BUREAU OF WATERSHED MANAGEMENT PROGRAM GUIDANCE

Storm Water Management Program

Guidance for the Establishment of Protective Areas for Wetlands in Runoff Management Rules, Wisconsin Administrative Code NR 151

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Guidance #: 3800-2015-02

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APPROVED:

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4-6-2015
Date

A. Statement of Problem Being Addressed

This guidance provides clarity for Wisconsin Department of Natural Resources (DNR) Runoff Management staff and external partners in identifying wetland protective area susceptibility per ch. NR 151, Wisconsin Administrative Code. A wetland's susceptibility to pollutants in runoff and the placement of storm water best management practices are considered in determining the protective area. This guidance is intended to assist the DNR and external partners in making protective area determinations.

B. Background

This guidance was developed to clarify the requirements of ss. NR 151.125 and 151.245, Wis. Adm. Code, pertaining to the establishment of protective areas with respect to wetlands.

C. Discussion

This guidance summarizes the rule requirements of ss. NR 151.125 and 151.245, Wis. Adm. Code, regarding wetland protective area performance standards for non-agricultural and transportation facility post-construction sites while also providing additional information on wetlands with different degrees of susceptibility and their respective protective areas. Refer to Attachment 1 for definitions and references.

D. Guidance

Protective Areas
Protective areas are established to minimize impacts from runoff coming from developed areas before it reaches sensitive resources. The protective area begins at the delineated boundary of the wetland. The width of the protective area is measured horizontally from the nearest edge (delineated boundary) of the wetland to the nearest edge of an impervious surface. For wetlands, the width of the protective area is based upon the attributes of the wetland:

Highly Susceptible: 75 feet
A protective area width of 75 feet pursuant to ss. NR 151.125(1)(e) and 151.245(1)(e), Wis. Adm. Code, is established for "highly susceptible" wetlands. "Highly susceptible" wetlands include the following wetland plant community types: calcareous fens, sedge meadows, open and coniferous bogs, low prairies, coniferous swamps, lowland hardwood swamps, and ephemeral ponds. Outstanding and exceptional resource waters are also considered "highly susceptible".

Neither Highly or Less Susceptible ("Moderately"): 50 feet
A protective area width of 50 feet pursuant to ss. NR 151.125(1)(d) and 151.245(1)(d), Wis. Adm. Code, is established for wetland plant communities that fall between "highly susceptible" and "less susceptible". These wetlands include, but are not limited to: shrub wetlands, floodplain forests, fresh wet meadows, deep/shallow marshes, and forested

wetlands (i.e., forested wetlands dominated by early successional species such as box elder, trembling aspen, or cottonwood) not fitting the wetland types described under "highly susceptible" or "less susceptible". Perennial and intermittent streams and lakes also fit in this protective area designation. Perennial and intermittent streams are identified on a U.S. geological survey 7.5-minute series topographic map, or a county soil survey map, whichever is more current (NR 151.125(1)(b), Wis. Adm. Code.).

Less Susceptible: 10% of the Average Wetland Width – Ranging from 10 to 30 feet
"Less susceptible" wetlands require a protective area width of 10 percent of the average wetland width, but not less than 10 feet nor more than 30 feet pursuant to ss. NR 151.125(1)(f) and 151.245(1)(f), Wis. Adm. Code. "Less susceptible" wetlands are degraded wetlands dominated by invasive species. Common invasive species found in "less susceptible" wetlands include, but are not limited to: reed canary grass (*Phalaris arundinacea*), common buckthorn (*Rhamnus cathartica*), glossy buckthorn (*Frangula alnus*), purple loosestrife (*Lythrum salicaria*) and non-native strains of common reed grass (*Phragmites australis*). A wetland is considered to be dominated by invasive species if it contains over 90 percent invasive species as measured by percent absolute vegetative cover. Wetlands dominated by invasive species not listed above would also be considered "less susceptible". (For more information on invasive species, see Attachment 1.) Wetlands in cultivated hydric soils, gravel pits, or dredged material or fill material disposal sites are also considered "less susceptible".

