SECTION 404 PERMITTING UNITED STATES ARMY CORPS OF ENGINEERS (USACE)

JOHN METRAILER, P.E.

POLLUTION MANAGEMENT INCORPORATED

SECTION 404 OF THE CLEAN WATER ACT

- REGULATES THE DISCHARGE OF DREDGED OR FILL MATERIAL INTO WATERS OF THE UNITED STATES (WOTUS), INCLUDING WETLANDS.
- REGULATED ACTIVITIES INCLUDE FILL FOR DEVELOPMENT, WATER RESOURCE PROJECTS SUCH AS DAMS AND LEVEES, INFRASTRUCTURE DEVELOPMENT SUCH AS HIGHWAYS AND AIRPORTS, AND MINING PROJECTS.
- USACE REGULATES THE PERMIT REVIEW PROCESS AND ISSUES PERMITS.

KNOW WHAT'S ON THE PROPERTY

- FIELD DETERMINATION = "STREAM AND WETLAND DELINEATION"
  - PRIVATE CONSULTING FIRM SUCH AS PMI
    - MINOR COST TO OWNER
    - EXPEDITES THE PROCESS
    - CONSULTANT CONTROLS PROJECT TO ALLEVIATE OWNER RESPONSIBILITY
  - USACE DETERMINATION
    - NO COST TO OWNER
    - TIME CONSUMING
    - OWNER RESPONSIBLE FOR OBTAINING PROJECT UPDATES FROM USACE

AERIAL WITH PROPERTY BOUNDARY

USFWS NATIONAL WETLAND INVENTORY

USDA SOILS MAP

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
12	Bismarck-Clebit-Sherless complex, 3 to 8 percent slopes	4.7	8.4%
13	Bismarck-Sherless-Clebit complex, 8 to 12 percent slopes	10.2	18.4%
14	Bismarck-Sherless-Clebit complex, 12 to 30 percent slopes	29.0	52.1%
15	Bonnerdale fine sandy loam, occasionally flooded	11.8	21.1%
Totals for Area of Interest		55.7	100.0%

N

LAND RESOURCE REGIONS (LRR) AND MAJOR LAND RESOURCE AREAS (MLRA)

- ATLANTIC & GULF COASTAL PLAIN REGION
  - REGIONAL SUPPLEMENT

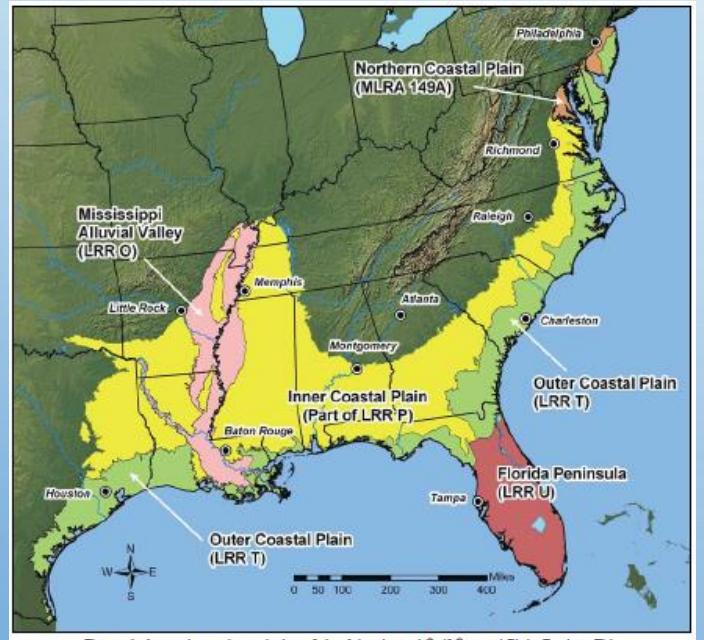


Figure 1. Approximate boundaries of the Atlantic and Gulf Coastal Plain Region. This supplement is applicable throughout the highlighted areas, although some wetland indicators may be restricted to specific subregions or smaller areas. See text for details.

- EASTERN MOUNTAINS & PIEDMONT REGION
  - REGIONAL SUPPLEMENT

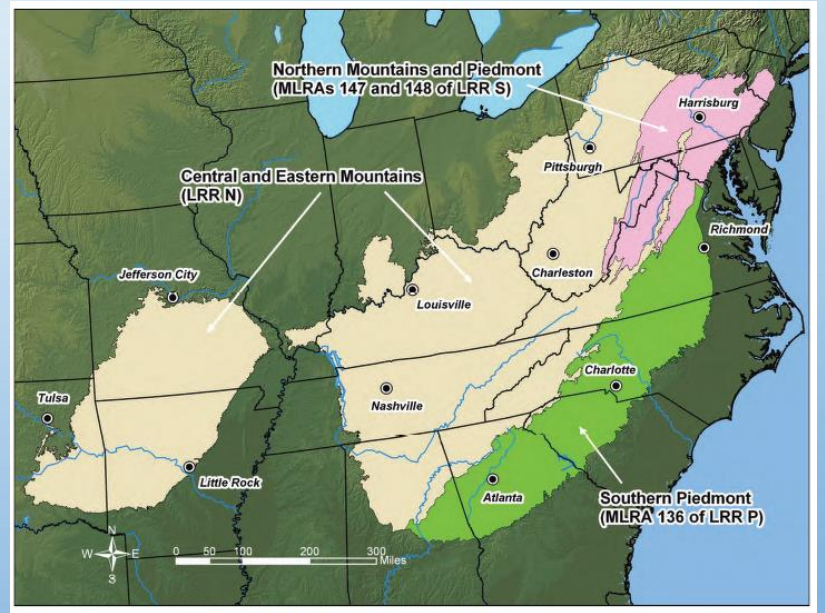
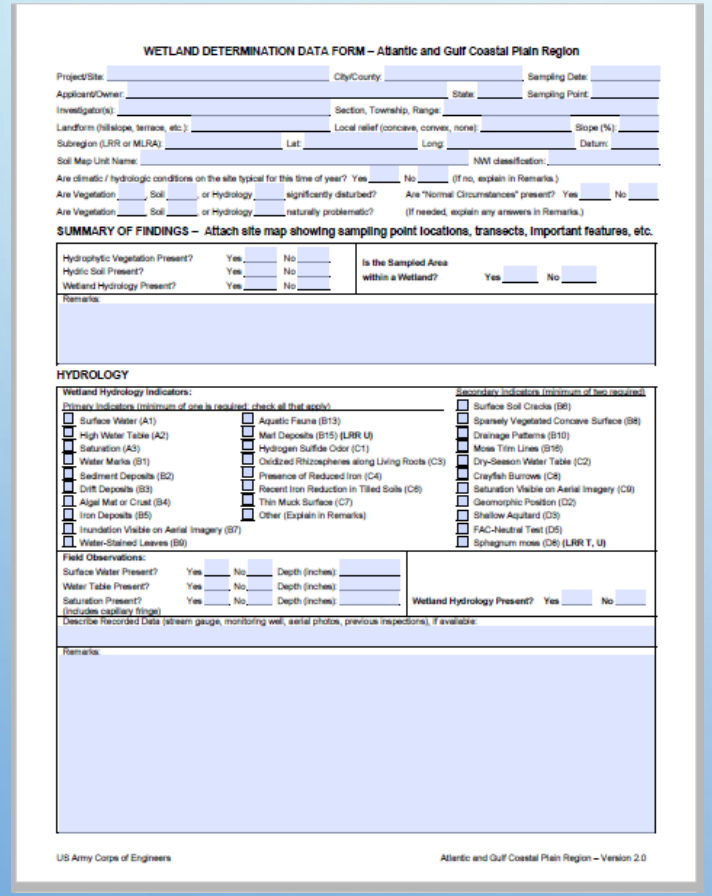


Figure 1. Approximate boundaries of the Eastern Mountains and Piedmont Region. Subregions used in this supplement correspond to USDA Land Resource Regions (LRR) and Major Land Resource Areas (MLRA). This supplement is applicable throughout the highlighted areas, although some indicators may be restricted to specific subregions or smaller areas. See text for details.

