

March 31, 2026

Ministry of the Environment, Conservation and Parks
3rd floor, 101 17th Street East
Owen Sound, Ontario N4K 0A5

RE: 2025 Tobermory Sewage Treatment Facility Annual Sewage Performance Report (CofA #3-0046-93-006) and Municipal Sewage Collection System Performance Report (CLI-ECA #250-W601) – Municipality of Northern Bruce Peninsula

Please see attached for the 2025 Annual Sewage and Collection System Performance Report prepared by the Ontario Clean Water Agency on behalf of the Municipality of Northern Bruce Peninsula for the:

- Tobermory Sewage Treatment Facility
- Northern Bruce Peninsula Sewage Collection System

This report was completed in accordance with the requirements set out in CofA #3-0046-93-006, issued February 24, 1993, *Condition 15* and Municipal Sewage Collection System CLI-ECA #250-W601, issued July 25, 2023, *Schedule E (4.6)*. Your receipt of this report by or before March 31, satisfies the regulatory requirements:

- CofA #3-0046-93-006 that “The Owner shall prepare and submit a performance report to the District Officer on an annual basis, and the submission shall be made no later than 90 days following the end of each calendar year.”
- CLI-ECA #250-W601 that “The Owner shall prepare an annual performance report for the Authorized System that is submitted to the Director on or before March 31st of each year and covers the period from January 1st to December 31st of the preceding calendar year.

In addition, CLI-ECA #093-W601 requires that report shall be made available, on request and without charge, to members of the public who are served by the Authorized System; and made available, by June 1 of the same reporting year, to members of the public without charge by publishing the report on the Internet, if the Owner maintains a website on the Internet. We kindly ask that notification is provided once the report is posted on the Municipal website.

Lastly, the Ministry has indicated that the Municipal Collection System ECA Annual Reports can either be prepared as a separate report or as a subsection of the Annual Sewage Report for the Wastewater Treatment Facility, attached you will find one report that satisfies the reporting requirements of both Environmental Compliance Approvals.

Should you require further clarification on the information found within the Annual Sewage Performance Report, please feel free to contact me.

Sincerely,



Leo-Paul Frigault
Senior Operations Manager
OCWA, Georgian Highlands Region



2025 ANNUAL SEWAGE & COLLECTION SYSTEM PERFORMANCE REPORT

TOBERMORY
SEWAGE TREATMENT PLANT &
COLLECTION SYSTEM

For the period of
JANUARY 1, 2025 TO DECEMBER 31, 2025

Prepared for the Municipality of Northern Bruce Peninsula by the Ontario Clean Water Agency



1. System Description

The Tobermory Sewage Works System in the Municipality of Northern Bruce Peninsula (formerly Township of St. Edmunds) comprises a wastewater treatment plant and one sewage pumping station. The wastewater generated within the collection area of Tobermory is collected into the sewer system and pumped to the wastewater treatment plant by way of a 150 mm forcemain. The wastewater treatment plant consists of two aerated cells, one storage cell, two exfiltration ponds and one overflow cell.

The wastewater treatment plant contains two (2) aerated lagoons cells each with a capacity of 10,800 m³. The aeration provided is tapered coarse bubble, diffused aeration. Aeration Cell #2 has a quiescent settling zone to permit effluent clarification. The effluent from the aeration Cell #2 can be recycled to aeration Cell #1, transferred to storage Cell #1 for winter storage, or transferred to the exfiltration Cells #2 or 3 during summer operations. The exfiltration cells have a combined minimum rated capacity of 317 m³/day, and each cell has approximately 13,750 m² of surface area. There is one (1) back-up exfiltration cell with a minimum rated capacity of 625 m³/d and approximately 21,875 m² surface area. To provide coarse bubble diffused aeration for the two aerated cells, the plant is provided with one duty and two standby blowers, each rated with a firm capacity of 193 L/sec at approximately 38 kPa.

The sewage pumping station (Little Tub Harbour Pumping Station), is located near the harbour and has two submersible pumps each rated at 18.3 L/sec capacity at 50.5 m TDH. The wet well has a normal operating volume of 5.7 m³. Due to its location near the harbour, the sewage pumping station wet well is provided with an odour control activated carbon adsorption unit with a capacity of 188.8 L/sec, for adsorbing hydrogen sulphide gas emissions from the wet well. The pumping station is also equipped with a 150-kW diesel generator set for providing emergency power for the sewage pumps. An overview of Tobermory Sewage Treatment System can be found in Table 1 and a summary of the monitoring program can be found in Table 2.

Table 1. Tobermory Sewage Treatment System Overview

Facility Name	Tobermory Sewage Treatment System
Facility Type	Lagoon
Plant Classification	II WWT and II WWC
Works Number	120001577
Design Capacity	625 m ³ /day
Receiving Water	None
Certificate of Approval	3-0046-93-006 (Sewage Treatment System)
	3-0310-82-917 (Groundwater Monitoring)
	8-1063-94-006 (Air)

Table 2.Tobermory Sewage Treatment System Monitoring Program

Source	Parameter	Minimum Frequency	Method
Influent	Flow (m ³)	Daily	Flowmeter
Secondary Aeration Cell Effluent	BOD ₅ , SS, TP, TKN, NH ₃ +NH ₄ (N), Nitrate, Nitrite	Monthly – March, June, July, August and October	External analysis
Aeration Cells	pH, Dissolved Oxygen	Weekly (from May – September)	In-House
Groundwater Wells	Alkalinity, Conductivity, Free Ammonia, Phenols, pH, Chloride, Sulphate, Nitrite, Magnesium, Iron, Nitrate, Calcium, Hardness, Sodium, DOC, Organic Nitrogen, TKN, Dissolved Reactive Phosphorous ^{2a} , Total P ²	Semi-Annual in May and October (for all 30 wells) Annual in August (for OW-6S, OW-6I, OW-6D, OW-7S, OW-9S, OW-9I, OW-9D, OW-10S, OW-11S, OW-12S)	External analysis
Ground Water Wells	Aluminum, Barium, Cadmium, Chromium, Copper, Lead, Manganese, Zinc	Every 3 years in October	External Analysis

^{2a}Shallow Wells Only

2. Monitoring and Compliance Reports

As per Section 15(a) of C of A 3-0046-96-006, a summary of all monitoring and compliance reports submitted in the reporting period, including an overview of the success and adequacy of the sewage treatment program is required.

During the reporting period, the following reports were submitted:

- Discharge Data Report (Ministry of Environment, Conservation and Parks, MECP)

2.1 Discharge Data Report (MECP)

The Ontario Clean Water Agency (OCWA) has an agreement with the MECP to submit quarterly discharge data for all OCWA operated municipal sewage treatment facilities 45 days at the end of each quarter. Monitoring data is submitted via the Ministry of Environment Wastewater System (MEWS). The MECP has these reports stored in a shared location where MECP Inspectors can obtain and review them. There are no limits/objectives for discharge for the quarterly Discharge Data Report.

2.2 Adequacy of the Sewage Treatment Program

The current sewage treatment program provided effluent that was within the effluent objectives set out in the C of A for Suspended Solids 66.7% of the time and BOD₅ 83.3% of the time. Based on this evaluation, effluent recirculation flow from lagoon cell 2 to lagoon cell 1 will have to be monitored during the summer months for performance and reliability to meet our effluent objectives 100% of the time.

3. Monitoring and Analytical Data

As per Section 15(b) of C of A 3-0046-96-006, a comprehensive interpretation of all monitoring data and analytical data collected relative to the Tobermory Sewage Treatment System during the reporting period is required.

All laboratory samples are analyzed by SGS Canada Inc., which is an ISO 17025 accredited laboratory. In-house readings (pH, DO, Temperature) are conducted for monitoring purposes by licensed operators using standardized methods. Calibrations and preventative maintenance are performed on facility equipment and monitoring equipment, see Section 10 for more details.

3.1 Sampling Frequency

Both groundwater and secondary aeration cell effluent are sampled on a regular basis. The sampling types and frequencies are summarized in Table 3, Table 4, Table 5 and Table 6.

All sampling frequencies either meet or exceed the requirements set out in Section 15 of C of A 3-0046-93-006.

Table 3. Complete Groundwater Monitoring Program– Sampling Frequencies for all 30 Observation Wells

Parameter	Minimum Frequency
Alkalinity	Semi-annually in May and October
Conductivity	Semi-annually in May and October
Free Ammonia	Semi-annually in May and October
Phenols	Semi-annually in May and October
pH	Semi-annually in May and October
Chloride	Semi-annually in May and October
Sulphate	Semi-annually in May and October
Nitrite	Semi-annually in May and October
Magnesium	Semi-annually in May and October
Iron	Semi-annually in May and October
Nitrate	Semi-annually in May and October
Calcium	Semi-annually in May and October
Hardness	Semi-annually in May and October
Sodium	Semi-annually in May and October
Dissolved Organic Carbon	Semi-annually in May and October
Organic Nitrogen	Semi-annually in May and October
Total Kjeldahl Nitrogen	Semi-annually in May and October
Phosphorous-Dissolved Reactive ^{3a}	Semi-annually in May and October
Total Phosphorous ^{3a}	Semi-annually in May and October
Aluminum	Every 36 Months in October
Barium	Every 36 Months in October
Cadmium	Every 36 Months in October

2025 Annual Performance Report

Municipality of Northern Bruce Peninsula: Tobermory Sewage Treatment Facility

C of A # 3-0046-93-006 (Issued February 24, 1993)

Municipal Sewage Collection System ECA #250-W601, Issue 1 (Issued July 25, 2023)

Parameter	Minimum Frequency
Chromium	Every 36 Months in October
Copper	Every 36 Months in October
Lead	Every 36 Months in October
Manganese	Every 36 Months in October
Zinc	Every 36 Months in October

^{3a}Shallow Wells only

Table 4. Limited Groundwater Monitoring Program– Sampling Frequencies for Wells 6S, 6I, 6D, 7S, 9S, 9I, 9D, 10S, 11S, 12S

Parameter	Minimum Frequency
Alkalinity	Annually in August
Conductivity	Annually in August
Free Ammonia	Annually in August
Phenols	Annually in August
pH	Annually in August
Chloride	Annually in August
Sulphate	Annually in August
Nitrite	Annually in August
Magnesium	Annually in August
Iron	Annually in August
Nitrate	Annually in August
Calcium	Annually in August
Hardness	Annually in August
Sodium	Annually in August
Dissolved Organic Carbon	Annually in August
Organic Nitrogen	Annually in August
Total Kjeldahl Nitrogen	Annually in August
Phosphorous-Dissolved Reactive ^{4a}	Annually in August
Total Phosphorous ^{4a}	Annually in August

^{3a}Shallow Wells only

Table 5. Effluent (Secondary Aeration Cell) Sample Monitoring – Sampling Frequencies

Parameters	Minimum Frequency
BOD ₅	Monthly, during March, June, July, August and October
Total Solids	Monthly, during March, June, July, August and October
Total Phosphorous	Monthly, during March, June, July, August and October
Total Kjeldahl Nitrogen	Monthly, during March, June, July, August and October
Ammonia Nitrogen	Monthly, during March, June, July, August and October
Nitrite	Monthly, during March, June, July, August and October
Nitrate	Monthly, during March, June, July, August and October

Parameters	Minimum Frequency
pH	In-house, weekly from May to September
Dissolved Oxygen	In-house, weekly from May to September

Table 6. Sludge Haulage Sample Monitoring – Sampling Frequencies

Parameters	Minimum Frequency
Total Solids	April, where sludge haulage is expected
Total Phosphorus	April, where sludge haulage is expected
Arsenic	April, where sludge haulage is expected
Cadmium	April, where sludge haulage is expected
Cobalt	April, where sludge haulage is expected
Chromium	April, where sludge haulage is expected
Copper	April, where sludge haulage is expected
Zinc	April, where sludge haulage is expected
Free Ammonia	April, where sludge haulage is expected
Nitrate – N	April, where sludge haulage is expected
Mercury	April, where sludge haulage is expected
Molybdenum	April, where sludge haulage is expected
Nickel	April, where sludge haulage is expected
Selenium	April, where sludge haulage is expected
Lead	April, where sludge haulage is expected

3.2 Effluent Limits & Effluent Objectives

There are no effluent limits specified in C of A 3-0046-93-006 for the Tobermory Sewage Treatment System. The effluent objectives as per Section 10 of C of A 3-0046-93-006 for the Tobermory Sewage Treatment System are:

Table 7. Effluent (Secondary Aeration Cell) Objectives for Tobermory Sewage Treatment System

Effluent Parameter	Average Monthly Concentration (mg/L)
BOD ₅	50
Suspended Solids	50

3.3 Comparison of Data to Effluent Objectives

Analytical and monitoring data for the Tobermory Sewage Treatment System is housed in OCWA’s data management system (WISKI). A comparison of the analytical results compared to the effluent objectives can be found in Table 8.

Table 8. Comparison of Effluent Objectives to Sampled Effluent (Secondary Aeration Cell)

	BOD₅		Suspended Solids	
	Monthly Average Concentration (mg/L)	Within Objectives? (50 mg/L)	Monthly Average Concentration (mg/L)	Within Objectives? (50 mg/L)
March	25	Yes	16	Yes
June	40	Yes	105	No
July	191	No	99	No
August	149	No	132	No
October	47	Yes	252	No

3.4 Additional Monitoring Parameters

The following parameters do not have effluent limits or objectives but are monitored on a regular basis (see Section 3.1 for sampling frequency) as required by C of A 3-0046-93-006. Table 9, Table 10 and Table 11 summarizes the monitoring data for the reporting period. While not required by the C of A, raw sewage is monitored along with the effluent, the results can be found in Appendix A.

3.4.1 Flows

The Tobermory Sewage Treatment Facility was designed to treat an average summer day flow of 625 m³/d. The 2025 total raw sewage flow, including hauled septage volumes, was 58,190 m³ with an annual average daily flow of 159 m³/day, which is 25.4% of the design capacity of the system. The total raw sewage flow including hauled septage volumes for 2025 has decreased in comparison to the previous year, while the average daily flows for 2025 have increased in comparison to the previous year. A summary of the average daily flows on a monthly basis can be found in Table 9. For more detailed information regarding flows, minus the hauled septage volumes, refer to Appendix A.

Table 9. Summary of Average Day Flow by Month, 2025

Month	Average Day Flow (m³)
January	65.8
February	47.3
March	202.6
April	143.9
May	152.3
June	234.0
July	317.9
August	295.2
September	185.8
October	140.5
November	51.4
December	64.6
2025	159.4

Hauled septage volumes were added to the Sewage Pump Station total flow. According to item 11(b) of C of A 3-0046-93-006, “For the purposes of this Certificate and Subsection 107 (3) of the Ontario Water Resources Act, the introduction of sewage flows in excess of 625 m³/d for any consecutive period of time greater than one year is not approved under this Certificate”. The sewage flows for 2025 were less than 625 m³/d.

3.4.2 Aeration Cell Effluent

In addition to the parameters which have effluent objectives, Total Phosphorous, Total Kjeldahl Nitrogen (TKN), Ammonia-Nitrogen, Nitrite, Nitrate, pH and DO are monitored. Please refer to Table 10 and 11 for monitoring and analytical results.

Table 10. Average Monthly Aeration Cell Effluent Monitoring Laboratory Analysis Results, 2025

	Total Phosphorus (mg/L)	Total Kjeldahl Nitrogen (as N mg/L)	Ammonia+Ammonium (N) (mg/L)	Nitrite (mg/L as N)	Nitrate (mg/L as N)
March	5.97	10.90	10.00	0.06	3.81
June	5.71	7.90	3.60	1.35	7.35
July	8.30	42.20	43.70	0.57	0.24
August	9.07	30.20	24.20	37.00	2.85
October	8.05	4.30	<0.10	0.04	35.40

Table 11. Aeration Cell In-House Monitoring - Average Monthly pH and DO, 2025

	pH				Dissolved Oxygen (mg/L)			
	Cell #1		Cell #2		Cell #1		Cell #2	
	Min	Max	Min	Max	Min	Max	Min	Max
May	6.58	6.95	7.00	7.40	6.75	10.39	5.08	10.79
June	6.40	6.64	6.88	7.04	3.00	6.91	1.30	3.33
July	6.91	7.27	7.40	7.56	0.71	3.12	0.12	0.61
August	6.82	7.38	7.20	7.31	0.57	1.59	0.27	0.79
September	6.83	7.14	7.04	7.13	1.46	5.47	0.41	5.04

For sewage, it is optimal if the effluent is between a pH 6.0 and 9.5. The pH of Cell#1 and Cell#2 remained within the optimal range for 100% of the reporting period. The DO range for Cell #1 and Cell #2 was between 0.12 and 10.79 mg/L in 2025 in comparison to 0.16 to 4.94 mg/L in 2024. Overall, the average DO in 2025 (3.15 mg/L) was higher than the average DO in 2024 (1.84 mg/L).

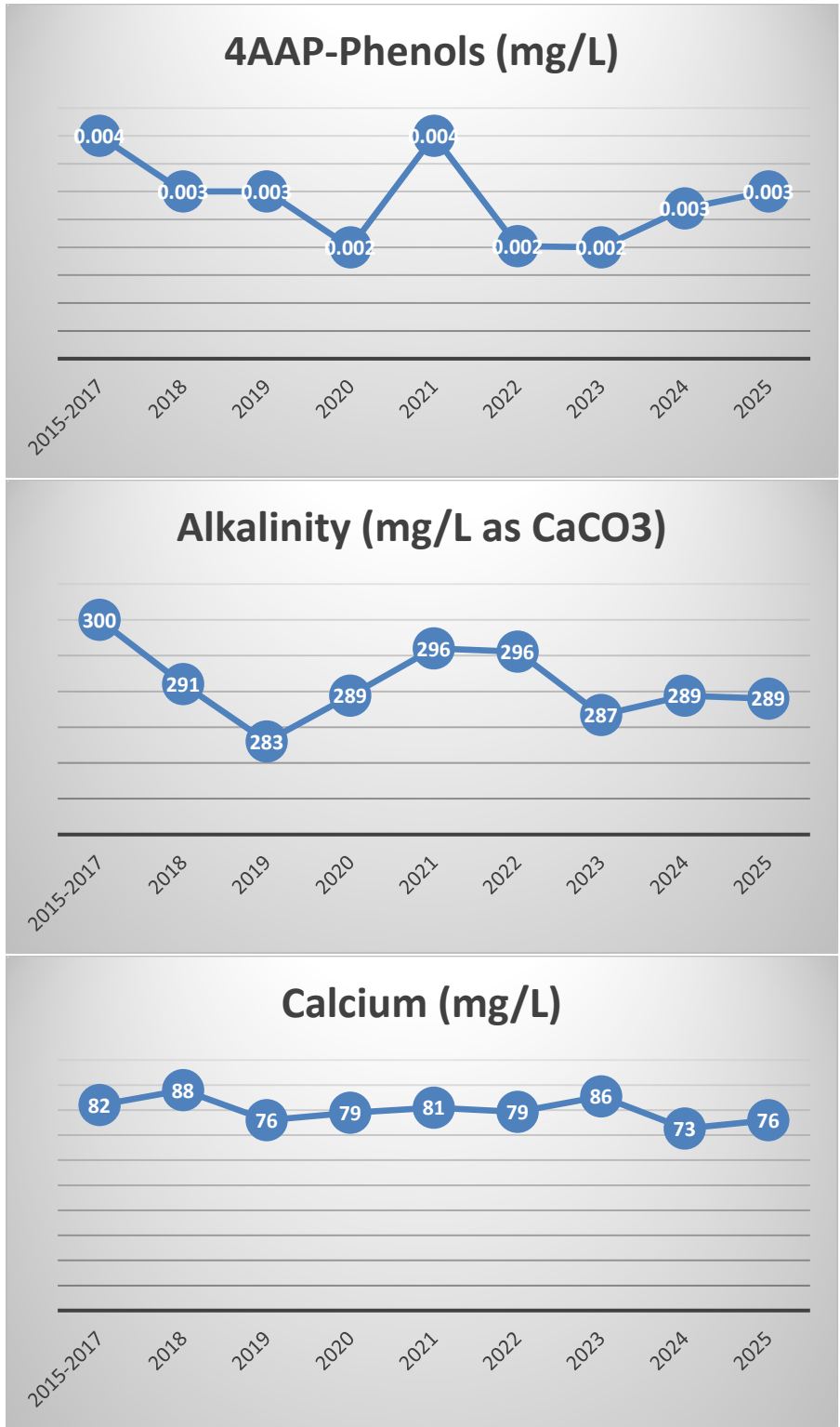
3.4.3 Groundwater Sampling Program

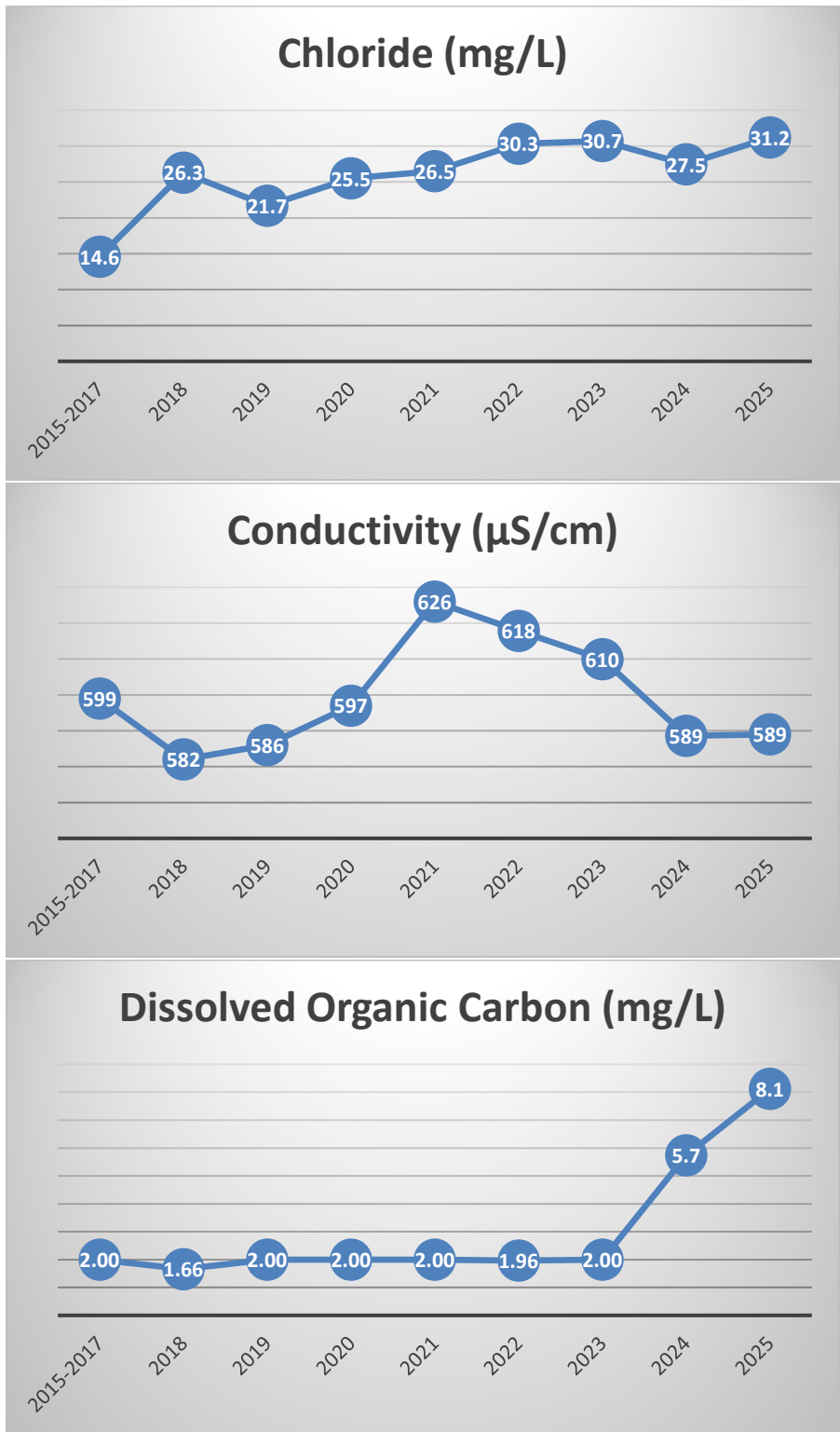
The complete and limited groundwater sampling of all on-site observation wells was completed in the Spring (May), Summer (August) and Fall (October) of 2025.

