

MEMORANDUM

DATE: June 2, 2017

FROM: Phil May, CEI

TO: Bill Barrett, NCDOT-NES

RE: Natural Resources Technical Report Addendum #4
TIP project I4400/4700 – Widening of I-26 from NC-225 to I-40, Buncombe and Henderson Counties.

Carolina Ecosystems Inc. (CEI) has completed the following Natural Resources Technical Report (NRTR) addendum for TIP project I-4400/4700 in Buncombe and Henderson Counties, NC. The study area for this addendum totals approximately 32.9 acres along the previous I-4400/4700 study area, near US 25. This memo summarizes the findings of the background research and field review of the site. All work was conducted in accordance with the NCDOT Natural Environment Section standard operating procedures. Field work was conducted on May 4, 2017. Jurisdictional areas identified in the addendum study area have not been verified by the U.S. Army Corps of Engineers (USACE) or the North Carolina Division of Water Resources (NCDWR).

The following NRTR sections are provided as a supplement to the August 2014 NRTR (and subsequent addendums 1, 2, and 3) for this project. A complete set of updated tables with bold highlighted changes and individual revised figures is attached.

4.0 BIOTIC RESOURCES

The following terrestrial communities were found within the Addendum #4 study area: Maintained / Disturbed – 32.2 acres and Montane Oak-Hickory Forest (acidic subtype) – 0.7 acre. The new total acreage of terrestrial communities for the project is 2,980.2 acres (Table 4).

5.0 JURISDICTIONAL ISSUES

5.1 Clean Water Act Waters of the U.S.

Addendum #4 Study Area

A new 49 linear foot segment of stream SCO is present in the study area. It is directly connected to the previously delineated segment of SCO via a 48” plastic pipe. The stream is located along Asheville Highway near Naples Road, as shown on Figure 3 (Sheet 11).

No jurisdictional wetlands were identified within the Addendum #4 study area. The original I-4400/4700 study area to the south of I-26 does have a system of ditches and disturbed areas with wetland indicators that were previously determined to not be jurisdictional by the USACE during the original field verification. At that time, it was concluded that these areas had been artificially cut through uplands, and did not fall under USACE jurisdiction. An additional area meeting similar criteria is present in the Addendum #4 study area. Due to the similar characteristics, evidence (historical aeriels) of similar disturbance, and vertical separation of approximately 8 feet from stream SCO, it was determined that this area would also be considered non-jurisdictional using the same criteria.

A sediment/stormwater basin is present north of US-25 and Maxwell Drive. This structure has a functioning riser that discharges into a maintained upland roadside area, then into a drop inlet that eventually discharges into stream SCR, 14 vertical feet and 250 horizontal feet from the drop inlet. Henderson County does not have a record of this basin, but stated it was likely not required. The basin seems to have been constructed in the early 2000's. Due to its discharge into uplands, functioning structure, and vertical separation from downstream resources, this area was dug in uplands and considered to be non-jurisdictional, pending USACE verification.

5.8 Endangered Species Act Protected Species

One addition was necessary for *Table 7. Federally protected species listed for Buncombe and Henderson Counties* (as of April 11, 2017 and April 28, 2017 respectively). The Rusty-patched bumble bee (*Bombus affinis*) has been listed as an endangered species for Buncombe and Henderson counties with a historic status. The species has been added to Table 7, however no Section 7 survey, conclusion, or consultation is required at this time.

During field review of the site, marginal habitat was found within the Addendum #4 study areas for small whorled pogonia and white irisette. These areas are small compared to the original I-4400/4700 study area, and have a low likelihood of containing either small whorled pogonia or white irisette, as adjacent areas were previously surveyed and no individuals of either species were found. The additional habitat is heavily maintained and/or contains dense undergrowth. No additional surveys are proposed.

The I-4400/4700 project has been reviewed for effects on the northern long-eared bat (NLEB). According to the North Carolina Natural Heritage Program (NHP) Biotics Database, most recently updated April 2017, the nearest NLEB hibernacula record is 11.5 miles away and no known NLEB roost trees occur within 150 feet of the project area. NCDOT has determined that the proposed action does not require separate consultation on the grounds that the proposed action is consistent with the final Section 4(d) rule, codified at 50 C.F.R 17.40(o).

The following personnel contributed to this assessment:

Investigator: Phil May
 Education: B.S. Biology, 1992
 Experience: Senior Scientist, Carolina Ecosystems, Inc., 2006-Present
 Senior Scientist, HDR Engineering, Inc., 2001-2006
 Staff Scientist, GN Richardson & Assoc. 1995-2001
 Responsibilities: Wetland and stream delineation, GPS data collection, T&E habitat assessment, document review

Investigator: Rob Crowther
 Education: B.S. Environmental Resources Management, 2014
 Experience: Environmental Scientist, Carolina Ecosystems, Inc., 2015-Present
 Field Assistant, Virginia Tech 2014
 Responsibilities: Wetland and stream delineation, GPS data collection, T&E habitat assessment, document preparation

Investigator: Greg Price, PWS
 Education: M.S. Biology, 1989
 Experience: Senior Scientist, Carolina Ecosystems, Inc., 2016-Present
 Natural Resources Specialist, Froehling & Robertson, 2015-2016
 Environmental Specialist, NCDOT-NES, 2006-2015
 Senior Biologist, Buck Engineering, 2000-2006
 Water Quality Specialist, City of Durham, 1997-2000
 Environmental Biologist, NCDWQ, 1991-1997
 Responsibilities: Document review

If you have any questions or need additional information, please contact me at your earliest convenience at (919) 606-1065 or phil.may@carolinaeco.com.

Attachments: Table 2. Water resources in the study area
 Table 3. Physical characteristics of water resources in the study area
 Table 4. Coverage of terrestrial communities in the study area
 Table 5. Jurisdictional characteristics of water resources in the study area
 Table 6. Jurisdictional characteristics of wetlands in the study area
 Table 7. Federally protected species listed for Buncombe and Henderson Counties
 Figure 3. Jurisdictional Features Map
 Figure 4. Terrestrial Communities Map

Table 2. Water resources in the study area.

Stream Name	Map ID	NCDWQ Index Number	Best Usage Classification
Broad River basin (HUC 03050105)			
UT to Beck Creek	SA	9-29-27	C-Tr
UT to Beck Creek	SB	9-29-27	C-Tr
UT to Beck Creek	SC	9-29-27	C-Tr
UT to Beck Creek	SD	9-29-27	C-Tr
UT to Beck Creek	SE	9-29-27	C-Tr
UT to Beck Creek	SF	9-29-27	C-Tr
Beck Creek	SG	9-29-27	C-Tr
UT to Beck Creek	SH	9-29-27	C-Tr
UT to Beck Creek	SJ	9-29-27	C-Tr
UT to Beck Creek	SK	9-29-27	C-Tr
UT to Beck Creek	SL	9-29-27	C-Tr
UT to Beck Creek	SM	9-29-27	C-Tr
UT to Beck Creek	SN	9-29-27	C-Tr
UT to Beck Creek	SO	9-29-27	C-Tr
UT to Beck Creek	SP	9-29-27	C-Tr
UT to Beck Creek	SU	9-29-27	C-Tr
French Broad River basin (HUC 06010105)			
French Broad River	FBR	6-(54.5)	B
UT to Dunn Creek	SQ	6-55-8-1-1	C
UT to Dunn Creek	SR	6-55-8-1-1	C
UT to Dunn Creek	SS	6-55-8-1-1	C
Dunn Creek	ST	6-55-8-1-1	C
UT to Dunn Creek	SV	6-55-8-1-1	C
UT to Dunn Creek	SW	6-55-8-1-1	C
UT to Dunn Creek	SX	6-55-8-1-1	C
UT to Dunn Creek	SY	6-55-8-1-1	C
UT to Dunn Creek	SZ	6-55-8-1-1	C
UT to Dunn Creek	SAA	6-55-8-1-1	C
UT to Devils Fork	SAB	6-55-8-2	C
UT to Devils Fork	SAC	6-55-8-2	C
UT to Devils Fork	SAD	6-55-8-2	C
UT to Devils Fork	SAE	6-55-8-2	C
UT to Devils Fork	SAF	6-55-8-2	C
UT to Devils Fork	SAG	6-55-8-2	C
UT to Bat Fork	SAH	6-55-8-1	C
UT to Devils Fork	SAI	6-55-8-2	C
Devils Fork	SAJ	6-55-8-2	C
UT to Devils Fork	SAL	6-55-8-2	C

Table 2. Water resources in the study area.

Stream Name	Map ID	NCDWQ Index Number	Best Usage Classification
UT to Devils Fork	SAM	6-55-8-2	C
UT to Devils Fork	SAN	6-55-8-2	C
UT to Devils Fork	SAO	6-55-8-2	C
UT to Devils Fork	SAP	6-55-8-2	C
UT to Devils Fork	SAR	6-55-8-2	C
UT to Camp Branch	SAS	6-55-8-2-1	B
UT to Devils Fork	SAU	6-55-8-2	C
UT to Devils Fork	SAV	6-55-8-2	C
UT to Devils Fork	SAW	6-55-8-2	C
UT to Camp Branch	SAX	6-55-8-2-1	B
Allen Branch	SAY	6-55-11-14	C
UT to Allen Branch	SAZ	6-55-11-14	C
UT to Allen Branch	SBA	6-55-11-14	C
UT to Clear Creek	SBB	6-55-11-(5)	C
Allen Branch	SBC	6-55-11-14	C
Clear Creek	SBD	6-55-11-(5)	C
UT to Clear Creek	SBE	6-55-11-(5)	C
UT to Mud Creek	SBF	6-55	C
UT to Mud Creek	SBG	6-55	C
UT to Mud Creek	SBH	6-55	C
UT to Mud Creek	SBI	6-55	C
UT to Camp Branch	SBL	6-55-8-2-1	B
UT to Mud Creek	SBM	6-55	C
UT to Mud Creek	SBN	6-55	C
UT to Mud Creek	SBO	6-55	C
Featherstone Creek	SBP	6-55-12	C
UT to Mud Creek	SBQ	6-55	C
UT to Mud Creek	SBR	6-55	C
UT to Mud Creek	SBS	6-55	C
UT to Byers Creek	SBT	6-55-13	C
Byers Creek	SBU	6-55-13	C
UT to Byers Creek	SBV	6-55-13	C
UT to Devils Fork	SBW	6-55-8-2	C
UT to Mud Creek	SBX	6-55	C
UT to Mud Creek	SBY	6-55	C
UT to Mud Creek	SBZ	6-55	C
UT to Byers Creek	SCA	6-55-13	C
UT to Byers Creek	SCB	6-55-13	C
UT to Allen Branch	SCC	6-55-11-14	C

Table 2. Water resources in the study area.

