Establishing Goals and Priorities

NEWSC

Stormwater Pond Vegetation Management and Maintenance Workshop

November 14, 2017

What do regulations require?
Going beyond the minimum

How do you want your stormwater ponds to function and look?

How do you get there?

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Pond functions and values

- Stormwater management (quantity / quality)
- Ecology
- Aesthetics
- Recreation

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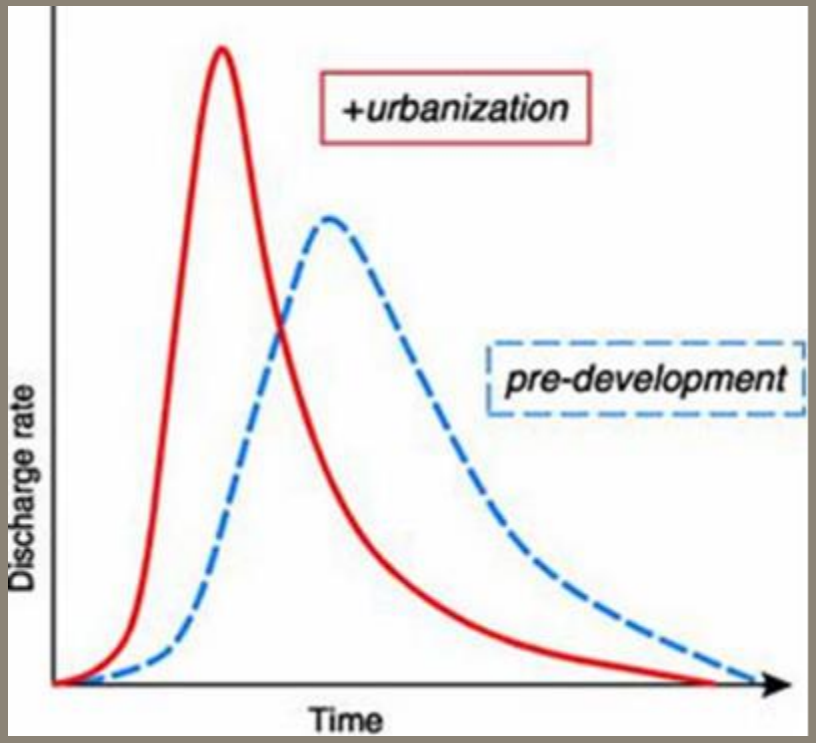
Stormwater Management



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Stormwater Management, **cont'd**

- Flood control / peak flow management
- Water Quality (nonpoint source pollutant removal)

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Ecology

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Credit: Allen Watkin, Creative Commons License

Credit: Kyle Pearce, Creative Commons License

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Aesthetics

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Recreation

What could a pond look like?

Possibilities

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CHASE
DOLLAR WISE
FOR LEASE

Baseline Evaluations and Permitting Stormwater Facilities

Jon Gumtow, PWS, PSS
Senior Wetland Scientist
Stantec Consulting Services Inc. – Green Bay

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Planning Processes

Baseline

Wetland Delineation
Stream (Navigability/OHWM)
Rare Species
Invasive Species
Cultural Resources
Airports
Nuisance Wildlife
Cost/Schedule

Permitting

NR 216 Construction
Wetland Fill
Navigable streams
Cost/Schedule

Mitigation

>10,000 SF Wetland
Cost/Schedule

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Stream Definition

Navigability: A stream is navigable if it has a bed and banks and can float in a canoe or other small craft at some time of the year, even if only during spring floods.

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Wetland Types








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Wetland Delineation

NEW: June 1, 2016, WDNR implements "Wetland Screening and Delineation Procedures" requiring customers to submit wetland delineation with applications for storm water, CAFO, and waterway and wetland permits

Assured/Non-Assured

- Valid for State permits only
- 14 Assured
- 100's of Non-Assured
  - PWS, PSS, CST, Training

Other Options

- USACE vs WDNR Concurrence

Cost/Schedule

Acres of Property Reviewed	Review Fee	Acres of Property Reviewed	Review Fee
◉ 1 - 20 acres	$300	○ 81 - 100 acres	$1500
○ 21 - 40 acres	$600	○ 101 - 120 acres	$1800
○ 41 - 60 acres	$900	○ 121 - 140 acres	$2100
○ 61 - 80 acres	$1200	○ 141 - 160 acres	$2400
○ Other	enter acres:		

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Wetland Delineation

Agricultural Conversions

"Effectively Drained Wetlands"

