

Wetland Delineation and Species Review

Georgia Historic Heartland Mega Site
Highway 11 and Hollis Road
Social Circle, Newton and Walton County, Georgia

October 29, 2015

Terracon Project No. 49157647A



Prepared for:
Thomas and Hutton
Savannah, Georgia

Prepared by:
Terracon Consultants, Inc.
Duluth, Georgia

Offices Nationwide
Employee-Owned

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Geotechnical ■ Environmental ■ Construction Materials ■ Facilities



October 29, 2015

Thomas and Hutton
50 Park of Commerce Way
Savannah, GA 31405

Attn: Mr. Ralph Forbes
P: 912.721.4157
E: forbes.r@thomasandhutton.com

Re: Wetland Delineation
Georgia Historic Heartland Mega Site
Highway 11 and Hollis Road
Social Circle, Newton and Walton County, Georgia
Terracon Project No. 49157647A

Dear Mr. Forbes:

Terracon Consultants, Inc. (Terracon) is pleased to provide a review of the site conditions observed and available documentation pertaining to Waters of the US (WoUS), including wetlands, at the above-referenced site. This work was performed in general accordance with the scope of services outlined in Terracon Proposal No. P49140514R2 dated February 27, 2015. At your request, below is a summary of information pertaining to WoUS, including wetlands, at the site. This report was prepared for the exclusive reliance of Thomas and Hutton. Reliance by any other party (other than a regulatory agency having jurisdiction) is prohibited without the written authorization of Thomas and Hutton and Terracon.

1.0 GENERAL SITE DESCRIPTION

The site is located north of Highway 11 and Hollis Road in Social Circle, Newton and Walton County, Georgia. More specifically, the property is located at *Latitude: 33.632961 N, Longitude - 83.740544 W*. A site topographic vicinity map, depicted on the United States Geological Survey (USGS) Jersey, Georgia Quadrangle (1964 photo-revised 1985) and Social Circle, Georgia Quadrangle (1971 photo-revised 1981), is attached as Exhibit 1. A site diagram is attached as Exhibit 2.

Based on information provided by the client, the site consists of multiple parcels of land totaling approximately 773 acres located at Highway 11 and Hollis Road. Land cover at the site consists of mixed-hardwood pine forest, planted pine stands, open grassed fields, several unimproved paths, two ponds, and several streams. A vacant residential structure is located on the southern portion of the site near Hollis Road.

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2.0 METHODOLOGY

Terracon initially reviews readily available published resources to preliminarily identify features indicative of potential WoUS on the site or in the immediate vicinity of the site. A field investigation is then performed to identify and delineate potential WoUS and wetland areas utilizing the Routine On-site Determination Method described in the 1987 U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual (USACE Manual) and the USACE April 2012 Eastern Mountains and Piedmont Draft Regional Supplement 2.0 (EMPRS). Potential wetland areas are located and investigated based on the three wetland parameters of hydrophytic vegetation, hydrology, and hydric soil indicators.

Hydrophytic vegetation is assessed by identifying plant species and their assigned wetland indicator rating of obligate (occur in wetlands >99% of the time), facultative wet (occur in wetlands 67-99% of the time), facultative (occur in wetlands 34-66% of the time), facultative upland (occur in wetland 1-33% of the time), and upland (occur in wetlands <1% of the time). The USACE manual defines hydrophytic vegetation as present when at least 50% of the dominant plant species are rated obligate, facultative wet, or facultative. Hydrology is determined based on a number of primary indicators (surface water, water marks, drift deposits, reduced iron presence, oxidized rhizospheres, etc.) and secondary indicators (soil surface cracks, drainage patterns, crawfish burrows, shallow aquitard, etc.). The USACE manual defines hydrology as present when at least one primary indicator and two secondary indicators are identified. Hydric soil is determined by investigating soil features such as color matrix, hue, and evidence of redox features including indicators such as saturation, stratified layers, gleyed matrix, mucky surface, organic/peat layers, hydrogen sulfide odor, and evidence of mottling indicating reduced conditions.

Potential wetland areas identified with all three parameters as described above are located and delineated by designating boundaries with flagging tape. A data point is collected for each wetland area on the site detailing conditions as related to hydrophytic vegetation, hydrology, and hydric soil. The location of the data point is selected at a specific flag number indicative of conditions throughout the entire wetland area and adjacent upland area. Only one data point is typically collected for each wetland area on the site. Additional data points may be collected for atypical situations such as larger wetland areas that may exhibit differing ecological conditions in certain areas.

Additional potential WoUS including stream channels, drainageways, and ditches are located, marked with flagging tape, and investigated to determine a preliminary stream classification, overall drainage patterns, and potential hydrologic connections to other WoUS and wetland areas.

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3.0 SOIL DESCRIPTION

According to the Natural Resource Conservation Service (NRCS) Web Soil Survey for Newton County and Walton County, soil series types located on the site include Alluvial land (Alm), Appling soils (AnC3, AxB2), Ashlar-Pacoleet-Wedowee complex (AwC), Cartecay and Chewacla soils (CCA), Cecil soils (CeB, CeC, CfB2, CfC2, CdB2, CdC2, CZB3, CZC3, CZD3), Gwinnett soils (GeB, GeD, GeE, GwC2, GwD2), Hiwassee soils (HeB, HeC), Madison soils (MaB, MaC, MaD, MaE, MdC2), Pacolet soils (PaD, PaE, PfD2), Toccoa and Congaree soils (TCA), Toccoa fine sandy loam (Ta), and Wehadkee silt loam (Wea). A portion of the soil survey map for Newton and Walton Counties is depicted on Exhibit 3. The following is a brief description of the series:

- Local alluvial land consists of poorly drained, slowly permeable soils that is similar to Grady soils in that they form in washed out marine sediment. Location is normally within depressions or stream side areas of the Piedmont. Upper soil layers consist of a gray sandy loam that is friable with a weak granular structure. Lower soil layers consist of grayish sandy clay that is subangular blocky in structure and commonly having masses of iron accumulation.
- The Appling soils are characterized by very deep, well drained, moderately permeable soils that form in residuum weathered from felsic igneous and metamorphic rocks of the Piedmont uplands. These soils are often found on ridges and sideslopes and they are deep to saprolite and very deep to bedrock. The upper soil layer consists of brown sandy loam with a weak medium granular structure. Subsurface layers consists of yellowish-brown sandy clay loam with a few fine flakes of mica.
- Cartecay and Chewacla soils are characterized by very deep, somewhat poorly drained, moderately permeable soils that form in silty alluvium in the Piedmont region. These soils are often found in floodplains and river bottom areas and can be flooded on occasion during heavy rains. The upper soil layer normally consists of a brown loam with a weak granular structure that is very friable and acidic. The B horizon is often characterized by a light yellowish-brown silt loam that contains a more subangular blocky structure. Iron depletions and masses can be found in areas that are frequently flooded. Cartecay and Chewacla soils can be defined as hydric when located in large open floodplain areas that do not receive adequate drainage from adjacent stream channels.
- The Cecil soils are characterized by very deep, well drained moderately permeable soils that form in residuum weathered from felsic, igneous and high-grade metamorphic rocks of the Piedmont uplands. These soils are normally located on ridges and sideslopes of the Piedmont uplands. The upper soil layer consists of a dark yellowish-brown sandy loam with a weak medium granular structure. Subsurface layers consists of a red clay with a few fine flakes of mica.

