

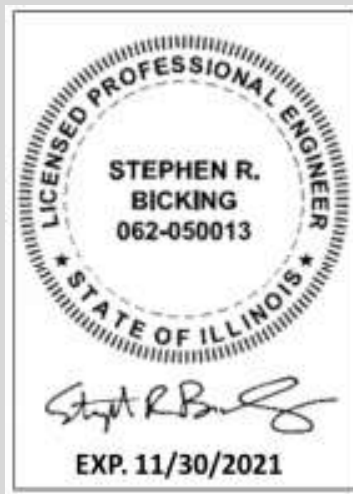


# Technical Memorandum

Project Name: Lakeview Basin Survey  
Project Location: Village of Oswego, Kendall County, IL  
Project Number: 200745 (HRG #)

Project Surveyor: Bernie Bauer, PLS  
Project Manager: Stephen Bicking, PE, DWRE, CFM  
Date: September 2020

HR Green, Inc.  
420 N. Front St. Suite 100  
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Phone: (815) 385-1778  
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SECTION 1  
NARRATIVE

## Introduction

Oswegoland Park District retained HR Green, Inc. to determine the amount of silt that has accumulated in the Lakeview Basin. Included in this report are the exhibits indicating the amount of silt throughout the basin, as well as a preliminary opinion of cost for the removal of the silt from the basin.

At this point, the silt is not affecting the overall detention volume provided in the basin and has accumulated below the normal water level of the basin. The requirement from an engineering standpoint is that the volume above the water surface elevation be maintained for detention and that the outlets into the basin are not blocked. Therefore, at this time there is no engineering reason for the dredging. If the basin's sediment level begins to rise above the water surface elevation and islands start forming in the basin or the outlets from the road's storm sewer become blocked with sediment, then there will be an engineering need to do some dredging to remove sediment.

The following table summarizes the silt volumes at various locations in the basin, as well as provides an opinion of cost to remove the silt.

**Lakeview Basin Silt Volume**

section	volume (cubic yards)	cost with 20% contingency	
		respread	haul off
Entire Basin	14755	\$ 700,000.00	\$ 1,140,000.00
Northern Section - Option 1	4236	\$ 200,000.00	\$ 330,000.00
Northern Section - Option 2	2944	\$ 140,000.00	\$ 230,000.00
Middle Section	1490	\$ 70,000.00	\$ 114,000.00
Southern Section	2585	\$ 123,000.00	\$ 200,000.00

## Survey Methodology

A bathymetric survey of the Lakeview Basin was performed by HR Green on June 19, 2020. Data was collected utilizing Base and Rover RTK GPS methods and referenced to the Village of Oswego geodetic control network. The horizontal datum utilized was Illinois State Plane Coordinates – East Zone (NAD 83-2011) and the vertical datum utilized was North American Vertical Datum of 1988 (NAVD88).

Two GPS positions and elevations were obtained at each observation location. One at the top of silt and the second with the survey rod pushed through the silt to the “hard bottom”. Observations were collected at approximate maximum intervals of 50 feet. The water surface elevation of 635.56 feet was determined by GPS obtained elevations at the outflow structure in the northwesterly portion of the basin.

The limits of the waterline of the basin was determined utilizing orthorectified aerial photos obtained on June 22, 2020 by a DJI Phantom 4 RTK Unmanned Aerial Vehicle (UAV), which was referenced to the project coordinate system by onboard RTK GPS positioning.

Two TIN surfaces were created in AutoCAD Civil3D 2019 to be utilized in the volume calculations. (1) Top of Silt (2) Hard Bottom. The established waterline was assigned the water elevation of 635.56 feet. This waterline and elevation were used as the outer boundary of both the top of silt elevation and hard bottom TIN surfaces. The silt volumes were calculated utilizing a grid volume comparison between the two surfaces. The parameters of the grid comparison were set to 25 feet by 25 feet and were bounded by the limits of the area of interest sketches provided by the client.

