### Carolina Ecosystems, Inc.

#### MEMORANDUM

DATE:	July 27, 2015
FROM:	Phil May, Carolina Ecosystems, Inc.
TO:	Bill Barrett, NCDOT-NES
RE:	Natural Resources Technical Report Addendum 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 is an approximate 1.5 mile corridor along the Blue Ridge Parkway that overlaps with the previous study area (Addendum Figures 1 and 2). This memo summarizes the findings of our background research and field review of the site. All work was conducted in accordance with the NCDOT Natural Environment Section standard operating procedures and July 2012 NRTR template. Field work was conducted on April 27 and April 28, 2015. 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 for this project. Tables include only new or updated information.

#### 4.0 BIOTIC RESOURCES

All new communities found within the expanded study area were found to be of the Montane Oak-Hickory Forest (acidic subtype).

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

Community	Coverage (ac.)
Montane Oak-Hickory Forest (acidic subtype)	700.6
Addendum Total	133.1
Project Total	2905.9

#### **5.0 JURISDICTIONAL ISSUES**

#### 5.1 Clean Water Act Waters of the U.S.

No new streams were identified in the addendum study area. One stream (SFB) was extended (Addendum Table 5, below). The location of this stream is shown on Addendum Figure 3.

Six jurisdictional wetlands were identified within the addendum study area (Addendum Figure 3). Wetland classification and quality rating data are presented in Addendum Table 6, below. All wetlands in the addendum study area are within the French Broad river basin (U.S. Geological Survey [USGS] Hydrologic Unit 06010105). USACE wetland delineation forms and NCDWQ wetland rating forms for each wetland type are attached.

No additions or changes were necessary for *Table 2*. *Water resources in the study area* or *Table 3*. *Physical characteristics of water resources in the study area*.

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

Map ID	Length (ft.)	Classification	<b>Compensatory</b> <b>Mitigation Required</b>	River Basin Buffer
SFB	368	Perennial	Yes	Not Subject
<b>Addendum Total</b>	2,829			
Project Total	106,436			

Map ID	NCWAM Classification	Hydrologic Classification	NCDWQ Wetland Rating	Area (ac.)
WFG	Headwater Forest	Riparian	24	0.01
WFH	Headwater Forest	Riparian	24	0.01
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
			Addendum Total	0.43
			Project Total	44.28

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

#### **5.8 Endangered Species Act Protected Species**

As of April 2, 2015 the USFWS lists seventeen federally protected species for Buncombe and Henderson counties, noting that sixteen species were listed at the time of the 2014 NRTR (Table 7 of the 2014 NRTR). No individuals of the listed species have been found in the addendum study area, based on detailed surveys being performed for the Biological Evaluation for this project. Therefore, no changes to the biological conclusions in the August 2014 NRTR are required. The additional listing of the Northern long-eared bat (NLEB) as of April 2, 2015, will require a biological conclusion (Addendum Table 7, below).

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

Scientific Name	Common Name	Federal Status	Habitat Present	County	Biological Conclusion
Myotis septentrionalis	Northern long-eared bat	Т	Unknown	Buncombe and Henderson	Unresolved

T - Threatened

#### Northern long-eared bat

USFWS optimal survey window: June 1 - August 15

Habitat Description: In North Carolina, the Northern long-eared bat (NLEB) occurs in the mountains, with scattered records in the Piedmont and coastal plain. In western North Carolina, NLEB spend winter hibernating in caves and mines. Since this species is not known to be a long-distance migrant, and caves and subterranean mines are extremely rare in eastern North Carolina, it is uncertain whether or where NLEB hibernate in eastern North Carolina. During the summer, NLEB roost singly or in colonies underneath bark, in cavities, or in crevices of both live and dead trees (typically ≥3 inches dbh). Males and non-reproductive females may also roost in cooler places, like caves and mines. This bat has also been found, rarely, roosting in structures like barns and sheds, under eaves of buildings, behind window shutters, in bridges, and in bat houses. Foraging occurs on forested hillsides and ridges, and occasionally over forest clearings, over water, and along tree-lined corridors. Mature forests may be an important habitat type for foraging.

#### Biological Conclusion: Unresolved

The NCDOT Biological Surveys Group will be responsible for habitat assessment and, if needed, surveys for the NLEB.

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
<b>Responsibilities:</b>	Wetland and stream delineation, GPS data collection, document review

Investigator:	Brian Smith, PWS
Education:	B.S. Biology, 1992; M.S. Soil Science 1998
Experience:	Senior Scientist, Carolina Ecosystems, Inc., 2004-Present
	Environmental Scientist, Dewberry & Davis, 2003-2004
	Environmental Scientist, Blue LWI, 1998-2003
Responsibilities:	Wetland and stream delineation, GPS data collection, 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:	Document preparation

Investigator:	Chris Hopper
Education:	B.S. Natural Resource Mgmt. & Engineering, 1997
Experience:	Senior Scientist, Carolina Ecosystems, Inc. 2015-Present
	Senior Scientist/Project Professional, Kleinfelder Southeast 2012-2015
	Environmental Officer, Chatham County 2011-2012
	Robert J. Goldstein & Assoc. 1998-2011
Responsibilities:	Document preparation