WETLAND DETERMINATION DATA FORM



WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: City/County: Sampling Date:

Applicant/Owner: State: Sampling Point:

Investigator(s): Section, Township, Range:

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%):

Subregion (LRR or MLRA): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

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 No

Hydric Soil Present? Yes No

Wetland Hydrology Present? Yes No

Is the Sampled Area within a Wetland? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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)
- Marl Deposits (B15) (LRR U)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- 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)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Sphagnum moss (D8) (LRR T, U)

Field Observations:

Surface Water Present? Yes No Depth (inches):

Water Table Present? Yes No Depth (inches):

Saturation Present? (includes capillary fringe) Yes No Depth (inches):

Wetland Hydrology Present? Yes No

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

Remarks:

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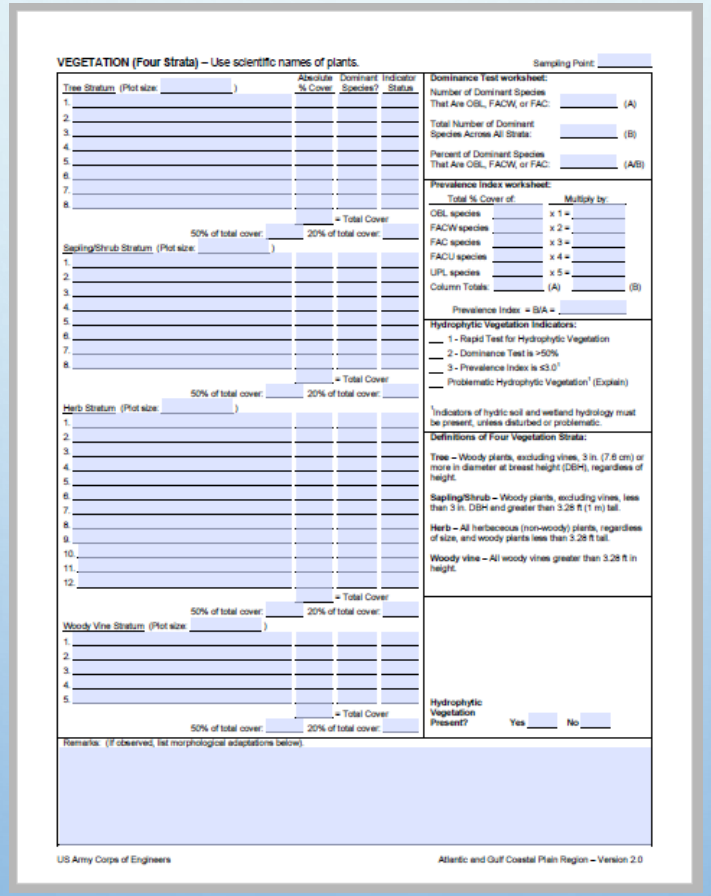

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point:

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: 20% of total cover:

Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	= Total Cover		

50% of total cover: 20% of total cover:

Herb Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	= Total Cover		

50% of total cover: 20% of total cover:

Woody Vine Stratum (Plot size:)			
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: (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: (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 ≤3.0[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

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

Sapling/Shrub – Woody plants, excluding vines, 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 vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes No

Remarks: (If observed, list morphological adaptations below).

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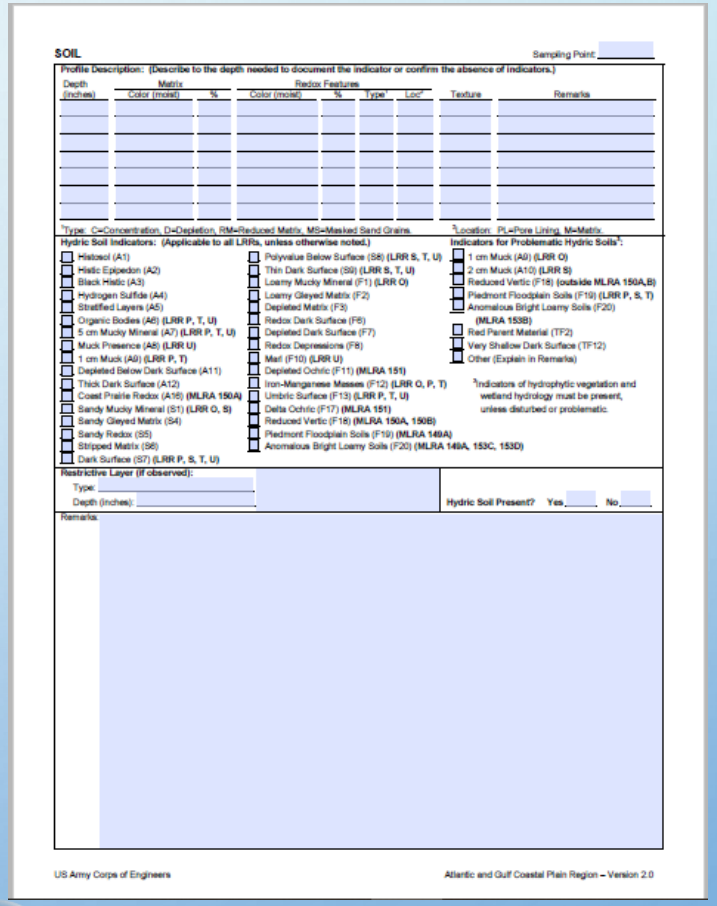

SOIL Sampling Point:

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)
- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

Indicators for Problematic Hydric Soils[3]:

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

[3]Indicators 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:

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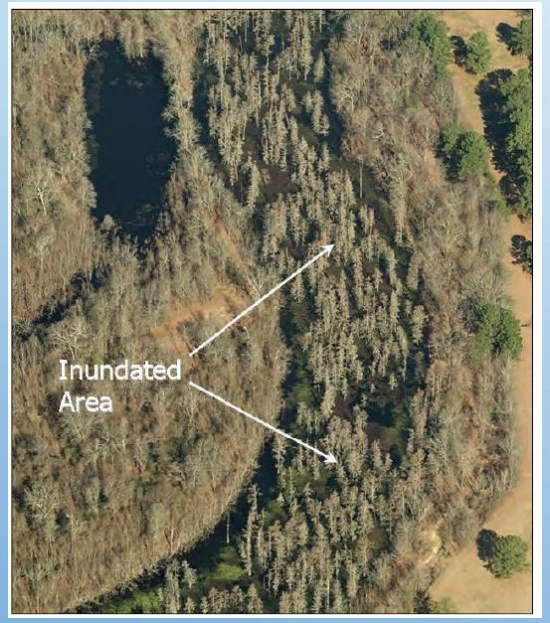
WETLAND CRITERIA
ALL THREE REQUIRED TO BE CONSIDERED JURISDICTIONAL

1. WETLAND HYDROLOGY



2. HYDROPHYTIC VEGETATION

3. HYDRIC SOILS

WETLAND HYDROLOGY

HYDROLOGY

Wetland Hydrology Indicators:

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 (C6)
- ___ 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 ___	Depth (inches):	0-2
Water Table Present?	Yes ✓	No ___	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes ✓	No ___	Depth (inches):	0

