February 3, 2022

via electronic mail

Tennessee Department of Environment & Conservation
Division of Water Resources
Chattanooga Environmental Field Office
Attn: Jennifer Innes
1301 Riverfront Parkway, Suite 206
Chattanooga, Tennessee 37402

Re: Wetland Delineation
Boyd Buchanan School Proposed Athletic Field
SW of Buccaneer Trail/N Moore Road Intersection
Chattanooga, Hamilton County, Tennessee

Dear Ms. Innes:

Attached, please find materials supporting the recent wetland delineation on the above referenced subject property (the Site). Accompanying Wetland Delineation Field Data Sheets, figures and photographs are attached to this report.

BDY delineated the boundaries of one wetland identified on the Site. The wetland delineation was conducted per guidelines established in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0).*

This report is submitted on behalf of the property owner[1] and prospective developer[2]. The purpose of the delineation is to determine the areal extent of jurisdictional wetlands that would need to be avoided or otherwise permitted in regard to proposed construction of an athletic field on the Site.

Project Site

The Site includes portions of Hamilton County Parcels 147F H 007 where an athletic field is proposed (Figure 1). The review area comprises approximately 5 acres and is situated south of the intersection of Buccaneer Trail and North Moore Road in Hamilton County (Figure 1). One wetland (Wetland was identified on the Site (Figure 2).

Based on a review of the East Chattanooga 7.5-minute Topographic Quadrangle and Site observations, the Site drains east into an artificial pond. The Site lies within the Lower South Chickamauga Creek (HUC 12: 060200010905) watershed. Land cover within the Site is comprised primarily of forest.

[3] Boyd Buchanan School, 4650 Buccaneer Trail, Chattanooga, TN 37411
[2] MPL Construction & Architecture, 115 Cedar Lane Chattanooga, TN 37421; Attn: Ethan Wood

February 3, 2022
Ms. Jennifer Innes

Wetland Delineation Findings

BDY delineated the boundaries of one wetland (Wetland-1) measuring 0.52 acres on November 2, 2021. Based on a climatological analysis (Appendix 3), the delineations were conducted under normal conditions. Prior to the November 1, 2021, Site visit, the 7-day antecedent precipitation was 0.53 inches of rainfall. During the 48 hours preceding the site visit, 0 inches of precipitation were recorded. Precipitation data prior to the date of this Site visit is provided in Appendix 3.

Wetland-1 was delineated with pink flagging labeled 'Wetland Delineation,' and the locations of each flag and sample pit were recorded with a high-resolution Trimble R2 GPS unit. The boundaries of the wetland and locations of the sample pits are mapped on Figure 2. Representative photographs of the wetland are included in Appendix 2 and the locations of the photographs are mapped on Figure 3. The Wetland Determination Data Sheets from each of the sample pits have been included in Appendix 1.

Wetland-1 is a palustrine forested (PFO) wetland located in a flat area bounded by roads to the north and west and an artificial pond to the east. Localized hydrology is heavily influenced by stormwater runoff from the roads and flooding from an elevated water surface in the adjacent, artificial pond. Drift deposits, water-stained leaves, oxidized rhizospheres on living roots, and drainage patterns observed in the wetland are indicative of wetland hydrology. Manganese concentrations and soils with a low-chroma matrix (10YR5/2) and distinct redox concentrations (10YR3/4 and 5YR4/6) were indicators of hydric soils. Herbaceous vegetation was sparse in the wetland area, and several facultative wetland tree species, including silver maple (*Acer saccharinum*), green ash (*Fraxinus pennsylvanica*), and sugarberry (*Celtis laevigata*) dominated the overstory. The wetland is mapped on the Capshaw silt loam and Colbert silt loam, both of which have a hydric rating of 0. The wetland appears to have been created as a result of stormwater discharges from the adjacent roadway and the elevated water table in the neighboring, artificial pond.

Request for Concurrence

We attest that all information submitted herein and in the accompanying attachments is true, accurate, and complete. We appreciate your review of this information and request your concurrence of our jurisdictional determination. Please contact us at (615) 460-9797 if we may provide additional information or address your questions regarding our findings.

