



6 August 2025

Project Number: 250442

Rémi Godin, Senior Area Engineer

Waste Management of Canada

Watford, Ontario

Email: rgodin@wm.com

**Re: Hydrogeological Study
2415 Carp Road, Stittsville**

Dear Mr. Godin:

BluMetric Environmental Inc. (BluMetric™) is pleased to provide this technical memorandum documenting the hydrogeological and terrain assessment completed for the property owned by Waste Management of Canada Corporation (WM) at 2415 Carp Road (the 'site').

The site is located on the west side of Carp Road, immediately north of the West Carleton Environmental Centre and Transfer Station. This assessment was undertaken to address comments received from the City of Ottawa on March 21, 2025, regarding the Site Plan Control Application for the proposed maintenance garage building west of the southwest of the existing Laurysen Building, which is on the east side of the site.

The hydrogeological assessment specifically addresses comments 24, 25 a) to 25 e) related to water supply and terrain suitability under the applicable MECP Guidelines D-5-4 and D-5-5 and the City of Ottawa's Hydrogeological and Terrain Analysis Guidelines, including the request for a potential karst assessment. Excerpts from the Pre-Consultation Meeting Feedback pertaining to hydrogeology are provided in Attachment A.

Servicing (Comment 24)

In response to comment 24, which relates to confirmation of servicing for the maintenance garage. Floor plans included in the application indicate that the building plans include washrooms and a lunch room, both of which will require to be service using private services. A servicing report is being prepared by TaskForce Engineering Inc. (TaskForce). The proposed servicing plan is to supply water

from the existing private well that has historically served the Laurysen building, and to construct a new Class 4 septic system incorporating tertiary treatment. The system will be an Eljen GSF system and will include a new septic infiltration bed.

The septic system serving the Laurysen building has a design flow of 2,595 L/day, based on email communication with TaskForce dated July 15, 2025. For the purposes of this application, it is understood from the same correspondence that the Laurysen building will not be in use.

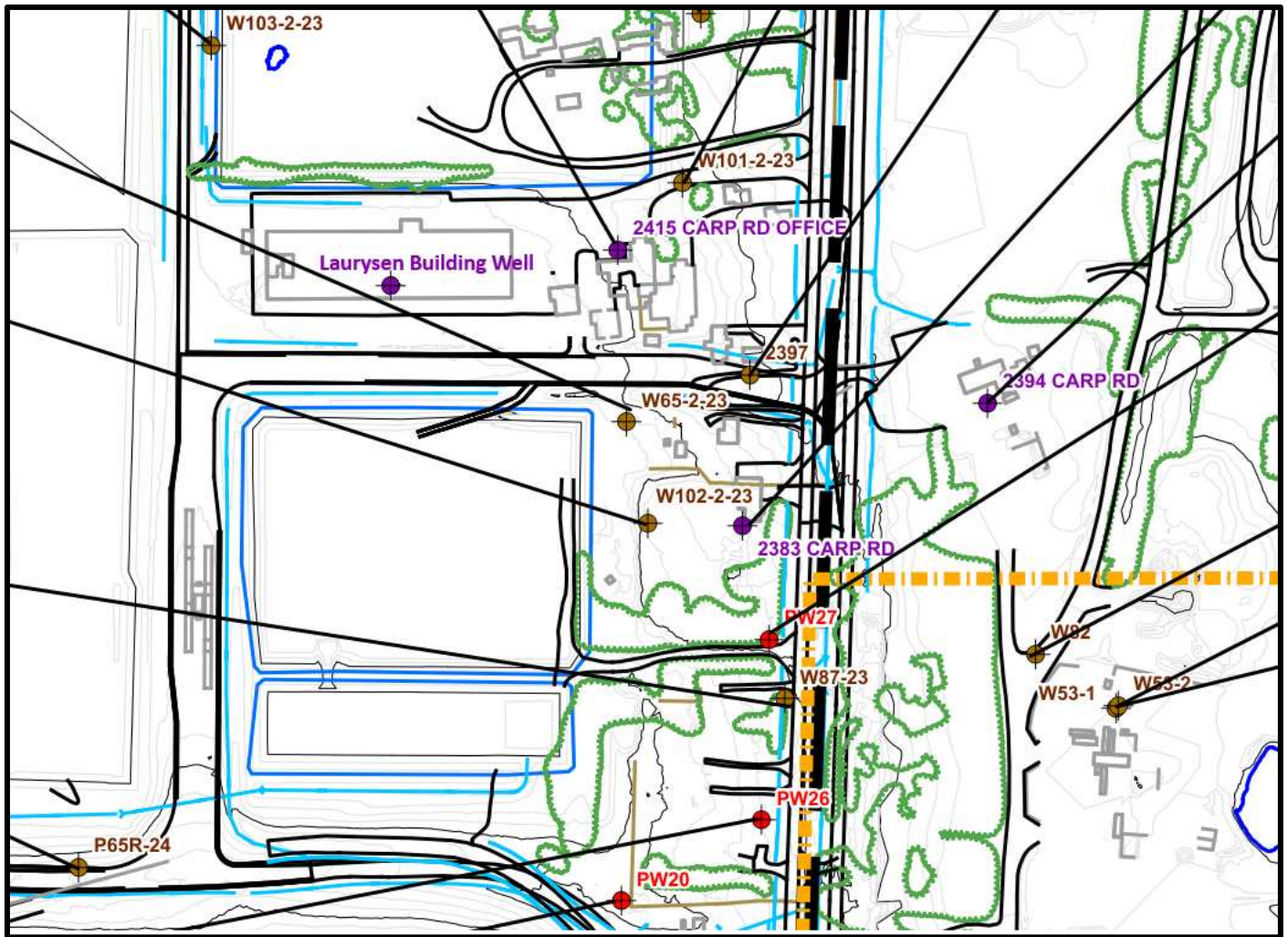


Figure 1 - Approximate Location of the Laurysen Building Well and the Groundwater Monitoring Network for the WM West Carleton Environmental Centre in the vicinity of the Laurysen Building Well (adapted from Figure 7 of 2024 Annual Report Waste Mangement of Canada West Carleton Environmental Centre Ottawa, Ontario. Prepared for Waste Management of Canada Corporation. Prepared by BluMetric Environmental Inc. dated March 31, 2025

The estimated peak water demand for the new building is 49.1 L/min (13 gal/min), according to communication with TaskForce. The water supply for firefighting will be provided via buried tanks with a dry hydrant connection, resulting in no demand on groundwater. The proposed daily design sewage flow for the new system is 1,500 L/day, which is less than the design flow of the system serving the Laurysen building.

Hydrogeological and Terrain Analysis (Comment 25)

Quantity

The well currently supplying the Laurysen Building is also proposed to supply water to the new maintenance garage building, Figure 1. The well is situated inside the Laurysen Building and corresponds to well record 1521167. There is no well tag on this well, as it predates the introduction of well tags in 2003. The well was installed in 1986 using air percussion drilling, to a depth of 61.0 metres (200 feet), and is completed in limestone bedrock. The overburden materials consist of sand and gravel to 9.4 metres (31 feet), with the casing extending to 10.0 metres (33 feet) below ground surface, approximately 0.6 metres (2 feet) into the bedrock. The well record, including construction details, along with recent photographs, is provided in Attachment B.

A pumping test was conducted on the well on March 17, 2024. The static water level was 10.2 m (33.5 ft). The pump was set at 45.7 m (150 ft) below the top of casing and the well was pumped for 6 hours at a rate of 37.9 L/min (10 gal/min). The water level at the end of pumping was 10.6 m (34.8 ft), a drawdown of 0.4 m, representing 1% of the available head above the pump. After pumping was stopped, the water level in the well recovered to 10.2 m (33.6 ft) below ground surface within 110 minutes.

Given the peak water demand rate of 49.1 L/min (13 gal/min) provided by TaskForce, it is expected that the existing well will be capable of supplying the quantity of water required for the new building.

Quality

The well was sampled for a subdivision suite meeting the requirements of the City of Ottawa Hydrogeological and Terrain Analysis Guidelines on July 28th, 2025. Field parameters including colour, pH, temperature, conductivity, turbidity, and chlorine residual were collected prior to sampling. Hydrogen sulphide was not tested in the field due to difficulty in acquiring the reagent for

testing but no olfactory evidence noted during sampling event. It is noted that the Nitrate had a level of 2.43 mg/L which is consistent with historical measurements collected at 2415 Carp Rd. Results are provided in Attachment C, and have been compared to the Ontario Drinking Water Standards, Guidelines and Objectives (ODWSGO). The water quality exceeds the ODWSGO aesthetic objective (AO) for hardness having a value of 320 mg/L (AO: 80 to 100 mg/L). There are no other exceedances of the ODWSGO.

Septic System Impact Assessment

As the land use at the site consists largely of impermeable surfaces, it is proposed to assess septic suitability using a monitoring-based assessment, in accordance with Section 5.6.1 of MECP Guideline D-5-4. In this case, the septic system for the proposed building will have a lower design flow than the existing system, which will no longer be in use. The new proposed system will be smaller in capacity and will provide tertiary treatment, achieving a total nitrogen removal of approximately 50% according to the Eljen GSF System brochure. Overall, this represents an improvement compared to the existing servicing.

