

**NC WAM WETLAND ASSESSMENT FORM**  
**Accompanies User Manual Version 4.1**  
**Rating Calculator Version 4.1**

<b>Wetland Site Name</b> Bridge 770149		<b>Date</b> 5/2/2017
<b>Wetland Type</b>	Riverine Swamp Forest	<b>Assessor Name/Organization</b> Eric Black/SEPI
<b>Level III Ecoregion</b>	Southeastern Plains	<b>Nearest Named Water Body</b> First Swamp
<b>River Basin</b>	Lumber	<b>USGS 8-Digit Catalogue Unit</b> 03040204
<input checked="" type="radio"/> Yes <input type="radio"/> No <b>Precipitation within 48 hrs?</b>		<b>Latitude/Longitude (dec-degrees)</b> 34.604803 / -79.318765
<b>Evidence of stressors affecting the assessment area (may not be within the assessment area)</b> Please circle and/or make note on last page if evidence of stressors is apparent. Consider departure from reference, if appropriate, in recent past (for instance, approximately within 10 years). Noteworthy stressors include, but are not limited to the following. <ul style="list-style-type: none"><li>• Hydrological modifications (examples: ditches, dams, beaver dams, dikes, berms, ponds, etc.)</li><li>• Surface and sub-surface discharges into the wetland (examples: discharges containing obvious pollutants, presence of nearby septic tanks, underground storage tanks (USTs), hog lagoons, etc.)</li><li>• Signs of vegetation stress (examples: vegetation mortality, insect damage, disease, storm damage, salt intrusion, etc.)</li><li>• Habitat/plant community alteration (examples: mowing, clear-cutting, exotics, etc.)</li></ul>		
<b>Is the assessment area intensively managed?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No		
<b>Regulatory Considerations (select all that apply to the assessment area)</b> <ul style="list-style-type: none"><li><input type="checkbox"/> Anadromous fish</li><li><input type="checkbox"/> Federally protected species or State endangered or threatened species</li><li><input type="checkbox"/> NCDWQ riparian buffer rule in effect</li><li><input type="checkbox"/> Abuts a Primary Nursery Area (PNA)</li><li><input type="checkbox"/> Publicly owned property</li><li><input type="checkbox"/> N.C. Division of Coastal Management Area of Environmental Concern (AEC) (including buffer)</li><li><input type="checkbox"/> Abuts a stream with a NCDWQ classification of SA or supplemental classifications of HQW, ORW, or Trout</li><li><input type="checkbox"/> Designated NCNHP reference community</li><li><input type="checkbox"/> Abuts a 303(d)-listed stream or a tributary to a 303(d)-listed stream</li></ul>		
<b>What type of natural stream is associated with the wetland, if any? (check all that apply)</b> <ul style="list-style-type: none"><li><input checked="" type="radio"/> Blackwater</li><li><input type="radio"/> Brownwater</li><li><input type="checkbox"/> Tidal (if tidal, check one of the following boxes)   <input type="radio"/> Lunar   <input type="radio"/> Wind   <input type="radio"/> Both</li></ul>		
<b>Is the assessment area on a coastal island?</b> <input type="radio"/> Yes <input checked="" type="radio"/> No		
<b>Is the assessment area's surface water storage capacity or duration substantially altered by beaver?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No		
<b>Does the assessment area experience overbank flooding during normal rainfall conditions?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No		

**1. Ground Surface Condition/Vegetation Condition – assessment area condition metric**

**Check a box in each column.** Consider alteration to the ground surface (GS) in the assessment area and vegetation structure (VS) in the assessment area. Compare to reference wetland if applicable (see User Manual). If a reference is not applicable, then rate the assessment area based on evidence of an effect.

GS      VS

- |                                    |                                    |  |
|------------------------------------|------------------------------------|--|
| <input checked="" type="radio"/> A | <input checked="" type="radio"/> A | Not severely altered   |
| <input type="radio"/> B            | <input type="radio"/> B            | Severely altered over a majority of the assessment area (ground surface alteration examples: vehicle tracks, excessive sedimentation, fire-plow lanes, skidder tracks, bedding, fill, soil compaction, obvious pollutants) (vegetation structure alteration examples: mechanical disturbance, herbicides, salt intrusion [where appropriate], exotic species, grazing, less diversity [if appropriate], hydrologic alteration) |

**2. Surface and Sub-Surface Storage Capacity and Duration – assessment area condition metric**

**Check a box in each column.** Consider surface storage capacity and duration (Surf) and sub-surface storage capacity and duration (Sub). Consider both increase and decrease in hydrology. Refer to the current NRCS lateral effect of ditching guidance for North Carolina hydric soils (see USACE Wilmington District website) for the zone of influence of ditches in hydric soils. A ditch ≤ 1 foot deep is considered to affect surface water only, while a ditch > 1 foot deep is expected to affect both surface and ditch sub-surface water. Consider tidal flooding regime, if applicable.

