How Wetlands Influence Development
Main laws that regulate projects

Section 10 of the Rivers and Harbors Act – regulates work and/or structures in navigable waters of the United States.

Section 404 of the Clean Water Act – regulates the discharge of dredged and/or fill material into waters of the United States.
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Material that **has the effect of** replacing a water of the U.S. with dry land or changing the bottom elevation of a water of the U.S. Examples include rock, sand, soil, clay, plastics, construction debris, wood chips, overburden from mining, etc.
Waters of the United States

- Waters used for interstate commerce including all tidal waters (navigable)
- Interstate waters, including wetlands
- Intrastate waters that could affect interstate commerce
- Impoundments of waters of the United States
- Tributaries of waters of the United States
- Wetland adjacent to waters above
Non-Waters

• Non-tidal drainage and irrigation ditches excavated on dry land that do not have relatively permanent flow.
• Artificially irrigated areas that would revert to uplands if irrigation ceased.
• Artificial lakes and ponds created by excavating or diking dry land to collect water for stock watering, irrigation, settling basins, or rice growing.
Non-Waters

• Artificial reflecting or swimming pools or other water bodies excavated from dry land to retain water for primarily aesthetic reasons

• Waterfilled depressions created in dry land incidental to construction and pits excavated in dry land for obtaining fill, sand, or gravel until abandoned and the resulting body of water meets the definition of waters of the United States
Definition of Wetlands

Areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.
What makes a wetland?

- Hydrology (water)
- Hydrophytic plants (plants adapted for wet conditions)
- Hydric (wet) soils
Wetland Functions

• Flood retention
• Improve water quality
• Protect shorelines from erosion
• Filter pollutants from stormwater
• Provide habitat for fish and wildlife
• Produce nutrients and detritus for the food chain
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Wetland Delineations

- The 1987 Wetland Delineation Manual will be modified and will maintain the technical guidance and procedures.
- The regional supplements contain wetland indicators, delineation guidance, and other information specific to the particular region.
Actual or anticipated release dates for Regional Supplements (as of 13 Jan 2012).

<table>
<thead>
<tr>
<th>Region</th>
<th>Release Date</th>
<th>Version 2.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alaska</td>
<td>March 2006</td>
<td>October 2007</td>
</tr>
<tr>
<td>Arid West</td>
<td>December 2006</td>
<td>November 2008</td>
</tr>
<tr>
<td>Great Plains</td>
<td>April 2008</td>
<td>April 2010</td>
</tr>
<tr>
<td>Western Mountains, Valleys, Coast</td>
<td>May 2008</td>
<td>June 2010</td>
</tr>
<tr>
<td>Midwest</td>
<td>October 2008</td>
<td>September 2010</td>
</tr>
<tr>
<td>Atlantic and Gulf Coastal Plain</td>
<td>December 2008</td>
<td>November 2010</td>
</tr>
<tr>
<td>Caribbean Islands</td>
<td>October 2009</td>
<td>March 2011</td>
</tr>
<tr>
<td>Northcentral and Northeast</td>
<td>February 2010</td>
<td>January 2012</td>
</tr>
<tr>
<td>Hawaii and Pacific Islands</td>
<td>July 2010</td>
<td>March 2012</td>
</tr>
<tr>
<td>Eastern Mountains and Piedmont</td>
<td>September 2010</td>
<td>May 2012</td>
</tr>
</tbody>
</table>
Delineation Manual Supplement

- Galveston District covered by Atlantic and Gulf Coastal Plain Region and Great Plains Region Supplements.
- Methods will remain in 1987 Wetland Delineation Manual.
- Supplements cover regional indicators.
- Most changes in hydrology and hydric soils.
- New data sheet.
US Army Corps of Engineers

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US Army Corps of Engineers

Galveston District

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Atlantic & Gulf Coastal Plain

- Boundary determined by NRCS Land Resource Regions (LRR) and Major Land Resource Areas (MLRA)
- LRRs and MLRAs have broad transition zones tens or hundreds of miles wide
- Investigator must use experience and good judgment to select appropriate supplement and indicators based on physical and biological characteristics in transition zones

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Atlantic & Gulf Coastal Plain

- For wetland delineation purposes, an area is considered to be vegetated if it has 5% or more total plant cover during the peak of the growing season.
- Use National Wetland Plant List 2012 for all plant indicator status beginning 1 June 2012.
Vegetation Strata

- 1987 Manual
  - Trees
  - Saplings/Shrubs
  - Woody Vines
  - Herbs

- Atlantic & Gulf Coastal
  - Trees
  - Saplings
  - Shrubs
  - Woody Vines
  - Herbs

Pacesetters – Building Strong!
Vegetation

• 1987 Manual
  • Use + and – modifiers on indicator status
  • Use 30-foot sampling radius for tree and woody vines strata
  • Use 5-foot radius for sapling/shrub and herb strata

• Atlantic & Gulf Coastal
  • Drop + and – modifiers on indicator status
  • Use 30-foot sampling radius for tree, sapling, shrub, woody vine and herb strata

Pacesetters – Building Strong!
Vegetation

- 1987 Manual
  - 50/20 Rule to select dominants
  - > 50% of dominants FAC or wetter
  - Use 50/20 rule and dominance determination across all strata

- Atlantic & Gulf Coastal
  - 50/20 Rule to select dominants
  - > 50% of dominants FAC or wetter (Dominance Test)
  - Use 50/20 rule within the stratum and the dominance test across all strata

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Atlantic & Gulf Coastal Plain

- Species dominant in two or more strata are counted two or more times in the dominance test
- Use absolute percent cover in determining areal coverage and do not convert to relative cover
- Absolute percent cover is used in the prevalence index calculation
Atlantic & Gulf Coastal Plain

- Rapid test for hydrophytic vegetation (new)
  - All dominant species across all strata are OBL or FACW based on visual assessment
  - Dominant species are selected visually from each stratum using the 50/20 rule.
  - No need to gather quantitative data and only the dominant species in each stratum must be recorded on the data form.
Atlantic & Gulf Coastal Plain

- Dominance Test
  - Estimate absolute percent cover for *every* species
  - Rank all species in the stratum from most to least abundant
  - Calculate the total coverage for all species in the stratum (probably will not equal 100 percent)
  - Select species from the ranked list until the cumulative coverage exceeds 50 percent of the total absolute coverage for the stratum
Atlantic & Gulf Coastal Plain

- Dominance Test
  - If two or more species are equal in coverage, they all must be selected
  - Selected species are all dominants
  - Additionally, all other species that, by itself, is at least 20 percent of the total absolute cover in the stratum is also dominant
  - Repeat for each stratum
Table 2-2
Example of the selection of dominant species by the 50/20 rule.