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- The Gwinnett soils are characterized by deep, well drained, moderately permeable soils that formed in intermingled basic crystalline materials of the Piedmont. These soils are normally located on very gently sloping to very steep ridges of the Piedmont Plateau. The upper soil layer consists of dark reddish brown sandy loam with a weak fine granular structure. Subsurface layers consists of dark red clay with moderate and strong fine subangular blocky structure.
- The Hiwassee soils are characterized by very deep, well drained soils that form in old alluvium from felsic and mafic rocks. These soils are normally located on high stream terraces in the Southern Piedmont. The upper layer consists of a dark yellowish-brown sandy loam with moderate fine granular structure. Subsurface layers consists of dark red clay with moderate medium subangular blocky structure.
- The Madison soils are characterized by well drained, moderately permeable soils that form in residuum weathered from felsic or intermediate, high-grade metamorphic or igneous rocks high in mica content in the Piedmont region. These soils are normally located on ridgetops and sideslopes and occasionally streamside terraces. The upper soil layer consists of a yellowish-brown sandy loam that is medium to coarse-grained with a granular structure. Subsurface layers consists of a brown to brownish-red sandy clay loam with mica and schist mixing in at greater depths. Madison soils are also well-drained with rapid to excessive runoff.
- The Pacolet soils are characterized by very deep, well drained, moderately permeable soils that formed in residuum weathered mostly from felsic igneous and metamorphic rocks of the Piedmont uplands. These soils are normally located in forests of pine and mixed hardwoods or cleared areas used for small grain, hay, and pasture. The upper layer consists of brown sandy loam with few fine distinct yellowish red mottles and moderate medium granular structure. Subsurface layers consists of red clay common with fine prominent reddish yellow mottles.
- The Toccoa soils are characterized by very deep, well drained and moderately well drained soils that form in loamy and sandy alluvium from igneous and metamorphic rocks in the Piedmont. These soils are normally located on floodplains and natural levees. The upper soil layer consists of dark yellowish brown sandy loam with a weak medium granular structure. Subsurface layers consists of
- The Wehadkee soils are characterized by very deep, poorly drained and very poorly drained soils located on floodplains along streams that drain from the mountains and piedmont. These soils form in loamy sediments washed from soils that form from schist, gneiss, granite, phyllite, and other metamorphic and igneous rock. Upper soils consists of grayish brown fine sandy loam with a weak medium granular structure. Subsurface layers consists of dark gray loam common with medium prominent strong brown soft masses of iron accumulation and weak fine and medium subangular blocky structure.

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According to both the State and National hydric soils list Cartecay and Chewacla (CCA) and Wehadkee silt loam (Wea) can be classified as hydric depending on topographic position. Terracon observed evidence of hydric soils on the site which is further discussed in Section 5.0.

4.0 NATIONAL WETLAND INVENTORY MAP

The National Wetland Inventory (NWI) map of the site was reviewed to identify potential wetland areas. The map for the site was published by the U.S. Department of the Interior's Fish and Wildlife Service (USFWS) and depicts potential wetland areas based on stereoscopic analysis of high altitude aerial photographs and topographic maps. The review of the NWI map identified three separate wetlands at the site. Two were identified as palustrine, unconsolidated bottom, permanently flooded, diked/impounded ponds. One pond is located on the southwestern portion of the site, and the other pond is located on the northeastern portion of the site. The two ponds area also depicted on the topographic map. The third wetland is illustrated on the western portion of the site as a palustrine, forested, broad-leaved deciduous wetland. This wetland is classified as both seasonally flooded and temporary flooded. This wetland extends off the site and generally follows the direction of Strouds Creek which is depicted on the topographic map in this area. Wetlands were observed in these areas during the site reconnaissance with additional details provided in Section 5.0.

5.0 SITE RECONNAISSANCE

Waters within the site were field delineated by Jennifer Wood and Courtney Wilson of Terracon's Duluth, Georgia office using the Routine On-site Determination Method described in the 1987 USACE Wetland Delineation Manual (USACE Manual) and the USACE April 2012 EMPRS. On September 1, September 3, and September 16, 2015, Terracon performed fieldwork and identified four wetland areas (Wetland A-D) and several streams. The aforementioned areas are designated on Exhibit 5. All features illustrated on Exhibit 5 were flagged and located with a sub-meter Trimble Geo 7x GPS unit. Ground photographs, included as an attachment, provide an indication of the physical characteristics observed during the site reconnaissance. The site reconnaissance identified the following WoUS:

Wetlands

A total of three wetland areas (Wetlands A-C) were observed on the site, two wooded and one partially wooded/partially open emergent. All wetlands were designated with pink/black pinstriped flagging or pink flagging tape that reads "wetland delineation."

Wetland A is located on the western portion of the site and consists of an approximate 11.18-acre feature that is primarily located in a bottomland hardwood forested area. The topographic map for this area illustrates Strouds Creek traversing the center of this wetland; however, a creek channel with an ordinary high water mark (OHWM) is no longer in existence. Strouds Creek was observed entering the site from a concrete box culvert from the large diked pond to

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the east of the site and flowing in a westward direction through the wetland and eventually flowing off the western site boundary. In addition, the topographic map illustrates an intermittent stream extending south from Strouds Creek in the center of this wetland. The wetland abuts this intermittent stream in a southward direction. Hydrology in the wetland was observed as consistent with saturated soils throughout and large areas of surface water present in some areas, especially in the areas near the streams and the diked area just to the west of the pond. Through historical information provided, it appears that the large pond was constructed in the 1970s/80s from Strouds Creek thus creating the depression wetland area. Other primary hydrologic indicators observed include high water table, inundation visible on the aerial imagery, and hydrogen sulfide odor. Secondary hydrologic indicators observed include drainage patterns and crayfish burrows. The soils in the wetland were observed as hydric with dark brownish-gray soil with strong evidence of redox depressions and iron masses. Dominant plant species observed within the wetland include sweetgum (*Liquidambar styracifula*), giant cane (*Arundinaria gigantea*), and common arrowhead (*Sagittarius spp.*). Upland boundaries outside of the wetland area were along a steep ridge which consisted of planted pine stands and a mixed hardwood pine forest.

