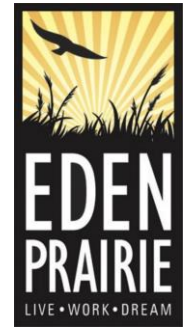


MEMORANDUM

To: Nine Mile Creek Watershed District
From: City of Eden Prairie Engineering Division
Date: ~~September 23, 2022~~ September 28, 2022
Subject: Birch Island Sediment Removal



The City is proposing to remove approximately 10 to 15 cubic yards of accumulated sediment from the inlet to Birch Island Lake in Eden Prairie as part of needed maintenance of the bypass system. The bypass system was designed to allow water from the State Highway 62 corridor to reach Birch Island Lake. The system was installed by the Nine Mile Creek Watershed District in 2007 and has since been maintained by the City of Eden Prairie.

In recent years, the water surface elevation of Birch Island has fluctuated greatly and the bypass system, including the flared end section that serves and the Lake inlet, has become increasingly impeded by sediment accumulation. Photos of the flared end section (FES) during construction and currently (Appendix A), as well as aerial photographs (Appendix B), exhibit the accumulation of sediment at the inlet over time. To the City's knowledge, the inlet has not had sediment removed since it was installed in 2007. The inlet had largely been inaccessible in 2020 and 2021 due to the high water levels in the lake, making maintenance of the inlet and the storm pipes unfeasible. However, by November 2021, the water level has receded to allow for foot access to the inlet. The City cleared accumulated sediment in the pipe leading to the inlet in February of 2022, reestablishing flow of water through the bypass system. However, while the bypass system continues to flow, the accumulated sediment at the inlet has covered the entirety of the FES and continues to impede flow.

To improve the flow of water through the bypass system and allow for more efficient future jetting of the bypass pipes, the City proposes to remove approximately 10 to 15 cubic yards of sediment from the FES. There historically was riprap at the FES, serving as the bottom depth of the sediment removal. The City would look to do the work in mid-October after a light frost and anticipates the work taking one day to complete. The City recognizes that the work is prohibited April 1 through June 30. Access for personnel and equipment is provided through paved and unpaved trails from Birch Island Park to the lake edge. Mats will be used for off trail areas. The City would utilize tracked equipment, including a mini-excavator and Bobcat, to access and clean the FES. The City is not anticipating any restoration will be needed with the work given the minimal sediment being removed, use of mats, size of the machinery, short duration of the work, and the semi-routine nature of the maintenance. Material will be loaded into a dump truck and taken offsite. Due to the shallow nature of the any water in the area, floating silt curtain is not practical and silt sock is proposed down gradient of the work. An exhibit showing the proposed access and temporary best management practices (BMPs) is included in Appendix C to fulfill the requirements of Nine Mile Creek Watershed District Rule 8.0 Sediment Removal.

Attachments:

Appendix A – Site Photographs
Appendix B – Historical Aerial Photographs
Appendix C – Birch Island Sediment Maintenance Plan

Appendix A – Site Photographs



Photo 1: Birch Island Inlet (September 2022). Arrow indicates where water flows in through accumulated sediment.



Photo 2: Birch Island Lake Inlet (November 2021)



Photo 3: Birch Island Inlet (November 2021)

