

**CITY OF MINNETRISTA**

**REQUEST FOR CITY COUNCIL DISCUSSION**



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**Subject:** SWAMP Update

**Prepared By:** Alyson Fauske, PE, City Engineer

**Meeting Date:** November 17, 2025

**Attachment:** Bathymetric Survey Summary Memo

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The City’s Storm Water Asset Management Program (SWAMP) is a tool that prioritizes inspection and maintenance requirements for stormwater Best Management Practices (BMPs) such as ponds, infiltration or filtration basins and rain gardens. A score of 100 represents a BMP that is fully functioning as designed. When the SWAMP score reaches 65 it may be time for the BMP to be maintained. There are currently six basins that meet this criterion. At the February 5, 2025 work session council authorized WSB to complete bathymetric on these six basins and the results are summarized below.

Table 1. Bathymetric Survey Recommendations

HOA	Basin ID	Year Built	SWAMP score	Recommendation Based on Bathymetric Survey Results	Estimated Construction Budget
Heatherwood Glen	P-61	1996	49	Do nothing	-
Hunters Crest	P-13	2003	24	Excavate to 4.7’ average depth	\$16,400
	W-9	2003	48	Do Nothing	-
Jennings Cove	P-84	1987	24	Excavate to 2.5’ average depth	\$20,800
Palmer Pointe	P-68	2008	57	Excavate to 5.4’ average depth	\$29,200
	P-69	2008	39	Excavate to 3.5’ average depth	\$16,800

Additional costs to complete this work include design and construction administration costs, construction contingencies, access/restoration costs, or costs to address contaminated material.

**Mission Statement:**

The City of Minnetrista will deliver quality services in a cost effective and innovative manner and provide opportunities for a high quality of life while protecting natural resources and maintaining a rural character.

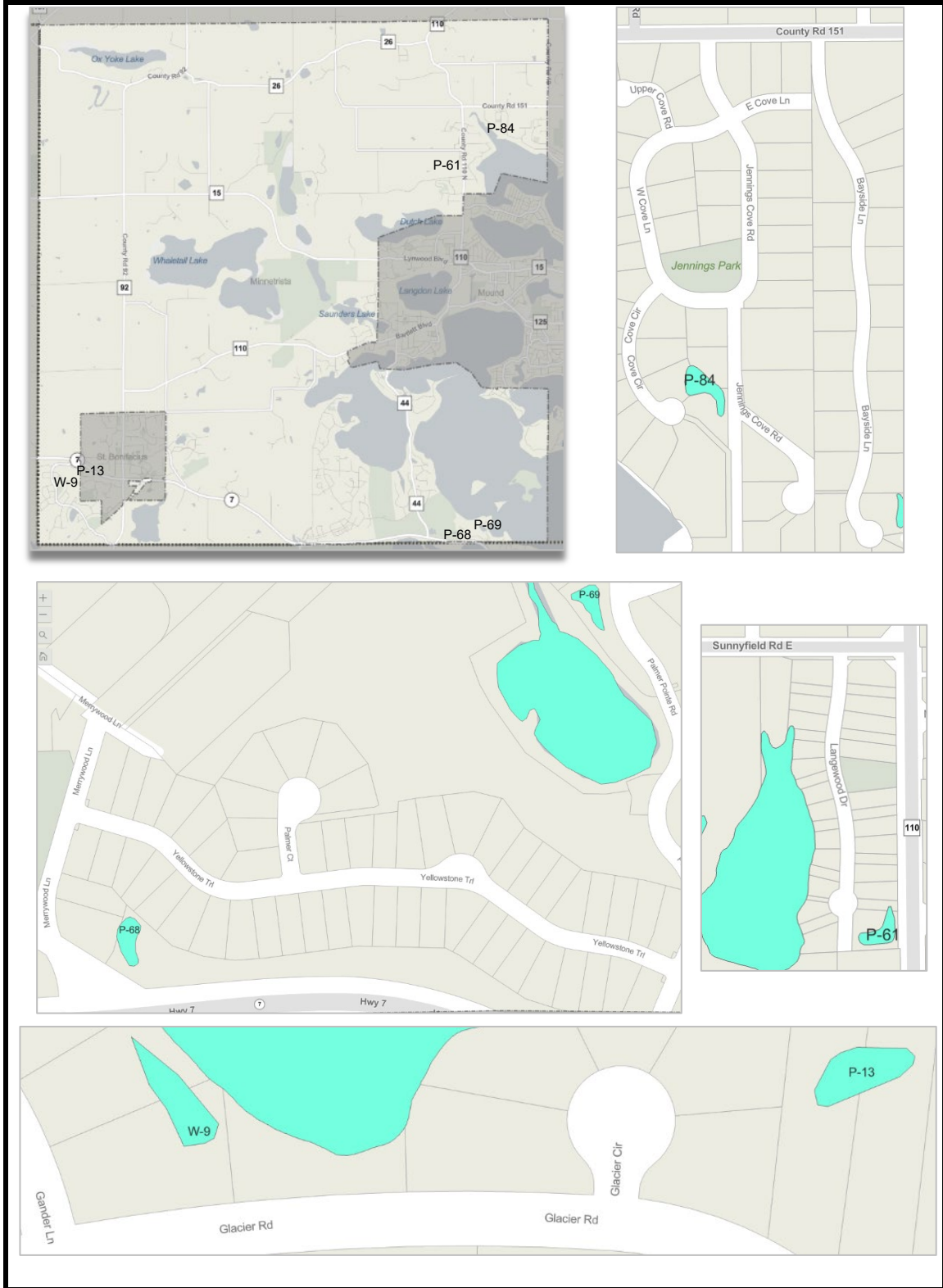


Figure 1. Bathymetric Survey Locations

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Pond excavations should take place prior to any street improvement projects. In 2022 new pavement was installed in Jennings Cove; the Jennings Cove Road cul de sac (one the east side of P-84) was not included in the project. It is anticipated that street improvement projects in Palmer Pointe and Hunters Crest will be done in 2027 and 2029, respectively.