Wetland B is located on the northeastern portion of the site and consists of an approximate 0.12 acre feature that is located adjoining a pond. The topographic map for this area illustrates the pond with an intermittent stream extending south from Strouds Creek which flows into the pond. Site observations confirm that beaver activity in the areas around the pond have transformed the area. The wetland abuts the pond on the north-northwestern portion. Hydrology in the wetland was observed as consistent with saturated soils throughout and some minor areas with surface water present. Other primary hydrologic indicators observed include water marks, high water table, and inundation visible on the aerial imagery with drainage patterns being a secondary indicator. The soils in the wetland were observed as hydric brownish-gray soil with strong evidence of redox depressions and iron masses. Dominant plant species observed within the wetland include sweetgum (*Liquidambar styracifula*), giant cane (*Arundinaria gigantea*), soft rush (*Juncus effusus*), and common arrowhead (*Sagittarius spp.*). Upland boundaries outside of the wetland area were along a slight ridge which consisted of a mixed hardwood pine forest.

Wetland C is located on the eastern portion of the site and consists of an approximate 0.06-acre feature that is located abutting an intermittent stream. The topographic map for this area illustrates the intermittent stream extending south from Strouds Creek to the north of the site. Primary hydrology indicators include high water table, saturation, and water marks. Secondary indicators observed include drainage patterns and crayfish burrows. Dominant vegetation in the wetland included giant cane (*Arundinaria gigantea*), soft rush (*Juncus effusus*), knotweed (*Polygonum spp.*), and various sedge species (*Carex spp.*). The upper soil layer was observed as somewhat organic with a dark grayish-brown clay loam at greater depths. Evidence of mottling was strong throughout the soil layer in most areas with a depleted matrix and iron masses indicating reduced conditions.

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Perennial stream

One perennial stream is located on the western portion of the site and was designated with blue flagging tape. The topographic map for this area illustrates this stream as Strouds Creek. The stream was observed entering the site from a concrete box culvert from the large diked pond to the east of the site and flowing in a westward direction through the wetland (designated as Wetland A) and eventually flowing off the western site boundary. The stream was measured at approximately 1,509 linear feet on the site. Channel characteristics observed include an average water depth of approximately 6-10 inches with substantial pool and ripple complexes throughout the majority of the length of the channel on the site. Average channel width is approximately three to five feet and channel depth varied from approximately six to 10 feet. The stream channel substrate was observed as a mixture of sandy and rocky bottom with small pebbles located in the meandering portions of the flowing water.

Intermittent Streams

Twelve intermittent stream channels were observed throughout the site. The intermittent stream channels appear to be tributaries of Strouds Creek which traverses the western portion of the site then reaches the large pond to the north of the site and continues on to the northeast located north of the site. Strouds Creek general flow direction was to the west. The intermittent stream channels appeared to be very similar to each other and were designated as stream S1, stream S3 through stream S13 with blue flagging tape. Channel characteristics observed include a defined line of wretched vegetation with an approximate channel width of three to five feet and a depth of five to eight feet. Each of these channels was observed as tapering from the northern portion of the site towards the southern portion of the site. The channels appeared to be flowing northward toward the large pond and/or Strouds Creek. Flowing and standing water was observed in portions of each channel; however, some southern portions of the channels were observed with no flowing water and observed as a dry sandy bottom. A clear ordinary high water mark (OWHM) was observed on each of these features; however, overall observed characteristics in relation to the time of year the delineation was performed indicates a preliminary classification of intermittent.

Ponds

Two ponds were observed on the site. The first pond is located on the southwestern portion of the site and consists of approximately 1.55 acres. The topographic map for this area illustrates the pond with an intermittent stream connecting to the northwestern side of the pond. The northwest side of this pond was observed as an unimproved road on top of the dam with two piped culverts that discharge to two intermittent streams (stream S3 and stream S4). The second pond is located on the northeastern portion of the site and consist of approximately 1.92 acres. The topographic map for this area illustrates the pond with an intermittent stream connecting to the northwestern side of the pond. This pond connects to two intermittent steams (stream S11 and stream S13) and has an abutting wetland (Wetland B).

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No other wetland areas or potential WoUS were observed on the site. Wetland determination data forms and upland determination forms for the observed wetland area on the site have been attached at the end of this report.

6.0 FEDERAL REGULATORY REVIEW

WoUS, including wetlands, are under the jurisdiction of the USACE. Only the USACE can make an official Jurisdictional Determination. Impacts to jurisdictional WoUS through development activities would likely require verification, notification, permitting obligations, and/or mitigation.

Under current federal regulations, impacts of less than 0.5 acres of jurisdictional wetlands and impacts of less than 300 linear feet of stream channel can be permitted under Nationwide Permit 39, Commercial and Institutional Developments, provided that the appropriate notification is submitted to the USACE. Compensatory mitigation will likely be required if permitting is necessary; however, may not be required if wetland impacts are limited to less than 0.10 acres. Cumulative impacts of greater than 300 linear feet of stream channel or 0.5 acres of wetlands will require an Individual Permit (IP). USACE regulations also state that cumulative impacts of greater than 0.5 acres of all jurisdictional waters will now require an IP. An IP will take six to eight months to obtain due to a high level of regulatory scrutiny.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Terracon's wetland delineation (Terracon Project No. 49157647A) identified three wetland areas, one perennial stream, twelve intermittent streams, and two ponds at the site. It is Terracon's opinion these features will likely be considered jurisdictional WoUS by the USACE. If requested by the client, Terracon will submit a Jurisdictional Determination Request (JDR) to the USACE Georgia Piedmont district field office for confirmation of Terracon identified WoUS. The on-site WoUS boundaries designated by Terracon are preliminary, and only the USACE can make the final Jurisdictional Determination.

8.0 STANDARD OF CARE

Terracon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time period. Terracon makes no warranties, express or implied, regarding the findings, conclusions or recommendations. Please note that Terracon does not warrant the work of laboratories, regulatory agencies or other third party resources supplying information used in the preparation of the report. These services were performed in accordance with the scope of work agreed to with our client. Findings, conclusions, and recommendations resulting from these services are based upon information derived from the on-site activities and other services performed under this scope of work; such information is subject to change over time. Certain

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indicators of the presence of wetlands may have been latent, inaccessible, unobservable, or not present during our services.