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Species Name</th>
<th>Wetland Indicator Status</th>
<th>Absolute Percent Cover</th>
<th>Dominant?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Herb</td>
<td>Impatiens capensis</td>
<td>FACW</td>
<td>30</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Boehmeria cylindrica</td>
<td>FACW</td>
<td>18</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Pilea pumila</td>
<td>FACW</td>
<td>12</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Athyrium filix-femina</td>
<td>FAC</td>
<td>3</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Symplocarpus flexifolius</td>
<td>OBL</td>
<td>3</td>
<td>No</td>
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<tr>
<td></td>
<td><strong>Total cover</strong></td>
<td></td>
<td><strong>66</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>50/20 Thresholds:</strong></td>
<td></td>
<td><strong>33.0%</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>50% of total cover = 13.2%</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shrub</td>
<td>Ilex opaca</td>
<td>FACU</td>
<td>18</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Viburnum dentatum</td>
<td>FAC</td>
<td>6</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Clethra alnifolia</td>
<td>FAC</td>
<td>3</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Vaccinium corymbosum</td>
<td>FACW</td>
<td>3</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td><strong>Total cover</strong></td>
<td></td>
<td><strong>30</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>50/20 Thresholds:</strong></td>
<td></td>
<td><strong>15.0%</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>50% of total cover = 6.0%</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sapling</td>
<td>Acer rubrum</td>
<td>FAC</td>
<td>9</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Liquidamber styraciflua</td>
<td>FAC</td>
<td>9</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Fraxinus pennsylvanica</td>
<td>FACW</td>
<td>2</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td><strong>Total cover</strong></td>
<td></td>
<td><strong>20</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>50/20 Thresholds:</strong></td>
<td></td>
<td><strong>10.0%</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>50% of total cover = 4.0%</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tree</td>
<td>Acer rubrum</td>
<td>FAC</td>
<td>18</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Liquidamber styraciflua</td>
<td>FAC</td>
<td>18</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Platanus occidentalis</td>
<td>FACW</td>
<td>12</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Fraxinus pennsylvanica</td>
<td>FACW</td>
<td>6</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Liriodendron tulipifera</td>
<td>FACU</td>
<td>3</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Nyssa sylvatica</td>
<td>FAC</td>
<td>3</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td><strong>Total cover</strong></td>
<td></td>
<td><strong>60</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>50/20 Thresholds:</strong></td>
<td></td>
<td><strong>20% of total cover = 12%</strong></td>
<td></td>
</tr>
<tr>
<td>Woody Vine</td>
<td>T oxococcus radicans</td>
<td>FAC</td>
<td>5</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Loncold japonica</td>
<td>FAC</td>
<td>4</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Perthenococcus quinquefolia</td>
<td>FACU</td>
<td>1</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td><strong>Total cover</strong></td>
<td></td>
<td><strong>10</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>50/20 Thresholds:</strong></td>
<td></td>
<td><strong>5.0%</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>50% of total cover = 2.0%</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydrophytic Vegetation Determination</td>
<td>Total number of dominant species across all strata = 11; Percent of dominant species that are OBL, FACW, or FAC = 10/11 = 90.9%; Therefore, this community is hydrophytic by Indicator 1 (Dominance Test).</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 Indicator status is according to the Region 1 (Northeast) plant list (Reed 1986).
Atlantic & Gulf Coastal Plain

- Prevalence Index (PI)
  - Used when the plant community fails the dominance test but indicators of hydric soil and wetland hydrology are present
  - Identify and estimate absolute percent cover for each species in the stratum
  - Sum the percent cover for any species present in more than one stratum
Hydric Soils

• 1987 Manual
  • Dig hole and describe profile to 16 inches
  • Look at soil colors immediately below the A-horizon or 10 inches, whichever is shallower

• Atlantic & Gulf Coastal
  • Dig hole and describe profile to 20 inches
  • Look at soil colors in the profile and match to NTCHS’s Field Indicators of Hydric Soils in the United States, Version 7.0

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Field Indicators of Hydric Soils in the United States
Atlantic & Gulf Coastal Plain

- During development of the indicators, soils in the interior of wetlands were not always examined, therefore, there are wetlands that lack any of the approved hydric soil indicators in the wettest interior portions.
- Delineators should concentrate sampling efforts near the wetland edge and if these soils are hydric, assume the interior soils are hydric even if they lack an indicator.
1987 Manual Hydric Soils

- Non-sandy Soils
  - Organic soils
  - Histic epipedons
  - Sulfidic material
  - Aquic or peraquic moisture regime
  - Reducing conditions
  - Soil colors
  - Soils appearing on hydric soils list
  - Iron and manganese concretions
1987 Manual Hydric Soils

- Sandy Soils
  - High organic matter content in the surface horizon
  - Streaking of subsurface horizons by organic matter
  - Organic pans
Atlantic and Gulf Coastal Plain Hydric Soils

- All Soils
  - Histosol (A1)
  - Histic Epipedon (A2)
  - Black Histic (A3)
  - Hydrogen Sulfide (A4)
  - Stratified Layers (A5)
  - Organic Bodies (A6)
  - 5 cm Mucky Mineral (A7)

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Atlantic and Gulf Coastal Plain

Hydric Soils

- All Soils (cont’d)
  - Muck Presence (A8)
  - 1 cm Muck (A9)
  - Depleted Below Dark Surface (A11)
  - Thick Dark Surface (A12)
  - Coast Prairie Redox (A16)
Atlantic and Gulf Coastal Plain
Hydric Soils

- Sandy Soils – loamy fine sand and coarser
  - Sandy Mucky Mineral (S1)
  - Sandy Gleyed Matrix (S4)
  - Sandy Redox (S5)
  - Stripped Matrix (S6)
  - Dark Surface (S7)
  - Polyvalue Below Surface (S8)
  - Thin Dark Surface (S9)
Atlantic and Gulf Coastal Plain Hydric Soils