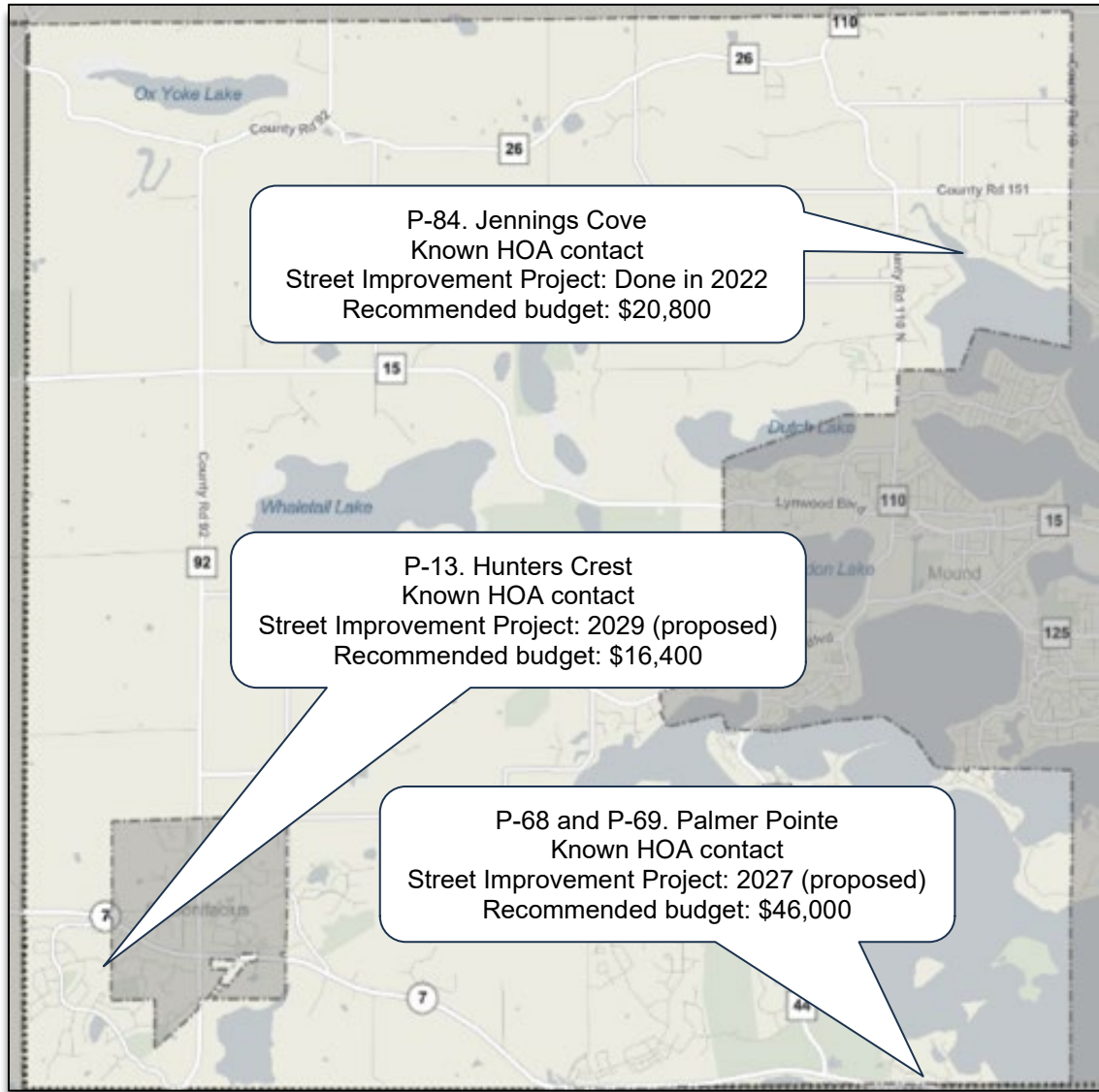


Figure 2. Recommended Pond Excavations

Staff requests city council direction on the next steps. Options include:

1. City-led project to excavate ponds paid by the Storm Water Fund, assessments per Minnesota Statutes Section 429, or a combination of both.

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2. Contact the three affected HOAs with the recommendations and estimated costs. If HOAs don't respond or indicate that a project is cost-prohibitive staff would bring the item back to council for discussion.

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## Memorandum

To: Alyson Fauske, PE

From: Laura Rescorla, PE  
Samuel Lamaritata, EIT

Date: September 2, 2025

Re: 2025 Pond Maintenance Project  
City of Minnetrista, MN  
WSB Project No. 028841-000

This memo summarizes our review of Basins P-13, P-61, P-68, P-69, P-84, and W-9 and investigation into options to maintain and improve pond performance for water quality, volume management, and outlet function.

### Basin P-13

Basin P-13, located north of Glacier Road and east of Glacier Circle, is owned by Hunters Crest HOA. The pond is shown in the National Wetland Inventory (NWI) and in aerials dating back to 1971.

**Table 1: Basin P-13 Summary**

Drainage Area (ac)	6.1
Impervious Percentage (%)	45
Basin Area (ac)	0.18
Normal Water Level, NWL (ft)	963.38
Current Average Depth (ft)	2.2
SWAMP Managed Depth (ft)	4.7
Current SWAMP Score (0-100)	46
Outlet(s)	12" RCP (NE)
Inlet(s)	18" RCP (SW)
Survey Date	May 2025

### Inspection Observations

The 24" southwest inlet, shown in **Figure 1**, is clogged with leafy debris. The outlet pipe, shown in **Figure 2**, is impeded by vegetative debris.



Figure 1: 18" RCP Inlet (SW)



Figure 2: 12" RCP Outlet (NE)

Water Quality Analysis

SWAMP was used to estimate the total phosphorus (TP) and total suspended solids (TSS) annual reductions for Basin P-13 as shown in **Table 2**.

