Integrated Approach for Municipal Stormwater Projects with Watershed Benefits

May 1, 2025

I. Purpose and Need

Stormwater management facilities including stormwater ponds and corridors are generally located along natural or man-made drainage ways that follow the low-lying areas of a landscape. These features commonly contain natural and/or artificial wetland features. Once a stormwater management feature is established, the feature may also result in the creation, expansion or modification of wetland features. As a result, in many instances the creation, maintenance or expansion of stormwater facilities requires wetland permitting along with other waterway permits. When wetland and waterway permit criteria are applied without looking at the project as a whole, municipal stormwater projects with the potential for multiple watershed benefits can be denied necessary permits.

The overall purpose of this document is to integrate the various DNR waterway and wetland programs and requirements so as to facilitate the implementation of municipal stormwater projects that are designed within a watershed context to provide net environmental benefits beyond merely complying with stormwater runoff requirements.

The need for such an approach arises from the competing demands municipalities face in managing stormwater. Among these demands are the following:

- Compliance with water quality standards and in many cases TMDL standards for sediment and phosphorus.
- Compliance with stormwater runoff requirements.
- Managing wet weather events to protect infrastructure including roads, wastewater conveyance and treatment systems, and to protect private property from flooding.
- Upgrading or retrofitting existing inadequate stormwater facilities within constrained areas.
- Maintaining natural or artificial urban riparian corridors from excessive erosion and invasive species while maintaining the ability to convey stormwater flows.

These demands may occur simultaneously while municipalities also experience increased urbanization, storm intensity and frequency. The ability of municipalities to effectively manage stormwater is a critical public need from both an infrastructure and watershed management perspective.

This document recommends procedures that the Waterway Program can use when working with partner DNR programs, such as but not limited to the Watershed Program. This program is not intended to address the questions of stormwater treatment credits resulting from such projects.

This document has three parts: (1) identification and discussion of potential programmatic flexibility under current statutes and regulatory code; (2) considerations for using this flexibility to achieve an integrated watershed approach for stormwater projects that also require wetland or waterway permitting; and (3) examples of projects taking an integrated approach that deliver a net environmental benefit.

In this context, an integrated watershed approach means planning and designing a stormwater management project and reviewing the project from a regulatory perspective in the context of the watershed benefits and impacts of that project. Among other things, this includes the consideration of management of water quantity to reduce flooding and erosion, the management of water quality to reduce sediment, nutrients and other pollutants, and the management of wetlands and waterways to addresses water quantity and quality and provide benefits to habitat and aquatic life. An integrated watershed approach explores all of the proposed benefits and impacts holistically so as to determine whether there is a net environmental benefit to the watershed, even if there are some adverse impacts to certain wetlands or waterway features. In this context, the term watershed is not limited to a particular size or scale and includes the smallest sub-watershed as well as larger more regional watersheds.

II. Programmatic Flexibility Under Current Statutes

Described below are the relevant provisions of statute and rule for each of the major permitting programs commonly triggered by stormwater projects -Wetland Regulations under Wis. Stat s. 281.36 and Waterway regulations under Chapter 30. The requirements from Stormwater regulations pursuant to 281.16(2) and 281.33, administered under NR 151 and 216) are also noted below.

A. Wis. Stat. §281.36

Wis Stat. §281.36 (3b)(b) prohibits discharging fill into a wetland without a wetland general or individual permit, or an applicable exemption. These requirements can be triggered by many stormwater projects since the accumulation and conveyance of stormwater often occurs in areas determined to be wetlands. The creation or maintenance

of stormwater facilities may involve activities resulting in temporary or permanent fill being placed into a wetland.

Wetland permit applicants must demonstrate that there is no practicable alternative to the proposed fill, commonly called the practicable alternatives analysis (PAA). “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 purpose and scope of the project. Wis. Stat. § 281.36 (1)(cp). There is flexibility in determining that “the overall purpose and scope of the project” allows an assessment of impacts and benefits to the watershed where appropriate.