Stream Name	Map ID	NCDWQ Index Number	Best Usage Classification
UT to Byers Creek	SCD	6-55-13	C
UT to Allen Branch	SCE	6-55-11-14	C
UT to Byers Creek	SCF	6-55-13	C
UT to Byers Creek	SCG	6-55-13	C
UT to Mud Creek	SCH	6-55	C
UT to Mud Creek	SCI	6-55	C
UT to Byers Creek	SCJ	6-55-13	C
UT to Mud Creek	SCK	6-55	C
UT to Mud Creek	SCL	6-55	C
UT to Mud Creek	SCM	6-55	C
UT to Mud Creek	SCN	6-55	C
UT to Mud Creek	SCO	6-55	C
UT to Mud Creek	SCP	6-55	C
UT to Mud Creek	SCQ	6-55	C
UT to Mud Creek	SCR	6-55	C
UT to Mud Creek	SCT	6-55	C
UT to Cane Creek	SCU	6-57-(9)	C
UT to Mud Creek	SCV	6-55	C
Cane Creek	SCW	6-57-(9)	C
UT to Cane Creek	SCX	6-57-(9)	C
Kimsey Creek	SCY	6-57-22	C
UT to Kimsey Creek	SCZ	6-57-22	C
UT to French Broad River	SDA	6-(54.5)	B
UT to French Broad River	SDC	6-(54.5)	B
UT to French Broad River	SDD	6-(54.5)	B
UT to French Broad River	SDE	6-(54.5)	B
UT to French Broad River	SDF	6-(54.5)	B
UT to French Broad River	SDG	6-(54.5)	B
UT to French Broad River	SDH	6-(54.5)	B
UT to French Broad River	SDI	6-(54.5)	B
UT to French Broad River	SDJ	6-(54.5)	B
UT to French Broad River	SDK	6-(54.5)	B
UT to French Broad River	SDL	6-(54.5)	B
UT to French Broad River	SDM	6-(54.5)	B
Powell Creek	SDN	6-62	C
UT to French Broad River	SDO	6-(54.5)	B
UT to French Broad River	SDP	6-(54.5)	B
UT to French Broad River	SDQ	6-(54.5)	B
UT to Kimsey Creek	SDR	6-57-22	C

Table 2. Water resources in the study area.

Stream Name	Map ID	NCDWQ Index Number	Best Usage Classification
UT to French Broad River	SDS	6-(54.5)	B
Ducker Creek	SDT	6-63	C
UT to French Broad River	SDU	6-(54.5)	B
UT to French Broad River	SDV	6-(54.5)	B
UT to French Broad River	SDW	6-(54.5)	B
UT to French Broad River	SDX	6-(54.5)	B
UT to French Broad River	SDY	6-(54.5)	B
UT to French Broad River	SDZ	6-(54.5)	B
UT to French Broad River	SEA	6-(54.5)	B
UT to Hominy Creek	SEB	6-76	C
UT to French Broad River	SED	6-(54.5)	B
UT to French Broad River	SEE	6-(54.5)	B
UT to French Broad River	SEF	6-(54.5)	B
Trent Branch	SEG	6-76-10	C
UT to Hominy Creek	SEH	6-76	C
UT to Hominy Creek	SEI	6-76	C
UT to Hominy Creek	SEJ	6-76	C
UT to Hominy Creek	SEK	6-76	C
UT to Hominy Creek	SEK-ALT	6-76	C
UT to Ragsdale Creek	SEL	6-76-11	C
UT to Ragsdale Creek	SEM	6-76-11	C
UT to Mud Creek	SEN	6-55	C
Ragsdale Creek	SEO	6-76-11	C
UT to Ragsdale Creek	SEP	6-76-11	C
UT to French Broad River	SEQ	6-(54.5)	B
UT to Ragsdale Creek	SER	6-76-11	C
UT to Ragsdale Creek	SES	6-76-11	C
UT to Trent Branch	SET	6-76-10	C
UT to French Broad River	SEU	6-(54.5)	B
UT to French Broad River	SEV	6-(54.5)	B
UT to French Broad River	SEW	6-(54.5)	B
UT to French Broad River	SEX	6-(54.5)	B
UT to Trent Branch	SEY	6-76-10	C
Hominy Creek	SEZ	6-76	C
UT to Dingle Creek	SFA	6-71	C
UT to Dingle Creek	SFB	6-71	C
UT to Dingle Creek	SFC	6-71	C
UT to Dingle Creek	SFD	6-71	C
Dingle Creek	SFE	6-71	C

Table 2. Water resources in the study area.

Stream Name	Map ID	NCDWQ Index Number	Best Usage Classification
UT to Dingle Creek	SFF	6-71	C
UT to Dellwood Lake	SFG	6-69	C
UT to French Broad River	SFH	6-(54.5)	B
UT to Dellwood Lake	SFI	6-69	C
UT to Long Valley Branch	SFK	6-75	C
UT to Dellwood Lake	SFL	6-69	C
UT to Long Valley Branch	SFM	6-75	C
Long Valley Branch	SFN	6-75	C
UT to French Broad River	SFO	6-(54.5)	B
UT to Long Valley Branch	SFP	6-75	C
UT to Dellwood Lake	SFQ	6-69	C
UT to Dellwood Lake	SFR	6-69	C
UT to Dellwood Lake	SFS	6-69	C
UT to French Broad River	SFT	6-(54.5)	B
UT to Hominy Creek	SFU	6-76	C
UT to Hominy Creek	SFV	6-76	C
Mud Creek	SFW	6-55	C
UT to French Broad River	SFX	6-(54.5)	B
UT to Dellwood Lake	SFY	6-69	C
UT to Hominy Creek	SFZ	6-76	C
UT to Higgins Branch	SZY	6-57-22-2	C

Table 3. Physical characteristics of water resources in the study area.

Map ID	Bank Height (ft)	Bankful Width (ft)	Water Depth (in)	Channel Substrate	Velocity	Clarity
Broad River basin (HUC 03050105)						
SA	1	2	6	Sand, Silt, Clay	Moderate	Clear
SB	1	4	2	Sand, Gravel	Moderate	Clear
SC-Intermittent	2	4	4	Sand, Silt, Clay	Moderate	Clear
SC-Perennial	2	4	6	Sand, Gravel	Moderate	Clear
SD-Intermittent	1	3	1	Sand, Gravel	Moderate	Clear
SD-Perennial	1	4	3	Sand, Gravel, Cobble	Moderate	Clear
SE	1	3	3	Sand, Gravel, Cobble	Moderate	Clear
SF	1.5	6	3	Sand, Gravel, Cobble	Fast	Clear
BeckCreek (SG)	4	15	12	Sand, Silt, Gravel, Cobble	Moderate	Clear
SH	2	10	12	Sand, Silt, Clay	Moderate	Clear
SJ	0.5	3	1	Sand, Gravel, Cobble	Moderate	Clear
SK	0.5	3	1	Sand, Silt	Slow	Slightly Turbid
SL	1	3	2	Sand, Silt	Slow	Clear
SM	1	4	1	Sand, Gravel	Slow	Clear
SN	1	4	2	Sand, Gravel	Slow	Clear
SO	1	6	6	Sand, Silt, Clay	Moderate	Clear
SP	1	3	2	Sand, Silt, Clay	Slow	Slightly Turbid
SU	0.5	3	2	Sand, Silt, Gravel, Cobble	Slow	Slightly Turbid
French Broad River basin (HUC 06010105)						
French Broad River (FBR)	15 (est)	260	36	Sand, Gravel, Cobble, Boulder	Fast	Slightly Turbid
SQ	0.5	3	3	Sand, Silt, Gravel	Moderate	Clear
SR	0.5	3	3	Sand, Silt	Moderate	Slightly Turbid
SS	1	3	6	Sand, Silt, Gravel	Moderate	Slightly Turbid
Dunn Creek (ST)	2	12	21	Sand, Silt, Gravel, Cobble	Moderate	Slightly Turbid
SV	2	5	12	Sand, Silt, Gravel	Moderate	Slightly Turbid
SW-Intermittent	0.5	2	1	Sand, Silt, Gravel	Moderate	Clear
SW-Perennial	1	6	6	Sand, Silt, Gravel	Moderate	Clear
SX	0.5	4	3	Sand, Silt, Gravel	Moderate	Clear

Table 3. Physical characteristics of water resources in the study area.

