*

Alternative	**Traffic Noise Impacts**			
	Residential (NAC B)	Places of Worship/Schools, Parks, etc. (NAC C & D)	Businesses (NAC E)	Total
Build 1	41	2	0	43

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

Noise Barriers

A noise barrier evaluation was conducted for this project utilizing the Traffic Noise Model (TNM 2.5) software developed by the FHWA. **Table 5** summarizes the results of the evaluation.

Table 5 - Preliminary Noise Barrier Evaluation Results

Alternative (Noise Barrier Location)	Length / Height (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[1]
NSA 5 / NW5A	351	3,149	4	1,050 / 2,000	Yes
NSA 5 / NW5B	338	2,880	2	1,440 / 2,000	Yes
NSA 10 / NW10	374	2,992	2	1,496 / 1,500	Yes

[1]The likelihood for barrier construction is preliminary and subject to change, pending completion of final design and the public involvement process.

Response to Question #29 – Prime Farmland

Farmland soils eligible for protection under the Farmland Protection Policy Act (FPPA) are present within the project footprint. A preliminary screening of farmland conversion impacts in the project area has been completed (NRCS Form CPA-106, Part VI) and a total score of 46 out of 160 points was calculated for the U-4758 project site (See U-4758 Community Characteristics Report, August 2012). Since the total site assessment score does not exceed the 60-point threshold established by NRCS, farmland conversion impacts may be anticipated, but are not considered notable.

H. Project Commitments

Guilford County
Johnson Street / Sandy Ridge Road Widening
Federal Project No. - HPP-0710(25)(26)(27)(28)
WBS No. – 40251.1.1
STIP No. – U-4758

NCDOT Project Management Unit

- Continue to coordinate and support the City with the LWCF conversion of use and non-conforming use requests to ensure process completion.

- Due to complexity and schedule of the adjacent projects (I-5712, U-6068, and I-5981), additional coordination will be necessary in order to finalize the roadway configurations of Norcross Road, Endicott Road, and the Piedmont Triad Farmers Market entrance.

- During final design, determine feasibility and reasonableness of installing noise barriers NW5A, NW5B, and NW10.

- Hazardous spill protection measures will be provided at stream crossings within ½ mile of the water supply watershed critical area for Oak Hollow Reservoir.

NCDOT Division 7

- Unmarked graves are possible at the Sandy Ridge Methodist Cemetery. North Carolina General Statute, Chapter 65, Article 12 and North Carolina General Statute, Chapter 70, provide protections for the cemeteries. If avoidance is not possible, it will be necessary to comply with these statutes after consultation with the State Archaeologist to determine the method any burials are to be removed and relocated.

- This project involves construction activities on or adjacent to a FEMA-regulated stream(s). Therefore, the Division will submit sealed as-built construction plants to the NCDOT Hydraulics Unit Upon completion of project construction, certifying the drainage structure(s) and roadway embankment located within the 100-year floodplain were built as shown in construction plans, both horizontally and vertically.

- Due to total wetland and surface water impacts being less than one-half acre and permanent impacts to any given stream are less than 300 linear feet, a Nationwide 14 permit for Linear Transportation Projects or General Permit may be used. A NCDWR Water Quality Certification No. 3886 would also be required. If the above-stated thresholds are exceeded, the project will require Individual Section 404 and 401 permits. The USACE holds the final discretion as to what permit will be required to authorize project construction. If a Section 404 permit is required then a Section 401 Water Quality Certification (WQC) from the NCWR will be needed.

I. Categorical Exclusion Approval

STIP Project No.	**U-4758**
WBS Element	**40251.1.1**
Federal Project No.	**HPP-0710(25)(26)(27)(28)**

Prepared By:

11/14/2018
Date

DocuSigned by:
Bob Boot
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Robert Boot, Senior NEPA Planner / Project Manager
Atkins

Prepared For: North Carolina Department of Transportation

Reviewed By:

11/14/2018
Date

DocuSigned by:
John Jamison
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for Derrick Weaver, Environmental Policy Unit Head
North Carolina Department of Transportation

NCDOT certifies that the proposed action qualifies as a Type III Categorical Exclusion.

11/19/2018
Date

DocuSigned by:
P.E. Sutton
AE35E3E6727640E...
Laura Sutton, PE Project Management Team (Division 7,9,10) Lead
North Carolina Department of Transportation

FHWA Approval:

11/29/2018
Date

DocuSigned by:
for, Felix Davila
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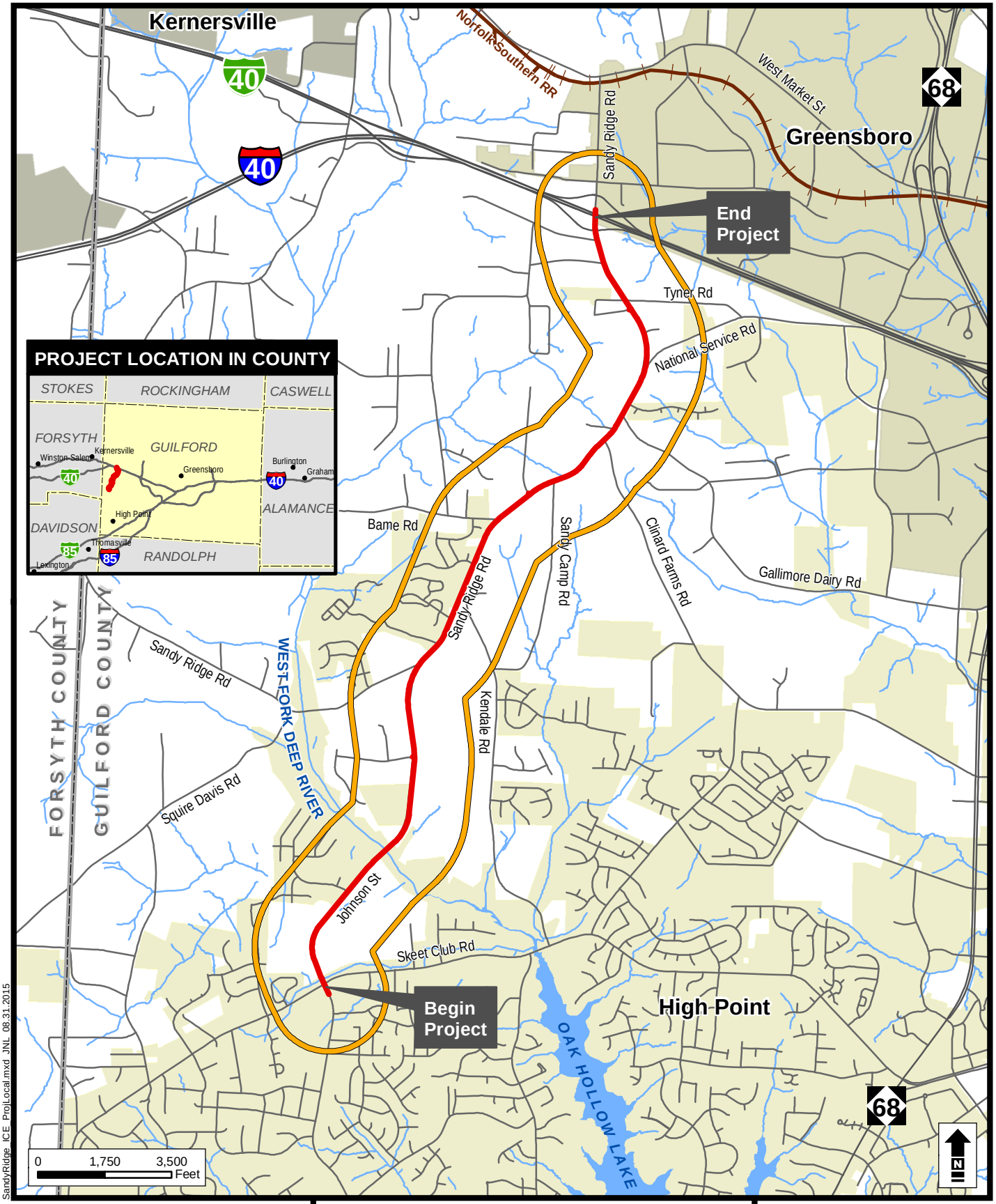
John F. Sullivan, III, PE, Division Administrator
Federal Highway Administration



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JOHNSON ST / SANDY RIDGE RD IMPROVEMENT PROJECT

STIP PROJECT
NO. U-4758
Guilford County, NC

LEGEND

- Proposed Mainline
- Project Study Area
- Streams *Water*

Municipal Limits

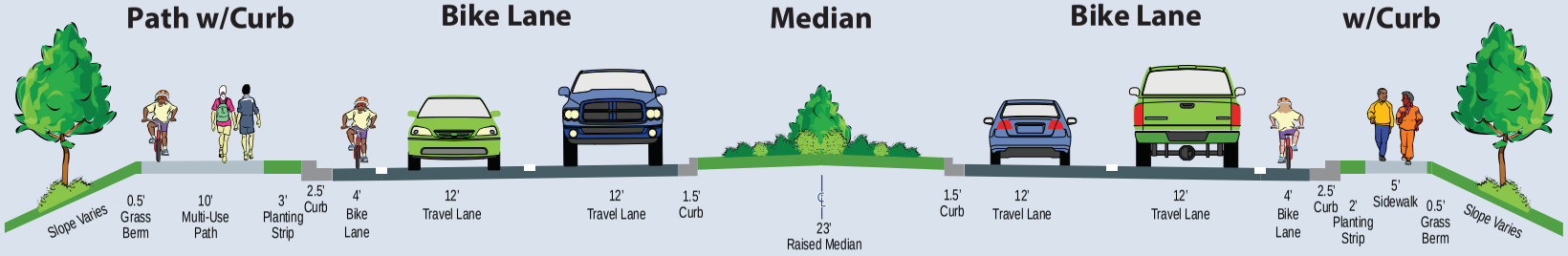
- Greensboro
- High Point
- Kernersville