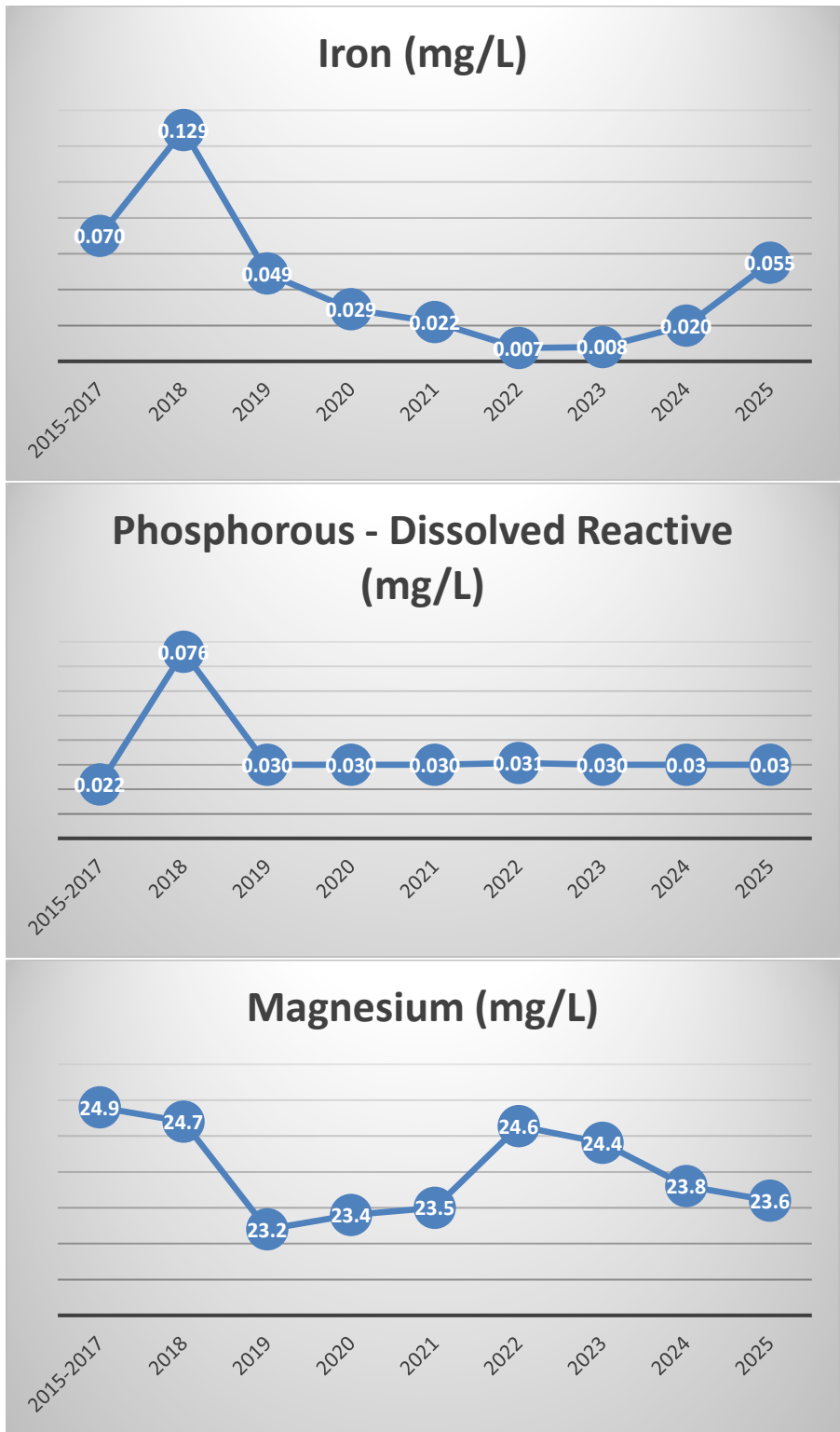
Table 12. Ground Water Sampling Program

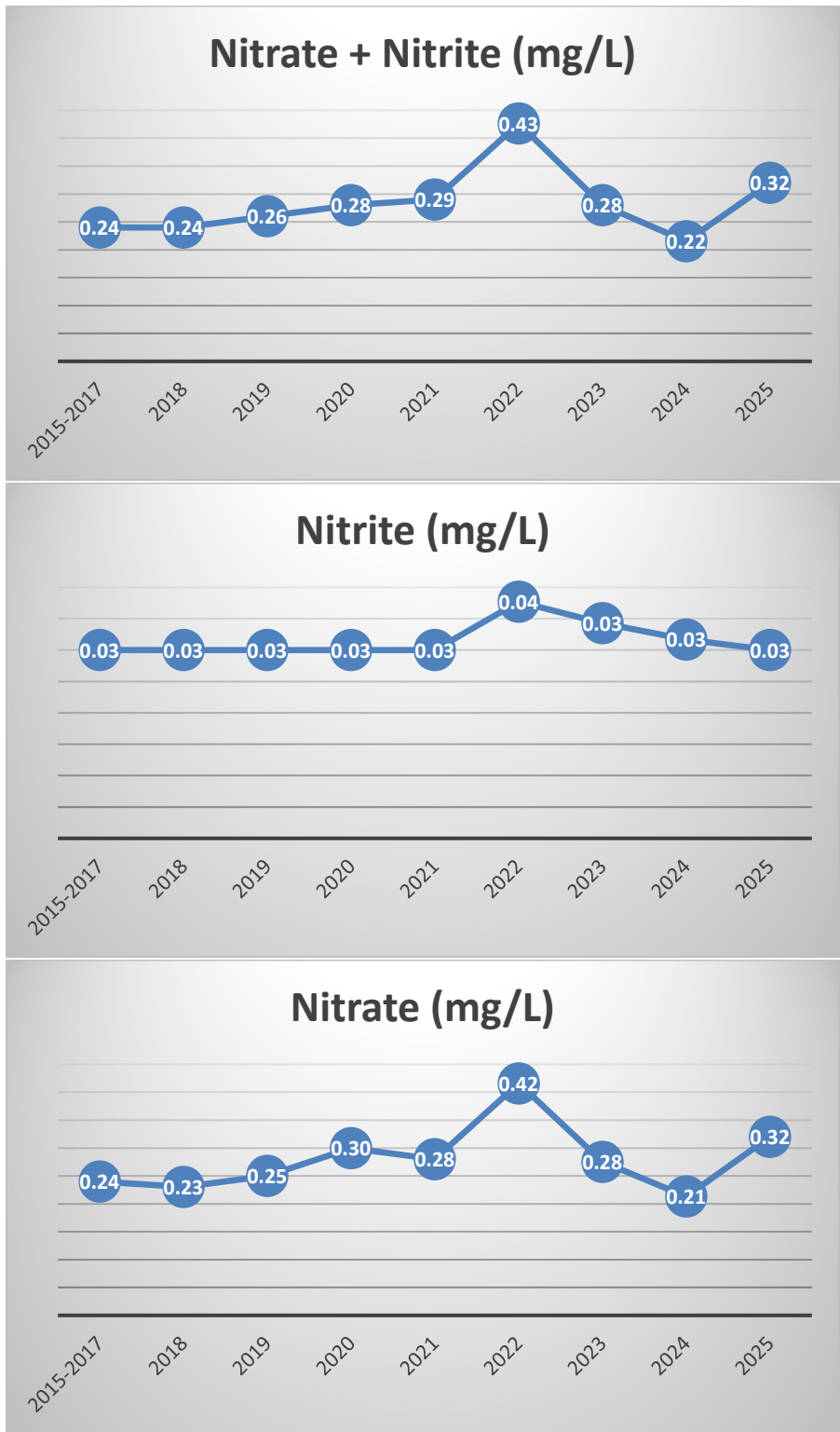
	Average						Minimum		Maximum	
	2025	2024	2023	2022	2021	2020	2025	2024	2025	2024
4AAP-Phenols (mg/L)	0.003	0.003	0.002	0.002	0.004	0.002	0.002	0.002	0.022	0.016
Alkalinity (mg/L as CaCO₃)	289	289	287	296	296	289	152	155	483	479
Calcium (mg/L)	76	73	86	79	81	79	26	29	137	143
Chloride (mg/L)	31.2	27.5	30.7	30.3	26.5	25.5	1.0	1.0	170.0	180.0
Conductivity (uS/cm)	589	589	610	618	626	597	185	329	1060	1090
Dissolved Organic Carbon (mg/L)	8.1	5.7	2.0	2.0	2.0	2.0	1.0	1.0	143.0	87.0
Iron (mg/L)	0.055	0.020	0.008	0.007	0.022	0.029	0.007	0.007	0.974	0.381
Phosphorous - Dissolved Reactive (mg/L)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Magnesium (mg/L)	23.6	23.8	24.4	24.6	23.5	23.4	15.4	12.4	34.8	36.2
Nitrate + Nitrite (mg/L)	0.32	0.22	0.28	0.43	0.29	0.28	0.06	0.06	4.57	3.23
Nitrite (mg/L)	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.07	0.11
Nitrate (mg/L)	0.32	0.21	0.28	0.42	0.28	0.30	0.06	0.06	4.57	3.12
Organic Nitrogen (mg/L)	0.50	0.52	0.52	0.52	0.51	0.50	0.50	0.50	0.50	0.70
Sodium (mg/L)	18.2	17.1	17.9	19.0	16.8	16.0	0.4	0.5	86.7	104.0
Sulphate (mg/L)	12.5	11.6	16.4	17.0	13.0	13.0	2.0	2.0	37.0	44.0
Total Ammonia (mg/L)	0.11	0.12	0.17	0.18	0.30	0.10	0.10	0.10	0.50	0.40
Total Kjeldahl Nitrogen (mg/L)	0.51	0.52	0.59	0.58	0.64	0.50	0.50	0.50	0.90	0.70
Total Phosphorous (mg/L)	0.38	0.27	0.16	0.21	0.06	0.19	0.03	0.03	1.87	1.84
Hardness (dissolved) (mg/L as CaCO₃)	288	279	314	299	298	293	140	143	486	493
Unionized Ammonia (mg/L)	0.004	0.004	0.004	0.005	0.012	0.003	0.001	0.001	0.018	0.019
pH	7.90	7.92	7.91	7.94	8.07	7.88	6.68	6.97	8.24	8.27

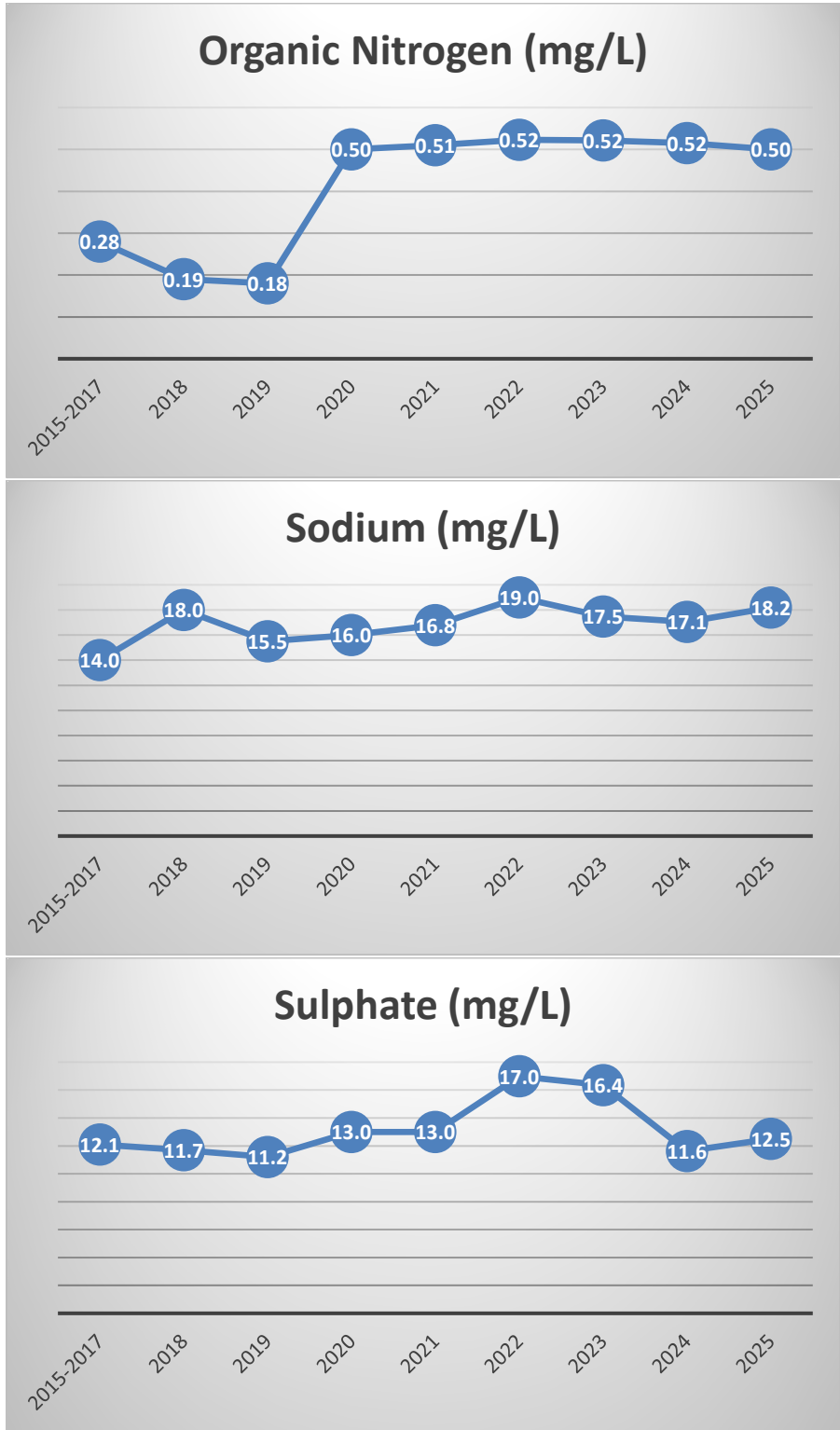
Ground Water Sampling graphs were made for every parameter, please see below. Further comprehensive interpretation of groundwater monitoring data is required in order to determine proximity of sites that produced parameter changes and if relation exists with other monitoring sites.

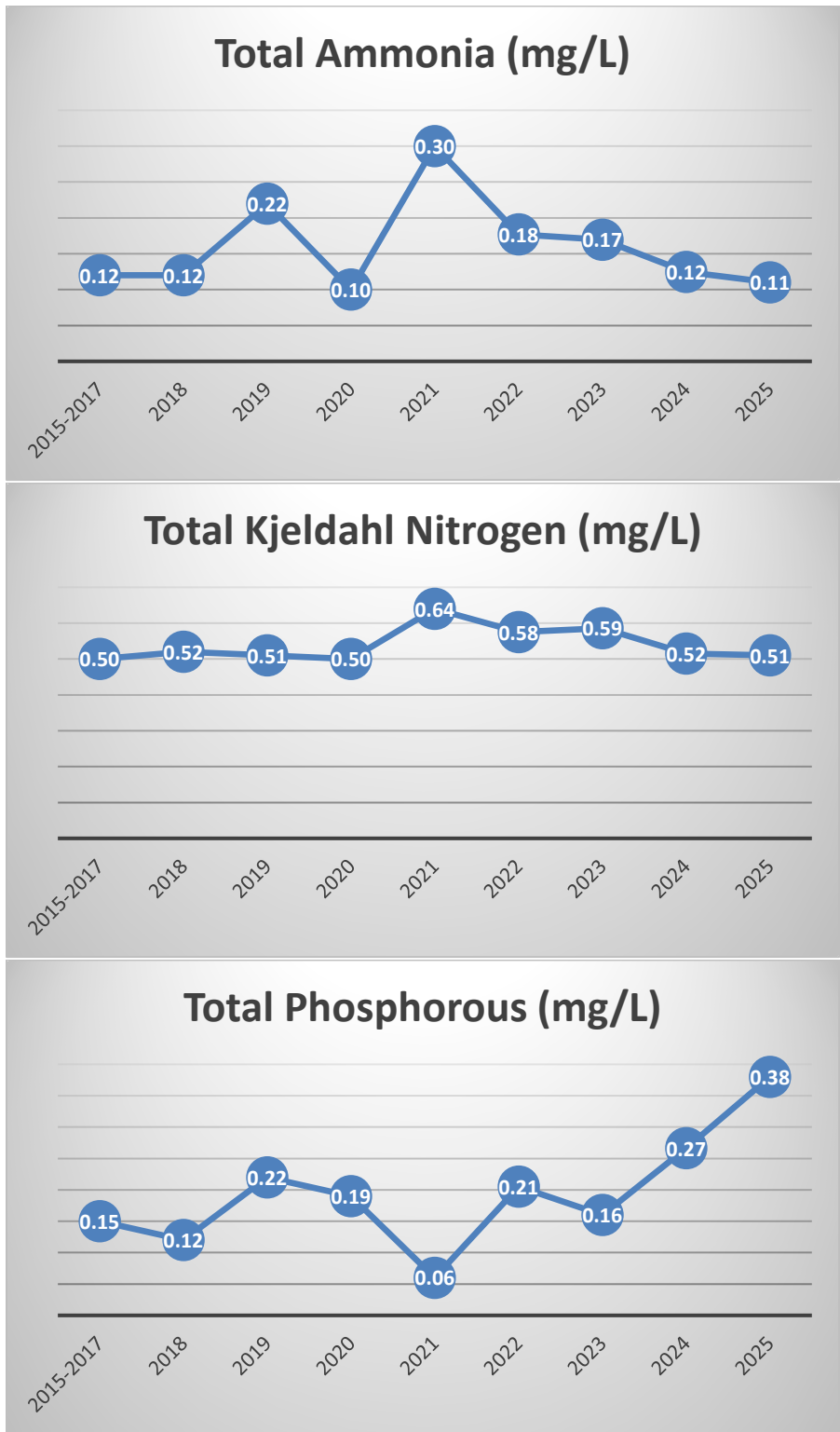












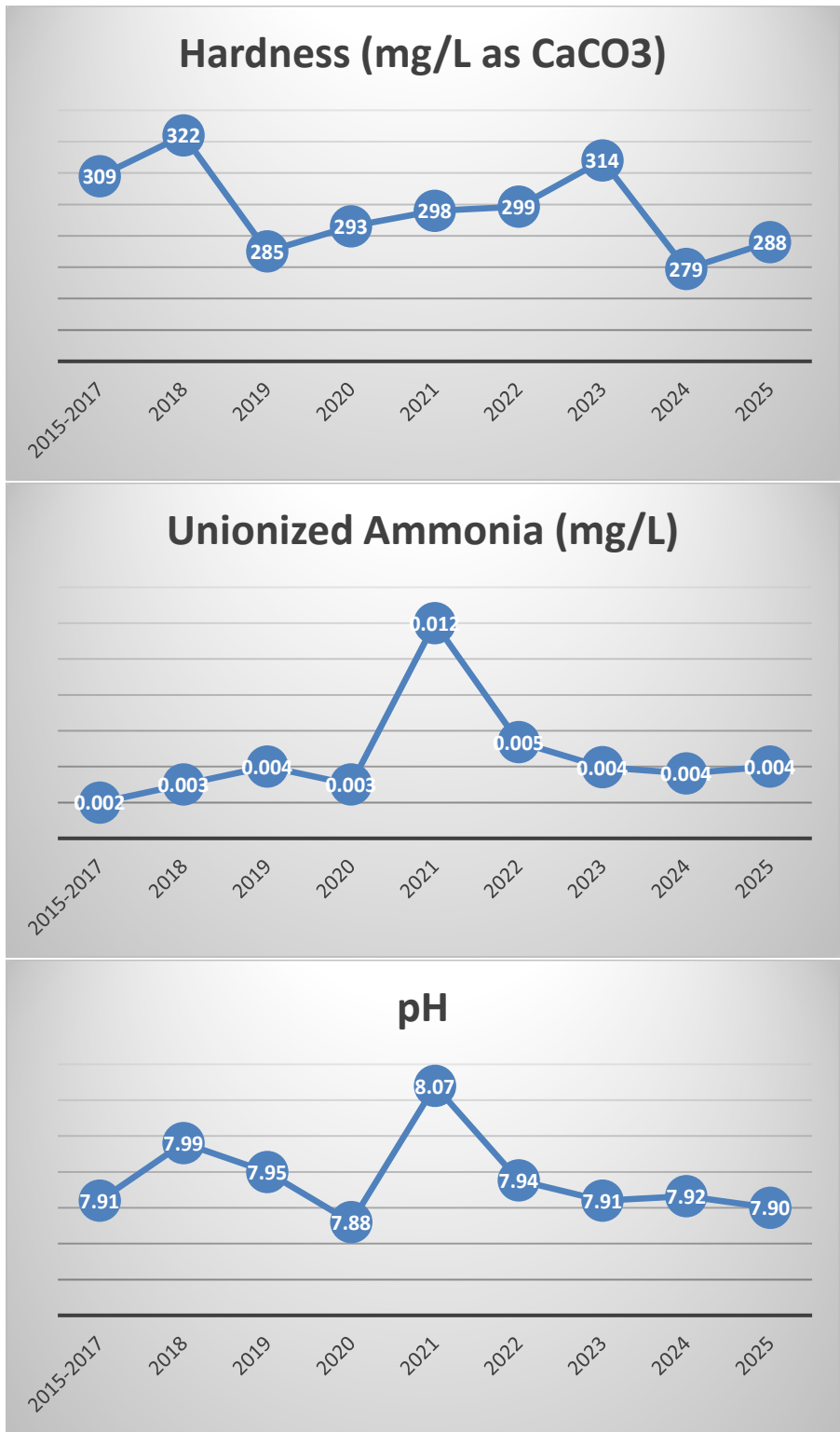


Table 13. Ground Water Sampling Program – 36 Month Sampling^{13a}

	Minimum (mg/L)	Average (mg/L)	Maximum (mg/L)
Aluminum	0.001	0.001	0.003
Barium	0.006	0.018	0.046
Cadmium	0.000003	0.000005	0.000012
Chromium	0.00008	0.00008	0.00014
Copper	0.001	0.001	0.003
Lead	0.00009	0.00009	0.00015
Manganese	0.00004	0.04812	0.41400
Zinc	0.002	0.002	0.004

^{13a}C of A 3-0046-96-006 requires every three years, the wells shall be sampled in October for Aluminum, Barium, Cadmium, Chromium, Copper, Lead, Manganese and Zinc. The wells were last sampled for these parameters on October 15 & 16, 2024. The next set of samples is scheduled to be taken in October 2027.