Where a "less susceptible" wetland is contiguous with a river, stream, or lake, the greatest protective area width shall always apply pursuant to s. NR 151.125(1)(j), provided that the greatest width does not fall within the wetland area. See Attachment 2, Figures 1-3, for examples of NR 151.125(1)(j), Wis. Adm. Code. For example, in Figure 1 the greatest width does not fall within the wetland area but encompasses it as well as the "less susceptible" wetland protective area; so the applicable protective area is the protective area from the outmost boundary of the exceptional resource water. However, in Figure 3 the greatest width does fall within the wetland area, so the applicable protective area of the "less susceptible" wetland's outmost boundary applies.

Average Wetland Width
The following procedure is recommended for calculating the average width of a wetland (See Attachment 3, Figure 4, an example wetland width calculation.):

Step 1. Draw a center line that runs across the long axis of the wetland. This is not necessarily a straight line but one where half the wetland area is located on each side of the centerline.

Step 2. Make at least 5 individual measurements across the wetland perpendicular to the centerline established under Step 1. Enough measurements shall be taken to establish a representative average wetland width. These measurements shall be made equidistant apart along the centerline established under Step 1. If the wetland has a configuration with a relatively long narrow strip that is connected to a much broader area, then the wetland area calculation may be broken up into separate areas with the average wetland

width established for each separate area.

Step 3. The wetland's average width shall be the arithmetic average of the individual measurements taken under Step 2.

Determining the Wetland Protective Area

An accurate wetland delineation is essential to establishing the starting point for all protective areas. The final width of the protective area will be determined based upon a given wetland's plant community. Plant community descriptions may be included as part of a wetland delineation report or a supplemental "Plant Community Description Report" can be completed. Regardless of the reporting method used, plant community designations must be based upon data that is collected in the field and presented in the report. Wetland community types can be determined by using guides such as *Wetland Plants and Plant Communities of Minnesota & Wisconsin version 3.1*, US Army Corps of Engineers St. Paul District, 2014, which further describes wetland plant communities and typical plants found within those communities and are helpful in classifying wetland types. Additionally, the DNR provides wetland community information on their website, *Wetland communities of Wisconsin*. When two or more wetland susceptibility classifications are identified within the same contiguous wetland boundary, the final protective area boundary is to be established using the outermost boundary of each protective area category (highly susceptible wetland, less susceptible wetland, USGS stream, ORW/ERW, etc.). See Attachment 2.

"**Highly Susceptible**" wetland plant community types include calcareous fens, sedge meadows, open and coniferous bogs, low prairies, coniferous swamps, lowland hardwood swamps, and ephemeral ponds.

a. Calcareous fens: a type of wetland plant community found in areas of upwelling, mineral-rich water. These wetlands are rare and can be identified by the vegetative species found growing in them. Examples of common plants that occupy calcareous fens include shrubby cinquefoil (*Pentaphylloides floribunda*), wild timothy (*Muhlenbergia glomerata*), Ohio goldenrod (*Solidago ohioensis*) and lesser fringed gentian (*Gentianopsis procera*). Other common fen species are described here: http://www.npwrc.usgs.gov/resource/plants/mnplant/fens.htm.
b. Sedge meadows: a type of open (non-treed) wetland in which sedges and bulrushes make up a significant component of the plant community. At least one of the dominant plants species are in the genus *Carex* or *Scirpus* (does not include the genus *Schoenoplectus* or *Bolboschoenus*). Invasive species make up less than 50 percent of the absolute percent vegetative cover.
c. Open and coniferous bogs: A wetland type in which sphagnum moss is the dominate substrate. Bogs can be open (non-treed), shrubby, or treed. The primary determinant is the presence of sphagnum moss.
d. Low prairies: an open (non-treed) wetland community that applies only to areas south of Wisconsin's vegetative tension zone. Typical soils in these wetland types have a thick mineral topsoil (> 8 inches) although variance in soil thickness exists. Dominant plants include prairie grass components and various forbs. Dominate species include big blue stem (*Andropogon gerardii*), prairie cord grass (*Spartin pectinata*), and Canada blue joint (*Calamagrostis canadensis*). Invasive species make up less than 50 percent of the absolute percent vegetative cover.