Source: Guilford County, NCDOT, NCOneMap

PROJECT LOCATION MAP

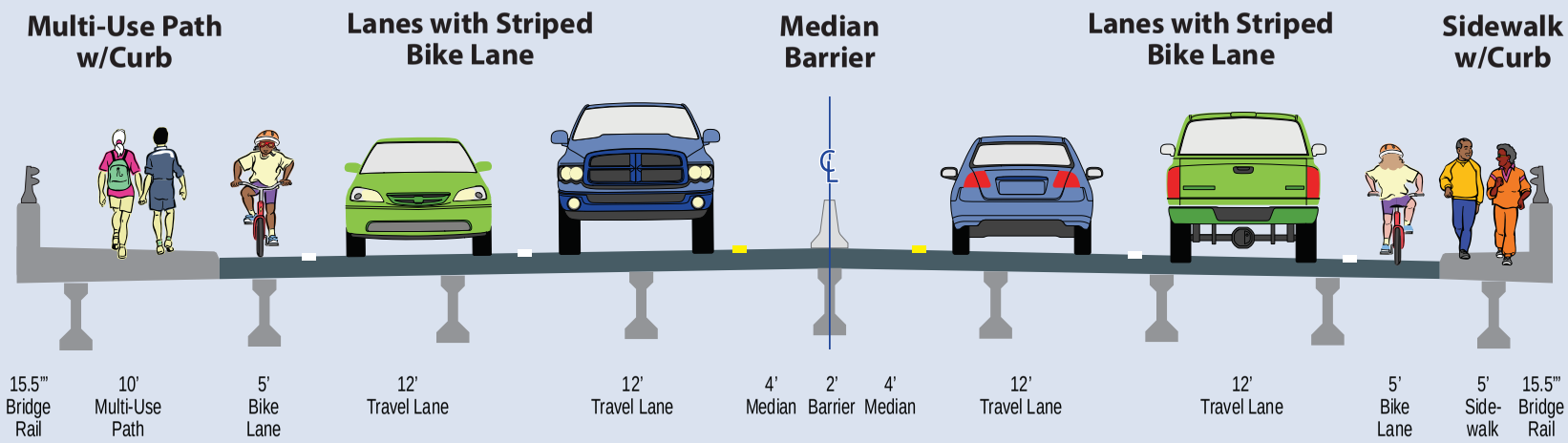
FIGURE 1

Roadway Typical Section



Total Width = 105′ + slope variables

Deep River Bridge Typical Section



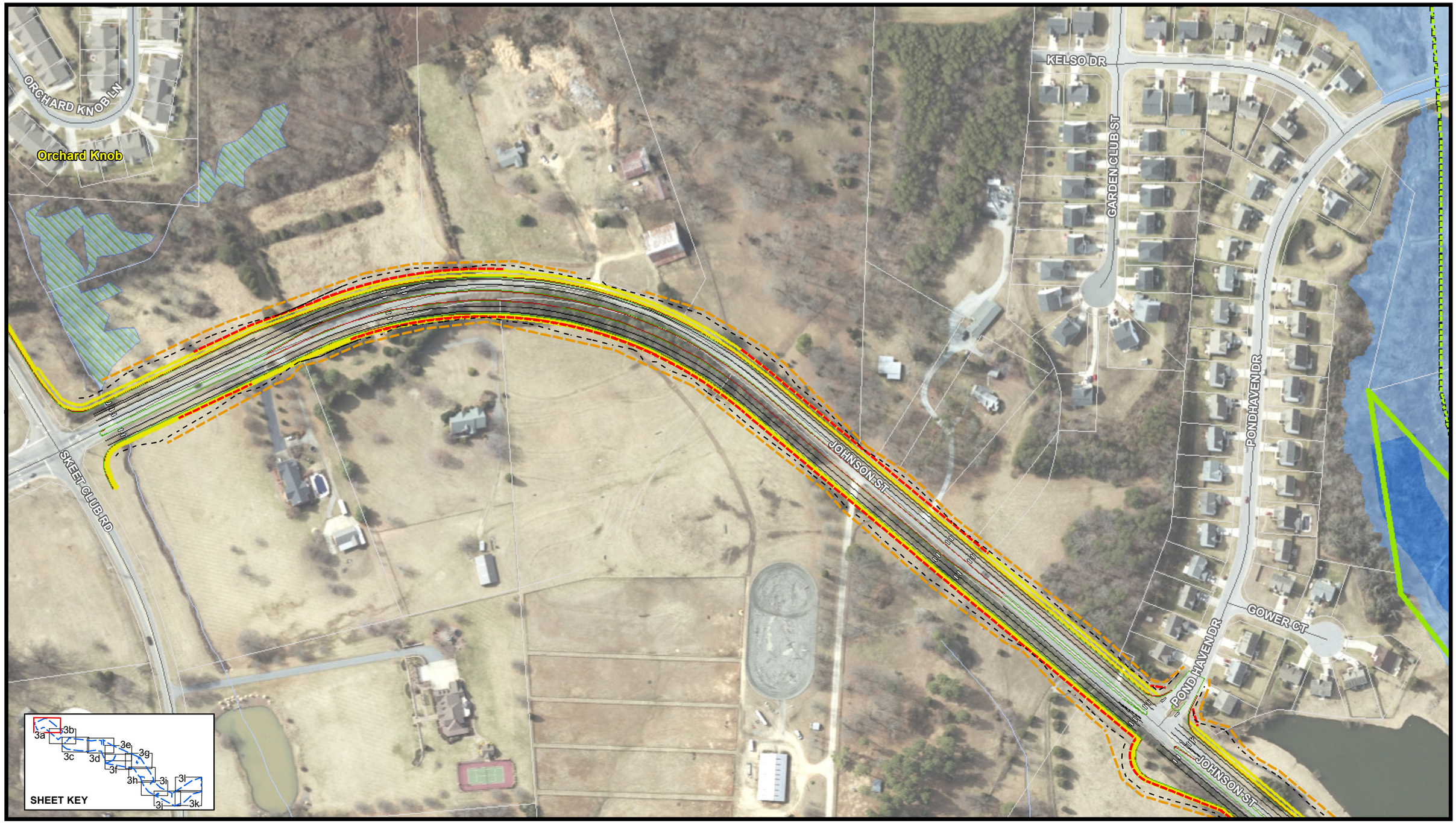
Total Width = 114′

JOHNSON ST / SANDY RIDGE RD IMPROVEMENT PROJECT

STIP PROJECT NO. U-4758
Guilford County, North Carolina

PROPOSED TYPICAL SECTION

FIGURE 2



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JOHNSON ST / SANDY RIDGE RD IMPROVEMENT PROJECT

STIP PROJECT NO. U-4758
Guilford County, North Carolina

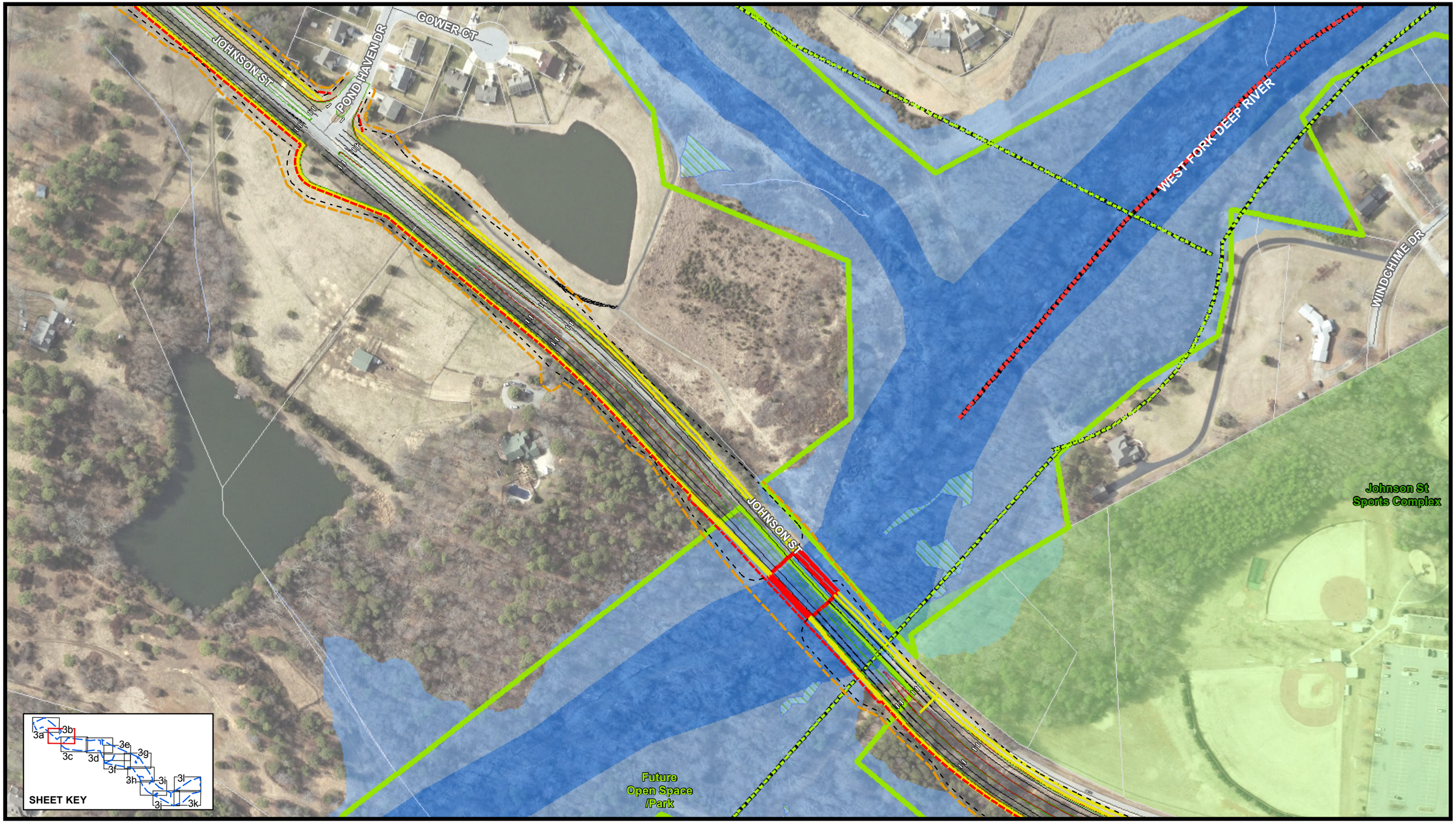
0 100 200 Feet
Source: Guilford County, NCDOT, NCSHPO, NCOneMap, Photography Date: 01/01/2014

Legend

- Proposed Concrete Curb and Gutter
- Proposed Sidewalk/ Multi-use Path
- Proposed Edge of Travel Lane
- Proposed Lane Lines
- Proposed Roadway Bridge
- Slopestake Lines
- Proposed Noise Barrier
- Proposed Right of Way
- Proposed Easement Construction
- Proposed Ashpalt Removal
- Proposed Concrete Island
- Proposed Lane Arrow
- Neighborhoods
- Cemetery
- Church
- EMT
- Fire Station
- Historic Sites
- Future Greenway
- County Parks
- Future Park
- Parcels
- 303(d) Streams
- Streams
- Delineated Wetlands
- Major Lakes
- Floodway
- 100 Year Floodplain
- State Owned Land
- Proposed Traffic Signal

SELECTED ALTERNATIVE
PRELIMINARY DESIGNS (SUBJECT TO CHANGE)

FIGURE 3a



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JOHNSON ST / SANDY RIDGE RD IMPROVEMENT PROJECT

STIP PROJECT NO. U-4758
Guilford County, North Carolina

0 100 200 Feet
Source: Guilford County, NCDOT, NCSHPO, NCOneMap, Photography Date: 01/01/2014

Legend

- Proposed Concrete Curb and Gutter
- Proposed Sidewalk/ Multi-use Path
- Proposed Edge of Travel Lane
- Proposed Lane Lines
- Proposed Roadway Bridge
- Slopestake Lines
- Proposed Noise Barrier
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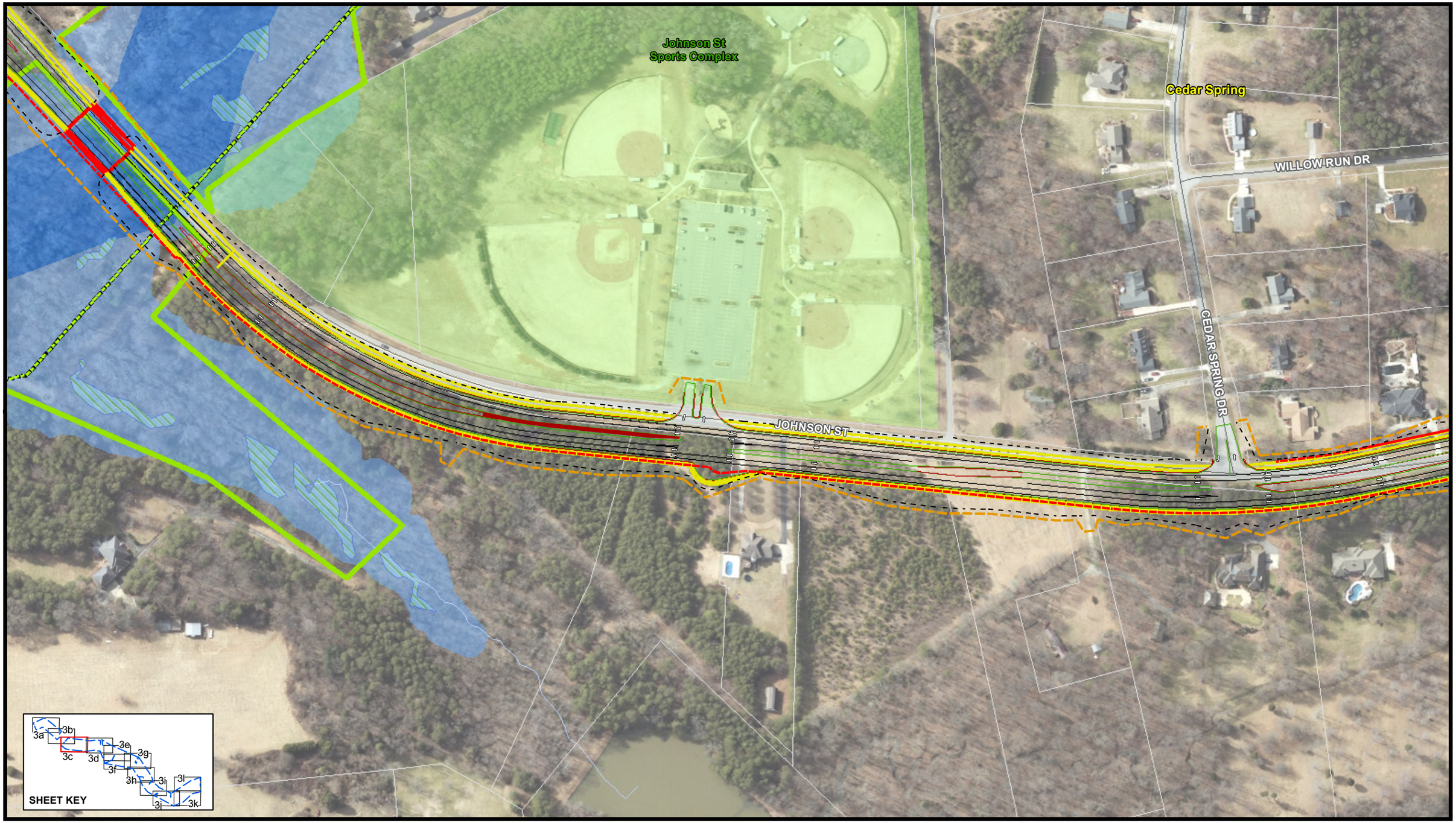
- 303(d) Streams
- Streams
- Delineated Wetlands
- Major Lakes
- Floodway
- 100 Year Floodplain
- State Owned Land
- Proposed Traffic Signal

SELECTED ALTERNATIVE
PRELIMINARY DESIGNS (SUBJECT TO CHANGE)

FIGURE 3b



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JOHNSON ST / SANDY RIDGE RD IMPROVEMENT PROJECT

STIP PROJECT NO. U-4758
Guilford County, North Carolina

0 100 200 Feet

Source: Guilford County, NCDOT, NCSHPO, NCOneMap, Photography Date: 01/01/2014

Legend

- Proposed Concrete Curb and Gutter
- Proposed Sidewalk/ Multi-use Path
- Proposed Edge of Travel Lane
- Proposed Lane Lines
- Proposed Roadway Bridge
- Slopestake Lines
- Proposed Noise Barrier
- Proposed Right of Way
- Proposed Easement Construction
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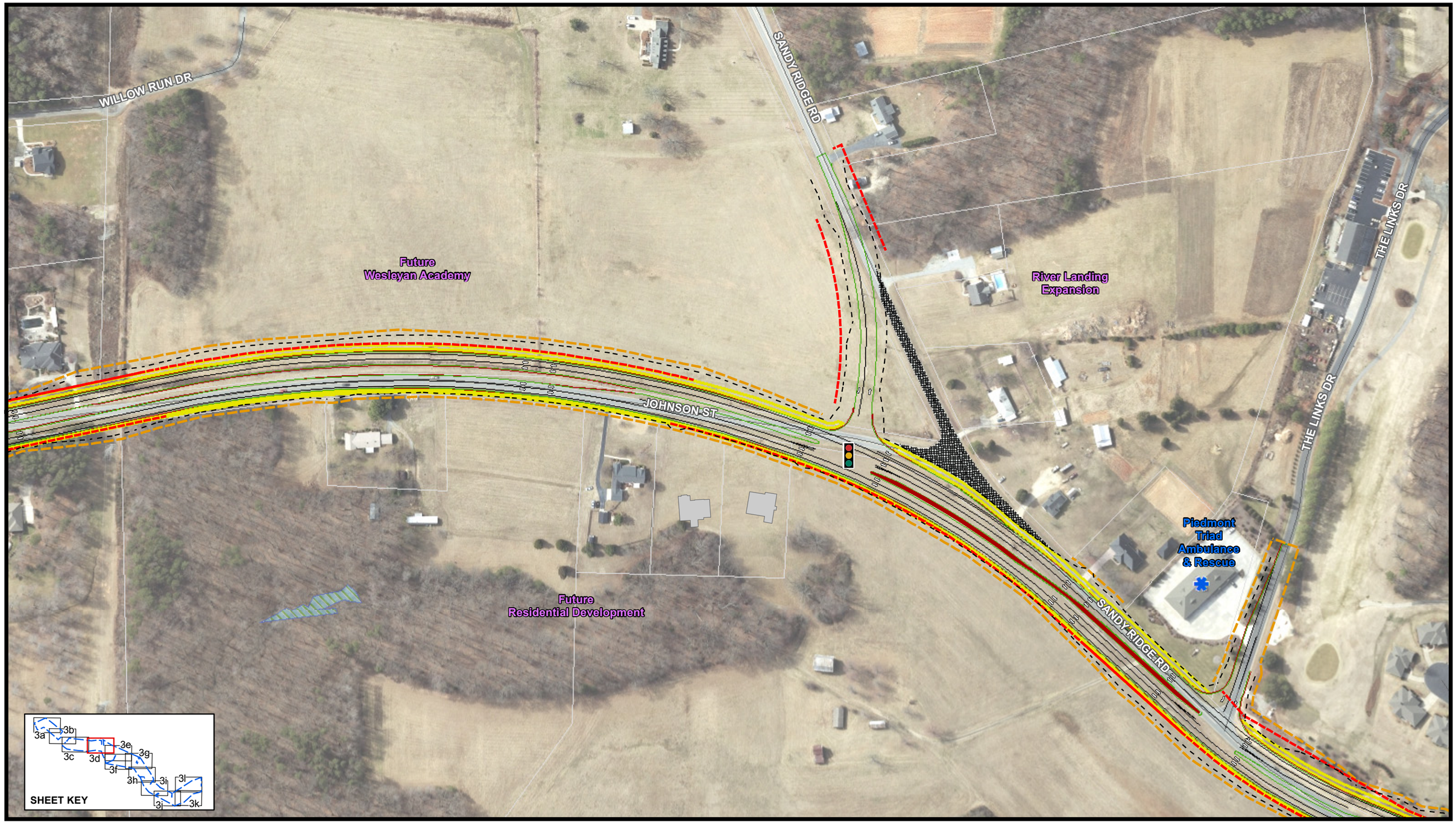
- Parcels
- 303(d) Streams
- Streams
- Delineated Wetlands
- Major Lakes
- Floodway
- 100 Year Floodplain
- State Owned Land
- Proposed Traffic Signal