- Loamy and Clayey Soils – loamy very fine sand and finer
  - Loamy Mucky Mineral (F1)
  - Loamy Gleyed Matrix (F2)
  - Depleted Matrix (F3)
  - Redox Dark Surface (F6)
  - Depleted Dark Surface (F7)
  - Redox Depressions (F8)
  - Marl (F10)

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Atlantic and Gulf Coastal Plain
Hydric Soils

- Loamy and Clayey Soils (cont’d)
  - Depleted Ochric (F11)
  - Iron-Manganese Masses (F12)
  - Umbric Surface (F13)
  - Delta Ochric (F17)
  - Reduced Vertic (F18)
  - Piedmont Floodplain Soils (F19)
  - Anomalous Bright Loamy Soils (F20)

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Atlantic and Gulf Coastal Plain
Hydric Soils

- Problem Soils
  - 2 cm Muck (A10)
  - Red Parent Material (TF2)
  - Very Shallow Dark Surface (TF12) (new)
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Wetland Hydrology - Atlantic and Gulf Coastal Plain

- Groups
  - A – Observation of surface water or saturated soils
  - B – Evidence of recent inundation
  - C – Evidence of current or recent soil saturation
  - D – Evidence from other site conditions or data
Wetland Hydrology

- 1987 Manual (Primary)
  - Inundation
  - Saturation within 12 inches of surface
  - Watermarks
  - Drift Lines
  - Sediment deposits
  - Drainage patterns in wetlands

- Atlantic & Gulf Coastal (Primary)
  - Surface water (A1)
  - High water table (A2)
  - Saturation (A3)
  - Watermarks (B1)
  - Sediment deposits (B2)
  - Drift deposits (B3)
  - Algal mat or crust (B4)
  - Iron deposits (B5)
Wetland Hydrology

- 1987 Manual (Primary)
- Atlantic & Gulf Coastal (Primary)
  - Inundation visible on aerial imagery (B7)
  - Water-stained leaves (B9)
  - Aquatic fauna (B13)
  - Marl deposits (B15)
  - Hydrogen sulfide odor (C1)
Wetland Hydrology

- 1987 Manual (Primary)
- Atlantic & Gulf Coastal (Primary)
  - Oxidized rhizospheres along living roots (C3)
  - Presence of reduced iron (C4)
  - Recent iron reduction in tilled soils (C6)
  - Thin muck surface (C7)
Wetland Hydrology

- 1987 Manual (Secondary)
  - Oxidized root channels in upper 12 inches
  - Water-stained leaves
  - Local soil survey data
  - FAC-Neutral Test
  - Other (explain)

- Atlantic & Gulf Coastal (Secondary)
  - Surface soil cracks (B6)
  - Sparsely vegetated concave surface (B8)
  - Drainage patterns (B10)
  - Moss trim lines (B16)
  - Dry-season water table (C2)
Wetland Hydrology

- 1987 Manual (Secondary)
- Atlantic & Gulf Coastal (Secondary)
  - Crayfish burrows (C8)
  - Saturation visible on aerial imagery (C9)
  - Geomorphic position (D2)
  - Shallow aquitard (D3)
  - FAC-neutral test (D5)
  - Sphagnum moss (D8) (new)

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<table>
<thead>
<tr>
<th>Tree Stratum</th>
<th>(Plot sizes)</th>
<th>Absolute % Cover</th>
<th>Dominant Species?</th>
<th>Indicator Status</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

**Sampling Point:**

**Dominance Test worksheet:**
- Number of Dominant Species That Are OBL, FACW, or FAC: 
- Total Number of Dominant Species Across All Strata: 
- Percent of Dominant Species That Are OBL, FACW, or FAC: 

**Prevalence Index worksheet:**
- Total % Cover:
- Multiply by:
  - OBL species: \(x \times 1^*\)
  - FACW species: \(x \times 2^*\)
  - FAC species: \(x \times 3^*\)
  - FACU species: \(x \times 4^*\)
  - UPL species: \(x \times 5^*\)
  - Column Totals: \(A\) 
- Prevalence Index = \(B \times 1^*\)

**Hydrophytic Vegetation Indicators:**
- Dominance Test is \(>50\%\)
- Prevalence Index is \(<3.0^*\)
- Problematic Hydrophytic Vegetation? Explain
- Indicators of hydric soil and wetland hydrology must be present

**Remarks:** (If observed, list morphological adaptations below)
### Soil Profile Description

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

<table>
<thead>
<tr>
<th>Depth (inches)</th>
<th>Matrix</th>
<th>Grains</th>
<th>Color</th>
<th>Texture</th>
<th>Remarks</th>
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<tbody>
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<td>0</td>
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<td></td>
<td></td>
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</tr>
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<tr>
<td>10</td>
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</tr>
</tbody>
</table>

**Matric Factors:**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Clay</td>
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</tr>
<tr>
<td>Organic Matter</td>
<td></td>
</tr>
<tr>
<td>Peat</td>
<td></td>
</tr>
<tr>
<td>Silt</td>
<td></td>
</tr>
<tr>
<td>Sand</td>
<td></td>
</tr>
<tr>
<td>Gravel</td>
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</tr>
<tr>
<td>Rock</td>
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**Texture:**

<table>
<thead>
<tr>
<th>Texture</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loamy</td>
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</tr>
<tr>
<td>Sandy</td>
<td></td>
</tr>
<tr>
<td>Clayey</td>
<td></td>
</tr>
<tr>
<td>Stony</td>
<td></td>
</tr>
<tr>
<td>Gravelly</td>
<td></td>
</tr>
<tr>
<td>Rockey</td>
<td></td>
</tr>
</tbody>
</table>

**Type:**

<table>
<thead>
<tr>
<th>Type</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Indicators:**

- **Hydric Soil Indicators:**
  - Polynuclear Halo Surface (105) (LRR S, T, U)
  - Thir Dark Surface (106) (LRR S, T, U)
  - Loamy Loamy Mixed (107) (LRR O)
  - Loamy Gleyecl Matrix (108)
  - Reduced Verdi (109) (outside MLRA 158A, B)
  - Piedmont Floodplain Soils (110) (LRR P, S, T)
  - Anomalous Bright Loamy Soils (111) (MLRA 158B)
  - Red Parent Material (112)
  - Other (Explain in Remarks)

**Restrictive Layer:**

<table>
<thead>
<tr>
<th>Type</th>
<th>Depth (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Hydric Soil Present?**

<table>
<thead>
<tr>
<th>Present?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

**Remarks:**

<table>
<thead>
<tr>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>
Delineations vs. Determinations

A **determination** is qualitative in that it only provides an answer if there is a jurisdictional area within the project area.

