



**Lower Henry Schuette Park  
Restoration Plan**

City of Manitowoc, Wisconsin

*Prepared for:*

Lakeshore Natural Resource Partnership  
and  
Friends of Manitowoc River Watershed  
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## 1.0 INTRODUCTION AND PURPOSE

Lakeshore Natural Resource Partnership (LNRP), in cooperation with the Friends of Manitowoc River (the “Friends”) and the City of Manitowoc (the “City”), are proposing ecological restoration and enhancement activities within a 18-acre portion of the Lower Henry Schuette Park in the City of Manitowoc, Manitowoc County, Wisconsin (the “Project”). These activities are focused on removing invasive plant species, establishing and maintaining appropriate native plant communities, and improving public access to the unique natural features of the Project area. Stantec Consulting Services Inc. (Stantec) has prepared this Restoration Plan on behalf of LNRP as a resource guide for restoration planning and implementation. This plan includes background information, restoration goals and objectives, and an implementation plan to restore native habitats in a portion of Lower Henry Schuette Park.

## 2.0 BACKGROUND INFORMATION

General information about the Project site and its historic and existing environmental conditions presented herein is based on preliminary investigations conducted by Stantec in November 2019. This investigation included a site visit to evaluate existing conditions, as well as research and analysis of publicly available GIS data, historic information, and natural resources records. An evaluation of herbaceous species was limited due to the timing of the site investigation. As such, these findings are limited to the information available at the time of the investigation and should be considered preliminary.

### 2.1 SITE CONTEXT AND CURRENT LAND USES

Lower Henry Schuette Park is a public natural area owned and operated by the City of Manitowoc. Henry Schuette Park is a 65.17-acre park that is adjacent to the Manitowoc River. The Manitowoc River borders the north and east sides of the park. The CN railroad is the south boundary and Broadway Street is the west boundary of the park. Residential neighborhoods are located to the south and east of the park. This Project focuses on the 18-acre southern portion of the park, known as Lower Henry Schuette Park. The Project entrance is located at Broadway Street at the southwest end of the park. An off-street parking lot is located near the kayak launch, picnic shelter and the fitness area at the entrance of the park.

Henry Schuette Park is a local favorite for nature lovers and includes various wildlife communities, a community-built playground, open air shelters, grills, a kayak launch, exercise equipment, fishing areas, and over six miles of nature and cross-country skiing trails. A portion of the Ice Age National Scenic Trail, a popular 1,200-mile footpath showcasing the State of Wisconsin’s unique glacial landscapes, traverses the park and crosses the Manitowoc River at a bridge connecting Manitou Park to Henry Schuette Park.

### 2.2 HISTORY OF SITE

Lower Henry Schuette Park is positioned in the Central Lake Michigan Ecological Landscape, an area largely defined by its glacial landscape such as moraines, drumlins, kettle depressions, and drainage and tunnel channels. One of the main glacial features is the Kettle Interlobate Moraine formed between the Green Bay and Lake Michigan glacial lobes during the Woodfordian ice advance.

Historically, Henry Schuette Park was primarily industrial and operated as a major railroad line. According to the Manitowoc Historical Society, the park has had multiple owners and uses in the past. In the 1890s it

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was owned by W.G. Lueps. Leups was one of the earliest settlers of Manitowoc County. He came to Wisconsin in 1850 from Germany and was active in the development of railroads in the area, including the Milwaukee, Manitowoc and Green Bay Railroad. After almost 25 years of directing the railroad he resigned as the company went into foreclosure. The area was owned by the Soo Line in the early 1900s and was used as a right-of-way for the railroad.

During the 1920s, the Project site was used as a material source for the City. The material mined from the area was clay, and the Site was known as the Manitowoc Clay Pit. The clay was used in cement production at the Manitowoc Portland Cement plant on Spring Street. The Site continued to produce clay into the early 1970s.

In 1978, 16 acres of land was donated to the City of Manitowoc by Henry and Helen Schuette to become a park. In 1980, the Medusa Cement Company donated 60 acres of land to the City of Manitowoc. The two donations of land comprise the 65-acre park that was named after Henry Schuette and is now a beloved park for the community.

The resulting landscape has been significantly altered as a result of past land use and any restoration efforts going forward will need to thoroughly evaluate site conditions. As such, initial restoration efforts will focus on the proposed Project site and further site evaluations and restoration feasibility will be completed on the rest of the park property.