Map ID	Bank Height (ft)	Bankful Width (ft)	Water Depth (in)	Channel Substrate	Velocity	Clarity
SY	0.5	4	3	Sand, Silt	Moderate	Slightly Turbid
SZ-Intermittent	2	3	4	Sand, Silt, Gravel	Moderate	Clear
SZ-Perennial	3	5	12	Sand, Gravel, Cobble	Moderate	Clear
SAA	1	3	10	Sand, Silt, Gravel, Cobble	Moderate	Slightly Turbid
SAB	2	6	6	Sand, Silt, Gravel, Cobble	Moderate	Clear
SAC	0.5	4	2	Sand, Silt, Gravel	Moderate	Clear
SAD	1	3	6	Sand, Silt	Slow	Clear
SAE	3	5	2	Sand, Silt	Slow	Clear
SAF	0.5	5	4	Sand, Silt	Slow	Slightly Turbid
SAG	1	6	10	Sand, Silt	Slow	Slightly Turbid
SAH	0.5	4	2	Sand, Silt, Gravel	Slow	Clear
SAI	1	7	3	Sand, Silt, Gravel	Slow	Clear
Devils Fork (SAJ)	2	20	18	Sand, Silt, Gravel, Cobble	Fast	Clear
SAL	1	4	2	Sand, Silt, Gravel	Slow	Clear
SAM	2	6	12	Sand, Silt	Slow	Slightly Turbid
SAN	2	5	12	Sand, Silt, Gravel, Cobble	Moderate	Clear
SAO	2	6	4	Sand, Silt, Gravel	Moderate	Clear
SAP	2	5	6	Sand, Silt, Gravel, Cobble	Moderate	Slightly Turbid
SAR (east)	2	6	3	Sand, Silt, Gravel, Cobble	Moderate	Clear
SAR (west)	2	6	3	Sand, Silt, Gravel, Cobble	Moderate	Clear
SAS	2	4	4	Sand, Silt	Moderate	Clear
SAU	1	5	10	Sand, Silt	Slow	Slightly Turbid
SAV	2	7	4	Sand, Silt, Gravel	Moderate	Clear
SAW	2	3	6	Sand, Silt, Gravel, Cobble	Moderate	Clear
SAX	1	3	6	Sand, Silt, Gravel	Moderate	Turbid

Table 3. Physical characteristics of water resources in the study area.

Map ID	Bank Height (ft)	Bankful Width (ft)	Water Depth (in)	Channel Substrate	Velocity	Clarity
Allen Branch (SAY)	4	20	2	Sand, Silt, Gravel, Cobble	Slow	Clear
SAZ-Intermittent	0.5	4	2	Sand, Silt, Gravel, Cobble	Slow	Clear
SAZ-Perennial	1	6	2	Sand, Silt, Gravel, Cobble	Slow	Clear
SBA-Intermittent (west)	1	6	2	Sand, Silt, Gravel, Cobble, Boulder	Moderate	Clear
SBA-Intermittent (east)	1	6	2	Sand, Silt, Gravel, Cobble, Boulder	Moderate	Clear
SBA-Perennial (east)	2	8	3	Sand, Silt, Gravel, Cobble, Boulder	Moderate	Clear
SBB	0.5	3	4	Sand, Silt, Gravel	Moderate	Slightly Turbid
Allen Branch (SBC)	2	12	18	Sand, Silt, Gravel	Moderate	Slightly Turbid
Clear Creek (SBD)	3	45	24	Sand, Silt, Gravel, Cobble	Moderate	Slightly Turbid
SBE	1.5	6	6	Sand, Silt, Gravel	Moderate	Slightly Turbid
SBF	2	4	6	Sand, Silt, Gravel	Moderate	Slightly Turbid
SBG	3	10	6	Sand, Silt, Gravel, Cobble	Moderate	Slightly Turbid
SBH	0.5	4	2	Sand, Silt, Gravel	Moderate	Slightly Turbid
SBI	1	5	3	Sand, Silt, Gravel	Moderate	Clear
SBL	0.5	3	3	Sand, Silt, Gravel	Moderate	Slightly Turbid
SBM	0.5	3	2	Sand, Silt, Gravel	Slow	Clear
SBN	0.5	4	1	Sand, Silt, Gravel	Slow	Clear
SBO	1	4	3	Sand, Silt, Gravel, Cobble	Moderate	Clear
Featherstone Creek (SBP)	3	15	18	Sand, Silt, Gravel, Cobble	Moderate	Clear
SBQ	0.5	5	1	Sand, Silt, Gravel	Slow	Clear
SBR	0.5	5	3	Sand, Silt	Slow	Clear
SBS	1	3	2	Sand, Silt, Clay	Slow	Slightly Turbid

Table 3. Physical characteristics of water resources in the study area.

Map ID	Bank Height (ft)	Bankful Width (ft)	Water Depth (in)	Channel Substrate	Velocity	Clarity
SBT	1	2	6	Sand, Silt, Gravel	Slow	Clear
Byers Creek (SBU)	3	15	8	Sand, Silt, Gravel, Cobble	Moderate	Clear
SBV	1	4	2	Sand, Silt, Gravel, Cobble	Moderate	Clear
SBW	0.5	3	1	Sand, Silt, Clay	Moderate	Slightly Turbid
SBX	3	6	18	Sand, Silt	Moderate	Clear
SBY	3	5	12	Sand, Silt, Gravel	Slow	Clear
SBZ	3	6	18	Sand, Silt, Gravel, Cobble, Boulder	Slow	Clear
SCA	2	8	4	Sand, Silt, Gravel, Cobble	Moderate	Clear
SCB	1	5	11	Sand, Silt, Gravel, Cobble	Slow	Clear
SCC	1.5	6	4	Sand, Silt, Clay	Slow	Slightly Turbid
SCD	0.5	3	5	Sand, Silt	Moderate	Clear
SCE	1	5	2	Sand, Silt, Gravel	Moderate	Clear
SCF	1	3	1	Sand, Silt, Gravel	Moderate	Clear
SCG	1	2	6	Sand, Silt	Moderate	Clear
SCH	2	2	5	Sand, Silt, Gravel, Cobble	Moderate	Clear
SCI	1	5	4	Sand, Silt, Gravel	Moderate	Clear
SCJ	1	3	2	Sand, Silt, Gravel	Slow	Clear
SCK	2	5	1	Sand, Silt, Gravel, Cobble	Moderate	Clear
SCL	1	3	10	Sand, Silt	Moderate	Clear
SCM	1	4	1	Sand, Silt	Slow	Clear
SCN	1	6	2	Sand, Silt, Gravel	Moderate	Clear
SCO	2	4	12	Sand, Silt	Moderate	Slightly Turbid
SCP	2	5	1	Sand, Silt	Moderate	Slightly Turbid
SCQ-Intermittent	2	6	4	Sand, Silt, Gravel	Moderate	Clear
SCQ-Perennial	2.5	6	4	Sand, Silt, Gravel	Moderate	Clear
SCR	1	3	1	Sand, Silt	Moderate	Slightly Turbid
SCT	0.5	4	2	Sand, Silt	Slow	Clear

Table 3. Physical characteristics of water resources in the study area.

Map ID	Bank Height (ft)	Bankful Width (ft)	Water Depth (in)	Channel Substrate	Velocity	Clarity
SCU-Intermittent	1	6	2	Sand, Silt	Moderate	Slightly Turbid
SCU-Perennial	2	6	4	Sand, Silt, Gravel	Moderate	Slightly Turbid
SCV	0.5	3	1	Sand, Silt	Moderate	Clear
Cane Creek (SCW)	6	30	36	Sand, Silt, Gravel, Cobble	Moderate	Turbid
SCX	4	10	42	Sand, Silt	Moderate	Slightly Turbid
Kimsey Creek (SCY)	1	3	4	Sand, Silt, Gravel, Cobble	Moderate	Clear
SCZ	2	12	10	Sand, Silt, Gravel, Cobble	Moderate	Slightly Turbid
SDA	1	5	6	Sand, Silt, Gravel	Moderate	Slightly Turbid
SDC	3	6	12	Sand, Silt, Gravel, Cobble	Fast	Clear
SDD-Intermittent	1	3	6	Sand, Silt, Gravel, Cobble	Moderate	Clear
SDD-Perennial	3	6	12	Sand, Gravel, Cobble	Moderate	Clear
SDE (east)	4	5	9	Sand, Silt, Gravel	Moderate	Clear
SDE (west)	4	5	9	Sand, Silt, Gravel	Moderate	Clear
SDF	3	5	12	Sand, Silt, Gravel, Cobble	Moderate	Clear
SDG	2	5	6	Sand, Silt	Moderate	Slightly Turbid
SDH	0.5	6	2	Sand, Silt, Gravel	Moderate	Slightly Turbid
SDI-Intermittent	1	5	1	Sand, Silt	STILL	Slightly Turbid
SDI-Perennial	1.5	7	3	Sand, Gravel	Moderate	Clear
SDJ	1	6	4	Sand, Silt, Gravel, Cobble	Moderate	Clear
SDK	2	6	12	Sand, Silt	Moderate	Slightly Turbid
SDL	0.5	4	4	Sand, Silt	Moderate	Clear
SDM	1	4	6	Sand, Silt	Slow	Clear
Powell Creek (SDN)	3	15	30	Sand, Silt, Gravel, Cobble	Slow	Clear

Table 3. Physical characteristics of water resources in the study area.