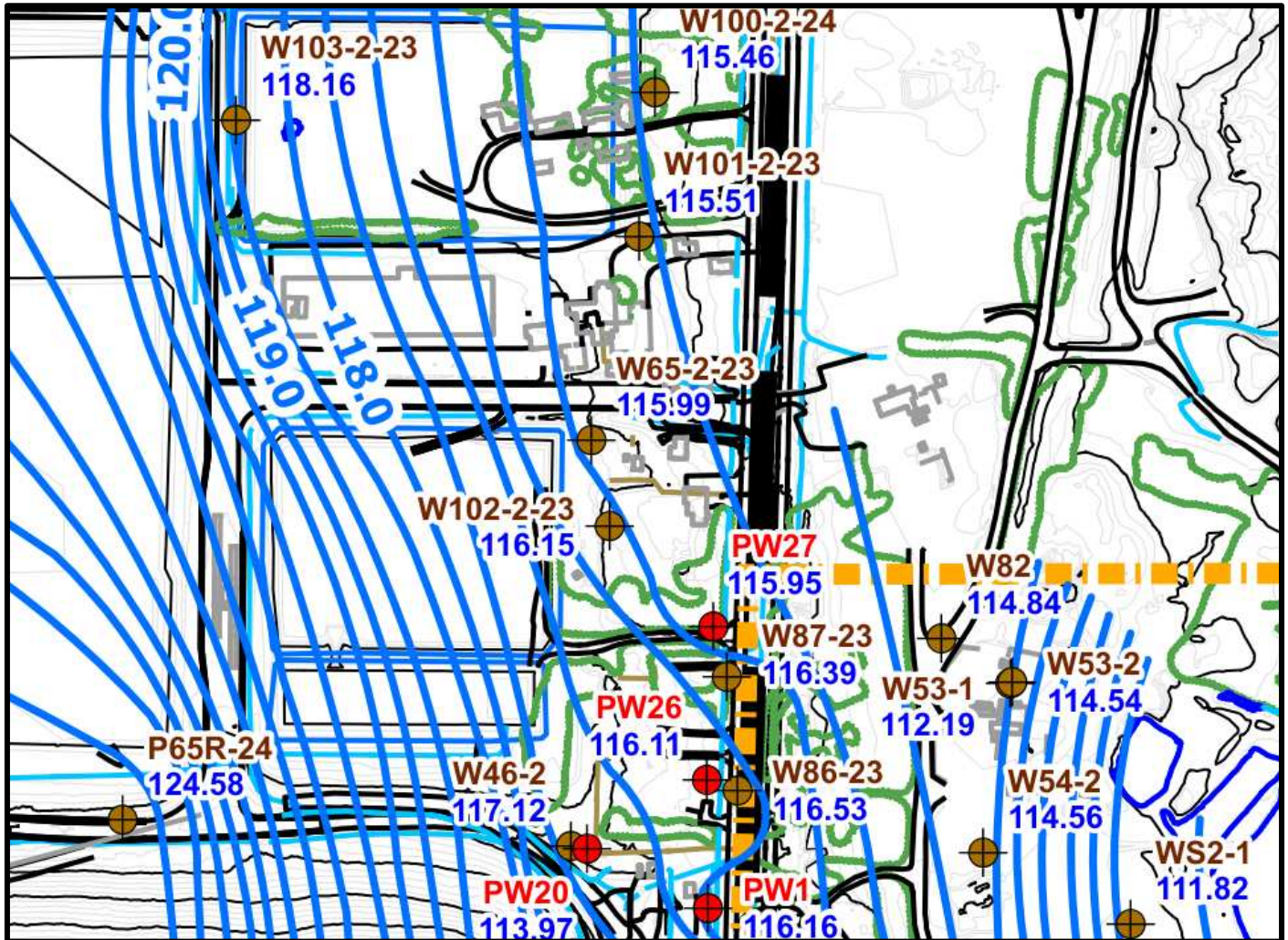


Figure 2 – Interpreted groundwater flow in the overburden in the vicinity of the Laurysen Building Well (adapted from Figure 7 of 2024 Annual Report Waste Mangement of Canada West Carleton Environmental Centre Ottawa, Ontario. Prepared for Waste Management of Canada Corporation. Prepared by BluMetric Environmental Inc. dated March 31, 2025

There is a long-standing groundwater monitoring program at the WM West Carleton Environmental Centre. Water quality is sampled semi-annually, in the spring and fall, at various wells across the site, including several in the vicinity of the Laurysen Building. Wells in the monitoring program are sampled for volatile organic compounds (VOCs) and general chemistry parameters, including nitrate.

Groundwater in the overburden near the Laurysen Building is interpreted to flow eastward toward Carp Road, with the Huntley Quarry located on the opposite side, as shown in Figure 2. Nitrate concentrations from the past 10 years for wells screened in both the overburden and bedrock in the vicinity of the Laurysen Building are presented in Figure 3.

Overburden wells upgradient and cross-gradient of the Laurysen Building include W103-2 and P65R. Nitrate concentrations at both locations are low and typically below detection limits.

A bedrock supply well located at 2415 Carp Road is directly downgradient of the Laurysen Building. This well is believed to correspond to well record 1511894, based on the map included in the well record provided in Attachment B. Installed in 1972 using cable tool drilling, the well is completed in limestone bedrock at a depth of 13.1 metres (43 feet).

Nitrate concentrations at 2415 Carp Road have fluctuated over the years and show seasonal variation, with concentrations typically higher in the fall and lower in the spring. The average fall concentration is 5.1 mg/L, with a maximum concentration of 10.6 mg/L observed on October 26, 2021. A period of consistently elevated nitrate concentrations occurred in 2015 and 2016, this peak also observed at downgradient overburden wells. The most recent fall concentration, measured in 2024, was 1.81 mg/L.

There are three overburden wells positioned radially near the 2415 Carp Road well. Two of these wells, W101-2 and W65-2, are located cross-gradient to 2415 Carp Road, while the third well, at 2397 Carp Road, is located downgradient to the south, approximately midway between 2415 Carp Road and the bedrock well across Carp Road at 2394 Carp Road.

Nitrate concentrations at W101-2 vary but do not show a pattern similar to that observed at 2415 Carp Road. Concentrations at W65-2 have remained relatively stable over most of the monitoring period; however, the most recent sample shows an abrupt increase compared to the consistently low concentrations since 2017. At both wells, the highest nitrate concentrations were measured later than at 2415 Carp Road, suggesting that groundwater with higher nitrate levels moved slowly through the area, reaching these wells some time after it passed 2415 Carp Road.

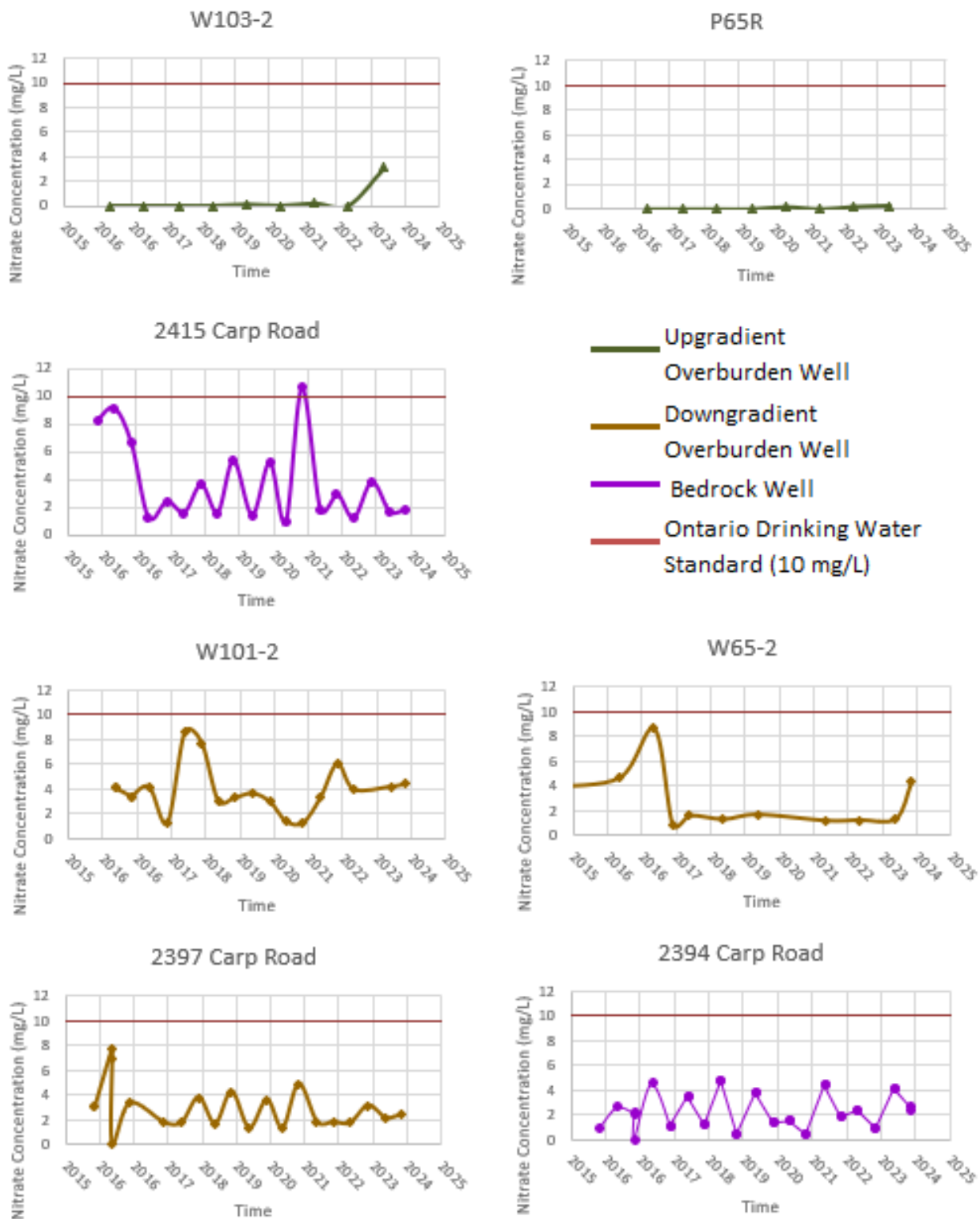


Figure 3 – Nitrate concentrations within monitored wells in the vicinity of Laurysen Building between 2015 and 2024.

