MEMO

To: Water Resources Management Commission

From: Eric Thompson, P.E., CFM

Subject: Preliminary Cost Estimates – Pond Dredging

Date: March 17, 2010

Introduction

The City of Middleton's stormwater management system contains 96 structural BMPs which collectively are effective at removing 41.3% of the annual Total Suspended Solids (TSS) within stormwater runoff (as defined by NR216 and applicable modeling guidelines). This level of TSS reduction is above the minimum 40% threshold required by NR216 and places the City in compliance with their WPDES permit.

Most of the 96 BMPs in the City's stormwater management system (and all the most important BMPs) are wet detention ponds. According to current WDNR guidance, wet detention ponds must maintain a permanent pool depth of at least three feet to achieve 100% of the predicted TSS removal rate. Many of the ponds in the City's stormwater management system have been in place for years and are accumulating large amounts of sediment. Once a significant number of these ponds, or a select few very important ponds have accumulated sediment to the point where they have less than three feet of permanent pool depth the TSS capture efficiency of the ponds will be compromised and the City will fall out of WPDES permit compliance. It will then be necessary to implement a plan to maintain the ponds through a dredging program. This memo provides a cost estimate for dredging out seven selected ponds in the City.

Dredging Cost Estimates

The tables below and on the following page, as well as the attached images provide a summary of a preliminary dredging program for a selected group of seven wet detention ponds.

Dredging Estimate Pond Number	Stormwater Quality Plan Pond Number	Pond Name	Construction Year	Cost Estimate			
				Construction	8% Engineering	25% Contingency	Total
1	28.01	Orchid Heights North Pond	1995	$89,000	$7,120	$22,250	$118,370
2	28.01	Orchid Heights South Pond	1997	$79,000	$6,320	$19,750	$105,070
3	2.0102	South Pond	2002	$869,000	$69,520	$217,250	$1,155,770
4	1.01	Confluence Pond	1998	$1,246,000	$99,680	$311,500	$1,657,180
5	5.01	7th Addition to Middleton Hills	2004	$11,000	$3,000	$2,750	$16,750
6	6.01	Outlot 10, Middleton Hills	1995	$60,000	$4,800	$15,000	$79,800
7	49.01	West Metro Business Park	1991	$73,125	$5,850	$18,281	$97,256
						Total	**$3,230,196**

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City of Middleton
Storm Water Utility Detention Basin Maintenance
Project Cost Estimate
Prepared by: MSA Professional Services, Inc.
3/17/2010

