

Technical Memorandum

Wetland Delineation and Functional Assessment

for

Blue Water Bridge Plaza Study
St. Clair County, Michigan

**MDOT Contract No. 2002-0512
JN 57779**

Prepared by:



Prepared for:
Wilbur Smith Associates, Inc.
and
Michigan Department of Transportation

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SUMMARY

The Michigan Department of Transportation (MDOT) contracted with Wilbur Smith Associates, Inc. (WSA) to identify alternative improvements for the U.S. Plaza of the Blue Water Bridge in the City of Port Huron, MI. The Blue Water Bridge is an international bridge over the St. Clair River connecting the United States and Canada. The study will include evaluation of alternative plaza configurations and expansion options, examination of potential operational improvements on the U.S. and Canadian sides of the border, and potential locations for off-site facilities.

Wetland and Coastal Resources, Inc. (WCR) was contracted by WSA to perform wetland delineations and assessments within the project area. The purpose of these efforts was to (1) identify the approximate location and size of wetlands, (2) assess the functions associated with each wetland complex, and (3) identify potential wetland impacts (approximate area and function) for each alternative.

Fifty-six wetland complexes were delineated and assessed, of which 18 are linear ditches that collect road drainage. Currently, the Michigan Department of Environmental Quality (MDEQ) does not require mitigation for impacts to roadside ditches that are not regulated watercourses. Therefore, wetland areas within roadside ditches have been identified but not included in impact evaluations.

The remaining 38 wetland complexes contain Palustrine emergent, scrub-shrub, forested and aquatic bed wetlands. Of the three alternatives being evaluated (Alternatives 1-3), Alternative 3 would have the greatest impact to wetlands and their associated function and value. Alternatives 1 and 2 impact only small wetlands associated with the bridge crossing of the Black River. The following summarizes the number and area of wetlands impacted for all three alternatives.

- Alternative 1 will impact 5 wetland complexes, totaling approximately 0.67 acre of wetland impact.
- Alternative 2 will impact 5 wetland complexes, totaling approximately 0.67 acre of wetland impact.
- Alternative 3 will impact 18 wetland complexes, totaling approximately 4.179 acres of wetland impact.

The regulatory status of each wetland was not considered a factor when assessing functions, values, or impacts associated with each wetland and alternative alignment. Federal Executive Order 11990 requires that all wetland impacts, regardless of State jurisdiction, be mitigated when Federal funds support the project.

Mitigation will be required for the wetland impacts. Based on current replacement ratios, Alternatives 1 and 2 each require 1.0 acre of wetland creation as mitigation. A total of approximately 6.97 acres of new wetland creation will be required for Alternative 3. In addition, mitigation requirements may also be imposed for impacts to watercourses.

1.0 INTRODUCTION

Alternatives for redesign of the Blue Water Bridge Plaza are currently under review by the Michigan Department of Transportation (MDOT) and contracted consulting groups. Wilbur Smith Associates, Inc. (WSA) was chosen as the prime consultant to, in part, conduct studies to assess potential alternatives for the Blue Water Bridge Plaza, and prepare an assessment of potential environmental impacts.

On August 22, 2002, WSA authorized WCR to perform wetland delineations and wetland functional assessments within the project area. Six alternative designs were originally identified by WSA, but were narrowed to three after thorough review. This technical memorandum provides recommendations with respect to environmental impacts associated with each of the three Blue Water Bridge Plaza expansion alternatives.

The information and analysis associated with this report represent the opinions and professional judgment of WCR. State and Federal regulatory agencies have the final authority in matters of wetland identification, delineation, and permitting issues.

1.1 Project Area

The project area is located within the City of Port Huron and Port Huron Township, St. Clair County, Michigan. **Figure 1.1 (Attachment A-1 of Appendix A)** shows the specific boundaries of the study area.

1.2 Project Purpose

The purpose of conducting wetland delineations and functional assessments was to (1) identify the approximate location and size of wetlands, (2) assess the functions and values associated with each wetland complex, and (3) identify potential wetland impacts (approximate area and function) for each alternative plaza expansion. This technical memorandum is being presented to WSA to be utilized as part of an environmental assessment and to assist in developing and assessing project alternatives.

2.0 METHODS

2.1 Field Preparation

Prior to field investigations, WCR obtained information from various sources to provide initial direction and focus for field assessments. The United States Department of Agriculture (USDA) Soil Survey for St. Clair County and United States Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps were reviewed to identify potential wetland areas. Records and information on threatened and endangered (T & E) species, species of concern, and unique or threatened plant communities were obtained from Michigan Natural Features Inventory (MNFI). Wetland and Coastal Resources also utilized its library of wetland delineation and assessment reference articles and books to assist with planning the functional wetland assessment work. Finally, maps were produced by overlaying hydric soil units and wetland areas, as shown in the soil survey and wetland maps, with land features on aerial photography (supplied by WSA). These maps were used to aid field biologists in identifying the approximate location and size of potential wetland complexes within the study area.

2.2 Field Assessment

Wetland Delineation

Professional Wetland Scientists from WCR delineated all wetland boundaries in the summer and fall of 2003. Delineations were completed by placing high visibility glow-pink flagging tape at the upland/wetland interface. Flags were sequentially lettered and numbered and the location of each wetland was sketched on aerial photographs.

Delineation methodology was based on statutory language and rules found in Part 303, Wetland Protection, of the Natural Resource and Environmental Protection Act, 1994 PA 451, as amended (NREPA), and guidance manuals and procedures set forth by the MDEQ for delineating wetlands in Michigan (Michigan Department of Environmental Quality 2000). These methods identify wetland boundaries based on the following:

- Predominance of wetland vegetation
- Visual signs of hydrology
 - Buttressed root systems
 - Hummocked ground surface
 - Dark stained leaves
 - Saturated soils within 12 inches of the surface
 - Water standing above the ground surface
- Visual topographic breaks
- Presence of hydric soils
 - Dark surface soils with subsurface A horizon soils having a reduced matrix (chroma 2 or less) and redoximorphic concentrations within 12" of the surface
 - Dark surface soils with subsurface A horizon soils having a reduced matrix (chroma 1 or less) within 12" of the surface
 - Any hydric soil indicator listed in "Field Indicators of Hydric Soils in the United States" (USDA 1998)

Visual signs of wetland hydrology and a predominance of wetland vegetation were the primary wetland indicators used during the delineations. In the absence of visual signs of hydrology, soils were examined to assess whether hydric soils were present and/or signs of hydrology were present within the soil profile. Areas not having a predominance of wetland vegetation and/or lacking visual signs of wetland hydrology and signs of hydrology within the soil profile were classified as upland.

The Geographic Information System (GIS) software ArcView 8.3 (ESRI, Inc.) was used to create wetland maps by developing shape files for each wetland complex based on field sketches. Acreages were calculated for each wetland area using an ArcView script (www.esri.com/arcscripts).

Wetland Functional Assessments

Two Professional Wetland Scientists from WCR walked the project area and identified the vegetation present within each of the wetland complexes. Voss (1972, 1990, and 1996), Gleason and Cronquist (1998), and Holmgren (1998) were utilized to identify plant species that could not be identified in the field.

Each wetland complex was classified using Classification of Wetlands and Deepwater Habitats of the United States. (Cowardin et. al. 1979). In cases where a wetland complex was composed of more than one wetland classification, the percent of each wetland type was estimated in the field. Photographs were taken of each wetland complex to provide a visual record of the wetlands present.

Qualitative functional assessments were used to describe functions and values of each wetland. Each function/value was rated for each wetland complex and the top 3 functions/values of each wetland complex were identified. **Table 2.1, Attachment C-1 of Appendix A** lists the functions and values that were rated, and provides a description of how each of the functions and values were scored. The ratings are intended to be used to describe the quality of wetlands within the project area relative to wetlands found within the interior of St. Clair County. Identification of the top three functions/values is intended to assist MDOT in assessing mitigation needs including replacement of wetland functions and values that may be impacted by the project

The ratings for functions and values are based on observations, professional judgment, and experience of the reviewing biologists. Observations of each wetland complex, and associated ratings focused on and considered features such as size, location, proximity to a water way, hydrology, vegetative community and type, animals and animals signs present, soils, and evidence of human activity.

The MDNR's Floristic Quality Assessment program (Herman et al. 1996) was also used to assess functional values associated with floristic quality. This program calculates several metrics based on the type and diversity of plant species present within a given area. These metrics are used to identify the significance of wetland plant communities and their potential to harbor State or Federally threatened, endangered, candidate, or special concern plant and animal species.

The FQA requires an inventory of all species present within each area assessed. Wetland and Coastal Resources biologists meandered through each wetland, identifying all vegetation to

species level when possible. Plant species that could not be identified in the spring were noted, revisited, and identified during subsequent assessments later in the growing season. Plants with the same Genus as listed threatened and endangered species were double-checked in the field and, where necessary, returned to the lab for further identification. Plant species present within each wetland were entered into the MDNR Floristic Quality Assessment program database. This program was used to calculate and assess floristic significance for each area, using numeric values (i.e. coefficients for conservatism). Coefficients of conservatism (C values) are assigned to each native plant species, ranging from 0-10, to quantify the likelihood that the plant is representative of a pre-settlement plant community. Non-native plant species are given a value of 0. Plant communities that reflect pre-settlement conditions have a higher floristic quality index (FQI) and may be more likely to contain threatened, endangered, and/or species of concern. Conversely, plant communities that have been disturbed have greater numbers of invasive plant species; relatively lower FQI ratings, and less likelihood of containing threatened, endangered, and/or species of concern. FQI values of less than 20 indicate minimal significance from a natural quality perspective (Herman et al. 1996)

The area of impact to each wetland complex was calculated using ArcView software, by overlaying project alternative plans on wetland area shape files. Impacts for each wetland classification (Palustrine forested, scrub shrub, emergent, riverine and aquatic bed) were calculated by multiplying the percent of each wetland classification present (field estimated) by the acreage of impact. Wetland impacts were also assessed based on the degree of wetland fragmentation for each wetland complex.

Harboring of threatened and endangered species is an important function wetlands provide. Wetland and Coastal Resources contacted the MDNR, Wildlife Division, and MNFI to receive information on known threatened, Endangered, and/or species of concern (**Attachment B-1 of Appendix B**). The St. Clair County Element List was also used to identify T&E plant and animal species, or plant communities, which may be present within the study area (**Attachment B-2 of Appendix B**). Wetland and Coastal Resources has prepared a separate report detailing methodology and findings associated with threatened and endangered species for the project area (WCR, Technical Memorandum, Threatened and Endangered Species Assessment, 2004). This report should be referenced for more detailed information.

3.0 RESULTS

3.1 WCR Field Results

Fifty-six wetland complexes were delineated within the project area. Maps showing the location of these wetland complexes are provided in **Figures 3.1 through 3.4 (Attachment A-2 of Appendix A)**, and **Table 3.1 (Attachment C-2 of Appendix C)** lists flag numbers used to delineate each wetland complex. The approximate size of each wetland is listed in **Table 3.2 (Attachment C-3 of Appendix C)**. Photographs showing the physical features and specific plant species for many of the wetland complexes are provided in **Appendix D**.

A list of all plant communities identified within each of the 56 wetland complexes is included in **Table 3.3 (Attachment C-4 of Appendix C)**. No threatened, endangered, or species of concern plants were identified within any of the wetlands assessed.

Metrics calculated using the FQA program, including C values and FQI values, are shown for each wetland in **Table 3.4 (Attachment C-5 of Appendix C)**. Floristic Quality Index values higher than 35 indicate floristic importance from a statewide perspective, and values less than 20 indicate minimal significance. All wetland complexes within the project area have an FQI value less than 20.

The functions and values that each wetland complex provides are summarized in **Table 3.5 (Attachment C-6 of Appendix C)**. A qualitative rating (0 through 3) was used to assess values and functions of each wetland complex. These ratings were assigned to aid in comparing impacts associated with each of the Blue Water Bridge Plaza alternatives and provide information for mitigating lost values and functions (if necessary). Wetland complexes impacted by the proposed alternatives are highlighted in yellow and wetlands that will not be impacted are not highlighted.

The following summaries include descriptions of the physical features, values, and functions of wetlands within the project area. Detailed plant lists and summaries of functions and values for each of the wetland complexes have been omitted from these descriptions to minimize duplication of information and to ease comparison. More detailed information is summarized in **Table 3.3** and **Table 3.5**. All wetlands described below are Palustrine as classified by Cowardin et. al. 1979.

Wetland Complex 1

- Forested wetland with an understory of scrub-shrub and emergent vegetation.
- Bordered on the west by a manufactured home development and on the east by I-94.
- The dominant tree species include red ash (*Fraxinus pennsylvanica*), cottonwood (*Populus deltoides*), and American elm (*Ulmus americana*).
- Standing water, flowing water, saturated soils and drainage channels are present.

Wetland Complex 2

- Scrub-shrub and forested wetland complex.
- Located within a manufactured home community, surrounded by manufactured homes and roads.
- Numerous frogs and tadpoles present within standing water.
- Dominant plant species include red ash, grey dogwood (*Cornus foemina*), spotted touch-me-not (*Impatiens capensis*) and sensitive fern (*Onoclea sensibilis*).

Wetland Complex 3

- Forested wetland complex.
- Located on the east edge of a manufactured home community and south of an existing farm field.
- Red Ash and red maple (*Acer rubrum*) dominate the overstory.
- Eastern lined aster (*Aster lanceolatus*), late goldenrod (*Solidago gigantea*), rough goldenrod (*Solidago rugosa*) and poison ivy (*Toxicodendron radicans*) are present in understory.
- Standing water present throughout portions of this wetland.

Wetland Complex 4

- Forested wetland pocket.
- Disturbed (partially graded) by farming activities.
- Low chroma soils with redoximorphic features present. Evidence of seasonal standing water.
- Red ash predominant tree species present.

Wetland Complex 5

- Forested wetland complex.
- Linear wetland near I-94 Right-of-Way (ROW).
- The dominant tree species include red ash and American elm.
- Standing water and watermarks present on trees.

Wetland Complex 6

- Forested wetland complex
- Hydrologically connected to ditch along I-94.
- Standing and flowing water present with evidence of groundwater discharge (large iron deposits).
- The dominant tree species include red ash and American elm.

Wetland Complex 7

- Forested wetland complex.
- Hydrologically connected to ditch along I-94.
- Standing and flowing water present seasonally.
- The dominant tree species include red ash and American elm.

Wetland Complex 8

- Scrub-shrub wetland complex located within a hedgerow.
- Active farm field to the west (1993-soybeans; 1994-corn) and fallow field to the east.
- Nannyberry (*Viburnum lentago*) and grey dogwood are dominant.

Wetland Complex 9

- Scrub-shrub and emergent wetland complex within a hedgerow.
- Active farm field to the west and fallow field to the east.
- Wetland continues off site to the north via drainage channel with flowing water.
- Standing water and drainage channels present (farm drainage).
- Grey dogwood and nannyberry are dominant.

Wetland Complex 10

- Small seasonal emergent wetland pocket located in a fallow field.
- Common ragweed (*Ambrosia artemisiifolia*), path rush (*Juncus tenuis*), and nodding smartweed (*Polygonum lapathifolium*) are dominant.
- Cracked soils and standing water present.

Wetland Complex 11

- Emergent and scrub-shrub wetland located adjacent to northern boundary of study area.
- Wetland continues off site to the north and is contiguous to a drainage channel.
- Grey dogwood, reed canary grass (*Phalaris arundinacea*), and New England aster (*Aster novae-angliae*) are dominant.

Wetland Complex 12

- Emergent and scrub-shrub wetland complex.
- Adjacent to intermittent stream.
- Dominated by spotted touch-me-not and reed canary grass.
- Flowing water and saturated soils present.

Wetland Complex 13

- Primarily open water pond.
- Sparse emergent fringe present dominated by path rush and narrow leaved cattail (*Typha angustifolia*).
- Evidence present that the pond was recently excavated and is used for stormwater detention (outlet present).

Wetland Complex 14

- Emergent wetland pocket located in a fallow field.
- Area is disturbed or was created as a result of gravel road and storm sewer construction.
- Saturated soils present.
- Dominated by common ragweed (*Ambrosia artemisiifolia*) and cottonwood saplings.

Wetland Complex 15

- Emergent and scrub-shrub wetland complex within fallow field and adjacent to single family residential housing
- Dominated by reed canary grass, riverbank grape (*Vitis riparia*), garlic mustard (*Alliaria officinalis*), grey dogwood and box elder (*Acer negundo*).
- Low chroma soils with redoximorphic features present.

Wetland Complex 16

- Small emergent wetland pocket with few shrubs.
- Dominated by reed canary grass.
- Low chroma soils with redoximorphic features present.

Wetland Complexes 17-21, 35, 37-43, 50, 51-53, and 55

- Linear emergent wetlands associated with ditches constructed to collect road drainage (primarily from I-94).
- Standing water, flowing water, and saturated soils present.
- The majority of these wetland complexes are dominated by reed canary grass, common reed (*Phragmites australis*) and narrow leaved cattails.

Wetland Complex 22

- Linear, Emergent/Wet Meadow.
- Scattered trees.
- Adjacent to large fill pile.
- Standing water and saturated soils present.
- No dominant species, but a mix of emergent vegetation.

Wetland Complex 23

- Linear emergent wetland with small shrub component.
- Excavated ditches.
- Trees present within portions of ditch. Red ash dominant, with emergent understory.
- Majority of ground is bare with scattered emergent species and standing water.

Wetland Complex 24

- Scrub shrub wetland.
- Strongly dominated by meadowsweet (*Spiraea latifolia*).
- Standing water and hummocks throughout.

Wetland Complex 25

- Forested wetland pocket.
- Dominated by American elm.
- Saturated soils and hummocked ground surface.

Wetland Complex 26

- Predominantly forested wetland with scrub shrub component.
- Relatively large wetland with a diversity of plant species.
- Red ash, grey dogwood, and rough goldenrod are dominant.
- Contiguous to wetlands off site to the south.

Wetland Complex 27

- Forested and scrub shrub wetland with emergent/wet meadow component.
- Woody vegetation relatively sparse.
- Hummocked ground surface, saturated soils and drainage channels present.
- Dominated by swamp white oak (*Quercus bicolor*) and grey dogwood.
- Contiguous to wetland off site to the south.

Wetland Complex 28

- Forested and scrub shrub wetland with scattered emergent understory.
- Dominant vegetation includes American elm, grey dogwood, and nannyberry.
- Standing water, saturated soils, hummocked ground surface, and drainage channels present.
- Contiguous to wetlands south of the study area.

Wetland Complex 29

- Forested and emergent wetland complex pocket.
- Western half forested and eastern half emergent.
- Standing water and hummocked ground surface throughout.
- Dominated by cottonwood and reed canary grass.

Wetland Complex 30

- Forested wetland with scattered shrubs and an emergent edge.
- Saturated soils and drainage channel present.
- Dominated by red ash and reed canary grass.
- Continues off site to the south.

Wetland Complex 31

- Forested and scrub shrub wetland.
- Standing water, hummocked ground surface present.
- Bare ground surfaces also present throughout much of forested area.
- Dominated by American elm and grey dogwood.
- Continues off site to the south.

Wetland Complex 32

- Small emergent wetland with young, scattered shrubs adjacent to fill pile.
- Saturated soils and hummocked ground surface present.
- Mixture of emergent species present.

Wetland Complex 33

- Small pocket of scrub shrub wetland with monotypic stand of grey dogwood.
- Marginal wetland hydrology present (bare ground surfaces).

Wetland Complex 34

- Emergent, scrub-shrub, and forested wetland complex.
- Stream (Stocks Creek) flows through this wetland complex.
- West side of stream is predominately scrub shrub and emergent wetland dominated by reed canary grass.
- East side of stream is predominately forested wetland with a central scrub shrub wetland area. Dominant vegetation includes swamp white oak, Blue Beach (*Carpinus caroliniana*), lake sedge (*Carex lacustris*), and silky dogwood (*Cornus amomum*).
- Standing water and watermarks present east of stream.

Wetland Complex 36

- Large emergent wetland complex contiguous to Stocks Creek, north of I-94.
- Connected to wetland complex 34 via culvert under I-94.
- Saturated organic soils present.
- Dominated by broad-leaved cattail (*Typha latifolia*), common reed and reed canary grass.

Wetland Complex 44

- Emergent wetland complex located parallel to Bridge Harbor Yacht Club.
- The wetland is a linear ditch, approximately 3-4 feet from top of bank to bed, that appears man-made.
- Strongly dominated by common reed.
- Standing water present.

Wetland Complex 45

- Emergent wetland complex dominated by common reed.
- Wetland is located next to and beneath bridge overpass of the Black River.
- Hydrology is marginal with seasonal standing water over disturbed, compacted soils.

Wetland Complex 46

- Emergent wetland complex.
- Located along the southwestern bank of the Black River, from Bridge Harbor Yacht Club to the northwest side of I-94.
- Dominated by common reed.

Wetland Complex 47

- Emergent wetland complex.
- Located along the northeastern bank of the Black River.
- Dominated by common reed.
- Stormwater outlets and refuse present.

Wetland Complex 48

- Small emergent wetland pocket that receives drainage from adjacent roadways.
- Saturated soils present
- Dominant vegetation includes common reed, narrow leaf cattail, and lady's thumb (*Polygonum persicaria*).

Wetland Complex 49

- Small scrub shrub wetland pocket.
- Evidence of hydrology includes dark stained leaves and an organic upper soil profile.
- Culvert outlet present at road that appears to lead to Black River.
- Dominant vegetation includes box elder and riverbank grape.

Wetland Complex 54

- Linear drainage ditch.
- Narrow band of emergent and scrub shrub vegetation.
- Saturated soils present.
- Outlets to roadside ditch along I-94.
- Dominant vegetation includes grey dogwood, majority of wetland is bare ground.

Wetland Complex 56

- Forested wetland complex
- Water-stained leaves present indicating seasonal standing water
- Dominant vegetation includes red ash, fowl manna grass (*Glyceria striata*), and glossy buckthorn (*Rhamnus frangula*)

3.2 Project Impacts

Figures 3.5 through 3.10 of Attachment A-3 (Appendix A) show the location of delineated wetland complexes in relation to the proposed Blue Water Bridge Plaza alternatives. **Table 3.6 (Attachment C-7 of Appendix C)** shows the wetland complexes impacted by each of the proposed alternatives and **Table 3.7 (Attachment C-8 of Appendix C)** shows the areas of direct wetland impact, for each wetland classification.

Wetland fragmentation was also considered when assessing impacts of each alternative road alignment (**Table 3.6, Attachment C-7 of Appendix C**). A discussion of fragmentation, partial impact, and complete loss of wetland complexes is provided in the **Discussion** section of this technical memorandum.

3.2.1 Alternatives 1 and 2

Alternatives 1 and 2 restrict activities to the northeastern portion of the study area, where the Black River and linear roadside ditches are present. The MDEQ does not require mitigation for impacts to roadside ditches that are not regulated watercourses. Therefore, wetland impacts are restricted to the area of potential bridge widening across the Black River (**Figures 3.5 and 3.6 (Attachment A-3 of Appendix A)**). Alternatives 1 and 2 will each impact 5 wetland complexes and a total of approximately 0.67 acres of wetland **Table 3.7 (Attachment C-8 of Appendix C)**. Bridge widening at this location may also require impacts to the Black River.