**Table 2: Basin P-13 Maintenance Options**

Option	Description	Volume to Excavate (cy)	Estimated Cost to Excavate*	TP Removal Efficiency (%)	Annual TP Reduction (lbs/yr)	TSS Removal Efficiency (%)	Annual TSS Reduction (tons/yr)	Life Cycle TP Cost Benefit (\$/lb TP)
Existing	2.2' average depth	N/A	N/A	45.2	2.17	72	0.52	N/A
1	Excavate to 2.5' average depth	50	\$5,000	47.4	2.28	76.0	0.55	\$638
2	Excavate to 3.5' average depth	220	\$8,800	53.0	2.55	87.5	0.64	\$185
3	Excavate to 4.0' average depth	300	\$12,000	55.1	2.65	93.0	0.68	\$151
4	Excavate to 4.7' average depth (SWAMP Managed Depth)	410	\$16,400	57.7	2.77	93.0	0.68	\$127

\*Excavation cost estimates are based on a cost of \$40 per cubic yard. Although average excavation costs for Management Levels 1 and 2 material would likely be lower, \$40/cy accounts for a bulking factor of 1.4 for the change in compacted (in-place) volume to loose (hauled off) volume. Cost estimates do not include indirect costs, contingencies, access/restoration costs, or costs to address contaminated materials.

Recommendations

WSB recommends Option 4 as shown in **Table 2**, dredging the pond to an average depth of 4.7 feet to remove the accumulated sediment and improve TP and TSS removal efficiencies. As a part of the dredging project, we recommend clearing the vegetation and debris from the inlet and outlet.

### Basin P-61

Basin P-61, located west of County Road 110 North and east of Langewood Drive, is likely owned by Heatherwood Glen HOA. The pond is shown in the NWI and in aerials dating back to 1945.

**Table 3: Basin P-61 Summary**

Drainage Area (ac)	9.3
Impervious Percentage (%)	43
Basin Area (ac)	0.15
NWL (ft)	957.46
Current Average Depth (ft)	1.8
SWAMP Managed Depth (ft)	4.8
Current SWAMP Score (0-100)	37
Outlet(s)	15" RCP (W)
Inlet(s)	18" RCP (N)
Survey Date	May 2025

#### Inspection Observations

The 18" northern inlet shown in **Figure 3** appears to be in good condition. The 15" RCP outlet, **Figure 4**, is approximately 10% filled with sediment and a small sinkhole has formed over the pipe.



**Figure 3: 18" RCP Inlet (N)**



**Figure 4: 15" RCP Outlet (W)**

#### Water Quality Analysis

SWAMP was used to estimate the TP and TSS reductions for Basin P-61 as shown in **Table 4**.

**Table 4: Basin P-61 Maintenance Options**

Option	Description	Volume to Excavate (cy)	Estimated Cost to Excavate*	TP Removal Efficiency (%)	Annual TP Reduction (lbs/yr)	TSS Removal Efficiency (%)	Annual TSS Reduction (tons/yr)	Life Cycle TP Cost Benefit (\$/lb TP)
Existing	1.8' average depth	N/A	N/A	43.2	3.06	69.33	0.74	N/A
1	Excavate to 3.0' average depth	340	\$13,600	51.8	3.67	85.0	0.91	\$181
2	Excavate to 4.0' average depth	530	\$21,200	56.4	4.00	93.0	1.00	\$140
3	Excavate to 4.8' average depth (SWAMP Managed Depth)	760	\$30,400	59.25	4.20	93.0	1.00	\$145

*\*Excavation cost estimates are based on a cost of \$40 per cubic yard. Although average excavation costs for Management Levels 1 and 2 material would likely be lower, \$40/cy accounts for a bulking factor of 1.4 for the change in compacted (in-place) volume to loose (hauled off) volume. Cost estimates do not include indirect costs, contingencies, access/restoration costs, or costs to address contaminated materials.*

Recommendations

With the existing pond footprint, the maximum achievable average depth is approximately 3.0 feet. We recommend Option 1 as shown in **Table 4**, dredging the pond to an average depth of 3.0 feet to remove the accumulated sediment and improve TP and TSS removal efficiencies. Additionally, we recommend updating the SWAMP managed depth to 3.0 feet. As a part of the dredging project, we recommend cleaning out the inlet and outlet pipes and repairing the sinkhole over the outlet pipe.

**Basin P-68**

Basin P-68, located north of Highway 7, east of Merrywood Lane, and south of Yellowstone Trail, is owned by Palmer Pointe HOA. The pond is shown in the NWI and in aerials dating back to 1962.

**Table 5: Basin P-68 Summary**

Drainage Area (ac)	15.98
Impervious Percentage (%)	42
Basin Area (ac)	0.23
NWL (ft)	967.87
Current Average Depth (ft)	2.1
SWAMP Managed Depth (ft)	5.4
Current SWAMP Score (0-100)	38
Outlet(s)	21" RCP (E),
Inlet(s)	15" RCP (SW), 24" RCP (N)
Survey Date	May 2025

Inspection Observations

Both the 15" and 24" inlets, shown in **Figures 5 and 7** respectively, are partially filled with debris. The 21" RCP outlet is fully submerged and shown in **Figure 6**. Based on the as built and the noted NWL, this is a skimmer (back sloped) outlet pipe.



**Figure 5: 15" RCP Inlet (SW)**



**Figure 6: 21" RCP Inlet (E)**



**Figure 7: 24" RCP Inlet (N)**

Water Quality Analysis

SWAMP was used to estimate the TP and TSS reductions for Basin P-68 as shown in **Table 6**.