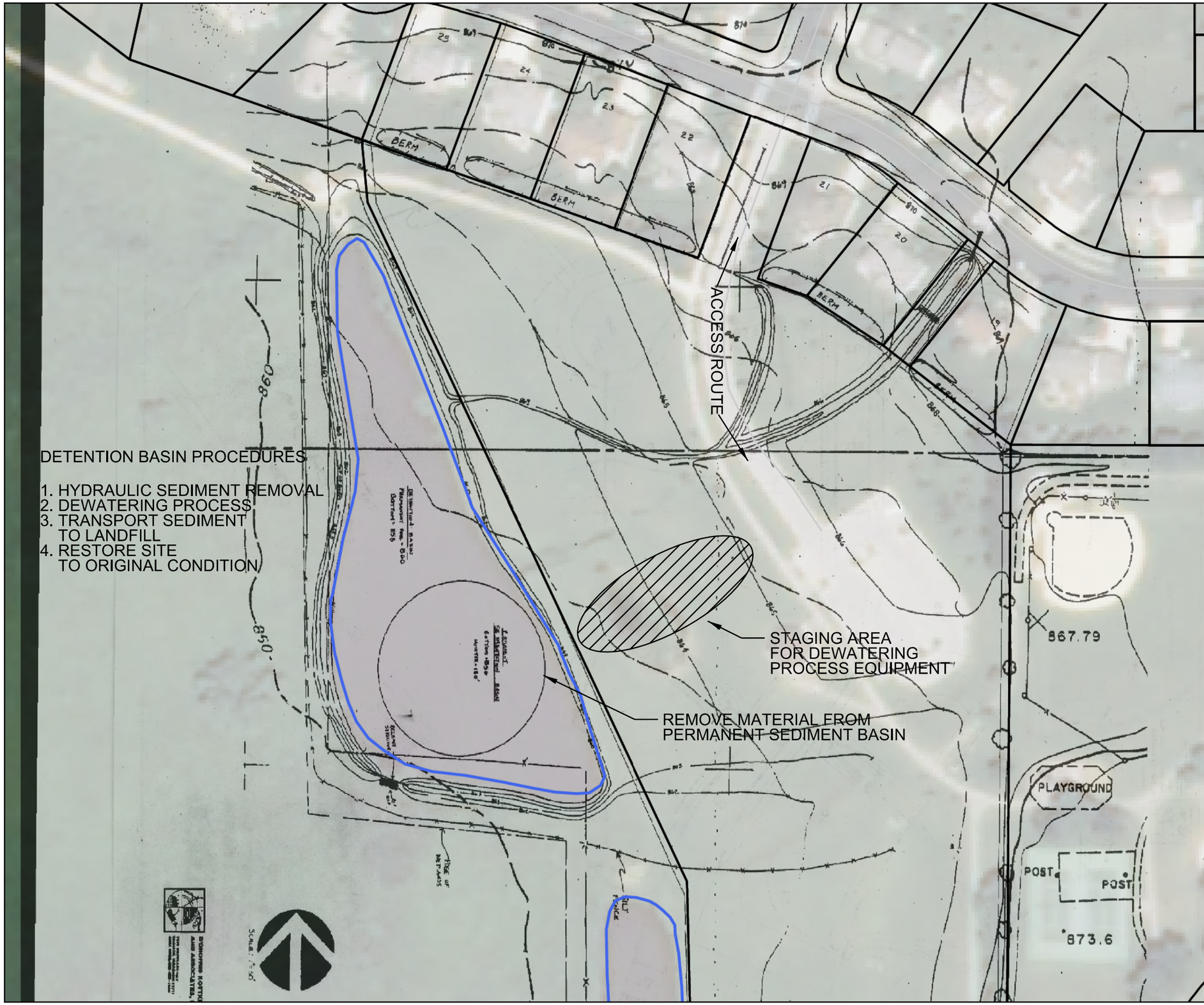
Scope of Work:
hydraulic sediment dredging; dewatering processes; transport to landfill

Item	*Qty.*	*Units*	*Cost Each*	*Total Cost*
Pond #1				
Dredge, Dewater, Transport & Landfill	160	U.S. Dry Ton	$500.00	$80,000.00
Restoration and Erosion Control	1	L.S.	$5,000.00	$5,000.00
Sampling & Lab Costs	1	L.S.	$4,000.00	$4,000.00
Pond #1 Total				***$89,000.00***
Pond #2				
Dredge, Dewater, Transport & Landfill	140	U.S. Dry Ton	$500.00	$70,000.00
Restoration and Erosion Control	1	L.S.	$5,000.00	$5,000.00
Sampling & Lab Costs	1	L.S.	$4,000.00	$4,000.00
Pond #2 Total				***$79,000.00***
Pond #3				
Dredge, Dewater, Transport & Landfill	1,800	U.S. Dry Ton	$475.00	$855,000.00
Restoration and Erosion Control	1	L.S.	$5,000.00	$5,000.00
Easement Rights for Staging Area	1	L.S.	$3,000.00	$3,000.00
Sampling & Lab Costs	1	L.S.	$6,000.00	$6,000.00
Pond #3 Total				***$869,000.00***
Pond #4				
Dredge, Dewater, Transport & Landfill	2,600	U.S. Dry Ton	$475.00	$1,235,000.00
Restoration and Erosion Control	1	L.S.	$5,000.00	$5,000.00
Sampling & Lab Costs	1	L.S.	$6,000.00	$6,000.00
Pond #4 Total				***$1,246,000.00***
Pond #5 (Mechanically Dredged)				
Dredge, Dewater, Transport & Landfill	10	U.S. Dry Ton	$550.00	$5,500.00
Restoration and Erosion Control	1	L.S.	$3,000.00	$3,000.00
Sampling & Lab Costs	1	L.S.	$2,500.00	$2,500.00
Pond #5 Total				***$11,000.00***
Pond #6				
Dredge, Dewater, Transport & Landfill	100	U.S. Dry Ton	$525.00	$52,500.00
Restoration and Erosion Control	1	L.S.	$5,000.00	$5,000.00
Sampling & Lab Costs	1	L.S.	$2,500.00	$2,500.00
Pond #6 Total				***$60,000.00***
Pond #7				
Dredge, Dewater, Transport & Landfill	125	U.S. Dry Ton	$525.00	$65,625.00
Restoration and Erosion Control	1	L.S.	$5,000.00	$5,000.00
Sampling & Lab Costs	1	L.S.	$2,500.00	$2,500.00
Pond #7 Total				***$73,125.00***