3.2.2 Alternative 3

Alternative 3 will impact 18 wetland complexes, and a total of approximately 4.179 acres of wetland. **Figures 3.7 through 3.10 (Attachment A-3 of Appendix A)** show the location and degree of wetland impact with this alternative and **Table 3.7 (Attachment C-8 of Appendix C)** summarizes the approximate area of impact for each wetland complex and each wetland classification present. Alternative 3 will also require impacts to Stocks Creek and the Black River through potential road and bridge widening. See WCR, Technical Memorandum, Fisheries and Aquatic Biota Assessment, 2004 for details on potential stream impacts

4.0 DISCUSSION

Plant communities contribute to the quality of a wetland, and its ability to provide functions, and values. Trapping sediment, filtering and nutrient uptake, and habitat (e.g. cover, breeding, food, etc.) for terrestrial, aquatic, and avian biota is a product of the plant communities present. Therefore, assessment of the plant community composition within each wetland complex was found to be useful in assessing wetland functions and values as they relate to floristic significance.

The functions and values identified and assessed are listed in **Table 3.5 (Attachment C-6 of Appendix C)** and FQI values are shown in **Table 3.4 (Attachment C-5 of Appendix C)**. Five wetland complexes will be impacted by Alternatives 1 and 2 and 18 of the 38 wetland complexes identified within the project area (excluding 18 road side ditches) will be impacted by Alternative 3. Therefore, these wetland complexes are of primary concern for this study and are discussed in greater detail below.

Wetland Complexes 8, 16, 22, 23, 24, 48, and 49 will be impacted by Alternative 3 and Wetland Complexes 48 and 49 will be impacted by Alternatives 1 and 2. These wetlands consist of small isolated pockets, reverting farm field, linear ditches, and/or farm ditches. These small wetland areas do not appear to provide significant water quality functions or habitat for animals. Each of these wetlands have FQI values less than 8 (**Table 3.4**) and impacts to functions and values provided of these wetlands are expected to be minimal.

Wetland Complexes 5, 6, 7, 9, and 54 contain Palustrine forested and/or scrub shrub wetland that will be impacted by Alternative 3. These areas are small, ranging from 0.06 to 0.23 acres in size with low FQI values that range from 4.5 to 11.9 (**Table 3.4**). However, these areas do provide water quality benefits by collecting runoff from the adjacent farm fields. Nutrient assimilation is expected to occur within these wetlands prior to seasonal discharge to existing road side ditches or other drainage courses. In addition, Wetland Complex 6 contains evidence of groundwater discharge (standing and flowing water with iron deposits).

Wetland Complexes 5, 6, 7, 9, and 54 also contain woody vegetation that provides habitat for mammals and birds, although significant size is lacking. The small size and isolated nature of these wetlands are the primary reason for their low overall quality ratings.

Wetland area 26 is a Palustrine forested and scrub shrub system, similar to Wetland Complexes 5, 6, 7, 9, and 54, but greater in size and part of a larger complex that continues south of the study area. The FQI value for this wetland is over 14.9 (**Table 3.4**). Ratings are higher for this wetland (**Table 3.5**) due to diversity of vegetation, seasonal surface hydrology, and wildlife habitat that continues off-site into a large forested tract. Alternative 3 will impact a portion of area 26 near the existing freeway.

Wetland Complexes 45, 46, and 47 are emergent wetlands associated with the banks of the Black River and will be impacted under all 3 alternatives. These areas received low FQI values ranging from 3.1 to 4.7. Area 45 is located beneath the I-94 bridge crossing and is dominated by invasive plant species. Hydrology for this wetland is present due to soil disturbances and compaction, resulting in low infiltration and/or drainage. Impacts to wetland values and functions associated with Wetland 45 are expected to be minimal.

Similarly, Wetland Complexes 46 and 47 are dominated by invasive plant species, have low FQI values, and have significant amounts of refuse present. However, quality ratings for these wetlands were higher due to proximity to the Black River. Wetlands contiguous to watercourses generally provide higher water quality functions, erosion control, and habitat for furbearing mammals.

Alternative 1, 2, and 3 may also impact the Black River at the location of Wetland Complexes' 45 through 47. The river is degraded near these wetlands due to past dredging activity. However, bridge supports proposed to be constructed within the river (similar to those that currently exist) will cover bottom substrates that provide some habitat for aquatic invertebrates. A separate Technical Memorandum (WCR, Technical Memorandum, Fisheries and Aquatic Biota Assessment, 2004) has been prepared that discusses potential impacts at this location and should be referred to for greater detail.

Wetland Complexes 34 and 36 are large wetland areas associated with the floodplain of Stocks Creek and represent the highest quality and largest wetlands within the study area. Both wetlands are contiguous to Stocks Creek and provide flood storage, water filtration, nutrient uptake, and erosion control functions, along with habitat for mammals, song birds, waterfowl, amphibians and reptiles.

The emergent portions of both wetland areas are strongly dominated by reed canary grass, an invasive plant that forms large monotypic stands and out-competes native vegetation. FQI values are low due to the presence of this plant. However, dense stands of reed canary grass provide conditions for nutrient uptake and sediment removal, resulting in higher water quality in adjacent streams and downstream waters. Dense stands of reed canary grass also provide cover, feeding, and nesting habitat for various species of wildlife.

Wetland Complex 34 and 36 are similar in their functions and values. However, Wetland Complex 34 contains a higher diversity of wildlife habitat. Palustrine forested, scrub shrub, and emergent wetland are present within Wetland Complex 34, while Wetland Complex 36 is primarily emergent. Therefore, Wetland Complex 34 was viewed as providing a comparably higher amount of transition/change in vegetative communities and more opportunity for use by a higher diversity of animals. Conversely, The floodplain adjacent to Stocks Creek is larger and lower in elevation within Wetland Complex 36 than in Complex 34 providing comparatively higher flood retention and water quality functions.

Impacts to wildlife habitat are expected to be greater by concentrating work south (area 34) of I-94, as currently proposed in Alternative 3, rather than north (area 36). However, should similar alignments be proposed north of I-94 instead of south, a larger area of wetland would be impacted resulting in a greater loss of flood storage and water quality functions.

Additional Impact Considerations

In addition to plant community assessments, impacts to wetlands were identified based on potential fragmentation. Fragmenting a wetland complex, dividing it into two or more separate parts, can result in both direct loss of wildlife habitat and the separation of those habitats within that wetland complex. This division also eliminates potential routes of travel, or corridors used by animals.

Table 3.6 (Attachment C-7, of Appendix C) identifies each wetland complex impacted by the alternatives and indicates if the wetland is partially impacted, completely eliminated, or

fragmented. Wetland complexes that are listed as partially impacted are those areas that are not divided (fragmented), but have impacts localized at one portion of the wetland complex. Partially impacted wetlands, if not encompassing the majority of a wetland complex, will typically have less impact to terrestrial and aquatic biota than fragmented wetlands. Many of the partially impacted wetland complexes show only a small portion being impacted, resulting in minimal impacts on the functions and values.

None of the wetland areas in **Table 3.6** are identified as being fragmented under the three Alternatives. However, it should be noted that Wetland Complexes 34 and 36 were likely one complex fragmented at the time I-94 was constructed. Additional separation of the two wetland complexes under Alternative 3 may have additional impacts due to increased separation of wildlife habitats.

Mitigation will be required for wetland impacts identified for under all three Alternatives. As currently proposed, Alternatives 1 and 2 will each impact approximately 0.65 acre of Palustrine emergent and 0.02 acre of palustrine scrub shrub wetland. Alternative 3 will impact approximately 2.062, 1.296, and 0.709, acres of Palustrine emergent, forested, and scrub shrub wetland, respectively. In addition, 0.012 acres of aquatic bed will be impacted under Alternative 3, including approximately 530 lineal feet of Stocks Creek.

Promulgated Rules for Part 303 of NREPA require mitigation ratios of 2 to 1 for forested wetland and, typically, 1.5 to 1 for other wetland classifications. Requirements for the creation of a minimum of approximately 1.0, 1.0, and 6.97 acres of new wetland are expected as a MDEQ permit condition to compensate for the proposed impacts of Alternatives 1, 2, and 3 respectively. In addition, the MDEQ may require additional mitigation for impacts to Stocks Creek. A separate Technical Memorandum discussing mitigation has been prepared by WCR and should be referred to for further detail (WCR, Technical Memorandum, Wetland Mitigation Assessment, 2004).

5.0 CONCLUSIONS

Alternative 3 impacts approximately 4.179 acres of wetland and approximately 530 linear feet of Stocks Creek. The majority of the wetland areas impacted are small, isolated, and have relatively low overall function, value and floristic significance. Impacts to these areas are expected to be minimal.

More significant negative impacts are expected within wetlands contiguous to Stocks Creek (Complexes 34 and 36). These wetlands provide the highest diversity of habitats for animals and the most significant water quality functions within the project area. Approximately 49% of the impact acreage associated with Alternative 3 is located within these two wetlands. Impacts to the wetlands and stream at this location should be minimized to the extent possible.

Wetland impacts associated with Alternatives 1 and 2 are significantly less than Alternative 3. Both alternatives limit impacts to wetlands that are associated with the banks of the Black River and two small wetlands near the river. These areas have relative low value, function and floristic significance and impacts are expected to be minimal.

Mitigation for wetland impacts will be required by the MDEQ for all three Alternatives. Wetland mitigation plans for Alternatives 1 and 2 should be developed that propose the creation of 1.0 acre of new wetland. Both wetland mitigation plans and stream improvement plans should be developed for Alternative 3 that propose creation of approximately 6.97 acres of new wetland and include stream habitat improvement for Stocks Creek.

6.0 RECOMMENDATIONS/OBSERVATIONS

The following are WCR's recommendations and observations based on wetland delineations, wetland assessments, review of past studies, and an overall assessment of the project.

- The construction of Alternatives 1 or 2 would equally require the least amount of wetland and stream impact.
- Alternative 3 will have the greatest amount of resource impact and the greatest impact to wetland functions and values.
- Wetland Complexes 34 and 36 are the largest and highest quality wetlands within the study area. Alternative 3 will impact a significant portion of Area 34. Wetland impacts at this location should be minimized to the greatest extent possible.
- Enclosure of portions of Stocks Creek under Alternative 3 will result in negative resource impacts. Alternative design and/or construction methods should be considered to minimize impacts to the creek. See WCR, Technical Memorandum, Fisheries and Aquatic Biota Assessment, 2004 for greater detail.
- Bridge construction across the Black River (Alternatives 1, 2, and 3) may result in negative resource impacts through downstream sedimentation. Construction design and methods should be considered that minimize suspension of sediments during construction.
- Permits from the MDEQ will be required for impacts to all regulated wetlands, including Stocks Creek and the Black River.
- Mitigation should be proposed for wetland impacts. Approximately 6.97 acres of wetland mitigation will be required for Alternative 3, and 1.0 acre of mitigation for Alternatives 1 and 2 (based on current replacement ratios). See WCR, Technical Memorandum, Wetland Mitigation Assessment, 2004 for greater detail.
- Mitigation for stream impacts may also be required. Plans for stream habitat improvement should be considered upstream and/or downstream of impact areas. See WCR, Technical Memorandum, Wetland Mitigation Assessment, 2004 for greater detail.
- Mitigation should be provided in close proximity to the proposed wetland impacts, if possible.
- Construction of the mitigation wetlands should commence as soon as possible to provide timely establishment of wetland functions and values, and provide new habitat for displaced biota.
- Proper soil erosion control techniques should be employed during and after construction to minimize sedimentation into wetlands and/or surface waters.

7.0 LIST OF REFERENCES

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- WCR, Technical Memorandum, Threatened and Endangered Species Assessment, 2004 Prepared for Wilbur Smith and Associates as part of resource impact assessments for the Blue Water Bridge Plaza Expansion Project. Unpublished.

WCR, Technical Memorandum, Wetland Mitigation Assessment, 2004
Prepared for Wilbur Smith and Associates as part of resource impact assessments for
the Blue Water Bridge Plaza Expansion Project. Unpublished.

8.0 LIST OF PERSONS AND AGENCIES CONTACTED

- Michigan Department of Natural Resources
 - Ms. Lori Sargent, Endangered Species Specialist
- Michigan Natural Features Inventory
- Wilbur Smith Associates, Inc.
 - Mr. Doug LaVoie, Associate In-Charge
 - Mr. Kirk Haybarker, Regional Vice-President
 - Mr. Todd Davis, Manager, Environmental & Transportation Planning Services

9.0 LIST OF PREPARERS

Mike Nurse, PWS, Wetland/Aquatic Biologist
Wetland and Coastal Resources, Inc.
5801 West Michigan Avenue
Lansing, Michigan 48917
(517) 327-0970

Aaron Snell, Fisheries Biologist/GIS Specialist
Wetland and Coastal Resources, Inc.
5801 West Michigan Avenue
Lansing, Michigan 48917
(517) 327-0970

Kate Thompson, Wetland/Wildlife Biologist
Wetland and Coastal Resources, Inc.
5801 West Michigan Avenue
Lansing, Michigan 48917
(517) 327-0970

Stu Kogge, PWS, Wetland/Aquatic Biologist
Wetland and Coastal Resources, Inc.
5801 West Michigan Avenue
Lansing, Michigan 48917
(517) 327-0970

Wilbur Smith Associates, Inc.
6412 Centurion, Suite 150
Lansing, Michigan 48917
(517) 323-0500

APPENDICES

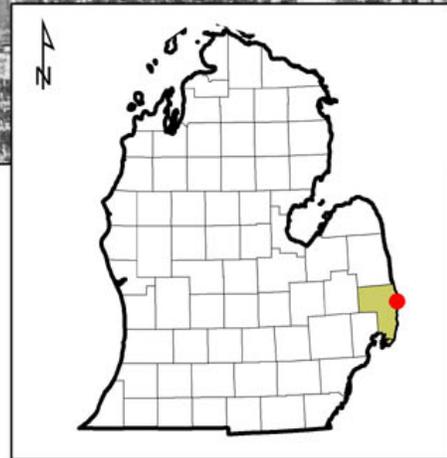
APPENDIX A

FIGURES

ATTACHMENT A-1

Figure 1.1

Study Area for Blue Water Bridge Plaza Study, Port Huron, St. Clair County, Michigan



**Project Area for
Blue Water Bridge Plaza Study
Port Huron, St. Clair County, Michigan**

 Wetland and Coastal Resources, Inc 5801 W. Michigan Ave. Lansing, MI 48917	Wibur Smith Associates	AJS	FIGURE NO.
	Blue Water Bridge Plaza Study	06/15/04	1.1

ATTACHMENT A-2

Figures 3.1 through 3.4

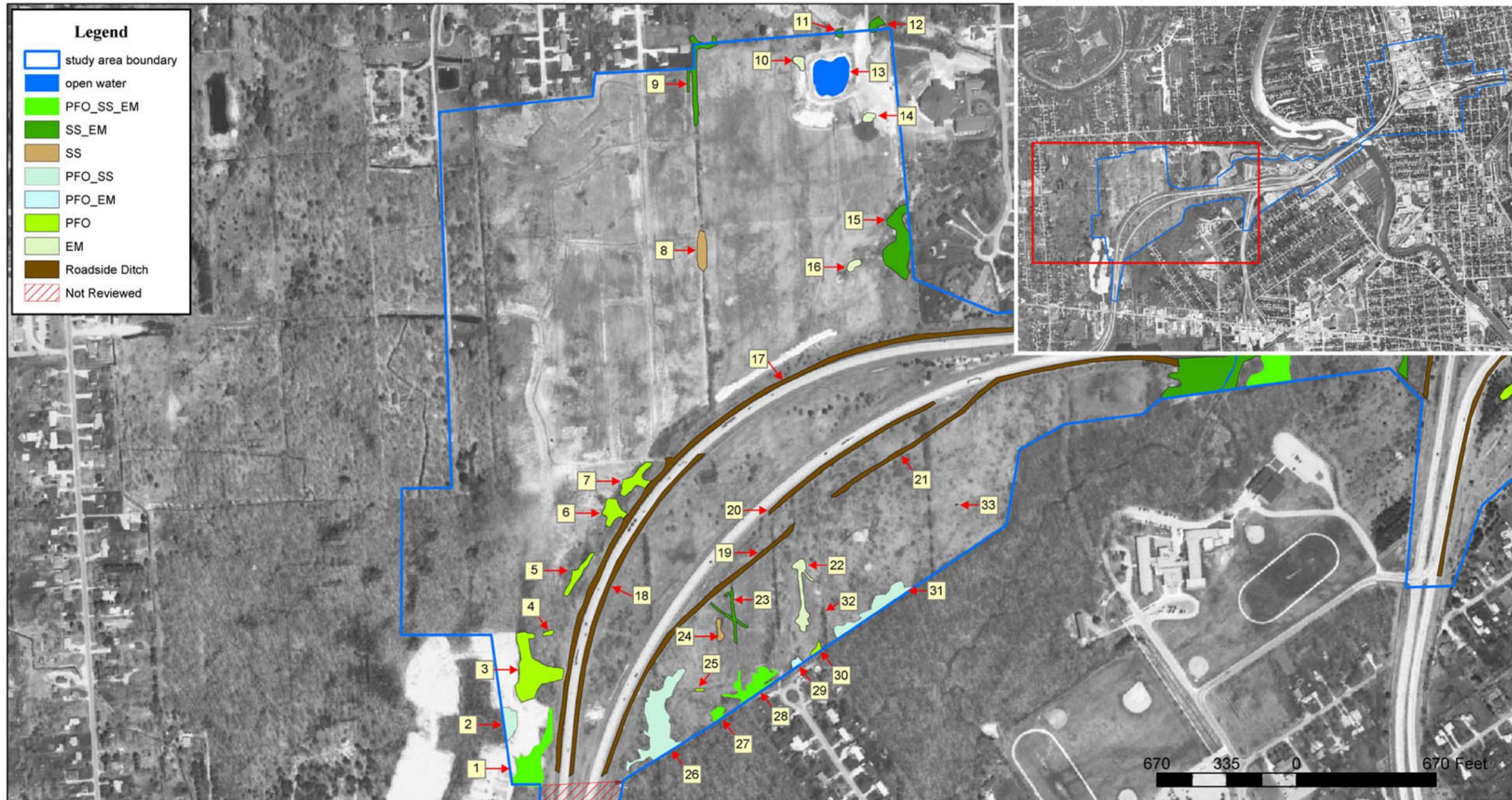
Location of Wetland Complexes and Wetland Types Delineated and Assessed within Study Area



Location of Wetland Complexes and Wetland Types Delineated and Assessed within Study Area.

 Wetland and Coastal Resources, Inc 5801 W. Michigan Ave. Lansing, MI 48917	Wilbur Smith Associates	AJS	FIGURE NO.
	Blue Water Bridge Plaza Study	06/15/04	3.1

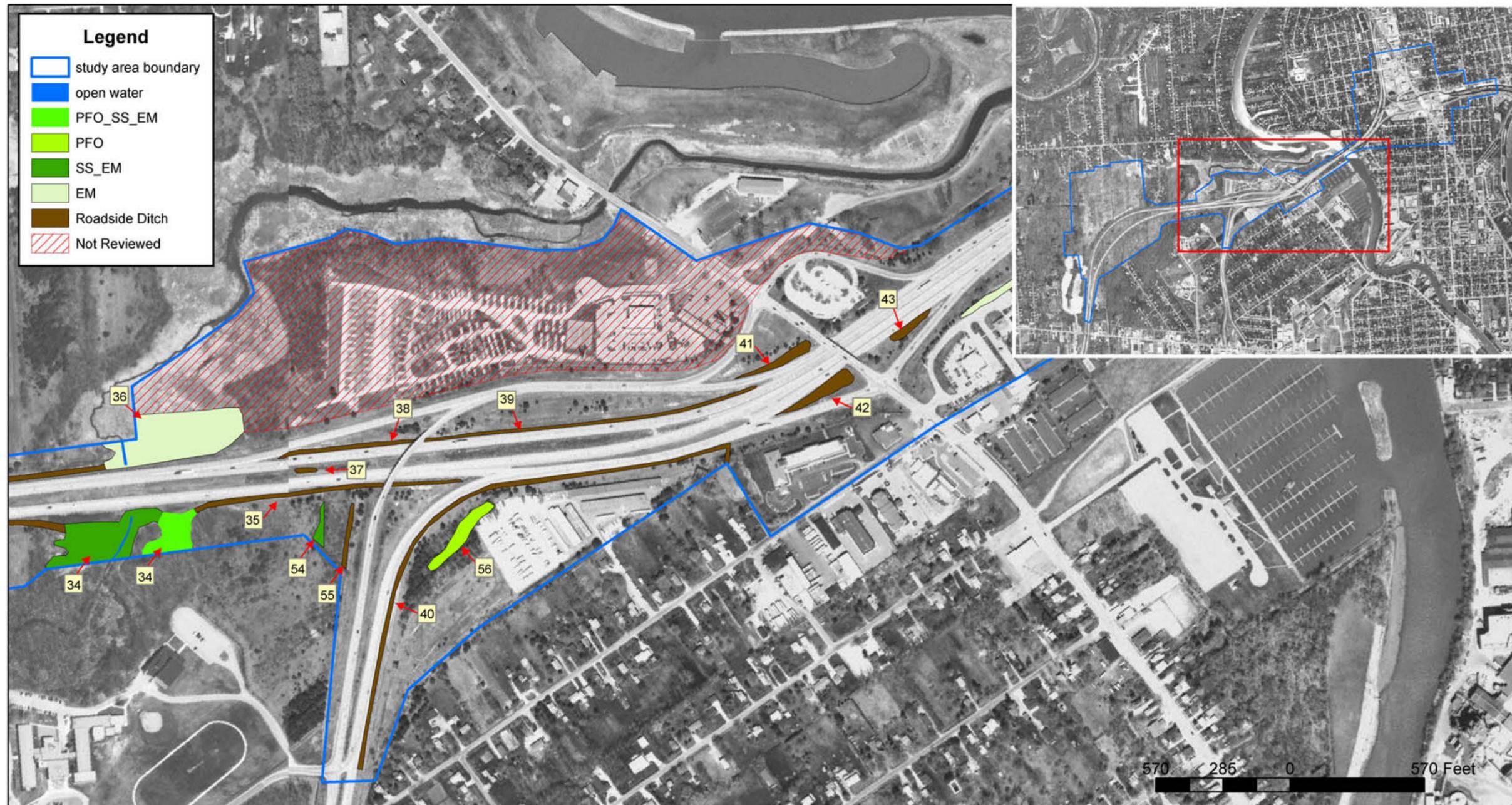




Location of Wetland Complexes and Wetland Types Delineated and Assessed within the Western 1/3 of the Study Area.

 <p>Wetland and Coastal Resources, Inc 5801 W. Michigan Ave. Lansing, MI 48917</p>	<p>Wilbur Smith Associates</p>	AJS	FIGURE NO.
	<p>Blue Water Bridge Plaza Study</p>	06/15/04	3.2





Location of Wetland Complexes and Wetland Types Delineated and Assessed within the Central portion of the Study Area.

 <p>Wetland and Coastal Resources, Inc 5801 W. Michigan Ave. Lansing, MI 48917</p>	<p>Wilbur Smith Associates</p>		<p>AJS</p>	<p>FIGURE NO.</p>
	<p>Blue Water Bridge Plaza Study</p>		<p>06/15/04</p>	<p>3.3</p>





Location of Wetland Complexes and Wetland Types Delineated and Assessed within the Eastern 1/3 of the Study Area.

