

Swede Hollow Ecological Restoration and Management Plan

Draft 4/30/2012

I. Description of the project area

Swede Hollow Park is located in a small, steep, wooded valley on the near east side of St. Paul between the Railroad Island and Dayton's Bluff neighborhoods. The park is bounded by Beaumont Street on the north; Maple and Maria Streets on the east; East Seventh Street on the south; and Payne Avenue on the west.

Bruce Vento Regional Trail passes through Swede Hollow Park, connecting Phalen Regional Park with Bruce Vento Nature Sanctuary.

1. Topography

The Swede Hollow valley is oriented approximately northeast/southwest north of Tedesco Street and approximately north-south south of Tedesco Street. The base of the valley is relatively flat with a 0-5% slope parallel to the orientation of the ravine. Slopes perpendicular to the orientation of the valley range from 10-200%

2. Geology

The bedrock underlying Swede Hollow Park comprises horizontal Ordovician marine sediments. Two units are visible in outcrops within the park: The Platteville Formation crops out at the top and shoulders of the valley, and the St. Peter Sandstone crops out on slopes. The Glenwood Formation is not visible in the park, though it occurs regionally between the Platteville and St. Peter and may be present.

The Platteville formation is an erosion-resistant, light-gray, thin- to medium-bedded dolomitic limestone with some thin, discontinuous shale beds (Mossler and Tipping 2000). Hydraulic conductivity in this unit ranges from 10^{-5} to 10^{-4} feet per day (Lindgren 1997).

The St. Peter Sandstone is an erosion-susceptible, light gray to light yellow to white, fine- to medium-grained, poorly cemented sandstone with thick to massive bedding (Mossler and Tipping 2000). The hydraulic conductivity in the upper units range from 1 to 1,000 feet per day. The base of the St. Peter consists of fine-grained sandstone interlayered with siltstone, claystone and shale. The vertical hydraulic conductivity of this basal unit ranges from 10^{-6} to 1.5×10^{-3} feet per day (Lindgren 1997).

The Glenwood Shale an erosion-susceptible grey to green thinly bedded sandy, silty shale (Mossler and Tipping 2000). Hydraulic conductivity in the Glenwood Formation in the Minneapolis-Saint Paul metropolitan area is estimated at 9×10^{-6} feet per day (Lindgren 1997).

3. Soils

There are four soil types represented at Swede Hollow Park. Following is a listing of these soils, a brief description of their constituents, and what community each soil type can be associated with in the park. See attached *Soil Series of Swede Hollow Park* map.

1027-Urdothents/wet substratum

This soil type encompasses the second largest area in Swede Hollow Park, corresponding to the grassland and upland plant communities. It comprises heterogeneous, earthy, fill material 2 feet thick or more that has been placed on poorly drained mineral or organic soils. The majority of it comprises a mixture of organic waste from human activity; and sandy, gravelly, loamy, silty soil materials. The rest is non-soil material such as bricks, trash, wire, boards, concrete, and stones.

858C-Urban land/Chetek complex

This soil type encompasses one of the smallest areas in the park and is made up of intermediate upland forest. In undisturbed areas, the Chetek soils typically have a surface layer of 6 inches thick brown sandy loam, and a subsoil layer of 12 inches thick reddish brown sandy loam. The underlying material is strong, brown gravelly sand. Chetek soil is somewhat excessively drained and permeability is moderate or moderately rapid in the loamy mantle and rapid or very rapid in the sandy outwash. Because the natural fertility and water holding capacity is low for this soil, the vegetation has only a fair potential for growth. The native vegetation is mixed deciduous and coniferous forest.

1819F Dorerton-Rock outcrop complex (25-65% slopes)

The majority of land in Swede Hollow is this type. It includes intermediate upland forest, grassland, upland shrub, and landscaped park plant communities. This complex comprises well-drained soils and rock outcrops on stream valley slopes. The Dorerton soil usually has surface layer of very dark gray sandy loam about 4 inches thick over a fine sandy loam dark brown subsurface layer about 6 inches thick. The dark brown gravelly clay loam subsoil is about 12 inches thick. Limestone bedrock underlies the soil at a depth of 45-75 inches. Native vegetation in the Dorerton series is mixed deciduous forest. Dominant species would include Northern Red Oak, White Oak, Bur Oak, and aspen.