A **delineation** is quantitative in that it provides boundaries and acreage measurements for each individual type of water of the United States present in the project area.
The Corps of Engineers Delineation Verification Process

- Corps assigns project to PM and enters data
- Corps sends acknowledgement letter
- PM determines if site visit is necessary
- Conduct site visit for accuracy/adjustments
- Complete JD form for each aquatic resource
- Coordinate JD form with EPA if required
- PM writes memo and final letter

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Expectations for Submitting Delineation Reports

• Complete Data Sheets
• Delineation map with transects, sample points, aquatic resource and upland areas
• Acreages of wetlands, open waters, uplands
Corps of Engineers
Requirements for Field Verifications

- Project boundaries must be staked/marked
- Aquatic resources must be staked/marked
- Transects, data points must be marked
- Delineator must be able to explain why an area is or is not called a wetland/water
Expectations for Submitting Jurisdictional Determinations

- Letter requesting jurisdictional determination
- Vicinity map indicating project site boundaries
- Detailed map showing property boundaries
- Other supporting info such as Quad map, floodplain map, site photos
Depicting project sites

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Clean Water Act Goal

Restore and maintain the chemical, physical, and biological integrity of the Nation’s waters
Commerce Clause

Power listed in the U.S. Constitution that allows Congress to regulate commerce with foreign Nations, and among the several states, and with Indian Tribes.
Clean Water Act History

- 1880s and 1890s, Congress directed the Corps to prevent dumping and filling in the Nation’s harbors.
- Rivers and Harbors Act of 1899 – illegal to discharge refuse matter of any kind into navigable waters or tributaries of navigable waters. Also illegal to alter the course, condition or capacity of any port, harbor, channel, or any other areas within the reach of the Act.
Clean Water Act History

• 1912 – Public Health Service Act. Expanded mission of U.S. Public Health Service to study problems of sanitation, sewage, and pollution.


• 1948 – Federal Water Pollution Control Act. Created comprehensive set of water quality programs. Enforcement limited to interstate waters.

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Clean Water Act History

• 1972 – Federal Water Pollution Control Act significantly reorganized and expanded.

• 1977 – With amendments, became the Clean Water Act. Through Section 404, mandated to develop effective program for controlling pollution of Nation’s 76 million acres of wetlands. One goal was to eliminate all discharges by 1985.
• 1985 – U.S. v. Riverside Bayview Homes – U.S. Supreme Court held that intermingled (adjacent) wetlands of navigable waters are subject to Section 404 of the Clean Water Act.
1986 – EPA clarified that waters of the U.S. at 40 CFR 328.3 also include waters which are or would be used as habitat by birds protected by the Migratory Bird Treaties; or which are or would be used as habitat by other migratory birds which cross state lines; or which are used as habitat for endangered species; or used to irrigate crops sold in interstate commerce. Also introduced non-waters reviewed earlier. Both in preamble to 1986 regulations.
Clean Water Act History

• 2001 – Solid Waste Agency of Northern Cook County; 5-4 Decision in U.S. Supreme Court. Concluded you cannot solely use the Migratory Bird Rule to exert jurisdiction over isolated waters.

• 2006 – Rapanos & Carabell; 5 separate opinions (one plurality, two concurring, two dissenting) in U.S Supreme Court with no single opinion commanding a majority. Vacated and remanded case back down to Sixth Circuit Court of Appeals.
Rapanos & Carabell Opinions

- Plurality – (Scalia, Roberts, Thomas, Alito) concluded that Section 404 should extend only to relatively permanent, standing or continuously flowing bodies of water connected to traditional navigable waters and to wetlands with a continuous surface connection to such relatively permanent waters.
Rapanos & Carabell Opinions

- Kennedy – concluded that wetlands are waters of the U.S. if the wetlands either alone or in combination with similarly situated lands in the region, significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as navigable. If the wetlands effects on water quality are speculative or insubstantial, they fall outside the statutory term ‘navigable waters’.
Rapanos & Carabell Opinions

• Dissenting – (Stevens, Souter, Ginsburg, Breyer) concluded that EPA’s and Corps’ interpretation of waters of the U.S. was a reasonable interpretation of the Clean Water Act.
Clean Water Act History

Rapanos & Carabell Opinions

• When there is no majority opinion in a Supreme Court case, controlling legal principles may be derived from those principles espoused by five or more justices. Therefore, jurisdiction under the Clean Water Act exists if a waterbody meets the plurality or Kennedy’s standard.
Rapanos & Carabell Opinions

• Received guidance based on Rapanos & Carabell opinions on 5 June 2007.

• Received revised guidance on 2 December 2008.
• In response to Rapanos & Carabell opinions
• Coordination required with the EPA and Corps HQ on some waters
• JD sheet required for each aquatic resource
• New definitions

  Traditional Navigable Waters (TNWs)
  Relatively Permanent Waters (RPWs)
Corps/EPA Joint Guidance

• Aquatic resources not coordinated with EPA
  (Agencies will assert jurisdiction over the following waters)
  - Traditional navigable waters (TNWs)
  - Wetlands adjacent to TNWs
  - Relatively permanent waters (RPWs)
  - Wetlands abutting RPWs
Corps/EPA Joint Guidance

• Aquatic resources coordinated with EPA

(Agencies will decide jurisdiction based on a fact-specific analysis to determine if they have a significant nexus with a TNW)

- Tributaries above RPWs
- Wetlands adjacent to but not abutting RPWs
- Wetlands adjacent to non-RPWs
- Isolated wetlands
Corps/EPA Joint Guidance

• Non-waters of the U.S.

(Agencies generally will not assert jurisdiction over these features)

- Swales or erosional features
- Ditches excavated wholly in an draining only uplands and that do not carry a relatively permanent flow of water.
• Significant Nexus Analysis
  - Assess the flow characteristics and functions of the tributary itself and the functions performed by all the wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, or biological integrity of the downstream TNW.