 <p>Wetland and Coastal Resources, Inc 5801 W. Michigan Ave. Lansing, MI 48917</p>	<p>Wilbur Smith Associates</p>	<p>AJS</p>	<p>FIGURE NO.</p>
	<p>Blue Water Bridge Plaza Study</p>	<p>06/15/04</p>	<p>3.4</p>



ATTACHMENT A-3

Figures 3.5 through 3.10

Figures Showing the Location of Wetland Complexes Relative to Blue Water
Bridge Plaza Alternatives



Location of Wetland Complexes Relative to Blue Water Bridge Plaza Alternative 1.

 <p>Wetland and Coastal Resources, Inc 5801 W. Michigan Ave. Lansing, MI 48917</p>	<p>Wilbur Smith Associates</p>	<p>AJS</p>	<p>FIGURE NO.</p>
	<p>Blue Water Bridge Plaza Study</p>	<p>06/15/04</p>	<p>3.5</p>

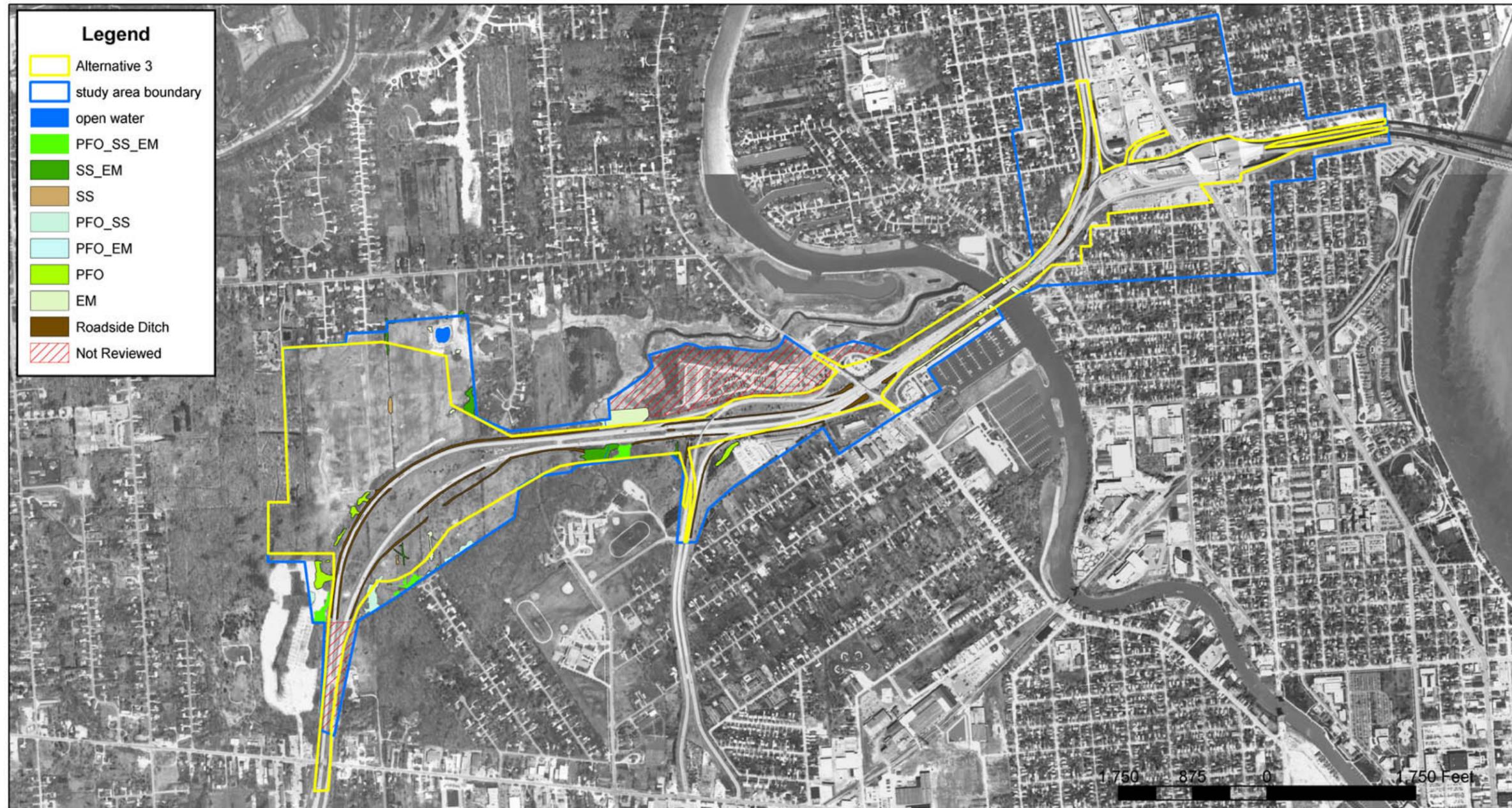




Location of Wetland Complexes Relative to Blue Water Bridge Plaza Alternative 2.

 <p>Wetland and Coastal Resources, Inc 5801 W. Michigan Ave. Lansing, MI 48917</p>	<p>Wilbur Smith Associates</p>	<p>AJS</p>	<p>FIGURE NO.</p>
	<p>Blue Water Bridge Plaza Study</p>	<p>06/15/04</p>	<p>3.6</p>

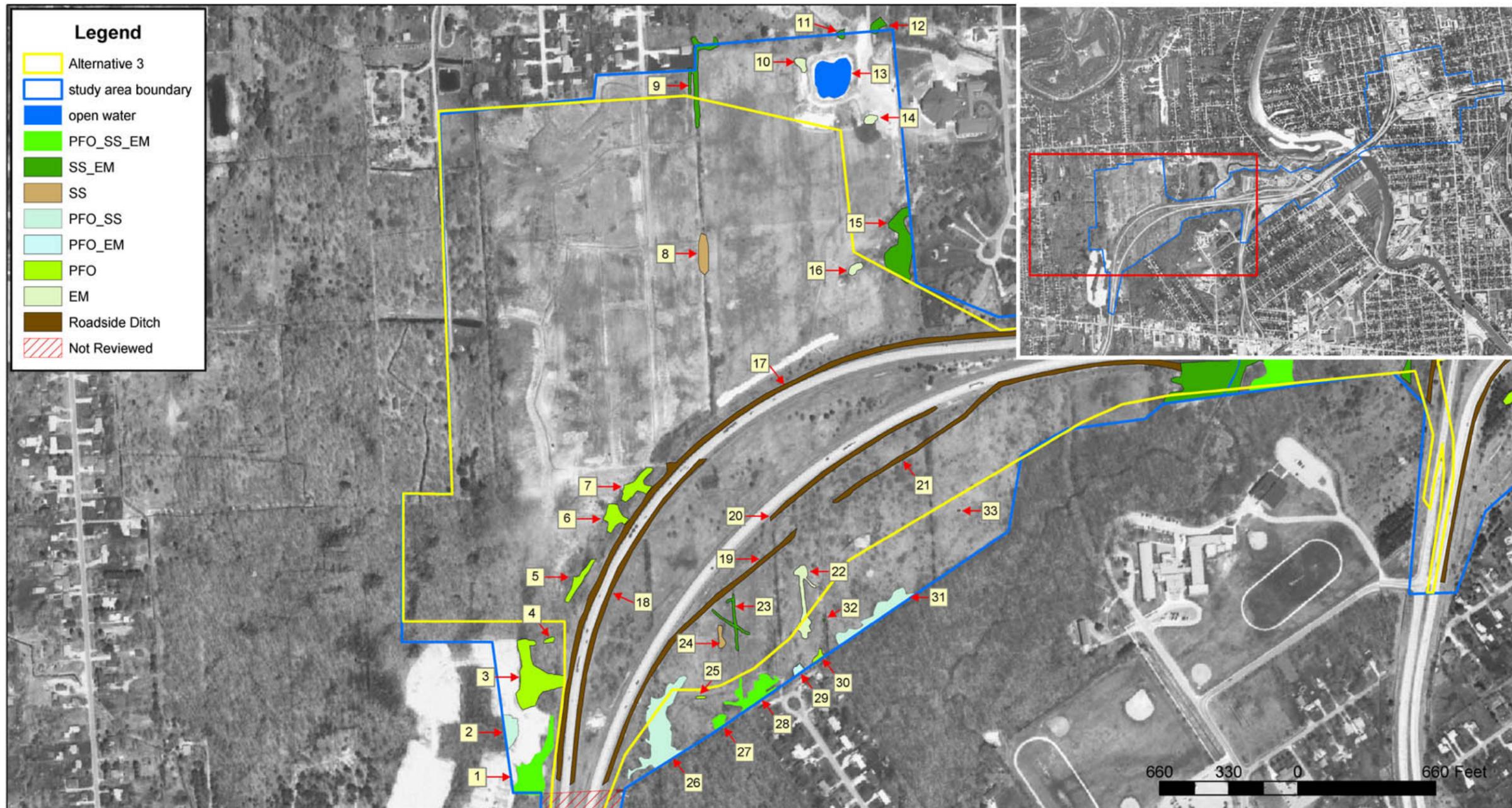




Location of Wetland Complexes Relative to Blue Water Bridge Plaza Alternative 3.

 <p>Wetland and Coastal Resources, Inc 5801 W. Michigan Ave. Lansing, MI 48917</p>	<p>Wilbur Smith Associates</p>	AJS	FIGURE NO.
	<p>Blue Water Bridge Plaza Study</p>	06/15/04	3.7

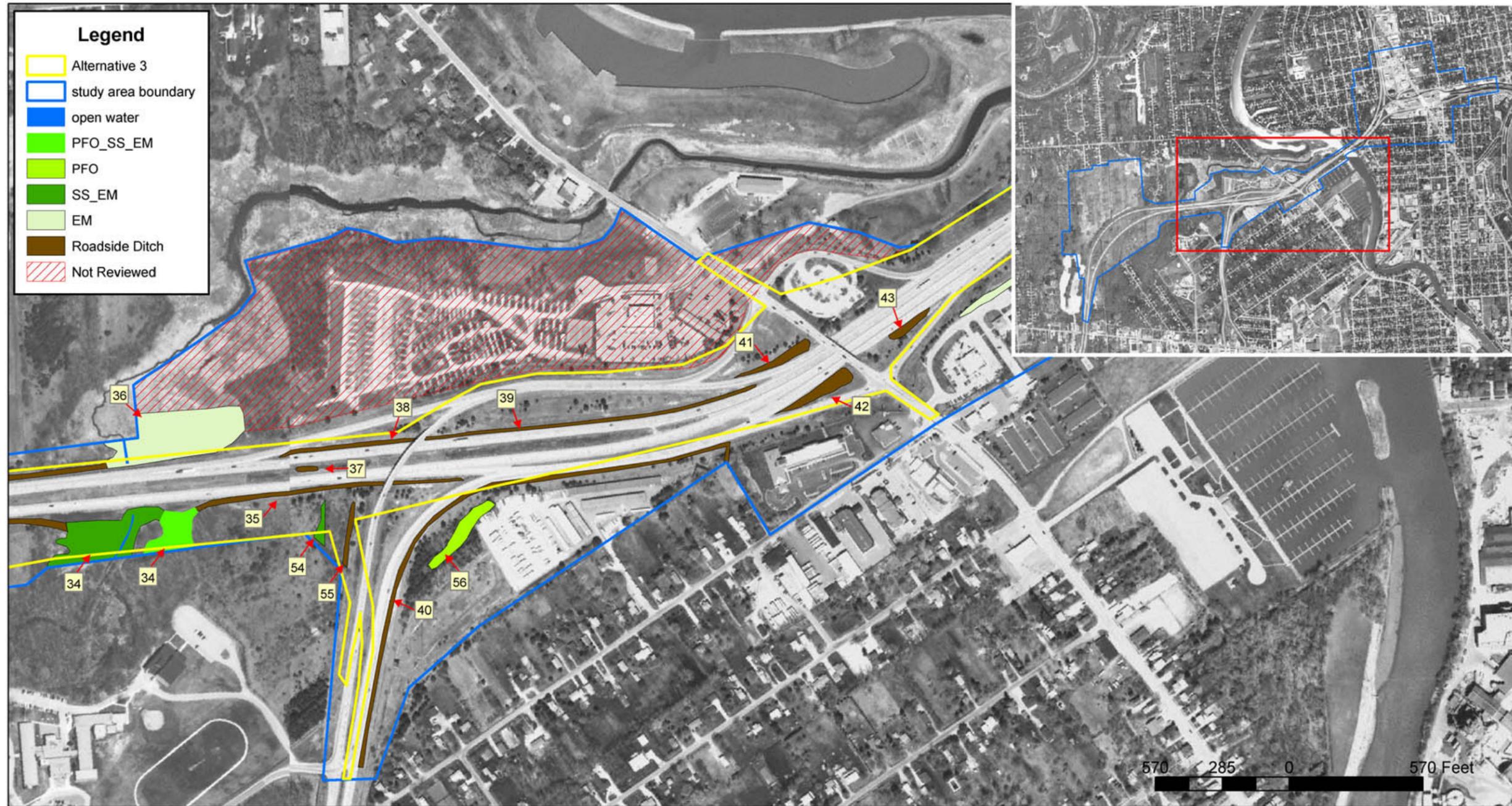




Location of Wetland Complexes Relative to Blue Water Bridge Plaza Alternative 3; Western 1/3 of the Study Area.

 <p>Wetland and Coastal Resources, Inc 5801 W. Michigan Ave. Lansing, MI 48917</p>	<p>Wilbur Smith Associates</p>	<p>AJS</p>	<p>FIGURE NO.</p>
	<p>Blue Water Bridge Plaza Study</p>	<p>06/15/04</p>	<p>3.8</p>





Location of Wetland Complexes Relative to Blue Water Bridge Plaza Alternative 3; Central portion of the Study Area.

 <p>Wetland and Coastal Resources, Inc 5801 W. Michigan Ave. Lansing, MI 48917</p>	<p>Wilbur Smith Associates</p>	<p>AJS</p>	<p>FIGURE NO.</p>
	<p>Blue Water Bridge Plaza Study</p>	<p>06/15/04</p>	<p>3.9</p>





Location of Wetland Complexes and Wetland Types Delineated and Assessed within the Eastern 1/3 of the Study Area.

 <p>Wetland and Coastal Resources, Inc 5801 W. Michigan Ave. Lansing, MI 48917</p>	<p>Wilbur Smith Associates</p>	AJS	FIGURE NO.
	<p>Blue Water Bridge Plaza Study</p>	06/15/04	3.10



APPENDIX B

Correspondence

ATTACHMENT B-1

T&E Species, DNR Letter



STATE OF MICHIGAN

DEPARTMENT OF NATURAL RESOURCES
LANSINGJOHN ENGLER
GOVERNORK. L. COOL
DIRECTOR

December 16, 2002

RECEIVED
DEC 20 2002

Mr. Stu Kogge
Wetland and Coastal Resources
5801 West Michigan Ave.
Lansing, MI 48917

Dear Mr. Kogge

The location for which you requested an environmental review was checked against known localities for rare species and unique natural features, which are recorded in a statewide database. This continuously updated database is a comprehensive source of information on Michigan's endangered, threatened and special concern species, exemplary natural communities and other unique natural features. Records in the database indicate that a qualified observer has documented the presence of special natural features at a site. The absence of records may mean that a site has not been surveyed. Records may not always be up-to-date. In some cases, the only way to obtain a definitive statement on the presence of rare species is to have a competent biologist perform a field survey. Projects that are submitted to the Department of Environmental Quality are routinely checked for such features regardless if they are on public or private land.

Under Act 451 of 1994, the Natural Resources and Environmental Protection Act, Part 365, Endangered Species Protection, "a person shall not take, possess, transport, ...fish, plants, and wildlife indigenous to the state and determined to be endangered or threatened," unless first receiving an Endangered Species Permit from the Department of Natural Resources, Wildlife Division. *Responsibility to protect endangered and threatened species is not limited to the list below. Other species may be present that have not been recorded in the database.*

The presence of threatened or endangered species does not preclude activities or development, but may require alterations in the project plan. Special concern species are not protected under endangered species legislation, but recommendations regarding their protection may be provided. Protection of special concern species will help prevent them from declining to the point of being listed as threatened or endangered in the future.

The following is a summary of the results for the project in St. Clair County, T7N R17E sections 33-35 and T6N R17E Sections 4-5.

The following list includes special features that are known to occur on or near the site(s) and may be impacted by the project.

common name	status	scientific name
Spotted turtle	State threatened	<i>Clemmys guttata</i>
Round hickory-nut	State endangered	<i>Obovaria subrotunda</i>

The state threatened **spotted turtle** (*Clemmys guttata*) has been known to occur in the wetlands associated with Stocks Creek, though the record is quite old (1934). Spotted turtles inhabit shallow ponds, wet meadows, tamarack swamps, bogs, fens, marsh channels, sphagnum seepages, and slow streams. Common qualities of occupied habitats include clear, shallow water with a mud or muck bottom and ample aquatic and emergent vegetation. Spotted turtles often wander on land and may turn up in temporary ponds. Spotted turtles are difficult to find in summer, due to reduced movement and lack of basking activity. When frightened while in or adjacent to water, they will dive to the bottom and bury themselves

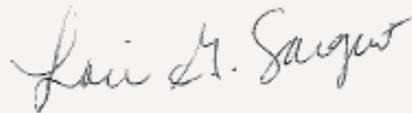
the mud or beneath vegetation. They typically hibernate in shallow water from mid-October to late March.

Spotted turtles are omnivorous, but with a decided preference for animal food. June is the primary month females leave their drying pools to nest. They will seek a sunny, open spot with sandy or loamy soil that is moist but well drained to lay eggs. If such places are scarce, they may nest in grassy sites or in the tops of grass or sedge hummocks. Most spotted turtle hatchlings emerge from the nest in August or September. These hatchlings will reach maturity in 8-10 years. Protection of upland nesting habitat adjacent to identified and active core wetland habitats is required for the continued survival of this species.

The state endangered **round hickory-nut mussel** (*Obovaria subrotunda*) has been known to inhabit the Black River, though the record is quite old (1930). This mussel inhabits medium-sized streams in sand and gravel in areas with moderate flow.

Thank you for your advance coordination in addressing the protection of Michigan's natural resource heritage. If you have further questions, please call me at 517-373-1263.

Sincerely,



Lori G. Sargent
Endangered Species Specialist
Wildlife Division

LGS:kpg

ATTACHMENT B-2

County Element List

St. Clair County Element List

Current as of 5-7-2004

Scientific Name	Common Name	Federal Status	State Status*
<i>Acipenser fulvescens</i>	Lake Sturgeon		T
<i>Agalinis gattereri</i>	Gatterer's Gerardia		E
<i>Agalinis skinneriana</i>	Skinner's Gerardia		E
<i>Alasmidonta marginata</i>	Elktoe		SC
<i>Alasmidonta viridis</i>	Slippershell Mussel		SC
<i>Ammocrypta pellucida</i>	Eastern Sand Darter		T
<i>Ammodramus henslowii</i>	Henslow's Sparrow		T
<i>Aristida longespica</i>	Three-awned Grass		T
<i>Asclepias purpurascens</i>	Purple Milkweed		SC
<i>Asclepias sullivantii</i>	Sullivant's Milkweed		T
<i>Baptisia lactea</i>	White or Prairie False Indigo		SC
<i>Beckmannia syzigachne</i>	Slough Grass		T
<i>Botaurus lentiginosus</i>	American Bittern		SC
<i>Callitriche heterophylla</i>	Large Water-starwort		T
<i>Carex festucacea</i>	Fescue Sedge		SC
<i>Carex platyphylla</i>	Broad-leaved Sedge		T
<i>Castanea dentata</i>	American Chestnut		E
<i>Chlidonias niger</i>	Black Tern		SC
<i>Cirsium hillii</i>	Hill's Thistle		SC
<i>Clemmys guttata</i>	Spotted Turtle		T
<i>Cuscuta indecora</i>	Dodder		SC
<i>Cypripedium candidum</i>	White Lady-slipper		T
<i>Dalea purpurea</i>	Purple Prairie-clover		X
Delta	Geographical Feature		
<i>Dendroica cerulea</i>	Cerulean Warbler		SC
<i>Dentaria maxima</i>	Large Toothwort		T
<i>Diarrhena americana</i>	Beak Grass		T
<i>Draba reptans</i>	Creeping Whitlow-grass		T
<i>Elaphe vulpina gloydi</i>	Eastern Fox Snake		T
<i>Epioblasma triquetra</i>	Snuffbox		E
<i>Euonymus atropurpurea</i>	Wahoo		SC
<i>Fimbristylis puberula</i>	Chestnut Sedge		X
<i>Flexamia delongi</i>	Leafhopper		SC
<i>Flexamia reflexus</i>	Leafhopper		SC
<i>Galearis spectabilis</i>	Showy Orchis		T
<i>Gallinula chloropus</i>	Common Moorhen	PS	SC
<i>Gentiana flavida</i>	White Gentian		E
<i>Gentianella quinquefolia</i>	Stiff Gentian		T
Great blue heron rookery	Great Blue Heron Rookery		
Great lakes marsh			
<i>Gymnocarpium robertianum</i>	Limestone Oak Fern		T
<i>Haliaeetus leucocephalus</i>	Bald Eagle	PS:LT,PDL	T
<i>Hemicarpha micrantha</i>	Dwarf-bulrush		SC
<i>Hiodon tergisus</i>	Mooneye		T
<i>Hydrastis canadensis</i>	Goldenseal		T

Scientific Name	Common Name	Federal Status	State Status*
<i>Hypericum gentianoides</i>	Gentian-leaved St. John's-wort		SC
<i>Ixobrychus exilis</i>	Least Bittern		T
<i>Jeffersonia diphylla</i>	Twinleaf		SC
<i>Juncus brachycarpus</i>	Short-fruited Rush		T
Lakeplain oak openings			
Lakeplain wet prairie	Alkaline Wet Prairie, Midwest Type		
Lakeplain wet-mesic prairie	Alkaline Tallgrass Prairie, Midwest Type		
<i>Lampsilis fasciola</i>	Wavy-rayed Lampmussel		T
<i>Lithospermum incisum</i>	Narrow-leaved Puccoon		X
<i>Lithospermum latifolium</i>	Broad-leaved Puccoon		SC
<i>Ludwigia alternifolia</i>	Seedbox		SC
<i>Lycopodiella subappressa</i>	Northern Appressed Clubmoss		SC
<i>Macrhybopsis storeriana</i>	Silver Chub		SC
Mesic northern forest			
<i>Monarda didyma</i>	Oswego Tea		X
<i>Moxostoma carinatum</i>	River Redhorse		T
<i>Notropis anogenus</i>	Pugnose Shiner		SC
<i>Noturus miurus</i>	Brindled Madtom		SC
<i>Noturus stigmosus</i>	Northern Madtom		E
<i>Obovaria subrotunda</i>	Round Hickorynut		E
<i>Panax quinquefolius</i>	Ginseng		T
<i>Panicum leibergii</i>	Leiberg's Panic-grass		T
<i>Papaipema beeriana</i>	Blazing Star Borer		SC
<i>Papaipema sciata</i>	Culvers Root Borer		SC
<i>Penstemon calycosus</i>	Smooth Beard Tongue		T
<i>Percina copelandi</i>	Channel Darter		E
<i>Plantago cordata</i>	Heart-leaved Plantain		E
<i>Platanthera ciliaris</i>	Orange or Yellow Fringed Orchid		T
<i>Platanthera leucophaea</i>	Prairie Fringed Orchid		E
<i>Pleurobema coccineum</i>	Round Pigtoe		SC
<i>Poa paludigena</i>	Bog Bluegrass		T
<i>Polygala cruciata</i>	Cross-leaved Milkwort		SC
<i>Polygala incarnata</i>	Pink Milkwort		X
<i>Polygonatum biflorum</i> var. <i>melleum</i>	Honey-flowered Solomon-seal		X
<i>Polygonum careyi</i>	Carey's Smartweed		T
<i>Prosapia ignipectus</i>	Red-legged Spittlebug		SC
<i>Pterospora andromedea</i>	Pine-drops		T
<i>Rallus elegans</i>	King Rail		E
<i>Ranunculus ambigens</i>	Spearwort		T
<i>Ranunculus rhomboideus</i>	Prairie Buttercup		T
<i>Scirpus clintonii</i>	Clinton's Bulrush		SC

