VILLAGE OF ORLAND PARK, COOK COUNTY, IL

POND EVALUATIONS

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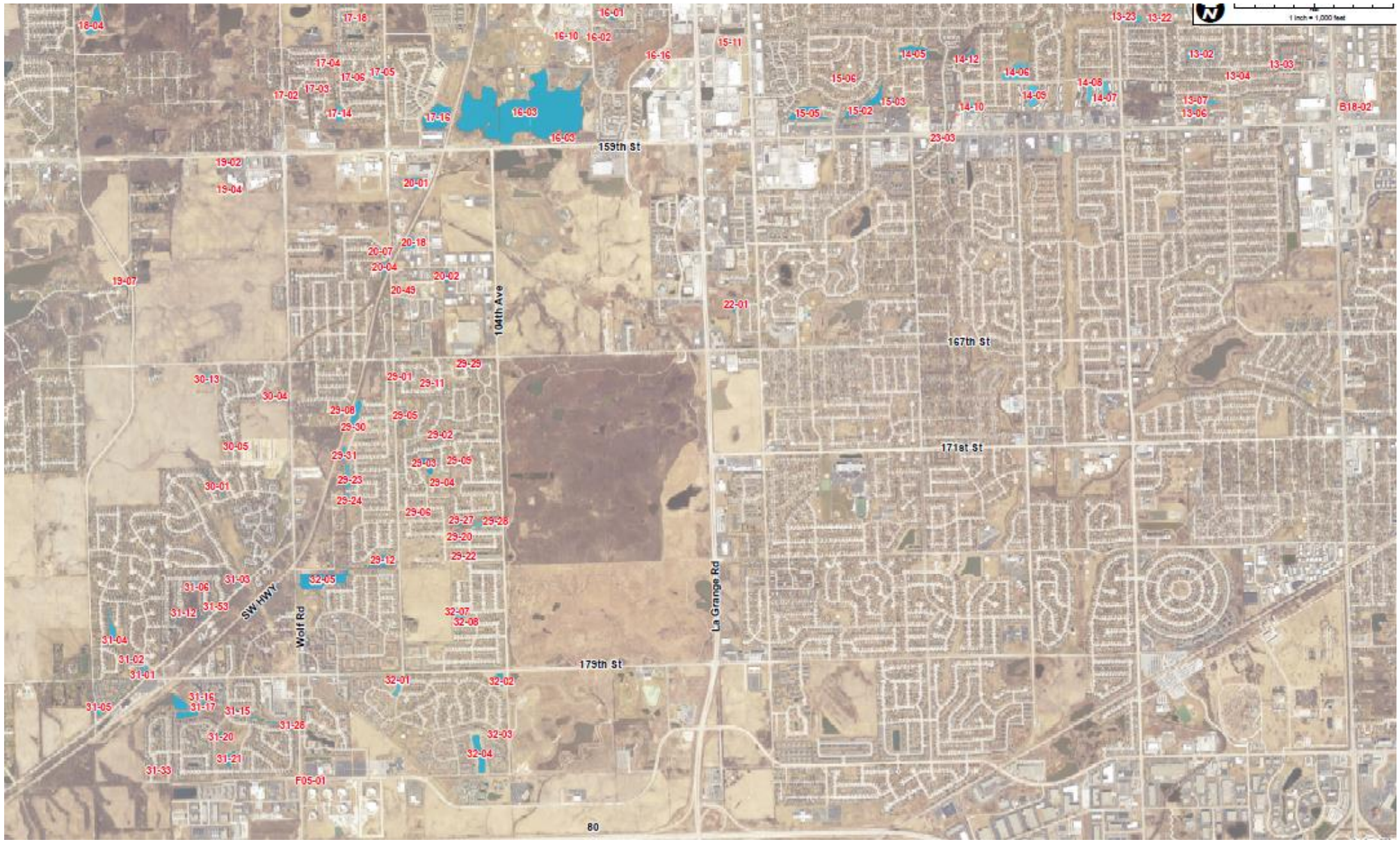
Project Summary

- CBBEL contracted initially to evaluate 178 Ponds
  - 8 additional ponds identified and evaluated - - 186 ponds formally evaluated
  - More than 200 sites were visited
  - Commenced in August 2021 and delivered in October
  - Evaluation focused on 20 pond elements, and other issues identified while on site.
- Study Purpose
  - Orland Park wished to establish a funding plan for maintenance of the ponds. This study would help prioritize each pond's maintenance needs
    - Establish an annual budget - knowing which ponds to focus priorities on.

