

# New York State Wetlands Forum

October 13, 2016

## Wetland Functional Assessment

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The  
Highway  
Methodology  
Workbook  
*Supplement*



US Army Corps  
of Engineers®  
New England District

Wetland Functions and Values  
*A Descriptive Approach*



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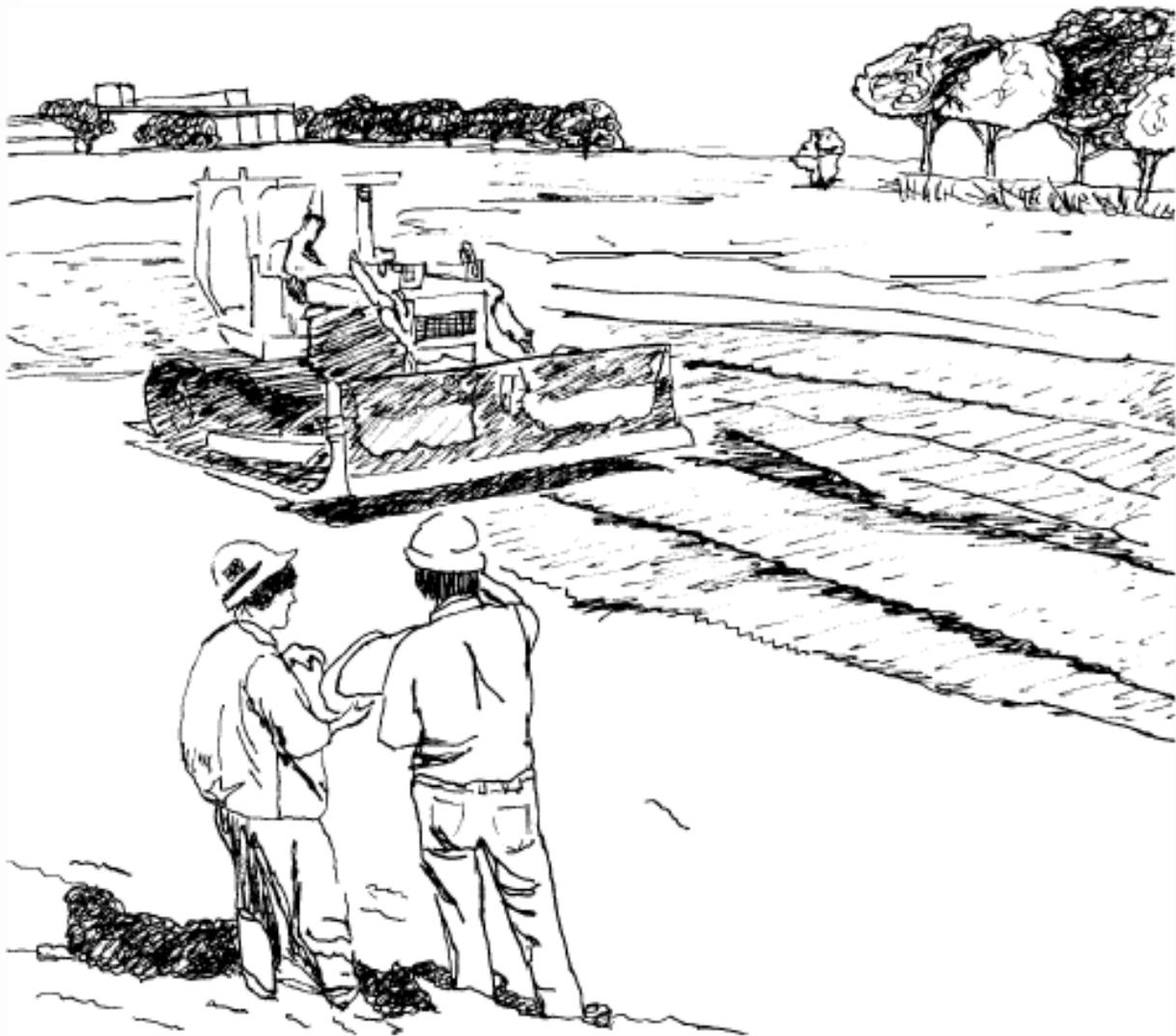
# Preface

This booklet provides guidance on how to identify and display wetland functions and values acceptable for the Corps New England District Regulatory Program. It supplements the Highway Methodology Workbook published by the Regulatory Branch in 1993. That text defines procedures to integrate Section 404 permit requirements with highway planning and engineering and the NEPA....

“The wetland functions and values ‘Descriptive Approach’ presented in this booklet, however, can be used for any project where the characterization of wetland resources is necessary for Section 404 permit requirement.”

As for other Corps districts, e.g., NY and Buffalo, they too accept it. In fact, it’s the most commonly applied technique in this state.

# The Highway Methodology Workbook



US Army Corps  
of Engineers  
New England District

## Integrating Corps Section 404 Permit Requirements with Highway Planning and Engineering and the NEPA EIS Process

This workbook aids COE project managers in their evaluation of permit applications and assists applicants to understand the Corps regulatory requirements. It's divided into five sections: Preapplication, Application, Public Notice, Evaluation, and Monitoring. The Evaluation Section points out the need for a wetland field assessment of functions and values, the details of which are in the Supplement.