## 2.3 HYDROLOGY AND DRAINAGE

The Project is situated in the Manitowoc River-Frontal Lake Michigan Watershed, and the Manitowoc River flows adjacent to the park draining directly into Lake Michigan. The Manitowoc River watershed is one of the largest watersheds in the Lakeshore basin covering about 542 square miles and draining parts of four counties (Hogler et al. 2006). The Manitowoc River is listed as one of Wisconsin's 2018 impaired waters (303d list) with poor general condition. Impairments include degraded biological community, PCB contaminated sediments, PCB contaminated fish tissue, and pollutants include PCBs and Total Phosphorus. Fish consumption advisories are currently in place for this waterbody.

The Wisconsin Wetland Inventory (WWI) map identifies wetlands located along both banks of the Manitowoc River, near the kayak launch, on the islands within the river, and in the northern portion of the park. The wetlands within the park boundary are classified by the WWI as forested, emergent/wet meadow, and shrub wetlands. The Federal Emergency Management Agency (FEMA) has mapped floodplain along the Manitowoc River, most of which is floodway with little flood fringe.

## 2.4 HISTORIC AND EXISTING VEGETATION PATTERNS

Historically, most of the Central Lake Michigan Ecological Landscape, including the Project area, was vegetated with mesic hardwood forest including sugar maple (*Acer saccharum*), American basswood (*Tilia americana*), and American beech (*Fagus grandifolia*). Much of the upland forest has been removed over the past 150 years as land was converted to agricultural, residential, and industrial uses. Currently, approximately 84% of this ecological landscape is non-forested compared to 96% forested historically. The remaining forest consists mainly of mesic maple-basswood or maple-beech types, or lowland hardwoods composed of red maple (*Acer rubrum*), silver maple (*A. saccharinum*), ashes (*Fraxinus* spp.), and elms (*Ulmus* spp.).

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Today, the Project is comprised of remnant mesic hardwood forest, hardwood/shrub swamp and wet meadow/emergent communities (Figure 1). The mesic hardwood forest community is dominated by a diverse, closed canopy of red oak (*Quercus rubra*), American beech, American basswood, ash, ironwood (*Ostrya virginiana*), black cherry (*Prunus serotina*), box elder (*Acer negundo*), birches (*Betula alleghaniensis*, *B. papyrifera*), sugar maple, and aspen (*Populus* spp.). Shrubs present include non-natives including southern arrowwood (*Viburnum rafinesquianum*), common buckthorn (*Rhamnus cathartica*), and bush honeysuckle (*Lonicera tatarica*). Non-native herbs present include Dame's rocket (*Hesperis matronalis*) and garlic mustard (*Alliaria petiolata*) although the distribution and abundance of these species is unknown at this time due to snow cover at the time of site assessment. A series of improved and unimproved hiking paths bisect this community.

The hardwood swamp/shrub swamp community is dominated by an open canopy of ash, sandbar willow (*Salix interior*), common buckthorn and bush honeysuckle. Herbaceous species are comprised of blue-joint grass (*Calamagrostis canadensis*), sedges (*Carex* spp.) and common goldenrod (*Solidago canadensis*). Scattered non-native reed canary grass (*Phalaris arundinacea*) was observed. The southern portion of this community appears to contain seasonal standing water, which is likely influenced by stormwater inputs.

The wet meadow/emergent community is adjacent to the Manitowoc River and is influenced by seasonal changes in water levels. This herbaceous community is dominated by reed canary grass, and less commonly Canada thistle (*Cirsium arvense*), sedges, blue-joint grass, great angelica (*Angelica atropurpurea*) and scattered box elder and honeysuckle. Access improvements such as a boardwalk, hiking path, canoe launch and associated dock are present in this community.

## 3.0 PROJECT GOALS AND OBJECTIVES

The primary objective of the Project is to restore ecological function and value of the Project by establishing sustainable native plant communities which are representative of historic (pre-settlement) conditions and appropriate for the current site context and land use. This objective includes the following restoration and management goals:

- Remove invasive species, hazard trees (dead/dying ash near park facilities) and thin aggressive native species, such as box elder.
- Revegetate with native plants, including trees, shrubs, and herbaceous species
- Develop and implement short-term and long-term site management programs which provide for ongoing environmental monitoring, invasive species control, site stewardship, and vegetation enhancement.