We appreciate the opportunity to provide services to Thomas and Hutton. If you have any questions concerning this report, or if we can assist you in any other matter, please call our office at 770.623.0755.

Sincerely,

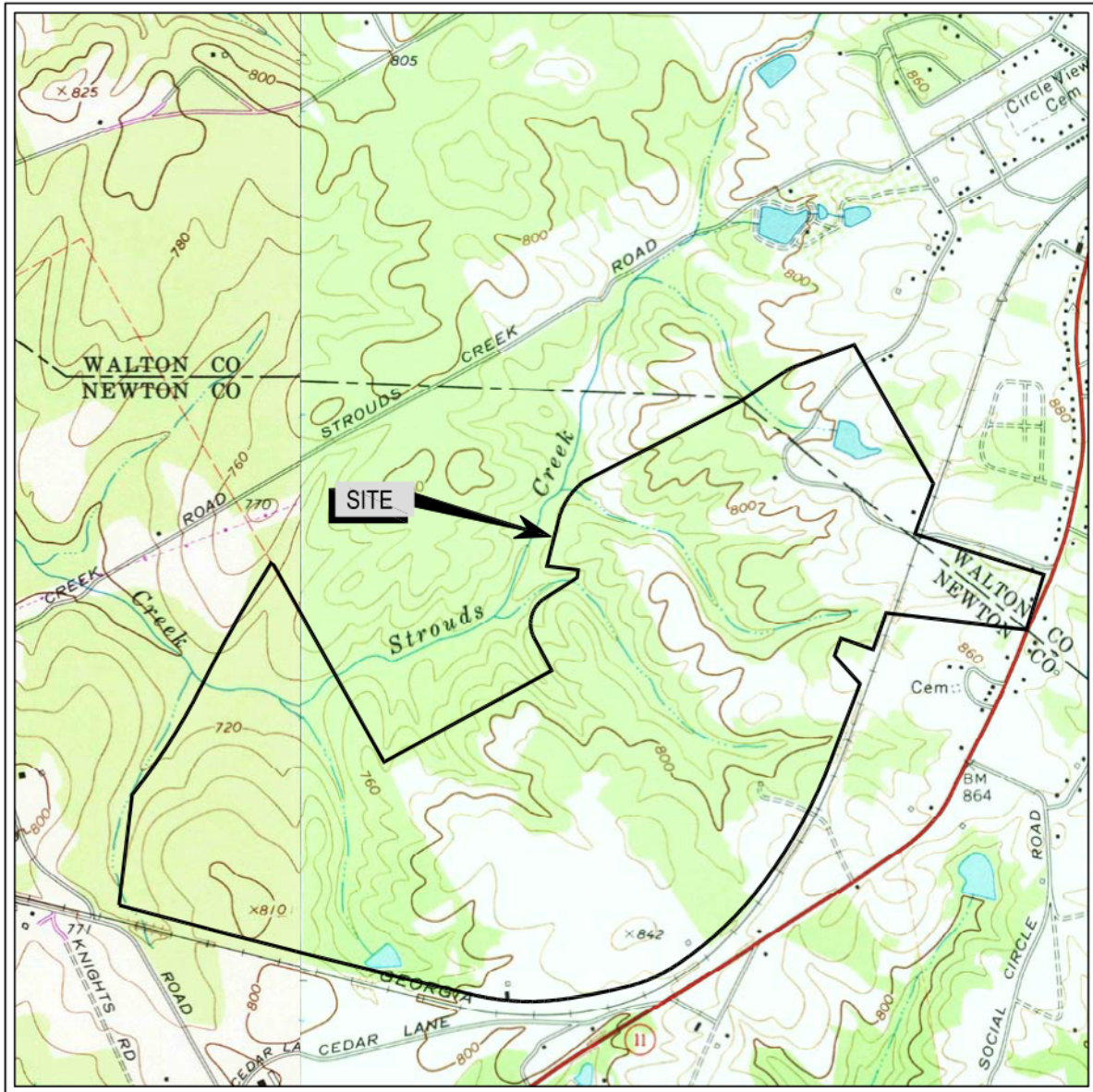


Courtney A. Wilson
Senior Staff Scientist

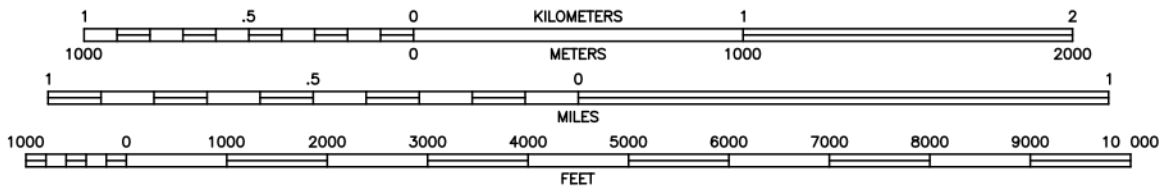
Jim W. Baxter
Senior Ecologist

Jennifer K. Wood
Staff Environmental Scientist

- Attachments: Exhibit 1: Topographic Vicinity Map
Exhibit 2: Site Diagram
Exhibit 3: Soil Survey Map
Exhibit 4: NWI Map
Exhibit 5: GPS Wetland Location Map
Site Photographs
Wetland and Upland Data Determination Forms



SCALE 1:24 000



CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

QUADRANGLE
JERSEY, GA 1964 PR 1985
SOCIAL CIRCLE, GA 1971 PI 1981
7.5 MINUTE SERIES (TOPOGRAPHIC)



Project Mngr:	JKW	Project No.	49157647
Drawn By:	SEG	Scale:	AS SHOWN
Checked By:	MRF/JKW	File No.	ESA49157647-1
Approved By:	JAM	Date:	SEPTEMBER 2015