Nitrate concentrations at 2397 Carp Road exhibit a similar seasonal pattern as observed at 2415 Carp Road; however, concentrations over all are consistently lower. Similarly, nitrate concentrations at 2394 Carp Road show seasonal fluctuations in nitrate concentrations, with higher relatively concentrations typically observed in the spring sample. The average concentration in the spring is 3.15 mg/L, with a maximum concentration of 4.82 mg/L observed on May 14, 2014. The most recent spring concentration in 2024 was of 2.64 mg/L.

The downgradient supply at 2394 Carp Road has consistently shown nitrate concentrations below the drinking water standard. Overall, the observed decrease in nitrate concentrations downgradient may be attributed dilution processes occurring as groundwater moves away from the source area.

In summary, based on a review of the available data, nitrate in groundwater in this part of the WM West Carleton Environmental Centre appears to be influenced by activities at or near the Laurysen Building, as background locations generally show little to no nitrate. The highest concentrations are observed in the bedrock at 2415 Carp Road, located directly downgradient of the Laurysen Building, where concentrations of nitrate in groundwater fluctuate seasonally but are typically below the ODWSGO for nitrate of 10 mg/L, with the exception of one exceedance recorded in 2021. Nitrate concentrations in groundwater in wells near the property boundary, 2397 Carp Road (within the property boundary) and 2394 Carp Road (just beyond the property boundary) have been consistently historically below 10 mg/L.

Karst Assessment

The karst was conducted using the Cataraqui Conservation Guidelines for Karst Investigation (Cataraqui Conservation. 2023. *Appendix Y: Guidelines for Karst Investigation*. Adapted from Quinte Conservation Karst (Unstable Bedrock) Guidelines, April 2023.).

The Laurysen Building and the proposed maintenance building are located in an area mapped by the Ontario Geological Survey as having potential karst (Brunton, F.R. and Dodge, J.E.P., *Karst of Southern Ontario and Manitoulin Island, Groundwater Resources Study 5*, Ontario Geological Survey, 2008).

Digital elevation models were reviewed to assess the potential for irregular bedrock topography at the surface, no notable features were noted.

The geoOttawa online tool was also reviewed to examine historical aerial imagery for irregular bedrock topography and evidence of disappearing streams; no such features were observed. Furthermore, there is no indication of known karst formations in the annual monitoring report.

A review of borehole logs in the vicinity of the proposed maintenance building indicates that bedrock slopes to the northeast; the records do not suggest any abrupt changes in bedrock elevation that would indicate karstic bedrock topography. Bedrock elevations surrounding the proposed maintenance building are summarized in Table 1

Table 1 - Bedrock elevations in the vicinity of the Laurysen Building

Location	Ground Surface (masl)	Depth to rock or Refusal (m)	Interpreted Bedrock Elevation (masl)	Notes
W100-2-24	117.82	5.74	112.08	Recorded Bedrock
W103-2-23	120.59	3	117.59	Recorded Bedrock
W101-2-23	122.11	8.1	114.01	Recorded Bedrock
Laurysen Building	-	9.45	-	Recorded Bedrock (WWR 1521167)
2415 Carp Road	-	8.53	-	Recorded Bedrock (WWR 1511894)
W65-2-23	126.75	11.84	114.91	Recorded Bedrock
W102-2-23	123.52	6.86	116.66	Recorded Bedrock
P65R-24	132.08	12.65	119.43	Auger refusal

Summary

Based on the hydrogeological and terrain assessment, the site is suitable for the proposed maintenance building. The existing well has sufficient capacity to supply water to the new building, with minimal drawdown observed during testing. Water quality from the well meets ODWSOG except for hardness which exceeds the aesthetic objective of 80 to 100 mg/L.

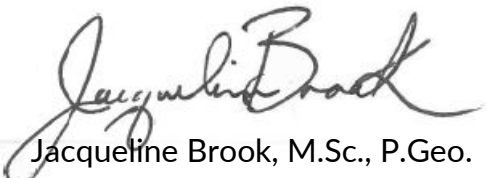
Groundwater flow is eastward, and historical nitrate monitoring indicates that nitrate concentrations attenuate sufficiently before reaching downgradient receptors. For this application, it is understood that the existing system will not be in use, and the new proposed system will be smaller in capacity and will provide tertiary treatment; representing an improvement compared to the existing system.

Groundwater monitoring will continue twice annually as part of the ongoing program at the WM West Carleton Environmental Centre. Downgradient water users include the office well and the Huntley Quarry. The quarry does not supply drinking water for children or other sensitive uses. No evidence of karstic bedrock topography was identified in the area of the proposed building.

Closing

If you have any questions, please do not hesitate to contact the undersigned.

Respectfully submitted,
BluMetric Environmental Inc.



Jacqueline Brook, M.Sc., P.Geo.
Senior Hydrogeologist



Michael Melaney, M.Sc. Eng., P.Eng.
Senior Engineer/Hydrogeologist

Encl.

Ref: 250442_HG_Memo_2415 Carp Road_2025'0806.

- c. Storm Water Management Report (including Erosion and Sediment Control Measures).
- d. Environmental Site Assessment (Phase 1 and, if required, Phase 2).
- e. Geotechnical Report (Earthquake analysis is now required to be provided in the report).
- f. Lighting Plan Certificate (not required at submission, but for registration).

Feel free to contact Derek Kulyk, Project Manager, for follow-up questions.

Hydrogeology

Comments:

24. It is assumed that the proposed maintenance garage will be required to be fully serviced (water supply and sewage) based on the requirements of the Ontario Building Code. Confirmation in writing from the City's Building Code Services shall be provided if the application is looking to pursue the proposed development without providing servicing.

25. A **Hydrogeological and Terrain Analysis** will be required for the Site Plan Control application to establish that there is an adequate quantity and quality of groundwater to support the proposed development(s) and that there is sufficient septic dilution to accommodate the proposed sewage flows. The requirements for the Hydrogeological and Terrain Analysis Report are outlined in the City of Ottawa's Hydrogeological and Terrain Analysis Guidelines (HTAG), section 5.0 for Site Plans (pages 81 to 83). The study forms part of the requirements for Site Plan Control applications noted in the Studies and Plan Identification List, provided with the feedback documents.

- a. **Quantity:** The on-site supply well(s) must be tested via a pumping test to confirm that the well(s) onsite can supply the required quantity and quality of water. For commercial/industrial operations, an 8-hour pump test, or longer, is normally recommended, however a minimum of 6-hours is required in the HGTA Guidelines.
 - i. If an existing well is proposed to be used, then a well inspection is required to confirm it meets the Wells Regulations (O.Reg.903); specifically, confirming that the well casing and grouting are sound, grading is directed away from around the wellhead, and that the casing height is at least 40 cm, above ground and meets the regulations or proposes remedial measures.
 - ii. The anticipated water demands (average day, maximum daily, and maximum hour) must be presented and justified for the pump test rate. The pumping rate should be the combined maximum daily

demand rate. The pumping rate should consider the actual use(s). The Ottawa Design Guidelines – Water Distribution provides information for determining water demand rates for the proposed zoning, or uses, in Table 4.2 – Consumption Rates.

- b. **Quality:** The parameters of water quality that will be tested will be the “subdivision suite” known to local well testing companies, as well as trace metals, and Volatile organic compounds (VOC). Requirements are outlined in the City of Ottawa Hydrogeological and Terrain Analysis Guidelines. The report should also provide an assessment of adjacent and on-site land uses and concerns and determine if any other parameters need to be tested (e.g., petroleum hydrocarbons, etc.).
 - i. If well water is mineralized, then approval from the MECP will be needed to continue to use the well, as specified in Ontario Regulation 903 (Section 21). The consultant should also consider, and report, the other issues associated with the mineralized water including corrosivity of the water and shortened lifespan of plumbing fixtures and the septic system. Specialized plumbing, and fixtures, may provide some mitigation of issues.
 - 1. Chemistry results for Area F (Carp Road Corridor Groundwater Study) identify one well that was mineralized due to chloride exceeding 500 mg/L.
 - ii. Bollards, or other means of preventing vehicle access, will need to be provided between areas with vehicle access and the existing or proposed well(s).
- c. **A Septic System Impact Assessment** will be required to provide the septic system design and provide sufficient information to assess the likelihood that the operation of the on-site sewage system will not adversely impact the well(s) to be constructed on the subject property or existing wells on surrounding properties (as applicable). The reporting must be completed as per the City’s Hydrogeological and Terrain Analysis Report Guidelines and MECP Guideline D-5-4, please refer to the HGTA for the predictive assessment for commercial/industrial developments, pages 30 to 31 (not applicable for residential developments).
 - i. As this application is a site plan (not lot creation nor a zoning application) septic treatment (i.e. tertiary treatment with nitrate reduction) may be considered as part of the septic impact assessment calculations. A septic system must be certified through NSF/ANSI 245 or CAN/BNQ 3680-600 if total nitrogen reduction systems are required to meet nitrate impact limits at the property boundary.