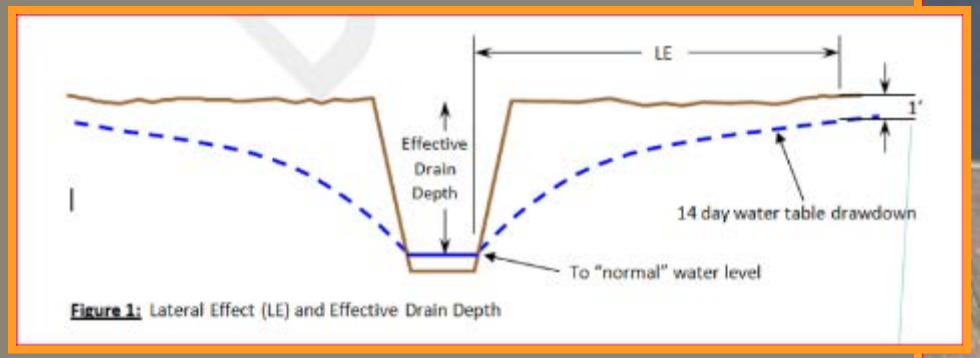

Figure 1: Lateral Effect (LE) and Effective Drain Depth

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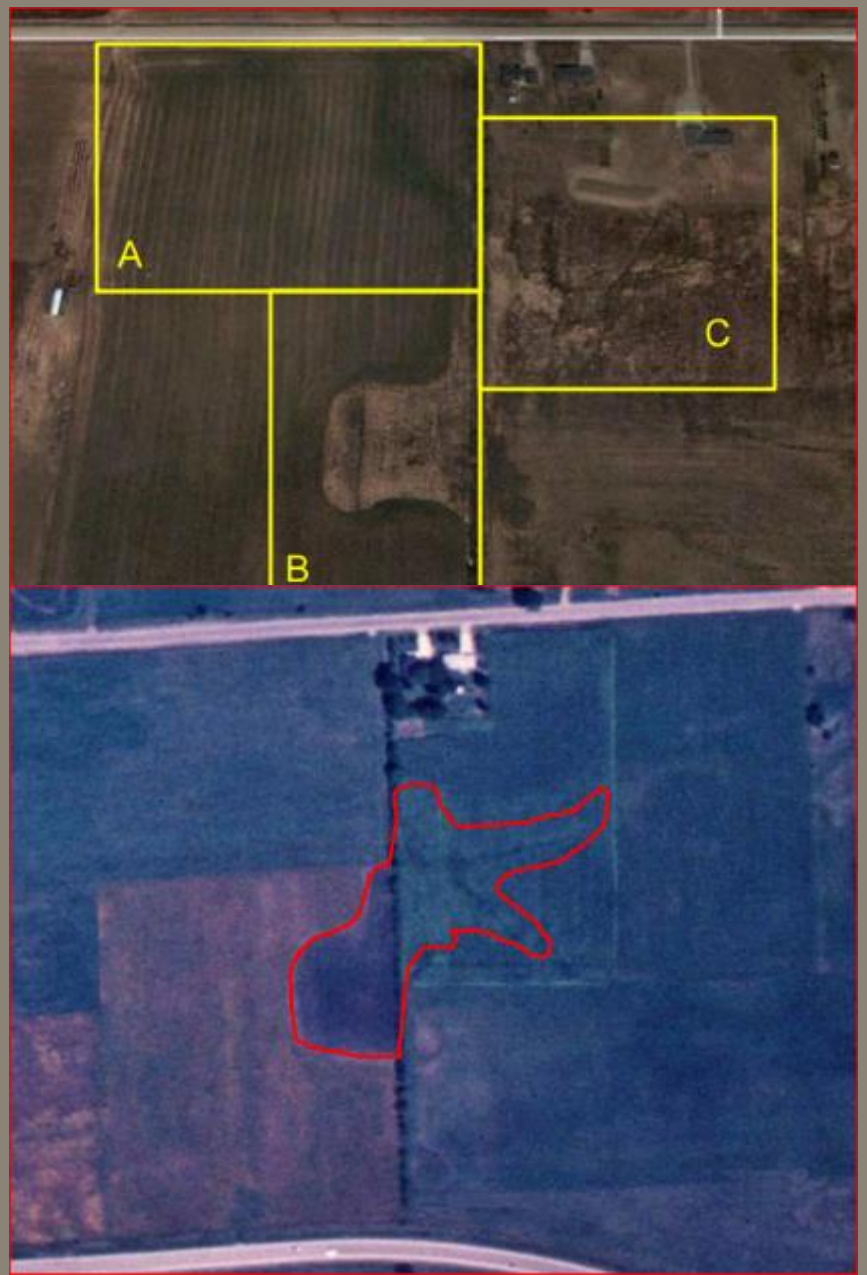
Wetland Delineation

Farmed Wetlands

- Not Effectively Drained
- Food Security Act (FSA)
- Aerial Slide Review



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Wetland Delineation

Artificial Wetland: A landscape feature where hydrophytic vegetation may be present as a result of human modifications to the landscape or hydrology and for which there is no prior wetland or stream history

NR 103.06(4) – Artificial Wetland Exemptions: A person who proposes a project that may affect an artificial wetland shall notify the department at least 15 working days prior to initiating the project … the following artificial wetlands are exempt from the provisions of this chapter unless the department notifies the applicant … that the artificial wetland has significant functional values.

- Stormwater basins
- Active sewage lagoons
- Cooling ponds
- Waste disposal pits
- Fish rearing ponds
- Landscape ponds
- Farm and road ditches
- Active nonmetallic mines

Documentation Needed to Qualify!

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Rare Species

Minimization Measures

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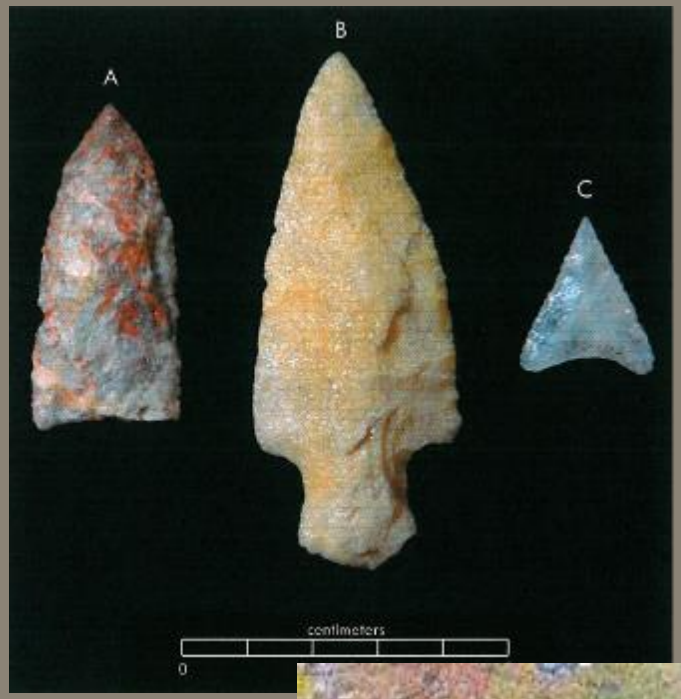
Cultural/Historic Resources



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Importance of Permitting

- It's the law
- It's your reputation and license
- It's an ethical obligation

$4.3 million USEPA settlement

Wetland fill and stormwater violations

News Release: "Today's settlement sets a new bar for the construction industry"

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Typical Regulations

USACE Section 404: Wetland Discharges
WDNR NR 103: Wetland Water Quality Certification
WDNR Chapter 30: Grading/Culverts/Rip-Rap/etc.....
WDNR Chapter 31: Dam Permit
WDNR NR 216/Trans 401: Erosion Control NOI
Trans 207: Structure Replacements in Waterways
NR 151: Runoff Management Performance Standards
NR 115: County Shoreland Zoning Ordinances
NR 116/NR 117 Floodplain/Shoreland Ordinances
Local Zoning Ordinances: Erosion Control, Stormwater Management, Conditional Use, etc.

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WDNR Permitting

GP vs IP
Joint State/Federal Application
WDNR online applications
Cost/Schedule

General Permits

- Initial 30-day review time period for completeness
- Detailed PAA required *(s. 281.36(3g)(h), Stats.)*
- For activities that meet specific standards
- Discharge will cause only minimal adverse environmental impacts
- Single and complete project

Individual Permits

- Pre-application meeting required before permit submittal
- 60-90 day minimum review time period
- Detailed PAA required *(s. 281.36(3m)(b), Stats.)*
- 30-day public notice requirement

281.36(1) "Practicable" means reasonably available and capable of being implemented after taking into consideration cost, site availability, available technology, logistics, and proximity to the proposed project site, in light of the overall project purpose and scope.