Terracon
Consulting Engineers and Scientists

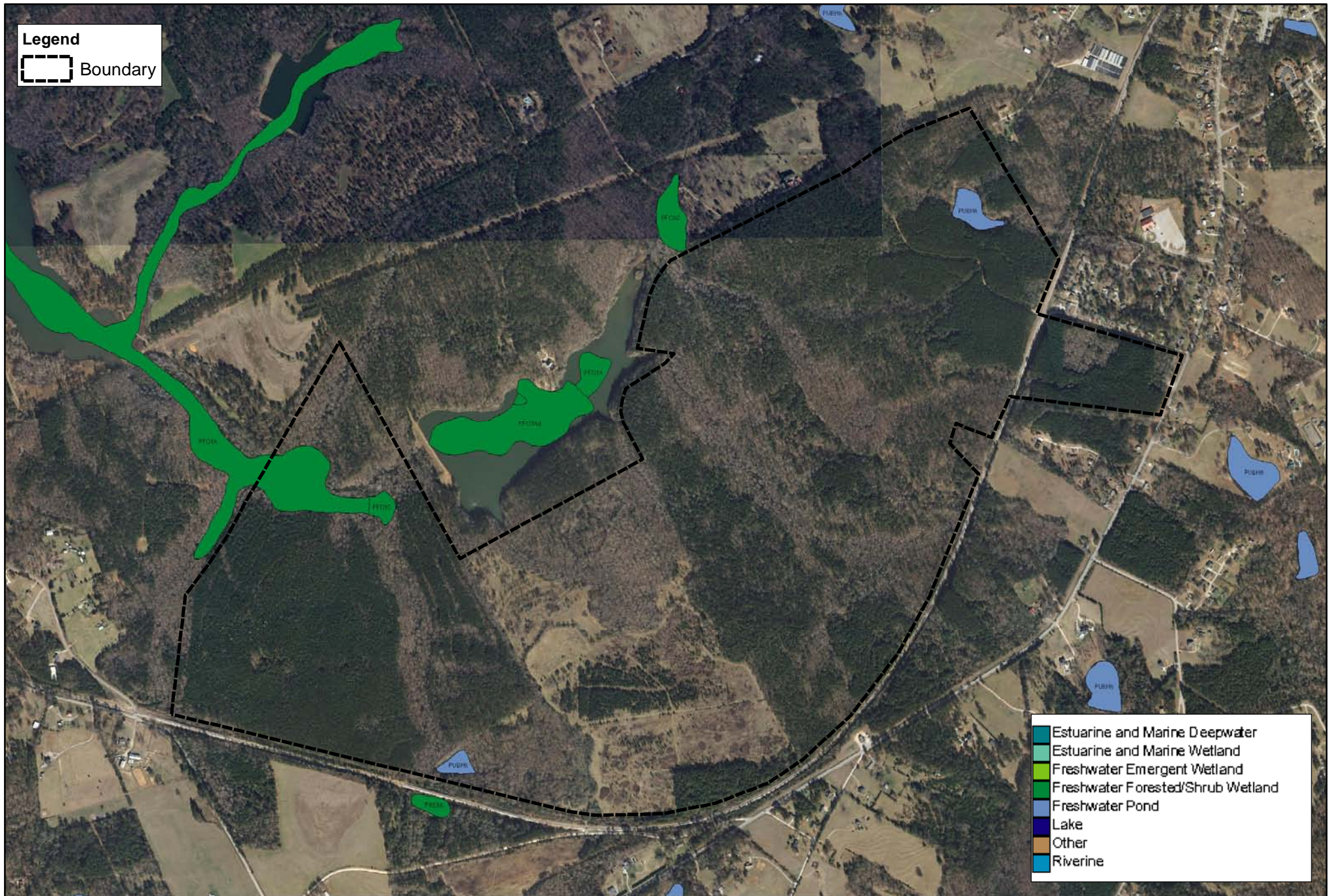
2855 Premiere Parkway, Suite C Duluth, GA 30097
(770) 623-0755 (770) 623-9628









TOPOGRAPHIC VICINITY MAP
Georgia Historic Heartland Mega Site
Newton and Walton Counties, Georgia

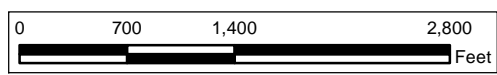
EXHIBIT
1

Legend

 Boundary



-  Estuarine and Marine Deepwater
-  Estuarine and Marine Wetland
-  Freshwater Emergent Wetland
-  Freshwater Forested/Shrub Wetland
-  Freshwater Pond
-  Lake
-  Other
-  Riverine



















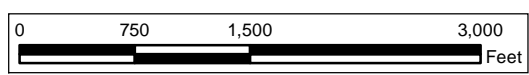
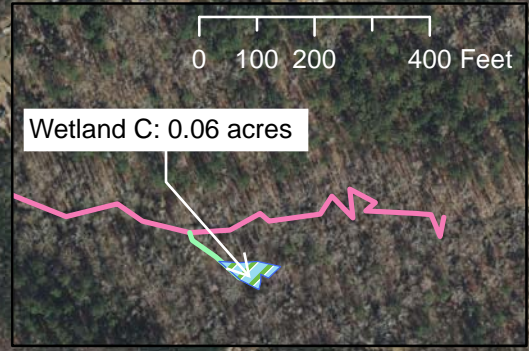
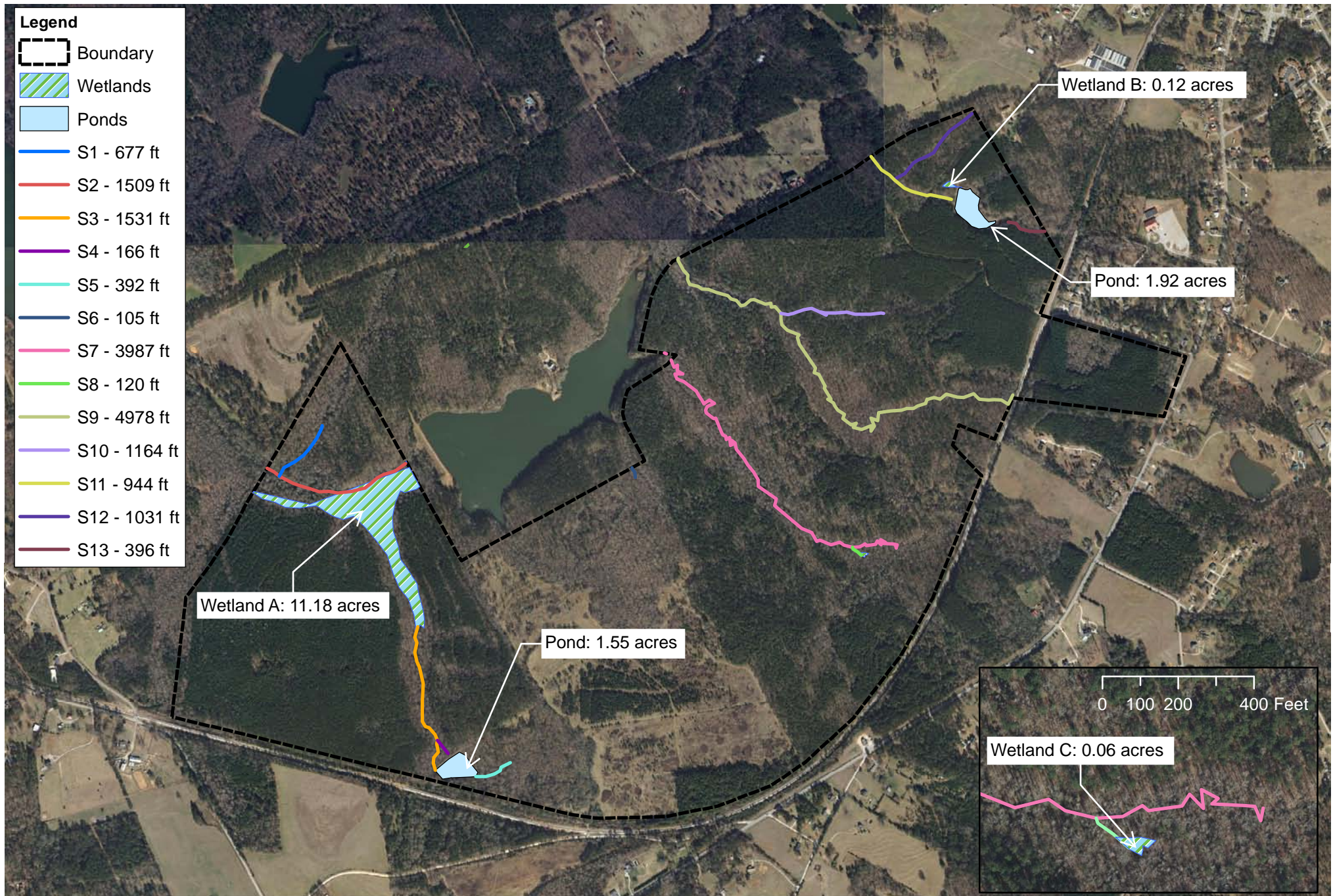
Project No.
49157647A
Drawn By: MDP
Approved By: CAW
Date: 10/7/2015