1039-Urban Land

This map unit corresponds to a portion of the Intermediate Upland Forest south of East Seventh Street and it encompasses the smallest area in the park. This level to gently sloping soil type typically has more than 90% of its surface covered by buildings, concrete, asphalt, or other impervious surfaces. Vegetation generally totals less than 5% of this soil type and occurs in narrow strips along sidewalks, between roadways, and in isolated islands.

II. Land use history

Swede Hollow Park lies within the Phalen Creek valley. Prior to European settlement, Phalen Creek flowed from Lake Phalen, through the valley and into the Mississippi River. Native Americans used the creek as a travel corridor between the Phalen chain of lakes and sites along the Mississippi.

Edward Phalen became the first European to stake a claim and begin developing the land in 1839. In the mid-1800s a railroad was constructed in the valley and European immigrants with few resources settled along the creek creating a shantytown that became known as Swede Hollow.

As rail operations expanded Phalen Creek was rerouted into storm sewers, and by the late 1800s most of the creek was buried. Despite the loss of open water, Swede Hollow continued to be home to successive waves of immigrants — from Sweden, Ireland, Italy, Eastern Europe and Mexico. The settlement never received electricity or modern plumbing. In 1956 the City of Saint Paul declared the site a health hazard, and forcibly evicted the remaining residents. All structures were razed and the Hollow became an illegal dumping site.

In the early 1970s, neighborhood residents and the Saint Paul Garden Club joined with Saint Paul Parks and Recreation to clean up Swede Hollow and turn the site into a city park. In 1986 a section of storm sewer was brought above ground to provide a source of water and mimic historical Phalen Creek. When originally constructed, discharged cooling water from the 3M Corporation and Stroh Brewery Company flowed through the sewer, but both companies ceased this practice and all water that passes through the diversion structure today is urban runoff.

III. Proposed management and restoration activities

1. Habitat restoration

Site restoration will be initiated per recommendations set forth by the Friends of the Mississippi River in a 2011 publication “*Species Lists for Plant Communities at Swede Hollow*”, attached. Trees to be removed are non-native, invasive species, invasive natives, or disease prone species. The site has not been mapped by the MN County Biological Survey, but is within 1.4 miles of a 49 acre parcel of oak forest and savanna at Indian Mounds Regional Park that has received a ‘high’ biodiversity ranking.

Mesic Savanna (UPs24)

4.1 acres

Remove exotic and invasive species including Siberian elm (*Ulmus pumila*), buckthorn (*Rhamnus cathartica*) and black locust (*Robinia pseudoacacia*). Where appropriate, remove small boxelder (*Acer negundo*), green ash (*Fraxinus pennsylvanica*) and other native woody species not indicated on Friends of Mississippi River and Great River Greening plans for *Mesic Savanna*. No additional restoration will be necessary as a result

of these removals. Groundcover is intact, but would benefit from prescribed fire every two years in the spring or fall, as possible.

Southern Dry-Mesic Oak Forest (MHs37)

9.7 acres

This community exists in three parcels in Swede Hollow Park; on the steep slopes below Upper Swede Hollow at the northeast corner of the park, a narrow sliver along the eastern edge of the upper bicycle path (old railroad line) through most of the park, and the eastern edge of the park below the West 7th Street bridge.

Buckthorn (*Rhamnus cathartica*) and black locust (*Robinia pseudoacacia*) should be removed from these locations. Select Siberian elm (*Ulmus pumila*) and green ash (*Fraxinus pennsylvanica*) should be removed, with care taken to preserve soil stability on slopes. In addition to the above species, select, failing boxelder (*Acer negundo*) that pose a public safety risk should be removed. No immediate additional restoration would be necessary as a result of these removals. Within a two-year window following removal activities, direct hardwood seeding in these areas should be completed.

Dry-Mesic Oak Woodland (FDs37)

0.5 acres

Buckthorn (*Rhamnus cathartica*) and black locust (*Robinia pseudoacacia*) should be removed from this location. Select Siberian elm (*Ulmus pumila*) and green ash (*Fraxinus pennsylvanica*) should be removed, with care taken to preserve soil stability on slopes. In addition to the above species, select, failing boxelder (*Acer negundo*) that pose a public safety risk should be removed. No immediate additional restoration would be necessary as a result of these removals. Within a two-year window following removal activities, direct hardwood seeding in these areas should be completed.