SELECTED ALTERNATIVE
PRELIMINARY DESIGNS (SUBJECT TO CHANGE)

FIGURE 3c



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JOHNSON ST / SANDY RIDGE RD IMPROVEMENT PROJECT

STIP PROJECT NO. U-4758
Guilford County, North Carolina

0 100 200 Feet
Source: Guilford County, NCDOT, NCSHPO, NCOneMap, Photography Date: 01/01/2014

Legend

- Proposed Concrete Curb and Gutter
- Proposed Sidewalk/ Multi-use Path
- Proposed Edge of Travel Lane
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- Proposed Roadway Bridge
- Slopestake Lines
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- 303(d) Streams
- Streams
- Delineated Wetlands
- Major Lakes
- Floodway
- 100 Year Floodplain
- State Owned Land
- Proposed Traffic Signal

SELECTED ALTERNATIVE
PRELIMINARY DESIGNS (SUBJECT TO CHANGE)

FIGURE 3d

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JOHNSON ST / SANDY RIDGE RD IMPROVEMENT PROJECT

STIP PROJECT NO. U-4758
Guilford County, North Carolina

0 100 200 Feet
Source: Guilford County, NCDOT, NCSHPO, NCOneMap, Photography Date: 01/01/2014

Legend

- Proposed Concrete Curb and Gutter
- Proposed Sidewalk/ Multi-use Path
- Proposed Edge of Travel Lane
- Proposed Lane Lines
- Proposed Roadway Bridge
- Slopestake Lines
- Proposed Noise Barrier
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- 303(d) Streams
- Streams
- Delineated Wetlands
- Major Lakes
- Floodway
- 100 Year Floodplain
- State Owned Land
- Proposed Traffic Signal

SELECTED ALTERNATIVE
PRELIMINARY DESIGNS (SUBJECT TO CHANGE)

FIGURE 3e

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JOHNSON ST / SANDY RIDGE RD IMPROVEMENT PROJECT

STIP PROJECT NO. U-4758
Guilford County, North Carolina

0 100 200 Feet
Source: Guilford County, NCDOT, NCSHPO, NCOneMap, Photography Date: 01/01/2014

Legend

- Proposed Concrete Curb and Gutter
- Proposed Sidewalk/ Multi-use Path
- Proposed Edge of Travel Lane
- Proposed Lane Lines
- Proposed Roadway Bridge
- Slopestake Lines
- Proposed Noise Barrier
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- Major Lakes
- Floodway
- 100 Year Floodplain
- State Owned Land
- Proposed Traffic Signal

SELECTED ALTERNATIVE
PRELIMINARY DESIGNS (SUBJECT TO CHANGE)

FIGURE 3f

JSSR_CE_PrelimDesignMapbook_Help.mxd 10.18.2018 JNL

JOHNSON ST / SANDY RIDGE RD IMPROVEMENT PROJECT

STIP PROJECT NO. U-4758
Guilford County, North Carolina

0 100 200 Feet

Source: Guilford County, NCDOT, NCSHPO, NCOneMap, Photography Date: 01/01/2014

Legend

- Proposed Concrete Curb and Gutter
- Proposed Sidewalk/ Multi-use Path
- Proposed Edge of Travel Lane
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- Proposed Roadway Bridge
- Slopestake Lines
- Proposed Noise Barrier
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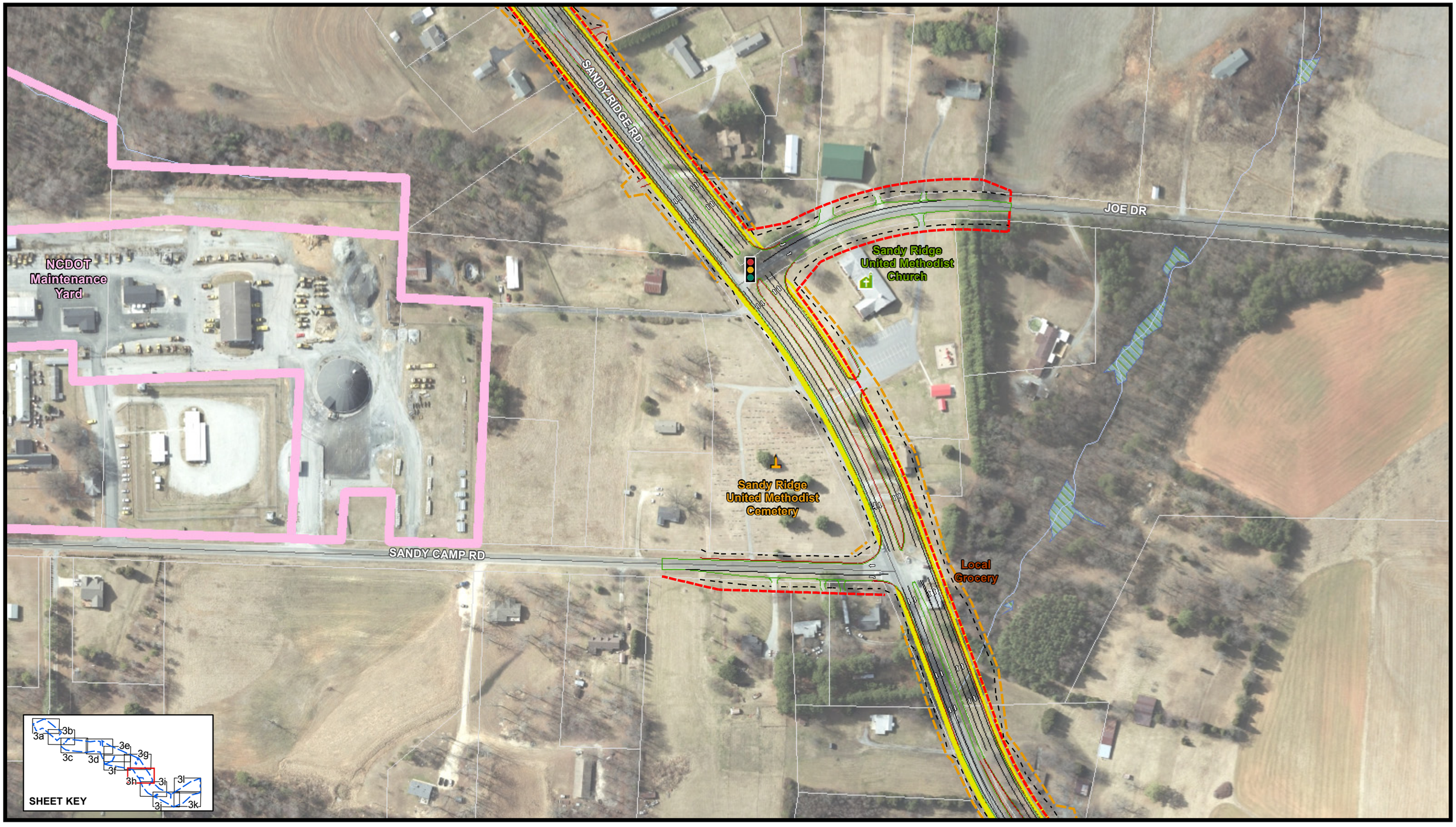
- Streams
- Delineated Wetlands
- Major Lakes
- Floodway
- 100 Year Floodplain
- State Owned Land
- Proposed Traffic Signal

SELECTED ALTERNATIVE
PRELIMINARY DESIGNS (SUBJECT TO CHANGE)

FIGURE 3g



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JOHNSON ST / SANDY RIDGE RD IMPROVEMENT PROJECT

STIP PROJECT NO. U-4758
Guilford County, North Carolina

0 100 200 Feet
Source: Guilford County, NCDOT, NCSHPO, NCOneMap, Photography Date: 01/01/2014

Legend

- Proposed Concrete Curb and Gutter
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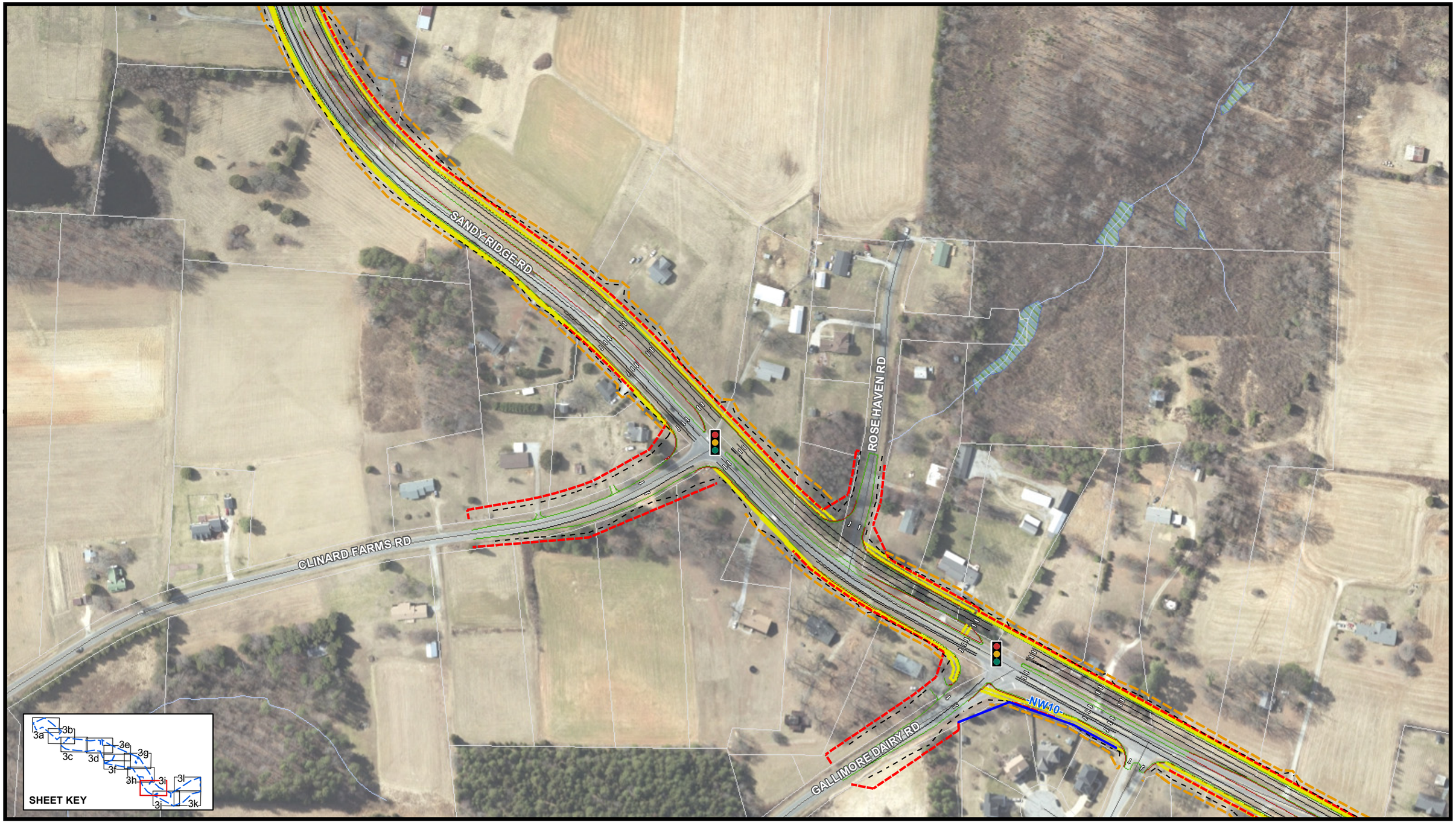
- Major Lakes
- Floodway
- 100 Year Floodplain
- State Owned Land
- Proposed Traffic Signal

SELECTED ALTERNATIVE
PRELIMINARY DESIGNS (SUBJECT TO CHANGE)