Map ID	Bank Height (ft)	Bankful Width (ft)	Water Depth (in)	Channel Substrate	Velocity	Clarity
SDO	1	5	11	Sand, Silt	Moderate	
SDP	2	5	6	Sand, Silt	Moderate	Clear
SDQ	0.5	3	4	Sand, Silt	Moderate	Clear
SDR	0.5	4	2	Sand, Silt, Gravel	Moderate	Clear
SDS	0.5	2	2	Sand, Silt	Moderate	Clear
Ducker Creek (SDT)	2	10	8	Sand, Silt, Gravel, Cobble, Boulder	Moderate	Clear
SDU (east)	0.5	5	2	Sand, Silt, Gravel, Cobble	Moderate	Clear
SDU (west)	0.5	5	2	Sand, Silt, Gravel, Cobble	Moderate	Clear
SDV	0.5	5	1	Sand, Silt, Gravel, Bedrock	Moderate	Clear
SDW	1	4	2	Sand, Silt, Gravel, Cobble	Moderate	Clear
SDX-Intermittent	0.5	2	1	Sand, Silt, Gravel	Moderate	Clear
SDX-Perennial	1	2	1	Sand, Silt, Gravel	Moderate	Clear
SDY	0.5	3	2	Sand, Silt, Gravel	Slow	Clear
SDZ	0.5	3	2	Sand, Silt, Gravel	Moderate	Clear
SEA-Intermittent	0.5	3	2	Sand, Silt, Gravel, Cobble, Bedrock	Moderate	Clear
SEA-Perennial	0.5	6	5	Sand, Silt, Gravel, Cobble, Bedrock	Moderate	Clear
SEB	0.5	3	2	Sand, Silt, Gravel	Fast	Slightly Turbid
SED	0.5	3	4	Sand, Silt	Moderate	Clear
SEE (east)	0.5	5	4	Sand, Silt	Moderate	Clear
SEE (west)	0.5	2	4	Sand, Silt	Moderate	Clear
SEE (west-roadside)	0.5	2	4	Sand, Silt	Moderate	Clear
SEF	0.5	5	3	Sand, Silt, Gravel, Cobble	Moderate	Clear
Trent Branch (SEG)	3	3	1	Sand, Silt	Moderate	Slightly Turbid
SEH	1	4	4	Sand, Silt	Moderate	Slightly Turbid
SEI	0.25	4	1	Sand, Silt, Gravel	Moderate	Clear
SEJ-Intermittent	1	2	6	Sand, Silt, Gravel, Cobble	Moderate	Slightly Turbid

Table 3. Physical characteristics of water resources in the study area.

Map ID	Bank Height (ft)	Bankful Width (ft)	Water Depth (in)	Channel Substrate	Velocity	Clarity
SEJ-Perennial	2.5	8	12	Sand, Gravel, Cobble	Moderate	Slightly Turbid
SEK	1	6	6	Sand, Silt, Gravel, Cobble	Moderate	Clear
SEK-ALT	0.5	2	6	Sand, Silt, Gravel, Cobble	Moderate	Clear
SEL	2	3	6	Sand, Silt	Moderate	Slightly Turbid
SEM	0.25	4	2	Sand, Silt, Gravel	Moderate	Clear
SEN	1	5	6	Sand, Silt, Gravel	Moderate	Slightly Turbid
Ragsdale Creek (SEO)	3	20	1	Sand, Silt, Gravel, Cobble	Fast	Slightly Turbid
SEP	1	4	2	Sand, Silt, Gravel	Moderate	Clear
SEQ	0.5	5	3	Sand, Silt, Gravel, Cobble	Moderate	Clear
SER	0.5	4	3	Sand, Silt, Gravel, Cobble	Moderate	Clear
SES	0.5	3	3	Sand, Silt, Gravel	Moderate	Slightly Turbid
SET	0.5	3	1	Sand, Silt, Gravel	Moderate	Clear
SEU	0.5	6	3	Sand, Silt, Gravel, Cobble	Moderate	Clear
SEV	0.5	3	2	Sand, Silt, Gravel, Cobble	Moderate	Clear
SEW	1	5	3	Sand, Silt, Gravel, Cobble	Moderate	Clear
SEX	0.5	3	2	Sand, Silt, Gravel, Cobble	Moderate	Clear
SEY	0.5	3	1	Sand, Silt, Gravel	Moderate	Clear
Hominy Creek (SEZ)	8	40	48	Sand, Silt, Gravel, Cobble, Bedrock	Fast	Turbid
SFA-Intermittent	0.5	4	3	Clay, Gravel, Cobble	Slow	Clear
SFA-Perennial	1	6	6	Sand, Silt, Gravel, Cobble	Moderate	Clear
SFB	0.5	2	1	Sand, Gravel	Slow	Clear
SFC	0.5	3	1	Clay, Gravel, Cobble	Slow	Clear
SFD	0.5	2	1	Sand, Cobble	Slow	Clear

Table 3. Physical characteristics of water resources in the study area.

Map ID	Bank Height (ft)	Bankful Width (ft)	Water Depth (in)	Channel Substrate	Velocity	Clarity
Dingle Creek (SFE)	3	20	6	Gravel, Cobble, Boulder	Fast	Clear
SFF	1.5	10	6	Sand, Silt, Gravel	Moderate	Clear
SFG	1	12	10	Sand, Silt	Moderate	Clear
SFH	2	4	12	Sand, Silt, Clay	Moderate	Clear
SFI	0.5	2	2	Sand, Silt	Moderate	Clear
SFK	1	2	3	Sand, Silt, Clay	Moderate	Clear
SFL	0.5	5	3	Sand, Silt, Gravel	Moderate	Clear
SFM	0.5	4	1	Sand, Silt, Gravel	Moderate	Clear
Long Valley Branch (SFN)	1	6	6	Sand, Silt, Gravel	Moderate	Clear
SFO	3	5	30	Sand, Silt	Slow	Turbid
SFP	1	5	6	Sand, Silt, Gravel	Moderate	Clear
SFQ-Intermittent	1	4	6	Sand, Silt, Clay	Slow	Clear
SFQ-Perennial	1	4	6	Sand, Silt, Clay	Slow	Clear
SFR	2	4	6	Sand, Silt, Gravel, Cobble	Slow	Clear
SFS	0.5	2	1	Sand, Silt, Gravel	Slow	Clear
SFT	0.5	3	1	Sand, Silt	Moderate	Slightly Turbid
SFU	1	3	2	Sand, Silt, Clay	Slow	Turbid
SFV	0.5	5	1	Sand, Silt, Clay	Moderate	Slightly Turbid
Mud Creek (SFW)	5	50	12	Sand, Silt, Gravel, Cobble	Fast	Slightly Turbid
SFX	1	5	2	Sand, Silt, Clay	Moderate	Slightly Turbid
SFY	0.5	6	4	Sand, Silt, Gravel	Moderate	Clear
SFZ	1	4	6	Sand, Silt, Gravel	Moderate	Clear
SZY	0.5	2	2	Silt, Sand, Gravel	Slow	Clear

Table 4. Coverage of terrestrial communities in the study area.

Community	Coverage (ac.)
Maintained/ Disturbed	1,643.7
Montane Oak-Hickory Forest (acidic subtype)	702.8
Montane Oak-Hickory Forest (white pine subtype)	330.7
Montane Alluvial Forest (small river subtype)	144.4
Acidic Cove Forest	132
Montane Floodplain Slough Forest	14.1
Piedmont/Mountain Semipermanent Impoundment (shrub subtype)	11.3
Swamp Forest-Bog Complex (typic subtype)	1.2
Total	2,980.2

Table 5. Jurisdictional characteristics of water resources in the study area.

Map ID	Length (ft.)	Classification	Compensatory Mitigation Required	River Basin Buffer
Broad River basin (HUC 03050105)				
SA	385	Perennial	Yes	Not Subject
SB	599	Perennial	Yes	Not Subject
SC	237	Intermittent	Yes	Not Subject
SC	214	Perennial	Yes	Not Subject
SD	41	Intermittent	Yes	Not Subject
SD	272	Perennial	Yes	Not Subject
SE	175	Intermittent	Yes	Not Subject
SF	901	Perennial	Yes	Not Subject
BeckCreek (SG)	225	Perennial	Yes	Not Subject
SH	563	Perennial	Yes	Not Subject
SJ	18	Intermittent	Yes	Not Subject
SK	81	Intermittent	Yes	Not Subject
SL	110	Intermittent	Yes	Not Subject
SM	135	Perennial	Yes	Not Subject
SN	125	Perennial	Yes	Not Subject
SO	145	Perennial	Yes	Not Subject
SP	31	Intermittent	Yes	Not Subject
SU	72	Perennial	Yes	Not Subject
French Broad River basin (HUC 06010105)				
French Broad River (FBR)	9,823	Perennial	Yes	Not Subject
SQ	964	Perennial	Yes	Not Subject
SR	111	Perennial	Yes	Not Subject
SS	344	Perennial	Yes	Not Subject
Dunn Creek (ST)	845	Perennial	Yes	Not Subject
SV	725	Perennial	Yes	Not Subject
SW	271	Intermittent	Yes	Not Subject
SW	647	Perennial	Yes	Not Subject
SX	228	Perennial	Yes	Not Subject
SY	324	Intermittent	Yes	Not Subject
SZ	107	Intermittent	Yes	Not Subject
SZ	651	Perennial	Yes	Not Subject
SAA	892	Intermittent	Yes	Not Subject
SAB	3,599	Perennial	Yes	Not Subject
SAC	181	Perennial	Yes	Not Subject
SAD	739	Perennial	Yes	Not Subject
SAE	112	Perennial	Yes	Not Subject
SAF	337	Intermittent	Yes	Not Subject

Table 5. Jurisdictional characteristics of water resources in the study area.