# The Highway Methodology Workbook *Supplement*

## *(Introduction)*

Limitations of wetland assessments that generate numerical weightings, rankings, and/or averages of dissimilar wetland functions unnecessarily bias a review. Often the base data is not reported and it is difficult to reconstruct the indicators used to predict the functions and values.

Consequently, this (Highway) method includes a qualitative description of the wetland's physical characteristics, identifies the functions and values exhibited, and most importantly, the bases for the conclusions using best professional judgement.

# What are wetland functions and values?

- **Functions are self-sustaining properties** of a wetland ecosystem that exist in the absence of society. Functions result from both living and non-living components of a specific wetland. These include all processes necessary for the self-maintenance of the wetland ecosystem such as primary production and nutrient cycling.
- For example, a wetland that has slowly moving water performs the function of retaining sediments and toxicants. Identification of that function helps evaluate whether the impacts of a project may impair that function and whether such impacts are permissible.
- **Values are benefits** that derive from one or more functions and the physical characteristics associated with a wetland. The value of a wetland function is based on human judgment of the worth, merit, quality, or importance attributed to those functions.
- For example, a wetland that functions to retain sediments and toxicants, will have the societal value of pollutant attenuation. This may be especially true if the wetland is proximal to a vulnerable pollutant receptor, i.e. potable water supply.
- Functions and values can be principal if they are an important physical component of a wetland ecosystem (function only) and/or are considered of special values to society from a local, regional, and/or national perspective.

# What wetland functions and values are considered by the Corps in its Section 404 process?

- The 13 functions and values that are considered by the Regulatory Branch for any 404 wetland permit are listed below. These are not necessarily the only wetland functions and values possible, nor are they so precisely defined as to be unalterable.
- **Groundwater Recharge/Discharge:** This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area. Recharge should relate to the potential for the wetland to contribute water to an aquifer. Discharge should relate to the potential for the wetland to serve as an area where groundwater can be discharged to the surface.
- **Floodflow Alteration (Storage & Desynchronization):** This function considers the effectiveness of the wetland in reducing flood damage by attenuation of floodwaters for prolonged periods following precipitation events.
- **Fish and Shellfish Habitat:** This function considers the effectiveness of seasonal permanent waterbodies associated with the wetland in question for fish and shellfish habitat.

- **Sediment/Toxicant/Pathogen Retention:** This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens.
- **Nutrient Removal/Retention/Transformation:** This function relates to the effectiveness of the wetland to prevent adverse effects of excess nutrients entering aquifers or surface waters such as ponds, lakes, streams, rivers or estuaries.
- **Production Export (Nutrient):** This function relates to the effectiveness of the wetland to produce food or usable products for humans or other living organisms.
- **Sediment/Shoreline Stabilization:** This function relates to the effectiveness of a wetland to stabilize streambanks and shorelines against erosion.
- **Wildlife Habitat:** This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and wetland edge. Both resident and or migrating species must be considered. (Species lists of observed and potential animals should be included in the wetland assessment report.)

- **Recreation (Consumptive and Non-Consumptive):** This value considers the effectiveness of the wetland and associated watercourses to provide recreational opportunities such as canoeing, boating, fishing, hunting, and other active or passive recreational activities. Consumptive activities consume or diminish the plants, animals, or other resources that are intrinsic to the wetland, whereas non-consumptive activities do not.
- **Educational/Scientific Value:** This value considers the effectiveness of the wetland as a site for an “outdoor classroom” or as a location for scientific study or research.
- **Uniqueness/Heritage:** This value relates to the effectiveness of the wetland or its associated waterbodies to produce special values, which may include such things as archaeological sites, unusual aesthetic quality, historical events, or unique plants, animals, or geologic features.
- **Visual Quality/Aesthetics:** This value relates to the visual and aesthetic qualities of the wetland.
- **Threatened or Endangered Species Habitat:** This value relates to the effectiveness of the wetland or associated waterbodies to support threatened or endangered species.

# Comparison to the NYSDEC

## From ECL Art. 24 Statement of Findings (§24-0105.7):

“Any loss of freshwater wetlands deprives the people of the state of some or all of the many and multiple benefits to be derived from wetlands, to wit:”

(a) **flood and storm control** by the hydrologic absorption and storage capacity of freshwater wetlands;

(b) **wildlife habitat** by providing breeding, nesting and feeding grounds and cover for many forms of wildlife, wildfowl and shorebirds, including migratory wildfowl and rare species such as the bald eagle and osprey;

(c) **protection of subsurface water resources** and provision for valuable watersheds and recharging ground water supplies;

(d) **recreation** by providing areas for hunting, fishing, boating, hiking, bird watching, photography, camping and other uses;

(e) **pollution treatment** by serving as biological and chemical oxidation basins;

(f) **erosion control** by serving as sedimentation areas and filtering basins, absorbing silt and organic matter and protecting channels and harbors;

(g) **education and scientific research** by providing readily accessible outdoor bio-physical laboratories, living classrooms and vast training and education resources;

(h) **open space and aesthetic appreciation** by providing often the only remaining open areas along crowded river fronts and coastal Great Lakes regions;

(i) **sources of nutrients** in freshwater food cycles **and nursery grounds** and sanctuaries for freshwater fish.