Southern Mesic Oak-Basswood Forest (MHs38)

4.4 acres

Exotic and invasive species including Siberian elm (*Ulmus pumila*), buckthorn (*Rhamnus cathartica*), and Chinese mulberry (*Morus alba*) should be removed from these areas. At locations where significant groundcover vegetation exists, no additional restoration will be necessary as a result of these removals. At locations where groundcover vegetation is sparse, a shelterwood method of removal should be implemented, and within a two-year window following removal activities, direct hardwood seeding in these areas should be completed.

Mixed Hardwoods

5.8 acres

The mixed hardwoods plant community along the western side of the upper bicycle path (old railroad line) is highly disturbed. This parcel is located atop Dorerton-Rock outcrop complex soils covered with concrete and limestone rubble. This parcel is a major seed source for invasive herbaceous and woody plant species. Siberian elm (*Ulmus pumila*) and buckthorn (*Rhamnus cathartica*) should be targeted for removal. Boxelder (*Acer negundo*) should be removed using a shelterwood approach, initially targeting declining

and female trees. No additional restoration will be immediately necessary as a result of these removals. Within a two-year window following removal activities, direct hardwood seeding in these areas should be completed.

The mixed hardwoods plant community along the eastern side of the park is located atop Dorerton-Rock outcrop complex soils covered with concrete and limestone rubble. Siberian elm (*Ulmus pumila*) and buckthorn (*Rhamnus cathartica*) should be targeted for removal. Boxelder (*Acer negundo*) should be removed using a shelterwood approach, initially targeting declining and female trees. No additional restoration will be immediately necessary as a result of these removals. Within a two-year window following removal activities, direct hardwood seeding in these areas should be completed.

Southern (Floodplain) Terrace Forest (FFs59) 0.2 acres

Inland Freshwater Pond, 0.7 acres

Southern Wet Prairie (WPs54) 2.0 acres

Northern Bulrush-Spikerush Marsh (MRn93) 0.5 acres

Southern Seepage (Sedge) Meadow Carr (WMs83) 4.1 acres

Much of the total land area comprising these plant communities is designated as wetland through the National Wetlands Inventory. As a result, management of these plant communities will be addressed in an engineering and land management study, currently in the request for proposals (RFP) stage as of April 30, 2012.

IV. Stakeholders Engaged

The following groups are engaged in planning and have been identified as important stakeholders that should be informed and encouraged to provide input on restoration:

- Friends of Swede Hollow
- Lower Phalen Creek Project
- Community Design Center of Minnesota
- East Side Neighborhood Development Company
- Dayton's Bluff District 4 Community Council
- Payne Phalen District 5 Planning Council
- Capitol Region Watershed District
- Ramsey Soil and Water Conservation District
- Minnesota Department of Natural Resources
- City of Saint Paul Department of Parks and Recreation

References/Citations:

Lindgren, Richard J., 1997, Hydraulic Properties and Ground-Water Flow in the St. Peter-Prairie du Chien-Jordan Aquifer, Rochester Area, Southeastern Minnesota: US Geological Survey Water-Resources Investigations Report 97-4105

Mossler, J.H, and Tipping, R. G., 2000, Bedrock Geology and Structure of the seven-county Twin Cities Metropolitan Area, Minnesota: Minnesota Geological Survey

Swede Hollow Park: Natural Resource Inventory, City of St. Paul Department of Parks and Recreation

Minnesota Historical Society

<http://www.mnhs.org/index.htm>

<http://collections.mnhs.org/visualresources/search.cfm?bhcp=1>

National Cooperative Soil Survey

<http://soils.usda.gov/>

https://soilseries.sc.egov.usda.gov/OSD_Docs/D/DORERTON.html

https://soilseries.sc.egov.usda.gov/OSD_Docs/C/CHETEK.html



View of Swede Hollow from Seventh Street toward East Minnehaha Street, St. Paul.

Photograph Collection 1925

Location no. MR2.9 SP2.2 r10

Negative no. 11418



Swede Hollow, St. Paul

ca. 1910

Photographer: Albert Charles Munson

Photograph Collection

Minnesota Historical Society



Burning of Swede Hollow, St. Paul
12/11/1956
Photographer: St. Paul Dispatch & Pioneer Press
Photograph Collection
Minnesota Historical Society



Swede Hollow, St. Paul.
11/1969
Photograph Collection
Minnesota Historical Society



Swede Hollow, St. Paul
ca. 1965
Photograph Collection
Minnesota Historical Society