Belvedere Clearwater Road (SC 126) Widening Project Aiken County, South Carolina

ENVIRONMENTAL ASSESSMENT



Submitted Pursuant to 42 U.S.C 4332 (2)(c) By the U.S. Department of Transportation Federal Highway Administration And South Carolina Department of Transportation Environmental Services Office

Date of Approval

S.C. Department of Transportation

Date of Approval

Federal Highway Administration

The following individuals may be contacted for additional information concerning the project:

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> Project ID No. 41446 Federal Aid Project No. SU02(008)

Date: June 22, 2015	NEPA ENVI	SCDO RONMENTA FORM	AL COMMITM	IENTS		ENVIRONMENTAL SERVICES	
Project ID : 41446 County	Aiken	District :	District 7	Doc Type:	ĒA	Total # of Commitments:	5
Project Name: Belvedere Clearwater Roa	ad (SC 126) Widenir	ng Project					
The Environmental Commitment Contractor Responsible measures listed below are to be included in the contract and must be implemented. It is the responsibility of the Program Manager to make sure the Environmental Commitment SCDOT Responsible measures are adhered to. If there are questions regarding the commitments listed please contact:							
CONTACT NAME: Michelle Shepherd, PE,	SCDOT Program Mar	nager		PHONE #:	(803)-737-47	55	
EN		сомміти	IENTS FOR	THE PROJE	ст		
Individual Permit				Res	ponsibility:	SCDOT	
Corps of Engineers. Based on prelin Individual Army Corps of Engineer proposed demolition activities durin determined through consultation with	s Permit (IP). Sing the Section 40	SCDOT will 4 permittir	l provide th ng process.	ne Army Con The require	rps with inf	ormation rega	arding any
Noise				Res	ponsibility:	SCDOT	
SCDOT will inform local planning officials of future, generalized noise levels expected to occur in the project vicinity after FHWA has made a final decision on the Environmental document.							
Non-Standard Commitment				Res	sponsibility:	CONTRACTOF	2
Construction Noise							
Construction activity for the propose project may result in temporary noise impacts within the immediate vicinity of the project. To the extent possible, construction activities will be confined to normal working hours. The contractor is required to comply with regulations regarding noise attenuation devices on equipment							

Project ID :	41446
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ENVIRONMENTAL COMMITMENTS FOR THE PROJECT

USTs/Hazardous Materials

Responsibility:

y: SCDOT

If avoidance of hazardous materials is not a viable alternative and soils that appear to be contaminated are encountered during construction, the South Carolina Department of Health and Environmental Control (SCDHEC) will be informed. Hazardous materials will be tested and removed and/or treated in accordance with the United States Environmental Protection Agency and the SCDHEC requirements, if necessary.

Non-Standard Commitment	Responsibility:	SCDOT
Emergency Response Service Coordination		
It is recommended that SCDOT coordinate with the Bath Fire Departmen response services dispatched by the Bath Fire Department from Station I not impeded by construction of the proposed project	· · ·	e ,

] Responsibility:	

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1.0 INTRODUCTION

The South Carolina Department of Transportation (SCDOT), in partnership with the Augusta Regional Transportation Study (ARTS), proposes to widen Belvedere Clearwater Road (SC 126) for a distance of 1.87 miles from Old Sudlow Lake Road (S-1790) to Jefferson Davis Highway (US 1/78). The proposed project includes widening the existing two-lane roadway to a four-lane roadway with a center turn lane, bicycle lanes, and sidewalks. The project is located in Aiken County, northeast of North Augusta and to the west of Burnettown, as shown in Figure 1-1.

This Environmental Assessment (EA) was prepared pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended; the Council on Environmental Quality regulations implementing NEPA (40 CFR Parts 1500-1508); and, Federal Highway Administration (FHWA) environmental impact and related procedures (23 CFR 771). It provides descriptions of existing conditions, study alternatives, and an assessment of the environmental consequences of the proposed action.

2.0 PURPOSE AND NEED

2.1 Existing Facility

The existing facility is a two-lane undivided roadway with approximately 9,500 vehicles per day (vpd). There is a narrow, paved shoulder throughout, but no designated pedestrian and bicycle

accommodations. There are nine intersections and a large number of driveways along the project corridor. Northwest of the project corridor, Belvedere Clearwater Road (SC 126) increases to four lanes, and then five, in order to accommodate the I-520 interchange. The total length of the project is 1.87 miles. The existing right-of-way is approximately 75 feet and the posted speed limit is 45 miles per hour.

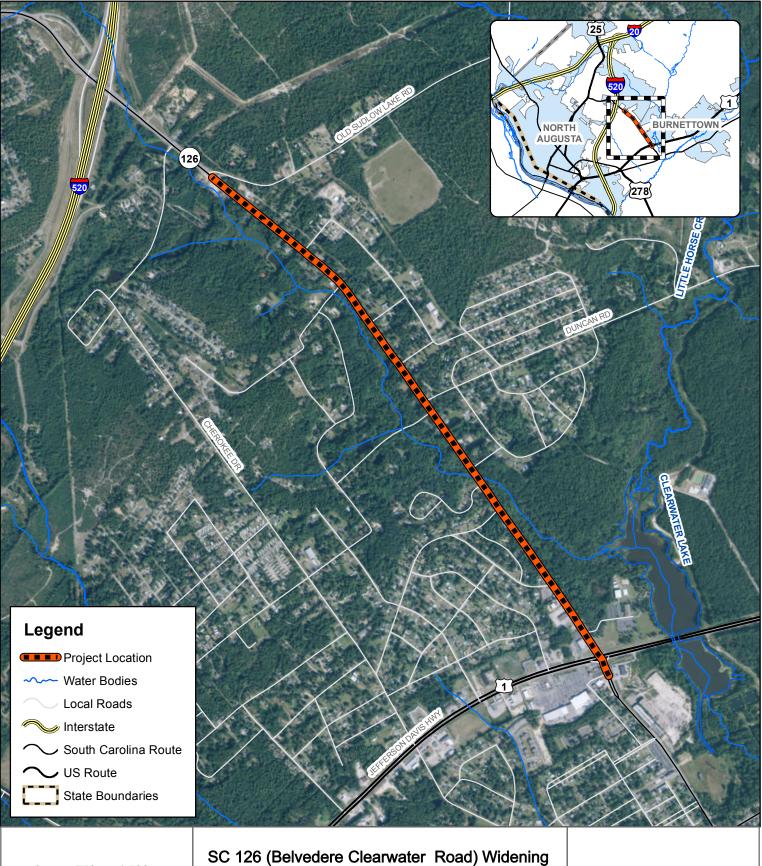
2.2 Project Purpose

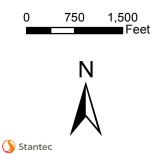
The purpose of the project is to provide additional

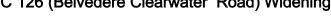


capacity to address future traffic volumes and to provide facilities for bicyclists and pedestrians. Belvedere Clearwater Road (SC 126) provides a direct connection between I-520 (Palmetto Parkway) and Jefferson Davis Highway (US 1/78). The proposed project would help accommodate current and future traffic volumes, reduce delays, and increase the overall efficiency of the area's multimodal network.

The proposed project is consistent with the Augusta Regional Transportation Study (ARTS) 2035 Long Range Transportation Plan and Transportation Improvement Program (TIP), ranking ninth for Prioritized Road Widening Projects. This project is identified as a system upgrade in the SCDOT 2014-2019 Statewide Transportation Improvement Program (STIP) for District 7, Aiken County. The fiscally-constrained STIP includes \$9,750,000 for the project through 2019 and full funding is reasonably anticipated to be available for its completion.













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Project Location

Figure 1-1

2.3 Project Need

Belvedere Clearwater Road (SC 126) is a minor arterial that extends from US 25 south to SC 421 for a distance of 4.25 miles through Aiken County.

Traffic forecasting indicates that the roadway will not be able to operationally accommodate expected traffic volumes in 2035. Traffic volumes on this road are anticipated to increase from 9,500 vpd (2015) to 20,920 vpd (2030). Traffic volumes this high create poor traffic flow with a high level of congestion.

The adequacy of the existing facility was evaluated based on its capacity to handle current traffic volumes and 2035 projected design year volumes. The accepted methodology for roadway section evaluation is to compare projected traffic volumes with roadway capacity and compute the volume-to-capacity ratio (v/c). At intersections, the evaluation considers delay and queuing lengths of vehicles waiting for a green light. The v/c ratio, in addition to other indicators such as projected speed and intersection delay, is used to find and report the facility's level-of-service (LOS). The LOS may range from A to F. Table 2-1 provides a more detailed description of LOS.

LEVEL OF SERVICE	SIGNALIZED INTERSECTIONS	ROAD SEGMENT/RAMPS
A	Very low delay (<10.0 seconds per vehicle). Most vehicles do not have to stop at all.	Free flow. Individuals are unaffected by other vehicles and operations are constrained only by roadway geometry and driver preferences. Maneuverability within traffic stream is good. Comfort level and convenience are excellent.
В	10.0-20.0 second delay. Good progression and short cycle length.	Free flow, but the presence of other vehicles begins to be noticeable. Average travel speeds are the same as in LOS A, but there is a slight decline in freedom to maneuver and level of comfort.
С	20.1 to 35.0 second delay. Fair progression and/or longer cycles. The number of vehicles stopping is significant.	Influence of traffic density on operations becomes marked. The ability to maneuver within the traffic stream is clearly affected by other vehicles. Multi-lane highways with a free flow speed (FFS) above 50 miles per hour (mph), the speeds reduce somewhat. Minor disruptions can cause serious local deteriorations and queues will form behind any significant traffic disruption.
D	35.1 to 55.0 second delay. Many vehicles stop. Individual cycle failures are noticeable.	The ability to maneuver is severely restricted due to traffic congestion. Travel speed is reduced by the increasing volume. Only minor disruptions can be absorbed without extensive queues forming and the service deteriorating.
E	55.1 to 80.0 second delay. Individual cycle failures are frequent.	Operating conditions at or near the capacity level, usually unstable. The densities vary, depending on the FFS. Vehicles are operating with the minimum spacing for maintaining uniform flow. Disruptions cannot be dissipated readily. Most multilane highways with FFS between 45 and 60 mph vehicle mean speeds at capacity range from 42 to 55 mph, but are highly variable and unpredictable.
F	Delay in excess of 80.0 seconds. Considered unacceptable to most drivers.	Breakdown flow. Traffic is over capacity at points. Queues form behind such locations, which are characterized by extremely unstable stop-and-go waves. Travel speed within queues are generally less than 30 mph.

TABLE 2-1 DESCRIPTION OF LEVELS OF SERVICE

Source: Transportation Research Board, 2000

INTERSECTION	20	12	2035	
INTERSECTION	LOS	DELAY (sec)	LOS	DELAY (sec)
SC 126 at Old Sudlow Lake Road (S-1790) *	B/C	13/24	E/F	40/200+
SC 126 at Duncan Road (S-67) *	B/C	12/17	E/F	49/200+
SC 126 at Jefferson Davis Highway (US 1/78)	B/C	20/25	E/F	38/75

TABLE 2-2 INTERSECTION LEVEL-OF-SERVICE, NO-BUILD ANALYSIS (AM/PM)

* Unsignalized; delay is for side street

Figure 2-1 shows the location and number of crashes along the project corridor. During the period from January 2011 through October 2014, 66 collisions occurred along the project corridor; 38 (58%) of these were rear-end collisions, 15 (23%) were angle crashes, and 10 (15%) were run off road crashes. These types of accidents are characteristic of roadways with many side street and driveway connections. The remaining three crashes (4%) included one sideswipe crash, one head-on crash, and one incident involving injury to a pedestrian. Of the 66 total crashes, two involved fatality, 15 involved injury, and 49 were property damage only. Crash data is included in Appendix A.

Traffic collision data indicates that the 2013 statewide average crash rate is approximately 231 crashes per 100 million vehicle miles traveled.¹ Based on the average number of 17 crashes per year, the average crash rate for the project corridor is 221 crashes per million vehicle miles traveled. This value is lower than the statewide average; however, it is expected that crashes would increase as traffic volumes and congestion increase along Belvedere Clearwater Road (SC 126).



Figure 2-1: Accident Locations

Although safety improvements are not part of the project's primary purpose and need, the proposed improvements would provide an additional travel lane in each direction which can help reduce rear-end collisions, currently the most frequent type of accident along the corridor. Painted medians and designated left-turn lanes are proposed within the two-way left turn lane (TWLTL) which can help reduce the types of collisions typically associated with TWLTLs such as two-way angle crashes, sideswipe crashes, and head-on crashes. In addition, the would proposed project benefit pedestrians and transit riders by providing pedestrian facilities along the corridor.

¹ South Carolina Department of Public Safety. 2013. South Carolina Traffic Collision Fact Book. http://www.scdps.gov/ohsjp/fact%20book/2013%20Fact%20Book.pdf

2.4 Proposed Facility

As shown in Figure 2-2, the proposed typical section would consist of four 12-foot travel lanes, a 15-foot two-way left turn lane (TWLTL), two 4-foot designated bicycle lanes, and two 5-foot sidewalks. Belvedere Clearwater Road (SC 126) crosses Little Horse Creek with a double 10 x 12-foot reinforced concrete box culvert, which will be extended as part of this project. The current right-of-way is 75 feet and the proposed right-of-way is 120 feet, with additional right-of-way required for improvements at the Duncan Road (S-67) and Old Sudlow Lake Road (S-1790) intersections.

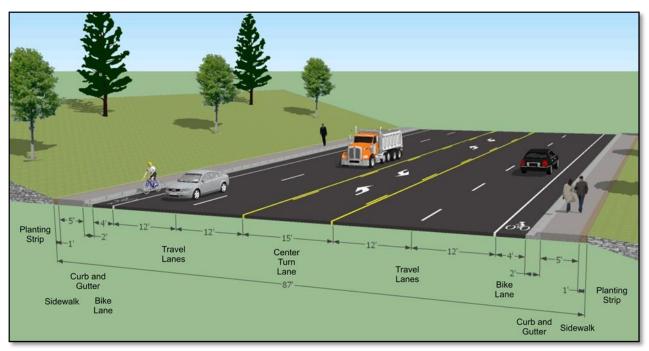


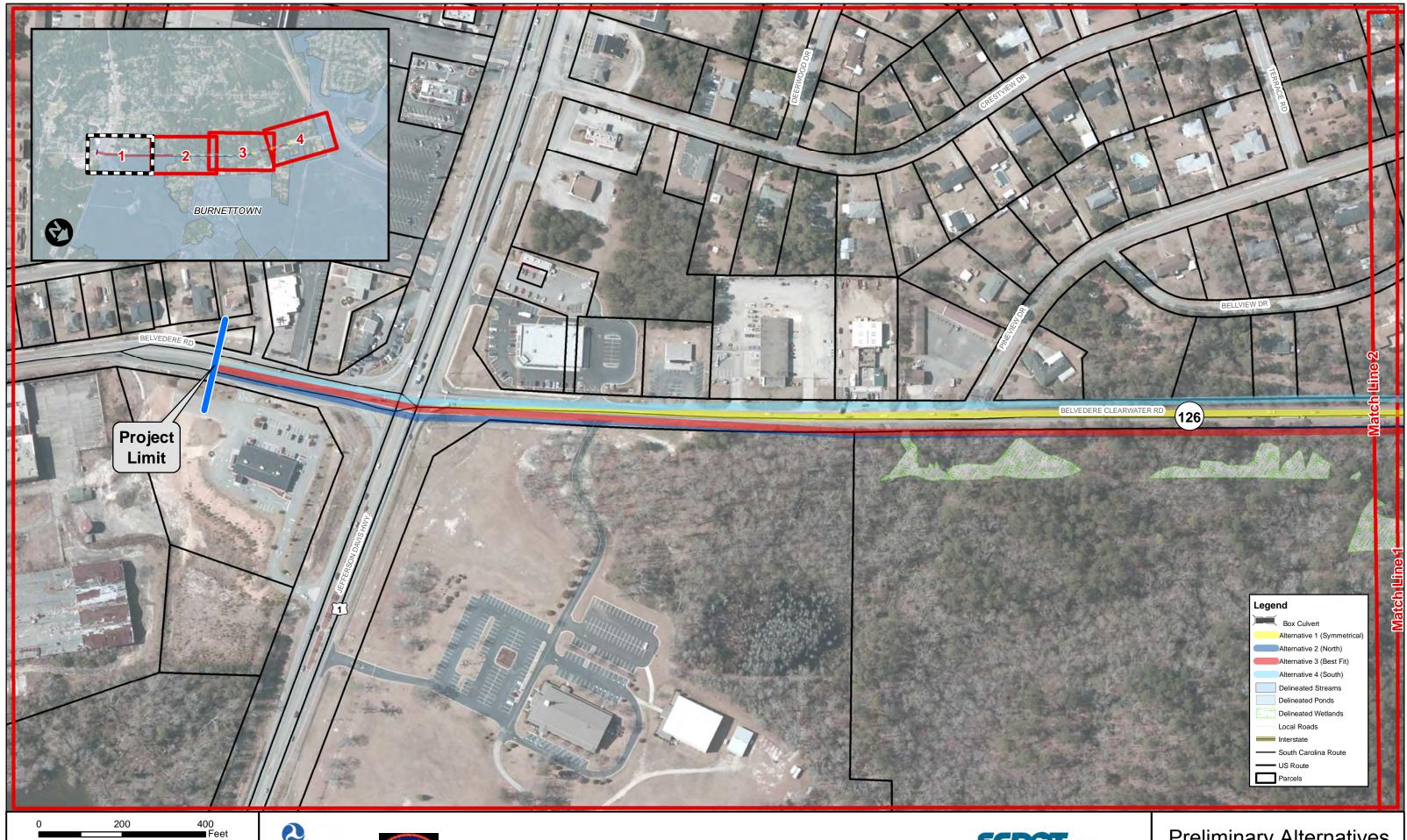
Figure 2-2: Proposed Typical Section

3.0 ALTERNATIVE DEVELOPMENT

3.1 Preliminary Alternatives Considered

SCDOT developed and analyzed four preliminary build alternatives (Alternatives 1, 2, 3 and 4) in order to identify a preferred alternative that would minimize impacts while achieving the project's purpose and need. The preliminary build alternatives are shown in Figure 3-1. All four alternatives were designed with the proposed cross-section shown in Figure 2-2 and are identical for a distance of approximately 2,500 feet (0.47-mile) from Willow Lane to the western terminus at Old Sudlow Lake Road (S-1790).

The intersection of Belvedere Clearwater Road (SC 126) and Jefferson Davis Highway (US 1/78) was identified as the eastern project termini based on a 50% reduction in traffic volumes (approximately 10,460 vpd) east of the intersection. The western terminus connects to a previously improved section of Belvedere Clearwater Road (SC 126).







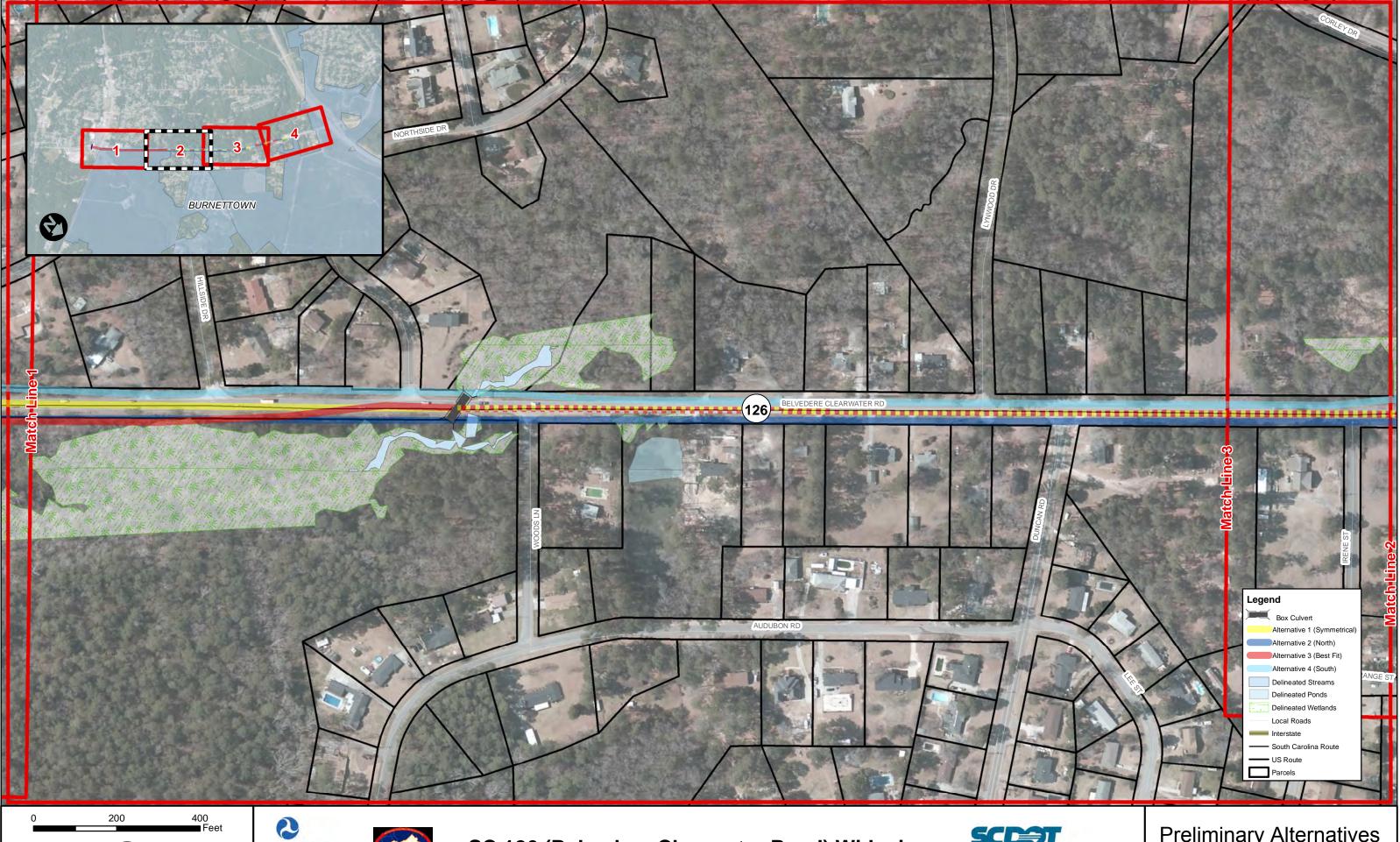
SC 126 (Belvedere Clearwater Road) Widening



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Preliminary Alternatives

Figure 3-1a



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SC 126 (Belvedere Clearwater Road) Widening

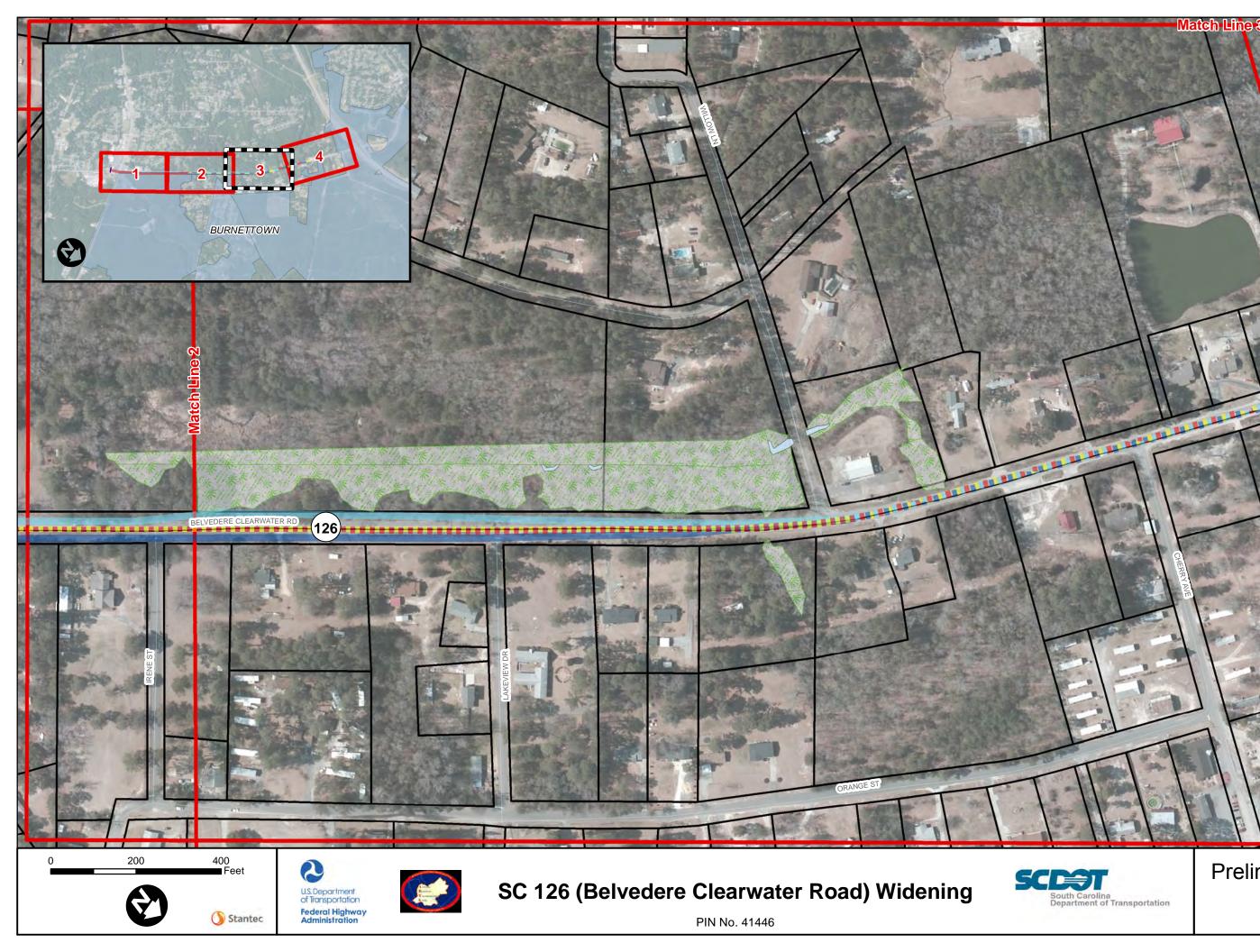


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South Carolina Department of Transportation

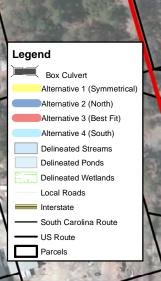
Preliminary Alternatives

Figure 3-1b



Preliminary Alternatives

Figure 3-1c















PIN No. 41446

Preliminary Alternatives

Figure 3-1d

The preliminary build alternatives include 200-foot exclusive left turn lanes and 200-foot exclusive rightturn lanes on Belvedere Clearwater Road (SC 126) at the Old Sudlow Lake Road (S-1790) and Duncan Road (S-67) intersections. The preliminary build alternatives also include improvements at the intersection of Belvedere Clearwater Road (SC 126) and Jefferson Davis Highway (US 1/78) that would modify the existing configuration to include additional storage capacity for right and left turns on all approaches.

Because right turns comprise 70% or more of the total approach volumes, exclusive 200-foot left and right turn lanes are included in the design for Old Sudlow Lake Road (S-1790) and Duncan Road (S-67). Providing separate turn lanes will considerably reduce delays on the side streets. To maintain an acceptable delay and LOS D in 2035, the preliminary build alternatives also include the following improvements at the intersection of Belvedere Clearwater Road (SC 126) and Jefferson Davis Highway (US 1/78): 250- foot single left turn lane, one through lane, and a shared through/right turn lane on southbound SC 126; 150-foot left turn lane, one through lane, and a shared through/right turn lane on northbound SC 126 approach; and, 200-foot right turn lane on westbound US 1/78. To improve operations at this intersection, modifications also include the removal of the free flow right turn lanes on eastbound US 1 and northbound SC 126.

3.1.1 No- Build Alternative

The No-Build Alternative assumes that Belvedere Clearwater Road (SC 126) would remain as it currently exists. This alternative was considered as a baseline for comparison against the preliminary build alternatives. The No-Build alternative would not require right-of-way acquisition, utility relocation or construction funds. In addition, the No-Build Alternative would not cause impacts to environmental resources and would not cause short term traffic distribution. However, the No-Build Alternative would not meet the proposed project's purpose and need and was not selected as the Preferred Alternative.

3.1.2 Symmetrical Widening (Alternative 1)

Alternative 1 is the symmetrical widening of Belvedere Clearwater Road (SC 126) from beginning to end. This alternative would widen the entire length of the corridor equally on both sides of the roadway from the street centerline.

3.1.3 Widen to the North (Alternative 2)

Alternative 2 is the "Northern" alternative which would widen to the north from Jefferson Davis Highway (US 1/78) west to Willow Lane at which point it converges with Alternative 1 for a distance of approximately 2,500 feet (0.47-mile) to the western terminus at Old Sudlow Lake Road (S-1790). This alternative would maintain the existing eastbound lane's current edge of pavement on the south and shift the alignment north 21 feet.

3.1.4 Minimization Alignment (Alternative 3)

Alternative 3 was developed as the minimization alternative (or "Best Fit" alternative). Alternative 3 widens Belvedere Clearwater Road (SC 126) to the north (identical to Alternative 2) from the Jefferson Davis Highway (US 1/78) intersection to the Little Horse Creek crossing just beyond Northside Drive. At

Little Horse Creek, Alternative 3 transitions to a symmetrical widening (identical to Alternative 1) continuing on a symmetrical alignment to the project's western terminus at Old Sudlow Lake (S-1790).

3.1.5 Widen to the South (Alternative 4)

Alternative 4 is the "Southern" alternative which would widen to the south from Jefferson Davis Highway (US 1/78) west to Willow Lane at which point it converges with Alternative 1 for a distance of approximately 2,500 feet (0.47-mile) to the western terminus at Old Sudlow Lake Road (S-1790). This alternative would shift the alignment south 21 feet and maintaining the current edge of pavement of the existing westbound lane.

3.2 Alternatives Comparison

Table 3-1 shows a comparison of impacts for the preliminary build alternatives. As mentioned previously, all four alternatives are identical for a distance of approximately 2,500 feet (0.47-mile) from Willow Lane to the western terminus at Old Sudlow Lake Road (S-1790). The preliminary alternatives were developed in this fashion due to the fact that this section of Belvedere Clearwater Road has a comparable amount of constraints on both sides of the roadway. Widening to either side would create a similar amount of encroachment impacts regardless of the direction the alignment was shifted. To minimize encroachment impacts on both sides of the roadway, this section of roadway utilizes the symmetrical alignment.

Although the vertical alignment of the roadway itself is relatively flat, Belvedere Clearwater Road traverses an area with rolling, hilly terrain. As such, the roadway is bordered by tall slopes in hilly areas and steep drops to the lower elevations where Little Horse Creek and its associated wetlands are located. East of Willow Lane, Little Horse Creek and its associated wetland system parallel the project corridor on the south side before crossing to the north side of the roadway at the Little Horse Creek crossing, then paralleling Belvedere Clearwater Road (SC 126) again for approximately 2,400 feet.

For the section of the proposed project from Willow Lane to the Little Horse Creek crossing, Alternative 4 would create a high amount of wetland impacts by shifting the alignment south. Conversely, Alternative 2 would create a high amount of encroachment impacts to residential properties on the north side of the corridor. By symmetrically widening the roadway, Alternatives 1 and 3 would minimize wetland impacts as well as encroachments onto residential properties.

The eastern portion of the project is flanked by commercial and residential development on the south side and by a large wetland system on the north side. A symmetrical widening of this section (Alternative 1) would create the highest amount of construction impacts as the topography would require a large amount of excavation on the south side and a large amount of fill placed on the north side. By widening to the north, Alternatives 2 and 3 would avoid encroaching on existing businesses on the south side of the project corridor near the Jefferson Davis Highway (US 1/78) and would avoid a large amount of excavation in the areas between Northside Drive and Pineview Drive.

(February 2014)					
	Alternative 1	Alternative 2	Alternative 3	Alternative 4	
	(Symmetrical Widening)	(Widen to the North)	(Alt. 2/Alt. 1 Combination)	(Widen to the South)	
Residential Relocations	2	2	2	3	
Business Relocations	1	0	0	0	
Hazardous Material Sites	0	0	0	1	
Noise Impacts	38	36	38	37	
Historic Resources	0	0	0	0	
Construction Impacts (ac)	16.7	17.8	13.4	18.7	
Wetlands (ac)	1.2	1.8	1.8	2.6	
Streams (linear feet)	497	467	467	680	
Ponds (acres)	0	0.2	0	0	

TABLE 3-1 PRELIMINARY IMPACT SUMMARY TABLE (February 2014)

NOTES: This table shows preliminary estimates based on likely construction limits for each alternative. Construction impacts are based on the construction limits outside the existing SCDOT right-of-way. It is noted that future traffic volumes in the no-build conditions would impact 27 receptors.

3.3 Preferred Alternative

Alternative 3 would widen Belvedere Clearwater Road (SC 126) to the north from the Jefferson Davis Highway (US 1/78) intersection to the Little Horse Creek crossing just west of Northside Drive. The widening would transition to the symmetrical alignment from the Little Horse Creek crossing to the project's western terminus at Old Sudlow Lake Road (S-1790). Alternative 3 avoids impacts to the stream and wetland system on the western portion of the project corridor, avoids impacting the pond just west of Woods Lane, and requires the least amount of additional land outside the current SCDOT right-of-way. This alternative meets the project's purpose and need while best balancing impacts between the human and natural environments. Alternative 3 would have the least overall construction impacts (clearing and grading outside the current SCDOT right-of-way), least stream impacts, least surface water impacts, and least encroachment impacts. Figure 3-2 shows the Preferred Alternative.

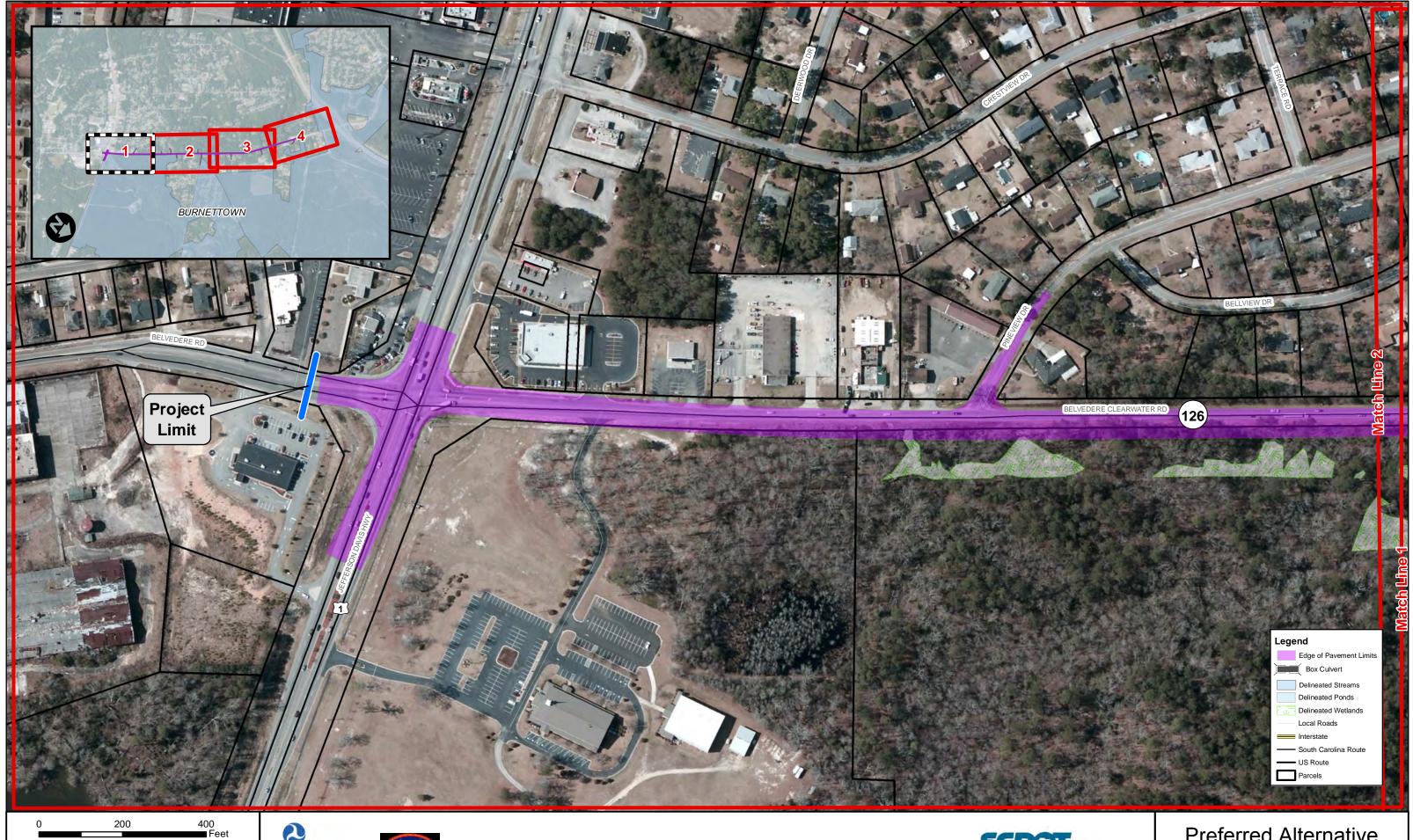
4.0 PROBABLE IMPACTS ON THE ENVIRONMENT

This section includes a discussion of the existing conditions of the project study area and evaluates the probable impacts (beneficial and adverse) of the road widening on the human and natural environments. Section 4.16 includes a summary of impacts for the Preferred Alternative, updated to reflect design refinements developed after the selection of the Preferred Alternative. Overall, the project's environmental impacts are expected to be minor. Mitigation measures for potential impacts are discussed where appropriate.

4.1 Land Use and Growth Projections

Land use in this area is guided by the 2005 North Augusta Comprehensive Plan, as amended in 2011.² The alternatives considered for this project are consistent with the development and transportation plans for the area, including the North Augusta 2005 Comprehensive Plan and the Augusta Regional

² Department of Economic and Community Development. (2005). *City of North Augusta 2005 Comprehensive Plan*. Retrieved on December 3, 2014 from http://www.northaugusta.net/departments/planning-development/comp-plan-link.







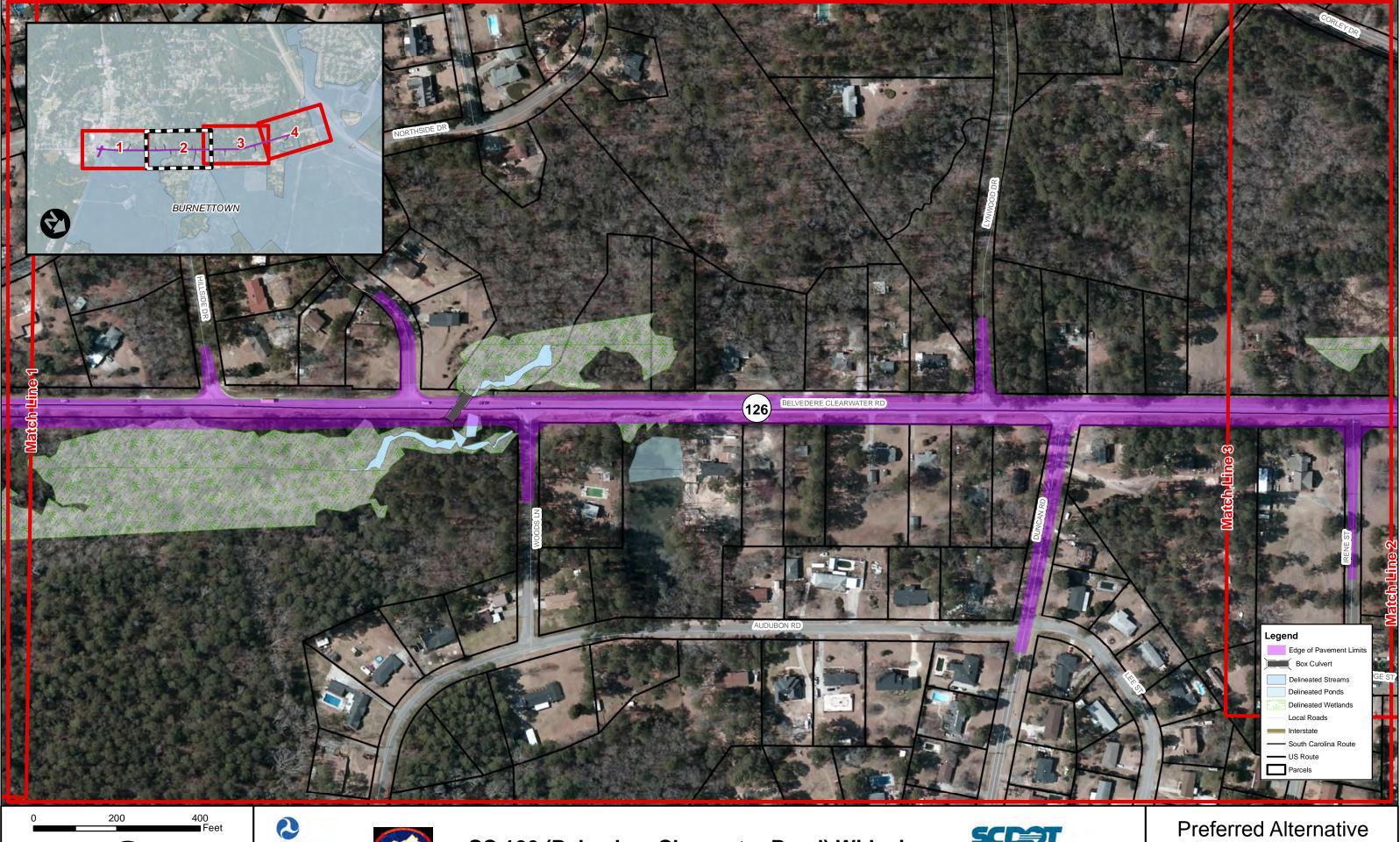


SC 126 (Belvedere Clearwater Road) Widening



PIN No. 41446

Preferred Alternative Figure 3-2a





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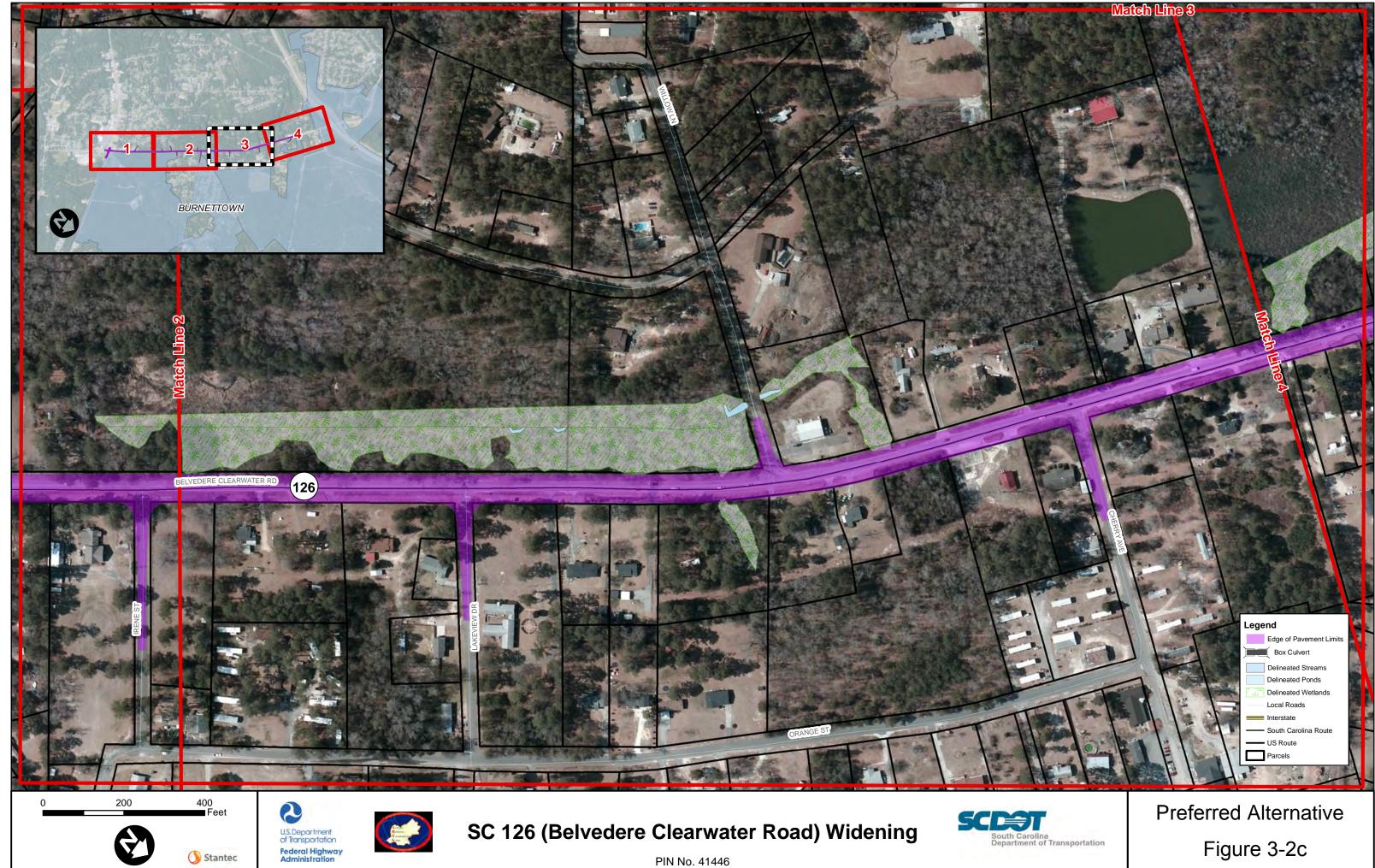
SC 126 (Belvedere Clearwater Road) Widening



PIN No. 41446

Preferred Alternative

Figure 3-2b









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SC 126 (Belvedere Clearwater Road) Widening



PIN No. 41446

Preferred Alternative Figure3-2d

Transportation Study 2035 Long Range Transportation Plan (ARTS 2035 LRTP). Figure 4-1 shows existing land uses and Figure 4-2 shows future land uses shown in the North Augusta Comprehensive Plan.

The United States Decennial Census indicates a population of 160,099 in 2010, representing an increase of 12.3 percent from the 2000 population of 142,552.^{3,4} This increase is only slightly lower than the

South Carolina state average, which saw a population increase of 13% from 2000 to 2010. While this growth rate seems relatively dramatic, the yearly growth rate is in fact a healthy, but not extreme, rate of 1.23 percent. The population of Aiken County is expected to increase to 182,500 persons by 2030.⁵ This represents a much slower rate of growth, with the county only growing by 14% over this entire time period or 0.7% per year.

With these levels of population increase, growth management strategies become vital to the success of development. These strategies, as they were detailed in the North Augusta 2005 Comprehensive Plan, can be categorized into the three



Figure 4-1: Existing Land Use (2011)

program areas: redevelopment, infill development and neighborhood revitalization. A project is considered to fall into the category of redevelopment when it invests in underutilized land in previously developed areas. This strategy can help to create revitalized neighborhoods, downtowns and cultural districts. Projects that invest in vacant land within older areas of a community are called infill development. This type of development is proving to be very successful throughout the country. It can help to transform cities and suburbs by creating walkable retail districts and neighborhoods, introducing mixed use projects and emphasizing human scale development. The last program area, neighborhood revitalization, is achieved through programs that facilitate reinvestment in established, and often older, neighborhoods. Commercial center revitalization encourages reinvestment in already existing

² United States Census Bureau. (2010). Decennial Census 2010 Summary File 1 (Data File). Retrieved February 4, 2014 from <u>factfinder2.census.gov</u>.

⁴ United States Census Bureau. (2000). Decennial Census 2000 Summary File 1 (Data File). Retrieved February 4, 2014 from <u>factfinder2.census.gov</u>.

⁵ South Carolina Statistcal Abstract. (2014). Population Counts and Projections 2000-2030. Retrieved February 4, 2014 from http://abstract.sc.gov/chapter14/pop5.php.

commercial shopping centers through the addition of residential and office uses, the creation of new outparcels and the improvement of amenities for pedestrians.

Existing Land Use

The project corridor falls roughly between the City of North Augusta and the Town of Burnettown along Belvedere Clearwater Road (SC 126) from Old Sudlow Lake Road to the Jefferson Davis Highway (US 1/78). The eastern terminus of the project area is an area of large-scale commercial uses, including strip mall-type development, fast food restaurants, drug stores, a church, and other commercial uses.

The main land use along the project corridor is low-density residential development, primarily along the south and northwest sides of the project corridor. One small portion of the project corridor near the intersection of Old Sudlow Road (S 1790) and Belvedere Clearwater Road (SC 126) is identified as multi-family housing. The western terminus includes low density residential development and commercial use. While much of the corridor is developed, areas along the northeastern and southwestern sides of the corridor include undeveloped stream and wetland areas.

Future Land Use

The future land use plan map indicates that parcels along the project corridor are planned to transition to mixed use. This designation permits most residential, commercial, government, religious, and

institutional uses. The area surrounding the I-520 interchange east to Old Sudlow Lake Road (S 1790) is designated for high intensity mixed use.

At the eastern terminus, additional commercial development is planned for the Jefferson Davis Highway corridor near the Belvedere Clearwater Road (SC 126) intersection. The areas along the corridor beyond the parcels directly adjacent to the roadway will remain as low density residential area.

Transportation Plans

Transportation in the Augusta Metropolitan Area is governed by the Augusta Regional

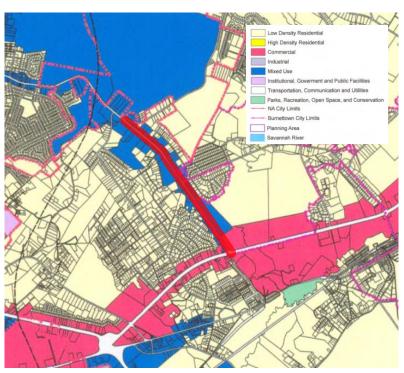


Figure 4-2: Future Land Use (2011)

Transportation Study (ARTS), with the August-Richmond County Planning Commission acting as the Metropolitan Planning Organization (MPO) in cooperation with the Georgia and South Carolina

Departments of Transportation. The Aiken County Planning and Development Department also plays a role in transportation planning in the region.

The ARTS 2035 LRTP and TIP provide the framework for transportation improvements in the region. The proposed project is ranked ninth for Prioritized Road Widening Projects and is identified as a Tier 1 (2011 to 2014) project, i.e. a project that is financially constrained.⁶

The proposed project is identified as a system upgrade in the SCDOT 2014-2019 Statewide Transportation Improvement Program (STIP) for District 7, Aiken County.⁷

Role in the Regional Transportation System

I-520, the Palmetto Parkway, intersects Belvedere Clearwater Road (SC 126) just west of the project corridor, providing freeway connectivity to North Augusta and Augusta, Georgia to the south and the I-20 corridor to the north. On the eastern end of the project corridor, Belvedere Clearwater Road (SC 126) intersects Jefferson Davis Highway (US 1/78), an arterial road providing east-west regional connectivity.

Public transportation servicing the area is provided by Aiken County's Best Friend Express as well as the Augusta Public Transit System. The Best Friend Express, which operates daily bus service between and within Aiken and North Augusta, provides service with a fleet of 20-passenger buses. Most patrons are elderly, handicapped or of a lower income and do not otherwise have access to reliable transportation. Ridership on the Best Friend Express has been increasing annually at a moderate rate. The Augusta Public Transit System has worked with Aiken Transit to implement an interconnection in North Augusta. A transfer location has been created at the intersection of Bluff and Georgia Avenues in order to provide a means for Aiken Transit riders to travel into Augusta without having to walk across the Savannah River Bridge.

The proposed widening is part of planning efforts to accommodate existing development along the corridor and provide capacity for anticipated growth. Significant changes in land use are not anticipated as a result of the proposed project.

4.2 Threatened and Endangered Species

The Natural Resources Technical Memorandum for the proposed Belvedere Clearwater Road (SC 126) Widening from Old Sudlow Lake Road (S 1790) to Jefferson Davis Highway (US 1/78) (Stantec, November 2013) describes the natural resources of the 300-foot project corridor, including an evaluation for protected species. The Natural Resources Technical Memorandum (NRTR) is included in Appendix B. The following list of threatened (T) and endangered (E) species in Aiken County were compiled from a number of sources, as follows:

⁶ Wilbur Smith Associates. (2010). *ARTS 2035 Long Range Transportation Plan*. Retrieved on December 3, 2014 from <u>http://appweb.augustaga.gov/Transporation/docs/ARTS2035.pdf</u>.

⁷ South Carolina Department of Transportation (SCDOT). 2013. 2014-2019 State Transportation Improvement Program. <u>http://www.dot.state.sc.us/inside/stip.aspx</u>

- USFWS South Carolina List of At-Risk, Candidate, Endangered, and Threatened Species Aiken County (Last Updated: April 2013; Reviewed: May 2013)
- South Carolina Department of Natural Resources (SCDNR) South Carolina Heritage Trust (SCHT) List of Rare, Threatened, and Endangered Species Known to Occur in Aiken County (Last Updated March 13, 2012; Reviewed: May 2013)
- SCDNR SCHT Geographic Database of Rare, Threatened, and Endangered Species Inventory Species Found in Aiken County (Last Updated January 17, 2006; Reviewed: May 2013)

The Federal Endangered Species Act (ESA) of 1973, as amended, is the federal regulatory tool that serves to administer permits, implement recovery plans, and monitor federally protected (endangered and threatened) species. The ESA is administered and regulated by the USFWS and/or National Oceanic and Atmospheric Administration-National Marine Fisheries Service (NOAA-NMFS). Because of the federal nexus of this proposed project, consultation with USFWS and/or NOAA-NMFS would be required under Section 7 of the ESA, as amended (16 U.S.C. 1531-1534) for proposed projects that "may affect" federally-classified endangered and threatened species.

Federally Protected Species

Species with the federal classification of Endangered (E) or Threatened (T), or Threatened due to Similarity of Appearance (T [S/A]) are protected under the ESA of 1973, as amended (16 U.S.C. 1531 et seq.). The term "endangered species" is defined as "any species which is in danger of extinction throughout all or a significant portion of its range", and the term "threatened species" is defined as "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range" (16 U.S.C. 1532).

The term "Proposed" (P) is defined as "any species proposed for official listing as endangered or threatened." "Federal species of concern" (FSC) are defined as "species that may or may not be listed in the future; or a species under consideration for listing for which there is insufficient information to support listing." "Candidate" (C) species are taxons under consideration for which there is insufficient information to support a listing. The P, FSC and C designations provide no federal protection and require no Section 7 consultation under the ESA.

State Protected Species

Animal species that are on the South Carolina state protected species list receive protection under the South Carolina Nongame and Endangered Species Conservation Act (South Carolina Code, Title 50). State endangered species are defined as any species or subspecies of wildlife whose prospects of survival or recruitment within the state are in jeopardy or are likely within the foreseeable future to become so. It is unlawful for any person to take, possess, transport, export, process, sell or offer for sale or ship, and for any common or contract carrier knowingly to transport or receive for shipment any species or subspecies of wildlife appearing on the state list of protected species without appropriate authorization.

A search of the USFWS database provided existing information concerning the potential occurrence of threatened or endangered species within Aiken County⁸. This database identifies seven federally threatened or endangered species and two candidate species known to occur, or to have formerly occurred, in Aiken County, as listed in Table 4-1. This list also includes bald eagle (*Haliaeetus leucocephalus*), which is no longer protected by the Federal Endangered Species Act, but is afforded protection through the Bald and Golden Eagle Protection Act.

The South Carolina Department of Natural Resources (SCDNR) Rare, Threatened and Endangered Species Known to Occur in Aiken County, updated March 13, 2012, was also reviewed for information regarding species with state endangered or threatened status. Three additional state protected species are currently listed in Aiken County, as listed in Table 4-1.

The SCDNR South Carolina Heritage Trust (SCHT) Geographic Database of Rare, Threatened, & Endangered Species Inventory, last updated January 17, 2006, was reviewed to determine the presence of state and/or federally protected species within a one-mile radius of the project corridor. Information obtained from the SCDNR-SCHT database indicates no listed threatened or endangered species known to be present within the project corridor. Furthermore, according to the database, no threatened or endangered species are located within a one-mile radius of the project location (SCDNR, 2006).

COMMON NAME	SCIENTIFIC NAME	FEDERAL	STATE
Mammal Species			
Rafinesque's big-eared bat	Corynorhinus rafinesquii	-	E
Amphibian Species			
Spotted turtle	Clemmys guttata	-	Т
Gopher Tortoise	Gopherus polyphemus	С	E
Gopher Frog	Rana capito	-	E
Bird Species			
Bald eagle	Haliaeetus leucocephalus	BGEPA	Т
Wood stork	Mycteria Americana	E	-
Red-cockaded woodpecker	Picoides borealis	E	E
Fish Species			
Shortnose sturgeon*	Acipenser brevirostrum*	E	E
Atlantic sturgeon*	Acipenser oxyrinchus*	E	-
Plant Species			
Smooth coneflower	Echinacea laevigata	E	-
Harperella	Ptilimnium nodosum	E	-
Georgia aster	Symphyotichum georgianum	С	-
Relict trillium	Trillium reliquum	E	-
T = Threatened, E = Endangered, C = C	andidate, BGEPA = Bald and Golden Eagle Prote	ection Act	
*Species under the jurisdicti	on of National Marine Fisheries Service		

TABLE 4-1PROTECTED SPECIES FOR AIKEN COUNTY

SOURCE: SCDNR. 2012. Rare, Threatened, and Endangered Species for Aiken County. (Last Updated March 13, 2012).

⁸ USFWS. 2013(B). South Carolina List of At-Risk, Candidate, Endangered, and Threatened Species – Aiken County. (Last Updated October 23, 2013).

Field reviews were conducted in May and June of 2013 in areas of the project corridor that matched descriptions of preferred habitat for protected species listed in Table 4-1. The project corridor largely consists of undeveloped woodland and maintained/disturbed roadside and lawns. No state and/or federally protected species were observed within the project corridor.

No potential habitat for spotted turtle is present due to the absence of shallow, slowing velocity waters. No potential habitat for gopher tortoise or gopher frog is present due to the lack of ecosystems typical of the sandhills, including pine/scrub oak uplands and pine flatwoods. No potential habitat for Rafinesque's big-eared bat is present due to the lack of dilapidated buildings and bridges for roosting. No large waterbodies are located within two miles of the project; therefore, no potential nesting or foraging habitat for bald eagle is present. No marshes, swamps, or other flooding areas are located within the project corridor; therefore, no potential nesting or foraging habitat for the wood stork is present. No potential roosting habitat for red-cockaded woodpecker was identified using the latest aerial photography available and on-the-ground field observations within the project corridor. Foraging habitat is considered to be limited to upland ridges within the project corridor, and was highly degraded due to hardwood understory encroachment.

Streams within the project corridor do not provide an unimpeded connection to the Atlantic Ocean, nor do they provide the size and depth suitable for sturgeon; therefore, no potential habitat for shortnose sturgeon or Atlantic sturgeon is present within the project corridor.

Potential habitat for smooth coneflower may be present within maintained and sparsely vegetated roadside areas within the project corridor; however, these areas do not provide the magnesium- and calcium-rich soils preferred by the species. Furthermore, no individuals were observed during the field surveys and none have been documented within a one-mile radius of the project location. Potential habitat for Georgia aster is present adjacent to roads and along forested borders; however, no individuals were observed during the field surveys and none have been documented within a one-mile radius of the project location. No potential habitat for relict trillium is present due to the dense understory found throughout the forested hardwood forests.

Based on the literature reviews and field surveys, the proposed project would have no effect on any federal or state-listed protected (threatened or endangered) species.

4.3 Farmlands

The project is in a location defined as an "urbanized area" on US Census mapping and, as such, is exempt under the Farmland Protection Policy Act (FPPA) [7 CFR 658.2(a)]. The proposed project is in compliance with the FPPA and does not require the submittal of a Farmland Conversion Impact Rating Form.⁹

⁹ United States Census Bureau. (2014). American Community Survey Census Data Mapper (Data File). Retrieved December 9, 2014 from factfinder2.census.gov.

4.4 Water Resources and Water Quality

The Natural Resources Technical Memorandum for the proposed Belvedere Clearwater Road (SC 126) Widening from Old Sudlow Lake Road (S 1790) to Jefferson Davis Highway (US 1/78) (Stantec, November 2013) describes the natural resources of the 300-foot project corridor, including water resources. The Natural Resources Technical Memorandum (NRTR) is included in Appendix B. The proposed project is located within the Lower Savannah River Basin (USGS Hydrologic Unit Codes [HUCs] 03060106, 03060107, 03060109, and 03060110), one of the three distinct basins which make up the larger Savannah River Basin. The Lower Savannah River Basin incorporates 16 watersheds over ten counties in South Carolina, and extends into Georgia. Within the Lower Savannah River Basin, the Savannah River Basin out of the Thurmond Lake, located northwest of the project study area, and is restricted again by the Stevens Creek dam, forming Stevens Creek Reservoir. Downstream of the Stevens Creek dam, the Savannah River accepts drainage from Horse Creek, Hollow Creek, Upper Three Runs, and Lower Three Runs before flowing into the Calibogue Sound and the Atlantic Ocean.

Land use/land cover in the watershed includes 45.0% forested land, 26.3% agricultural land, 19.2% urban land, 6.1% forested wetland (swamp), 1.6% barren land, 1.3% open water, and 0.5% nonforested wetland (marsh). There are a total of 297.3 stream miles and 1,533.5 acres of lake waters in this watershed, all classified FW (freshwater). The urban land is comprised primarily of North Augusta, Aiken, and Burnettown (SCDHEC, 2010). Specifically, the project study area lies within the Horse Creek watershed (HUC 03060106-02), which consists primarily of Horse Creek and its tributaries. The Horse Creek watershed is located in Edgefield and Aiken Counties and occupies 103,463 acres of the Sand Hills and Upper Coastal Plain regions of South Carolina. Horse Creek accepts drainage from Long Branch, Little Horse Creek, Camp Branch, Good Spring Branch, Sage Mill Branch, Bridge Creek, Sand River, and Storm Branch before draining into the Savannah River.

No water quality monitoring stations are located with the project study area. The nearest downstream monitoring station (Station SV-072) is located approximately 2.5 miles southeast of the project study area on Horse Creek at S-145 (Storm Branch Road). Station SV-072 is included on the 2012 SCDHEC 303(d) list of impaired waters for pH excursions. The 2010 Basinwide Watershed Water Quality Assessment Report for the Savannah River Basin states Station SV-072 is located within a blackwater system, characterized by naturally low pH conditions. Although pH excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. There is also a significant decreasing trend in pH (SCDHEC, 2010).

As the project is a road widening, the impervious surfaces will be increased from a traditional two lane road to a four lane road with designated bike lanes and sidewalks. Proper engineering strategies and erosion control methods will be employed in order to curtail runoff, and allow possible pollutants to precipitate out of runoff before reaching major water bodies in the area. This project will have no substantial impact to the water quality in the area.

The proposed project will traverse unnamed tributaries of Little Horse Creek (RPW streams 1, 2 and 3). Additional waters within watershed 03060106-02 included on the 2012 SCDHEC 303(d) list include

Vaucluse Pond (Station SV-685), Flat Rock Pond (Station SV-686), and Langley Pond (Station SV-531). Stations SV-685, SV-686, and SV-531 are located upstream of Little Horse Creek on Horse Creek; therefore the project study area does not attribute to these impairments.

4.5 Jurisdictional Waters

The boundaries of potential jurisdictional Waters of the U.S. were delineated by Stantec in April, May, and June of 2013. Potentially jurisdictional wetlands in the project study area were evaluated using the Routine On-Site Determination Method as defined in the Corps of Engineers Wetland Delineation Manual (Environmental Laboratory, 1987) and the Atlantic Gulf and Coastal Plain Region Supplement to the Manual (USACE, 2010). Jurisdictional determination and verification of delineated wetland/waters of the U.S. boundaries by the USACE is pending.

Potential jurisdictional waters of the U.S. identified in the project study area include the following:

- Palustrine Wetlands (Wetlands A through H)
- Open Water Pond A
- RPW Streams 1, 2, and 3

Streams/ Relatively Permanent Waters

A total of three relatively permanent waters (RPW Streams 1, 2, and 3) were identified within the project study area during the field investigation. A brief description of each is listed below along with likely impacts associated with the Preferred Alternative.

RPW Streams 1 and 3 are portions of a perennial, unnamed tributary (UT) to Little Horse Creek and depicted on the USGS topographic quadrangle map as a solid blue line stream as shown in Appendix B, NRTR Figure 2. The tributary originates approximately two miles northwest of the project study area and flows in a general southeast direction to Clearwater Lake and Little Horse Creek. Within the vicinity of the project study area, the tributary flows along the southern edge of the project study area, relatively parallel to the Belvedere Clearwater Road (SC 126) roadway for approximately 6,500 linear feet. The tributary then turns easterly and crosses under Belvedere Clearwater Road (SC 126), via a double box culvert, immediately southeast of Woods Lane. From this crossing, it continues southeast approximately one-half mile before converging with Little Horse Creek at Clearwater Lake. Within the project study area, the tributary is a total of 871 linear feet in length and comprises 0.301 acre. Specifically, RPW Stream 1 is 661 linear feet and RPW Stream 3 is 210 linear feet. NRTR Figures 5B and 5C in Appendix B show the location and extent of RPW Streams 1 and 3.

The width of RPW Streams 1 and 3 range from 8 feet to 40 feet, with bank heights ranging from 2 to 6 feet. Within the project study area, RPW Streams 1 and 3 accept drainage from the surrounding road network, the surrounding upland forests and maintained lawns, RPW Stream 2, and Wetlands B through H. The stream channel exhibited moderate flow, moderate sinuosity, and a substrate consisting of sand, silt, gravel, cobble, and boulders. Aquatic life, including fish, amphibians and macroinvertebrates was directly observed throughout the tributary. Representative photographs of RPW Streams 1 and 3 are

included in Appendix B, NRTR Photographs 12, 13, and 15. The Preferred Alternative would impact 509.16 linear feet of Stream 1 and 23.50 linear feet of Stream 3.

RPW Stream 2 is a perennial UT to RPW Stream 1. The tributary originates immediately east of Woods Lane, north of Belvedere Clearwater Road (SC 126), in the eastern-central portion of the project study area; see Appendix B, NRTR Figure 5C for the location and extent of the tributary. Specifically, RPW Stream 2 is 160 linear feet in length and encompasses 0.027 acre. Bank widths of RPW Stream 2 range from 4 feet to 12 feet, and bank heights ranging from 0 to 2 feet. Within the project study area, RPW Stream 2 accepts drainage from Woods Lane, the surrounding upland forests and maintained lawns, Open Water Pond A and Wetland A. The stream channel exhibited moderate to high flow, moderate sinuosity, and a substrate consisting primarily of sand, gravel, cobble, and boulders. Aquatic life, including fish, amphibians and macroinvertebrates was not directly observed throughout the tributary. RPW Stream 2 is not depicted on the USGS topographic quadrangle map or the USDA soil survey. A representative photograph of RPW Stream 2 is included in Appendix B, NRTR Photograph 14. No impacts to Stream 2 are anticipated from construction of the Preferred Alternative.

Wetlands

Prior to conducting fieldwork, Stantec reviewed NWI data for South Carolina provided by the U.S. Fish and Wildlife Service [USFWS, 2013(A)] and the USDA-NRCS list of hydric soils for Aiken County (USDA, 2012). A total of eight wetland areas were identified within the project study area during the field investigation. The following paragraphs contain a brief description of each wetland along with likely impacts associated with the Preferred Alternative.

Wetland A is not identified in NWI Wetlands data; however, field reviews identify the wetland as a palustrine, scrub-shub and maintained wetland encompassing approximately 0.120 acre. Wetland A is located along the north side of Belvedere Clearwater Road (SC 126) and west of Woods Lane, in the eastern-central portion of the project study area; see Appendix B, NRTR Figure 5C for the location and extent of jurisdiction. Hydrology is received from a jurisdictional pond (Open Water Pond A) located immediately upstream of the wetland, the Belvedere Clearwater Road (SC 126) roadway, and the surrounding upland forests and maintained lands. Wetland A drains in an easterly direction through an armored ditch to RPW Stream 2. RPW Stream 2 flows to RPW Stream 1, and eventually Little Horse Creek. No impacts to Wetland A are anticipated for the Preferred Alternative.

The overstory of Wetland A is limited due to maintenance activities; however, red maple and tulippoplar are dominant in unmaintained portions of the wetland. The understory vegetation includes saplings of red maple and sourwood (*Oxydendrum arborerum*), while tearthumb (*Polygonum sagittatum*) and sedges (Carex spp.) are dominant in the herbaceous layer. Poison ivy and Japanese honeysuckle are vines also found in the wetland. Wetland hydrology indicators within Wetland A include a high water table, saturated soils, water-stained leaves, and drainage patterns. Hydric soil indicators include low chroma soils, sandy mucky mineral texture, and a dark surface layer. Representative photographs of Wetland A are included in Appendix B, NRTR Photographs 1 and 2. Wetlands B, C, and H are palustrine, forested wetlands encompassing 2.313 acres, 0.824 acre, and 0.527 acre, respectively. NWI data identifies Wetland C as PFO1C and a portion of Wetland H as PFO1B. Wetland B is not identified on NWI data. Combined, Wetlands B, C, and H comprise the riparian corridor of Stream 1 located in the eastern-central portion of the project study area. Wetlands B and H are located north of Belvedere Clearwater Road (SC 126) and east of Woods Lane. Wetland C is located immediately upstream of Wetland B, on the south side of Belvedere Clearwater Road (SC 126); see Appendix B, NRTR Figures 5C and 5D for the location and extent of jurisdiction. Hydrology is received primarily from the Belvedere Clearwater Road (SC 126) roadway, and the surrounding upland forests and maintained lawns. Wetlands B, C, and H drain to the adjacent stream (RPW Stream 1) which, in turn, drains to Little Horse Creek.

The overstory of Wetlands B, C, and H are dominated by tulip-poplar, loblolly pine, and water oak (*Quercus nigra*). The understory vegetation consists of saplings and shrubs including sourwood, redbay, sweetbay, gallberry (*Ilex coriacea*), and dog hobble (*Leucothoe axillaris*). An herbaceous layer of giant cane (*Arundinaria gigantea*) and cinnamon fern (*Osmunda cinnamomea*) is also found throughout the wetlands. Laurel greenbriar (*Smilax laurifolia*) and muscadine are vines also found in the each wetland. Wetland hydrology indicators within Wetlands B, C, and H include a high water table and saturated soils. Hydric soil indicators include low chroma soils and a depleted matrix. Representative photographs of Wetlands B, C, and H are included in Appendix B, NRTR Photographs 3 and 11.

Wetland D is palustrine, forested wetland encompassing 3.013 acres, and is identified by NWI data as PFO1B and PSS1Ch. Wetland D represents the riparian corridor of Stream 3 located south of Belvedere Clearwater Road (SC 126) and east of Willow Lane in the western-central portion of the project study area; shown in Appendix B, NRTR Figure 5B for the location and extent of jurisdiction. Hydrology is received primarily from the Belvedere Clearwater Road (SC 126) pavement, surrounding upland forests and maintained lawns. Wetland D drains to the adjacent stream (RPW Stream 3) which, in turn, drains to Little Horse Creek. The Preferred Alternative would impact 0.129 acres of Wetland D.

The overstory of Wetland D is dominated by tulip-poplar, red maple, and loblolly pine. The understory vegetation consists of saplings and shrubs including red maple, black gum (*Nyssa sylvatica*), sweetgum, and laurel oak (*Quercus laurifolia*). Giant cane and netted chain fern are found throughout the herbaceous layer. Muscadine and Virginia creeper (*Parthenocissus quinquefolia*) are dominant vines also found in the wetland. Wetland hydrology indicators within Wetland D include a high water table, saturated soils, and water-stained leaves. Hydric soil indicators include low chroma soils and a depleted matrix. Representative photographs of Wetland D are included in Appendix B, NRTR Photographs 6 and 7.

Wetland E is not identified in NWI Wetlands data; however, field reviews identify the wetland as a linear palustrine, forested wetland encompassing approximately 0.116 acre. Wetland E is located north of Belvedere Clearwater Road (SC 126), near Willow Lane, and connects to Wetland D via a concrete pipe under Belvedere Clearwater Road (SC 126); as shown in Appendix B, NRTR Figure 5B for the location and extent of jurisdiction. Hydrology is received primarily from the surrounding upland forests and

maintained lawns. Wetland E drains to Wetland D and eventually RPW Stream 3 which, in turn, drains to Little Horse Creek.

The overstory of Wetland E is dominated by tulip-poplar and red maple. The understory vegetation consists of shrubs and herbs including possumhaw (*Viburnum nudum*) and netted chain fern. Laurel greenbrier and roundleaf greenbrier are vines also found in the wetland. Wetland hydrology indicators within Wetland E include a high water table, saturated soils, and water-stained leaves. Hydric soil indicators include low chroma soils, a thick dark surface, and a depleted matrix. Representative photographs of Wetland E are included in Appendix B, NRTR Photographs 9 and 10. The Preferred Alternative would impact 0.004-acre of Wetland E.

Wetlands F and G are palustrine, forested seepage slope wetlands encompassing 0.209 acre and 0.221 acre, respectively. NWI data identifies both wetland areas as PFO1B. Wetlands F and G are located south of SC 126 and west of Willow Lane; as shown in Appendix B, NRTR Figures 5A for the location and extent of jurisdiction. Hydrology is received primarily from the Belvedere Clearwater Road (SC 126) roadway, and the surrounding upland forests and maintained lawns. Wetlands F and G drain off-site to the adjacent stream which, in turn, drains to Little Horse Creek. No impacts to Wetlands F and G are anticipated for the Preferred Alternative.

The overstory of Wetlands F and G are dominated by tulip-poplar, sweetgum and red maple. The understory vegetation consists of saplings and shrubs including wax myrtle, red bay, and sweetbay. Common greenbrier and Japanese honeysuckle are vines also found in the wetland. Wetland hydrology indicators within Wetlands F and G include sediment deposits and saturated soils. Hydric soil indicators include low chroma soils and a depleted matrix.

The proposed roadway improvement project would likely result in permanent impacts to jurisdictional wetlands within the project study area due to the increased footprint of the new roadway.

Open Waters/ Ponds

One freshwater pond (Pond A) was identified within the project study area during the field investigation. Open Water Pond A is a man-made pond located approximately 300 feet west of Woods Lane, north of Belvedere Clearwater Road (SC 126), in the eastern-central portion of the project study area; as shown in Appendix B, NRTR Figure 5C for the location and extent of jurisdiction within the project study area. Open Water Pond A is not identified on the USGS topographic quadrangle map or the USDA soil survey, and is regulated by an earthen dam on its southern edge. During times of high volume, Open Water Pond A overtops naturally to Wetland A, which flows through an armored channel to RPW Stream 2. Within the project study area, Open Water Pond A encompasses 0.122 acre and accepts drainage from off-site runoff and surrounding homesites. Open Water Pond A exhibits an ordinary high water mark, inundation, and aquatic life such as fish and amphibians. A representative photograph of Open Water Pond A is included in Appendix B, NRTR Photograph 2.

Permitting

A Clean Water Act Section 404 permit is required for impacts to jurisdictional waters of the U.S., including wetlands. Section 404 is administered by the USACE. Depending on the type and extent of jurisdictional waters of the U.S., including wetlands, to be impacted, Section 404 permitting requirements can range from activities that are considered exempt or preauthorized to those requiring pre-construction notification (PCN) for a Nationwide Permit (NWP) or Individual Permit (IP) from the USACE.

In addition to the Section 404 permit, SCDHEC must grant, deny, or waive a Water Quality Certification (WQC), in accordance with Section 401 of the Clean Water Act. Waters considered by SCDHEC to be sensitive may also require additional consideration during the 401 WQC process. These include, but are not limited to, Outstanding Resource Waters (ORW), Shellfish Harvesting Waters (SFH), trout waters, areas draining to waters included on the 303(d) list of impaired waters, and areas draining to waters with an approved TMDL. The jurisdictional waters in the project study area drain to Little Horse Creek, which is listed as a water with an EPA approved TMDL. Depending on the type of impairment, extent of the project, and other factors, SCDHEC may require additional water quality protection and stormwater treatment measures during and after construction.

For South Carolina Department of Transportation (SCDOT) projects, USACE General Permit (GP) 2010-01346 may be applicable if impacts do not exceed 3.0 acres of freshwater wetlands, 0.5 acre of tidal wetlands, and/or 300 linear feet of stream. The GP has been approved by SCDHEC, therefore separate approval for Section 401 WQC is not required. If impacts exceed the GP threshold limits, an IP from the USACE would be required which involves a more rigorous, time-consuming review process. It is not uncommon for the regulatory processing of an IP application to take close to a year.

Specific permitting requirements and strategies for the project will be determined once impacts to jurisdictional areas (i.e., wetlands and other waters of the U.S.) are quantified following establishment of proposed project construction limits. Pursuant to Section 404, regulated discharges would include, but are not necessarily limited to, the placement of fill material, riprap, pipes, culverts, etc., into waters of the U.S. The permit application must include a delineation of affected waters of the U.S., including wetlands, as well as a description of impact avoidance and minimization strategies, and an alternatives analysis. It is anticipated that impacts to waters of the U.S. will exceed the threshold limits of a GP; therefore, an IP will likely be required for this project.

Compensatory Mitigation

Compensatory mitigation is normally required to offset unavoidable losses of waters of the U.S. The Council on Environmental Quality (CEQ) has defined mitigation in 40 CFR Part 1508.20 to include: avoiding impacts, minimizing impacts, rectifying impacts, reducing impacts over time, and compensating for impacts. Three general types of mitigation include avoidance, minimization, and compensatory mitigation. Compensatory mitigation typically consists of the restoration of existing degraded wetlands or waters, or the creation of wetlands/waters of equal or greater value than those to be impacted. This type of mitigation is only undertaken after avoidance and minimization actions are exhausted and

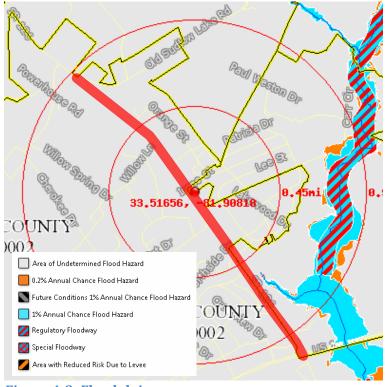
should be undertaken, when practicable, in areas near the impact site (i.e., on-site compensatory mitigation). The USACE typically requires compensatory mitigation for any impacts to jurisdictional waters of the U.S., including wetlands, for which a Section 404 permit application is submitted.

It is anticipated that compensatory mitigation for permanent project impacts will be attained through purchase of mitigation credits from a USACE approved mitigation bank, and/or a permittee-responsible mitigation plan (PRM) that complies with the 2008 Mitigation Rule and the 2010 Charleston District's Guidelines for Preparing a Compensatory Mitigation Plan. Specific mitigation requirements will be established during the Section 404 permitting process.

4.6 Floodplains

Regulatory floodplains were identified in accordance with Executive Order 11988 – Floodplain Management. The National Flood Insurance Program (NFIP) in conjunction with the NC Floodplain Mapping Program determined the regulatory floodways, floodplains, and other flood hazard areas for Aiken County. The Federal Emergency Management Agency (FEMA) regulates activities associated within these designated areas.

Flood hazard areas identified on the Flood Insurance Rate Map are identified as Special Flood Hazard Areas (SFHAs). SFHAs are defined as the area that will be inundated by the flood event having a 1-percent chance





of

being equaled or exceeded in any given year. The 1-percent annual chance flood is also referred to as the base flood or 100-year flood.

As shown in Figure 4-3, the project corridor does not cross any regulatory floodplains. The northeast portion of the corridor is adjacent to the 100-year floodplain along the lower portion of Little Horse Creek but widening to the north would not encroach on this area. Alternatives 2 and 3 would shift the alignment north, but the floodplain is outside the proposed construction limits. No floodplain impacts are associated with the proposed project.

4.7 Air Quality

The US Environmental protection Agency (USEPA) is required under the Clean Air Act (CAA) to set National Ambient Air Quality Standards (NAAQS) (40 CFR Part 50) for pollutants and air toxics

considered harmful to public health and the environment. In South Carolina, the SC Department of Health and Environmental Control (SCDHEC) is responsible for implementation of the CAA and ensures compliance with NAAQS.

The USEPA regulates six "criteria" pollutants of primary concern within our atmosphere including carbon monoxide, lead, nitrogen oxides, ozone, particulate matter and sulfur oxides. In addition to these "criteria" pollutants, the EPA also regulates 188 hazardous air toxics and six mobile source air toxics (MSATS). These MSATS, discussed in Section 4.8, include benzene, formaldehyde, acetaldehyde, diesel particulate matter, exhaust organic gases, acrolein, and 1,3-butadiene.

Transportation planning and air quality are closely related and as such, air quality regulations are linked to transportation planning in an attempt to improve the condition of our atmosphere and ensure that transportation projects are in compliance with the NAAQS. As a result, all transportation projects must be evaluated for their potential impacts to the region and state's air quality. This process is known as transportation conformity and ensures that transportation activities are consistent with air quality goals. SCDHEC monitors air quality and designates areas based on this analysis. Areas with emissions below the minimum federal NAAQS standards are considered to be "attainment" areas. Areas that do not meet the minimum standards are designated as "nonattainment" areas. These areas must submit air quality plans, known as State Implementation Plans (SIPs), showing how they will meet the NAAQS standards. If nonattainment areas do not meet air quality requirements, they face sanctions and penalties, including the potential loss of government funds. Metropolitan Planning Organizations (MPOs) and the United States Department of Transportation (USDOT) must ensure that transportation plans, programs, and projects conform to these SIPs.

Aiken County is currently in compliance. Because the proposed project is located in an attainment area; 40 CFR Parts 51 and 93 are not applicable. This project is not anticipated to create any adverse effects on the air quality of this attainment area.

4.8 Qualitative MSAT Analysis

The following paragraphs reference updated FHWA guidance on Mobile Source Air Toxic Analysis in NEPA Documents.¹⁰

Background

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the U.S. Environmental Protection Agency (EPA) regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007), and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS) (http://www.epa.gov/iris/). In addition, EPA identified seven compounds with significant

¹⁰ Federal Highway Administration (FHWA). Interim Guidance on Mobile Source Air Toxic Analysis. December 6, 2012. <u>http://www.fhwa.dot.gov/ENVIRonment/air_quality/air_toxics/policy_and_guidance/aqintguidmem.cfm</u>

contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment (NATA) (http://www.epa.gov/ttn/atw/nata1999/). These are acrolein, benzene, 1,3-butidiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules. The 2007 EPA rule mentioned above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using EPA's MOBILE6.2 model, even if vehicle activity (vehicle-miles travelled, VMT) increases by 145 percent as assumed, a combined reduction of 72 percent in the total annual emission rate for the priority MSAT is projected from 1999 to 2050.

MSAT analyses are intended to capture the net change in emissions within an affected environment, defined as the transportation network affected by the project. The affected environment for MSATs may be different than the affected environment defined in the NEPA document for other environmental effects, such as noise or wetlands. Analyzing MSATs only within a geographically-defined "study area" will not capture the emissions effects of changes in traffic on roadways outside of that area, which is particularly important where the project creates an alternative route or diverts traffic from one roadway class to another. At the other extreme, analyzing a metropolitan area's entire roadway network will result in emissions estimates for many roadway links not affected by the project, diluting the results of the analysis.

For each alternative in this EA, the amount of MSAT emitted would be proportional to the vehicle miles traveled (VMT), assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for each of the build alternatives is slightly higher than that for the No-Build Alternative, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. This increase in VMT would lead to higher MSAT emissions for the Preferred Alternative along the highway corridor, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds; according to EPA's MOVES2010b model, emissions of all of the priority MSAT decrease as speed increases. Because the estimated VMT under each of the alternatives are nearly the same, varying by less than 3 percent, it is expected there would be no appreciable difference in overall MSAT emissions among the various alternatives. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent between 2010 and 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

The additional travel lanes contemplated as part of the build alternatives will have the effect of moving some traffic closer to nearby homes, schools, and businesses; therefore, under each alternative there

may be localized areas where ambient concentrations of MSAT could be higher under certain build alternatives than the No-Build Alternative. The localized increases in MSAT concentrations for the Preferred Alternative would likely be most pronounced along the asymmetrical widening in the residential area extending from Woods Lane east to the terminus at Old Sudlow Lake Road (S-1790). However, the magnitude and the duration of these potential increases compared to the No-Build alternative cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific MSAT health impacts. In sum, when a highway is widened, the localized level of MSAT emissions for the Build Alternative could be higher relative to the No-Build Alternative, but this could be offset due to increases in speeds and reductions in congestion (which are associated with lower MSAT emissions). Also, MSAT will be lower in other locations when traffic shifts away from them. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today.

Incomplete or Unavailable Information for Project Specific MSAT Health Impact Analysis

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The EPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System (IRIS), which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects" (EPA, <u>www.epa.gov/iris/).</u> Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of FHWA's Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are; cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI, <u>http://pubs.healtheffects.org/view.php?id=282)</u> or in the future as vehicle emissions substantially decrease (HEI, <u>http://pubs.healtheffects.org/view.php?id=306)</u>.

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts - each step in the process building on

the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (<u>http://pubs.healtheffects.org/view.php?id=282)</u>. As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA (<u>www.epa.gov/risk/basicinfor mation. htm#g</u>) and the HEI (<u>http://pubs.healtheffects.org/getfile.php?u=395</u>) have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA's approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as

reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

Conclusion

The science of mobile source air toxics is still evolving. As the science progresses, FHWA will continue to revise and update this guidance. FHWA is working with stakeholders, EPA and others to better understand the strengths and weaknesses of developing analysis tools and the applicability on the project level decision documentation process.

Summary

Vehicles are a major contributor to decreased air quality because they emit a variety of pollutants into the air. Changing traffic patterns are a primary concern when determining the impact of a new highway facility or the improvement of an existing highway facility. New highways or the widening of existing highways increase localized levels of vehicle emissions, but these increases could be offset due to increases in speeds from reductions in congestion and because vehicle emissions will decrease in areas where traffic shifts to the new roadway. Significant progress has been made in reducing criteria pollutant emissions from motor vehicles and improving air quality, even as vehicle travel has increased rapidly.

The project is located in Aiken County, which complies with the National Ambient Air Quality Standards. Therefore, it is not anticipated to create any adverse effects on the air quality of this attainment area. This evaluation completes the assessment requirements for air quality of the 1990 Clean Air Act Amendments and the NEPA process, and no additional reports are necessary.

4.9 Noise

4.9.1 Preliminary Noise Analysis

SCDOT performed an analysis to determine the effect of the proposed widening on noise levels in the immediate area. The investigation includes a comparison of future and existing ambient noise levels to determine if roadway traffic noise impacts are expected from the proposed project. Highway/roadway noise, or roadway traffic noise, is usually a composite of noises from engine exhaust, drive train, and tire-roadway interaction. Roadway traffic noise impacts are determined using the current procedures for the abatement of highway traffic noise and construction noise under Part 772, Title 23 of the Code of Federal Regulations.

Analysis Methodology

In accordance with SCDOT Traffic Noise Abatement Policy, this Preliminary Traffic Noise Analysis utilized validated computer models created with the Federal Highway Administration Traffic Noise Model[®] (FHWA TNM v.2.5) to predict future noise levels and define impacted receptors along the proposed widening project. It represents the preliminary analysis of the probable traffic noise impacts of the Belvedere Clearwater Road (SC 126) widening project.

The analysis conducted examined key things associated with noise in the project study area, including ambient noise, a prediction of future noise levels, traffic noise impacts and noise contours, potential traffic noise and abatement measures, traffic system management measure, alteration of horizontal and vertical alignments, buffer zones, noise barriers, noise insulations, construction noise and noise-compatible land use. Findings for each are described in depth below.

Ambient noise monitoring data (20-minutes) was collected at 15 locations. The ambient noise monitoring locations are shown in Appendix C, Preliminary Noise Analysis Figures 4-4. Ambient noise is that noise which is all around us caused by natural and manmade events. It includes the wind, rain, thunder, birds chirping, insects, household appliances, commercial operations, lawn mowers, airplanes, automobiles, etc. It is all noise that is present in a particular area. The ambient noise monitoring results, concurrent traffic counts, estimated vehicle speeds, and weather information for the monitoring sites are included in Appendix C.

For this traffic noise analysis, loudest-hour existing noise levels were assessed as the TNM-predicted noise levels based on existing loudest-hour traffic estimates, or the ambient noise levels obtained at representative locations in the field.¹¹

To validate the accuracy of the model, TNM 2.5 was used to compare measured traffic noise levels to modeled noise levels at field measurement locations. For each monitoring location, traffic volumes counted during the ambient noise monitoring (20-minutes) periods were normalized to 1-hour volumes. These normalized volumes were assigned to the corresponding project area roadways to simulate the noise source strength at the roadways during the actual measurement period. Modeled and measured sound levels were then compared to determine the accuracy of the model. The results for validation TNM models are included in Appendix C. In accordance with industry standards and accepted best-practices, detailed computer models were created using the FHWA TNM 2.5. The computer models were validated to within acceptable tolerances of field-monitored traffic noise data, and were used to predict traffic noise levels for receptor locations in the vicinity of the Belvedere Clearwater Road (SC 126) widening project.

Preliminary project plans of the presently considered design alternative were used in this traffic noise analysis. Per FHWA guidance, the predictions documented in this report are based upon the potential project Design Year 2035 Build condition traffic volumes (including horizontal alignment alternatives) resulting in the loudest predicted hourly-equivalent traffic noise levels for each receptor. Refer to Appendix C for a comprehensive list of traffic noise level receptors, and existing and predicted Design Year 2035 hourly equivalent traffic noise levels.

¹¹ Per 23 CFR 772.5, existing noise levels are defined as "the worst noise hour resulting from the combination of natural and mechanical sources and human activity usually present in a particular area." If the TNM-predicted existing loudest-hour *traffic* noise levels are lower than the hourly-equivalent noise levels obtained in the field, then existing noise levels are assessed as the latter.

Findings

Traffic noise impacts occur when the predicted traffic noise levels either: [a] approach or exceed the FHWA noise abatement criteria (with "approach" meaning within 1 dB(A) of the NAC), or [b] substantially exceed the existing noise levels by 15 dB(A). FHWA and SCDOT require that feasible and reasonable measures be considered to abate traffic noise at all predicted traffic noise impacts. Measures considered include highway alignment selection, traffic systems management, buffer zones, noise walls, and earth berms.

The number and types of predicted traffic noise impacts in each condition is shown in Table 4-3, with impacts designated as either approaching or exceeding the FHWA NAC, by a substantial increase in Design Year 2035 Build condition traffic noise levels over existing ambient noise levels, or by meeting both criteria. Existing traffic noise impacts 7 receptors in the vicinity of the proposed Belvedere Clearwater Road (SC 126) widening project. Traffic noise is predicted to create 27 traffic noise impacts due to predicted Design Year 2035 No-Build condition noise levels that will approach or exceed FHWA noise abatement criteria. Alternative 1 is predicted to create 38 traffic noise impacts, Alternative 3 is predicted to create 38 traffic noise impacts, Alternative 3 is predicted to create 38 traffic noise impacts, Alternative 3 is predicted to create 38 traffic noise impacts, Alternative 3 is predicted to create 38 traffic noise impacts.

ALT. DESC.	APPROXIMATE # OF IMPACTED RECEPTORS APPROACHING OR EXCEEDING FHWA NAC ²)	SUBST'L NOISE LEVEL INCR. ³	IMPACTS DUE TO BOTH CRITERIA ⁴	TOTAL IMPACTS PER 23 CFR 772
	Α	В	С	D	Е	F	G			
Existing	0	7	0	0	0	0	0	N/A	N/A	7
No-Build	0	27	0	0	0	0	0	0	0	27 ⁵
Build Alt. 1	0	38	0	0	0	0	0	0	0	38 ⁵
Build Alt. 2	0	36	0	0	0	0	0	0	0	36⁵
Build Alt. 3	0	38	0	0	0	0	0	0	0	38 ⁵
Build Alt. 4	0	37	3	0	0	0	0	0	0	37 ⁵

TABLE 4-3 SUMMARY OF PRELIMINARY NOISE ANALYSIS: IMPACTED RECEIVERS

1. This table presents the number of build condition traffic noise impacts as predicted for the build alternatives and nobuild alternative presently under consideration. Refer to Appendix C for a detailed analysis of traffic noise impacts at each noise sensitive receptor location.

2. Predicted traffic noise level impact due to approaching or exceeding NAC. NAC categories are as follows: A - Serene land; B - Residential; C - Church/school; D - Hospital/library; E - Commercial/industry; F - Undeveloped land.

3. Predicted "substantial increase" traffic noise level impact.

4. Predicted traffic noise level impact due to exceeding NAC *and* "substantial increase" in Build condition noise levels.

5. The total number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion.

Predicted Build condition traffic noise level contours are not a definitive means by which to assess traffic noise level impacts; however, they can aid in future land use planning efforts in presently undeveloped areas. Correlating to the traffic noise impact threshold for FHWA NAC "E" land uses, the 71 dB(A) noise level contour is predicted to occur 43 feet from the center of the proposed Belvedere Clearwater Road

(SC 126) alignment and the 66 dB(A) noise level contour is predicted to occur 86 feet from the center of the Belvedere Clearwater Road (SC 126) alignment.

4.9.2 Detailed Noise Analysis

Following the preliminary noise analysis, a detailed noise analysis was prepared for the Preferred Alternative (Alternative 3). The full report is included in Appendix D.

Analysis Methodology

This Detailed Traffic Noise Analysis represents the detailed analysis of the probable traffic noise impacts of the Preferred Alternative for the SC 126 widening project (PROJECT ID 0041446). In accordance with SCDOT Traffic Noise Abatement Policy, this Detailed Traffic Noise Analysis utilized validated computer models created with the Federal Highway Administration Traffic Noise Model[®] (FHWA TNM v.2.5) to predict future noise levels and define impacted receptors along the proposed widening project.

Traffic noise emission is composed of several variables, including the number, types, and travel speeds of the vehicles, as well as the geometry of the roadway(s) on which the vehicles travel. Additionally, variables such as weather and intervening topography affect the transmission of traffic noise from the vehicle(s) to noise sensitive receptors.

In accordance with industry standards and accepted best-practices, detailed computer models were created using the FHWA TNM 2.5. The computer models were validated to within acceptable tolerances of field-monitored traffic noise data, and were used to predict traffic noise levels for receptor locations in the vicinity of the SC 126 widening project. Traffic noise consists of three primary parts: tire/pavement noise, engine noise, and exhaust noise. Of these sources, tire/pavement noise is typically the most offensive at unimpeded travel speeds. Sporadic traffic noises such as horns, squealing brakes, screeching tires, etc. are considered aberrant and are not included within the predictive model algorithm. Traffic noise is not constant; it varies depending upon the number, speed, type, and frequency of vehicles that pass by a given receptor. Since traffic noise emissions are different for various types of vehicles, the TNM algorithm distinguishes between source emissions from the following vehicle types: automobiles, medium trucks, heavy trucks, buses, and motorcycles, as shown in Table 4-4. The computer traffic noise prediction model uses the number and type of vehicles on the planned roadway, vehicle speeds, the physical characteristics of the road (curves, hills, depressions, elevations, etc.), receptor location and height, and, if applicable, barrier type, barrier ground elevation, and barrier segment top elevations.

TNM VEHICLE TYPE	DESCRIPTION
Autos	All vehicles with two axles and four tires, including passenger cars and light trucks, weighing 9,900 pounds or less
Medium Trucks	All vehicles having two axles and six tires, weighing between 9,900 and 26,400 pounds
Heavy Trucks	All vehicles having three or more axles, weighing more than 26,400 pounds
Buses	All vehicles designed to carry more than nine passengers
Motorcycles	All vehicles with two or three tires and an open-air driver / passenger compartment

 TABLE 4-4

 TRAFFIC NOISE MODEL (TNM) VEHICLE CLASSIFICATION TYPES

SOURCES: FHWA Measurement of Highway-Related Noise, § 5.1.3 Vehicle Types. FHWA Traffic Monitoring Guide, § 4.1 Classification Schemes

Project design plans of the Preferred Alternative were used in this detailed traffic noise analysis. Per FHWA guidance, the predictions documented in this report are based upon the potential project Design Year 2035 Build condition traffic volumes (including horizontal alignment alternatives) resulting in the loudest predicted hourly-equivalent traffic noise levels for each receptor. Refer to Appendix D for a comprehensive list of traffic noise level receptors, and existing and predicted Design Year 2035 hourly equivalent traffic noise levels.

Findings

Traffic noise impacts occur when the predicted traffic noise levels either: [a] approach or exceed the FHWA noise abatement criteria (with "approach" meaning within 1 dB(A) of the NAC values listed in Table 3 on page 6), or [b] substantially exceed the existing noise levels by 15 dB(A). FHWA and SCDOT require that feasible and reasonable measures be considered to abate traffic noise at all predicted traffic noise impacts. Measures considered include highway alignment selection, traffic systems management, buffer zones, noise walls, and earth berms.

The number and types of predicted traffic noise impacts in each condition is shown in Table 4-5, with impacts designated as either approaching or exceeding the FHWA NAC, by a substantial increase in Design Year 2035 Build condition traffic noise levels over existing ambient noise levels, or by meeting both criteria. Existing traffic noise impacts 8 receptors in the vicinity of the proposed SC 126 widening project. Traffic noise is predicted to create 25 traffic noise impacts due to predicted Design Year 2035 No-Build condition noise levels that will approach or exceed FHWA noise abatement criteria. The Preferred Alternative is predicted to create 33 traffic noise impacts.

ALT. DESC.	APPROXIMATE # OF IMPACTED RECEPTORS APPROACHING OR EXCEEDING FHWA NAC ²						G	SUBST'L NOISE LEVEL INCR. ³	IMPACTS DUE TO BOTH CRITERIA ⁴	TOTAL IMPACTS PER 23 CFR 772	
	Α	В	С	D	Е	F	G				
Existing	0	8	0	0	0	0	0	N/A	N/A	8	
No-Build	0	25	0	0	0	0	0	0	0	25 ⁵	
Preferred Alt. (Alt. 3)	0	33	0	0	0	0	0	0	0	33 ⁵	

TABLE 4-5 SUMMARY OF DETAILED NOISE ANALYSIS: IMPACTED RECEIVERS

1. This table presents the number of build condition traffic noise impacts as predicted for the build alternatives and nobuild alternative presently under consideration. Refer to Appendix C for a detailed analysis of traffic noise impacts at each noise sensitive receptor location.

2. Predicted traffic noise level impact due to approaching or exceeding NAC. NAC categories are as follows: A - Serene land; B - Residential; C - Church/school; D - Hospital/library; E - Commercial/industry; F - Undeveloped land.

3. Predicted "substantial increase" traffic noise level impact.

4. Predicted traffic noise level impact due to exceeding NAC and "substantial increase" in Build condition noise levels.

5. The total number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion.

Predicted Build condition traffic noise level contours are not a definitive means by which to assess traffic noise level impacts; however, they can aid in future land use planning efforts in presently undeveloped areas. Correlating to the traffic noise impact threshold for FHWA NAC "E" land uses, the 71 dB(A) noise

level contour is predicted to occur 43 feet from the center of the proposed SC 126 alignment and the 66 dB(A) noise level contour is predicted to occur 86 feet from the center of the SC 126 alignment.

Per 23 CFR 772.9(c) and SCDOT Policy, noise contour lines shall not be used for determining highway traffic noise impacts. However, the 71 dB(A) and 66 dB(A) noise level contour information should assist local authorities in exercising land use control over the remaining undeveloped lands, so as to avoid development of incompatible activities adjacent to the roadways within local jurisdiction.

4.9.3 Noise Abatement

FHWA and SCDOT require that feasible and reasonable noise abatement measures be considered and evaluated for the benefit of all predicted Build condition traffic noise impacts. Feasibility and reasonableness are distinct and separate considerations. Feasibility is the consideration as to whether noise abatement measures can be implemented. Reasonableness is the consideration as to whether noise abatement measures should be implemented. Per SCDOT Policy, the following traffic noise abatement measures may be considered: Traffic management measures, alteration of horizontal and vertical alignments, buffer zones, noise barriers (earth berms and noise walls), and noise insulation of Activity Category D land use facilities.

Analysis of Noise Measures

Traffic System Management Measures – Traffic management measures such as prohibition of truck traffic, lowering speed limits, limiting of traffic volumes, and/or limiting time of operation were considered as possible traffic noise impact abatement measures. The purpose of the SC 126 widening project is to increase the functional capacity of the highway facility. Prohibition of truck traffic, reduction of the speed limit below the existing speed limits or the proposed 50 miles per hour speed limit, or screening total traffic volumes would diminish the functional capacity of the highway facility and are not considered practicable.

Alteration of Horizontal and Vertical Alignments – Highway alignment selection for traffic noise abatement measures involves modifying the horizontal and vertical geometry of the proposed facility to minimize traffic noise to noise-sensitive receptors. The selection of alternative alignments for noise abatement purposes must consider the balance between noise impacts and other engineering and environmental parameters. For noise abatement, horizontal alignment selection is primarily a matter of locating the roadway at a sufficient distance from noise sensitive receptors. Appreciable reductions in traffic noise transmissions to sensitive receptors can be made by adjusting the vertical highway alignment and/or section geometry. For example, lowering a roadway below existing grade creates a cut section which could act similarly as an earth berm, depending upon the relative location(s) of noise-sensitive receptor(s). This project is utilizing existing alignments to provide the "best fit" for the improvements. Alteration of the vertical or horizontal alignments away from existing alignment would not be reasonable nor feasible for this project.

Buffer Zones – Buffer zones are typically not practical and/or cost effective for noise mitigation due to the substantial amount of right-of-way required, and would not be a feasible noise mitigation measure

for this project. Furthermore, if the acquisition of a suitable buffer zone had been feasible, the associated costs would exceed the SCDOT Policy reasonable abatement cost threshold per benefited receptor.

Noise Barriers – Passive noise abatement measures are effective because they absorb sound energy, extend the source-to-receptor sound transmission path, or both. Sound absorption is a function of abatement medium (e.g. earth berms absorb more sound energy than noise walls of the same height because earth berms are more massive). The source-to-receptor path is extended by placement of an obstacle, such as a wall, that sufficiently blocks the transmission of sound waves that travel from the source to the receptor.

Highway sound barriers are primarily constructed as earth berms or solid-mass walls adjacent to limitedaccess freeways that are in close proximity to noise-sensitive land use(s). To be effective, a sound barrier must be long enough and tall enough to shield the impacted receptor(s). Generally, the noise wall length must be eight times the distance from the barrier to the receptor. For example, if a receptor is 200 feet from the roadway, an effective barrier would be approximately 1,600 feet long – with the receptor in the horizontal center. On roadway facilities with direct access for driveways, sound barriers are typically not feasible because the openings render the barrier ineffective in impeding the transmission of traffic noise. Due to the requisite lengths for effectiveness, sound barriers are typically not economical for isolated or most low-density areas. However, sound barriers may be economical for the benefit of as few as one predicted traffic noise impact if the barrier can benefit enough total receptors – impacted and non-impacted combined – to meet applicable reasonableness criteria.

Consideration for noise abatement measures was given to all impacted receptors in the 2035 build condition. Noise abatement measures were determined not to be feasible due to site access constraints where the driveways of each property and other side streets were located such that a noise barrier would not be able to be constructed to adequately provide the required abatement. As a result, no noise abatement measures are recommended.

Feasibility

Consideration for noise abatement measures was given to all impacted receptors. While densely-spaced traffic noise impacts can increase the likelihood of providing noise abatement measures, such measures will not be feasible for the benefit of predicted traffic noise impacts in the vicinity of the SC 126 widening project due to the uncontrolled access to the roadway with many driveway openings and the need for vehicle sight distance.

Conclusion of Noise Analysis

Traffic noise and temporary construction noise can be a consequence of transportation projects, especially in areas in close proximity to high-volume and high-speed existing steady-state traffic noise sources. This Traffic Noise Analysis utilized computer models created with the FHWA Traffic Noise Model software (TNM 2.5), validated to field-collected traffic noise monitoring data, to predict future noise levels and define impacted receptors along the proposed new highway project.

Existing traffic noise impacts seven receptors in the vicinity of the proposed Belvedere Clearwater Road (SC 126) widening project (Project ID 0041446). For the No-Build condition, 27 receptors will be impacted by Design Year 2035 traffic volumes. Build Alternative 1 is predicted to create 38 traffic noise impacts with Design Year 2035 traffic, Build Alternative 2 is predicted to create 36 traffic noise impacts, Build Alternative 3 is predicted to create 38 traffic noise impacts and Build Alternative 4 is predicted to create 37 traffic noise impacts.

FHWA and SCDOT require that feasible and reasonable noise abatement measures be considered and evaluated for the benefit of all predicted build-condition traffic noise impacts. Feasibility and reasonableness are distinct and separate considerations. Feasibility is the consideration as to whether noise abatement measures *can* be implemented. Reasonableness is the consideration as to whether noise abatement measures *should* be implemented. To be effective, a sound barrier must be long enough and tall enough to shield the impacted receptor(s). Generally, the noise wall length must be eight times the distance from the barrier to the receptor. For example, if a receptor is 200 feet from the roadway, an effective barrier would be approximately 1,600 feet long – with the receptor in the horizontal center. On roadway facilities such as Belvedere Clearwater Road (SC 126), with direct access for driveways, sound barriers are typically not feasible because the openings render the barrier ineffective in impeding the transmission of traffic noise.

No traffic noise abatement measures considered in this traffic noise analysis will meet the reasonable and feasible criteria detailed in the SCDOT Traffic Noise Abatement Policy. Consequently, no traffic noise abatement measures are recommended and no noise abatement measures are proposed for incorporation into the project plan. Therefore, additional detailed study of potential mitigation measures shall not be necessary subsequent to selection of the final design of this project unless modifications to presently considered alignments occur, additional alignments are considered, or changes to Design Year 2035 traffic volumes are predicted. This analysis completes the traffic noise requirements of the Title 23 CFR Part 772 and SCDOT Traffic Noise Abatement Policy.

4.9.4 Temporary Construction Noise

The predominant construction activities associated with this project are expected to be earth removal, hauling, grading, and paving. Temporary and localized construction noise impacts will likely occur as a result of these activities. During daytime hours, the predicted effects of these impacts will be temporary speech interference for passers-by and those individuals living or working near the project. During evening and nighttime hours, steady-state construction noise emissions such as from paving operations will be audible, and may cause impacts to activities such as sleep. Sporadic evening and nighttime construction equipment noise emissions such as from backup alarms, lift gate closures ("slamming" of dump truck gates), etc., will be perceived as distinctly louder than the steady-state acoustic environment, and will likely cause severe impacts to the general peace and usage of noise-sensitive areas – particularly residences, hospitals, and hotels.

Extremely loud construction noise activities such as usage of pile-drivers and impact-hammers (jack hammer, hoe-ram) will provide sporadic and temporary construction noise impacts in the near vicinity

of those activities (refer to Table 4-6). Construction activities that will produce extremely loud noises should be scheduled during times of the day when such noises will create as minimal disturbance as possible.

	Noise Level Emissions (dB(A)) at 50 Feet From Equipment ²						
Equipment	70	80	90	100			
Pile Driver ³							
Jack Hammer							
Tractor	-						
Road Grader							
Backhoe							
Truck							
Paver							
Pneumatic Wrench							
Crane							
Concrete Mixer							
Compressor							
Front-End Loader							
Generator							
Saws							
Roller (Compactor)							

 TABLE 4-6

 CONSTRUCTION EQUIPMENT TYPICAL NOISE LEVEL EMISSIONS¹

1. Adapted from *Noise Construction Equipment and Operations, Building Equipment, and Home Appliances*. U.S. Environmental Protection Agency. Washington D.C. 1971.

2. Cited noise level ranges are typical for the respective equipment. For "point sources" such as the construction equipment listed above, noise levels generally dissipate at a rate of -6 dB(A) for every doubling of distance. For example, if the noise level from a pile driver at a distance of 50 feet = 100 decibels (dB(A)), then at 400 feet, it might be 82 decibels (dB(A)) or less.

3. Due to project safety and potential construction noise concerns, pile driving activities are typically limited to daytime hours.

Generally, low-cost and easily implemented construction noise control measures should be incorporated into the project plans and specifications to the extent possible. These measures include, but are not limited to, work-hour limits, equipment exhaust muffler requirements, haul-road locations, elimination of "tail gate banging", ambient-sensitive backup alarms, construction noise complaint mechanisms, and consistent and transparent community communication.

While discrete construction noise level prediction is difficult for a particular receptor or group of receptors, it can be assessed in a general capacity with respect to distance from known or likely project activities. For this project, earth removal, grading, hauling, and paving is anticipated to occur in the vicinity of noise-sensitive receptors. Although construction noise impact mitigation should not place an undue burden upon the financial cost of the project or the project construction schedule, pursuant to the requirements of 23 CFR 772.19, it is the recommendation of this traffic noise analysis that:

- Earth removal, grading, hauling, and paving activities in the vicinity of residences should be limited to weekday daytime hours.
- If meeting the project schedule requires that earth removal, grading, hauling and / or paving must
 occur during evening, nighttime and / or weekend hours in the vicinity of residences, the Contractor
 shall notify SCDOT as soon as possible. In such instance(s), all reasonable attempts shall be made to
 notify and to make appropriate arrangements for the mitigation of the predicted construction noise
 impacts upon the affected property owners and / or residents.
- If construction noise activities must occur during context-sensitive hours in the vicinity of noisesensitive areas, discrete construction noise abatement measures including, but not limited to portable noise barriers and / or other equipment-quieting devices shall be considered.

For additional information on construction noise, please refer to the FHWA Construction Noise Handbook (FHWA-HEP-06-015) and the Roadway Construction Noise Model (RCNM), available online at: http://www.fhwa.dot.gov/environment/noise/cnstr_ns.htm.

Construction noise impacts may occur due to the close proximity of numerous noise-sensitive receptors to project construction activities. It is the recommendation of this traffic noise analysis that all reasonable efforts should be made to minimize exposure of noise-sensitive areas to construction noise impacts.