Map ID	Length (ft.)	Classification	Compensatory Mitigation Required	River Basin Buffer
SAG	203	Intermittent	Yes	Not Subject
SAH	368	Perennial	Yes	Not Subject
SAI	55	Intermittent	Yes	Not Subject
Devils Fork (SAJ)	2,849	Perennial	Yes	Not Subject
SAL	447	Perennial	Yes	Not Subject
SAM	554	Intermittent	Yes	Not Subject
SAN	321	Perennial	Yes	Not Subject
SAO	522	Perennial	Yes	Not Subject
SAP	342	Perennial	Yes	Not Subject
SAR (east)	341	Perennial	Yes	Not Subject
SAR (west)	471	Perennial	Yes	Not Subject
SAS	701	Perennial	Yes	Not Subject
SAU	1,005	Perennial	Yes	Not Subject
SAV	121	Perennial	Yes	Not Subject
SAW	369	Perennial	Yes	Not Subject
SAX	400	Intermittent	Yes	Not Subject
Allen Branch (SAY)	403	Perennial	Yes	Not Subject
SAZ	185	Intermittent	Yes	Not Subject
SAZ	377	Perennial	Yes	Not Subject
SBA (west)	31	Intermittent	Yes	Not Subject
SBA (east)	99	Intermittent	Yes	Not Subject
SBA (east)	254	Perennial	Yes	Not Subject
SBB	289	Intermittent	Yes	Not Subject
Allen Branch (SBC)	404	Perennial	Yes	Not Subject
Clear Creek (SBD)	908	Perennial	Yes	Not Subject
SBE	76	Intermittent	Yes	Not Subject
SBF	515	Perennial	Yes	Not Subject
SBG	1,433	Perennial	Yes	Not Subject
SBH	64	Intermittent	Yes	Not Subject
SBI	688	Perennial	Yes	Not Subject
SBL	144	Intermittent	Yes	Not Subject
SBM	67	Perennial	Yes	Not Subject
SBN	651	Intermittent	Yes	Not Subject
SBO	785	Perennial	Yes	Not Subject
Featherstone Creek (SBP)	643	Perennial	Yes	Not Subject
SBQ	231	Intermittent	Yes	Not Subject
SBR	140	Intermittent	Yes	Not Subject
SBS	55	Intermittent	Yes	Not Subject

Table 5. Jurisdictional characteristics of water resources in the study area.

Map ID	Length (ft.)	Classification	Compensatory Mitigation Required	River Basin Buffer
SBT	223	Intermittent	Yes	Not Subject
Byers Creek (SBU)	1,219	Perennial	Yes	Not Subject
SBV	467	Perennial	Yes	Not Subject
SBW	75	Intermittent	Yes	Not Subject
SBX	86	Perennial	Yes	Not Subject
SBY	264	Perennial	Yes	Not Subject
SBZ	172	Intermittent	Yes	Not Subject
SCA	4,021	Perennial	Yes	Not Subject
SCB	757	Perennial	Yes	Not Subject
SCC	42	Perennial	Yes	Not Subject
SCD	390	Perennial	Yes	Not Subject
SCE	89	Perennial	Yes	Not Subject
SCF	385	Intermittent	Yes	Not Subject
SCG	335	Perennial	Yes	Not Subject
SCH	74	Intermittent	Yes	Not Subject
SCI	708	Perennial	Yes	Not Subject
SCJ	138	Intermittent	Yes	Not Subject
SCK	777	Perennial	Yes	Not Subject
SCL	212	Perennial	Yes	Not Subject
SCM	97	Intermittent	Yes	Not Subject
SCN	1,076	Perennial	Yes	Not Subject
SCO*	825	Perennial	Yes	Not Subject
SCP	366	Intermittent	Yes	Not Subject
SCQ	394	Intermittent	Yes	Not Subject
SCQ	534	Perennial	Yes	Not Subject
SCR	245	Perennial	Yes	Not Subject
SCT	723	Perennial	Yes	Not Subject
SCU	489	Intermittent	Yes	Not Subject
SCU	2,094	Perennial	Yes	Not Subject
SCV	128	Intermittent	Yes	Not Subject
Cane Creek (SCW)	878	Perennial	Yes	Not Subject
SCX	1,033	Perennial	Yes	Not Subject
Kimsey Creek (SCY)	960	Perennial	Yes	Not Subject
SCZ	197	Perennial	Yes	Not Subject
SDA	177	Intermittent	Yes	Not Subject
SDC	961	Perennial	Yes	Not Subject
SDD	186	Intermittent	Yes	Not Subject
SDD	402	Perennial	Yes	Not Subject

Table 5. Jurisdictional characteristics of water resources in the study area.

Map ID	Length (ft.)	Classification	Compensatory Mitigation Required	River Basin Buffer
SDE (east)	315	Perennial	Yes	Not Subject
SDE (west)	234	Perennial	Yes	Not Subject
SDF	326	Perennial	Yes	Not Subject
SDG	69	Perennial	Yes	Not Subject
SDH	611	Intermittent	Yes	Not Subject
SDH	82	Perennial	Yes	Not Subject
SDI	327	Intermittent	Yes	Not Subject
SDI	179	Perennial	Yes	Not Subject
SDJ	140	Perennial	Yes	Not Subject
SDK	335	Perennial	Yes	Not Subject
SDL	152	Perennial	Yes	Not Subject
SDM	102	Perennial	Yes	Not Subject
Powell Creek (SDN)	470	Perennial	Yes	Not Subject
SDO	89	Perennial	Yes	Not Subject
SDP	195	Intermittent	Yes	Not Subject
SDQ	83	Intermittent	Yes	Not Subject
SDR	214	Intermittent	Yes	Not Subject
SDS	112	Perennial	Yes	Not Subject
Ducker Creek (SDT)	377	Perennial	Yes	Not Subject
SDU (east)	313	Perennial	Yes	Not Subject
SDU (west)	246	Perennial	Yes	Not Subject
SDV	365	Perennial	Yes	Not Subject
SDW	443	Perennial	Yes	Not Subject
SDX	337	Intermittent	Yes	Not Subject
SDX	3,680	Perennial	Yes	Not Subject
SDY	72	Perennial	Yes	Not Subject
SDZ	151	Perennial	Yes	Not Subject
SEA	96	Intermittent	Yes	Not Subject
SEA	521	Perennial	Yes	Not Subject
SEB	883	Perennial	Yes	Not Subject
SED	375	Perennial	Yes	Not Subject
SEE (east)	697	Perennial	Yes	Not Subject
SEE (west)	191	Perennial	Yes	Not Subject
SEE (west-roadside)	19	Perennial	Yes	Not Subject
SEF	738	Perennial	Yes	Not Subject
Trent Branch (SEG)	552	Perennial	Yes	Not Subject
SEH	386	Perennial	Yes	Not Subject
SEI	23	Intermittent	Yes	Not Subject

Table 5. Jurisdictional characteristics of water resources in the study area.

Map ID	Length (ft.)	Classification	Compensatory Mitigation Required	River Basin Buffer
SEJ	257	Intermittent	Yes	Not Subject
SEJ	2,693	Perennial	Yes	Not Subject
SEK	170	Intermittent	Yes	Not Subject
SEK-ALT	104	Intermittent	Yes	Not Subject
SEL	479	Intermittent	Yes	Not Subject
SEM	112	Intermittent	Yes	Not Subject
SEN	341	Perennial	Yes	Not Subject
Ragsdale Creek (SEO)	844	Perennial	Yes	Not Subject
SEP	181	Intermittent	Yes	Not Subject
SEQ	630	Perennial	Yes	Not Subject
SER	366	Perennial	Yes	Not Subject
SES	253	Intermittent	Yes	Not Subject
SET	82	Intermittent	Yes	Not Subject
SEU	18	Perennial	Yes	Not Subject
SEV	145	Perennial	Yes	Not Subject
SEW	161	Perennial	Yes	Not Subject
SEX	424	Intermittent	Yes	Not Subject
SEY	289	Intermittent	Yes	Not Subject
Hominy Creek (SEZ)	6,662	Perennial	Yes	Not Subject
SFA	174	Intermittent	Yes	Not Subject
SFA	1,950	Perennial	Yes	Not Subject
SFB	368	Perennial	Yes	Not Subject
SFC	131	Intermittent	Yes	Not Subject
SFD	51	Perennial	Yes	Not Subject
Dingle Creek (SFE)	99	Perennial	Yes	Not Subject
SFF	85	Perennial	Yes	Not Subject
SFG	5,706	Perennial	Yes	Not Subject
SFH	866	Perennial	Yes	Not Subject
SFI	265	Intermittent	Yes	Not Subject
SFK	94	Intermittent	Yes	Not Subject
SFL	96	Perennial	Yes	Not Subject
SFM	414	Intermittent	Yes	Not Subject
Long Valley Branch (SFN)	44	Perennial	Yes	Not Subject
SFO	162	Intermittent	Yes	Not Subject
SFP	81	Perennial	Yes	Not Subject
SFQ	165	Intermittent	Yes	Not Subject
SFQ	276	Perennial	Yes	Not Subject
SFR	354	Perennial	Yes	Not Subject

Table 5. Jurisdictional characteristics of water resources in the study area.

Map ID	Length (ft.)	Classification	Compensatory Mitigation Required	River Basin Buffer
SFS	74	Perennial	Yes	Not Subject
SFT	445	Intermittent	Yes	Not Subject
SFU	225	Intermittent	Yes	Not Subject
SFV	158	Intermittent	Yes	Not Subject
Mud Creek (SFW)	1,123	Perennial	Yes	Not Subject
SFX	84	Intermittent	Yes	Not Subject
SFY	67	Perennial	Yes	Not Subject
SFZ	80	Intermittent	Yes	Not Subject
SZY	336	Intermittent	Yes	Not Subject
Total**	107,616			

* Previously 776 feet; 49 feet added in NRTR Addendum #4

** Previously 107,567 feet; 49 feet added in NRTR Addendum #4

Table 6. Jurisdictional characteristics of wetlands in the study area.