Wetland Hydrology Present? Yes ✓ No ___

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

HYDROPHYTIC VEGETATION

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP1

Tree Stratum (Plot size: 50' x 50')	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus nigra	10		FAC
2. Ulmus rubra	20		FAC
3. Celtis laevigata	20		FACW
4. Carpinus caroliniana	10		FAC
5.			
6.			
7.			
	60	= Total Cover	
50% of total cover: 30	20% of total cover: 12		

Sapling/Shrub Stratum (Plot size: 50' x 50')			
1. Ligustrum sinense	10		FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	10	= Total Cover	
50% of total cover: 5	20% of total cover: 2		

Herb Stratum (Plot size:)			
1.			
2.			
3.			
4.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	40	x 3 =	120
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	70 (A)		200 (B)

Prevalence Index = B/A = 2.9

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

HYDRIC SOIL

SOIL

Sampling Point: DP1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR 3/1	100					loam	
>4	10YR 3/2	100					sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: 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 Soils[3]:

- ___ 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)

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

JURISDICTIONAL STREAM TYPES

- PERENNIAL STREAM – HAVE FLOWING WATER YEAR-ROUND DURING A TYPICAL YEAR.
- INTERMITTENT STREAM – HAVE FLOWING WATER DURING CERTAIN TIMES OF THE YEAR, WHEN GROUNDWATER PROVIDES WATER FOR STREAM FLOW. MAY NOT HAVE FLOWING WATER DURING DRY PERIODS.
- EPHEMERAL STREAM – HAVE FLOWING WATER ONLY DURING AND FOR A SHORT DURATION AFTER PRECIPITATION IN A TYPICAL YEAR.

STREAM FEATURES

- FLOW AND SINUOSITY
- DEFINED BED AND BANK
- RIFFLE, RUN, POOL COMPLEXES
- SEDIMENT SORTING
- AQUATIC MICRO & MACROINVERTEBRATES
- PRESENCE OF FISH, CRAYFISH, FROGS, ETC.
- NEXUS, OR HYDRAULIC CONNECTION TO JURISDICTIONAL WATERS

JURISDICTIONAL STREAM TYPES

EPHEMERAL

INTERMITTENT

PERENNIAL

WETLAND AND STREAM DELINEATION

- SITE VISIT WITH MAPS
- GPS JURISDICTIONAL WOTUS
- COLLECT UPLAND AND WETLAND DATA POINTS
- TAKE PHOTOGRAPHS
- DEVELOP REPORT SUMMARIZING FINDINGS WITH MAP INDICATING LOCATIONS OF WOTUS
- DELIVER REPORT TO CLIENT AND USACE REQUESTING APPROVED JURISDICTIONAL DETERMINATION (AJD)
- CLIENT (PERMIT APPLICANT) TO DEVELOP SITE PLAN BASED ON WOTUS AVOIDANCE AND MINIMIZATION IF APPLICABLE

USACE 404 PERMITTING

NATIONWIDE PERMIT

- IMPACTS WITH MINIMAL ADVERSE EFFECTS
- NO PUBLIC COMMENT PERIOD
- 30 TO 60 DAY REVIEW PERIOD
- NATIONAL LIST OF PERMITTED ACTIVITIES
- REISSUED EVERY 5 YEARS WITH UPDATES

INDIVIDUAL PERMIT

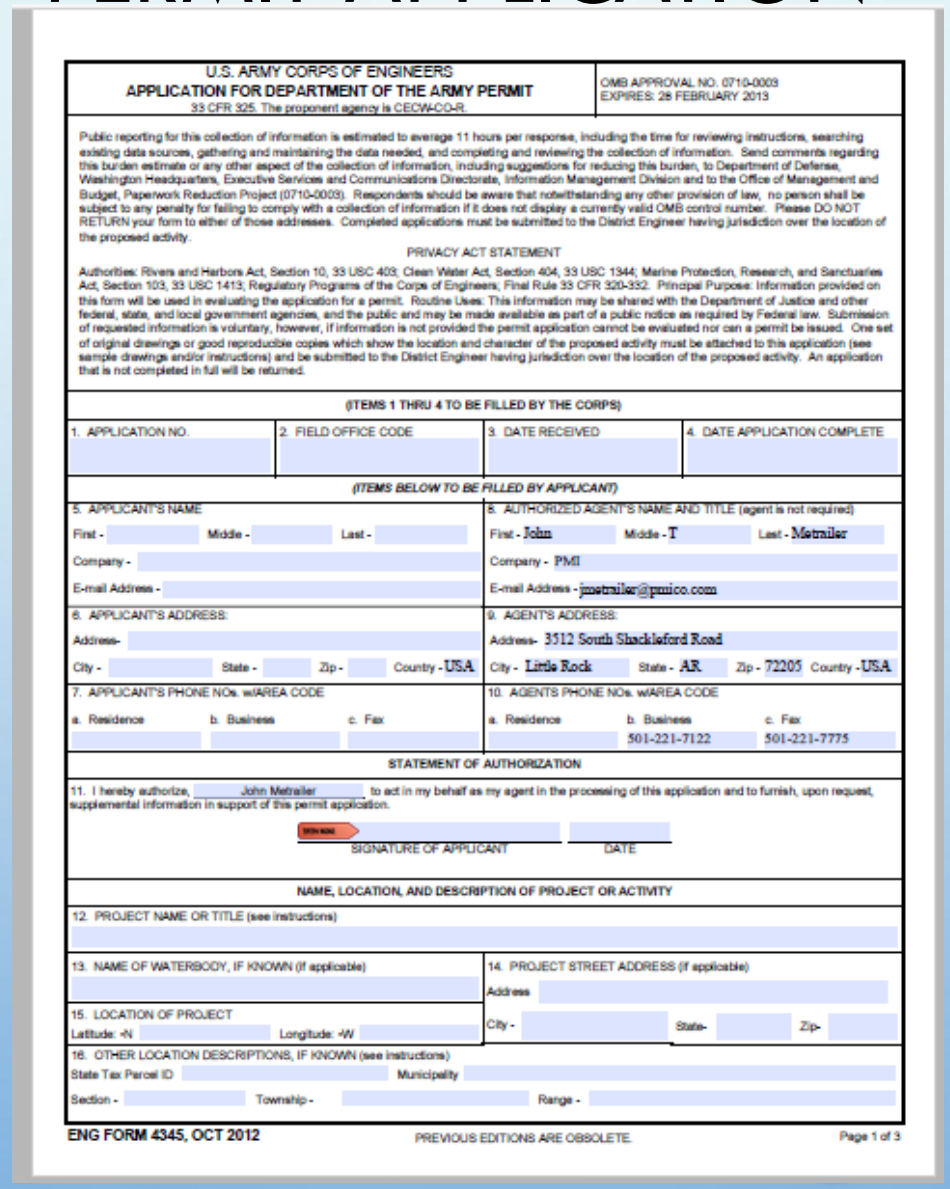
- IMPACTS WITH SIGNIFICANT ADVERSE EFFECTS
- PUBLIC COMMENT PERIOD
- 90 TO 180 DAY REVIEW PERIOD
- ISSUED ON INDIVIDUAL BASIS

NATIONWIDE PERMITS

- BANK STABILIZATION, LINEAR TRANSPORTATION PROJECTS, BOAT RAMPS, RECREATIONAL FACILITIES, MINING ACTIVITIES, STORMWATER MANAGEMENT FACILITIES, ETC.

