REPORT

Ridge Landfill

2021 Annual Site Development, Operations and Monitoring Report

Submitted to:

Waste Connections of Canada Inc.

20262 Erieau Road, P.O. Box 1871, Blenheim, Ontario N0P 1A0

Submitted by:

Golder Associates Ltd.

6925 Century Avenue, Suite #100, Mississauga, Ontario, L5N 7K2, Canada

+1 905 567 4444

21500070 Rev. 0

April 2022



Distribution List

1 Hard Copy - MECP, London Regional Office

1 Hard Copy - MECP, Sarnia District Office

1 Hard Copy - MECP, Windsor Area Office

8 Hard Copies - Ridge Landfill (M.Leduc/A.Cibulka)

1 e-Copy - Waste Connections (C.Visser/L.Hoffarth)

1 e-Copy - Golder Associates Ltd.

Table of Contents

1.0 INTRODUCTION 1

1.1 Background 1

1.2 Scope of Report 2

1.3 Organization of Report 2

2.0 SITE DEVELOPMENT 4

2.1 Duke and Howard Drains 4

2.2 Screening Berms 4

2.3 Stockpiles 4

2.4 Stormwater Management Ponds 5

2.4.1 West and South Landfills 5

2.4.2 Old Landfill 5

2.5 Flood Control Facility 5

2.6 Site Entrance and Main Access Road 5

2.7 Scale and Buildings 5

2.8 Perimeter Roads 6

2.9 Landfill and Cell Development 6

2.10 Leachate Collection System 7

2.10.1 Old Landfill 7

2.10.2 West and South Landfills 7

2.11 Tree Planting 8

2.12 Topsoil and Seeding 8

2.13 Site Perimeter Fencing 8

2.14 Decommissioning of Monitoring Wells 9

2.15 Proposed Future Work 9

3.0 OPERATIONS 11

3.1 Site Equipment 11

3.2 Areas of Landfilling 11

3.3 Areas of Excavation 12
3.4 Waste Quantities 12
3.5 Measured Gate Tonnes 14
3.6 Estimated Capacity Consumption 14
3.7 Remaining Capacity and Site Life 15
3.8 Cover Soil Usage 15
3.9 Soil Grading and Erosion Control 16
3.10 Leachate Management 16
3.10.1 Leachate Quantities 16
3.10.2 Leachate Collection System Operation, Inspections and Maintenance 18
3.10.3 Old Landfill Leachate Collection System Performance 18
3.10.4 Leachate Seeps 22
3.10.5 Leachate Treatment Plant Performance Assessment 22
3.11 Surface Water Management 22
3.11.1 Operation, Maintenance and Performance of Stormwater Ponds 22
3.12 Landfill Gas Management 23
3.12.1 Assessment of the Existing Landfill Gas Collection System 24
3.13 Litter Control 24
3.14 Mud and Dust Control 25
3.15 Odour Control 26
3.16 Noise Control 26
3.17 Spills Control 26
3.18 Public Disposal Area 26
3.19 Site Inspections 27
3.20 Other Measures to Reduce or Prevent Off-Site Impacts 27
3.21 Operational Problems and Remedial Measures 27
3.22 Changes to Operational Procedures and Impact Management Plans 27
3.23 Summary of Public Complaints and Responses 28
4.0 ENVIRONMENTAL MONITORING PROGRAM 29

4.1 Background 29
4.2 Groundwater Monitoring 29
4.3 Leachate Collection System Quality Monitoring 32
4.4 Surface Water Monitoring 32
4.5 Stormwater Management Ponds Monitoring 33
4.6 Landfill Gas Collection System Monitoring 34
4.7 Private Well Monitoring Program 34
4.8 2021 Monitoring Well Repair and Decommissioning 35
4.9 Exceptions to the Monitoring Program 36
5.0 SUMMARY OF SITE CONDITIONS 38
5.1 Site Geology 38
5.2 Site Hydrogeology 38
5.3 Surface Water Drainage 39
6.0 GROUNDWATER MONITORING 40
6.1 Groundwater Levels 40
6.2 Groundwater Flow 40
6.3 Groundwater Quality 41
6.3.1 Background Groundwater Quality 41
6.3.2 Leachate Quality Characterization 42
6.3.3 Assessment of Groundwater Quality Data 43
6.3.3.1 Layer 1 Groundwater Quality 43
6.3.3.2 Layer 2 Groundwater Quality 48
6.3.3.3 Layer 3 Groundwater Quality 49
6.3.4 VOC Monitoring Summary 50
6.3.5 Groundwater Monitoring Well Conditions 50
6.3.6 Reasonable Use Criteria Assessment 50
6.4 Summary of Groundwater Compliance Assessment 52
7.0 SURFACE WATER QUALITY 53
7.1 Surface Water Quality in Municipal Drains 53

7.2 Surface Water Quality in Stormwater Management Ponds 54

8.0 RESULTS OF QUALITY ASSURANCE / QUALITY CONTROL 58

9.0 CONCLUSIONS 60

10.0 RECOMMENDATIONS 62

11.0 LIMITATIONS AND USE OF REPORT 63

TABLES

Table 1.1: Existing Landfill Mound and Cell Designation 3

Table 2.1: Well Decommissioning 9

Table 3.1: 2021 Tonnages (Metric Tonnes) 12

Table 3.2: Apparent Densities 15

Table 3.3: 2021 Leachate Quantities Removed for Treatment 17

Table 3.4: Leachate Levels and Groundwater Elevations Measured in 2021 19

Table 4.1: Summary of 2021 Groundwater Monitoring Program – Old Landfill 30

Table 4.2: Summary of 2021 Groundwater Monitoring Program – West and South Landfills 31

Table 4.3: 2021 Leachate Collection System Monitoring Program 32

Table 4.4: 2021 Surface Water Monitoring Target Parameter List 33

Table 4.5: 2021 Stormwater Quality Monitoring Parameter List 34

Table 4.6: Private Well Monitoring Parameter List 35

Table 4.7: Summary of 2021 Monitoring Well Repairs and Replacements 36

Table 7.1: Summary of Water Quality Municipal Drains 53

Table 7.2: Summary of Water Quality Stormwater Management Ponds 56

DRAWINGS

Drawing 1: Site Development
Drawing 2: Site Operation
Drawing 3: Location of Monitoring Wells and Sampling Stations
Drawing 4: Water Level Elevations Layer 1
Drawing 5: Water Level Elevations Layer 3
Drawing 6: Section A-A′
Drawing 7: Section B-B′
Drawing 8: Section C-C′
Drawing 9: Section D-D′

FIGURES

Figure 1: Durov Diagram May 2021

APPENDICES

APPENDIX A
Environmental Compliance Approvals

APPENDIX B
Ministry Screening Checklist

APPENDIX C
Air Space Calculations

APPENDIX D
Complaints Summary

APPENDIX E
Field Data

APPENDIX F
Summary of Monitoring Well Details

APPENDIX G
Groundwater Elevation Hydrographs

APPENDIX H
Groundwater Chemistry

APPENDIX H1
Layer 1 Hydrostratigraphic Unit Groundwater Quality Summary

APPENDIX H2
Layer 2 Hydrostratigraphic Unit Groundwater Quality Summary

APPENDIX H3
Layer 3 Hydrostratigraphic Unit Groundwater Quality Summary

APPENDIX H4
2021 Summary of Volatile Organic Compound

APPENDIX I
Leachate Chemistry

APPENDIX J
Surface Water Chemistry

APPENDIX J1
Surface Water Chemistry Data

APPENDIX J2
Storm Water Management Ponds Water Quality Data

APPENDIX K
Summary of Off-Site Private Well Results

Note: Drawings, Figures, and Appendices printed and bound to this report. A full electronic copy of this report, including all Appendices, are included in the attached USB Drive.

1.0 INTRODUCTION

1.1 Background

The Ridge Landfill is located near Blenheim, Ontario in the Municipality of Chatham-Kent, and is owned and operated by Ridge (Chatham) Holdings L.P., a wholly owned subsidiary of Waste Connections of Canada Inc. (Waste Connections). In 1997, Browning-Ferris Industries Ltd. (BFI) completed an environmental assessment (EA) for the 1999 landfill expansion to the Ridge Landfill.

Approval of the EA for the 1999 landfill expansion was received on April 29, 1999 as outlined in the amendment to the Waste Environmental Compliance Approval (ECA) No. A021601 (see **Appendix A** for the latest version). Construction activities began in April 1999 in the expanded area of the Ridge Landfill.

On March 31, 2000, Canadian Waste Services Inc. purchased the Ridge Landfill, along with other assets of BFI. Canadian Waste Services Inc. changed its name to Waste Management of Canada Corporation in March 2004.

On December 13, 2004, it was announced that Ridge (Chatham) Holdings L.P., a limited partnership owned by BFI Canada Holdings Inc., would purchase the Ridge Landfill from Waste Management of Canada Corporation. The transfer of ownership was completed on January 4, 2005.

On April 1, 2015, BFI Canada Inc. changed its name to Progressive Waste Solutions Canada Inc.

On April 18, 2017, Progressive Waste Solutions Canada Inc. changed its name to Waste Connections of Canada Inc.; Ridge (Chatham) Holdings L.P. remains a separate company part of the Waste Connections group.

An Environmental Screening process was undertaken in 2011 to increase the daily maximum fill rate from 4,391 tonnes per day to 6,661 tonnes per day, and to increase the annual maximum fill rate from 899,000 tonnes per year to 1,300,000 tonnes per year including alternative daily cover volumes. An amendment to the Waste ECA No. A021601 was issued on March 15, 2012 approving these increased tonnage limits.

The landfill Waste ECA No. A021601 was most recently amended on December 2, 2020 (see Appendix A). This ECA was issued following a 2020 landfill expansion approval and consolidated and revoked the previous ECA and subsequent amendments.

Approval for a landfill gas management system was received on April 29, 2008 under Air ECA No. 7958-7BMQGT. This approval was revoked and replaced with Air ECA No. 2395-BVDTGX issued on December 16, 2020 to reflect the 2020 landfill expansion (see **Appendix A**).

The Industrial Sewage ECA No. 3082-96EQPA was issued on April 11, 2013, for Pond 3 (South of the West Landfill) and included previous approvals for Ponds 4 and 5. This ECA was revoked and replaced with Industrial Waste ECA No. 1800-BULJRQ on December 1, 2020. This ECA allowed expansion of existing Ponds 1, 2, 4 and 5, removed Pond 3 and added proposed Ponds 6 and 7 to manage surface water runoff for the 2020 landfill expansion (see **Appendix A**).

The 2021 groundwater, leachate and surface water monitoring program was implemented based on the recommendations in the 2020 Annual Report and the applicable ECA No. A021601 and ECA No. 1800-BULJRQ.

The Ministry of the Environment, Parks and Conservation (Ministry or MECP) launched a pilot program, in late 2010, to implement a technical guidance document for the submission of monitoring reports for waste disposal sites. The implementation of the technical guidance document is voluntary for the 2021 reporting period. The monitoring and screening checklist technical guidance document has been completed for the 2021 annual report (**Appendix B)**.

1.2 Scope of Report

This report comprises requirements for the Annual Development, Operations and Monitoring Report for the Ridge Landfill for the calendar year of 2021. It is submitted in compliance with Condition No. 13 of the Waste ECA No. A021601, dated December 2, 2020, and Condition No. 7 of the Industrial Sewage ECA No. 1800-BULJRQ, dated December 1, 2020.

This report addresses developments undertaken since 1999, following the first year of operation of the expanded Landfill. This 2021 report has been prepared by Golder Associates Ltd. (Golder), a member of WSP Global Inc. Golder has been acquired by and is now a member of WSP family of companies.

Waste Connections of Canada Inc. (WCC) provided operational data for the 2021 operational year including waste tonnages, leachate volumes, landfill gas volumes and concentration measurements, as well as complaint records and other operational information.

The terms “Landfill Site”, “Existing Site” or “Site” refer to the entire site, which includes the Old Landfill, the West Landfill, the South Landfill and the Infill Area (Cell 8), also defined in the Waste ECA No. 021601 as “Site”.

1.3 Organization of Report

The report discusses Site development and operations, followed by Site monitoring. The latter component discusses groundwater, leachate, surface water and landfill gas.

The following Drawings are located at the back of the report:

- **Drawing 1** shows Site development as of the end of 2021 with the existing ground contours as of May 2021;
- **Drawing 2** is a partial Site plan that identifies various operational features;
- **Drawing 3** shows the groundwater monitoring well locations and surface water sampling locations;
- **Drawing 4** provides the Layer 1 (shallow groundwater) elevations;
- **Drawing 5** provides the Layer 3 (deep groundwater) elevations; and
- **Drawings 6 to 9** show hydrogeological cross-sections in the area of the Site.

Due to the fact that the true north is angled with respect to the orientation of the Figures, Erieau Road is referred to be oriented in a north-south direction in this report for simplicity and clarity (i.e., ‘plan north’). The direction of true north and plan north are shown on the Drawings.

Figure 1 (Durov Diagram) is located after the Drawings and before the Appendices.

In this Report, reference is made to the Old Landfill (also defined in the Waste ECA No. 021601 as “Existing Fill Area”). The Old Landfill prior to the 2020 Landfill Expansion consists of Mounds 1, 2 and 3. The mounds are numbered from south to north. Within the 2020 Landfill Expansion, the Old Landfill was approved for a vertical expansion consisting of Cells O1, O2, O3, O4 on top of the existing Mounds 1 to 3, and a minor horizontal expansion consisting of the East Infill.

Reference is also made in this report to the West Landfill, South Landfill and the Infill Area (Cell 8), also defined in the Waste ECA No. A021601 as “Expanded Fill Area” relative to the 1999 landfill expansion area approved and “Waste Fill Area” relative to the 2020 landfill expansion area. The West and South Landfills are separate waste mounds; the Infill Area (Cell 8) is located at the southwest corner of the Old Landfill. Landfilling operations in 2021

were undertaken in the South Landfill and the Infill Area (Cell 8). Table 1.2 below identifies the cells completed to date for each landfill.

Table 1.1: Existing Landfill Mound and Cell Designation

Landfill Name	Existing Mound/Cell Name and Number
Old Landfill – Prior to the 2020 Landfill Expansion	Mounds 1, 2 and 3, and Infill Area (Cell 8)
Old Landfill – 2020 Landfill Expansion	Cell O1
West Landfill	Cells 1A, 1B, 2A, 2B, 3A, 3B West, 3B East, 4A and 4B
South Landfill	Cells 5A, 5B, 6 and 7

2.0 SITE DEVELOPMENT

Drawings 1 and 2 show all the features that are discussed in this section.

2.1 Duke and Howard Drains

In preparation for the 1999 landfill expansion of the Ridge Landfill, the Duke and Howard Drains were relocated in 1999. These modifications are further discussed in Section 5.3 (Surface Water Drainage).

The Duke Drain was realigned and now proceeds north on the west side of Erieau Road to the southeast corner of the Old Landfill. At this point, the drain crosses under Erieau Road in a culvert and continues to flow north on the east side of Erieau Road. At the northeast corner of the Old Landfill, the drain crosses back under Erieau Road in a culvert and then travels west along the north side of the Old Landfill and discharges to a flood control facility.

The Howard Drain, which previously ran through the middle of the Site, now proceeds west along the south Site boundary. The Howard Drain currently intercepts the Scott Drain at the southwest corner of the Site. Drainage from the Scott Drain flows through culverts under a screening berm and outlets into the relocated Howard Drain. The Howard Drain continues north around the west side of the landfill and discharges into the same flood control facility as the Duke Drain. The Howard Drain connects to the flood control facility outlet and leaves the Site to the northwest.

2.2 Screening Berms

The first screening berms along Erieau Road and Charing Cross Road were constructed in 1999. The Erieau Road berm is parallel to Erieau Road and extends southward for 200 m from the southeast corner of the Old Landfill. The berm has a top elevation of about 4 m higher than the existing ground. The Charing Cross Road berm is located between the West Landfill and Charing Cross Road. The berm is approximately 1,000 m long and has a maximum height of approximately 7 m above the centre line of Charing Cross Road. A 5 m high south berm extends for approximately 150 m from the Charing Cross Road berm easterly along the south of the West Landfill.

A separate screening berm was built along Charing Cross Road in 2012. This berm is approximately 400 m long and has maximum height of approximately 7 m above the centre line of Charing Cross Road. This screening berm was further extended in 2013 by approximately 300 m. This screening berm has not been extended further.

In 2018, an approximately 700 m long, 5 m high, separate screening berm was built parallel to Allison Line. This screening berm provides a visual barrier for the South Landfill operations.

The screening berms were not extended in 2021.

2.3 Stockpiles

Topsoil and soil from the excavation of the landfill cells, municipal drain relocations, stormwater management ponds and flood control facility have been reused or stockpiled for future use.

Topsoil Stockpile 1 is located south of the Old Landfill and east of the South Landfill. This stockpile was placed at this location in 1999 as part of West Landfill construction.

Temporary Topsoil Stockpile 2 is located south of the South Landfill. This stockpile was placed at this location in 2016 as part of the South Landfill construction.

Cover Stockpile 1 was located within the fill area of the South Landfill and has been removed.

Cover Stockpile 2 is located south of the South Landfill. This stockpile was placed at this location in 2016 as part of the South Landfill construction.

Soils in these stockpiles were used in 2021 for daily, intermediate and final cover.

2.4 Stormwater Management Ponds

2.4.1 West and South Landfills

In 1999, two stormwater management ponds (SWP) were constructed (i.e., SWP-4 and SWP-5). SWP-4 is located along the north limit of the West Landfill. This pond controls runoff from the west half of the West Landfill. SWP-5 is also north of the West Landfill, near the northwest corner of the Old Landfill. Runoff from the northwest corner of the Old Landfill and the east half of the West Landfill is collected in this pond. In 2013, stormwater management pond SWP-3 (New) was constructed. SWP-3 (New) is located south of the West Landfill and collects runoff from the east half, west half and south portion of the West Landfill and from the entire South Landfill. SWP-4 and SWP-5 discharge into the Flood Control Facility, whereas SWP-3(New) discharges into the Howard Drain. Refer to Section 2.5 for description of the Flood Control Facility.

2.4.2 Old Landfill

There are two other stormwater management ponds at the Site that serve the Old Landfill. SWP-1 is located just northeast of the Old Landfill and SWP-2 is just southeast of the Old Landfill. Both these ponds receive runoff from the east end of the Old Landfill and discharge to the relocated Duke Drain.

The old SWP-3 was backfilled in 2020; this SWM was located in the footprint of the Infill Area (Cell 8). These ponds were formerly called sedimentation basins in the Old Landfill design. All other ponds that existed in the past have been backfilled.

2.5 Flood Control Facility

A 9-hectare (ha) flood control facility, located on the north side of the Site, was constructed in 1999. The facility controls runoff from the entire upstream drainage area including the relocated Duke, Howard and Scott Drains, as well as some outflow from the Site. The outlet ties into the existing Howard Drain at the north Site boundary and water discharges in a controlled manner.

2.6 Site Entrance and Main Access Road

The main Site entrance is located on Erieau Road, and the street address is 20262 Erieau Road. The main entrance is landscaped to enhance overall visual appearance of the Site.

The main entrance connects to the main access road that has an access control gate located approximately 550 m west of Erieau Road. This location allows trucks waiting to enter the landfill to queue within the landfill property.

At the western limit of the Old Landfill, the main access road turns southwards and continues about 1,000 m to provide access to the West Landfill and South Landfill.

Prior to 2021, the main access road had two lanes consisting of a paved surface and granular shoulders. In 2021, the main access road was upgraded to accommodate current traffic volumes and improve operational practices and safety. The main access road upgrades consisted of two new asphalted inbound lanes, new asphalted outbound lane for the last 230 m prior to exiting the Site and a 10 m x 16.5 m asphalt pad connected to the new outbound lane near the Site entrance. There are drainage ditches located along the sides of the main access road.

2.7 Scale and Buildings

An inbound weigh scale, an outbound weigh scale and a scale house are located on the main access road (before it turns south) near the northwest corner of the Old Landfill. This scale location ensures that queuing trucks are contained within the property. A bypass lane exists on the south side of the outbound scale.

An administration building is located on the north side of the outbound scale and consists of office space, boardroom, washroom and storage facilities. In 2019, a pre-fabricated building was erected adjacent to the existing administration building to provide additional office, meeting and staff lunchroom space.

A maintenance building is located at the northwest corner of the Old Landfill. The maintenance building is equipped with facilities for maintenance, cleaning and storage of landfill equipment.

The maintenance facilities were also expanded in 2019 with the addition of a hot box building for thawing of frozen loads during winter operations. The hot box building is used as an equipment storage/maintenance area during the non-winter months. Upgrades to the equipment wash bay area were also completed in 2019 and included the addition of an oil and grit separator and a wastewater pipe connection to the landfill leachate collection system forcemain.

2.8 Perimeter Roads

Single lane maintenance perimeter roads are constructed around the Old Landfill, West Landfill and South Landfill. The roads are gravel surfaced, 4.0 m wide, and encircle the fill areas. The perimeter roads will be extended around the future landfill expansion Area A and Area B.

In 2019, a heavy equipment road was constructed parallel to the existing landfill access road to provide access between the active landfill areas and the on-site heavy equipment maintenance facilities. This road mitigates traffic conflict between waste hauling vehicles and landfill heavy equipment. In 2020, the existing road along the west side of the Infill Area (Cell 8) was widened to manage traffic during peak hours and high-volume periods throughout the year.

Temporary haul roads are constructed over the waste fill areas as needed to provide access to the landfill working face.

2.9 Landfill and Cell Development

In April 1999, construction activities began in the West Landfill area of the Ridge Landfill. The west half of the first new cell (Cell 1A), located at the north end of the West Landfill, was constructed. This was completed by December 1999.

In September 2000, construction began on the east half of the first cell (Cell 1B) and Pump House 1. The development of Cell 1B involved the excavation of approximately 235,000 cubic metres of overburden soil, which was hauled to the stockpiles south of the Old Landfill. The majority of this construction was completed by the end of November 2000. Landfilling began in this area of Cell 1B in late December 2000.

Construction of Cell 2A, Cell 2B and Pump House 2 was completed in 2002. Landfilling began in Cell 2A in September 2002.

Construction of Cell 3A and Pump House 3 started in 2006 and was completed in January 2007. Construction of Cell 3B West was completed in 2010. Construction of Cell 3B East and Pump House 4 was completed in 2011.

Cell 4A and a portion of Cell 4B were pre-excavated in 2012. Cell 4A was constructed in 2013. Cell 4B was further pre-excavated in 2013 and completed in 2014.

Cell 7 and Pump House 5 were constructed in 2016.

Cell 5A and Pump House 6 were constructed in 2017. A portion of Cells 5B and 6 was constructed in 2018. The remainder of Cells 5B and 6 was constructed in 2019.

The Infill Area (Cell 8) was constructed in 2020 and was horizontally extended in 2021 to optimize the leachate collection system.

The existing Cell O1 perimeter collector was replaced with a system comprised of perimeter twin pipes and collector trench in 2020/2021. The Cell O1 finger drains were constructed in 2021.

In preparation for the 2020 landfill expansion of the Ridge Landfill, the Southwest Woodlot located south of the West Landfill was removed in 2021.

2.10 Leachate Collection System

2.10.1 Old Landfill

The key elements of the leachate management system of the Old Landfill consist of a perimeter drain and finger drains that connect to the perimeter drain. In November 2000, the final segment of the perimeter leachate collection system on the west side of the Old Landfill was installed. This involved one manhole (MH7) and approximately 260 m of 200 mm perforated pipe. With the last section of the leachate collection system in place, the Old Landfill was completely encircled by a perimeter leachate collection system.

The entire perimeter leachate collection system of the Old Landfill is shown on **Drawing 2**. Arrows on the Drawing show the direction of leachate flow in the leachate collection system. High points on the system are MHs 6, 13, 15, 18 and 8C. Low points are Pump Stations PS-1 and PS-2. Leachate is pumped to the above-ground leachate storage tank along Erieau Road near the old maintenance building.

In 2020, the perimeter collector between existing manholes MH8 and MH21 was constructed as part of the Infill Area (Cell 8) construction. Manholes MH8A to MH8F were constructed along the perimeter of the Infill Area (Cell 8).

In 2020, the perimeter collector between manholes MH4 and MH8 was replaced for maintenance reasons and upgraded to include a redundant perimeter collector pipe above the existing perimeter collector pipe as part of the landfill expansion approval. In addition, a new forcemain was installed to convey leachate from manhole MH8 to MH4.

In 2022, manhole MH8 will be converted to a pump station and the forcemain will be extended from MH4 to the leachate storage tank to coincide during construction scheduled for the leachate perimeter collection system for Cell O2. This new pump station and forcemain (MH8 to PS-1) will replace the collector that runs through the Old Landfill from MH8 to PS-1 (i.e., MH8 – MH9 – MH10 – MH11 – PS-1).

2.10.2 West and South Landfills

The key elements of the leachate collection system of the West and South Landfills consist of a continuous drainage blanket (i.e., clear stone drainage layer), perforated pipes and a sand protective layer. The leachate collection system for Cell 1A was constructed in 1999. The leachate collection system of the West and South Landfills has been constructed and expanded as part of the cell construction activities described above.

In the Fall of 2000, work also began to connect the leachate storage tank to the sanitary forcemain on Erieau Road. In May of 2002, the connection between the leachate storage tank and the sanitary sewer forcemain on Erieau Road became operational. Since then, leachate has been conveyed via the forcemain to the Blenheim Sewage Treatment Plant for treatment.

In 2018, a level sensor was added to the leachate storage tank to increase automated capability. In 2020, ten leachate collector system cleanout pipes on the east slope of the South Landfill were extended by approximately 3 m to allow placement of final cover. Permanent airtight caps were added to all cleanout pipes in the South and West Landfills to seal and prevent odour emissions.

For leachate management system operation and maintenance information refer to Section 3.10.

2.11 Tree Planting

During 2000, the first phase of landscaping on the screening berm along Charing Cross Road was completed. This project involved the planting of trees and shrubs in beach stone planting beds on the western slope of the Charing Cross Road Berm. This first phase of the landscaping began at the northern end of the berm. During the Fall of 2001, the second phase of the landscaping works was completed. The third, fourth and fifth phases of landscaping works were completed during the Fall of 2002, 2003 and 2004, respectively (refer to **Drawings 1** and **2**).

There was no new on-site tree planting between 2005 and 2021.

2.12 Topsoil and Seeding

Areas of the landfill that have reached final contours and ditches are topsoiled and seeded. Soil stockpiles are seeded as needed in an effort to minimize erosion and dust.

Prior to topsoil application, stormwater diversion berms on the final cover are constructed. Topsoil is placed with a low ground pressure dozer perpendicular (i.e., up and down) to the side slopes for erosion control. Preparation of the soil for seeding involves lightly disking the ground and then harrowing extensively to achieve a loose seedbed, and application of fertilizer. A winter wheat nurse crop is added to the grass seed mix and the overall mix is then drilled into the soil with a Brillium seeder.

Approximately 2.9 hectares of final cover was completed in 2021. The OPSS.MUNI 804 Standard Roadside Mix has been specified for the final cover seed mix, which consists of:

- 50% Creeping Red Fescue
- 10% Kentucky Bluegrass
- 35% Perennial Ryegrass
- 5% White Clover

Additional quantities of rye nurse crop are added as directed by the Ridge Landfill personnel or recommended by the landscape contractor.

The rate of application of the seed mix to the soil is approximately 170 kg/hectare.

Select sections of the finished seeded slope were covered with straw blankets to promote germination/prevent erosion. Grass germination rates were generally acceptable as confirmed by weekly inspections after seeding completion.

2.13 Site Perimeter Fencing

The Site has been enclosed with a perimeter fence since 1983. A two-metre high chain link security fence with a remote control gate is located along the east side of the Site along Erieau Road.

During 1999, the farm type fencing (i.e., 1.2 m high wire grid) along the south side of the Old Landfill was replaced. Chain link security fencing was installed in 1999 along the northern side of the Old Landfill. Chain link fencing was also installed in the northwest corner of the West Landfill in 1999.

2.14 Decommissioning of Monitoring Wells

In 1999, all monitoring wells within the future landfilling areas were decommissioned. The one exception to this was monitoring well BW-2, which was decommissioned in 2000. In 2002, monitoring wells 14-I and 21-I were decommissioned due to faulty concrete seals.

In 2012, a 44.2 m deep abandoned residential well located within the footprint of Cell 4A was decommissioned. Decommissioning included over-drilling the well with hollow stem augers, removal of the well casing and grouting the annulus with bentonite.

In 2020, monitoring wells 18-I and 25-I were decommissioned within the footprint of the Old Landfill to allow construction of the Infill Area (Cell 8).

Table 2.1 identifies monitoring wells decommissioned for the Old, West and South Landfills.

Table 2.1: Well Decommissioning

Well ID	Year of Decommissioning
7	1999
8	1999
9	1999
14	2002
21	2002
23	1999
29	1999
33	1999
34	1999
35	1999
51	1999
53	1999
54	1999
55	1999
56	1999
57	1999
BW-2	2000
18-I	2020
25-I	2020

2.15 Proposed Future Work

Some of the major works contemplated for 2022 include:

- Construction of the Cell O2 perimeter leachate collection system, which is the second cell of the vertical expansion of the Old Landfill;
- Relocation of a portion Duke Drain to allow construction of Area 5 (Ancillary Facilities) and Stormwater Management Pond 5 expansion;
- Construction of Area 5 (Ancillary Facilities);
- Stormwater Management Pond 5 expansion;
- Construction of the MH8 pump station and extension of the existing forcemain from MH4 to the leachate storage tank. The first part of the forcemain was previously constructed from MH8 up to MH4 in 2020;
- Expansion of the landfill gas header pipe in the West Landfill;
- Installation of landfill gas collection infrastructure at the Infill Area (Cell 8) to provide early capture of landfill gas and mitigate potential off-site odour impacts; and,
- Permanent asphalt placement in the main entrance road.

3.0 OPERATIONS

3.1 Site Equipment

At the end of 2021, the fleet of heavy equipment stationed at the Ridge Landfill consisted of the following:

- Three Cat 836H Landfill Compactors;
- Two Cat 836K Landfill Compactors;
- One Cat D8R Dozer;
- Four Cat D8T Dozers;
- Two Cat D6T Dozer;
- One John Deere 850J Dozer with sweeper, snow blade and fork attachments;
- One Cat 815B Soil Compactor;
- Three Volvo A30 Articulated Dump Trucks;
- One Cat 345 Hydraulic Excavator;
- One Cat 336 Hydraulic Excavator;
- One Cat 430 Backhoe-loader with sweeper and fork attachments;
- One John Deere 672 Road Grader;
- One John Deere 644K Front End Loader with sweeper, snow blade and fork attachments;
- One Cat 735 Water Wagon;
- One Cat 725 Water Wagon;
- One Johnson VT650 Vacuum Sweeper Truck;
- One Kubota 9540 Tractor;
- One Kubota M125XDTC Tractor; and,
- Two 3710 Bush Hog Lawn Mower;

All equipment is maintained on a regular basis according to the manufacturer's recommended maintenance schedule.

3.2 Areas of Landfilling

There were no landfilling operations in the original Old Landfill from 1999 to 2019.

Landfilling activities commenced in the West Landfill (Cell 1A) on January 3, 2000. Landfilling activities commenced in the South Landfill in early 2017 and continued through 2021. Landfilling activities commenced in the Infill Area (Cell 8) in 2020. **Drawing 2** indicates where landfilling operations took place from 2000 to 2021.

3.3 Areas of Excavation

In 2021, soil was excavated from the Infill Area (Cell 8) extension and soil stockpiles on top of the Old Landfill. See **Drawing 2** for location of excavated areas.

3.4 Waste Quantities

The Ridge Landfill personnel maintain daily waste records at the Site office. These records indicate the origin of the waste, the number, type and time of vehicle arrivals and departures. The type and tonnage of the waste is also recorded. From these records, the following table was prepared summarizing the weekly tonnage of waste and alternative daily cover (ADC) received at the Site in 2021.

Table 3.1: 2021 Tonnages (Metric Tonnes)

Period Ending	Weekly Waste Tonnage	Weekly ADC Tonnage	Total Weekly Waste and ADC Tonnage
January 3, 2021	237.62	-	237.62
January 10, 2021	19,569.41	647.83	20,217.24
January 17, 2021	19,330.42	1,386.02	20,716.44
January 24, 2021	17,805.50	4,666.14	22,471.64
January 31, 2021	16,433.92	3,580.16	20,014.08
February 7, 2021	18,039.73	3,726.19	21,765.92
February 14, 2021	18,552.18	4,094.77	22,646.95
February 21, 2021	13,255.59	2,709.62	15,965.21
February 28, 2021	18,320.72	3,043.47	21,364.19
March 7, 2021	18,490.20	2,495.23	20,985.43
March 14, 2021	20,515.16	2,248.70	22,763.86
March 21, 2021	19,330.28	2,501.62	21,831.90
March 28, 2021	20,810.53	1,737.16	22,547.69
April 4, 2021	18,038.50	2,996.03	21,034.53
April 11, 2021	21,465.83	2,139.14	23,604.97
April 18, 2021	22,816.67	3,058.47	25,875.14
April 25, 2021	23,477.20	6,758.01	30,235.21
May 2, 2021	23,269.08	2,663.04	25,932.12
May 9, 2021	22,179.17	2,314.38	24,493.55
May 16, 2021	23,291.33	3,531.47	26,822.80
May 23, 2021	24,117.25	1,524.51	25,641.76
May 30, 2021	21,691.91	1,408.57	23,100.48
June 6, 2021	22,881.24	4,340.74	27,221.98
June 13, 2021	23,835.00	3,390.62	27,225.62

Period Ending	Weekly Waste Tonnage	Weekly ADC Tonnage	Total Weekly Waste and ADC Tonnage
June 20, 2021	18,779.67	2,073.23	20,852.90
June 27, 2021	23,604.10	5,521.43	29,125.53
July 4, 2021	21,866.30	2,228.86	24,095.16
July 11, 2021	24,865.38	2,598.74	27,464.12
July 18, 2021	26,964.13	3,034.10	29,998.23
July 25, 2021	19,126.15	2,534.10	21,660.25
August 1, 2021	25,080.50	4,604.97	29,685.47
August 8, 2021	21,820.26	3,652.97	25,473.23
August 15, 2021	24,382.09	2,753.76	27,135.85
August 22, 2021	23,539.83	3,021.98	26,561.81
August 29, 2021	24,984.45	2,761.46	27,745.91
September 5, 2021	25,421.11	2,450.35	27,871.46
September 12, 2021	27,606.40	3,527.54	31,133.94
September 19, 2021	15,117.79	2,002.44	17,120.23
September 26, 2021	24,604.18	3,186.91	27,791.09
October 3, 2021	23,490.09	3,764.27	27,254.36
October 10, 2021	24,099.20	4,009.95	28,109.15
October 17, 2021	22,798.84	3,637.17	26,436.01
October 24, 2021	25,440.77	3,193.30	28,634.07
October 31, 2021	25,797.66	2,824.15	28,621.81
November 7, 2021	25,373.69	5,454.41	30,828.10
November 14, 2021	25,365.14	6,688.96	32,054.10
November 21, 2021	24,213.05	7,218.07	31,431.12
November 28, 2021	18,061.61	5,765.25	23,826.86
December 5, 2021	17,398.13	4,913.54	22,311.67
December 12, 2021	21,002.19	6,115.30	27,117.49
December 19, 2021	19,841.20	4,345.80	24,187.00
December 26, 2021	10,715.84	135.23	10,851.07
December 31, 2021	7,268.17	179.34	7,447.51
Total	1,106,382	171,159	1,277,542

The total waste and ADC combined tonnage received in 2021 was 1,277,542 tonnes, which is lower than the maximum approved limit of 1,300,000 tonnes per year stipulated in the amended ECA No. A021601. The waste and ADC combined quantities landfilled in 2021 was higher than the 1,170,409 tonnes of combined waste and ADC landfilled in 2020.

The ADC tonnage received in 2021 consisted of sludge (2.45%), foundry sand (<0.01%), auto shredder residue (61.18%), and contaminated soil (36.36%).

The Site did not receive any soil for bioremediation in 2021.

Special waste handling protocols were followed and updated as necessary throughout the year. Special waste loads (e.g., asbestos, livestock and sludge) delivered to the Ridge Landfill were scheduled through Site staff prior to the day of disposal. The special waste disposal was limited to specific daily quantities and a specific time period for arrival on Site.

3.5 Measured Gate Tonnes

Total waste (excluding ADC) landfilled at the Site during the calendar year of 2021 amounted to 1,106,382 tonnes.

The 2020 and 2021 aerial photographs and topographic mappings were completed on May 2, 2020 and May 1, 2021, respectively.

The waste tonnage (excluding ADC) landfilled at the Site between the start of filling on January 3, 2000 and the date of the previous mapping (May 2, 2020) is estimated to be 16,214,932 tonnes. The waste tonnage received between mapping dates (i.e., on May 2, 2020 through to May 1, 2021) is estimated to be 1,075,027 tonnes. Therefore, the waste tonnage landfilled at the Site between the start of filling (January 3, 2000) in the West Landfill, South Landfill and Infill Area (Cell 8) to the latest mapping date (May 1, 2021) is estimated to be 17,289,959 tonnes (**Appendix C**).

3.6 Estimated Capacity Consumption

For the 2021 annual report, The Base Mapping Co. Ltd. was responsible for obtaining the necessary aerial photographs, and the subsequent preparation of the topographic mapping. Golder completed the computer calculations for the Site volumes. The Site capacity calculations are presented in **Appendix C**.

The volume change due to landfilling between the May 2, 2020 contours to the May 1, 2021 contours was computed to be 1,302,725 m^3, which includes 76,405 m^3 of final cover material applied to the South Landfill. Therefore, the volume of waste and daily/intermediate cover placed between mapping dates was 1,226,320 m^3 (refer to **Appendix C** for volume calculation details). The waste and daily/intermediate cover volume placed (i.e., usable air space consumed) from the start of landfilling (January 3, 2000) to May 2, 2020, was computed to be 19,622,500 m^3. Therefore, the total volume of waste and daily/intermediate cover material placed from January 3, 2000 to May 1, 2021, was 20,848,820 m^3.

Based on an estimated waste input to the landfill of 17,289,959 tonnes up to the 2021 mapping date, an overall apparent waste density of approximately 829 kg/m^3 was computed. The apparent waste density is defined as the weight of waste (excluding ADC) in a cubic metre of air space.

As noted above, the volume change of waste and daily/intermediate cover material (excluding ADC) between recent mapping dates of May 2, 2020 and May 1, 2021 was calculated to be 1,226,320 m^3, while the waste quantity landfilled between mapping dates was 1,075,027 tonnes (excluding ADC). The apparent waste density achieved between mapping dates was calculated to be 877 kg/m^3. In the previous Annual Report, an apparent waste density between

mapping of 876 kg/m^3 was achieved. Since the start of filling on January 3, 2000, the overall apparent waste density of the landfill is calculated to be 829 kg/m^3. The apparent waste densities achieved in 2020 and 2021 are comparable.

Table 3.2 summarizes the apparent density estimates.

Table 3.2: Apparent Densities

Time Period	Airspace Volume Change	Tonnage	Apparent Density
January 3, 2000 to May 1, 2021	20,848,820 m^3	17,289,959 tonnes	829 kg/m^3
May 2, 2020 to May 1, 2021	1,226,320 m^3	1,075,027 tonnes	877 kg/m^3

3.7 Remaining Capacity and Site Life

The Waste ECA No. A021601 amended on December 2, 2020 approves a 21,000,000 m^3 capacity (or airspace, defined as the volume for waste and daily cover disposal) for the Site prior to the 2020 landfill expansion, excluding the original waste fill volume of the Old Landfill prior to 2000. This ECA also approves a 28,900,000 m^3 capacity for the 2020 landfill expansion. The total approved capacity for the Site is therefore 49,900,000 m^3 excluding the original waste fill volume of the Old Landfill prior to 2000.

The remaining capacity for the Landfill was determined by calculating the volume available from the existing ground contours as of May 1, 2021 mapping up to the approved top of final cover contours minus the remaining final cover volume to be placed. This process resulted in a remaining capacity of 29,051,180 m^3. The used capacity from January 3, 2000 to May 1, 2021 was calculated as 20,848,820 m^3.

If the remaining landfill capacity consumption continues at the 2021 rate (i.e., 1,106,382 tonnes/year excluding ADC at 877 kg/m^3 apparent density, or 1,262,088 m^3/year), the remaining landfill Site life would be 23.0 years from May 1, 2021, resulting in a closure year of 2044.

Based on apparent densities achieved to date, it is currently expected that the landfill will achieve an average apparent density in the order of 850 kg/m^3 at completion. If waste continues to be received at the current rate of 1,106,382 tonnes/year excluding ADC and landfilled at the expected apparent density of 850 kg/m^3, the remaining landfill Site life would be 22.3 years from May 1, 2021, resulting in a closure year of 2043.

3.8 Cover Soil Usage

Clay material was used for daily, intermediate and final cover in 2021. Based on cut/fill volume calculations using the May 2, 2020 and May 1, 2021 mapping:

- The Cover Stockpile 2 had an in-place soil volume of 96,176 m^3 as of May 1, 2021, an increase of 246 m^3 from the May 2, 2020 mapping;
- The Topsoil Stockpile 1, east of the South Landfill, had an in-place volume of 46,852 m^3 as of May 1, 2021 mapping, with no changes from the May 2, 2020 mapping; and
- The Temporary Topsoil Stockpile 2, south of the South Landfill, had an in-place volume of 5,264 m^3 as of May 1, 2021 mapping, a decrease of 510 m^3 from the May 2, 2020 mapping.

Based on a count of loads hauled, 76,405 m^3 of final soil cover was applied to the South Landfill, and 146,363 m^3 of daily and intermediate soil cover (excluding ADC) was used between the 2020 and 2021 mappings. These soils were sourced from the footprint of the Infill Area (Cell 8) extension and stockpile on top of the Old Landfill.

Given that the total capacity (waste plus daily/intermediate cover) consumed between mappings was 1,226,320 m^3, the waste:cover ratio between the 2020 and 2021 mapping period was 7:1 (excluding ADC). A total of 171,159 tonnes of ADC were received in the 2021 calendar year.

3.9 Soil Grading and Erosion Control

Over the past years, some of the previously filled areas of the Site have been regraded and the final cover reinstated, particularly where settlement has occurred. The slope grades have also been improved to promote surface water runoff and prevent ponding. No significant areas of ponded water on the waste fill area were identified in 2021.

Some slopes on the landfill and clay stockpiles occasionally experience erosion due to surface water runoff. An often-used repair method is to cut and backfill the erosion channels with compacted clayey soil. The construction of stormwater diversion berms has successfully controlled erosion on the side slopes final cover. The Site perimeter roads are maintained on a regular basis by grading. Erosion damage and drainage deficiencies are repaired as needed. In addition, the following activities were completed in 2021:

- Final Cover was placed as shown in **Drawing 2**;
- Gabion lined rock swales were completed in the south part of the West Landfill to minimize erosion in localized areas;
- Drainage ditches and culverts were regularly cleaned and maintained as necessary to maintain minimum flow and minimize sedimentation of stormwater management ponds; and
- A vacuum truck was brought to the Site as needed for routine culvert cleaning/maintenance.

These measures reflect the emphasis on improving surface water management to facilitate operations and minimize leachate generation rates.

3.10 Leachate Management

3.10.1 Leachate Quantities

The leachate collection system monitoring involves both quantity and quality monitoring. Leachate quantity monitoring is documented in this section of the report. Leachate quality is discussed in **Section 4.3**.

In 2021, 36,049,448 litres of leachate were pumped via forcemain to the Blenheim Sewage Treatment Plant. The following table outlines the weekly totals of volumes of leachate removed for treatment in 2021.

Table 3.3: 2021 Leachate Quantities Removed for Treatment

Month	1st Week (Litres)	2nd Week (Litres)	3rd Week (Litres)	4th Week (Litres)	5th Week (Litres)	Total (Litres)
January	Not recorded	Not recorded	Not recorded	Not recorded	Not recorded	2,953,822
February	719,055	345,139	571,807	1,011,687	Not recorded	2,647,688
March	752,378	434,652	883,896	1,022,143	173,842	3,266,911
April	369,188	468,656	438,016	482,386	331,592	2,089,838
May	488,977	625,860	734,830	531,938	569,716	2,951,322
June	653,955	591,765	786,519	945,496	287,677	3,265,411
July	364,460	1,163,435		628,542	275,720	2,432,158
August	285,995	479,703	837,799	547,713	536,120	2,687,330
September	14,593	584,127	364,960	1,091,425	52,553	2,107,658
October	277,584	519,482	735,285	1,037,236	1,011,778	3,581,364
November	862,030	736,103	1,010,323	872,258	28,140	3,508,854
December	1,028,598	1,370,328	960,771	1,197,395	Not recorded	4,557,092
Total (Litres)						**36,049,448**

Note: There was a temporary disruption in some of the 2021 weekly pump volume checks due to employee turnover.

3.10.2 Leachate Collection System Operation, Inspections and Maintenance

Since May 2002, leachate has been pumped off Site through a forcemain to the Blenheim Sewage Treatment Plant. The forcemain valve at the Erieau Road connection was replaced by the Municipality of Chatham-Kent in 2019.

The leachate collection system pumps of the Old Landfill, West Landfill and South Landfills were operated and maintained as needed in 2021. The Gorman-Rupp holding tank discharge pump and the Flygt pumps in the Old Landfill pump stations PS-1 and PS-2, and the EPG pumps in the West and South Landfills pump houses were pulled, repaired or replaced as necessary in 2021.

The level sensor of the leachate storage tank was adjusted and repaired in 2021. The backflow valve of the Gorman-Rupp pump was replaced in 2021.

The power supply of pump station PS-1 was damaged and temporarily replaced with a portable generator in 2021. A new hydro connection will be installed in 2022.

The flow meters and level sensors of the South and West Landfills pump houses were repaired/replaced as required in 2021.

Cleaning and video inspection activities were completed in the northern leachate collector pipes of the West Landfill and Mounds 1 and 2 of the Old Landfill in August 2019. Additional video inspections were completed for Mound 3 of the Old Landfill in 2020. None of the inspected pipes have significant clogging that could affect the performance of the leachate collector pipes. Perimeter collectors of the Old Landfill and leachate laterals and header pipes of the West and South Landfills were flushed in 2021.

3.10.3 Old Landfill Leachate Collection System Performance

Leachate levels have been inspected in the manholes of the leachate collection system of the Old Landfill since 2007. Starting in 2021, leachate levels are measured once a year in the perimeter manholes of the Old Landfill and compared with the adjacent ground elevations as required by the Waste ECA. This information is used to assess the performance of the leachate collection system of the Old Landfill. Leachate elevations measured in manholes are compared to groundwater elevations in the nearest relevant monitoring wells to confirm the perimeter collector is depressing the shallow groundwater system, i.e., the perimeter collector is controlling leachate off-site migration at the Old Landfill perimeter and performing as designed.

The leachate levels and elevations measured in June 2021 in the accessible manholes of the Old Landfill and groundwater elevations measured in May 2021 in the nearest relevant monitoring wells are shown in **Table 3.4** below.

Table 3.4: Leachate Levels and Groundwater Elevations Measured in 2021

Manhole ID	Manhole Location Description	Measurement Reference Point Elevation at Top of Manhole (masl)	Leachate Level in Manhole (metres below Measurement Reference Point)	Leachate Elevation in Manhole (masl)	May 2021 Groundwater Elevation (masl) at Nearest Relevant Layer 1 Monitoring Well
MH1	East side of the Old Landfill, close to Stormwater Pond 1	200.42	6.68	193.74	197.66 at MW-1-II
MH2	Northeast corner of the Old Landfill, close to Stormwater Pond 1	199.59	5.21	194.38	195.84 at MW-44-III
MH3	North side of the Old Landfill	200.43	5.20	195.23	No relevant well available as MW-3-III is influenced by Duke Drain, which has a bottom elevation at 194.73 masl
MH4	North side of the Old Landfill	201.03	5.07	195.96	No relevant well available as MW-3-III is influenced by Duke Drain, which has a bottom elevation at 194.73 masl
MH5	North side of the Old Landfill	200.95	4.30	196.65	No relevant well available as MW-3-III is influenced by Duke Drain, which has a bottom elevation at 194.73 masl
MH6	Northwest corner of the Old Landfill, Close to the scales	200.61	3.36	197.25	No relevant well available as MW-5-II is under the influence of the adjacent perimeter collector
MH7	West side of the Old Landfill, close to Building E (Hot Box)	202.50	5.30	197.20	No relevant well available as MW-5-II is under the influence of the adjacent perimeter collector
MH8A	West side of the Old Landfill, part of the Infill Area (Cell 8)	199.50	2.42	197.08	197.99 at MW-11-I

Manhole ID	Manhole Location Description	Measurement Reference Point Elevation at Top of Manhole (masl)	Leachate Level in Manhole (metres below Measurement Reference Point)	Leachate Elevation in Manhole (masl)	May 2021 Groundwater Elevation (masl) at Nearest Relevant Layer 1 Monitoring Well
MH8B	West side of the Old Landfill, part of the Infill Area (Cell 8)	200.03	3.36	196.67	197.99 at MW-11-I
MH8C	West side of the Old Landfill, part of the Infill Area (Cell 8)	200.57	3.32	197.25	199.60 at MW-30-III
MH8D	Southwest corner of the Old Landfill, part of the Infill Area (Cell 8)	200.78	3.93	196.85	199.60 at MW-30-III
MH8E	Southwest corner of the Old Landfill, part of the Infill Area (Cell 8)	200.84	4.13	196.71	199.60 at MW-30-III
MH8F	Southwest corner of the Old Landfill, part of the Infill Area (Cell 8)	199.76	3.51	196.25	199.60 at MW-30-III
MH13	East side of the Old Landfill, close to the leachate storage tank	202.24	3.50	198.74	199.66 at MW-12-I
MH14	East side of the Old Landfill	202.46	4.15	198.31	199.30 at MW-13-I
MH21	South side of the Old Landfill, close to Pump Station PS-2	200.10	4.43	195.67	198.92 at MW-19-I

Manhole ID	Manhole Location Description	Measurement Reference Point Elevation at Top of Manhole (masl)	Leachate Level in Manhole (metres below Measurement Reference Point)	Leachate Elevation in Manhole (masl)	May 2021 Groundwater Elevation (masl) at Nearest Relevant Layer 1 Monitoring Well
MH22	South side of the Old Landfill, close to Pump Station PS-2	200.84	5.06	195.78	198.92 at MW-19-I
MH23	South side of the Old Landfill	201.62	5.08	196.54	198.28 at MW-31-I
MH24	Southeast corner the Old Landfill	201.57	4.33	197.24	198.46 at MW-32-III
MH25	East side of the Old Landfill, close to Stormwater Pond 2	201.52	3.80	197.72	198.86 at MW-16-I

Notes:

i) Groundwater elevation was not available from May 2021 for monitoring well 30-III. An average groundwater elevation from 2017 to 2021 was used above.

ii) masl – metres above mean sea level

In summary, leachate elevations measured in manholes are lower than groundwater elevations measured in nearest relevant monitoring wells, confirming the perimeter collector is locally depressing the shallow groundwater system, i.e., the leachate collector is controlling leachate off-site migration at the Old Landfill perimeter and performing as designed.

3.10.4 Leachate Seeps

No leachate seeps were encountered in 2021. The absence of leachate seeps is a reflection of effective seep remediation completed in previous years and an indication that the leachate collection system is performing as designed.

3.10.5 Leachate Treatment Plant Performance Assessment

Condition 13.1(15) of ECA No. A021601 amended in December 2020 requires the annual report to include leachate quantity and quality sent off-site for treatment, the treatment facility/facilities used, compliance of the treatment facility(ies) with its effluent discharge objectives and any expected modifications to be able to continue to accept and treat all of the leachate generated from the Site.

The leachate quantity sent off-site for treatment at the Blenheim Sewage Treatment Plant is discussed in Section 3.10.1 above. The leachate quality monitoring results are presented in Appendix I and discussed in Section 4.3. All leachate sent off-Site for treatment was pumped through the forcemain and treated at the Blenheim Sewage Treatment Plant during the reporting period.

A review of the 2021 Performance Report for the Blenheim Sewage Treatment Plant (Public Utilities Commission for the Municipality of Chatham-Kent, 2021) indicates that in 2021:

- The annual average daily flow was 1,914 m^3 /day, which represents approximately 47% of the rated capacity of 4,045 m^3 /day;
- The maximum daily flow was 4,710 m^3 /day, which is 39% of the peak flow rate of 12,046 m^3 /day;
- There were no flow exceedances based on the average or maximum daily influent flow;
- The effluent quality was below the approved effluent limits;
- There were no significant operating issues; and
- There was no Notice of Modifications prepared or submitted to the Water Supervisor.

3.11 Surface Water Management

In accordance with the ECA, the stormwater ponds are sampled on a quarterly basis or on a need to discharge basis.

In addition to the water monitoring in the stormwater management ponds, surface water monitoring is also carried out at four locations. Three of these locations, SW4, SW11 and SW12, are in municipal drains upstream of the landfill (see **Drawing 3**). SW7 is a downstream monitoring location in the Howard Drain. The surface water monitoring stations are sampled on a quarterly basis.

No sheen was observed on the stormwater ponds throughout the year.

3.11.1 Operation, Maintenance and Performance of Stormwater Ponds

The stormwater ponds were operated in batch mode. Before release of water from a stormwater pond, samples were collected and tested for leachate impact. Test results were compared against the discharge objectives

included in the Industrial Sewage ECA No.1800-BULJRQ. Details of the sampling and analytical results are discussed in **Section 7**.

Water quality monitoring coupled with routine Site inspections, maintenance and/or changes in operational practices were applied to minimize surface water impacts.

The following maintenance activities were completed in 2021:

- Stormwater Pond 3 sediment removal continued in 2021. The sediment removal restored the permanent surface water design storage capacity of Stormwater Pond 3, which can be used for dust suppression during typical dry summer months;
- Gabion lined rock swales were completed in the South part of the West Landfill to reduce slope erosion and stormwater pond sediment loading; and
- Drainage ditches were cleaned and stormwater inlet culverts were flushed in 2021.

A contingency plan is in place. The contingency plan outlines how to manage the water in the stormwater ponds in the event that it becomes contaminated. This contingency plan is outlined in the Section 17.2 of the Design and Operations Report (Golder, 2020b).

3.12 Landfill Gas Management

The Design and Operations Report (Golder, 2020b) describes the concept for the landfill gas management system. The first phase of the landfill gas management system construction in the West Landfill started in August 2008, and commissioning of the system was undertaken in late 2009. The first phase included 29 gas extraction wells installed on the final slopes in the north half of the West Landfill, nine connections to the leachate collection system, and piping network connecting these wells to a blower/flare station located south of the Old Landfill.

The landfill gas collection system has been progressively expanded to portions of the West Landfill that reached final grades:

- Installation of 17 gas extraction wells and two new connections to the leachate collection system in 2011
- Installation of 10 gas extraction wells in 2012
- Installation of 10 gas extraction wells in 2013
- Installation of 7 gas extraction wells in 2014
- Installation of 9 gas extraction wells in 2015
- Installation of 10 gas extraction wells in 2016
- Installation of 25 gas extraction wells and four new connections to the leachate collection system cleanouts in 2018. The header pipe was extended to close the perimeter loop around the West Landfill in 2018

The landfill gas collection system has been progressively expanded to portions of the South Landfill that reached final grades:

- Installation of approximately 850 m of perimeter header pipe in 2018
- Installation of approximately 400 m of perimeter header pipe in 2019
- Installation of 13 gas extraction wells in 2019

- Installation of 12 gas extraction wells in 2020
- Installation of 19 gas extraction wells in 2021

Drawing 1 shows the existing landfill gas extraction wells installed at the end of 2021 and blower/flare station.

The three existing flares and blowers were operated to maximize gas extraction/combustion and minimize potential landfill gas related odours in 2021. The gas extraction wells were balanced and monitored at least monthly in 2021 for maximum odour control while achieving desired gas concentrations and minimizing well temperatures.

A total of 47.3 million cubic metres of landfill gas (adjusted to 25^{o}C and 101.3 kPa) was collected and flared in 2021. The overall average methane concentration for the collected/flare landfill gas was 54.0% in 2021.

The landfill gas management system was regularly operated and maintained in 2021 as per the Operations and Maintenance Manual. No major changes to the Operations and Maintenance Manual were completed in 2021.

The gas extraction infrastructure including lateral/header piping, condensate pumps, and flare/blower system components were inspected on a routine basis and repaired as needed in 2021. Condensate pumps in the landfill gas piping system were maintained to maximize condensate removal while maximizing gas flow rates.

The landfill gas collection system and flares were operated to maximize the efficiency of gas extraction and odour control in 2021. Downtime was minimized in 2021. The landfill gas collection system was monitored and operated to maintain optimum gas flow at desired gas concentrations and acceptable temperatures.

3.12.1 Assessment of the Existing Landfill Gas Collection System

Condition 13.1(16)(e) of the ECA No. A021601 requires the annual report to include an assessment of the adequacy of the gas collection system and need to expand the system to maximize the collection coverage.

In 2019, it was determined that an additional flare and blower would be needed to increase the existing extraction and flaring capacity composed of two flares and blowers. Construction of an additional landfill gas flare and blower was initiated in June 2020 and commissioned in 2021. The increased vacuum and flaring capacity with the installation of the 3rd flare and blower allowed the system to handle additional gas as additional gas extraction wells are installed in the future.

Following assessment, several additional system upgrades were completed during the 2020 construction project including upgrade of system programming, installation of a QED gas analyzer for real time quality data monitoring, and system programming updates to include the ability to remotely access and monitor the landfill gas management system.

3.13 Litter Control

For many years, the Ridge Landfill has used portable litter fence units to control wind-blown litter from the active tipping face. These portable litter fences are 3.7 m to 4.6 m in height and 7.3 to 9.1 m in length. The portable litter fences are skid-mounted to allow relocation with a bulldozer. There are currently 45 portable litter fence units totaling a length of approximately 400 m. Snow fences are erected as needed to supplement the portable litter control fencing. In addition, Defender litter brand litter fences were installed around the Site in 2020 to improve litter control. Portable litter fences were moved on a daily basis based on current and forecasted wind conditions.

Approximately 400 m of permanent litter fences were installed in 2009 on the west side slope of the West Landfill. Approximately 800 m of permanent litter fences were installed in 2014 on the south and east side of the West Landfill. Approximately 1,500 m of permanent litter fence was installed at the south, east and north perimeter of the South Landfill in 2016. In 2021, all existing perimeter fences were repaired as needed. In 2021, additional permanent litter fences were installed along the eastern and southern perimeter of the Old Landfill Cell O3, and approximately 91 m (300 feet) adjacent to the scale house and main office building. Additionally, a 1.80 m (6-foot) tall temporary/permanent litter fence was installed in the north-south direction across the Old Landfill Cells O2/O3. In 2021, all existing perimeter fences were also repaired as needed.

In addition to the litter control fencing system, the Ridge Landfill employs personnel for Site cleanup and litter control (litter pickers) as needed. The number of litter picking employees was increased as needed throughout the year. These employees are responsible for collecting any litter that may occur on Erieau Road, ditches and other properties adjacent to the Site.

Repairs to all temporary litter fencing were completed as needed in 2021 and the litter fence reinforcement with vinyl dipped steel meshing and steel braided cables was continued.

The perimeter screening berms around the Ridge Landfill provide additional litter control.

Perimeter roads and adjacent properties were monitored and cleaned on a daily basis. The landfill was closed down on several occasions when litter migration off-site could not be prevented due to extreme wind conditions. Off-site litter pickup was prioritized as needed.

On-Site litter was picked up as needed. Areas with potential off-site litter migration were given priority. Litter pickup at surface water drainage ditches and stormwater ponds were also given priority.

In summary, wind-blown debris have been managed since the year 2000 through the use of perimeter screening berms, operation of portable litter fences, the installation of permanent litter fences and the manual collection of wind-blown debris as needed.

3.14 Mud and Dust Control

Roads are swept and watered to control mud and dust as needed using available on-site equipment such as vacuum sweeper truck, loader with attachments, backhoe with attachments and water wagons.

The Site perimeter roads are maintained on a regular basis by grading. Road crowns and slopes are graded and maintained as needed.

A loader equipped with a sweeper attachment was purchased in 2017 for additional mud and dust control. Additional equipment allowed the intensification of road sweeping followed by watering operations.

The dust control efforts are increased on access roads during cell construction activities and dry weather periods.

In 2021, there were no instances of mud tracking along Erieau Road and Drury Line. Extra care was taken to inspect trucks before they exited the Site to ensure excess mud was removed.

The Site entrance/main access road upgrades completed in 2021, consisting of two new asphalted inbound lanes, a new asphalted outbound lane, and an asphalt pad connected to the outbound lane improved the cleaning and sweeping operations.

The measures mentioned above are part of the routine mud and dust control programs implemented in 2021.

3.15 Odour Control

At the close of each operating day, cover material is properly applied to control odours.

A 320 m long water-based odour suppression misting system was installed in 2012 on the top south and southwest of the West Landfill. A portion of this existing misting system was moved to the South Landfill in 2018.

Another water-based odour suppression misting system was installed in 2017 on top of the litter fence along the east and south sides of the South Landfill. This system operates year-round as it runs with summer and winter grade biodegradable liquid products.

In 2021, the installation of a perimeter dry vapour odour control system with permanent power supply along Erieau Road was initiated. This odour control system consists of two separate lines designed to control off-site landfill odours during predominant southwest/west direction winds.

Permanent caps were added to all Site leachate cleanout pipes to seal and prevent odour emissions.

The landfill gas collection system was expanded, and a third flare was installed in 2021, further enhancing odour control. Refer to **Section 3.12** for details.

The final cover applied to portions of the South Landfill in 2021 will improve landfill gas collection system efficiency and odour control.

Odours related to daily landfilling operations were mitigated by minimizing the size of the workface and improving daily cover placement capacity and efficiency as needed.

A summary of odour complaints and associated response is included in **Section 3.23** of this report.

3.16 Noise Control

Screening berms have been built to mitigate noise generated at the landfill. A Noise Monitoring Survey was conducted in 2001. This study concluded that the landfill operations are in compliance with MECP landfill noise guidelines.

In response to past noise complaints, quieter (low frequency) back-up alarms were installed in key heavy equipment in 2019, 2020 and 2021.

No noise complaints were received in 2021 as discussed in Section 3.23 below. No remedial noise control measures were required to be implemented in 2021.

3.17 Spills Control

There were no significant spills meeting reporting thresholds in 2021. Where fluids leaked outside of the waste footprint (e.g., truck queue lanes, access roads, shop, etc.), due to mechanical issues with customer vehicle or on-site vehicles and equipment, the spills were cleaned up in a timely manner using the contents of one of several spill kits stored on-Site as part of the spill prevention plan.

3.18 Public Disposal Area

Since 2002, a small public disposal (drop-off) area with 40-yard waste bins has been maintained at the Site. This separate area gives the public an accessible area to deposit their waste and eases congestion at the active tipping face. The public disposal area was maintained and monitored throughout the year. The bins were monitored and emptied as needed using the Site's roll-off trucks. Where unsuitable materials were found in public disposal (e.g.,

appliances with refrigerant, paint/chemicals, tires, etc.) loads were rejected or materials were removed for proper disposal.

3.19 Site Inspections

Waste Connections maintains a proactive Site inspection program in accordance with the ECA No. A021601 covering events that could potentially lead to nuisances or environmental concerns such as litter, mud, dust, odour, seeps, rodents/vermin/birds, general Site appearance, etc.

Daily, weekly and monthly inspections were completed for the Site and the properties in the immediate vicinity. Inspections to systems in 2021 included the leachate management system, landfill gas management system, surface water management system, and monitoring wells. Inspections in 2021 also included items such as dust control effectiveness, bird control effectiveness, daily cover placement and condition, presence of on-Site and off-site litter, efficiency/position/condition of litter control fences, road condition, general Site appearance, efficiency of odour control systems, Site security, signage, presence of ponded water on waste mounds, presence of leachate seeps, effectiveness of seep control measures, presence of erosion damage, presence of differential settlement, shear or tension cracking of final cover, washouts, condition of vegetation, spills, fires, traffic flow, loads and special waste disposal. All conditions requiring adjustments/site improvements were addressed in 2021 as part of the landfill operations.

Random load inspections of incoming waste were periodically completed throughout the year. There were no hazardous materials found during these load inspections and load contents generally matched waste approval specifications and shipping origin/manifest documents.

The records of Site inspections are retained on Site for a minimum of two years as per Condition 8.7 of the ECA No. A021601.

3.20 Other Measures to Reduce or Prevent Off-Site Impacts

General site maintenance and seasonal activities were completed during the spring and summer, including grass mowing, slope/washout repairs, surface water rock swale installation, and seeding.

Daily cover was applied at the end of each operating day. Interior slopes were primarily covered with contaminated soil; exterior slopes were covered with native clay. Also, since March of 2006, auto shredder fluff has been used in place of the native clay soils as the main source of alternative daily cover used in the turning areas and on roads over the waste fill areas. This decreased the tracking of mud on both inner and outer roads.

Bird control was provided by a third-party service provider in 2021. Control of the gull population was generally effective throughout the year.

3.21 Operational Problems and Remedial Measures

In 2021, there were no operational problems with respect to dust, odour, litter and noise that could not be effectively dealt with by regular Site maintenance and mitigation measures.

3.22 Changes to Operational Procedures and Impact Management Plans

In 2021, there were no significant changes to the operational procedures and impact management plans.

In 2021, the landfill was operated from 7:00 a.m. to 5:00 p.m., Monday to Friday, and 7:00 a.m. to 12:00 p.m. on Saturday. Condition 4.10 of the ECA No. A021601 allows operating hours of 7:00 a.m. to 5:00 p.m., Monday to Saturday. The current earlier opening time reduces waiting times at the entrance gate, and the extended operating day assists haulers making two trips in a day.

3.23 Summary of Public Complaints and Responses

Thirty-four odour complaints and one miscellaneous complaint were received in 2021. The miscellaneous complaint is related to a truck with a reported leak and smell on an off-site road. No noise, mud or dust complaints were received in 2021. A summary of the complaints received, and associated actions taken in 2021 are included in **Appendix D**. It is noted that the vast majority (i.e., 94%) of the complaints were received from one residence, located at Charing Cross Road.

4.0 ENVIRONMENTAL MONITORING PROGRAM

4.1 Background

The Ridge Landfill is operated under the ECA No. A021601, issued in December 2020. Environmental monitoring is addressed in Condition No. 9 of the ECA. The monitoring program involves:

- Groundwater monitoring
- Off-site private well monitoring
- Surface water monitoring
- Leachate monitoring
- Gas collection system monitoring

The stormwater management ponds are operated and monitored under a separate Section 53 Industrial Sewage Works ECA, Amended ECA No. 1800-BULJRQ issued December 2020 (Amended ECA), which replaced the former ECA No. 3082-96EQPA issued in April 2013. The monitoring program requirements for the stormwater management ponds are set out in Conditions 5 and in Table 2 of Schedule B of the Amended ECA. Effluent Objectives are outlined in Condition 6 and Table 1 in Schedule B. The preparation and submission of this annual monitoring report fulfils Condition 7(4) of the Amended ECA No. 1800-BULJRQ and Condition 13.0 of the ECA No. A021601.

The groundwater and surface water sampling program was completed by Golder in 2021 (see **Appendix E** for environmental monitoring field data). Analysis of the groundwater and surface water samples for the 2021 program was completed by SGS Canada Inc. laboratories of Lakefield, Ontario.

4.2 Groundwater Monitoring

The monitoring program completed in 2021 is based on the changes in the current approved ECA (December 2020). The updated groundwater monitoring program is outlined in Section 15.2.1 included as Appendix F of the Design and Operations Report for the Environmental Compliance Amendment Application for the Ridge Landfill Expansion (“Design and Operations Report”, Golder 2020b). The overall objectives of the groundwater monitoring program are:

- To identify potential changes in background groundwater quality in each of the principal hydrostratigraphic units
- To identify an impact on groundwater quality potentially attributable to the operation of the landfill
- To identify trends in groundwater elevations at individual monitoring locations for interpretation of groundwater movement beneath the Site
- To trigger the implementation of contingency measures

The general hydrostratigraphy in the area of the Site consists of a 33 to 44 m thick clayey Port Stanley Till, referred to more recently as the Tavistock Till (Dillon, 2020); the upper 6 metres (m) are weathered and fractured (Layer 1), whereas the remainder (Layer 2) is dense and not appreciably fractured. This unit overlies thin unconsolidated glaciolacustrine sands, silt and clay layers, underlain by the black shale Kettle Point formation bedrock (Layer 3). Details of the hydrostratigraphy are provided in Section 5.

There are 54 monitoring wells included in the groundwater monitoring network for the Ridge Landfill; construction details of the monitoring wells are provided in **Appendix F**. The monitoring wells were constructed in the shallow weathered till (Layer 1), unweathered till (Layer 2) and Basal/Bedrock units (Layer 3).

The groundwater monitoring program for the Old Landfill is summarized in **Table 4.1**. **Table 4.2** summarizes the groundwater monitoring program for the West and South Landfills. Monitoring well numbers that are followed by an A, B or C indicate that the well screen is located within the defined hydrostratigraphic Layers 1, 2 or 3, respectively. There is no specific correlation of the defined hydrostratigraphic layers with the roman numerals I, II and III that follow the well numbers. These wells were installed in the 1980's, some were numbered with "I" being the deepest monitoring well and "II" being the next deepest monitoring well at that location.

Groundwater elevation data is provided in **Appendix G;** groundwater chemistry data is provided in **Appendix H**, separated based on the hydrostratigraphic layers noted in Table 4.1. Water levels are recorded twice per year, in May and September.

Table 4.1: Summary of 2021 Groundwater Monitoring Program – Old Landfill

Hydrostratigraphic Layer	Sampling Locations	Frequency	Comprehensive List (May Samples)	Indicator List (September Samples)
Layer 1 Shallow Weathered Till	11-I, 16-I, 19-I, 20-I, 21-I, 22-I, 30-III, 32-III, 44-III 1-II, 3-III, 12-I, 5-II, 13-I, 15-I, 31-I	Twice per year (May and September)	**Inorganics:** Alkalinity, Ammonia, Arsenic, Barium, Boron, Cadmium, Calcium, Chloride, Chromium, Conductivity, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Nitrate, Nitrite, Total Kjeldahl Nitrogen, pH, Total Phosphorus, Potassium, Sodium, Total Dissolved Solids, Sulphate, Zinc **Volatile Organics:** Benzene, 1,4-Dichlorobenzene, Dichloromethane, Toluene, Vinyl Chloride **Other Organics:** Chemical Oxygen Demand (COD), Dissolved Organic Carbon (DOC), Phenol **Field Parameters:** pH, Conductivity	**Inorganics:** Alkalinity, Ammonia, Barium, Boron, Calcium, Chloride, Conductivity, Iron, Magnesium, Nitrate, pH, Sodium, Total Dissolved Solids, Sulphate **Other Organics:** COD, DOC **Field Parameters:** pH, Conductivity
Layer 2 Unweathered Till	3-II, 14-I, 30-II, 32-II, 44-II	Twice per year (May and September)		
Layer 3 Basal/Bedrock Aquifer	BW-1, BW-3, BW-4, 32-I, 30-I	Twice per year (May and September)		

Table 4.2: Summary of 2021 Groundwater Monitoring Program – West and South Landfills

Hydrostratigraphic Layer	Sampling Locations	Frequency	Comprehensive List (May Samples)	Indicator List (September Samples)
Layer 1 Shallow Weathered Till	**Existing Wells** 28-III, 46-III, 47-II, 48-I, 49-A, 50-A, 58-A, 59-A, 60-A, 61-A, 62-A, 63-A, 64-A, 73-A, 74-A **Expansion Wells (installed in 2018)** 71-A, 72-A, 75-A, 76-A	Twice per year (May and September)	**Inorganics:** Alkalinity, Ammonia, Arsenic, Barium, Boron, Cadmium, Calcium, Chloride, Chromium, Conductivity, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Nitrate, Nitrite, Total Kjeldahl Nitrogen, pH, Total Phosphorus, Potassium, Sodium, Total Dissolved Solids, Sulphate, Zinc **Volatile Organics:** Benzene, 1,4-Dichlorobenzene, Dichloromethane, Toluene, Vinyl Chloride **Other Organics:** COD, DOC, Phenol **Field Parameters:** pH, Conductivity	**Inorganics:** Alkalinity, Ammonia, Barium, Boron, Calcium, Chloride, Conductivity, Iron, Magnesium, Nitrate, pH, Sodium, Total Dissolved Solids, Sulphate **Other Organics:** COD, DOC **Field Parameters:** pH, Conductivity
Layer 2 Unweathered Till	**Existing Wells** 28-II, 46-II, 47-I, 49-B, 50-B, 73-B, 74-B **Proposed Wells** (installed as filling proceeds) 61-B, 64-B **Expansion Wells (installed in 2018)** 71-B, 72-B, 75-B, 76-B	Twice per year (May and September)		
Layer 3 Basal/Bedrock Aquifer	**Existing Wells** 28-I, 46-I, 49-C, 50-C, 73-C, 74-C **Proposed Wells** (installed as filling proceeds) 61-C, 64-C **Expansion Wells (installed in 2018)** 71-C, 72-C, 75-C, 76-C	Twice per year(May and September)		

4.3 Leachate Collection System Quality Monitoring

The updated leachate collection system (LCS) monitoring program is outlined in Section 15.2.3 of the Design and Operations Report (Golder 2020b). The proposed list of parameters was updated for the 2021 monitoring program based on the Golder (2020b) report and the ECA to be consistent with the list of parameters as per Schedule 5 of O.Reg. 232/98 (MOE, 1998). The leachate collection system monitoring involves both quantity (e.g., leachate flows, leachate levels) and quality monitoring. Leachate quantity monitoring is documented in **Section 3.10** of this report. Leachate quality is determined by the collection of samples at the leachate storage tank (see **Drawing 1**). The main target parameter list and monitoring frequency is summarized in **Table 4.3**. The summarized surface water chemistry data is provided in **Appendix I**.

In 2021, the leachate collection system monitoring program was completed based on the changes in the current approved ECA (December 2020).

Table 4.3: 2021 Leachate Collection System Monitoring Program

Parameters Monitored	Monitoring Frequency
Inorganics: Alkalinity, Ammonia, Arsenic, Barium, Boron, Cadmium, Calcium, Chloride, Chromium, Conductivity, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Nitrate, Nitrite, Total Kjeldahl Nitrogen (TKN), pH, Total Phosphorus, Potassium, Sodium, Total Suspended Solids (TSS), Total Dissolved Solids (TDS), Sulphate, Zinc **Volatile Organics:** Benzene, 1,4-Dichlorobenzene, Dichloromethane, Toluene, Vinyl Chloride **Other Organics:** Biochemical Oxygen Demand (BOD_5), COD, DOC, Phenol **Field Parameters:** pH, Conductivity	Comprehensive List: Once per year (May)
Inorganics: Alkalinity, Ammonia, Barium, Boron, Calcium, Chloride, Conductivity, Iron, Magnesium, Nitrate, pH, Sodium, TSS, TDS, Sulphate **Other Organics:** BOD_5, COD, DOC, Phenol **Field Parameters:** pH, Conductivity	Indicator List: Two additional times per year (June and September)

4.4 Surface Water Monitoring

The updated surface water monitoring program is outlined in Section 15.2.2 of the Design and Operations Report (Golder 2020b). The overall objectives of the surface water monitoring program are to:

- Monitor upstream and downstream off-site surface water quality; and
- Determine the need to implement contingency measures.

Drawing 3 shows the locations of the surface water quality stations. The locations are as follows:

- SW-4 Duke Drain at Allison Line;
- SW-7 Howard Drain immediately downstream of the Site boundary;
- SW-11 Howard Drain at Allison Line; and

- SW-12 Scott Drain at outlet to Howard Drain.

The target parameter list for the surface water quality monitoring locations is presented in **Table 4.4**. The locations are sampled on a quarterly basis. In addition, un-ionized concentrations are calculated based on total ammonia concentrations and field measured pH and temperature. The summarized storm water quality data for 2021 is provided in **Appendix J1**.

In 2021, the surface water monitoring program was completed based on the changes in the current approved ECA (December 2020).

Table 4.4: 2021 Surface Water Monitoring Target Parameter List

Parameters
Inorganics: Alkalinity, Ammonia, Arsenic, Barium, Boron, Cadmium, Chloride, Chromium, Conductivity, Copper, Iron, Lead, Mercury, Nitrate, Nitrite, TKN, pH, Total Phosphorus, Potassium, Sodium, TSS, TDS, Sulphate, Zinc **Volatile Organics:** Benzene, 1,4 Dichlorobenzene, Dichloromethane, Toluene, Vinyl Chloride **Other Organics:** BOD_5, COD, Total Phenols **Field Parameters:** pH, Conductivity

4.5 Stormwater Management Ponds Monitoring

The updated stormwater management (SWM) ponds are operated and monitored under a separate ECA, Amended ECA No. 1800-BULJRQ issued, December 2020 (“Amended ECA”). The monitoring program requirements are set out in Conditions 5 and in Table 2 of Schedule B of the Stormwater ECA. Effluent Objectives are outlined in Condition 6 and Table 1 in Schedule B.

The overall objectives of the surface water monitoring program are to:

- Monitor the water quality discharged from the stormwater management ponds to ensure that the quality of water released to the downstream watercourse is acceptable; and
- Determine the need to implement contingency measures.

Drawing 3 shows the locations of the five on-site stormwater management ponds: SWP-1, SWP-2, SWP-3 (New), SWP-4 and SWP-5.

The list of parameters analysed from the stormwater quality samples collected in 2021, prior to discharge into the municipal drains, are presented in **Table 4.4**. The storm water locations are sampled once on a quarterly basis in the months of March, May, September and November. Temperature and pH were measured in the field during sample collection; the field values for temperature and pH, along with results of the corresponding total ammonia (as N) concentrations, are utilized in the calculation of un-ionized ammonia using the methodology stipulated in the Provincial Water Quality Objectives (PWQO). The summarized storm water quality data for 2021 is provided in **Appendix J2**. In 2021, the stormwater quality samples were submitted for the reduced listed of parameters provided in Table 2 in Schedule B of the Amended ECA and are summarized in **Table 4.5.**

Table 4.5: 2021 Stormwater Quality Monitoring Parameter List

Sample Location	Sample Frequency	Parameters
SWP-1 Discharges to Duke Drain	Once during months: March, May, September and November	**Laboratory Parameters:** Iron Nitrate (as N) Nitrite (as N) Phenols Total ammonia (as N) Total phosphorus Total suspended solids (TSS) Un-ionized ammonia (calculated, as N) **Field Parameters:** pH Temperature
SWP-2 Discharges to Duke Drain		
SWP-4 Discharges to Howard Drain		
SWP-5 Discharges to Howard Drain		
SWP-3 (New) Discharges to Howard Drain		

The Amended ECA sets Site-specific effluent objectives in Table 1 of Schedule B. The effluent objective for total phosphorus has not been set and will be determined after collection of four years of monitoring data from 2021 to 2024. Once established in 2024, the total phosphorus effluent objective will come into effect for the 2025 monitoring program. In 2021, the stormwater management ponds were sampled and analysed for the parameters listed in the amended ECA prior to discharge to the municipal drains.

4.6 Landfill Gas Collection System Monitoring

The updated landfill gas collection system monitoring program is outlined in Section 15.2.5 of the Design and Operations Report (Golder 2020b). Construction of the first phase of the landfill gas collection system started in 2008 and was completed in 2009. The system has been expanded as explained in **Section 3.12** of this report. The performance of the gas management system has been assessed by monitoring of the vacuum, temperature, gas composition and flow rate within the collection system and at the blower/flare station.

The subsurface migration of gas from the landfills is not considered to be likely given the installation of the cut-off wall and side slope liner. However, as a safety precaution, combustible gas alarms are installed in the site buildings. On-site grass cover and planted vegetation are also inspected to detect vegetation distress due to exposure to landfill gas.

Landfill staff did not observe any distressed grass cover or planted vegetation indicating landfill gas impacts in 2021.

4.7 Private Well Monitoring Program

The off-site private well monitoring program is outlined in Section 15.2.6 of the Design and Operations Report (Golder 2020b). Selected private wells located within the general vicinity of the Site are sampled annually. A summary of the monitoring data for the private wells is provided in **Appendix K**.

Table 4.6: Private Well Monitoring Parameter List

Hydrostratigraphic Layer	Sampling Locations	Frequency	Comprehensive List (May Samples)
Layer 3 Basal/Bedrock Aquifer	**Existing Private Wells**	Once per year (September)	**Inorganics:** Ammonia (as N), Calcium, Chloride, Chromium, Conductivity, Iron, Hardness (as $CaCO_3$), Magnesium, Manganese, Nitrate, Nitrite, TKN, pH, Turbidity **Other Organics:** BOD_5, DOC, Phenol **Field Parameters:** pH, Conductivity

4.8 2021 Monitoring Well Repair and Decommissioning

In November and December 2021, WCC retained Rumble Water Well Drilling Services ("Rumble") of Blenheim, Ontario, to decommission twelve inactive monitoring well locations. The monitoring wells decommissioned in 2021 were: M1W1, M1W2, M2W1, M3W1, M-1, M-4, DM-1, well 10-I, well 37, well 38, well 39 and well 40. These decommissioned monitoring wells were not part of the currently approved annual monitoring program. Two vibrating wire piezometers in instrumented boreholes labelled 51-A and 51-B, located adjacent to wells 37 and 38, were also decommissioned. The decommissioning was completed in advance of the planned construction activities of the expansion of the Old landfill area and infill area (cell 8), in accordance with Conditions 4.26 and 9.3 of the ECA No. A021601.

Two groundwater monitoring locations BW-3 and well 74-B that are part of the annual monitoring program were decommissioned and replaced in 2021. BW-3 was decommissioned by Laskey's Well Drilling Services of Strathroy, Ontario, in September 2021. BW-3 was replaced by Rumble at a location approximately 30 metres northeast to allow for the widening of the entrance roadway from Erieau Road to the scale house. Well 74-B was decommissioned and replaced by Rumble. Well 74-B was replaced due to integrity of the monitoring well below grade; bentonite had fouled the well screen and as a result representative water elevations and groundwater quality samples could not be obtained.

Rumble used pressurized air to develop the deep wells, 73-C and 74-C along Allison Line due to a high sediment load in the water column, which had previously caused difficulty in purging and sampling these two monitoring locations.

In November 2020, WCC staff extended the monitoring well riser pipes and installed new protective flush mount casings at monitoring wells 30-I, 30-II and 30-III, as infilling of this area had been planned; the grade was raised to match the existing grade of the nearby access road. Monitoring locations 30-I, 30-II and 30-III were buried in 2020 to protect the locations from these construction activities. In December 2021, Rumble added riser pipes to bring the monitoring locations back above ground surface and installed protective monument well casings.

For the decommissioning and replacement of monitoring wells completed by Rumble; the field work was monitored by Golder technical staff. Decommissioning and monitoring well replacement locations were completed in accordance with Conditions 9.3 and 9.4 of the ECA and Ontario Regulation 903 (R.R.O. 1990 Reg. 903: Wells under Ontario Water Resources Act, R.S.O. 1990, c. O.40). The borehole logs and construction details for the replacement monitoring wells (wells 74-B and BW-3) are provided in **Appendix F**. **Table 4.8** provides a summary of the repaired, decommissioned and replaced monitoring wells that are part of the annual monitoring program.

Table 4.7: Summary of 2021 Monitoring Well Repairs and Replacements

Monitoring Well ID	Reported Issue	Repair Completed
BW-3	Replaced due to expansion of the main access road from Erieau Road into the Site.	Decommissioned existing monitoring location in September 2021 and installed replacement monitoring well in December 2021 approximately 30 m northeast of the original location. See attached record of abandonment and replacement borehole log.
74-B	Subsurface damage to the well caused swelling bentonite to foul the monitoring well, representative groundwater elevations and samples could not be obtained.	Decommissioned existing monitor and installed replacement monitoring well approximately 3 m northwest. See attached record of abandonment and replacement borehole log.
73-C	Unable to purge and collect representative groundwater samples due to high sediment load.	Developed the monitor with air pressure to remove high sediment load from the water column and to further develop the well screen.
74-C	Unable to purge and collect representative groundwater samples due to high sediment load.	Developed the monitor with air pressure to remove high sediment load from the water column and to further develop the well screen.
30-I	Monitoring location buried to protect against damage from construction activities	PVC coupler and riser pipe extension added. Flush-mount casing removed, and new monument protective casing installed. PVC coupler and riser pipe extension added.
30-II	Monitoring location buried to protect against damage from construction activities	PVC coupler and riser pipe extension added. Flush-mount casing removed, and new monument protective casing installed. PVC coupler and riser pipe extension added.
30-III	Monitoring location buried to protect against damage from construction activities	PVC coupler and riser pipe extension added. Flush-mount casing removed, and new monument protective casing installed. PVC coupler and riser pipe extension added.

4.9 Exceptions to the Monitoring Program

There were a few exceptions to the planned 2021 monitoring program:.

- During the May and September 2021 monitoring events, wells 30-I, 30-II and 30-III were buried to protect these locations from construction activities and were not accessible to be sampled. Wells 30-I, 30-II and 30-III were uncovered, repaired and sampled in December 2021.
- Well 74-B was damaged below ground surface and bentonite had fouled the monitoring well. Representative groundwater elevations and groundwater samples could not be obtained in May and September 2021. 74-B was replaced and sampled in December 2021.
- Samples collected from deep basal / bedrock aquifer monitoring well locations 73-C and 74-C in May 2021 are not considered to be representative of the water quality in Layer 3, due to high sediment load observed from samples and the potential for the sediment to interfere with the water quality analyses. These locations could

not be sampled in September due to the high sediment load; the increased density of the water column interfered with mechanical pumping. These two locations were developed in December 2021 using air pressure and samples were collected thereafter.

- Groundwater elevations could not be obtained from deep basal / bedrock aquifer monitoring locations well BW-1 and BW-4 as the wells have pumping equipment installed, consistent with previous years.
- During the September 2021 monitoring event, there was an insufficient volume of water available within well 28-III to collect a representative groundwater sample.
- It is also noted that well repairs as outlined in Section 4.8 and Section 6.2.4 were completed after the September 2021 monitoring event. Monitoring wells BW-3, 30-I, 30-II, 30-III, 73-C, 74-B and 74-C were subsequently sampled in December 2021, post replacement or repairs.
- The following proposed wells are to be installed in the future and monitored as landfill development extends to the south-eastern region of the existing waste fill areas: 61-B, 61-C, 64-B and 64-C. As filling extends to new areas, the following existing wells will also be monitored: 34-III, 35-III, 51-A, 53-A (shallow overburden); 34-II, 35-II, 53-B (intermediate overburden); 34-I, 35-I, 51-C, and 53-C (bedrock).

5.0 SUMMARY OF SITE CONDITIONS

This summary is based primarily on the hydrogeological investigation completed in 1995 to 1996, as documented in Appendix B – Geology/Hydrogeology Assessment Report and Appendix C – Surface Water Impact Assessment Report contained in the "BFI Ridge Landfill Expansion Environmental Assessment" (Dillon 1997a, Dillon 1997b) and "Ridge Landfill Expansion: Hydrogeological Impact Assessment" (Dillon 2020).

5.1 Site Geology

The Ridge Landfill Site lies within the St. Clair Clay Plain physiographic region. The ground surface has little topographic relief in the area of the Ridge Landfill and slopes slightly to the northwest. Surface drainage is poor and has been enhanced through constructed municipal drains. The clay plain is widespread in the west towards Windsor, but narrows near the landfill, extending from Charing Cross south to Lake Erie. A small rise in the land elevations at Charing Cross marks the location of a minor till moraine.

The clay plain consists of slightly stony, clayey silt Tavistock Till, which ranges in thickness from 38 m to 44 m. Site investigations indicated that the Tavistock Till has a weathered and fractured upper surface, characterized by vertical to sub-vertical fractions extending to a depth up to 6 m. The unweathered Tavistock Till, found at the Ridge Landfill is a grey, dense to very dense clayey silt till with trace sand and fine gravel.

The Tavistock Till overlies thin unconsolidated glaciolacustrine sands, silts and clays. Underlying the glaciolacustrine soils is Kettle Point formation black shale bedrock, which is found at an average depth of 46 m. The surface of the bedrock is highly fractured and weathered. Fracturing within the Kettle Point formation decreases with depth.

Geologic cross sections are included as **Drawings 6 to 9**.

5.2 Site Hydrogeology

The hydrogeology under the Site has been divided into three main hydrostratigraphic units:

- Layer 1 consists of a variety of soil types including topsoil, sand, silt and gravel. The predominant unit is a weathered and fractured clayey silt of the Tavistock Till. Groundwater flow in this hydrostratigraphic unit is horizontal and is expected to flow locally towards surface water drainage features;
- Layer 2 consists of unweathered clayey silt of the Tavistock Till, which does not have any significant discontinuities, such as fractures. The dominant groundwater flow direction in this unit is downward; and
- Layer 3 is the regional aquifer and is made up of a basal overburden sand and gravel unit and/or weathered bedrock. Water level measurements in the Layer 3 wells indicate that horizontal groundwater movement occurs under very low hydraulic gradients, in the order of 0.0005.

As part of the Geology/Hydrogeology Assessment Report of the "BFI Ridge Landfill Expansion Environmental Assessment" (Dillon 1997a), a representative hydraulic conductivity for each layer was determined as follows:

- Layer 1 - 10^{-9} m/s
- Layer 2 - 10^{-10} m/s
- Layer 3 - 10^{-6} m/s

5.3 Surface Water Drainage

Several municipal drains convey surface drainage in the vicinity of the Site including the Duke and Howard Drains. These drains are relatively deep (up to three metres) and will locally control shallow groundwater flow.

The Duke Drain is a grass-lined trapezoidal channel, which extends from Allison Line and proceeds north on the west side of Erieau Road to the southeast corner of the Old Landfill. At this point, the drain crosses under Erieau Road in a culvert and continues to flow north on the east side of Erieau Road. At the northeast corner of the Old Landfill, the drain crosses back under Erieau Road in a culvert and then travels west along the north side of the Old Landfill and discharges to a flood control facility. This last segment of drain incorporates a meandering low flow channel with vegetative plantings.

The Howard Drain is also a grass-lined trapezoidal channel. It begins at the former Chesapeake & Ohio (C&O) Railway Line and proceeds west along the south Site boundary. The Howard Drain intercepts the Scott Drain at the southwest corner of the Landfill Site. Drainage from the Scott Drain flows through culverts under a screening berm and outlets into the Howard Drain. The Howard Drain continues north around the west side of the landfill and discharges into the same flood control facility as the Duke Drain. The Howard Drain also incorporates a meandering low flow channel with vegetative plantings.

A 9-ha flood control facility is located on the north side of the landfill. The facility controls runoff from the entire upstream drainage area including the Duke, Howard and Scott Drains, as well as outflow from the Landfill Site. The outlet ties into the Howard Drain at the north Site boundary and water discharges in a controlled manner.

Surface water drainage for the landfill Site is accommodated by a network of internal drainage ditches. These ditches convey overland flow to on-Site stormwater management ponds. There are currently five stormwater management ponds on the Site. SWP-1 is located just east of Mound 3 and SWP-2 is just east of Mound 1. Both these ponds receive runoff from the east end of the Old Landfill and discharge to the Duke Drain. SWP-3 (Old) was formerly located immediately west of the Old Landfill and received runoff from the southwest corner of the Old Landfill. It discharged into an abandoned segment of the Howard Drain. SWP-3 (Old) was decommissioned in 2020. SWP-3 (New) is located south of the West Landfill and collects runoff from the east half, west half and south portion of the West Landfill and collects runoff from the entire South Landfill. SWP-3 (New) discharges into the Howard Drain.

SWP-4 is located along the north limit of the West Landfill. This pond controls runoff from the west half of the West Landfill. SWP-5 is also north of the West Landfill, near the northwest corner of the Old Landfill. Runoff from the northwest corner of the Old Landfill and the east half of the West Landfill is collected in this pond. SWP-4 and SWP-5 discharge into the flood control facility.

6.0 GROUNDWATER MONITORING

6.1 Groundwater Levels

Groundwater levels and flow at the Site is assessed by the evaluation of groundwater elevations measured in the monitoring well network at the Site. Historical groundwater elevations and hydrographs are provided in **Appendix G**.

Groundwater elevation trends have remained relatively consistent in Layer 1. Gradual decreases typically 0.1 to 0.5 metres over the past 10 to 15 years are observed at a number of locations; some wells have exhibited overall declines of approximately one metre (e.g., 11-I, 13-I, 21-I, 44-III). More recently, elevations in wells 1-II, 3-III and 5-II have decreased by approximately one metre since 2019. Well 19-I, located on the interior of the Site, has exhibited an increase of approximately one metre in groundwater elevations, from 2016 to 2021. At 30-III, an increase of approximately 2 metres, from 198 to 200 masl, occurred between 2010 and 2019 but has decreased approximately 1.5 metres to 198.5 masl from 2019 to 2021. The natural water table in the surrounding area is typically found from near surface to a depth of about 2 m depending on location and season. Groundwater level elevations for Layer 1 wells in September 2021 are shown on **Drawing 4**.

In Layer 2, groundwater elevations remain relatively consistent with the previous historic data trends. A notable decrease of over five metres was observed in 30-II between 2020 and 2021. The cause of this decrease at 30-II is uncertain as a decrease of this magnitude was not observed in other Layer 2 monitoring locations, the water levels at this location will need to be checked to verify there has not been an issue with the reference point due to extending the riser pipes during construction activities in 2021.

The vertical hydraulic gradient between Layer 1 and Layer 2 from the groundwater elevations measured in May 2021 were all downward in direction and ranged from 0.06 m/m at well 46 to 1.02 m/m at well 30. The average vertical hydraulic gradient between Layer 1 and Layer 2 was approximately 0.5 m/m in May 2021.

Downward vertical hydraulic gradients between Layer 2 and Layer 3 ranged from 0.13 m/m at well 47 to 0.79 m/m at well 46. The average vertical hydraulic gradient between Layer 2 and Layer 3 was approximately 0.4 m/m in May 2021.

Water level elevations for Layer 3 wells in September 2021 are shown on **Drawing 5**. Water levels in these wells have gradually increased by up to approximately 5 m over the past 10 years. Dillon (2020) indicated that the reason for the increase in water levels in these monitoring wells is inferred to be a result of decreased use of the Layer 3 aquifer after the installation of municipal water supply on Charing Cross and Erieau Roads. The groundwater level in Layer 3 remains at approximately 25 m below natural grade.

6.2 Groundwater Flow

Shallow groundwater elevations and direction of flow are influenced by the fill areas, the perimeter leachate collection system and cut-off wall, subsurface utility trenches, excavations for the stormwater management ponds, as well as the surrounding network of municipal drains. Given the above listed influences on the shallow groundwater flow regime and the configuration of the active monitoring well network, a groundwater flow surface for Layer 1 has not been developed in this report; a surface was provided in Dillon (2020). It is expected that shallow flow is generally to the northwest, in the direction of flow towards Jeanette's Creek and the Thames River. It is generally observed that shallow groundwater elevations in the southern area of the Site in 2021 range from about 197 masl to 198 masl, whereas those in the north to northwest area of the site are less than 196 masl (e.g. wells 28-III, 50-A, 58-A, 44-III, 59-A). More locally, it is expected that shallow groundwater flow in areas next to the larger

drains (e.g., the Howard Drain) will be towards these deeper features rather than following the regional flow direction.

Groundwater flow direction in Layer 2 has not been determined as it is expected based on the vertical gradients and massive (unfractured) nature of the Till, that flow is predominantly vertical towards Layer 3.

As noted in with the previous reports, the horizontal groundwater flow direction in Layer 3 is expected to be predominantly toward Lake Erie. Water levels are lowest in at 46-I, 49-C, 28-I and 50-C, which are lowest to the south and southwest (between 177.79 and 178.06 masl, respectively). The potentiometric surface for Layer 3 outlined in Dillon (2020) suggested that locally, there is no predominant flow direction. The highest elevations in this unit in 2021 was at 30-I (178.5 masl), located within the centre of the Site.

6.3 Groundwater Quality

The monitoring wells in the sampling program were chosen for their strategic location in relationship to the landfill and hydrostratigraphic unit (Layer 1, Layer 2 or Layer 3; see **Table 4.1 and Table 4.2**).

Exceptions to the 2021 monitoring program and monitoring well repairs / replacements are summarized in **Section 4.8** and **Section 4.9**, respectively.

A comprehensive list of groundwater quality chemistry data and plots of groundwater quality data obtained in 2021 and previous years are provided in **Appendix H**.

As per Condition 13.1(1) of ECA No. A021601, groundwater quality is evaluated by comparison to the following:

- Ontario Drinking Water Standards (ODWS)
- Background groundwater quality
- Leachate Quality
- MECP Guideline B-7 – The Incorporation of the Reasonable Use Concept into Groundwater Management (RUC)

Appendix H also lists applicable ODWS criteria in the data tables. Concentrations measured at monitoring wells above ODWS criteria are highlighted in the data tables. Background groundwater quality is discussed in **Section 6.3.1**; leachate quality is discussed in **Section 6.3.2**. An assessment of groundwater quality data for each monitoring well sampled in 2021 is contained in **Section 6.3.3**. The application of the Reasonable Use Concept is documented in **Section 6.3.6**.

6.3.1 Background Groundwater Quality

As part of the 1999 landfill expansion investigation, natural water quality at the landfill was characterized principally using two methods: an assessment of the major ion chemistry and the use of isotopes of oxygen and hydrogen (Dillon 1997a). The natural background water quality of the area was found to be highly variable due to the relatively low permeability of all the hydrostratigraphic units. The approach used to characterize natural water quality was a review of the major ion predominance for all wells in each hydrostratigraphic unit, coupled with isotopic analysis of both groundwater samples and porewater extracted from soil samples taken as part of the hydrogeologic investigation in support of the 1999 landfill expansion. This latter analysis was updated in Dillon (2020).

Plots of relative concentrations of positively charged cations (sodium, potassium, calcium and magnesium) and negatively charged anions (alkalinity, sulphate, and chloride) from the 2021 dataset are shown in the Durov diagram in **Figure 1**. Samples from wells within Layer 1 (shallow weathered and fractured till) calcium-magnesium-sulphate-bicarbonate type waters. There is some scatter on the Durov plot due to the relative

increase in the cation sodium at the expense of the cation calcium and the relative increase of the anion chloride at the expense of bicarbonate. The change in the relative cation concentrations is caused by cation exchange processes and is considered to be an indication of greater residence times probably related to localized zones of unweathered and unfractured till in Layer 1. Monitoring wells 13-I, 15-I and 16-I exhibit water quality results outside of the typical range for Layer 1 and are discussed further below.

The groundwater from Layer 2 wells (un-weathered till) exhibits a chemical evolution from calcium-sulphate-bicarbonate type waters to more sodium - bicarbonate type waters.

The groundwater in Layer 3 wells (basal overburden and/or bedrock) is characterized by sodium - chloride - bicarbonate type waters. The high sodium and chloride concentrations are consistent with waters with a long residence time which have travelled an appreciable distance along a flow path and have undergone chemical alteration by water/rock interactions.

The high sulphate concentrations in the shallower aquifers at the Site (i.e., approximately 500 to 2,000 mg/L) are reported to be consistent with the results of hydrogeological studies in other areas of southwestern Ontario, where high sulphate concentrations have been found in the pore water of glacial till (Dillon 1997a). The most likely source of the sulphate is the considered to be the dissolution of sulphate materials (e.g., gypsum) in the till. Sulphate concentrations decrease in concentration with depth, consistent with reducing conditions which are more prevalent in deeper aquifers and as supported by low or non-detectable concentrations of iron and sulphate in the Layer 3 wells.

Stable isotope chemistry was previously used to provide an “age” of the groundwater. The results of the analysis for oxygen-18 and deuterium in porewater from soil cores and groundwater from monitoring wells indicated depletion of the isotopes with depth. Dillon (1997a) interpreted that the observed trends indicated that the water was originally recharged during progressively colder/older paleo climates. The results of isotope analysis at the Ridge Landfill are consistent with previous groundwater isotope studies indicating that the groundwater in Layer 3 was recharged about 10,000 years ago.

The natural background groundwater chemistry in Layer 1 is expected to be variable due to the heterogeneous nature of this hydrostratigraphic unit. Localized zones of groundwater with high sodium and chloride concentrations occur due to soil zones that have been less weathered/fractured than other areas. High sodium and chloride concentrations are expected for Layer 2 groundwater and Layer 3 groundwater. Elevated sulphate concentrations in Layer 1 groundwater are naturally occurring.

6.3.2 Leachate Quality Characterization

The results of the laboratory analysis of samples taken at the leachate storage tank for the period 1995 to 2021 are contained in **Appendix I**. See **Section 2.10** for details on the Leachate Collection System.

The leachate quality from Ridge Landfill is similar to typical landfill leachate. The COD:BOD ratio generally ranges from 2 to 12. Chloride, sodium, ammonia and iron concentrations are increasing overall since about 2015, indicative of a maturing leachate. Concentrations of a number of the major ions fluctuate substantially, which is in part typical of an operating landfill, and notably where additional cells are being added. Average chloride, sodium and potassium concentrations in 2021 were 4,600 mg/L, 2,700 mg/L and 747 mg/L, respectively. The average sulphate concentration in 2021 was 84 mg/L, typical of reducing concentrations in leachate and are lower than those found in the natural groundwater from Layer 1 and Layer 2. The average ammonia concentration in 2021 was 729 mg/L, lower than the 2020 average of 1,023 mg/L; however, ammonia concentrations in leachate have generally increased since 2017.

Dissolved organic carbon (DOC) concentrations measured in leachate have historically ranged from 9.5 mg/L and 1,400 mg/L. In 2021, DOC concentrations ranged between 297 mg/L and 1,321 mg/L. Biological oxygen demand (BOD) levels in 2021 ranged from 27 mg/L to 1,700 mg/L, but historically has been as high as 2,130 mg/L.

Volatile organic compounds (VOC) concentrations in leachate in 2021 were typical of landfill leachate. In May 2021, VOC parameter concentrations were: benzene (8.5 µg/L), 1,4-Dichlorobenzene (4.7 µg/L), Dichloromethane (1.4 µg/L), toluene (12.2 µg/L) and Vinyl Chloride (2.1 µg/L). The 2021 VOC concentrations reported were slightly lower than the results reported in 2020. The 2021 VOC data are located in **Appendix H**.

Leachate is also plotted on the Durov diagram (**Figure 1**). Although leachate plots in a similar location as groundwater from Layer 3 (basal/bedrock aquifer) wells, the groundwater chemistry is significantly different. Potassium concentrations in leachate are typically greater than 400 mg/L whereas they are less than 10 mg/L in Layer 3 wells. The ratio of sodium to potassium is generally 3:1 in leachate but is in the range of 100:1 for the Layer 3 wells.