Storm Water Utility Pond Study

City of Middleton
Dane County, Wisconsin

Pond Location 1



Legend

- City Limits
- Parcels
- Roads
- Lakes

Feet

0 100 200

Sources:
- Base data provided by Dane County
- Base data provided by WiDNR

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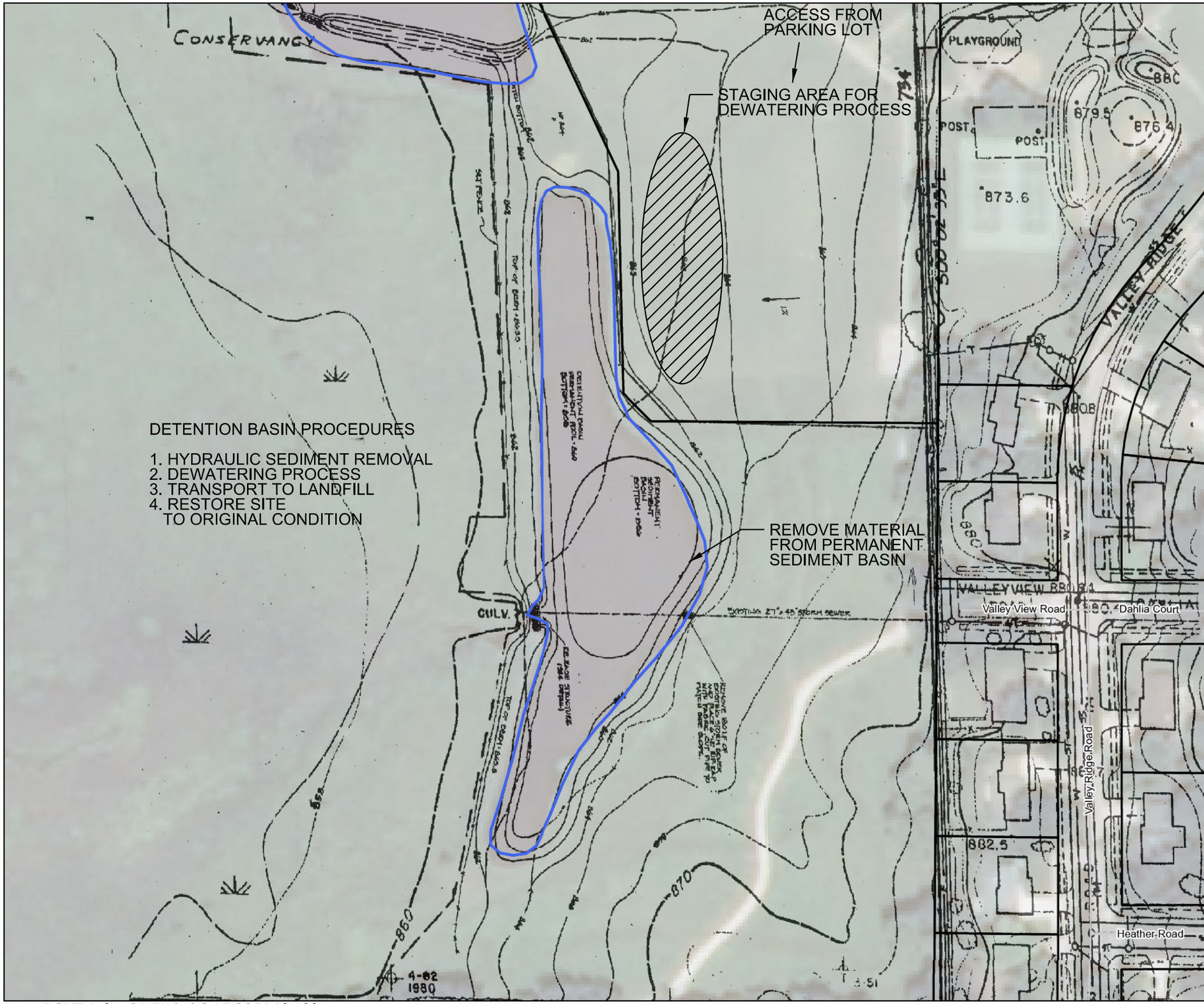
Storm Water Utility Pond Study