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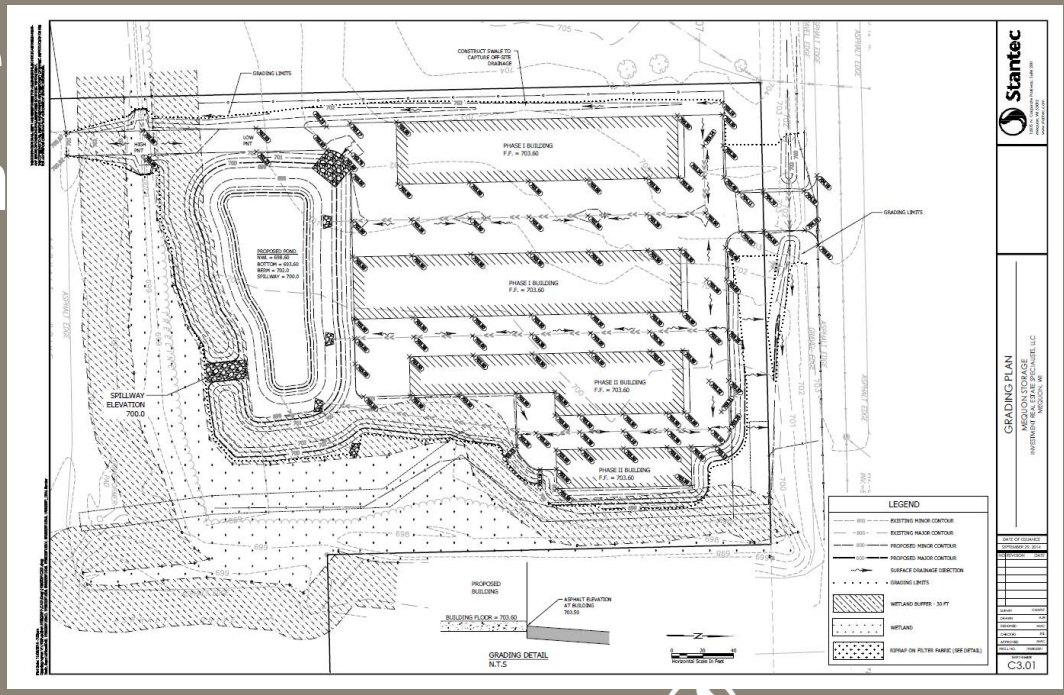
Avoid Permitting Headaches

- ✓ Plan first … design later
- ✓ Coordinate early and often
- ✓ Do not fear the
- ✓ Permitting is tim



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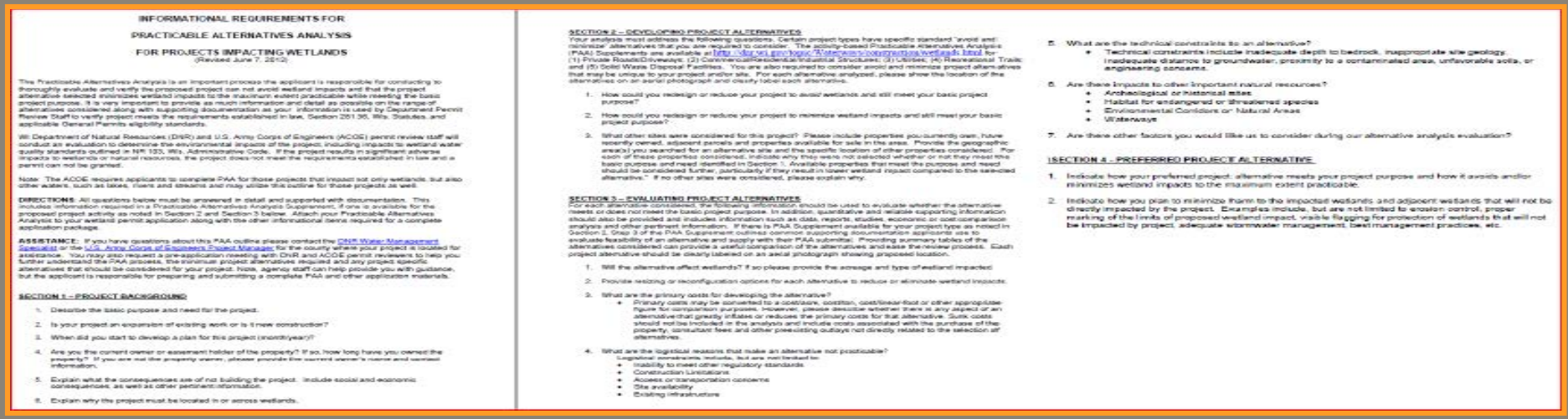
Permit Sequencing

PURPOSE AND NEED define and justify project

AVOID the impact by not taking a certain action or parts of an action

MINIMIZE the impact by altering the project design
- ✓ Reduce the impact with controls or schedule modifications

MITIGATE for the impact by replacing or supplying a substitute
- ✓ Compensatory Wetland Mitigation
  - Sequence (Banking/In-Lieu Fee/On-Site)



INFORMATIONAL REQUIREMENTS FOR

PRACTICABLE ALTERNATIVES ANALYSIS

FOR PROJECTS IMPACTING WETLANDS

(Revised June 7, 2012)

The Practicable Alternatives Analysis is an important process the applicant is responsible for conducting to thoroughly evaluate and verify the proposed project can not avoid wetland impacts and that the project alternative selected minimizes wetland impacts to the maximum extent practicable while meeting the basic project purpose. It is very important to provide as much information and detail as possible on the range of alternatives considered along with supporting documentation as your information is used by Department Permit Review Staff to verify project meets the requirements established in law, Section 281.36, Wis. Statutes, and applicable General Permits eligibility standards.

WI Department of Natural Resources (DNR) and U.S. Army Corps of Engineers (ACOE) permit review staff will conduct an evaluation to determine the environmental impacts of the project, including impacts to wetland water quality standards outlined in NR 103, Wis. Administrative Code. If the project results in significant adverse impacts to wetlands or natural resources, the project does not meet the requirements established in law and a permit can not be granted.

Note: The ACOE requires applicants to complete PAA for those projects that impact not only wetlands, but also other waters, such as lakes, rivers and streams and may utilize this outline for those projects as well.