FIGURE 3h



JSSR_CE_PrelimDesignMapbook_Help.mxd 10.18.2018 JNL

JOHNSON ST / SANDY RIDGE RD IMPROVEMENT PROJECT

STIP PROJECT NO. U-4758
Guilford County, North Carolina

0 100 200 Feet

Source: Guilford County, NCDOT, NCSHPO, NCOneMap, Photography Date: 01/01/2014

Legend

- Proposed Concrete Curb and Gutter
- Proposed Sidewalk/ Multi-use Path
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- Proposed Lane Lines
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- Slopestake Lines
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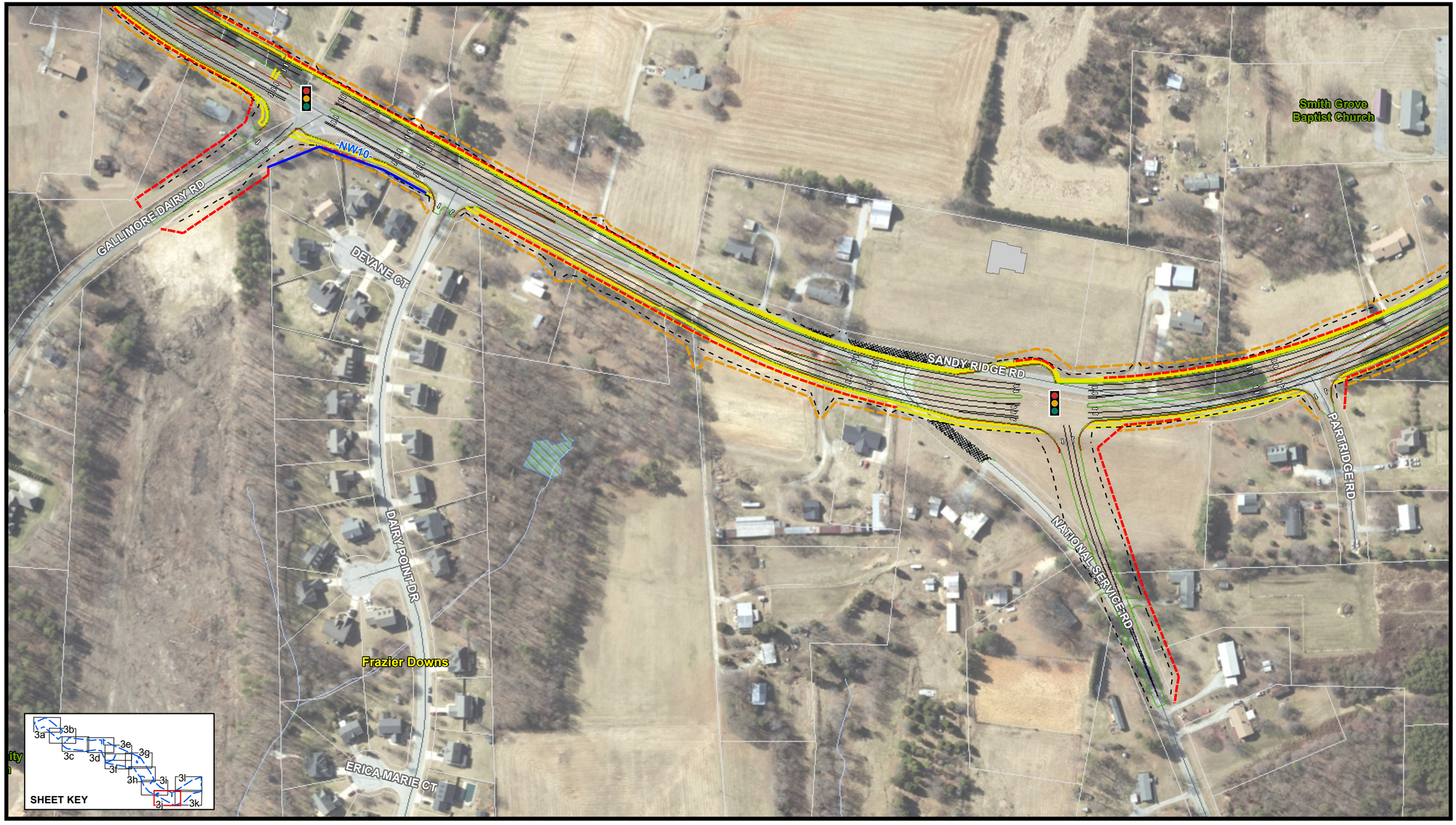
- Streams
- Delineated Wetlands
- Major Lakes
- Floodway
- 100 Year Floodplain
- State Owned Land
- Proposed Traffic Signal

SELECTED ALTERNATIVE
PRELIMINARY DESIGNS (SUBJECT TO CHANGE)

FIGURE 3i



JSSR_CE_PrelimDesignMapbook_Help.mxd 10.18.2018 JNL

JOHNSON ST / SANDY RIDGE RD IMPROVEMENT PROJECT

STIP PROJECT NO. U-4758
Guilford County, North Carolina

0 100 200 Feet
Source: Guilford County, NCDOT, NCSHPO, NCOneMap, Photography Date: 01/01/2014

Legend

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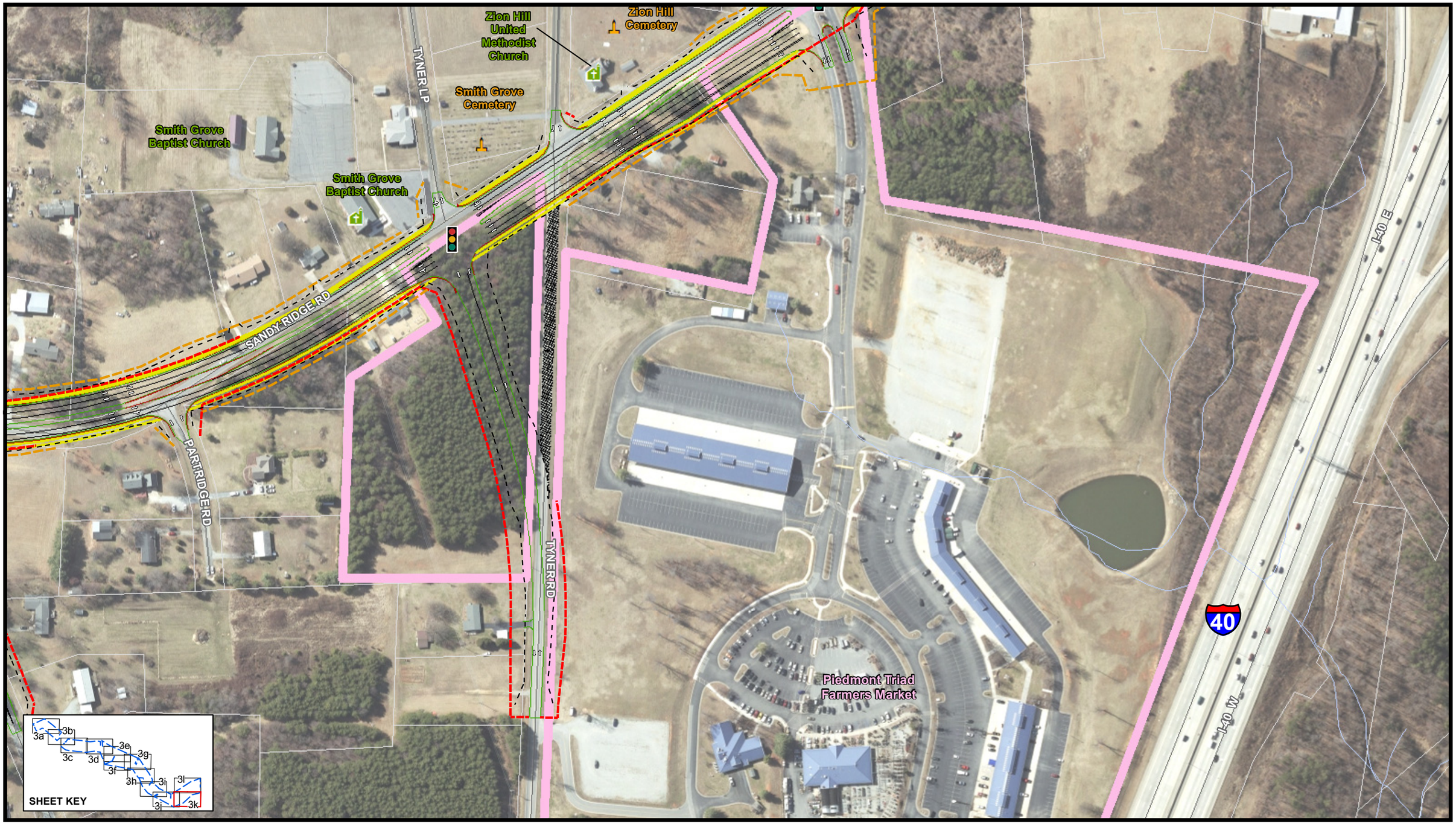
- Floodway
- 100 Year Floodplain
- State Owned Land
- Proposed Traffic Signal

SELECTED ALTERNATIVE
PRELIMINARY DESIGNS (SUBJECT TO CHANGE)

FIGURE 3j



JSSR_CE_PrelimDesignMapbook_Help.mxd 10.18.2018 JNL

JOHNSON ST / SANDY RIDGE RD IMPROVEMENT PROJECT

STIP PROJECT NO. U-4758
Guilford County, North Carolina

0 100 200 Feet

Source: Guilford County, NCDOT, NCSHPO, NCOneMap, Photography Date: 01/01/2014

Legend

- Proposed Concrete Curb and Gutter
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- Streams
- Delineated Wetlands
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- Floodway
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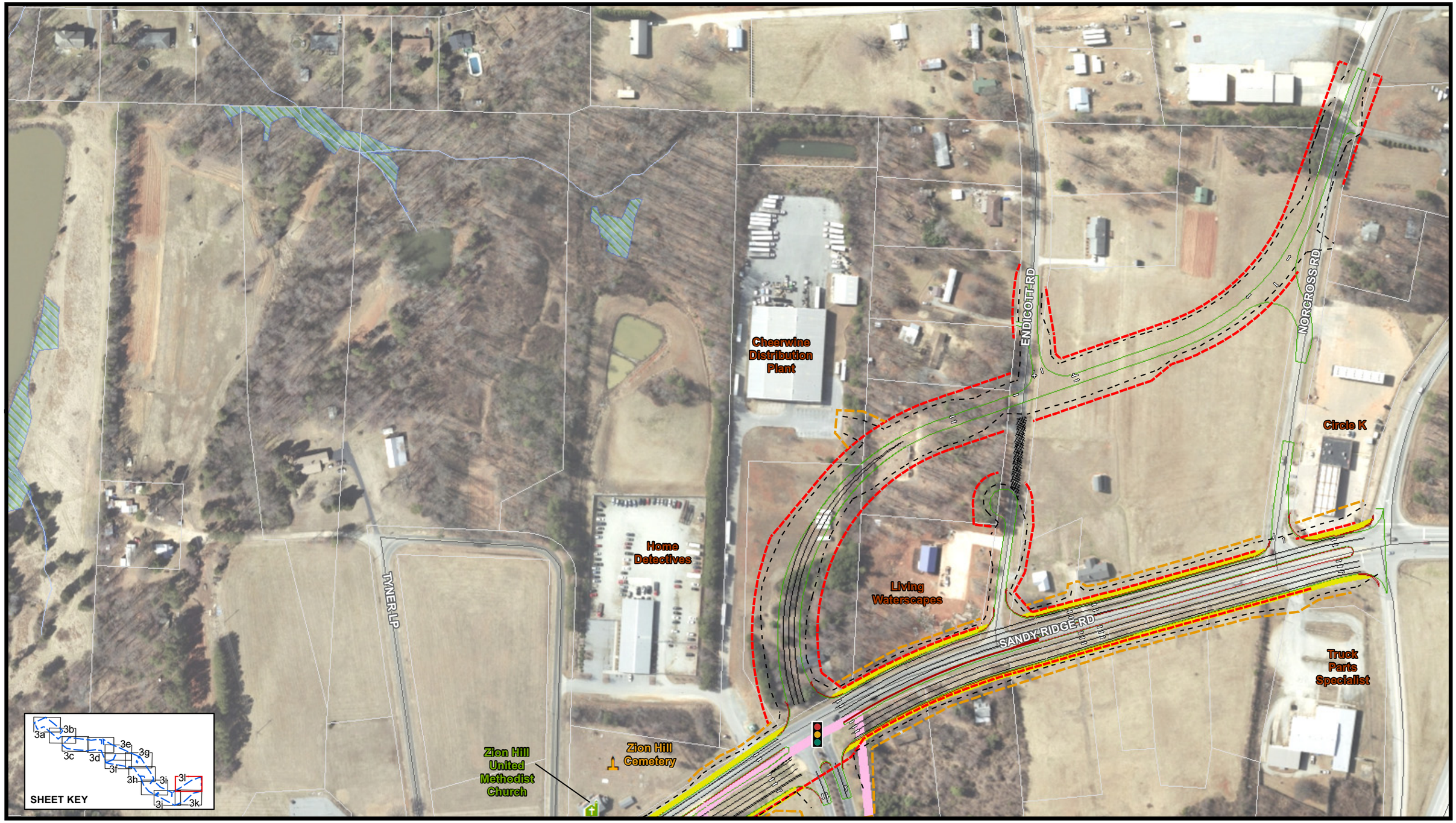
SELECTED ALTERNATIVE

PRELIMINARY DESIGNS (SUBJECT TO CHANGE)

FIGURE 3k



JSSR_CE_PrelimDesignMapbook_Help.mxd 10.18.2018 JNL

JOHNSON ST / SANDY RIDGE RD IMPROVEMENT PROJECT

STIP PROJECT NO. U-4758
Guilford County, North Carolina

0 100 200 Feet
Source: Guilford County, NCDOT, NCSHPO, NCOneMap, Photography Date: 01/01/2014

Legend

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- Delineated Wetlands
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- Floodway
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- State Owned Land
- Proposed Traffic Signal

SELECTED ALTERNATIVE
PRELIMINARY DESIGNS (SUBJECT TO CHANGE)

FIGURE 3I

APPENDIX A
SECTION 4(F) CONCURRENCE

Boot, Robert A

From: LEE TILLERY <lee.tillery@highpointnc.gov>
Sent: Tuesday, March 21, 2017 4:29 PM
To: Bereis, Kimberly D
Cc: MARK MCDONALD; Williams, John L
Subject: RE: NCDOT STIP No. U-4758 (JSSRR Widening) - Section 4(f) Letter **Response Requested**

I concur with the plan outlined below.

Thanks,
Lee

LEE TILLERY
CITY OF HIGH POINT
DIRECTOR, PARKS AND RECREATION

136 Northpoint Avenue | High Point, NC 27262
336.883.3473 | fax: 336.822.7209

From: Bereis, Kimberly D [mailto:Kimberly.Bereis@atkinsglobal.com]
Sent: Wednesday, March 15, 2017 11:20 AM
To: LEE TILLERY <lee.tillery@highpointnc.gov>
Cc: MARK MCDONALD <mark.mcdonald@highpointnc.gov>; Williams, John L <jlwilliams@ncdot.gov>
Subject: RE: NCDOT STIP No. U-4758 (JSSRR Widening) - Section 4(f) Letter **Response Requested**

Good morning, Lee.

John and I met with Felix Davila (FHWA) on Friday, and he agrees that Joint Development applies to the resource and U-4758 project in this case. However, he has requested clarification for us to include it the NEPA document. Please verify (with a response to this email) that your concurrence applies to the greenway (Regency) proposed along the WFDR as well as the future open space park around the crossing. Essentially, he just wants your concurrence that both the greenway and future park component apply, as the letter emphasizes the greenway portion within the park and greenway system.

Thanks,

Kim Bereis, AICP
Senior Planner/Project Manager, Transportation NEPA

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Email: kimberly.bereis@atkinsglobal.com | Web: www.atkinsglobal.com/northamerica

---

From: LEE TILLERY [mailto:lee.tillery@highpointnc.gov]
Sent: Wednesday, March 08, 2017 3:40 PM

To: Bereis, Kimberly D <Kimberly.Bereis@atkinsglobal.com>
Cc: MARK MCDONALD <mark.mcdonald@highpointnc.gov>; Williams, John L <jlwilliams@ncdot.gov>
Subject: RE: NCDOT STIP No. U-4758 (JSSRR Widening) - Section 4(f) Letter **Response Requested**

Good afternoon Kimberly,

Thanks for the email. I agree with the position you guys presented in the letter and am in full agreement.