Scientific Name	Common Name	Federal Status	State Status*
<i>Scleria pauciflora</i>	Few-flowered Nut-rush		E
<i>Scleria triglomerata</i>	Tall Nut-rush		SC
<i>Seiurus motacilla</i>	Louisiana Waterthrush		SC
<i>Simpsonias ambigua</i>	Salamander Mussel		E
<i>Solidago bicolor</i>	White Goldenrod		SC
Southern swamp			
<i>Sterna forsteri</i>	Forster's Tern		SC
<i>Sterna hirundo</i>	Common Tern		T
<i>Stizostedion canadense</i>	Sauger		T
<i>Trillium undulatum</i>	Painted Trillium		E
<i>Triplasis purpurea</i>	Sand Grass		SC
<i>Villosa fabalis</i>	Rayed Bean		E
<i>Villosa iris</i>	Rainbow		SC
<i>Vitis vulpina</i>	Frost Grape		T
<i>Wilsonia citrina</i>	Hooded Warbler		SC

*T = Threatened; E = Endangered; Sc = Special Concern; X = Extrapated

Source: Michigan Natural Features Inventory

APPENDIX C

Tables

ATTACHMENT C-1

Table 2.1

Wetland Function and Value Ratings

Table 2.1 Wetland Function and Value Ratings

Wetland Functions/Values	Relative Ratings for Wetland Functions and Values			
	0	1	2	3
Flood and storm water control	Provides no value/function	Provides minimal stormwater control	Provides moderate stormwater control	Provides a high degree of stormwater control
Wildlife habitat for mammals	Provides no value/function	Provides a minimal amount of, and/or low quality habitat for mammals	Provides a moderate amount of, and/or moderate quality habitat for mammals	Provides a large amount of, and/or high quality habitat for mammals
Wildlife habitat for waterfowl	Provides no value/function	Provides a minimal amount of, and/or low quality habitat for waterfowl	Provides a moderate amount of, and/or moderate quality habitat for waterfowl	Provides a large amount of, and/or high quality habitat for waterfowl
Wildlife habitat for amphibians and reptiles	Provides no value/function	Provides a minimal amount of, and/or low quality habitat for amphibians or reptiles	Provides a moderate amount of, and/or moderate quality habitat for amphibians or reptiles	Provides a large amount of, and/or high quality habitat for amphibians or reptiles
Wildlife habitat for songbirds	Provides no value/function	Provides a minimal amount of, and/or low quality habitat for songbirds	Provides a moderate amount of, and/or moderate quality habitat for songbirds	Provides a large amount of, and/or high quality habitat for songbirds
Fish habitat	Provides no value/function	Provides a minimal amount of, and/or low quality habitat for fish	Provides a moderate amount of, and/or moderate quality habitat for fish	Provides a large amount of, and/or high quality habitat for fish
Supports State listed endangered, threatened, or special concern plants or animals	Does not support or contain habitat for State listed endangered, threatened, or special concern plants or animals	Contains habitat for State listed endangered, threatened, or special concern plants or animals but not preferred habitat	Contains habitat for State listed endangered, threatened, or special concern plants or animals	State listed endangered or threatened plants or animals identified within wetland
Supports Federally listed endangered or threatened plants or animals	Does not support or contain habitat for Federally listed endangered or threatened plants or animals	Contains habitat for Federally listed endangered or threatened plants or animals, but not preferred habitat	Contains preferred habitat for Federally listed endangered or threatened plants or animals	Federally listed endangered or threatened plants or animals found to be present within wetland
Protection of subsurface water resources (groundwater recharge/discharge)	Provides no value/function	Provides minimal groundwater recharge or discharge	Provides moderate groundwater recharge or discharge	Provides high degree of groundwater recharge or discharge
Filtration and nutrient uptake	Provides no value/function	Provides minimal nutrient uptake	Provides moderate nutrient uptake	Provides high degree of nutrient uptake
Pollution treatment (biological and chemical oxidation basin)	Provides no value/function	Provides minimal pollution treatment	Provides moderate pollution treatment	Provides high degree of pollution treatment

Wetland Functions/Values	Relative Ratings for Wetland Functions and Values			
	0	1	2	3
Erosion control	Provides no value/function	Provides minimal erosion control	Provides moderate erosion control	Provides high degree of erosion control
Provide nutrient inputs for downgradient water food cycles	Provides no value/function or downstream waters are eutrophic	Provides minimal nutrients for food cycles needed downgradient	Provides moderate nutrients for food cycles needed downgradient	Provides high degree of nutrients for food cycles needed downgradient
Aesthetics; Natural beauty	Provides no aesthetic value	Provides minimal aesthetic value	Provides aesthetic value	Provides high degree of aesthetic value

ATTACHMENT C-2

Table 3.1

Wetland Delineation Flag Numbers and Wetland Classifications

Table 3.1 Wetland Delineation Flag Numbers and Wetland Classifications

Wetland Complex	Flag Numbers	Wetland Classification*
1	AD1 to AD40	PFO/SS/EM
2	S1 to S26	PFO/SS
3	Q1 to Q72	PFO
4	R1 to R7	PFO
5	AB1 to AB 26	PFO
6	AB1 to AB26	PFO
7	DD51 to DD55 (includes flag numbers DD51; DD51.1-51.33; DD52-55; DD55.1-55.14)	PFO
8	AC1 to AC14	PSS
9	N1 to N7 & P1 to P16 & O1-O26	PSS/EM
10	M1 to M7	PEM
11	K1 to K8	PSS/EM
12	L1 to L5	PSS/EM
13	J1 to J26	Aquatic Bed (Open Water Pond with PEM Fringe)
14	I1 to I15	PEM
15	F1 to F30 & G1 to G19	PSS/EM
16	H1 to H13	PEM
17	CC1 to CC65 & DD1 to DD115 (excluding DD51-DD55)	PEM ROADSIDE DITCH
18	EE1 to EE 26 & FF1 to FF32	PEM ROADSIDE DITCH
19	OO1 to OO25 & NN1 to NN25	PEM ROADSIDE DITCH
20	RR1 to RR7 & SS1 to SS7	PEM ROADSIDE DITCH
21	PP1 to PP25 & QQ1 to QQ23	PEM ROADSIDE DITCH
22	AQ1 to AQ34	PEM
23	AS1 to AS37 & AT1 to AT17	PSS/EM – linear ditches
24	AU1 to AU11	PSS
25	AV1 to AV10	PFO
26	AZ1 to AZ100 & AY1 to AY11	PFO/SS
27	AX1 to AX23	PFO/SS/EM
28	AW1 to AW52 & AR1 to AR34	PFO/SS/EM
29	AP1 to AP9	PFO/EM
30	AO1 to AO9	PFO

Wetland Complex	Flag Numbers	Wetland Classification*
31	AN1 to AN23	PFO/SS
32	UNFLAGGED	PSS/EM
33	UNFLAGGED	PSS
34	QQ23 to QQ32 & VV1 to VV44 & PP25 to PP33	PFO/SS/EM/ Riverine
35	PP33 to PP57 & VV44 to VV56	PEM ROADSIDE DITCH
36	AA1 to AA36 & BB1 to BB33	PEM
37	Not Flagged	PEM ROADSIDE DITCH
38	CB1 to CB15	PEM ROADSIDE DITCH
39	YY1 to YY18 & ZZ1 to ZZ15	PEM ROADSIDE DITCH
40	TT1 to TT33 & UU1 to UU39	PEM ROADSIDE DITCH
41	WW1 to WW11 & XX1 to XX6	PEM ROADSIDE DITCH
42	RR1 to RR11 & SS1 to SS11	PEM ROADSIDE DITCH
43	Not Flagged	PEM ROADSIDE DITCH
44	BBB1 to BBB31 & DDD1 to DDD24	PEM
45	CCC1 to CCC52	PEM
46	AAA1 to AAA19	PEM
47	EEE1 to EEE26	PEM
48	A1 to A7	PEM pocket
49	FFF1 to FFF6	PSS pocket
50	B1 to B28	PEM ROADSIDE DITCH
51	C1 to C22	PEM ROADSIDE DITCH
52	D1 to D24	PEM ROADSIDE DITCH
53	E1 to E8	PEM ROADSIDE DITCH
54	ABB 1-8 AND ABC 1-9	PSS/EM
55	ABD 1-6	PEM ROADSIDE DITCH
56	ZZZ 1-64	PFO

*PFO, PSS, PEM refer to Palustrine forested, emergent, and scrub shrub respectively

ATTACHMENT C-3

Table 3.2

Approximate Size of Wetlands within Boundaries of Blue Water Bridge Study Area

Table 3.2 Approximate Size of Wetlands within Boundaries of Blue Water Bridge Study Area

Wetland Complex	Total Size (acres delineated)	Wetland Classification*
1	0.63	PFO/SS/EM
2	0.17	PFO/SS
3	0.81	PFO
4	0.02	PFO
5	0.15	PFO
6	0.20	PFO
7	0.23	PFO
8	0.18	PSS
9	0.32	PSS/EM
10	0.06	PEM
11	0.03	PSS/EM
12	0.08	PSS/EM
13	0.62	OPEN WATER POND W/ EM FRINGE
14	0.05	PEM
15	0.67	PSS/EM
16	0.06	PEM
17	2.44	PEM ROADSIDE DITCH
18	0.85	PEM ROADSIDE DITCH
19	0.75	PEM ROADSIDE DITCH
20	0.46	PEM ROADSIDE DITCH
21	0.90	PEM ROADSIDE DITCH
22	0.27	PEM
23	0.14	PSS/EM- (Linear Ditches)
24	0.06	PSS
25	0.01	PFO
26	1.02	PFO/SS
27	0.08	PFO/SS/EM
28	0.37	PFO/SS/EM
29	0.04	PFO/EM
30	0.04	PFO
31	0.43	PFO/SS
32	0.00	PSS/EM
33	0.00	PSS
34	2.05	PFO/SS/EM/OPEN WATER (Riverine)
35	0.44	PEM ROADSIDE DITCH
36	2.32	PEM

Wetland Complex	Total Size (acres delineated)	Wetland Classification*
37	0.04	PEM ROADSIDE DITCH
38	0.22	PEM ROADSIDE DITCH
39	0.45	PEM ROADSIDE DITCH
40	0.99	PEM ROADSIDE DITCH
41	0.23	PEM ROADSIDE DITCH
42	0.34	PEM ROADSIDE DITCH
43	0.14	PEM ROADSIDE DITCH
44	0.66	PEM
45	0.22	PEM
46	0.06	PEM
47	0.35	PEM
48	0.02	PEM
49	0.02	PSS
50	0.10	PEM ROADSIDE DITCH
51	0.16	PEM ROADSIDE DITCH
52	0.11	PEM ROADSIDE DITCH
53	0.10	PEM ROADSIDE DITCH
54	0.11	PSS/EM
55	0.12	PEM ROADSIDE DITCH
56	0.42	PFO
Total	21.81	

*PFO, PSS, PEM refer to Palustrine forested, emergent, and scrub shrub respectively

ATTACHMENT C-4

Table 3.3

Plant Species Lists for Wetland Complexes

Table 3.3 Plant Species Lists for Wetland Complexes

Wetland Complex	Scientific Name	Common Name	C	Wetness	Physiognomy
Wetland Complex 1	<i>Aster lanceolatus</i>	EASTERN LINED ASTER	2	FACW	Nt P-Forb
	<i>Aster novae-angliae</i>	NEW ENGLAND ASTER	3	FACW	Nt P-Forb
	<i>Cornus foemina</i>	GRAY DOGWOOD	1	FACW-	Nt Shrub
	<i>Euthamia graminifolia</i>	GRASS LEAVED GOLDENROD	3	FACW-	Nt P-Forb
	<i>Fraxinus pennsylvanica</i>	RED ASH	2	FACW	Nt Tree
	<i>Juncus effusus</i>	SOFT STEMMED RUSH	3	OBL	Nt P-Forb
	<i>LYTHRUM SALICARIA</i>	PURPLE LOOSESTRIFE	0	OBL	Ad P-Forb
	<i>Phalaris arundinacea</i>	REED CANARY GRASS	0	FACW+	Nt P-Grass
	<i>Polygonum virginianum</i>	JUMPSEED	4	FAC	Nt P-Forb
	<i>Populus deltoides</i>	COTTONWOOD	1	FAC+	Nt Tree
	<i>ROSA MULTIFLORA</i>	MULTIFLORA ROSE	0	FACU	Ad Shrub
	<i>Rubus strigosus</i>	WILD RED RASPBERRY	2	FACW-	Nt Shrub
	<i>Sambucus canadensis</i>	ELDERBERRY	3	FACW-	Nt Shrub
	<i>Scirpus cyperinus</i>	WOOL GRASS	5	OBL	Nt P-Sedge
	<i>SOLANUM DULCAMARA</i>	BITTERSWEET NIGHTSHADE	0	FAC	Ad P-Forb
	<i>Solidago gigantea</i>	LATE GOLDENROD	3	FACW	Nt P-Forb
	<i>Solidago rugosa</i>	ROUGH GOLDENROD	3	FAC+	Nt P-Forb
	<i>TYPHA ANGUSTIFOLIA</i>	NARROW LEAVED CATTAIL	0	OBL	Ad P-Forb
	<i>Typha latifolia</i>	BROAD LEAVED CATTAIL	1	OBL	Nt P-Forb
	<i>Ulmus americana</i>	AMERICAN ELM	1	FACW-	Nt Tree
	<i>Verbena hastata</i>	BLUE VERVAIN	4	FACW+	Nt P-Forb
	<i>Viburnum lentago</i>	NANNYBERRY	4	FAC+	Nt Shrub
	<i>Vitis riparia</i>	RIVERBANK GRAPE	3	FACW-	Nt W-Vine
Wetland Complex 2	<i>Alnus rugosa</i>	TAG ALDER	5	OBL	Nt Shrub
	<i>Boehmeria cylindrica</i>	FALSE NETTLE	5	OBL	Nt P-Forb

Wetland Complex	Scientific Name	Common Name	C	Wetness	Physiognomy
Wetland Complex 2	<i>Carex crinita</i>	SEDGE	4	FACW+	Nt P-Sedge
Continued	<i>Carex lacustris</i>	SEDGE	6	OBL	Nt P-Sedge
	<i>Carex stipata</i>	SEDGE	1	OBL	Nt P-Sedge
	<i>Cornus foemina</i>	GRAY DOGWOOD	1	FACW-	Nt Shrub
	<i>Echinochloa muricata</i>	BARNYARD GRASS	1	OBL	Nt A-Grass
	<i>Eupatorium perfoliatum</i>	COMMON BONESET	4	FACW+	Nt P-Forb
	<i>Fraxinus pennsylvanica</i>	RED ASH	2	FACW	Nt Tree
	<i>Geum canadense</i>	WHITE AVENS	1	FAC	Nt P-Forb
	<i>Ilex verticillata</i>	MICHIGAN HOLLY	5	FACW+	Nt Shrub
	<i>Impatiens capensis</i>	SPOTTED TOUCH ME NOT	2	FACW	Nt A-Forb
	<i>Juncus effusus</i>	SOFT STEMMED RUSH	3	OBL	Nt P-Forb
	<i>Lemna minor</i>	SMALL DUCKWEED	5	OBL	Nt A-Forb
	LYTHRUM SALICARIA	PURPLE LOOSESTRIFE	0	OBL	Ad P-Forb
	<i>Mentha arvensis</i>	WILD MINT	3	FACW	Nt P-Forb
	<i>Onoclea sensibilis</i>	SENSITIVE FERN	2	FACW	Nt Fern
	<i>Polygonum virginianum</i>	JUMPSEED	4	FAC	Nt P-Forb
	<i>Populus deltoides</i>	COTTONWOOD	1	FAC+	Nt Tree
	PRUNELLA VULGARIS	LAWN PRUNELLA	0	FAC	Nt P-Forb
	<i>Quercus bicolor</i>	SWAMP WHITE OAK	8	FACW+	Nt Tree
	<i>Ribes americanum</i>	WILD BLACK CURRANT	6	FACW	Nt Shrub
	SALIX ALBA	WHITE WILLOW	0	FACW	Ad Tree
	<i>Salix nigra</i>	BLACK WILLOW	5	OBL	Nt Tree
	<i>Solidago gigantea</i>	LATE GOLDENROD	3	FACW	Nt P-Forb
	<i>Solidago rugosa</i>	ROUGH GOLDENROD	3	FAC+	Nt P-Forb
	<i>Toxicodendron radicans</i>	POISON IVY	2	FAC+	Nt W-Vine
	TYPHA ANGUSTIFOLIA	NARROW LEAVED CATTAIL	0	OBL	Ad P-Forb
	<i>Viburnum lentago</i>	NANNYBERRY	4	FAC+	Nt Shrub
	<i>Viburnum opulus var. americanum</i>	HIGHBUSH CRANBERRY	5	FACW	Nt Shrub

Wetland Complex	Scientific Name	Common Name	C	Wetness	Physiognomy
Wetland Complex 2	<i>Vitis riparia</i>	RIVERBANK GRAPE	3	FACW-	Nt W-Vine
Continued					
Wetland Complex 3	<i>Acer rubrum</i>	RED MAPLE	1	FAC	Nt Tree
	<i>Aster lanceolatus</i>	EASTERN LINED ASTER	2	FACW	Nt P-Forb
	<i>Aster lateriflorus</i>	SIDE FLOWERING ASTER	2	FACW-	Nt P-Forb
	<i>Aster novae-angliae</i>	NEW ENGLAND ASTER	3	FACW	Nt P-Forb
	<i>Boehmeria cylindrica</i>	FALSE NETTLE	5	OBL	Nt P-Forb
	<i>Carex bebbii</i>	SEDGE	4	OBL	Nt P-Sedge
	<i>Carex lupulina</i>	SEDGE	4	OBL	Nt P-Sedge
	<i>Carpinus caroliniana</i>	BLUE BEECH	6	FAC	Nt Tree
	<i>CELASTRUS ORBICULATA</i>	ORIENTAL BITTERSWEET	0	UPL	Ad W-Vine
	<i>Celtis occidentalis</i>	HACKBERRY	5	FAC-	Nt Tree
	<i>Chelone glabra</i>	TURTLEHEAD	7	OBL	Nt P-Forb
	<i>Circaea lutetiana</i>	ENCHANTER'S NIGHTSHADE	2	FACU	Nt P-Forb
	<i>Erigeron philadelphicus</i>	MARSH FLEABANE	2	FACW	Nt P-Forb
	<i>Euthamia graminifolia</i>	GRASS LEAVED GOLDENROD	3	FACW-	Nt P-Forb
	<i>Fraxinus nigra</i>	BLACK ASH	6	FACW+	Nt Tree
	<i>Fraxinus pennsylvanica</i>	RED ASH	2	FACW	Nt Tree
	<i>Geum canadense</i>	WHITE AVENS	1	FAC	Nt P-Forb
	<i>Geum laciniatum</i>	ROUGH AVENS	2	FACW	Nt P-Forb
	<i>Glyceria striata</i>	FOWL MANNA GRASS	4	OBL	Nt P-Grass
	<i>Impatiens capensis</i>	SPOTTED TOUCH ME NOT	2	FACW	Nt A-Forb
	<i>Iris virginica</i>	SOUTHERN BLUE FLAG	5	OBL	Nt P-Forb
	<i>Juncus effusus</i>	SOFT STEMMED RUSH	3	OBL	Nt P-Forb
	<i>Juncus tenuis</i>	PATH RUSH	1	FAC	Nt P-Forb
	<i>Mentha arvensis</i>	WILD MINT	3	FACW	Nt P-Forb
	<i>Osmunda regalis</i>	ROYAL FERN	5	OBL	Nt Fern
	<i>POA COMPRESSA</i>	CANADA BLUEGRASS	0	FACU+	Ad P-Grass
	<i>PRUNELLA VULGARIS</i>	LAWN PRUNELLA	0	FAC	Nt P-Forb

Wetland Complex	Scientific Name	Common Name	C	Wetness	Physiognomy
Wetland Complex 3	<i>Prunus virginiana</i>	CHOKE CHERRY	2	FAC-	Nt Shrub
Continued	<i>Quercus macrocarpa</i>	BUR OAK	5	FAC-	Nt Tree
	<i>Ribes americanum</i>	WILD BLACK CURRANT	6	FACW	Nt Shrub
	<i>Scirpus atrovirens</i>	BULRUSH	3	OBL	Nt P-Sedge
	<i>Scirpus cyperinus</i>	WOOL GRASS	5	OBL	Nt P-Sedge
	<i>SOLANUM DULCAMARA</i>	BITTERSWEET NIGHTSHADE	0	FAC	Ad P-Forb
	<i>Solidago gigantea</i>	LATE GOLDENROD	3	FACW	Nt P-Forb
	<i>Solidago rugosa</i>	ROUGH GOLDENROD	3	FAC+	Nt P-Forb
	<i>Toxicodendron radicans</i>	POISON IVY	2	FAC+	Nt W-Vine
	<i>Viburnum lentago</i>	NANNYBERRY	4	FAC+	Nt Shrub
	<i>Viburnum opulus var. americanum</i>	HIGHBUSH CRANBERRY	5	FACW	Nt Shrub
Wetland Complex 4	<i>Aster lanceolatus</i>	EASTERN LINED ASTER	2	FACW	Nt P-Forb
	<i>Aster lateriflorus</i>	SIDE FLOWERING ASTER	2	FACW-	Nt P-Forb
	<i>Carex vulpinoidea</i>	SEDGE	1	OBL	Nt P-Sedge
	<i>Chelone glabra</i>	TURTLEHEAD	7	OBL	Nt P-Forb
	<i>Erechtites hieracifolia</i>	FIREWEED	2	FACU	Nt A-Forb
	<i>Eupatorium perfoliatum</i>	COMMON BONESET	4	FACW+	Nt P-Forb
	<i>Fraxinus pennsylvanica</i>	RED ASH	2	FACW	Nt Tree
	<i>Glyceria striata</i>	FOWL MANNA GRASS	4	OBL	Nt P-Grass
	<i>Impatiens capensis</i>	SPOTTED TOUCH ME NOT	2	FACW	Nt A-Forb
	<i>Lysimachia ciliata</i>	FRINGED LOOSESTRIFE	4	FACW	Nt P-Forb
	<i>Oxalis stricta</i>	COMMON YELLOW WOOD SORREL	0	FACU	Nt P-Forb
	<i>Panicum clandestinum</i>	PANIC GRASS	3	FACW	Nt P-Grass
	<i>Penthorum sedoides</i>	DITCH STONECROP	3	OBL	Nt P-Forb
	<i>Populus deltoides</i>	COTTONWOOD	1	FAC+	Nt Tree
	<i>PRUNELLA VULGARIS</i>	LAWN PRUNELLA	0	FAC	Nt P-Forb
	<i>Sambucus canadensis</i>	ELDERBERRY	3	FACW-	Nt Shrub