**Table 6: Basin P-68 Maintenance Options**

Option	Description	Volume to Excavate (cy)	Estimated Cost to Excavate*	TP Removal Efficiency (%)	Annual TP Reduction (lbs/yr)	TSS Removal Efficiency (%)	Annual TSS Reduction (tons/yr)	Life Cycle TP Cost Benefit (\$/lb TP)
Existing	2.1' average depth	N/A	N/A	37.4	4.72	64.0	1.23	N/A
1	Excavate to 2.5' average depth	90	\$5,000	40.3	5.10	67.0	1.28	\$390
2	Excavate to 3.5' average depth	310	\$12,400	46.1	5.83	74.0	1.42	\$196
3	Excavate to 4.5' average depth	530	\$21,200	50.3	6.36	83.0	1.59	\$156
4	Excavate to 5.0' average depth	640	\$25,600	52.1	6.58	87.5	1.68	\$158
5	Excavate to 5.4' average depth (SWAMP Managed Depth)	730	\$29,200	53.4	6.75	90.0	1.72	\$160

*\*Excavation cost estimates are based on a cost of \$40 per cubic yard. Although average excavation costs for Management Levels 1 and 2 material would likely be lower, \$40/cy accounts for a bulking factor of 1.4 for the change in compacted (in-place) volume to loose (hailed off) volume. Cost estimates do not include indirect costs, contingencies, access/restoration costs, or costs to address contaminated materials.*

Recommendations

We recommend Option 5 as shown in **Table 6**, dredging the pond to an average depth of 5.4 feet to remove the accumulated sediment and improve TP and TSS removal efficiencies. As part of the dredging project, we recommend removal of debris in the inlet pipes to allow for better drainage.

**Basin P-69**

Basin P-69, located north of Yellowstone Trail and west of Palmer Pointe Road, is owned by Palmer Pointe HOA. The pond is shown in the NWI and in aerials dating back to 1960.

**Table 7: Basin P-69 Summary**

Drainage Area (ac)	9.81
Impervious Percentage (%)	51
Basin Area (ac)	0.17
NWL (ft)	929.86
Current Average Depth (ft)	1.3
SWAMP Managed Depth (ft)	5.1
Current SWAMP Score (0-100)	26
Outlet(s)	OCS with a 12" RCP (NW)
Inlet(s)	15" RCP (NE), 24" RCP (S),
Survey Date	May 2025

Inspection Observations

The 15" inlet shown in **Figure 8** is nearly full of sediment. The 24" RCP inlet is approximately 60% filled with sediment and debris as shown in **Figure 9**. Some damage to the weir in the outlet control structure as shown in **Figure 10**, was noted during the inspection.



**Figure 8: 15" RCP Inlet (NE)**



**Figure 9: 24" RCP Inlet (S)**



Figure 10: Outlet Control Structure (NW)

Water Quality Analysis

SWAMP was used to estimate the TP and TSS reductions for Basin P-69 as shown in **Table 8**.

**Table 8: Basin P-69 Maintenance Options**

Option	Description	Volume to Excavate (cy)	Estimated Cost to Excavate*	TP Removal Efficiency (%)	Annual TP Reduction (lbs/yr)	TSS Removal Efficiency (%)	Annual TSS Reduction (tons/yr)	Life Cycle TP Cost Benefit (\$/lb TP)
Existing	1.3' average depth	N/A	N/A	31.7	2.75	58.5	0.77	N/A
1	Excavate to 2.0' average depth	140	\$5,600	38.9	3.37	65.0	0.85	\$262
2	Excavate to 3.0' average depth	330	\$13,200	45.9	3.97	72.0	0.94	\$193
3	Excavate to 3.5' average depth	420	\$16,800	48.5	4.20	78.5	1.03	\$190
4	Excavate to 4.5' average depth	620	\$24,800	52.7	4.56	87.5	1.15	\$188
5	Excavate to 5.1' average depth (SWAMP Managed Depth)	730	\$29,200	54.7	4.74	91.5	1.20	\$188

\*Excavation cost estimates are based on a cost of \$40 per cubic yard. Although average excavation costs for Management Levels 1 and 2 material would likely be lower, \$40/cy accounts for a bulking factor of 1.4 for the change in compacted (in-place) volume to loose (hauled off) volume. Cost estimates do not include indirect costs, contingencies, access/restoration costs, or costs to address contaminated materials.

### Recommendations

With the existing pond footprint, the maximum achievable average depth is approximately 3.5 feet. We recommend Option 3 as shown in **Table 8**, dredging the pond to an average depth of 3.5 feet to remove the accumulated sediment and improve TP and TSS removal efficiencies. Additionally, we recommend updating the SWAMP managed depth to 3.5 feet. As part of the dredging project, we recommend removal of debris in the inlet pipes to allow for better drainage.

**Basin P-84**

Basin P-84, located south of West Cove Lane, east of Cove Circle, and west of Jennings Cove Road, is likely owned by Jennings' Cove HOA. The pond is shown in the NWI and in aerials dating back to 1945.

**Table 9: Basin P-84 Summary**

Drainage Area (ac)	18.51
Impervious Percentage (%)	37
Basin Area (ac)	0.27
NWL (ft)	965.57
Current Average Depth (ft)	1.3
SWAMP Managed Depth (ft)	5.6
Current SWAMP Score (0-100)	23
Outlet(s)	12" RCP (S)
Inlet(s)	15" RCP (SW), 12" RCP (N)
Survey Date	May 2025

Inspection Observations

The 12" inlet shown in **Figure 11** is damaged, and the pipe is separated from the flared end section. The 15" RCP appears to be in good condition, as shown in **Figure 12**. The 12" outlet was underwater at the time of the survey, as shown in **Figure 13**.



**Figure 11: 12" RCP Inlet (N)**



**Figure 12: 15" RCP Inlet (SW)**



Figure 13: 12" RCP Outlet (S)

Water Quality Analysis

SWAMP was used to estimate the TP and TSS reductions for Basin P-84 as shown in **Table 10**.