Thanks,
Lee

LEE TILLERY
CITY OF HIGH POINT
DIRECTOR, PARKS AND RECREATION

136 Northpoint Avenue | High Point, NC 27262
336.883.3473 | fax: 336.822.7209

From: Bereis, Kimberly D [mailto:Kimberly.Bereis@atkinsglobal.com]
Sent: Wednesday, March 08, 2017 1:37 PM
To: LEE TILLERY <lee.tillery@highpointnc.gov>
Cc: MARK MCDONALD <mark.mcdonald@highpointnc.gov>; Williams, John L <jlwilliams@ncdot.gov>
Subject: NCDOT STIP No. U-4758 (JSSRR Widening) - Section 4(f) Letter **Response Requested**

Good afternoon, Lee. Please find the attached, which Mark discussed with you this week. John and I are meeting with FHWA this Friday, so if you can provide a response by then it would be greatly appreciated (email response is sufficient).

Thank you!

Kim Bereis, AICP
Senior Planner/Project Manager, Transportation NEPA

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Email: kimberly.bereis@atkinsglobal.com | Web: www.atkinsglobal.com/northamerica

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

March 8, 2017

Mr. Lee Tillery
City of High Point Parks & Recreation Director
136 Northpoint Avenue
High Point, NC 27262

Subject: STIP Project U-4758 (Improvements to SR 1818 (Johnson Street)/SR 1850 (Sandy Ridge Road) from SR 1820 (Skeet Club Road) to I-40), High Point, Guilford County
Section 4(f) Applicability and Compliance

Mr. Tillery,

As part of the project development activities for the subject project, NCDOT is required to review potential impacts to publicly-owned parks and recreation areas. For federally-funded projects, Section 4(f) of the DOT Act of 1966 provides certain protections to public parks (and other resources). Federally-funded Project U-4758 will require replacement of the current bridge carrying Johnson Street over the West Fork Deep River.

The City of High Point's *Bikeway, Greenway, and Trails Master Plan (Adopted November 29, 2010)* includes the **Regency Parkway to Interstate 40 Greenway**, which will extend across Johnson Street along the West Fork Deep River. While the greenway is planned, it is our understanding that no funds are currently allocated for this part of the greenway extension.

In addition to planning the greenway noted above, the City of High Point has actively planned and advocated for the widening of Johnson Street/Sandy Ridge Road. STIP Project No. U-4758 is currently transitioning from a locally administered project (LAP) under development by the City of High Point to NCDOT's management.

The FHWA *Section 4(f) Policy Paper* (2012) sets forth official FHWA policy on the applicability of Section 4(f) to various types of land and resources, and other Section 4(f) related issues. Since the greenway and the roadway widening are both in the planning phases, NCDOT believes Section 4(f) is not applicable in this case due to "Joint Development". STIP No. U-4758 and the greenway are essentially being jointly developed since planning for the greenway has accounted for the future widening of Johnson Street and vice versa. Furthermore, the proposed greenway was considered in the bridging decision due to High Point's preference that the greenway be accommodated under the bridge. Finally, the new wider and higher bridge and multi-use path or sidewalk proposed throughout the project would provide a betterment to the resource by enhancing access and connectivity to the planned greenway and overall greenway system.

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND
ENVIRONMENTAL ANALYSIS
1548 MAIL SERVICE CENTER
RALEIGH, NC 27699-1548

Telephone: (919) 707-6000
Fax: (919) 250-4224
Customer Service: 1-877-368-4968

Website: www.ncdot.gov

Location:
1000 BIRCH RIDGE DRIVE
RALEIGH, NC 27610

It is NCDOT's position that Section 4(f) does not apply to the project's crossing of this portion of the proposed Regency Parkway to Interstate 40 Greenway because the greenway and STIP Project No. U-4758 are being jointly planned/developed. As such, NCDOT plans to present this position to FHWA, and is requesting your written agreement on this position.

Thank you for assistance. If you have any questions about this, you may contact me at (919) 707-6178 or jlwilliams@ncdot.gov.

Sincerely,

John L. Williams, P.E.
NCDOT Project Planning Engineer

JLW/Atkins

cc: Felix Davila, P.E., FHWA

APPENDIX B
HISTORIC RESOURCES DOCUMENTS

Project Tracking No. (Internal Use)

18-01-0050

HISTORIC ARCHITECTURE AND LANDSCAPES NO SURVEY REQUIRED FORM

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:	U-4758	***County***:	Guilford
WBS No.:	40251.1.1	***Document Type:***	PCE
Fed. Aid No:	unknown	***Funding***:	☐ State ☒ Federal
Federal Permit(s):	☒ Yes ☐ No	***Permit Type(s)***:	USACE

Project Description:
Widen Johnson Street-Sandy Ridge Road from Skeet Club Road to I-40 (approximately 4.4 miles in length).

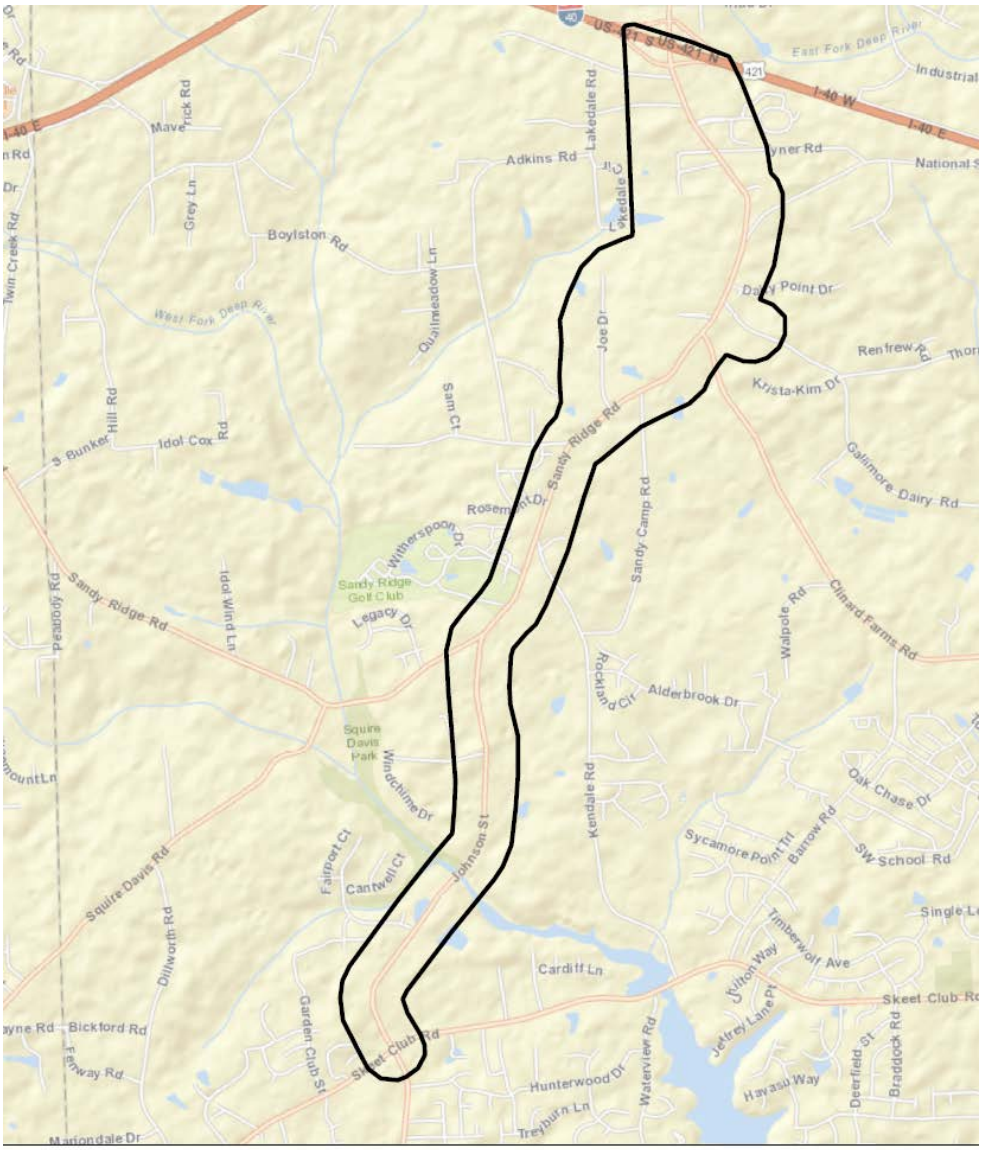
SUMMARY OF HISTORIC ARCHITECTURE AND LANDSCAPES REVIEW

Description of review activities, results, and conclusions:
According to the North Carolina State Historic Preservation Office online data base (HPOWEB 2018), there is one historically significant resource within the APE for the project, the Elihu and Abigail Mendenhall House (GF1544). This resource was determined eligible in 2001 and HPO confirmed it's eligibility in response to a report prepared by New South and Associates for this project. The design plans for the project show that any construction activities associated with the project are 400 feet away from the boundary of the historic property.

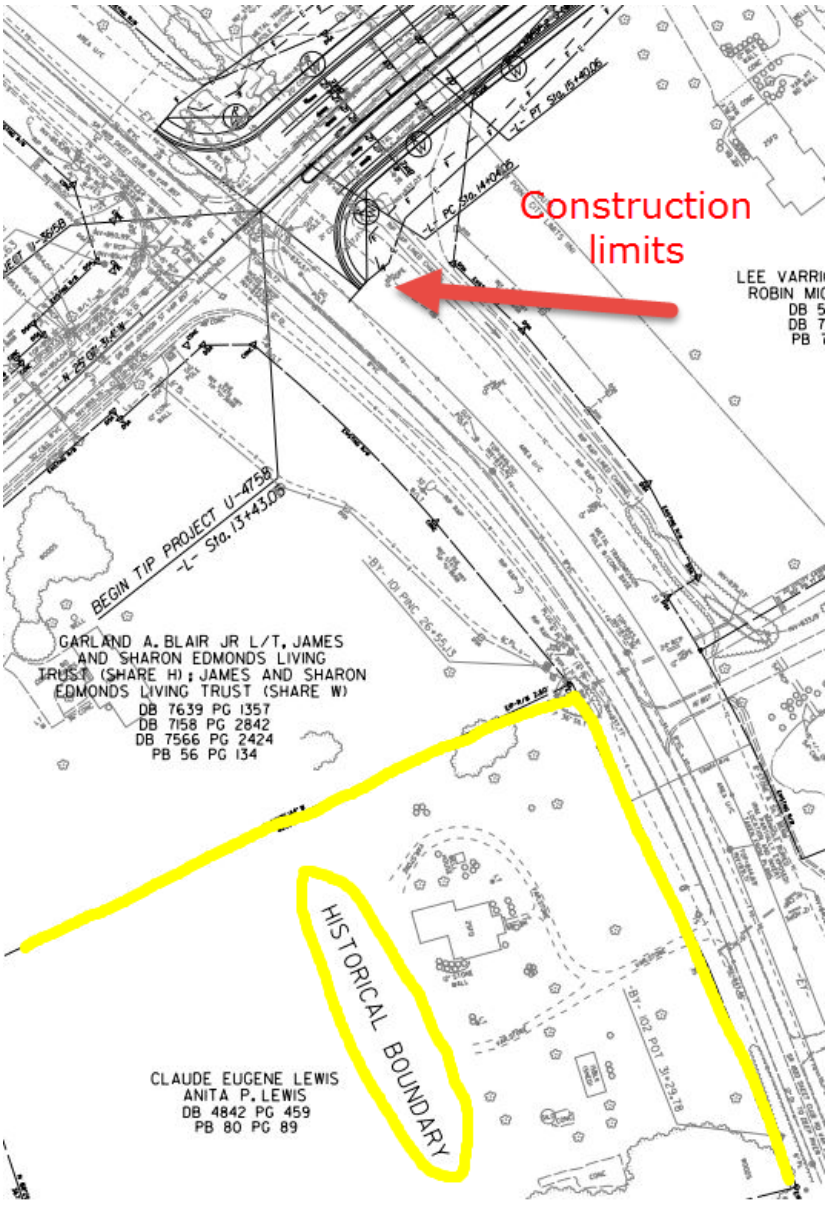
Why the available information provides a reliable basis for reasonably predicting that there are no unidentified significant historic architectural or landscape resources in the project area:
HPO GIS information, Guilford County GIS/Tax information, and Google Maps are considered valid for the purposes of determining the likelihood of historic resources being present. Furthermore, in 2014 New South and Associates completed an evaluation of all resources within the APE over fifty years of age project and confirmed that GF 1544 is the only eligible resource within the APE. Since the design plans do not show construction activities that would directly or indirectly impact the boundary of the historic property the project is not recommended for survey. Compliance with Section 106 is complete..

SUPPORT DOCUMENTATION

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



GF1544



FINDING BY NCDOT ARCHITECTURAL HISTORIAN

Historic Architecture and Landscapes -- NO SURVEY REQUIRED

Mary Pope Furr	**2/23/2018**
NCDOT Architectural Historian	Date

NO NATIONAL REGISTER OF HISTORIC PLACES ELIGIBLE OR LISTED ARCHAEOLOGICAL SITES PRESENT 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 Group.

PROJECT INFORMATION

Project No:	**U-4758**	*County:*	**Guilford**
WBS No:	**40251.1.1**	*Document:*	**Federal PCE**
F.A. No:	**Unknown**	*Funding:*	☐ State ☒ Federal

Federal Permit Required? ☒ Yes ☐ No *Permit Type:* **USACE (Not Specified)**

Project Description: *NCDOT is proposing to widen and realign SR 1818 (Johnson Street)/SR 1850 (Sandy Ridge Road) from SR 1820 (Skeet Club Road) to I-40 in Guilford County. Currently, Johnston Street/Sandy Ridge Road is a two-lane, undivided facility. As proposed, the corridor will consist of a four- to five- lane divided facility with sidewalks and bike lanes. Project length measures about 4.40 miles. Based on Preliminary Design Plans, the Area of Potential Effects (APE) will equate to the extent of the Proposed ROW and any construction easements along the corridor. The realignment of several Y-lines (i.e. major intersecting roads) will also be included as a component of this project. Overall, the APE will encompass about 105.8 acres, inclusive of all existing roadways and development.*

SUMMARY OF ARCHAEOLOGICAL FINDINGS

The North Carolina Department of Transportation (NCDOT) Archaeology Group reviewed the subject project and determined*:*

☒ **There are no National Register listed or eligible ARCHAEOLOGICAL SITES present within the project's area of potential effects. (Attach any notes or documents as needed)**
☐ No subsurface archaeological investigations were required for this project.
☐ Subsurface investigations did not reveal the presence of any archaeological resources.
☒ **Subsurface investigations did not reveal the presence of any archaeological resources considered eligible for the National Register.**
☒ **All identified archaeological sites located within the APE have been considered and all compliance for archaeological resources with Section 106 of the National Historic Preservation Act and GS 121-12(a) has been completed for this project.**

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

A map review and site file search was conducted at the Office of State Archaeology (OSA) on Tuesday, February 13, 2018. No large-scale archaeological surveys have been conducted in the area, and only one (1) archaeological site has been recorded within one mile of the corridor for the proposed project. OSA has no information regarding site 31GF436**, except for its location (Figure 1).