Refer to Appendix B for the laboratory analysis results for the groundwater sampling program.

4. Major Maintenance Activities

As per Section 15(c) of C of A 3-0046-96-006, a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanisms or thing forming part of the facility is required.

In 2025, the following major maintenance activities were conducted:

- Lagoon sludge inspection for cleanout

5. Operating Challenges

As per Section 15(d) of C of A 3-0046-96-006, a description of any operating problems encountered and corrective actions taken during the reporting period are to be identified.

During the reporting period, there were no operating problems, bypasses of raw sewage or spills at the Tobermory Sewage Treatment System or any associated pumping stations.

6. Proposed Alterations, Extensions or Replacements

As per Section 15(e) of C of A 3-0046-96-006, a summary of any proposed alteration, extension or replacement in the process or operations of the sewage treatment plant to be completed over the next reporting period which may require approval under the Ontario Water Resources Act (OWRA) is required.

The following alterations, extensions/replacements are proposed for 2026, some of which may not require approval under OWRA:

- Lagoon aeration system upgrade (Replace one blower and install dissolved oxygen monitoring)
- Lagoon sludge removal (Remove approximately 1,367 m³ of sludge)

7. Sludge Generation

As per Section 15(f) of C of A 3-0046-96-006, a tabulation of the volume of sludge generated in the reporting period and an outline of anticipated volumes to be generated over the next reporting period is required.

Since the facility is a sewage lagoon system, accumulated sludge is currently being stored in lagoon cell #1. The lagoons have been de-sludged once since the existing facility was constructed and approximately 800 m³ of dewatered sludge was removed in October 2004.

A volume modeling and distribution survey was performed on October 29, 2025 of both Cells 1 and 2. The biosolids levels were recorded to be 37.322 inches for Cell 1 and 18.14 inches for Cell 2. The biosolids volumes were recorded to be 1336.19 m³ for Cell 1 and 768.89 m³ for Cell 2. See Appendix E for the detailed reports.

The total volume of sediment surveyed on October 29, 2025 in the Tobermory West Primary Cell 1, is approximately 1336.19 m³ or 1747.67 yd³. Therefore, on this date the percentage of sediment buildup in the Tobermory West Primary Cell 1 is approximately 29.33%. The average depth of the sediment within Tobermory West Primary Cell 1 on this date was approximately 0.948 m or 948 mm or 37.322 in or 3.11 ft.

The total volume of sediment surveyed on October 29, 2025 in the Tobermory East Secondary Cell 2, is approximately 768.89 m³ or 1005.67 yd³. Therefore, on this date the percentage of sediment buildup in the Tobermory East Secondary Cell 2 is approximately 17.7%. The average depth of the sediment within Tobermory East Secondary Cell 2 on this date was approximately 0.461 m or 461 mm or 18.14 in or 1.51 ft.

8. Sludge Handling

As per Section 15(g) of C of A 3-0046-96-006, an outline of the sludge handling methods and disposal areas to be utilized over the next reporting period are to be specified.

Since the facility is a sewage lagoon system, sludge levels in the lagoons are monitored regularly and disposal is arranged when sludge storage has reached its limit. Disposal areas are expected to be utilized over the next reporting period.

9. Septage Receiving Works

In 2025, approximately 8,628 m³ (1,897,909 imperial gallons) of septage was received by the Tobermory Sewage Treatment. The septage was received from various sources including:

- Bruce Peninsula Septic Service
- Scott Septic Pumping
- Mountain Trout Camp

The total monthly volume of septage received can be found in Table 14. Detailed haulage volumes can be found in Appendix C.

Table 14. Total Volume of Septage Received in 2025

Month	Total Volume of Septage Received (m ³)
January	33.4
February	35.8
March	55.0
April	189.8
May	740.7
June	1,562.5
July	2,196.0
August	1,776.6
September	969.3
October	820.3
November	239.1
December	9.5
Annual Total	8,628

10. Calibration and Maintenance Procedures

As per Section 15(h) of C of A 3-0046-96-006, *an evaluation of the calibration and maintenance procedures conducted on all monitoring equipment* is required.

All in-house monitoring equipment is calibrated as per manufacturer’s recommendations. Monitoring and metering equipment is also calibrated by a third party on an annual basis. On April 10, 2025 Flowmetrix Technical Services successfully calibrated the flow meter at the Tobermory Pump Station and no issues were identified. In addition to sample analysis, preventative maintenance is scheduled for all equipment at the sewage treatment plant and pumping stations on at least a monthly basis. Maintenance activities were scheduled within the work management system (WMS), upon completion, operators record their time and close off the work order. Records for calibrations/ verifications can be found in Appendix D.

11. Modifications for Performance and Reliability

As per Section 15(j) of C of A 3-0046-96-006 *an evaluation for the need for modifications to the Tobermory Sewage Treatment Facility to improve performance and reliability and to minimize upsets and bypasses* is required.

During the reporting period the Tobermory Sewage Treatment Facility met the effluent objectives 66.7% of the time for Suspended Solids and 88.3% of the time for BOD5. Based on this evaluation, effluent recirculation flow from lagoon cell 2 to lagoon cell 1 will continue to be monitored during the summer months for performance and reliability to meet our effluent objectives 100% of the time.

12. Municipal Sewage Collection System – Annual Performance Report

This report was prepared in accordance with the requirements of the Environmental Compliance Approval for a Municipal Sewage Collection Systems, Schedule E, Section 4.6.1.

Municipal Sewage Collection System ECA #	250-W601, Issue 1
Sewage Works	Northern Bruce Peninsula Sewage Collection System
Collection System Owner	The Corporation of the Municipality of Northern Bruce Peninsula
Reporting Period	January 1, 2025 to December 31, 2025

Is the Annual Report available to the public at no charge on a website on the Internet?

Yes

Note: As per Schedule E, Section 4.7.1 of CLI-ECA #250-W601, the annual performance report must be made available, on request and without charge, to members of the public who are served by the Authorized System; and 4.7.2 must be made available, by June 1st of the same reporting year, to members of the public without charge by publishing the report on the Internet, if the Owner maintains a website on the Internet.

Location where Annual Performance Report required under CLI-ECA #250-W601 Schedule E will be available for inspection. (CLI-ECA #250-W601, Schedule E, Section 4.7.1 & 4.7.2):

- Municipality of Northern Bruce Peninsula, 56 Lindsay Rd #5 RR 2, Lion’s Head ON, N0G 1W0
- <https://www.northbrucepeninsula.ca/develop/utilities/>

Pursuant to Schedule E, sections 4.6.3 to 4.6.9, this Annual Performance Report shall:

- a) If applicable, include a summary of all required monitoring data along with an interpretation of the data and any conclusion drawn from the data evaluation about the need for future modifications to the Authorized System or system operations.
- b) If applicable, include a summary of any operating problems encountered and corrective actions taken.
- c) Includes a summary of all calibration, maintenance, and repairs carried out on any major structure, Equipment, apparatus, mechanism, or thing forming part of the Municipal Sewage Collection System.
- d) Include a summary of any complaints related to the Sewage Works received during the reporting period and any steps taken to address the complaints.
- e) Include a summary of all Alterations to the Authorized System within the reporting period that are authorized by this Approval including a list of Alterations that pose a Significant Drinking Water Threat.
- f) Include a summary of all Collection System Overflow(s) and Spill(s) of Sewage.
- g) Includes a summary of efforts made to reduce Collection System Overflows, Spills, STP Overflows, and/or STP Bypasses.

12.1 Description of the Works

The Sewage Works Collection System in the Municipality of Northern Bruce Peninsula is located in the communities of Tobermory and Lakewood Subdivision. For further information on the Lakewood Subdivision Sewage System, please refer to the Lakewood Subdivision Sewage System 2025 Annual Performance Report.

The Tobermory Sewage Works Collection System comprises of sewage collection mains, one sewage pumping station and one transmission sewage force main. The wastewater generated within the collection area of Tobermory is collected into the sewer system and pumped to the wastewater treatment facility by way of a 150 mm forcemain to the Tobermory Wastewater Treatment Facility.

The Lakewood Subdivision Sewer Collection System in the Municipality of Northern Bruce Peninsula comprises of sewage force collection mains and is treated by septic tanks and pump chambers on private property and connected to a communal Class 4 STEP Sewage system.

The sewage pumping station in Authorized System include:

- Little Tub Sanitary Pumping Station – located at 15 Bay St. Consists of a wetwell, a manual screen, two pumps, a metering chamber with flowmeter, an emergency storage chamber (that discharges to Little Tub Harbour) and a stand-by diesel generator. The Little Tub Sanitary Pumping Station discharges to the Tobermory Sewage Lagoon.
- Tobermory Septage Receiving Station – located at the Tobermory Wastewater Treatment site. Receives residential and commercial septic tank and septage storage tanks from Tobermory area facilities that are not serviced by the sewage collection system.

12.2 Summary of Monitoring Data and Interpretation

No monitoring data was required within the municipal sewage collection system for the reporting period.

12.3 Summary of Operating Problems Encountered and Corrective Actions Taken

There were no operating problems encountered within the municipal sewage collection system for the reporting period.

12.4 Summary of Calibration, Maintenance and Repairs

All in-house monitoring equipment is calibrated as per manufacturer's recommendations. Monitoring and metering equipment is also calibrated by a third party on an annual basis. On April 10, 2025 Flowmetrix Technical Services successfully calibrated the flow meter at the Tobermory Pump Station and no issues were identified. In addition to sample analysis, preventative maintenance is scheduled for all equipment at the sewage treatment plant and pumping stations on at least a monthly basis. Maintenance activities were scheduled within the work management system (WMS), upon completion, operators record their time and close off the work order. All records for calibrations/ verifications can be found in Appendix D.

Major maintenance activities for the sewage pump stations can be found in section 12.6 of this report.

12.5 Community Complaints Received in Relation to the Sewage Works

During the reporting period, OCWA staff received zero (0) community complaints. Typically, the Municipality or OCWA will address complaints by verifying if there are odours in the surrounding area physically by attending the location of the complaint and recording observations and any actions taken in the logbook.

12.6 Alterations to the Authorized System

For 2025, major maintenance activities that occurred within the Authorized System include:

- Repaired submersible pump at Tobermory Sewage Pump Station
- Tobermory Sewer CCTV inspection performed

12.7 Summary of Collection System Overflow(s) and Spill(s) of Sewage

There were no collection system overflow or spill events that occurred during the reporting period.

12.8 Efforts Made to Reduce Collection System Overflows, Spills, STP Overflows, and/or STP Bypasses.

The sewage pump stations are equipped with alarm monitoring for high flow events. Preventative maintenance procedures are in place to ensure the sewage pump stations are operating as designed and include:

- Wet well cleanouts
- Daily inspections of pump stations
- Annual cleanouts
- Pump inspections
- Alarm testing
- Generator inspection and maintenance



Ontario Clean Water Agency
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Appendix A

Performance Assessment Report

1132 TOBERMORY WASTEWATER TREATMENT FACILITY 120001577

	1 / 2025	2 / 2025	3 / 2025	4 / 2025	5 / 2025	6 / 2025	7 / 2025	8 / 2025	9 / 2025	10 / 2025	11 / 2025	12 / 2025	<--Total-->	<--Avg-->	<--Max-->	<-Criteria-->
Flows																
Raw Flow: Total - Sewage Pumping Station m³/d	2,007.33	1,289.00	6,225.00	4,128.50	3,980.17	5,458.83	7,658.50	7,375.25	4,605.75	3,536.67	1,303.33	1,993.62	49,561.95			0.00
Raw Flow: Avg - Sewage Pumping Station m³/d	64.75	46.04	200.81	137.62	128.39	181.96	247.05	237.91	153.53	114.09	43.44	64.31		135.79		625.00
Raw Flow: Max - Sewage Pumping Station m³/d	167.67	79.00	422.00	181.50	204.00	272.67	302.50	283.00	191.00	152.67	52.67	189.00			422.00	0.00
Raw Flow: Count - Sewage Pumping Station m³/d	31.00	28.00	31.00	30.00	31.00	30.00	31.00	31.00	30.00	31.00	30.00	31.00	365.00			0.00
Biochemical Oxygen Demand: BOD5																
Raw: Avg BOD5 - Sewage Pumping Station mg/L	0.00	0.00	0.00	0.00	0.00	162.00	201.00	211.00	0.00	100.00	0.00	0.00		168.50	211.00	0.00
Percent Removal: BOD5 - Sewage Pumping Station %	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00
Total Suspended Solids: TSS																
Raw: Avg TSS - Sewage Pumping Station mg/L	0.00	0.00	0.00	0.00	0.00	296.00	170.00	183.00	0.00	91.00	0.00	0.00		185.00	296.00	0.00
Percent Removal: TSS - Sewage Pumping Station %	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00
Total Phosphorus: TP																
Raw: Avg TP - Sewage Pumping Station mg/L	0.00	0.00	0.00	0.00	0.00	4.76	3.23	9.80	0.00	7.55	0.00	0.00		6.34	9.80	0.00
Percent Removal: TP - Sewage Pumping Station %	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00
Nitrogen Series																
Raw: Avg TKN - Sewage Pumping Station mg/L	0.00	0.00	0.00	0.00	0.00	6.30	61.80	82.20	0.00	12.20	0.00	0.00		40.63	82.20	0.00



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Appendix B

Groundwater Sampling Program Laboratory Analysis
Results



SGS Canada Inc.

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OCWA-Grey Bruce (Tobermory Sewage Plant)

Attn : Karla Young

P.O. Box 760
Southampton, ON
N0H 2L0, Canada

Phone: 519-797-2561
Fax:pdf

Works #: 120001577
Project : PO#017018

26-May-2025

Date Rec. : 16 May 2025
LR Report: CA15990-MAY25

Copy: #1

CERTIFICATE OF ANALYSIS Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: Well 5I-OW5-I (Well 5)	6: Well 5D-OW5-D (Well 6)	7: Well 9D-OW9-D (Well 20)	8: Well 9I-OW9-I (Well 19)	9: Well 9S-OW9-S (Well 18)	10: Well 8I-OW8-I (Well 16)
Sample Date & Time					15-May-25 09:50	15-May-25 10:00	14-May-25 11:10	14-May-25 11:15	14-May-25 11:20	14-May-25 11:35
Temperature Upon Receipt [°C]	---	---	---	---	20.0	20.0	20.0	20.0	20.0	20.0
Alkalinity [mg/L as CaCO3]	16-May-25	14:25	20-May-25	15:52	236	225	226	241	239	259
Conductivity [uS/cm]	16-May-25	14:25	21-May-25	12:57	928	865	440	486	450	502
pH [No unit]	16-May-25	14:25	20-May-25	15:52	8.20	7.37	8.23	8.21	8.18	8.21
Temperature @ pH [°C]	16-May-25	14:25	20-May-25	15:52	22.5	22.5	22.6	22.5	22.6	22.5
Organic Nitrogen [mg/L]	20-May-25	15:53	23-May-25	15:37	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Total Kjeldahl Nitrogen [as N mg/L]	20-May-25	15:53	23-May-25	15:37	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Un-ionized Ammonia [mg/L as N]	20-May-25	17:56	21-May-25	10:48	0.018	< 0.001	0.004	< 0.004	< 0.004	0.003
Ammonia+Ammonium (N) [as N mg/L]	20-May-25	17:56	21-May-25	10:47	0.2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4AAP-Phenolics [mg/L]	20-May-25	11:00	23-May-25	09:29	< 0.002	0.022	< 0.002	< 0.002	< 0.002	< 0.002
Dissolved Organic Carbon [mg/L]	20-May-25	15:17	22-May-25	09:41	4	116	< 1	< 1	1	< 1
Phosphorus (total) [mg/L]	20-May-25	16:17	21-May-25	13:01	---	---	---	---	< 0.03	---
Phosphorus (dissolved reactive) [mg/L]	20-May-25	11:47	22-May-25	08:45	---	---	---	---	< 0.03	---
Chloride [mg/L]	25-May-25	15:29	26-May-25	12:56	160	150	< 1	2	< 1	5
Sulphate [mg/L]	25-May-25	15:00	26-May-25	12:56	35	5	16	22	6	12
Nitrite (as N) [mg/L]	20-May-25	23:06	22-May-25	15:29	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Nitrate (as N) [mg/L]	20-May-25	23:06	22-May-25	15:29	0.34	< 0.06	< 0.06	< 0.06	< 0.06	0.12
Nitrate + Nitrite (as N) [mg/L]	20-May-25	23:06	22-May-25	15:29	0.34	< 0.06	< 0.06	< 0.06	< 0.06	0.12
Hardness (dissolved) [mg/L as CaCO3]	20-May-25	14:40	21-May-25	14:15	250	240	233	244	230	263
Magnesium (dissolved) [mg/L]	20-May-25	14:40	21-May-25	14:15	17.7	17.1	22.4	22.8	19.2	24.8
Calcium (dissolved) [mg/L]	20-May-25	14:40	21-May-25	14:15	71.0	67.7	56.4	59.9	60.6	64.6
Iron (dissolved) [mg/L]	20-May-25	14:40	21-May-25	14:15	0.024	0.641	< 0.007	< 0.007	0.018	< 0.007
Sodium (dissolved) [mg/L]	20-May-25	14:40	21-May-25	14:15	83.9	77.3	2.92	4.86	0.75	2.26



SGS Canada Inc.

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Works #: 120001577
Project : PO#017018
LR Report : CA15990-MAY25

Analysis	11: Well 8D-OW8-D (Well 17)	12: Well 10S-OW10-S (Well 23)	13: Well 11S-OW11-S (Well 24)	14: Well 12S-OW12-S (Well 10)	15: Well 1D-OW1-D (Well 22)	16: Well 1I-OW1-I (Well 21)	17: Well 6I-OW6-I (Well 3)	18: Well 6D-OW6-D (Well 2)	19: Well 57-OW57 (Well 13)
Sample Date & Time	14-May-25 11:45	15-May-25 09:20	15-May-25 09:00	14-May-25 13:25	14-May-25 13:15	14-May-25 13:10	14-May-25 12:55	14-May-25 13:00	14-May-25 12:45
Temperature Upon Receipt [°C]	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Alkalinity [mg/L as CaCO3]	268	208	323	249	275	365	320	265	455
Conductivity [uS/cm]	528	412	608	898	528	667	602	497	817
pH [No unit]	8.16	8.09	8.18	8.19	8.24	8.13	8.19	8.13	7.99
Temperature @ pH [°C]	22.5	22.6	22.5	22.4	22.4	22.2	22.2	22.2	22.2
Organic Nitrogen [mg/L]	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Total Kjeldahl Nitrogen [as N mg/L]	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Unionized Ammonia [mg/L as N]	<0.004	0.004	<0.004	<0.004	0.008	0.002	0.004	0.002	<0.003
Ammonia+Ammonium (N) [as N mg/L]	< 0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1
4AAP-Phenolics [mg/L]	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Dissolved Organic Carbon [mg/L]	< 1	2	1	2	< 1	1	1	< 1	2
Phosphorus (total) [mg/L]	---	1.87	0.04	0.03	---	---	---	---	---
Phosphorus (dissolved reactive) [mg/L]	---	< 0.03	< 0.03	< 0.03	---	---	---	---	---
Chloride [mg/L]	4	< 1	1	140	1	< 1	2	2	< 1
Sulphate [mg/L]	16	17	13	25	11	4	9	6	5
Nitrite (as N) [mg/L]	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Nitrate (as N) [mg/L]	< 0.06	< 0.06	0.37	0.74	< 0.06	0.08	< 0.06	< 0.06	0.52
Nitrate + Nitrite (as N) [mg/L]	< 0.06	< 0.06	0.37	0.74	< 0.06	0.08	< 0.06	< 0.06	0.52
Hardness (dissolved) [mg/L as CaCO3]	285	213	329	266	246	355	317	248	452
Magnesium (dissolved) [mg/L]	25.6	19.6	26.5	16.1	23.0	27.4	29.5	23.0	31.3
Calcium (dissolved) [mg/L]	72.0	53.0	87.9	80.0	60.8	96.8	78.5	61.6	130
Iron (dissolved) [mg/L]	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
Sodium (dissolved) [mg/L]	1.50	2.95	1.48	68.8	16.4	2.38	2.74	6.45	0.81

Analysis	20: Well 56-OW56 (Well 12)	21: Well 2I-OW2-I (Well 8)	22: Well 2D-OW2-D (Well 9)	23: Well 55-OW55 (Well 11)	24: Well 60-OW60 (Well 14)	25: Well 61-OW61 (Well 15)
Sample Date & Time	14-May-25 12:35	14-May-25 12:10	14-May-25 12:20	14-May-25 12:00	15-May-25 09:40	15-May-25 09:30
Temperature Upon Receipt [°C]	20.0	20.0	20.0	20.0	20.0	20.0
Alkalinity [mg/L as CaCO3]	264	377	152	370	296	246
Conductivity [uS/cm]	482	686	339	690	1060	651
pH [No unit]	8.13	8.13	7.84	8.05	8.21	8.16
Temperature @ pH [°C]	22.5	22.3	22.2	23.0	23.0	22.7
Organic Nitrogen [mg/L]	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Total Kjeldahl Nitrogen [as N mg/L]	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Unionized Ammonia [mg/L as N]	<0.003	<0.003	<0.002	0.004	<0.004	<0.004
Ammonia+Ammonium (N) [as N mg/L]	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4AAP-Phenolics [mg/L]	< 0.002	< 0.002	< 0.002	< 0.02	< 0.002	< 0.002
Dissolved Organic Carbon [mg/L]	1	1	< 1	37	2	1
Phosphorus (total) [mg/L]	---	---	---	---	---	---
Phosphorus (dissolved reactive) [mg/L]	---	---	---	---	---	---
Chloride [mg/L]	< 1	< 1	< 1	1	170	48
Sulphate [mg/L]	< 2	5	5	< 2	37	18



SGS Canada Inc.