Wetland Complex	Scientific Name	Common Name	C	Wetness	Physiognomy
Wetland Complex 4	<i>SOLANUM DULCAMARA</i>	BITTERSWEET NIGHTSHADE	0	FAC	Ad P-Forb
Continued	<i>Solanum ptycanthum</i>	BLACK NIGHTSHADE	1	UPL	Nt A-Forb
	<i>Solidago altissima</i>	TALL GOLDENROD	1	FACU	Nt P-Forb
	<i>Solidago gigantea</i>	LATE GOLDENROD	3	FACW	Nt P-Forb
	<i>TARAXACUM OFFICINALE</i>	COMMON DANDELION	0	FACU	Ad P-Forb
	<i>TYPHA ANGUSTIFOLIA</i>	NARROW LEAVED CATTAIL	0	OBL	Ad P-Forb
Wetland Complex 5	<i>Aster lateriflorus</i>	SIDE FLOWERING ASTER	2	FACW-	Nt P-Forb
	<i>Aster novae-angliae</i>	NEW ENGLAND ASTER	3	FACW	Nt P-Forb
	<i>Bidens cernuus</i>	NODDING BUR MARIGOLD	3	OBL	Nt A-Forb
	<i>Carex granularis</i>	SEDGE	2	FACW+	Nt P-Sedge
	<i>Euthamia graminifolia</i>	GRASS LEAVED GOLDENROD	3	FACW-	Nt P-Forb
	<i>Fraxinus pennsylvanica</i>	RED ASH	2	FACW	Nt Tree
	<i>Glyceria striata</i>	FOWL MANNA GRASS	4	OBL	Nt P-Grass
	<i>Penthorum sedoides</i>	DITCH STONECROP	3	OBL	Nt P-Forb
	<i>PRUNELLA VULGARIS</i>	LAWN PRUNELLA	0	FAC	Nt P-Forb
	<i>Scirpus atrovirens</i>	BULRUSH	3	OBL	Nt P-Sedge
	<i>Solidago gigantea</i>	LATE GOLDENROD	3	FACW	Nt P-Forb
	<i>Solidago rugosa</i>	ROUGH GOLDENROD	3	FAC+	Nt P-Forb
	<i>Ulmus americana</i>	AMERICAN ELM	1	FACW-	Nt Tree
Wetland Complex 6	<i>Aster lanceolatus</i>	EASTERN LINED ASTER	2	FACW	Nt P-Forb
	<i>Aster lateriflorus</i>	SIDE FLOWERING ASTER	2	FACW-	Nt P-Forb
	<i>Aster novae-angliae</i>	NEW ENGLAND ASTER	3	FACW	Nt P-Forb
	<i>Carex debilis</i>	SWAMP SEDGE	6	FACW	Nt P-Sedge
	<i>Fraxinus pennsylvanica</i>	RED ASH	2	FACW	Nt Tree
	<i>Salix eriocephala</i>	WILLOW	2	FACW	Nt Shrub
	<i>SOLANUM DULCAMARA</i>	BITTERSWEET NIGHTSHADE	0	FAC	Ad P-Forb
	<i>Solidago gigantea</i>	LATE GOLDENROD	3	FACW	Nt P-Forb

Wetland Complex	Scientific Name	Common Name	C	Wetness	Physiognomy
Wetland Complex 6	<i>Solidago rugosa</i>	ROUGH GOLDENROD	3	FAC+	Nt P-Forb
Continued	<i>Toxicodendron radicans</i>	POISON IVY	2	FAC+	Nt W-Vine
	<i>Ulmus americana</i>	AMERICAN ELM	1	FACW-	Nt Tree
Wetland Complex 7	<i>Aster lanceolatus</i>	EASTERN LINED ASTER	2	FACW	Nt P-Forb
	<i>Aster lateriflorus</i>	SIDE FLOWERING ASTER	2	FACW-	Nt P-Forb
	<i>Aster novae-angliae</i>	NEW ENGLAND ASTER	3	FACW	Nt P-Forb
	<i>Carex debilis</i>	SWAMP SEDGE	6	FACW	Nt P-Sedge
	<i>Fraxinus pennsylvanica</i>	RED ASH	2	FACW	Nt Tree
	<i>Salix eriocephala</i>	WILLOW	2	FACW	Nt Shrub
	SOLANUM DULCAMARA	BITTERSWEET NIGHTSHADE	0	FAC	Ad P-Forb
	<i>Solidago gigantea</i>	LATE GOLDENROD	3	FACW	Nt P-Forb
	<i>Solidago rugosa</i>	ROUGH GOLDENROD	3	FAC+	Nt P-Forb
	<i>Toxicodendron radicans</i>	POISON IVY	2	FAC+	Nt W-Vine
	<i>Ulmus americana</i>	AMERICAN ELM	1	FACW-	Nt Tree
Wetland Complex 8	<i>Aster lanceolatus</i>	EASTERN LINED ASTER	2	FACW	Nt P-Forb
	<i>Aster novae-angliae</i>	NEW ENGLAND ASTER	3	FACW	Nt P-Forb
	<i>Cornus foemina</i>	GRAY DOGWOOD	1	FACW-	Nt Shrub
	RUMEX CRISPUS	CURLY DOCK	0	FAC+	Ad P-Forb
	<i>Solidago gigantea</i>	LATE GOLDENROD	3	FACW	Nt P-Forb
	<i>Spiraea alba</i>	MEADOWSWEET	4	FACW+	Nt Shrub
	<i>Toxicodendron radicans</i>	POISON IVY	2	FAC+	Nt W-Vine
	<i>Viburnum lentago</i>	NANNYBERRY	4	FAC+	Nt Shrub
	<i>Vitis riparia</i>	RIVERBANK GRAPE	3	FACW-	Nt W-Vine
Wetland Complex 9	<i>Alisma plantago-aquatica</i>	WATER PLANTAIN	1	OBL	Nt P-Forb
	<i>Asclepias incarnata</i>	SWAMP MILKWEED	6	OBL	Nt P-Forb
	<i>Aster lanceolatus</i>	EASTERN LINED ASTER	2	FACW	Nt P-Forb

Wetland Complex	Scientific Name	Common Name	C	Wetness	Physiognomy
Wetland Complex 9	<i>Aster novae-angliae</i>	NEW ENGLAND ASTER	3	FACW	Nt P-Forb
Continued	<i>Carex vulpinoidea</i>	SEDGE	1	OBL	Nt P-Sedge
	<i>Chelone glabra</i>	TURTLEHEAD	7	OBL	Nt P-Forb
	<i>Cornus amomum</i>	SILKY DOGWOOD	2	FACW+	Nt Shrub
	<i>Cornus foemina</i>	GRAY DOGWOOD	1	FACW-	Nt Shrub
	<i>Echinochloa muricata</i>	BARNYARD GRASS	1	OBL	Nt A-Grass
	<i>Equisetum arvense</i>	COMMON HORSETAIL	0	FAC	Nt F...Ally
	<i>Euthamia graminifolia</i>	GRASS LEAVED GOLDENROD	3	FACW-	Nt P-Forb
	<i>Fraxinus pennsylvanica</i>	RED ASH	2	FACW	Nt Tree
	<i>Impatiens capensis</i>	SPOTTED TOUCH ME NOT	2	FACW	Nt A-Forb
	<i>Juncus tenuis</i>	PATH RUSH	1	FAC	Nt P-Forb
	<i>Lysimachia ciliata</i>	FRINGED LOOSESTRIFE	4	FACW	Nt P-Forb
	<i>Mimulus ringens</i>	MONKEY FLOWER	5	OBL	Nt P-Forb
	<i>Phalaris arundinacea</i>	REED CANARY GRASS	0	FACW+	Nt P-Grass
	<i>RHAMNUS FRANGULA</i>	GLOSSY BUCKTHORN	0	FAC+	Ad Shrub
	<i>RUMEX CRISPUS</i>	CURLY DOCK	0	FAC+	Ad P-Forb
	<i>Salix amygdaloides</i>	PEACH LEAVED WILLOW	3	FACW	Nt Tree
	<i>Salix eriocephala</i>	WILLOW	2	FACW	Nt Shrub
	<i>Scirpus atrovirens</i>	BULRUSH	3	OBL	Nt P-Sedge
	<i>Scirpus cyperinus</i>	WOOL GRASS	5	OBL	Nt P-Sedge
	<i>SOLANUM DULCAMARA</i>	BITTERSWEET NIGHTSHADE	0	FAC	Ad P-Forb
	<i>Solidago gigantea</i>	LATE GOLDENROD	3	FACW	Nt P-Forb
	<i>Ulmus americana</i>	AMERICAN ELM	1	FACW-	Nt Tree
	<i>Viburnum lentago</i>	NANNYBERRY	4	FAC+	Nt Shrub
Wetland Complex 10	<i>AGROPYRON REPENS</i>	QUACK GRASS	0	FACU	Ad P-Grass
	<i>Ambrosia artemisiifolia</i>	COMMON RAGWEED	0	FACU	Nt A-Forb
	<i>Aster lanceolatus</i>	EASTERN LINED ASTER	2	FACW	Nt P-Forb
	<i>Erigeron annuus</i>	ANNUAL FLEABANE	0	FAC-	Nt B-Forb

Wetland Complex	Scientific Name	Common Name	C	Wetness	Physiognomy
Wetland Complex 10	<i>Euthamia graminifolia</i>	GRASS LEAVED GOLDENROD	3	FACW-	Nt P-Forb
Continued	<i>Juncus tenuis</i>	PATH RUSH	1	FAC	Nt P-Forb
	<i>LYTHRUM SALICARIA</i>	PURPLE LOOSESTRIFE	0	OBL	Ad P-Forb
	<i>PLANTAGO MAJOR</i>	COMMON PLANTAIN	0	FAC+	Ad P-Forb
	<i>POA COMPRESSA</i>	CANADA BLUEGRASS	0	FACU+	Ad P-Grass
	<i>Polygonum lapathifolium</i>	NODDING SMARTWEED	0	FACW+	Nt A-Forb
	<i>Populus deltoides</i>	COTTONWOOD	1	FAC+	Nt Tree
	<i>RUMEX CRISPUS</i>	CURLY DOCK	0	FAC+	Ad P-Forb
	<i>Solidago altissima</i>	TALL GOLDENROD	1	FACU	Nt P-Forb
Wetland Complex 11	<i>Acer saccharinum</i>	SILVER MAPLE	2	FACW	Nt Tree
	<i>Aster lanceolatus</i>	EASTERN LINED ASTER	2	FACW	Nt P-Forb
	<i>Aster novae-angliae</i>	NEW ENGLAND ASTER	3	FACW	Nt P-Forb
	<i>Cornus foemina</i>	GRAY DOGWOOD	1	FACW-	Nt Shrub
	<i>Equisetum arvense</i>	COMMON HORSETAIL	0	FAC	Nt F...Ally
	<i>Euthamia graminifolia</i>	GRASS LEAVED GOLDENROD	3	FACW-	Nt P-Forb
	<i>Phalaris arundinacea</i>	REED CANARY GRASS	0	FACW+	Nt P-Grass
	<i>Phragmites australis</i>	REED	0	FACW+	Nt P-Grass
	<i>Populus deltoides</i>	COTTONWOOD	1	FAC+	Nt Tree
	<i>SOLANUM DULCAMARA</i>	BITTERSWEET NIGHTSHADE	0	FAC	Ad P-Forb
Wetland Complex 12	<i>Acer negundo</i>	BOX ELDER	0	FACW-	Nt Tree
	<i>Cornus foemina</i>	GRAY DOGWOOD	1	FACW-	Nt Shrub
	<i>Impatiens capensis</i>	SPOTTED TOUCH ME NOT	2	FACW	Nt A-Forb
	<i>LYTHRUM SALICARIA</i>	PURPLE LOOSESTRIFE	0	OBL	Ad P-Forb
	<i>Phalaris arundinacea</i>	REED CANARY GRASS	0	FACW+	Nt P-Grass
Wetland Complex 13	<i>Aster lanceolatus</i>	EASTERN LINED ASTER	2	FACW	Nt P-Forb
	<i>Aster novae-angliae</i>	NEW ENGLAND ASTER	3	FACW	Nt P-Forb

Wetland Complex	Scientific Name	Common Name	C	Wetness	Physiognomy
Wetland Complex 13	<i>Bidens cernuus</i>	NODDING BUR MARIGOLD	3	OBL	Nt A-Forb
Continued	<i>Carex vulpinoidea</i>	SEDGE	1	OBL	Nt P-Sedge
	<i>Echinochloa muricata</i>	BARNYARD GRASS	1	OBL	Nt A-Grass
	<i>Equisetum arvense</i>	COMMON HORSETAIL	0	FAC	Nt F...Ally
	<i>Euthamia graminifolia</i>	GRASS LEAVED GOLDENROD	3	FACW-	Nt P-Forb
	<i>Juncus effusus</i>	SOFT STEMMED RUSH	3	OBL	Nt P-Forb
	<i>Juncus tenuis</i>	PATH RUSH	1	FAC	Nt P-Forb
	LYTHRUM SALICARIA	PURPLE LOOSESTRIFE	0	OBL	Ad P-Forb
	<i>Phalaris arundinacea</i>	REED CANARY GRASS	0	FACW+	Nt P-Grass
	<i>Phragmites australis</i>	REED	0	FACW+	Nt P-Grass
	<i>Populus deltoides</i>	COTTONWOOD	1	FAC+	Nt Tree
	<i>Salix amygdaloides</i>	PEACH LEAVED WILLOW	3	FACW	Nt Tree
	<i>Salix eriocephala</i>	WILLOW	2	FACW	Nt Shrub
	TYPHA ANGUSTIFOLIA	NARROW LEAVED CATTAIL	0	OBL	Ad P-Forb
Wetland Complex 14	<i>Ambrosia artemisiifolia</i>	COMMON RAGWEED	0	FACU	Nt A-Forb
	<i>Aster lanceolatus</i>	EASTERN LINED ASTER	2	FACW	Nt P-Forb
	<i>Aster novae-angliae</i>	NEW ENGLAND ASTER	3	FACW	Nt P-Forb
	<i>Bidens cernuus</i>	NODDING BUR MARIGOLD	3	OBL	Nt A-Forb
	<i>Conyza canadensis</i>	HORSEWEED	0	FAC-	Nt A-Forb
	DAUCUS CAROTA	QUEEN ANNE'S LACE	0	UPL	Ad B-Forb
	<i>Polygonum lapathifolium</i>	NODDING SMARTWEED	0	FACW+	Nt A-Forb
	<i>Populus deltoides</i>	COTTONWOOD	1	FAC+	Nt Tree
	SONCHUS ASPER	PRICKLY SOW THISTLE	0	FAC	Ad A-Forb
Wetland Complex 15	<i>Acer negundo</i>	BOX ELDER	0	FACW-	Nt Tree
	ALLIARIA PETIOLATA	GARLIC MUSTARD	0	FAC	Ad B-Forb
	<i>Aster lanceolatus</i>	EASTERN LINED ASTER	2	FACW	Nt P-Forb
	<i>Aster novae-angliae</i>	NEW ENGLAND ASTER	3	FACW	Nt P-Forb

Wetland Complex	Scientific Name	Common Name	C	Wetness	Physiognomy
Wetland Complex 15	<i>Cornus amomum</i>	SILKY DOGWOOD	2	FACW+	Nt Shrub
Continued	<i>Cornus foemina</i>	GRAY DOGWOOD	1	FACW-	Nt Shrub
	<i>Fraxinus pennsylvanica</i>	RED ASH	2	FACW	Nt Tree
	<i>Geum canadense</i>	WHITE AVENS	1	FAC	Nt P-Forb
	<i>Geum laciniatum</i>	ROUGH AVENS	2	FACW	Nt P-Forb
	<i>Phalaris arundinacea</i>	REED CANARY GRASS	0	FACW+	Nt P-Grass
	SOLANUM DULCAMARA	BITTERSWEET NIGHTSHADE	0	FAC	Ad P-Forb
	<i>Solidago gigantea</i>	LATE GOLDENROD	3	FACW	Nt P-Forb
	<i>Toxicodendron radicans</i>	POISON IVY	2	FAC+	Nt W-Vine
	<i>Vitis riparia</i>	RIVERBANK GRAPE	3	FACW-	Nt W-Vine
Wetland Complex 16	<i>Aster lanceolatus</i>	EASTERN LINED ASTER	2	FACW	Nt P-Forb
	CIRSIUM ARVENSE	CANADIAN THISTLE	0	FACU	Ad P-Forb
	<i>Cornus foemina</i>	GRAY DOGWOOD	1	FACW-	Nt Shrub
	<i>Phalaris arundinacea</i>	REED CANARY GRASS	0	FACW+	Nt P-Grass
	RUMEX CRISPUS	CURLY DOCK	0	FAC+	Ad P-Forb
	<i>Solidago gigantea</i>	LATE GOLDENROD	3	FACW	Nt P-Forb
	SONCHUS ASPER	PRICKLY SOW THISTLE	0	FAC	Ad A-Forb
	<i>Viburnum lentago</i>	NANNYBERRY	4	FAC+	Nt Shrub
	<i>Vitis riparia</i>	RIVERBANK GRAPE	3	FACW-	Nt W-Vine
Wetland Complex 17-21; 35; 37-43; 50-53, 55					
	<i>Aster lanceolatus</i>	EASTERN LINED ASTER	2	FACW	Nt P-Forb
	<i>Aster novae-angliae</i>	NEW ENGLAND ASTER	3	FACW	Nt P-Forb
	<i>Bidens cernuus</i>	NODDING BUR MARIGOLD	3	OBL	Nt A-Forb
	CIRSIUM ARVENSE	CANADIAN THISTLE	0	FACU	Ad P-Forb
	<i>Conyza canadensis</i>	HORSEWEED	0	FAC-	Nt A-Forb
	<i>Euthamia graminifolia</i>	GRASS LEAVED GOLDENROD	3	FACW-	Nt P-Forb
	<i>Fraxinus pennsylvanica</i>	RED ASH	2	FACW	Nt Tree

Wetland Complex	Scientific Name	Common Name	C	Wetness	Physiognomy	
Wetland Complex 17-21; 35; 37-43; 50-53, 55 Continued	<i>Glyceria striata</i>	FOWL MANNA GRASS	4	OBL	Nt P-Grass	
	<i>Impatiens capensis</i>	SPOTTED TOUCH ME NOT	2	FACW	Nt A-Forb	
	<i>Juncus tenuis</i>	PATH RUSH	1	FAC	Nt P-Forb	
	<i>Juncus torreyi</i>	TORREY'S RUSH	4	FACW	Nt P-Forb	
	LINARIA SPARTEA	BUTTER AND EGGS	0	UPL	Ad A-Forb	
	LYTHRUM SALICARIA	PURPLE LOOSESTRIFE	0	OBL	Ad P-Forb	
	NEPETA CATARIA	CATNIP	0	FAC-	Ad P-Forb	
	<i>Panicum capillare</i>	WITCH GRASS	1	FAC	Nt A-Grass	
	<i>Parthenocissus quinquefolia</i>	VIRGINIA CREEPER	5	FAC-	Nt W-Vine	
	<i>Phalaris arundinacea</i>	REED CANARY GRASS	0	FACW+	Nt P-Grass	
	<i>Phragmites australis</i>	REED	0	FACW+	Nt P-Grass	
	POLYGONUM PERSICARIA	LADY'S THUMB	0	FACW	Ad A-Forb	
	<i>Populus deltoides</i>	COTTONWOOD	1	FAC+	Nt Tree	
	RUMEX CRISPUS	CURLY DOCK	0	FAC+	Ad P-Forb	
	<i>Schoenoplectus americanus</i>	OLNEY'S BULRUSH	10	OBL	Nt P-Sedge	
	<i>Scirpus atrovirens</i>	BULRUSH	3	OBL	Nt P-Sedge	
	SOLANUM DULCAMARA	BITTERSWEET NIGHTSHADE	0	FAC	Ad P-Forb	
	TYPHA ANGUSTIFOLIA	NARROW LEAVED CATTAIL	0	OBL	Ad P-Forb	
	<i>Typha latifolia</i>	BROAD LEAVED CATTAIL	1	OBL	Nt P-Forb	
	<i>Verbena hastata</i>	BLUE VERVAIN	4	FACW+	Nt P-Forb	
	<i>Viburnum opulus var. americanum</i>	HIGHBUSH CRANBERRY	5	FACW	Nt Shrub	
	<i>Vitis aestivalis</i>	SUMMER GRAPE	6	FACU	Nt W-Vine	
	<i>Vitis riparia</i>	RIVERBANK GRAPE	3	FACW-	Nt W-Vine	
	Wetland Complex 22	<i>Apocynum cannabinum</i>	INDIAN HEMP	3	FAC	Nt P-Forb
		<i>Aster lanceolatus</i>	EASTERN LINED ASTER	2	FACW	Nt P-Forb
		<i>Bidens frondosus</i>	COMMON BEGGAR TICKS	1	FACW	Nt A-Forb

Wetland Complex	Scientific Name	Common Name	C	Wetness	Physiognomy
Wetland Complex 22	<i>Cornus amomum</i>	SILKY DOGWOOD	2	FACW+	Nt Shrub
Continued	<i>Cornus foemina</i>	GRAY DOGWOOD	1	FACW-	Nt Shrub
	<i>Euthamia graminifolia</i>	GRASS LEAVED GOLDENROD	3	FACW-	Nt P-Forb
	<i>Fraxinus pennsylvanica</i>	RED ASH	2	FACW	Nt Tree
	<i>Juncus effusus</i>	SOFT STEMMED RUSH	3	OBL	Nt P-Forb
	<i>Juncus torreyi</i>	TORREY'S RUSH	4	FACW	Nt P-Forb
	<i>Phalaris arundinacea</i>	REED CANARY GRASS	0	FACW+	Nt P-Grass
	<i>Phragmites australis</i>	REED	0	FACW+	Nt P-Grass
	<i>Populus deltoides</i>	COTTONWOOD	1	FAC+	Nt Tree
	RUMEX CRISPUS	CURLY DOCK	0	FAC+	Ad P-Forb
	<i>Spiraea alba</i>	MEADOWSWEET	4	FACW+	Nt Shrub
	TYPHA ANGUSTIFOLIA	NARROW LEAVED CATTAIL	0	OBL	Ad P-Forb
	<i>Typha latifolia</i>	BROAD LEAVED CATTAIL	1	OBL	Nt P-Forb
	<i>Ulmus americana</i>	AMERICAN ELM	1	FACW-	Nt Tree
Wetland Complex 23	<i>Aster lanceolatus</i>	EASTERN LINED ASTER	2	FACW	Nt P-Forb
	<i>Bidens frondosus</i>	COMMON BEGGAR TICKS	1	FACW	Nt A-Forb
	<i>Cornus amomum</i>	SILKY DOGWOOD	2	FACW+	Nt Shrub
	<i>Fraxinus pennsylvanica</i>	RED ASH	2	FACW	Nt Tree
	<i>Juncus effusus</i>	SOFT STEMMED RUSH	3	OBL	Nt P-Forb
	<i>Lycopus americanus</i>	COMMON WATER HOREHOUND	2	OBL	Nt P-Forb
	<i>Phalaris arundinacea</i>	REED CANARY GRASS	0	FACW+	Nt P-Grass
	<i>Phragmites australis</i>	REED	0	FACW+	Nt P-Grass
	<i>Populus deltoides</i>	COTTONWOOD	1	FAC+	Nt Tree
	RUMEX CRISPUS	CURLY DOCK	0	FAC+	Ad P-Forb
	TYPHA ANGUSTIFOLIA	NARROW LEAVED CATTAIL	0	OBL	Ad P-Forb
Wetland Complex 24	<i>Cornus amomum</i>	SILKY DOGWOOD	2	FACW+	Nt Shrub
	<i>Cornus foemina</i>	GRAY DOGWOOD	1	FACW-	Nt Shrub