4.10 Hazardous Waste and Underground Storage Tanks (USTs)

Hazardous waste/material sites are regulated by the Resource Conservation and Recovery Act (RCRA), as amended, the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended, and the Superfund Amendments and Reauthorization Act of 1986 (SARA). Potential hazardous waste sites include landfills, dumps, pits, lagoons, salvage yards, industrial sites, and above-ground and underground storage tanks (USTs). Service/gas stations are one of the most common generators of potential hazardous material sites, as older USTs may deteriorate and contaminate surrounding soil and groundwater with gasoline. The SCDHEC maintains a database of these potential contamination sites.

A Phase 1 Environmental Site Assessment (ESA) was conducted consistent with the procedures included in ASTM E 1527-05, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. The full report is included in Appendix E.

Environmental Assessment Belvedere-Clearwater Road (SC 126) Widening Aiken County, South Carolina November 2015

The purpose of the Phase I ESA was to identify recognized environmental conditions and historical recognized environmental conditions, including possible sites involving the presence and/or past use of USTs, above ground storage tanks (ASTs), and/or other hazardous materials in or adjacent to the proposed project corridor. Site evaluated within the project corridor are shown in Figure 4-4. Details on each site are included in Table 4-7. Of the eight potential contamination sites, five present Recognized Environmental Conditions (RECs) and it is recommended that the portions of the project corridor located adjacent to these RECs be evaluated for subsurface contamination.



Figure 4-4: Potential Contamination Sites

SITE	FACILITY NAME & LOCATION	CONCERN	STATUS
1	William's Automotive 899 Belvedere Clearwater Rd	One aboveground storage tank containing used motor oil and one polyethylene tote containing used antifreeze	Does not present a REC
2	Body Shoppe 101 Pineview Dr	Historic automotive station	Presents a REC
3	Quality Automotive 1001 Belvedere Clearwater Rd	Aboveground storage tanks containing used motor oil; historic automotive station	Present a REC due to the undetermined size and location of tanks
4	BlueStar Rentals 1007 Belvedere Clearwater Rd	Currently operating three aboveground storage tanks; contents undetermined	Does not present a REC
5*	Speedway Sunoco 4368 Jefferson Davis Hwy First Stop Clearwater 4380 Jefferson Davis Hwy	Abandoned underground storage tanks/leaking underground storage tanks; no active releases but groundwater contaminants present. No further action letter dated March 27, 2013.	Presents a REC based on regulatory status, groundwater flow, and relative distance from project
6	Clearwater Auto Repairs /Clearwater Muffler Shop 4367 Jefferson Davis Hwy	Historic automotive station	Presents a REC

TABLE 4-7
POTENTIAL CONTAMINATION SITES WITHIN THE PROJECT CORRIDOR

SITE	FACILITY NAME & LOCATION	CONCERN	STATUS
7	CVS Pharmacy #4388 4295 Jefferson Davis Hwy	Generator of hazardous waste; classified as a Conditionally Exempt Small Quantity Generator	Does not present a REC based on its regulatory status
8	Clearwater Finishing facility SC 126 at US 1/78	Abandoned textile mill containing hazardous waste	Presents a REC based on location, regulatory status, and documented groundwater contaminants

 TABLE 4-7

 POTENTIAL CONTAMINATION SITES WITHIN THE PROJECT CORRIDOR

* Walgreens Store #11432 is currently located on the sites previously occupied by Speedway Sunoco and First Stop Clearwater.

Other Notable Features

Septic tanks and/or leach fields – There is a septic system located on Site 3. No stressed vegetation or noxious odors were observed in the vicinity of the septic system. The septic system does not represent a REC to the proposed project.

Pipeline markers – Pipeline markers were observed north of the intersection of Duncan Road (S-67) and Belvedere Clearwater Road and just north of the Walgreen's entrance on Belvedere Clearwater Road (SC 126). Labeling indicates that the pipeline contained natural gas and was owned by SCE&G. The natural gas line does not represent a REC to the proposed project.

Transformers and/or capacitors – One pad-mounted and seven pole-mounted transformers, owned and serviced by SCE&G, were observed within the project corridor; however, no information with regard to PCB content of the transformer fluids was observed. Some transformers contain mineral oil which may contain PCBs. SCE&G maintains responsibility for the transformers, and if the transformers were "PCB contaminated," the utility company is not required to replace the transformer fluids until a release is identified. Evidence of current or prior release was not observed in the vicinity of the electrical equipment during the site reconnaissance.

Surface water bodies – A pond was observed within the project corridor on the north side of Belvedere Clearwater Road between the Duncan Road (S-67) and Wood Lane intersections. No evidence of chemical sheens was observed on the surface of the waters, and no noxious odors were noted emanating from within the pond at the time of the site reconnaissance.

Wells – Six groundwater monitoring wells were observed within the project corridor. Five of the monitoring wells were located around the Walgreen's (Site 5) and one monitoring well was located at Clearwater Finishing (Site 8). According to SCDHEC, the monitoring wells were installed to monitor the concentrations of contaminants in the groundwater.

4.11 Cultural Resources (Historic/ Archeological)

Section 106 of the National Historic Preservation Act (36 CFR 800) requires federal agencies to consider the effects of their undertakings on historic properties and to allow the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on the proposed action. Historic properties protected under Section 106 include prehistoric [archeological] or historic districts, sites, buildings, structures, or objects included in or eligible for inclusion in the National Register of Historic Places.

To address Section 106 requirements, cultural resources investigations were undertaken and a *Phase I Cultural Resources Survey* was prepared for the proposed project (New South, 2013). This study is included in Appendix F. The purpose of the study was to identify all previously recorded historic properties and to evaluate other resources identified during field surveys. Historic maps, the Archsite GIS database, and site files housed at the Institute of Archaeology and Anthropology (SCIAA) were all examined in detail.

The area of potential effect (APE) measures 300 feet beyond the existing right-of-way and the area of archaeological emphasis focused on 100 feet on either side of the roadway centerline.

Previously Identified Cultural Resources

Background research identified three previously recorded architectural resources and two additional previously recorded resources within a 0.5-mile radius of the APE. All five resources were described as not eligible for listing on the National Register of Historic Places (NRHP) at their time of survey and were not resurveyed. No previously recorded archaeological sites are located within 0.25-miles of the APE.

Newly Identified Cultural Resources

Buildings and structures greater than 50 years in age were assessed for their National Register eligibility. There were 14 newly recorded architectural resources within the APE surveyed using the Statewide Survey Intensive Form, produced by the South Carolina State Historic Preservation Office (SHPO). The resources were identified and surveyed in accordance with the SHPO's Survey Manual: *South Carolina Statewide Survey of Historic Places*, and digital photographs were taken of each one.

The architectural survey recorded 14 newly identified resources in the APE, a post-World War II subdivision, and Clearwater Mill Village Historic District, which crosses the APE near the eastern terminus.

Like other mill villages nearby, Clearwater Mill Village was a self-sustaining community. With its mill store, post office, school, and churches, Clearwater Mill Village grew to meet the needs of operatives working at Seminole Mill and Clearwater Finishing Plant.

The mill village retains integrity in the area of location, as the village and buildings do not appear



to be moved. Through a combination of encroaching modern development, residential infill construction, razing and replacement of original mill housing, and fire- and demolition- related depletion of the once large, industrial sites, the integrity of setting at Clearwater Mill Village has greatly deteriorated. While some streets within the mill village continue to suggest an early-twentieth-century neighborhood, destruction at the industrial sites and the addition of later residential resources and non-historic infill buildings has significantly interfered with the historic integrity of the village in the areas of feeling and association. While Clearwater Mill Village was once an important district in areas associated with the textile mill industry, labor relations, planning and development, and architecture, it no longer includes enough congruent historical fabric to convey its rich past. The now fragmentary state of the mill village does not support its eligibility for NRHP listing. Clearwater Mill Village is, therefore, recommended not eligible for listing in the NRHP.

Hillside and Pineview drives, the first roads constructed as part of Woodridge subdivision were laid out as early as 1956 according to county highway maps. The layout of the subdivision consists of a group roads primarily situated between SC 126, Cherokee Drive, Hillside Drive, and Deerwood Drive. Approximately 160 houses are situated within the bounds of the Woodridge subdivision. All Woodridge houses identified during the field survey were constructed in the ranch house type. Per guidance from the SC SHPO, this neighborhood was not intensively surveyed. However, a reconnaissance survey of the neighborhood was performed. This reconnaissance survey determined that the neighborhood was not a noteworthy or significant example of a post-World War II neighborhood.

Archeological Survey

Shovel tests were typically excavated at a 30-meter interval with the exception of areas of excessive slope, pavement, locations in standing water, and areas clearly disturbed. These areas were examined but not subjected to shovel testing. All soils were screened through 0.25-inch mesh hardware cloth to recover all artifacts present. Shovel tests used to delineate site boundaries were excavated in arbitrary 10-centimeter levels within natural strata in order to better assess the sites integrity. Where possible, all site boundaries were delineated until two sterile shovel tests were encountered or the ROW boundary was reached.

No previously recorded or new archaeological sites were encountered during this survey. However, one isolated find consisting of a single Allendale chert flake was documented. All of the cultural resources evaluated during this survey are recommended not eligible for NRHP listing.

Other Cultural Resources

The project corridor contains a monument erected by the United Daughters of the Confederacy (UDC)



commemorating the president of the short-lived Confederate States of America. The UDC was the primary force behind the naming of highways in honor of Jefferson Davis and erecting memorial trees,

sign posts, and markers. The markers are not uniform in design and can be found in several sizes and variations throughout the country.

The monument currently located at the intersection of Belvedere Clearwater Road (SC 126) and Jefferson Davis Highway (US 1/78) was originally placed along US 1 in 1925. In 1950, US 1 was signed on a different alignment and the former alignment signed as SC 421. The monument remained in place on SC 421 until it was moved by the Sons of Confederate Veterans and the UDC to its current location.

Conclusions

None of the previously identified or newly surveyed cultural resources were found to be eligible for listing on the NRHP; therefore, no historic properties will be affected. The State Historic Preservation Office (SHPO) and the Catawba Indian Nation Tribal Historic Preservation Office (THPO) were provided copies of the *Phase I Cultural Resources Survey* and concur with these findings. SHPO and THPO correspondence can be found in Appendix G.

4.12 Section 4(f) and Section 6(f) Resources

According to United States Code (USC) Title 23 in Section 138 (Section 4(f)), the United States Department of Transportation (USDOT):

"...... shall not approve any program or project which requires the use of any publicly-owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, State or local significance as determined by the Federal, State, or local officials having jurisdiction thereof, or any land from an historic site of national, State or local significance as so determined by such officials unless (1) there is no feasible and prudent alternative to the use of such land, and (2) such program includes all possible planning to minimize harm to such park, recreational area, wildlife and waterfowl refuge, or historic site resulting from such use."

As indicated in Section 4.11, there are structures over 50 years of age located within the project corridor, though none of these structures are listed on, or eligible for listing on, the National Register of Historic Places. There are no recreational areas, refuges, or historic sites within the project corridor. As such, no Section 4(f) properties would be affected by the proposed project.

Section 6(f) of the Land and Water Conservation Fund Act (LWCF) of 1965 (16 USC 4601-4) requires federal agencies to analyze potential impacts to lands acquired or developed with LWCF grants. Section 6(f) prohibits the conversion of these properties to non-recreational use without replacement of land of equivalent value, usefulness, location, and approval of the National Park Service. There are no lands that were acquired or developed with LWCF grants within the project study area; therefore, Section 6(f) of the Land and Water Conservation Act is not applicable to this action.

4.13 Relocations

The current right-of-way is 75 feet and the proposed right-of-way is 120 feet, with additional right-ofway required for improvements at the Duncan Road (S-67) and Old Sudlow Lake Road (S-1790) intersections. The majority of the Preferred Alternative (a distance of approximately 1.23-mile or 6,500

feet) would utilize a symmetrical widening, which would extend the proposed right-ofway on both sides of the roadway. For the portion of the project corridor between Woods Lane and Old Sudlow Lake Road (S-1790), development is set back from the roadway on both sides. Although the Preferred Alternative would require the acquisition of additional right-of-way, its



symmetrical alignment avoids relocations. Encroachment effects would be experienced on both sides of the corridor; however, as the proposed project advances and the final designs are developed for the Preferred Alternative, design refinements will reduce the construction limits of the project. Where practicable, measures such as retaining walls can be utilized to eliminate the need for grading, which would minimize encroachment impacts on adjacent properties.



The eastern portion of the Preferred Alternative (for a distance of 0.64-mile or 3,375 feet) would maintain the existing rightof-way on the south side and shift the alignment north. This alignment avoids impacts to the businesses on the south side of the project corridor. This section of the Preferred Alternative would require additional

right-of-way on the north side of the corridor, but would not cause any relocations. The Preferred Alternative would require additional right-of-way from Lakeside Baptist Church and a large undeveloped parcel west of the church but would not encroach upon the church facilities or any other development.

4.14 Social and Economic

Aiken County Demographics

As indicated in Section 4.1, Aiken County is growing a rate less than the statewide average and is forecast to grow only 14% between 2010 and 2030, a rate of 0.7% per year.

The current population is 162,812, ranking the county 11th in South Carolina overall in terms of total population.¹² In 2010, the population of Aiken County was 69.6 percent white, 24.6 percent black, and

¹² South Carolina Statistcal Abstract. (2014). Population Counts and Projections 2000-2030. Retrieved February 4, 2014 from http://abstract.sc.gov/chapter14/pop5.php.

less than 1 percent Native American and Asian, respectively. People of other races represented 2.6 percent of the population, while 4.9 percent of people identify as Hispanic or Latino. The median age in the county is 40 years, while the total population over the age of 65 is 15.4 percent. People under the age of 18 comprise 23 percent of the total population.¹³

The American Community Survey estimates from 2012 indicate that of the population aged 16 or older 58 percent, or 74,111 people, are in the labor force, while 9.6 percent of people in the labor force are unemployed. Of those people in the labor force in Aiken County, 85.1 percent drive along to work, 9.4 percent carpooled, 1.3 percent walked, and 0.2 percent used public transit. Slightly more than 1 percent of people used other modes to travel to work and 2.8 percent of people worked from home. The average commute time to work was 25.4 minutes. In terms of occupations in Aiken County, 34.4 percent of people in the labor force worked in management, business, science, and arts occupations; 23 percent worked in sales and office occupations; 16.6 percent worked in service occupations; 15 percent worked in natural resources, construction, and material moving occupations; and 11 percent worked in natural services, healthcare, and social assistance accounted for 21.2 percent of all jobs; followed by manufacturing jobs at 14.4 percent; professional, scientific, and management, and administrative and waste service jobs at 11.7 percent; and retail trade jobs at 11.4 percent.

In terms of education for the population of Aiken County 25 years and older, 5.4 percent did not attend school beyond 9th grade or lower, 10.1 percent attended school until between 9th and 12th grade, and 31.5 percent are High School graduates. A further 21.5 percent attended college, but did not graduate, while 7.5 percent earned an associate's degree, 15.2 percent hold bachelor's degrees, and 8.7 percent attained a graduate or professional degree. These percentages are roughly equivalent to South Carolina as a whole.

The project falls mostly within Block Group 2 of Census Tract 210.02 in Aiken County. This block group is 91 percent white and 8 percent African-American, while 1.2 percent identify as Hispanic or Latino. In comparison with South Carolina as a whole, Aiken County has more people whose income is below the poverty level at 14.7 percent versus 83.2 percent and has a slightly lower median income at \$44,339 versus \$44,623 for South Carolina as a whole.¹⁴

Community Resources

Bath Fire Department Station No. 2 (Woodridge Station) is located on Hillside Drive and utilizes Belvedere Clearwater Road (SC 126) for emergency response calls. Improving Belvedere Clearwater Road (SC 126) will help minimize emergency response delays associated with congestion on Belvedere Clearwater Road (SC 126).

¹³ United States Census Bureau. (2014). American Community Survey 2012 5-Year Estimates (Data File). Retrieved February 5, 2014 from factfinder2.census.gov.

¹⁴ United States Census Bureau. (2014). American Community Survey 2012 5-Year Estimates (Data File). Retrieved February 5, 2014 from factfinder2.census.gov.

Fire trucks can access Belvedere Clearwater Road (SC 126) at either the Hillside Road or Pineview Drive intersections; however, it is recommended that SCDOT coordinate with the Bath Fire Department to ensure that emergency response services are not impeded by construction of the proposed project.

Lakeside Baptist Church is located on the north side of Belvedere Clearwater Road (SC 126) at the eastern project terminus. The church has driveway access from Belvedere Clearwater Road (SC 126) as well as Jefferson Davis Highway (US 1/78). The Preferred Alternative would require additional right-ofway from the church property but would not affect the church building, parking, or any other facilities located on the property. There may be temporary impacts associated with construction of the proposed project but this effect is minimized by the presence of multiple driveway locations and that the largest amount of church traffic typically occurs on weekends and evenings when construction crews would not be active.

Environmental Justice Evaluation

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" (Federal Register Vol. 59, No. 32, February 16, 1994), states that each federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health and environmental effects of its program, policies, and activities on minority populations and low-income populations. It also directs agencies to ensure that affected communities have full and fair participation in the transportation decision-making process and to prevent the denial of, reduction in, or significant delay in the receipts of benefits by minority and low-income populations.¹⁵

US Census Bureau American Community Survey (ACS) 2008-2012 data was evaluated for properties with frontage along, or immediately adjacent to, Belvedere Clearwater Road (SC 126) along the project corridor.¹⁶ Census data indicates that 93% of residents (292 people) are "white alone." Minority populations comprise 7% of residents (25 people) along the project corridor. Comparatively, minority populations comprise 36% of the statewide population. Low-income populations comprise 26% of residents (82 people) along the corridor; statewide low-income populations include approximately 39% of the population.

The proposed project would not have disproportionately high and adverse impacts on low-income or minority populations. In addition to the absence of notable minority and low-income populations, the proposed project would not cause any residential relocations or limit access to community facilities or businesses along the project corridor. Benefits and burdens associated with proposed project would be distributed throughout the community.

¹⁵ Federal Highway Administration (FHWA). Environmental Justice Reference Guide. April 1, 2015. http://www.fhwa.dot.gov/environment/environmental_justice/resources/reference_guide_2015/fhwahep15035..pdf ¹⁶ US Environmental Protection Agency. EJSCREEN: Environmental Justice Screening and Mapping Tool. <u>http://ejscreen.epa.gov/mapper/</u>

Community Impacts within the Project Corridor

Overall, no significant adverse effects on neighborhoods, public facilities, community resources, or services are anticipated as a result of the proposed project. The proposed project would not create any residential or business relocations and would not create disproportionate impacts to low-income or minority populations.

4.15 Indirect and Cumulative Impacts

4.15.1 Indirect Impacts

Indirect effects (also known as secondary effects) are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. These impacts may include growth inducing effects and other effects related to induced changes that would not otherwise occur without the project implementation, in the pattern of land use, population density or growth rate, and related effects on air, water, and other natural systems, including ecosystems (40 CFR § 1508.8). Three resources were identified for study as part of the Indirect and Cumulative Impact Analysis. These three resources are wetlands, water quality, and habitat. Analysis of these impacts follow the eight steps outlined in the National Cooperative Highway Research Program Report (NCHRP) 466: *Estimating the Indirect Effects of Proposed Transportation Projects*.

Step 1- Study Area Boundaries

The study area boundaries for the indirect impacts assessment includes the existing Belvedere Clearwater Road (SC 126) corridor from the Jefferson Davis Highway (US 1/78) intersection to the I-520 interchange and the adjacent neighborhoods on the north and south sides of the project corridor.

Step 2- Study Area Communities Trends and Goals

Despite the overall moderate level of growth in Aiken County, there is a potential for growth along the project corridor largely due to its connectivity with I-520 and Jefferson Davis Highway (US 1/78). As stated in Section 4.1, future land use mapping indicates that parcels along the project corridor are planned to transition to mixed use which would permit most residential, commercial, government, religious, and institutional uses. The area surrounding the I-520 interchange east to Old Sudlow Lake Road (S 1790) is designated for high intensity mixed use. Improving Belvedere Clearwater Road (SC 126) would facilitate this development by reducing future congestion and maintaining mobility along the corridor.

Step 3- Inventory Notable Features

The study area contains notable human and natural environment features including streams, wetlands, neighborhoods, Recognized Environmental Conditions (RECs), and community resources. These features are described in this EA as well as the appended technical reports.

Step 4- Identify Indirect Impact-Causing Activities of the Proposed Action

Induced development or altered growth patterns are typically the most common forms of indirect impacts. The rate and type of development usually coincide with other factors such as zoning and the availability of electricity and water service. These effects often occur as a result of projects on new location, where new access is provided to previously undeveloped areas.

In the case of a widening project, changes to land use are not typically a primary concern; however, improved mobility could make an area more attractive for development which may accelerate the rate of development. This effect would most likely be experienced in the area adjacent to the project corridor near the I-520 interchange. Consistent with future lane use plans, this area is planned for high intensity mixed uses, which would most likely include travel-oriented commercial development.

Steps 5-6- Identify and Analyze Potential Indirect Impacts

The proposed project would create direct impacts to water resources by impacting streams and wetlands along the project corridor; indirect impacts to water resources would be associated with future development along the corridor.

Indirect effects to water quality include increased impervious surface runoff and pollutants entering the streams with stormwater runoff. A decrease in water quality can occur due to highway runoff containing hydrocarbons, toxic substances, debris, and other pollutants associated with impervious surfaces. Increased runoff can also increase stream channel erosion and downstream sedimentation.

The study area is in a developed area with pockets of forested habitat. Habitat fragmentation would increase slightly due to the widening of Belvedere Clearwater Road (SC 126). Wider roadway corridors and high traffic volumes can contribute to higher animal mortality, adversely affecting wildlife populations. Indirect effects of road crossing structures in waterways may limit the mobility of aquatic organisms. Blocking movements of aquatic organisms may prevent access to feeding areas, refuge from predators, areas for spawning and breeding, and areas that remain inundated in dry periods; it also increases population isolation.

Although the Preferred Alternative would require additional right-of-way and would encroach on existing development, it creates the potential for beneficial indirect effects for the community by providing new bicycle and pedestrians facilities that encourage physical activity.

Step 7- Evaluate Analysis Results

Both qualitative and quantitative methods were used to identify and analyze the potential indirect impacts to the various sources of concern resulting from this proposed project. These methods and resources included:

- GIS overlays of resource information obtained from public agencies
- County planning documents

- Internet research
- Public involvement information

The proposed project is consistent with local land use and transportation plans. There are no specific economic development plans for the project corridor nor is the project being proposed to serve any specific new development. Current land uses and proposed land use designations will provide some restrictions to help control future land uses that have the potential to negatively affect the character and integrity of the study area. It is important to note that public and/or private land use patterns may change and could affect the characteristics of the area in the future.

Environmental impacts from the proposed project, when added to past, present, and reasonably foreseeable future projects, would result in minor adverse indirect impacts to the environment. Some habitat would be converted as a result of the proposed project and ongoing maintenance, but the remaining habitat would still provide for wetland and wildlife functions. Roadway runoff would be maintained through overland sheet flow, grassed side slopes, natural wetland filtration, and appropriate best management practices during construction.

Step 8- Assess Consequences and Development Mitigation

Based on the existing land use in the area and future planned development, the likelihood of this project leading to induced growth is low. Development is anticipated to continue; however, the proposed project would not affect the type of development planned for the corridor.

4.15.2 Cumulative Impacts

Cumulative impacts are impacts on the environment that result from the incremental impact of the action to resources resulting from past, present, and reasonably foreseeable future actions regardless of who sponsors the action. The Council on Environmental Quality (CEQ) developed Guidance for *Preparers of Cumulative Impact Analysis: Approach and Guidance* (2005) that includes an eight step process for preparing cumulative impact assessments. This cumulative impact analysis followed this eight step process.

Three resources were identified for study as part of the Indirect and Cumulative Impact Analysis. The identification of these resources took into consideration input received during the agency coordination and public involvement process.

Step 1- Identification of Resources

The cumulative impact analysis focuses on wetlands/streams, water quality, and noise.

Step 2- Study Area

Cumulative impacts are analyzed for resources of concern within particular geographic and temporal boundaries. This allows for the appropriate context to be developed for each resource. Study area

boundaries are developed through consideration of input received during the agency coordination and public involvement process. The primary study area is the same area mentioned in Step 2 of Indirect impacts and includes the existing Belvedere Clearwater Road (SC 126) corridor from the Jefferson Davis Highway (US 1/78) intersection to the I-520 interchange and the adjacent neighborhoods on the north and south sides of the project corridor. Cumulative impacts are evaluated based on a future horizon of 20 years to coincide with the proposed project's design year.

Step 3- Current Health and Context of the Affected Resources

I-520, the Palmetto Parkway, intersects Belvedere Clearwater Road (SC 126) just west of the project corridor, providing freeway connectivity to North Augusta and Augusta, Georgia to the south and the I-20 corridor to the north. On the eastern end of the project corridor, Belvedere Clearwater Road (SC 126) intersects Jefferson Davis Highway (US 1/78), an arterial road providing east-west regional connectivity.

Belvedere Clearwater Road (SC 126) is a minor arterial that extends from US 25 south to SC 421 for a distance of 4.25 miles through Aiken County. Traffic forecasting indicates that the roadway will not be able to operationally accommodate expected traffic volumes in 2035. Traffic volumes on this road are anticipated to increase from 9,500 vpd (2015) to 20,920 vpd (2030).

The project corridor falls roughly between the City of North Augusta and the Town of Burnettown along Belvedere Clearwater Road (SC 126) from Old Sudlow Lake Road to the Jefferson Davis Highway (US 1/78). The eastern terminus of the project area is an area of large-scale commercial uses, including strip mall-type development, fast food restaurants, drug stores, a church, and other commercial uses.

The main land use along the project corridor is low-density residential development, primarily along the south and northwest sides of the project corridor. One small portion of the project corridor near the intersection of Old Sudlow Road (S 1790) and Belvedere Clearwater Road (SC 126) is identified as multi-family housing. The western terminus includes low density residential development and commercial use. While much of the corridor is developed, areas along the northeastern and southwestern sides of the corridor include undeveloped stream and wetland areas.

A total of three relatively permanent waters (RPW Streams 1, 2, and 3) were identified within the project study area during the field investigation. RPW Streams 1 and 3 are portions of a perennial, unnamed tributary (UT) to Little Horse Creek and depicted on the USGS topographic quadrangle map as a solid blue line stream as shown in Appendix B, NRTR Figure 2. Within the project study area, the tributary is a total of 871 linear feet in length and comprises 0.301 acre. Specifically, RPW Stream 1 is 661 linear feet and RPW Stream 3 is 210 linear feet. RPW Stream 2 is a perennial UT to RPW Stream 1. RPW Stream 2 is 160 linear feet in length and encompasses 0.027 acre. RPW Stream 2 is not depicted on the USGS topographic quadrangle map or the USDA soil survey.

A total of eight wetland areas (Wetlands A through H) were identified within the project study area during the field investigation. These wetlands generally are palustrine, forested wetlands. One manmade freshwater pond (Pond A) was identified within the project study area, located approximately 300 feet west of Woods Lane, north of Belvedere Clearwater Road (SC 126), in the eastern-central portion of the project study area.

<u>Step 4 - Identify Direct and Indirect Impacts of the Proposed Project that Might Contribute to a</u> <u>Cumulative Impact</u>

Based on preliminary engineering, the proposed project would require the infill of approximately 1.8 acres of wetlands and 467 linear feet of stream. These systems are located immediately adjacent and parallel to the roadway corridor. Indirect impacts to streams and wetlands would be associated with future development along the corridor.

Indirect effects to water quality include increased impervious surface runoff and pollutants entering the streams with stormwater runoff. A decrease in water quality can occur due to highway runoff containing hydrocarbons, toxic substances, debris, and other pollutants associated with impervious surfaces. Increased runoff can also increase stream channel erosion and downstream sedimentation.

Habitat – The proposed project would directly impact approximately 13 acres of land reducing the amount of habitat in the area immediately adjacent to the roadway corridor.

Step 5- Other Reasonably Foreseeable Actions

There are no known plans for development along the project corridor. Aside from the proposed widening, no other roadway projects (improvements, widening, new location, etc.) are planned for the project area.

Steps 6-7- Assess Potential Cumulative Impacts and Report Results

The proposed project would create direct impacts to streams and wetlands and contribute to cumulative stream and wetland effects manifested by the original construction of Belvedere Clearwater Road (SC 126). The rolling topography of the corridor required the placement of fill material in low-lying areas, creating initial stream and wetland impacts. Construction of the roadway opened the area for development, contributing to the stream and wetland impacts associated with existing development. Future development along the roadway would contribute to cumulative stream and wetland impacts; however, development of these low elevation areas would require a considerable earthwork, which could limit or prohibit plans for future development of these areas.

Similar to stream and wetland impacts, the proposed project would create indirect effects to water quality include increased impervious surface runoff and pollutants entering the streams with stormwater runoff. These effects contribute to the cumulative effects manifested by the road's construction.

The proposed widening would increase the overall corridor width, contributing to the habitat fragmentation effects created by the construction of Belvedere Clearwater Road. As previously stated, wider roadway corridors can contribute to higher animal mortality. The extension of the culvert at Little

Horse Creek may limit the mobility of aquatic organisms which could prevent access to feeding areas, refuge from predators, areas for spawning and breeding, and areas that remain inundated in dry periods; it could also increase population isolation.

Step 8- Assess the Need for Mitigation

A range of build alternatives was developed to avoid and minimize impacts to area resources. Compensatory mitigation will be provided to ensure "no net loss" of streams and wetlands. Best Management Practices (BMPs) will be utilized during construction to minimize temporary impacts associated with construction of the proposed project.

4.16 Summary of Impacts

Table 4-16 includes a summary of impacts for the Preferred Alternative, updated to consider design refinements developed after the selection of the Preferred Alternative. As the proposed project advances and final designs are developed for the Preferred Alternative, additional design refinements will be evaluated to help minimize impacts.

	(November 2015)						
	Preferred Alternative Alternative 3 (Alt. 2/Alt. 1 Combination)						
Residential Relocations	0						
Business Relocations	0						
Hazardous Material Sites	0						
Noise Impacts	33						
Historic Resources	0						
Construction Impacts (ac)	18.67						
Wetlands (ac)	0.133						
Streams (linear feet)	533						
Ponds (acres)	0						

TABLE 4-8 IMPACT SUMMARY TABLE FOR THE PREFERRED ALTERNATIVE

NOTES: This table shows anticipated project impacts based on proposed construction limits. Construction impacts are based on the construction limits outside the existing SCDOT right-of-way. It is noted that future traffic volumes in the no-build conditions would impact 25 receptors.

5.0 AGENCY COORDINATION AND PUBLIC INVOLVEMENT

Agency Coordination

Scoping letters announcing the intent of the proposed project were distributed in June 2013. The following agencies received a letter, a sample of which is included in Appendix H along with agency responses. No major objections to the proposed project were raised.

US Environmental Protection Agency - Region 4 Office of the Environmental Assessment (NEPA Issues) US Environmental Protection Agency - Region 4 Wetlands Regulatory Section (404 Issues) US Army Corps of Engineers - Charleston District US Army Corps of Engineers - Columbia Field Office Director US Housing and Urban Development

Environmental Assessment Belvedere-Clearwater Road (SC 126) Widening Aiken County, South Carolina November 2015

Deputy State Historic Preservation Officer

SC Department of Archives & History

SC Department of Natural Resources

US Fish and Wildlife Service

SC Department of Health & Environmental Control

- Bureau of Land & Waste Management
- Bureau of Water
- Bureau of Air Quality
- Air Quality Planning and Outreach Division
- Division of UST Management Bureau of Land & Waste Management
- Bureau of Air Quality
- Bureau of Environmental Services
- Region 5 Environmental Quality Control
- SC Department of Parks Recreation and Tourism
- SC Secretary of Commerce

Commissioner of Human Affairs

SC Department of Agriculture

SC Budget & Review Board - Inter Governmental Review

SC Wildlife Federation

SC Forestry Commission

FHWA

Sierra Club

The Nature Conservancy

US Coast Guard

Catawba Indian Nation - Tribal Historic Preservation Officer

Eastern Band of Cherokee Indians - Tribal Historic Preservation Office

United Keetoowah Band of Cherokee

Heritage Corridor

Ridge Heritage Association

National Wild Turkey Foundation

SC State Senate District 26

SC House of Representatives District 82

SC State Senate District 24

SC House of Representatives District 83

SC House of Representatives District 84

SC House of Representatives District 96

SC House of Representatives District 86

SC House of Representatives District 81

Aiken County Public Works & Engineering Department, Engineering Division

Aiken County Planning and Development Department, Transportation Planning

Lower Savannah COG, Planning

North Augusta Planning Department

North Augusta Transportation Department

Public Involvement

In order to encourage community involvement and to inform the public about the project a Public Information Meeting (PIM) was held on February 25, 2014 at Lakeside Baptist Church within the project



area. A total of 58 attendees signed in and 17 comment sheets were received.

The project team considered public comments in designing the best-fit alignment for the proposed road widening; paying particular attention to personal property impacts, which was one of the most common comment received. A number of the comments requested additional improvements, including signals at Belvedere Clearwater Road (SC 126) intersections with Duncan Road (S-67) and Old

Sudlow Lake Road (S-1790). Several comments noted the presence of septic fields and drain lines. Other comments noted concerns about the proximity of the widened roadway and fair compensation. A summary table of comments from the meeting is included in Appendix I.

The final selection of the alternative will be made after consideration of refined design impacts and opportunity for public input is provided. A public hearing to provide this opportunity and formally select the final alternative will be scheduled prior to proceeding with final design of the project and right-of way acquisition.

APPENDIX A

TRAFFIC STUDY AND CRASH DATA



MEMORANDUM

TO:	Brad Reynolds, Assistant Program Manager - RPG 3
FROM:	Brent S. Dillon, State Traffic Design Engineer ESD
DATE:	December 10, 2012
RE:	SC 126 Widening Traffic Analysis

File: 02.041446

As requested, Traffic Engineering has performed a traffic analysis for the SC 126 Widening project in Aiken County. The project proposes to widen SC 126 from the current twolane facility to a five lane section with a two-way left turn lane. The results of the study are summarized below.

Pin: 41446

No Build Analysis

The study area comprises the approximately 1.8 mile segment of SC 126 between road S-1760 (Old Sudlow Lake Road) and US Highway 1 (Jefferson Davis Highway). Until the completion of the Interstate 520 project, SC 126's primary function was to serve as a connecting route between the Towns of Belvedere and Clearwater. Now SC 126 also serves as an important connecting route to the new interstate facility. Turning movement counts were conducted at three intersections along the corridor along SC 126: S-1760 (Old Sudlow Lake Road), S-67 (Duncan Road), and US 1 (Jefferson Davis Highway).

It is assumed that the project will be complete in 2015, making 2035 the design year. SCDOT's Planning office provided design year AADTs for SC 126 and the three intersecting roadways where counts were conducted. Annual growth rates were calculated as follows: 2.8% for SC-126, 1.5% for Old Sudlow Lake Road, 3% for Duncan Road, and 1% for US 1. These annual growth rates were applied to the turning movement counts for the future scenarios analysis. **Table 1** below summarizes the results of the existing conditions and future No Build scenario.

T I I I I	2	2012	2034		
Intersection	LOS	Delay (s)	LOS	Delay (s)	
S-1760 (Old Sudlow Lake Road)*	B/C	13/24	E/F	40/200+	
S-67 (Duncan Road)*	B/C	12/17	E/F	49/200+	
US 1 (Jefferson Davis Highway)	B/C	20/25	D/E	38/75	

Table 1: Intersection LOS, No Build Analysis (AM/PM)

^{*}Unsignalized; delay is for side street

TTY: (803) 737-3870

A two-way segment capacity analysis was performed using HCS+ software. 2012 conditions, with a two-way volume of 1,025, a K-factor of 0.12, a D-factor of 0.52, and 100% No-Passing zone results in LOS E conditions with 75% Time Spent Following (PTSF). The indicated Volume to Capacity Ratio (V/C) is 0.36. 2035 volumes indicate LOS E conditions are still prevalent, but deteriorating due to a PTSF of 89% and V/C ratio at 0.67.

Build Analysis

The build scenario consists of widening SC 126 to a five lane section with a two-way left turn lane. Immediate benefits are realized by the increase in capacity as well as the removal of left turns from the through movement. Except for the US 1 intersection, all other access points along SC 126 are unsignalized. The TWLTL combined with increased gap times will greatly improve side street delays and generally reduce the need for additional signals along the corridor.

The first improvement, Alternate One, is the widening of SC 126 with no side road improvements. The new five lane section will continue from the existing stub out near I-520 and end at US 1. At US 1, the southbound approach geometry will be a single left turn lane, a single through lane, and the outside lane will be dropped as a right onto US 1 heading west. For the northbound direction, the second through lane is simply added beginning at the existing edge of pavement on US 1 with no other improvements. This geometry is shown in the attached drawing, **Figure A**. The resulting delays with these improvements are shown in **Table 2** below.

I to the second second	2	2015	2035		
Intersection	LOS	Delay (s)	LOS	Delay (s)	
S-1760 (Old Sudlow Lake Road)*	B/C	12/15	C/D	20/32	
S-67 (Duncan Road)*	B/C	10/12	C/D	15/26	
US 1 (Jefferson Davis Highway)	B/C	19/24	C/E	34/58	

Table 2: Intersection LOS, Alternate One Build Analysis (AM/PM)

^{*}Unsignalized; delay is for side street

It should be noted that HCM calculations cannot account for TWLTL benefits, in particular the potential staging of left turning vehicles from side streets. The delays experienced by left turning vehicles onto SC 126 will be less than calculated as drivers stage turns and not wait on concurrent gaps in both directions. SimTraffic simulations indicate that the vehicles turning left from both Old Sudlow Lake Road and Duncan Road should experience considerably less delay than that shown in the HCM calculations above due to turn staging. In addition, a signal warrants analysis indicates that neither Old Sudlow Lake Road or Duncan Road are expected to meet signals requirements during the analysis period.

An HCS+ multilane segment analysis indicates SC 126 will experience LOS A conditions at opening and LOS B conditions in 2035 with the five lane section. The analysis depends on vehicular density and in 2035 SC 126 is expected to see densities of 12 passenger cars per mile per lane. This corresponds to LOS B and is normally a free-flow condition where through vehicles are free to move about with minimal conflict.

In Alternate Two, additional improvements were analyzed in consideration of improving intersection LOS in the design year. For the Old Sudlow Lake Road and Duncan Road intersections, separate left and right turn lanes were provided on the minor road due to right turning vehicles comprising 70 percent or more of the total approach volumes. As signalization is not expected during the design period, simply adding a 200 foot exclusive right turn lane to each road was the chosen improvement. For the US 1 intersection, two through lanes were provided on both SC 126 approaches as well as an exclusive right turn lane added to the westbound US 1 approach. This geometry is shown in the attached drawing, **Figure B. Table 3** below summarizes the results of this alternative.

Intergration		2015	2035		
Intersection	LOS	Delay (s)	LOS	Delay (s)	
S-1760 (Old Sudlow Lake Road)*	B/C	11/15	C/C	16/20	
S-67 (Duncan Road)*	B/C	10/12	B/C	13/18	
US 1 (Jefferson Davis Highway)	B/C	19/20	C/D	27/36	

Table 3: Intersection LOS, Alternate Two Build Analysis (AM/PM)

[•]Unsignalized; delay is for side street

The US 1 intersection in the 2035 PM peak operates with a LOS D condition, but delays are generally acceptable. Dual left turn lanes were analyzed for the eastbound US 1 and southbound SC 126 approaches and no improvements in delay were seen due to the protected-only phasing with these particular volumes.

Recommendations

- Traffic Engineering recommends the improvements found in Alternate Two.
- Five lane section on SC 126 with 12 foot travel lanes and a 15 foot TWLTL.
- 200 foot left turn lanes are recommended on SC 126 at the Old Sudlow Lake Road and Duncan Road intersections; and at other intersections as recommended by the District Traffic Engineer.
- Exclusive right turn lanes with 200 feet of storage on the Old Sudlow Lake Road and Duncan Road approaches.

SC 126 at US 1 Intersection

- Southbound SC 126 approach: a 250 foot single left turn lane and a through lane alongside a shared through/right turn lane.
- Northbound SC 126 approach: 150 foot left turn lane and a through lane alongside a shared through/right turn lane. The new shared through/right lane will replace the existing channelized right turn lane.
- Westbound US 1 approach: add a 200 foot right turn lane.
- Eastbound US 1 approach: remove the existing channelization for the free-flow right turn lane and incorporate into the signal.

If you have any questions, please feel free to contact Ron Hinson or me.

BSD:ths

Attachments

- ec: Ems Baskin, District Traffic Engineer District Seven Traffic Design File (Yellow Copy)
- File: TE/JAB



Figure A



Figure B

Crash Summary

SC 126 (BELVEDERE CLEARWATER RD) from MPT 0.640 (SEMINOLE AVE) to MPT 2.910

AIKEN County

01/01/2011 - 10/31/2014 (3.8 years)

Length = 2.270 miles

AADT = 9,400

Functional Class = Urban -- Minor Arterial

Crashes by Injury Class

Fatality Crashes	2
Injury Crashes	15
PDO Crashes	49
Total Crashes	66

Crashes by Manner Of Collision

Rear End	38
Angle	15
Sideswipe	1
Head On	1
Run Off Road	10
Other	1
Total Crashes	66

Special Contributing Factors

Animal	0
Bicycle	0
Pedestrian	1

SC 126 (BELVEDERE CLEARWATER RD) from MPT 0.640 (SEMINOLE AVE) to MPT 2.910

01/01/2011 - 10/31/2014 (3.8 years)

Length = 2.270 miles AADT = 9,400

Functional Class = Urban -- Minor Arterial

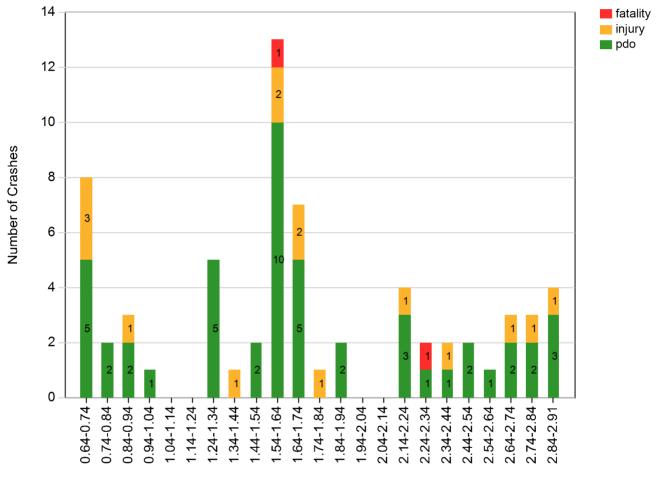


SC 126 (BELVEDERE CLEARWATER RD) from MPT 0.640 (SEMINOLE AVE) to MPT 2.910

01/01/2011 - 10/31/2014 (3.8 years)

Length = 2.270 miles AADT = 9,400

Functional Class = Urban -- Minor Arterial



Segment Range

MPT 0.640 to 0.740 (Stack #1)

Total Crashes: 8	Light: 8	Dark: 0	Dry: 7	Wet: 1	Fatalities: 0	Injuries: 3	PDO: 5	
1 14572410	0.651 INJ1	DAY		DRY	MOTOR VEI	HICLE (IN TRAI	NSPORT)	REAR END
2 12527337	0.653 INJ0	DAY		DRY	MOTOR VE	HICLE (STOPP	ED)	REAR END
3 14570747	0.653 INJ1	DAY		DRY	MOTOR VE	HICLE (STOPPI	ED)	REAR END
4 11128045	0.657 INJ0	DAWN		WET	MOTOR VE	HICLE (IN TRAI	NSPORT)	REAR END
5 11026494	0.664 INJ0	DAY		DRY	MOTOR VEI	HICLE (STOPPI	ED)	REAR END
6 13556823	0.667 INJ0	DAY		DRY	MOTOR VEI	HICLE (IN TRAI	NSPORT)	ANGLE
7 11529753	0.669 INJ1	DAY		DRY	MOTOR VE	HICLE (IN TRAI	NSPORT)	REAR END
8 11553577	0.697 INJ0	DAY		DRY	MOTOR VE	HICLE (IN TRAI	NSPORT)	SIDESWIPE SAME DIR

MPT 0.740 to 0.840 (Stack #2)

Total Crashes: 2	Light: 1	Dark: 1	Dry: 2	Wet: 0	Fatalities: 0	Injuries: 0	PDO: 2	
1 11134807	0.780 INJ0	DAY		DRY	MOTOR VEH	HICLE (STOPP	ED)	ANGLE
2 13528274	0.807 INJ0	DARK		DRY	MOTOR VEH	HICLE (STOPPI	ED)	ANGLE

MPT 0.840 to 0.940 (Stack #3)

Total Crashes: 3	Light: 1	Dark: 2	Dry: 2	Wet: 1	Fatalities: 0	Injuries: 1	PDO: 2	
1 11527800	0.875 INJ1	DARK		DRY	MOTOR VE	HICLE (IN TRAN	NSPORT)	REAR END
2 12066336	0.889 INJ0	DAY		DRY	SEPARATIC	N OF UNITS		REAR END
3 13513456	0.903 INJ0	DARK		WET	MOTOR VE	HICLE (IN TRAN	NSPORT)	ANGLE

MPT 0.940 to 1.040 (Stack #4)

Total Crashes: 1	Light: 1	Dark: 0	Dry: 0	Wet: 1	Fatalities: 0	Injuries: 0	PDO: 1	
1 13560599	1.017 INJ0	DAY		WE	MOTOR VEI	HICLE (STOPPI	ED)	REAR END

MPT 1.240 to 1.340 (Stack #7)

Total Crashes: 5	Light: 4	Dark: 1	Dry: 4	Wet: 1	Fatalities: 0	Injuries: 0	PDO: 5		
1 13526328	1.254 INJ0	DAY		WET	MOTOR VEH	HICLE (STOPPE	ED)	REAR END	
2 11134806	1.257 INJ0	DAY		DRY	MOTOR VEH	HICLE (STOPPE	ED)	REAR END	
3 11559833	1.264 INJ0	DAY		DRY	CULVERT			NO COLLISION W/MV	
4 11572213	1.267 INJ0	DAY		DRY	MOTOR VEH	HICLE (IN TRAN	ISPORT)	REAR END	
5 12530216	1.328 INJ0	DARK		DRY	MOTOR VEH	HICLE (IN TRAN	ISPORT)	ANGLE	

MPT 1.340 to 1.440 (Stack #8)

Total Crashes: 1	Light: 0	Dark: 1	Dry: 1	Wet: 0	Fatalities: 0	Injuries: 1	PDO: 0
1 14601731	1.396 INJ1	DARK		DRY	PEDESTRIA	N	NO COLLISION W/MV

MPT 1.440 to 1.540 (Stack #9)

Total Crashes: 2	Light: 1	Dark: 1	Dry: 1	Wet: 1	Fatalities: 0	Injuries: 0	PDO: 2	
1 12601063	1.497 INJ0	DAY		WET	MOTOR VE	HICLE (STOPPE	ED)	ANGLE
2 13514464	1.534 INJ0	DARK		DRY	MOTOR VE	HICLE (STOPPE	ED)	REAR END

MPT 1.540 to 1.640 (Stack #10)

Total Crashes: 13	Light: 7	Dark: 6	Dry: 9	Wet: 4	Fatalities: 1	Injuries: 2	PDO: [/]	10
1 12550798	1.550 INJ0	DARK		WET	MOTOR VEHI	CLE (IN TRANS	SPORT)	REAR END
2 12066339	1.562 INJ0	DAY		DRY	SEPARATION	OF UNITS		ANGLE
3 11538738	1.572 INJ0	DARK		DRY	MAIL BOX			NO COLLISION W/MV
4 14556256	1.575 INJ4	DARK		DRY	SPILL (TWO-V	VHEELED VEH)	NO COLLISION W/MV
5 12524018	1.576 INJ0	DAY		DRY	MOTOR VEHI	CLE (STOPPEI	D)	REAR END
6 11582135	1.580 INJ0	DAY		WET	MOTOR VEHI	CLE (STOPPEI	D)	REAR END
7 13627893	1.583 INJ1	DARK		WET	MOTOR VEHI	CLE (STOPPEI	D)	REAR END
8 11004242	1.586 INJ0	DAY		DRY	MOTOR VEHI	CLE (IN TRANS	SPORT)	REAR END
9 11134804	1.586 INJ0	DAY		WET	MOTOR VEHI	CLE (IN TRANS	SPORT)	REAR END
10 14516102	1.591 INJ2	DARK		DRY	TREE			NO COLLISION W/MV
11 13528931	1.592 INJ0	DAY		DRY	MOTOR VEHI	CLE (STOPPEI	D)	REAR END
12 14528925	1.598 INJ0	DAY		DRY	MOTOR VEHI	CLE (IN TRANS	SPORT)	REAR END
13 11572214	1.606 INJ0	DARK		DRY	DITCH			NO COLLISION W/MV

MPT 1.640 to 1.740 (Stack #11)

Total Crashes: 7	Light: 5	Dark: 2	Dry: 5	Wet: 2	Fatalities: 0	Injuries: 2	PDO: 5	
1 14538460	1.680 INJ0	DAY		DRY	MOTOR VEH	HICLE (IN TRAN	SPORT)	REAR END
2 13556197	1.685 INJ0	DAY		WET	MOTOR VEH	HICLE (IN TRAN	ISPORT)	REAR END
3 12539231	1.687 INJ2	DARK		DRY	CULVERT			NO COLLISION W/MV
4 11569865	1.694 INJ0	DARK		WET	MOTOR VEH	HICLE (IN TRAN	ISPORT)	REAR END
5 13544513	1.694 INJ0	DAY		DRY	MOTOR VEH	HICLE (STOPPE	ED)	REAR END
6 13590576	1.697 INJ0	DAY		DRY	MOTOR VEH	HICLE (IN TRAN	ISPORT)	REAR END
7 11529212	1.731 INJ2	DAWN		DRY	UTILITY POI	E		NO COLLISION W/MV

MPT 1.740 to 1.840 (Stack #12)

Total Crashes: 1	Light: 1	Dark: 0	Dry: 1	Wet: 0	Fatalities: 0	Injuries: 1	PDO: 0	
1 12520106	1.746 INJ1	DAY		DRY	MOTOR VE	HICLE (STOPP	ED)	HEAD ON

MPT 1.840 to 1.940 (Stack #13)

Total Crashes: 2	Light: 2	Dark: 0	Dry: 1	Wet: 1	Fatalities: 0	Injuries: 0	PDO: 2	
1 13555924	1.869 INJ0	DAY		WET	MOTOR VEH	HICLE (STOPPE	ED)	REAR END
2 11547017	1.939 INJ0	DAY		DRY	MOTOR VEH	HICLE (IN TRAN	SPORT)	REAR END

MPT 2.140 to 2.240 (Stack #16)

Total Crashes: 4	Light: 3	Dark: 1	Dry: 3	Wet: 1	Fatalities: 0	Injuries: 1	PDO: 3	
1 14517551	2.141 INJ0	DAWN		WET	MOTOR VEH	HICLE (STOPPE	ED)	REAR END
2 13562171	2.175 INJ1	DAY		DRY	MOTOR VEH	HICLE (IN TRAN	ISPORT)	ANGLE
3 13501591	2.214 INJ0	DARK		DRY	DITCH			NO COLLISION W/MV
4 13032964	2.221 INJ0	DAY		DRY	MOTOR VEH	HICLE (STOPPE	ED)	REAR END

MPT 2.240 to 2.340 (Stack #17)

Total Crashes: 2	Light: 1	Dark: 1	Dry: 2	Wet: 0	Fatalities: 1	Injuries: 0	PDO: 1	
1 14592904	2.300 INJ0	DARK		DRY	MOTOR VEH	HICLE (STOPPE	ED)	REAR END
2 12529017	2.330 INJ4	DAY		DRY	MOTOR VEH	HICLE (IN TRAN	ISPORT)	ANGLE

MPT 2.340 to 2.440 (Stack #18)

Total Crashes: 2	Light: 2	Dark: 0	Dry: 2	Wet: 0	Fatalities: 0	Injuries: 1	PDO: 1	
1 12506115	2.408 INJ1	DAY		DRY	MOTOR VEH	HICLE (STOPPE	ED)	REAR END
2 12517677	2.438 INJ0	DAY		DRY	CULVERT			NO COLLISION W/MV

MPT 2.440 to 2.540 (Stack #19)

Total Crashes: 2	Light: 2	Dark: 0	Dry: 1	Wet: 1	Fatalities: 0	Injuries: 0	PDO: 2	
1 14580316	2.483 INJ0	DAY		WET	MOTOR VEI	HICLE (IN TRAI	NSPORT)	ANGLE
2 12565343	2.508 INJ0	DAY		DRY	MOTOR VE	HICLE (IN TRAI	NSPORT)	ANGLE

MPT 2.540 to 2.640 (Stack #20)

Total Crashes: 1	Light: 1	Dark: 0	Dry: 1	Wet: 0	Fatalities: 0	Injuries: 0	PDO: 1	
1 14535445	2.632 INJ0	DAY		DRY	MOTOR VEH	HICLE (IN TRAN	NSPORT)	ANGLE

MPT 2.640 to 2.740 (Stack #21)

Total Crashes: 3	Light: 3	Dark: 0	Dry: 3	Wet: 0	Fatalities: 0	Injuries: 1	PDO: 2	
1 14584774	2.640 INJ0	DAY		DRY	MOTOR VEI	HICLE (IN TRAN	NSPORT)	ANGLE
2 12543425	2.642 INJ1	DAY		DRY	MOTOR VEI	HICLE (IN TRAN	NSPORT)	ANGLE
3 14593373	2.655 INJ0	DAY		DRY	MOTOR VEI	HICLE (STOPPE	ED)	REAR END

MPT 2.740 to 2.840 (Stack #22)

Total Crashes: 3	Light: 1	Dark: 2	Dry: 2	Wet: 1	Fatalities: 0	Injuries: 1	PDO: 2	
1 14506304	2.743 INJ0	DARK		DRY	MOTOR VEH	HICLE (IN TRAN	SPORT)	REAR END
2 12592282	2.750 INJ2	DAY		DRY	MOTOR VEH	HICLE (IN TRAN	ISPORT)	ANGLE
3 13542454	2.755 INJ0	DARK		WET	MOTOR VEH	HICLE (STOPPE	ED)	REAR END

MPT 2.840 to 2.910 (Stack #23)

Total Crashes: 4	Light: 1	Dark: 3	Dry: 2	Wet: 2	Fatalities: 0	Injuries: 1	PDO: 3	
1 11137426	2.840 INJ0	DARK		DRY	UTILITY POI	_E		NO COLLISION W/MV
2 14602173	2.909 INJ0	DARK		DRY	MOTOR VEH	HICLE (STOPPE	ED)	REAR END
3 12029679	2.910 INJ1	DARK		WET	MOTOR VEH	HICLE (STOPPE	ED)	REAR END
4 12079849	2.910 INJ0	DAY		WET	MOTOR VEH	HICLE (IN TRAN	ISPORT)	REAR END

APPENDIX B

NATURAL RESOURCES TECHNICAL MEMORANDUM

NATURAL RESOURCES TECHNICAL MEMORANDUM

SC 126 (BELVEDERE-CLEARWATER ROAD) WIDENING PROJECT

AIKEN COUNTY, SOUTH CAROLINA SCDOT PIN 41446; File No. 2.041446

PREPARED FOR



SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

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NOVEMBER 2013

Sign-off Sheet

This document entitled NATURAL RESOURCES TECHNICAL MEMORANDUM for the SC 126 (BELVEDERE-CLEARWATER ROAD) WIDENING PROJECT was prepared by Stantec Consulting Services Inc. for the account of SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION. The material in it reflects Stantec's best judgment in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Stantec Consulting Services Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

Prepared by ______

(signature)

MATTHEW T. DEWITT, PWS

Reviewed by _____

(signature)

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1.0 INTRODUCTION

1.1 **Project Description**

The South Carolina Department of Transportation (SCDOT) proposes to widen a portion of SC 126 (Belvedere-Clearwater Road) in Aiken County, South Carolina. The proposed project, approximately two miles in length, is located east of Interstate 520 (I-520), between S-1760 (Old Sudlow Lake Road) and U.S. Route 1 (Jefferson Davis Highway), in the southwest portion of Aiken County (Appendix A, Figure 1).

The proposed project would involve widening the existing two-lane roadway to a minimum of four lanes, two in each direction, and the addition of designated bike lanes and sidewalks throughout the project limits. The proposed typical section includes 12-foot travel lanes, a 15-foot two-way left turn lane (TWLTL), four-foot designated bike lanes, curb and gutter, and five-foot sidewalks.

At the request of SCDOT, an environmental assessment (EA) is being performed, which outlines four potential alignment alternatives. These alternatives are being analyzed to determine the best possible alignment with respect to minimizing construction impacts on the human and natural environment, while maintaining appropriate design criteria.

In association with the EA, Stantec Consulting (Stantec) has been contracted to provide an environmental review of a proposed project study area (PSA), including documentation of existing natural resources within the PSA. This Natural Resources Technical Memorandum (NRTM) summarizes the findings of the environmental review.

Stantec reviewed the PSA along SC 126, approximately two miles in length, beginning at Old Sudlow Lake Road and terminating at a point approximately 1,000 feet beyond Jefferson Davis Highway. The PSA is further defined as being 300 feet in width, generally centered along the centerline of SC 126. The PSA also includes an area surrounding side roads, approximately 150 feet in total width and approximately 300 feet in length; please see Appendix A, Figures 1 through 5 for the approximate location and extent of the reviewed PSA and Appendix B for representative photographs.

This report provides an overall description of the project vicinity, and specifically describes natural resources within the PSA, including wetlands, water resources, plant communities, and protected species. The



qualifications of the Stantec personnel involved in the preparation of this report are located in Appendix D.

1.2 Purpose

The purpose of the proposed project is to increase capacity to the corridor. Based on a Project Planning Report (PPR), prepared in 2012, the volume of traffic throughout the corridor is anticipated to increase from 9,900 vehicles per day (vpd) to 20,920 vpd by 2030.

1.3 Methodology

Prior to conducting fieldwork, Stantec reviewed the following reference material:

- U.S. Geological Survey (USGS) 7.5 minute topographic quadrangle North Augusta, SC (1980)
- U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Soil Survey Geographic (SSURGO) Database, <u>Aiken County, SC</u> (2002)
- USDA Soil Conservation Service (SCS) Soil Survey of Aiken County, South Carolina (1985)
- USDA-NRCS National List of Hydric Soils Database; National List, All States. (Last updated April 2012; Reviewed: May 2013).
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) Seamless Wetlands Data for South Carolina (Reviewed: May 2013)
- USFWS South Carolina List of At-Risk, Candidate, Endangered, and Threatened Species – Aiken County (Last Updated: April 2013; Reviewed: May 2013).
- South Carolina Department of Natural Resources (SCDNR) South Carolina Heritage Trust (SCHT) List of Rare, Threatened, and Endangered Species Known to Occur in Aiken County (Last Updated March 13, 2012; Reviewed: May 2013)
- SCDNR SCHT Geographic Database of Rare, Threatened, and Endangered Species Inventory Species Found in Aiken County (Last Updated January 17, 2006; Reviewed: May 2013)
- South Carolina Department of Health and Environmental Control (SCDHEC) Section 303(d) List of Impaired Waters (May 24, 2012)
- SCDNR GIS Data Clearinghouse Digital Orthophoto Imagery, <u>North</u> <u>Augusta, SC (2006)</u>
- USDA National Agriculture Imagery Program (NAIP) Aerial Photography, <u>Aiken County, SC</u> (2011)



Field reviews of the PSA were conducted between April 15 and June 30, 2013. Stantec Environmental Scientists Pam Ferral, CWB; Pat Ferral, CWB, RF; and Duncan & Duncan Scientist Jake Duncan reviewed the PSA for the presence of wetlands and other jurisdictional "waters of the U.S.", community types, and protected species habitat. In addition, the boundaries of potential jurisdictional waters of the U.S., including wetlands, were flagged (delineated) in the field at that time. Potential jurisdictional wetlands in the PSA were evaluated using the Routine On-Site Determination Method as defined in the Corps of Engineers Wetland Delineation Manual (Environmental Laboratory, 1987) and the Atlantic and Gulf Coastal Plain Region Supplement to the Manual (USACE 2010). The delineated boundaries of waters of the U.S. were geo-referenced in the field using a Trimble GeoXTTM handheld GPS unit capable of submeter accuracy. The GeoXTTM was used to collect point features, using a one second logging interval. The GeoXT™ settings used generally included a PDOP of 4.0, an elevation mask of 15-degrees and a minimum SNR of 33.0. GPS coordinates were differentially corrected using GPS Pathfinder Office and depicted on aerial photography utilizing ArcGIS 10.1 software; please see Appendix A for Figures.

2.0 PHYSICAL RESOURCES

2.1 Land Use

Land use in the project vicinity, an area defined as extending one mile on all sides of the project study area, is comprised primarily of undeveloped woodland and residential development. Commercial development and maintained rights-of-way (ROWs) are also found throughout the project vicinity. Land use directly within the PSA consists primarily of maintained and disturbed roadway ROWs, mixed pine/hardwood forest, forested wetlands, residential and commercial land. Minor impacts to natural communities, including mixed pine/hardwood forest, forested wetlands, and maintained lawns are anticipated due to construction activities related to the proposed roadway improvements.

2.2 Physiography and Topography

The project study area (PSA) is located in the Upper Coastal Plain physiographic province of South Carolina, and is specifically situated within the Southeastern Plains (65) Level III Ecoregion (Griffith, et al., 2002). The Southeastern Plains are an area of irregular plains with broad interstream areas of cropland, pasture, woodland, and forest. Elevations and relief are greater than in the Southern Coastal Plain, but generally less



than that of the Piedmont. Streams in this area are relatively low-gradient and sandy-bottomed. The PSA is further characterized as being situated within the Sand Hills (65c) Level IV Ecoregion (Griffith, et al., 2002). The Sand Hills region is characterized by rolling to hilly relief and is composed mainly of Cretaceous-age marine sands and clays, capped in places with Tertiary sands deposited over the crystalline and metamorphic rocks of the Piedmont. Stream flow is consistent and streams seldom flood or dry up due to the large infiltration capacity of the sandy soil and the great ground-water storage capability of the sand aquifer.

Based on topographic mapping (Appendix A, Figure 2), elevations in the study area range from approximately 160 feet above mean sea level (MSL) to 260 feet MSL. The highest elevations in the PSA are located in the northwest portion of the PSA near the intersection of SC 126 and Old Sudlow Lake Road. The lowest elevations in the PSA are located in the vicinity of the stream crossing southeast of Woods Lane, in the central portion of the PSA. The majority of the PSA drains to this stream, an unnamed tributary flowing in a general southeastern direction to Clearwater Lake and Little Horse Creek, approximately 1,500 feet east of the PSA. Little Horse Creek drains to the Savannah River, a traditional navigable water (TNW), approximately four miles southwest of the PSA.

2.3 Geology and Soils

The soil parent materials within Aiken County are from four sources; material weathered from rock (i.e., residuum), sediment deposited by the ocean, sediment deposited by streams (alluvium), or deposited successively by both the ocean and streams. Soil parent materials derived from marine sediments, which encompasses the majority of the soil in Aiken County, typically consist of quartz-sand and gravel of varying sizes, and interbedded with strata of kaolin clay. Soils derived from residuum are from crystalline and metamorphic rocks, such as Carolina slate, gneiss, schist, and granite. Soils derived from alluvium, consist of a mixture of gravel, sand, silt and clay deposited by area streams.

According to the USDA-NRCS Soil Survey of Aiken County (USDA, 2002), nine soil map units are mapped within the project study area (PSA) as follows (Appendix A, Figure 3):

- Ailey sand, 2 to 6 percent slopes (AeB)
- Bibb loamy sand (Bc)



- Fuquay sand, 6 to 10 percent slopes (FuC)
- Lakeland sand, 0 to 6 percent slopes (LaB)
- Lakeland sand, 6 to 15 percent slopes (LaD)
- Troup sand, 0 to 6 percent slopes (TrB)
- Vaucluse loamy sand, 2 to 6 percent slopes (VaB)
- Vaucluse-Ailey complex, 6 to 15 percent slopes (VcD)
- Water (W)

Ailey sand, 2 to 6 percent slope (AeB) soil map unit includes well drained, gently sloping soils located adjacent to major drainageways. The available water capacity is low to very low, and runoff is medium. Permeability is slow in the upper part of the subsoil and rapid in the surface and subsurface layers (USDA, 1985). AeB soils are mapped in a commercially developed area the southwestern extent of the PSA. AeB is a non-hydric soil map unit in Aiken County (USDA, 2012).

Bibb loamy sand (Bc) soils are poorly drained, nearly level soils on floodplains and in low, flat areas adjacent to small streams in the Coastal Plain. The available water capacity is moderate and runoff is very slow. Permeability is moderate. The water table is 0.5 to 1.5 feet below the surface in winter and early spring (USDA, 1985). Bc soils are mapped in multiple locations throughout the PSA, each adjacent to or abutting unnamed tributaries to Little Horse Creek. Bibb loamy sand is a hydric soil in Aiken County (USDA, 2012).

Fuquay sand, 6 to 10 percent slope (FuC) soils are well drained, sloping soils located on narrow ridges and the adjacent side slopes in the Coastal Plain. The available water capacity and permeability are moderate, and runoff is medium. The seasonal high water table is more than six feet below the surface (USDA, 1985). FuC soils are mapped near the intersection of SC 126 and Pineview Drive, in a commercially developed area in the southwestern portion of the PSA. FuC is a non-hydric soil map unit in Aiken County (USDA, 2012).

Lakeland sand, 0 to 6 percent slope (LaB) soils are excessively drained, nearly level to gently sloping sandy soils on broad ridges in the Coastal Plain. The available water capacity is very low. Permeability is rapid, and runoff is very slow. The seasonal high water table is more than six feet below the surface (USDA, 1985). LaB soils are mapped along the maintained roadside of Irene Street, in the central portion of the PSA. LaB is a non-hydric soil map unit in Aiken County (USDA, 2012).



Lakeland sand, 6 to 15 percent slope (LaD) soils are excessively drained, sloping to strongly sloping sandy soils on ridges and adjacent side slopes in the Coastal Plain. The available water capacity is very low. Permeability is rapid, and runoff is slow. The seasonal high water table is more than six feet below the surface (USDA, 1985). LaD soils are mapped near the intersection of SC 126 and Cherry Avenue, in a residential developed area in the northern portion of the PSA. LaD is a predominantly non-hydric soil map unit in Aiken County with inclusions of Johnston mucky loam (USDA, 2012).

Troup sand, 0 to 6 percent slope (TrB) soils are well drained, nearly level to gently sloping soils on broad ridges and side slopes in the Coastal Plain. The available water capacity is low, and runoff is slow. Permeability is rapid in the surface and subsurface layers and moderate in the subsoil. The seasonal high water table is more than six feet below the surface (USDA, 1985). TrB soils are mapped in two areas within the PSA, including the residentially developed area along SC 126 between Irene Street and Duncan Road, and within the commercially developed intersection of SC 126 and Jefferson Davis Highway. TrB is a predominantly non-hydric soil map unit in Aiken County with inclusions of Johnston mucky loam (USDA, 2012).

Vaucluse loamy sand, 2 to 6 percent slope (VaB) soils are well drained, gently sloping soils on ridgetops and short side slopes in the Coastal Plain. The available water capacity is low, permeability is slow to moderately slow, and runoff is medium. The seasonal high water table is more than six feet below the surface (USDA, 1985). VaB soils are mapped in three higher elevation areas of the PSA, including the intersection of SC 126 and Jefferson Davis Highway. VaB is a non-hydric soil map unit in Aiken County (USDA, 2012).

Vaucluse-Ailey complex, 6 to 15 percent slope (VcD) soils consist of small areas of Vaucluse and Ailey soils that are so intermingled that they could not be separated at the scale selected for mapping. These soils are sloping and strongly sloping and are located on breaks along the drainageways. The available water capacity is low or very low. Permeability is slow to moderately slow, and runoff is medium to rapid. The seasonal high water table is more than six feet below the surface (USDA, 1985). VcD soils are mapped in multiple locations throughout the PSA, each adjacent to or abutting unnamed tributaries to Little Horse Creek. VcD is a predominantly non-hydric soil map unit in Aiken County with inclusions of Johnston mucky loam (USDA, 2012).



Water (W) is mapped in the location of a historic pond, located east of SC 126 near the intersection with Irene Street. This area is no longer ponded, and is currently undeveloped woodland.

The proposed roadway improvement project would have both short-term construction related impacts as well as long-term operational impacts on soils in the project study area; however, these impacts are not considered significant.

2.4 Water Resources and Water Quality

2.4.1 Water Resources

The proposed project is located within the Savannah River Basin, as defined by the SC Department of Health and Environmental Control (SCDHEC). The Savannah River Basin extends across the Blue Ridge, Piedmont, Sandhills, Upper Coastal Plain, Lower Coastal Plain, and Coastal Zone regions of South Carolina, North Carolina, and Georgia. In South Carolina, the Savannah River Basin incorporates 35 watersheds and approximately 2.9 million acres, and consists of 4,857 stream miles, 106,516 acres of lake waters, and 3,356 acres of estuarine areas. The Savannah River Basin is comprised of three distinct river basins, including the Tugaloo River/Seneca River, the Upper Savannah River and the Lower Savannah River.

The project study area (PSA) is located within the Lower Savannah River Basin (USGS Hydrologic Unit Codes [HUCs] 03060106, 03060107, 03060109, and 03060110). The Lower Savannah River Basin incorporates 16 watersheds over ten counties in South Carolina, and extends into Georgia. Within the Lower Savannah River Basin, the Savannah River flows out of the Thurmond Lake, located northwest of the PSA, and is restricted again by the Stevens Creek dam, forming Stevens Creek Reservoir. Downstream of the Stevens Creek dam, the Savannah River accepts drainage from Horse Creek, Hollow Creek, Upper Three Runs, and Lower Three Runs before flowing into the Calibogue Sound and the Atlantic Ocean.

Of the approximately 2.3 million acres of land located within the Lower Savannah River Basin, approximately 1.6 million acres are located in South Carolina. The South Carolina portion consists of 56.4% forested land, 16.4% forested wetlands (swamp), 14.0% agricultural land, 6.3% urban land, 3.9% nonforested wetland (marsh), 2.3% open water, and 0.7% barren land. The urban land percentage is primarily comprised of North Augusta, Aiken, Bluffton, and a portion of Hilton Head Island. Within the Lower



Savannah River Basin, there are approximately 6,010 miles of stream, 19,349 acres of lake waters, and 24,788 acres of estuarine areas in the extended basin, including portions of Georgia.

Specifically, the PSA lies within the Horse Creek watershed (HUC 03060106-02), which consists primarily of Horse Creek and its tributaries. The Horse Creek watershed is located in Edgefield and Aiken Counties and occupies 103,463 acres of the Sand Hills and Upper Coastal Plain regions of South Carolina. Horse Creek accepts drainage from Long Branch, Little Horse Creek, Camp Branch, Good Spring Branch, Sage Mill Branch, Bridge Creek, Sand River, Little Horse Creek, and Storm Branch before draining into the Savannah River.

Land use/land cover in the watershed includes 45.0% forested land, 26.3% agricultural land, 19.2% urban land, 6.1% forested wetland (swamp), 1.6% barren land, 1.3% open water, and 0.5% nonforested wetland (marsh). There are a total of 297.3 stream miles and 1,533.5 acres of lake waters in this watershed, all classified FW (freshwater). The urban land is comprised primarily of North Augusta, Aiken, and Burnettown (SCDHEC, 2010).

2.4.2 Section 303(d) Waters

In accordance with Section 303(d) of the 1972 Federal Clean Water Act (CWA), SCDHEC evaluates water bodies identified as impaired for appropriate inclusion on the Section 303(d) list. The 303(d) list is a State list of waters that are not meeting water quality standards or have impaired uses. The 303(d) list targets water bodies that do not meet water quality standards set for the state for water quality management, as well as identifying the cause(s) of the impairment and the designated classifications.

No water quality monitoring stations are located with the PSA. The nearest downstream monitoring station (Station SV-072) is located approximately 2.5 miles southeast of the PSA on Horse Creek at S-145 (Storm Branch Road). Station SV-072 is included on the 2012 SCDHEC 303(d) list of impaired waters for pH excursions. A total maximum daily load (TMDL) target date of 2023 has been established for this site.

The 2010 Basinwide Watershed Water Quality Assessment Report for the Savannah River Basin states Station SV-072 is located within a blackwater system, characterized by naturally low pH conditions. Although pH excursions occurred, they were typical of values seen in blackwater



systems and were considered natural, not standards violations. There is also a significant decreasing trend in pH (SCDHEC, 2010).

According to an online query, performed in August 2013 utilizing SCDHEC's Water Quality Information Tool, aquatic life and recreational uses are fully supported at Station SV-072, including pH; please see Appendix C – SCDHEC's Watershed and Water Quality Information. This data contradicts the 2012 303(d) list of impaired waters and the SCDHEC Bureau of Water has been informed of this discrepancy. Stantec did not conduct any quantitative water quality sampling within the PSA.

Additional waters within watershed 03060106-02 included on the 2012 SCDHEC 303(d) list include Vaucluse Pond (Station SV-685), Flat Rock Pond (Station SV-686), and Langley Pond (Station SV-531). Stations SV-685, SV-686, and SV-531 are located upstream of Little Horse Creek on Horse Creek; therefore the PSA does not attribute to these impairments.

2.4.3 Total Maximum Daily Loads (TMDLs)

A TMDL, or Total Maximum Daily Load, is the amount of a single pollutant (e.g., bacteria, nutrients, metals) that can enter a waterbody on a daily basis and still meet water quality standards set forth by the State. "TMDL" refers to both a calculation of a pollutant entering a waterbody as well as a document which includes this calculation along with source assessments, watershed and land use information, reductions and allocations information, implementation and other relevant information, maps, figures and pictures (SCDHEC, 2013).

TMDLs are a requirement found in Section 303(d) of the 1972 Federal Clean Water Act (CWA). Once a site is included on the 303(d) list of impaired waters, a TMDL must be developed within two to thirteen years of initial listing. In South Carolina, TMDLs are developed and proposed by SCDHEC and then forwarded to EPA Region 4 for final approval.

TMDLs are calculated by adding all the point and nonpoint sources for the pollutant causing the impairment. After a TMDL is calculated, the amount of load entering from point and nonpoint sources is compared to the water quality standards for that waterbody. Then this total loading is reduced to the levels where the water quality standards can be met. This reduced loading is then divided among all the point and nonpoint sources.



The goal of a TMDL is to identify potential pollution sources, calculate and quantify the reduction of those sources, and provide general implementation information needed in order to meet water quality standards and improve water quality. After the approval of the TMDL, an implementation plan can be developed to realize the goals of the written TMDL document. Implementation of a TMDL has a potential to reduce sources of pollution within a watershed and a potential to restore the full use of the waterbody.

TMDLs were developed by SCDHEC and approved by EPA in January 2006 for fecal coliform bacteria at water quality monitoring sites for Horse Creek (SV-072, SV-250), Little Horse Creek (SV-073), and the Sand River (SV-069), which include the PSA. TMDLs determine the maximum amount of fecal coliform bacteria that can be received from sources and still meet water quality standards. The TMDL states that reductions of 11% to 47% in fecal coliform loading are necessary for these streams to meet the recreational use standard (SCDHEC, 2010). Probable sources of fecal coliform bacteria that were identified in the watershed are grazing livestock, especially cattle with access to creeks, failing septic systems, and urban runoff. A minor wastewater treatment facility was also located on Horse Creek, and portions of the watershed are within areas designated as municipal separate storm sewer systems (MS4s).

2.4.4 National Pollutant Discharge Elimination System (NPDES)

Point source discharge refers to a discharge which is released to the waters of the State by a discernible, confined and discrete conveyance, including but not limited to a pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel, or other floating craft from which waste is or may be discharged. The National Pollutant Discharge Elimination System (NPDES) Permit Program was created by Section 402 of the CWA. In 1975, the Bureau of Water received authority from the EPA to administer the NPDES Permit Program in South Carolina. The SCDHEC Bureau of Water is responsible for the permitting, compliance, monitoring and enforcement activities of the program.

Persons with point source discharges to surface waters are required to have NPDES permits. Typical regulated point source discharges are:

 Discharges from wastewater treatment systems owned by municipalities, industries, private utilities, State and Federal government, etc.;



- Discharges such as cooling water, boiler blow down, etc.;
- Stormwater discharges from MS4s;
- Stormwater discharges associated with industrial activity; and,
- Stormwater dischargers from construction sites.

According to the 2010 Water Quality Assessment Report for the Savannah River Basin, no NPDES permitted facilities are operating within the PSA. Furthermore, no NPDES permitted facilities are located upstream of the PSA.

Waterbodies located within the PSA include three perennial relatively permanent waters (RPW Streams 1, 2, and 3), one freshwater pond (Pond A), and eight freshwater wetlands (Wetlands A through H). These jurisdictional waters are further discussed in Sections 3.2 and 4.0. The proposed project is not expected to have long-term impacts to water quality within the PSA or the Horse Creek watershed.

3.0 BIOTIC RESOURCES

3.1 Terrestrial Plant Communities

Vegetative terrestrial communities in the project study area (PSA) were distinguished by plant species, location in the landscape, past disturbances, and hydrologic characteristics. For the purpose of this report, only habitats located directly within the PSA are summarized. Based on the field review, five terrestrial habitat community/land use types, including maintained and disturbed roadside, maintained lawns, mixed pine/hardwood forest, sandhills seepage slope, and small stream floodplain forest were identified within the proposed PSA. A brief summary of the terrestrial habitat communities found within the PSA follows:

Maintained Lawns

Maintained lawns are the dominant community type throughout the PSA. Most of the maintained lawns are comprised of herbaceous species, including various grasses such as common fescue (Festuca sp.), ryegrass (Lolium perenne), and bluegrass (Poa sp.).

Maintained and Disturbed Roadside

Maintained and disturbed roadside communities are found throughout much of the PSA immediately alongside the existing road network. Most of the disturbed roadway edges are comprised of herbaceous species and a few shrubs, including broomsedge (Andropogon virginicus),



dandelion (Taraxacum officinale), vervain (Verbena bonariensis) and rabbit tobacco (Gnaphalium obtusifolium). Various grasses are also found, including common fescue, ryegrass, and bluegrass.

Mixed Pine and Hardwood Community

The upland pine and hardwood community is dominated by longleaf pine (Pinus palustris) and loblolly pine (Pinus taeda) in the overstory. Other species present in the overstory include black jack oak (Quercus marilandica), red maple (Acer rubrum), and winged elm (Ulmus alata). Dominant woody shrubs represented in the understory are mountain laurel (Kalmia latifolia), sweetbay (Magnolia virginiana), wax myrtle (Morella cerifera) and Chinese privet (Ligustrum sinense). Woody vines present include poison ivy (Toxicodendron radicans) and muscadine (Vitis rotundifolia). Herbaceous groundcover is lacking due to thick canopy closure and the exclusion of fire.

Sandhill Seepage Slope Community

Seepage slopes are dominated by tulip-poplar (Liriodendron tuilipifera), sweetgum (Liquidambar styraciflua), water oak (Quercus nigra), and red maple. The dominant woody shrubs in the understory are mountain laurel, wax myrtle, Virginia willow (Itea virginica), red bay (Persea borbonia), and sweet bay. Dominant woody vines include Japanese honeysuckle (Lonicera japonica) and yellow jasmine (Gelsemium sempervirons). Herbaceous groundcover is sparse due to canopy closure and the exclusion of fire.

Small Stream Floodplain Forest Community

In this small stream floodplain community tulip-poplar, sweetgum, red maple, and green ash (Fraxinus pennsylvanica) are dominant in the overstory. Woody shrubs include horse sugar (Symplocos tinctoria), virginia willow, red bay, sweet bay, and chinese privet. Woody vines associated with this community include Japanese honeysuckle, saw greenbrier (Smilax bona-nox), and roundleaf greenbrier (Smilax rotundifolia). Heart leaf (Hexastylis arifolia) and netted chain fern (Woodwardia areolata) are common herbaceous species found throughout the community.

3.2 Wetland Plant Communities

Wetland communities, as characterized by the National Wetland Inventory (NWI) classification system, located within the PSA include three freshwater, or palustrine, wetland types including PFO1B, PFO1C, and PSS1CH (Cowardin, 1979). Wetland F, G, H, and a portion of Wetland D



are classified as saturated, forested, broad-leaved deciduous wetlands (PFO1B). The remainder of Wetland D is classified as a seasonally to permanently flooded, scrub-shrub, broad-leaved deciduous wetland (PSS1Ch). Wetland C is classified as a seasonally flooded, forested, broadleaved deciduous wetland (PFO1C). Wetlands A, B, and E are not included in the National Wetlands Inventory (NWI). More information on the aforementioned wetland areas, including approximate size, dominant vegetation, soils, indicators of hydrology and hydric soils, and jurisdictional status is included in Section 4.0-Jurisdictional Topics. Please see Appendix A, Figure 5 for the approximate location and extent of these features within the PSA.

3.3 Aquatic Plant Communities

No aquatic plant communities, including submerged aquatic vegetation (SAV), were observed in the project study area during the field review completed by Stantec in April, May, and June of 2013.

3.4 Wildlife

Terrestrial Wildlife

Terrestrial bird species observed in the PSA include cardinal (Cardinalis cardinalis), Carolina wren (Thryothorus Iudovicianus), mockingbird (Mimus polyglottos), American crow (Corvus brachyrhynchos), Carolina chickadee (Parus carolinensis), tufted titmouse (Baeolophus bicolor), and mourning dove (Zenaida macroura). Other bird species that may occur within the project study area include red-shouldered hawk (Buteo lineatus), red-tailed hawk (B. jamaicensis), black vulture (Coragyps atratus), turkey vulture (Cathartes aura), red-bellied woodpecker (Melanerpes carolinus), downy woodpecker (Picoides pubescens), blue jay (Cyanocitta cristata), eastern towhee (Pipilo erythrophthalmus), American robin (Turdus migratorius), common grackle (Quiscalus quiscula), starling (Sturnus vulgaris), belted kingfisher (Ceryle alcyon), and brown-headed nuthatch (Sitta pusilla).

Reptile species observed within the PSA include eastern box turtle (Terrapene carolina carolina) and eastern cottonmouth (Agkistrodon piscivorus). Additional terrestrial reptile and amphibian species which may occur within the project study area include southern toad (Bufo terrestris), black rat snake (Elaphe obsoleta obsoleta), eastern kingsnake (Lampropeltis getula getula), northern water snake (Nerodia sipedon), rough green snake (Opheodrys aestivus), brown snake (Storeria dekayi), redbelly snake (S. occipitomaculata), eastern garter snake (Thamnophis



sirtalis), copperhead (A. contortix) and various salamanders (Ambystoma spp.).

Mammal species directly observed within the PSA include white-tailed deer (Odocoileus virginianus), eastern gray squirrel (Sciurus carolinensis), and mink (Mustela vison). Other terrestrial mammals that may occur in the PSA include raccoon (Procyon lotor), opossum (Didelphis virginiana), and eastern cottontail rabbit (Sylvilagus floridanus).

<u>Aquatic Wildlife</u>

No aquatic invertebrates were observed in the project study area. Aquatic invertebrates expected to occur in the PSA include crayfish and other various benthic macroinvertebrate species within the delineated streams.

No aquatic mammals were directly observed in the project study area; however, beaver (Castor canadensis) and muskrat (Ondatra zibethicus) may occur in the PSA.

Fish were not directly observed within the delineated streams, or within Pond A. Fish species that may occur within these waters include mosquito fish (Gambusia spp.), sunfish (Lepomis spp.), brown bullhead (Ameiurus nebulosus), chubs (Hybopsis spp.), and various species of shiners (Notropis spp.).

4.0. JURISDICTIONAL TOPICS

4.1 Waters of the U.S.

Jurisdictional waters of the U.S. are defined by 33 CFR 328.3(b) and protected by Section 404 of the Clean Water Act (33 U.S.C. 1344), which is administered and enforced in South Carolina by the U.S. Army Corps of Engineers (USACE), Charleston District. The term "waters of the U.S." is defined in 33 CFR Part 328 as:

- 1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- 2. All interstate waters including interstate wetlands;
- 3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use,



degradation or destruction of which could affect interstate or foreign commerce including any such waters:

- Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
- From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
- Which are used or could be used for industrial purpose by industries in interstate commerce;
- 4. All impoundments of waters otherwise defined as waters of the United States under the definition;
- 5. Tributaries of waters identified in paragraphs 1 4 above;
- 6. The territorial seas; and
- 7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in 1 6 above.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act (other than cooling ponds as defined in 40 CFR 123.11(m) which also meet the criteria of this definition) are not waters of the United States. Waters of the U.S. do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with the Environmental Protection Agency.

Wetlands are defined as those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Jurisdictional wetlands are defined in the field as areas that display positive evidence of three environmental parameters including dominance of hydrophytic vegetation, wetland hydrology, and hydric soils (Environmental Laboratory, 1987).

The boundaries of potential jurisdictional waters of the U.S. were delineated by Stantec in April, May, and June of 2013. Potentially jurisdictional wetlands in the PSA were evaluated using the Routine On-Site Determination Method as defined in the Corps of Engineers Wetland Delineation Manual (Environmental Laboratory, 1987) and the Atlantic Gulf and Coastal Plain Region Supplement to the Manual (USACE, 2010).



Jurisdictional determination and verification of delineated wetland/waters of the U.S. boundaries by the USACE is pending.

Potential jurisdictional waters of the U.S. identified in the project study area include the following (Appendix A, Figure 5):

- Palustrine Wetlands (Wetlands A through H)
- Open Water Pond A
- RPW Streams 1, 2, and 3

4.1.1 Wetlands

Prior to conducting fieldwork, Stantec reviewed NWI data for South Carolina provided by the U.S. Fish and Wildlife Service [USFWS, 2013(A)] and the USDA-NRCS list of hydric soils for Aiken County (USDA, 2012). A total of eight wetland areas (Wetlands A through H) were identified within the PSA during the field investigation. A brief description of each is listed below:

Wetland A is not identified in NWI Wetlands data; however, field reviews identify the wetland as a palustrine, scrub-shub and maintained wetland encompassing approximately 0.120 acre. Wetland A is located along the north side of SC 126 and west of Woods Lane, in the eastern-central portion of the PSA; please see Appendix A, Figure 5C for the location and extent of jurisdiction. Hydrology is received from a jurisdictional pond (Open Water Pond A) located immediately upstream of the wetland, the SC 126 roadway, and the surrounding upland forests and maintained lands. Wetland A drains in an easterly direction through an armored ditch to RPW Stream 2. RPW Stream 2 flows to RPW Stream 1, and eventually Little Horse Creek.

The overstory of Wetland A is limited due to maintenance activities; however, red maple and tulip-poplar are dominant in unmaintained portions of the wetland. The understory vegetation includes saplings of red maple and sourwood (*Oxydendrum arborerum*), while tearthumb (*Polygonum sagittatum*) and sedges (*Carex spp.*) are dominant in the herbaceous layer. Poison ivy and Japanese honeysuckle are vines also found in the wetland. Wetland hydrology indicators within Wetland A include a high water table, saturated soils, water-stained leaves, and drainage patterns. Hydric soil indicators include low chroma soils, sandy mucky mineral texture, and a dark surface layer. Representative photographs of Wetland A are included in Appendix B, Photographs 1 and 2.



Wetlands B, C, and H are palustrine, forested wetlands encompassing 2.313 acres, 0.824 acre, and 0.527 acre, respectively. NWI data identifies Wetland C as PFO1C and a portion of Wetland H as PFO1B. Wetland B is not identified on NWI data. Combined, Wetlands B, C, and H comprise the riparian corridor of Stream 1 located in the eastern-central portion of the PSA. Wetlands B and H are located north of SC 126 and east of Woods Lane. Wetland C is located immediately upstream of Wetland B, on the south side of SC 126; please see Appendix A, Figures 5C and 5D for the location and extent of jurisdiction. Hydrology is received primarily from the SC 126 roadway, and the surrounding upland forests and maintained lawns. Wetlands B, C, and H drain to the adjacent stream (RPW Stream 1) which, in turn, drains to Little Horse Creek.

The overstory of Wetlands B, C, and H are dominated by tulip-poplar, loblolly pine, and water oak (Quercus nigra). The understory vegetation consists of saplings and shrubs including sourwood, redbay, sweetbay, gallberry (Ilex coriacea), and dog hobble (Leucothoe axillaris). An herbaceous layer of giant cane (Arundinaria gigantea) and cinnamon fern (Osmunda cinnamomea) is also found throughout the wetlands. Laurel greenbriar (Smilax laurifolia) and muscadine are vines also found in the each wetland. Wetland hydrology indicators within Wetlands B, C, and H include a high water table and saturated soils. Hydric soil indicators include low chroma soils and a depleted matrix. Representative photographs of Wetlands B, C, and H are included in Appendix B, Photographs 3 and 11.

Wetland D is palustrine, forested wetland encompassing 3.013 acres, and is identified by NWI data as PFO1B and PSS1Ch. Wetland D represents the riparian corridor of Stream 3 located south of SC 126 and east of Willow Lane in the western-central portion of the PSA; please see Appendix A, Figure 5B for the location and extent of jurisdiction. Hydrology is received primarily from the SC 126 roadway, and the surrounding upland forests and maintained lawns. Wetland D drains to the adjacent stream (RPW Stream 3) which, in turn, drains to Little Horse Creek.

The overstory of Wetland D is dominated by tulip-poplar, red maple, and loblolly pine. The understory vegetation consists of saplings and shrubs including red maple, black gum (Nyssa sylvatica), sweetgum, and laurel oak (Quercus laurifolia). Giant cane and netted chain fern are found throughout the herbaceous layer. Muscadine and Virginia creeper (Parthenocissus quinquefolia) are dominant vines also found in the wetland. Wetland hydrology indicators within Wetland D include a high water table, saturated soils, and water-stained leaves. Hydric soil



indicators include low chroma soils and a depleted matrix. Representative photographs of Wetland D are included in Appendix B, Photographs 6 and 7.

Wetland E is not identified in NWI Wetlands data; however, field reviews identify the wetland as a linear palustrine, forested wetland encompassing approximately 0.116 acre. Wetland E is located north of SC 126, near Willow Lane, and connects to Wetland D via a concrete pipe under SC 126; please see Appendix A, Figure 5B for the location and extent of jurisdiction. Hydrology is received primarily from the surrounding upland forests and maintained lawns. Wetland E drains to Wetland D and eventually RPW Stream 3 which, in turn, drains to Little Horse Creek.

The overstory of Wetland E is dominated by tulip-poplar and red maple. The understory vegetation consists of shrubs and herbs including possumhaw (Viburnum nudum) and netted chain fern. Laurel greenbrier and roundleaf greenbrier are vines also found in the wetland. Wetland hydrology indicators within Wetland E include a high water table, saturated soils, and water-stained leaves. Hydric soil indicators include low chroma soils, a thick dark surface, and a depleted matrix. Representative photographs of Wetland E are included in Appendix B, Photographs 9 and 10.

Wetlands F and G are palustrine, forested seepage slope wetlands encompassing 0.209 acre and 0.221 acre, respectively. NWI data identifies both wetland areas as PFO1B. Wetlands F and G are located south of SC 126 and west of Willow Lane; please see Appendix A, Figures 5A for the location and extent of jurisdiction. Hydrology is received primarily from the SC 126 roadway, and the surrounding upland forests and maintained lawns. Wetlands F and G drain off-site to the adjacent stream which, in turn, drains to Little Horse Creek.

The overstory of Wetlands F and G are dominated by tulip-poplar, sweetgum and red maple. The understory vegetation consists of saplings and shrubs including wax myrtle, red bay, and sweetbay. Common greenbrier and Japanese honeysuckle are vines also found in the wetland. Wetland hydrology indicators within Wetlands F and G include sediment deposits and saturated soils. Hydric soil indicators include low chroma soils and a depleted matrix.

The proposed roadway improvement project would likely result in permanent impacts to jurisdictional wetlands within the PSA due to the increased footprint of the new roadway.



4.1.2 Streams or Relatively Permanent Waters

A total of three relatively permanent waters (RPW Streams 1, 2, and 3) were identified within the PSA during the field investigation. A brief description of each is listed below:

RPW Streams 1 and 3 are portions of a perennial, unnamed tributary (UT) to Little Horse Creek and depicted on the USGS topographic quadrangle map as a solid blue line stream; please see Appendix A, Figure 2. The tributary originates approximately two miles northwest of the PSA and flows in a general southeast direction to Clearwater Lake and Little Horse Creek. Within the vicinity of the PSA, the tributary flows along the southern edge of the PSA, relatively parallel to the SC 126 roadway for approximately 6,500-If. The tributary then turns easterly and crosses under SC 126, via a double box culvert, immediately southeast of Woods Lane. From this crossing, it continues southeast approximately one-half mile before converging with Little Horse Creek at Clearwater Lake. Within the PSA, the tributary is a total of 871 linear feet (If) in length and comprises 0.301 acre. Specifically, RPW Stream 1 is 661-If (0.250 acre) and RPW Stream 3 is 210-If (0.052 acre); please see Appendix A, Figures 5B and 5C for the location and extent of RPW Streams 1 and 3.

The width of RPW Streams 1 and 3 range from 8 feet to 40 feet, with bank heights ranging from 2 to 6 feet. Within the PSA, RPW Streams 1 and 3 accept drainage from the surrounding road network, the surrounding upland forests and maintained lawns, RPW Stream 2, and Wetlands B through H. The stream channel exhibited moderate flow, moderate sinuosity, and a substrate consisting of sand, silt, gravel, cobble, and boulders. Aquatic life, including fish, amphibians and macroinvertebrates was directly observed throughout the tributary. Representative photographs of RPW Streams 1 and 3 are included in Appendix B, Photographs 12, 13, and 15.

RPW Stream 2 is a perennial UT to RPW Stream 1. The tributary originates immediately east of Woods Lane, north of SC 126, in the eastern-central portion of the PSA; please see Appendix A, Figure 5C for the location and extent of the tributary. Specifically, RPW Stream 2 is 160-If in length and encompasses 0.027 acre. Bank widths of RPW Stream 2 range from 4 feet to 12 feet, and bank heights ranging from 0 to 2 feet. Within the project study area, RPW Stream 2 accepts drainage from Woods Lane, the surrounding upland forests and maintained lawns, Open Water Pond A and Wetland A. The stream channel exhibited moderate to high flow, moderate sinuosity, and a substrate consisting primarily of sand, gravel,



cobble, and boulders. Aquatic life, including fish, amphibians and macroinvertebrates was not directly observed throughout the tributary. RPW Stream 2 is not depicted on the USGS topographic quadrangle map or the USDA soil survey. A representative photograph of RPW Stream 2 is included in Appendix B, Photograph 14.

4.1.3 Open Water Ponds

One freshwater pond (Pond A) was identified within the PSA during the field investigation.

Open Water Pond A is a man-made pond located approximately 300 feet west of Woods Lane, north of SC 126, in the eastern-central portion of the PSA; please see Appendix A, Figure 5C for the location and extent of jurisdiction within the PSA. Open Water Pond A is not identified on the USGS topographic quadrangle map or the USDA soil survey, and is regulated by an earthen dam on its southern edge. During times of high volume, Open Water Pond A overtops naturally to Wetland A, which flows through an armored channel to RPW Stream 2. Within the PSA, Open Water Pond A encompasses 0.122 acre and accepts drainage from offsite runoff and surrounding homesites. Open Water Pond A exhibits an ordinary high water mark, inundation, and aquatic life such as fish and amphibians. A representative photograph of Open Water Pond A is included in Appendix B, Photograph 2.

4.2 Permitting

A Clean Water Act Section 404 permit is required for impacts to jurisdictional waters of the U.S., including wetlands. Section 404 is administered by the USACE. Depending on the type and extent of jurisdictional waters of the U.S., including wetlands, to be impacted, Section 404 permitting requirements can range from activities that are considered exempt or preauthorized to those requiring pre-construction notification (PCN) for a Nationwide Permit (NWP) or Individual Permit (IP) from the USACE.

In addition to the Section 404 permit, SCDHEC must grant, deny, or waive a Water Quality Certification (WQC), in accordance with Section 401 of the Clean Water Act. Waters considered by SCDHEC to be sensitive may also require additional consideration during the 401 WQC process. These include, but are not limited to, Outstanding Resource Waters (ORW), Shellfish Harvesting Waters (SFH), trout waters, areas draining to waters included on the 303(d) list of impaired waters, and areas draining to



waters with an approved TMDL. As discussed in Section 2.4, the jurisdictional waters in the project study area drain to Little Horse Creek, which is listed as a water with an EPA approved TMDL. Depending on the type of impairment, extent of the project, and other factors, SCDHEC may require additional water quality protection and stormwater treatment measures during and after construction.

For South Carolina Department of Transportation (SCDOT) projects, USACE General Permit (GP) 2010-01346 may be applicable if impacts do not exceed 3.0 acres of freshwater wetlands, 0.5 acre of tidal wetlands, and/or 300 linear feet of stream. The GP has been approved by SCDHEC, therefore separate approval for Section 401 WQC is not required. If impacts exceed the GP threshold limits, an IP from the USACE would be required which involves a more rigorous, time-consuming review process. It is not uncommon for the regulatory processing of an IP application to take close to a year.

Specific permitting requirements and strategies for the project will be determined once impacts to jurisdictional areas (i.e., wetlands and other waters of the U.S.) are quantified following establishment of proposed project construction limits. Pursuant to Section 404, regulated discharges would include, but are not necessarily limited to, the placement of fill material, riprap, pipes, culverts, etc., into waters of the U.S. The permit application must include a delineation of affected waters of the U.S., including wetlands, as well as a description of impact avoidance and minimization strategies, and an alternatives analysis. It is anticipated that impacts to waters of the U.S. will exceed the threshold limits of a GP; therefore, an IP will likely be required for this project.

Compensatory Mitigation

Compensatory mitigation is normally required to offset unavoidable losses of waters of the U.S. The Council on Environmental Quality (CEQ) has defined mitigation in 40 CFR Part 1508.20 to include: avoiding impacts, minimizing impacts, rectifying impacts, reducing impacts over time, and compensating for impacts. Three general types of mitigation include avoidance, minimization, and compensatory mitigation. Compensatory mitigation typically consists of the restoration of existing degraded wetlands or waters, or the creation of wetlands/waters of equal or greater value than those to be impacted. This type of mitigation is only undertaken after avoidance and minimization actions are exhausted and should be undertaken, when practicable, in areas near the impact site (i.e., on-site compensatory mitigation). The USACE typically requires compensatory mitigation for any impacts to jurisdictional waters of the



U.S., including wetlands, for which a Section 404 permit application is submitted.

It is anticipated that compensatory mitigation for permanent project impacts will be attained through purchase of mitigation credits from a USACE approved mitigation bank, and/or a permittee-responsible mitigation plan (PRM) that complies with the 2008 Mitigation Rule and the 2010 Charleston District's Guidelines for Preparing a Compensatory Mitigation Plan. Specific mitigation requirements will be established during the Section 404 permitting process.

5.0 THREATENED AND ENDANGERED SPECIES

The Federal Endangered Species Act (ESA) of 1973, as amended, is the federal regulatory tool that serves to administer permits, implement recovery plans, and monitor federally protected (endangered and threatened) species. The ESA is administered and regulated by the USFWS and/or National Oceanic and Atmospheric Administration-National Marine Fisheries Service (NOAA-NMFS). Because of the federal nexus of this proposed project, consultation with USFWS and/or NOAA-NMFS would be required under Section 7 of the ESA, as amended (16 U.S.C. 1531-1534) for proposed projects that "may affect" federally-classified endangered and threatened species.

Federal Protected Species

Species with the federal classification of Endangered (E) or Threatened (T), or Threatened due to Similarity of Appearance (T [S/A]) are protected under the ESA of 1973, as amended (16 U.S.C. 1531 et seq.). The term "endangered species" is defined as "any species which is in danger of extinction throughout all or a significant portion of its range", and the term "threatened species" is defined as "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range" (16 U.S.C. 1532).

The term "Proposed" (P) is defined as "any species proposed for official listing as endangered or threatened." "Federal species of concern" (FSC) are defined as "species that may or may not be listed in the future; or a species under consideration for listing for which there is insufficient information to support listing." "Candidate" (C) species are taxons under consideration for which there is insufficient information to support a listing. The P, FSC and C designations provide no federal protection and require no Section 7 consultation under the ESA.



State Protected Species

Animal species that are on the South Carolina state protected species list receive protection under the South Carolina Nongame and Endangered Species Conservation Act (South Carolina Code, Title 50). State endangered species are defined as any species or subspecies of wildlife whose prospects of survival or recruitment within the state are in jeopardy or are likely within the foreseeable future to become so. It is unlawful for any person to take, possess, transport, export, process, sell or offer for sale or ship, and for any common or contract carrier knowingly to transport or receive for shipment any species or subspecies of wildlife appearing on the state list of protected species without appropriate authorization.

A search of the USFWS database provided existing information concerning the potential occurrence of threatened or endangered species within Aiken County [USFWS, 2013(B)]. This database identifies seven federally threatened or endangered species and two candidate species known to occur, or to have formerly occurred, in Aiken County, as listed in Table 1. This list also includes bald eagle (*Haliaeetus leucocephalus*), which is no longer protected by the Federal Endangered Species Act, but is afforded protection through the Bald and Golden Eagle Protection Act [(USFWS, 2013(B)].

The South Carolina Department of Natural Resources (SCDNR) Rare, Threatened and Endangered Species Known to Occur in Aiken County, updated March 13, 2012, was also reviewed for information regarding species with state endangered or threatened status. Three additional state protected species are currently listed in Aiken County, as listed in Table 1 (SCDNR, 2012).



TABLE 1 AIKEN COUNTY ENDANGERED/THREATENED AND CANDIDATE SPECIES

Common Name	Scientific Name	Federal	State
Mammal S			
Rafinesque's big-eared bat	Corynorhinus rafinesquii	-	E
Amphibiar			
Spotted turtle	Clemmys guttata	-	Т
Gopher tortoise	Gopherus polyphemus	С	E
Gopher frog	Rana capito	-	Е
Bird Spo	ecies		
Bald eagle	Haliaeetus leucocephalus	BGEPA	Т
Wood stork	Mycteria Americana	E	-
Red-cockaded woodpecker	Picoides borealis	E	E
Fish Spe	ecies		
Shortnose sturgeon*	Acipenser brevirostrum*	E	E
Atlantic sturgeon*	Acipenser oxyrinchus*	E	-
Plant Sp	pecies		
Smooth coneflower	Echinacea laevigata	E	-
Harperella	Ptilimnium nodosum	Е	-
Georgia aster	Symphyotichum georgianum	С	_
Relict trillium	Trillium reliquum	E	-

T = Threatened, E = Endangered, C = Candidate, BGEPA = Bald and Gold Eagle Protection Act * Species under the jurisdiction of National Marine Fisheries Service

State and/or federally-listed endangered and threatened species and their respective habitats are briefly described below:

Spotted turtle (Clemmys guttata) – State Threatened

The spotted turtle is a very small species that rarely exceeds a carapace length of 4.5 inches. The adult carapace is smooth without obvious growth ridges, and is black or brownish-black with a variable number of round yellow spots. These spots may fade partially or completely in adults. The plastron, or ventral surface of the shell, is yellow or orange with a black blotch covering a portion of each scute. The head is mostly black, with a variable number of yellow spots; there is usually a large, sometimes divided, yellow or orange blotch on each side of the head. The upper surfaces of the legs and tail are black, again usually with a scattering of yellow spots, and the lower surfaces of the legs and neck are orange to pink or salmon-red. Spotted Turtles prefer shallow waters with a soft bottom substrate and some submergent and emergent vegetation. These can include sedge meadows, boggy ponds, fens, tamarack swamps, sphagnum seepages, and slow, muddy streams. These turtles also



frequently wander on land between wetlands, and may reside on land for weeks at a time.

Gopher tortoise (Gopherus polyphemus) – Federal Candidate/State Endangered

The gopher tortoise is a large, dark-brown to grayish-black terrestrial, herbivorous turtle with elephantine hind feet, shovel-like forefeet, and a gular projection beneath the head on the yellowish, hingeless plastron or undershell. The shell is typically 5.9 to 14.6 inches long. The sex of individual turtles can usually be determined by shell dimensions. A male turtle has a greater degree of lower shell concavity, and a longer gular projection. The gopher tortoise inhabits burrows within the sandhills, pine/scrub oak uplands, and pine flatwoods associated with the longleaf pine ecosystem, and is usually found in areas with well-drained, deep, sandy soils, an open tree canopy, and a diverse, abundant, herbaceous groundcover.

Gopher frog (Rana capito) – State Endangered

The gopher frog is a nocturnal frog noted for their short, stubby appearance. Their backs are marked heavily with dark spots, sometimes causing a clouded pattern. The dorsolateral ridges are very distinctive. Often, but not always, the gopher frog is found in association with gopher tortoises. The gopher frog usually spends daylight hours in burrows, holes, or tunnels that are created by other animals, including gopher tortoise burrows. Gopher frogs require open, grassy seasonal wetlands for successful reproduction. Adults move to the breeding site in association with heavy rains, usually February through March. Fist-sized egg masses, containing 2,000 or more eggs, are typically attached to stems of emergent vegetation.

Rafinesque's big-eared bat (Corynorhinus rafinesquii) – State Endangered

The Rafinesque's big-eared bat is distinguishable by its large ears which, when laid back, are almost half the length of the animal's body. The length of the species ears range from three centimeters (cm) to 1.25 inches. Wingspan ranges from 26 to 30 cm. Rafinesque's big-eared bat typically weighs eight to fourteen grams, and is gray/brown above and silvery below. The species inhabits the southeastern United States and hibernate rather than migrating. Rafinesque's big-eared bat characteristically roosts in dilapidated buildings or tree cavities near water, and have been known to day-roost under bridges.



Bald eagle (Haliaeetus leucocephalus) – BGEPA/State Threatened

The bald eagle is a large raptor, with a wingspan of about seven feet, and mainly dark brown in color. Adults have a pure white head and tail. It nests in large, mature live pine or cypress trees. Nests are large, up to six feet in width, and constructed of sticks and soft materials such as dead vegetation, grasses, and pine needles. Nesting trees are usually found within two miles of coasts, rivers, and lakes, near the bodies of water in which it feeds. It feeds primarily on fish but also takes a variety of bird, mammals, and turtles when fish are not readily available. In South Carolina, bald eagles nest October 1 through May 15.

Wood stork (Mycteria Americana) – Federal Endangered

The wood stork is a large, long-legged wading bird, about 50 inches tall, with a wingspan of 60 to 65 inches. The plumage is white except for black primaries and secondaries and a short black tail. The head and neck are largely un-feathered and dark gray in color. The bill is black, thick at the base, and slightly de-curved. Immature birds are dingy gray and have a yellowish bill. The wood stork nests mostly in upper parts of cypress trees, dead hardwoods over water, or on islands along streams or adjacent to shallow lakes. The wood stork forages in freshwater marshes, swamps, lagoons, ponds, flooded pastures, and depressions in marshes (especially during drought).

Red-cockaded woodpecker (Picoides borealis) - Federal/State Endangered

Adult red-cockaded woodpeckers are approximately 18 to 20 cm long with a wingspan of 35 to 38 cm. Adults have a black cap, throat, and stripe on the side of the neck and white cheeks and underparts. The back is barred with black and white horizontal stripes. Adult males have a small red spot on each side of the black cap. The bird is native to southern pine forests and typically roosts within open pine stands with trees 80 years or older. Roosting cavities are excavated within live pines, which are often infected with a fungus which causes what is known as red-heart disease. Foraging may occur in pine and/or mixed pine/hardwood stands 30 years or older with trees 10 inches or larger in diameter at breast height (dbh).

Shortnose sturgeon (Acipenser brevirostrum) – Federal/State Endangered

The shortnose sturgeon is an anadromous fish species which spends most of the year in brackish or salt water and moves into fresh water only to spawn in the spring. They are the smallest of the three sturgeon species that occur in eastern North America, growing up to 4.7 feet in length and weighing up to 50 pounds. The shortnose sturgeon is dark-colored on its dorsal side and light on the ventral side and has a wide mouth pointed



downward beneath a short snout. The sides of its body contain five rows of sharp, pointed plates, or scutes. The shortnose sturgeon inhabits the lower portions of large rivers and coastal rivers along the Atlantic Coast.

Atlantic sturgeon (Acipenser oxyrinchus) – Federal Endangered

The Atlantic sturgeon is an anadromous fish species, similar in habitat requirements and appearance to the shortnose sturgeon. The Atlantic sturgeon can be distinguished by their large size, smaller mouth, different snout shape and scutes. They can grow up to 14 feet in length and weigh up to 800 pounds. The Atlantic sturgeon is bluish-black or olive brown dorsally with paler sides and a white belly. The sides of its body also contain five rows of scutes.

Smooth coneflower (Echinacea laevigata) – Federal Endangered

Smooth coneflower is a perennial herb with a smooth stem and a solitary flower head. Stems consist of few alternate leaves, up to 4.5 feet in height. Leaves are four to six inches long and one to three inches wide. The petioles are winged and purple tinged. The flower head contains 13 to 21 pale pink or lavender dropping ray flowers, surrounding tubular disk flowers that form a cone. The species was formerly a plant of prairie-like habitats or oak-savannas maintained by fire. The remaining populations primarily occur in forest openings, such as cedar barrens and clear cuts, along roadsides and utility line rights-of-way, and on dry limestone bluffs. Smooth coneflower is usually found in areas with magnesium- and calcium-rich soils and requires full or partial sun. Associated species include Juniperus virginiana and Eryngium yuccifolium.

Harperella (Ptilimnium nodosum) – Federal Endangered

Harperella is an annual herb with slender, erect stems, up to 40 inches in height. The roots are shallow, diffuse-fibrous, and the plants have a faint scent of dill. The leaves are hollow, quill-like structures. The small white flowers occur in heads not unlike those of "Queen Anne's Lace" (Daucus carota), and may appear from May to frost. Habitat types include rocky/gravelly shoals or cracks in bedrock outcrops beneath the water surface in clear, swift-flowing streams (usually in microsites that are sheltered from rapidly moving water); edges of intermittent pineland ponds or low, wet savannah meadows on the Coastal Plain; and granite outcrop seeps. In all habitat-types, the species occurs in a narrow range of water depths; it is intolerant of deep water and of conditions that are too dry. However, the plants readily tolerate periodic, moderate flooding - something to which few potential competitors are adapted.