A secondary objective of the Project is to provide additional opportunities for public access, recreation, education, and outreach at Lower Henry Schuette Park. While specific outcomes will be developed in coordination with Project stakeholders, general goals associated with this objective include:

- Enhance walking/skiing trails, trail signage, and picnic and exercise areas.
- Provide educational and cultural opportunities through the addition of a pollinator garden, interpretive signage and public art, and through coordination with local school groups, non-profit organizations and neighborhood associations.

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- Foster community involvement through volunteer program development (site stewardship) and hosting of community events which promote the Project objectives.

## 4.0 SITE ASSESSMENT AND PLANNING

Recommendations provided within this Restoration Plan are based on preliminary assessment of the general existing conditions at the Project site. While this information is sufficient to guide the overall trajectory of the Project, additional site investigation and planning is needed to address specific ecological impairments and localized conditions. The restoration implementation process should be conducted alongside these assessment and planning efforts and adapted to respond to additional findings, system responses, and local community input. Site assessment and planning tasks are anticipated to include the following:

- Site Improvements Planning – Project stakeholders should work collaboratively to develop plans for improvement of trails, access routes, site furnishings, and other features which advance goals for public access.
- Community Outreach – Project stakeholders should partner with community leaders, schools, neighborhood associations and local governments to develop plans for public education and outreach. Efforts to promote awareness of ecological issues affecting the site, foster community support, and engage volunteer stewards will work toward the Project goals.
- Shoreline stabilization – Project stakeholders may want to consider shoreline stabilization measures along the Manitowoc River for the entire shoreline of Henry Schuette Park. Site assessments to characterize shoreline condition and conceptual plan development are recommended. The conceptual plan would address portions of the shoreline where erosion has been observed, or where in-stream habitat improvements are recommended.

## 5.0 RESTORATION IMPLEMENTATION PLAN

Restoration implementation will involve the removal of selected trees and shrubs, invasive plant control through targeted herbicide applications, installation of native seed and plant materials, and monitoring and management to ensure continued success. The plan will be implemented in phases by plant community and will rely on volunteer support, partner non-profits and professional restoration services, pending funding availability. Proposed restoration units are displayed on Figure 1.

### 5.1 WET MEADOW / EMERGENT RESTORATION

The primary focus of restoration efforts within the 0.92-acre Wet Meadow / Emergent Restoration unit (Figure 1) is to control non-native herbaceous species such as reed canary grass and Canada thistle, and to establish diverse, native wetland plants with a focus on increasing pollinator habitat. Scattered non-native shrubs and native box elder will be removed to maintain an open canopy with views and access to the river.

Invasive and non-native herbaceous species will be treated throughout the management unit in preparation for revegetation with native seed and plugs. Treatment methods will include application of both non-selective and selective herbicides a minimum of three times during the first growing season. Herbicide applications will target all previously identified non-native and invasive species. Within areas of the site which contain mixed native and non-native groundcover or more conservative native species, spot spraying

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or wicking methodologies may be utilized to protect native plants from damage. In those areas dominated by invasive species, herbicide treatments are likely to be made via broadcast application and impacts to nontarget natives in the vicinity may occur. Target species will include all non-native species encountered and will focus particularly on persistent perennial and colonial species such as reed canary grass and Canada thistle.

It is anticipated that the majority of the tree and shrub removal work will be completed using chainsaws and brush saws. Target trees and shrubs will be cut within three inches of the ground surface. Stumps and root structures shall be left intact and will be treated with an appropriate herbicide within two hours of cutting to prevent re-sprouting. Woody debris will be disposed of on-site via brush pile burning or will be chipped and disposed of in an off-site location or used as trail mulch. If desired, larger logs may be stockpiled for use or sale by the City or other project stakeholders as firewood. It is anticipated that tree and shrub removal will be performed by a combination of resources – potentially exploiting the City’s capabilities for large tree removal, while utilizing a professional restoration contractor for ecological oversight and removal of invasive brush. While final responsibilities are yet to be determined, efficient and cost-effective execution of this task will require a coordinated approach. Based on the existing areas of coverage by non-native, invasive, and aggressive species within the Wet Meadow / Emergent Restoration unit, it is anticipated that most of the existing vegetation in the herbaceous strata will be removed in order to prepare the management unit for revegetation with native plants.

