

INDOT Bridge Design Conference 2017

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Outline

- **What is a regulated resource?**
 - Stream
 - Wetland
 - Floodway
- **What is regulated?**
- **Who regulates and how?**
- **Resources**
- **Other Considerations**



Stream System

- **Channel** – includes stream defined by bed and bank
- **Riparian zone** – transition zone between the channel and the uplands that provides
 - Stream bank stability and protection
 - Sediment and pollutant filtration
 - Nutrients
 - Water temperature regulation
- **Floodplain** – wider than the riparian area, during high flow will contain flood waters



Stream Types

- **Ephemeral** – flowing water only during and for a short duration after precipitation
- **Intermittent** – flowing water during certain times of the year, flow is from groundwater
- **Perennial** – flowing water year round, groundwater primary source of flow supplemented by rainfall



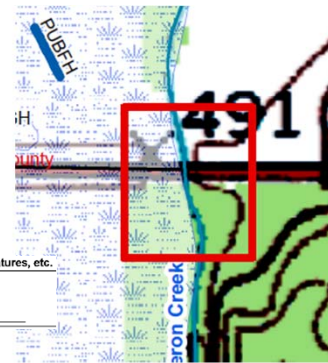
Ordinary High Water Mark (OHWM)

- **A line on the shore established by fluctuations of water and indicated by**
 - clear natural line impressed on bank
 - destruction or absence of terrestrial vegetation
 - vegetation matted down, bent or absent
 - leaf litter disturbed or washed away
 - abrupt change in plant community
 - presence of litter or debris
 - sediment deposition
 - water staining



Wetland

- Area inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions.
- Characteristics
 - Hydrophytic vegetation
 - Hydric soil
 - Wetland hydrology



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

Hydrophytic vegetation present?	Yes	Is the Sampled Area within a Wetland?	Yes	X	No
Hydric soil present?	Yes				
Wetland hydrology present?	Yes				



Floodway

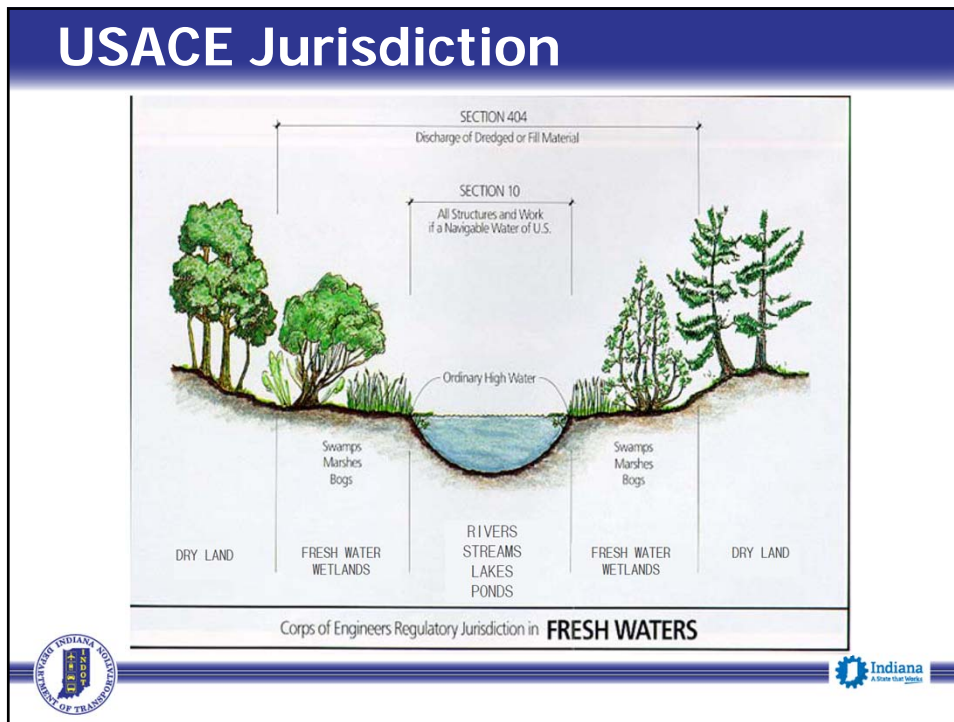
- The channel of a river or stream and those portions of the flood plain adjoining the channel which are reasonably required to efficiently carry and discharge the peak flow of the regulatory flood of any river or stream.
 - Peak flow = 100 year discharge
 - Not mapped, use floodplain boundary



Activities that require a permit


- **Placement of fill w/in Waters of the U.S. or Waters of the State**
 - Fill = soil, riprap, concrete, structure, etc.
 - Permanent or temporary
- **Alteration to the cross-sectional area of a waterway**
- **Land disturbance**





USACE Permits

- **Section 404 (fill)**
 - **Nationwide Permit (NWP)**
 - #3 Maintenance
 - #33 Temporary Construction, Access and Dewatering
 - General NWP requirements (USACE and IDEM) must be met, USACE verified
 - **Regional General Permit (RGP)**
 - Impacts > 0.1 ac and/or 300 LF
 - General RGP requirements (USACE and IDEM) must be met