Nationwide Permit	Statutory Authority	Limits	Pre-Construction Notification (PCN) Threshold	Delineation Required?	Applicable Waters	Changes	Other Information
NWP 27 – Aquatic Habitat Restoration, Enhancement, and Establishment Activities	10/404	none	all activities, except for those that require reporting (e.g., activities under a binding agreement between the landowner and an agency)	yes, if PCN required	all waters of the U.S.	Added "releasing sediment from reservoirs to restore or sustain downstream habitat" and "coral restoration or relocation" to the list of examples of activities authorized by this NWP. No PCN required for activities conducted in accordance with the terms and conditions of a binding coral restoration or relocation agreement between the project proponent and the NMFS or any of its designated state cooperating agencies.	Does not authorize stream channelization. Does not authorize relocation or conversion of tidal waters. Does not authorize conversion of natural wetlands or streams, except for relocation activities. Compensatory mitigation is not required for NWP 27 activities.
NWP 28 – Modifications of Existing Marinas	10	activities limited to authorized marina area	PCN not required	no	navigable waters of the U.S.	none	Does not authorize dredging, additional slips, dock spaces, or expansion in waters of the U.S.
NWP 29 – Residential Developments	10/404	• 1/2 acre	all activities	yes	non-tidal waters of the U.S., except non-tidal wetlands adjacent to tidal waters	Removed the 300 linear foot limit for losses of stream bed. Remove waiver provision.	For residential subdivisions, the aggregate total loss of waters of the U.S. cannot exceed 1/2-acre.
NWP 30 – Moist Soil Management for Wildlife	404	none	PCN not required	no	non-tidal waters of the U.S.	none	Authorizes only on-going activities. Does not authorize construction of new dikes, roads, water control structures, etc. Does not authorize conversion of wetlands to uplands. Does not authorize impoundments. Does not authorize activities that result in net loss of aquatic functions and services.
NWP 31 – Maintenance of Existing Flood Control Facilities	10/404	maintenance baseline approved by district engineer	all activities	yes	all waters of the U.S.	none	PCN must indicate location of sites for disposal of dredged or excavated material and baseline information. Authorizes the removal of vegetation from levees associated with a flood control project, if Corps permits are required for those activities.
NWP 32 – Completed Enforcement Actions	10/404	• 5 acres of non-tidal waters • 1 acre of tidal waters • also see text of NWP	PCN not required	no	all waters of the U.S.	none	
NWP 33 – Temporary Construction, Access, and Dewatering	10/404	none	all activities in navigable (i.e., section 10) waters	yes	all waters of the U.S.	none	Associated primary activity must be authorized by Corps or U.S. Coast Guard, or be exempt from permit requirements. PCN must include restoration plan.

PERMIT APPLICATION



U.S. ARMY CORPS OF ENGINEERS
APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT
33 CFR 325. The proponent agency is CECW-CO-R.

OMB APPROVAL NO. 0710-0003
EXPIRES: 28 FEBRUARY 2013

Public reporting for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of the collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME	8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required)
First - Middle - Last -	First - John Middle - T Last - Metrailer
Company -	Company - PMI
E-mail Address -	E-mail Address - jmetrailer@pmico.com
6. APPLICANT'S ADDRESS:	9. AGENT'S ADDRESS:
Address-	Address- 3512 South Shackleford Road
City - State - Zip - Country - USA	City - Little Rock State - AR Zip - 72205 Country - USA
7. APPLICANT'S PHONE NOs. w/AREA CODE	10. AGENTS PHONE NOs. w/AREA CODE
a. Residence b. Business c. Fax	a. Residence b. Business c. Fax
	501-221-7122 501-221-7775

STATEMENT OF AUTHORIZATION

11. I hereby authorize, John Metrailer to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

SIGNATURE OF APPLICANT DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)

13. NAME OF WATERBODY, IF KNOWN (if applicable)	14. PROJECT STREET ADDRESS (if applicable)
	Address
15. LOCATION OF PROJECT Latitude: +N Longitude: +W	City - State- Zip-

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)
State Tax Parcel ID Municipality
Section - Township - Range -

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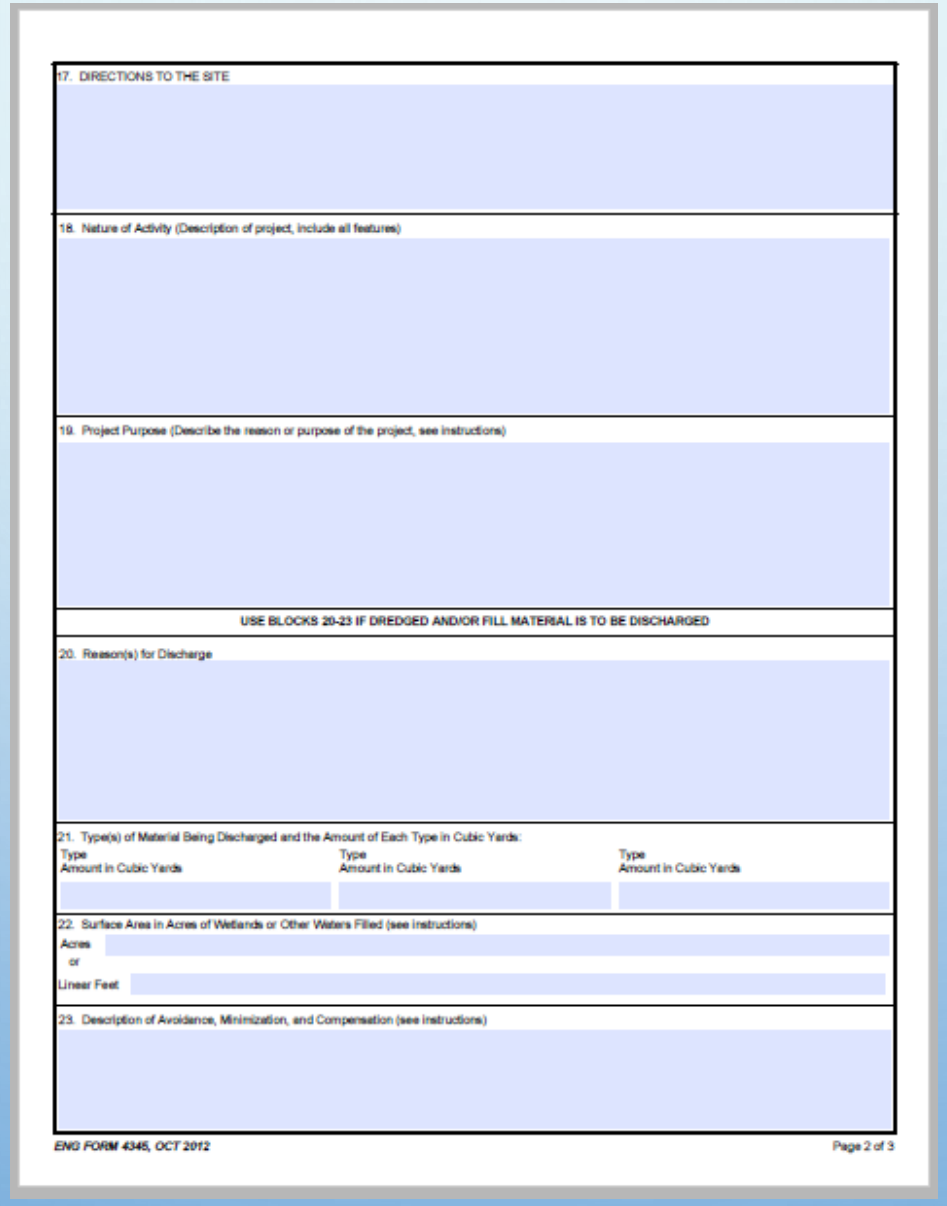
PERMIT APPLICATION



17. DIRECTIONS TO THE SITE

18. Nature of Activity (Description of project, include all features)

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres

or

Linear Feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)