## **Conclusion**

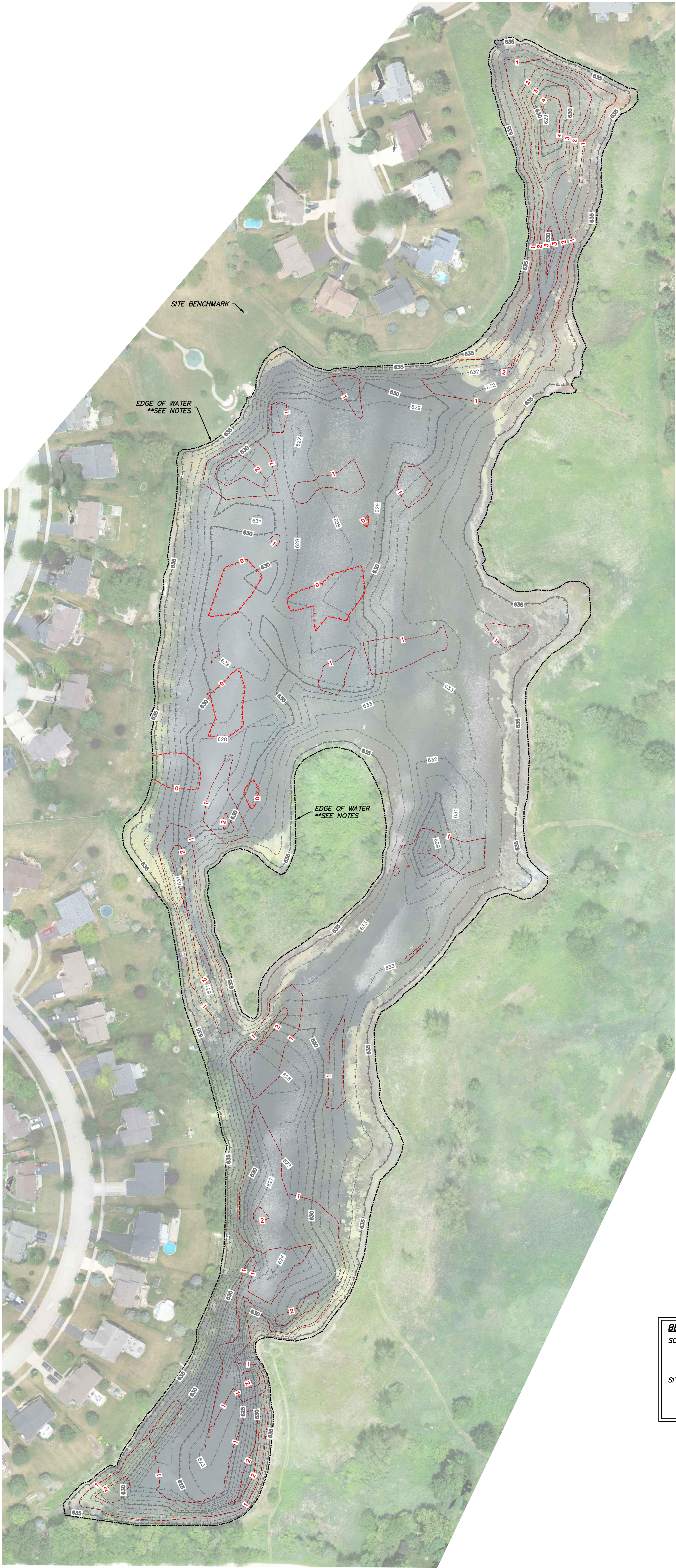
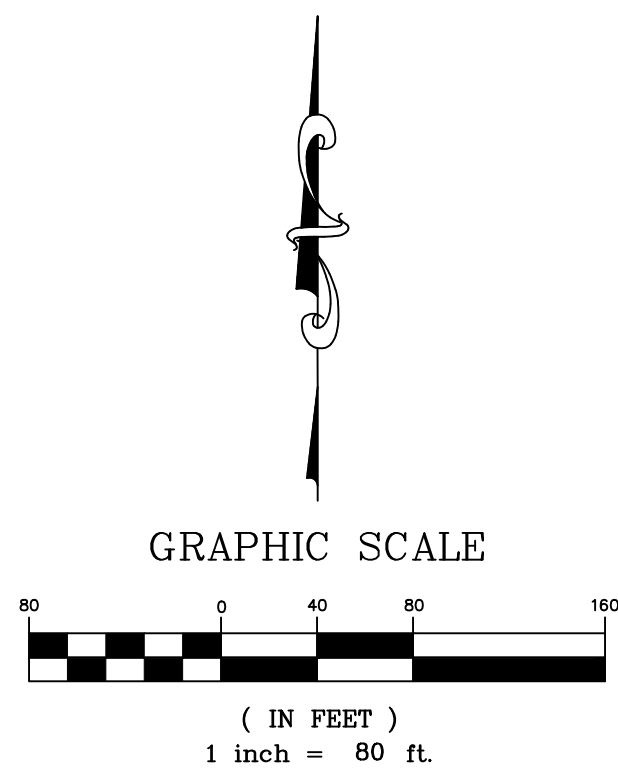
As noted at the beginning of the report, there is not an engineering need to remove the silt at this time. Depending on the methodology used to remove the silt, permitting with the US Army Corp of Engineers may be required. It is recommended that prior to starting the engineering for any removal of silt, a pre-application meeting be held with the USACE to ensure the project can be permitted and is feasible.