- ii. If the sewage system/s daily design flow is 10,000 L/d or less, the septic permit from the Ottawa Septic System Office must be sent to the City prior to Site Plan Approval being granted.
 - iii. If the sewage system's design flow exceeds 10,000 L/d (per lot), a Reasonable Use Assessment must accompany the application to the City. Sewage systems with design flows exceeding 10,000 L/d require the issuance of an Environmental Compliance Approval (ECA) from the MECP prior to Site Plan Approval being granted (and the duration of approval is anticipated to be lengthy [many months]).
 - iv. Note that gravel shall be considered impermeable in the septic impact assessment unless field testing results confirm alternative infiltration rates.
 - v. If system isolation is contemplated, the technical pre-consultation with the reviewer is mandatory to ensure the assessment meets the minimum requirements identified in City Guidelines, and to convey the minimum onsite testing requirements.
 - vi. Please note that based on available geological mapping, the site is potentially hydrogeologically sensitive. There is potential karst topography mapped on the subject site and noted in the area based on geological mapping. Test pits and visual observations at the site should inform the discussion surrounding hydrogeological sensitivity. If the site is hydrogeologically sensitive, then mitigative measures must be recommended to protect the underlying supply aquifer, this can include increased casing depth for any new drilled wells, increased separation distance between wells and septic systems, strategic placement of wells and septic based on direction of groundwater flow and existing soil thickness, and additional protective construction measures for the septic systems such as a clay seal or advanced septic treatment.
 - vii. Bollards, or other means of preventing vehicle access, will need to be provided between areas with vehicle access and the proposed septic system(s).
- d. The site is within the boundaries of the Carp River Subwatershed Study and the Carp Road Corridor Groundwater Study (2004).
- i. The site is noted as Area F in the groundwater study (Figure 2 – Study Area and Land Use).
 - ii. Area F, based on Figure 9 – Groundwater Quality Summary, has health-related exceedance occurrence for total coliforms (25% of wells tested) and aesthetic exceedances for chloride (63% of wells

tested), sodium (50% of wells tested), sulphide (38% of wells tested), and iron (13 % of wells tested).

1. The City's Hydrogeological and Terrain Analysis guidelines note that the City for commercial and industrial uses, where the Official Plan and Zoning By-law are already in place and there are aesthetic parameter exceedances to the maximum concentration considered reasonably treatable (MCCRT) the proponent is to discuss the results with the review hydrogeologist. For health-related parameters with an exceedance, the City will not grant approval based on treatment.
- iii. From section 8.3.1 – General Recommendations: “In Area F, BMP initiatives should be directed to the quarry operations, repair shops, equipment storage yards, manufacturers, and gasoline station. Some of the key BMPs that should be promoted include waste management, spill protocols, and fuel/chemical storage and management.”.
- e. Technical consultation with the hydrogeological report reviewer is recommended for all site plan control applications. Please contact the reviewer assigned to the file to arrange for the consultation. The hydrogeological consultant should conduct a background review and provide a work plan for review prior to the meeting.

Feel free to contact Travis Smith (travis.smith@ottawa.ca), Senior Project Manager, Hydrogeology, for follow-up questions.

Transportation

Comments:

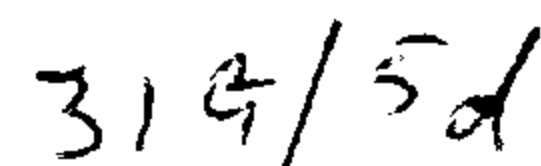
26. Right-of-way protection (Carp Road).

- a. See [Schedule C16 of the Official Plan](#).
- b. Any requests for exceptions to ROW protection requirements must be discussed with Transportation Planning and concurrence provided by Transportation Planning management.

Feel free to contact Mike Giampa, Transportation Project Manager, for follow-up questions.

Environment

Comments:



Water management in Ontario

1. PRINT ONLY IN SPACES PROVIDED

2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11

1511894

MUNICIP.

15005

CON

CON. *Edw*

K 21

COUNTY OR DISTRICT

TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE

10	14	1
CON., BLOCK, TRACT, SURVEY, ETC.		

	22	23	24
LOT	25-27		

ADDRESS

DATE COMPLETED 48-53

DAY 26 MO. 05 YR. 77

NORTHING

RC

ELEVATION

DC

BACIN CODE

744

10.

TR.

1 2 1511894 18

424034

5015334

4

300

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24

1075

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LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

CONTRACTOR	NAME OF WELL CONTRACTOR		LICENCE NUMBER	DATE RECEIVED				63-68	80
	Capital Water Supply Ltd		1558	DATE OF INSPECTION		INSPECTOR			
	ADDRESS			DATE OF INSPECTION		INSPECTOR			
	Box 490, Stittsville, Ont.			DATE OF INSPECTION		INSPECTOR			
	NAME OF DRILLER OR BORER		LICENCE NUMBER	REMARKS:		P		R	
	Boyd Cameron			REMARKS:		P		R	
	SIGNATURE OF CONTRACTOR		SUBMISSION DATE	REMARKS:		P		R	
	H. L. Cameron		DAY 26 MO 5 YR 72	REMARKS:		P		R	

OWRC COPY



The Ontario Water Resources Act

WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED

2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

1998

1521167

453:CF

0.34

	ZONE	EASTING	NORTHING	PC	ELEVATION	RC	BASIN CODE	I	IV
21									
0		12	17	18	24	25	26	30	31

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)[illegible]

31

32

WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER			
10-13 196'	1 ☒ FRESH 2 ☐ SALTY	3 ☐ SULPHUR 4 ☐ MINERAL	14	
15-18	1 ☐ FRESH 2 ☐ SALTY	3 ☐ SULPHUR 4 ☐ MINERAL	19	
20-23	1 ☐ FRESH 2 ☐ SALTY	3 ☐ SULPHUR 4 ☐ MINERAL	24	
25-28	1 ☐ FRESH 2 ☐ SALTY	3 ☐ SULPHUR 4 ☐ MINERAL	29	
30-33	1 ☐ FRESH 2 ☐ SALTY	3 ☐ SULPHUR 4 ☐ MINERAL	34	

CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
10-11 6 $\frac{1}{4}$	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	12	.188	0
17-18 5 $\frac{15}{16}$	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☒ OPEN HOLE	19	33	200
24-25	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	26		27-30

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	31-33	DIAMETER	34-38	LENGTH	39-40
		INCHES		FEET	
MATERIAL AND TYPE		DEPTH TO TOP OF SCREEN		41-44	10
				FEET	

PLUGGING & SEALING RECORD

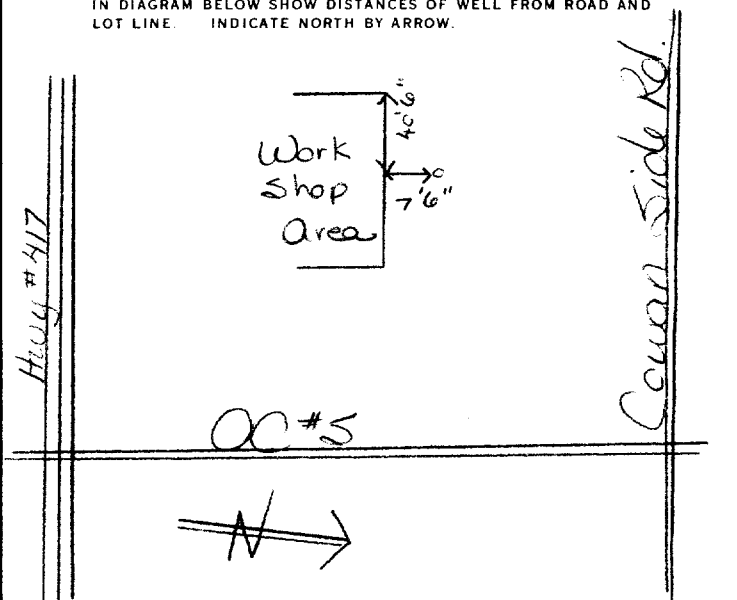
DEPTH SET AT - FEET		MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
FROM	TO	
10-13	14-17	
18-21	22-25	
26-29	30-33	80

PUMPING TEST	71
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PUMPING TEST	PUMPING TEST METHOD		10	PUMPING RATE		11-14	DURATION OF PUMPING	
	1 ☒ PUMP 2 ☐ BAILER			8		GPM	1	15-16 HOURS 17-18 MINS
	STATIC LEVEL	WATER LEVEL END OF PUMPING	25	WATER LEVELS DURING			1 ☒ PUMPING 2 ☐ RECOVERY	
	19-21	22-24		15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES	
	30 FEET	45 FEET		26-28 45 FEET	29-31 45 FEET	32-34 45 FEET	35-37 45 FEET	
IF FLOWING, GIVE RATE		38-41	PUMP INTAKE SET AT			WATER AT END OF TEST		
		GPM	45 FEET			1 ☒ CLEAR 2 ☐ CLOUDY		
RECOMMENDED PUMP TYPE			RECOMMENDED PUMP SETTING		43-45	RECOMMENDED PUMPING RATE		46-49
☐ SHALLOW ☒ DEEP			75 FEET			5		GPM
90-93								

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS

**FINAL
STATUS
OF WELL**

1	☒ WATER SUPPLY	5	☐ ABANDONED, INSUFFICIENT SUPPLY
2	☐ OBSERVATION WELL	6	☐ ABANDONED, POOR QUALITY
3	☐ TEST HOLE	7	☐ UNFINISHED
4	☐ RECHARGE WELL		