Leachate impacted groundwater would be expected to exhibit concentration increases of calcium, chloride and sodium and a potential reduction in sulphate concentrations in comparison to Layer 1 background groundwater quality. Elevated potassium, ammonia and iron may be present; however these parameters are much less mobile in the clayey soils.

6.3.3 Assessment of Groundwater Quality Data

The groundwater quality assessment is presented for each hydrostratigraphic unit. For Layer 1 monitoring wells, the discussion has been divided by the location of the monitoring wells in relationship to the fill areas. Groundwater quality data for each monitoring well are discussed with respect to the trends in groundwater quality. Comparison to ODWS and RUC is not undertaken as Layer 1 and Layer 2 are not considered to be a relevant drinking water supply (Dillon, 2020). None of the wells in the vicinity of the Site are known to be dug wells, which would rely on Layer 1 as a supply aquifer. The monitoring well locations are shown on **Drawing 3**.

It is noted that the older monitoring wells at this Site, wells 10 through 27, were originally constructed using galvanized pipe with stainless steel screens. As noted above, 14-I and 21-I were replaced and constructed with PVC materials whereas 10-I, 18-I and 25-I were decommissioned. Concentrations of metals at these locations may be influenced by the casing and screen materials and analytical results should be interpreted with caution.

6.3.3.1 Layer 1 Groundwater Quality

Groundwater quality trend graphs and a summary of groundwater quality data are included in **Appendix H1** for Layer 1 monitoring wells sampled in 2021. Naturally elevated sulphate is present in the groundwater of Layer 1, typically in the range of approximately 500 mg/L to 2,000 mg/L. Elevated iron (over 10 mg/L) is consistently present and most often associated with elevated sulphate. Chloride concentrations are typically lower than 50 mg/L, with the exceptions of some wells closer to Erieau Road to the east, where road salting impacts are considered to exist. Fluctuations in the concentrations of parameters including sulphate and calcium as well as iron, are noted both seasonally and in some cases over the longer term. It is expected that many of the observed fluctuations, notably those that are seasonal, reflect changes in recharge associated with precipitation and runoff, whereas variations between locations may reflect differences in the natural till geochemistry or possibly local structural changes in fracturing of the shallow till.

Northwest Perimeter – Old Landfill

Two wells are located in this area (3-III and 5-II). These wells exhibit stable water quality behaviour overall. Sulphate and hardness are elevated, typical of the quality of this Layer.

Water quality has been stable in 3-III as exhibited by chloride concentrations ranging from 5 mg/L to 14 mg/L since 1998; in 2021, the chloride concentrations were within the historical range. Sulphate concentrations are elevated (1,500 and 1,800 mg/L in 2021), typical of natural conditions in the area.

Water quality results from 5-II have been relatively stable over time, with the exception of iron concentrations, which had increased from 390 µg/L in 2010 to 9,700 µg/L in 2020. In 2021, iron concentrations ranged from 29 to 1,250 µg/L. Chloride concentrations have remained relatively stable; the reported 2021 concentrations were 45 and 49 mg/L. Sulphate is elevated, ranging from 1,200 to 1,300 mg/L in 2021, which is consistent with naturally occurring concentrations in Layer 1. Given the low ammonia and historically low BOD concentrations, leachate influence at this well is not indicated.

Southwest Perimeter – Old Landfill

There are three monitoring wells located near the southwest perimeter of the Old Landfill (11-I, 19-I and 30-III). Iron, hardness and sulphate concentrations in samples from these monitoring wells are typically elevated.

At well 11-I chloride concentrations have increased, with minor fluctuations, since 2010. In 2021, the chloride concentrations at well 11-I were 42 mg/L and 52 mg/L. Sulphate concentrations are elevated, typical of background conditions in this unit but are declining, characterized by a slow decreasing trend since 2006; a similar decrease in potassium is noted. Ammonia concentrations remain low, at or less than 0.05 mg/L in 2021.

Monitoring well 19-I is characterized by elevated sulphate and iron and low chloride concentrations. Long term declining concentration trends have been noted since 2006 for the parameters alkalinity, sulphate, calcium, potassium and iron but have stabilized in recent years. More recently, elevated iron concentrations (42 mg/L, 2016) have decreased to 16.5 and 26.7 mg/L in 2021. Chloride concentrations have been stable at well 19-I since 1997, ranging from 3 mg/L to 17 mg/L; a slight increase is noted in 2021 during which values of 14 mg/L and 31 mg/L were reported. The 2021 sulphate concentrations were 1,600 mg/L and 1,700 mg/L, within the historical range values. Elevated and fluctuating ammonia concentrations (typically higher in the fall) have been observed since 2015. Slightly elevated but fluctuating ammonia concentrations have been observed since 2012 and the 2021 results were consistent with this trend (0.25 mg/L in May and 1.76 mg/L in September). Leachate related parameter COD had remained low between 9 and 17 mg/L. The source of ammonia is unknown, this well is located adjacent to the west of a topsoil stockpile, which could provide a source of the ammonia.

Chloride concentrations in monitoring well 30-III have increased steadily since 2012 (8 to 9 mg/L) to present (50 mg/L September) and more notably since 2018. Sulphate concentrations (approximately 700 mg/L in recent years) are elevated, but less so than some other locations in this unit. It is noted that sulphate, potassium and calcium concentration trends decreased at this well from 2009 to 2016 but have since increased to similar values measured prior to 2009. Ammonia concentrations are low but notably fluctuate from non-detect to 0.3 mg/L. Iron concentrations had fluctuated from non-detect to 1,400 ug/L but increased to 1,990 ug/L in 2021. Only one sample was collected at this location in December 2021. The cause of the increasing chloride and long-term fluctuations in other parameters is not known but may be related to changes in shallow groundwater and surface water flows resulting from landfill construction in this area.

Northeast Perimeter – Old Landfill

There are five monitoring wells installed near the northeast perimeter of the existing Site (1-II, 20-I, 21-I, 22-I, and 44-III).

Chloride concentrations at monitoring well 1-II are relatively stable throughout the historical period of record (26 mg/L and 30 mg/L in 2021). Sulphate concentrations are elevated (approximately 1,000 mg/L), have fluctuated over time and increased over the past decade; a similar increasing trend in calcium is also noted. Iron

concentrations between 2011 and 2020 had increased (albeit with fluctuations) to 810 µg/L; in 2021 lower iron concentrations were noted (64 and 124 µg/L) returning to the earlier range for this parameter.

Monitoring wells 20-I, 21-I and 22-I in close proximity; 22-I is closer to the landfill. The water levels in these wells suggest an easterly flow direction.

The monitoring well at 20-I was replaced in 2020 and additional data may be required to assess resultant changes. A direct comparison of recent analytical results with the historical record should be interpreted with caution. Chloride concentrations at this location remained constant over the period of record since 1996, ranging between 10 mg/L and 29 mg/L. In 2020, chloride concentrations reported from samples collected from 20-I ranged from 25 mg/L to 34 mg/L and increased in 2021, ranging from 49 mg/L to 59 mg/L. Previously sulphate concentrations at this well were elevated and fluctuated both seasonally and in the longer term, between approximately 1,000 and 2,000 mg/L; sulphate concentrations decreased in 2021 to 660 and 880 mg/L. Iron had increased since 2011 to 2019 and often fluctuated seasonally – over this period concentrations range from less than detection level to 7,400 µg/L. Iron concentrations from samples collected at the new well were much lower (16 to 17 µg/L).

Chloride concentrations at monitoring well 21-I are elevated (150 and 180 mg/L in 2021) similar to the historical record, notably increasing after approximately 1998. Calcium concentrations have also increased over the same period. Sulphate is elevated (approximately 2,000 mg/L) and has been stable over the recent historical period. In May 2021 sulphate increased to 19,000 mg/L but this result is considered anomalous as the sulphate concentration returned to within the historical range in September (2,200 mg/L). Iron concentrations have been notably low, often near the detection level. The spring 2021 iron result (27 mg/L) is consistent; the fall value (1,340 µg/L) is anomalous and should be confirmed in 2022. The cause of the relatively elevated chloride concentrations at this well is not known but is presumed to be related to non-landfill sources. This well was replaced in 2002 to address a suspected leaking annular seal.

Monitoring well 22-I has exhibited relatively stable chloride concentrations and more recently (since approximately 2013) slightly lower concentrations (15 mg/L in 2020) are noted. Sulphate is elevated (approximately 2,000 mg/L) and relatively stable over the recent historical period. Iron concentrations have been significantly elevated since 2010 (29,100 µg/L September 2021); the spring result is considered anomalous. This location is the closest of the three local wells to the waste footprint, however the low chloride, low COD and relatively stable water quality chemistry indicate the impacts are not related to landfill leachate.

Monitoring well 44-III was replaced in 2000 due to construction activities associated with the main access road off Erieau Road (Golder 2020). 44-III was replaced for a second time in 2020 within the same area due to a blockage within the well. Chloride concentrations at this well increased initially after construction in 1995, which continued though to 2010 (307 mg/L); subsequently concentrations have declined. Chloride concentrations were much lower in 2021 (53 and 60 mg/L) following the replacement of the well in 2020. Sulphate remained relatively low (less than 500 mg/L and declining) compared to other wells in this unit. Iron and COD concentrations are low. Whereas earlier interpretations suggested Stormwater Pond 1 (SWP-1) may have influenced groundwater quality in this area, given the present well location is west of the Duke Drain, it is expected that this drain and associated runoff-derived impacts from off-site influence quality at this location. As a result, this well is not considered to reflect influences from the landfill.

Southeast Perimeter – Old Landfill

There are six monitoring wells located along the southeast perimeter of the Old Landfill (12-I, 13 I, 15-I, 16-I, 31-I, and 32-III).

Monitoring well 12-I is located in the former maintenance/parking areas near the former Site entrance. Concentrations of chloride, sodium, calcium, magnesium, hardness and alkalinity as well as conductivity values are

elevated at this location above concentrations reported in background monitoring well locations screened in Layer 1. The elevated concentrations at this location have been attributed to road salt impacts from the maintenance/parking area. In 2000, the old parking and maintenance activities ceased following the opening of new facilities on the north side of the Site. Chloride concentrations decreased slightly at this well since 2011, ranging from 170 mg/L to 240 mg/L but appear to have stabilized in recent years (190 mg/L and 230 mg/L in 2021). Iron concentrations since May 2011 have notably increased (with some fluctuations) reaching a historical high of 43 mg/L in September 2021. Ammonia concentrations are consistently low; a reported elevated nitrate result of 1.9 mg/L in September 2021 requires confirmation in 2022.

Monitoring well 13-I is located near the former Office/Storage Building. Groundwater quality at this location is characterized by elevated chloride concentrations initially increasing to a maximum of 120 mg/L in 1995 which have since decreased to their lowest concentration of 55 mg/L in May 2021. Sulphate concentrations at 13-I are atypically low for Layer 1 groundwater (range of 100 mg/L to 250 mg/L). This historical range of iron concentrations at this location was elevated (peak 5.2 mg/L) up to 2005 but then declined and remain low with occasional anomalous values, including a result of 0.72 mg/L in September 2021. Ammonia is consistently low however, a recent notable elevated result of 2.17 mg/L in September 2021 was reported and requires confirmation.

Monitoring well 15-I is located along the west side of Erieau Road, south of the old entrance to the landfill. Chloride concentrations at this well were relatively stable at around 40 mg/L from 1985 to 1993 but increased since 2008; the highest chloride concentration was reached in September 2021 (770 mg/L) and is accompanied by elevated sodium (158 mg/L), calcium (422 mg/L) and magnesium (195 mg/L). Sulphate concentrations ranged from 688 mg/L to 1,700 mg/L between 1990 to 2021. Iron concentrations from 15-I are consistently elevated (8,930 and 8,940 µg/L in 2021). The Durov diagram illustrates that this well plots in the calcium-magnesium-chloride area, outside of typical Layer 1 well results but also away from the leachate endpoint. Given this, and the low ammonia concentrations it is concluded that the elevated chloride is not from leachate.

Monitoring well 16-I is located south of 15-I, also along the west side of Erieau Road. Chloride concentrations have exhibited a slow steady increase since 1999 ranging up to 250 mg/L in May 2020; recent concentrations in 2021 have declined slightly to 180 mg/L. Sulphate concentrations are typically elevated above 1,400 mg/L and were stable overall up to 2020. In 2021, concentrations declined (870 mg/L and 810 mg/L in May and September). Iron concentrations were significantly elevated at this location, between 2011 and 2020 ranging from 9.7 to 57 mg/L. Similarly to other parameter, iron concentrations in 2021 were significantly lower (0.029 and 0.059 mg/L). Conversely, TKN and ammonia concentrations both increased beginning in May 2018, reaching a maximum of 13.7 mg/L and 13.4 mg/L, respectively in 2021. Organic matter has been historically observed in the samples collected from 16-I as well as “sulphur” and “organic” odours. It is considered likely that the results reflect a well integrity issue and it is recommended that this well be assessed and repaired if possible. At this time, the results are not considered to represent leachate impact. The Durov diagram indicates that the quality of the samples from this location are not representative of Layer 1 waters.

Monitoring well 31-I is located along the south side of the Old Landfill. Chloride concentrations are typically less than 10 mg/L; the 2021 chloride concentrations were 7 mg/L and 8 mg/L. The sulphate concentration reported for 2021 was 430 mg/L and 470 mg/L. Iron concentrations have been consistently low, as has ammonia. Monitoring well 32-III is located on the south side of the Old Landfill, east of monitoring well 31-I. Chloride concentrations have ranged from 10 mg/L to 46 mg/L between 1991 and 2021. Sulphate concentrations declined from over 600 mg/L since 2013 and have recently stabilized near 500 mg/L. Iron and ammonia concentrations are low.

The groundwater quality at 31-I and 32-III is considered typical of Layer 1 (shallow) groundwater as compared to results for other monitoring wells located along Erieau Road (i.e., 12-I, 13-I, 15-I and 16 I), where road salting and/or other activities have influenced groundwater quality.

West and South Landfills (Existing Fill Area)

There are seven wells located around the perimeter of the West landfill area that monitor water in Layer 1 (28-III, 49-A, 50-A, 58-A, 59-A, 60-A, 61-A); six wells are located around the perimeter of the South landfill area that monitor water in Layer 1 (46-III, 47-II, 48-I, 62-A, 63-A and 64-A). Two additional monitoring wells were added to the program, 73-A and 74-A, which monitor the area south of the West and South landfill areas adjacent to Allison Line.

Wells BH28-III and 50-A are located on the Site boundary and west of the Howard Drain and the visual berm. As a result, these shallow wells are not anticipated to exhibit influence from the West Landfill. Water levels in these wells are expected to be influenced in part by the flow within the adjacent drainage ditches. Chloride concentrations at these locations are slightly elevated and fluctuate within a close range to the average for Layer 1. Sulphate concentrations are typical of this unit (i.e., elevated) and declining overall, albeit with significant fluctuations at 28-III. Iron concentrations are typical of this unit, with significant fluctuations (occasional peak concentrations) at 50-A.

At Well 49 A, chloride concentrations are consistently low (less than 10 mg/L); iron concentrations are presently low (less than 300 µg/L in 2020), notably since more elevated concentrations in 2018 and earlier. Trends of sulphate, potassium, COD and TKN have declined slightly in recent years.

Well 58-A was repaired in November 2020 after being damaged in 2018. The 2021 data is consistent with the previously reported results. Chloride, iron and sulphate concentrations are consistently low at this location.

At Well 59-A, chloride concentrations are consistently low (less than 15 mg/L); iron concentrations declined in 2021 to within historical norms for this location following a short-term spike in 2020. Trends of sulphate and potassium are stable after an earlier decline to 2011; sodium, COD and TKN have declined in recent years (i.e., since 2011).

At Well 60A, chloride concentrations are slightly elevated (31 to 38 mg/L in 2021); iron concentrations are elevated (up to 2.6 mg/L in 2020) but lower than in the initial years following installation of this well. Sulphate increased slightly to 1,500 mg/L but is within the historical range for this monitoring location. Potassium concentrations are stable after an earlier decline to 2013; sodium, COD and TKN have declined in recent years (i.e., since 2011), whereas calcium has been increasing.

At Well 61A, chloride concentrations are consistently low (less than 10 mg/L); iron concentrations are consistently low (less than 100 µg/L). Trends of sulphate and potassium are stable after an earlier decline to 2011; sodium, calcium, COD and TKN have declined in the initial years following installation of this well.

Wells 46-III and 64-A are located near the abandoned railway and approximately 100 metres south of the South Landfill. These shallow wells are anticipated to be somewhat removed from significant influence by the landfill. Chloride concentrations at these locations are low (less than 10 mg/L and 16 mg/L in 2021, respectively). Concentrations of the monitored parameters at these wells have been largely stable or declining in recent years. Sulphate concentrations at Well 46-III are low (maximum 400 mg/L in 2021), whereas those at Well 64-A (i.e.,1,400 mg/L) are elevated and typical of this parameter for Layer 1. The results are not indictive of landfill influence in this area.

Well 48-I is located approximately 75 metres east of the South Landfill and next to a soil stockpile. The chloride concentrations at this well were stable, below 10 mg/L in 2021, and remain lower than those measured prior to replacement of the well in 2012. The sulphate concentration was on the low end of the range for Layer 1 (670 to 990 mg/L 2021). Overall, the major ions are also stable since the well was replaced. Iron concentrations have been

below the reportable laboratory detection limit and stable since 2012. The results indicate that this well is not influenced by the nearby landfill.

At Well 47-II, chloride concentrations are low (19 to 24 mg/L in 2021); iron concentrations are consistently low (less than 100 µg/L). Trends of conductivity, sulphate and calcium have been increasing over the monitoring period, although it is noted that sulphate (530 to 670 mg/L in 2021) is on the lower end of the concentration range for Layer 1. Ammonia, iron, COD and TKN are concentrations are low. Acetone was detected at this well in 2020 however, none of the VOCs from the reduced parameter list were detected in 2021. Whereas the acetone result and location of the well suggest it may be influenced by the adjacent landfill, low ammonia and other landfill indicator concentrations do not provide corroborating evidence.

The concentrations of chloride, sulphate, conductivity and iron in Wells 62-A and 63-A were measured at concentrations typical of Layer 1 and the overall trends of major ions at these wells had been stable or declining; however, at 62-A in September 2021 sulphate, calcium, magnesium and sodium concentrations increased. Concentrations of these major ions had been stable since 2013. Sulphate concentrations were previously stable at around 300 mg/L but increased to 1,600 mg/L in September 2021. Concentrations of sulphate, calcium, magnesium and sodium concentrations also exhibited a slight increase in 2021 at 63-A. Chloride concentrations at these wells are consistently low (20 mg/L or less) in 2021.

6.3.3.2 Layer 2 Groundwater Quality

There are ten monitoring wells used to assess Layer 2 groundwater quality (3-II, 14-I, 30-II, 44-II, 28-II, 46-II, 47-I, 47-II, 49-B and 50-B). Two additional monitoring wells were added to the program: 73-B and 74-B, which monitor the area south of the West and South landfill areas adjacent to Allison Line. Groundwater quality trend graphs and a summary of groundwater quality data are included in Appendix H2 for Layer 2 monitoring wells sampled in 2021. This unit is not considered to represent a water supply aquifer (Dillon 2020) and therefore quality is not compared to ODWS or RUC.

Monitoring well 14-I is located within the former maintenance/parking area at the former site entrance. This well was replaced in 2020 and had not been sampled since 2017 as it was damaged. Chloride concentrations at this well were greater than 145 mg/L prior to 2005 and it is suspected that the annular seal was compromised allowing infiltration of road salt impacted water to the well screen. This well was decommissioned and re-drilled in 2002 and had exhibited improvement in water quality since 2017. 14-I was replaced in 2020 and sampled in 2021. Chloride concentrations in 2021 from samples collected from 14-I were 12 mg/L and 17 mg/L in May and September, respectively. It is further noted that elevated nitrate formerly observed (up to 21.8 mg/L in 2017) reduced substantially.

Concentrations of chloride in the Layer 2 wells in 2021 are similar to historical results and are all within a range of approximately 5 mg/L to 50 mg/L. At Well 44-II, chloride concentrations have ranged from 39 mg/L to 108 mg/L since 1996 but have declined since 2011 and were 49 to 56 mg/L in 2021. Sodium concentrations in 2021 were 73 and 74 mg/L which is within the historical range of approximately 40 to 150 mg/L.

Sulphate concentrations range from approximately 50 mg/L to 700 mg/L in 2021 at most wells, with the exception of Well 50-B, where concentrations ranged from 1,000 to 1,200 mg/L. The range of concentrations (other than for 50-B) is considered to represent natural concentrations within the unit. Concentrations of this parameter are typically stable, or sometimes exhibit longer term declining trends (e.g., wells 44-II and 46-II). At 47-I, fluctuating sulphate concentrations continued, following an increase observed beginning in 2011; corresponding COD increases have also been observed at this well. Based on a review of other parameters (e.g., ammonia and chloride), landfill influence is not considered to be occurring at this location. Occasional spikes in iron concentrations, including in 2021, are considered anomalous and may reflect inadequate filtering of the sample.

The 2021 metals results for the wells in Layer 2 are similar to previous historical data. Occasionally elevated iron was detected at a number of wells, including at 47-I and 49-B. These results are considered consistent with natural conditions in this unit. The lead concentration at 47-I was 4.99 µg/L in May 2021; this elevated result is interpreted to be caused by heavy sediment load bypassing the groundwater filter, as similarly observed for the anomalous iron results and stable major ions concentrations.

6.3.3.3 Layer 3 Groundwater Quality

There are eleven monitoring wells used to evaluate Layer 3 (basal/bedrock aquifer) groundwater quality: BW-1, BW-3, BW-4, 30-I, 32-I, 28-I, 46-I, 49-C, 50-C, 73-C and 74-C. Groundwater quality trend graphs and a summary of groundwater quality data are included in **Appendix H3** for Layer 3 monitoring wells sampled in 2021. Samples collected from 73-C and 74-C in May 2021 are not considered to be representative of the water quality in Layer 3, due to high sediment load observed from samples from each location and the potential for the sediment to interfere with the water quality analyses. These results were not included in the record.

Overall, Layer 3 groundwater samples exhibit elevated chloride and sodium at all locations, typically at or near the ODWS. The elevated concentrations of chloride and sodium are naturally occurring and are caused by the long residency time of the groundwater in Layer 3 (Dillon 2020). Sulphate is low at all locations, reflecting the reducing conditions at the depth of this layer. Iron concentrations are also low, compared to the shallower layers, but at some locations are close to or somewhat exceed the ODWS as a result of natural mineralization of the water. Given the thickness and nature of the overlying deposits, impacts from the landfill to Layer 3 are not expected. Nevertheless, as this is the local water supply for off-site private wells not currently using the municipal supply, comparison to the ODWS and RUC is provided in Sections 6.3 and 6.4.

Notable trends within the Layer 3 wells include the following:

- At well 28-I, chloride increased from less than 100 mg/L prior to 1991, to 450 mg/L in 2021; sodium concentrations followed a similar trend. Between 2006 and 2010, sulphate increased from less than 5 mg/L to a peak of 267 mg/L, sulphate has decreased to less than 2 mg/L in 2021. Lower concentrations of chloride and sodium are consistently observed in the shallower wells at this location. The variations prior to 2014 are considered to reflect stabilization of groundwater quality to natural conditions. Long-term increases in chloride and sodium are observed at wells 49-C and 50-C. Chloride concentrations in the shallower screens at these locations are lower. It is further noted that the water levels in these wells have consistently increased (see Section 6.1), reflecting a regional influence on aquifer pressures. The trends in the underlying aquifer are not considered to be related to the landfill.
- Iron concentrations at a number of the wells (i.e., 30-I, 32-I, 49-C and 50-C) are observed to increase from background (less than 100 µg/L) to near or over 300 µg/L after 2010. This change is considered to likely reflect laboratory accuracy or changes to sampling technique.
- The water quality from samples collected from 73-C and 74-C in December 2021 are similar to historical results from the other monitoring locations screen in Layer 3.

Water quality from the private wells surrounding the Site is tested on an annual basis. The data collected from the private wells in 2021 indicate that the quality monitored at these wells was within the historical range. The water quality data collected from the private wells are consistent with the water quality data from Layer 3. Iron concentrations are generally lower in off-site private wells compared to those in the Site monitoring wells screened in Layer 3. Given the consistency of the trends at the private wells, the data does not indicate any impact from the landfill to the groundwater quality in off-site wells screened in Layer 3.

6.3.4 VOC Monitoring Summary

Groundwater samples collected in May 2021 were submitted to the laboratory for annual analyses of VOC. The vast majority of the results were below the reportable laboratory detection limits for the analyzed parameters. Results, notably including all samples collected from the Layer 3 wells, were below the ODWS and applicable RUC.

As described in in **Section 6.3.2**, VOC were detected in the Leachate; the parameters detected in the groundwater monitoring well samples in May 2021 were:

- Trace concentrations of toluene in well 28-III (0.8 ug/L). This well is screened in Layer 1 and is located northwest of the West Landfill near the west Site boundary; and
- Trace concentrations of toluene in well 58-A (0.8 ug/L). This well is screened in Layer 1 and is located north of the West Landfill.

VOC detected in groundwater monitoring wells were in wells screened in Layer 1. Whereas this unit is not used for water supply, it is noted that the observed concentrations are below the ODWS. VOC were detected in 2020 at wells 30-II from Layer 2 and 47-II, 48-I and 50-A from Layer 1. There were no VOC detections repeated in 2021 at the same wells where VOCs were identified in 2020. It is noted that the list of VOC parameters was updated in 2021 as described in **Section 4.3**.

6.3.5 Groundwater Monitoring Well Conditions

Beyond the above listed replacements and repairs completed in 2021, the only other issue identified was that there may be an issue with the well casing integrity at wells 16-I and 21-I, which will be assessed in 2022.

The available monitoring well construction details are provided in **Appendix F**.

6.3.6 Reasonable Use Criteria Assessment

The establishment of the Reasonable Use Criteria (RUC) for key contaminants has been completed by Dillon (2020). The report states that chloride is found naturally at a median concentration of 125 mg/L within a range of 45 mg/L to 400 mg/L. To determine the significance of an impact on groundwater quality Guideline B-7, “The Incorporation of the Reasonable Use Policy into Groundwater Management Activities (April 1994, as amended).” was developed. The B-7 guideline (RUC) establishes site-specific groundwater quality criteria based on the “Reasonable Use” of groundwater resources and background water quality data. These criteria are applicable at the defined Site boundary.

Reasonable Use Criteria (From Dillon, 2020)

Critical Contaminant	ODWS	Background Concentration	Allowable Concentration (RUC)	Trigger Criteria[1]
Benzene (µg/L)	5	0	1.25	1
Cadmium (µg/L)	5	0	1.25	1
Chloride (mg/L)	250	125	188	160

Critical Contaminant	ODWS	Background Concentration	Allowable Concentration (RUC)	Trigger Criteria[1]
Lead (µg/L)	10	0	2.5	2.1
1,4 Dichlorobenzene (µg/L)	5	0	1.25	1
Dichloromethane (µg/L)	50	0	12.5	11
Toluene (µg/L)	24	0	12	10
Vinyl Chloride (µg/L)	2	0	0.5	0.4

Note: [1] - Trigger Criteria based on 85% of RUC as per ECA

The guideline states that in most cases the "reasonable use" of groundwater will be drinking water. This is considered to be the case for Layer 3, which is used as the principal water supply aquifer in the area surrounding the landfill, although a piped municipal water supply is now available in on Charing Cross Road and Erieau Road adjacent to the landfill. Layer 1 is indicated to not be considered a reliable water source due to low yields from the weathered till formation and the naturally elevated sulphate concentrations. Layer 2 is also indicated to not be a viable water source because the unweathered till formation is a low permeability aquitard and due to the very low yields, would not provide a sustainable supply of groundwater.

With respect to the approach to groundwater compliance, the current ECA outlines the following Trigger approach in Section 10.2 that will apply in 2022:

(1) In the event of the groundwater contamination in excess of a maximum of 85% of the acceptable levels as defined by the Reasonable Use Guideline, the Tier 1 of the contingency plan described in Section 17.1 of the D & O Report, shall be implemented;

(2) In the event the groundwater concentrations exceeding 85% of applicable Reasonable Use Criteria is confirmed through Tier 1 investigation, Tier 2 of the contingency plan described in Section 17.1 of the D & O Report shall be initiated within one month of the confirmation of the exceedance; and

(3) (a) Prior to the implementation of the contingency measures necessary to prevent the unacceptable off-site impacts due to groundwater contamination, the Owner shall submit to the Director for approval, a detailed design of the proposed measures; and (b) The proposed contingency measure for Pathway 1, shall include an assessment on the need for an additional leachate collector outside of the fill area. This assessment shall be submitted to the District Manager, prior to the submission of the detailed design.

As noted in Section 10.3 or the ECA, any changes to the specific trigger levels for the groundwater and surface water monitoring programs shall be approved by the Regional Director prior to the implementation of these changes.

The average background chloride concentration in Layer 1 is difficult to define; there is a large range in variability of the natural groundwater quality due to the heterogeneous nature of Layer 1. The assessment of data from Layer 1 wells excluded the monitoring wells potentially impacted by road salt application. The assessment (Dillon's section in Golder 2020) indicated that a chloride concentration of 40 mg/L is considered representative of average Layer 1 conditions. The allowable chloride concentration calculated following the Reasonable Use Guideline, based on a background chloride concentration of 125 mg/L, is 188 mg/L (Dillon, 2020).

A review of the monitoring data indicates that Layer 1 monitoring wells 12-I, 15-I, 16-I and 21-I exhibited chloride concentrations greater than 145 mg/L in 2020. Prior to 2018 well 44-III also contained chloride concentrations above 145 mg/L; however, since 2019, chloride concentrations were lower and ranged from 53 mg/L to 140 mg/L. Monitoring wells 12-I, 15-I and 16-I are shallow monitoring wells installed in Layer 1 located near the former landfill entrance. Monitoring well 44-III is located at the northeast corner of the Old Landfill area along Erieau Road. Road salt impacts are interpreted to be the cause of the elevated chloride at the wells near the landfill entrance and in the former parking area as well as along Erieau Road. Well 21-I is located near the former landfill entrance; chloride concentrations at this well 21-I have ranged from 126 mg/L to 180 mg/L since 2010.

A review of monitoring data indicates there are no Layer 2 monitoring wells exhibiting chloride concentrations greater than 145 mg/L in 2021.

A review of monitoring data indicates that Layer 3 monitoring wells 28-I, 30-I, 32-I, 50-C, BW-1 and BW-4 exhibited natural chloride concentrations greater than 145 mg/L in 2020. The background chloride concentrations in Layer 3 wells are temporally and spatially variable. This is illustrated by chloride at 28-I, which in 2020 ranged from 280 mg/L to 470 mg/L, whereas at 49-C, located 400 m to the east, the chloride concentrations were reported to be 120 mg/L and 110 mg/L in May and September 2020, respectively (see **Table 6.3**).

6.4 Summary of Groundwater Compliance Assessment

The groundwater quality at the Ridge Landfill has not been notably impacted by landfill leachate. Some elevated chloride concentrations in shallow monitoring wells are interpreted to be related to impacts from road salt use, either by wells located near roads or near surface water drains that have been impacted by road salt, including Layer 1 monitoring wells 12-I, 13-I, 16-I and 44-III. For 16-I the results may reflect an integrity issue with the well casing, and it is recommended that this well be assessed and repaired, if possible.

Chloride concentrations at well 21-I (Layer 1) have been elevated above 100 mg/L since 2000, with one exception of an anomalously low concentration of 18 mg/L in May 2009. Two other Layer 1 wells located in proximity (wells 20-I and 22-I) have generally exhibited much lower chloride concentrations in that time period, with the exception of an anomalously high concentration measured in May 2009 of 142 mg/L at well 22-I. The condition of well 21-I should be assessed for potential damage, which if present, could explain the elevated chloride concentrations.

Elevated concentrations of chloride in several monitoring wells in Layer 3 are attributed to naturally occurring temporal and spatial variations, which are also observed in background wells. Given that the isotopic analysis Dillon (1997a and 2020) indicated that the groundwater in Layer 3 is extremely old, the range in chloride concentrations in Layer 3 is attributed to natural variation.

7.0 SURFACE WATER QUALITY

Surface water quality at the Ridge Landfill Site is monitored by sampling municipal drains both upstream and downstream of the landfill and sampling stormwater management ponds located at the landfill. Surface water quality data and trend graphs from the municipal drains and the storm water management ponds are included in **Appendix J** for the period of 1989 to 2021. Surface water quality data results from samples collected in the municipal drains are compared to PWQO.

7.1 Surface Water Quality in Municipal Drains

The following sampling locations within the surrounding municipal drains were sampled in 2021 (**Drawing 3**):

- SW-4: Duke Drain upstream of the landfill at the intersection of Allison Line and Erieau Road
- SW-7: Howard Drain immediately downstream of the Site boundary
- SW-11: Howard Drain at Allison Line
- SW-12: Scott Drain just before the outlet to Howard Drain

Surface water samples were collected in May, September and December. In June, all locations were dry and samples could not be collected. A summary of data from the municipal drain monitoring locations is provided in **Appendix J1**.

SW-7 is located downstream of the Site boundary and was established as a monitoring location to determine surface water quality immediately downstream of the Site. Sampling locations SW-4, SW-11 and SW-12 are upstream of the active landfilling area and therefore represent surface water quality prior to runoff from the landfills.

Chloride concentrations are included in the evaluation as chloride is a leachate indicator parameter at this Site. There is no published PWQO for chloride. A summary of parameters considered key to assessing surface water influence from landfills, including un-ionized ammonia, chloride, iron and phenols, is shown on **Table 7.1**.

Table 7.1: Summary of Water Quality Municipal Drains

Location	2021 Monitoring Event	Ammonia (un-ionized)	Chloride	Iron	Phenols
	PWQO	**0.02 (mg/L)**	**--**	**0.3 (mg/L)**	**1 (µg/L)**
SW-4 Upstream of Landfill	May	<0.01	83	**1.1**	<1
	June	Not sampled (dry)	Not sampled (dry)	Not sampled (dry)	Not sampled (dry)
	September	<0.01	150	**0.35**	<1
	December	<0.01	51	**0.89**	<2
SW-11 Upstream of Landfill	May	<0.01	44	0.13	<1
	June	Not sampled (dry)	Not sampled (dry)	Not sampled (dry)	Not sampled (dry)
	September	<0.01	61	**4.6**	**2**
	December	<0.01	47	**0.65**	<2

Location	2021 Monitoring Event	Ammonia (un-ionized)	Chloride	Iron	Phenols
	PWQO	0.02 (mg/L)	--	0.3 (mg/L)	1 (µg/L)
SW-12 Upstream of Landfill	May	<0.01	260	0.17	<1
	June	Not sampled (dry)	Not sampled (dry)	Not sampled (dry)	Not sampled (dry)
	September	<0.01	110	**2.3**	<1
	December	<0.01	63	**1.4**	<2
SW-7 Downstream of Landfill	May	<0.01	100	**0.62**	**2**
	June	Not sampled (dry)	Not sampled (dry)	Not sampled (dry)	Not sampled (dry)
	September	<0.01	62	**1.2**	1
	December	<0.01	92	**23.3**	<2

Notes: 1. **Bold** values indicate an exceedance of the PWQO
2. During the June 2021 sampling event SW-4, SW7, SW-11 and SW-12 were dry and a sample could not be collected.

Unionized ammonia was below the PWQO limit of 0.02 mg/L all samples.

Chloride concentrations were in all cases higher at an upstream location as compared to SW-7 (downstream).

Elevated iron, including exceedances of PWQO, were noted at all sampling locations in 2021. 2021 results were similar to 2020. In 2021 iron concentrations ranged between 0.13 mg/L to 23 mg/L. Iron concentrations at the downstream location, SW-7, were consistently similar or lower than in the upstream locations in all but the December sample period. The source of elevated iron concentrations is in part attributed to suspended silt and clay particles present in unfiltered surface water samples and is not considered to reflect landfill impact.

Phenols were only detected above the PWQO at SW-11 in September and at SW-7 in May 2021. Phenols from both locations were reported at 2 µg/L, above the detection limit of 1 µg/L.

Phosphorous exceeded the PWQO of 0.02 mg/L in the vast majority of samples, however similar to iron, this parameter is also regularly elevated in the upstream samples. It is noted that the September and December 2021 phosphorous result at SW-7 was elevated compared to upstream values.

Copper in September (5.5 µg/L) exceeded the PWQO (5 µg/L) however, a similar exceedance was noted at SW-11 upstream during the same sampling event.

Overall, based on the concentration trends at SW-7 and the single event exceedances (e.g., phenols in May, copper in September), the data do not indicate an ongoing impact of the landfill operations on surface water quality.

7.2 Surface Water Quality in Stormwater Management Ponds

The storm water management ponds were sampled in 2021 and the water quality analyzed prior to discharge to the municipal drains. Stormwater ponds SWP-1, SWP-2, SWP-3 (New), SWP-4, and SWP-5 were sampled in March, May, July, September, October and December of 2021. SWP-2 was not sampled in July as this stormwater management pond did not need to be discharged at that time. A summary of data from the storm water management ponds is provided in **Appendix J2**. Sample locations are described below:

- SWP-1 (northeast corner of the Old Landfill) and SWP-2 (southeast corner of the Old Landfill) receives surface water from the east side of the Old Landfill.
- SWP-4 and SWP-5 are located north of the landfill. SWP-4 receives water from the West Landfill only. SWP-5 receives water from part of the Old Landfill and part of the West Landfill.
- SWP-3 (Old) was decommissioned in 2020 since it was located within the approved footprint of the Infill Area (Cell 8). SWP-3 (Old) was formerly located at the southwest corner of the Old Landfill and received water from a portion the Old Landfill.
- SWP-3 (New) is located south of the West Landfill and receives runoff from the east half, west half and south portion of the West Landfill and also collects runoff from the entire South Landfill.

Samples collected from the storm water management ponds are compared to the effluent objectives in the Amended ECA. The following are the objectives for these ponds, set out in Schedule B of ECA (Sewage) 1800-BULJRQ (i.e., Section 53 OWRA approval):

Schedule B – Storm Water Pond Effluent Objectives

Effluent Parameter	Objective
Phenols	0.005 mg/L
Total Phosphorus	to be determined after 4 years monitoring data (2021 – 2024)
Iron	6.8 mg/L
Unionized Ammonia	0.02 mg/L

The amended ECA (Waste) outlines the following requirement in Section 10.3:

If the discharge objectives as per the Site's Section 53 OWRA approval are exceeded in any of the storm water management ponds, the impacted water shall not be discharged to the municipal drains, and the contingency measures described Section 17.1 of the D & O Report shall be implemented.

The ECA (Sewage) effluent objectives are included in **Table 7.2**

As set out in Condition 6(5) of the current ECA, during monitoring events temperature and pH were measured in the field during sample collection. The field values for temperature and pH are utilized in the calculation of un-ionized ammonia based on total ammonia (as N) concentrations.

A summary of pH, un-ionized ammonia, chloride, iron, phenols and total phosphorus parameters are shown on **Table 7.2**.

Table 7.2: Summary of Water Quality Stormwater Management Ponds

Location	2021 Monitoring Event	pH	Ammonia (un-ionized) (mg/L)	Iron (mg/L)	Total Phenols (µg/L)	Total Phosphorus (mg/L)
	Amended ECA	**6.5 to 9.5**	**0.02**	**6.8**	**5**	[3]
SWP-1 northeast corner of Old Landfill	March	7.67	<0.01	0.60	<1	0.22
	May	8.99	<0.01	0.60	<1	0.19
	July	6.59	<0.01	1.1	2	0.31
	September	7.23	<0.01	1.7	<1	0.77
	October	7.49	<0.01	0.64	<2	0.07
	December	8.53	**0.03**	0.55	<1	0.06
SWP-2 southeast corner of Old Landfill	March	7.42	<0.01	0.21	<1	0.13
	May	7.77	<0.01	0.30	2	0.02
	July[2]	Not sampled	Not sampled	Not sampled	Not sampled	Not sampled
	September	8.4	<0.01	0.21	<1	0.05
	October	7.76	<0.01	0.08	<2	<0.03
	December	8.38	<0.01	0.15	2	<0.03
SWP-3 (New) South of West Landfill	March	7.67	<0.01	0.46	2	0.05
	May	8.27	<0.01	2.39	<1	0.105
	July	7.53	<0.01	3.01	<2	0.204
	September	7.57	<0.01	0.77	1	0.04
	October	8.75	<0.01	0.16	2	<0.03
	December	8.93	<0.01	0.55	<1	0.04
SWP-4 north of West Landfill	March	8.19	<0.01	0.26	<1	0.12
	May	8.43	<0.01	0.47	<1	0.05
	July	7.14	<0.01	1.36	<2	0.149
	September	8.26	0.01	1.05	<1	0.087
	October	8.25	<0.01	0.92	<2	0.08
	December	8.62	<0.01	0.33	<1	0.09
	March	8.32	<0.01	0.86	<1	0.18

Location	2021 Monitoring Event	pH	Ammonia (un-ionized) (mg/L)	Iron (mg/L)	Total Phenols (µg/L)	Total Phosphorus (mg/L)
	Amended ECA	**6.5 to 9.5**	**0.02**	**6.8**	**5**	**(3)**
SWP-5 north of West Landfill	May	8.47	<0.01	0.27	<1	0.032
	July	7.88	<0.01	1.03	<2	0.096
	September	8.37	0.01	0.41	<1	0.024
	October	8.02	<0.01	0.41	2	0.05
	December	8.89	0.01	0.65	<1	0.05

Notes: 1. **Bold** values indicate an exceedance of the Amended ECA effluent objectives.
2. During the July 2021 sampling event SWP-2 was not sampled as the stormwater pond was not required to be discharged.
3. The Amended ECA does not specify an effluent objective for total phosphorus, the effluent objective is to be determined after collection of four years of monitoring data, 2021 to 2024, and the effluent objective would take effect in 2025.

Calculated un-ionized ammonia concentrations were above the Amended ECA effluent objectives in December 2021 at SWP-1. No other exceedances were reported for the parameters listed and pH values were within the range set in the Amended ECA effluent objectives.

All iron concentrations in stormwater management ponds samples analyzed in 2021 were below the Table 1 (Schedule B) effluent objectives. Iron concentrations from the on-site storm water management ponds are generally similar to the concentrations measured in the municipal drains. The iron concentrations in the stormwater ponds are not considered to be landfill related. Historically, the source of elevated iron has been attributed to suspended silt and clay particles present in unfiltered surface water samples.

Total phosphorus concentrations are similar to those measured in the municipal drains. The source of total phosphorus in the stormwater ponds are not considered to be landfill related.

Phenol concentrations were within the historical range of concentrations for all locations. Phenols concentrations reported in samples collected in 2021 from the storm water ponds were similar to those reported historically in the municipal drains. Therefore, the presence of phenols in the stormwater ponds are not considered to be related to potential landfill impacts.

Ponds were discharged after confirmation that sampling results met the discharge criteria. Surface water from the ponds was also used for dust control on-site. In December, SWP-1 was resampled to confirm compliance with the stormwater discharge criteria. Following confirmation, the pond was discharged.

Based on the sampling results, the landfills are not adversely impacting on stormwater pond quality. Concentrations of chloride, iron, phenols, phosphorus and un-ionized ammonia were generally within their respective historical ranges. No impacts to surface water quality have been identified based on the historical as well as data collected in 2021 and the contingency measures set out in Condition 10.1 of the ECA are not required to be implemented.

8.0 RESULTS OF QUALITY ASSURANCE / QUALITY CONTROL

The objective of the Quality Assurance/Quality Control (QA/QC) assessment was to evaluate the quality and appropriateness of the analytical data, particularly at concentrations that may be at or near decision-making criteria for the water monitoring program. The QA/QC assessment addresses the precision of the reported results for major ion and indicator parameters. This assessment does not include a review of laboratory duplicate samples that are part of the laboratory's internal QA/QC standard program.

The relative percent difference (RPD) between the sample and the duplicate was calculated for each parameter and the RPD were all within acceptable limits (i.e., less than 30%) in 2021, with the following exceptions. It is noted that there is no consistent issue with respect to a single parameter. With respect to location, it is noted that samples from wells 60A and 62A exhibited the most frequent variation of RPD. It is suspected that either sediment differences or duplicate splitting may have affected these results.

- Iron at 60-A (66%) and SW-4 (66%) collected in May, iron at 49-B (66%) and 62-A (71%) collected in September.
- Dissolved Organic Carbon at 49-B (33%) collected in September.
- Total ammonia at 60-A (56%) collected May.
- Arsenic at 60-A (54%) collected May.
- Cadmium at 73-A (33%) and at SW-4 (36%) collected May.
- Chromium at 60-A (56%) collected May.
- Copper at 60-A (42%) and at 73-A (46%) collected May.
- Lead at 60-A (68%) and SW-4 (46%) collected May.
- Manganese at 60-A (68%) collected May.
- Phosphorus at 60-A (57%) collected May.
- Zinc at 60-A (68%) and at SW-4 (50%) collected May
- Conductivity at 62-A (44%) collected September.
- Hardness at 62-A (53%) collected September.
- Sulphate at 62-A (69%) collected September.
- Calcium at 62-A (51%) collected September.
- Magnesium at 62-A (69%) collected September.
- Sodium at 62-A (69%) collected September.

Ion balance error calculations are included in **Appendices H, I and J**. The ion balance difference was 10% or less for all samples in 2021 with the exceptions of:

- Groundwater sample collected from monitoring well 21-I in May (-77%). There is an anomalously high value of sulphate, the concentration of the remaining major ions are stable from previous years, which appeared to have influenced the calculations for this sample;

- Groundwater sample collected from monitoring well 47-I in May (11%). It is possible that a less common ion is present within the sample at this location, which could influence the calculations. Suspended solids within the samples may also have an influence on the ion balance calculations; and,
- Groundwater sample collected from monitoring well 73-C in May (60%). Suspended solids within the sample collected from this monitoring location were observed to be very high which influenced the ion balance calculations.

The differences noted above are not significant enough to impact the overall interpretation of the 2021 analyses.

A comparison of field and laboratory pH and conductivity measurements indicates that the laboratory and field pH agreement were in generally similar, based on an average difference of 490 µS/cm and 0.7 pH units between field and laboratory measurements.

The surrogate recoveries for all samples (VOC and inorganic parameters) were within laboratory acceptable limits. The certificates of analysis indicate that the overall quality control for this analysis meets acceptability criteria.

On the basis of the results reviewed by Golder, the QA/QC for the analyses on the data collected during the 2021 monitoring program is considered acceptable and can be relied upon for interpretation of monitoring results.

9.0 CONCLUSIONS

The following conclusions are made based on the interpretation of the 2021 monitoring results at the Ridge Landfill:

iii) Based on leachate elevations measured in the Old Landfill manholes and groundwater elevations measured in nearest relevant monitoring wells in 2021, the perimeter collector is locally depressing the shallow groundwater system, i.e., the leachate collector is controlling leachate off-site migration at the Old Landfill perimeter and performing as designed.

iv) The Blenheim Sewage Treatment Plant operated in 2021 within the approved parameters with adequate capacity to treat the Ridge Landfill leachate.

v) The groundwater and surface water quality data from the 2021 annual monitoring at the Ridge Landfill indicate that there are no leachate impacts to groundwater quality of the deeper units used for groundwater supply (Layer 3), nor to surface water quality downgradient of the Site. There is no need to implement contingency plans and/or additional mitigation measures set out in Condition 10.0 of ECA No. A021601.

vi) Groundwater quality in Layer 1 at monitoring well 12-I, which is located in the maintenance and parking areas of the former landfill entrance, east of the old landfill, exhibited elevated chloride concentrations. The elevated chloride concentrations are considered to be the result of road de-icing salt. Groundwater from Layer 1 is not used as a water supply local to the Site and the exceedance of the RUC in this layer is therefore not assessed.

vii) Chloride concentrations at well 21-I (Layer 1) have been elevated above 100 mg/L since 2000, with the exception of an anomalously low concentration of 18 mg/L in May 2009. Two other Layer 1 wells located in proximity (wells 20-I and 22-I) have generally exhibited much lower chloride concentrations in that time period. The condition of well 21-I should be assessed for potential damage, which if present, could explain the elevated chloride concentrations.

viii) The Durov diagram illustrates that well 15-I plots in the calcium-magnesium-chloride area, outside of typical Layer 1 well results but also away from the leachate endpoint. Given this, and the low ammonia concentrations it is concluded that the elevated chloride is not from leachate.

ix) Organic matter has been historically observed in the samples collected from 16-I as well as “sulphur” and “organic” odours. It is considered likely that results from this well, notably low calcium and sulphate and elevated potassium and ammonia, reflect a well integrity issue and it is recommended that this well be assessed and repaired if possible. At this time, the results are not considered to represent leachate impact. The Durov diagram indicates that the quality of the samples from this location are not representative of Layer 1 waters.

x) Water quality results for Layer 2 monitoring wells sampled in 2021 do not indicate influence from the landfill. Groundwater from Layer 2 is not used as a water supply local to the Site.

xi) Groundwater quality in Layer 3 monitoring wells 28-I, 32-I, 50-C and BW-1 exhibited chloride concentrations greater than the RUC of 188 mg/L in 2021. The background chloride concentrations in Layer 3 wells are temporally and spatially variable. This is illustrated by chloride concentration at 28-I, which in 2021 ranged from 440 mg/L to 450 mg/L, whereas at 49-C, located 400 m to the east, the chloride concentrations were reported to be 120 mg/L and 140 mg/L in May and September 2021, respectively. Earlier isotopic studies indicate that the groundwater in Layer 3 is extremely “old” and therefore the elevated chloride concentrations in Layer 3 are attributed to natural variation and not landfill influence;

xii) Monitoring results from the off-site private wells in Layer 3 do not indicate evidence of leachate impact;

xiii) Based on the concentration trends comparisons between the upstream water stations (SW-4, SW-11 and SW-12) and the downstream surface water station (SW-7), there are no indications of ongoing impact of the landfill operations on surface water quality; and

xiv) Water quality samples collected in 2021 from the stormwater management ponds were analyzed prior to water being released from the storm water management ponds. The analytical results indicated that the quality of the water met the site-specific effluent objectives for the parameters listed, except the noted exceedance of un-ionized ammonia, in the Amended ECA No. 1800-BULJRQ, prior to discharge.

10.0 RECOMMENDATIONS

There are no recommendations made regarding the operation and development of the Ridge Landfill Site.

The following recommendations are made regarding the monitoring of the Site:

- The monitoring program should continue in 2022 as outlined in the Amended ECA issued December 2020 and the D&O Report; and,
- Wells 16-I and 21-I be assessed by a licenced well technician to determine if there is a well integrity issue at these monitoring locations and the monitoring wells repaired, if possible.

11.0 LIMITATIONS AND USE OF REPORT

This report was prepared by Golder Associates Ltd. (Golder) for the exclusive use of Waste Connections of Canada Inc. (WCC) in accordance with the scope and conditions agreed upon between these parties, acknowledging that this report is intended for submission to applicable regulatory agencies for their review.

The report is based on data and information collected in the current monitoring year referred to in the report, as well as historical information and data obtained by Golder and that provided to Golder by the WCC. Golder has relied in good faith on all information provided by others and does not accept responsibility for any deficiency, misstatements, or inaccuracies contained in these reports as a result of omissions, misinterpretation, or fraudulent acts of the persons contacted or errors or omissions in the reviewed documentation.

The Site conditions between sampling locations have been inferred based on conditions observed at borehole locations or other spatially separated sampling locations. Subsurface conditions may vary from these sampled locations.

The services performed as described in this report were conducted in a manner consistent with that level of care and skill normally exercised by other members of the engineering and science professions currently practicing under similar conditions, subject to the time limits and financial and physical constraints applicable to the services.

Any use which a third party makes of this report, or any reliance on, or decisions to be made based on it, are the responsibilities of such third parties. Golder accepts no responsibility for damages, if any, suffered by any third party (other than as noted above) as a result of decisions made or actions based on this report. The findings and conclusions of this report are valid only as of the date of this report. If new information is discovered in future work, including excavations, borings, or other studies, Golder should be requested to re-evaluate the conclusions of this report, and to provide amendments as required.

Electronic media is susceptible to modification, deterioration and incompatibility. In the event that data or reports provided by Golder are distributed and/or electronically posted, Golder does not warrant, guarantee, or make any representations regarding the use of, or results in terms of correctness, accuracy, reliability or current conditions. No express or implied warranty or fitness for a particular use is made. Any use of the electronic information will be at the sole risk of the party making use of this information.

Signature Page

Golder Associates Ltd.



Fabiano Gondim, M.Eng., P.Eng.
Senior Waste Engineer/Project Manager



Paul Dewaele, M.Sc., P.Eng.
Principal

Cameron McNaughton, M.Sc.
Environmental Consultant

FRG/FSB/CHM/PD/ml

https://golderassociates.sharepoint.com/sites/154926/project files/6 deliverables/2021 annual monitoring report/21500070-r01-rev0 final_ridge lf 2021 annual report.docx

REFERENCE

CH2M Gore & Storrie Limited, 2000, Ridge Landfill Site, 1999 Monitoring Report.

Dillon Consulting Limited, 2000, Browning-Ferris Industries Ltd., Ridge Landfill Site, Site Development and Operations, 1999, Annual Operations Report.

Dillon Consulting Limited, 1997a, BFI Ridge Landfill Environmental Assessment, Appendix B – Geology/Hydrogeology Assessment Report.

Dillon Consulting Limited, 1997b, BFI Ridge Landfill Environmental Assessment, Appendix C – Surface Water Impact Assessment Report.

Dillon Consulting Limited, 1997c, BFI Ridge Landfill Environmental Assessment, Appendix O – Operation and Development Report.

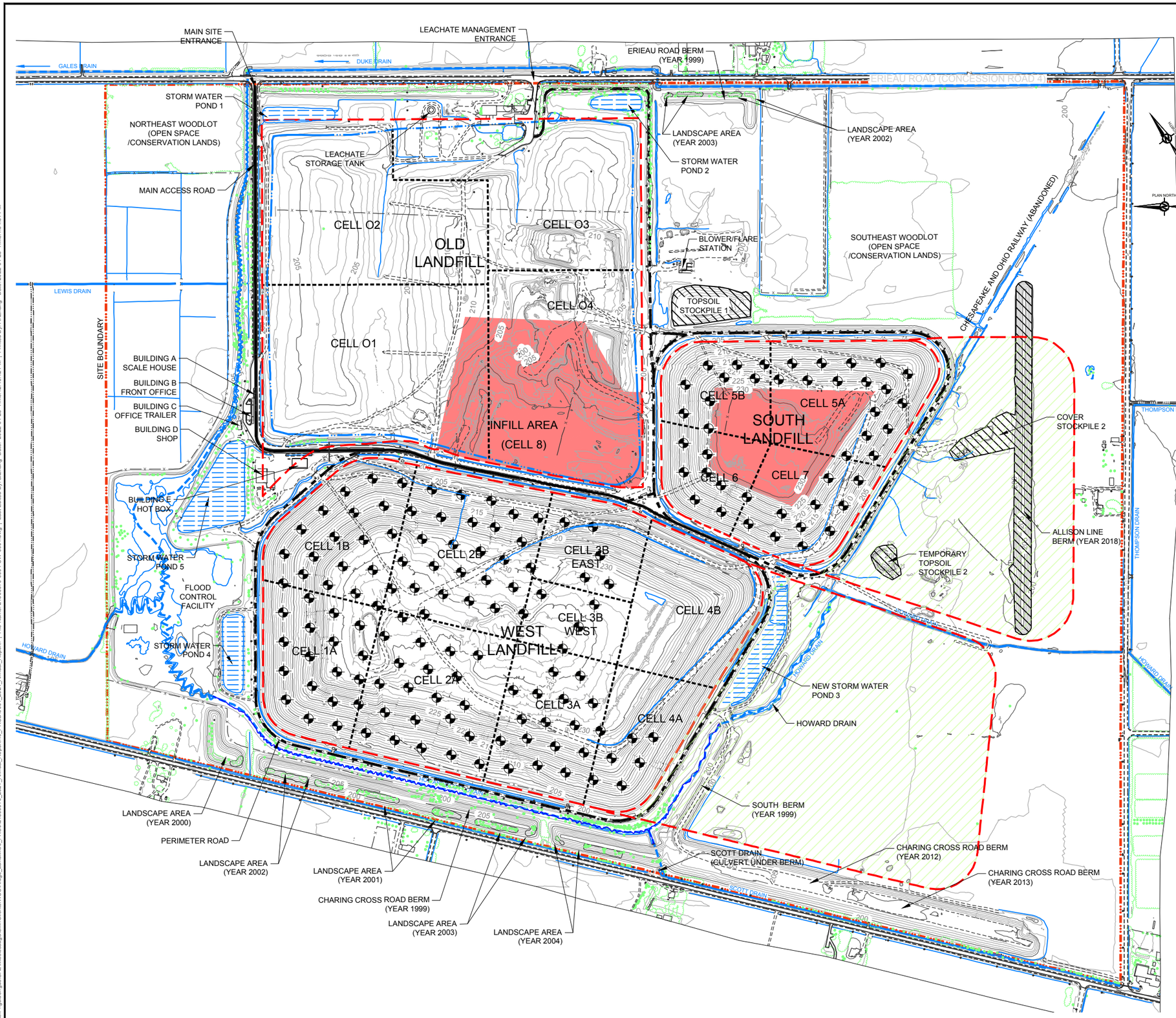
Dillon Consulting Limited, 2020. Waste Connections of Canada Ridge Landfill Expansion: Hydrogeological Impact Assessment. January 2020.

Golder Associates Ltd., 2020a. Ridge Landfill 2019 Annual Site Development, Operations and Monitoring Report. Prepared for Waste Connections of Canada Inc., Blenheim, Ontario. Golder Report No. 19133059. April 2020.

Golder Associates Ltd., 2020b. Ridge Landfill Expansion: Design and Operations Report, Appendix D6. Prepared for Ridge (Chatham) Holdings G.P. Inc., Waste Connections Canada Inc., Blenheim, Ontario. Golder Report No. 18111331. April 2020.

Public Utilities Commission for the Municipality of Chatham-Kent. Blenheim Sewage Treatment Plant. 2021 Performance Report. January 1 to December 31, 2021. (https://www.chatham-kent.ca/services/water/Documents/Performance%20Report%20-%20Blenheim%20STP%20-%202021.pdf).

Drawings



LEGEND

- PROPERTY LIMIT (340 Ha AREA)
- MAIN ACCESS ROAD
- PERIMETER ROAD
- ACTIVE DRAIN
- DRAIN FLOW DIRECTION
- EXISTING TREE LINE
- ACTIVE LANDFILL AREAS
- STOCKPILE AREAS
- STORM WATER PONDS
- APPROVED WASTE FILL LIMIT (131 Ha TOTAL AREA)
- APPROXIMATE OLD LANDFILL VERTICAL EXPANSION LIMIT (51.07 Ha)
- CELL DIVIDE
- APPROVED WASTE FILL EXPANSION AREA
- SITE FENCING
- EXISTING LANDFILL GAS EXTRACTION WELLS

NOTE(S)

1. PROJECTION: UTM NAD27-17N. VERTICAL DATUM: CGVD28 (GEODETIC).

REFERENCE(S)

1. TOPOGRAPHIC BASE PLAN FOR SITE, EXCLUDING WITHIN EXISTING PONDS, OBTAINED FROM EXISTING GROUND SURFACE, EXTRACTED FROM DEM, 6 cm GSD, FOR THE ENTIRE SITE AREA, CAPTURED ON MAY 1, 2021 BY THE BASE MAPPING COMPANY LTD.

0 200 400
1:8,000 METRES

MECP SUBMISSION

FINAL

CLIENT
WASTE CONNECTIONS OF CANADA INC.

PROJECT
2021 ANNUAL REPORT
RIDGE LANDFILL
BLENHEIM, ONTARIO

TITLE
SITE DEVELOPMENT

CONSULTANT
WSP GOLDER

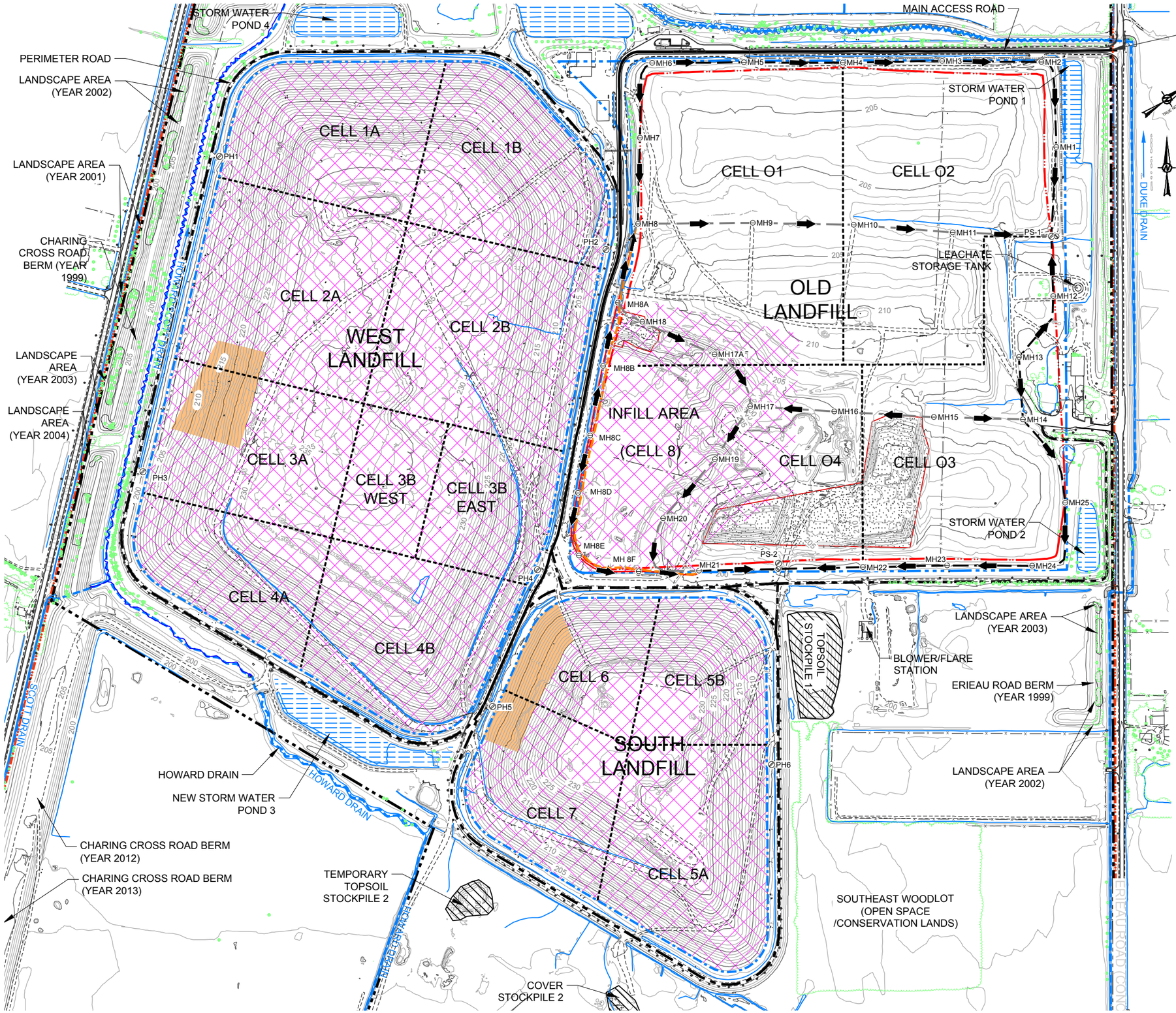
YYYY-MM-DD	2022-01-26
DESIGNED	FRG
PREPARED	AZ
REVIEWED	FRG
APPROVED	FSB

PROJECT NO.	CONTROL	REV.	DRAWING
20409033	0001	A	1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 25 mm

Path: \\golder.gds\GAL\Mississauga\SIM\Clients\WCI\Ridge_Landfill\69_PRO\A215000070_2021_Annual_Report\40_PROD\0001_2021_Annual_Report\ | File Name: 215000070-0001-CW-0001.dwg | Last Edited By: axzhang Date: 2022-04-28 Time:12:13:12 PM | Printed By: AXZhang Date: 2022-04-28 Time:1:34:31 PM



LEGEND

- WCC OWNED PROPERTY LIMIT
- SITE BOUNDARY
- MAIN ACCESS ROAD
- PERIMETER ROAD
- ACTIVE DRAIN
- DRAIN FLOW DIRECTION
- EXISTING TREE LINE
- AREA OF LANDFILLING OPERATIONS FOR YEAR 2000 TO 2021
- STOCKPILE AREAS
- STORM WATER PONDS
- FINAL COVER 2021
- EXCAVATED AREA 2021
- APPROVED LIMIT OF FILL FOR OLD LANDFILL
- APPROXIMATE OLD LANDFILL VERTICAL EXPANSION LIMIT (51.07 Ha)
- APPROVED LIMIT OF FILL FOR WEST/SOUTH LANDFILLS
- CELL DIVIDE
- SITE FENCING
- LEACHATE COLLECTOR PIPE
- LEACHATE FLOW DIRECTION
- MH1 MANHOLE 1
- PH1 PUMP HOUSE 1
- PS-2 PUMP STATION 2
- INFILL LEACHATE HEADER PIPE
- INFILL LEACHATE COLLECTOR PIPE

NOTE(S)

1. PROJECTION: UTM NAD27-17N. VERTICAL DATUM: CGVD28 (GEODETIC).

REFERENCE(S)

1. TOPOGRAPHIC BASE PLAN FOR SITE, EXCLUDING WITHIN EXISTING PONDS, OBTAINED FROM EXISTING GROUND SURFACE, EXTRACTED FROM DEM, 6 cm GSD, FOR THE ENTIRE SITE AREA, CAPTURED ON MAY 1, 2021 BY THE BASE MAPPING COMPANY LTD.

0 100 200
1:6,000 METRES

MECP SUBMISSION

FINAL

CLIENT
WASTE CONNECTIONS OF CANADA INC.

PROJECT
2021 ANNUAL REPORT
RIDGE LANDFILL
BLENHEIM, ONTARIO

TITLE
SITE OPERATION

CONSULTANT
WSP GOLDER

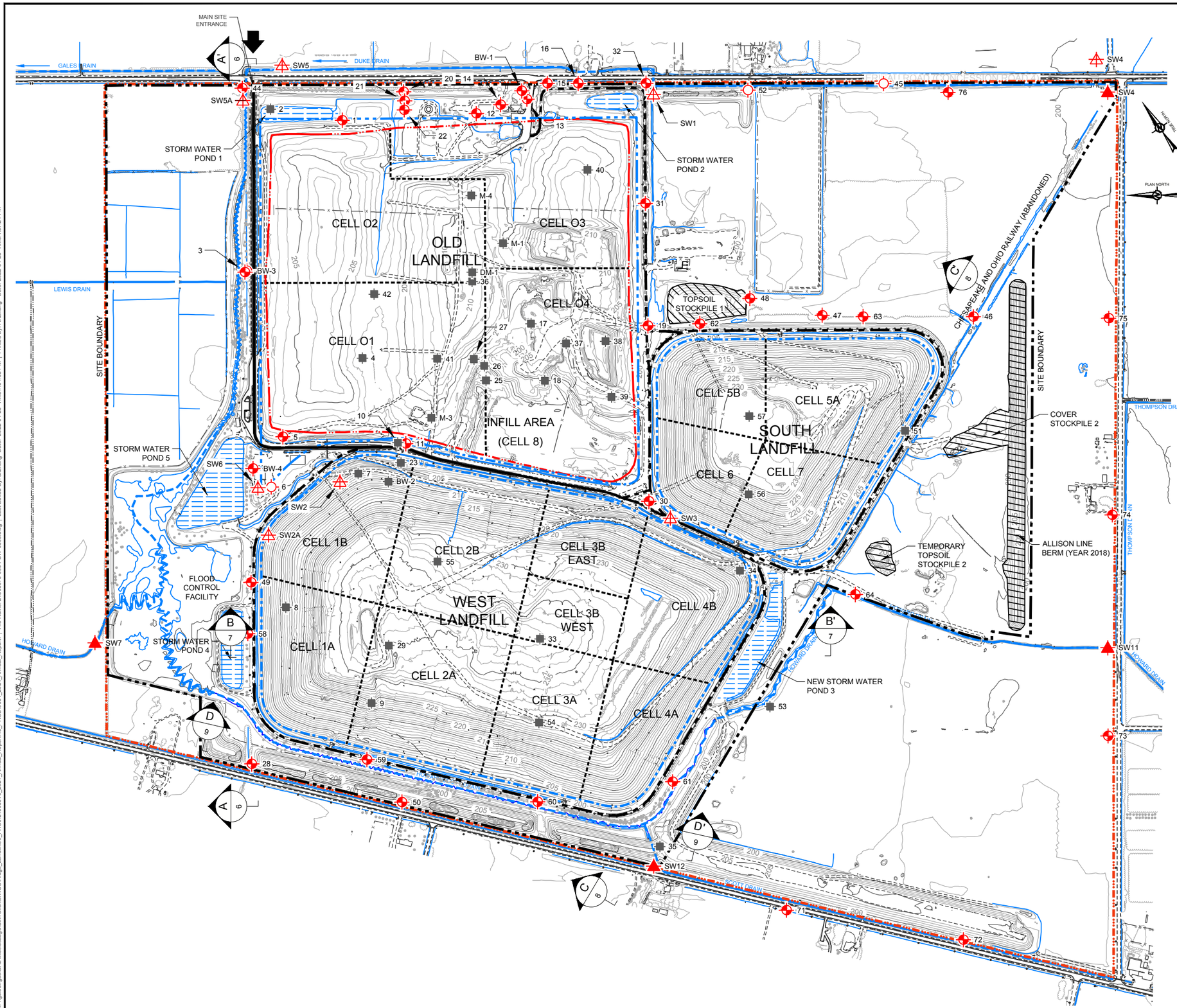
YYYY-MM-DD	2022-01-26
DESIGNED	FRG
PREPARED	AZ
REVIEWED	FRG
APPROVED	FSB

PROJECT NO.	CONTROL	REV.	DRAWING
20409033	0001	A	2

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 25 mm

Path: \\golder.gds\GAL\Mississauga\SIM\Clients\WCC\Ridge_Landfill\69_PROJ\215000\70_2021_Annual_Report\40_PROD\0001_2021_Annual_Report_| File Name: 215000700001-CW-0002.dwg | Last Edited By: axzhang Date: 2022-04-20 Time:7:12:04 PM | Printed By: AXZhang Date: 2022-04-28 Time:1:35:41 PM



LEGEND

- WCC OWNED PROPERTY LIMIT
- SITE BOUNDARY
- MAIN ACCESS ROAD
- PERIMETER ROAD
- ACTIVE DRAIN
- DRAIN FLOW DIRECTION
- EXISTING TREE LINE
- APPROVED LIMIT OF FILL FOR OLD LANDFILL
- APPROVED LIMIT OF FILL FOR WEST/SOUTH LANDFILLS
- APPROXIMATE OLD LANDFILL VERTICAL EXPANSION LIMIT (51.07 Ha)
- CELL DIVIDE
- 47 ACTIVE MONITORING WELLS
- 45 NOT ACTIVE MONITORING WELLS
- 42 REMOVED MONITORING WELLS
- SW11 SURFACE MONITORING LOCATIONS
- SW4 RETIRED SURFACE MONITORING LOCATIONS
- HYDROGEOLOGIC CROSS SECTION (TYP.)

NOTE(S)

1. PROJECTION: UTM NAD27-17N. VERTICAL DATUM: CGVD28 (GEODETIC).

REFERENCE(S)

1. TOPOGRAPHIC BASE PLAN FOR SITE, EXCLUDING WITHIN EXISTING PONDS, OBTAINED FROM EXISTING GROUND SURFACE, EXTRACTED FROM DEM, 6 cm GSD, FOR THE ENTIRE SITE AREA, CAPTURED ON MAY 1, 2021 BY THE BASE MAPPING COMPANY LTD.

MECP SUBMISSION

FINAL

CLIENT
WASTE CONNECTIONS OF CANADA INC.

PROJECT
2021 ANNUAL REPORT
RIDGE LANDFILL
BLENHEIM, ONTARIO

TITLE
LOCATION OF MONITORING WELLS AND SAMPLING STATIONS

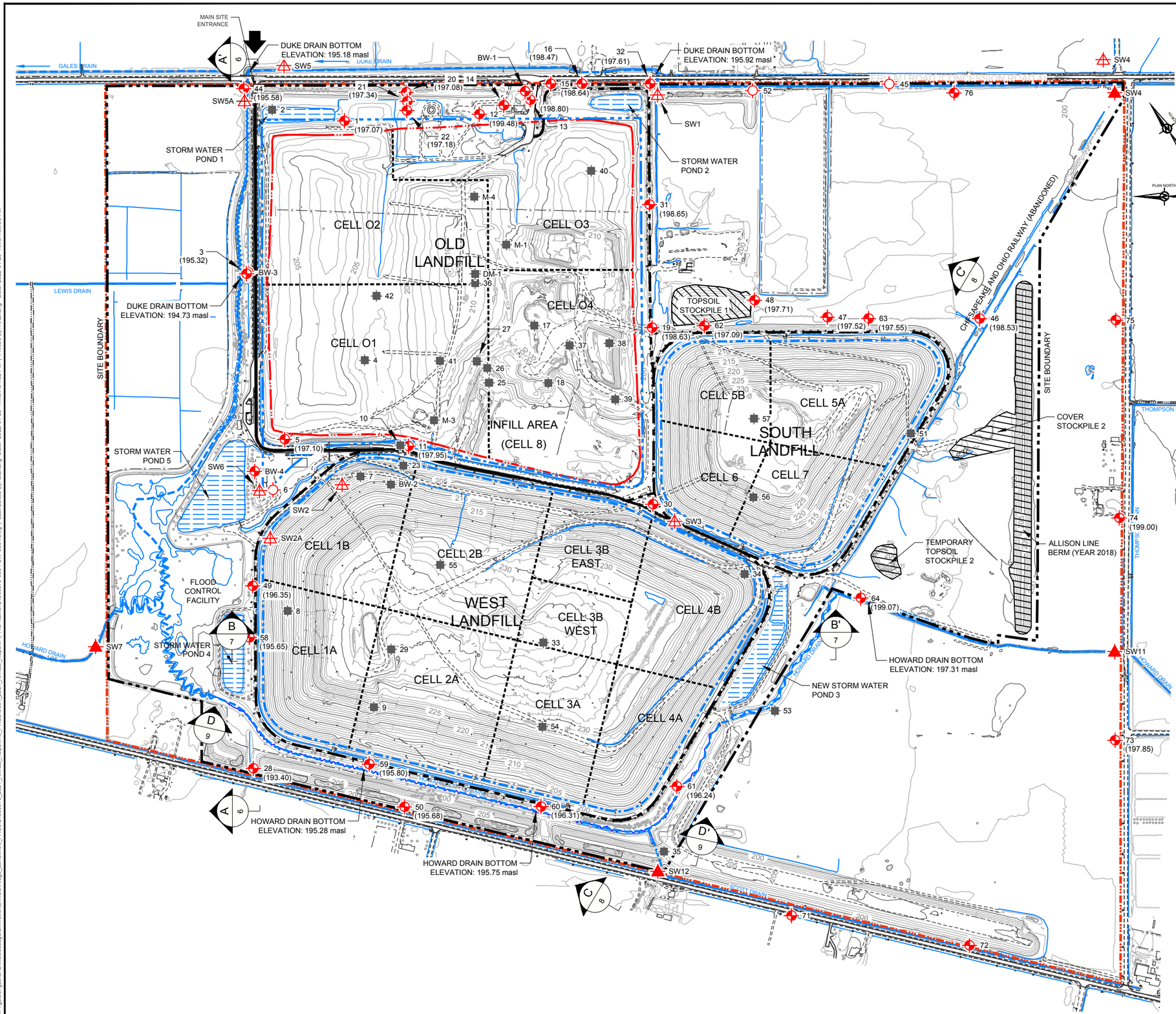
CONSULTANT
WSP GOLDER

YYYY-MM-DD	2022-01-26
DESIGNED	FRG
PREPARED	AZ/JR
REVIEWED	FRG
APPROVED	FSB

PROJECT NO.	CONTROL	REV.	DRAWING
20409033	0001	A	3

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

Path: \\golder.gds\GAL\Mississauga\SIM\Clients\WCC\Ridge_Landfill\99_PROJ\A215000070_2021_Annual_Report\40_PROD\0001_2021_Annual_Report\ | File Name: 215000070-0001-CW-0003.dwg | Last Edited By: axzhang Date: 2022-04-20 Time:7:01:05 PM | Printed By: AXZhang Date: 2022-04-28 Time:1:37:21 PM



LEGEND

- WCC OWNED PROPERTY LIMIT
- SITE BOUNDARY
- MAIN ACCESS ROAD
- PERIMETER ROAD
- ACTIVE DRAIN
- DRAIN FLOW DIRECTION
- EXISTING TREE LINE
- APPROVED LIMIT OF FILL FOR OLD LANDFILL
- APPROVED LIMIT OF FILL FOR WEST/SOUTH LANDFILLS
- APPROXIMATE OLD LANDFILL VERTICAL EXPANSION LIMIT (51.07 Ha)
- CELL DIVIDE
- 48 — ACTIVE MONITORING WELLS
- 52 — NOT ACTIVE MONITORING WELLS
- 42 — REMOVED MONITORING WELLS
- SW11 — SURFACE MONITORING LOCATIONS
- SW4 — RETIRED SURFACE MONITORING LOCATIONS
- (198.47) — GROUNDWATER ELEVATIONS (mASL) SEPTEMBER 2021
- HYDROGEOLOGIC CROSS SECTION (TYP.)

NOTE(S)

1. PROJECTION: UTM NAD27-17N. VERTICAL DATUM: CGVD28 (GEODETIC).

REFERENCE(S)

1. TOPOGRAPHIC BASE PLAN FOR SITE, EXCLUDING WITHIN EXISTING PONDS, OBTAINED FROM EXISTING GROUND SURFACE, EXTRACTED FROM DEM, 6 cm GSD, FOR THE ENTIRE SITE AREA, CAPTURED ON MAY 1, 2021 BY THE BASE MAPPING COMPANY LTD.

MECP SUBMISSION

FINAL

CLIENT
WASTE CONNECTIONS OF CANADA INC.

PROJECT
2021 ANNUAL REPORT
RIDGE LANDFILL
BLENHEIM, ONTARIO

TITLE
WATER LEVEL ELEVATIONS LAYER 1

CONSULTANT
WSP GOLDER

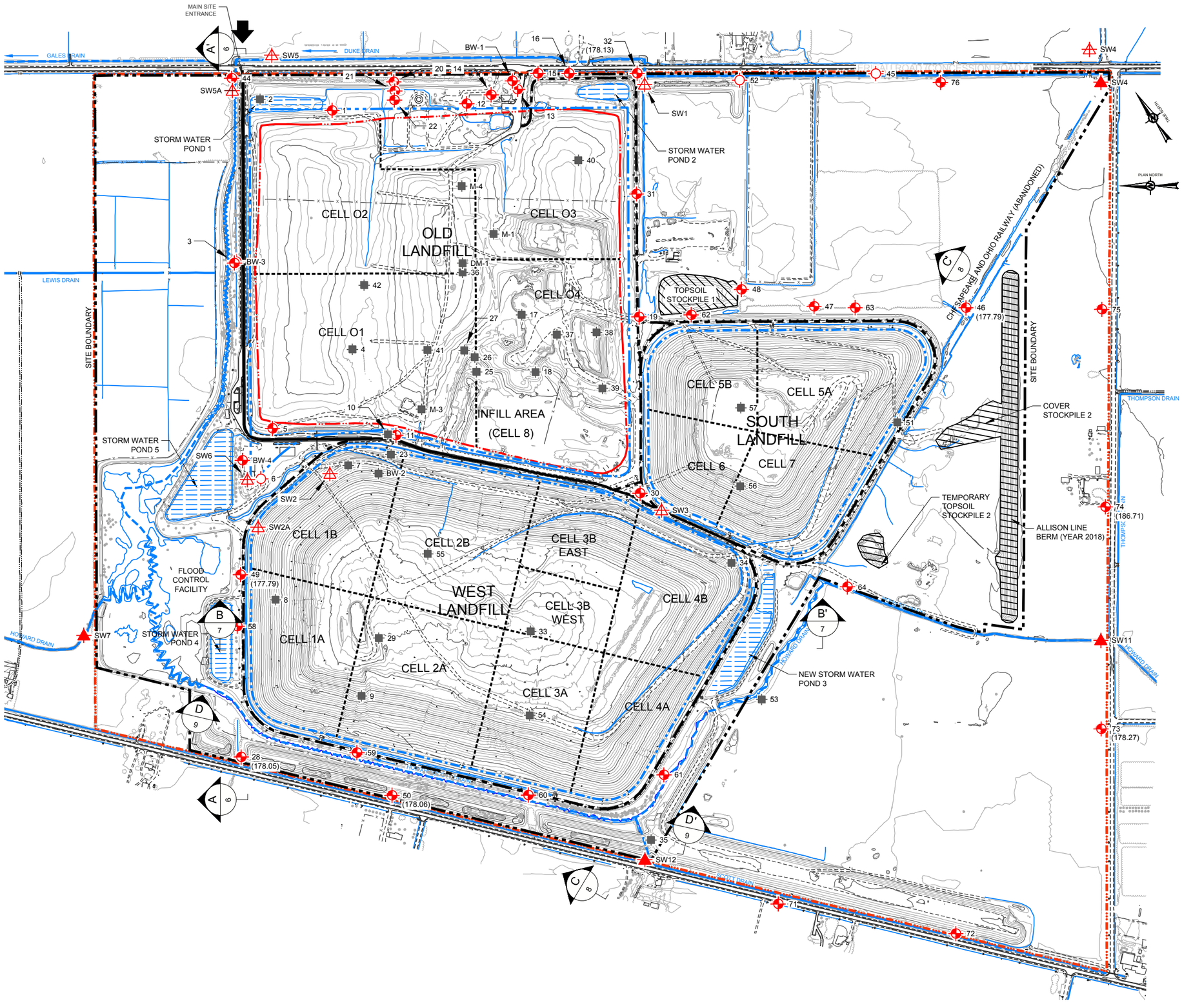
YYYY-MM-DD	2022-01-26
DESIGNED	FRG
PREPARED	AZ/JR
REVIEWED	FRG
APPROVED	FSB

PROJECT NO.	CONTROL	REV.	DRAWING
20409033	0001	A	4

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 25 mm

Path: \\golder.gds\GAL\Mississauga\SIM\Clients\WCC\Ridge_Landfill\99_PROJ\A215000070_2021_Annual_Report\40_PROD\0001_2021_Annual_Report\ | File Name: 215000070-0001-CW-0004.dwg | Last Edited By: axzhang Date: 2022-04-20 Time:7:31:02 PM | Printed By: AXZhang Date: 2022-04-28 Time:1:39:08 PM



LEGEND

- WCC OWNED PROPERTY LIMIT
- SITE BOUNDARY
- MAIN ACCESS ROAD
- PERIMETER ROAD
- ACTIVE DRAIN
- DRAIN FLOW DIRECTION
- EXISTING TREE LINE
- APPROVED LIMIT OF FILL FOR OLD LANDFILL
- APPROVED LIMIT OF FILL FOR WEST/SOUTH LANDFILLS
- APPROXIMATE OLD LANDFILL VERTICAL EXPANSION LIMIT (51.07 Ha)
- CELL DIVIDE
- 31 ACTIVE MONITORING WELLS
- 52 NOT ACTIVE MONITORING WELLS
- 42 REMOVED MONITORING WELLS
- SW11 SURFACE MONITORING LOCATIONS
- SW4 RETIRED SURFACE MONITORING LOCATIONS
- (178.05) GROUNDWATER ELEVATIONS (mASL) SEPTEMBER 2021
- HYDROGEOLOGIC CROSS SECTION (TYP.)

NOTE(S)

1. PROJECTION: UTM NAD27-17N. VERTICAL DATUM: CGVD28 (GEODETIC).

REFERENCE(S)

1. TOPOGRAPHIC BASE PLAN FOR SITE, EXCLUDING WITHIN EXISTING PONDS, OBTAINED FROM EXISTING GROUND SURFACE, EXTRACTED FROM DEM, 6 cm GSD, FOR THE ENTIRE SITE AREA, CAPTURED ON MAY 1, 2021 BY THE BASE MAPPING COMPANY LTD.

0 200 400
1:8,000 METRES

MECP SUBMISSION

FINAL

CLIENT
WASTE CONNECTIONS OF CANADA INC.

PROJECT
2021 ANNUAL REPORT
RIDGE LANDFILL
BLENHEIM, ONTARIO

TITLE
WATER LEVEL ELEVATIONS LAYER 3

CONSULTANT
WSP GOLDER

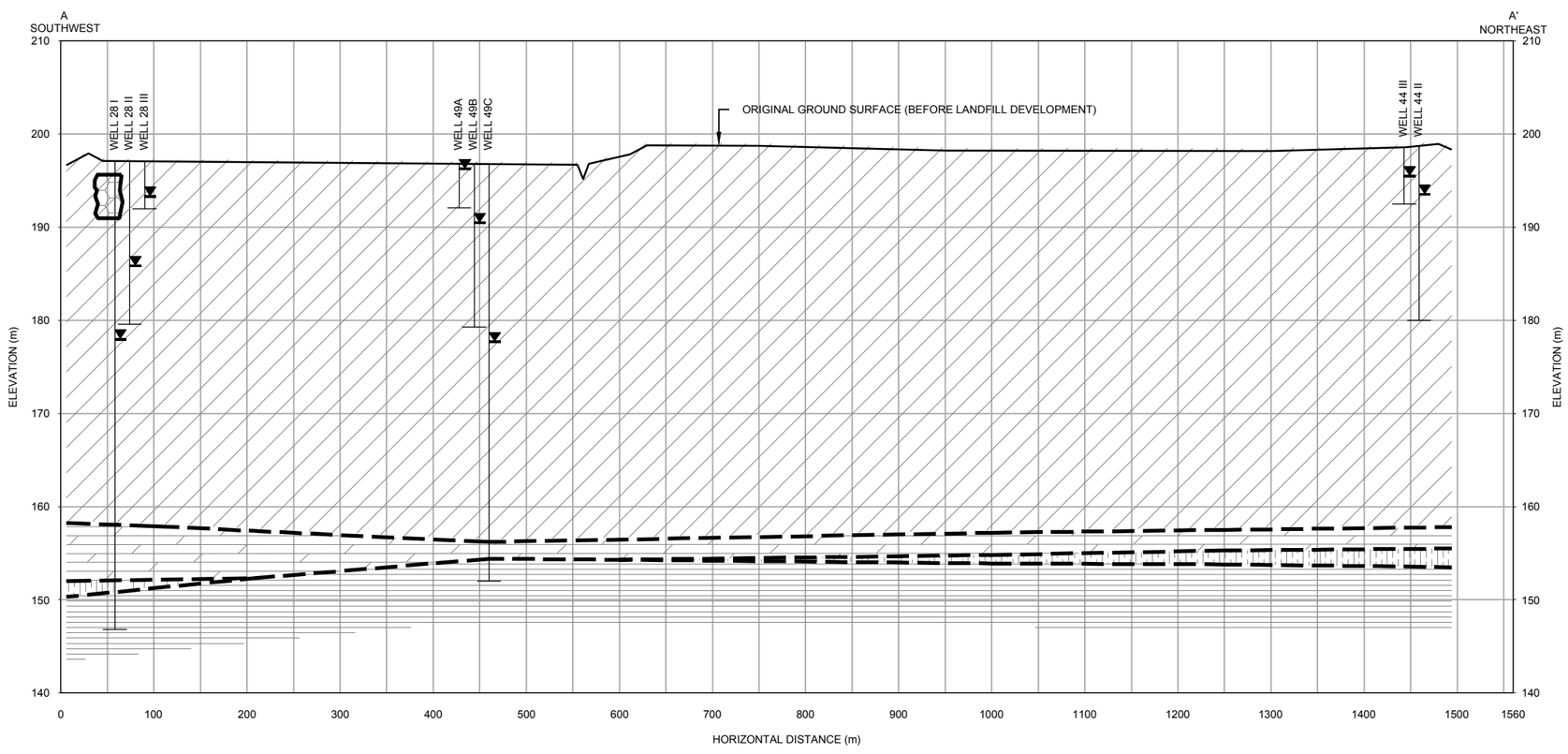
YYYY-MM-DD	2022-01-26
DESIGNED	FRG
PREPARED	AZ/JR
REVIEWED	FRG
APPROVED	FSB

PROJECT NO.	CONTROL	REV.	DRAWING
20409033	0001	A	5

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 25 mm

Path: \\golder.gds\GAL\Mississauga\SIM\Clients\WCC\Ridge_Landfill\99_PRO\21500070_2021_Annual_Report\40_PROD\0001_2021_Annual_Report.\ | File Name: 21500070-0001-CW-0005.dwg | Last Edited By: axzhang Date: 2022-04-20 Time:7:09:26 PM | Printed By: AXZhang Date: 2022-04-28 Time:1:41:12 PM



SCALE 1:6,000 m
VERT. SCALE 1:600 m

A 3 SECTION A-A'

GROUND WATER LEVEL		
MONITOR ID	LAYER	SEP. 2021 WATER LEVEL
28 III	1	193.40
28 II	2	185.95
28 I	3	178.05
44 III	1	195.58
44 II	2	193.62
49 A	1	196.35
49 B	2	190.56
49 C	3	177.79

LEGEND

- PORT STANLEY TILL: BROWNISH-GREY, GREY CLAYEY SILT TILL; MINOR SAND AND TRACE GRAVEL. WEATHERED AND FRACTURED AT SURFACE, BECOMING GREY UNFRACTURED AT DEPTH (>5 m).
- GLACIO-LACUSTRINE DEPOSITS: GREEN-GREY, GREY SANDS SILTS CLAYS
- SANDY SILT, SILTY SAND: GREY, MINOR SAND AND GRAVEL
- KETTLE POINT FORMATION: BLACK SHALE; WEATHERED, FRACTURED IN UPPER SURFACE (UPPER 1 TO 5 METRES)
- SILTY SAND, TILL LENSES
- WELL 28 III — WELL DESIGNATION
- WATER LEVEL (SEPTEMBER, 2021)
- BOTTOM OF WELL

NOTE(S)

1. PROJECTION: UTM NAD27-17N. VERTICAL DATUM: CGVD28 (GEODETIC).

REFERENCE(S)

1. TOPOGRAPHIC BASE PLAN FOR SITE, EXCLUDING WITHIN EXISTING PONDS, OBTAINED FROM EXISTING GROUND SURFACE, EXTRACTED FROM DEM, 6 cm GSD, FOR THE ENTIRE SITE AREA, CAPTURED ON MAY 1, 2021 BY THE BASE MAPPING COMPANY LTD.

MECP SUBMISSION

FINAL

CLIENT
WASTE CONNECTIONS OF CANADA INC.

PROJECT
2021 ANNUAL REPORT
RIDGE LANDFILL
BLENHEIM, ONTARIO

TITLE
SECTION A-A'

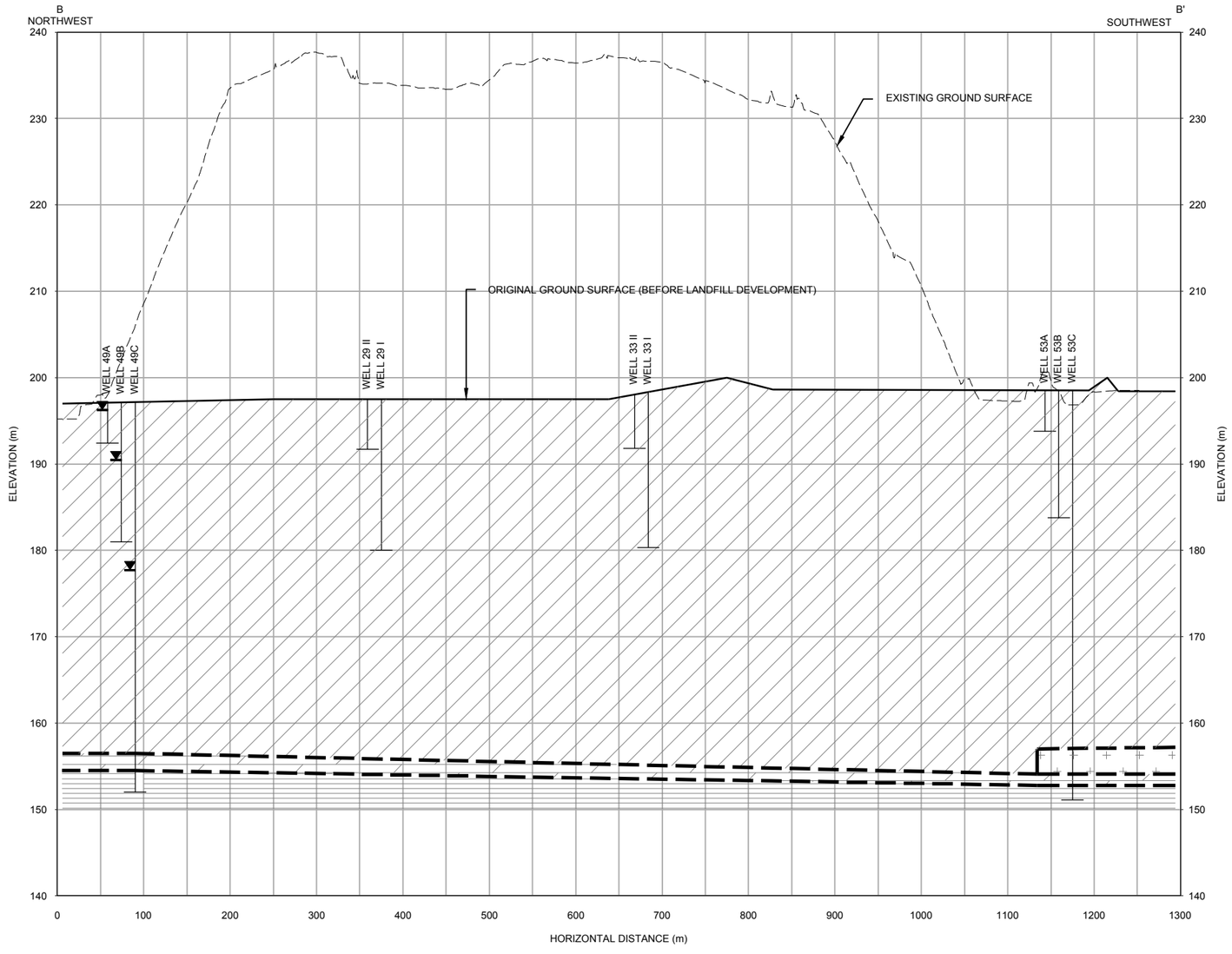
CONSULTANT
WSP GOLDER

YYYY-MM-DD	2022-01-26
DESIGNED	FRG
PREPARED	AZ/JR
REVIEWED	FRG
APPROVED	FSB

PROJECT NO.	CONTROL	REV.	DRAWING
20409033	0001	A	6

0 25 mm IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

Path: \\golder.gds\GAL\Mississauga\SIM\Clients\WCC\Ridge_Landfill\99_PRO\21500070_2021_Annual_Report\40_PROD\0001_2021_Annual_Report\ | File Name: 215000700-0001-CW-0006.dwg | Last Edited By: axzhang Date: 2022-04-18 Time:5:55:23 PM | Printed By: AXZhang Date: 2022-04-28 Time:1:42:13 PM



GROUND WATER LEVEL		
MONITOR ID	LAYER	SEP. 2021 WATER LEVEL
49 A	1	196.35
49 B	2	190.56
49 C	3	177.79

LEGEND

- PORT STANLEY TILL: BROWNISH-GREY, GREY CLAYEY SILT TILL; MINOR SAND AND TRACE GRAVEL. WEATHERED AND FRACTURED AT SURFACE, BECOMING GREY UNFRACTURED AT DEPTH (>5 m).
- GLACIO-LACUSTRINE DEPOSITS: GREEN-GREY, GREY SANDS SILTS CLAYS
- CLAY: REDDISH-GREY, TRACE SILT AND SAND; INTERBEDS OF SOFT, DRY SILT. ONLY ENCOUNTERED AT WELL 51 AND WELL 53.
- SANDY SILT, SILTY SAND: GREY, MINOR SAND AND GRAVEL
- KETTLE POINT FORMATION: BLACK SHALE; WEATHERED, FRACTURED IN UPPER SURFACE (UPPER 1 TO 5 m)

WELL 28 III — WELL DESIGNATION

WATER LEVEL (SEPTEMBER, 2021)

BOTTOM OF WELL

NOTE(S)

1. PROJECTION: UTM NAD27-17N. VERTICAL DATUM: CGVD28 (GEODETIC).

REFERENCE(S)

1. TOPOGRAPHIC BASE PLAN FOR SITE, EXCLUDING WITHIN EXISTING PONDS, OBTAINED FROM EXISTING GROUND SURFACE, EXTRACTED FROM DEM, 6 cm GSD, FOR THE ENTIRE SITE AREA, CAPTURED ON MAY 1, 2021 BY THE BASE MAPPING COMPANY LTD.

MECP SUBMISSION

FINAL

CLIENT
WASTE CONNECTIONS OF CANADA INC.

PROJECT
2021 ANNUAL REPORT
RIDGE LANDFILL
BLENHEIM, ONTARIO

TITLE
SECTION B-B'

CONSULTANT
WSP GOLDER

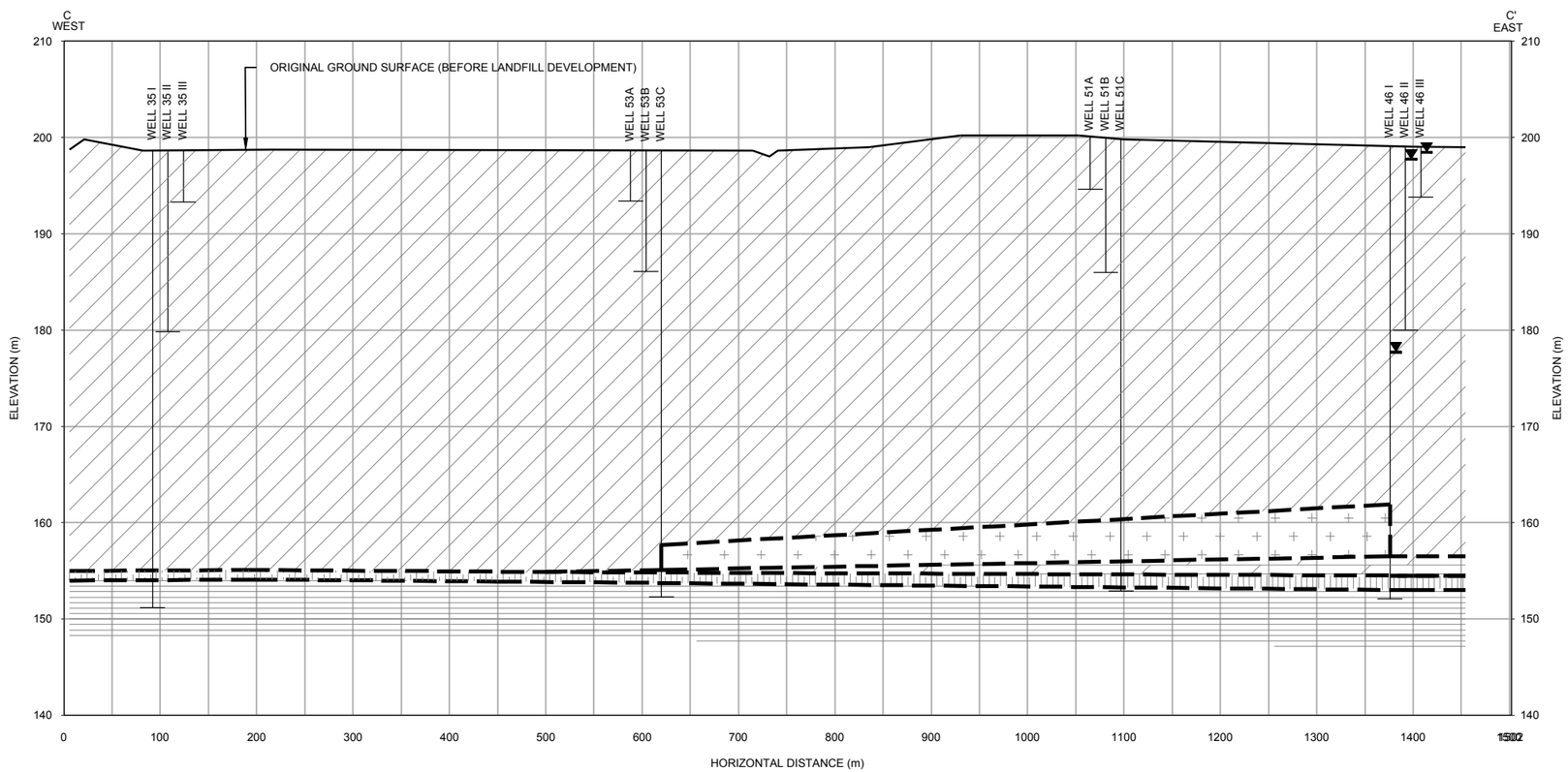
YYYY-MM-DD	2022-01-26
DESIGNED	FRG
PREPARED	AZ/JR
REVIEWED	FRG
APPROVED	FSB

PROJECT NO.	CONTROL	REV.	DRAWING
20409033	0001	A	7

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

0 25 mm

Path: \\golder.gds\GAL\Mississauga\SIM\Clients\WCC\Ridge_Landfill\99_PRO\21500070_2021_Annual_Report\40_PROD\0001_2021_Annual_Report\ | File Name: 21500070-0001-CW-0007.dwg | Last Edited By: axzhang Date: 2022-01-27 Time:11:53:13 AM | Printed By: AXZhang Date: 2022-04-28 Time:1:43:15 PM



GROUND WATER LEVEL		
MONITOR ID	LAYER	SEP. 2021 WATER LEVEL
46 III	1	198.53
46 II	2	197.82
46 I	3	177.79

LEGEND

- PORT STANLEY TILL: BROWNISH-GREY, GREY CLAYEY SILT TILL; MINOR SAND AND TRACE GRAVEL. WEATHERED AND FRACTURED AT SURFACE, BECOMING GREY UNFRACTURED AT DEPTH (>5 m).
- GLACIO-LACUSTRINE DEPOSITS: GREEN-GREY, GREY SANDS SILTS CLAYS
- CLAY: REDDISH-GREY, TRACE SILT AND SAND; INTERBEDS OF SOFT, DRY SILT. ONLY ENCOUNTERED AT WELL 51 AND WELL 53.
- SANDY SILT, SILTY SAND: GREY, MINOR SAND AND GRAVEL
- KETTLE POINT FORMATION: BLACK SHALE; WEATHERED, FRACTURED IN UPPER SURFACE (UPPER 1 TO 5 m)

WELL 28 III — WELL DESIGNATION

WATER LEVEL (SEPTEMBER, 2021)

BOTTOM OF WELL

NOTE(S)

1. PROJECTION: UTM NAD27-17N. VERTICAL DATUM: CGVD28 (GEODETIC).

REFERENCE(S)

1. TOPOGRAPHIC BASE PLAN FOR SITE, EXCLUDING WITHIN EXISTING PONDS, OBTAINED FROM EXISTING GROUND SURFACE, EXTRACTED FROM DEM, 6 cm GSD, FOR THE ENTIRE SITE AREA, CAPTURED ON MAY 1, 2021 BY THE BASE MAPPING COMPANY LTD.