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Works #: 120001577
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LR Report : CA15990-MAY25

Analysis	20: Well 56-OW56 (Well 12)	21: Well 21-OW2-1 (Well 8)	22: Well 2D-OW2-D (Well 9)	23: Well 55-OW55 (Well 11)	24: Well 60-OW60 (Well 14)	25: Well 61-OW61 (Well 15)
Nitrite (as N) [mg/L]	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Nitrate (as N) [mg/L]	< 0.06	< 0.06	4.57	< 0.06	1.04	0.09
Nitrate + Nitrite (as N) [mg/L]	< 0.06	< 0.06	4.57	< 0.06	1.04	0.09
Hardness (dissolved) [mg/L as CaCO3]	247	374	140	374	336	271
Magnesium (dissolved) [mg/L]	15.4	29.8	18.5	21.3	23.6	19.9
Calcium (dissolved) [mg/L]	73.6	101	25.7	115	95.4	75.8
Iron (dissolved) [mg/L]	< 0.007	< 0.007	< 0.007	0.007	0.715	< 0.007
Sodium (dissolved) [mg/L]	0.43	2.79	6.40	0.90	74.5	24.9

Note: Provincial unionized ammonia calculated using lab results for pH and temperature.

Note: Phenol reporting limit for Well 55-OW55 (Well 11) elevated due to sample matrix interferences.

Hawley Anderson, Hon.B.Sc
Project Specialist,
Environment, Health & Safety



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Works #: 120001577
Project : PO#017018

26-August-2025

OCWA-Grey Bruce (Tobermory Sewage Plant)

Attn : Karla Young

Date Rec. : 19 August 2025
LR Report: CA15164-AUG25

P.O. Box 760
Southampton, ON
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Copy: #1

Phone: 519-797-2561
Fax:pdf

CERTIFICATE OF ANALYSIS

Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: Well03 OW6-I	6: Well02 OW6-D	7: Well18 OW9-S	8: Well19 OW9-I	9: Well20 OW9-D	10: Well23 OW10-S	11: Well24 OW11-S	12: Well10 OW12-S
Sample Date & Time					18-Aug-25 11:50	18-Aug-25 12:00	18-Aug-25 10:40	18-Aug-25 10:50	18-Aug-25 10:55	18-Aug-25 12:10	18-Aug-25 11:20	18-Aug-25 11:30
Temperature Upon Receipt [°C]	---	---	---	---	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0
Alkalinity [mg/L as CaCO3]	19-Aug-25	12:47	20-Aug-25	15:15	307	255	264	251	221	274	315	215
Conductivity [uS/cm]	19-Aug-25	12:47	20-Aug-25	15:15	219	193	466	473	185	997	284	189
pH [No unit]	19-Aug-25	12:47	20-Aug-25	15:15	7.73	7.55	7.62	7.85	7.70	7.67	7.61	7.84
Temperature @ pH [°C]	19-Aug-25	12:47	20-Aug-25	15:15	21.3	21.0	17.3	17.7	21.2	18.6	21.0	21.1
Organic Nitrogen [mg/L]	19-Aug-25	16:20	20-Aug-25	14:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Total Kjeldahl Nitrogen [as N mg/L]	19-Aug-25	16:20	20-Aug-25	14:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Unionized Ammonia [mg/L as N]	19-Aug-25	17:29	21-Aug-25	08:34	0.003	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.002
Ammonia+Ammonium (N) [as N mg/L]	19-Aug-25	17:29	20-Aug-25	11:14	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4AAP-Phenolics [mg/L]	20-Aug-25	10:01	20-Aug-25	14:49	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Dissolved Organic Carbon [mg/L]	20-Aug-25	12:11	21-Aug-25	08:33	2	1	2	< 1	< 1	3	2	3
Phosphorus (total) [mg/L]	19-Aug-25	15:30	20-Aug-25	13:18	---	0.07	< 0.03	---	---	< 0.03	0.04	0.89
Phosphorus (dissolved reactive) [mg/L]	20-Aug-25	10:24	20-Aug-25	14:41	---	< 0.03	< 0.03	---	---	< 0.03	< 0.03	< 0.03
Chloride [mg/L]	20-Aug-25	15:18	21-Aug-25	14:44	2	1	< 1	2	< 1	170	2	< 1
Sulphate [mg/L]	20-Aug-25	15:10	21-Aug-25	14:44	10	5	5	21	14	21	11	15
Nitrite (as N) [mg/L]	20-Aug-25	10:01	26-Aug-25	10:07	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Nitrate (as N) [mg/L]	20-Aug-25	10:01	26-Aug-25	10:07	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.37	0.42	< 0.06
Nitrate + Nitrite (as N) [mg/L]	20-Aug-25	10:01	26-Aug-25	10:07	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.37	0.42	< 0.06
Hardness (dissolved) [mg/L as CaCO3]	20-Aug-25	18:58	21-Aug-25	14:15	317	254	250	236	220	281	304	201
Magnesium (dissolved) [mg/L]	20-Aug-25	18:58	21-Aug-25	14:15	30.1	24.1	21.1	22.2	21.0	17.4	25.2	18.3
Calcium (dissolved) [mg/L]	20-Aug-25	18:58	21-Aug-25	14:15	77.1	62.1	65.2	57.9	53.4	84.0	80.0	50.3
Iron (dissolved) [mg/L]	20-Aug-25	18:58	21-Aug-25	14:15	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
Sodium (dissolved) [mg/L]	20-Aug-25	18:58	21-Aug-25	14:15	2.56	7.59	0.84	4.68	2.95	79.6	1.59	2.80
Phosphorus (dissolved) [mg/L]	20-Aug-25	18:58	21-Aug-25	14:15	< 0.003	0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003

Note: Provincial unionized ammonia calculated using lab results for pH and temperature.
*Sampling date used as indicated on sample containers.



SGS Canada Inc.

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Works #: 120001577
Project : PO#017018
LR Report : CA15164-AUG25

Hawley Anderson, Hon.B.Sc
Project Specialist,
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OCWA-Grey Bruce (Tobermory Sewage Plant)

Attn : Karla Young

P.O. Box 760
Southampton, ON
N0H 2L0, Canada

Phone: 519-797-2561
Fax:pdf

Works #: 120001577
Project : PO#017018

27-October-2025

Date Rec. : 16 October 2025
LR Report: CA15551-OCT25

Copy: #1

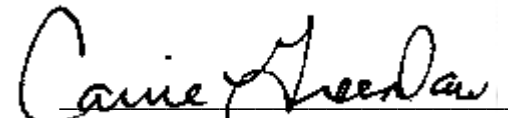
CERTIFICATE OF ANALYSIS

Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	21: Well09-OW2-D	22: Well11-OW55	23: Well14-OW60	24: Well15-OW61
Sample Date & Time					14-Oct-25 12:40	14-Oct-25 12:30	15-Oct-25 08:45	15-Oct-25 09:00
Temperature Upon Receipt [°C]	---	---	---	---	10.0	10.0	10.0	10.0
Alkalinity [mg/L as CaCO3]	17-Oct-25	15:26	21-Oct-25	13:15	180	395	370	337
Conductivity [uS/cm]	17-Oct-25	15:26	21-Oct-25	13:15	362	646	1040	746
pH [No unit]	17-Oct-25	15:26	21-Oct-25	13:15	7.53	7.20	7.90	7.53
Temperature @ pH [°C]	17-Oct-25	15:26	21-Oct-25	13:15	21.6	19.6	20.2	19.7
Organic Nitrogen [mg/L]	17-Oct-25	08:24	22-Oct-25	14:00	< 0.5	< 0.5	< 0.5	< 0.5
Total Kjeldahl Nitrogen [as N mg/L]	17-Oct-25	08:24	22-Oct-25	14:00	< 0.5	< 0.5	< 0.5	< 0.5
Unionized Ammonia [mg/L as N]	17-Oct-25	18:54	22-Oct-25	14:01	< 0.001	< 0.001	0.002	< 0.001
Ammonia+Ammonium (N) [as N mg/L]	17-Oct-25	18:54	20-Oct-25	18:37	< 0.1	< 0.1	< 0.1	< 0.1
4AAP-Phenolics [mg/L]	17-Oct-25	16:12	20-Oct-25	11:23	< 0.002	< 0.002	< 0.002	< 0.002
Dissolved Organic Carbon [mg/L]	20-Oct-25	19:51	24-Oct-25	10:09	1	30	2	2
Phosphorus (total) [mg/L]	20-Oct-25	14:54	22-Oct-25	20:01	---	---	---	---
Phosphorus (dissolved reactive) [mg/L]	20-Oct-25	12:15	22-Oct-25	09:25	---	---	---	---
Chloride [mg/L]	23-Oct-25	19:07	27-Oct-25	09:46	1	2	150	70
Sulphate [mg/L]	23-Oct-25	19:05	27-Oct-25	09:46	8	< 2	29	24
Nitrite (as N) [mg/L]	20-Oct-25	11:42	22-Oct-25	14:50	0.07	< 0.03	< 0.03	< 0.03
Nitrate (as N) [mg/L]	20-Oct-25	11:42	22-Oct-25	14:50	2.88	< 0.06	0.42	0.11
Nitrate + Nitrite (as N) [mg/L]	20-Oct-25	11:42	22-Oct-25	14:50	2.95	< 0.06	0.42	0.11
Hardness (dissolved) [mg/L as CaCO3]	22-Oct-25	13:19	23-Oct-25	12:33	152	375	359	320

Analysis	1:	2:	3:	4:	21:	22:	23:	24:
	Analysis Start Date	Analysis Start Time	Analysis Completed Date	Analysis Completed Time	Well109-OW2-D	Well11-OW55	Well14-OW60	Well15-OW61
Magnesium (dissolved) [mg/L]	22-Oct-25	13:19	23-Oct-25	12:33	19.4	22.3	25.7	25.6
Calcium (dissolved) [mg/L]	22-Oct-25	13:19	23-Oct-25	12:33	28.9	114	101	85.8
Iron (dissolved) [mg/L]	22-Oct-25	13:19	23-Oct-25	12:33	< 0.007	< 0.007	< 0.007	< 0.007
Sodium (dissolved) [mg/L]	22-Oct-25	13:19	23-Oct-25	12:33	14.9	0.89	84.3	33.4
Phosphorus (dissolved) [mg/L]	22-Oct-25	13:19	23-Oct-25	12:33	0.032	< 0.003	0.127	0.003

Note: Provincial unionized ammonia calculated using lab results for pH and temperature.



Carrie Greenlaw
 Project Specialist,
 Environment, Health & Safety



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Works #: 120001577
Project : PO#017018

27-October-2025

OCWA-Grey Bruce (Tobermory Sewage Plant)

Attn : Karla Young

Date Rec. : 16 October 2025
LR Report: CA15551-OCT25

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CERTIFICATE OF ANALYSIS

Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: Well05-OW5-I	6: Well06-OW5-D	7: Well20-OW9-D	8: Well19-OW9-I	9: Well18-OW9-S	10: Well17-OW8-D	11: Well23-OW10-S	12: Well24-OW11-S
Sample Date & Time					15-Oct-25 09:20	15-Oct-25 09:15	14-Oct-25 11:45	14-Oct-25 11:50	14-Oct-25 11:55	14-Oct-25 12:10	14-Oct-25 14:20	14-Oct-25 14:10
Temperature Upon Receipt [°C]	---	---	---	---	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Alkalinity [mg/L as CaCO3]	17-Oct-25	15:26	21-Oct-25	13:15	223	188	224	258	300	286	234	332
Conductivity [uS/cm]	17-Oct-25	15:26	21-Oct-25	13:15	925	774	430	497	537	508	337	600
pH [No unit]	17-Oct-25	15:26	21-Oct-25	13:15	7.95	6.68	7.94	8.05	8.06	7.67	7.83	7.98
Temperature @ pH [°C]	17-Oct-25	15:26	21-Oct-25	13:15	20.7	20.8	20.8	21.5	21.6	19.7	20.0	21.7
Organic Nitrogen [mg/L]	17-Oct-25	08:24	22-Oct-25	14:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Total Kjeldahl Nitrogen [as N mg/L]	17-Oct-25	08:24	22-Oct-25	14:00	0.9	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Unionized Ammonia [mg/L as N]	17-Oct-25	18:54	22-Oct-25	14:01	0.017	< 0.001	<0.002	<0.003	<0.003	< 0.001	0.002	<0.003
Ammonia+Ammonium (N) [as N mg/L]	17-Oct-25	18:54	20-Oct-25	18:37	0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
4AAP-Phenolics [mg/L]	17-Oct-25	16:12	20-Oct-25	11:23	0.005	0.008	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Dissolved Organic Carbon [mg/L]	20-Oct-25	19:51	24-Oct-25	10:09	5	143	< 1	1	1	< 1	3	2
Phosphorus (total) [mg/L]	20-Oct-25	14:54	22-Oct-25	20:01	---	---	---	---	< 0.03	---	1.83	< 0.03
Phosphorus (dissolved reactive) [mg/L]	20-Oct-25	12:15	22-Oct-25	09:25	---	---	---	---	< 0.03	---	< 0.03	< 0.03
Chloride [mg/L]	23-Oct-25	19:07	27-Oct-25	09:46	150	140	< 1	3	2	5	2	3
Sulphate [mg/L]	23-Oct-25	19:05	27-Oct-25	09:46	28	3	15	20	5	16	17	12
Nitrite (as N) [mg/L]	20-Oct-25	11:42	22-Oct-25	14:50	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Nitrate (as N) [mg/L]	20-Oct-25	11:42	22-Oct-25	14:50	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.58
Nitrate + Nitrite (as N) [mg/L]	20-Oct-25	11:42	22-Oct-25	14:50	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.58
Hardness (dissolved) [mg/L as CaCO3]	22-Oct-25	13:19	23-Oct-25	12:33	247	267	242	261	299	290	218	332
Magnesium (dissolved) [mg/L]	22-Oct-25	13:19	23-Oct-25	12:33	18.5	19.9	23.8	24.6	25.7	26.7	20.6	27.4
Calcium (dissolved) [mg/L]	22-Oct-25	13:19	23-Oct-25	12:33	68.6	74.0	57.8	63.8	77.5	72.0	53.6	87.6
Iron (dissolved) [mg/L]	22-Oct-25	13:19	23-Oct-25	12:33	< 0.007	0.974	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	0.018
Sodium (dissolved) [mg/L]	22-Oct-25	13:19	23-Oct-25	12:33	86.7	78.9	2.91	4.94	0.95	1.53	2.91	1.42
Phosphorus (dissolved) [mg/L]	22-Oct-25	13:19	23-Oct-25	12:33	0.012	0.009	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003

Note: Provincial unionized ammonia calculated using lab results for pH and temperature.



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LR Report : CA15551-OCT25

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27-October-2025

OCWA-Grey Bruce (Tobermory Sewage Plant)

Attn : Karla Young

Date Rec. : 16 October 2025
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CERTIFICATE OF ANALYSIS

Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	13: Well10-OW12-S	14: Well22-OW1-D	15: Well21-OW1-I	16: Well03-OW6-I	17: Well02-OW6-D	18: Well13-OW57	19: Well12-OW56	20: Well08-OW2-I
Sample Date & Time					14-Oct-25 14:00	14-Oct-25 13:50	14-Oct-25 13:40	14-Oct-25 13:20	14-Oct-25 13:30	14-Oct-25 13:15	14-Oct-25 12:55	14-Oct-25 12:45
Temperature Upon Receipt [°C]	---	---	---	---	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Alkalinity [mg/L as CaCO3]	17-Oct-25	15:26	21-Oct-25	13:15	288	289	374	328	272	483	443	380
Conductivity [uS/cm]	17-Oct-25	15:26	21-Oct-25	13:15	887	526	652	585	488	851	677	669
pH [No unit]	17-Oct-25	15:26	21-Oct-25	13:15	7.89	7.99	7.93	7.86	8.00	7.81	7.42	7.89
Temperature @ pH [°C]	17-Oct-25	15:26	21-Oct-25	13:15	21.7	21.6	21.6	22.0	21.6	22.0	19.8	22.1
Organic Nitrogen [mg/L]	17-Oct-25	08:24	22-Oct-25	14:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Total Kjeldahl Nitrogen [as N mg/L]	17-Oct-25	08:24	22-Oct-25	14:00	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Unionized Ammonia [mg/L as N]	17-Oct-25	18:54	22-Oct-25	14:01	<0.002	<0.003	< 0.001	0.003	0.003	<0.002	< 0.001	<0.002
Ammonia+Ammonium (N) [as N mg/L]	17-Oct-25	18:54	20-Oct-25	18:37	< 0.1	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1
4AAP-Phenolics [mg/L]	17-Oct-25	16:12	20-Oct-25	11:23	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Dissolved Organic Carbon [mg/L]	20-Oct-25	19:51	24-Oct-25	10:09	2	< 1	2	1	1	2	2	1
Phosphorus (total) [mg/L]	20-Oct-25	14:54	22-Oct-25	20:01	< 0.03	---	---	---	---	---	---	---
Phosphorus (dissolved reactive) [mg/L]	20-Oct-25	12:15	22-Oct-25	09:25	< 0.03	---	---	---	---	---	---	---
Chloride [mg/L]	23-Oct-25	19:07	27-Oct-25	09:46	110	2	3	3	2	2	2	3
Sulphate [mg/L]	23-Oct-25	19:05	27-Oct-25	09:46	20	9	4	9	6	5	< 2	5
Nitrite (as N) [mg/L]	20-Oct-25	11:42	22-Oct-25	14:50	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Nitrate (as N) [mg/L]	20-Oct-25	11:42	22-Oct-25	14:50	0.50	< 0.06	< 0.06	< 0.06	< 0.06	0.55	< 0.06	0.12
Nitrate + Nitrite (as N) [mg/L]	20-Oct-25	11:42	22-Oct-25	14:50	0.50	< 0.06	< 0.06	< 0.06	< 0.06	0.55	< 0.06	0.12
Hardness (dissolved) [mg/L as CaCO3]	22-Oct-25	13:19	23-Oct-25	12:33	299	257	370	330	255	486	391	363
Magnesium (dissolved) [mg/L]	22-Oct-25	13:19	23-Oct-25	12:33	20.4	24.5	30.4	31.5	24.1	34.8	25.8	29.5
Calcium (dissolved) [mg/L]	22-Oct-25	13:19	23-Oct-25	12:33	86.2	62.5	98.1	80.1	62.3	137	114	96.7
Iron (dissolved) [mg/L]	22-Oct-25	13:19	23-Oct-25	12:33	< 0.007	< 0.007	< 0.007	0.010	< 0.007	< 0.007	< 0.007	< 0.007
Sodium (dissolved) [mg/L]	22-Oct-25	13:19	23-Oct-25	12:33	60.8	17.1	2.45	2.63	5.12	0.83	0.77	2.76
Phosphorus (dissolved) [mg/L]	22-Oct-25	13:19	23-Oct-25	12:33	< 0.003	0.025	0.167	< 0.003	0.005	< 0.003	< 0.003	0.076

Note: Provincial unionized ammonia calculated using lab results for pH and temperature.



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LR Report : CA15551-OCT25

Carrie Greenlaw
Carrie Greenlaw
Project Specialist,
Environment, Health & Safety



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Appendix C

Sludge Haulage Volumes

2026- Hauled Sewage

	January	February	March	April	May	June	July	August	September	October	November	December	TOTAL
Bruce Peninsula Septic Service	7350	7880	12100	41750	37,625	73,700	26,350	14,200	14,024	42550	20090	2090	299,709
Scott Septic Pumping					125,300	267,600	453100	371800	196,800	129500	32500		1,576,600
Mountain Trout Camp						2400	3600	4800	2400	8400			21,600
Total	7350	7880	12100	41750	162925	343700	483050	390800	213224	180450	52590	2090	1,897,909

*amounts in gallons

1016550.00 X (1 imperial Gallon = 4.54609 litres)



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Appendix D

Calibration Reports

ABB Ability™

Verification for measurement devices



Verification Report for: WaterMaster

Measurement made easy

Measurement & Analytics
Service

Installation Details

Meter Owner	OCWA-Grey Bruce
Machine Name	Watermaster
Medium	

Operator Details

Date and Time	10-04-2025 11:02:45
Operator's Name	Admin
Operator's Signature	

Customer Details

Site Address	Tobermory Pump Station
Telephone	
Email	

Overall Status - Passed

The flowmeter has passed its internal continuous verification and automatic self-calibration. It is working within +/- 2% of original factory calibration.

ABB Ability Verification for measurement devices verifies the function of the measurement product within the specification limits over the lifetime of the device with a total test coverage > 90% and complies with the requirements for traceable verification according to DIN EN ISO 9001:2015 - section 8.5

Sensor Information

Sensor Serial No.	1
Sensor SAP/ERP No.	3K620000270131
Sensor Type	WM Full Bore
Sensor Size	DN 150
Q3	25.000 l/s
Calibration Accuracy	OIML Class 2
Sensor Calibration Factors	140.253 %, -4.301 mm/s
Date of Manufacture	10:20:07 2018/06/27
Sensor User Span/Zero	100.000 %, 0.000 mm/s
User Flow Cutoff/Hysteresis	1.000 %, 20.000 %
Coil Current	180.000 mA
Coil Inductance	153.836 mH
Coil / Loop Resistance	35.093 Ohm

Transmitter Information

Transmitter Serial No	9033561
Transmitter SAP/ERP No.	3K620000270131
Application Version	V01.07.00 03/02/17
MSP Version	01.00.00
Date of Manufacture	16:06:06 2018/04/18
Tx Gain Adjustment	0.029 %
OIML Accuracy Alarms	OFF
Mains Freq	60.000 Hz
Qmax	25.000 l/s
Pulses/Unit	30.000
FS Freq	0.750 Hz
Pulses Limit Freq	1200.000 Hz
Meter Mode	Forward And Reverse

Summary Verification of the Sensor

Summary of Results

Coil Group	PASS
Electrode Group	PASS
Sensor Group	PASS
Transmitter Signal	PASS
Transmitter Driver	PASS
Configuration	PASS

Sensor Data

Coil Inductance Shift	0.000 %
Cable Length	0 m
Electrode Backoff Voltage	0.070 V
Electrode Differential Voltage	-0.011 V

Pipe Status

Full Pipe

Summary Verification of the Transmitter

Output Group

Current Output 31/32 **PASS**

Applied	Measured	Result
4 mA	4.001 mA	PASS
12 mA	11.985 mA	PASS
20 mA	19.997 mA	PASS

Pulse Output 41/42

NOT EXECUTED

Applied	Measured	Result
5250 Hz		
2625 Hz		

Pulse Output 51/52

NOT EXECUTED

Applied	Measured	Result
5250 Hz		
2625 Hz		

Totalizer Information

	Start	End	Difference
Forward	472879.000 m ³	472879.000 m ³	0.000 m ³
Reverse	523.000 m ³	523.000 m ³	0.000 m ³
Net	472355.000 m ³	472355.000 m ³	0.000 m ³

Comments (Installation, Grounding etc.)