e. Coniferous swamps: a forested wetland (whereby the wetland community contains at least 50 percent canopy coverage of coniferous species) in which sphagnum moss is not the dominate substrate. Dominant woody species include white cedar (*Thuja occidentalis*), tamarack (*Larix laricina*) or balsam (*Abies balsamea*). Invasive species make up less than 50 percent of the absolute percent vegetative cover.
f. Lowland hardwood swamps: a forested wetland (whereby the wetland community contains at least 50 percent canopy coverage of deciduous species) in which sphagnum moss or alluvial soils are not the dominate substrate. Deciduous species include red maple (*Acer rubrum*), green ash (*Fraxinus pennsylvanica*), black ash (*Fraxinus nigra*), and yellow birch (*Betula alleghaniensis*). Silver maple (*Acer saccharinum*) may be a co-dominant south of the vegetative tension zone. This wetland community excludes early successional species such as cottonwood, box elder, or trembling aspen). Floodplain forests are not included in this wetland community. Invasive species make up less than 50 percent of the absolute percent vegetative cover.
g. Ephemeral pond: a closed depression found in a forested setting, that holds water following snowmelt and spring rains, but typically dries out by mid-summer. The key traits of these wetlands are: 1) located in a forested setting, 2) isolated, 3) small size - usually less than an acre, 4) seasonal hydrology – dry out most years by mid-summer, and 5) supports a biologic community adapted to an absence of fish as a permanent predator (wood frogs, spring peepers, fairy shrimp, etc.).

"**Moderately susceptible**" wetlands include shrub wetlands, forested wetlands, floodplain forests, fresh wet meadows, deep/shallow marshes, and other wetland types that fall between "highly susceptible" and "less susceptible".

a. Shrub wetlands can be alder thickets, shrub-carr, or scrub-shrub dominated.
b. Forested wetlands are dominated by early successional deciduous species such as cottonwood, box elder, and trembling aspen.
c. Floodplain forests include deciduous forests growing on alluvial soil.
d. Fresh wet meadows are dominated by a variety of grasses and forbs. Sedges (*Carex spp.*) and bulrushes (*Scipus spp.*) are not one of the dominant plant species in a fresh wet meadow. North of the vegetative tension zone, Canada Bluejoint may be one of the dominant species in a fresh wet meadow. South of the vegetative tension zone, Canada Bluejoint will not be one of the dominant species (considered a wet prairie species south of the tension zone).

"**Less susceptible**" wetlands are those which consist of invasive species that make up over 90 percent of the absolute vegetative cover. Common invasive wetland species include reed canary grass (*Phalaris arundinacea*), common buckthorn (*Rhamnus cathartica*), glossy buckthorn (*Frangula alnus*), purple loosestrife (*Lythrum salicaria*), and non-native strains of common reed grass (*Phragmites australis*). Additional species may be considered invasive. Information on invasive species can found by checking the *DNR Wetland Invasive Species*, *Wisconsin State Herbarium*, *Freckmann Herbarium* websites or other similar source (See Attachment 1).

Wetland plant communities that have been altered by human modifications are still considered wetlands if they meet the criteria described in the *1987 Corps of Engineers Wetlands Delineation Manual* and the appropriate *Regional Supplement*. These situations are commonly encountered in agricultural settings. Therefore, during certain times of the year, wetlands in agricultural settings may be unvegetated or may support non-wetland species, including crops such as corn or soybean. For the purpose of this guidance, unvegetated wetlands in a human-modified setting, such as cultivated hydric soils, as well as gravel pits or dredge material or fill material disposal sites that take on the attributes of a wetland, are considered "less susceptible". Consideration of cultivated hydric soils is limited to the growing of a crop related to agricultural practices specified in s. 281.16(1)(b), Wis. Stats., that has occurred for a minimum of three consecutive growing seasons.