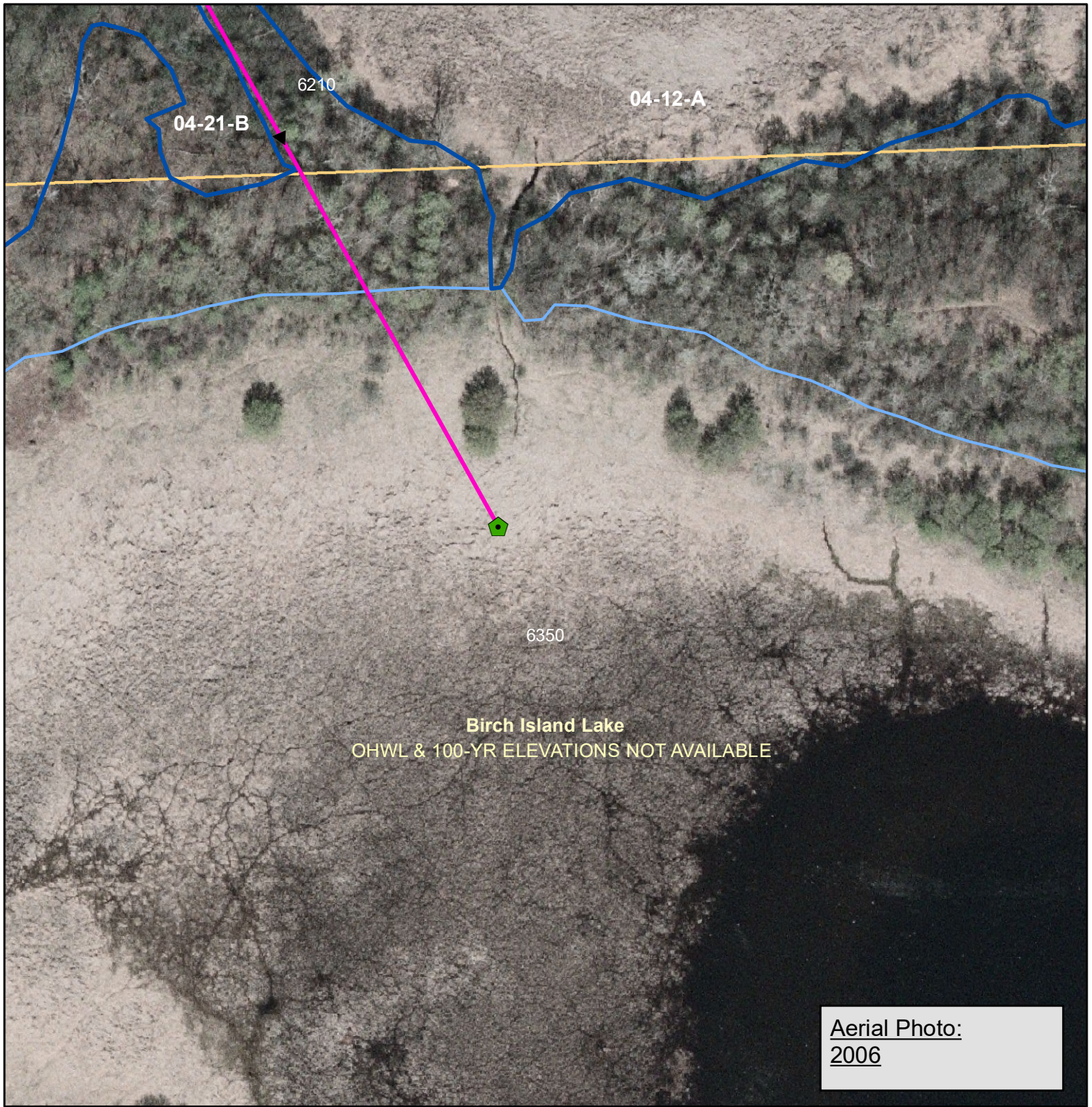


Photo 4: Birch Island Inlet (August 2021)



Photo 5: Birch Island Inlet during Construction showing riprap (2007)

Appendix B – Historical Aerial Photographs

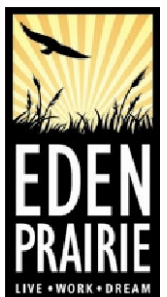
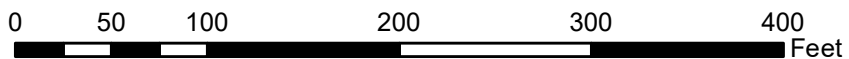


Birch Island Bypass System 2022 Sediment Maintenance Plan

Legend
All Locations Approximate
2022 Aerial Photograph

Storm
Feet_Code

- Pond Inlet
- Storm Lines
- Constructed Ponds
- Wetlands
- Lakes
- Parcels





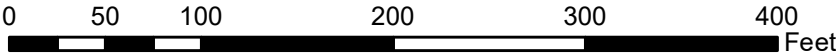
**Birch Island Bypass System
2022 Sediment Maintenance Plan**