Very truly yours,
BDY Environmental, LLC

Samuel K. Parish, PG, CPESC
Senior Scientist
TN QHP 1107-TN13

Hali J. Steinmann, MS
Staff Scientist
TN QHP-IT

Figure 1. Site Location
Boyd Buchanan School
4650 Buccaneer Trail
Chattanooga, Hamilton County, Tennessee

0 700 1,400 Feet

N

Date: 11/23/2021
NAD 1983 2011 StatePlane Tennessee FIPS 4100 Ft US
85.2182°W 35.03907°N
Prepared for: MPL Construction
Prepared by: HJS
Sources: USGS East Chattanooga 7.5-minute topographic quadrangle

BDY NATURAL SCIENCES CONSULTANTS
2607 Westwood Drive, Nashville, Tennessee | 615.460.9797 | www.bdy-inc.com

Figure 2. Wetland Delineation Summary
Boyd Buchanan School
4650 Buccaneer Trail
Chattanooga, Hamilton County, Tennessee

0 60 120 Feet

N

Date: 2/2/2022
NAD 1983 2011 StatePlane Tennessee FIPS 4100 Ft US
85.2182°W 35.03907°N
Prepared for: MPL Construction
Prepared by: HJS
Sources: NAIP Aerial Imagery; BDY site visit 11/2/2021

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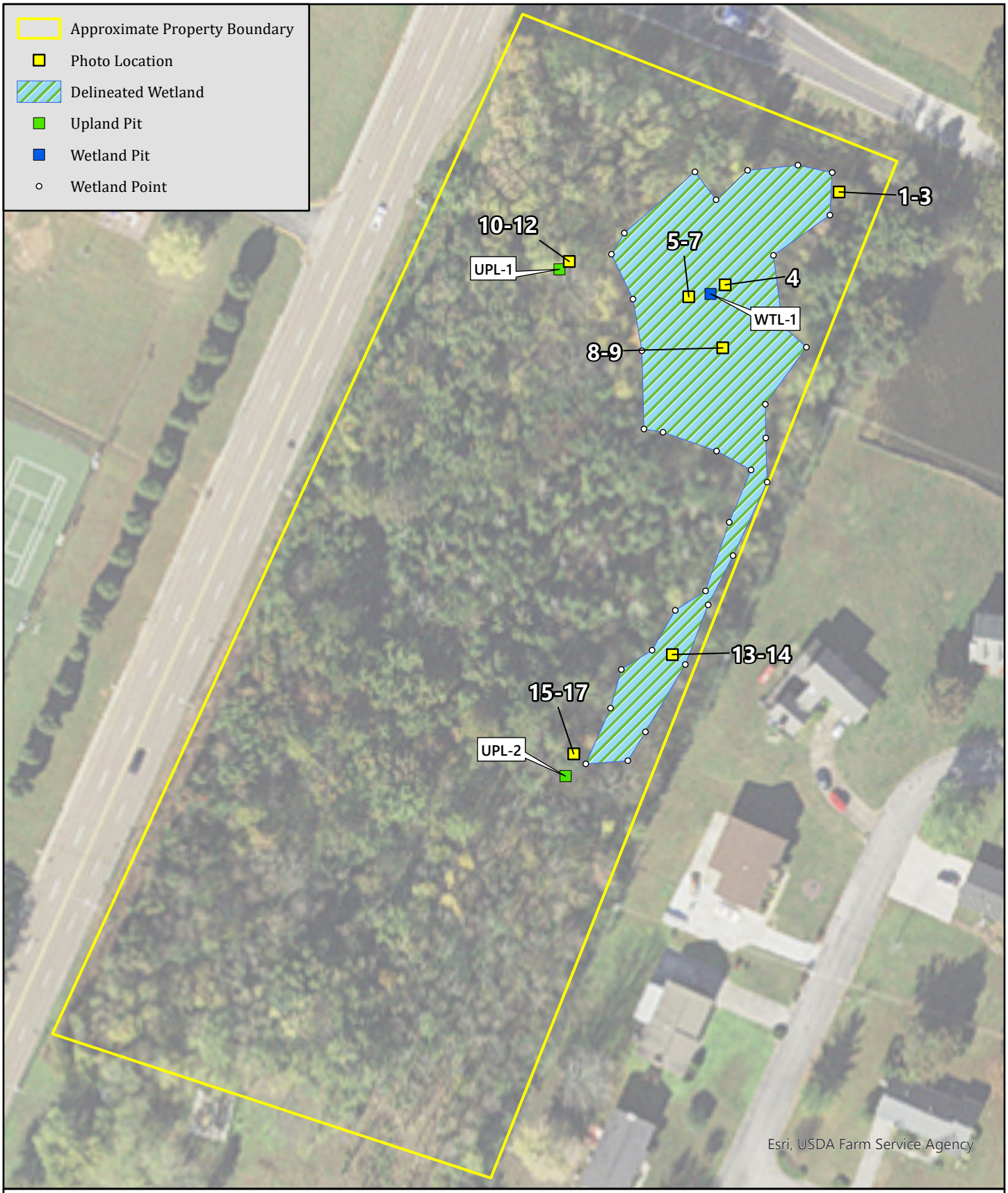