Following sufficient control of invasive species, the management unit will be seeded with a mix of native seed and plugs. Recommended species for seeding are included in Appendix B. These include grasses, sedges and forbs, characteristic of the wetland community. The seed mix will also include pioneering native species and annual cover crops which are adapted for early establishment following disturbance. Native seed will be sown via hand-broadcast and plant plugs will be installed during the spring following adequate control of target invasive species. The seed bed may be prepared by mowing, burning, raking, or other means of removing thatch and excessive organic debris prior to seed distribution. It is anticipated that seeding will occur during the early dormant season following site preparation (September-October) to allow for establishment of annual cover crops prior to hard frost.

## 5.2 HARDWOOD SWAMP RESTORATION

The primary focus of restoration efforts with the 4.01-acre Hardwood Swamp Restoration unit (Figure 1) is to control non-native or aggressive herbaceous and woody species and establish a diverse native wetland forest cover. Target species will include reed canary grass, buckthorn, honeysuckle, other non-native woody species, and box elder and ash where feasible and appropriate, or where safety concerns dictate (i.e., dead ash due to Emerald Ash Borer infestation). Reed canary grass control will include application of non-selective and/or grass-selective herbicides a minimum of two times during the growing season. Spot spraying or wicking methodologies will be utilized to protect native plants from damage. Based on the scattered coverage by reed canary grass, it is anticipated that only spot treatments/wicking will be needed. Native seed will be installed in the treatment areas as needed following adequate control of the target species. Similar to the Wet Meadow / Emergent Restoration unit, it is anticipated the tree and shrub removal work will be completed by hand (chainsaws and brush saws). Target trees and shrubs will be cut within three inches of the ground surface, and stumps and root structures shall be left intact and treated with an appropriate herbicide. Herbicide treatments will occur within two hours of cutting to prevent re-sprouting. Woody debris will be disposed of on-site via brush pile burning or will be chipped and disposed of in an off-site location concurrently with the Wet Meadow / Emergent Restoration unit.

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To restore a hardwood swamp community, native shrubs and trees will be installed throughout the management unit. The intent of tree and shrub planting is to enhance species diversity and structure to the hardwood swamp community. Woody species will be installed scattered throughout the management unit to provide a heterogeneous mix of woody structure without over-shading herbaceous groundcover. Planting of native trees and shrubs will also serve to replace important wildlife habitat provided by the canopy and understory, particularly for migratory birds which utilize the river corridor for seasonal foraging, migratory stopover, and nesting habitat. Recommended species for tree and shrub planting are provided in Appendix B. Final tree and shrub planting locations and quantities will be determined following additional site assessment and will be marked in the field prior to installation.

### 5.3 MESIC FOREST ENHANCEMENT

The primary focus of enhancement efforts with the 7.36-acre Mesic Forest Enhancement unit is to control non-native or aggressive herbaceous and woody species and enhance tree species diversity to promote resiliency and wildlife habitat. Target herbaceous species include Dame's rocket, garlic mustard and other aggressive non-native species. Target woody species include buckthorn, honeysuckle, other non-native woody species. Spot spraying application of both non-selective and selective herbicides will occur a minimum of two times during the first growing season. This technique protects native plants from damage as herbicide will be applied to only the target species. Non-native shrub removal will be completed by hand (chainsaws and brush saws), with shrubs cut within three inches of the ground surface. Herbicide treatments of stumps and root structures will occur within two hours of cutting to prevent re-sprouting, while debris will be disposed of on-site via brush pile burning or chipped and disposed of in an off-site location, concurrent with the adjacent management units.

The mesic forest community enhancement will include installation of native shrubs and trees, as needed throughout the management unit to maintain a diverse canopy of native trees. Native tree and shrub planting will enhance the canopy structure to promote resilience without over shading the herbaceous groundcover. Woody species will be dispersed throughout the management unit to provide an assorted mix of woody structure and improve plant diversity. Planting of native trees and shrubs will also support important habitat values including stopover habitat for migratory birds, which utilize the Project area for seasonal foraging, cover, and nesting. Recommended species for tree and shrub planting are provided in Appendix B. Final tree and shrub planting locations will be determined following additional site assessment and will be marked in the field prior to installation.