Wetland Complex	Scientific Name	Common Name	C	Wetness	Physiognomy
Wetland Complex 24	<i>Fraxinus pennsylvanica</i>	RED ASH	2	FACW	Nt Tree
Continued	<i>Glyceria striata</i>	FOWL MANNA GRASS	4	OBL	Nt P-Grass
	<i>Juncus effusus</i>	SOFT STEMMED RUSH	3	OBL	Nt P-Forb
	<i>Phalaris arundinacea</i>	REED CANARY GRASS	0	FACW+	Nt P-Grass
	<i>Spiraea alba</i>	MEADOWSWEET	4	FACW+	Nt Shrub
	<i>Ulmus americana</i>	AMERICAN ELM	1	FACW-	Nt Tree
	<i>Viburnum lentago</i>	NANNYBERRY	4	FAC+	Nt Shrub
Wetland Complex 25	<i>Aster lanceolatus</i>	EASTERN LINED ASTER	2	FACW	Nt P-Forb
	<i>Cornus foemina</i>	GRAY DOGWOOD	1	FACW-	Nt Shrub
	<i>Euthamia graminifolia</i>	GRASS LEAVED GOLDENROD	3	FACW-	Nt P-Forb
	<i>Glyceria striata</i>	FOWL MANNA GRASS	4	OBL	Nt P-Grass
	<i>Juncus effusus</i>	SOFT STEMMED RUSH	3	OBL	Nt P-Forb
	<i>Phalaris arundinacea</i>	REED CANARY GRASS	0	FACW+	Nt P-Grass
	<i>Solidago gigantea</i>	LATE GOLDENROD	3	FACW	Nt P-Forb
	<i>Solidago rugosa</i>	ROUGH GOLDENROD	3	FAC+	Nt P-Forb
	<i>Spiraea alba</i>	MEADOWSWEET	4	FACW+	Nt Shrub
	<i>Ulmus americana</i>	AMERICAN ELM	1	FACW-	Nt Tree
Wetland Complex 26	<i>Agrimonia parviflora</i>	SWAMP AGRIMONY	4	FAC+	Nt P-Forb
	<i>Aster lanceolatus</i>	EASTERN LINED ASTER	2	FACW	Nt P-Forb
	<i>Aster novae-angliae</i>	NEW ENGLAND ASTER	3	FACW	Nt P-Forb
	<i>Carex gracillima</i>	SEDGE	4	FACU	Nt P-Sedge
	<i>Carex vulpinoidea</i>	SEDGE	1	OBL	Nt P-Sedge
	<i>Cornus amomum</i>	SILKY DOGWOOD	2	FACW+	Nt Shrub
	<i>Cornus foemina</i>	GRAY DOGWOOD	1	FACW-	Nt Shrub
	<i>Cornus stolonifera</i>	RED OSIER DOGWOOD	2	FACW	Nt Shrub
	<i>Euthamia graminifolia</i>	GRASS LEAVED GOLDENROD	3	FACW-	Nt P-Forb
	<i>Fraxinus pennsylvanica</i>	RED ASH	2	FACW	Nt Tree

Wetland Complex	Scientific Name	Common Name	C	Wetness	Physiognomy
Wetland Complex 26	<i>Glyceria striata</i>	FOWL MANNA GRASS	4	OBL	Nt P-Grass
Continued	<i>Juncus effusus</i>	SOFT STEMMED RUSH	3	OBL	Nt P-Forb
	<i>Juncus torreyi</i>	TORREY'S RUSH	4	FACW	Nt P-Forb
	<i>Lycopus americanus</i>	COMMON WATER HOREHOUND	2	OBL	Nt P-Forb
	<i>Lycopus uniflorus</i>	NORTHERN BUGLE WEED	2	OBL	Nt P-Forb
	<i>Phalaris arundinacea</i>	REED CANARY GRASS	0	FACW+	Nt P-Grass
	<i>Phragmites australis</i>	REED	0	FACW+	Nt P-Grass
	<i>Polygonum virginianum</i>	JUMPSEED	4	FAC	Nt P-Forb
	<i>Quercus bicolor</i>	SWAMP WHITE OAK	8	FACW+	Nt Tree
	<i>Quercus macrocarpa</i>	BUR OAK	5	FAC-	Nt Tree
	<i>RHAMNUS FRANGULA</i>	GLOSSY BUCKTHORN	0	FAC+	Ad Shrub
	<i>Rubus strigosus</i>	WILD RED RASPBERRY	2	FACW-	Nt Shrub
	<i>RUMEX CRISPUS</i>	CURLY DOCK	0	FAC+	Ad P-Forb
	<i>Scirpus cyperinus</i>	WOOL GRASS	5	OBL	Nt P-Sedge
	<i>Solidago gigantea</i>	LATE GOLDENROD	3	FACW	Nt P-Forb
	<i>Solidago rugosa</i>	ROUGH GOLDENROD	3	FAC+	Nt P-Forb
	<i>Spiraea alba</i>	MEADOWSWEET	4	FACW+	Nt Shrub
	<i>Toxicodendron radicans</i>	POISON IVY	2	FAC+	Nt W-Vine
	<i>Ulmus americana</i>	AMERICAN ELM	1	FACW-	Nt Tree
	<i>Viburnum lentago</i>	NANNYBERRY	4	FAC+	Nt Shrub
	<i>Vitis riparia</i>	RIVERBANK GRAPE	3	FACW-	Nt W-Vine
Wetland Complex 27	<i>Aster lanceolatus</i>	EASTERN LINED ASTER	2	FACW	Nt P-Forb
	<i>Aster novae-angliae</i>	NEW ENGLAND ASTER	3	FACW	Nt P-Forb
	<i>Carex vulpinoidea</i>	SEDGE	1	OBL	Nt P-Sedge
	<i>Cornus foemina</i>	GRAY DOGWOOD	1	FACW-	Nt Shrub
	<i>Euthamia graminifolia</i>	GRASS LEAVED GOLDENROD	3	FACW-	Nt P-Forb
	<i>Glyceria striata</i>	FOWL MANNA GRASS	4	OBL	Nt P-Grass
	<i>Lycopus americanus</i>	COMMON WATER HOREHOUND	2	OBL	Nt P-Forb

Wetland Complex	Scientific Name	Common Name	C	Wetness	Physiognomy
Wetland Complex 27	<i>Quercus bicolor</i>	SWAMP WHITE OAK	8	FACW+	Nt Tree
Continued	<i>Salix discolor</i>	PUSSY WILLOW	1	FACW	Nt Shrub
	<i>Scirpus cyperinus</i>	WOOL GRASS	5	OBL	Nt P-Sedge
	<i>Solidago gigantea</i>	LATE GOLDENROD	3	FACW	Nt P-Forb
	<i>Solidago rugosa</i>	ROUGH GOLDENROD	3	FAC+	Nt P-Forb
	<i>Spiraea alba</i>	MEADOWSWEET	4	FACW+	Nt Shrub
	<i>Toxicodendron radicans</i>	POISON IVY	2	FAC+	Nt W-Vine
	<i>Ulmus americana</i>	AMERICAN ELM	1	FACW-	Nt Tree
	<i>Viburnum lentago</i>	NANNYBERRY	4	FAC+	Nt Shrub
Wetland Complex 28	<i>Agrimonia parviflora</i>	SWAMP AGRIMONY	4	FAC+	Nt P-Forb
	<i>Apocynum cannabinum</i>	INDIAN HEMP	3	FAC	Nt P-Forb
	<i>Aster lanceolatus</i>	EASTERN LINED ASTER	2	FACW	Nt P-Forb
	<i>Aster novae-angliae</i>	NEW ENGLAND ASTER	3	FACW	Nt P-Forb
	<i>Carex gracillima</i>	SEDGE	4	FACU	Nt P-Sedge
	<i>Carex vulpinoidea</i>	SEDGE	1	OBL	Nt P-Sedge
	<i>Cornus amomum</i>	SILKY DOGWOOD	2	FACW+	Nt Shrub
	<i>Cornus foemina</i>	GRAY DOGWOOD	1	FACW-	Nt Shrub
	<i>Cornus stolonifera</i>	RED OSIER DOGWOOD	2	FACW	Nt Shrub
	<i>Euthamia graminifolia</i>	GRASS LEAVED GOLDENROD	3	FACW-	Nt P-Forb
	<i>Fraxinus pennsylvanica</i>	RED ASH	2	FACW	Nt Tree
	<i>Glyceria striata</i>	FOWL MANNA GRASS	4	OBL	Nt P-Grass
	<i>Lycopus americanus</i>	COMMON WATER HOREHOUND	2	OBL	Nt P-Forb
	<i>Lycopus uniflorus</i>	NORTHERN BUGLE WEED	2	OBL	Nt P-Forb
	<i>Phragmites australis</i>	REED	0	FACW+	Nt P-Grass
	<i>Quercus bicolor</i>	SWAMP WHITE OAK	8	FACW+	Nt Tree
	RUMEX CRISPUS	CURLY DOCK	0	FAC+	Ad P-Forb
	<i>Salix discolor</i>	PUSSY WILLOW	1	FACW	Nt Shrub
	<i>Solidago gigantea</i>	LATE GOLDENROD	3	FACW	Nt P-Forb

Wetland Complex	Scientific Name	Common Name	C	Wetness	Physiognomy
Wetland Complex 28	<i>Solidago rugosa</i>	ROUGH GOLDENROD	3	FAC+	Nt P-Forb
Continued	<i>Spiraea alba</i>	MEADOWSWEET	4	FACW+	Nt Shrub
	<i>Toxicodendron radicans</i>	POISON IVY	2	FAC+	Nt W-Vine
	<i>Ulmus americana</i>	AMERICAN ELM	1	FACW-	Nt Tree
	<i>Viburnum lentago</i>	NANNYBERRY	4	FAC+	Nt Shrub
	<i>Vitis riparia</i>	RIVERBANK GRAPE	3	FACW-	Nt W-Vine
Wetland Complex 29	<i>Aster lanceolatus</i>	EASTERN LINED ASTER	2	FACW	Nt P-Forb
	<i>Bidens frondosus</i>	COMMON BEGGAR TICKS	1	FACW	Nt A-Forb
	<i>Cornus amomum</i>	SILKY DOGWOOD	2	FACW+	Nt Shrub
	<i>Fraxinus pennsylvanica</i>	RED ASH	2	FACW	Nt Tree
	<i>Phalaris arundinacea</i>	REED CANARY GRASS	0	FACW+	Nt P-Grass
	<i>Populus deltoides</i>	COTTONWOOD	1	FAC+	Nt Tree
	RUMEX CRISPUS	CURLY DOCK	0	FAC+	Ad P-Forb
	<i>Salix discolor</i>	PUSSY WILLOW	1	FACW	Nt Shrub
	<i>Spiraea alba</i>	MEADOWSWEET	4	FACW+	Nt Shrub
	<i>Typha latifolia</i>	BROAD LEAVED CATTAIL	1	OBL	Nt P-Forb
	<i>Ulmus americana</i>	AMERICAN ELM	1	FACW-	Nt Tree
Wetland Complex 30	<i>Aster lanceolatus</i>	EASTERN LINED ASTER	2	FACW	Nt P-Forb
	<i>Cornus foemina</i>	GRAY DOGWOOD	1	FACW-	Nt Shrub
	<i>Fraxinus pennsylvanica</i>	RED ASH	2	FACW	Nt Tree
	<i>Glyceria striata</i>	FOWL MANNA GRASS	4	OBL	Nt P-Grass
	<i>Lycopus americanus</i>	COMMON WATER HOREHOUND	2	OBL	Nt P-Forb
	<i>Phalaris arundinacea</i>	REED CANARY GRASS	0	FACW+	Nt P-Grass
	<i>Populus deltoides</i>	COTTONWOOD	1	FAC+	Nt Tree
	<i>Solidago gigantea</i>	LATE GOLDENROD	3	FACW	Nt P-Forb
	<i>Toxicodendron radicans</i>	POISON IVY	2	FAC+	Nt W-Vine
	<i>Vitis riparia</i>	RIVERBANK GRAPE	3	FACW-	Nt W-Vine

Wetland Complex	Scientific Name	Common Name	C	Wetness	Physiognomy
Wetland Complex 31	<i>Agrimonia parviflora</i>	SWAMP AGRIMONY	4	FAC+	Nt P-Forb
	<i>Carex gracillima</i>	SEDGE	4	FACU	Nt P-Sedge
	<i>Cornus amomum</i>	SILKY DOGWOOD	2	FACW+	Nt Shrub
	<i>Cornus foemina</i>	GRAY DOGWOOD	1	FACW-	Nt Shrub
	<i>Euthamia graminifolia</i>	GRASS LEAVED GOLDENROD	3	FACW-	Nt P-Forb
	<i>Fraxinus pennsylvanica</i>	RED ASH	2	FACW	Nt Tree
	<i>Glyceria striata</i>	FOWL MANNA GRASS	4	OBL	Nt P-Grass
	<i>Phalaris arundinacea</i>	REED CANARY GRASS	0	FACW+	Nt P-Grass
	<i>Populus deltoides</i>	COTTONWOOD	1	FAC+	Nt Tree
	<i>Populus tremuloides</i>	QUAKING ASPEN	1	FAC	Nt Tree
	<i>RUMEX CRISPUS</i>	CURLY DOCK	0	FAC+	Ad P-Forb
	<i>Solidago gigantea</i>	LATE GOLDENROD	3	FACW	Nt P-Forb
	<i>Solidago rugosa</i>	ROUGH GOLDENROD	3	FAC+	Nt P-Forb
	<i>Ulmus americana</i>	AMERICAN ELM	1	FACW-	Nt Tree
	<i>Viburnum lentago</i>	NANNYBERRY	4	FAC+	Nt Shrub
<i>Vitis riparia</i>	RIVERBANK GRAPE	3	FACW-	Nt W-Vine	
Wetland Complex 32	<i>Aster lanceolatus</i>	EASTERN LINED ASTER	2	FACW	Nt P-Forb
	<i>Cornus foemina</i>	GRAY DOGWOOD	1	FACW-	Nt Shrub
	<i>Cornus stolonifera</i>	RED OSIER DOGWOOD	2	FACW	Nt Shrub
	<i>Phalaris arundinacea</i>	REED CANARY GRASS	0	FACW+	Nt P-Grass
	<i>RUMEX CRISPUS</i>	CURLY DOCK	0	FAC+	Ad P-Forb
	<i>Salix discolor</i>	PUSSY WILLOW	1	FACW	Nt Shrub
Wetland Complex 33	<i>Cornus foemina</i>	GRAY DOGWOOD	1	FACW-	Nt Shrub
Wetland Complex 34	<i>Acer negundo</i>	BOX ELDER	0	FACW-	Nt Tree
	<i>Angelica atropurpurea</i>	ANGELICA	6	OBL	Nt P-Forb
	<i>Carex lacustris</i>	SEDGE	6	OBL	Nt P-Sedge
	<i>Carpinus caroliniana</i>	BLUE BEECH	6	FAC	Nt Tree

Wetland Complex	Scientific Name	Common Name	C	Wetness	Physiognomy
Wetland Complex 34	<i>Cornus amomum</i>	SILKY DOGWOOD	2	FACW+	Nt Shrub
Continued	<i>Cornus foemina</i>	GRAY DOGWOOD	1	FACW-	Nt Shrub
	<i>Eupatorium maculatum</i>	JOE PYE WEED	4	OBL	Nt P-Forb
	<i>Fraxinus pennsylvanica</i>	RED ASH	2	FACW	Nt Tree
	<i>Phalaris arundinacea</i>	REED CANARY GRASS	0	FACW+	Nt P-Grass
	<i>Phragmites australis</i>	REED	0	FACW+	Nt P-Grass
	<i>Populus deltoides</i>	COTTONWOOD	1	FAC+	Nt Tree
	<i>Quercus bicolor</i>	SWAMP WHITE OAK	8	FACW+	Nt Tree
	<i>Rubus strigosus</i>	WILD RED RASPBERRY	2	FACW-	Nt Shrub
	<i>Solidago gigantea</i>	LATE GOLDENROD	3	FACW	Nt P-Forb
Wetland Complex 36	<i>Cicuta maculata</i>	WATER HEMLOCK	4	OBL	Nt B-Forb
	<i>Cornus foemina</i>	GRAY DOGWOOD	1	FACW-	Nt Shrub
	LYTHRUM SALICARIA	PURPLE LOOSESTRIFE	0	OBL	Ad P-Forb
	<i>Phalaris arundinacea</i>	REED CANARY GRASS	0	FACW+	Nt P-Grass
	<i>Phragmites australis</i>	REED	0	FACW+	Nt P-Grass
	<i>Solidago gigantea</i>	LATE GOLDENROD	3	FACW	Nt P-Forb
	<i>Typha latifolia</i>	BROAD LEAVED CATTAIL	1	OBL	Nt P-Forb
Wetland Complex 44	<i>Acer negundo</i>	BOX ELDER	0	FACW-	Nt Tree
	BARBAREA VULGARIS	YELLOW ROCKET	0	FAC	Ad B-Forb
	<i>Carex stricta</i>	SEDGE	4	OBL	Nt P-Sedge
	<i>Impatiens capensis</i>	SPOTTED TOUCH ME NOT	2	FACW	Nt A-Forb
	LYTHRUM SALICARIA	PURPLE LOOSESTRIFE	0	OBL	Ad P-Forb
	NEPETA CATARIA	CATNIP	0	FAC-	Ad P-Forb
	<i>Phragmites australis</i>	REED	0	FACW+	Nt P-Grass
	RHAMNUS FRANGULA	GLOSSY BUCKTHORN	0	FAC+	Ad Shrub
	<i>Rubus strigosus</i>	WILD RED RASPBERRY	2	FACW-	Nt Shrub
	RUMEX CRISPUS	CURLY DOCK	0	FAC+	Ad P-Forb

Wetland Complex	Scientific Name	Common Name	C	Wetness	Physiognomy
Wetland Complex 44	<i>SALIX ALBA</i>	WHITE WILLOW	0	FACW	Ad Tree
Continued	<i>SALIX FRAGILIS</i>	CRACK WILLOW	0	FAC+	Ad Tree
	<i>Sambucus canadensis</i>	ELDERBERRY	3	FACW-	Nt Shrub
	<i>SOLANUM DULCAMARA</i>	BITTERSWEET NIGHTSHADE	0	FAC	Ad P-Forb
	<i>TYPHA ANGUSTIFOLIA</i>	NARROW LEAVED CATTAIL	0	OBL	Ad P-Forb
	<i>Viburnum opulus var.</i>	HIGHBUSH CRANBERRY	5	FACW	Nt Shrub
	<i>Vitis riparia</i>	RIVERBANK GRAPE	3	FACW-	Nt W-Vine
Wetland Complex 45	<i>Apocynum cannabinum</i>	INDIAN HEMP	3	FAC	Nt P-Forb
	<i>Aster lanceolatus</i>	EASTERN LINED ASTER	2	FACW	Nt P-Forb
	<i>Bidens frondosus</i>	COMMON BEGGAR TICKS	1	FACW	Nt A-Forb
	<i>CIRSIUM ARVENSE</i>	CANADIAN THISTLE	0	FACU	Ad P-Forb
	<i>Conyza canadensis</i>	HORSEWEED	0	FAC-	Nt A-Forb
	<i>LYTHRUM SALICARIA</i>	PURPLE LOOSESTRIFE	0	OBL	Ad P-Forb
	<i>Potentilla anserina</i>	SILVERWEED	5	FACW+	Nt P-Forb
	<i>Phragmites australis</i>	REED	0	FACW+	Nt P-Grass
	<i>RUMEX CRISPUS</i>	CURLY DOCK	0	FAC+	Ad P-Forb
	<i>Solidago altissima</i>	TALL GOLDENROD	1	FACU	Nt P-Forb
Wetland Complex 46	<i>CIRSIUM ARVENSE</i>	CANADIAN THISTLE	0	FACU	Ad P-Forb
	<i>Cyperus strigosus</i>	LONG SCALED NUT SEDGE	3	FACW	Nt P-Sedge
	<i>Erigeron philadelphicus</i>	MARSH FLEABANE	2	FACW	Nt P-Forb
	<i>Impatiens capensis</i>	SPOTTED TOUCH ME NOT	2	FACW	Nt A-Forb
	<i>Juncus effusus</i>	SOFT STEMMED RUSH	3	OBL	Nt P-Forb
	<i>LYTHRUM SALICARIA</i>	PURPLE LOOSESTRIFE	0	OBL	Ad P-Forb
	<i>Phalaris arundinacea</i>	REED CANARY GRASS	0	FACW+	Nt P-Grass
	<i>Phragmites australis</i>	REED	0	FACW+	Nt P-Grass
	<i>PLANTAGO LANCEOLATA</i>	ENGLISH PLANTAIN	0	FAC	Ad P-Forb
	<i>Polygonum lapathifolium</i>	NODDING SMARTWEED	0	FACW+	Nt A-Forb