Figure 3. Location of Photographs
Boyd Buchanan School
4650 Buccaneer Trail
Chattanooga, Hamilton County, Tennessee

0 60 120 Feet

N

Date: 2/2/2022
NAD 1983 2011 StatePlane Tennessee FIPS 4100 Ft US
85.21814°W 35.03907°N
Prepared for: MPL Construction
Prepared by: HJS
Sources: NAIP Aerial Imagery; BDY site visit 11/2/2021

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APPENDIX 1:
Wetland Delineation Field Data Sheets

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Boyd Buchanan School City/County: Chattanooga/Hamil Sampling Date: 11/2/2021
Applicant/Owner: Boyd Buchanan School State: TN Sampling Point: WTL-1
Investigator(s): Sam Parish, Hali Steinmann/BDY Environmental, LLC Section, Township, Range:
Landform (hillslope, terrace, etc.): concave Local relief (concave, convex, none): slight concave Slope (%) 1
Subregion (LRR or MRLA): N Lat.: 35.039625 Long.: -85.217671 Datum: WGS84
Soil Map Unit Name: Colbert silt loam NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil X, or hydrology X significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Wetland is adjacent to a pond and receives stormwater runoff from adjacent roadways

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- X Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes ____	No X	Depth (inches):		**Wetland Hydrology Present?**
Water table present?	Yes ____	No X	Depth (inches):		
Saturation present? (includes capillary fringe)	Yes ____	No X	Depth (inches):		Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Wetland is adjacent to a pond and receives stormwater runoff from adjacent roadways

VEGETATION - Use scientific names of plants

Sampling Point: WTL-1

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharinum*	45	Y	FACW
2	*Fraxinus pennsylvanica*	30	Y	FACW
3	*Celtis laevigata*	15	N	FACW
4	*Acer negundo*	10	N	FAC
5				
6				
7				
8				
9				
10				
		100	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharinum*	30	Y	FACW
2	*Acer negundo*	10	Y	FAC
3	*Cornus amomum*	5	N	FACW
4				
5				
6				
7				
8				
9				
10				
		45	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		0	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	20	50
Sapling/Shrub Stratum	9	23
Herb Stratum	0	0
Woody Vine Stratum	0	0

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: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	125	x 2 =	250
FAC species	20	x 3 =	60
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	145 (A)		310 (B)

Prevalence Index = B/A = 2.14

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

No herbaceous vegetation or woody vines.

SOIL **Sampling Point:** WTL-1

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-4	10YR4/2	70	7.5YR3/4	20	RM	M	clay loam	10% manganese nodules
4-10	10YR5/2	50	10YR3/4	28	RM	M	clay loam	5% manganese nodules
4-10			5YR4/6	17	RM	M	clay loam	
10-14	10YR4/6	60	10YR4/2	40	RM	M	clay loam	

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

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Suface (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)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- X 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 Soils:*

- ___ 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)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

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

Hydric soil present? ___Y___

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Boyd Buchanan School City/County: Chattanooga/Hamil Sampling Date: 11/2/2021
Applicant/Owner: Boyd Buchanan School State: TN Sampling Point: UPL-1
Investigator(s): Sam Parish, Hali Steinmann/BDY Environmental, LLC Section, Township, Range:
Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): slight concave Slope (%) 3
Subregion (LRR or MRLA): N Lat.: 35.039672 Long.: -85.218007 Datum: WGS84
Soil Map Unit Name: Colbert silt loam NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology X significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Sample pit is located along stormwater flow path between roadway discharge points and wetland area, which results in the presence of some hydrology indicators, but absence of hydric soils shows that the area is not a wetland.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- X Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes ____	No	X	Depth (inches):	
Water table present?	Yes ____	No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes ____	No	X	Depth (inches):	

Wetland Hydrology Present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Area receives stormwater runoff from adjacent roadway; this has created drift deposits and drainage patterns.