Digital copies of HPO's maps (Kernersville and Guilford Quadrangles) as well as the HPOWEB GIS Service (http://gis.ncdcr.gov/hpoweb/) were last reviewed on Tuesday, February 20, 2018. As a result of a historic architecture survey conducted in 2014 for this project, when it was initially submitted for review, numerous architectural resources were identified within or adjacent to the APE; however, intact archaeological deposits associated with these resources are not anticipated within the footprint of the proposed project. In addition, topographic maps, historic maps (NCMaps website), USDA soil survey maps, and aerial photographs were utilized and inspected to gauge environmental factors that may have contributed to historic or prehistoric settlement within the project limits, and to assess the level of modern, slope, agricultural, hydrological, and other erosive-type disturbances within and surrounding the archaeological APE.

New South Associates, Inc. (New South) conducted an intensive archaeological survey of the U-4758 Area of Potential Effects (APE) between April 10 and April 17, 2018 (Figures 2 and 3). This survey sought to identify and evaluate archaeological sites for National Register of Historic Places (NRHP) eligibility according to criteria outlined in 36 CFR §60.4. The survey included a visual inspection of the entire APE and systematically shovel-tested survey areas that were defined by NCDOT as having a moderate to high probability for the presence of archaeological sites (Figure 4). These areas consisted of moderately well-drained and well-drained soils that were not impacted by modern development. New South also recorded and evaluated three cemeteries located within or adjacent to the APE during the survey. The cemetery evaluations relied upon non-invasive data collection (e.g., photography and sketch mapping) and limited ground-penetrating radar (GPR) survey in one case.

Shovel testing of the designated survey areas utilized pre-plotted 30-meter interval shovel test locations. Field technicians visited all test locations during the survey. They did not excavate test locations within discernible disturbances or near buried utility lines. Excavated tests measured 30-centimeters in diameter and were excavated to sterile subsoil, the water table, or impenetrable substrate. Shovel test results (including soil color, texture, depths, and the presence/absence of cultural material) were recorded using smartphones equipped with a Memento data collection application. The field director collected sub-meter Global Positioning System (GPS) data for selected shovel tests, cemetery boundaries, and site locations.

All artifacts were returned to New South's laboratory in Stone Mountain, Georgia where they were washed and identified. Analysts identified the type, material, age, affiliation, and metrics of the collected artifacts according to standard techniques/typologies for both pre-contact and historic material. Raw materials for pre-contact lithic artifacts were classified according to procedures established by the NCDOT for the Carolina Slate Belt.

SURVEY AREA 1

Survey Area 1 was located to the southeast of the intersection of Sandy Ridge Road and Tyner Road (Figure 4). Planted white pines covered this upland area (Figure 5). The investigation identified a City of High Point sewer line along the northern edge of Survey Area 1, and a large push pile at the eastern edge of Sandy Ridge Road. Their presence indicates that road- and sewer-related disturbances have impacted this survey area. Eleven shovel test positions were excavated in this area. The excavated tests encountered five centimeters of dark brown (10YR 3/3) silty loam overlaying 15 centimeters of red (2.5YR 5/8) clay subsoil (Figure 6). Shovel testing and visual inspection did not locate any archaeological resources in Survey Area 1.

SURVEY AREA 2

Survey Area 2 was located on the eastern side of Sandy Ridge Road, extending northeast from the Partridge Road intersection (see Figure 4). This upland survey area included a zone of scrub vegetation, a natural gas transmission line, and the grassed yard of a single residence (Figure 7). There were four

shovel test positions investigated in this area, three of which were excavated and one test located near the natural gas line was not excavated. These tests uncovered 19 centimeters of brown (10YR 5/3) silty loam overlaying 10 centimeters of light yellowish brown (10YR 6/4) silty clay subsoil. The field investigation did not locate any archaeological resources in Survey Area 2.

SURVEY AREA 3

Survey Area 3 encompassed a segment of upland located between Sandy Ridge Road and Shields Road (see Figure 4). During the survey, a fallow agricultural field covered this landform (Figure 8). There were 12 shovel test positions investigated in this area. Of these, 11 were excavated, and one test was not excavated. The excavated tests indicate the survey area soils are limited to 20 centimeters of red (2.5YR 4/8) clay subsoil (Figure 9). These tests and visual inspection did not locate any archaeological remains in Survey Area 3.

SURVEY AREA 4

Survey Area 4 was located along the southeastern side of Sandy Ridge Road, south of the Shields Road intersection (Figure 10). This upland setting included a fallow agricultural field and a thin hardwood copse (Figure 11). There were six shovel test positions investigated in this area, five of which were excavated. None yielded cultural material. These tests typically encountered 30 centimeters of very dark brown (7.5YR 2.5/3) sandy loam overlaying 23 centimeters of very pale brown (10YR 7/4) sand (Figure 12). A reddish yellow (5YR 6/6) clay subsoil was uncovered 53 centimeters below ground surface. Shovel testing was suspended when the landowner informed the field crew that the survey area encompassed an area where he had added 80 truckloads of topsoil and subsequently raised the ground surface approximately 50 centimeters. He also stated that the underlying ground surface was low-lying and used for cultivation. Given the shovel testing results and past land use in this survey area, this unexcavated shovel test location was unlikely to contain any undisturbed soil strata.

SURVEY AREA 5

Survey Area 5 was located on the west side of Sandy Ridge Road, opposite the Dairy Point Drive intersection (see Figure 10). A grassy yard and a fallow agricultural field covered the survey area (Figure 13). The field crew excavated six shovel test positions in this area. None yielded cultural material. These tests uncovered 34 centimeters of brown (7.5YR 5/4) clay sand overlaying 11 centimeters of yellowish red (5YR 4/6) clay subsoil (Figure 14). No archaeological resources were identified in Survey Area 5 during the field investigation.

SURVEY AREA 6

Survey Area 6 was located on the north side of Gallimore Dairy Road, 60 meters southeast of the Sandy Ridge Road intersection (see Figure 10). A recently constructed commercial structure was erected in this survey area. This structure was screened from the road by scrub vegetation and does not appear on recent aerial photography (Figure 15). Three shovel test positions were excavated in Survey Area 6. These tests typically encountered 23 centimeters of reddish yellow (5YR 7/6) sandy clay overlaying nine centimeters of red (2.5YR 4/8) clay subsoil (Figure 16). These tests and visual inspection did not locate any archaeological resources in this survey area.

SURVEY AREA 7

Survey Area 7 was located opposite Survey Area 6, on the south side of Gallimore Dairy Road (see Figure 10). A low-lying grassy yard extended across this side of the road (Figure 17). Three shovel test positions typically identified 28 centimeters of light brown (7.5YR 6/4) clay sand overlaying 10 centimeters of yellowish red (5YR 4/6) clay subsoil (Figure 18). These tests and visual inspection of the survey area did not locate any archaeological resources.

SURVEY AREA 8

Survey Area 8 was located east of Clinard Farms Road (Figure 19). The local setting included a narrow band of woods and a newly constructed building and parking lot (Figure 20). Field technicians examined five shovel test positions in this area. Although the field crew was able to excavate three tests, disturbances prevented the excavation of the two remaining test locations in Survey Area 8. The excavated tests were negative for archaeological remains and typically uncovered 25 centimeters of yellowish red (5YR 5/6) clay subsoil (Figure 21). The field investigation did not locate any archaeological resources in this survey area.

SURVEY AREA 9

Survey Area 9 extended across an open field on the south side of Sandy Ridge Road, halfway between Clinard Farms Road and Sandy Camp Road (see Figure 19, Figure 22). Four shovel test positions were excavated in Survey Area 9. These tests typically encountered 30 centimeters of reddish brown (2.5YR 4/3) clay and did not produce cultural material (Figure 23). Visual inspection of the survey area also did not locate any archaeological resources.

SURVEY AREA 10

Survey Area 10 extends from the Clinard Farms Road intersection to a point 70 meters northeast of the Sandy Camp Road intersection, on the northwest side of Sandy Ridge Road (see Figure 19). This area included fallow agricultural fields and grassy front yards (Figure 24). Technicians examined 15 shovel test positions in this area, 13 of which were excavated. The excavated tests revealed 25 centimeters of reddish brown (2.5YR 5/3) clay overlaying light red (2.5YR 6/6) clay subsoil (Figure 25). None of the excavated tests produced artifacts. Two test locations were left unexcavated due to heavy disturbance related to driveway construction. The field investigation did not locate any archaeological resources in Survey Area 10.

SURVEY AREA 11

Survey Area 11 was located east of the Sandy Ridge Road intersection with Joe Drive (Figure 26). The local setting includes grassy lawn of the Sandy Ridge Road Methodist Church (Figure 27). Three negative shovel test positions were excavated in Survey Area 11. These tests typically uncovered 10 centimeters of dark brown (10YR 3/3) sandy clay loam overlaying 23 centimeters of yellowish brown (10YR 5/4) sandy clay (Figure 28). A reddish yellow (5YR 6/6) sandy clay subsoil was uncovered 33 centimeters below ground surface. No archaeological resources were identified in Survey Area 11 during this field investigation.

SURVEY AREA 12

Survey Area 12 follows the west side of Sandy Camp Road, south from the intersection with Sandy Ridge Road (see Figure 26). The local setting includes the grassy lawn of a single residence and the Sandy Ridge Methodist Church Cemetery (Figure 29). Five shovel test positions were examined in this area. The field crew excavated three shovel tests and left two unexcavated due to their proximity to an area with high potential for the presence of unmarked graves. The excavated tests uncovered 10 centimeters of dark yellowish brown (10YR 3/4) sandy clay loam overlying 13 centimeters of yellowish brown (10YR 5/4) sandy clay. A reddish yellow (5YR 6/6) sandy clay subsoil was encountered 23 centimeters below ground surface. Shovel testing and visual inspection of the survey area did not locate any artifacts.

SURVEY AREA 13

Survey Area 13 was located on the southeastern side of Sandy Ridge Road, across from the Bame Road intersection (see Figure 26). The local setting included a fallow agricultural field covered by raspberries and tall grass (Figure 30). Of the nine shovel test positions investigated in Survey Area 13, eight were excavated. The presence of pavement prevented excavation of the final test location. The excavated tests typically encountered 25 centimeters of yellowish brown (10YR 5/6) sandy clay loam and light red (2.5YR 6/8) clay subsoil. These tests and visual inspection did not locate any artifacts in this survey area.

SURVEY AREA 14

Survey Area 14 extends along the northwestern side of Sandy Ridge Road from the Presbyterian Homes parking lot southwest for 200 meters (Figure 31). The presence of three-meter-high earthen mounds and a berm, covered by grass, indicated that mechanical excavation heavily disturbed this area (Figure 32). All seven shovel test positions were excavated in Survey Area 14. These tests revealed 28 centimeters of reddish brown (2.5YR 5/3) clay sand overlaying red (2.5YR 5/8) clay subsoil (Figure 33). None yielded cultural material.

SURVEY AREA 15

Survey Area 15 was located 340 meters southwest of the Kendale Road intersection with Sandy Ridge Road, on the western edge of Kendale Road (see Figure 31). During the survey, this upland area included a fallow agricultural field and the grassy front yard of a single residence (Figure 34). Six shovel test positions were excavated in Survey Area 15. These tests typically encountered 34 centimeters of brown (7.5YR 5/4) sandy clay overlaying reddish brown (2.5YR 5/4) clay subsoil (Figure 35). Shovel testing and visual inspection of Survey Area 15 did not locate any artifacts.

SURVEY AREA 16

Survey Area 16 includes a ridgetop covered by a fallow agricultural field located between Kendale Road and Sandy Ridge Road (see Figure 31, Figure 36). The field crew investigated 28 shovel test positions in this area. This includes 22 pre-plotted tests and four 7.5-meter interval radials. Technicians excavated all of the pre-plotted tests and three radial tests (Figure 62). Demolition of a twentieth century house site heavily disturbed the final test location. The general soil uncovered in Survey Area 16 includes 20 centimeters of brown (7.5YR 4/3) sandy clay overlying 13 centimeters of light brown (7.5YR 6/3) clay (Figure 37). Subsoil, a reddish yellow (5YR 6/6) clay, was revealed 23 centimeters below ground surface. While subsurface artifact deposits were not identified in the survey area, one historic surface find was collected at Shovel Test 109. This find, designated as site 31GF569, is discussed below.

SURVEY AREA 17

Survey Area 17 extends northeast from the intersection of Sandy Ridge Road and Johnson Street (Figure 38). A fallow agricultural field extends across this upland area (Figure 39). The field crew excavated 13 out of 14 tests plotted in the survey area. The final test location was not excavated due to large ruts from land clearing. The excavated tests identified 28 centimeters of yellowish brown (10YR 5/6) loamy sand overlying reddish brown (5YR 4/4) sandy clay subsoil (Figure 40). Visual inspection and shovel testing did not locate any artifacts in Survey Area 17.

SURVEY AREA 18

Survey Area 18 was located at the southwestern corner of the Sandy Ridge Road intersection with

Johnson Street (see Figures 38 and 43). The survey area contains a fallow agricultural field currently under development (Figure 41). All 23 shovel test positions in Survey Area 18 were excavated. None yielded cultural material. These tests commonly contained 30 centimeters of dark yellowish brown (10YR 4/6) silty clay overlaying 10 centimeters of strong brown (7.5YR 5/8) sandy clay (Figure 42). Shovel testing and visual inspection of Survey Area 18 did not locate any archaeological sites.

SURVEY AREA 19

Survey Area 19 was located on the east side of Johnson Street, across from the Cedar Spring Drive intersection (Figures 43 and 46). The local setting includes wooded residential lots and a transmission line corridor (Figure 44). Technicians examined 18 shovel test positions in this area, 14 of which were excavated. Three test locations were not excavated due to heavy disturbance, and the final unexcavated test location was not shovel tested due to subsoil surface exposure. The excavated tests uncovered five centimeters of grayish brown (10YR 5/2) silty loam and 15 centimeters of light reddish brown (2.5YR 6/3) silty clay (Figure 45). Shovel tests exposed a reddish yellow (5YR 6/6) clay subsoil 20 centimeters below ground surface. None of the test locations produced cultural material. Visual inspection and shovel testing did not locate any archaeological sites in Survey Area 19.