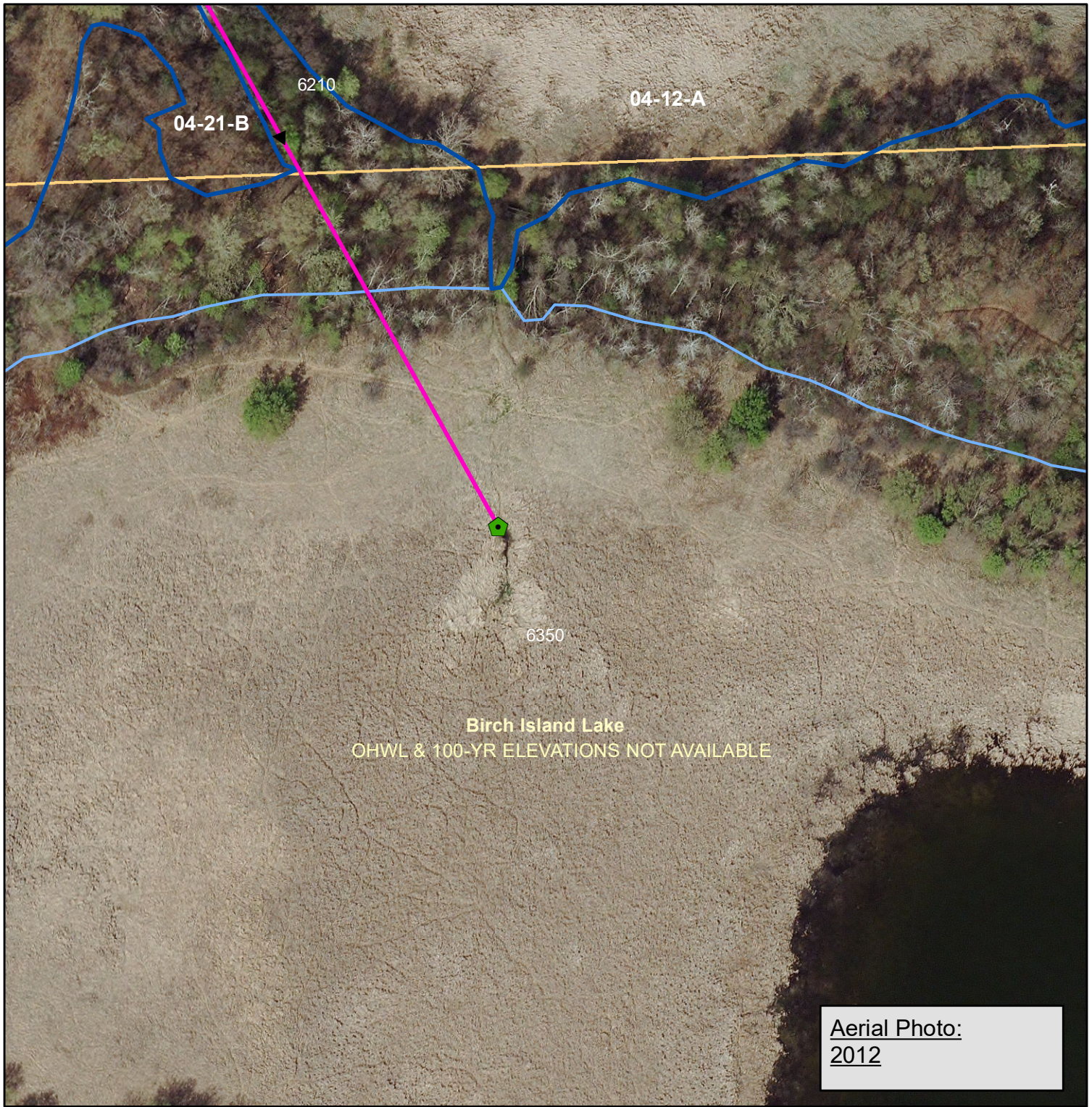
Legend
All Locations Approximate
2022 Aerial Photograph

Storm

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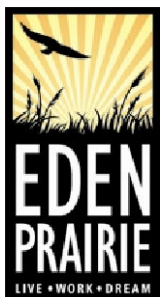
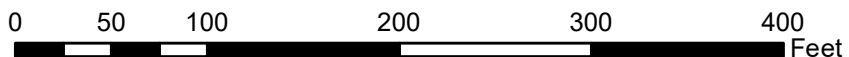
Birch Island Bypass System 2022 Sediment Maintenance Plan