VEGETATION - Use scientific names of plants

Sampling Point: UPL-1

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharinum*	35	Y	FACW
2	*Celtis laevigata*	20	Y	FACW
3	*Fraxinus pennsylvanica*	20	Y	FACW
4	*Pyrus calleryana*	15	N	
5	*Quercus phellos*	10	N	FAC
6				
7				
8				
9				
10				
		100	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer negundo*	15	Y	FAC
2	*Sambucus nigra*	10	Y	FAC
3				
4				
5				
6				
7				
8				
9				
10				
		25	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Ligustrum sinense*	10	Y	FACU
2	*Euonymus fortuneii*	5	Y	
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		15	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	20	50
Sapling/Shrub Stratum	5	13
Herb Stratum	3	8
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across all Strata: 7 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 71.43% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	75	x 2 =	150
FAC species	35	x 3 =	105
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column totals	120 (A)		295 (B)

Prevalence Index = B/A = 2.46

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

SOIL **Sampling Point:** UPL-1

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-1	10YR2/1	100					organic layer/loam	
1-2	10YR3/2	99	7.5YR4/6	1	RM	M	silt loam	
2-14	7.5YR4/4	75	5YR4/6	10	RM	M	clay loam	5% manganese nodules
2-14			10YR4/3	10	RM	M	clay loam	

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

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Suface (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 Soils:*

- ___ 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)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

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

Hydric soil present? N

Remarks:
No hydric soil indicators observed.

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Boyd Buchanan School City/County: Chattanooga/Hamil Sampling Date: 11/2/2021
Applicant/Owner: Boyd Buchanan School State: TN Sampling Point: UPL-2
Investigator(s): Sam Parish, Hali Steinmann/BDY Environmental, LLC Section, Township, Range:
Landform (hillslope, terrace, etc.): concave Local relief (concave, convex, none): slight concave Slope (%) 1
Subregion (LRR or MRLA): N Lat.: 35.038743 Long.: -85.218002 Datum: WGS84
Soil Map Unit Name: Colbert and Capshaw silt loams NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil X, or hydrology X significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Nearby grading and placement of fill material have disturbed soils and hydrology near this soil pit. The absence of hydrology and hydric soils indicates that a wetland is not present at this location.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches): ____
Water table present?	Yes	____	No	X	Depth (inches): ____
Saturation present? (includes capillary fringe)	Yes	____	No	X	Depth (inches): ____

Wetland Hydrology Present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No hydrology indicators observed.

VEGETATION - Use scientific names of plants

Sampling Point: UPL-2

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Pyrus calleryana*	35	Y	
2	*Fraxinus pennsylvanica*	30	Y	FACW
3	*Celtis occidentalis*	20	Y	FACU
4	*Quercus palustris*	10	N	FACW
5	*Acer saccharinum*	5	N	FACW
6				
7				
8				
9				
10				
		100	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Cornus amomum*	10	Y	FACW
2	*Sambucus nigra*	10	Y	FAC
3	*Ulmus rubra*	10	Y	FAC
4	*Ligustrum sinense*	10	Y	FACU
5				
6				
7				
8				
9				
10				
		40	= Total Cover	

Herb Stratum	Plot Size (5')	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex sp.*	30	Y	
2	*Carex frankii*	25	Y	OBL
3	*Symphyotrichum lanceolatum*	20	Y	FACW
4	*Galium triflorum*	10	N	FACU
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		85	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Toxicodendron radicans*	10	Y	FAC
2	*Euonymus fortuneii*	10	Y	
3				
4				
5				
		20	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	20	50
Sapling/Shrub Stratum	8	20
Herb Stratum	17	43
Woody Vine Stratum	4	10