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:	Addendum Figure 1. Vicinity Map
	Addendum Figure 2. USGS Map
	Addendum Figure 3. Jurisdictional Features Map
	Addendum Figure 4. Terrestrial Communities Map
	Wetland Data Forms









WFH was
WETLAND DETERMINATION DATA FORM - Fastern Mountains and Piedmont Region (WFG)
Thursday All And Arta tokin - Lastern Mountains and Fledmont Region
Project/Site: City/County: City/County: Sampling Date:
Applicant/Owner: <u>NCD07</u> State: <u>NC</u> Sampling Point: <u>WFH0'3</u>
Investigator(s): V. May/13. Smith Section, Township, Range: Asherin Ile
Landform (hillslope, terrace, etc.): + lood plain Local relief (concave, convex, none): Slope (%): <5
Subregion (LRR or MLRA): 136 Lat: 36.2503251 Long: -83.551564 Datum: NAD 83
Soil Map Unit Name: Tate Loam, 15 to 30 % glopes NWI classification: Headwares Forest
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly disturbed? No Are "Normal Circumstances" present? Yes 📈 No
Are Vegetation, Soil, or Hydrology naturally problematic? 剥 👩 (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present?       Yes       No       Is the Sampled Area within a Wetland?       Yes       No       No         Hydric Soil Present?       Yes       No       No<
HYDROLOGY         Wetland Hydrology Indicators:         Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6)
Surface Water (A1)True Aquatic Plants (B14)Sparsely Vegetated Concave Surface (B8)
High Water Table (A2)     Hydrogen Sullide Odol (C1)     Dialnage Patients (B10)     Oxidized Rhizospheres on Living Roots (C3)     Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced Iron (C4) Dry-Season Water Table (C2)
Sediment Deposits (B2) Recent Iron Reduction in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface (C7) Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Remarks) Stunted or Stressed Plants (D1)
Iron Deposits (B5)
Water-Stained Leaves (B9) Microtopographic Relief (D4)
Aquatic Fauna (B13)
Field Observations:
Surface Water Present? Yes No Depth (inches):
Water Table Present? Yes Ves Depth (inches):
Saturation Present? Yes V No Depth (inches): 2 Wetland Hydrology Present? Yes V No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
Remarks: Small seep polycer with
T J WEM
SFB \

#### VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: WFH bet

<u>.</u>	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: Entre)	% Cover	Species?	Status	Number of Dominant Species
1. GARDIAUS CAROLINIANON	25	~	FAC	That Are OBL, FACW, or FAC: (A)
2				
2				Total Number of Dominant
3				Species Across All Strata (B)
4				Percent of Dominant Species
5				That Are OBL, FACW, or FAC:O (A/B)
6				
7.				Prevalence Index worksheet:
	25	= Total Cov	er	Total % Cover of:Multiply by:
50% of total cover: 12.5	20% of	total cover	5	OBL species x 1 =
	2070 01	total cover.		FACW species x 2 =
Sapling/Shrub Stratum (Plot size: Chick )	10	/	The	FAC species x 3 =
1. Lorpinus caroliniana	10		TAC	
2				FACU species X 4 =
3.				UPL species x 5 =
4				Column Totals: (A) (B)
5				
0				Prevalence Index = B/A =
b	-	•		Hydrophytic Vegetation Indicators:
7				1 - Rapid Test for Hydrophytic Vegetation
8				2 - Dominance Test is >50%
9.				$2$ Provalance Index is $\leq 2.0^1$
	10	= Total Cov	er	3 - Prevalence index is ±3.0
50% of total cover: 5	20% 0	f total cover:	2	4 - Morphological Adaptations (Provide supporting
Herb Stratum (Plot size:				data in Remarks or on a separate sheet)
	5	1	FAN	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. Laper sp	10		ENCLU	
2. USmindor regaris	10		MUM	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
3				be present, unless disturbed or problematic.
4				Definitions of Four Vegetation Strata:
5.				
6				Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or
	-	-		more in diameter at breast height (DBH), regardless of
1	-			neight.
8				Sapling/Shrub - Woody plants, excluding vines, less
9				than 3 in. DBH and greater than or equal to 3.28 ft (1
10				m) tall.
11.				Herb – All herbaceous (non-woody) plants, regardless
	15	= Total Co	ver	of size, and woody plants less than 3.28 ft tall.
50% of total cover: 7.5	20%	of total cover	3	
Must Miss Chatter (Distained Fight of )				Woody vine – All woody vines greater than 3.28 ft in
Voody vine Stratum (Plot size)				neight.
1. <u>////////////////////////////////////</u>		-	-	•
2				• •
3	_			-
4.				Hydrophytic
5		_		Vegetation
-		= Total Co	ver	Present? Yes V No
50% of total cover:	20%	of total cove	r:	
Demoder (include photo numbers here or on a sonarate	sheet)			-
Remarks: (include proto numbers here of on a separate	Sheet.)			1111 1
Primarily unversional s	010	7 cer	minus	w/ little else
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	20			