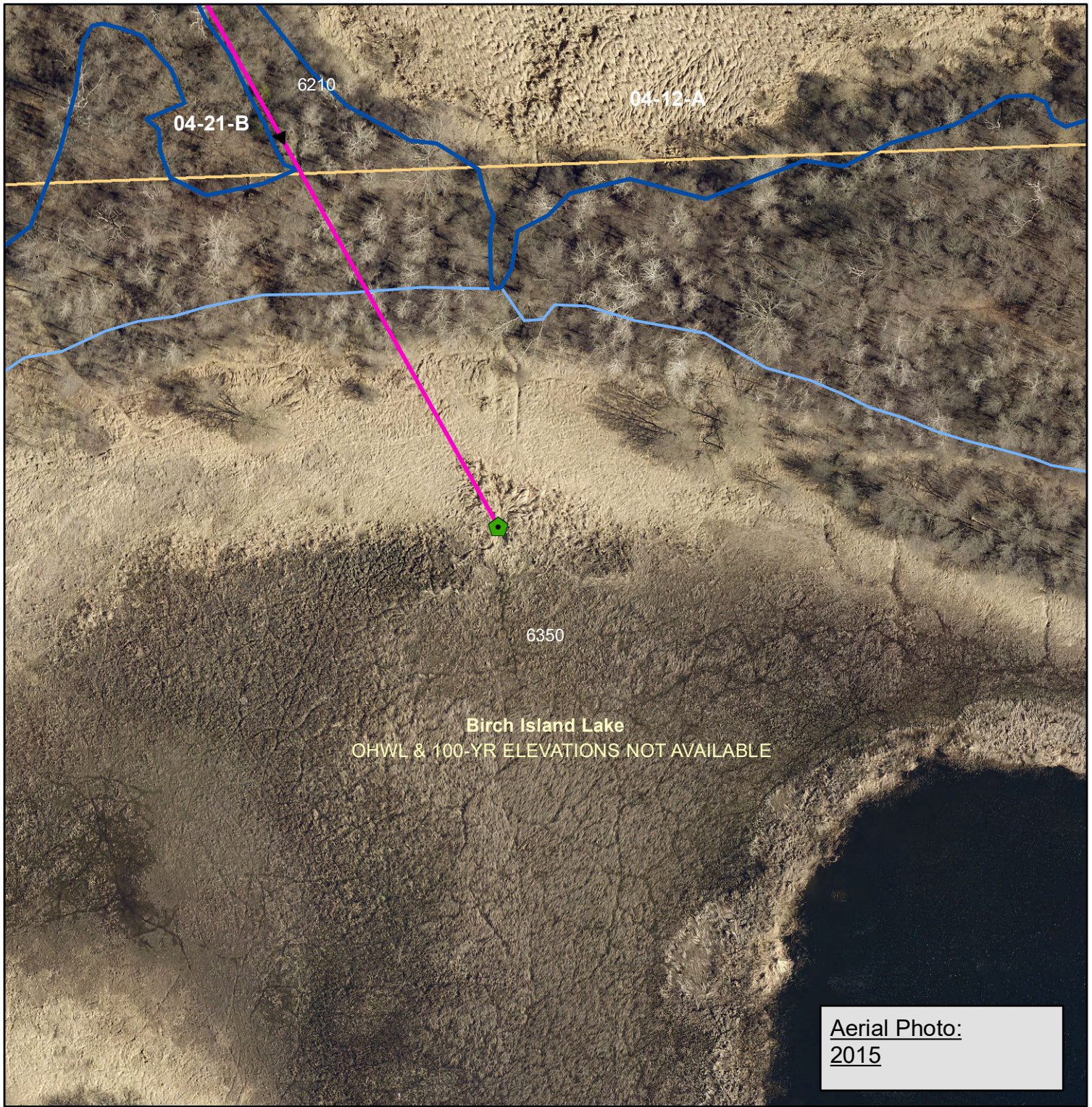
Legend
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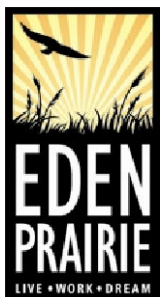
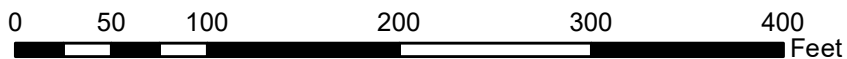
Birch Island Bypass System 2022 Sediment Maintenance Plan