A storm water management facility designed, constructed, and maintained for conveyance or treatment purposes is not subject to the protective area performance standards in ch. NR 151, Wis. Adm. Code. Also, the protective areas performance standards in ch. NR 151, Wis. Adm. Code, do not apply to an artificial wetland if the Department makes a determination under s. NR 103.06(4), Wis. Adm. Code, that the artificial wetland is exempt from ch. NR 103, Wis. Adm. Code.

Storm Water Treatment

Non-agricultural and transportation areas of post-construction sites are exempt from protective area standards if runoff is treated to meet total suspended solids and peak discharge performance standards (ss. NR 151.122 to 151.123 and ss. NR 151.242 to 151.243, Wis. Adm. Code) prior to entering the wetland pursuant to ss. NR 151.125(4)(e) and 151.245(4)(d), Wis. Adm. Code. Best Management Practices such as filter strips, swales, or wet detention ponds, that are designed to control pollutants from non-point sources, may be located in the protective area (ss. NR 151.125(3)(c) and 151.245(3)(c)).

Attachments

1	**Resources: Definitions and References**
2	**Figure 1: *Protective Area Width Example***
	Figure 2: *Protective Area Width Example*
	Figure 3: *Protective Area Width Example*
3	**Figure 4: *Calculating Average Wetland Width***

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Attachment 1
Resources: Definitions and References

Definitions

"Artificial wetland" means 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.

"Impervious surface" means an area that releases as runoff all or a large portion of the precipitation that falls on it, except for frozen soil. Rooftops, sidewalks, driveways, gravel or paved parking lots, and streets are examples of surfaces that typically are impervious.

"Invasive species" means nonindigenous species whose introduction causes or is likely to cause economic or environmental harm or harm to human health.

"Protective area" means an area of land that commences at the top of the channel of lakes, streams and rivers, or at the delineated boundary of wetlands, and that is the greatest of the following widths, as measured horizontally from the top of the channel or delineated wetland boundary to the closest impervious surface.

"Vegetative tension zone" means an area of climatic transition running from northwest Wisconsin to southeast.

References

Identifying Wetlands

Wetland Communities of Wisconsin
Wisconsin Department of Natural Resources.

Wetland Plants and Plant Communities of Minnesota and Wisconsin – III. D. Calcareous Fens
United States Geological Survey, Northern Prairie Wildlife Research Center.

Wetland Plants and Plant Communities of Minnesota and Wisconsin, Version 3.1 – May 2014 by Steve D. Eggers and Donald M. Reed
U.S. Army Corps of Engineers, St. Paul District.

Invasive Species

Robert W. Freckman Herbarium
University of Wisconsin – Stevens Point.

Wisconsin Botanical Information System
University of Wisconsin – Madison, Wisconsin State Herbarium.

Wetland Invasive Species
Wisconsin Department of Natural Resources.

Chapter NR 40, Wis. Adm. Code (Invasive Species Identification, Classification and Control)
Wisconsin State Legislature

Attachment 1 cont.
Resources: Definitions and References

References
Wetland Boundary Delineation

Guidance for Submittal of Delineation Reports to the St. Paul District Army Corps of Engineers and the Wisconsin Department of Natural Resources
Wisconsin Department of Natural Resources.

Wetland Delineation Professional Assurance Initiative
Wisconsin Department of Natural Resources.

Wetland Identification Program
Wisconsin Department of Natural Resources

Wetlands Delineation Manual, Wetlands Research Program Technical Report Y-87-1 – January 1987
U.S. Army Corps of Engineers, Waterways Experiment Station.