City of Middleton
Dane County, Wisconsin

Pond Location 2



Legend

- City Limits
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Feet

0 100 200

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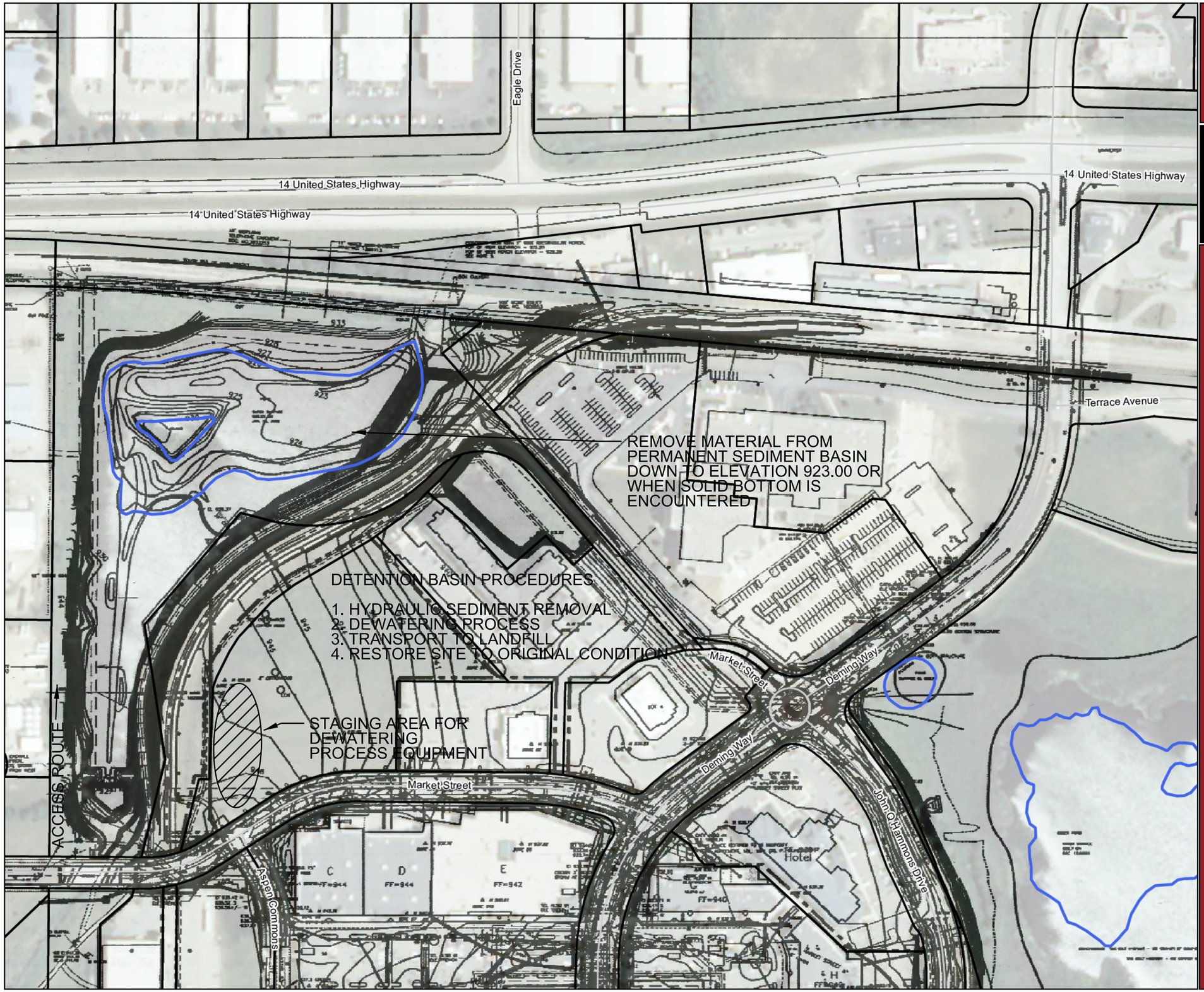
Storm Water Utility Pond Study