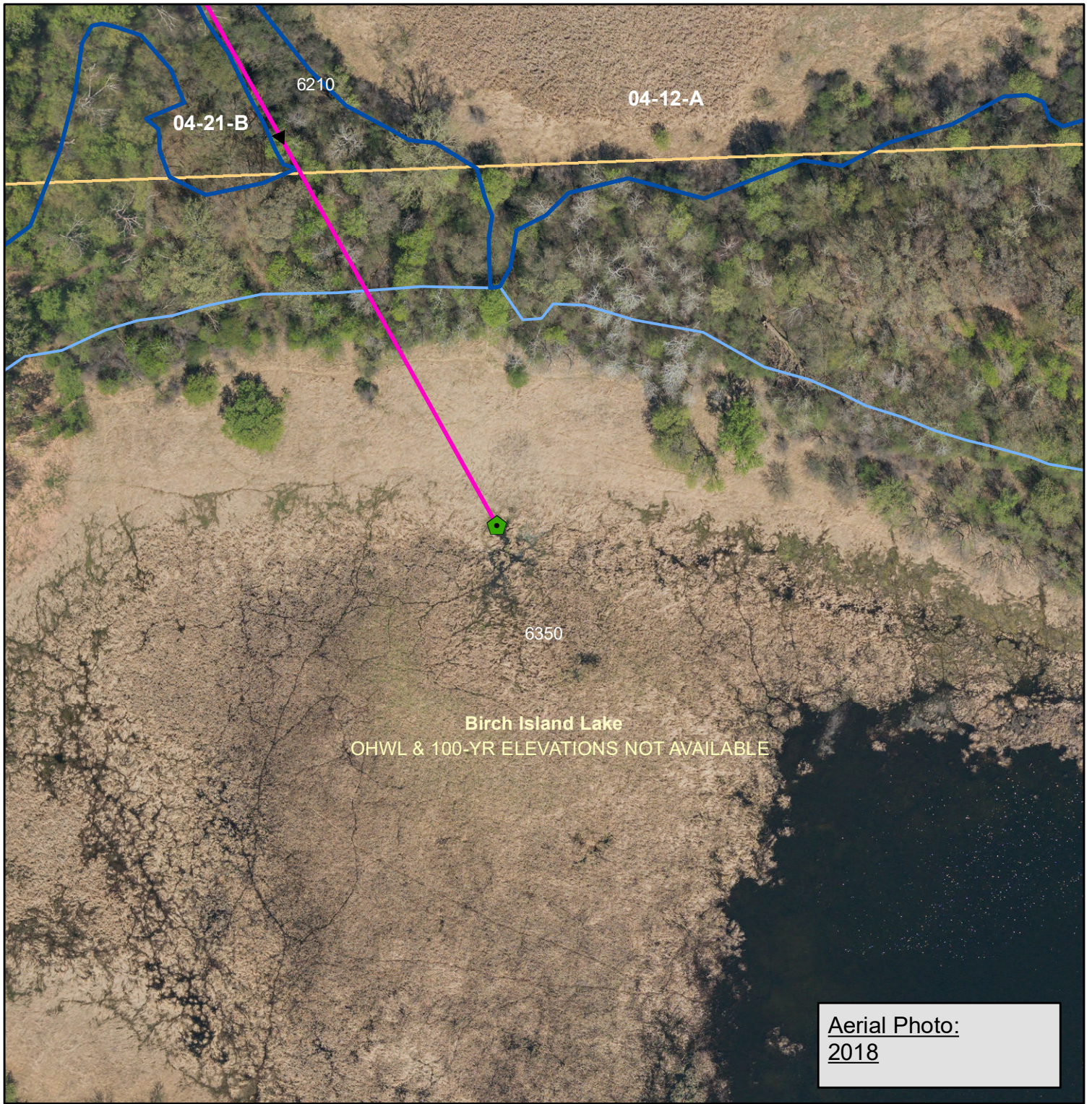
Legend
All Locations Approximate
2022 Aerial Photograph

Storm

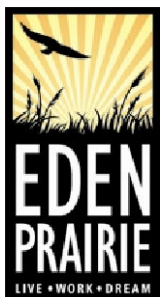
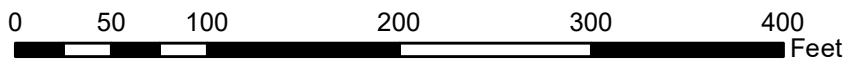
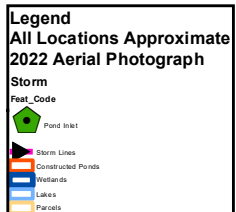
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Birch Island Bypass System 2022 Sediment Maintenance Plan