WATER

1 ☒ DOMESTIC 5 ☐ COMMERCIAL
2 ☐ STOCK 6 ☐ MUNICIPAL
3 ☐ IRRIGATION 7 ☐ PUBLIC SUPPLY
4 ☐ INDUSTRIAL 8 ☐ COOLING OR AIR CONDITIONING
 ☐ OTHER 9 ☐ NOT USED

METHOD OF DRILLING

1	☐ CABLE TOOL	6	☐ BORING
2	☐ ROTARY (CONVENTIONAL)	7	☐ DIAMOND
3	☐ ROTARY (REVERSE)	8	☐ JETTING
4	☐ ROTARY (AIR)	9	☐ DRIVING
5	☒ AIR PERCUSSION		

CONTRACTOR

CONTRACTOR	NAME OF WELL CONTRACTOR		LICENCE NUMBER	
	Capital Water Supply Ltd.		1558	
	ADDRESS			
	Box 490; Stittsville, Ontario. KOA 3G0			
	NAME OF DRILLER OR BORER		LICENCE NUMBER	
	S. Miller			
	SIGNATURE OF CONTRACTOR		SUBMISSION DATE	
	<i>[Signature]</i>		DAY 20 MO. 08 YR. 86	

OFFICE USE ONLY

DATA SOURCE	58	CONTRACTOR	59-62	DATE RECEIVED	63-68	80
DATE OF INSPECTION		INSPECTOR				
REMARKS						

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506-4-77 FORM 7



Attention: Jacqueline Brook

BluMetric Environmental Inc.
1682 Woodward Drive
Ottawa, ON
CANADA K2C 3R8

Your P.O. #: 15068044
Your Project #: 250442
Site#: 200
Site Location: ON10
Your C.O.C. #: 1054915-01-01

Report Date: 2025/07/31
Report #: R8585857
Version: 2 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C591211

Received: 2025/07/28, 15:10

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity (1)	1	N/A	2025/07/30	CAM SOP-00448	SM 24 2320 B m
1,3-Dichloropropene Sum (1)	1	N/A	2025/07/30		EPA 8260C m
Chloride by Automated Colourimetry (1)	1	N/A	2025/07/30	CAM SOP-00463	SM 24 4500-Cl E m
Colour (1)	1	N/A	2025/07/29	CAM SOP-00412	SM 24 2120C m
Conductance in Water - On-site (1)	2	N/A	2025/07/30		
Conductivity (1)	1	N/A	2025/07/30	CAM SOP-00414	SM 24 2510 m
Dissolved Organic Carbon (DOC) (1, 2)	1	N/A	2025/07/29	CAM SOP-00446	SM 24 5310 B m
Field Measured Dissolved Oxygen in Water (1)	2	N/A	2025/07/30		
Petroleum Hydrocarbons F2-F4 in Water (1, 3)	1	2025/07/29	2025/07/30	CAM SOP-00316	CCME PHC-CWS m
Hardness (calculated as CaCO ₃) (1)	1	N/A	2025/07/30	CAM SOP 00102/00408/00447	SM 2340 B
Dissolved Metals by ICPMS (1)	1	N/A	2025/07/30	CAM SOP-00447	EPA 6020B m
Total Coliforms/ E. coli, CFU/100mL (1)	1	N/A	2025/07/29	CAM SOP-00551	MECP-E3407
Total Ammonia-N (1)	1	N/A	2025/07/30	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1, 4)	1	N/A	2025/07/29	CAM SOP-00440	SM 24 4500-NO ₃ I/NO ₂ B
pH (1, 5)	1	2025/07/29	2025/07/30	CAM SOP-00413	SM 24th - 4500H+ B
Field Measured pH (1, 6)	2	N/A	2025/07/30		Field pH Meter
Sulphate by Automated Turbidimetry (1)	1	N/A	2025/07/30	CAM SOP-00464	SM 24 4500-SO ₄ 2- E m
Total Dissolved Solids (1)	1	2025/07/29	2025/07/30	CAM SOP-00428	SM 24 2540C m
Field Temperature (1, 6)	2	N/A	2025/07/30		Field Thermometer
Turbidity (1)	1	N/A	2025/07/30	CAM SOP-00417	SM 24 2130 B
Turbidity - On-site (1)	2	N/A	2025/07/30		
Volatile Organic Compounds and F1 PHCs (1)	1	N/A	2025/07/30	CAM SOP-00230	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.



Attention: Jacqueline Brook

BluMetric Environmental Inc.
1682 Woodward Drive
Ottawa, ON
CANADA K2C 3R8

Your P.O. #: 15068044
Your Project #: 250442
Site#: 200
Site Location: ON10
Your C.O.C. #: 1054915-01-01

Report Date: 2025/07/31
Report #: R8585857
Version: 2 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C591211

Received: 2025/07/28, 15:10

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Bureau Veritas Mississauga, 6740 Campobello Rd, Mississauga, ON, L5N 2L8

(2) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.

(3) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

(4) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.

(5) "The CCME method and Analytical Protocol (O. Reg. 153/04, O. Reg. 406/19) requires pH to be analyzed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME and Analytical Protocol (O. Reg. 153/04, O. Reg. 406/19) holding time. Bureau Veritas endeavors to analyze samples as soon as possible after receipt."

(6) This is a field test, therefore, the results relate to items that were not analysed at Bureau Veritas.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:

Patricia Legette, Project Manager

Email: Patricia.Legette@bureauveritas.com

Phone# (905)817-5799

=====

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.



BUREAU
VERITAS

Bureau Veritas Job #: C591211
Report Date: 2025/07/31

BluMetric Environmental Inc.
Client Project #: 250442
Site Location: ON10
Your P.O. #: 15068044
Sampler Initials: JA

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID				ATLS96	ATLS96		ATLS97	
Sampling Date				2025/07/28 14:00	2025/07/28 14:00		2025/07/28 14:10	
COC Number				1054915-01-01	1054915-01-01		1054915-01-01	
	UNITS	MAC	A/O	COH6	COH6 Lab-Dup	RDL	O RE6 153	QC Batch
Calculated Parameters								
Hardness (CaCO ₃)	mg/L	-	80:100	320	N/A	1.0	N/A	9978769
Field Measurements								
Field Conductivity	uS/cm	-	-	726	N/A	N/A	726	ONSITE
Field Dissolved Oxygen	mg/L	-	-	6.40	N/A	N/A	6.40	ONSITE
Field Temperature	Celsius	-	-	12.16	N/A	N/A	12.16	ONSITE
Field Measured Field Turbidity	NTU	-	-	0.5	N/A	N/A	0.5	ONSITE
Field Measured pH	pH	-	6.5:8.5	7.35	N/A	N/A	7.35	ONSITE
Inorganics								
Total Ammonia-N	mg/L	-	-	<0.050	<0.050	0.050	N/A	9979312
Colour	TCU	-	5	<2	N/A	2	N/A	9978724
Conductivity	mS/cm	-	-	0.754	N/A	0.002	N/A	9979420
Total Dissolved Solids	mg/L	-	500	430	N/A	10	N/A	9979405
Dissolved Organic Carbon	mg/L	-	5	1.3	N/A	0.40	N/A	9979155
pH	pH	-	6.5:8.5	7.82	N/A	N/A	N/A	9979421
Dissolved Sulphate (SO ₄)	mg/L	-	500	63	N/A	1.0	N/A	9979431
Turbidity	NTU	-	5	<0.1	N/A	0.1	N/A	9979593
Alkalinity (Total as CaCO ₃)	mg/L	-	30:500	270	N/A	1.0	N/A	9979419
Dissolved Chloride (Cl ⁻)	mg/L	-	250	36	N/A	1.0	N/A	9979430
Nitrite (N)	mg/L	1	-	<0.010	N/A	0.010	N/A	9978964
Nitrate (N)	mg/L	10	-	2.43	N/A	0.10	N/A	9978964
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Duplicate MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively (Made under the Ontario Safe Drinking Water Act, 2002) N/A = Not Applicable								



ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Bureau Veritas ID			ATLS96		
Sampling Date			2025/07/28 14:00		
COC Number			1054915-01-01		
	UNITS	A/O	COH6	RDL	QC Batch
Metals					
Dissolved Iron (Fe)	ug/L	300	<100	100	9979571
Dissolved Manganese (Mn)	ug/L	50	<2.0	2.0	9979571
RDL = Reportable Detection Limit					
QC Batch = Quality Control Batch					
A/O: Ontario Drinking Water Standards - Maximum Acceptable					
Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not					
Health Related, respectively					
(Made under the Ontario Safe Drinking Water Act, 2002)					