Georgia aster (Symphyotichum georgianum) – Federal Candidate

Georgia aster is a perennial, colonial herb with tall, rough, and hairy stems originating from underground rhizomes. Stems can reach up to 40 inches in height. Leaves are thick and scabrous with rough, pointed tips, generally 2 to 7cm long and 1 to 2 cm wide. From early October to mid-November, the species produces bright purple ray flowers, up to 2 cm in length. The disk flowers are white with purplish tips. Georgia aster is a species of savanna/prairie communities that existed in the southeast prior to widespread fire suppression and extirpation of large native grazing animals. The majority of the remaining populations survive adjacent to roads, along woodland borders, in dry, rocky woods, and within utility rights-of-way and other openings where current land management mimics natural disturbance regimes.

Relict trillium (Trillium reliquum) – Federal Endangered

Relict trillium is a perennial herb with 3 mottled leaves at the top of an Sshaped, somewhat decumbent stem, approximately 5 to 25 cm in length, often with the leaf whorl resting on the leaf litter. A sessile, 3-petaled flower appears at the apex of the stem in early spring. The flowers are 22 to 60 mm in length and are less than half as long as the leaves. The flowers range in color from greenish to brownish-purple and, occasionally, to pure yellow. The leaves of relict trillium are elliptic to orbicular, 5 to 14 cm in length and almost as wide. The leaves have five shades of color ranging from green through blue-green to silver, with a silver colored stripe along the upper, central vein. Relict trillium prefers mature, moist, undisturbed hardwood forests with an understory free of thick shrubs and vines. The species occupies soils ranging from alluvial sands to rocky clays, which have a high organic content in their upper layer. Habitat is found on slopes of various aspects and inclinations or on bottomlands and floodplains.

The list of state and/or federally protected species known to occur in Aiken County was reviewed, and evaluations were performed regarding the likelihood of the presence of each species within the PSA.

The SCDNR South Carolina Heritage Trust (SCHT) Geographic Database of Rare, Threatened, & Endangered Species Inventory, last updated January 17, 2006, was reviewed to determine the presence of state and/or federally protected species within a one-mile radius of the PSA. Information obtained from the SCDNR-SCHT database indicates no listed threatened or endangered species known to be present within the PSA. Furthermore, according to the database, no threatened or endangered species are located within a one-mile radius of the PSA (SCDNR, 2006).



Field reviews were also conducted by Stantec in May and June of 2013, and areas in the PSA that matched descriptions of preferred habitat for protected species listed in the above table were classified as potential protected species habitat. The PSA largely consists of undeveloped woodland and maintained and disturbed roadside and lawns. None of the state and/or federally protected species were observed within the PSA during field reviews conducted by Stantec.

No potential habitat for spotted turtle is present within the PSA due to the absence of shallow, slowing velocity waters.

No potential habitat for gopher tortoise or gopher frog is present within the PSA due to the lack of ecosystems typical of the sandhills, including pine/scrub oak uplands and pine flatwoods.

No potential habitat for Rafinesque's big-eared bat is present within the PSA due to the lack of dilapidated buildings and bridges for roosting.

No large waterbodies are located within two miles of the PSA; therefore, no potential nesting or foraging habitat for bald eagle is present within the PSA.

No marshes, swamps, or other flooding areas are located within the PSA; therefore, no potential nesting or foraging habitat for the wood stork is present.

No potential roosting habitat for red-cockaded woodpecker was identified using the latest aerial photography available and on-theground field observations within the PSA. Foraging habitat is considered to be limited to upland ridges within the PSA, and was highly degraded due to hardwood understory encroachment.

Streams within the PSA do not provide an unimpeded connection to the Atlantic Ocean, nor do they provide the size and depth suitable for sturgeon; therefore, no potential habitat for shortnose sturgeon or Atlantic sturgeon is present within the PSA.

Potential habitat for smooth coneflower is present in the PSA within maintained and sparsely vegetated roadside; however, no individuals were observed during the field surveys and none have been documented within a one-mile radius of the PSA.



Potential habitat for Georgia aster is present in the PSA adjacent to roads and along forested borders; however, no individuals were observed during the field surveys and none have been documented within a onemile radius of the PSA.

No potential habitat for relict trillium is present within the PSA due to the dense understory found throughout the forested hardwood forests.

Based on the literature reviews and field surveys conducted by Stantec, the project would have no effect on any federal or state-listed protected (threatened or endangered) species.



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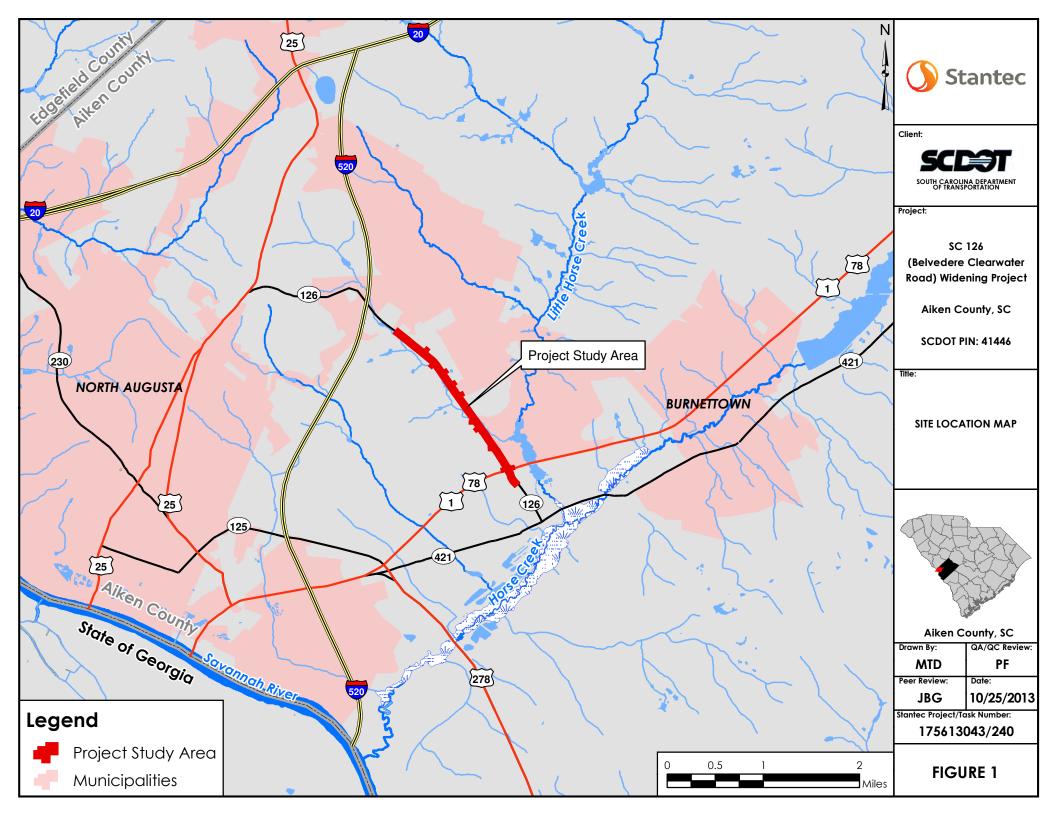


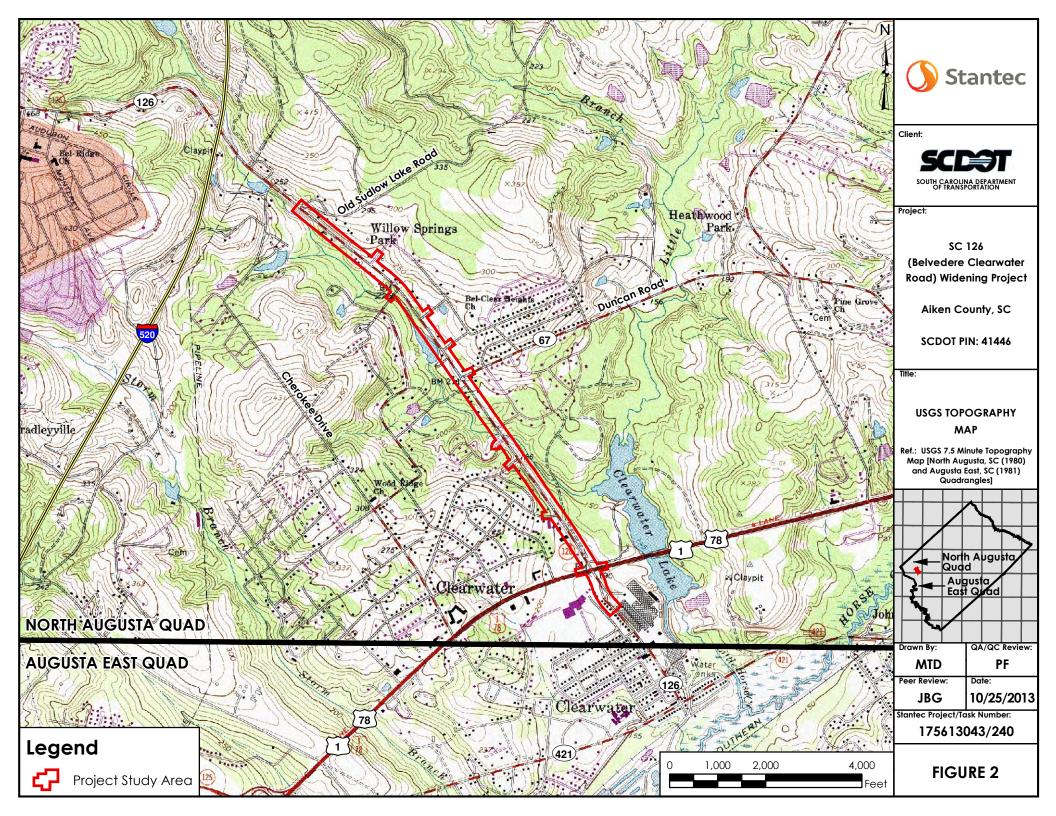
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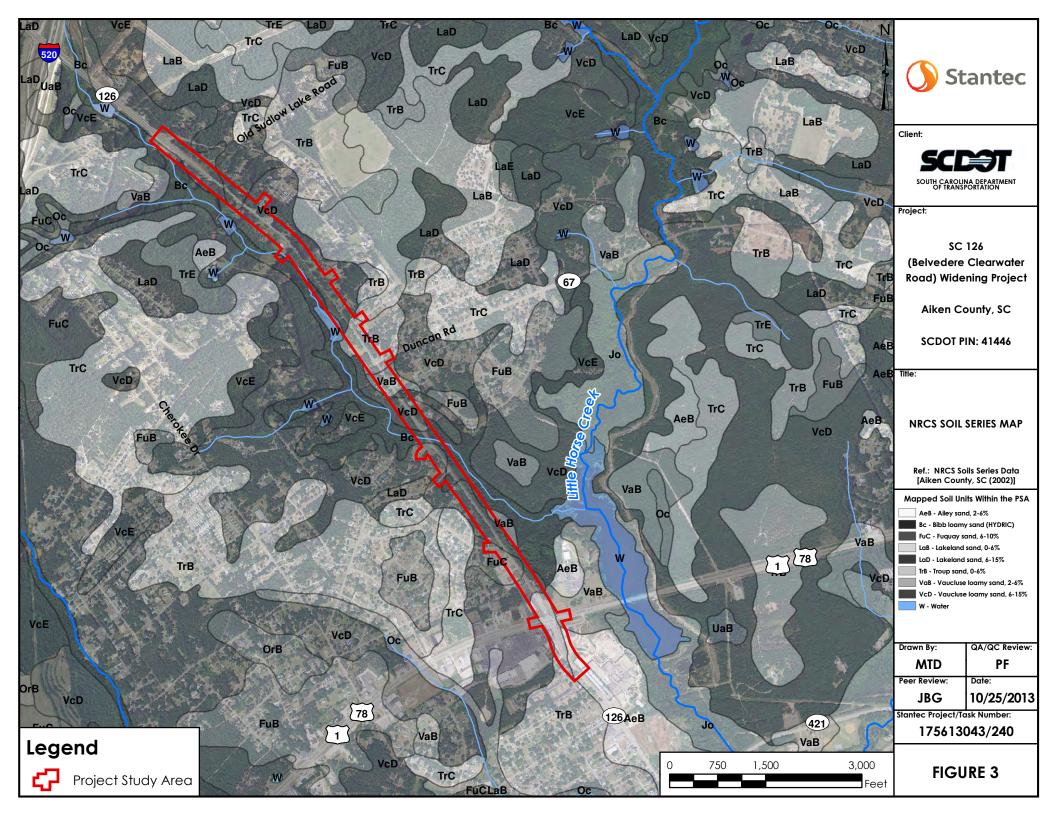


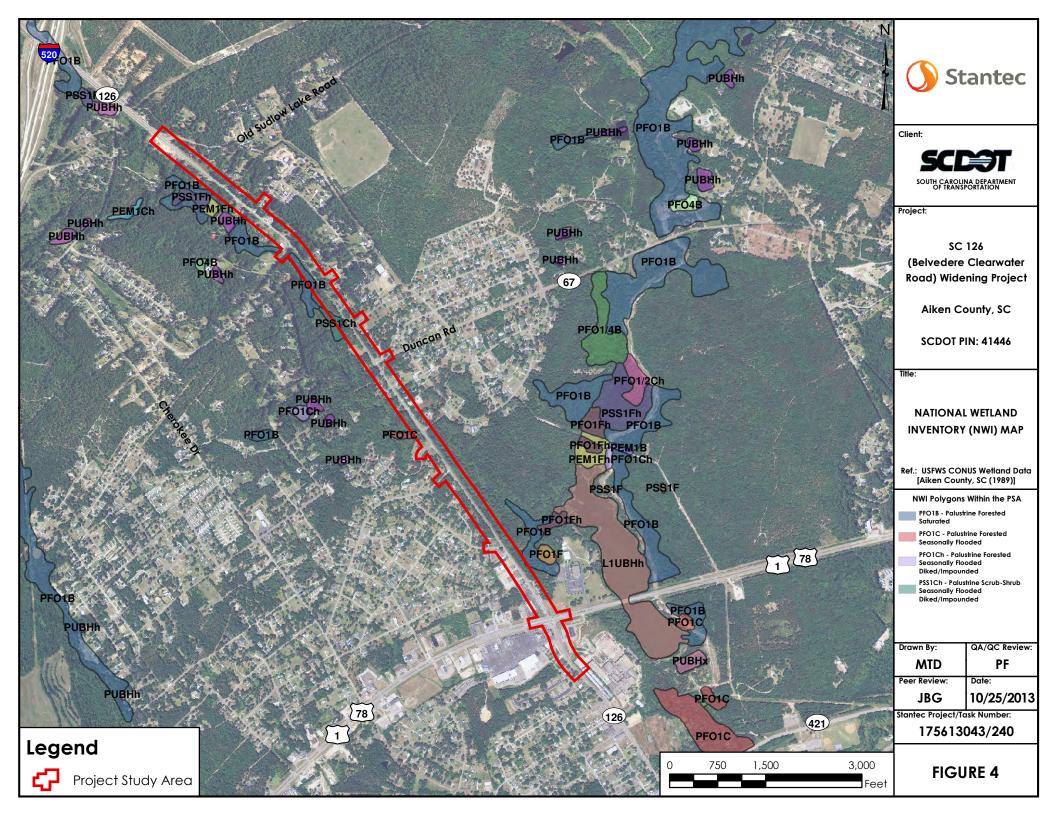
APPENDIX A

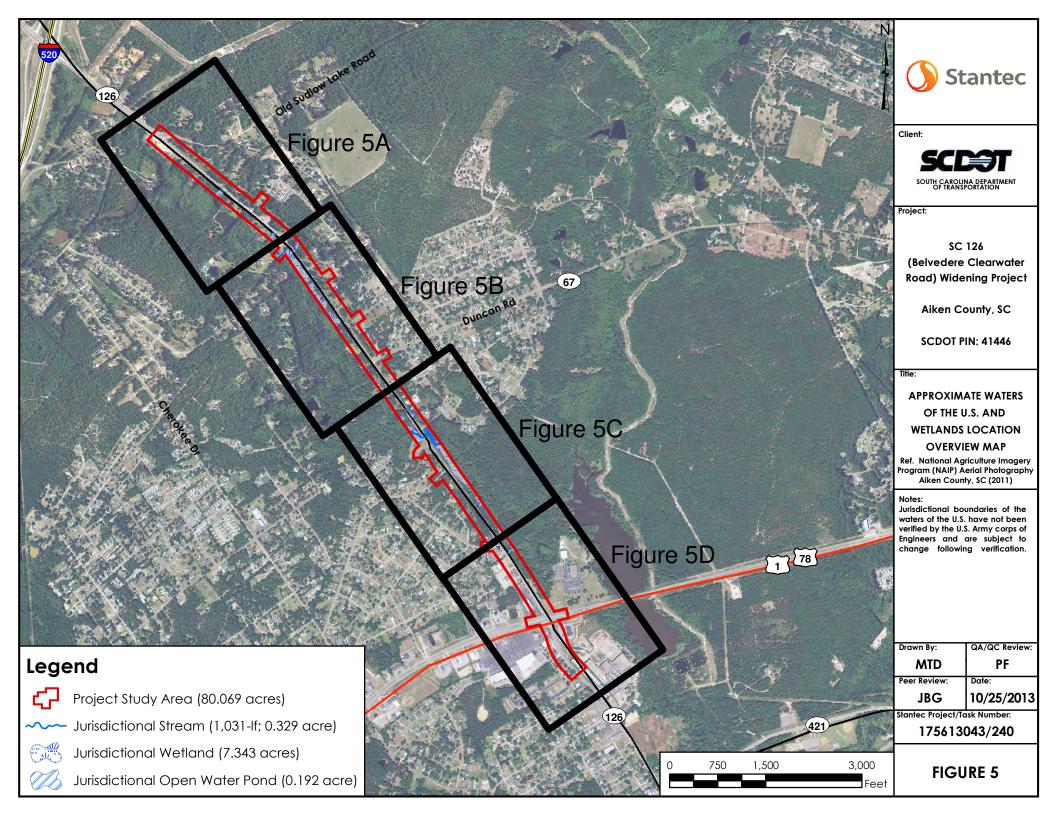
FIGURES

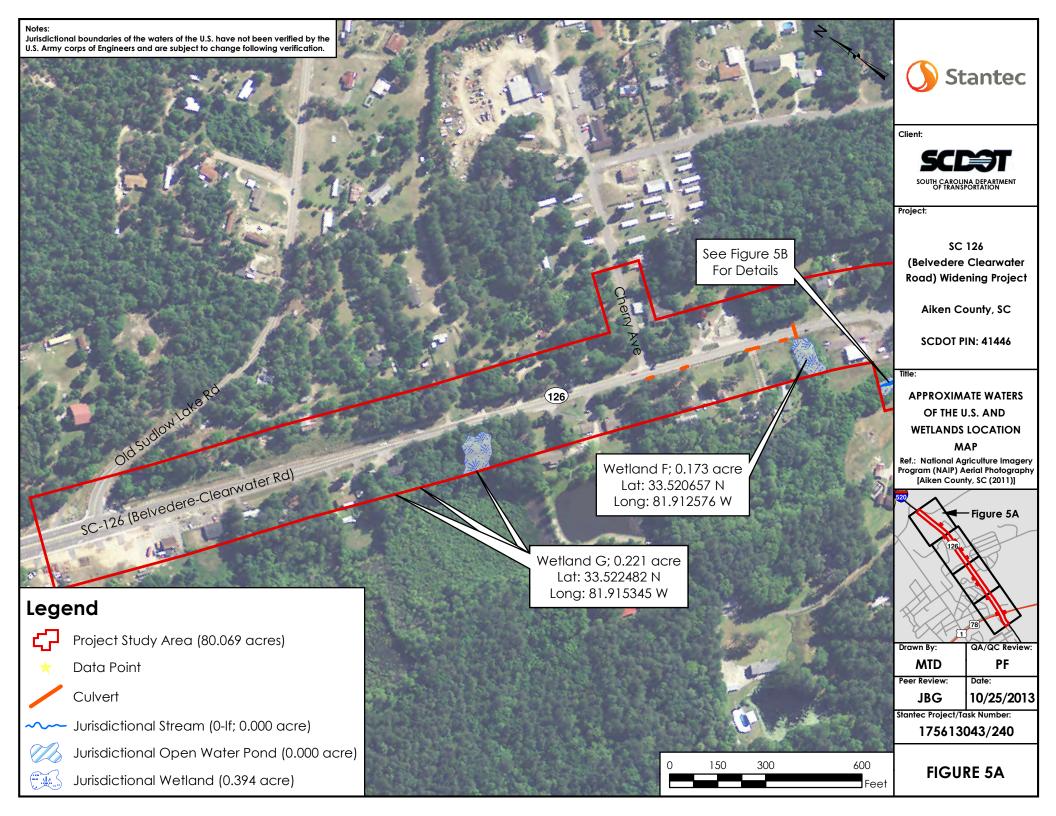


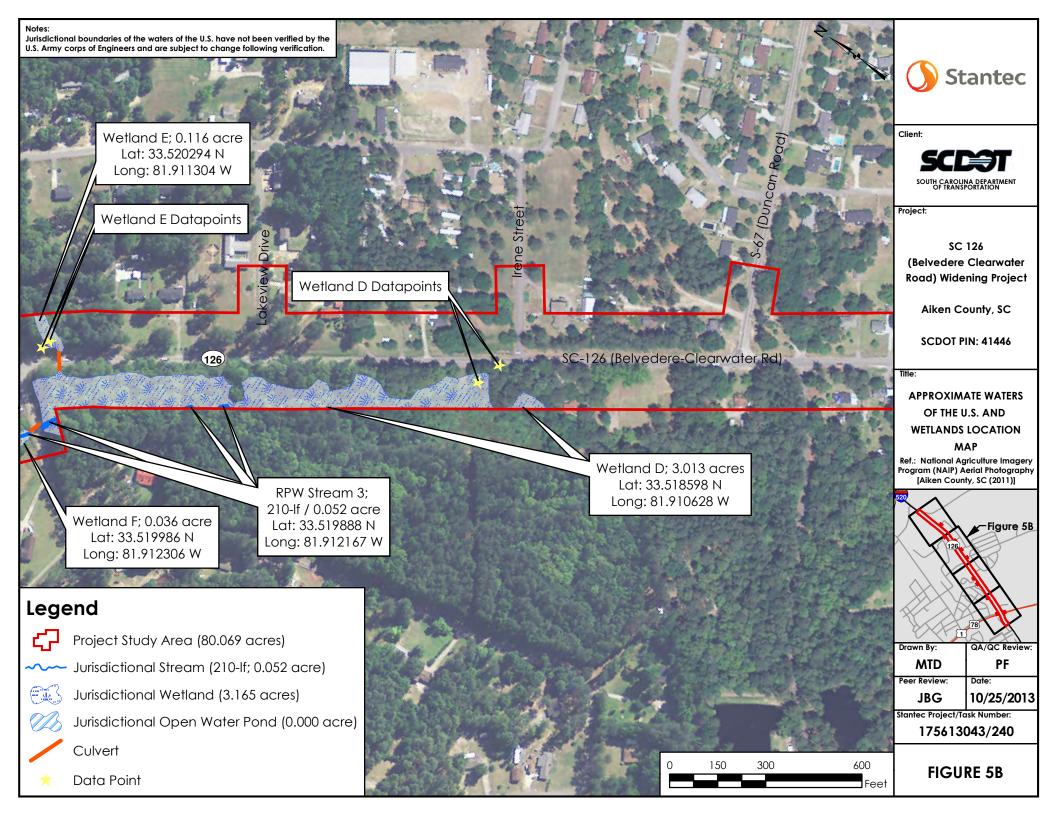


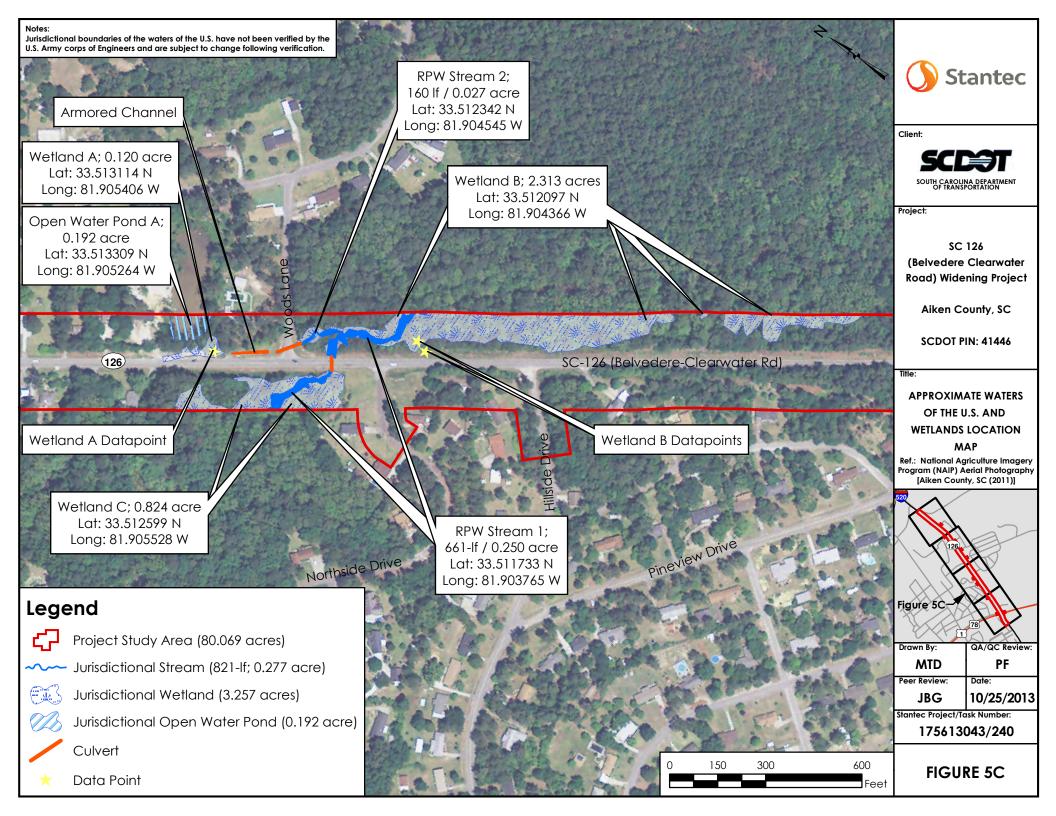


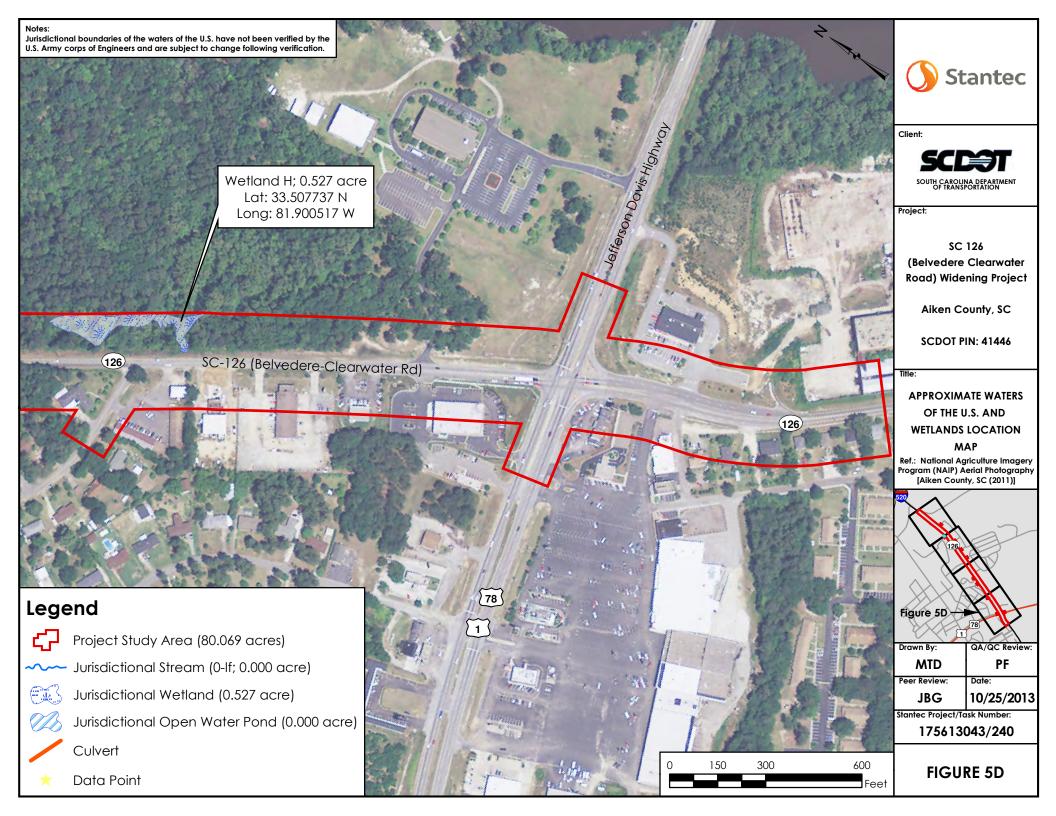






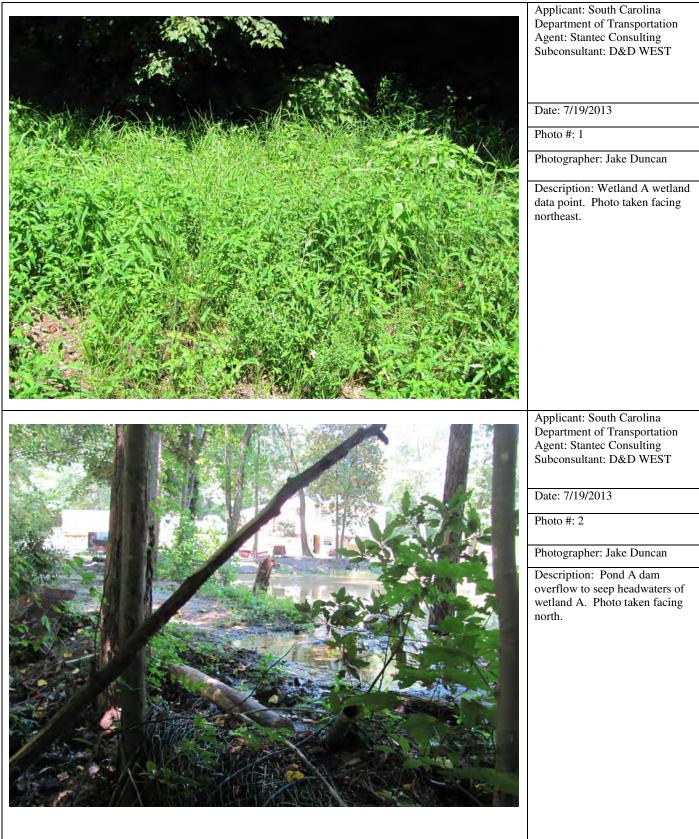




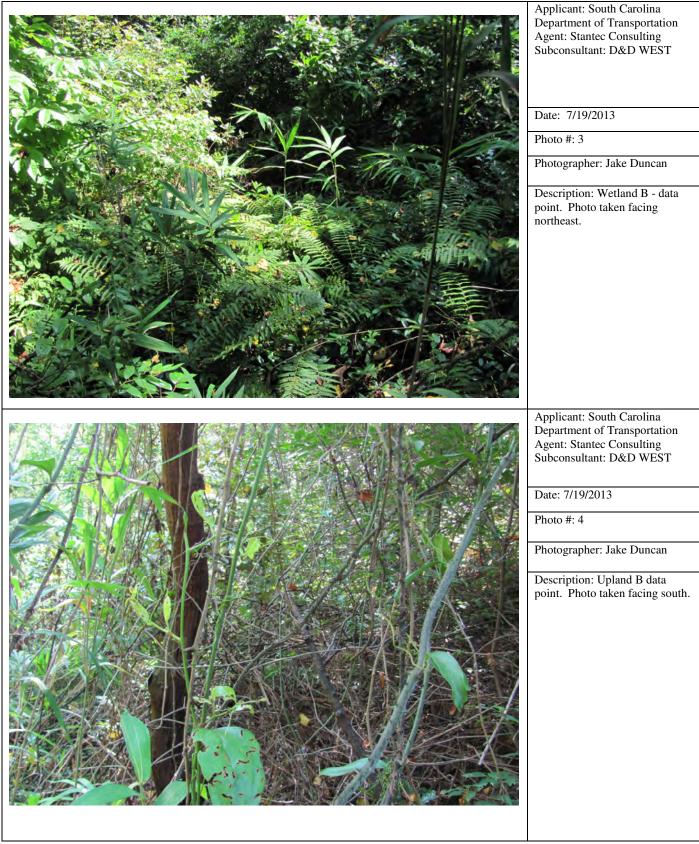


APPENDIX B

REPRESENTATIVE PHOTOGRAPHS

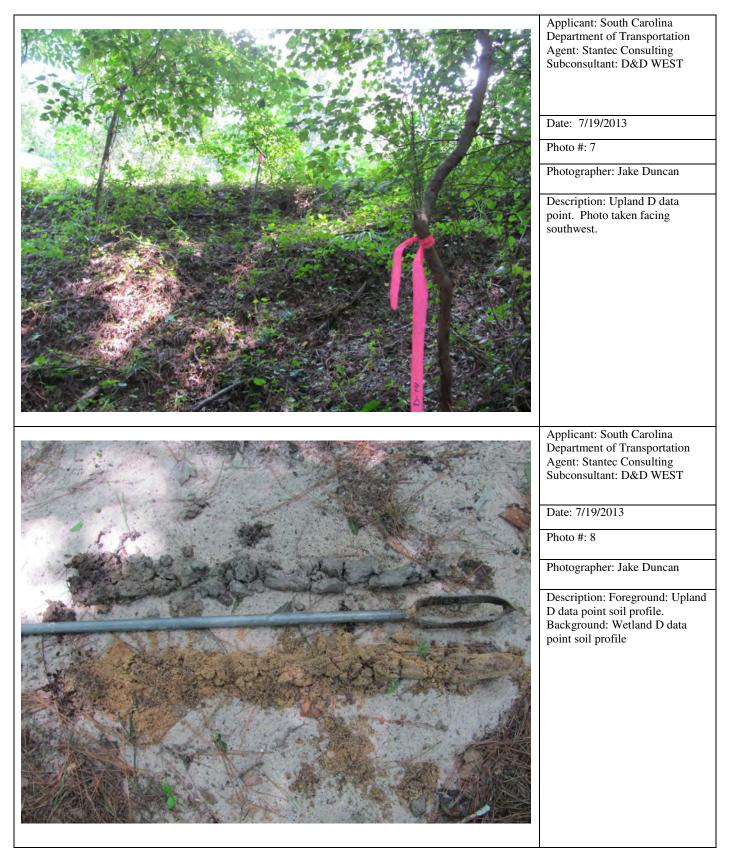


Prepared by: Pam Ferral Checked by: Pat Ferral

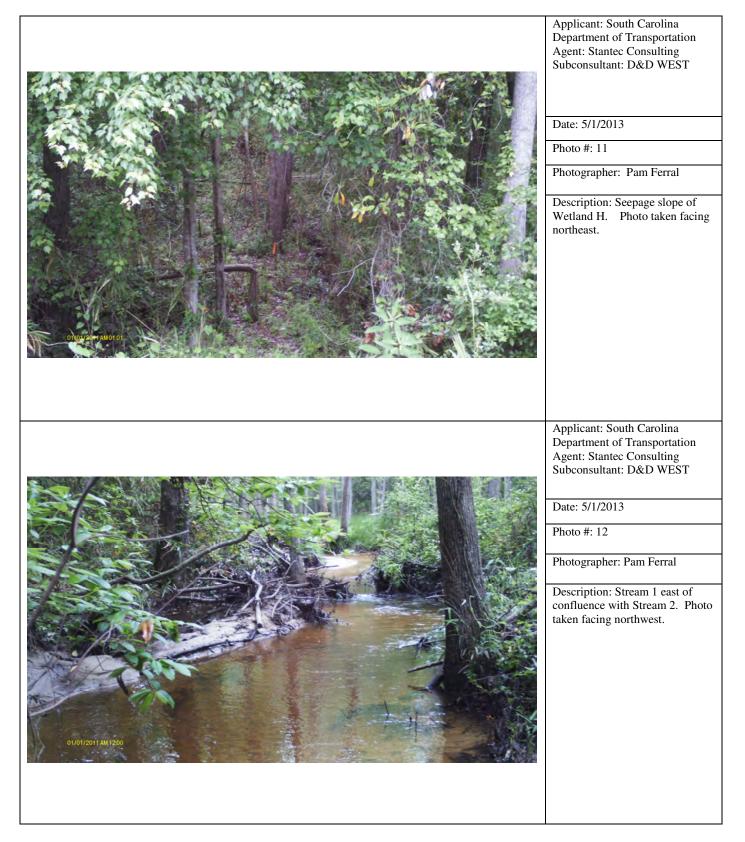


Applicant: South Carolina Department of Transportation Agent: Stantec Consulting Subconsultant: D&D WEST Date: 7/19/2013 Photo #: 5 Photographer: Jake Duncan Description: Foreground: Upland B data point soil profile. Background: Wetland B data point soil profile. Applicant: South Carolina Department of Transportation Agent: Stantec Consulting Subconsultant: D&D WEST Date: 7/19/2013 Photo #: 6 Photographer: Jake Duncan Description: Wetland D data point. Photo taken facing northeast.

SC-126 (Belvedere Clearwater) Widening Project Aiken County, South Carolina SCDOT PIN 41446_RD01; File No. 2.041446



Applicant: South Carolina Department of Transportation Agent: Stantec Consulting Subconsultant: D&D WEST
Date: 7/19/2013
Photo #: 9
Photographer: Jake Duncan
Description: Wetland E data point. Photo taken facing northeast.
Applicant: South Carolina Department of Transportation
Department of Transportation Agent: Stantec Consulting Subconsultant: D&D WEST
Date: 7/19/2013
Photo #: 10
Photographer: Jake Duncan
Description: Upland E data point. Photo taken facing south.



Applicant: South Carolina Department of Transportation

Agent: Stantec Consulting Subconsultant: D&D WEST Date: 5/1/2013 Photo #: 13 Photographer: Pam Ferral Description: Stream 1 flow beneath SC 126 (Belvedere Clearwater Road).
Applicant: South Carolina Department of Transportation Agent: Stantec Consulting Subconsultant: D&D WEST Date: 5/1/2013 Photo #: 14 Photographer: Pam Ferral Description: Stream 2 and adjacent Wetland B. Photo taken facing west.



Applicant: South Carolina Department of Transportation Agent: Stantec Consulting Subconsultant: D&D WEST

Date: 5/1/2013

Photo #: 15

Photographer: Pam Ferral

Description: Stream 3 east of Willow Lane. Photo taken facing west.

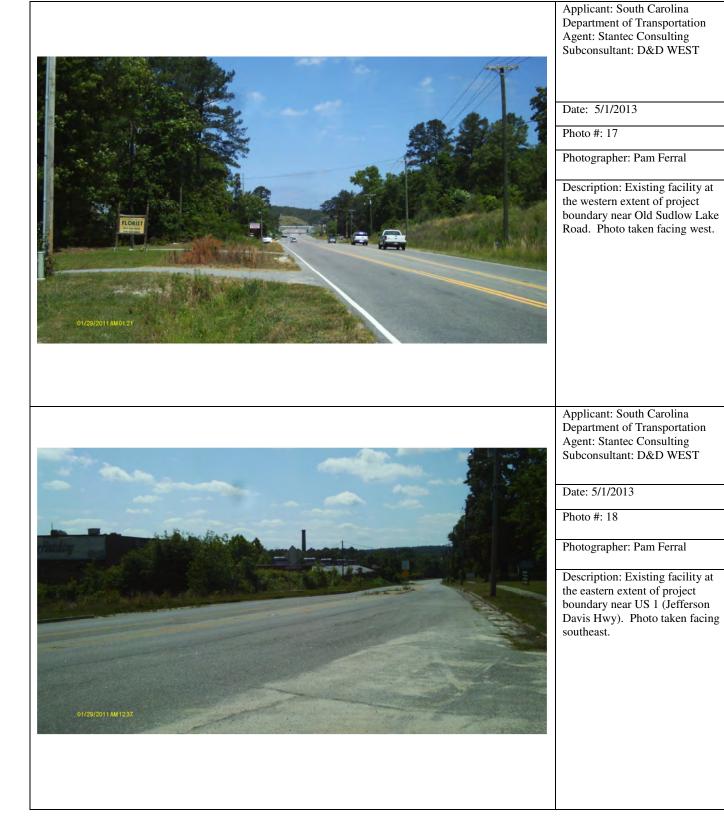
Applicant: South Carolina Department of Transportation Agent: Stantec Consulting Subconsultant: D&D WEST

Date: 5/1/2013

Photo #: 16

Photographer: Pam Ferral

Description: Jurisdictional Ditch 1 connecting Wetland A seep to waters of Steam 2. Photo taken facing southeast.



Applicant: South Carolina Department of Transportation Agent: Stantec Consulting Subconsultant: D&D WEST Date: 5/1/2013 Photo #: 19 Photographer: Pam Ferral Description: Existing facility near Hillside drive. Photo taken facing northwest.
Applicant: South Carolina Department of Transportation Agent: Stantec Consulting Subconsultant: D&D WEST Date: 5/1/2013 Photo #: 20 Photographer: Pam Ferral Description: Exiting facility at the intersection of SC-126 (Belvedere Clearwater Road) and US 1 (Jefferson Davis Hwy).

APPENDIX C

SCDHEC's WATERSHED AND WATER QUALITY INFORMATION

DHEC PROMOTE PROTECT PROSPER South Carolina Department of Health and Environmental Control						8/	19/20	13	Watersh	ed a	nd W	ater (Quali	ty Inf	orma	tion			
Genaral	Inform	natio	n																
Within	Latitude: 33.511938 Longitude: -81.904602 MS4 Designation: Small MS4 Monitoring Station: SV-072 Within Coastal Critical Area: NO Water Classification (Provisional): FW																		
	V	Vater	body	Name:	Unna	amed	Trib					Ente	red Wa	terbody	y Name	:			
NH3N Ammonia CR Chromium CU Copper HG Mercury NI Nickel PB Lead ZN Zinc DO Dissolved O PH pH TURBIDITY Turbidity									FC FCB BIO TP TN CHL ENT HGF PCB	A ERO	Feca Macr (Lake (Lake (Lake (Beac Merc	l Coliforn I Coliforn oinvertet es) Phosp es) Nitrog es) Chlord ch) Enter ury (Fish)	n (Shellfi orates (Bi ohorus jen ophyll a ococcus	,					
Impaired Station	инзи	1	CU	HG	NI	РВ	ZN	DO	РН	TURBIDITY	FC	FCB	BIO	ТР	TN	CHLA	ENTERO	HGF	РСВ
SV-072	x	x	x	х	x	x	x	F	F	F	F	A	x	x	x	x	x	х	X
SV-250	F	F	F	F	F	F	F	А	Α	А	Α	Α	х	х	x	х	x	х	X
F = Standards Fully Supported A = Assessed at Upstream Station T = Within TMDL Approved Watershed N = Standards Not Supported X = Parameter Not Assessed at Station Parameters to be addressed (those not supporting standards)																			
Fish Coi	nsump	otion	Advis	ory															
TMDL In	ıform <u>a</u>	tion	- TMD	L Para	meter	s t <u>o b</u>	e addr	essed											
	In TI		Water	shed:	Yes								TMD	L Site:	SV-07	3			
	TMDL Report No: 007-06 TMDL Parameter: Fecal																		

TMDL Document Link: http://www.scdhec.gov/environment/water/tmdl/docs/tmdl_horse.pdf

APPENDIX C

PRELIMINARY NOISE ANALYSIS



PRELIMINARY TRAFFIC NOISE ANALYSIS

SC 126 (Belvedere Clearwater Road) Widening

From S-1790 (Old Sudlow Lake Road) to US 1/78 (Jefferson Davis Highway)

Aiken County

Federal Aid Project No. SU02(008) File No. 2.041446 Project ID 0041446

Prepared for: South Carolina Department of Transportation

> Submitted By: Stantec Consulting Services Inc.

> > August 2014

PRELIMINARY TRAFFIC NOISE ANALYSIS

SC 126 (Belvedere Clearwater Road) Widening From S-1790 (Old Sudlow Lake Road) to US 1/78 (Jefferson Davis Highway)

Aiken County

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Prepared for:

South Carolina Department of Transportation

Submitted By:

Stantec Consulting Services Inc.

Executive Summary

The South Carolina Department of Transportation (SCDOT), in partnership with the Augusta Regional Transportation Study (ARTS), proposes the widening of SC 126 (Belvedere Clearwater Road) from S-1790 (Sudlow Lake Road) to US 1/78 (Jefferson Davis Highway) in Aiken County (refer to Figure 1). This project is included in the 2014–2019 South Carolina Transportation Improvement Program and is identified as Project ID 0041446.

Final project design has not been completed at the time of this analysis; however, the proposed roadway cross-section will consist of two 12-foot inside lanes and two 12-foot outside lanes with a 15-foot center turning lane and will add bicycle lanes and sidewalks. The existing speed limit throughout the project limits is 45 miles per hour. The proposed design speed will be 50 miles per hour. SC 126 will remain an uncontrolled access facility after construction. The total length of the project is 2.15 miles. Four Build alternatives are evaluated in this report. Alternative 1 is a proposed symmetrical widening along the existing roadway. Alternative 2 is a proposed widening to the north side of the existing roadway and Alternative 4 is a proposed widening to the south of the existing roadway.

Traffic noise impacts and temporary construction noise impacts can be a consequence of transportation projects, especially for noise-sensitive land uses in close proximity to high-volume and/or high-speed existing steady-state traffic noise sources. This Preliminary Traffic Noise Analysis utilized computer models created with the Federal Highway Administration Traffic Noise Model[®] (FHWA TNM v.2.5) to predict future noise levels and define impacted receptors along the proposed widening project. Existing traffic noise impacts 7 receptors in the vicinity of the proposed SC 126 widening project. For the No-Build condition, 27 receptors will be impacted by Design Year 2035 traffic volumes. Build Alternative 1 is predicted to create 36 traffic noise impacts, Build Alternative 3 is predicted to create 38 traffic noise impacts, Build Alternative 3 is predicted to create 38 traffic noise impacts, Build Alternative 3 is predicted to create 38 traffic noise impacts, Build Alternative 3 is predicted to create 38 traffic noise impacts, Build Alternative 3 is predicted to create 38 traffic noise impacts, Build Alternative 3 is predicted to create 38 traffic noise impacts, Build Alternative 3 is predicted to create 38 traffic noise impacts, Build Alternative 3 is predicted to create 38 traffic noise impacts, Build Alternative 3 is predicted to create 38 traffic noise impacts, Build Alternative 3 is predicted to create 38 traffic noise impacts, Build Alternative 3 is predicted to create 38 traffic noise impacts, Build Alternative 3 is predicted to create 38 traffic noise impacts, Build Alternative 3 is predicted to create 38 traffic noise impacts, Build Alternative 3 is predicted to create 38 traffic noise impacts, Build Alternative 37 traffic noise impacts.

Furthermore, construction noise impacts may occur due to the close proximity of numerous noise-sensitive receptors to project construction activities. It is the recommendation of this traffic noise analysis that all reasonable efforts should be made to minimize exposure of noise-sensitive areas to construction noise impacts.

Consideration for noise abatement measures was given to all impacted receptors. While densely-spaced traffic noise impacts can increase the likelihood of providing noise abatement measures, such measures will not be feasible for the benefit of predicted traffic noise impacts in the vicinity of the SC 126 widening project due to the uncontrolled access to the roadway. A barrier was modelled for the area between Pineview Drive and Hillside Drive but was found to be neither reasonable nor feasible. Additional detailed study of potential mitigation measures shall not be necessary subsequent to selection of the final design of the SC 126 widening project.

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Preliminary Traffic Noise Analysis

Proposed SC 126 (Belvedere Clearwater Road) Widening Aiken County Project ID 0041446

1.0 PROJECT LOCATION & DESCRIPTION

The South Carolina Department of Transportation (SCDOT), in partnership with the Augusta Regional Transportation Study (ARTS), proposes the widening of SC 126 (Belvedere Clearwater Road) from S-1790 (Sudlow Lake Road) to US 1/78 (Jefferson Davis Highway) in Aiken County (refer to Figure 1). This project is included in the 2014–2019 South Carolina Transportation Improvement Program and is identified as Project ID 0041446.

Final project design has not been completed at the time of this analysis; however, the proposed roadway cross-section will consist of two 12-foot inside lanes and two 12-foot outside lanes with a 15-foot center turning lane and will add bicycle lanes and sidewalks. The existing speed limit throughout the project limits is 45 miles per hour. The proposed design speed will be 50 miles per hour. SC 126 will remain an uncontrolled access facility after construction. The total length of the project is 2.15 miles. Four build alternatives are evaluated in this report. Alternative 1 is a proposed symmetrical widening along the existing roadway. Alternative 2 is a proposed widening to the north side of the existing roadway. Alternative 3 is a proposed "best fit" of the proposed cross-section along the existing roadway and Alternative 4 is a proposed widening to the south of the existing roadway.

2.0 **PROCEDURE**

This Preliminary Traffic Noise Analysis represents the preliminary analysis of the probable traffic noise impacts of the SC 126 widening project (PROJECT ID 0041446).

In accordance with SCDOT Traffic Noise Abatement Policy, this Preliminary Traffic Noise Analysis utilized validated computer models created with the Federal Highway Administration Traffic Noise Model[®] (FHWA TNM v.2.5) to predict future noise levels and define impacted receptors along the proposed widening project.

3.0 CHARACTERISTICS OF NOISE

Noise is basically defined as unwanted sound. It is emitted from many natural and man-made sources. Highway traffic noise is usually a composite of noises from engine exhaust, drive train, and tire-roadway interaction.

The magnitude of noise is usually described by a ratio of its sound pressure to a reference sound pressure, which is usually twenty micro-Pascals (20μ Pa). Since the range of sound pressure ratios varies greatly – over many orders of magnitude, a base-10 logarithmic scale is used to express sound levels in dimensionless units of decibels (dB). The commonly accepted

limits of detectable human hearing sound magnitudes is between the threshold of hearing at 0 decibels and the threshold of pain at 140 decibels.

Sound frequencies are reported in units of Hertz (Hz), which correspond to the number of vibrations per second of a given tone. A cumulative 'sound level' is equivalent to ten times the base-10 logarithm of the ratio of the sum of the sound pressures of all frequencies to the reference sound pressure. To simplify the mathematical process of determining sound levels, sound frequencies are grouped into ranges, or 'bands.' Sound levels are then calculated by adding the cumulative sound pressure levels within each band – which are typically defined as one 'octave' or '1/3 octave' of the sound frequency spectrum.

The commonly accepted limitation of human hearing to detect sound frequencies is between 1,000 Hz and 20,000 Hz, and human hearing is most sensitive to the frequencies between 1,000 Hz – 6,000 Hz. Although people are generally not as sensitive to lower-frequency sounds as they are to higher frequencies, most people lose the ability to hear high-frequency sounds as they age. To accommodate varying receptor sensitivities, frequency sound levels are commonly adjusted, or 'filtered', before being logarithmically added and reported as a single 'sound level' magnitude of that filtering scale. The 'A-weighted' decibel filtering scale applies numerical adjustments to sound frequencies to emphasize the frequencies at which human hearing is sensitive, and to minimize the frequencies to which human hearing is not as sensitive (refer to Table 1). Table 2 shows common indoor and outdoor noise levels expressed as decibels.

Table 1: Comparison: Flat vs. A-Weighted Frequency Scaling								
Octave-Band Center Frequency (Hz)	A-Weighted Adjustment ¹							
31	-39.53	90.00	50.47					
63	-26.22	80.00	53.78					
125	-16.19	70.00	53.81					
250	-8.68	65.00	56.32					
500	-3.25	60.00	56.75					
1000	0.00	60.00	60.00					
2000	+1.20	60.00	61.20					
4000	+0.96	55.00	55.96					
8000	-1.14	50.00	48.86					
16000	-6.7	45.00	38.30					
	Overall Sound Levels:	90.48 dB²	66.32 $dB(A)^2$					

1. Based on the ISO 226:2003 standard for normal equal-loudness contours, the A-weighted decibel network filtering scale is defined for a frequency, f, by the equation: 20 x $\log_{10} (A(f) / A (1000))$, where $A(f) = [12,200^2 x f^4] / [(f^2 + 20.6^2) x (f^2 + 12,200^2) x (f^2 + 107.7^2)^{0.5} x (f^2 + 737.9^2)^{0.5}]$.

2. Although the energy in the flat sound source would create an *actual* sound level = 90.48 dB, it would be *perceived* as a sound level of 66.32 dB(A) by human hearing due to the decreased sensitivity of human hearing to lower sound frequencies.

Preliminary Traffic Noise Analysis

SCDOT – August 2014

SC 126 Widening

Aiken County

Table 2: Common	Indoor and Ou	tdoor Noise Levels
Common Outdoor Noise Levels	Noise Level (dB(A))	Common Indoor Noise Levels
	110	Rock Band
Jet Flyover at 1,000 feet	100	Inside Subway Train (NY)
Gas Lawn Mower at 3 feet		
Diesel Truck at 50 feet	90	Food Blender at 3 feet
Noisy Urban Daytime	80	Garbage Disposal at 3 feet
Gas Lawn Mower at 100 feet	70	Vacuum Cleaner at 10 feet
Commercial Area		Normal Speech at 3 feet
	60	Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Small Theater, Large Conference Room (Background)
Quiet Suburban Nighttime Quiet Rural Nighttime	30	Library Bedroom at Night, Concert Hall
	20	(Background)
	10	Broadcast and Recording Studio
	0	Threshold of Hearing

Transportation Officials (AASHTO). 1974 (revised 1993).

The degree of disturbance or annoyance from exposure to unwanted sound – noise – depends upon three factors:

- 1. The amount, nature, and duration of the intruding noise
- 2. The relationship between the intruding noise and the existing (ambient) sound environment; and
- 3. The situation in which the disturbing noise is heard

In considering the first of these factors, it is important to note that individuals have varying sensitivity to noise. Loud noises bother some people more than other people. The time patterns and durations of noise(s) also affect perception as to whether or not it is offensive.

For example, noises that occur during nighttime (sleeping) hours are typically considered to be more offensive than the same noises in the daytime.

With regard to the second factor, individuals tend to judge the annoyance of an unwanted noise in terms of its relationship to noise from other sources (background noise). A car horn blowing at night when background noise levels are low would generally be more objectionable than one blowing in the afternoon when background noise levels are typically higher. The response to noise stimulus is analogous to the response to turning on an interior light. During the daytime an illuminated bulb simply adds to the ambient light, but when eyes are conditioned to the dark of night, a suddenly illuminated bulb can be temporarily blinding.

The third factor – situational noise – is related to the interference of noise with activities of individuals. In a 60 dB(A) environment such as is commonly found in a large business office, normal conversation would be possible, while sleep might be difficult. Loud noises may easily interrupt activities that require a quiet setting for greater mental concentration or rest; however, the same loud noises may not interrupt activities requiring less mental focus or tranquility.

Over time, individuals tend to accept the noises that intrude into their lives on a regular basis. However, exposure to prolonged and/or extremely loud noise(s) can prevent use of exterior and interior spaces, and has been theorized to pose health risks. Appropriately, regulations exist for noise control or mitigation from many particularly offensive sources, including airplanes, factories, railroads, and highways. For all "Type I" federal, state, or federal-aid highway projects in the State of South Carolina, traffic and construction noise impact analysis and mitigation assessment is dictated by the applicable South Carolina Department of Transportation Traffic Noise Abatement Policy.

4.0 NOISE ABATEMENT CRITERIA

4.1 Title 23 Code of Federal Regulations, Part 772 (23 CFR 772)

The Federal Highway Administration (FHWA) has developed Noise Abatement Criteria (NAC) and procedures to be used in the planning and design of highways. The purpose of 23 CFR, Part 772 is, "To provide procedures for noise studies and noise abatement measures to help protect the public's health, welfare and livability, to supply noise abatement criteria, and to establish requirements for information to be given to local officials for use in the planning and design of highways approved pursuant to title 23 U.S.C."

The abatement criteria and procedures are set forth in Title 23 CFR Part 772, which also states, "In abating traffic noise impacts, a highway agency shall give primary consideration to exterior areas where frequent human use occurs".

A summary of the NAC for various land uses is presented in Table 3: Noise Abatement Criteria. The L_{eq} , or equivalent sound level, is the equivalent steady-state sound level which in a stated period of time contains the same acoustic energy as a time-varying sound level during the same period. With regard to traffic noise, fluctuating sound levels of traffic noise are represented in terms of L_{eq} , the steady, or 'equivalent', noise level with the same energy.

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Table 3: Noise Abatement Criteria						
Hourly Equivalent A-Weighted Sound Level (decibels (dB(A))						
Activity Category	$\begin{array}{c} \text{Activity} \\ \text{Criteria}^1 \\ \text{L}_{eq(h)}^2 \end{array}$	Evaluation Location	Activity Description			
А	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.			
B ³	67	Exterior	Residential			
C ³	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, daycare centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section4(f) sites, schools, television studios, trails, and trail crossings			
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios			
E ³	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A- D or F			
F			Agriculture, airports, bus yards, emergency services, industrial, logging maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing			
G			Undeveloped lands that are not permitted			

The L_{eq(h)} Activity Criteria values are for impact determination only, and are not design standards for noise abatement measures.
 The activity length standy standy standy which in a standard pariod of time contains the same accustic

The equivalent steady-state sound level which in a stated period of time contains the same acoustic energy as the time-varying sound level during the same time period, with $L_{eq(h)}$ being the hourly value of L_{eq} .

³ Includes undeveloped lands permitted for this activity category.

4.2 South Carolina Department of Transportation Traffic Noise Abatement Policy

The South Carolina Department of Transportation Traffic Noise Abatement Policy establishes official policy on highway noise. This policy describes the SCDOT process that is used in determining traffic noise impacts and abatement measures and the equitable and cost-effective expenditure of public funds for traffic noise abatement. Where the FHWA has given highway

agencies flexibility in implementing the 23 CFR 772 standards, this policy describes the SCDOT approach to implementation. This policy is included as Appendix E of this report.

4.3 Noise Abatement Criteria

A highway traffic noise impact occurs when:

- 1) The projected highway traffic noise levels approach or exceed the FHWA Noise Abatement Criteria (NAC) in 23 CFR 772 (as shown in Table 3). Approach is defined as within 1 dB(A) of the FHWA noise abatement criteria for the applicable land use category.
 - or,
- 2) The projected highway traffic noise levels substantially exceed existing traffic noise levels in an area. "Substantially exceed" is defined as an increase in noise levels of 15 dB(A) or more in the Design Year over the existing noise levels. A substantial increase is independent of the absolute noise level. A substantial noise increase is a noise impact, even if the future noise level does not approach or exceed the NAC

5.0 AMBIENT NOISE LEVELS

Ambient noise is that noise which is all around us caused by natural and manmade events. It includes the wind, rain, thunder, birds chirping, insects, household appliances, commercial operations, lawn mowers, airplanes, automobiles, etc. It is all noise that is present in a particular area.

Existing traffic noise exposure is varying in the vicinity of the proposed SC 126 project. SC 126 is the dominant noise source for receptors adjacent and in proximity to the existing highway facility.

Ambient noise monitoring data (20-minutes) was collected at 15 locations. The ambient noise monitoring locations are shown in Figures 2-5. The noise monitoring results, concurrent traffic counts, estimated vehicle speeds, and weather information for the monitoring sites are included in Appendix A.

For this traffic noise analysis, loudest-hour existing noise levels were assessed as the TNMpredicted noise levels based on existing loudest-hour traffic estimates, or the ambient noise levels obtained at representative locations in the field.¹

To validate the accuracy of the model, TNM 2.5 was used to compare measured traffic noise levels to modeled noise levels at field measurement locations. For each monitoring location, traffic volumes counted during the ambient noise monitoring (20-minutes) periods were normalized to 1-hour volumes. These normalized volumes were assigned to the

¹ Per 23 CFR 772.5, existing noise levels are defined as "the worst noise hour resulting from the combination of natural and mechanical sources and human activity usually present in a particular area." If the TNM-predicted existing loudest-hour *traffic* noise levels are lower than the hourly-equivalent noise levels obtained in the field, then existing noise levels are assessed as the latter.

corresponding project area roadways to simulate the noise source strength at the roadways during the actual measurement period. Modeled and measured sound levels were then compared to determine the accuracy of the model. The results for validation TNM models are included in Appendix C.

6.0 PROCEDURE FOR PREDICTING FUTURE NOISE LEVELS

Traffic noise emission is composed of several variables, including the number, types, and travel speeds of the vehicles, as well as the geometry of the roadway(s) on which the vehicles travel. Additionally, variables such as weather and intervening topography affect the transmission of traffic noise from the vehicle(s) to noise sensitive receptors.

In accordance with industry standards and accepted best-practices, detailed computer models were created using the FHWA TNM 2.5. The computer models were validated to within acceptable tolerances of field-monitored traffic noise data, and were used to predict traffic noise levels for receptor locations in the vicinity of the SC 126 widening project. Traffic noise consists of three primary parts: tire/pavement noise, engine noise, and exhaust noise. Of these sources, tire/pavement noise is typically the most offensive at unimpeded travel speeds. Sporadic traffic noises such as horns, squealing brakes, screeching tires, etc. are considered aberrant and are not included within the predictive model algorithm. Traffic noise is not constant; it varies in time depending upon the number, speed, type, and frequency of vehicles that pass by a given receptor. Furthermore, since traffic noise emissions are different for various types of vehicles, the TNM algorithm distinguishes between the source emissions from the following vehicle types: automobiles, medium trucks, heavy trucks, buses, and motorcycles, as shown in Table 4. The computer traffic noise prediction model uses the number and type of vehicles on the planned roadway, vehicle speeds, the physical characteristics of the road (curves, hills, depressions, elevations, etc.), receptor location and height, and, if applicable, barrier type, barrier ground elevation, and barrier segment top elevations.

Table 4: Traffic Noise Model (TNM) Vehicle Classification Types					
TNM Vehicle Type	Description				
Autos	All vehicles with two axles and four tires, including passenger cars and light trucks, weighing 9,900 pounds or less				
Medium Trucks	All vehicles having two axles and six tires, weighing between 9,900 and 26,400 pounds				
Heavy Trucks	All vehicles having three or more axles, weighing more than 26,400 pounds				
Buses	All vehicles designed to carry more than nine passengers				
Motorcycles	All vehicles with two or three tires and an open-air driver / passenger compartment				
	A Measurement of Highway-Related Noise, § 5.1.3 Vehicle Types. A Traffic Monitoring Guide, § 4.1 Classification Schemes				

Preliminary project plans of the presently considered design alternative were used in this traffic noise analysis. Per FHWA guidance, the predictions documented in this report are based upon the potential project Design Year 2035 Build condition traffic volumes (including horizontal alignment alternatives) resulting in the loudest predicted hourly-equivalent traffic noise levels for each receptor. Refer to Appendix B for a comprehensive list of traffic noise level receptors, and existing and predicted Design Year 2035 hourly equivalent traffic noise levels.

7.0 TRAFFIC NOISE IMPACTS AND NOISE CONTOURS

Traffic noise impacts occur when the predicted traffic noise levels either: [a] approach or exceed the FHWA noise abatement criteria (with "approach" meaning within 1 dB(A) of the NAC values listed in Table 3 on page 6), or [b] substantially exceed the existing noise levels by 15 dB(A). FHWA and SCDOT require that feasible and reasonable measures be considered to abate traffic noise at all predicted traffic noise impacts. Measures considered include highway alignment selection, traffic systems management, buffer zones, noise walls, and earth berms.

Existing traffic noise impacts 7 receptors in the vicinity of the proposed SC 126 widening project. Traffic noise is predicted to create 27 traffic noise impacts due to predicted Design Year 2035 No-Build condition noise levels that will approach or exceed FHWA noise abatement criteria. Alternative 1 is predicted to create 38 traffic noise impacts with Design Year 2035 traffic volumes, Alternative 2 is predicted to create 36 traffic noise impacts, Alternative 3 is predicted to create 38 traffic noise impacts and Alternative 4 is predicted to create 37 traffic noise impacts.

The number and types of predicted traffic noise impacts in each condition is shown in Table 5, with impacts designated as either approaching or exceeding the FHWA NAC, by a substantial increase in Design Year 2035 Build condition traffic noise levels over existing ambient noise levels, or by meeting both criteria.

Predicted Build condition traffic noise level contours are not a definitive means by which to assess traffic noise level impacts; however, they can aid in future land use planning efforts in presently undeveloped areas. Correlating to the traffic noise impact threshold for FHWA NAC "E" land uses, the 71 dB(A) noise level contour is predicted to occur 43 feet from the center of the proposed SC 126 alignment and the 66 dB(A) noise level contour is predicted to occur is predicted to occur 86 feet from the center of the SC 126 alignment.

Per 23 CFR 772.9(c) and SCDOT Policy, noise contour lines shall not be used for determining highway traffic noise impacts. However, the 71 dB(A) and 66 dB(A) noise level contour information should assist local authorities in exercising land use control over the remaining undeveloped lands, so as to avoid development of incompatible activities adjacent to the roadways within local jurisdiction.

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		I	Table	5: Tra	iffic No	oise In	npact S	Summary ¹		
ALT. DESC.	APPROXIMATE # OF IMPACTED RECEPTORS APPROACHING OR EXCEEDING FHWA NAC ²							SUBST'L NOISE LEVEL	IMPACTS DUE TO BOTH	TOTAL IMPACTS PER 23
	А	В	С	D	Е	F	G	INCR. ³	CRITERIA ⁴	CFR 772
Existing	0	7	0	0	0	0	0	N/A	N/A	7
No-Build	0	27	0	0	0	0	0	0	0	27 ⁵
Build Alt. 1	0	38	0	0	0	0	0	0	0	38 ⁵
Build Alt. 2	0	36	0	0	0	0	0	0	0	36 ⁵
Build Alt. 3	0	38	0	0	0	0	0	0	0	38 ⁵
Build Alt. 4	0	37	3	0	0	0	0	0	0	37 ⁵

1. This table presents the number of Build condition traffic noise impacts as predicted for the Build condition Alternatives and No-Build alternative presently under consideration. Refer to Appendix B for a detailed analysis of traffic noise impacts at each noise sensitive receptor location.

2. Predicted traffic noise level impact due to approaching or exceeding NAC (refer to Table 3, pg 5).

3. Predicted "substantial increase" traffic noise level impact.

4. Predicted traffic noise level impact due to exceeding NAC and "substantial increase" in Build condition noise levels.

5. The total number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion.

8.0 POTENTIAL TRAFFIC NOISE ABATEMENT MEASURES

FHWA and SCDOT require that feasible and reasonable noise abatement measures be considered and evaluated for the benefit of all predicted Build condition traffic noise impacts. Feasibility and reasonableness are distinct and separate considerations. Feasibility is the consideration as to whether noise abatement measures *can* be implemented. Reasonableness is the consideration as to whether noise abatement measures *should* be implemented. Per SCDOT Policy, the following traffic noise abatement measures may be considered: Traffic management measures, alteration of horizontal and vertical alignments, buffer zones, noise barriers (earth berms and noise walls), and noise insulation of Activity Category D land use facilities.

8.1 Traffic System Management Measures

Traffic management measures such as prohibition of truck traffic, lowering speed limits, limiting of traffic volumes, and/or limiting time of operation were considered as possible traffic noise impact abatement measures. The purpose of the SC 126 widening project is to

increase the functional capacity of the highway facility. Prohibition of truck traffic, reduction of the speed limit below the existing speed limits or the proposed 50 miles per hour speed limit, or screening total traffic volumes would diminish the functional capacity of the highway facility and are not considered practicable.

8.2 Alteration of Horizontal and Vertical Alignments

Highway alignment selection for traffic noise abatement measures involves modifying the horizontal and vertical geometry of the proposed facility to minimize traffic noise to noise-sensitive receptors. The selection of alternative alignments for noise abatement purposes must consider the balance between noise impacts and other engineering and environmental parameters. For noise abatement, horizontal alignment selection is primarily a matter of locating the roadway at a sufficient distance from noise sensitive receptors. Appreciable reductions in traffic noise transmissions to sensitive receptors can be made by adjusting the vertical highway alignment and/or section geometry. For example, lowering a roadway below existing grade creates a cut section which could act similarly as an earth berm, depending upon the relative location(s) of noise-sensitive receptor(s).

8.3 Buffer Zones

Buffer zones are typically not practical and/or cost effective for noise mitigation due to the substantial amount of right-of-way required, and would not be a feasible noise mitigation measure for this project. Furthermore, if the acquisition of a suitable buffer zone had been feasible, the associated costs would exceed the SCDOT Policy reasonable abatement cost threshold per benefited receptor.

8.4 Noise Barriers

Passive noise abatement measures are effective because they absorb sound energy, extend the source-to-receptor sound transmission path, or both. Sound absorption is a function of abatement medium (e.g. earth berms absorb more sound energy than noise walls of the same height because earth berms are more massive). The source-to-receptor path is extended by placement of an obstacle, such as a wall, that sufficiently blocks the transmission of sound waves that travel from the source to the receptor.

Highway sound barriers are primarily constructed as earth berms or solid-mass walls adjacent to limited-access freeways that are in close proximity to noise-sensitive land use(s). To be effective, a sound barrier must be long enough and tall enough to shield the impacted receptor(s). Generally, the noise wall length must be eight times the distance from the barrier to the receptor. For example, if a receptor is 200 feet from the roadway, an effective barrier would be approximately 1,600 feet long – with the receptor in the horizontal center. On roadway facilities with direct access for driveways, sound barriers are typically not feasible because the openings render the barrier ineffective in impeding the transmission of traffic noise. Due to the requisite lengths for effectiveness, sound barriers are typically not economical for isolated or most low-density areas. However, sound barriers may be economical for the benefit of as few as one predicted traffic noise impact if the barrier can

benefit enough total receptors – impacted and non-impacted combined – to meet applicable reasonableness criteria.

Consideration for noise abatement measures was given to all impacted receptors in the 2035 build condition. Noise abatement measures were determined not to be feasible due to site access constraints where the driveways of each property and other side streets were located such that a noise barrier would not be able to be constructed to adequately provide the required abatement. A barrier was modelled for the area between Pineview Drive and Hillside Drive but was found to be neither reasonable nor feasible. As a result, no noise abatement measures are recommended.

8.5 Noise Insulation

Two churches are located in the project corridor. Neither church has areas of outdoor activity so Activity Category D was used as a basis of determining noise impacts. The Church of the Good Shepard (R-078) is a light frame structure and application of the appropriate noise reduction factor due to the exterior structure of the church resulted in no interior noise impact to the church from any alternative. Lakeview Baptist Church (R-011) is a masonry structure and application of the appropriate noise reduction factor due to the exterior structure of the church from any alternative. Since no traffic noise impacts for the SC 126 widening project are predicted to occur for interior noise-sensitive areas (NAC "D"), interior noise insulation was not considered as a potential traffic noise impact mitigation measure as part of the analysis for this Traffic Noise Analysis.

9.0 CONSTRUCTION NOISE

The predominant construction activities associated with this project are expected to be earth removal, hauling, grading, and paving. Temporary and localized construction noise impacts will likely occur as a result of these activities (refer to Table 6). During daytime hours, the predicted effects of these impacts will be temporary speech interference for passers-by and those individuals living or working near the project. During evening and nighttime hours, steady-state construction noise emissions such as from paving operations will be audible, and may cause impacts to activities such as sleep. Sporadic evening and nighttime construction equipment noise emissions such as from backup alarms, lift gate closures ("slamming" of dump truck gates), etc., will be perceived as distinctly louder than the steady-state acoustic environment, and will likely cause severe impacts to the general peace and usage of noise-sensitive areas – particularly residences, hospitals, and hotels.

Extremely loud construction noise activities such as usage of pile-drivers and impacthammers (jack hammer, hoe-ram) will provide sporadic and temporary construction noise impacts in the near vicinity of those activities (refer to Table 6). Construction activities that will produce extremely loud noises should be scheduled during times of the day when such noises will create as minimal disturbance as possible.

Generally, low-cost and easily implemented construction noise control measures should be incorporated into the project plans and specifications to the extent possible. These measures include, but are not limited to, work-hour limits, equipment exhaust muffler requirements, haul-road locations, elimination of "tail gate banging", ambient-sensitive backup alarms, construction noise complaint mechanisms, and consistent and transparent community communication.

Equipment	Noise Level Emissions (dB(A)) at 50 Feet From Equipmen						
	70	80	90	1	00		
Pile Driver ³							
Jack Hammer							
Tractor							
Road Grader							
Backhoe							
Truck							
Paver							
Pneumatic Wrench							
Crane							
Concrete Mixer							
Compressor							
Front-End Loader							
Generator							
Saws							
Roller (Compactor)							
 Adapted from <i>Noise</i> <i>Appliances</i>. U.S. Envir Cited noise level rang construction equipmen 	onmental Protections are typical for	on Agency. Was the respective	hington D.C. 197 equipment. For	1. "point sourc	es" such a		

While discrete construction noise level prediction is difficult for a particular receptor or group of receptors, it can be assessed in a general capacity with respect to distance from known or likely project activities. For this project, earth removal, grading, hauling, and paving is anticipated to occur in the vicinity of noise-sensitive receptors. Although construction noise

3. Due to project safety and potential construction noise concerns, pile driving activities are typically

decibels (dB(A)), then at 400 feet, it might be 82 decibels (dB(A)) or less.

limited to daytime hours.

impact mitigation should not place an undue burden upon the financial cost of the project or the project construction schedule, pursuant to the requirements of 23 CFR 772.19, it is the recommendation of this traffic noise analysis that:

- Earth removal, grading, hauling, and paving activities in the vicinity of residences should be limited to weekday daytime hours.
- If meeting the project schedule requires that earth removal, grading, hauling and / or paving must occur during evening, nighttime and / or weekend hours in the vicinity of residences, the Contractor shall notify SCDOT as soon as possible. In such instance(s), all reasonable attempts shall be made to notify and to make appropriate arrangements for the mitigation of the predicted construction noise impacts upon the affected property owners and / or residents.
- If construction noise activities must occur during context-sensitive hours in the vicinity of noise-sensitive areas, discrete construction noise abatement measures including, but not limited to portable noise barriers and / or other equipment-quieting devices shall be considered.

For additional information on construction noise, please refer to the FHWA Construction Noise Handbook (FHWA-HEP-06-015) and the Roadway Construction Noise Model (RCNM), available online at: http://www.fhwa.dot.gov/environment/noise/cnstr_ns.htm.

10.0 NOISE-COMPATIBLE LAND USE

One of the most effective means to prevent future traffic noise impacts is noise-sensitive landuse development. The compatibility of highways and neighboring local areas is essential for continued growth, and can be achieved if local governments and developers require and practice noise-sensitive land-use planning. Although regulation of land use is not within the purview of FHWA or SCDOT, some widely accepted techniques for noise-sensitive land use planning in the vicinity of existing and proposed highway facilities include:

- Locating retail, industrial, manufacturing, and other noise-compatible land-uses adjacent to highways
- Incorporating effective traffic noise mitigating features, such as earth berms and solidmass noise walls, as part of residential developments
- Utilization of noise-sensitive architectural design and site planning, such as the orientation of quiet spaces away from roadways
- Required use of sound insulating building materials and construction methods

As indicated in the July 2011 SCDOT Traffic Noise Abatement Policy, local jurisdictions with zoning control should use the information contained in this report to develop policies and/or ordinances to limit the growth of noise-sensitive land uses located adjacent to

roadways. Furthermore, SCDOT encourages the dissemination of this information to all people who may be affected by, or who might influence others affected by, traffic noise.

11.0 CONCLUSION

Traffic noise and temporary construction noise can be a consequence of transportation projects, especially in areas in close proximity to high-volume and high-speed existing steady-state traffic noise sources. This Traffic Noise Analysis utilized computer models created with the FHWA Traffic Noise Model software (TNM 2.5), validated to field-collected traffic noise monitoring data, to predict future noise levels and define impacted receptors along the proposed new highway project.

Existing traffic noise impacts seven (7) receptors in the vicinity of the proposed SC 126 widening project (Project ID 0041446). For the No-Build condition, 27 receptors will be impacted by Design Year 2035 traffic volumes. Build Alternative 1 is predicted to create 38 traffic noise impacts with Design Year 2035 traffic, Build Alternative 2 is predicted to create 36 traffic noise impacts, Build Alternative 3 is predicted to create 38 traffic noise impacts and Build Alternative 4 is predicted to create 37 traffic noise impacts.

Furthermore, construction noise impacts may occur due to the close proximity of numerous noise-sensitive receptors to project construction activities. It is the recommendation of this traffic noise analysis that all reasonable efforts should be made to minimize exposure of noise-sensitive areas to construction noise impacts.

No traffic noise abatement measures considered in this traffic noise analysis will meet the reasonable and feasible criteria detailed in the SCDOT Traffic Noise Abatement Policy. Consequently, no traffic noise abatement measures are recommended and no noise abatement measures are proposed for incorporation into the project plan. Therefore, additional detailed study of potential mitigation measures shall not be necessary subsequent to selection of the final design of this project unless modifications to presently considered alignments occur, additional alignments are considered, or changes to Design Year 2035 traffic volumes are predicted. This analysis completes the traffic noise requirements of the Title 23 CFR Part 772 and SCDOT Traffic Noise Abatement Policy.

12.0 REFERENCES

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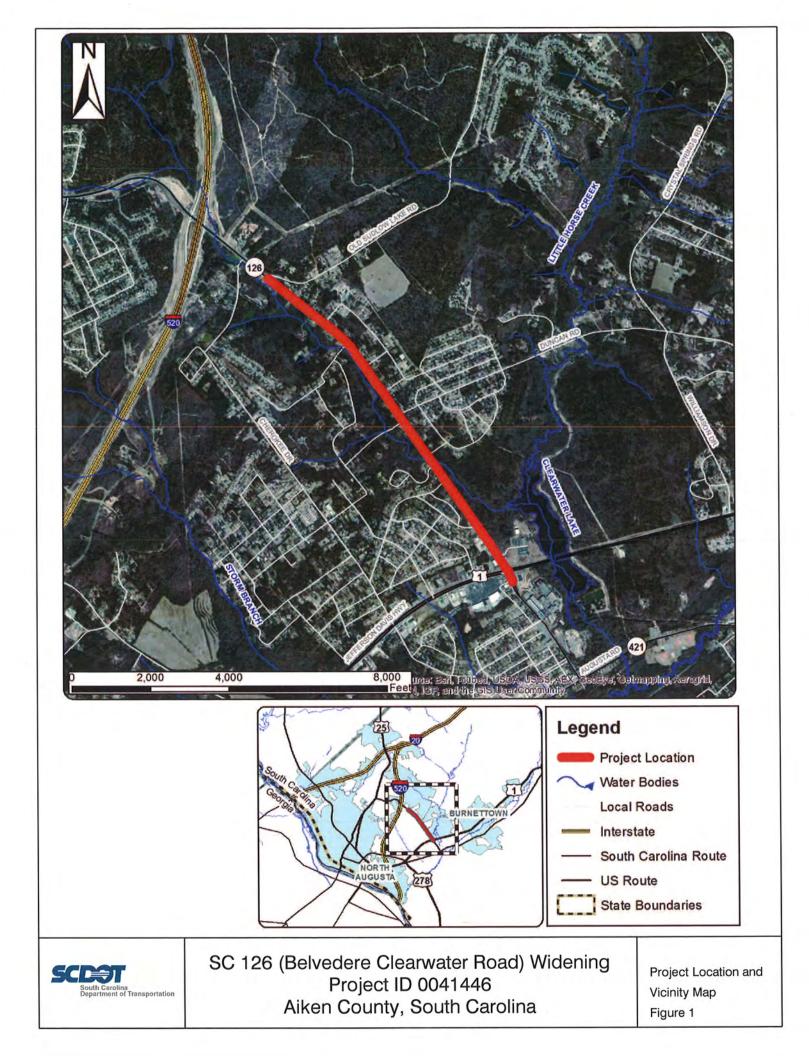
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Exhibits





Aiken County, South Carolina

Scale: 1" = 200' Figure 2a





SC 126 (Belvedere Clearwater Road) Widening Project ID 0041446 Aiken County, South Carolina

Noise Receptor Locations and Impacts Alternative 1 Scale: 1" = 200' Figure 2b



South Carolina Department of Transportation

Aiken County, South Carolina



Legend Measurement Location Non-Impacted Receptor Impacted Receptor Commercial Land Use - No Impact Modeled Roadway Elements

Source of supplemental aerial photography - Google Maps Pro.

Noise Receptor Locations and Impacts Alternative 1 Scale: 1" = 200' Figure 2d



South Carolina Department of Transportation

Project ID 0041446 Aiken County, South Carolina

Alternative 2 Scale: 1" = 200' Figure 3a





SC 126 (Belvedere Clearwater Road) Widening Project ID 0041446 Aiken County, South Carolina

Noise Receptor Locations and Impacts Alternative 2 Scale: 1" = 200' Figure 3b





Aiken County, South Carolina



Legend Measurement Location Non-Impacted Receptor Impacted Receptor Commercial Land Use - No Impact Modeled Roadway Elements

Source of supplemental aerial photography - Google Maps Pro.

Noise Receptor Locations and Impacts Alternative 2 Scale: 1" = 200' Figure 3d









Project ID 0041446 Aiken County, South Carolina



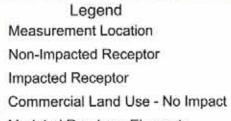
South Carolina Department of Transportation

Aiken County, South Carolina





SC 126 (Belvedere Clearwater Road) Widening Project ID 0041446 Aiken County, South Carolina



Modeled Roadway Elements

Source of supplemental aerial photography - Google Maps Pro.

Noise Receptor Locations and Impacts Alternative 3 Scale: 1" = 200' Figure 4d



Figure 5a





SC 126 (Belvedere Clearwater Road) Widening Project ID 0041446 Aiken County, South Carolina

Noise Receptor Locations and Impacts Alternative 4 Scale: 1" = 200' Figure 5b





Project ID 0041446 Aiken County, South Carolina

Scale: 1" = 200' Figure 5c



Aiken County, South Carolina

Legend Measurement Location Non-Impacted Receptor Impacted Receptor Commercial Land Use - No Impact

Modeled Roadway Elements

Source of supplemental aerial photography - Google Maps Pro.

Noise Receptor Locations and Impacts Alternative 4 Scale: 1" = 200' Figure 5d

Appendix A

AMBIENT NOISE LEVEL MONITORING

Preliminary Traffic Noise Analysis

SCDOT – August 2014

Aiken County

	Table A-1: SC 126 WideningAmbient Hourly-Equivalent Sound Levels, $L_{eq(h)}^1$							
Setup	Receptor	Land Use	Roadway Noise Source(s) ²	Start / Stop Time	L _{eq(h)} (dB(A))			
1	1.1	Church	SC 126/	1 1 2 1 2 2	61			
1	1.2	Church	US 1	1:13 – 1:33	61			
	2.1	Residential	9.0.126	10.00 10.50	56			
2	2.2	Residential	SC 126	12:33 – 12:53	54			
3	3.1	Residential	SC 126	1:51 – 14:11	52			
4	4.1	Residential	SC 126	11:52 – 12:12	57			
4	4.2	Residential	SC 120	11.32 - 12.12	56			
5	5.1	Residential	SC 126	10:50 - 11:10	59			
5	5.2	Residential	SC 120	10.30 - 11.10	58			
C	6.1	Residential	SC 126	0.50 10.10	59			
6	6.2	Residential	SC 126	9:59 – 10:19	57			
7	7.1	Comm. & Res.	SC 126	9:15 – 9:35	57			
/	7.2	Comm. & Res.	SC 120	9:15 - 9:55	57			
8	8.1	Comm. & Res.	SC 126	0.21 0.51	63			
0	8.2	Comm. & Res.	SC 126	8:31 - 8:51	59			

1. In accordance with FHWA guidance and accepted industry standards, hourly equivalent sound levels, $L_{eq(h)}$, were extrapolated from short-term data collection monitoring sessions, and are expressed in units of A-weighted decibels (dB(A)) rounded to the nearest whole number. Data was obtained on June 26th and 27th, 2013.

2. For each Setup, noise meters were located at logical locations for the assessment of existing highway traffic noise or for the prediction of noise level increase(s) due to future highway traffic noise.

Preliminary Traffic Noise Analysis SCDOT – August 2014

Setup	Temp. (°F)	Dew Point (°F)	Pressure (in)	Wind Dir.	Wind Speed (mph)	Relative Humidity	Precip (in)
1	88	70	29.90	SW	9.2	55%	N/A
2	88	70	29.90	SW	9.2	55%	N/A
3	88	70	28.89	WSW	17.3	55%	N/A
4	87	71	29.91	SW	10.4	59%	N/A
5	84	73	28.92	WSW	8.1	67%	N/A
6	83	73	29.94	Variable	6.9	72%	N/A
7	76	72	29.94	SW	6.8	87%	N/A
*8	73	70	30.08	Variable	4.6	90%	N/A

Figure A.1: SC 126– Ambient Noise Monitoring Setup 1, Receptor 1.1





Figure A.2: SC – Ambient Noise Monitoring Setup 1, Receptor 1.2

Figure A.3: SC 126 – Ambient Noise Monitoring Setup 2, Receptor 2.1





Figure A.4: SC 126 – Ambient Noise Monitoring Setup 2, Receptor 2.2

Figure A.5: SC 126 – Ambient Noise Monitoring Setup 3, Receptor 3.1





Figure A.6: SC 126 – Ambient Noise Monitoring Setup 4, Receptor 4.1

Figure A.7: SC 126 – Ambient Noise Monitoring Setup 4, Receptor 4.2





Figure A.8: SC 126 – Ambient Noise Monitoring Setup 5, Receptor 5.1

Figure A.9: SC 126 – Ambient Noise Monitoring Setup 5, Receptor 5.2



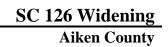




Figure A.10: SC 126 – Ambient Noise Monitoring Setup 6, Receptor 6.1

Figure A.11: SC 126 – Ambient Noise Monitoring Setup 6, Receptor 6.2





Figure A.12 SC 126 – Ambient Noise Monitoring Setup 7, Receptor 7.1

Figure A.13: R-2579 – Ambient Noise Monitoring Setup 7, Receptor 7.2





Figure A.14: SC 126 – Ambient Noise Monitoring Setup 8, Receptor 8.1

Figure A.15: SC 126 – Ambient Noise Monitoring Setup 8, Receptor 8.2



OPERATOR(S) MMM DATE 6/27/13	
PROJECTSC 126 Widening, Project ID 0041446	
SITE M-1.1 and M-1.2 - SC 126 at Lakeview Baptist Church	
ROADWAY X-SECTION 2-Lane	
SPEED LIMIT 45 mph SC 126, 35 mph Duncan Road	
BACKGROUND NOISE:	
MAJOR NOISE SOURCES: Traffic on SC 126 and US 1 (Jefferson Davis H	łwy.)
UNUSUAL EVENTS. Some wind, siren, weed whacker	
MIC DISTANCE M-1.1, approx. 50' from EOP SC 126, M-2.2 100'	
Notes:	

	Sample	Period	
Begin	1:13pm	End	1: 33pm

Leq (A)	Noise Level
M-1.1	61.4
M-1.2	60.7

TRA	FFIC DAT	A (20 m	inute samp	le)
CLASS	SBL SC 126	NBL SC 126		
AUTO	73	79		
DUALS	1	4		
TTST	2	3		
мс	0	0		



South Carolina Department of Transportation SC 126 (Belvedere Clearwater Road) Widening Project ID 0041446 Aiken County, South Carolina Noise Level Measurement Location Sites M-1.1 and M-1.2 Figure A-16

	Sample	Period	
Begin	12: 33pm	End	12: 53pm

Leq (A)	Noise Level
M-2.1	55.7
M-2.2	54.0

TRA	FFIC DAT	A (20 m	inute sam	ple)
CLASS	SBL SC 126	NBL SC 126	EBL Pineview Ln.	WBL Pineview Ln.
AUTO	76	80	2	3
DUALS	2	3	0	0
TTST	1	4	0	0
MC	0	2	0	0

Reze Marzine Marzine Bource: Google Map Pro



SC 126 (Belvedere Clearwater Road) Widening Project ID 0041446 Aiken County, South Carolina Noise Level Measurement Location Sites M-2.1 and M-2.2 Figure A-17

OPERATOR(S) MMM DATE 6/27/13
PROJECTSC 126 Widening, Project ID 0041446
SITE M-3.1 Bellview Drive
ROADWAY X-SECTION 2-Lane
SPEED LIMIT 25 mph Bellview Drive
BACKGROUND NOISE:
MAJOR NOISE SOURCES: Traffic on SC 126
UNUSUAL EVENTS:
MIC DISTANCE
Notes:

	Sample	Period	
Begin	1:51pm	End	2:11pm

TRA CLASS	SBL SC 126	A (20 m NBL SC 126	SBL Bellview	NBL Bellview
AUTO	N/A	N/A	N/A	N/A
DUALS	N/A	N/A	N/A	N/A
TTST	N/A	N/A	N/A	N/A
МС	N/A	N/A	N/A	N/A





SC 126 (Belvedere Clearwater Road) Widening Project ID 0041446 Aiken County, South Carolina Noise Level Measurement Location Site M-3.1 Figure A-18

OPERATOR(S) MMM DATE <u>6/27/13</u> PROJECT <u>SC 126 Widening</u>, Project ID 0041446 SITE <u>M-4.1 and M-4.2 - SC 126 and Hillside Drive</u> ROADWAY X-SECTION <u>2-Lane</u> SPEED LIMIT <u>45 mph SC 126</u>, <u>30 mph Hillside Drive</u> BACKGROUND NOISE: MAJOR NOISE SOURCES: <u>Traffic on SC 126</u> UNUSUAL EVENTS: MIC DISTANCE <u>M-4.1</u>, approx. 127' from EOP SC 126, M-4.2 170' Notes: _____

	Sample	Period	
Begin	11:52am	End	12:12pm

Leq (A)	Noise Level
M-4.1	56.5
M-4.2	55.9

TRA	FFIC DAT	A (20 m	inute som	nple)
CLASS	SBL SC 126	NBL SC 126	WBL Hillside Dr.	EBL Hillside Dr.
AUTO	76	62	5	7
DUALS	3	1	0	0
TTST	2	2	0	0
MC	0	1	0	0



SOUTH Carolina Department of Transportatio SC 126 (Belvedere Clearwater Road) Widening Project ID 0041446 Aiken County, South Carolina Noise Level Measurement Location Sites M-4.1 and M-4.2 Figure A-19

OPERATOR(S) MMM DATE 6/27/13
PROJECTSC 126 Widening, Project ID 0041446
SITE M-5.1 and M-5.2 - SC 126 and Duncan Road (Belclear Heights)
ROADWAY X-SECTION 2-Lane
SPEED LIMIT _ 45 mph SC 126, 35 mph Duncan Road
BACKGROUND NOISE: Lawn Mower
MAJOR NOISE SOURCES: Traffic on SC 126
UNUSUAL EVENTS:
MIC DISTANCE M-5.1, approx. 50' from EOP SC 126, M-5.2 100'
Notes:

	Sample	Period	
Begin	10: 50am	End	11:10am

Leq (A) Noise Level		
M-5.1	59.4	
M-5.2	57.5	

TRA	FFIC DAT	A (20 m	inute sam	iple)
CLASS	SBL SC 126	NBL SC 126	EBL Duncon Rd.	WBL Duncan Rd.
AUTO	60	59	17	18
DUALS	4	2	0	0
TTST	4	2	0	0
MC	0	1	0	0



SCEPT Bouth Carolina Department of Transportation SC 126 (Belvedere Clearwater Road) Widening Project ID 0041446 Aiken County, South Carolina Noise Level Measurement Location Sites M-5.1 and M-5.2 Figure A-20

 OPERATOR(S)
 MMM
 DATE
 6/27/13

 PROJECT
 SC 126 Widening, Project ID 0041446

 SITE
 M=6.1 and M=6.2 - SC 126 and Lakeview Drive

 ROADWAY X-SECTION 2-Lane

 SPEED LIMIT
 45 mph SC 126, 25 mph Lakeview Drive

 BACKGROUND NOISE:

 MAJOR NOISE SOURCES:
 Traffic on SC 126

 UNUSUAL EVENTS:

 MIC DISTANCE
 M=6.1, approx. 50' from EOP SC 126, M=6.2 100'

	Sample	Period	
Begin	9:59	End	10:19am

Leq (A) Noise Leve	
M-6.1	58.6
M-6.2	57.0

TRA	FFIC DAT	A (20 m	inute sam	ple)
CLASS	SBL SC 126	NBL SC 126	EBL Lokeview Dr.	WBL Lokeview Dr.
AUTO	62	74	0	1
DUALS	5	6	0	0
TTST	3	0	0	0
МС	0	0	0	0



SCDET South Carolina Department of Transportation SC 126 (Belvedere Clearwater Road) Widening Project ID 0041446 Aiken County, South Carolina Noise Level Measurement Location Sites M-6.1 and M-6.2 Figure A-21

OPERATOR(S) MMM DATE 6/27/13 PROJECT SC 126 Widening, Project ID 0041446
PROJECTSC 126 Widening, Project ID 0041446
SITE M-7.1 and M-7.2 - SC 126 and Willow Lane
ROADWAY X-SECTION 2-Lane
SPEED LIMIT _ 45 mph SC 126, 30 mph Willow Lane
BACKGROUND NOISE:
MAJOR NOISE SOURCES: Traffic on SC 126
UNUSUAL EVENTS:
MIC DISTANCE M-7.1, approx. 50' from EOP SC 126, M-7.2 100'
Notes:

	Sample	Period	
Begin	9:15am	End	9: 35am

Leq (A)	Noise Level	
M-7.1	57.2	
M-7.2	57.2	

TRA	FFIC DAT	A (20 m	inute sam	iple)
CLASS	SBL SC 126	NBL SC 126	EBL Willow Lone	WBL Willow Lane
AUTO	73	81	1	1
DUALS	3	8	0	0
TTST	2	0	0	0
МС	0	0	0	0





SC 126 (Belvedere Clearwater Road) Widening Project ID 0041446 Aiken County, South Carolina Noise Level Measurement Location Sites M-7.1 and M-7.2 Figure A-22

OPERATOR(S) MMM DATE 6/26/13 PROJECT SC 126 Widening, Project ID 0041446
SITE M-8.1 and M-8.2 - SC 126 and Cherry Avenue
ROADWAY X-SECTION <u>2-Lane</u> SPEED LIMIT <u>45 mph SC 126, 25 mph Cherry Ave.</u>
BACKGROUND NOISE: Siren, Dog Barking MAJOR NOISE SOURCES: Traffic on SC 126
UNUSUAL EVENTS:
Notes:

	Sample	Period	
Begin	8: 31am	End	8: 51 am

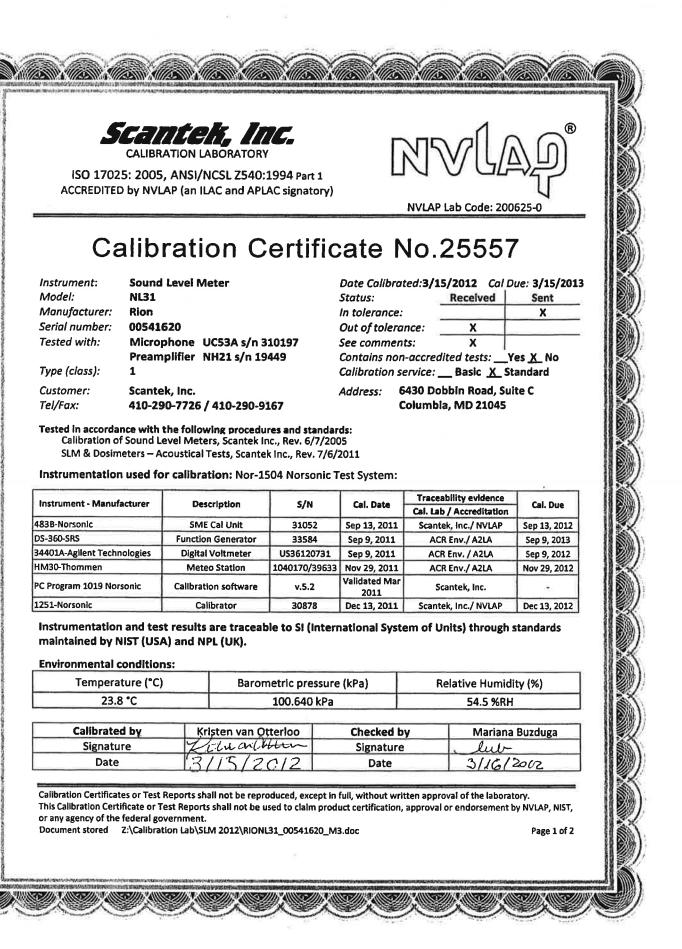
Leq (A)	Noise Level
M-8.1	63.3
M-8.2	59.4

TRA	FFIC DAT	A (20 m	inute sam	ple)
CLASS	SBL SC 126	NBL SC 126	EBL Cherry Ave.	WBL Cherry Ave
AUTO	79	62	2	2
DUALS	5	3	0	0
TTST	0	0	0	0
MC	0	1	0	0





SC 126 (Belvedere Clearwater Road) Widening Project ID 0041446 Aiken County, South Carolina Noise Level Measurement Location Sites M-8.1 and M-8.2 Figure A-23





ISO 17025: 2005, ANSI/NCSL Z540:1994 Part 1 ACCREDITED by NVLAP (an ILAC and APLAC signatory)



S((/05)))

NVLAP Lab Code: 200625-0

Calibration Certificate No.26383

Instrument: Model:	Sound Level Meter
	NL31
Manufacturer:	Rion
Serial number:	00303775
Tested with:	Microphone UC53A s/n 316379
	Preamplifier NH21 s/n 32293
Type (class):	1
Customer:	Scantek, Inc
Tel/Fax:	410-290-7726 / 410-290-9167

Columbia, MD 21045

Tested in accordance with the following procedures and standards: Calibration of Sound Level Meters, Scantek Inc., Rev. 6/7/2005 SLM & Dosimeters – Acoustical Tests, Scantek Inc., Rev. 7/6/2011

Instrumentation used for calibration: Nor-1504 Norsonic Test System:

Instrument - Manufacturer	Description	c/0	Cal Data	Traceability evidence	Cal. Due	
manufacturer	Description	S/N	Cal. Date	Cal. Lab / Accreditation	Car. Due	
483B-Norsonic	SME Cal Unit	31061	Jul 14, 2011	Scantek, Inc./ NVLAP	Jul 14, 2012	
DS-360-SRS	Function Generator	88077	Aug 17, 2010	ACR Env./ A2LA	Aug 17, 2012	
34401A-Agilent Technologies	Digital Voltmeter	MY47011118	Aug 9, 2011 ·	Tektronix / AClass	Aug 9, 2012	
DPI 141-Druck	Pressure Indicator	790/00-04	Dec 13, 2010	ACR Env./ A2LA	Dec 13, 2012	
HMP233-Vaisala Oyj	Humidity & Temp. Transmitter	V3820001	Jul 29, 2011	Vaisala / A2LA	Jul 29, 2012	
PC Program 1019 Norsonic	Calibration software	v.5.2	Validated Mar 2011	Scantek, Inc.	-	
1251-Norsonic	Calibrator	30878	Dec 13, 2011	Scantek, Inc./ NVLAP	Dec 13, 2012	

Instrumentation and test results are traceable to SI (International System of Units) through standards maintained by NIST (USA) and NPL (UK).

Environmental conditions:

Temperature (°C)	Barometric pressure (kPa)	Relative Humidity (%)	
23.0 °C	99.690 kPa	58.2 %RH	

Calibrated by:	Henry Garrett	Authorized signatory:	Mariana Buzduga
Signature	Bleg Aus	Signature	lub
Date	06/01/2012	Date	6/4/2012

Calibration Certificates or Test Reports shall not be reproduced, except in full, without written approval of the laboratory. This Calibration Certificate or Test Reports shall not be used to claim product certification, approval or endorsement by NVLAP, NIST, or any agency of the federal government.

Document stored Z:\Calibration Lab\SLM 2012\RIONL31_00303775_M1.doc

Page 1 of 2

Appendix B

HOURLY EQUIVALENT TRAFFIC NOISE LEVEL TABLES

				No-Build Alternative			
	Receptors Predicted Nois Leq(h) (dB ID#						
ID#	Use	NAC	D.U.s	Address	Existing	No-Build	Increase
R-001	Commercial	F	1	4295 Jefferson Davis Highway	63	64	1
R-002	Restaurant	E	1	429 Belvedere Clearwater	57	58	1
R-003	Commercial	F	1	Jefferson Davis Highway	59	60	1
R-004	Commercial	F	1	Jefferson Davis Highway	58	60	2
R-005	Commercial	F	1	Jefferson Davis Highway	64	65	1
R-006	Commercial	F	1	4367 Jefferson Davis Highway	67	68	1
R-007	Commercial	F	1	4367 Jefferson Davis Highway	67	68	1
R-008	Commercial	F	1	4380 Jefferson Davis Highway	67	69	2
R-009	Restaurant	E	1	4390 Jefferson Davis Highway	63	64	1
R-010	Commercial	F	1	1009 Belvedere Clearwater	64	66	2
R-011	Church	D	1	4280 Jefferson Davis Highway	55	56	1
R-012	Commercial	F	1	1007 Belvedere Clearwater	68	71	3
R-013	Commercial	F	1	1003 Belvedere Clearwater	64	66	2
R-014	Commercial	F	1	101 Pine View Drive	67	69	2
R-015	Commercial	F	1	101 Pine View Drive	60	62	2
R-016	Residential	В	1	103 Pineview Drive	56	59	3
R-017	Residential	В	1	105 Pineview Drive	54	56	2
R-018	Residential	В	1	107 Pineview Drive	52	55	3
R-019	Residential	В	1	109 Pineview Drive	51	53	2
R-020	Residential	В	1	112 Crestview Drive	52	54	2
R-021	Residential	В	1	110 Crestview Drive	53	55	2
R-022	Residential	В	1	108 Crestview Drive	53	55	2
R-023	Residential	В	1	106 Crestview Drive	53	55	2
R-024	Residential	В	1	104 Crestview Drive	55	56	1
R-025	Residential	В	1	102 Crestview Drive	55	57	2
R-026	Residential	B	1	100 Pine View Drive	67	70	3
R-027	Residential	B	1	104 Pine View Drive	58	60	2
R-028	Residential	B	1	106 Pine View Drive	55	57	2
R-029	Residential	B	1	110 Pine View Drive	53	56	3
R-030	Residential	B	1	112 Pine View Drive	53	55	2
R-031	Residential	B	1	204 Pine View Drive	52	54	2
R-032	Residential	B	1	17 Bellview Drive	62	65	3
R-033	Residential	B	1	11 Bellview Drive	59	62	3
R-034	Residential	B	1	981 Belvedere Clearwater	63	66	3
R-035	Residential	B	1	236 Hillside Drive	54	57	3
R-036	Residential	B	1	235 Hillside Drive	53	56	3
R-037	Residential	B	1	6045 Northside Drive	58	61	3
R-038	Residential	B	1	6041 Northside Drive	64	66	2
R-039	Residential	B	1	6035 Northside Drive	60	63	3

				No-Build Alternative			
		Predicted Noise Levels Leq(h) (dB(A))					
ID#	Use	NAC	D.U.s	Address	Existing	No-Build	Increase
R-040	Residential	В	1	6029 Northside Drive	61	64	3
R-041	Residential	В	1	6044 Northside Drive	53	56	3
R-042	Residential	В	1	6030 Northside Drive	54	57	3
R-043	Residential	В	1	6020 Northside Drive	59	62	3
R-044	Residential	В	1	113 Audubon Road	53	55	2
R-045	Residential	В	1	114 Audubon Road	53	55	2
R-046	Residential	В	1	974 Belvedere Clearwater	58	61	3
R-047	Residential	В	1	972 Belvedere Clearwater	62	65	3
R-048	Residential	В	1	975 Belvedere Clearwater	66	<u>68</u>	2
R-049	Residential	В	1	972 Belvedere Clearwater	63	65	2
R-050	Residential	В	1	970 Belvedere Clearwater	65	68	3
R-051	Residential	В	1	967 Belvedere Clearwater	66	<u>68</u>	2
R-052	Residential	В	1	963 Belvedere Clearwater	66	69	3
R-053	Residential	В	1	966 Belvedere Clearwater	64	67	3
R-054	Residential	В	1	964 Belvedere Clearwater	63	66	3
R-055	Residential	В	1	961 Belvedere Clearwater	65	<u>68</u>	3
R-056	Residential	В	1	960 Belvedere Clearwater	60	63	3
R-057	Residential	В	1	641 Duncan Road	62	65	3
R-058	Residential	В	1	1110 Audubon Road	52	54	2
R-059	Residential	В	1	1106 Audubon Road	54	56	2
R-060	Residential	В	1	1106 Audubon Road	53	56	3
R-061	Residential	В	1	1102 Audubon Road	53	55	2
R-062	Residential	В	1	1100 Audubon Road	54	57	3
R-063	Residential	B	1	632 Duncan Road	54	57	3
R-064	Residential	B	1	634 Duncan Road	57	60	3
R-065	Residential	B	1	952 Belvedere Clearwater	67	<u>69</u>	2
R-066	Residential	B	1	955 Belvedere Clearwater	65	68	3
R-067	Residential	B	1	952 Belvedere Clearwater	64	66	2
R-068	Residential	B	1	952 Belvedere Clearwater	62	65	3
R-069	Residential	B	1	947 Belvedere Clearwater	64	66	2
R-070	Residential	B	1	125 Glory Lane	64	67	3
R-070	Residential	B	1	125 Glory Lane	52	54	2
R-072a	Residential	B	1	125 Glory Lane	53	55	2
R-072b	Residential	B	1	125 Glory Lane	54	57	3
R-0720 R-073a	Residential	B	1	125 Glory Lane	51	54	3
R-073b	Residential	B		125 Glory Lane	54	57	3
			1		53		
R-073c	Residential	B	1	125 Glory Lane	-	56	3
R-073d	Residential	B	1	125 Glory Lane	54	56	
R-074 R-075	Residential Residential	B	1	944 Belvedere Clearwater 940 Belvedere Clearwater	64 63	67 65	3 2

Table B-1: Noise Sensitive Receptors and Hourly Equivalent Noise Levels – No-Build Alternative										
Receptors						Predicted Noise Levels, L _{eq(h)} (dB(A))				
ID#	Use	NAC	D.U.s	Address	Existing	No-Build	Increase			
R-076	Residential	В	1	932 Belvedere Clearwater	60	63	3			
R-077	Residential	В	1	44 Lakeview Drive	53	56	3			
R-078	Church	D	1	920 Belvedere Clearwater	56	58	2			
R-079	Residential	В	1	918 Belvedere Clearwater	60	62	2			
R-080	Residential	В	1	914 Belvedere Clearwater	60	62	2			
R-081	Residential	В	1	910 Belvedere Clearwater	59	62	3			
R-082	Residential	В	1	596 Corley Drive	55	57	2			
R-083	Residential	В	1	899 Belvedere Clearwater	66	68	2			
R-084	Residential	В	1	898 Belvedere Clearwater	65	67	2			
R-085	Residential	В	1	894 Belvedere Clearwater	65	67	2			
R-086	Residential	В	1	885 Belvedere Clearwater	62	64	2			
R-087	Residential	В	1	881 Belvedere Clearwater	64	66	2			
R-088	Residential	В	1	881 Belvedere Clearwater	58	61	3			
R-089	Residential	В	1	865 Belvedere Clearwater	58	61	3			
R-090	Residential	В	1	865 Belvedere Clearwater	64	66	2			
R-091	Residential	В	1	865 Belvedere Clearwater	64	67	3			
R-092	Residential	В	1	870 Belvedere Clearwater	63	65	2			
R-093	Residential	В	1	886 Belvedere Clearwater	61	63	2			
R-094	Residential	В	1	886 Belvedere Clearwater	54	57	3			
R-095	Residential	В	1	212 Northside Dirve	53	55	2			
R-096	Residential	В	1	212 Northside Drive	51	54	3			
R-097	Residential	В	1	212 Northside Drive	51	54	3			
R-098	Residential	В	1	212 Northside Drive	52	55	3			
R-099	Residential	В	1	212 Northside Drive	53	55	2			
R-100	Residential	В	1	212 Northside Drive	51	54	3			
R-101	Residential	В	1	Cherry Avenue	52	54	2			
R-102	Residential	В	1	850 Belvedere Clearwater	62	64	2			
R-103	Commercial	F	1	855 Belvedere Clearwater	64	67	3			
R-104	Commercial	F	1	853 Belvedere Clearwater	65	67	2			
R-105	Commercial	F	1	851 Belvedere Clearwater	61	64	3			
R-106	Residential	B	1	848 Belvedere Clearwater	62	64	2			
R-107	Residential	B	1	846 Belvedere Clearwater	62	65	3			
R-107	Residential	B	1	844 Belvedere Clearwater	53	55	2			
R-109	Residential	B	1	844 Belvedere Clearwater	63	66	3			
R-110	Commercial	F	1	835 Belvedere Clearwater	68	70	2			
R-110	Residential	B	1	842 Belvedere Clearwater	57	59	2			
R-111 R-112	Residential	B	1	806 Belvedere Clearwater	63	<u>66</u>	3			
R-112 R-113	Residential	B	1	829 Belvedere Clearwater	64	67	3			
R-113 R-114	Residential	B	1	799 Belvedere Clearwater	67	70	3			
R-114 R-115	Commercial	F	1	799 Belvedere Clearwater	66	69	3			

SCDOT – August 2014

				No-Build Alternative				
Receptors Predicted Noise Levels, L _{eq(h)} (dB(A))								
ID#	Use	NAC	D.U.s	Address	Existing	No-Build	Increase	
R-116	Commercial	F	1	793 Belvedere Clearwater	66	68	2	
R-117	Residence	В	1	795 Belvedere Clearwater	64	67	3	
R-118	Residence	В	1	130 Old Sudlow Lake Road	56	59	3	
	Predicted '	'No-Buil	d" Alterna	tive Design Year 2035 Traffic Noise	Impacts: ^{2, 3}	27 ¹	1	

1. Predicted traffic noise level impact due to approaching or exceeding NAC (refer to Table 3, pg 6).

2. The number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion (e.g. if a receptor is impacted by NAC "C" and NAC "D", it is counted as only one impact).

