What is a Wetland?

Jay Turner

Wetlands, Lakes, & Streams Project Manager

Office of Water Quality
Indiana Department of
Environmental Management

What is a Wetland?

Photo Courtesy of IDEM

Wetlands and streams are necessary components of a healthy ecosystem.

What is a Wetland?

Photos Courtesy of IDEM

Wetlands - contain standing water or have water at or near the soil surface for part of, or all year, including the growing season

What is a Wetland?

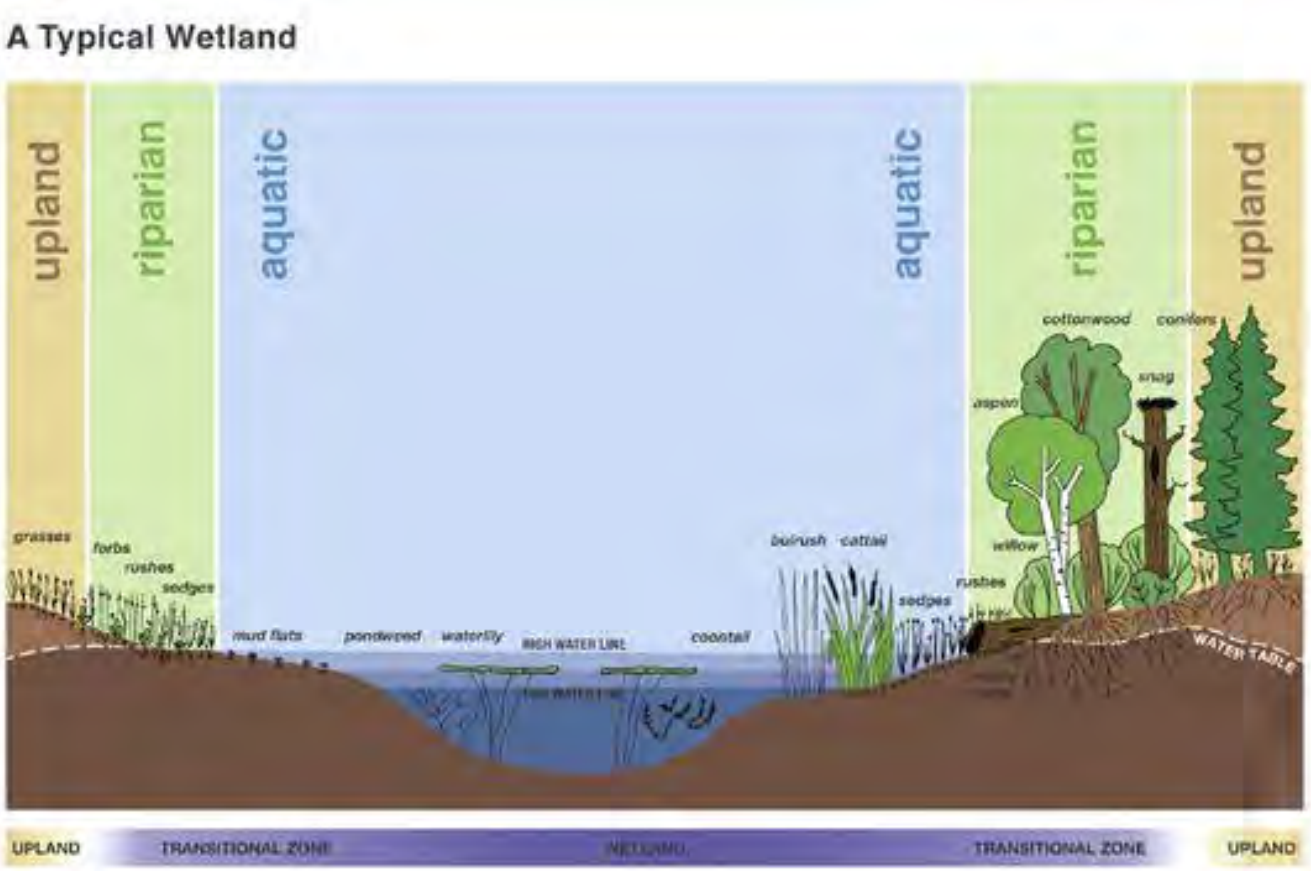


Image Courtesy of IDEM

Different from both dry land (upland) and deep water of lakes and streams, wetlands often occur in the transitional zones between these features.