### Sampling Point: WEH wet

Profile Description: (Describe to the dep	th needed to docur	nent the indi	cator or confirm	n the absence of i	ndicators.)
Depth <u>Matrix</u>	Redo	x Features			
(inches) Color (moist) %	Color (moist)	<u>%</u> T	ype <sup>1</sup> Loc <sup>2</sup>		Remarks
0-2 10VR 2/2 100	N/A_			Loun	
7-10 10YR 3/ 90	10YR 4/4	10%	CM	Loum	
12-124 121/2 3/1 /120				S. Im	
10-12 10 110 21 - 1011					
				· <u> </u>	
-					
	The second s				
			und Grains		Pore Liping M=Matrix
Hydric Soil Indicators:	-Reduced Matrix, M	S-IVIASKED Sa	inu Grains.		rs for Problematic Hvdric Soils <sup>3</sup> :
Histosol (A1)	Dark Surface	e (S7)		2 cm	Muck (A10) (MLRA 147)
Histic Epipedon (A2)	Polyvalue Be	elow Surface (	(S8) (MLRA 147	, 148) Coas	st Prairie Redox (A16)
Black Histic (A3)	Thin Dark Su	urface (S9) (M	ILRA 147, 148)	(N	ILRA 147, 148)
Hydrogen Sulfide (A4)	Loamy Gleye	ed Matrix (F2)		Pied	mont Floodplain Soils (F19)
Stratified Layers (A5)	Depleted Ma	trix (F3)		(№	ILRA 136, 147)
2 cm Muck (A10) (LRR N)	Redox Dark	Surface (F6)	7)	Very	Shallow Dark Surface (TF12)
Thick Dark Surface (A12)	Bedox Depr	essions (F8)	')	Our	
Sandy Mucky Mineral (S1) (LRR N,	Iron-Mangar	ese Masses (	(F12) (LRR N,		
MLRA 147, 148)	MLRA 13	6)			
Sandy Gleyed Matrix (S4)	Umbric Surfa	ace (F13) (ML	.RA 136, 122)	<sup>3</sup> Indicat	tors of hydrophytic vegetation and
Sandy Redox (S5)	Piedmont Fl	oodplain Soils	(H19) (MLRA 1	48) wetlar	nd hydrology must be present,
Stripped Matrix (S6) Restrictive Laver (if observed):			(WILKA 127, 14		s disturbed of problematic.
Type:					
Depth (inches):				Hydric Soil Pr	esent? Yes V
Pomarke:					
INCINAINS.					

	() <del>[</del> ]
	WFILS
WETLAND DETERMINATION DATA FOR	RM – Eastern Mountains and Piedmont Region
Project/Site: I-4406 NRTR Addendum (	City/County: Buncombe Co Sampling Date: 4/28/15
Applicant/Owner:	State: NC Sampling Point: WFA DS
Investigator(s): R Smith + May	Section, Township, Range: Askenille
Landform (hillslope, terrace, etc.): hillslope	al relief (concave, convex, none):
Subregion (LRR or MLRA): 30	21 Long: =83.551420 Datum MAD 83
Soil Map Unit Name: Tote Lanno 15 to 20% 5)	NWI classification: Head when Frank
Are climatic / hydrologic conditions on the site typical for this time of year	ar2 Ves X No (If no explain in Pomarks )
Are Vegetation Soil or Hydrology significantly of	disturbed?
Are Vegetation Soil or Hydrology signmeanaly of	
	orematic: NO (in needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing	sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No X	is the Sampled Area
Hydric Soil Present? Yes No X	within a Wetland? Yes No
Wetland Hydrology Present? Yes No X	
Reliairs.	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) True Aquatic Pla	ants (B14) Sparsely Vegetated Concave Surface (B8)
Age of the standard sta	pheres on Living Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Rec	duced Iron (C4) Dry-Season Water Table (C2)
Sediment Deposits (B2) Recent Iron Red	luction in Tilled Soils (C6) Crayfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surfa	Lice (C7) Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain ir	1 Remarks) Stunted or Stressed Plants (D1)
Inundation Visible on Aerial Imagery (B7)	Geomorphic Position (D2)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No A Depth (inches):	·
Water Table Present? Yes <u>No X</u> Depth (inches):	X
Saturation Present? Yes No Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? Yes No
Describe Recorded Data (stream gauge, monitoring well, aerial photos	s, previous inspections), if available:
Demarke:	
Keniaiks.	