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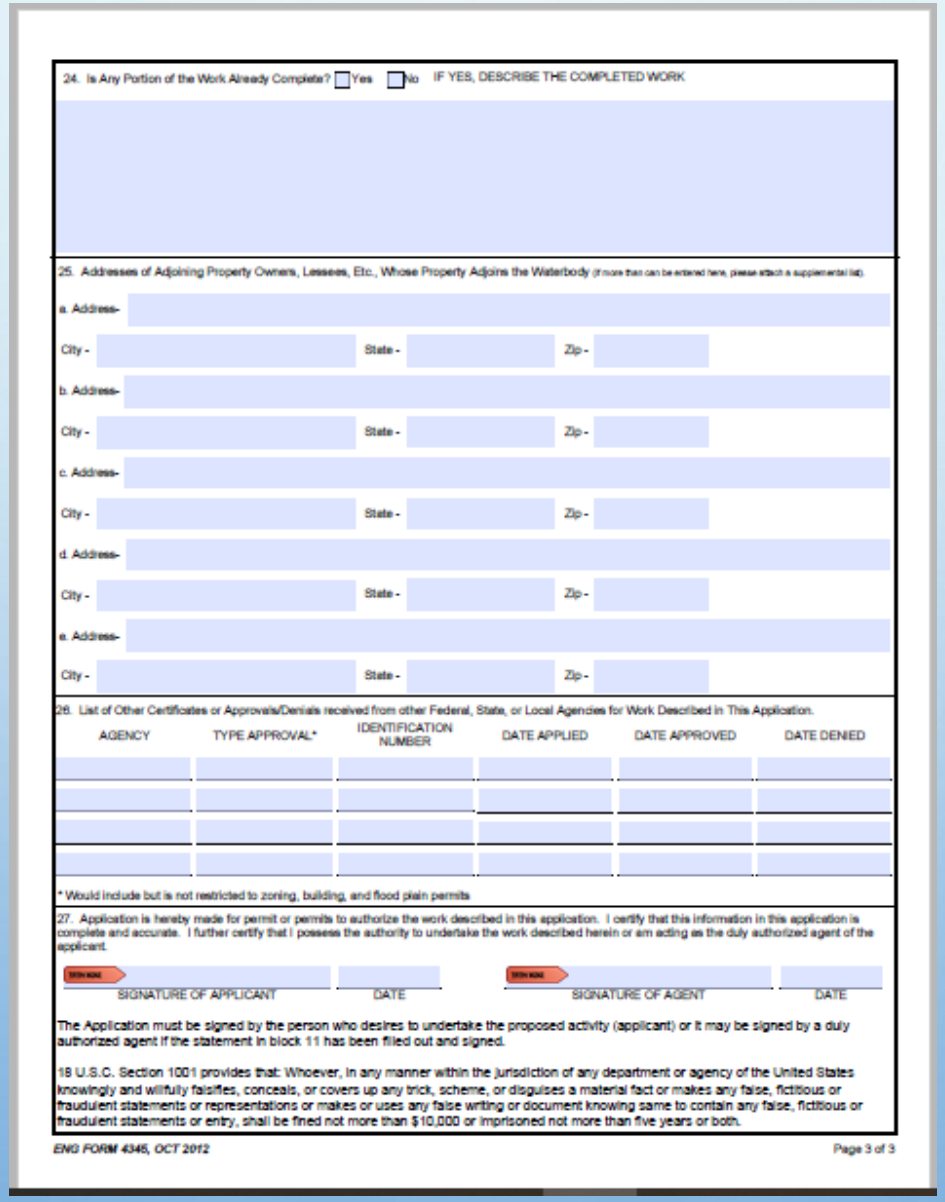
PERMIT APPLICATION



24. Is Any Portion of the Work Already Complete? ☐ Yes ☐ No IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (If more than can be entered here, please attach a supplemental list).

a. Address-
City - State - Zip -

b. Address-
City - State - Zip -

c. Address-
City - State - Zip -

d. Address-
City - State - Zip -

e. Address-
City - State - Zip -

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT DATE SIGNATURE OF AGENT DATE

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

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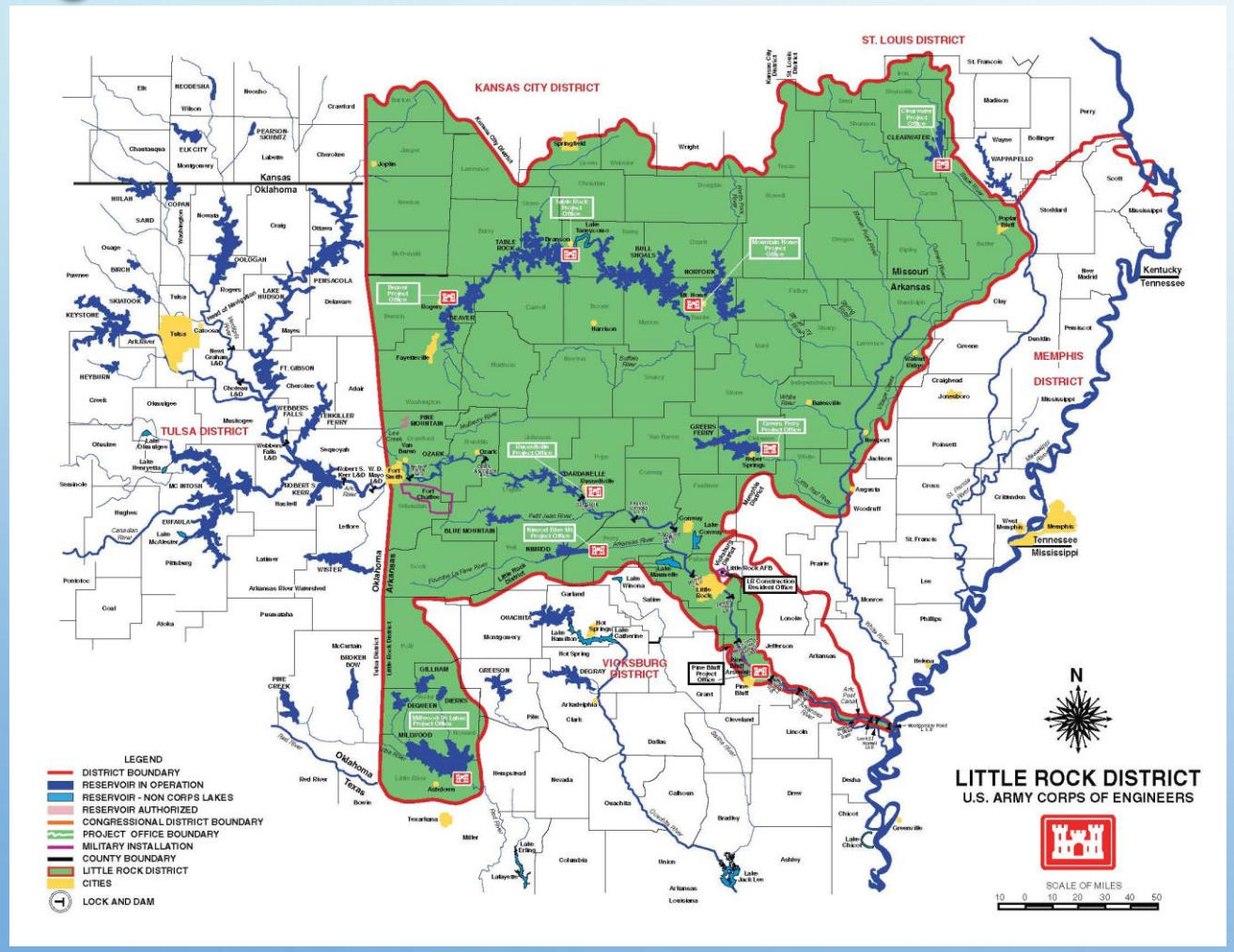
USACE DISTRICTS WITHIN ARKANSAS