  - Includes consideration of hydrologic and ecologic factors such as volume, duration, frequency of flow, pollutant carrying capacity, flood storage, habitat, nutrient and organic carbon transfer capacity.
Corp/EPA Joint Guidance

• Published proposed guidance in Federal Register on 2 May 2011 for 60 days. Comment period extended to 31 July 2011.
HR 1310 – Frank Pallone – Clean Water Protection Act, 3 March 2009, amend the CWA by redefining Fill Material to mean any pollutant that replaces portions of waters of the United States with dry land or that changes the bottom elevation of a water body for any purpose and to exclude any pollutant discharged into water primarily to dispose of waste, mountaintop mining. **NO ACTION**
Introduced Bills

- S 787 – Russell Feingold – Clean Water Restoration Act, 2 April 2009, amend the CWA to replace the term "navigable waters" with the term "waters of the United States," to the fullest extent that these waters, or activities affecting them, are subject to the legislative power of Congress under the Constitution. NO ACTION
HR 5088 – James Oberstar – America’s Commitment to Clean Water Act, 21 April 2010, restore the definition of waters of the United States to that in place before the SWANCC and Rapanos decisions. (Replace Navigable waters with Waters of the United States) NO ACTION
• 14 April 2011 – 170 members of the House of Representatives sent a letter to President Obama asking him to end efforts to broaden Federal protection of wetlands.
Introduced Bills

• S 2245 – John Barrasso – Preserve the Waters of the United States Act, 28 March 2012, - Prohibits the USACE and the EPA from: (1) finalizing the proposed guidance described in the notice of availability and request for comments entitled "EPA and Army Corps of Engineers Guidance Regarding Identification of Waters Protected by the CWA"; or (2) using such guidance, or any substantially similar guidance, as the basis for any decision regarding the scope of the CWA or any rulemaking. Provides that the use of such guidance as the basis for any rule shall be grounds for vacation of such rule. **NO ACTION**
Introduced Bills

- HR 4965 – John Mica – Preserve existing rights with respect to waters of the U.S., 27 April 2012. Prohibits the USACE and EPA from: (1) finalizing, adopting, implementing, administering, or enforcing the proposed guidance described in the notice of availability and request for comments entitled "EPA and Army Corps of Engineers Guidance Regarding Identification of Waters Protected by the CWA"; or (2) using such guidance, or any substantially similar guidance, as the basis for any decision regarding the scope of the CWA or any rulemaking. Sent to House or Senate on 7 June 2012.
• HR 5325 – Rodney Frelinghuysen – Energy and Water Development Bill, 2 May 2012, None of the funds made available by this Act…may be used by the Corps of Engineers to develop, adopt, implement, administer, or enforce a change or supplement to the rule dated November 13, 1986, or guidance documents dated January 15, 2003 and December 2, 2008, pertaining to the definition of waters under the jurisdiction of the Federal Water Pollution Control Act. Passed House on 6 June 2012
Approved/Preliminary Jurisdictional Determinations

- 33 CFR 331.2.
- Approved JD - official USACE determination that jurisdictional waters of the U.S. or navigable waters of the U.S. are present or absent on a particular site or a written statement and map identifying the limits of waters.
- Preliminary JD – written indication that there may be waters of the U.S. on a parcel or of the approximate locations of waters.
Approved/Preliminary Jurisdictional Determinations

- Approved JD – appealable; may or may not delineate extent of jurisdiction; requires more information to confirm.
- Preliminary JD – not appealable; assumes all aquatic resources on site are jurisdictional; not as stringent to confirm (approximate locations); cannot be used to determine no wetlands or no jurisdictional wetlands.
Proposed Development

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Proposed Development
Proposed Development
APPROVED JURISDICTIONAL DETERMINATION FORM

U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Process Instructional Guidance.

SECTION I. BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
   - Name of project sponsor:
   - Name of project:
   - City:
   - County:
   - State:
   - Zip Code:
   - Site Address:

D. REVIEW PERFORMED OR SELF-EVALUATION (CHECK ALL THAT APPLY):
   - Office Review
   - Field Examinations
   - Data

SECTION II. SUMMARY OF FINDINGS

A. RHA SECTION 104 DETERMINATION OF JURISDICTION:
   - Section 104 waters include:
     - Waterways
     - Wetlands
   - Waters of the U.S.
   - Non-regulated waters

B. CWA SECTION 404 DETERMINATION OF JURISDICTION:
   - Section 404 waters include:
     - Waterways
     - Wetlands

1. Waters of the U.S.
   a. Indicate presence of waters of the U.S. in review area (check all that apply):
      - Waterways
      - Wetlands
      - Non-regulated areas
 2. Non-regulated waters (check if applicable):

   See Section IV of the JD Process Instructional Guidance for further instructions.

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SECTION III: CWA ANALYSIS

A. INWS AND WETLANDS ADJACENT TO INWS

The agencies will assert jurisdiction over INWS and wetlands adjacent to INWS. If the aquatic resource is a INW, complete Section III.A.1 and Section III.D.1, only. If the aquatic resource is a wetland adjacent to a INW, complete Sections III.A.1 and 2 and Section III.D.1, otherwise, see Section III.B below.

1. INW
   Identify INW:
   Summarize nationwide supporting documentation

2. Wetland adjacent to INW
   Summarize nationwide supporting condition that wetland is “adjacent”

B. CHARACTERISTICS OF TRIBUTARY THAT IS NOT A INWS AND ITS ADJACENT WETLANDS (IF ANY)

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under 40 C.F.R. have been met.

The agencies will assert jurisdiction over non-navigable tributaries of INWS where the tributaries are “relatively permanent waters” (RPW), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 2 months). A wetland that directly discharges on RPW is also jurisdictional. If the aquatic resource is not a INW, but has year-round (permanent) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly discharging a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly discharges on an RPW requires a significant means evaluation. Corps districts and EPA regions will include in the record any available information, such as documented the existence of a significant means between a relatively permanent tributary that is not perennial and its adjacent wetlands if any and a traditional navigable water, even through a significant means finding is not required as a matter of law.

If the waterbody is not an RPW, or a wetland directly discharges an RPW, a JD will require additional data to determine if the waterbody has a significant means with a INW. If the tributary has adjacent wetlands, the significant means evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant means evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the request to identify the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.E.1 for the tributary, Section III.E.2 for any wetlands, and Section III.E.3 for all wetlands adjacent to that tributary, both on- and off-site. The determination whether a significant means exists is determined in Section III.C below.