City of Middleton
Dane County, Wisconsin

Pond Location 3



Legend

- City Limits
- Parcels
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- Lakes

Feet

0 200 400

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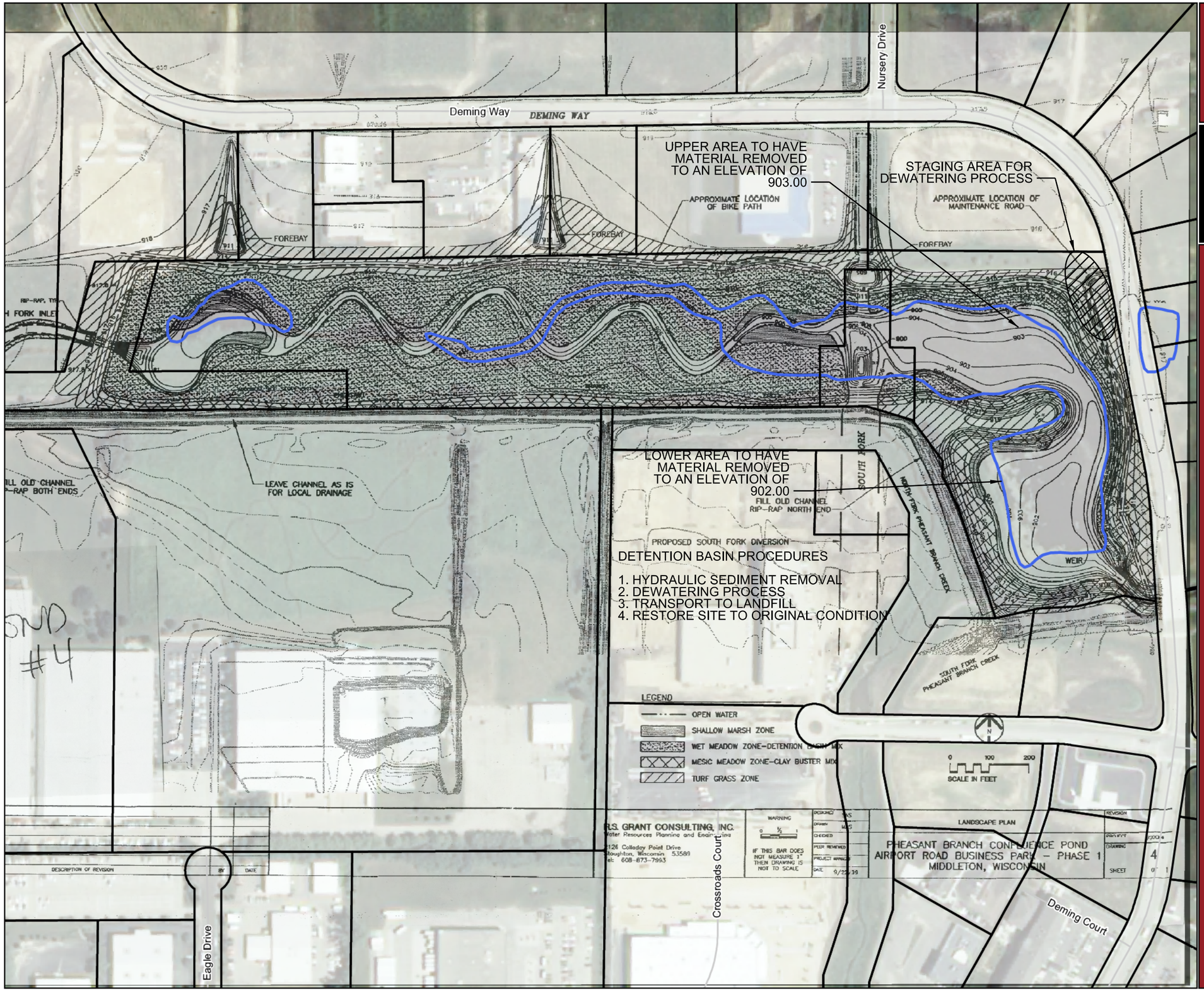
Storm Water Utility Pond Study