Map ID	NCWAM Classification	Hydrologic Classification	NCDWQ Wetland Rating	Area (ac.)
Broad River basin (HUC 03050105)				
WA	Headwater Forest	Riparian	43	0.01
WB	Headwater Forest	Riparian	40	0.01
WC	Headwater Forest	Riparian	43	0.01
WE	Headwater Forest	Riparian	29	0.03
French Broad River basin (HUC 06010105)				
WD	Headwater Forest	Riparian	58	0.23
WF	Non-Tidal Freshwater Marsh	Non-Riparian	34	0.21
WG	Non-Tidal Freshwater Marsh	Riparian	34	0.09
WH	Headwater Forest	Riparian	27	0.12
WI	Headwater Forest	Riparian	33	0.03
WJ	Headwater Forest	Riparian	38	0.20
WK	Bottomland Hardwood Forest	Riparian	79	0.91
WL	Headwater Forest	Riparian	45	0.01
WM	Headwater Forest	Non-Riparian	38	0.07
WN	Headwater Forest	Riparian	30	< 0.01
WO	Headwater Forest	Riparian	34	0.05
WP	Headwater Forest	Riparian	38	0.01
WR	Headwater Forest	Riparian	26	0.04
WS	Headwater Forest	Riparian	29	< 0.01
WT	Headwater Forest	Riparian	38	0.01
WU	Headwater Forest	Riparian	29	0.02
WV	Bottomland Hardwood Forest	Riparian	16	0.11
WW	Headwater Forest	Riparian	34	0.07
WX	Bottomland Hardwood Forest	Riparian	16	0.01
WY	Bottomland Hardwood Forest	Riparian	16	0.01
WZ	Headwater Forest	Riparian	36	0.01
WAA	Headwater Forest	Riparian	64	0.64
WAB	Headwater Forest	Riparian	25	0.20
WAC	Headwater Forest	Riparian	53	0.18
WAD	Headwater Forest	Riparian	32	0.20
WAE	Headwater Forest	Non-Riparian	20	0.01
WAF	Headwater Forest	Riparian	27	< 0.01
WAG	Headwater Forest	Riparian	28	0.10
WAH	Headwater Forest	Non-Riparian	47	0.01
WAI	Headwater Forest	Riparian	32	0.07
WAJ	Headwater Forest	Riparian	32	0.26
WAL	Headwater Forest	Riparian	25	0.01

Table 6. Jurisdictional characteristics of wetlands in the study area.

Map ID	NCWAM Classification	Hydrologic Classification	NCDWQ Wetland Rating	Area (ac.)
WAM	Headwater Forest	Non-Riparian	47	0.01
WAN	Headwater Forest	Riparian	29	0.02
WAO	Headwater Forest	Riparian	25	0.03
WAP	Headwater Forest	Non-Riparian	47	0.02
WAS	Headwater Forest	Riparian	25	< 0.01
WAT	Headwater Forest	Riparian	28	0.01
WAU	Headwater Forest	Riparian	35	0.03
WAV	Headwater Forest	Riparian	29	0.02
WAW	Headwater Forest	Riparian	36	0.01
WAX	Headwater Forest	Riparian	36	< 0.01
WAY	Headwater Forest	Non-Riparian	38	0.01
WBB	Headwater Forest	Non-Riparian	30	0.01
WBC	Headwater Forest	Riparian	38	0.23
WBD	Headwater Forest	Riparian	44	0.01
WBE	Headwater Forest	Riparian	42	0.02
WBF	Headwater Forest	Riparian	32	0.03
WBG	Headwater Forest	Riparian	51	0.66
WBH	Headwater Forest	Riparian	38	0.05
WBI	Headwater Forest	Riparian	44	0.68
WBJ	Headwater Forest	Riparian	39	0.04
WBK	Headwater Forest	Riparian	30	< 0.01
WBL	Headwater Forest	Riparian	32	0.05
WBN	Headwater Forest	Riparian	32	0.15
WBO	Bottomland Hardwood Forest	Riparian	38	0.32
WBP	Bottomland Hardwood Forest	Riparian	40	0.39
WBQ	Bottomland Hardwood Forest	Riparian	40	0.50
WBR	Headwater Forest	Riparian	77	0.70
WBS	Headwater Forest	Riparian	38	0.31
WBT	Headwater Forest	Riparian	42	0.21
WBU	Headwater Forest	Riparian	77	0.08
WBV	Bottomland Hardwood Forest	Riparian	69	9.38
WBW	Non-Tidal Freshwater Marsh	Riparian	65	0.09
WBX	Bottomland Hardwood Forest	Riparian	24	0.07
WBZ	Bottomland Hardwood Forest	Riparian	24	0.04
WCA	Bottomland Hardwood Forest	Riparian	24	0.08
WCB	Bottomland Hardwood Forest	Riparian	24	0.01
WCC	Bottomland Hardwood Forest	Riparian	48	0.34
WCD	Bottomland Hardwood Forest	Riparian	24	< 0.01

Table 6. Jurisdictional characteristics of wetlands in the study area.

Map ID	NCWAM Classification	Hydrologic Classification	NCDWQ Wetland Rating	Area (ac.)
WCE	Bottomland Hardwood Forest	Riparian	48	1.06
WCF	Bottomland Hardwood Forest	Riparian	24	0.09
WCG	Bottomland Hardwood Forest	Riparian	78	1.07
WCH	Bottomland Hardwood Forest	Riparian	78	8.15
WCI	Bottomland Hardwood Forest	Riparian	34	0.03
WCJ	Headwater Forest	Riparian	34	0.02
WCK	Headwater Forest	Riparian	34	0.02
WCL	Headwater Forest	Riparian	43	0.01
WCM	Headwater Forest	Riparian	43	< 0.01
WCN	Headwater Forest	Riparian	43	0.13
WCO	Bottomland Hardwood Forest	Riparian	54	0.15
WCP	Bottomland Hardwood Forest	Riparian	45	0.98
WCQ	Headwater Forest	Riparian	43	< 0.01
WCR	Headwater Forest	Riparian	43	< 0.01
WCS	Headwater Forest	Riparian	43	0.05
WCT	Headwater Forest	Riparian	43	0.08
WCU	Headwater Forest	Riparian	43	< 0.01
WCV	Headwater Forest	Riparian	43	0.01
WCW	Bottomland Hardwood Forest	Riparian	69	4.99
WCX	Bottomland Hardwood Forest	Riparian	45	0.45
WCZ	Headwater Forest	Riparian	43	0.02
WDA	Bottomland Hardwood Forest	Riparian	69	4.63
WDG	Headwater Forest	Non-Riparian	19	0.19
WDH	Headwater Forest	Riparian	31	0.10
WDI	Headwater Forest	Riparian	31	0.06
WDJ	Headwater Forest	Riparian	31	0.09
WDK	Headwater Forest	Riparian	31	< 0.01
WDL	Headwater Forest	Riparian	31	0.05
WDM	Headwater Forest	Riparian	31	0.08
WDN	Headwater Forest	Riparian	24	< 0.01
WDO	Headwater Forest	Riparian	29	0.02
WDP	Bottomland Hardwood Forest	Riparian	24	0.06
WDQ	Headwater Forest	Riparian	30	0.01
WDR	Headwater Forest	Riparian	30	0.09
WDS	Headwater Forest	Riparian	30	0.02
WDT	Headwater Forest	Riparian	37	0.02
WDU	Headwater Forest	Riparian	37	< 0.01
WDV	Headwater Forest	Riparian	37	0.07

Table 6. Jurisdictional characteristics of wetlands in the study area.

Map ID	NCWAM Classification	Hydrologic Classification	NCDWQ Wetland Rating	Area (ac.)
WDW	Headwater Forest	Riparian	37	< 0.01
WDX	Headwater Forest	Riparian	37	0.14
WDY	Bottomland Hardwood Forest	Riparian	38	< 0.01
WDZ	Bottomland Hardwood Forest	Riparian	38	0.09
WEA	Headwater Forest	Riparian	51	0.01
WEB	Bottomland Hardwood Forest	Riparian	38	< 0.01
WEC	Bottomland Hardwood Forest	Riparian	38	0.02
WED	Bottomland Hardwood Forest	Riparian	31	0.03
WEE	Non-Tidal Freshwater Marsh	Riparian	47	0.39
WEF	Bottomland Hardwood Forest	Riparian	31	0.10
WEG	Bottomland Hardwood Forest	Riparian	31	0.20
WEH	Headwater Forest	Riparian	29	0.01
WEI	Headwater Forest	Riparian	29	0.01
WEJ	Headwater Forest	Riparian	29	0.01
WEK	Headwater Forest	Riparian	29	< 0.01
WEL	Headwater Forest	Riparian	48	0.12
WEM	Headwater Forest	Riparian	31	< 0.01
WEN	Headwater Forest	Riparian	30	0.06
WEO	Headwater Forest	Riparian	30	0.01
WEP	Headwater Forest	Riparian	30	< 0.01
WEQ	Headwater Forest	Riparian	30	0.01
WER	Headwater Forest	Riparian	38	0.23
WES	Headwater Forest	Riparian	52	0.13
WET	Headwater Forest	Riparian	52	0.08
WEU	Headwater Forest	Riparian	52	< 0.01
WEV	Headwater Forest	Riparian	52	0.01
WEW	Headwater Forest	Riparian	52	0.43
WEX	Headwater Forest	Riparian	52	0.05
WEY	Headwater Forest	Riparian	52	0.39
WEZ	Headwater Forest	Riparian	52	< 0.01
WFA	Headwater Forest	Riparian	30	0.03
WFB	Headwater Forest	Riparian	52	0.11
WFC	Headwater Forest	Riparian	30	< 0.01
WFD	Headwater Forest	Riparian	24	0.03
WFE	Headwater Forest	Riparian	24	0.02
WFF	Headwater Forest	Riparian	32	0.07
WFG	Headwater Forest	Riparian	24	0.01
WFH	Headwater Forest	Riparian	24	0.01

Table 6. Jurisdictional characteristics of wetlands in the study area.