Indiana
A Smart State

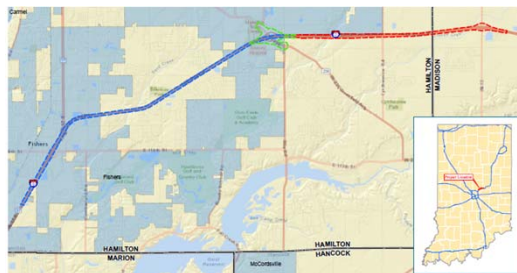
USACE Permits

- **Individual Permit (IP)**
 - Impacts > 1 ac or 1,500 LF
- **Section 10** (work in navigable waterway)
- **Jurisdiction hierarchy**
 - USACE 404, IDEM 401 WQC, IDEM IsoIW, non-regulated
- **Avoidance, Minimization and Mitigation**



Single and Complete

- **Single and complete non-linear project**
 - Total project proposed or accomplished
 - Independent utility is required
- **Single and complete linear project**
 - All crossings of a single waterbody of the U.S. at a specific location
 - Separate and distant crossings of same waterbody, each crossing is a single and complete project



Independent Utility

- **Project would be constructed absent the construction of other projects in the project area**
 - No - Portions of a multi-phase project where phases are dependent on each other
 - Yes – Phases that would be constructed even if other phases would not be built



IDEM Permits

- **Section 401 (fill)**
 - Water Quality Certification (WQC)
 - Nationwide Permit (NWP) – no IDEM review
 - Regional General Permit (RGP) - IDEM 30 day review
 - Individual Permit (IP) – 30 day public notice +
- **Isolated Wetland (IsoIW)**
 - Size and class of wetland determines exemptions, permit and mitigation requirements



IDEM Permits

- **Rule 5**

- ≥ 1.0 acre of soil disturbance (0.9 ac)
- < 1.0 acre NPR, compliance w/ Standard Specification Section 205 – Temporary Erosion and Sediment Control



IDNR Permits

- **Construction in a Floodway (CIF)**

- Change in cross-sectional area/waterway opening
- Activity below Q_{100}
- Non-modeling Worksheet – SF 55238

Cross sectional area at the most restricted segment of the project	Column 1 Area (square feet)
Pre-construction condition	<input type="text"/> sq ft
Post-construction condition	<input type="text"/> sq ft

- **Navigable Waterways**



IDNR Permits

- **Bridge Exemption**

- Only involves a bridge, pipe or culvert
- Upstream drainage area $\leq 50 \text{ mi}^2$
- Impacted buildings higher than regulatory flood elevation
- Not within corporate (town) boundaries or comprehensive planning territorial authority



- **1997 IDNR Maintenance MOU**

- Must maintain existing waterway opening



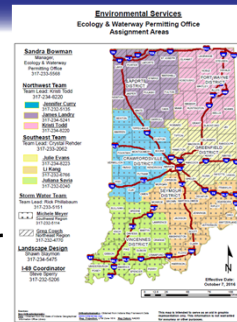
Bridge Rehabilitation Activities

Permit Required	No Permit Required
PERMANENT IMPACTS	
Scour protection for piers/substructure (excavation and riprap)	Bridge and approach slabs End bents, bent caps
Pilings/piers – repair, addition of	Joints, railing, bridge rail transitions
Footings	Guard rail
Bridge replacement using existing piling and beams*	Rip rap turnout ditches (to bottom of existing slope)
Channel bank repair	Deck patching
TEMPORARY IMPACTS	
How will the work be done?	
Access to underside of structure?	
Traffic management - crossover	* Based on concurrent impacts below OWHM



Resources

- **EWPO Specialist**
 - Permit determination
 - Project planning resource
 - Translator – engineer to regulator
 - Permit review and submittal
- **Waters of the U.S. determination**
- **Design manual** – the project site may require something different



Permit Application

- **Describe existing and proposed conditions, what will be done and how it will be done**
 - Narrative stands alone
 - Plans, pictures, etc. support narrative
 - Include permanent and temporary impacts to regulated resources
 - Justification
 - Avoidance and minimization



Endangered Species Act (ESA)

- **Indiana Bat, Northern Long Eared Bat**
 - Will use bridge structures
 - Bridge assessment
 - Avoidance and minimization measures (AMMs)
 - Appropriate AMMs identified early in planning process
 - USFWS Range-Wide Programmatic Consultation "Project Submittal Form"



Hibernating Indiana bats; one with a wing band by Andrew King/USFWS



Endangered Species Act (ESA)

- **Rusty Patched Bumble Bee**
 - Listed 1/11/2017
 - Nesting – underground, abandoned rodent cavities, clumps of grass
 - Keystone species
 - Crop pollinator



Rusty patched bumble bee; courtesy of ©Christy Stewart



Migratory Bird Treaty Act (MBTA)

■ Barn Swallows

- Do not disturb nests with eggs or young
- Can remove nests from under bridge prior to April 1st
- Regular monitoring is required
- Remove new nest construction prior to egg laying
- Inspect prior to start of work each day, remove nest if no eggs or young present
- Once cleared construction can begin



Questions ?

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