3. Total number of predicted traffic noise impacts under No-Build SC 126 alignment alternative = 27.

				Build Alternative 1			
		F	Receptor	'S		ted Noise _{eq(h)} (dB(A	
ID#	Use	NAC	D.U.s	Address	Existing	Alt. 1	Increase
R-001	Commercial	F	1	4295 Jefferson Davis Highway	63	64	1
R-002	Restaurant	E	1	429 Belvedere Clearwater	57	58	1
R-003	Commercial	F	1	Jefferson Davis Highway	59	61	2
R-004	Commercial	F	1	Jefferson Davis Highway	58	60	2
R-005	Commercial	F	1	Jefferson Davis Highway	64	65	1
R-006	Commercial	F	1	4367 Jefferson Davis Highway	67	68	1
R-007	Commercial	F	1	4367 Jefferson Davis Highway	67	68	1
R-008	Commercial	F	1	4380 Jefferson Davis Highway	67	70	3
R-009	Restaurant	E	1	4390 Jefferson Davis Highway	63	64	1
R-010	Commercial	F	1	1009 Belvedere Clearwater	64	67	3
R-011	Church	D	1	4280 Jefferson Davis Highway	55	57	2
R-012	Commercial	F	1	1007 Belvedere Clearwater	68	71	3
R-013	Commercial	F	1	1003 Belvedere Clearwater	64	68	4
R-014	Commercial	F	1	101 Pine View Drive	67	70	3
R-015	Commercial	F	1	101 Pine View Drive	60	64	4
R-016	Residential	В	1	103 Pineview Drive	56	61	5
R-017	Residential	В	1	105 Pineview Drive	54	59	5
R-018	Residential	В	1	107 Pineview Drive	52	57	5
R-019	Residential	В	1	109 Pineview Drive	51	56	5
R-020	Residential	В	1	112 Crestview Drive	52	56	4
R-021	Residential	В	1	110 Crestview Drive	53	57	4
R-022	Residential	В	1	108 Crestview Drive	53	57	4
R-023	Residential	В	1	106 Crestview Drive	53	57	4
R-024	Residential	В	1	104 Crestview Drive	55	58	3
R-025	Residential	В	1	102 Crestview Drive	55	58	3
R-026	Residential	В	1	100 Pine View Drive	67	71	4
R-027	Residential	В	1	104 Pine View Drive	58	62	4
R-028	Residential	В	1	106 Pine View Drive	55	59	4
R-029	Residential	B	1	110 Pine View Drive	53	58	3
R-030	Residential	B	1	112 Pine View Drive	53	57	4
R-031	Residential	B	1	204 Pine View Drive	52	57	5
R-032	Residential	B	1	17 Bellview Drive	62	66	4
R-033	Residential	B	1	11 Bellview Drive	59	64	5
R-034	Residential	B	1	981 Belvedere Clearwater	63	68	5
R-035	Residential	B	1	236 Hillside Drive	54	59	5
R-036	Residential	B	1	235 Hillside Drive	53	57	4
R-037	Residential	B	1	6045 Northside Drive	58	63	5
R-038	Residential	B	1	6041 Northside Drive	64	<u>68</u>	4
R-039	Residential	B	1	6035 Northside Drive	60	64	4

	Table B-2: N	Noise S	ensitive	Receptors and Hourly Equiv	alent Noise	e Levels –			
				Build Alternative 1					
		R	Receptor	s	Predicted Noise Levels, L _{eq(h)} (dB(A))				
ID#	Use	NAC	D.U.s	Address	Existing	Alt. 1	Increase		
R-040	Residential	В	1	6029 Northside Drive	61	65	4		
R-041	Residential	В	1	6044 Northside Drive	53	58	5		
R-042	Residential	В	1	6030 Northside Drive	54	59	5		
R-043	Residential	В	1	6020 Northside Drive	59	64	5		
R-044	Residential	В	1	113 Audubon Road	53	57	4		
R-045	Residential	В	1	114 Audubon Road	53	58	5		
R-046	Residential	В	1	974 Belvedere Clearwater	58	63	5		
R-047	Residential	В	1	972 Belvedere Clearwater	62	66	4		
R-048	Residential	В	1	975 Belvedere Clearwater	66	69	3		
R-049	Residential	В	1	972 Belvedere Clearwater	63	67	4		
R-050	Residential	В	1	970 Belvedere Clearwater	65	69	4		
R-051	Residential	В	1	967 Belvedere Clearwater	66	69	3		
R-052	Residential	В	1	963 Belvedere Clearwater	66	70	4		
R-053	Residential	В	1	966 Belvedere Clearwater	64	68	4		
R-054	Residential	В	1	964 Belvedere Clearwater	63	67	4		
R-055	Residential	B	1	961 Belvedere Clearwater	65	69	4		
R-056	Residential	B	1	960 Belvedere Clearwater	60	65	5		
R-057	Residential	B	1	641 Duncan Road	62	66	4		
R-058	Residential	B	1	1110 Audubon Road	52	57	5		
R-059	Residential	B	1	1106 Audubon Road	54	59	5		
R-060	Residential	B	1	1106 Audubon Road	53	59	5		
R-061	Residential	B	1	1102 Audubon Road	53	57	5		
R-062	Residential	B	1	1102 Audubon Road	54	59	5		
R-062	Residential	B	1	632 Duncan Road	54	59	4		
R-064		B			57	61	4		
R-064 R-065	Residential Residential	B	1	634 Duncan Road		71			
	Residential		1	952 Belvedere Clearwater	67 65		4		
R-066	Residential	B	1	955 Belvedere Clearwater 952 Belvedere Clearwater	65 64	69 67	4		
R-067	Residential	B	1		64 62	67			
R-068	Residential	B	1	952 Belvedere Clearwater	62	66	4		
R-069	Residential	B	1	947 Belvedere Clearwater	64	67	3		
R-070	Residential	B	1	125 Glory Lane	64 52	<u>68</u>	4		
R-071	Residential	B	1	125 Glory Lane	52	57	5		
R-072a	Residential	B	1	125 Glory Lane	53	58	5		
R-072b	Residential	В	1	125 Glory Lane	54	59	5		
R-073a	Residential	В	1	125 Glory Lane	51	56	5		
R-073b	Residential	В	1	125 Glory Lane	54	59	5		
R-073c	Residential	В	1	125 Glory Lane	53	58	5		
R-073d	Residential	В	1	125 Glory Lane	54	59	5		
R-074	Residential	В	1	944 Belvedere Clearwater	64	68	4		
R-075	Residential	В	1	940 Belvedere Clearwater	63	67	5		

				Build Alternative 1				
			leceptors	3	Predicted Noise Levels, L _{eq(h)} (dB(A))			
ID#	Use	NAC	D.U.s	Address	Existing	Alt. 1	Increase	
R-076	Residential	В	1	932 Belvedere Clearwater	60	65	5	
R-077	Residential	В	1	44 Lakeview Drive	53	58	5	
R-078	Church	D	1	920 Belvedere Clearwater	56	61	5	
R-079	Residential	В	1	918 Belvedere Clearwater	60	64	4	
R-080	Residential	В	1	914 Belvedere Clearwater	60	64	4	
R-081	Residential	В	1	910 Belvedere Clearwater	59	64	5	
R-082	Residential	В	1	596 Corley Drive	55	60	5	
R-083	Residential	В	1	899 Belvedere Clearwater	66	70	4	
R-084	Residential	В	1	898 Belvedere Clearwater	65	69	4	
R-085	Residential	В	1	894 Belvedere Clearwater	65	68	3	
R-086	Residential	В	1	885 Belvedere Clearwater	62	66	4	
R-087	Residential	В	1	881 Belvedere Clearwater	64	68	4	
R-088	Residential	В	1	881 Belvedere Clearwater	58	63	5	
R-089	Residential	В	1	865 Belvedere Clearwater	58	61	3	
R-090	Residential	В	1	865 Belvedere Clearwater	64	68	4	
R-091	Residential	В	1	865 Belvedere Clearwater	64	69	5	
R-092	Residential	В	1	870 Belvedere Clearwater	63	67	4	
R-093	Residential	В	1	886 Belvedere Clearwater	61	65	4	
R-094	Residential	В	1	886 Belvedere Clearwater	54	59	5	
R-095	Residential	В	1	212 Northside Dirve	53	58	5	
R-096	Residential	В	1	212 Northside Drive	51	56	5	
R-097	Residential	В	1	212 Northside Drive	51	56	5	
R-098	Residential	B	1	212 Northside Drive	52	57	5	
R-099	Residential	B	1	212 Northside Drive	53	57	5	
R-100	Residential	B	1	212 Northside Drive	51	56	5	
R-101	Residential	B	1	Cherry Avenue	52	57	5	
R-102	Residential	B	1	850 Belvedere Clearwater	62	67	5	
R-102	Commercial	F	1	855 Belvedere Clearwater	64	69	5	
R-104	Commercial	F	1	853 Belvedere Clearwater	65	69	4	
R-104	Commercial	F	1	851 Belvedere Clearwater	61	65	4	
R-105	Residential	B	1	848 Belvedere Clearwater	62	<u>66</u>	4	
R-100	Residential	B	1	846 Belvedere Clearwater	62	66	4	
R-107	Residential	B	1	844 Belvedere Clearwater	53	57	4	
R-108	Residential	B	1	844 Belvedere Clearwater	63	67	4	
R-110	Commercial	F	1	835 Belvedere Clearwater	68	71	3	
R-111	Residential	В	1	842 Belvedere Clearwater	57	61	4	
R-111 R-112	Residential			806 Belvedere Clearwater	63		4	
R-112 R-113		B	1		63 64	66 67	3	
	Residential Residential		-	829 Belvedere Clearwater		67 70	3	
R-114 R-115	Residential Commercial	B F	1	799 Belvedere Clearwater 799 Belvedere Clearwater	67 66	70 69	3	

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				Build Alternative 1					
ReceptorsPredicted Noise Levels, Leq(h) (dB(A))									
ID#	Use	NAC	D.U.s	Address	Existing	Increase			
R-116	Commercial	F	1	793 Belvedere Clearwater	66	69	3		
R-117	Residence	В	1	795 Belvedere Clearwater	64	<u>68</u>	4		
R-118	Residence	В	1	130 Old Sudlow Lake Road	56	60	4		
	Predict	ed Build	Alternativ	ve 1 Design Year 2035 Traffic Noise	Impacts: ^{2, 3}	38 ¹	1		

1. Predicted traffic noise level impact due to approaching or exceeding NAC (refer to Table 3, pg 6).

2. The number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion (e.g. if a receptor is impacted by NAC "C" and NAC "D", it is counted as only one impact).

3. Total number of predicted traffic noise impacts under Build Alternative 1 = 38.

				Build Alternative 2				
		R	leceptor	S	Predicted Noise Levels, L _{eq(h)} (dB(A))			
ID#	Use	NAC	D.U.s	Address	Existing	Alt. 2	Increase	
R-001	Commercial	F	1	4295 Jefferson Davis Highway	63	64	1	
R-002	Restaurant	E	1	429 Belvedere Clearwater	57	58	1	
R-003	Commercial	F	1	Jefferson Davis Highway	59	61	2	
R-004	Commercial	F	1	Jefferson Davis Highway	58	60	2	
R-005	Commercial	F	1	Jefferson Davis Highway	64	65	1	
R-006	Commercial	F	1	4367 Jefferson Davis Highway	67	68	1	
R-007	Commercial	F	1	4367 Jefferson Davis Highway	67	68	1	
R-008	Commercial	F	1	4380 Jefferson Davis Highway	67	69	2	
R-009	Restaurant	E	1	4390 Jefferson Davis Highway	63	64	1	
R-010	Commercial	F	1	1009 Belvedere Clearwater	64	67	3	
R-011	Church	D	1	4280 Jefferson Davis Highway	55	57	2	
R-012	Commercial	F	1	1007 Belvedere Clearwater	68	70	2	
R-013	Commercial	F	1	1003 Belvedere Clearwater	64	66	2	
R-014	Commercial	F	1	101 Pine View Drive	67	68	1	
R-015	Commercial	F	1	101 Pine View Drive	60	63	3	
R-016	Residential	В	1	103 Pineview Drive	56	60	4	
R-017	Residential	В	1	105 Pineview Drive	54	58	4	
R-018	Residential	В	1	107 Pineview Drive	52	56	4	
R-019	Residential	В	1	109 Pineview Drive	51	55	4	
R-020	Residential	В	1	112 Crestview Drive	52	55	3	
R-021	Residential	В	1	110 Crestview Drive	53	56	3	
R-022	Residential	B	1	108 Crestview Drive	53	56	3	
R-023	Residential	B	1	106 Crestview Drive	53	57	4	
R-024	Residential	B	1	104 Crestview Drive	55	57	2	
R-025	Residential	B	1	102 Crestview Drive	55	57	2	
R-026	Residential	B	1	100 Pine View Drive	<u>67</u>	<u>69</u>	2	
R-027	Residential	B	1	104 Pine View Drive	58	61	3	
R-028	Residential	B	1	106 Pine View Drive	55	59	4	
R-020	Residential	B	1	110 Pine View Drive	53	57	4	
R-020 R-030	Residential	B	1	112 Pine View Drive	53	57	2	
R-030	Residential	B	1	204 Pine View Drive	52	56	4	
R-031	Residential	B	1	17 Bellview Drive	62	65	3	
R-032	Residential	B	1	11 Bellview Drive	59	63	4	
R-033	Residential	B	1	981 Belvedere Clearwater	63	66	3	
R-034	Residential	B	1	236 Hillside Drive	54	58	4	
R-035	Residential	B	1	235 Hillside Drive	53	57	4	
R-030	Residential			6045 Northside Drive	58	62		
		B	1				4	
R-038	Residential Residential	B	1	6041 Northside Drive	64 60	<u>66</u>		
R-039 R-040	Residential Residential	B	1	6035 Northside Drive 6029 Northside Drive	60 61	63 64	3	

				Receptors and Hourly Equiv Build Alternative 2				
		R	Receptors	5	Predicted Noise Levels, L _{eq(h)} (dB(A))			
ID#	Use	NAC	D.U.s	Address	Existing	Alt. 2	Increase	
R-041	Residential	В	1	6044 Northside Drive	53	57	4	
R-042	Residential	В	1	6030 Northside Drive	54	58	4	
R-043	Residential	В	1	6020 Northside Drive	59	63	4	
R-044	Residential	В	1	113 Audubon Road	53	58	5	
R-045	Residential	В	1	114 Audubon Road	53	58	5	
R-046	Residential	В	1	974 Belvedere Clearwater	58	64	6	
R-047	Residential	В	1	972 Belvedere Clearwater	62	67	5	
R-048	Residential	В	1	975 Belvedere Clearwater	66	67	1	
R-049	Residential	В	1	972 Belvedere Clearwater	63	68	5	
R-050	Residential	В	1	970 Belvedere Clearwater	65	71	6	
R-051	Residential	В	1	967 Belvedere Clearwater	66	<u>68</u>	2	
R-052	Residential	В	1	963 Belvedere Clearwater	66	68	2	
R-053	Residential	В	1	966 Belvedere Clearwater	64	70	6	
R-054	Residential	В	1	964 Belvedere Clearwater	63	69	6	
R-055	Residential	В	1	961 Belvedere Clearwater	65	67	2	
R-056	Residential	В	1	960 Belvedere Clearwater	60	65	5	
R-057	Residential	В	1	641 Duncan Road	62	67	5	
R-058	Residential	В	1	1110 Audubon Road	52	57	5	
R-059	Residential	В	1	1106 Audubon Road	54	59	5	
R-060	Residential	B	1	1106 Audubon Road	53	58	5	
R-061	Residential	В	1	1102 Audubon Road	53	58	5	
R-062	Residential	B	1	1100 Audubon Road	54	59	5	
R-063	Residential	B	1	632 Duncan Road	54	59	5	
R-064	Residential	B	1	634 Duncan Road	57	61	4	
R-065	Residential	B	1	952 Belvedere Clearwater	67	73	6	
R-066	Residential	B	1	955 Belvedere Clearwater	65	67	2	
R-067	Residential	B	1	952 Belvedere Clearwater	64	<u>69</u>	5	
R-068	Residential	B	1	952 Belvedere Clearwater	62	67	5	
R-069	Residential	B	1	947 Belvedere Clearwater	64	66	2	
R-070	Residential	B	1	125 Glory Lane	64	70	6	
R-071	Residential	B	1	125 Glory Lane	52	57	5	
R-072a	Residential	B	1	125 Glory Lane	53	58	5	
R-072b	Residential	B	1	125 Glory Lane	54	60	6	
R-0720	Residential	B	1	125 Glory Lane	51	57	6	
R-073b	Residential	B	1	125 Glory Lane	54	59	5	
R-0730 R-073c	Residential	B	1	125 Glory Lane	53	59	6	
R-073d	Residential	B	1	125 Glory Lane	54	<u> </u>	5	
R-0730 R-074		B	1	944 Belvedere Clearwater	64		6	
	Residential		1				5	
R-075 R-076	Residential Residential	B B	1	940 Belvedere Clearwater 932 Belvedere Clearwater	63 60	68 65	5	

				Build Alternative 2					
	-		Receptors	5	Predicted Noise Levels, L _{eq(h)} (dB(A))				
ID#	Use	NAC	D.U.s	Address	Existing	Alt. 2	Increase		
R-077	Residential	В	1	44 Lakeview Drive	53	59	6		
R-078	Church	C	1	920 Belvedere Clearwater	56	61	5		
R-079	Residential	D	1	918 Belvedere Clearwater	60	65	5		
R-080	Residential	В	1	914 Belvedere Clearwater	60	65	5		
R-081	Residential	В	1	910 Belvedere Clearwater	59	65	6		
R-082	Residential	В	1	596 Corley Drive	55	59	4		
R-083	Residential	В	1	899 Belvedere Clearwater	66	69	3		
R-084	Residential	В	1	898 Belvedere Clearwater	65	69	4		
R-085	Residential	В	1	894 Belvedere Clearwater	65	69	4		
R-086	Residential	В	1	885 Belvedere Clearwater	62	65	3		
R-087	Residential	В	1	881 Belvedere Clearwater	64	67	3		
R-088	Residential	В	1	881 Belvedere Clearwater	58	63	5		
R-089	Residential	В	1	865 Belvedere Clearwater	58	63	5		
R-090	Residential	В	1	865 Belvedere Clearwater	64	68	4		
R-091	Residential	В	1	865 Belvedere Clearwater	64	68	4		
R-092	Residential	В	1	870 Belvedere Clearwater	63	67	4		
R-093	Residential	В	1	886 Belvedere Clearwater	61	65	4		
R-094	Residential	В	1	886 Belvedere Clearwater	54	59	5		
R-095	Residential	В	1	212 Northside Drive	53	58	5		
R-096	Residential	В	1	212 Northside Drive	51	56	5		
R-097	Residential	В	1	212 Northside Drive	51	56	5		
R-098	Residential	В	1	212 Northside Drive	52	57	5		
R-099	Residential	В	1	212 Northside Drive	53	57	5		
R-100	Residential	В	1	212 Northside Drive	51	56	5		
R-101	Residential	B	1	Cherry Avenue	52	57	5		
R-102	Residential	B	1	850 Belvedere Clearwater	62	67	5		
R-103	Commercial	F	1	855 Belvedere Clearwater	64	68	4		
R-104	Commercial	F	1	853 Belvedere Clearwater	65	69	4		
R-105	Commercial	F	1	851 Belvedere Clearwater	61	65	4		
R-106	Residential	В	1	848 Belvedere Clearwater	62	66	4		
R-107	Residential	B	1	846 Belvedere Clearwater	62	66	4		
R-107	Residential	B	1	844 Belvedere Clearwater	53	57	4		
R-100	Residential	B	1	844 Belvedere Clearwater	63	67	5		
R-110	Commercial	F	1	835 Belvedere Clearwater	68	70	2		
R-110	Residential	B	1	842 Belvedere Clearwater	57	61	5		
R-111 R-112	Residential	B	1	806 Belvedere Clearwater	63	67	4		
R-112 R-113	Residential	B	1	829 Belvedere Clearwater	64	67	3		
R-115		B	1	799 Belvedere Clearwater	67	70	3		
	Residential	F	-				3		
R-115 R-116	Commercial Commercial	F	1	799 Belvedere Clearwater 793 Belvedere Clearwater	66 66	69 68	2		

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	Build Alternative 2											
Receptors Predicted Noise Level L _{eq(h)} (dB(A))												
ID#	Use	NAC	D.U.s	Address	Existing	Alt. 2	Increase					
R-117	Residence	В	1	795 Belvedere Clearwater	64	<u>68</u>	5					
R-118	Residence	В	1	130 Old Sudlow Lake Road	56	60	4					
	Predicted Build Alternative 2 Design Year 2035 Traffic Noise Impacts: ^{2,3} 36 ¹ ¹											

1. Predicted traffic noise level impact due to approaching or exceeding NAC (refer to Table 3, pg 6).

The number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one 2.

criterion (e.g. if a receptor is impacted by NAC "C" and NAC "D", it is counted as only one impact). Total number of predicted traffic noise impacts Build Alternative 2 = 36.

3.

				Build Alternative 3				
			leceptor		Predicted Noise Levels, L _{eq(h)} (dB(A))			
ID#	Use	NAC	D.U.s	Address	Existing	Alt. 3	Increase	
R-001	Commercial	F	1	4295 Jefferson Davis Highway	63	64	1	
R-002	Restaurant	E	1	429 Belvedere Clearwater	57	58	1	
R-003	Commercial	F	1	Jefferson Davis Highway	59	61	2	
R-004	Commercial	F	1	Jefferson Davis Highway	58	60	2	
R-005	Commercial	F	1	Jefferson Davis Highway	64	65	1	
R-006	Commercial	F	1	4367 Jefferson Davis Highway	67	68	1	
R-007	Commercial	F	1	4367 Jefferson Davis Highway	67	68	1	
R-008	Commercial	F	1	4380 Jefferson Davis Highway	67	69	2	
R-009	Restaurant	E	1	4390 Jefferson Davis Highway	63	64	1	
R-010	Commercial	F	1	1009 Belvedere Clearwater	64	67	3	
R-011	Church	D	1	4280 Jefferson Davis Highway	55	57	2	
R-012	Commercial	F	1	1007 Belvedere Clearwater	68	70	2	
R-013	Commercial	F	1	1003 Belvedere Clearwater	64	66	2	
R-014	Commercial	F	1	101 Pine View Drive	67	68	1	
R-015	Commercial	F	1	101 Pine View Drive	60	63	3	
R-016	Residential	В	1	103 Pineview Drive	56	60	4	
R-017	Residential	В	1	105 Pineview Drive	54	58	4	
R-018	Residential	В	1	107 Pineview Drive	52	56	4	
R-019	Residential	В	1	109 Pineview Drive	51	55	4	
R-020	Residential	В	1	112 Crestview Drive	52	55	3	
R-021	Residential	В	1	110 Crestview Drive	53	56	3	
R-022	Residential	В	1	108 Crestview Drive	53	56	3	
R-023	Residential	В	1	106 Crestview Drive	53	57	4	
R-024	Residential	В	1	104 Crestview Drive	55	57	2	
R-025	Residential	В	1	102 Crestview Drive	55	57	2	
R-026	Residential	В	1	100 Pine View Drive	67	69	2	
R-027	Residential	В	1	104 Pine View Drive	58	61	3	
R-028	Residential	В	1	106 Pine View Drive	55	58	3	
R-029	Residential	В	1	110 Pine View Drive	53	57	4	
R-030	Residential	B	1	112 Pine View Drive	53	57	4	
R-031	Residential	B	1	204 Pine View Drive	52	56	4	
R-032	Residential	B	1	17 Bellview Drive	62	65	3	
R-033	Residential	B	1	11 Bellview Drive	59	63	4	
R-034	Residential	B	1	981 Belvedere Clearwater	63	66	3	
R-035	Residential	B	1	236 Hillside Drive	54	58	4	
R-036	Residential	B	1	235 Hillside Drive	53	57	4	
R-037	Residential	B	1	6045 Northside Drive	58	62	4	
R-038	Residential	B	1	6041 Northside Drive	64	66	2	
R-030	Residential	B	1	6035 Northside Drive	60 60	63	3	
R-040	Residential	B	1	6029 Northside Drive	61	64	3	

	Table B-4: N	Noise So	ensitive	Receptors and Hourly Equiv	alent Nois	e Levels –			
				Build Alternative 3					
		R	leceptor	S		Predicted Noise Levels, L _{eq(h)} (dB(A))			
ID#	Use	NAC	D.U.s	Address	Existing	Alt. 3	Increase		
R-041	Residential	В	1	6044 Northside Drive	53	57	4		
R-042	Residential	В	1	6030 Northside Drive	54	58	4		
R-043	Residential	В	1	6020 Northside Drive	59	63	4		
R-044	Residential	В	1	113 Audubon Road	53	58	5		
R-045	Residential	В	1	114 Audubon Road	53	58	5		
R-046	Residential	В	1	974 Belvedere Clearwater	58	63	5		
R-047	Residential	В	1	972 Belvedere Clearwater	62	66	4		
R-048	Residential	В	1	975 Belvedere Clearwater	66	<u>69</u>	3		
R-049	Residential	В	1	972 Belvedere Clearwater	63	<u>69</u>	3		
R-050	Residential	В	1	970 Belvedere Clearwater	65	<u>69</u>	4		
R-051	Residential	В	1	967 Belvedere Clearwater	66	<u>69</u>	3		
R-052	Residential	В	1	963 Belvedere Clearwater	66	70	4		
R-053	Residential	В	1	966 Belvedere Clearwater	64	68	4		
R-054	Residential	В	1	964 Belvedere Clearwater	63	67	4		
R-055	Residential	В	1	961 Belvedere Clearwater	65	69	4		
R-056	Residential	В	1	960 Belvedere Clearwater	60	65	5		
R-057	Residential	В	1	641 Duncan Road	62	66	4		
R-058	Residential	В	1	1110 Audubon Road	52	57	5		
R-059	Residential	В	1	1106 Audubon Road	54	58	4		
R-060	Residential	В	1	1106 Audubon Road	53	58	5		
R-061	Residential	В	1	1102 Audubon Road	53	57	4		
R-062	Residential	В	1	1100 Audubon Road	54	59	5		
R-063	Residential	В	1	632 Duncan Road	54	58	4		
R-064	Residential	В	1	634 Duncan Road	57	61	4		
R-065	Residential	В	1	952 Belvedere Clearwater	67	71	4		
R-066	Residential	В	1	955 Belvedere Clearwater	65	68	3		
R-067	Residential	В	1	952 Belvedere Clearwater	64	67	3		
R-068	Residential	B	1	952 Belvedere Clearwater	62	66	4		
R-069	Residential	B	1	947 Belvedere Clearwater	64	67	3		
R-070	Residential	B	1	125 Glory Lane	64	68	4		
R-071	Residential	B	1	125 Glory Lane	52	56	4		
R-072a	Residential	B	1	125 Glory Lane	53	57	4		
R-072b	Residential	B	1	125 Glory Lane	54	59	5		
R-073a	Residential	B	1	125 Glory Lane	51	56	5		
R-073b	Residential	B	1	125 Glory Lane	54	59	5		
R-073c	Residential	B	1	125 Glory Lane	53	58	5		
R-073d	Residential	B	1	125 Glory Lane	54	58	4		
R-074	Residential	B	1	944 Belvedere Clearwater	64	68	4		
R-074 R-075	Residential	B	1	940 Belvedere Clearwater	63	67	4		
R-075 R-076	Residential	B	1	932 Belvedere Clearwater	60	65	5		

				Build Alternative 3					
		R	leceptors	5		Predicted Noise Levels, L _{eq(h)} (dB(A))			
ID#	Use	NAC	D.U.s	Address	Existing	Alt. 3	Increase		
R-077	Residential	В	1	44 Lakeview Drive	53	58	5		
R-078	Church	D	1	920 Belvedere Clearwater	56	60	4		
R-079	Residential	В	1	918 Belvedere Clearwater	60	64	4		
R-080	Residential	В	1	914 Belvedere Clearwater	60	63	3		
R-081	Residential	В	1	910 Belvedere Clearwater	59	63	4		
R-082	Residential	В	1	596 Corley Drive	55	59	4		
R-083	Residential	В	1	899 Belvedere Clearwater	66	69	3		
R-084	Residential	В	1	898 Belvedere Clearwater	65	69	3		
R-085	Residential	В	1	894 Belvedere Clearwater	65	69	3		
R-086	Residential	В	1	885 Belvedere Clearwater	62	66	4		
R-087	Residential	В	1	881 Belvedere Clearwater	64	67	3		
R-088	Residential	В	1	881 Belvedere Clearwater	58	63	4		
R-089	Residential	В	1	865 Belvedere Clearwater	58	64	6		
R-090	Residential	В	1	865 Belvedere Clearwater	64	68	4		
R-091	Residential	В	1	865 Belvedere Clearwater	64	69	5		
R-092	Residential	В	1	870 Belvedere Clearwater	63	67	5		
R-093	Residential	В	1	886 Belvedere Clearwater	61	66	5		
R-094	Residential	В	1	886 Belvedere Clearwater	54	59	5		
R-095	Residential	В	1	212 Northside Dirve	53	57	4		
R-096	Residential	В	1	212 Northside Drive	51	56	5		
R-097	Residential	В	1	212 Northside Drive	51	56	5		
R-098	Residential	В	1	212 Northside Drive	52	57	5		
R-099	Residential	В	1	212 Northside Drive	53	57	4		
R-100	Residential	В	1	212 Northside Drive	51	56	5		
R-101	Residential	В	1	Cherry Avenue	52	57	5		
R-102	Residential	В	1	850 Belvedere Clearwater	62	69	6		
R-103	Commercial	F	1	855 Belvedere Clearwater	64	68	4		
R-104	Commercial	F	1	853 Belvedere Clearwater	65	69	4		
R-105	Commercial	F	1	851 Belvedere Clearwater	61	65	4		
R-106	Residential	В	1	848 Belvedere Clearwater	62	66	4		
R-107	Residential	B	1	846 Belvedere Clearwater	62	66	4		
R-108	Residential	B	1	844 Belvedere Clearwater	53	58	5		
R-109	Residential	B	1	844 Belvedere Clearwater	63	<u>67</u>	4		
R-110	Commercial	F	1	835 Belvedere Clearwater	68	71	3		
R-111	Residential	В	1	842 Belvedere Clearwater	57	61	5		
R-112	Residential	B	1	806 Belvedere Clearwater	63	67	4		
R-112 R-113	Residential	B	1	829 Belvedere Clearwater	64	67	3		
R-113 R-114	Residential	B	1	799 Belvedere Clearwater	67	70	3		
R-114 R-115	Commercial	F	1	799 Belvedere Clearwater	66	69	3		
R-115 R-116	Commercial	F	1	793 Belvedere Clearwater	66	69	3		

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Build Alternative 3										
Receptors						Predicted Noise Levels, L _{eq(h)} (dB(A))				
ID#	Use	NAC	D.U.s	Address	Existing	Alt. 3	Increase			
R-117	Residence	В	1	795 Belvedere Clearwater	64	68	4			
R-118	Residence	В	1	130 Old Sudlow Lake Road	56	60	4			

1. Predicted traffic noise level impact due to approaching or exceeding NAC (refer to Table 3, pg 6).

The number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one 2.

criterion (e.g. if a receptor is impacted by NAC "C" and NAC "D", it is counted as only one impact). Total number of predicted traffic noise impacts under No-Build SC 126 alignment alternative = 38.

3.

Build Alternative 4										
Receptors						Predicted Noise Levels, L _{eq(h)} (dB(A))				
ID#	Use	NAC	D.U.s	Address	Existing	Alt. 4	Increase			
R-001	Commercial	F	1	4295 Jefferson Davis Highway	63	64	1			
R-002	Restaurant	E	1	429 Belvedere Clearwater	57	58	1			
R-003	Commercial	F	1	Jefferson Davis Highway	59	61	2			
R-004	Commercial	F	1	Jefferson Davis Highway	58	60	2			
R-005	Commercial	F	1	Jefferson Davis Highway	64	65	1			
R-006	Commercial	F	1	4367 Jefferson Davis Highway	67	68	1			
R-007	Commercial	F	1	4367 Jefferson Davis Highway	67	68	1			
R-008	Commercial	F	1	4380 Jefferson Davis Highway	67	70	3			
R-009	Restaurant	E	1	4390 Jefferson Davis Highway	63	64	1			
R-010	Commercial	F	1	1009 Belvedere Clearwater	64	68	4			
R-011	Church	D	1	4280 Jefferson Davis Highway	55	57	2			
R-012	Commercial	F	1	1007 Belvedere Clearwater	68	73	5			
R-013	Commercial	F	1	1003 Belvedere Clearwater	64	68	4			
R-014	Commercial	F	1	101 Pine View Drive	67	72	5			
R-015	Commercial	F	1	101 Pine View Drive	60	65	5			
R-016	Residential	В	1	103 Pineview Drive	56	61	5			
R-017	Residential	В	1	105 Pineview Drive	54	57	3			
R-018	Residential	В	1	107 Pineview Drive	52	57	5			
R-019	Residential	В	1	109 Pineview Drive	51	56	5			
R-020	Residential	B	1	112 Crestview Drive	52	56	4			
R-021	Residential	B	1	110 Crestview Drive	53	57	4			
R-022	Residential	B	1	108 Crestview Drive	53	57	4			
R-023	Residential	B	1	106 Crestview Drive	53	57	4			
R-024	Residential	B	1	104 Crestview Drive	55	58	3			
R-025	Residential	B	1	102 Crestview Drive	55	58	3			
R-026	Residential	B	1	100 Pine View Drive	67	73	6			
R-027	Residential	B	1	104 Pine View Drive	58	63	5			
R-027	Residential	B	1	106 Pine View Drive	55	59	4			
R-028	Residential	B	1	110 Pine View Drive	53	58	5			
R-030	Residential	B	1	112 Pine View Drive	53	58	5			
R-030	Residential	B	1	204 Pine View Drive	52	57	5			
R-031	Residential	B	1	17 Bellview Drive	62	67	5			
R-032	Residential	B	1	11 Bellview Drive	59	65	6			
R-033	Residential	B	1	981 Belvedere Clearwater	63	69	6			
R-034	Residential	B	1	236 Hillside Drive	54	59	5			
							-			
R-036	Residential	B	1	235 Hillside Drive	53	58	5			
R-037	Residential	B	1	6045 Northside Drive	58	63	5			
R-038 R-039	Residential Residential	B B	1	6041 Northside Drive 6035 Northside Drive	64 60	69 65	5 5			

Table B-5: Noise Sensitive Receptors and Hourly Equivalent Noise Levels –									
Build Alternative 4									
Receptors						Predicted Noise Levels, L _{eq(h)} (dB(A))			
ID#	Use	NAC	D.U.s	Address	Existing	Alt. 4	Increase		
R-040	Residential	В	1	6029 Northside Drive	61	66	5		
R-041	Residential	В	1	6044 Northside Drive	53	58	5		
R-042	Residential	В	1	6030 Northside Drive	54	59	5		
R-043	Residential	В	1	6020 Northside Drive	59	65	6		
R-044	Residential	В	1	113 Audubon Road	53	57	4		
R-045	Residential	В	1	114 Audubon Road	53	57	4		
R-046	Residential	В	1	974 Belvedere Clearwater	58	62	4		
R-047	Residential	В	1	972 Belvedere Clearwater	62	65	3		
R-048	Residential	В	1	975 Belvedere Clearwater	66	71	5		
R-049	Residential	В	1	972 Belvedere Clearwater	63	66	3		
R-050	Residential	В	1	970 Belvedere Clearwater	65	68	3		
R-051	Residential	В	1	967 Belvedere Clearwater	66	71	6		
R-052	Residential	В	1	963 Belvedere Clearwater	66	72	6		
R-053	Residential	В	1	966 Belvedere Clearwater	64	67	3		
R-054	Residential	В	1	964 Belvedere Clearwater	63	66	3		
R-055	Residential	В	1	961 Belvedere Clearwater	65	70	5		
R-056	Residential	В	1	960 Belvedere Clearwater	60	64	4		
R-057	Residential	В	1	641 Duncan Road	62	66	4		
R-058	Residential	В	1	1110 Audubon Road	52	56	4		
R-059	Residential	В	1	1106 Audubon Road	54	58	4		
R-060	Residential	В	1	1106 Audubon Road	53	57	4		
R-061	Residential	В	1	1102 Audubon Road	53	57	4		
R-062	Residential	В	1	1100 Audubon Road	54	58	4		
R-063	Residential	В	1	632 Duncan Road	54	58	4		
R-064	Residential	В	1	634 Duncan Road	57	61	4		
R-065	Residential	В	1	952 Belvedere Clearwater	67	69	2		
R-066	Residential	В	1	955 Belvedere Clearwater	65	70	5		
R-067	Residential	В	1	952 Belvedere Clearwater	64	66	2		
R-068	Residential	В	1	952 Belvedere Clearwater	62	65	3		
R-069	Residential	В	1	947 Belvedere Clearwater	64	68	4		
R-070	Residential	B	1	125 Glory Lane	64	67	3		
R-071	Residential	B	1	125 Glory Lane	52	56	4		
R-072a	Residential	B	1	125 Glory Lane	53	57	4		
R-072b	Residential	B	1	125 Glory Lane	54	58	4		
R-073a	Residential	B	1	125 Glory Lane	51	56	5		
R-073b	Residential	B	1	125 Glory Lane	54	58	4		
R-073c	Residential	B	1	125 Glory Lane	53	58	5		
R-073d	Residential	B	1	125 Glory Lane	54	58	4		
R-074	Residential	B	1	944 Belvedere Clearwater	64	67	3		
R-074	Residential	B	1	940 Belvedere Clearwater	63	66	3		

	Table B-5: N	Noise So	ensitive	Receptors and Hourly Equiv	alent Nois	e Levels –			
Build Alternative 4									
Receptors						Predicted Noise Levels, L _{eq(h)} (dB(A))			
ID#	Use	NAC	D.U.s	Address	Existing	Alt. 4	Increase		
R-076	Residential	В	1	932 Belvedere Clearwater	60	64	4		
R-077	Residential	В	1	44 Lakeview Drive	53	58	5		
R-078	Church	D	1	920 Belvedere Clearwater	56	60	4		
R-079	Residential	В	1	918 Belvedere Clearwater	60	61	1		
R-080	Residential	В	1	914 Belvedere Clearwater	60	63	3		
R-081	Residential	В	1	910 Belvedere Clearwater	59	63	4		
R-082	Residential	В	1	596 Corley Drive	55	60	5		
R-083	Residential	В	1	899 Belvedere Clearwater	66	70	4		
R-084	Residential	В	1	898 Belvedere Clearwater	65	68	3		
R-085	Residential	В	1	894 Belvedere Clearwater	65	68	3		
R-086	Residential	В	1	885 Belvedere Clearwater	62	66	4		
R-087	Residential	В	1	881 Belvedere Clearwater	64	67	3		
R-088	Residential	В	1	881 Belvedere Clearwater	58	63	5		
R-089	Residential	В	1	865 Belvedere Clearwater	58	63	5		
R-090	Residential	В	1	865 Belvedere Clearwater	64	68	4		
R-091	Residential	В	1	865 Belvedere Clearwater	64	68	3		
R-092	Residential	В	1	870 Belvedere Clearwater	63	67	4		
R-093	Residential	В	1	886 Belvedere Clearwater	61	65	4		
R-094	Residential	В	1	886 Belvedere Clearwater	54	59	5		
R-095	Residential	В	1	212 Northside Dirve	53	58	5		
R-096	Residential	В	1	212 Northside Drive	51	56	4		
R-097	Residential	В	1	212 Northside Drive	51	56	5		
R-098	Residential	В	1	212 Northside Drive	52	57	5		
R-099	Residential	В	1	212 Northside Drive	53	57	4		
R-100	Residential	В	1	212 Northside Drive	51	56	5		
R-101	Residential	В	1	Cherry Avenue	52	57	5		
R-102	Residential	В	1	850 Belvedere Clearwater	62	67	5		
R-103	Commercial	F	1	855 Belvedere Clearwater	64	68	4		
R-104	Commercial	F	1	853 Belvedere Clearwater	65	69	4		
R-105	Commercial	В	1	851 Belvedere Clearwater	61	65	4		
R-106	Residential	B	1	848 Belvedere Clearwater	62	66	4		
R-107	Residential	B	1	846 Belvedere Clearwater	62	66	4		
R-108	Residential	B	1	844 Belvedere Clearwater	53	57	4		
R-109	Residential	B	1	844 Belvedere Clearwater	63	67	4		
R-110	Commercial	F	1	835 Belvedere Clearwater	68	70	2		
R-110	Residential	B	1	842 Belvedere Clearwater	57	61	5		
R-111 R-112	Residential	B	1	806 Belvedere Clearwater	63	67	4		
R-112 R-113	Residential	B	1	829 Belvedere Clearwater	64	67	3		
R-113 R-114	Residential	B	1	799 Belvedere Clearwater	67	70	3		
R-114 R-115	Commercial	F	1	799 Belvedere Clearwater	66	69	3		

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Build Alternative 4										
Receptors						Predicted Noise Levels, L _{eq(h)} (dB(A))				
ID#	Use	NAC	D.U.s	Address	Existing	Alt. 4	Increase			
R-116	Commercial	F	1	793 Belvedere Clearwater	66	68	2			
R-117	Residence	В	1	795 Belvedere Clearwater	64	67	3			
R-118	Residence	В	1	130 Old Sudlow Lake Road	56	59	3			
Predicted Build Alternative Design 4 Year 2035 Traffic Noise Impacts: ^{2, 3}						37 ¹	1			

4. Predicted traffic noise level impact due to approaching or exceeding NAC (refer to Table 3, pg 6).

5. The number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion (e.g. if a receptor is impacted by NAC "C" and NAC "D", it is counted as only one impact).

6. Total number of predicted traffic noise impacts under No-Build SC 126 alignment alternative = 37.

Appendix C

TRAFFIC NOISE MODELS

General

This appendix documents the TNM Model Input used in this Preliminary Traffic Noise Analysis. The TNM Models utilized two TNM object types to assess impacts from the SC 126 widening project:

Roadways Receptors (Receivers)

Coordinate System

Each of the TNM Objects was modeled using the North American Datum 1983 (NAD83) horizontal coordinate system, and North American Vertical Datum 1988 (NAVD88).

Modeling Procedure

Roadways:

TNM Roadway Element widths were selected based upon representation of one (1) lane of traffic per TNM roadway element. For the proposed highway facility, TNM Roadway vertices were selected to represent interval lengths that appropriately represent fluctuations in the horizontal and vertical roadway geometry. For highways in which more than one parallel TNM roadway element were modeled, the modeled roadway lane widths were set to ensure horizontal overlapping of adjacent modeled roadway elements. Overlapping TNM roadway elements is necessary to accurately represent the contiguous paved surface. TNM roadway elements of various widths were also modeled to represent the existing local roadways (refer to Figure C.1).

Receivers (Receptors):

TNM Receiver Elements were modeled by assigning a point location to the most sensitive likely 'area of frequent human use' for each residence, church, and noise-sensitive commercial land use within the Project limits. All receivers in the TNM models were assigned a height of 4.92 feet. Noise levels at each discrete receptor were determined by means of modeling an individual TNM receiver at all representative locations for 'loudest-condition' existing, Design Year 2035 No-Build, and Design Year 2035 Build condition predicted traffic.

Barriers:

One barrier wall was modelled between Pineview Drive and Hillside Drive and was found to be neither reasonable or feasible due to the impacted receptors being located close to the side street or driveway so that sufficient length to provide abatement could not be achieved.

TNM Model Traffic Noise Level Assessment

The TNM model traffic noise level assessment is divided into four tasks:

- 1. Creation of Validated TNM Computer Model
- 2. Assessment of Existing Loudest-Hour Traffic Noise Levels
- 3. Assessment of Predicted Loudest-Hour Design Year No-Build and Build-Condition Without-Barrier Levels

4. Assessment of Predicted Loudest-Hour Design Year Build-Condition With-Barrier Levels (if applicable)

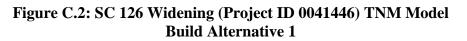
Table	C-1: SC 126 Widening	Project TNM Validatio	n Table
Receptor	$\begin{array}{c} \text{Monitored} \\ \text{L}_{eq(h)} d\text{B(A)}^1 \end{array}$	$\frac{\text{TNM-Predicted}}{\text{L}_{\text{eq}(h)} \text{dB}(A)^{1}}$	Validation Delta $(Pred Meas.)^{1}$
1.1	61.4	62.1	0.7
1.2	60.7	58.2	-2.5
2.1	55.7	58.5	2.8
2.2	54.0	55.6	1.6
3.1	52.2	51.0	-1.2
4.1	56.5	58.3	1.8
4.2	55.9	56.9	1.0
5.1	59.4	62.0	2.6
5.2	57.5	59.4	1.9
6.1	59.6	60.7	1.1
6.2	57.0	57.3	0.3
7.1	57.2	59.6	2.4
7.2	57.2	54.5	-2.7
8.1	63.7	64.1	0.4
8.2	59.7	59.3	-0.4

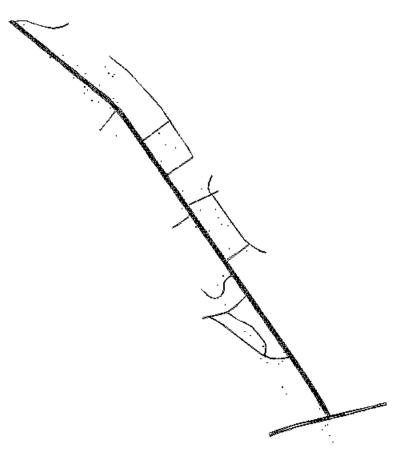
1. Hourly equivalent noise levels, $L_{eq(h)}$, are expressed to the nearest one-tenth decibels to ensure that TNM-predicted noise levels validate to within ±3.0 dB(A) of measured noise levels without the benefits of rounding. Accuracy of the TNM model at the eight applicable modeled traffic noise monitoring locations was validated in the TNM run *SC 126 Val*.

Aiken County

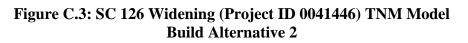
Figure C.1: SC 126 Widening (Project ID 0041446) TNM Model Existing and No-Build

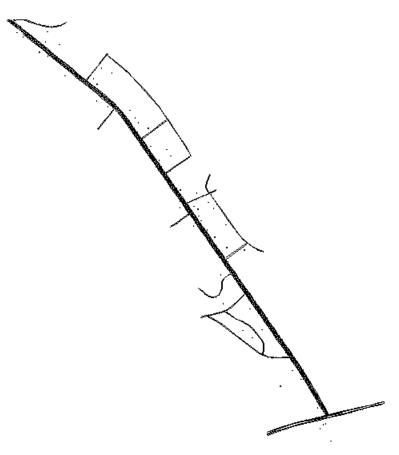
Aiken County



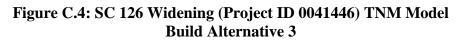


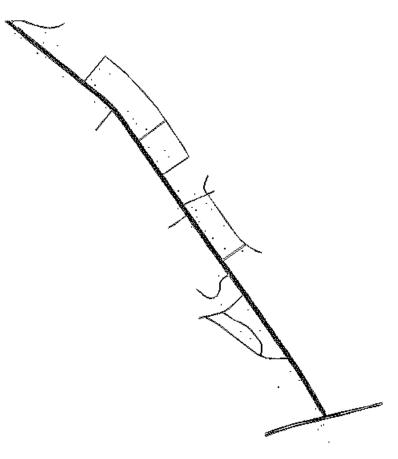
Aiken County





Aiken County





Aiken County

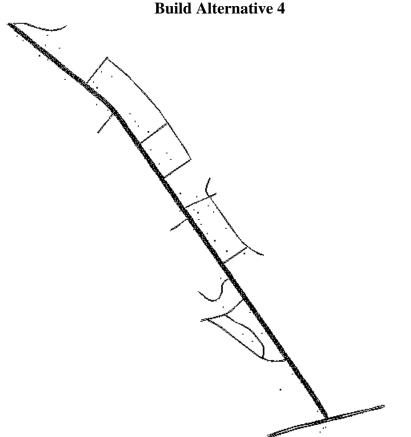


Figure C.5: SC 126 Widening (Project ID 0041446) TNM Model Build Alternative 4

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SC 126 Widening

Aiken County

Appendix D

TRAFFIC VOLUMES

2014 Estimated AADT

2035 Estimated AADT



MEMORANDUM

TO: Brad Reynolds, Assistant Program Manager - RPG 3
FROM: Brent S. Dillon, State Traffic Design Engineer
DATE: December 10, 2012
RE: SC 126 Widening Traffic Analysis Aiken County File: 02.041446 Pin: 41446

As requested, Traffic Engineering has performed a traffic analysis for the SC 126 Widening project in Aiken County. The project proposes to widen SC 126 from the current twolane facility to a five lane section with a two-way left turn lane. The results of the study are summarized below.

No Build Analysis

The study area comprises the approximately 1.8 mile segment of SC 126 between road S-1760 (Old Sudlow Lake Road) and US Highway 1 (Jefferson Davis Highway). Until the completion of the Interstate 520 project, SC 126's primary function was to serve as a connecting route between the Towns of Belvedere and Clearwater. Now SC 126 also serves as an important connecting route to the new interstate facility. Turning movement counts were conducted at three intersections along the corridor along SC 126: S-1760 (Old Sudlow Lake Road), S-67 (Duncan Road), and US 1 (Jefferson Davis Highway).

It is assumed that the project will be complete in 2015, making 2035 the design year. SCDOT's Planning office provided design year AADTs for SC 126 and the three intersecting roadways where counts were conducted. Annual growth rates were calculated as follows: 2.8% for SC-126, 1.5% for Old Sudlow Lake Road, 3% for Duncan Road, and 1% for US 1. These annual growth rates were applied to the turning movement counts for the future scenarios analysis. Table 1 below summarizes the results of the existing conditions and future No Build scenario.

T 4		2012	2034		
Intersection	LOS	Delay (s)	LOS	Delay (s)	
S-1760 (Old Sudlow Lake Road)*	B/C	13/24	E/F	40/200+	
S-67 (Duncan Road)*	B/C	12/17	E/F	49/200+	
US 1 (Jefferson Davis Highway)	B/C	20/25	D/E	38/75	

Table 1: Intersection LOS, No Build Analysis (AM/PM)

Unsignalized; delay is for side street



A two-way segment capacity analysis was performed using HCS+ software. 2012 conditions, with a two-way volume of 1,025, a K-factor of 0.12, a D-factor of 0.52, and 100% No-Passing zone results in LOS E conditions with 75% Time Spent Following (PTSF). The indicated Volume to Capacity Ratio (V/C) is 0.36. 2035 volumes indicate LOS E conditions are still prevalent, but deteriorating due to a PTSF of 89% and V/C ratio at 0.67.

Build Analysis

The build scenario consists of widening SC 126 to a five lane section with a two-way left turn lane. Immediate benefits are realized by the increase in capacity as well as the removal of left turns from the through movement. Except for the US 1 intersection, all other access points along SC 126 are unsignalized. The TWLTL combined with increased gap times will greatly improve side street delays and generally reduce the need for additional signals along the corridor.

The first improvement, Alternate One, is the widening of SC 126 with no side road improvements. The new five lane section will continue from the existing stub out near I-520 and end at US 1. At US 1, the southbound approach geometry will be a single left turn lane, a single through lane, and the outside lane will be dropped as a right onto US 1 heading west. For the northbound direction, the second through lane is simply added beginning at the existing edge of pavement on US 1 with no other improvements. This geometry is shown in the attached drawing, **Figure A**. The resulting delays with these improvements are shown in **Table 2** below.

		2015	2	2035
Intersection	LOS	Delay (s)	LOS	Delay (s)
S-1760 (Old Sudlow Lake Road)*	B/C	12/15	C/D	20/32
S-67 (Duncan Road)*	B/C	10/12	C/D	15/26
US 1 (Jefferson Davis Highway)	B/C	19/24	C/E	34/58

Table 2: Intersection LOS, Alternate One Build Analysis (AM/PM)

^{*}Unsignalized; delay is for side street

It should be noted that HCM calculations cannot account for TWLTL benefits, in particular the potential staging of left turning vehicles from side streets. The delays experienced by left turning vehicles onto SC 126 will be less than calculated as drivers stage turns and not wait on concurrent gaps in both directions. SimTraffic simulations indicate that the vehicles turning left from both Old Sudlow Lake Road and Duncan Road should experience considerably less delay than that shown in the HCM calculations above due to turn staging. In addition, a signal warrants analysis indicates that neither Old Sudlow Lake Road or Duncan Road are expected to meet signals requirements during the analysis period.

An HCS+ multilane segment analysis indicates SC 126 will experience LOS A conditions at opening and LOS B conditions in 2035 with the five lane section. The analysis depends on vehicular density and in 2035 SC 126 is expected to see densities of 12 passenger cars per mile per lane. This corresponds to LOS B and is normally a free-flow condition where through vehicles are free to move about with minimal conflict.

In Alternate Two, additional improvements were analyzed in consideration of improving intersection LOS in the design year. For the Old Sudlow Lake Road and Duncan Road intersections, separate left and right turn lanes were provided on the minor road due to right turning vehicles comprising 70 percent or more of the total approach volumes. As signalization is not expected during the design period, simply adding a 200 foot exclusive right turn lane to each road was the chosen improvement. For the US 1 intersection, two through lanes were provided on both SC 126 approaches as well as an exclusive right turn lane added to the westbound US 1 approach. This geometry is shown in the attached drawing, Figure B. Table 3 below summarizes the results of this alternative.

Intersection		2015	2035	
Intersection	LOS	Delay (s)	LOS	Delay (s)
S-1760 (Old Sudlow Lake Road)	B/C	11/15	C/C	16/20
S-67 (Duncan Road)*	B/C	10/12	B/C	13/18
US 1 (Jefferson Davis Highway)	B/C	19/20	C/D	27/36

Table 3: Intersection LOS, Alternate Two Build Analysis (AM/PM)

Unsignalized; delay is for side street

The US 1 intersection in the 2035 PM peak operates with a LOS D condition, but delays are generally acceptable. Dual left turn lanes were analyzed for the eastbound US 1 and southbound SC 126 approaches and no improvements in delay were seen due to the protected-only phasing with these particular volumes.

Recommendations

- Traffic Engineering recommends the improvements found in Alternate Two.
- Five lane section on SC 126 with 12 foot travel lanes and a 15 foot TWLTL.
- 200 foot left turn lanes are recommended on SC 126 at the Old Sudlow Lake Road and Duncan Road intersections; and at other intersections as recommended by the District Traffic Engineer.
- Exclusive right turn lanes with 200 feet of storage on the Old Sudlow Lake Road and Duncan Road approaches.

SC 126 at US 1 Intersection

- Southbound SC 126 approach: a 250 foot single left turn lane and a through lane alongside a shared through/right turn lane.
- Northbound SC 126 approach: 150 foot left turn lane and a through lane alongside a shared through/right turn lane. The new shared through/right lane will replace the existing channelized right turn lane.
- Westbound US 1 approach: add a 200 foot right turn lane.
- Eastbound US 1 approach: remove the existing channelization for the free-flow right turn lane and incorporate into the signal.

If you have any questions, please feel free to contact Ron Hinson or me.

BSD:ths

Attachments

- ec: Ems Baskin, District Traffic Engineer District Seven Traffic Design File (Yellow Copy)
- File: TE/JAB



Figure A



T:\TE-Traf-Dsgn\TE-Dsgn-Rev\Project Files\Aiken County\SC 126 (S-1760 Old Sudlow Lake to US 1)\Synchro\2034 Build AM Alt 2.syn SC-126 at US-1

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Figure B

12	• 1		TRAFFI	C DATA	FOR F			DADING	
8			<u>u</u> -	Report	date:	<u> </u>	8/21/2012		
		Percent Critical L	Trucks.: of lanes: Trucks.: .ane: Base year: Future year Future year	US-1 S-1760 0.00 5 10 80 2015 2025 2035 2035 E-WAY EC GLE AXLE THE 5 YR. D 10 YR. D 10 YR. D	OIA QUIVAL E LOAD E CRITIC ES. = ES. = ES. =	Base y Project Project	AILY 18 I ICATIONS ANE 60.2 127.3 201.3	way 2-way pe of pavement exible Rigid P) - Class 9 %: J 9,500 13000 13000 KIP S IN 26 11 22	- 36
		-		20 YR. D		<u> </u>	282.1		

YEAR ADT	AVERAGE ONE-WAY ADT TRUCKS	ADJUSTED TRUCKS	1-WAY EQUIV. 18 KIP TOTAL CRT. LN.
2015 9,500 2020 11,200 2025 13,000 2030 14,800 2035 16,500	5,175 518 5,467 547 5,763 576 6,058 606	129 273 432 606	75.32 60.26 159.13 127.31 251.66 201.32 352.69 282.15

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TRAFFIC DATA FOR PAVEMENT LOADING Factors revised February 1999 Report date: 8/21/2012
County 2 AIKEN Route SC 126 Route Name: Clem water ALA Beginning termini US-1 Ending termini: S-1760 OIL Sultow Rd Beginning mile post: 0.00 1-way 2-way Number of lanes: 5 Flexible Rigid Percent Trucks:: 10 Rd. Grp. (A-P) - Class 9 %: J - 36
Base year.2015Base year ADT:9,500Future year2025Projected ADT:13000Future year2035Projected ADT:16500130001300013000
ONE-WAY EQUIVALENT DAILY 18 KIP SINGLE AXLE LOAD APPLICATIONS IN THE CRITICAL LANE
5 YR. DES. = 82.07 10 YR. DES. = 173.38
15 YR. DES. = 173.38 15 YR. DES. = 274.18

YEAR ADT	AVERAGE ONE-WAY	ADJUSTED	1-WAY EQUIV. 18 KIP
	ADT TRUCKS	TRUCKS	TOTAL CRT. LN.
2015 9,500 2020 11,200 2025 13,000 2030 14,800 2035 16,500	5,175 518 5,467 547 5,763 576 6,058 606	129 273 432 606	102.58 82.07 216.73 173.38 342.73 274.18 480.33 384.26

	DR PAVEMENT LOADING s revised February 1999
Report date	e: 8/21/2012
County 2 AIKEN	-
Route S- 67/ Ro	oute Name: DUNCAN RD
Beginning termini SC-126 Ending termini: S-981	
Beginning mile post: 0.00	1-way 🔍 2-way
Number of lanes: 2 Percent Trucks.: 5 Critical Lane: 100	Type of pavement Flexible Rigid Rd. Grp. (A-P) - Class 9 %: G - 19
Base year:2015Future year2025Future year2035	Base year ADT:2,000Projected ADT:2800Projected ADT:36002800
SINGLE AXLE L	IVALENT DAILY 18 KIP OAD APPLICATIONS IN RITICAL LANE
5 YR. DES	B. = 7.35
10 YR. DES	5. = 15.59
15 YR. DES	b. = 24.72
20 YR. DES	5. = 34.74

. .

YEAR ADT	AVERAGE ONE-WAY	ADJUSTED	1-WAY EQUIV. 18 KIP
	ADT TRUCKS	TRUCKS	TOTAL CRT. LN.
2015 2,000 2020 2,400 2025 2,800 2030 3,200 2035 3,600	1,100 55 1,167 58 1,233 62 1,300 65	14 29 46 65	7.35 7.35 15.59 15.59 24.72 24.72 34.74 34.74

*

Factors re-	
Report date:	8/21/2012
County 2 JAIKEN	
Route SI F87 Rou	te Name: DUNCAN RD
Beginning termini SC-126 Ending termini: S-981 Beginning mile post: 0.00	1-way 🖲 2-way
Number of lanes: 2 Percent Trucks.: 5 Critical Lane: 100	Type of pavement Flexible Rigid Rd. Grp. (A-P) - Class 9 %: G - 19
Base year: 2015 Future year 2025 Future year 2035	Base year ADT:2,000Projected ADT:2800Projected ADT:36002800
SINGLE AXLE LO	ALENT DAILY 18 KIP AD APPLICATIONS IN ITICAL LANE
5 YR. DES. =	= 5.74
10 YR. DES. =	= 12.19
15 YR. DES. =	= 19.32
20 YR. DES. =	= 27.16

. .

YEAR	ADT	AVERAG ADT	E ONE-WAY TRUCKS	ADJUSTED TRUCKS	1-WAY EQUIV. 18 KIP TOTAL CRT. LN.
2015	2,000				
2020	2,400	1,100	55	14	5.74 5.74
2025	2,800	1,167	58	29	12.19 12.11
2030	3,200	1,233	62	46	19.32 19.3
2035	3,600	1,300	65	65	27.16 27.1

TRAFFIC DATA FOR PAVEMENT LOADING Factors revised February 1999				
	Report date:	8/21/2012		
Ending termini:		ie: Wood	› Ln	
Beginning mile post: Number of lanes: Percent Trucks.: Critical Lane:	0.00 2 5 100		1-way 2-way Type of pavement Flexible Rigid A-P) - Class 9 %: F - 15	
	2025 P	PPLICATIO	450 600 400	
•••••••••	5 YR. DES. =	C	0.83	
	0 YR. DES. =]		.73	
15 YR. DES. = 2.71				
	20 YR. DES. =]	ن 	9.84	
YEAR ADT 2015 300 2020 400 2025 400 2030 500 2035 600	AVERAGE ONE-WAY ADT TRUCKS 175 9 183 9 192 10 204 10	ADJUSTED TRUCKS	1.WAY EQUIV. 18 KIP TOTAL CRT. LN. 0.83 0.83 1.73 1.73 2.71 2.71 3.84 3.84	

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	Report date:	8/21/2012	
County 2 AIK	EN		
Route S- 1615	Route N	ame:	ds in
	SC-126		
	3-982	1-	
Beginning mile post:	0.00	444444	1-way 🔅 2-way
Number of lanes:	2		Type of pavement
Percent Trucks.:	5		Flexible • Rigid
Critical Lane:	100	Rd. Grp. (A	-P) - Class 9 %: F - 15
	2015 2025 2035 WAY EQUIVAL		450 600 400
SING	LE AXLE LOAD THE CRITIC		
	5 YR. DES. =	J 1	.04
1	0 YR. DES. =	<u> </u>	.18
1	5 YR. DES. =	3	.43
2	0 YR. DES. =	4	.85
2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 - 2000 -			

YEAR	ADT	ADT	TRUCKS	TRUCKS	TOTAL	CRT. LN.
2015	300	175	9	2	1.04	1,04
2025	400	183	9		2.18	2.18
2030	500	192	10	7	3.43	3.43
2035	600	204	10	10	4.85	4.85

Re	teport date: 8/21/2012
County 2 AIKEN Route S- 1275	Route Name: J Hillside Dr.
Beginning terminiSC-12Ending termini:S-128	26
Beginning mile post: 0.	2.00 1-way 🔍 2-way
Number of lanes: 2 Percent Trucks.: 5	Flexible Rigid
Critical Lane: 100	Rd. Grp. (A-P) - Class 9 %: F - 15
Base year:	Base year ADT: 500
	2025 Projected ADT: 750 2035 Projected ADT: 1000 800 800

ONE-WAY EQUIVALENT DAILY 18 KIP SINGLE AXLE LOAD APPLICATIONS IN THE CRITICAL LANE 5 YR. DES. = 1.30 10 YR. DES. = 2.83 15 YR. DES. = 4.60 20 YR. DES. = 6.54

YEAR	ADT	AVERAGE ONE-WAY ADT TRUCKS	ADJUSTED TRUCKS	1-WAY EQUIV. 18 KIP TOTAL CRT. LN.
2015	500			
2020	600	275 14	3	1.30 1.30
2025	800	300 15	8	2.83 2.83
2030	900	325 16	12	4.60 4.60
2035	1,000	346 17	17	6.54 6.54

TRAFFIC DATA FOR PAVEMENT LOADING

Factors revised Fabruary 1999

.

	PAVEMENT LOADING
Report date:	8/21/2012
County 2 AIKEN	
Route S- 1275 Route	Name: Hillsida Dr
Beginning termini SC-126 Ending termini: S-1281	
Beginning mile post: 0.00	1-way 🤷 2-way
Number of lanes: 2 Percent Trucks.: 5	Type of pavement Flexible • Rigid
Critical Lane: 100	Rd. Grp. (A-P) - Class 9 %: F - 15
Base year: 2015	Base year ADT: 500
Future year 2025 Future year 2035	Projected ADT: 750 Projected ADT: 1000 800

3. 8

ONE-WAY EQUIVALENT SINGLE AXLE LOAD APP THE CRITICAL I	LICATIONS IN
5 YR. DES. =	1.64
10 YR. DES. =	3.57
15 YR. DES. =	5.81
20 YR. DES. =	8.26

YEAR	ADT	AVERAGE O ADT	NE-WAY	ADJUSTED TRUCKS	1-WAY EQUIV TOTAL C	. 18 KIP RT. LN.
2015	500					
2020	600	275	14	3	1.64	1.64
2025	800	300	15	8	3.57	3.57
2030	900	325	16	12	5.81	5.81
2035	1.000	346	17	17	8.26	8.26

Report of	date: 58/21/2012
County 2 JAIKEN	
Route S- 1372	Route Name: Northside Dr.
Beginning termini SC-126	
Ending termini: END	
Beginning mile post: 0.00	1-way 🔍 2-way
Number of lanes: 2	Type of pavement
Percent Trucks.: 5	Flexible Rigid
Critical Lane: 100	Rd. Grp. (A-P) - Class 9 %: F - 15
Base year: 2015	Base year ADT: 500
Future year 2025	Projected ADT: 750
Future year 2035	Projected ADT: 1000 800

ONE-WAY EQUIVALENT DAILY 18 KIP SINGLE AXLE LOAD APPLICATIONS IN THE CRITICAL LANE 5 YR. DES. = 1.30 10 YR. DES. = 2.83 15 YR. DES. = 4.60

20 YR, DES. = 6.54 AVERAGE ONE-WAY ADJUSTED 1-WAY EQUIV. 18 KIP YEAR ADT TRUCKS TRUCKS TOTAL CRT. LN. ADT 2015 500 3 2020 600 275 14 1.30 1.30 8 2025 800 300 15 2.83 2.83 12 4.60 2030 900 325 16 4.60 2035 1,000 346 17 17 6.54 6.54 ł

TRAFFIC DATA FOR PAVEMENT LOADING Factors revised February 1999

TRAFFIC DATA FOR	PAVEMENT LOADING
Report date:	8/21/2012
County 2 JAIKEN	
Route S- 1372 Route	e Name: / Northside Dr.
Beginning terminiSC-126Ending termini:END	
Beginning mile post: 0.00	1-way 🔍 2-way
Number of lanes: 2 Percent Trucks.: 5	Type of pavement Flexible • Rigid
Critical Lane: 100	Rd. Grp. (A-P) - Class 9 %: F - 15
Base year: 2015	Base year ADT: 500
Future year 2025 Future year 2035	Projected ADT: 750 Projected ADT: 1000
	800
SINGLE AXLE LOA	ALENT DAILY 18 KIP D APPLICATIONS IN FICAL LANE
5 YR. DES. =	1.64
10 YR. DES. =	3.57
15 YR. DES. =	5.81
20 YR. DES. =	8.26

. .

YEAR	ADT	AVERAGE (DNE-WAY TRUCKS	ADJUSTED TRUCKS	1-WAY EQUI TOTAL	V. 18 KIP CRT. LN.
2015	500					
2020	600	275	14	3	1.64	1.64
2025	800	300	15	8	3.57	3.57
2030	900	325	16	12	5.81	5.81
2035	1,000	346	17	17	8,26	8,26

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	FOR PAVEMENT LOADING
Report	date: 8/21/2012
County 2 AIKEN Route S- 768	Route Name:
Beginning termini Ending termini: Beginning mile post: Number of lanes: Percent Trucks.: Critical Lane:	1-way 2-way Type of pavement • Flexible Rigid Rd. Grp. (A-P) - Class 9 %: F - 15
Base year:2015Future year2025Future year2035	Base year ADT:300Projected ADT:450Projected ADT:600400

ONE-WAY EQUIVALENT DAILY 18 KIP SINGLE AXLE LOAD APPLICATIONS IN THE CRITICAL LANE

5 YR. DES. =	0.83
10 YR. DES. =	1.73
15 YR. DES. =	2.71
	j
20 YR. DES. =] 3.84

YEAR ADT	AVERAGE ONE-WAY	ADJUSTED	1-WAY EQUIV. 18 KIP
	ADT TRUCKS	TRUCKS	TOTAL CRT. LN.
2015 300 2020 400 2025 400 2030 500 2035 600	175 9 183 9 192 10 204 10	2 5 7 10	0.83 0.83 1.73 1.73 2.71 2.71 3.84 3.84

	FOR PAVEIVIENT LOADING actors revised February 1899
Report	date: 8/21/2012
County 2 AIKEN	
Route S- 768	Route Name: Willow Ln
Beginning termini SC-126 Ending termini: S-1373	
Beginning mile post: 0.00	1-way • 2-way
Number of lanes: 2 Percent Trucks.: 5	Type of pavement Flexible • Rigid
Critical Lane: 100	Rd. Grp. (A-P) - Class 9 %: F - 15
Base year: 2015	Base year ADT: 300 Projected ADT: 450
Future year2025Future year2035	Projected ADT: 600 400
	,

ONE-WAY EQUIVALENT DAILY 18 KIP SINGLE AXLE LOAD APPLICATIONS IN THE CRITICAL LANE			
5 YR. DES. =	1.04		
10 YR. DES. =	2.18		
15 YR. DES. =	3.43		

I

4.85

20 YR. DES. =

YEAR	ADT	AVERAGE ADT	E ONE-WAY TRUCKS	ADJUSTED TRUCKS	1-WAY EQUIN TOTAL	V. 18 KIP CRT. LN.
2015	300					
2020	400	175	9	2	1.04	1.04
2025	400	183	9	5	2.18	2.10
2030	500	192	10	7	3.43	3.43
2035	600	204	10	10	4.85	4.8

$$\frac{5 C}{2035 \text{ ADT}} = [6,500]$$

K= 9%
TISTS 7%
Divels 3%
Cars/Avas 100% (-(7%+3%) = 90%
Dicession) splitz 60/40
Prox Direction DHV = (ADT)(K)(Directions soft))
= (16500)(.004)(.60) = 8911
LOS Ceap = (1.64% VPH Arre) x (± laines) in can birection
Fixed
= (1548)(a) = 3096
TIST = (891)(.003 = 36.7 = 37
Avdiss = (801)(.003 = 36.7 = 37
Avdis = (801)(

	Hillside Dritve
	2014 ADT= 475
	Peak Directional DHV = (475)(.09)(.60) = 25.65 = 26
	Los (car = (1548)(1) = 1548
	(26) C 1548
	TTST= (26) (.07) = 1.82 = 2
	$D_{10} s = (2-6) (.03) = 0.78 = 1$ Autos = (26) (.90) = 23.4 = 23
	AUROS = (30) (- 00
	0001 = TGA 2505
_	Prok Dr. DHV = 1000(.09)(.60) = 54
	LOS C cup = (1548)(1)= 1548
	(54) C 1548
	7787= (54)(-07)=3.78=14
	Duals = (54)(.03)=].62 = 2
	Autus = (54)(-90) = 48-6 = 49

Checked by:

Drive Northside JOIN ADT= 475 Peak Directional DHV = 475(.09)(.60) = 25.65 = 26 Los Com= 1 SUPCID= ISUR 26) L 1548 TTST= 26 (.07) = 2 Dim 15 = 26 (.03)=11 Avan: 26 (.90)=123 2035 ADT = 1000 Prov Dr. DHW= 1000(.04)(.60)= 54 Los Cag = (1548)(1)=1545 54 CISME 1787= (54)(.07)=14 Drok= (84)x.03)= 2 AND= (EVY. 90)= 49

Checked by:

Woods lane	- 14 	
2014 ADT = 285		
prove Dir. DIAV = 285(.09)(.6)= 15.39 = 15		
Los C ore= (1548)(1) = 15418		
(15) 2 1548		
$T T ST = (IS)(.07) = 1.0S = 10$ $D_{10} IS = (IS)(.03) = 0.4S = 1$ $A_{10} IS = (IS)(0.03) = 13.5 = 14$		
2035 ADT = 600		
Poon pr. DAV = 600(.09)(.6) = 32.4 = 32		
Los (600= 1548- 326 1548		
$ \begin{array}{l} + TST = (321.07) = 2.34 = (2) \\ D(1)s = (32)(-03) = 0.96 = (1) \\ A(1)s = (32)(-90) = 23.8 = 29 \\ \end{array} $		

$$W_{1} = 1 0 W_{1} = 0 m e$$

$$2014, 00T = 2855$$

$$Prov BM. DHW: 2015(001.6) = 155
$$Los (c_{ee} = 1548(1) = 1548$$

$$15 L_{1}543$$

$$TT_{5T=}(15)(.01) = 17$$

$$DWW_{5}(15)(.02) = 185 = 10$$

$$2025, 00T = 600$$

$$Prov DN. DHV: 600(-001)(.6) = 32$$

$$Los (c_{ee} = 1548$$

$$3)^{2}(1543$$

$$Tt_{5T} = 32(00) = 2$$

$$DWW_{5} = 32(-03) = 1$$

$$DWW_{5} = 32(-03) = 1$$

$$DWW_{5} = 32(-03) = 29$$$$

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Checked by:

11	Duncan R2
	2014 ADT = 1920
	Pear Dr. DHW= MOO (.04)(.6)= 103.68 = 104
	Los c = (1548-5(1)=1548
	1047×1548
	T T T T = 104(.07) = 7.28 = 7 $D_{1-1} t = 104(.08) = 2.12 = 3$ $A_{1-1} t = 104(.08) = 0.3.6 = 0.44$
	2035 ADT= 3600
	pHV = 3600(-09.)(-6)= 194.4 = 194 Los (c++= 1548
	$\begin{array}{rcl} \hline 1 & 1 & 1 & 1 & 1 & 1 \\ \hline 1 & 1 & 1 & 1 & 1 & 1 \\ \hline 1 & 1 & 5 & 0 & 2 & 1 \\ \hline 1 & 1 & 5 & 0 & 2 & 1 \\ \hline 1 & 1 & 1 & 0 & 0 \\ \hline 1 & 1 & 1 & 0 \\ \hline 1 & 1 & 1 & 0 \\ \hline 1 & 1 &$
	Auto = 174.6 = 175

US I	
2014	ADT = 22,389 ADT = 29,000
1033	AD1 = 29,000
	K=9%
	TTST = 7%.
	Puals = 3 %
	Cars/Autos=90%
	$D = \frac{1}{2} \frac{1}{40}$
[2014]	Peak Directional DHV=(22,389)(0.09)(0.6)=1209
	LOSC COP = (1548 VPM/Iane) × (210nes) = 3094
	(1209)× 3094
	TTST = (1209)(0.07) = 85
	Duals = (1209)(0.03) = 36
	Autos = (1209) (0.90) = 1088
2035	Peak Directional DHV = (29,000) (0.09) (0.6) = 1566
	LOSCCap = (1548)(2) = 3096
	(154423096
	TTST = (15764)(0.07) = 110
	Duals = (1544)(0.03) = 47
	TTST = (15764)(0.07) = 110 Duals = (1576)(0.03) = 47 Autos = (1576)(0.90) = 1409

Checked by:

APPENDIX D

DETAILED NOISE ANALYSIS



DETAILED TRAFFIC NOISE ANALYSIS

SC 126 (Belvedere Clearwater Road) Widening

From S-1790 (Old Sudlow Lake Road) to US 1/78 (Jefferson Davis Highway)

Aiken County

Federal Aid Project No. SU02(008) File No. 2.041446 Project ID 0041446

Prepared for: South Carolina Department of Transportation

> Submitted By: Stantec Consulting Services Inc.

> > April 2015

DETAILED TRAFFIC NOISE ANALYSIS

SC 126 (Belvedere Clearwater Road) Widening From S-1790 (Old Sudlow Lake Road) to US 1/78 (Jefferson Davis Highway)

Aiken County

Federal Aid Project No. SU02(008) File No. 2.041446 Project ID 0041446

Prepared for:

South Carolina Department of Transportation

Submitted By:

Stantec Consulting Services Inc.

Executive Summary

The South Carolina Department of Transportation (SCDOT), in partnership with the Augusta Regional Transportation Study (ARTS), proposes the widening of SC 126 (Belvedere Clearwater Road) from S-1790 (Sudlow Lake Road) to US 1/78 (Jefferson Davis Highway) in Aiken County (refer to Figure 1). This project is included in the 2014–2019 South Carolina Transportation Improvement Program and is identified as Project ID 0041446.

The proposed roadway cross-section will consist of two 12-foot inside lanes and two 12-foot outside lanes with a 15-foot center turning lane and will add bicycle lanes and sidewalks. The existing speed limit throughout the project limits is 45 miles per hour. The proposed design speed will be 50 miles per hour. SC 126 will remain an uncontrolled access facility after construction. The total length of the project is 2.15 miles. Four Build alternatives were evaluated in the Preliminary Traffic Noise Analysis report dated August 2014. Alternative 1 was a proposed symmetrical widening along the existing roadway. Alternative 2 was a proposed widening to the north side of the existing roadway. Alternative 3 was a proposed widening to the south of the existing roadway. This Detailed Traffic Noise Analysis evaluates noise impacts from the Preferred Alternative - the "best fit" alternative (Alternative 3).

Traffic noise impacts and temporary construction noise impacts can be a consequence of transportation projects, especially for noise-sensitive land uses in close proximity to high-volume and/or high-speed existing steady-state traffic noise sources. This Detailed Traffic Noise Analysis utilized computer models created with the Federal Highway Administration Traffic Noise Model[®] (FHWA TNM v.2.5) to predict future noise levels and define impacted receptors along the proposed widening project. Existing traffic noise impacts 8 receptors in the vicinity of the proposed SC 126 widening project. For the No-Build condition, 25 receptors will be impacted by Design Year 2035 traffic volumes. The Preferred Build Alternative is predicted to create 33 traffic noise impacts.

Furthermore, construction noise impacts may occur due to the close proximity of numerous noise-sensitive receptors to project construction activities. It is the recommendation of this traffic noise analysis that all reasonable efforts should be made to minimize exposure of noise-sensitive areas to construction noise impacts.

Consideration for noise abatement measures was given to all impacted receptors. While densely-spaced traffic noise impacts can increase the likelihood of providing noise abatement measures, such measures will not be feasible for the benefit of predicted traffic noise impacts in the vicinity of the SC 126 widening project due to the uncontrolled access to the roadway with many driveway openings and the need for vehicle sight distance.

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Detailed Traffic Noise Analysis

Proposed SC 126 (Belvedere Clearwater Road) Widening Aiken County Project ID 0041446

1.0 PROJECT LOCATION & DESCRIPTION

The South Carolina Department of Transportation (SCDOT), in partnership with the Augusta Regional Transportation Study (ARTS), proposes the widening of SC 126 (Belvedere Clearwater Road) from S-1790 (Sudlow Lake Road) to US 1/78 (Jefferson Davis Highway) in Aiken County (refer to Figure 1). This project is included in the 2014–2019 South Carolina Transportation Improvement Program and is identified as Project ID 0041446.

The proposed roadway cross-section will consist of two 12-foot inside lanes and two 12-foot outside lanes with a 15-foot center turning lane and will add bicycle lanes and sidewalks. The existing speed limit throughout the project limits is 45 miles per hour. The proposed design speed will be 50 miles per hour. SC 126 will remain an uncontrolled access facility after construction. The total length of the project is 2.15 miles. Four Build alternatives were evaluated in the Preliminary Traffic Noise Analysis report dated August 2014. Alternative 1 was a proposed symmetrical widening along the existing roadway. Alternative 2 was a proposed widening to the north side of the existing roadway. Alternative 3 was a proposed widening to the south of the existing roadway. This Detailed Traffic Noise Analysis evaluates noise impacts from the Preferred Alternative - the "best fit" alternative (Alternative 3).

2.0 **PROCEDURE**

This Detailed Traffic Noise Analysis represents the detailed analysis of the probable traffic noise impacts of the Preferred Alternative for the SC 126 widening project (PROJECT ID 0041446).

In accordance with SCDOT Traffic Noise Abatement Policy, this Detailed Traffic Noise Analysis utilized validated computer models created with the Federal Highway Administration Traffic Noise Model[®] (FHWA TNM v.2.5) to predict future noise levels and define impacted receptors along the proposed widening project.

3.0 CHARACTERISTICS OF NOISE

Noise is basically defined as unwanted sound. It is emitted from many natural and man-made sources. Highway traffic noise is usually a composite of noises from engine exhaust, drive train, and tire-roadway interaction.

The magnitude of noise is usually described by a ratio of its sound pressure to a reference sound pressure, which is usually twenty micro-Pascals (20μ Pa). Since the range of sound pressure ratios varies greatly – over many orders of magnitude, a base-10 logarithmic scale is used to express sound levels in dimensionless units of decibels (dB). The commonly accepted limits of detectable human hearing sound magnitudes is between the threshold of hearing at 0 decibels and the threshold of pain at 140 decibels.

Sound frequencies are reported in units of Hertz (Hz), which correspond to the number of vibrations per second of a given tone. A cumulative 'sound level' is equivalent to ten times the base-10 logarithm of the ratio of the sum of the sound pressures of all frequencies to the reference sound pressure. To simplify the mathematical process of determining sound levels, sound frequencies are grouped into ranges, or 'bands.' Sound levels are then calculated by adding the cumulative sound pressure levels within each band – which are typically defined as one 'octave' or '1/3 octave' of the sound frequency spectrum.

The commonly accepted limitation of human hearing to detect sound frequencies is between 20 Hz and 20,000 Hz, and human hearing is most sensitive to the frequencies between 1,000 Hz – 6,000 Hz. Although people are generally not as sensitive to lower-frequency sounds as they are to higher frequencies, most people lose the ability to hear high-frequency sounds as they age. To accommodate varying receptor sensitivities, frequency sound levels are commonly adjusted, or 'filtered', before being logarithmically added and reported as a single 'sound level' magnitude of that filtering scale. The 'A-weighted' decibel filtering scale applies numerical adjustments to sound frequencies to emphasize the frequencies at which human hearing is sensitive, and to minimize the frequencies to which human hearing is not as sensitive (refer to Table 1). Table 2 shows common indoor and outdoor noise levels expressed as decibels.

Detailed Traffic Noise Analysis SCDOT – April 2015

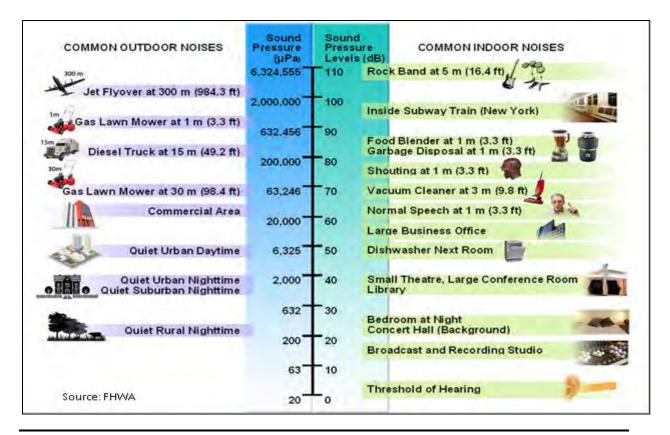
Aiken County

Table 1: Comparison: Flat vs. A-Weighted Frequency Scaling					
Octave-Band Center Frequency (Hz)	A-Weighted Adjustment ¹	Sample Frequency Sound Levels (Flat)	Sample Frequency Sound Levels (A-Weighted)		
31	-39.53	90.00	50.47		
63	-26.22	80.00	53.78		
125	-16.19	70.00	53.81		
250	-8.68	65.00	56.32		
500	-3.25	60.00	56.75		
1000	0.00	60.00	60.00		
2000	+1.20	60.00	61.20		
4000	+0.96	55.00	55.96		
8000	-1.14	50.00	48.86		
16000	-6.7	45.00	38.30		
	Overall Sound Levels:	90.48 dB ²	66.32 dB(A)^2		

1. Based on the ISO 226:2003 standard for normal equal-loudness contours, the A-weighted decibel network filtering scale is defined for a frequency, f, by the equation: 20 x log₁₀ (A(f) / A (1000)), where A(f) = $[12,200^2 \text{ x } \text{ f}^4] / [(\text{f}^2 + 20.6^2) \text{ x } (\text{f}^2 + 12,200^2) \text{ x } (\text{f}^2 + 107.7^2)^{0.5} \text{ x } (\text{f}^2 + 737.9^2)^{0.5}].$

2. Although the energy in the flat sound source would create an *actual* sound level = 90.48 dB, it would be *perceived* as a sound level of 66.32 dB(A) by human hearing due to the decreased sensitivity of human hearing to lower sound frequencies.

Table 2: Common Indoor and Outdoor Noise Levels



The degree of disturbance or annoyance from exposure to unwanted sound – noise – depends upon three factors:

- 1. The amount, nature, and duration of the intruding noise
- 2. The relationship between the intruding noise and the existing (ambient) sound environment; and
- 3. The situation in which the disturbing noise is heard

In considering the first of these factors, it is important to note that individuals have varying sensitivity to noise. Loud noises bother some people more than other people. The time patterns and durations of noise(s) also affect perception as to whether or not it is offensive. For example, noises that occur during nighttime (sleeping) hours are typically considered to be more offensive than the same noises in the daytime.

With regard to the second factor, individuals tend to judge the annoyance of an unwanted noise in terms of its relationship to noise from other sources (background noise). A car horn blowing at night when background noise levels are low would generally be more objectionable than one blowing in the afternoon when background noise levels are typically higher. The response to noise stimulus is analogous to the response to turning on an interior light. During the daytime an illuminated bulb simply adds to the ambient light, but when eyes are conditioned to the dark of night, a suddenly illuminated bulb can be temporarily blinding.

The third factor – situational noise – is related to the interference of noise with activities of individuals. In a 60 dB(A) environment such as is commonly found in a large business office, normal conversation would be possible, while sleep might be difficult. Loud noises may easily interrupt activities that require a quiet setting for greater mental concentration or rest; however, the same loud noises may not interrupt activities requiring less mental focus or tranquility.

Over time, individuals tend to accept the noises that intrude into their lives on a regular basis. However, exposure to prolonged and/or extremely loud noise(s) can prevent use of exterior and interior spaces, and has been theorized to pose health risks. Appropriately, regulations exist for noise control or mitigation from many particularly offensive sources, including airplanes, factories, railroads, and highways. For all "Type I" federal, state, or federal-aid highway projects in the State of South Carolina, traffic and construction noise impact analysis and mitigation assessment is dictated by the applicable South Carolina Department of Transportation Traffic Noise Abatement Policy.

4.0 NOISE ABATEMENT CRITERIA

4.1 Title 23 Code of Federal Regulations, Part 772 (23 CFR 772)

The Federal Highway Administration (FHWA) has developed Noise Abatement Criteria (NAC) and procedures to be used in the planning and design of highways. The purpose of 23 CFR, Part 772 is, "To provide procedures for noise studies and noise abatement measures to

help protect the public's health, welfare and livability, to supply noise abatement criteria, and to establish requirements for information to be given to local officials for use in the planning and design of highways approved pursuant to title 23 U.S.C."

The abatement criteria and procedures are set forth in Title 23 CFR Part 772, which also states, "In abating traffic noise impacts, a highway agency shall give primary consideration to exterior areas where frequent human use occurs".

A summary of the NAC for various land uses is presented in Table 3: Noise Abatement Criteria. The L_{eq} , or equivalent sound level, is the equivalent steady-state sound level which in a stated period of time contains the same acoustic energy as a time-varying sound level during the same period. With regard to traffic noise, fluctuating sound levels of traffic noise are represented in terms of L_{eq} , the steady, or 'equivalent', noise level with the same energy.

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Table 3: Noise Abatement Criteria						
	Hourly Equivalent A-Weighted Sound Level (decibels (dB(A))					
Activity Category	$\begin{array}{c} \text{Activity} \\ \text{Criteria}^1 \\ {L_{eq(h)}}^2 \end{array}$	Evaluation Location	Activity Description			
А	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.			
B ³	67	Exterior	Residential			
C ³	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, daycare centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section4(f) sites, schools, television studios, trails, and trail crossings			
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios			
E ³	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A- D or F			
F			Agriculture, airports, bus yards, emergency services, industrial, logging maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing			
G			Undeveloped lands that are not permitted or impact determination only, and are not design standards for			

¹ The L_{eq(h)} Activity Criteria values are for impact determination only, and are not design standards for noise abatement measures.
² The activity level which is a stated paried of time contains the same acoustic

The equivalent steady-state sound level which in a stated period of time contains the same acoustic energy as the time-varying sound level during the same time period, with $L_{eq(h)}$ being the hourly value of L_{eq} .

³ Includes undeveloped lands permitted for this activity category.

4.2 South Carolina Department of Transportation Traffic Noise Abatement Policy

The South Carolina Department of Transportation Traffic Noise Abatement Policy establishes official policy on highway noise. This policy describes the SCDOT process that is used in determining traffic noise impacts and abatement measures and the equitable and cost-effective expenditure of public funds for traffic noise abatement. Where the FHWA has given highway agencies flexibility in implementing the 23 CFR 772 standards, this policy describes the

SCDOT approach to implementation. A copy of the policy may be found at <u>http://www.dot.state.sc.us/inside/pdfs/envtoolshed/trafficnoise/scdot_traffic_noise_policy_rev</u> 25aug2014.pdf.

4.3 Noise Abatement Criteria

A highway traffic noise impact occurs when:

- The projected highway traffic noise levels approach or exceed the FHWA Noise Abatement Criteria (NAC) in 23 CFR 772 (as shown in Table 3). Approach is defined as within 1 dB(A) of the FHWA noise abatement criteria for the applicable land use category.
 - or,
- 2) The projected highway traffic noise levels substantially exceed existing traffic noise levels in an area. "Substantially exceed" is defined as an increase in noise levels of 15 dB(A) or more in the Design Year over the existing noise levels. A substantial increase is independent of the absolute noise level. A substantial noise increase is a noise impact, even if the future noise level does not approach or exceed the NAC

5.0 AMBIENT NOISE LEVELS

Ambient noise is that noise which is all around us caused by natural and manmade events. It includes the wind, rain, thunder, birds chirping, insects, household appliances, commercial operations, lawn mowers, airplanes, automobiles, etc. It is all noise that is present in a particular area.

Existing traffic noise exposure is varying in the vicinity of the proposed SC 126 project. SC 126 is the dominant noise source for receptors adjacent and in proximity to the existing highway facility.

Ambient noise monitoring data (20-minutes) was collected at 15 locations. The ambient noise monitoring locations are shown in Figures 2a-d. The noise monitoring results, concurrent traffic counts, estimated vehicle speeds, and weather information for the monitoring sites are included in Appendix A.

For this traffic noise analysis, loudest-hour existing noise levels were assessed as the TNMpredicted noise levels based on existing loudest-hour traffic estimates, or the ambient noise levels obtained at representative locations in the field.¹

To validate the accuracy of the model, TNM 2.5 was used to compare measured traffic noise levels to modeled noise levels at field measurement locations. For each monitoring location, traffic volumes counted during the ambient noise monitoring (20-minutes) periods were

¹ Per 23 CFR 772.5, existing noise levels are defined as "the worst noise hour resulting from the combination of natural and mechanical sources and human activity usually present in a particular area." If the TNM-predicted existing loudest-hour *traffic* noise levels are lower than the hourly-equivalent noise levels obtained in the field, then existing noise levels are assessed as the latter.

normalized to 1-hour volumes. These normalized volumes were assigned to the corresponding project area roadways to simulate the noise source strength at the roadways during the actual measurement period. Modeled and measured sound levels were then compared to determine the accuracy of the model. The results for validation TNM models are included in Appendix C.

6.0 PROCEDURE FOR PREDICTING FUTURE NOISE LEVELS

Traffic noise emission is composed of several variables, including the number, types, and travel speeds of the vehicles, as well as the geometry of the roadway(s) on which the vehicles travel. Additionally, variables such as weather and intervening topography affect the transmission of traffic noise from the vehicle(s) to noise sensitive receptors.

In accordance with industry standards and accepted best-practices, detailed computer models were created using the FHWA TNM 2.5. The computer models were validated to within acceptable tolerances of field-monitored traffic noise data, and were used to predict traffic noise levels for receptor locations in the vicinity of the SC 126 widening project. Traffic noise consists of three primary parts: tire/pavement noise, engine noise, and exhaust noise. Of these sources, tire/pavement noise is typically the most offensive at unimpeded travel speeds. Sporadic traffic noises such as horns, squealing brakes, screeching tires, etc. are considered aberrant and are not included within the predictive model algorithm. Traffic noise is not constant; it varies in time depending upon the number, speed, type, and frequency of vehicles that pass by a given receptor. Furthermore, since traffic noise emissions are different for various types of vehicles, the TNM algorithm distinguishes between the source emissions from the following vehicle types: automobiles, medium trucks, heavy trucks, buses, and motorcycles, as shown in Table 4. The computer traffic noise prediction model uses the number and type of vehicles on the planned roadway, vehicle speeds, the physical characteristics of the road (curves, hills, depressions, elevations, etc.), receptor location and height, and, if applicable, barrier type, barrier ground elevation, and barrier segment top elevations.

Table 4: Tr	affic Noise Model (TNM) Vehicle Classification Types
TNM Vehicle Type	Description
Autos	All vehicles with two axles and four tires, including passenger cars and light trucks, weighing 9,900 pounds or less
Medium Trucks	All vehicles having two axles and six tires, weighing between 9,900 and 26,400 pounds
Heavy Trucks	All vehicles having three or more axles, weighing more than 26,400 pounds
Buses	All vehicles designed to carry more than nine passengers
Motorcycles	All vehicles with two or three tires and an open-air driver / passenger compartment
	VA Measurement of Highway-Related Noise, § 5.1.3 Vehicle Types. VA Traffic Monitoring Guide, § 4.1 Classification Schemes

Project design plans of the Preferred Alternative were used in this detailed traffic noise analysis. Per FHWA guidance, the predictions documented in this report are based upon the potential project Design Year 2035 Build condition traffic volumes (including horizontal alignment alternatives) resulting in the loudest predicted hourly-equivalent traffic noise levels for each receptor. Refer to Appendix B for a comprehensive list of traffic noise level receptors, and existing and predicted Design Year 2035 hourly equivalent traffic noise levels.

7.0 TRAFFIC NOISE IMPACTS AND NOISE CONTOURS

Traffic noise impacts occur when the predicted traffic noise levels either: [a] approach or exceed the FHWA noise abatement criteria (with "approach" meaning within 1 dB(A) of the NAC values listed in Table 3 on page 6), or [b] substantially exceed the existing noise levels by 15 dB(A). FHWA and SCDOT require that feasible and reasonable measures be considered to abate traffic noise at all predicted traffic noise impacts. Measures considered include highway alignment selection, traffic systems management, buffer zones, noise walls, and earth berms.

Existing traffic noise impacts 8 receptors in the vicinity of the proposed SC 126 widening project. Traffic noise is predicted to create 25 traffic noise impacts due to predicted Design Year 2035 No-Build condition noise levels that will approach or exceed FHWA noise abatement criteria. The Preferred Alternative is predicted to create 33 traffic noise impacts.

The number and types of predicted traffic noise impacts in each condition is shown in Table 5, with impacts designated as either approaching or exceeding the FHWA NAC, by a substantial increase in Design Year 2035 Build condition traffic noise levels over existing ambient noise levels, or by meeting both criteria.

Predicted Build condition traffic noise level contours are not a definitive means by which to assess traffic noise level impacts; however, they can aid in future land use planning efforts in presently undeveloped areas. Correlating to the traffic noise impact threshold for FHWA NAC "E" land uses, the 71 dB(A) noise level contour is predicted to occur 43 feet from the center of the proposed SC 126 alignment and the 66 dB(A) noise level contour is predicted to occur is predicted to occur 86 feet from the center of the SC 126 alignment.

Per 23 CFR 772.9(c) and SCDOT Policy, noise contour lines shall not be used for determining highway traffic noise impacts. However, the 71 dB(A) and 66 dB(A) noise level contour information should assist local authorities in exercising land use control over the remaining undeveloped lands, so as to avoid development of incompatible activities adjacent to the roadways within local jurisdiction.

Detailed Traffic Noise Analysis

Aiken County

		1	Table	5: Tra	ffic No	oise In	pact S	Summary ¹		
ALT. DESC.	APPROXIMATE # OF IMPACTED RECEPTORS APPROACHING OR EXCEEDING FHWA NAC ² (For Activity Categories A- G as described in Table 3)						SUBST'L NOISE LEVEL	IMPACTS DUE TO BOTH	TOTAL IMPACTS PER 23	
	А	В	С	D	Е	F	G	INCR. ³	CRITERIA ⁴	CFR 772
Existing	0	8	0	0	0	0	0	N/A	N/A	8
No-Build	0	25	0	0	0	0	0	0	0	25 ⁵
Build Preferred Alternative	0	33	0	0	0	0	0	0	0	33 ⁵

1. This table presents the number of existing, No-Build and Build condition traffic noise impacts as predicted. Refer to Appendix B for a detailed analysis of traffic noise impacts at each noise sensitive receptor location.

- 2. Predicted traffic noise level impact due to approaching or exceeding NAC (refer to Table 3, pg 5).
- 3. Predicted "substantial increase" traffic noise level impact.
- 4. Predicted traffic noise level impact due to exceeding NAC and "substantial increase" in Build condition noise levels.
- 5. The total number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion.

8.0 POTENTIAL TRAFFIC NOISE ABATEMENT MEASURES

FHWA and SCDOT require that feasible and reasonable noise abatement measures be considered and evaluated for the benefit of all predicted Build condition traffic noise impacts. Feasibility and reasonableness are distinct and separate considerations. Feasibility is the consideration as to whether noise abatement measures *can* be implemented. Reasonableness is the consideration as to whether noise abatement measures *should* be implemented. Per SCDOT Policy, the following traffic noise abatement measures may be considered: Traffic management measures, alteration of horizontal and vertical alignments, buffer zones, noise barriers (earth berms and noise walls), and noise insulation of Activity Category D land use facilities.

8.1 Traffic System Management Measures

Traffic management measures such as prohibition of truck traffic, lowering speed limits, limiting of traffic volumes, and/or limiting time of operation were considered as possible traffic noise impact abatement measures. The purpose of the SC 126 widening project is to increase the functional capacity of the highway facility. Prohibition of truck traffic, reduction of the speed limit below the existing speed limits or the proposed 50 miles per hour speed limit, or screening total traffic volumes would diminish the functional capacity of the highway facility and are not considered practicable.

8.2 Alteration of Horizontal and Vertical Alignments

Highway alignment selection for traffic noise abatement measures involves modifying the horizontal and vertical geometry of the proposed facility to minimize traffic noise to noise-sensitive receptors. The selection of alternative alignments for noise abatement purposes must consider the balance between noise impacts and other engineering and environmental parameters. For noise abatement, horizontal alignment selection is primarily a matter of locating the roadway at a sufficient distance from noise sensitive receptors. Appreciable reductions in traffic noise transmissions to sensitive receptors can be made by adjusting the vertical highway alignment and/or section geometry. For example, lowering a roadway below existing grade creates a cut section which could act similarly as an earth berm, depending upon the relative location(s) of noise-sensitive receptor(s). This project is utilizing existing alignments to provide the "best fit" for the improvements. Alteration of the vertical or horizontal alignments away from existing alignment would not be reasonable nor feasible for this project.

8.3 Buffer Zones

Buffer zones are typically not practical and/or cost effective for noise mitigation due to the substantial amount of right-of-way required, and would not be a feasible noise mitigation measure for this project. Furthermore, if the acquisition of a suitable buffer zone had been feasible, the associated costs would exceed the SCDOT Policy reasonable abatement cost threshold per benefited receptor.

8.4 Noise Barriers

Passive noise abatement measures are effective because they absorb sound energy, extend the source-to-receptor sound transmission path, or both. Sound absorption is a function of abatement medium (e.g. earth berms absorb more sound energy than noise walls of the same height because earth berms are more massive). The source-to-receptor path is extended by placement of an obstacle, such as a wall, that sufficiently blocks the transmission of sound waves that travel from the source to the receptor.

Highway sound barriers are primarily constructed as earth berms or solid-mass walls adjacent to limited-access freeways that are in close proximity to noise-sensitive land use(s). To be effective, a sound barrier must be long enough and tall enough to shield the impacted receptor(s). Generally, the noise wall length must be eight times the distance from the barrier to the receptor. For example, if a receptor is 200 feet from the roadway, an effective barrier would be approximately 1,600 feet long – with the receptor in the horizontal center. On roadway facilities with direct access for driveways, sound barriers are typically not feasible because the openings render the barrier ineffective in impeding the transmission of traffic noise. Due to the requisite lengths for effectiveness, sound barriers are typically not economical for isolated or most low-density areas. However, sound barriers may be economical for the benefit of as few as one predicted traffic noise impact if the barrier can benefit enough total receptors – impacted and non-impacted combined – to meet applicable reasonableness criteria.

Consideration for noise abatement measures was given to all impacted receptors in the 2035 build condition. Noise abatement measures were determined not to be feasible due to site access constraints where the driveways of each property and other side streets were located such that a noise barrier would not be able to be constructed to adequately provide the required abatement. As a result, no noise abatement measures are recommended.

8.5 Noise Insulation

Two churches are located in the project corridor. Neither church has areas of outdoor activity so Activity Category D was used as a basis of determining noise impacts. The Church of the Good Shepard (R-078) is a light frame structure and application of the appropriate noise reduction factor due to the exterior structure of the church resulted in no interior noise impact to the church from any alternative. Lakeview Baptist Church (R-011) is a masonry structure and application of the appropriate noise reduction factor due to the exterior structure of the church from any alternative. Since no traffic noise impacts for the SC 126 widening project are predicted to occur for interior noise-sensitive areas (NAC "D"), interior noise insulation was not considered as a potential traffic noise impact mitigation measure as part of the analysis for this Traffic Noise Analysis.

9.0 CONSTRUCTION NOISE

The predominant construction activities associated with this project are expected to be earth removal, hauling, grading, and paving. Temporary and localized construction noise impacts will likely occur as a result of these activities (refer to Table 6). During daytime hours, the predicted effects of these impacts will be temporary speech interference for passers-by and those individuals living or working near the project. During evening and nighttime hours, steady-state construction noise emissions such as from paving operations will be audible, and may cause impacts to activities such as sleep. Sporadic evening and nighttime construction equipment noise emissions such as from backup alarms, lift gate closures ("slamming" of dump truck gates), etc., will be perceived as distinctly louder than the steady-state acoustic environment, and will likely cause severe impacts to the general peace and usage of noise-sensitive areas – particularly residences, hospitals, and hotels.

Extremely loud construction noise activities such as usage of pile-drivers and impacthammers (jack hammer, hoe-ram) will provide sporadic and temporary construction noise impacts in the near vicinity of those activities (refer to Table 6). Construction activities that will produce extremely loud noises should be scheduled during times of the day when such noises will create as minimal disturbance as possible.

Generally, low-cost and easily implemented construction noise control measures should be incorporated into the project plans and specifications to the extent possible. These measures include, but are not limited to, work-hour limits, equipment exhaust muffler requirements, haul-road locations, elimination of "tail gate banging", ambient-sensitive backup alarms, construction noise complaint mechanisms, and consistent and transparent community communication.

Aiken County

Equipment	Noise Level Emissions (dB(A)) at 50 Feet From Equipmen					
Equipment	70	80	90	100		
Pile Driver ³						
Jack Hammer						
Tractor						
Road Grader						
Backhoe						
Truck						
Paver						
Pneumatic Wrench						
Crane						
Concrete Mixer						
Compressor						
Front-End Loader						
Generator						
Saws						
Roller (Compactor)						
 Adapted from <i>Noise</i> <i>Appliances</i>. U.S. Envi Cited noise level range 	ronmental Protection	Agency. Washing	gton D.C. 1971.	• •		

decibels (dB(A)), then at 400 feet, it might be 82 decibels (dB(A)) or less.
3. Due to project safety and potential construction noise concerns, pile driving activities are typically limited to daytime hours.

While discrete construction noise level prediction is difficult for a particular receptor or group of receptors, it can be assessed in a general capacity with respect to distance from known or likely project activities. For this project, earth removal, grading, hauling, and paving is anticipated to occur in the vicinity of noise-sensitive receptors. Although construction noise impact mitigation should not place an undue burden upon the financial cost of the project or the project construction schedule, pursuant to the requirements of 23 CFR 772.19, it is the recommendation of this traffic noise analysis that:

- Earth removal, grading, hauling, and paving activities in the vicinity of residences should be limited to weekday daytime hours.
- If meeting the project schedule requires that earth removal, grading, hauling and / or paving must occur during evening, nighttime and / or weekend hours in the vicinity of residences, the Contractor shall notify SCDOT as soon as possible. In such instance(s), all reasonable attempts shall be made to notify and to make appropriate arrangements for the mitigation of the predicted construction noise impacts upon the affected property owners and / or residents.
- If construction noise activities must occur during context-sensitive hours in the vicinity of noise-sensitive areas, discrete construction noise abatement measures including, but not limited to portable noise barriers and / or other equipment-quieting devices shall be considered.

For additional information on construction noise, please refer to the FHWA Construction Noise Handbook (FHWA-HEP-06-015) and the Roadway Construction Noise Model (RCNM), available online at: http://www.fhwa.dot.gov/environment/noise/cnstr_ns.htm.

10.0 NOISE-COMPATIBLE LAND USE

One of the most effective means to prevent future traffic noise impacts is noise-sensitive landuse development. The compatibility of highways and neighboring local areas is essential for continued growth, and can be achieved if local governments and developers require and practice noise-sensitive land-use planning. Although regulation of land use is not within the purview of FHWA or SCDOT, some widely accepted techniques for noise-sensitive land use planning in the vicinity of existing and proposed highway facilities include:

- Locating retail, industrial, manufacturing, and other noise-compatible land-uses adjacent to highways
- Incorporating effective traffic noise mitigating features, such as earth berms and solidmass noise walls, as part of residential developments
- Utilization of noise-sensitive architectural design and site planning, such as the orientation of quiet spaces away from roadways
- Required use of sound insulating building materials and construction methods

As indicated in the August 2014 SCDOT Traffic Noise Abatement Policy, local jurisdictions with zoning control should use the information contained in this report to develop policies and/or ordinances to limit the growth of noise-sensitive land uses located adjacent to roadways. Furthermore, SCDOT encourages the dissemination of this information to all people who may be affected by, or who might influence others affected by, traffic noise.

11.0 CONCLUSION

Traffic noise and temporary construction noise can be a consequence of transportation projects, especially in areas in close proximity to high-volume and high-speed existing steady-state traffic noise sources. This Traffic Noise Analysis utilized computer models created with the FHWA Traffic Noise Model software (TNM 2.5), validated to field-collected traffic noise monitoring data, to predict future noise levels and define impacted receptors along the proposed new highway project.

Existing traffic noise impacts 8 receptors in the vicinity of the proposed SC 126 widening project (Project ID 0041446). For the No-Build condition, 25 receptors will be impacted by Design Year 2035 traffic volumes. The Preferred Alternative is predicted to create 33 traffic noise impacts with Design Year 2035 traffic.

Furthermore, construction noise impacts may occur due to the close proximity of numerous noise-sensitive receptors to project construction activities. It is the recommendation of this traffic noise analysis that all reasonable efforts should be made to minimize exposure of noise-sensitive areas to construction noise impacts.

No traffic noise abatement measures considered in this traffic noise analysis will meet the reasonable and feasible criteria detailed in the SCDOT Traffic Noise Abatement Policy. Consequently, no traffic noise abatement measures are recommended and no noise abatement measures are proposed for incorporation into the project plans. Therefore, additional detailed study of potential mitigation measures shall not be necessary subsequent to selection of the final design of this project unless modifications to presently considered alignments occur, additional alignments are considered, or changes to Design Year 2035 traffic volumes are predicted. This analysis completes the traffic noise requirements of the Title 23 CFR Part 772 and SCDOT Traffic Noise Abatement Policy.