MECP SUBMISSION

FINAL

CLIENT
WASTE CONNECTIONS OF CANADA INC.

PROJECT
2021 ANNUAL REPORT
RIDGE LANDFILL
BLENHEIM, ONTARIO

TITLE
SECTION C-C'

CONSULTANT

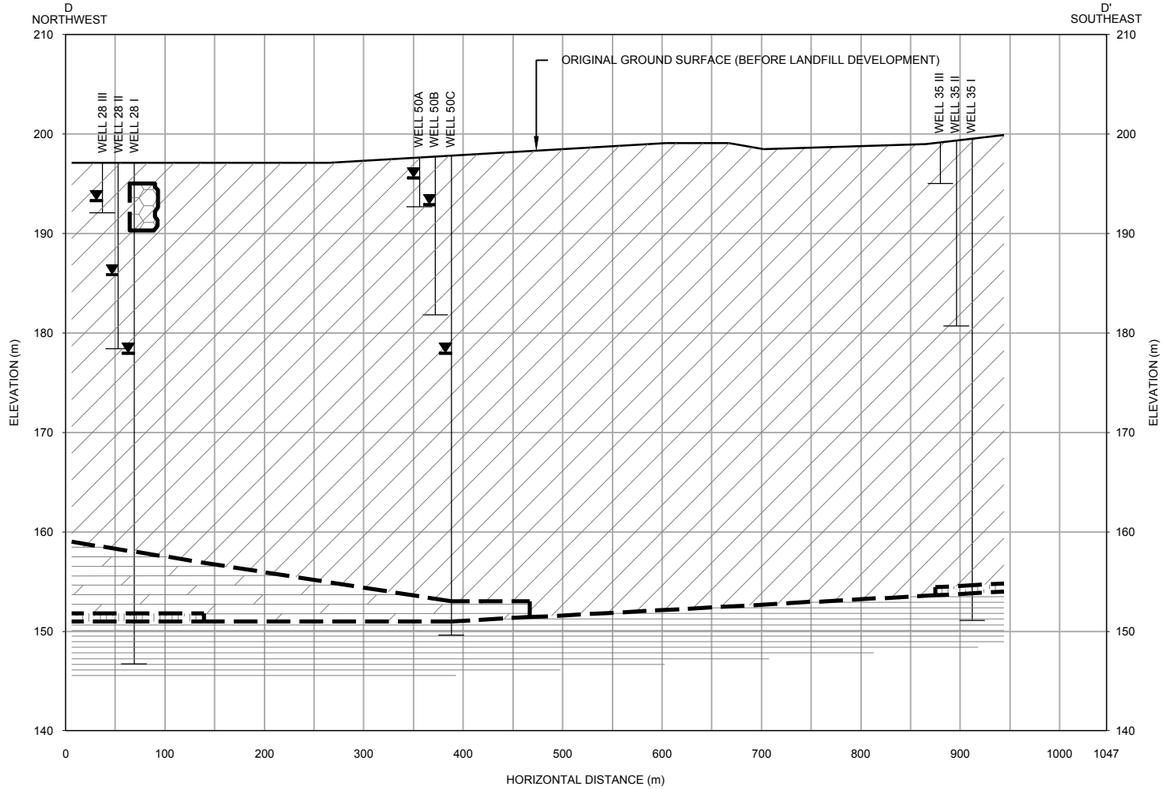
WSP GOLDER

YYYY-MM-DD	2022-01-26
DESIGNED	FRG
PREPARED	AZ/JR
REVIEWED	FRG
APPROVED	FSB

PROJECT NO.	CONTROL	REV.	DRAWING
20409033	0001	A	8

0 25 mm IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

Path: \\golder.gds\GAL\Mississauga\SIM\Clients\WCC\Ridge_Landfill\99_PROJ\21500070_2021_Annual_Report\40_PROD\0001_2021_Annual_Report\ | File Name: 21500070-0001-CW-0008.dwg | Last Edited By: axzhang Date: 2022-01-27 Time:11:55:32 AM | Printed By: AXZhang Date: 2022-04-28 Time:1:44:11 PM



GROUND WATER LEVEL		
MONITOR ID	LAYER	SEP. 2021 WATER LEVEL
28 III	1	193.40
28 II	2	185.95
28 I	3	178.05
50 A	1	195.68
50 B	2	192.99
50 C	3	178.06

LEGEND

PORT STANLEY TILL:
BROWNISH-GREY, GREY CLAYEY SILT TILL; MINOR SAND AND TRACE GRAVEL. WEATHERED AND FRACTURED AT SURFACE, BECOMING GREY UNFRACTURED AT DEPTH (>5 m).

GLACIO-LACUSTRINE DEPOSITS:
GREEN-GREY, GREY SANDS SILTS CLAYS

SANDY SILT, SILTY SAND:
GREY, MINOR SAND AND GRAVEL

KETTLE POINT FORMATION:
BLACK SHALE; WEATHERED, FRACTURED IN UPPER SURFACE (UPPER 1 TO 5 METRES)

SILTY SAND, TILL LENSES

WELL 28 III — WELL DESIGNATION

WATER LEVEL (SEPTEMBER, 2021)

BOTTOM OF WELL

NOTE(S)

1. PROJECTION: UTM NAD27-17N. VERTICAL DATUM: CGVD28 (GEODETIC).

REFERENCE(S)

1. TOPOGRAPHIC BASE PLAN FOR SITE, EXCLUDING WITHIN EXISTING PONDS, OBTAINED FROM EXISTING GROUND SURFACE, EXTRACTED FROM DEM, 6 cm GSD, FOR THE ENTIRE SITE AREA, CAPTURED ON MAY 1, 2021 BY THE BASE MAPPING COMPANY LTD.

MECP SUBMISSION

FINAL

CLIENT
WASTE CONNECTIONS OF CANADA INC.

PROJECT
2021 ANNUAL REPORT
RIDGE LANDFILL
BLENHEIM, ONTARIO

TITLE
SECTION D-D'

CONSULTANT
WSP GOLDER

YYYY-MM-DD	2022-01-26
DESIGNED	FRG
PREPARED	AZ/JR
REVIEWED	FRG
APPROVED	FSB

PROJECT NO.	CONTROL	REV.	DRAWING
20409033	0001	A	9

0 25 mm
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI D

Path: \\golder.gds\GAL\Mississauga\SIM\Clients\WCC\Ridge_Landfill\69_PROJ\21500070_2021_Annual_Report\40_PROD\0001_2021_Annual_Report\ | File Name: 215000070-0001-CW-0009.dwg | Last Edited By: axzhang Date: 2022-01-27 Time:11:57:52 AM | Printed By: AXZhang Date: 2022-04-28 Time:1:45:10 PM

Figures

L-1

1	WELL 1-II-2021
2	WELL 3-III-2021
3	WELL 5-II-2021
4	WELL 11-I-2021
5	WELL 12-I-2021
6	WELL 13-I-2021
7	WELL 15-I-2021
8	WELL 16-I-2021
9	WELL 19-I-2021
10	WELL 20-I-2021
11	WELL 21-I-2021
12	WELL 22-I-2021
13	WELL 28-III-2021
14	WELL 31-I-2021
15	WELL 32-III-2021
16	WELL 44-III-2021
17	WELL 46-III-2021
18	WELL 47-II-2021
19	WELL 48-I-2021
20	WELL 49-A-2021
21	WELL 50-A-2021
22	WELL 58-A-2021
23	WELL 59-A-2021
24	WELL 60-A-2021
25	WELL 61-A-2021
26	WELL 62-A-2021
27	WELL 63-A-2021
28	WELL 64-A-2021
29	WELL 73-A-2021
30	WELL 74-A-2021

L-2

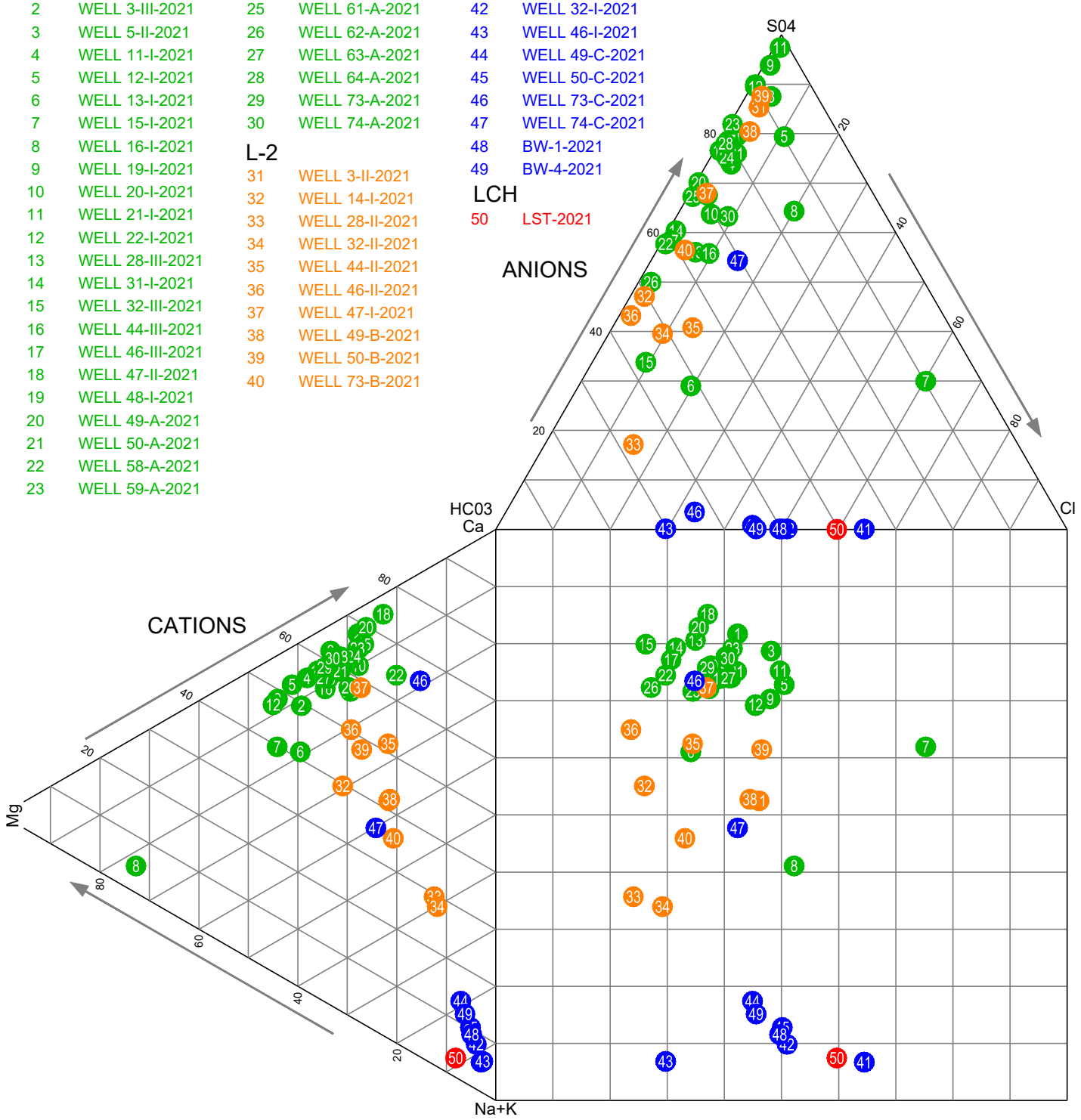
31	WELL 3-II-2021
32	WELL 14-I-2021
33	WELL 28-II-2021
34	WELL 32-II-2021
35	WELL 44-II-2021
36	WELL 46-II-2021
37	WELL 47-I-2021
38	WELL 49-B-2021
39	WELL 50-B-2021
40	WELL 73-B-2021

L-3

41	WELL 28-I-2021
42	WELL 32-I-2021
43	WELL 46-I-2021
44	WELL 49-C-2021
45	WELL 50-C-2021
46	WELL 73-C-2021
47	WELL 74-C-2021
48	BW-1-2021
49	BW-4-2021

LCH

50	LST-2021



CLIENT
WASTE CONNECTIONS OF CANADA INC.

CONSULTANT
WSP GOLDER

YYYY-MM-DD	2021-03-23
DESIGNED	
PREPARED	JPR
REVIEWED	CM
APPROVED	

PROJECT
2021 ANNUAL REPORT
RIDGE LANDFILL
BLENHEIM, ONTARIO

TITLE
WATER QUALITY DUROV DIAGRAM MAY 2021

PROJECT NO.	CONTROL	REV.	FIGURE
201500070	0001	A	1

Last Edited By: jriegler Date: 2022-04-21 Time:2:19:45 PM | Printed By: JRegier Date: 2022-04-21 Time:2:21:55 PM
Path: \\golder.gds\complexdata\office\Ontario\SIM\Clients\WCC\Ridge_Landfill\99_PROJ\215000070_2021_Annual_Report\40_PROD\0001_2021_Annual_Report | File Name: 215000070-0001-GW-00D1.dwg
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 25 mm

APPENDIX A

Environmental Compliance Approvals

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER A021601
Issue Date: December 2, 2020

Ridge (Chatham) Holdings G.P. Inc. as a general partner for and on behalf of Ridge (Chatham) Holdings, L.P.
20262 Erieau Rd
Chatham-Kent, Ontario
N0P 1A0

Site Location: 20262 Erieau Road
Lot 13-16, Concession 4
Chatham-Kent Municipality,
N0P 1A0

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

the use and operation of a 186 hectare landfilling area with the necessary environmental works and wood waste grinding, public waste drop-off, public recycling area, and source-separated construction and demolition waste processing, all within a 340 hectare landfill site property.

For the purpose of this environmental compliance approval, the following definitions apply:

"Approval" or ***"ECA"*** means this Environmental Compliance Approval No. A021601, including all items, conditions and Schedules attached to and forming part of this Approval, as amended by the Director;

"***D & O Report*** " means the Design and Operations Report, included as Appendix D6 of the Environmental Compliance Approval Amendment Application identified as Item No. 105 in Schedule "A";

"***Director*** " means any Ministry employee appointed by the Minister pursuant to Part II.1 of the Environmental Protection Act, as amended;

"***District Manager*** " means the District Manager of the Sarnia District Office, Ministry of the Environment, Conservation and Parks;

"***EPA*** " means the **Environmental Protection Act**, R.S.O. 1990, as amended;

"***Existing Fill Area*** " means the 48.2 hectare (119 acre) fill area, with all the necessary associated environmental works, approved for waste disposal under the Environmental Compliance Approval No. A 021601, dated July 25, 1983 and the amending notices and as shown on Drawing No. O.2 entitled " Approved Final Contours and Stockpiles" of the Operation & Development Report (Appendix O of the Environmental Assessment Report, Item No. 2 in Schedule A);

"***Expanded Fill Area*** " means 86.9 hectare fill area, with all the necessary associated environmental works, shown on the Drawing No. O.3 entitled "Base Contours" of the Operation & Development Report (Appendix O of the Environmental Assessment Report, Item No. 2 in Schedule A);

"***Growing Season*** " means the months of April to October;

"***IC&I Waste*** " means the solid non-hazardous waste that is generated by industrial, commercial and institutional activities;

"***Major Works*** " means all aspects of the leachate control and collection system, including the side slope clay liner, the landfill gas control system and the final cover for the Waste Fill Area;

"***Ministry*** " means the Ministry of the Environment, Conservation and Parks;

"***Noise Guidelines for Landfill Sites*** " means the Ministry document entitled "Noise Guidelines for Landfill Sites", dated June 1998, or as amended from time to time;

"***ODWO*** " means the Ontario Drinking Water Objectives;

"***Operator*** " has the same meaning as "operator" as defined in s.25 of the *EPA* ;

"***Owner*** " means Ridge (Chatham) Holdings G.P.Inc. as a general partner for and on behalf of Ridge (Chatham) Holdings, L.P.a whole subsidiary of Waste Connections of Canada;

"***OWRA*** " means the Ontario Water Resources Act, R.S.O. 1990, c.0.40, as amended;

"***PA*** " means the *Pesticides Act* , R.S.O. 1990, c. P-11, as amended from time to time;

"***PWQO*** " means the Provincial Water Quality Objectives;

"***Reasonable Use Guideline*** " or "***RUC*** " means the Ministry Guideline B-7 (formerly Policy 15-08) entitled "Incorporation of the Reasonable Use Concept into MOEE Groundwater Management Activities", dated April 1994, as amended;

"***Regional Director*** " means the Director, Southwestern Region of the Ministry;

"***Site*** " means the entire 340 hectare landfill site property, including the Existing Fill Area, the

Expanded Fill Area, and the 2020 Expansion Fill Area with all the necessary associated environmental works, and facilities required for the ancillary waste management activities approved by this Approval, located at 20262 Erieau Road, Lot 13-16, Concession 4, Chatham-Kent Municipality;

"*Waste*" means all solid non-hazardous waste;

"Waste Fill Area" means the 186 hectare waste fill area that comprises both the Existing Fill Area and the Expanded Fill Area as well as the 2020 Expansion Fill Area as shown on Drawing 4 entitled "Proposed Final Contours and Stockpiles (Post-Expansion)" of the D & O Report; and

"2020 Expansion Fill Area" means the area for landfill expansion approved in 2020 to enlarge the total Waste Fill Area to 186 hectares and increase the total landfill volumetric capacity for waste and daily cover by approximately 28,900,000 cubic metres.

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1.0 GENERAL

Compliance

1.1 The Owner shall ensure that any person authorized to carry out work on or operate any aspect of the Site is notified of the Approval and the conditions herein and shall take all reasonable measures to ensure the person complies with the same.

1.2 Any person authorized to carry out work on or operate any aspect of the Site shall comply with the conditions of this Approval.

In Accordance

1.3 Except as otherwise provided for in this Approval, the Site shall be designed, developed, constructed, operated and maintained in accordance with the supporting documentation listed in Schedule "A".

Other Legal Obligations

1.4 The issuance of, and compliance with, this Approval does not:

a. relieve any person of any obligation to comply with any provision of the EPA or any other applicable statute, regulation or other legal requirement; or
b. limit in any way the authority of the Ministry to require certain steps be taken or to request that any further information related to compliance with this Approval be provided to the Ministry;

unless a provision of this Approval specifically refers to the other requirement or authority and clearly states that the other requirement or authority is to be replaced or limited by this Approval.

Adverse Effect

1.5 The Owner or Operator remain responsible for any contravention of any other condition of this Approval or any applicable statute, regulation, or other legal requirement resulting from any act or omission that caused the adverse effect or impairment of air and/or water quality.

Furnish Information

1.6 Any information requested by the Director or a Provincial Officer concerning the Site and its operation under this Approval, including but not limited to any records required to be kept by this Approval shall be provided in a timely manner.

1.7 The receipt of any information by the Ministry or the failure of the Ministry to prosecute any person or to require any person to take any action, under this Approval or under any statute, regulation or subordinate legal instrument, in relation to the information, shall not be construed as:

a. an approval, waiver, or justification by the Ministry of any act or omission of any person that contravenes any condition of this Approval or any statute, regulation or other subordinate legal requirement; or
b. acceptance by the Ministry of the information's completeness or accuracy.

1.8 Any information related to this Approval and contained in Ministry files may be made available to the public in accordance with the provisions of the Freedom of Information and Protection of Privacy Act, RSO 1990, CF-31.

Interpretation

1.9 This Approval revokes and replaces the previous Environmental Compliance Approval and all subsequent amendments.

1.10 Where there is a conflict between a provision of any document, including the application, referred to in this Approval, and the conditions of this Approval, the conditions in this Approval shall take precedence.

1.11 Where there is a conflict between the application and a provision in any documents listed in Schedule "A", the application shall take precedence, unless it is clear that the purpose of the document was to amend the application and that the Ministry approved the amendment in writing .

1.12 Where there is a conflict between any two documents listed in Schedule "A", other than the

application, the document bearing the most recent date shall take precedence.

1.13 The conditions of this Approval are severable. If any condition of this Approval, or the application of any condition of this Approval to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this Approval shall not be affected thereby.

Certificate of Requirement

1.14 Pursuant to Section 197 of the EPA, no person having an interest in the Site shall deal with the Site in any way without first giving a copy of this Approval to each person acquiring an interest in the Site as a result of the dealing.

1.15 (1) Two copies of a completed Certificate of Requirement, containing a registrable description of the Site, shall be submitted to the Director for the Director's signature within 60 calendar days of the date of this Approval.

(2) The Certificate of Requirement shall be registered in the appropriate land registry office on title to the Site and a duplicate registered copy shall be submitted to the Director within ten(10) calendar days of receiving the Certificate of Requirement signed by the Director.

No Transfer or Encumbrance

1.16 No portion of this Site shall be transferred or encumbered prior to or after closing of the Site unless the Director is notified in advance and is satisfied with the arrangements made to ensure that all conditions of this Approval will be carried out and that sufficient financial assurance is deposited with the Ministry to ensure that these conditions will be carried out.

Change of Owner

1.17 The Owner shall notify the Director, in writing, and forward a copy of the notification to the District Manager, within 30 days of the occurrence of any changes in the following information:

i. the ownership of the Site;
ii. the Operator of the Site;
iii. the address of the Owner or Operator;
iv. the partners, where the Owner or Operator is or at any time becomes a partnership and a copy of the most recent declaration filed under the Business Names Act, R. S. O. 1990, c. B.17, shall be included in the notification;
v. the name of the corporation where the Owner or Operator is or at any time becomes a corporation, other than a municipal corporation, and a copy of the most current information filed under the Corporations Information Act, R. S. O. 1990, c. C.39, shall be included in the notification.

1.18 In the event of any change in the ownership of the Site, other than a change to a successor

municipality, the Owner shall notify in writing the succeeding owner of the existence of this Approval, and a copy of such notice shall be forward to the Director and District Manager.

Inspections

1.19 No person shall hinder or obstruct a Provincial Officer from carrying out any and all inspections authorized by the OWRA, the EPA, or the PA, of any place to which this Approval relates, and without limiting the foregoing:

i. to enter upon the premises where the approved works are located, or the location where the records required by the conditions of this Approval are kept;
ii. to have access to, inspect, and copy any records required to be kept by the conditions of this Approval;
iii. to inspect the Site, related equipment and appurtenances;
iv. to inspect the practices, procedures, or operations required by the conditions of this Approval; and
v. to sample and monitor for the purposes of assessing compliance with the terms and conditions of this Approval or the EPA, the OWRA or the PA.

Correspondence

1.20 The Owner shall ensure that all communications/correspondence made pursuant to this Approval includes reference to the Approval number A021601.

Public Access to Documents

1.21 (1) A copy of any reports/documentation required under this Approval to be submitted to the Director, Regional Director or District Manager, or any application submitted under the EPA with respect to the Site, shall also be submitted on the same date or deadline to the Municipal Chief Administrative Officer or designate and to the Liaison Committee and to a location where these documents shall be available for public inspection; and

(2) Part (1) above does not apply to information deemed by the Owner to be proprietary or confidential, in which case a notification of the submission of confidential documentation shall be submitted in lieu of the document. Access to the information deemed by the Owner to be proprietary or confidential may be available to the public in accordance with the provisions of the **Freedom of Information and Protection of Privacy Act**, R.S.O. 1990, C. F-31.

2.0 FINANCIAL ASSURANCE

Overview

2.1 Financial assurance (FA) shall be provided as required by the Director, in an amount that is sufficient to pay for compliance with and performance of any action specified in this Approval, including closure, monitoring and maintenance of the Site, maintenance of all required contaminant control systems including leachate management systems, contaminant monitoring for the contaminating lifespan of the Site and contingency plans and in accordance with Ontario Regulation 232/98 for the Site in accordance this Approval.

2.2 Financial assurance may be provided in one or more of the following forms: cash, irrevocable letter of credit, surety bond, or some other form, all satisfactory to the Director.

2.3 No waste shall be received, accepted, disposed or transferred at the site unless appropriate financial assurance is received by the Ministry.

2.4 If any financial assurance is scheduled to expire or notice is received, indicating financial assurance will not be renewed, and satisfactory methods have not been made to replace the financial assurance at least 60 days before the financial assurance terminates, the financial assurance shall forthwith be replaced by cash.

Proposed Payment Schedule

2.5 (1) Within 20 days of issuance of this ECA, the Owner shall provide an updated financial assurance in a form acceptable to the Director in the amount of **$51,339,519.00.**

(2) By the following dates, the total amount of financial assurance to be provided to the Ministry in a form acceptable to the Director is as follows:

- **December 31, 2021 - $54,796,648.00**;
- **December 31, 2022 - $58,253,776.00; and**
- **December 31, 2023 - $61,710,905.00**

Updated Review Report

2.6 A written report reviewing the financial assurance required by this Approval shall be submitted to the Director by **April 30, 2024**, and at intervals of not more than three (3) years thereafter. The report shall include:

a. updates of the discount, interest and inflation rates associated with the requirements for financial assurance in this Approval including justifications and sources of the proposed rates;
b. a report prepared by a qualified professional engineer which updates the cost estimates on which the amounts associated with the requirements for financial assurance in this Approval are based. The report shall take into consideration the:

i. actual amounts of waste landfilled;
ii. projected rate of fill;

iii. progressive capping of completed fill areas;
iv. leachate generation rates;
v. landfill gas generation rates;
vi. contaminating life span of the Site with respect to groundwater, surface water and landfill gas;
vii. any measures that have been carried out or need to be carried out to prevent and ameliorate any adverse effect that relates to the site; and
viii. annual inspection, maintenance, and monitoring costs, including costs for leachate treatment and disposal and landfill gas use or discharge.

3.0 CONSTRUCTION, INSTALLATION and PLANNING

Major Works

3.1 For the purposes of this Approval the following are Major Works:

a. gas management system;
b. leachate collection system;
c. liner;
d. final cover

3.2 (1) A final detailed design shall be prepared for each Major Work to be constructed at the Site consistent with the conceptual design and amendments of the Site as presented in the Supporting Documentation in Schedule "A".

(2) The Owner is hereby approved to use the Alternative Leachate Collection System Layer design in the detailed design drawings for landfill cells for which a final detailed design submission has not yet been submitted in accordance with the information provided in Items 77 through 79 in Schedule "A".

(3) The excavation base and associated elements of the Site design may be adjusted in order to eliminate any predicted surplus in the cover materials, upon submission of a report documenting the proposed changes and upon receiving the approval of the Director for that report.

3.3 The final detailed design of each Major Work shall include the following:

a. design drawings and specifications;
b. a detailed quality assurance / quality control (QA/QC) program for construction of the major work, including necessary precautions to avoid disturbance to the underlying soils; and
c. details on the monitoring, maintenance, repair and replacement of the engineered components of the major work, if any.

3.4 Any design optimization or modification that is inconsistent with the conceptual design shall be clearly identified, along with an explanation of the reasons for the change.

3.5 (1) At least two (2) months before the anticipated construction of each respective construction phase of the leachate collection system, the Owner shall submit to the Director for approval with copies to the District Manager, a final detailed design report and drawings for the Major Work,including quality assurance/quality control procedures for the works.

(2) At least (3) months prior to the proposed commencement of the construction of other Major Works (excluding the leachate collection system and the final cover), the Owner shall submit to the Director for approval, with copies to the District Manager, final detailed design report and drawings of the Major Work(s) , including quality assurance/quality control procedures for the works.

3.6 Each major work shall be constructed in accordance with the approved final detailed design and the QA/QC procedures shall be implemented as proposed by the Owner. Any significant variances from the conceptual design for the Site shall be subject to approval by the Director.

3.7 As-built drawings for all Major Works shall be retained on Site and made available to Ministry staff for inspection.

4.0 GENERAL OPERATIONS

Proper Operation

4.1. (1) Except as otherwise provided by these conditions, this Site shall be designed, developed, used, maintained and operated in accordance with the Environmental Compliance Approval Amendment Application for the Ridge Landfill Expansion - Waste dated April 2020 and the supporting documentation, listed in the attached Schedule "A".

(2) Any changes to the D & O Report shall be submitted to the Director for approval prior to their implementation.

D & O Report

4.2 The D & O Report shall be:

a. retained at the Site;
b. reviewed on an annual basis and updated by the Owner as required; and
c. be available for inspection by Ministry staff.

Service Area

4.3 The service area for the Site shall be as follows:

(1) Southern and central Ontario for IC&I Waste; and

(2) Municipality of Chatham-Kent for municipal waste.

Site Capacity

4.4 The Owner shall only accept and deposit waste at the Site as long as there is available capacity as defined by the final contours for the Site approved by this ECA as shown on Drawing 4 entitled "Proposed Final Contours and Stockpiles (Post-Expansion)" of the D & O Report.

4.5 The total volume of Waste and cover material for the Expanded Fill Area, excluding final cover, is approximately equivalent to 21,000,000 cubic metres.

4.6 The total additional volume of Waste and cover material for the Waste Fill Area, excluding the completed Existing Fill Area and Expanded Fill Area, is approximately equivalent to 28,900,000 cubic metres, in accordance with the D & O Report.

Annual Volume Capacity

4.7 The maximum disposal rate of waste and waste approved for use as alternative daily cover material in the Waste Fill Area shall not exceed **6,661 tonnes per day** and **1,300,000 tonnes per year**.

Incoming Waste

4.8 The Owner shall monitor the weight of Waste received for disposal by the use of weigh scales. Where the weigh scales are temporarily out of operation for maintenance or repair, estimates of Waste volumes and density shall be used to estimate the weight of Waste received for disposal.

4.9 The Owner shall ensure that no queuing of Waste vehicles will occur on public roadways.

Hours of Operation

4.10 (1) The hours of Waste receipt at the Site shall be from 7:00 a.m. to 5:00 p.m., and the hours for heavy equipment operation shall be from 6:30 a.m. to 6:00 p.m.;

(2) No landfilling operations shall be carried out on Sunday; and

(3) With the concurrence of the District Manager and the Municipal Chief Administrative Officer, or designate, the Waste may be received between 5:00 p.m. and 7:00 p.m., to accommodate seasonal or unusual demand.

Security and Supervision

4.11 (1) No Waste shall be accepted, landfilled or removed from the Site unless a Site supervisor is present and supervises the operation;

(2) The Owner shall ensure that all supervisors of the Site have been adequately trained with respect to the following:

(a) terms, conditions and operating requirements of this Approval and the D & O Report;

(b) the operation and management of the Site, including emergency procedures;

(c) relevant waste management regulations and legislation;

(d) environmental concerns related to the Waste being handled at the Site;

(e) the procedures contained in the D & O Report ; and

(f) occupational health and safety concerns pertaining to the Waste being handled at the Site;

(3) The Site is deemed to be closed when a Site supervisor is not present at the Site and the Site entrance and exit gates will be locked or otherwise secured against access by unauthorized persons.

4.12 (1) To assist the Site operating personnel, the Owner shall ensure that an Operations Manual describing the day-to-day operation of the Site is kept on Site at all times and updated as necessary;

(2) This manual shall include but not be limited to, the day-to-day construction, operations and maintenance and the responsibilities for the following: leachate collection system, landfill gas collection system, surface water management system, daily, interim and final cover, side slope clay liner, all aspects of the leachate, groundwater, surface water and gas monitoring programs, equipment inspection and maintenance, materials management control and placement, odour, dust, noise and litter control and acceptable Waste management program;

(3) A copy of the manual shall be provided to the District Manager within three (3) months of the issuance of this Approval; and

(4) A copy of any revisions to the manual shall be provided to the District Manager prior to the effective date of revisions.

4.13 The Owner shall ensure that a sign which complies with local by-laws is present at the main entrance and the exit from the Site, and which is legible from a distance not less than 25 metres

and on which is displayed in prominent letters the following information:

a. the name of the Site;
b. the Environmental Compliance Approval number under which the Site is operated;
c. the name of the operator;
d. the normal hours of operation;
e. a telephone number to which complaints may be directed; and
f. a 24-hour emergency telephone number.

Burning of Waste

4.14 No Waste shall be burned or incinerated at the Site.

Buffer

4.15 (1) The buffer area around the Site shall be in accordance with the Drawing No. 4 entitled "Proposed Final Contours and Stockpiles (Post Expansion)" of the D & O Report; and

(2) To minimize erosion, the buffer shall be maintained with healthy vegetative cover and/or other appropriate surface treatment.

Noise Impacts

4.16 The noise levels resulting from the activities related to the construction of the expanded Site, shall not exceed the limits set out in the Noise Guidelines for Landfill Sites.

4.17 The Noise Management Plan shall be implemented in accordance with Section 5.0 of the Report entitled "Ridge Landfill Expansion - Landfill Site and Haul Route Noise Impact Assessment", Appendix D8, by Dillon Consulting, dated January 2020.

4.18 (1) Three (3) months prior to receipt of Waste at the Site scheduled to occur outside of the hours of 7 a.m. to 7 p.m., the Owner shall submit for the Director's approval, a noise impact management report containing the Owner's proposal on how to minimize noise impacts resulting from the proposed activities, as well as those including the truck traffic along the local haul route to the Site, specifically Drury Road;

(2) The report should describe in detail:

(a) noise impacts from the activities at the Site if Waste is to be received; and

(b) mitigative measures and/or the procedures to be followed in order to ensure that the noise levels remain within the Ministry's guidelines;

(3) No receipt of Waste at the Site shall occur outside of the hours of 7 a.m. to 7 p.m., prior to the receipt of the Director's approval for the report described in subsection

(1), above.

4.19 (1) The Owner shall operate the Site within the noise level limits prescribed in the Noise Guidelines for Landfill Sites; and

(2) The Owner shall take all steps that are reasonably necessary to limit the noise impact from the truck traffic, along the haul route.

4.20 (1) The Owner shall ensure that all screening berms proposed for the purpose of noise level attenuation at the Site are completed before the noise impacts from the relevant operations occur;

(2) (a) The perimeter screening berms for the Site shall be constructed in accordance with the design details presented in Section 5.11 of the D & O Report; and

(b) The perimeter screening berms for the Site shall be constructed and seeded according to the D & O Report;

(3) Operational berms for the Site shall be constructed as needed to screen landfilling operations at the working face.

Dust Impacts

4.21 (1) The Owner shall, during the normal operations, including truck traffic, limit dust impacts using the control measures as indicated in Item No. 9 and Item 85 (f), 86 and 87 of Schedule "A" and in any event shall take all necessary steps as are reasonably necessary to limit dust impacts from the Site.

(2) The Owner shall record in the daily Log (as required by Condition 8.3), any on-Site activities that may generate dust, the reasons for considering the activities may generate dust and the adjustments to the Site operations that results.

4.22 The Owner shall, during the construction of works associated with expansion of the Site, limit the dust impacts using the control measures described in the Item No. 10 of the attached Schedule "A" and in any event shall take all necessary steps as are reasonably necessary to limit dust impacts from the Site.

Visual Impact and Landscaping Plan

4.23 Site landscaping shall be completed as outlined in the report entitled "Visual Impact Assessment" (Appendix D12), dated January 2020 prepared by Dillon Consulting.

Bird Control

4.24 The Bird Control Plan shall be implemented in accordance with the report entitled Report

entitled Bird Control Plan by LGL Limited, dated April 20, 1999 (item no. 16 of schedule A).

Litter Management

4.25 (1) The Owner shall implement the litter control program described in Section 14.3 of the D & O Report; and

(2) The Owner shall conduct a daily inspection of the properties in the immediate vicinity of the Site, from the public roads, and shall collect any litter which may have originated from the Site subject to the consent of the owner or tenant. The inspections shall cover Erieau Road from County Road 8 to the Site and other segments of roadway which may be impacted in consideration of the location of the working face and the wind speed and direction.

Abandoned Well Management

4.26 No construction of any expansion works of the Site which would disturb any existing groundwater wells that have not been properly decommissioned, shall begin until the Owner has submitted to, and received the Director's approval for, a plan to locate and properly decommission any abandoned wells at the Site.

5.0 SITE OPERATIONS

Odour Impacts and Daily Cover

5.1 (1) At the end of each working day, all Waste received at the Site shall be landfilled in the appropriate fill areas and covered by a minimum of 15 centimetres of daily cover material;

(2) Clean soil, non-hazardous contaminated soils, tarpaulins, blown straw, shredded tires, dewatered sewage biosolids and non-hazardous autoshredder waste are the alternative daily cover material approved under this Approval; and

(3) The Owner shall ensure that the non-hazardous contaminated soil, blown straw, shredded tires, dewatered sewage biosolids and non-hazardous autoshredder waste used as alternative daily cover, does not cause an adverse environmental effect. If any adverse effect is caused, the Owner shall immediately stop the use of such material and resume the use of other approved daily cover or clean soil.

5.2 (1) Where an area of Waste fill, including the initial Waste lift to cover the leachate collection system, has not reached final contours but, will be inactive for a period of six months or longer, the Owner shall ensure that an interim cover material layer of at least 30 centimetres soil depth is applied as soon as reasonably possible; and

(2) Areas of interim cover should be seeded as soon as practical.

Dewatered Sewage Biosolids as Alternative Cover Material

5.3 Dewatered sewage biosolids may be used as daily, intermediate and final cover subject to Condition 5.1(2).

5.4 (1) Application of the dewatered sewage biosolids shall not exceed 25 tonnes per hectare (dry weight) on a cumulative basis when material is used as intermediate cover.

(2) Application of the material shall not exceed 50 tonnes per ha. (dry weight), also on a cumulative basis, when the material is used as final cover.

(3) Off site odour impacts shall be monitored and should such impacts occur the Owner shall immediately implement an odour management plan that will minimize odour emissions.

(4) The Owner shall retain detailed records of the locations where the material was applied and the quantities of material that were applied at those locations. The records shall be kept for a minimum of five years after the closure of the Site.

Stockpiles

5.5 (1) Stockpiles shall be constructed only in the areas shown on the Drawing Drawing No. 4 entitled "Proposed Final Contours and Stockpiles (Post Expansion)" of the D & O Report; and

(2) Any exposed portion of the soil stockpiles which becomes inactive, during the Growing Season, for a period greater that one (1) month, shall be seeded to establish vegetative growth within one (1) month of becoming inactive.

5.6 Within one (1) year of any portion of the Site being filled to its final contours as shown on Drawing No. 4 entitled "Proposed Final Contours and Stockpiles (Post Expansion)" of the D & O Report, the Owner shall ensure that final cover is placed over that portion of the Site according to the conceptual design specified in Section 7.4 of the D & O Report and the detailed design required to be submitted for the Director's approval under Condition No. 3.1, above.

Leachate Management

5.7 Leachate generated from the Site, shall be transported to the Blenheim Wastewater Treatment Lagoons, or an alternative plant able to accept the amount and type of leachate produced at the Site.

5.8 (1) The Owner shall notify the District Manager of the decision to build the pre-treatment plant, within thirty (30) days of making such a decision; and

(2) The Owner shall submit detailed design plans and specifications of the leachate pre-treatment facility, for Director's approval, at least three (3) months prior to the commencement of the proposed construction.

5.9 Leachate shall not be recirculated back into the landfill without the Director's approval.

5.10 The Owner shall submit the detailed design for a second on-site leachate storage tank, with a capacity of no less than 605 cubic metres, for the Director's approval by November 30, 2023.

Wood Waste Processing

5.11 (1) Processing of wood waste by grinding may be continued at the Site in accordance with the application for approval signed by Mr. Pat Sasso Sr., dated October 24, 1995, and the supporting documentation; and

(2) Processing of wood waste shall only occur between the hours of 7:30 a.m. and 5:00 p.m.

6.0 MAJOR WORKS APPROVALS

Cell Construction

6.1 (1) Approval is hereby granted for the construction of Cell 3A in accordance with Items 24 to 36 on Schedule "A".

(2) Approval is hereby granted for the construction of Cell 3B West in accordance with items 56 to 63 inclusive on Schedule "A".

(3) Approval is hereby granted for the construction of Cell 3B East in Accordance with Items 80 to 82 in Schedule "A".

(4) Approval is hereby granted for the construction of Cell O1 of the Old Landfill in accordance with Appendix I of the ECA application for site expansion (Item 105 of Schedule "A") - Cell O1 Detailed Design prepared by Golder Associates Ltd. dated April 28, 2020.

6.2 Should significant deviations from the design as shown on the approved design drawings approved under Condition 6.1 occur during construction, the Owner shall submit as-built drawings to the Director within six (6) months after the completion of construction.

Landfill Gas Collection System

6.3 (1) Approval is hereby granted to construct the first phase of the landfill gas collection system in accordance with items 39 to 53 on Schedule "A".

(2) Approval is granted for the construction of the Landfill Gas Collection System Expansion in accordance with Items 68 to 72 and Items 83 through 84 in Schedule "A".

(3) Any waste material generated during the construction that can be landfilled at the Site shall be taken to the active phase of the landfill or to a licensed waste disposal site by a licensed waste hauler. Any waste material that can not be landfilled at the Site shall be transported by a licensed waste hauler to an appropriate licensed waste disposal site.

(4) Approval is granted for the construction of the Landfill Gas Collection System Expansion, including 34 additional gas extraction wells and the associated piping, in accordance with Items 88 through 92 in Schedule "A".

(5) Approval is granted for the expansion of the Landfill Gas Collection System, which includes the installation of 84 additional gas extraction wells and the associated piping, in accordance with Items 96, 97 and 98 in Schedule "A".

(6) During leachate pipe cleaning, the flushing hose shall at least extend to the bottom of the leachate cleanout. By no means shall the leachate pipe cleaning result in backflow in the condensate drain pipe.

(7) Approval is granted for the detailed design of the Landfill Gas Collection System expansion at the South Mound, all in accordance with Item 100 in Schedule "A".

6.4 Prior to commencement of operations of the system, the Owner shall submit for the approval of the Director a document detailing contingency provisions in the event of unexpected component failures.

6.5 Any subsequent phases of the landfill gas collection system at the Site shall be subject to approval of the Director.

6.6 The Owner shall ensure that the landfill gas collection system in the 2020 Expansion Fill Area including the Old Landfill, South Landfill and West Landfill is designed to maximize landfill gas collection coverage in both vertical and horizontal landfill expansion areas.

Leachate Collection System

6.7 The leachate collection system piping for each stage of the landfill shall be visually inspected and cleaned on an annual basis or as circumstances require, in order that the leachate collection system operates properly. This frequency may be reduced to once every two years on the basis of the inspection results with the approval of the Regional Director.

6.8 The leachate collection system in the South Landfill Area shall be constructed in accordance with Item 99 in Schedule "A".

6.9 The leachate collection system of the Infill Area (Cell 8) shall be constructed in accordance with Items

102, 103 and 104 in Schedule "A".

6.10 For any leachate seep at the Old Landfill discovered during daily inspection, the Owner shall ensure the following actions are taken:

(1) repair the seeps immediately;

(2) notify the Ministry in writing within 24 hours of discovering the seep, with information about the location and likely cause of the seeps, as well as the remediation actions taken;

(3) if the leachate seepage is caused by high leachate mounding, the Owner shall develop the mitigation plan in consultation with the Ministry, and submit to the Director for approval prior to implementation.

7.0 FUTURE ANCILLARY WASTE MANAGEMENT ACTIVITIES

7.1 (1) This Approval gives a conceptual approval for the following future ancillary waste management activities:

(a) chipping of wood waste;

(b) processing of source separated construction and demolition waste;

(c) transfer of recycling materials; and

(2) Prior to the commencement of any construction activities associated with the ancillary waste management activities, the Owner shall submit to the Director for approval under Part V of the EPA, the Design and Operations Report for these facilities.

8.0 RECORDS

Daily Inspections and Log Book

8.1 An inspection of the entire Site and all equipment on the Site shall be conducted each day the Site is in operation to ensure that the Site is being operated in compliance with this Approval. Any deficiencies discovered as a result of the inspection shall be remedied immediately, including temporarily ceasing operations at the Site if needed.

8.2 A record of the inspections shall kept in a daily log book or a dedicated electronic file that includes:

i. the name and signature of person that conducted the inspection;
ii. the date and time of the inspection;
iii. the list of any deficiencies discovered;

iv. the recommendations for remedial action; and
v. the date, time and description of actions taken.

8.3 A record shall be kept in the daily log book of all the following:

i. the type, time of arrival, hauler name, and quantity (tonnes) of all Waste including approved cover material received at the Site.
ii. all complaints from the public received by the Owner and an indication of the action taken by the Owner in response;
iii. results of any tests done to determine the acceptability of Waste at the Site;
iv. a list of the refusal of waste shipments, the reason(s) for refusal, and the origin of the Waste, if known;
v. calculation of the total quantity (by weight) of Waste received at the Site for each day;
vi. a record of litter collection activities and Site inspections; and
vii. presence of leachate seeps and remedial actions taken.

Monthly Records

8.4 Monthly site inspection records in the form of a written log or a dedicated electronic file shall include the following:

i. a summary of wastes received and refused for disposal at the Site;
ii. the area of the Site in which waste disposal operations are taking place;
iii. a calculation of the total quantity (tonnes) of waste received at the Site during each operating day and each operating week;
iv. the amount of any leachate removed, or treated and discharged from the Site;
v. a record of litter collection activities and the application of any dust suppressants;
vi. a record of the daily inspections;
vii. a description of any out-of-service period of any control, treatment, disposal or monitoring facilities, the reasons for the loss of service, and action taken to restore and maintain service;
viii. type and amount of daily, intermediate and final cover used;
ix. maintenance and repairs performed on equipment employed at the Site;
x. complaints received and actions taken to resolve them;
xi. emergency situations and actions taken to resolve them; and
xii. any other information required by the District Manager.

Site Inspections

8.5 During site operations, the Owner shall inspect the Site monthly for the following items but not limited to these items:

i. General settlement areas or depressions on the waste mound;
ii. Shear and tension cracks on the waste mound;

iii. Condition of surface water drainage works;
iv. Erosion and sedimentation in surface water drainage system;
v. Presence of any ponded water on the waste mound;
vi. Adequacy of cover material;
vii. Evidence of vegetative stress, distressed poplars or side slope plantings on or adjacent to the waste mound;
viii. Condition of groundwater monitoring wells and gas wells;
ix. Presence of insects, vermin, rodents and scavenging animals on or adjacent to the waste mound;
x. Condition of fence surrounding the Site; and,
xi. General site appearance.

8.6 The Owner shall inspect the waste mound and surrounding areas weekly for presence of leachate seeps. Any leachate seeps that are discovered shall be repaired within 48 hours of notice by the Owner.

Record Retention

8.7 Except as authorized in writing by the Director, all records required by this Approval shall be retained at the Site for a minimum of two (2) years from their date of creation.

8.8 The Owner shall retain all documentation listed in Schedule "A" for as long as this Approval is valid.

8.9 All monthly summary reports are to be kept at the Site until they are included in the Annual Report.

8.10 The Owner shall retain employee training records as long as the employee is working at the Site.

8.11 The Owner shall make all of the above documents available for inspection upon request of Ministry staff.

9.0 MONITORING

Well Operation and Maintenance

9.1 The Owner shall ensure all groundwater monitoring wells are properly capped, locked and protected from damage.

9.2 In areas where landfilling is to proceed around monitoring wells, suitable extensions shall be added to the wells and they shall be properly re-secured.

9.3 All groundwater monitoring wells whether included in the monitoring program or not shall be assessed, repaired, replaced or decommissioned as required. Any well being decommissioned

shall be decommissioned in accordance with good standard practice that will prevent contamination through the abandoned well and in accordance with Ontario Regulation 903.

9.4 The Owner shall repair or replace any monitoring well included in the monitoring program which is destroyed or in any way made inoperable for sampling such that no more than one sampling event is missed.

9.5 Any monitoring well included in the monitoring program that is no longer required as part of the groundwater monitoring program may be decommissioned provided its removal from the monitoring program is recommended in a report prepared by a qualified professional and approved by the Director. A report on the decommissioning shall be provided in the annual monitoring report for the period during which the well was decommissioned.

Monitoring Program

9.6 (1) Groundwater monitoring shall be carried out in accordance with the monitoring program described in Section 15.2.1 of the Design and Operations Report included as Appendix F of the Environmental Compliance Amendment Application for the Ridge Landfill Expansion - Waste (Item No. 105 in Schedule A);

(2) Off-site private wells shall be monitored, with the consent of the owner or tenant, in accordance with the monitoring program described in Section 15.2.6 of the D & O Report;

(3) Surface water monitoring shall be carried out in accordance with the monitoring program described in Section 15.2.2 of the D & O Report;

(4) Performance of the leachate collection system shall be monitored in accordance with the monitoring program described in Section 15.2.3 of the D & O Report;

(5) The Owner shall ensure that two leachate monitoring wells are installed within the Old Landfill in accordance with Section 15.2.4 of the D & O Report. Leachate level measurement shall be conducted concurrently with groundwater monitoring events; and

(6) Performance of the gas collection system shall be monitored in accordance with the monitoring program described in Section 15.2.5 of the D & O Report.

9.7 Prior to any changes to the monitoring programs being implemented, an approval from the Regional Director is required.

9.8 Monitoring for Particulates and Volatile Organic Compounds:
(1) The Owner shall undertake the Monitoring for Particulates and Volatile Organic Compounds in accordance with Item 85 (e), 86 and 87 in Schedule "A".

(2) The Owner shall ensure there is sufficient clearance between the monitoring samplers and any roadway such that the roads are not a major influence in the sampling.

(3) Sampler Placement shall be at a height of at least 2.5 times the height of any downwind obstruction within the landfill.

10.0 CONTINGENCY PLANS

Surface Water

10.1 If the discharge objectives as per the Site's Section 53 OWRA approval are exceeded in any of the storm water management ponds, the impacted water shall not be discharged to the municipal drains, and the contingency measures described Section 17.1 of the D & O Report shall be implemented.

Groundwater

10.2 (1) In the event of the groundwater contamination in excess of a maximum of 85% of the acceptable levels as defined by the Reasonable Use Guideline, the Tier 1 of the contingency plan described in Section 17.1 of the D & O Report, shall be implemented;

(2) In the event the groundwater concentrations exceeding 85% of applicable Reasonable Use Criteria is confirmed through Tier 1 investigation, Tier 2 of the contingency plan described in Section 17.1 of the D & O Report shall be initiated within one month of the confirmation of the exceedance; and

(3) (a) Prior to the implementation of the contingency measures necessary to prevent the unacceptable off-site impacts due to groundwater contamination, the Owner shall submit to the Director for approval, a detailed design of the proposed measures; and

(b) The proposed contingency measure for Pathway 1, shall include an assessment on the need for an additional leachate collector outside of the fill area. This assessment shall be submitted to the District Manager, prior to the submission of the detailed design.

10.3 Any changes to the specific trigger levels for the groundwater and surface water monitoring programs shall be approved by the Regional Director prior to the implementation of these changes.

Old Landfill Leachate Contingency

10.4 (1) Leachate seeps at the Old Landfill shall be remediated in accordance with the trigger mechanism and contingency plan described in Section 17.3 of the D & O Report.

(2) The Owner shall follow the leachate mound trigger mechanism and contingency plan as described in Section 17.4 of the D & O Report. In the event the leachate level exceeds

28.5 m, a mitigation plan shall be submitted to the Director for approval, with copy to the District Manager within 14 days of discovery of the exceedance.

11.0 PUBLIC COMPLAINTS PROCEDURE

11.1 The Owner shall establish a public complaints procedure upon issuance of this Approval, that includes:

(1) designating specific staff to receive any complaints and within ten (10) working days of that staff person receiving notice of the complaint to respond in writing indicating the course of action taken by the Owner and the outcome;

(2) posting the Site complaints telephone number at the Site entrance and upon issuance of this Approval, providing a written notice explaining the complaints procedure to surrounding residents located along the Drury Line between Highway 40 and Erieau Road and within approximately one (1) kilometre of the Site;

(3) keeping an accurate record of the following Site related complaints information:

(a) the name and address of the complainant;
(b) the date and time;
(c) the nature of the complaint;
(d) wind speed and wind direction at the time of the complaint; and
(e) details of the Owner's response to the complainant, action taken and outcome;

(4) reporting to each Liaison Committee meeting a summary of all public complaints received, courses of action taken and outcomes not reported at previous Ridge Liaison Committee meetings.

12.0 LANDFILL SITE LIAISON COMMITTEE

12.1 (1) The Owner shall continue to participate in the operation of the Liaison Committee;

(2) All meetings of the Liaison Committee shall be open to the public; and

(3) Terms of Reference for the Liaison Committee may be altered with the approval of the Regional Director.

13.0 ANNUAL REPORT

13.1 By **April 30th** of each year, an annual report on the use, operation and monitoring of the Site

during the previous calendar year shall be submitted to the Regional Director. The report shall include:

(1) the results and an interpretive analysis of the results of all groundwater, surface water, landfill gas, on and off Site noise monitoring, leachate collection system monitoring, and leachate monitoring, including the following:

(a) the adequacy of the monitoring programs and recommendations for any modifications to programs as appropriate;
(b) the extent to which the monitoring results indicate compliance with the conditions of this Approval, PWQO, ODWO, the Reasonable Use Guideline and any other relevant statutes and guidelines;
(c) the trend of the monitoring results with respect to future compliance with the conditions of this Approval, PWQO, ODWO, the Reasonable Use Guideline and any other relevant statutes and guidelines; and
(d) the current or expected future need to implement contingency plans and/or additional mitigation measures to ensure compliance with the Conditions of this Approval, PWQO, ODWO, the Reasonable Use Guideline and any other relevant statutes and guidelines;

(2) summary of Site inspections;

(3) Site plans showing:

(a) existing contours of the Site;
(b) areas of landfilling operation during the reporting period and areas of intended operation during the next reporting period;
(c) areas of excavation during the reporting period;
(d) the progress of final and interim cover application;
(e) previously existing Site works, including stockpiling, works installed during the reporting period, and works planned for installation during the next reporting period and the progress of seeding on final and interim cover; and
(f) Areas and quantities where dewatered sewage biosolids are used as daily, intermediate and final cover.

(4) a summary of the quantity of any leachate removed, or treated and discharged, from the Site, during each operating week;

(5) the type and quantity (by weight) of all Waste, alternative daily cover, interim cover and final cover disposed or applied during the reporting period.

(6) calculation of the total volume of the Site capacity used during the reporting period;

(7) a calculation of the remaining capacity of the Site and an estimate of the remaining Site life;

(8) a summary of the weekly, maximum daily and annual tonnage of Waste received at the Site;

(9) a summary of the public complaints received by the Owner and the responses made by the Owner including the actions taken to resolve these complaints;

(10) other measures, undertaken by the Owner, to reduce or prevent off-Site impacts and to ensure compliance with the Ministry's requirements;

(11) extent and timing of the contingency measures described in the Condition No. 10, that may be needed to be implemented;

(12) report on the decommissioning of wells, that have been decommissioned in the reporting year;

(13) a brief description of the changes to the operational procedures and the resultant changes to the impact management plans;

(14) a discussion of the operation and performance of the Major Works at the Site, any operational problems encountered at the Site and the remedial measures taken to alleviate the impacts from those problems, including the control of leachate level, dust, odour and noise;

(15) leachate quantity and quality sent off-site for treatment, the treatment facility/facilities used, compliance of the treatment facility/facilities with its /their effluent discharge objectives and any expected modifications to be able to continue to accept and treat all of the leachate generated from the Site; and

(16) an assessment of the operation of the landfill gas collection system, including but not limited to the following:

- (a) total volume of landfill gases collected during the reporting year expressed in cubic metres and adjusted to standard 25°C, 101.3 kPa;
- (b) percentage of methane contained in the collected gases expressed as an average value of the total volume of gases collected over the reporting period;
- (c) a description of any significant maintenance or operational problems encountered and the actions taken for remediation;
- (d) any changes to the gas collection system implemented over the reporting period including any extensions of the collection system, installation of new extraction wells, replacement wells, and any other extraction wells that have been mothballed or decommissioned;
- (e) adequacy of the gas collection network and the need to expand the collection system in order to maximize the system coverage;

(f) any other changes to the gas collection system implemented over the reporting period;
(g) any updates to the inspection and maintenance plan as a result of changes made to the gas collection system during the reporting period; and
(h) any updates to the Operation and Maintenance Manual.

14.0 SITE CLOSURE

14.1 At least two (2) years prior to the anticipated date of closure of this Site or the date 90 per cent of the total waste disposal volume of the landfill Site is reached, whichever occurs first, the Owner shall submit a detailed plan for the closure, long-term maintenance, monitoring and after-use of the Site to the Director for approval. The plan shall include the following:

(1) plans for long-term fencing and access control;

(2) details on the final grading, final cover requirements and the source(s) of the cover materials used;

(3) details of vegetative cover requirements;

(4) end-use plan for the Site;

(5) plans for continued monitoring of the groundwater, surface water, leachate and landfill gas;

(6) plans for continued maintenance, operation and monitoring of the engineered facilities at the Site including the leachate collection system, gas management system and the surface water drainage facilities;

(7) plans and schedules for routine inspection and maintenance of the Site upon closure; and

(8) updated contingency plans for groundwater, leachate, surface water and gas control problems.

15.0 TRAINING

Employees and Training

15.1 (1) A training plan for all employees that operate any aspect of the Site shall be developed and implemented by the Operator . Only trained employees shall operate any aspect of the Site or carry out any activity required under this ECA. The Owner must provide proof of staff training to the Ministry upon request. For the purpose of this ECA "trained" means

knowledgeable either through instruction or practice in:

a. the relevant waste management legislation including EPA, Reg. 347 and O. Reg. 232/98 , regulations and guidelines;
b. major environmental and occupational health and safety concerns pertaining to the waste to be handled;
c. the proper handling of wastes;
d. the management procedures including the use and operation of equipment for the processes and wastes to be handled;
e. the emergency response procedures;
f. the specific written procedures for the control of nuisance conditions;
g. identifying on-site activities that have the potential to generate dust;
h. identifying how staff will monitor weather conditions and adjust site operations as required
g. the terms, conditions and operating requirements of this ECA and
h. proper inspection, receiving and recording procedures and the activities to be undertaken during and after a load rejection.

(2) The Owner shall keep the training plan and maintain records of staff training at the Site.

Schedule "A"

1. Application for Approval of a Waste Disposal Site, submitted by Browning-Ferris Industries Ltd., signed by Mark A. Glass, and dated August 10, 1998.

2. "BFI Ridge Landfill Expansion Environmental Assessment", prepared by Browning-Ferris Industries Ltd., dated January 1997; including the following relevant Appendices:

   -Appendix B -Geology/Hydrogeology Assessment Report
   -Appendix C -Surface Water Impact Assessment Report
   -Appendix J -Transportation Impact Assessment Report
   -Appendix K -Visual Impact Assessment Report
   -Appendix M -Landfill Atmospheric Studies Impact Assessment Report
   -Appendix N -Haul Route Air Quality and Noise Impact Assessment Report
   -Appendix O -Operation and Development
   -Appendix P -The Diversion Study

3. Letter to M. Wojcik, Ministry of the Environment, from Mark Glass, Browning-Ferris Industries Ltd., dated September 28, 1998, clarifying the proposed daily disposal rates.

4. Letter to W. Ng, Ontario Ministry of the Environment, from P. Sasso Sr., Browning-Ferris Industries Ltd., dated February 2, 1998, with the attachment, entitled ADraft Responses to Technical Review Comments on *BFI Ridge Landfill Expansion Environmental Assessment* , Ministry of Environment and Energy, October 1997", providing BFI's response to government's comments. dated October 24, 1997.

5. Letter to A. Dominski, Ontario Ministry of the Environment, from G.J. Komar, Dillon Consulting Ltd., dated July 21, 1998, with the attachment entitled "Responses to Technical Review Comments on *BFI Ridge Landfill Expansion Environmental Assessment* , Ministry of the Environment, July 1998", providing BFI's response to MOE's comments, dated June 17, 1998.

6. Letter to M. Wojcik, Ontario Ministry of the Environment, from G.J. Komar, Dillon Consulting Ltd., dated November 13, 1998, with the attachment entitled "Responses to Technical Review Comments on BFI Ridge Landfill Expansion, November 1998", providing BFI's response to MOE's comments, dated November 3, 1998.

7. Letter to T. Storey, Core Technical Advisory Committee, Municipality of Chatham-Kent, from M. Glass, Browning-Ferris Industries Ltd., dated December 14, 1998, committing to completion of the leachate collection works for the existing fill area.

8. Facsimile transmission to M. Wojcik, Ontario Ministry of the Environment, from M. Glass, Browning-Ferris Industries Ltd., dated December 18, 1998, confirming the construction completion of the Phase 2 leachate collection works from Manhole 2 to and including Manhole 6,

for the existing fill area.

9. Document entitled "Dust Abatement Program at the BFI Ridge Landfill Site", prepared by Rowan Williams Davies & Irwin Inc., dated November 19, 1998,

10. Letter to M. Wojcik, Ontario Ministry of the Environment, from M. Glass, Browning-Ferris Industries Ltd., dated December 18, 1998, confirming the schedule for the construction and seeding of the perimeter screening berms.

11. Letter to J. McGuigan, Ridge Landfill Liaison Committee, from M. Glass, Browning-Ferris Industries Ltd., dated February 9, 1998, providing the proposal for monitoring of the off-site wells.

12. Facsimile transmission to M. Wojcik, Ontario Ministry of the Environment, from J. MacLachlan, Dillon Consulting Ltd., dated January 8, 1999, providing the size of the fill area considered to be the expansion.

13. Letter from J. Zangari, M.M. Dillon Ltd., to D. Staseff, Ministry of Environment and Energy, dated June 24, 1994, including the attachment entitled "Ridge Landfill Leachate Collection System Phase 1, Protocol for Toe Berm Description".

14. Report entitled Noise Management Plan for the BFI Ridge Landfill Site, Blenheim Ontario by *Rowan William Davies & Irwin Inc, dated April 21, 1999.*

15. Report entitled Results of a Public Open House to Consider Landscaping Plans for the Ridge Landfill Expansion by Bezaire & Associates, dated December 16, 1998.

16. Report entitled Bird Control Plan by LGL Limited, dated April 20, 1999.

17. Letter and attachments of September 21, 1999 from Mark Glass, P. Eng of Browning-Ferris Industries to M. Turner of MOE regarding financial assurances.

18. Report entitled “Ridge Landfill Expansion, Contract 2B, Specifications” dated February 26, 1999, and the Plans C1 through C7, inclusive, entitled “Ridge Landfill Expansion Contract 2B”, prepared by Dillon Consulting Limited.

19. Report entitled “Ridge Landfill Expansion, Contract 4, Cell 2, Specifications” dated January 2002, and the Plans: GP-1, R1 through R5 and C1 through C5, entitled “Ridge Landfill Expansion Contract 4”, prepared by Dillon Consulting Limited.

20. Facsimile transmission dated May 14, 2002, to Margaret Wojcik, Ontario Ministry of Environment and Energy, from Jim MacLachlan, Dillon Consulting Limited, containing the revised design of the leachate collection pipe perforations.

22. Application for a Provisional Certificate of Approval for a Waste Disposal Site signed by Howard Goldby,

Vice President, Environmental Health and Safety, dated November 28, 2005, and all the information associated with the application, including letter dated December 19, 2005; and

23. Letter from Jim Hawryluk, Chairman, Ridge Landfill Liaison Committee to J. O' Mara, Director, Environmental Assessment and Approvals Branch, Ministry of the Environment, dated October 24, 2005.

24. Letter and attached document entitled "*Section 4 Special Provisions"* dated July 13, 2006 from James R. MacLachlan, Project Manager, Dillon Consulting Limited to Tes Gebrezghi, Supervisor-Waste Unit, MOE.

25. Letter dated August 9, 2006 from Greg Washuta, Senior Waste Engineer, Ministry of the Environment to Howard Goldby, Vice-President- Environmental Health and Safety, Ridge (Chatham) Holdings LP.

26. Letter dated August 14, 2006 from James R. MacLachlan, Project Manager, Dillon Consulting Limited to Greg Washuta, Senior Waste Engineer, MOE.

27. Drawing No. GP-1 entitled *"General Plan of Contract 5 Works"* prepared by Dillon Consulting Limited, dated August 9, 2006.

28. Drawing No. R-1 entitled *"Perimeter Road STA. 1+240 to STA. 1+347.65"* prepared by Dillon Consulting Limited, dated August 9, 2006.

29. Drawing R-2 entitled "*Typical Sections"* prepared by Dillon Consulting Limited, dated August 9, 2006.

30. Drawing C-1 entitled "*Cell 3A Base Elevations"* prepared by Dillon Consulting Limited, dated August 9, 2006.

31. Drawing C-2 entitled "*Cell 3A Leachate Collection System and Side Slope Liner"* prepared by Dillon Consulting Limited, dated August 9, 2006.

32. Drawing C-3 entitled "*Cell 3A Top of Leachate Collection System Elevations"* prepared by Dillon Consulting Limited, dated August 9, 2006.

33. Drawing C-4 entitled "*Leachate Collection Details"* prepared by Dillon Consulting Limited, dated August 9, 2006.

34. Drawing C-5 entitled "*Leachate Collection Details"* prepared by Dillon Consulting Limited, dated August 9, 2006.

35. Drawing C-6 entitled "*Pump House 3 -Structural"* prepared by Dillon Consulting Limited, dated August 9, 2006.

36. Drawing C-7 entitled "*Pump House 3 - Mechanical"* prepared by Dillon Consulting Limited, dated August 9, 2006.

37. E-mail dated August 24, 2006 from Jim MacLachlan, Dillon Consulting Limited to Greg Washuta, Senior Waste Engineer, Ministry of the Environment.

38. Electronic mail sent September 6, 2006 from Tim Kozlof, Landfill Manager, Ridge Landfill to Ranjani Munasinghe, Senior Waste Engineer, Ministry of the Environment.

39. Document entitled "*Landfill Gas Management System Ridge Landfill Specifications"* dated February 2008, prepared by Dillon Consulting Limited and SCS Engineers PC.

40. Drawing number 1 entitled "*2008 LFG System Plan"* dated February 5, 2008, prepared by Dillon Consulting Limited and SCS Engineers PC.

41. Drawing number 2 entitled "*LFG Header Plan and Profile Stn. 1+0-50 to 1+400"* dated February 5, 2008, prepared by Dillon Consulting Limited and SCS Engineers PC.

42. Drawing number 3 entitled "*LFG Header Plan and Profile Stn. 1+400 to 1+750"* dated February 5, 2008, prepared by Dillon Consulting Limited and SCS Engineers PC.

43. Drawing number 4 entitled "*LFG Header Plan and Profile Stn. 3+000 to 3+350"* dated February 5, 2008, prepared by Dillon Consulting Limited and SCS Engineers PC.

44. Drawing number 5 entitled "*LFG Header Plan and Profile Stn. 3+350 to 3+700"* dated February 5, 2008, prepared by Dillon Consulting Limited and SCS Engineers PC.

45. Drawing number 6 entitled "*LFG Header Plan and Profile Stn. 5+000 to 5+075"* dated February 5, 2008, prepared by Dillon Consulting Limited and SCS Engineers PC.

46. Drawing number 7 entitled "*Blower and Flare System Plan"* dated February 5, 2008, prepared by Dillon Consulting Limited and SCS Engineers PC.

47. Drawing number 8 entitled "*LFG System Final Build-Out"* dated February 5, 2008, prepared by Dillon Consulting Limited and SCS Engineers PC.

48. Drawing number 13 entitled "*Piping Details 1"* dated February 5, 2008, prepared by Dillon Consulting Limited and SCS Engineers PC.

49. Drawing number 14 entitled "*Piping Details 2"* dated February 5, 2008, prepared by Dillon Consulting Limited and SCS Engineers PC.

50. Drawing number 15 entitled "*Piping Details 3"* dated February 5, 2008, prepared by Dillon Consulting Limited and SCS Engineers PC.

51. Drawing number 16 entitled "*Piping Details 4"* dated February 5, 2008, prepared by Dillon Consulting Limited and SCS Engineers PC.

52. Letter dated April 16, 2008 from Greg Washuta, Senior Waste Engineer, Waste Unit, EAAB, MOE to Tim Kozlof, Landfill Manger, Ridge (Chatham) Holdings LP.

53. Letter dated April 29, 2008 from James R. MacLachlan, Project Manager, Dillon Consulting Limited to Greg Washuta, Senior Waste Engineer, EAAB, MOE.

54. Article entitled "*Vertical Landfill Gas Extraction Wells - The SCS Model"* by Darrin D. Dillah, PhD, Balwinder S. Panesar, PhD and Gregory P. McCarron, PE, SCS Engineers.

55. Letter dated March 22, 2010 and attached specifications from Fabiano Gondim, Project Manager, Dillon Consulting Limited to Mr. Tes Gebrezghi, Supervisor-Waste Unit, Environmental Assessment and Approvals Branch, Ministry of the Environment.

56. Letter dated June 18, 2010 from Greg Washuta, Senior Waste Engineer, Waste Unit, Environmental Assessment and Approvals Branch, Ministry of the Environment to Mr. Howard Goldby, Vice President, Ridge (Chatham) Holdings L.P..

57. Drawing number GP-1 entitled "General Plan of Contract 6 Works" stamped and signed on June 22, 2010 created by Dillon Consulting.

58. Drawing number C-1 entitled "Cell 3B Base Elevations" stamped and signed on June 22, 2010 created by Dillon Consulting.

59. Drawing number C-2 entitled "Cell 3B Leachate Collection System" stamped and signed on June 22, 2010 created by Dillon Consulting.

60. Drawing number C-3 entitled "Cell 3B Top of Leachate Collection System Elevations" stamped and signed on June 22, 2010 created by Dillon Consulting.

61. Drawing number C-4 entitled "Leachate Collection Details" stamped and signed on June 22, 2010 created by Dillon Consulting.

62. Letter dated June 23, 2010 from Fabiano Gondim, Project Manager, Dillon Consulting Limited to Greg Washuta, Senior Waste Engineer, Waste Unit, Environmental Assessment and Approvals Branch, Ministry of the Environment.

63. E-mail correspondence dated June 30, 2010 from Fabiano Gondim, Project Manager, Dillon Consulting Limited to Greg Washuta, Senior Waste Engineer, Waste Unit, Environmental Assessment and Approvals Branch, Ministry of the Environment.

64. Letter dated July 5, 2010 and attached draft Certificate of Approval from Greg Washuta, Senior Waste Engineer, Waste Unit, Environmental Assessment and Approvals Branch, Ministry of the Environment to Mr. Howard Goldby, Vice President, Ridge (Chatham) Holdings L.P..

65. E-mail correspondence dated July 6, 2010 from Fabiano Gondim, Project Manager, Dillon Consulting

Limited to Greg Washuta, Senior Waste Engineer, Waste Unit, Environmental Assessment and Approvals Branch, Ministry of the Environment.

66. Letter and attachments 1 to 5 inclusive dated June 14, 2010 from Howard Goldby to Mr. Tesfaye Gebrezghi, Director, Section 39, Environmental Protection Act, Ministry of the Environment.

67. Document entitled "Request for Amendment, Certificate of Approval A021601; Ridge (Chatham) Holdings L.P. Municipality of Chatham-Kent, ON Combination of Daily and Annual Quantities of Waste and Waste Used for Alternative Daily Cover" prepared by BFI Canada, dated June 10, 2010.

68. Letter and attached specifications dated August 25, 2010 from Fabiano Gondim, Dillon Consulting Limited to Mr. Tes Gebrezghi, Supervisor, Waste Unit, MOE.

69. Letter dated October 28, 2010 from Greg Washuta, Senior Waste Engineer, Waste Unit, Ministry of the Environment to Mr. Brian Forrestal, BFI Canada Inc..

70. Letter dated November 4, 2010 from Fabiano Gondim, Dillon Consulting Limited to Greg Washuta, Senior Waste Engineer, Waste Unit, Ministry of the Environment.

71. Drawing 1 entitled "2010 LFG Collection System Expansion" created by SCS Engineers, signed and stamped on August 23, 2010.

72. Drawing 2 entitled "2010 LFG Collection System Expansion Details" created by SCS Engineers, signed and stamped on August 23, 2010.

73. Letter report and attachment 1 dated April 29, 2009 prepared by Howard Goldby, BFI Canada Inc., to the Director, Section 39, Environmental Protection Act, Ministry of the Environment.

74. Letter dated January 20, 2010 from Greg Washuta, Senior Waste Engineer, Environmental Assessment and Approvals Branch, Ministry of the Environment to Howard Goldby, Vice President, Engineering and Compliance, BFI Canada Inc..

75. Letter dated February 22, 2010 from Howard Goldby, Vice President, Engineering and Compliance, BFI Canada Inc. to Greg Washuta, Senior Waste Engineer, Environmental Assessment and Approvals Branch, Ministry of the Environment.

76. Letter dated January 31, 2011 from Greg Washuta, Senior Waste Engineer, Environmental Assessment and Approvals Branch, Ministry of the Environment to Howard Goldby, Vice President, Engineering and Compliance, BFI Canada Inc.

77. Application for a Provisional Certificate of Approval for a Waste Disposal Site and supporting documentation submitted by BFI Canada Inc. dated December 16, 2011 and signed by Mr. Brian Forrestal requesting an amendment to permit the use of an alternative leachate collection layer design for the remainder of the site. The supporting documentation included the following:

i. Cover letter dated December 16, 2010 prepared by BFI and signed by Mr. Brian Forrestal; and
ii. Report entitled "Ridge Landfill - Leachate Collection System Amendment" prepared by Dillon Consulting and dated November 2010

78. Letter dated March 28, 2011 addressed to Mr. Brian Forrestal, BFI Canada Inc. from Mr. Dale Gable, Ministry of the Environment requesting additional information on the proposed alternative design.

79. Letter dated April 11, 2011 addressed to Mr. Dale Gable, Ministry of the Environment from Mr. Fabiano Gondim, Dillon Consulting providing additional information on the alternative leachate collection system layer. Information included the following drawings:

i. Drawing No. 0.3 entitled "Ridge Landfill Expansion - Base Contours" prepared by Dillon Consulting (Project No. 94-2494-03) and dated April 8, 2011.
ii. Figure No. 5 entitled "Ridge Landfill - LCS Design Optimization - Base Leachate Collection Drainage Layer Cross Section for Approved and Proposed Design" prepared by Dillon Consulting (Project No. 10-3077) dated April 2011.
iii. Drawing No. 0.4 entitled "Ridge Landfill Expansion - Final Contours - Rev. 1" prepared by Dillon Consulting (Project No. 94-2494-03) and dated April 8, 2011

80. Letter Report dated March 11, 2011 and supporting documentation addressed to Mr. Tes Gebrezghi, Ministry of the Environment from Mr. Fabiano Gondim, Dillon Consulting requesting approval for the detailed design drawings for Cell 3B East Leachate Collection System. The supporting documentation included the following:

i. Drawing No. GP-1 entitled "Ridge Landfill Expansion - General Plan of Contract 7 Works" prepared by Dillon Consulting (Project No. 11-4417) dated March 9, 2011;
ii. Drawing No. GP-1 entitled "Ridge Landfill Expansion - General Plan of Contract 7 Works" prepared by Dillon Consulting (Project No. 11-4417) dated March 9, 2011;
iii. Drawing No. R-2 entitled "Ridge Landfill Expansion - Typical Section" prepared by Dillon Consulting (Project No. 11-4417) dated March 9, 2011;
iv. Drawing No. C-1 entitled "Ridge Landfill Expansion - Cell 3B East Base Elevations" prepared by Dillon Consulting (Project No. 11-4417) dated March 9, 2011;
v. Drawing No. C-6 entitled "Ridge Landfill Expansion - Leachate Collection Details" prepared by Dillon Consulting (Project No. 11-4417) dated March 9, 2011;
vi. Drawing No. C-7 entitled "Ridge Landfill Expansion - Cell 3B East Pump House 4 - Structural" prepared by Dillon Consulting (Project No. 11-4417) dated February 25, 2011;
vii. Drawing No. M-1 entitled "Ridge Landfill Expansion - Pumphouse 4 - Mechanical" prepared by Dillon Consulting (Project No. 11-4417) dated March 9, 2011;
viii. Drawing No. E-1 entitled "Ridge Landfill Expansion - Pump House 4 - Electrical" prepared by Dillon Consulting (Project No. 11-4417) dated March 8, 2011; and
ix. Drawing No. SS-1 entitled "Ridge Landfill Expansion - Electrical Site Plan" prepared by Dillon Consulting (Project No. 11-4417) dated February 25, 2011.

81. Letter dated April 19, 2011 addressed to Mr. Brian Forrestal, BFI Canada Inc. from Mr. Dale Gable,

Ministry of the Environment requesting additional information pertaining to the detailed design drawings for the Cell 3B Leachate Collection System.

82. Letter dated April 26, 2011 addressed to Mr. Dale Gable, Ministry of the Environment from Mr. Fabiano Gondim, Dillon Consulting providing additional information and updated drawings for the detailed design of Cell 3B Leachate Collection System. The drawing include:

    i. Cover Sheet - Ridge Landfill Expansion Contract 7 Cell 3B East prepared by Dillon Consulting (Project No. 11-4417) dated February 2011;
    ii. Drawing No. R-1 entitled "Ridge Landfill Expansion - Main Access Road and Forcemain" prepared by Dillon Consulting (Project No. 11-4417) dated April 25, 2011;
    iii. Drawing No. R-1 entitled "Ridge Landfill Expansion - Main Access Road and Forcemain" prepared by Dillon Consulting (Project No. 11-4417) dated April 25, 2011;
    iv. Drawing No. C-2 entitled "Ridge Landfill Expansion - Leachate Collection System and Side Slope Liner" prepared by Dillon Consulting (Project No. 11-4417) dated April 25, 2011;
    v. Drawing No. C-3 entitled "Ridge Landfill Expansion - Top of Leachate Collection System Elevations" prepared by Dillon Consulting (Project No. 11-4417) dated April 25, 2011;
    vi. Drawing No. C-4 entitled "Ridge Landfill Expansion - Leachate Collection Details" prepared by Dillon Consulting (Project No. 11-4417) dated April 25, 2011;
    vii. Drawing No. C-5 entitled "Ridge Landfill Expansion - Cell 3B East Leacahte Collection Details" prepared by Dillon Consulting (Project No. 11-4417) dated April 25, 2011;

83. Letter dated June 2, 2011 and supporting documentation addressed to Mr. Tes Gebrezghi, Supervisor - Waste Unit, Ministry of the Environment from Mr. Fabiano Gondim, Dillon Consulting requesting approval for a proposed expansion to the Ridge Landfill Site gas collection system. The supporting documentation included design drawings and quality control and quality assurance documents. The design drawings included the following:

    i. Drawing No. 1 entitled "2011 LFG System Expansion Ridge Landfill, Blenheim, Ontario - LFG System Plan" prepared by Dillon Consulting and dated June 2, 2011;

    ii. Drawing No. 2 entitled "2011 LFG System Expansion Ridge Landfill, Blenheim, Ontario - Piping Details" prepared by Dillon Consulting and dated June 2, 2011;

84. Email dated July 20, 2011 at 07:56 AM sent to Mr. Brian Forrestal, BFI Canada Inc. from Mr. Dale Gable, Ministry of the Environment that discussed pipe sizing connecting the leachate clean-outs and the lateral pipe.

85. Letter dated January 24, 2012 addressed to the Environmental Approvals Access and Service Integration Branch from Mr. Brian Forrestal, BFI Canada Inc. submitting an ECA application and supporting documentation requesting the daily and annual volume capacities be increased. The supporting documentation includes the following:

    a. Environmental Compliance Application form signed by Mr. Brian Forrestal dated

January 24, 2012;

b. Proof of Legal Name;
c. Statement of Completion - Waste Management Projects signed by Mr. Tim Kozlof dated January 11, 2012;
d. Decision Letter to Elevation Request dated December 13, 2011 addressed to Mr. Tim Kozlof, BFI Canada Inc. from Ms. Agatha Garcia-Wright, Environmental Approvals Branch;
e. Report entitled "Ridge Landfill - Monitoring Plan for Particulates and Volatile Organic Compounds" prepared by Dillon Consulting Ltd and dated March 2012; and
f. Report entitled "Ridge Landfill -Dust, Odour and Air Emissions Management Plan" prepared by Dillon Consulting and dated February 2012.

86. Letter dated February 24, 2012 addressed to Mr. Brian Forrestal, BFI Canada Inc. from Mr. Dale Gable, Ministry of the Environment providing comments on the Monitoring Plan for Particulates and Volatile Organic Compounds and the Dust, Odour and Air Emissions Management Plan.

87. Letter dated March 8, 2012 addressed to Mr. Brian Forrestal, BFI Canada Inc. from Mr. Dale Gable, Ministry of the Environment providing comments on the Monitoring Plan for Particulates and Volatile Organic Compounds and the Dust, Odour and Air Emissions Management Plan. The comments pertained to the number of samples, the location of the samplers and the need for a training plan.

88. Letter dated May 31, 2012 and supporting documentation addressed to Ontario Ministry of the Environment, Environmental Assessment and Approvals Branch from Fabiano Gondim, Dillon Consulting regarding Ridge Landfill, Certificate of Approval No. A021601 Detailed Design for the Expansion of the Landfill Gas System. The supporting documentation includes Specifications for the proposed works and the following design drawings:

(a) Drawing No. GA-1 "LFG System Expansion, LFG System Plan" dated May 30, 2012 prepared by Dillon Consulting;

(b) Drawing No. GA-2 "LFG System Expansion, Piping Details" dated May 30, 2012 and revised on October 16, 2012 prepared by Dillon Consulting.

89. Letter dated October 2, 2012 addressed to Brian Forrestal, BFI Canada Inc, from Rick Li, Ministry of the Environment providing comments on the submitted detailed design (Item 88).

90. Letter dated October 3, 2012 addressed to Rick Li, Ministry of the Environment from Fabiano Gondim, Dillon Consulting providing a response to the ministry's October 2, 2012 letter.

91. Letter dated October 12, 2012 addressed to Rick Li, Ministry of the Environment from Fabiano Gondim, Dillon Consulting providing a response to the ministry's additional comments on the depth of gas extraction wells, depth of header pipe, and the wells installation schedule.

92. Email dated October 16, 2012 to Rick Li, Ministry of the Environment from Fabiano Gondim, Dillon Consulting regarding the revised Drawing No. GA-2.

93. Letter dated January 7, 2013 and supporting documentation addressed to Environmental Assessment and Approvals Branch, Ministry of the Environment from Fabiano Gondim, Dillon Consulting regarding Ridge Landfill, Environmental Compliance Approval No. A021601 Detailed Design of Cells 4A and 4B Leachate Collection System. The supporting documentation includes the following:

    i. Environmental Compliance Application form signed by Mr. Brian Forrestal dated January 7, 2013;

    ii. Specifications for Cells 4A and 4B Leachate Collection System;

    iii. Detailed design drawings for Cells 4A and 4B Leacahte Collection System prepared by Dillon Consulting:

        a. Drawing No. GP-1 General Plan of Contract 8/9 Works dated November 13, 2012;
        b. Drawing No. C-1 Cells 4A & 4B Base Excavation Plan dated April 18, 2013;
        c. Drawing No. C-2 Leachate Collection System and Side Slope Liner dated April 18, 2013;
        d. Drawing No. C-3 Top of Leachate Collection System Elevations dated November 23, 2012;
        e. Drawing No. C-4 Leachate Collection Details dated April 11, 2013; and
        f. Drawing No. C-5 Leachate Collection Details Perimeter Road Interface dated April 18, 2013.

94. Letter dated April 8, 2013 addressed to Rick Li, Ministry of the Environment from Fabiano Gondim, Dillon Consulting providing a response to the ministry's review comments on the detailed design for Cells 4A and 4B Leachate Collection System.

95. Email and the attachments dated April 17, 2013 to Rick Li, Ministry of the Environment from Fabiano Gondim, Dillon Consulting providing additional information regarding leachate pipe cleanouts and revisions to the detailed design drawings for Cells 4A and 4B Leachate Collection System.

96. Environment Compliance Approval Application and the attached supporting documents regarding the Detailed Design for the Expansion of the Landfill Gas Collection System dated signed by Brian Forrestal dated June 23, 2015.

97. Letter dated November 10, 2015 addressed to Rick Li, Ministry of the Environment and Climate Change from Fabiano Gondim, Dillon Consulting providing a response to the Ministry's comments on the detailed design for landfill gas expansion.

98. Letter dated November 24, 2015 addressed to Rick Li, Ministry of the Environment and Climate Change from Fabiano Gondim, Dillon Consulting regarding response to the Ministry's comments and the updated detailed design drawings for the landfill gas expansion.

99. Environmental Compliance Approval Application for Ridge Landfill - Detailed Design of the South Landfill Leachate Collection System signed by Brian Forrestal dated April 6, 2016. The supporting documents includes the detailed design drawing set for the South Landfill leachate collection system, and the specifications prepared by Dillon Consulting dated April 2016.

100. Application for Amendment to the Environmental Compliance Approval No. A021601, for approval of the detailed design of landfill gas collection system on the South Mound of the Ridge Landfill, signed by Chris Visser dated December 18, 2018. The supporting documents include the detailed design drawing set for the landfill gas collection system expansion in the South Mound, and the specifications prepared by Golder Associates Ltd.

101. Environmental Compliance Approval Application signed by Brian Forrestal, Waste Connections of Canada Inc. dated September 6, 2019, seeking emergency approval for temporary increase of the annual disposal rate for 2019.

102 Application for Amendment to the Environmental Compliance Approval No. A021601 - Detailed Design of the Infill Area submitted by Golder Associates Ltd. dated July 2019.

103 Letter of December 4, 2019 to Rick Li, Ministry of the Environment, Conservation and Parks from Fabiano Gondim, Golder Associates Ltd. Regarding Response to Comments on the Application for Approval of the Detailed Design of the Infill Area (Cell 8).

104. Email dated December 13, 2019 from Rick Li, Ministry of the Environment, Conservation and Parks to Fabiano Gondim, Golder Associates Ltd./Brian Forrestal, Waste Connections Re: Ridge Landfill Infill Area Detailed Design.

105. Environmental Compliance Approval Amendment Application for the Ridge Landfill Expansion - Waste dated April 2020 submitted by Golder Associates Ltd., including the appendices.

106. Letter dated October 28, 2020 to Rick Li, Ministry of the Environment, Conservation and Parks from Golder Associates Ltd., Re: Application for Approval of Waste Disposal Site Amendment to ECA No. A021601 Ridge Landfill, Municipality of Chatham-Kent, Reference No. 1987-BP6KJC, Response to Letter Dated October 16, 2020.

The reasons for the imposition of these terms and conditions are as follows:

1. *The reason for Condition 1.1 and 1.2 is to ensure that the Site is designed, operated, monitored and maintained in accordance with the application and supporting documentation submitted by the Owner, and not in a manner which the Director has not been asked to consider.*

2. *The reason for Conditions 1.3, 1. 4. 1. 5, 1.9, 1.10, 1.11, 1.12, 1.13, 3.1, 3.2, 3.3, 3.4, 3.5, and 3.6 is to clarify the legal rights and responsibilities of the Owner under this*

Environmental Compliance Approval.

3. *Conditions 1.6, 1.7 and 1.8 are included to ensure that the appropriate Ministry staff have ready access to information and the operations of the Site, which are approved under this Approval.*

4. *Conditions 1.14 and 1.15 are included, pursuant to subsection 197(1) of the EPA, to provide that any persons having an interest in the Site are aware that the land has been approved and used for the purposes of waste disposal.*

5. *The reasons for Condition 1.16 are to restrict potential transfer or encumbrance of the Site without the approval of the Director and to ensure that any transfer of encumbrance can be made only on the basis that it will not endanger compliance with this Approval.*

6. *The reasons for Condition 1.17 and 1.18 are to ensure that the Site is operated under the corporate name which appears on the application form submitted for this approval and to ensure that the Director is informed of any changes.*

7. *The reason for Condition 1.19 is to ensure that appropriate Ministry staff have ready access to the Site for inspection of facilities, equipment, practices and operations required by the conditions in this Approval. This condition is supplementary to the powers of entry afforded a Provincial Officer pursuant to the EPA and OWRA.*

8. *The reason for Condition 1.20 is to ensure the Approval No. is identified in any correspondence.*

9. *The reasons for Conditions 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, and 2.7 are to ensure that sufficient funds are available to the Ministry to close the landfill, and to carry out all expected post-closure care activities and any contingencies. Failure to include requirements for financial assurance would not be in the public interest and may result in a hazard or nuisance to the natural environment or any person.*

10. *The reason for Condition 3.7 is to ensure the availability of as-built drawings for inspection and information purposes.*

11. *The reasons for Condition 4.1, 4.2, 4.3, 4.12, 4.13, 4.15 and 4.26 are to ensure the Owner operates the site in an environmentally safe manner. This to is ensure the environment and public health are protected.*

12. *The reason for Condition 4.3 is to identify the service area for the Site.*

13. *The reasons for Conditions 4.4, 4.5, 4.6, 4.7, 4.8 and 4.9 is to specify the approved areas from which waste may be accepted at the Site and the types and amounts of waste that may be accepted for disposal at the Site, based on the Owner's application and*

supporting documentation.

14. *The reasons for Condition 4.10 are to specify the normal hours of operation for the landfill Site and a mechanism for amendment of the hours of operation.*

15. *The reasons for Condition 4.11 are to specify site access to/from the Site and to ensure the controlled access and integrity of the Site by preventing unauthorized access when the Site is closed and no site attendant is on duty.*

16. *The reason for Condition No. 4.14 is to ensure the Owner is aware that burning of waste is not permitted at the Site.*

17. *The reason for Condition 4.16 is to define the noise limits within which the Site must operate and to require the Owner to minimize the noise impacts during the operating activities at the Site.*

18. *The reason for Condition 4.17, 4.18 and 4.19 is to minimize the noise impacts along the haul route to the Site. This is to ensure the protection of the environment and public health.*

19. *The reason for Condition 4.20 is to ensure that the mitigative measures required to minimize the noise impacts are constructed in a timely manner and in accordance with the proposed design approved by the Director.*

20. *The reason for Condition 4.21 and 4.20 is to minimize the dust impacts during the operating activities at the Site. This is to ensure the protection of the environment and public health.*

21. *The reason for Condition 4.23 is to ensure that the proposed landscaping plan is acceptable to the Ministry and to the affected public, to minimize the visual impact from the operations at the Site.*

22. *The reason for Condition 4.24 is to ensure that the proposed bird control program is effective and acceptable to the Ministry.*

23. *The reason for Condition 4.25 is to ensure the proposed litter control plan is incorporated into the Approval.*

24. *The reason for Condition 5.1, 5.2, 5.3, 5.4, 5.5 and 5.6 is to ensure that landfilling operations are conducted in an environmentally acceptable manner. Daily and intermediate cover is used to control potential nuisance effects, to facilitate vehicle access on the site, and to ensure an acceptable site appearance is maintained. The proper closure of a landfill site requires the application of a final cover which is aesthetically pleasing, controls infiltration, and is suitable for the end use planned for*

the site.

25. *The reasons for Conditions 5.7, 5.8, and 5.9 are to ensure proper operation of the leachate collection system. This is to ensure the protection of the environment and public health.*

26. *The reason for Condition 5.10 is to ensure that there is adequate on-site storage capacity for leachate management.*

27. *The reason for Condition 5.11 is to ensure the proper operation of the wood waste processing processing facility. This is to ensure the protection of the environment and public health.*

28. *The reason for Conditions 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8 and 6.9 are to approve the major works based on the submitted information. This is to ensure the protection of the environment and public health.*

29. *The reason for Condition 6.10 is to ensure any leachate spill is promptly mitigated to prevent impact on surface water.*

30. *The reason for Condition 7.1 is to ensure that the future ancillary waste management activities at the Site are approved in compliance with the requirements specified by the EPA and other relevant legislation.*

31. *The reasons for Conditions 8.1, 8.2 8.3, 8.4, 8.5, 8.6, 8.7, 8.8, 8.9, 8.10, 8.11 and 11.1 are to provide for the proper assessment of effectiveness and efficiency of site design and operation, their effect or relationship to any nuisance or environmental impacts, and the occurrence of any public complaints or concerns. Record keeping is necessary to determine compliance with this Environmental Compliance Approval, the EPA and its regulations*

32. *The reasons for Condition 9.1, 9.2, 9.3, 9.4 and 9.5 are to ensure protection of the natural environment and the integrity of the groundwater monitoring network.*

33. *The reason for Condition 9.6 is to demonstrate that the landfill site is performing as designed and the impacts on the natural environment are acceptable. Regular monitoring allows for the analysis of trends over time and ensures that there is an early warning of potential problems so that any necessary remedial/contingency action can be taken.*

34. *The reason for Condition 9.8 is to ensure the Owner conducts monitoring for particulates and volatile organic compounds as per the submitted monitoring plan. This is to ensure the environment and human health are protected.*

35. *The reason for Conditions 10.1, 10.2, 10.3 and 10.4 is to ensure that the Owner follows*

a plan with an organized set of procedures for identifying and responding to unexpected but possible problems at the Site. A remedial action / contingency plan is necessary to ensure protection of the natural environment.

36. *The reason for Condition 11.1 is to ensure their is a forum for the exchange of information and public dialogue on activities carried out at the landfill Site. Open communication with the public and local authorities is important in helping to maintain high standards for site operation and environmental protection.*

37. *The reasons for Condition 12.1 is to ensure that the Ministry is informed of any spills or fires at the Site and to provide public health and safety and environmental protection.*

38. *The reasons for Condition 13.1 is to ensure that regular review of site development, operations and monitoring data is documented and any possible improvements to site design, operations or monitoring programs are identified. An annual report is an important tool used in reviewing site activities and for determining the effectiveness of site design.*

39. *The reasons for Condition 14.1 is to ensure that final closure of the Site is completed in accordance with ministry requirements, an aesthetically pleasing manner and to ensure the long-term protection of the natural environment.*

40. *The reason for Condition 15.1 and 15.2 is to ensure the Owner has a training plan for the Site that is readily accessible to the Owner and the Ministry.*

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). A021601 issued on December 20, 2019

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

a. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;
5. The name of the Director, and;
6. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of Part II.1 of the Environmental Protection Act
Ministry of the Environment, Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 2nd day of December, 2020

Mohsen Keyvani, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

RL/
c: Area Manager, MECP Windsor
c: District Manager, MECP Sarnia
Fabiano Gondim, Golder Associates Ltd.

Ontario

Ministry of the Environment, Conservation and Parks
Ministère de l'Environnement, de la Protection de la nature et des Parcs

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 1800-BULJRQ
Issue Date: December 1, 2020

Ridge (Chatham) Holdings G.P. Inc. as a general partner
for and on behalf of Ridge (Chatham) Holdings, L.P.
20262 Erieau Road, Chatham-Kent,
Ontario, N0P 1A0

Site Location: 20262 Erieau Road
Lot 13-16, Concession 4
Municipality of Chatham-Kent,
Ontario, N0P 1A0

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

expansion of the stormwater management works at the above location to service the Ridge Landfill Site (as defined in the Environmental Compliance approval A 021601) from existing 262 ha. to 340 ha. for the treatment and disposal of stormwater run-off to provide Enhanced Level water quality protection discharging to municipal drains, and to attenuate post-development peak flows to pre-development levels for all storm events up to and including the Regional Storm, consisting of the following:

PROPOSED WORKS

Stormwater Management Pond 1

- expansion of an existing wet detention pond to service 14.8 ha with 2,853 m^3 permanent pool volume, and 2,493 m^3 extended detention volume to be released over a 48 hour period for quality and erosion control through a 9 m long 300 mm diameter pipe with perforations along 5 m surrounded by a clear stone jacket and 18,156 m^3 additional attenuation volume to be discharged through a 500 mm diameter pipe for peak flow control, together with an 1000 mm diameter emergency overflow pipe into the existing Duke Drain;

Stormwater Management Pond 2

- expansion of an existing wet detention pond to service 12.5 ha catchment area with 2310 m^3 permanent pool volume, and 1359 m^3 extended detention volume to be released over a 48 hour period for quality and erosion control through a 10 m long 300 mm diameter pipe with perforations along 5 m surrounded by a clear stone jacket and 13,805 m^3 additional attenuation volume to be discharged through a 500 mm diameter pipe for peak flow control, together with a 10 m wide emergency overflow weir structure into the existing Duke Drain;

Stormwater Management Pond 4

- expansion of an existing wet detention pond to service 37.5 ha catchment area with 6651 m^3 permanent pool volume, a 6876 m^3 extended detention volume to be released over a 48 hour period for quality and erosion control through an 10 m long 450 mm diameter pipe with perforations along 5 m surrounded by a clear stone jacket and 45,243 m^3 additional attenuation volume to be discharged through a 500 mm diameter pipe for peak flow control, together with a 20 m wide emergency overflow weir structure into the existing Howard Drain;

Stormwater Management Pond 5

- expansion of an existing wet detention pond and a dry pond cell to service 68.2 ha catchment area with 7134 m^3 permanent pool volume, a 9850 m^3 extended detention volume to be released over a 48 hour period for quality and erosion control through two (2) 10 m long 450 mm diameter pipe with perforations along 5 m surrounded by a clear stone jacket and 86,345 m^3 additional attenuation volume to be discharged through a 600 mm diameter pipe for peak flow control, together with a 25 m wide emergency overflow weir structure into the existing Howard Drain;

Stormwater Management Pond 6

- construction of a wet detention pond to service 27.5 ha catchment area with 7060 m^3 permanent pool volume, a 5924 m^3 extended detention volume to be released over a 48 hour period for quality and erosion control through a 9 m long 450 mm diameter pipe with perforations along 5 m surrounded by a clear stone jacket and 33,920 m^3 additional attenuation volume to be discharged through a 600 mm diameter pipe for peak flow control, together with a 25 m wide emergency overflow weir structure into the existing Duke Drain;

Stormwater Management Pond 7

- construction of a wet detention pond and a dry pond cell to service 75.9 ha catchment area with 18,619 m^3 permanent pool volume, a 15324 m^3 extended detention volume to be released over a 48 hour period for quality and erosion control through two (2) 8 m long 450 mm diameter pipe with perforations along 5 m surrounded by a clear stone jacket and 92,566 m^3 additional attenuation volume to be discharged

through a 750 mm diameter pipes for peak flow control, together with a 25 m wide emergency overflow weir structure into the existing Howard Drain;

Flood Control Facility

- expansion of the existing flood control facility located externally along the northern portion of the site to provide storage volume of 465,000 cu.m. over an area of 20 ha. with a depth of 2.4 m to discharge via an open channel into the existing Howard Drain ;

Howard Drain Relocation

- construction of 1600 m long new channel by replacing 1330 m of existing drain with 10 m bottom width and a minimum depth of 2 m;

Previous Works to deleted and pond area to be filled:

- Stormwater Management Pond 3 having 2,600 m^3 permanent pool volume and 2,710 m^3 extended detention volume to be filled up to make space for service area expansion;

including all erosion/sedimentation control measures during construction, pond effluent sampling and monitoring and all other controls and appurtenances essential for the proper operation of the aforementioned Works;

all in accordance with the submitted supporting documents listed in **Schedule A**

For the purpose of this environmental compliance approval, the following definitions apply:

1. "Approval" means this entire document and any schedules attached to it, and the application;

2. "District Manager" means the District Manager of the Sarnia District Office of the Ministry;

3. "Director" means a person appointed by the Minister pursuant to section 5 of the EPA for the purposes of Part II.1 of the EPA;

4. "EPA" means the *Environmental Protection Act* , R.S.O. 1990, c.E.19, as amended;

5. "Ministry" means the ministry of the government of Ontario responsible for the EPA and OWRA and includes all officials, employees or other persons acting on its behalf;

6. "Owner" means Ridge (Chatham) Holdings G.P. Inc. as a general partner for and on behalf of Ridge (Chatham) Holdings, L.P. and its successors and assignees;

7. "Previous Works" means those portions of the sewage works previously constructed and approved under an

Approval;

8. "Proposed Works" means the sewage works described in the Owner's application, this Approval, to the extent approved by this Approval;

9. "Works" means the sewage works described in the Owner's application, and this Approval, and includes both Proposed Works and previous / existing Works.

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. GENERAL PROVISIONS

1. The Owner shall ensure that any person authorized to carry out work on or operate any aspect of the Works is notified of this Approval and the conditions herein and shall take all reasonable measures to ensure any such person complies with the same.

2. Except as otherwise provided by these conditions, the Owner shall design, build, install, operate and maintain the Works in accordance with the description given in this Approval, and the application for approval of the Works.

3. Where there is a conflict between a provision of any document in the schedule referred to in this Approval and the conditions of this Approval, the Conditions in this Approval shall take precedence, and where there is a conflict between the documents in the schedule, the document bearing the most recent date shall prevail.

4. Where there is a conflict between the documents listed in the Schedule submitted documents, and the application, the application shall take precedence unless it is clear that the purpose of the document was to amend the application.

5. The Conditions of this Approval are severable. If any Condition of this Approval, or the application of any requirement of this Approval to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this Approval shall not be affected thereby.

2. EXPIRY OF APPROVAL

1. The approval issued by this Approval will cease to apply to those parts of the Works which have not been constructed within five (5) years of the date of this Approval.

1. CHANGE OF OWNER

1. The Owner shall notify the District Manager and the Director,in writing, of any of the following changes within thirty (30) days of the change occurring:

    a. change of Owner;

    b. change of address of the Owner;

    c. change of partners where the Owner is or at any time becomes a partnership, and a copy of the most recent declaration filed under the *Business Names Act* , R.S.O. 1990, c.B17 shall be included in the notification to the District Manager; and

    d. change of name of the corporation where the Owner is or at any time becomes a corporation, and a copy of the most current information filed under the *Corporations Information Act* , R.S.O. 1990, c. C39 shall be included in the notification to the District Manager.

2. OPERATION AND MAINTENANCE

1. The Owner shall ensure that the design minimum liquid retention volume(s) is maintained in the ponds at all times.

2. The Owner shall inspect the Works at least once a year and, if necessary, clean and maintain the Works to prevent the excessive build-up of sediments and/or vegetation.

3. The Owner shall maintain a logbook to record the results of these inspections and any cleaning and maintenance operations undertaken, and shall keep the logbook at the Ridge Landfill Office for inspection by the Ministry. The logbook shall include the following:

    a. the name of the Works;

    b. the date and results of each inspection, maintenance and cleaning, including an estimate of the quantity of any materials removed; and

    c. the date of each spill within the catchment area, including follow-up actions / remedial measures undertaken.