Attachment 2
Figure 1: Protective Area Width Example

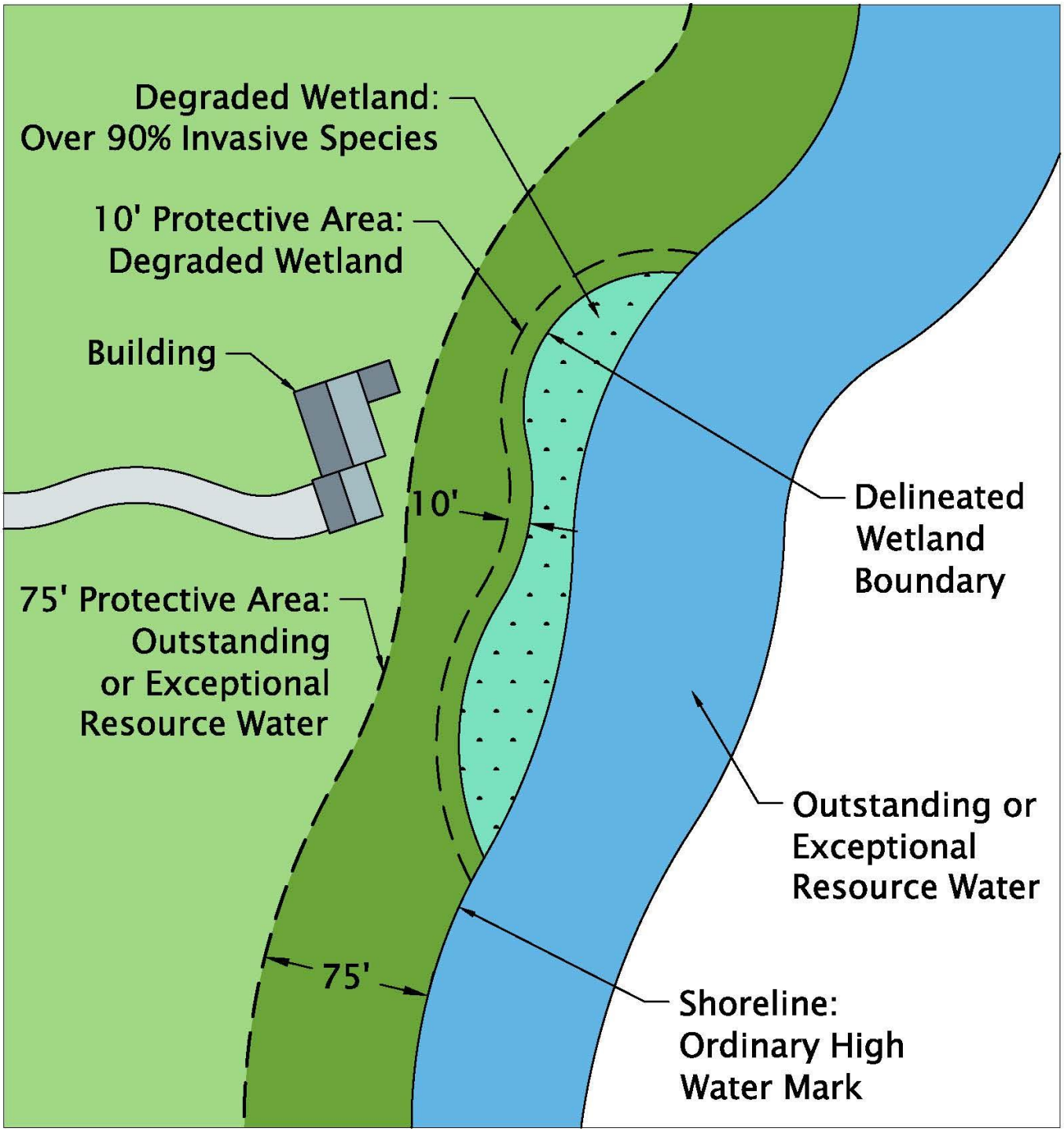

Figure 1: NR 151.125 Protective Area at Outstanding Resource Water with Degraded Wetland

Attachment 2 cont.