12.0 REFERENCES

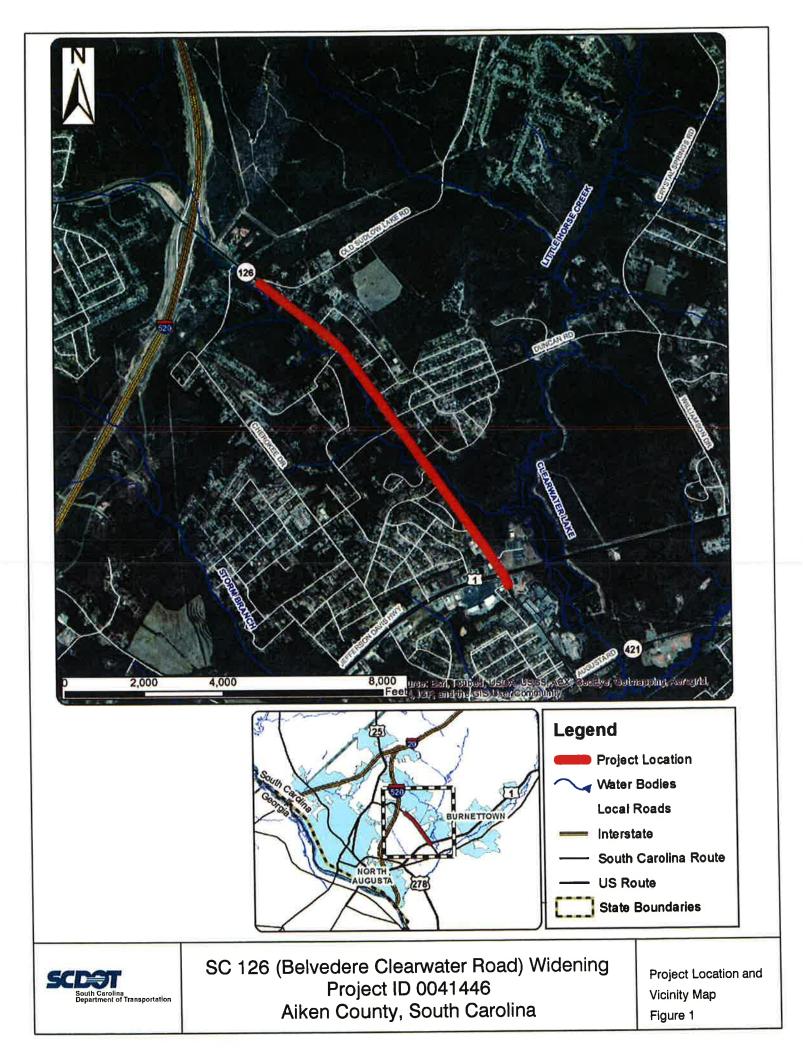
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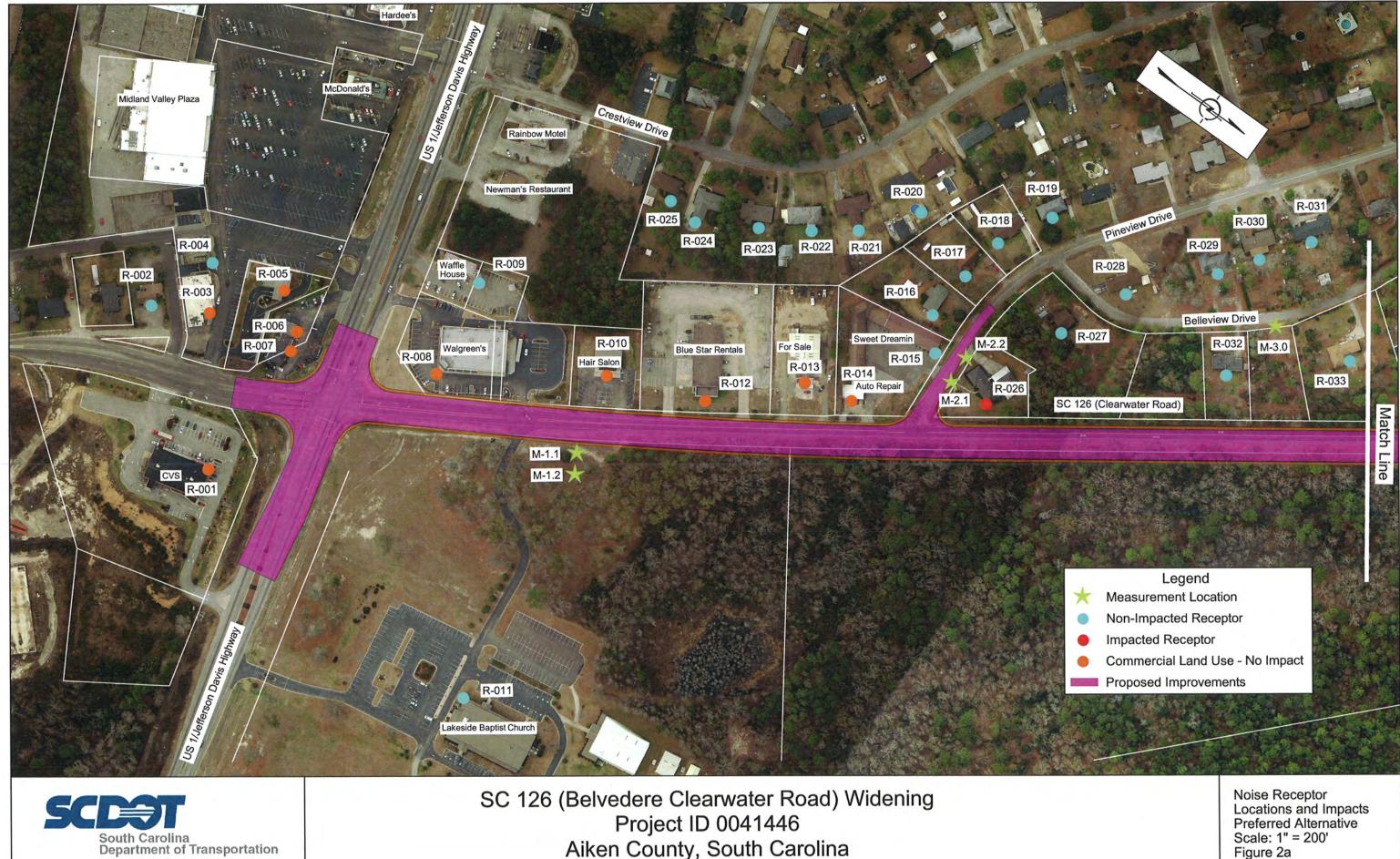
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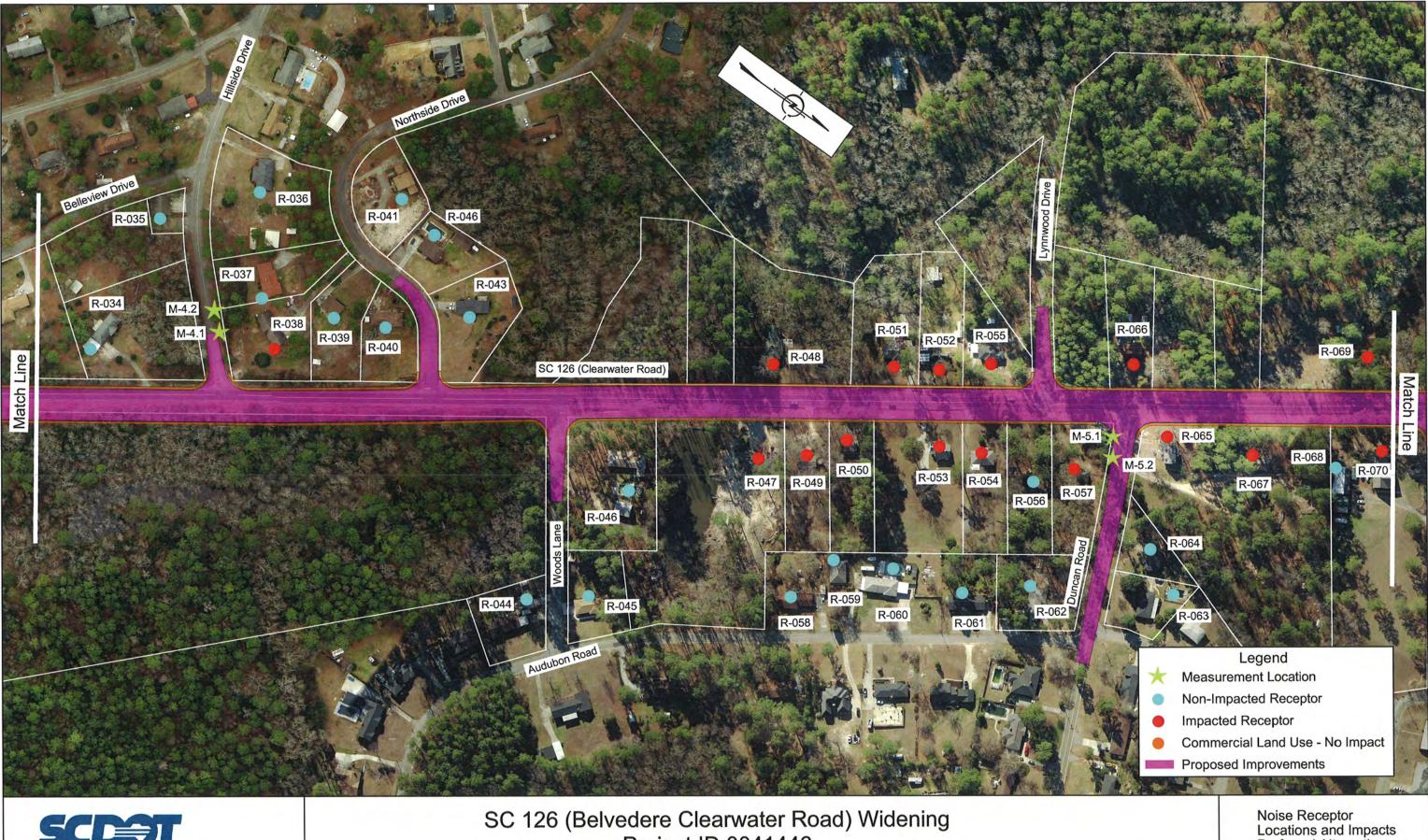
FIGURES







Aiken County, South Carolina





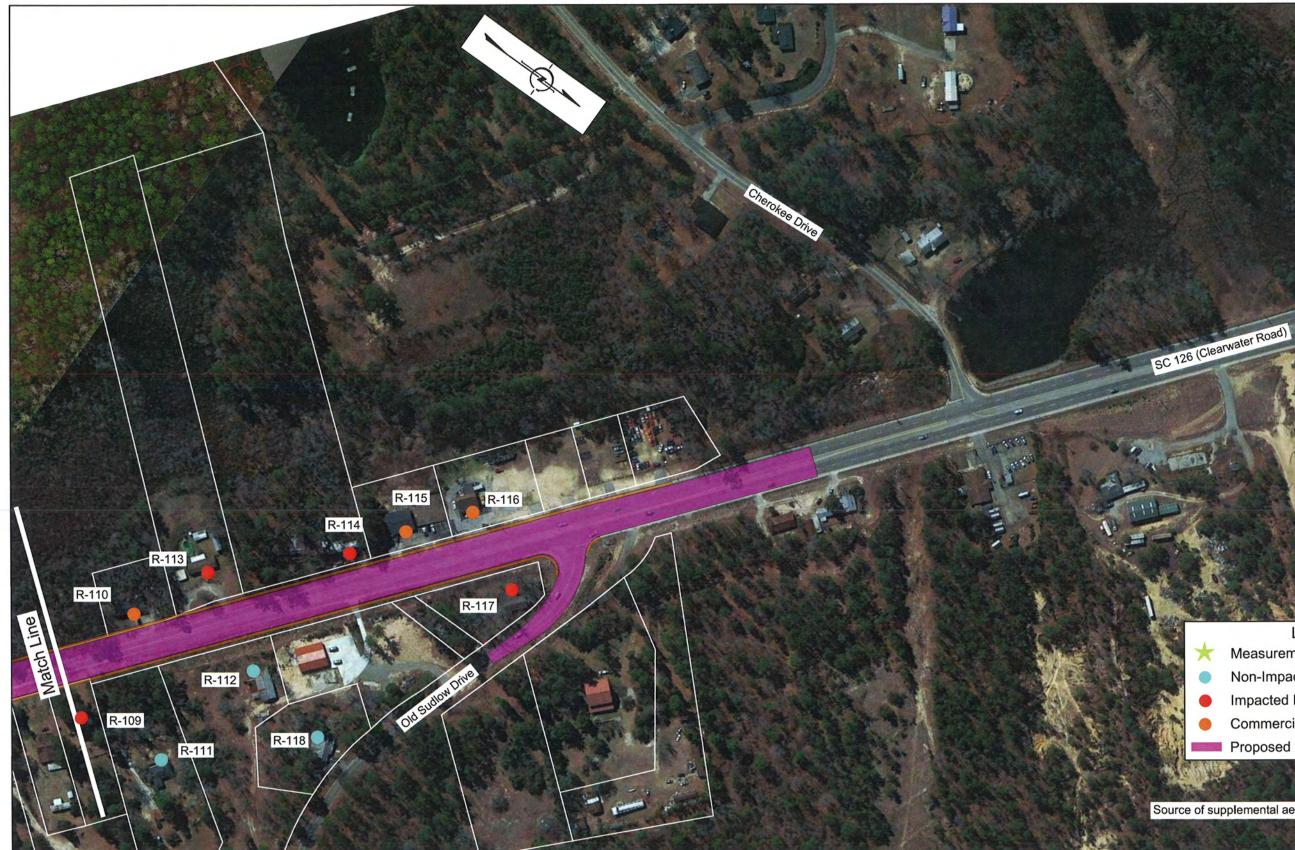
SC 126 (Belvedere Clearwater Road) Widening Project ID 0041446 Aiken County, South Carolina

Locations and Impact Preferred Alternative Scale: 1" = 200' Figure 2b





Aiken County, South Carolina





SC 126 (Belvedere Clearwater Road) Widening Project ID 0041446 Aiken County, South Carolina Legend Measurement Location Non-Impacted Receptor Impacted Receptor Commercial Land Use - No Impact Proposed Improvements

Source of supplemental aerial photography - Google Maps Pro.

Noise Receptor Locations and Impacts Preferred Alternative Scale: 1" = 200' Figure 2d

Appendix A

AMBIENT NOISE LEVEL MONITORING

Detailed Traffic Noise Analysis

SCDOT – April 2015

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	Ambier	nt Hourly-Equiva	lent Sound Le	vels, L _{eq(h)} ¹	
Setup	Receptor	Land Use	Roadway Noise Source(s) ²	Start / Stop Time	L _{eq(h)} (dB(A))
1	1.1	Church	SC 126/	1.12 1.22	61
1	1.2	Church	US 1	1:13 – 1:33	61
	2.1	Residential	0.0.10(10.00 10.00	56
2	2.2	Residential	SC 126	12:33 – 12:53	54
3	3.1	Residential	SC 126	1:51 – 14:11	52
4	4.1	Residential	SC 126	11:52 - 12:12	57
4	4.2	Residential	SC 126 11:52 - 12:1		56
~	5.1	Residential	SC 126 10:50 - 11:10		59
5	5.2	Residential	SC 120	10:30 - 11:10	58
(6.1	Residential	SC 126	9:59 - 10:19	59
6	6.2	Residential	SC 126	9:39 - 10:19	57
7	7.1	Comm. & Res.	50 126	0.16 0.25	57
7	7.2	Comm. & Res.	SC 126	9:15 - 9:35	57
0	8.1	Comm. & Res.	80.126	0.21 0.51	63
8	8.2	Comm. & Res.	SC 126	8:31 - 8:51	59

1. In accordance with FHWA guidance and accepted industry standards, hourly equivalent sound levels, $L_{eq(h)}$, were extrapolated from short-term data collection monitoring sessions, and are expressed in units of A-weighted decibels (dB(A)) rounded to the nearest whole number. Data was obtained on June 26th and 27th, 2013.

2. For each Setup, noise meters were located at logical locations for the assessment of existing highway traffic noise or for the prediction of noise level increase(s) due to future highway traffic noise.

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Setup	Temp. (°F)	Dew Point (°F)	Pressure (in)	Wind Dir.	Wind Speed (mph)	Relative Humidity	Precip. (in)
1	88	70	29.90	SW	9.2	55%	N/A
2	88	70	29.90	SW	9.2	55%	N/A
3	88	70	28.89	WSW	17.3	55%	N/A
4	87	71	29.91	SW	10.4	59%	N/A
5	84	73	28.92	WSW	8.1	67%	N/A
6	83	73	29.94	Variable	6.9	72%	N/A
7	76	72	29.94	SW	6.8	87%	N/A
*8	73	70	30.08	Variable	4.6	90%	N/A

Figure A.1: SC 126– Ambient Noise Monitoring Setup 1, Receptor 1.1



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Figure A.2: SC – Ambient Noise Monitoring Setup 1, Receptor 1.2

Figure A.3: SC 126 – Ambient Noise Monitoring Setup 2, Receptor 2.1





Figure A.4: SC 126 – Ambient Noise Monitoring Setup 2, Receptor 2.2

Figure A.5: SC 126 – Ambient Noise Monitoring Setup 3, Receptor 3.1





Figure A.6: SC 126 – Ambient Noise Monitoring Setup 4, Receptor 4.1

Figure A.7: SC 126 – Ambient Noise Monitoring Setup 4, Receptor 4.2





Figure A.8: SC 126 – Ambient Noise Monitoring Setup 5, Receptor 5.1

Figure A.9: SC 126 – Ambient Noise Monitoring Setup 5, Receptor 5.2





Figure A.10: SC 126 – Ambient Noise Monitoring Setup 6, Receptor 6.1

Figure A.11: SC 126 – Ambient Noise Monitoring Setup 6, Receptor 6.2





Figure A.12 SC 126 – Ambient Noise Monitoring Setup 7, Receptor 7.1

Figure A.13: R-2579 – Ambient Noise Monitoring Setup 7, Receptor 7.2



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Figure A.14: SC 126 – Ambient Noise Monitoring Setup 8, Receptor 8.1

Figure A.15: SC 126 – Ambient Noise Monitoring Setup 8, Receptor 8.2



Aiken County

Appendix B

HOURLY EQUIVALENT TRAFFIC NOISE LEVEL TABLES

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Aiken	County
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				Preferred Alternative			
			ted Noise _{(eq(h)} (dB(A	,			
ID#	Use	NAC	D.U.s	Address	Existing	No-Build	Increase
R-001	Commercial	F	1	4295 Jefferson Davis Highway	65	67	2
R-002	Restaurant	E	1	429 Belvedere Clearwater	63	65	2
R-003	Commercial	F	1	Jefferson Davis Highway	64	66	2
R-004	Commercial	F	1	Jefferson Davis Highway	63	64	1
R-005	Commercial	F	1	Jefferson Davis Highway	66	67	1
R-006	Commercial	F	1	4367 Jefferson Davis Highway	69	71	2
R-007	Commercial	F	1	4367 Jefferson Davis Highway	70	72	2
R-008	Commercial	F	1	4380 Jefferson Davis Highway	69	71	2
R-009	Restaurant	E	1	4390 Jefferson Davis Highway	64	65	1
R-010	Commercial	F	1	1009 Belvedere Clearwater	65	67	2
R-011	Church	D	1	4280 Jefferson Davis Highway	56	57	1
R-012	Commercial	F	1	1007 Belvedere Clearwater	68	71	3
R-013	Commercial	F	1	1003 Belvedere Clearwater	64	66	2
R-014	Commercial	F	1	101 Pine View Drive	67	69	2
R-015	Commercial	F	1	101 Pine View Drive	59	61	2
R-016	Residential	В	1	103 Pineview Drive	52	54	2
R-017	Residential	В	1	105 Pineview Drive	53	55	2
R-018	Residential	В	1	107 Pineview Drive	52	54	2
R-019	Residential	В	1	109 Pineview Drive	50	53	3
R-020	Residential	В	1	112 Crestview Drive	50	52	2
R-021	Residential	В	1	110 Crestview Drive	52	54	2
R-022	Residential	В	1	108 Crestview Drive	53	54	1
R-023	Residential	В	1	106 Crestview Drive	54	56	2
R-024	Residential	В	1	104 Crestview Drive	55	57	2
R-025	Residential	В	1	102 Crestview Drive	56	57	1
R-026	Residential	В	1	100 Pine View Drive	68	70	2
R-027	Residential	B	1	104 Pine View Drive	57	60	3
R-028	Residential	B	1	106 Pine View Drive	54	57	3
R-029	Residential	B	1	110 Pine View Drive	53	55	2
R-030	Residential	B	1	112 Pine View Drive	52	54	2
R-031	Residential	B	1	204 Pine View Drive	51	54	3
R-032	Residential	B	1	17 Bellview Drive	60	63	3
R-033	Residential	B	1	11 Bellview Drive	56	59	3
R-034	Residential	B	1	981 Belvedere Clearwater	50	62	3
R-035	Residential	B	1	236 Hillside Drive	53	56	3
R-036	Residential	B	1	235 Hillside Drive	54	56	2
R-037	Residential	B	1	6045 Northside Drive	58	60	3
R-038	Residential	B	1	6041 Northside Drive	61	64	3
R-039	Residential	B	1	6035 Northside Drive	58	61	3

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				Preferred Alternative			
			ted Noise] eq(h) (dB(A	· · · · ·			
ID#	Use	NAC	D.U.s	Address	Existing	No-Build	Increase
R-040	Residential	В	1	6029 Northside Drive	60	63	3
R-041	Residential	В	1	6044 Northside Drive	52	55	3
R-042	Residential	В	1	6030 Northside Drive	52	55	3
R-043	Residential	В	1	6020 Northside Drive	60	63	3
R-044	Residential	В	1	113 Audubon Road	53	55	2
R-045	Residential	В	1	114 Audubon Road	53	56	3
R-046	Residential	В	1	974 Belvedere Clearwater	57	59	2
R-047	Residential	В	1	972 Belvedere Clearwater	63	66	3
R-048	Residential	В	1	975 Belvedere Clearwater	66	69	3
R-049	Residential	В	1	972 Belvedere Clearwater	64	66	2
R-050	Residential	В	1	970 Belvedere Clearwater	66	68	2
R-051	Residential	В	1	967 Belvedere Clearwater	66	69	3
R-052	Residential	В	1	963 Belvedere Clearwater	67	69	2
R-053	Residential	В	1	966 Belvedere Clearwater	65	67	2
R-054	Residential	В	1	964 Belvedere Clearwater	64	66	2
R-055	Residential	В	1	961 Belvedere Clearwater	65	68	3
R-056	Residential	В	1	960 Belvedere Clearwater	61	63	2
R-057	Residential	B	1	641 Duncan Road	63	65	2
R-058	Residential	B	1	1110 Audubon Road	53	55	2
R-059	Residential	B	1	1106 Audubon Road	55	57	2
R-060	Residential	B	1	1106 Audubon Road	54	57	3
R-061	Residential	B	1	1102 Audubon Road	54	56	2
R-062	Residential	B	1	1100 Audubon Road	56	58	2
R-062	Residential	B	1	632 Duncan Road	56	58	2
R-064	Residential	B	1	634 Duncan Road	59	61	2
R-065	Residential	B	1	952 Belvedere Clearwater	67	70	3
R-066	Residential	B	1	955 Belvedere Clearwater	66	68	2
R-067	Residential	B	1	952 Belvedere Clearwater	64	66	2
R-068	Residential	B	1	952 Belvedere Clearwater	62	64	2
R-069	Residential	B	1	947 Belvedere Clearwater	63	66	3
R-070	Residential	B	1	125 Glory Lane	64	67	3
R-070	Residential	B	1	125 Glory Lane	52	55	3
R-072a	Residential	B	1	125 Glory Lane	53	56	3
R-072b	Residential	B	1	125 Glory Lane	55	57	2
R-0720	Residential	B	1	125 Glory Lane	52	54	2
R-073b	Residential	B	1	125 Glory Lane	54	57	3
R-073c	Residential	B	1	125 Glory Lane	54	56	2
R-073d	Residential	B	1	125 Glory Lane	54	57	3
R-0730	Residential	B	1	944 Belvedere Clearwater	64	67	3
R-074 R-075	Residential	B	1	940 Belvedere Clearwater	63	65	2

				Preferred Alternative			
			ted Noise (dB(A				
ID#	Use	NAC	D.U.s	Address	Existing	No-Build	Increase
R-076	Residential	В	1	932 Belvedere Clearwater	61	63	2
R-077	Residential	В	1	44 Lakeview Drive	54	56	2
R-078	Church	С	1	920 Belvedere Clearwater	56	59	3
R-079	Residential	В	1	918 Belvedere Clearwater	60	63	3
R-080	Residential	В	1	914 Belvedere Clearwater	61	63	2
R-081	Residential	В	1	910 Belvedere Clearwater	60	63	3
R-082	Residential	В	1	596 Corley Drive	53	55	2
R-083	Commercial	F	1	899 Belvedere Clearwater	66	69	3
R-08 4	Residential	В	1	898 Belvedere Clearwater	64	67	3
R-085	Residential	В	1	894 Belvedere Clearwater	64	67	3
R-086	Residential	В	1	885 Belvedere Clearwater	62	65	3
R-087	Residential	В	1	881 Belvedere Clearwater	64	67	3
R-088	Residential	В	1	881 Belvedere Clearwater	59	61	2
R-089	Residential	В	1	865 Belvedere Clearwater	59	61	2
R-090	Residential	В	1	865 Belvedere Clearwater	64	67	3
R-091	Residential	В	1	865 Belvedere Clearwater	65	67	3
R-092	Residential	В	1	870 Belvedere Clearwater	63	66	2
R-093	Residential	В	1	886 Belvedere Clearwater	61	63	2
R-094	Residential	В	1	886 Belvedere Clearwater	55	57	3
R-095	Residential	B	1	212 Northside Drive	53	56	3
R-096	Residential	B	1	212 Northside Drive	52	55	3
R-097	Residential	B	1	212 Northside Drive	52	55	3
R-098	Residential	B	1	212 Northside Drive	53	56	3
R-099	Residential	B	1	212 Northside Drive	53	56	3
R-100	Residential	B	1	212 Northside Drive	52	55	3
R-101	Residential	B	1	Cherry Avenue	53	55	2
R-102	Residential	B	1	850 Belvedere Clearwater	62	65	3
R-103	Commercial	F	1	855 Belvedere Clearwater	64	67	3
R-104	Commercial	F	1	853 Belvedere Clearwater	65	67	2
R-105	Commercial	B	1	851 Belvedere Clearwater	60	63	3
R-105	Residential	B	1	848 Belvedere Clearwater	62	64	2
R-107	Residential	B	1	846 Belvedere Clearwater	62	65	3
R-108	Residential	B	1	844 Belvedere Clearwater	53	55	2
R-100	Residential	B	1	844 Belvedere Clearwater	63	65	2
R-110	Commercial	F	1	835 Belvedere Clearwater	68	70	2
R-111	Residential	B	1	842 Belvedere Clearwater	56	58	2
R-112	Residential	B	1	806 Belvedere Clearwater	55	59	3
R-112 R-113	Residential	B	1	829 Belvedere Clearwater	64	67	3
R-113	Residential	B		799 Belvedere Clearwater			3
R-114 R-115	Commercial	F	1	799 Belvedere Clearwater	<u>68</u> 66	71 70	4

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				Preferred Alternative			
		R	leceptors	3		ted Noise] eq(h) (dB(A	
ID#	Use	NAC	D.U.s	Address	Existing	No-Build	Increase
R-116	Commercial	F	1	793 Belvedere Clearwater	65	69	4
R-117	Residence	В	1	795 Belvedere Clearwater	65	70	4
R-118	Residence	В	1	130 Old Sudlow Lake Road	55	58	3
	Predicted '	'No-Buil	d" Alternat	tive Design Year 2035 Traffic Noise	Impacts: ^{2, 3}	25 ¹	1

1. Predicted traffic noise level impact due to approaching or exceeding NAC (refer to Table 3, pg 6).

2. The number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion (e.g. if a receptor is impacted by NAC "C" and NAC "D", it is counted as only one impact).

Total number of predicted traffic noise impacts under No-Build SC 126 alignment alternative = 25.

				Preferred Alternative			
			ted Noise _{eq(h)} (dB(A	,			
ID#	Use	NAC	D.U.s	Address	Existing	Build	Increase
R-001	Commercial	F	1	4295 Jefferson Davis Highway	65	68	3
R-002	Restaurant	E	1	429 Belvedere Clearwater	63	64	1
R-003	Commercial	F	1	Jefferson Davis Highway	64	67	3
R-004	Commercial	F	1	Jefferson Davis Highway	63	65	2
R-005	Commercial	F	1	Jefferson Davis Highway	66	68	2
R-006	Commercial	F	1	4367 Jefferson Davis Highway	69	72	3
R-007	Commercial	F	1	4367 Jefferson Davis Highway	70	72	2
R-008	Commercial	F	1	4380 Jefferson Davis Highway	69	72	3
R-009	Restaurant	E	1	4390 Jefferson Davis Highway	64	66	2
R-010	Commercial	F	1	1009 Belvedere Clearwater	65	68	3
R-011	Church	D	1	4280 Jefferson Davis Highway	56	59	3
R-012	Commercial	F	1	1007 Belvedere Clearwater	68	71	3
R-013	Commercial	F	1	1003 Belvedere Clearwater	64	66	2
R-014	Commercial	F	1	101 Pine View Drive	67	69	2
R-015	Commercial	F	1	101 Pine View Drive	59	61	2
R-016	Residential	В	1	103 Pineview Drive	52	55	3
R-017	Residential	В	1	105 Pineview Drive	53	56	3
R-018	Residential	В	1	107 Pineview Drive	52	55	3
R-019	Residential	В	1	109 Pineview Drive	50	54	4
R-020	Residential	В	1	112 Crestview Drive	50	53	3
R-021	Residential	В	1	110 Crestview Drive	52	54	2

				Preferred Alternative			
			ted Noise _{eq(h)} (dB(A				
ID#	Use	NAC	D.U.s	Address	Existing	Build	Increase
R-022	Residential	B	1	108 Crestview Drive	53	55	2
R-023	Residential	В	1	106 Crestview Drive	54	56	2
R-024	Residential	В	1	104 Crestview Drive	55	58	3
R-025	Residential	B	1	102 Crestview Drive	56	58	2
R-026	Residential	В	1	100 Pine View Drive	68	70	2
R-027	Residential	В	1	104 Pine View Drive	57	61	4
R-028	Residential	В	1	106 Pine View Drive	54	59	5
R-029	Residential	В	1	110 Pine View Drive	53	58	5
R-030	Residential	В	1	112 Pine View Drive	52	56	4
R-031	Residential	В	1	204 Pine View Drive	51	55	4
R-032	Residential	В	1	17 Bellview Drive	60	64	4
R-033	Residential	В	1	11 Bellview Drive	56	61	5
R-034	Residential	В	1	981 Belvedere Clearwater	59	62	3
R-035	Residential	В	1	236 Hillside Drive	53	58	5
R-036	Residential	В	1	235 Hillside Drive	54	57	3
R-037	Residential	В	1	6045 Northside Drive	58	61	3
R-038	Residential	В	1	6041 Northside Drive	61	68	7
R-039	Residential	B	1	6035 Northside Drive	58	64	6
R-040	Residential	B	1	6029 Northside Drive	60	64	4
R-041	Residential	B	1	6044 Northside Drive	52	56	4
R-042	Residential	B	1	6030 Northside Drive	52	55	3
R-043	Residential	B	1	6020 Northside Drive	60	64	4
R-045	Residential	B	1	113 Audubon Road	53	57	4
R-045	Residential	B	1	114 Audubon Road	53	58	5
R-045	Residential	B	1	974 Belvedere Clearwater	57	61	4
R-040	Residential	B	1	972 Belvedere Clearwater	63	67	4
R-047	Residential	B	1	975 Belvedere Clearwater	66	70	4
R-049	Residential	B	1	972 Belvedere Clearwater	64	68	4
R-049	Residential	B	1	970 Belvedere Clearwater	66	70	4
	Residential	B	1	967 Belvedere Clearwater	66	70	4
R-051	Residential	B	1	963 Belvedere Clearwater	67	71	4
R-052		B	1	966 Belvedere Clearwater	65	70	5
R-053	Residential		-	964 Belvedere Clearwater	64	69	5
R-054	Residential	B	1	961 Belvedere Clearwater	65		3
R-055	Residential	B	1		61	<u>68</u> 65	4
R-056	Residential	B	1	960 Belvedere Clearwater			4
R-057	Residential	B	1	641 Duncan Road	63	67	
R-058	Residential	B	1	1110 Audubon Road	53	57	4
R-059	Residential	B	1	1106 Audubon Road	55	59	4
R-060	Residential Residential	B	1	1106 Audubon Road 1102 Audubon Road	54	59 59	5

				Preferred Alternative			
			ted Noise _{eq(h)} (dB(A				
ID#	Use	NAC	D.U.s	Address	Existing	Build	Increase
R-062	Residential	В	1	1100 Audubon Road	56	60	4
R-063	Residential	В	1	632 Duncan Road	56	60	4
R-064	Residential	В	1	634 Duncan Road	59	63	4
R-065	Residential	В	1	952 Belvedere Clearwater	67	72	5
R-066	Residential	В	1	955 Belvedere Clearwater	66	69	4
R-067	Residential	В	1	952 Belvedere Clearwater	64	68	4
R-068	Residential	В	1	952 Belvedere Clearwater	62	64	2
R-069	Residential	В	1	947 Belvedere Clearwater	63	68	5
R-070	Residential	В	1	125 Glory Lane	64	69	5
R-071	Residential	В	1	125 Glory Lane	52	58	4
R-072a	Residential	В	1	125 Glory Lane	53	59	6
R-072b	Residential	В	1	125 Glory Lane	55	60	5
R-073a	Residential	В	1	125 Glory Lane	52	57	5
R-073b	Residential	В	1	125 Glory Lane	54	60	6
R-073c	Residential	В	1	125 Glory Lane	54	59	5
R-073d	Residential	B	1	125 Glory Lane	54	59	5
R-074	Residential	B	1	944 Belvedere Clearwater	64	70	5
R-075	Residential	B	1	940 Belvedere Clearwater	63	63	0
R-076	Residential	B	1	932 Belvedere Clearwater	61	62	1
R-077	Residential	B	1	44 Lakeview Drive	54	58	4
R-078	Church	D	1	920 Belvedere Clearwater	56	61	5
R-079	Residential	B	1	918 Belvedere Clearwater	60	65	5
R-079	Residential	B	1	914 Belvedere Clearwater	61	65	4
R-081	Residential	B	1	910 Belvedere Clearwater	60	65	5
R-081	Residential	B	1	596 Corley Drive	53	57	4
R-082	Commercial	F	1	899 Belvedere Clearwater	66	68	2
		-	1		64	66	2
R-084	Residential	B	-	898 Belvedere Clearwater 894 Belvedere Clearwater	64	68	4
R-085	Residential		1				4
R-086	Residential	B	1	885 Belvedere Clearwater	62	66	
R-087	Residential	B	1	881 Belvedere Clearwater	64	69	5
R-088	Residential	B	1	881 Belvedere Clearwater	59	64	5
R-089	Residential	B	1	865 Belvedere Clearwater	59	63	4
R-090	Residential	B	1	865 Belvedere Clearwater	64	69	5
R-091	Residential	B	1	865 Belvedere Clearwater	65	67	2
R-092	Residential	B	1	870 Belvedere Clearwater	63	69	6
R-093	Residential	B	1	886 Belvedere Clearwater	61	67	6
R-094	Residential	В	1	886 Belvedere Clearwater	55	61	6
R-095	Residential	В	1	212 Northside Drive	53	59	6
R-096	Residential	В	1	212 Northside Drive	52	58	6
R-097	Residential	B	1	212 Northside Drive	52	58	6

Detailed Traffic Noise Analysis

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				Preferred Alternative			
	-		ted Noise eq(h) (dB(A	-			
ID#	Use	NAC	D.U.s	Address	Existing	Build	Increase
R-098	Residential	В	1	212 Northside Drive	53	59	6
R-099	Residential	В	1	212 Northside Drive	53	59	6
R-100	Residential	В	1	212 Northside Drive	52	58	6
R-101	Residential	В	1	Cherry Avenue	53	59	6
R-102	Residential	В	1	850 Belvedere Clearwater	62	68	6
R-103	Commercial	F	1	855 Belvedere Clearwater	64	68	4
R-104	Commercial	F	1	853 Belvedere Clearwater	65	69	4
R-105	Commercial	В	1	851 Belvedere Clearwater	60	65	5
R-106	Residential	В	1	848 Belvedere Clearwater	62	67	5
R-107	Residential	В	1	846 Belvedere Clearwater	62	68	6
R-108	Residential	В	1	844 Belvedere Clearwater	53	58	5
R-109	Residential	В	1	844 Belvedere Clearwater	63	68	5
R-110	Commercial	F	1	835 Belvedere Clearwater	68	72	4
R-111	Residential	В	1	842 Belvedere Clearwater	56	61	5
R-112	Residential	В	1	806 Belvedere Clearwater	55	60	5
R-113	Residential	В	1	829 Belvedere Clearwater	64	68	4
R-114	Residential	В	1	799 Belvedere Clearwater	68	71	3
R-115	Commercial	F	1	799 Belvedere Clearwater	66	70	4
R-116	Commercial	F	1	793 Belvedere Clearwater	65	70	5
R-117	Residence	В	1	795 Belvedere Clearwater	65	70	5
R-118	Residence	В	1	130 Old Sudlow Lake Road	55	59	4
	Predic	ted Bui	ld Alterna	tive Design Year 2035 Traffic Noise	Impacts ^{2,3}	33 ¹	1

1. Predicted traffic noise level impact due to approaching or exceeding NAC (refer to Table 3, pg 6).

2. The number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one

criterion (e.g. if a receptor is impacted by NAC "C" and NAC "D", it is counted as only one impact).

3. Total number of predicted traffic noise impacts under Build SC 126 alignment alternative = 33.

Aiken County

Appendix C

TRAFFIC NOISE MODELS

Aiken County

General

This appendix documents the TNM Model Input used in this Detailed Traffic Noise Analysis. The TNM Models utilized six TNM object types to assess impacts from the SC 126 Corridor Improvement:

Roadways Receptors (Receivers) Barriers Terrain Lines Ground Zones Tree Zones

Coordinate System

Each of the TNM Objects was modeled using the North American Datum 1983 (NAD83) horizontal coordinate system, and North American Vertical Datum 1988 (NAVD88).

Modeling Procedure

Roadways:

TNM Roadway Element widths were selected based upon representation of one (1) lane of traffic per TNM roadway element. For the proposed highway facility, TNM Roadway vertices were selected to represent interval lengths that appropriately represent fluctuations in the horizontal and vertical roadway geometry. For highways in which more than one parallel TNM roadway element were modeled, the modeled roadway lane widths were set to ensure horizontal overlapping of adjacent modeled roadway elements. Overlapping TNM roadway elements is necessary to accurately represent the contiguous paved surface. TNM roadway elements of various widths were also modeled to represent the existing local roadways (refer to Figure C.1).

Receivers (Receptors):

TNM Receiver Elements were modeled by assigning a point location to the most sensitive likely 'area of frequent human use' for each residence, church, and noise-sensitive commercial land use within the Project limits. All receivers in the TNM models were assigned a height of 4.92 feet. Noise levels at each discrete receptor were determined by means of modeling an individual TNM receiver at all representative locations for 'loudest-condition' existing, Design Year 2035 No-Build, and Design Year 2035 Build condition predicted traffic.

Barriers:

Buildings which shielded receptors were modeled as a barrier.

TNM Model Traffic Noise Level Assessment

The TNM model traffic noise level assessment is divided into four tasks:

- 1. Creation of Validated TNM Computer Model
- 2. Assessment of Existing Loudest-Hour Traffic Noise Levels

- 3. Assessment of Predicted Loudest-Hour Design Year No-Build and Build-Condition Without-Barrier Levels
- 4. Assessment of Predicted Loudest-Hour Design Year Build-Condition With-Barrier Levels (if applicable)

Receptor	Monitored $L_{eq(h)} dB(A)^{1}$	TNM-Predicted $L_{eq(h)} dB(A)^{1}$	Validation Delta (Pred. – Meas.) ¹
1.1	61.4	62.1	0.7
1.2	60.7	58.2	-2.5
2.1	55.7	58.5	2.8
2.2	54.0	55.6	1.6
3.1	52.2	51.0	-1.2
4.1	56.5	58.3	1.8
4.2	55.9	56.9	1.0
5.1	59.4	62.0	2.6
5.2	57.5	59.4	1.9
6.1	59.6	60.7	1.1
6.2	57.0	57.3	0.3
7.1	57.2	59.6	2.4
7.2	57.2	54.5	-2.7
8.1	63.7	64.1	0.4
8.2	59.7	59.3	-0.4

1. Hourly equivalent noise levels, $L_{eq(h)}$, are expressed to the nearest one-tenth decibels to ensure that TNM-predicted noise levels validate to within ±3.0 dB(A) of measured noise levels without the benefits of rounding. Accuracy of the TNM model at the eight applicable modeled traffic noise monitoring locations was validated in the TNM run *SC 126 Val*.

Aiken County

Figure C.1: SC 126 Corridor Improvements (SC PIN No. 41446) TNM Model Existing and No-Build

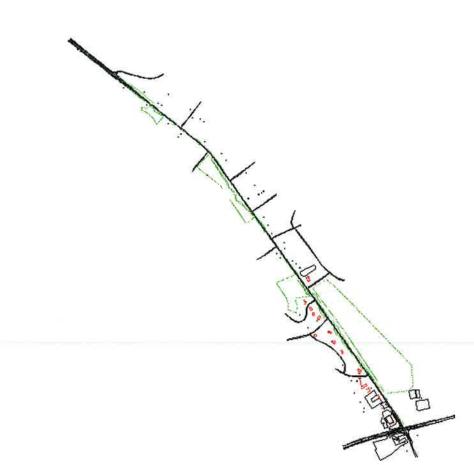
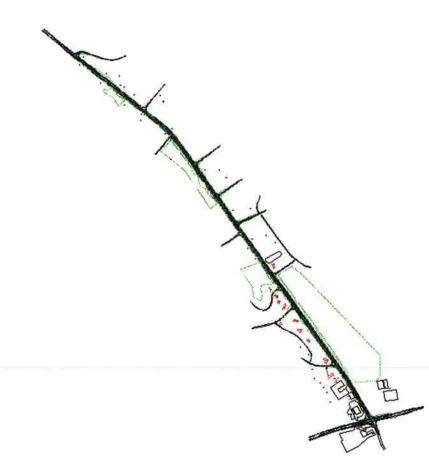


Figure C.2: SC 126 Corridor Improvements (SC PIN No. 41446) TNM Model Build Alternative



Aiken County

Appendix D

TRAFFIC VOLUMES

2014 Estimated AADT

2035 Estimated AADT

$$\frac{SC}{2035} \frac{1}{2075} \frac{1}{2075} \frac{1}{2075} \frac{1}{100} \frac{1}{100}$$

 $\begin{array}{l} T_{TST} = (54)(.07) = 3.78 = 4 \\ Dxa1s = (54)(.03) = 1.62 = 2 \\ Autus = (54)(.03) = 48.6 = 49 \end{array}$

(54) C 1548

Prov Dir. DHV = 1000(.04)(.60) = 54 LOS C cup = (1548)(1) = 1548

2035 ADT = 1000

TTST = (26)(.07) = 1.82 = 2 Dunk = (26)(.03) = 0.78 = 1Autus = (26)(.90) = 23.4 = 23.4

(26) C 1548

Los (cor = (1548)(1) = 1548

peak Directional DHV = (475) (.09) (.60) = 25.65 = 26

2014 ADT= 475

Hillside Drive

Northside Drive

2014 ADT= 475 Peak Directures DHV = 475(.09)(.60) = 23.65 = 26 LOS Con = 154701) = 1547

T TJ T = 26 (.07) = 2 Diver 15 = 26 (.03) = 11 Avans = 26 (.09) = 123

2035 ADT = 1000

Prov Dr. DHW= 1000(.04)(.60)=54 Los Car = (1548)(1)=1548

54 CISNO

PTOT= (54)(.07)= 14 Drak= (54)(.03)= D Avab= (54)(.03)= 49

$$\frac{400 est}{2001440} = 385$$

$$\frac{3001440}{2001} = 385$$

$$\frac{3001440}{2001} = 385(.00)(.6) = 15.30 = 15$$

$$\frac{105}{100} = 1500 = 1505 = 10$$

$$\frac{105}{1001} = 150(.00) = 1005 = 10$$

$$\frac{1000}{1001} = 150(.00) = 1005 = 10$$

$$\frac{1000}{1001} = 1000 = 1005 = 10$$

$$\frac{1000}{1001} = 1000$$

$$\frac{1000}{1001} = 1000$$

$$\frac{1000}{1001} = 1000$$

$$\frac{1000}{10000} = 1000$$

$$\frac{10000}{10000} = 1000$$

Checked by:

$$\frac{W_{1}^{2}}{P_{0}} + \frac{Q_{1}}{P_{0}} + \frac{Q_{1$$

Checked by:

145

US 1	
2014 1	TOT = 22,389
2035	FDT = 22,389 ADT = 29,000
	K=9%
	T7ST = 7%
	Puals = 3 %
	Cars/Autos = 90% $D = 60/40$
[2014]	Peak Directional DHV=(22,389)(0.09)(0.4)=1209
	LOSC COP = (1548 VPW/Iane) × (210nes) = 3094
	(1209×3094
	TTST = (1209)(0.07) = 85
	Duals $(1209)(0.03) = 36$ Autos $= (1209)(0.90) = 1088$
	Autos = (1209)(0.90) = 1088
2035]	Peak Directional DHV = (29,000) (0.09) (0.6) = 1566
	$LOSCCap = (1548)(2) = 3096_{-}$
	(154423096
	TTST = (1564)(0.07) = 110 Duals = (1564)(10.03) = 47 Autos = (1564)(0.90) = 1409
	Duals = (15645(10.03) = 47
	Autos = (151-6)(0.90) = 1409
·	

Designed by:

Checked by:

APPENDIX E

LIMITED PHASE 1 ENVIRONMENTAL SITE ASSESSMENT

South Carolina Highway 126 Improvements

SCDOT PIN 41446

North Augusta, Aiken County, South Carolina

July 12, 2013

Terracon Project No. EN137037



Prepared for: Stantec Consulting Services, Inc. & South Carolina Department of Transportation

Prepared by:

Terracon Consultants, Inc. North Charleston, South Carolina



July 12, 2013

lerracon

Stantec Consulting Services, Inc. 2127 Ayrsley Town Boulevard Suite 300 Charlotte, NC 28273

- Attn: Mr. Matt DeWitt P: (980) 297-7696 E: matt.dewitt@stantec.com
- Re: Phase I Environmental Site Assessment South Carolina Highway 126 Improvements SCDOT PIN 41446 North Augusta, Aiken County, South Carolina Project No. EN137037

Dear Mr. DeWitt:

Terracon Consultants, Inc. (Terracon) is pleased to submit the enclosed Phase I Environmental Site Assessment (ESA) report for the above-referenced site. This assessment was performed in accordance with Terracon Proposal No. PEN130158 dated June 18, 2013.

We appreciate the opportunity to be of service to you on this project. In addition to Phase I services, our professionals provide geotechnical, environmental, construction materials, and facilities services on a wide variety of projects locally, regionally and nationally. For more detailed information on all of Terracon's services please visit our website at <u>www.terracon.com</u>. If there are any questions regarding this report or if we may be of further assistance, please do not hesitate to contact us.

Sincerely, Terracon Consultants, Inc.

Fleetwood S. Hassell Jr, EIT Field Project Manager

Andy Ruocco

Environmental Department Manager

Terracon Consultants Inc. 1450 5th St. West North Charleston, SC 29405 P 843-884-1234 F 843-884-9234 terracon.com

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EXECUTIVE SUMMARY

This Phase I Environmental Site Assessment (ESA) was performed in accordance with Terracon Proposal No. PEN130158 dated June 18, 2013, and was conducted consistent with the procedures included in ASTM E 1527-05, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.* The ESA was conducted under the supervision or responsible charge of Andy Ruocco, Environmental Professional. Fleetwood S. Hassell Jr performed the site reconnaissance on June 26, 2013.

Findings

A cursory summary of findings is provided below. It should be recognized that details were not included or fully developed in this section, and the report must be read in its entirety for a comprehensive understanding of the items contained herein.

Site Description and Use

The project study area (PSA) is defined as being 150 feet from the centerline of South Carolina 126, beginning at Old Sudlow Lake Road to a point approximately 1,000 feet south of United States Highway 1. The PSA also includes the areas surrounding side roads, approximately 75 feet from centerline and approximately 300 feet in length. The PSA contains an approximate two mile stretch of South Carolina Highway 126, also known as Belvedere Clearwater Road, in North Augusta, South Carolina. The properties adjacent to the PSA are predominately developed with residential homes on the northern portion of the PSA and businesses on the southern portion of the PSA. Throughout the remainder of this report, South Carolina Highway 126 is referred to as Belvedere Clearwater Road. United States Highway 1 is referred to as Jefferson Davis Highway.

Historical Information

Historical research included a review of available topographic maps, aerial photographs, city directories, and interviews with adjacent property owners and employees of businesses located along the project site. Based on review of historical information, the PSA has contained a road since the 1940's. Properties adjacent to the road appear to have been developed with residential, commercial, and industrial facilities since the 1940's. A mill is evident along the southeastern boundary of the PSA from 1943 to present. Information obtained from interviews with property owners and employees of adjacent businesses indicated that adjacent facilities located along the PSA have been operated as vehicle repair facilities in the past. The mill and the historic auto repair facilities represent RECs to the PSA. See section 4.0 of this report for further information.



Records Review

Terracon reviewed available records for the PSA and surrounding properties including environmental database records and information obtained from interviews with state agency officials. Multiple regulated facilities were identified within the vicinity of the PSA that represent RECs based on regulatory status, groundwater flow, and distance in relation to the PSA. The RECs identified during the records review are described further in section 4.0 of the report and listed in the conclusions below.

Site Reconnaissance

Terracon conducted a site reconnaissance on June 26, 2013. Features of note included ASTs containing used motor oil and used antifreeze, groundwater monitoring wells, a pond, septic tank, gas pipeline markers, and pad and pole mounted transformers. The groundwater monitoring wells located at the Walgreens facility and the Clearwater Finishing facility are indicative of groundwater contamination on the PSA. These facilities are identified as RECs to the PSA as discussed in section 4.0.

Adjoining Properties

The north adjoining property consists of Belvedere Clearwater Road continuing north towards Interstate 520. The east adjoining properties, north of the intersection of Duncan Road and Belvedere Clearwater Road, contain residential homes. The east adjoining properties, south of the intersection of Duncan Road and Belvedere Clearwater Road, contain residential housing, undeveloped woodlands, and Clearwater Lake. The south adjoining property contains residential housing, the Clearwater Finishing and Seminole Mills, and the First Baptist Church Clearwater. The west adjoining property north and south of the intersection of Belvedere Clearwater Road and Jefferson Davis Highway consists of residential homes and woodlands. The west adjoining property along Jefferson Davis Highway consists of commercial businesses.

Conclusions

We have performed a Phase I ESA consistent with the procedures included in ASTM Practice E 1527-05 for South Carolina Highway 126 Improvements located in North Augusta, Aiken County, South Carolina. RECs were identified in connection with the PSA and include the following:

- First Stop Clearwater / Speedway Sunoco (Currently Walgreens) Gas Station / LUST at the corner of Belvedere Clearwater Road and Jefferson Davis Highway
 4368 and 4380 Jefferson Davis Highway
- Clearwater Finishing: Brownfield/CERCLIS/GCWI located on the southeastern portion of the PSA.
- Quality Automotive: Historic Auto Station located at 1001 Belvedere-Clearwater Road.



South Carolina Highway 126 Improvements
North Augusta, South Carolina July 12, 2013 Terracon Project No. EN137037

- William's Automotive: Historic Auto Station located at 899 Belvedere-Clearwater Road.
- Clearwater Auto Repairs / Clearwater Muffler Shop: Historic Auto Station located at 4367 Jefferson Davis Highway
- Body Shoppe: Historic Auto Station located at 101 Pineview Road.

Recommendations

Based on the scope of services, limitations, and findings of this assessment, Terracon recommends that the portions of the PSA located adjacent to the aforementioned RECs be evaluated for subsurface contamination.

PHASE I ENVIRONMENTAL SITE ASSESSMENT SOUTH CAROLINA HIGHWAY 126 IMPROVEMENTS SCDOT PIN 41446 NORTH AUGUSTA, AIKEN COUNTY, SOUTH CAROLINA

Terracon Project No. EN137037 July 12, 2013

1.0 INTRODUCTION

1.1 Site Description

Site Name	South Carolina Highway 126 (SCDOT PIN 41446)
Site Location/Address	South Carolina Highway 126 from Old Sudlow Lake Road to approximately 1,000 feet past the intersection of South Carolina Highway 126 and Jefferson Davis Highway, North Augusta, Aiken County, South Carolina
Land Area	Approximately two mile stretch of South Carolina Highway 126
Site Improvements	Properties located within the PSA boundaries included residential, commercial, and industrial facilities. The site is a two lane highway.

The PSA location is depicted on Exhibit 1 of Appendix A, which was reproduced from a portion of the USGS 7.5-minute series topographic map. A Site Diagram of the PSA and adjoining properties is included as Exhibit 2 of Appendix A. Acronyms and terms used in this report are described in Appendix B.

1.2 Scope of Services

This Phase I ESA was performed in accordance with Terracon Proposal No. PEN130158 dated June 18, 2013, and was conducted consistent with the procedures included in ASTM E 1527-05, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.* The purpose of this ESA was to assist the client in developing information to identify Recognized Environmental Conditions (RECs) in connection with the PSA as reflected by the scope of this report. This purpose was undertaken through user-provided information, a regulatory database review, historical and physical records review, interviews, including local government inquiries, as applicable, user-provided information, and a visual noninvasive reconnaissance of the site and adjoining properties. Limitations, ASTM deviations, and significant data gaps (if identified) are noted in the applicable sections of the report.



South Carolina Highway 126 Improvements North Augusta, South Carolina July 12, 2013 Terracon Project No. EN137037

1.3 Standard of Care

This ESA was performed in accordance with generally accepted practices of this profession, undertaken in similar studies at the same time and in the same geographical area. We have endeavored to meet this standard of care, but may be limited by conditions encountered during performance, a client-driven scope of work, or inability to review information not received by the report date. Where appropriate, these limitations are discussed in the text of the report, and an evaluation of their significance with respect to our findings has been conducted.

Phase I ESAs, such as the one performed at this PSA, are of limited scope, are noninvasive, and cannot eliminate the potential that hazardous, toxic, or petroleum substances are present or have been released at the PSA beyond what is identified by the limited scope of this ESA. In conducting the limited scope of services described herein, certain sources of information and public records were not reviewed. It should be recognized that environmental concerns may be documented in public records that were not reviewed. No ESA can wholly eliminate uncertainty regarding the potential for RECs in connection with a property. Performance of this practice is intended to reduce, but not eliminate, uncertainty regarding the potential for RECs. No warranties, express or implied, are intended or made. The limitations herein must be considered when the user of this report formulates opinions as to risks associated with the PSA or otherwise uses the report for any other purpose. These risks may be further evaluated – but not eliminated – through additional research or assessment. We will, upon request, advise you of additional research or assessment options that may be available and associated costs.

1.4 Additional Scope Limitations, ASTM Deviations and Significant Data Gaps

Based upon the agreed-on scope of services, this ESA did not include subsurface or other invasive assessments, business environmental risk evaluations, or other services not particularly identified and discussed herein, including an evaluation of vapor encroachment conditions. Credentials of the company (Statement of Qualifications) have not been included in this report but are available upon request. Pertinent documents are referred to in the text of this report, and a separate reference section has not been included. Reasonable attempts were made to obtain information within the scope and time constraints set forth by the client; however, in some instances, information requested is not, or was not, received by the issuance date of the report. Information obtained for this ESA was received from several sources that we believe to be reliable; nonetheless, the authenticity or reliability of these sources cannot and is not warranted hereunder.

An evaluation of the significance of these limitations and missing information with respect to our findings has been conducted, and where appropriate, significant data gaps are identified and discussed in the text of the report. However, it should be recognized that an evaluation of significant data gaps is based on the information available at the time of report issuance, and an evaluation of information received after the report issuance date may result in an alteration of our conclusions, recommendations, or opinions. We have no obligation to provide information



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obtained or discovered by us after the issuance date of the report, or to perform any additional services, regardless of whether the information would affect any conclusions, recommendations, or opinions in the report. This disclaimer specifically applies to any information that has not been provided by the client.

This report represents our service to you as of the report date and constitutes our final document; its text may not be altered after final issuance. Findings in this report are based upon the PSA's current utilization, information derived from the most recent reconnaissance and from other activities described herein; such information is subject to change. Certain indicators of the presence of hazardous substances or petroleum products may have been latent, inaccessible, unobservable, or not present during the most recent reconnaissance and may subsequently become observable (such as after PSA renovation or development). Further, these services are not to be construed as legal interpretation or advice.

1.5 Reliance

This ESA report is prepared for the exclusive use and reliance of Stantec Consulting Services, Inc. and the South Carolina Department of Transportation Use or reliance by any other party is prohibited without the written authorization of Stantec Consulting Services, Inc. and Terracon Consultants, Inc. (Terracon).

Reliance on the ESA by the client and all authorized parties will be subject to the terms, conditions and limitations stated in the proposal, ESA report, and Terracon's Agreement for Services. The limitation of liability defined in the Agreement for Services is the aggregate limit of Terracon's liability to the client and all relying parties.

Continued viability of this report is subject to ASTM E 1527-05 Sections 4.6 and 4.8. If the ESA will be used by a different user (third party) than the user for whom the ESA was originally prepared, the third party must also satisfy the user"s responsibilities in Section 6 of ASTM E 1527-05.

1.6 Client Provided Information

Prior to the site visit, the client was asked to provide the following user questionnaire information as described in ASTM E1527-05 Section 6.

Client Questionnaire Item	Client Did Not Respond	Client's Response	
	Yes	Yes	No
Aware of any Environmental Cleanup Liens against the site.	Х		
Actual Knowledge of Environmental Liens or Activity Use	Х		

Client Questionnaire Responses



South Carolina Highway 126 Improvements North Augusta, South Carolina July 12, 2013 Terracon Project No. EN137037

Limitations (AULs) that may encumber the site.		
Aware of any Specialized Knowledge or Experience related to the site or nearby properties.	Х	
Actual Knowledge of a Significantly Lower Purchase Price because of hazardous substances or petroleum products.	Х	
Commonly Known or Reasonably Ascertainable Information that is material to a release in connection with the site.	Х	
Obvious Indicators of Contamination at the site.	Х	

The client did not provide the requested User's information as of the issuance date of the report, Terracon assumes the client is evaluating the questionnaire information outside the context of the Terracon's Phase I ESA scope of work and report.

2.0 PHYSICAL SETTING

	Source			
Тород	Topography (Refer to Appendix A for an excerpt of the Topographic Map)			
Site Elevation	Approximately 180 - 240 feet (NGVD)			
Surface Runoff/ Topographic Gradient	Topo Surface Runoff towards the south, south east based on site observations	USGS Topographic Map, North Augusta		
Closest Surface Water	An unnamed tributary that runs parallel to the western boundary of the site and crosses under Belevedere- Clearwater Road just south of Woods Lane to Clearwater Lake.	Quadrangle, 1964 Map Revised [1984]		
	Soil Characteristics			
Soil Type	AeB: Ailey sand, 2 to 6 percent slopes Bc: Bibb loamy sand FuC: Fuquay sand, 6 to 10 percent slopes LaD: Lakeland sand, 6 to 15 percent slopes TrB: Troup sand, 0 to 6 percent slopes VaB: Vaucluse loamy sand, 2 to 6 percent slopes VcD: Vaucluse-Ailey complex, 6 to 15 percent slopes	Aiken County, South Carolina USDA-NRCS		
Description	AeB: This is a well-drained, gently sloping adjacent to major drainageways. The areas are long and narrow and range from 10 to 30 acres in size Bc: This is a poorly drained, nearly level soil on flood plains and in low, flat areas adjacent to small streams on the Coastal Plain. Most of the acreage is woodland. The rest is in either pasture or miscellaneous uses. FuC: This is a well-drained, sloping soil on narrow	2011		



South Carolina Highway 126 Improvements
North Augusta, South Carolina July 12, 2013 Terracon Project No. EN137037

Physical Setting Information Source		
	ridges and the adjacent side slopes on the Coastal Plain. The slopes are smooth to slightly irregular and convex. The individual areas are 5 to 50 acres in size. LaD: This is an excessively drained, sloping and strongly sloping, sandy soil on ridges and adjacent side slopes on the Coastal Plain. The slopes are complex and irregular. The individual areas are 5 to 100 acres in size. TrB: This is a well-drained, nearly level to gently sloping soil on broad ridges and side slopes on the Coastal Plain. Slopes are smooth and convex. The individual areas are 10 to 100 acres in size. VaB: This is a well-drained, gently sloping soil on ridgetops and short side slopes on the Coastal Plain. Slopes are irregular, undulating, and complex. Areas are 5 to 30 acres in size. VcD: This complex consists of small areas of Vaucluse and Ailey soils that are so intermingled that they could not be separated at the scale selected for mapping. The soils are sloping and strongly sloping and are on breaks along the drainageways. The areas range from	
	5 acres to 200 acres in size.	
	Geology/Hydrogeology	
	Aeb: Marine Terraces	
	Bc: Flood Plains FuC: Marine Terraces	
Formation	LaD: Marine Terraces	
Formation		
	TrB: Marine Terraces VaB: Marine Terraces	Aiken County, South
	VcD: Marine Terraces	Carolina USDA-NRCS
	AeB: Sandy and/or loamy marine deposits	Web Soil Survey
	Bc: Loamy fluviomarine deposits	issued October 4, 2011
	FuC: Sandy and/or loamy marine deposits	2011
Description	LaD: Sandy marine deposits	
Decemption	TrB: Sandy and/or loamy marine deposits	
	VaB: Loamy marine deposits	
	VcD: Loamy marine deposits	
Estimated Depth to First Occurrence of Groundwater	10 – 15 feet	Local Terracon Knowledge
*Hydrogeologic	Not known - may be inferred to be parallel to topograph	nic gradient (primarily to



South Carolina Highway 126 Improvements North Augusta, South Carolina July 12, 2013 Terracon Project No. EN137037

Physical Setting Information		Source
Gradient	the south, south east).	

* The groundwater flow direction and the depth to shallow, unconfined groundwater, if present, would likely vary depending upon seasonal variations in rainfall and other hydrogeological features. Without the benefit of on-site groundwater monitoring wells surveyed to a datum, groundwater depth and flow direction beneath the site cannot be directly ascertained.

3.0 HISTORICAL USE INFORMATION

Terracon reviewed the following historical sources for indications of RECs. A summary of the historical review is included at the end of the Historical Use Information section. Copies of selected historical documents are included in Appendix C.

3.1 Historical Topographic Maps

Readily available historical USGS topographic maps were reviewed to evaluate land development in connection with the PSA. Reviewed historical topographic maps are summarized below.

North Augusta, SC USGS Topographic Map: 1966 (1:24,000)

Direction	Description
Site	1966: Developed
North	1966: Developed
East	1966: Developed
South	1966: Developed
West	1966: Developed

Historical Topographic Maps

3.2 Historical Aerial Photographs

Selected historical aerial photographs were reviewed at approximately 10 to 15 year intervals, if readily available, to obtain information concerning the history of development on and near the PSA. Evaluation of these aerials may be limited by a photo's quality and scale. Selected photographs are summarized below.

- University of South Carolina Library: 1943, 1951, 1955, 1959, 1966, and 1971
- Google Earth: 2013

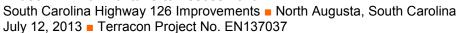


Historical Aerial Photographs

Direction	Description	
	1943 - 1955: North of the Duncan Road and Belvedere Clearwater Road Intersection: Some residential housing along with agriculture fields	
	1959 - 2013: North of the Duncan Road and Belvedere Clearwater Road Intersection: Developed with residential housing	
Site	1943 - 1951: South of the Duncan Road and Belvedere Clearwater Road Intersection: Woodlands and Agriculture fields, a mill is present along the south property boundary, Jefferson Davis Highway is present in 1951	
	1955: South of the Duncan Road and Belvedere Clearwater Road Intersection: Woodlands and Agriculture fields, several commercial and/or industrial facilities and the mill are present	
	1959 - 2013: South of the Duncan Road and Belvedere Clearwater Road Intersection: Woodlands, residential housing and commercial and/or industrial facilities and the mill are present along the south side of the PSA boundary	
North	1943 - 2013: Woodlands and residential housing; Interstate 520 becomes present in 2010	
	1943 - 1951: Woodlands, agricultural fields, Clearwater Lake	
East	1955: Sparsely wooded along northeast portion, developed with roads and wooded along the southeast portion, Clearwater Lake	
	1959 - 2013: Residential housing, sparsely wooded along northeast portion, woodlands along the southeast portion, Clearwater Lake	
South	1943 – 2013: Developed with residential housing and two mills	
West	1943 - 1951: Undeveloped with agriculture fields and woodlands	
vvesi	1955 - 2013: Developed with residential housing	

3.3 Historical City Directories

The Cross Reference city directories used in this study were made available through the Aiken County Library (selected years reviewed: 2002 - 1969) and were reviewed at approximate fiveyear intervals, if readily available. Since these references are copyright protected, reproductions are not provided in this report. City directories for the PSA were not listed prior to 1969. The current street address for the PSA was identified as Belvedere-Clearwater Road.





Historical City Directories

Direction	Description	
	793 Belvedere-Clearwater Rd: 2002: Jerico's; 1995: Harris Party Shop	
	793 Belvedere-Clearwater Rd: 2002 – 1990 Custom Air (Custom Air Control)	
	829 Belvedere-Clearwater Rd: 2002: Garvin's Used Cars	
	853 Belvedere-Clearwater Rd: 2002: Hattaway Insurance Agency	
	920 Belvedere-Clearwater Rd: 2002: St. John's Episcopal Church	
	946 Belvedere-Clearwater Rd: 2002: Graes Jim Home Improvements	
	1001 Belvedere-Clearwater Rd : 1995: William's Automotive; 1985 – 1979: Clearwater Auto Cir.; 1979: Styles Unlimited	
	1009 Belvedere-Clearwater Rd: 2002 – 1985: Signature Hair Design	
Site	1013 Belvedere-Clearwater Rd : 2002 – 1995: Tree of Life Ministries, Nelson Melvin Jr.; 1995: Garvins Bicycle & Lawn Mower Shop	
	*Unmapped: 1995: Clearwater Muffler Shop, Clearwater Volunteer Fire Department, Hattaway G M Insurance Agency; J & L Motors Sales; Nation Wide Ins. Co; 1990: Hattaway G M Insurance Agency, J & L Motors Sales, Nelson Melvin, Jr.; 1985: Belvedere Church of Christ, Hattaway G M Insurance Agency, J & L Motors Sale, Nationwide Ins. Co Agent, Nelson Melvin Jr., Prossers Sand & Gravel, Prosser"s Septic Tank Service, Ward Electronics; 1979: Belvedere Church of Christ, Black Door Club, Hattaway G M Insurance Agency, Nationwide Insurance Agency; 1974: Belvedere Church of Christ, Betty"s Health Spa, Black Door Club, Hiers Realty Inc, Munford Majik Market, Nelson Melvin Jr., Seven-Eleven Food Store	
North	750 Belvedere-Clearwater Rd : 2002 – 1995: Allied Fabricators & Construction, Pure Air	
	770 Belvedere-Clearwater Rd: 2002 – 1985: Ram Motor Company	
East	No-Listings	
South	No-Listings	
West	No-Listings	

*The City Directories reviewed did not contain location information; however, these facilities were documented on Belvedere Clearwater Road.

3.4 Historical Fire Insurance Maps

Historical fire insurance maps produced by the Sanborn Map Company were requested from EDR to evaluate past uses and relevant characteristics of the PSA and surrounding properties. Based upon inquiries to the above-listed Sanborn provider, Sanborn Maps were not available for the site.



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3.5 Site Ownership

The current right-of-ways owned and operated by the South Carolina Department of Transportation.

3.6 Title Search

At the direction of the client, a title search was not included as part of the scope of services. Unless notified otherwise, we assume that the client is evaluating this information outside the scope of this report.

3.7 Environmental Liens

Environmental lien records recorded against the PSA were not provided by the client. At the direction of the client, performance of a review of these records was not included as part of the scope of services and unless notified otherwise, we assume that the client is evaluating this information outside the scope of this report.

3.8 Historical and Site Interviews

The following individuals were interviewed regarding the current and historical use of the site.

Interviewees

Interviewer	Interviewee	Title	Date/Time
Fleetwood Hassell	Ben Wallace	Employee/Clearwater Auto Repair	6/26/13 – 9:00AM
Fleetwood Hassell	Ken Courey	Owner/Transmission Repair	6/26/13 – 9:30AM
Fleetwood Hassell	William Newton	Owner/William"s Automotive	6/26/13 – 11:30AM

Ben Wallace, an employee of Clearwater Auto Repair located at 4367 Jefferson Davis Highway, was not aware of any pending, threatened or past environmental litigation, proceedings or notices of possible violations of environmental laws or liability or potential environmental concerns in connection with the facility. Mr. Wallace indicated he had been with the property for eleven years. Mr. Wallace indicated that the property used to be an old service station. Mr. Wallace was not aware of any underground storage tanks on the facility used for the storage of petroleum or hazardous materials. Mr. Wallace indicated he was not aware of any pipelines, wells, or septic systems on the facility.

Ken Courey, owner of Transmission Repairs located at 1001 Belvedere Clearwater Road, was not aware of any pending, threatened or past environmental litigation, proceedings or notices of possible violations of environmental laws or liability or potential environmental concerns in connection with the facility. Mr. Courey indicated he has rented the property for the past one



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and a half years and used to rent the adjoining property, Auto Truck Services, before then. Mr. Courey indicated that the property has always been an automotive shop. Mr. Courey indicated he had used motor oil AST's behind his shop. Mr. Courey was not aware or any pipelines or wells on the facility but indicated that a septic tank is present behind the shop.

William Newton, owner of William's Automotive located at 899 Belvedere Clearwater Road, was not aware of any pending, threatened or past environmental litigation, proceedings or notices of possible violations of environmental laws or liability or potential environmental concerns in connection with the facility. Mr. Newton indicated he owned the facility for sixteen years. Mr. Newton indicated that the facility used to be a car lot. Mr. Newton indicated that a used motor oil and used antifreeze AST's were located behind his shop. Mr. Newton was not aware of any pipelines, wells, or septic systems on the facility.

3.9 **Prior Report Review**

Previous environmental reports for the PSA were not provided by the client to Terracon for review.

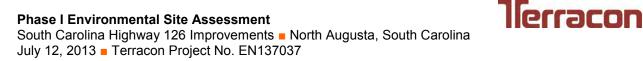
3.10 Historical Use Information Summary

Historical research included a review of available topographic maps, aerial photographs, city directories, and interviews with adjacent property owners and employees of businesses located along the PSA. Based on review of historical information, the PSA contained a road since the 1940's. Properties adjacent to the road appear to have been developed with residential, commercial, and industrial facilities since the 1940's. A mill is evident along the southern boundary of the PSA from 1943 to present. Information obtained from interviews with property owners and employees of adjacent businesses indicated that adjacent facilities located along the PSA have been operated as vehicle repair facilities in the past. The mill and the historic auto repair facilities represent RECs to the PSA. See section 4.0 of this report for further information.

4.0 RECORDS REVIEW

Regulatory database information was provided by EDR, a contract information services company. The purpose of the records review was to identify RECs in connection with the PSA. Evaluating identified regulated facilities for potential vapor intrusion conditions was outside the scope of this assessment. Information in this section is subject to the accuracy of the data provided by the information services company and the date at which the information is updated, and the scope herein did not include confirmation of facilities listed as "unmappable" by regulatory databases.

Based on Terracon's experience, undocumented USTs are often encountered during road widening projects. If USTs are encountered during the road widening project, SCDHEC should be contacted prior to removal or disposal.



In some of the following subsections, the words up-gradient, cross-gradient and down-gradient refer to the topographic gradient in relation to the PSA. As stated previously, the groundwater flow direction and the depth to shallow groundwater, if present, would likely vary depending upon seasonal variations in rainfall and the depth to the soil/bedrock interface. Without the benefit of on-site groundwater monitoring wells surveyed to a datum, groundwater depth and flow direction beneath the PSA cannot be directly ascertained.

4.1 Federal and State/Tribal Databases

Listed below are the facility listings identified on federal and state/tribal databases within the ASTM-required search distances from the approximate PSA boundaries. Database definition, descriptions, and the database search report are included in Appendix D.

Database	Description	Radius (miles)	Listings
CERCLIS	The CERCLIS database is a compilation of facilities which the EPA has investigated or is currently investigating for a release or threatened release of hazardous substances pursuant to the CERCLA of 1980.	1.0	2
CERCLIS / NFRAP	CERCLIS/NFRAP refers to facilities that have been removed and archived from EPA's inventory of CERCLA sites.	1.0	0
ERNS	The Emergency Response Notification System (ERNS) is a listing compiled by the EPA on reported releases of petroleum and hazardous substances to the air, soil and/or water.	Site	0
IC / EC	A listing of sites with institutional and/or engineering controls in place. IC include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls. EC include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.	Site	0
NPL	The NPL is the EPA's database of uncontrolled or abandoned hazardous waste facilities that have been listed for priority remedial actions under the Superfund Program.	1	0
NPL (Delisted)	The NPL (Delisted) refers to facilities that have been removed from the NPL.	0.5	0
RCRA CORRACTS/ TSD	The EPA maintains a database of RCRA facilities associated with treatment, storage, and disposal (TSD) of hazardous waste that are undergoing "corrective action." A "corrective action" order is issued when there has been a	1	0

Federal Databases



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Database	Description	Radius (miles)	Listings
	release of hazardous waste or constituents into the environment from a RCRA facility.		
RCRA Generators	The RCRA Generators database, maintained by the EPA, lists facilities that generate hazardous waste as part of their normal business practices. Generators are listed as either large (LQG), small (SQG), or conditionally exempt (CESQG). LQG produce at least 1000 kg/month of non-acutely hazardous waste or 1 kg/month of acutely hazardous waste. SQG produce 100-1000 kg/month of non-acutely hazardous waste. CESQG are those that generate less than 100 kg/month of non-acutely hazardous waste.	Site and adjoining properties	2
RCRA Non- CORRACTS/ TSD	The RCRA Non-CORRACTS/TSD Database is a compilation by the EPA of facilities which report storage, transportation, treatment, or disposal of hazardous waste. Unlike the RCRA CORRACTS/TSD database, the RCRA Non-CORRACTS/TSD database does not include RCRA facilities where corrective action is required.	0.5	0

State/Tribal Databases

Database	Description	Radius (miles)	Listings
AUL	The term Land Use Controls or "LUCs" encompass institutional controls, such as those involved in real estate interests, governmental permitting, zoning, public advisories, deed notices, and other legal restrictions. The term also includes restrictions on access, whether achieved by means of engineered barriers (e.g., fence or concrete pad) or by human means (e.g., the presence of security guards). Additionally, the term includes both affirmative measures to achieve the desired restrictions (e.g., night lighting of an area) and prohibitive directives (e.g., restrictions on certain types of wells for the duration of the corrective action). Considered altogether, the LUCs for a facility will provide a tool for how the property should be used in order to maintain the level of protectiveness that one or more corrective actions were designed to achieve.	Site	0
Brownfields	State and/or Tribal listing of Brownfield properties addressed by Cooperative Agreement Recipients or Targeted Brownfields Assessments.	0.5	1
LUST	State and/or Tribal database of leaking underground storage tanks in the state of South Carolina.	0.5	1
SHWS	The South Carolina Department of Health & Environmental Control (SCDHEC) maintains a municipal listing of state equivalent CERCLIS sites where contamination of soil and/or ground water is confirmed at levels greater than the applicable cleanup criteria or standards.	0.5	0
SWF/LF	State and/or Tribal database of solid waste facilities located within South Carolina. The database information may include the facility name, class, operation type, area,	0.5	1



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Database	Description	Radius (miles)	Listings
	estimated operational life, and owner.		
UST	State and/or Tribal database of registered storage tanks in the State of South Carolina which may include the owner and location of the tanks.	Site and adjoining properties	1
VCP	State and/or Tribal facilities included as Voluntary Cleanup Program sites.	0.5	0

In addition to the above ASTM-required listings, Terracon reviewed other federal, state, local, and proprietary databases provided by the database firm. A list of the additional reviewed databases is included in the regulatory database report included in Appendix D.

The following table summarizes the site-specific information provided by the database and/or gathered by this office for identified facilities. Facilities are listed in order of proximity to the PSA. Additional discussion for selected facilities follows the summary table.

Facility Name And Location	Estimated Distance/Direction/Gradient	Database Listings
William's Automotive		EDR US Hist Auto Stat
	Adjacent to the PSA / southwest /	
899 Belvedere-Clearwater Rd	down-gradient	AST
Body Shoppe	Adjacent to the PSA / west / up-	EDR US Hist Auto Stat
101 Pineview Dr	gradient	
Quality Automotive	Adjacent to the PSA / west / up-	EDR US Hist Auto Stat
1001 Belvedere Clearwater Rd	gradient	AST
BlueStar Rentals	Adjacent to the PSA / west / up-	AST
1007 Belvedere Clearwater Rd	gradient	
Speedway Sunoco	Adjacent to the PSA / west / up-	EDR US Hist Auto Stat
4368 Jefferson Davis Hwy	gradient	
First Stop Clearwater	Adjacent to the PSA / west / up-	LUST, UST, FINDS,
4380 Jefferson Davis Hwy	gradient	RCR
Clearwater Muffler Shop	Adjacent to the PSA / west / up-	EDR US Hist Auto Stat
4367 Jefferson Davis Hwy.	gradient	
CVS Pharmacy 4388	Adjacent to the PSA / east / down-	RCRA-CESQG
4295 Jefferson Davis Hwy	gradient	
Clearwater Finishing Site	Adjacent to the PSA / south / down-	BROWNFIELDS,
Sc Rd 126 At Us Hwy 1/78	gradient	CERCLIS, GWCI, PRP,
		RCRA-CESQG, UST
Seminole Mill	Approximately 1,000 feet / south /	CERCLIS
Belvedere Rd	down-gradient	
Southern Natural Gas Meter	Approximately 1,000 feet / south /	CERCLIS
Station SC11	down gradient	
Belvedere Road		

Listed Facilities



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Facility Name And Location	Estimated Distance/Direction/Gradient	Database Listings
Former Aiken Landfill	Approximately 3,200 feet / southeast /	SWF/LF
Intersection of South Carolina	down-gradient	
Highway 421 and Belvedere Road		
WAWA Express LLC	Approximately 650 feet / west / up-	UST, LUST
4444 Jefferson Davis Highway	gradient	

Based on review of regulatory database information, five Historic Automotive Stations, identified as Quality Automotive, Body Shoppe, Speedway Sunoco, Clearwater Muffler Shop, and William's Automotive, were located along the PSA boundary. These five facilities represent REC's to the PSA based on their location, historical and/or current use in relation to the PSA.

BlueStar Rentals, located at 1007 Clearwater Belvedere Road, is currently operating three ASTs. Please refer to section 5.3 for more information regarding this facility.

Based on review of regulatory database information, one underground storage tank (UST)/leaking underground storage tank (LUST) facility identified as First Stop Clearwater was located at 4380 Jefferson Davis Highway. Based on information obtained from EDR, the facility operate eight UST's. Six USTs contained gasoline and two contained diesel. The tanks are currently abandoned. The facility has reported three releases starting with one on December 29, 1989, then again on December 14, 1993, and the last release on July 13, 2007. The releases were issued a letter of no further action (NFA) on January 29, 2004, December 8, 1997, and March 27, 2012 respectfully. Ms. Stephanie Briney with SCDHEC was contacted regarding information for the facility. Ms. Briney indicated that the facility did not have an active release and the facility was last issued a no further action letter on March 27, 2013. Ms. Briney also indicated that based on the last report, the ground water flows to the southeast and samples recorded concentrations of Benzene (137 ug/L) and MTBE (295 ug/L). The First Stop Clearwater facility represents a REC to the PSA based on its regulatory status, groundwater flow, and relative distance from the PSA.

CVS Pharmacy is a RCRA generator of hazardous waste located at 4295 Jefferson Davis Highway. The facility is classified as a Conditionally Exempt Small Quantity Generator: Generates Less Than 100 Kg/Month of ignitable (D001) waste. No violations are documented for the facility. The facility does not represent a REC to the PSA based on its regulatory status.

The former Clearwater Finishing facility, located just south of the intersection Clearwater Belvedere Road and Jefferson Davis Highway, was identified as a Brownfield, Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), Groundwater Contamination Inventory Cases (GWCI), Potentially Responsible Parties (PRP), and Resource Conservation and Recovery Act Conditionally Exempt Small Quantity Generator (RCRA-CESQG) facility. The Clearwater Finishing facility is reported as an abandoned textile mill containing hazardous waste. Based on information obtained from the database report, the



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facility was issued as a low priority for further assessment on September 3, 2007. A (GWCI) facility is any facility that has groundwater contamination over a federal maximum contaminant level (MCL). Based on information obtained from the EDR Report, the groundwater is contaminated with Volatile Organic Compounds (VOCs) and metals and is currently in assessment and monitoring phases. Also according to the EDR report, the plume is discharging to an unnamed surface body of water. The facility is classified as a Conditionally Exempt Small Quantity Generators: Generates Less Than 100 Kg/Month of Hazardous Waste. Based on information obtained from the database review, no RCRA violations are documented for the facility. Terracon contacted Jerry Stamps with SCDHEC on July 2, 2013 at 1400 to obtain information regarding this facility. Mr. Stamps indicated that the property was assessed under the Brownfield Grant several years ago but did not have a report for the facility. Mr. Stamps indicated that Jo Morici with Concurrent Technologies Corporation had the report for the facility. Terracon tried to contact Jo Morici on July 2, 2013 at 1400 with Concurrent Technologies Corporation with requests for the report for this facility but was unable to get in touch with Mr. Morici. The Clearwater Finishing facility represents a REC to the PSA based on location, regulatory status, and documented groundwater contaminants.

Based on review of regulatory database information obtained from SCDHEC, the Seminole Mill facility is a CERCLIS facility and is documented as an old textile mill formerly known as United Merchants & Manufacturers with possible asbestos, lead paint, and fuel oil left in 25 ASTs. The Seminole Mill is located approximately 1,000 feet south of the PSA boundary. The Seminole Mill facility does not represent a REC to the PSA based on anticipated groundwater direction flow and relative distance in relation to the PSA.

Based on review of regulatory database information, the Southern Natural Gas Meter Station SC11 is documented as a CERCLIS facility. Based on database information obtained from SCDHEC, this facility is located on the same premises as the Seminole Mill. Southern Natural Gas Meter Station SC11 is documented as a gas metering facility on GA-SC gas pipeline with potential mercury contamination due to former use of Hg manometers at the PSA. The facility is a potential entry into the South Carolina Voluntary Cleanup Program (VCP). The Southern Natural Gas Meter Station SC11 does not represent a REC to the PSA based on documented distance and anticipated groundwater flow direction in relation to the PSA.

Based on review of regulatory database information, the Former Aiken County Landfill operated as a sanitary landfill. The Former Aiken County Landfill is located approximately 3,200 feet southeast of the PSA. A playground is now located on top of the landfill. The Former Aiken County Landfill does not represent a REC to the PSA based on groundwater direction flow and relative distance in relation to the PSA.

Based on review of regulatory database information, one UST/LUST facility, identified as WAWA Express LLC, was located at 4444 Jefferson Davis Highway, approximately 650 west of the PSA. This facility is documented as having three USTs, which are currently in use. The facility reported a release on 1/06/92 and was issued a NFA letter on 12/04/92. This facility does



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not represent a REC to the PSA based on relative distance and regulatory status.

The remaining facilities listed in the database report do not appear to represent RECs to the PSA at this time based upon regulatory status, apparent topographic gradient, and/or relative distance from the PSA.

Unmapped facilities are those that do not contain sufficient address or location information to evaluate the facility listing locations relative to the PSA. The report listed twenty-one facilities in the unmapped section. Determining the location of unmapped facilities is beyond the scope of this assessment; however, none of these facilities were identified as the PSA or adjacent properties. These facilities are listed in the database report in Appendix D.

4.2 Local Agency Inquiries

4.2.1 Health Department/Environmental Division

The South Carolina Department of Health and Environmental Control was contacted by phone regarding environmental records or information indicating environmental concerns for select listings identified in the data base report. See Section 4.1 for information obtained from SCDHEC.

4.2.2 Fire Department

The Midland Valley Fire Department was contacted by phone on July 3, 2013 regarding environmental records or information indicating environmental concerns for the PSA. The Fire Department informed Terracon of a service station located the intersection of United States Highway 1 (Jefferson Davis Highway) and Duncan Road in the 1960's and 1970's that had a LUST. This service station is located approximately 9,000 feet to the west of the PSA and does not represent a REC to the PSA. The Fire Department also indicated that they had responded to several car wrecks along Belvedere Clearwater Road.

4.3 Records Review Summary

Terracon reviewed available records for the PSA and surrounding properties including environmental database records and information obtained from interviews with state agency officials. Multiple regulated facilities were identified within the vicinity of the PSA that represent RECs based on regulatory status, groundwater flow, and distance in relation to the PSA. The RECs identified during the records review are described further above and listed in below.

The facilities that represent RECs to the PSA are:

 First Stop Clearwater / Speedway Sunoco (Currently Walgreens) Gas Station / LUST at the corner of Belvedere Clearwater Road and Jefferson Davis Highway
 4368 and 4380 Jefferson Davis Highway



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- Clearwater Finishing: Brownfield/CERCLIS/GCWI located on the southeastern portion of the PSA.
- Quality Automotive: Historic Auto Station located at 1001 Belvedere-Clearwater Road.
- William's Automotive: Historic Auto Station located at 899 Belvedere-Clearwater Road.

5.0 SITE RECONNAISSANCE

5.1 General Site Information

Information contained in this section is based on a visual reconnaissance conducted while walking through the PSA and the accessible interior areas of structures, if any, located on the PSA. Exhibit 2 in Appendix A is a Site Diagram of the PSA. Photo documentation of the PSA at the time of the visual reconnaissance is provided in Appendix E. Credentials of the individuals planning and conducting the site visit are included in Appendix F.

General Site Information

Site Reconnaissance		
Field Personnel	Fleetwood S. Hassell Jr,	
Reconnaissance Date	June 26, 2013	
Weather Conditions	Sunny, 85 degrees	
Site Contact/Title	Matt DeWitt – Stantec Consultants	

5.2 Overview of Current Site Occupants and Operations

The project study area (PSA) is defined as being 150 feet from the centerline of South Carolina 126, beginning at Old Sudlow Lake Road to a point approximately 1,000 feet south of United States Highway 1. The PSA also includes the areas surrounding side roads, approximately 75 feet from centerline and approximately 300 feet in length. The PSA contains an approximate two mile stretch of South Carolina Highway 126, also known as Belvedere Clearwater Road, in North Augusta, South Carolina. The properties adjacent to the PSA are predominately developed with residential homes on the northern portion of the PSA and businesses on the southern portion of the PSA.

5.3 Site Observations

The following table summarizes PSA observations and interviews. Affirmative responses (designated by an "X") are discussed in more detail following the table.



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Category	Item or Feature	Observed
	Emergency generators	
	Elevators	
	Air compressors	
	Hydraulic lifts	
Site Operations,	Dry cleaning	
Processes, and Equipment	Photo processing	
Equipmont	Ventilation hoods and/or incinerators	
	Waste treatment systems and/or water treatment systems	
	Heating and/or cooling systems	
	Other processes or equipment	
Aboveground	Aboveground storage tanks	Х
Chemical or	Drums, barrels and/or containers \ge 5 gallons	
Waste Storage	MSDS	
	Underground storage tanks or ancillary UST equipment	
Underground	Sumps, cisterns, catch basins and/or dry wells	
Chemical or	Grease traps	
Waste Storage, Drainage or Collection Systems	Septic tanks and/or leach fields	Х
	Oil/water separators	
	Pipeline markers	Х
	Interior floor drains	
Electrical	Transformers and/or capacitors	Х
Transformers/ PCBs	Other equipment	

Site Characteristics



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Category	Item or Feature	Observed
	Stressed vegetation	
	Stained soil	
	Stained pavement or similar surface	
	Leachate and/or waste seeps	
	Trash, debris and/or other waste materials	
Releases or Potential Releases	Dumping or disposal areas	
	Construction/demolition debris and/or dumped fill dirt	
	Surface water discoloration, odor, sheen, and/or free floating product	
	Strong, pungent or noxious odors	
	Exterior pipe discharges and/or other effluent discharges	
Other Notable Site Features	Surface water bodies	Х
	Quarries or pits	
	Wells	Х

Aboveground Chemical or Waste Storage

Aboveground storage tanks

Three facilities located along the site boundary contained ASTs. BlueStar Rental property, located at 1007 Clearwater Belvedere Road, contained three ASTs. The ASTs were viewed from the site and public right of way; however, contents could not be determined. Based on visual observation, the ASTs were located on top of a concrete slab and appeared to be approximately 500 gallons in size. No evidence of spills or releases were observed in the vicinity of the tanks. The BlueStar ASTs do not represent a REC to the PSA.

One AST and one polyethylene tote were observed behind William's Automotive Shop. The AST contained used motor oil and appeared to be 300 gallons in size. The polyethylene tote appeared to be 250 - 300 gallons in size and contained used antifreeze. The AST and tote are serviced by Palmetto Oil Company. The used motor oil AST and polyethylene tote represent RECs to the site.

Mr. Ken Courey, owner of Transmission Repair and located at 1001 Clearwater Belvedere Road indicated that he has used motor oil AST's behind his shop. The size and location of the tanks are unknown and represent a REC to the PSA.



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Underground Chemical or Waste Storage, Drainage or Collection Systems

Septic tanks and/or leach fields

Ken Courey, owner of Transmission Repair and located at 1001 Clearwater Belvedere Road, informed Terracon of a septic tank located behind his building. Stressed vegetation or noxious odors were not observed in the vicinity of the on-site septic system. The septic system does not represent a REC to the PSA.

Pipeline markers

Pipeline markers were observed north of the intersection of Duncan Road and Belvedere Clearwater Road and just north of the Walgreen's entrance on Belvedere Clearwater Road. Associated labeling indicated that the pipeline contained natural gas and was owned by SCE&G. The natural gas line does not represent a REC to the PSA.

Electrical Transformers/PCBs

Transformers and/or capacitors

During Terracon's site visit, one pad-mounted and seven pole-mounted transformers, owned and serviced by SCE&G, were observed throughout the PSA; however, no information with regard to PCB content of the transformer fluids was observed. Some transformers contain mineral oil which may contain PCBs.

SCE&G maintains responsibility for the transformers, and if the transformers were "PCB contaminated," the utility company is not required to replace the transformer fluids until a release is identified. However, evidence of current or prior release was not observed in the vicinity of the electrical equipment during the site reconnaissance.

Other Notable Site Features

Surface water bodies

A pond was observed on the PSA south of the intersection of Duncan Road and Belvedere Clearwater Road. No evidence of chemical sheens was observed on the surface of the waters, and no noxious odors were noted emanating from within the pond at the time of the site reconnaissance.

Wells

Six groundwater monitoring wells were observed on the PSA. Five of the monitoring wells were located around the Walgreen's facility (formerly First Stop Clearwater) located at 4380 Jefferson Davis Highway and one monitoring well was located on the Clearwater Finishing premises. According to SCDHEC, the monitoring wells were installed to monitor the concentrations of contaminants in the groundwater.



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5.4 Site Reconnaissance Summary

Terracon conducted a site reconnaissance on June 26, 2013. Features of note included ASTs containing used motor oil and used antifreeze, groundwater monitoring wells, a pond, septic tank, gas pipeline markers, and pad and pole mounted transformers. The groundwater monitoring wells located at the Walgreens facility and the Clearwater Finishing facility are indicative of groundwater contamination on the PSA. These facilities are identified as RECs to the PSA as discussed in section 4.0.

6.0 ADJOINING PROPERTY RECONNAISSANCE

Visual observations of adjoining properties (from site boundaries) are summarized below.

Direction	Description	
North	Woodlands, Residential homes	
East	Clear Water Lake, Undeveloped woodlands, Residential homes	
South	Residential homes, Clearwater Finishing Site, Seminole Mill, First Baptist Church Clearwater	
West	Residential homes, Woodlands	

Adjoining Properties

The north adjoining property consists of Belvedere Clearwater Road continuing north towards Interstate 520. The east adjoining properties, north of the intersection of Duncan Road and Belvedere Clearwater Road, contain residential homes. The east adjoining properties, south of the intersection of Duncan Road and Belvedere Clearwater Road, contain residential housing, undeveloped woodlands, and Clearwater Lake. The south adjoining property contains residential housing, the Clearwater Finishing and Seminole Mills, and the First Baptist Church Clearwater. The west adjoining property north and south of the intersection of Belvedere Clearwater Road and Jefferson Davis Highway consists of residential homes and woodlands. The west adjoining property along Jefferson Davis Highway consists of commercial businesses.

7.0 ADDITIONAL SERVICES

Per the agreed scope of services specified in the proposal, additional services (e.g. asbestos sampling, lead-based paint sampling, wetlands evaluation, lead in drinking water testing, radon testing, vapor encroachment screening, etc.) were not conducted.

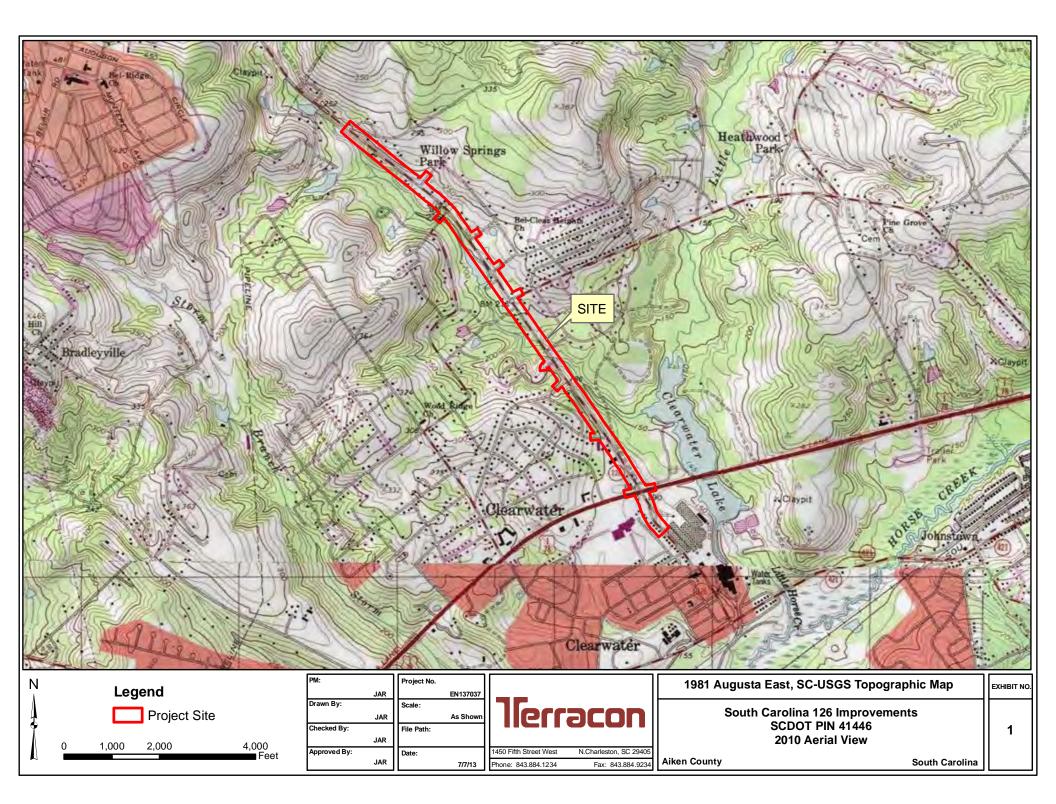


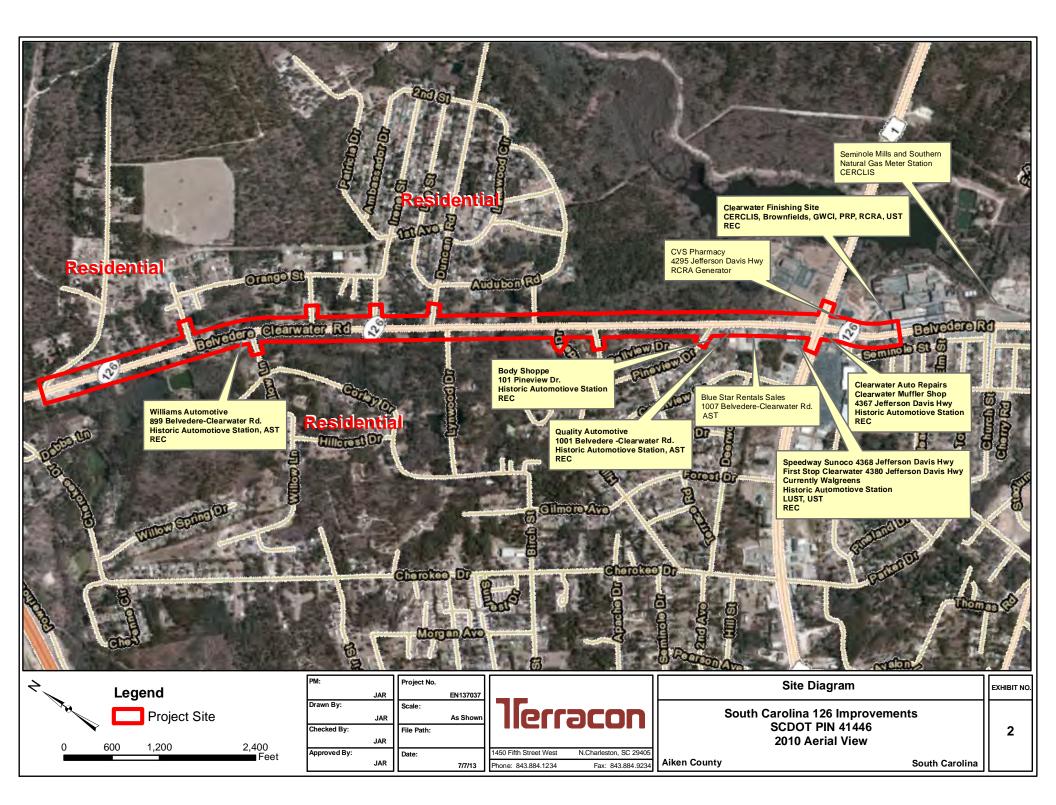
South Carolina Highway 126 Improvements North Augusta, South Carolina July 12, 2013 Terracon Project No. EN137037

8.0 DECLARATION

I, Andy Ruocco, declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in Section 312.10 of 40 CFR 312; and I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the site. I have developed and performed the All Appropriate Inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

APPENDIX A EXHIBIT 1 – TOPOGRAPHIC MAP EXHIBIT 2 – SITE DIAGRAM





APPENDIX B DESCRIPTION OF TERMS AND ACRONYMS

Term/Acronym	onym Description	
ACM	Asbestos Containing Material. Asbestos is a naturally occurring mineral, three varieties of which (chrysotile, amosite, crocidolite) have beer commonly used as fireproofing or binding agents in construction materials. Exposure to asbestos, as well as ACM, has been documented to cause lung diseases including asbestosis (scarring of the lung), lung cancer and mesothelioma (a cancer of the lung lining).	
	Regulatory agencies have generally defined ACM as a material containing greater that one (1) percent asbestos, however some states (e.g. California) define ACM as materials having 0.1% asbestos. In order to define a homogenous material as non-ACM, a minimum number or samples must be collected from the material dependent upon its type and quantity. Homogenous materials defined as non-ACM must either have 1) no asbestos identified in all of its samples or 2) an identified asbestos concentration below the appropriate regulatory threshold Asbestos concentrations are generally determined using polarized light microscopy or transmission electron microscopy. Point counting is ar analytical method to statistically quantify the percentage of asbestos in a sample. The asbestos component of ACM may either be friable or non-friable. Friable materials, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure and have a higher potential for a fiber release than non-friable ACM. Non-friable ACM are materials that are firmly bound in a matrix by plastic, cement, etc. and, if handled carefully, will not become friable.	
	Federal and state regulations require that either all suspect building materials be presumed ACM or that an asbestos survey be performed prior to renovation, dismantling, demolition, or other activities that may disturb potential ACM. Notifications are required prior to demolition and/or renovation activities that may impact the condition of ACM in a building. ACM removal may be required if the ACM is likely to be disturbed or damaged during the demolition or renovation. Abatement of friable or potentially friable ACM must be performed by a licensed abatement contractor in accordance with state rules and NESHAP. Additionally, OSHA regulations for work classification, worker training and worker protection will apply.	
AHERA	Asbestos Hazard Emergency Response Act	
AST	Above Ground Storage Tanks. ASTs are generally described as storage tanks less than 10% of which are below ground (i.e., buried). Tanks located in a basement, but not buried, are also considered ASTs. Whether, and the extent to which, an AST is regulated, is determined on a case-by-case basis and depends upon tank size, its contents and the jurisdiction of its location.	
BGS	Below Ground Surface	
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes. BTEX are VOC components found in gasoline and commonly used as analytical indicators of a petroleum hydrocarbon release.	
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act (a.k.a. Superfund). CERCLA is the federal act that regulates abandoned or uncontrolled hazardous waste sites. Under this Act, joint and several liability may be imposed on potentially responsible parties for cleanup-related costs.	
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System. An EPA compilation of sites having suspected or actual releases of hazardous substances to the environment. CERCLIS also contains information on site inspections, preliminary assessments and remediation of hazardous waste sites. These sites are typically reported to EPA by states and municipalities or by third parties pursuant to CERCLA Section 103.	
CESQG	Conditionally exempt small quantity generators.	
CFR	Code of Federal Regulations	
DOT	U.S. Department of Transportation	

Description of Selected General Terms and Acronyms (cont.)

Term/Acronym	Description	
EPA	U.S. Environmental Protection Agency	
ERNS	Emergency Response Notification System. An EPA-maintained federal database which stores information on notifications of oil discharges and hazardous substance releases in quantities greater than the applicable reportable quantity under CERCLA. ERNS is a cooperative data-sharing effort between EPA, DOT, and the National Response Center.	
ESA	Environmental Site Assessment	
FRP	Fiberglass Reinforced Plastic	
Hazardous Substance	As defined under CERCLA, this is (A) any substance designated pursuant to section 1321(b)(2)(A) of Title 33, (B) any element, compound, mixture, solution, or substance designated pursuant to section 9602 of this title; (C) any hazardous waste having characteristics identified under or listed pursuant to section 3001 of the Solid Waste Disposal Act (with some exclusions); (D) any toxic pollutant listed under section 1317(a) of Title 33; (E) any hazardous air pollutant listed under section 112 of the Clean Air Act; and (F) any imminently hazardous chemical substance or mixture with respect to which the EPA Administrator has taken action under section 2606 of Title 15. This term does not include petroleum, including crude oil or any fraction thereof which is not otherwise listed as a hazardous substance under subparagraphs (A) through (F) above, and the term include natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).	
Hazardous Waste	This is defined as having characteristics identified or listed under section 3001 of the Solid Waste Disposal Act (with some exceptions). RCRA, as amended by the Solid Waste Disposal Act of 1980, defines this term as a "solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed."	
ILP	Innocent Landowner/Operator Program	
LQG	Large quantity generators.	
LUST	Leaking Underground Storage Tank. This is a federal term set forth under RCRA for leaking USTs. Some states also utilize this term.	
MCL	Maximum Contaminant Level. This Safe Drinking Water concept (and also used by many states as a ground water cleanup criteria) refers to the limit on drinking water contamination that determines whether a supplier can deliver water from a specific source without treatment.	
MSDS	Material Safety Data Sheets. Written/printed forms prepared by chemical manufacturers, importers and employers which identify the physical and chemical traits of hazardous chemicals under OSHA's Hazard Communication Standard.	
NESHAP	National Emissions Standard for Hazardous Air Pollutants (Federal Clean Air Act). This part of the Clean Air Act regulates emissions of hazardous air pollutants.	
NFRAP	Facilities where there is "No Further Remedial Action Planned," as more particularly described under the Records Review section of this report.	
NOV	Notice of Violation. A notice of violation or similar citation issued to an entity, company or individual by a state or federal regulatory body indicating a violation of applicable rule or regulations has been identified.	
NPDES	National Pollutant Discharge Elimination System (Clean Water Act). The federal permit system for discharges of polluted water.	
NPL	National Priorities List, as more particularly described under the Records Review section of this report.	
OSHA	Occupational Safety and Health Administration or Occupational Safety and Health Act	
PACM	Presumed Asbestos-Containing Material. A material that is suspected of containing or presumed to contain asbestos but which has not been analyzed to confirm the presence or absence of asbestos.	

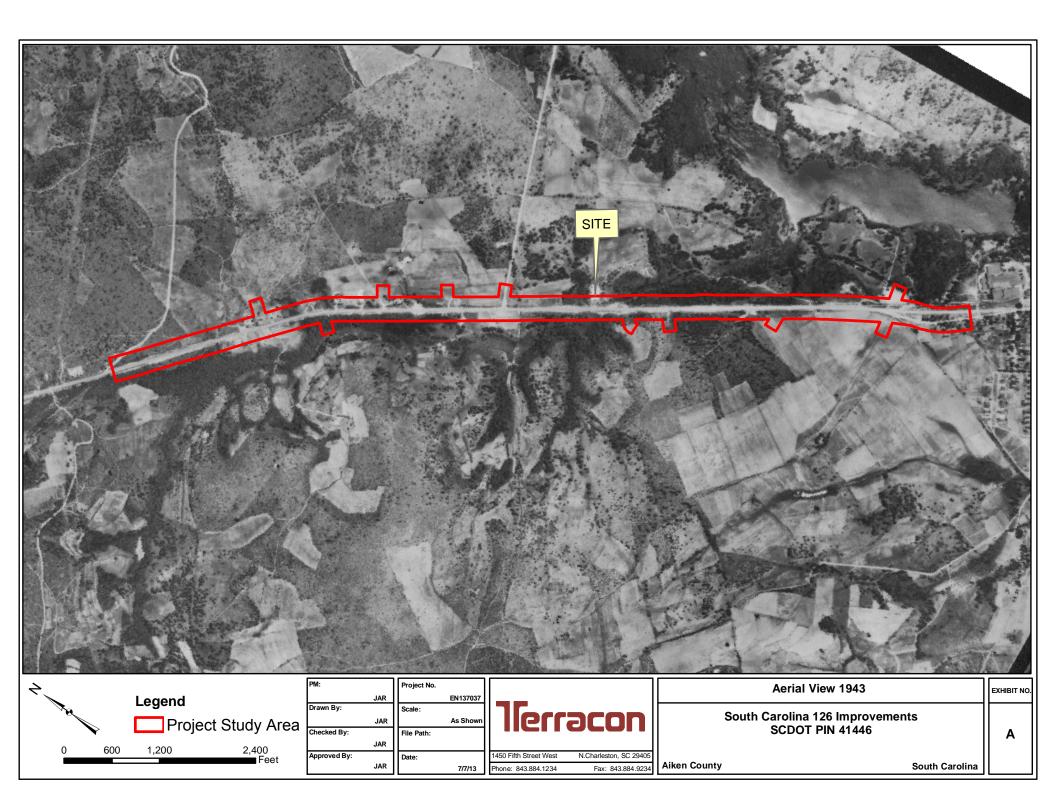
Description of Selected General Terms and Acronyms (cont.)

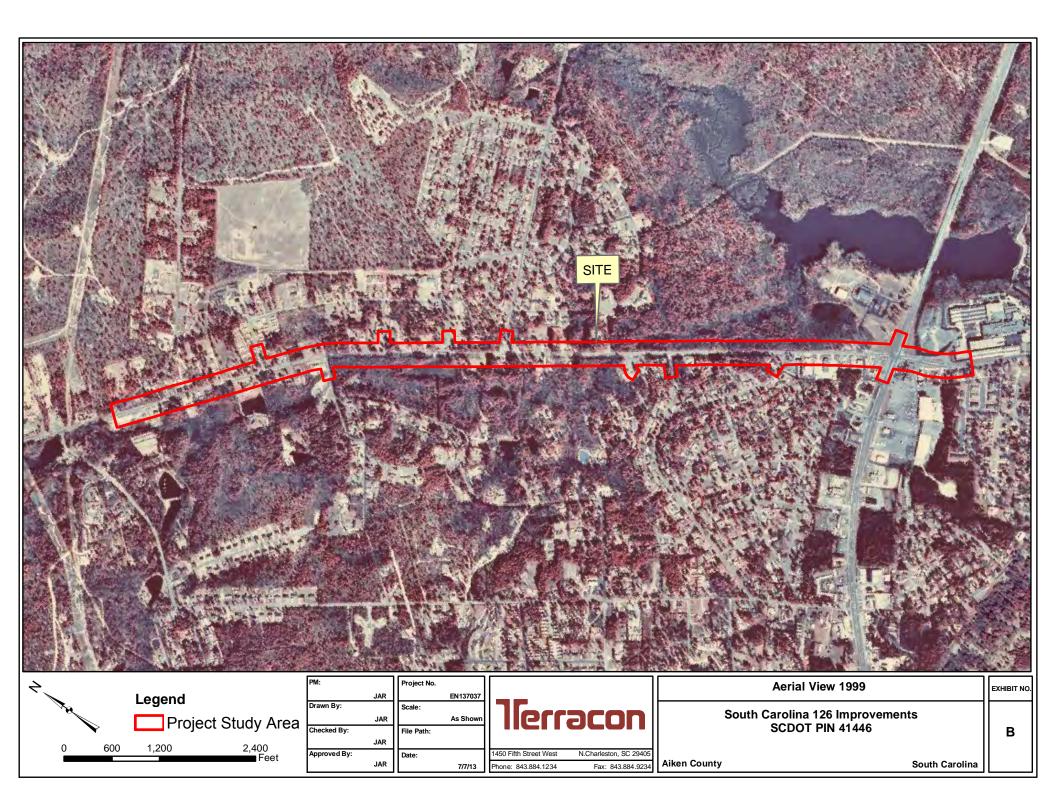
Term/Acronym	Description
PCB	Polychlorinated Biphenyl. A halogenated organic compound commonly in the form of a viscous liquid or resin, a flowing yellow oil, or a waxy solid. This compound was historically used as dielectric fluid in electrical equipment (such as electrical transformers and capacitors, electrical ballasts, hydraulic and heat transfer fluids), and for numerous heat and fire sensitive applications. PCB was preferred due to its durability, stability (even at high temperatures), good chemical resistance, low volatility, flammability, and conductivity. PCBs, however, do not break down in the environment and are classified by the EPA as a suspected carcinogen. 1978 regulations, under the Toxic Substances Control Act, prohibit manufacturing of PCB-containing equipment; however, some of this equipment may still be in use today.
pCi/l	Pico Curies per Liter of Air. Unit of measurement for Radon and similar radioactive materials.
PLM	Polarized Light Microscopy (see ACM section of the report, if included in the scope of services)
PST	Petroleum Storage Tank. An AST or UST that contains a petroleum product.
Radon	A radioactive gas resulting from radioactive decay of naturally-occurring radioactive materials in rocks and soils containing uranium, granite, shale, phosphate, and pitchblende. Radon concentrations are measured in Pico Curies per Liter of Air. Exposure to elevated levels of radon creates a risk of lung cancer; this risk generally increases as the level of radon and the duration of exposure increases. Outdoors, radon is diluted to such low concentrations that it usually does not present a health concern. However, radon can accumulate in building basements or similar enclosed spaces to levels that can pose a risk to human health. Indoor radon concentrations depend primarily upon the building's construction, design and the concentration of radon in the underlying soil and ground water. The EPA recommended annual average indoor "action level" concentration for residential structures is 4.0 pCi/l.
RCRA	Resource Conservation and Recovery Act. Federal act regulating solid and hazardous wastes from point of generation to time of disposal ("cradle to grave"). 42 U.S.C. 6901 et seq.
RCRA Generators	The RCRA generators list is part of the RCRIS database maintained by EPA and lists facilities that generate hazardous waste as part of their normal business operations, as more particularly defined under Section 4.1 of this report.
RCRA CORRACTS/TS Ds	The USEPA maintains a database of RCRA facilities associated with treatment, storage, and disposal (TSD) of hazardous materials which are undergoing "corrective action". A "corrective action" order is issued when there is a release of hazardous waste or constituents into the environment from a RCRA facility.
RCRA Non- CORRACTS/TS Ds	The RCRA Non-CORRACTS/TSD Database is a compilation by the USEPA of facilities which report storage, transportation, treatment, or disposal of hazardous waste. Unlike the RCRA CORRACTS/TSD database, the RCRA Non-CORRACTS/TSD database does not include RCRA facilities where corrective action is required.
RCRA Violators List	RAATS. RCRA Administrative Actions Taken. RAATS information is now contained in the RCRIS database and includes records of administrative enforcement actions against facilities for noncompliance.
RCRIS	Resource Conservation and Recovery Information System, as defined in the Records Review section of this report.
REC	Recognized Environmental Conditions" are defined by ASTM E1527-05 as "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions of compliance with laws. The term is not intended to include <i>de minimis</i> conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies."
SCL	State "CERCLIS" List (see SPL /State Priority List, below).