SURVEY AREA 20

Survey Area 20 was located on the east side of Johnson Street, opposite the entrance to the Johnson Street Sports Complex (see Figure 46). This sideslope survey area contained young pines and scrub vegetation (Figure 47). The field crew excavated four of the five shovel test positions. These negative tests uncovered 20 centimeters of reddish brown (2.5YR 5/4) silty clay overlying light red (2.5YR 6/8) clay subsoil (Figure 48). The unexcavated test location was too disturbed to warrant subsurface testing. Visual inspection of this area and shovel testing did not identify any artifacts in this survey area.

SURVEY AREA 21

Survey Area 21 was located near the northeastern side of the West Fork Deep River (see Figure 46). The survey area contains a pine- and hardwood-covered ridgetoe overlooking a narrow section of floodplain (Figure 49). Twenty-one survey and radial shovel test positions were excavated in Survey Area 21 (Figure 60). These tests typically encountered 16 centimeters of dark brown (10YR 3/3) silty loam overlying red (2.5YR 5/8) clay subsoil (Figure 50). A single bucket auger test (Test A) was excavated between the boundary of Survey Area 21 and the stream. This test exposed 10 centimeters of dark yellowish brown (10YR 4/4) silty clay and 50 centimeters of yellowish red (5YR 5/8) compact silty clay. These soils indicate that alluviation did not deeply bury any A-horizon soils in the APE. A metavolcanic flake was recovered from Shovel Test 178 (Figure 46). A description of this archaeological resource, designated as site 31GF568, is provided below.

SURVEY AREA 22

Survey Area 22 was located on the southwestern side of the West Fork Deep River (Figure 51). The survey area includes a narrow floodplain and sideslope covered by hardwoods (Figure 52). Two shovel test positions were excavated in this area, both of which encountered 15 centimeters of dark yellowish brown (10YR 4/4) silty loam overlaying 35 centimeters of light yellowish brown (10YR 6/4) silty clay and reddish yellow (5YR 6/6) silty clay subsoil. Neither test yielded artifacts. A bucket auger test (Test B) exposed 20 centimeters of dark yellowish brown sandy clay loam before encountering the water table. This profile and those recorded during shovel testing indicate that alluvial processes have not deposited soils in this area. Shovel testing results, bucket augering, and visual inspection did not locate any archaeological remains or deeply-buried deposits in Survey Area 22.

SURVEY AREA 23

Survey Area 23 was located on the northeastern side of Johnson Street, beginning at the intersection of Johnson Street and Pondhaven Drive (see Figures 51 and 57). The local setting included residential lots and a small agricultural field covered by grass (Figure 53). The field crew examined 12 shovel test positions in this area. Eleven tests were excavated. One test location was too disturbed by driveway construction to merit subsurface testing. The general soil profile in Survey Area 23 includes 20 centimeters of light brown (7.5YR 6/3) sand overlying 12 centimeters of very dark brown (7.5YR 2.5/2) loam and reddish yellow (5YR 6/6) clay subsoil (Figure 54). Pedestrian survey and shovel testing did not locate any archaeological sites in Survey Area 23.

SURVEY AREA 24

Survey Area 24 was located across from Pondhaven Drive (see Figures 51 and 57). The local terrain includes a sideslope covered by hardwoods, fenceline cedars, and grasses and periwinkle ground cover (Figure 55). Survey Area 24 contained 35 shovel test positions. Field technicians excavated 29 of these tests, none of which yielded cultural material. Tests typically revealed 17 centimeters of very dark grayish brown (10YR 3/2) silty loam overlying six centimeters of yellowish brown (10YR 5/8) silty clay and reddish yellow (5YR 6/6) clay subsoil (Figure 56). The five remaining test locations were not suitable for subsurface testing due to the presence of road-related push piles and heavy disturbances. No archaeological sites were identified in Survey Area 24 during this field investigation.

SURVEY AREA 25

Survey Area 25 was located on the west side of Johnson Street, 180 meters north of its intersection with Skeet Club Road (see Figure 57). The survey area includes sideslope covered by a narrow band of woods and an abandoned agricultural field (Figure 58). Four shovel test positions were excavated in Survey Area 25. None yielded cultural material. These tests typically encountered 10 centimeters of dark brown (7.5YR 3/2) silt and reddish brown (2.5YR 5/3) clay subsoil. New South did not identify any archaeological sites in Survey Area 25.

IDENTIFIED RESOURCES AND RECOMMENDATIONS

SITE 31GF568

New South collected a single metavolcanic flake from Shovel Test 178, in Survey Area 21 (see Figure 46). During the site visit, hardwood trees and light density scrub vegetation covered this landform (Figure 59). The positive shovel test was excavated on a ridge toe overlooking the West Fork Deep River floodplain. Shovel Test 178 produced a temporally non-diagnostic precontact flake between 0-30 centimeters below ground surface. Technicians excavated a cruciform of 11 15-meter- and 7.5-meter-interval delineation shovel tests around the positive test location (Figure 60). These tests revealed 20 centimeters of dark brown (10YR 3/3) silty loam overlying red (2.5YR 5/8) silty clay subsoil (Figure 61). No additional artifacts were recovered from site 31GF568.

A single non-diagnostic lithic artifact was collected from site 31GF568. The artifact cannot be associated with any significant people or broad patterns of history. It does not convey any significance related to the works of a master craftsperson or embody any high design ideals. Shovel testing also shows that the site does not contain any significant artifact deposits or intact features and has a low potential to benefit future

research. For these reasons, New South recommends site 31GF568 not eligible for the NRHP under Criteria A, B, C, and D. No further work is recommended.

SITE 31GF569

A single fragment of nineteenth- or twentieth-century milk glass (Miller et al. 2000) was collected from the Survey Area 16 ground surface, at Shovel Test 109 (see Figure 31). This site was located on a ridgetop overlooking the intersection of Sandy Ridge Road and Kendale Road. The surface find was collected from the edge of an overgrown fence line that separated the survey area from an abandoned twentieth-century farmhouse complex, located 20 meters to the south. This complex was located outside of the APE and was undergoing demolition at the time of the field investigation.

Field technicians excavated four shovel tests during the site delineation (Figure 62). This included two 15-meter interval shovel tests to the north, east, and west of Shovel Test 109. The farmhouse complex was extensively disturbed, and no shovel tests were placed in this area. These tests and visual inspection of surrounding ground surface exposures did not locate any additional artifacts. Shovel testing revealed 25 centimeters of brown (7.5YR 4/2) loamy sand overlaying yellowish red (5YR 4/6) clay subsoil (Figure 63). Given the fallow field setting, the upper soil horizon likely resulted from agricultural activity.

Site 31GF569 contains a twentieth-century surface find that is presumably associated with the demolished farmhouse complex because of its proximity (Figure 64). The mechanical removal of these structures heavily reduced the potential for the area to contain intact subsurface artifact deposits or features. The site cannot be associated with any broad patterns of history or significant people. It does not convey any significance related to the works of a master craftsperson or embody any high design ideals. The disturbed site did not yield any subsurface artifacts, and the surface find lacks integrity. Therefore, New South recommends site 31GF569 not eligible for the NRHP under Criteria A, B, C, and D. No further work is recommended for the site.

SITE 31GF570, ZION HILL METHODIST CEMETERY

The Zion Hill Methodist Cemetery is located northwest of the Tyner Loop intersection with Sandy Ridge Road (Figure 65). The 60x40-meter (0.5-acre) cemetery is immediately west of the Zion Hill Methodist Church and is covered by a patchy grass lawn. The cemetery contains 12 loosely aligned north-south rows of headstones facing east made from concrete, marble, and granite (Figure 66). Several headstones bear evidence of displacement. The grave plots appear to be individually decorated and tended, the best example of which are Harriet and J.B. Lindsay's graves. The graves share a granite headstone and are covered by rows of small stones aligned parallel to the graves' long axes. These stones are embedded in a concrete ledger with the entire covering painted white. This treatment is representative of traditional African American burial practices (Vlach 1977). Though most of the headstones were legible, several pressed concrete markers were too eroded to read. One depression located near the southwestern corner of the cemetery suggests the presence of additional unmarked graves.

The earliest headstone identified at the Zion Hill Methodist cemetery dates from the 1880s (exact date illegible). Little background information is available for the Zion Hill Methodist Church. A 1920 soil map places a church at the current Zion Hill church building location. Cursory background research indicates that the names memorialized in the cemetery belong to tenant farmers with African American and European American backgrounds. According to her headstone, Harriet Lindsay, one of the African Americans interred in the cemetery, was born in 1854. This birthdate opens the possibility that Harriet and others buried in the cemetery were formerly enslaved.

Site 31GF570 encompasses the late nineteenth- and twentieth-century Zion Hill Methodist Church

cemetery. Background research did not identify any significant events associated with the cemetery. The cemetery does not convey any associations with broad patterns of history or contain the burials of notable individuals. The grave markers are representative of typical styles used during the late nineteenth and twentieth centuries. They do not convey any elements of high design or represent the works of a master craftsperson. Although the interments could provide biological data and funerary remains contained within the cemetery could be a rich source of historical information that could provide insight into the lifeways of lower-class society and marginalized ethnicities in the late nineteenth and twentieth century, the data obtained from their examination are unlikely to provide insights not already available through documentary analysis. New South recommends site 31GF570, the Zion Hill Methodist Cemetery, not eligible for the NRHP under Criteria A, B, C, and D.

Although the cemetery is recommended not eligible for the NRHP, New South recommends avoidance of this resource in accordance with North Carolina General Statute, Chapter 65, Article 12 and North Carolina General Statute, Chapter 70. If avoidance is not possible, it will be necessary to comply with these statutes after consultation with the State Archaeologist to determine the way any burials are to be removed and relocated.

SITE 31GF571, SMITH GROVE BAPTIST CEMETERY

The Smith Grove Baptist Church cemetery is located at the southwestern corner of the Tyner Loop Road intersection with Sandy Ridge Road (see Figure 65). A well-maintained grassy lawn covers this 75x55-meter (0.71-acre) cemetery. The interments are organized into 16 rows aligned north-south (Figure 67). The graves are oriented east-west, with the headstones facing east. The oldest headstone dates to 1905. Given the dates of death listed on cemetery markers, the cemetery was a focus of burial activity for most of the early twentieth century and continues to be used in the present day. Standing headstones were manufactured from marble, granite, and concrete.

Background research did not identify any significant events associated with the cemetery. The cemetery does not convey any associations with broad patterns of history or contain the burials of notable individuals. The cemetery does not meet eligibility Criteria A or B of the NRHP. The grave markers are representative of typical styles used during the twentieth century. They do not convey any elements of high design or represent the works of a master craftsperson. Thus, the cemetery does not meet NRHP Criterion C eligibility requirements. While the interments could provide biological data for studies of twentieth century lifeways, the data obtained from their examination is unlikely to provide significant insights that are not already addressed by available documentary evidence. Because the cemetery is unlikely to provide significant contributions to research, site 31GF571 does not meet NRHP Criterion D eligibility requirements. New South recommends site 31GF571, the Smith Grove Baptist Cemetery, not eligible for the NRHP under Criteria A, B, C, and D.

New South also recommends avoidance of the cemetery. North Carolina General Statute, Chapter 65, Article 12 and North Carolina General Statute, Chapter 70 provide additional protections for this cemetery. If avoidance is not possible, it will be necessary to comply with these statutes after consultation with the State Archaeologist to determine the manner in which any burials are to be removed and relocated.

SITE 31GF572, SANDY RIDGE METHODIST CEMETERY

The Sandy Ridge Methodist cemetery is located southeast of the Sandy Ridge Road intersection with Sandy Camp Road (see Figures 26 and 69). The Sandy Ridge Methodist Church is currently located northwest of the cemetery, directly across Sandy Ridge Road. The cemetery extends from the intersection southwest across a knoll covered by a well-manicured lawn, oak trees, and large holly trees

(Figure 68). It measures 105x155 meters (2.8 acres) and has not been previously recorded or evaluated for NRHP eligibility.

The interments located within the cemetery are organized in 30 rows aligned north-south. Grave markers were made from marble, granite, concrete, and fieldstone. While most of the headstones are legible, the nineteenth- and early twentieth-century headstones are eroded or obscured by lichen. Though most headstones are east-facing, several west-facing examples are also present. The headstones located closest to the Sandy Ridge Road and Sandy Camp Road intersection bear the oldest inscriptions in the cemetery.

Dating to 1856, the headstone of Martha Penix is the earliest legible marker in the cemetery. Ms. Penix's murder in 1856 was a locally notorious event that involved several members of the local community (Browning 2007; 2010a; 2010b). Though her headstone was identified in the cemetery, it was disturbed and found lying on the ground. Several depressions located near this marker demonstrate the presence of unmarked interments in this area. These headstones and unmarked graves suggest the portion of the APE located between the headstones and Sandy Camp Road contains additional unmarked graves.

The historical connection with the Methodist congregation prior to 1964, when the church moved to its current location, is unclear. The 1920 Soil Map of Guilford County shows a *Sandy Ridge Church* at the intersection of Sandy Ridge Road and Sandy Camp Road (Jurney et al. 1920). However, the official history for the congregation insists the church operated on land belonging to Ira Idol until land for the current church building was donated by Mr. and Mrs. Joe W Frazier, Sr. (Sandy Ridge United Methodist Church 2014). The presence of markers pre-dating the Methodist church's move likely relates to this earlier house of worship.

GEOPHYSICAL SURVEY

The geophysical survey was conducted by Sarah Lowry and Maeve Herrick on May 10, 2018. The goal of the geophysical survey was to identify unmarked graves on the easternmost edge of Sandy Ridge Methodist Church Cemetery, where the cemetery is adjacent to Sandy Camp Road. The GPR survey area was approximately 0.44 acre, including 0.2 acre located within the right of way (ROW) of Sandy Camp Road (Figure 70).

For the GPR data collection, two grids were established using metric measuring tapes. Grid corners were placed to cover a total survey area of 0.44 acre (1802 sq m) (Figure 70) (Table 1). Survey flags were used to indicate each grid corner. Grid corners and surface features, including grave markers, utility indicators, and a single tree, were mapped using an RTK GPS with one- to two-centimeter accuracy.

Table 1. Geophysical Grids

Label	Acres	Square Meters
Grid 1	0.25	1020
Grid 2	0.19	782
Total	0.44	1802

All spatial data were downloaded from the GPS and then imported into ArcMap 10, ESRI's geographic information system (GIS) program. Separate shapefiles were then created for the surface features and GPR grids. The advantage of this method is that each grid corner has associated coordinates and can be relocated.