In addition to the PAA, the department must assess the impacts of a stormwater project on the wetland functional values. In this process DNR must consider direct impacts, cumulative impacts, potential secondary impacts to wetland functional values per NR 103.03, as well as the net positive or negative environmental impact of the proposed project (“net environmental benefit”). The inclusion of this last category also provides flexibility in assessing wetland impacts in the context of the net benefits to the watershed.

B. Chapter 30

Wis. Stat. Ch. 30 regulates a variety of activities in and near navigable waters. Stormwater facilities may occur in or adjacent to navigable waters, or involve a connection to navigable waters. Grading on the banks of navigable waters, creating a connection between a pond and a navigable water, altering the banks of a navigable water, dredging below the OHWM, placement of shoreline erosion control measures or other fill such as a berm below the OHWM, are among the activities that arise in a stormwater management project that require permits under chapter 30.

The most significant recurring standard for the grant or denial of a permit under Wis. Stat. Ch. 30 relates to whether the project is in the public interest. This is variously phrased as whether the project is “not detrimental to the public interest”, Wis. Stat. §§ 30.12(3m)(c); 30.123(8)(c)1; 30.19(4)(c)1; 30.195(2)(c)3.; or is “consistent with the public interest” Wis. Stat. § 30.20(2)(c).

The concept of “public interest” in navigable waters is a broad and inclusive standard. It can reasonably be interpreted to include larger watershed benefits (e.g. water quality, reduced flooding, in-stream habitat, etc) from a particular regulated activity.

C. Stormwater

Municipal stormwater discharges are regulated through the DNR’s stormwater program under chapters NR 151 and 216. These provisions contain performance standards for

construction and operation. There is some limited flexibility to these performance standards where an applicant demonstrates to the department's satisfaction that a performance standard is not achievable and that a lower level of performance may be appropriate. Review of these projects is limited to a site-specific basis for only the performance measure in question.

III. Considerations for Using an Integrated Watershed Approach for Stormwater Projects

A. Applicant Request for Integrated Approach

A municipal applicant interested in having the Department utilize an integrated watershed approach shall make such a request as part of the pre-application process under Wis. Stat. § 281.36(3m) or prior to the filing of any application under Wis. Stat. ch. 30.

The following questions are intended to help permit applicants and DNR permit reviewers to determine whether wetland, waterway, and stormwater permits associated with a stormwater project could be considered under an integrated approach.

1. Does the project involve multiple DNR permits or approvals from more than one program (wetlands, waterways, stormwater or other programs such as dams or floodplain zoning)?
2. Describe the watershed being impacted by the project and condition of the resources in the watershed.
3. Describe the purposes of the project and the resources likely to be impacted (positively or negatively) by the project. Provide a basic map of the proposed project area including a delineation of any wetlands in the project area and any surface water features.
4. Describe to what extent the project results in net environmental benefits to the watershed that would warrant an integrated approach to permitting.

B. Department Integrated Approach Process.

If the Department determines that an Integrated Approach is warranted it will utilize the following approach in permit processing:

- The department shall designate a single point of contact (SPOC) for a municipal stormwater project.

- The SPOC shall be the primary contact for the municipality and shall work to coordinate permitting requirements within the department.

- In addition, the SPOC shall work to ensure that each of the permit programs reviews its permit requirements in the context of the project as a whole as set forth below.

C. Use of Permit Flexibility in Integrated Approach

This approach would entail DNR program specialists under the various programs working together jointly to review and identify the flexibilities allowed under current law noted above that can facilitate the stormwater project with watershed benefits. Department staff shall consider practicable alternatives and the public interest in the context of the project purpose as a whole and shall consider the net environmental benefits to the watershed.