Wetland Complex	Scientific Name	Common Name	C	Wetness	Physiognomy
Wetland Complex 46	<i>RUMEX CRISPUS</i>	CURLY DOCK	0	FAC+	Ad P-Forb
Continued	<i>SOLANUM DULCAMARA</i>	BITTERSWEET NIGHTSHADE	0	FAC	Ad P-Forb
	<i>Urtica dioica</i>	NETTLE	1	FAC+	Nt P-Forb
Wetland Complex 47	<i>Acer negundo</i>	BOX ELDER	0	FACW-	Nt Tree
	<i>Aster novae-angliae</i>	NEW ENGLAND ASTER	3	FACW	Nt P-Forb
	<i>Bidens frondosus</i>	COMMON BEGGAR TICKS	1	FACW	Nt A-Forb
	<i>Carex stricta</i>	SEDGE	4	OBL	Nt P-Sedge
	<i>Conyza canadensis</i>	HORSEWEED	0	FAC-	Nt A-Forb
	<i>Impatiens capensis</i>	SPOTTED TOUCH ME NOT	2	FACW	Nt A-Forb
	<i>Phalaris arundinacea</i>	REED CANARY GRASS	0	FACW+	Nt P-Grass
	<i>Populus deltoides</i>	COTTONWOOD	1	FAC+	Nt Tree
	<i>SALIX FRAGILIS</i>	CRACK WILLOW	0	FAC+	Ad Tree
	<i>SOLANUM DULCAMARA</i>	BITTERSWEET NIGHTSHADE	0	FAC	Ad P-Forb
	<i>Vitis riparia</i>	RIVERBANK GRAPE	3	FACW-	Nt W-Vine
Wetland Complex 48	<i>Asclepias incarnata</i>	SWAMP MILKWEED	6	OBL	Nt P-Forb
	<i>Aster lateriflorus</i>	SIDE FLOWERING ASTER	2	FACW-	Nt P-Forb
	<i>Bidens frondosus</i>	COMMON BEGGAR TICKS	1	FACW	Nt A-Forb
	<i>Erigeron philadelphicus</i>	MARSH FLEABANE	2	FACW	Nt P-Forb
	<i>LYTHRUM SALICARIA</i>	PURPLE LOOSESTRIFE	0	OBL	Ad P-Forb
	<i>Phalaris arundinacea</i>	REED CANARY GRASS	0	FACW+	Nt P-Grass
	<i>Polygonum pensylvanicum</i>	BIGSEED SMARTWEED	0	FACW+	Nt A-Forb
	<i>POLYGONUM PERSICARIA</i>	LADY'S THUMB	0	FACW	Ad A-Forb
	<i>Rumex orbiculatus</i>	GREAT WATER DOCK	9	OBL	Nt P-Forb
	<i>TYPHA ANGUSTIFOLIA</i>	NARROW LEAVED CATTAIL	0	OBL	Ad P-Forb
Wetland Complex 49	<i>Acer negundo</i>	BOX ELDER	0	FACW-	Nt Tree
	<i>AILANTHUS ALTISSIMA</i>	TREE OF HEAVEN	0	UPL	Ad Tree

Wetland Complex	Scientific Name	Common Name	C	Wetness	Physiognomy
Wetland Complex 49	<i>Vitis riparia</i>	RIVERBANK GRAPE	3	FACW-	Nt W-Vine
Continued					
Wetland Complex 54	<i>Carex vulpinoidea</i>	SEDGE	1	OBL	Nt P-Sedge
	<i>Cornus foemina</i>	GRAY DOGWOOD	1	FACW-	Nt Shrub
	<i>Fraxinus pennsylvanica</i>	RED ASH	2	FACW	Nt Tree
	<i>Lycopus americanus</i>	COMMON WATER HOREHOUND	2	OBL	Nt P-Forb
	<i>Rubus strigosus</i>	WILD RED RASPBERRY	2	FACW-	Nt Shrub
	<i>Solidago gigantea</i>	LATE GOLDENROD	3	FACW	Nt P-Forb
Wetland Complex 56	<i>Carex blanda</i>	SEDGE	1	FAC	Nt P-Sedge
	<i>Carex stricta</i>	SEDGE	4	OBL	Nt P-Sedge
	<i>Cornus foemina</i>	GRAY DOGWOOD	1	FACW-	Nt Shrub
	<i>Fraxinus pennsylvanica</i>	RED ASH	2	FACW	Nt Tree
	<i>Glyceria striata</i>	FOWL MANNA GRASS	4	OBL	Nt P-Grass
	LYTHRUM SALICARIA	PURPLE LOOSESTRIFE	0	OBL	Ad P-Forb
	<i>Phragmites australis</i>	REED	0	FACW+	Nt P-Grass
	<i>Populus deltoides</i>	COTTONWOOD	1	FAC+	Nt Tree
	<i>Quercus bicolor</i>	SWAMP WHITE OAK	8	FACW+	Nt Tree
	RHAMNUS FRANGULA	GLOSSY BUCKTHORN	0	FAC+	Ad Shrub
	SOLANUM DULCAMARA	BITTERSWEET NIGHTSHADE	0	FAC	Ad P-Forb
	<i>Solidago gigantea</i>	LATE GOLDENROD	3	FACW	Nt P-Forb
	<i>Spiraea alba</i>	MEADOWSWEET	4	FACW+	Nt Shrub

ATTACHMENT C-5

Table 3.4

Floristic Quality Assessment Metrics for Wetland Complexes

Table 3.4 Floristic Quality Assessment Metrics for Wetland Complexes

Wetland Complex	Floristic Quality Assessment							
	Floristic Quality Summary		Physiognomy	Number	Percent	Physiognomy	Number	Percent
Wetland Complex 1								
	NATIVE SPECIES	19	Native	19	82.60%	Adventive	4	17.40%
	Total Species	23	Tree	3	13.00%	Tree	0	0.00%
	NATIVE MEAN C	2.5	Shrub	4	17.40%	Shrub	1	4.30%
	W/Adventives	2.1	W-Vine	1	4.30%	W-Vine	0	0.00%
	NATIVE FQI	11	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	10	P-Forb	9	39.10%	P-Forb	3	13.00%
	NATIVE MEAN W	-2.6	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-2.5	A-Forb	0	0.00%	A-Forb	0	0.00%
	Fac. Wetland	AVG	P-Grass	1	4.30%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	1	4.30%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			
Wetland Complex 2								
	NATIVE SPECIES	28	Native	28	90.30%	Adventive	3	9.70%
	Total Species	31	Tree	4	12.90%	Tree	1	3.20%
	NATIVE MEAN C	3.4	Shrub	6	19.40%	Shrub	0	0.00%
	W/Adventives	3	W-Vine	2	6.50%	W-Vine	0	0.00%
	NATIVE FQI	17.8	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	16.9	P-Forb	9	29.00%	P-Forb	2	6.50%
	NATIVE MEAN W	-3	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-3.2	A-Forb	2	6.50%	A-Forb	0	0.00%
	Fac. Wetland	AVG	P-Grass	0	0.00%	P-Grass	0	0.00%
			A-Grass	1	3.20%	A-Grass	0	0.00%
			P-Sedge	3	9.70%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	1	3.20%			

Wetland Complex	Floristic Quality Assessment							
	Floristic Quality Summary		Physiognomy	Number	Percent	Physiognomy	Number	Percent
Wetland Complex 3								
	NATIVE SPECIES	35	Native	35	92.10%	Adventive	3	7.90%
	Total Species	38	Tree	6	15.80%	Tree	0	0.00%
	NATIVE MEAN C	3.4	Shrub	4	10.50%	Shrub	0	0.00%
	W/Adventives	3.1	W-Vine	1	2.60%	W-Vine	1	2.60%
	NATIVE FQI	19.9	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	19.1	P-Forb	17	44.70%	P-Forb	1	2.60%
	NATIVE MEAN W	-2.4	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-2.1	A-Forb	1	2.60%	A-Forb	0	0.00%
	Fac. Wetland (-)	AVG	P-Grass	1	2.60%	P-Grass	1	2.60%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	4	10.50%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	1	2.60%			
Wetland Complex 4								
	NATIVE SPECIES	19	Native	19	86.40%	Adventive	3	13.60%
	Total Species	22	Tree	2	9.10%	Tree	0	0.00%
	NATIVE MEAN C	2.4	Shrub	1	4.50%	Shrub	0	0.00%
	W/Adventives	2	W-Vine	0	0.00%	W-Vine	0	0.00%
	NATIVE FQI	10.3	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	9.6	P-Forb	10	45.50%	P-Forb	3	13.60%
	NATIVE MEAN W	-1.7	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-1.6	A-Forb	3	13.60%	A-Forb	0	0.00%
	Fac. Wetland (-)	AVG	P-Grass	2	9.10%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	1	4.50%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			

Wetland Complex	Floristic Quality Assessment							
	Floristic Quality Summary		Physiognomy	Number	Percent	Physiognomy	Number	Percent
Wetland Complex 5								
	NATIVE SPECIES	13	Native	13	100.00%	Adventive	0	0.00%
	Total Species	13	Tree	2	15.40%	Tree	0	0.00%
	NATIVE MEAN C	2.5	Shrub	0	0.00%	Shrub	0	0.00%
	W/Adventives	2.5	W-Vine	0	0.00%	W-Vine	0	0.00%
	NATIVE FQI	8.9	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	8.9	P-Forb	7	53.80%	P-Forb	0	0.00%
	NATIVE MEAN W	-3.1	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-3.1	A-Forb	1	7.70%	A-Forb	0	0.00%
	Fac. Wetland	AVG	P-Grass	1	7.70%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	2	15.40%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			
Wetland Complex 6								
	NATIVE SPECIES	10	Native	10	90.90%	Adventive	1	9.10%
	Total Species	11	Tree	2	18.20%	Tree	0	0.00%
	NATIVE MEAN C	2.6	Shrub	1	9.10%	Shrub	0	0.00%
	W/Adventives	2.4	W-Vine	1	9.10%	W-Vine	0	0.00%
	NATIVE FQI	8.2	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	7.8	P-Forb	5	45.50%	P-Forb	1	9.10%
	NATIVE MEAN W	-2.4	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-2.2	A-Forb	0	0.00%	A-Forb	0	0.00%
	Fac. Wetland (-)	AVG	P-Grass	0	0.00%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	1	9.10%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			

Wetland Complex	Floristic Quality Assessment							
	Floristic Quality Summary		Physiognomy	Number	Percent	Physiognomy	Number	Percent
Wetland Complex 7								
	NATIVE SPECIES	10	Native	10	90.90%	Adventive	1	9.10%
	Total Species	11	Tree	2	18.20%	Tree	0	0.00%
	NATIVE MEAN C	2.6	Shrub	1	9.10%	Shrub	0	0.00%
	W/Adventives	2.4	W-Vine	1	9.10%	W-Vine	0	0.00%
	NATIVE FQI	8.2	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	7.8	P-Forb	5	45.50%	P-Forb	1	9.10%
	NATIVE MEAN W	-2.4	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-2.2	A-Forb	0	0.00%	A-Forb	0	0.00%
	Fac. Wetland (-)	AVG	P-Grass	0	0.00%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	1	9.10%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			
Wetland Complex 8								
	NATIVE SPECIES	8	Native	8	88.90%	Adventive	1	11.10%
	Total Species	9	Tree	0	0.00%	Tree	0	0.00%
	NATIVE MEAN C	2.8	Shrub	3	33.30%	Shrub	0	0.00%
	W/Adventives	2.4	W-Vine	2	22.20%	W-Vine	0	0.00%
	NATIVE FQI	7.8	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	7.3	P-Forb	3	33.30%	P-Forb	1	11.10%
	NATIVE MEAN W	-2.4	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-2.2	A-Forb	0	0.00%	A-Forb	0	0.00%
	Fac. Wetland (-)	AVG	P-Grass	0	0.00%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	0	0.00%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			

Wetland Complex	Floristic Quality Assessment							
	Floristic Quality Summary		Physiognomy	Number	Percent	Physiognomy	Number	Percent
Wetland Complex 9								
	NATIVE SPECIES	24	Native	24	88.90%	Adventive	3	11.10%
	Total Species	27	Tree	3	11.10%	Tree	0	0.00%
	NATIVE MEAN C	2.6	Shrub	4	14.80%	Shrub	1	3.70%
	W/Adventives	2.3	W-Vine	0	0.00%	W-Vine	0	0.00%
	NATIVE FQI	12.7	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	11.9	P-Forb	10	37.00%	P-Forb	2	7.40%
	NATIVE MEAN W	-3.3	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-3	A-Forb	1	3.70%	A-Forb	0	0.00%
	Fac. Wetland	AVG	P-Grass	1	3.70%	P-Grass	0	0.00%
			A-Grass	1	3.70%	A-Grass	0	0.00%
			P-Sedge	3	11.10%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	1	3.70%			
Wetland Complex 10								
	NATIVE SPECIES	8	Native	8	61.50%	Adventive	5	38.50%
	Total Species	13	Tree	1	7.70%	Tree	0	0.00%
	NATIVE MEAN C	1	Shrub	0	0.00%	Shrub	0	0.00%
	W/Adventives	0.6	W-Vine	0	0.00%	W-Vine	0	0.00%
	NATIVE FQI	2.8	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	2.2	P-Forb	4	30.80%	P-Forb	3	23.10%
	NATIVE MEAN W	-0.4	B-Forb	1	7.70%	B-Forb	0	0.00%
	W/Adventives	-0.4	A-Forb	2	15.40%	A-Forb	0	0.00%
	Faculative	AVG	P-Grass	0	0.00%	P-Grass	2	15.40%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	0	0.00%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			

Wetland Complex	Floristic Quality Assessment							
	Floristic Quality Summary		Physiognomy	Number	Percent	Physiognomy	Number	Percent
Wetland Complex 11								
	NATIVE SPECIES	9	Native	9	90.00%	Adventive	1	10.00%
	Total Species	10	Tree	2	20.00%	Tree	0	0.00%
	NATIVE MEAN C	1.3	Shrub	1	10.00%	Shrub	0	0.00%
	W/Adventives	1.2	W-Vine	0	0.00%	W-Vine	0	0.00%
	NATIVE FQI	4	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	3.8	P-Forb	3	30.00%	P-Forb	1	10.00%
	NATIVE MEAN W	-2.4	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-2.2	A-Forb	0	0.00%	A-Forb	0	0.00%
	Fac. Wetland (-)	AVG	P-Grass	2	20.00%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	0	0.00%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	1	10.00%			
Wetland Complex 12								
	NATIVE SPECIES	4	Native	4	80.00%	Adventive	1	20.00%
	Total Species	5	Tree	1	20.00%	Tree	0	0.00%
	NATIVE MEAN C	0.8	Shrub	1	20.00%	Shrub	0	0.00%
	W/Adventives	0.6	W-Vine	0	0.00%	W-Vine	0	0.00%
	NATIVE FQI	1.5	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	1.3	P-Forb	0	0.00%	P-Forb	1	20.00%
	NATIVE MEAN W	-2.7	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-3.2	A-Forb	1	20.00%	A-Forb	0	0.00%
	Fac. Wetland	AVG	P-Grass	1	20.00%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	0	0.00%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			

Wetland Complex	Floristic Quality Assessment							
	Floristic Quality Summary		Physiognomy	Number	Percent	Physiognomy	Number	Percent
Wetland Complex 13								
	NATIVE SPECIES	14	Native	14	87.50%	Adventive	2	12.50%
	Total Species	16	Tree	2	12.50%	Tree	0	0.00%
	NATIVE MEAN C	1.6	Shrub	1	6.30%	Shrub	0	0.00%
	W/Adventives	1.4	W-Vine	0	0.00%	W-Vine	0	0.00%
	NATIVE FQI	6.1	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	5.8	P-Forb	5	31.30%	P-Forb	2	12.50%
	NATIVE MEAN W	-3.1	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-3.3	A-Forb	1	6.30%	A-Forb	0	0.00%
	Fac. Wetland	AVG	P-Grass	2	12.50%	P-Grass	0	0.00%
			A-Grass	1	6.30%	A-Grass	0	0.00%
			P-Sedge	1	6.30%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	1	6.30%			
Wetland Complex 14								
	NATIVE SPECIES	7	Native	7	77.80%	Adventive	2	22.20%
	Total Species	9	Tree	1	11.10%	Tree	0	0.00%
	NATIVE MEAN C	1.3	Shrub	0	0.00%	Shrub	0	0.00%
	W/Adventives	1	W-Vine	0	0.00%	W-Vine	0	0.00%
	NATIVE FQI	3.4	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	3	P-Forb	2	22.20%	P-Forb	0	0.00%
	NATIVE MEAN W	-1.7	B-Forb	0	0.00%	B-Forb	1	11.10%
	W/Adventives	-0.8	A-Forb	4	44.40%	A-Forb	1	11.10%
	Fac. Wetland (-)	AVG	P-Grass	0	0.00%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	0	0.00%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			

Wetland Complex	Floristic Quality Assessment							
	Floristic Quality Summary		Physiognomy	Number	Percent	Physiognomy	Number	Percent
Wetland Complex 15								
	NATIVE SPECIES	12	Native	12	85.70%	Adventive	2	14.30%
	Total Species	14	Tree	2	14.30%	Tree	0	0.00%
	NATIVE MEAN C	1.8	Shrub	2	14.30%	Shrub	0	0.00%
	W/Adventives	1.5	W-Vine	2	14.30%	W-Vine	0	0.00%
	NATIVE FQI	6.1	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	5.6	P-Forb	5	35.70%	P-Forb	1	7.10%
	NATIVE MEAN W	-2.5	B-Forb	0	0.00%	B-Forb	1	7.10%
	W/Adventives	-2.1	A-Forb	0	0.00%	A-Forb	0	0.00%
	Fac. Wetland (-)	AVG	P-Grass	1	7.10%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	0	0.00%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			
Wetland Complex 16								
	NATIVE SPECIES	6	Native	6	66.70%	Adventive	3	33.30%
	Total Species	9	Tree	0	0.00%	Tree	0	0.00%
	NATIVE MEAN C	2.2	Shrub	2	22.20%	Shrub	0	0.00%
	W/Adventives	1.4	W-Vine	1	11.10%	W-Vine	0	0.00%
	NATIVE FQI	5.3	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	4.3	P-Forb	2	22.20%	P-Forb	2	22.20%
	NATIVE MEAN W	-2.5	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-1.4	A-Forb	0	0.00%	A-Forb	1	11.10%
	Fac. Wetland (-)	AVG	P-Grass	1	11.10%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	0	0.00%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			

Wetland Complex	Floristic Quality Assessment								
	Floristic Quality Summary			Physiognomy	Number	Percent	Physiognomy	Number	Percent
Wetland Complex 17-21; 35; 37-43; 50-53, 55	NATIVE SPECIES	22		Native	22	73.30%	Adventive	8	26.70%
	Total Species	30		Tree	2	6.70%	Tree	0	0.00%
	NATIVE MEAN C	2.9		Shrub	1	3.30%	Shrub	0	0.00%
	W/Adventives	2.1		W-Vine	3	10.00%	W-Vine	0	0.00%
	NATIVE FQI	13.4		H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	11.5		P-Forb	7	23.30%	P-Forb	6	20.00%
	NATIVE MEAN W	-2.5		B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-2		A-Forb	3	10.00%	A-Forb	2	6.70%
	Fac. Wetland (-)	AVG		P-Grass	3	10.00%	P-Grass	0	0.00%
				A-Grass	1	3.30%	A-Grass	0	0.00%
				P-Sedge	2	6.70%	P-Sedge	0	0.00%
				A-Sedge	0	0.00%	A-Sedge	0	0.00%
				Fern	0	0.00%			
	Wetland Complexes 22	NATIVE SPECIES	15		Native	15	88.20%	Adventive	2
Total Species		17		Tree	3	17.60%	Tree	0	0.00%
NATIVE MEAN C		1.9		Shrub	3	17.60%	Shrub	0	0.00%
W/Adventives		1.6		W-Vine	0	0.00%	W-Vine	0	0.00%
NATIVE FQI		7.2		H-Vine	0	0.00%	H-Vine	0	0.00%
W/Adventives		6.8		P-Forb	6	35.30%	P-Forb	2	11.80%
NATIVE MEAN W		-3		B-Forb	0	0.00%	B-Forb	0	0.00%
W/Adventives		-3		A-Forb	1	5.90%	A-Forb	0	0.00%
Fac. Wetland		AVG		P-Grass	2	11.80%	P-Grass	0	0.00%
				A-Grass	0	0.00%	A-Grass	0	0.00%
				P-Sedge	0	0.00%	P-Sedge	0	0.00%
				A-Sedge	0	0.00%	A-Sedge	0	0.00%
				Fern	0	0.00%			

Wetland Complex	Floristic Quality Assessment							
	Floristic Quality Summary		Physiognomy	Number	Percent	Physiognomy	Number	Percent
Wetland Complexes 23								
	NATIVE SPECIES	9	Native	9	81.80%	Adventive	2	18.20%
	Total Species	11	Tree	2	18.20%	Tree	0	0.00%
	NATIVE MEAN C	1.4	Shrub	1	9.10%	Shrub	0	0.00%
	W/Adventives	1.2	W-Vine	0	0.00%	W-Vine	0	0.00%
	NATIVE FQI	4.3	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	3.9	P-Forb	3	27.30%	P-Forb	2	18.20%
	NATIVE MEAN W	-3.6	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-3.5	A-Forb	1	9.10%	A-Forb	0	0.00%
	Fac. Wetland (+)	AVG	P-Grass	2	18.20%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	0	0.00%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			
Wetland Complexes 24								
	NATIVE SPECIES	9	Native	9	100.00%	Adventive	0	0.00%
	Total Species	9	Tree	2	22.20%	Tree	0	0.00%
	NATIVE MEAN C	2.3	Shrub	4	44.40%	Shrub	0	0.00%
	W/Adventives	2.3	W-Vine	0	0.00%	W-Vine	0	0.00%
	NATIVE FQI	7	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	7	P-Forb	1	11.10%	P-Forb	0	0.00%
	NATIVE MEAN W	-3.3	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-3.3	A-Forb	0	0.00%	A-Forb	0	0.00%
	Fac. Wetland	AVG	P-Grass	2	22.20%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	0	0.00%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			

Wetland Complex	Floristic Quality Assessment							
	Floristic Quality Summary		Physiognomy	Number	Percent	Physiognomy	Number	Percent
Wetland Complexes 25								
	NATIVE SPECIES	10	Native	10	100.00%	Adventive	0	0.00%
	Total Species	10	Tree	1	10.00%	Tree	0	0.00%
	NATIVE MEAN C	2.4	Shrub	2	20.00%	Shrub	0	0.00%
	W/Adventives	2.4	W-Vine	0	0.00%	W-Vine	0	0.00%
	NATIVE FQI	7.6	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	7.6	P-Forb	5	50.00%	P-Forb	0	0.00%
	NATIVE MEAN W	-3.1	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-3.1	A-Forb	0	0.00%	A-Forb	0	0.00%
	Fac. Wetland	AVG	P-Grass	2	20.00%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	0	0.00%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			
Wetland Complexes 26								
	NATIVE SPECIES	29	Native	29	93.50%	Adventive	2	6.50%
	Total Species	31	Tree	4	12.90%	Tree	0	0.00%
	NATIVE MEAN C	2.9	Shrub	6	19.40%	Shrub	1	3.20%
	W/Adventives	2.7	W-Vine	2	6.50%	W-Vine	0	0.00%
	NATIVE FQI	15.4	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	14.9	P-Forb	11	35.50%	P-Forb	1	3.20%
	NATIVE MEAN W	-2.7	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-2.6	A-Forb	0	0.00%	A-Forb	0	0.00%
	Fac. Wetland	AVG	P-Grass	3	9.70%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	3	9.70%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			