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across all Strata: 12 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 58.33% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	25	x 1 =	25
FACW species	75	x 2 =	150
FAC species	30	x 3 =	90
FACU species	40	x 4 =	160
UPL species	0	x 5 =	0
Column totals	170 (A)		425 (B)

Prevalence Index = B/A = 2.50

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

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

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

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

Carex sp. could not be identified to species-- wispy, possibly C. pensylvanica

SOIL **Sampling Point:** UPL-2

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

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
1-3	10YR5/3	98	7.5YR4/6	2	RM	M	silt loam	
3-12	10YR5/3	80	7.5YR4/4	10	RM	M	clay loam	10% manganese nodules

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

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Suface (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 Soils:*

- ___ 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)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

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

Hydric soil present? N

Remarks:
No hydric soil indicators observed.

APPENDIX 2:
Site Photographs

1. View from Wetland-1 facing east showing pond backwater area.

2. View of Wetland-1 facing southwest showing standing water from adjacent artificial pond.

3. View of Wetland-1 facing northwest showing ponded water and maple saplings.

4. View of Wetland-1 facing north showing absence of herbaceous vegetation layer and forested area.

5. View of WTL-1 sample pit area facing northeast.

6. Additional view of WTL-1 sample pit area facing down showing absence of herbaceous vegetation.

7. View of soils in WTL-1 sample pit showing redox and manganese masses.

8. View of Wetland-1 facing south-southeast.

9. View of Wetland-1 facing southwest.

10. View of UPL-1 sample pit area facing north.

11. Additional view of UPL-1 sample pit area facing southwest.

12. View of non-hydric soils in UPL-1 sample pit showing a brown chroma and the absence of redox.

13. View of Wetland-1 facing north showing the southern finger of the wetland.

14. View of Wetland-1 facing south showing the northern portion of the wetland.

15. View of UPL-2 sample pit area facing south.

16. Additional view of UPL-2 sample pit area facing west.

17. View of the non-hydric soils in UPL-2 sample pit.

Appendix 3
Precipitation Data

Name of Site: **Boyd-Buchanan School**
Date of Site Visit: **2-Nov-21**
Previous 7 Day Rainfall Total: **0.53** inches
Previous 48-hr Rainfall Total: **0** inches
Weather Station Norms from *Chattanooga AP Station* https://www.weather.gov/wrh/climate?wfo=mrx
Actual Rainfall from *Chattanooga AP Station* https://www.weather.gov/wrh/climate?wfo=mrx
Monthly Standard Deviation obtained online at NOAA Earth System Research Laboratory, Physical Sciences (http://www.esrl.noaa.gov)

Calculation Based on Lookout Mountain Rainfall Amounts, Normals, and Chattanooga Std. Deviations

Calculation of Normal Weather Conditions

		Long-Term Rainfall Records								
	Month	Minus one Std. Dev. (dry)	Normal (mean inches)	Plus One Std. Dev. (wet)	Actual Rainfall	Condition (Low, Average, Elevated)	Condition Value*	Month Weight Value	Condition Value Calculation	Std. Deviation
1st Month Prior	October	1.7	3.59	5.48	4.72	average	2	x 3	6	1.89
2nd Month Prior	September	1.19	4.23	7.27	6.67	average	2	x2	4	3.04
3rd Month Prior	August	2.22	3.67	5.12	11.48	elevated	3	x1	3	1.45
								Sum=	13	

If sum is:	
6 to 9	then prior period has been abnormally dry
10 to 14	then prior period has been normal (average)
15 to 18	then prior period has been abnormally wet