DIRECTIONS: All questions below must be answered in detail and supported with documentation. This includes information required in a Practicable Alternatives Analysis Supplement, if one is available for the proposed project activity as noted in Section 2 and Section 3 below. Attach your Practicable Alternatives Analysis to your wetland permit application along with the other informational items required for a complete application package.

ASSISTANCE: If you have questions about this PAA outline please contact the DNR Water Management Specialist or the U.S. Army Corps of Engineers Project Manager for the county where your project is located for assistance. You may also request a pre-application meeting with DNR and ACOE permit reviewers to help you further understand the PAA process, the minimum project alternatives required and any project specific alternatives that should be considered for your project. Note, agency staff can help provide you with guidance, but the applicant is responsible for preparing and submitting a complete PAA and other application materials.

SECTION 1 – PROJECT BACKGROUND

1. Describe the basic purpose and need for the project.
2. Is your project an expansion of existing work or is it new construction?
3. When did you start to develop a plan for this project (month/year)?
4. Are you the current owner or easement holder of the property? If so, how long have you owned the property? If you are not the property owner, please provide the current owner's name and contact information.
5. Explain what the consequences are of not building the project. Include social and economic consequences, as well as other pertinent information.
6. Explain why the project must be located in or across wetlands.

SECTION 2 – DEVELOPING PROJECT ALTERNATIVES

Four analysis must address the following questions. Certain project types have specific standard "avoid and minimize" alternatives that you are required to consider. The activity-based Practicable Alternatives Analysis (PAA) Supplements are available at http://dnr.wi.gov/topic/Waterways/exemptions/wetlands.html for: (1) Private Roads/Driveways; (2) Commercial/Residential/Industrial Structures; (3) Utilities; (4) Recreational Trails; and (5) Solid Waste Disposal Facilities. You are also required to consider avoid and minimize project alternatives that may be unique to your project and/or site. For each alternative analyzed, please show the location of the alternatives on an aerial photograph and clearly label each alternative.

1. How could you redesign or reduce your project to avoid wetlands and still meet your basic project purpose?
2. How could you redesign or reduce your project to minimize wetland impacts and still meet your basic project purpose?
3. What other sites were considered for this project? Please include properties you currently own, have recently owned, adjacent parcels and properties available for sale in the area. Provide the geographic area(s) you searched for an alternative site and the specific location of other properties considered. For each of these properties considered, indicate why they were not selected whether or not they meet the basic purpose and need identified in Section 1. Available properties that meet the purpose and need should be considered further, particularly if they result in lower wetland impact compared to the selected alternative. If no other sites were considered, please explain why.

SECTION 3 – EVALUATING PROJECT ALTERNATIVES

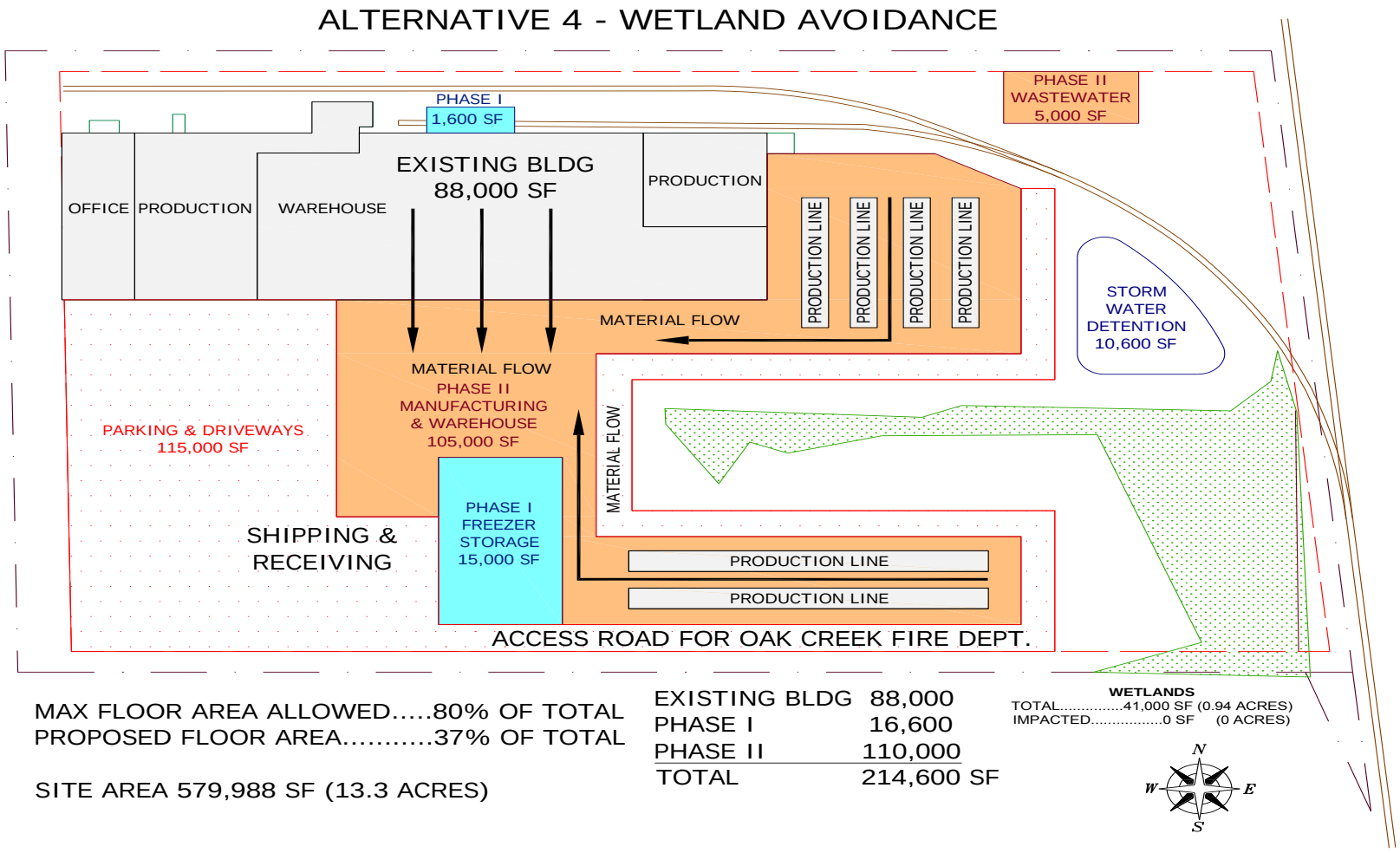
For each alternative considered, the following information should be used to evaluate whether the alternative meets or does not meet the basic project purpose. In addition, quantitative and reliable supporting information should also be provided and includes information such as data, reports, studies, economic or cost comparison analysis and other pertinent information. If there is PAA Supplement available for your project type as noted in Section 2, Step 3 of the PAA Supplement outlines common supporting documentation applicants use to evaluate feasibility of an alternative and supply with their PAA submittal. Providing summary tables of the alternatives considered can provide a useful comparison of the alternatives and ease the review process. Each project alternative should be clearly labeled on an aerial photograph showing proposed location.