Pond Map -North

Pond Map -South



Project Summary

- CBBEL developed classification, a ranking, and priority for every pond
  - Ponds ranked 5 were in the most need of maintenance/restoration
  - Ponds ranked 1 had minimal concerns
- Discuss classification in a few minutes

Evaluation Elements

20 Elements were evaluated

- Inlet and outlet pipes
- Overland flow routes – inlets and outlets
- Outlet control structures
- Emergency overflow weirs
- Other utilities within basins with identifiable surface concerns
- Shoreline erosion or other erosion

Evaluation Elements

- Settling of infrastructure, i.e., pipe separation, collapse, concrete structures out of plumb or uneven to a point of concern for stormwater storage capacity
- Visual water quality concerns
- Excessive sedimentation
  - Volume or capacity reductions
- Neighbor encroachments
  - Gardens, sheds, playgrounds, pools, landscape debris, fences, etc.
- Vegetative cover and quality
- Wildlife concerns – damage
- Identifiable deviations from original design (outfalls missing or placed in locations not identified on plans)

Evaluation Elements

- Adjacent land use impacts – direct or indirect, i.e., excessive windblown trash, dumping (typically landscape waste)
- Presence of fish or other beneficial aquatic fauna
- Cover of lily pads or other aggressive vegetation

Study Process Summary

- CBBEL, with Village Staff input developed a comprehensive data form and rating system.
- First two days entire team (5 staff) visited 8 ponds together to ensure consistency, refine system, tweak data form and collection process
  - Initially we intended to enter the data using tablets / iPads directly into the data forms to avoid having to type in the data later. We quickly scrapped that plan.
    - Bright sunlight, units constantly going to sleep, and inability to quickly enter text and more importantly being able to draw little sketches of site issues
  - We defaulted to old school clip boards and paper forms.
- Each staff person had ESRI collector on phone or iPad and with GIS locations of all ponds with aerial back ground to ID pond locations

Study Process Summary

- Several times during the study, audits were completed by CBBEL Senior staff to re-walk several locations and re-evaluate the data collected to ensure there was a consistent rating/ranking of pond issues and concerns.
- Following completion of field work all forms were reviewed and edited for inclusion in report.
- Every pond was visited, some twice, notes written, and photographs taken.
  - Photographs were critical when report writing started – memories of every pond blur until you can refer back to the photos.

Data Forms –
4 pages per pond

Standardized Pond Evaluation Form							CBBEL Project No: 210335
Orland Park Pond ID #:	29-39						
Site Name:	Deer Trail Lot						
Evaluator(s)	Michael Downs						
Date:	9/9/2021						
Time:	2:40pm						Pond Ranking: 1
Weather:	80 Degrees F, Partly Cloudy						Priority Ranking System
Approx. days since last precip:	5						1 - Low priority, Monitor condition annually
Eng Plans Available?	Yes		No		Rev'd?		2/3 - Maintenance Active issues - monitor
MMP Available?	Yes		No		Rev'd?		4 - Maintenance Recommended Soon
Planting Plan Available?	Yes		No		Rev'd?		5 - Urgent Maintenance Required