3. TEMPORARY EROSION AND SEDIMENT CONTROL

1. The Owner shall install and maintain temporary sediment and erosion control measures during construction and conduct inspections once every two (2) weeks and after each significant storm event (a significant storm event is defined as a minimum of 25 mm of rain in any 24 hours period). The inspections and maintenance of the temporary sediment and erosion control measures shall continue until they are no longer required and at which time they shall be removed and all disturbed areas

reinstated properly.

2. The Owner shall maintain records of inspections and maintenance which shall be made available for inspection by the Ministry, upon request. The record shall include the name of the inspector, date of inspection, and the remedial measures, if any, undertaken to maintain the temporary sediment and erosion control measures.

4. UPON THE SUBSTANTIAL COMPLETION OF THE WORKS

1. Upon the *Substantial Completion* of the *Proposed Works,* the Owner shall prepare a statement, certified by a Professional Engineer, that the works are constructed in accordance with this *Approval* , and upon request, shall make the written statement available for inspection by Ministry personnel.

2. Within six months of the *Substantial Completion* of the *Proposed Works,* a set of as-built drawings showing the *Works* "as constructed" shall be prepared. These drawings shall be kept up to date through revisions undertaken from time to time and a copy shall be retained at the *Works* for the operational life of the *Works* .

5. EFFLUENT OBJECTIVES

1. The Owner shall use best efforts to design, construct and operate the Works with the objective that the concentrations of the materials named in **Table 1 in Schedule B** as effluent parameters are not exceeded in the effluent from the Works.

2. The Owner shall use best efforts to:

    a. maintain the pH of the effluent from the Works within the range of *(6.5 to 9.5)* , inclusive, at all times;

    b. ensure that the effluent from the Works is essentially free of floating and settleable solids and does not contain oil or any other substance in amounts sufficient to create a visible film or sheen or foam or discolouration on the receiving waters.

6. MONITORING AND RECORDING

The Owner shall, upon commencement of operation of the Works, carry out the following monitoring program:

1. All samples and measurements taken for the purposes of this Approval are to be taken at a time and in a location characteristic of the quality and quantity of the effluent stream over the time period being monitored.

2. For the purposes of this condition, the following definitions apply:

a. Monthly means once every month;

b. Quarterly means once every three months;

c. Annually means once every twelve months; and

3. Samples shall be collected at the sampling point(s), at the sampling frequencies and using the sample type specified for each parameter listed in the **Effluent Monitoring Table 2** included in **Schedule B** .

4. The methods and protocols for sampling, analysis and recording shall conform, in order of precedence, to the methods and protocols specified in the following documents and all analysis shall be conducted by a laboratory accredited to the ISO/IEC:17025 standard or as directed by the District Manager:

   a. the Ministry's Procedure F-10-1, “Procedures for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Works (Liquid Waste Streams Only), as amended from time to time by more recently published editions;

   b. the Ministry's publication "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater" (**January 1, 2016, PIBS 2724e02**), as amended from time to time by more recently published editions;

   c. the publication "Standard Methods for the Examination of Water and Wastewater" (21st edition), as amended from time to time by more recently published editions;

   d. the Environment Canada publications "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout" (EPS 1/RM/13 Second Edition - December 2000) and "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna* " (EPS 1/RM/14 Second Edition - December 2000), as amended from time to time by more recently published editions; and

   e. for any parameters not mentioned in the documents referenced in (a) and (b), the written approval of the Director shall be obtained prior to sampling.

5. The temperature and pH of the effluent from the Works shall be determined in the field at the time of sampling for Total Ammonia Nitrogen. The concentration of un-ionized ammonia shall be calculated using the total ammonia concentration, pH and temperature using the methodology stipulated in "Ontario's Provincial Water Quality Objectives" dated July 1994, as amended, for ammonia (un-ionized).

6. The measurement frequencies specified in subsection (2) in respect to any parameter are minimum requirements which may, after (24) months of monitoring in accordance with this Condition, be modified by the Director in writing from time to time.

7. The Owner shall retain for a minimum of five (5) years from the date of their creation, all records and information related to or resulting from the monitoring activities required by this Approval.

7. REPORTING

1. One (1) week prior to the start up of the operation of the Proposed Works, the Owner shall notify the District Manager (in writing) of the pending start up date.

2. In addition to the obligations under Part X of the *Environmental Protection Act,* the Owner shall, within ten (10) working days of the occurrence of any reportable spill as defined in Ontario Regulation 675/98, bypass or loss of any product, by-product, intermediate product, oil, solvent, waste material or any other polluting substance into the environment, submit a full written report of the occurrence to the District Manager describing the cause and discovery of the spill or loss, clean-up and recovery measures taken, preventative measures to be taken and schedule of implementation.

3. The Owner shall, upon request, make all manuals, plans, records, data, procedures and supporting documentation available to Ministry staff.

4. The Owner shall continue to prepare and submit a performance report to the District Manager on an annual basis, by April 30th of each year. The first such report shall cover the first annual period following the commencement of operation of the Works and subsequent reports shall be submitted to cover successive annual periods following thereafter. The reports shall contain, but shall not be limited to, the following information:

    a. a summary and interpretation of all monitoring data and a comparison to the effluent objectives outlined in Condition 7, including an overview of the success and adequacy of the Works;

    b. a description of any operating problems encountered and corrective actions taken;

    c. a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the Works;

    d. a summary of any effluent quality assurance or control measures undertaken in the reporting period;

    e. a summary of the calibration and maintenance carried out on all effluent monitoring equipment;

    f. a description of efforts made and results achieved in meeting the Effluent Objectives of Condition 7.

    g. a summary of any complaints received during the reporting period and any steps taken to

address the complaints; and

h. any other information the District Manager requires from time to time.

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is imposed to ensure that the Works are built and operated in the manner in which they were described for review and upon which approval was granted. This condition is also included to emphasize the precedence of Conditions in the Approval and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review.

2. Condition 2 is included to ensure that the Works are constructed in a timely manner so that standards applicable at the time of Approval of the Works are still applicable at the time of construction, to ensure the ongoing protection of the environment

3. Condition 3 is included to ensure that the Ministry records are kept accurate and current with respect to approved works and to ensure that subsequent owners of the works are made aware of the Approval and continue to operate the works in compliance with it.

4. Condition 4 is included to require that the Works be properly operated and maintained such that the environment is protected .

5. Condition 5 is included as installation, regular inspection and maintenance of the temporary sediment and erosion control measures is required to mitigate the impact on the downstream receiving watercourse during construction until they are no longer required.

6. Condition 6 is included to ensure that the Works are operated in accordance with the application and supporting documentation submitted by the Owner, and not in a manner which the Director has not been asked to consider. These Conditions are also included to ensure that a Professional Engineer has reviewed the proposed modifications and attests that the modifications are in line with that of Limited Operational Flexibility, and provide assurance that the proposed modifications comply with the Ministry's requirements stipulated in the Terms and Conditions of this Approval, Ministry policies, guidelines, and industry engineering standards and best management practices.

7. Condition 7 is imposed to establish non-enforceable effluent quality objectives which the Owner is obligated to use best efforts to strive towards on an ongoing basis. These objectives are to be used as a mechanism to trigger corrective action proactively and voluntarily before environmental impairment occurs.

8. Condition 8 is included to enable the Owner to evaluate and demonstrate the performance of the Works, on a continual basis, so that the Works are properly operated and maintained at a level which is consistent with the design objectives specified in the Approval and that the Works does not cause any impairment to the receiving watercourse.

9. Condition 9 is included to provide a performance record for future references, to ensure that the Ministry is

made aware of problems as they arise, and to provide a compliance record for all the terms and conditions outlined in this Approval, so that the Ministry can work with the Owner in resolving any problems in a timely manner.

Schedule A

1. Application for Approval of Sewage Works dated March 10, 2020 and received on April 6, 2020 for the Stormwater Management Works to support Waste Connection of Canada Ridge Landfill Expansion including Ridge Landfill Expansion - Stormwater Management Design Brief including Engineering plans dated March 2020; and Technical Memorandum dated March 24, 2020; all by Golder Associates Ltd.;

2. Application for Approval of Sewage Works received on August 10, 1998 for Stormwater Management Ponds 4 and 5 including BFI Landfill Expansion Environmental Assessment, stormwater management system design calculations and engineering plans prepared by Dillon Consulting Limited;

3. Application for Environmental Compliance Approval received on November 19, 2012 for Stormwater Management Pond 3, including engineering plans prepared by Dillon Consulting Limited.

Schedule B

Table 1 - Effluent Objectives

Table 1 - Effluent Objectives	
Effluent Parameter	**Concentration Objective** (milligrams per litre unless otherwise indicated)
Phenols	0.005
Total Phosphorus	to be determined after 4 years monitoring data upon issuance of this approval.
Iron	6.8
Unionized Ammonia	0.02

Table 2 Effluent Monitoring

Sampling Location	1. Effluent from the Ponds 1, 2, and 6 discharged into the Duke Drain.	2. Effluent from the Ponds 4, 5 and 7 discharged into the Howard Drain.
Frequency	Once in the months of March, May, September and November	Once in the months of March, May, September and November
Sample Type	Grab	Grab
Parameters	Total Suspended Solids, Phenols, iron, Total Phosphorus, Total Ammonia Nitrogen, Nitrate and Nitrite Nitrogen.	Total Suspended Solids, Phenols, iron, Total Phosphorus, Total Ammonia Nitrogen, Nitrate and Nitrite Nitrogen.

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 3082-96EQPA issued on April 11, 2013.

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

a. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect

to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;
5. The name of the Director, and;
6. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of Part II.1 of the Environmental Protection Act
Ministry of the Environment, Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 1st day of December, 2020

Fariha Pannu.

Fariha Pannu, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

MN/
c: Area Manager, MECP Windsor
c: District Manager, MECP Sarnia
Fabiano Gondim, Golder Associates Ltd.

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 2395-BVDTGX
Issue Date: December 16, 2020

Ridge (Chatham) Holdings G.P. Inc. as a general partner for and on behalf of Ridge (Chatham) Holdings, L.P.
20262 Erieau Road
Chatham-Kent, Ontario
N0P 1A0

Site Location: 20262 Erieau Road
Lot Part of Lots 13-16, Concession 4
Municipality of Chatham-Kent

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

A landfill site consisting of the following processes and equipment:

- four (4) enclosed flares, each with a maximum landfill gas firing rate of 1.0 cubic metres per second, discharging through a stack with an exit diameter of 2.9 metres and a height of 11.6 metres above grade;
- one (1) enclosed flare, with a maximum landfill gas firing rate of 1.27 cubic metres per second, discharging through a stack with an exit diameter of 3.0 metres and a height of 12.2 metres above grade;
- concrete crushing operations;
- wood grinding operations;
- storage piles; and
- material handling operations;

all in accordance with the Environmental Compliance Approval Application submitted by Ridge (Chatham) Holdings G.P. Inc., as a general partner for and on behalf of Ridge (Chatham) Holdings, L.P., dated March 20, 2020 and signed by Cathy Smith; the supporting information, including the Emission Summary and Dispersion Modelling Report, prepared by Dillon Consulting Limited, dated March 16, 2020 and signed by Rob Morgan; the Acoustic Assessment Report prepared by Dillon Consulting Limited, dated March 17, 2020 and signed by Elham Alavi and Amir Iravani; and emails dated October 26,202, November 10, 2020 and December 11, 2020 from Fabiano Gondim of Golder Associates Ltd.

For the purpose of this environmental compliance approval, the following definitions apply:

1. "*Air Quality Monitoring Manual"* means the *Ministry* publication entitled "Operations Manual for Air Quality Monitoring in Ontario PIBS 6687e", dated March 2018, as amended;

2. *Approval"* means this Environmental Compliance Approval, including the application and supporting documentation listed above;

3. "*Best Management Practices Plan"* means the document titled "Best Management Practices Plan for Fugitive Dust and Odour Control", dated March 2020 and prepared by Dillon Consulting Limited, which describes measures to minimize dust emissions from the *Facility* and/or *Equipment;*

4. "*Best Management Practices Plan for odour"* means the document titled "Best Management Practices Plan for Fugitive Dust and Odour Control", dated March 2020 and prepared by Dillon Consulting Limited, which describes measures to minimize odour emissions from the *Facility* and/or *Equipment;*

5. "*CEM System"* means the continuous monitoring and recording system used to monitor and record the temperature of each *Flare* described in this *Approval,* to the extent approved by this *Approval;*

6. "*Company"* means Ridge (Chatham) Holdings G.P. Inc. as a general partner for and on behalf of Ridge (Chatham) Holdings, L.P., that is responsible for the construction or operation of the *Facility* and includes any successors and assigns;

7. "*District Manager"* means the District Manager of the appropriate local district office of the *Ministry,* where the *Facility* is geographically located;

8. "*EPA"* means the Environmental Protection Act, R.S.O. 1990, c.E.19, as amended;

9. "*Equipment"* means the equipment described in the *Company's* application, this *Approval* and in the supporting documentation submitted with the application, to the extent approved by this *Approval;*

10. "*Facility"* means the entire operation located on the property where the *Equipment* is located;

11. "*Flares*" means the five (5) enclosed flares described in the *Company's* application, this *Approval* and in the supporting documentation submitted with the application, to the extent approved by this *Approval;*

12. "*Manual*" means a document or a set of documents that provide written instructions to staff of the *Company;*

13. "*Ministry*" means the ministry of the government of Ontario responsible for the *EPA* and includes all officials, employees or other persons acting on its behalf;

14. "Noise Guidelines for Landfill Sites" means the *Ministry* draft technical publication "Noise Guidelines for Landfill Sites", published by the *Ministry,* October 1998, as amended;

15. "*Publication NPC-300*" means the *Ministry* Publication NPC-300, "Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning, Publication NPC-300", August 2013, as amended;

16. "*Residence Time*" means the length of time the combustion gases from the *Flare* are retained in the enclosure, as measured from the flame tip to a continuous temperature monitoring device;

17. "*Schedule*" means the schedules attached to, and forming part of, this *Approval,* namely:

    - Schedule A - Continuous Temperature Monitor and Data Recorder;

    - Schedule B - Flare Combustion Chamber Temperature and Residence Time.

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. PERFORMANCE REQUIREMENTS

1. The *Company* shall install and maintain a *CEM System* to continuously monitor and record the temperature of each *Flare.* The *CEM System* shall comply with the requirements outlined in *Schedule* A.

2. The *Company* shall ensure that each *Flare* maintains an operating temperature as recorded by the *CEM System,* and *Residence Time* as specified in *Schedule* B.

3. The *Company* shall, at all times, ensure that the noise emissions from the *Facility* comply with the limits set out in *Ministry Noise Guidelines for Landfill Sites* and *Publication NPC-300.*

2. OPERATION AND MAINTENANCE

1. The *Company* shall ensure that the *Equipment* and *Flares* are properly operated and maintained at all times. The *Company* shall:

    a. prepare, not later than three (3) months after the date of this *Approval,* and update, as necessary, a *Manual* outlining the operating procedures and a maintenance program for the *Equipment* and *Flares,* including:

        i. routine operating and maintenance procedures in accordance with good engineering practices and as recommended by the *Equipment, Flares,* and *CEM System* suppliers;

        ii. procedures to monitor and record the quality, for example methane content, and quantity of landfill gas delivered to each *Flare* for combustion;

        iii. dates and times when each *Flare* is operated and the operational details;

        iv. emergency procedures, including spill clean-up procedures and procedures to prevent upset conditions;

        v. procedures for any record keeping activities relating to the operation and maintenance of the *Equipment, Flares* and *CEM System;* and

        vi. all appropriate measures to minimize noise, dust and odorous emissions from all potential sources;

    b. implement the recommendations of the *Manual.*

3. FUGITIVE DUST CONTROL

1. The *Company* shall,

    a. within thirty (30) days after the date of this *Approval,* implement the *Best Management Practices Plan* for the control of fugitive dust emissions resulting from the operation of the *Facility;*

    b. review and update the *Best Management Practices Plan* annually or at the direction of the *District Manager;*

    c. record the result of each review, and update the *Best Management Practices Plan* accordingly within thirty (30) days of the completion of the review;

    d. maintain the updated *Best Management Practices Plan* at the *Facility* and provide a copy to the *District Manager* within forty-five (45) days of the update; and

e. implement, at all times, the most recent version of the *Best Management Practices Plan.*

2. The *Company* shall record, either electronically or in a log book, each time a specific preventative and control measure described in the *Best Management Practices Plan* is implemented. The *Company* shall record, as a minimum:

   a. the date when each emission control measure is installed, including a description of the control measure;

   b. the date when each new preventative measure or operating procedure to minimize emissions is implemented, including a description of the preventative measure or operating procedure; and

   c. the date, time of commencement, and time of completion of each periodic activity conducted to minimize emissions, including a description of the preventative measure/procedure and the name of the individual performing the periodic activity.

4. ODOUR CONTROL

1. The *Company* shall,

   a. within thirty (30) days after the date of this *Approval,* implement the *Best Management Practices Plan for Odour* to control odour emissions resulting from the operation of the *Facility;*

   b. review and update the *Best Management Practices Plan for Odour* annually or at the direction of the *District Manager;*

   c. record the results of each review and update as required the *Best Management Practices Plan for Odour* within thirty (30) days of the completion of each review;

   d. maintain the updated *Best Management Practices Plan for Odour* at the *Facility* and provide a copy to the *District Manager* within forty-five (45) days of an update; and

   e. implement, at all times, the most recent version of the *Best Management Practices Plan for Odour.*

2. The *Company* shall record, either electronically or in a log book, each time a specific preventative and control measure described in the *Best Management Practices Plan for Odour* is implemented. The *Company* shall record, as a minimum:

   a. the date when each emission control measure is implemented, including a description of the control measure;

b. the date when each new preventative measure or operating procedure to minimize emissions is implemented, including a description of the preventative measure or operating procedure; and

c. the date, time of commencement, and time of completion of each periodic activity conducted to minimize emissions, including a description of the preventative measure/procedure and the name of the individual performing the periodic activity.

5. AIR QUALITY MONITORING PROGRAM

1. The *Company* shall:

   a. submit to the *District Manager,* not later than ninety (90) days after the date of this *Approval,* an ambient air quality monitoring program prepared in accordance with the *Air Quality Monitoring Manual.* The ambient air quality monitoring program shall include, but not limited to, the ambient air quality monitoring for the measurement of:

      i. suspended particulate matter (PM); and

      ii. Volatile Organic Compounds;

   b. implement the approved ambient air quality monitoring program within a time period acceptable to the *District Manager.*

2. The *Company* shall submit the ambient air quality monitoring data and summary reports on the ambient air quality monitoring program as per the requirements of the *Air Quality Monitoring Manual* to the *District Manager,* or on an alternative frequency acceptable to the *District Manager* and make copies of the reports available to the public.

6. RECORD RETENTION

1. The *Company* shall retain, for a minimum of two (2) years from the date of their creation, all records and information related to or resulting from the recording activities required by this *Approval,* and make these records available for review by staff of the *Ministry* upon request. The *Company* shall retain:

   a. all records on the maintenance, repair and inspection of the *Equipment and Flares;*

   b. all records produced by the *CEM System;* and

   c. all records of any environmental complaints, including:

      i. a description, time and date of each incident to which the complaint relates;

ii. wind direction at the time of the incident to which the complaint relates; and

iii. a description of the measures taken to address the cause of the incident to which the complaint relates and to prevent a similar occurrence in the future.

7. NOTIFICATION OF COMPLAINTS

1. The *Company* shall notify the *District Manager,* in writing, of each environmental complaint within two (2) business days of the complaint. The notification shall include:

   a. a description of the nature of the complaint;

   b. the time and date of the incident to which the complaint relates;

   c. the wind direction and other weather conditions at the time of the incident; and

   d. the name(s) of *Company* personnel responsible for handling the incident.

SCHEDULE A

CONTINUOUS TEMPERATURE MONITOR AND DATA RECORDER

LOCATION:

The sample point for the continuous temperature monitoring and recording system shall be located in the combustion chamber where the minimum *Residence Time* of the combustion gases at the minimum temperature as specified in *Schedule* B is achieved.

PERFORMANCE:

The continuous temperature monitoring and recording system shall meet the following minimum performance specifications for the following parameters.

PARAMETERS	SPECIFICATION
Type	Shielded "K" type thermocouple, or equivalent
Accuracy	+/- 1.5 percent of the minimum gas temperature

DATA RECORDER:

The data recorder must be capable of registering continuously the measurement of the monitor without a significant loss of accuracy and with a time resolution of 5 minutes or better.

RELIABILITY:

The monitor shall be operated and maintained so that accurate data is obtained during a minimum of 90 percent of the time in which the *Equipment* is in operation. This target shall be met on a monthly basis.

SCHEDULE B

COMBUSTION CHAMBER TEMPERATURE AND RESIDENCE TIME

Flare	Combustion Chamber Temperature (degrees Celsius)	Residence Time (Second)
S1	760	0.6
S2	760	0.6
S3a	760	0.6
S3b	760	0.6
S3c	875	0.75

The reasons for the imposition of these terms and conditions are as follows:

1. Condition No. 1 is included to provide the minimum performance requirements considered necessary to prevent an adverse effect resulting from the operation of the *Facility.*

2. Condition Nos. 2 to 4 are included to emphasize that the *Equipment* must be maintained and operated according to a procedure that will result in compliance with the *EPA,* the Regulations and this *Approval.*

3. Condition No. 5 is included to prevent an adverse effect resulting from the operation of the *Facility.*

4. Condition No. 6 is included to require the *Company* to keep records and to provide information to staff of the *Ministry* so that compliance with the *EPA,* the Regulations and this *Approval* can be verified.

5. Condition No. 7 is included to require the *Company* to notify staff of the *Ministry* so as to assist the *Ministry* with the review of the site's compliance.

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 7958-7BMQGT issued on April 29, 2008.

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

a. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
b. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;
5. The name of the Director, and;
6. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of Part II.1
of the Environmental Protection Act
Ministry of the Environment, Conservation and
Parks
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 16th day of December, 2020

Rudolf Wan, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

BR/
c: Area Manager, MECP Windsor Area Office
c: District Manager, MECP Sarnia District Office
Robert Morgan, Dillon Consulting Limited

APPENDIX B

Ministry Screening Checklist

Appendix D-Monitoring and Screening Checklist
General Information and Instructions

General Information: The checklist is to be completed, and submitted with the Monitoring Report.
Instructions: A complete checklist consists of:
(a) a completed and signed checklist, including any additional pages of information which can be attached as needed to provide further details where indicated.
(b) completed contact information for the Competent Environmental Practitioner (CEP)
(c) self-declaration that CEP(s) meet(s) the qualifications as set out below and in Section 1.2 of the Technical Guidance Document.

Definition of Groundwater CEP:
For groundwater, the CEP must have expertise in hydrogeology and meet one of the following:
(a) the person holds a licence, limited licence or temporary licence under the *Professional Engineers Act*; or
(b) the person holds a certificate of registration under the *Professional Geoscientists Act, 2000* and is a practicing member, temporary, member or limited member of the Association of Professional Geoscientists of Ontario. O. Reg. 66/08, s. 2..
Definition of Surface water CEP:
A CEP for surface water assessments is a scientist, professional engineer or professional geoscientist as described in (a) and (b) above with demonstrated experience and post-secondary education, either a diploma or degree, in hydrology, aquatic ecology, limnology, aquatic biology, physical geography with specialization in surface water, and/or water resource management.

The type of scientific work that a CEP performs must be consistent with that person's education and experience. If an individual has appropriate training and credentials in both groundwater and surface water and is responsible for both areas of expertise, the CEP may then complete and validate both sections of the checklist.

Monitoring Report and Site Information	
Waste Disposal Site (WDS) Name	Ridge Landfill
Location (e.g. street address, lot, concession)	20262 Erieau Road, Lot 13 to 16, Concession 4
GPS Location (taken within the property boundary at front gate/ front entry)	412918 East, 4685773 North, UTM NAD 83, Zone 17
Municipality	Chatham-Kent
Client and/or Site Owner	Ridge (Chatham) Holdings G.P. Inc. as a general partner for and on behalf of Ridge (Chatham) Holdings, L.P.
Monitoring Period (Year)	2021
This Monitoring Report is being submitted under the following:	
Environmental Compliance Approval (ECA) Number (formerly "Certificate of Approval" (C of A)) :	A021601
Director's Order No.:	
Provincial Officer's Order No.:	

Other:			
Report Submission Frequency	(•) **Annual** ( ) **Other**	Specify: by April 30 of the following year.	
The site is: **(Operation Status)**	(•) **Open** ( ) **Inactive** ( ) **Closed**		
Is there an active waste transfer station at the site?	( ) **Yes** (•) **No**		
Does this WDS have a Closure Plan?	(•) **Not yet submitted** ( ) **Submitted and under review** ( ) **Submitted and approved**		
Total Approved Capacity	49,900,000	*Units*	Cubic Metres
Maximum Approved Fill Rate	6,661	*Units*	Tonnes per Day
Total Waste Received within Monitoring Period (Year)	1,277,541	*Units*	Tonnes
Total Waste Received within Monitoring Period (Year) *Describe the methodology used to determine this quantity*	Weighed		
Estimated Remaining Capacity	29,051,180	*Units*	Cubic Metres
Estimated Remaining Capacity *Describe the methodology used to determine this quantity*	Aerial Photogrammetry		
Estimated Remaining Capacity *Date Last Determined*	29-Apr-2022		
Non-Hazardous Approved Waste Types	[X] Domestic [X] Industrial, Commercial & Institutional (IC&I) [ ] Source Separated Organics (Green Bin) [ ] Tires	[X] Contaminated Soil [X] Wood Waste [ ] Blue Box Material [ ] Processed Organics [ ] Leaf and Yard Waste	[ ] Food Processing/Preparation Operations Waste [X] Hauled Sewage Other:
Subject Waste Approved Waste Classes: Hazardous & Liquid Industrial *(separate waste classes by comma)*			

Year Site Opened *(enter the Calendar Year only)*	1967	**Current ECA Issue Date**	02/12/2020
Is your Site required to submit Financial Assurance?		◉ **Yes** ○ **No**	
Describe how your WDS is designed.		○ Natural Attenuation only ◉ Fully engineered Facility ○ Partially engineered Facility	
Does your Site have an approved Contaminant Attenuation Zone?		○ **Yes** ◉ **No**	
If closed, specify ECA, control or authorizing document closure date:		N/A	
Has the nature of the operations at the site changed during this monitoring period?	○ **Yes** ◉ **No**		
If yes, provide details:			

Have any measurements been taken since the last reporting period that indicate landfill gas volumes have exceeded the MOE limits for subsurface or adjacent buildings? (i.e. exceeded the LEL for methane)	○ Yes ◉ No

Groundwater WDS Verification:

Based on all available information about the site and site knowledge, it is my opinion that:

Sampling and Monitoring Program Status:

1) The monitoring program continues to effectively characterize site conditions and any groundwater discharges from the site. All monitoring wells are confirmed to be in good condition and are secure:	○ **Yes** ◉ **No**	If no, list exceptions: 16-I and 21-I should be assessed by a licensed well technician to determine if there are any issues with the integrity of the well casing and repaired, if possible.
2) All groundwater, leachate and landfill gas sampling and monitoring for the monitoring period being reported on was successfully completed as required by ECA or other relevant authorizing/ control document(s):	◉ **Yes** ○ **No** ○ **Not Applicable**	If no, list exceptions below or attach information.

Groundwater Sampling Location	**Description/Explanation for change (change in name or location, additions, deletions)**	**Date**
See report, Section 4.8.	Damaged monitoring wells were repaired or replaced in December 2021	various

3) a) Some or all groundwater, leachate and landfill gas sampling and monitoring requirements have been established or defined outside of a ministry ECA, authorizing, or control document.	○ **Yes** ◉ **No** ○ **Not Applicable**	
b) If yes, the sampling and monitoring identified under 3(a) for the monitoring period being reported on was successfully completed in accordance with established protocols, frequencies, locations, and parameters developed as per the Technical Guidance Document:	○ **Yes** ○ **No** ◉ **Not Applicable**	If no, list exceptions below or attach additional information.

Groundwater Sampling Location	**Description/Explanation for change (change in name or location, additions, deletions)**	**Date**

4) All field work for groundwater investigations was done in accordance with Standard Operating Procedures (SOP) as established/outlined per the Technical Guidance Document (including internal/external QA/QC requirements) (Note: A SOP can be from a published source, developed internally by the site owner's consultant, or adopted by the consultant from another organization):	◉ **Yes** ○ **No**	
Sampling and Monitoring Program Results/WDS Conditions and Assessment:		
5) The site has an adequate buffer, Contaminant Attenuation Zone (CAZ) and/ or contingency plan in place. Design and operational measures, including the size and configuration of any CAZ, are adequate to prevent potential human health impacts and impairment of the environment.	◉ **Yes** ○ **No**	If no, the potential design and operational concerns/exceptions are as follows:
6) The site meets compliance and assessment criteria.	◉ **Yes** ○ **No**	See section 9 of the report.
7) The site continues to perform as anticipated. There have been no unusual trends/ changes in measured leachate and groundwater levels or concentrations.	◉ **Yes** ○ **No**	If no, list exceptions and explain reason for increase/change:

1) Is one or more of the following risk reduction practices in place at the site: ***(a)*** **There is minimal reliance on natural attenuation of leachate due to the presence of an effective waste liner and active leachate collection/ treatment; or** ***(b)*** **There is a predictive monitoring program in-place (modeled indicator concentrations projected over time for key locations); or** ***(c)*** **The site meets the following two conditions (typically achieved after 15 years or longer of site operation):** ***i.*** **The site has developed stable leachate mound(s) and stable leachate plume geometry/ concentrations; and** ***ii.*** **Seasonal and annual water levels and water quality fluctuations are well understood.**	◉ **Yes** ○ **No**	**Note which practice(s):**	☒ **(a)** ☐ **(b)** ☒ **(c)**
9) Have trigger values for contingency plans or site remedial actions been exceeded (where they exist):	○ **Yes** ◉ **No** ○ **Not Applicable**	Noted exceedances of RUC in Layer 3 for some parameters (e.g., chloride, sodium) are considered to be naturally derived.	

Groundwater CEP Declaration:

I am a licensed professional Engineer or a registered professional geoscientist in Ontario with expertise in hydrogeology, as defined in Appendix D under Instructions. Where additional expertise was needed to evaluate the site monitoring data, I have relied on individuals who I believe to be experts in the relevant discipline, who have co-signed the compliance monitoring report or monitoring program status report, and who have provided evidence to me of their credentials.

I have examined the applicable Environmental Compliance Approval and any other environmental authorizing or control documents that apply to the site. I have read and followed the Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water Technical Guidance Document (MOE, 2010, or as amended), and associated monitoring and sampling guidance documents, as amended from time to time. I have reviewed all of the data collected for the above-referenced site for the monitoring period(s) identified in this checklist. Except as otherwise agreed with the ministry for certain parameters, all of the analytical work has been undertaken by a laboratory which is accredited for the parameters analysed to *ISO/IEC 17025:2005 (E)- General requirements for the competence of testing and calibration laboratories,* or as amended from time to time by the ministry.

If any exceptions or potential concerns have been noted in the questions in the checklist attached to this declaration, it is my opinion that these exceptions and concerns are minor in nature and will be rectified for the next monitoring/reporting period. Where this is not the case, the circumstances concerning the exception or potential concern and my client's proposed action have been documented in writing to the Ministry of the Environment District Manager in a letter from me dated:

29-Apr-2022

Recommendations:

Based on my technical review of the monitoring results for the waste disposal site:

○ **No changes to the monitoring program are recommended**	
◉ **The following change(s) to the monitoring program is/ are recommended:**	Monitoring program should be carried out as per the amended ECA (issued December 2020).
◉ **No Changes to site design and operation are recommended**	
○ **The following change(s) to the site design and operation is/are recommended:**	
Name:	Paul Dewaele, P.Eng., M.Sc.
Seal:	

Signature:		**Date:**	29-Apr-2022
CEP Contact Information:	Per below		
Company:	Golder Associates Ltd., Member of WSP		
Address:	121 Commerce Park Drive, Unit L Barrie, Ontario, Canada, L4N 8X1		
Telephone No.:	705-722-4492 x 6202	Fax No. :	705-722-3786
E-mail Address:	paul_dewaele@golder.com		
Co-signers for additional expertise provided:			
Signature:		**Date:**	Select Date
Signature:		**Date:**	Select Date

Surface Water WDS Verification:

Provide the name of surface water body/bodies potentially receiving the WDS effluent and the approximate distance to the waterbody (including the nearest surface water body/bodies to the site):

Name (s)	Duke Drain and Howard Drain

Distance(s)	Both municipal surface water drains are adjacent to the landfill.

Based on all available information and site knowledge, it is my opinion that:

Sampling and Monitoring Program Status:

1) The current surface water monitoring program continues to effectively characterize the surface water conditions, and includes data that relates upstream/background and downstream receiving water conditions:	◉ **Yes** ○ **No**	If no, identify issues (Type Here):
2) All surface water sampling for the monitoring period being reported was successfully completed in accordance with the ECA or relevant authorizing/control document(s) (if applicable):	◉ **Yes** ○ **No** ○ **Not applicable**	If no, specify below or provide details in an attachment.

Surface Water Sampling Location	**Description/Explanation for change (change in name or location, additions, deletions)**	**Date**
See report, Section 7.0, Drawing 3 and Appendix J.	Some surface water locations were dry during 2021 monitoring events. Surface Water sampling was carried out in general accordance with the monitoring program required by the ECA.	various
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date

3) a) Some or all surface water sampling and monitoring program requirements for the monitoring period have been established outside of a ministry ECA or authorizing/control document.	○ **Yes** ◉ **No** ○ **Not Applicable**	
b) If yes, all surface water sampling and monitoring identified under 3 (a) was successfully completed in accordance with the established program from the site, including sampling protocols, frequencies, locations and parameters) as developed per the Technical Guidance Document:	○ **Yes** ○ **No** ◉ **Not Applicable**	If no, specify below or provide details in an attachment.

Surface Water Sampling Location	Description/Explanation for change (change in name or location, additions, deletions)	Date
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date
Type Here	Type Here	Select Date

4) All field work for surface water investigations was done in accordance with SOP, including internal/external QA/QC requirements, as established/outlined as per the Technical Guidance Document, MOE 2010, or as amended. (Note: A SOP can be from a published source, developed internally by the site owner's consultant, or adopted by the consultant from another organization):	◉ **Yes** ○ **No**	

Sampling and Monitoring Program Results/WDS Conditions and Assessment:

5) The receiving water body meets surface water-related compliance criteria and assessment criteria: i.e., there are no exceedances of criteria, based on MOE legislation, regulations, Water Management Policies, Guidelines and Provincial Water Quality Objectives and other assessment criteria (e.g., CWQGs, APVs), as noted in Table A or Table B in the Technical Guidance Document (Section 4.6):	○ **Yes** ◉ **No**

If no, list parameters that exceed criteria outlined above and the amount/percentage of the exceedance as per the table on the following page or provide details in an attachment:

Parameter	Compliance or Assessment Criteria or Background	Amount by which Compliance or Assessment Criteria or Background Exceeded
e.g. Nickel	e.g. ECA limit, PWQO, background	e.g. X% above PWQO
	PWQO	See report Section 7 for one instance of phenol exceedance at SW-7 in May 2021.
Type Here	Type Here	Type Here
Type Here	Type Here	Type Here
Type Here	Type Here	Type Here
6) In my opinion, any exceedances listed in Question 5 are the result of non-WDS related influences (such as background, road salting, sampling site conditions)?	(●) **Yes** ( ) **No**	If yes, specify: See report Section 7.0.

7) All monitoring program surface water parameter concentrations fall within a stable or decreasing trend. The site is not characterized by historical ranges of concentrations above assessment and compliance criteria.	○ **Yes** ◉ **No**	Exceedances for parameters including iron and phosphorous are present in upstream sample locations and are indicative of natural conditions.
8) For the monitoring program parameters, does the water quality in the groundwater zones adjacent to surface water receivers exceed assessment or compliance criteria (e.g. , PWQOs, CWQGs, or toxicity values for aquatic biota (APVs)):	○ Yes ○ No ◉ Not Known ○ Not Applicable	
9) Have trigger values for contingency plans or site remedial actions been exceeded (where they exist):	○ **Yes** ◉ **No** ○ **Not Applicable**	

Surface Water CEP Declaration:

I, the undersigned hereby declare that I am a Competent Environmental Practitioner as defined in Appendix D under Instructions, holding the necessary level of experience and education to design surface water monitoring and sampling programs, conduct appropriate surface water investigations and interpret the related data as it pertains to the site for this monitoring period.

I have examined the applicable Environmental Compliance Approval and any other environmental authorizing or control documents that apply to the site. I have read and followed the Monitoring and Reporting for Waste Disposal Sites Groundwater and Surface Water Technical Guidance Document (MOE, 2010, or as amended) and associated monitoring and sampling guidance documents, as amended from time to time. I have reviewed all of the data collected for the above-referenced site for the monitoring period(s) identified in this checklist. Except as otherwise agreed with the ministry for certain parameters, all of the analytical work has been undertaken by a laboratory which is accredited for the parameters analysed to *ISO/IEC 17025:2005 (E)- General requirements for the competence of testing and calibration laboratories,* or as amended from time to time by the ministry.

If any exceptions or potential concerns have been noted in the questions in the checklist attached to this declaration, it is my opinion that these exceptions and concerns are minor in nature or will be rectified for future monitoring events. Where this is not the case, the circumstances concerning the exception or potential concern and my client's proposed action have been documented in writing to the Ministry of the Environment District Manager in a letter from me dated:

29-April-2022

Recommendations:

Based on my technical review of the monitoring results for the waste disposal site:

(●) **No Changes to the monitoring program are recommended**	Monitoring program should be carried out as per the amended ECA (issued December 2020).
( ) **The following change(s) to the monitoring program is/are recommended:**	
(●) **No changes to the site design and operation are recommended**	
( ) **The following change(s) to the site design and operation is/ are recommended:**	

CEP Signature	
Relevant Discipline	Licensed and practising geo-environmental engineer
Date:	29-Apr-2022
CEP Contact Information:	Per Below
Company:	Golder Associates Ltd., a Member of WSP
Address:	121 Commerce Park Drive, Unit L Barrie, Ontario, Canada, L4N 8X1
Telephone No.:	705-722-4492 x 6202
Fax No. :	705-722-3786
E-mail Address:	paul_dewaele@golder.com

Save As **Print Form**

APPENDIX C

Air Space Calculations

Reporting Year: 2021
Current Mapping: 01-May-2021
Previous Mapping: 02-May-2020
Landfill Start: 03-Jan-2000

1. Volume Change Due to Landfilling

	Between Mapping	To Previous Mapping	Total
Volume Including Final Cover (m^3)	1,302,725	20,107,040	21,409,765

2. Final Cover Applied to Landfill Expansion

	Beween Mapping*	To Previous Mapping	Total
Area (m^2)			
Thickness (m)			
Volume (m^3)	76,405	532,446	608,851

* Based on load counts applying a 0.80 factor.

3. Volume of Leachate Collection System Constructed

	Between Mapping	To Previous Mapping*	Total
Volume (m^3)	0	312,285	312,285
Cell 1A		46,925	
Cell 1B		47,394	
Cell 2		127,835	
Cell 3A		49,000	
Cell 3B West		20,831	
Cell 3B East		20,300	

* Cell 1A and Cell 1B volumes corrected to include the sand protective layer volume. Leachate collection system volumes not relevant for Cells 4A, 4B and the South Landfill Cells because capacity volumes were calculated from the top of the sand protective layer.

4. Capacity Consumed (Volume of Waste and Daily/Intermediate Cover)

	Between Mapping*	To Previous Mapping	Total
Volume (m^3) (**1 - 2 - 3**)	1,226,320	19,622,500	20,848,820

5. Apparent Waste Density

	Between Mapping	To Previous Mapping	Total
Waste Received at Gate (tonnes) - Excluding ADC	1,075,027	16,214,932	17,289,959
Apparent Waste Density (kg/m^3)	877	826	829

6. Remaining Capacity (West Landfill, South Landfill, and Infill)

Approved Capacity	Total**	Used	Remaining
Waste and Daily/ Intermediate Cover (m^3)	49,900,000	20,848,820	29,051,180

** the ECA amendment issued on December 2, 2020 expanded the approved capacity by 28,900,000 million m^3, for a total of 49,900,000 m^3 excluding the original waste fill volume of the Old Landfill (prior to 2000).

7. Landfill Site Life

	Annual Waste, Excluding ADC (tonnes)	Apparent Density (kg/m^3)	Capacity Consumption Rate (m^3/yr)	Site Life (years)
Reporting Year Rate (Jan. 1st to Dec. 31st)	1,106,382	877	1,262,088	23.0
Expected Overall Rate	1,106,382	850	1,301,626	22.3

8. Soil Daily/Intermediate Cover Applied to Landfill Expansion

	Between Mapping	To Previous Mapping	Total
Capacity Consumed (m^3)	1,226,320	19,622,500	20,848,820
Calculated Waste:Cover Ratio	7.4	7.2	7.2
Daily/Intermediate Soil Cover* (m^3)	146,363	2,402,085	2,548,448

APPENDIX D

Complaints Summary

Table D-1: Odour Complaints

Date/Time of Call	Date/Time of Complaint	Complainant Address	Relative Property Location that Odour was Detected	Wind Direction at time of Complaint	Complaint Received	Investigation Findings	Corrective Actions Taken
01-09-2021 4:07 PM	01-09-2021 4:05 PM	19863 Charing Cross Road	Allison Line- Starts at our Pear orchard to 400 meters East	340° 5 km/h	Complaint received via call centre email "4 1/2 to 5 out of 6 smell…odour complaint"		
01-22-2021 7:58 AM	01-22-2021 7:57 AM	19863 Charing Cross Road	Wood's House on Allison line	340° 24 km/h	"Smell on at Woods house 6 out of 6… rotten garbage"		
01-29-2021 7:01 AM	01-29-2021 7:00 AM	19863 Charing Cross Road	Allison Line	320° 11 km/h	Complaint received via call centre email "Complaint about the smell from the Allison Line Landfill Rate it 4/6"	Experiencing temporary shutdowns of landfill gas flaring system during system upgrade. The system was down during the time of the 2 complaints.	
01-30-2021 7:09 AM	01-30-2021 7:07 AM	19863 Charing Cross Road	Allison Line	110° 20 km/h	Complaint received via call centre email "Smell on Allison Line, 5 out of 6 on scale… strong rotten garbage"	Experiencing temporary shutdowns of landfill gas flaring system during system upgrade. The system was down during the time of the 2 complaints.	.
02-03-2021 8:43 AM	02-03-2021 7:25 AM	19863 Charing Cross Road	Talbot Trail and Gore Road, also Allison Line	N/NW 10 km/h	Complaint received via email of "6 out of 6 Smell on Talbot Trail and Gore Rd believe it or not at 7:25 Then drove down to the Allison at 7:40 to see if that awful smell was coming from the landfill and sure enough it was awful rotten garbage coming right from the Allison.	Unexpected flare system shutdown	
02-03-2021 10:03 AM	02-03-2021 10:03 AM	8758 Tabot Trail	8758 Talbot Trail	NNW	Complaint received of "maybe 6 out of 10, not 6 out of 6, he said it smells really bad out there right now though."	See above note	
02-09-2021 9:39 AM	02-09-2021 8:55 AM	19863 Charing Cross Road	19863 Charing Cross Road	NNW	Complaint received via phone call of " very strong smell of sour and rotten garbage"	See above note	

Date/Time of Call	Date/Time of Complaint	Complainant Address	Relative Property Location that Odour was Detected	Wind Direction at time of Complaint	Complaint Received	Investigation Findings	Corrective Actions Taken
04-29-2021 12:00 PM		19863 Charing Cross Road	19863 Charing Cross Road	7º	Rotten garbage	A.C investigated at 11:30 AM; "there is a periodic odour from the landfill, I'd rate a 3 of 6 when detected. He is directly downwind of the South LF today."	"Please note the following complaint received on April 29, 2021 at about 10:50 AM. The wind was from N/NE at about 14 km/h. The odour was described as "rotten garbage". Upon a follow up inspection by our Operations Manager, Andrew Cibulka, it was noted that there was a faint periodic smell that was most likely related to some specific organic waste. The waste was subsequently covered to eliminate the odour."
06-15-2021 11:00 AM	06-15-2021 10:55 AM	19863 Charing Cross Road	19867 Charing Cross Road (Orchard)	344° NNW	Complaint received via phone call of "Burn nose & throat kind of smell. Not rotten garbage kind of smell but an automotive grinding type of smell"	"upon investigation by our District Manager, Marc Leduc, at abour 11:30 am, the smell was not noticed and therefore was assumed to be a periodic odour from a specific waste that was quickly buried."	
07-02-2021 7:30 AM		19863 Charing Cross Road	19863 Charing Cross Road	331° NNW	Complaint received via call centre "very strong garbage smell. Light wind out of the north"	"For the 7:30 am complaint, this could have been part of the normal operation of opening the work face for the day (removing daily cover)."	
07-03-2021 9:00 PM				N/NE	"It was reported that the odour was at 20142 Erieau Rd, which is the entrance to the "old" facility on the Ridge property."	As the work faces are south and southwest (downwind) of this location and greater than 500 meters away, this complaint is not attributed to the landfill.	
08-19-2021 7:37 AM	08-19-2021 7:20 AM	19863 Charing Cross Road	Laneway at farm on Charing Cross Road to westside of Gore Road	336° NNW	Complaint received "bad smell - strong rotten garbage smell 10/10"	Smell complaint received shortly after opening for morning & daily hole is dug.	Hole was filled in by 10am.
09-02-2021 11:05 AM	09-02-2021 9:50 AM	19863 Charing Cross Road	19863 Charing Cross Road	13° NNE	Complaint received via voicemail "pretty nasty"	"Could be attributed to north wind and open hole for 2 livestock loads. 2nd truck came in without tow hooks and got stuck about 10 feet in front of hole. We've had an open hole most of the day with 1 load of animal parts exposed due to this issue." (As per Andrew's email)	During this period we received 2 loads a day of an odorous material for a total of 5 days. The loads were scheduled for 7:00 am. A hole was dug, the material buried then covered immediately. On this particular day, one of the trucks delivering the material had mechanical issues and was on-site in the workface for about 5 hours. This odour would have potentially/likely been detected by the complainant.

Date/Time of Call	Date/Time of Complaint	Complainant Address	Relative Property Location that Odour was Detected	Wind Direction at time of Complaint	Complaint Received	Investigation Findings	Corrective Actions Taken
09-09-2021 3:00 PM	09-09-2021 2:50 PM	19863 Charing Cross Road	19863 Charing Cross Road	NW	Call received at scale house of odour complaint	Ops manager had completed odour inspection at 12:30pm and did not detect odour	Most likely short term odour from a specific load that was buried during normal operations
09-09-2021 8:57 PM	09-09-2021 8:54 PM	19863 Charing Cross Road	19863 Charing Cross Road	NW	Complaint received via call centre email "automotive fluff and chemical smell, burns throat"	Odour was not detected on September 10th 2021	
09-15-2021 10:00 AM	09-15-2021 10:00 AM	19863 Charing Cross Road	19863 Charing Cross Road	North	"we received a complaint via voicemail. The odour was described as "strong"	The District Manager as well as a second team member could not detect an odour downwind of the site at about 11 am. The only item of note was that the site was completing some regular maintenance on the gas collection system during this period.	
09-20-2021 11:55 AM	09-18-2021 10:07 AM	8483 16th Line	8483 16th Line	North	"smell was "garbagy" not gassy."	"advised the landfill would be closing shortly aka daily cover being applied around 11:30 which would hopefully alleviate the problem."	
09-22-2021 9:47 AM	09-22-2021 9:47 AM	19863 Charing Cross Road	19863 Charing Cross Road	North	Smells like London landfill, sour rotten garbage smell, didn't smell 20 minutes previous to calling in but the odour is present at the time of call, the smell is right in the yard	Ops manager inspected at about 10:00am. Did not detect.	
10-26-2021 7:31 AM	10-26-2021 7:30 AM	19863 Charing Cross Road	19863 Charing Cross Road; lane way off Gore Road then smell migrated right into yard at 19863	NNW	Complaint received via call centre email "smell brutal, 11 out of 10"	K. Brush called at 8:10 AM for more information regarding complaint. We inspected the area following the complaint and determined that there was a slight waste (non-gas) odour most likely related to opening the site.	
10-27-2021 7:40 AM	10-27-2021 7:30 AM	19863 Charing Cross Road		356° North	Complaint received via call centre email "Very bad smell coming from the landfill. About 8/10 severity, smells like strong rotten garbage."	We inspected the area following the complaint and determined that there was a slight waste (non-gas) odour most likely related to opening the site.	

Date/Time of Call	Date/Time of Complaint	Complainant Address	Relative Property Location that Odour was Detected	Wind Direction at time of Complaint	Complaint Received	Investigation Findings	Corrective Actions Taken
10-30-2021 8:26 PM	10-30-2021 8:24 PM	19863 Charing Cross Road	19863 Charing Cross Road	N/NE	Complaint received via call centre email "Auto fluff and rotten garbage smell, 5/10, right in out yard"	District Manager investigated the odour at about 11:00 pm on October 30, 2021 and did not notice that there was a distinct odour. Upon further investigation, it was determined that a vacuum hose was disconnected from a productive well on the South Mound and may have contributed to the odour.	The issue with the vacuum hose was fixed early Monday morning.
10-31-2021 8:39 AM	10-31-2021 8:35 AM	19863 Charing Cross Road	200 W of Erieau Road on Allison Line	N/NE	Complaint received via call centre email " smell 200 W of Erieau Rd on Allison Line. 7/10"	District Manager investigated the odour at about 11:00 pm on October 30, 2021 and did not notice that there was a distinct odour. Upon further investigation, it was determined that a vacuum hose was disconnected from a productive well on the South Mound and may have contributed to the odour.	The issue with the vacuum hose was fixed early Monday morning.
11-09-2021 4:24 PM	11-09-2021 4:00 PM	19863 Charing Cross road	19863 Charing Cross Road	N	Complaint received "4.5-smell of rotten garbage"		
11-10-2021 10:10 AM	11-09-2021 7:30 PM	19863 Charing Cross road	19863 Charing Cross Road		Complaint received next morning of "auto fluff smell was brutal. No garbage smell, just very distant auto fluff smell"	Could not verify wind direction. In the field east of Erieau Road (East of the North wood lot) a farmer was placing mushroom compost waste as a fertilizer which could contribute to the issue.	
11-10-2021 10:10 AM	11-10-2021 10:10 AM	19863 Charing Cross road	19863 Charing Cross Road	N/E	Complaint received of "faint fluff and garbage smell; 3 of 6"	In the field east of Erieau Road (East of the North wood lot) a farmer was placing mushroom compost waste as a fertilizer which could contribute to the issue.	

Date/Time of Call	Date/Time of Complaint	Complainant Address	Relative Property Location that Odour was Detected	Wind Direction at time of Complaint	Complaint Received	Investigation Findings	Corrective Actions Taken
11-11-2021 9:39 AM	11-11-2021 6:40 AM	19863 Charing Cross Road	Charing Cross Road	SSE	Complaint received "Smell on the way into Chatham; about halfway between hill and Charing Cross"	Of note, in the general direction of the complaint on November 11th are 3 receptors in households. We did not receive a complaint from either one of them. In the field east of Erieau Road (East of the North wood lot) a farmer was placing mushroom compost waste as a fertilizer which could contribute to the issue.	
11-11-2021 9:39 AM	11-11-2021 7:42 AM	19863 Charing Cross road	Charing Cross Road	SSE	Complaint received "Smell on way back from Chatham; about halfway between hill and Charing Cross"	Of note, in the general direction of the complaint on November 11th are 3 receptors in households. We did not receive a complaint from either one of them. In the field east of Erieau Road (East of the North wood lot) a farmer was placing mushroom compost waste as a fertilizer which could contribute to the issue.	
11-25-2021 7:34 PM	11-25-2021 6:05 PM	19863 Charing Cross Road	Allison Line 400 m west of Erieau Road		Complaint received via call centre email "Odour Complaint for 6:05 PM. Drove past on Allison Line 400 west of Erieau Rd. 8/10 for severity. Rotten garbage and automotive fluff."		
12-08-2021 11:56 PM	12-08-2021 11:53 PM	19863 Charing Cross Road	19863 Charing Cross Road		Complaint received via call centre email "rotten garbage smell coming off landfill, severity 6 out of 10"		
12-14-2021 7:27 AM	12-14-2021 7:24 AM	19863 Charing Cross Road	500 meters north of house on Charing Cross Road	NE	Complaint received via call centre email "strong rotten garbage 8-9 out of 10, 500 m north of my house on Charing Cross Rd"	A.C drove by at 7:45 am and confirmed landfill odour in this location, just north of Dave Nauta's house. Would rate a 2 out of 6. The wind was approx. 10 km/h from the NE at the time.	
12-22-2021 8:49 PM	12-22-2021 8:47 PM	19863 Charing Cross Road	Beside the Woods house on Alison Line		Complaint received via call centre email "smell-strong rotten garbage smell, 8-9/10, beside Woods house on Alison Line"		
12-25-2021 8:56 PM	12-25-2021 8:53 PM	19863 Charing Cross Road	19863 Charing Cross Road		Complaint received via call centre email "Odour complaint: described as being rotten garbage smell 6/10. Can smell it in yard."		

Date/Time of Call	Date/Time of Complaint	Complainant Address	Relative Property Location that Odour was Detected	Wind Direction at time of Complaint	Complaint Received	Investigation Findings	Corrective Actions Taken
12-26-2021 8:26 AM	12-26-2021 8:20 AM	19863 Charing Cross Road			Complaint received via call centre email "Really bad smell-7/10, like rotten garbage coming off the landfill"		

Table D-2: Haul Route Complaints

Date of Call	Date/Time of Incident	Complainant Address	Complaint Description	Investigation Findings/Corrective Actions Taken
N/A	N/A	N/A	N/A	N/A.

Table D-3: Litter Complaints

Date of Call	Date/Time of Incident	Complainant Address	Location of Litter Relative to the Site	Wind Direction at time of Complaint	Investigation Findings	Corrective Actions Taken
N/A	N/A	N/A	N/A	N/A.	N/A	N/A

Table D-4: Noise Complaints

Date/Time of Call	Date/Time of Incident	Complainant Address	Wind Direction at time of Complaint	Investigation Findings/Corrective Actions Taken
N/A	N/A	N/A	N/A	N/A

Table D-5: Dust Complaints

Date/Time of Call	Date/Time of Incident	Complainant Address	Wind Direction at time of Complaint	Investigation Findings/Corrective Actions Taken
N/A	N/A	N/A	N/A	N/A

Table D-6: Miscellaneous Complaints

Date/Time of Call	Date/Time of Incident	Complainant Address	Location	Investigation Findings/Corrective Actions Taken
06-08-2021 7:46 AM	06-08-2021 7:45 AM	19863 Charing Cross Road	Erieau Road (Entrance)	Complaint received via call centre of "Following truck going up to landfill… leaking… should be on scale now at 7:45 am… bad smell". No truck number was identified, no follow up

APPENDIX E

Field Data

Spring Groundwater Monitoring - Field Parameters
2021 Ridge Landfill Annual Monitoring Report
Waste Connections Canada

Well ID	Date	Total Depth (mbToP)	Water Level (mbToP)	Volume Purged (L)	Temperature (˚C)	pH	Conductivity (µS/cm)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	ORP (mV)
3-II	03-May-21	17.45	9.06	14	11.2	7.78	1057	37.1	3.96	9.1
	06-May-21		14.58	1	10.9	7.56	1048	44	4.75	6.3
3-III	03-May-21	8.45	2.86	8	9.5	7.34	1953	38.2	4.23	183.6
	06-May-21		5.82	1	10.8	7.17	1736	20.4	2.2	172.9
5-II	03-May-21	8.3	1.35	9	10.3	7.45	1293	25.2	2.7	27.3
	05-May-21		1.61	0.5	10	6.45	706	59.6	6.55	248.3
49 - A	03-May-21	5.45	1.49	20	9.1	7.26	1101	42.4	4.67	92.8
	05-May-21		1.52	2	8.8	7.27	1046	50.8	5.68	55.8
49 - B	03-May-21	16.2	5.74	20	11.3	7.67	1036	16.2	1.7	-15.6
	05-May-21		14.69	2	8.9	7.91	521	74.5	8.28	78.9
49 - C	05-May-21	43.75	20.03	-	-	-	-	-	-	-
			-	20	11.4	7.5	531	30.6	3.25	93.4
			-	40	10.5	8.23	434	10.6	1.25	103.5
			-	60	10.5	8.1	469.4	10.6	1.09	-25.2
			-	80	10.5	8.11	488	7.6	0.77	-74.9
			-	100	10.5	8.08	495	5.4	0.57	-105.4
			-	120	10.5	8.07	497.7	4.8	0.5	-123.3
			-	144	10.5	8.1	499.5	8.5	0.93	-125.8
59 - A	03-May-21	5.45	2.52	17	8.9	7.11	1665	47.9	5.3	71.9
	05-May-21		3.59	1	8.9	7.19	1617	61.3	6.81	126.3
64 - A	03-May-21	6.25	1.97	22	8.9	7.17	1527	40.6	4.46	114
	05-May-21		4.01	0.5	8.6	7.23	1080	52.2	5.87	146.2
61 - A	05-May-21	6.01	2.17	15	9.1	7.17	1114	37.6	4.24	138.9
			-	27	9	7.16	1131	40.1	4.47	139.5
	06-May-21		4.94	1	10.8	7.1	1136	46.7	5	160.2
60 - A	03-May-21	6	1.88	18	9.3	6.99	1600	24.4	2.71	48
			-	33	9.2	6.97	1578	22.9	2.59	35.7
	05-May-21		4.28	1	8.9	7.14	1553	52	5.81	132.2
47 - I	03-May-21	15.72	2.93	16	10.3	7.36	977	35.2	3.86	-14
	05-May-21		11.01	0.5	8.6	7.51	776	50.5	5.76	87.8
47 - II	03-May-21	7.1	0.825	-	-	-	-	-	-	-
			-	14	8.8	7.32	920	36	4.03	11.1
			-	28	8.7	7.45	934	38	4.37	49.7
			-	36	8.9	7.34	953	44.3	7.96	65.2
	05-May-21		0.8	0.5	8.8	7.22	493.6	29.4	3.42	101.5
30 - I	07-May-20	47.36	Unable to access due to construction activities							
30 - II	04-May-20	18.96								
30 - III	04-May-20	7.44								
31 - I	03-May-21	6.05	2.42	14	8.9	7.34	858	30.8	3.47	112.3
	04-May-21		3.23	1	10.6	7.4	884	48.2	5.03	120.7
32 - I	05-May-21	51.33	21.81	-	-	-	-	-	-	-
			-	20	10.5	7.51	780	18.6	2.03	-77.8
			-	40	10.5	8.14	778	23.4	2.53	-117.2
			-	60	10.5	8.13	775	20.7	2.24	-74.8
			-	80	10.6	8.19	779	13.7	1.48	-89.1
			-	100	10.6	8.16	779	19.8	2.13	-109.2
			-	120	10.6	8.16	778	24.11	2.68	-127.2
32 - II	04-May-20	19.3	7.85	18	11.3	7.71	524	30	3.16	-33.5
	07-May-20		16.73	1	10.2	7.89	507	33.7	3.7	-37.8
32 - III	03-May-21	6.95	1.62	12	9	7.3	1056	38.6	4.27	119
	05-May-21		2.15	1	8.5	7.33	995	68.2	7.75	22.6
28 - III	03-May-21	5.41	2.07	9	9.2	7.4	655	36.9	4.06	27.2
	07-May-21		3.83	1	10.3	7.22	686	54.1	5.91	-46.6
28 - II	03-May-21	18.6	9.17	20	10.9	7.79	366.5	22.3	2.33	16.1
	07-May-21		17.65	2	14.7	8.01	441.1	96.1	9.6	40.7

Spring Groundwater Monitoring - Field Parameters
2021 Ridge Landfill Annual Monitoring Report
Waste Connections Canada

Well ID	Date	Total Depth (mbToP)	Water Level (mbToP)	Volume Purged (L)	Temperature (˚C)	pH	Conductivity (µS/cm)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	ORP (mV)
28-I	07-May-21	48.6	19.81	-	-	-	-	-	-	-
			-	20	11.3	7.1	1056	12.5	1.33	-81.7
			-	40	11.4	7.73	1214	18.5	1.97	-96.3
			-	60	11.4	7.73	1227	19.3	2.06	-96.5
			-	80	11.4	7.74	1238	19.4	2.07	-94.4
11 - I	04-May-21	4.6	2.14	-	-	-	-	-	-	-
			2.54	0.4	11.3	7.37	1391	8.9	0.94	81.4
			2.65	0.64	11.6	7.41	1405	7.2	0.74	54.3
			2.82	0.88	11.8	7.45	1418	5.1	0.53	34.1
			2.9	1.12	11.9	7.46	1420	4.2	0.44	25.7
			3.01	1.36	11.8	7.48	1416	3.8	0.37	18.5
			3.12	1.5	12	7.5	1418	4.1	0.42	15.7
25 - I	05-May-20	6.23	Well has been removed							
18 - I	05-May-20	5.42	Well has been removed							
19 - I	04-May-21	5.48	0.81	-	-	-	-	-	-	-
			1.14	0.3	11.9	7.67	1685	1.6	0.18	-136.2
			1.32	0.6	12.3	7.63	1707	1.6	0.16	-129.8
			1.52	0.9	12.4	7.61	1712	0.4	0.05	-131
			1.63	1.2	12.3	7.61	1711	0.7	0.07	-131.3
			1.75	1.5	12.5	7.6	1717	1.2	0.13	-129.4
16 - I	04-May-21	5.2	1.19	-	-	-	-	-	-	-
			1.83	0.24	14.5	8.64	1678	-	-	-109.8
			1.92	0.48	14.7	8.58	1702	-	-	-162.7
			2.06	0.72	14.7	8.64	1699	-	-	-185.6
			2.2	0.96	14.4	8.65	1698	-	-	-237.4
			2.43	1.2	14.5	8.65	1692	-	-	-249.1
			2.62	1.44	14.8	8.65	1706	-	-	-249.8
1-II	05-May-21	6.34	0.93	-	-	-	-	-	-	-
			1.17	0.24	13.1	7.33	1743	60	6.08	30.9
			1.27	0.48	12.5	7.24	1737	49.3	5.05	56.6
			1.38	0.72	12.6	7.22	1739	45.3	4.62	58.3
			1.45	0.96	12.5	7.22	1747	47	4.77	66.5
			1.49	1.2	12.3	7.21	1738	44.2	4.56	69.1
			1.52	1.44	12.2	7.19	1734	44.7	4.57	68
20 - I	05-May-21	9.4	7.59	7	11.5	7.04	1534	35.4	3.69	79.3
	06-May-21			1	10.4	7.01	958	65.5	7.1	175.4
21 - I	04-May-21	5.61	1.04	12	-	-	-	-	-	-
	06-May-21		1.07	1	11.3	6.81	2419	55.5	5.92	183.9
22 - I	04-May-21	6.1	1.36	-	-	-	-	-	-	-
			1.67	0.4	12.8	7.52	1257	26	2.69	-88.9
			1.87	0.64	13.5	7.56	2387	18.5	1.83	-96.9
			2.13	0.88	13.5	7.54	2412	12.5	1.23	-108.6
			2.36	1.12	13.9	7.54	2431	7.1	0.69	-119.8
			2.49	1.36	14	7.55	2441	3.8	0.37	-125.2
			2.66	1.6	13.7	7.56	2424	2.5	0.25	-129.6
			2.8	1.84	13.6	7.55	2422	1.2	0.11	-133.3
			2.97	2.08	13.5	7.56	2412	0.1	0.01	-134
44- II	06-May-21	16.2	3.3	20	11.4	7.54	735	32	3.34	56.4
			-	32	11.1	7.56	720	43	4.6	24.4
	07-May-21		15.11	2	10.2	7.54	401.9	58.2	6.37	102.9
44 - III	06-May-21	7.4	2.24	20	10	7.33	1034	43.6	4.68	41.6
	07-May-21		6.29	1	11	7.31	584	48.5	5.32	104.6

Spring Groundwater Monitoring - Field Parameters
2021 Ridge Landfill Annual Monitoring Report
Waste Connections Canada

Well ID	Date	Total Depth (mbToP)	Water Level (mbToP)	Volume Purged (L)	Temperature (˚C)	pH	Conductivity (µS/cm)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	ORP (mV)
46 - I	05-May-21	48.51	21.1	-	-	-	-	-	-	-
			-	20	10.6	7.3	564	9.8	1.07	-103.2
			-	40	10.6	7.97	549	8.1	0.85	-128.2
			-	60	10.6	8.15	549	8	0.8	-108.2
			-	80	10.5	8.26	548	18.9	2.06	-80
			-	100	10.5	8.21	554	32.8	3.53	-91.8
			-	120	10.4	8.27	555	29.8	3.2	-74.9
			-	140	10.5	8.31	557	27.5	2.99	-75.9
			-	150	10.5	8.28	559	31.3	3.42	-98.4
46-III	06-May-20	6.6	0.68	-	-	-	-	-	-	-
			-	15	9.3	7.43	799	28.2	3.13	139.9
			-	26	9	7.46	716	54.1	6.05	141.1
			3.45	1	9.2	7.29	759	31.6	3.65	-24.9
46 - II	05-May-21	18.3	0.72	-	-	-	-	-	-	-
			-	15	10.5	7.67	583	42.5	4.63	-1.3
			-	30	10.3	7.7	580	49.2	5.33	-37.9
			-	33	10.3	7.69	581	49.5	5.42	-76
			15.61	1	9.6	7.56	570	42.6	4.73	-52.4
63 - A	03-May-21	6.22	1.21	23	9.5	7.05	1934	-52.3	38.1	4.19
	05-May-21		3.96	0.5	9.5	6.96	1875	30.5	3.38	81.2
48 - II	03-May-21	6.04	1.42	20	8.3	7.13	1215	23.3	2.63	114.1
	05-May-21		4.39	1	8.2	7.21	1168	35.6	4.09	115.4
62 - A	03-May-21	6.22	1.35	14	9.4	7.31	773	35.1	3.84	88
			-	28	9.2	7.33	773	38.4	4.27	97.1
			-	34	9.6	7.36	776	42.5	4.63	102.7
	04-May-21		4.65	1	12.2	7.28	830	45.8	4.81	97.9
15 - I	04-May-21	4.26	1.32	5	-	-	-	-	-	-
	06-May-21		1.34	1	9.5	7.48	1555	6.1	0.67	-86.5
13 - I	03-May-21	4.64	1.78	4	10.1	8.06	479.2	60.2	6.57	17.9
	04-May-21		2.59	0.5	10.7	7.99	505	54	5.7	12
12 - I	03-May-21	4.64	0.92	6	8.2	7.31	2199	42	4.78	-9.8
	04-May-21		0.98	1	9.2	7.04	2252	7.1	0.79	-76.9
BW - 1	04-May-21	-		80	12	8.18	759	6.9	0.73	-104.3
				100	11.5	8.06	752	3.64	0.38	-150.3
				120	11.4	8.06	745	7	0.74	-151.4
				140	11.3	8.07	750	7.3	0.76	-151.2
BW- 4	06-May-21	-		50	11.2	8.03	711	29	3.01	117.4
				100	11.2	7.9	701	30.9	3.38	-13.2
				150	11	7.91	698	32.7	3.56	-9.1
				200	11	7.92	699	33.4	3.33	-12.3
50 - A	03-May-21	5.18	2.52	20	9.2	7.22	1746	52	5.78	33.6
	07-May-21		3.53	2	9.9	6.96	1099	57.3	6.35	-2.3
50 - B	03-May-21	13.8	4.95	18	11	7.61	1475	41.6	4.4	35.9
	07-May-21		11.43	1	10.6	7.16	1342	64.9	7	15.4
50 - C	07-May-21	49.05	20.57	-	-	-	-	-	-	-
			-	20	10.9	7.26	920	7.8	0.84	-90.2
			-	40	10.8	7.7	914	11.1	1.18	-100.4
			-	60	10.8	7.7	912	8.4	0.92	-103.9
			-	80	10.9	7.76	913	14.1	1.52	-93.3
			-	100	11.1	7.79	915	15.1	1.62	-93.8
			-	120	11.1	7.81	922	13.2	1.42	-104.9
			-	140	11.2	7.79	923	12.2	1.29	-109.1

Spring Groundwater Monitoring - Field Parameters
2021 Ridge Landfill Annual Monitoring Report
Waste Connections Canada

Well ID	Date	Total Depth (mbToP)	Water Level (mbToP)	Volume Purged (L)	Temperature (˚C)	pH	Conductivity (µS/cm)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	ORP (mV)
14-I	04-May-21	16.84	4.3	20	12	7.71	693	35.5	3.68	-77.8
				40	11.7	7.74	680	42.4	4.41	-48.8
	06-May-21		4.01	1	8	8	670	50.8	5.45	149.3
58-A	05-May-21	2.65	1.65	3	8.5	7.78	369.3	71.5	7.96	105
	06-May-21		1.67	0.5	9.9	7.48	619	27	3	132
73-A	06-May-21	5.46	1.64	20	9.2	7.19	1361	43.4	4.88	28.6
			-	26	9.3	7.17	1372	47	5.25	-4.3
	07-May-21		1.74	1	9.2	6.9	1387	15.1	1.67	-3.4
73-B	06-May-21	14.52	5.59	20	10.8	7.79	616	29.7	3.19	15
	7-May-21		13.23	1	10.3	7.79	451	56.5	6.19	58.6
73-C	7-May-21	46.65	21.71	35	10.8	8	240.5	3.8	0.4	-66.1
74-A	06-May-21	5.29	1.38	18	8.9	7.05	1193	41.5	4.68	257.4
			-	33	8.8	7.53	1198	35.7	4.01	120.5
	7-May-21		4.42	1	11.7	6.69	669	45.7	4.83	106.2
74-B	06-May-21	10.26	10.19	Insufficient water to sample						
74-C	7-May-21	49.36	22.22	5	12.2	8.07	838	22.4	2.32	88.5

Well ID	Date	Total Depth (mbToP)	Water Level (mbToP)	Volume Purged (L)	Temperature (˚C)	pH	Conductivity (µS/cm)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	ORP (mV)
3-II	13-Sep-21	17.45	9.96	18	-	-	-	-	-	-
	17-Sep-21		14.73	1	15.25	7.56	1249	19.2	1.92	-107.2
3-III	13-Sep-21	7.96	2.68	18	-	-	-	-	-	-
	17-Sep-21		7.09	1	14.76	7.15	2366	-	6.33	-0.3
5-II	13-Sep-21	8.3	1.42	10	15.56	6.53	206	-	-	83
	17-Sep-21		15.7	1	14.18	6.91	1418	-	9.84	196.8
49 - A	13-Sep-21	5.6	1.54	10	15.8	6.7	>99.9	-	-	44
	15-Sep-21		3.89	1	16.4	7.3	1406	46.8	4.49	-53.9
49 - B	13-Sep-21	16.2	7.38	17	12.86	7.45	250	-	-	
	15-Sep-21		14.2	1	15.34	7.63	1179	-	6.56	98.4
49 - C	15-Sep-21	43.75	20.15	-	-	-	-	-	-	-
			-	20	12.24	8.06	>99.9	-	-	
			-	40	11.92	8.1	>99.9	-	-	
			-	100	Horiba multimeter giving inconsistent readings, no further data.					
			20.16	1	15.48	7.88	587	-	3.3	62.1
59 - A	13-Sep-21	5.45	2.52	18	-	-	-	-	-	-
	15-Sep-21		3.72	1	16.75	7.38	2158	-	3.72	72.9
64 - A	13-Sep-21	6.39	2.71	20	-	-	-	-	-	-
	15-Sep-21		4.38	1	14.52	7.12	1796	-	4.54	84.2
61 - A	13-Sep-21	6.27	2.94	20	-	-	-	-	-	-
	15-Sep-21		5.01	1	16.17	7.14	1456	-	4.37	73
60 - A	13-Sep-21	6.15	2.38	24	-	-	-	-	-	-
	15-Sep-21		4.28	1	14.69	6.98	1927	-	2.17	15.3
47 - I	13-Sep-21	15.96	4.73	20	-	-	-	-	-	-
	16-Sep-21		14.15	1	15.51	7.29	1034	-	5.09	134
47 - II	13-Sep-21	7.2	2.54	30	-		-	-	-	-
	16-Sep-21		5.69	1	12.73	7	1343	-	4.41	96.9
30 - I	16-Sep-21	47.36	Unable to access due to construction activities							
30 - II	16-Sep-21	18.96								
30 - III	16-Sep-21	7.44								
31 - I	13-Sep-21	6.05	2.86	15	-	-	-	-	-	-
	15-Sep-21		3.82	1	17.4	7.27	1191	-	3.95	-45.2
32 - I	16-Sep-21	51.33	21.94	-	-	-	-	-	-	-
			-	20	12.5	7.74	840	-	2.46	-56.1
			-	40	11.93	7.75	820	-	1.88	-79.1
			-	60	11.79	7.74	807	-	2.02	-100.2
			-	80	11.91	7.77	824	-	1.46	-100.3
			-	100	11.82	7.67	822	-	1.33	-111.3
				120	12.04	7.74	828	-	1.65	-111.3
			-	140	11.92	7.7	817	-	1.67	-111.3
32 - II	13-seo-21	19.3	9.98	20	-	-	-	-	-	-
	16-Sep-21		17.42	1	17.9	7.05	637	-	6.02	44.2
32 - III	13-Sep-21	6.95	2.44	12	-	-	-	-	-	-
	16-Sep-21		5.87	1	17.91	7.08	1202	-	8.61	53.9
28 - III	13-Sep-21	5.41	4.64	1	-	-	-	-	-	-
	17-Sep-21		5.19	Insufficient water to sample						
28 - II	17-Sep-21	18.6	12.07	10	12.13	7.56	409	-	3.75	-86.9
28-I	17-Sep-21	48.6	19.75	20	12.09	7.01	1189	-	1.08	-93.4
			-	40	11.82	7.61	1400	10.2	1.1	-92.3
			-	60	11.82	7.66	1444	10.5	1.14	-89.3
			-	80	11.67	7.71	1492	17.1	0.8	-93.3
11 - I	15-Sep-21	4.6	2.18	-	-	-	-	-	-	-
			2.74	0.6	18.13	7.1	1682	-	2.2	-32.2
			3	1.05	18.26	7.06	1684	-	1.12	-38.6
			3.22	1.5	18.43	7.09	1690	-	0.87	-48.6
			3.45	1.95	18.58	7.13	1696	-	0.82	-50.1

Well ID	Date	Total Depth (mbToP)	Water Level (mbToP)	Volume Purged (L)	Temperature (˚C)	pH	Conductivity (µS/cm)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	ORP (mV)
25 - I	-	6.23	Well has been removed							
18 - I	-	5.42	Well has been removed							
19 - I	15-Sep-21	5.48	1.1	-	-	-	-	-	-	-
			2.28	0.54	17.18	7.27	1969	-	1.89	-118
			2.36	1.08	17.26	7.2	1980	-	1.64	-115.3
			2.54	1.62	17.75	7.17	1993	-	1.59	-117.2
16 - I	16-Sep-21	5.41	1.58	-	-	-	-	-	-	-
			2.24	0.75	16.4	8.29	1852	-	0.12	-30.9
			2.87	1.2	16.6	8.46	1855	-	0.09	-50.1
			3.34	1.65	16.9	8.52	1868	-	0.06	-63.7
			3.56	2.1	16.8	8.56	1864	-	0.05	-69.2
1-II	17-Sep-21	6.34	1.52	-	-	-	-	-	-	-
			2.31	0.9	15.93	6.82	2123	-	3.25	-3.9
			2.5	1.05	15.85	6.8	2110	-	1.98	1.4
			2.74	1.2	15.95	6.8	2108	-	1.83	5.8
			2.97	1.35	15.98	6.78	2087	-	1.64	13.3
			3.3	1.5	16.03	6.8	2037	-	1.75	17.3
			3.45	1.65	16.07	6.81	2015	-	1.77	18.1
20 - I	13-Sep-21	7.66	5.46	7	-	-	-	-	-	-
	17-Sep-21			1	16.65	6.85	1913	57.3	5.53	51.4
21 - I	13-Sep-21	5.76	1.85	11	-	-	-	-	-	-
	14-Sep-21		1.07	2.38	18.5	6.98	3007	-	2.2	-25.1
22 - I	14-Sep-21	6.1	1.96	-	-	-	-	-	-	-
			1.96	0.6	17.5	6.98	2716	-	2.45	-135.1
			2.93	0.96	18.07	7.08	2720	-	1.06	-139.8
			3.35	1.32	17.25	7.18	2661	-	0.97	-146.5
			3.45	1.68	17	7.26	2638	-	0.54	-149.7
			3.47	2.04	16.98	7.34	2644	-	0.44	-157.8
			3.46	2.4	16.74	7.39	2644	-	0.37	-167.5
			3.43	2.76	16.51	7.39	2635	-	0.31	-168.5
44- II	14-Sep-21	16.2	4.38	35	-	-	-	-	-	-
	17-Sep-21		13.95	1	14.1	7.44	904	32.8	3.35	15.2
44 - III	14-Sep-21	7.4	2.5	12	-	-	-	-	-	-
	17-Sep-21		5.28	1	16.74	7.05	1384	-	3.44	24.5
46 - I	15-Sep-21	48.72	21.23	-	-	-	-	-	-	-
			-	19	11.76	7.4	599	-	3.57	-87.6
			-	38	11.78	7.81	591	-	3.19	-102.1
			-	47	11.99	8.07	582	-	3.85	-62.1
			-	66	11.5	8.04	575	-	2.46	-95.3
			-	85	11.42	8.11	574	-	2.49	-110
			-	104	11.44	8.15	575	-	2.45	-103.3
46-III	15-Sep-21	6.6	1.36	19	14.52	7.16	826	-	4.27	-44
			-	29	13.76	7.36	856	-	4.28	-47.9
			-	30	15.83	7.6	920	-	3.97	-48.2
46 - II	15-Sep-21	18.3	1.44	-	-	-	-	-	-	-
			-	19	13.52	7.82	648	-	5.76	-95.3
			-	37	12.3	7.43	633	-	4.09	-71.9
			15.87	1	15.2	7.6	360	-	9.39	-50.4
63 - A	13-Sep-21	6.22	2.69	24	-	-	-	-	-	-
	16-Sep-21		4.12	0.5	14.91	7.03	909	-	1.92	4
48 - II	13-Sep-21	6.24	2.42	24	-	-	-	-	-	-
	16-Sep-21		4.75	1	13.22	7.24	1364	-	5.98	149.2
62 - A	13-Sep-21	6.38	1.95	30	-	-	-	-	-	-
	16-Sep-21		4.46	1	14.84	6.68	2284	-	3.91	140.1
15 - I	13-Sep-21	4.46	1.76	6	-	-	-	-	-	-
	15-Sep-21		1.75	1	16.17	7.49	3162	-	2.69	-127.3

Well ID	Date	Total Depth (mbToP)	Water Level (mbToP)	Volume Purged (L)	Temperature (˚C)	pH	Conductivity (µS/cm)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	ORP (mV)
13 - I	13-Sep-21	4.64	2.28	4	-	-	-	-	-	-
	14-Sep-21		2.59	0.5	19.76	7.59	743	-	0.91	-124.8
12 - I	13-Sep-21	4.56	1.1	10	-	-	-	-	-	-
	14-Sep-21		1.16	1	15.61	7.25	2624	-	3.37	31.1
BW - 1	17-Sep-21	-	-	40	14.14	8.05	886	-	1.76	-147.8
				80	13.13	7.91	865	-	0.92	-170.3
				100	12.59	7.83	853	-	0.74	-169.6
				160	12.45	7.79	851	-	0.8	-163.8
BW- 4	15-Sep-21	-	-	4	15.78	7.81	800	-	4.95	171.3
				10	15.86	7.77	803	-	3.37	137.5
				16	15.95	7.79	804	-	2.74	131.2
				19	15.4	7.91	788	-	3.22	120.8
				22	14.98	7.82	786	-	3.3	125.2
50 - A	17-Sep-21	5.56	2.98	15	14.97	6.84	2655	-	2.1	-32.2
50 - B	17-Sep-21	13.8	5.42	18	12.54	7.38	1634	36	3.89	-52.3
			-	20	12.6	7.58	1732	62	6.25	-65.4
50 - C	17-Sep-21	49.05	20.42	20	12.32	7.42	1040	18.5	1.97	-109.3
			-	40	11.87	7.72	1033	18.5	1.99	-114.4
			-	60	11.85	7.82	1030	22.9	2.5	-111.4
			-	80	11.79	7.71	1026	20.5	2.21	-118.4
			-	100	11.94	7.78	1029	22.4	2.42	-116
14-I	13-Sep-21	16.99	2.12	35	-	-	-	-	-	-
	14-Sep-21		7.89	1	14.01	7.63	802	-	3.98	48.7
58-A	13-Sep-21	2.78	2.53	0.2	-	-	-	-	-	-
	16-Sep-21		2.43	Insufficent water to sample						
73-A	14-Sep-21	5.46	2.23	11	-	-	-	-	-	-
	17-Sep-21		2.43	0.5	17.79	7.29	1899	27.4	2.7	-42.3
73-B	14-Sep-21	14.52	7.28	16	-	-	-	-	-	-
	17-Sep-21		12.31	0.5	18.09	6.91	795	72	6.78	5.1
73-C	14-Sep-21	46.65	21.76	Could not purge						
74-A	14-Sep-21	5.29	1.66	22	-	-	-	-	-	-
	17-Sep-21		3.68	0.5	19.48	6.98	1798	32.1	2.93	31.2
74-B	14-Sep-21	10.26		Well Dry						
	17-Sep-21		10.19							
74-C	14-Sep-21	49.36	14.02	Could Not Purge Well						

DECEMBER 2021 DATA

Well ID	Date	Total Depth (mbToP)	Water Level (mbToP)	Volume Purged (L)	Temperature (˚C)	pH	Conductivity (µS/cm)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	ORP (mV)
BW-3	13-Dec-21	46.6	22	18	10.5	8.43	664	14.6	1.61	34.5
	13-Dec-21		-	36	10.5	9	659	30.7	3.39	18.5
	13-Dec-21		-	54	10.1	9.01	653	31.3	3.5	21.1
30-I	14-Dec-21	-	23.18	20	10.9	7.35	1097	24.6	2.7	-96
			-	40	11	7.78	730	26.4	2.9	-123.7
			-	60	10.7	7.85	695	23.9	2.65	-135
			-	80	10.9	7.88	675	24.1	2.64	-135.1
			-	100	10.8	7.89	671	20	2.22	-138.3
30-II	14-Dec-21	-	15.63	22	11.5	8.91	610	44.9	4.87	-69.5
30-III	14-Dec-21	-	2.02	25	11.6	6.91	1305	36.1	3.89	-46.5
74 - B	13-Dec-21	14.38	11.52	5	-	-	-	-	-	
	14-Dec-21		13.08	-	10	8.06	551	53.6	6.03	-0.4
74-C	14-Dec-21	48.7	22.4	10	7.8	8.25	572	24	2.84	-10.1
73-C	14-Dec-21	45.7	21.7	10	7.6	8.32	568	92.7	11.06	33.8

Well ID	Date	Volume Purged (L)	Temperature (˚C)	pH	Conductivity (µS/cm)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	ORP (mV)
Sparks -8911	20-Sep-21	20	15.88	8.15	1104	-	2.24	-53.1
		40	16.52	8.07	1116	-	1.99	-51.2
		60	15.07	7.96	1078	-	2.03	-45.3
R. Wood - 8765	24-Sep-21	20	14.06	7.58	1093	-	0.85	-169
		40	13.78	7.47	974	-	0.97	-162
		60	13.64	7.47	1091	-	0.6	-163
McCabe - 8874	20-Sep-21	20	18.16	7.63	1488	-	0.24	-159.9
		30	15.88	7.73	1407	-	0.38	-172.7
		40	15.61	7.74	1399	-	0.58	-161.9
		50	15.41	7.75	1391	-	0.31	-161.8
Vince - 20264 (PWDUP-1)	24-Sep-21	20	14.28	7.36	828	-	1.52	-138.3
		40	14.08	7.43	823	-	1.64	-89.7
		60	15.09	7.67	845	-	1.46	-110.1
		80	13.61	7.59	806	-	1.38	-118.6
Dave Wammes - 19571	24-Sep-21	20	14.4	7.77	976	-	6.05	-131.3
		30	14.02	6.9	896	-	6.78	-133.3
		40	13.98	7.02	875	-	7.03	-134.1
		60	13.75	7.76	865	-	5.98	-108.2
Vervaet (New) - 9048	20-Sep-21	60	13.73	8.12	871	-	1.34	-178.4
		120	12.75	7.88	853	-	1.5	-153.4
Vervaet (Old) - 9048	20-Sep-21	10	16.1	7.94	915	-	1.75	-123.9
		15	16.81	7.96	901	-	0.87	-133.8
		20	16.76	7.98	845	-	0.75	-151.3
		25	16.85	7.99	870	-	0.68	-155.1
		30	16.99	8	875	-	0.78	-150.2
Nauta - 20098	20-Sep-21	80	11.8	7.5	816	-	0.87	-135.1
Sikeema - 20043	20-Sep-21	20	19.36	7.07	984	-	3.14	61.2
		40	19.26	7.3	980	-	2.63	55.3
		60	19.2	7.5	978	-	2.42	49.9
Horak - 8957	20-Sep-21	20	18.7	7.65	1073	-	0.36	-181.1
		40	19.01	7.64	1079	-	0.2	-198.8
		60	17.75	7.65	942	-	0.25	-201.5
Segeran - 8938	20-Sep-21	20	17.02	7.77	1333	-	1.68	-160.2
		40	17.13	7.77	1324	-	0.97	-198.5
		60	16.84	7.77	1323	-	1.24	-182.1
Walker - 20475	20-Sep-21	20	17.9	7.79	1388	-	0.35	-176.6
		40	17.3	7.72	1374	-	0.29	-165.2
Muckle - 8975	20-Sep-21	20	16.59	8	967	-	0.36	-40.4
		40	16.1	8.02	973	-	0.44	-42.9
		60	16.01	7.85	944	-	0.28	-41.3
		100	16.59	7.79	918	-	0.42	-36.7
Crackle/Hope - 8989	24-Sep-21	20	19.46	7.88	1079	-	1.58	17.9
		40	19.1	7.9	1067	-	1.5	18.9
		60	18	7.75	1035	-	1.2	18.6
Kormendy - 9042	24-Sep-21	20	17.54	7.77	960	-	0.17	23.1
		40	16.44	7.57	936	-	0.14	30.1
		60	16.44	7.55	940	-	0.22	24.4

Notes:

1. mbTOP - metres below top of pipe, from reference point to depth of groundwater
2. L - litres
3. ^{o}C - degrees celsius
4. µS/cm - microsiemens per centimetre
5. mg/L - milligrams per litre
6. mV - millivolts
7. - - data not available
8. (Dup-1) - duplicate water quality sample collected at this monitoring well location
9. (Dry) - monitoring well purged dry
10. Table to be read in conjuction with the accompanying report

Leachate Monitoring - Field Parameters

2021 Ridge Landfill Annual Monitoring Report

Waste Connections Canada

Sample ID	Date	Temperature (˚C)	pH	Conductivity (µS/cm)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	ORP (mV)
LS1	May	13.9	7.24	14384	11	0.9	-258.1
LST-1	June	14.7	7.27	>20000	-	-	-
LST-1	September	23.8	7.45	21461	3.1	0.25	-283.1

Notes:

1. °C - degrees celsius
2. µS/cm - microsiemens per centimetre
3. mg/L - milligrams per litre
4. mV - millivolts
5. - - data not available
6. Table to be read in conjuction with the accompanying report

Site ID	Date	Time	Water Depth (m)	Ice Thickness (m)	Temperature (˚C)	pH	Specific Conductivity (µS/cm)	Conductivity (µS/cm)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	ORP
SWP-5	01-Mar-21	11:40	0.4	-	4.3	8.32	723.3	437.3	89.8	11.39	152.3
SWP-4	01-Mar-21	11:20	0.35	-	5.2	8.19	776.6	483.4	85.5	10.58	144.0
SWP-3(New)	01-Mar-21	10:50	0.4	-	2.1	7.67	1373	772	65.9	8.84	138.1
SWP-2	01-Mar-21	10:25	0.35	-	3.6	7.42	1283	758	55.7	7.18	118.0
SWP-1	01-Mar-21	10:05	0.4	-	2.8	7.67	522.2	301.1	81.8	10.8	128.0
SW-4 (DUP-1)	01-Mar-21	12:50	0.25	-	3.9	7.85	545.8	325.7	94	12.06	159.3
SW-11	01-Mar-21	13:15	0.35	-	3.9	8.06	549.9	328.4	86.9	11.15	157.4
SW-12	01-Mar-21	13:35	0.15	-	3.8	7.72	506.7	301.2	75.7	9.76	162.4
SW-7	01-Mar-21	14:15	0.45	-	2.9	7.58	424	245.2	73.3	9.68	175.5

Site ID	Date	Time	Water Depth (m)	Ice Thickness (m)	Temperature (˚C)	pH	Specific Conductivity (µS/cm)	Conductivity (µS/cm)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	ORP
SWP-5	06-May-21	10:53	0.3	-	13.5	8.47	897	702	81.7	8.37	101.6
SWP-4	06-May-21	11:17	0.35	-	13.0	8.43	1092	840	93.2	9.65	128.5
SWP-3(New)	06-May-21	11:59	0.3	-	16.4	8.27	1428	1194	92.4	8.85	111.4
SWP-2	06-May-21	12:18	0.4	-	14.0	7.77	1140	900	78.9	7.95	-98.0
SWP-1	06-May-21	12:58	0.3	-	14.3	8.99	670	533	89	8.96	153.9
SW-4 (DUP-1)	06-May-21	15:30	0.2	-	13.8	8.17	847	666	89.5	8.08	170.8
SW-11	06-May-21	15:50	0.25	-	15.7	8.04	732	602	82.3	8.99	133.5
SW-12	06-May-21	16:08	0.3	-	13.7	7.78	1343	1054	92.7	9.42	131.6
SW-7	06-May-21	16:35	0.2	-	19.3	8.38	831	741	83.7	8.08	139.6

Site ID	Date	Time	Water Depth (m)	Ice Thickness (m)	Temperature (˚C)	pH	Specific Conductivity (µS/cm)	Conductivity (µS/cm)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	ORP
SWP-5	05-Jul-21	15:23	-	-	29.2	9.02	-	950	-	-	-
SWP-4	05-Jul-21	15:50	-	-	31.9	9.11	-	930	-	-	-
SWP-3(New)	05-Jul-21	16:18	-	-	34.2	8.11	-	1390	-	-	-
SWP-1	05-Jul-21	16:48	-	-	32.2	10.64	-	710	-	-	-

Site ID	Date	Time	Water Depth (m)	Ice Thickness (m)	Temperature (°C)	pH	Specific Conductivity (µS/cm)	Conductivity (µS/cm)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	ORP
SWP-5	15-Sep-21	10:31	0.3	-	22.2	8.37	686	650	79.2	7.03	56.4
SWP-4	15-Sep-21	11:45	0.35	-	22.4	8.26	622	591	-	5.84	39.8
SWP-3(New)	15-Sep-21	-	DRY								
SWP-3(New)	24-Sep-21	13:48	-	-	14.5	7.57	688	549	80.6	8.22	35.9
SWP-2	15-Sep-21	16:35	0.4	-	24.0	8.4	316	603	117.8	9.87	-43.2
SWP-1	17-Sep-21	9:35	0.3	-	20.77	7.23	549	504	29.3	2.64	73.4
SW-4	17-Sep-21	14:25	DRY								
SW-11	17-Sep-21	14:55	DRY								
SW-12	17-Sep-21	15:50	DRY								
SW-7	17-Sep-21	16:50	DRY								

Site ID	Date	Time	Water Depth (m)	Ice Thickness (m)	Temperature (°C)	pH	Specific Conductivity (µS/cm)	Conductivity (µS/cm)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	ORP
SWP-5	27-Oct-21	9:55	0.3	-	10.4	8.02	-	870	-	-	-
SWP-4	27-Oct-21	10:10	0.35	-	10.6	8.25	-	790	-	-	-
SWP-3(New)	27-Oct-21	10:30	0.3	-	11.1	8.75	-	930	-	-	-
SWP-2	27-Oct-21	11:40	0.4	-	11.4	7.76	-	770	-	-	-
SWP-1	27-Oct-21	9:10	0.3	-	10.9	7.49	-	780	-	-	-

Site ID	Date	Time	Water Depth (m)	Ice Thickness (m)	Temperature (°C)	pH	Specific Conductivity (µS/cm)	Conductivity (µS/cm)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	ORP
SW-4	14-Dec-21	14:10	0.3	-	5.5	7.93	719	451	92.8	11.64	16.2
SW-11	14-Dec-21	15:00	0.35	-	6	8.07	742	473	91.4	-	24.3
SW-12	14-Dec-21	16:00	0.3	-	5.7	7.74	785	496	80.1	9.99	47.4
SW-7	14-Dec-21	16:30	0.35	-	5	7.69	532	329	72.6	9.24	50.4
SWP-1	14-Dec-21	13:55	-	-	4.8	8.53	814	500	95.9	12.25	-2.1
SWP-2	14-Dec-21	13:40	-	-	5.1	8.38	760	421.6	85.7	10.85	-15.1
SWP-3(New)	14-Dec-21	11:55	-	-	4.4	8.93	909	552	100.8	13	60
SWP-4	14-Dec-21	11:40	-	-	4.1	8.62	808	486.2	99.2	12.91	57.3
SWP-5	14-Dec-21	10:50	-	-	3.8	8.89	750	446.2	90.8	11.93	20.3

Notes:

1. mbTOP - metres below top of pipe, from reference point to depth of groundwater
2. m - metres
3. °C - degrees celsius
4. µS/cm - microsiemens per centimetre
5. mg/L - milligrams per litre
6. m/s - metres per second
7. mV - millivolts
8. - - data not available
9. (Dup-1) - duplicate water quality sample collected at this monitoring well location
10. (Dry) - monitoring well purged dry
11. Table to be read in conjuction with the accompanying report

APPENDIX F

Summary of Monitoring Well Details

PROJECT: 20409033

LOCATION: Ridge Landfill

RECORD OF BOREHOLE: 74-B

BORING DATE: November 30, 2021

SHEET 1 OF 2

DATUM:

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE									
0	Power Auger 178 mm Diam. (Solid Stem)	TOPSOIL - CLAYEY SILT, with sand, trace grave, trace organics; brown; soft		0.00							
1		(CL) sandy SILTY CLAY, trace gravel; grey brown, mottled; firm		0.91							
2											
3											
4											
5		(CL) sandy SILTY CLAY, trace gravel; grey; firm to stiff		4.57							Bentonite Seal
6											
7											
8											
9											
10		*CONTINUED NEXT PAGE*									

DEPTH SCALE

1 : 50

LOGGED: ZS

CHECKED:

GTA-BHS 001 S:\CLIENTS\WCC\RIDGE_LANDFILL\02_DATA\GINT\RIDGE_LANDFILL.GPJ GAL-MIS.GDT 4/22/22

PROJECT: 20409033

LOCATION: Ridge Landfill

RECORD OF BOREHOLE: 74-B

BORING DATE: November 30, 2021

SHEET 2 OF 2

DATUM:

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)	SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕; Q - ●, U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10	Power Auger 178 mm Diam. (Solid Stem)	*--- CONTINUED FROM PREVIOUS PAGE ---*											
		(CL) sandy SILTY CLAY, trace gravel; grey; firm to stiff											
		(CL) sandy SILTY CLAY, trace gravel; dark grey; very stiff		10.67									Bentonite Seal
11													
12													Silica Sand
13													50 mm Diam. PVC #10 Slot Screen
14		End of Borehole		13.93									
		Note(s): 1. Water level measured at a depth of 10.86 mbgs on december 1, 2021 2. Soil samples were collected from auger cuttings at approximately 1.5 m intervals											
15													
16													
17													
18													
19													
20													

DEPTH SCALE

1 : 50

LOGGED: ZS

CHECKED:

GTA-BHS 001 S:\CLIENTS\WCC\RIDGE_LANDFILL\02_DATA\GINT\RIDGE_LANDFILL.GPJ GAL-MIS.GDT 4/22/22

PROJECT: 20409033

LOCATION: Ridge Landfill

RECORD OF BOREHOLE: BW-3

BORING DATE: December 1 and 9, 2021

SHEET 1 OF 5

DATUM:

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE									
0	Power Auger 173 mm Diam. (Solid Stem)	FILL - SAND and GRAVEL, road base material; grey to tan		0.00							178 mm Diam. steeling casing from above ground surface to 44.81 mbgs
1											
2		(CL) sandy SILTY CLAY, trace gravel; brown		2.13							
3											
4		(CL) sandy SILTY CLAY, trace gravel, grey		4.27							
5											Bentonite Seal
6											
7											
8											
9											
10		*CONTINUED NEXT PAGE*									

DEPTH SCALE

1 : 50

LOGGED: ZS

CHECKED:

GTA-BHS 001 S:\CLIENTS\WCC\RIDGE_LANDFILL\02_DATA\GINT\RIDGE_LANDFILL.GPJ GAL-MIS.GDT 4/22/22

PROJECT: 20409033

LOCATION: Ridge Landfill

RECORD OF BOREHOLE: BW-3

BORING DATE: December 1 and 9, 2021

SHEET 2 OF 5

DATUM:

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		--- CONTINUED FROM PREVIOUS PAGE ---									
10	Power Auger 173 mm Diam. (Solid Stem) / Cable Tool	(CL) sandy SILTY CLAY, trace gravel, grey									
11											
12											
13											
14											
15											Bentonite Seal
16											
17											
18											
19											
20		*CONTINUED NEXT PAGE*									

DEPTH SCALE

1 : 50

LOGGED: ZS

CHECKED:

GTA-BHS 001 S:\CLIENTS\WCC\RIDGE_LANDFILL\02_DATA\GINT\RIDGE_LANDFILL.GPJ GAL-MIS.GDT 4/22/22

PROJECT: 20409033

LOCATION: Ridge Landfill

RECORD OF BOREHOLE: BW-3

BORING DATE: December 1 and 9, 2021

SHEET 3 OF 5

DATUM:

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
20		*--- CONTINUED FROM PREVIOUS PAGE ---*									
20	Cable Tool	(CL) sandy SILTY CLAY, trace gravel, grey									
21											
22											
23											
24											
25											Bentonite Seal
26											
27											
28											
29											
30		*CONTINUED NEXT PAGE*									

DEPTH SCALE

1 : 50

LOGGED: ZS

CHECKED:

GTA-BHS 001 S:\CLIENTS\WCC\RIDGE_LANDFILL\02_DATA\GINT\RIDGE_LANDFILL.GPJ GAL-MIS.GDT 4/22/22

PROJECT: 20409033

LOCATION: Ridge Landfill

RECORD OF BOREHOLE: BW-3

BORING DATE: December 1 and 9, 2021

SHEET 4 OF 5

DATUM:

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
30		*--- CONTINUED FROM PREVIOUS PAGE ---*									
30	Cable Tool	(CL) sandy SILTY CLAY, trace gravel, grey									
31											
32											
33											
34											
35											Bentonite Seal
36											
37											
38											
39											
40		*CONTINUED NEXT PAGE*									

DEPTH SCALE

1 : 50

LOGGED: ZS

CHECKED:

GTA-BHS 001 S:\CLIENTS\WCC\RIDGE_LANDFILL\02_DATA\GINT\RIDGE_LANDFILL.GPJ GAL-MIS.GDT 4/22/22

PROJECT: 20409033

LOCATION: Ridge Landfill

RECORD OF BOREHOLE: BW-3

BORING DATE: December 1 and 9, 2021

SHEET 5 OF 5

DATUM:

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
40		*--- CONTINUED FROM PREVIOUS PAGE ---*									
	Cable Tool	(CL) sandy SILTY CLAY, trace gravel, grey									Bentonite Seal
41											
42											
43											
44											Silica Sand
45		GRAVEL		44.96							Stainless steel coupler (44.96-45.11 mbgs)
		SHALE, black to dark grey KETTLE POINT FORMATION		45.11							50 mm Diam. stainless steel screen
46											
		End of Borehole		46.63							
47		Note(s): 1. Water level measured at a depth of 21.06 mbgs on december 9, 2021 2. soil samples were collected at approximately 1.5 metres intervals from ground surface to 12.2 mbgs, from 12.2 mbgs to 46.63 soil and rock descriptions were based on bailer / chip samples									
48											
49											
50											

DEPTH SCALE

1 : 50

LOGGED: ZS

CHECKED:

GTA-BHS 001 S:\CLIENTS\WCC\RIDGE_LANDFILL\02_DATA\GINT\RIDGE_LANDFILL.GPJ GAL-MIS.GDT 4/22/22

BW-3 Decommission

Ontario — Ministry of the Environment, Conservation and Parks

Well Record

Regulation 903 Ontario Water Resources Act

Well Tag No. (Place Sticker and/or Print Bel: DECONMISSION 3307757

Measurements recorded in: ☐ Metric ☒ Imperial

Page 1 of 1

Well Owner's Information

First Name	Last Name/Organization	E-mail Address	☐ Well Constructed by Well Owner
RON	MURPHY CONTRACTING CO. LTD.		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
4412 MANNING DR.	LONDON	ON	N6L1K5	5199808989 6

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
20262 ERIEAU RD. LANDFILL	HARWICH	015	CR W 04

County/District/Municipality	City/Town/Village	Province	Postal Code
CHATHAM-KENT	BLENHEIM	Ontario	N0P1A0

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	412673	4685442	33004	

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
	GRAVEL			167'	160'
	HOLE PLUG			160'	5'
	TOP SOIL			5'	0'

Annular Space

Depth Set at (m/ft) From	Depth Set at (m/ft) To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)

Method of Construction

☐ Cable Tool ☐ Diamond
☐ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) ☐ Driving
☐ Boring ☐ Digging
☐ Air percussion
☐ Other, specify

Well Use

☐ Public ☐ Commercial ☐ Not used
☐ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☐ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, specify

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
5"	STEEL		0'	145'
	OPEN HOLE		145'	167'

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To

Status of Well

☐ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☐ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☐ Abandoned, other, specify
☐ Other, specify

Water Details

Water found at Depth (m/ft)	☐ Gas	Kind of Water: ☐ Fresh ☐ Untested ☐ Other, specify
Water found at Depth (m/ft)	☐ Gas	Kind of Water: ☐ Fresh ☐ Untested ☐ Other, specify
Water found at Depth (m/ft)	☐ Gas	Kind of Water: ☐ Fresh ☐ Untested ☐ Other, specify