SECTION 2

BASIN SILT VOLUME EXHIBITS



LAKEVIEW BASIN  
SILT DEPTH BATHYMETRIC SURVEY  
IN WEST 1/2 OF SECTION 20, TOWNSHIP 37, RANGE 8 EAST OF THE THIRD  
PRINCIPAL MERIDIAN, VILLAGE OF OSWEGO, KENDALL COUNTY, ILLINOIS.



**LEGEND**

--- 635 --- EXISTING FIRM BOTTOM  
--- 634 --- CONTOURS  
- - - - - EXISTING SILT DEPTH  
CONTOURS

**SURVEY NOTES:**

1. BASIS OF BEARINGS: IL SPC -EAST (NAD83-2011)
2. EDGE OF WATER SHOWN HEREON PER ORTHORECTIFIED AERIAL PHOTOGRAPHY.
3. DATE OF AERIAL PHOTOGRAPHY: 06/22/2020
4. DATE OF FIELDWORK OF BATHYMETRIC SURVEY: 06/19/2020
5. ELEVATION OF WATERLINE (AS MEASURED ON 06/19/2020): 635.56 FEET (NAVD88)
6. SURVEY PREPARED FOR: OSWEGOLAND PARK DISTRICT

**BENCHMARKS**

**SOURCE BENCHMARK:**  
OSWEGO ARBOR GATE - STEEL ROD UNDER 6 INCH ACCESS CAP, LOCATED ACROSS THE STREET FROM #515 ROSEBUSH LANE, OSWEGO, ILLINOIS. ELEVATION: 644.99 FEET (NAVD88)

**SITE BENCHMARK:**  
CHISELED CROSS ON THE SOUTHWESTERLY SIDE OF THE RIM OF A STORM MANHOLE IN PRAIRIEVIEW PARK, LOCATED APPROXIMATELY 62 FEET NORTHWESTERLY OF THE LAKEVIEW BASIN OUTLET STRUCTURE. ELEVATION: 641.95 FEET (NAVD88)

PREPARED ON JULY 15TH, 2020  
PREPARED BY:

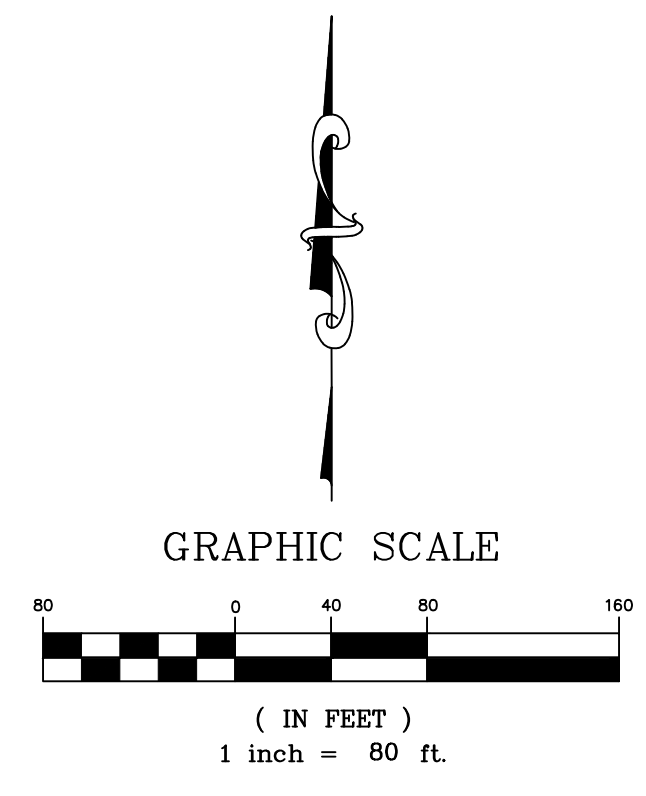
BERNARD J. BAUER, P.L.S. (bbauer@hrgreen.com)  
ILLINOIS PROFESSIONAL LAND SURVEYOR No. 3799  
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<p>DRAWN BY: <b>BJB</b></p> <p>APPROVED: <b>MD</b></p> <p>JOB DATE: <b>07/15/20</b></p> <p>JOB NO: <b>200745</b></p>	<p>BAR IS ONE INCH ON OFFICIAL DRAWINGS 0  1" IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY</p>	<p> Illinois Professional Design Firm # 184-001322 2363 Sequoia Drive, Suite 101, Aurora, Illinois 60506 t. 630.553.7560 f. 630.553.7646 www.hrgreen.com</p>	<table><tr><th>NO.</th><th>DATE</th><th>BY</th><th>REVISION</th><th>DESCRIPTION</th></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr></table>	NO.	DATE	BY	REVISION	DESCRIPTION																					<p><b>SHEET</b> <b>1 OF 1</b></p>
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LAKEVIEW BASIN  
SILT DEPTH BATHYMETRIC SURVEY  
IN WEST 1/2 OF SECTION 20, TOWNSHIP 37, RANGE 8 EAST OF THE THIRD  
PRINCIPAL MERIDIAN, VILLAGE OF OSWEGO, KENDALL COUNTY, ILLINOIS.