What is a Wetland?

Photos Courtesy of IDEM

What is a Wetland?

Many different types of wetland ecosystems exist in Indiana

Floodplain Forest

Wet Meadow

Shallow Marsh

Wet Prairie

How Wetlands Function

Wetlands develop in areas of poorly drained soils.

Water saturation results in reduced oxygen concentration in soils of areas flooded for prolonged periods of time.

How Wetlands Function

The process allows vegetation adapted to poorly drained soils to thrive.

How do I know if my land has wetlands?


Photo Courtesy of Landon Vine, Indiana Native Plant Society


Photo Courtesy of IDEM


Photo Courtesy of USACE

Wetlands are defined by three criteria: **vegetation, hydrology, & soils**

Criteria 1: Vegetation


Pitcherplant, Photo Courtesy of USFS


Buttonbush, Photo Courtesy of Paul Cox, Wildflower.org


Swamp Milkweed, Photo Courtesy of Stephanie Brundage, Wildflower.org

Nearly 5,000 different hydrophytic (water loving) plants occur in wetlands.

Criteria 2: Hydrology

Refers to the presence of water at or above the soil surface long enough to significantly influence the plant types & soils that occur in the area.

Criteria 3: Soils

Approximately 2,000 different types of hydric soils occur in wetlands across the United States.

Wetland Determinations & Delineations

Wetlands are identified through a process known as **determinations.**
Delineations are the process of using determination data points to identify and map the location & extent of a wetland at that time.

There are no known precise wetland maps!

WETLAND DETERMINATION DATA FORM – Midwest 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 (%): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI or WWI 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:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	____ = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

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	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:

- ____ Dominance Test is >50%
- ____ Prevalence Index is ≤3.0[1]
- ____ 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.

Hydrophytic Vegetation Present? Yes ____ No ____

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 %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated 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)
- ____ Depleted Below Dark Surface (A11)
- ____ Thick Dark Surface (A12)
- ____ Sandy Mucky Mineral (S1)
- ____ 5 cm Mucky Peat or Peat (S3)
- ____ Sandy Gleyed Matrix (S4)
- ____ Sandy Redox (S5)
- ____ Stripped Matrix (S6)
- ____ Loamy Mucky Mineral (F1)
- ____ Loamy Gleyed Matrix (F2)
- ____ Depleted Matrix (F3)
- ____ Redox Dark Surface (F6)
- ____ Depleted Dark Surface (F7)
- ____ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ____ Coast Prairie Redox (A16)
- ____ Iron-Manganese Masses (F12)
- ____ 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:

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)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ 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)
- ____ Gauge or Well Data (D9)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Drainage Patterns (B10)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ____ Depth (inches): _____