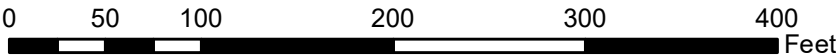


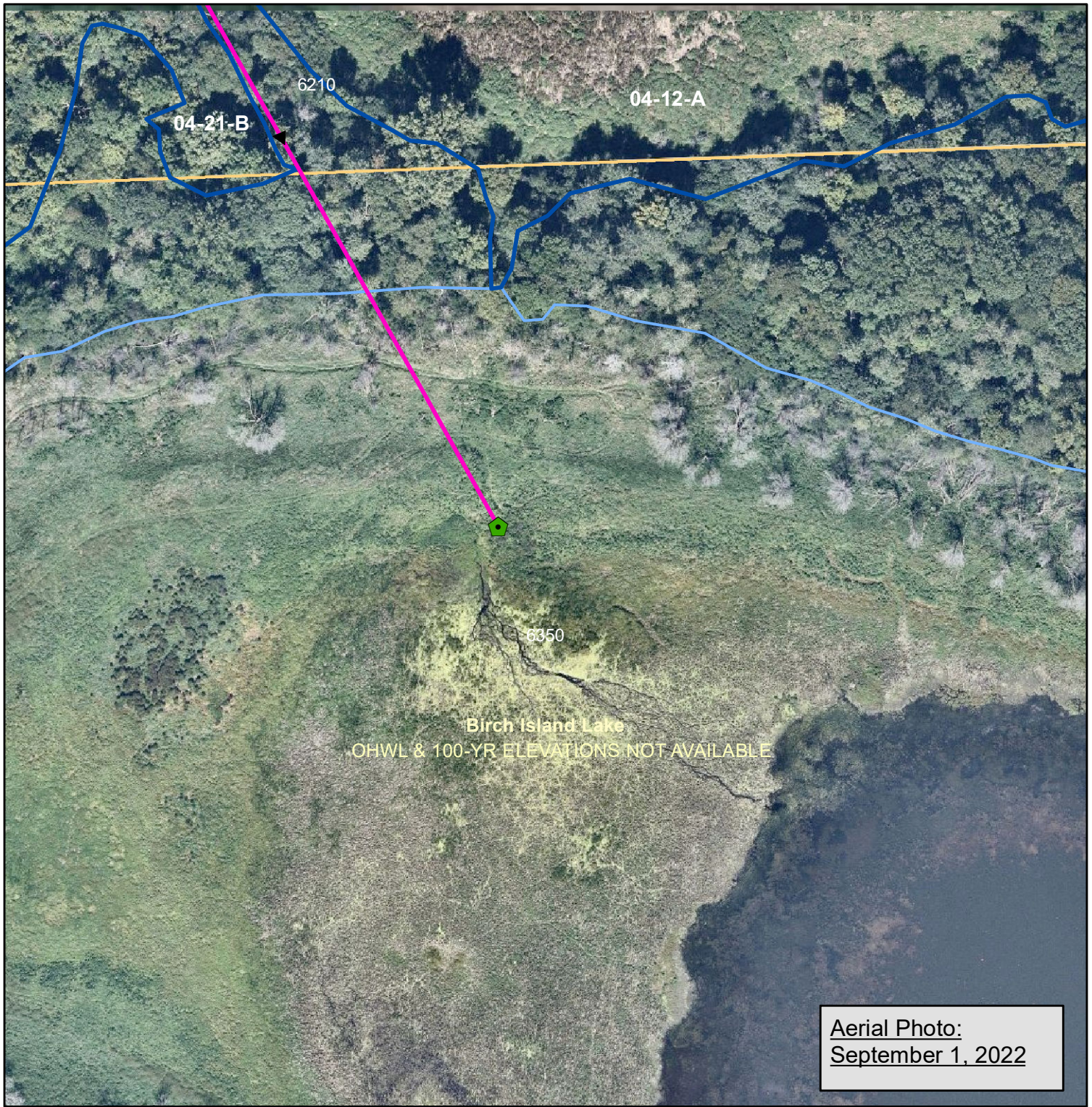
**Birch Island Bypass System
2022 Sediment Maintenance Plan**