**LEGEND**

--- 6.35 --- EXISTING FIRM BOTTOM  
--- 6.34 --- CONTOURS  
--- 1 --- EXISTING SILT DEPTH  
--- 2 --- CONTOURS

**SURVEY NOTES:**

1. BASIS OF BEARINGS: IL SPC -EAST (NAD83-2011)

2. EDGE OF WATER SHOWN HEREON PER ORTHORECTIFIED AERIAL PHOTOGRAPHY.

3. DATE OF AERIAL PHOTOGRAPHY: 06/22/2020

4. DATE OF FIELDWORK OF BATHYMETRIC SURVEY: 06/19/2020

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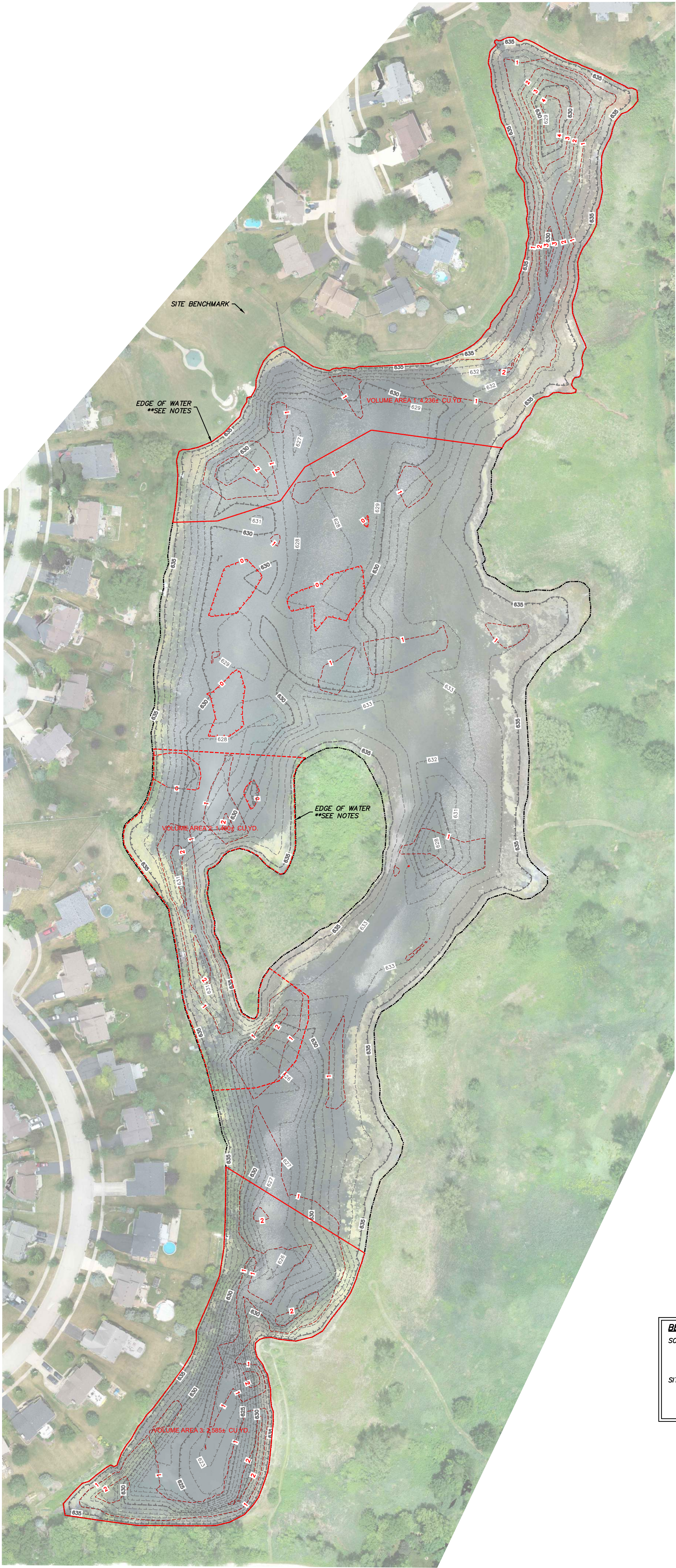
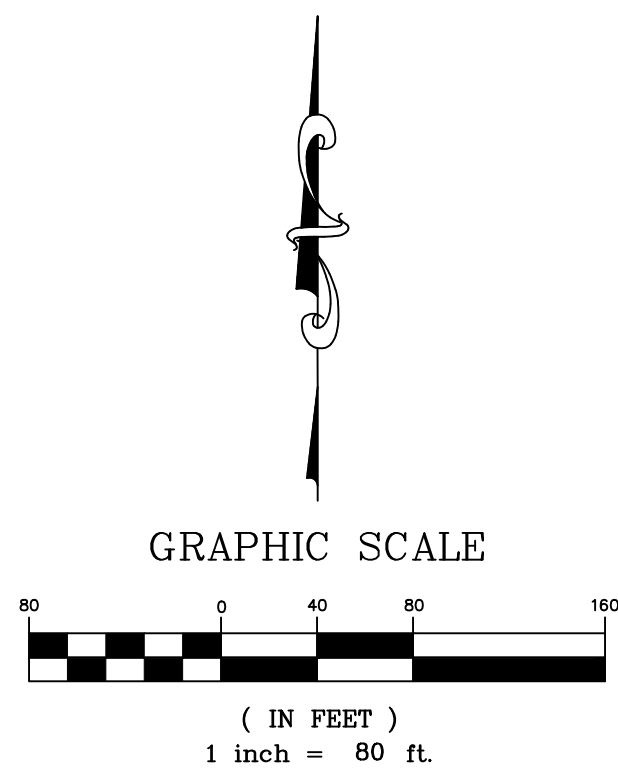
LAKEVIEW BASIN  
SILT DEPTH  
BATHYMETRIC SURVEY

NO.	DATE	BY	REVISION DESCRIPTION
1	07/27/20	BJB	ADDED SILT VOLUMES OF 3 AREAS
2	08/05/20	BJB	OPTION 2 VOLUME
3	08/24/20	BJB	TOTAL SILT VOLUME

SHEET  
1 OF 1



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SILT DEPTH BATHYMETRIC SURVEY  
IN WEST 1/2 OF SECTION 20, TOWNSHIP 37, RANGE 8 EAST OF THE THIRD  
PRINCIPAL MERIDIAN, VILLAGE OF OSWEGO, KENDALL COUNTY, ILLINOIS.