Figure 2: Protective Area Width Example

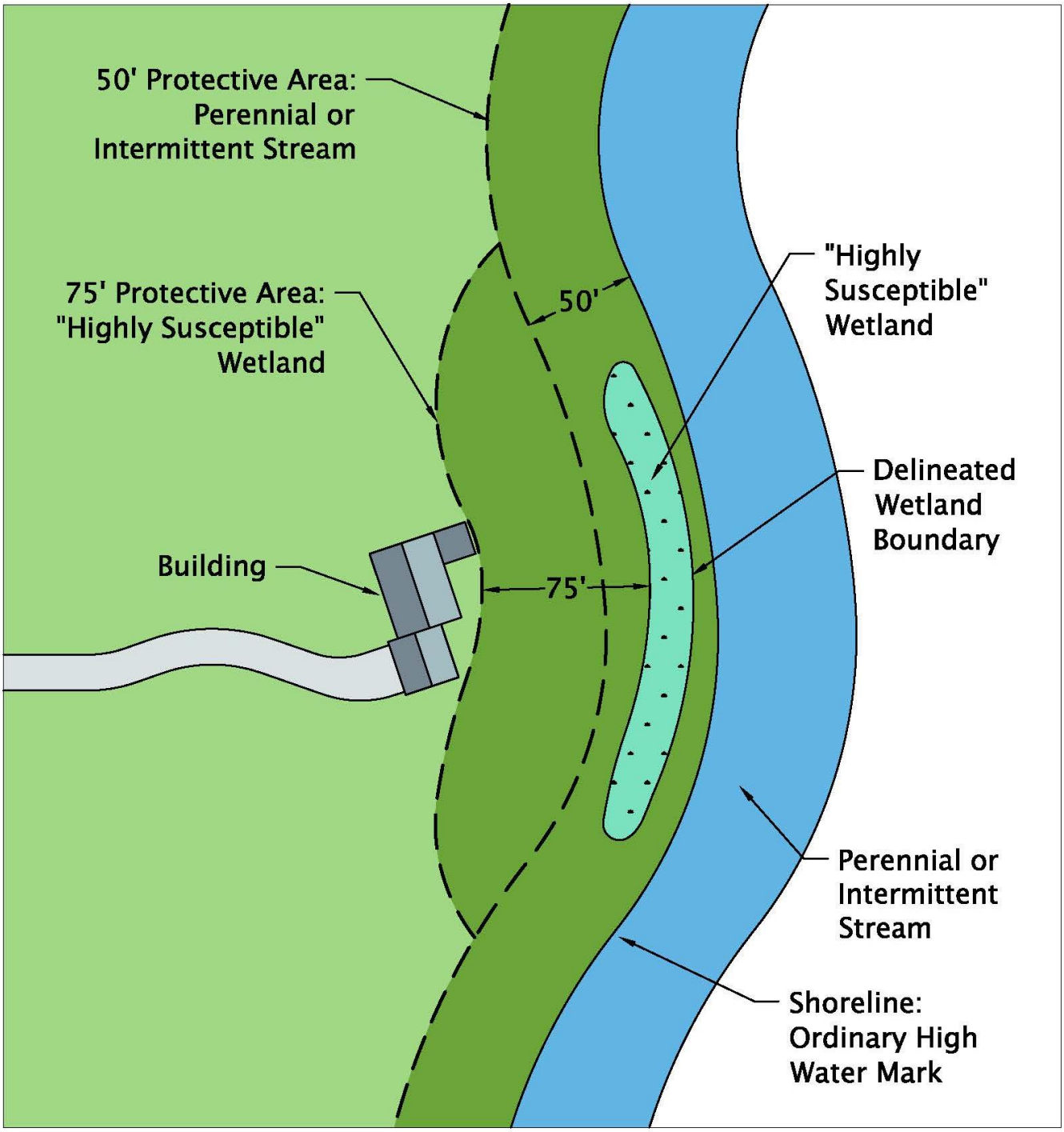

Figure 2: NR 151.125 Protective Area at "Highly Susceptible" Wetland with Perennial Stream