205	Absolute	Dominant	Indicator	Dominance Test worksheet:
ree Stratum (Plot size:)	<u>% Cover</u>	Species?	<u>Status</u>	Number of Dominant Species
Cruter cus on by	00		FACU	That Are OBL, FACW, or FAC: (A)
Cornus Llonda	12		FACU	Total Number of Dominant
Oxyaeral um acholenm	10		UPL	Species Across All Strata: (B)
Figura Strabus			FALU	Percent of Dominant Species
				That Are OBL, FACW, or FAC: _25/6 (A/B)
				Drevelance in device she is a
	0.0			Trevalence index worksneet:
11	90	= Total Cov	er	Nultiply by:
50% of total cover: 45	20% of	total cover:	ID	
apling/Shrub Stratum (Plot size:)	10	/		FACW species x 2 =
I INUS STOODAS	60		FACU	FAC species x 3 =
Carpinus Caroliniana	25	V	FAC	FACU species x 4 =
Ilex opaca	5			UPL species x 5 =
				Column Totals: (A) (B)
				Provalance Index - P/A -
				Hydrophytic Vogotation Indicatory
				1 Depid Test for Ludrenbutic Venetation
				1 - Rapid Test for Hydrophytic Vegetation
				2 - Dominance Test is >50%
	90	= Total Cov	er	3 - Prevalence Index is ≤3.0
50% of total cover:	20% of	total cover:	18	4 - Morphological Adaptations' (Provide supporting
erb Stratum (Plot size:5 )				data in Remarks or on a separate sheet)
Llex opaca	10		FACU	Problematic Hydrophytic Vegetation (Explain)
Hexastylis sp.	2		FAC	1
Maianthemism recempsium	2		FALD	Indicators of hydric soil and wetland hydrology must
				Definitions of Four Venetation Other
				Definitions of Four vegetation Strata:
				Tree - Woody plants, excluding vines, 3 in. (7.6 cm) or
				more in diameter at breast height (DBH), regardless of
				noight.
				Sapling/Shrub – Woody plants, excluding vines, less
				than 3 ln. DBH and greater than or equal to 3.28 ft (1 m) tall.
1				
I	14	- Tatal Cau		Herb – All herbaceous (non-woody) plants, regardless
50% of total cover:	20% of	total cover	er 1.8	or size, and woody plants less than 5.20 it tall.
(and) Vine Stratum (Plot size: 30 )	2070 01	total cover.	dia an	Woody vine - All woody vines greater than 3.28 ft in
				height.
		-		
		·	·	
· · · · · · · · · · · · · · · · · · ·		·		
·		·		Hydrophytic
•			·	Vegetation Present? Ves No
50% of total cover:	20%	= I otal Cov	/er	
50% of total cover.	20% 0	total cover	·	
ventaints. (include prioto numbers nere or on a separate s	nee(.)			

Sampling Point: WFH 4

Profile Description: (Describe to the dep	th needed to document the indicator or confirm	the absence of indicators.)
Depth <u>Matrix</u>	Redox Features	
(inches) Color (moist) %	<u>Color (moist)</u> <u>%</u> <u>Type<sup>1</sup></u> Loc <sup>2</sup>	Remarks
0-4 1043/4 100		L
4-12+ 7.5YR 4/6 100		Ch
	이번 전 것은 것은 것이 같아? 승규는 가지 않는 것이다.	
<sup>1</sup> Type: C=Concentration D=Depletion PM		
Hydric Soil Indicators:	-Reduced Matrix, MS-Masked Sand Grains.	Location: PL=Pore Lining, M=Matrix.
Histosol (A1)	Dark Surface (SZ)	Indicators for Problematic Hydric Solls :
Histic Eninedon (A2)	Dark Surface (S7) Polyvalue Below Surface (S8) (ML DA 147	2 cm Muck (A10) (MLRA 147)
Black Histic (A3)	Thin Dark Surface (S9) (MLRA 147, 148)	(MI DA 147 149)
Hvdrogen Sulfide (A4)	Loamy Gleved Matrix (F2)	Piedmont Floodplain Soils (F19)
Stratified Lavers (A5)	Depleted Matrix (F3)	(MI RA 136 147)
2 cm Muck (A10) (LRR N)	Redox Dark Surface (F6)	Very Shallow Dark Surface (TE12)
Depleted Below Dark Surface (A11)	Depleted Dark Surface (F7)	Other (Explain in Remarks)
Thick Dark Surface (A12)	Redox Depressions (F8)	
Sandy Mucky Mineral (S1) (LRR N,	Iron-Manganese Masses (F12) (LRR N,	
MLRA 147, 148)	MLRA 136)	
Sandy Gleyed Matrix (S4)	Umbric Surface (F13) (MLRA 136, 122)	<sup>3</sup> Indicators of hydrophytic vegetation and
Sandy Redox (S5)	Piedmont Floodplain Soils (F19) (MLRA 14	<li>wetland hydrology must be present,</li>
Stripped Matrix (S6)	Red Parent Material (F21) (MLRA 127, 147	) unless disturbed or problematic.
Restrictive Layer (if observed):		
Туре:		
Depth (inches):		Hydric Soil Present? Yes No
Remarks:		