Hole Diameter

Depth (m/ft) From	Depth (m/ft) To	Diameter (cm/in)

Results of Well Yield Testing

After test of well yield, water was:
☐ Clear and sand free
☐ Other, specify

If pumping discontinued, give reason:

Pump intake set at (m/ft)

Pumping rate (l/min / GPM)

Duration of pumping ____ hrs + ____ min

Final water level end of pumping (m/ft)

If flowing give rate (l/min/GPM)

Recommended pump depth (m/ft)

Recommended pump rate (l/min/GPM)

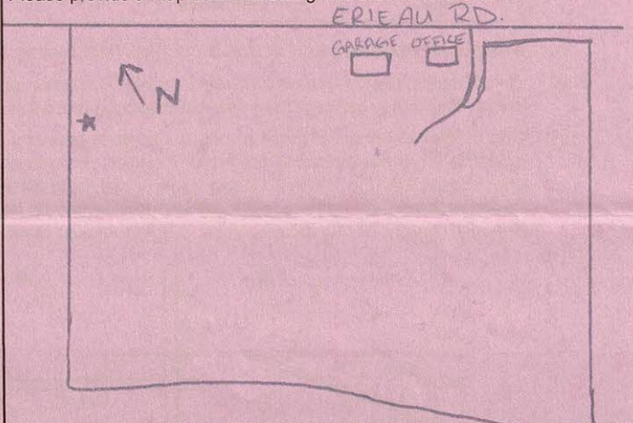
Well production (l/min/GPM)

Disinfected? ☐ Yes ☐ No

	Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	68'			
1			1	
2			2	
3			3	
4			4	
5			5	
10			10	
15			15	
20			20	
25			25	
30			30	
40			40	
50			50	
60			60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
LASKEY'S SERVICES	3366

Business Address (Street Number/Name)	Municipality
6 MAITLAND TERRACE	STRATHROY

Province	Postal Code	Business E-mail Address
ON	N7G1L1	info@laskeysservice.ca

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
5192450590	REMPEL, DON

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
3217		2021/09/13

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☐ Yes ☐ No		2021/09/07

Ministry Use Only

Audit No. Z366247

Received

0506E (2020/06) © Queen's Printer for Ontario, 2020

Well Owner's Copy

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
	Gravel			0	8
Brown	Clay			8	16
Grey	Clay			16	141
Mix	Black gravel			141	148
Black	Shale			148	150

BW-3 Installation

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0	20	Bentonite grout	
20	141	Bentonite chips	
153	141	Silica Sand	

Method of Construction

- [x] Cable Tool
- [ ] Rotary (Conventional)
- [ ] Rotary (Reverse)
- [ ] Boring
- [ ] Air percussion
- [ ] Other, specify
- [ ] Diamond
- [ ] Jetting
- [ ] Driving
- [ ] Digging

Well Use

- [ ] Public
- [ ] Domestic
- [ ] Livestock
- [ ] Irrigation
- [ ] Industrial
- [ ] Other, specify
- [ ] Commercial
- [ ] Municipal
- [ ] Test Hole
- [ ] Cooling & Air Conditioning
- [ ] Not used
- [ ] Dewatering
- [x] Monitoring

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
2	plastic	sch40	+3	148
5	Steel	.188	1.3	147

Status of Well

- [ ] Water Supply
- [ ] Replacement Well
- [ ] Test Hole
- [ ] Recharge Well
- [ ] Dewatering Well
- [x] Observation and/or Monitoring Hole
- [ ] Alteration (Construction)
- [ ] Abandoned, Insufficient Supply
- [ ] Abandoned, Poor Water Quality
- [ ] Abandoned, other, specify
- [ ] Other, specify

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To
2	SS	10	148	153

Water Details

Water found at Depth (m/ft)	Gas	Kind of Water: Fresh	Untested	Other, specify

Hole Diameter

Depth (m/ft) From	Depth (m/ft) To	Diameter (cm/in)
0	20	8
20	153	5

Well Contractor and Well Technician Information

Business Name of Well Contractor: Rumble Water Wells

Well Contractor's Licence No.: 4 6 9 2

Business Address (Street Number/Name): 645 Bronson

Municipality: Carleton Place

Province: ON

Postal Code: K7C 1P4

Business E-mail Address:

Bus. Telephone No. (inc. area code): 6 1 3 2 5 3 4 2 0

Name of Well Technician (Last Name, First Name): Rumble Connor

Well Technician's Licence No.: 3 1 5 4 4

Signature of Technician and/or Contractor:

Date Submitted: Y Y Y Y M M D D

Results of Well Yield Testing

After test of well yield, water was:
- [ ] Clear and sand free
- [ ] Other, specify

If pumping discontinued, give reason:

Pump intake set at (m/ft)

Pumping rate (l/min / GPM)

Duration of pumping: ____ hrs + ____ min

Final water level end of pumping (m/ft)

If flowing give rate (l/min/GPM)

Recommended pump depth (m/ft)

Recommended pump rate (l/min/GPM)

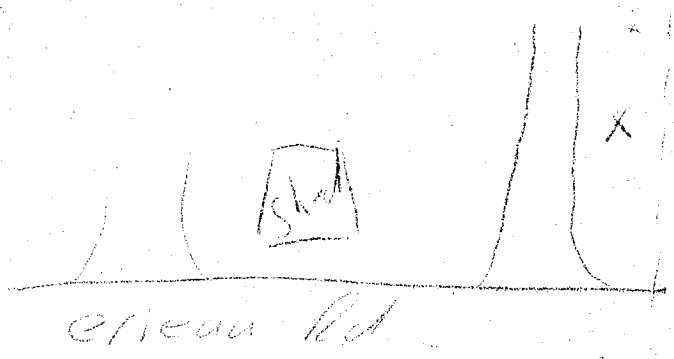
Well production (l/min/GPM)

Disinfected?
- [x] Yes
- [ ] No

	Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level				
1			1	
2			2	
3			3	
4			4	
5			5	
10			10	
15			15	
20			20	
25			25	
30			30	
40			40	
50			50	
60			60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well owner's information package delivered
- [ ] Yes
- [ ] No

Date Package Delivered: Y Y Y Y M M D D

Date Work Completed: Y Y Y Y M M D D

Ministry Use Only

Audit No. Z371385

Received

© Queen's Printer for Ontario, 2020

Contractor's Copy

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
Brown	Clay			0	6
Grey	Clay			6	45

MW74-B Replacement

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
45	39	silica sand	
39	-1	Bentonite grout	
-1	0	cement	

Method of Construction

- [x] Cable Tool
- [ ] Rotary (Conventional)
- [ ] Rotary (Reverse)
- [ ] Boring
- [ ] Air percussion
- [ ] Other, specify
- [ ] Diamond
- [ ] Jetting
- [ ] Driving
- [ ] Digging

Well Use

- [ ] Public
- [ ] Domestic
- [ ] Livestock
- [ ] Irrigation
- [ ] Industrial
- [ ] Other, specify
- [ ] Commercial
- [ ] Municipal
- [ ] Test Hole
- [ ] Cooling & Air Conditioning
- [ ] Not used
- [ ] Dewatering
- [x] Monitoring

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
2	plastic	sch40	+2	40

Status of Well

- [ ] Water Supply
- [ ] Replacement Well
- [ ] Test Hole
- [ ] Recharge Well
- [ ] Dewatering Well
- [x] Observation and/or Monitoring Hole
- [ ] Alteration (Construction)
- [ ] Abandoned, Insufficient Supply
- [ ] Abandoned, Poor Water Quality
- [ ] Abandoned, other, specify
- [ ] Other, specify

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To
2	plastic	10	45	40

Water Details

Water found at Depth (m/ft)	Gas	Kind of Water	Other, specify
		Fresh / Untested	
		Fresh / Untested	
		Fresh / Untested	

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	45	6

Results of Well Yield Testing

After test of well yield, water was:
- [ ] Clear and sand free
- [ ] Other, specify

If pumping discontinued, give reason:

Pump intake set at (m/ft)

Pumping rate (l/min / GPM)

Duration of pumping ____ hrs + ____ min

Final water level end of pumping (m/ft)

If flowing give rate (l/min/GPM)

Recommended pump depth (m/ft)

Recommended pump rate (l/min/GPM)

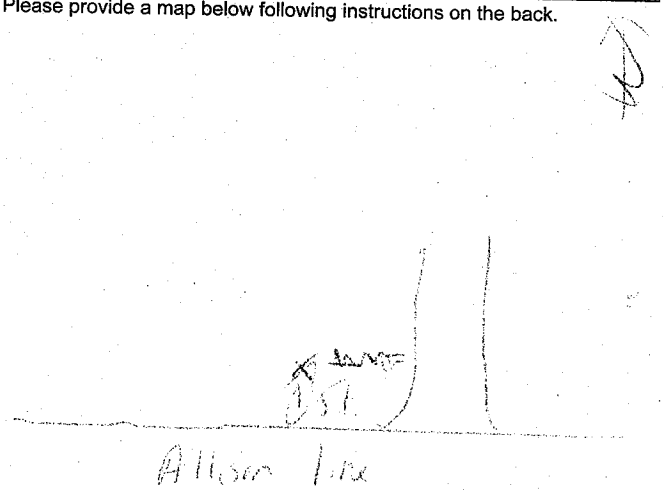
Well production (l/min/GPM)

Disinfected?
- [x] Yes
- [ ] No

	Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level				
1			1	
2			2	
3			3	
4			4	
5			5	
10			10	
15			15	
20			20	
25			25	
30			30	
40			40	
50			50	
60			60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor: Rumble Watts Wells — Well Contractor's Licence No.: 7642

Business Address (Street Number/Name): 1263 Bethesda — Municipality: Chatham-Kent

Province: ON — Postal Code: N7M 5J7 — Business E-mail Address:

Bus. Telephone No. (inc. area code): 519 436 8383 — Name of Well Technician (Last Name, First Name): Rumble, Kenneth

Well Technician's Licence No.: 5514 — Signature of Technician and/or Contractor — Date Submitted: Y Y Y Y M M D D

Well owner's information package delivered
- [x] Yes
- [ ] No

Date Package Delivered: Y Y Y Y M M D D

Date Work Completed: Y Y Y Y M M D D

Ministry Use Only

Audit No. Z371365

Received

 © Queen's Printer for Ontario, 2020

Contractor's Copy

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
	Bentonite	grout		45	1
	Bentonite	pea		7	6

MW74-B Decommission

Annular Space

Depth Set at (m/ft) From	Depth Set at (m/ft) To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)

Method of Construction

- ☐ Cable Tool
- ☐ Rotary (Conventional)
- ☐ Rotary (Reverse)
- ☐ Boring
- ☐ Air percussion
- ☐ Other, specify
- ☐ Diamond
- ☐ Jetting
- ☐ Driving
- ☐ Digging

Well Use

- ☐ Public
- ☐ Domestic
- ☐ Livestock
- ☐ Irrigation
- ☐ Industrial
- ☐ Other, specify
- ☐ Commercial
- ☐ Municipal
- ☐ Test Hole
- ☐ Cooling & Air Conditioning
- ☐ Not used
- ☐ Dewatering
- ☑ Monitoring

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
2	Plastic		-7	1

Status of Well

- ☐ Water Supply
- ☐ Replacement Well
- ☐ Test Hole
- ☐ Recharge Well
- ☐ Dewatering Well
- ☐ Observation and/or Monitoring Hole
- ☐ Alteration (Construction)
- ☐ Abandoned, Insufficient Supply
- ☐ Abandoned, Poor Water Quality
- ☑ Abandoned, other, specify — Removed
- ☐ Other, specify

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To

Water Details

Water found at Depth (m/ft)	Gas	Kind of Water	Other, specify
	☐	☐ Fresh ☐ Untested	
	☐	☐ Fresh ☐ Untested	
	☐	☐ Fresh ☐ Untested	

Hole Diameter

Depth (m/ft) From	Depth (m/ft) To	Diameter (cm/in)

Well Contractor and Well Technician Information

Business Name of Well Contractor: Bar Rumble Water Wells — Well Contractor's Licence No.: 7625

Business Address (Street Number/Name): 1165 Brunel — Municipality: Utterby

Province: ON — Postal Code: N1T 1N0 — Business E-mail Address:

Bus. Telephone No. (inc. area code): 519 462 2042 — Name of Well Technician (Last Name, First Name): Rumble, Gerard

Well Technician's Licence No.: 5604 — Signature of Technician and/or Contractor: — Date Submitted: Y Y Y Y M M D D

Results of Well Yield Testing

After test of well yield, water was:
- ☐ Clear and sand free
- ☐ Other, specify

If pumping discontinued, give reason:

Pump intake set at (m/ft)

Pumping rate (l/min / GPM)

Duration of pumping ____ hrs + ____ min

Final water level end of pumping (m/ft)

If flowing give rate (l/min/GPM)

Recommended pump depth (m/ft)

Recommended pump rate (l/min/GPM)

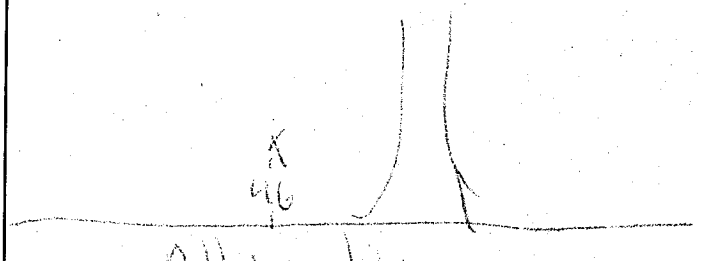
Well production (l/min/GPM)

Disinfected? ☒ Yes ☐ No

	Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level				
1			1	
2			2	
3			3	
4			4	
5			5	
10			10	
15			15	
20			20	
25			25	
30			30	
40			40	
50			50	
60			60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well owner's information package delivered: ☐ Yes ☒ No

Date Package Delivered: Y Y Y Y M M D D

Date Work Completed: Y Y Y Y M M D D

Ministry Use Only

Audit No. Z371366

Received

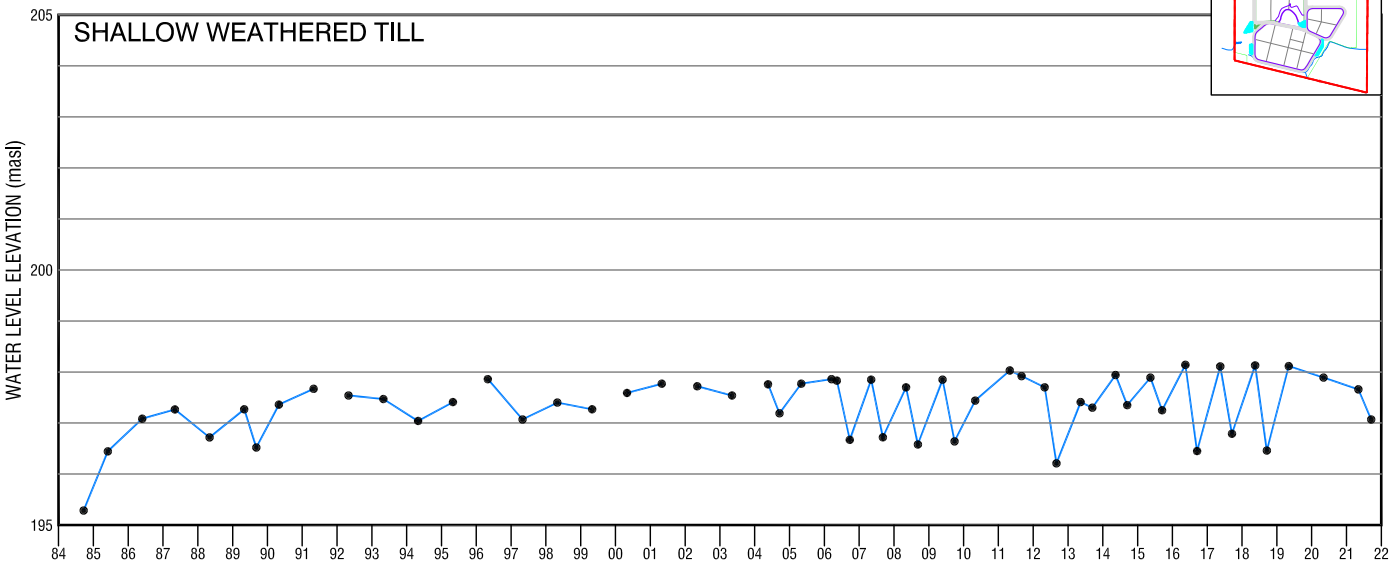
 © Queen's Printer for Ontario, 2020

Contractor's Copy

APPENDIX G

Groundwater Elevation Hydrographs

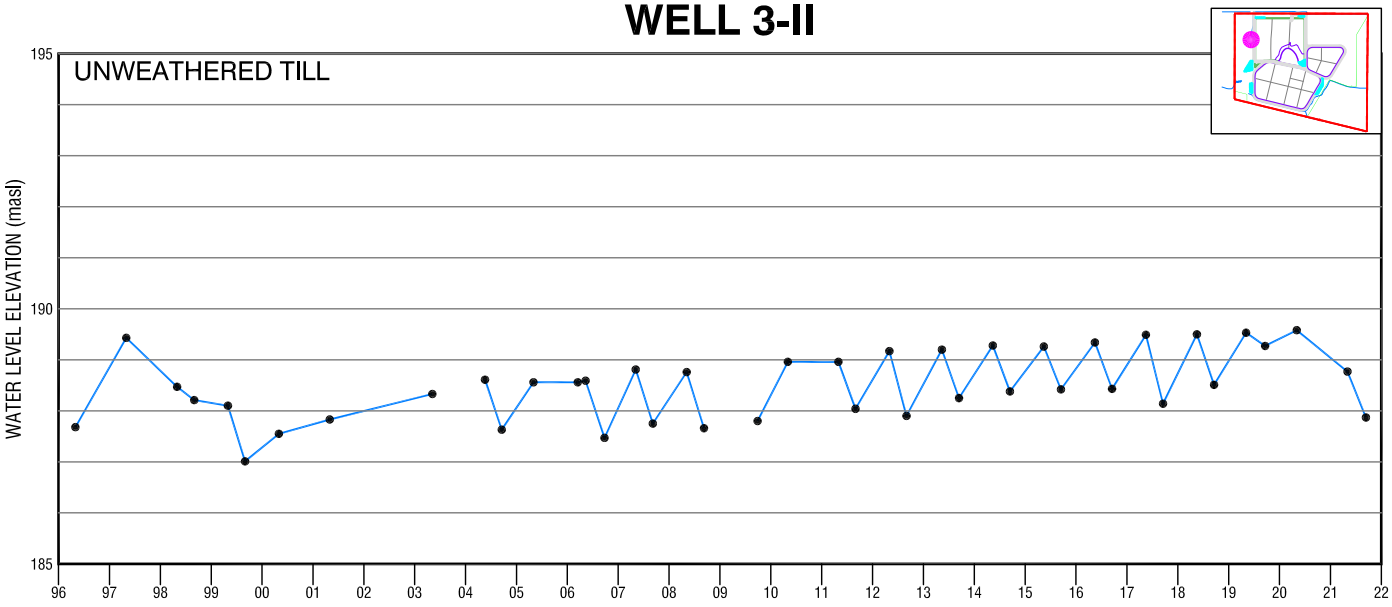
WELL 1-II



MP Elevation 198.59 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
20-Sep-84	195.29	01-May-93	197.47	08-May-03	197.54	08-Sep-08	196.58	14-May-14	197.94	06-May-19	198.12
01-Jun-85	196.44	01-May-94	197.04	20-May-04	197.76	25-May-09	197.85	14-Sep-14	197.35	05-May-20	197.89
28-May-86	197.08	01-May-95	197.41	17-Sep-04	197.19	28-Sep-09	196.64	15-May-15	197.89	05-May-21	197.66
06-May-87	197.27	01-May-96	197.86	03-May-05	197.77	03-May-10	197.44	15-Sep-15	197.25	17-Sep-21	197.07
04-May-88	196.72	01-May-97	197.07	17-Mar-06	197.86	01-May-11	198.03	16-May-16	198.14		
02-May-89	197.27	01-May-98	197.40	12-May-06	197.83	01-Sep-11	197.92	16-Sep-16	196.45		
06-Sep-89	196.52	01-May-99	197.27	25-Sep-06	196.67	01-May-12	197.70	17-May-17	198.11		
01-May-90	197.36	01-May-00	197.59	07-May-07	197.85	01-Sep-12	196.21	17-Sep-17	196.79		
01-May-91	197.67	01-May-01	197.77	07-Sep-07	196.72	13-May-13	197.41	18-May-18	198.13		
01-May-92	197.54	08-May-02	197.72	07-May-08	197.70	13-Sep-13	197.30	18-Sep-18	196.46		

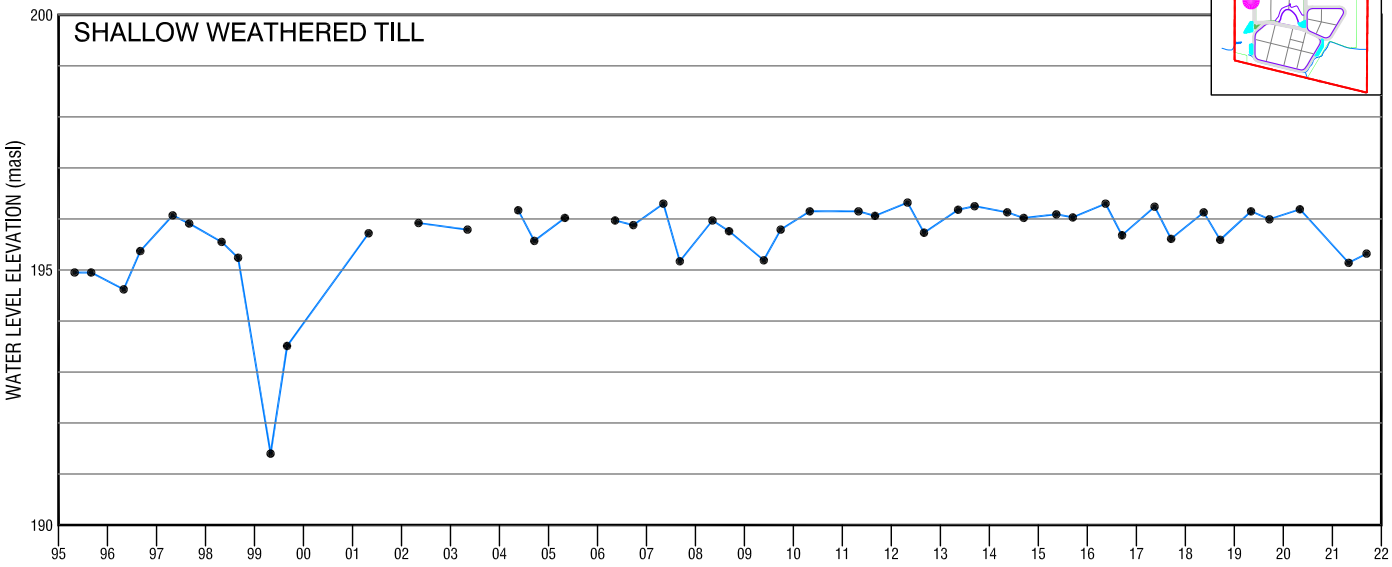
WELL 3-II



MP Elevation 197.83 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
01-May-96	187.68	17-Sep-04	187.63	03-May-10	188.96	15-Sep-15	188.42	03-May-21	188.77		
01-May-97	189.43	03-May-05	188.56	01-May-11	188.96	16-May-16	189.34	13-Sep-21	187.87		
01-May-98	188.47	17-Mar-06	188.56	01-Sep-11	188.04	16-Sep-16	188.43				
01-Sep-98	188.21	12-May-06	188.59	01-May-12	189.17	17-May-17	189.49				
01-May-99	188.10	25-Sep-06	187.47	01-Sep-12	187.90	17-Sep-17	188.14				
01-Sep-99	187.01	07-May-07	188.81	13-May-13	189.20	18-May-18	189.50				
01-May-00	187.55	07-Sep-07	187.75	13-Sep-13	188.25	18-Sep-18	188.51				
01-May-01	187.83	07-May-08	188.76	14-May-14	189.28	06-May-19	189.53				
08-May-03	188.33	08-Sep-08	187.66	14-Sep-14	188.38	20-Sep-19	189.27				
20-May-04	188.61	28-Sep-09	187.80	15-May-15	189.26	04-May-20	189.58				

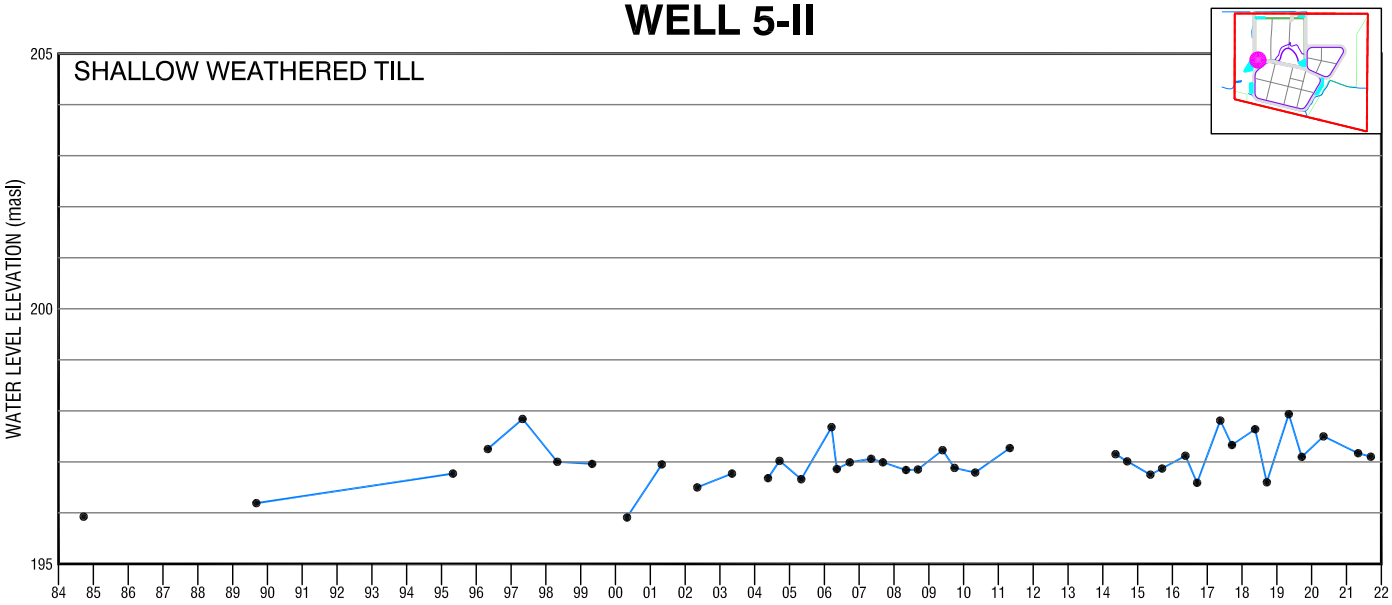
WELL 3-III



MP Elevation 198.00 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
01-May-95	194.95	01-May-01	195.72	07-May-08	195.97	13-Sep-13	196.25	18-Sep-18	195.59		
01-Sep-95	194.95	08-May-02	195.92	08-Sep-08	195.76	14-May-14	196.13	06-May-19	196.15		
01-May-96	194.62	08-May-03	195.79	25-May-09	195.19	14-Sep-14	196.02	20-Sep-19	195.99		
01-Sep-96	195.37	20-May-04	196.17	28-Sep-09	195.79	15-May-15	196.09	04-May-20	196.19		
01-May-97	196.07	17-Sep-04	195.57	03-May-10	196.15	15-Sep-15	196.03	03-May-21	195.14		
01-Sep-97	195.91	03-May-05	196.02	01-May-11	196.15	16-May-16	196.30	13-Sep-21	195.32		
01-May-98	195.55	12-May-06	195.97	01-Sep-11	196.06	16-Sep-16	195.68				
01-Sep-98	195.24	25-Sep-06	195.88	01-May-12	196.32	17-May-17	196.24				
01-May-99	DRY	07-May-07	196.30	01-Sep-12	195.73	17-Sep-17	195.61				
01-Sep-99	193.51	07-Sep-07	195.17	13-May-13	196.18	18-May-18	196.13				

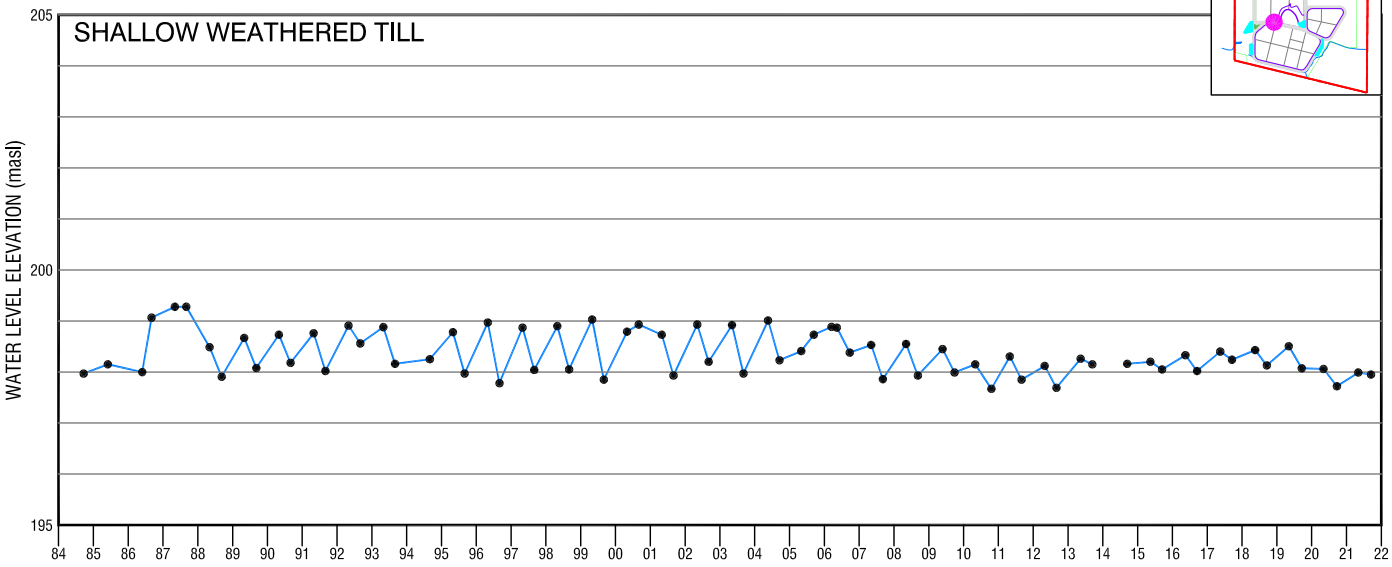
WELL 5-II



MP Elevation 198.52 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
20-Sep-84	195.93	08-May-03	196.77	08-Sep-08	196.85	16-Sep-16	196.59				
06-Sep-89	196.19	20-May-04	196.68	25-May-09	197.23	17-May-17	197.81				
01-May-95	196.77	17-Sep-04	197.02	28-Sep-09	196.88	17-Sep-17	197.33				
01-May-96	197.25	03-May-05	196.66	03-May-10	196.79	18-May-18	197.64				
01-May-97	197.84	17-Mar-06	197.68	01-May-11	197.27	18-Sep-18	196.60				
01-May-98	197.00	12-May-06	196.86	14-May-14	197.15	06-May-19	197.93				
01-May-99	196.96	25-Sep-06	196.99	14-Sep-14	197.01	20-Sep-19	197.10				
01-May-00	195.91	07-May-07	197.06	15-May-15	196.75	04-May-20	197.50				
01-May-01	196.95	07-Sep-07	196.99	15-Sep-15	196.87	03-May-21	197.17				
08-May-02	196.50	07-May-08	196.84	16-May-16	197.12	13-Sep-21	197.10				

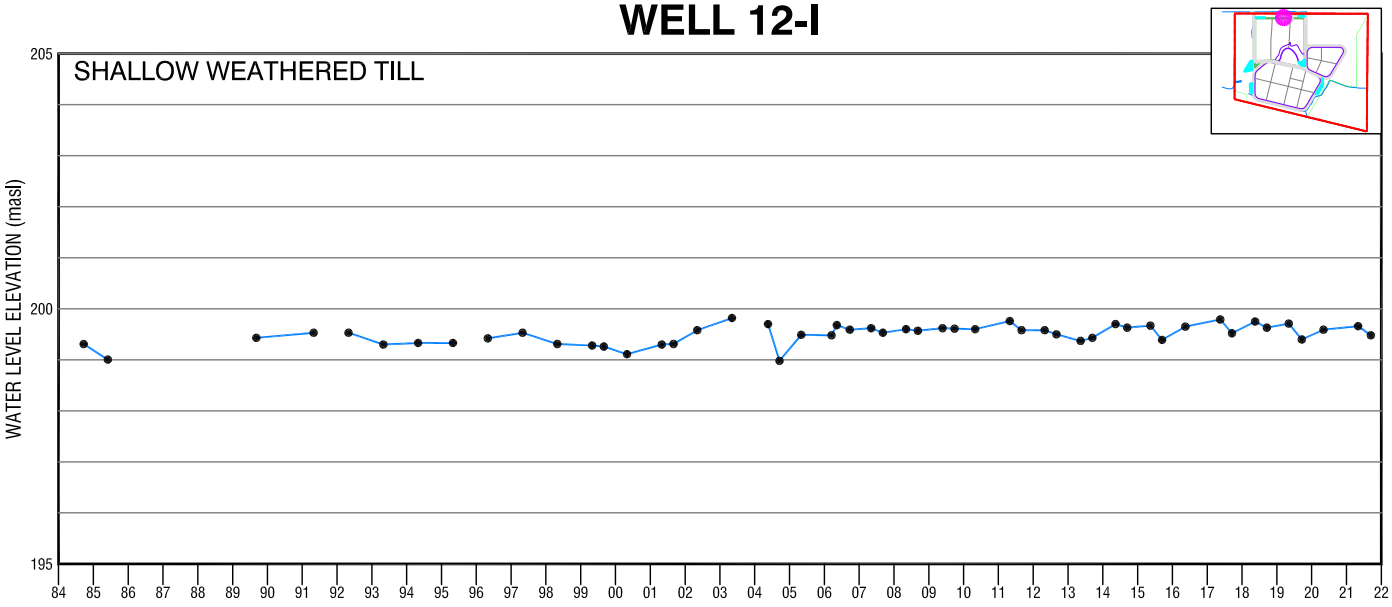
WELL 11-I



MP Elevation 200.13 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
01-Sep-91	198.02	01-May-97	198.87	08-May-02	198.93	25-Sep-06	198.38	01-Sep-11	197.85	17-May-17	198.40
01-May-92	198.91	01-Sep-97	198.04	05-Sep-02	198.20	07-May-07	198.53	01-May-12	198.12	17-Sep-17	198.24
01-Sep-92	198.56	01-May-98	198.90	08-May-03	198.92	07-Sep-07	197.86	01-Sep-12	197.69	18-May-18	198.43
01-May-93	198.88	01-Sep-98	198.05	05-Sep-03	197.97	07-May-08	198.55	13-May-13	198.26	18-Sep-18	198.13
01-Sep-93	198.16	01-May-99	199.03	20-May-04	199.01	08-Sep-08	197.93	13-Sep-13	198.15	06-May-19	198.51
01-Sep-94	198.25	01-Sep-99	197.85	17-Sep-04	198.23	25-May-09	198.45	14-Sep-14	198.16	20-Sep-19	198.07
01-May-95	198.78	01-May-00	198.79	03-May-05	198.41	28-Sep-09	197.99	15-May-15	198.20	05-May-20	198.06
01-Sep-95	197.97	01-Sep-00	198.93	12-Sep-05	198.73	03-May-10	198.15	15-Sep-15	198.05	22-Sep-20	197.72
01-May-96	198.97	01-May-01	198.73	17-Mar-06	198.88	20-Oct-10	197.67	16-May-16	198.33	04-May-21	197.99
01-Sep-96	197.78	01-Sep-01	197.93	12-May-06	198.87	01-May-11	198.30	16-Sep-16	198.02	15-Sep-21	197.95

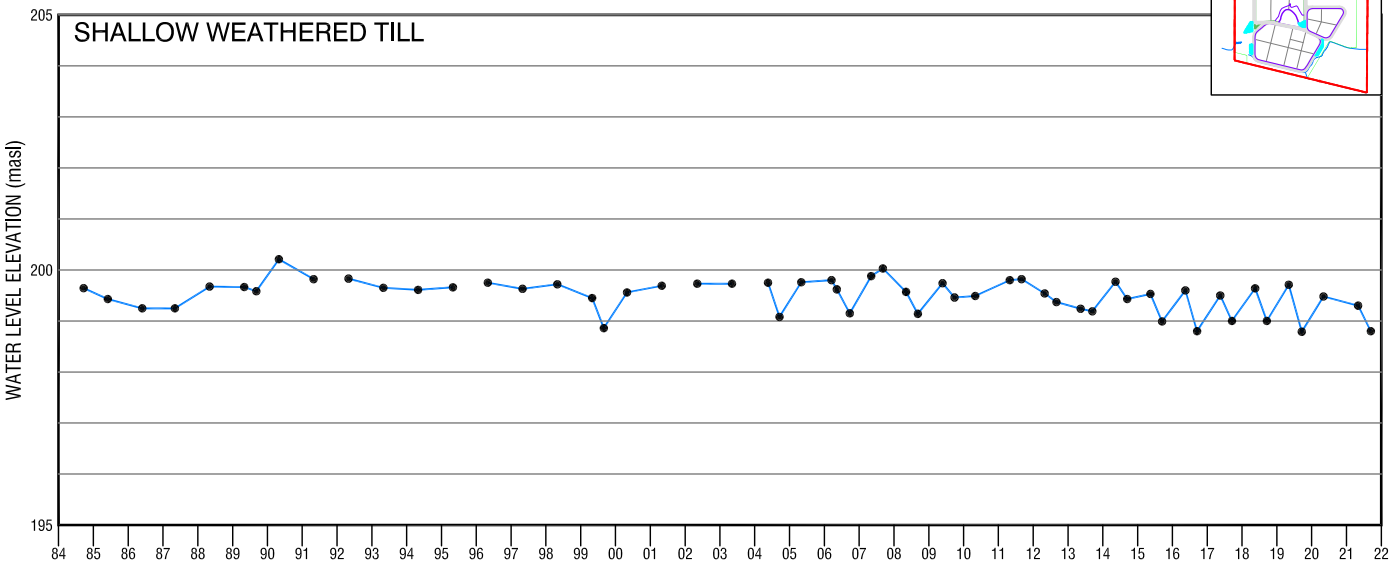
WELL 12-I



MP Elevation 200.58 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
20-Sep-84	199.31	01-May-98	199.31	03-May-05	199.49	03-May-10	199.60	15-Sep-15	199.39	13-Sep-21	199.48
01-Jun-85	199.00	01-May-99	199.28	17-Mar-06	199.48	01-May-11	199.76	16-May-16	199.65		
06-Sep-89	199.43	01-Sep-99	199.26	12-May-06	199.68	01-Sep-11	199.58	17-May-17	199.79		
01-May-91	199.53	01-May-00	199.11	25-Sep-06	199.59	01-May-12	199.58	17-Sep-17	199.52		
01-May-92	199.53	01-May-01	199.30	07-May-07	199.62	01-Sep-12	199.50	18-May-18	199.75		
01-May-93	199.30	01-Sep-01	199.31	07-Sep-07	199.53	13-May-13	199.37	18-Sep-18	199.63		
01-May-94	199.33	08-May-02	199.58	07-May-08	199.60	13-Sep-13	199.43	06-May-19	199.71		
01-May-95	199.33	08-May-03	199.82	08-Sep-08	199.57	14-May-14	199.70	20-Sep-19	199.40		
01-May-96	199.42	20-May-04	199.70	25-May-09	199.62	14-Sep-14	199.63	04-May-20	199.59		
01-May-97	199.53	17-Sep-04	198.98	28-Sep-09	199.61	15-May-15	199.67	03-May-21	199.66		

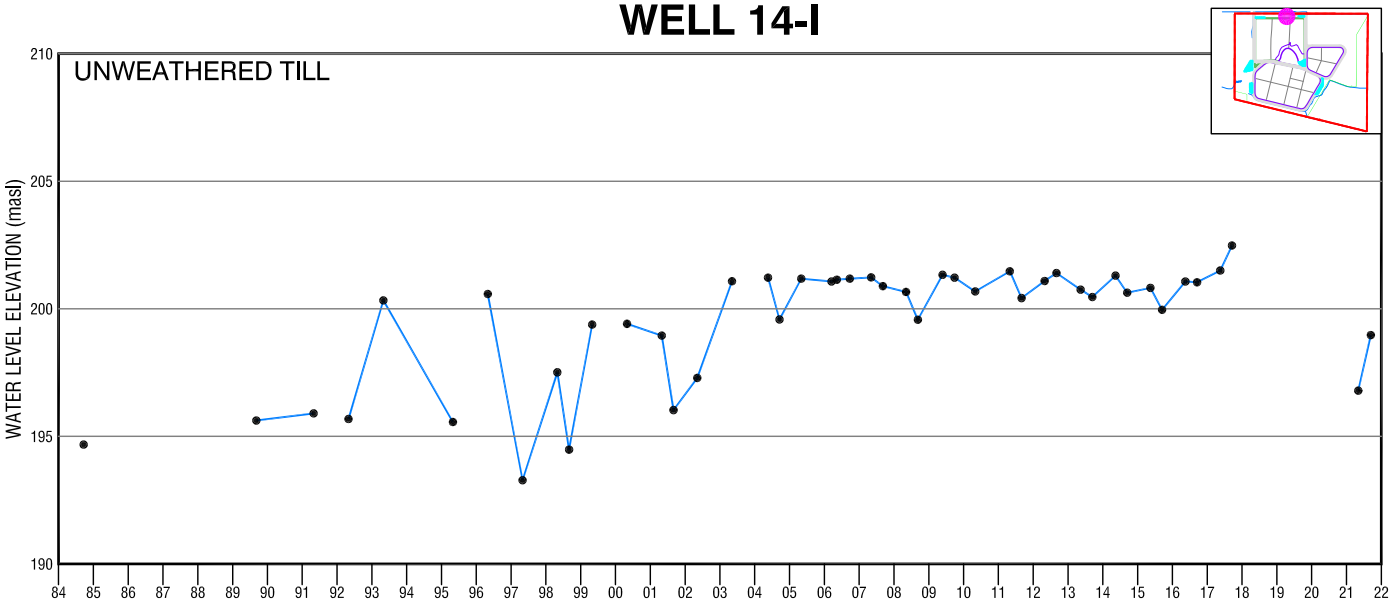
WELL 13-I



MP Elevation 201.08 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
20-Sep-84	199.64	01-May-93	199.65	08-May-02	199.73	07-May-08	199.57	13-Sep-13	199.19	18-Sep-18	199.00
01-Jun-85	199.43	01-May-94	199.61	08-May-03	199.73	08-Sep-08	199.14	14-May-14	199.77	06-May-19	199.71
28-May-86	199.25	01-May-95	199.66	20-May-04	199.75	25-May-09	199.74	14-Sep-14	199.43	20-Sep-19	198.79
06-May-87	199.25	01-May-96	199.75	17-Sep-04	199.08	28-Sep-09	199.46	15-May-15	199.53	04-May-20	199.48
04-May-88	199.67	01-May-97	199.63	03-May-05	199.76	03-May-10	199.49	15-Sep-15	198.99	03-May-21	199.30
02-May-89	199.67	01-May-98	199.72	17-Mar-06	199.80	01-May-11	199.80	16-May-16	199.60	13-Sep-21	198.80
06-Sep-89	199.58	01-May-99	199.45	12-May-06	199.62	01-Sep-11	199.82	16-Sep-16	198.80		
01-May-90	200.21	01-Sep-99	198.86	25-Sep-06	199.15	01-May-12	199.54	17-May-17	199.50		
01-May-91	199.82	01-May-00	199.56	07-May-07	199.88	01-Sep-12	199.37	17-Sep-17	199.00		
01-May-92	199.83	01-May-01	199.69	07-Sep-07	200.03	13-May-13	199.24	18-May-18	199.64		

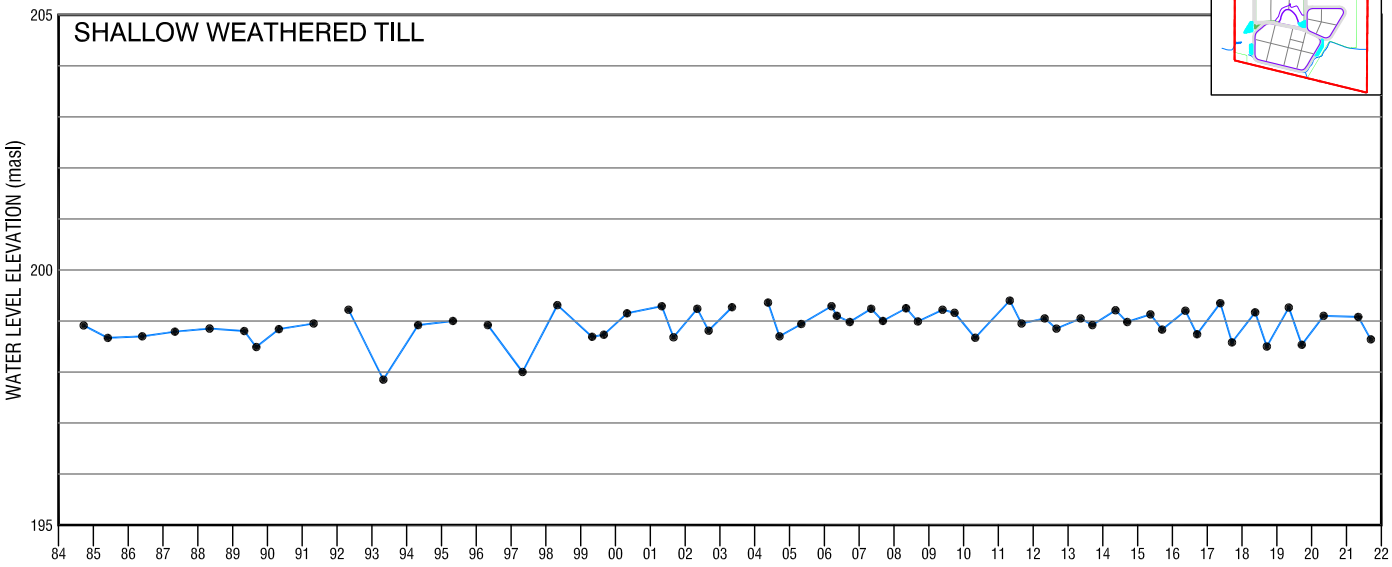
WELL 14-I



MP Elevation 201.09 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
20-Sep-84	194.68	01-May-99	199.38	12-May-06	201.14	01-Sep-11	200.42	16-Sep-16	201.04		
06-Sep-89	195.62	01-May-00	199.41	25-Sep-06	201.18	01-May-12	201.09	17-May-17	201.50		
01-May-91	195.90	01-May-01	198.95	07-May-07	201.23	01-Sep-12	201.40	17-Sep-17	202.48		
01-May-92	195.68	01-Sep-01	196.03	07-Sep-07	200.89	13-May-13	200.75	04-May-21	196.79		
01-May-93	200.33	08-May-02	197.29	07-May-08	200.66	13-Sep-13	200.46	13-Sep-21	198.97		
01-May-95	195.56	08-May-03	201.08	08-Sep-08	199.57	14-May-14	201.30				
01-May-96	200.58	20-May-04	201.22	25-May-09	201.33	14-Sep-14	200.63				
01-May-97	193.28	17-Sep-04	199.58	28-Sep-09	201.22	15-May-15	200.82				
01-May-98	197.51	03-May-05	201.18	03-May-10	200.68	15-Sep-15	199.96				
01-Sep-98	194.48	17-Mar-06	201.07	01-May-11	201.47	16-May-16	201.07				

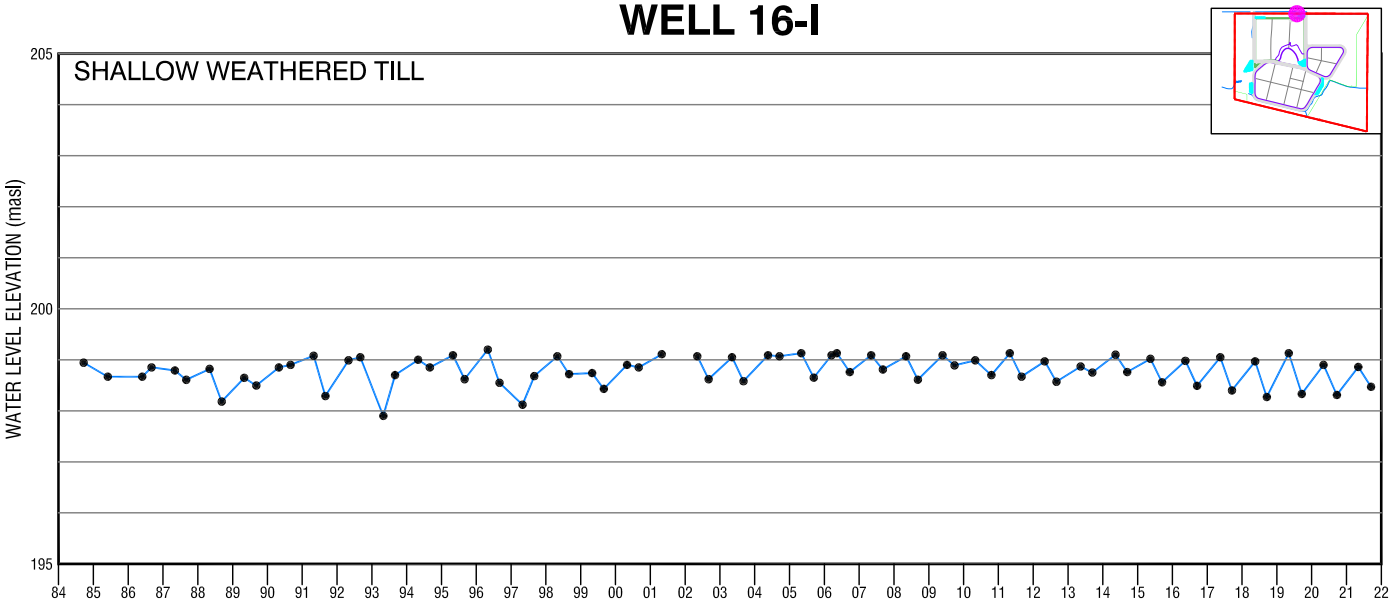
WELL 15-I



MP Elevation 200.40 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
20-Sep-84	198.91	01-May-93	197.85	01-Sep-01	198.68	07-May-07	199.24	01-Sep-12	198.85	17-Sep-17	198.58
01-Jun-85	198.67	01-May-94	198.92	08-May-02	199.24	07-Sep-07	199.00	13-May-13	199.05	18-May-18	199.17
28-May-86	198.70	01-May-95	199.00	05-Sep-02	198.81	07-May-08	199.25	13-Sep-13	198.92	18-Sep-18	198.50
06-May-87	198.79	01-May-96	198.92	08-May-03	199.27	08-Sep-08	198.99	14-May-14	199.21	06-May-19	199.26
04-May-88	198.85	01-May-97	198.00	20-May-04	199.36	25-May-09	199.22	14-Sep-14	198.98	20-Sep-19	198.53
02-May-89	198.80	01-May-98	199.31	17-Sep-04	198.70	28-Sep-09	199.16	15-May-15	199.13	06-May-20	199.10
06-Sep-89	198.49	01-May-99	198.69	03-May-05	198.94	03-May-10	198.67	15-Sep-15	198.83	04-May-21	199.08
01-May-90	198.84	01-Sep-99	198.73	17-Mar-06	199.29	01-May-11	199.40	16-May-16	199.20	13-Sep-21	198.64
01-May-91	198.95	01-May-00	199.15	12-May-06	199.10	01-Sep-11	198.95	16-Sep-16	198.74		
01-May-92	199.22	01-May-01	199.29	25-Sep-06	198.98	01-May-12	199.05	17-May-17	199.35		

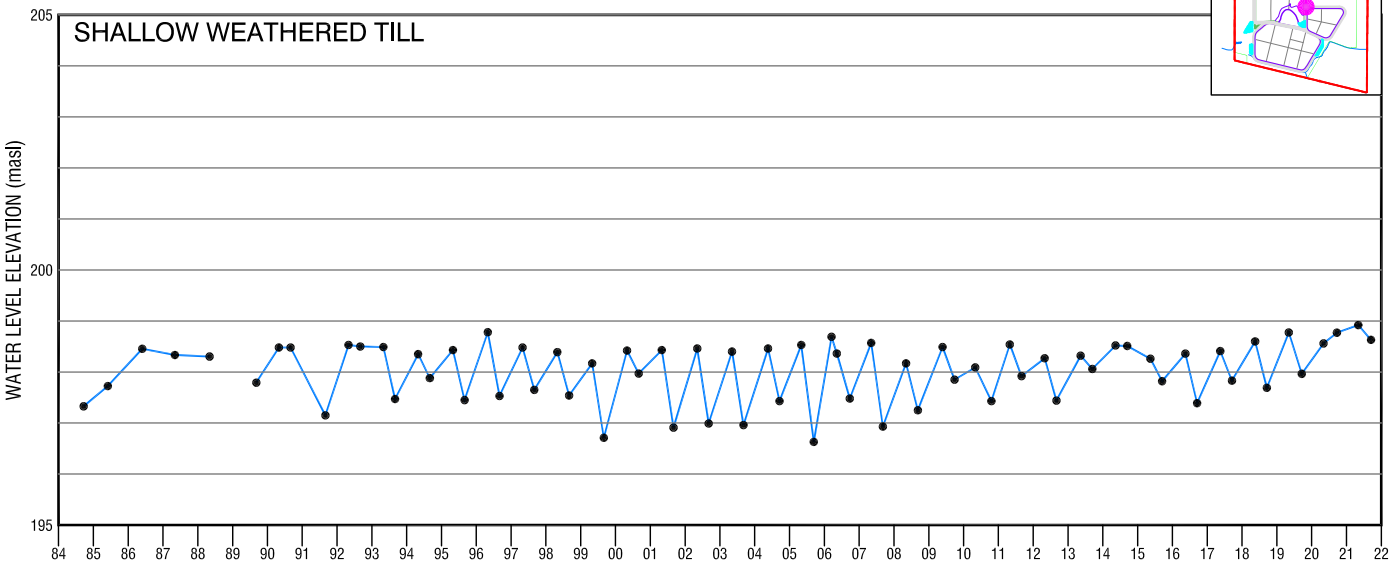
WELL 16-I



MP Elevation 200.05 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
01-May-92	198.99	01-May-97	198.12	05-Sep-02	198.62	07-May-07	199.09	01-May-12	198.97	17-May-17	199.05
01-Sep-92	199.05	01-Sep-97	198.68	08-May-03	199.05	07-Sep-07	198.81	01-Sep-12	198.57	17-Sep-17	198.40
01-May-93	197.90	01-May-98	199.07	05-Sep-03	198.58	07-May-08	199.07	13-May-13	198.87	18-May-18	198.97
01-Sep-93	198.70	01-Sep-98	198.72	20-May-04	199.09	08-Sep-08	198.61	13-Sep-13	198.75	18-Sep-18	198.27
01-May-94	199.00	01-May-99	198.74	17-Sep-04	199.07	25-May-09	199.09	14-May-14	199.10	06-May-19	199.13
01-Sep-94	198.85	01-Sep-99	198.43	03-May-05	199.13	28-Sep-09	198.89	14-Sep-14	198.76	20-Sep-19	198.33
01-May-95	199.09	01-May-00	198.90	12-Sep-05	198.65	03-May-10	198.99	15-May-15	199.02	05-May-20	198.90
01-Sep-95	198.62	01-Sep-00	198.85	17-Mar-06	199.09	20-Oct-10	198.70	15-Sep-15	198.56	22-Sep-20	198.31
01-May-96	199.20	01-May-01	199.11	12-May-06	199.13	01-May-11	199.13	16-May-16	198.98	04-May-21	198.86
01-Sep-96	198.55	08-May-02	199.07	25-Sep-06	198.76	01-Sep-11	198.67	16-Sep-16	198.49	16-Sep-21	198.47

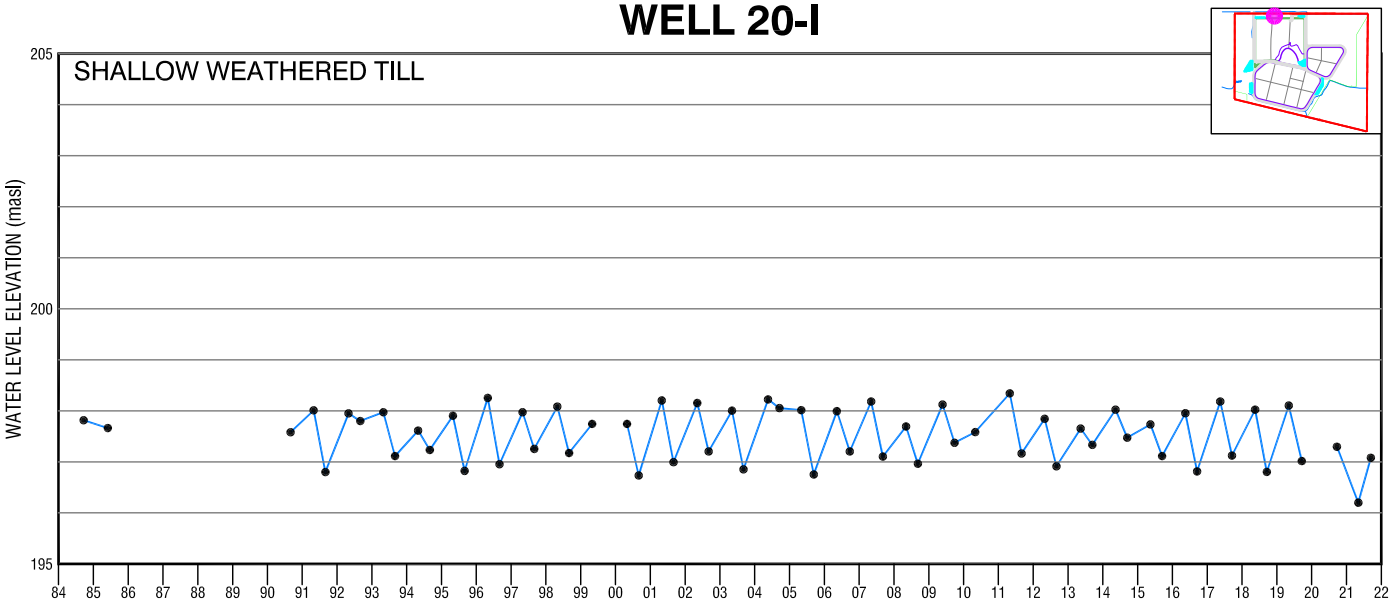
WELL 19-I



MP Elevation 199.73 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
01-Sep-92	198.50	01-Sep-97	197.65	05-Sep-02	196.99	07-May-07	198.57	01-May-12	198.27	17-May-17	198.41
01-May-93	198.49	01-May-98	198.39	08-May-03	198.40	07-Sep-07	196.93	01-Sep-12	197.44	17-Sep-17	197.83
01-Sep-93	197.47	01-Sep-98	197.54	05-Sep-03	196.96	07-May-08	198.17	13-May-13	198.32	18-May-18	198.60
01-May-94	198.35	01-May-99	198.17	20-May-04	198.46	08-Sep-08	197.25	13-Sep-13	198.06	18-Sep-18	197.69
01-Sep-94	197.88	01-Sep-99	196.71	17-Sep-04	197.43	25-May-09	198.49	14-May-14	198.52	06-May-19	198.77
01-May-95	198.43	01-May-00	198.42	03-May-05	198.53	28-Sep-09	197.85	14-Sep-14	198.51	20-Sep-19	197.96
01-Sep-95	197.45	01-Sep-00	197.97	12-Sep-05	196.63	03-May-10	198.09	15-May-15	198.26	05-May-20	198.56
01-May-96	198.78	01-May-01	198.43	17-Mar-06	198.69	20-Oct-10	197.43	15-Sep-15	197.82	22-Sep-20	198.77
01-Sep-96	197.53	01-Sep-01	196.91	12-May-06	198.36	01-May-11	198.54	16-May-16	198.36	04-May-21	198.92
01-May-97	198.48	08-May-02	198.46	25-Sep-06	197.48	01-Sep-11	197.92	16-Sep-16	197.39	15-Sep-21	198.63

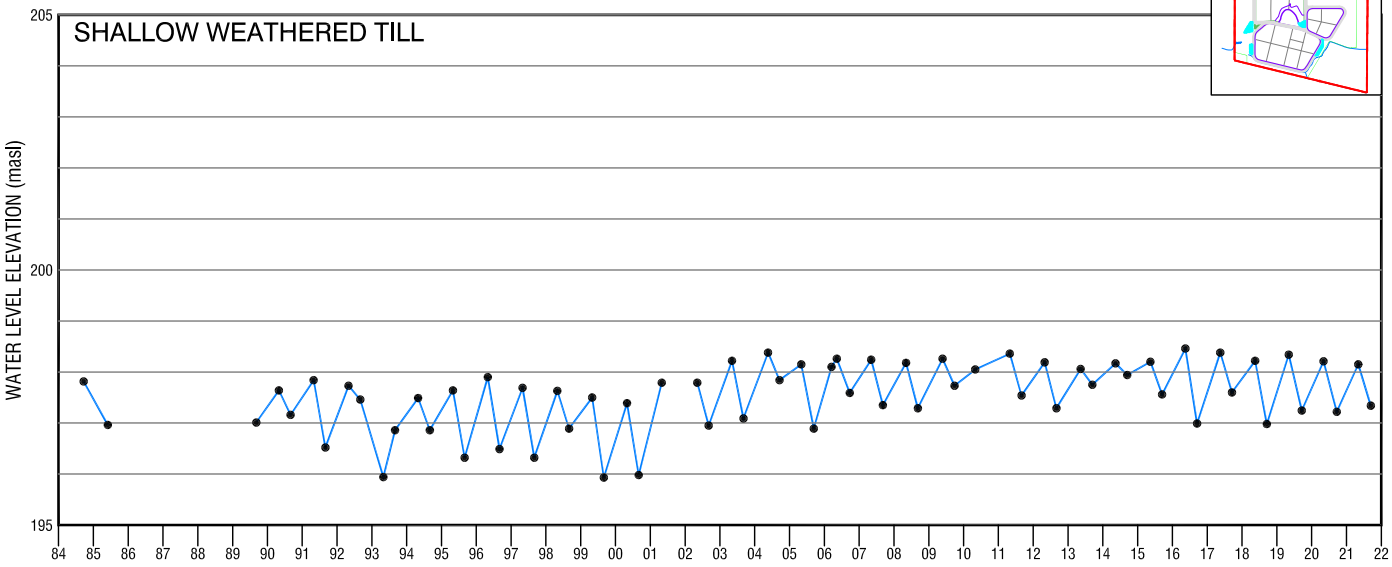
WELL 20-I



MP Elevation 202.54 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
01-Sep-90	197.58	01-Sep-95	196.82	01-May-01	198.20	12-May-06	197.99	01-Sep-11	197.16	16-Sep-16	196.81
01-May-91	198.01	01-May-96	198.25	01-Sep-01	196.99	25-Sep-06	197.20	01-May-12	197.84	17-May-17	198.18
01-Sep-91	196.80	01-Sep-96	196.95	08-May-02	198.15	07-May-07	198.18	01-Sep-12	196.91	17-Sep-17	197.12
01-May-92	197.95	01-May-97	197.97	05-Sep-02	197.20	07-Sep-07	197.10	13-May-13	197.65	18-May-18	198.02
01-Sep-92	197.80	01-Sep-97	197.25	08-May-03	198.00	07-May-08	197.69	13-Sep-13	197.33	18-Sep-18	196.80
01-May-93	197.97	01-May-98	198.08	05-Sep-03	196.85	08-Sep-08	196.96	14-May-14	198.02	06-May-19	198.10
01-Sep-93	197.11	01-Sep-98	197.17	20-May-04	198.22	25-May-09	198.12	14-Sep-14	197.47	20-Sep-19	197.01
01-May-94	197.61	01-May-99	197.74	17-Sep-04	198.05	28-Sep-09	197.37	15-May-15	197.73	22-Sep-20	197.30
01-Sep-94	197.23	01-May-00	197.74	03-May-05	198.01	03-May-10	197.58	15-Sep-15	197.11	05-May-21	DRY
01-May-95	197.90	01-Sep-00	196.73	12-Sep-05	196.75	01-May-11	198.34	16-May-16	197.95	13-Sep-21	197.08

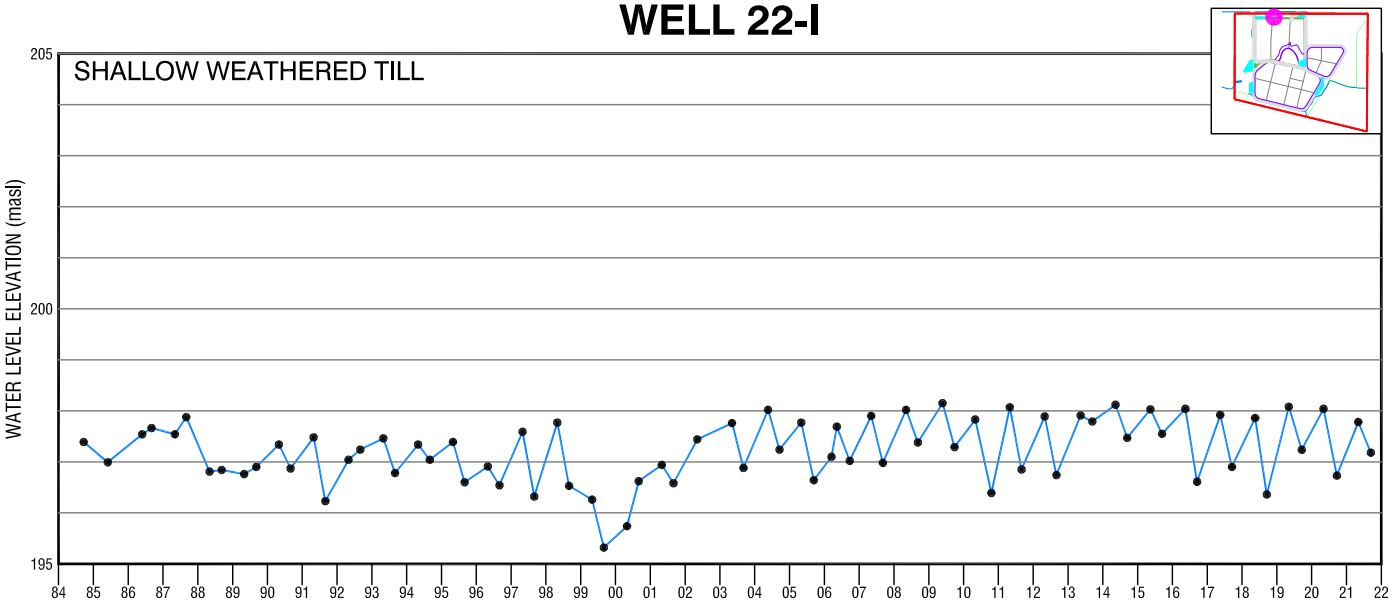
WELL 21-I



MP Elevation 199.19 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
01-Sep-91	196.52	01-Sep-96	196.49	08-May-02	197.79	25-Sep-06	197.59	01-May-12	198.19	17-May-17	198.38
01-May-92	197.73	01-May-97	197.69	05-Sep-02	196.95	07-May-07	198.24	01-Sep-12	197.29	17-Sep-17	197.60
01-Sep-92	197.46	01-Sep-97	196.32	08-May-03	198.22	07-Sep-07	197.35	13-May-13	198.06	18-May-18	198.22
01-May-93	195.94	01-May-98	197.63	05-Sep-03	197.09	07-May-08	198.18	13-Sep-13	197.75	18-Sep-18	196.98
01-Sep-93	196.86	01-Sep-98	196.89	20-May-04	198.38	08-Sep-08	197.29	14-May-14	198.17	06-May-19	198.34
01-May-94	197.49	01-May-99	197.50	17-Sep-04	197.84	25-May-09	198.26	14-Sep-14	197.94	20-Sep-19	197.24
01-Sep-94	196.86	01-Sep-99	195.93	03-May-05	198.15	28-Sep-09	197.73	15-May-15	198.20	05-May-20	198.21
01-May-95	197.64	01-May-00	197.39	12-Sep-05	196.89	03-May-10	198.05	15-Sep-15	197.56	21-Sep-20	197.22
01-Sep-95	196.32	01-Sep-00	195.98	17-Mar-06	198.10	01-May-11	198.36	16-May-16	198.46	04-May-21	198.15
01-May-96	197.90	01-May-01	197.79	12-May-06	198.26	01-Sep-11	197.54	16-Sep-16	196.99	13-Sep-21	197.34

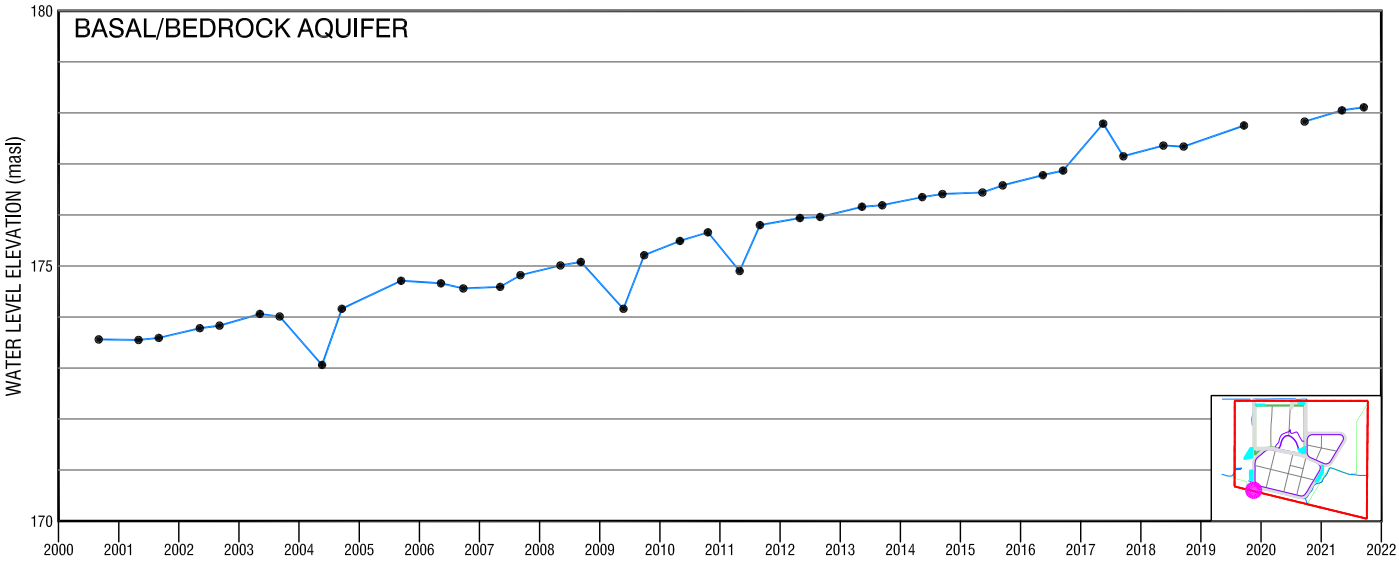
WELL 22-I



MP Elevation 199.14 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
01-May-92	197.04	01-May-97	197.59	08-May-02	197.44	07-May-07	197.90	01-May-12	197.89	17-May-17	197.92
01-Sep-92	197.24	01-Sep-97	196.32	08-May-03	197.76	07-Sep-07	196.98	01-Sep-12	196.74	17-Sep-17	196.90
01-May-93	197.46	01-May-98	197.77	05-Sep-03	196.88	07-May-08	198.02	13-May-13	197.91	18-May-18	197.86
01-Sep-93	196.78	01-Sep-98	196.53	20-May-04	198.02	08-Sep-08	197.38	13-Sep-13	197.79	18-Sep-18	196.36
01-May-94	197.34	01-May-99	196.26	17-Sep-04	197.24	25-May-09	198.15	14-May-14	198.12	06-May-19	198.08
01-Sep-94	197.04	01-Sep-99	195.32	03-May-05	197.77	28-Sep-09	197.29	14-Sep-14	197.47	20-Sep-19	197.24
01-May-95	197.39	01-May-00	195.74	12-Sep-05	196.64	03-May-10	197.83	15-May-15	198.03	05-May-20	198.04
01-Sep-95	196.60	01-Sep-00	196.62	17-Mar-06	197.10	20-Oct-10	196.39	15-Sep-15	197.55	22-Sep-20	196.73
01-May-96	196.91	01-May-01	196.94	12-May-06	197.69	01-May-11	198.07	16-May-16	198.04	04-May-21	197.78
01-Sep-96	196.54	01-Sep-01	196.58	25-Sep-06	197.02	01-Sep-11	196.85	16-Sep-16	196.61	14-Sep-21	197.18

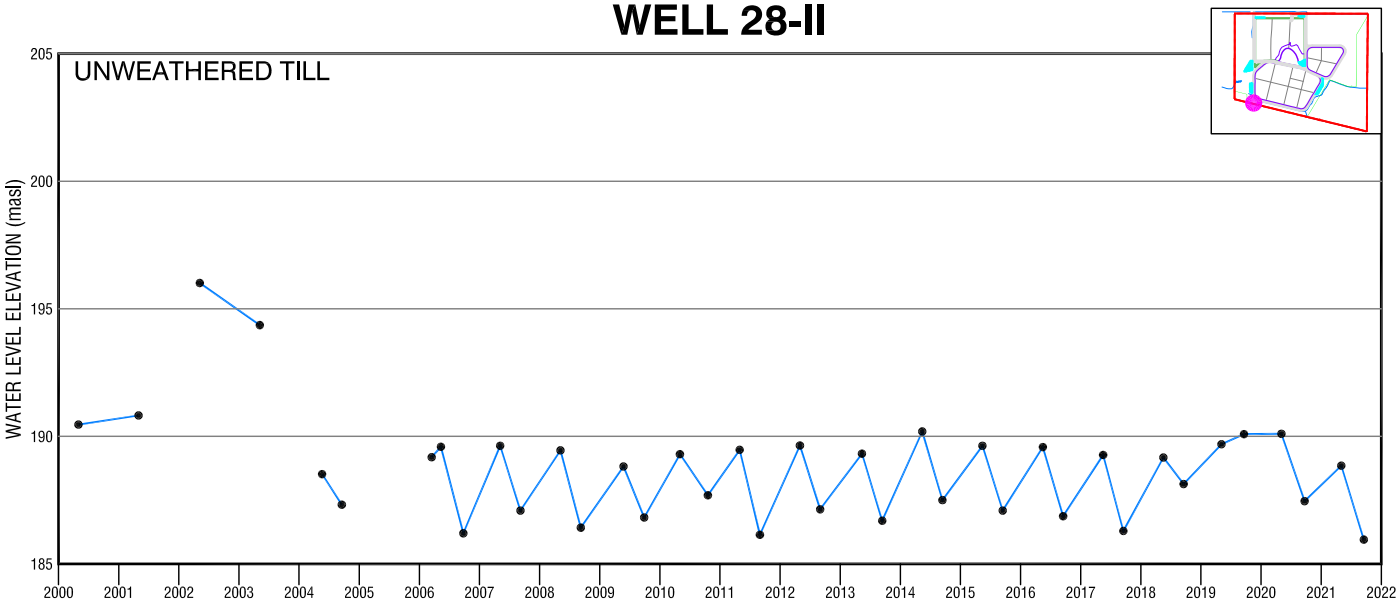
WELL 28-I



MP Elevation 197.86 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
01-Sep-00	173.56	12-May-06	174.66	01-May-11	174.90	16-May-16	176.78				
01-May-01	173.55	25-Sep-06	174.56	01-Sep-11	175.80	16-Sep-16	176.87				
01-Sep-01	173.59	07-May-07	174.59	01-May-12	175.94	17-May-17	177.79				
08-May-02	173.78	07-Sep-07	174.82	01-Sep-12	175.96	17-Sep-17	177.15				
05-Sep-02	173.83	07-May-08	175.01	13-May-13	176.16	18-May-18	177.36				
08-May-03	174.06	08-Sep-08	175.08	13-Sep-13	176.19	18-Sep-18	177.34				
05-Sep-03	174.01	25-May-09	174.16	14-May-14	176.35	20-Sep-19	177.75				
20-May-04	173.06	28-Sep-09	175.21	14-Sep-14	176.41	22-Sep-20	177.83				
17-Sep-04	174.16	03-May-10	175.49	15-May-15	176.44	07-May-21	178.05				
12-Sep-05	174.71	20-Oct-10	175.66	15-Sep-15	176.58	17-Sep-21	178.11				

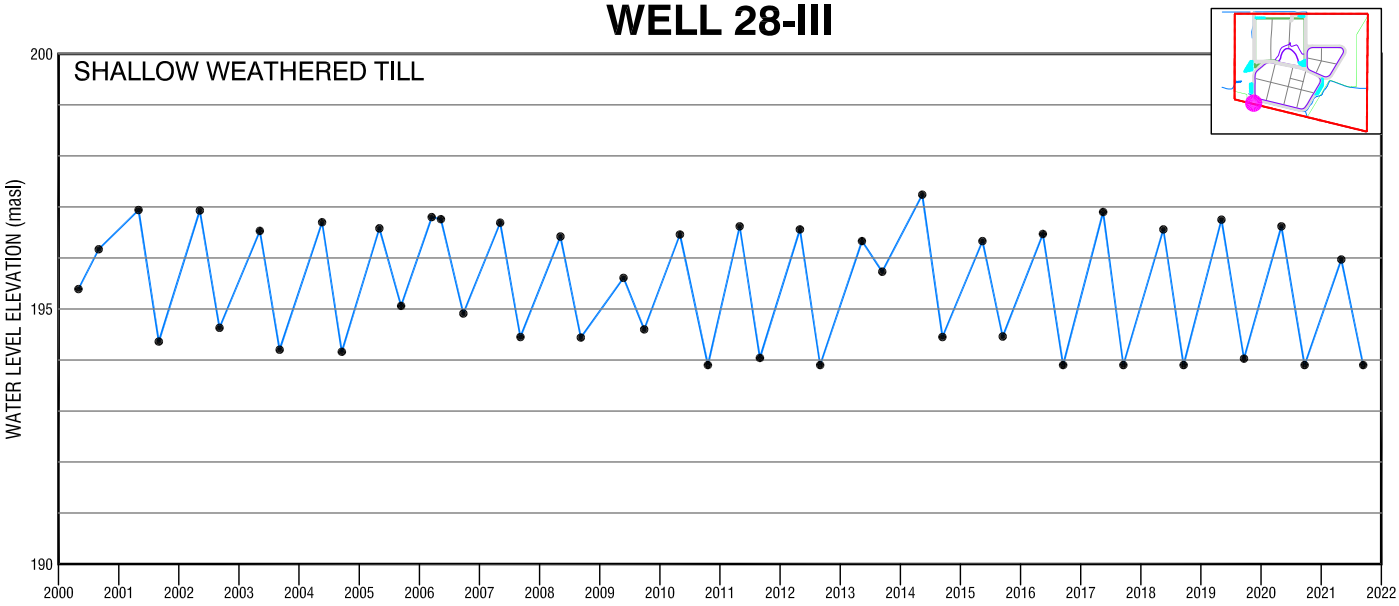
WELL 28-II



MP Elevation 198.02 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
01-May-00	190.46	07-Sep-07	187.09	01-Sep-12	187.14	17-Sep-17	186.29				
01-May-01	190.82	07-May-08	189.45	13-May-13	189.32	18-May-18	189.17				
08-May-02	196.01	08-Sep-08	186.42	13-Sep-13	186.69	18-Sep-18	188.13				
08-May-03	194.36	25-May-09	188.82	14-May-14	190.19	06-May-19	189.69				
20-May-04	188.52	28-Sep-09	186.82	14-Sep-14	187.50	20-Sep-19	190.09				
17-Sep-04	187.32	03-May-10	189.30	15-May-15	189.63	04-May-20	190.10				
17-Mar-06	189.18	20-Oct-10	187.69	15-Sep-15	187.09	22-Sep-20	187.46				
12-May-06	189.59	01-May-11	189.47	16-May-16	189.58	03-May-21	188.85				
25-Sep-06	186.20	01-Sep-11	186.14	16-Sep-16	186.87	17-Sep-21	185.95				
07-May-07	189.63	01-May-12	189.64	17-May-17	189.27						

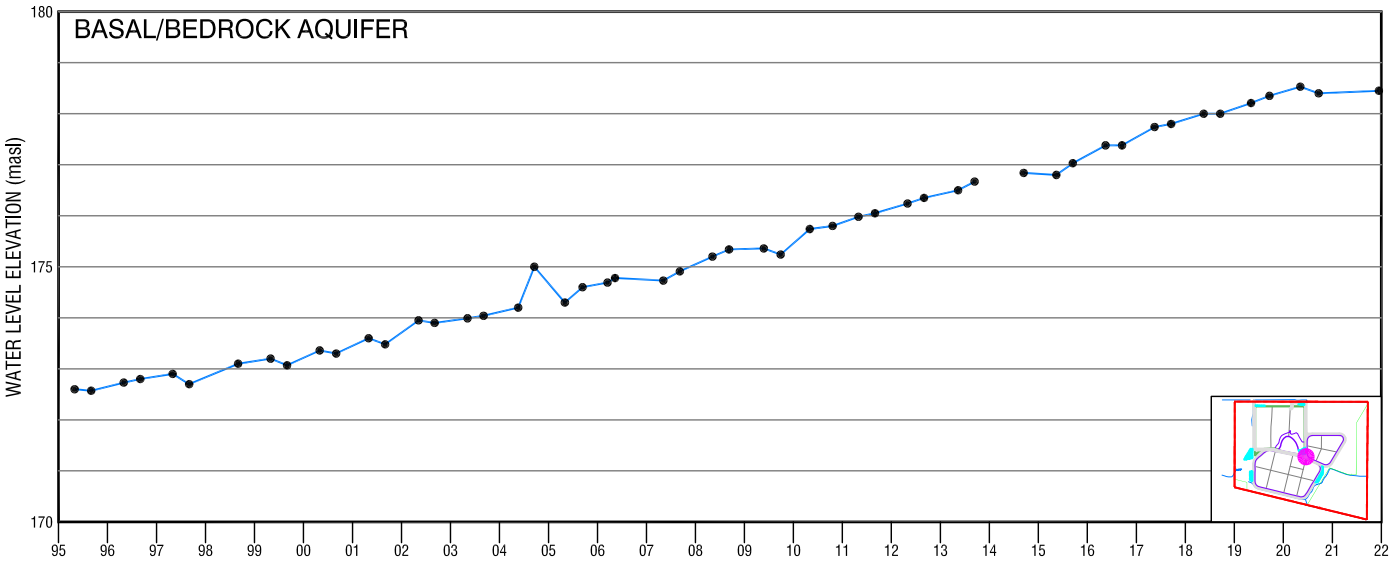
WELL 28-III



MP Elevation 198.04 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
01-May-00	195.39	03-May-05	196.58	28-Sep-09	194.60	14-Sep-14	194.45	20-Sep-19	194.03		
01-Sep-00	196.17	12-Sep-05	195.06	03-May-10	196.46	15-May-15	196.33	04-May-20	196.62		
01-May-01	196.94	17-Mar-06	196.80	20-Oct-10	DRY	15-Sep-15	194.46	22-Sep-20	DRY		
01-Sep-01	194.36	12-May-06	196.76	01-May-11	196.62	16-May-16	196.47	03-May-21	195.97		
08-May-02	196.93	25-Sep-06	194.91	01-Sep-11	194.04	16-Sep-16	DRY	13-Sep-21	DRY		
05-Sep-02	194.63	07-May-07	196.69	01-May-12	196.56	17-May-17	196.90				
08-May-03	196.53	07-Sep-07	194.45	01-Sep-12	DRY	17-Sep-17	DRY				
05-Sep-03	194.20	07-May-08	196.42	13-May-13	196.33	18-May-18	196.56				
20-May-04	196.70	08-Sep-08	194.44	13-Sep-13	195.73	18-Sep-18	DRY				
17-Sep-04	194.16	25-May-09	195.61	14-May-14	197.24	06-May-19	196.75				

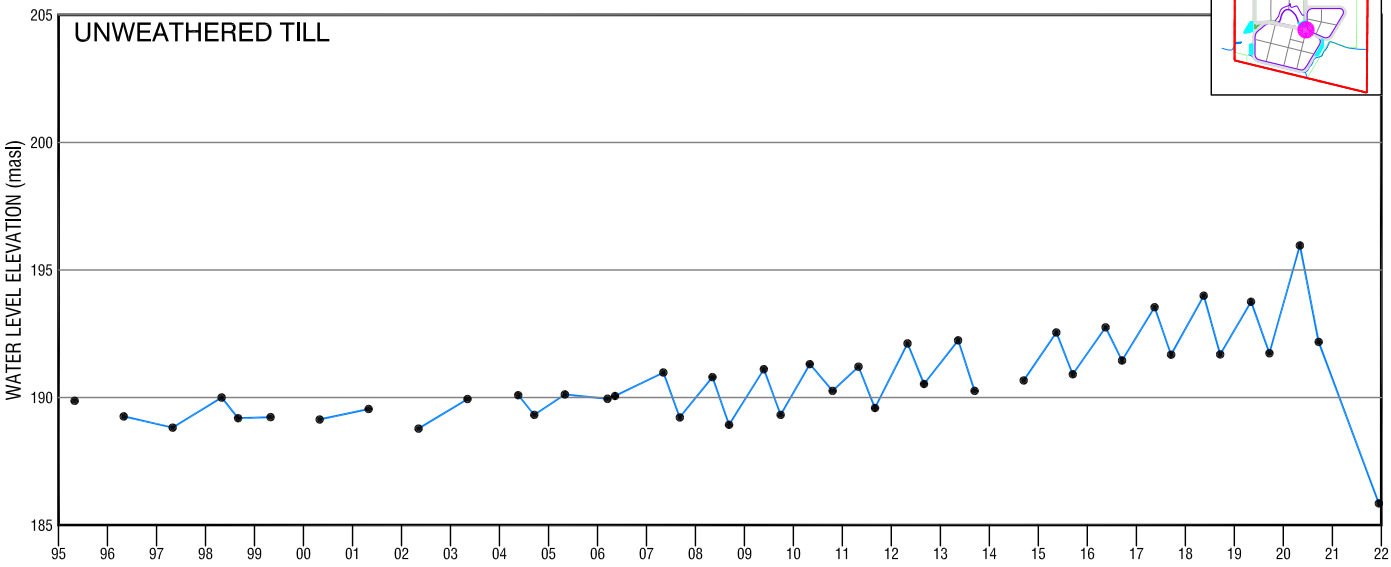
WELL 30-I



MP Elevation 201.63 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
01-May-95	172.60	01-Sep-00	173.30	12-Sep-05	174.60	20-Oct-10	175.80	16-May-16	177.38	14-Dec-21	178.45
01-Sep-95	172.57	01-May-01	173.60	17-Mar-06	174.69	01-May-11	175.98	16-Sep-16	177.38		
01-May-96	172.73	01-Sep-01	173.48	12-May-06	174.78	01-Sep-11	176.05	17-May-17	177.74		
01-Sep-96	172.80	08-May-02	173.95	07-May-07	174.73	01-May-12	176.24	17-Sep-17	177.80		
01-May-97	172.90	05-Sep-02	173.90	07-Sep-07	174.91	01-Sep-12	176.35	18-May-18	178.00		
01-Sep-97	172.70	08-May-03	173.99	07-May-08	175.20	13-May-13	176.50	18-Sep-18	178.00		
01-Sep-98	173.10	05-Sep-03	174.04	08-Sep-08	175.34	13-Sep-13	176.67	06-May-19	178.21		
01-May-99	173.20	20-May-04	174.20	25-May-09	175.36	14-Sep-14	176.84	20-Sep-19	178.35		
01-Sep-99	173.07	17-Sep-04	175.00	28-Sep-09	175.24	15-May-15	176.80	07-May-20	178.53		
01-May-00	173.36	03-May-05	174.30	03-May-10	175.74	15-Sep-15	177.03	21-Sep-20	178.40		

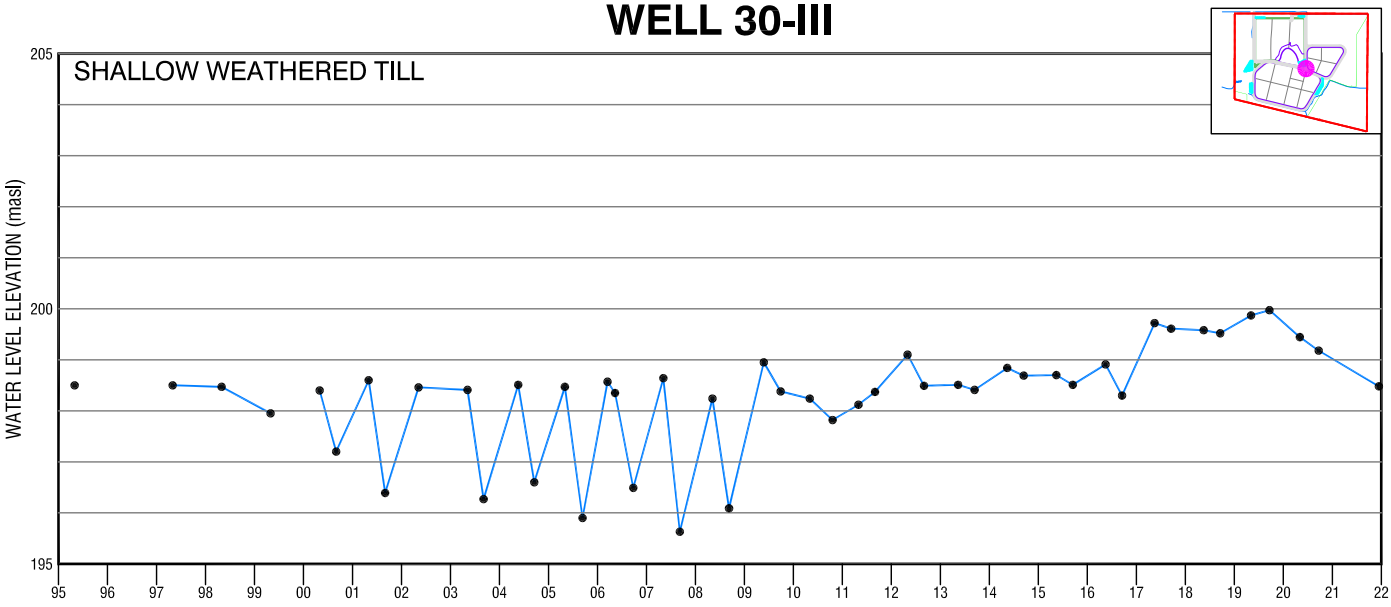
WELL 30-II



MP Elevation 201.48 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
01-May-95	189.87	20-May-04	190.09	28-Sep-09	189.32	15-May-15	192.55	04-May-20	195.96		
01-May-96	189.26	17-Sep-04	189.32	03-May-10	191.31	15-Sep-15	190.91	21-Sep-20	192.18		
01-May-97	188.82	03-May-05	190.12	20-Oct-10	190.26	16-May-16	192.75	14-Dec-21	185.85		
01-May-98	190.00	17-Mar-06	189.95	01-May-11	191.21	16-Sep-16	191.45				
01-Sep-98	189.19	12-May-06	190.06	01-Sep-11	189.59	17-May-17	193.54				
01-May-99	189.23	07-May-07	190.98	01-May-12	192.12	17-Sep-17	191.68				
01-May-00	189.14	07-Sep-07	189.22	01-Sep-12	190.53	18-May-18	193.99				
01-May-01	189.55	07-May-08	190.80	13-May-13	192.24	18-Sep-18	191.69				
08-May-02	188.78	08-Sep-08	188.93	13-Sep-13	190.26	06-May-19	193.76				
08-May-03	189.94	25-May-09	191.11	14-Sep-14	190.67	20-Sep-19	191.74				

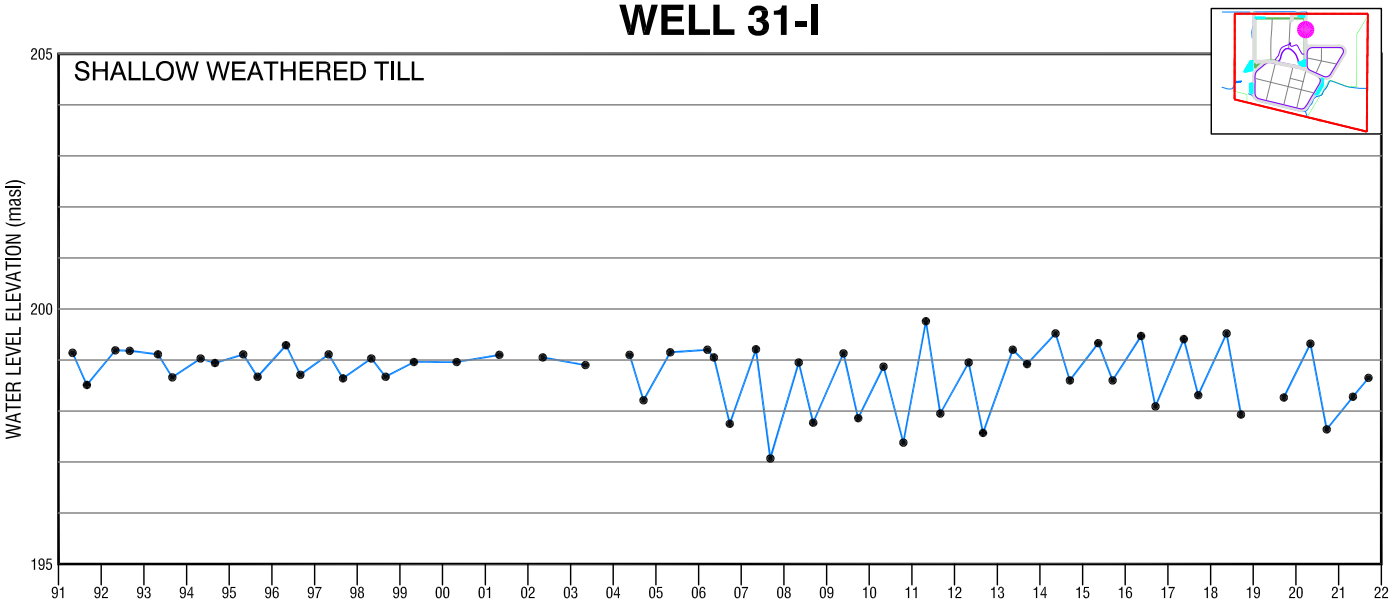
WELL 30-III



MP Elevation 201.64 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
01-May-95	198.50	05-Sep-03	196.27	07-May-08	198.24	13-May-13	198.51	18-May-18	199.58		
01-May-97	198.50	20-May-04	198.51	08-Sep-08	196.09	13-Sep-13	198.41	18-Sep-18	199.52		
01-May-98	198.47	17-Sep-04	196.60	25-May-09	198.95	14-May-14	198.84	06-May-19	199.87		
01-May-99	197.95	03-May-05	198.47	28-Sep-09	198.38	14-Sep-14	198.69	20-Sep-19	199.97		
01-May-00	198.40	12-Sep-05	195.90	03-May-10	198.24	15-May-15	198.70	04-May-20	199.45		
01-Sep-00	197.20	17-Mar-06	198.57	20-Oct-10	197.82	15-Sep-15	198.51	21-Sep-20	199.18		
01-May-01	198.60	12-May-06	198.35	01-May-11	198.12	16-May-16	198.91	14-Dec-21	198.48		
01-Sep-01	196.39	25-Sep-06	196.49	01-Sep-11	198.37	16-Sep-16	198.30				
08-May-02	198.46	07-May-07	198.64	01-May-12	199.10	17-May-17	199.72				
08-May-03	198.41	07-Sep-07	195.63	01-Sep-12	198.49	17-Sep-17	199.61				

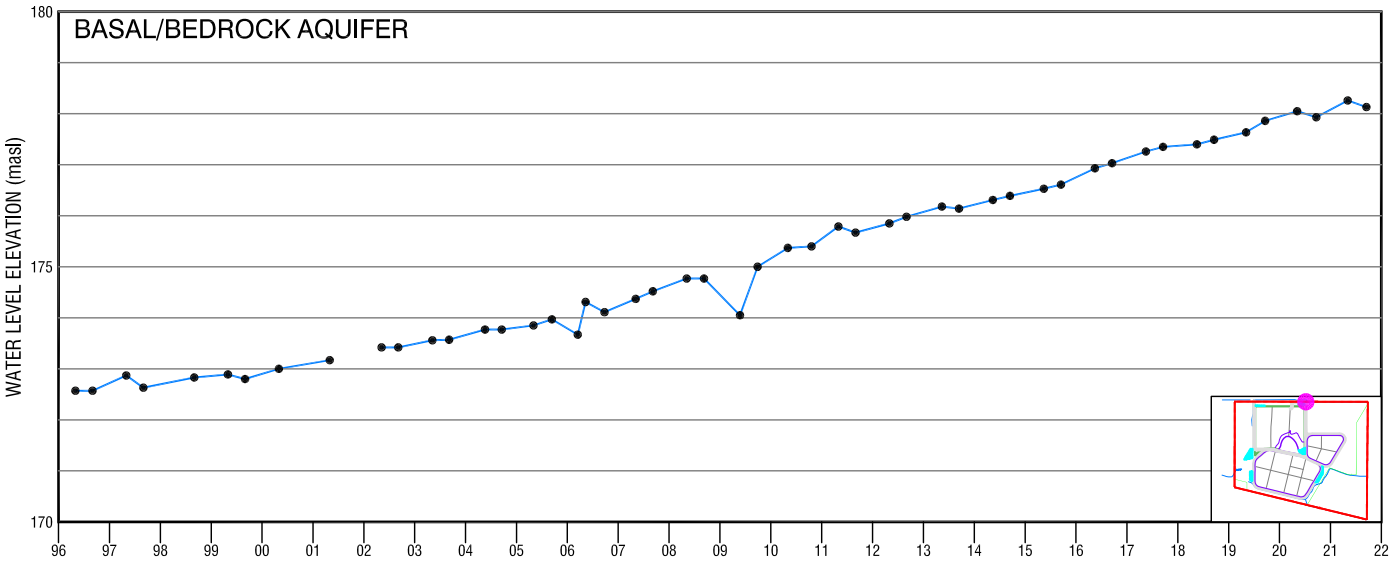
WELL 31-I



MP Elevation 201.51 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
01-May-91	199.14	01-May-96	199.29	08-May-03	198.90	08-Sep-08	197.77	13-Sep-13	198.92	18-Sep-18	197.93
01-Sep-91	198.51	01-Sep-96	198.71	20-May-04	199.10	25-May-09	199.13	14-May-14	199.52	20-Sep-19	198.26
01-May-92	199.19	01-May-97	199.11	17-Sep-04	198.21	28-Sep-09	197.86	14-Sep-14	198.60	04-May-20	199.32
01-Sep-92	199.18	01-Sep-97	198.64	03-May-05	199.15	03-May-10	198.87	15-May-15	199.33	21-Sep-20	197.64
01-May-93	199.11	01-May-98	199.03	17-Mar-06	199.20	20-Oct-10	197.38	15-Sep-15	198.60	03-May-21	198.28
01-Sep-93	198.66	01-Sep-98	198.67	12-May-06	199.05	01-May-11	199.76	16-May-16	199.47	13-Sep-21	198.65
01-May-94	199.03	01-May-99	198.96	25-Sep-06	197.75	01-Sep-11	197.95	16-Sep-16	198.09		
01-Sep-94	198.94	01-May-00	198.96	07-May-07	199.21	01-May-12	198.95	17-May-17	199.41		
01-May-95	199.11	01-May-01	199.10	07-Sep-07	197.07	01-Sep-12	197.57	17-Sep-17	198.31		
01-Sep-95	198.67	08-May-02	199.05	07-May-08	198.95	13-May-13	199.20	18-May-18	199.52		

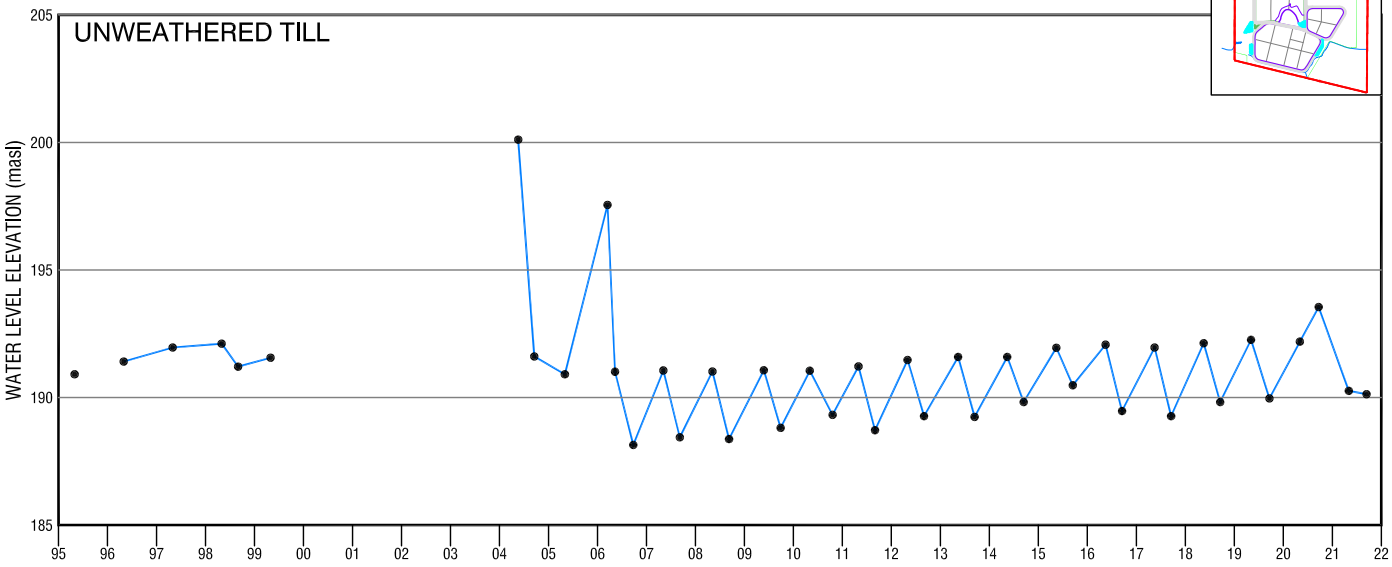
WELL 32-I



MP Elevation 200.07 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
01-May-96	172.57	05-Sep-02	173.42	07-May-07	174.37	01-May-12	175.85	17-May-17	177.26		
01-Sep-96	172.57	08-May-03	173.56	07-Sep-07	174.52	01-Sep-12	175.98	17-Sep-17	177.35		
01-May-97	172.87	05-Sep-03	173.57	07-May-08	174.77	13-May-13	176.18	18-May-18	177.40		
01-Sep-97	172.63	20-May-04	173.77	08-Sep-08	174.77	13-Sep-13	176.14	18-Sep-18	177.49		
01-Sep-98	172.83	17-Sep-04	173.77	25-May-09	174.05	14-May-14	176.31	06-May-19	177.64		
01-May-99	172.89	03-May-05	173.85	28-Sep-09	175.00	14-Sep-14	176.39	20-Sep-19	177.86		
01-Sep-99	172.80	12-Sep-05	173.97	03-May-10	175.37	15-May-15	176.53	07-May-20	178.05		
01-May-00	173.00	17-Mar-06	173.67	20-Oct-10	175.40	15-Sep-15	176.61	21-Sep-20	177.93		
01-May-01	173.17	12-May-06	174.31	01-May-11	175.79	16-May-16	176.93	05-May-21	178.26		
08-May-02	173.42	25-Sep-06	174.11	01-Sep-11	175.67	16-Sep-16	177.03	16-Sep-21	178.13		