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PH: (770) 623-0755 FAX: (770) 623-9628

National Wetland Inventory Map
Georgia Historic Heartland Mega Site
Newton and Walton Counties, Georgia

Exhibit
4

- Legend**
-  Boundary
 -  Wetlands
 -  Ponds
 -  S1 - 677 ft
 -  S2 - 1509 ft
 -  S3 - 1531 ft
 -  S4 - 166 ft
 -  S5 - 392 ft
 -  S6 - 105 ft
 -  S7 - 3987 ft
 -  S8 - 120 ft
 -  S9 - 4978 ft
 -  S10 - 1164 ft
 -  S11 - 944 ft
 -  S12 - 1031 ft
 -  S13 - 396 ft



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WETLAND SKETCH
 Georgia Historic Heartland Mega Site
 Newton and Walton Counties, Georgia

Exhibit
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Photo 1: View of the pond located on the southern portion of the site.



Photo 2: View of piped culvert from the pond discharging to stream S3.



Photo 3: View of Strouds Creek (stream S7) where it meets the western site boundary.



Photo 4: View of stream S3 located on the southwestern portion of the site.



Photo 5: View of Wetland A.



Photo 6: View of Wetland A.



Photo 7: View of the culvert from the large pond to the east of the site discharging into Wetland A.



Photo 8: View of stream S7.



Photo 9: View of Wetland C.



Photo 10: View of the hydric soil observed in the wetland.



Photo 11: View of the beaver activity near Wetland B.



Photo 12: View of stream S11.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Georgia Historic Heatland Mega Site City/County: Social Circle/Newon/Walton Sampling Date: 09.01.15
 Applicant/Owner: Thomas and Hutton State: GA Sampling Point: DP-A Up
 Investigator(s): JKW/CAW Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 2
 Subregion (LRR or MLRA): MLRA 136 of LRI Lat: 33.636230 Long: -83.748461 Datum: NAD 1984
 Soil Map Unit Name: Gwinnett sandy clay loam (GwC2) NWI classification: PFO1C

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? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Data point collected in hardwood forest just west of the large pond.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 Typical upland mixed hardwood pine for the Piedmont.

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: DP-A Up

<u>Tree Stratum</u> (Plot size: <u>30 foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Sweetgum (Liquidambar styraciflua)</u>	<u>25</u>	<u>y</u>	<u>FAC</u>
2. <u>water oak (Quercus nigra)</u>	<u>25</u>	<u>y</u>	<u>FAC</u>
3. <u>loblolly (Pinus taeda)</u>	<u>10</u>	<u>n</u>	<u>FAC</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
<u>60</u> = Total Cover			
50% of total cover: <u>30</u> 20% of total cover: <u>12</u>			
<u>Sapling Stratum</u> (Plot size: <u>15 foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Sweetgum (Liquidambar styraciflua)</u>	<u>20</u>	<u>y</u>	<u>FAC</u>
2. <u>water oak (Quercus nigra)</u>	<u>5</u>	<u>n</u>	<u>FAC</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
<u>25</u> = Total Cover			
50% of total cover: <u>12.5</u> 20% of total cover: <u>5</u>			
<u>Shrub Stratum</u> (Plot size: <u>15 foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			
<u>Herb Stratum</u> (Plot size: <u>5 foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			
<u>Woody Vine Stratum</u> (Plot size: <u>30 foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of: _____ Multiply by:

OBL species _____ x 1 = _____

FACW 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 ≤3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

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

SOIL

Sampling Point: DP-A Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/1	100						dark black - organics
4-20	5 YR 4/6	100					sandy cla	sandy clay

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) **(LRR N)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)

- Dark Surface (S7)
- Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- Thin Dark Surface (S9) **(MLRA 147, 148)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- Umbric Surface (F13) **(MLRA 136, 122)**
- Piedmont Floodplain Soils (F19) **(MLRA 148)**
- Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) **(MLRA 147)**
- Coast Prairie Redox (A16) **(MLRA 147, 148)**
- Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: Very dark brownish-gray soil. Most areas in this area had strong evidence of redox depressions and iron masses. Very Saturated at 4-6 inches and deeper.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Georgia Historic Heatland Mega Site City/County: Social Circle/Newon/Walton Sampling Date: 09.01.15
 Applicant/Owner: Thomas and Hutton State: GA Sampling Point: DP-A Wet
 Investigator(s): JKW/CAW Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1
 Subregion (LRR or MLRA): MLRA 136 of LRI Lat: 33.6365 Long: -83.7488 Datum: NAD 1984
 Soil Map Unit Name: Toccoa and Congaree soils (TCA) NWI classification: PFO1C

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? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Data point collected in hardwood forest just west of the large pond.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input checked="" type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>4</u> Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	

Remarks:
 Strong hydrology with surface water present in most areas. In depression area near Strouds Creek.