Condition Value:*	
Low=	1
Average=	2
Elevated=	3

Climatological Data for CHATTANOOGA AP, TN - August 2021

Date	Temperature				HDD	CDD	Precipitation	New Snow	Snow Depth
	Maximum	Minimum	Average	Departure					
2021-08-01	89	72	80.5	-0.5	0	16	T	0.0	0
2021-08-02	87	67	77.0	-4.0	0	12	0.00	0.0	0
2021-08-03	88	69	78.5	-2.4	0	14	0.00	0.0	0
2021-08-04	84	70	77.0	-3.9	0	12	1.26	0.0	0
2021-08-05	89	66	77.5	-3.4	0	13	0.00	0.0	0
2021-08-06	88	69	78.5	-2.4	0	14	0.00	0.0	0
2021-08-07	86	72	79.0	-1.8	0	14	T	0.0	0
2021-08-08	89	67	78.0	-2.8	0	13	T	0.0	0
2021-08-09	91	72	81.5	0.8	0	17	0.00	0.0	0
2021-08-10	93	72	82.5	1.8	0	18	1.12	0.0	0
2021-08-11	90	73	81.5	0.9	0	17	T	0.0	0
2021-08-12	91	70	80.5	-0.1	0	16	0.00	0.0	0
2021-08-13	91	73	82.0	1.5	0	17	T	0.0	0
2021-08-14	94	72	83.0	2.6	0	18	0.00	0.0	0
2021-08-15	88	71	79.5	-0.8	0	15	2.29	0.0	0
2021-08-16	90	70	80.0	-0.3	0	15	1.34	0.0	0
2021-08-17	81	71	76.0	-4.2	0	11	1.11	0.0	0
2021-08-18	90	68	79.0	-1.1	0	14	0.30	0.0	0
2021-08-19	82	72	77.0	-3.0	0	12	0.39	0.0	0
2021-08-20	87	73	80.0	0.2	0	15	0.01	0.0	0
2021-08-21	84	73	78.5	-1.2	0	14	0.62	0.0	0
2021-08-22	88	74	81.0	1.4	0	16	0.06	0.0	0
2021-08-23	92	70	81.0	1.5	0	16	0.00	0.0	0
2021-08-24	95	70	82.5	3.2	0	18	0.00	0.0	0
2021-08-25	97	73	85.0	5.8	0	20	0.00	0.0	0
2021-08-26	91	73	82.0	3.0	0	17	0.00	0.0	0
2021-08-27	92	73	82.5	3.6	0	18	0.00	0.0	0
2021-08-28	92	74	83.0	4.3	0	18	0.00	0.0	0
2021-08-29	91	74	82.5	4.0	0	18	0.00	0.0	0
2021-08-30	88	71	79.5	1.2	0	15	0.80	0.0	0
2021-08-31	79	71	75.0	-3.1	0	10	2.18	0.0	0
Sum	2757	2205	-	-	0	473	11.48	0.0	-
Average	88.9	71.1	80.0	0.0	-	-	-	-	0.0
Normal	89.8	70.2	80.0	-	0	465	3.67	0.0	-

Observations for each day cover the 24 hours ending at the time given below (Local Standard Time). Observation times may have changed during this period.
Max Temperature : midnight
Min Temperature : midnight
Precipitation : midnight
Snowfall : unknown, midnight
Snow Depth : midnight, 7am

Climatological Data for CHATTANOOGA AP, TN - September 2021

Date	Temperature				HDD	CDD	Precipitation	New Snow	Snow Depth
	Maximum	Minimum	Average	Departure					
2021-09-01	86	72	79.0	1.1	0	14	0.00	0.0	0
2021-09-02	83	66	74.5	-3.2	0	10	0.00	0.0	0
2021-09-03	85	64	74.5	-3.0	0	10	0.00	0.0	0
2021-09-04	86	64	75.0	-2.3	0	10	0.00	0.0	0
2021-09-05	86	62	74.0	-3.0	0	9	0.07	0.0	0
2021-09-06	86	66	76.0	-0.8	0	11	1.18	0.0	0
2021-09-07	86	62	74.0	-2.5	0	9	0.00	0.0	0
2021-09-08	90	72	81.0	4.7	0	16	0.00	0.0	0
2021-09-09	83	64	73.5	-2.5	0	9	0.00	0.0	0
2021-09-10	82	58	70.0	-5.8	0	5	0.00	0.0	0
2021-09-11	84	59	71.5	-4.0	0	7	0.00	0.0	0
2021-09-12	85	63	74.0	-1.2	0	9	0.00	0.0	0
2021-09-13	90	65	77.5	2.6	0	13	0.00	0.0	0
2021-09-14	90	67	78.5	3.9	0	14	0.00	0.0	0
2021-09-15	80	69	74.5	0.2	0	10	0.03	0.0	0
2021-09-16	80	69	74.5	0.5	0	10	0.16	0.0	0
2021-09-17	82	69	75.5	1.8	0	11	0.00	0.0	0
2021-09-18	81	72	76.5	3.1	0	12	0.86	0.0	0
2021-09-19	76	71	73.5	0.4	0	9	2.26	0.0	0
2021-09-20	74	69	71.5	-1.2	0	7	1.57	0.0	0
2021-09-21	84	69	76.5	4.1	0	12	0.03	0.0	0
2021-09-22	74	56	65.0	-7.1	0	0	0.51	0.0	0
2021-09-23	73	53	63.0	-8.7	2	0	0.00	0.0	0
2021-09-24	74	48	61.0	-10.4	4	0	0.00	0.0	0
2021-09-25	79	50	64.5	-6.5	0	0	0.00	0.0	0
2021-09-26	80	56	68.0	-2.7	0	3	0.00	0.0	0
2021-09-27	82	57	69.5	-0.8	0	5	0.00	0.0	0
2021-09-28	85	58	71.5	1.6	0	7	0.00	0.0	0
2021-09-29	86	62	74.0	4.4	0	9	0.00	0.0	0
2021-09-30	83	62	72.5	3.3	0	8	0.00	0.0	0
Sum	2475	1894	-	-	6	249	6.67	0.0	-
Average	82.5	63.1	72.8	-1.1	-	-	-	-	0.0
Normal	84.3	63.6	73.9	-	7	276	4.23	0.0	-