1. Will the alternative affect wetlands? If so please provide the acreage and type of wetland impacted.
2. Provide resizing or reconfiguration options for each alternative to reduce or eliminate wetland impacts.
3. What are the primary costs for developing the alternative?
   - Primary costs may be converted to a cost/acre, cost/ton, cost/linear-foot or other appropriate figure for comparison purposes. However, please describe whether there is any aspect of an alternative that greatly inflates or reduces the primary costs for that alternative. Sunk costs should not be included in the analysis and include costs associated with the purchase of the property, consultant fees and other preexisting outlays not directly related to the selection of alternatives.
4. What are the logistical reasons that make an alternative not practicable?
   Logistical constraints include, but are not limited to:
   - Inability to meet other regulatory standards
   - Construction Limitations
   - Access or transportation concerns
   - Site availability
   - Existing infrastructure
5. What are the technical constraints to an alternative?
   - Technical constraints include inadequate depth to bedrock, inappropriate site geology, inadequate distance to groundwater, proximity to a contaminated area, unfavorable soils, or engineering concerns.
6. Are there impacts to other important natural resources?
   - Archeological or historical sites
   - Habitat for endangered or threatened species
   - Environmental Corridors or Natural Areas
   - Waterways
7. Are there other factors you would like us to consider during our alternative analysis evaluation?

SECTION 4 - PREFERRED PROJECT ALTERNATIVE

1. Indicate how your preferred project alternative meets your project purpose and how it avoids and/or minimizes wetland impacts to the maximum extent practicable.
2. Indicate how you plan to minimize harm to the impacted wetlands and adjacent wetlands that will not be directly impacted by the project. Examples include, but are not limited to erosion control, proper marking of the limits of proposed wetland impact, visible flagging for protection of wetlands that will not be impacted by project, adequate stormwater management, best management practices, etc.

Wetland Avoidance

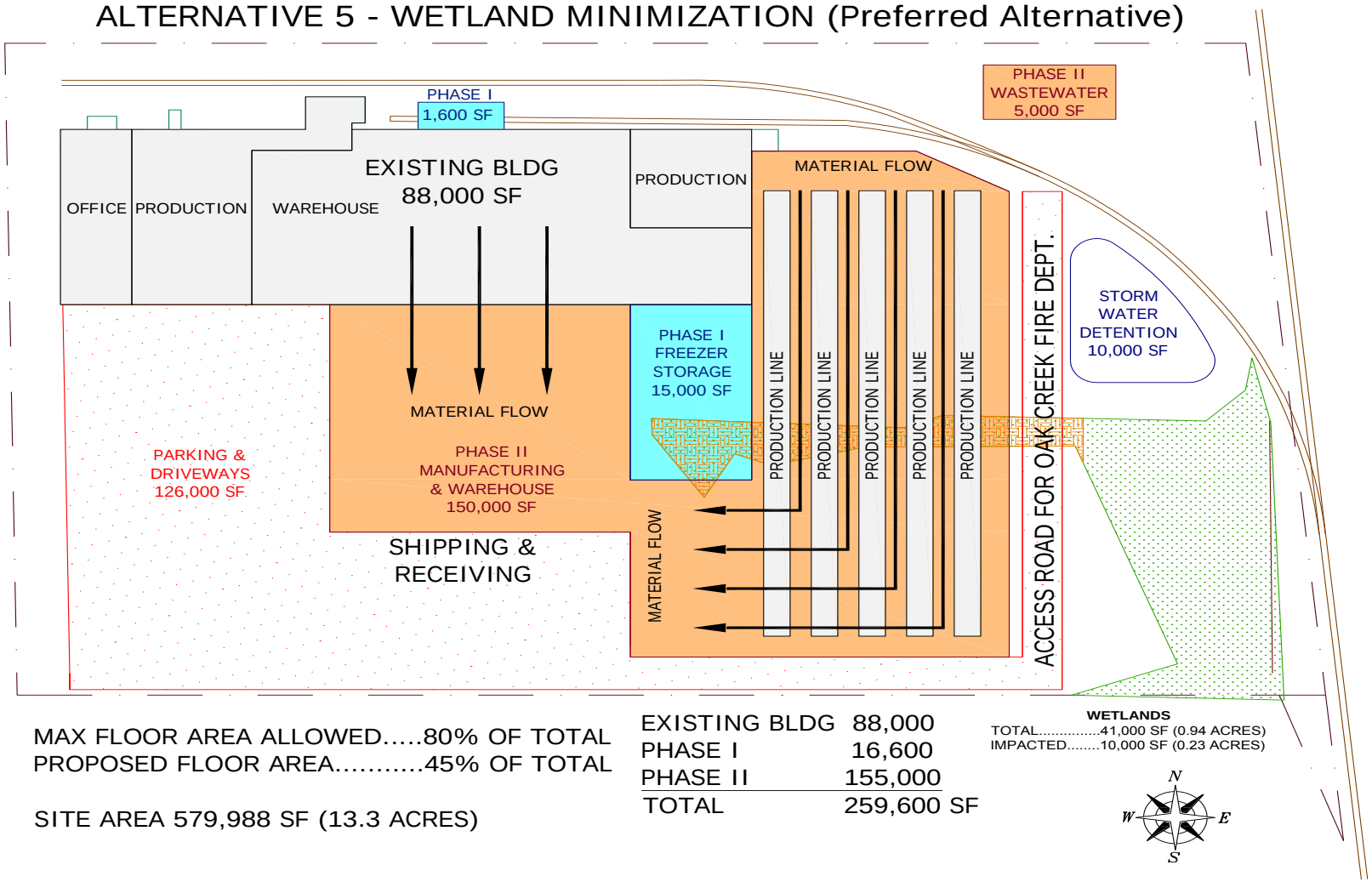


MAX FLOOR AREA ALLOWED.....80% OF TOTAL
PROPOSED FLOOR AREA.....37% OF TOTAL

SITE AREA 579,988 SF (13.3 ACRES)