City of Middleton
Dane County, Wisconsin

Pond Location 4



Legend

- City Limits
- Parcels
- Roads
- Lakes

Feet

0 250 500

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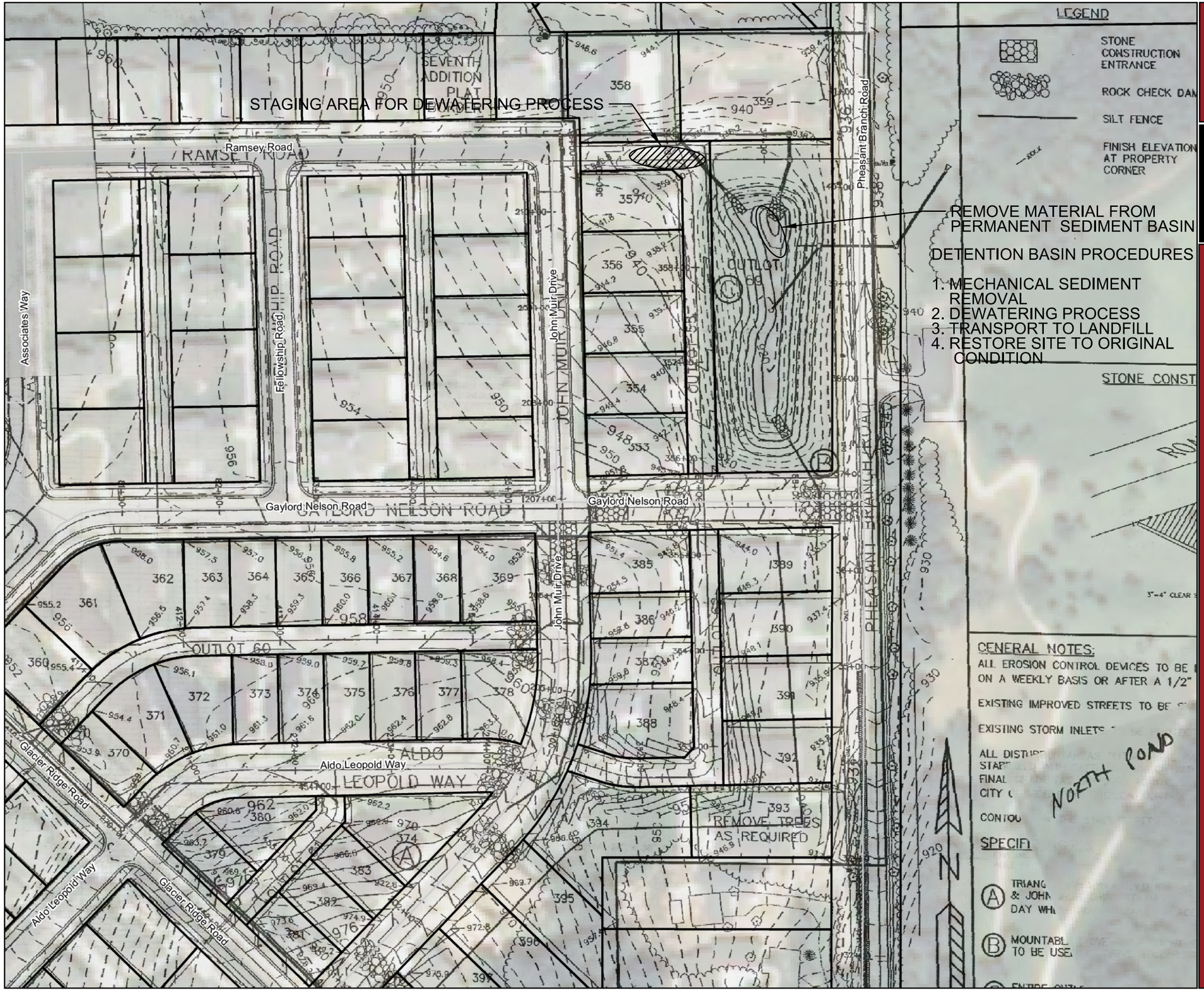
Storm Water Utility Pond Study