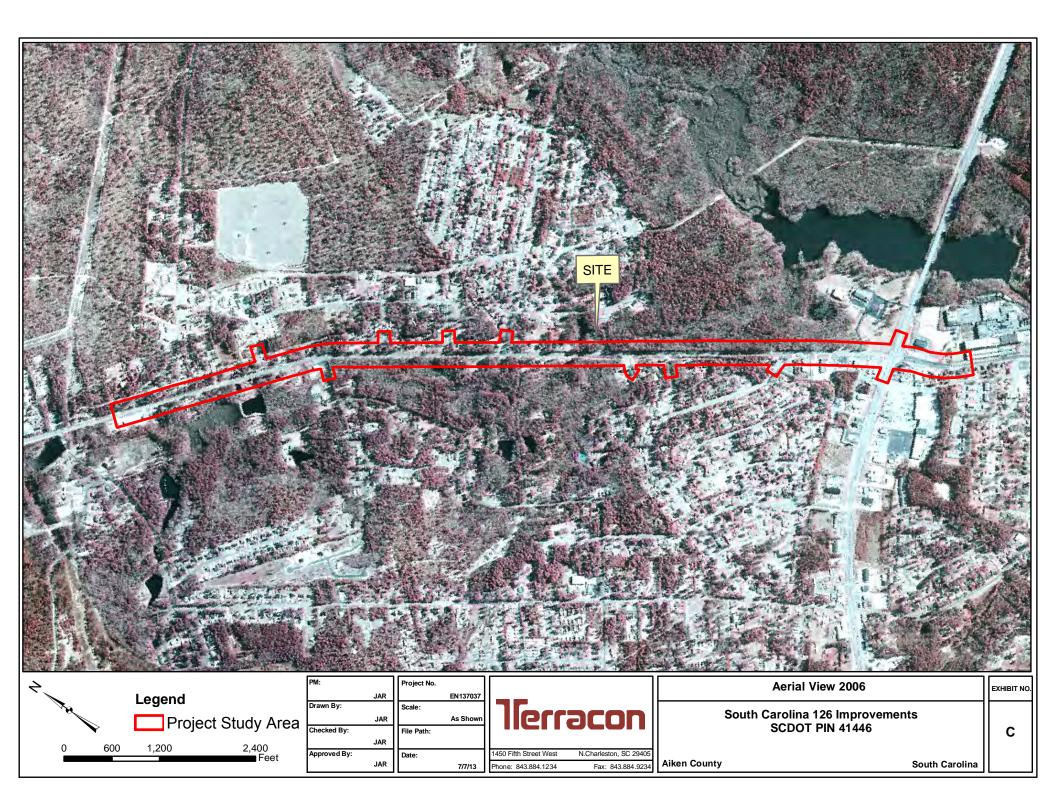
Description of Selected General Terms and Acronyms (cont.)

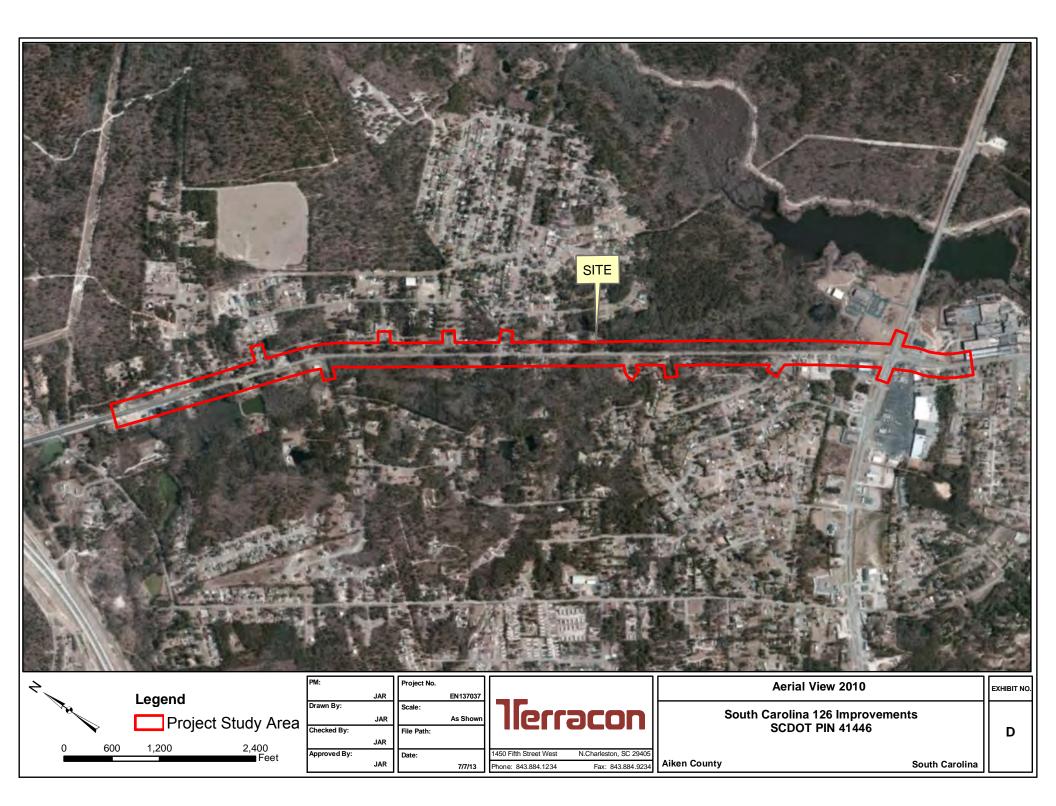
Term/Acronym	Description	
SPCC	Spill Prevention, Control and Countermeasures. SPCC plans are required under federal law (Clean Water Act and Oil Pollution Act) for any facility storing petroleum in tanks and/or containers of 55-gallons or more that when taken in aggregate exceed 1,320 gallons. SPCC plans are also required for facilities with underground petroleum storage tanks with capacities of over 42,000 gallons. Many states have similar spill prevention programs, which may have additional requirements.	
SPL	State Priority List. State list of confirmed sites having contamination in which the state is actively involved in clean up activities or is actively pursuing potentially responsible parties for clean up. Sometimes referred to as a State "CERCLIS" List.	
SQG	Small quantity generator.	
SWF	Solid Waste Facility	
TPH	Total Petroleum Hydrocarbons	
TRI	Toxic Release Inventory. Routine EPA report on releases of toxic chemicals to the environment based upon information submitted by entities subject to reporting under the Emergency Planning and Community Right to Know Act.	
TSCA	Toxic Substances Control Act. A federal law regulating manufacture, import, processing and distribution of chemical substances not specifically regulated by other federal laws (such as asbestos, PCBs, lead-based paint and radon). 15 U.S.C 2601 et seq.	
USACE	United States Army Corps of Engineers	
USC	United States Code	
USGS	United States Geological Survey	
USNRCS	United States Department of Agriculture-Natural Resource Conservation Service	
UST	Underground Storage Tank. Most federal and state regulations, as well as ASTM E1527-05, define this as any tank, incl., underground piping connected to the tank, that is or has been used to contain hazardous substances or petroleum products and the volume of which is 10% or more beneath the surface of the ground (i.e., buried).	
VCP	Voluntary Cleanup Program	
VOC	Volatile Organic Compound	
	Areas that are typically saturated with surface or ground water that creates an environment supportive of wetland vegetation (i.e., swamps, marshes, bogs). The <u>Corps of Engineers Wetlands Delineation Manual</u> (Technical Report Y-87-1) defines wetlands as areas inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. For an area to be considered a jurisdictional wetland, it must meet the following criteria: more than 50 percent of the dominant plant species must be categorized as Obligate, Facultative Wetland, or Facultative on lists of plant species that occur in wetlands; the soil must be hydric; and, wetland hydrology must be present.	
Wetlands	The federal Clean Water Act which regulates "waters of the US," also regulates wetlands, a program jointly administered by the USACE and the EPA. Waters of the U.S. are defined as: (1) waters used in interstate or foreign commerce, including all waters subject to the ebb and flow of tides; (2) all interstate waters including interstate wetlands; (3) all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, etc., which the use, degradation, or destruction could affect interstate/ foreign commerce; (4) all impoundments of waters otherwise defined as waters of the U.S., (5) tributaries of waters identified in 1 through 4 above; (6) the territorial seas; and (7) wetlands adjacent to waters identified in 1 through 6 above. Only the USACE has the authority to make a final wetlands jurisdictional determination.	

APPENDIX C HISTORICAL DOCUMENTATION AND USER QUESTIONNAIRE





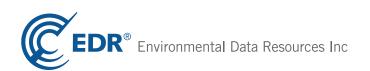




APPENDIX D ENVIRONMENTAL DATABASE INFORMATION SC Highway 126 SC Highway 126 North Augusta, SC 29841

Inquiry Number: 3640461.2s June 18, 2013

The EDR Radius Map[™] Report with GeoCheck®



440 Wheelers Farms Road Milford, CT 06461 Toll Free: 800.352.0050 www.edrnet.com

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Thank you for your business. Please contact EDR at 1-800-352-0050 with any questions or comments.

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A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

SC HIGHWAY 126 NORTH AUGUSTA, SC 29841

COORDINATES

Latitude (North):	33.5153000 - 33° 30' 55.08"
Longitude (West):	81.9074000 - 81° 54' 26.64"
Universal Tranverse Mercator:	Zone 17
UTM X (Meters):	415727.4
UTM Y (Meters):	3708591.2
Elevation:	211 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	33081-E8 NORTH AUGUSTA, SC GA
Most Recent Revision:	1980

2010, 2011

USDA

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from: Source:

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL..... National Priority List

Proposed NPL_____ Proposed National Priority List Sites NPL LIENS_____ Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL..... National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY_____ Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP..... CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF_____ RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG______RCRA - Large Quantity Generators RCRA-SQG______RCRA - Small Quantity Generators

Federal institutional controls / engineering controls registries

US ENG CONTROLS...... Engineering Controls Sites List US INST CONTROL...... Sites with Institutional Controls LUCIS...... Land Use Control Information System

Federal ERNS list

ERNS..... Emergency Response Notification System

State- and tribal - equivalent CERCLIS

SHWS_____ Site Assessment Section Project List

State and tribal landfill and/or solid waste disposal site lists

SWF/LF_____ Permitted Landfills List

State and tribal leaking storage tank lists

INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

AST	Aboveground Storage Tank List
	Underground Storage Tanks on Indian Land
FEMA UST	Underground Storage Tank Listing

State and tribal institutional control / engineering control registries

AUL_____ Land Use Controls

State and tribal voluntary cleanup sites

INDIAN VCP...... Voluntary Cleanup Priority Listing VCP...... Voluntary Cleanup Sites

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

ODI	Open Dump Inventory
DEBRIS REGION 9	Torres Martinez Reservation Illegal Dump Site Locations
SWRCY	Solid Waste Recycling Facilities
INDIAN ODI	Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

ALLSITES	Site Assessment & Remediation Public Record Database
US HIST CDL	National Clandestine Laboratory Register

Local Land Records

LIENS 2..... CERCLA Lien Information

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
SPILLS.	
SPILLS 90	SPILLS 90 data from FirstSearch
SPILLS 80	SPILLS 80 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR DOT OPS	Incident and Accident Data
DOD	Department of Defense Sites
FUDS	Formerly Used Defense Sites
CONSENT	Superfund (CERCLA) Consent Decrees
ROD	Records Of Decision
UMTRA	Uranium Mill Tailings Sites
US MINES	Mines Master Index File
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide
	Act)/TSCA (Toxic Substances Control Act)
HIST FTTS	_ FIFRA/TSCA Tracking System Administrative Case Listing

	Section 7 Tracking Systems Integrated Compliance Information System
	PCB Activity Database System
	Material Licensing Tracking System
	Radiation Information Database
RAATS	_ RCRA Administrative Action Tracking System
RMP	
UIC	Underground Injection Wells Listing
DRYCLEANERS	
	. Waste Water Treatment Facilities Listing
	Permitted Airs Facility Listing
INDIAN RESERV	
	State Coalition for Remediation of Drycleaners Listing
	2020 Corrective Action Program List
	Aerometric Information Retrieval System Facility Subsystem
LEAD SMELTERS	
	- Financial Assurance Information Listing
	. Financial Assurance Information
	PCB Transformer Registration Database
COAL ASH	1
	Steam-Electric Plant Operation Data
	- Coal Combustion Residues Surface Impoundments List

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP.....EDR Proprietary Manufactured Gas Plants EDR US Hist Cleaners......EDR Exclusive Historic Dry Cleaners

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.

Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in **bold italics** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Federal CERCLIS list

CERCLIS: The Comprehensive Environmental Response, Compensation and Liability Information System contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive

Environmental Response, Compensation and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

A review of the CERCLIS list, as provided by EDR, and dated 02/04/2013 has revealed that there is 1 CERCLIS site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CLEARWATER FINISHING SITE	SC RD 126 AT US HWY 1/7	S 1/2 - 1 (0.984 mi.)	15	16

Federal RCRA generators list

RCRA-CESQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

A review of the RCRA-CESQG list, as provided by EDR, and dated 02/12/2013 has revealed that there are 2 RCRA-CESQG sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CVS PHARMACY 4388	4295 JEFFERSON DAVIS HW	S 1/2 - 1 (0.939 mi.)	13	14
CLEARWATER FINISHING SITE	SC RD 126 AT US HWY 1/7	S 1/2 - 1 (0.984 mi.)	15	16

State and tribal leaking storage tank lists

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the Department of Health & Environmental Control's Leaking UST list.

A review of the LUST list, as provided by EDR, and dated 02/05/2013 has revealed that there is 1 LUST site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
FIRST STOP CLEARWATER	4380 JEFFERSON DAVIS HW	S 1/2 - 1 (0.996 mi.)	B20	28
No Action Required: 01/29/04				
No Action Required: 12/08/97				
No Action Required: 03/27/12				

State and tribal registered storage tank lists

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Health & Environmental Control's list: Comprehensive Underground Storage Tanks.

A review of the UST list, as provided by EDR, and dated 11/26/2012 has revealed that there is 1 UST

site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
FIRST STOP CLEARWATER	4380 JEFFERSON DAVIS HW	/ S 1/2 - 1 (0.996 mi.)	B20	28

State and tribal institutional control / engineering control registries

RCR: The Bureau of Land and Waste Management established this Registry to help monitor and maintain sites that have conditional remedies. A Conditional Remedy is an environmental remedy that includes certain qualifications. These qualifications are divided into two major categories: Remedies requiring Land Use Controls and Conditional No Further Actions.

A review of the RCR list, as provided by EDR, and dated 09/19/2012 has revealed that there is 1 RCR site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
FIRST STOP CLEARWATER	4368 JEFFERSON DAVIS HW	′S 1/2 - 1 (0.985 mi.)	B17	26

State and tribal Brownfields sites

BROWNFIELDS: The Brownfields component of the Voluntary Cleanup Program allows a non responsible party to acquire a contaminated property with State Superfund liability protection for existing contamination by agreeing to perform an environmental assessment and/or remediation.

A review of the BROWNFIELDS list, as provided by EDR, and dated 02/26/2013 has revealed that there is 1 BROWNFIELDS site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CLEARWATER FINISHING SITE	SC RD 126 AT US HWY 1/7	S 1/2 - 1 (0.984 mi.)	15	16

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Hazardous waste / Contaminated Sites

US CDL: A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

A review of the US CDL list, as provided by EDR, and dated 03/04/2013 has revealed that there is 1 US CDL site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
213 CRESTVIEW DRIVE	213 CRESTVIEW DRIVE	S 1/2 - 1 (0.519 mi.)	5	8

EXECUTIVE SUMMARY

CDL: A listing of clandestine drug lab site locations.

A review of the CDL list, as provided by EDR, and dated 01/24/2012 has revealed that there are 2 CDL sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
Not reported	256 CHESTNUT AVE	SW 1/2 - 1 (0.910 mi.)	10	10
ALSO SEE RECORD 204	320-A APACHE DRIVE	SSW 1/2 - 1 (0.913 mi.)	11	12

Other Ascertainable Records

FINDS: The Facility Index System contains both facility information and "pointers" to other sources of information that contain more detail. These include: RCRIS; Permit Compliance System (PCS); Aerometric Information Retrieval System (AIRS); FATES (FIFRA [Federal Insecticide Fungicide Rodenticide Act] and TSCA Enforcement System, FTTS [FIFRA/TSCA Tracking System]; CERCLIS; DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes); Federal Underground Injection Control (FURS); Federal Reporting Data System (FRDS); Surface Impoundments (SIA); TSCA Chemicals in Commerce Information System (CICS); PADS; RCRA-J (medical waste transporters/disposers); TRIS; and TSCA. The source of this database is the U.S. EPA/NTIS.

A review of the FINDS list, as provided by EDR, and dated 10/23/2011 has revealed that there are 6 FINDS sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
BEN FEAGIN	223 LEE ST	NE 1/4 - 1/2 (0.301 mi.)	1	7
HANCOCK MHP	214 NORTHSIDE DR	S 1/4 - 1/2 (0.319 mi.)	2	7
BAKER ENTERPRISES LLC	110 HILLSIDE DR	S 1/2 - 1 (0.786 mi.)	9	10
SOUTHEAST LAND DEVELOPMENT CO	348 OLD SUBLOW LAKE RD	N 1/2 - 1 (0.924 mi.)	12	13
FIRST STOP CLEARWATER	4368 JEFFERSON DAVIS HW	S 1/2 - 1 (0.985 mi.)	B17	26
Lower Elevation	Address	Direction / Distance	Map ID	Page
RANDALL S ARNOLD DMD	99 CRESTVIEW DR	SSE 1/2 - 1 (0.759 mi.)	8	9

GWCI: Groundwater Contamination Inventory Cases. Any site that has groundwater contamination over a federal MCL.

A review of the GWCI list, as provided by EDR, and dated 07/01/2008 has revealed that there is 1 GWCI site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CLEARWATER FINISHING SITE	SC RD 126 AT US HWY 1/7	S 1/2 - 1 (0.984 mi.)	15	16

PRP: A listing of verified Potentially Responsible Parties

A review of the PRP list, as provided by EDR, and dated 12/02/2012 has revealed that there is 1 PRP site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
CLEARWATER FINISHING SITE	SC RD 126 AT US HWY 1/7	S 1/2 - 1 (0.984 mi.)	15	16

EXECUTIVE SUMMARY

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR US Hist Auto Stat: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR US Hist Auto Stat list, as provided by EDR, has revealed that there are 8 EDR US Hist Auto Stat sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
Not reported	899 BELVEDERE CLEARWAT	- NW 1/4 - 1/2 (0.409 mi.)	A3	7
Not reported	899 BELVEDERE CLEARWAT	NW 1/4 - 1/2 (0.409 mi.)	A4	8
Not reported	601 PEARSON AVE	SSW 1/2 - 1 (0.942 mi.)	14	16
Not reported	412 JACKSON RD	WSW 1/2 - 1 (0.985 mi.)	16	26
Not reported	4368 JEFFERSON DAVIS H	S 1/2 - 1 (0.985 mi.)	B18	27
Not reported	4367 JEFFERSON DAVIS H	S 1/2 - 1 (0.993 mi.)	B19	27
Lower Elevation	Address	Direction / Distance	Map ID	Page
Not reported	1001 BELVEDERE CLEARWA	SE 1/2 - 1 (0.557 mi.)	6	9
Not reported	101 PINEVIEW DR	SE 1/2 - 1 (0.664 mi.)	7	9

EXECUTIVE SUMMARY

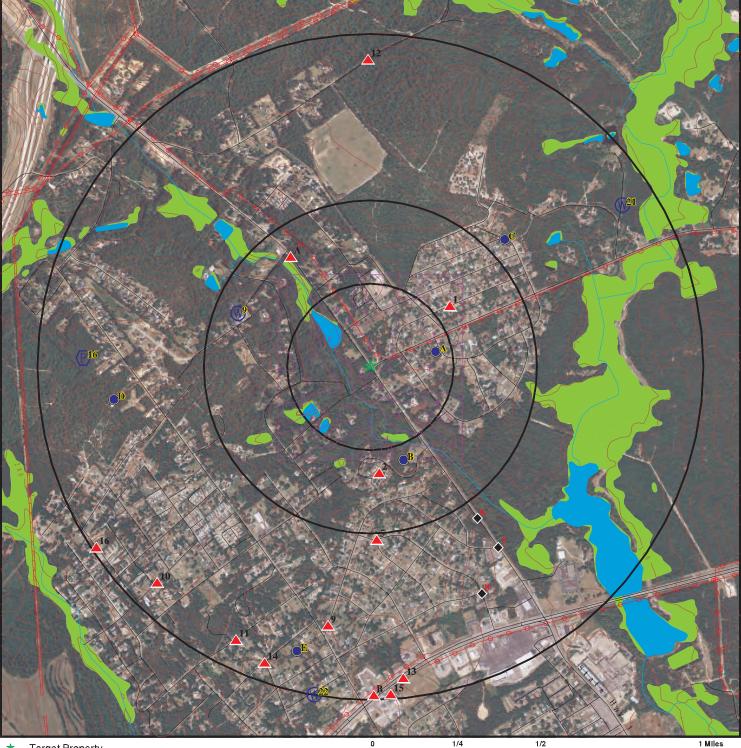
Due to poor or inadequate address information, the following sites were not mapped. Count: 21 records.

Site Name

PACTIV CORPORATION - BEECH ISLAND, PACTIV CORP - BEECH ISLAND **TENNECO PACKAGING SPECIALTY & CONS** PACTIV - BEECH ISLAND HORSE CREEK POLLUTION CONTROL FACI AUGUSTA CONCRETE BLOCK AIKEN PSA/HORSE CREEK WWTF GRANITEVILLE CEMETARY DUMP WAWA EXPRESS LLC ABF FREIGHT SYSTEM **INTERSTATE-N AUGUSTA R L MCKIE & SONS** REYNOLDS GROCERY PHILLIPS PIPELINE - SWEETWATER BP OIL-SITE #23776 JM HUBER GRANITEVILLE OPR AIKEN COUNTY PUBLIC SERVICE VIKING FREIGHT N AUGUSTA G L WILLIAMS/HIGHWAY 49 MINE OIL SPILL (KENAN TRANSPORT, LLC) PACTIV CORPORATION

Database(s) RMP RMP RMP RMP RMP AIRS NPDES CERCLIS-NFRAP, HWS LUST,UST LUST,UST LUST,UST UST UST AST FINDS,RCRA-NLR FINDS,RCRA-NLR RCRA-NLR FINDS,RCRA-NLR FINDS ICIS ICIS

OVERVIEW MAP - 3640461.2s



- Target Property ★
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites



Indian Reservations BIA Power transmission lines Oil & Gas pipelines from USGS National Wetland Inventory State Wetlands

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

Ħ

SC Highway 126 SC Highway 126 North Augusta SC 29841 33.5153 / 81.9074 SITE NAME: ADDRESS: LAT/LONG:

CLIENT: CONTACT: Terracon Andy Ruocco INQUIRY #: 3640461.2s DATE: June 18, 2013 3:43 pm

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DETAIL MAP - 3640461.2s



- ★ Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors 4
- National Priority List Sites
- Dept. Defense Sites



Indian Reservations BIA Power transmission lines Oil & Gas pipelines from USGS National Wetland Inventory State Wetlands

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

Ħ

SITE NAME:	SC Highway 126
ADDRESS:	SC Highway 126
	North Augusta SC 29841
LAT/LONG:	33.5153 <i> </i> 81.9074

CLIENT: Terracon CONTACT: Andy Ruocco INQUIRY #: 3640461.2s DATE: June 18, 2013 3:44 pm Copyright © 2013 EDR, Inc. © 2010 Tele Atlas Rel. 07/2009.

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	>1	Total Plotted
STANDARD ENVIRONMEN	TAL RECORDS							
Federal NPL site list								
NPL Proposed NPL NPL LIENS	1.000 1.000 1.000		0 0 0	0 0 0	0 0 0	0 0 0	NR NR NR	0 0 0
Federal Delisted NPL sit	te list							
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
CERCLIS FEDERAL FACILITY	1.000 1.000		0 0	0 0	0 0	1 0	NR NR	1 0
Federal CERCLIS NFRA	P site List							
CERC-NFRAP	1.000		0	0	0	0	NR	0
Federal RCRA CORRAC	TS facilities li	st						
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-COR	RACTS TSD f	acilities list						
RCRA-TSDF	1.000		0	0	0	0	NR	0
Federal RCRA generator	rs list							
RCRA-LQG RCRA-SQG RCRA-CESQG	1.000 1.000 1.000		0 0 0	0 0 0	0 0 0	0 0 2	NR NR NR	0 0 2
Federal institutional con engineering controls reg								
US ENG CONTROLS US INST CONTROL LUCIS	1.000 1.000 1.000		0 0 0	0 0 0	0 0 0	0 0 0	NR NR NR	0 0 0
Federal ERNS list								
ERNS	1.000		0	0	0	0	NR	0
State- and tribal - equiva	alent CERCLIS	5						
SHWS	1.000		0	0	0	0	NR	0
State and tribal landfill a solid waste disposal site								
SWF/LF	1.000		0	0	0	0	NR	0
State and tribal leaking	storage tank l	ists						
LUST INDIAN LUST	1.000 1.000		0 0	0 0	0 0	1 0	NR NR	1 0
State and tribal registere	ed storage tar	nk lists						
UST	1.000		0	0	0	1	NR	1

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
AST INDIAN UST FEMA UST	1.000 1.000 1.000		0 0 0	0 0 0	0 0 0	0 0 0	NR NR NR	0 0 0
State and tribal institut control / engineering co		s						
RCR AUL	1.000 1.000		0 0	0 0	0 0	1 0	NR NR	1 0
State and tribal volunta	ry cleanup site	es						
INDIAN VCP VCP	1.000 1.000		0 0	0 0	0 0	0 0	NR NR	0 0
State and tribal Brownf	ields sites							
BROWNFIELDS	1.000		0	0	0	1	NR	1
ADDITIONAL ENVIRONME	NTAL RECORD	<u>s</u>						
Local Brownfield lists								
US BROWNFIELDS	1.000		0	0	0	0	NR	0
Local Lists of Landfill / Waste Disposal Sites	Solid							
ODI DEBRIS REGION 9 SWRCY INDIAN ODI	1.000 1.000 1.000 1.000		0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	NR NR NR NR	0 0 0 0
Local Lists of Hazardou Contaminated Sites	is waste /							
US CDL ALLSITES CDL US HIST CDL	1.000 1.000 1.000 1.000		0 0 0	0 0 0 0	0 0 0 0	1 0 2 0	NR NR NR NR	1 0 2 0
Local Land Records								
LIENS 2	1.000		0	0	0	0	NR	0
Records of Emergency	Release Repo	rts						
HMIRS SPILLS SPILLS 90 SPILLS 80	1.000 1.000 1.000 1.000		0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	NR NR NR NR	0 0 0 0
Other Ascertainable Re	cords							
RCRA NonGen / NLR DOT OPS DOD FUDS CONSENT	1.000 1.000 1.000 1.000 1.000		0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	NR NR NR NR	0 0 0 0

MAP FINDINGS SUMMARY

	Search Distance	Target						Total
Database	(Miles)	Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Plotted
ROD	1.000		0	0	0	0	NR	0
UMTRA	1.000		0	0	0	0	NR	0
US MINES	1.000		0	0	0	0	NR	0
TRIS	1.000		0	0	0	0	NR	0
TSCA	1.000		0	0	0	0	NR	0
FTTS	1.000		0	0	0	0	NR	0
HIST FTTS	1.000		0	0	0	0	NR	0
SSTS	1.000		0	0	0	0	NR	0
ICIS	1.000		0	0	0	0	NR	0
PADS	1.000		0	0	0	0	NR	0
MLTS	1.000		0	0	0	0	NR	0
RADINFO	1.000		0	0	0	0	NR	0
FINDS	1.000		0	0	2	4	NR	6
RAATS	1.000		0	0	0	0	NR	0
RMP	1.000		0	0	0	0	NR	0
GWCI	1.000		0	0	0	1	NR	1
UIC	1.000		0	0	0	0	NR	0
DRYCLEANERS	1.000		0	0	0	0	NR	0
NPDES	1.000		0	0	0	0	NR	0
AIRS	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	1.000		0	0	0	0	NR	0
PRP	1.000		0	0	0	1	NR	1
2020 COR ACTION	1.000		0	0	0	0	NR	0
	1.000		0	0	0	0	NR	0
LEAD SMELTERS	1.000		0	0	0	0	NR	0
Financial Assurance	1.000		0	0	0	0	NR	0
EPA WATCH LIST US FIN ASSUR	1.000 1.000		0 0	0 0	0 0	0 0	NR NR	0 0
PCB TRANSFORMER	1.000		0	0	0	0	NR	0
COAL ASH	1.000		0	0	0	0	NR	0
COAL ASH	1.000		0	0	0	0	NR	0
COAL ASH EPA	1.000		0	0	0	0	NR	0
COAL ASITEFA	1.000		0	0	0	0	ININ	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR US Hist Auto Stat	1.000		0	0	2	6	NR	8
EDR US Hist Cleaners	1.000		Ō	Ō	0	Ō	NR	Ō

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Map ID		MAP FINDINGS				
Direction Distance Elevation	Site	4	Database(s)	EDR ID Number EPA ID Number		
1 NE 1/4-1/2 0.301 mi. 1590 ft.	BEN FEAGIN 223 LEE ST BATH, SC 29816		FINDS	1008009162 N/A		
Relative: Higher	FINDS:					
Actual:	Registry ID:	110002182334				
276 ft.		erest/Information System SC-EFIS (South Carolina - Environmental Facility Information System) integrates information on environmental facilities, permits, violations, enforcement actions, and compliance activities needed to support regulatory requirements and target environmental quality improvements for the water, air, solid waste, and hazardous waste program areas. The EFIS was developed by the state of South Carolina and Maine joined their system in 2004.	a			
2 South 1/4-1/2 0.319 mi. 1685 ft.	HANCOCK MHP 214 NORTHSIDE DR NORTH AUGUSTA, SC	29841	FINDS	1007224667 N/A		
Relative: Higher	FINDS:					
Actual:	Registry ID:	110016957293				
224 ft.						
A3 NW 1/4-1/2 0.409 mi. 2160 ft.	899 BELVEDERE CLE NORTH AUGUSTA, SC Site 1 of 2 in cluster A	ARWATER RD 29841	list Auto Stat	1015665208 N/A		
Relative:	EDR Historical Auto Name:	Stations: WILLIAMS AUTOMOTIVE				
Higher Actual:	Year: Address:	2002 899 BELVEDERE CLEARWATER RD				
212 ft.	Name:	WILLIAMS AUTOMOTIVE				
	Year: Address:	2005 899 BELVEDERE CLEARWATER RD				
	Name: Year:	WILLIAMS AUTOMOTIVE 2006				
	Address:	899 BELVEDERE CLEARWATER RD				

Database(s)

EDR ID Number EPA ID Number

(Continued)		1015665208
Name: Year:	WILLIAMS AUTOMOTIVE 2007	
Address:	899 BELVEDERE CLEARWATER RD	
Name:	WILLIAMS AUTOMOTIVE	
Year:	2008	
Address:	899 BELVEDERE CLEARWATER RD	
Name:	WILLIAMS AUTOMOTIVE	
Year:	2009	
Address:	899 BELVEDERE CLEARWATER RD	
Name:	WILLIAMS AUTOMOTIVE	
Year:	2010	
Address:	899 BELVEDERE CLEARWATER RD	
Name:	WILLIAMS AUTOMOTIVE	
Year:	2011	
Address:	899 BELVEDERE CLEARWATER RD	
Name:	WILLIAMS AUTOMOTIVE	
Year:	2012	
Address:	899 BELVEDERE CLEARWATER RD	

A4 NW 1/4-1/2 0.409 mi. 2160 ft.	899 BELVEDERE CLEAF NORTH AUGUSTA, SC 2 Site 2 of 2 in cluster A		EDR US Hist Aut	to Stat	1015665209 N/A
Relative:	EDR Historical Auto Sta	tions:			
Higher	Name:	WILLIAMS AUTOMOTIVE			
ingilo	Year:	2000			
Actual: 212 ft.	Address:	899 BELVEDERE CLEARWATER			
	Name:	WILLIAMS AUTOMOTIVE			
	Year:	2001			
	Address:	899 BELVEDERE CLEARWATER			
5 South 1/2-1 0.519 mi. 2740 ft.	213 CRESTVIEW DRIVE 213 CRESTVIEW DRIVE NORTH AUGUSTA, SC		U	S CDL	1014208320 N/A

US CDL: Relative: Seizure Date: 8/17/2010 Higher

Actual: 276 ft.

Map ID Direction		MAP FINDINGS		
Distance Elevation	Site		Database(s)	EDR ID Number EPA ID Number
6 SE 1/2-1 0.557 mi. 2941 ft.	1001 BELVEDERE C NORTH AUGUSTA, S		EDR US Hist Auto Stat	1015120641 N/A
Relative:	EDR Historical Auto	o Stations:		
Lower	Name:	QUALITY AUTOMOTIVE		
	Year:	2010		
Actual: 195 ft.	Address:	1001 BELVEDERE CLEARWATER RD		
	Name:	QUALITY AUTOMOTIVE		
	Year:	2011		
	A 1 1			

Address:	1001 BELVEDERE CLEARWATER RD
Name: Year: Address:	QUALITY AUTOMOTIVE 2012 1001 BELVEDERE CLEARWATER RD

7 SE

1/2-1 0.664 mi.

EDR US Hist Auto Stat 1015124683 N/A

3507 ft.		
Relative: Lower	EDR Historical Auto Name: Year:	BODY SHOPPE 2002
Actual: 192 ft.	Address: Name: Year: Address:	101 PINEVIEW DR BODY SHOPPE 2003 101 PINEVIEW DR

101 PINEVIEW DR NORTH AUGUSTA, SC 29841

8 SSE 1/2-1 0.759 mi. 4005 ft.	RANDALL S ARNOL 99 CRESTVIEW DR CLEARWATER, SC		FINDS	1007257669 N/A
Relative: Lower	FINDS:			
Lower	Registry ID:	110017306459		
Actual:				
205 ft.	Environmental I	nterest/Information System		
		SC-EFIS (South Carolina - Environmental Facility Information System)		
		integrates information on environmental facilities, permits,		
		violations, enforcement actions, and compliance activities needed to		
		support regulatory requirements and target environmental quality		
		improvements for the water, air, solid waste, and hazardous waste		
		program areas. The EFIS was developed by the state of South Carolina		

and Maine joined their system in 2004.

Map ID		MAP FINDINGS		
Direction Distance Elevation	Site		Database(s)	EDR ID Number EPA ID Number
9 South 1/2-1 0.786 mi. 4151 ft.	BAKER ENTERPRISES LLC 110 HILLSIDE DR WAGENER, SC 29164		FINDS	1007235720 N/A
Relative: Higher	FINDS:			
Actual:	Registry ID: 110017	071498		
259 ft.	integrates informatio violations, enforcem support regulatory re improvements for the	olina - Environmental Facility Information Syst n on environmental facilities, permits, ent actions, and compliance activities needed equirements and target environmental quality e water, air, solid waste, and hazardous waste EFIS was developed by the state of South Ca	0	
10 SW 1/2-1 0.910 mi. 4807 ft.	256 CHESTNUT AVE NORTH AGUSTA, SC		CDL	S109683420 N/A
Relative:	CDL:			
Higher	Lab/Seizure Unit # (Apt, Room Numbe Latitude:	Not reported		
Actual: 339 ft.	Longitude: QA/QC Id #: Id Num Of GIS Data Point: Has Call Been Verified To Be True: EFIS Report Number: Did DHEC Respond To The Site In Any Direct Threat Of Environment Or Public Type Of Report-Lab Seizure: Report Chemicals/Glassware/Equipme Report-Dumpsite Seizure: Official Police Report Or Case Number Seizure Date: Law Enforcement Agency In Charge (C Originating Agency Identification (Ori) I Law Enforcement Agency In Charge S Leo Case Or File Title: Name Of Person Reporting Incident: Telephone Number Of Caller: Seizure Location - Apartment, Condo: Seizure Location - Hotel Or Motel: Seizure Location - Out Building (Shed, Seizure Location - Family Dwelling Hot Seizure Location - Family Dwelling Mot	Not reported 598 598 598 No 0 y Way?: No c Health?: No No nt Seizure: No No r: Not reported 4/7/2008 Senerator): Aiken County Sheriff Number: 0 ity: Not reported 4/7/2008 Senerator): Aiken County Sheriff Number: 0 ity: Not reported Not reported No No No Sere: No Other NonApartment MultiStructure: No No No		

Map ID Direction Distance Elevation Site

EDR ID Number EPA ID Number

Database(s)

(Continued)

ontinued)		
Neighborhood - Commercial Or Industrial:	No	
Neighborhood - Public Land - Check Box:	No	
Neighborhood - Public Land - Name:	Not reported	
Neighborhood - Rural:	No	
Neighborhood - Suburban:	No	
Neighborhood - Other - Check Box:	No	
Neighborhood - Other - Describe:	Not reported	
Neighborhood - Urban:	No	
Lab Status - Operational, Not In Production:	No	
Lab Status - Operational, In Production:	No	
Lab Status - Abandoned:	No	
Lab Status - Boxed Or Dismantled:	No	
Lab Status - Fire Or Explosion:	No	
Lab Status - Other, Check Box:	No	
Lab Status - Other, Describe:	Not reported	
Lab Mfg Proc-Ephedrin,RedP,HydriodicAcidAnd	•	
LMP-Pseudoephedrin, RedP, HydriodicAcid And		
Lab Mfg Process-P2p / Methylamine:	No	
Lab Mfg Process-Hydrogenation:	No	
LMP-Ephedrin,(Nazi/Birch)-Lithium,Sodium,Pota	assium,AnhydrousAmmoniaNo	
LMP-Pseudoephedrin,(Nazi/Birch)-Lithium,Sodi		
Lab Mfg Process-Hydriodic Acid Method:	No	
Lab Mfg Process-Anhydrous Ammonia Manufac	turing: No	
Lab Mfg Process-Ephedrine Tablet Extraction:	No	
Lab Mfg Process-Pseudoephedrine Tablet Extra	action: No	
Lab Mfg Process-Other, Describe:	No	
Lab Mfg Process-Other, Describe:	Not report	ed
Lab Type - Amphetamine:	0	
Lab Type - Hydriodic Acid:	0	
Lab Type - Tablet Extraction:	0	
Lab Type - GHB:	0	
Lab Type - Anhydrous Ammonia:	0	
Lab Type - MDMA:	0	
Lab Type - Methamphetamine:	0	
Lab Type - Methcathinone:	0	
Lab Type - PCP:	0	
Lab Type - Other, Describe:	0	
Lab Type - Other, Describe:	Not reported	
Method Waste Disposal Cook Used.Poured Dov	vn Drains,etc.: Not reported	
Was There A Fire?:	No	
Was There An Explosion?:	No	
Was Anyone Injured?:	No	
Were There Any Deaths?:	No	
Other Than Lab Itself, Was There Evacuation D	ue To Hazard?: No	
Was A Chemist On Site? State Or Local.:	No	
Was A Chemist On Site? Dea Or Dea Contracto		
Did The Leo Perform Removal?:	No	
Was A Hazmat Contractor Used?:	No	
Name Of Hm Contractor Used.:	Not reported	
Remarks:	Not reported	

S109683420

Database(s)

EDR ID Number EPA ID Number

11	ALSO SEE RECORD 204		CDL	S109683489
SSW	320-A APACHE DRIVE			N/A
1/2-1	NORTH AUGUSTA, SC			
0.913 mi.				
4819 ft.				
Relative:	CDL:			
Higher	Lab/Seizure Unit # (Apt, Room Number, Ect.):	Not reported		
Actual:	Latitude:	Not reported		
314 ft.	Longitude: QA/QC Id #:	Not reported 194		
	Id Num Of GIS Data Point:	194		
	Has Call Been Verified To Be True:	No		
	EFIS Report Number:	0		
	Did DHEC Respond To The Site In Any Way?:	No		
	Direct Threat Of Environment Or Public Health?:	No		
	Type Of Report-Lab Seizure:	No		
	Report Chemicals/Glassware/Equipment Seizure			
	Report-Dumpsite Seizure:	No Not reported		
	Official Police Report Or Case Number: Seizure Date:	Not reported 8/27/2007		
	Law Enforcement Agency In Charge (Generator)			
	Originating Agency Identification (Ori) Number:	0		
	Law Enforcement Agency In Charge City:	Not reported		
	Law Enforcement Agency In Charge State:	Not reported		
	Leo Case Or File Title:	Not reported		
	Name Of Person Reporting Incident:	Not reported		
	Telephone Number Of Caller:	Not reported		
	Seizure Location - Apartment, Condo: Seizure Location - Hotel Or Motel:	No No		
	Seizure Location - Out Building (Shed,etc.):	No		
	Seizure Location - Vehicle:	No		
	Seizure Location - Family Dwelling House:	No		
	Seizure Location - Family Dwelling Mobile Home	No		
	Seizure Loc-FamilyDwellingDuplex Or Other Non	Apartment MultiStructure:No		
	Seizure Location - Dumpster:	No		
	Seizure Location - Storage Locker:	No		
	Seizure Location - Open - No Structure: Seizure Location - Business:	No No		
	Seizure Location - Other - Describe:	Not reported		
	Neighborhood - Commercial Or Industrial:	No		
	Neighborhood - Public Land - Check Box:	No		
	Neighborhood - Public Land - Name:	Not reported		
	Neighborhood - Rural:	No		
	Neighborhood - Suburban:	No		
	Neighborhood - Other - Check Box:	No		
	Neighborhood - Other - Describe:	Not reported		
	Neighborhood - Urban: Lab Status - Operational, Not In Production:	No No		
	Lab Status - Operational, In Production:	No		
	Lab Status - Abandoned:	No		
	Lab Status - Boxed Or Dismantled:	No		
	Lab Status - Fire Or Explosion:	No		
	Lab Status - Other, Check Box:	No		
	Lab Status - Other, Describe:	Not reported		
	Lab Mfg Proc-Ephedrin,RedP,HydriodicAcidAnd/			
	LMP-Pseudoephedrin, RedP,HydriodicAcid And/ Lab Mfg Process-P2p / Methylamine:	Or lodine Reduction: No No		
	Lab Mfg Process-Hydrogenation:	No		
	Lab Mig 1 100000 Hydrogonation.	110		

Map ID Direction			MAP FINDINGS		
Distance Elevation	Site			Database(s)	EDR ID Number EPA ID Number
	ALSO SEE RECORD 204 (C	Continued)			S109683489

F

LMP-Ephedrin,(Nazi/Birch)-Lithium,Sodium,Po	otassium,AnhydrousAmmoniaNo
LMP-Pseudoephedrin,(Nazi/Birch)-Lithium,Soc	dium,Potassium,An AmmoniaNo
Lab Mfg Process-Hydriodic Acid Method:	No
Lab Mfg Process-Anhydrous Ammonia Manufa	acturing: No
Lab Mfg Process-Ephedrine Tablet Extraction:	No
Lab Mfg Process-Pseudoephedrine Tablet Ext	traction: No
Lab Mfg Process-Other, Describe:	No
Lab Mfg Process-Other, Describe:	Not reported
Lab Type - Amphetamine:	0
Lab Type - Hydriodic Acid:	0
Lab Type - Tablet Extraction:	0
Lab Type - GHB:	0
Lab Type - Anhydrous Ammonia:	0
Lab Type - MDMA:	0
Lab Type - Methamphetamine:	0
Lab Type - Methcathinone:	0
Lab Type - PCP:	0
Lab Type - Other, Describe:	0
Lab Type - Other, Describe:	Not reported
Method Waste Disposal Cook Used.Poured Do	own Drains,etc.: Not reported
Was There A Fire?:	No
Was There An Explosion?:	No
Was Anyone Injured?:	No
Were There Any Deaths?:	No
Other Than Lab Itself, Was There Evacuation I	Due To Hazard?: No
Was A Chemist On Site? State Or Local.:	No
Was A Chemist On Site? Dea Or Dea Contract	xtor: No
Did The Leo Perform Removal?:	No
Was A Hazmat Contractor Used?:	No
Name Of Hm Contractor Used .:	Not reported
Remarks:	Chemical found in MH and a storage building at different location.

12 North 1/2-1 0.924 mi. 4879 ft.	SOUTHEAST LAND DEVELOPMENT CO 348 OLD SUBLOW LAKE RD N AUGUSTA, SC 29841			1007832304 N/A
Relative: Higher	FINDS:			
•	Registry ID:	110019962922		
Actual: 286 ft.	Environmental Ir	nterest/Information System SC-EFIS (South Carolina - Environmental Facility Information System) integrates information on environmental facilities, permits, violations, enforcement actions, and compliance activities needed to support regulatory requirements and target environmental quality improvements for the water, air, solid waste, and hazardous waste program areas. The EFIS was developed by the state of South Carolina and Maine joined their system in 2004.		

Database(s)

EDR ID Number EPA ID Number

13 South 1/2-1 0.939 mi. 4958 ft.	CVS PHARMACY 4388 4295 JEFFERSON DAVIS HWY BEECH ISLAND, SC 29842	RCRA-CESQG	1014961302 SCR000775056
Relative:	RCRA-CESQG:		
Higher	Date form received by agency Facility name:	y:05/07/2012 CVS PHARMACY 4388	
Actual:	Facility address:	4295 JEFFERSON DAVIS HWY	
228 ft.		BEECH ISLAND, SC 29842	
	EPA ID: Mailing address:	SCR000775056 ONE CVS DR	
	Maining address.	WOONWOCKET, RI 02895	
	Contact:	WENDY BRANT	
	Contact address:		
	Contact country:	WOONSOCKET, RI 02895 US	
	Contact telephone:	(401) 765-1500	
	Contact email:	Not reported	
	EPA Region: Classification:	04 Conditionally Exempt Small Quantity Generator	
	Description:	Handler: generates 100 kg or less of hazardous waste per calendar	
		month, and accumulates 1000 kg or less of hazardous waste at any time;	
		or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous	
		waste; or 100 kg or less of any residue or contaminated soil, waste or	
		other debris resulting from the cleanup of a spill, into or on any	
		land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting	
		from the cleanup of a spill, into or on any land or water, of acutely	
		hazardous waste during any calendar month, and accumulates at any	
		time: 1 kg or less of acutely hazardous waste; or 100 kg or less of	
		any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely	
		hazardous waste	
	Owner/Operator Summary:		
	Owner/operator name:	SC CVS PHARMACY LLC	
	Owner/operator address:		
	Owner/operator country:	WOONSOCKET, RI 02895 US	
	Owner/operator telephone:	(401) 765-1500	
	Legal status:	Private	
	Owner/Operator Type: Owner/Op start date:	Operator 05/07/2012	
	Owner/Op end date:	Not reported	
	Owner/operator name:	CVS PHARMACY INC	
	Owner/operator address:	ONE CVS DR	
	-	WOONSOCKET, RI 02895	
	Owner/operator country: Owner/operator telephone:	US (401) 765 1500	
	Owner/operator telephone: Legal status:	(401) 765-1500 Private	
	Owner/Operator Type:	Owner	
	Owner/Op start date:	05/07/2012	
	Owner/Op end date:	Not reported	

Database(s)

EDR ID Number EPA ID Number

CVS PHARMACY 4388	(Continued)
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Handler Activities Summary: U.S. importer of hazardous w Mixed waste (haz. and radioa Recycler of hazardous waste Transporter of hazardous was Treater, storer or disposer of Underground injection activity On-site burner exemption: Furnace exemption: Used oil fuel burner: Used oil fuel burner: Used oil processor: User oil refiner: Used oil fuel marketer to burr Used oil transfer facility: Used oil transporter:	active): No : No ste: No HW: No /: No No No No No No No No No	
Hazardous Waste Summary:		
Waste code:	D001	
Waste name:	IGNITABLE HAZARDOUS WASTES ARE THOSE WASTES WHICH HAVE A FLASHPOINT OF LESS THAN 140 DEGREES FAHRENHEIT AS DETERMINED BY A PENSKY-MARTENS CLOSED CUP FLASH POINT TESTER. ANOTHER METHOD OF DETERMINING THE FLASH POINT OF A WASTE IS TO REVIEW THE MATERIAL SAFETY DATA SHEET, WHICH CAN BE OBTAINED FROM THE MANUFACTURER OR DISTRIBUTOR OF THE MATERIAL. LACQUER THINNER IS AN EXAMPLE OF A COMMONLY USED SOLVENT WHICH WOULD BE CONSIDERED AS IGNITABLE HAZARDOUS WASTE.	
Waste code:	D002	
Waste name:	A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12.5 IS CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.	
Waste code:	P001	
Waste name:	2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYLBUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3%	
Waste code: Waste name:	P042 1,2-BENZENEDIOL, 4-[1-HYDROXY-2-(METHYLAMINO)ETHYL]-, (R)-	
Waste code:	P075	
Waste name:	NICOTINE, & SALTS	
Waste code:	P081	
Waste code. Waste name:	NITROGLYCERINE (R)	
Walto hame.		
Violation Status:	No violations found	

Direction	Ц			
Distance				EDR ID Number
Elevation	Site		Database(s)	EPA ID Number
14			EDR US Hist Auto Stat	1015568851
SSW	601 PEARSON AVE		EDR 05 Hist Auto Stat	N/A
		4		IN/A
1/2-1	NORTH AUGUSTA, SC 2984	1		
0.942 mi.				
4975 ft.				
Relative:	EDR Historical Auto Station	S.		
Higher		WILLIAMS CAR CRAFT		
nighei		2007		
Actual:		601 PEARSON AVE		
300 ft.	Address.	DUT FEARSON AVE		
000111	Nome			
		WILLIAMS CAR CRAFT		
		2008		
	Address:	601 PEARSON AVE		
		WILLIAMS CAR CRAFT		
		2009		
	Address:	601 PEARSON AVE		
15	CLEARWATER FINISHING S	TE	CERCLIS	1000156559
South	SC RD 126 AT US HWY 1/78		RCRA-CESQG	SCD003303120
1/2-1	NORTH AUGUSTA, SC 2984	1	GWCI	
0.984 mi.	,		BROWNFIELDS	
5198 ft.			PRP	
010010				
Relative:	CERCLIS:			
Higher	Site ID:	0403391		
	EPA ID:	SCD003303120		
Actual:	Facility County:	AIKEN		
250 ft.	Short Name:	CLEARWATER FINISHING SITE		
	Congressional District:	03		
	IFMS ID:	04WL		
	SMSA Number:	0600		
	USGC Hydro Unit:	03060106		
	Federal Facility:	Not a Federal Facility		
	DMNSN Number:	0.00000		
	Site Orphan Flag:	N		
	RCRA ID:	Not reported		
	USGS Quadrangle:	Not reported		
	Site Init By Prog:	Not reported		
	NFRAP Flag:	Not reported		
	Parent ID:			
		Not reported		
	RST Code:	Not reported		
	EPA Region:	04 National stand		
	Classification:	Not reported		
	Site Settings Code:	Not reported		
	NPL Status:	Not on the NPL		
	DMNSN Unit Code:	Not reported		
	RBRAC Code:	Not reported		
	RResp Fed Agency Code			
	Non NPL Status:	Other Cleanup Activity: State-Lead Cleanup		
	Non NPL Status Date:	10/03/07		
	Site Fips Code:	45003		
	CC Concurrence Date:	/ /		
	CC Concurrence FY:	Not reported		
	Alias EPA ID:	Not reported		
	Site FUDS Flag	Not reported		

CERCLIS Site Contact Name(s):

Not reported

Site FUDS Flag:

Database(s)

EDR ID Number EPA ID Number

CLEARWATER FINISHING SITE (Continued)

Contact ID: 4000583.00000 Contact Name: Craig Zeller (404) 562-8827 Contact Tel: Contact Title: Remedial Project Manager (RPM) Contact Email: zeller.craig@epa.gov Contact ID: 4000234.00000 Contact Name: Ralph Howard Contact Tel: (404) 562-8829 Contact Title: Remedial Project Manager (RPM) Contact Email: howard.ralph@epa.gov Contact ID: 4270070.00000 Contact Name: Craig Zeller (404) 562-8827 Contact Tel: Contact Title: Site Assessment Manager (SAM) Contact Email: Not reported Contact ID: 4000271.00000 Contact Name: **Yvonne Jones** Contact Tel: (404) 562-8793 Contact Title: Remedial Project Manager (RPM) Contact Email: Not reported 4000376.00000 Contact ID: Contact Name: Mike Norman Contact Tel: (404) 562-8792 Contact Title: Remedial Project Manager (RPM) Contact Email: norman.mike@epa.gov Contact ID: 4000275.00000 Contact Name: William Joyner Contact Tel: (404) 562-8795 Contact Title: Site Assessment Manager (SAM) Contact Email: joyner.william@epa.gov Contact ID: 4270495.00000 Contact Name: Paul Wagner (404) 562-8792 Contact Tel: Contact Title: Remedial Project Manager (RPM) Contact Email: wagner.paul@epa.gov Contact ID: 13002428.00000 Contact Name: Donna Seadler Contact Tel: (404) 562-8870 Contact Title: Site Assessment Manager (SAM) Contact Email: seadler.donna@epa.gov 13002538.00000 Contact ID: Contact Name: Corey Hendrix (404) 562-8738 Contact Tel: Contact Title: Site Assessment Manager (SAM) Contact Email: Not reported CERCLIS Site Alias Name(s): Alias ID: 101 **CLEARWATER SITE** Alias Name:

Database(s)

EDR ID Number EPA ID Number

CLEARWATER FINISHING SITE (Continued)

Alias Address:	Not reported
	AIKEN, SC
Alias Comments:	Not reported
Site Description:	ABANDONED TEXTILE MILL CONTAINING HAZARDOUS WASTE. REMOVAL ACTION SCHEDULED.

CERCLIS Assessment History:

Action Code:	001
Action:	DISCOVERY
Date Started:	//
Date Completed:	06/01/81
Priority Level:	Not reported
Operable Unit:	SITEWIDE
Primary Responsibility:	EPA Fund-Financed
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code:	001
Action:	PRELIMINARY ASSESSMENT
Date Started:	/ /
Date Completed:	09/01/82
Priority Level:	Higher priority for further assessment
Operable Unit:	SITEWIDE
Primary Responsibility:	State, Fund Financed
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code:	001
Action:	INTEGRATED ASSESSMENT
Date Started:	04/07/94
Date Completed:	04/07/94
Priority Level:	Higher priority for further assessment
Operable Unit:	SITEWIDE
Primary Responsibility:	EPA Fund-Financed
Planning Status:	Primary
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code:	001
Action:	ADMINISTRATIVE RECORDS
Date Started:	08/25/94
Date Completed:	08/25/94
Priority Level:	Admin Record Compiled for a Removal Event
Operable Unit:	SITEWIDE
Primary Responsibility:	EPA Fund-Financed
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

Database(s)

EDR ID Number EPA ID Number

CLEARWATER FINISHING SITE (Continued)

1000156559

For detailed financial records, contact EDR for a Site Report.:

Action Code:	001
Action:	Public Notice Published
Date Started:	/ /
Date Completed:	10/07/94
Priority Level:	Not reported
Operable Unit:	SITEWIDE
Primary Responsibility:	EPA Fund-Financed
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code:	001
Action:	REMOVAL
Date Started:	08/03/94
Date Completed:	08/04/95
Priority Level:	Cleaned up
Operable Unit:	SITEWIDE
Primary Responsibility:	EPA Fund-Financed
Planning Status:	Primary
Urgency Indicator:	Time Critical
Action Anomaly:	Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code:	001
Action:	SITE INSPECTION
Date Started:	
Date Completed:	05/10/96
Priority Level:	NFRAP-Site does not qualify for the NPL based on existing information
Operable Unit:	SITEWIDE
Primary Responsibility:	State, Fund Financed
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code:	002
Action:	NON-NATIONAL PRIORITIES LIST POTENTIALLY RESPONSIBLE PARTY SEARCH
Date Started:	03/01/97
Date Completed:	10/01/97
Priority Level:	Not reported
Operable Unit:	SITEWIDE
Primary Responsibility:	Federal Enforcement
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

For detailed financial records, contact EDR for a Site Report.:

003

Action Code:

EDR ID Number Database(s) EPA ID Number

CLEARWATER FINISHING SITE (Continued)

NON-NATIONAL PRIORITIES LIST POTENTIALLY RESPONSIBLE PARTY SEARCH Action: Date Started: 10/01/97 Date Completed: 06/01/98 Priority Level: Not reported SITEWIDE Operable Unit: Primary Responsibility: Federal Enforcement Planning Status: Not reported Urgency Indicator: Not reported Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code:	002
Action:	Lodged By DOJ
Date Started:	11
Date Completed:	06/01/99
Priority Level:	Not reported
Operable Unit:	SITEWIDE
Primary Responsibility:	Federal Enforcement
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

For detailed financial records, contact EDR for a Site Report .:

Action Code:	001
Action:	Lodged By DOJ
Date Started:	//
Date Completed:	06/29/99
Priority Level:	Not reported
Operable Unit:	SITEWIDE
Primary Responsibility:	Federal Enforcement
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code:	003
Action:	Lodged By DOJ
Date Started:	//
Date Completed:	08/02/99
Priority Level:	Not reported
Operable Unit:	SITEWIDE
Primary Responsibility:	Not reported
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code:	001
Action:	CONSENT AGREEMENT (ADMINISTRATIVE)
Date Started:	//
Date Completed:	09/17/99

Database(s)

EDR ID Number EPA ID Number

CLEARWATER FINISHING SITE (Continued)

Priority Level:	Not reported
Operable Unit:	SITEWIDE
Primary Responsibility:	Federal Enforcement
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code:	001
Action:	SECTION 107 LITIGATION
Date Started:	07/02/98
Date Completed:	11/12/99
Priority Level:	Not reported
Operable Unit:	SITEWIDE
Primary Responsibility:	Federal Enforcement
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code:	003
Action:	CONSENT DECREE
Date Started:	//
Date Completed:	11/12/99
Priority Level:	Not reported
Operable Unit:	SITEWIDE
Primary Responsibility:	Federal Enforcement
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code:	001
Action:	NON-NATIONAL PRIORITIES LIST POTENTIALLY RESPONSIBLE PARTY SEARCH
Date Started:	11
Date Completed:	11/12/99
Priority Level:	Not reported
Operable Unit:	SITEWIDE
Primary Responsibility:	Federal Enforcement
Planning Status:	Primary
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code:	002
Action:	SECTION 107 LITIGATION
Date Started:	09/30/02
Date Completed:	02/21/03
Priority Level:	Not reported
Operable Unit:	SITEWIDE
Primary Responsibility:	Federal Enforcement

Database(s)

EDR ID Number EPA ID Number

CLEARWATER FINISHING SITE (Continued)

Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code: 001 Action: REMOVAL ASSESSMENT 08/24/05 Date Started: Date Completed: 12/11/06 Priority Level: Not reported Operable Unit: SITEWIDE Primary Responsibility: EPA Fund-Financed Planning Status: Not reported Urgency Indicator: Not reported Action Anomaly: Not reported

For detailed financial records, contact EDR for a Site Report.:

Action Code:	001
Action:	EXPANDED SITE INSPECTION
Date Started:	/ /
Date Completed:	09/03/07
Priority Level:	Low priority for further assessment
Operable Unit:	SITEWIDE
Primary Responsibility:	State, Fund Financed
Planning Status:	Not reported
Urgency Indicator:	Not reported
Action Anomaly:	Not reported

For detailed financial records, contact EDR for a Site Report.:

<u>Click this hyperlink</u> while viewing on your computer to access 8 additional US CERCLIS Financial: record(s) in the EDR Site Report.

RCRA-CESQG:

Date form received by agency	r: 10/05/1999
Facility name:	CLEARWATER FINISHING INC
Facility address:	16 BELVEDERE ROAD
	NORTH AUGUSTA, SC 29841
EPA ID:	SCD003303120
Mailing address:	BELVEDERE ROAD
-	NORTH AUGUSTA, SC 29841
Contact:	STEVE SPURLEY
Contact address:	BELVEDERE ROAD
	NORTH AUGUSTA, SC 29841
Contact country:	US
Contact telephone:	(404) 347-3931
Contact email:	Not reported
EPA Region:	04
Land type:	Private
Classification:	Conditionally Exempt Small Quantity Generator
Description:	Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar

EDR ID Number Database(s) EPA ID Number

EARWATER FINISHING SITE	(Continued)	1000156
	month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste	
Owner/Operator Summary:		
Owner/operator name:	OPERNAME	
Owner/operator address:	OPERSTREET	
	OPERCITY, WY 99999	
Owner/operator country:	Not reported (404) 555-1212	
Owner/operator telephone: Legal status:	(404) 555-1212 Private	
Owner/Operator Type:	Operator	
Owner/Op start date:	Not reported	
Owner/Op end date:	Not reported	
Owner/operator name:	AIKEN COUNTY LAND FORFEITURE COMMISSION	
Owner/operator address:	2625 JEFFERSON DAVIS HWY LANDGLEY, SC 29834	
Owner/operator country:	Not reported	
Owner/operator telephone:	(999) 999-9999	
Legal status:	County	
Owner/Operator Type:	Owner	
Owner/Op start date:	Not reported	
Owner/Op end date:	Not reported	
Handler Activities Summary:		
U.S. importer of hazardous wa		
Mixed waste (haz. and radioa	,	
Recycler of hazardous waste:	No	
Transporter of hazardous was		
Treater, storer or disposer of I		
Underground injection activity On-site burner exemption:	No	
Furnace exemption:	No	
Used oil fuel burner:	No	
Used oil processor:	No	
User oil refiner:	No	
Used oil fuel marketer to burn		
Used oil Specification markete	er: No	
Used oil transfer facility:	No	
Used oil transporter:	No	
Hazardous Waste Summary:		
Waste code:	D000	
Waste name:	Not Defined	
Waste code:	D002	
	A WASTE WHICH HAS A PH OF LESS THAN 2 OR GREATER THAN 12	

EDR ID Number Database(s) EPA ID Number

CLEARWATER FINISHING SITE (Continued)

1000156559

CONSIDERED TO BE A CORROSIVE HAZARDOUS WASTE. SODIUM HYDROXIDE, A CAUSTIC SOLUTION WITH A HIGH PH, IS OFTEN USED BY INDUSTRIES TO CLEAN OR DEGREASE PARTS. HYDROCHLORIC ACID, A SOLUTION WITH A LOW PH, IS USED BY MANY INDUSTRIES TO CLEAN METAL PARTS PRIOR TO PAINTING. WHEN THESE CAUSTIC OR ACID SOLUTIONS BECOME CONTAMINATED AND MUST BE DISPOSED, THE WASTE WOULD BE A CORROSIVE HAZARDOUS WASTE.

Waste code:	D006
Waste name:	CADMIUM
Waste code:	D007
Waste name:	CHROMIUM
Waste code:	D008
Waste name:	LEAD
Waste code:	D009
Waste name:	MERCURY
Waste code:	D018
Waste name:	BENZENE
Waste code:	D039
Waste name:	TETRACHLOROETHYLENE
Waste code:	F007
Waste name:	SPENT CYANIDE PLATING BATH SOLUTIONS FROM ELECTROPLATING OPERATIONS
Waste code: Waste name:	F008 PLATING BATH RESIDUES FROM THE BOTTOM OF PLATING BATHS FROM ELECTROPLATING OPERATIONS WHERE CYANIDES ARE USED IN THE PROCESS.

Facility Has Received Notices of Violations:

Regulation violated:	Not reported
Area of violation:	Generators - General
Date violation determined:	05/08/1986
Date achieved compliance:	06/23/1986
Violation lead agency:	State
Enforcement action:	Not reported
Enforcement action date:	Not reported
Enf. disposition status:	Not reported
Enf. disp. status date:	Not reported
Enforcement lead agency:	Not reported
Proposed penalty amount:	Not reported
Final penalty amount:	Not reported
Paid penalty amount:	Not reported
Evaluation Action Summary:	
Evaluation date:	10/23/1995
Evaluation:	COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation:	Not reported
Date achieved compliance:	Not reported
Evaluation lead agency:	State
Evaluation date:	06/23/1986
Evaluation:	COMPLIANCE SCHEDULE EVALUATION

Database(s)

EDR ID Number EPA ID Number

CLEARWATER FINISHING SITE (Continued)

Area of violation: Date achieved compliance: Evaluation lead agency:	Not reported Not reported State	
Evaluation date: Evaluation: Area of violation: Date achieved compliance: Evaluation lead agency:	05/08/1986 COMPLIANCE Generators - G 06/23/1986 State	EVALUATION INSPECTION ON-SITE eneral
SC GWIC: Bureau: EAP ID: Solid Waste Permit #: Bureau of Land & Waste Mana Permit Number: WPC Permit: Program: Contamination: Petroleum Products: Volatile Organic Compounds: Metals: Nitrates or Potential to Nitrate: Pesticides & Herbicides: Polychlorinated Biphenyls: Base, Neutral, & Acid Extracta Phenols: Radionuclides Over Max Cont Sources Not In Other Categor Source: Underground Storage Tanks: Pits, Ponds, & Lagoons: Spills & Leaks: Landfills: Aboveground Storage Tank: Spray Irrigation: Single-Event Spill: Unpermitted Disposal: Septic Tank/Tile Field: Substances Not In Other Cate Sources of Contamination Uno Assessment:	agement File #: ables: aminant Levels: ies:	Not reported Not reported SUPERFUND VOC, METALS False True True False False False False False False False S/L False
Monitoring: Remediation: Surface Impact: Drinking Water Well Impact: Remarks: BLWI	M File # 50780.	YES NO YES NO In assessment and monitoring phases. Plume is
		ed surface water body.

1000156559

SC BROWNFIELD:

Contract Number: Contract Type: File Number: Contract Manager: Person Company: Primary Address1: Primary Address2: 98-5210-NRP NRP 50780 STAMPS, JERRY M CLEARWATER DEVELOPMENT CORPORATION Not reported Not reported

Database(s)

EDR ID Number EPA ID Number

1000156559

CLEARWATER FINISHING SITE (Continued)

Primary State Code: Primary Zip Code: Type Brownfield: Acreage: Contract Executed: COC Date Issued: RC Executed: Contact: Status Code: IC Received: Workplan Due: Workplan Received: Workplan Reviewed: Workplan Approved: Report Received: Report Received: Report Reviewed: Report Reviewed: Report Approved: Cap Approved: Contract Mailed: Date Terminated:	Not reported Hazardous Substances 65 9/23/1998 Not reported Not reported ACTIVE Not reported 9/23/1998 Not reported Not reported
Status Code: IC Received: Workplan Due: Workplan Received: Workplan Reviewed: Workplan Approved: Report Received: Report Reviewed: Report Approved: Cap Approved: Contract Mailed:	ACTIVE Not reported 9/23/1998 Not reported Not reported Not reported Not reported Not reported Not reported Not reported Not reported

PRP:

PRP name: ROBERT NEAL

16 WSW 1/2-1 0.985 mi. 5200 ft.	412 JACKSON RD NORTH AUGUSTA, S	-	JS Hist Auto Stat	1015480520 N/A
Relative: Higher Actual: 311 ft.	EDR Historical Auto Name: Year: Address: Name: Year: Address:	Stations: INTERSTATE MOBILE TRUCK & TIRE 2011 412 JACKSON RD INTERSTATE MOBILE TRUCK & TIRE 2012 412 JACKSON RD		
B17 South 1/2-1 0.985 mi. 5203 ft.	FIRST STOP CLEARV 4368 JEFFERSON DA BEECH ISLAND, SC Site 1 of 4 in cluster F	VIS HWY 29842	FINDS RCR	1007233585 N/A
Relative: Higher Actual: 250 ft.	FINDS: Registry ID: Environmental In	110017049166 terest/Information System SC-EFIS (South Carolina - Environmental Facility Information Syste integrates information on environmental facilities, permits, violations, enforcement actions, and compliance activities needed to support regulatory requirements and target environmental quality improvements for the water, air, solid waste, and hazardous waste	,	

EDR ID Number Database(s) EPA ID Number

FIRST STOP CLEARWATER (Continued)

1007233585

program areas. The EFIS was developed by the state of South Carolina and Maine joined their system in 2004.

RCR:

Entity Responsibility:	Emro Marketing
Region:	5
Tax Id:	020-013-004
Latitude:	33.50469
Longitude:	-81.89923
Tracking Number:	114
Regulatory Program:	UST
Unit Type:	Not reported
Unit Number/Letter:	1
Area/Acres:	Not reported
Affected Media:	Groundwater
Site/Unit:	Regulated Petroleum Underground Storage Tank Location
Condtions:	Public Noticed Corrective Action Plan
Associated Response/0	Corrective Action: Not reported
Associated Chemicals	Requiring: Not reported

B18

South 4368 JEFFERSON DAVIS HWY

1/2-1 BEECH ISLAND, SC 29842

0.985 mi. 5203 ft. Site 2 of 4 in cluster B

Relative:	EDR Historical Auto	o Stations:
Higher	Name:	SPEEDWAY SUNOCO
•	Year:	2008
Actual: 250 ft.	Address:	4368 JEFFERSON DAVIS HWY

B19

South 4367 JEFFERSON DAVIS HWY

1/2-1 BEECH ISLAND, SC 29842 0.993 mi.

5242 ft. Site 3 of 4 in cluster B

Relative: Higher Actual:	EDR Historical Auto Statio Name: Year: Address:	ONS: CLEARWATER MUFFLER SHOP 2002 4367 JEFFERSON DAVIS HWY
249 ft.	Name: Year: Address:	CLEARWATER MUFFLER SHOP 2003 4367 JEFFERSON DAVIS HWY

EDR US Hist Auto Stat 1015495499 N/A

EDR US Hist Auto Stat 1015495489 N/A

Database(s)

EDR ID Number EPA ID Number

B20 South 1/2-1 0.996 mi.	FIRST STOP CLEARWATER 4380 JEFFERSON DAVIS HWY BEECH ISLAND, SC 29842		LUST UST	U004017143 N/A
5260 ft.	Site 4 of 4 in cluster B			
South 1/2-1	4380 JEFFERSON DAVIS HWY BEECH ISLAND, SC 29842 Site 4 of 4 in cluster B LUST: Facility ID: Release Number: Facility Status: Substance: Owner: NFA Date: Date Confirmed: Report Date: Rank: LUST DETAIL: Release Date: Cleanup Complete Date: RP Address: RP City: RP State: RP Zip: SCRBCA Class Code: Depth to Ground Water: Ground Water Flow Direction: Project Manager: Release Date: Cleanup Complete Date: RP Address: RP City: RP State: RP Address: RP City: RP State: RP Address: RP City: RP State: RP Zip: SCRBCA Class Code: Depth to Ground Water: Ground Water Flow Direction: Project Manager: Release Date: Cleanup Complete Date: RP Address: RP City: RP State: RP Zip: SCRBCA Class Code: Depth to Ground Water: Ground Water Flow Direction: Project Manager: Release Ein Type Code: Release Date: Cleanup Complete Date: RP Address: RP City: RP State: RP Name: RP Address: RP City: RP State: RP City: RP State: RP City: RP State: RP City: RP State: RP City: RP State: RP City: RP State:	WILSON, RODNEY L Qualifies for Fund with Deductible 12/29/1989 Not reported SPEEDWAY SUPERAMERICA LLC 500 SPEEDWAY DR ENON OH 45323-1056 CLASS2BB 20 : SE SURBER, JOHN D With SUPERB 07/13/2007 Not reported REALTY SHOP INC 4368 JEFFERSON DAVIS HWY CLEARWATER SC		
	RP Zip: SCRBCA Class Code: Depth to Ground Water: Ground Water Flow Direction: Project Manager:	EBINGER, DAVID J		
	,	With SUPERB 00114 2		

Database(s)

EDR ID Number EPA ID Number

FIRST STOP CLEARWATER (Continued)

	of oron of the antimater (ou	minucuj
	Facility Status:	currently inactive
	Substance:	PETRO
	Owner:	REALTY SHOP INC
	NFA Date:	12/08/97
		08/23/94
	Report Date:	12/14/93
	Rank:	2BB
L	UST DETAIL:	
	Release Date:	12/14/1993
	Cleanup Complete Date:	12/08/1997
	RP Name:	SPEEDWAY SUPERAMERICA LLC
	RP Address:	500 SPEEDWAY DR
	RP City:	ENON
	RP State:	OH
	RP Zip:	45323-1056
	SCRBCA Class Code:	CLASS2BB
	Depth to Ground Water:	Not reported
	Ground Water Flow Direction:	
	Project Manager:	WILSON, RODNEY L
	Release Fin Type Code:	Qualifies for Fund with Deductible
	Release Date:	12/29/1989
	Cleanup Complete Date:	Not reported
	RP Name:	SPEEDWAY SUPERAMERICA LLC
	RP Address:	500 SPEEDWAY DR
	RP City:	ENON
	RP State:	ОН
	RP Zip:	45323-1056
	SCRBCA Class Code:	CLASS2BB
	Depth to Ground Water:	20
	Ground Water Flow Direction:	SF
	Project Manager:	SURBER, JOHN D
	Release Fin Type Code:	With SUPERB
	Release Date:	07/13/2007
	Cleanup Complete Date:	Not reported
	RP Name:	REALTY SHOP INC
	RP Address:	4368 JEFFERSON DAVIS HWY
	RP City:	CLEARWATER
	RP State:	SC
	RP State. RP Zip:	29822
	SCRBCA Class Code:	CLASS2BB
	Depth to Ground Water:	23
	Ground Water Flow Direction:	
	Project Manager:	EBINGER, DAVID J
	Release Fin Type Code:	With SUPERB
	Equility (D)	00114
	Facility ID: Release Number:	00114
		3
		monitored natural attenuation
	Substance:	PETROL
		REALTY SHOP INC
	NFA Date:	03/27/12
		07/19/07
	•	07/13/07
	Pank:	2BB

2BB

Rank:

U004017143

Database(s)

EDR ID Number EPA ID Number

FIRST STOP CLEARWATER (Continued)

LUST DETAIL: Release Date: 12/14/1993 12/08/1997 Cleanup Complete Date: **RP Name:** SPEEDWAY SUPERAMERICA LLC **RP Address:** 500 SPEEDWAY DR RP City: ENON **RP State:** ОН RP Zip: 45323-1056 SCRBCA Class Code: CLASS2BB Depth to Ground Water: Not reported Ground Water Flow Direction: Not reported Project Manager: WILSON, RODNEY L Release Fin Type Code: Qualifies for Fund with Deductible Release Date: 12/29/1989 Cleanup Complete Date: Not reported RP Name: SPEEDWAY SUPERAMERICA LLC RP Address: 500 SPEEDWAY DR RP City: ENON RP State: OH RP Zip: 45323-1056 SCRBCA Class Code: CLASS2BB Depth to Ground Water: 20 Ground Water Flow Direction: SE SURBER, JOHN D Project Manager: With SUPERB Release Fin Type Code: Release Date: 07/13/2007 Cleanup Complete Date: Not reported RP Name: REALTY SHOP INC RP Address: 4368 JEFFERSON DAVIS HWY **RP City:** CLEARWATER **RP State:** SC RP Zip: 29822 SCRBCA Class Code: CLASS2BB Depth to Ground Water: 23 Ground Water Flow Direction: SE Project Manager: EBINGER, DAVID J Release Fin Type Code: With SUPERB

UST:

Facility ID:	114
Owner:	REALTY SHOP INC
Owner Contact:	Not reported
Owner Address:	4368 JEFFERSON DAVIS HWY
Owner City,St,Zip:	CLEARWATER, SC 29822
Owner Phone:	423-928-8146
Contact:	Not reported
Contact Tel:	803-593-9910
Tank ID:	1
Capacity:	5000
Product:	Gasoline
Calcage:	15
Status:	Abandoned

U004017143

Database(s)

EDR ID Number EPA ID Number

FIRST STOP CLEARWATER	(Continued)
Tank ID:	2
Capacity:	6000
Product:	Gasoline
Calcage:	15
Status:	Abandoned
Tank ID:	3
Capacity:	8000
Product:	Gasoline
Calcage:	15
Status:	Abandoned
Tank ID:	4
Capacity:	12000
Product:	Gasoline
Calcage:	15
Status:	Abandoned
Tank ID:	5
Capacity:	8000
Product:	Diesel
Calcage:	15
Status:	Abandoned
Tank ID:	6
Capacity:	12000
Product:	Gasoline
Calcage:	0
Status:	Abandoned
Tank ID:	7
Capacity:	8000

Gasoline

Abandoned

Abandoned

0

8

0

8000

Diesel

Product: Calcage:

Status:

Tank ID:

Capacity:

Product:

Calcage:

Status:

U004017143

Count: 21 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
N AUGUSTA	1001216114	VIKING FREIGHT N AUGUSTA	1045 JEFFERSON DAVID HWY	29841	FINDS,RCRA-NLR
GRANITEVILLE	1003869661	GRANITEVILLE CEMETARY DUMP	2000'S OF GREGG HWY /2700'E RT	29829	CERCLIS-NFRAP, HWS
GRANITEVILLE	1004594078	JM HUBER GRANITEVILLE OPR	SC HWY 104	29829	FINDS,RCRA-NLR
AIKEN	1004780552	BP OIL-SITE #23776	RTE 4 BOX 436 & HIGHWAY 1	29841	FINDS,RCRA-NLR
AIKEN	1007648422	G L WILLIAMS/HIGHWAY 49 MINE	SW OF SC HWY S-2-49	29801	FINDS
N AUGUSTA	1010415792	AIKEN COUNTY PUBLIC SERVICE	HWY 125	29841	RCRA-NLR
BEECH ISLAND	1011547439	OIL SPILL (KENAN TRANSPORT, LLC)	INTERSECTION OF HWY 125 (ATOMI	29841	ICIS
NORTH AUGUSTA	1011827743	HORSE CREEK POLLUTION CONTROL FACI	70 PSA ROAD (OFF SC HWY 125)	29841	RMP
BEECH ISLAND	1011833901	PACTIV CORP - BEECH ISLAND	578 OLD JACKSON HIGHWAY	29842	RMP
BEECH ISLAND	1011833920	PACTIV CORPORATION - BEECH ISLAND,	578 OLD JACKSON HIGHWAY	29842	RMP
BEECH ISLAND	1011839025	TENNECO PACKAGING SPECIALTY & CONS	578 OLD JACKSON HIGHWAY	29842	RMP
BEECH ISLAND	1012190673	PACTIV CORPORATION	578 OLD JACKSON HIGHWAY BEE	29842	ICIS
BEECH ISLAND	1014932543	PACTIV - BEECH ISLAND	578 OLD JACKSON HIGHWAY	29842	RMP
NORTH AUGUSTA	A100267670	PHILLIPS PIPELINE - SWEETWATER	HWY 36 & SWEETWATER ROAD	29841	AST
BEECH ISLAND	S108051437	AIKEN PSA/HORSE CREEK WWTF	70 PSA RD ; HWY 125 S	29842	NPDES
NORTH AUGUSTA	S108282313	AUGUSTA CONCRETE BLOCK	6269 JEFRSON DAVIS HWY	29841	AIRS
NORTH AUGUSTA	U003524501	R L MCKIE & SONS	RTE 1 PO BOX 63	29841	UST
NORTH AUGUSTA	U003524605	REYNOLDS GROCERY	HWY 25	29000	UST
NORTH AUGUSTA	U004018109	INTERSTATE-N AUGUSTA	HWY 25 BY PASS	29841	LUST,UST
N AUGUSTA	U004019276	ABF FREIGHT SYSTEM	HWY 125	29841	LUST,UST
BEECH ISLAND	U004155497	WAWA EXPRESS LLC	4444 JEFFERSON DAVIS HWY	29824	LUST,UST

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 02/01/2013 Date Data Arrived at EDR: 03/01/2013 Date Made Active in Reports: 03/13/2013 Number of Days to Update: 12 Source: EPA Telephone: N/A Last EDR Contact: 05/09/2013 Next Scheduled EDR Contact: 07/22/2013 Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC) Telephone: 202-564-7333

EPA Region 1 Telephone 617-918-1143

EPA Region 3 Telephone 215-814-5418

EPA Region 4 Telephone 404-562-8033

EPA Region 5 Telephone 312-886-6686

EPA Region 10 Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

EPA Region 6

EPA Region 7

EPA Region 8

EPA Region 9

Telephone: 214-655-6659

Telephone: 913-551-7247

Telephone: 303-312-6774

Telephone: 415-947-4246

Date of Government Version: 02/01/2013 Date Data Arrived at EDR: 03/01/2013 Date Made Active in Reports: 03/13/2013 Number of Days to Update: 12

Source: EPA Telephone: N/A Last EDR Contact: 05/09/2013 Next Scheduled EDR Contact: 07/22/2013 Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991 Date Data Arrived at EDR: 02/02/1994 Date Made Active in Reports: 03/30/1994 Number of Days to Update: 56 Source: EPA Telephone: 202-564-4267 Last EDR Contact: 08/15/2011 Next Scheduled EDR Contact: 11/28/2011 Data Release Frequency: No Update Planned

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 02/01/2013 Date Data Arrived at EDR: 03/01/2013 Date Made Active in Reports: 03/13/2013 Number of Days to Update: 12 Source: EPA Telephone: N/A Last EDR Contact: 05/09/2013 Next Scheduled EDR Contact: 07/22/2013 Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 02/04/2013 Date Data Arrived at EDR: 03/01/2013 Date Made Active in Reports: 03/13/2013 Number of Days to Update: 12 Source: EPA Telephone: 703-412-9810 Last EDR Contact: 05/29/2013 Next Scheduled EDR Contact: 09/09/2013 Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 07/31/2012 Date Data Arrived at EDR: 10/09/2012 Date Made Active in Reports: 12/20/2012 Number of Days to Update: 72 Source: Environmental Protection Agency Telephone: 703-603-8704 Last EDR Contact: 04/10/2013 Next Scheduled EDR Contact: 07/22/2013 Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 02/05/2013 Date Data Arrived at EDR: 03/01/2013 Date Made Active in Reports: 03/13/2013 Number of Days to Update: 12 Source: EPA Telephone: 703-412-9810 Last EDR Contact: 05/29/2013 Next Scheduled EDR Contact: 05/09/2013 Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 02/12/2013 Date Data Arrived at EDR: 02/21/2013 Date Made Active in Reports: 02/27/2013 Number of Days to Update: 6 Source: EPA Telephone: 800-424-9346 Last EDR Contact: 05/02/2013 Next Scheduled EDR Contact: 07/15/2013 Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 02/12/2013 Date Data Arrived at EDR: 02/15/2013 Date Made Active in Reports: 02/27/2013 Number of Days to Update: 12 Source: Environmental Protection Agency Telephone: (404) 562-8651 Last EDR Contact: 05/02/2013 Next Scheduled EDR Contact: 07/15/2013 Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 02/12/2013 Date Data Arrived at EDR: 02/15/2013 Date Made Active in Reports: 02/27/2013 Number of Days to Update: 12 Source: Environmental Protection Agency Telephone: (404) 562-8651 Last EDR Contact: 05/02/2013 Next Scheduled EDR Contact: 07/15/2013 Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 02/12/2013 Date Data Arrived at EDR: 02/15/2013 Date Made Active in Reports: 02/27/2013 Number of Days to Update: 12 Source: Environmental Protection Agency Telephone: (404) 562-8651 Last EDR Contact: 05/02/2013 Next Scheduled EDR Contact: 07/15/2013 Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 02/12/2013 Date Data Arrived at EDR: 02/15/2013 Date Made Active in Reports: 02/27/2013 Number of Days to Update: 12 Source: Environmental Protection Agency Telephone: (404) 562-8651 Last EDR Contact: 05/02/2013 Next Scheduled EDR Contact: 07/15/2013 Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 03/14/2013	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/29/2013	Telephone: 703-603-0695
Date Made Active in Reports: 05/10/2013	Last EDR Contact: 06/10/2013
Number of Days to Update: 42	Next Scheduled EDR Contact: 09/23/2013
	Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 03/14/2013 Date Data Arrived at EDR: 03/29/2013 Date Made Active in Reports: 05/10/2013 Number of Days to Update: 42 Source: Environmental Protection Agency Telephone: 703-603-0695 Last EDR Contact: 06/10/2013 Next Scheduled EDR Contact: 09/23/2013 Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005 Date Data Arrived at EDR: 12/11/2006 Date Made Active in Reports: 01/11/2007 Number of Days to Update: 31 Source: Department of the Navy Telephone: 843-820-7326 Last EDR Contact: 05/20/2013 Next Scheduled EDR Contact: 09/02/2013 Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2012 Date Data Arrived at EDR: 01/17/2013 Date Made Active in Reports: 02/15/2013 Number of Days to Update: 29 Source: National Response Center, United States Coast Guard Telephone: 202-267-2180 Last EDR Contact: 04/02/2013 Next Scheduled EDR Contact: 07/15/2013 Data Release Frequency: Annually

State- and tribal - equivalent CERCLIS

SHWS: Site Assessment Section Project List

State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: 03/20/2013	Source: Department of Health and Environmental Control
Date Data Arrived at EDR: 03/28/2013	Telephone: 803-734-5376
Date Made Active in Reports: 05/10/2013	Last EDR Contact: 06/14/2013
Number of Days to Update: 43	Next Scheduled EDR Contact: 09/30/2013
	Data Release Frequency: Annually

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: Permitted Landfills List

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 03/29/2013	Source: Department of Health and Environmental Control
Date Data Arrived at EDR: 03/29/2013	Telephone: 803-734-5165
Date Made Active in Reports: 05/10/2013	Source: Department of Health and Environmental Control, GIS Section
Number of Days to Update: 42	Telephone: 803-896-4084
	Last EDR Contact: 06/14/2013
	Next Scheduled EDR Contact: 09/30/2013
	Data Release Frequency: Varies

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tank List Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 02/05/2013	Source: Department of Health and Environmental Control
Date Data Arrived at EDR: 02/07/2013	Telephone: 803-898-4350
Date Made Active in Reports: 04/02/2013	Last EDR Contact: 04/29/2013
Number of Days to Update: 54	Next Scheduled EDR Contact: 08/12/2013
	Data Release Frequency: Quarterly

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 02/06/2013
Date Data Arrived at EDR: 02/08/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 63

Source: EPA Region 4 Telephone: 404-562-8677 Last EDR Contact: 04/29/2013 Next Scheduled EDR Contact: 08/12/2013 Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 09/28/2012	Source: EPA Region 1
Date Data Arrived at EDR: 11/01/2012	Telephone: 617-918-1313
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 05/01/2013
Number of Days to Update: 162	Next Scheduled EDR Contact: 08/12/2013
	Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 09/12/2011	Source: EPA Region 6
Date Data Arrived at EDR: 09/13/2011	Telephone: 214-665-6597
Date Made Active in Reports: 11/11/2011	Last EDR Contact: 04/29/2013
Number of Days to Update: 59	Next Scheduled EDR Contact: 08/12/2013
	Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 02/05/2013	Source: EPA Region 10
Date Data Arrived at EDR: 02/06/2013	Telephone: 206-553-2857
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 04/29/2013
Number of Days to Update: 65	Next Scheduled EDR Contact: 08/12/2013
	Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land LUSTs on Indian land in Arizona, California, New Mexico and Nevada	
Date of Government Version: 03/01/2013 Date Data Arrived at EDR: 03/01/2013 Date Made Active in Reports: 04/12/2013 Number of Days to Update: 42	Source: Environmental Protection Agency Telephone: 415-972-3372 Last EDR Contact: 04/29/2013 Next Scheduled EDR Contact: 08/12/2013 Data Release Frequency: Quarterly
INDIAN LUST R8: Leaking Underground Storage T LUSTs on Indian land in Colorado, Montana, I	Fanks on Indian Land North Dakota, South Dakota, Utah and Wyoming.
Date of Government Version: 08/27/2012 Date Data Arrived at EDR: 08/28/2012 Date Made Active in Reports: 10/16/2012 Number of Days to Update: 49	Source: EPA Region 8 Telephone: 303-312-6271 Last EDR Contact: 04/29/2013 Next Scheduled EDR Contact: 08/12/2013 Data Release Frequency: Quarterly
INDIAN LUST R7: Leaking Underground Storage T LUSTs on Indian land in Iowa, Kansas, and N	
Date of Government Version: 12/31/2012	Source: EPA Region 7

Date of Government Version: 12/31/2012	Source: EPA Region 7
Date Data Arrived at EDR: 02/28/2013	Telephone: 913-551-7003
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 04/29/2013
Number of Days to Update: 43	Next Scheduled EDR Contact: 08/12/2013
	Data Release Frequency: Varies

State and tribal registered storage tank lists

UST: Comprehensive Underground Storage Tanks Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 11/26/2012 Date Data Arrived at EDR: 11/28/2012 Date Made Active in Reports: 12/05/2012 Number of Days to Update: 7

Source: Department of Health and Environmental Control Telephone: 803-896-7957 Last EDR Contact: 04/29/2013 Next Scheduled EDR Contact: 08/12/2013 Data Release Frequency: Quarterly

AST: Aboveground Storage Tank List Registered Aboveground Storage Tanks.

> Date of Government Version: 03/25/2004 Date Data Arrived at EDR: 08/04/2004 Date Made Active in Reports: 09/23/2004 Number of Days to Update: 50

Source: Department of Health and Environmental Control Telephone: 803-898-4350 Last EDR Contact: 06/03/2013 Next Scheduled EDR Contact: 09/16/2013 Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 08/02/2012	Source: EPA Region 5
Date Data Arrived at EDR: 08/03/2012	Telephone: 312-886-6136
Date Made Active in Reports: 11/05/2012	Last EDR Contact: 04/29/2013
Number of Days to Update: 94	Next Scheduled EDR Contact: 08/
	Data Release Frequency: Varies

/12/2013

INDIAN UST R6: Underground Storage Tanks on Indian Land The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 05/10/2011
Date Data Arrived at EDR: 05/11/2011
Date Made Active in Reports: 06/14/2011
Number of Days to Update: 34

Source: EPA Region 6 Telephone: 214-665-7591 Last EDR Contact: 04/29/2013 Next Scheduled EDR Contact: 08/12/2013 Data Release Frequency: Semi-Annually

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 12/31/2012	Source: EPA Region 7
Date Data Arrived at EDR: 02/28/2013	Telephone: 913-551-7003
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 04/29/2013
Number of Days to Update: 43	Next Scheduled EDR Contact: 08/12/2013
	Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 08/27/2012 Date Data Arrived at EDR: 08/28/2012 Date Made Active in Reports: 10/16/2012 Number of Days to Update: 49 Source: EPA Region 8 Telephone: 303-312-6137 Last EDR Contact: 04/29/2013 Next Scheduled EDR Contact: 08/12/2013 Data Release Frequency: Quarterly

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 02/06/2013 Date Data Arrived at EDR: 02/08/2013 Date Made Active in Reports: 04/12/2013 Number of Days to Update: 63 Source: EPA Region 4 Telephone: 404-562-9424 Last EDR Contact: 04/29/2013 Next Scheduled EDR Contact: 08/12/2013 Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 09/28/2012Source: EPA, Region 1Date Data Arrived at EDR: 11/07/2012Telephone: 617-918-1313Date Made Active in Reports: 04/12/2013Last EDR Contact: 04/29/2013Number of Days to Update: 156Next Scheduled EDR Contact: 08/12/2013Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 02/21/2013	Source: EPA Region 9
Date Data Arrived at EDR: 02/26/2013	Telephone: 415-972-3368
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 04/29/2013
Number of Days to Update: 45	Next Scheduled EDR Contact: 08/12/2013
	Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 02/05/2013 Date Data Arrived at EDR: 02/06/2013 Date Made Active in Reports: 04/12/2013 Number of Days to Update: 65 Source: EPA Region 10 Telephone: 206-553-2857 Last EDR Contact: 04/29/2013 Next Scheduled EDR Contact: 08/12/2013 Data Release Frequency: Quarterly

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010	Source: FEMA
Date Data Arrived at EDR: 02/16/2010	Telephone: 202-646-5797
Date Made Active in Reports: 04/12/2010	Last EDR Contact: 04/18/2013
Number of Days to Update: 55	Next Scheduled EDR Contact: 07/29/2013
	Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

RCR: Registry of Conditional Remedies

The Bureau of Land and Waste Management established this Registry to help monitor and maintain sites that have conditional remedies. A Conditional Remedy is an environmental remedy that includes certain qualifications. These qualifications are divided into two major categories: Remedies requiring Land Use Controls and Conditional No Further Actions.

Date of Government Version: 09/19/2012 Date Data Arrived at EDR: 09/20/2012 Date Made Active in Reports: 10/22/2012 Number of Days to Update: 32 Source: Department of Health & Environmental Control Telephone: 803-896-4000 Last EDR Contact: 03/22/2013 Next Scheduled EDR Contact: 07/01/2013 Data Release Frequency: Varies

AUL: Land Use Controls

The term Land Use Controls or "LUCs" encompass institutional controls, such as those involved in real estate interests, governmental permitting, zoning, public advisories, deed notices, and other legal restrictions. The term also includes restrictions on access, whether achieved by means of engineered barriers (e.g., fence or concrete pad) or by human means (e.g., the presence of security guards). Additionally, the term includes both affirmative measures to achieve the desired restrictions (e.g., night lighting of an area) and prohibitive directives (e.g., restrictions on certain types of wells for the duration of the corrective action). Considered altogether, the LUCs for a facility will provide a tool for how the property should be used in order to maintain the level of protectiveness that one or more corrective actions were designed to achieve.

Date of Government Version: 10/13/2008 Date Data Arrived at EDR: 10/14/2008 Date Made Active in Reports: 11/19/2008 Number of Days to Update: 36 Source: Department of Health & Environmental Control Telephone: 803-896-4049 Last EDR Contact: 04/19/2013 Next Scheduled EDR Contact: 07/29/2013 Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 09/28/2012 Date Data Arrived at EDR: 10/02/2012 Date Made Active in Reports: 10/16/2012 Number of Days to Update: 14 Source: EPA, Region 1 Telephone: 617-918-1102 Last EDR Contact: 04/05/2013 Next Scheduled EDR Contact: 07/15/2013 Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008 Date Data Arrived at EDR: 04/22/2008 Date Made Active in Reports: 05/19/2008 Number of Days to Update: 27 Source: EPA, Region 7 Telephone: 913-551-7365 Last EDR Contact: 04/20/2009 Next Scheduled EDR Contact: 07/20/2009 Data Release Frequency: Varies

VCP: Voluntary Cleanup Sites

Sites participating in the Voluntary Cleanup Program. Once staff and a non-responsible party have agreed upon an approved scope of work for a site investigation and/or remediation, the party enters into a voluntary cleanup contract. Staff oversees the cleanup efforts to ensure that activities are performed to our satisfaction. Upon completion of the negotiated work in the voluntary cleanup contract, the non-responsible party receives State Superfund liability protection.

Date of Government Version: 09/19/2012 Date Data Arrived at EDR: 09/20/2012 Date Made Active in Reports: 10/22/2012 Number of Days to Update: 32 Source: Department of Health and Environmental Control Telephone: 803-896-4049 Last EDR Contact: 06/12/2013 Next Scheduled EDR Contact: 09/30/2013 Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Brownfields Sites Listing

The Brownfields component of the Voluntary Cleanup Program allows a non-responsible party to acquire a contaminated property with State Superfund liability protection for existing contamination by agreeing to perform an environmental assessment and/or remediation.

Date of Government Version: 02/26/2013 Date Data Arrived at EDR: 02/27/2013 Date Made Active in Reports: 04/02/2013 Number of Days to Update: 34 Source: Department of Health & Environmental Control Telephone: 803-896-4069 Last EDR Contact: 05/08/2013 Next Scheduled EDR Contact: 07/15/2013 Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 12/10/2012 Date Data Arrived at EDR: 12/11/2012 Date Made Active in Reports: 12/20/2012 Number of Days to Update: 9 Source: Environmental Protection Agency Telephone: 202-566-2777 Last EDR Contact: 03/26/2013 Next Scheduled EDR Contact: 07/08/2013 Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9 Telephone: 415-947-4219 Last EDR Contact: 04/29/2013 Next Scheduled EDR Contact: 08/12/2013 Data Release Frequency: No Update Planned

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985 Date Data Arrived at EDR: 08/09/2004 Date Made Active in Reports: 09/17/2004 Number of Days to Update: 39 Source: Environmental Protection Agency Telephone: 800-424-9346 Last EDR Contact: 06/09/2004 Next Scheduled EDR Contact: N/A Data Release Frequency: No Update Planned

SWRCY: Solid Waste Recycling Facilities A listing of recycling center locations.

> Date of Government Version: 03/06/2012 Date Data Arrived at EDR: 03/09/2012 Date Made Active in Reports: 04/04/2012 Number of Days to Update: 26

Source: Department of Health & Enviornmental Control Telephone: 803-896-8985 Last EDR Contact: 06/04/2013 Next Scheduled EDR Contact: 09/16/2013 Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands Location of open dumps on Indian land.

Date of Government Version: 12/31/1998Source: EnvDate Data Arrived at EDR: 12/03/2007Telephone: 1Date Made Active in Reports: 01/24/2008Last EDR CoNumber of Days to Update: 52Next ScheduDate Data Arrived at Control of Days to Update: 52Date Schedu

Source: Environmental Protection Agency Telephone: 703-308-8245 Last EDR Contact: 05/03/2013 Next Scheduled EDR Contact: 08/19/2013 Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 03/04/2013 Date Data Arrived at EDR: 03/12/2013 Date Made Active in Reports: 05/10/2013 Number of Days to Update: 59 Source: Drug Enforcement Administration Telephone: 202-307-1000 Last EDR Contact: 06/03/2013 Next Scheduled EDR Contact: 09/16/2013 Data Release Frequency: Quarterly

ALLSITES: Site Assessment & Remediation Public Record Database

The South Carolina Department of Health and Environmental Control is pleased to have the Public Record for your review. The purpose of this database is two-fold. First, it will provide to communities another form of notice of cleanup activity, allowing them to have more information about assessment and cleanup activities in their area and in the State. Second, it can assist those seeking to redevelop brownfield properties within South Carolina.

Date of Government Version: 02/01/2013 Date Data Arrived at EDR: 03/28/2013 Date Made Active in Reports: 05/10/2013 Number of Days to Update: 43 Source: Department of Health & Environmental Control Telephone: 803-896-4000 Last EDR Contact: 04/05/2013 Next Scheduled EDR Contact: 07/15/2013 Data Release Frequency: Quarterly

CDL: Clandestine Drug Lab Sites

A listing of clandestine drug lab site locations.

Date of Government Version: 01/24/2012 Date Data Arrived at EDR: 01/26/2012 Date Made Active in Reports: 02/24/2012 Number of Days to Update: 29 Source: Department of Health & Environmental Control Telephone: 803-896-4288 Last EDR Contact: 06/10/2013 Next Scheduled EDR Contact: 09/23/2013 Data Release Frequency: Varies

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007 Date Data Arrived at EDR: 11/19/2008 Date Made Active in Reports: 03/30/2009 Number of Days to Update: 131 Source: Drug Enforcement Administration Telephone: 202-307-1000 Last EDR Contact: 03/23/2009 Next Scheduled EDR Contact: 06/22/2009 Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/06/2013 Date Data Arrived at EDR: 04/25/2013 Date Made Active in Reports: 05/10/2013 Number of Days to Update: 15 Source: Environmental Protection Agency Telephone: 202-564-6023 Last EDR Contact: 04/29/2013 Next Scheduled EDR Contact: 08/12/2013 Data Release Frequency: Varies

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/31/2012	Source: U.S. Department of Transportation
Date Data Arrived at EDR: 01/03/2013	Telephone: 202-366-4555
Date Made Active in Reports: 02/27/2013	Last EDR Contact: 04/02/2013
Number of Days to Update: 55	Next Scheduled EDR Contact: 07/15/2013
	Data Release Frequency: Annually

SPILLS: Spill List

Spills and releases of petroleum and hazardous chemicals reported to the Oil & Chemical Emergency Response division.

Date of Government Version: 01/22/2013		
Date Data Arrived at EDR: 01/24/2013		
Date Made Active in Reports: 02/01/2013		
Number of Days to Update: 8		

Source: Department of Health and Environmental Control Telephone: 803-898-4111 Last EDR Contact: 06/06/2013 Next Scheduled EDR Contact: 09/16/2013 Data Release Frequency: Varies

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 10/25/2012 Date Data Arrived at EDR: 01/03/2013 Date Made Active in Reports: 03/07/2013 Number of Days to Update: 63 Source: FirstSearch Telephone: N/A Last EDR Contact: 01/03/2013 Next Scheduled EDR Contact: N/A Data Release Frequency: No Update Planned

SPILLS 80: SPILLS80 data from FirstSearch

Spills 80 includes those spill and release records available from FirstSearch databases prior to 1990. Typically, they may include chemical, oil and/or hazardous substance spills recorded before 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 80.

Date of Government Version: 03/26/2001 Date Data Arrived at EDR: 01/03/2013 Date Made Active in Reports: 03/07/2013 Number of Days to Update: 63 Source: FirstSearch Telephone: N/A Last EDR Contact: 01/03/2013 Next Scheduled EDR Contact: N/A Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 02/12/2013 Date Data Arrived at EDR: 02/15/2013 Date Made Active in Reports: 02/27/2013 Number of Days to Update: 12 Source: Environmental Protection Agency Telephone: (404) 562-8651 Last EDR Contact: 05/02/2013 Next Scheduled EDR Contact: 07/15/2013 Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012Source: Department of Transporation, Office of Pipeline SafetyDate Data Arrived at EDR: 08/07/2012Telephone: 202-366-4595Date Made Active in Reports: 09/18/2012Last EDR Contact: 05/07/2013Number of Days to Update: 42Next Scheduled EDR Contact: 08/19/2013Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005 Date Data Arrived at EDR: 11/10/2006 Date Made Active in Reports: 01/11/2007 Number of Days to Update: 62 Source: USGS Telephone: 888-275-8747 Last EDR Contact: 04/19/2013 Next Scheduled EDR Contact: 07/29/2013 Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2011Source: U.S.Date Data Arrived at EDR: 02/26/2013Telephone: 20Date Made Active in Reports: 03/13/2013Last EDR ConNumber of Days to Update: 15Next Schedule

Source: U.S. Army Corps of Engineers Telephone: 202-528-4285 Last EDR Contact: 06/10/2013 Next Scheduled EDR Contact: 09/23/2013 Data Release Frequency: Varies

GC	VERNMENT RECORDS S	EARCHED / DATA CURRENCY TRACKIN
CO	NSENT: Superfund (CERCLA) Consent Decree: Major legal settlements that establish responsi periodically by United States District Courts aft	bility and standards for cleanup at NPL (Superfund) sites. Released
	Date of Government Version: 12/31/2011 Date Data Arrived at EDR: 01/15/2013 Date Made Active in Reports: 03/13/2013 Number of Days to Update: 57	Source: Department of Justice, Consent Decree Library Telephone: Varies Last EDR Contact: 04/01/2013 Next Scheduled EDR Contact: 07/15/2013 Data Release Frequency: Varies
ROI	D: Records Of Decision Record of Decision. ROD documents mandate and health information to aid in the cleanup.	a permanent remedy at an NPL (Superfund) site containing technical
	Date of Government Version: 12/18/2012 Date Data Arrived at EDR: 03/13/2013 Date Made Active in Reports: 04/12/2013 Number of Days to Update: 30	Source: EPA Telephone: 703-416-0223 Last EDR Contact: 06/11/2013 Next Scheduled EDR Contact: 09/23/2013 Data Release Frequency: Annually
UM⁻	shut down, large piles of the sand-like material the ore. Levels of human exposure to radioact	for federal government use in national defense programs. When the mills I (mill tailings) remain after uranium has been extracted from tive materials from the piles are low; however, in some cases tailings e potential health hazards of the tailings were recognized.
	Date of Government Version: 09/14/2010 Date Data Arrived at EDR: 10/07/2011 Date Made Active in Reports: 03/01/2012 Number of Days to Update: 146	Source: Department of Energy Telephone: 505-845-0011 Last EDR Contact: 05/28/2013 Next Scheduled EDR Contact: 09/09/2013 Data Release Frequency: Varies
US	MINES: Mines Master Index File Contains all mine identification numbers issued violation information.	d for mines active or opened since 1971. The data also includes
	Date of Government Version: 02/05/2013 Date Data Arrived at EDR: 04/18/2013 Date Made Active in Reports: 05/10/2013 Number of Days to Update: 22	Source: Department of Labor, Mine Safety and Health Administration Telephone: 303-231-5959 Last EDR Contact: 06/04/2013 Next Scheduled EDR Contact: 09/16/2013 Data Release Frequency: Semi-Annually
TRI	S: Toxic Chemical Release Inventory System Toxic Release Inventory System. TRIS identifier land in reportable quantities under SARA Title	es facilities which release toxic chemicals to the air, water and III Section 313.
	Date of Government Version: 12/31/2009 Date Data Arrived at EDR: 09/01/2011 Date Made Active in Reports: 01/10/2012 Number of Days to Update: 131	Source: EPA Telephone: 202-566-0250 Last EDR Contact: 05/29/2013 Next Scheduled EDR Contact: 09/09/2013 Data Release Frequency: Annually
TSC		s manufacturers and importers of chemical substances included on the cludes data on the production volume of these substances by plant
	Date of Government Version: 12/31/2006 Date Data Arrived at EDR: 09/29/2010	Source: EPA Telephone: 202-260-5521

Date of Government Version: 12/31/2006SourceDate Data Arrived at EDR: 09/29/2010TelephoDate Made Active in Reports: 12/02/2010Last EENumber of Days to Update: 64Next So

Source: EPA Telephone: 202-260-5521 Last EDR Contact: 03/28/2013 Next Scheduled EDR Contact: 07/08/2013 Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act) FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009	Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 05/28/2013
Number of Days to Update: 25	Next Scheduled EDR Contact: 09/09/2013
	Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act) A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009	Source: EPA
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 05/28/2013
Number of Days to Update: 25	Next Scheduled EDR Contact: 09/09/2013
	Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006 Date Data Arrived at EDR: 03/01/2007 Date Made Active in Reports: 04/10/2007 Number of Days to Update: 40 Source: Environmental Protection Agency Telephone: 202-564-2501 Last EDR Contact: 12/17/2007 Next Scheduled EDR Contact: 03/17/2008 Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006 Date Data Arrived at EDR: 03/01/2007 Date Made Active in Reports: 04/10/2007 Number of Days to Update: 40 Source: Environmental Protection Agency Telephone: 202-564-2501 Last EDR Contact: 12/17/2008 Next Scheduled EDR Contact: 03/17/2008 Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009 Date Data Arrived at EDR: 12/10/2010 Date Made Active in Reports: 02/25/2011 Number of Days to Update: 77 Source: EPA Telephone: 202-564-4203 Last EDR Contact: 04/29/2013 Next Scheduled EDR Contact: 08/12/2013 Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/20/2011	Source: Environmental Protection Agency
Date Data Arrived at EDR: 11/10/2011	Telephone: 202-564-5088
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 04/15/2013
Number of Days to Update: 61	Next Scheduled EDR Contact: 07/29/2013
	Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 11/01/2012	Source: EPA
Date Data Arrived at EDR: 01/16/2013	Telephone: 202-566-0500
Date Made Active in Reports: 05/10/2013	Last EDR Contact: 04/19/2013
Number of Days to Update: 114	Next Scheduled EDR Contact: 07/29/2013
	Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 06/21/2011	Sc
Date Data Arrived at EDR: 07/15/2011	Te
Date Made Active in Reports: 09/13/2011	La
Number of Days to Update: 60	Ne
	_

Source: Nuclear Regulatory Commission Telephone: 301-415-7169 Last EDR Contact: 06/10/2013 Next Scheduled EDR Contact: 09/23/2013 Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 04/11/2013
Next Scheduled EDR Contact: 07/22/2013
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 10/23/2011
Date Data Arrived at EDR: 12/13/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 79

Source: EPA Telephone: (404) 562-9900 Last EDR Contact: 06/13/2013 Next Scheduled EDR Contact: 09/23/2013 Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995 Date Data Arrived at EDR: 07/03/1995 Date Made Active in Reports: 08/07/1995 Number of Days to Update: 35 Source: EPA Telephone: 202-564-4104 Last EDR Contact: 06/02/2008 Next Scheduled EDR Contact: 09/01/2008 Data Release Frequency: No Update Planned

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 05/08/2012 Date Data Arrived at EDR: 05/25/2012 Date Made Active in Reports: 07/10/2012 Number of Days to Update: 46 Source: Environmental Protection Agency Telephone: 202-564-8600 Last EDR Contact: 04/29/2013 Next Scheduled EDR Contact: 08/12/2013 Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2011 Date Data Arrived at EDR: 02/26/2013 Date Made Active in Reports: 04/19/2013 Number of Days to Update: 52 Source: EPA/NTIS Telephone: 800-424-9346 Last EDR Contact: 05/30/2013 Next Scheduled EDR Contact: 09/09/2013 Data Release Frequency: Biennially

Environmental Control

GWCI: Groundwater Contamination Inventory

An inventory of all groundwater contamination cases in the state.

Date of Government Version: 07/01/2008	Source: Department of Health and Environmental Control
Date Data Arrived at EDR: 11/06/2008	Telephone: 803-898-3798
Date Made Active in Reports: 11/19/2008	Last EDR Contact: 04/15/2013
Number of Days to Update: 13	Next Scheduled EDR Contact: 07/15/2013
	Data Release Frequency: Annually

UIC: Underground Injection Wells Listing

A listing of underground injection wells locations.

Date of Government Version: 04/02/2013	Source: Department of Health & Environme
Date Data Arrived at EDR: 04/04/2013	Telephone: 803-898-3799
Date Made Active in Reports: 05/10/2013	Last EDR Contact: 05/13/2013
Number of Days to Update: 36	Next Scheduled EDR Contact: 08/26/2013
	Data Release Frequency: Varies

DRYCLEANERS: Drycleaner Database

The Drycleaning Facility Restoration Trust Fund database is used to access, prioritze and cleanup contaminated registered drycleaning sites.