EXISTING BLDG	88,000
PHASE I	16,600
PHASE II	110,000
TOTAL	214,600 SF

Wetland Minimization

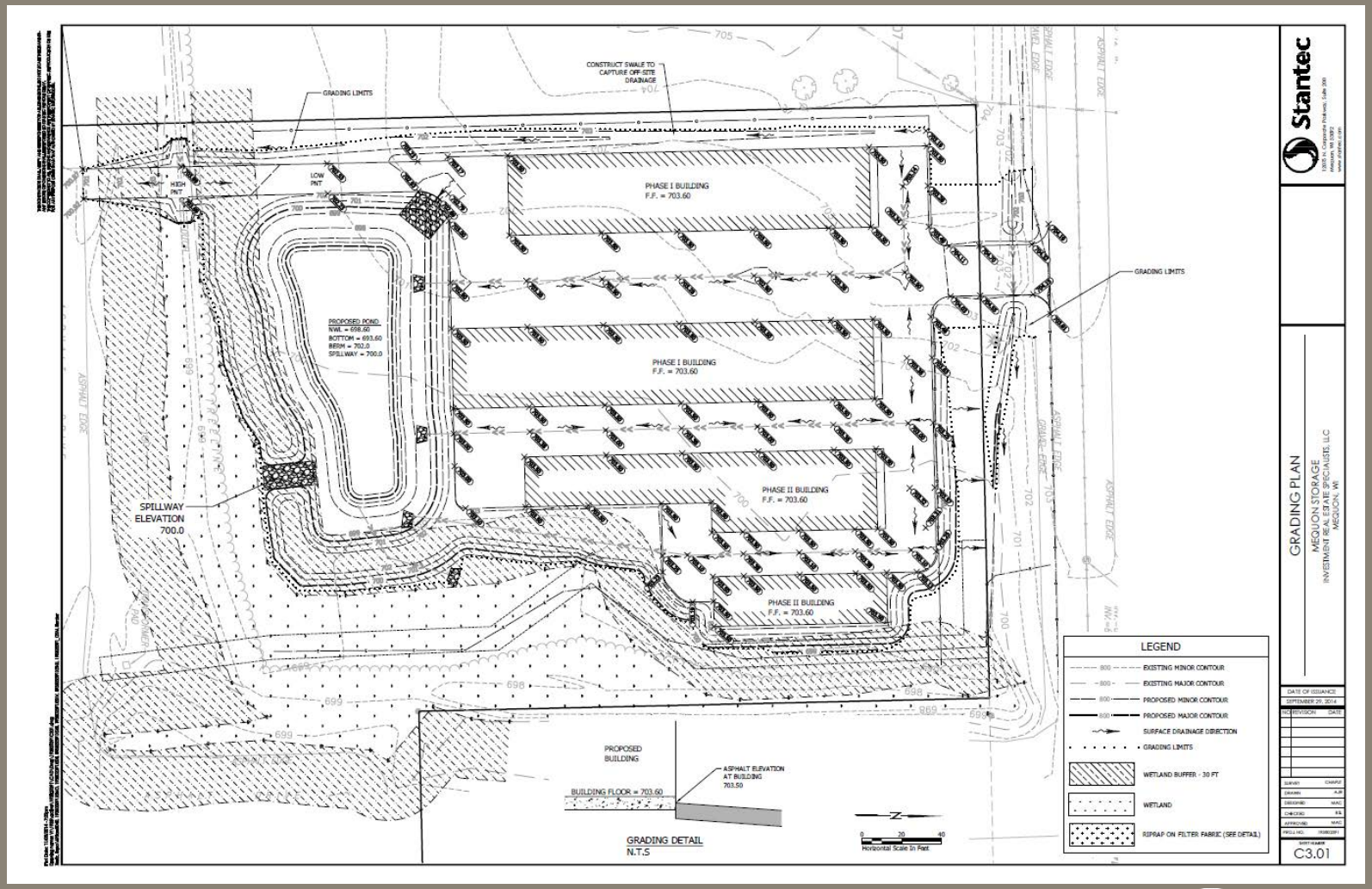


MAX FLOOR AREA ALLOWED.....80% OF TOTAL
PROPOSED FLOOR AREA.....45% OF TOTAL

SITE AREA 579,988 SF (13.3 ACRES)

EXISTING BLDG	88,000
PHASE I	16,600
PHASE II	155,000
TOTAL	259,600 SF

Avoidance with Wetland Buffer Protection



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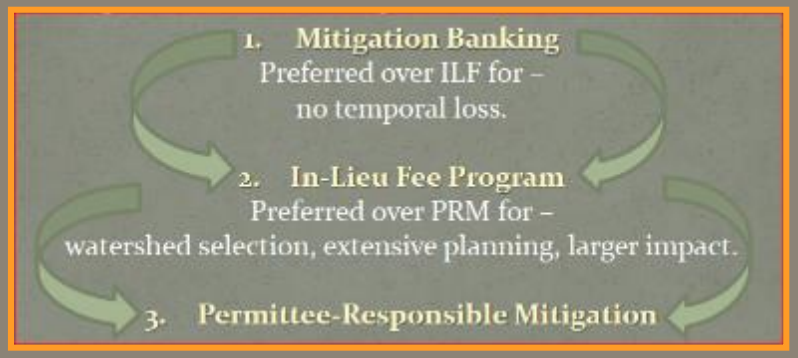
Wetland Compensatory Mitigation

You Have an Approved Wetland Permit. Now What?