- LITTLE ROCK DISTRICT
- MEMPHIS DISTRICT
- VICKSBURG DISTRICT
- DETERMINED BY HYDROLOGIC UNIT CODE (HUC)
  - WATERSHED NUMBER

PERMIT APPLICATION SUBMITTAL

- EACH DISTRICT HAS PERMIT EMAIL ADDRESS ONLINE
- USACE PROJECT MANAGER ASSIGNED TO PROJECT
  - PRIMARY CONTACT DURING PERMITTING PROCESS
- ADDITIONAL ITEMS MAY BE REQUESTED
  - CULTURAL RESOURCE STUDY – STATE HISTORIC PRESERVATION OFFICE
  - SITE VISIT (MAY OCCUR DURING AJD REVIEW)
  - THREATENED AND ENDANGERED SPECIES REVIEW FOR HABITAT/PRESENCE – USFWS
  - 30 DAY PUBLIC COMMENT IF INDIVIDUAL PERMIT
  - USACE INTERAGENCY REVIEWS AND ADDITIONAL PERMITS
  - MITIGATION

ADDITIONAL PERMITS ALONG WITH 404

- SECTION10 PERMIT – USACE PERMIT AFFECTING COURSE, LOCATION, CONDITION, OR CAPACITY OF NAVIGABLE WATERS
- SECTION 408 PERMIT – USACE PERMIT AFFECTING CIVIL WORKS PROJECTS (DAMS, LEVEES, ETC.)
- FLOWAGE EASEMENT – USACE REAL ESTATE DIVISION FOR PERPETUAL RIGHTS OF FLOOD ZONES
- ADEQ SHORT TERM ACTIVITY AUTHORIZATION (STAA)
- FEMA FLOODPLAIN DEVELOPMENT PERMIT

WETLAND AND STREAM MITIGATION

- ON-SITE MITIGATION
  - ENHANCE WETLANDS OR STREAMS ON-SITE
  - REVIEW AND APPROVAL BY USACE
  - MONITORING REPORTS – 5 YEARS
    - CROSS SECTIONS
    - VEGETATION SURVEY
    - SUBMITTED ANNUALLY TO USACE
- MITIGATION BANKS
  - PURCHASE CREDITS
  - WETLAND CREDITS ~$2,000 PER CREDIT
  - STREAM CREDITS ~$20 PER CREDIT
  - 1.5X MULTIPLIER IF OUT OF HUC

WETLAND AND STREAM MITIGATION

- DETERMINE ADVERSE IMPACTS
- PURCHASE CREDITS FROM APPROVED MITIGATION BANK OR SELECT ON-SITE MITIGATION
- IF ON-SITE MITIGATION USED:
  - DETERMINE RESTORATION AND ENHANCEMENT MITIGATION CREDITS
  - SUBMIT PLAN WITH DRAWINGS TO USACE
  - CONSTRUCT RESTORATION AND ENHANCEMENT AREAS
  - FIVE YEAR MONITORING REQUIREMENT

WETLAND MITIGATION
ADVERSE IMPACT CREDIT CALCULATION

ADVERSE IMPACT FACTORS FOR WETLANDS AND OTHER WATERS OF THE U.S. EXCLUDING STREAMS

FACTORS	OPTIONS					
Lost Type	Type C 0.2		Type B 2.0		Type A 3.0	
Priority Category	Tertiary 0.5		Secondary 1.5		Primary 2.0	
Existing Condition	Very Impaired 0.1	Impaired 1.0	Slightly Impaired 2.0	Fully Functional 2.5		
Duration	Seasonal 0.1	0 to 1 0.2	1 to 3 0.5	3 to 5 1.0	5 to 10 1.5	Over 10 2.0
Dominant Impact	Shade 0.2	Clear 1.0	Dredge 1.5	Drain 2.0	Impound 2.5	Fill 3.0
Cumulative Impact	$0.05 \times \sum AA_i$					

Note: For the **Cumulative Impact** factor, $\sum AA_i$ stands for the sum of the acres of adverse impacts to aquatic areas for the overall project. When computing this factor, round to the nearest tenth decimal place using even number rounding. Thus 0.01 and 0.050 are rounded down to give a value of zero while 0.051 and 0.09 are rounded up to give 0.1 as the value for the cumulative impact factor. **The cumulative impact factor for the overall project must be used in each area column on the Required Mitigation Credits Worksheet below.**

Required Mitigation Credits Sample Worksheet

Factor	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6
Lost Type						
Priority Category						
Existing Condition						
Duration						
Dominant Impact						
Cumulative Impact						
Sum of r Factors	$R_1 =$	$R_2 =$	$R_3 =$	$R_4 =$	$R_5 =$	$R_6 =$
Impacted Area	$AA_1 =$	$AA_2 =$	$AA_3 =$	$AA_4 =$	$AA_5 =$	$AA_6 =$
R × AA=						

Total Required Credits = $\sum (R \times AA) =$ ____

- LOST TYPE
  - A – TIDAL SYSTEMS, BOTTOMLAND HARDWOODS, ETC.
  - B – DEPRESSIONS, SEEPS, BOGS, ETC.
  - C – MAN-MADE LAKES, IMPOUNDMENTS, ETC.
- PRIMARY CATEGORY
  - PRIMARY – WILD & SCENIC RIVERS, TROUT WATERS, 303(D) LIST, ETC.
  - SECONDARY – CYPRESS STAND, SWAMP FOREST, ETC.
  - TERTIARY – PINE FLATWOODS, MAN-MADE, ETC.

STREAM MITIGATION
ADVERSE IMPACT CREDIT CALCULATION

LITTLE ROCK STREAM METHOD
ADVERSE IMPACT FACTORS FOR RIVERINE SYSTEM WORKSHEET

Stream Type Impacted	Ephemeral 0.1			Intermittent 0.4			*Perennial - OHWM Width* <15' 0.4	15' - 30' 0.6	>30' 0.8
Priority Area	Tertiary 0.1			Secondary 0.4			Primary 0.8		
Existing Condition	Functionally Impaired 0.1			Moderately Functional 0.8			Fully Functional 1.6		
Duration	Temporary 0.05			Recurrent 0.1			Permanent 0.3		
Activity	Clearing 0.05	Utility Crossing/ Bridge Footing 0.15	Below Grade Culvert 0.3	Armor 0.5	Detention 0.75	Morpho-logical Change 1.5	Impound-ment (Dam) 2.0	Pipe >100' 2.2	Fill 2.5
Cumulative Linear Impact	<100' 0	100' - 200' 0.05	201' - 500' 0.1	501' - 1000' 0.2	*> 1000 linear feet (LF) 0.1 reach 500 LF of impact (example: scaling factor for 5,280 LF of impacts = 1.1)*				

Factors	Net Impact Area	Net Impact Area	Net Impact Area	Net Impact Area	Net Impact Area
Stream Type Impacted					
Priority Area					
Existing Conditions					
Duration					
Activity					
Cumulative Linear Impact					
Sum of Factors (M)					
Linear Feet of Stream Impacted in Reach (LF)					
M x LF					
	Reset Column	Reset Column	Reset Column	Reset Column	Reset Column

Total Mitigation Credits Required = (M x LF) = _____

- PRIORITY AREA
  - PRIMARY – WILD AND SCENIC, OUTSTANDING STATE WATERS, ETC.
  - SECONDARY – SPAWNING HABITAT, HIGHLY DEVELOPED AREAS, ADJACENT TO MITIGATION BANK, ETC.
  - TERTIARY – OTHER WATERS NOT LISTED AS PRIMARY OR SECONDAY