### 6.0 SHORELINE STABILIZATION/ IN-STREAM HABITAT

During the site assessment, minor bank erosion was noted along the Manitowoc River, but a thorough assessment was not completed along the entire length of Henry Schuette Park. Shoreline protection may be needed, and a site assessment by a qualified stream engineer is recommended. Shoreline protection may consist of restoring and protecting the banks of the Manitowoc River against scour and erosion by using a combination of vegetative plantings, soil bioengineering, and structural systems. The goal of any shoreline protection measures will be to stabilize stream banks, prevent erosion, and improve aquatic habitats between the toe of the bank slope and the bankfull bench. Further assessments are necessary to evaluate the level of effort.

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## 7.0 POST-PLANTING MAINTENANCE

Once installed, native trees and shrubs will require some maintenance to become established. Typically, post-planting maintenance involves watering, pruning, mulching, and protecting installed plant materials from herbivory. Depending upon the final timing of installation, it is anticipated that up to six watering events will be required for all trees and shrubs. Watering will be completed using conventional methods (water tanks, pumps, and hoses) to apply water directly to each plant or to a watering bag. In order to decrease the potential for soil erosion, methods such as remote watering (spraying), flooding, and sprinkler irrigation will be avoided.

Pruning, mulching, and herbivory protection will be performed on an as-needed basis to respond to site conditions. Pruning should be performed only to remove dead or diseased wood, or to benefit overall plant survivability. Mulching is not required but may be beneficial for retaining soil moisture and reducing weed competition during the establishment period. Herbivory protection may be required to protect woody plants from browsing by deer, rabbits, and other small mammals. Depending upon the herbivory pressure and site conditions, plants may be protected by fencing, tree tubes, or application of a natural deterrent.

## 8.0 SITE STEWARDSHIP

Following preliminary restoration activities, the Project site will be maintained to promote the successful establishment of native plant communities. Because weed competition and other disturbance vectors are most impactful during the early stages of native plant development, maintenance needs are typically highest during the establishment period. This initial establishment period typically lasts up to three years but should continue until the desired cover of native vegetation has been achieved. Once target plant communities have been substantially established, a long-term maintenance plan will be adopted to provide for periodic monitoring and management. Cost estimates for this task assume three years of site stewardship.

### 8.1 ADAPTIVE MANAGEMENT

Stewardship of the Project site will follow an adaptive management approach, whereby maintenance, repair, and enhancement activities are responsive to changing site conditions over time. The Project site is a relatively dynamic ecosystem and is likely to respond variably to restoration inputs. Potential corrective measures may include supplementary seeding, live plant installation, and/or changes to the monitoring and maintenance requirements.

### 8.2 INVASIVE SPECIES MANAGEMENT

A primary focus of site stewardship activities will be the ongoing control of invasive species within the Project area. Invasive species control will be performed on an adaptive basis according to the site conditions and system responses encountered at various portions of the Project area over time. As such, target species, treatment timing, and treatment methods will be determined by periodic monitoring. Typically, these methods include hand pulling of shallow-rooted weeds where they occur as scattered individuals; spot herbicide treatment of biennial and perennial weeds and woody resprouts via low-pressure spray, wicking, or stump treatment; and herbicide treatment of heavy infestations of persistent weeds via pistol-spraying or broadcast application.

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### 9.0 MONITORING AND REPORTING

The monitoring period will commence after initial installation of native plant materials is complete. The purpose of monitoring is to evaluate the status of the restoration and native plant establishment, and to determine the need for maintenance or remedial action. The restored plant communities will be monitoring throughout the establishment period, until sufficient native cover is achieved. Vegetation will be monitored annually during the growing season using a pedestrian survey to evaluate developing native plant cover and distribution of invasive species.

The results of site monitoring shall be summarized in an annual update to the Project stakeholders which provides a narrative description of observed site conditions, vegetation monitoring data in tabular form, a record of management actions performed, and recommendations for future site stewardship.

### 10.0 IMPLEMENTATION SCHEDULE

Pending additional input from stakeholders, the Project may be implemented by management unit to accommodate available funding, resource allocations, and other constraints. For planning purposes, costs are provided below by management unit (Table 1).