**LEGEND**

635 --- EXISTING FIRM BOTTOM  
634 --- CONTOURS  
633 --- EXISTING SILT DEPTH  
632 --- CONTOURS

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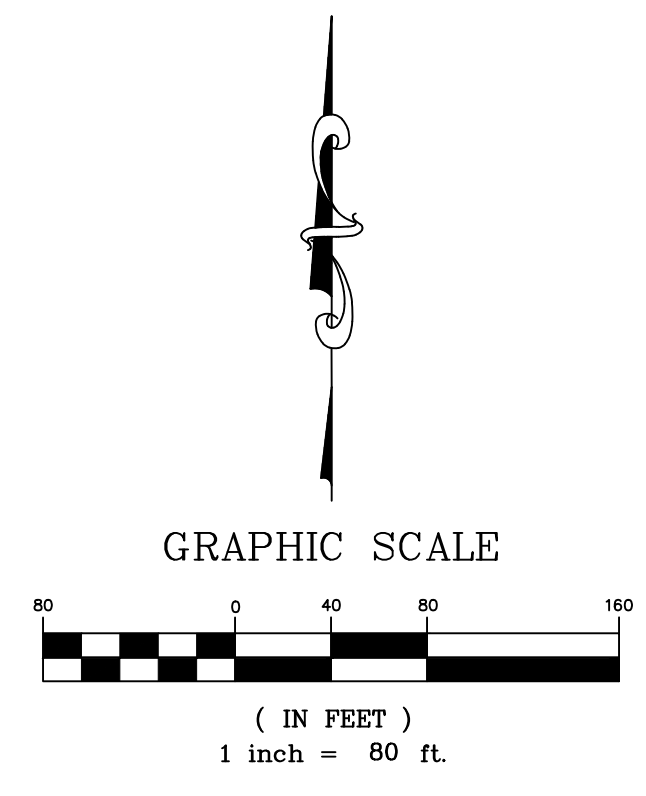
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Xrefs:

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SECTION 3  
OVERALL OPINION OF COST



EOPCC -2020

Project: Lakeview Basin Dredging

County: Kendall

Item No.	Item	Unit	Quantity	Unit Price	Total
1.	Earth Excavation and Respread	CY	14,755	\$ 28.00	\$ 413,140.00
2.	Temporary Seeding & Hydraulic Mulch	SY	18,000	\$ 0.70	\$ 12,600.00
3.	Seeding Class 4B (Wetland Grass & Sedge)	SY	3,200	\$ 1.40	\$ 4,480.00
4.	Seeding Class 4A (Low Profile Native Grass)	SY	14900	\$ 1.15	\$ 17,135.00
5.	Restoration of Construction Access Route	LS	1	\$ 5,000.00	\$ 5,000.00
6.	Temporary Orange Construction Fence	LF	2200	\$ 4.00	\$ 8,800.00
7.	Perimeter Erosion Barrier	LF	5,400	\$ 7.50	\$ 40,500.00
8.	Erosion Control Blanket, S 150 BN	SY	3,200	\$ 2.15	\$ 6,880.00
9.	Mulch Method 3 (Hydraulic Mulch)	SY	14,900	\$ 0.70	\$ 10,430.00
10.	Temporary Ditch Check	EA	4	\$ 260.00	\$ 1,040.00
11.	Dewatering	LS	1	\$ 40,000.00	\$ 40,000.00
12.	Clearing & Grubbing	LS	1	\$ 5,000.00	\$ 5,000.00
13.	Mushroom Compost Soil Amendment, 2"	SY	3,200	\$ 4.00	\$ 12,800.00
14.	Construction Layout	LS	1	\$ 2,500.00	\$ 2,500.00
15	Haul Off no CCDD material*	CY	14,755	\$ 25.00	\$ 368,875.00

\* \$30 for haul off and \$5 reduction from item #1 for no respread

Total for Respread	\$ 580,305.00
Total for Haul Off	\$ 949,180.00
Total for Respread with 20% Contingency	\$ 696,366.00
Total for Haul Off with 20% Contingency	\$ 1,139,016.00