**Note:** The above nine functions and values are nowhere ranked in order of importance. Nor is any described as more relevant than another.

# Hwy Method Benefits

vs.

# Art. 24

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- Groundwater Recharge/Discharge
  - Floodflow Alteration
  - Fish and Shellfish Habitat
  - Production Export
  - Sediment/Toxicant/Pathogen Retention
  - Nutrient Removal/Retention/Transformation
- Protection of Subsurface Water Resources
  - Flood and Storm Control
  - Nursery Grounds/Sanctuaries
  - Sources of Nutrients
  - Pollution Treatment
  - Pollution Treatment

- Wildlife Habitat
- Recreation
- Educational / Scientific Value
- Uniqueness/Heritage
- Visual Quality/Aesthetics
- Threatened or Endangered Species Habitat
- Sediment/Shoreline Stabilization
- Wildlife Habitat
- Recreation
- Education and Scientific Research
- ??????
- Open space and Aesthetic Appreciation
- Wildlife Habitat (Included R-T-E)
- Erosion Control

# Uniqueness / Heritage

...such things as archaeological sites, unusual aesthetic quality, historical events, or unique plants, animals, or geologic features.

I would equate this to a combination of

Wildlife habitat;

Open space and aesthetic appreciation;

&

The State Historic Preservation Act (Per UPA, an application is not complete until after OPRHP consultation.)

# How are wetland functions and values applied to the Regulatory Program?

- Wetland functions and values are used in a variety of ways including to...
- Describe site characteristics
- Compare project alternatives
- Avoid and minimize project impacts
- Determine significance of impacts
- Weigh environmental impacts against project benefits
- Design and monitor compensatory mitigation

# What wetland evaluation method does the Corps accept?

- “The Regulatory Branch advocates a qualitative, descriptive approach to wetland assessment based on consensus of an interdisciplinary team of professionals....
- Generally, readily available information from site visits and existing literature is used....”
- Numerical methods generally are to be avoided unless the data is readily available to support the analysis. In no case, however, should arbitrary weighting be applied to wetland functions, nor should dissimilar functions be ranked.”
- Note: Though I can't speak for Corps, NY & Buffalo District may be more forgiving. For example, WET has been accepted here in past, and ORAM (Buffalo Dist.) is pretty standard in Ohio. HGM is also numerical.

Does the Corps have a prescribed format for wetland evaluation?

- “Any appropriate format may be used.”
- Still, format must contain the pertinent information in a way that is easily found and assessed for its relevance.
- The Highway Methodology format is explained in this section. We’ll review it soon....

# How are the phases of the Highway Methodology incorporated?

- This section harkens back to the (original) Highway Methodology Workbook (versus the Supplement).
- Wetland resources are evaluated in both Phase I and Phase II of the Highway Methodology using different levels of information, commensurate with the project planning state.
- For Phase I (an early planning, typically preapplication stage), a large number of project alternatives may be under consideration and only limited field observations are made in order to screen out sites or alternatives that are obviously either not practicable or not a potential Least Environmentally Damaging Practicable Alternative (LEDPA).
- At the onset of Phase II, the permit application is generally submitted. Conclusions of Phase I may prove helpful in the review, but it is during Phase II that the Wetland Evaluation Forms should be completed base on field observations.

Are there good examples to follow?

“Good examples describe the wetland system and its individual components clearly with factual supporting data at an appropriate scale and level of detail commensurate with the project development stage. The objective is to graphically display complex wetland information in a format that facilitates assimilation by reviewers and expedites regulatory decisions.....”

This section provides examples of assessment components, i.e. completed worksheets and graphical accompaniments.

Graphics and narrative should allow reviewer to analyze such things as wetland position in the landscape, configuration, cover type, and corresponding functions and values.

# How are resources other than wetlands considered in the Corps permit decision?

- “Wetlands may appear to receive disproportionate attention because the Section 404(b) Guidelines require the Corps to permit the practicable alternative that has the least adverse impact on the aquatic ecosystems, provided there are no other significant adverse environmental consequences.”
- Same goes for DEC—State law protects wetlands. There is no State “Upland Protection Act.”
- However, a determination of the LEDPA does require consideration of other resources of concern, including such things as aquifers, wildlife habitat, socio-economic constraints. At the state level, SEQRA is applicable to this consideration.
- “It is important that these other resources be displayed along with the wetland functions and values in order to give the decision maker a complete picture when evaluating alternatives.” (This may result from a Phase I evaluation.)

## Appendix A:

Wetland evaluation supporting documentation; Reproducible forms

- See Handouts.
- Discuss as time and need dictate.

Thank You!!

Discussion?

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Next: Field Component Lead by NRCS  
and NHP

Let's meet outside front door at  
appointed time for an approx. 10  
minute walk to wetland = Lake Loop  
Trail.