**Table 1. Proposed Implementation Schedule**

Restoration Task	Proposed Timeline											
	2020			2021			2022			2023		
Invasive Treatments												
Tree and Shrub Removal												
Native Seeding												
Native Plug Planting												
Native Tree and Shrub Planting												
Site Stewardship												

### 11.0 COST ESTIMATE

A preliminary estimate of probable costs associated with the proposed planning and restoration implementation tasks is included in Table 2. Implementation of the Project will likely require budget flexibility to respond to final funding availability, volunteer contribution, and support from the City or other Project stakeholders. Contributions from the City and volunteer groups have the potential to greatly decrease the overall restoration costs associated with the Project. Depending upon the capabilities and availability of these resources, there are several work tasks in each phase which may be suitable for the City or volunteers to assist or lead. These are indicated in Table 2. Cost estimates provided herein are provided for Project planning purposes only.

Cost estimates do not include costs associated with the implementation of cultural / recreational site improvements, streambank stabilization or public outreach tasks which may be pursued as part of the Project. The scope of such tasks is yet to be determined.

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**Table 2. Estimated Project Costs**

Restoration Task	Potential City / Volunteer / WisCorps Support	Preliminary Cost Estimate
<b>Wet Meadow/Emergent Unit – 0.92 acres</b>		
Invasive Treatments		\$3,900
Tree and Shrub Removal*	✓	\$200 (WisCorps) \$600 (Professional)
Native Seeding		\$1,900
Native Plug Planting	✓	\$4,600
<b>Wet Meadow / Emergent Total</b>		<b>\$11,200</b>
<b>Hardwood Swamp Unit – 4.01 acres</b>		
Invasive Treatments		\$7,000
Tree and Shrub Removal*	✓	\$3,000 (WisCorps) \$1,500 (Professional)
Tree and Shrub Planting	✓	\$20,000
<b>Hardwood Swamp Total</b>		<b>\$31,500</b>
<b>Mesic Forest Enhancement – 7.36 acres</b>		
Invasive Treatments		\$2,000 (approx.)
Tree and Shrub Removal*	✓	\$5,100 (WisCorps) \$3,900 (Professional)
Tree and Shrub Planting	✓	\$3,500
<b>Mesic Forest Enhancement Total</b>		<b>\$14,500</b>
<b>Subtotal</b>		<b>\$57,200</b>
<b>3-year Site Maintenance</b>		<b>\$36,200</b>
<b>Total Estimated Project Cost</b>		<b>\$93,400</b>

\*Proposed cost assumes all tree and shrub removal will be complete at the same time across all units.