WETLAND RESTORATION & ENHANCEMENT MITIGATION CREDIT CALCULATION

RESTORATION AND ENHANCEMENT MITIGATION FACTORS FOR WETLANDS AND OTHER WATERS OF THE U.S. EXCLUDING STREAMS

Factors	Options				
Net Improvement	Minimal Enhancement---------- to ----------Excellent Restoration 0.1				4.0
Control	N. A. 0	Covenant Private 0.1	Covenant POA 0.2	Conservation Easement 0.4	Transfer Fee Title Conservancy 0.6
Temporal Lag	N.A.* 0	Over 20 - 0.3	10 to 20 - 0.2	5 to 10 - 0.1	0 to 5 0
Credit Schedule	Schedule 5* 0	Schedule 4 0.1	Schedule 3 0.2	Schedule 2 0.3	Schedule 1 0.4
Kind	Category 5 - 0.1	Category 4 0	Category 3 0.2	Category 2 0.3	Category 1 0.4
Location	Zone 5 - 0.1	Zone 4 0	Zone 3 0.2	Zone 2 0.3	Zone 1 0.4

N. A. = Not Applicable *Use this option to calculate credits for enhancement by buffering

Proposed Restoration or Enhancement Mitigation Sample Worksheet

Factor	Area 1	Area 2	Area 3	Area 4	Area 5
Net Improvement					
Control					
Temporal Lag					
Credit Schedule					
Kind					
Location					
Sum of m Factors	M_1 =	M_2 =	M_3 =	M_4 =	M_5 =
Mitigation Area	A_1 =	A_2 =	A_3 =	A_4 =	A_5 =
M × A=					

Total Restoration/Enhancement Credits = Σ (M × A) = ____

- TEMPORAL LAG – TIME LAG FOR MITIGATION AREA TO FULLY REPLACE FUNCTIONS LOST AT THE IMPACTED SITE
- CREDIT SCHEDULE:
  - 1- MITIGATION COMPLETE PRIOR TO ADVERSE IMPACTS
  - 2 – MAJORITY OF MITIGATION COMPLETE PRIOR
  - 3 – MITIGATION CONCURRENT TO ADVERSE IMPACTS
  - 4 – MAJORITY OF MITIGATION CONCURRENT
  - 5 – MITIGATION DONE AFTER ADVERSE IMPACTS

STREAM RESTORATION MITIGATION CREDIT CALCULATION

RESTORATION MITIGATION FACTORS FOR LINEAR SYSTEMS

Factors	Options				
Net Improvement	Moderate 0.7 - 1.5		Good 1.6 - 2.0		Excellent 2.1 - 3.0
Priority Category	Tertiary 0.05		Secondary 0.2		Primary 0.3
Control	Covenant Private 0.05	Covenant POA 0.1	Easement 0.15		Conservancy 0.2
Credit Schedule	Schedule 5 0	Schedule 4 0.02	Schedule 3 0.05	Schedule 2 0.08	Schedule 1 0.1
Kind	Category 5 0	Category 4 0.02	Category 3 0.05	Category 2 0.08	Category 1 0.1
Location	Zone 5 0	Zone 4 0.05	Zone 3 0.10	Zone 2 0.15	Zone 1 0.2

Proposed Restoration Mitigation Sample Worksheet for LINEAR SYSTEMS

Factors		Reach 1	Reach 2	Reach 3	Reach 4	Reach 5
Net Improvement						
Priority Category						
Control						
Credit Schedule						
Kind						
Location						
Sum Factors	M =					
Linear Feet	L =					
	M x L =					

Total Stream Restoration Credits = Σ (M x L) =

- KIND – DEFINED FOLLOWING ASSESSMENT OF BANK
  - 1- RESTORATION OF SAME LEVEL
  - 3 – RESTORATION OF MODERATE LEVEL
  - 5 – RESTORATION OF NO SIMILARITY

RIPARIAN BUFFER ENHANCEMENT MITIGATION CREDIT CALCULATION

RIPARIAN BUFFER ENHANCEMENT MITIGATION FACTORS FOR LINEAR SYSTEMS

Factors	Options				
Net Improvement	Riparian Buffer Enhancement (Calculate Value from above Net Improvement Table) 0.05 - 1.0				
Control	Covenant Private 0.05	Covenant POA 0.1	Easement 0.15	Conservancy 0.2	
Credit Schedule	Schedule 5 * 0	Schedule 4 0.02	Schedule 3 0.05	Schedule 2 0.08	Schedule 1 0.1
Kind	Category 5 0.0	Category 4 0.04	Category 3 0.06	Category 2 0.08	Category 1 0.1
Location	Zone 5 0.0	Zone 4 0.05	Zone 3 0.1	Zone 2 0.2	Zone 1 0.3

* Use this option to calculate credits when no restoration of buffer necessary

Proposed Riparian Buffer Enhancement Mitigation Sample Worksheet for LINEAR SYSTEMS

Factors		Reach 1	Reach 2	Reach 3	Reach 4	Reach 5
Net Improvement	Stream Side A					
Net Improvement	Stream Side B					
Control						
Credit Schedule						
Kind						
Location						
Sum of Factors	M =					
Linear Feet	L =					
Reach Multiplier Buffer one side = 0.75 Buffer both sides = 1.25	RM =					
M x L x RM						

Total Riparian Buffer Enhancement Credits = Σ (M x L x RM) = ____

- LOCATION – DEFINED FOLLOWING ASSESSMENT OF BANK
  - 1 – ON-SITE AND SAME ECOREGION
  - 2 – OFF-SITE AND SAME ECOREGION
  - 3 - OFF-SITE AND SIMILAR ECOREGION
  - 4 – OFF-SITE AND LESS SIMILAR ECOREGION
  - 5 – OFF-SITE AND DIFFERENT ECOREGION

CASE STUDY – BATESVILLE, ARKANSAS

INTERMITTENT AND EPHEMERAL STREAMS

- INTERMITTENT STREAM D

- EPHEMERAL STREAM A

JURISDICTIONAL WETLANDS

- WETLAND A – HEADWATER BOG

- WETLAND B – MANMADE POND

WETLAND A DATA FORM

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ___	**Is the Sampled Area within a Wetland?** Yes ✓ No ___
Hydric Soil Present?	Yes ✓ No ___	
Wetland Hydrology Present?	Yes ✓ No ___	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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 (C6)
- ___ 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 ___	Depth (inches): 0-6	
Water Table Present?	Yes ✓	No ___	Depth (inches): 0	
Saturation Present? (includes capillary fringe)	Yes ✓	No ___	Depth (inches): 0	**Wetland Hydrology Present?** Yes ✓ No ___

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

Sampling Point: DP-2

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	___ = Total Cover		

50% of total cover: 0 20% of total cover: 0

Sapling/Shrub Stratum (Plot size: 20' x 20')			
1. Salix nigra	5	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
	5 = Total Cover		

50% of total cover: 2.5 20% of total cover: 1

Herb Stratum (Plot size: 20' x 20')			
1. Typha latifolia	5	Yes	OBL
2.			
3.			
4.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	10 (A)		10 (B)

Prevalence Index = B/A = 1

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Four Vegetation Strata:

WETLAND A DATA POINT

SOIL Sampling Point: DP-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[1]	Loc[2]	Texture	Remarks
0-2	10 YR 3/1						muck	
>2	10 YR 3/2						mucky loam	

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

Hydric Soil Indicators:

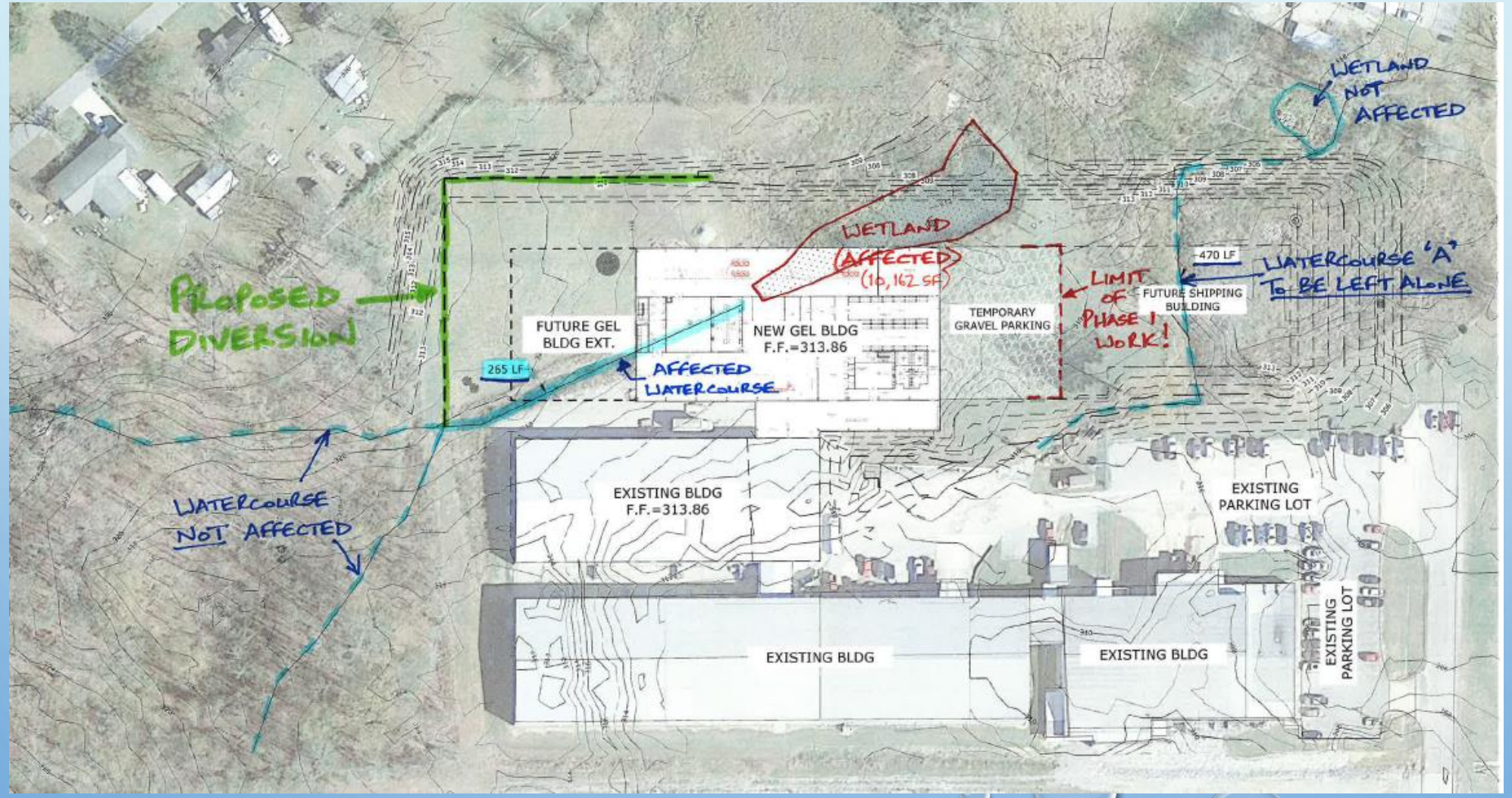
- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10) **(LRR N)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1) **(LRR N, MLRA 147, 148)**
- ___ Sandy 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 Soils[3]:

- ___ 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)

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

PROPOSED DEVELOPMENT PLAN



MITIGATION CALCULATIONS

STREAM CREDITS REQUIRED

ADVERSE IMPACT
FACTORS FOR RIVERINE SYSTEMS WORKSHEET

Stream Type Impacted	Ephemeral 0.1			Intermittent 0.4			Perennial-OHWM width			
							<15' 0.4	15' - 30' 0.6	>30' 0.8	
Priority Area	Tertiary 0.1			Secondary 0.4			Primary 0.8			
Existing Condition	Functionally Impaired 0.1			Moderately Functional 0.8			Fully Functional 1.6			
Duration	Temporary 0.05			Recurrent 0.1			Permanent 0.3			
Activity	Clearing 0.05	Utility Crossing/Bridge Footing 0.15	Below Grade Culvert 0.3	Armor 0.5	Detention 0.75	Morpho-logic Change 1.5	Impound-ment (dam) 2	Pipe >100' 2.2	Fill 2.5	
Cumulative Linear Impact	<100' 0	100' - 200' 0.05	201' - 500' 0.1	501' - 1000' 0.2	>1000 linear feet (LF) 0.1 reach 500 LF of impact (example: scaling factor for 5,280 LF of impacts = 1.1)					

Factor	Dominant Impact Type 1	Dominant Impact Type 2	Dominant Impact Type 3	Dominant Impact Type 4	Dominant Impact Type 5
Stream Type Impacted	0.1				
Priority Area	0.4				
Existing Condition	0.1				
Duration	0.3				
Activity	2.5				
Cumulative Linear Impact	0.1				
Sum of Factors M=	3.5				
Linear Feet of Stream Impacted in Reach LF=	265				
M X LF =	927.5		0	0	0

Total Mitigation Credits Required = (M X LF) = 927.5

WETLAND CREDITS REQUIRED

ADVERSE IMPACT FACTORS FOR WETLANDS AND OTHER WATERS OF THE U.S. EXCLUDING STREAMS

FACTORS	OPTIONS						
LOST TYPE	TYPE C 0.2		TYPE B 2.0		TYPE A 3.0		
PRIORITY CATEGORY	TERTIARY 0.5		SECONDARY 1.5		PRIMARY 2.0		
EXISTING CONDITION	VERY IMPAIRED 0.1		IMPAIRED 1.0		SLIGHTLY IMPAIRED 2.0		FULLY FUNCTIONAL 2.5
DURATION	SEASONAL 0.1	0 TO 1 0.2	1 TO 3 0.5	3 TO 5 1.0	5 TO 10 1.5	OVER 10 2.0	
DOMINANT IMPACT	SHADE 0.2	CLEAR 1.0	DREDGE 1.5	DRAIN 2.0	IMPOUND 2.5	FILL 3.0	
CUMULATIVE IMPACT	0.05 X E Aai						

FACTOR	FILL AREA 1	AREA 2	AREA 3	AREA 4	AREA 5	AREA 6	AREA 7
LOST TYPE	0.2						
PRIORITY CATEGORY	0.5						
EXISTING CONDITION	0.1						
DURATION	2						
DOMINANT IMPACT	3						
CUMULATIVE IMPACT	0.012						
SUM OF R FACTORS	5.8						
IMPACTED AREA AAi	0.23						
R X AA =	1.3						

WETLAND MITIGATION CREDITS REQUIRED FOR ADVERSE IMPACTS 1.3

MITIGATION BANK CREDIT COSTS

- WETLAND IMPACTS
  - 1.3 X $2,000 = $2,600
- STREAM IMPACTS
  - 927.5 X $20 - $18,550
- TOTAL COST IF WITHIN HUC= $21,150
- TOTAL COST IF OUTSIDE HUC = $31,725 (1.5 MULTIPLIER)

QUESTIONS?