**Table 10: Basin P-84 Maintenance Options**

Option	Description	Volume to Excavate (cy)	Estimated Cost to Excavate*	TP Removal Efficiency (%)	Annual TP Reduction (lbs/yr)	TSS Removal Efficiency (%)	Annual TSS Reduction (tons/yr)	Life Cycle TP Cost Benefit (\$/lb TP)
Existing	1.3' average depth	N/A	N/A	36.7	4.58	63	1.19	N/A
1	1.8' (as built) average depth	N/A	N/A	42.3	5.27	68.7	1.30	\$270
2	Excavate to 2.5' average depth	520	\$20,800	47.9	5.97	76.0	1.44	\$188
3	Excavate to 3.5' average depth	950	\$38,000	53.4	6.66	90.0	1.70	\$179
4	Excavate to 4.5' average depth	1380	\$55,200	57.4	7.16	93.0	1.76	\$177
5	Excavate to 5.0' average depth	1590	\$63,600	59.1	7.37	93.0	1.76	\$175
6	Excavate to 5.6' average depth (SWAMP Managed Depth)	1850	\$74,000	60.7	7.58	93.0	1.76	\$173

\*Excavation cost estimates are based on a cost of \$40 per cubic yard. Although average excavation costs for Management Levels 1 and 2 material would likely be lower, \$40/cy accounts for a bulking factor of 1.4 for the change in compacted (in-place) volume to loose (hauled off) volume. Cost estimates do not include indirect costs, contingencies, access/restoration costs, or costs to address contaminated materials.

### Recommendations

The existing shape of the pond constrains the average depth that could be achieved as part of a maintenance project. Although the deepest section could likely be excavated to achieve an average depth equal to the SWAMP managed depth (5.6 ft), the overall average depth would likely be closer to 2.5 feet. We recommend Option 2 in **Table 10**, dredging the pond to an average depth of 2.5 feet to remove the accumulated sediment and improve TP and TSS removal efficiencies. Additionally, the SWAMP Managed Depth should be updated to 2.5 feet.

**Basin W-9**

W-9, located north of Glacier Road and east of Gander Lane, is owned by Hunters Crest HOA. The pond is shown in the NWI and in aerials dating back to 1951.

**Table 11: Basin W-9 Summary**

Drainage Area (ac)	3.17
Impervious Percentage (%)	44
Basin Area (ac)	0.14
Normal Water Level, NWL (ft)	963.23
Current Average Depth (ft)	2.1
SWAMP Managed Depth (ft)	3.2
Current SWAMP Score (0-100)	65
Outlet(s)	12" RCP (E)
Inlet(s)	15" RCP (S)
Survey Date	May 2025

Inspection Observations

The 15" inlet, shown in **Figure 14**, is plugged with debris. The 12" RCP outlet appears to be in good condition, though is impeded by some vegetation, as shown in **Figure 15**.



**Figure 14: 15" RCP Inlet (S)**



**Figure 15: 12" RCP Outlet (E)**

Water Quality Analysis

SWAMP was used to estimate the TP and TSS reductions for Basin W-9 as shown in **Table 12**.

**Table 12: Basin W-9 Maintenance Options**

Option	Description	Volume to Excavate (cy)	Estimated Cost to Excavate*	TP Removal Efficiency (%)	Annual TP Reduction (lbs/yr)	TSS Removal Efficiency (%)	Annual TSS Reduction (tons/yr)	Life Cycle TP Cost Benefit (\$/lb TP)
Existing	2.1' average depth	N/A	N/A	48.9	1.21	78.5	0.29	N/A
1	Excavate to 2.5' average depth	60	\$5,000	51.9	1.28	85.0	0.32	\$519
2	Excavate to 3.0' average depth	130	\$5,200	54.9	1.35	91.5	0.34	\$201
3	Excavate to 3.2' average depth (SWAMP Managed Depth)	160	\$6,400	55.9	1.38	93.0	0.35	\$187

\*Excavation cost estimates are based on a cost of \$40 per cubic yard. Although average excavation costs for Management Levels 1 and 2 material would likely be lower, \$40/cy accounts for a bulking factor of 1.4 for the change in compacted (in-place) volume to loose (hauled off) volume. Cost estimates do not include indirect costs, contingencies, access/restoration costs, or costs to address contaminated materials.

Recommendations

This pond is functioning reasonably well, so we do not recommend a dredging project at this time. The pond's function should be re-evaluated in approximately 5 years to determine its function at that time. As possible, we recommend removal of debris and vegetation in and around the inlet and outlet pipes to allow for better drainage.