Observations for each day cover the 24 hours ending at the time given below (Local Standard Time).
Max Temperature : midnight
Min Temperature : midnight
Precipitation : midnight
Snowfall : midnight
Snow Depth : 7am

Climatological Data for CHATTANOOGA AP, TN - October 2021

Date	Temperature				HDD	CDD	Precipitation	New Snow	Snow Depth
	Maximum	Minimum	Average	Departure					
2021-10-01	85	66	75.5	6.7	0	11	0.00	0.0	0
2021-10-02	80	64	72.0	3.6	0	7	T	0.0	0
2021-10-03	74	69	71.5	3.4	0	7	0.54	0.0	0
2021-10-04	85	68	76.5	8.8	0	12	0.12	0.0	0
2021-10-05	74	68	71.0	3.7	0	6	0.15	0.0	0
2021-10-06	79	69	74.0	7.1	0	9	0.85	0.0	0
2021-10-07	82	69	75.5	9.0	0	11	1.01	0.0	0
2021-10-08	83	65	74.0	7.9	0	9	0.00	0.0	0
2021-10-09	83	63	73.0	7.3	0	8	0.00	0.0	0
2021-10-10	83	63	73.0	7.7	0	8	0.00	0.0	0
2021-10-11	80	62	71.0	6.1	0	6	0.00	0.0	0
2021-10-12	73	65	69.0	4.5	0	4	0.00	0.0	0
2021-10-13	83	63	73.0	9.0	0	8	0.00	0.0	0
2021-10-14	83	65	74.0	10.4	0	9	0.00	0.0	0
2021-10-15	84	61	72.5	9.3	0	8	0.28	0.0	0
2021-10-16	71	50	60.5	-2.3	4	0	0.23	0.0	0
2021-10-17	69	47	58.0	-4.4	7	0	0.00	0.0	0
2021-10-18	73	44	58.5	-3.5	6	0	0.00	0.0	0
2021-10-19	74	46	60.0	-1.5	5	0	0.00	0.0	0
2021-10-20	77	48	62.5	1.4	2	0	0.00	0.0	0
2021-10-21	78	57	67.5	6.8	0	3	1.00	0.0	0
2021-10-22	68	50	59.0	-1.3	6	0	0.00	0.0	0
2021-10-23	72	47	59.5	-0.3	5	0	0.00	0.0	0
2021-10-24	75	49	62.0	2.6	3	0	0.00	0.0	0
2021-10-25	77	55	66.0	7.0	0	1	0.01	0.0	0
2021-10-26	62	48	55.0	-3.6	10	0	0.00	0.0	0
2021-10-27	67	44	55.5	-2.7	9	0	0.00	0.0	0
2021-10-28	61	50	55.5	-2.3	9	0	0.34	0.0	0
2021-10-29	56	51	53.5	-3.9	11	0	0.17	0.0	0
2021-10-30	58	51	54.5	-2.4	10	0	0.02	0.0	0
2021-10-31	64	46	55.0	-1.5	10	0	0.00	0.0	0
Sum	2313	1763	-	-	97	127	4.72	0.0	-
Average	74.6	56.9	65.7	3.0	-	-	-	-	0.0
Normal	74.1	51.4	62.7	-	135	65	3.59	0.0	-