Surf      Sub

- |                                    |                                    |  |
|------------------------------------|------------------------------------|--|
| <input checked="" type="radio"/> A | <input checked="" type="radio"/> A | Water storage capacity and duration are not altered.   |
| <input type="radio"/> B            | <input type="radio"/> B            | Water storage capacity or duration are altered, but not substantially (typically, not sufficient to change vegetation).  |
| <input type="radio"/> C            | <input type="radio"/> C            | Water storage capacity or duration are substantially altered (typically, alteration sufficient to result in vegetation change) (examples: draining, flooding, soil compaction, filling, excessive sedimentation, underground utility lines). |

**3. Water Storage/Surface Relief – assessment area/wetland type condition metric (answer for non-marsh wetlands only)**

**Check a box in each column for each group below.** Select the appropriate storage for the assessment area (AA) and the wetland type (WT).

AA      WT

- |     |                                    |                                    |   |
|-----|------------------------------------|------------------------------------|---|
| 3a. | <input checked="" type="radio"/> A | <input checked="" type="radio"/> A | Majority of wetland with depressions able to pond water > 1 foot deep           |
|     | <input type="radio"/> B            | <input type="radio"/> B            | Majority of wetland with depressions able to pond water 6 inches to 1 foot deep |
|     | <input type="radio"/> C            | <input type="radio"/> C            | Majority of wetland with depressions able to pond water 3 to 6 inches deep      |
|     | <input type="radio"/> D            | <input type="radio"/> D            | Depressions able to pond water < 3 inches deep                                  |
| 3b. | <input checked="" type="radio"/> A |                                    | Evidence that maximum depth of inundation is greater than 2 feet                |
|     | <input type="radio"/> B            |                                    | Evidence that maximum depth of inundation is between 1 and 2 feet               |
|     | <input type="radio"/> C            |                                    | Evidence that maximum depth of inundation is less than 1 foot                   |

**4. Soil Texture/Structure – assessment area condition metric**

**Check a box from each of the three soil property groups below.** Dig soil profile in the dominant assessment area landscape feature. Make soil observations within the 12 inches. Use most recent National Technical Committee for Hydric Soils guidance for regional indicators.

- 4a. ☒ A Sandy soil  
☐ B Loamy or clayey soils exhibiting redoximorphic features (concentrations, depletions, or rhizospheres)  
☐ C Loamy or clayey soils not exhibiting redoximorphic features  
☐ D Loamy or clayey gleyed soil  
☐ E Histosol or histic epipedon
- 4b. ☒ A Soil ribbon < 1 inch  
☐ B Soil ribbon ≥ 1 inch
- 4c. ☒ A No peat or muck presence  
☐ B A peat or muck presence

**5. Discharge into Wetland – opportunity metric**

**Check a box in each column.** Consider surface pollutants or discharges (Surf) and sub-surface pollutants or discharges (Sub). Examples of sub-surface discharges include presence of nearby septic tank, underground storage tank (UST), etc.

- | Surf                               | Sub                                |   |
|------------------------------------|------------------------------------|---|
| <input checked="" type="radio"/> A | <input checked="" type="radio"/> A | Little or no evidence of pollutants or discharges entering the assessment area  |
| <input type="radio"/> B            | <input type="radio"/> B            | Noticeable evidence of pollutants or discharges entering the wetland and stressing, but not overwhelming the treatment capacity of the assessment area  |
| <input type="radio"/> C            | <input type="radio"/> C            | Noticeable evidence of pollutants or discharges (pathogen, particulate, or soluble) entering the assessment area and potentially overwhelming the treatment capacity of the wetland (water discoloration, dead vegetation, excessive sedimentation, odor) |

**6. Land Use – opportunity metric**

**Check all that apply (at least one box in each column).** Evaluation involves a GIS effort with field adjustment. Consider sources draining to assessment area within entire upstream watershed (WS), within 5 miles and within the watershed draining to the assessment area (5M), and within 2 miles and within the watershed draining to the assessment area (2M). Effective riparian buffers are considered to be 50 feet wide in the Coastal Plain and Piedmont ecoregions and 30 feet wide in the Blue Ridge Mountains ecoregion.