Water Table Present? Yes ____ No ____ Depth (inches): _____

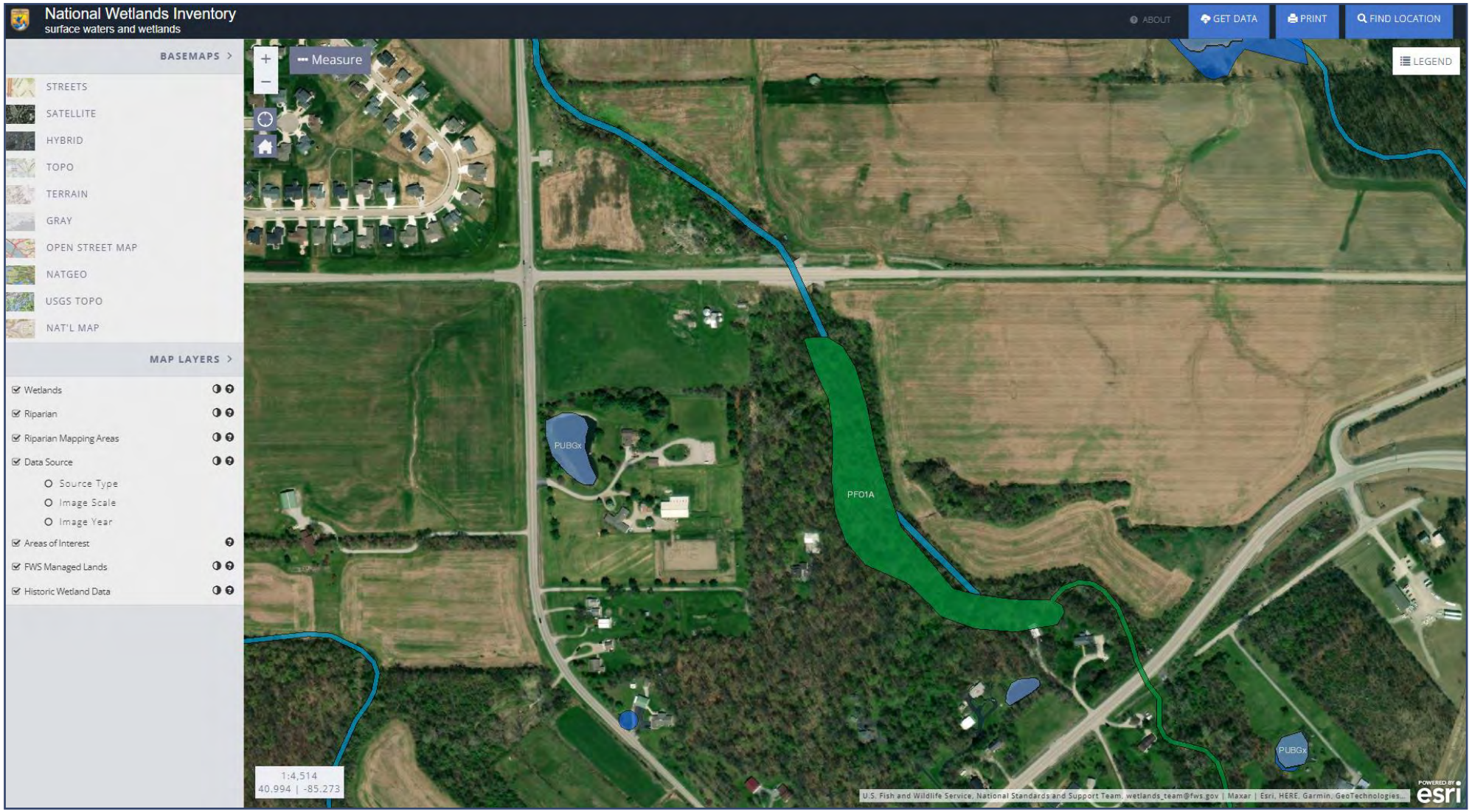
Saturation Present? (includes capillary fringe) Yes ____ No ____ Depth (inches): _____

Wetland Hydrology Present? Yes ____ No ____

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

Remarks:

National Wetland Inventory Map



U.S. FISH & WILDLIFE SERVICE
DEPARTMENT OF THE INTERIOR

Not for regulatory purposes;
not field verified &
not delineated

What a Wetland is Not

What a Wetland is NOT

Photo Courtesy of Google Images

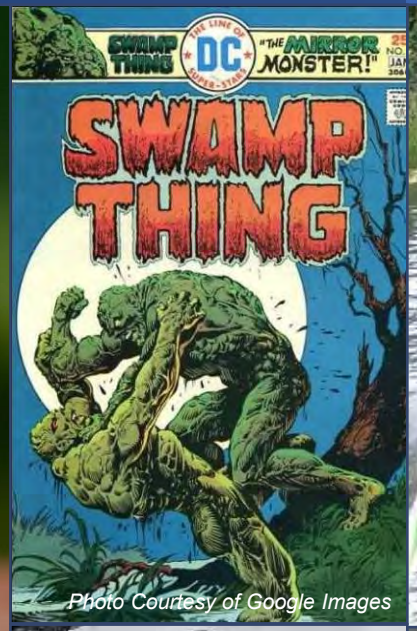


Photo Courtesy of Google Images

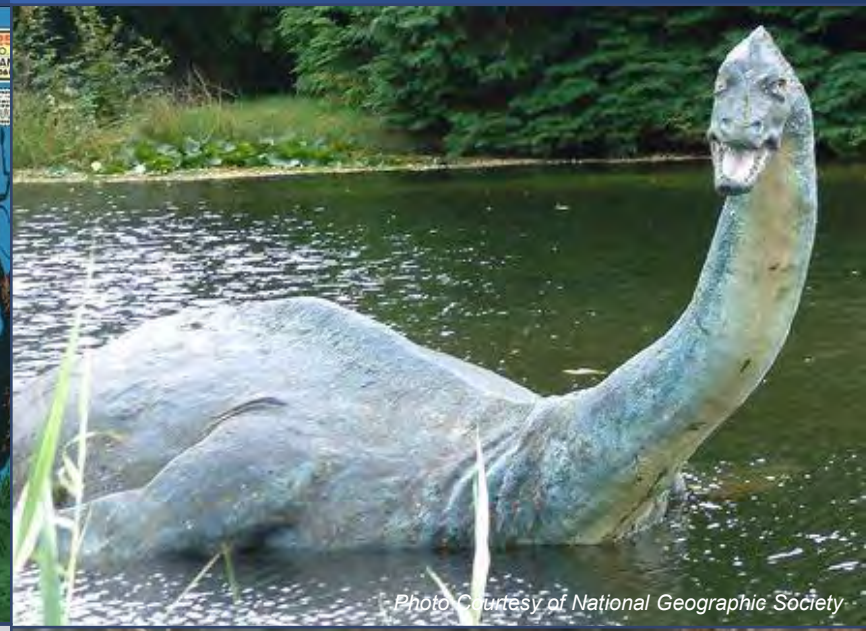


Photo Courtesy of National Geographic Society

Photo Courtesy of Flickr

Photo Courtesy of Google Images

Mosquito & monster-infested places
from your worst nightmares

What a Wetland is NOT

Wetland Life Thrives Beyond Mosquitos & Monsters


Indiana DNR


Audubon Society


Photo Courtesy of USFWS


Photo Courtesy of Indiana DNR


Photo Courtesy of Indiana DNR


Indiana DNR

What a Wetland is NOT: a Mosquito Sanctuary

Excessive mosquito populations are often a sign of stagnant water.

Things you can do:

- Dispose of unwanted cans & tires
- Clean clogged roof gutters
- Drain flat roofs
- Flush sump pump pits regularly
- Change water in bird baths, fountains, & troughs twice / week
- Turn over unused wading pools & containers that collect rainwater

What a Wetland is NOT

- **Detention (dry) Basin** – holds water temporarily after rain / storm events; slow release over time period
- **Retention (wet) Pond** – holds water year-round; improves water quality
- **Constructed Wetlands** – Artificial treatment systems that use natural processes involving wetland vegetation, soils, & their associated microbial assemblages to improve water quality (source: EPA)