**VOLATILE ORGANICS BY GC/MS (WATER)**

Bureau Veritas ID				ATLS97		
Sampling Date				2025/07/28 14:10		
COC Number				1054915-01-01		
	UNITS	MAC	A/O	O RE6 153	RDL	QC Batch
Calculated Parameters						
1,3-Dichloropropene (cis+trans)	ug/L	-	-	<0.50	0.50	9978770
Volatile Organics						
Acetone (2-Propanone)	ug/L	-	-	<10	10	9977721
Benzene	ug/L	1	-	<0.17	0.17	9977721
Bromodichloromethane	ug/L	-	-	<0.50	0.50	9977721
Bromoform	ug/L	-	-	<1.0	1.0	9977721
Bromomethane	ug/L	-	-	<0.50	0.50	9977721
Carbon Tetrachloride	ug/L	2	-	<0.20	0.20	9977721
Chlorobenzene	ug/L	80	30	<0.20	0.20	9977721
Chloroform	ug/L	-	-	<0.20	0.20	9977721
Dibromochloromethane	ug/L	-	-	<0.50	0.50	9977721
1,2-Dichlorobenzene	ug/L	200	3	<0.50	0.50	9977721
1,3-Dichlorobenzene	ug/L	-	-	<0.50	0.50	9977721
1,4-Dichlorobenzene	ug/L	5	1	<0.50	0.50	9977721
Dichlorodifluoromethane (FREON 12)	ug/L	-	-	<1.0	1.0	9977721
1,1-Dichloroethane	ug/L	-	-	<0.20	0.20	9977721
1,2-Dichloroethane	ug/L	5	-	<0.50	0.50	9977721
1,1-Dichloroethylene	ug/L	14	-	<0.20	0.20	9977721
cis-1,2-Dichloroethylene	ug/L	-	-	<0.50	0.50	9977721
trans-1,2-Dichloroethylene	ug/L	-	-	<0.50	0.50	9977721
1,2-Dichloropropane	ug/L	-	-	<0.20	0.20	9977721
cis-1,3-Dichloropropene	ug/L	-	-	<0.30	0.30	9977721
trans-1,3-Dichloropropene	ug/L	-	-	<0.40	0.40	9977721
Ethylbenzene	ug/L	140	1.6	<0.20	0.20	9977721
Ethylene Dibromide	ug/L	-	-	<0.20	0.20	9977721
Hexane	ug/L	-	-	<1.0	1.0	9977721
Methylene Chloride(Dichloromethane)	ug/L	50	-	<2.0	2.0	9977721
Methyl Ethyl Ketone (2-Butanone)	ug/L	-	-	<10	10	9977721
Methyl Isobutyl Ketone	ug/L	-	-	<5.0	5.0	9977721
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively (Made under the Ontario Safe Drinking Water Act, 2002)						



BUREAU
VERITAS

Bureau Veritas Job #: C591211
Report Date: 2025/07/31

BluMetric Environmental Inc.
Client Project #: 250442
Site Location: ON10
Your P.O. #: 15068044
Sampler Initials: JA

VOLATILE ORGANICS BY GC/MS (WATER)

Bureau Veritas ID				ATLS97		
Sampling Date				2025/07/28 14:10		
COC Number				1054915-01-01		
	UNITS	MAC	A/O	O RE6 153	RDL	QC Batch
Methyl t-butyl ether (MTBE)	ug/L	-	15	<0.50	0.50	9977721
Styrene	ug/L	-	-	<0.50	0.50	9977721
1,1,1,2-Tetrachloroethane	ug/L	-	-	<0.50	0.50	9977721
1,1,2,2-Tetrachloroethane	ug/L	-	-	<0.50	0.50	9977721
Tetrachloroethylene	ug/L	10	-	<0.20	0.20	9977721
Toluene	ug/L	60	24	<0.20	0.20	9977721
1,1,1-Trichloroethane	ug/L	-	-	<0.20	0.20	9977721
1,1,2-Trichloroethane	ug/L	-	-	<0.50	0.50	9977721
Trichloroethylene	ug/L	5	-	<0.20	0.20	9977721
Trichlorofluoromethane (FREON 11)	ug/L	-	-	<0.50	0.50	9977721
Vinyl Chloride	ug/L	1	-	<0.20	0.20	9977721
p+m-Xylene	ug/L	-	-	<0.20	0.20	9977721
o-Xylene	ug/L	-	-	<0.20	0.20	9977721
Total Xylenes	ug/L	90	20	<0.20	0.20	9977721
F1 (C6-C10)	ug/L	-	-	<25	25	9977721
F1 (C6-C10) - BTEX	ug/L	-	-	<25	25	9977721
Surrogate Recovery (%)						
4-Bromofluorobenzene	%	-	-	96	N/A	9977721
D4-1,2-Dichloroethane	%	-	-	107	N/A	9977721
D8-Toluene	%	-	-	89	N/A	9977721
RDL = Reportable Detection Limit QC Batch = Quality Control Batch MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively (Made under the Ontario Safe Drinking Water Act, 2002) N/A = Not Applicable						



BUREAU
VERITAS

Bureau Veritas Job #: C591211

Report Date: 2025/07/31

BluMetric Environmental Inc.

Client Project #: 250442

Site Location: ON10

Your P.O. #: 15068044

Sampler Initials: JA

PETROLEUM HYDROCARBONS (CCME)

Bureau Veritas ID		ATLS97		
Sampling Date		2025/07/28 14:10		
COC Number		1054915-01-01		
	UNITS	O RE6 153	RDL	QC Batch
F2-F4 Hydrocarbons				
F2 (C10-C16 Hydrocarbons)	ug/L	<90	90	9979157
F3 (C16-C34 Hydrocarbons)	ug/L	<200	200	9979157
F4 (C34-C50 Hydrocarbons)	ug/L	<200	200	9979157
Reached Baseline at C50	ug/L	Yes	N/A	9979157
Surrogate Recovery (%)				
o-Terphenyl	%	100	N/A	9979157
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable				



MICROBIOLOGY (WATER)

Bureau Veritas ID			ATLS96	
Sampling Date			2025/07/28 14:00	
COC Number			1054915-01-01	
	UNITS	MAC	COH6	QC Batch
Microbiological				
Background	CFU/100mL	-	14	9979169
Total Coliforms	CFU/100mL	0	0	9979169
Escherichia coli	CFU/100mL	0	0	9979169
QC Batch = Quality Control Batch MAC: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively (Made under the Ontario Safe Drinking Water Act, 2002)				



**BUREAU
VERITAS**

Bureau Veritas Job #: C591211

Report Date: 2025/07/31

BluMetric Environmental Inc.

Client Project #: 250442

Site Location: ON10

Your P.O. #: 15068044

Sampler Initials: JA

TEST SUMMARY

Bureau Veritas ID: ATLS96
Sample ID: COH6
Matrix: Water

Collected: 2025/07/28
Shipped:
Received: 2025/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9979419	N/A	2025/07/30	Nachiketa Gohil
Chloride by Automated Colourimetry	SKAL	9979430	N/A	2025/07/30	Alina Dobreanu
Colour	SPEC	9978724	N/A	2025/07/29	Viorica Rotaru
Field Temperature		ONSITE	N/A	2025/07/30	Patricia Legette
Conductivity	AT	9979420	N/A	2025/07/30	Nachiketa Gohil
Dissolved Organic Carbon (DOC)	TOCV/NDIR	9979155	N/A	2025/07/29	Gyulshen Idriz
Field Temperature		ONSITE	N/A	2025/07/30	Patricia Legette
Hardness (calculated as CaCO3)		9978769	N/A	2025/07/30	Automated Statchk
Dissolved Metals by ICPMS	ICP/MS	9979571	N/A	2025/07/30	Nan Raykha
Total Coliforms/ E. coli, CFU/100mL	PL	9979169	N/A	2025/07/29	Jing (Sammy) Sun
Total Ammonia-N	SKAL/NH4	9979312	N/A	2025/07/30	Muskan
Nitrate & Nitrite as Nitrogen in Water	LACH	9978964	N/A	2025/07/29	Chandra Nandlal
pH	AT	9979421	2025/07/29	2025/07/30	Nachiketa Gohil
Field Temperature	PH	ONSITE	N/A	2025/07/30	Patricia Legette
Sulphate by Automated Turbidimetry	SKAL	9979431	N/A	2025/07/30	Alina Dobreanu
Total Dissolved Solids	BAL	9979405	2025/07/29	2025/07/30	Razieh Tabesh
Field Temperature	PH	ONSITE	N/A	2025/07/30	Patricia Legette
Turbidity	AT	9979593	N/A	2025/07/30	Gurparteek KAUR
Field Temperature	TURB	ONSITE	N/A	2025/07/30	Patricia Legette

Bureau Veritas ID: ATLS96 Dup
Sample ID: COH6
Matrix: Water

Collected: 2025/07/28
Shipped:
Received: 2025/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Ammonia-N	SKAL/NH4	9979312	N/A	2025/07/30	Muskan

Bureau Veritas ID: ATLS97
Sample ID: O RE6 153
Matrix: Water

Collected: 2025/07/28
Shipped:
Received: 2025/07/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	9978770	N/A	2025/07/30	Automated Statchk
Field Temperature		ONSITE	N/A	2025/07/30	Patricia Legette
Field Temperature		ONSITE	N/A	2025/07/30	Patricia Legette
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	9979157	2025/07/29	2025/07/30	Mohammed Abdul Nafay Shoeb
Field Temperature	PH	ONSITE	N/A	2025/07/30	Patricia Legette
Field Temperature	PH	ONSITE	N/A	2025/07/30	Patricia Legette
Field Temperature	TURB	ONSITE	N/A	2025/07/30	Patricia Legette
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9977721	N/A	2025/07/30	Gladys Guerrero



GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	11.7°C
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Results relate only to the items tested.



BUREAU
VERITAS

Bureau Veritas Job #: C591211

Report Date: 2025/07/31

QUALITY ASSURANCE REPORT

BluMetric Environmental Inc.