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: DP-A Wet

Tree Stratum (Plot size: <u>30 foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Sweetgum (Liquidambar styraciflua)</u>	<u>30</u>	<u>y</u>	<u>FAC</u>
2. <u>hazel alder (Alnus serrulata)</u>	<u>5</u>	<u>n</u>	<u>FACW</u>
3. <u>blackgum (Nyssa sylvatica)</u>	<u>5</u>	<u>n</u>	<u>FAC</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
<u>40</u> = Total Cover			
50% of total cover: <u>20</u> 20% of total cover: <u>8</u>			
Sapling Stratum (Plot size: <u>15 foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Sweetgum (Liquidambar styraciflua)</u>	<u>5</u>	<u>y</u>	<u>FAC</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
<u>5</u> = Total Cover			
50% of total cover: <u>2.5</u> 20% of total cover: <u>1</u>			
Shrub Stratum (Plot size: <u>15 foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>giant cane (Arundinaria gigantea)</u>	<u>10</u>	<u>y</u>	<u>FACW</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
<u>10</u> = Total Cover			
50% of total cover: <u>5</u> 20% of total cover: <u>2</u>			
Herb Stratum (Plot size: <u>5 foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Sagittarius spp.</u>	<u>5</u>	<u>y</u>	<u>OBL</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
<u>5</u> = Total Cover			
50% of total cover: <u>2.5</u> 20% of total cover: <u>1</u>			
Woody Vine Stratum (Plot size: <u>30 foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of: _____ Multiply by:

OBL species _____ x 1 = _____

FACW 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 ≤3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?

Yes No

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

SOIL

Sampling Point: DP-A We

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 2/1	100						dark black - organics
8-20	10YR 4/1	80	10YR 5/6	20			loamy	grayish brown

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)	<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 136, 147)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)		
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)		
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)		

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: Very dark brownish-gray soil. Most areas in this area had strong evidence of redox depressions and iron masses. Very Saturated at 4-6 inches and deeper.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Georgia Historic Heatland Mega Site City/County: Social Circle/Newon/Walton Sampling Date: 09.03.15
 Applicant/Owner: Thomas and Hutton State: GA Sampling Point: DP-B Up
 Investigator(s): JKW/CAW Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 2
 Subregion (LRR or MLRA): MLRA 136 of LRI Lat: 33.645230 Long: -83.730605 Datum: NAD 1984
 Soil Map Unit Name: Appling sandy clay loam (AnC3) NWI classification: PFO1C

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? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Data point collected in hardwood pine forest just west of small pond on the northeastern portion of the site.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	

Remarks:
 Typical upland mixed hardwood pine for the Piedmont.

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: DP-B Up

<u>Tree Stratum</u> (Plot size: <u>30 foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Sweetgum (Liquidambar styraciflua)</u>	<u>10</u>	<u>n</u>	<u>FAC</u>
2. <u>loblolly (Pinus taeda)</u>	<u>15</u>	<u>y</u>	<u>FAC</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
<u>25</u> = Total Cover			
50% of total cover: <u>12.5</u> 20% of total cover: <u>5</u>			

<u>Sapling Stratum</u> (Plot size: <u>15 foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Sweetgum (Liquidambar styraciflua)</u>	<u>5</u>	<u>y</u>	<u>FAC</u>
2. <u>water oak (Quercus nigra)</u>	<u>3</u>	<u>n</u>	<u>FAC</u>
3. <u>loblolly (Pinus taeda)</u>	<u>5</u>	<u>y</u>	<u>FAC</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
<u>13</u> = Total Cover			
50% of total cover: <u>6.5</u> 20% of total cover: <u>2.6</u>			

<u>Shrub Stratum</u> (Plot size: <u>15 foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			

<u>Herb Stratum</u> (Plot size: <u>5 foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Privet (Ligustrum spp.)</u>	<u>10</u>	<u>y</u>	<u>FACU</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
<u>10</u> = Total Cover			
50% of total cover: <u>5</u> 20% of total cover: <u>2</u>			

<u>Woody Vine Stratum</u> (Plot size: <u>30 foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW 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 ≤3.0¹
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?

Yes No

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

SOIL

Sampling Point: DP-B Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/2	100						dark black - organics
4-20	7.5YR 4/4	100					sandy cla	sandy clay

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) **(LRR N)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)

- Dark Surface (S7)
- Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- Thin Dark Surface (S9) **(MLRA 147, 148)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- Umbric Surface (F13) **(MLRA 136, 122)**
- Piedmont Floodplain Soils (F19) **(MLRA 148)**
- Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) **(MLRA 147)**
- Coast Prairie Redox (A16) **(MLRA 147, 148)**
- Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

Typical upland Piedmont soil with increasing clay layers at greater depths.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Georgia Historic Heatland Mega Site City/County: Social Circle/Newon/Walton Sampling Date: 09.03.15
 Applicant/Owner: Thomas and Hutton State: GA Sampling Point: DP-B Wet
 Investigator(s): JKW/CAW Section, Township, Range: _____

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1
 Subregion (LRR or MLRA): MLRA 136 of LRI Lat: 33.645134 Long: -83.730758 Datum: NAD 1984
 Soil Map Unit Name: Appling coarse sandy loam (AxB2) NWI classification: none

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? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Data point collected at edge of small open emergent wetland on the northeastern portion of the site. This wetland is adjoining a pond with beaver activity.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input checked="" type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>5</u> Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
---	--

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 Strong hydrology with surface water present in most areas. In depression area next to pond.