WETLAND RATING WORKSHEET Fourth Version Project Name I 400 Addendum Nearest Road Blue Ridge County Buncombe Go Wetland area <u>Ol</u>acres Wetland width feet Name of evaluator P. May /B Smith Date 4/28 Wetland location Adjacent land use on pond or lake (within <sup>1</sup>/<sub>2</sub> mile upstream, upslope, or radius) < on perennial stream ✗ forested/natural vegetation 100% \_\_\_\_ on intermittent stream agriculture, urban/suburban % within interstream divide impervious surface % other: Soil series: **Dominant vegetation** predominantly organic - humus, muck, or (1) Carpinus peat (2) Royal fern predominantly mineral - non-sandy \_\_\_\_ predominantly sandy (3) **Hydraulic factors Flooding and wetness** \_\_\_\_\_ steep topography semipermanently to permanently flooded or \_\_\_\_ ditched or channelized inundated total wetland width  $\geq 100$  feet seasonally flooded or inundated intermittently flooded or temporary surface water  $\times$  no evidence of flooding or surface water Wetland type (select one)\*

Bottomland hardwood forest	Pine savanna
/ Headwater forest	Freshwater marsh
Swamp forest	Bog/fen
Wet flat	Ephemeral wetland
Pocosin	Carolina bay
Bog forest	Other:

\* The rating system cannot be applied to salt or brackish marshes or stream channels

R	Water storage	x 4.00 = 4	Wetland
A	Bank/Shorenne stabilization	x 4.00 =	rating
T	Pollutant removal	x 5.00 =	
Ι	Wildlife habitat	x 2.00 =	24
N	Aquatic life value	x 4.00 = 8	< 1
G	Recreation/Education	x 1.00 =	
** Ad	d 1 point if in sensitive watershed and >10% nonpoi	nt source disturbance within 1/2 mile upstrea	am, upslope, or radius

WFL	wet
WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region	
Project/Site: I-4406 BE City/County: Buncompt. Sampling Date: 4/28/15	
Applicant/Owner: NCDOT State: NC Sampling Point:	
Investigator(s): B Smith & P. May Section Township Pages: Ashadille	
landform (hillelong torrace ate): (100 a) the set of the set relief (and set of the set	
Subregion (LRR or MLRA): 150 Lat: 26, 241000 Long: -82.562.7621 Datum: MAD 83	
Soil Map Unit Name: EVAC ON - COMPLEX NWI classification: Head wodes Forces	
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)	
Are Vegetation, Soil, or Hydrology significantly disturbed? Ю Are "Normal Circumstances" present? Yes No	
Are Vegetation, Soil, or Hydrology naturally problematic? 🛛 N 🖉 (If needed, explain any answers in Remarks.)	
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.	
Hydrophytic Vegetation Present?     Yes     Yes     No       Hydric Soil Present?     Yes     X     No       Wetland Hydrology Present?     Yes     X     No       Remarks:     Is the Sampled Area within a Wetland?     Yes     X	
HYDROLOGY Wetland Hydrology Indicators: Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply) Surface Soil Cracks (B6)	]
X     Surface Water (A1)     True Aquatic Plants (B14)     Sparsely Vegetated Concave Surface (B8)	
High water Table (A2)     Hydrogen Sulfide Odor (C1)     Drainage Patterns (B10)	
Water Marks (B1) Presence of Reduced Iron (C4) Dry-Season Water Table (C2)	
Sediment Deposits (B2) Recent Iron Reduction in Tilled Soils (C6) X Crayfish Burrows (C8)	
Drift Deposits (B3) Thin Muck Surface (C7) Saturation Visible on Aerial Imagery (C9)	
Algal Mat or Crust (B4) Other (Explain in Remarks) Stunted or Stressed Plants (D1)	
Iron Deposits (B5) Geomorphic Position (D2)	
Inundation Visible on Aerial Imagery (B7) Shallow Aquitard (D3)	
Aquatic Fauna (B13) FAC-Neutral Test (D5)	
Field Observations:	
Surface Water Present? Yes X No Depth (inches):	
Water Table Present? Yes X No Depth (inches): 6	
Saturation Present? Yes X No Depth (inches):	
(includes capillary tringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
,,,,,,,,,,,,,,,,,,,,,	
Remarks:	

Outrin Children entire	Absolute Dominant Indicator	Dominance Test worksheet:
Liriodendron tulipitera	30 Status	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
		Total Number of Dominant Species Across All Strata: (B)
		Percent of Dominant Species
		Prevalence Index worksheet:
	27	Total % Cover of: Multiply by:
500/ find 1	= Total Cover	
50% of total cover:	20% of total cover:	
pling/Shrub Stratum (Plot size: Cot, we )		FACVV species x 2 =
		FAC species x 3 =
		FACU species x 4 =
		UPL species x 5 =
		Column Totals: (A) (B)
		Prevalence Index = B/A =
		Hydrophytic Vegetation Indicators:
	· ·	1 - Rapid Test for Hydrophytic Vegetation
		2 - Dominance Test is >50%
		3 - Prevalence Index is ≤3.0 <sup>1</sup>
	= Total Cover	4 - Morphological Adaptations <sup>1</sup> (Provide supporting
50% of total cover:	20% of total cover:	data in Remarks or on a senarate sheet)
rb Stratum (Plot size:)		Problematic Hydrophytic Vagatation <sup>1</sup> (Evaluate)
Impatiens COPEnsis	15 J FACW	
Osmunda Cinnamomen	5 FACH	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Carex sp.	3 FACM	Definitions of Four Vegetation Strata:
		<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
		<b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1
•		
	45 = Total Cover	Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
50% of total cover: 🕰 🦽	20% of total cover:	
pody Vine Stratum (Plot size: entric)		woody vine – All woody vines greater than 3.28 ft in
Colostais ochiculatics	20 / FACU)	
An elect is sanica	10 1 511	
601. CV9 14,001. C9	TO V FAL	
	· · · · ·	
		Hydrophytic
		Vegetation V
	30 = Total Cover	Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)