In evaluating the extent to which permit flexibility should be applied, the applicant shall provide information to allow the Department to assess the following:

1. The Watershed Context

- What is the stormwater management challenge(s) that the project is trying to address? For example, what are the direct benefits of the project in terms of controlling runoff, flood storage and sediment removal?
- What other water management challenges or competing interests are happening in the watershed? (e.g.., groundwater depletion, flooding, erosion, public use, etc.)
- Based on readily available existing information, what is the current condition of the stream, wetland, or water resource area as it relates to the overall targeted watershed area? (e.g., water quality condition, hydrologic impairment, habitat, functional values etc.)
- What are the nature and extent of wetland areas and functional values that will be impacted by the proposed project?
- Is the project identified in a long-range planning document that takes into consideration future development or infrastructure needs? (e.g. a watershed management study, a capital facilities plan, etc.)
- Do site constraints limit the project location? (e.g., Existing topography, existing stormwater management features, configuration of private property, and/or development patterns.)
- Is the project proposed in a navigable water where online improvements were made for stormwater management in the past and improvement or modification of the existing system will provide net benefits?

2. Public Purpose

- Is the intended purpose of the project to 1) improve water quality to waters of the state (such as but not limited to a reduction in nitrogen, phosphorus, or total suspended solids concentrations), and/or 2) improve flood protection to multiple properties?
- Does the project protect public safety or public infrastructure; or private property?
- Does the project result in reduced peak flows in downstream waters, such as through improved floodplain connectivity, detention or restoration of headwater wetlands?
- Will the project improve groundwater recharge and infiltration in areas where such goals are appropriate?
- In addition to the above, does the project also result in improved conditions for key fish and wildlife habitat?

3. Net Environmental Benefits

- Will avoiding wetland impacts cause the proposed project to have reduced effectiveness at improving water quality or flood protection? If so, by how much?
- Has the applicant explained how the preferred option achieves the desired goals in a way that minimizes environmental impacts to the resource and maximizes watershed benefits?
- Are there critical wetland functional values that will be detrimentally affected? For example, are there high quality wetlands that will be fragmented or critical habitat removed for threatened or endangered species?
- Relative to all the public interests associated with wetland and waterway resources (i.e., wetland functional values or public interests to navigable waters), do the environmental benefits of the project as whole outweigh proposed temporary or permanent impacts to environmental features such as wetlands or other habitats?

IV. Examples of Projects Taking an Integrated Approach That Deliver a Net Environmental Benefit.

These examples are based on real world situations. They are illustrative and are not meant to be templates. These are examples of municipal projects that make sense based on a holistic and integrated watershed view of the project and present multiple benefits. They reflect the kinds of considerations outlined in Section III including public purpose and net environmental benefits in a watershed context.

Example #1 Creation of an Upstream Storage Basin

Project Goal: Create temporary storage in upper reaches of the watershed outside the municipal boundary to reduce peak plows during storm events and allow downstream flood protection.

Watershed Context:

- Existing area was an agricultural dominated drainage system with a history of sedimentation (including total suspended solids and nutrients) flowing to a navigable stream.
- The area had a number of low-quality wetlands that were significantly affected by the agricultural inputs.
- Downstream properties within the adjacent urban area were threatened by potential flooding.
- Project would involve the creation of a temporary storage basin in the upper reaches of the watershed outside of the urban area.
- Project would impact several acres of agriculturally compromised wetlands that were providing limited wetland functions but would also include the planting of high-quality wetland species in the project area and control invasive species.

Benefits from Using Integrated Watershed Approach:

- Improved downstream water quality to the navigable stream, through the reduction of TSS and associated nutrient loads.
- Reduced flood potential of public infrastructure and downstream properties through reduced peak flows and increased water storage through constructing a temporary storage basin in the upper reaches of the watershed.
- Improved wildlife habitat through native plantings, high quality wetland species, and control of invasive plant species.

- Project has an overall net environmental benefit over current conditions on site and downstream.

Example #2 Floodplain Enhancement

Project Goal: Realign straightened, agricultural dominated waterway with a meandering channel corridor and functioning floodplain.

Watershed Context:

- Existing area is an agricultural dominated upper/mid-watershed area with a straightened and ditched navigable waterway.
- Waterway contributes to poor water quality through sediment and nutrient transport.
- Waterway sends large volumes of water rapidly downstream during storm events due to upper watershed wetland loss, lack of connectivity between the waterway and its floodplain, and the waterway's straightened and ditched condition.
- System has poor habitat connectivity and lack of a quality riparian buffer.
- Project would create a meandering floodplain corridor within the waterway.
- Project would impact several acres of existing wetlands along the existing channel corridor for flood plain creation; but would also restore floodplain wetlands along the new corridor and adjacent riparian buffer area.