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: DP-B Wet

<u>Tree Stratum</u> (Plot size: <u>30 foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Sweetgum (Liquidambar styraciflua)</u>	<u>10</u>	<u>y</u>	<u>FAC</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
<u>10</u> = Total Cover			
50% of total cover: _____ 20% of total cover: _____			
<u>Sapling Stratum</u> (Plot size: <u>15 foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Sweetgum (Liquidambar styraciflua)</u>	<u>5</u>	<u>y</u>	<u>FAC</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
<u>5</u> = Total Cover			
50% of total cover: <u>2.5</u> 20% of total cover: <u>1</u>			
<u>Shrub Stratum</u> (Plot size: <u>15 foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>giant cane (Arundinaria gigantea)</u>	<u>10</u>	<u>y</u>	<u>FACW</u>
2. <u>soft rush (Juncus effusus)</u>	<u>10</u>	<u>y</u>	<u>FACW</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
<u>20</u> = Total Cover			
50% of total cover: <u>10</u> 20% of total cover: <u>4</u>			
<u>Herb Stratum</u> (Plot size: <u>5 foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Sagittarius spp.</u>	<u>5</u>	<u>y</u>	<u>OBL</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
<u>5</u> = Total Cover			
50% of total cover: <u>2.5</u> 20% of total cover: <u>1</u>			
<u>Woody Vine Stratum</u> (Plot size: <u>30 foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of: _____ Multiply by:

OBL species _____ x 1 = _____

FACW 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 ≤3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

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

SOIL

Sampling Point: DP-B We

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 2/1	100						dark black - organics
8-20	10YR 4/1	80	10YR 4/6	20			loamy	grayish brown

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) **(LRR N)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)

- Dark Surface (S7)
- Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- Thin Dark Surface (S9) **(MLRA 147, 148)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- Umbric Surface (F13) **(MLRA 136, 122)**
- Piedmont Floodplain Soils (F19) **(MLRA 148)**
- Red Parent Material (F21) **(MLRA 127, 147)**

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) **(MLRA 147)**
- Coast Prairie Redox (A16) **(MLRA 147, 148)**
- Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: Very dark brownish-gray soil. Most areas in this area had strong evidence of redox depressions and iron masses. Very Saturated at 4-6 inches and deeper.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Georgia Historic Heatland Mega Site City/County: Social Circle/Newon/Walton Sampling Date: 09.16.15
 Applicant/Owner: Thomas and Hutton State: GA Sampling Point: DP-C Up
 Investigator(s): JKW/CAW Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 2
 Subregion (LRR or MLRA): MLRA 136 of LRI Lat: 33.645230 Long: -83.730605 Datum: NAD 1984
 Soil Map Unit Name: Toccoa and Congaree soils (TCA) NWI classification: none

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? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Data point collected in hardwood pine forest just south of small wetland abutting an intermittent stream on the southeastern portion of the site. .	

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<p><u>Secondary Indicators (minimum of two required)</u></p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
<p>Field Observations:</p> Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Typical upland mixed hardwood pine for the Piedmont.	

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: DP-C Up

<u>Tree Stratum</u> (Plot size: <u>30 foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Sweetgum (Liquidambar styraciflua)</u>	<u>20</u>	<u>n</u>	<u>FAC</u>
2. <u>loblolly (Pinus taeda)</u>	<u>30</u>	<u>y</u>	<u>FAC</u>
3. <u>blackgum (Nyssa sylvatica)</u>	<u>10</u>	<u>n</u>	<u>FAC</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
<u>60</u> = Total Cover			
50% of total cover: <u>30</u> 20% of total cover: <u>12</u>			
<u>Sapling Stratum</u> (Plot size: <u>15 foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Sweetgum (Liquidambar styraciflua)</u>	<u>10</u>	<u>y</u>	<u>FAC</u>
2. <u>loblolly (Pinus taeda)</u>	<u>10</u>	<u>y</u>	<u>FAC</u>
3. <u>blackgum (Nyssa sylvatica)</u>	<u>5</u>	<u>n</u>	<u>FAC</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
<u>25</u> = Total Cover			
50% of total cover: <u>12.5</u> 20% of total cover: <u>5</u>			
<u>Shrub Stratum</u> (Plot size: <u>15 foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			
<u>Herb Stratum</u> (Plot size: <u>5 foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Privet (Ligustrum spp.)</u>	<u>10</u>	<u>y</u>	<u>FACU</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
<u>10</u> = Total Cover			
50% of total cover: <u>5</u> 20% of total cover: <u>2</u>			
<u>Woody Vine Stratum</u> (Plot size: <u>30 foot radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of: _____ Multiply by:

OBL species _____ x 1 = _____

FACW 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 ≤3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

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

SOIL

Sampling Point: DP-C Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/1	100						dark black - organics
4-20	10 YR 3/4	100					clay	sandy clay

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)	<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 136, 147)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)		
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)		
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)		

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

Typical upland Piedmont soil with increasing clay layers at greater depths.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Georgia Historic Heatland Mega Site City/County: Social Circle/Newon/Walton Sampling Date: 09.16.15
 Applicant/Owner: Thomas and Hutton State: GA Sampling Point: DP-C Wet
 Investigator(s): JKW/CAW Section, Township, Range: _____

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0
 Subregion (LRR or MLRA): MLRA 136 of LRI Lat: 33.635066 Long: -83.733879 Datum: NAD 1984
 Soil Map Unit Name: Gwinnett sandy clay loam (GwC2) NWI classification: none

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? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Data point collected at edge of small wetland abutting an intermittent stream on the southeastern portion of the site.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input checked="" type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>8</u> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
---	--

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 Strong hydrology. In depression area next to stream.

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: DP-C We

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30 foot radius</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
Sapling Stratum (Plot size: <u>15 foot radius</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
Shrub Stratum (Plot size: <u>15 foot radius</u>)				
1. <u>giant cane (Arundinaria gigantea)</u>	<u>10</u>	<u>y</u>	<u>FACW</u>	
2. <u>soft rush (Juncus effusus)</u>	<u>10</u>	<u>y</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>20</u> = Total Cover				
50% of total cover: <u>10</u> 20% of total cover: <u>4</u>				
Herb Stratum (Plot size: <u>5 foot radius</u>)				
1. <u>Sagittarius spp.</u>	<u>10</u>	<u>n</u>	<u>OBL</u>	
2. <u>Polygonum spp.</u>	<u>40</u>	<u>y</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>50</u> = Total Cover				
50% of total cover: <u>25</u> 20% of total cover: <u>10</u>				
Woody Vine Stratum (Plot size: <u>30 foot radius</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
<p>Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>				
Remarks: (Include photo numbers here or on a separate sheet.)				

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of: _____ Multiply by:

OBL species _____ x 1 = _____

FACW 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 ≤3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

SOIL

Sampling Point: DP-C We

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 2/1	100						dark black - organics
4-20	10YR 4/1	80	10YR 4/6	20			loamy	grayish brown - clayey loam

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)	<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 136, 147)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)		
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)		
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)		

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: Very dark brownish-gray soil. Most areas in this area had strong evidence of redox depressions and iron masses. Very Saturated at 4-6 inches and deeper.