Purchase mitigation credits

- Mitigation bank
- In-Lieu Fee program
  (WI Wetland Conservation Trust)
- Permittee-responsible mitigation



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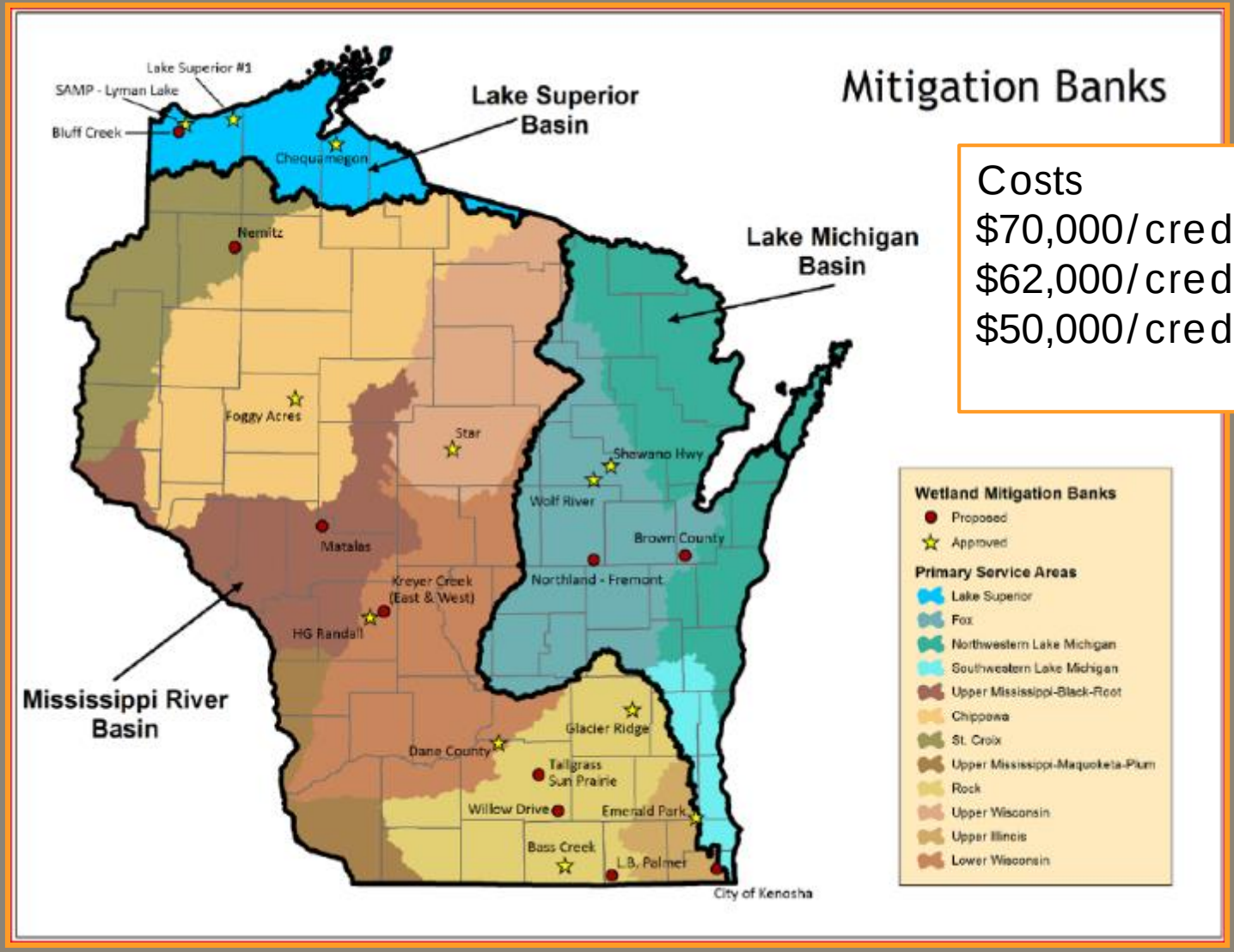
Bank Service Areas (BSA)



Costs

$70,000/credit – Bank (1:1.2 ratio)

$62,000/credit – ILF (1:1.45 ratio)

$50,000/credit – PR (1:1.7 ratio)

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Moses Creek Wetland/Floodplain Mitigation Site

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Minimum requirements for stormwater regulatory compliance

What do codes and ordinances have to say?

- Wisconsin Admin Code NR151
- Wisconsin DNR Conservation Practice Standards (such as 1001 Wet Pond)
- Local codes and ordinances

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Menu » Administrative Rules Related » Administrative Code » Department of Natural Resources (NR) » Chapter NR 151

Chapter NR 151

RUNOFF MANAGEMENT

Subchapter I — General Provisions

NR 151 – regulatory requirements for TSS removal, peak flow control, infiltration, exemptions, protective areas, etc.

Long-term maintenance agreements for TSS removal credit

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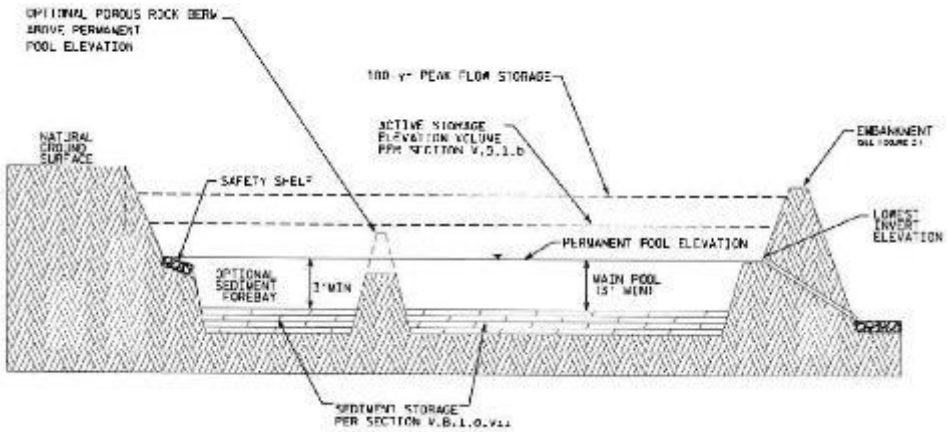
DNR Practice Standards

Wet Detention Pond
(1001)

Wisconsin Department of Natural Resources
Conservation Practice Standard

- Sizing and performance criteria
- Some design criteria
- Maintenance



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DNR Wet Pond 1001 Standard

- Safety / aquatic shelf
- Length to width ratio
- Side slopes (3:1 or gentler)
- Topsoil / seeding
- Operations and maintenance

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DNR Wet Pond 1001 Standard (2)

"Considerations"

- To prevent nuisance from geese, consider not mowing around the pond perimeter.
- Consider spreading topsoil along safety shelf.
- Consider aesthetics. Generally, square ponds are unappealing.