Current verified using DMM-22

Verification Certificate has been generated by ABB Ability Verification for measurement devices variant "Licensed software testing" (ABB WaterMaster VDF Version 03.34).

ABB Ability Verification for measurement devices Version 04.00.00.7

—
To find your local ABB contact, visit:

abb.com/contacts

For more information, visit:

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Ontario Clean Water Agency
Agence Ontarienne Des Eaux

Appendix E

Biosolids Volume Modeling and Distribution Surveys for
Lagoon Cells 1 & 2



Municipality of Northern Bruce Peninsula
Bruce County, Ontario

**Tobermory Biosolids Lagoon
West Primary Cell #1**

Shallow Underwater Hydrographic Acoustic Sonar
Sediment Profiling - Volume Modeling and Distribution Survey

Date; October 29, 2025.



Aerial Drone Image. OCWA – Biosolids West Cell 1.

Prepared For: **Léo-Paul Frigault**
Senior Operations Manager
Grey Bruce Hub
Richard Eagle
Senior Operations Manager – Capital Projects
Ontario Clean Water Agency (OCWA)

Prepared By: Paul Makar
PW MAKAR COATINGS INSPECTION LTD.

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1.0 INTRODUCTION

- 1.1 The Ontario Clean Water Agency contracted PW MAKAR COATINGS INSPECTION LTD. to conduct a hydrographic acoustic sonar biosolids profiling-volume modeling and distribution survey of the Tobermory West Primary Cell 1.
- 1.2 The intent of this survey was to determine the sediment volumes, identify sediment distribution patterns and loading areas within the Tobermory West Primary Cell 1.
- 1.3 The survey was performed using a multi-frequency (200, 50 and a 12 kHz) acoustic sonar profiling system in the shallow waters of the Tobermory West Primary Cell 1.
 - 1.3.1 The precision navigation was provided by the survey vessels on-board GPS system which is incorporated with the acoustic profiling system. Processing of the acoustic data provides both an indication of the present fluid depth and an image of the extent of biosolids between the fluid bottom (upper biosolids surface contour bathymetric) and the liner/clay bottom (sub-bottom liner/clay contour) of the Tobermory West Primary Cell 1.
- 1.4 PW MAKAR had a two-person survey crew conducting the unmanned remotely controlled hydrographic survey.
 - 1.4.1 One operator navigating the unmanned remotely controlled hydrographic survey vessel operator throughout the Tobermory West Primary Cell 1.
 - 1.4.2 PW MAKAR's Geographic Information Systems (GIS/Mapping) and Approvals Specialist was responsible for calibrating and setting the transduce frequencies based on sediment and water depths. Monitoring of the raw sonar data streaming in from the transducers and GPS to the onboard sonar profiling computer system, watching survey vessel tracking lines, and conducting baseline sludge sub-bottom/liner and bathymetry, sludge blanket depths for post-processing validation.

2.0 SITE DESCRIPTION

- 2.1 The Tobermory wastewater lagoon does not have a public street address. The contact point is the Municipality of Northern Bruce Peninsula Administrative Office, located at 56 Lindsay Road 5, Lion's Head, ON. The Water/Wastewater Treatment Plant is located at 8 Eliza Street, Tobermory ON.
- 2.2 The Tobermory Biosolids Lagoon consists of two (2) wastewater – Biosolids Cells consisting of; West Primary Cell 1 and East Secondary Cell 2.
 - 2.2.1 Both of the West Primary Cell 1 and East Secondary Cell 2 were also surveyed on October 29, 2025; the East Cell 2 hydrographic reports is not included with

the West Cell 1 report, the East Cell 2 report is detailed in its own separate report.

2.3 Tobermory West Primary Cell 1.

2.3.1.1 There is a high level of vegetation around the both of the Cells. A power tool was used to cut vessel access points into the Cells.

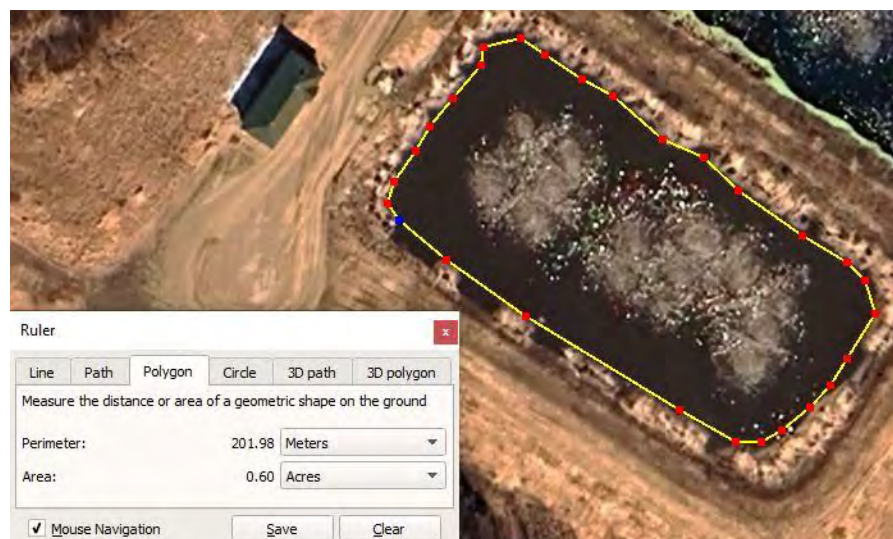
2.3.1.1.1 There is a considerable number of weeds and manmade products suspended within West Primary Cell 1.

2.3.1.1.2 Navigating around the suspended manmade products to ensure the remote-controlled survey vessel would not get entangled was somewhat difficult.

2.3.1.1.3 The water table was down in the Tobermory Lagoon Cells at the time of the hydrographic survey.

2.4 The underwater area surveyed within the Tobermory West Primary Cell 1 – survey date; October 29, 2025 had a **Positive Planar Area** of **1408.01 m²** or **0.34 acres** or **0.14 ha**.

2.4.1.1 **Please note**; the area surveyed within the Tobermory West Primary Cell 1 is dependent on the water level at the time of the survey. Any obstruction within the pond i.e., dykes, aeration systems, rock outcrops above and below the water, vegetation and aquodic plant life around the base of the cell berm can affect the size of the survey area.



2.4.2

Figure 1. A water table area reference qualifier was conducted by a polygon measurement made in Google Earth to a 03/30/2024 image of the Tobermory West Primary Cell 1, the water table area was found to be approximately 0.60 Acres.¹

¹ Google Earth. – 03/30/2024.

3.0 DISCLAIMER

- 3.1 While PW MAKAR COATINGS INSPECTION LTD believes it has used best practice in obtaining the information contained in this report, in no event will PW MAKAR COATINGS INSPECTION LTD be liable for any commercial costs, damages, loss of profit, property damage or personal injury, including death sustained or suffered in connection with the use of data or subsequent processing of materials obtained during field efforts by PW MAKAR COATINGS INSPECTION LTD during this program, or consequential damages including, but not limited to those related to dredging, removal of sediment, disposal of sediment, or contamination resulting from use of data obtained from this report or efforts or conclusions drawn from this report.
- 3.2 PW MAKAR COATINGS INSPECTION LTD makes no warranty, either expressed or implied, regarding the suitability or fitness of any data or information contained in this report for a particular purpose or that the information will satisfy the requirement of any law, rule, specification, or contract.
- 3.3 The maximum liability of PW MAKAR COATINGS INSPECTION LTD. from all causes related to this work, field efforts, report or discussions about this effort is limited to the funding received by PW MAKAR COATINGS INSPECTION LTD for this work. Acceptance of this report signifies acceptance of this disclaimer.
- 3.4 This report shall be deemed accepted if no protest is received within 60 days of the issuance date of this report.

4.0 ABSTRACT

- 4.1 The shallow hydrographic underwater acoustic sonar survey was conducted on October 29, 2025; this report reflects the water content and sediment levels at the time of this hydrographic survey.
- 4.2 The hydrographic survey was performed by PW MAKAR COATINGS INSPECTION LTD's, (GIS/Mapping) and Approvals Specialist, the survey complies with IHO (International Hydrographic Organization) Standards.
- 4.3 Transducer sound calibration checks, manual sediment bathymetry, and probe measuring to the sub-bottom were performed prior to the start of the hydrographic survey in the Tobermory West Primary Cell 1 to validate post processing of the raw data.

5.0 SEDIMENT DEPTH EVALUATIONS

- 5.1 The sub-bottom contour in the Tobermory West Primary Cell 1, has a "hard pack" sub-bottom layer i.e., clay and/or hard pack soil, all three of our hydrographic acoustic sonar transducers were utilized to determine the bathymetric bottom and sub-bottom.

- 5.1.1 The sediment profiling volume computations were calculated from the sediment layer using the three transducer kHz frequency ranges of 200 kHz, 50 kHz, and 12 kHz transducers.
- 5.1.2 The total volume of sediment surveyed on October 29, 2025 in the Tobermory West Primary Cell 1, is approximately **1336.19 m³** or **1747.67 yd³**.
- 5.1.2.1 To calculate a percentage of sediment, a grid volume computation was calculated from the bathymetric sediment bottom (defined as the top of the sediment) and the sub-bottom of the sediment i.e., the top of the pond liner. It was then divided by the grid volume computation calculated from the top of the liquid/water to the sub-bottom of the sediment of the pond liner. The two number sets are then multiplied by 100 to determine a percentage of the sediment.
- Notice to Reader;** the percentages of biosolids volumes will change/increase if water levels in the lagoon/cell fluctuates. In addition, if aluminum sulfate is added to the water and the suspended biosolids settles to the bathymetric layer of the cell this will add to the amount of biosolids sludge. As well, if there is an aeration system associated with the biosolids cell the amount of time the in which the aeration system was shut down to allow for the suspended biosolids to settle, again will add to the total volume of biosolids build up.
- 5.1.2.1.1 Therefore, on this date the percentage of sediment buildup in the Tobermory West Primary Cell 1 is approximately **29.33%**.
- 5.1.3 PW MAKAR COATINGS INSPECTION LTD. collected **13,696** digitized data value points in the Tobermory West Primary Cell 1. The digitized data value points represent both the bathymetric bottom (top of the sediment) and sub-bottom (top of the liner) values with GPS navigational values.
- 5.1.3.1 Each individual data value point consists of an XYZ value. X value is an Easting coordinate; Y value is a Northing coordinate and Z consists of a sediment elevation processed in meters.
- 5.1.3.2 The average depth of the sediment within Tobermory West Primary Cell 1 on this date was approximately **0.948 m or 948 mm or 37.322 in or 3.11 ft.**

Reported by: Paul Makar
Paul Makar

PW MAKAR COATINGS INSPECTION LTD. NACE CERTIFIED COATINGS INSPECTOR #137.



Municipality of Northern Bruce Peninsula
Bruce County, Ontario

Tobermory Biosolids Lagoon West Primary Cell #1

Shallow Underwater Hydrographic Acoustic Sonar
Sediment Profiling - Volume Modeling and Distribution Survey

Date; October 29, 2025

Grid Volume Computations

Bathymetric (Upper) Sediment Surface and Sub-Bottom (Lower) – Liner Surface.

Upper Surface

Grid File Name: C:\OCWA - Tobermory Lagoon Surveys\Tobermory West Cell 1 - Map Reports\Tobermory West Cell 1 - A Layer\Tobermory West Cell 1 - A Layer Blanked Out.grd

Grid Size: 87 rows x 100 columns

X Minimum: 448982.62
X Maximum: 449039.25
X Spacing: 0.57202020202025

Y Minimum: 5008996.76
Y Maximum: 5009046.09
Y Spacing: 0.57360465116366

Z Minimum: -4.5524971741958
Z Maximum: -0.3120857634507

Lower Surface

Grid File Name: C:\OCWA - Tobermory Lagoon Surveys\Tobermory West Cell 1 - Map Reports\Tobermory West Cell 1 - B Layer\West Cell 2 B Layer Blanked Out.grd

Grid Size: 87 rows x 100 columns

X Minimum: 448982.62
X Maximum: 449039.25
X Spacing: 0.57202020202025

Y Minimum: 5008996.76
Y Maximum: 5009046.09
Y Spacing: 0.57360465116366

Z Minimum: -4.7038682737422
Z Maximum: -0.91517180360021

Volumes

Z Scale Factor: 1

Total Volumes by:

Trapezoidal Rule: 1330.2316121323
Simpson's Rule: 1329.6421621223
Simpson's 3/8 Rule: 1330.9648932645

Cut & Fill Volumes

Positive Volume [Cut]: 1336.1990513493 m³ or 1747.67 yd³.
Negative Volume [Fill]: 5.9674392169823
Net Volume [Cut-Fill]: 1330.2316121323

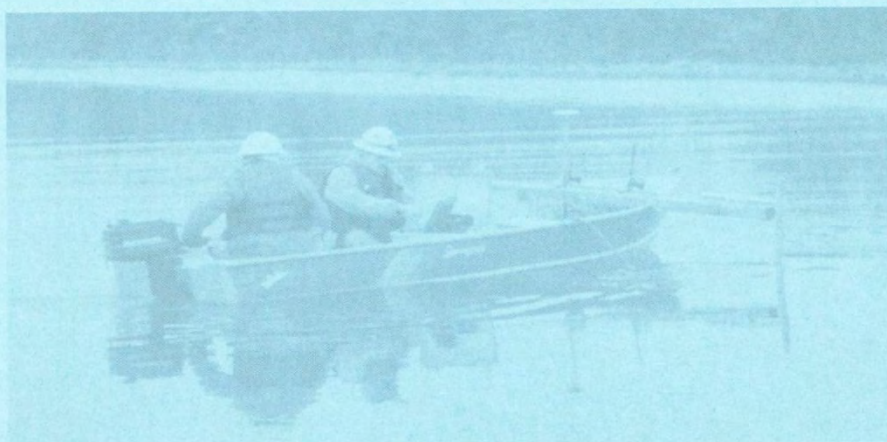
Areas

Planar Areas

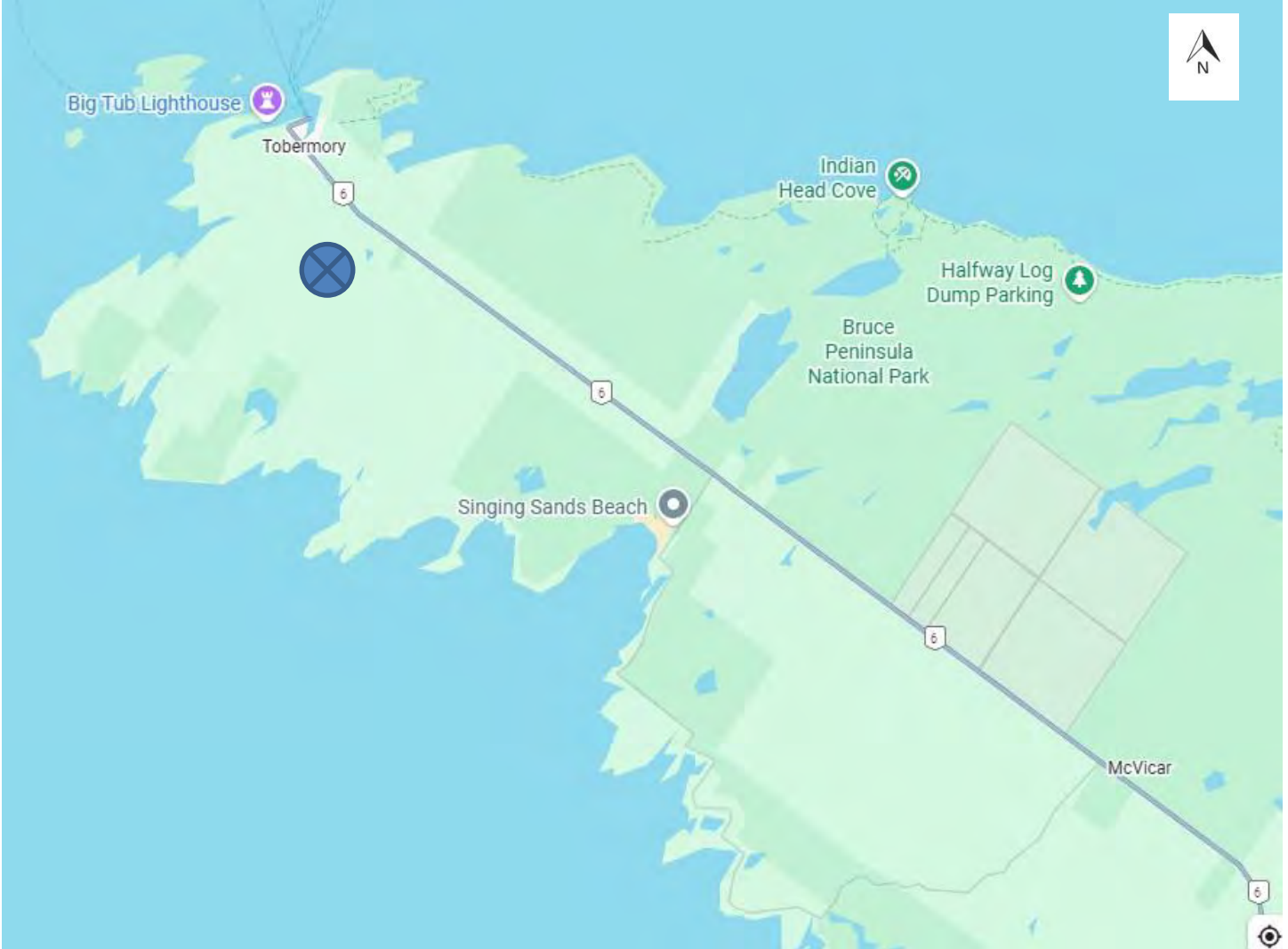
Positive Planar Area [Cut]: 1408.0107887106 m² or 0.34 acers or 0.14 ha
Negative Planar Area [Fill]: 6.3222307830853
No Data Planar Area: 1379.2248805108
Total Planar Area: 2793.5579000044

Surface Areas

Positive Surface Area [Cut]: 1480.5799322353
Negative Surface Area [Fill]: 14.905052360315



Appended Figures and Maps



PW MAKAR INSPECTION SERVICES LTD. HAS A LICENSING AGREEMENT WITH GOOGLE INC. TO REPRODUCE AND PUBLISH THE FOLLOWING IMAGE. NO FURTHER REPRODUCTION OR PUBLISHING OF THIS IMAGE IS PERMITTED UNLESS WRITTEN CONSENT FROM PW MAKAR INSPECTION SERVICES LTD.

SITE MAP LOCATION

Municipality of Northern Bruce Peninsula
Bruce County, Ontario

Tobermory Biosolids Lagoon

SURVEY DATE; October 29, 2025

FIGURE 2



PW MAKAR INSPECTION SERVICES LTD. HAS A LICENSING AGREEMENT WITH GOOGLE INC. TO REPRODUCE AND PUBLISH THE FOLLOWING IMAGE. NO FURTHER REPRODUCTION OR PUBLISHING OF THIS IMAGE IS PERMITTED UNLESS WRITTEN CONSENT FROM PW MAKAR INSPECTION SERVICES LTD.

**SITE AERIAL MAP
LOCATION**

Municipality of Northern Bruce
Peninsula
Bruce County, Ontario

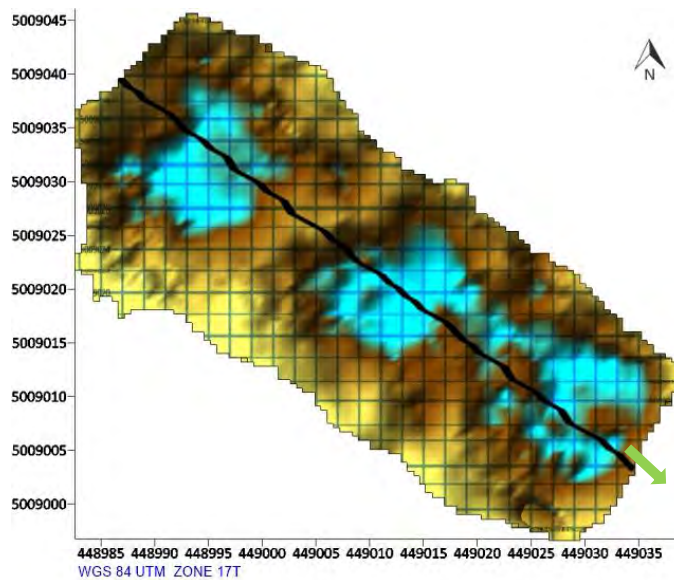
IMAGE DATE; 07/20/2025

FIGURE 3

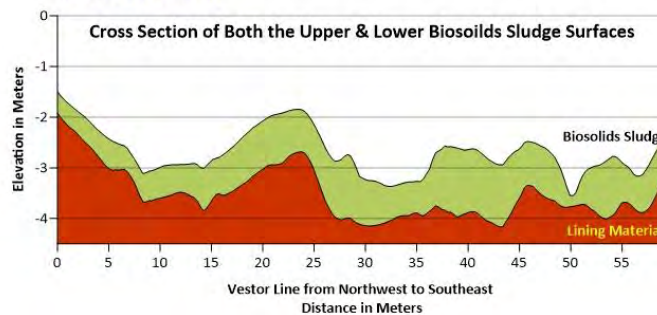
Municipality of Northern Bruce Peninsula
Bruce County, Ontario

**Tobermory Biosolids Lagoon
West Primary Cell #1**

Visual Representation of the Sediment Layer Along a Random Vector Line



The average depth of sediment in the Tobermory West Primary Cell 1 is approximately 0.667 m or 667 mm or 26.25 in or 2.19 ft.