Date of Government Version: 12/01/2010 Date Data Arrived at EDR: 02/11/2011	Source: Department of Health & Environmental Control Telephone: 803-898-3882
Date Made Active in Reports: 03/15/2011	Last EDR Contact: 05/10/2013
Number of Days to Update: 32	Next Scheduled EDR Contact: 08/19/2013
• •	Data Release Frequency: Varies

NPDES: Waste Water Treatment Facilities Listing A listing of waste water treatment facility location	ons.	
Date of Government Version: 12/21/2012 Date Data Arrived at EDR: 12/21/2012 Date Made Active in Reports: 02/01/2013 Number of Days to Update: 42	Source: Department of Health & Environmental Control Telephone: 803-898-4300 Last EDR Contact: 03/25/2013 Next Scheduled EDR Contact: 07/08/2013 Data Release Frequency: Varies	
AIRS: Permiited Airs Facility Listing A listing of permitted airs facilities.		
Date of Government Version: 12/31/2011 Date Data Arrived at EDR: 03/08/2012 Date Made Active in Reports: 04/04/2012 Number of Days to Update: 27	Source: Department of Health & Environmental Control Telephone: 803-898-4279 Last EDR Contact: 06/03/2013 Next Scheduled EDR Contact: 09/16/2013 Data Release Frequency: Varies	
INDIAN RESERV: Indian Reservations This map layer portrays Indian administered la than 640 acres.	nds of the United States that have any area equal to or greater	
Date of Government Version: 12/31/2005 Date Data Arrived at EDR: 12/08/2006 Date Made Active in Reports: 01/11/2007 Number of Days to Update: 34	Source: USGS Telephone: 202-208-3710 Last EDR Contact: 04/19/2013 Next Scheduled EDR Contact: 07/29/2013 Data Release Frequency: Semi-Annually	
SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.		
Date of Government Version: 03/07/2011 Date Data Arrived at EDR: 03/09/2011 Date Made Active in Reports: 05/02/2011 Number of Days to Update: 54	Source: Environmental Protection Agency Telephone: 615-532-8599 Last EDR Contact: 05/06/2013 Next Scheduled EDR Contact: 08/05/2013 Data Release Frequency: Varies	
PRP: Potentially Responsible Parties A listing of verified Potentially Responsible Par	ties	
Date of Government Version: 12/02/2012 Date Data Arrived at EDR: 01/03/2013 Date Made Active in Reports: 03/13/2013 Number of Days to Update: 69	Source: EPA Telephone: 202-564-6023 Last EDR Contact: 04/04/2013 Next Scheduled EDR Contact: 07/15/2013 Data Release Frequency: Quarterly	
FEDLAND: Federal and Indian Lands Federally and Indian administrated lands of the	e United States. Lands included are administrated by: Army Corps	

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005 Date Data Arrived at EDR: 02/06/2006 Date Made Active in Reports: 01/11/2007 Number of Days to Update: 339 Source: U.S. Geological Survey Telephone: 888-275-8747 Last EDR Contact: 04/19/2013 Next Scheduled EDR Contact: 07/29/2013 Data Release Frequency: N/A

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 11/11/2011 Date Data Arrived at EDR: 05/18/2012 Date Made Active in Reports: 05/25/2012 Number of Days to Update: 7 Source: Environmental Protection Agency Telephone: 703-308-4044 Last EDR Contact: 05/17/2013 Next Scheduled EDR Contact: 08/26/2013 Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931 and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001 Date Data Arrived at EDR: 10/27/2010 Date Made Active in Reports: 12/02/2010 Number of Days to Update: 36 Source: American Journal of Public Health Telephone: 703-305-6451 Last EDR Contact: 12/02/2009 Next Scheduled EDR Contact: N/A Data Release Frequency: No Update Planned

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 01/29/2013 Date Data Arrived at EDR: 02/14/2013 Date Made Active in Reports: 02/27/2013 Number of Days to Update: 13 Source: Environmental Protection Agency Telephone: 703-603-8787 Last EDR Contact: 04/08/2013 Next Scheduled EDR Contact: 07/22/2013 Data Release Frequency: Varies

Financial Assurance 3: Financial Assurance Information Listing UST financial assurance information.

Date of Government Version: 05/25/2011 Date Data Arrived at EDR: 05/27/2011 Date Made Active in Reports: 06/30/2011 Number of Days to Update: 34 Source: Department of Health & Environmental Control Telephone: 803-898-3880 Last EDR Contact: 06/06/2013 Next Scheduled EDR Contact: 09/16/2013 Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing Hazardous waste financial assurance information.

Date of Government Version: 12/21/2012 Date Data Arrived at EDR: 12/21/2012	Source: Department of Health & Environmental Control Telephone: 803-898-3880
Date Made Active in Reports: 02/01/2013	Last EDR Contact: 06/10/2013
Number of Days to Update: 42	Next Scheduled EDR Contact: 09/30/2013
	Data Release Frequency: Varies

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 01/23/2013SourceDate Data Arrived at EDR: 01/30/2013TelepDate Made Active in Reports: 05/10/2013LastNumber of Days to Update: 100Next

Source: EPA Telephone: 202-564-5962 Last EDR Contact: 04/01/2013 Next Scheduled EDR Contact: 07/15/2013 Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data A listing of minor source facilities.

> Date of Government Version: 01/23/2013 Date Data Arrived at EDR: 01/30/2013 Date Made Active in Reports: 05/10/2013 Number of Days to Update: 100

Source: EPA Telephone: 202-564-5962 Last EDR Contact: 04/01/2013 Next Scheduled EDR Contact: 07/15/2013 Data Release Frequency: Annually

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 12/31/2012 Date Data Arrived at EDR: 02/18/2013 Date Made Active in Reports: 05/10/2013 Number of Days to Update: 81 Source: Environmental Protection Agency Telephone: 617-520-3000 Last EDR Contact: 05/10/2013 Next Scheduled EDR Contact: 08/26/2013 Data Release Frequency: Quarterly

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 03/04/2013 Date Data Arrived at EDR: 03/15/2013 Date Made Active in Reports: 05/10/2013 Number of Days to Update: 56 Source: Environmental Protection Agency Telephone: 202-566-1917 Last EDR Contact: 05/20/2013 Next Scheduled EDR Contact: 09/02/2013 Data Release Frequency: Quarterly

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011	
Date Data Arrived at EDR: 10/19/2011	-
Date Made Active in Reports: 01/10/2012	l
Number of Days to Update: 83	1

Source: Environmental Protection Agency Telephone: 202-566-0517 Last EDR Contact: 05/03/2013 Next Scheduled EDR Contact: 08/12/2013 Data Release Frequency: Varies

COAL ASH: Coal Ash Disposal Sites

A listing of sites with coal ash ponds.

Date of Government Version: 07/31/2009 Date Data Arrived at EDR: 08/07/2009 Date Made Active in Reports: 08/17/2009 Number of Days to Update: 10

Source: Department of Health & Environmental Control Telephone: 803-898-3964 Last EDR Contact: 03/25/2013 Next Scheduled EDR Contact: 07/08/2013 Data Release Frequency: Varies

COAL ASH DOE: Sleam-Electric Plan Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005	Source: Department of Energy
Date Data Arrived at EDR: 08/07/2009	Telephone: 202-586-8719
Date Made Active in Reports: 10/22/2009	Last EDR Contact: 04/18/2013
Number of Days to Update: 76	Next Scheduled EDR Contact: 07/29/2013
	Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 08/17/2010 Date Data Arrived at EDR: 01/03/2011 Date Made Active in Reports: 03/21/2011 Number of Days to Update: 77 Source: Environmental Protection Agency Telephone: N/A Last EDR Contact: 06/14/2013 Next Scheduled EDR Contact: 09/23/2013 Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial assurance information for aolid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 12/21/2012 Date Data Arrived at EDR: 12/21/2012 Date Made Active in Reports: 02/01/2013 Number of Days to Update: 42 Source: Department of Health & Environmental Control Telephone: 803-896-4067 Last EDR Contact: 06/10/2013 Next Scheduled EDR Contact: 09/30/2013 Data Release Frequency: Quarterly

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A Date Data Arrived at EDR: N/A Date Made Active in Reports: N/A Number of Days to Update: N/A Source: EDR, Inc. Telephone: N/A Last EDR Contact: N/A Next Scheduled EDR Contact: N/A Data Release Frequency: No Update Planned

EDR US Hist Auto Stat: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A Date Data Arrived at EDR: N/A Date Made Active in Reports: N/A Number of Days to Update: N/A Source: EDR, Inc. Telephone: N/A Last EDR Contact: N/A Next Scheduled EDR Contact: N/A Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A Date Data Arrived at EDR: N/A Date Made Active in Reports: N/A Number of Days to Update: N/A

Source: EDR, Inc. Telephone: N/A Last EDR Contact: N/A Next Scheduled EDR Contact: N/A Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Proprietary Historic Dry Cleaners - Cole

Date of Government Version: N/A Date Data Arrived at EDR: N/A Date Made Active in Reports: N/A Number of Days to Update: N/A

Source: N/A Telephone: N/A Last EDR Contact: N/A Next Scheduled EDR Contact: N/A Data Release Frequency: Varies

EDR US Hist Auto Stat: EDR Proprietary Historic Gas Stations - Cole

Date of Government Version: N/A Date Data Arrived at EDR: N/A Date Made Active in Reports: N/A Number of Days to Update: N/A

Source: N/A Telephone: N/A Last EDR Contact: N/A Next Scheduled EDR Contact: N/A Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Number of Days to Update: 36

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 02/18/2013 Date Data Arrived at EDR: 02/18/2013 Date Made Active in Reports: 03/21/2013 Number of Days to Update: 31	Source: Department of Energy & Environmental Protection Telephone: 860-424-3375 Last EDR Contact: 05/21/2013 Next Scheduled EDR Contact: 09/02/2013 Data Release Frequency: Annually
NJ MANIFEST: Manifest Information Hazardous waste manifest information.	
Date of Government Version: 12/31/2011 Date Data Arrived at EDR: 07/19/2012 Date Made Active in Reports: 08/28/2012 Number of Days to Update: 40	Source: Department of Environmental Protection Telephone: N/A Last EDR Contact: 04/19/2013 Next Scheduled EDR Contact: 07/29/2013 Data Release Frequency: Annually
NY MANIFEST: Facility and Manifest Data Manifest is a document that lists and tracks h facility.	nazardous waste from the generator through transporters to a TSD
Date of Government Version: 02/01/2013 Date Data Arrived at EDR: 02/07/2013	Source: Department of Environmental Conservation Telephone: 518-402-8651

Telephone: 518-402-8651 Date Made Active in Reports: 03/15/2013 Last EDR Contact: 05/09/2013 Next Scheduled EDR Contact: 08/19/2013 Data Release Frequency: Annually

PA MANIFEST: Manifest Information Hazardous waste manifest information.	
Date of Government Version: 12/31/2011 Date Data Arrived at EDR: 07/23/2012 Date Made Active in Reports: 09/18/2012 Number of Days to Update: 57	Source: Department of Environmental Protection Telephone: 717-783-8990 Last EDR Contact: 04/23/2013 Next Scheduled EDR Contact: 08/05/2013 Data Release Frequency: Annually
RI MANIFEST: Manifest information Hazardous waste manifest information	
Date of Government Version: 12/31/2011 Date Data Arrived at EDR: 06/22/2012 Date Made Active in Reports: 07/31/2012 Number of Days to Update: 39	Source: Department of Environmental Management Telephone: 401-222-2797 Last EDR Contact: 05/28/2013 Next Scheduled EDR Contact: 09/09/2013 Data Release Frequency: Annually
WI MANIFEST: Manifest Information Hazardous waste manifest information.	
Date of Government Version: 12/31/2011 Date Data Arrived at EDR: 07/19/2012 Date Made Active in Reports: 09/27/2012 Number of Days to Update: 70	Source: Department of Natural Resources Telephone: N/A Last EDR Contact: 06/14/2013 Next Scheduled EDR Contact: 09/30/2013 Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data Source: Rextag Strategies Corp. Telephone: (281) 769-2247 U.S. Electric Transmission and Power Plants Systems Digital GIS Data

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals: Source: American Hospital Association, Inc. Telephone: 312-280-5991 The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals. Medical Centers: Provider of Services Listing Source: Centers for Medicare & Medicaid Services Telephone: 410-786-3000 A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services. Nursing Homes Source: National Institutes of Health Telephone: 301-594-6248 Information on Medicare and Medicaid certified nursing homes in the United States. **Public Schools** Source: National Center for Education Statistics Telephone: 202-502-7300 The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states. **Private Schools** Source: National Center for Education Statistics Telephone: 202-502-7300 The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Child Day Care List Source: Department of Social Services Telephone: 803-898-7345

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory Source: Department of Natural Resources Telephone: 803-734-9494

Scanned Digital USGS 7.5' Topographic Map (DRG)

Source: United States Geologic Survey

A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

SC HIGHWAY 126 SC HIGHWAY 126 NORTH AUGUSTA, SC 29841

TARGET PROPERTY COORDINATES

Latitude (North):	33.5153 - 33° 30' 55.08''
Longitude (West):	81.9074 - 81° 54' 26.64''
Universal Tranverse Mercator:	Zone 17
UTM X (Meters):	415727.4
UTM Y (Meters):	3708591.2
Elevation:	211 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	33081-E8 NORTH AUGUSTA, SC GA
Most Recent Revision:	1980

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

- 1. Groundwater flow direction, and
- 2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

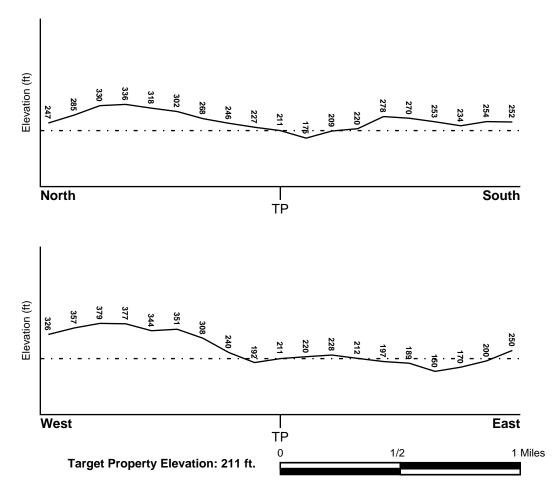
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General South

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County AIKEN, SC	FEMA Flood <u>Electronic Data</u> Not Available
Flood Plain Panel at Target Property:	Not Reported
Additional Panels in search area:	Not Reported
NATIONAL WETLAND INVENTORY	NWI Electronic
NWI Quad at Target Property NORTH AUGUSTA	<u>Data Coverage</u> YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

> MAP ID Not Reported

LOCATION FROM TP

GENERAL DIRECTION GROUNDWATER FLOW

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

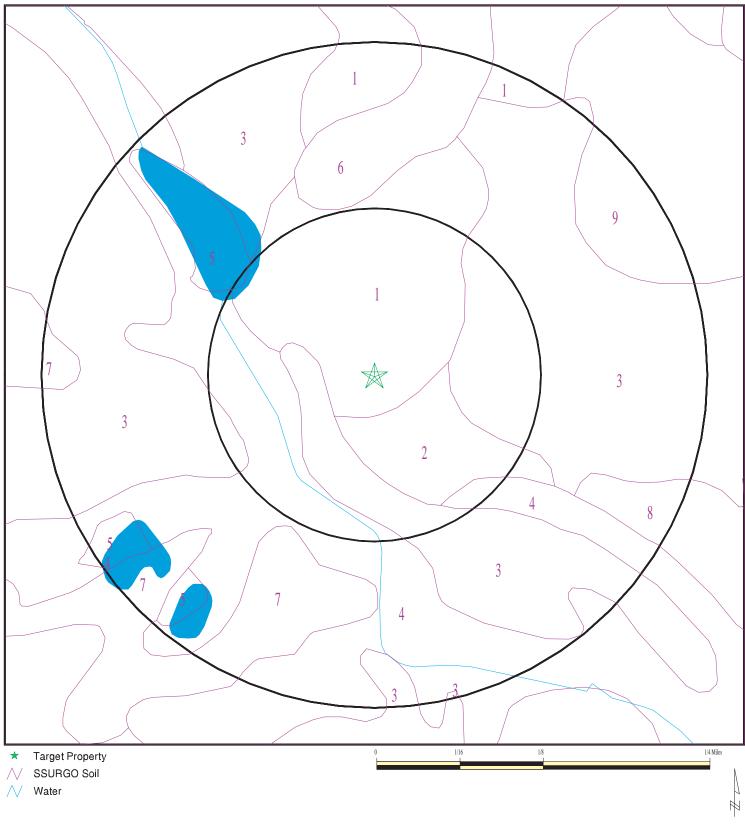
ROCK STRATIGRAPHIC UNIT

GEOLOGIC AGE IDENTIFICATION

Era:	Mesozoic	Category:	Stratified Sequence
System:	Cretaceous		
Series:	Woodbine and Tuscaloosa Groups		
Code:	uK1 (decoded above as Era, System & Se	eries)	

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 3640461.2s



SITE NAME:	SC Highway 126
ADDRESS:	SC Highway 126
	North Augusta SC 29841
LAT/LONG:	33.5153 <i> </i> 81.9074

INQUIRY #:	Andv Ruocco			
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DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1	
Soil Component Name:	TROUP
Soil Surface Texture: Hydrologic Group:	Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.
Soil Drainage Class:	Somewhat excessively drained
Hydric Status: Not hydric	
Corrosion Potential - Uncoated Steel:	Low
Depth to Bedrock Min:	> 0 inches
Depth to Watertable Min:	> 0 inches

Soil Layer Information							
Boundary			Classification		Saturated hydraulic		
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	conductivity	Soil Reaction (pH)
1	0 inches	59 inches		Not reported	Not reported	Max: 14 Min: 4	Max: 5.5 Min: 4.5
2	59 inches	79 inches		Not reported	Not reported	Max: 14 Min: 4	Max: 5.5 Min: 4.5

Soil Map ID: 2	
Soil Component Name:	VAUCLUSE
Soil Surface Texture: Hydrologic Group:	Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.
Soil Drainage Class:	Well drained
Hydric Status: Not hydric	
Corrosion Potential - Uncoated Steel:	Low
Depth to Bedrock Min:	> 0 inches
Depth to Watertable Min:	> 0 inches

	Soil Layer Information						
	Bou	Indary		Classification		Saturated hydraulic	
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	conductivity micro m/sec	Soil Reaction (pH)
1	0 inches	9 inches		Not reported	Not reported	Max: 42 Min: 14	Max: 5.5 Min: 3.6
2	9 inches	22 inches		Not reported	Not reported	Max: 42 Min: 14	Max: 5.5 Min: 3.6
3	22 inches	59 inches		Not reported	Not reported	Max: 42 Min: 14	Max: 5.5 Min: 3.6
4	59 inches	74 inches		Not reported	Not reported	Max: 42 Min: 14	Max: 5.5 Min: 3.6

Soil Map ID: 3	
Soil Component Name:	VAUCLUSE
Soil Surface Texture: Hydrologic Group:	Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.
Soil Drainage Class:	Well drained
Hydric Status: Not hydric	
Corrosion Potential - Uncoated Steel:	Low
Depth to Bedrock Min:	> 0 inches
Depth to Watertable Min:	> 0 inches

Soil Layer Information							
	Bou	Indary		Classification		Saturated hydraulic	
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	conductivity micro m/sec	
1	0 inches	9 inches		Not reported	Not reported	Max: 42 Min: 14	Max: 5.5 Min: 3.6
2	9 inches	22 inches		Not reported	Not reported	Max: 42 Min: 14	Max: 5.5 Min: 3.6
3	22 inches	59 inches		Not reported	Not reported	Max: 42 Min: 14	Max: 5.5 Min: 3.6
4	59 inches	74 inches		Not reported	Not reported	Max: 42 Min: 14	Max: 5.5 Min: 3.6

Soil Map ID: 4

Soil Component Name:	BIBB
Soil Surface Texture: Hydrologic Group:	Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.
Soil Drainage Class:	Very poorly drained
Hydric Status: All hydric	
Corrosion Potential - Uncoated Steel:	High
Depth to Bedrock Min:	> 0 inches
Depth to Watertable Min:	> 31 inches

Soil Layer Information							
Boundary Classification				fication	Saturated hydraulic		
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		Soil Reaction (pH)
1	0 inches	3 inches		Not reported	Not reported	Max: 14 Min: 4	Max: 5.5 Min: 4.5
2	3 inches	59 inches		Not reported	Not reported	Max: 14 Min: 4	Max: 5.5 Min: 4.5

Soil Map ID: 5	
Soil Component Name:	WATER
Soil Surface Texture: Hydrologic Group:	Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.
Soil Drainage Class: Hydric Status: Unknown	
Corrosion Potential - Uncoated Steel:	Not Reported
Depth to Bedrock Min:	> 0 inches
Depth to Watertable Min:	> 0 inches
No Layer Information available.	

Soil Map ID: 6

Soil Component Name:	LAKELAND
Soil Surface Texture: Hydrologic Group:	Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.
Soil Drainage Class:	Excessively drained
Hydric Status: Not hydric	
Corrosion Potential - Uncoated Steel:	Low
Depth to Bedrock Min:	> 0 inches
Depth to Watertable Min:	> 0 inches

Soil Layer Information							
Boundary				Saturated hydraulic			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	conductivity micro m/sec	Soil Reaction (pH)
1	0 inches	66 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 6 Min: 4.5
2	66 inches	79 inches		Not reported	Not reported	Max: 141 Min: 42	Max: 6 Min: 4.5

Soil Map ID: 7	
Soil Component Name:	VAUCLUSE
Soil Surface Texture: Hydrologic Group:	Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.
Soil Drainage Class:	Well drained
Hydric Status: Not hydric	
Corrosion Potential - Uncoated Steel:	Low
Depth to Bedrock Min:	> 0 inches
Depth to Watertable Min:	> 0 inches

	Soil Layer Information						
	Bou	Indary		Classification		Saturated hydraulic	
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	conductivity micro m/sec	Soil Reaction (pH)
1	0 inches	9 inches		Not reported	Not reported	Max: 42 Min: 14	Max: 5.5 Min: 3.6
2	9 inches	22 inches		Not reported	Not reported	Max: 42 Min: 14	Max: 5.5 Min: 3.6
3	22 inches	59 inches		Not reported	Not reported	Max: 42 Min: 14	Max: 5.5 Min: 3.6
4	59 inches	74 inches		Not reported	Not reported	Max: 42 Min: 14	Max: 5.5 Min: 3.6

Soil Map ID: 8	
Soil Component Name:	FUQUAY
Soil Surface Texture: Hydrologic Group:	Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.
Soil Drainage Class:	Well drained
Hydric Status: Not hydric	
Corrosion Potential - Uncoated Steel:	Low
Depth to Bedrock Min:	> 0 inches
Depth to Watertable Min:	> 153 inches

	Soil Layer Information						
	Bou	Indary		Classification		Saturated hydraulic	
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	conductivity micro m/sec	Soil Reaction (pH)
1	0 inches	25 inches		Not reported	Not reported	Max: 1.4 Min: 0.42	Max: 6 Min: 4.5
2	25 inches	35 inches		Not reported	Not reported	Max: 1.4 Min: 0.42	Max: 6 Min: 4.5
3	35 inches	70 inches		Not reported	Not reported	Max: 1.4 Min: 0.42	Max: 6 Min: 4.5

Soil Map ID: 9

Soil Component Name:	TROUP
Soil Surface Texture: Hydrologic Group:	Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.
Soil Drainage Class:	Somewhat excessively drained
Hydric Status: Not hydric	
Corrosion Potential - Uncoated Steel:	Low
Depth to Bedrock Min:	> 0 inches
Depth to Watertable Min:	> 0 inches

	Soil Layer Information						
	Bou	ndary		Classi	fication	Saturated hydraulic	
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		Soil Reaction (pH)
1	0 inches	59 inches		Not reported	Not reported	Max: 14 Min: 4	Max: 5.5 Min: 4.5
2	59 inches	79 inches		Not reported	Not reported	Max: 14 Min: 4	Max: 5.5 Min: 4.5

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1.000 miles
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID WELL ID FROM TP

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A3	USGS40001056219	1/8 - 1/4 Mile ENE
A4	USGS40001056220	1/8 - 1/4 Mile ENE
B6	USGS40001056204	1/4 - 1/2 Mile SSE
B7	USGS40001056203	1/4 - 1/2 Mile SSE
9	USGS40001056230	1/4 - 1/2 Mile WNW
C10	USGS40001056244	1/2 - 1 Mile NE
D14	USGS40001056216	1/2 - 1 Mile West
D15	USGS40001056212	1/2 - 1 Mile West
E18	USGS40001056152	1/2 - 1 Mile SSW
E19	USGS40001056153	1/2 - 1 Mile SSW
22	USGS40001056456	1/2 - 1 Mile South

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

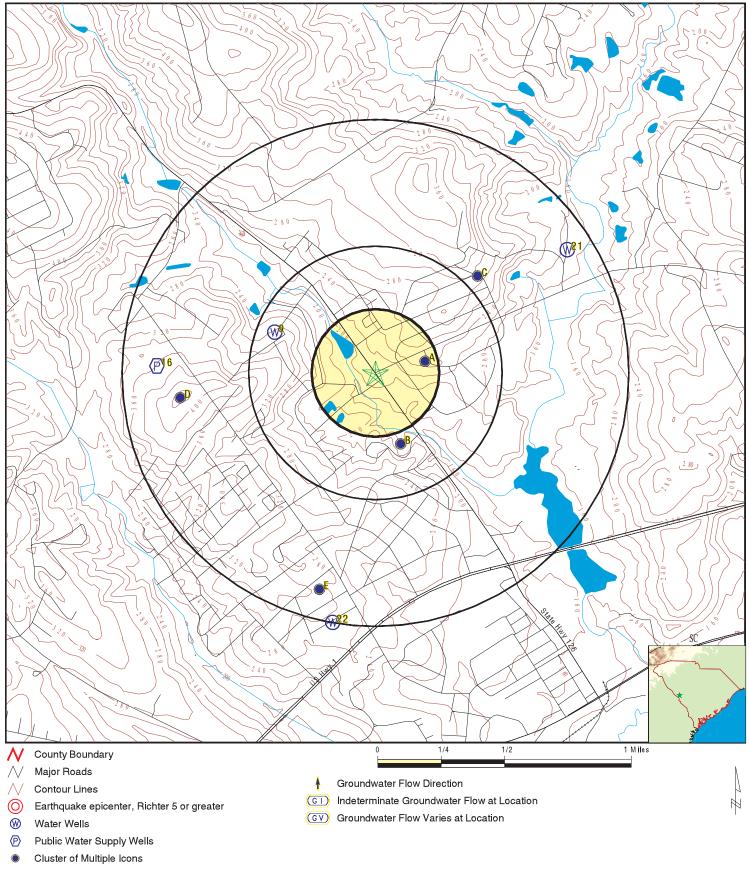
MAP ID	WELL ID	LOCATION FROM TP
16	SC0220006	1/2 - 1 Mile West

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	SCWC3000006995	1/8 - 1/4 Mile ENE
A2	SCWC3000006996	1/8 - 1/4 Mile ENE
B5	SCWC3000006971	1/4 - 1/2 Mile SSE
B8	SCWC3000006968	1/4 - 1/2 Mile SSE
C11	SCWC3000007025	1/2 - 1 Mile NE
D12	SCWC3000006987	1/2 - 1 Mile West
D13	SCWC3000006982	1/2 - 1 Mile West
E17	SCWC3000006906	1/2 - 1 Mile SSW
E20	SCWC3000006904	1/2 - 1 Mile SSW
21	SCWC30000007033	1/2 - 1 Mile ENE

PHYSICAL SETTING SOURCE MAP - 3640461.2s



ADDRESS:	INQUIRY #:	Terracon Andy Ruocco 3640461.2s June 18, 2013 3:44 pm
	Convelation	t @ 2013 EDD Inc. @ 2010 Tale Atlac Bal. 07/2000

GEOCHECK®- PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction				
Distance Elevation			Database	EDR ID Number
A1 ENE 1/8 - 1/4 Mile Higher			SC WELLS	SCWC3000006995
Conum: Latn: Longn: Utm e: Utm n:	AIK-349 333057 815415 416028 3708648	Scgrid:	41U-y7	
Topo: Elev: Owner: Location: Depth d: Depth c:	North Augusta 250 subdivision Not Reported 0 65	Owner well: Use:	Not Reported Public Supply	
Diam 1: Diam 2: Screen t:	8 Not Reported 0	Oh cas:	Not Reported	
Screen b: Drill yr: Yield:	0 Not Reported 125	Drill mo:	Not Reported	
Yield yr: D logs: P test:	Not Reported 0 0	G logs:	Not Reported	
Chem: WI yr: Site id:	Not Reported Not Reported SCWC30000006995	WI: Driller:	40 Not Reported	
A2 ENE 1/8 - 1/4 Mile Higher			SC WELLS	SCWC3000006996
Conum: Latn: Longn: Utm e: Utm n: Topo: Elev:	AIK-350 333057 815415 416028 3708648 North Augusta 200	Scgrid:	41U-y8	
Owner: Location: Depth d: Depth c: Diam 1:	Funderburke Not Reported 0 65 4	Owner well: Use:	Not Reported Public Supply	
Diam 2: Screen t: Screen b:	4 Not Reported 0 0	Oh cas:	Not Reported	
Drill yr: Yield:	Not Reported 70	Drill mo:	Not Reported	
Yield yr: D logs: P test:	Not Reported 0 0	G logs:	Not Reported	

GEOCHECK®- PHYSICAL SETTING SOURCE MAP FINDINGS

Chem: WI yr: Site id:	Not Reported Not Reported SCWC30000006996	WI: Driller:	40 McKinney	
Site id.	36//000000330			
A3 ENE			FED USGS	USGS4000105621
l/8 - 1/4 Mile ligher				
Org. Identifier:	USGS-SC			
Formal name:	USGS South Carolina Wate	er Science Center		
Monloc Identifier:	USGS-333057081541508			
Monloc name:	AK- 350			
Monloc type:	Well			
Monloc desc:	Data from SCDNR 2004 Ra	asa 2004 databasa		
Huc code:	Not Reported	Drainagearea value:	Not Reported	
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported	
Contrib drainagearea units:		Latitude:	33.5159697	
Longitude:	-81.9040026	Sourcemap scale:	Not Reported	
Horiz Acc measure:	1	Horiz Acc measure units:	seconds	
Horiz Collection method:	Unknown	TIONZ ACCIMEASURE UNITS.	3600103	
Horiz coord refsys:	NAD83	Vert measure val:	200	
Vert measure units:	feet	Vertacc measure val:	0.1	
Vert accmeasure units:	feet	venace measure val.	0.1	
Vertcollection method:	Unknown			
Vert coord refsys:	NGVD29	Countrycode:	US	
Aquifername:	Not Reported	Countrycode.	00	
Formation type:	Not Reported			
Aquifer type:	Not Reported			
Construction date:	Not Reported	Welldepth:	65	
Welldepth units:	ft	Wellholedepth:	Not Reported	
Wellholedepth units:	Not Reported		nornoponou	
Ground-water levels, Numb	er of Measurements: 0			
\4 INE			FED USGS	USGS4000105622
//8 - 1/4 Mile ligher			FED 0303	03034000103022
Org. Identifier:	USGS-SC			
Formal name:	USGS South Carolina Wate	er Science Center		
Monloc Identifier:	USGS-333057081541509			
Monloc name:	AK- 349			
Monloc type:	Well			
Monloc desc:	Data from SCDNR 2004 Ra	asa 2004 database		
Huc code:	Not Reported	Drainagearea value:	Not Reported	
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported	
Contrib drainagearea units:	Not Reported	Latitude:	33.5159697	
Longitude:	-81.9040026	Sourcemap scale:	Not Reported	
Horiz Acc measure:	1	Horiz Acc measure units:	seconds	
	Unknown			
Horiz Collection method:		Vert measure val:	250	
Horiz coord refsys:	NAD83			
	NAD83 feet	Vertacc measure val:	0.1	
Horiz coord refsys: Vert measure units: Vert accmeasure units:			0.1	
Horiz coord refsys: Vert measure units: Vert accmeasure units: Vertcollection method:	feet	Vertacc measure val:		
Horiz coord refsys: Vert measure units: Vert accmeasure units: Vertcollection method: Vert coord refsys:	feet feet Unknown NGVD29		0.1 US	
Horiz coord refsys: Vert measure units: Vert accmeasure units: Vertcollection method:	feet feet Unknown	Vertacc measure val:		

Aquifer type: Construction date: Welldepth units: Wellholedepth units: Ground-water levels, Numl	Not Reported Not Reported ft Not Reported	Welldepth: Wellholedepth:	65 Not Reported	
B5 SSE 1/4 - 1/2 Mile Lower			SC WELLS	SCWC3000006971
Conum: Latn: Longn: Utm e: Utm n: Topo: Elev:	AIK-348 333040 815422 415843 3708126 North Augusta 200	Scgrid:	41U-y6	
Owner: Location: Depth d: Depth c: Diam 1:	G. C. Cushman Not Reported 0 85 3	Owner well: Use:	Not Reported Domestic	
Diam 2: Screen t: Screen b:	Not Reported 0 0	Oh cas:	Not Reported	
Drill yr: Yield:	1959 0	Drill mo:	7	
Yield yr: D logs: P test:	Not Reported 0 0	G logs:	Not Reported	
Chem: Wl yr: Site id:	Not Reported 1959 SCWC3000006971	WI: Driller:	60 Barton	
B6 SSE 1/4 - 1/2 Mile Lower			FED USGS	USGS40001056204
Org. Identifier: Formal name: Monloc Identifier: Monloc name: Monloc type: Monloc desc:	USGS-SC USGS South Carolina Water Sci USGS-333040081542208 AK- 348 Well Data from SCDNR 2004 Rasa 20			
Huc code: Drainagearea Units: Contrib drainagearea units Longitude: Horiz Acc measure: Horiz Collection method:	Not Reported Not Reported : Not Reported -81.905947 1 Unknown	Drainagearea value: Contrib drainagearea: Latitude: Sourcemap scale: Horiz Acc measure units:	Not Reported Not Reported 33.5112475 Not Reported seconds	
Horiz coord refsys: Vert measure units: Vert accmeasure units: Vertcollection method:	NAD83 feet feet Unknown	Vert measure val: Vertacc measure val:	200 0.1	
Vert coord refsys: Aquifername: Formation type:	NGVD29 Not Reported Not Reported	Countrycode:	US	

Aquifer type:	Not Reported		05	
Construction date:	Not Reported	Welldepth:	85	
Welldepth units:	ft	Wellholedepth:	Not Reported	
Wellholedepth units:	Not Reported			
Ground-water levels, Numb	er of Measurements: 0			
37 SE			FED USGS	USGS40001056203
/4 - 1/2 Mile ower				
Org. Identifier:	USGS-SC			
Formal name:	USGS South Carolina	Water Science Center		
Monloc Identifier:	USGS-3330400815420	009		
Monloc name:	AK- 347			
Monloc type:	Well			
Monloc desc:	Data from SCDNR 200	4 Rasa 2004 database		
Huc code:	Not Reported	Drainagearea value:	Not Reported	
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported	
Contrib drainagearea units:	Not Reported	Latitude:	33.5112475	
Longitude:	-81.9053915	Sourcemap scale:	Not Reported	
Horiz Acc measure:	1	Horiz Acc measure units:	seconds	
Horiz Collection method:	Unknown			
Horiz coord refsys:	NAD83	Vert measure val:	200	
Vert measure units:	feet	Vertacc measure val:	0.1	
Vert accmeasure units:	feet			
Vertcollection method:	Unknown			
Vert coord refsys:	NGVD29	Countrycode:	US	
Aquifername:	Not Reported	-		
Formation type:	Not Reported			
Aquifer type:	Not Reported			
Construction date:	Not Reported	Welldepth:	65	
Welldepth units:	ft	Wellholedepth:	Not Reported	
Wellholedepth units:	Not Reported			

B8 SSE 1/4 - 1/2 Mile Lower Conum: AIK-347 Scgrid: Latn: 333040

SCWC3000006968 SC WELLS 41U-y5 Longn: 815420 Utm e: 415895 Utm n: 3708125 Topo: North Augusta Elev: 200 Owner: Puttman Owner well: Not Reported Not Reported Domestic Location: Use: Depth d: 0 Depth c: 65 Diam 1: 3 Not Reported Oh cas: Not Reported Diam 2: Screen t: 0 Screen b: 0 Drill yr: 1959 Drill mo: Not Reported Yield: 0 Not Reported Yield yr: Not Reported G logs: D logs: 0 P test: 0

Chem:	Not Reported	WI:	45	
WI yr: Site id:	1959 SCWC3000006968	Driller:	Barton	
) WNW			FED USGS	USGS40001056230
I/4 - 1/2 Mile Higher				
Org. Identifier:	USGS-SC			
Formal name:	USGS South Carolina Water Scie	ence Center		
Monloc Identifier:	USGS-333103081545200			
Monloc name:	AK- 782			
Monloc type:	Well			
Monloc desc:	DATA FROM SCDHEC WATER	WELL RECORD		
Huc code:	03060106	Drainagearea value:	Not Reported	
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported	
Contrib drainagearea units:	•	Latitude:	33.5176363	
Longitude:	-81.9142806	Sourcemap scale:	24000	
Horiz Acc measure:	5	Horiz Acc measure units:	seconds	
Horiz Collection method:	Interpolated from map			
Horiz coord refsys:	NAD83	Vert measure val:	285.00	
Vert measure units:	feet	Vertacc measure val:	005	
Vert accmeasure units:	feet			
Vertcollection method:	Interpolated from topographic ma			
Vert coord refsys:	NGVD29	Countrycode:	US	
Aquifername:	Not Reported			
Formation type:	Not Reported			
	Not Reported			
Aquifer type:			1010	
Construction date:	19890401	Welldepth:	1010	
Construction date: Welldepth units:	19890401 ft	Welldepth: Wellholedepth:	1010 1010	
Construction date: Welldepth units: Wellholedepth units:	19890401 ft ft	•		
Construction date: Welldepth units:	19890401 ft ft	•		
Construction date: Welldepth units: Wellholedepth units: Ground-water levels, Numb	19890401 ft ft	•		USGS40001056244
Construction date: Welldepth units: Wellholedepth units: Ground-water levels, Numb	19890401 ft ft	•	1010	USGS40001056244
Construction date: Welldepth units: Wellholedepth units: Ground-water levels, Numb	19890401 ft ft	•	1010	USGS40001056244
Construction date: Welldepth units: Wellholedepth units: Ground-water levels, Numb C10 NE I/2 - 1 Mile Higher	19890401 ft ft er of Measurements: 0	Wellholedepth:	1010	USGS40001056244
Construction date: Welldepth units: Wellholedepth units: Ground-water levels, Numb C10 NE I/2 - 1 Mile Higher Org. Identifier:	19890401 ft ft er of Measurements: 0 USGS-SC	Wellholedepth:	1010	USGS40001056244
Construction date: Welldepth units: Wellholedepth units: Ground-water levels, Numb C10 NE I/2 - 1 Mile Higher Org. Identifier: Formal name:	19890401 ft ft er of Measurements: 0 USGS-SC USGS South Carolina Water Scie	Wellholedepth:	1010	 USGS40001056244
Construction date: Welldepth units: Wellholedepth units: Ground-water levels, Numb C10 NE I/2 - 1 Mile Higher Org. Identifier: Formal name: Monloc Identifier:	19890401 ft ft er of Measurements: 0 USGS-SC USGS South Carolina Water Scie USGS-333114081540100	Wellholedepth:	1010	 USGS40001056244
Construction date: Welldepth units: Wellholedepth units: Ground-water levels, Numb C10 NE I/2 - 1 Mile Higher Org. Identifier: Formal name: Monloc Identifier: Monloc name:	19890401 ft ft er of Measurements: 0 USGS-SC USGS South Carolina Water Scie USGS-333114081540100 AK-2526	Wellholedepth:	1010	USGS40001056244
Construction date: Welldepth units: Wellholedepth units: Ground-water levels, Numb C10 NE I/2 - 1 Mile Higher Org. Identifier: Formal name: Monloc Identifier: Monloc Identifier: Monloc name: Monloc type: Monloc desc: Huc code:	19890401 ft ft er of Measurements: 0 USGS-SC USGS South Carolina Water Scie USGS-333114081540100 AK-2526 Well Not Reported 03060106	Wellholedepth: ence Center Drainagearea value:	1010	USGS40001056244
Construction date: Welldepth units: Wellholedepth units: Ground-water levels, Numb C10 NE I/2 - 1 Mile Higher Org. Identifier: Formal name: Monloc Identifier: Monloc Identifier: Monloc name: Monloc type: Monloc desc: Huc code: Drainagearea Units:	19890401 ft ft er of Measurements: 0 USGS-SC USGS South Carolina Water Scie USGS-333114081540100 AK-2526 Well Not Reported 03060106 Not Reported	Wellholedepth: ence Center Drainagearea value: Contrib drainagearea:	1010 FED USGS Not Reported Not Reported	USGS40001056244
Construction date: Welldepth units: Wellholedepth units: Ground-water levels, Numb Clo NE I/2 - 1 Mile Higher Org. Identifier: Formal name: Monloc Identifier: Monloc Identifier: Monloc name: Monloc type: Monloc desc: Huc code: Drainagearea Units: Contrib drainagearea units:	19890401 ft ft er of Measurements: 0 USGS-SC USGS South Carolina Water Scie USGS-333114081540100 AK-2526 Well Not Reported 03060106 Not Reported Not Reported Not Reported	Wellholedepth: ence Center Drainagearea value: Contrib drainagearea: Latitude:	1010 FED USGS Not Reported Not Reported 33.5207472	USGS4000105624
Construction date: Welldepth units: Wellholedepth units: Ground-water levels, Numb Clo NE I/2 - 1 Mile Higher Org. Identifier: Formal name: Monloc Identifier: Monloc Identifier: Monloc name: Monloc desc: Huc code: Drainagearea Units: Contrib drainagearea units: Longitude:	19890401 ft ft er of Measurements: 0 USGS-SC USGS South Carolina Water Scie USGS-333114081540100 AK-2526 Well Not Reported 03060106 Not Reported Not Reported Not Reported -81.9004278	Wellholedepth: ence Center Drainagearea value: Contrib drainagearea: Latitude: Sourcemap scale:	1010 FED USGS Not Reported Not Reported 33.5207472 24000	USGS40001056244
Construction date: Welldepth units: Wellholedepth units: Ground-water levels, Numb Clo NE I/2 - 1 Mile Higher Org. Identifier: Formal name: Monloc Identifier: Monloc Identifier: Monloc clentifier: Monloc cleatifier: Monloc desc: Huc code: Drainagearea Units: Contrib drainagearea units: Longitude: Horiz Acc measure:	19890401 ft ft er of Measurements: 0 USGS-SC USGS South Carolina Water Scie USGS-333114081540100 AK-2526 Well Not Reported 03060106 Not Reported Not Reported -81.9004278 .01	Wellholedepth: ence Center Drainagearea value: Contrib drainagearea: Latitude: Sourcemap scale: Horiz Acc measure units:	1010 FED USGS Not Reported Not Reported 33.5207472	USGS4000105624
Construction date: Welldepth units: Wellholedepth units: Ground-water levels, Numb Clo NE I/2 - 1 Mile Higher Org. Identifier: Formal name: Monloc Identifier: Monloc Identifier: Monloc clentifier: Monloc cleatifier: Monloc desc: Huc code: Drainagearea Units: Contrib drainagearea units: Longitude: Horiz Acc measure: Horiz Collection method:	19890401 ft ft er of Measurements: 0 USGS-SC USGS South Carolina Water Scie USGS-333114081540100 AK-2526 Well Not Reported 03060106 Not Reported Not Reported -81.9004278 .01 Global positioning system (GPS)	Wellholedepth: ence Center Drainagearea value: Contrib drainagearea: Latitude: Sourcemap scale: Horiz Acc measure units: , uncorrected	1010 FED USGS Not Reported Not Reported 33.5207472 24000 seconds	USGS40001056244
Construction date: Welldepth units: Wellholedepth units: Ground-water levels, Numb Clo NE I/2 - 1 Mile Higher Org. Identifier: Formal name: Monloc Identifier: Monloc Identifier: Monloc clentifier: Monloc cleatifier: Monloc desc: Huc code: Drainagearea Units: Contrib drainagearea units: Longitude: Horiz Acc measure: Horiz Collection method: Horiz coord refsys:	19890401 ft ft er of Measurements: 0 USGS-SC USGS South Carolina Water Scie USGS-333114081540100 AK-2526 Well Not Reported 03060106 Not Reported Not Reported Not Reported -81.9004278 .01 Global positioning system (GPS) NAD83	Wellholedepth: ence Center Drainagearea value: Contrib drainagearea: Latitude: Sourcemap scale: Horiz Acc measure units: , uncorrected Vert measure val:	1010 FED USGS Not Reported Not Reported 33.5207472 24000 seconds 290.00	USGS4000105624
Construction date: Welldepth units: Wellholedepth units: Ground-water levels, Numb Clo NE I/2 - 1 Mile Higher Org. Identifier: Formal name: Monloc Identifier: Monloc Identifier: Monloc ldentifier: Monloc desc: Huc code: Drainagearea Units: Contrib drainagearea units: Longitude: Horiz Acc measure: Horiz Collection method: Horiz coord refsys: Vert measure units:	19890401 ft ft er of Measurements: 0 USGS-SC USGS South Carolina Water Scie USGS-333114081540100 AK-2526 Well Not Reported 03060106 Not Reported Not Reported Not Reported -81.9004278 .01 Global positioning system (GPS) NAD83 feet	Wellholedepth: ence Center Drainagearea value: Contrib drainagearea: Latitude: Sourcemap scale: Horiz Acc measure units: , uncorrected	1010 FED USGS Not Reported Not Reported 33.5207472 24000 seconds	USGS40001056244
Construction date: Welldepth units: Wellholedepth units: Ground-water levels, Numb Clo NE I/2 - 1 Mile Higher Org. Identifier: Formal name: Monloc Identifier: Monloc Identifier: Monloc ldentifier: Monloc desc: Huc code: Drainagearea Units: Contrib drainagearea units: Longitude: Horiz Acc measure: Horiz Collection method: Horiz coord refsys: Vert measure units: Vert accmeasure units:	19890401 ft ft ft er of Measurements: 0 USGS-SC USGS South Carolina Water Scie USGS-333114081540100 AK-2526 Well Not Reported 03060106 Not Reported Not Reported Not Reported Not Reported -81.9004278 .01 Global positioning system (GPS) NAD83 feet feet	Wellholedepth: ence Center Drainagearea value: Contrib drainagearea: Latitude: Sourcemap scale: Horiz Acc measure units: , uncorrected Vert measure val: Vertacc measure val:	1010 FED USGS Not Reported Not Reported 33.5207472 24000 seconds 290.00	USGS40001056244
Construction date: Welldepth units: Wellholedepth units: Ground-water levels, Numb C10 VE //2 - 1 Mile Higher Org. Identifier: Formal name: Monloc Identifier: Monloc Identifier: Monloc name: Monloc desc: Huc code: Drainagearea Units: Contrib drainagearea units: Longitude: Horiz Acc measure: Horiz Collection method: Horiz coord refsys: Vert measure units: Vert accmeasure units: Vert accmeasure units:	19890401 ft ft ft er of Measurements: 0 USGS-SC USGS South Carolina Water Scie USGS-333114081540100 AK-2526 Well Not Reported 03060106 Not Reported Not Reported Not Reported -81.9004278 .01 Global positioning system (GPS) NAD83 feet feet Interpolated from topographic ma	Wellholedepth: ence Center Drainagearea value: Contrib drainagearea: Latitude: Sourcemap scale: Horiz Acc measure units: , uncorrected Vert measure val: Vertacc measure val:	1010 FED USGS Not Reported Not Reported 33.5207472 24000 seconds 290.00 010	USGS40001056244
Construction date: Welldepth units: Wellholedepth units: Ground-water levels, Numb Clo NE I/2 - 1 Mile Higher Org. Identifier: Formal name: Monloc Identifier: Monloc Identifier: Monloc ldentifier: Monloc desc: Huc code: Drainagearea Units: Contrib drainagearea units: Longitude: Horiz Acc measure: Horiz Collection method: Horiz coord refsys: Vert measure units: Vert accmeasure units:	19890401 ft ft ft er of Measurements: 0 USGS-SC USGS South Carolina Water Scie USGS-333114081540100 AK-2526 Well Not Reported 03060106 Not Reported Not Reported Not Reported Not Reported -81.9004278 .01 Global positioning system (GPS) NAD83 feet feet	Wellholedepth: ence Center Drainagearea value: Contrib drainagearea: Latitude: Sourcemap scale: Horiz Acc measure units: , uncorrected Vert measure val: Vertacc measure val:	1010 FED USGS Not Reported Not Reported 33.5207472 24000 seconds 290.00	USGS40001056244

Aquifer type: Construction date: Welldepth units: Wellholedepth units:	Not Reported 19940822 ft ft	Welldepth: Wellholedepth:	125 125	
Ground-water levels, N	umber of Measurements: 0			
C11				COWC2000007025
NE 1/2 - 1 Mile Higher			SC WELLS	SCWC30000007025
Conum: Latn: Longn: Utm e: Utm n: Topo: Elev:	AIK-2526 333115 815402 416368 3709199 North Augusta 290	Scgrid:	41U-p5	
Owner: Location: Depth d: Depth c: Diam 1:	Amalia Lucero North Augusta 0 125 0	Owner well: Use:	Not Reported Not Reported	
Diam 1: Diam 2: Screen t: Screen b:	0 Not Reported 105 125	Oh cas:	Not Reported	
Drill yr: Yield:	Not Reported 0	Drill mo:	Not Reported	
Yield yr: D logs: P test:	Not Reported 0 0	G logs:	Not Reported	
Chem: WI yr: Site id:	Not Reported Not Reported SCWC30000007025	WI: Driller:	Not Reported Not Reported	
D12 West 1/2 - 1 Mile Higher			SC WELLS	SCWC3000006987
Conum: Latn: Longn: Utm e: Utm n: Topo: Elev:	AIK-474 333051 815515 414479 3708476 North Augusta 430	Scgrid:	42U-u1	
Owner: Location: Depth d: Depth c: Diam 1:	Breezy Hill W&S Woodridge Road 285 269 10	Owner well: Use:	Not Reported Abandoned	
Diam 2: Screen t: Screen b:	Not Reported 209 239	Oh cas:	Not Reported	
Drill yr: Yield:	1978 115	Drill mo:	4	
Yield yr: D logs: P test:	1978 1 1	G logs:	Not Reported	

Chem: WI yr: Site id:	C 1978 SCWC3000006987	WI: Driller:	176 Hartsfield	
D13 West 1/2 - 1 Mile Higher			SC WELLS	SCWC3000006982
Conum: Latn: Longn: Utm e: Utm n: Topo: Elev:	AIK-844 333049 815515 414478 3708415 North Augusta 430	Scgrid:	42U-u2	
Owner: Location: Depth d: Depth c: Diam 1:	Breezy Hill W&S Woodridge 0 1010 10	Owner well: Use:	# 6 Well Public Supply	
Diam 2: Screen t: Screen b:	Not Reported 220 320	Oh cas:	365	
Drill yr: Yield:	1989 170	Drill mo:	7	
Yield yr: D logs: P test:	Not Reported 0 0	G logs:	Not Reported	
Chem: WI yr: Remarks: Site id:	Not Reported 1989 Well partly in rock. SCWC3000006982	WI: Driller:	185 Berrie	
D14 West 1/2 - 1 Mile Higher			FED USGS	USGS40001056216
Org. Identifier: Formal name: Monloc Identifier: Monloc name: Monloc type: Monloc desc:	USGS-SC USGS South Carolina Water Sc USGS-333051081551500 AK- 474 Well WELL ABANDONED 12-00-199			
Huc code: Drainagearea Units: Contrib drainagearea unit Longitude: Horiz Acc measure: Horiz Collection method: Horiz coord refsys:	03060106 Not Reported	Drainagearea value: Contrib drainagearea: Latitude: Sourcemap scale: Horiz Acc measure units: Vert measure val:	Not Reported Not Reported 33.5138196 24000 seconds 430.00	
Vert measure units: Vert accmeasure units: Vertcollection method: Vert coord refsys: Aquifername: Formation type:	feet feet Interpolated from topographic m NGVD29 Southeastern Coastal Plain aqu Midville Aquifer System, Lower J	Countrycode: ifer system	005 US	

Aquifer type: Construction date: Welldepth units: Wellholedepth units: Ground-water levels, Numb	Confined single aquifer 19780426 ft Not Reported er of Measurements: 0	Welldepth: Wellholedepth:	269 Not Reported	
D15 West 1/2 - 1 Mile Higher			FED USGS	USGS40001056212
Org. Identifier: Formal name: Monloc Identifier: Monloc name: Monloc type: Monloc desc: Huc code: Drainagearea Units: Contrib drainagearea units: Longitude: Horiz Acc measure: Horiz Collection method: Horiz coord refsys: Vert measure units: Vert accmeasure units: Vert accmeasure units: Vert coord refsys: Aquifername: Formation type:	-81.9208944 .01 Global positioning system (GPS), NAD83 feet feet Interpolated from topographic ma NGVD29 Not Reported Not Reported	Drainagearea value: Contrib drainagearea: Latitude: Sourcemap scale: Horiz Acc measure units: , uncorrected Vert measure val: Vertacc measure val:	Not Reported Not Reported 33.5136833 24000 seconds 430.00 5.0 US	
Aquifer type: Construction date: Welldepth units: Wellholedepth units:	Not Reported Not Reported ft ft	Welldepth: Wellholedepth:	1010 1010	

Ground-water levels, Number of Measurements: 0

16 West 1/2 - 1 Mile Higher			FRDS PWS SC0220006
Pwsid:	SC0220006	Epa region:	04
State:	SC	County:	Aiken
Pws name:	BREEZY HILL W/D		
Population Served:	11377	Pwssvcconn:	4631
PWS Source:	Purch_surface_water		
Pws type:	CWS		
Status:	Active	Owner type:	Local_Govt
Facility id:	6919		
Facility name:	BETTIS ACADEMY PLANT		
Facility type:	Treatment_plant	Treatment process:	ph adjustment
Treatment objective:	corrosion control		

Contact name: Original name: Contact phone: Contact address2: Contact city: Contact zip:	HILTON, CHARLES HILTON, CHARLES 803-663-9701 Not Reported GRANITEVILLE 29829	Contact address1:	PO BOX 66
Facility id: Facility name: Facility type: Treatment objective:	8316 EDGEFIELD CO W&SA Consecutive_connection corrosion control	Treatment process:	ph adjustment
Facility id: Facility name: Facility type: Treatment objective:	8316 EDGEFIELD CO W&SA Consecutive_connection iron removal	Treatment process:	sequestration
Facility id: Facility name: Facility type: Treatment objective:	8317 NORTH AUGUSTA CITY OF Consecutive_connection iron removal	Treatment process:	sequestration
Facility id: Facility name: Facility type: Treatment objective:	8316 EDGEFIELD CO W&SA Consecutive_connection disinfection	Treatment process:	hypochlorination, pre
Facility id: Facility name: Facility type: Treatment objective:	8317 NORTH AUGUSTA CITY OF Consecutive_connection disinfection	Treatment process:	hypochlorination, pre
Facility id: Facility name: Facility type: Treatment objective:	9681 DISTRIBUTION Distribution_system_zone disinfection	Treatment process:	hypochlorination, pre
Facility id: Facility name: Facility type: Treatment objective:	8316 EDGEFIELD CO W&SA Consecutive_connection corrosion control	Treatment process:	ph adjustment
Facility id: Facility name: Facility type: Treatment objective:	8316 EDGEFIELD CO W&SA Consecutive_connection corrosion control	Treatment process:	ph adjustment
Facility id: Facility name: Facility type: Treatment objective:	6919 BETTIS ACADEMY PLANT Treatment_plant disinfection	Treatment process:	gaseous chlorination, post
Facility id: Facility name: Facility type: Treatment objective:	6919 BETTIS ACADEMY PLANT Treatment_plant disinfection	Treatment process:	gaseous chlorination, post

Facility id: Facility name: Facility type: Treatment objective:	8316 EDGEFIELD CO W&SA Consecutive_connection disinfection	Treatment process:	gaseous chlorination, post
Facility id: Facility name: Facility type: Treatment objective:	8317 NORTH AUGUSTA CITY OF Consecutive_connection disinfection	Treatment process:	gaseous chlorination, post
Facility id: Facility name: Facility type: Treatment objective:	9681 DISTRIBUTION Distribution_system_zone disinfection	Treatment process:	gaseous chlorination, post
Facility id: Facility name: Facility type: Treatment objective:	120 OFFICE WELL Well corrosion control	Treatment process:	ph adjustment
Facility id: Facility name: Facility type: Treatment objective:	121 CHALK BED Well corrosion control	Treatment process:	ph adjustment
Facility id: Facility name: Facility type: Treatment objective:	6919 BETTIS ACADEMY PLANT Treatment_plant corrosion control	Treatment process:	ph adjustment
Facility id: Facility name: Facility type: Treatment objective:	8316 EDGEFIELD CO W&SA Consecutive_connection corrosion control	Treatment process:	ph adjustment
Facility id: Facility name: Facility type: Treatment objective:	6919 BETTIS ACADEMY PLANT Treatment_plant disinfection	Treatment process:	gaseous chlorination, post
Facility id: Facility name: Facility type: Treatment objective:	8316 EDGEFIELD CO W&SA Consecutive_connection disinfection	Treatment process:	gaseous chlorination, post
Facility id: Facility name: Facility type: Treatment objective:	8317 NORTH AUGUSTA CITY OF Consecutive_connection disinfection	Treatment process:	gaseous chlorination, post
Facility id: Facility name: Facility type: Treatment objective:	6919 BETTIS ACADEMY PLANT Treatment_plant corrosion control	Treatment process:	ph adjustment

Facility id: Facility name: Facility type: Treatment objective:	8316 EDGEFIELD CO W&SA Consecutive_connection corrosion control	Treatment process:	ph adjustment
Facility id: Facility name: Facility type: Treatment objective:	8317 NORTH AUGUSTA CITY OF Consecutive_connection corrosion control	Treatment process:	ph adjustment
Facility id: Facility name: Facility type: Treatment objective:	6919 BETTIS ACADEMY PLANT Treatment_plant disinfection	Treatment process:	gaseous chlorination, post
Facility id: Facility name: Facility type: Treatment objective:	8316 EDGEFIELD CO W&SA Consecutive_connection disinfection	Treatment process:	gaseous chlorination, post
Facility id: Facility name: Facility type: Treatment objective:	8317 NORTH AUGUSTA CITY OF Consecutive_connection disinfection	Treatment process:	gaseous chlorination, post
Facility id: Facility name: Facility type: Treatment objective:	9681 DISTRIBUTION Distribution_system_zone disinfection	Treatment process:	gaseous chlorination, post
Facility id: Facility name: Facility type: Treatment objective:	6919 BETTIS ACADEMY PLANT Treatment_plant corrosion control	Treatment process:	ph adjustment
Facility id: Facility name: Facility type: Treatment objective:	8316 EDGEFIELD CO W&SA Consecutive_connection corrosion control	Treatment process:	ph adjustment
Facility id: Facility name: Facility type: Treatment objective:	8317 NORTH AUGUSTA CITY OF Consecutive_connection corrosion control	Treatment process:	ph adjustment
Facility id: Facility name: Facility type: Treatment objective:	6919 BETTIS ACADEMY PLANT Treatment_plant disinfection	Treatment process:	gaseous chlorination, post
Facility id: Facility name: Facility type: Treatment objective:	8317 NORTH AUGUSTA CITY OF Consecutive_connection corrosion control	Treatment process:	ph adjustment

Facility id: Facility name: Facility type: Treatment objective:

Facility id: Facility name: Facility type: Treatment objective: DISTRIBUTION Distribution_system_zone corrosion control

120 OFFICE WELL Well

9681

iron removal 121 CHALK BED Well iron removal

122 HILL STREET Well iron removal

123 CORDELL STREET Well

iron removal

124 MIDLAND VALLEY Well

125 WOODRIDGE Well iron removal

126 GREENFIELD Well iron removal

127 HAYES DRIVE Well iron removal

NEW WOODRIDGE WELL Well iron removal

129 Well iron removal Treatment process:

ph adjustment

sequestration

sequestration

sequestration

sequestration

sequestration

sequestration

sequestration

Treatment process: sequestration

Treatment process: sequestration

Treatment process:

iron removal

128

HAYES DR. #2

Treatment process:

sequestration

TC3640461.2s Page A-25

Facility id: Facility name: Facility type: Treatment objective:	130 ASCAUGA LAKE Well iron removal	Treatment process:	sequestration
Facility id: Facility name: Facility type: Treatment objective:	131 EDISTO Well iron removal	Treatment process:	sequestration
Facility id: Facility name: Facility type: Treatment objective:	132 SAGE MILL -TANK SITE Well iron removal	Treatment process:	sequestration
Facility id: Facility name: Facility type: Treatment objective:	133 BETTIS ACADEMY Well iron removal	Treatment process:	sequestration
Facility id: Facility name: Facility type: Treatment objective:	6907 OFFICE WELL PLANT Treatment_plant iron removal	Treatment process:	sequestration
Facility id: Facility name: Facility type: Treatment objective:	6908 CHALK BED PLANT Treatment_plant iron removal	Treatment process:	sequestration
PWS ID: Date Initiated: PWS Name:	SC0220006 Not Reported Date Dea BREEZY HILL W/D CHARLES HILTON PO BOX 66 GRANITEVILLE, SC 29829	ctivated: Not Reported	
Addressee / Facility:	Distribution Facility CHARLES A HILTON MANAGER PO BOX 66 GRANITEVILLE, SC 29829		
Facility Latitude: Facility Latitude: Facility Latitude: Facility Latitude: Facility Latitude: Facility Latitude: Facility Latitude: City Served: Treatment Class:	33 34 36.0000 33 30 4.0000 33 30 56.0000 33 34 26.0000 33 35 0.0000 33 34 3.0000 33 33 14.0000 Not Reported Mixed (treated and untreated)	Facility Longitude: Facility Longitude: Facility Longitude: Facility Longitude: Facility Longitude: Facility Longitude: Facility Longitude:	81 54 35.0000 81 55 21.0000 81 50 21.0000 81 50 52.0000

Violations information not reported.

Map ID				
Direction				
Distance Elevation			Database	EDR ID Number
Elevation E17			Database	EDITID Number
SSW 1/2 - 1 Mile			SC WELLS	SCWC3000006906
Higher				
Conum:	AIK-576	Scgrid:	41U-y2	
Latn:	333010	Cogna	110 /2	
Longn:	815440			
Utm e:	415371			
Utm n:	3707206			
Торо:	North Augusta			
Elev:	0			
Owner:	Breezy Hill W&S	Owner well:	Not Reported	
Location:	Not Reported	Use:	Unused	
Depth d:	0	000.	ondood	
Depth c:	237			
Diam 1:	0			
Diam 2:	Not Reported	Oh cas:	Not Reported	
Screen t:	0		Not Ropolitou	
Screen b:	0			
Drill yr:	Not Reported	Drill mo:	Not Reported	
Yield:	300	Dim mo.	Not Ropollou	
Yield yr:	Not Reported	G logs:	Not Reported	
D logs:	0	0 1093.	Not Reported	
P test:	0			
Chem:	Not Reported	WI:	Not Reported	
WI yr:	Not Reported	Driller:	Not Reported	
Site id:	SCWC3000006906	Dimor.	Not Reported	
E18 SSW			FED USGS	
1/2 - 1 Mile			FED 0303	USGS40001056152
Higher				
Org. Identifier:	USGS-SC			
Formal name:	USGS South Carolina Water Scie	nco Contor		
Monloc Identifier:	USGS-333010081544009			
Monloc name:	AK- 576			
Monloc type:	Well			
Monloc desc:	Data from SCDNR digital data ba	se LISCS Rasa 2005		
Huc code:	Not Reported	Drainagearea value:	Not Reported	
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported	
Contrib drainagearea units:		Latitude:	33.5029142	
Longitude:	-81.9109472	Sourcemap scale:	Not Reported	
Horiz Acc measure:	1	Horiz Acc measure units:	seconds	
Horiz Collection method:	' Unknown	Tionz Acc measure units.	3600103	
Horiz coord refsys:	NAD83	Vert measure val:	2688	
Vert measure units:	feet	Vertacc measure val:	10	
Vert accmeasure units:	feet	venace measure val.	10	
Vertcollection method:	Interpolated from digital elevation	model (DEM)		
Vert coord refsys:	NGVD29	Countrycode:	US	
Aquifername:	Not Reported	Country Could.	00	
Formation type:	Not Reported			
, ennanen geor				

Aquifer type: Construction date: Welldepth units: Wellholedepth units:	Not Reported Not Reported ft Not Reported	Welldepth: Wellholedepth:	237 Not Reported	
Ground-water levels, Numb	er of Measurements: 0			
:19 SW /2 - 1 Mile ligher			FED USGS	USGS4000105615
Org. Identifier:	USGS-SC			
Formal name:	USGS South Carolina Wa	ater Science Center		
Monloc Identifier:	USGS-333010081544209)		
Monloc name:	AK- 431			
Monloc type:	Well			
Monloc desc:	Data from SCDNR digital	data base, USGS Rasa 2005		
Huc code:	Not Reported	Drainagearea value:	Not Reported	
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported	
Contrib drainagearea units:	Not Reported	Latitude:	33.5029142	
Longitude:	-81.9115028	Sourcemap scale:	Not Reported	
Horiz Acc measure:	1	Horiz Acc measure units:	seconds	
Horiz Collection method:	Unknown			
Horiz coord refsys:	NAD83	Vert measure val:	300	
Vert measure units:	feet	Vertacc measure val:	1	
Vert accmeasure units:	feet			
Vertcollection method:	Unknown			
Vert coord refsys:	NGVD29	Countrycode:	US	
Aquifername:	Not Reported	-		
Formation type:	Not Reported			
Aquifer type:	Not Reported			
Construction date:	197206	Welldepth:	146	
Welldepth units:	ft	Wellholedepth:	Not Reported	
Wellholedepth units:	Not Reported	•		

Ground-water levels, Number of Measurements: 0

E20 SSW 1/2 - 1 Mile Higher			SC WELLS	SCWC3000006904
Conum: Latn: Longn: Utm e: Utm n: Topo:	AIK-431 333010 815442 415319 3707206 North Augusta	Scgrid:	41U-y1	
Elev: Owner: Location: Depth d: Depth c: Diam 1:	300 Town of Clearwater Not Reported 0 146 10	Owner well: Use:	Not Reported Unused	
Diam 2: Screen t: Screen b:	Not Reported 0 0	Oh cas:	Not Reported	
Drill yr: Yield: Yield yr:	1972 0 Not Reported	Drill mo: G logs:	6 E	
D logs: P test:	0 0			

Chem: WI yr: Site id:	Not Reported Not Reported SCWC3000006904	WI: Driller:	Not Reported Carlson	
21 ENE 1/2 - 1 Mile Lower			SC WELLS	SCWC30000007033
Conum: Latn: Longn: Utm e: Utm n: Topo: Elev:	AIK-396 333120 815340 416937 3709348 North Augusta 150	Scgrid:	41U-q1	
Owner: Location: Depth d: Depth c: Diam 1:	Fred Davis Clearwater 0 280 4	Owner well: Use:	Not Reported Domestic	
Diam 2: Screen t: Screen b:	Not Reported 0 0	Oh cas:	Not Reported	
Drill yr:	Not Reported	Drill mo:	Not Reported	
Yield: Yield yr: D logs: P test:	15 Not Reported 0 0	G logs:	Not Reported	
Chem: WI yr:	P Not Reported epth questionable. SCWC30000007033	WI: Driller:	Not Reported Walden	
22 South //2 - 1 Mile Higher			FED USGS	USGS40001056456
Org. Identifier: Formal name: Monloc Identifier: Monloc name: Monloc type: Monloc desc: Huc code: Drainagearea Units:	USGS-SC USGS South Carolina Water USGS-333429081502500 AK- 472 Well DATA FROM DEHEC WATE 03060106 Not Reported		Not Reported Not Reported	
Contrib drainagearea units: Longitude: Horiz Acc measure: Horiz Collection method:	Not Reported -81.9103139 5 Interpolated from map	Latitude: Sourcemap scale: Horiz Acc measure units:	33.5010142 24000 seconds	
Horiz coord refsys: Vert measure units: Vert accmeasure units: Vertcollection method:	NAD83 feet feet Interpolated from topographi	Vert measure val: Vertacc measure val: c map	274.00 5.0	
Vert coord refsys: Aquifername: Formation type:	NGVD29 Countrycode: US Southeastern Coastal Plain aquifer system Dublin Aquifer System, Lower Aquifer			

Aquifer type: Construction date: Welldepth units: Wellholedepth units: Confined single aquifer 19730101

Welldepth: Wellholedepth: 136 136

Ground-water levels, Number of Measurements: 0

ft

ft

AREA RADON INFORMATION

State Database: SC Radon

Radon Test Results

Zipcode	Average	Num Tests	Minimum	Maximum	% > 4 pCi/L
29841	0.7	12	0.3	2.0	0.0

Federal EPA Radon Zone for AIKEN County: 3

Note: Zone 1 indoor average level > 4 pCi/L.

: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.

: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 29841

Number of sites tested: 10

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.750 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	0.850 pCi/L	100%	0%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)

Source: United States Geologic Survey

A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory

Source: Department of Natural Resources Telephone: 803-734-9494

HYDROGEOLOGIC INFORMATION

AQUIFLOW^R Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services (NRCS) Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS) This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database Source: Department of Natural Resources Telephone: 803-734-6440 Water wells in the Coastal Plain counties of South Carolina

Water Well Database Source: Department of Natural Resources Telephone: 864-654-1671 A listing of water wells in the Piedmont (upstate) counties.

OTHER STATE DATABASE INFORMATION

RADON

State Database: SC Radon Source: Department of Health & Environmental Control Telephone: 864-241-1090 Radon Test Results by Zip Code

Area Radon Information Source: USGS Telephone: 703-356-4020 The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones Source: EPA Telephone: 703-356-4020 Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater Source: Department of Commerce, National Oceanic and Atmospheric Administration

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

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SC Highway 126

SC Highway 126 North Augusta, SC 29841

Inquiry Number: 3640461.3 June 18, 2013

Certified Sanborn® Map Report



440 Wheelers Farms Road Milford, CT 06461 800.352.0050 www.edrnet.com

Certified Sanborn® Map Report

Site Name:	Client Name:	
SC Highway 126	Terracon	a
SC Highway 126	1450 5th Street West	EDR [®] Environmental Data Resources Inc
North Augusta, SC 29841	North Charleston, SC 29405	E
EDR Inquiry # 3640461.3	Contact: Andy Ruocco	

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Address:	SC Highway 126
City, State, Zip:	North Augusta, SC 29841
Cross Street:	
P.O. #	NA
Project:	EN137737
Certification #	1CEE-4D49-B339

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APPENDIX E SITE PHOTOGRAPHS



SC Highway 126 Road Widening Terracon Project No. EN137037 Date Photos Taken: June 26, 2013



Photo #1 View of Walgreen's and the intersection of Jefferson-Davis Highway and SC Highway 126.



Photo #3 View of the Brownfield site, Clearwater Finishing.



Photo #5 View of the three AST's behind BlueStar Rentals.



Photo #2 View of a monitoring well in front of WalGreens.



Photo #4 View of monitoring well CW-MW-2 in front Clearwater Finishing.



Photo #6 View of Clearwater Auto Repairs.





Photo #7 View looking north on SC highway 126 in front of BlueStar Rentals.



Photo #9 View of Hoze's and Discount Tobacoo & Beer stores.



Photo #11 View of old building pad.



Photo #8 View of abandoned monitoring well in front of Lakeside Baptist Church.



Photo #10 View of SC Highway 126 looking south.



Photo #12 View of an used oil AST behind William's Automotive.

Terracon Consulting Engineers & Scientists

SC Highway 126 Road Widening Terracon Project No. EN137037 Date Photos Taken: June 26, 2013



Photo #13 View of used antifreeze AST behind William's Automotive.



Photo #15 View of a gas line cap along SC Highway 126.



Photo #17 View of the intersection of Jefferson-Davis Highway and SC Highway 126.



Photo #14 View of the intersection of SC highway 126 and Irene Street.



Photo #16 View of SC Highway 126 looking south.



Photo #18 Overview of two monitoring well locations in front of Walgreen's.

APPENDIX F CREDENTIALS

FLEETWOOD S. HASSELL, JR, E.I.T. SENIOR INSPECTOR

PROFESSIONAL EXPERIENCE

Mr. Hassell is an Engineer In Training working in the North Charleston construction services department as well as the environmental department. He is a certified special inspector, code enforcement officer, commercial building inspector, EPA approved asbestos inspector, and has completed the 40-hour HAZWOPER and Hazardous Materials First Responder Awareness training. He performs special inspections of reinforced concrete, structural masonry, and earthwork. He also has experience performing asbestos inspections, soil sampling, groundwater sampling, air and mold sampling.

PROJECT EXPERIENCE

Annual Inspections of Charleston County School District Portable Classrooms – Charleston, SC

Performed Chapter 1 Special Inspections and AHERA Inspections on seventy-five portable classroom units for the Charleston County School District. Duties consisted of verifying the units are current with the 2006 International Building Code regulations and the sampling of suspect asbestos containing building materials.

Timberland High HVAC Replacement – St. Stephen, SC

Assisted in International Building Code (IBC) Chapter 1 Special Inspections for the replacement of the HVAC Units. Performed special inspections for fire wall penetrations, plumbing underground and roughins, mechanical underground and rough-ins, electrical underground and rough-ins, and seismic resistance systems.

James Simmons Elementary School – Charleston, SC

Assisted in International Building Code (IBC) Chapter 1 & 17 Special Inspections for construction of the school. Performed special inspections for plumbing underground and rough-ins, masonry construction, reinforced concrete, and reinforcing steel.

Nexans Industrial Facility, Bushy Park – Goose Creek, SC

Performed foundation observations and testing, reinforced concrete inspections, and reinforcing steel inspections for Nexans' new 35-acre facility which will include an industrial manufacturing plant and a 400-foot tall slipform tower, bordering the Cooper River.

Chemical Office Warehouse Facilities, former Charleston Naval Base Annex – North Charleston, SC

Assisted in conducting a limited site investigation of surface soil at two parcels of land where the former Chemical Office Warehouse facilities were located. The site was located adjacent to Air Street on the Former Charleston Naval Base Annex. The project included the analysis of volatile and semi-volatile organic compounds and RCRA eight metals.

Education

Bachelor of Science, Civil Engineering, University of South Carolina

Certifications Engineer In Training No. 18732

SC Dept. of LLR Building Codes Council (BCC) SCBCC Code Enforcement Officer

Office of School Facilities (OSF) Chapter 1 IBC Building Inspector

International Code Council (ICC): Commercial Building Inspector

SC BCC Special Inspector: Reinforced Concrete, Structural Masonry, Earthwork, Modular Retaining Walls, Deep Foundations, Exterior Insulation & Finish System

AHERA EPA Approved Asbestos Inspector No. 20120917Ab300-04

40-Hour HAZWOPER Training

Hazardous Materials First Responder Awareness Training

Work History

Terracon Consultants, Inc North Charleston, SC 2007 - Present



Wescott Park - North Charleston, SC

Performed site preparation and fill placement inspections for this new, state-of-the-art park in North Charleston. Will also provide testing and inspections for site construction which will include fill soil density testing and allowable soil contact pressure evaluations.

Pepperhill Elementary School – Charleston, SC

Performed air and mold sampling in ten classrooms for this Charleston County school impacted by flooding from roof failures.

Cannon Skeet Range – Goose Creek, SC

Performed soil sampling for a Limited Site Investigation of the Cannon Tract Skeet Range. Field activities included the completion of soil borings and the collection of soil samples for chemical analysis. The property was contaminated from previous land use as a skeet range.

Willie's One Stop - Orangeburg, SC

Performed groundwater sampling for the site which contains a closed gasoline station and convenience store.



JOSEPH ANDREW (ANDY) RUOCCO, LEED AP BD+C ENVIRONMENTAL DEPARTMENT MANAGER

PROFESSIONAL EXPERIENCE

Mr. Ruocco is an Environmental Department Manager with 12 years of professional experience; eight of which have been in Terracon's Charleston, South Carolina office. Project duties include National Environmental Policy Act (NEPA) Documentation, Environmental Site Assessments (ESA), Subsurface Site Investigations, Natural Resources Permitting, Environmental Permitting and Regulatory Compliance, Soil & Groundwater Remediation, Environmental Risk Assessments, Noise Surveys, Industrial Hygiene and Indoor Air Quality Assessments, client management, and technical report writing.

PROJECT EXPERIENCE

Site Assessment Experience

Project Manager for numerous Phase I and Phase II ESA projects for a varied client base including lending institutions, insurance companies, law firms, and private industrial entities using American Society for Testing and Materials (ASTM) and client-specific due diligence guidelines.

Example properties assessed include due diligence assessments at sites ranging from urban environments to rural areas on a wide variety of facilities including: former bulk petroleum storage and distribution facilities; turn-of-the century mills and factories; industrial steel production facilities; automotive dealerships with large-scale repair facilities, automotive and equipment service and fueling facilities; full-service dry cleaning facilities; electroplating facilities; textile manufacturing and painting facilities; large warehousing and distribution centers; hospitals; and large land parcels.

Remediation & Regulatory Reporting Experience

Remediation and regulatory compliance experience for multiple sites throughout South Carolina. Responsible for conducting soil and groundwater assessments, semi-annual groundwater assessment monitoring, determining risk-based remediation goals for soil and groundwater related to contamination required under South Carolina laws. Preparation Corrective Action Plans (CAPs) to include design and installation of soil and groundwater remediation systems.

Indoor Air Quality And Asbestos And Lead Based Paint Experience

Project Manager for numerous IAQ and asbestos/lead based paint projects for a varied client base including commercial and residential properties. Example properties assessed include due diligence assessments at sites ranging from urban environments to rural areas on a wide variety of facilities including: converted turn-of-the century mills and factory buildings; industrial facilities; hospitals; high-end multi-family residential developments, commercial office structures, office buildings.

Regulatory Compliance

Project Manager for numerous SWPPP (construction and industrial) and SPCC projects for a varied client base.

Contact

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Education

Master of Science, Environmental Science, College of Charleston, 2007

Bachelor of Science, Biological Sciences, University of South Carolina, College of Science and Mathematics, 2000

Registrations

SC Licensed Well Driller

LEED Accredited Professional.

SC Licensed Asbestos Building Inspector

Certified Erosion Prevention Sediment Control Inspector

Certifications

40 Hour HAZWOPER

10 Hour OSHA Construction Certification

Affiliations

Indoor Air Quality Association

ACEC-SC

USGBC Member

Work History

Terracon Consultants, Inc., N. Charleston, SC Environmental Department Manager, 2005-Present

South Carolina Department of Health and Environmental Control Columbia, SC Environmental Manager I, 2001-2005



APPENDIX F

PHASE I CULTURAL RESOURCES SURVEY

Phase I Cultural Resources Survey of SC 126

126

Aiken County, South Carolina

PIN No: 41446

DELTA





PP

NEW SOUTH ASSOCIATES, INC.

Phase I Cultural Resources Survey of SC 126

Aiken County, South Carolina

PIN No: 41446

Report submitted to: South Carolina Department of Transportation (SCDOT) • 955 Park Street • Columbia, South Carolina 29201

Report prepared by: New South Associates • 722A Blanding Street • Columbia, South Carolina 29201

Natalie Adams Pope, RPA - Principal Investigator

Natalie Adams Pope, RPA – Archaeologist and Co-Author Kristie L. Person – Historian and Co-Author

> September 5, 2013 • Revised Report New South Associates Technical Report 2304

ABSTRACT

New South Associates performed a cultural resources survey of the proposed SC 126 widening in Aiken County, South Carolina. The 2.15-mile long widening project begins approximately 475 feet south of the intersection of SC 126 and U.S. Highway 1/Jefferson Davis Highway and ends approximately 500 feet northwest of the intersection of SC 126 and Old Sudlow Lake Road. The area of potential effect (APE) measured 300 feet beyond the existing right-of-way (ROW) of SC 126 and the area of archaeological emphasis focused on 100 feet on either side of the centerline.

No previously recorded archaeological sites are located within 0.25 mile of the APE. The archaeological survey did not identify any new sites. However, one isolated prehistoric find consisting of a single chert flake was documented. Five previously recorded architectural resources were identified within 0.5 mile of the project area: site number 0324 on the west side of Old Cherokee Drive, site number 3732 at 651 Powerhouse Road, site number 2733 at 670 Cherokee Road, and site numbers 2734 and 2735 at 780 SC 126. All five were recommended as not eligible for National Register for Historic Places (NRHP) listing. Three of the resources (2733, 2734, and 2735) are located in the APE but were not resurveyed. The current survey recorded 14 individual architectural resources within the APE, two districts, and six additional individual resources outside of the APE as representatives of the Clearwater Mill Village district. No properties are recommended eligible, either individually or as a district, for NRHP listing.

ACKNOWLEDGEMENTS

New South Associates would like to thank David Kelly at SCDOT for maps and information provided over the course of this project. Many thanks to Sarah Stephens and Brad Sauls at the South Carolina State Historic Preservation Office (SHPO) for providing data and other information necessary to successfully complete the project. James Stewart, Daniel Upchurch, and Elizabeth Farkas served as the crew during the archaeological survey.

Patrick Sullivan completed the architectural field survey for this project. Carmen Beard prepared GIS data and graphics. Jennifer Wilson and Becca Brown edited and prepared the report.

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I. INTRODUCTION

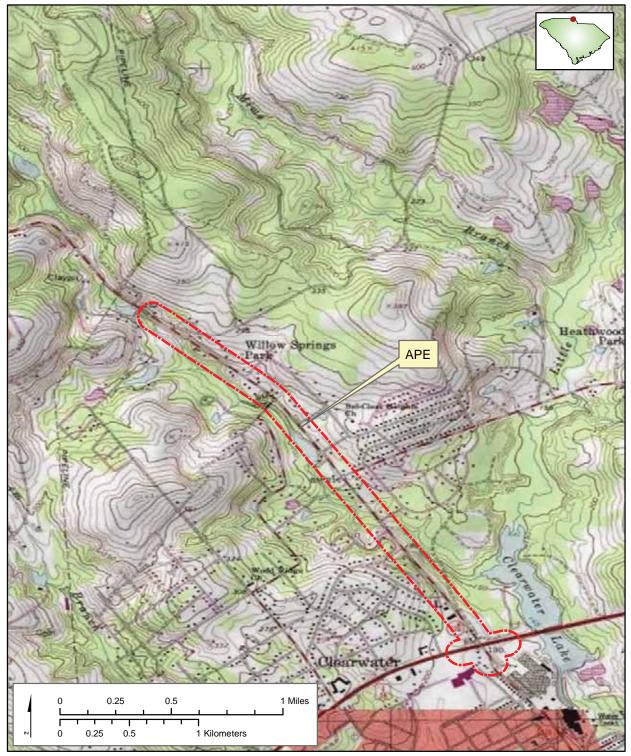
New South Associates conducted a cultural resources survey of SC 126 in Aiken County, South Carolina. The project consists of improvements along approximately 2.15 miles of SC 126. At its southern end, the project area begins about 475 feet south of the intersection with U.S. Highway 1/Jefferson Davis Highway and extends northwest along SC 126, ending about 500 feet northwest of the intersection with Old Sudlow Lake Road (Figure 1). Improvements are proposed to expand the current two-lane corridor to a corridor holding a minimum of four 12-foot travel lanes, a 15-foot median, four-foot bike lanes, and sidewalks. A non-historic culvert carrying SC 126 over Little Horse Creek will also potentially need to be extended, and steep fills/cuts along the roadway may need walls to reduce impacts to current residents and the natural environment. These improvements are proposed to accommodate an anticipated increase in traffic volume in the area over the coming years.

This project consisted of background research, archaeological field survey, architectural field survey, and assessment of all archaeological sites and architectural resources for eligibility to the National Register of Historic Places (NRHP). The area of potential effect (APE) is defined as the construction limits and the view shed, which is 300 feet beyond the existing right-of-way (ROW). The area of archaeological emphasis in the APE is defined as 100 feet from the existing ROW. For architecture, the study area was considered to be the entire APE. The work was performed by New South Associates on behalf of SCDOT to comply with Section 106 of the National Historic Preservation Act of 1966, as amended.

Natalie Adams Pope served as the Principal Investigator and Field Director. The archaeological fieldwork was conducted on June 11-13, 2013. Patrick Sullivan, Architectural Historian, conducted the architectural survey on June 26 and 27, 2013.

The report is organized into six chapters including this introduction. Chapter II presents the environmental context and Chapter III features the cultural overview. A discussion of methodology is presented in Chapter IV, while the archaeological and architectural survey results and recommendations are presented in Chapter V. Finally, Chapter VI presents the conclusions.

Figure 1. Project Location Map



Source: USGS 1981 North Augusta, South Carolina Quadrangle

II. ENVIRONMENTAL CONTEXT

The southern terminus of the project area is located near U.S. Highway 1 and extends to the north near Old Sudlow Lake Road, on the east side of the town of North Augusta, Aiken County, South Carolina. Situated less than five miles east of the Savannah River, the project is geographically in the upper Coastal Plain, just below what is known as the Fall Line. Elevations in the project area range from approximately 180-250 feet above sea level.

The geology of the upper Coastal Plain was shaped over millions of years by tilting of the land up toward eastern North Carolina and down toward Georgia, and by episodes of encroachment by and abandonment of the sea (Murphy 1995). Due to these processes, this physiographic region exhibits considerable weathering (Barry 1980) and a complex assortment of geomorphic structures (Murphy 1995). Beginning at the Sandhills and ending at the Orangeburg scarp, the upper Coastal Plain forms a hilly terrain that is bisected by large rivers (Murphy 1995). The upper Coastal Plain is divided into three sections including the Aiken Plateau, the Richland Red Hills, and the High Hills of Santee (Murphy 1995). The Aiken Plateau is a raised plain that gently slopes toward the sea, ranging in elevation from 600-300 feet above sea level. The plateau lies between the Savannah and Congaree river valleys, and includes portions of Aiken, Edgefield, Lexington, Saluda, and Calhoun counties (Murphy 1995).

The Natural Resources Conservation Service's online soil survey of Aiken County identifies the project area as consisting of Enoree, Eustis, Faceville, Lakeland, Norfolk, Orangeburg, Rembert, Troup, and Wagram soils. The Enoree and Rembert series are poorly drained loamy soils that are found in floodplains and depressions respectively. Faceville, Norfolk, Orangeburg, and Wagram sands and sandy loams are well drained and range from 0-10 percent slope. Eustis loamy sands and Troup sands are somewhat excessively drained, while Lakeland sands, ranging from 0-10 percent slopes are excessively drained.

Short, mild winters and hot, humid summers characterize the climate of the upper Coastal Region. In the center of the state, July average maximum temperatures hover near 92-93 degrees Fahrenheit, while January temperatures fall to an average of 23 degrees Fahrenheit (Barry 1980). Precipitation is distributed evenly over the year (Kovacik and Winberry 1987) with the heaviest rainfall in the spring and the driest period in October and November (Barry 1980). The growing season in South Carolina for most major cultivated crops is limited by spring and fall freezes and ranges from an average length of 210 days in the northwestern portion of the state to 235 days along the coast (Barry 1980).

The Southeastern Coniferous Forest Association dominates the South Carolina's Coastal Plain province (Barry 1980). Vegetation in the project area included both hard and soft woods, with the latter being the primary flora. The project area was a mix of residential, commercial, and industrial land use with portions of the project's ROW traversing front lawns, open green spaces, parking lots, agricultural fields, commercial nurseries, and remnant forests.

III. CULTURAL CONTEXT

In order to provide a contextual framework for judging the significance of cultural resources encountered during survey, the following section presents the prehistoric and historic cultural development of the region.

PREHISTORIC CONTEXT

PRE-PALEOINDIAN

Recent work at Monte Verde (Meltzer et al. 1997), past work at Meadowcroft Rockshelter (Adovasio et al. 1985), and new evidence from Cactus Hill in Virginia is providing ammunition for the existence of pre-Clovis culture. The evidence from Cactus Hill indicates the presence of a prismatic blade industry that dates between 15,000 and 16,500 B.P. (McAvoy and McAvoy 1999).

The most relevant pre-Clovis site to this report is a discovery made at the Topper site by Albert Goodyear of the University of South Carolina. The site is located near Aiken, South Carolina along the middle Savannah River Valley. Mr. Goodyear discovered a white Pleistocene alluvial sand deposit that he believed to be the pre-Clovis zone for the Topper site. A lens of charcoal was uncovered while excavating through this sand layer. Two radiocarbon samples were extracted from this lens and have been dated to 50,300 B.P. and 51,700 B.P. If the dates are correct and are associated with human occupation, then the site provides evidence which alters the long held belief that humans first inhabited this portion of North America around 13,000 B.P. In addition, small flakes, some with bend break fractures, were recovered within the white sand lens. These small flakes are believed to be components of a pre-Clovis chert processing pile. Additionally, six chert artifacts (small blades, endscraper, and sidescrapers) were found around a large boulder, which is believed to be an anvil (Goodyear 2006).

PALEOINDIAN

The earliest solidly documented period of human occupation in the region is referred to as the Paleoindian period. This period dates from approximately 11,550-9,950 B.P. Paleoindian sites are primarily recognized by the presence of diagnostic projectile points, most of which have been recovered as surface occurrences. Archaeological evidence suggests that Paleoindians survived as migratory hunters, who focused on the pursuit of large game. The association of Paleoindian artifacts, mammoth remains, ancient bison, and giant land tortoise supports this subsistence/settlement model (Anderson and Joseph 1988).

The Paleoindian period is typically subdivided into "Early," "Middle," and "Late". The Early Paleoindian period is defined by the fluted Clovis Lanceolate type, while the Cumberland, Simpson, Suwannee, and Quad points mark the Middle Paleoindian period. Like the Middle Paleoindian period, the Late Paleoindian period continues the trend toward an accelerated regional variation with this period being represented by the non-fluted Hardaway-Dalton and Dalton types.

While not much is known about this period, archaeologists agree on some key points. First, this period was one of a nomadic, band level society populated by hunters and foragers. Second, the population density was low at the beginning of this period but increased significantly over time (Walthall 1980). Settlement analyses for Paleoindian sites are poorly developed, primarily because these sites are most frequently represented only by surface occurrences of diagnostic points. Several settlement studies have been advanced, however. Beginning to the east, archaeological and geomorphological work at the Savannah River Site (SRS) suggests that the first terrace above the Savannah River floodplain can be divided into two parts and that Early to Middle Paleoindian remains would only be expected on the older, T1b and T2, terrace formations (Anderson 1995; Sassaman et al. 1990).

Sassaman et al. (1990) suggested that the South Carolina/Georgia Piedmont might have been a transitional, low intensity use area throughout much of the Paleoindian period. They noted that large numbers of Early and Middle Paleoindian fluted points have been found on the Atlantic Coastal Plain in northern Florida and in the Ridge and Valley Province of Tennessee. They suggested that the lower density of Paleoindian points and the patterns of raw material use and distribution indicate little interaction between these two population centers. Conversely, Cantley and Joseph (1991:177) suggested that the low density of Paleoindian points in the Piedmont might reflect the distance of the Piedmont from Ridge and Valley and Coastal Plain chert outcrops, the preferred raw material sources during the Early Paleoindian period.

In the southeast, it is believed that subsistence was achieved through the exploitation of nowextinct megafauna based on the location of sites in prime megafaunal habitats such as major river systems (Michie 1977).

ARCHAIC PERIOD

Like the earlier Paleoindian period, the Archaic period is further divided into an Early Archaic period dated to between 10,000 and 8,000 B.P., a Middle Archaic period dated to between 8,000 and 5,000 B.P., and a Late Archaic period dated to between 5,000 and 3,000 B.P. Because of the Holocene warming trend and the subsequent rise in the sea level during this period, the comparatively long Archaic period is seen as one of adjustment to the changing environment.

The majority of these adjustments occurred in the Early Archaic period. According to Claggett et al. (1982:1:), technological evidence collected at two sites in North Carolina's Haw River Valley reflects the environmental changes brought on by the post Pleistocene warming. Some of the environmental changes included a warmer and moister climate with an increase in sea level and precipitation. Oaks were the dominant forest vegetation (Delcourt and Delcourt 1987) and there appear to have been episodes of heavy rainfall. The projectile points produced during this time include the Hardaway Side-Notched, Palmer Corner-Notched, and the Kirk Corner-Notched. Representatives of the terminal Early Archaic bifurcate tradition (Chapman 1975) were also found in some quantities.

The changes begun in the Early Archaic period continued in the Middle Archaic with the economy becoming that of a foraging society (Sassaman 1983). Sassaman believed that the Middle Archaic people were very mobile, perhaps moving residences every few weeks. Cable (1982), working in the Haw River Valley in North Carolina, proposed that vegetational homogeneity resulting from postglacial warming at the end of the Pleistocene encouraged foraging. Sassaman's (1983) "Adaptive Flexibility" model suggested that this homogeneity allowed for a high degree of social flexibility, which allowed them to pick up and move when needed. This mobility did not allow them to transport much material, which alleviated the need for elaborate or specialized tools to procure and process resources at locations distant from camp. Middle Archaic period projectile points include the Kirk Serrated, the Kirk Stemmed, Stanly Stemmed, the Morrow Mountain I and II types, the Guilford lanceolate and the Brier Creek lanceolate types.

According to Smith (1986), the Late Archaic period was a period of increased settlement permanence, population growth, subsistence intensification, and technological innovation. Projectile points indicative of this period include the Savannah River Stemmed, small Savannah River Stemmed, and Ottare projectile points. Late Archaic period site assemblages have produced the first pottery sherds identified including the fiber-tempered St. Simons and Stallings types (Griffin 1943; Stoltman 1974). Along with the development of this fiber-tempered pottery in the Coastal Plain (about 4,500 B.P.), the first evidence of freshwater shellfish procurement was discovered. While shellfish procurement and pottery use occurred earlier along the Coastal Plain, it did not occur above the Fall Line until after 3,700 B.P. The Savannah River Valley is only area in South Carolina which fresh-water shell midden sites have been found. Soapstone cooking tools such as heating stones and bowls have been discovered in the Piedmont and Fall Line areas, explaining the late adoption of pottery (Sassaman 1993).

WOODLAND PERIOD

Population increase and environmental disequilibrium during the Early Woodland period is at the root of an increase in elaborate material culture indicative of this period (Anderson and Joseph 1988). This material culture includes worked bone and antler, polished stone items, net sinkers, steatite heating slabs, stone tools (projectile points, scrapers, knives, and drills), as well as the fiber-tempered pottery.

This period is marked by a continuation of Stallings pottery, which is tempered with a large quantity of Spanish moss fiber prior to firing (Simpkins and Allard 1986). The pottery during this period was commonly seen in the form of shallow bowls, large wide-mouth bowls, and jar forms. Pottery was produced by hand molding with some evidence of coils in the later Early Woodland period. Typically, the pottery exhibits an incompletely oxidized surface due to uncontrolled firing. Some of the decorations included finger pinching, incising, and punctations produced using periwinkle shells, reeds, and sticks. These decorative embellishments are considered temporally sensitive (Trinkley 1986; Sassaman 1993).

Artifacts typical of the Early Woodland period (3,000-2,450 B.P.) in the project area consist of Thoms Creek pottery and Savannah River Stemmed (Sassaman et al. 1990). Thoms Creek wares are similar to Stallings in surface decoration, but are sand tempered rather than fiber tempered. Patterns of land-use noted by Goodyear et al. (1989) suggest that the inter-riverine zone was used extensively in the Early Woodland. This suggested that Woodland peoples used these habitats during fall-winter occupations with subsistence activities primarily related to nut gathering and deer hunting (Goodyear et al. 1989).

The lithic technology of the Early Woodland mirrors that of the Late Archaic, and is highly variable. Small stemmed projectile points are commonly found on Coastal Plain Early Woodland sites, whereas indented base triangulars appear in the Piedmont. Piedmont lithic assemblages also include soapstone tubular pipes, boatstones, bar gorgets, disc-shaped manos, and biconcave mortars (Sassaman et al. 1990:12).

Early Woodland subsistence can be characterized by a lessened reliance on shellfish both along the coast and the major rivers, and a more broad-based hunter-forager subsistence making greater use of plant food resources. This settlement/subsistence model suggests an end to the large-scale social aggregation of the Late Archaic period. Sea level fluctuation during this period appears to have given rise to a more dispersed society making use of a greater variety of biotically rich microenvironments. As Sassaman et al. (1990:13) noted, the Early Woodland is poorly understood, and at present, we can neither describe Early Woodland social organization nor explain the dissolution of the Late Archaic social structure. The resolution of cultural componency and social organization improves slightly from the Early to the Middle Woodland periods. Middle Woodland sites are represented by the appearance of the Deptford phase, a geographically broad-based culture that extends from Florida to North Carolina. In the Middle Savannah River Valley, Deptford extends throughout the Middle Woodland period, and is subdivided into two phases, Deptford I and Deptford II. Deptford I (2,500-2,000 B.P.) is characterized by plain, linear and bold check stamped, and simple stamped pottery, while Deptford II (2,000-1,500 B.P.) is identified by the occurrence of cord-marked pottery in association with these earlier design elements, as well as some rectilinear complicated stamping (Braley and Price 1991).

While originally defined as a coastal phenomenon, recent excavations have proven that the Deptford phase was also represented by non-coastal interior settlements. In the Middle Savannah River region, these settlements would appear to represent seasonal or permanent base camps, which were situated in prime resource areas. It appears that Deptford people exploited a variety of wild plant and animal food resources. Sassaman et al. (1990:13) suggested that Deptford settlement, subsistence and social organization "appears to have been locally consolidated, consisting at times of relatively large aggregations of people, large scale storage and perhaps limited economic specialization." During the Middle Woodland in upstate South Carolina, archaeological evidence suggests that river terraces were being occupied more intensively than inter-riverine areas. In fact, several sites in the Middle Savannah River had midden accumulations suggesting long-term or repeated occupations by relatively large groups (Sassaman et al. 1990:315).

The Late Woodland period represents the development of stratified social structures, subsistence strategies, and perhaps ideological structure, which would form the foundation for the following Mississippian period. As Sassaman et al. (1990:14–15) noted, the Late Woodland is difficult to distinguish from the antecedent Middle Woodland and the subsequent Mississippian period, and in some respects represents the continued evolution of Woodland culture into the Mississippian. During the Late Woodland, village structure apparently intensified, and the origins of an agricultural economy are suggested by the presence of corn and squash remains at Late Woodland sites.

Settlement analysis suggests the Late Woodland mirrored the Middle Woodland in site locations, although a somewhat greater dispersal of sites suggests a "decrease in settlement organization" (Sassaman et al. 1990:14). The presence of Late Woodland earth lodges below Mississippian platform mounds at Beaverdam Creek in the upper Savannah River suggests the emergence of a chiefdom level of socio-political organization by the end of the Late Woodland period. Sassaman et al. (1990:15) indicated that the major change in settlement form the Late Woodland to the Mississippian reflected the consolidation of widely dispersed small sites to larger, but less numerous, villages in or near drainage floodplains.

MISSISSIPPIAN AND PROTOHISTORIC PERIODS

The appearance of Mississippian cultures (850-550 B.P.) across the southeast is recognized as the height of prehistoric social and ceremonial organization in North America. Hierarchically organized village communities, maize horticulture, the appearance of platform mounds, the intensification of ceremonial practices, and the rise of chiefdoms are all recognized as definitive attributes of the Mississippian period (Anderson and Joseph 1988:248). The Mississippian period has been intensely studied, and hence, its typology and chronology are well defined. Much of the focus of Mississippian period archaeology in the Southeast has been placed on the definition and description of the settlement/subsistence and cultural attributes of specific chiefdoms, which are also referred to as polities.

A large number of Mississippian sites were found during investigations in the nearby Richard B. Russell Reservoir (Anderson and Joseph 1988). Pottery typical of the Mississippian period in this area are Woodstock, Etowah, Savannah, and Lamar. Projectile points are typically small triangular points.

It was noted that there was a massive population decline in the middle and lower Savannah River Valley after A.D. 1450. This has been linked to larger, region-wide phenomena "tied to patterns of warfare and competition between societies throughout the Georgia-South Carolina area" (Anderson and Joseph 1988:248).

HISTORIC OVERVIEW

Aiken County was not established until 1871, when parts of Barnwell, Edgefield, Lexington, and Orangeburg were given to create the new county. The current project area is located east of North Augusta and southwest of Aiken in and near the community of Clearwater. This area was once part of the Edgefield district. The following examination of the history of the region draws in part on previous contexts written by New South Associates.

EARLY SETTLEMENT

The first European explorers to enter the area were Lacus Vazquez de Ayllon in the 1520s followed by Hernando de Soto during his explorations in the 1540s. De Soto probably crossed the Savannah River near Silver Bluff in what is now Aiken County, then headed further east and north, encountering the primary town of the chiefdom of Cofitachequi (Edgar 1998). Here, De Soto kidnapped the Cacica of Cofitachequi, or the queen and ruler of the town, and several women to serve as guides and as a guarantee against hostilities. This action established the long history of mistreatment of Native Americans (Edgar 1998:23-24).

While the Spanish initially explored the area that is now Aiken County, it was the English that settled the land, building both Fort Moore on the eastern side of the Savannah River and Fort Augusta on the western bank. The English established these forts in order to protect the frontier, or backcountry, which in turn served as a buffer between the Spanish and the English settlements located along the South Carolina coast. The backcountry, defined as land more than 80 kilometers from the coast, attracted little attention from European settlers until the 1740s when land incentives attracted families from Pennsylvania and Virginia (Edgar 1998:205). Between 1731 and 1735, 11 townships were established in the backcountry, each comprised of 20,000 acres with each settler receiving a 50-acre share (Webb et al. 2000). The 11 townships were known as the Ninety Six District. The area that is now Aiken County fell within the boundaries of both the Ninety Six District and the Orangeburg District.

The European settlers in this area were a mixture of people with English, Scots-Irish, German, or French Hugenot descent. The economy was primarily subsistence based; however, some minor cash crops such as tobacco, wheat, corn, and hemp were also grown (Webb et al. 2000:18). Indigo was commercially grown in the 1760s until the Revolutionary War cut off the English market (Edgar 1998:146). Due to their subsistence economy, the prosperous plantation owners and merchants of the coast often overshadowed backcountry colonists. Despite a decent system of roads between the backcountry and Charleston, there was very little contact between the two areas due to distance. The distance contributed to a lack of oversight by the provincial government, causing the backcountry to earn a reputation for lawlessness (Edgefield County Historical Society 2009:2).

The distance between the coast and the backcountry also made trade more difficult, as it could take upwards of two weeks to travel overland from the interior to Charleston. Therefore, access to water routes proved vital for more timely, and profitable, trade between the interior and the coast. Trading posts were established along both sides of the Savannah River in order to send and receive goods more quickly. One of the first settlers to establish a trading post in the area of present-day Aiken County was George Galphin, an Irishman and trader who was granted 400 acres along the Savannah River by the British government in the 1730s. Galphin established a trading village, Silver Bluff, and slowly expanded his land holdings, acquiring 43,000 acres by the beginning of the American Revolution (Jaeger Company 2010).

The Cherokee War (1756-1763) hindered growth in the backcountry. During this war, this area of the state was involved in a great deal of action and many residents left the district for the safety of the coast. In one particularly bloody incident, as settlers attempted to flee the Cherokees, approximately 100 Indians attacked near the Long Cane Creek crossing. Twenty-three settlers were killed and just as many captured. Days later, several children from the party

were found – many had been scalped. A similar incident happened at the Stevens Creek crossing with similar results (Meriwether 1940:221–222). Once a treaty was signed with the Cherokee in 1761, settlement of the area resumed (Edgar 1998:207).

Although the war ended, the violence did not. The years following the war saw a dramatic rise in crime in the backcountry with an increase of gangs and a proliferation of squatters, poachers, and thieves (Webb et al. 2000:18). A group of law-abiding citizens known as the Regulators called for law and order in the form of courts, jails, and schools. The provincial government responded by establishing a circuit of courts in 1768 to help create a system of justice in the backcountry (Edgar 1998:212-214). Although the establishment of courts helped to increase the communication between the different ends of the colony, the two areas maintained their own distinct identities.

Peace in the backcountry was short-lived as the conflict between the United States and Great Britain intensified. Despite the Treaty of Ninety Six, in which the leaders of the backcountry promised that they would remain neutral on the issue of Great Britain versus the Continental Congress, the backcountry was highly divided (Edgar 1998:223). Within Edgefield County, the issue caused much infighting since some residents strongly believed that the American colonies should be independent, others held immense loyalties to the King who had granted them land, and some switched their position to serve their own best interests (Edgefield County Historical Society 2009).

Since the residents did not necessarily abide by the treaty, a skirmish between Tories and loyalists in the Ninety Six District broke out in November of 1775 (Edgar 1998:226). Although a series of battles led to the surrender of much of South Carolina to the British, the patriots continued their fight. Under the command of Thomas Sumter in 1780, backcountry residents rallied to form the resistance and forced the British to evacuate the fort in the Ninety Six District in June of 1781 and peace soon spread over the new nation (Edgar 1998:234, 237).

ANTEBELLUM EDGEFIELD

Following the Revolutionary War, the residents of the Ninety Six District focused their attention on establishing local governments and rebuilding the economy. The 1785 Act of the Legislature divided the Ninety Six District into smaller counties, including Edgefield County (Edgefield County Historical Society 2009:2). From its founding in 1785 until 1871, when it was divided again, Edgefield County encompassed 1,720 square miles and included all of the present-day counties of Edgefield and Saluda as well as portions of Aiken, Greenwood, and McCormick counties (Edgefield County Historical Society 2009:vi). Courthouse sites were established in each newly created county; however, the economy of the larger district was difficult to rejuvenate. The brutal reprisals against the Tories in the Ninety Six District resulted in social unrest, the death or banishment of many long-term residents, and countless homes, farms, and mills being abandoned or burned (Webb et al. 2000:19).

After the Revolutionary War, prosperity returned on the back of the upcountry's—the post-war nomenclature for the backcountry—agrarian tradition. By the 1790s, short staple cotton had developed into a secure cash crop for the middle country and upcountry (Edgefield County Historical Society 2009:3). The next two decades saw cotton cultivation grow quickly throughout Edgefield County as the rich clay soils of the piedmont proved ideal for growing the crop (Edgefield County Historical Society 2009:3). Since large-scale cotton production required a large work force, slave ownership in Edgefield County increased dramatically. In 1800, approximately 25 percent of the families in the upcountry and middle country owned slaves; within 20 years, 40 percent of the families owned slaves (Edgar 1998:272).

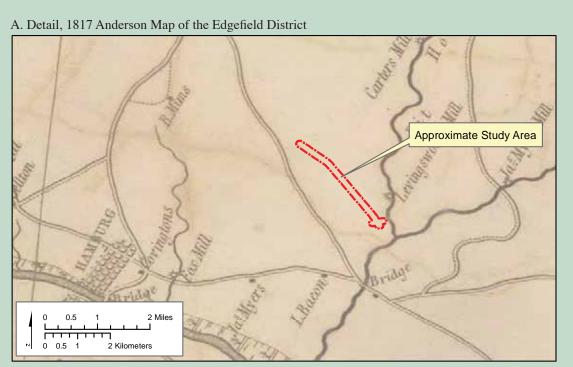
Graniteville, located about 6.5 miles northeast of the project area, had one of the first large-scale cotton mills in the south: Vaucluse Mill, constructed by William Gregg in 1842. By 1850, William Gregg's Vaucluse Mill employed over 300 people who primarily resided in nearby Graniteville. Gregg was also one of the founding members of town of Aiken's St. Thaddeus Episcopal Church, one of several prominent congregations in Aiken (Webb et al. 2000:19). The success of Graniteville's cotton enterprise spurred similar developments in neighboring Horse Creek Valley, where the Langley Cotton Mill was constructed in 1858. Later mills, including Seminole Mill and Clearwater Finishing Plant, would eventually open in the subsequent years (Jaeger Company 2010:8; McDonald and Miles 2011).

While cotton was king in Edgefield County, several other industries contributed to the county economy, including flour and gristmills, textile mills, lumber and turpentine distilleries, and a carriage plant (Webb et al. 2000:19). Of these industries, alkaline-glaze pottery manufacturing, started by Dr. Abner Landrum, had the largest and longest impact upon Edgefield County (Edgefield County Historical Society 2009:4).

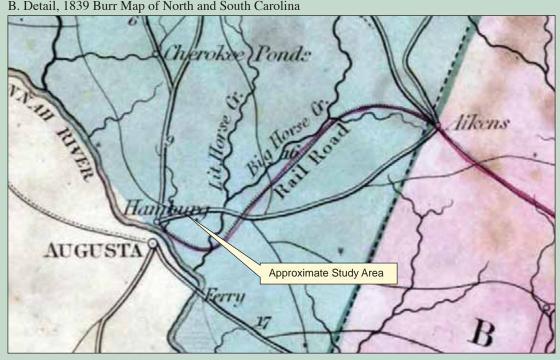
A road system in the region was well established by 1825, connecting Edgefield County with Charleston and Augusta. Anderson's map of 1817 shown in *Mills Atlas of South Carolina* shows a number of roads already laid out by this early date (Figure 2A). Such roads and bridges connected several mills along Little Horse Creek and Big Horse Creek.

Initially, canals were constructed along South Carolina's major rivers; however, railroads proved superior, easily allowing the transportation of goods to and from the middle country and upcountry and Charleston and other market centers (Webb et al 2000:20). By 1833, the South Carolina Railroad stretched between Charleston and Hamburg (Edgefield County) and was the

Figure 2. Edgefield District



Source: Mills Atlas 1825



B. Detail, 1839 Burr Map of North and South Carolina

Source: South Caroliniana Library

longest continuous rail line in the world (Edgar 1998:283; Figure 2B). By 1860, there were 11 railroads operating in the state linking almost all the districts by rail to Columbia or Charleston (Edgar 1998:283).

CIVIL WAR AND RECONSTRUCTION

As the anti-slavery movement gained momentum and threatened the basis of the South's economy, feelings of sectionalism increased amongst Southerners and threatened the unity of the nation. At the outbreak of the Civil War, most Southerners believed that the South would quickly win the war and preserve their economy and way of life. In Edgefield County, hundreds of males volunteered for service in the Confederate Army and were sent to Virginia to fight federal forces (Edgefield County Historical Society 2009:6). Although the fighting did not cross into Edgefield County, the local population still suffered from the ravages of war. The Civil War brought massive casualties and economic collapse to the South, and Edgefield County was not spared, losing nearly one-third of the county's fighting-age males in battle and wiping out a huge portion of the county's wealth (Edgefield County Historical Society 2009:6).

After the war, Edgefield County's agricultural economy rebounded slightly as cotton continued to be the primary cash crop, although not nearly to the extent it was prior to the Civil War. With the emergence of tenant farming and silviculture, the region's economy began to improve (Webb et al. 2000:20).

During Reconstruction, an emphasis on local government resulted in the creation of newer, smaller counties throughout South Carolina. Four new counties that received substantial amounts of land from the original boundaries of Edgefield County include Aiken County in 1871, Saluda County in 1895, Greenwood County in 1897, and McCormick County in 1916 (Edgefield County Historical Society 2009:9).