T

Sampling Point: WFL wet

Profile Description: (Describe to the dept	n needed to docume	ent the ir	dicator	or confirm	n the absenc	e of indicators.)
Depth Matrix	Redox	Features				
(inches) Color (moist) %	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-6 1018312 45	7. SYR 5/8	5	C	M	SiL	
Park helper					- the	
AOCK DELOUD	· · ·					
· · · · · · · · · · · · · · · · · · ·						-
					2	
Hydric Soil Indicators:	Reduced Matrix, MS=	Masked	Sand Gra	ains.	-Location:	PL=Pore Lining, M=Matrix.
	D.I.C.C.	07)			Indi	cators for Problematic Hydric Soils":
Listic Eningdon (AC)	Dark Surface (	57)	(00) (			2 cm Muck (A10) (MLRA 147)
Histic Epipedon (A2)	Polyvalue Belo	w Surfac	æ (S8) (N	ILRA 147,	, 148)	Coast Prairie Redox (A16)
Black Histic (A3)	Thin Dark Surf	ace (S9)	(MLRA 1	47, 148)		(MLRA 147, 148)
Hydrogen Sulfide (A4)	Loamy Gleyed	Matrix (F	-2)			Piedmont Floodplain Soils (F19)
Stratified Layers (A5)	Depleted Matri	x (F3)				(MLRA 136, 147)
2 cm Muck (A10) (LRR N)	Redox Dark Su	Inface (Fe	6)			Very Shallow Dark Surface (TF12)
Depieted Below Dark Surface (A11)	Depleted Dark	Surface	(F7)			Other (Explain in Remarks)
Sondy Mucky Minorol (S1) (LBB N	Redox Depress		) - (E40) (I	DDN		
Sandy Mucky Mineral (ST) (LRR N,		se Masse	es (F12) (I	LRR N,		가 손님은 아이들에서 집에 집에 많다.
WILRA 147, 148) Sandy Cloved Matrix (S4)	WILRA 136)	(540) /		400	3.	
Sandy Gleyed Matrix (S4)	Umbric Surface	e (F13) (I	WLRA 13	6, 122)	°In	dicators of hydrophytic vegetation and
Sandy Redox (S5)	Pleamont Floor	dplain Sc	DIIS (F19)	(MLRA 14	18) v	vetland hydrology must be present,
Supped Matrix (So)		iterial (F2	21) (MLR.	A 127, 14	/) u	nless disturbed or problematic.
Restrictive Layer (if observed):						
Гуре:						k
Depth (inches):					Hydric So	il Present? Yes No
Remarks:						
						이 같은 사람이 많은 것을 많이 많을까?
						회사이는 사실은 영화 영화 전에 가지 않는다.
						, 영소 방송이 있는 것은 것은 것은 것은 것을 받았다.
						이렇는 것 같아요? 김 것은 것 모님이 많아?
						이 말 같은 것이 않아? 귀엽 집에 들었다. 것이 많이
						나는 눈 이 가슴이 걸려 가슴을 생겨 넣었다.
						김 씨는 김 한 일이에 가슴을 물었다. 것이 같은 것이 없다.
						그럼 그럼 도난 여자 물질을 감각하는 휴가에
						이가 물건가 많이 많이 많다. 관람이 많이