	Question			Maintenance Necessary		Rank How Critical	Comments:
Emergency Spillway	Y	N	N/A	Y	N	1 Low - 5 High	
1. Present -Found?			x				
2. Spillway level?			x				
3. Adequate vegetation and groundcover? Overgrown?			x				
4. Adequate freeboard?			x				
5. Embankment erosion evident?			x				
6. Cracking, bulging, or slumping?			x				
a) upstream face?			x				
b) downstream face?			x				
c) at or below toe upstream?			x				
d) at or below toe downstream?			x				
e) emergency spillway?			x				
7. Pond and toe drains clear and functioning?			x				
8.Evidence of animal burrows?			x				
9. Seeps or leaks on downstream face?			x				
10. Vertical/horizontal alignment on the top of the dam per plan?			x				
11. Emergency Spillway clear?			x				
12. Access available for maintenance?			x				
a) For hand labor?			x				
b) For heavy equipment?			x				
13. Other? (specify in comments below)			x				

Study Process Summary

Following Completion of Field Work

- All forms were printed out and a small team of staff reviewed each form together
  - revised as necessary for consistency
  - categorized each site, and
  - sorted and ranked every pond into various common types and conditions
  - Ponds were ranked on a scale of 1 to 5 1 = Low Priority 5 = High Priority
    - 5 being the most urgent for restoration
- Paper Copies were physically sorted into piles
  - Then reviewed again to make sure sorting of each was consistent.
- Once sorted the information was entered into a master searchable spreadsheet to allow querying of the information
- Draft Report preparation then commenced

Pond Type
DP = Dry Pond
WNP = Wetland
Naturalized Pond
OG = Overgrown
OW = Open Water
5 is Highest Priority
1 is lowest Priority

Searchable Spreadsheet

Pond ID	Pond Name	Rank	Pond Type	Over-Grown	Blue-Green Algae Present	Pond Type DP = Dry Pond WNP = Wetland Naturalized Pond OG = Overgrown OW = Open Water	Form Typed	Printed?	Finalized?	Photos
01-01	Teton Pond	1	DP	N		5 is Highest Priority	Y	Y	Y	Y
01-02	Apache Pond	1	DP	N		1 is lowest Priority	Y	Y	Y	Y
01-03	Redondo Pond	1	OW	N			Y	Y	Y	Y
02-01	Villa West Pond	1	WNP	N			Y	Y	Y	Y
02-04	Caro Vista Pond	4	WNP	N			Y	Y	Y	Y
02-05	Wedgewood Commons Pond	3	OW	N			Y	Y	Y	Y
02-06	Ishnala Pond	1	DP	N			Y	Y	Y	Y
02-07	Perminas Pond	2	DP	N			Y	Y	Y	Y
02-08	Sunnyside Pond	2	OW	N			Y	Y	Y	Y
02-09	Nicklaus Pond	4	OW	N			Y	Y	Y	Y
02-10	87th Ave East Pond	1	OW	N			Y	Y	Y	Y
02-12	88th North Avenue Pond	2	OG	Y			Y	Y	Y	Y
02-13	140th Street Wetland	4	OG	Y			Y	Y	Y	Y
02-20	Evergreen View Park	1	DP	N			Y	Y	Y	Y
03-01	Lamplighter Pond	2	OW	N			Y	Y	Y	Y
03-02	Thomas Pond	5	DP	N			Y	Y	Y	Y
03-03	Heritage Pond	2	DP	N			Y	Y	Y	Y
03-10	Tallgrass Pond	2	OW	N			Y	Y	Y	Y
03-11	Legend Trail Pond	1	OW	N			Y	Y	Y	Y
03-19	Pebble Creek Landscaping West Pond	1	WNP	N			Y	Y	Y	Y
03-20	Pebble Creek Landscaping East Pond	1	WNP	N			Y	Y	Y	Y
04-04	Triangle Pond	3	OG	Y			Y	Y	Y	Y
05-01	Countryside Pond	1	DP	N			Y	Y	Y	Y
05-02	Knollwood Pond	1	DP	N			Y	Y	Y	Y
05-03	Arbor Ridge Pond	2	OW	N			Y	Y	Y	Y