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DNR Wet Pond 1001 Standard

- Aerator / fountain standards and limitations

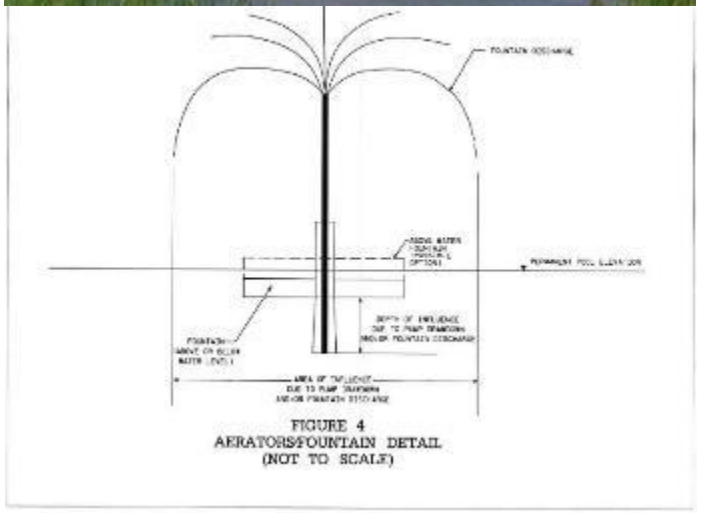

FIGURE 4
AERATORS/FOUNTAIN DETAIL
(NOT TO SCALE)

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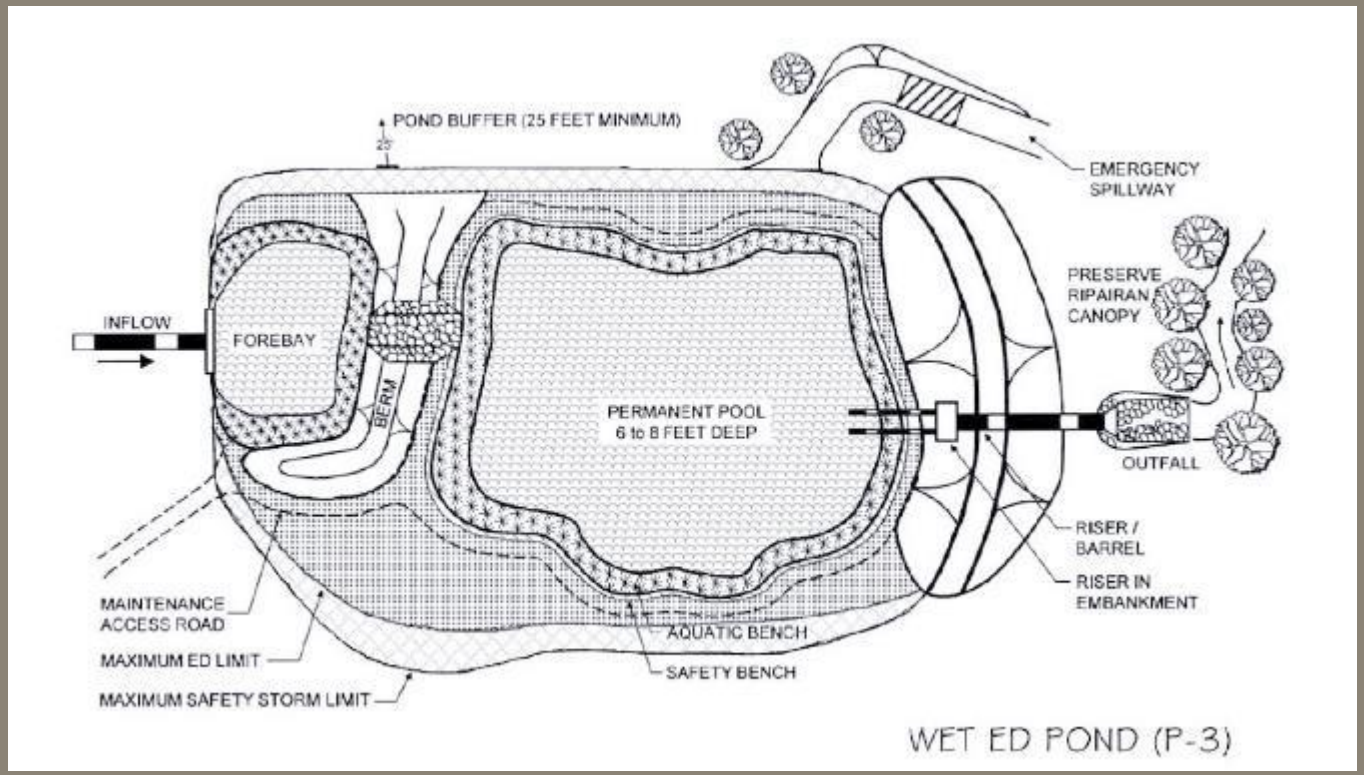
Local Codes and Ordinances

And going beyond the minimum



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City of Port Washington
Pond Landscaping Guidelines

- "A landscaping plan for a stormwater pond and its buffer shall be prepared to indicate how aquatic and terrestrial areas will be stabilized and established with vegetation."

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Pond Landscaping Guidelines

- 20-page recommended guidelines
- Grading and layout
- Consider safety bench (above normal water level) and aquatic bench (below normal water level). At a minimum, provide bench/shelf below NWL
- 4:1 (H:V) maximum side slopes

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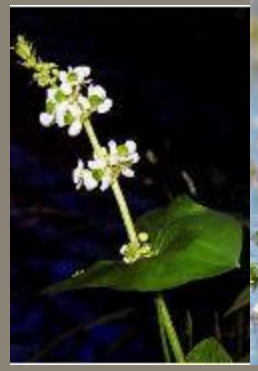
Pond Landscaping Guidelines

- Use wetland plants wherever possible, especially +/- 12 inches from normal water level
- Guidelines include recommended native plants for different hydrologic zones



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Hydrologic Zones for Vegetation

Zone #	Zone Description	Hydrologic Conditions
Zone 1	Deep Water Pool	1-6 foot deep permanent pool
Zone 2	Shallow Water Bench (low marsh)	6 inches to 1 foot deep
Zone 3	Shoreline Fringe (high marsh)	Regularly inundated
Zone 4	Riparian Fringe	Periodically inundated
Zone 5	Floodplain Terrace	Infrequently inundated
Zone 6	Upland Slopes	Seldom or never inundated

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Aesthetics

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Recreation / public use

Public ponds vs. private ponds

New ponds vs. existing ponds / retrofits

Costs

- Design and Construction
- Operations and Maintenance
- Total Life Cycle

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Benefits

Some data cited in EPA Stormwater Wet Pond and Wetland Management Guidebook, 2009

- Champaign-Urbana IL: Lots adjacent to wet ponds worth average 22% more than non-adjacent lots in same subdivision
- Boulder, CO: Lots on constructed wetland sold for up to 30% premium
- Alexandria, VA: Condos along 14-acre retention pond sold for $7,500 more than comparable units

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Questions?