1. Characteristics of non- INWS that flow directly or indirectly into INWS

<table>
<thead>
<tr>
<th></th>
<th>Watershed Name</th>
<th>Pick List</th>
<th>Damage Area</th>
<th>Pick List</th>
<th>Average Annual Rainfall</th>
<th>in</th>
<th>Average Annual Snowfall</th>
<th>in</th>
</tr>
</thead>
</table>

C. PHYSICAL CHARACTERISTICS

(a) Identification with TRW:

   (1) Tributary connects INWS
   (2) Tributary flows through Pick List tributaries before entering INWS

   (b) Tributary connects TRW

   (c) Tributary connects TRW

   (d) Tributary connects INWS

*Note: The above information is additional information regarding sections, ditches, swales, and natural features generally included in the unit of land.
*Note: Flow rates can be determined by identifying, e.g., tributary in which flow through the reverses area to flow into tributary in which then flows into INWS.
(b) General Tributary Characteristics (check all that apply)

Tributary -
- Natural
- Artificial (man-made)
- Manmade (intentional)
- Explain

Tributary properties with respect to type of bank (select one):
- Average width
- Flow
- Average flow depth: Pick list

Primary tributary substrate composition (check all that apply):
- Slime
- Sands
- Gravel
- Cinders
- Shale
- Vegetation: Type/cover
- Other
- Explain

Tributary characteristics (e.g., highly eroding, sloping banks). Explain
- Presence of wildlife/birds. Explain
- Tributary geometry: Pick list
- Tributary gradient (approximate average slope): %

(c) Flow:

Tributary width (check Pick list)
- Estimate average number of feet across in various areas: Pick list

Describe flow regime:
- Other information on duration and volume

Surface flow in Pick list: Characteristics
- Inlet (or outfall) preferred

Tributary flow (check all that apply):
- Ric-rac banks
-"
- Changes in the elevation of the bank
- Changes in the elevation of the soil
- Vegetation: rasped down, bare, or absent
- Bath or ditch shows bank washed away
- Bank or ditch consisting of exposed bedrock:
- Water standing
- Other
- Explain

If necessary, that the SFWM is used to determine lateral extent of CWA jurisdiction (check all that apply):
- Width: Pick list
- Bank: Pick list
- Human: Pick list
- Other: Pick list

(d) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, dissolved, only lime, water quality, general watershed characteristics, etc.).
- Explain
- Identify specific pollutants if known

*Note: If water under jurisdiction, contact the U.S. Army Corps of Engineers for additional guidance on hydrologic design. Where the stream temporarily flows under jurisdiction or where the SFWM has been revised to develop a hydrologic design, the U.S. Army Corps of Engineers will provide additional guidance on hydrologic design for each project. For more information, contact the stream authority or the local regulatory agency. The aggregate will be responsible for ensuring that all design and construction activities comply with the regulations.
2. Characteristics of wetlands adjacent to non-FNW that flow directly or indirectly into FNW

(a) Biological Characteristics: Channel supports (check all that apply):
- Riparian corridor
- Vegetation type, average widths
- Wetland type, characteristics
- Hydrology
- Woody vegetation, average width, findings
- Vegetation type, average width, findings
- Aquatic habitat diversity
- Aquatic habitat diversity, findings
- Aquatic plant species diversity
- Aquatic plant species diversity, findings

(b) Physical Characteristics:
- General Wetland Characteristics
  - Projected
  - Projected
  - Wetland type, characteristics
  - Wetland project
  - Projected
  - Projected

(c) Channel flow relationship with non-FNW
- Flow to Pick List, explain findings

(d) Surface flow Pick List, explain findings
- Riparian corridor

(e) Wetland Adjacency Determined with non-FNW:
- Surface flow
- Not directly entering
- Navigable waterbody/waterbody connection
- Explained
- Vegetative corridor explained
- Explained

(f) Physically Relationship to FNW:
- Project wetlands are Pick List near miles from FNW
- Projected wetlands are Pick List near miles from FNW
- Flow is from Pick List
- Estimate approximate distance of wetland within Pick List floodplain

(g) Chemical Characteristics:
- Characterize wetland water quality, salinity levels
- Characterize water for nutrients, salinity levels
- Aquatic plant species diversity
- Aquatic plant species diversity, findings

(h) Biological Characteristics: Wetland supports (check all that apply):
- Riparian corridor
- Vegetation type, average width
- Hydrology
- Woody vegetation, average width
- Aquatic plant species diversity
- Aquatic plant species diversity, findings

3. Characteristics of all wetlands adjacent to the tributary (if any):
- All wetlands being considered in the cumulative analysis
- Pick List
- Approximately ( ) acres in total are being considered in the cumulative analysis
For each wetland, identify the following:

<table>
<thead>
<tr>
<th>Directly above TNW</th>
<th>Significantly</th>
<th>Directly below TNW</th>
<th>Significantly</th>
</tr>
</thead>
</table>

Summarize overall biological, chemical, and physical functions being performed.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of the TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical or biological integrity of the TNW.

Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g., between a tributary and its adjacent wetlands or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the Regulatory Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and ecological functions for fish and other aquatic species, such as feeding, nesting, spawning, or nursery areas that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to provide nutrients and organic carbon that support downstream wetlands?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other factors observed or known to occur should be documented below:

1. Significant nexus findings for non-RPW that have no adjacent wetlands and flow directly or indirectly into TNWs. Explain findings of presence or absence of significant nexus below, based on the tributary itself. Refer to Section B.1.

2. Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs. Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then refer to Section B.1.

3. Significant nexus findings for wetlands adjacent to an RPW but that do not directly or indirectly flow into the TNW. Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands. Refer to Section B.1.