Map ID	NCWAM Classification	Hydrologic Classification	NCDWQ Wetland Rating	Area (ac.)
WFI	Headwater Forest	Riparian	24	0.02
WFJ	Headwater Forest	Riparian	28	<0.01
WFK	Headwater Forest	Riparian	28	0.02
WFL	Headwater Forest	Riparian	28	0.03
WZX	Headwater Forest	Riparian	N/A	0.01
WZY	Headwater Forest	Riparian	N/A	<0.01
WZZ	Headwater Forest	Riparian	N/A	<0.01
			Total	44.29

Table 7. Federally protected species listed for Buncombe and Henderson Counties.

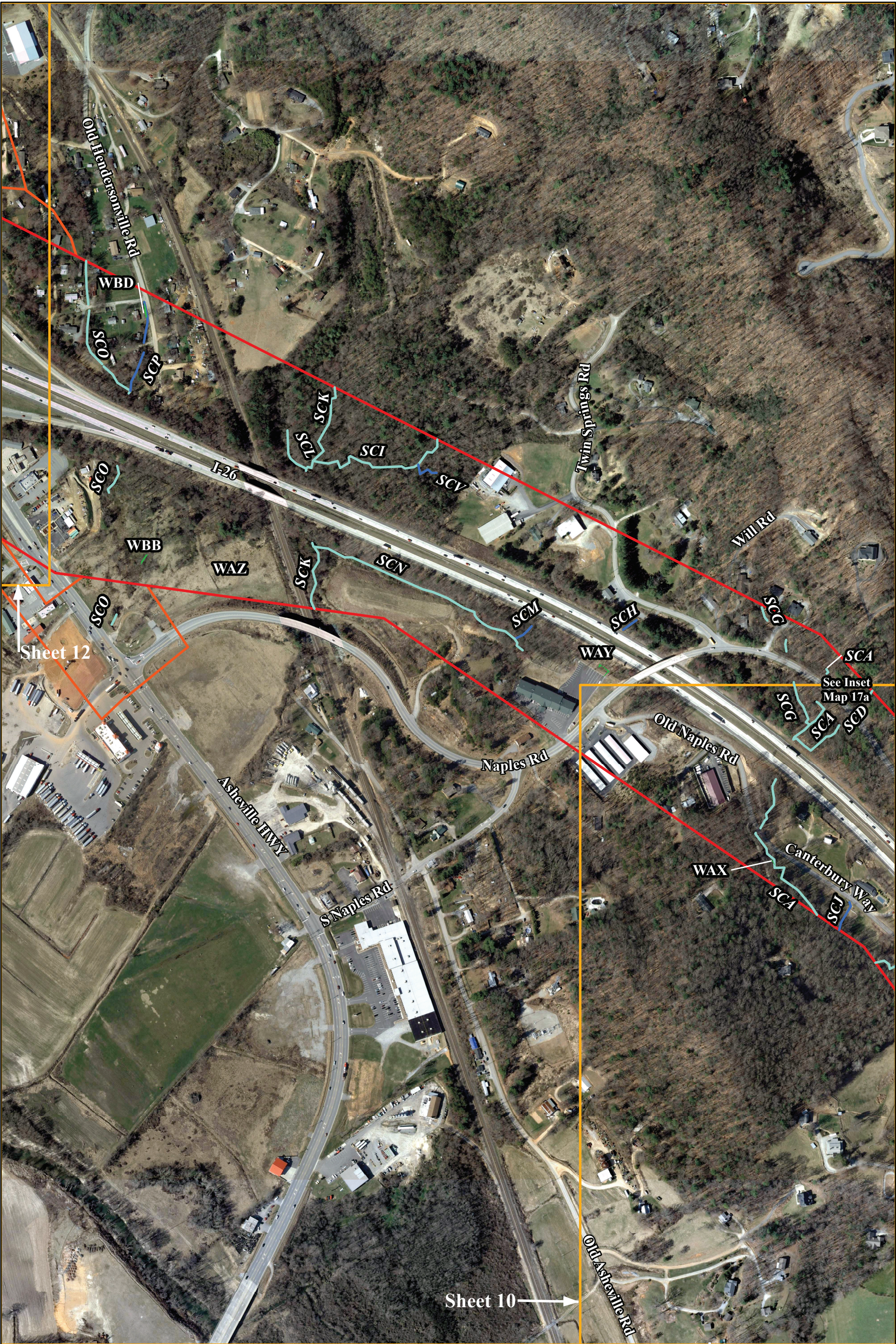
Scientific Name	Common Name	Federal Status	Habitat Present	County	Biological Conclusion
<i>Alasmidonta raveneliana</i>	Appalachian elktoe*	E	Yes	Buncombe* and Henderson	Unresolved
<i>Bombus affinis</i>	Rusty-patched bumble bee	E	†	Buncombe* and Henderson*	†
<i>Clemmys muhlenbergii</i>	Bog turtle	T(S/A)	Yes	Buncombe and Henderson	Not Required
<i>Epioblasma florentina walkeri</i>	Tan riffleshell*	E	Yes	Buncombe	Unresolved
<i>Erimonax monachus</i>	Spotfin chub (=turquoise shiner)*	T	No	Buncombe	No Effect
<i>Geum radiatum</i>	Spreading avens	E	No	Buncombe	No Effect
<i>Glaucmys sabrinus coloratus</i>	Carolina northern flying squirrel	E	No	Buncombe and Henderson	No Effect
<i>Gymnoderma lineare</i>	Rock gnome lichen	E	No	Buncombe	No Effect
<i>Helonias bullata</i>	Swamp pink	T	Yes	Henderson	No Effect
<i>Isotria medeoloides</i>	Small whorled pogonia	T	Yes	Henderson	No Effect
<i>Michrohexura montivega</i>	Spruce fir moss spider	E	No	Buncombe	No Effect
<i>Myotis grisescens</i>	Gray bat	E	Yes	Buncombe	Unresolved
<i>Myotis septentrionalis</i>	Northern long-eared bat	T	Yes	Buncombe and Henderson	††
<i>Sagittaria fasciculata</i>	Bunched arrowhead*	E	Yes	Buncombe* and Henderson	No Effect
<i>Sarracenia rubra</i> ssp. <i>jonesii</i>	Mountain sweet pitcher plant*	E	Yes	Buncombe* and Henderson	No Effect
<i>Sisyrinchium</i>	White irisette	E	Yes	Henderson	No Effect
<i>Solidago spithamea</i>	Blue ridge goldenrod*	E	No	Buncombe	No Effect
<i>Spirea virginiana</i>	Virginia spiraea*	T	Yes	Buncombe	No Effect

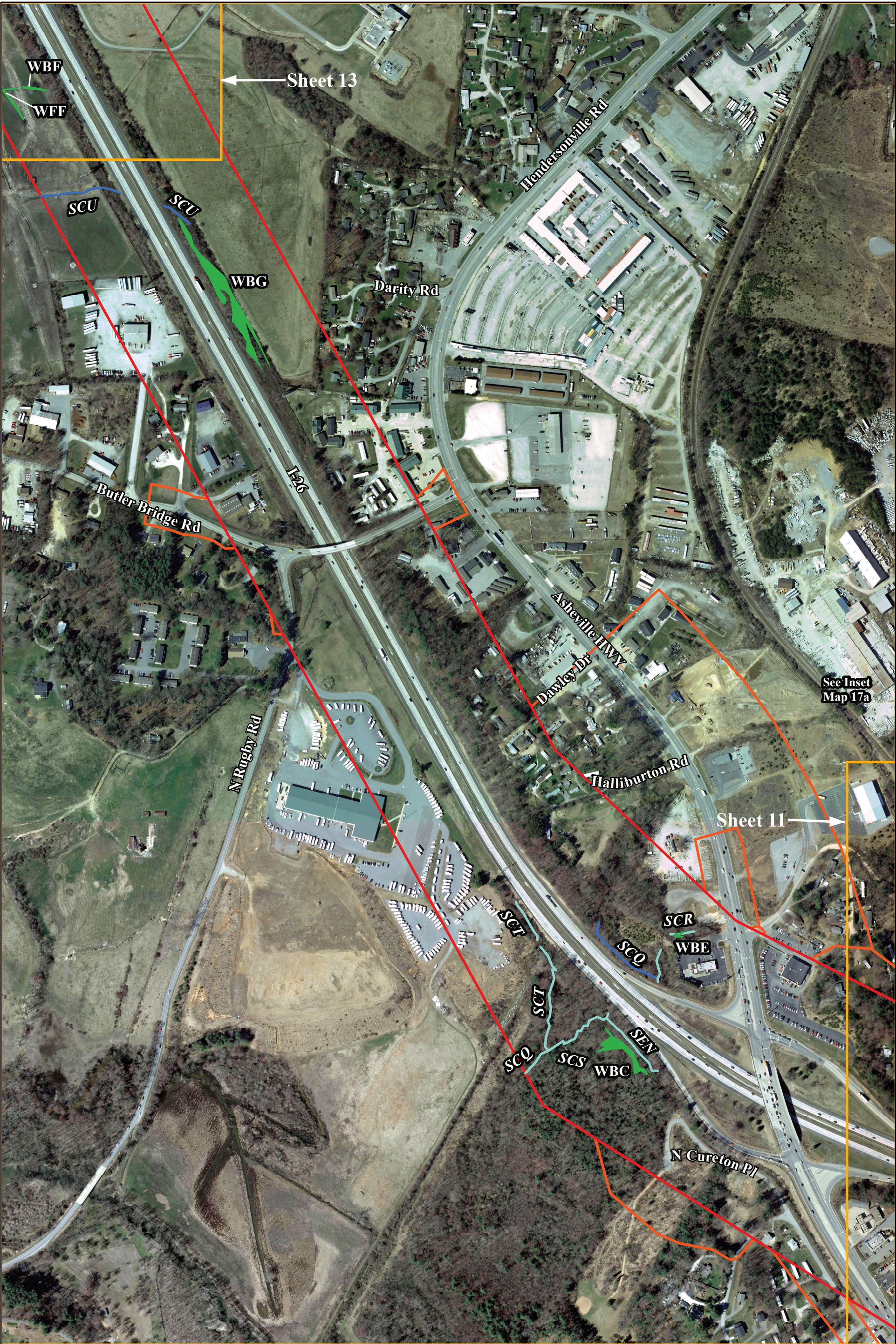
E - Endangered; T - Threatened; T(S/A) - Threatened due to similarity of appearance