	WFL up
WETLAND DETERMINATION DATA FORM -	- Eastern Mountains and Piedmont Region
Project/Site: I-4400 NRTR Hadendum City/Ca	ounty: Buncombe Sampling Date: 4/26/15
Applicant/Owner: NCDO,T	State: 1/C Sampling Point: MEL up
Investigator(s): R Sm. Vh + P. Maya Section	n Township Dango: Asharit 10
Landform (hillslope terroce etc.) hillslope	n, rownship, kange.
	ef (concave, convex, none): Slope (%):
Subregion (LRR or MLRA): 150 Lat: 36.2414757	Long: <u>-83,5627127</u> Datum: <u>NAD&amp;3</u>
Soil Map Unit Name: Ward- Councel Complex	NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Ye	es $\chi$ No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly disturb	Ded? Ma Are "Normal Circumstances" present? Ves X No
Are Vegetation Soil or Hydrology naturally problems	
	No (in needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sam	pling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No X	
Hydric Soil Present? Yes No X	Is the Sampled Area
Wetland Hydrology Present? Yes No X	within a Wetland? Yes No X
Remarks:	
Y	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two roquirod)
Primary Indicators (minimum of one is required: check all that apply)	Surface Soil Cracks (R6)
Surface Water (A1)	Surface Soli Clacks (Bo)
High Water Table (A2)	(C1) Drainage Dattorns (B10)
Saturation (A3) Oxidized Rhizosphere	es on Living Roots (C3) Moss Trim Lines (B16)
Water Marks (B1) Presence of Reduced	Iron (C4) Dry-Season Water Table (C2)
Sediment Deposits (B2) Recent Iron Reduction	n in Tilled Soils (C6) Cravfish Burrows (C8)
Drift Deposits (B3) Thin Muck Surface (C	7) Saturation Visible on Aerial Imagery (C9)
Algal Mat or Crust (B4) Other (Explain in Rem	narks) Stunted or Stressed Plants (D1)
Iron Deposits (B5)	Geomorphic Position (D2)
Inundation Visible on Aerial Imagery (B7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Microtopographic Relief (D4)
Aquatic Fauna (B13)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inches):	
Water Table Present? Yes No X Depth (inches):	V
Saturation Present? Yes No Depth (inches):	Wetland Hydrology Present? Yes No
(includes capillary fringe) Describe Recorded Data (stream gauge monitoring well, aerial photos, prev	vious inspections) if available:
Remarks:	
	집에 가지 않는 것을 만들었다. 방법 것 같아요. 가지 않는 것
	그는 그는 것 같은 것은 아이들을 것을 것 것 같아요. 것 같아요.
	한 것 같은 것 같
	이가는 것 같은 것이 가지 않는 것이 없어야 하는 것이 같아요. 이 것이 않는 것이 없는 것이 않는 것이 없는 것이 않는 것이 없는 것이 없는 것이 않는 것이 없는 것이 않는 것이 없는 것이 없는 것이 없는 것이 없는 것이 않는 것이 없는 것이 않는 것이 않는 것이 없는 것이 않는 것이 없는 것이 없는 것이 않는 것이 않는 것이 없는 것이 않는 것이 없는 것이 않는 것이 없는 것이 않는 것이 없는 것이 않는 것이 없는 것이 없는 것이 않는 것이 없는 것이 않는 것이 않는 것이 않는 것이 없는 것이 않는 것이 않는 것이 않는 것이 않는 것이 않는 것이 없는 것이 않는 것이 않는 것이 않 않는 것이 않이 않이 않이 않이 않는 것이 않는 않이
	이 같은 것이 있는 것이 있는 것이 같은 것이 있는 것이 있 같은 것이 같은 것이 같은 것이 같은 것이 있는 것
	물건 것 이 것 같아. 이 것 같아. 이 것 같아. 것 이 것 같아.
	사람은 것이 이렇게 한 것을 알았다. 이렇게 가지 않는 것
	방송과 비사가 가슴 방송을 가지 않는 것을 가장을 통하는 것을 하는 것이 없다.

VEGETATION (Four Strata) – Use scientific n	ames of	plants.		Sampling F	Point: WFL	up
	Absolute	Dominant	Indicator	Dominance Test worksheet:	:	
<u>Tree Stratum</u> (Plot size: <u>&gt; v v</u> ) 1. <u>runus</u> seroting	<u>% Cover</u>	Species?	<u>Status</u> FACU	Number of Dominant Species That Are OBL, FACW, or FAC	2	(A)
2. Liniod Guaron tullpiterg	40		FACU	Total Number of Dominant Species Across All Strata:	9	(B)
4 5 6				Percent of Dominant Species That Are OBL, FACW, or FAC	22%	(A/B)
7				Prevalence Index worksheet	t:	
	25	- Total Car		Total % Cover of:	Multiply by:	
50% of total cover: 42.4	20% of	total cover:		OBL species	x 1 =	
Sapling/Shrub Stratum (Plot size: )5'v		total oover.		FACW species	x 2 =	
1 Presus Serating	10		ENC D.	FAC species	×3 =	<b>-</b>
2 Platance Occupation	5		PACU		× 0 =	
2. Jorgans occarenteris			FALM		x 4 =	-
3 <u>nusus sy</u>	-		FACO.	OPL species	x 5 =	-
4				Column Totals:	(A)	(B)
5				Prevalence Index = B/A	_	
6				Hydrophytic Vegetation Indi	icatora:	
7				1 Papid Tast for Hudron	butic Venetation	
8			_		nytic vegetation	
9				2 - Dominance Test is >50	J%	
	20	= Total Cov	er	$\_$ 3 - Prevalence Index is $\leq$ 3	3.0'	
50% of total cover: <u>10</u>	20% of	total cover:	4	4 - Morphological Adaptat	tions' (Provide sup	oporting
Herb Stratum (Plot size:)				data in Remarks or on	a separate sheet)	
1. Podophilliam SP	40	V	FACU	Problematic Hydrophytic V	Vegetation <sup>1</sup> (Expla	in)
2. Polystichum accostichides	20	All and a second	EACI			
3 Osmunta Cinomomea	20		FACL	<sup>1</sup> Indicators of hydric soil and w	vetiand hydrology	must
A			KUCW	be present, unless disturbed of	or problematic.	
5.				Definitions of Four Vegetation	on Strata:	
6				Tree - Woody plants, excludir	ng vines, 3 in. (7.6	cm) or
7.		*******		more in diameter at breast heit	ight (DBH), regard	less of
8				noight.		
9				Sapling/Shrub – Woody plan	ts, excluding vines	s, less
10.				m) tall.	an or equal to 0.20	516(1
11.						
	80	= Total Cov	or	of size and woody plants less	/oody) plants, rega	ardless
50% of total cover: 40	20% of	total cover:	16		, man 0.20 m tail.	
Woody Vine Stratum (Plot size: 30 r )				Woody vine - All woody vine	s greater than 3.2	8 ft in
1 Celasticus ochiculatus	30		CAU	neight.		
2		· · · · · · · · · · · · · · · · · · ·	<u>v nuv</u>			
2	•					
4	-			Hydrophytic	./	
5				Vegetation	NoX	
		= Total Cov	er	Fiesentr Tes	NO	
50% of total cover:	20% of	total cover:				
Remarks: (Include photo numbers here or on a separate s	sheet.)					