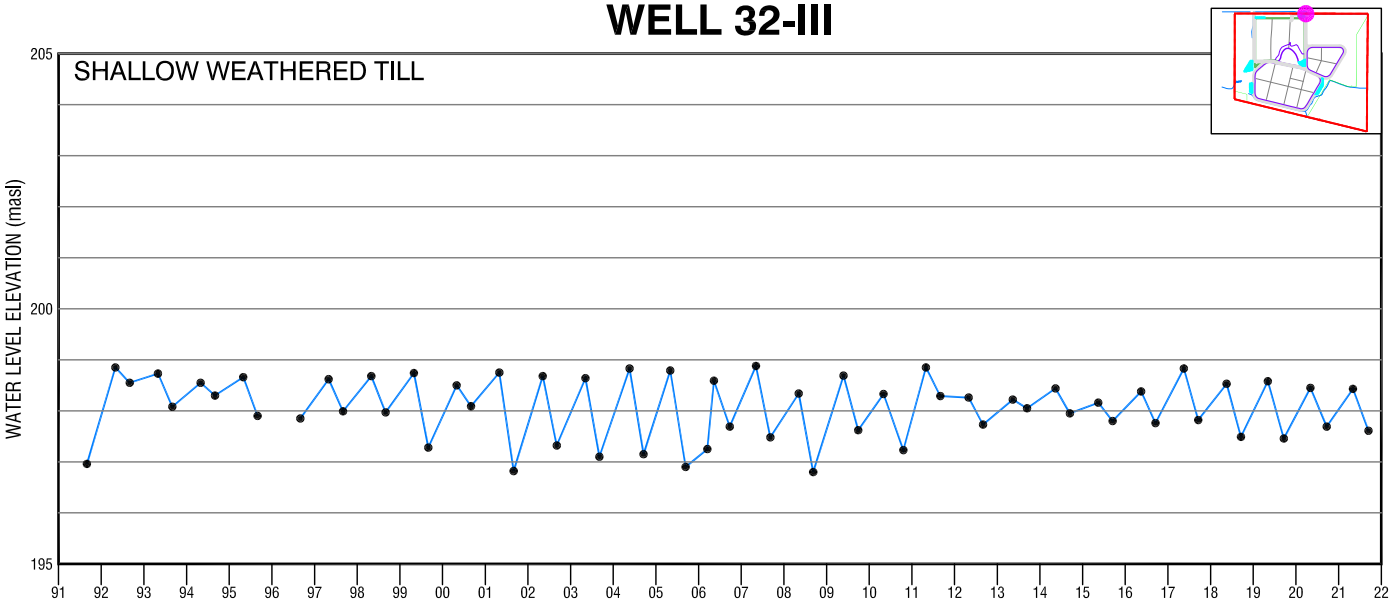
WELL 32-II



MP Elevation 200.11 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
01-May-95	190.91	12-May-06	191.01	01-May-11	191.22	16-May-16	192.07	04-May-21	190.26		
01-May-96	191.41	25-Sep-06	188.14	01-Sep-11	188.72	16-Sep-16	189.47	13-Sep-21	190.13		
01-May-97	191.96	07-May-07	191.06	01-May-12	191.47	17-May-17	191.96				
01-May-98	192.11	07-Sep-07	188.44	01-Sep-12	189.27	17-Sep-17	189.27				
01-Sep-98	191.21	07-May-08	191.02	13-May-13	191.59	18-May-18	192.13				
01-May-99	191.56	08-Sep-08	188.37	13-Sep-13	189.24	18-Sep-18	189.82				
20-May-04	200.11	25-May-09	191.07	14-May-14	191.59	06-May-19	192.26				
17-Sep-04	191.61	28-Sep-09	188.81	14-Sep-14	189.82	20-Sep-19	189.96				
03-May-05	190.91	03-May-10	191.05	15-May-15	191.95	04-May-20	192.19				
17-Mar-06	197.55	20-Oct-10	189.32	15-Sep-15	190.48	21-Sep-20	193.55				

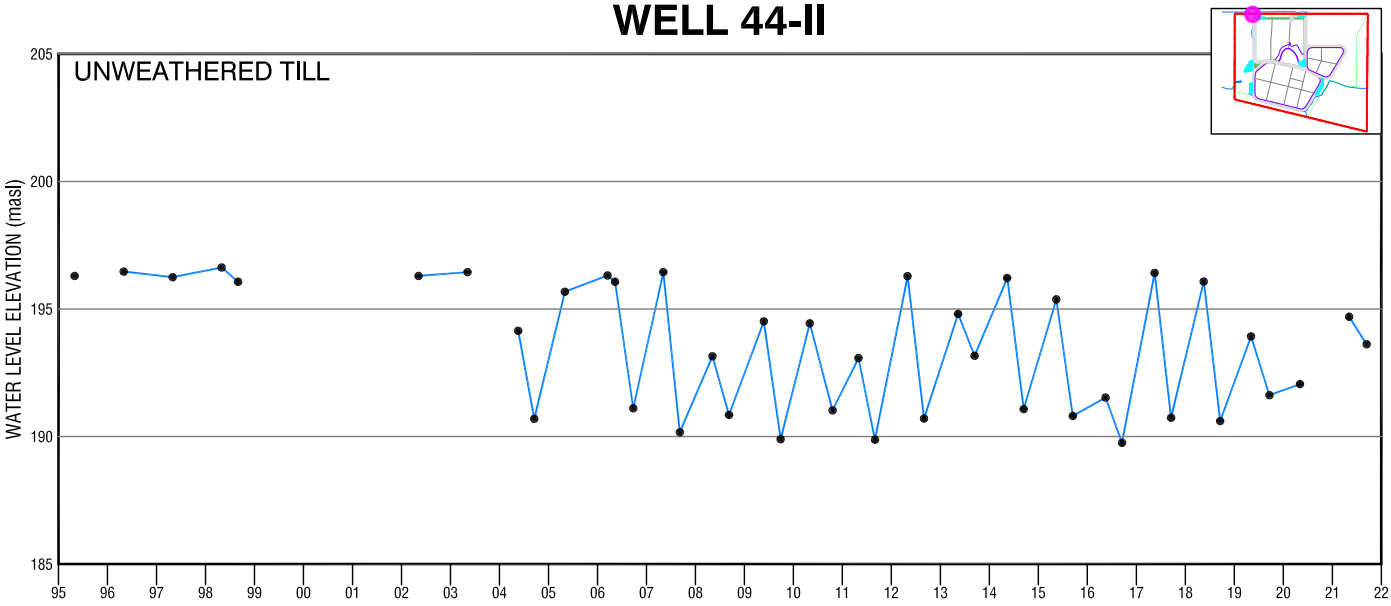
WELL 32-III



MP Elevation 200.05 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
01-May-92	198.85	01-Sep-97	197.99	05-Sep-02	197.32	07-May-07	198.88	01-May-12	198.26	17-May-17	198.83
01-Sep-92	198.55	01-May-98	198.68	08-May-03	198.64	07-Sep-07	197.48	01-Sep-12	197.73	17-Sep-17	197.82
01-May-93	198.73	01-Sep-98	197.97	05-Sep-03	197.10	07-May-08	198.34	13-May-13	198.22	18-May-18	198.53
01-Sep-93	198.08	01-May-99	198.74	20-May-04	198.83	08-Sep-08	196.80	13-Sep-13	198.05	18-Sep-18	197.49
01-May-94	198.55	01-Sep-99	197.28	17-Sep-04	197.15	25-May-09	198.69	14-May-14	198.44	06-May-19	198.58
01-Sep-94	198.30	01-May-00	198.50	03-May-05	198.79	28-Sep-09	197.62	14-Sep-14	197.95	20-Sep-19	197.46
01-May-95	198.66	01-Sep-00	198.09	12-Sep-05	196.90	03-May-10	198.33	15-May-15	198.16	04-May-20	198.45
01-Sep-95	197.90	01-May-01	198.75	17-Mar-06	197.25	20-Oct-10	197.23	15-Sep-15	197.80	21-Sep-20	197.69
01-Sep-96	197.85	01-Sep-01	196.82	12-May-06	198.59	01-May-11	198.85	16-May-16	198.38	03-May-21	198.43
01-May-97	198.62	08-May-02	198.68	25-Sep-06	197.69	01-Sep-11	198.29	16-Sep-16	197.76	13-Sep-21	197.61

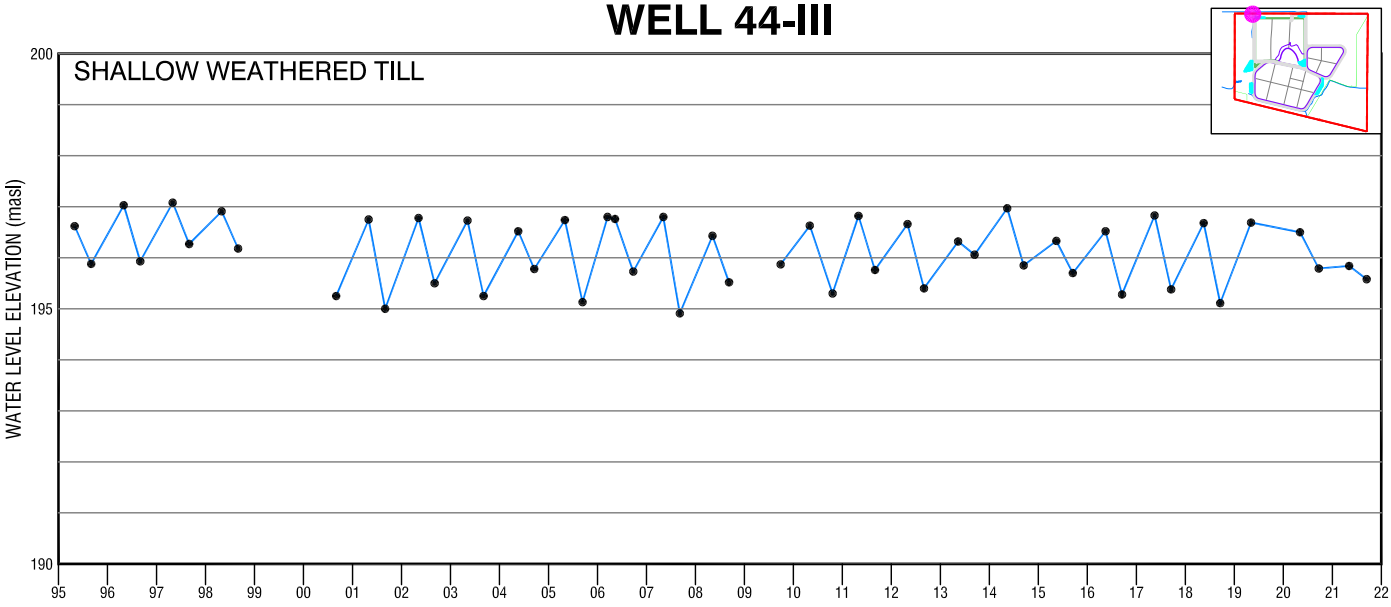
WELL 44-II



MP Elevation 197.99 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
01-May-95	196.29	17-Mar-06	196.32	20-Oct-10	191.02	15-Sep-15	190.80	06-May-21	194.69		
01-May-96	196.46	12-May-06	196.07	01-May-11	193.07	16-May-16	191.52	14-Sep-21	193.61		
01-May-97	196.24	25-Sep-06	191.10	01-Sep-11	189.88	16-Sep-16	189.76				
01-May-98	196.63	07-May-07	196.45	01-May-12	196.29	17-May-17	196.41				
01-Sep-98	196.07	07-Sep-07	190.16	01-Sep-12	190.71	17-Sep-17	190.74				
08-May-02	196.29	07-May-08	193.15	13-May-13	194.80	18-May-18	196.07				
08-May-03	196.45	08-Sep-08	190.85	13-Sep-13	193.16	18-Sep-18	190.60				
20-May-04	194.15	25-May-09	194.51	14-May-14	196.21	06-May-19	193.93				
17-Sep-04	190.70	28-Sep-09	189.90	14-Sep-14	191.07	20-Sep-19	191.62				
03-May-05	195.68	03-May-10	194.43	15-May-15	195.38	05-May-20	192.05				

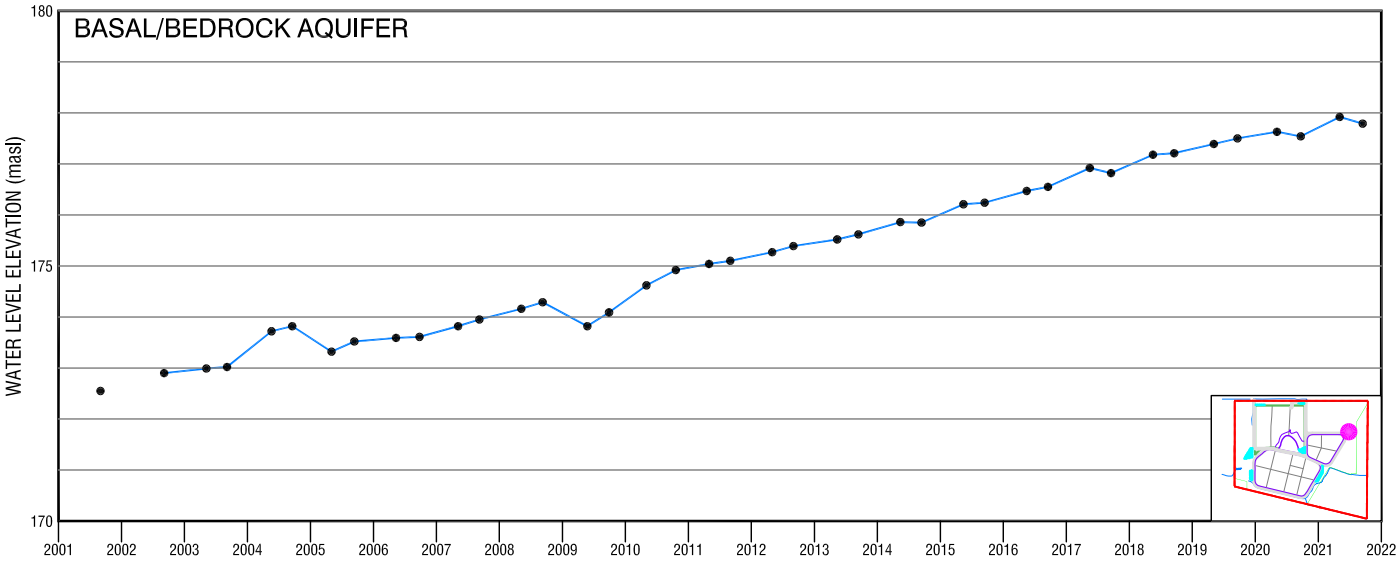
WELL 44-III



MP Elevation 198.39 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
01-May-95	196.62	01-Sep-01	195.00	12-May-06	196.76	01-Sep-11	195.76	16-Sep-16	195.28		
01-Sep-95	195.88	08-May-02	196.78	25-Sep-06	195.73	01-May-12	196.66	17-May-17	196.83		
01-May-96	197.03	05-Sep-02	195.50	07-May-07	196.80	01-Sep-12	195.40	17-Sep-17	195.38		
01-Sep-96	195.93	08-May-03	196.73	07-Sep-07	194.91	13-May-13	196.32	18-May-18	196.68		
01-May-97	197.08	05-Sep-03	195.25	07-May-08	196.43	13-Sep-13	196.06	18-Sep-18	195.11		
01-Sep-97	196.27	20-May-04	196.52	08-Sep-08	195.52	14-May-14	196.97	06-May-19	196.69		
01-May-98	196.91	17-Sep-04	195.78	28-Sep-09	195.87	14-Sep-14	195.85	05-May-20	196.50		
01-Sep-98	196.18	03-May-05	196.74	03-May-10	196.63	15-May-15	196.33	22-Sep-20	195.79		
01-Sep-00	195.25	12-Sep-05	195.13	20-Oct-10	195.30	15-Sep-15	195.70	06-May-21	195.84		
01-May-01	196.75	17-Mar-06	196.80	01-May-11	196.82	16-May-16	196.52	14-Sep-21	195.58		

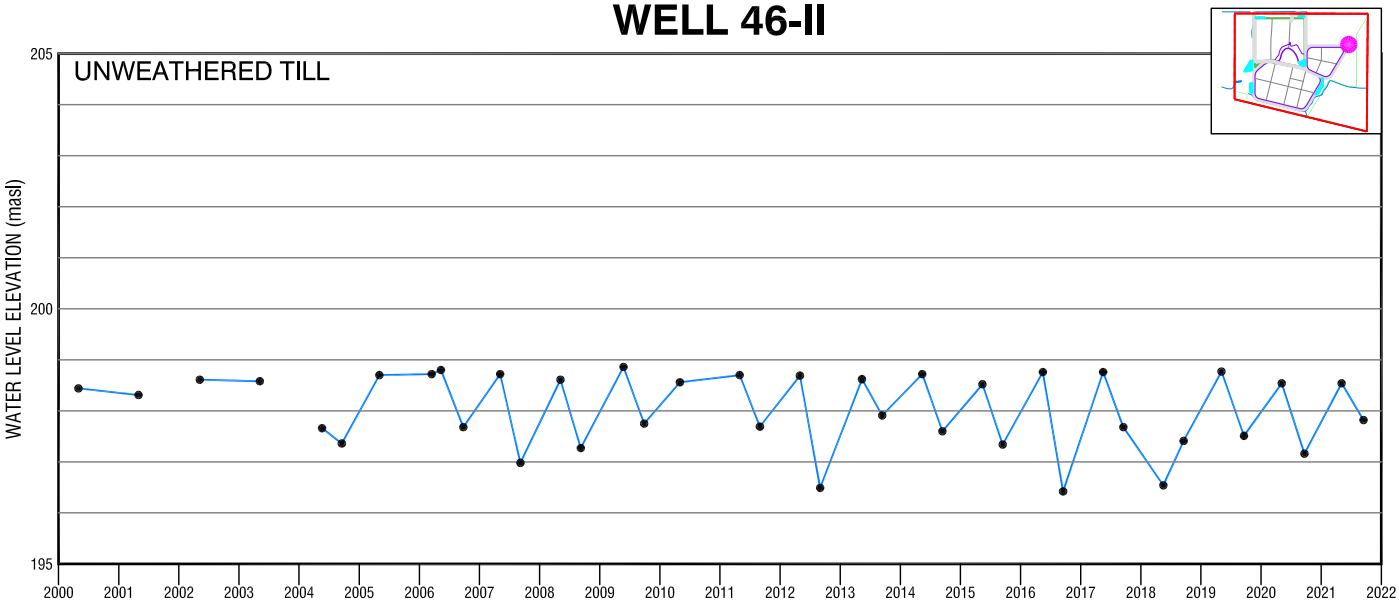
WELL 46-I



MP Elevation 199.02 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
01-Sep-01	172.55	07-May-07	173.82	01-May-12	175.27	17-May-17	176.92				
05-Sep-02	172.90	07-Sep-07	173.95	01-Sep-12	175.39	17-Sep-17	176.82				
08-May-03	172.99	07-May-08	174.16	13-May-13	175.52	18-May-18	177.18				
05-Sep-03	173.02	08-Sep-08	174.29	13-Sep-13	175.62	18-Sep-18	177.21				
20-May-04	173.72	25-May-09	173.82	14-May-14	175.86	06-May-19	177.39				
17-Sep-04	173.82	28-Sep-09	174.09	14-Sep-14	175.85	20-Sep-19	177.50				
03-May-05	173.32	03-May-10	174.62	15-May-15	176.21	06-May-20	177.63				
12-Sep-05	173.52	20-Oct-10	174.92	15-Sep-15	176.24	21-Sep-20	177.54				
12-May-06	173.59	01-May-11	175.04	16-May-16	176.47	05-May-21	177.92				
25-Sep-06	173.61	01-Sep-11	175.10	16-Sep-16	176.55	15-Sep-21	177.79				

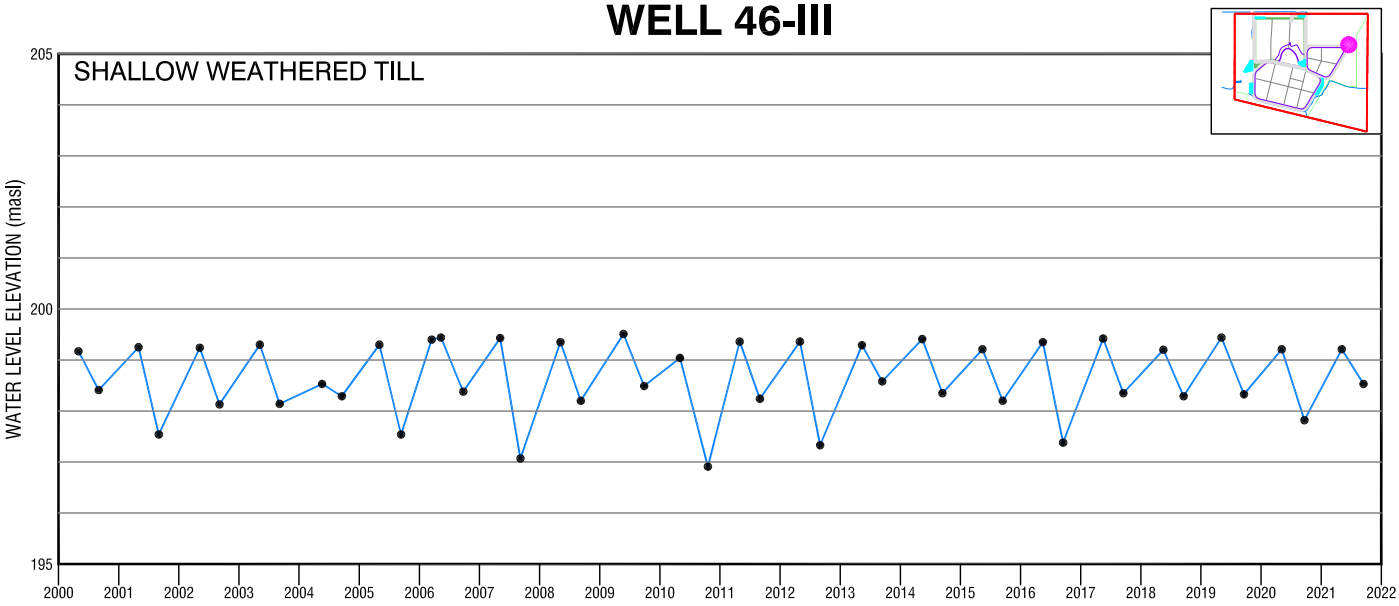
WELL 46-II



MP Elevation 199.26 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
01-May-00	198.44	07-May-07	198.72	01-Sep-12	196.49	17-Sep-17	197.68				
01-May-01	198.31	07-Sep-07	196.98	13-May-13	198.62	18-May-18	196.54				
08-May-02	198.61	07-May-08	198.61	13-Sep-13	197.91	18-Sep-18	197.41				
08-May-03	198.58	08-Sep-08	197.27	14-May-14	198.72	06-May-19	198.77				
20-May-04	197.66	25-May-09	198.86	14-Sep-14	197.60	20-Sep-19	197.51				
17-Sep-04	197.36	28-Sep-09	197.75	15-May-15	198.52	06-May-20	198.54				
03-May-05	198.70	03-May-10	198.56	15-Sep-15	197.34	21-Sep-20	197.16				
17-Mar-06	198.72	01-May-11	198.70	16-May-16	198.76	05-May-21	198.54				
12-May-06	198.80	01-Sep-11	197.69	16-Sep-16	196.42	15-Sep-21	197.82				
25-Sep-06	197.68	01-May-12	198.69	17-May-17	198.76						

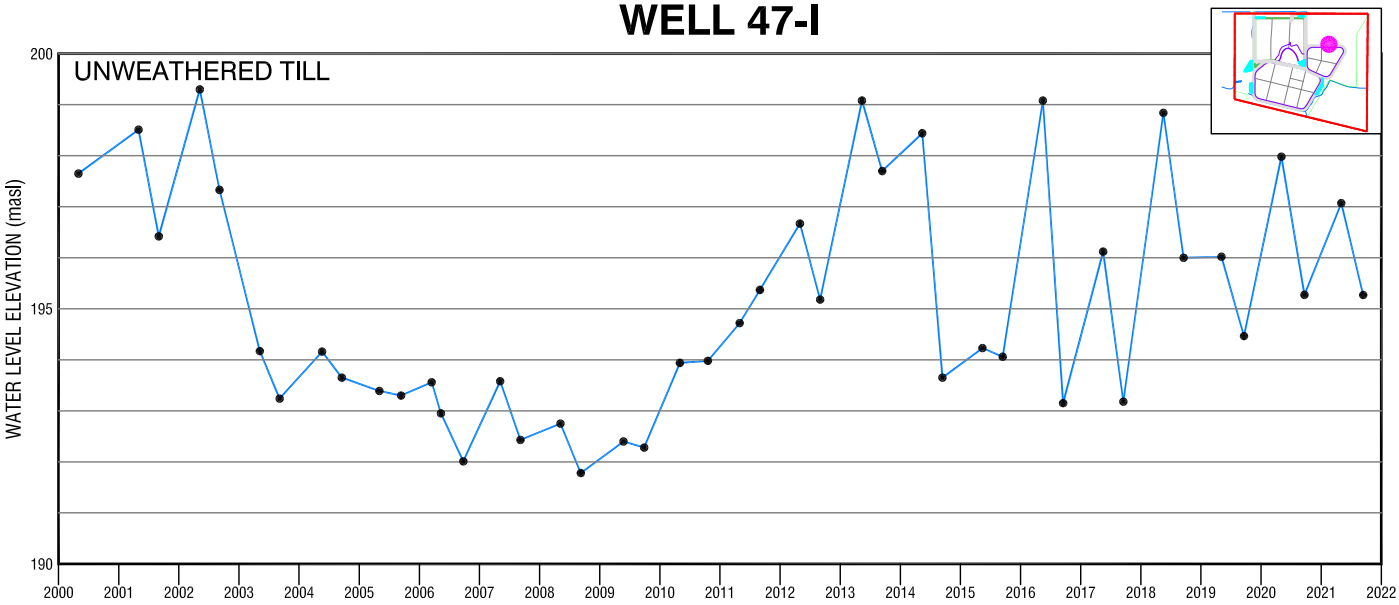
WELL 46-III



MP Elevation 199.89 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
01-May-00	199.17	03-May-05	199.30	28-Sep-09	198.49	14-Sep-14	198.35	20-Sep-19	198.33		
01-Sep-00	198.41	12-Sep-05	197.54	03-May-10	199.04	15-May-15	199.21	06-May-20	199.21		
01-May-01	199.25	17-Mar-06	199.40	20-Oct-10	196.91	15-Sep-15	198.20	21-Sep-20	197.82		
01-Sep-01	197.54	12-May-06	199.44	01-May-11	199.36	16-May-16	199.35	06-May-21	199.21		
08-May-02	199.24	25-Sep-06	198.38	01-Sep-11	198.24	16-Sep-16	197.38	15-Sep-21	198.53		
05-Sep-02	198.13	07-May-07	199.43	01-May-12	199.36	17-May-17	199.42				
08-May-03	199.30	07-Sep-07	197.07	01-Sep-12	197.33	17-Sep-17	198.35				
05-Sep-03	198.14	07-May-08	199.35	13-May-13	199.29	18-May-18	199.20				
20-May-04	198.53	08-Sep-08	198.20	13-Sep-13	198.58	18-Sep-18	198.29				
17-Sep-04	198.29	25-May-09	199.51	14-May-14	199.41	06-May-19	199.44				

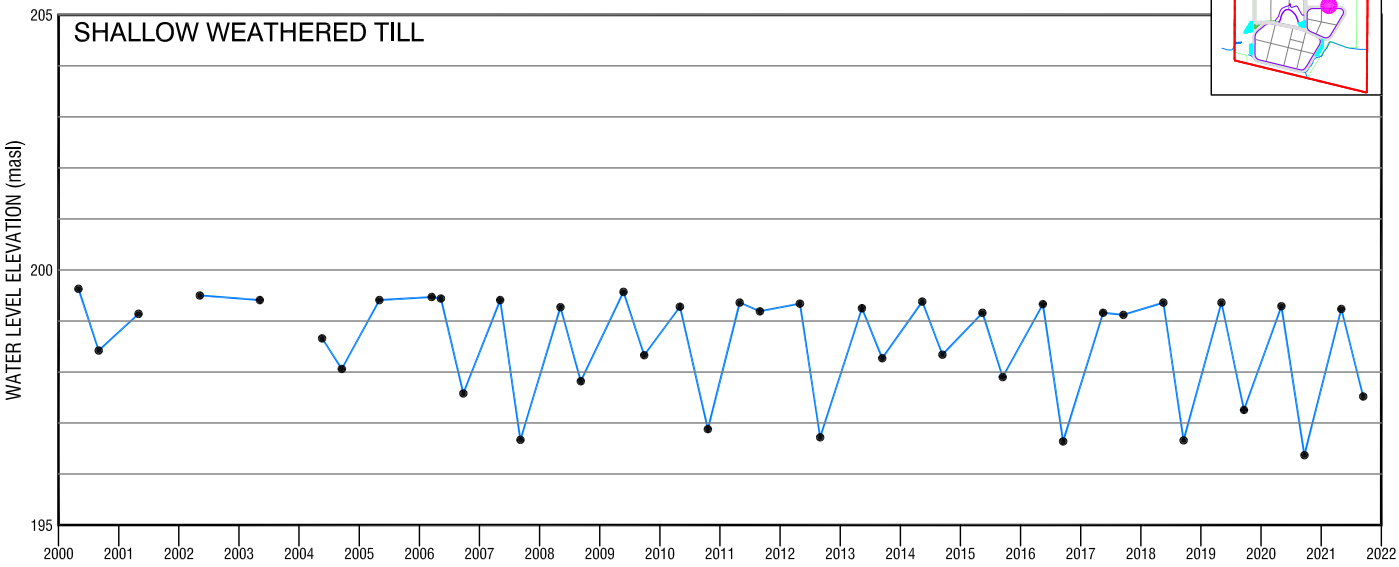
WELL 47-I



MP Elevation 200.00 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
01-May-00	197.65	12-Sep-05	193.30	03-May-10	193.94	15-May-15	194.23	04-May-20	197.98		
01-May-01	198.51	17-Mar-06	193.56	20-Oct-10	193.98	15-Sep-15	194.06	21-Sep-20	195.27		
01-Sep-01	196.42	12-May-06	192.95	01-May-11	194.72	16-May-16	199.08	03-May-21	197.07		
08-May-02	199.30	25-Sep-06	192.01	01-Sep-11	195.37	16-Sep-16	193.15	13-Sep-21	195.27		
05-Sep-02	197.33	07-May-07	193.58	01-May-12	196.67	17-May-17	196.12				
08-May-03	194.17	07-Sep-07	192.43	01-Sep-12	195.18	17-Sep-17	193.18				
05-Sep-03	193.24	07-May-08	192.75	13-May-13	199.08	18-May-18	198.84				
20-May-04	194.16	08-Sep-08	191.78	13-Sep-13	197.70	18-Sep-18	196.00				
17-Sep-04	193.65	25-May-09	192.40	14-May-14	198.44	06-May-19	196.02				
03-May-05	193.39	28-Sep-09	192.28	14-Sep-14	193.65	20-Sep-19	194.46				

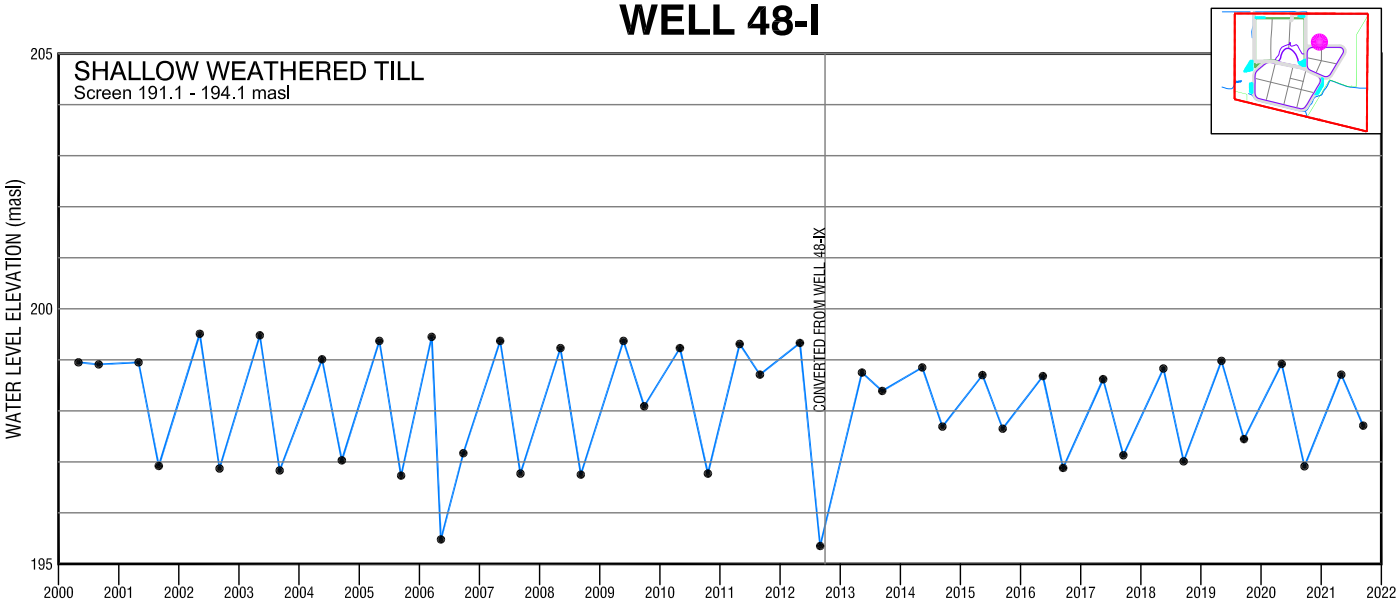
WELL 47-II



MP Elevation 200.06 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
01-May-00	199.63	25-Sep-06	197.58	01-Sep-11	199.19	16-Sep-16	196.64	13-Sep-21	197.52		
01-Sep-00	198.42	07-May-07	199.41	01-May-12	199.34	17-May-17	199.16				
01-May-01	199.14	07-Sep-07	196.67	01-Sep-12	196.72	17-Sep-17	199.12				
08-May-02	199.50	07-May-08	199.27	13-May-13	199.25	18-May-18	199.36				
08-May-03	199.41	08-Sep-08	197.82	13-Sep-13	198.27	18-Sep-18	196.66				
20-May-04	198.66	25-May-09	199.57	14-May-14	199.38	06-May-19	199.36				
17-Sep-04	198.06	28-Sep-09	198.33	14-Sep-14	198.34	20-Sep-19	197.26				
03-May-05	199.41	03-May-10	199.28	15-May-15	199.16	04-May-20	199.29				
17-Mar-06	199.47	20-Oct-10	196.88	15-Sep-15	197.90	21-Sep-20	196.37				
12-May-06	199.44	01-May-11	199.36	16-May-16	199.33	03-May-21	199.24				

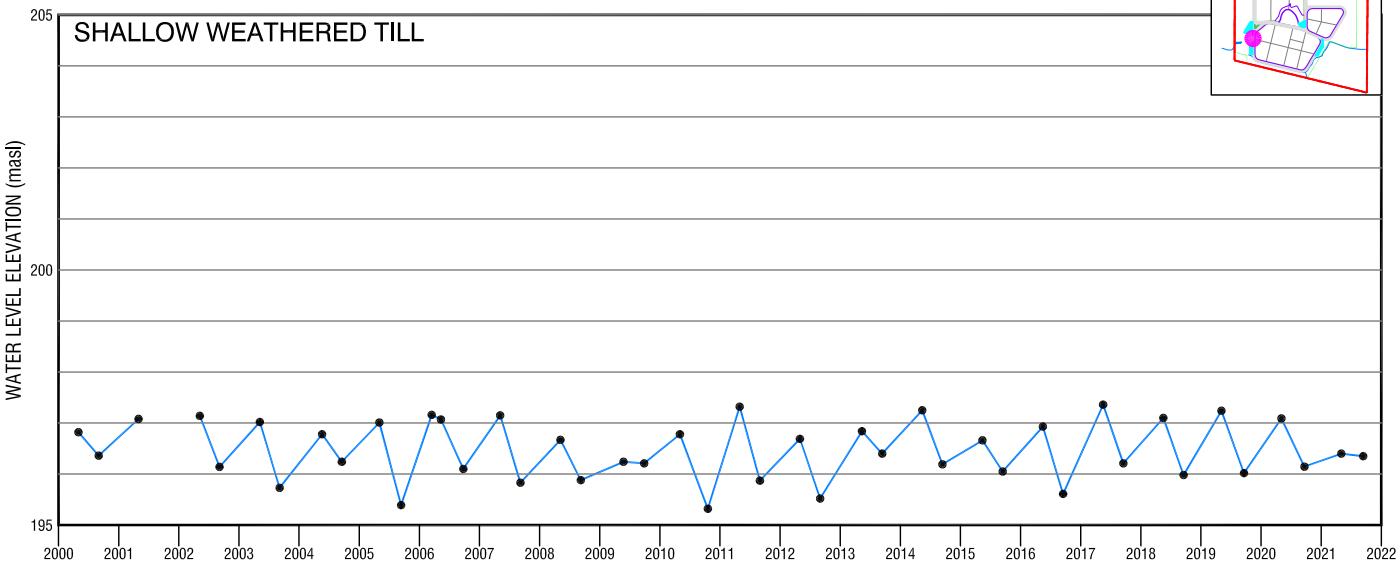
WELL 48-I



MP Elevation 200.13 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
01-May-00	198.95	03-May-05	199.37	28-Sep-09	198.09	14-Sep-14	197.69	20-Sep-19	197.45		
01-Sep-00	198.91	12-Sep-05	196.73	03-May-10	199.23	15-May-15	198.70	06-May-20	198.92		
01-May-01	198.95	17-Mar-06	199.45	20-Oct-10	196.77	15-Sep-15	197.65	21-Sep-20	196.91		
01-Sep-01	196.92	12-May-06	195.48	01-May-11	199.31	16-May-16	198.68	03-May-21	198.71		
08-May-02	199.51	25-Sep-06	197.17	01-Sep-11	198.71	16-Sep-16	196.88	13-Sep-21	197.71		
05-Sep-02	196.87	07-May-07	199.37	01-May-12	199.33	17-May-17	198.62				
08-May-03	199.48	07-Sep-07	196.77	01-Sep-12	195.35	17-Sep-17	197.13				
05-Sep-03	196.83	07-May-08	199.23	13-May-13	198.75	18-May-18	198.83				
20-May-04	199.01	08-Sep-08	196.75	13-Sep-13	198.39	18-Sep-18	197.01				
17-Sep-04	197.03	25-May-09	199.37	14-May-14	198.85	06-May-19	198.98				

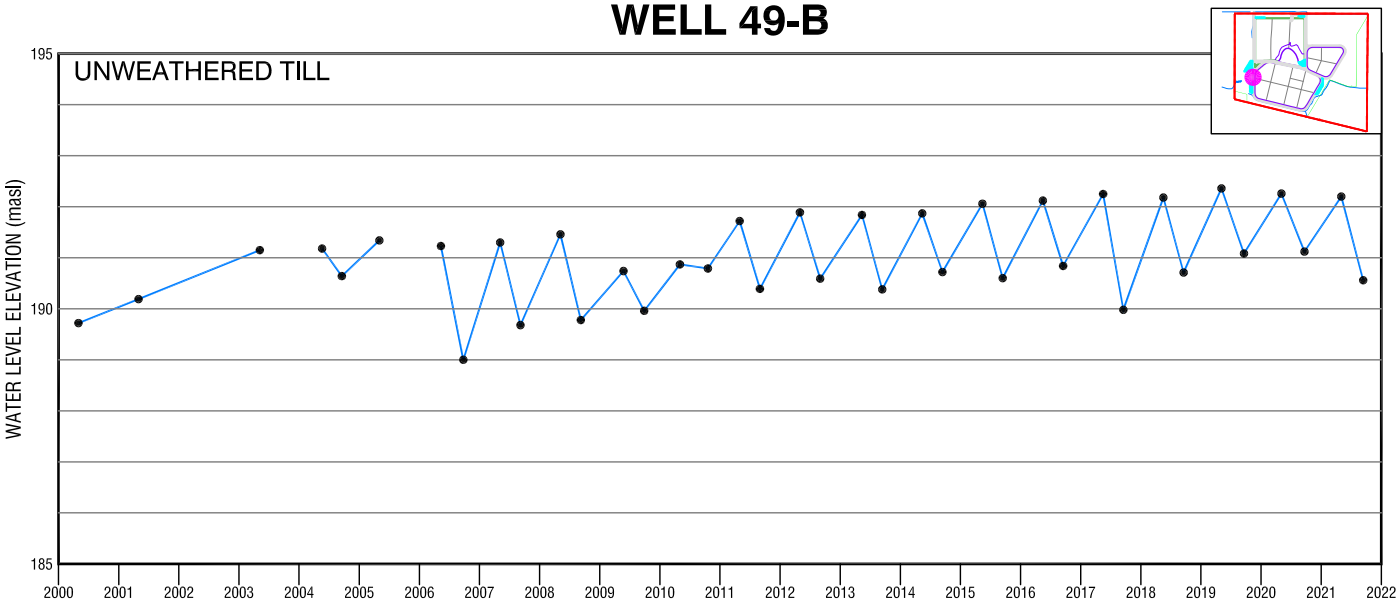
WELL 49-A



MP Elevation 197.89 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
01-May-00	196.82	12-Sep-05	195.39	03-May-10	196.78	15-May-15	196.66	04-May-20	197.09		
01-Sep-00	196.36	17-Mar-06	197.16	20-Oct-10	195.32	15-Sep-15	196.05	21-Sep-20	196.15		
01-May-01	197.08	12-May-06	197.07	01-May-11	197.32	16-May-16	196.93	03-May-21	196.40		
08-May-02	197.14	25-Sep-06	196.10	01-Sep-11	195.87	16-Sep-16	195.61	13-Sep-21	196.35		
05-Sep-02	196.14	07-May-07	197.15	01-May-12	196.69	17-May-17	197.36				
08-May-03	197.02	07-Sep-07	195.83	01-Sep-12	195.52	17-Sep-17	196.21				
05-Sep-03	195.73	07-May-08	196.67	13-May-13	196.84	18-May-18	197.10				
20-May-04	196.78	08-Sep-08	195.88	13-Sep-13	196.40	18-Sep-18	195.98				
17-Sep-04	196.24	25-May-09	196.24	14-May-14	197.25	06-May-19	197.24				
03-May-05	197.01	28-Sep-09	196.21	14-Sep-14	196.19	20-Sep-19	196.02				

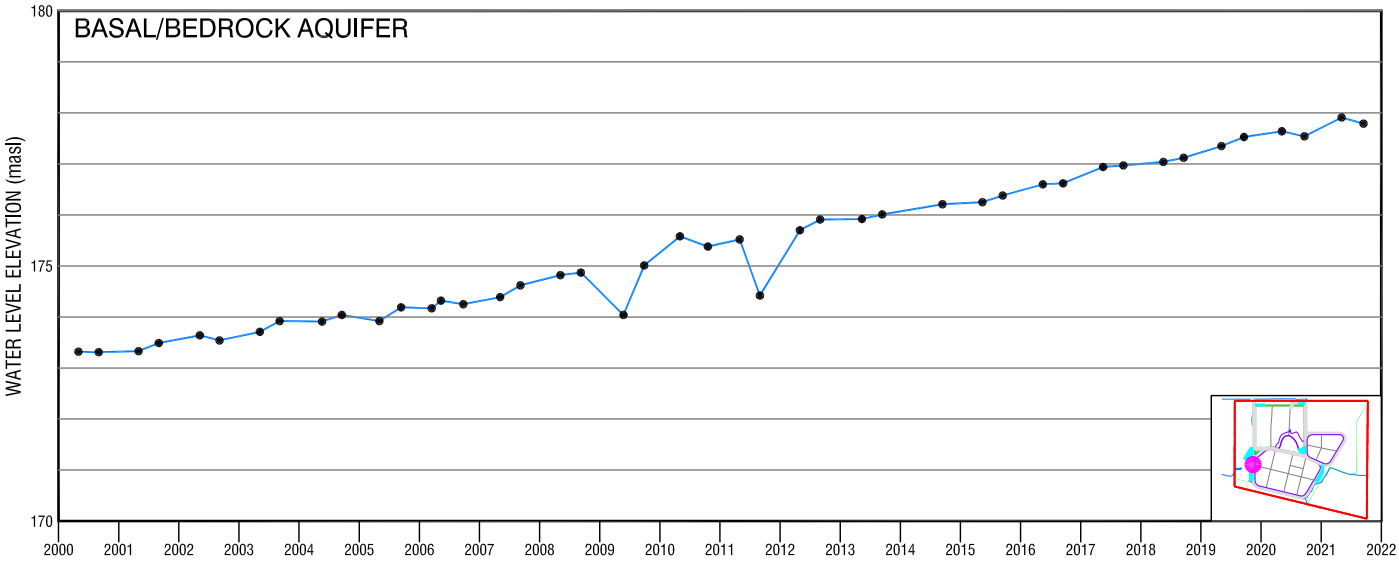
WELL 49-B



MP Elevation 197.94 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
01-May-00	189.72	07-May-08	191.46	13-May-13	191.84	18-May-18	192.18				
01-May-01	190.19	08-Sep-08	189.78	13-Sep-13	190.38	18-Sep-18	190.71				
08-May-03	191.15	25-May-09	190.74	14-May-14	191.87	06-May-19	192.36				
20-May-04	191.18	28-Sep-09	189.96	14-Sep-14	190.72	20-Sep-19	191.08				
17-Sep-04	190.64	03-May-10	190.87	15-May-15	192.06	04-May-20	192.26				
03-May-05	191.34	20-Oct-10	190.79	15-Sep-15	190.60	21-Sep-20	191.12				
12-May-06	191.23	01-May-11	191.72	16-May-16	192.12	03-May-21	192.20				
25-Sep-06	189.00	01-Sep-11	190.39	16-Sep-16	190.84	13-Sep-21	190.56				
07-May-07	191.30	01-May-12	191.89	17-May-17	192.25						
07-Sep-07	189.68	01-Sep-12	190.59	17-Sep-17	189.98						

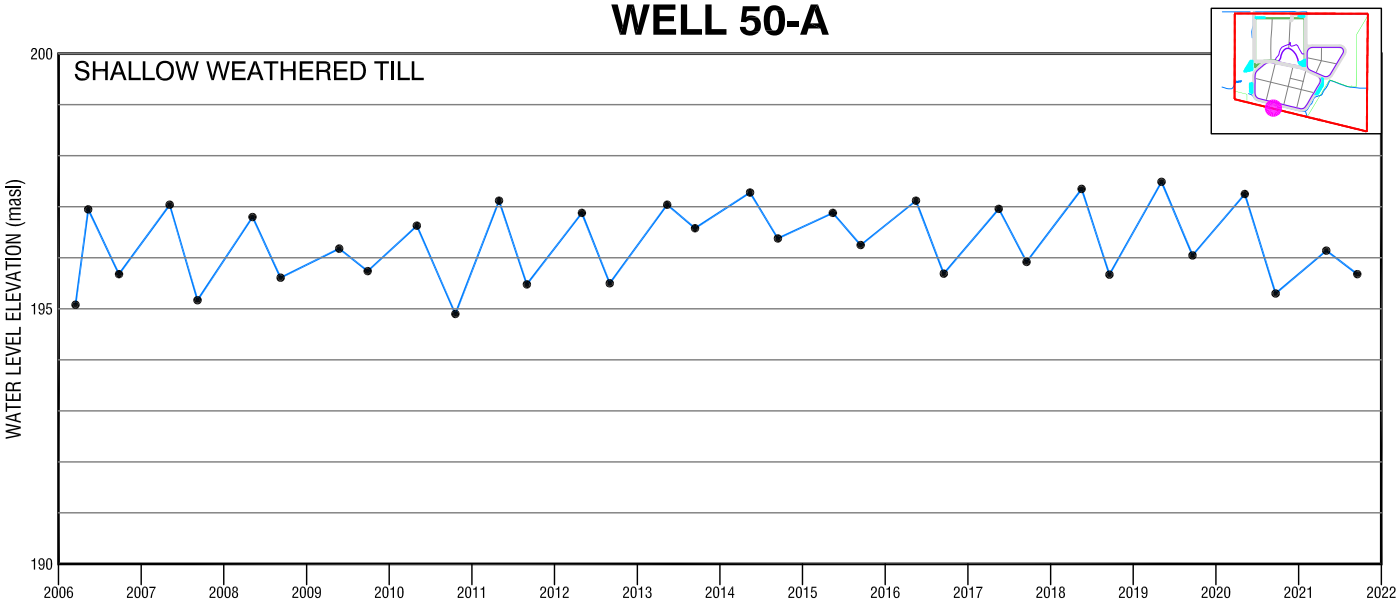
WELL 49-C



MP Elevation 197.94 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
01-May-00	173.32	03-May-05	173.92	28-Sep-09	175.01	15-May-15	176.25	07-May-20	177.64		
01-Sep-00	173.31	12-Sep-05	174.19	03-May-10	175.58	15-Sep-15	176.38	21-Sep-20	177.54		
01-May-01	173.33	17-Mar-06	174.17	20-Oct-10	175.38	16-May-16	176.60	05-May-21	177.91		
01-Sep-01	173.49	12-May-06	174.32	01-May-11	175.52	16-Sep-16	176.62	15-Sep-21	177.79		
08-May-02	173.64	25-Sep-06	174.25	01-Sep-11	174.42	17-May-17	176.94				
05-Sep-02	173.54	07-May-07	174.39	01-May-12	175.70	17-Sep-17	176.97				
08-May-03	173.71	07-Sep-07	174.62	01-Sep-12	175.91	18-May-18	177.04				
05-Sep-03	173.92	07-May-08	174.82	13-May-13	175.92	18-Sep-18	177.12				
20-May-04	173.91	08-Sep-08	174.87	13-Sep-13	176.01	06-May-19	177.35				
17-Sep-04	174.04	25-May-09	174.04	14-Sep-14	176.21	20-Sep-19	177.53				

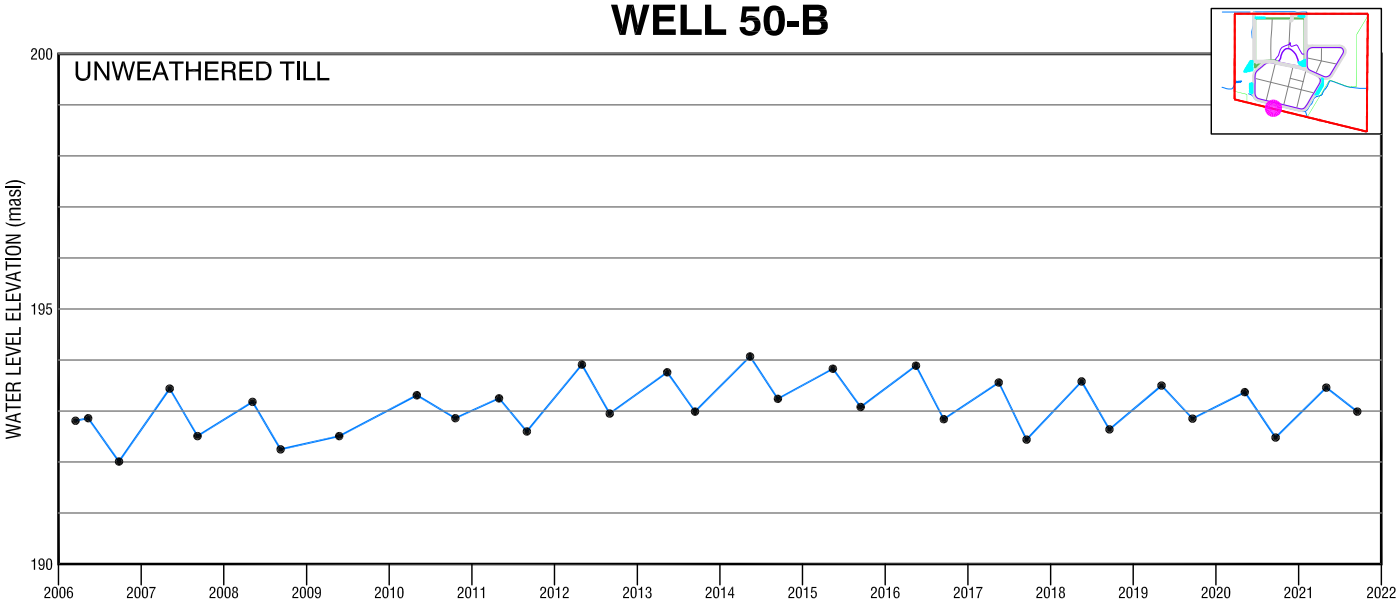
WELL 50-A



MP Elevation 198.66 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
17-Mar-06	195.08	20-Oct-10	194.90	15-Sep-15	196.25	21-Sep-20	195.30				
12-May-06	196.95	01-May-11	197.12	16-May-16	197.12	03-May-21	196.14				
25-Sep-06	195.68	01-Sep-11	195.48	16-Sep-16	195.69	17-Sep-21	195.68				
07-May-07	197.04	01-May-12	196.88	17-May-17	196.96						
07-Sep-07	195.17	01-Sep-12	195.50	17-Sep-17	195.92						
07-May-08	196.80	13-May-13	197.04	18-May-18	197.35						
08-Sep-08	195.61	13-Sep-13	196.58	18-Sep-18	195.67						
25-May-09	196.18	14-May-14	197.28	06-May-19	197.49						
28-Sep-09	195.74	14-Sep-14	196.38	20-Sep-19	196.05						
03-May-10	196.63	15-May-15	196.88	08-May-20	197.25						

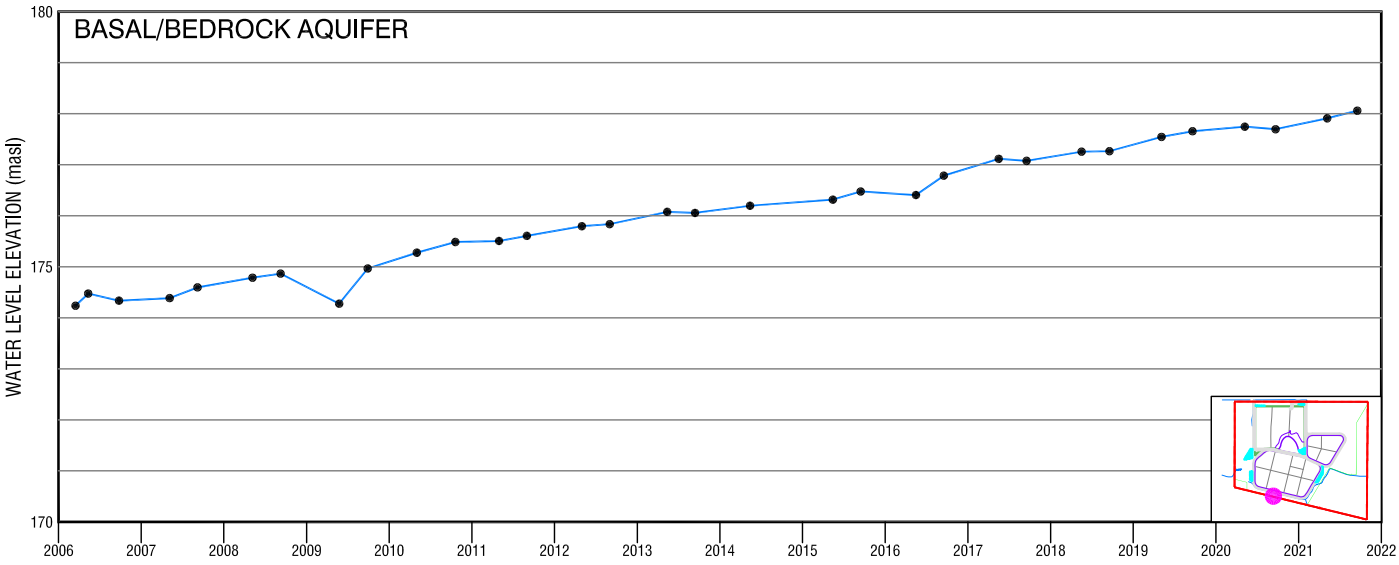
WELL 50-B



MP Elevation 198.41 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
17-Mar-06	192.81	01-May-11	193.25	16-May-16	193.89	03-May-21	193.46				
12-May-06	192.86	01-Sep-11	192.60	16-Sep-16	192.84	17-Sep-21	192.99				
25-Sep-06	192.01	01-May-12	193.91	17-May-17	193.56						
07-May-07	193.44	01-Sep-12	192.95	17-Sep-17	192.44						
07-Sep-07	192.51	13-May-13	193.76	18-May-18	193.58						
07-May-08	193.18	13-Sep-13	192.99	18-Sep-18	192.64						
08-Sep-08	192.25	14-May-14	194.07	06-May-19	193.50						
25-May-09	192.51	14-Sep-14	193.24	20-Sep-19	192.85						
03-May-10	193.31	15-May-15	193.83	08-May-20	193.37						
20-Oct-10	192.86	15-Sep-15	193.08	21-Sep-20	192.48						

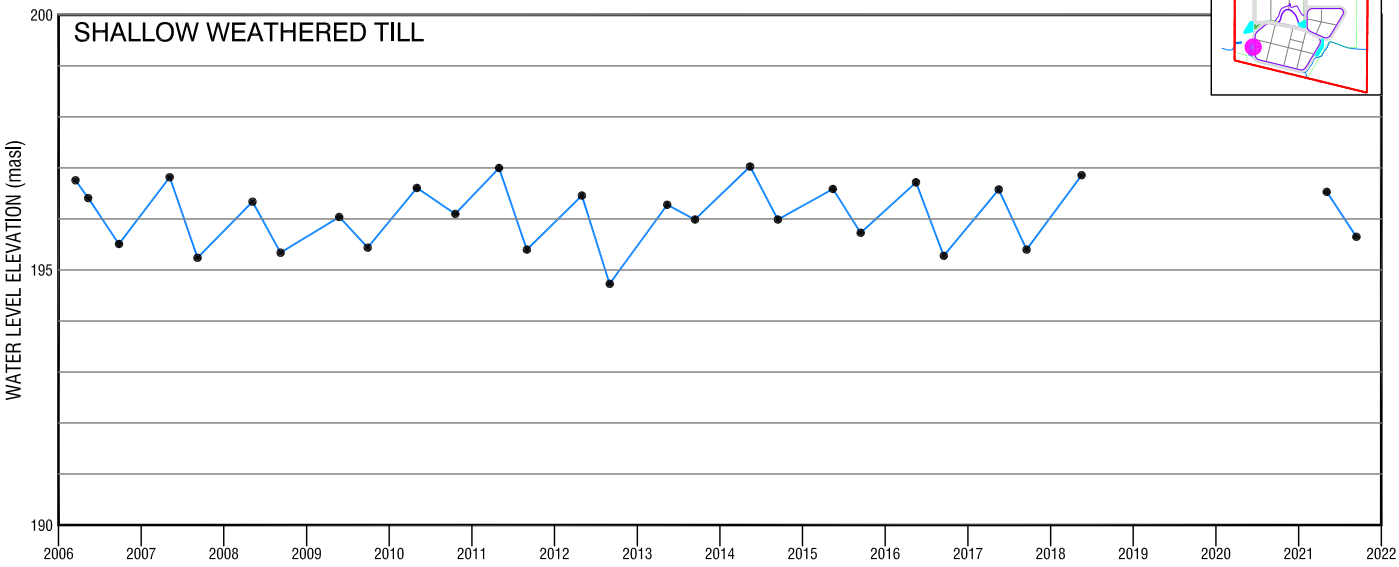
WELL 50-C



MP Elevation 198.48 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
17-Mar-06	174.24	20-Oct-10	175.49	16-May-16	176.41	07-May-21	177.91				
12-May-06	174.48	01-May-11	175.51	16-Sep-16	176.79	17-Sep-21	178.06				
25-Sep-06	174.34	01-Sep-11	175.61	17-May-17	177.12						
07-May-07	174.39	01-May-12	175.80	17-Sep-17	177.08						
07-Sep-07	174.60	01-Sep-12	175.84	18-May-18	177.26						
07-May-08	174.79	13-May-13	176.08	18-Sep-18	177.27						
08-Sep-08	174.87	13-Sep-13	176.06	06-May-19	177.55						
25-May-09	174.28	14-May-14	176.20	20-Sep-19	177.66						
28-Sep-09	174.97	15-May-15	176.32	08-May-20	177.75						
03-May-10	175.28	15-Sep-15	176.48	21-Sep-20	177.70						

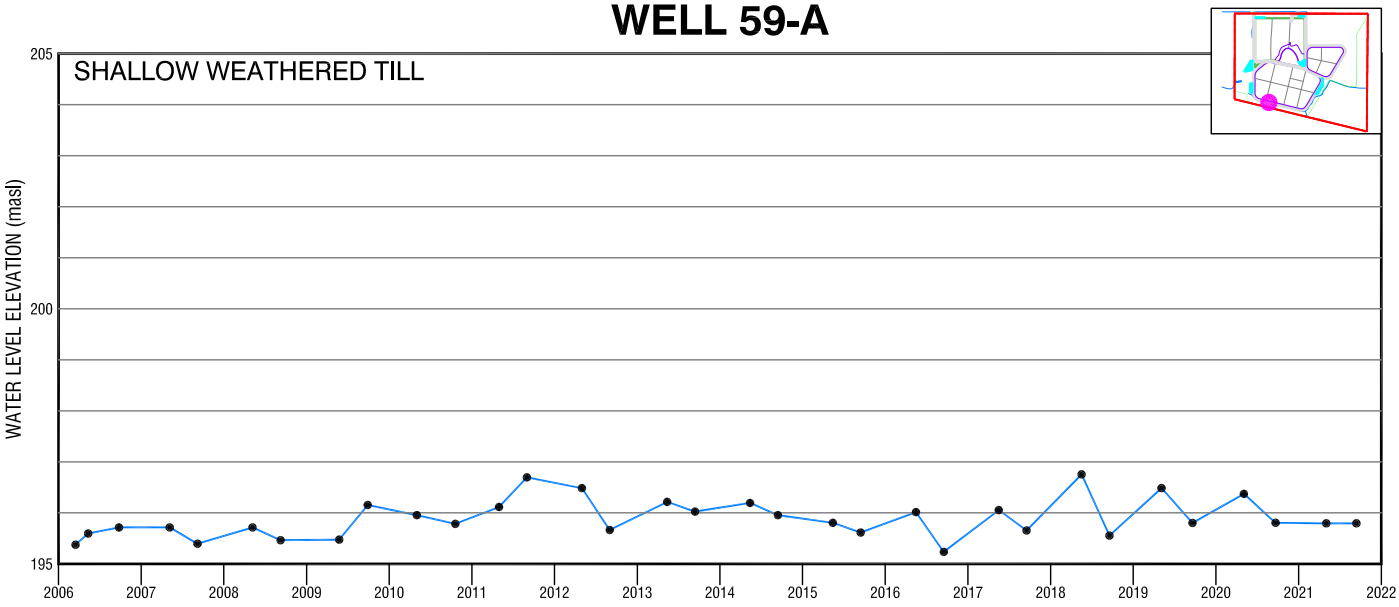
WELL 58-A



MP Elevation 198.18 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
17-Mar-06	196.76	20-Oct-10	196.10	15-Sep-15	195.73						
12-May-06	196.41	01-May-11	197.00	16-May-16	196.72						
25-Sep-06	195.51	01-Sep-11	195.40	16-Sep-16	195.28						
07-May-07	196.82	01-May-12	196.46	17-May-17	196.58						
07-Sep-07	195.24	01-Sep-12	194.73	17-Sep-17	195.40						
07-May-08	196.34	13-May-13	196.28	18-May-18	196.86						
08-Sep-08	195.34	13-Sep-13	195.99	05-May-21	196.53						
25-May-09	196.04	14-May-14	197.03	13-Sep-21	195.65						
28-Sep-09	195.44	14-Sep-14	195.99								
03-May-10	196.61	15-May-15	196.59								

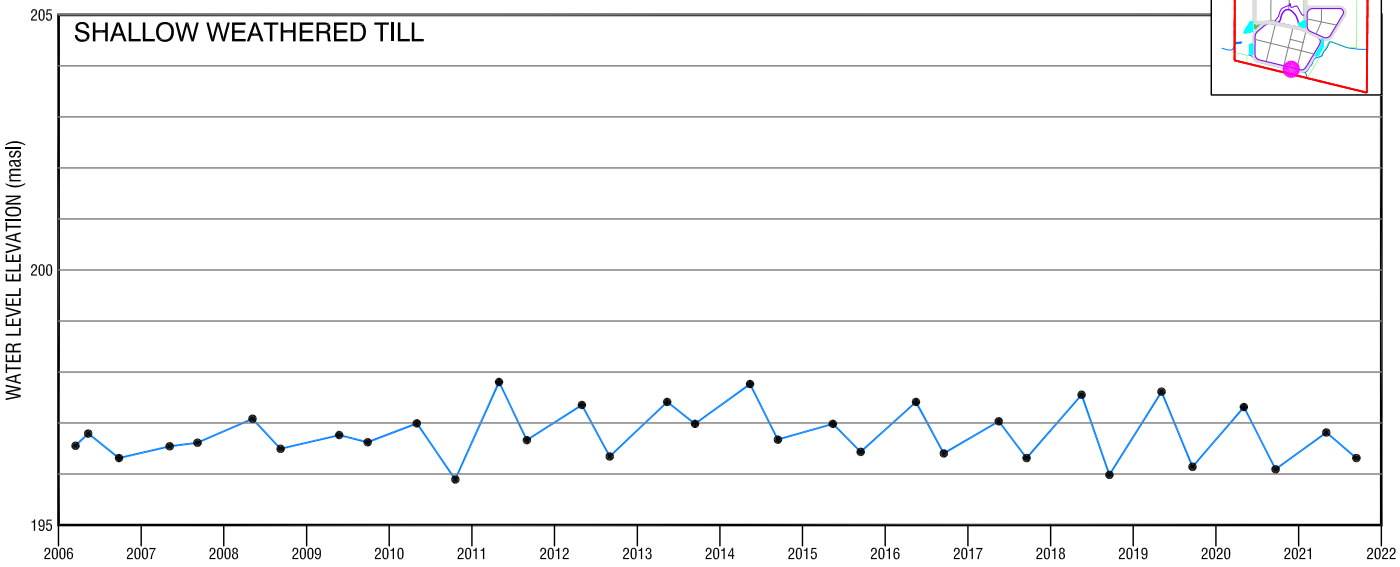
WELL 59-A



MP Elevation 198.32 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
17-Mar-06	195.38	20-Oct-10	195.79	15-Sep-15	195.62	21-Sep-20	195.81				
12-May-06	195.60	01-May-11	196.12	16-May-16	196.01	03-May-21	195.79				
25-Sep-06	195.71	01-Sep-11	196.70	16-Sep-16	195.24	13-Sep-21	195.79				
07-May-07	195.71	01-May-12	196.49	17-May-17	196.05						
07-Sep-07	195.40	01-Sep-12	195.66	17-Sep-17	195.65						
07-May-08	195.71	13-May-13	196.21	18-May-18	196.76						
08-Sep-08	195.46	13-Sep-13	196.02	18-Sep-18	195.55						
25-May-09	195.48	14-May-14	196.20	06-May-19	196.49						
28-Sep-09	196.15	14-Sep-14	195.96	20-Sep-19	195.80						
03-May-10	195.96	15-May-15	195.80	04-May-20	196.37						

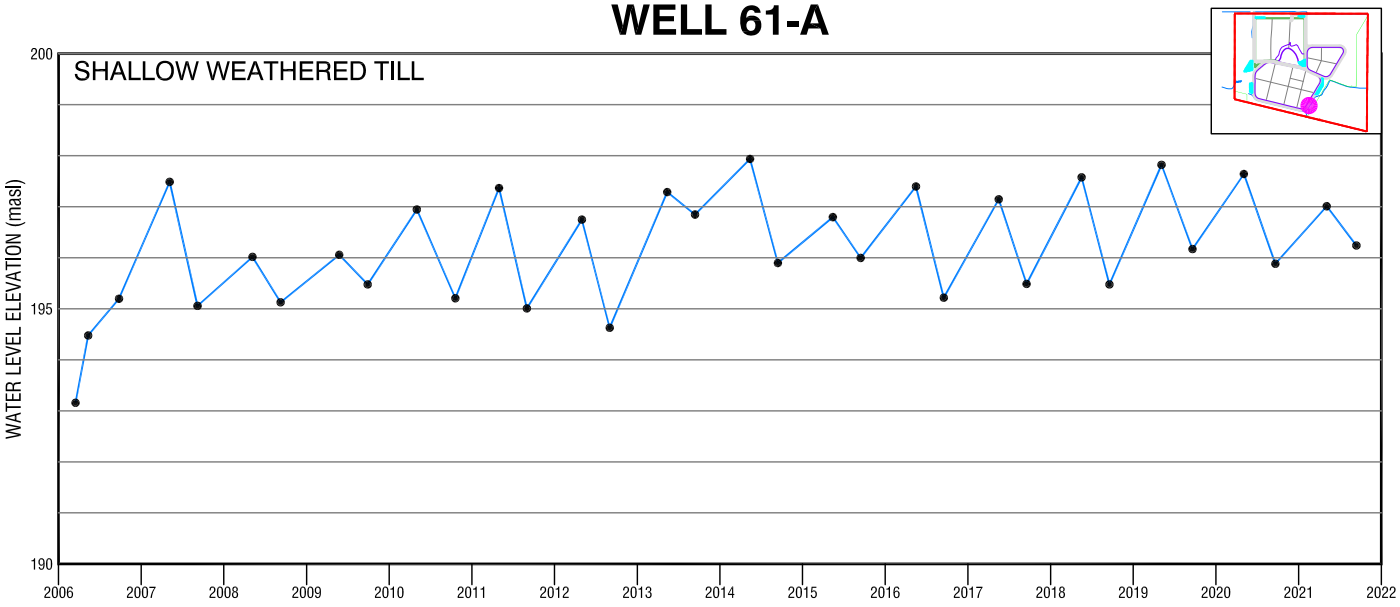
WELL 60-A



MP Elevation 198.69 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
17-Mar-06	196.55	20-Oct-10	195.89	15-Sep-15	196.43	21-Sep-20	196.09				
12-May-06	196.79	01-May-11	197.80	16-May-16	197.41	03-May-21	196.81				
25-Sep-06	196.31	01-Sep-11	196.66	16-Sep-16	196.40	13-Sep-21	196.31				
07-May-07	196.54	01-May-12	197.35	17-May-17	197.03						
07-Sep-07	196.61	01-Sep-12	196.34	17-Sep-17	196.31						
07-May-08	197.08	13-May-13	197.41	18-May-18	197.55						
08-Sep-08	196.49	13-Sep-13	196.98	18-Sep-18	195.98						
25-May-09	196.76	14-May-14	197.76	06-May-19	197.61						
28-Sep-09	196.62	14-Sep-14	196.67	20-Sep-19	196.14						
03-May-10	196.99	15-May-15	196.98	04-May-20	197.31						

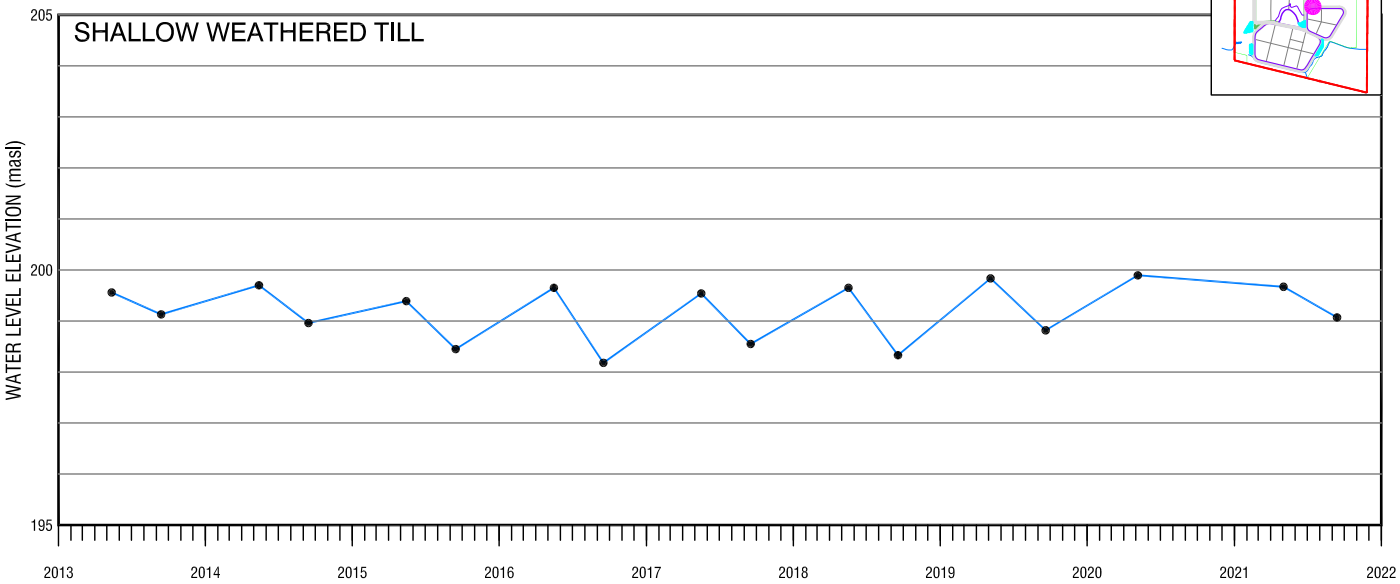
WELL 61-A



MP Elevation 199.18 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
17-Mar-06	193.16	20-Oct-10	195.21	15-Sep-15	196.00	20-Sep-20	195.88				
12-May-06	194.48	01-May-11	197.37	16-May-16	197.40	05-May-21	197.01				
25-Sep-06	195.20	01-Sep-11	195.01	16-Sep-16	195.22	13-Sep-21	196.24				
07-May-07	197.49	01-May-12	196.75	17-May-17	197.15						
07-Sep-07	195.06	01-Sep-12	194.63	17-Sep-17	195.49						
07-May-08	196.02	13-May-13	197.29	18-May-18	197.58						
08-Sep-08	195.13	13-Sep-13	196.85	18-Sep-18	195.48						
25-May-09	196.06	14-May-14	197.94	06-May-19	197.82						
28-Sep-09	195.48	14-Sep-14	195.90	20-Sep-19	196.17						
03-May-10	196.95	15-May-15	196.80	04-May-20	197.64						

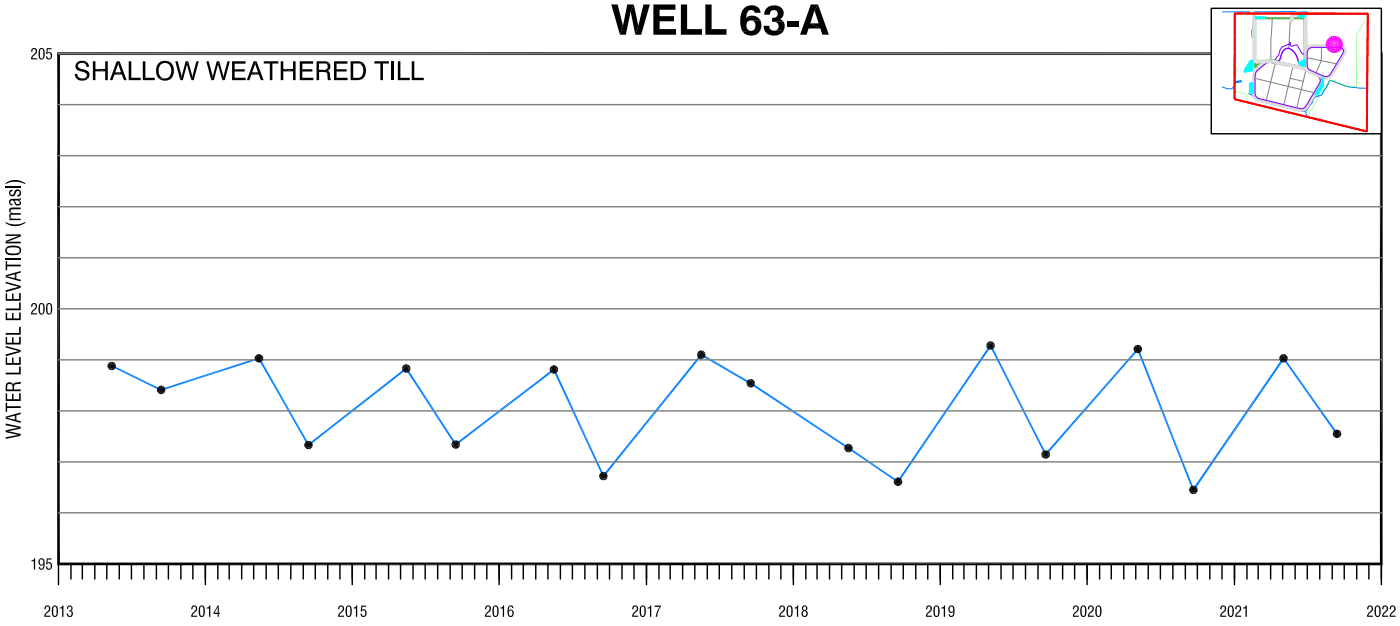
WELL 62-A



MP Elevation 201.02 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
13-May-13	199.56	18-May-18	199.65								
13-Sep-13	199.13	18-Sep-18	198.33								
14-May-14	199.70	06-May-19	199.84								
14-Sep-14	198.96	20-Sep-19	198.82								
15-May-15	199.39	06-May-20	199.90								
15-Sep-15	198.45	03-May-21	199.67								
16-May-16	199.65	13-Sep-21	199.07								
16-Sep-16	198.18										
17-May-17	199.54										
17-Sep-17	198.55										

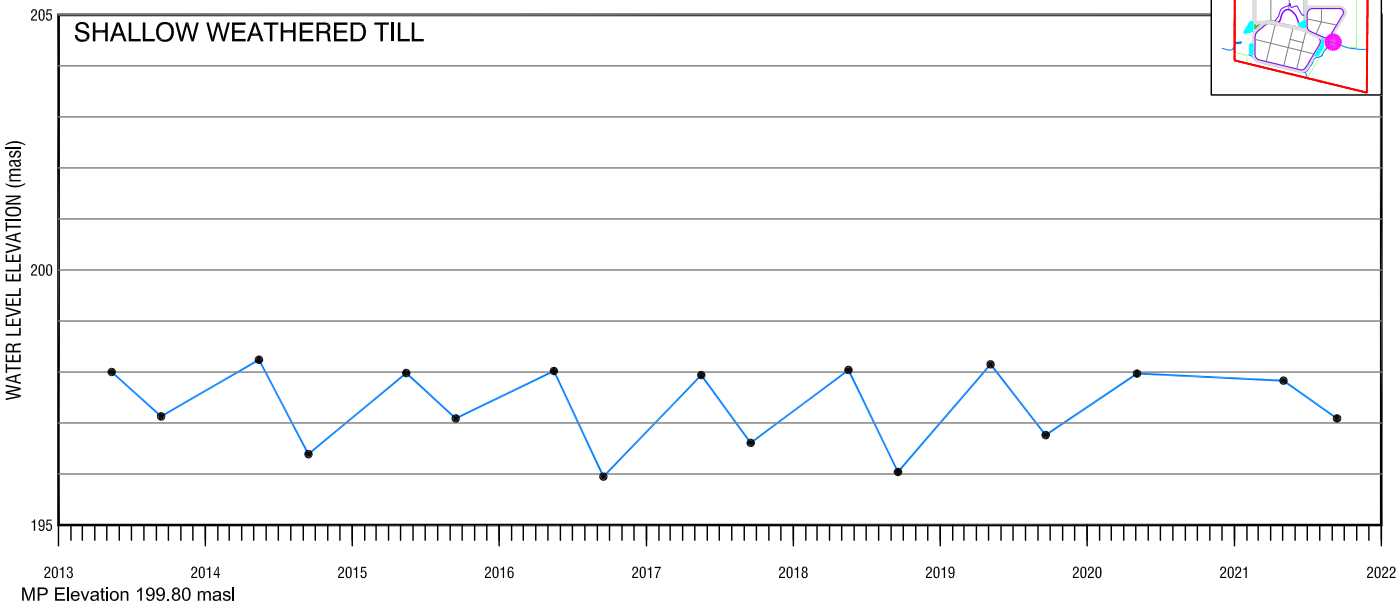
WELL 63-A



MP Elevation 200.24 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
13-May-13	198.88	18-May-18	197.27								
13-Sep-13	198.41	18-Sep-18	196.61								
14-May-14	199.03	06-May-19	199.28								
14-Sep-14	197.33	20-Sep-19	197.15								
15-May-15	198.83	06-May-20	199.21								
15-Sep-15	197.34	21-Sep-20	196.45								
16-May-16	198.81	03-May-21	199.03								
16-Sep-16	196.72	13-Sep-21	197.55								
17-May-17	199.10										
17-Sep-17	198.54										

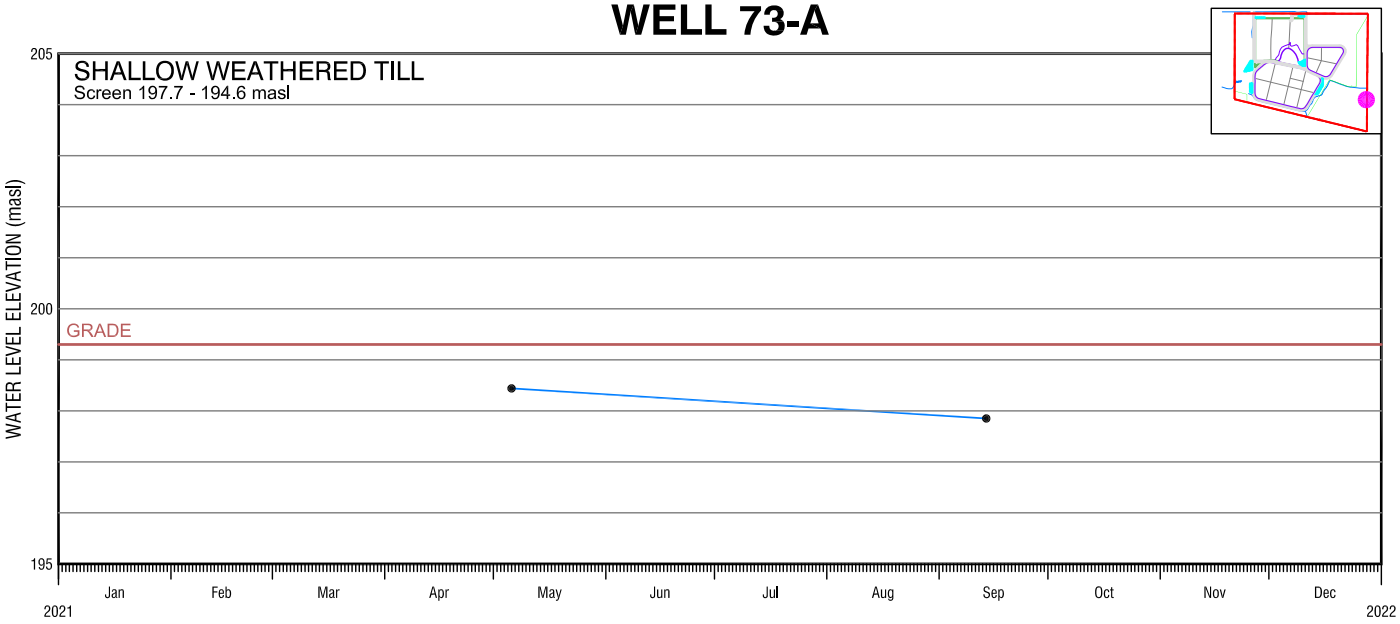
WELL 64-A



MP Elevation 199.80 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
13-May-13	198.00	18-May-18	198.04								
13-Sep-13	197.13	18-Sep-18	196.04								
14-May-14	198.24	06-May-19	198.15								
14-Sep-14	196.39	20-Sep-19	196.76								
15-May-15	197.98	04-May-20	197.97								
15-Sep-15	197.09	03-May-21	197.83								
16-May-16	198.02	13-Sep-21	197.09								
16-Sep-16	195.95										
17-May-17	197.94										
17-Sep-17	196.61										

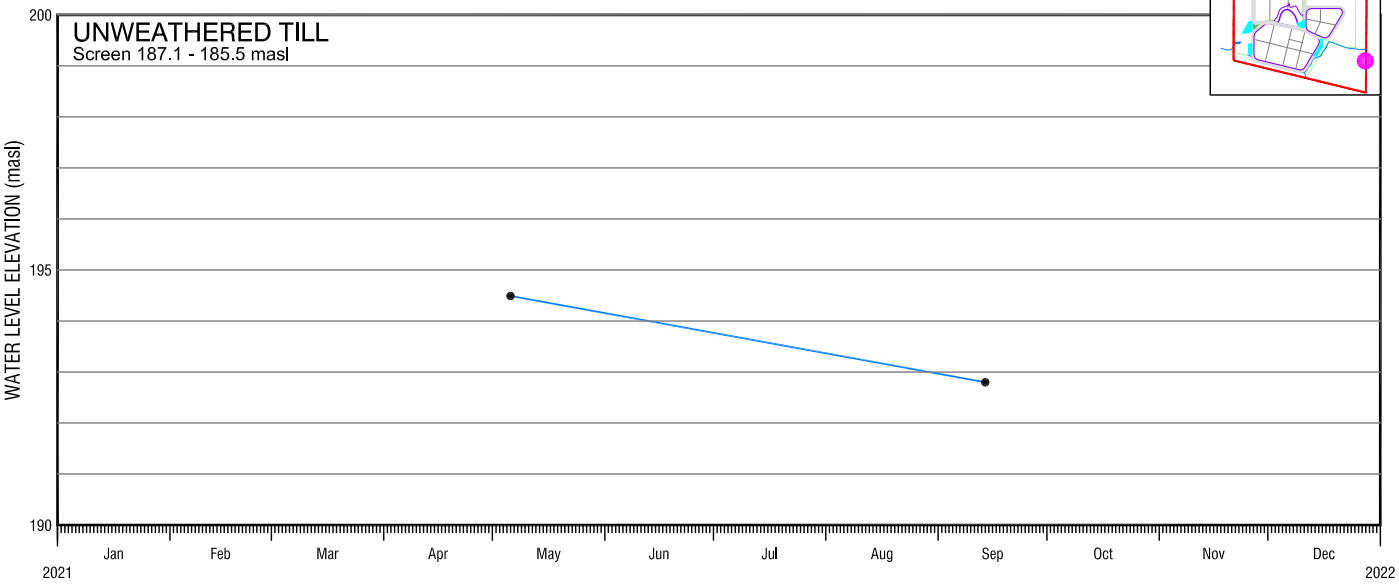
WELL 73-A



MP Elevation 200.08 masl
Grade 199.3 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
06-May-21	198.44										
14-Sep-21	197.85										

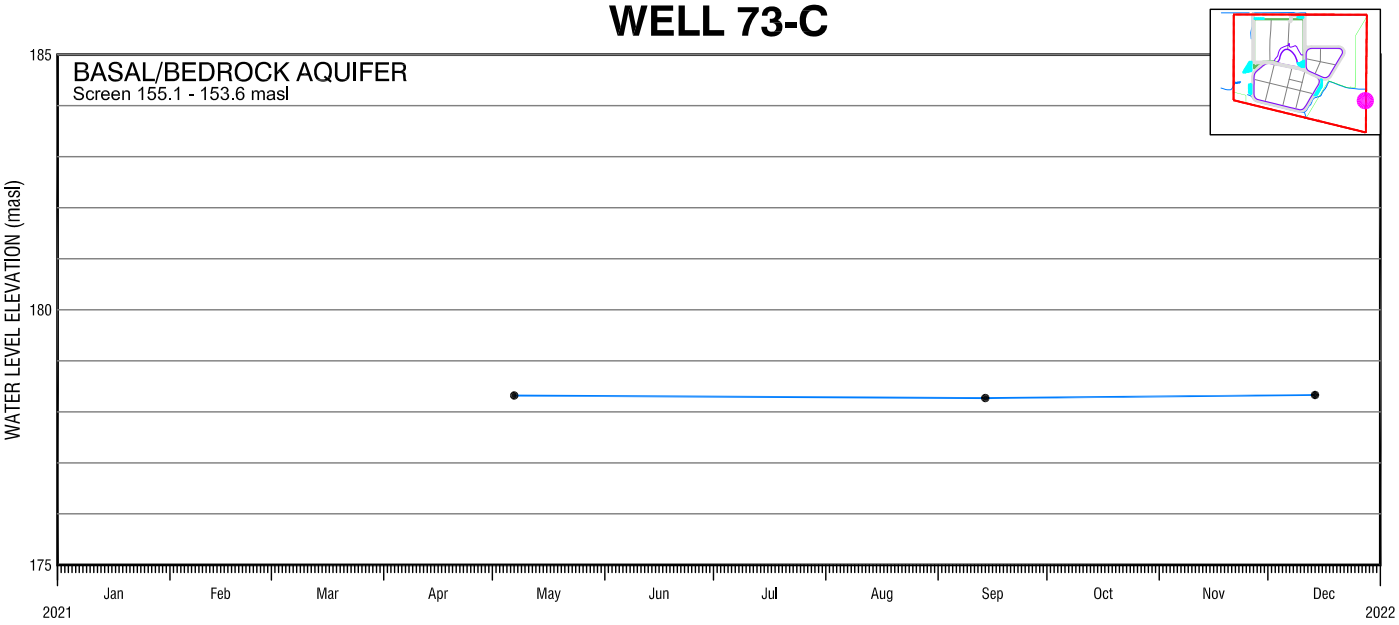
WELL 73-B



MP Elevation 200.08 masl
Grade 199.3 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
06-May-21	194.49										
14-Sep-21	192.80										

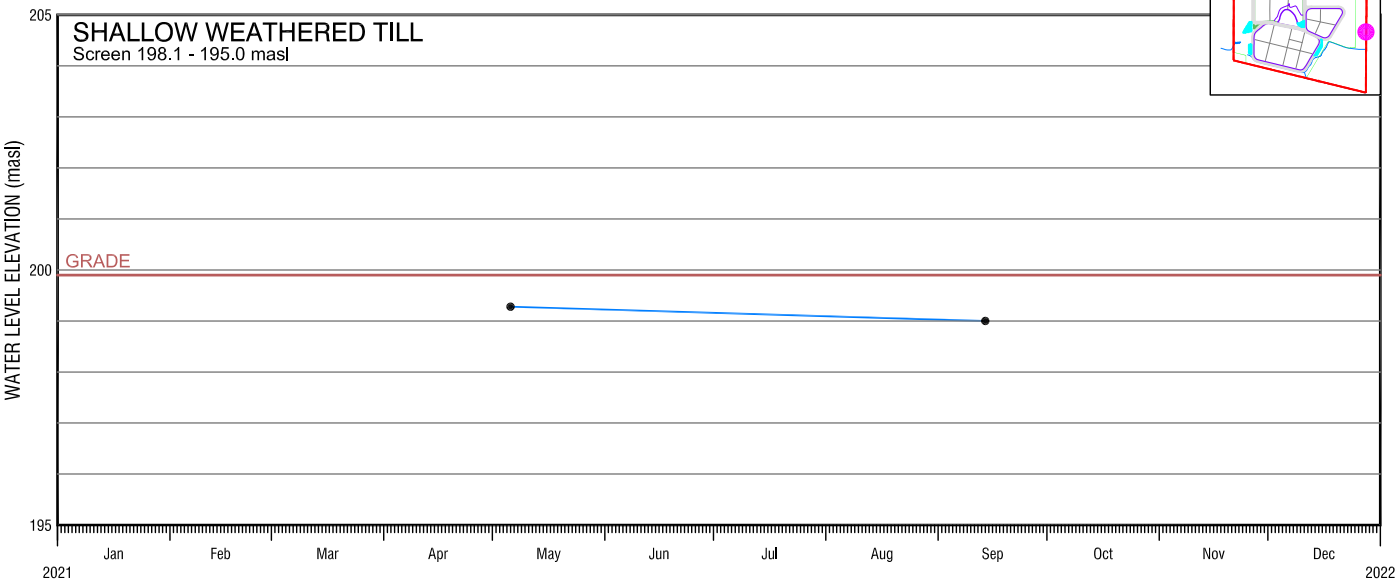
WELL 73-C



MP Elevation 200.03 masl
Grade 199.3 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
07-May-21	178.32										
14-Sep-21	178.27										
14-Dec-21	178.33										

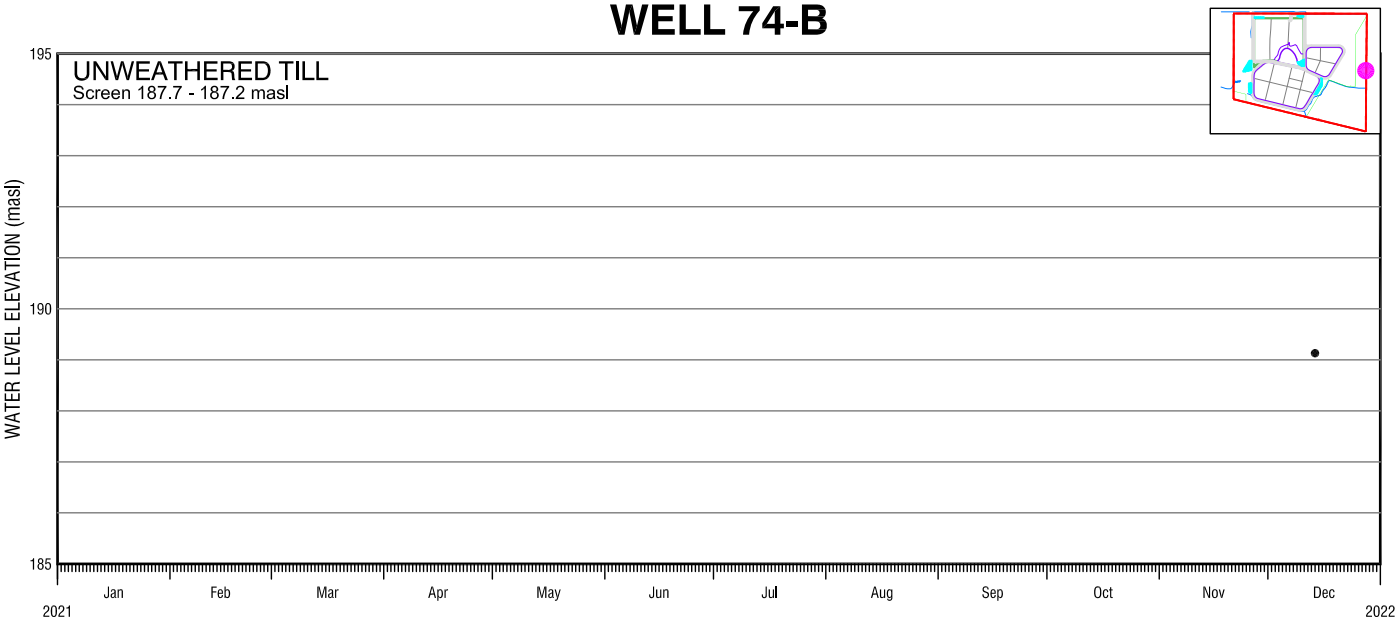
WELL 74-A



MP Elevation 200.66 masl
Grade 199.9 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
06-May-21	199.28										
14-Sep-21	199.00										

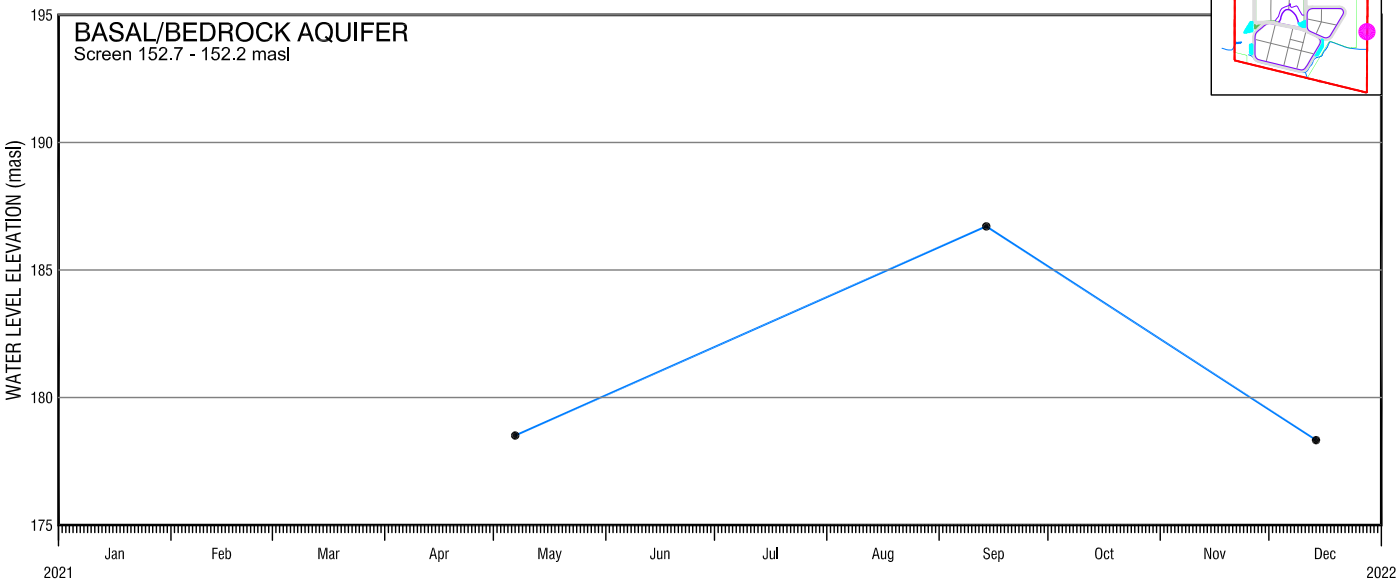
WELL 74-B



MP Elevation 200.65 masl
Grade 199.9 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
14-Dec-21	189.13										

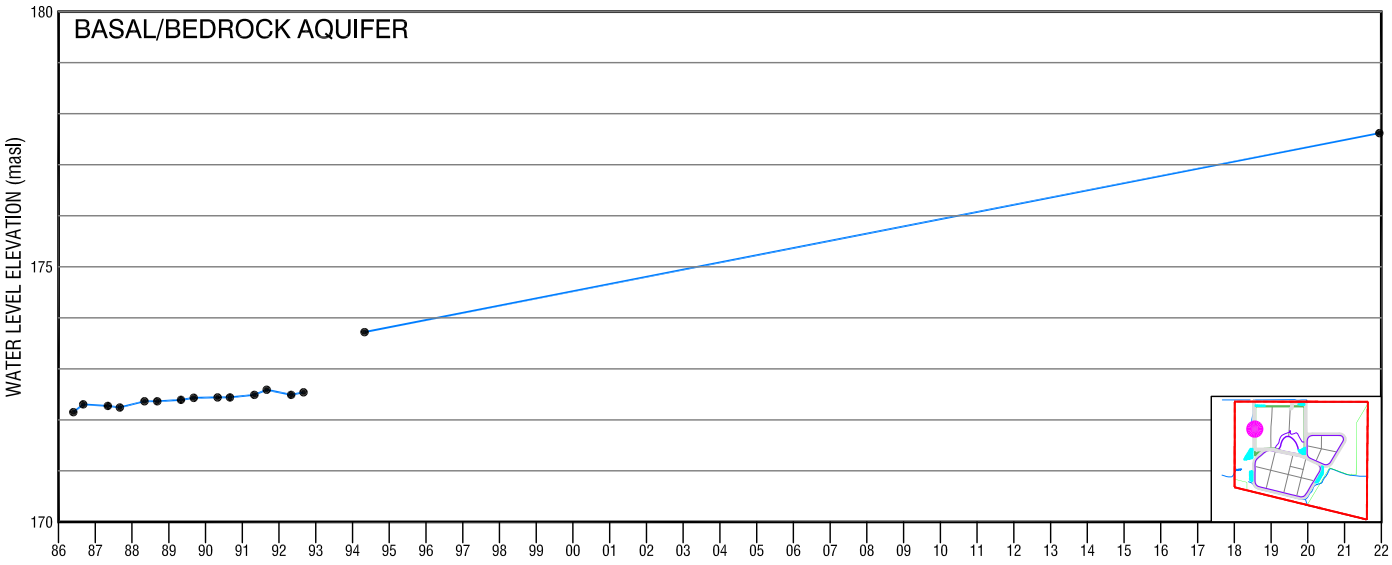
WELL 74-C



MP Elevation 200.73 masl
Grade 199.9 masl

DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
07-May-21	178.51										
14-Sep-21	186.71										
14-Dec-21	178.33										