Draft Report Summary

- The DRAFT report was prepared and included
  - A summary of findings
  - A discussion of all pond types, qualities and ranking
  - The data forms along with photographs of every site
  - The master spread sheet summarizing all the data
- Report also contained discussions regarding issues and potential remedies
  - Aeration
  - Algae
  - Dredging
  - Restoration Costs
    - Shoreline Erosion
    - Vegetation Management
    - Storm Sewer Maintenance
    - Pipe Repair
  - Stream Evaluation
- The report and attachments was 867 pages

Summary of Findings

- **Every Pond is in a constant state of degradation**. The rate of degradation varies greatly given the context of the location
  - Constructed ponds in the 20- to 40-year-old range had the greatest needs
  - Sediment deposition was the #1 issue among all ponds evaluated
  - "Natural Ponds" with limited landscape management were generally overgrown and **hiding** many issues due to lack of visibility
  - Shoreline erosion in ponds with open water was problematic in a number of ponds
- **Mowed lawn ponds are deceiving** and, in many cases, have the most severe reductions in storm water storage capacity due to significant imperceptible sediment accumulation
    - **In many cases** sediment was several feet deep
- Stormwater structures require routine inspection and maintenance
    - **Many** separated pipes causing cavitation, holes, blockages, sediment loading and excessive erosion

Ponds with Highest Priority

Table 1 – Summary of Dry Ponds that are recommended to receive immediate attention

Pond ID	Pond Name	Rank	Pond Type	Over-Grown
03-02	Thomas Pond	5	DP	N
06-01	Pinewood North Pond #2	5	DP	N
13-02	Cashew Ponds	5	DP	N
29-04	Mallard Landing Park Pond	5	DP	N
B18-01	Catalina Industrial Pond	5	DP	N

Table 4 – Open Water Ponds that are recommended for immediate attention

Pond ID	Pond Name	Rank	Pond Type	Over-Grown	Blue-Green Algae Present
06-03	Pinewood North Pond 3	5	OW	N	
20-01	Beemsterboer Pond	5	OW	N	
P28-02	Lake Lucille Pond	5	OW	N	
P33-01	Mill Creek Pond	5	OW	N	

Table 6 – Overgrown Ponds which are recommended for immediate attention

Pond ID	Pond Name	Rank	Pond Type	Over-Grown
06-07	Creekside Pond	5	OG	Y
16-12	Cemeno Park Pond (Police)	5	OG	Y
17-02	Equestrian Trail West Pond	5	OG	Y
22-01	Seton Place Pond	5	OG	Y

CBB

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Typical Restoration Costs

- Shoreline Erosion Repair — $100 or more, per linear foot
  - Design, permitting, restoration/construction
    - 500 lineal feet of restoration ~$50,000
- Vegetation Management — $2,500 per acre (over a 3-year period)
- Brush Clearing — $15,000 to $20,000 per acre
- Pipe Section Repair — $ 3,000 or more per location
- Dredging — $150 per cubic yard
  - Example Cost - 1 acre/foot ~1,600 cubic yards
    - design, permitting, dredging, disposal, restoration, and observation +/- $250,000

Typical Restoration Costs

- Cost to repair all 13 ponds Ranked 5 was estimated to be **$5.6 Million**
  - **Average - $430,000 per pond**
  - **Most were between $150,000 to $400,000 with a few outliers**
- We strongly recommend addressing issues early and continually.
- This is cliche', but the issues only get worse with time.
- Establish a **proactive annually funded program** to tackle the highest priority projects first, and then continually/annually work down the list.

Representative Photographs

- The following photographs, which are part of the draft report, document the conditions of the ponds ranked 5 that are in the most urgent need of attention.