- Storm Sewer
- Surveyed Depth

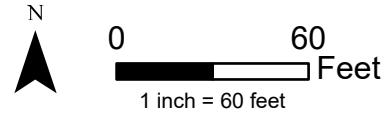
**Depth (FT)**

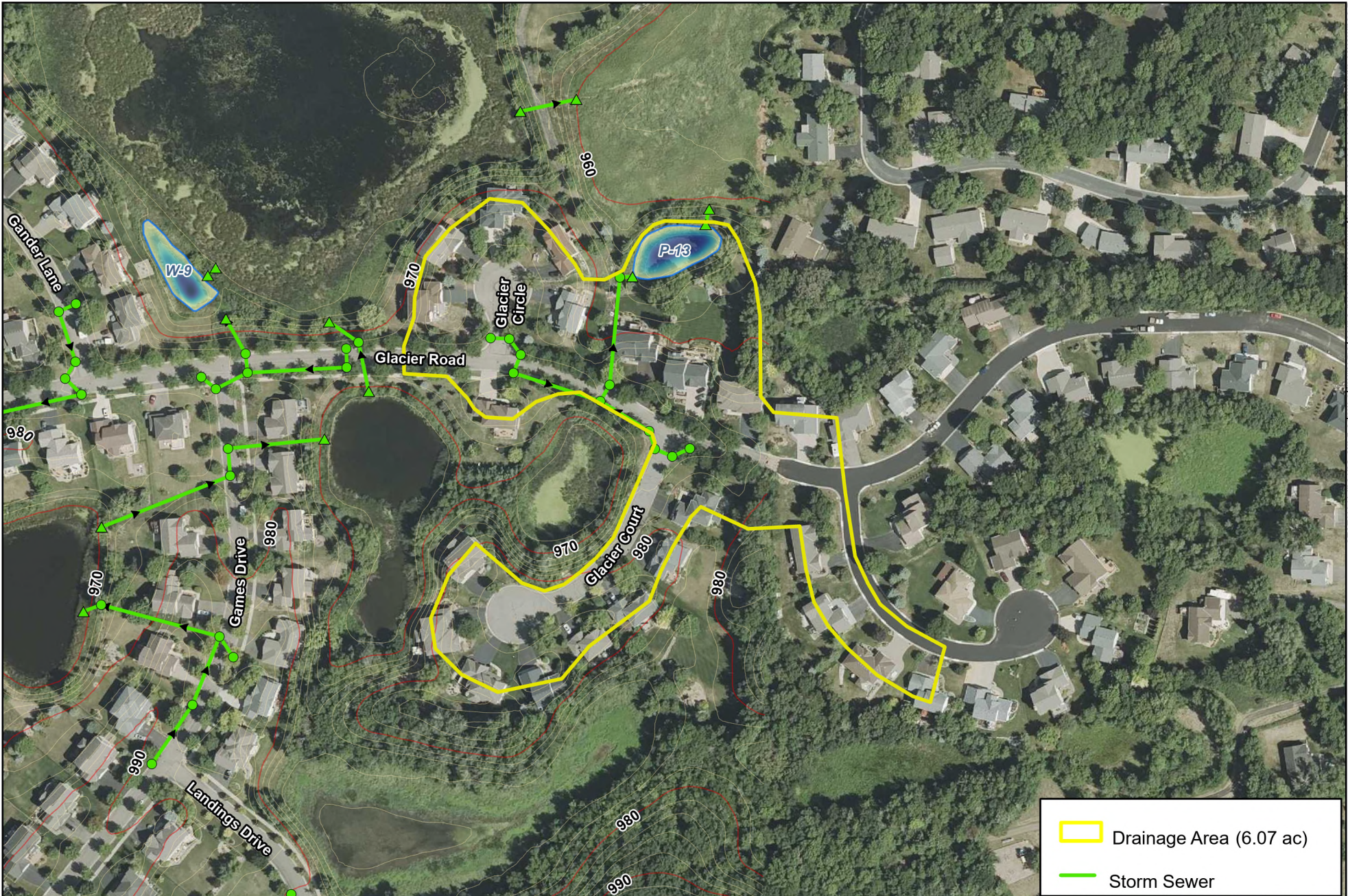
Max: 4.1 '  
Avg: 2.2 '  
Min: 0 '

Basin Area: 0.18 ac  
Basin Volume: 0.4 ac-ft  
Normal Water Level: 963.38'



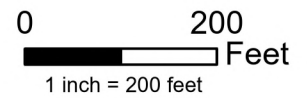
**Basin P-13**  
2025 Pond Surveys  
City of Minnetrista, MN





### Basin P-13 Drainage Area Map

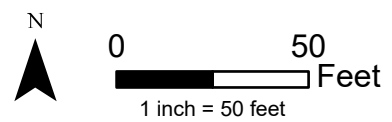
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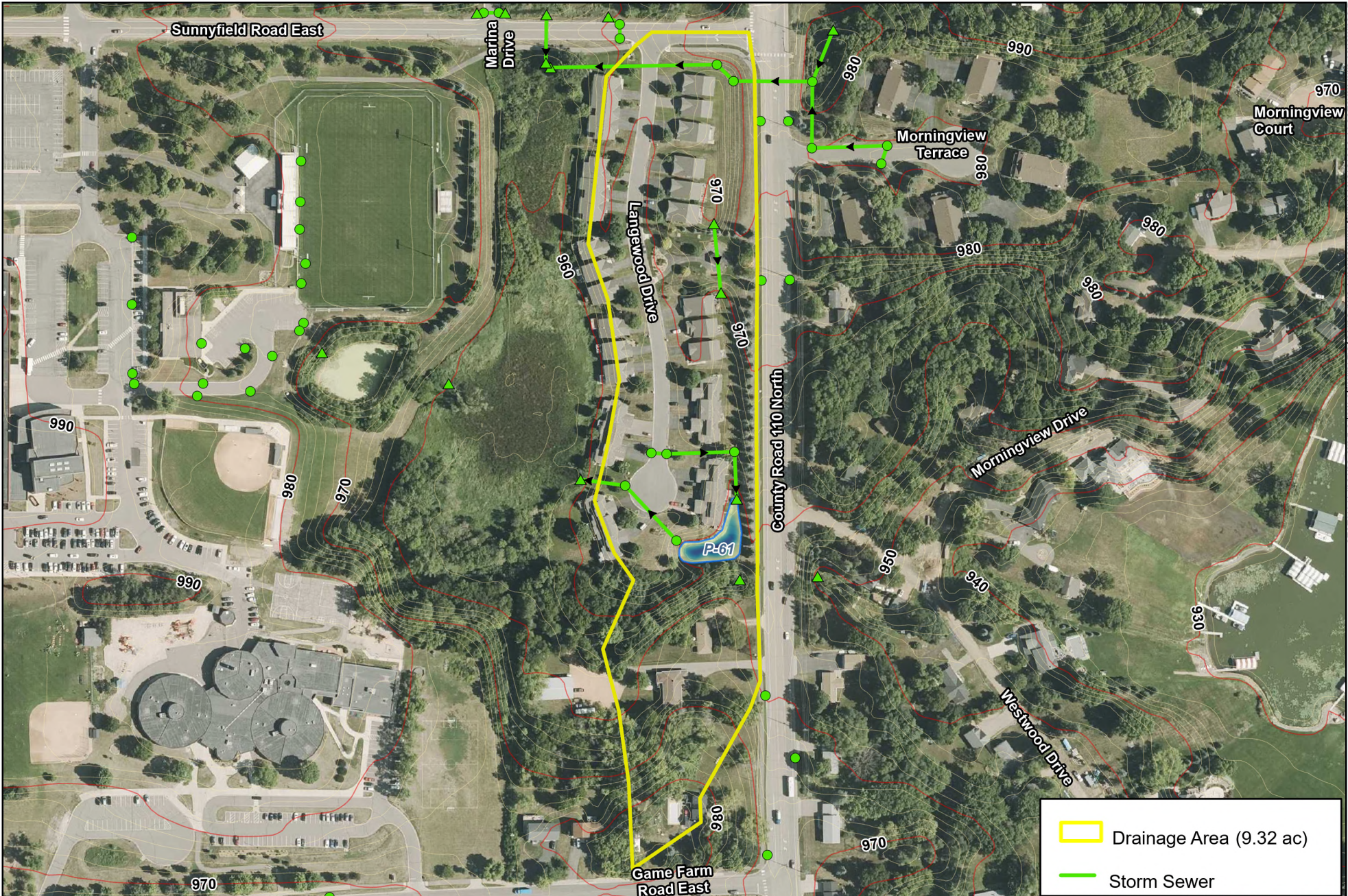