Aiken County was formed from lands of not only Edgefield, but also Barnwell, Lexington, and Orangeburg counties. The town of Aiken was made the county seat. By 1881, Aiken County had built its new courthouse, which was previously located in the family house of William Gregg, Jr. The 1880 census recorded Aiken County's first population count, with 28,112 people residing in the county. African Americans, referred to as "colored" in the 1880 census, comprised the majority of the population at the time, representing 53 percent of the total population. Over the next two decades, the total population of Aiken County continued to increase, along with the population of African Americans, who made up nearly 57 percent of the people residing in the county in both the 1890 and 1900 censuses (Jaeger Company 2010:9; (University of Virginia, Geospatial and Statistical Data Center (UVAGSDC) 2004).

The economic recovery following the war was slow, as agriculture in South Carolina transitioned from a system based on slave labor to one based on tenant or share farming. Cotton continued to be king of the agricultural products of the state, and Aiken County in particular profited from the widening of the nearby Augusta Canal, which facilitated the transport of cotton to Augusta, the leading textile manufacturing locale in the south at that time (Webb et al. 2000:20). Although the agricultural economy recovered during Reconstruction, it would not last. By the 1920s, cotton crops all across the south suffered tremendously from the boll weevil invasion. Coupled with the decline of the American economy during the Great Depression, agriculture in the state never returned to the height it once had, especially as people migrated towards more opportunity in urban areas (Webb et al. 2000:20).

HORSE CREEK VALLEY IN THE TWENTIETH CENTURY

The 24-mile-long Horse Creek continued to inspire primarily textile milling along its banks into the twentieth century, despite struggles during and after the Civil War. Due to its siting between the booming resort towns of North Augusta and Aiken, the valley was well-located for the addition of a rail line connecting the two. By the 1890s, the Georgia-Carolina Power Company was operating electric street rail lines within the city of Augusta, Georgia, and a 25-mile interurban line through the Horse Creek River, connecting Augusta to Aiken (Figure 3). The construction of both the Hampton Terrace Hotel, then the largest wooden building in the world, in North Augusta and the 26-mile Augusta-Aiken Railway coincided with one another. Both the hotel and the interurban railroad opened in 1902, with the railway connecting those arriving in Augusta and Hamburg to the North Augusta resort, before traversing Horse Creek Valley and connecting to the city of Aiken (Hilton and Due 2000).

The private ROW rail line was constructed along SC 126 within the current study area, and continued east and north to Aiken with connections to the Southern Railway (formerly the South Carolina Railroad) and to the mill villages of Clearwater, Bath, Langley, and Graniteville, to which it primarily delivered coal freight. With the rise of the automobile during the early twentieth century, the Augusta-Aiken Railway did not last. According to a topographic map (Figure 4), the line was abandoned by 1928, though other resources suggest that the Augusta-Aiken Railway was abandoned the following year (Hilton and Due 2000). The tracks and ties have since been removed, but the rail bed remains somewhat distinguishable in the southern section of Clearwater Mill Village.

The construction of the defense-support nuclear facility, Savannah River Site (SRS), in the 1950s meant growth and change for Aiken, Allendale, and Barnwell counties, as well as neighboring counties in South Carolina and Georgia. Covering an area of 310 square miles, SRS and its

Figure 3. 1895 Map of Aiken County

Barrs in Fruit Hill Dupont Q Meeting Clouds Cr. o Brook 616 20 Daniel o Mine Cr. Street \ edale ummit Mobleyo Doow mill cdonia Leesvil Delphio Bateshu Wards Clarks Mills 00 ittsburg F Johnston Ma cec eld Scott Beaver Spring Keno Pond G_{ℓ} 122 isto Mills Oakvilla renton merman ishtor pring Rishs S _Baghnalms OPlateau ham 980 Wagene Eureka Bei illedge Ropers 014 lil itts Beaver V-iew 240 oDam Bothe noir oCook es Mill K Qra Salley Approximate 0 cernanna 9 Sawyer-Kitchings Area of Study Mulls Ms. dale œ Montinorenci Gl_{e} R A Livingston Springfield oscian Eve Glover Davis indao Bridge 118 Hamburg White Pon Whaley Nor Talatha Walkers St Beech Island Conye Monie P.O D' 10 Furner o Blackville M0883 ۷ Lees Cathwood Weather AR. allouse 20 Ashley awtho Denmar Snelling Jack Reculand oodward Dunbartono I. в 0 -Morrises Sta. or Robbins Colsto Morris P.O.

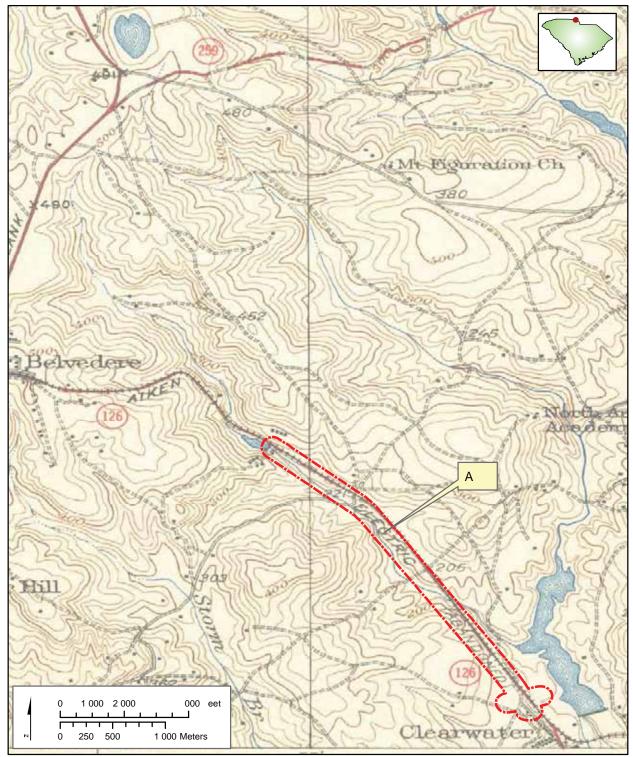


Figure 4. Detail, 1928 Warrenville USGS Topographic Map

Source: US Topo and Historical Topographic Map Collection

employees required use of existing and new housing stock primarily sited in the city of Aiken and in the North Augusta vicinity. In 1950, the number of existing dwelling units in Aiken and North Augusta was 2,321 and 1,164, respectively. Three percent of dwellings in North Augusta were described as vacant and available in 1950; however, only 0.9 percent of Aiken's housing stock was vacant and available at that time (Chapin et al. 1954).

New development, both within incorporated towns and in more rural areas, was inevitable during the latter half of the twentieth century. Most of the post-World War II residential development present in the project area is characterized by single buildings or groups of less than five buildings not necessarily constructed by one developer or builder. One subdivision, Woodridge, is partially located within the project area. The earliest roads of the subdivision, Hillside and Pineview drives, are depicted on county maps as early as 1956 (Figure 5). A Ranch house development, Woodridge was constructed between the late 1950s into the 1970s and is further discussed in Chapter V.

Jefferson Davis Highway

With the rise in automobile use in the early twentieth century came the creation of new highways, and new highways meant new highway names. The Lincoln Highway was one of the first transcontinental routes established for automobile use in 1913. Inspired by the memorialization of Abraham Lincoln through the new road moniker, then President General of the United Daughters of the Confederacy (UDC), Mrs. Alexander B. White (Rassie Hoskins), formally proposed that the UDC begin the process of securing a national highway named for Jefferson Davis in November of 1913. Though UDC members became active in the Good Roads movement during the 1910s and 1920s in hopes to gain federal approval for the dedication of a highway in honor of the only president of the Confederate States of America (1861-1865), most of their efforts were in vain. A full highway was never officially recognized by the federal government, though some sections of roadways in some areas were formally named Jefferson Davis Highway (Hague 2010).

In 1926, all auto trails were incorporated into the U.S. Numbered Highway System by the American Association of State Highway Officials. At this time, official and unofficial sections of the Jefferson Davis Highway (also called Jefferson Davis Memorial Highway and Jefferson Davis National Highway in some places) were split among U.S. Highway 1, U.S. Highway 15, U.S. Highway 29, U.S. Highway 80, U.S. Highway 90, and others. Unofficial or official, and numbered or not, UDC members have been successful in erecting markers in a variety of shapes and sizes, trees, and signposts in several areas since the 1920s to the present (Hague 2010).

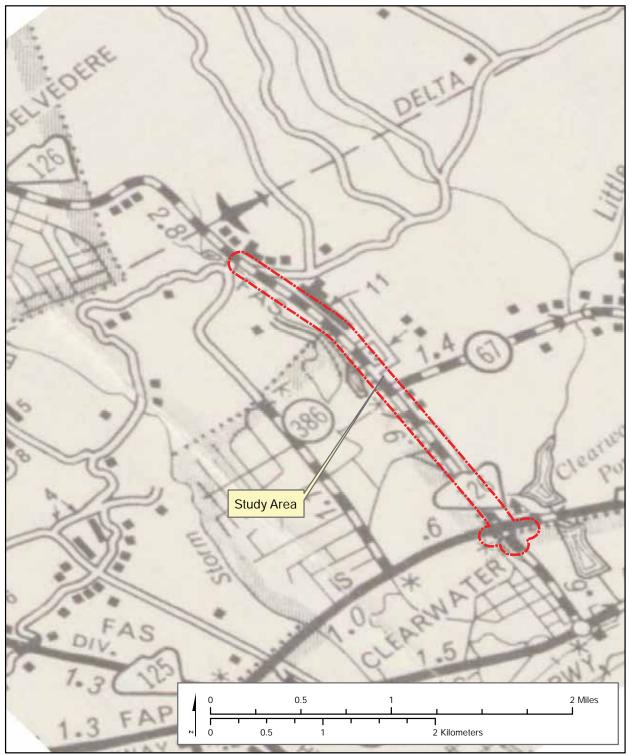


Figure 5. Detail, 1956 Aiken County Highway Map

Source: Thomas Cooper Map Library, University of South Carolina

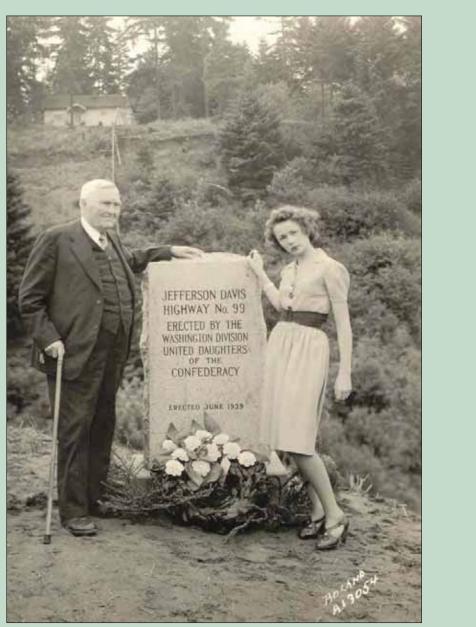


Figure 6. Highway 99 Memorial Marker, 1939, Vancouver, Washington

Source: Seattle UDC

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In the Horse Creek Valley area of Aiken County, the South Carolina Highway Commission officially named U.S. Highway 1 the Jefferson Davis Highway on May 15, 1923 (Brigadier General Barnard E. Bee Camp [1575] 1996). In Aiken County, one large and four small monuments were erected by the UDC within the ROW of the highway in 1925 (Bushall 1995). In 1950, a new U.S. Highway 1 alignment was completed, though two of the markers remained in place on what became and is now SC 421 (Figure 5). In 1996, these markers were removed from their original location by the Sons of Confederate Veterans and the UDC and relocated to U.S. Highway 1 (Brigadier General Barnard E. Bee Camp [1575] 1996). One of the two markers was relocated to U.S. Highway 1 near the northeast corner of its intersection with SC 126. This resource is also discussed in Chapter V.

Clearwater Mill Village

Horse Creek Valley continued to remain an active milling area, primarily focused in textile production, well into the twentieth century. Though most of the larger mill buildings in the complexes of Bath, Langley, and Vaucluse are no longer extant, portions of the Clearwater Finishing Plant and adjacent Seminole Mill in the community of Clearwater remain standing. Some mill houses, located across SC 126 from the mill buildings, are still intact, though many of those that remain have been altered and enlarged since their construction.

Though milling was already commonplace in Horse Creek Valley by the early nineteenth century, 1900 saw the arrival of Seminole Mills in Clearwater. With the opening of the new mill, the first housing was likely erected during this time as well. These earliest houses are sited along SC 421 and SC 126. Larger superintendent houses do not appear to have been constructed in the village, as managing company officials, like company president Thomas Barrett, Jr. lived in nearby towns like Augusta (Scardaville and Nylund 1985-1986:n.p.).

In 1901, "a new era in the cotton manufacturing industry of [the Clearwater] section" began with the completion of the new Clearwater Bleachery and its promise to produce the "finest print cloth" on the market (American Wool and Cotton Reporter 1901). While 800 people lived in Clearwater by 1907, 350 operatives worked at the Seminole Mills. At that time, the plant had 512 looms and 22,000 spindles that manufactured \$350,000 worth of product annually (Scardaville and Nylund 1985a). A 1908 directory listing South Carolina cotton mills does not mention Clearwater Bleachery as a separate entity, but does list Seminole Manufacturing Company (Watson 1908).

The Horse Creek Valley Mills were associated not only by location, but also by ownership, as industrialists often purchased mill sites in more than one location. Reorganized in 1915 under united ownership as the Langley and Aiken Mills, Seminole Mills found a new president in

William C. Langley of New York (Scardaville and Nylund 1985a). A 1916 publication describes Seminole Mills as incorporated in 1915 as a manufacturer of "sheeting, shirtings and drills" (Poor's Manual of Industrials 1916:7:7:2169).

The "Langley group" supplied a variety of cotton mill products, and furnished Horse Creek Valley mill workers with a circulating library of 1,000 books in 1920 (American Wool and Cotton Reporter 1920:66; 1921:44; Moody's Manual of Railroads and Corporation Securities 1922:2:2). By 1919, Clearwater Mill Village, had both a church and school, erected by W.H. Langley & Co., for use by Clearwater operatives and their families. Women of Clearwater Mill Village were reported as using a "Community House" as a teaching space. In what was possibly the company store on what is now SC 126, women were taught "domestic science" and "hygiene" by a "welfare worker" hired by the company (Scardaville and Nylund 1985a).

Expansion of the textile industry in the 1920s meant growth throughout South Carolina's mill areas. Such growth, however, quickly led to an overly competitive market and overproduction that resulted in decreased prices. As a result, cost-saving measures were instituted at mills throughout South Carolina. Some mill managers reduced full-time operatives to part-time work, but the most common cutback practice included setting machinery at faster speeds and assigning workers to a greater number of machines. These methods, referred to as "speed-up" and "stretch-out," led to unrest among operatives throughout the state in 1929 (Edgar 1998:488). By 1930, more than 3,000 operatives were present in Horse Creek Valley, and their production reached an annual value of \$8 million dollars (Simon 1998).

At the edge of conflict, United Merchants and Manufacturers, Inc. purchased the "Langley group" in 1929. Company president Homer Loring announced the construction of Clearwater Finishing Plant adjacent to Seminole. The location was ideal due to its proximity to weaving mills that could supply unfinished materials, an existing labor pool, and an already harnessed water supply. The new plant was complete by late 1929 with 150 employed operatives and was given the charge of applying color and design to textiles. Both plants at Clearwater used water and steam power, with Seminole Mills generating steam that was then piped to the Finishing Plant grounds. By 1934, Seminole Mills added rayon, a synthetic fabric, to its available product list (Scardaville and Nylund 1985a).

While some of the older mill houses constructed for the Seminole Mills received renovations at this time, new construction also took place in the area, primarily stretching west from SC 126. It is believed that electric lights were installed at this time, and that street regrading and improved sanitary conditions also took place. Additions were made to both Seminole and Clearwater Finishing Plant in 1940, 1948, and 1957. By 1958, the Finishing Plant employed 1,000 workers. By 1970, that number increased to 1,200 (Scardaville and Nylund 1985a).

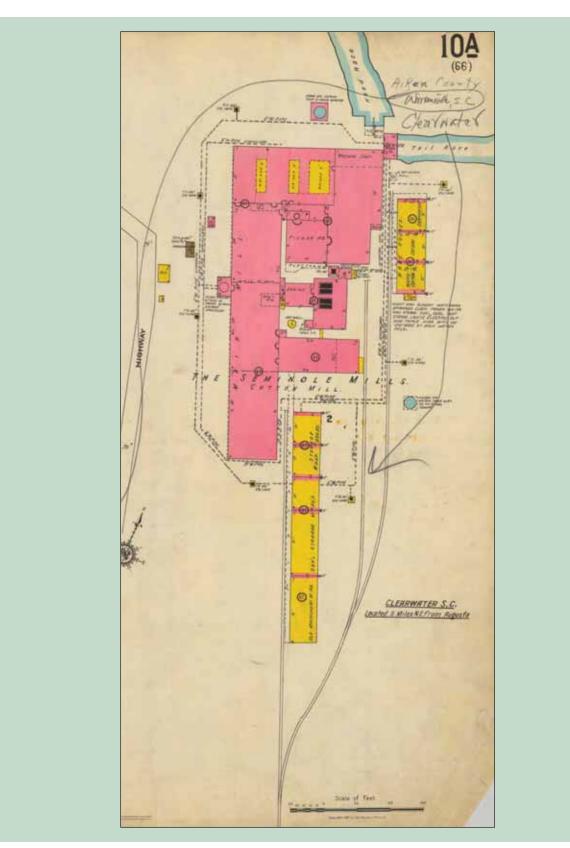


Figure 7. Detail, Sanborn Fire Insurance Map of Clearwater, 1923

Labor Relations and Horse Creek Valley

Strike-filled unrest and the general working-class conditions of Horse Creek Valley operatives were portrayed in graphic detail in a wildly popular and controversial 1933 novel by Erskine Caldwell entitled *God's Little Acre*. Though Caldwell's book takes place primarily in the fictional mill town of Scottsville, the town is situated in the very real Horse Creek Valley and is believed by some to represent Clearwater specifically. Later depicted in a 1958 film by the same name, Caldwell's novel proved to be ahead of its time in conveying just how strained labor relations would become in Horse Creek Valley (Mixon 1995:52).

Though smaller strikes were common in Horse Creek Valley as late as 1932, none proved as historic as the labor dispute that began in late 1933. Protests in Horse Creek Valley began in October 1933 under the guidance of Methodist-Episcopal minister Paul W. Fuller, director of the Education Department of the American Federation Labor. Fuller led operatives in the area in fighting for the New Deal and on October 21, three-fourths of the approximately 4,000 workers in Horse Creek Valley went on strike (Simon 1998:97).

According to several laborers at Horse Creek Valley mills, the object of the strike was to pressure mill managers to enact President Roosevelt's National Recovery Administration (NRA) code of the New Deal. The NRA code included provisions such as limiting production at all southern mills to 80 hours per week and increasing wages. However, mills outside of Horse Creek Valley that had implemented the NRA code, workers were indeed given increased wages, but this action led to an overall decrease in employed operatives. (Simon 1998:97; Edgar 1998:504). According to officials at Bath, Langley, and Clearwater, referred to as the Loring Mills by *The Spartanburg Herald*, the mills were operating according to NRA guidelines "without exception" (Associated Press 1933).

As weeks progressed, the strike grew to more than 6,000 operatives from Horse Creek Valley and Augusta, Georgia. By November 1, Cotton Textile National Industrial Relations Board member Robert W. Bruere and industry representative Benjamin Geer, who together comprised the abbreviated Bruere Board, arrived in Horse Creek Valley. The Bruere Board decisions regarding the Horse Valley Creek dispute set precedent for resolving subsequent textile industry conflicts (Irons 2000).

The Bruere Board convinced operatives to return to work on November 6 with the promise that the mills would not discriminate against the strikers. Opting to divide striking workers on either side of the state line, the Bruere Board intended to secure such promises from Augusta and Horse Creek Valley mills separately. Augusta mills agreed not to discriminate, but on November 6, more than 1,000 workers in Horse Creek Valley remained unemployed and were quickly being replaced by workers from agricultural areas, referred to as "strikebreakers". In Graniteville, some striking workers had even been evicted from their mill-owned homes. Fuller began regarding what was formerly a strike to a veritable "lock-out" of operatives (Irons 2000:83).

Under the leadership of Fuller, strikers appealed to the State Cotton Textile Industrial Relations Board, who did not require the mills to rehire strikers. Instead, operatives were encouraged to reapply for their previous positions. Less than a month from the Bruere Board's decision to squash the strike, Horse Creek Valley strikers traveled to Washington, D.C. to appeal yet again to the National Board. The National Board agreed that the mills should rehire strikers without discrimination beginning January 1, 1934. Mill owners and managers began hiring back strikers at that time, but at rates at times reaching less than half of an operative's pre-strike pay (Irons 2000:83).

The much-reviled speed-ups and stretch-outs continued to be commonplace in the mills, and while the NRA code did specify hours and wages, it did not guarantee a 40-hour workweek for operatives. Thus, unrest continued and grew throughout Horse Creek Valley and beyond. On September 3, 1934, workers belonging to the United Textile Workers (UTW) union, which was comprised of nearly one-half of South Carolina textile operatives, went on strike. Within a week, non-union workers also joined, and nearly two-thirds of the state's operatives found themselves participating in the largest strike in the history of the United States: the General Textile Strike (Edgar 1998:505).

The General Textile Strike, which spread from Maine to Alabama, was so widespread that regular National Guard members and "constables without compensation" were called out by South Carolina Governor Blackwood to patrol mill villages (Edgar 1998:505). In a strike conflict between union members and strikebreakers at Chiquola Mills in Honea Path, South Carolina, seven strikers were killed and an additional 15 were seriously wounded. The violence led to an appeal by President Roosevelt for workers to end the strike, to which operatives agreed. Of 26 mills cited for not rehiring operatives, 15 were located in South Carolina. Overall, the strike was considered a failure (Edgar 1998:505).

Labor disputes continued throughout the textile milling industry until World War II, which brought on employment stability that the New Deal could not. However, prior to the war and after, mill towns were beginning to dwindle, with mill houses being sold off by companies in a piecemeal fashion. While in some cases, the selling of a mill house simply meant that a longtime tenant would finally own his home, in other cases, sections of mill villages were purchased and razed to make room for new, post-war construction (Edgar 1998).

Clearwater and the Late Twentieth Century

While Seminole Mills increased its workforce to 724 in 1977, the plant partially closed down for a week in March of 1981 and laid off 250 workers. In February 1982, union organizers of the Amalgamated Clothing and Textile Workers Union (ACTWU) marched in Clearwater a few days before Seminole operatives held their first referendum to determine if they would unionize. The ACTWU marchers, who included Martin Luther King III and Atlanta Falcon James Mayberry, stated that United Merchants had a long history of violations relating to the National Labor Relations Act and an open rancor towards unionization. Operatives voted 284-200 against unionization the following week (Scardaville and Nylund 1985a).

United Merchants announced that the Seminole Mill would close in October 1982 just six months following the march. While the company maintained that the closing was due to a waning economy and an upsurge of foreign imports, some operatives suggested that the threat of unionization was yet another reason for its demise. The 400 workers then employed at Seminole Mills were not expected to transfer to other United Merchants mills (Scardaville and Nylund 1985a).

Following a machinery update in 1970, Clearwater Finishing Plant began screen-printing cotton, synthetic, and spun glass yarn fabrics. The hope of growth, or even sustainability, from this action diminished, however, when in 1974 and 1979 the plant laid of 80 full-time workers indefinitely. Another 100 workers were laid off when Seminole Mills shuttered its doors in October 1982. In July 1983, the plant was "reorganized for more efficiency," which resulted in yet another 150 layoffs and reduced the workforce to 650 operatives. Despite receiving approximately \$20 million in modernizations in 1984, the plant laid off an undisclosed number of its 600-800 workers in April of 1985. The layoffs were blamed on the economic recession of the period and weak sales (Scardaville and Nylund 1985a).

Clearwater Finishing Plant, which once employed more than 2,000 workers at its formerly 800,000-square-foot facility, closed following the declaration of bankruptcy by United Merchants in 1988 (Shepherd 2012). This mill community, which in many cases employed generations of family members, found itself suddenly lacking the focal point of its village and its source of livelihood (Gilliland 2007). According to a brief history of the site, the Clearwater Finishing Plant was found to be eligible for NRHP listing following a 1985-1986 historic resource survey (Scardaville and Nylund 1985a; 1985b). However, no further information regarding this recommendation or SHPO concurrence has been uncovered and the plant has not been listed in the NRHP.

Both Seminole Mill and Clearwater Finishing Plant have recently been the site of several suspicious fires. Between 1992 and 2007, a total of 11 fires were reported. In January 2012, another fire destroyed one of the finishing plant's three buildings, and one more in February 2012 spread across more than 50,000 square feet of the plant. The latest fire took place on May 30, 2013. It too has been called suspicious (WRDW 2013). What remains of the Clearwater village is discussed further in Chapter V.

In the mid-1970s, the Midland Valley Shopping Center opened on U.S. Highway 1 near the southwest corner of the intersection with SC 126. When constructed, this shopping center was the largest of its kind between Aiken in Augusta. In 1979, a group of subsidized rental units called Clearwater Village Apartments was erected behind Midland Valley Shopping Center. The apartment buildings form a buffer between the mill village and the commercial area (Scardaville and Nylund 1985a).

While some mill houses related to Seminole Mills and the Clearwater Finishing Plant remain intact, non-historic infill throughout the village indicates demolition within the original confines of the mill town. The bulk of the project area runs north along SC 126 and consists of a mix of post-World War II housing and modern residential, commercial, and religious buildings. Few pre-World War II residences remain intact, and most post-World War II residences are Minimal Traditional or Ranch house types that stand alone or in small groups of less than five. One subdivision, however, is present within the project area. The Woodridge subdivision consists of typical Ranch houses constructed during the 1960s and 1970s.

IV. METHODS

BACKGROUND RESEARCH

The goal of the background research was to identify all previously recorded archaeological sites and historic properties in and around the project area that may be adversely affected by the proposed undertaking, and to develop a general cultural and historical background to properly evaluate resources identified during field survey. Historic maps were examined to identify areas surrounding the project area with the potential to contain historic resources. The Archsite GIS database was consulted for NRHP-listed properties. The site files housed at the South Carolina Institute of Archaeology and Anthropology (SCIAA) were examined for previously identified archaeological sites. As a result of the background research, no archaeological sites were found within 0.25 miles of the current APE. Three previously recorded architectural resources were identified in the APE, and two additional resources were located within a 0.5-mile radius of the APE. All five resources were described as not eligible for NRHP listing at their time of survey and were not resurveyed.

FIELD METHODS

ARCHAEOLOGY

A four-person crew, consisting of the project archaeologist and three research assistants, conducted the survey. One shovel test transect was placed on each side of the road, approximately 15 meters from the center line.

Shovel tests were typically excavated at a 30-meter interval. However, areas of excessive slope, pavement, locations in standing water, and areas clearly disturbed were noted and examined, but not subjected to shovel testing. Site or isolated find boundaries were typically delineated on a 10-meter grid within the project area. Shovel tests were approximately 30 centimeters in diameter and excavated until culturally sterile subsoil was encountered. All soils were screened through 0.25-inch mesh hardware cloth to recover all artifacts present. Shovel tests used to delineate site boundaries were excavated in arbitrary 10-centimeter levels within natural strata in order to better assess the sites integrity. Where possible, all site boundaries were delineated until two sterile shovel tests were encountered or the ROW boundary was reached. A visual inspection of areas outside the project ROW was conducted to further delineate site boundaries.

For the purposes of this project, a site was identified if artifacts from the same, broad cultural period were recovered in the following three combinations: A) three or more artifacts from a 30-meter area on the surface; B) two or more artifacts recovered from a shovel test that cannot be co-joined; or C) one artifact recovered from a shovel test and one found on the surface within a 20-meter radius. Wells, chimney falls, house piers, brick scatters, and other surface features were also considered in determining site boundaries. An isolated find was identified by the presence of no more than two artifacts within a 30-meter radius or those that appeared to be obviously redeposited. Using these definitions, no archaeological sites were identified. However, one isolated find was documented.

ARCHITECTURE

Buildings and structures greater than 50 years in age were assessed for their National Register eligibility. There were 14 newly recorded architectural resources within the APE surveyed using the Statewide Survey Intensive Form, produced by the South Carolina State Historic Preservation Office (SHPO). The resources were identified and surveyed in accordance with the SHPO's *Survey Manual: South Carolina Statewide Survey of Historic Places*, and digital photographs were taken of each one. Additionally, six resources were individually assigned site numbers and recorded on survey forms as representative examples of extant architecture in Clearwater Mill Village, which touches the APE at its south end. The individual resources and districts are described in Chapter V.

Also followed were the June 2013 SHPO *Guidelines for Surveying Post-World War II Neighborhoods and Residences* due to the presence of mid-to-late twentieth-century residences within the proposed project area. Much of the residential architecture in the project area was constructed in during the post-World War II-era in the Minimal Traditional or Ranch house type, with some reaching 50 years of age and others just under 50 years of age. Per the SHPO guidelines, these Minimal Traditional and Ranch houses constructed after World War II identified in groups of five or less and not found to be pristine, excellent examples of the house type, were not photographed or recorded on a survey card. These guidelines were also consulted for recording the Woodridge subdivision, a Ranch house neighborhood whose edge touches the APE. A brief description of this neighborhood can be found in the following chapter.

Properties were evaluated following the NRHP criteria and a preliminary assessment of effect for the proposed project was conducted for any property in the APE that was NRHP listed or that met the NRHP criteria for eligibility.

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LABORATORY ANALYSIS AND CURATION

All recovered artifacts were transported to the Stone Mountain, Georgia laboratory facilities of New South Associates, where they were washed, cataloged, and analyzed. Analysis included cleaning, identifying, cataloging, and curation preparation all artifacts to the standards required by the SCIAA. Distinct provenience numbers were assigned to each shovel test and surface collection point. Artifacts from each provenience were divided by class and type, and assigned a catalog number.

Analysis focused on determining period of occupation and site function. Historic artifacts were cataloged by functional category (e.g. kitchen, architecture, etc.). Prehistoric ceramics were analyzed primarily through examining surface treatment and temper. Lithic debitage and tools were cataloged by raw material, reduction stage, and tool type. Generally speaking, raw materials consisted of quartz and silicates.

New South Associates provides temporary storage for all records and artifacts, which will be turned over to SCIAA for final curation. Artifacts, photographs, and notes will be prepared using their standards.

NATIONAL REGISTER OF HISTORIC PLACES (NRHP) EVALUATION

Cultural resources are evaluated based on criteria for NRHP eligibility specified in the Department of Interior Regulations 36 CFR Part 60: National Register of Historic Places. Cultural resources can be defined as significant if they "possess integrity of location, design, setting, materials, workmanship, feeling, and association," and if they:

A) are associated with events that have made a significant contribution to the broad pattern of history;

B) are associated with the lives of persons significant in the past;

C) embody the distinctive characteristics of a type, period, or method of construction, or represent the work of a master, possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction; or,

D) have yielded, or may be likely to yield, information important in prehistory or history.

V. RESULTS AND RECOMMENDATIONS

RESULTS

ARCHAEOLOGY

No previously recorded archaeological sites exist within the study area. As a result of the field survey, no new archaeological sites were found. However, one isolated find was recorded on the east side of SC 126 approximately 700 feet north of U.S. Highway 1 in a wooded area (Figure 8). A single Allendale chert flake was recovered from Transect 1, Shovel Test 17 between 20 and 35 centimeters below surface (cmbs). Additional shovel testing consisted of 10-meter interval tests to the north and east. None of these tests produced artifacts. No shovel testing occurred to the south because this area had been cut down approximately 45 centimeters into an open graded area. To the west was the road ditch and across SC 126 was a paved driveway into a commercial property.

ARCHITECTURAL HISTORY

Background research for previously recorded properties was conducted using Archsite GIS database available from SCIAA and the South Carolina Department of Archives and History (SCDAH). Three previously recorded resources were identified in the project area: 670 Cherokee Road (2733) and two resources at 780 SC 126 (2734 and 2735). Two additional previously recorded resources, a residence on the west side of Old Cherokee Drive (0324) and 651 Powerhouse Road (3732), were located within 0.5 mile of the APE. All five resources were described as not eligible for NRHP listing when surveyed and were not resurveyed.

The present survey identified 14 additional historic resources (Figure 8, Tables 1-2)—some with outbuildings—in the APE. The south end of the APE overlaps with the northern edge of Clearwater Mill Village, reaching to three mill houses and onto the parcel of the Clearwater Finishing Plant. These resources were each assigned site numbers and individually surveyed. Additionally, Seminole Mill, mill village support buildings, village infrastructure, and three additional representative mill houses and their outbuildings representing the overall fabric of the extant mill houses resources were assigned site numbers.

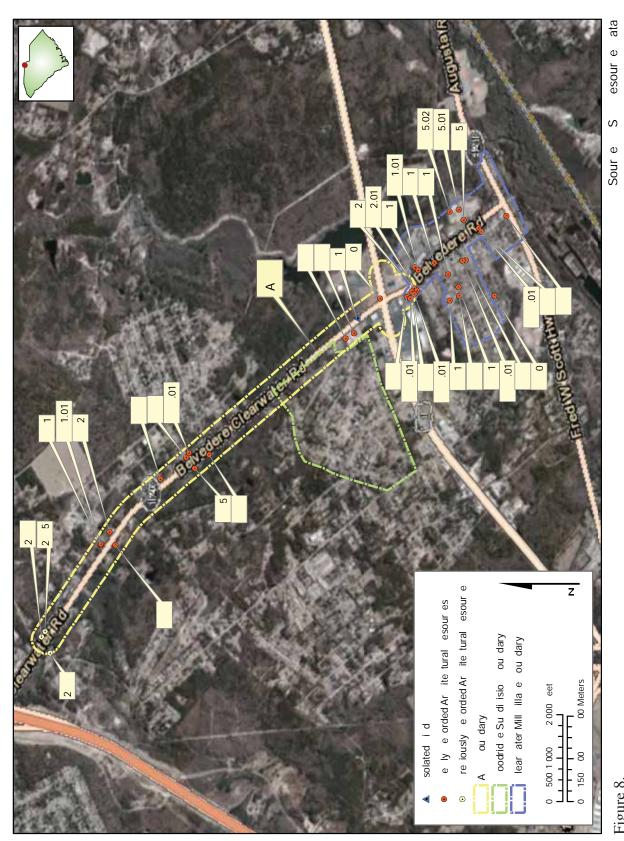


Figure 8. Location of Previously Identified and Newly Identified Cultural Resources

Site Number	Address/Location/Name	Date	NRHP Recommendation		
North Augusta Quadrangle (no. 361)					
3471	850 Clearwater Road	c. 1935	Not Eligible		
3471.01	Well House at 850 Clearwater Road	c. 1935	Not Eligible		
3472	870 Clearwater Road	c. 1925	Not Eligible		
3473	940 Clearwater Road	1941	Not Eligible		
3474	Garage at 865 Belvedere-Clearwater Road	c. 1920	Not Eligible		
3475	947 Clearwater Road	c. 1940	Not Eligible		
3476	950 Belvedere-Clearwater Road	c. 1940	Not Eligible		
3476.01	Outbuilding at 950 Belvedere-Clearwater Road	c. 1950	Not Eligible		
3477	NW of Belvedere-Clearwater and Duncan roads intersection	c. 1920	Not Eligible		
3478	Blue Star Rentals and Sales	c. 1950	Not Eligible		
3479	1003 Belvedere-Clearwater Road	c. 1950	Not Eligible		
3480	Jefferson Davis Highway Marker	1925	Not Eligible		

Table 1. Newly Surveyed Historic Resources

Table 2. Clearwater Mill Village Newly Surveyed Resources

Site Number	Address/Location/Name	Date	NRHP Recommendation		
Clearwater Mill Village (inside APE)					
North Augusta Quadrangle (no. 361)					
3481	Clearwater Finishing Plant Main Building	1929	Not Eligible		
3481.01	Clearwater Finishing Plant Production Building	1929	Not Eligible		
3482	399 Belvedere Road	c. 1900	Not Eligible		
3482.01	Shed at 399 Belvedere Road	c. 1950	Not Eligible		
3483	405 Belvedere Road	c. 1900	Not Eligible		
3483.01	Garage at 405 Belvedere Road	c. 1950	Not Eligible		
3484	419 Belvedere Road	c. 1929	Not Eligible		
3484.01	Shed at 419 Belvedere Road	c. 1960	Not Eligible		
3491	Clearwater Mill Village Infrastructure	c. 1900	Not Eligible		
Clearwater Mill Village (representative resources outside APE)					
Augusta East (no. 15)					
3485	Seminole Mill Ruins	1900	Not Eligible		
3485.01	Smoke Stack at Seminole Mill Ruins	1900	Not Eligible		
3485.02	Outbuilding at Seminole Mill Ruins	c. 1930	Not Eligible		
3486	Clearwater Mill Village School	c. 1910	Not Eligible		
3487	Clearwater Mill Village Post Office	c. 1910	Not Eligible		

Site Number	Address/Location/Name	Date	NRHP Recommendation
3488	338 Church Street	c. 1900	Not Eligible
3488.01	Garage at 338 Church Street	c. 1900	Not Eligible
3489	211 Belvedere Road	c. 1900	Not Eligible
3489.01	Shed at 211 Belvedere Road	c. 1900	Not Eligible
3490	26 Church Street	c. 1929	Not Eligible
3490.01	Garage at 26 Church Street	c. 1950	Not Eligible

Table 2. Clearwater Mill Village Newly Surveyed Resources

Addresses in Tables 1 and 2 reflect those found in tax descriptions, which either describe SC 126 as Clearwater or Belvedere-Clearwater Road. One historic monument and two commercial buildings are located within the APE. Two historic districts were identified during the field survey: a Ranch house subdivision and a mill village. The individually surveyed mill village resources are described in Table 2. A discussion of the individual resources and districts follows the tables.

RESOURCE DESCRIPTIONS

850 CLEARWATER ROAD (3471 AND 3471.01)

The one-story, L-shaped house and well house at 850 Clearwater Road were built circa 1935. The house was constructed with a cross-gabled roof and retains its original use as a single-family residence (Figures 9A-B). A historic well house is also present on this property.

The main massing and front and rear foundations are constructed of concrete block, as are the low concrete block planter walls that flank the brick front porch steps. Exterior walls are clad in asbestos shingle siding, which is likely not original to the building, and fenestration is composed of original three-over-one wood sash hung alone and in pairs. Faux louvered shutters flank the set of paired sash windows on the façade. While the rear entrance includes an original, three-light wood door, a replacement door marks the front entrance. Both doors sit behind aluminum screen doors.

The front and rear porches both feature poured concrete floors. Both shed roofs are carried by squared wood supports. The front porch covers the entire façade and features four posts atop a simple base with a slightly more substantial width than those on the rear porch. No railings are present on either porch. Porch and main massing roofs are all covered in asphalt shingles. A single brick chimney is present in the roof surface of the rear ell.

Figure 9. 850 Clearwater Road (3471 and 3471.01)

A. West Oblique



B. East Oblique and Well House



Just east of the house is a rectangular well house with a front-facing gabled roof. Constructed of concrete block, the small building includes gables clad in metal sheeting. A single plywood door is situated in the northeast elevation and its gabled roof is covered in asphalt shingles.

The house and well house at 850 Clearwater Road are not known to be associated with an event or a person and were therefore not evaluated under Criteria A or B. The house and well house were evaluated together under Criterion C for architecture. The buildings do not appear to be relocated and therefore retain integrity in the area of location. The current surroundings of 850 Clearwater consist of primarily modern residential development and few extant historic resources; thus, the integrity of setting is diminished. The property has no apparent additions and alterations are few and/or historic. Therefore, integrity in the areas of design, materials, and workmanship has been preserved. The property continues to evoke the sense of an earlytwentieth-century residence and therefore retains integrity in the areas of feeling and association. While the property has maintained a high level of historic integrity, it is not an exceptional example of a historic house and is thus recommended not eligible for NRHP listing.

870 CLEARWATER ROAD (3472)

The rectangular, one-story house at 870 Clearwater Road was built circa 1925 in the bungalow form with a front-facing, gabled roof (Figure 10A). The building's footprint has been extended to the rear with a shed addition clad in synthetic siding, but the house retains its overall historic massing and form. The building has also retained its original use as a single-family residence. This parcel also holds both a non-historic shed outbuilding and the foundation of another larger building sited closer to the roadway (Figure 10B).

While original brick piers remain visible, brick infill is also present at the foundation. Siding covering the bungalow's frame construction is represented in replacement asbestos shingles on both the main massing and in the porch gable end. A rectangular vent is present in the main massing gable end, while a triangular vent sits in the front porch gable end.

Brick steps flanked by low brick planter walls with poured concrete caps lead onto the gabledroof porch. The wood board porch floor rests atop a brick pier-with-infill foundation and is lined by a low wood railing. Four squared wood posts with simple wood bases carry the two-bay porch roof. A replacement fanlight door behind a modern vinyl storm door comprises the entrance bay. An original window sits immediately northwest of the door. Original, six-over-six and six-over-nine wood sash windows remain intact throughout the building and are covered by aluminum screens. One smaller, replacement, six-over-six sash window is located on the northwest elevation near the building's rear.

Figure 10. 870 Clearwater Road (3472)





B. South Oblique and Foundation



Corrugated metal roof cladding tops all the porch, addition, and main massing. No chimneys were detected during the field survey, but a metal stovepipe protruding from the southeast roof surface indicates the likely former location of a chimney.

The house at 870 Clearwater Road is not known to be associated with any events or persons of particular significance and was therefore not evaluated under Criteria A or B. The house was evaluated under Criterion C for architecture. The house does not appear to be relocated and therefore retains integrity in the area of location. Development surrounding 870 Clearwater is primarily modern residential construction, with few extant historic resources sited nearby; thus, the integrity of setting is diminished. Additions and alterations to the house are few, thus the bungalow's integrity in the areas of design, materials, and workmanship is relatively intact. This house continues to evoke the sense of an early-twentieth century residence and conveys the feeling and association of a historic bungalow. While some of its integrity is intact, the house at 870 Clearwater Road is not an exceptional example of a historic bungalow house and is thus recommended not eligible for NRHP listing.

940 CLEARWATER ROAD (3473)

This rectangular, side-gabled, single-story Minimal Traditional house was constructed in 1941 at 940 Clearwater Road (Figure 11A). The building's rectangular footprint includes two original gable expansions typical of this house type. The house retains its original use as a single-family residence. Directly behind the house is a non-historic, double metal carport, while a large, non-historic, pre-fabricated metal shed sits near the rear edge of the parcel.

The frame construction of the house is clad in brick veneer, which also conceals the material composition of the foundation. Original wood windows are either represented in six-over-six sash or fixed, single-light picture window forms. Original decorative faux shutters flank all windows.

The central portion of the building features a centrally set entrance porch atop a brick foundation. Here, brick steps approach from the northwest side of the porch and lead to the single-bay landing. The steps and small porch are lined by a low, decorative metal railing, while matching supports carry the small gabled roof. The main entrance is an original, four-light wood paneled door, which sits behind an aluminum screen door. The roof, which features a clipped gable at the northwest end of the central portion of the house, is covered in asphalt shingles. The porch and rear addition roofs are also covered in asphalt shingles.

The original footprint has been slightly expanded through the addition of an open wood deck on the southeast elevation and a small, enclosed rear shed. The southeast gable end includes an added secondary entrance that leads onto the deck as well as an original stone veneer exterior chimney (Figure 11B).

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Figure 11. 940 Clearwater Road (3473)

A. West Oblique



B. Southeast Elevation



This house is not known to be associated with any events or persons of particular significance and was therefore not evaluated under Criteria A or B. The house was evaluated under Criterion C for architecture. The house does not appear to be moved and therefore retains integrity in the area of location. Integrity of setting remains intact at this property, as wooded areas and post-World War II-built residential development remain the primary surroundings. Original building elements and layout remain primarily intact, thus the building retains integrity in the areas of materials, design, and workmanship. The house continues to evoke the feeling of a midtwentieth-century residence and thus also retains integrity in the areas of feeling and association. Despite maintaining many elements of integrity, the house at 940 Clearwater Road is not an exceptional example of a Minimal Traditional house. The resource is therefore recommended not eligible for listing in the NRHP.

GARAGE AT 865 BELVEDERE-CLEARWATER ROAD (3474)

Originally constructed circa 1920 as a rectangular, side-gabled, one-story, single-family residence, this resource is now in use as a garage (Figures 12A-B). Mobile home units located on this parcel are now the primary housing on the property. The original resource was historically expanded on three separate occasions with the additions of a rear gabled ell and rear and side sheds that include additional entrances to the resource. When converted to a garage, the resource was fitted with a standing-seam metal-clad garage door that spans the southeast elevation.

The building was constructed on a brick pier foundation that now includes concrete block infill. The building is currently clad in replacement asbestos shingle siding. Where windows are intact, original wood six-over-six are present. A set of stuccoed steps lead to the original front porch, which sits atop a brick pier and concrete block foundation. A simple low wood rail and slender wood supports line the wood board porch floor. The shed roof of the porch, lined in exposed wood rafter tails, shields an original, offset, three-light entrance. The windows and front door on the main massing are all set in wood surrounds.

A brick chimney is present in the rear roof surface of the main massing. The porch, main massing, and all additions are lined in exposed wood rafter tails at the roofline and topped by standing-seam metal sheeting.

This resource is not known to be associated with any events or persons of particular significance and was therefore not evaluated under Criteria A or B. The building was evaluated under Criterion C for architecture. This building does not appear to be moved and thus retains integrity in the area of location. Integrity of setting has diminished due to the presence of non-historic development in the immediate vicinity of the resource. While original elements remain intact, maintaining integrity of materials, the presence of several historic additions and the reuse of the

Figure 12. Garage at 865 Belvedere-Clearwater Road (3474)

A. North Oblique



B. East Oblique



building as a garage further weakens integrity in the areas of design, workmanship, and association. Despite these changes, the building overall continues to evoke the sense of an early twentieth-century residence and maintains some integrity in the area of feeling. The garage at 865 Belvedere-Clearwater Road is not a good example of a historic house and is therefore recommended not eligible for NRHP listing.

947 CLEARWATER ROAD (3475)

The originally L-shaped house at 947 Clearwater Road was constructed circa 1940 with a typical front-facing bungalow main massing and side-facing gabled ell topped by a cross-gabled roof (Figures 13A-B). The building's original footprint has expanded with a shed-roof addition across the rear elevation of the ell that connects to the main massing and a small gabled-roof addition clad in plywood panel boards and vinyl windows at the rear elevation of the main massing. The house, with the main entrance reoriented to the secondary door on its southeast elevation, is accessed from the road by a curving sand driveway and retains its original use as a single-family dwelling. Non-historic ancillary structures also sited on this parcel include a covered carport and a corrugated metal shed.

The house sits atop a concrete block foundation that includes its own wood door, basement-level entrance at the northwest gable end of the side ell section. This basement portion also includes six-light wood awning windows. Another six-light awning window is also present on the southeast elevation, but all other original windows are six-over-six sash, hung alone and in pairs. Faux louvered shutters flank all window bays on the northeast elevation and one window on the southeast elevation.

The house has been re-clad in replacement vinyl siding, which also covers both porch gable ends. A louvered gable vent marks the northeast porch gable end. Two concrete steps flanked by low concrete walls access this porch, which originally hosted the main entrance to the house. The porch also sits atop a concrete block foundation and includes a poured concrete porch floor. Wood-framed screens and a wood-and-metal-screened door enclose the porch, which houses the entrance bay and partially covers two flanking window bays. The original, nine-light, woodpaneled, former front door sits behind an aluminum screen door.

Also set upon a low concrete block foundation with a poured-concrete floor is a single-bay porch that now serves as the main entrance. A low wood railing and two sets of three slender, squared wood posts carry the small gabled roof above an original, six-light, paneled wood door. An aluminum screen door now covers this entrance.

Figure 13. 947 Clearwater Road (3475)

A. East Oblique



B. North Oblique



Asphalt shingles top the roofs of the main massing, additions, and porches. A single brick chimney is visible in the ridgeline of the side ell. No additional chimneys were identified during the field survey.

The house at 947 Clearwater Road is not known to be associated with any events or persons of particular significance and was therefore not evaluated under Criteria A or B. The house was evaluated under Criterion C for architecture. The resource does not appear to be moved and therefore retains integrity in the area of location. Little non-historic development has occurred in the immediate vicinity of this resource; thus, its integrity of setting is still intact. Additions and alterations to the house are relatively few and small, thus the bungalow's integrity in the areas of design, materials, and workmanship has been retained. This house continues to evoke the sense of an early-twentieth century residence and conveys the feeling and association of a historic bungalow. While much of its integrity is intact, the house at 947 Clearwater Road is not an exceptional example of a historic bungalow house and is thus recommended not eligible for NRHP listing.

950 BELVEDERE-CLEARWATER ROAD (3476 AND 3476.01)

The one-story house at 950 Belvedere-Clearwater Road was constructed circa 1940 with an irregular footprint and a cross-gabled roof (Figure 14A). The building more than doubled in size in 2005 when a large, cross-gabled addition was built along the rear elevation of the original house (Figure 14B). Included in the addition was a new primary entrance, which resulted in the building's reorientation to face Irene Street. The building retains its original use as a single-family residence. While some non-historic shed outbuildings are present on the parcel, a large historic outbuilding is also located southeast of the house.

The foundation and exterior walls of the wood-frame house are primarily covered in brick veneer with the exception of a small, side-gabled ell on the northwest elevation and the front porch gable end, which are covered in synthetic siding. Replacement gable vents are present in building portions covered in synthetic siding, but an original, circular wood vent with louvers set in an octagonal frame marks the building's former front gable.

Windows on the building's original massing are wood and vary in composition. Three-over-one sash are found hanging alone and in pairs, while paired, horizontal two-over-two sash are also present along the northwest elevation. A tripartite window with a central fixed light flanked by two-over-one sash adorns the façade below the gable-and-shed former front porch. Squared supports set atop a brick floor and a foundation clad in brick veneer carry the porch roof. A set of brick steps formerly accessed this porch, but a low metal railing now links all porch supports, cutting off access to the porch from the exterior. Also covered by the porch roof, immediately northwest of the tripartite window, is the former front entrance. This entrance maintains its original four-panel wood door with fanlight behind an aluminum screen door.

Figure 14. 950 Belvedere-Clearwater Road (3476)



B. North Oblique



The entire roof of the original building and its large addition is covered in asphalt shingles. The ridgeline of the original building's main massing hosts two brick chimneys.

Just southeast of the house is a rectangular, five-bay outbuilding constructed circa 1950 with a low-pitched gabled roof and a shed addition covering the whole of its rear elevation (Figures 15A-B). The wood-frame structure sits atop a poured concrete foundation and, where bays are not permanently open, is clad in a mix of wood shiplap, clapboard, plywood, and standing-seammetal siding. The size of the bays suggests the building is used for automobile, boat, large equipment, and general storage. Rolled roofing tops the outbuilding.

The house and historic outbuilding at 950 Belvedere-Clearwater Road are not known to be associated with an event or a person and were therefore not evaluated under Criteria A or B. The house and outbuilding were evaluated together under Criterion C for architecture. Though the house has been reoriented to face Irene Street, the buildings have not been moved and therefore retain integrity in the area of location. The setting of the resource remains relatively rural, with little non-historic development in the vicinity; thus, its integrity of setting is still intact. Original elements remain intact on the original portion of the building, therefore preservation the integrity of the house in the areas of materials and workmanship. However, the large addition greatly altered the original building footprint and shifted the building's façade. As a result, the building no longer evokes the sense of a historic home. Therefore, integrity in the areas of design, feeling, and association has diminished. This resource has not retained its overall historic integrity, and is not a good example of a historic house. The house and outbuilding at 950 Belvedere-Clearwater are therefore recommended not eligible for listing in the NRHP.

NORTHWEST OF BELVEDERE-CLEARWATER AND DUNCAN ROADS INTERSECTION (3477)

The rectangular house located northwest of the intersection of Duncan and Belvedere-Clearwater roads was constructed circa 1920 in the bungalow form with a front-facing-gabled roof lined in exposed wood rafter tails (Figures 16A-B). The building appears to be abandoned, with exterior elements beginning to deteriorate its historic features. No physical address was located during the field study or during tax parcel research.

The rectangular foundation is composed of brick piers, while wood clapboard siding envelops the building. Where still intact, original, six-over-six wood sash windows are present. The front porch also sits atop brick piers and features a wood clapboard-covered gable lined by exposed rafter tails. A triangular, wood vent adorns the porch gable, while the wood board porch floor carries simple, wood board supports. The porch, which is devoid of access steps, covers an original, single-light, wood front door.

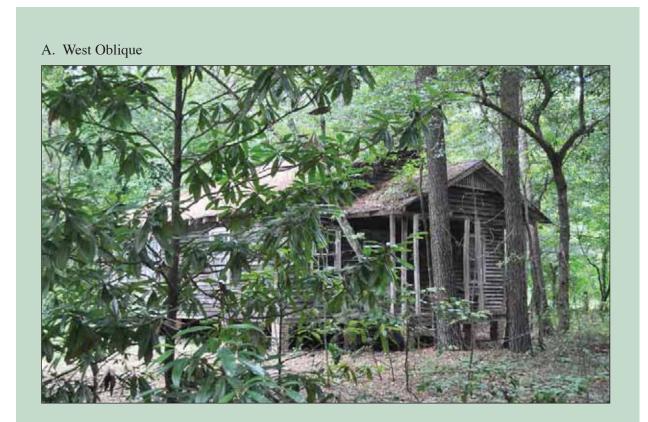
Figure 15. Outbuilding at 950 Belvedere-Clearwater Road (3476.01)

A. North Oblique



B. Southwest Elevation





B. Southeast Elevation



The porch and main massing roofs are covered in standing-seam metal sheeting, while a brick exterior chimney is located in the rear gable end. Vegetation is overtaking the chimney, as well as other elements of the resource, which is situated on a wooded, unkempt parcel.

This resource is not known to be associated with any events or persons of particular significance and was therefore not evaluated under Criteria A or B. The house was evaluated under Criterion C for architecture. The house does not appear to be moved and therefore retains integrity in the area of location. The resource does not retain integrity in the area of setting due to changes not only in surrounding development, but also the currently overgrown nature of the parcel on which the vacant house sits. The house does not appear to have any alterations or additions, which leave its integrity in the areas of design, materials, and workmanship intact. However, the house no longer conveys the sense of an early-twentieth-century residence due to its vacant and decaying state. The resource therefore does not maintain integrity in the areas of feeling and association. While some of its integrity is intact, this bungalow is not an exceptional example of a historic house and is thus recommended not eligible for NRHP listing.

BLUE STAR RENTALS AND SALES (3478)

The overall rectangular-shaped warehouse at 1007 Belvedere-Clearwater Road was constructed circa 1950 and serves as the commercial location for Blue Star Rentals and Sales (Figures 17A-B). According to the owner, the front, rectangular, office portion of the building is a brick veneer addition that was renovated in stucco with new fixed windows and signage between 2004 and 2006. At that time, the building's remainder was also renovated for use by the current business. Though the building retains a commercial use, the building originally served as a trucking terminal. The building sits on a parcel primarily covered by gravel and paved parking and driveways, with a paved parking lot sited near the building's southeast corner.

The owner informed the surveyor during the field study that the building has a basement level and wide, 12-inch-thick concrete apron. The building's foundation is not visible, as brick veneer covers the entire exterior that is not part of the fenestration. While most of the 10 truck bays on either side elevation have either been enclosed in stucco or are now in use as door or window bays, some remain in use for their original purpose. Metal garage doors cover the truck bays that remain in use. A wide roof overhang covers all of the bays along the side elevations. Four bays mark the rear elevation. Here, a single, offset, metal door reached by a northwest-facing set of steps sits alongside three, three-light metal awning windows.

The building's truck-bay portion sits below a low-pitched, gabled roof, while the addition has a flat roof. Built-up roofing covers both building sections.

A. East Oblique



B. West Oblique



The warehouse building at 1007 Belvedere-Clearwater Road is not known to be associated with any events or persons of particular significance and was therefore not evaluated under Criteria A or B. The building was evaluated under Criterion C for architecture. The resource does not appear to be moved and therefore retains integrity in the area of location. The immediate surroundings of this building have remained rural, with some contemporaneously constructed buildings in the immediate vicinity; thus integrity in the area of setting is intact. Additions and alterations including the filling of some original truck bays and stucco covering of the front office portion have led to a loss in the building's integrity in the areas of materials, design, and workmanship. The enclosure and reuse of original fenestration and the addition and remodeling of the front office portion, this resource no longer conveys the feeling and association of a midtwentieth-century trucking terminal. While this building retains some integrity, it is not a good example of a historic commercial building and is therefore recommended not eligible for listing in the NRHP.

1003 BELVEDERE-CLEARWATER ROAD (3479)

The rectangular, former commercial building at 1003 Belvedere-Clearwater Road was constructed circa 1950 with a gable-with-parapets roof (Figure 18A and B). Most recently home to Cross Roads Fleet Service, this warehouse building is currently vacant.

A large, gabled, prefabricated metal addition with truck bays is attached to the to the rear elevation more than doubles the building's original footprint. A small, non-historic prefabricated metal shed outbuilding is also located on the parcel, immediately southwest of the addition.

The rectangular, poured-slab foundation of the original building portion is topped by a wood frame covered in brick veneer. The façade includes evidence that this elevation was once fully covered in stucco. Ghosting on the façade suggests changes in fenestration. Here, concrete block fills spaces once used for additional window and/or door bays. A single metal door entrance bay near the southeast end is the only extant opening on this elevation.

No window bays exist on this building, but double doors are centrally located in both the southeast and northwest elevations. The double doors are composed angled wood boards. These boards are typically arranged in multiple layers, creating a thicker and thus more secure entrance. The original building portion is entirely devoid of roof cladding; and a portion of the roof frame is also missing due to fire damage. A small brick chimney constructed within the brick veneer wall is present in the northwest elevation, near the juncture of the main massing and addition.

Figure 18. 1003 Belvedere-Clearwater (3479)

A. North Oblique



B. East Oblique



Overgrowing vegetation is beginning to take over the building's immediate surroundings. However, much of the paved, gravel, and sand parking and driveway remain intact at this time.

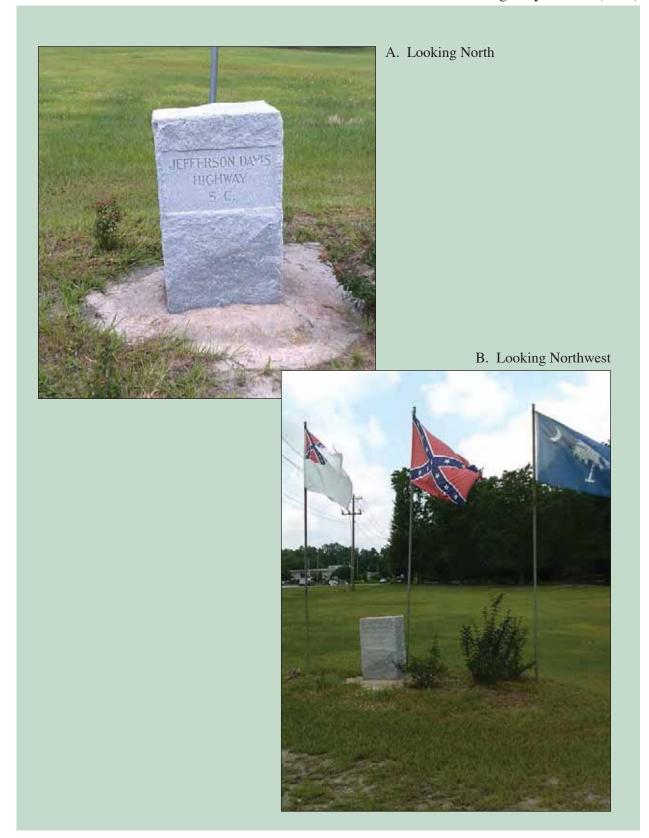
The warehouse building at 1003 Belvedere-Clearwater Road is not known to be associated with any events or persons of particular significance and was therefore not evaluated under Criteria A or B. The building was evaluated under Criterion C for architecture. The resource does not appear to be moved and therefore retains integrity in the area of location. The integrity of setting appears intact, with other commercial development and wooded areas surrounding the resource. The large addition diminishes integrity in the area of design; while the missing roof cladding and alterations suggested by façade ghosting diminish integrity in the areas of materials and workmanship. The large addition and exposure to destructive elements lessen the ability of this resource to convey the feeling and association of a mid-twentieth-century commercial warehouse building. For these reasons, this building is recommended not eligible for NRHP listing.

JEFFERSON DAVIS HIGHWAY MARKER (3480)

As discussed in Chapter 3, the Jefferson Davis Highway is a grouping of officially and unofficially named highways stretching across the United States commemorating the president of the short-lived Confederate States of America. The UDC was the primary force behind the naming of such a highway, and began erecting memorial trees, signposts, and markers in the 1920s wherever possible along such officially and unofficially named highways. Though erected by a nationwide organization, the markers were not uniform and can be found in several sizes and variations throughout the country.

In 1925, the UDC erected four granite markers measuring three feet tall and one foot thick with a 20-inch face reading "Jefferson Davis Highway S.C." in the ROW on U.S. Highway 1. In 1950, a new section of U.S. Highway 1 was completed in Horse Creek Valley, resulting in a renaming of the former U.S. Highway 1 to what is now SC 421. Two of the UDC-erected markers were not relocated until 1996.

One of these markers is now located in the APE after the Sons of Confederate Veterans and the UDC moved it northeast of the intersection of SC 126 and U.S. Highway 1/Jefferson Davis Highway in 1996. The marker is set within a poured concrete base, with three flagpoles and a crepe myrtle tree also installed at the site. Here, the second national flag of the Confederate States, the rectangular variant of the Confederate Army flag, and the South Carolina state flag are represented (Figure 19).



The Jefferson Davis Highway Marker near the intersection of SC 126 and U.S. Highway 1/Jefferson Davis Highway is not associated with Jefferson Davis, a person of significance, due to its creation and erection following Davis' death in 1889. The marker was therefore not evaluated under Criterion B. The marker was also not evaluated under Criterion C, as it does not appear to embody the distinctive characteristics of a type, period, or method of construction. The marker was evaluated under Criterion A for its association with the significant event of UDC's attempts to create a national highway memorializing Jefferson Davis.

The marker was relocated in 1996 to its current site, an intersection with new commercial development, and therefore does not retain integrity in the areas of location and setting. The new foundation on which the marker sits, combined with the addition of commemorative flags and a memorial tree diminish the marker's integrity in the area of design. Integrity in the areas of materials and workmanship remains intact, as the marker retains its original composition and engraving. In its new location, surrounded by additions to the memorial and set atop a new concrete foundation, the marker does not convey the feeling and association of an early-twentieth-century marker. Therefore, the Jefferson Davis Highway Marker is recommended not eligible for listing in the NRHP.

WOODRIDGE SUBDIVISION

Hillside and Pineview drives, the first roads constructed as part of the Ranch house subdivision development of Woodridge, were laid out as early as 1956 according to county highway maps (Figure 5). The layout of the roughly triangular-shaped subdivision consists of a group roads primarily situated between SC 126 to the east and Cherokee Drive to the west (Figure 20). Residences constructed on the north side of Hillside Drive mark the northern boundary of the subdivision. Those houses situated on the south side of Deerwood Drive and at the intersection of Deerwood and Crestview mark the southern boundary.

Other roads constructed as part of the development include Bellview Drive, Edgewood Drive, Forest Drive, West Drive, and Terrace Road. Approximately 160 houses are situated within the bounds of the Woodridge subdivision. All Woodridge houses detected during the field survey were constructed in the Ranch house type, with linear-with-cluster, linear, and half courtyard subtypes represented with and without incorporated carports below hipped and gabled roofs (Figures 21 and 22).

Per guidance from the SC SHPO, this neighborhood was not intensively surveyed. However, a reconnaissance survey of the neighborhood was performed. This reconnaissance survey determined that the neighborhood was not a noteworthy or significant example of a post-World War II neighborhood.



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Figure 21. Woodridge Subdivision, 1 of 2



A. Entrance Sign at Pineview Drive and Belvedere-Clearwater Road, Looking Northwest

B. Early 1960s Ranch Houses at 109-113 Pineview Drive, Looking Northwest from Bellview



A. Early and Mid-1960s Ranch Houses at 3102-3106 Edgewood Drive, Looking Northwest from Deerwood Drive



B. 106 Pineview Drive, Circa 1975, Southeast Oblique



CLEARWATER MILL VILLAGE

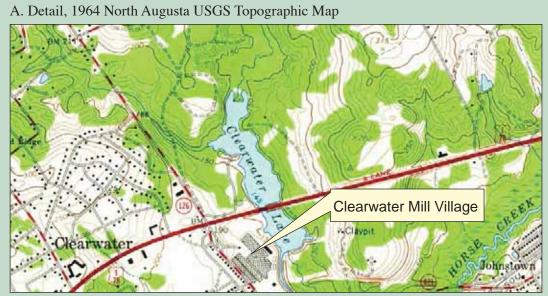
The APE of the current study extends to three houses located at the northern edge of the mill village, and carries over to the northern edge of the Clearwater Finishing Plant parcel. While the Clearwater Finishing Plant was not constructed until 1929, a mill village was established with the Seminole Mill in 1900 that would serve both plants (Figure 23). Extant mill village housing, within and outside of the APE, reflects these two periods of construction. In the first period of construction, houses are represented in primarily shotgun, side-gabled, pyramid cottage, and some bungalow forms; while the second period brought the construction of primarily bungalow and side-gabled types. A survey of the area conducted in 1985-1986 suggests that four prefabricated houses were also constructed somewhere in the mill village in 1945 (Scardaville and Nylund 1985b:95). These four houses were not identified during the current field study and may no longer be extant. The architectural fabric from these two periods of construction includes buildings and structures built on both the Seminole Mill and Clearwater Finishing Plant parcels, as well as mill village houses and support structures. Combined, the historic, roughly T-shaped layout of the mill village remains intact to date despite infill and demolition in the area (Figure 24).

While some mill village resources are discussed individually, the resources are intrinsically linked and were thus evaluated for NRHP eligibility as a district.

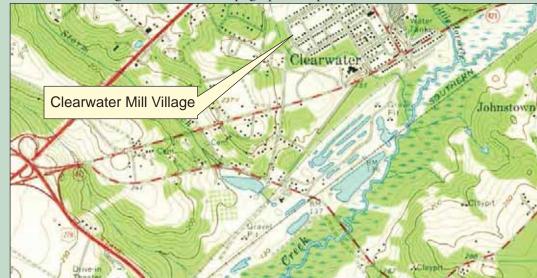
Clearwater Finishing Plant (3481 and 3481.01)

Constructed in 1929 by United Merchants and Manufacturers, Inc., Clearwater Finishing Plant was the latest large mill building to be constructed in the Horse Creek Valley of Aiken County. The development also marks the southwestern-most end of the string of primarily textile mills that once stretched across the county from Graniteville to Clearwater. In 1940, 1948, and 1957, additions were completed at Clearwater Finishing Plant and neighboring Seminole Mill. Modernizations continued to be made at the finishing plant through 1984 (Scardaville and Nylund 1985b). Clearwater Finishing Plant closed in 1988 after United Merchants and Manufacturers, Inc. filed for bankruptcy (Figure 25A).

In the 1990s, citing existing contamination at the site, the Environmental Protection Agency and the South Carolina Department of Health and Environmental Control declared the area a Superfund site, making it eligible for cleanup assistance. Decontamination work at the site, which includes some demolition, continued in hopes of creating a mixed-use facility at the plant. According to developers, demolition, reconstruction, and reuse of existing buildings and structures at the site are planned for the site's redevelopment (Shepherd 2012).



Source: US Topo and Historical Topographic Map Collection



B. Detail, 1965 Augusta East USGS Topographic Map

Source: US Topo and Historical Topographic Map Collection

Figure 24. Clearwater Mill Village Boundary



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A. Main Building and Production Building (3481 and 3481.01), Looking Southeast

B. Main Building (3481), Looking Southeast



Suspicious fires have continuously destroyed sections of Clearwater Finishing Plant and Seminole Mill, with the latest occurring at the finishing plant in May of 2013. The fires have gutted more than one building at a time, and destroying more than 50,000 square feet with one blaze, and have led to the steady obliteration of the property since its closing (WRDW 2013). As of 2008, the Clearwater Finishing Plant had 14 buildings remaining on site (Urban Land Institute Technical Assistance Panel 2008). A fire in January of 2012 was described as destroying "one of the plant's three buildings" (WRDW 2013). While it appears that the two remaining buildings at the site are relatively intact despite heavy deterioration and damage, these buildings were not originally the largest and most substantial at the plant site (Figure 23). Furthermore, the westernmost building was also once substantially larger. According to the latest tax record, six buildings remain on site. However, no date was supplied with this number.

The 20.31-acre Clearwater Finishing Plant site at 16 Belvedere Road is approximately 700 feet southeast of the intersection of U.S. Highway 1/Jefferson Davis Highway and SC 126. It is bounded by a chain-link fence, which prevented a full view of the remaining buildings during the field study. When viewed from the ROW, however, it is apparent that two large buildings situated alongside SC 126 remain somewhat intact. The size of these buildings suggests a production use, while signage on the eastern-most building suggests the location of support offices among the building's other uses. For clarity, the building with signage will hereafter be referred to as the "main building". Although production areas were likely present in both buildings, the more western building will hereby be referred to as the "production building".

The rectangular, two-story, flat-roof main building measures roughly 100 feet wide and 330 feet long (Figure 25B). From what was visible during the field survey, the building appears to be completely clad in a brick that tops a poured concrete knee wall. The brick is arranged in a common bond with Flemish headers every sixth course. However, the uppermost portion of the building, which consists of that section extending from the bottom of the signage to the roofline, is covered in a different brick laid in a veneer. This difference indicates a possible addition to the top of what was once a shorter building.

The entire building likely sits atop a poured concrete slab foundation. Fenestration is limited, but strings of four-light metal awning windows adorn the first and second stories of what reads as the building's façade. The strings of windows sit atop a thin strip of concrete, while another, identical concrete strip links the top of the windows. The second-story windows sit below the metal frame remnants of an awning and the full-façade signage that still partially displays the plant's moniker. Due to fencing and vegetative overgrowth, any extant entrances on this building were not visible during the field survey.

Three strings of clerestory windows are present in the building's west elevation. These sets of multi-light, metal windows are missing several glass panes and also each sit atop a strip of poured concrete. The first story was not fully visible during the field survey, but at least one set of identical windows was detected near the building's north elevation. It is likely that this set of windows is triplicated along the first story as it is on the second story. Furthermore, it is probable that the east elevation also holds such fenestration.

The rear elevation of the main building was also not visible during the field study. It was apparent, however, that a thin strip of metal coping lines the roofline of the flat, built-up roof. From aerial view, several metal vents and chimneys are visible in the roof surface. Additionally, visible from this vantage point are several damaged areas and holes in the roof (Figure 26). As seen in the 1964 topographic map, this building originally extended much further south than its current roughly 330 feet (Figure 23).

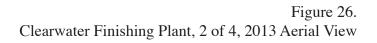
An angled footbridge clad in corrugated metal and topped by an asphalt shingle roof was added to connect the main building and production building on their respective west and east elevations. Also connecting the two buildings is a standing-seam metal shed overhang that extends forward from the footbridge to the north elevations of the buildings.

The rectangular, one-story production building spans approximately 100 feet in width and extends roughly 625 feet in length and features a parallel gabled roof with parapets. The full building was also not visible due to fencing and vegetative overgrowth. This building is clad in brick laid in a common bond with Flemish headers every sixth course and features a poured concrete knee wall (Figure 27A). The entire building likely sits atop a poured concrete slab foundation.

The north elevation also reads as the building's façade despite the lack of full visibility during the field study. Here, at least two truck bays are situated above the knee wall, with one uncovered and exposed to invasive elements. A modern, corrugated metal door covers the right truck bay. Both bays are partially shielded by a metal awning overhang, which extends past the bays farther west, indicating the presence of additional bays where visibility was encumbered. At the east end of the façade is a single, multi-light window atop a poured concrete sill. No other bays were visible on the façade during the field survey.

A view of the production building's west elevation reveals an additional offset parapet located approximately 400 feet from the façade. Two lines of individually spaced windows running nearly the entire length of the elevation's parapet-divided sections also mark this elevation. Each window sits in a narrow, horizontal rectangular bay atop a poured concrete sill. In each bay are 16 fluted glass blocks taking the place of regular windowpanes (Figure 27B).

Phase I cultural resources survey of SC 126 $|67\rangle$







A. Main Building and Production Building (3481 and 3481.01), Looking East

B. Production Building (3481.01), West Elevation, Looking Northwest



Symmetrically spaced window bays and an offset truck bay mark the rear elevation of the production building (Figure 28A). Covered by a corrugated metal door, the truck bay sits between two window bays near the east end of the rear, or south, elevation. The window bays on this elevation also sit atop poured concrete sills and feature paired, metal, multi-light awning windows. Here, windows left in an open position and missing panes expose the building to invasive elements.

The parapet roofline of the production building is capped by metal coping tiles except where tiles are currently missing. The parallel gables of this building are covered in a combination of builtup and rolled roofing. Large metal and masonry vents are also spaced at regular intervals at the juncture of the two gables.

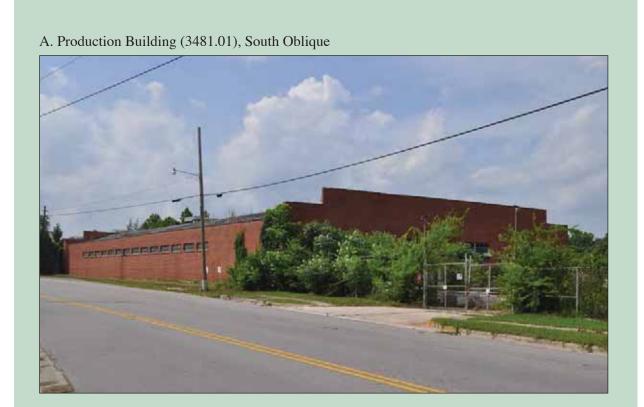
While best read from aerial view, the remaining acreage of the Clearwater Finishing Plant parcel is filled primarily with concrete, brick, and stone ruins and general debris (Figure 26). The remains of a foundation, brick wall, and multi-light windows were visible through the fence during the field survey (Figure 28B). However, no additional relatively intact buildings were detected.

With the combination of years of abandonment, continued demolition, and multiple fires on this site, much of the parcel is covered in a combination of ruins, gravel, and overgrown vegetation. Remnants of paved driveways and parking areas remain somewhat intact near the north and south ends of the parcel.

Seminole Mill (3485, 3485.01, and 3485.02)

Constructed in 1900, the Seminole Mill was first built as a two-story, rectangular building with a single-story wing attached to its south elevation. Projecting from the building's original façade was a 3.5-story square stair tower with a 1.5-story, multi-light window and brick arches. The original building façade and its projecting tower were destroyed following expansions to the mill that took place in 1940 and 1948 (Scardaville and Nylund 1985a).

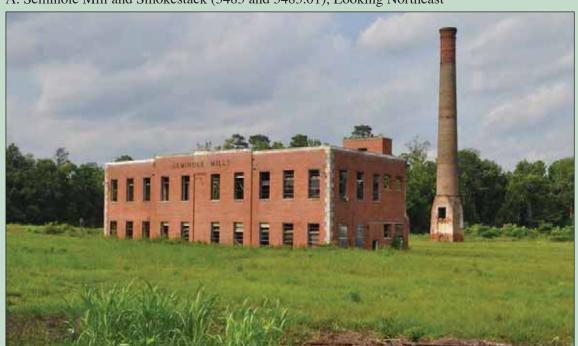
The standing ruins of the Seminole Mill main building and smokestack are only a fraction of the large mill building and smaller support buildings and structures once present at this site (Figures 29A and 23B). Several destructive fires have been blamed for the current state of both Seminole Mill and Clearwater Finishing Plant. The remains of a smaller building or structure were also visible during the field survey, but a complete view of this third resource was not possible (Figure 29B). The parcel on which Seminole Mill sits is framed by a chain-link fence, which impeded a full view of the ruins during the field study. The remains of the building and its smokestack are not in the APE of the proposed project.



B. Ruins at Clearwater Finishing Plant, Looking Northeast



Figure 29. Seminole Mill (3485, 3485.01, and 3485.02)



A. Seminole Mill and Smokestack (3485 and 3485.01), Looking Northeast

B. Seminole Mill, Smokestack, and Support Building of Unknown Use (3485, 3485.01, and 3485.02), looking northeast



Clearwater Mill Village Houses and Support Buildings

Though only Seminole Mill was erected by this time, by 1919, the mill village had a church, school, and store for use by the residents of the roughly 75 houses in place by the late 1920s (Scardaville and Nylund 1985a; Figure 30). The houses constructed by this period included Shotgun, Side-Gabled, and Pyramid Cottage types. While some of these earliest houses have been razed for infill construction, others remain standing (Figures 31 and 32).

While the church and store are not directly indicated on the 1920s maps, Scardaville and Nylund (1985a) described the store as situated on Lot 44 in a 1985-1986 survey. This description places the store at the northwest corner of SC 126 and SC 421. In the survey, the store is described as the most significant building in the village, standing 1.5 stories, clad in weatherboard, and adorned with two large storefront windows. This building is no longer standing. In a personal account by a former Clearwater Finishing Plant employee, the small building alongside the store was once used as the mill village post office (Anonymous 2011). Though no longer in use as such, this support building does remain standing near the northeast corner of Choctaw Drive and SC 421 (Figure 33A).

The school, however, remains intact and at its original location at the end of Elm Street on Clearwater Road. The T-shaped, cross-gabled building is now used as a duplex residence and features a wide staircase leading to its entrances and gable returns in the lateral ell (Figure 33B). Another, larger school that remains in use to date replaced the much smaller school building before 1965 (Figure 23). This school has since been heavily remodeled and increased in size. It is not considered part of the Clearwater Mill Village. The Scardaville and Nylund survey also mentions a boarding house, but does not state its exact location. It is possible that the survey identified the original school building as a boarding house, as the survey makes no mention of an extant school building at that time.

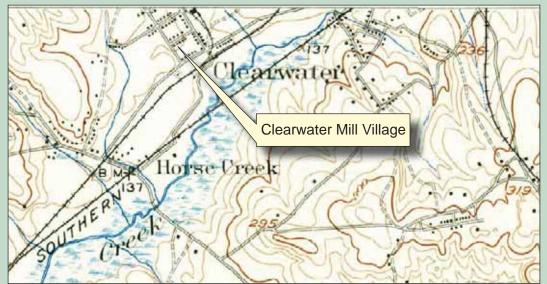
The Scardaville and Nylund survey also does not mention an intact church related to the mill village, but three churches are denoted on the 1965 map of the mill village (Figure 23). Though a modern sanctuary has now replaced it, the former sanctuary associated with Clearwater Baptist Church, one of the three churches on the 1965 map, remains intact on SC 126 across from the Seminole Mill (Figure 34A). Another church building depicted on the 1965 map remains intact on Pine Street between Choctaw Drive and Clearwater Street, but does not appear to be in use at the present time (Figure 34B). The third church depicted in the mill village in the 1960s was once located on Church Street near Bleachery Street, but is no longer standing. The period of significance for Clearwater Mill Village dates from 1900-1929, the years of the Seminole Mill and Clearwater Finishing Plant construction. Therefore, such later support buildings are not be considered part of the Clearwater Mill Village district.

Figure 30. Clearwater Mill Village, 1920s



A. Detail, 1928 Warrenville USGS Topographic Map

Source: US Topo and Historical Topographic Map Collection



B. Detail, 1928 Augusta USGS Topographic Map

Source: US Topo and Historical Topographic Map Collection



A. Side-Gabled Cottages on SC 126 Between Pine and Church Streets, Looking Northwest

B. Pyramid and Side-Gabled Cottages on SC 126 North of Elm Street Intersection, Looking Northwest

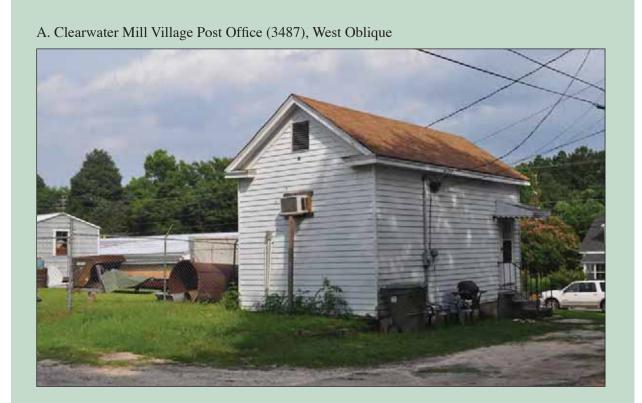


Figure 32. Mill Village Houses, First Period of Construction, 2 of 2



B. Pyramid Cottage at 399 Belvedere Road (3482), North Oblique





B. Clearwater Mill Village School (3486), Northeast Elevation



Figure 34. Churches in Clearwater Mill Village



A. View Southeast from Elm Street of Infill Parking Lot and Clearwater Baptist Church Circa 1960 (Left) and New (Right) Sanctuaries Fronting SC 126

B. Vacant Circa 1960 Church on Pine Street, South Oblique



The addition of the large Clearwater Finishing Plant to the area in 1929 also meant more housing for the Clearwater Mill Village. Mill houses in bungalow form and the already prevalent side-gabled-cottage type were erected on Bleachery, Townsend, and Church streets, as well as in other areas of the village (Figure 35). Within the APE, two earlier pyramid cottage mill houses sit just southeast of a later, hipped-roof bungalow mill house (Figure 36).

Another important feature of the mill village is its infrastructure. While elements like original bridges, curbing, rear alleys, and retaining walls are not as prevalent as those found in some upstate mill villages, Clearwater Mill Village does include some such original features. The historic layout of the village included several medians that remain intact on streets like Bleachery, Elm, and Pine streets (Figure 37). Some sidewalks in the village, like that along Clearwater Street, with sets of steps like those fronting SC 126 also appear to have been constructed during the period of significance (Figure 38). Any extant retaining walls in the mill village appear to be of later construction and built by individual homeowners.

The Scardaville and Nylund survey suggests that approximately 135 mill village buildings remained standing by that time (Scardaville and Nylund 1985b:96). The survey also describes the non-historic development already beginning to take place near the center of the roughly T-shaped district along Center Street, portions of Pine Street, and in other areas with more sporadic modern infill. It is estimated that the mill village may have held approximately 190 houses prior to the addition of such infill.

Since the 1980s, Clearwater Baptist Church has acquired a larger portion of land fronting SC 126. As a result, a modern church sanctuary is now present on Seminole Street, but can be easily viewed from SC 126 due to the paved parking lot that now stretches the block between Elm and Church streets (Figure 34A). Additionally, several modern ancillary buildings and structures related to the church are also present along Church Street.

Clearwater Mill Village

Together, the industrial, residential, and infrastructural resources of this area combine to form the Clearwater Mill Village. While original historic fabric of the mill village no longer fully reflects to the two main periods of construction, the resources constructed as part or in support of the Seminole Mill and Clearwater Finishing Plant were evaluated as a whole for NRHP eligibility as a historic district.

Clearwater Mill Village is roughly sited between SC 421 and U.S. Highway 1/Jefferson Davis Highway to the northwest and southeast and between Clearwater Lake and Bleachery Street to the northeast and southwest, and is arranged in a nearly T-shaped form. From aerial views, the

Figure 35. Mill Village Houses, Second Period of Construction



A. Bungalows and Side-Gabled Cottages on Bleachery Street, Looking Southwest

B. Bungalow and Side-Gabled Cottage on Church Street, South of Clearwater Street, Looking North



A. Circa 1900 Pyramid Cottages at 405 Belvedere Road (3483) and 399 Belvedere Road (3482), Looking Southwest



B. Circa 1929 Bungalow at 419 Belvedere Road (3484), Southeast Elevation



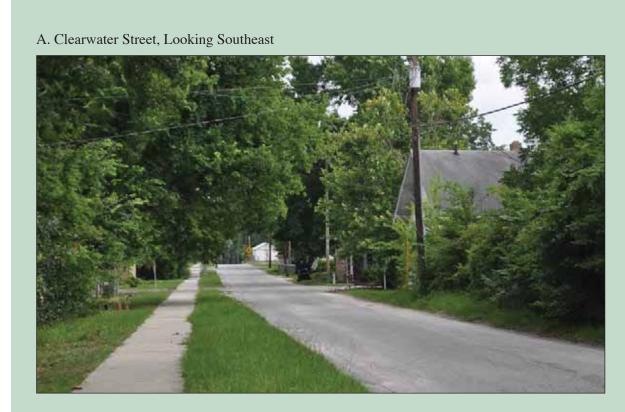
Figure 37. Mill Village Medians (3491)

A. Bleachery Street, Looking South



B. Elm Street, Looking Southwest





B. SC 126 Across from Clearwater Finishing Plant, Looking Northwest



combined houses, support resources, and industrial remains retain the historic near-T-shaped form, supporting the idea that the Clearwater Mill Village remains intact as a historic district. However, a view from along the mill-laid roads reveals that resources dating from the 1950s and 1960s to the present have replaced many of the original mill houses. Of the approximately 190 mill houses estimated to have been built during the circa-1900 and circa-1929 periods of construction, about 120 remain.

The roughly 120 remaining mill houses are, however, divided by large sections of infill and replacement non-mill-related housing and other buildings. (Figure 39) The replacement residential resources are primarily Minimal Traditional and Ranch house types. Mobile homes are also present, with two or more sited on one parcel at times. At the southeast end of the mill village, original mill houses along both sides of SC 421 remain intact northeast of the intersection with SC 126. However, southwest of the intersection, nearly all of the mill houses on the northwest side of the road are gone. Besides those mill houses fronting SC 126, houses once fronting Elm, Townsend, Church, Center, Pine, and South streets between Seminole Street and Clearwater Road are nearly all later replacements (Figures 40 and 41A). Many of the houses along Bleachery, Townsend, Church streets southwest of Clearwater Road are intact, mill-constructed houses. However, later Ranch houses mark the southwest ends of each of these three streets (Figure 41B).

Clearwater Mill Village is not known to be associated with persons significant in the past, and was therefore not evaluated under Criterion B. The mill village was evaluated under Criteria A and C in the areas of community planning and development, industry, labor relations, and architecture.

Clearwater Mill Village is associated with the important era of mill industrial growth and development in the Horse Creek Valley area of Aiken County. Its placement near the Georgia border makes the mill village the last in a line of mill villages stretching from Graniteville, near the city of Aiken, to the Augusta area. The relatively late periods of industrial construction from 1900 and 1929, also make this village the latest of its kind to be constructed in the Horse Creek Valley.

The Clearwater Mill Village, as part of the Horse Creek Valley group of mill villages, is significant due to its association with mill strikes in the early-twentieth century. Labor relations in Horse Creek Valley were so influential that they were dramatized in literature and later in film with Erskine Caldwell's *God's Little Acre*. Though the largest labor strikes were often considered failures, striking in Horse Creek Valley brought much-needed attention to labor policies and restrictions instilled as part of the New Deal, and how such standards were both enacted and ignored at the federal, state, and local levels.

B. Concrete Block Ranch House Fronting SC 126 at Church Street, Northwest Elevation



Figure 40. Infill in Clearwater Mill Village, 2 of 3



B. Infill Mobile Homes and Apartment Building on Pine Street, Looking East





B. Infill Housing on Church Street near Bleachery Street, Looking West



The arrangement and construction of the industrial facilities, operative housing, mill village support buildings, and infrastructure supported the development of the village. Clearwater Mill Village, like other mill villages nearby and elsewhere, was a self-sustaining community. With its mill store, post office, school, and churches, Clearwater Mill Village grew to meet the needs of operatives working at Seminole Mill and Clearwater Finishing Plant.

The mill village retains integrity in the area of location, as the village and buildings do not appear to be moved. Through a combination of encroaching modern development, residential infill construction, razing and replacement of original mill housing, and fire- and demolitionrelated depletion of the once large, industrial sites, the integrity of setting at Clearwater Mill Village has greatly deteriorated. The overall layout of the mill village remains intact, thus maintaining its integrity in the area of design. However, razed mill houses, non-historic replacement buildings, and infill construction has depleted the historic fabric of the village. Therefore, integrity in the areas of materials and workmanship has diminished. While some streets within the mill village continue to suggest an early-twentieth-century neighborhood, destruction at the industrial sites and the addition of later residential resources and non-historic infill buildings has significantly interfered with the historic integrity of the village in the areas of feeling and association.

While Clearwater Mill Village was once an important district in areas associated with the textile mill industry, labor relations, planning and development, and architecture, it no longer includes enough congruent historical fabric to convey its rich past. The now fragmentary state of the mill village does not support its eligibility for NRHP listing. Clearwater Mill Village is, therefore, recommended not eligible for listing in the NRHP.

VI. CONCLUSION

New South performed a cultural resources survey of the proposed widening of approximately 2.15 miles of SC 126 in Aiken County, South Carolina. The project included background research, archaeology and architectural history survey, and reporting.

The project area was historically relatively rural, with little development except for near the southern end of the APE, where Clearwater Mill Village is sited. Today, the area holds a mix of residential and commercial resources primarily dating from the post-World War II-era to the present.

Background research identified three previously recorded architectural resources and two additional previously recorded resources within a 0.5-mile radius of the APE. All five resources were described as not eligible for NRHP listing at their time of survey and were not resurveyed. No previously recorded archaeological sites are located within 0.25-miles of the APE.

The architectural survey portion of the project recorded 14 newly identified resources in the APE, a post-World War II subdivision, and Clearwater Mill Village Historic District. Six additional resources located within the mill village but outside of the APE were individually surveyed as resources representing the extant architectural fabric of the mill district. No previously recorded or new archaeological sites were encountered during this survey. However, one isolated find consisting of a single Allendale chert flake was documented. All of the cultural resources evaluated during this survey are recommended not eligible for NRHP listing. Therefore, no historic properties will be affected.

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APPENDIX G

SC SHPO/THPO CONCURRENCE



September 18, 2013



SEP 1, 9, 2018

SC Department of Archives & History

Ms. Sarah Stephens Department of Transportation Project Coordinator South Carolina Department of Archives & History 8301 Parklane Road Columbia, South Carolina 29223-4905

New South Associates Phase I Cultural Resources Survey of SC 126, Aiken County, Re: File No. 2.041446, SCDOT PIN 41446.

Dear Ms. Stephens:

The South Carolina Department of Transportation (SCDOT) proposes to widen SC 126 in Aiken County. Cultural resources investigations for the project resulted in the identification of twenty (20) individual aboveground resources (site #s 3471 through 3490) and two districts. All of these resources and both districts are recommended not eligible for the National Register of Historic Places. No archaeological sites were identified in the project area, although one isolated find was recorded. No historic properties will be affected by the proposed project and no further investigations are recommended

In accordance with the memorandum of agreement approved by the Federal Highway Administration (FHWA), November 29, 2011, SCDOT is providing this information as agency official designee, as defined under 36 CFR 800.2, to ensure compliance with Section 106 of the National Historic Preservation Act.

It is requested that you review the enclosed material and, if appropriate, indicate your concurrence with SCDOT findings, thus completing the Section 106 consultation process. Please respond within 30 days if you have any objections or if you have need of additional information.

Sincerely, David P. Kelly NEPA Coordinator, RPG 4

Date: 9/20/13

DPK:dk Enclosures: survey report

I (do not) concur in the above determination.

Signed:

cc:

Shane Belcher, FHWA Wenonah G. Haire, Catawba Nation THPO Lisa LaRue Baker, United Keetoowah Band of Cherokee Russell Townsend, Eastern Band Cherokee Robin Dushane, Eastern Shawnee Keith Derting, SCIAA

File: ENV/DPK





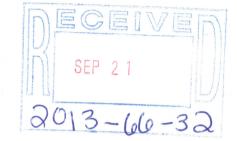
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South Carolina Department of Transportation

OCT - 3 2013 September 18, 2013

Environmental Management SCDOT

Ms. Sarah Stephens Department of Transportation Project Coordinator South Carolina Department of Archives & History 8301 Parklane Road Columbia, South Carolina 29223-4905



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Whongh & Hairs Signed: Date: 9 27/13

cc: Shane Belcher, FHWA Wenonah G. Haire, Catawba Nation THPO Lisa LaRue Baker, United Keetoowah Band of Cherokee Russell Townsend, Eastern Band Cherokee Robin Dushane, Eastern Shawnee Keith Derting, SCIAA

File: ENV/DPK



TTY: (803) 737-3870

APPENDIX H

LETTER OF INTENT RESPONSES



June 6, 2013

RE: Letter of Intent for the **Proposed Widening of SC 126 (Belvedere Clearwater Road) in Aiken County, South Carolina, File No. 2.041446. Federal Aid Project No. SU02(008). PIN 41446**

To Whom It May Concern:

The South Carolina Department of Transportation (SCDOT) proposes to widen SC 126 (Belvedere Clearwater Road) along its existing location from 1,000 feet south of its intersection with US 1 to 500 feet northwest of Old Sudlow Lake Road, just south of I-520 (see attached map). The total length of the project is 2.15 miles. The proposed project consists of widening the existing two-lane roadway to a five-lane facility.

This project is proposed to be funded from Federal, State, and the SCDOT. The purpose of the project is to add capacity to the existing corridor to accommodate projected traffic volumes and provide facilities for bicyclists and pedestrians. SC 126 serves as a direct connection to I-520 (Palmetto Parkway), with a new interchange at the northern termini of the project. It is anticipated that traffic volumes along this section of SC 126 (Belvedere Clearwater Road) will increase from 8,800 vehicles per day (vpd) in 2011 to 20,920 vpd in 2030.

Study alternatives for the widening of SC 126 (Belvedere Clearwater Road) include asymmetrical widening as well as widening along either side of the existing road. The proposed cross-section would include four 12-foot travel lanes, a 15-foot median, two 4-foot designated bicycle lanes, and sidewalks. SC 126 crosses Little Horse Creek with a double 10 x 12-foot reinforced concrete box culvert. This culvert may need to be extended or replaced as part of the project. To minimize impacts, the use of retaining walls will be examined at various locations along the project.

The existing right-of-way is approximately 75 feet. The roadway's right-of-way would be widened from 75 feet to 120 feet, with additional right-of-way required for improvements at the SC 67 and Old Sudlow Lake Road intersections.

The purpose of this letter is to solicit comments and to initiate interagency coordination to help identify and evaluate the environmental impacts related to the construction of the project. This project will be processed as an Environmental Assessment (EA), according to the National Environmental Policy Act (NEPA). Environmental documentation will be developed in accordance with regulations of the Federal Highway Administration.

In order that we may fully evaluate the impacts of the proposed project, it is requested that you respond in writing concerning any beneficial or adverse impacts of the project relating to the interest of your agency.

SC 126 (Belvedere Clearwater Road) Widening SCDOT PIN 41446 June 6, 2013 Page 2 of 2

The SCDOT looks forward to receiving your comments on the proposed project within 30 days of the receipt of this letter. Comments should be addressed to the following:

Mr. Edward W. Frierson NEPA Coordinator South Carolina Department of Transportation P.O. Box 191 Columbia, S.C. 29202-0191

Or emailed to: FriersonEW@SCDOT.org

Should you have any immediate questions, please contact me at (803) 737-1861.

Sincerely,

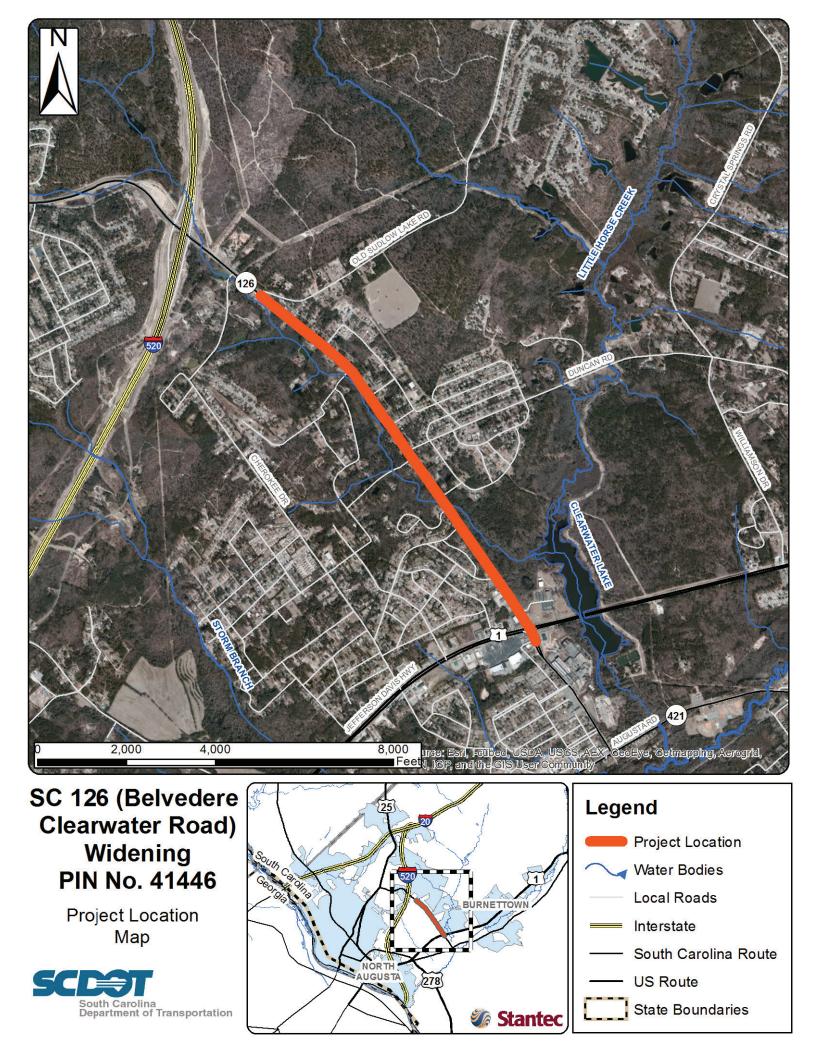
Edward W. Thierson

Edward W. Frierson NEPA Coordinator – RPG 3

EWF/ewf

cc: Kevin L. Gantt, P.E., RPG-3 Program Manager

Attachment





United States Department of the Interior

FISH AND WILDLIFE SERVICE 176 Croghan Spur Road, Suite 200 Charleston, South Carolina 29407

June 18, 2013



RECEIVED

Mr. Edward W. Frierson NEPA Coordinator South Carolina Department of Transportation P.O. Box 191 Columbia, SC 29202-0191

JUN 2 4 2013

Environmental Management SCDOT

Re: Proposed Widening, SC 126, Aiken County, SC FWS Log No. 2013-CPA-0139

Dear Mr. Frierson:

The U.S. Fish and Wildlife Service (Service) has received your June 6, 2013, Letter of Intent and request for comments on the proposal to widen and improve a 2.5 mile portion of SC 126 (Belvedere Clearwater Road) between I-520 and US-1, Aiken County, South Carolina. Preliminary concepts include asymmetrical widening and simple lane widening on either side of SC 126. The proposed project is to add capacity for the corridor to accommodate projected traffic volumes and provide facilities for pedestrians and bicyclists. An Environmental Assessment (EA) is being prepared for the proposed project pursuant to the National Environmental Policy Act of 1969, as amended (43 U.S.C. 4321 *et seq.*) (NEPA).

The Service believes it is imperative that the EA review measures designed to conserve local natural resources to the maximum extent possible. As such, we recommend that project planning efforts incorporate all possible means to avoid and/or minimize impacts to wetlands along the corridor; particular attention should be afforded to the headwaters of Clearwater Lake. Such measures may include the lengthening of existing bridges, installation of large, bottomless culverts at stream crossings, utilization of steep side slopes, reduced median widths, and use of variable alignment shifts if feasible.

The Service has included with this letter a list of species that are currently protected under the Endangered Species Act (ESA), species that are considered as a candidate for listing under the ESA, and those that have been petitioned for listing under the ESA. The species which have been petitioned for listing are considered "At-Risk Species" (ARS) and may occur in Aiken County, South Carolina. Although there are no Federal protections afforded to ARS, please consider including ARS in your survey efforts. Incorporating proactive measures to avoid or

minimize harm to ARS may improve their status and assist with precluding the need to list these species. Additional information on ARS can be found at:

http://www.fws.gov/southeast/candidateconservation.

The Service appreciates the opportunity to provide input at this early stage of the project's development. If you have any questions, please contact Mr. Mark Caldwell at (843) 727-4707 ext. 215, and reference FWS Log No. 2013-CPA-0139.

Sincerely, Jay B. Herrington Field Supervisor

JBH/MAC

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South Carolina List of At-Risk, Candidate, Endangered, and Threatened Species - Aiken County

- Contact National Marine Fisheries Service (NMFS) for more information on this species ** The U.S. Fish and Wildlife Service (FWS) and NMFS share jurisdiction of this species ARS At-Risk Species - Species that the FWS has been petitioned to list and for which a positive 90-day finding has been issued (listing may be warranted); information is provided only for conservation actions as no Federal protections currently exist. **BGEPA** Federally protected under the Bald and Golden Eagle Protection Act С FWS or NMFS has on file sufficient information on biological vulnerability and threat(s) to support proposals to list these species CH **Critical Habitat** Е **Federally Endangered** P - CH Proposed critical habitat in the Federal Register S/A Federally protected due to similarity of appearance to a listed species
- T Federally Threatened

COUNTY	CATEGORY	COMMON NAME	SCIENTIFIC NAME	STATUS
	Amphibian	Chamberlain's dwarf salamander	Eurycea chamberlaini	ARS
	Amphibian	Gopher tortoise	Gopherus polyphemus	С
	Bird	Bald eagle	Haliaeetus leucocephalus	BGEPA
	Bird	Red-cockaded woodpecker	Picoides borealis	E
	Bird	Wood stork	Mycteria americana	E
	Crustacean		None Found	
	Fish	American eel	Anguilla rostrata	ARS
	Fish	Atlantic Sturgeon*	Acipenser oxyrinchus*	E
	Fish	Blueback herring	Alosa aestivalis	ARS
	Fish	Robust redhorse	Moxostoma robustum	ARS
	Fish	Shortnose sturgeon*	Acipenser brevirostrum*	E
	Insect	Appalachian snaketail	Ophiogomphus incurvatus	ARS
	Mammal		None Found	
Aiken	Mollusk	Brother spike	Elliptio fraterna	ARS
	Mollusk	Savannah lilliput	Toxolasma pullus	ARS
	Plant	Bog spicebush	Lindera subcoriacea	ARS
	Plant	Boykin's lobelia	Lobelia boykinii	ARS
	Plant	Carolina-birds-in-a-nest	Macbridea caroliniana	ARS
	Plant	Elliott's croton	Croton elliottii	ARS
	Plant	Georgia aster	Symphyotrichum georgianum	С
	Plant	Harperella	Ptilimnium nodosum	E
	Plant	Relict trillium	Trillium reliquum	E
	Plant	Smooth coneflower	Echinacea laevigata	E
	Plant	Spathulate seedbox	Ludwigia spathulata	ARS
	Reptile	Gopher frog	Lithobates capito	ARS
	Reptile	Southern hognose snake	Heterdon simus	ARS -
	Reptile	Spotted turtle	Clemmys guttata	ARS

These lists should be used only as a guideline, not as the final authority. The lists include known occurrences and areas whe the species has a high possibility of occurring. Records are updated as deemed necessary and may differ from earlier lists.

For a list of State endangered, threatened, and species of concern, please visit <u>https://www.dnr.sc.gov/species/index.html</u>.



Catherine B. Templeton, Director Promoting and protecting the health of the public and the environment **RECEIVED**

June 7, 2013

JUN 1 2 2013

S. C. Department of Transportation Attn: Mr. Edward W. Frierson, NEPA Coordinator Environmental Management Office, Rm. 509 P.O. Box 191 Columbia, SC 29202-0191 Environmental Management SCDOT

Re: SC 126 (Belvedere Clearwater Road) Widening, Aiken County. PIN: 41446

Dear Mr. Frierson:

The South Carolina Department of Health and Environmental Control (SCDHEC) is providing comments regarding potential environmental impacts of the above project, as requested in your letter dated June 6, 2013. As you are aware, SCDHEC's Bureau of Water administers applicable regulations pertaining to water quality standards and classifications, including wetland protection, in accordance with the South Carolina Pollution Control Act, the Federal Clean Water Act, the State Stormwater Management and Sediment Reduction Act, Construction in Navigable Waters Permitting, and associated regulations for all of these statutes.

The following comments are provided as input concerning environmental impacts of the proposed SCDOT project to aid in the preparation of an Environmental Assessment (EA) in accordance with regulations of the Federal Highway Administration (FHWA) and National Environmental Policy Act (NEPA).

The project consists of widening SC 126 (Belvedere Clearwater Road) along its existing location from 1,000 feet south of its intersection with US 1 to 500 feet northwest of Old Sudlow Lake Road, just south of I-520, a length of 2.15 miles. The project would widen the existing 2-lane roadway to a five-lane facility, including four 12-foot travel lanes, a 15-foot median, two 4-foot bicycle lanes, and sidewalks. The project would also include a new interchange at the northern terminus to connect to I-20 (Palmetto Parkway). The purpose of the project is to add capacity to the existing corridor to accommodate projected traffic volumes and provide facilities for bicyclists and pedestrians.

The project would cross Little Horse Creek with a double 10-foot by 12-foot concrete box culvert, which would be extended. The information provided does not indicate if other aquatic resources would be impacted by the project; therefore, a delineation will be needed to identify other jurisdictional aquatic impacts resulting from the project based on a final design. If impacts to aquatic resources will result from the proposed project, SCDHEC recommends efforts are made to minimize such impacts when planning and constructing this project. Such efforts could include enlarging or adding to existing culverts to accommodate bank-full rain events, improve hydrologic flows and aquatic life passage. In addition, reducing road widths by utilizing 2:1 slopes and/or reducing median widths or shifting alignments in sensitive areas may minimize aquatic impacts. Finally, the use of best management practices to minimize sediment migration during construction, as well as other post construction stormwater management practices will minimize water quality impacts.

Page 2 June 7, 2013 Mr. Edward Frierson

SCDHEC will review any additional information provided in the environmental document, including a thorough description (and quantification) of the stream and wetland resources that will potentially be impacted by the proposed project, if applicable. The environmental document will also include an alternatives analysis, which addresses stream and wetland impact avoidance and minimization, in addition to other factors. The above information will be useful in making a decision regarding 401 Water Quality Certification (Certification) and Permits for Construction in Navigable Waters Permit (Permit) administered by SCDHEC's Division of Water Quality. If required, the Certification/Permit may be conditioned to address specific modifications and measures that would be required to further reduce wetland and water quality impacts after a review of detailed project drawings. Also, a final mitigation plan addressing unavoidable wetland/stream impacts must be reviewed and approved by SCDHEC during the certification process.

In addition to the aforementioned Certification, the proposed work must be in compliance with State Sediment and Erosion Control and NPDES MS4 stormwater permitting requirements administered by the Bureau of Water.

Finally, please ensure that all other necessary environmental permits for this project are obtained in accordance with applicable State and Federal regulations. If you have not done so already, please contact the Bureau of Air Quality and the Bureau of Land and Waste Management for input regarding those program areas' assessments of this proposed project.

Please call me at 898-4179 if you have any questions.

Sincerely yours,

Mark Giffin, Project Manager Water Quality Certification and Wetlands Section

cc: Heather Preston Chuck Hightower Jill Stewart Midlands EQC Region

APPENDIX I

PUBLIC INVOLVEMENT SUMMARY

Public Information Meeting February 25, 2014 - Comment Summary	nary								
	*odd115	0 3 10 10 10 10 10 10 10 10 10 10 10 10 10	4611/6295 487470 801/6295 53810 40295 53810 4029		SAD ROJE	A CONTRACTOR OF	\ <u>\</u> \\\\\\\\\\\\\	Mage 44 19 44 40	4 4 4 4 4 4 4 4 4 4 4 4 4 4
Terri Perdue, 1001 Belvedere Clearwater Road		+	╞	Y		╞			Proposed construction limits cross spetic tank and lines; willing to sell
Jim Graves, 946 Belvedere Clearwater Road				1					1 Favors Alternative 4; Noise levels too much now; May need to relocate-concerned about just
Marion & Wanda Mundy, 632 Duncan Road	1				1				Happy to see improvements at Duncan Road; concerned about septic tank and lines
Terry Watson, 104 Pineview Drive							1		Check tract 21 for drainage on Pineview Street
Randall Chafin, 1007 Belvedere Clearwater Road	1		1						Favors project; traffic has increased since I-520 interchg opened; would like to see improvements on Old Sudlow Lake Road at SC 126
James Free, 118 Old Sudlow Lake Road			1						Recommends improvements on Old Sudlow Lake Road: signal and turn lanes; notes AM PM delays
John George, 4280 Jefferson Davis Highway				-	1				Are new water lines being installed as part of project? Will there be sewer lines added near
									church? Will church drainage field be preserved or relocated? Will there be access off Belvedere Clearwater Road during construction?
Spencer Merritt, 634 Duncan Road			_				╞	1	Do not like the amount of lane being taken from the owner
Marion Peel King, 2019 Bunting Drive		ļ						1	964 Clearwater Road is a 3rd generation home built by grandfather and currently occupied by great grandchildren; Concerned about loss of privacy and danger making turns into the property;
P David Smith, 87 Irene Street		Ч				$\left \right $	$\left \right $	\vdash	Densider Longer and an unitary runs will append a provide the street between Clearwater Road and Orange Street: Duncan Road Intersection peeds as signal
Brian Busbee, 964 Belvedere Clearwater Road		$\left \right $						-	Your plan will bring pedestrains and cars closer to my front door. Concerned about people bothering me and my family, especially more home.
Shwan Foshee, 1390 Corley Drive		1					1		Traffic light needed at Duncan Road intersection; Willow Lane needs to be resigned where it washes out at creek crossing
Robert F. Workman, 204 Irene Street		1	1				┢		Traffic light needed at Duncan Road iand Old Sudlow Lake Road intersections
Tim Moore, 793 Clearwater Road		H	\square				1		Property #87: existing drain not effective; water collects in parking lot
Ben Posey, 224 Irene Street		Ч					+		Traffic light needed at Duncan Road intersection
Danny Wilson, 1122 Audubon Road		1							Would like a right-turn lane at Walgreen's heading toward Augusta; traffic light needed at Woods Lane; Traffic light needed at Duncan Road
Neal H. Leftwich, 963 Clearwater Road					1				Please limit expansion to just four-lanes, no center turn lane, bike lanes, or sidewalks
TOTALS	VLS 2	5	æ	1	3 1	•	æ	m	1