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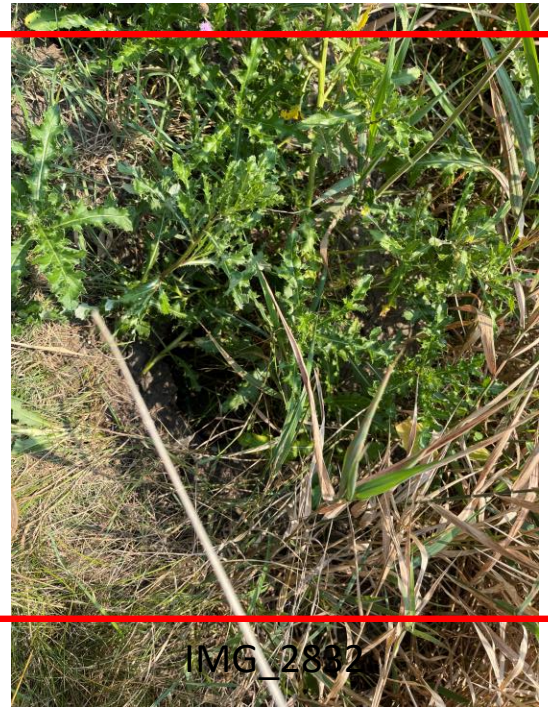

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This is a sidewalk, I think the bubble in the level is off!

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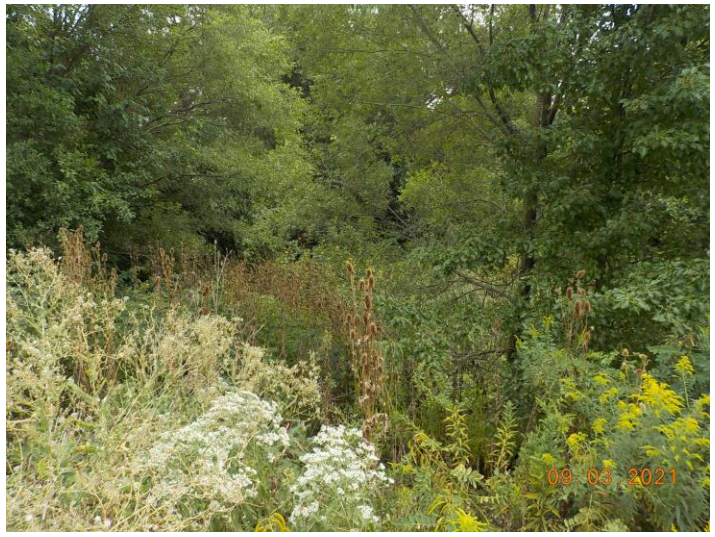

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Muskrats

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Management was completed but nothing installed to replace the weeds. Needs to be supplemental seeded.

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Sediment 3’ deep

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1

2

3

4

5

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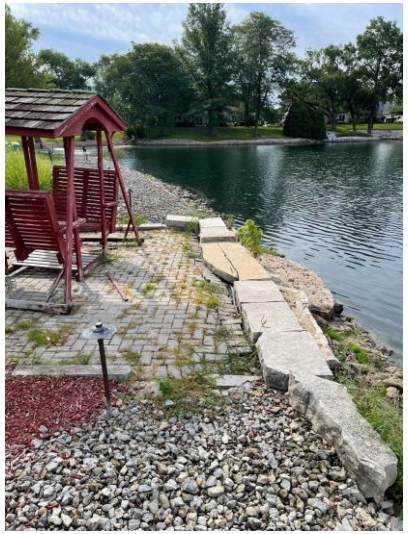
7

Voids from pipe separation
Safety hazard

8



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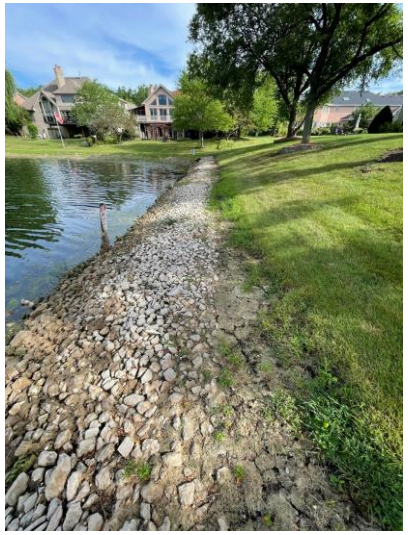

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