### Basin P-61

2025 Pond Surveys  
City of Minnetrista, MN





Drainage Area (9.32 ac)  
 Storm Sewer



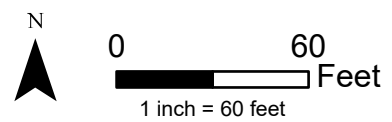
## Basin P-61 Drainage Area Map

2025 Pond Surveys  
City of Minnetrista, MN





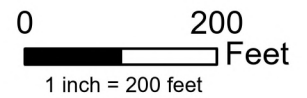
**Basin P-68**  
 2025 Pond Surveys  
 City of Minnetrista, MN





### Basin P-68 Drainage Area Map

2025 Pond Surveys  
City of Minnetrista, MN





— Storm Sewer

• Surveyed Depth

**Depth (FT)**

Max: 3.3'

Avg: 1.3'

Min: 0'

Basin Area: 0.17 ac

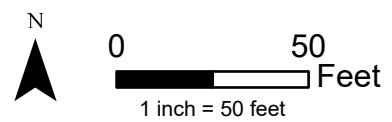
Basin Volume: 0.22 ac-ft

Normal Water Level: 929.86'





### Basin P-69

2025 Pond Surveys  
City of Minnetrista, MN



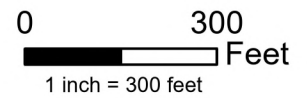


 Drainage Area (9.81 ac)  
 Storm Sewer



### Basin P-69 Drainage Area Map

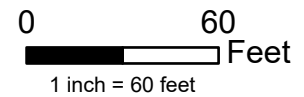
2025 Pond Surveys  
City of Minnetrista, MN