Visual Representation of a Sediment Layer Sliced Randomly from North to South

Municipality of Northern Bruce Peninsula
Bruce County, Ontario

PLOT 1

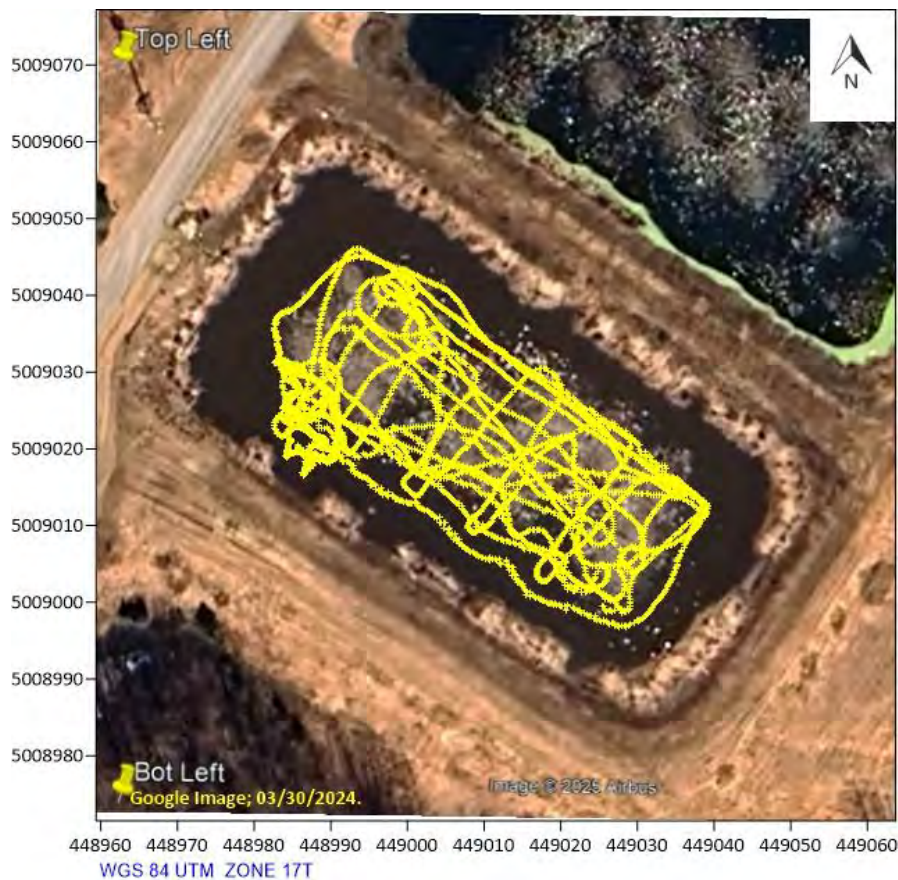
Survey Date: October 29, 2025



Municipality of Northern Bruce Peninsula
Bruce County, Ontario

**Tobermory Biosolids Lagoon
West Primary Cell #1**

Google Earth Georeferencing Image
Hydrographic Survey Vessel GPS Tracking Lines



Georeferencing Image and Hydrographic Survey Vessel Tracking Lines	
Municipality of Northern Bruce Peninsula Bruce County, Ontario	
Plot 2	
Survey Date: October 29, 2025	



**Municipality of Northern Bruce Peninsula
Bruce County, Ontario**

**Tobermory Biosolids Lagoon
West Primary Cell #1**

Google Earth Georeferencing Image
Site Description



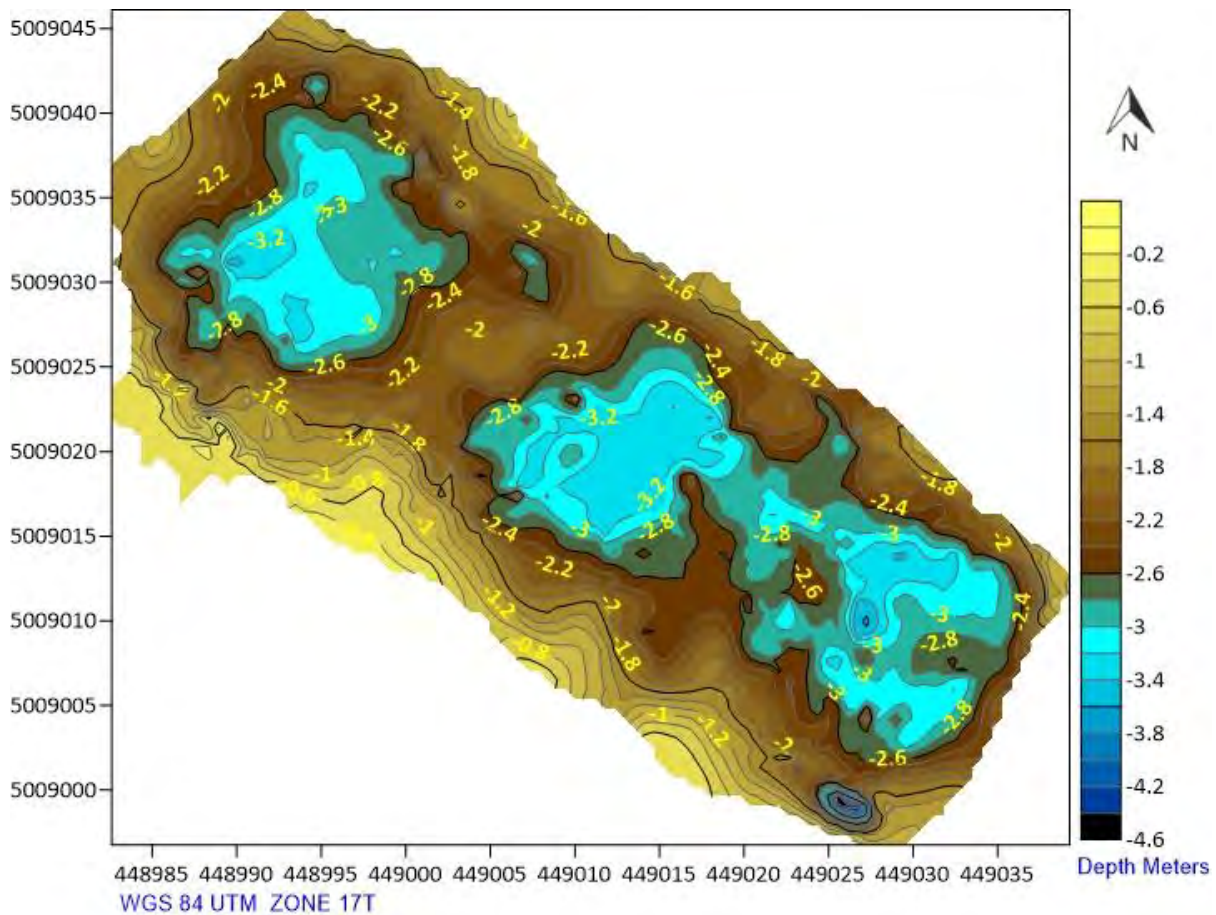
Georeferencing Image and Hydrographic Survey Site Description	
Municipality of Northern Bruce Peninsula Bruce County, Ontario	
Survey Date: October 29, 2025	Plot 3



Municipality of Northern Bruce Peninsula
Bruce County, Ontario

**Tobermory Biosolids Lagoon
West Primary Cell #1**

Bathymetric Upper Sediment Surface – Contour Map



Bathymetric (Upper Surface) Sediment Distribution – Contour Map

Municipality of Northern Bruce Peninsula
Bruce County, Ontario

PLOT 4

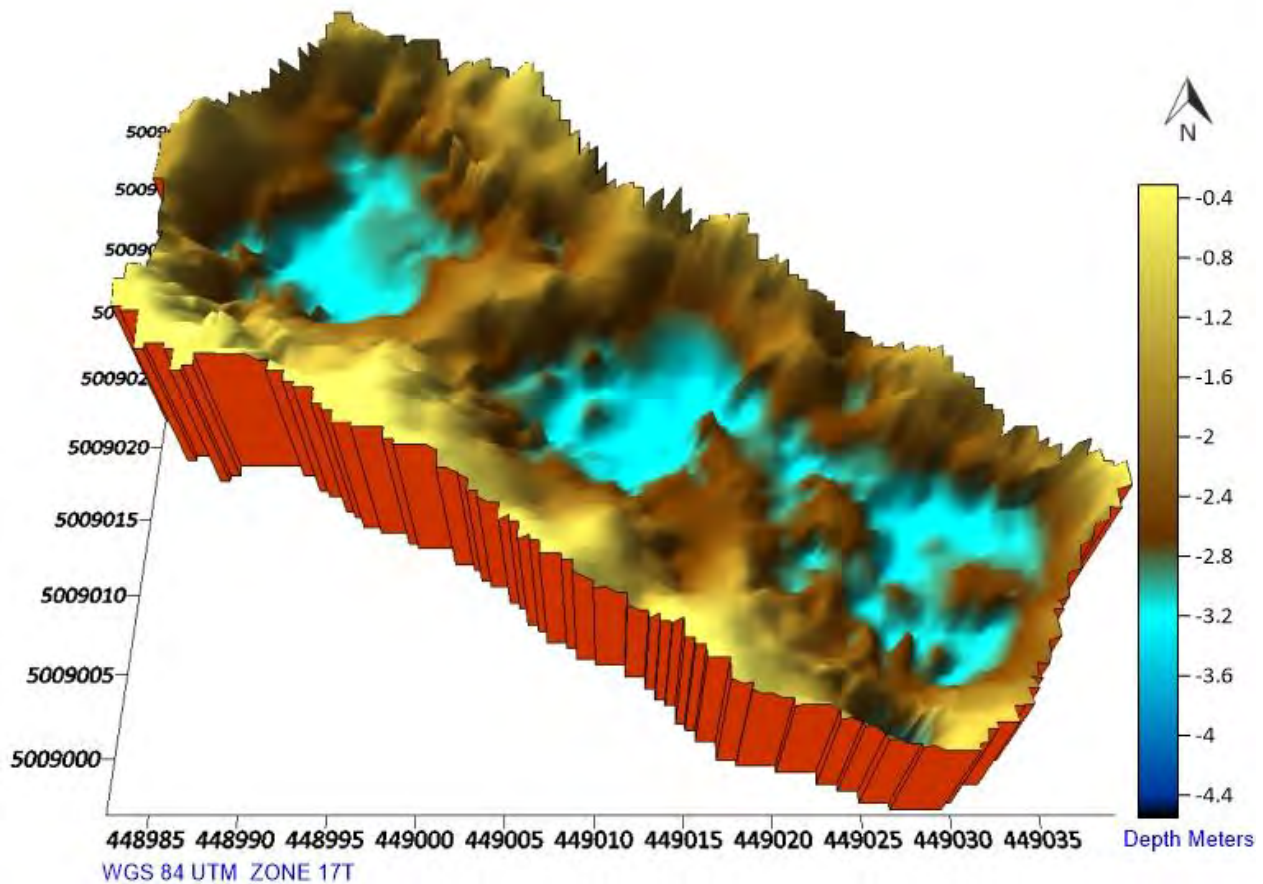
Survey Date: October 29, 2025



Municipality of Northern Bruce Peninsula
Bruce County, Ontario

**Tobermory Biosolids Lagoon
West Primary Cell #1**

Bathymetric Upper Sediment Surface – 3D Contour Map



Bathymetric (Upper Surface) Sediment Distribution – 3D Contour Map
Municipality of Northern Bruce Peninsula
Bruce County, Ontario

PLOT 5

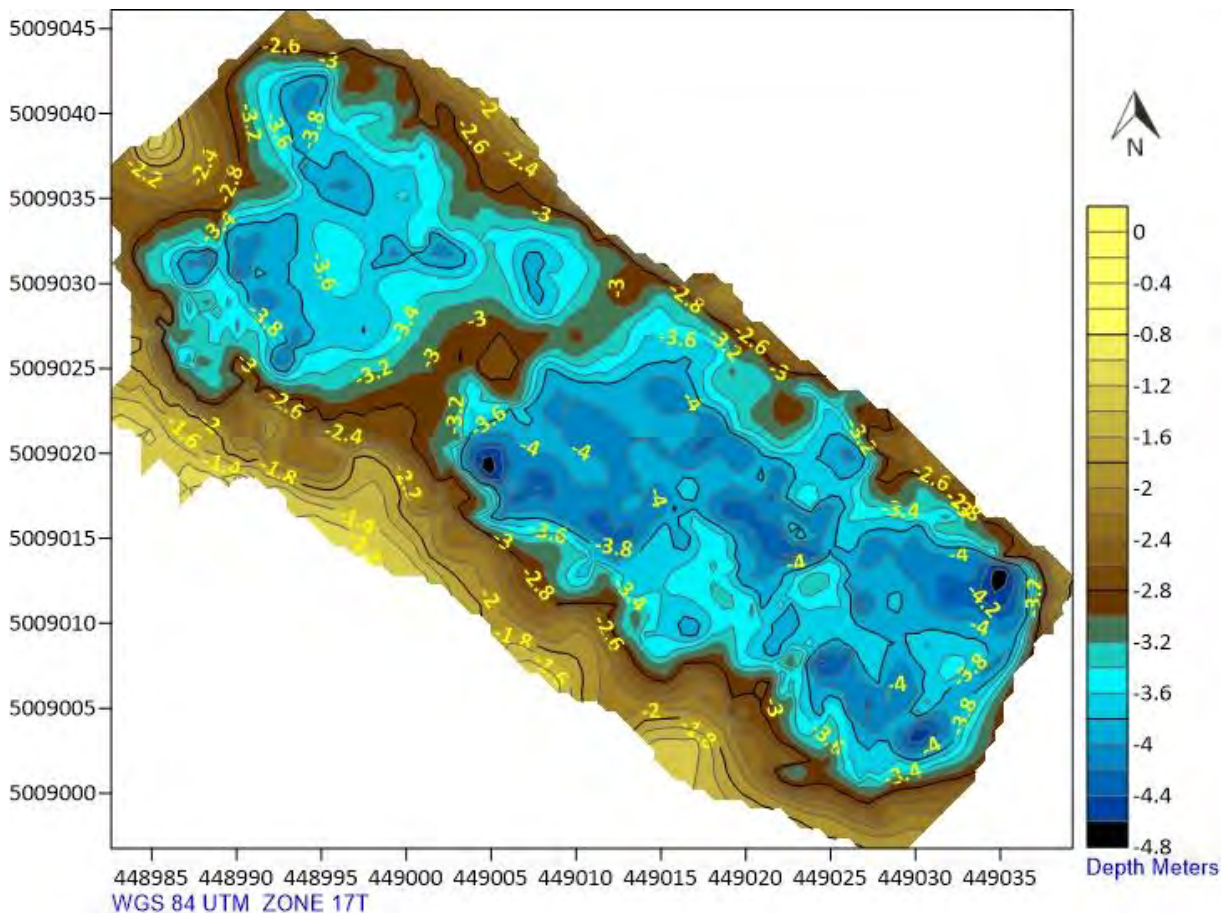
Survey Date: October 29, 2025



Municipality of Northern Bruce Peninsula
Bruce County, Ontario

**Tobermory Biosolids Lagoon
West Primary Cell #1**

Lower Sub-Bottom Liner Surface – Contour Map



Lower Sub-Bottom (Liner/Clay/Hard Packed Soil) – Contour Map

Municipality of Northern Bruce Peninsula
Bruce County, Ontario

PLOT 6

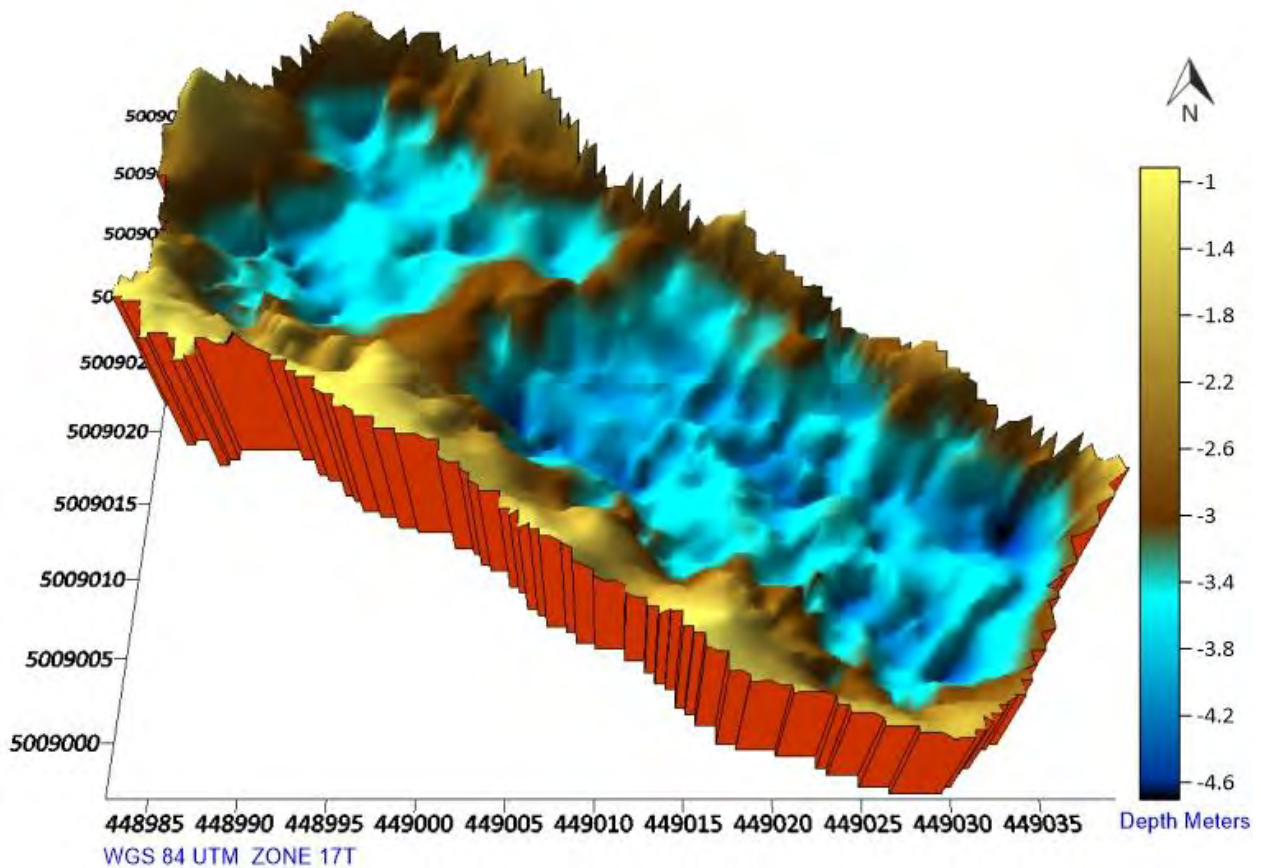
Survey Date: October 29, 2025



Municipality of Northern Bruce Peninsula
Bruce County, Ontario

**Tobermory Biosolids Lagoon
West Primary Cell #1**

Lower Sub-Bottom Liner Surface – 3D Contour Map



Lower Sub-Bottom (Liner/Clay/Hard Packed Soil) – 3D Contour Map

Municipality of Northern Bruce Peninsula
Bruce County, Ontario

PLOT 7

Survey Date: October 29, 2025



Municipality of Northern Bruce Peninsula
Bruce County, Ontario

**Tobermory Biosolids Lagoon
West Primary Cell #1**

Hydrographic Acoustic Sonar
Biosolids Volume Modeling and Distribution Survey

Date; October 29, 2025

PICTORIAL REPORT



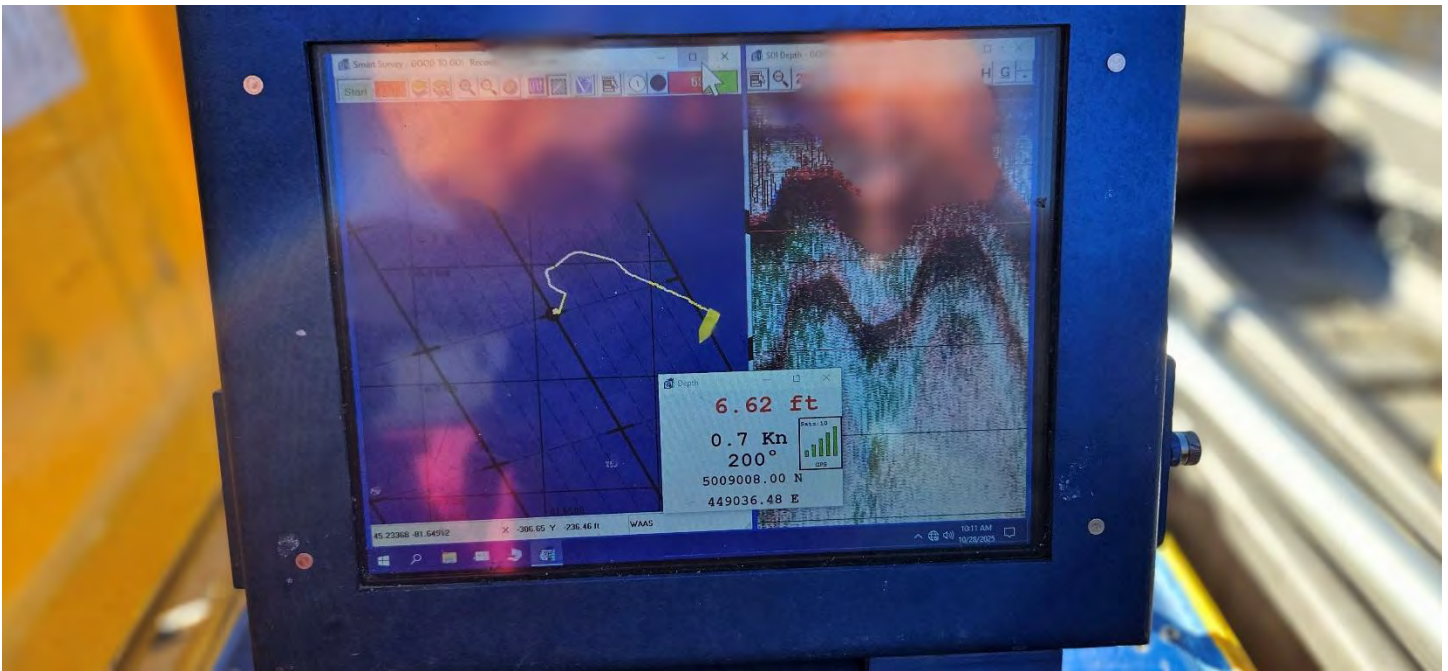
Aerial Digital Image 1. Tobermory West Primary Cell 1. Low Water Table.



Aerial Digital Image 2. Tobermory West Primary Cell 1.



Aerial Digital Image 3. Tobermory West Primary Cell 1.



Digital Image 4. Tobermory West Primary Cell 1. Raw Sonar Data during hydrographic surveying.



Digital Image 5. Tobermory West Primary Cell 1.



Aerial Digital Image 6. Tobermory West Primary Cell 1.



Municipality of Northern Bruce Peninsula
Bruce County, Ontario

Tobermory Biosolids Lagoon
East Secondary Cell #2

Shallow Underwater Hydrographic Acoustic Sonar
Sediment Profiling - Volume Modeling and Distribution Survey

Date; October 29, 2025.



Aerial Drone Image. OCWA – Biosolids East Cell 2.

Prepared For: **Léo-Paul Frigault**
Senior Operations Manager
Grey Bruce Hub
Richard Eagle
Senior Operations Manager – Capital Projects
Ontario Clean Water Agency (OCWA)

Prepared By: Paul Makar
PW MAKAR COATINGS INSPECTION LTD.