Client Project #: 250442

Site Location: ON10

Your P.O. #: 15068044

Sampler Initials: JA

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9977721	4-Bromofluorobenzene	2025/07/29	99	70 - 130	99	70 - 130	91	%		
9977721	D4-1,2-Dichloroethane	2025/07/29	126	70 - 130	121	70 - 130	127	%		
9977721	D8-Toluene	2025/07/29	103	70 - 130	106	70 - 130	91	%		
9979157	o-Terphenyl	2025/07/29	95	60 - 140	96	60 - 140	97	%		
9977721	1,1,1,2-Tetrachloroethane	2025/07/30	109	70 - 130	103	70 - 130	<0.50	ug/L	NC	30
9977721	1,1,1-Trichloroethane	2025/07/30	114	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
9977721	1,1,2,2-Tetrachloroethane	2025/07/30	95	70 - 130	94	70 - 130	<0.50	ug/L	NC	30
9977721	1,1,2-Trichloroethane	2025/07/30	122	70 - 130	118	70 - 130	<0.50	ug/L	NC	30
9977721	1,1-Dichloroethane	2025/07/30	115	70 - 130	101	70 - 130	<0.20	ug/L	NC	30
9977721	1,1-Dichloroethylene	2025/07/30	123	70 - 130	108	70 - 130	<0.20	ug/L	NC	30
9977721	1,2-Dichlorobenzene	2025/07/30	93	70 - 130	92	70 - 130	<0.50	ug/L	NC	30
9977721	1,2-Dichloroethane	2025/07/30	128	70 - 130	119	70 - 130	<0.50	ug/L	NC	30
9977721	1,2-Dichloropropane	2025/07/30	114	70 - 130	104	70 - 130	<0.20	ug/L	NC	30
9977721	1,3-Dichlorobenzene	2025/07/30	93	70 - 130	91	70 - 130	<0.50	ug/L	NC	30
9977721	1,4-Dichlorobenzene	2025/07/30	97	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
9977721	Acetone (2-Propanone)	2025/07/30	127	60 - 140	133	60 - 140	<10	ug/L	NC	30
9977721	Benzene	2025/07/30	108	70 - 130	97	70 - 130	<0.17	ug/L	NC	30
9977721	Bromodichloromethane	2025/07/30	111	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
9977721	Bromoform	2025/07/30	97	70 - 130	96	70 - 130	<1.0	ug/L	NC	30
9977721	Bromomethane	2025/07/30	88	60 - 140	87	60 - 140	<0.50	ug/L	NC	30
9977721	Carbon Tetrachloride	2025/07/30	121	70 - 130	105	70 - 130	<0.20	ug/L	NC	30
9977721	Chlorobenzene	2025/07/30	89	70 - 130	85	70 - 130	<0.20	ug/L	NC	30
9977721	Chloroform	2025/07/30	115	70 - 130	102	70 - 130	<0.20	ug/L	NC	30
9977721	cis-1,2-Dichloroethylene	2025/07/30	112	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
9977721	cis-1,3-Dichloropropene	2025/07/30	95	70 - 130	97	70 - 130	<0.30	ug/L	NC	30
9977721	Dibromochloromethane	2025/07/30	104	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
9977721	Dichlorodifluoromethane (FREON 12)	2025/07/30	129	60 - 140	116	60 - 140	<1.0	ug/L	NC	30
9977721	Ethylbenzene	2025/07/30	95	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
9977721	Ethylene Dibromide	2025/07/30	99	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
9977721	F1 (C6-C10) - BTEX	2025/07/30					<25	ug/L	NC	30
9977721	F1 (C6-C10)	2025/07/30	86	60 - 140	92	60 - 140	<25	ug/L	NC	30



BUREAU
VERITAS

Bureau Veritas Job #: C591211

Report Date: 2025/07/31

QUALITY ASSURANCE REPORT(CONT'D)

BluMetric Environmental Inc.

Client Project #: 250442

Site Location: ON10

Your P.O. #: 15068044

Sampler Initials: JA

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9977721	Hexane	2025/07/30	136 (1)	70 - 130	127	70 - 130	<1.0	ug/L	NC	30
9977721	Methyl Ethyl Ketone (2-Butanone)	2025/07/30	105	60 - 140	112	60 - 140	<10	ug/L	NC	30
9977721	Methyl Isobutyl Ketone	2025/07/30	89	70 - 130	95	70 - 130	<5.0	ug/L	NC	30
9977721	Methyl t-butyl ether (MTBE)	2025/07/30	109	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
9977721	Methylene Chloride(Dichloromethane)	2025/07/30	103	70 - 130	95	70 - 130	<2.0	ug/L	NC	30
9977721	o-Xylene	2025/07/30	103	70 - 130	103	70 - 130	<0.20	ug/L	NC	30
9977721	p+m-Xylene	2025/07/30	97	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
9977721	Styrene	2025/07/30	72	70 - 130	73	70 - 130	<0.50	ug/L	NC	30
9977721	Tetrachloroethylene	2025/07/30	97	70 - 130	89	70 - 130	<0.20	ug/L	NC	30
9977721	Toluene	2025/07/30	100	70 - 130	95	70 - 130	<0.20	ug/L	NC	30
9977721	Total Xylenes	2025/07/30					<0.20	ug/L	NC	30
9977721	trans-1,2-Dichloroethylene	2025/07/30	114	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
9977721	trans-1,3-Dichloropropene	2025/07/30	102	70 - 130	118	70 - 130	<0.40	ug/L	NC	30
9977721	Trichloroethylene	2025/07/30	100	70 - 130	88	70 - 130	<0.20	ug/L	NC	30
9977721	Trichlorofluoromethane (FREON 11)	2025/07/30	113	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
9977721	Vinyl Chloride	2025/07/30	120	70 - 130	103	70 - 130	<0.20	ug/L	NC	30
9978724	Colour	2025/07/29			98	80 - 120	<2	TCU	NC	25
9978964	Nitrate (N)	2025/07/29	96	80 - 120	96	80 - 120	<0.10	mg/L	NC	20
9978964	Nitrite (N)	2025/07/29	109	80 - 120	106	80 - 120	<0.010	mg/L	NC	20
9979155	Dissolved Organic Carbon	2025/07/29	92	80 - 120	95	80 - 120	<0.40	mg/L	0.28	20
9979157	F2 (C10-C16 Hydrocarbons)	2025/07/30	93	60 - 140	95	60 - 140	<90	ug/L	NC	30
9979157	F3 (C16-C34 Hydrocarbons)	2025/07/30	102	60 - 140	103	60 - 140	<200	ug/L	NC	30
9979157	F4 (C34-C50 Hydrocarbons)	2025/07/30	94	60 - 140	95	60 - 140	<200	ug/L	NC	30
9979312	Total Ammonia-N	2025/07/30	98	75 - 125	103	80 - 120	<0.050	mg/L	NC	20
9979405	Total Dissolved Solids	2025/07/30			93	80 - 120	<10	mg/L	0.31	20
9979419	Alkalinity (Total as CaCO3)	2025/07/30			95	85 - 115	<1.0	mg/L	1.3	20
9979420	Conductivity	2025/07/30			102	85 - 115	<0.002	mS/cm	1.2	10
9979421	pH	2025/07/30			102	98 - 103			0.27	N/A
9979430	Dissolved Chloride (Cl-)	2025/07/30	NC	80 - 120	103	80 - 120	<1.0	mg/L	0.45	20
9979431	Dissolved Sulphate (SO4)	2025/07/30	NC	75 - 125	102	80 - 120	<1.0	mg/L	0.45	20
9979571	Dissolved Iron (Fe)	2025/07/30	98	80 - 120	100	80 - 120	<100	ug/L		



**BUREAU
VERITAS**

Bureau Veritas Job #: C591211

Report Date: 2025/07/31

QUALITY ASSURANCE REPORT(CONT'D)

BluMetric Environmental Inc.

Client Project #: 250442

Site Location: ON10

Your P.O. #: 15068044

Sampler Initials: JA

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9979571	Dissolved Manganese (Mn)	2025/07/30	94	80 - 120	99	80 - 120	<2.0	ug/L		
9979593	Turbidity	2025/07/30			101	80 - 120	<0.1	NTU	4.6	20

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference $\leq 2 \times$ RDL).

(1) The recovery was above the upper control limit. This may represent a high bias in some results for this specific analyte. For results that were not detected (ND), this potential bias has no impact.



BUREAU
VERITAS

Bureau Veritas Job #: C591211

Report Date: 2025/07/31

BluMetric Environmental Inc.

Client Project #: 250442

Site Location: ON10

Your P.O. #: 15068044

Sampler Initials: JA

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Jing (Sammy) Sun, M.Sc. Biotechnology, Analyst 1

Louise Harding, Scientific Specialist

Patricia Legett, Project Manager

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Site Name: Ottawa Landfill LAURYSSEN
 Site No: 250107 250441
 Sample Point: LAURYSSEN PRODUCTION BLDG

This Waste Management Field Information Form is Required
 This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only: Lab ID: _____

PURGE INFO

PURGE DATE	PURGE TIME	LAPSED HRS	WATER VOL IN CASING	ACTUAL VOL PURGED	WELL VOLS PURGED
na	na	na	na	na	na

Note: For Passive sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing Flow Cell Vols Purged. Mark changes, record field data, below

PURGE/SAMPLE/EQUIPMENT

Purging and Sampling Equipment: Dedicated: ☒ Y or ☐ N Filter Device: ☐ Y or ☒ N
 Purging Device: na A-Submersible Pump D-Bailer A-In-line Disposable C-Vacuum
 B-Peristaltic Pump E-Piston Pump Filter Type: B-Pressure X-Other: na
 Sampling Device: F C-Water Foot Valve F-Dipper/Bottle A-Teflon D-Polypropylene
 Other: _____ Sample Tube Type: B-Stainless Steel X-Other: na
 C-PVC

WELL DATA

Well Elevation (at TOC): na Depth to Water (DTW) (from TOC): na Groundwater Elevation (site datum, from TOC): na
 Total Well Depth (from TOC): na Stick Up (from ground elevation): na Riser ID (in): na Casing Material: na
 Riser construction: na

Note: Total Well Depth, Stick Up, Casing id, etc are optional and can be from historical data, unless required by Site Permit. Well Elevation, DTW and Groundwater Elevation must be current.