BW-3



MP Elevation 199.62 masl

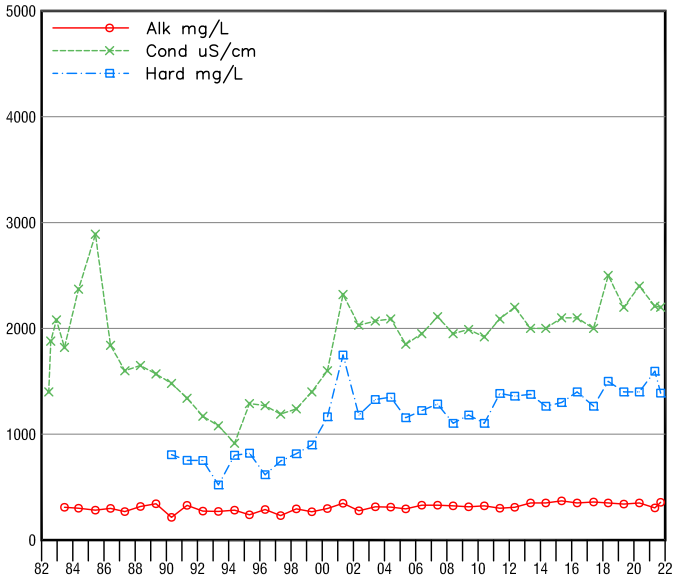
DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION	DATE	ELEVATION
28-May-86	172.15	01-May-91	172.49								
03-Sep-86	172.30	01-Sep-91	172.59								
06-May-87	172.27	01-May-92	172.49								
02-Sep-87	172.24	01-Sep-92	172.54								
04-May-88	172.36	01-May-94	173.72								
08-Sep-88	172.36	13-Dec-21	177.62								
02-May-89	172.39										
06-Sep-89	172.43										
01-May-90	172.44										
01-Sep-90	172.44										

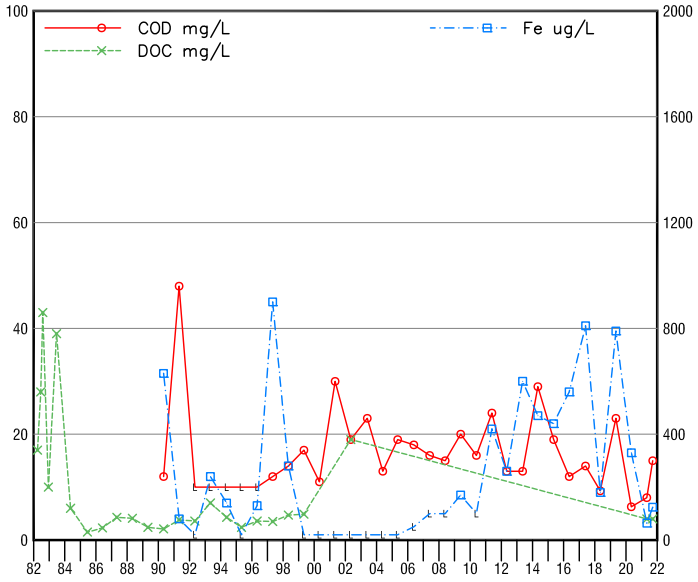
APPENDIX H

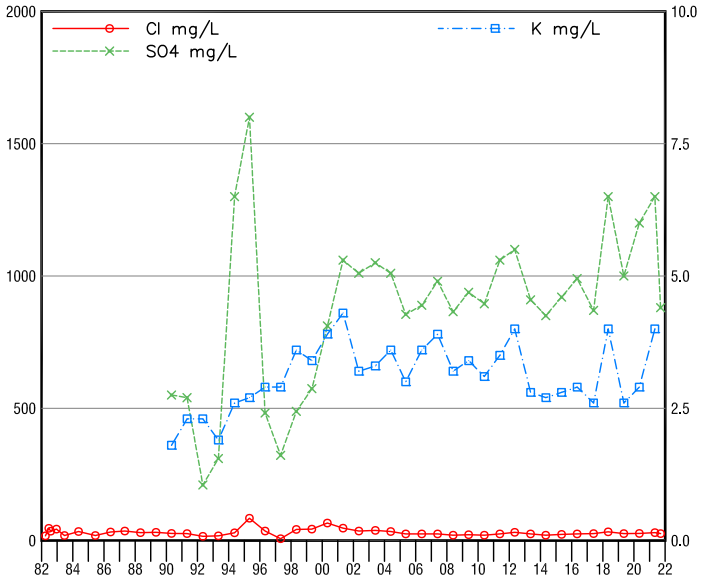
Groundwater Chemistry Data

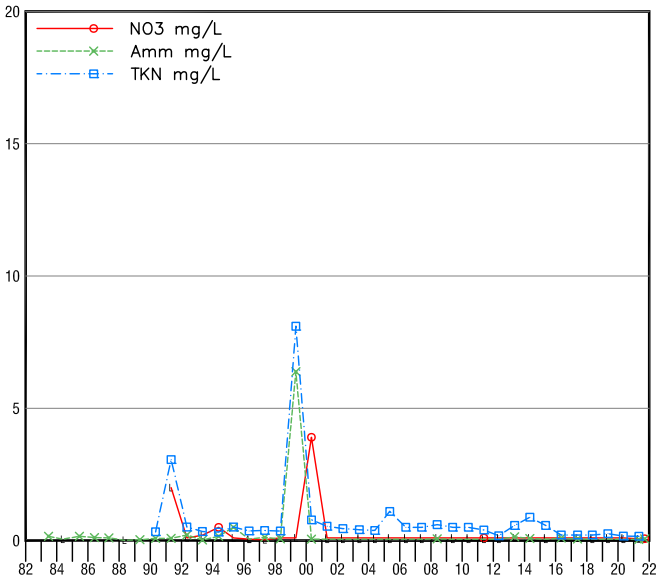
APPENDIX H1

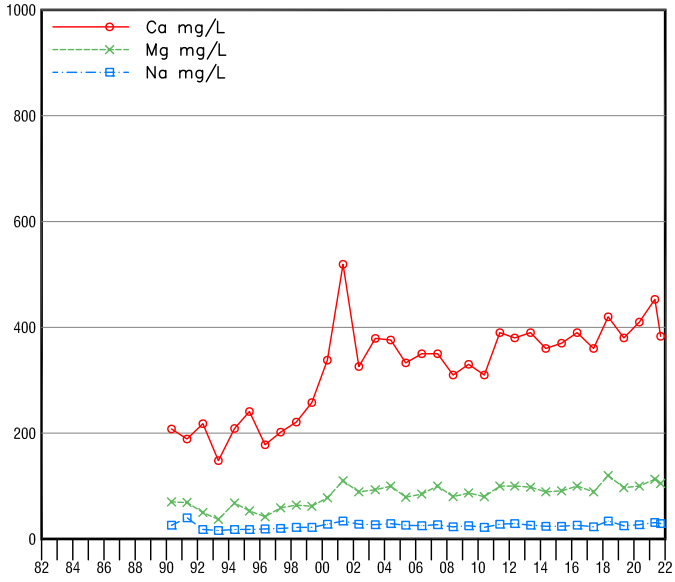
Layer 1 Hydrostratigraphic Unit Groundwater Quality Summary



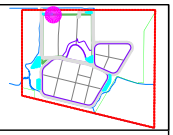








L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 1-II

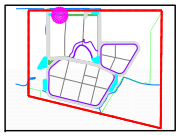
SHALLOW WEATHERED TILL

21500070 19 Apr 22	wsp GOLDER	21H1001

WELL 1-II

SHALLOW WEATHERED TILL

OBSERVATION WELL



DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
05-May-93	H930016	270	1080	521		18	310	148	37	16	1.9		<0.2	<0.2	0.34	0.02	-5.0
19-May-94	H940017	282	915	801		29	**1300**	209	68	18	2.6		0.5	0.27	0.32	0.16	-33.0
03-May-95	H950018	238	1290	821		84	**1600**	241	53	18	2.7		<0.1	0.66	0.51	0.5	-40.1
03-May-96	H960019	289	1270	617		36	482	178	42	19	2.9		<0.05	<0.01	0.36	<0.05	-11.9
02-May-97	H970020	231	1190	746		7	322	202	59	20	2.9		<0.03	0.06	0.38	0.12	16.0
05-May-98	H980021	294	1240	816		42	488	221	64	22	3.6		<0.1	<0.02	0.36	0.06	0.4
04-May-99	H990022	268	1400	899		43	**574**	258	62	22	3.4		<0.1	<0.02	8.1	6.38	2.5
03-May-00	H000023	298	1600	1165		66	**811**	338	78	28	3.9	<2	3.9	0.02	0.78	0.05	-0.8
03-May-01	H010024	348	2320	1749		47	**1060**	519	110	34	4.3	<2	<0.1	<0.02	0.54	<0.05	9.3
08-May-02	H020025	277	2030	1180		36	**1010**	326	89	28	3.2	<2	<0.1	<0.02	0.45	<0.05	-5.1
29-May-03	H030026	315	2070	1328		38	**1050**	379	93	27	3.3	<2	<0.1	<0.02	0.41	<0.05	-2.5
26-May-04	H040027	312	2090	1350		34	**1010**	376	100	29	3.6	<2	<0.1	<0.02	0.38	<0.05	0.2
11-May-05	H050028	294	1850	1156		25	**855**	333	79	26	3.0	<2	<0.1	<0.1	1.1	<0.05	-0.1
22-May-06	H060029	330	1950	1224		25	**889**	350	85	25	3.6	<2	<0.1	<0.01	0.5	<0.05	-0.3
28-May-07	H070030	329	2110	1285		25	**980**	350	100	27	3.9	<2	<0.1	0.01	0.5	<0.05	-1.3
26-May-08	H080031	323	1950	1103		20	**865**	310	80	23	3.2	<2	<0.1	<0.01	0.6	0.06	-3.9
25-May-09	H090032	315	1990	1182		22	**938**	330	87	25	3.4	<2	<0.1	<0.01	0.5	<0.05	-3.2
27-May-10	H100033	324	1920	1103		20	**895**	310	80	22	3.1	<2	<0.1	<0.01	0.5	<0.05	-5.3
25-May-11	H110034	300	2090	1385		25	**1060**	390	100	28	3.5	<2	0.1	<0.01	0.4	<0.05	0.4
08-May-12	H120035	310	2200	1360		31	**1100**	380	100	29	4.0	<2	<0.1	<0.01	0.18	<0.05	-2.4
15-May-13	H130036	350	2000	1377		25	**910**	390	98	26	2.8	<2	<0.1	<0.01	0.57	0.14	3.8
06-May-14	H140037	350	2000	1265		20	**850**	360	89	24	2.7	<2	<0.1	<0.01	0.88	0.077	2.3
11-May-15	H150038	370	2100	1300		23	**920**	370	91	24	2.8	<2	<0.1	<0.01	0.57	<0.05	-0.2
10-May-16	H160039	350	2100	1400		25	**990**	390	100	26	2.9	<2	<0.1	<0.01	0.21	0.09	1.1
29-May-17	H170040	360	2000	1265		26	**870**	360	89	23	2.6	<2	<0.1	<0.01	0.21	0.058	0.7
08-May-18	H180041	350	2500	1500		33	**1300**	420	120	34	4.0	<2	<0.1	<0.01	0.21	<0.05	-3.8
09-May-19	H190042	340	2200	1400		26	**1000**	380	97	25	2.6	<2	<0.1	<0.01	0.26	<0.05	-0.4
05-May-20	MPB473	350	2400	1400	7.6	27	**1200**	410	100	27	2.9	<2	<0.1	<0.01	0.17	<0.05	-4.5
04-May-21	2021R2005	304	2210	1596	7.7	30	**1300**	453	113	31.2	4.0		<0.06	<0.03	0.16	0.04	-0.9
17-Sep-21	CA1544312	356	2200	1389	7.7	26	**880**	383	105	29.1			0.07	<0.03		0.06	

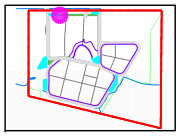
TOTAL SAMPLES		40	43	33	3	44	33	33	33	33	32	21	32	32	32	40	
AVERAGE	2021	330	2205	1493	7.7	28	1090	418	109	30.2			<0.06	<0.03		0.05	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 1-II

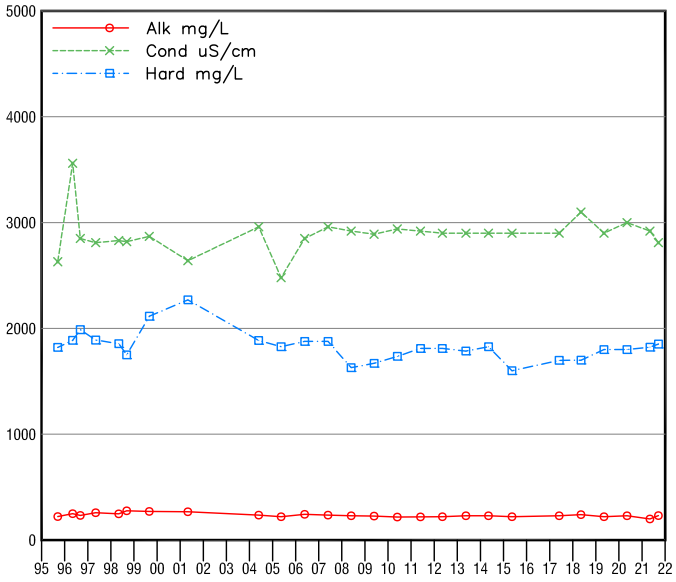
SHALLOW WEATHERED TILL

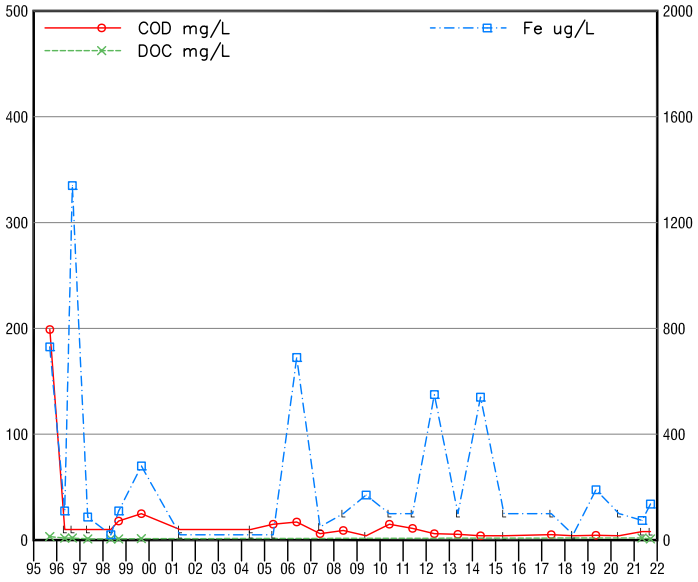
OBSERVATION WELL

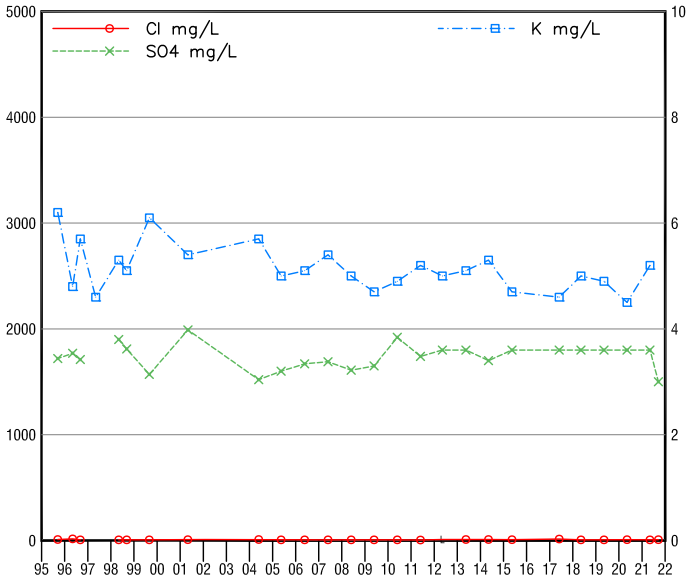


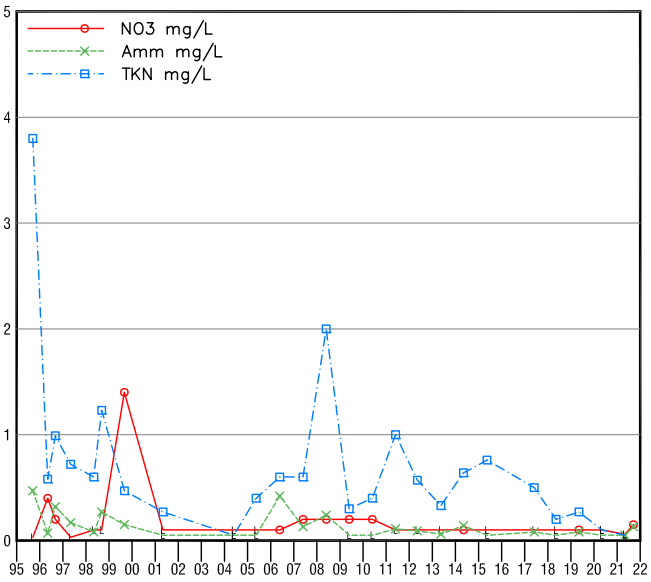
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
05-May-93	H930016		<10			<0.01			240			<1			
19-May-94	H940017		<10			<0.01			140			<1			
03-May-95	H950018		<10			<0.01			<20			<1			
03-May-96	H960019		<10			<0.1			130			<1			
02-May-97	H970020		12			0.6			**900**			<1			
05-May-98	H980021		14			<0.1			280			1			
04-May-99	H990022		17			<0.5			<20			1			
03-May-00	H000023	<2	11			0.12			<20			5			
03-May-01	H010024	<2	30			0.1			<20			<1			
08-May-02	H020025	<2	19			<0.5			<20			<2			
29-May-03	H030026	<2	23			<0.5			<20			<2			
26-May-04	H040027	<2	13			<0.5			<20			<2			
11-May-05	H050028	<2	19			<0.35			<20			3			
22-May-06	H060029	<2	18			<1			<50			<1			
28-May-07	H070030	<2	16			<1			<100			<1			
26-May-08	H080031	<2	15			<1			<100			<1			
25-May-09	H090032	<2	20			<1			170			<1			
27-May-10	H100033	<2	16			<1			<100			<1			
25-May-11	H110034	<2	24			<5			**420**			<1			
08-May-12	H120035	<2	13			<5			260			<1			
15-May-13	H130036	<2	13			<5			**600**			<1			
06-May-14	H140037	<2	29			<2			**470**			<0.1			
11-May-15	H150038	<2	19			<5			**440**			<1			
10-May-16	H160039	<2	12			<5			**560**			<1			
29-May-17	H170040	<2	14			<5			**810**			<1			
08-May-18	H180041	<2	9.3			<5			180			<1			
09-May-19	H190042	<2	23			<5			**790**			<1			
05-May-20	MPB473	<2	6.3			<1			**330**						
04-May-21	2021R2005		8		<0.2		0.019	0.6	64	<0.09	<0.01	<2		4	1970
17-Sep-21	CA1544312		15						124						1990
TOTAL SAMPLES		21	33	0	1	30	1	1	33	1	1	42	0	1	2
AVERAGE 2021			12						94						1980

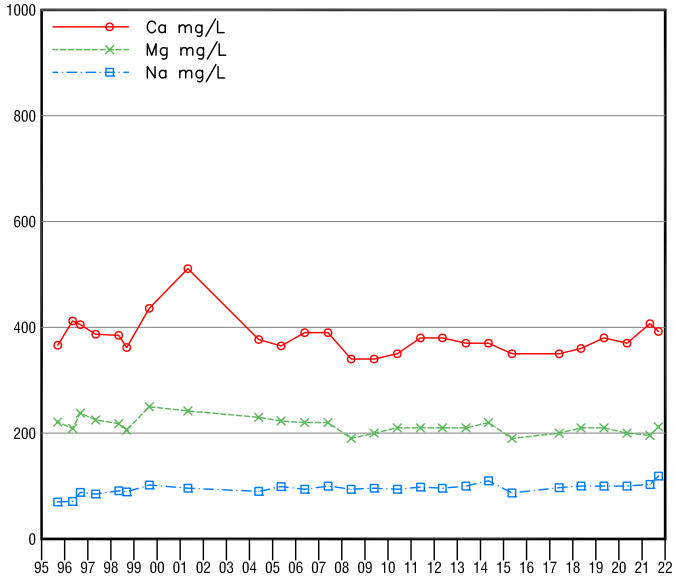
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**











L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 3-III

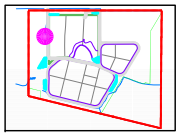
SHALLOW WEATHERED TILL

21500070 19 Apr 22	GOLDER	21H1002

WELL 3-III

SHALLOW WEATHERED TILL

OBSERVATION WELL



DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
13-Sep-95	H950043	222	2630	1821		9	**1720**	366	221	70	6.2		<0.03	<0.03	3.8	0.47	-1.0
06-May-96	H960044	250	3560	1887		15	**1770**	412	209	71	4.8		0.4	0.01	0.58	0.07	-1.6
04-Sep-96	H960045	232	2850	1988		7	**1710**	405	238	88	5.7		0.2	<0.03	0.99	0.32	4.0
05-May-97	H970046	259	2810	1890		*249*	*<2*	387	225	85	4.6		<0.03	0.07	0.72	0.17	54.7
05-May-98	H980047	248	2830	1856		6	**1900**	385	218	91	5.3		<0.1	<0.02	0.6	0.08	-4.0
07-Sep-98	H980048	276	2820	1750		6	**1810**	362	206	89	5.1		<0.1	<0.02	1.23	0.27	-5.3
01-Sep-99	H990049	270	2870	2115		6	**1570**	436	250	102	6.1		1.4	<0.02	0.47	0.15	10.1
03-May-01	H010050	267	2640	2270		8	**1990**	511	242	96	5.4	<2	<0.1	<0.02	0.27	<0.05	2.8
26-May-04	H040051	235	2960	1886		9	**1520**	377	230	90	5.7	<2	<0.1	<0.02	<0.05	<0.05	6.6
16-May-05	H050052	220	2480	1827		6	**1600**	365	223	99	5.0	<2	<0.1	<0.1	0.4	<0.05	4.0
24-May-06	H060053	243	2850	1877		7	**1670**	390	220	94	5.1	<2	0.1	<0.01	0.6	0.42	2.5
28-May-07	H070054	236	2960	1877		7	**1690**	390	220	100	5.4	<2	0.2	<0.01	0.6	0.13	2.4
28-May-08	H080055	229	2920	1629		6	**1610**	340	190	94	5.0	2	0.2	<0.01	2	0.24	-1.9
26-May-09	H090056	227	2890	1670		7	**1650**	340	200	96	4.7	<2	0.2	<0.01	0.3	<0.05	-1.8
28-May-10	H100057	218	2940	1736		6	**1920**	350	210	94	4.9	<2	0.2	<0.01	0.4	<0.05	-6.7
30-May-11	H110058	219	2920	1811		5	**1740**	380	210	98	5.2	<2	<0.1	<0.01	1	0.11	-0.1
09-May-12	H120059	220	2900	1811		<10	**1800**	380	210	96	5.0	<2	<0.1	<0.01	0.57	0.091	-1.6
16-May-13	H130060	230	2900	1786		9	**1800**	370	210	100	5.1	<2	<0.1	<0.01	0.33	0.061	-2.5
09-May-14	H140061	230	2900	1827		9	**1700**	370	220	110	5.3	<2	0.1	<0.01	0.64	0.14	1.5
15-May-15	H150062	220	2900	1600		8	**1800**	350	190	87	4.7	<2	<0.1	<0.01	0.76	<0.05	-6.4
31-May-17	H170064	230	2900	1698		14	**1800**	350	200	97	4.6	<2	<0.1	<0.01	0.5	0.08	-5.2
11-May-18	H180065	240	3100	1700		6	**1800**	360	210	100	5.0	<2	<0.1	<0.01	0.2	<0.05	-3.3
09-May-19	H190066	220	2900	1800		6	**1800**	380	210	100	4.9	3	0.1	<0.01	0.27	0.081	-1.6
07-May-20	MPB482	230	3000	1800	7.7	8	**1800**	370	200	100	4.5	<2	<0.1	<0.01	<0.1	<0.05	-3.6
06-May-21	2021R2022	200	2920	1823	8.2	7	**1800**	407	196	103	5.2		<0.06	<0.03	<0.05	0.05	-0.7
17-Sep-21	CA1544308	231	2810	1852	7.9	8	**1500**	392	212	119			0.15	<0.03		0.13	

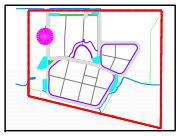
TOTAL SAMPLES		26	26	26	3	25	25	26	26	26	25	17	26	26	25	26	
AVERAGE	2021	216	2865	1838	8.1	8	1650	400	204	111			0.08	<0.03		0.09	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *Italics* / Exceedance in **Bold**

WELL 3-III

SHALLOW WEATHERED TILL

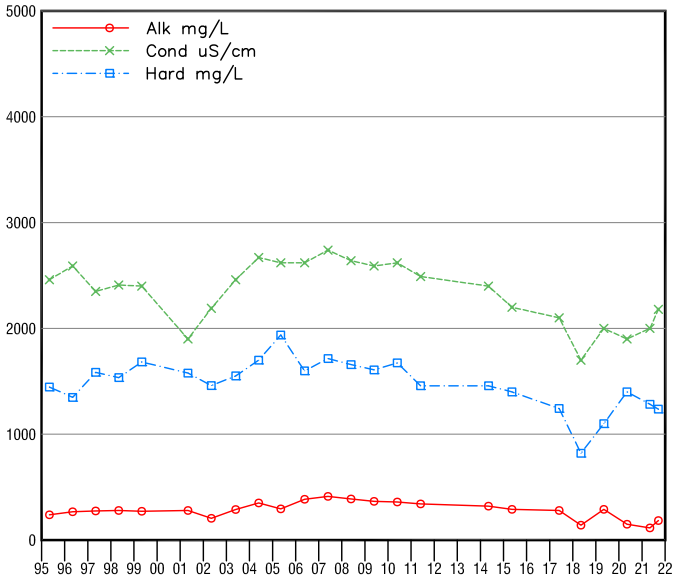
OBSERVATION WELL

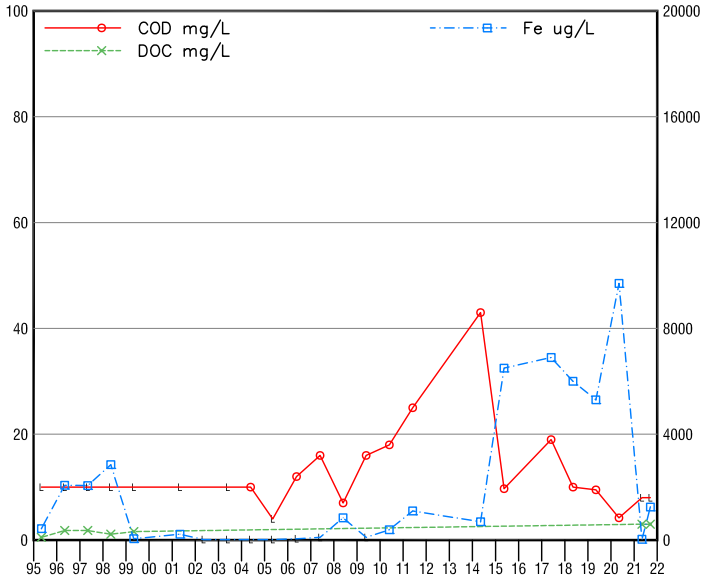


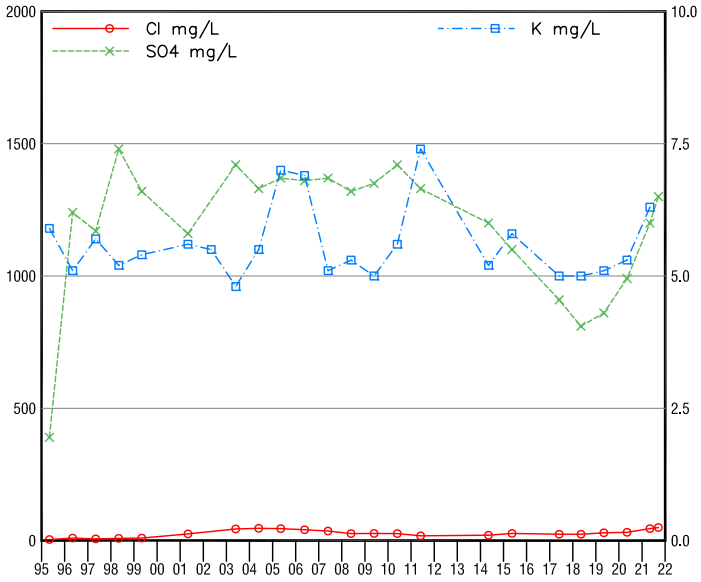
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
13-Sep-95	H950043		199			<0.01			**730**			1			
06-May-96	H960044		<10			<0.2			110			<1			
04-Sep-96	H960045		<10			<0.1			**1340**			<1			
05-May-97	H970046		<10			0.3			87			<1			
05-May-98	H980047		<10			0.1			20			1			
07-Sep-98	H980048		18			<0.1			110			<1			
01-Sep-99	H990049		25			<0.1			280			<1			
03-May-01	H010050	<2	<10			0.07			<20			<1			
26-May-04	H040051	<2	<10			<0.5			<20			<2			
16-May-05	H050052	<2	15			<0.35			<20			<1			
24-May-06	H060053	<2	17			<1			**690**			9			
28-May-07	H070054	<2	6			<1			<50			<1			
28-May-08	H080055	2	9			<1			<100			2			
26-May-09	H090056	<2	<4			<1			170			<1			
28-May-10	H100057	<2	15			<5			<100			1			
30-May-11	H110058	<2	11			<5			<100			<1			
09-May-12	H120059	<2	6			<10			**550**			<1			
16-May-13	H130060	<2	5.4			<5			<100			<1			
09-May-14	H140061	<2	4.1			<5			**540**			<1			
15-May-15	H150062	<2	<4			<5			<100			<1			
31-May-17	H170064	<2	5.1			<5			<100			<1			
11-May-18	H180065	<2	<4			<5			<20			<1			
09-May-19	H190066	3	4.5			<5			190			<1			
07-May-20	MPB482	<2	<4			<1			<100						
06-May-21	2021R2022		<8		<0.2		0.045	0.4	74	<0.09	<0.01	<2		10	2750
17-Sep-21	CA1544308		<8						136						2810

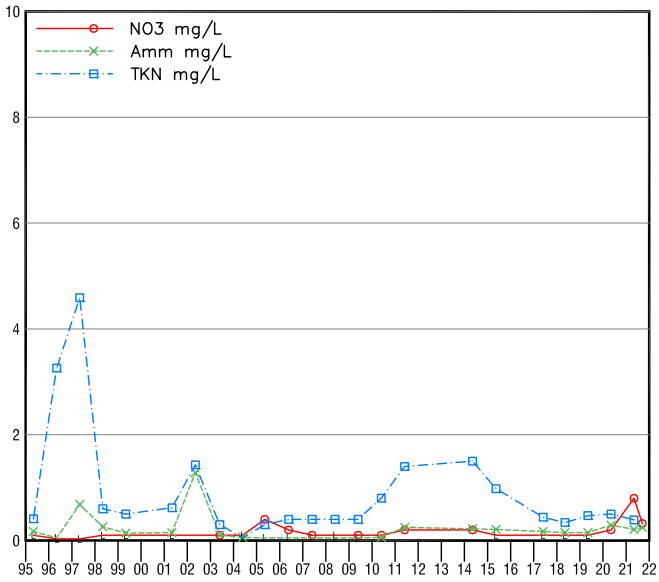
TOTAL SAMPLES	17	26	0	1	24	1	1	26	1	1	24	0	1	2
AVERAGE 2021		<8						105						2780

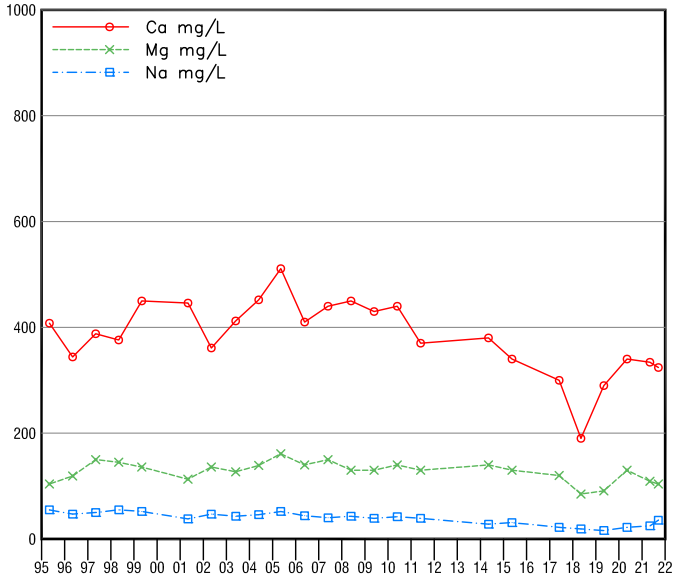
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









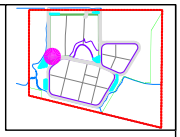


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 5-II

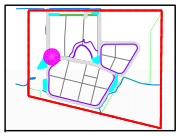
SHALLOW WEATHERED TILL

21500070 19 Apr 22	wsp GOLDER	21H1003

WELL 5-II

SHALLOW WEATHERED TILL

OBSERVATION WELL



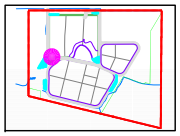
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
04-May-95	H950067	238	2460	1446		4	390	408	104	55	5.9		<0.1	0.42	0.41	0.17	41.6
06-May-96	H960068	267	2590	1348		9	**1240**	344	119	47	5.1		<0.03	<0.01	3.26	<0.05	-3.6
05-May-97	H970069	275	2350	1585		6	**1170**	388	150	50	5.7		<0.03	<0.03	4.59	0.68	6.4
05-May-98	H980070	280	2410	1535		8	**1480**	376	145	55	5.2		<0.1	<0.02	0.6	0.26	-4.7
04-May-99	H990071	272	2400	1683		9	**1320**	450	136	52	5.4		<0.1	<0.02	0.5	0.14	4.2
03-May-01	H010072	280	1900	1578		25	**1160**	446	113	38	5.6		<0.1	<0.02	0.62	0.15	4.6
08-May-02	H020073	205	2190	1460				361	136	47	5.5	<2			1.43	1.28	
29-May-03	H030074	288	2460	1551		44	**1420**	412	127	43	4.8	<2	0.1	<0.02	0.3	0.1	-5.1
26-May-04	H040075	351	2670	1700		46	**1330**	452	139	46	5.5	<2	<0.1	<0.02	<0.05	0.06	0.2
10-May-05	H050076	294	2620	1938		45	**1370**	511	161	52	7.0	<2	0.4	<0.1	0.3	<0.05	7.1
22-May-06	H060077	385	2620	1599		41	**1360**	410	140	44	6.9	<2	0.2	<0.01	0.4	<0.05	-4.4
28-May-07	H070078	412	2740	1715		36	**1370**	440	150	40	5.1	<2	0.1	<0.01	0.4	<0.05	-2.2
26-May-08	H080079	388	2640	1658		26	**1320**	450	130	43	5.3	<2	<0.1	<0.01	0.4	<0.05	-1.1
25-May-09	H090080	366	2590	1608		27	**1350**	430	130	39	5.0	<2	0.1	<0.01	0.4	<0.05	-3.1
27-May-10	H100081	360	2620	1674		26	**1420**	440	140	42	5.6	<2	0.1	<0.01	0.8	0.06	-2.8
31-May-11	H110082	342	2490	1458		18	**1330**	370	130	39	7.4	<2	0.2	0.02	1.4	0.25	-6.0
09-May-14	H140083	320	2400	1458		20	**1200**	380	140	28	5.2	2	0.2	0.015	1.5	0.22	-0.1
15-May-15	H150084	290	2200	1400		27	**1100**	340	130	31	5.8	<2	<0.1	<0.01	0.98	0.21	-0.1
30-May-17	H170086	280	2100	1243		24	**910**	300	120	22	5.0	<2	<0.1	<0.01	0.44	0.17	1.9
10-May-18	H180087	140	1700	820		24	**810**	190	85	19	5.0	<2	<0.1	<0.01	0.34	0.15	-7.1
07-May-19	H190088	290	2000	1100		29	**860**	290	91	16	5.1	<2	<0.1	<0.01	0.47	0.15	-3.2
07-May-20	MPB484	150	1900	1400	7.7	31	**990**	340	130	22	5.3	<2	0.2	<0.01	0.50	0.29	8.6
05-May-21	2021R2012	115	2000	1283	7.6	45	**1200**	334	109	24.8	6.3		0.8	<0.03	0.39	0.21	-3.1
15-Sep-21	CA1539604	184	2180	1237	8.1	49	**1300**	324	104	35.5			0.32			0.25	
TOTAL SAMPLES		24	24	24	3	23	23	24	24	24	23	16	23	22	23	24	
AVERAGE 2021		150	2090	1260	7.9	47	1250	329	107	30.2			0.6			0.23	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 5-II

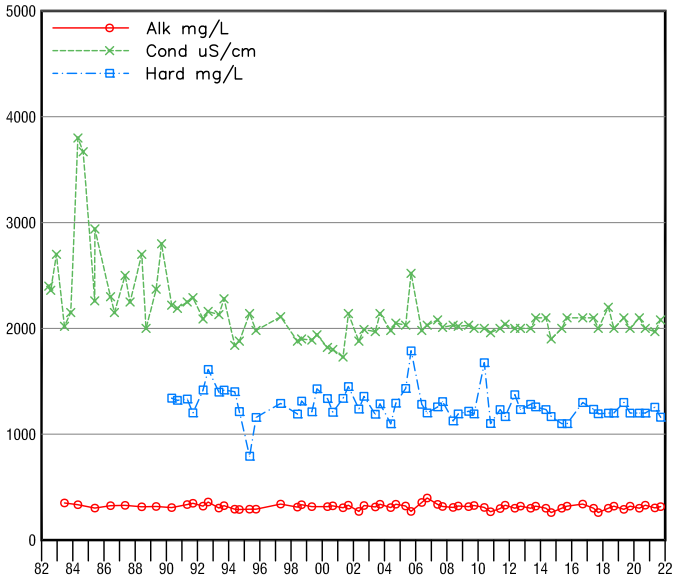
SHALLOW WEATHERED TILL

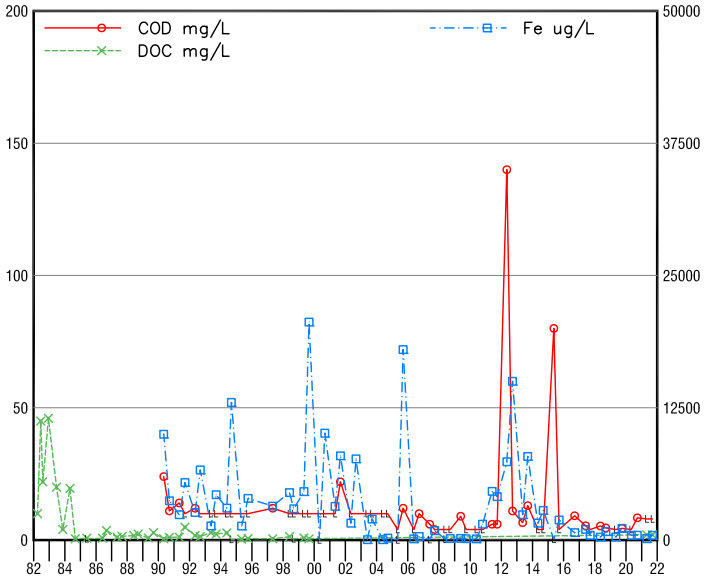
OBSERVATION WELL

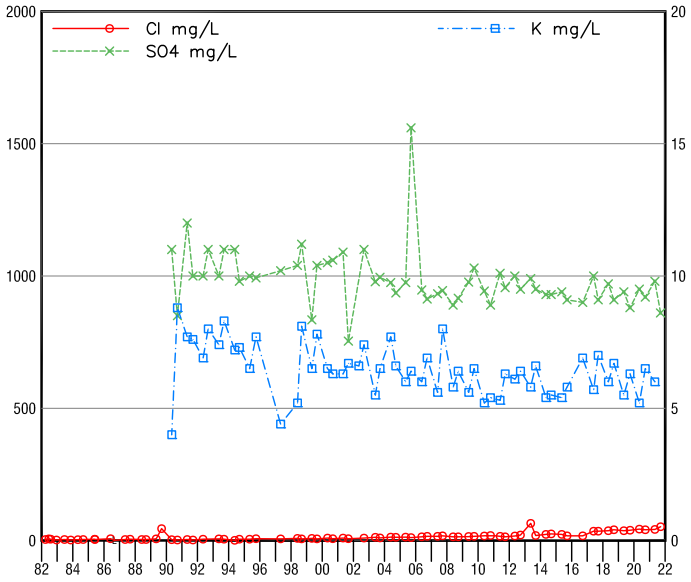


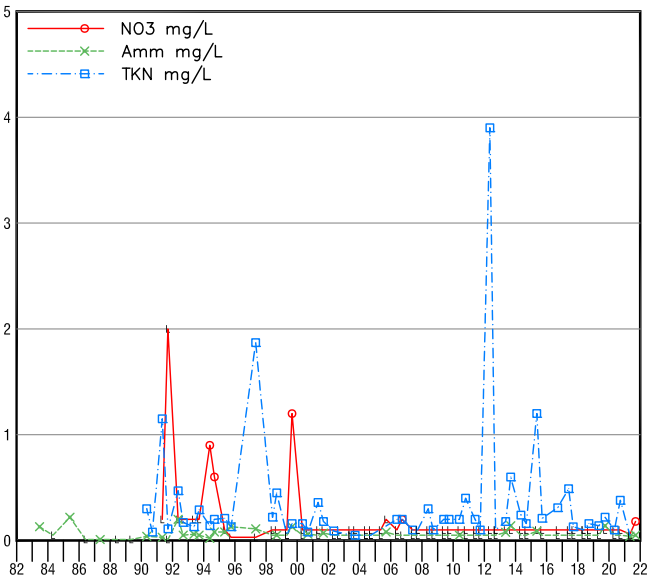
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
04-May-95	H950067		<10			<0.01			**430**			<1			
06-May-96	H960068		<10			<0.1			**2070**			1			
05-May-97	H970069		<10			0.4			**2060**			<1			
05-May-98	H980070		<10			0.1			**2850**			2			
04-May-99	H990071		<10			<0.5			50			1			
03-May-01	H010072		<10			0.14			220			<1			
08-May-02	H020073	<2				<0.5			<20			<2			
29-May-03	H030074	<2	<10			<0.5			<20			<2			
26-May-04	H040075	<2	10			<0.5			<20			<2			
10-May-05	H050076	<2	<4			<0.35			<20			2			
22-May-06	H060077	<2	12			<1			<50			<1			
28-May-07	H070078	<2	16			<1			<100			<1			
26-May-08	H080079	<2	7			<1			**840**			<1			
25-May-09	H090080	<2	16			<1			<100			<1			
27-May-10	H100081	<2	18			<1			**390**			<1			
31-May-11	H110082	<2	25			<10			**1100**			<1			
09-May-14	H140083	2	43			<5			**690**			<1			
15-May-15	H150084	<2	9.7			<5			**6500**			<1			
30-May-17	H170086	<2	19			<5			**6900**			<1			
10-May-18	H180087	<2	10			<2			**6000**			<1			
07-May-19	H190088	<2	9.5			<5			**5300**			<1			
07-May-20	MPB484	<2	4.2			<1			**9700**			<1			
05-May-21	2021R2012		<8		<0.2		0.033	0.6	29	<0.09	<0.01	<2		<2	1800
15-Sep-21	CA1539604		<8						**1250**						2010
TOTAL SAMPLES		16	23	0	1	22	1	1	24	1	1	23	0	1	2
AVERAGE 2021			<8						640						1905

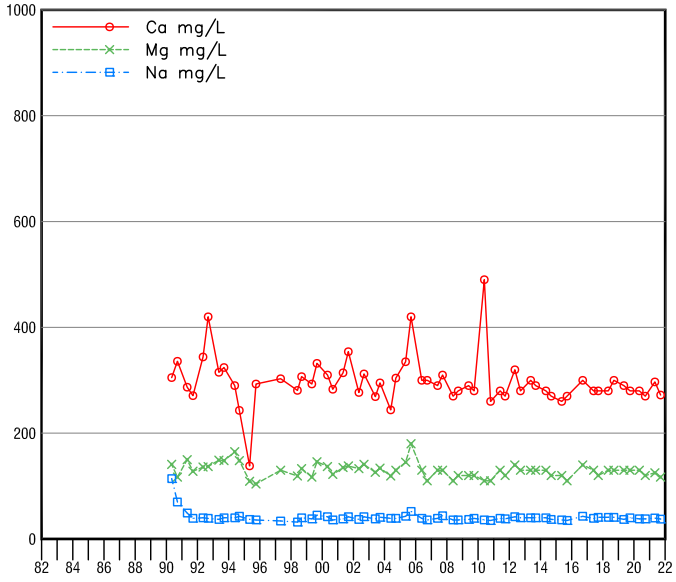
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**











L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 11-I

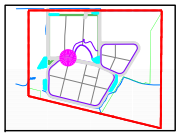
SHALLOW WEATHERED TILL

21500070 19 Apr 22	GOLDER	21H1004

WELL 11-I

SHALLOW WEATHERED TILL

OBSERVATION WELL



DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
25-Sep-06	H060137	398	2030	1201		16	**913**	300	110	36	6.9	<2	0.2	0.02	0.2	<0.05	-3.1
28-May-07	H070138	337	2080	1258		16	**933**	290	130	39	5.6	<2	<0.1	<0.01	0.1	<0.05	0.7
22-Sep-07	H070139	317	2010	1308		18	**945**	310	130	44	8.0	<2	<0.1	<0.01	<0.1	<0.05	3.3
26-May-08	H080140	309	2030	1126		14	**890**	270	110	36	5.8	<2	<0.1	<0.01	0.3	<0.05	-1.7
22-Sep-08	H080141	322	2020	1192		14	**916**	280	120	36	6.4	<2	<0.1	<0.01	0.1	<0.05	-0.6
25-May-09	H090142	316	2030	1217		15	**977**	290	120	37	5.6	<2	<0.1	<0.01	0.2	<0.05	-1.8
28-Sep-09	H090143	327	2000	1192		16	**1030**	280	120	39	6.5	<2	<0.1	<0.01	0.2	<0.05	-5.0
27-May-10	H100144	308	2000	1676		17	**943**	490	110	36	5.2	<2	<0.1	<0.01	0.2	0.05	14.5
19-Oct-10	H100145	267	1960	1101		19	**890**	260	110	35	5.4	<2	<0.1	<0.01	0.4	<0.05	-1.4
31-May-11	H110146	297	2000	1233		16	**1010**	280	130	39	5.3	<2	<0.1	<0.01	0.2	<0.05	-1.4
27-Sep-11	H110147	329	2040	1167		14	**956**	270	120	38	6.3	<2	<0.1	<0.01	0.1	<0.05	-3.0
10-May-12	H120148	300	2000	1374		17	**1000**	320	140	42	6.1	<2	<0.1	<0.01	3.9	<0.05	4.3
20-Sep-12	H120149	320	2000	1233		21	**950**	280	130	40	6.4	<2	<0.1	<0.01	<0.1	<0.05	0.6
16-May-13	H130150	300	2000	1283		65	**990**	300	130	40	5.8	<2	<0.1	<0.01	0.18	0.078	-1.4
11-Sep-13	H130151	320	2100	1258		19	**950**	290	130	40	6.6	<2	<0.1	<0.01	0.6	0.14	1.2
09-May-14	H140152	300	2100	1233		23	**930**	280	130	40	5.4	<2	<0.1	<0.01	0.24	<0.05	1.1
09-Sep-14	H140153	260	1900	1167		25	**930**	270	120	37	5.5	<2	<0.1	<0.01	0.16	<0.05	-0.1
15-May-15	H150154	300	2000	1100		23	**940**	260	120	36	5.4		<0.1	<0.01	1.2	0.088	-3.3
17-Sep-15	H150155	320	2100	1100		18	**910**	270	110	35	5.8	<2	<0.1	<0.01	0.21	<0.05	-3.2
16-Sep-16	H160157	340	2100	1300		18	**900**	300	140	43	6.9	<2	<0.1	<0.01	0.31	<0.05	4.6
30-May-17	H170158	300	2100	1235		35	**1000**	280	130	39	5.7	<2	<0.1	<0.01	0.49	<0.05	-2.3
15-Sep-17	H170159	260	2000	1193		35	**910**	280	120	41	7.0	<2	<0.1	<0.01	0.13	<0.05	1.4
11-May-18	H180160	300	2200	1200		37	**970**	280	130	41	6.0	<2	<0.1	<0.01	<0.1	<0.05	-1.1
17-Sep-18	H180161	320	2000	1200		41	**910**	300	130	41	6.7	<2	<0.1	<0.01	0.16	<0.05	2.1
08-May-19	H190162	290	2100	1300		37	**940**	290	130	37	5.5	<2	<0.1	<0.01	0.14	<0.05	1.0
30-Sep-19	H190163	320	2000	1200		39	**880**	280	130	40	6.3	<2	<0.1	<0.01	0.22	0.14	1.5
05-May-20	MPB479	300	2100	1200	7.8	43	**950**	280	130	38	5.2	<2	<0.1	<0.01	0.10	<0.05	-1.0
22-Sep-20	NSM024	330	2000	1200	7.8	41	**920**	270	120	38	6.5	<2	<0.1	<0.01	0.38	<0.05	-3.3
04-May-21	2021R2001	303	1970	1256	7.9	42	**980**	297	125	39.6	6.0		<0.06	<0.03	<0.05	0.04	-1.2
15-Sep-21	CA1539602	316	2080	1161	8.4	52	**860**	272	117	37.6			0.18			0.05	

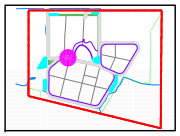
TOTAL SAMPLES	65	77	60	4	76	59	60	60	60	59	39	57	56	56	66	
AVERAGE 2021	310	2025	1209	8.2	47	920	285	121	38.6			0.09			0.05	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *Italics* / Exceedance in **Bold**

WELL 11-I

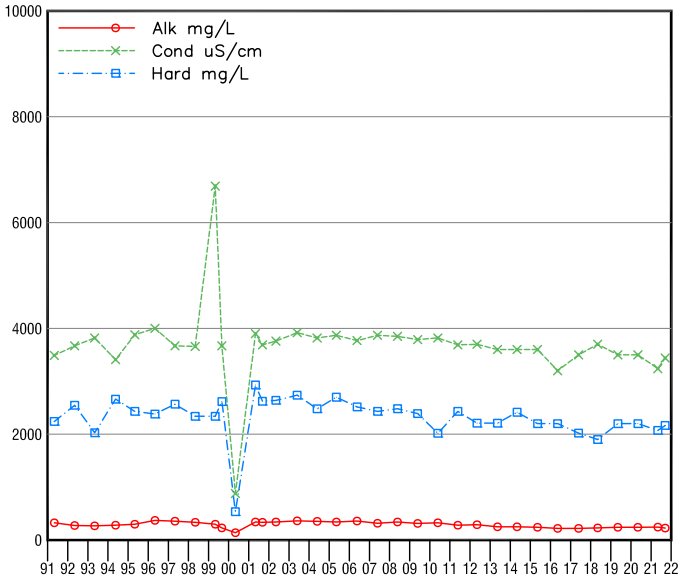
SHALLOW WEATHERED TILL

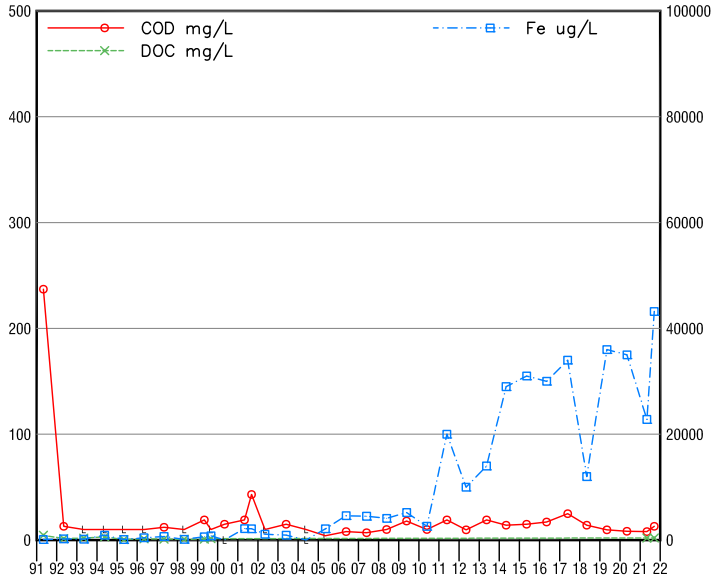
OBSERVATION WELL

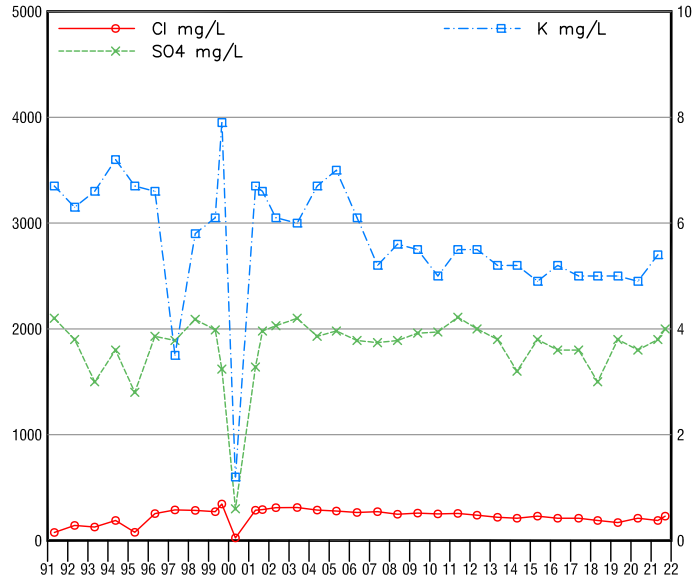


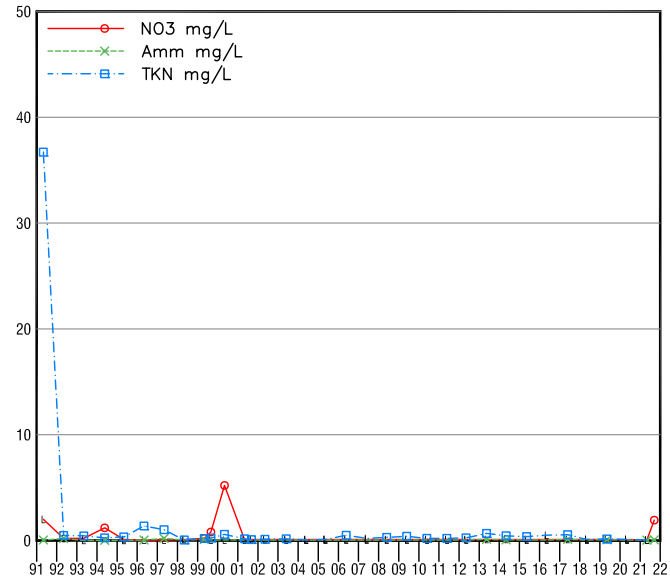
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
25-Sep-06	H060137	<2	10			<1			**340**			<1			
28-May-07	H070138	<2	6			<1			<50			<1			
22-Sep-07	H070139	<2	4			<1			**890**			<1			
26-May-08	H080140	<2	<4			<1			<100			<1			
22-Sep-08	H080141	<2	<4			<1			140			<1			
25-May-09	H090142	<2	9			<1			160			<1			
28-Sep-09	H090143	<2	<4			<1			130			<1			
27-May-10	H100144	<2	<4			<1			110			<1			
19-Oct-10	H100145	<2	<4			<5			**1500**			<1			
31-May-11	H110146	<2	6			<1			**4600**			<1			
27-Sep-11	H110147	<2	6			<5			**4100**			<1			
10-May-12	H120148	<2	140			<5			**7400**			<1			
20-Sep-12	H120149	<2	11			<5			**15000**			<1			
16-May-13	H130150	<2	6.6			<5			**2400**			<1			
11-Sep-13	H130151	<2	13			<2			**7900**			0.014			
09-May-14	H140152	<2	<4			<5			**1600**			<1			
09-Sep-14	H140153	<2	<4			<5			**2800**			<1			
15-May-15	H150154		80			<5			<100						
17-Sep-15	H150155	<2	<4			<5			**1900**			<1			
16-Sep-16	H160157	<2	9.2			<5			**700**			1.4			
30-May-17	H170158	<2	5.4			<5			**1000**			<1			
15-Sep-17	H170159	<2	<4			<5			**450**			<1			
11-May-18	H180160	<2	5.3			<5			280			<1			
17-Sep-18	H180161	<2	4.6			<5			**800**			<1			
08-May-19	H190162	<2	<4			<5			290			<1			
30-Sep-19	H190163	<2	4.4			<5			**1100**			<1			
05-May-20	MPB479	<2	<4			<1			**450**			2.4			
22-Sep-20	NSM024	<2	8.4			<5			**460**			<1			
04-May-21	2021R2001		<8		<0.2		0.109	0.7	135	1.38	<0.01	<2		**7190**	1600
15-Sep-21	CA1539602		<8						**448**						1870
TOTAL SAMPLES		39	59	0	1	55	1	1	60	1	1	75	0	1	2
AVERAGE 2021			<8						292						1735

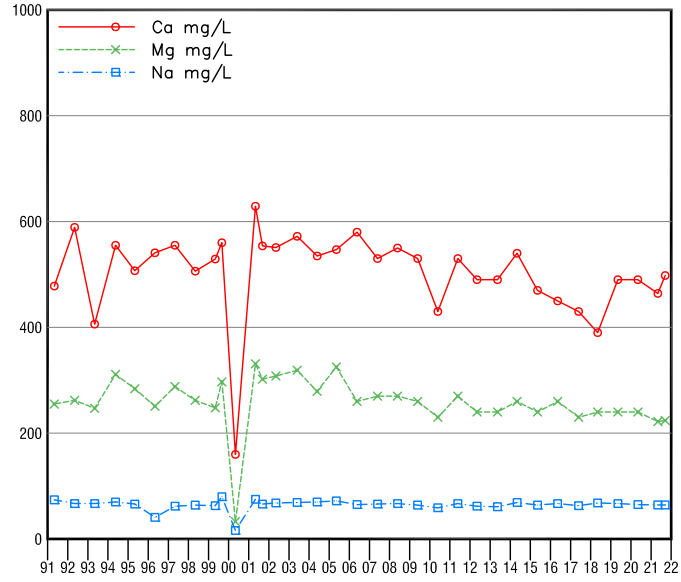
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**



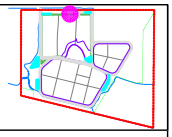








L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 12-I

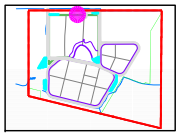
SHALLOW WEATHERED TILL

21500070 19 Apr 22	GOLDER	21H1005

WELL 12-I

SHALLOW WEATHERED TILL

OBSERVATION WELL



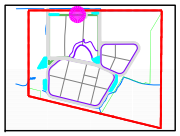
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
03-May-95	H950168	299	3880	2432		77	**1400**	507	284	66	6.7		<0.1	0.36	0.34	<0.01	16.2
03-May-96	H960169	372	4000	2382		**255**	**1930**	541	251	41	6.6		<0.03	<0.01	1.37	0.05	-5.0
02-May-97	H970170	357	3670	2568		**289**	**1890**	555	288	62	3.5		<0.03	<0.03	1.02	0.2	-0.4
04-May-98	H980171	336	3660	2339		**285**	**2090**	506	262	64	5.8		<0.1	<0.02	0.05	<0.05	-7.9
03-May-99	H990172	300	6690	2339		**273**	**1990**	529	248	63	6.1		0.2	<0.02	0.19	0.1	-5.2
01-Sep-99	H990173	230	3670	2618		**345**	**1620**	560	297	80	7.9		0.8	<0.02	0.23	<0.05	7.7
03-May-00	H000174	140	880	537		25	300	160	33	16	1.2	<2	5.2	0.11	0.58	<0.05	6.1
03-May-01	H010175	340	3900	2930		**286**	**1640**	629	331	75	6.7	<2	<0.1	<0.02	0.16	<0.05	11.8
06-Sep-01	H010176	334	3690	2623		**292**	**1980**	554	302	66	6.6	<2	<0.1	<0.02	0.09	<0.05	-0.5
08-May-02	H020177	341	3760	2640		**310**	**2030**	551	308	68	6.1	<2	<0.1	<0.02	0.12	<0.05	-1.6
29-May-03	H030178	363	3920	2738		**312**	**2100**	572	319	69	6.0	<2	<0.1	<0.02	0.16	<0.05	-1.5
26-May-04	H040179	354	3820	2481		**288**	**1930**	535	279	70	6.7	<2	<0.1	<0.02	<0.05	<0.05	-2.3
10-May-05	H050180	341	3870	2700		**278**	**1980**	547	325	72	7.0	<2	<0.1	<0.1	<0.1	<0.05	1.4
22-May-06	H060181	359	3770	2516		**265**	**1890**	580	260	65	6.1	<2	<0.1	<0.01	0.5	<0.05	-0.5
28-May-07	H070182	317	3870	2432		**273**	**1870**	530	270	66	5.2	<2	<0.1	<0.01	<0.2	<0.05	-1.1
26-May-08	H080183	340	3850	2482		248	**1890**	550	270	67	5.6	<2	<0.1	<0.01	0.3	<0.05	-0.3
25-May-09	H090184	313	3790	2391		**259**	**1960**	530	260	64	5.5	<2	<0.1	<0.01	0.4	<0.05	-3.2
27-May-10	H100185	327	3820	2018		**251**	**1970**	430	230	59	5.0	<2	<0.1	<0.01	0.2	<0.05	-11.7
25-May-11	H110186	280	3690	2432		**256**	**2110**	530	270	67	5.5	<2	<0.1	<0.01	0.2	<0.05	-3.9
08-May-12	H120187	290	3700	2209		240	**2000**	490	240	62	5.5	<2	<0.1	<0.01	0.25	<0.05	-6.7
14-May-13	H130188	250	3600	2209		220	**1900**	490	240	61	5.2	<2	<0.1	<0.01	0.67	0.11	-3.3
05-May-14	H140189	250	3600	2416		210	**1600**	540	260	69	5.2	<2	<0.1	<0.01	0.45	0.068	8.6
12-May-15	H150190	240	3600	2200		230	**1900**	470	240	64	4.9	<2	<0.1	<0.01	0.37	<0.05	-3.7
10-May-16	H160191	220	3200	2200		210	**1800**	450	260	67	5.2	<2	<0.1	<0.01	<0.5	<0.05	0.2
26-May-17	H170192	220	3500	2021		210	**1800**	430	230	63	5.0	<2	<0.1	<0.01	0.55	0.11	-3.6
07-May-18	H180193	230	3700	1900		190	**1500**	390	240	68	5.0	<2	<0.1	<0.01	<0.1	<0.05	1.8
09-May-19	H190194	240	3500	2200		170	**1900**	490	240	67	5.0	<2	<0.1	<0.01	0.14	0.073	-0.6
07-May-20	MPB494	240	3500	2200	7.3	210	**1800**	490	240	65	4.9	<2	<0.1	<0.01	<0.1	<0.05	0.2
04-May-21	2021R2007	245	3240	2073	7.2	190	**1900**	464	222	64.3	5.4		<0.06	<0.03	<0.05	0.04	-4.9
14-Sep-21	CA1539609	227	3440	2166	8.0	230	**2000**	498	224	64.3			1.92			0.07	
TOTAL SAMPLES		34	34	34	3	34	34	34	34	34	33	22	34	33	33	34	
AVERAGE 2021		236	3340	2120	7.6	210	1950	481	223	64.3			0.96			0.06	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 12-I

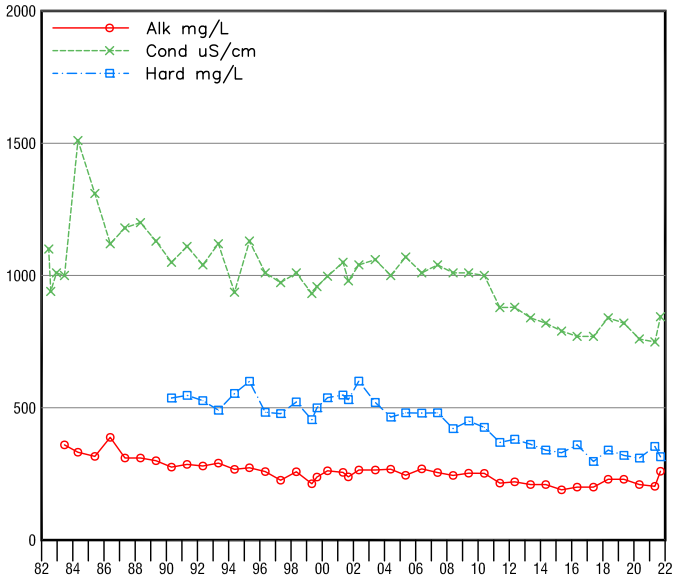
SHALLOW WEATHERED TILL

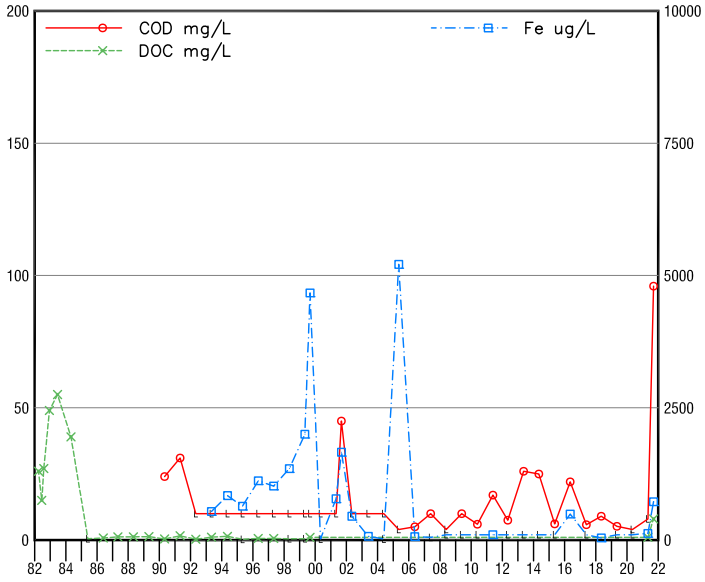
OBSERVATION WELL

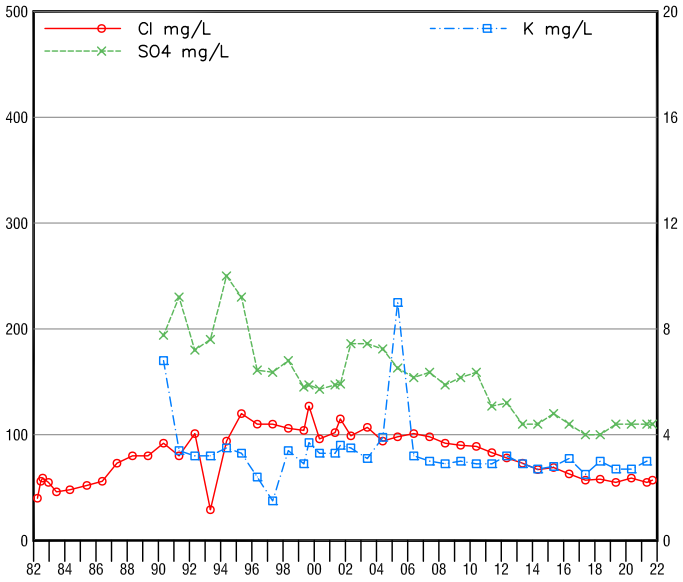


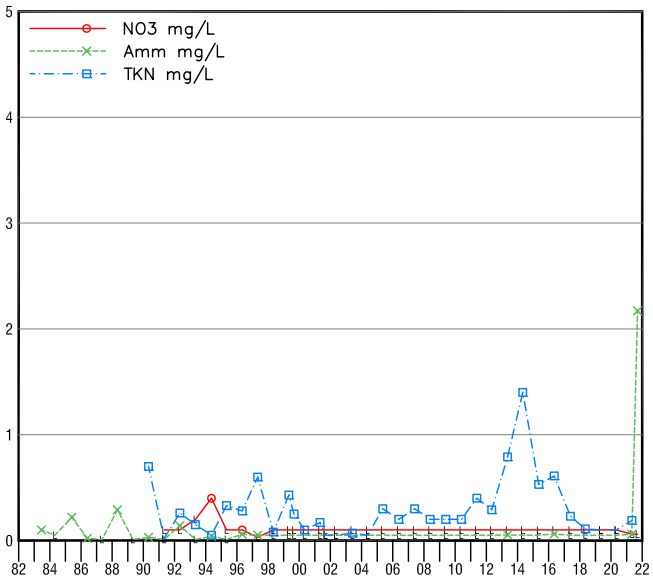
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
03-May-95	H950168		<10			<0.01			110			57			
03-May-96	H960169		<10			1.4			**430**			11			
02-May-97	H970170		12			4			**671**			4			
04-May-98	H980171		<10			1.6			140			1			
03-May-99	H990172		19			<0.1			**620**			2			
01-Sep-99	H990173		<10			1.4			**790**			<1			
03-May-00	H000174	<2	15			0.02			<20			<1			
03-May-01	H010175	<2	19			1.74			**2160**			8			
06-Sep-01	H010176	<2	43			1.59			**2130**			1.3			
08-May-02	H020177	<2	<10			1.7			**1110**			<2			
29-May-03	H030178	<2	15			1.6			**920**			<2			
26-May-04	H040179	<2	<10			1.5			<20			<2			
10-May-05	H050180	<2	<4			1.32			**2120**			2			
22-May-06	H060181	<2	8			2			**4600**			<2			
28-May-07	H070182	<2	7			2			**4500**			<1			
26-May-08	H080183	<2	10			1			**4100**			<1			
25-May-09	H090184	<2	18			1			**5200**			3			
27-May-10	H100185	<2	10			1			**2600**			<1			
25-May-11	H110186	<2	19			<10			**20000**			<1			
08-May-12	H120187	<2	9.6			<10			**10000**			3.3			
14-May-13	H130188	<2	19			<10			**14000**			<1			
05-May-14	H140189	<2	14			<10			**29000**			8.4			
12-May-15	H150190	<2	15			<10			**31000**			1.1			
10-May-16	H160191	<2	17			<5			**30000**			2.2			
26-May-17	H170192	<2	25			<5			**34000**			<1			
07-May-18	H180193	<2	14			<5			**12000**			<1			
09-May-19	H190194	<2	9.7			<5			**36000**			<1			
07-May-20	MPB494	<2	8.3			<1			**35000**			1.9			
04-May-21	2021R2007		8		<0.2		0.015	<0.2	**22800**	0.14	<0.01	<2		**22000**	3170
14-Sep-21	CA1539609		13						**43200**						3540
TOTAL SAMPLES		22	34	0	1	32	1	1	34	1	1	33	0	1	2
AVERAGE 2021			11						33000						3355

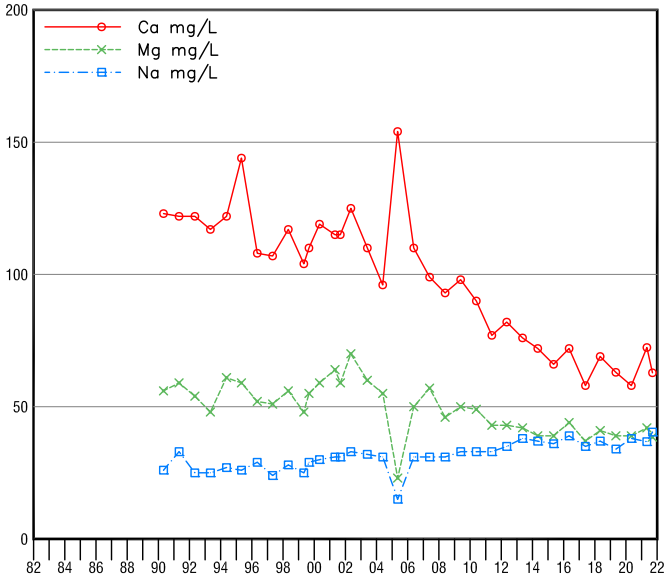
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**



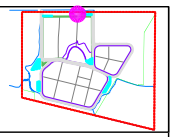








L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 13-I

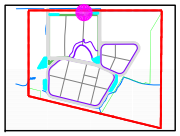
SHALLOW WEATHERED TILL

21500070 19 Apr 22	GOLDER	21H1006

WELL 13-I

SHALLOW WEATHERED TILL

OBSERVATION WELL



DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
03-May-95	H950211	273	1130	600		120	230	144	59	26	3.3		<0.1	**1.8**	0.33	<0.01	-1.3
06-May-96	H960212	259	1010	483		110	161	108	52	29	2.4		0.1	<0.01	0.28	0.06	-2.7
02-May-97	H970213	226	973	478		110	159	107	51	24	1.5		<0.03	<0.03	0.6	0.05	-1.3
04-May-98	H980214	258	1010	522		106	170	117	56	28	3.4		<0.1	<0.02	0.08	<0.05	0.5
03-May-99	H990215	213	932	455		104	145	104	48	25	2.9		<0.1	<0.02	0.43	<0.05	0.8
01-Sep-99	H990216	238	958	500		127	147	110	55	29	3.7		<0.1	<0.02	0.25	<0.05	0.6
04-May-00	H000217	262	997	538		96	143	119	59	30	3.3	<2	<0.1	<0.02	0.1	<0.05	5.5
03-May-01	H010218	256	1050	548		102	147	115	64	31	3.3	<2	<0.1	<0.02	0.17	<0.05	6.0
06-Sep-01	H010219	239	980	531		115	148	115	59	31	3.6	<2	<0.1	<0.02	<0.05	<0.05	4.3
08-May-02	H020220	265	1040	601		99	186	125	70	33	3.5	<2	<0.1	<0.02	<0.05	<0.05	6.2
29-May-03	H030221	265	1060	520		107	186	110	60	32	3.1	<2	<0.1	<0.02	0.07	<0.05	-1.2
26-May-04	H040222	268	1000	465		94	181	96	55	31	3.9	<2	<0.1	<0.02	<0.05	<0.05	-4.5
10-May-05	H050223	245	1070	481		98	163	154	23	15	9.0	<2	<0.1	<0.1	0.3	<0.05	-1.9
22-May-06	H060224	269	1010	480		101	154	110	50	31	3.2	<2	<0.1	<0.01	0.2	<0.05	-1.8
28-May-07	H070225	255	1040	481		98	159	99	57	31	3.0	<2	<0.1	<0.01	0.3	<0.05	-0.5
26-May-08	H080226	244	1010	421		92	147	93	46	31	2.9	<2	<0.1	<0.01	0.2	<0.05	-3.3
25-May-09	H090227	253	1010	450		90	154	98	50	33	3.0	<2	<0.1	<0.01	0.2	<0.05	-1.3
27-May-10	H100228	252	1000	426		89	159	90	49	33	2.9	<2	<0.1	<0.01	0.2	<0.05	-3.9
25-May-11	H110229	215	879	369		83	127	77	43	33	2.9	<2	<0.1	<0.01	0.4	<0.05	-2.1
08-May-12	H120230	220	880	381		78	130	82	43	35	3.2	<2	<0.1	<0.01	0.29	<0.05	-0.4
14-May-13	H130231	210	840	362		73	110	76	42	38	2.9	<2	<0.1	<0.01	0.79	0.053	2.5
05-May-14	H140232	210	820	340		67	110	72	39	37	2.7	<2	<0.1	<0.01	1.4	<0.05	0.6
12-May-15	H150233	190	790	330		69	120	66	39	36	2.8	<2	<0.1	<0.01	0.53	<0.05	-0.6
10-May-16	H160234	200	770	360		63	110	72	44	39	3.1	<2	<0.1	<0.01	0.61	0.062	5.5
25-May-17	H170235	200	770	297		57	100	58	37	35	2.5	<2	<0.1	<0.01	0.23	<0.05	-1.1
08-May-18	H180236	230	840	340		58	100	69	41	37	3.0	<2	<0.1	<0.01	0.11	<0.05	1.1
10-May-19	H190237	230	820	320		55	110	63	39	34	2.7	<2	<0.1	<0.01	<0.1	<0.05	-3.3
07-May-20	MPB495	210	760	310	8.1	59	110	58	39	38	2.7	<2	<0.1	<0.01	<0.1	<0.05	-2.0
04-May-21	2021R2008	203	749	354	8.2	55	110	72.4	42	36.8	3.0		<0.06	<0.03	0.19	0.06	5.2
14-Sep-21	CA1539607	260	844	315	8.5	57	110	62.8	38.5	40.4			<0.06			2.17	

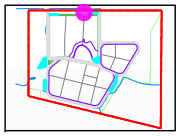
TOTAL SAMPLES		42	45	35	3	46	35	35	35	35	34	22	34	33	34	42	
AVERAGE	2021	232	797	335	8.4	56	110	67.6	40	38.6			<0.06			1.12	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 13-I

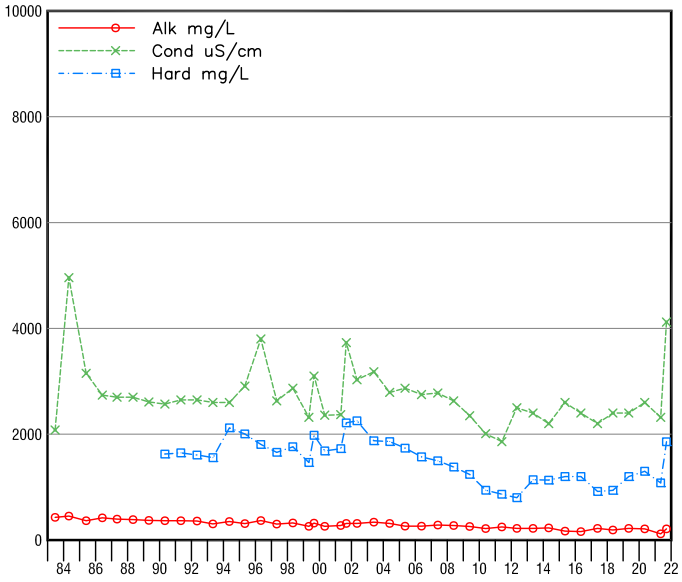
SHALLOW WEATHERED TILL

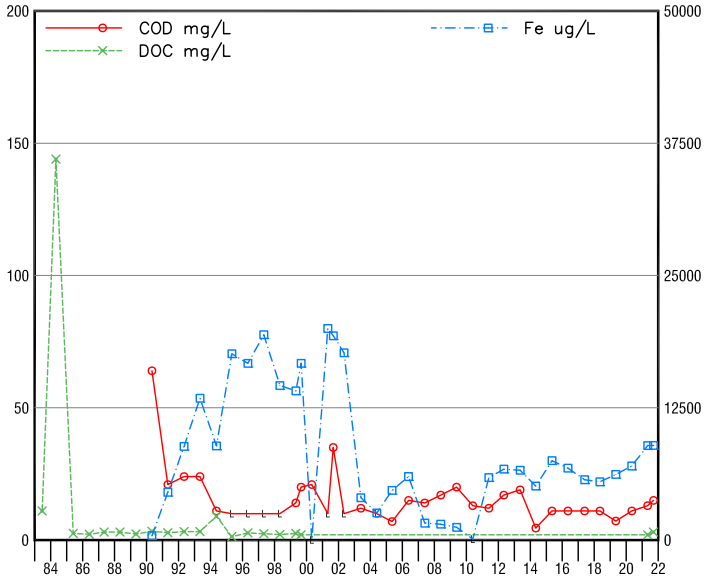
OBSERVATION WELL

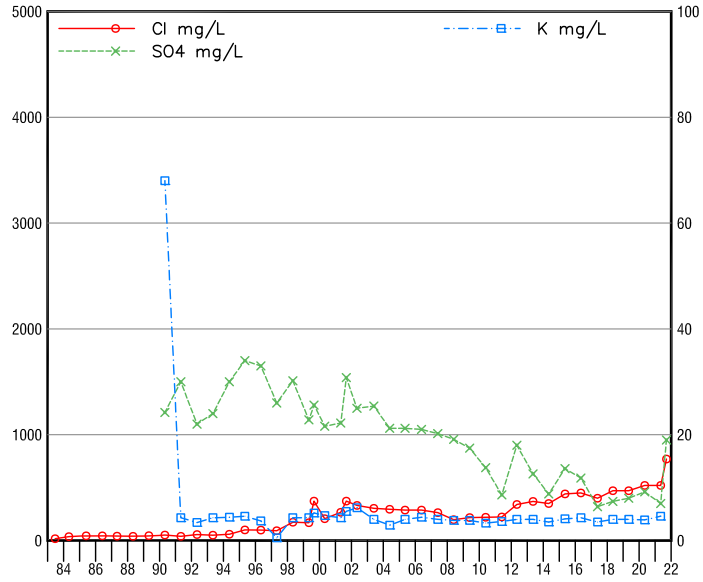


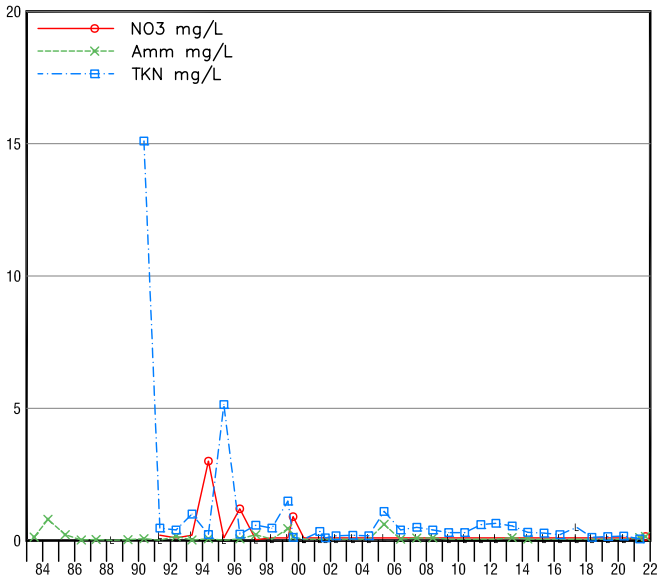
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
03-May-95	H950211		<10			<0.01			**640**			<1			
06-May-96	H960212		<10			0.3			**1120**			1			
02-May-97	H970213		<10			1.2			**1020**			<1			
04-May-98	H980214		<10			0.3			**1350**			1			
03-May-99	H990215		<10			<0.1			**2000**			2			
01-Sep-99	H990216		<10			0.24			**4670**			<1			
04-May-00	H000217	<2	<10			0.35			<20			<1			
03-May-01	H010218	<2	<10			0.36			**780**			1			
06-Sep-01	H010219	<2	45			0.34			**1660**			<1			
08-May-02	H020220	<2	<10			<0.5			**450**			<2			
29-May-03	H030221	<2	<10			<0.5			70			<2			
26-May-04	H040222	<2	<10			<0.5			<20			<2			
10-May-05	H050223	<2	<4			<0.35			**5210**			1			
22-May-06	H060224	<2	5			<1			64			<1			
28-May-07	H070225	<2	10			<1			<50			<1			
26-May-08	H080226	<2	<4			<1			<100			<1			
25-May-09	H090227	<2	10			<1			<100			<1			
27-May-10	H100228	<2	6			<1			<100			<1			
25-May-11	H110229	<2	17			<1			100			2			
08-May-12	H120230	<2	7.5			<1			<100			<1			
14-May-13	H130231	<2	26			<1			<100			<1			
05-May-14	H140232	<2	25			<1			<100			2.5			
12-May-15	H150233	<2	6.1			<1			<100			<1			
10-May-16	H160234	<2	22			<1			**490**			<1			
25-May-17	H170235	<2	5.8			<1			<100			<1			
08-May-18	H180236	<2	9			<1			40			1			
10-May-19	H190237	<2	5.2			<1			<100			<1			
07-May-20	MPB495	<2	<4			<1			<100			<1			
04-May-21	2021R2008		<8		0.7		0.093	1.2	126	0.39	<0.01	<2		1270	437
14-Sep-21	CA1539607		96						**724**						546
TOTAL SAMPLES		22	35	0	1	32	1	1	32	1	1	45	0	1	2
AVERAGE 2021			48						425						492

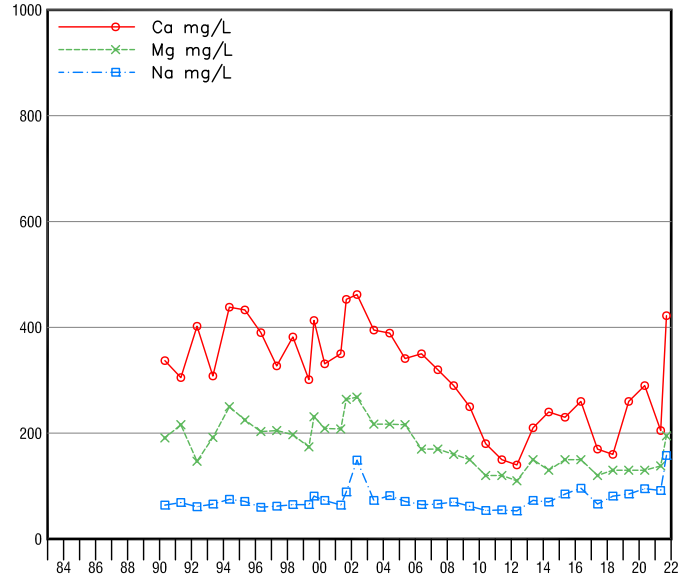
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**



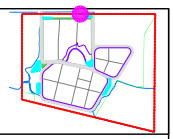








L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 15-I

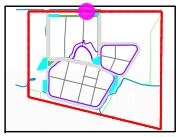
SHALLOW WEATHERED TILL

21500070 19 Apr 22	GOLDER	21H1007

WELL 15-I

SHALLOW WEATHERED TILL

OBSERVATION WELL



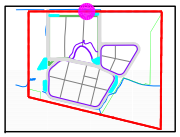
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
03-May-95	H950250	310	2910	2005		100	**1700**	433	225	71	4.6		<0.1	**2.7**	5.14	<0.01	-0.5
03-May-96	H960251	369	3800	1807		98	**1650**	390	203	60	3.7		1.2	0.01	0.24	0.06	-6.1
02-May-97	H970252	303	2630	1658		93	**1300**	327	205	62	0.50		<0.03	<0.03	0.58	0.22	1.2
04-May-98	H980253	324	2870	1763		173	**1510**	382	197	65	4.3		<0.1	<0.02	0.47	<0.05	-5.0
04-May-99	H990254	259	2320	1466		169	**1140**	301	174	65	4.3		<0.1	<0.02	1.49	0.45	-1.3
01-Sep-99	H990255	320	3100	1980		**373**	**1280**	413	231	81	5.2		0.9	<0.02	0.12	0.13	0.3
03-May-00	H000256	260	2360	1684		206	**1080**	331	209	73	4.7	<2	<0.1	<0.02	<0.05	<0.05	5.0
03-May-01	H010257	274	2370	1728		**266**	**1110**	350	208	64	4.3	<2	<0.1	<0.02	0.34	<0.05	2.8
06-Sep-01	H010258	315	3730	2215		**373**	**1540**	453	264	89	5.5	8	<0.1	<0.02	0.1	<0.05	0.2
08-May-02	H020259	315	3030	2254		**331**	**1250**	462	268	149	6.2	<2	<0.1	<0.02	0.18	<0.05	11.4
29-May-03	H030260	339	3180	1877		**304**	**1270**	395	217	73	4.0	<2	<0.1	<0.02	0.2	<0.05	-1.0
26-May-04	H040261	314	2790	1862		**295**	**1060**	389	217	82	2.9	<2	<0.1	<0.02	0.18	<0.05	5.6
10-May-05	H050262	263	2870	1738		**288**	**1060**	341	216	71	4.0	<2	<0.1	<0.1	1.1	0.61	3.7
22-May-06	H060263	264	2750	1572		**287**	**1050**	350	170	65	4.4	<2	<0.1	<0.01	0.4	0.05	-0.9
28-May-07	H070264	284	2780	1497		**264**	**1010**	320	170	66	4.0	<2	<0.1	<0.01	0.5	0.09	-1.7
26-May-08	H080265	274	2630	1381		197	**956**	290	160	70	3.8	<2	<0.1	<0.01	0.4	0.1	-0.2
25-May-09	H090266	256	2350	1240		216	**873**	250	150	62	3.8	<2	<0.1	<0.01	0.3	<0.05	-3.0
27-May-10	H100267	217	2010	942		219	**688**	180	120	54	3.3	<2	<0.1	<0.01	0.3	<0.05	-7.7
30-May-11	H110268	247	1860	867		222	431	150	120	55	3.6	<2	<0.1	<0.01	0.6	<0.05	-0.3
07-May-12	H120269	220	2500	801		**340**	**900**	140	110	53	4.0	<2	<0.1	<0.01	0.65	<0.05	-27.3
14-May-13	H130270	220	2400	1140		**370**	**630**	210	150	73	4.0	<2	<0.1	<0.01	0.55	0.11	-3.0
05-May-14	H140271	230	2200	1133		**350**	440	240	130	70	3.5	<2	<0.1	<0.01	0.31	0.055	4.8
12-May-15	H150272	170	2600	1200		**440**	**680**	230	150	85	4.1	<2	<0.1	<0.01	0.28	<0.05	-3.6
10-May-16	H160273	160	2400	1200		**450**	**590**	260	150	96	4.3	<2	<0.1	<0.01	0.22	<0.05	2.9
26-May-17	H170274	220	2200	919		**400**	320	170	120	66	3.5	<2	<0.1	<0.01	<0.5	<0.05	-1.9
10-May-18	H180275	190	2400	940		**470**	370	160	130	81	4.0	<2	<0.1	<0.01	0.12	<0.05	-4.8
08-May-19	H190276	220	2400	1200		**470**	400	260	130	85	4.0	<2	<0.1	<0.01	0.15	<0.05	3.2
06-May-20	MPB455	210	2600	1300	7.7	**520**	460	290	130	95	3.9	<2	<0.1	<0.01	0.17	<0.05	2.1
06-May-21	2021R2017	119	2320	1080	7.6	**520**	350	205	138	91.7	4.6		<0.06	<0.03	0.06	0.11	3.4
15-Sep-21	CA1539601	210	4120	1857	8.2	**770**	**950**	422	195	158			0.15			0.15	
TOTAL SAMPLES		42	42	35	3	42	35	35	35	35	34	22	34	33	34	42	
AVERAGE 2021		165	3220	1469	7.9	645	650	314	167	125			0.08			0.13	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 15-I

SHALLOW WEATHERED TILL

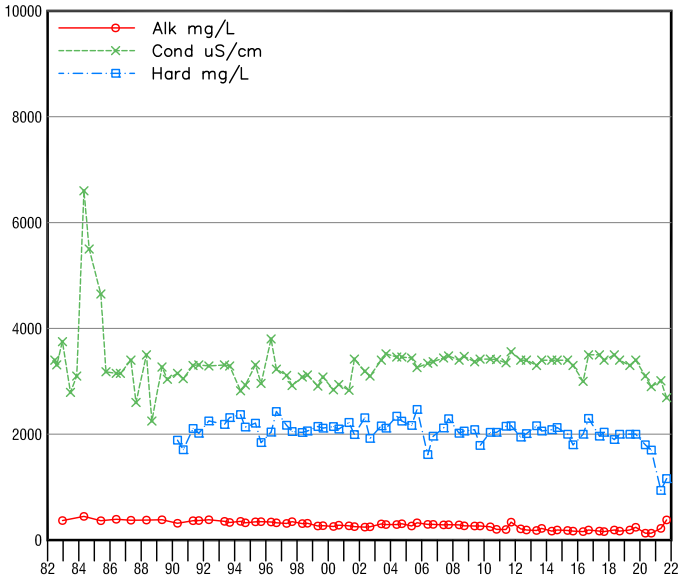
OBSERVATION WELL

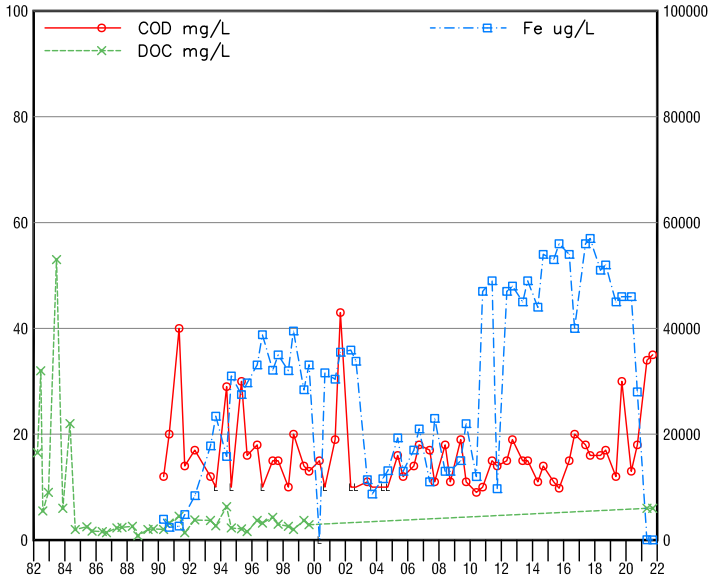


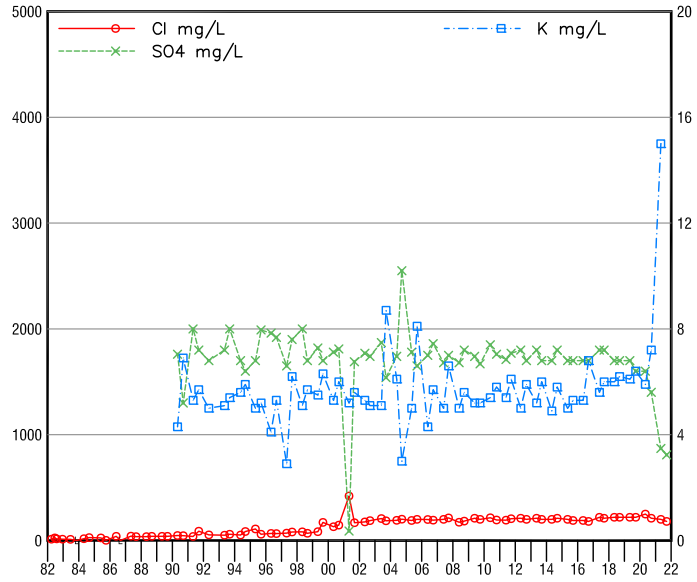
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
03-May-95	H950250		<10			<0.01			**17600**			1			
03-May-96	H960251		<10			<0.1			**16700**			2			
02-May-97	H970252		<10			1.2			**19400**			1			
04-May-98	H980253		<10			0.2			**14600**			1			
04-May-99	H990254		14			<0.5			**14100**			1			
01-Sep-99	H990255		20			0.3			**16700**			<1			
03-May-00	H000256	<2	21			0.36			<20			<1			
03-May-01	H010257	<2	<10			0.4			**20000**			1			
06-Sep-01	H010258	8	35			0.6			**19300**			<1			
08-May-02	H020259	<2	<10			<0.5			**17700**			<2			
29-May-03	H030260	<2	12			<0.5			**4000**			7			
26-May-04	H040261	<2	<10			<0.5			**2560**			<2			
10-May-05	H050262	<2	7			<0.35			**4690**			3			
22-May-06	H060263	<2	15			<1			**6000**			4			
28-May-07	H070264	<2	14			<1			**1600**			2			
26-May-08	H080265	<2	17			<1			**1500**			<1			
25-May-09	H090266	<2	20			<1			**1200**			<1			
27-May-10	H100267	<2	13			<5			<100			2			
30-May-11	H110268	<2	12			<2			**5900**			3			
07-May-12	H120269	<2	17			<10			**6700**			8.1			
14-May-13	H130270	<2	19			<5			**6600**			3.1			
05-May-14	H140271	<2	4.5			<5			**5100**			2.2			
12-May-15	H150272	<2	11			<5			**7500**			4.1			
10-May-16	H160273	<2	11			<5			**6800**			1.4			
26-May-17	H170274	<2	11			<5			**5700**			<1			
10-May-18	H180275	<2	11			<5			**5500**			<1			
08-May-19	H190276	<2	7.2			<5			**6200**			<1			
06-May-20	MPB455	<2	11			<1			**7000**						
06-May-21	2021R2017		13		<0.2		<0.003	<0.2	**8930**	<0.09	<0.01	<2		**6670**	1560
15-Sep-21	CA1539601		15						**8940**						3480

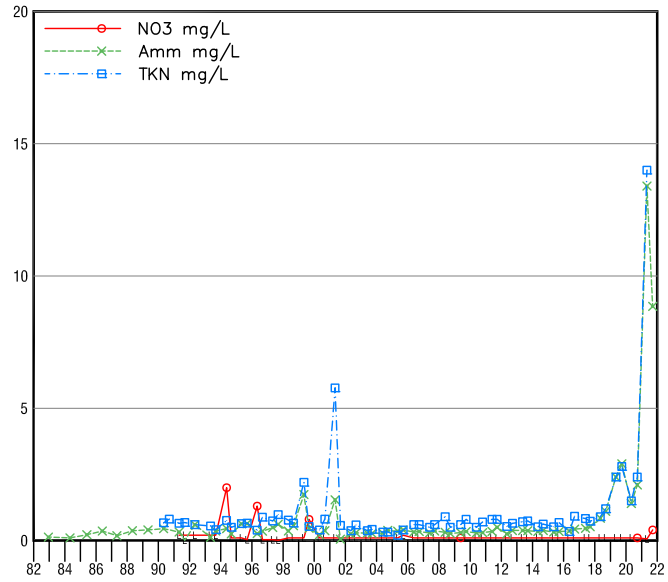
TOTAL SAMPLES		22	35	0	1	32	1	1	35	1	1	40	0	1	2
AVERAGE	2021		14						8935						2520

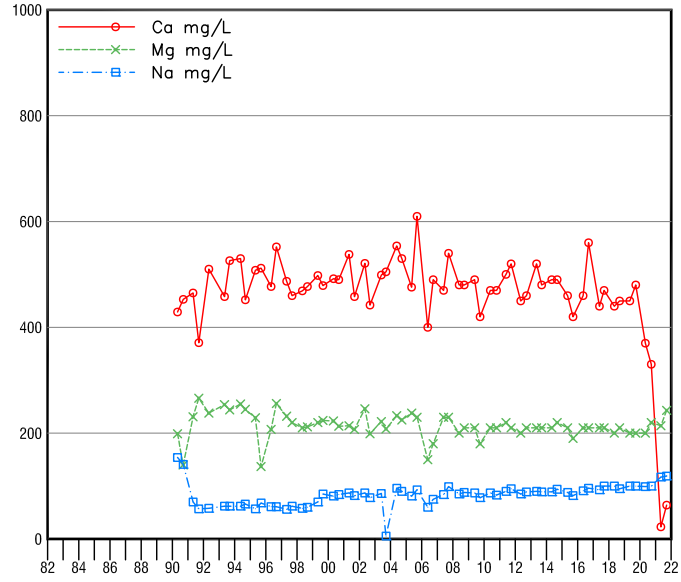
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









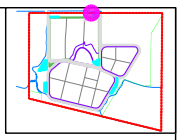


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 16-I

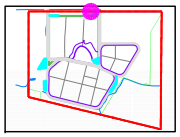
SHALLOW WEATHERED TILL

21500070 19 Apr 22	wsp GOLDER	21H1008

WELL 16-I

SHALLOW WEATHERED TILL

OBSERVATION WELL



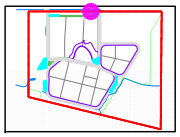
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
28-May-07	H070328	286	3440	2118		200	**1680**	470	230	84	5.0	<2	<0.1	<0.01	0.5	0.29	0.3
22-Sep-07	H070329	291	3480	2293		214	**1750**	540	230	99	6.6	<2	<0.1	0.01	0.6	0.36	2.9
26-May-08	H080330	286	3400	2020		173	**1680**	480	200	85	5.0	<2	<0.1	<0.01	0.9	0.31	-0.9
22-Sep-08	H080331	269	3470	2061		183	**1800**	480	210	88	5.6	<2	<0.1	<0.01	0.5	0.27	-2.5
25-May-09	H090332	267	3370	2086		210	**1740**	490	210	87	5.2	<2	0.1	<0.01	0.6	0.3	-1.4
28-Sep-09	H090333	266	3420	1788		200	**1670**	420	180	78	5.2	<2	<0.1	<0.01	0.8	0.34	-6.5
27-May-10	H100334	250	3420	2036		215	**1850**	470	210	87	5.4	<2	<0.1	<0.01	0.5	0.29	-4.7
19-Oct-10	H100335	203	3410	2036		194	**1760**	470	210	83	5.8	<2	<0.1	<0.01	0.7	0.3	0.1
30-May-11	H110336	199	3350	2152		192	**1710**	500	220	90	5.4	<2	<0.1	<0.01	0.8	0.34	4.1
26-Sep-11	H110337	337	3560	2161		206	**1770**	520	210	95	6.1	<2	<0.1	<0.01	0.8	0.5	-1.5
09-May-12	H120338	210	3400	1945		210	**1800**	450	200	85	5.0	<2	<0.1	<0.01	0.53	0.25	-3.4
18-Sep-12	H120339	190	3400	2011		200	**1700**	460	210	89	5.9	3	<0.1	<0.01	0.65	0.38	1.3
15-May-13	H130340	180	3300	2161		210	**1800**	520	210	90	5.2	<2	<0.1	<0.01	0.71	0.38	2.0
11-Sep-13	H130341	220	3400	2061		200	**1700**	480	210	89	6.0	<2	<0.1	<0.01	0.74	0.37	1.7
06-May-14	H140342	170	3400	2086		200	**1700**	490	210	89	4.9	<2	<0.1	<0.01	0.52	0.34	3.2
09-Sep-14	H140343	190	3400	2127		210	**1800**	490	220	94	5.8	<2	<0.1	<0.01	0.62	0.38	1.6
12-May-15	H150344	180	3400	2000		200	**1700**	460	210	88	5.0	<2	<0.1	<0.01	0.52	0.32	1.6
15-Sep-15	H150345	170	3300	1800		190	**1700**	420	190	82	5.3	<2	<0.1	<0.01	0.68	0.34	-2.1
10-May-16	H160346	160	3000	2000		190	**1700**	460	210	91	5.3	<2	<0.1	<0.01	0.34	0.36	2.6
13-Sep-16	H160347	190	3500	2300		180	**1700**	560	210	96	6.8	3	<0.1	<0.01	0.92	0.43	7.1
26-May-17	H170348	170	3500	1963		220	**1800**	440	210	93	5.6	<2	<0.1	<0.01	0.83	0.46	-1.7
13-Sep-17	H170349	160	3400	2038		210	**1800**	470	210	100	6.0	<2	<0.1	<0.01	0.73	0.52	0.8
10-May-18	H180350	190	3500	1900		220	**1700**	440	200	100	6.0	<2	<0.1	<0.01	0.9	0.84	-0.7
11-Sep-18	H180351	170	3400	2000		220	**1700**	450	210	95	6.2	<2	<0.1	<0.01	1.2	1.1	1.1
10-May-19	H190352	190	3300	2000		220	**1700**	450	200	100	6.1	6	<0.1	0.019	2.4	2.4	-0.2
24-Sep-19	H190353	240	3400	2000		220	**1600**	480	200	100	6.4	8	<0.1	<0.01	2.8	2.9	2.7
05-May-20	MPB474	130	3100	1800	7.1	250	**1600**	370	200	99	5.9	4	<0.1	0.010	1.5	1.4	-2.2
22-Sep-20	NSM044	130	2900	1700	7.4	210	**1400**	330	220	100	7.2	5	0.1	0.029	2.4	2.1	3.3
04-May-21	2021R2004	220	3010	938	7.5	200	**870**	22.9	214	117	15		<0.06	0.04	14	13.4	-5.6
16-Sep-21	CA1544303	380	2690	1161	8.5	180	**810**	64.1	243	119			0.4	0.05		8.85	
TOTAL SAMPLES		69	80	63	4	81	63	63	63	63	62	42	61	61	62	69	
AVERAGE 2021		300	2850	1050	8.0	190	840	43.5	229	118			0.2	0.05		11.1	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 16-I