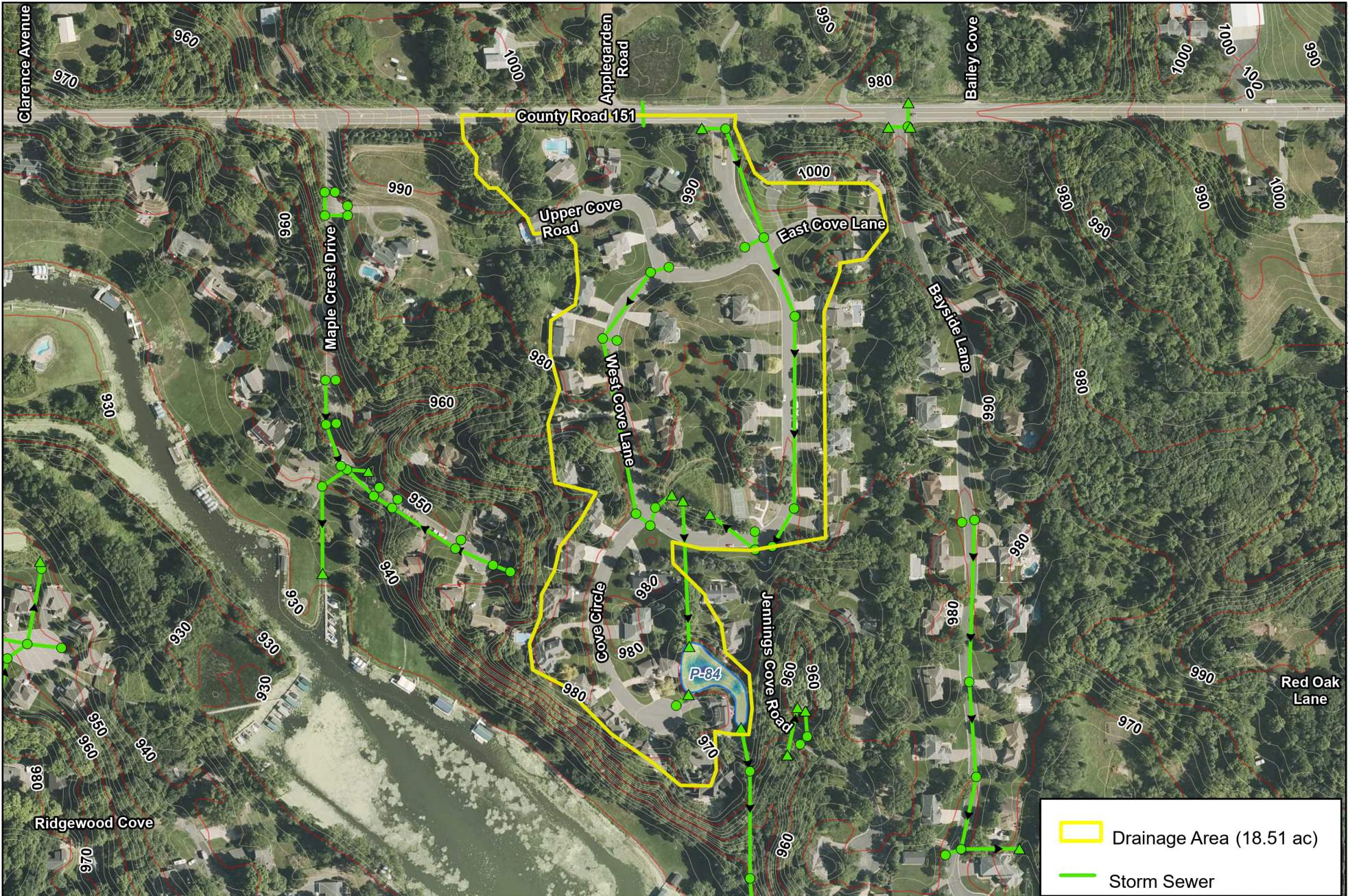




### Basin P-84

2025 Pond Surveys  
City of Minnetrista, MN



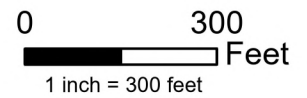


Drainage Area (18.51 ac)  
 Storm Sewer



## Basin P-84 Drainage Area Map

2025 Pond Surveys  
City of Minnetrista, MN





- Storm Sewer
- Surveyed Depth

**Depth (FT)**

Max: 4.1'

Avg: 2.1'

Min: 0'

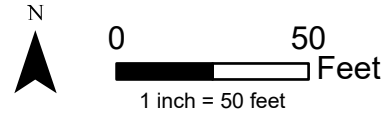
Basin Area: 0.14 ac

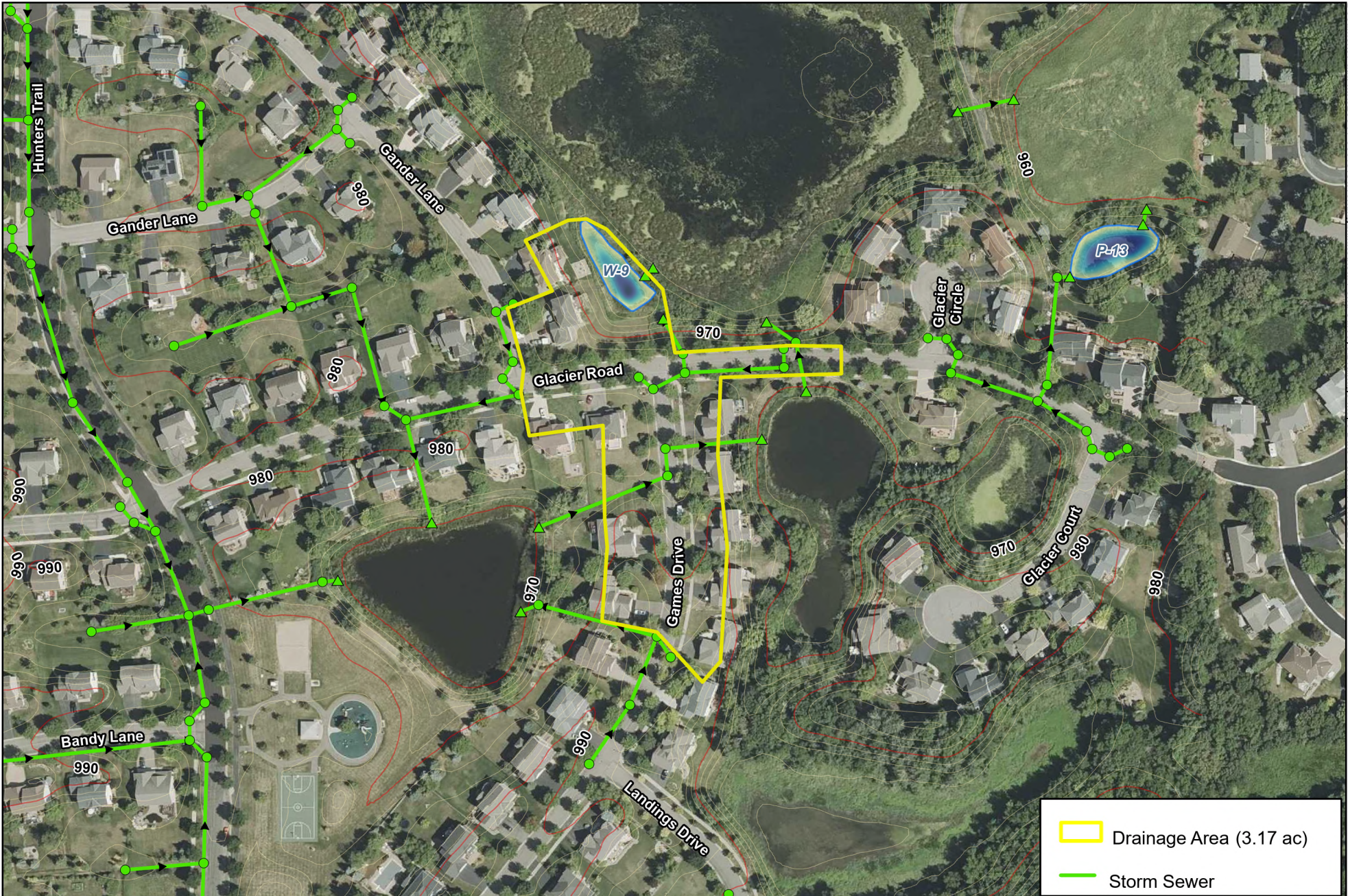
Basin Volume: 0.29 ac-ft

Normal Water Level: 963.23'



**Basin W-9**  
 2025 Pond Surveys  
 City of Minnetrista, MN





### Basin W-9 Drainage Area Map

2025 Pond Surveys  
City of Minnetrista, MN



0 200  
Feet  
1 inch = 200 feet