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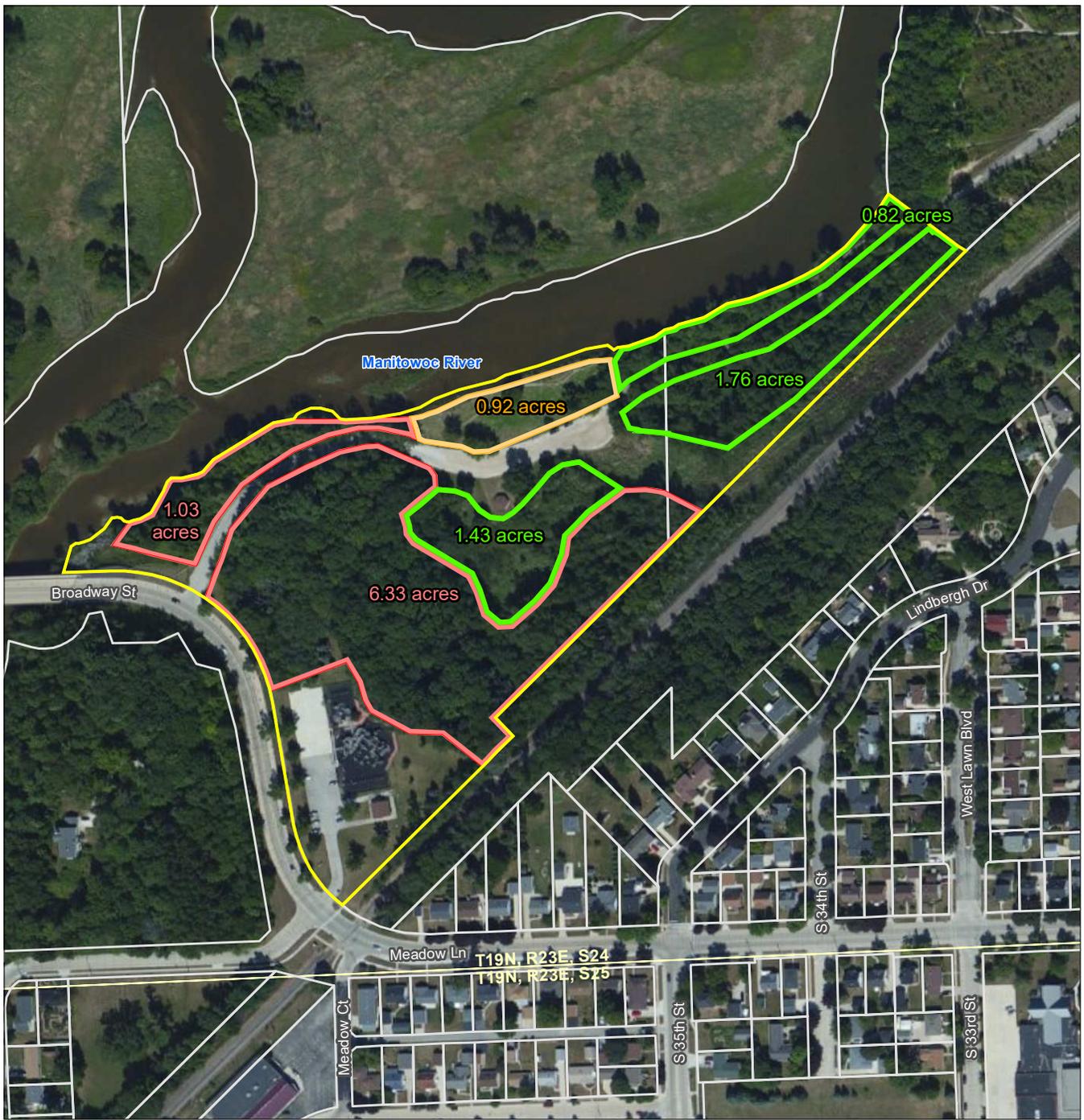
## 12.0 REFERENCES

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## Appendix A **FIGURE**



- Legend**
- Project Area
  - Hardwood Swamp Restoration
  - Mesic Forest Enhancement
  - Wet Meadow/Emergent Restoration
  - Parcel Boundary

**Notes**

1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
2. Data Sources Include: Stantec, WisDOT, WDNR
3. Orthophotography: NAIP 2017

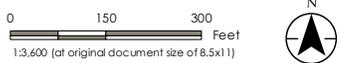
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Figure No. **1**  
 Title **Restoration Plan**

Client/Project  
 Lakeshore Natural Resource Partnership  
 Lower Schuette Restoration

Project Location  
 T19N, R23E, S24, S 34th St  
 T. of Manitowoc,  
 Manitowoc Co., WI

19370226  
 Prepared by SF on 2019-11-12  
 Technical Review by BF on 2019-11-12  
 Independent Review by MB on 2020-01-28



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## **Appendix B PROPOSED SEEDING AND PLANTING LISTS**