What a Wetland is NOT

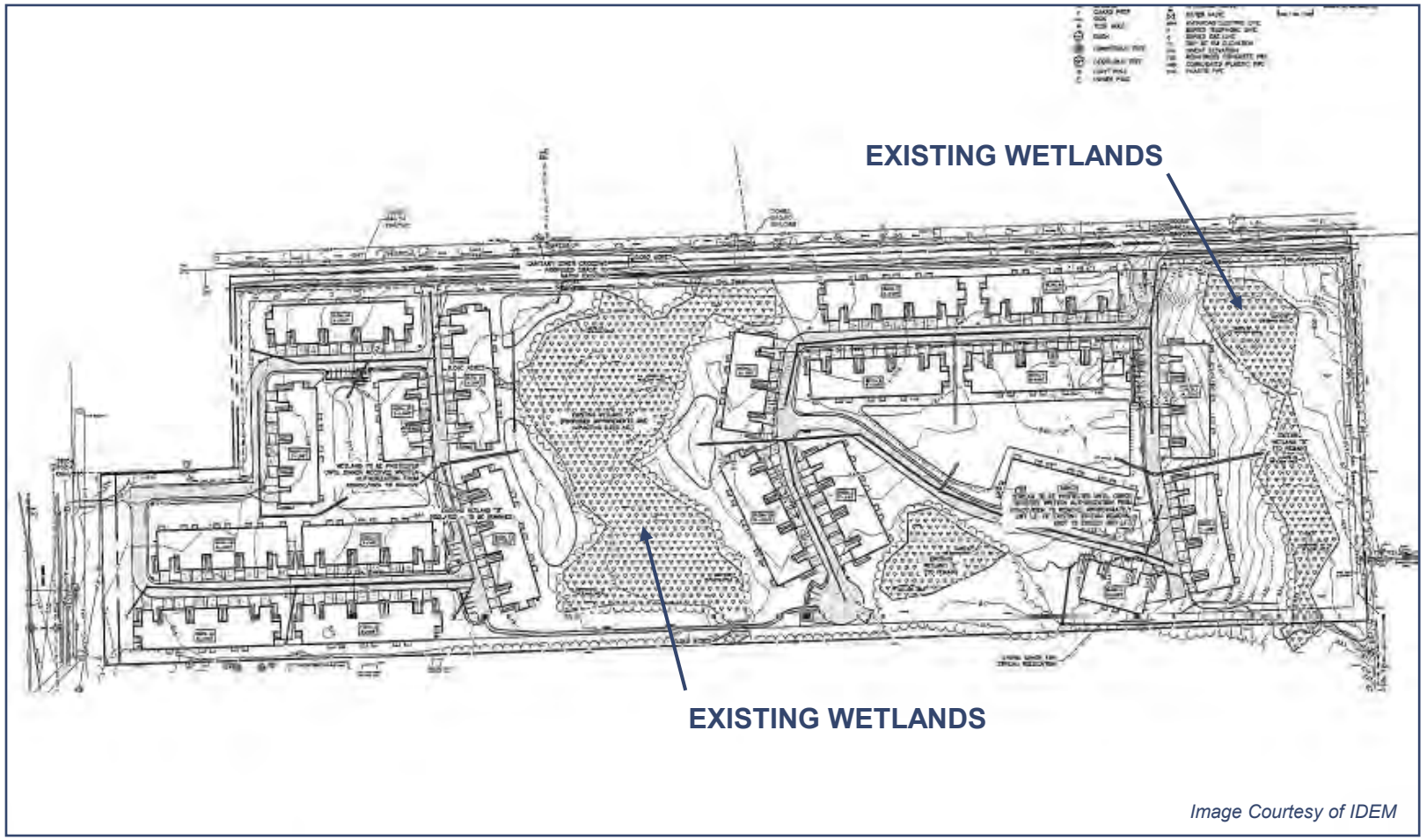


Image Courtesy of IDEM

Myth:
Wetlands are a nuisance and an impediment to development.

Fact: Wetlands are an OPPORTUNITY.

This project development incorporated the site's existing wetlands into the surrounding greenspace.

Thank you!