Wetland Complex	Floristic Quality Assessment							
	Floristic Quality Summary		Physiognomy	Number	Percent	Physiognomy	Number	Percent
Wetland Complexes 27								
	NATIVE SPECIES	16	Native	16	100.00%	Adventive	0	0.00%
	Total Species	16	Tree	2	12.50%	Tree	0	0.00%
	NATIVE MEAN C	2.9	Shrub	4	25.00%	Shrub	0	0.00%
	W/Adventives	2.9	W-Vine	1	6.30%	W-Vine	0	0.00%
	NATIVE FQI	11.8	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	11.8	P-Forb	6	37.50%	P-Forb	0	0.00%
	NATIVE MEAN W	-3.1	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-3.1	A-Forb	0	0.00%	A-Forb	0	0.00%
	Fac. Wetland	AVG	P-Grass	1	6.30%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	2	12.50%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			
Wetland Complexes 28								
	NATIVE SPECIES	24	Native	24	96.00%	Adventive	1	4.00%
	Total Species	25	Tree	3	12.00%	Tree	0	0.00%
	NATIVE MEAN C	2.7	Shrub	6	24.00%	Shrub	0	0.00%
	W/Adventives	2.6	W-Vine	2	8.00%	W-Vine	0	0.00%
	NATIVE FQI	13.1	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	12.8	P-Forb	9	36.00%	P-Forb	1	4.00%
	NATIVE MEAN W	-2.6	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-2.6	A-Forb	0	0.00%	A-Forb	0	0.00%
	Fac. Wetland	AVG	P-Grass	2	8.00%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	2	8.00%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			

Wetland Complex	Floristic Quality Assessment							
	Floristic Quality Summary		Physiognomy	Number	Percent	Physiognomy	Number	Percent
Wetland Complexes 29								
	NATIVE SPECIES	10	Native	10	90.90%	Adventive	1	9.10%
	Total Species	11	Tree	3	27.30%	Tree	0	0.00%
	NATIVE MEAN C	1.5	Shrub	3	27.30%	Shrub	0	0.00%
	W/Adventives	1.4	W-Vine	0	0.00%	W-Vine	0	0.00%
	NATIVE FQI	4.7	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	4.5	P-Forb	2	18.20%	P-Forb	1	9.10%
	NATIVE MEAN W	-3.2	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-3	A-Forb	1	9.10%	A-Forb	0	0.00%
	Fac. Wetland	AVG	P-Grass	1	9.10%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	0	0.00%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			
Wetland Complexes 30								
	NATIVE SPECIES	10	Native	10	100.00%	Adventive	0	0.00%
	Total Species	10	Tree	2	20.00%	Tree	0	0.00%
	NATIVE MEAN C	2	Shrub	1	10.00%	Shrub	0	0.00%
	W/Adventives	2	W-Vine	2	20.00%	W-Vine	0	0.00%
	NATIVE FQI	6.3	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	6.3	P-Forb	3	30.00%	P-Forb	0	0.00%
	NATIVE MEAN W	-2.9	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-2.9	A-Forb	0	0.00%	A-Forb	0	0.00%
	Fac. Wetland	AVG	P-Grass	2	20.00%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	0	0.00%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			

Wetland Complex	Floristic Quality Assessment							
	Floristic Quality Summary		Physiognomy	Number	Percent	Physiognomy	Number	Percent
Wetland Complexes 31								
	NATIVE SPECIES	15	Native	15	93.80%	Adventive	1	6.30%
	Total Species	16	Tree	4	25.00%	Tree	0	0.00%
	NATIVE MEAN C	2.4	Shrub	3	18.80%	Shrub	0	0.00%
	W/Adventives	2.3	W-Vine	1	6.30%	W-Vine	0	0.00%
	NATIVE FQI	9.3	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	9	P-Forb	4	25.00%	P-Forb	1	6.30%
	NATIVE MEAN W	-1.9	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-1.8	A-Forb	0	0.00%	A-Forb	0	0.00%
	Fac. Wetland (-)	AVG	P-Grass	2	12.50%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	1	6.30%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			
Wetland Complexes 32								
	NATIVE SPECIES	5	Native	5	83.30%	Adventive	1	16.70%
	Total Species	6	Tree	0	0.00%	Tree	0	0.00%
	NATIVE MEAN C	1.2	Shrub	3	50.00%	Shrub	0	0.00%
	W/Adventives	1	W-Vine	0	0.00%	W-Vine	0	0.00%
	NATIVE FQI	2.7	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	2.4	P-Forb	1	16.70%	P-Forb	1	16.70%
	NATIVE MEAN W	-3	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-2.7	A-Forb	0	0.00%	A-Forb	0	0.00%
	Fac. Wetland	AVG	P-Grass	1	16.70%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	0	0.00%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			

Wetland Complex	Floristic Quality Assessment							
	Floristic Quality Summary		Physiognomy	Number	Percent	Physiognomy	Number	Percent
Wetland Complexes 33								
	NATIVE SPECIES	1	Native	1	100.00%	Adventive	0	0.00%
	Total Species	1	Tree	0	0.00%	Tree	0	0.00%
	NATIVE MEAN C	1	Shrub	1	100.00%	Shrub	0	0.00%
	W/Adventives	1	W-Vine	0	0.00%	W-Vine	0	0.00%
	NATIVE FQI	1	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	1	P-Forb	0	0.00%	P-Forb	0	0.00%
	NATIVE MEAN W	-2	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-2	A-Forb	0	0.00%	A-Forb	0	0.00%
	Fac. Wetland	AVG	P-Grass	0	0.00%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	0	0.00%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			
Wetland Complex 34								
	NATIVE SPECIES	14	Native	14	100.00%	Adventiv	0	0.00%
	Total Species	14	Tree	5	35.70%	Tree	0	0.00%
	NATIVE MEAN C	2.9	Shrub	3	21.40%	Shrub	0	0.00%
	W/Adventives	2.9	W-Vine	0	0.00%	W-Vine	0	0.00%
	NATIVE FQI	11	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	11	P-Forb	3	21.40%	P-Forb	0	0.00%
	NATIVE MEAN W	-3.1	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-3.1	A-Forb	0	0.00%	A-Forb	0	0.00%
	Fac. Wetland	AVG	P-Grass	2	14.30%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	1	7.10%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			

Wetland Complex	Floristic Quality Assessment							
	Floristic Quality Summary		Physiognomy	Number	Percent	Physiognomy	Number	Percent
Wetland Complex 36								
	NATIVE SPECIES	6	Native	6	85.70%	Adventive	1	14.30%
	Total Species	7	Tree	0	0.00%	Tree	0	0.00%
	NATIVE MEAN C	1.5	Shrub	1	14.30%	Shrub	0	0.00%
	W/Adventives	1.3	W-Vine	0	0.00%	W-Vine	0	0.00%
	NATIVE FQI	3.7	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	3.4	P-Forb	2	28.60%	P-Forb	1	14.30%
	NATIVE MEAN W	-3.8	B-Forb	1	14.30%	B-Forb	0	0.00%
	W/Adventives	-4	A-Forb	0	0.00%	A-Forb	0	0.00%
	Fac. Wetland (+)	AVG	P-Grass	2	28.60%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	0	0.00%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			
Wetland Complex 44								
	NATIVE SPECIES	8	Native	8	47.10%	Adventive	9	52.90%
	Total Species	17	Tree	1	5.90%	Tree	2	11.80%
	NATIVE MEAN C	2.4	Shrub	3	17.60%	Shrub	1	5.90%
	W/Adventives	1.1	W-Vine	1	5.90%	W-Vine	0	0.00%
	NATIVE FQI	6.7	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	4.6	P-Forb	0	0.00%	P-Forb	5	29.40%
	NATIVE MEAN W	-2.9	B-Forb	0	0.00%	B-Forb	1	5.90%
	W/Adventives	-2.2	A-Forb	1	5.90%	A-Forb	0	0.00%
	Fac. Wetland	AVG	P-Grass	1	5.90%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	1	5.90%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			

Wetland Complex	Floristic Quality Assessment							
	Floristic Quality Summary		Physiognomy	Number	Percent	Physiognomy	Number	Percent
Wetland Complex 45								
	NATIVE SPECIES	7	Native	7	70.00%	Adventive	3	30.00%
	Total Species	10	Tree	0	0.00%	Tree	0	0.00%
	NATIVE MEAN C	1.7	Shrub	0	0.00%	Shrub	0	0.00%
	W/Adventives	1.2	W-Vine	0	0.00%	W-Vine	0	0.00%
	NATIVE FQI	4.5	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	3.8	P-Forb	4	40.00%	P-Forb	3	30.00%
	NATIVE MEAN W	-1.4	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-1.3	A-Forb	2	20.00%	A-Forb	0	0.00%
	Faculative (+)	AVG	P-Grass	1	10.00%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	0	0.00%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			
Wetland Complex 46								
	NATIVE SPECIES	8	Native	8	61.50%	Adventive	5	38.50%
	Total Species	13	Tree	0	0.00%	Tree	0	0.00%
	NATIVE MEAN C	1.4	Shrub	0	0.00%	Shrub	0	0.00%
	W/Adventives	0.8	W-Vine	0	0.00%	W-Vine	0	0.00%
	NATIVE FQI	3.9	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	3.1	P-Forb	3	23.10%	P-Forb	5	38.50%
	NATIVE MEAN W	-3.4	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-2.3	A-Forb	2	15.40%	A-Forb	0	0.00%
	Fac. Wetland	AVG	P-Grass	2	15.40%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	1	7.70%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			

Wetland Complex	Floristic Quality Assessment							
	Floristic Quality Summary		Physiognomy	Number	Percent	Physiognomy	Number	Percent
Wetland Complex 47								
	NATIVE SPECIES	9	Native	9	81.80%	Adventive	2	18.20%
	Total Species	11	Tree	2	18.20%	Tree	1	9.10%
	NATIVE MEAN C	1.6	Shrub	0	0.00%	Shrub	0	0.00%
	W/Adventives	1.3	W-Vine	1	9.10%	W-Vine	0	0.00%
	NATIVE FQI	4.7	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	4.2	P-Forb	1	9.10%	P-Forb	1	9.10%
	NATIVE MEAN W	-2.4	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-2.1	A-Forb	3	27.30%	A-Forb	0	0.00%
	Fac. Wetland (-)	AVG	P-Grass	1	9.10%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	1	9.10%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			
Wetland Complex 48								
	NATIVE SPECIES	7	Native	7	70.00%	Adventive	3	30.00%
	Total Species	10	Tree	0	0.00%	Tree	0	0.00%
	NATIVE MEAN C	2.9	Shrub	0	0.00%	Shrub	0	0.00%
	W/Adventives	2	W-Vine	0	0.00%	W-Vine	0	0.00%
	NATIVE FQI	7.6	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	6.3	P-Forb	4	40.00%	P-Forb	2	20.00%
	NATIVE MEAN W	-3.7	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-3.9	A-Forb	2	20.00%	A-Forb	1	10.00%
	Fac. Wetland (+)	AVG	P-Grass	1	10.00%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	0	0.00%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			

Wetland Complex	Floristic Quality Assessment							
	Floristic Quality Summary		Physiognomy	Number	Percent	Physiognomy	Number	Percent
Wetland Complex 49								
	NATIVE SPECIES	2	Native	2	66.70%	Adventive	1	33.30%
	Total Species	3	Tree	1	33.30%	Tree	1	33.30%
	NATIVE MEAN C	1.5	Shrub	0	0.00%	Shrub	0	0.00%
	W/Adventives	1	W-Vine	1	33.30%	W-Vine	0	0.00%
	NATIVE FQI	2.1	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	1.7	P-Forb	0	0.00%	P-Forb	0	0.00%
	NATIVE MEAN W	-2	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	0.3	A-Forb	0	0.00%	A-Forb	0	0.00%
	Fac. Wetland (-)	AVG	P-Grass	0	0.00%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	0	0.00%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			
Wetland Complex 54								
	NATIVE SPECIES	6	Native	6	100.00%	Adventive	0	0.00%
	Total Species	6	Tree	1	16.70%	Tree	0	0.00%
	NATIVE MEAN C	1.8	Shrub	2	33.30%	Shrub	0	0.00%
	W/Adventives	1.8	W-Vine	0	0.00%	W-Vine	0	0.00%
	NATIVE FQI	4.5	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	4.5	P-Forb	2	33.30%	P-Forb	0	0.00%
	NATIVE MEAN W	-3.3	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-3.3	A-Forb	0	0.00%	A-Forb	0	0.00%
	Fac. Wetland	AVG	P-Grass	0	0.00%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	1	16.70%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			

Wetland Complex	Floristic Quality Assessment							
	Floristic Quality Summary		Physiognomy	Number	Percent	Physiognomy	Number	Percent
Wetland Complex 56	NATIVE SPECIES	10	Native	10	76.90%	Adventive	3	23.10%
	Total Species	13	Tree	3	23.10%	Tree	0	0.00%
	NATIVE MEAN C	2.8	Shrub	2	15.40%	Shrub	1	7.70%
	W/Adventives	2.2	W-Vine	0	0.00%	W-Vine	0	0.00%
	NATIVE FQI	8.9	H-Vine	0	0.00%	H-Vine	0	0.00%
	W/Adventives	7.8	P-Forb	1	7.70%	P-Forb	2	15.40%
	NATIVE MEAN W	-3.1	B-Forb	0	0.00%	B-Forb	0	0.00%
	W/Adventives	-2.8	A-Forb	0	0.00%	A-Forb	0	0.00%
	Fac. Wetland	AVG	P-Grass	2	15.40%	P-Grass	0	0.00%
			A-Grass	0	0.00%	A-Grass	0	0.00%
			P-Sedge	2	15.40%	P-Sedge	0	0.00%
			A-Sedge	0	0.00%	A-Sedge	0	0.00%
			Fern	0	0.00%			

ATTACHMENT C-6

Table 3.5

Relative Functions and Values Associated with
Each Wetland Complex

Table 3.5 Functions and Values Associated with Each Wetland Complex
 (Wetlands impacted by any of the 3 alternatives are highlighted in yellow. Top 3 values/functions for each wetland complex are highlighted in light blue with the top 3 functions ranked: #¹ = first #² = second #³ = third)

Wetland Functions/Values	Wetland Complex Number																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Flood and storm water control	2 ¹	3 ²	2	0	1	1	1	1	1	0	3 ¹	3 ¹	3 ¹	0	1	0	1 ¹	1				
Wildlife habitat for mammals	2	2	2 ³	0	1	1	1	1	1	1 ³	2	2	1	1 ³	2 ²	1 ²	1	1	1	1	1	1
Wildlife habitat for waterfowl	2	3	0	0	1	0	0	0	1	0	0	2	2	0	0	1	1	1	1	1	1	1
Wildlife habitat for amphibians and reptiles	2 ²	3 ¹	2	0	1	1	1	1	2 ²	1 ²	2	2	1	1 ²	2 ³	1 ³	1	1	1	1	1	2 ¹
Wildlife habitat for songbirds	2	3 ³	2 ²	0	1 ³	1 ³	1 ³	1 ²	1	1	1	2	1	1	2 ¹	1	1	1	1	1	1	1
Fish habitat	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Supports State listed endangered, threatened, or special concern plants or animals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Supports Federally listed endangered or threatened plants or animals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Protection of subsurface water resources (groundwater recharge)	1	2	2	0	1	2 ¹	1	0	1	0	1	1	1	0	1	0	0	0	0	0	0	1
Filtration and nutrient uptake	2 ³	2	3 ¹	0	2 ¹	2 ²	2 ¹	1 ¹	2 ¹	1 ¹	2 ²	2 ²	2 ²	1 ¹	1	1 ¹	1 ²					
Pollution treatment (biological and chemical oxidation basin)	2	2	2	0	2 ²	1	2 ²	1 ³	2 ³	0	2	1	2 ³	0	1	1	1 ³					
Erosion control	2	2	1	0	1	1	1	0	1	0	2 ³	2 ³	1	0	0	0	1	1	1	1	1	0
Provide nutrient inputs for downgradient water food cycles	1	1	1	0	1	1	1	0	1	0	1	1	1	0	0	0	1	1	1	1	1	0
Aesthetics; Natural beauty	2	3	2	1 ¹	2	2	1	1	1	1	2	2	1	1	2	1	1	1	1	1	1	1

0 – No Values/Function

1 = Minimal Value/Function

2 – Moderate Value/Function

3 – High Degree of Value/Function

Wetland Functions/Values	Wetland Complex Number																					
	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
Flood and storm water control	1 ¹	1	0	2	2	2	1	1	2 ³	0	0	3	1 ¹	3 ¹	1 ¹	2 ²						
Wildlife habitat for mammals	1	1	1 ²	3 ²	2 ²	3 ³	1 ³	1 ³	2	1 ²	1 ²	3 ²	1	2	1	1	1	1	1	1	1	1
Wildlife habitat for waterfowl	1	0	0	1	0	1	1	1	1	0	0	2	1	2	1	1	1	1	1	1	1	1
Wildlife habitat for amphibians and reptiles	1 ²	2 ¹	1 ³	3 ³	1 ³	3 ¹	1 ¹	1 ¹	3 ¹	1 ³	1 ³	3 ¹	1	3 ³	1	1	1	1	1	1	1	2
Wildlife habitat for songbirds	1	1 ²	1 ¹	3 ¹	2 ¹	3 ²	1 ²	1 ²	3 ²	1 ¹	1 ¹	2	1	2	1	1	1	1	1	1	1	1
Fish habitat	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0
Supports State listed endangered, threatened, or special concern plants or animals	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0
Supports Federally listed endangered or threatened plants or animals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Protection of subsurface water resources (groundwater recharge)	1	1	0	2	1	2	1	1	2	0	0	3	0	3	0	0	0	0	0	0	0	1
Filtration and nutrient uptake	1 ³	1 ³	1	2	1	2	1	1	2	1	1	3 ³	1 ²	3 ²	1 ²	3 ¹						
Pollution treatment (biological and chemical oxidation basin)	1	1	0	2	1	2	1	1	1	1	1	3	1 ³	3	1 ³	2 ³						
Erosion control	1	0	0	1	0	1	0	0	0	0	0	2	1	3	1	1	1	1	1	1	1	1
Provide nutrient inputs for downgradient water food cycles	0	0	0	1	0	1	0	0	1	0	0	2	1	2	1	1	1	1	1	1	1	1
Aesthetics; Natural beauty	1	2	1	3	1	3	1	1	3	1	1	3	1	3	1	1	1	1	1	1	1	1

Wetland Functions/Values	Wetland Complex Number																							
	45	46	47	48	49	50	51	52	53	54	55	56												
Flood and storm water control	0	1	1	1 ¹	1	1 ¹	1																	
Wildlife habitat for mammals	1	1	1	1	1	1	1	1	1	1 ³	1	2												
Wildlife habitat for waterfowl	0	1	1	0	0	1	1	1	1	0	1	0												
Wildlife habitat for amphibians and reptiles	1 ¹	1 ¹	1 ¹	1	1	1	1	1	1	1 ²	1	2 ³												
Wildlife habitat for songbirds	1	1 ³	1 ³	0	1	1	1	1	1	2 ¹	1	2												
Fish habitat	0	1	1	0	0	0	0	0	0	0	0	0												
Supports State listed endangered, threatened, or special concern plants or animals	0	0	0	0	0	0	0	0	0	0	0	0												
Supports Federally listed endangered or threatened plants or animals	0	0	0	0	0	0	0	0	0	0	0	0												
Protection of subsurface water resources (ground water recharge)	0	0	0	1	1	0	0	0	0	0	0	1												
Filtration and nutrient uptake	1 ²	1	1	1 ²	1	1 ²	3 ¹																	
Pollution treatment (biological and chemical oxidation basin)	1 ³	1	1	1 ³	1	1 ³	2 ²																	
Erosion control	1	1 ²	1 ²	1	1	1	1	1	1	1	1	0												
Provide nutrient inputs for downgradient water food cycles	0	1	1	0	0	1	1	1	1	0	1	0												
Aesthetics; Natural beauty	1	1	1	1	1	1	1	1	1	1	1	2												

ATTACHMENT C-7

Table 3.6

Wetland Complexes Impacted by Blue Water Bridge Plaza Alternatives

Table 3.6 Wetland Complexes Impacted by Blue Water Bridge Plaza Alternatives (N = No Impact; P = Partial Impact; C = Complete)

Wetland Complex	ALTERNATIVES 1 AND 2	ALT-3
1	N	N
2	N	N
3	N	N
4	N	N
5	N	C
6	N	C
7	N	C
8	N	C
9	N	P
10	N	N
11	N	N
12	N	N
13	N	N
14	N	N
15	N	N
16	N	C
17-21; 35; 37-43; 50-53, 55	NA	NA
22	N	P
23	N	C
24	N	C
25	N	N
26	N	P
27	N	N
28	N	N
29	N	N
30	N	N
31	N	N
32	N	N
33	N	N
34	N	P
36	N	P
44	N	N
45	C	C
46	C	C
47	C	C
48	C	C
49	C	C
54	N	P
56	N	N

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Table 3.7

Estimated Area of Wetland Impact by Blue Water Bridge Plaza
Alternatives

Table 3.7 Estimated Area of Wetland Impact by Blue Water Bridge Plaza Alternatives (Acres)

Wetland Complex	ALTERNATIVES 1 AND 2		ALTERNATIVE 3			
	Palustrine Emergent	Palustrine Scrub Shrub	Palustrine Emergent	Palustrine Forested	Palustrine Scrub Shrub	Riverine (Stocks Creek only)
1	0.000	0.000	0.000	0.000	0.000	0.000
2	0.000	0.000	0.000	0.000	0.000	0.000
3	0.000	0.000	0.000	0.000	0.000	0.000
4	0.000	0.000	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.150	0.000	0.000
6	0.000	0.000	0.000	0.200	0.000	0.000
7	0.000	0.000	0.000	0.230	0.000	0.000
8	0.000	0.000	0.000	0.000	0.180	0.000
9	0.000	0.000	0.000	0.000	0.068	0.000
10	0.000	0.000	0.000	0.000	0.000	0.000
11	0.000	0.000	0.000	0.000	0.000	0.000
12	0.000	0.000	0.000	0.000	0.000	0.000
13	0.000	0.000	0.000	0.000	0.000	0.000
14	0.000	0.000	0.000	0.000	0.000	0.000
15	0.000	0.000	0.000	0.000	0.000	0.000
16	0.000	0.000	0.060	0.000	0.000	0.000
17-21; 35; 37-43; 50-53, 55	NA	NA	NA	NA	NA	NA
22	0.000	0.000	0.179	0.000	0.000	0.000
23	0.000	0.000	0.117	0.000	0.023	0.000
24	0.000	0.000	0.000	0.000	0.060	0.000
25	0.000	0.000	0.000	0.000	0.000	0.000
26	0.000	0.000	0.000	0.178	0.059	0.000
27	0.000	0.000	0.000	0.000	0.000	0.000
28	0.000	0.000	0.000	0.000	0.000	0.000
29	0.000	0.000	0.000	0.000	0.000	0.000
30	0.000	0.000	0.000	0.000	0.000	0.000
31	0.000	0.000	0.000	0.000	0.000	0.000
32	0.000	0.000	0.000	0.000	0.000	0.000
33	0.000	0.000	0.000	0.000	0.000	0.000
34	0.000	0.000	0.798	0.618	0.287	0.012
36	0.000	0.000	0.226	0.000	0.000	0.000
44	0.000	0.000	0.000	0.000	0.000	0.000
45	0.220	0.000	0.220	0.000	0.000	0.000
46	0.060	0.000	0.060	0.000	0.000	0.000
47	0.350	0.000	0.350	0.000	0.000	0.000
48	0.020	0.000	0.020	0.000	0.000	0.000
49	0.000	0.020	0.000	0.020	0.000	0.000
54	0.000	0.000	0.032	0.000	0.032	0.000
56	0.000	0.000	0.000	0.000	0.000	0.000
TOTALS	0.650	0.020	2.062	1.396	0.709	0.012
TOTAL IMPACT	0.670		4.179			