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PLOT 7	LAGOON SUB-BOTTOM BIOSOLIDS SEDIMENT SURFACE 3D SURFACE PLOT	19
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PICTORIAL REPORT		20-23
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1.0 INTRODUCTION

- 1.1 The Ontario Clean Water Agency contracted PW MAKAR COATINGS INSPECTION LTD. to conduct a hydrographic acoustic sonar biosolids profiling-volume modeling and distribution survey of the Tobermory East Secondary Cell 2.
- 1.2 The intent of this survey was to determine the sediment volumes, identify sediment distribution patterns and loading areas within the Tobermory East Secondary Cell 2.
- 1.3 The survey was performed using a multi-frequency (200, 50 and a 12 kHz) acoustic sonar profiling system in the shallow waters of the East Secondary Cell 2.
 - 1.3.1 The precision navigation was provided by the survey vessels on-board GPS system which is incorporated with the acoustic profiling system. Processing of the acoustic data provides both an indication of the present fluid depth and an image of the extent of biosolids between the fluid bottom (upper biosolids surface contour bathymetric) and the liner/clay bottom (sub-bottom liner/clay contour) of the Tobermory East Secondary Cell 2.
- 1.4 PW MAKAR had a two-person survey crew conducting the unmanned remotely controlled hydrographic survey.
 - 1.4.1 One operator navigating the unmanned remotely controlled hydrographic survey vessel operator throughout the Tobermory East Secondary Cell 2.
 - 1.4.2 PW MAKAR's Geographic Information Systems (GIS/Mapping) and Approvals Specialist was responsible for calibrating and setting the transduce frequencies based on sediment and water depths. Monitoring of the raw sonar data streaming in from the transducers and GPS to the onboard sonar profiling computer system, watching survey vessel tracking lines, and conducting baseline sludge sub-bottom/liner and bathymetry, sludge blanket depths for post-processing validation.

2.0 SITE DESCRIPTION

- 2.1 The Tobermory wastewater lagoon does not have a public street address. The contact point is the Municipality of Northern Bruce Peninsula Administrative Office, located at 56 Lindsay Road 5, Lion's Head, ON. The Water/Wastewater Treatment Plant is located at 8 Eliza Street, Tobermory ON.
- 2.2 The Tobermory Biosolids Lagoon consists of two (2) wastewater – Biosolids Cells consisting of; West Primary Cell 1 and East Secondary Cell 2.
 - 2.2.1 Both of the West Primary Cell 1 and East Secondary Cell 2 were also surveyed on October 29, 2025; the West Cell 1 hydrographic reports is not included with

the East Secondary Cell 2, the West Cell 1 report is detailed in its own separate report.

2.3 Tobermory East Secondary Cell 2.

2.3.1.1 There is a high level of vegetation around the both of the Cells. A power tool was used to cut vessel access points into the Cells.

2.3.1.1.1 The East Secondary Cell 2 was found to have clear water.

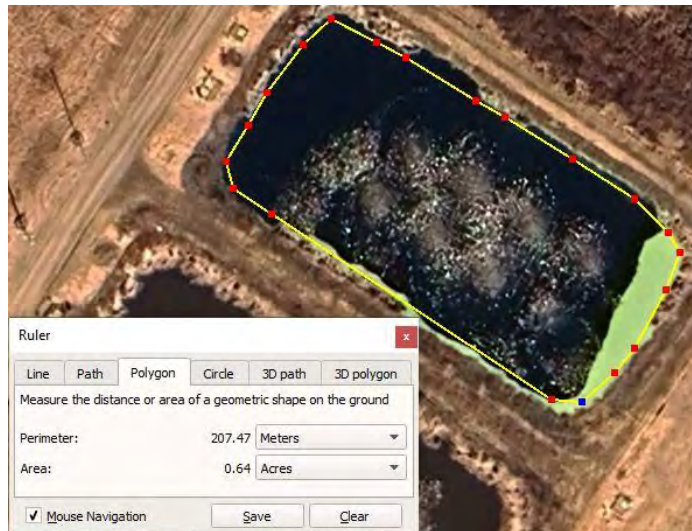
2.3.1.1.2 There is a high level of duck weed floating on the water surface, but navigation of the sonar vessel was still manageable.

2.3.1.1.3 There is underwater aquatic plant life within the East Secondary Cell 2 water table, navigating the sonar vessel around the aquatic plant life was necessary to avoid propeller entanglement.

2.3.1.1.4 The water table was down in the Tobermory Lagoon Cells at the time of the hydrographic survey.

2.4 The underwater area surveyed within the Tobermory East Secondary Cell 2 – survey date; October 29, 2025 had a **Positive Planar Area** of **1666.63 m²** or **0.411 acres** or **0.17 ha**.

2.4.1.1 **Please note**; the area surveyed within the Tobermory East Secondary Cell 2 is dependent on the water level at the time of the survey. Any obstruction within the pond i.e., dykes, aeration systems, rock outcrops above and below the water, vegetation and aquodoc plant life around the base of the cell berm can affect the size of the survey area.



2.4.2

Figure 1. A water table area reference qualifier was conducted by a polygon measurement made in Google Earth to a 03/30/2024 image of the Tobermory East Secondary Cell 2, the water table area was found to be approximately 0.64 Acres.¹

3.0 DISCLAIMER

- 3.1 While PW MAKAR COATINGS INSPECTION LTD believes it has used best practice in obtaining the information contained in this report, in no event will PW MAKAR COATINGS INSPECTION LTD be liable for any commercial costs, damages, loss of profit, property damage or personal injury, including death sustained or suffered in connection with the use of data or subsequent processing of materials obtained during field efforts by PW MAKAR COATINGS INSPECTION LTD during this program, or consequential damages including, but not limited to those related to dredging, removal of sediment, disposal of sediment, or contamination resulting from use of data obtained from this report or efforts or conclusions drawn from this report.
- 3.2 PW MAKAR COATINGS INSPECTION LTD makes no warranty, either expressed or implied, regarding the suitability or fitness of any data or information contained in this report for a particular purpose or that the information will satisfy the requirement of any law, rule, specification, or contract.
Google Image Date – 08/07/2022.
- 3.3 The maximum liability of PW MAKAR COATINGS INSPECTION LTD. from all causes related to this work, field efforts, report or discussions about this effort is limited to the funding received by PW MAKAR COATINGS INSPECTION LTD for this work. Acceptance of this report signifies acceptance of this disclaimer.
- 3.4 This report shall be deemed accepted if no protest is received within 60 days of the issuance date of this report.

¹ Google Earth. – 03/30/2024.
03/30/2024. – Is the most current Google Image.

4.0 ABSTRACT

- 4.1 The shallow hydrographic underwater acoustic sonar survey was conducted on October 29, 2025; this report reflects the water content and sediment levels at the time of this hydrographic survey.
- 4.2 The hydrographic survey was performed by PW MAKAR COATINGS INSPECTION LTD's, (GIS/Mapping) and Approvals Specialist, the survey complies with IHO (International Hydrographic Organization) Standards.
- 4.3 Transducer sound calibration checks, manual sediment bathymetry, and probe measuring to the sub-bottom were performed prior to the start of the hydrographic survey in the Tobermory East Secondary Cell 2 to validate post processing of the raw data.

5.0 SEDIMENT DEPTH EVALUATIONS

- 5.1 The sub-bottom contour in the Tobermory East Secondary Cell 2, has a "hard pack" sub-bottom layer i.e., clay and/or hard pack soil, all three of our hydrographic acoustic sonar transducers were utilized to determine the bathymetric bottom and sub-bottom.
 - 5.1.1 The sediment profiling volume computations were calculated from the sediment layer using the three transducer kHz frequency ranges of 200 kHz, 50 kHz, and 12 kHz transducers.
 - 5.1.2 The total volume of sediment surveyed on October 29, 2025 in the Tobermory East Secondary Cell 2, is approximately **768.89 m³** or **1005.67 yd³**.
 - 5.1.2.1 To calculate a percentage of sediment, a grid volume computation was calculated from the bathymetric sediment bottom (defined as the top of the sediment) and the sub-bottom of the sediment i.e., the top of the pond liner. It was then divided by the grid volume computation calculated from the top of the liquid/water to the sub-bottom of the sediment of the pond liner. The two number sets are then multiplied by 100 to determine a percentage of the sediment.

Notice to Reader; the percentages of biosolids volumes will change/increase if water levels in the lagoon/cell fluctuates. In addition, if aluminum sulfate is added to the water and the suspended biosolids settles to the bathymetric layer of the cell this will add to the amount of biosolids sludge. As well, if there is an aeration system associated with the biosolids cell the amount of time the in which the aeration system was shut down to allow for the suspended biosolids to settle, again will add to the total volume of biosolids build up.

5.1.2.1.1 Therefore, on this date the percentage of sediment buildup in the Tobermory East Secondary Cell 2 is approximately **17.7%**.

5.1.3 PW MAKAR COATINGS INSPECTION LTD. collected **13,980** digitized data value points in the Tobermory East Secondary Cell 2. The digitized data value points represent both the bathymetric bottom (top of the sediment) and sub-bottom (top of the liner) values with GPS navigational values.

5.1.3.1 Each individual data value point consists of an XYZ value. X value is an Easting coordinate; Y value is a Northing coordinate and Z consists of a sediment elevation processed in meters.

5.1.3.2 The average depth of the sediment within Tobermory East Secondary Cell 2 on this date was approximately **0.461 m or 461 mm or 18.14 in or 1.51 ft.**

Reported by: Paul Makar
Paul Makar

PW MAKAR COATINGS INSPECTION LTD. NACE CERTIFIED COATINGS INSPECTOR #137.



Municipality of Northern Bruce Peninsula
Bruce County, Ontario

Tobermory Biosolids Lagoon East Secondary Cell #2

Shallow Underwater Hydrographic Acoustic Sonar
Sediment Profiling - Volume Modeling and Distribution Survey

Date; October 29, 2025

Grid Volume Computations Bathymetric (Upper) Sediment Surface and Sub-Bottom (Lower) – Liner Surface.

Upper Surface

Grid File Name: C:\Users\Paul\Documents\2025 PROJECTS\OCWA - Tobermory Lagoon Surveys\Tob East Cell 2 - MAP REPORTS\East - Cell 2 A-Layer\Tob East Cell 2 - A - Layer Blanked Out.grd
Grid Size: 78 rows x 100 columns

X Minimum: 449006.57
X Maximum: 449073.19
X Spacing: 0.67292929292925

Y Minimum: 5009038.12
Y Maximum: 5009090.02
Y Spacing: 0.67402597401872

Z Minimum: -3.4599078953225
Z Maximum: -0.31742419243041

Lower Surface

Grid File Name: C:\Users\Paul\Documents\2025 PROJECTS\OCWA - Tobermory Lagoon Surveys\Tob East Cell 2 - MAP REPORTS\East - Cell 2 B-Layer\Tob East Cell 2 - B Layer Blanked Out.grd

Grid Size: 78 rows x 100 columns

X Minimum: 449006.57
X Maximum: 449073.19
X Spacing: 0.67292929292925

Y Minimum: 5009038.12
Y Maximum: 5009090.02
Y Spacing: 0.67402597401872

Z Minimum: -4.0395645695657
Z Maximum: -0.78460059476425

Volumes

Z Scale Factor: 1

Total Volumes by:

Trapezoidal Rule: 768.89608797215
Simpson's Rule: 768.55373142878
Simpson's 3/8 Rule: 768.99713400784

Cut & Fill Volumes

Positive Volume [Cut]: 768.89618793334 m³ or 1005.67 yd³.
Negative Volume [Fill]: 9.9961184291935E-05
Net Volume [Cut-Fill]: 768.89608797215

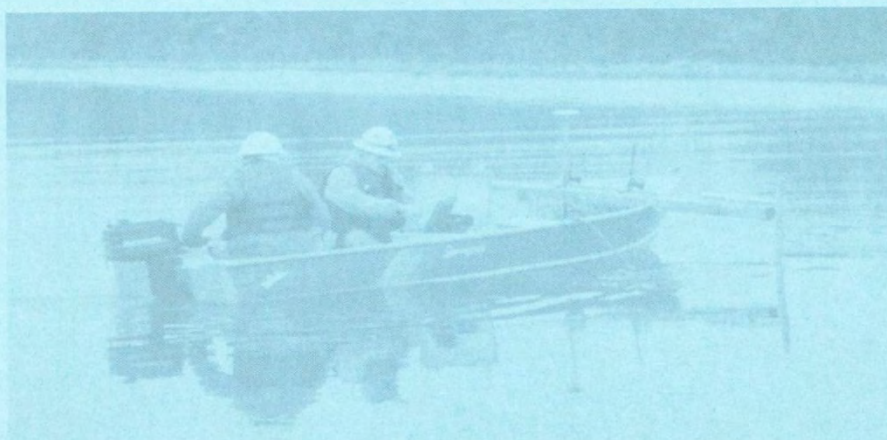
Areas

Planar Areas

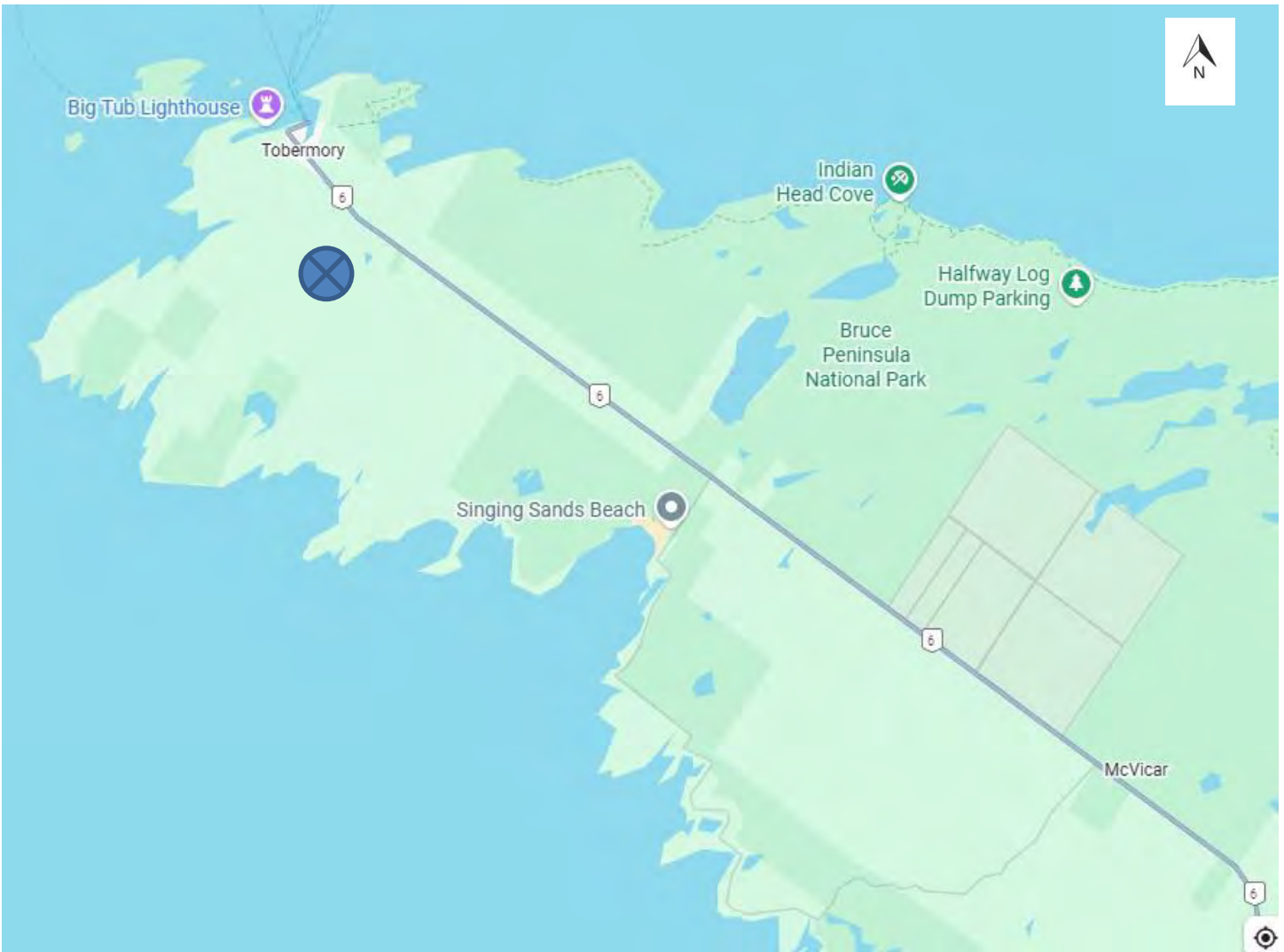
Positive Planar Area [Cut]: 1666.6347005907 m² or 0.411 acers or 0.17 ha
Negative Planar Area [Fill]: 0.014959761164669
No Data Planar Area: 1790.9283396107
Total Planar Area: 3457.5779999625

Surface Areas

Positive Surface Area [Cut]: 1691.7836369752
Negative Surface Area [Fill]: 0.016690240090922



Appended Figures and Maps



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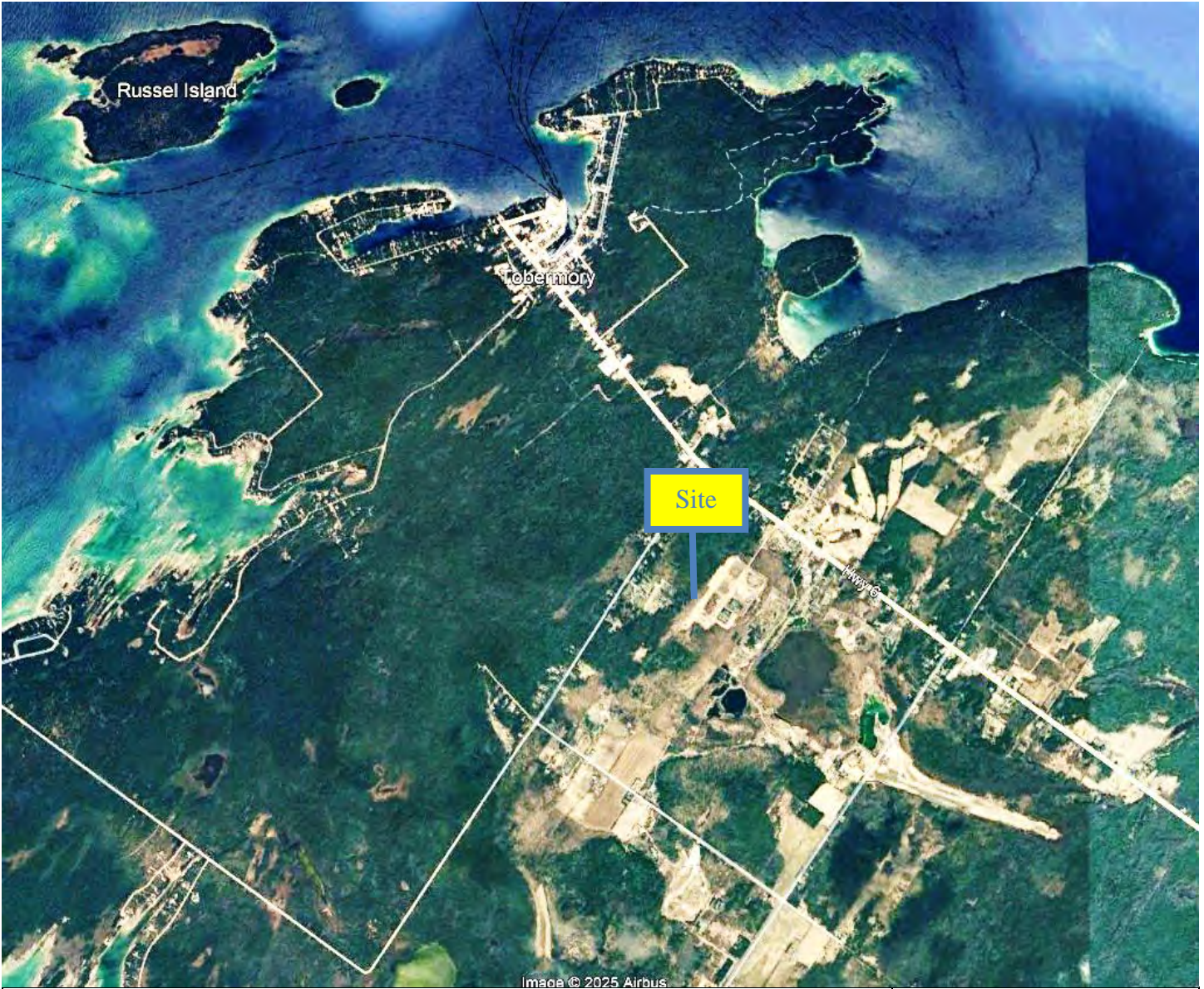
SITE MAP LOCATION

Municipality of Northern Bruce Peninsula
Bruce County, Ontario

Tobermory Biosolids Lagoon

SURVEY DATE: October 29, 2025

FIGURE 2



PW MAKAR INSPECTION SERVICES LTD. HAS A LICENSING AGREEMENT WITH GOOGLE INC. TO REPRODUCE AND PUBLISH THE FOLLOWING IMAGE. NO FURTHER REPRODUCTION OR PUBLISHING OF THIS IMAGE IS PERMITTED UNLESS WRITEN CONSENT FROM PW MAKAR INSPECTION SERVICES LTD.

**SITE AERIAL MAP
LOCATION**

Municipality of Northern Bruce
Peninsula
Bruce County, Ontario

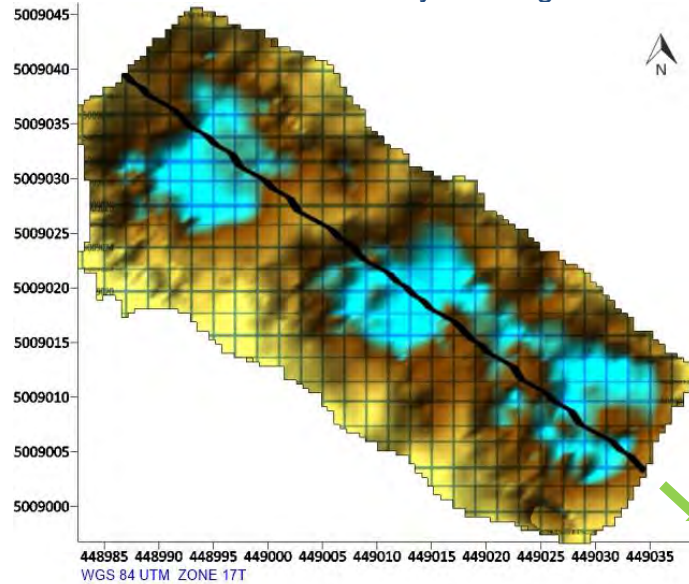
IMAGE DATE; 07/20/2025

FIGURE 3

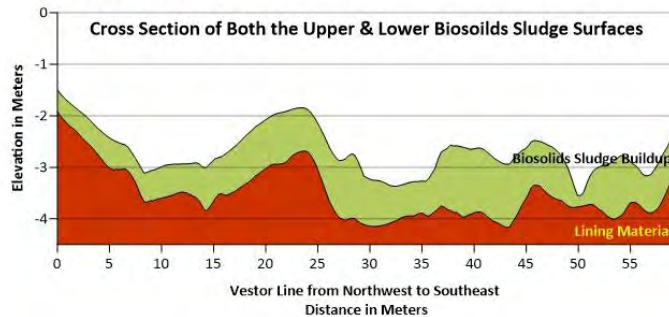
Municipality of Northern Bruce Peninsula
Bruce County, Ontario

Tobermory Biosolids Lagoon
East Secondary Cell #2

Visual Representation of the Sediment Layer Along a Random Vector Line



The average depth of sediment in the Tobermory East Secondary Cell 2 is approximately 0.461 m or 461 mm or 18.14 in or 1.5 ft.