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THESE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands**: Check all that apply and provide size estimates in acres:
   - Directly above TNW
   - Directly below TNW

2. **RPs** that flow directly or indirectly into TNWs:
   - Tributary of TNW where tributaries typically flow years multiply jurisdictional presence data and continue analyzing the tributary as precedent.
   - Tributaries of TNW whose tributaries have continuous flow seasonally (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section B.1. Provide rationale indicating that tributary flows seasonally.
3. Non RWPs that flow directly or indirectly into TNWs.
   □ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and there is sufficient evidence that a
   TNW is jurisdictional. Data supporting this conclusion is provided in Section 101.
   □ Provide adequate for jurisdictional status within the review area (check all that apply): (Feet)
     □ Width
     □ Depth
   □ Other: ____________

4. Wetlands directly adjacent to an RPW that flow directly or indirectly into TNWs.
   □ Wetlands directly adjacent to RPW and there is no evidence of adjacent wetlands.
   □ Provide data indicating that tributary is potential in Section III.D.2 above. Provide rationale indicating that wetland is
   directly adjacent to RPW. ____________
   □ Provide data indicating that tributary is potential in Section III.D.2 above. Provide rationale indicating that wetland is
   directly adjacent to RPW. ____________
   □ Provide narrative evidence for jurisdictional wetlands in the review area: ____________

5. Wetlands adjacent to but not directly adjacent to an RPW that flow directly or indirectly into TNWs.
   □ Wetlands that do not flow directly adjacent to an RPW, but which are considered in combination with the tributary to which they
   are adjacent and are similarly situated or adjacent wetlands, have a significant nexus with a TNW and are jurisdictional. Data
   supporting this conclusion is provided in Section III.C.
   □ Provide narrative evidence for jurisdictional wetlands in the review area: ____________

6. Wetlands adjacent to non RWPs that flow directly or indirectly into TNWs.
   □ Wetlands adjacent to such waters, and have been considered in combination with the tributary to which they are adjacent and
   are similarly situated or adjacent wetlands, have a significant nexus with a TNW and are jurisdictional. Data supporting this
   conclusion is provided in Section III.C.
   □ Provide narrative evidence for jurisdictional wetlands in the review area: ____________

7. Impoundments of jurisdictional waters.
   □ As a general rule, the impoundment of jurisdictional waters remains jurisdictional.
   □ Remove from jurisdictional category if the following conditions are met: (check all that apply): (Feet)
     □ Width
     □ Depth
     □ Other: ____________

E. ISOLATED INTERSTATE OR INTRA-STATE WATERS, INCLUDING ISOLATED WETLANDS, THE USE,
   REDECORATION OR OBSTRUCTION OF WHICH COULD AFFECT INTRASTATE COMMUNITY, INCLUDING ANY
   SUCH WATERS (CHECK ALL THAT APPLY) (See Chart 5)
   □ Which are or could be used by interstate or foreign vessels for recreational or other purposes
   □ Which are or could be used to obtain hydraulic or cold air by turbines or other devices
   □ Which are or could be used for sand mining purposes by industries in interstate commerce
   □ Other factors: ____________

   Identify water body and summarize rationale supporting determination: ____________

---

3. Non RWPs that flow directly or indirectly into TNWs.
   □ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and there is sufficient evidence that a
   TNW is jurisdictional. Data supporting this conclusion is provided in Section 101.
   □ Provide adequate for jurisdictional status within the review area (check all that apply): (Feet)
     □ Width
     □ Depth
   □ Other: ____________

4. Wetlands directly adjacent to an RPW that flow directly or indirectly into TNWs.
   □ Wetlands directly adjacent to RPW and there is no evidence of adjacent wetlands.
   □ Provide data indicating that tributary is potential in Section III.D.2 above. Provide rationale indicating that wetland is
   directly adjacent to RPW. ____________
   □ Provide data indicating that tributary is potential in Section III.D.2 above. Provide rationale indicating that wetland is
   directly adjacent to RPW. ____________
   □ Provide narrative evidence for jurisdictional wetlands in the review area: ____________

5. Wetlands adjacent to but not directly adjacent to an RPW that flow directly or indirectly into TNWs.
   □ Wetlands that do not flow directly adjacent to an RPW, but which are considered in combination with the tributary to which they
   are adjacent and are similarly situated or adjacent wetlands, have a significant nexus with a TNW and are jurisdictional. Data
   supporting this conclusion is provided in Section III.C.
   □ Provide narrative evidence for jurisdictional wetlands in the review area: ____________

6. Wetlands adjacent to non RWPs that flow directly or indirectly into TNWs.
   □ Wetlands adjacent to such waters, and have been considered in combination with the tributary to which they are adjacent and
   are similarly situated or adjacent wetlands, have a significant nexus with a TNW and are jurisdictional. Data supporting this
   conclusion is provided in Section III.C.
   □ Provide narrative evidence for jurisdictional wetlands in the review area: ____________

7. Impoundments of jurisdictional waters.
   □ As a general rule, the impoundment of jurisdictional waters remains jurisdictional.
   □ Remove from jurisdictional category if the following conditions are met: (check all that apply): (Feet)
     □ Width
     □ Depth
     □ Other: ____________

E. ISOLATED INTERSTATE OR INTRA-STATE WATERS, INCLUDING ISOLATED WETLANDS, THE USE,
   REDECORATION OR OBSTRUCTION OF WHICH COULD AFFECT INTRASTATE COMMUNITY, INCLUDING ANY
   SUCH WATERS (CHECK ALL THAT APPLY) (See Chart 5)
   □ Which are or could be used by interstate or foreign vessels for recreational or other purposes
   □ Which are or could be used to obtain hydraulic or cold air by turbines or other devices
   □ Which are or could be used for sand mining purposes by industries in interstate commerce
   □ Other factors: ____________

   Identify water body and summarize rationale supporting determination: ____________

---

3. Non RWPs that flow directly or indirectly into TNWs.
   □ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and there is sufficient evidence that a
   TNW is jurisdictional. Data supporting this conclusion is provided in Section 101.
   □ Provide adequate for jurisdictional status within the review area (check all that apply): (Feet)
     □ Width
     □ Depth
   □ Other: ____________

4. Wetlands directly adjacent to an RPW that flow directly or indirectly into TNWs.
   □ Wetlands directly adjacent to RPW and there is no evidence of adjacent wetlands.
   □ Provide data indicating that tributary is potential in Section III.D.2 above. Provide rationale indicating that wetland is
   directly adjacent to RPW. ____________
   □ Provide data indicating that tributary is potential in Section III.D.2 above. Provide rationale indicating that wetland is
   directly adjacent to RPW. ____________
   □ Provide narrative evidence for jurisdictional wetlands in the review area: ____________