GROUND-PENETRATING RADAR (GPR)

Ground-penetrating radar is a remote sensing technique frequently used by archaeologists to investigate a wide range of research questions. In archaeological applications, GPR is typically used to prospect for potential subsurface cultural features. Because GPR is a remote sensing technique, it is noninvasive, non-destructive, relatively quick, efficient, and highly accurate when used in appropriate situations. In cemeteries, GPR is commonly used to identify anomalies consistent with the expectations for human graves (Jones 2008; King et al. 1993).

Ground-penetrating radar data are acquired by transmitting pulses of radar energy into the ground from a surface antenna, reflecting the energy off buried objects, features, or bedding contacts, and then detecting the reflected waves back at the ground surface with a receiving antenna (Conyers 2004a). When collecting radar reflection data, surface radar antennas are moved along the ground in transects, typically within a survey grid, and a large number of subsurface reflections are collected along each line. As radar energy moves through various materials, the velocity of the waves will change depending on the physical and chemical properties of the material through which they are traveling (Conyers and Lucius 1996). The greater the contrast in electrical and magnetic properties between two materials at an interface, the stronger the reflected signal and, therefore, the greater the amplitude of reflected waves (Conyers 2004b).

When travel times of energy pulses are measured, and their velocity through the ground is known, distance (or depth in the ground) can be accurately measured (Conyers and Lucius 1996). Each time a radar pulse traverses a material with a different composition or water saturation, the velocity will change and a portion of the radar energy will reflect back to the surface and be recorded. The remaining energy will continue to pass into the ground to be further reflected, until it finally dissipates with depth.

The depths to which radar energy can penetrate, and the amount of resolution that can be expected in the subsurface, are partially controlled by the frequency (and therefore the wavelength) of the radar energy transmitted (Conyers 2004b). Standard GPR antennas emit radar energy varying from about 10 to 1,000 megahertz (MHz) in frequency. Low frequency antennas (10-120 MHz) generate long wavelength radar energy that can penetrate up to 50 meters in certain conditions but resolve only very large buried features. In contrast, the maximum depth of penetration of a 900 MHz antenna is about one meter or less in typical materials, but its generated reflections can resolve features with a maximum dimension of a few centimeters. Thus, a trade-off exists between depth of penetration and subsurface resolution.

The success of GPR surveys in archaeology is largely dependent on soil and sediment mineralogy, ground moisture, subsurface material moisture retention, the depth of buried features, feature preservation, and surface topography and vegetation. Electrically conductive or highly magnetic materials will quickly attenuate radar energy and prevent its transmission to depth. Depth penetration varies considerably depending on local conditions. Subsurface materials that absorb and retain large amounts of water can affect GPR depth penetration because of their low relative dielectric permittivity (RDP). In practical applications, this generally results in shallower than normal depth penetration because the radar signal is absorbed (attenuated) by the materials regardless of antenna frequency (Conyers 2004a; 2012; Conyers and Lucius 1996). Differential water retention can also positively affect data when a feature of interest retains more water than the surrounding soils and, therefore, presents a greater contrast.

The basic configuration for a GPR survey consists of an antenna (with both a transmitter and receiver), a harness or cart, and a wheel for calibrating distance. The operator then pulls or pushes the antenna across the ground surface systematically (a grid) collecting data along transects. These data are then stored by the receiver and available for processing.

The "time window" within which data were gathered was 50 nanoseconds (ns). This is the time during which the system is "listening" for returning reflections from within the ground. The greater the time window, the deeper the system can potentially record reflections. To convert time in nanoseconds to depth, it is necessary to determine the elapsed time it takes the radar energy to be transmitted, reflected, and recorded back at the surface by doing a velocity test. Hyperbolas were found on reflection profiles and measured to yield a relative dielectric permittivity (RDP), which is a way to calculate velocity. The shape of hyperbolas generated in programs is a function of the speed at which electromagnetic energy moves in the ground, and can therefore be used to calculate velocity (Conyers and Lucius 1996). The RDP for soils in the survey area was approximately 12.6, which, when converted to one-way travel time, (the time it takes the energy to reach a reflection source), is approximately 8.4 centimeters/nanosecond. All profiles and processed maps were converted from time in nanoseconds to depth in centimeters using this average velocity.

The first step was to calibrate the antenna to local conditions by walking the survey area and adjusting the instrument's gain settings. This method allows the user to get an average set of readings based on subtle changes in the RDP (Conyers 2004b). Field calibration was repeated as necessary to account for changes in soil and/or moisture conditions (Conyers 2004a). Effective depth penetration was approximately 1.75 meters (5.74 ft.). This is an adequate depth penetration for a 400 MHz antenna. Slight signal attenuation occurred at the bottom of the profile.

The field survey was conducted using a GSSI SIR-3000 using a 400 MHz antenna. Total survey area was approximately 0.44-acre (0.2-acre within the ROW). It is generally standard practice to orient transects perpendicular to the long axis of suspected features. The marked graves in the Sandy Ridge Road Methodist Church Cemetery were oriented west-east, so data were collected roughly north to south so that transects were perpendicular to graves. Transect spacing was 50 centimeters, an interval that has been demonstrated to generate the best resolution possible while still maintaining field efficiency (Pomfret 2005). Transects were collected in a zig-zag pattern, alternating starting direction, and started in the northeast grid corners.

All data were downloaded from the control unit to a laptop computer for post-processing. Radar signals are initially recorded by their strength and the elapsed time between their transmission and receipt by the antenna. Therefore, the first task in the data processing was to set "time zero", which tells the software where in the profile the true ground surface was. This is critical to getting accurate results when elapsed time is converted to target depth. A background filter was applied to the data, which removes the horizontal banding that can result from antenna energy "ringing" and outside frequencies such as cell phones and radio towers. Background noise can make it difficult to visually interpret reflections. Range gains were also applied to the data to amplify weaker reflections from later in the time window.

The next data processing step involved the generation of amplitude slice-maps (Conyers 2004b). Amplitude slice-maps are a three-dimensional tool for viewing differences in reflected amplitudes across a given surface at various depths. Reflected radar amplitudes are of interest because they measure the degree of physical and chemical differences in the buried materials. Strong, or high amplitude reflections often indicate denser (or different) buried materials. Amplitude slice-maps are generated through comparison of reflected amplitudes between the reflections recorded in vertical profiles. Amplitude variations, recorded as digital values, are analyzed at each location in a grid of many profiles where there is a reflection recorded. The amplitudes of all reflection traces are compared to the amplitudes of all nearby traces along each profile. This database can then be "sliced" horizontally and displayed to show the variation in reflection amplitudes at a sequence of depths in the ground. The result is a map that shows amplitudes in plan view, but also with depth.

Slicing of the data was done using the mapping program Surfer 8. Slice maps are a series of x,y,z values, with x (east) and y (north) representing the horizontal location on the surface within each grid and z representing the amplitude of the reflected waves. All data were interpolated using the Kriging method and then image maps were generated from the resulting files.

From the original .dzt files (raw reflection data), a series of image files was created for cross-referencing to the amplitude slice maps that were produced. Two-dimensional reflection profiles were also analyzed to determine the nature of the features identified on the amplitude slice maps. The reflection profiles show the geometry of the reflections, which can lend insight into whether the radar energy is reflecting from a flat layer (seen as a distinct band on profile) or a single object (seen as a hyperbola in profile). Individual profile analysis was used in conjunction with amplitude slice maps to provide stronger interpretations about possible features. Processing and slicing parameters were recorded.

The final step in the data processing is to integrate the depth slices with other spatial data. This was done using ArcGIS, which can display and manipulate all forms of spatial data created for this project, including GPR results, features, grid data, and base graphics such as aerial photography and topographic maps. The resulting anomalies were digitized as individual features and referenced to the coordinate system.

GEOPHYSICS IN CEMETERIES

Several factors influence the overall effectiveness of geophysics for detecting anomalies consistent with individual graves. Contrast between the remains, grave shaft, coffin, or casket and the surrounding soils is the most important variable. Remains that have a chemical or physical contrast from the subsurface materials surrounding them will cause GPR reflections of electromagnetic energy. Age of the graves is critical to this contrast. Older graves typically have less contrast and are more difficult to detect because they have had more time to decompose and are less likely to have intact coffins or caskets.

The burial "container" that the physical remains may have been placed in is also important and includes simple linen or cloth shrouds, pine boxes or wooden coffins, lead or other metal caskets, and burial vaults. In certain cases, hardware such as nails, hinges, and handles may be present, but not necessarily all the time. Although there is a high degree of variation in specific container types among different geographical regions, each of these tends to have been used at certain times throughout history and correlates with the presumed age of the grave. For example, burial shrouds were common throughout the seventeenth and early eighteenth centuries before being replaced by wooden coffins. It must also be noted that cultural trends and patterns tended to persist much longer in rural and/or economically depressed areas than in urban centers.

The section of the Sandy Ridge Methodist Church Cemetery surveyed for this project has both modern, marked graves and a large area with no marked graves where local informants and vegetation variation indicate that there are unmarked graves. The modern, marked graves should all have coffins or caskets. The unmarked section is thought to be an older section of the cemetery and field stone markers have been purportedly removed. These graves are likely older and may be in less formal burial containers, such as pine boxes, which would present less of a contrast with the surrounding soils.

GPR RESULTS

GPR results were based on analysis of the 400 MHz data, including individual reflection profiles and amplitude slice maps (Figures 71-77). The anomalies were identified in the GPR results and represent a contrast with their surrounding soils. The GPR results identified 106 probable graves within the Study

Area, 24 of which are marked by 16 headstones and 82 are unmarked (Appendix B). There were 27 probable graves either completely or partially within the project APE along Sandy Camp Road (Table 2). Only three of these graves were associated with markers. All of the markers identified and mapped in the survey area had associated GPR anomalies, and there were no markers located within the APE. Two double markers were associated with just one probable grave (anomalies 8 and 19), but it is likely that, in these cases, the double marker has been commissioned in advance of the second interment.

Table 1. Count of Possible Graves

Probable Grave Location	Unmarked Graves	Marked Graves	Total
Probable Graves within the Survey Area	82	24	106
Probable Graves within the APE	24	3	27

Many factors influence the overall effectiveness of geophysics for detecting anomalies consistent with graves, including soil type and acidity, moisture and precipitation, magnetic properties of soil, age of possible graves, likely grave depth, and burial container (e.g., shroud, wood coffin, metal casket, concrete vault). The probable graves in the survey area were identified based on their size, shape, depth, orientation, and overall characteristics in plan and profile view. New South takes a conservative approach to the identification of graves detected with geophysical data and, in general, if an anomaly has any of the attributes listed above, it is marked as a potential grave. Because of this, it is likely that some of the probable graves are false positives and were misidentified. It is impossible to conclusively ascertain the presence of graves without excavation, and caution is used in all interpretations made with GPR.

The survey area has one mature tree, and the tree's associated root system was visible in the GPR results. Every effort was made to filter out the tree roots and interpret only possible graves in the GPR results, but it is probable that, in some cases, anomalies identified as possible graves are tree roots, or that possible graves located very near the tree roots have been missed.

PROBABLE GRAVES

There were 106 probable graves (anomalies 1-106) identified in both of the GPR grids. There is a concentration of probable graves in the southern portion of the survey area, with 60 (63.83%) graves located in Grid 1. The only marked graves are located in Grid 1, and there are comparable counts of unmarked probable graves between the two grids (N=36 in Grid 1 and N=34 in Grid 2) (Figures 71 and 72). Within the project APE, there are 27 possible graves. Twelve graves straddle the APE, including three marked and nine unmarked. The remaining 15 probable graves in the APE are unmarked.

Graves were typically identified as a series of point-source reflections in profile (Figures 78 and 79). These reflections are typically produced by the grave shaft, casket, or void spaces created through interment (Conyers 2006:154). Reflections were identified as probable graves when they have the geometry of grave features in plan and profile view.

The GPR survey of the Sandy Ridge Church Cemetery identified 82 unmarked probable graves. A number of graves were identified outside the known extent of the cemetery, and the cemetery boundary should be adjusted to include those graves (Figure 80). It is likely that the unmarked probable graves are older graves within the cemetery where markers have been removed. The church pastor, Donna Freddle, indicated that, among parishioners, this area has been well known to contain unmarked graves and that the church has stopped using this area to inter individuals out of concern for disturbing graves (personal communication, May 10, 2018).

The Sandy Ridge Methodist cemetery contains approximately 720 identifiable mid-nineteenth through twenty-first-century interments and is still active. The cemetery was a burying ground for the nearby community for almost 100 years prior to the construction of the Sandy Ridge Methodist church. Criterion A of the NRHP requires that the cemetery is associated with events that have made significant contributions to broad patterns of history. This cemetery does not convey any associations to notable events. Under Criterion B, more archival work is needed to determine if any of the individuals interred in the cemetery were locally significant. The variety of headstones in the cemetery reflect several generations of headstone production, but are not considered representative of a type, period, or method of construction, or represent the work of a master. While studies of biological data and funerary remains from this cemetery may provide information on the overall health of the nearby population during the mid-nineteenth through twenty-first centuries, their study is unlikely to provide data not already addressed by available documentary evidence. New South recommends the site not eligible for the NRHP under Criteria A, B, C, and D.

New South recommends that the 106 geophysical anomalies identified as probable graves should be treated as such. Additionally, care should be taken if any ground is to be disturbed within the entire cemetery to avoid damaging any burials that might be present but were not detected because of poor preservation and ground conditions. **Caution should also be used when disturbances are planned adjacent to the cemetery boundary, and extreme care should be taken if any ground disturbance is planned west of Sandy Camp Road. There are probable graves within approximately four meters of the road, and the presence of additional graves cannot be ruled out.**

CONCLUSIONS

New South conducted an intensive survey of the U-4758 APE along Sandy Ridge Road and Johnson Street from April 10 to April 17, 2018. Two archaeological sites (31GF568 and 31GF569) were identified and evaluated for NRHP eligibility during the field investigation. Three cemeteries (31GF570, 31GF571, and 31GF572) were also documented and evaluated for the NRHP. Both sites and all three cemeteries are recommended not eligible for the NRHP. There is a high potential for the presence of unmarked graves within the project APE at cemetery 31GF572. GPR survey of a portion of the Sandy Ridge Methodist Cemetery identified the presence of three marked graves and 24 unmarked probable graves (n=27 total) in the APE. All three cemeteries should be avoided by proposed construction activities. North Carolina General Statute, Chapter 65, Article 12 and North Carolina General Statute, Chapter 70, provide additional protections for this cemetery. If avoidance is not possible, it will be necessary to comply with these statutes after consultation with the State Archaeologist to determine the method any burials are to be removed and relocated.

Based on these results, no additional archaeological work is recommended in conjunction with this project. I concur with the recommendations put forth by our consultant. If the project expands and impacts subsurface areas beyond the study area or if design plans change prior to construction, further archaeological consultation will be necessary.

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