STABILIZATION DATE (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH	Conductivity (µS/cm)	Temp (°C)	Turbidity (ntu)	D.O. (mg/L-ppm)	eH/ORP (mV)	DTW

Note: Provide 3 consecutive readings or note reason(s) why not provided.

FIELD DATA

Sample Time: 14:00 Rate/Unit: — pH: 7.35 Conductance (µS/cm): 726 Temp (°C): 12.16 Turbidity (ntu): 0.5 D.O. (mg/L-ppm): 6.40 eH/ORP (mV): 135 Other: —
14:10 — 7.35 726 12.16 0.5 6.40 135 —

Note: Final field Readings are required: (i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State Permit Site.

FIELD COMMENTS

Sample Appearance: CLEAR Odour: NO Colour: NO Other: _____
 Weather Conditions: SUNNY, 30°C Direction/Speed: NE / 5 km/h Outlook: SUNNY Precipitation: Y or (N)
 (required daily, or as conditions change):
 Specific Comments (including purge/well volume calculations if required):
GPs: CONNECTED TUBING TO PRESSURE TANK OUTLET
PURGED 1250 L at 12.5 L/min (100 min)
TRUE COLOR + FREE CHLORINE DEEMED ACCEPTABLE
SAMPLED COMG (6 BOTTLES) - 0 RES 153 (4 BOTTLES)

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):
250728 JAMES ARMITAGE James Armitage
 Date Name Signature
 BluMetric
 BluMetric
 Company

C591211
2025/07/28 15:10

Bureau Veritas
36 Antares Dr Unit 100, Nepean, Ontario Canada K2E 7W5 Tel: (613) 274-0573 Toll-free: 800-563-6266 Fax: (613) 274-0574 www.bvna.com

Received in Ottawa

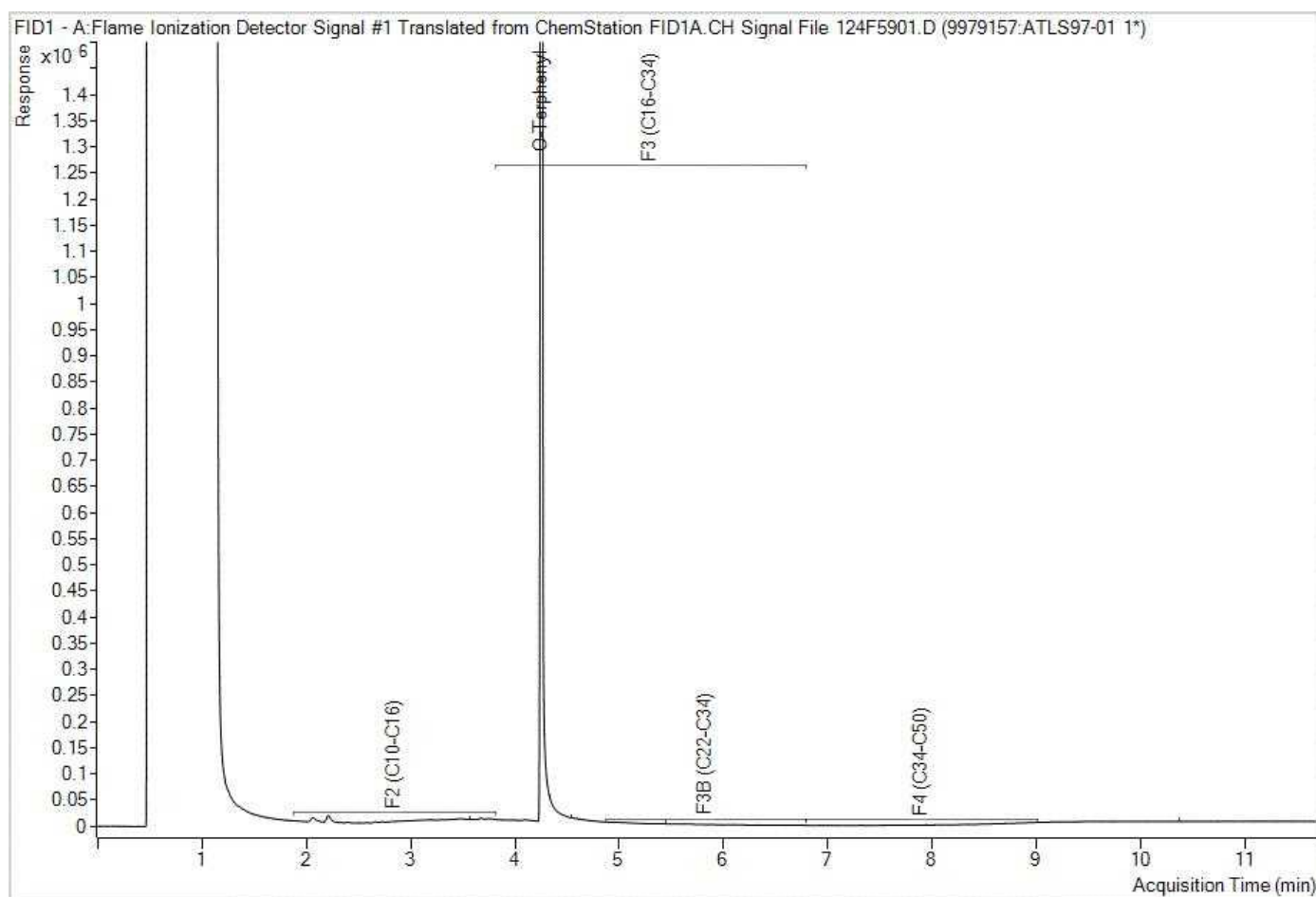
CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:																			
Company Name: #19298 Waste Management of Canada Corporation	Company Name: #8252 BluMetric Environmental Inc.	Quotation #: C45986	Bureau Veritas Job #:	Attention: Remi Godin - rgodin@wm.com	Attention: Jacqueline Brook	Bottle Order #:																			
Address: 2301 Carp Rd RR 3	Address: PO Box 430 3108 Carp Rd	P.O. #: 15068044		Address: Carp ON K0A 1L0	Project: 250442																				
Tel: (613) 371-1725	Tel: (877) 487-8436 Ext: 406	Project Name: 200	COC #:	Fax: (613) 831-8928	Site #: 200	Project Manager:																			
Email: rgodin@wm.com, invoiceuploads@bvlabs.com	Email: jbrook@blumetric.ca, dba_wmcc_ottawa@blumetric.ca	Sampled By:				Patricia Legette																			
MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS DRINKING WATER CHAIN OF CUSTODY		ANALYSIS REQUESTED (PLEASE BE SPECIFIC)		Turnaround Time (TAT) Required: Please provide advance notice for rush projects.																					
<table border="1"><thead><tr><th>Regulation 153 (2011)</th><th>Other Regulations</th><th>Special Instructions</th></tr></thead><tbody><tr><td>☐ Table 1 ☐ Res/Park ☐ Medium/Fine</td><td>☐ CCME ☐ Sanitary Sewer Bylaw</td><td></td></tr><tr><td>☐ Table 2 ☐ Ind/Comm ☐ Coarse</td><td>☐ Reg 558 ☐ Storm Sewer Bylaw</td><td></td></tr><tr><td>☐ Table 3 ☐ Agri/Other ☐ For RSC</td><td>☐ MISA ☐ Municipality</td><td></td></tr><tr><td>☐ Table</td><td>☐ PWQO ☐ Reg 406 Table</td><td></td></tr><tr><td></td><td>☐ Other</td><td></td></tr></tbody></table>		Regulation 153 (2011)	Other Regulations	Special Instructions	☐ Table 1 ☐ Res/Park ☐ Medium/Fine	☐ CCME ☐ Sanitary Sewer Bylaw		☐ Table 2 ☐ Ind/Comm ☐ Coarse	☐ Reg 558 ☐ Storm Sewer Bylaw		☐ Table 3 ☐ Agri/Other ☐ For RSC	☐ MISA ☐ Municipality		☐ Table	☐ PWQO ☐ Reg 406 Table			☐ Other		Field Filled (please circle): Metals: Hg / Cr / VI		Regular (Standard) TAT: (will be applied if Rush TAT is not specified.) Standard TAT = 5-7 Working days for most tests. Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details. Job Specific Rush TAT (if applies to entire submission) Date Required: ASAP Time Required: ☒ Rush Confirmation Number: (call lab for #)			
Regulation 153 (2011)	Other Regulations	Special Instructions																							
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☐ Table	☐ PWQO ☐ Reg 406 Table																								
	☐ Other																								
Include Criteria on Certificate of Analysis (Y/N)?		City of Ottawa Hydrogeological Form		# of Bottles																					
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix			Comments																		
1	COHG	25 07 28	14:00	GW	X	X	6																		
2	O REG 153	25 07 28	14:10	GW		X	4																		
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
* RELINQUISHED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)		Date: (YY/MM/DD)	Time																		
James Armistead		25 07 28	15:05	Pedro da Silva		2025/07/28	15:10																		
# jars used and not submitted		Laboratory Use Only		Time Sensitive																					
				Temperature (°C) on Receipt																					
				Custody Seal																					
				Intact																					
				Yes																					
				No																					
				11/12/12 (Green)																					
				White: Bureau Veritas Yellow: Client																					
* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.																									
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.																									
** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/CHAIN-CUSTODY-FORMS-COCS.																									
SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS																									

Bureau Veritas Canada (2019) Inc.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.