Observations for each day cover the 24 hours ending at the time given below (Local Standard Time).
Max Temperature : midnight
Min Temperature : midnight
Precipitation : midnight
Snowfall : midnight
Snow Depth : 7am

Climatological Data for CHATTANOOGA AP, TN - November 2021

Date	Temperature				HDD	CDD	Precipitation	New Snow	Snow Depth
	Maximum	Minimum	Average	Departure					
2021-11-01	68	43	55.5	-0.6	9	0	0.00	0.0	0
2021-11-02	62	44	53.0	-2.7	12	0	T	0.0	0
2021-11-03	51	45	48.0	-7.4	17	0	T	0.0	0
2021-11-04	49	43	46.0	-9.0	19	0	0.10	0.0	0
2021-11-05	53	39	46.0	-8.6	19	0	0.00	0.0	0
2021-11-06	63	38	50.5	-3.7	14	0	0.00	0.0	0
2021-11-07	67	34	50.5	-3.3	14	0	0.00	0.0	0
2021-11-08	71	36	53.5	0.0	11	0	0.00	0.0	0
2021-11-09	75	37	56.0	2.9	9	0	0.00	0.0	0
2021-11-10	75	42	58.5	5.8	6	0	0.00	0.0	0
2021-11-11	71	45	58.0	5.6	7	0	0.25	0.0	0
2021-11-12	66	40	53.0	1.0	12	0	0.00	0.0	0
2021-11-13	54	35	44.5	-7.2	20	0	0.00	0.0	0
2021-11-14	61	31	46.0	-5.4	19	0	0.00	0.0	0
2021-11-15	59	35	47.0	-4.1	18	0	0.00	0.0	0
2021-11-16	71	38	54.5	3.8	10	0	0.00	0.0	0
2021-11-17	70	49	59.5	9.1	5	0	0.00	0.0	0
2021-11-18	67	38	52.5	2.4	12	0	T	0.0	0
2021-11-19	M	M	M	M	M	M	M	M	M
2021-11-20	M	M	M	M	M	M	M	M	M
2021-11-21	M	M	M	M	M	M	M	M	M
2021-11-22	M	M	M	M	M	M	M	M	M
2021-11-23	M	M	M	M	M	M	M	M	M
2021-11-24	M	M	M	M	M	M	M	M	M
2021-11-25	M	M	M	M	M	M	M	M	M
2021-11-26	M	M	M	M	M	M	M	M	M
2021-11-27	M	M	M	M	M	M	M	M	M
2021-11-28	M	M	M	M	M	M	M	M	M
2021-11-29	M	M	M	M	M	M	M	M	M
2021-11-30	M	M	M	M	M	M	M	M	M
Sum	1153	712	-	-	233	0	0.35	0.0	-
Average	64.1	39.6	51.8	-1.2	-	-	-	-	0.0
Normal	64.2	41.8	53.0	-	221	5	2.62	0.0	-

Above Normals represent the month through 2021-11-18.

Observations for each day cover the 24 hours ending at the time given below (Local Standard Time).
Max Temperature : midnight
Min Temperature : midnight
Precipitation : midnight
Snowfall : midnight
Snow Depth : 7am

From: Sam Parish
To: Jennifer Innes
Cc: Barbara Russell; Hali Steinmann; Ethan Wood
Subject: [EXTERNAL] Boyd Buchanan School Wetland Delineation report
Date: Thursday, February 3, 2022 10:01:47 PM
Attachments: BoydBuchanan_Wetland Delineation Report_Comp.pdf

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Ms. Innes,
Please find our wetland delineation report for the above referenced property.

Please call or email me with any questions or if you need any additional information.

Thanks,
Sam

Samuel K. Parish, PG, CPESC
BDY Environmental, LLC
2607 Westwood Drive Nashville, TN 37204
M: 615.400.0802 | O: 615.460.9797 ext. 4