Benefits from Using an Integrated Watershed Approach:

- Naturalized stream system with connected floodplain reduces peak flows and reduces flood risks to downstream properties by allowing water to spread out and slow down during runoff events.
- Naturalized stream system with connected floodplain reduces sediment and nutrient loads to downstream receiving waters.
- Naturalized stream system with connected floodplain results in improved habitat connectivity.
- Wetland habitat improvements realized through native plantings and invasive species control result in improved wildlife habitat.
- Project has an overall net environmental benefit over current conditions on site and downstream.

Example #3 Stormwater Pond Maintenance and Expansion

Project Goal: Expand and maintain existing stormwater management ponds within an urban area.

Watershed Context:

- Stormwater ponds were placed in the 1980s (prior to current NR 151 requirements) to address runoff from urban development. Some wetlands were impacted by the original pond development.
- After the ponds were created, some additional wetland areas have developed around the ponds and outfall.
- After 30+ years of accumulated sediment, the ponds need to be dredged, and the outfall structure replaced to maintain functionality.
- In addition, a combination of increased development beyond what was projected in the 1980s, and increased precipitation patterns also require that the ponds be expanded by adding a two acre pond expansion area to meet current standards.
- The maintenance and expansion work will result in impacts to approximately 2.5 acres of low-quality wetlands, some of which but not all qualify as artificial wetlands.
- A wetland/prairie area will be restored and maintained in the area surrounding the ponds.
- The project proposes to develop a wetland invasives program to enhance the wetlands outside the immediate project area.

Benefits from Using an Integrated Watershed Approach:

- Reduced peak flows and flood risks to downstream properties through maintaining the structure and restoring storage capacity for the current drainage area.
- Reduced downstream sediment and nutrient loads through restoring capacity for sediment capture.
- Improved habitat with native plantings and enhanced sediment capture potential through preserving and maintaining wetland and prairie area around the pond, and wetland vegetation management outside of the immediate project area.
- Although the location and design of the existing pond does not meet current standards, it is an existing pond in an urban area. Using an integrated watershed approach makes the best of the existing situation in this constrained urban setting.

Example # 4 Construction of Stormwater Pond to Address New Development

Goal: Project proposes to manage stormwater for new development on a regional basis.

Watershed Context:

- Existing area is a 160-acre cropped field on the urban fringe that is zoned and planned for residential development.
- The farmed acreage includes tiled and ditched prior-converted wetlands and contains several existing wetlands in lower areas not farmed.
- The project site's ditches and surface area flow to a watercourse and downstream navigable stream, delivering sediment and nutrients.
- The consultant's watershed management plan and regional planning agency require several stormwater basins and significant storage volumes to meet basic requirements for runoff management, infiltration and flood control.
- Site topography requires the stormwater management basins be located in the lower elevations of the site where the site drains. Although basins will be placed outside of wetlands to the extent practicable, that location and the presence of the ditches throughout the site means that approximately 1.5 acres of wetlands would be impacted in order to meet the stormwater management criteria.
- The impacted wetlands are reed canary grass or farmed areas. The proposed basins are designed with native prairie and wetland fringes around the ponds. In addition, the plan incorporates strategic restoration of small prior-converted wetlands to provide habitat and help slow the flow of runoff upstream of the basins.

Benefits from Using an Integrated Watershed Approach:

- Project provides critical stormwater retention/sediment/flood control and infiltration arising from significant residential development.
- Ponds attenuate sediment and nutrient runoff into navigable waters and other downstream municipalities.
- Project is designed to restore and enhance adjacent wetlands and habitat.
- The end result is better water quality and wetland quality and quantity than existed in the cropped field, in addition to meeting stormwater management requirements entailed with new development.
- Project has overall net environmental benefit over current conditions on the site and downstream.