City of Middleton
Dane County, Wisconsin

Pond Location 5



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Storm Water Utility Pond Study

City of Middleton
Dane County, Wisconsin

Pond Location 6

Legend

- City Limits
- Parcels
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Feet
0 100 200

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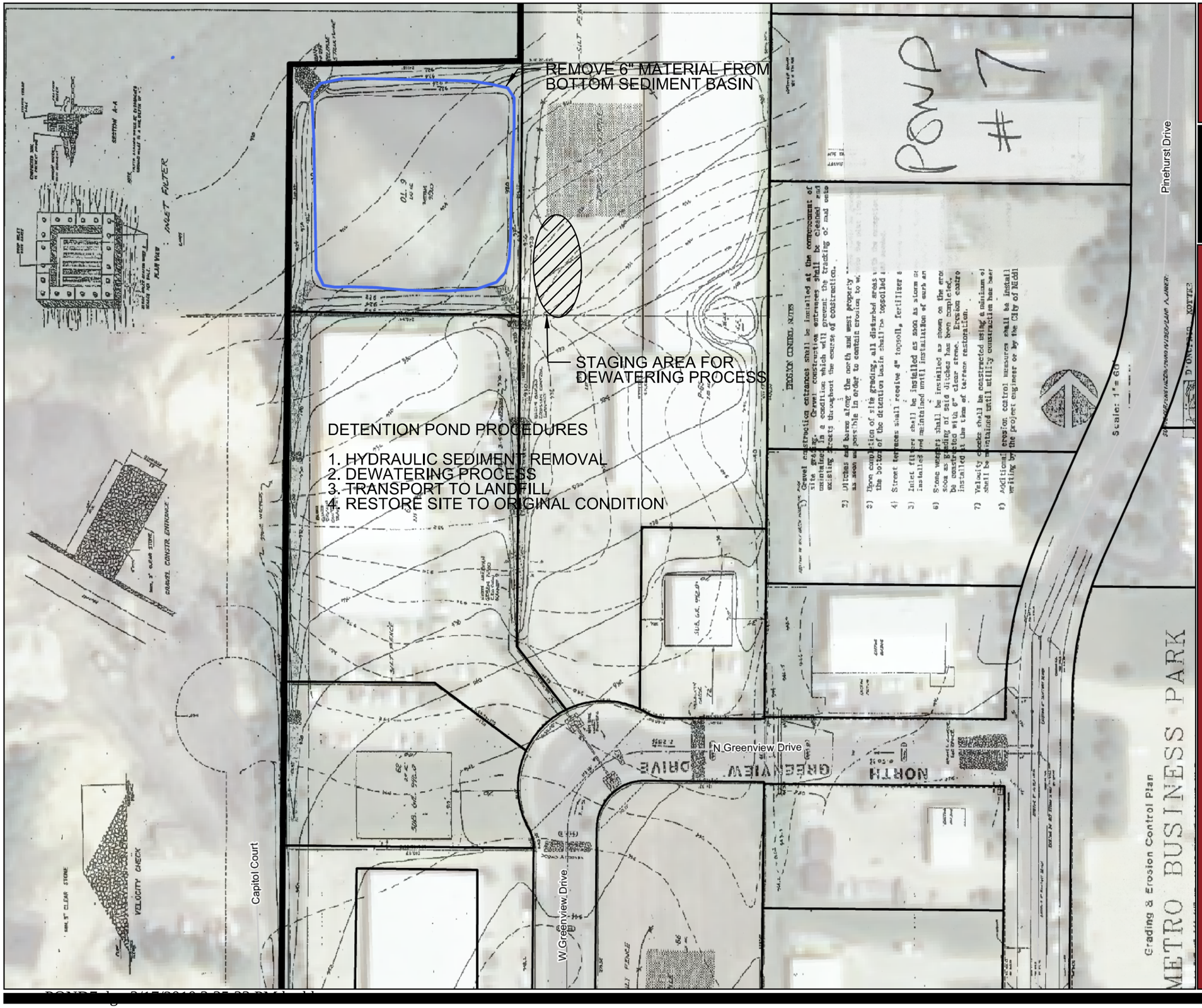
Storm Water Utility Pond Study

City of Middleton
Dane County, Wisconsin

Pond Location 7



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Feet
0 100 200

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