- | WS                                    | 5M                                    | 2M                                    |  |
|---------------------------------------|---------------------------------------|---------------------------------------|--|
| <input type="checkbox"/> A            | <input type="checkbox"/> A            | <input type="checkbox"/> A            | ≥ 10% impervious surfaces  |
| <input checked="" type="checkbox"/> B | <input checked="" type="checkbox"/> B | <input checked="" type="checkbox"/> B | < 10% impervious surfaces  |
| <input checked="" type="checkbox"/> C | <input checked="" type="checkbox"/> C | <input checked="" type="checkbox"/> C | Confined animal operations (or other local, concentrated source of pollutants)   |
| <input type="checkbox"/> D            | <input type="checkbox"/> D            | <input type="checkbox"/> D            | ≥ 20% coverage of pasture  |
| <input checked="" type="checkbox"/> E | <input checked="" type="checkbox"/> E | <input checked="" type="checkbox"/> E | ≥ 20% coverage of agricultural land (regularly plowed land)  |
| <input type="checkbox"/> F            | <input type="checkbox"/> F            | <input type="checkbox"/> F            | ≥ 20% coverage of maintained grass/herb  |
| <input type="checkbox"/> G            | <input type="checkbox"/> G            | <input type="checkbox"/> G            | ≥ 20% coverage of clear-cut land   |
| <input type="checkbox"/> H            | <input type="checkbox"/> H            | <input type="checkbox"/> H            | Little or no opportunity to improve water quality. Lack of opportunity may result from hydrologic alterations that prevent drainage or overbank flow from affecting the assessment area. |

**7. Wetland Acting as Vegetated Buffer – assessment area/wetland complex condition metric**

- 7a. Is assessment area within 50 feet of a tributary or other open water?  
☒ Yes ☐ No If Yes, continue to 7b. If No, skip to Metric 8.  
Wetland buffer need only be present on one side of the water body. Make buffer judgment based on the average width of the wetland. Record a note if a portion of the buffer has been removed or disturbed.
- 7b. How much of the first 50 feet from the bank is wetland? Descriptor E should be selected if ditches effectively bypass the buffer.  
☒ A ≥ 50 feet  
☐ B From 30 to < 50 feet  
☐ C From 15 to < 30 feet  
☐ D From 5 to < 15 feet  
☐ E < 5 feet or buffer bypassed by ditches
- 7c. Tributary width. If the tributary is anastomosed, combine widths of channels/braids for a total width.  
☐ ≤ 15-feet wide ☒ > 15-feet wide ☐ Other open water (no tributary present)
- 7d. Do roots of assessment area vegetation extend into the bank of the tributary/open water?  
☒ Yes ☐ No
- 7e. Is tributary or other open water sheltered or exposed?  
☒ Sheltered – adjacent open water with width < 2500 feet and no regular boat traffic.  
☐ Exposed – adjacent open water with width ≥ 2500 feet or regular boat traffic.

**8. Wetland Width at the Assessment Area – wetland type/wetland complex metric (evaluate for riparian wetlands only)**

**Check a box in each column.** Select the average width for the wetland type at the assessment area (WT) and the wetland complex at the assessment areas (WC). See User Manual for WT and WC boundaries.

- | WT                                 | WC                                 |                       |
|------------------------------------|------------------------------------|-----------------------|
| <input checked="" type="radio"/> A | <input checked="" type="radio"/> A | ≥ 100 feet            |
| <input type="radio"/> B            | <input type="radio"/> B            | From 80 to < 100 feet |
| <input type="radio"/> C            | <input type="radio"/> C            | From 50 to < 80 feet  |
| <input type="radio"/> D            | <input type="radio"/> D            | From 40 to < 50 feet  |
| <input type="radio"/> E            | <input type="radio"/> E            | From 30 to < 40 feet  |
| <input type="radio"/> F            | <input type="radio"/> F            | From 15 to < 30 feet  |
| <input type="radio"/> G            | <input type="radio"/> G            | From 5 to < 15 feet   |
| <input type="radio"/> H            | <input type="radio"/> H            | < 5 feet              |

**9. Inundation Duration – assessment area condition metric**

Answer for assessment area dominant landform.

- ☐ A Evidence of short-duration inundation (< 7 consecutive days)  
☐ B Evidence of saturation, without evidence of inundation  
☒ C Evidence of long-duration inundation or very long-duration inundation (7 to 30 consecutive days or more)

**10. Indicators of Deposition – assessment area condition metric**

Consider recent deposition only (no plant growth since deposition).