## Lower Henry Schuette Park Wet Meadow/Emergent Proposed Seeding Mix

Scientific Name	Common Name	Quantity (Oz/Acre)
<b>Grasses</b>		
<i>Calamagrostis canadensis</i>	Blue Joint Grass	0.30
<i>Cinna arundinacea</i>	Wood Reed Grass	0.50
<i>Elymus virginicus</i>	Virginia Wild Rye	12.00
<i>Glyceria striata</i>	Fowl Manna Grass	0.50
<i>Muhlenbergia mexicana</i>	Leafy Satin Grass	1.00
<i>Poa palustris</i>	Fowl Meadow Grass	2.00
	<b>Total of Grasses</b>	<b>16.30</b>
<b>Sedges and Rushes</b>		
<i>Carex bebbii</i>	Bebb's Oval Sedge	1.00
<i>Carex scoparia</i>	Lance-fruited Oval Sedge	2.00
<i>Carex stipata</i>	Common Fox Sedge	0.50
<i>Carex vulpinoidea</i>	Brown Fox Sedge	1.00
<i>Juncus effusus</i>	Common Rush	0.20
<i>Scirpus atrovirens</i>	Dark-green Bulrush	0.50
<i>Scirpus cyperinus</i>	Wool Grass	0.10
	<b>Total Sedges and Rushes</b>	<b>5.30</b>
<b>Forbs</b>		
<i>Angelica atropurpurea</i>	Great Angelica	6.00
<i>Asclepias incarnata</i>	Swamp Milkweed	1.00
<i>Epilobium coloratum</i>	Cinnamon Willow Herb	0.30
<i>Eupatorium perfoliatum</i>	Boneset	1.00
<i>Euthamia graminifolia</i>	Grass-leaved Goldenrod	0.50
<i>Eutrochium maculatum</i>	Joe Pye Weed	2.00
<i>Helenium autumnale</i>	Sneezeweed	2.00
<i>Hypericum ascyron ssp. pyramidatum</i>	Great St. John's Wort	1.00
<i>Lobelia cardinalis</i>	Cardinal Flower	0.30
<i>Lobelia siphilitica</i>	Great Blue Lobelia	0.20
<i>Mimulus ringens</i>	Monkey Flower	0.20
<i>Physostegia virginiana</i>	Obedient Plant	1.00
<i>Pycnanthemum virginianum</i>	Mountain Mint	0.40
<i>Rudbeckia laciniata</i>	Wild Golden Glow	2.00
<i>Solidago patula</i>	Swamp Goldenrod	0.40
<i>Solidago riddellii</i>	Riddell's Goldenrod	1.00
<i>Symphyotrichum lanceolatum</i>	Panicled Aster	0.25
<i>Symphyotrichum novae-angliae</i>	New England Aster	0.50
<i>Symphyotrichum puniceum</i>	Swamp Aster	0.80
<i>Verbena hastata</i>	Blue Vervain	2.00
<i>Veronicastrum virginicum</i>	Culver's Root	0.30
<i>Zizia aurea</i>	Golden Alexanders	4.00
	<b>Total Forbs</b>	<b>27.15</b>
	<b>Grand Total</b>	<b>48.75</b>

## Lower Henry Schuette Park Proposed Woody Plantings

Scientific Name	Common Name
<b>Hardwood Swamp</b>	
Trees	
<i>Acer rubrum</i>	red maple
<i>Acer saccharinum</i>	silver maple
<i>Betula alleghaniensis</i>	yellow birch
<i>Celtis occidentalis</i>	hackberry
<i>Platanus occidentalis</i>	sycamore
<i>Quercus bicolor</i>	swamp white oak
<i>Salix discolor</i>	pussy willow
<i>Tilia americana</i>	basswood
Shrubs	
<i>Alnus incana</i>	speckled alder
<i>Cornus amomum</i>	silky dogwood
<i>Ilex verticillata</i>	winterberry
<i>Ribes americanum</i>	American currant
<i>Sambucus nigra</i>	elderberry
<i>Viburnum lentago</i>	nannyberry
<b>Mesic Forest</b>	
Trees	
<i>Acer saccharum</i>	Sugar maple
<i>Carpinus caroliniana</i>	American hornbeam
<i>Carya cordiformis</i>	bitternut hickory
<i>Celtis occidentalis</i>	hackberry
<i>Fagus grandifolia</i>	American beech
<i>Pinus strobus</i>	white pine
<i>Tilia americana</i>	basswood
Shrubs	
<i>Amelanchier laevis</i>	smooth serviceberry
<i>Cornus alternifolia</i>	pagoda dogwood
<i>Corylus americana</i>	American hazelnut
<i>Hamamelis virginiana</i>	American witch hazel
<i>Viburnum acerifolium</i>	maple-leaved viburnum
<i>Viburnum lentago</i>	nannyberry

## Lower Schuette Proposed Live Plant Plugs

Scientific Name	Common Name	Per acre estimate
<i>Acorus americanus</i>	Sweet Flag	50
<i>Asclepias incarnata</i>	Swamp Milkweed	50
<i>Anemone canadensis</i>	Canada Anemone	50
<i>Caltha palustris</i>	Marsh Marigold	50
<i>Carex lacustris</i>	Common Lake Sedge	50
<i>Iris virginica</i>	Southern Blue Flag	50
<i>Sagittaria latifolia</i>	Common Arrowhead	50
<i>Schoenoplectus fluviatilis</i>	River Bulrush	50
<i>Sparganium eurycarpum</i>	Broad-fruit Bur Reed	50
<b>Total Plant Plugs</b>		<b>450</b>