Legend
All Locations Approximate
2022 Aerial Photograph

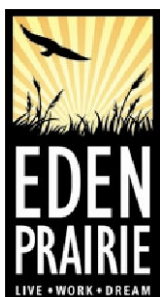
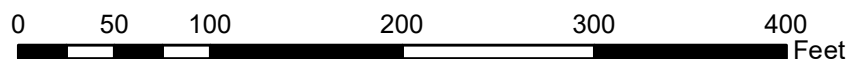
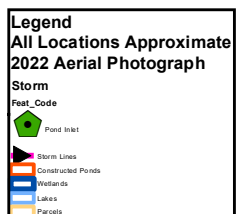
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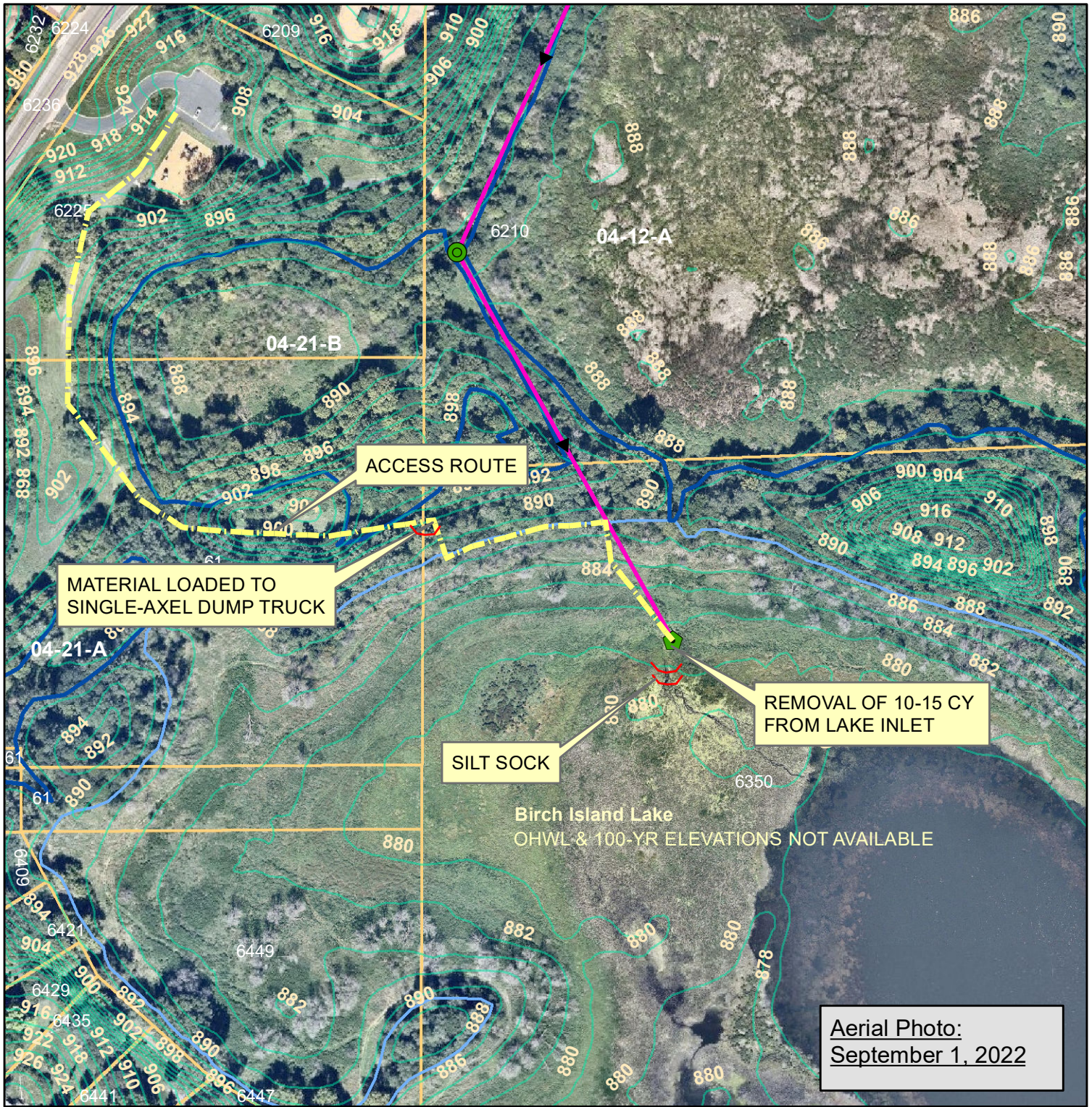




**Birch Island Bypass System
2022 Sediment Maintenance Plan**



Appendix C – Birch Island Sediment Maintenance Plan



Birch Island Bypass System 2022 Sediment Maintenance Plan