Visual Representation of a Sediment Layer Sliced Randomly from North to South

Municipality of Northern Bruce Peninsula
Bruce County, Ontario

PLOT 1

Survey Date: October 29, 2025



Municipality of Northern Bruce Peninsula
Bruce County, Ontario

Tobermory Biosolids Lagoon
East Secondary Cell #2

Google Earth Georeferencing Image
Hydrographic Survey Vessel GPS Tracking Lines

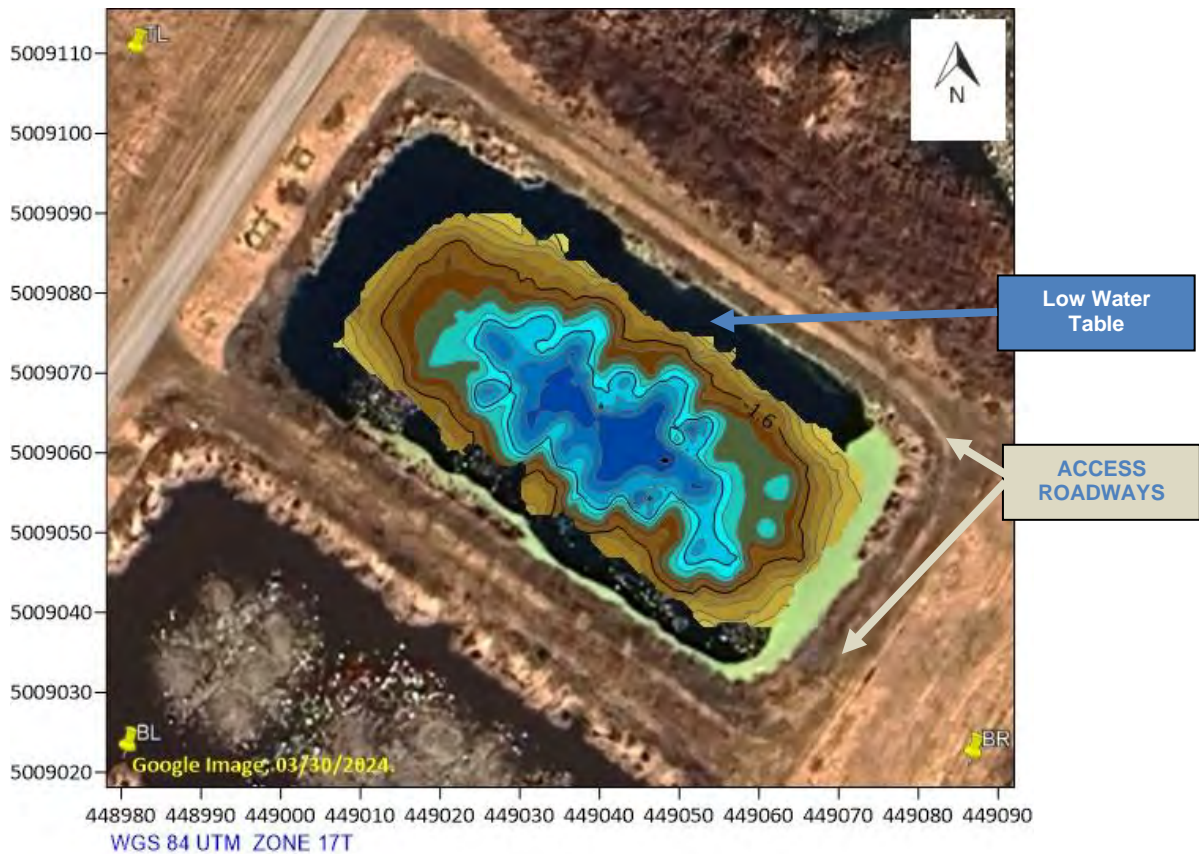


Georeferencing Image and Hydrographic Survey Vessel Tracking Lines	
Municipality of Northern Bruce Peninsula Bruce County, Ontario	
Survey Date: October 29, 2025	Plot 2

**Municipality of Northern Bruce Peninsula
Bruce County, Ontario**

**Tobermory Biosolids Lagoon
East Secondary Cell #2**

Google Earth Georeferencing Image
Site Description



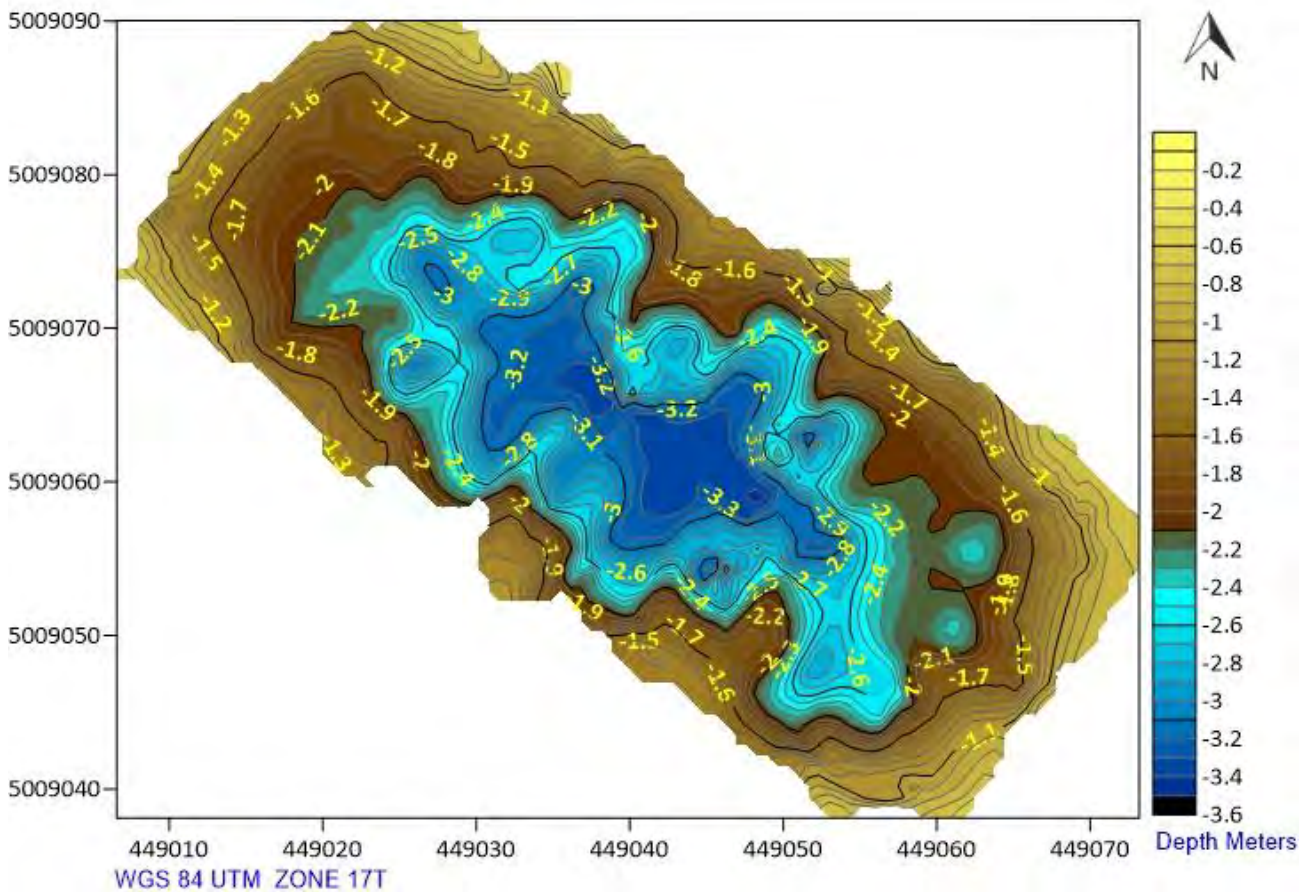
Georeferencing Image and Hydrographic Survey Site Description	
Municipality of Northern Bruce Peninsula Bruce County, Ontario	
Survey Date: October 29, 2025	Plot 3



Municipality of Northern Bruce Peninsula
Bruce County, Ontario

Tobermory Biosolids Lagoon
East Secondary Cell #2

Bathymetric Upper Sediment Surface – Contour Map



Bathymetric (Upper Surface) Sediment Distribution – Contour Map

Municipality of Northern Bruce Peninsula
Bruce County, Ontario

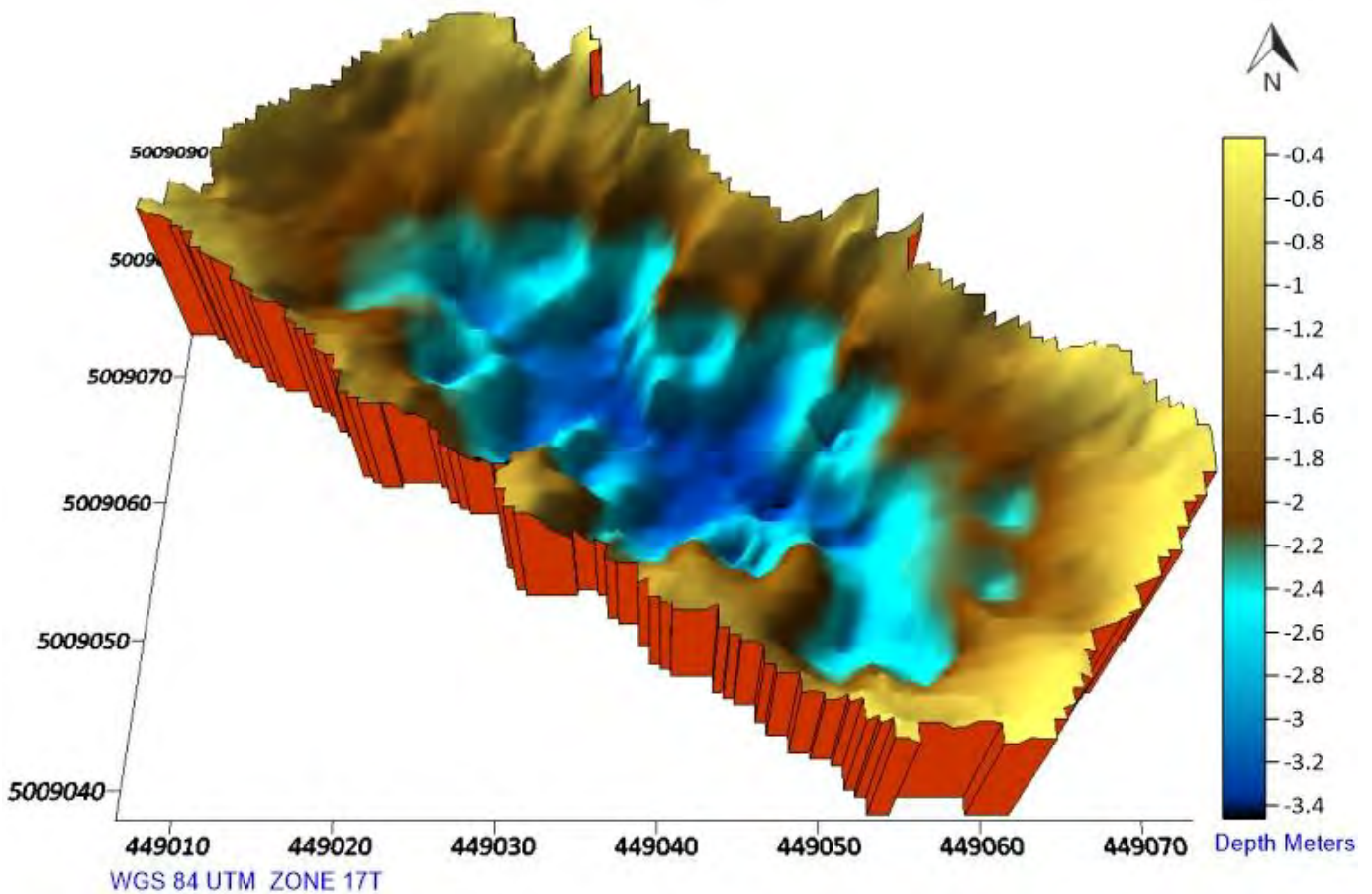
PLOT 4

Survey Date: October 29, 2025

Municipality of Northern Bruce Peninsula
Bruce County, Ontario

Tobermory Biosolids Lagoon
East Secondary Cell #2

Bathymetric Upper Sediment Surface – 3D Contour Map



Bathymetric (Upper Surface) Sediment Distribution – 3D Contour Map

Municipality of Northern Bruce Peninsula
Bruce County, Ontario

PLOT 5

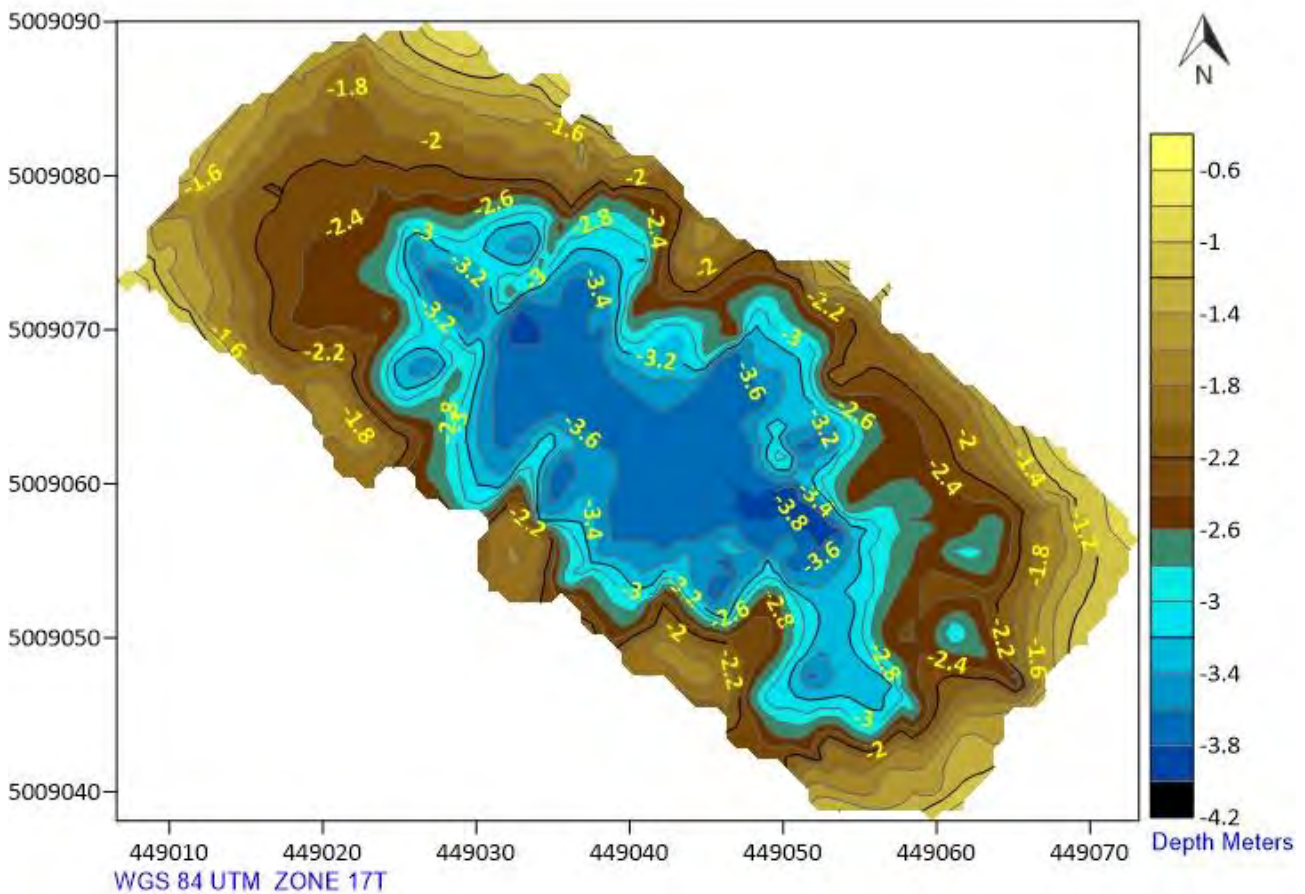
Survey Date: October 29, 2025



Municipality of Northern Bruce Peninsula
Bruce County, Ontario

Tobermory Biosolids Lagoon
East Secondary Cell #2

Lower Sub-Bottom Liner Surface – Contour Map



Lower Sub-Bottom (Liner/Clay/Hard Packed Soil) – Contour Map

Municipality of Northern Bruce Peninsula
Bruce County, Ontario

PLOT 6

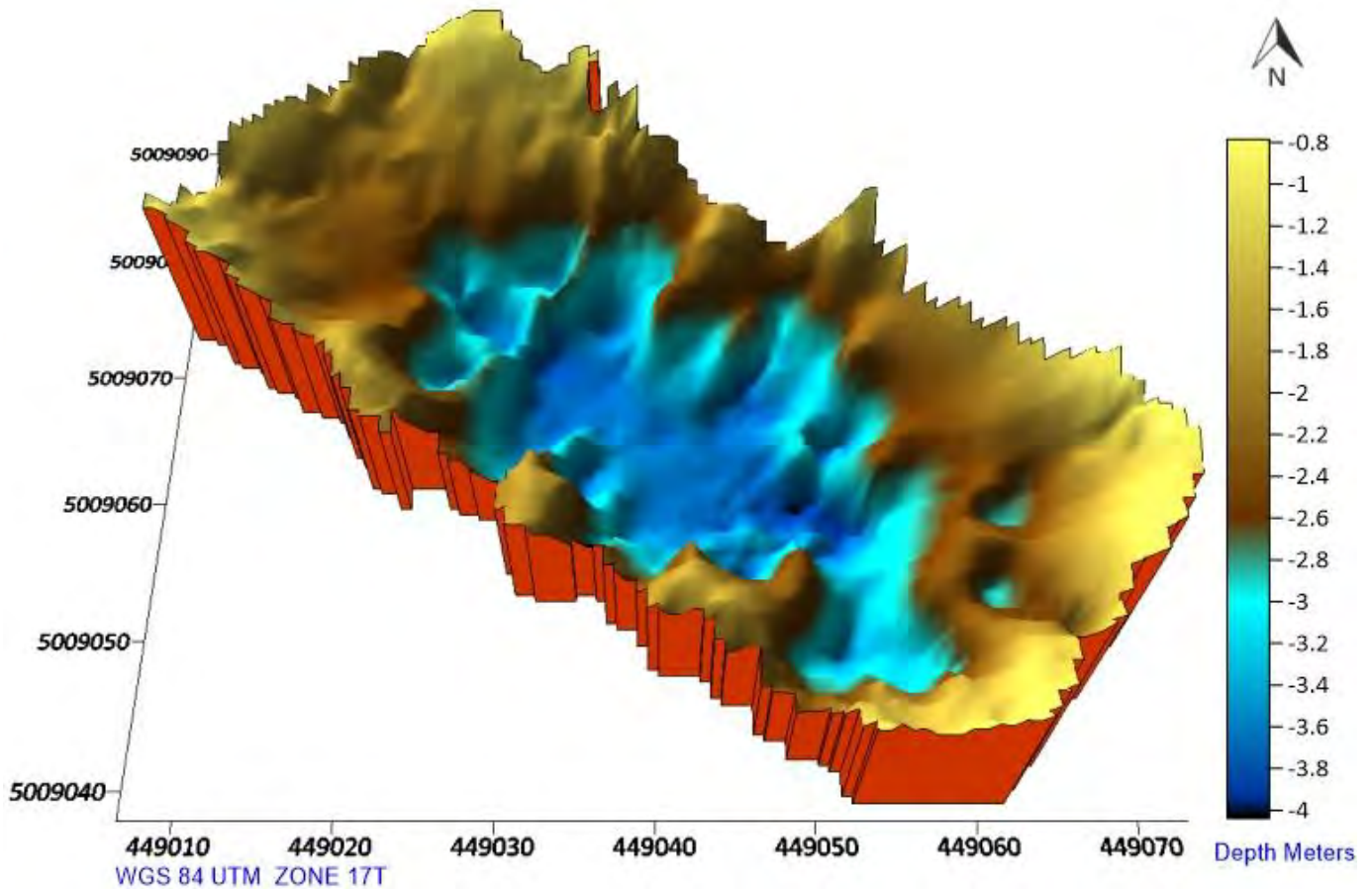
Survey Date: October 29, 2025



Municipality of Northern Bruce Peninsula
Bruce County, Ontario

Tobermory Biosolids Lagoon
East Secondary Cell #2

Lower Sub-Bottom Liner Surface – 3D Contour Map



Lower Sub-Bottom (Liner/Clay/Hard Packed Soil) – 3D Contour Map

Municipality of Northern Bruce Peninsula
Bruce County, Ontario

PLOT 7

Survey Date: October 29, 2025



Municipality of Northern Bruce Peninsula
Bruce County, Ontario

Tobermory Biosolids Lagoon
East Secondary Cell #2

Hydrographic Acoustic Sonar
Biosolids Volume Modeling and Distribution Survey

Date; October 29, 2025

PICTORIAL REPORT



Aerial Digital Image 1. Tobermory East Secondary Cell 2.



Aerial Digital Image 2. Tobermory East Secondary Cell 2. High level of duck weed floating on the water surface, but navigation of the sonar vessel was still manageable.



Aerial Digital Image 3. Tobermory East Secondary Cell 2.



Digital Image 4. Tobermory East Secondary Cell 2. Conducting baseline sludge sub-bottom/liner and bathymetry, sludge blanket depths for post-processing validation.



Digital Image 5. Tobermory East Secondary Cell 2. Conducting baseline sludge sub-bottom/liner and bathymetry, sludge blanket depths for post-processing validation.