Sampling Point: WFL up

Profile Description: (Describe to the c	lepth needed to docu	ment the indicator	or confirm	the absence of i	ndicators.)
Depth Matrix	Rede	ox Features			
(inches) Color (moist) %	Color (moist)	<u>%</u> Type <sup>1</sup>	_Loc <sup>2</sup>		Remarks
0-4 7.5YR 3/4 100	Constate a synony construction of the			L	
4-12+ 7.5YR 4/6 100	-			CL	
					The second s
			-		
<sup>1</sup> Type: C=Concentration, D=Depletion, F	RM=Reduced Matrix, M	S=Masked Sand G	ains.	<sup>2</sup> Location: PL=P	ore Lining, M=Matrix.
Hydric Soil Indicators:				Indicators	s for Problematic Hydric Soils <sup>3</sup> :
Histosol (A1)	Dark Surface	e (S7)		2 cm	Muck (A10) (MLRA 147)
HISTIC Epipedon (A2) Black Histic (A2)	Polyvalue B	elow Surface (S8) (I	WLRA 147,	148) Coast	Prairie Redox (A16)
Hydrogen Sulfide (A4)		ed Matrix (E2)	147, 148)	(MI Diada	LRA 147, 148)
Stratified Layers (A5)	Depleted Ma	atrix (F3)			RA 136 147)
2 cm Muck (A10) (LRR N)	Redox Dark	Surface (F6)		Verv	Shallow Dark Surface (TF12)
Depleted Below Dark Surface (A11)	Depleted Da	ark Surface (F7)		Other	(Explain in Remarks)
Thick Dark Surface (A12)	Redox Depr	essions (F8)			
Sandy Mucky Mineral (S1) (LRR N,	Iron-Mangar	nese Masses (F12)	(LRR N,		
MLRA 147, 148) Sandy Cloved Metrix (S4)	MLRA 13	36)		3	
Sandy Bedox (S5)	Umbric Sum Piedmont Fl	ace (F13) (MLRA 1)	36, 122)	"Indicate	brs of hydrophytic vegetation and
Stripped Matrix (S6)	Red Parent	Material (F21) (MI F	A 127 147	o) wetiand	d nydrology must be present,
Restrictive Layer (if observed):					distanced of problematic.
Туре:					
Depth (inches):				Hydric Soil Pre	sent? Yes No
Remarks:					

	WF
WETLAND RATING	WORKSHEET Fourth Version
Project Name <u>I-4400</u> <u>ARTR</u> <u>Addendum</u> Nearest Road <u>Blue Ridge Pkwy</u> County <u>Buncombe</u> Wetland area <u>D3</u> acres Wetland width <u>40</u> feet Name of evaluator <u>B. Smith + P. May</u> <u>Date 4</u> 28/15	
Wetland location on pond or lake on perennial stream on intermittent stream within interstream divide other: Q + 10 m	Adjacent land use         (within ½ mile upstream, upslope, or radius)        forested/natural vegetation        agriculture, urban/suburban        %         impervious surface
Soil series: predominantly organic - humus, muck, or peat predominantly mineral - non-sandy predominantly sandy	Dominant vegetation (1) <u>Oviental B</u> ; Hersweet (2) <u>Tulip poplar</u> (3)
Hydraulic factors steep topography ditched or channelized total wetland width ≥ 100 feet	Flooding and wetness 
Wetland type (select one) <sup>*</sup> Bottomland hardwood forest X Headwater forest Swamp forest	Pine savanna Freshwater marsh Bog/fen

- Wet flat
- Pocosin
- Bog forest

- \_\_\_\_\_ Ephemeral wetland
- \_\_\_\_Carolina bay
- Other:

\* The rating system cannot be applied to salt or brackish marshes or stream channels