Attachment 2 cont.
Figure 3: Protective Area Width Example

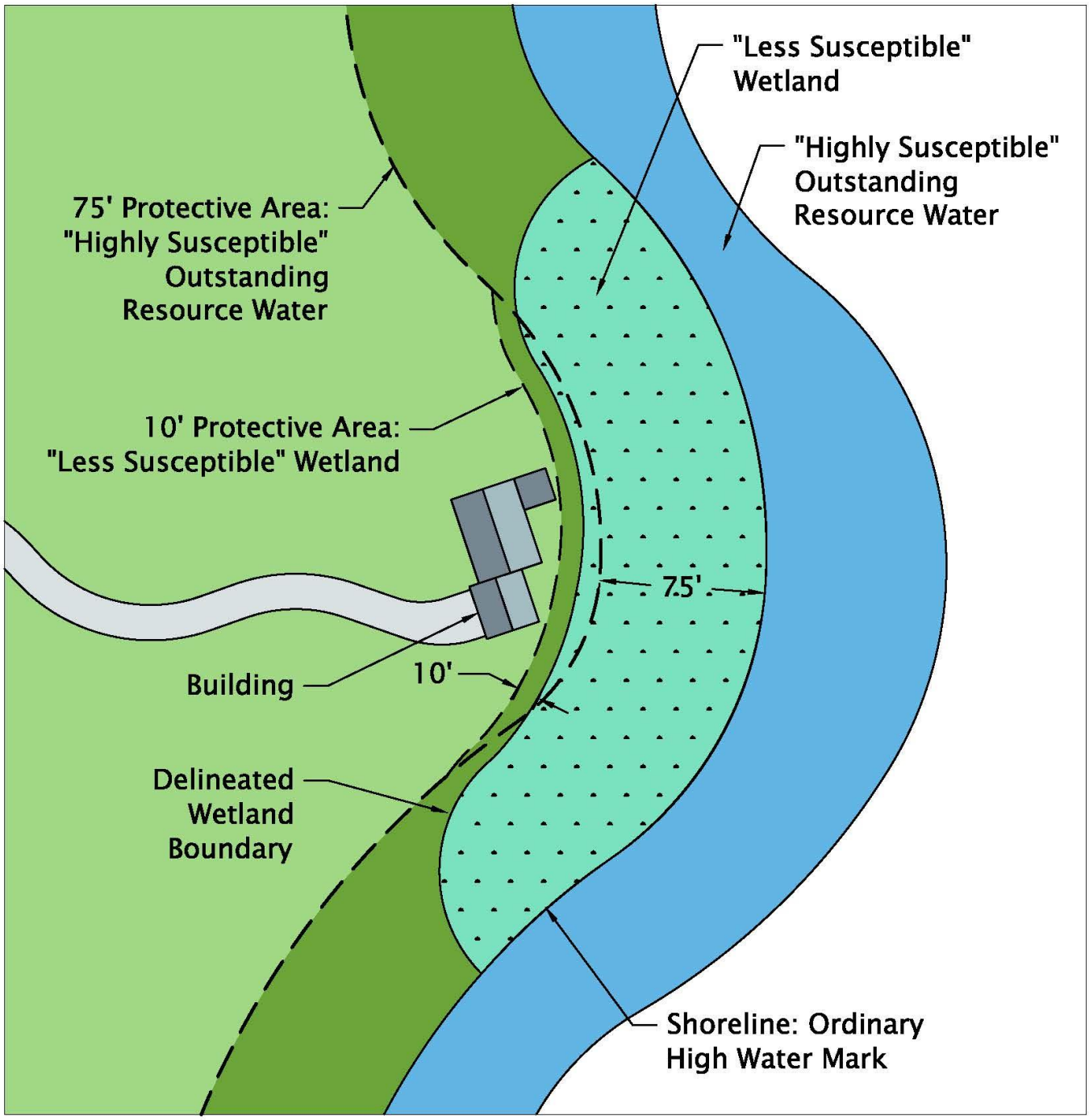

Figure 3: NR 151.125 Protective Area with "Less Susceptible" Wetland beyond Outstanding Resource Water