5. Wetlands adjacent to but not directly adjacent to an RPW that flow directly or indirectly into TNWs.
   □ Wetlands that do not flow directly adjacent to an RPW, but which are considered in combination with the tributary to which they
   are adjacent and are similarly situated or adjacent wetlands, have a significant nexus with a TNW and are jurisdictional. Data
   supporting this conclusion is provided in Section III.C.
   □ Provide narrative evidence for jurisdictional wetlands in the review area: ____________

6. Wetlands adjacent to non RWPs that flow directly or indirectly into TNWs.
   □ Wetlands adjacent to such waters, and have been considered in combination with the tributary to which they are adjacent and
   are similarly situated or adjacent wetlands, have a significant nexus with a TNW and are jurisdictional. Data supporting this
   conclusion is provided in Section III.C.
   □ Provide narrative evidence for jurisdictional wetlands in the review area: ____________

7. Impoundments of jurisdictional waters.
   □ As a general rule, the impoundment of jurisdictional waters remains jurisdictional.
   □ Remove from jurisdictional category if the following conditions are met: (check all that apply): (Feet)
     □ Width
     □ Depth
     □ Other: ____________

E. ISOLATED INTERSTATE OR INTRA-STATE WATERS, INCLUDING ISOLATED WETLANDS, THE USE,
   REDECORATION OR OBSTRUCTION OF WHICH COULD AFFECT INTRASTATE COMMUNITY, INCLUDING ANY
   SUCH WATERS (CHECK ALL THAT APPLY) (See Chart 5)
   □ Which are or could be used by interstate or foreign vessels for recreational or other purposes
   □ Which are or could be used to obtain hydraulic or cold air by turbines or other devices
   □ Which are or could be used for sand mining purposes by industries in interstate commerce
   □ Other factors: ____________

   Identify water body and summarize rationale supporting determination: ____________
F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
- If potential wetlands were identified within the review area, these areas did not meet the criteria in the 1985 Corps of Engineers Wetland Delineation Manual, or appropriate regulated waterways.
- Review area included isolated wetland within a substantial amount of floodplain or upland area.
- Prior to the Jan 29, 1987 Federal Court Decision on N.A.C.T., the area was regulated based solely on the “Migratory Bird Rule” (MBR).
- Waters do not meet the “significant impact” standard where such a finding is required for jurisdictional waters.
- Other exceptions, if any, should be noted.
- Provide accurate estimates for non-jurisdictional waters in the review area, where the sole potential loss of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for impaired agriculture), using best professional judgment.
- Wetlands
- Other non-wetland waters
- Lake/pond waters

SECTION IV: DATA SOURCES:
A. SUPPORTING DATA: Data reviewed for 3D (check all that apply) - checked items shall be included in case file and when checked as applicable, appropriately referenced in the report:
- Maps, plans, plots or photos submitted by or on behalf of the applicant/consultant.
- Data sheets prepared by or on behalf of the applicant/consultant.
- Customer requests for data sheets/determination report.
- Data sheets prepared by the Corps.
- Corps navigable waters study.
- U.S. Geological Survey hydrologic studies.
- DWS/USACE 106 maps.
- USGS and/or digital H/V maps.
- U.S. Geological Survey maps.
- National wetland inventory report.
- State-level/3-digit inventory report.
- FEMA 100/500 maps.
- 65-year floodplain elevation, FEMA floodplain boundary.
- Photographic material, aerial (current)."
Regulatory Information

- Headquarters Webpage

- Galveston District Webpage
ON FACEBOOK
www.facebook.com/GalvestonDistrict

ON TWITTER
www.twitter.com/USACEgalveston

ON YOUTUBE
www.YouTube.com/Galveston District

ON DVIDS
www.dvidshub.net/units/USACE-GD

ONLINE
www.swg.usace.army.mil
Atlantic & Gulf Coastal Plain

- Prevalence Index (PI)
  - Organize all species into groups according to their indicator status and sum their cover values within
  - Calculate the prevalence index using the formula:
    \[
    PI = A_{obl} + 2A_{facw} + 3A_{fac} + 4A_{facu} + 5A_{upl}
    \]
  - Plant community is hydrophytic if PI is 3.0 or less
Table 2-3
Example of the Prevalence Index using the same data as in Table 2-2.

<table>
<thead>
<tr>
<th>Indicator Status Group</th>
<th>Species name</th>
<th>Percent Cover by Species</th>
<th>Total Cover by Group</th>
<th>Multiply by:</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBL species</td>
<td><em>Symlocarpus foetidus</em></td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>FACW species</td>
<td><em>Boehmeria cylindrica</em></td>
<td>18</td>
<td>3</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><em>Fraxinus pennsylvanica</em></td>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Impatiens capensis</em></td>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Pilea pumila</em></td>
<td>12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Platanus occidentalis</em></td>
<td>12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Vaccinium corymbosum</em></td>
<td>3</td>
<td>83</td>
<td>2</td>
<td>166</td>
</tr>
<tr>
<td>FAC species</td>
<td><em>Acer rubrum</em></td>
<td>27</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Athyrium filix-femina</em></td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Clethra alnifolia</em></td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Liquidambar styraciflua</em></td>
<td>27</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Lonicera japonica</em></td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Nyssa sylvatica</em></td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Toxicodendron radicans</em></td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Viburnum dentatum</em></td>
<td>6</td>
<td>78</td>
<td>3</td>
<td>234</td>
</tr>
<tr>
<td>FACU species</td>
<td><em>Ilex opaca</em></td>
<td>18</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Liriodendron tulipifera</em></td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Parthenocissus quinquefolia</em></td>
<td>1</td>
<td>22</td>
<td>4</td>
<td>88</td>
</tr>
<tr>
<td>UPL species</td>
<td>None</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Sum</td>
<td></td>
<td>186 (A)</td>
<td></td>
<td>491 (B)</td>
<td></td>
</tr>
</tbody>
</table>

Hydrophytic Vegetation Determination

Prevalence Index = B/A = 491/186 = 2.64

Therefore, this community is hydrophytic by Indicator 2 (Prevalence Index).

1 Where OBL = 1, FACW = 2, FAC = 3, FACU = 4, and UPL = 5.
2 These species were each recorded in two or more strata (see Table 2-2), so the cover estimates were summed across strata.