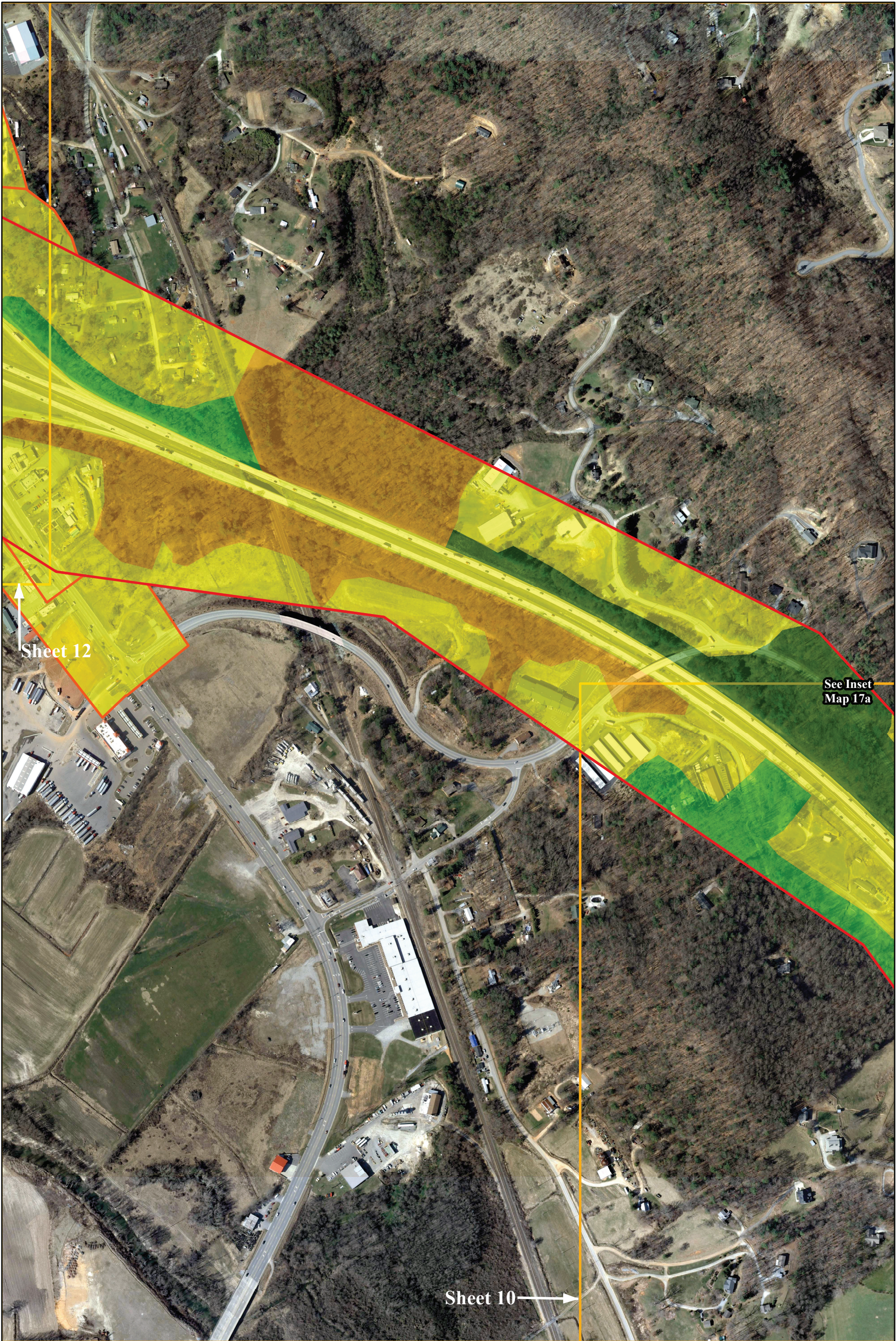
* Historic record (the species was last observed in the county more than 50 years ago)

† No Section 7 survey, conclusion, or consultation is required at this time.

†† May Affect – NLEB is exempt due to consistency with the 4(d) rule.







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May 2017

NRTR Addendum 4

Study Area	Montane Alluvial Forest (small river subtype)
Addendum (1, 2, 3, and 4) Study Areas	Acidic Cove Forest
Map Sheet Limits	Montane Floodplain Slough Forest
Maintained/Disturbed	Piedmont/Mountain Semipermanent Impoundment
Montane Oak-Hickory Forest (acidic subtype)	Swamp Forest-Bog Complex (typic subtype)
Montane Oak-Hickory Forest (white pine subtype)	

0 200 400 Feet

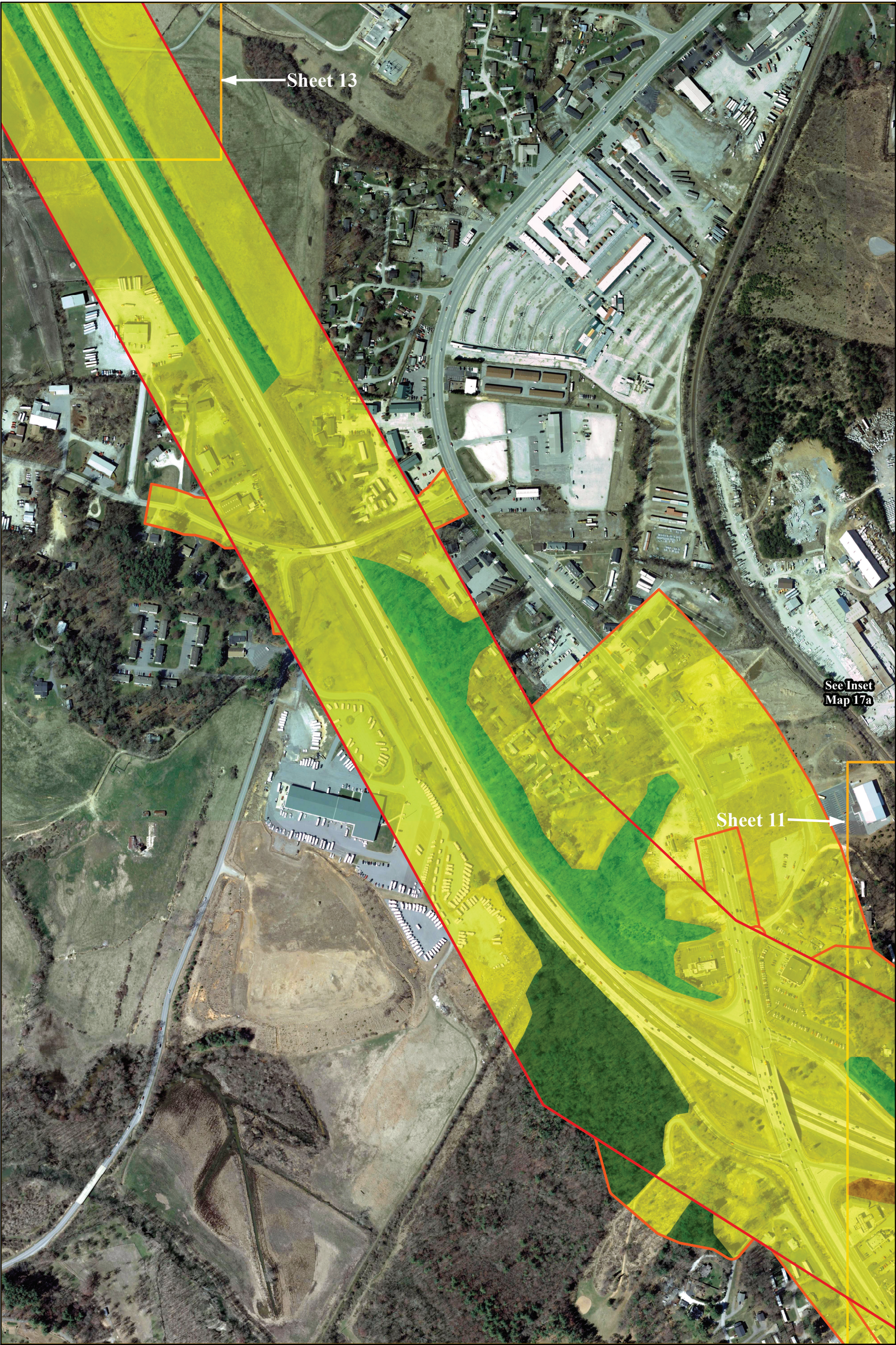
N

Figure 4: Terrestrial Communities: Sheet 11

I-4400/4700

I-26 from NC-225 to I-40

Buncombe and Henderson Counties



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NRTR Addendum 4

- Study Area
- Addendum (1, 2, 3, and 4) Study Areas
- Map Sheet Limits
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- Montane Oak-Hickory Forest (acidic subtype)
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0 200 400 Feet

- Montane Alluvial Forest (small river subtype)
- Acidic Cove Forest
- Montane Floodplain Slough Forest
- Piedmont/Mountain Semipermanent Impoundment
- Swamp Forest-Bog Complex (typic subtype)

N

Figure 4: Terrestrial Communities: Sheet 12

I-4400/4700

I-26 from NC-225 to I-40

Buncombe and Henderson Counties