Attachment 3
Figure 4: Calculating Average Wetland Width

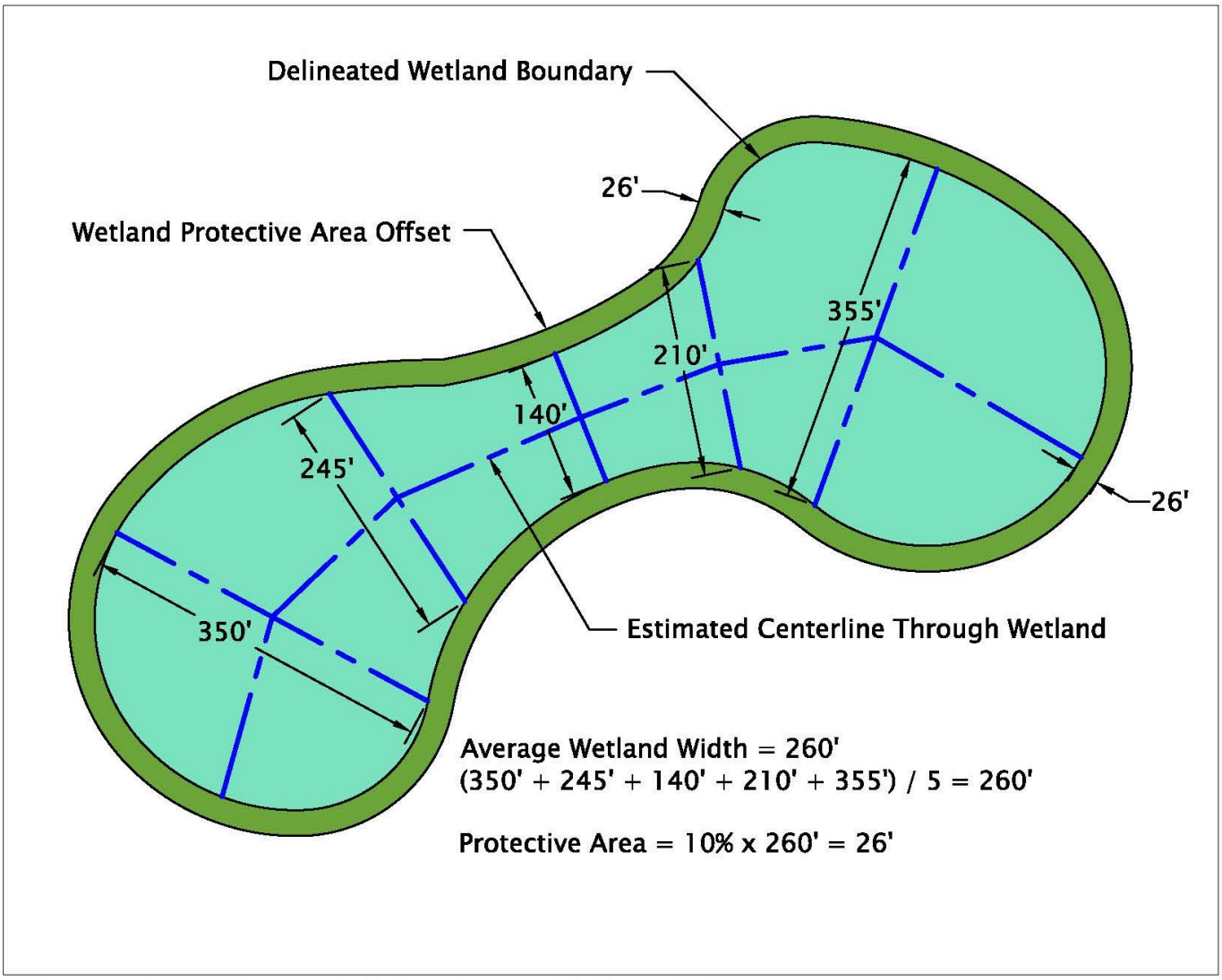

Figure 4: NR 151.125 Calculating Average Wetland Width