- ☒ A Sediment deposition is not excessive, but at approximately natural levels.  
☐ B Sediment deposition is excessive, but not overwhelming the wetland.  
☐ C Sediment deposition is excessive and is overwhelming the wetland.

**11. Wetland Size – wetland type/wetland complex condition metric**

**Check a box in each column.** Involves a GIS effort with field adjustment. This metric evaluates three aspects of the wetland area: the size of the wetland type (WT), the size of the wetland complex (WC), and the size of the forested wetland (FW) (if applicable, see User Manual). See the User Manual for boundaries of these evaluation areas. If assessment area is clear-cut, select "K" for the FW column.

- | WT                                 | WC                                 | FW (if applicable)   |
|------------------------------------|------------------------------------|--|
| <input type="radio"/> A            | <input type="radio"/> A            | <input type="radio"/> A ≥ 500 acres  |
| <input type="radio"/> B            | <input type="radio"/> B            | <input type="radio"/> B From 100 to < 500 acres                            |
| <input type="radio"/> C            | <input type="radio"/> C            | <input type="radio"/> C From 50 to < 100 acres                             |
| <input type="radio"/> D            | <input type="radio"/> D            | <input type="radio"/> D From 25 to < 50 acres                              |
| <input type="radio"/> E            | <input type="radio"/> E            | <input type="radio"/> E From 10 to < 25 acres                              |
| <input checked="" type="radio"/> F | <input checked="" type="radio"/> F | <input checked="" type="radio"/> F From 5 to < 10 acres                    |
| <input type="radio"/> G            | <input type="radio"/> G            | <input type="radio"/> G From 1 to < 5 acres                                |
| <input type="radio"/> H            | <input type="radio"/> H            | <input type="radio"/> H From 0.5 to < 1 acre                               |
| <input type="radio"/> I            | <input type="radio"/> I            | <input type="radio"/> I From 0.1 to < 0.5 acre                             |
| <input type="radio"/> J            | <input type="radio"/> J            | <input type="radio"/> J From 0.01 to < 0.1 acre                            |
| <input type="radio"/> K            | <input type="radio"/> K            | <input type="radio"/> K < 0.01 acre <u>or</u> assessment area is clear-cut |

**12. Wetland Intactness – wetland type condition metric (evaluate for Pocosins only)**

- ☐ A Pocosin is the full extent (≥ 90%) of its natural landscape size.  
☐ B Pocosin is < 90% of the full extent of its natural landscape size.

**13. Connectivity to Other Natural Areas – landscape condition metric**

**13a. Check appropriate box(es) (a box may be checked in each column).** Involves a GIS effort with field adjustment. This evaluates whether the wetland is well connected (Well) and/or loosely connected (Loosely) to the landscape patch, the contiguous metric naturally vegetated area and open water (if appropriate). Boundaries are formed by four-lane roads, regularly maintained utility line corridors the width of a four-lane road or wider, urban landscapes, fields (pasture open and agriculture), or water > 300 feet wide.

Well      Loosely

- |                                    |                                    |  |
|------------------------------------|------------------------------------|--|
| <input type="radio"/> A            | <input checked="" type="radio"/> A | ≥ 500 acres  |
| <input checked="" type="radio"/> B | <input type="radio"/> B            | From 100 to < 500 acres  |
| <input type="radio"/> C            | <input type="radio"/> C            | From 50 to < 100 acres   |
| <input type="radio"/> D            | <input type="radio"/> D            | From 10 to < 50 acres  |
| <input type="radio"/> E            | <input type="radio"/> E            | < 10 acres   |
| <input type="radio"/> F            | <input type="radio"/> F            | Wetland type has a poor or no connection to other natural habitats |

**13b. Evaluate for marshes only.**

- ☐ Yes ☐ No Wetland type has a surface hydrology connection to open waters/stream or tidal wetlands.

**14. Edge Effect – wetland type condition metric (skip for all marshes)**

May involve a GIS effort with field adjustment. Estimate distance from wetland type boundary to artificial edges. Artificial edges include non-forested areas ≥ 40 feet wide such as fields, development, roads, regularly maintained utility line corridors and clear-cuts.

Consider the eight main points of the compass.

- ☐ A No artificial edge within 150 feet in all directions  
☒ B No artificial edge within 150 feet in four (4) to seven (7) directions  
☐ C An artificial edge occurs within 150 feet in more than four (4) directions or assessment area is clear-cut

**15. Vegetative Composition – assessment area condition metric (skip for all marshes and Pine Flat)**

- ☐ A Vegetation is close to reference condition in species present and their proportions. Lower strata composed of appropriate species, with exotic plants absent or sparse within the assessment area.  
☒ B Vegetation is different from reference condition in species diversity or proportions, but still largely composed of native species characteristic of the wetland type. This may include communities of weedy native species that develop after clearcutting or clearing. It also includes communities with exotics present, but not dominant, over a large portion of the expected strata.  
☐ C Vegetation severely altered from reference in composition. Expected species are unnaturally absent (planted stands of non-characteristic species or at least one stratum inappropriately composed of a single species). Exotic species are dominant in at least one stratum.

**16. Vegetative Diversity – assessment area condition metric (evaluate for Non-tidal Freshwater Marsh only)**

- ☐ A Vegetation diversity is high and is composed primarily of native species (<10% cover of exotics).  
☐ B Vegetation diversity is low or has > 10% to 50% cover of exotics.  
☐ C Vegetation is dominated by exotic species (>50% cover of exotics).

**17. Vegetative Structure – assessment area/wetland type condition metric**

17a. Is vegetation present?

- ☒ Yes ☐ No If Yes, continue to 17b. If No, skip to Metric 18.

17b. Evaluate percent coverage of assessment area vegetation **for all marshes only**. Skip to 17c for non-marsh wetlands.

- ☐ A ≥ 25% coverage of vegetation  
☐ B < 25% coverage of vegetation

17c. **Check a box in each column for each stratum.** Evaluate this portion of the metric **for non-marsh wetlands**. Consider structure in airspace above the assessment area (AA) and the wetland type (WT) separately.

	AA	WT	
Canopy	<input type="radio"/> A	<input type="radio"/> A	Canopy closed, or nearly closed, with natural gaps associated with natural processes
	<input checked="" type="radio"/> B	<input checked="" type="radio"/> B	Canopy present, but opened more than natural gaps
	<input type="radio"/> C	<input type="radio"/> C	Canopy sparse or absent
Mid-Story	<input type="radio"/> A	<input type="radio"/> A	Dense mid-story/sapling layer
	<input checked="" type="radio"/> B	<input checked="" type="radio"/> B	Moderate density mid-story/sapling layer
	<input type="radio"/> C	<input type="radio"/> C	Mid-story/sapling layer sparse or absent
Shrub	<input type="radio"/> A	<input type="radio"/> A	Dense shrub layer
	<input checked="" type="radio"/> B	<input checked="" type="radio"/> B	Moderate density shrub layer
	<input type="radio"/> C	<input type="radio"/> C	Shrub layer sparse or absent
Herb	<input type="radio"/> A	<input type="radio"/> A	Dense herb layer
	<input checked="" type="radio"/> B	<input checked="" type="radio"/> B	Moderate density herb layer
	<input type="radio"/> C	<input type="radio"/> C	Herb layer sparse or absent

**18. Snags – wetland type condition metric**

- ☐ A Large snags (more than one) are visible (> 12-inches DBH, or large relative to species present and landscape stability).  
☒ B Not A

**19. Diameter Class Distribution – wetland type condition metric**

- ☐ A Majority of canopy trees have stems > 6 inches in diameter at breast height (DBH); many large trees (> 12 inches DBH) are present.  
☒ B Majority of canopy trees have stems between 6 and 12 inches DBH, few are > 12-inch DBH.  
☐ C Majority of canopy trees are < 6 inches DBH or no trees.

**20. Large Woody Debris – wetland type condition metric**

Include both natural debris and man-placed natural debris.

- ☐ A Large logs (more than one) are visible (> 12 inches in diameter, or large relative to species present and landscape stability).  
☒ B Not A

**21. Vegetation/Open Water Dispersion – wetland type/open water condition metric (evaluate for Non-Tidal Freshwater Marsh only)**

Select the figure that best describes the amount of interspersions between vegetation and open water in the growing season. Patterned areas indicate vegetated areas, while solid white areas indicate open water.



**22. Hydrologic Connectivity – assessment area condition metric (evaluate for riparian wetlands only)**

Examples of activities that may severely alter hydrologic connectivity include intensive ditching, fill, sedimentation, channelization, diversion, man-made berms, beaver dams, and stream incision.

- ☒ A Overbank and overland flow are not severely altered in the assessment area.  
☐ B Overbank flow is severely altered in the assessment area.  
☐ C Overland flow is severely altered in the assessment area.  
☐ D Both overbank and overland flow are severely altered in the assessment area.

**Notes**

Portion of NE Quadrant is cleared/maintained for powerline easement. Upstream of bridge, outside study area existing wetland has been cleared/maintained for utility easement. Existing beaver dam was observed in SE quadrant of study area.