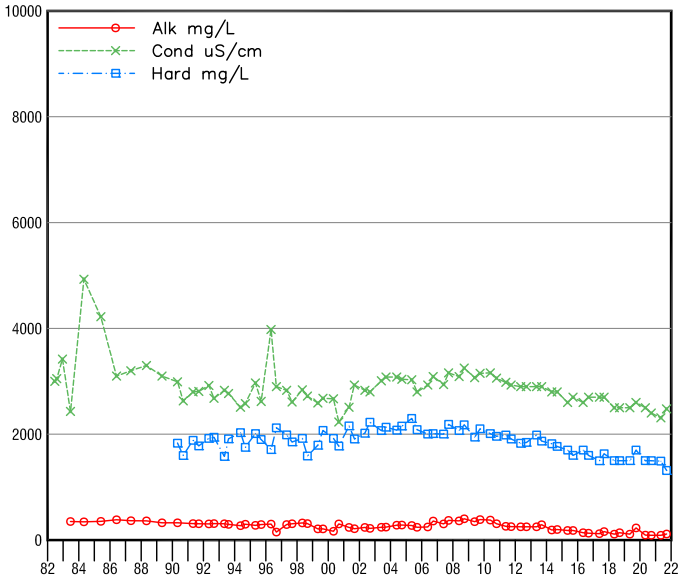
SHALLOW WEATHERED TILL

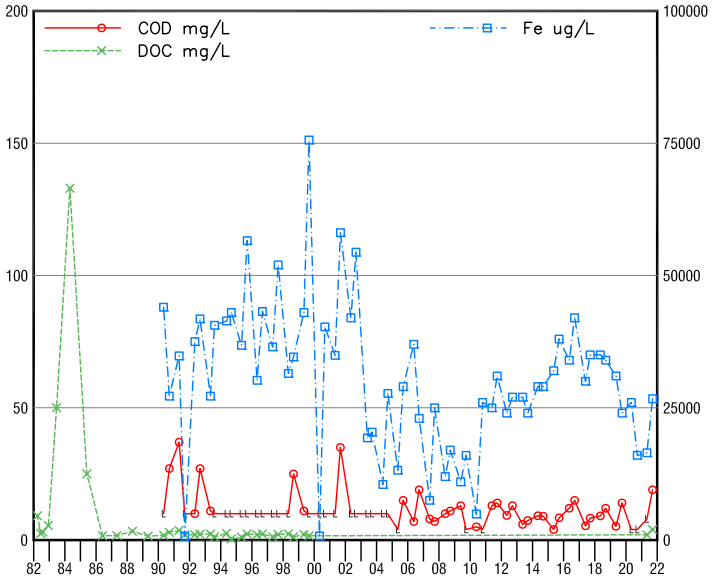
OBSERVATION WELL

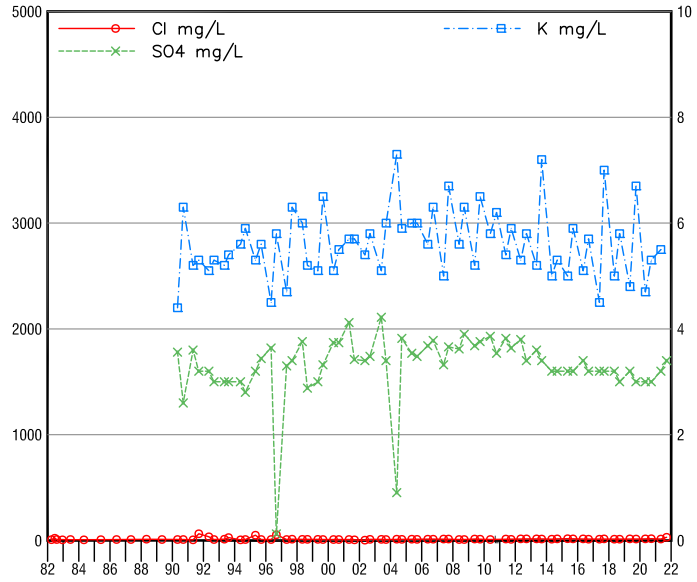


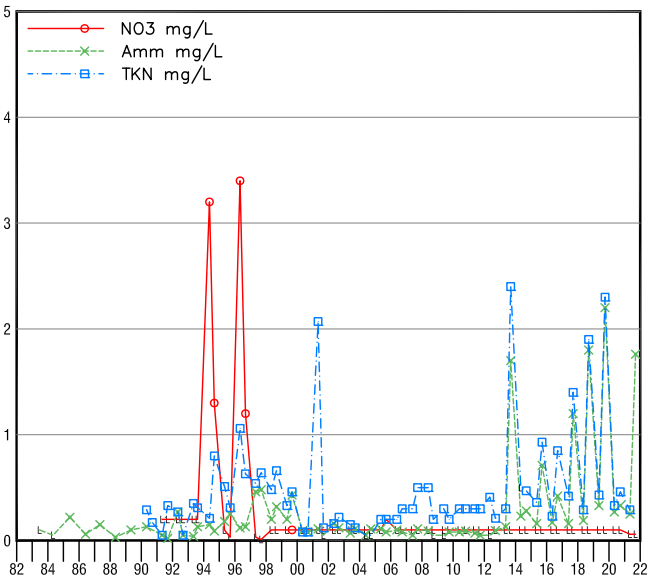
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
28-May-07	H070328	<2	17			<1			**11000**			<1			
22-Sep-07	H070329	<2	11			<1			**23000**			<1			
26-May-08	H080330	<2	18			<1			**13000**			<1			
22-Sep-08	H080331	<2	11			<1			**13000**			<1			
25-May-09	H090332	<2	19			<1			**15000**			2			
28-Sep-09	H090333	<2	11			<1			**22000**			<1			
27-May-10	H100334	<2	9			<5			**12000**			<1			
19-Oct-10	H100335	<2	10			<10			**47000**			<1			
30-May-11	H110336	<2	15			<1			**49000**			<1			
26-Sep-11	H110337	<2	14			<10			**9700**			<1			
09-May-12	H120338	<2	15			<10			**47000**			<1			
18-Sep-12	H120339	3	19			<10			**48000**			<1			
15-May-13	H130340	<2	15			<5			**45000**			<1			
11-Sep-13	H130341	<2	15			<10			**49000**			<1			
06-May-14	H140342	<2	11			<5			**44000**			1.1			
09-Sep-14	H140343	<2	14			<5			**54000**			<1			
12-May-15	H150344	<2	11			<10			**53000**			<1			
15-Sep-15	H150345	<2	9.8			<5			**56000**			1			
10-May-16	H160346	<2	15			<5			**54000**			<1			
13-Sep-16	H160347	3	20			<10			**40000**			<1			
26-May-17	H170348	<2	18			<5			**56000**			1.5			
13-Sep-17	H170349	<2	16			<5			**57000**			<1			
10-May-18	H180350	<2	16			<5			**51000**			<1			
11-Sep-18	H180351	<2	17			<1			**52000**			1.4			
10-May-19	H190352	6	12			<5			**45000**			11			
24-Sep-19	H190353	8	30			<10			**46000**			34			
05-May-20	MPB474	4	13			<1			**46000**			6.6			
22-Sep-20	NSM044	5	18			<5			**28000**			1			
04-May-21	2021R2004		34		<0.2		<0.003	<0.2	59	<0.09	<0.01	4		34	2650
16-Sep-21	CA1544303		35						29						2020
TOTAL SAMPLES		42	63	0	1	59	1	1	63	1	1	80	0	1	2
AVERAGE 2021			35						44						2335

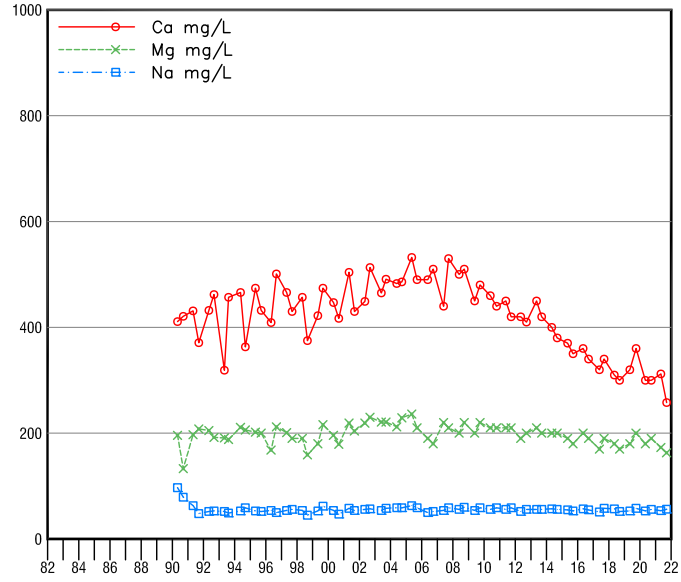
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









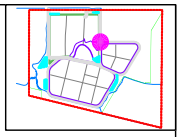


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 19-I

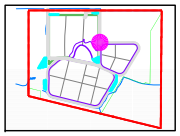
SHALLOW WEATHERED TILL

21500070 19 Apr 22	GOLDER	21H1009

WELL 19-I

SHALLOW WEATHERED TILL

OBSERVATION WELL



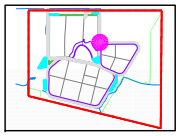
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
28-May-07	H070478	305	2940	2002		14	**1660**	440	220	54	5.0	<2	<0.1	<0.01	0.3	0.05	2.1
22-Sep-07	H070479	372	3160	2186		14	**1830**	530	210	59	6.7	<2	<0.1	<0.01	0.5	0.11	1.5
26-May-08	H080480	362	3090	2070		10	**1810**	500	200	56	5.6	<2	<0.1	<0.01	0.5	0.09	-0.9
22-Sep-08	H080481	402	3250	2177		9	**1950**	510	220	60	6.3	<2	<0.1	<0.01	0.2	<0.05	-2.0
25-May-09	H090482	347	3070	1945		14	**1840**	450	200	54	5.2	<2	<0.1	<0.01	0.3	<0.05	-4.4
28-Sep-09	H090483	388	3150	2102		13	**1880**	480	220	59	6.5	<2	<0.1	<0.01	0.2	0.08	-2.0
27-May-10	H100484	377	3160	2011		10	**1930**	460	210	56	5.8	<2	<0.1	<0.01	0.3	0.08	-5.5
19-Oct-10	H100485	307	3060	1961		<10	**1770**	440	210	59	6.2	<2	<0.1	<0.01	0.3	0.09	-0.1
25-May-11	H110486	260	2980	1986		14	**1910**	450	210	56	5.4	<2	<0.1	<0.01	0.3	0.07	-2.4
27-Sep-11	H110487	254	2930	1911		11	**1820**	420	210	59	5.9	<2	<0.1	<0.01	0.3	0.05	-1.4
08-May-12	H120488	250	2900	1829		16	**1900**	420	190	52	5.3	<2	<0.1	<0.01	0.41	<0.05	-6.1
18-Sep-12	H120489	250	2900	1845		15	**1700**	410	200	56	5.8	<2	<0.1	<0.01	0.21	0.094	-0.4
15-May-13	H130490	250	2900	1986		15	**1800**	450	210	56	5.2	<2	<0.1	<0.01	0.3	0.13	0.4
11-Sep-13	H130491	290	2900	1870		14	**1700**	420	200	56	7.2	<2	<0.1	0.030	2.4	1.7	-0.7
06-May-14	H140492	190	2800	1820		13	**1600**	400	200	57	5.0	<2	<0.1	<0.01	<0.5	0.23	3.4
09-Sep-14	H140493	200	2800	1770		15	**1600**	380	200	56	5.3	<2	<0.1	<0.01	0.47	0.28	1.7
12-May-15	H150494	180	2600	1700		17	**1600**	370	190	55	5.0	<2	<0.1	<0.01	0.36	0.16	0.5
15-Sep-15	H150495	180	2700	1600		15	**1600**	350	180	53	5.9	8	<0.1	<0.01	0.93	0.71	-1.6
10-May-16	H160496	140	2600	1700		16	**1700**	360	200	57	5.1	<2	<0.1	<0.01	0.23	0.17	-0.5
13-Sep-16	H160497	130	2700	1600		13	**1600**	340	190	55	5.7	3	<0.1	<0.01	0.85	0.42	0.5
26-May-17	H170498	120	2700	1499		12	**1600**	320	170	51	4.5	<2	<0.1	<0.01	0.42	0.16	-3.8
13-Sep-17	H170499	160	2700	1631		15	**1600**	340	190	58	7.0	<2	<0.1	<0.01	1.4	1.2	-0.4
10-May-18	H180500	110	2500	1500		13	**1600**	310	180	57	5.0	<2	<0.1	<0.01	0.29	0.19	-2.5
11-Sep-18	H180501	140	2500	1500		12	**1500**	300	170	52	5.8	3	<0.1	<0.01	1.9	1.8	-2.5
10-May-19	H190502	110	2500	1500		16	**1600**	320	180	53	4.8	<2	<0.1	<0.01	0.43	0.33	-2.3
30-Sep-19	H190503	230	2600	1700		14	**1500**	360	200	58	6.7	3	<0.1	<0.01	2.3	2.2	2.6
05-May-20	MPB476	94	2500	1500	7.2	15	**1500**	300	180	53	4.7	<2	<0.1	<0.01	0.33	0.27	-0.6
22-Sep-20	NSM026	89	2400	1500	7.3	17	**1500**	300	190	56	5.3	<2	<0.1	<0.01	0.46	0.33	0.4
04-May-21	2021R2002	90	2310	1491	7.0	14	**1600**	312	173	53.5	5.5		<0.06	<0.03	0.29	0.25	-3.8
15-Sep-21	CA1539605	116	2480	1315	8.0	31	**1700**	258	163	56.2			<0.06			1.76	
TOTAL SAMPLES		70	74	64	4	75	64	64	64	64	63	42	62	61	63	70	
AVERAGE 2021		103	2395	1403	7.5	23	1650	285	168	54.9			<0.06			1.01	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *Italics* / Exceedance in **Bold**

WELL 19-I

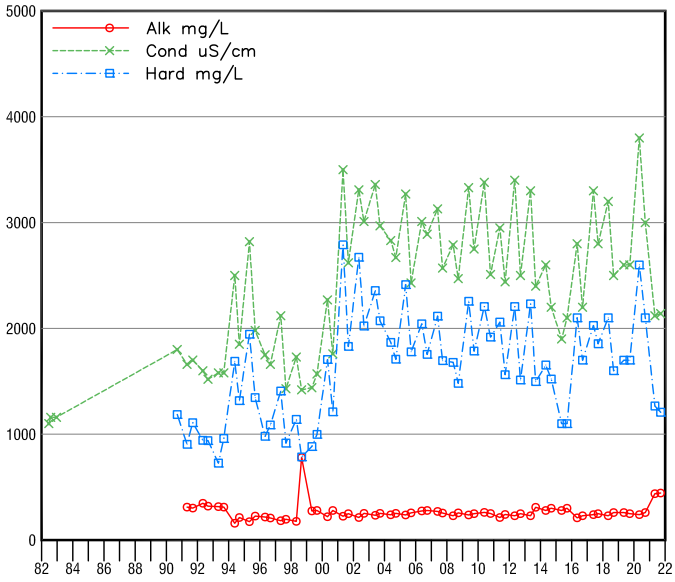
SHALLOW WEATHERED TILL

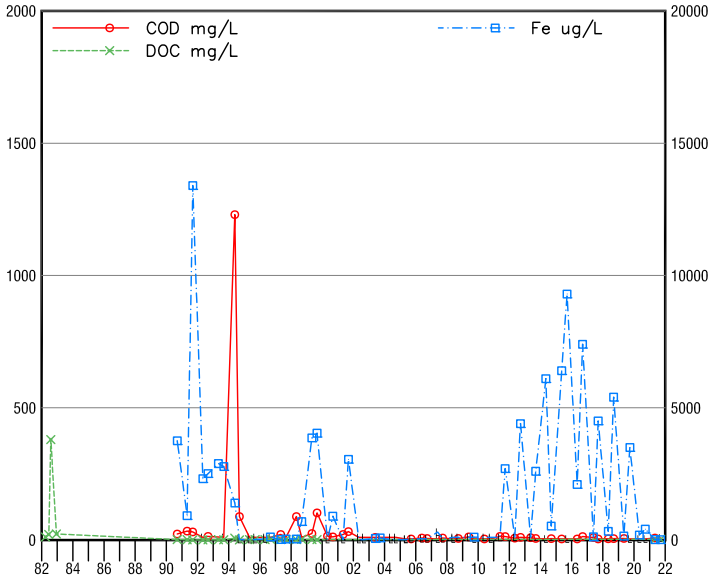
OBSERVATION WELL

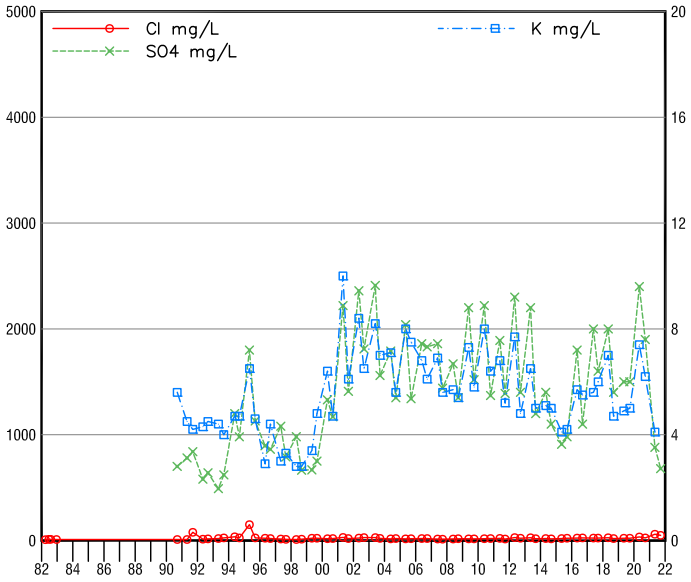


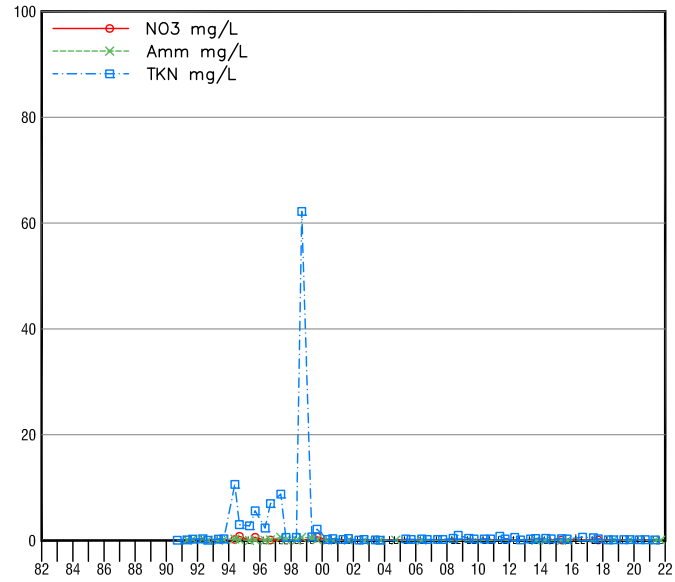
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
28-May-07	H070478	<2	8			<1			**7500**			<1			
22-Sep-07	H070479	<2	7			<1			**25000**			<1			
26-May-08	H080480	<2	10			<1			**12000**			<1			
22-Sep-08	H080481	<2	11			<1			**17000**			2			
25-May-09	H090482	<2	13			<1			**11000**			<1			
28-Sep-09	H090483	<2	<4			<1			**16000**			<1			
27-May-10	H100484	<2	5			<5			**4900**			<1			
19-Oct-10	H100485	<2	<4			<10			**26000**			<1			
25-May-11	H110486	<2	13			<5			**25000**			<1			
27-Sep-11	H110487	<2	14			<10			**31000**			<1			
08-May-12	H120488	<2	9.3			<10			**24000**			<1			
18-Sep-12	H120489	<2	13			<10			**27000**			<1			
15-May-13	H130490	<2	5.9			<5			**27000**			<1			
11-Sep-13	H130491	<2	7.4			<5			**24000**			7.3			
06-May-14	H140492	<2	9.2			<5			**29000**			7.4			
09-Sep-14	H140493	<2	9			<5			**29000**			<1			
12-May-15	H150494	<2	4			<5			**32000**			<1			
15-Sep-15	H150495	8	8.4			<5			**38000**			<1			
10-May-16	H160496	<2	12			<5			**34000**			<1			
13-Sep-16	H160497	3	15			<5			**42000**			<1			
26-May-17	H170498	<2	5.4			<5			**30000**			<1			
13-Sep-17	H170499	<2	8.3			<5			**35000**			3.4			
10-May-18	H180500	<2	9.1			<5			**35000**			<1			
11-Sep-18	H180501	3	12			<5			**34000**			2.1			
10-May-19	H190502	<2	5.2			<5			**31000**			<1			
30-Sep-19	H190503	3	14			<5			**24000**			2.7			
05-May-20	MPB476	<2	<4			<1			**26000**						
22-Sep-20	NSM026	<2	<4			<5			**16000**			<1			
04-May-21	2021R2002		<8		<0.2		0.008	0.3	**16500**	0.2	<0.01	<2		2500	2260
15-Sep-21	CA1539605		19						**26700**						2280
TOTAL SAMPLES		42	64	0	1	60	1	1	64	1	1	73	0	1	2
AVERAGE 2021			10						21600						2270

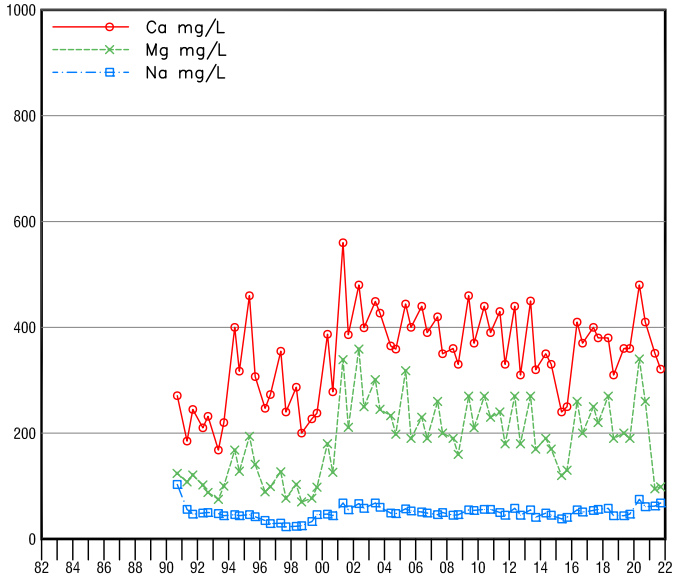
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









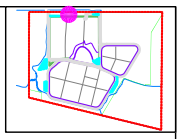


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 20-I

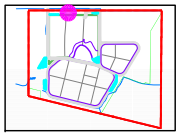
SHALLOW WEATHERED TILL

21500070 19 Apr 22	GOLDER	21H1010

WELL 20-I

SHALLOW WEATHERED TILL

OBSERVATION WELL



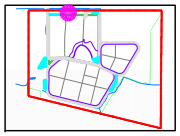
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
28-May-07	H070541	270	3130	2116		14	**1860**	420	260	46	6.9	<2	<0.1	<0.01	0.2	<0.05	0.1
22-Sep-07	H070542	256	2570	1695		13	**1440**	350	200	50	5.6	<2	<0.1	<0.01	0.2	<0.05	1.1
26-May-08	H080543	230	2790	1679		14	**1670**	360	190	45	5.7	<2	<0.1	<0.01	0.4	<0.05	-5.4
22-Sep-08	H080544	257	2470	1481		17	**1350**	330	160	46	5.4	<2	<0.1	<0.01	1	<0.05	-3.0
25-May-09	H090545	237	3330	2257		16	**2200**	460	270	55	7.3	<2	<0.1	<0.01	0.4	<0.05	-3.3
28-Sep-09	H090546	249	2750	1786		16	**1520**	370	210	54	5.8	<2	<0.1	<0.01	0.3	<0.05	1.6
27-May-10	H100547	261	3380	2207		17	**2220**	440	270	56	8.0	<2	<0.1	<0.01	0.3	<0.05	-5.2
19-Oct-10	H100548	251	2510	1918		19	**1370**	390	230	56	6.4	<2	<0.1	<0.01	0.3	<0.05	9.2
25-May-11	H110549	213	2950	2059		20	**1890**	430	240	50	6.8	<2	<0.1	<0.01	0.8	<0.05	-0.7
26-Sep-11	H110550	241	2440	1563		14	**1390**	330	180	45	5.2	<2	<0.1	<0.01	0.3	<0.05	-1.0
08-May-12	H120551	230	3400	2207		27	**2300**	440	270	58	7.7	<2	<0.1	<0.01	0.59	<0.05	-6.3
19-Sep-12	H120552	250	2500	1513		21	**1400**	310	180	45	4.8	<2	<0.1	<0.01	0.11	<0.05	-3.3
14-May-13	H130553	230	3300	2232		26	**2200**	450	270	55	6.5	<2	<0.1	<0.01	0.28	<0.05	-4.0
11-Sep-13	H130554	310	2400	1497		17	**1200**	320	170	41	5.0	<2	<0.1	<0.01	0.37	0.054	0.5
06-May-14	H140555	280	2600	1654		18	**1400**	350	190	49	5.1	<2	<0.1	<0.01	0.41	0.059	0.5
10-Sep-14	H140556	300	2200	1522		16	**1100**	330	170	45	5.0	<2	<0.1	<0.01	0.32	<0.05	5.2
12-May-15	H150557	280	1900	1100		19	**910**	240	120	38	4.1	<2	0.1	<0.01	0.36	0.051	-2.5
15-Sep-15	H150558	300	2100	1100		21	**980**	250	130	41	4.2	<2	<0.1	<0.01	0.3	0.055	-3.0
10-May-16	H160559	210	2800	2100		23	**1800**	410	260	55	5.7	<2	<0.1	<0.01	<0.5	<0.05	2.5
13-Sep-16	H160560	230	2200	1700		24	**1100**	370	200	51	5.5	<2	<0.1	<0.01	0.64	<0.05	14.3
26-May-17	H170561	240	3300	2028		23	**2000**	400	250	54	5.6	<2	<0.1	<0.01	0.52	<0.05	-4.5
13-Sep-17	H170562	250	2800	1855		23	**1600**	380	220	56	6.0	<2	0.1	<0.01	0.33	<0.05	1.1
08-May-18	H180563	230	3200	2100		26	**2000**	380	270	58	7.0	<2	<0.1	<0.01	0.13	<0.05	-3.4
11-Sep-18	H180564	260	2500	1600		19	**1400**	310	190	44	4.7	<2	<0.1	<0.01	0.15	0.16	-2.3
09-May-19	H190565	260	2600	1700		22	**1500**	360	200	44	4.9	<2	<0.1	<0.01	0.16	<0.05	-0.8
26-Sep-19	H190566	250	2600	1700		21	**1500**	360	190	47	5.0	<2	<0.1	<0.01	0.18	0.14	-1.3
05-May-20	MPB472	240	3800	2600	7.9	34	**2400**	480	340	75	7.4	<2	<0.1	<0.01	0.15	<0.05	-0.3
22-Sep-20	NSM045	260	3000	2100	7.7	25	**1900**	410	260	61	6.2	<2	<0.1	<0.01	0.16	<0.05	-0.9
06-May-21	2021R2019	438	2120	1267	8.0	59	**880**	351	94.8	62.3	4.1		<0.06	<0.03	0.12	0.08	-1.1
17-Sep-21	CA1544311	445	2140	1208	7.9	49	**680**	321	98.6	68			<0.06	<0.03		0.06	
TOTAL SAMPLES		62	66	63	4	67	63	63	63	63	62	42	62	62	62	62	
AVERAGE 2021		442	2130	1238	8.0	54	780	336	96.7	65			<0.06	<0.03		0.07	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 20-I

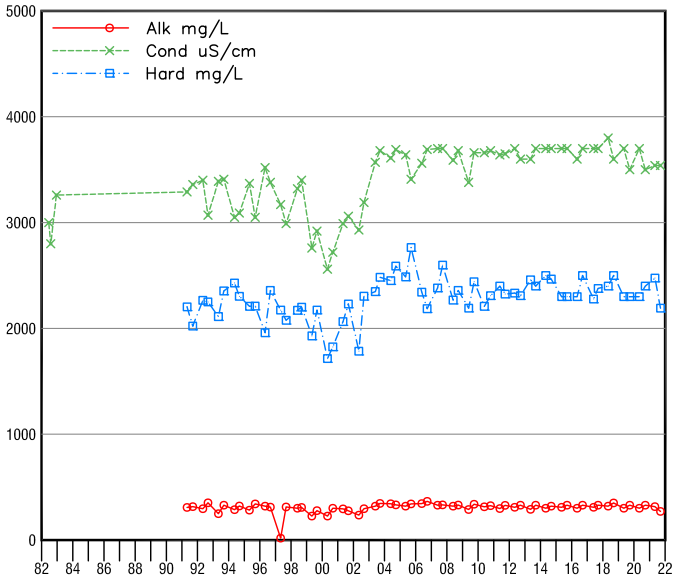
SHALLOW WEATHERED TILL

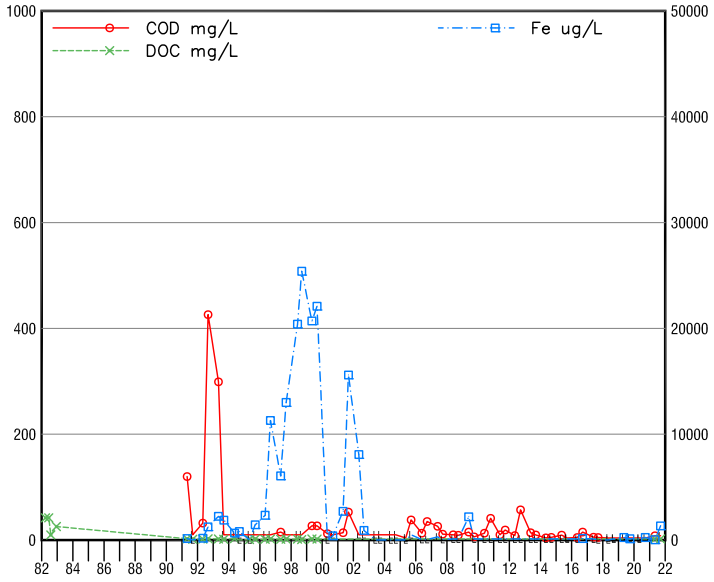
OBSERVATION WELL

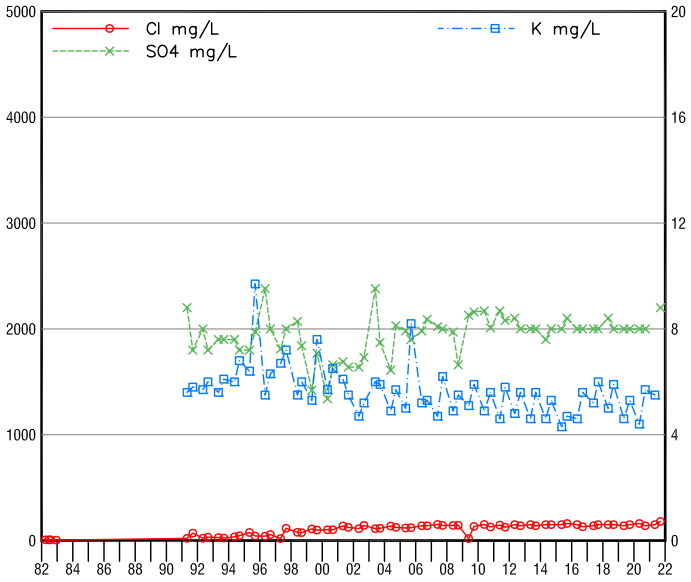


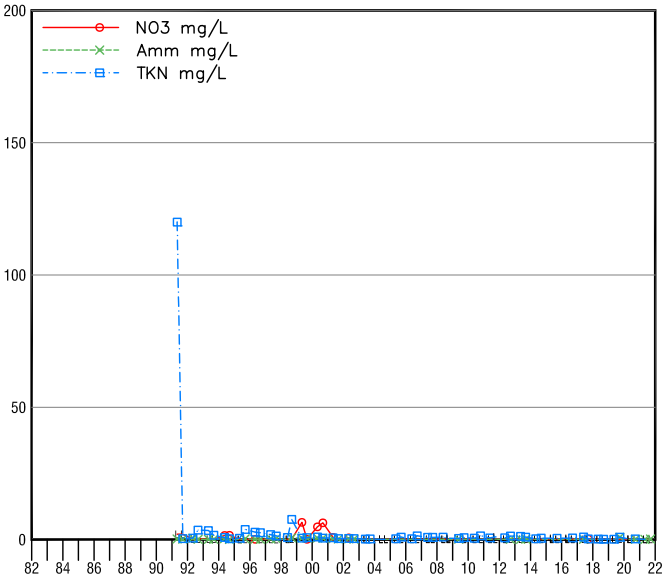
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
28-May-07	H070541	<2	<4			<1			<300			<1			
22-Sep-07	H070542	<2	8			<1			<50			<1			
26-May-08	H080543	<2	<4			<1			<100			<1			
22-Sep-08	H080544	<2	6			<1			<100			<1			
25-May-09	H090545	<2	12			<1			<100			<1			
28-Sep-09	H090546	<2	<4			<1			110			<1			
27-May-10	H100547	<2	4			<1			<100			<1			
19-Oct-10	H100548	<2	<4			<5			<100			<1			
25-May-11	H110549	<2	14			<5			<100			<1			
26-Sep-11	H110550	<2	13			<5			**2700**			<1			
08-May-12	H120551	<2	6.9			<10			<100			<1			
19-Sep-12	H120552	<2	10			<5			**4400**			<1			
14-May-13	H130553	<2	9			<5			<100			<1			
11-Sep-13	H130554	<2	6			<5			**2600**			<1			
06-May-14	H140555	<2	<4			<5			**6100**			<1			
10-Sep-14	H140556	<2	5.2			<5			**530**			<1			
12-May-15	H150557	<2	4.2			<5			**6400**			<1			
15-Sep-15	H150558	<2	<4			<5			**9300**			<1			
10-May-16	H160559	<2	4.1			<5			**2100**			<1			
13-Sep-16	H160560	<2	13			<5			**7400**			<1			
26-May-17	H170561	<2	9.5			<5			120			<1			
13-Sep-17	H170562	<2	4.4			<5			**4500**			<1			
08-May-18	H180563	<2	4.8			<5			**330**			<1			
11-Sep-18	H180564	<2	5.3			<1			**5400**			<1			
09-May-19	H190565	<2	5.8			<5			150			<1			
26-Sep-19	H190566	<2	<4			<5			**3500**			<1			
05-May-20	MPB472	<2	<4			<1			190						
22-Sep-20	NSM045	<2	<4			<5			**410**			<1			
06-May-21	2021R2019		8		0.4		0.089	0.7	17	<0.09	<0.01	<2		4	1800
17-Sep-21	CA1544311		<8						16						1790
TOTAL SAMPLES		42	62	0	1	60	1	1	63	1	1	65	0	1	2
AVERAGE 2021			<8						17						1795

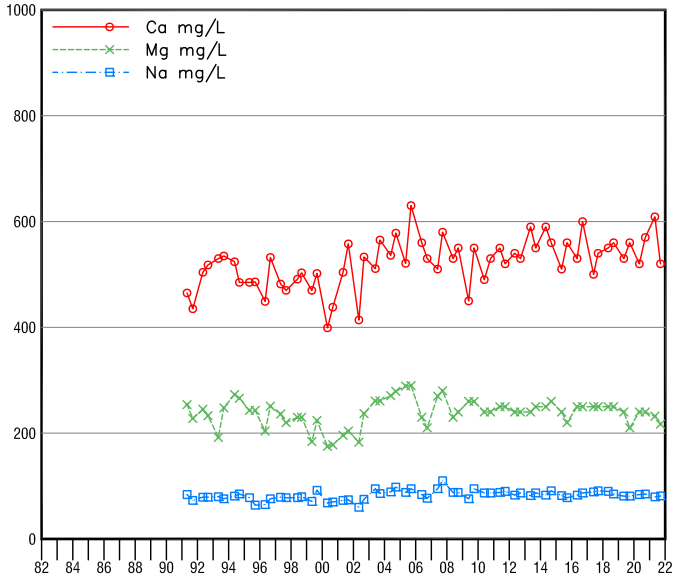
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**



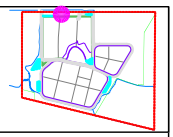








L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 21-I

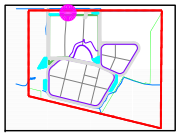
SHALLOW WEATHERED TILL

21500070 21 Apr 22	GOLDER	21H1011

WELL 21-I

SHALLOW WEATHERED TILL

OBSERVATION WELL



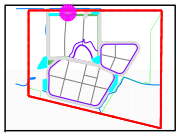
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
28-May-07	H070603	329	3700	2382		151	**2020**	510	270	95	4.7	<2	<0.1	<0.01	0.8	<0.05	-0.9
22-Sep-07	H070604	332	3700	2598		142	**2000**	580	280	110	6.2	<2	<0.1	<0.01	0.8	<0.05	4.3
26-May-08	H080605	320	3590	2268		143	**1970**	530	230	88	4.9	<2	<0.1	<0.01	0.9	<0.05	-2.1
22-Sep-08	H080606	331	3680	2359		144	**1660**	550	240	88	5.5	<2	<0.1	<0.01	<0.5	<0.05	6.1
25-May-09	H090607	289	3380	2191		18	**2130**	450	260	76	5.1	<2	<0.1	<0.01	0.4	0.12	-3.3
28-Sep-09	H090608	338	3660	2441		134	**2160**	550	260	95	5.9	<2	<0.1	<0.01	0.7	<0.05	-2.2
27-May-10	H100609	314	3660	2209		152	**2170**	490	240	87	4.9	<2	<0.1	<0.01	0.5	<0.05	-7.3
19-Oct-10	H100610	325	3680	2309		128	**2010**	530	240	87	5.6	<2	<0.1	<0.01	1.4	<0.05	-1.8
25-May-11	H110611	297	3640	2400		145	**2170**	550	250	88	4.6	<2	<0.1	<0.01	0.6	<0.05	-3.0
26-Sep-11	H110612	328	3650	2325		126	**2080**	520	250	90	5.8	<2	<0.1	<0.01	<1	<0.05	-2.7
08-May-12	H120613	310	3700	2334		150	**2100**	540	240	83	4.8	<2	<0.1	<0.01	0.62	<0.05	-3.6
19-Sep-12	H120614	330	3600	2309		140	**2000**	530	240	87	5.6	<2	<0.1	<0.01	1.3	0.1	-2.0
14-May-13	H130615	290	3600	2459		150	**2000**	590	240	82	4.6	<2	<0.1	<0.01	1.2	0.059	1.2
11-Sep-13	H130616	330	3700	2400		140	**2000**	550	250	87	5.6	<2	<0.1	<0.01	0.91	0.15	-0.2
05-May-14	H140617	300	3700	2500		150	**1900**	590	250	83	4.6	<2	<0.1	<0.01	0.27	<0.05	3.8
10-Sep-14	H140618	320	3700	2466		150	**2000**	560	260	91	5.3	<2	<0.1	<0.01	0.5	<0.05	1.1
12-May-15	H150619	310	3700	2300		150	**2000**	510	240	82	4.3	<2	<0.1	<0.01	<0.5	<0.05	-3.2
15-Sep-15	H150620	330	3700	2300		160	**2100**	560	220	78	4.7	<2	<0.1	<0.01	0.45	<0.05	-5.0
10-May-16	H160621	300	3600	2300		150	**2000**	530	250	83	4.6	<2	<0.1	<0.01	<0.5	<0.05	-1.1
13-Sep-16	H160622	330	3700	2500		130	**2000**	600	250	87	5.6	3	<0.1	<0.01	0.61	<0.05	2.4
29-May-17	H170623	310	3700	2278		140	**2000**	500	250	89	5.2	<2	<0.1	<0.01	0.92	0.06	-2.2
13-Sep-17	H170624	330	3700	2378		150	**2000**	540	250	91	6.0	<2	0.2	<0.01	0.25	<0.05	-0.8
07-May-18	H180625	320	3800	2400		150	**2100**	550	250	90	5.0	<2	<0.1	<0.01	0.17	<0.05	-2.1
11-Sep-18	H180626	350	3600	2500		150	**2000**	560	250	85	5.9	<2	<0.1	<0.01	0.11	<0.05	-0.5
08-May-19	H190627	300	3700	2300		140	**2000**	530	240	81	4.6	<2	<0.1	<0.01	0.13	<0.05	-1.7
25-Sep-19	H190628	330	3500	2300		150	**2000**	560	210	81	5.3	<2	<0.1	<0.01	0.87	0.88	-3.5
05-May-20	MPB470	300	3700	2300	7.6	160	**2000**	520	240	84	4.4	3	<0.1	<0.01	<0.1	<0.05	-2.6
22-Sep-20	NSM046	330	3500	2400	7.5	140	**2000**	570	240	85	5.7	<2	<0.1	<0.01	0.23	0.1	-0.1
06-May-21	2021R2018	316	3540	2476	7.7	150	*19000*	609	232	79.5	5.5		<0.06	<0.03	<0.05	0.05	-76.9
14-Sep-21	CA1539606	271	3540	2192	8.0	180	**2200**	520	217	81.4			<0.06			0.17	
TOTAL SAMPLES		62	65	62	4	66	61	62	62	62	61	42	62	61	61	62	
AVERAGE 2021		294	3540	2334	7.9	165		565	225	80.5			<0.06			0.11	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *Italics* / Exceedance in **Bold**

WELL 21-I

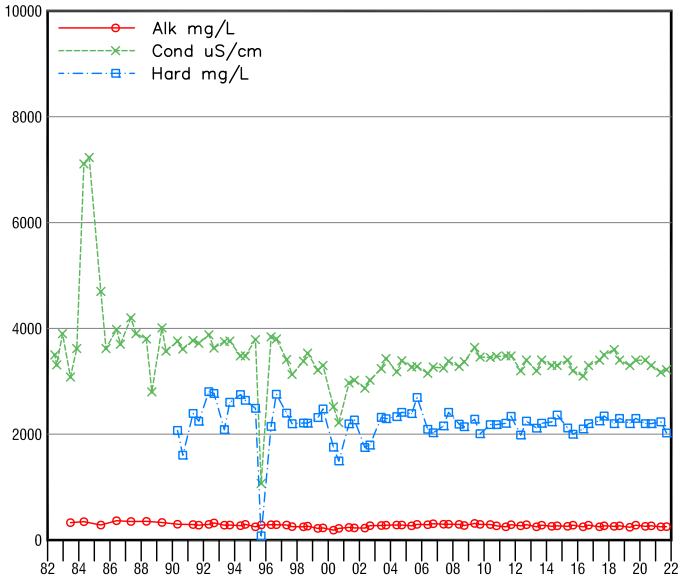
SHALLOW WEATHERED TILL

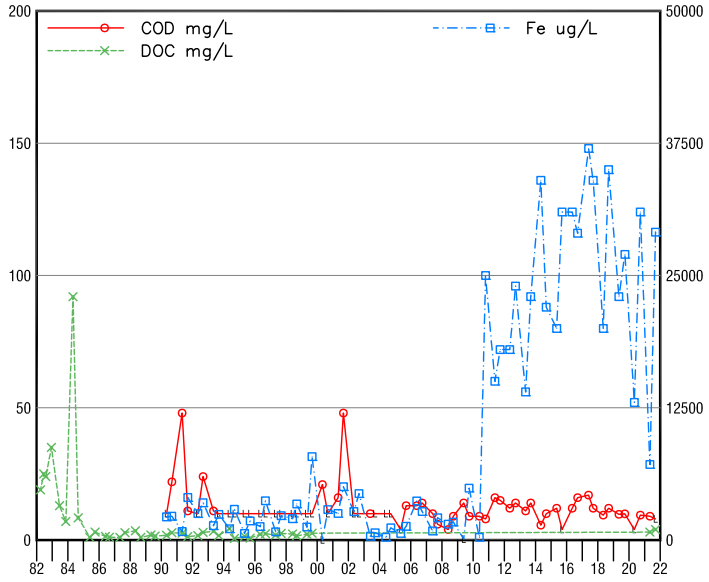
OBSERVATION WELL

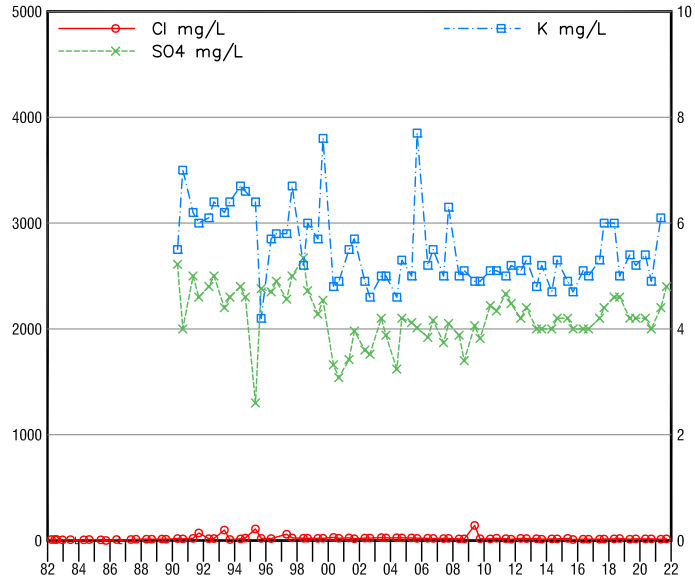


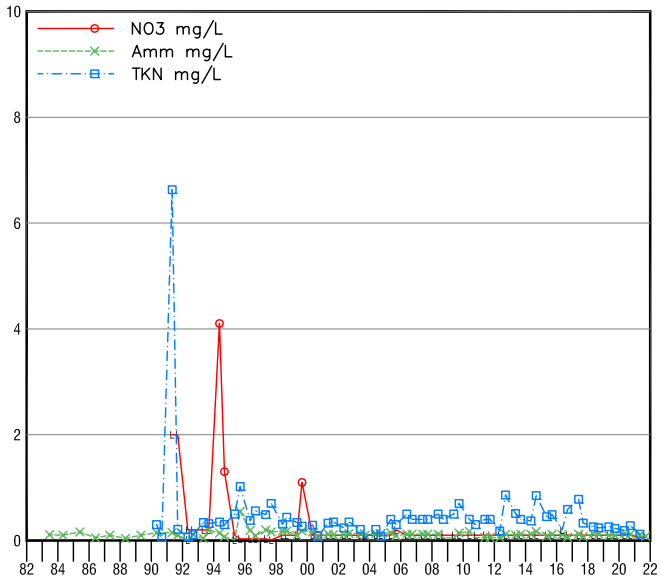
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
28-May-07	H070603	<2	26			1			<300			<1			
22-Sep-07	H070604	<2	11			<1			<50			<1			
26-May-08	H080605	<2	10			<1			<100			<1			
22-Sep-08	H080606	<2	9			<1			<100			<1			
25-May-09	H090607	<2	15			<1			**2200**			<1			
28-Sep-09	H090608	<2	6			<1			<100			<1			
27-May-10	H100609	<2	13			<5			<100			<1			
19-Oct-10	H100610	<2	41			<10			<100			<1			
25-May-11	H110611	<2	10			<10			<100			<1			
26-Sep-11	H110612	<2	19			<10			<100			<1			
08-May-12	H120613	<2	8.5			<10			<100			<1			
19-Sep-12	H120614	<2	57			<10			<100			<1			
14-May-13	H130615	<2	14			<10			<100			<1			
11-Sep-13	H130616	<2	9.5			<10			<100			<1			
05-May-14	H140617	<2	4.3			<10			<100			<1			
10-Sep-14	H140618	<2	5			<5			<100			<1			
12-May-15	H150619	<2	9.4			<10			<100			<1			
15-Sep-15	H150620	<2	<4			<5			<100			<1			
10-May-16	H160621	<2	4.9			<10			<100			<1			
13-Sep-16	H160622	3	15			<10			150			<1			
29-May-17	H170623	<2	5.4			<5			<100			<1			
13-Sep-17	H170624	<2	4.7			<5			<20			<1			
07-May-18	H180625	<2	<4			<5			<20			<1			
11-Sep-18	H180626	<2	<4			<5			<100			<1			
08-May-19	H190627	<2	<4			<5			240			<1			
25-Sep-19	H190628	<2	<4			<10			120			<1			
05-May-20	MPB470	3	<4			<1			<100			<1			
22-Sep-20	NSM046	<2	<4			<5			240			<1			
06-May-21	2021R2018		8		<0.2		0.023	0.5	27	<0.09	<0.01	<2		26	3320
14-Sep-21	CA1539606		<8						**1340**						3610
TOTAL SAMPLES		42	62	0	1	60	1	1	62	1	1	65	0	1	2
AVERAGE 2021			<8						684						3465

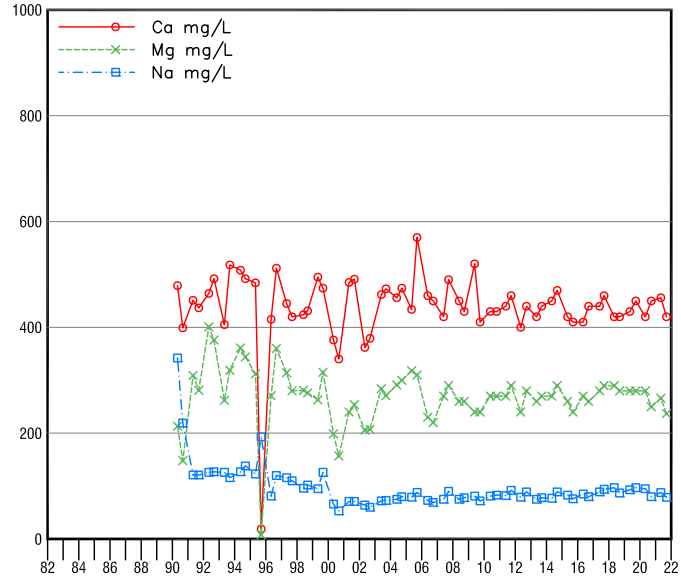
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**



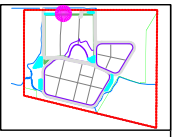








L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 22-I

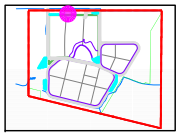
SHALLOW WEATHERED TILL

21500070 19 Apr 22	GOLDER	21H1012

WELL 22-I

SHALLOW WEATHERED TILL

OBSERVATION WELL



DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
28-May-07	H070681	298	3250	2157		19	**1870**	420	270	75	5.0	<2	<0.1	<0.01	0.4	0.12	1.3
22-Sep-07	H070682	298	3380	2414		20	**2050**	490	290	90	6.3	<2	<0.1	<0.01	0.4	0.12	3.2
26-May-08	H080683	296	3280	2191		16	**1940**	450	260	75	5.0	<2	<0.1	<0.01	0.5	0.12	0.6
22-Sep-08	H080684	276	3370	2141		16	**1700**	430	260	78	5.1	<2	<0.1	<0.01	0.4	<0.05	5.8
25-May-09	H090685	315	3640	2284		142	**2030**	520	240	81	4.9	<2	<0.1	<0.01	0.5	<0.05	-3.2
28-Sep-09	H090686	295	3460	2009		17	**1910**	410	240	72	4.9	<2	<0.1	<0.01	0.7	0.14	-2.8
27-May-10	H100687	294	3450	2182		15	**2220**	430	270	81	5.1	<2	<0.1	<0.01	0.4	0.17	-5.2
19-Oct-10	H100688	268	3470	2182		22	**2170**	430	270	83	5.1	<2	<0.1	<0.01	0.3	<0.05	-2.9
25-May-11	H110689	250	3480	2207		17	**2330**	440	270	82	5.0	<2	<0.1	<0.01	0.4	0.06	-5.4
26-Sep-11	H110690	291	3480	2339		12	**2240**	460	290	92	5.2	<2	<0.1	<0.01	0.4	0.06	-1.1
08-May-12	H120691	270	3200	1984		20	**2100**	400	240	79	5.1	<2	<0.1	<0.01	0.18	0.053	-6.1
20-Sep-12	H120692	290	3400	2248		18	**2200**	440	280	89	5.3	<2	<0.1	<0.01	0.86	0.12	-2.2
14-May-13	H130693	250	3200	2116		17	**2000**	420	260	75	4.8	<2	<0.1	<0.01	0.51	0.1	-0.9
11-Sep-13	H130694	280	3400	2207		13	**2000**	440	270	78	5.2	<2	<0.1	<0.01	0.4	0.12	1.0
06-May-14	H140695	260	3300	2232		15	**2000**	450	270	77	4.7	<2	<0.1	<0.01	0.37	0.12	2.2
10-Sep-14	H140696	270	3300	2364		15	**2100**	470	290	89	5.3	<2	<0.1	<0.01	0.85	0.17	2.5
12-May-15	H150697	260	3400	2119		20	**2100**	420	260	83	4.9	<2	<0.1	<0.01	0.45	0.081	-2.8
15-Sep-15	H150698	280	3200	2000		10	**2000**	410	240	76	4.7	<2	<0.1	<0.01	0.49	0.12	-3.0
10-May-16	H160699	250	3100	2100		13	**2000**	410	270	85	5.1	<2	<0.1	<0.01	<0.2	0.11	0.7
13-Sep-16	H160700	280	3300	2200		13	**2000**	440	260	80	5.0	2	<0.1	<0.01	0.59	0.06	0.4
29-May-17	H170701	250	3400	2252		13	**2100**	440	280	89	5.3	<2	<0.1	<0.01	0.78	0.12	1.3
13-Sep-17	H170702	270	3500	2343		14	**2200**	460	290	94	6.0	<2	<0.1	<0.01	0.33	0.072	0.7
08-May-18	H180703	260	3600	2200		15	**2300**	420	290	97	6.0	<2	<0.1	<0.01	0.26	0.13	-3.5
10-Sep-18	H180704	270	3400	2300		19	**2300**	420	280	87	5.0	<2	<0.1	<0.01	0.24	0.12	-4.5
09-May-19	H190705	240	3300	2200		13	**2100**	430	280	93	5.4	<2	<0.1	<0.01	0.26	0.099	0.6
26-Sep-19	H190706	280	3400	2300		16	**2100**	450	280	97	5.2	<2	<0.1	<0.01	0.23	0.1	1.0
05-May-20	MPB471	260	3400	2200	7.7	15	**2100**	420	280	95	5.4	<2	<0.1	<0.01	0.19	0.13	-0.6
22-Sep-20	NSM025	270	3300	2200	7.5	15	**2000**	450	250	80	4.9	<2	<0.1	<0.01	0.28	0.12	0.3
04-May-21	2021R2006	252	3170	2234	7.7	13	**2200**	456	266	87.8	6.1		<0.06	<0.03	0.12	0.1	-2.3
14-Sep-21	CA1539608	255	3220	2025	8.3	16	**2400**	420	237	78.7			<0.06			0.08	

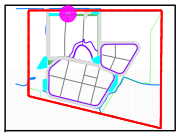
TOTAL SAMPLES		70	81	64	4	81	64	64	64	64	63	42	62	61	63	70	
AVERAGE	2021	254	3195	2130	8.0	15	2300	438	252	83.3			<0.06			0.1	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 22-I

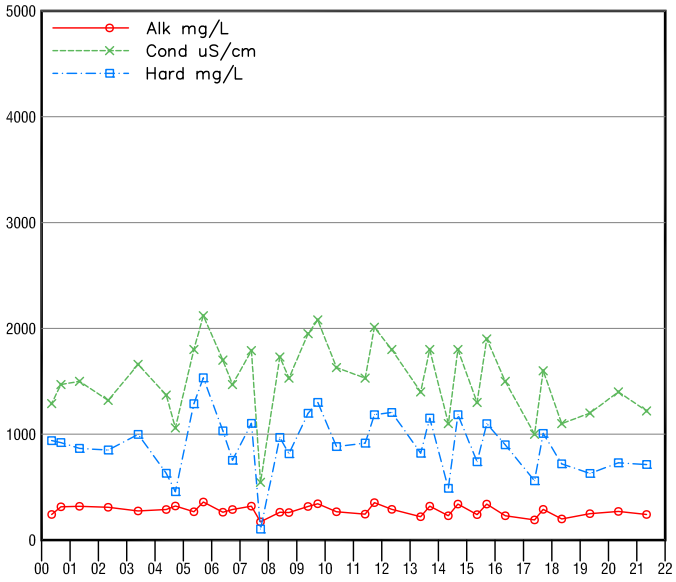
SHALLOW WEATHERED TILL

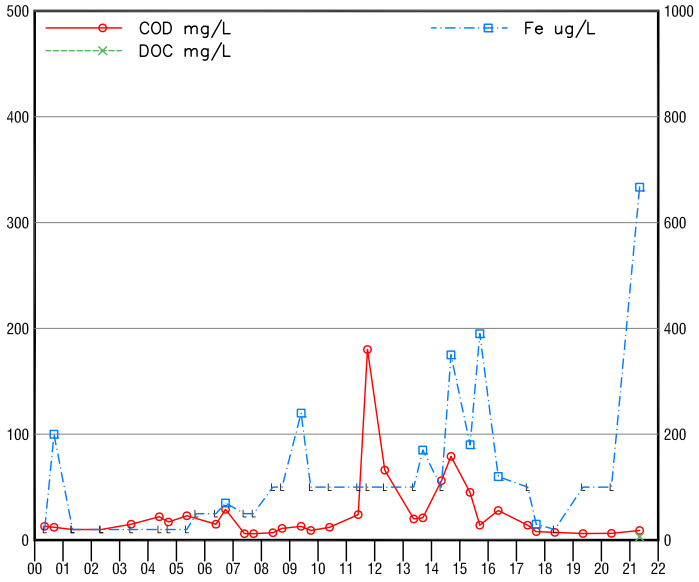
OBSERVATION WELL

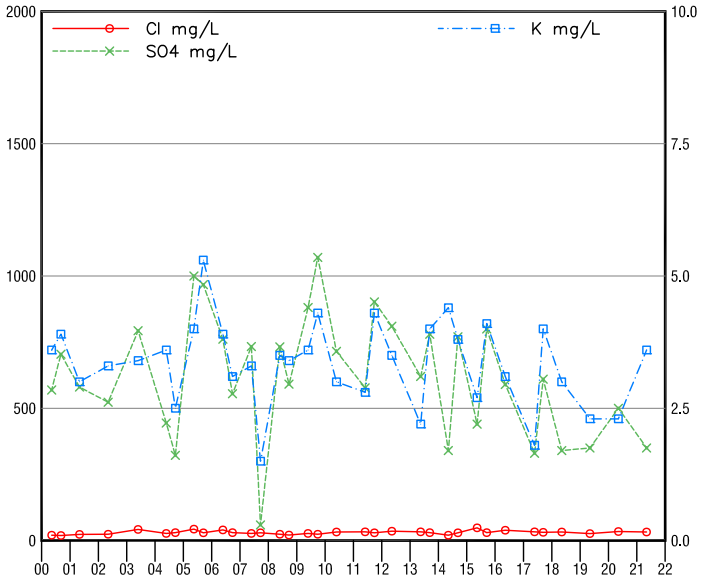


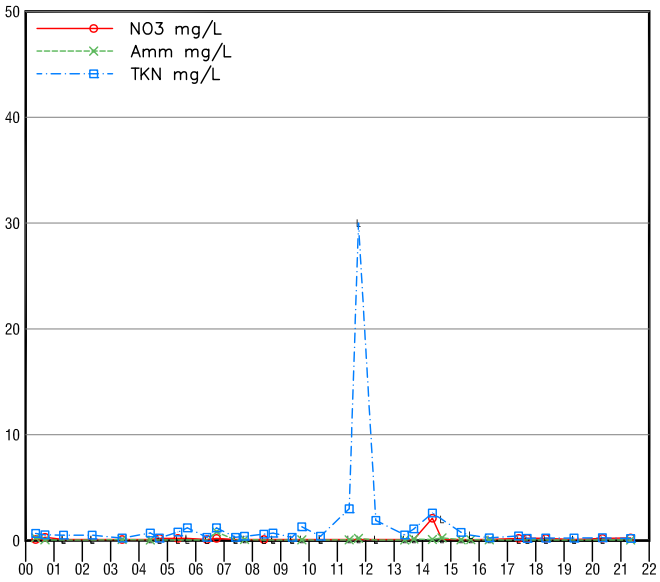
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
28-May-07	H070681	<2	10			<1			**860**			<1			
22-Sep-07	H070682	<2	6			<1			**2100**			<1			
26-May-08	H080683	<2	4			<1			**1500**			<1			
22-Sep-08	H080684	<2	9			<1			**1700**			<1			
25-May-09	H090685	<2	14			<1			<100			<1			
28-Sep-09	H090686	<2	9			<1			**4900**			<1			
27-May-10	H100687	<2	9			<5			260			<1			
19-Oct-10	H100688	<2	8			<10			**25000**			3			
25-May-11	H110689	<2	16			<10			**15000**			<1			
26-Sep-11	H110690	<2	15			<10			**18000**			<1			
08-May-12	H120691	<2	12			<10			**18000**			<1			
20-Sep-12	H120692	<2	14			<10			**24000**			<1			
14-May-13	H130693	<2	11			<5			**14000**			<1			
11-Sep-13	H130694	<2	14			<10			**23000**			<1			
06-May-14	H140695	<2	5.6			<5			**34000**			6.9			
10-Sep-14	H140696	<2	10			<5			**22000**			6.8			
12-May-15	H150697	<2	12			<5			**20000**			<1			
15-Sep-15	H150698	<2	<4			<5			**31000**			<1			
10-May-16	H160699	<2	12			<5			**31000**			<1			
13-Sep-16	H160700	2	16			<5			**29000**			<1			
29-May-17	H170701	<2	17			<5			**37000**			<1			
13-Sep-17	H170702	<2	12			<5			**34000**			<1			
08-May-18	H180703	<2	9.4			<5			**20000**			<1			
10-Sep-18	H180704	<2	12			<5			**35000**			<1			
09-May-19	H190705	<2	9.7			<5			**23000**			<1			
26-Sep-19	H190706	<2	9.9			<5			**27000**			<1			
05-May-20	MPB471	<2	<4			<1			**13000**						
22-Sep-20	NSM025	<2	9.4			<10			**31000**			<1			
04-May-21	2021R2006		9		<0.2		0.004	<0.2	**7140**	<0.09	<0.01	<2		**8700**	3180
14-Sep-21	CA1539608		<8						**29100**						3260
TOTAL SAMPLES		42	64	0	1	60	1	1	64	1	1	80	0	1	2
AVERAGE 2021			<8						18120						3220

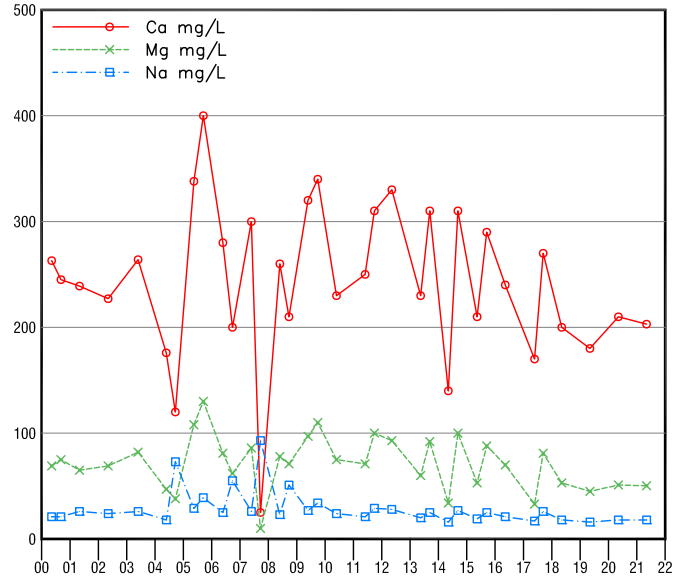
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**



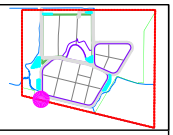








L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 28-III

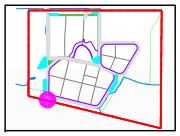
SHALLOW WEATHERED TILL

21500070 19 Apr 22	wsp GOLDER	21H1013

WELL 28-III

SHALLOW WEATHERED TILL

OBSERVATION WELL



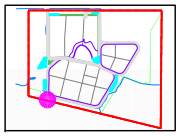
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
29-May-03	H030770	275	1660	998		42	**793**	264	82	26	3.4	<2	0.1	<0.02	0.23	0.1	-4.6
26-May-04	H040771	289	1370	631		27	444	176	47	18	3.6	<2	<0.1	<0.02	0.71	0.05	-7.7
20-Sep-04	H040772	322	1060	457		30	322	120	38	73	2.5	<1	0.2	<0.02	0.23	<0.05	-6.2
16-May-05	H050773	267	1800	1288		43	**1000**	338	108	29	4.0	<2	0.2	<0.1	0.8	<0.05	-0.5
15-Sep-05	H050774	359	2120	1533		29	**967**	400	130	39	5.3	<2	<0.2	<0.3	1.2	<0.05	7.2
25-May-06	H060775	263	1700	1032		40	**761**	280	81	25	3.9	<2	0.1	<0.01	0.3	<0.05	-0.9
26-Sep-06	H060776	289	1470	754		30	**555**	200	62	55	3.1	<2	0.2	<0.01	1.2	0.82	-1.6
28-May-07	H070777	320	1790	1103		27	**733**	300	86	26	3.3	<2	<0.1	<0.01	0.3	<0.05	1.9
22-Sep-07	H070778	172	546	104		29	59	25	10	93	1.5	7	<0.1	<0.01	0.4	0.1	5.8
28-May-08	H080779	263	1730	970		24	**732**	260	78	23	3.5	<2	0.1	<0.01	0.6	<0.05	-1.7
23-Sep-08	H080780	260	1530	816		21	**591**	210	71	51	3.4	<2	<0.1	<0.01	0.7	<0.05	1.5
27-May-09	H090781	317	1950	1198		27	**881**	320	97	27	3.6	<2	<0.1	<0.01	0.3	<0.05	-0.4
29-Sep-09	H090782	343	2080	1301		24	**1070**	340	110	34	4.3	<2	<0.1	<0.01	1.3	0.07	-3.8
28-May-10	H100783	267	1630	883		32	**715**	230	75	24	3.0	<2	<0.1	<0.01	0.4	<0.05	-5.9
02-Jun-11	H110784	245	1530	916		33	**577**	250	71	21	2.8	<2	<0.1	<0.01	3	0.07	4.0
29-Sep-11	H110785	353	2010	1185		29	**902**	310	100	29	4.3	<2	<0.1	<0.01	<30	0.2	-3.0
10-May-12	H120786	290	1800	1206		35	**810**	330	93	28	3.5	<2	<0.1	<0.01	1.9	<0.05	3.6
17-May-13	H130787	220	1400	821		33	**620**	230	60	20	2.2	<2	<0.1	<0.01	0.53	0.058	-2.5
11-Sep-13	H130788	320	1800	1152		30	**780**	310	92	25	4.0	<2	<0.1	<0.01	1.1	0.14	1.6
09-May-14	H140789	230	1100	489		20	340	140	34	16	4.4	<2	2.1	0.013	2.6	0.1	-7.8
09-Sep-14	H140790	340	1800	1185		29	**770**	310	100	27	3.8	<2	<0.1	<0.01	<2	0.25	2.8
14-May-15	H150791	240	1300	740		48	440	210	53	19	2.7	<2	<0.1	0.012	0.77	0.072	1.4
16-Sep-15	H150792	340	1900	1100		30	**800**	290	88	25	4.1	<2	<0.1	<0.01	<0.5	0.076	-2.9
11-May-16	H160793	230	1500	900		39	**590**	240	70	21	3.1	<2	<0.1	<0.01	0.25	0.062	2.1
24-May-17	H170794	190	1000	560		33	330	170	33	17	1.8	<2	0.2	<0.01	0.44	<0.05	1.6
12-Sep-17	H170795	290	1600	1008		31	**610**	270	81	26	4.0	<2	0.2	<0.01	0.2	<0.05	4.9
09-May-18	H180796	200	1100	720		32	340	200	53	18	3.0	<2	0.2	<0.01	0.23	<0.05	11.8
08-May-19	H190797	250	1200	630		26	350	180	45	16	2.3	<2	<0.1	<0.01	0.23	<0.05	1.6
08-May-20	MPS803	270	1400	730	7.7	34	500	210	51	18	2.3		0.2	<0.01	0.26	<0.05	-3.9
07-May-21	2021R2052	241	1220	714	8.1	32	350	203	50.3	18	3.6		0.25	<0.03	0.19	0.05	7.6
TOTAL SAMPLES		34	34	34	2	34	34	34	34	34	34	32	34	34	34	34	
AVERAGE 2021																	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *Italics* / Exceedance in **Bold**

WELL 28-III

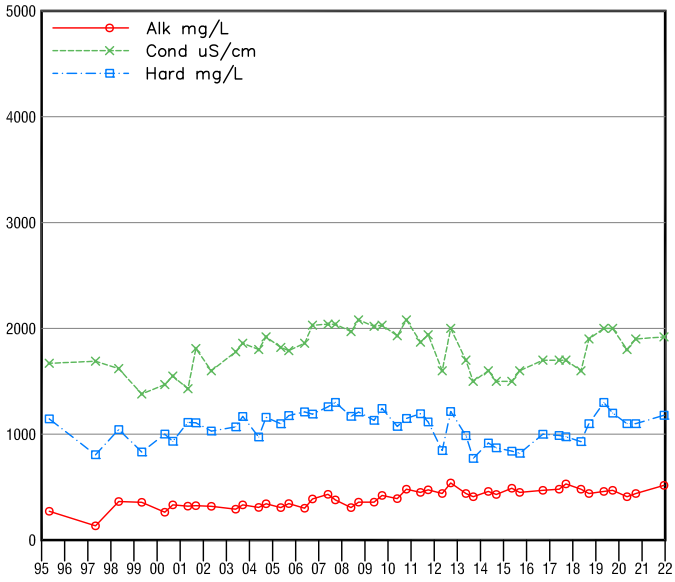
SHALLOW WEATHERED TILL

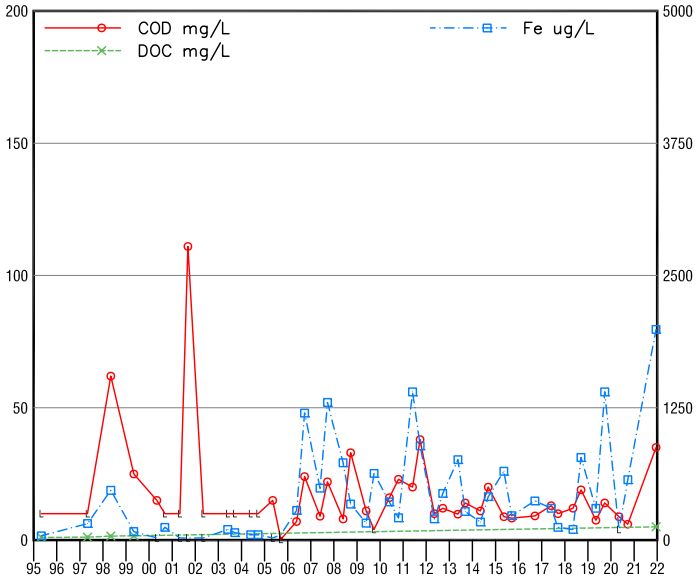
OBSERVATION WELL

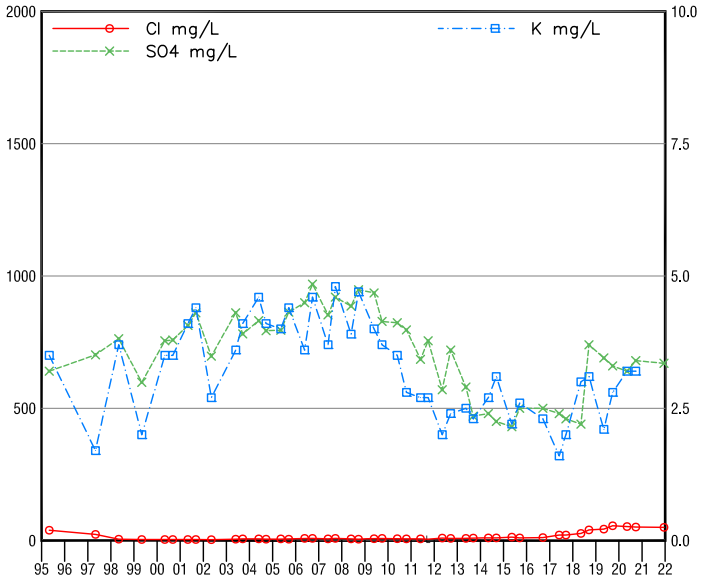


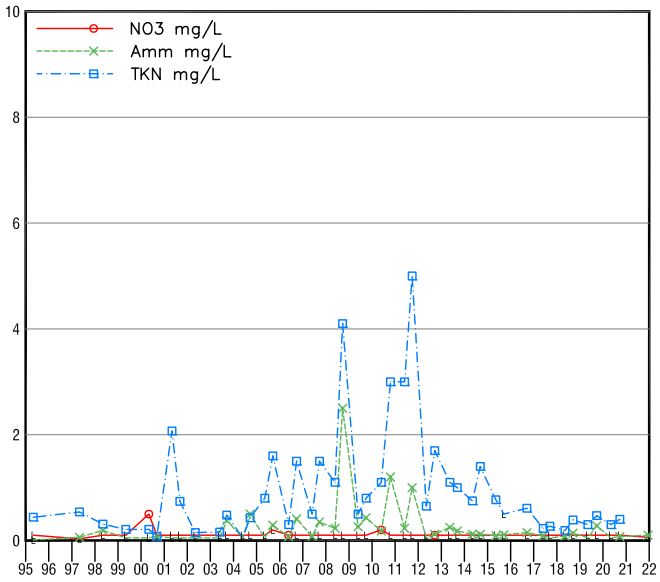
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
29-May-03	H030770	<2	15			<0.5			<20			<2			
26-May-04	H040771	<2	22			<0.5			<20			<2			
20-Sep-04	H040772	<1	17			<0.5			<20			<2			
16-May-05	H050773	<2	23			<0.35			<20			<1			
15-Sep-05	H050774	<2				<1			<50			<1			
25-May-06	H060775	<2	15			<1			<50			<1			
26-Sep-06	H060776	<2	29			<1			70			4			
28-May-07	H070777	<2	6			<1			<50			<1			
22-Sep-07	H070778	7	6			<1			<50			<1			
28-May-08	H080779	<2	7			<1			<100			<1			
23-Sep-08	H080780	<2	11			<1			<100			<1			
27-May-09	H090781	<2	13			<1			240			<1			
29-Sep-09	H090782	<2	9			<1			<100			<1			
28-May-10	H100783	<2	12			<5			<100			<1			
02-Jun-11	H110784	<2	24			<1			<100			<1			
29-Sep-11	H110785	<2	180			<5			<100			<1			
10-May-12	H120786	<2	66			<5			<100			<1			
17-May-13	H130787	<2	20			<1			<100			<1			
11-Sep-13	H130788	<2	21			<2			170			<1			
09-May-14	H140789	<2	56			<1			<100			<1			
09-Sep-14	H140790	<2	79			<5			**350**			<1			
14-May-15	H150791	<2	45			<1			180			<1			
16-Sep-15	H150792	<2	14			<2			**390**			<1			
11-May-16	H160793	<2	28			<2			120			<1			
24-May-17	H170794	<2	14			<1			<100			<1			
12-Sep-17	H170795	<2	8			<2			30			<1			
09-May-18	H180796	<2	7.3			<1			<20			<1			
08-May-19	H190797	<2	6.2			<1			<100			<1			
08-May-20	MPS803		6.3	8.8		<1			<100			<1			
07-May-21	2021R2052		9		0.6		0.027	2.5	**667**	0.66	<0.01	<2		8	866
TOTAL SAMPLES		32	33	1	1	33	1	1	34	1	1	34	0	1	1
AVERAGE 2021															

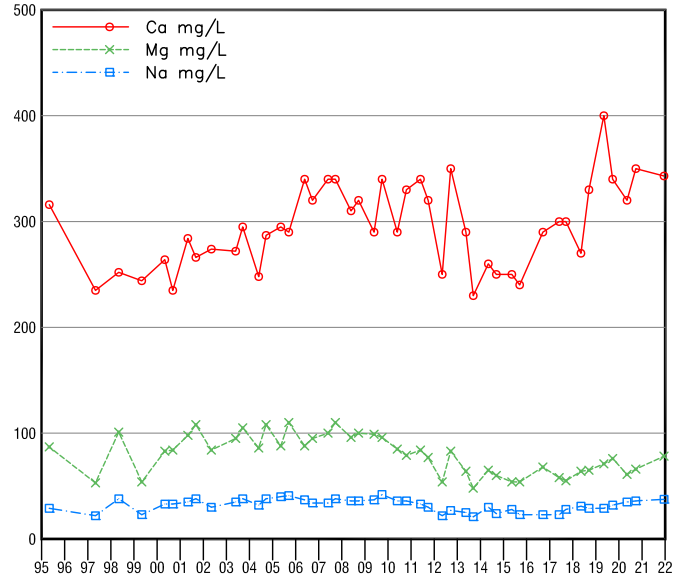
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









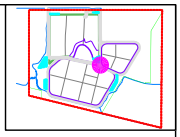


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 30-III

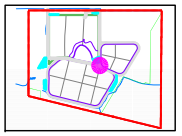
SHALLOW WEATHERED TILL

21500070 19 Apr 22	wsp GOLDER	21H1014

WELL 30-III

SHALLOW WEATHERED TILL

OBSERVATION WELL



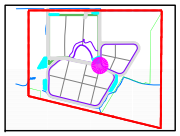
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
22-May-06	H060814	301	1860	1211		8	**899**	340	88	37	3.6	<2	0.1	0.01	0.3	0.07	1.9
25-Sep-06	H060815	389	2030	1190		8	**969**	320	95	34	4.6	<2	<0.1	<0.01	1.5	0.41	-5.1
28-May-07	H070816	432	2040	1260		6	**853**	340	100	34	3.7	<2	<0.1	<0.01	0.5	0.08	0.4
22-Sep-07	H070817	379	2040	1301		8	**920**	340	110	38	4.8	<2	<0.1	<0.01	1.5	0.35	1.7
26-May-08	H080818	307	1970	1169		6	**886**	310	96	36	3.9	<2	<0.1	<0.01	1.1	0.23	0.7
22-Sep-08	H080819	358	2080	1210		5	**948**	320	100	36	4.7	4	<0.1	<0.01	4.1	2.5	-1.8
25-May-09	H090820	358	2020	1131		7	**936**	290	99	37	4.0	<2	<0.1	<0.01	0.5	0.26	-4.9
28-Sep-09	H090821	422	2030	1244		8	**828**	340	96	42	3.7	<2	<0.1	<0.01	0.8	0.43	1.8
27-May-10	H100822	392	1930	1074		7	**823**	290	85	36	3.5	<2	0.2	0.02	1.1	0.18	-4.2
19-Oct-10	H100823	480	2080	1149		6	**796**	330	79	36	2.8	3	<0.1	<0.01	3	1.2	-3.2
30-May-11	H110824	451	1870	1194		6	**685**	340	84	33	2.7	<2	<0.1	<0.01	3	0.23	4.1
27-Sep-11	H110825	474	1940	1116		<5	**755**	320	77	30	2.7	<2	<0.1	<0.01	5	1	-2.9
07-May-12	H120826	440	1600	846		9	**570**	250	54	22	2.0	<2	<0.1	<0.01	0.65	<0.05	-7.7
18-Sep-12	H120827	540	2000	1215		8	**720**	350	83	27	2.4	<2	0.1	<0.01	1.7	0.12	-0.9
16-May-13	H130828	440	1700	987		8	**580**	290	64	25	2.5	<2	<0.1	<0.01	1.1	0.25	-0.4
09-Sep-13	H130829	410	1500	772		9	470	230	48	21	2.3	<2	<0.1	<0.01	1	0.18	-5.2
07-May-14	H140830	460	1600	917		10	480	260	65	30	2.7	<2	<0.1	<0.01	0.75	0.12	0.6
09-Sep-14	H140831	430	1500	871		10	450	250	60	24	3.1	2	<0.1	<0.01	1.4	0.12	0.9
13-May-15	H150832	490	1500	840		13	430	250	54	28	2.2	<2	<0.1	<0.01	0.77	0.089	-2.4
15-Sep-15	H150833	450	1600	820		10	500	240	54	23	2.6	<2	<0.1	0.010	<0.5	0.11	-5.9
15-Sep-16	H160835	470	1700	1000		11	500	290	68	23	2.3	<2	<0.1	<0.01	0.61	0.15	2.5
30-May-17	H170836	480	1700	988		21	480	300	58	23	1.6	<2	<0.1	<0.01	0.23	0.09	1.5
14-Sep-17	H170837	530	1700	976		21	460	300	55	28	2.0	<2	<0.1	<0.01	0.27	<0.05	0.1
10-May-18	H180838	480	1600	930		27	440	270	64	31	3.0	<2	<0.1	<0.01	0.19	0.085	1.7
14-Sep-18	H180839	440	1900	1100		40	**740**	330	65	29	3.1	<2	<0.1	<0.01	0.39	0.14	-4.4
07-May-19	H190840	460	2000	1300		43	**690**	400	71	29	2.1	<2	<0.1	<0.01	0.30	<0.05	4.5
24-Sep-19	H190841	470	2000	1200		56	**660**	340	76	32	2.8	<2	<0.1	<0.01	0.47	0.28	0.1
07-May-20	MPB489	410	1800	1100	7.7	53	**640**	320	61	35	3.2	<2	<0.1	<0.01	0.30	<0.05	-0.9
23-Sep-20	NSM052	440	1900	1100	7.7	51	**680**	350	66	36	3.2	<2	<0.1	<0.01	0.40	0.073	0.4
14-Dec-21	OW0015	517	1920	1179	7.9	50	**670**	343	78.3	37.5			<0.06	<0.03		0.1	
TOTAL SAMPLES		45	45	45	3	45	45	45	45	45	44	40	45	45	44	45	
AVERAGE 2021																	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 30-III

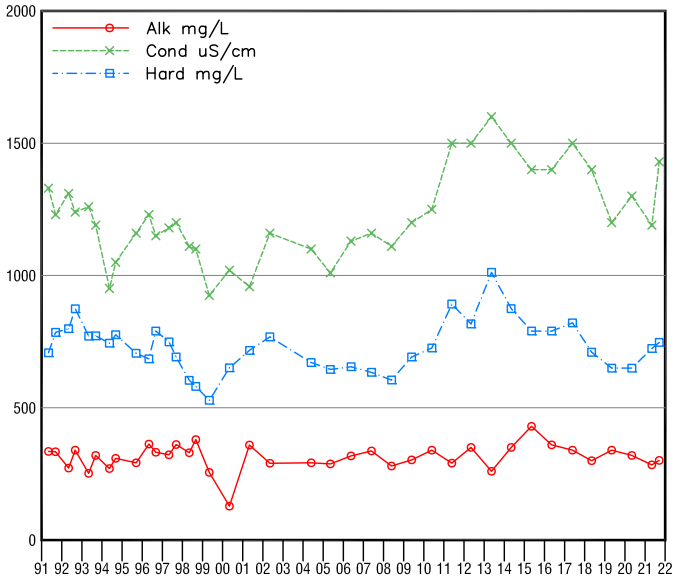
SHALLOW WEATHERED TILL

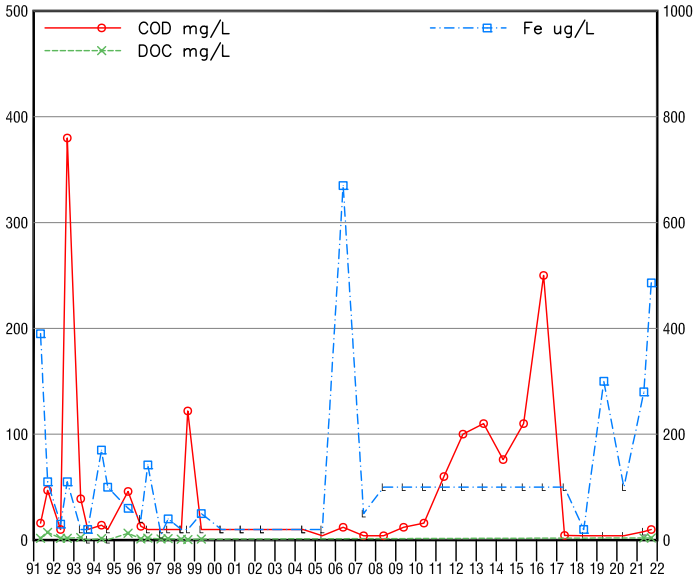
OBSERVATION WELL

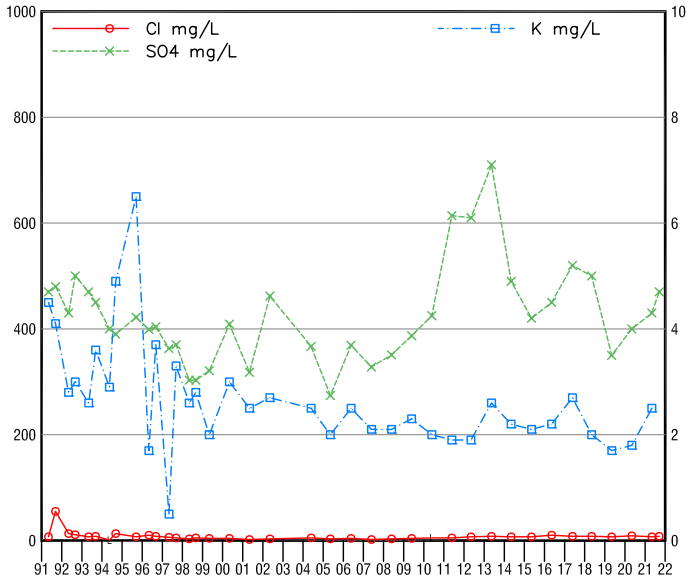


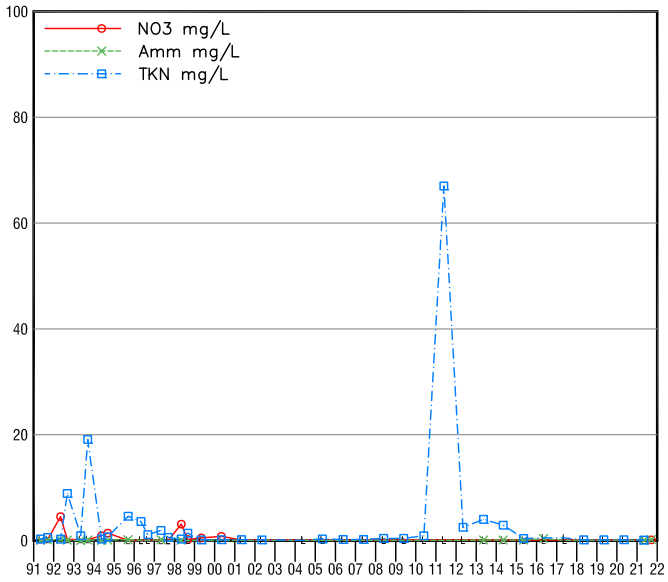
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
22-May-06	H060814	<2	7			<1			280			<1			
25-Sep-06	H060815	<2	24			<1			**1200**			6			
28-May-07	H070816	<2	9			<1			**490**			<1			
22-Sep-07	H070817	<2	22			<1			**1300**			4			
26-May-08	H080818	<2	8			<1			**730**			<1			
22-Sep-08	H080819	4	33			<1			**340**			28			
25-May-09	H090820	<2	11			<1			160			<1			
28-Sep-09	H090821	<2	<4			<1			**630**			<1			
27-May-10	H100822	<2	16			<1			**360**			<1			
19-Oct-10	H100823	3	23			<5			210			17			
30-May-11	H110824	<2	20			<2			**1400**			<1			
27-Sep-11	H110825	<2	38			<5			**890**			2			
07-May-12	H120826	<2	10			<5			200			<1			
18-Sep-12	H120827	<2	12			<5			**440**			<1			
16-May-13	H130828	<2	9.8			<2			**760**			<1			
09-Sep-13	H130829	<2	14			<1			270			<1			
07-May-14	H140830	<2	11			<2			170			<1			
09-Sep-14	H140831	2	20			<1			**410**			<1			
13-May-15	H150832	<2	8.8			<1			**650**			<1			
15-Sep-15	H150833	<2	8.3			<1			230			<1			
15-Sep-16	H160835	<2	9.1			<2			**370**			<1			
30-May-17	H170836	<2	13			<1			300			<1			
14-Sep-17	H170837	<2	10			<1			120			<1			
10-May-18	H180838	<2	12			<1			100			<1			
14-Sep-18	H180839	<2	19			<5			**780**			<1			
07-May-19	H190840	<2	7.5			<5			300			<1			
24-Sep-19	H190841	<2	14			<5			**1400**			<1			
07-May-20	MPB489	<2	8.8			<1			<100			<1			
23-Sep-20	NSM052	<2	6			<5			**570**			<1			
14-Dec-21	OW0015		35						**1990**						1570
TOTAL SAMPLES		40	45	0	0	44	0	0	45	0	0	44	0	0	1
AVERAGE 2021															

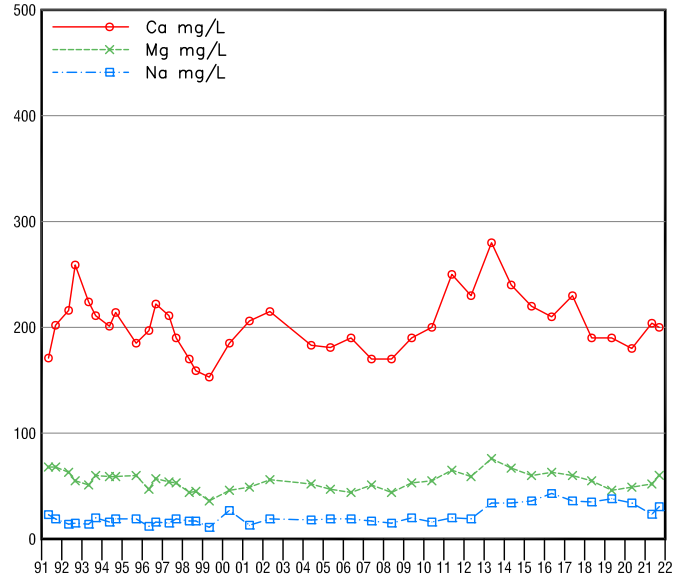
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**











L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 31-I

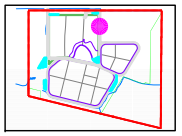
SHALLOW WEATHERED TILL

21500070 19 Apr 22	GOLDER	21H1015

WELL 31-I

SHALLOW WEATHERED TILL

OBSERVATION WELL



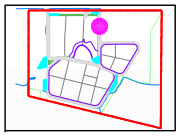
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
13-Sep-95	H950851	292	1160	706		7	422	185	60	19	6.5		<0.03	<0.03	4.59	0.17	1.2
02-May-96	H960852	363	1230	685		10	399	197	47	12	1.7		<0.03	<0.01	3.59	<0.05	-5.2
04-Sep-96	H960853	332	1150	790		8	404	222	57	16	3.7		<0.1	<0.03	1.12	<0.05	4.1
02-May-97	H970854	322	1180	749		6	363	211	54	15	0.50		<0.03	**1.4**	1.9	0.13	5.0
08-Sep-97	H970855	361	1200	692		5	370	190	53	19	3.3		<0.01	0.15	0.59	<0.05	-1.0
05-May-98	H980856	330	1110	604		3	303	170	44	17	2.6		3.1	<0.02	0.28	0.05	-1.1
01-Sep-98	H980857	380	1100	581		5	303	159	45	17	2.8		0.2	<0.02	1.39	<0.05	-6.1
04-May-99	H990858	256	925	528		4	321	153	36	11	2.0		0.5	<0.02	0.12	<0.05	-3.5
03-May-00	H000859	128	1020	651		4	409	185	46	27	3.0	<2	0.8	<0.02	0.14	<0.05	11.9
03-May-01	H010860	359	958	717		2	318	206	49	13	2.5	<2	<0.1	<0.02	0.16	<0.05	3.8
08-May-02	H020861	290	1160	768		3	462	215	56	19	2.7	<2	<0.1	<0.02	0.12	<0.05	2.3
26-May-04	H040862	292	1100	671		5	367	183	52	18	2.5	<2	<0.1	<0.02	<0.05	<0.05	2.3
10-May-05	H050863	288	1010	645		3	274	181	47	19	2.0	<2	<0.1	<0.1	0.3	<0.05	8.8
22-May-06	H060864	318	1130	655		4	369	190	44	19	2.5	<2	<0.1	<0.01	0.2	<0.05	-0.5
28-May-07	H070865	337	1160	634		2	328	170	51	17	2.1	<2	<0.1	<0.01	0.2	<0.05	-0.5
26-May-08	H080866	280	1110	605		3	351	170	44	15	2.1	<2	<0.1	<0.01	0.4	<0.05	-0.7
25-May-09	H090867	303	1200	692		4	387	190	53	20	2.3	<2	<0.1	<0.01	0.4	<0.05	1.9
27-May-10	H100868	340	1250	726		<5	425	200	55	16	2.0	<2	<0.1	<0.01	0.9	<0.05	-1.3
25-May-11	H110869	291	1500	892		5	**614**	250	65	20	1.9	<2	<0.1	<0.01	67	<0.05	0.1
07-May-12	H120870	350	1500	817		7	**610**	230	59	19	1.9	<2	<0.1	<0.01	2.5	<0.05	-7.2
15-May-13	H130871	260	1600	1012		8	**710**	280	76	34	2.6	<2	<0.1	<0.01	4	0.09	3.8
06-May-14	H140872	350	1500	875		7	490	240	67	34	2.2	<2	<0.1	<0.01	2.9	0.095	4.5
12-May-15	H150873	430	1400	790		7	420	220	60	36	2.1	<2	<0.1	0.031	0.38	0.064	0.1
10-May-16	H160874	360	1400	790		10	450	210	63	43	2.2	<2	<0.1	<0.01	<0.5	0.36	2.2
24-May-17	H170875	340	1500	821		8	**520**	230	60	36	2.7	<2	<0.1	<0.01	<0.5	<0.05	0.6
07-May-18	H180876	300	1400	710		8	500	190	55	35	2.0	<2	<0.1	<0.01	0.13	<0.05	-3.3
07-May-19	H190877	340	1200	650		7	350	190	46	38	1.7	<2	<0.1	<0.01	0.13	<0.05	2.4
06-May-20	MPB457	320	1300	650	7.8	9	400	180	49	34	1.8	<2	<0.1	<0.01	0.14	<0.05	-1.5
04-May-21	2021R2003	284	1190	724	7.9	7	430	204	52	23.4	2.5		<0.06	<0.03	0.07	0.04	2.4
16-Sep-21	CA1544306	301	1430	747	7.9	8	470	200	60.1	30.5			0.14	<0.03		0.18	
TOTAL SAMPLES		38	38	38	3	38	38	38	38	38	37	20	38	38	37	38	
AVERAGE 2021		293	1310	736	7.9	8	450	202	56.1	27.0			0.07	<0.03		0.11	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 31-I

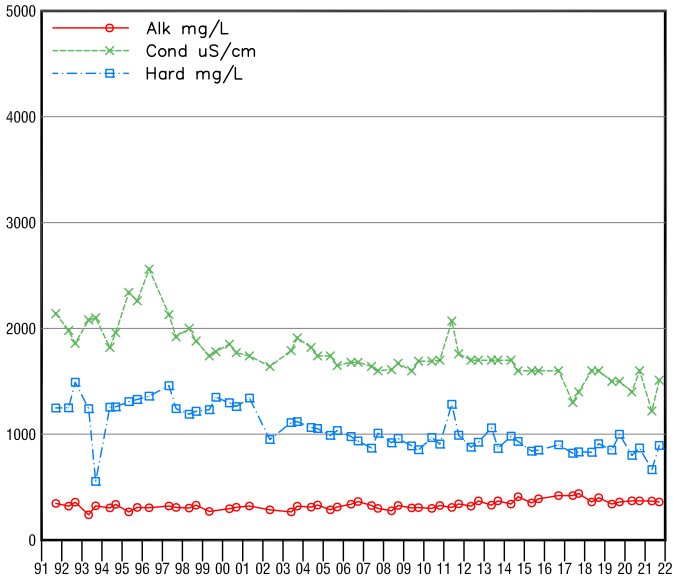
SHALLOW WEATHERED TILL

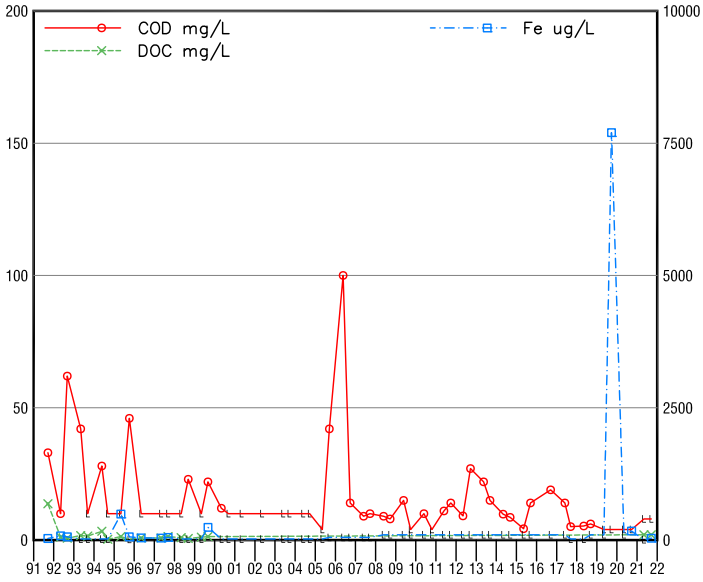
OBSERVATION WELL

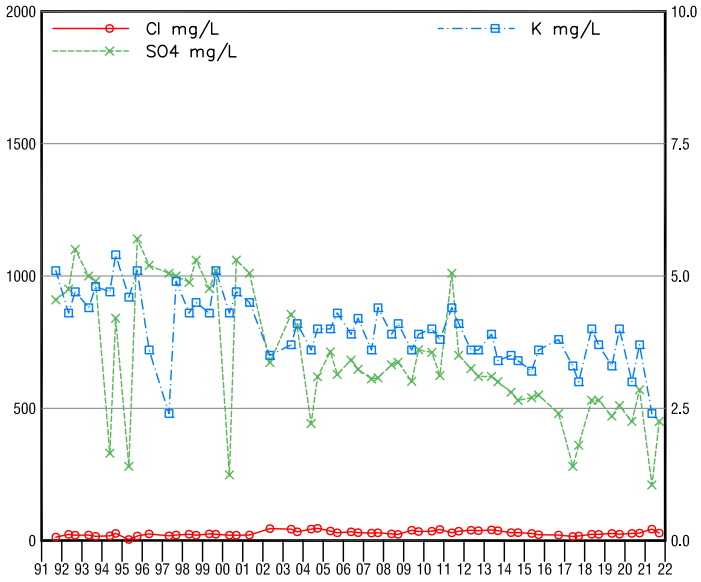


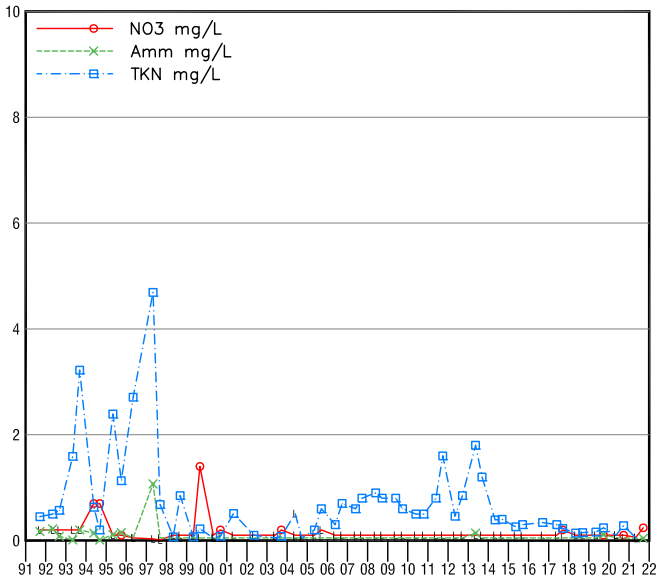
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
13-Sep-95	H950851		46			<0.01			60			<1			
02-May-96	H960852		13			<0.1			<40			4			
04-Sep-96	H960853		<10			<0.1			142			<1			
02-May-97	H970854		<10			0.2			<10			<1			
08-Sep-97	H970855		<10			<0.1			40			<1			
05-May-98	H980856		<10			<0.1			<20			<1			
01-Sep-98	H980857		122			<0.1			<20			<1			
04-May-99	H990858		<10			<0.5			50			1			
03-May-00	H000859	<2	<10			0.02			<20			1			
03-May-01	H010860	<2	<10			0.02			<20			<1			
08-May-02	H020861	<2	<10			<0.5			<20			<2			
26-May-04	H040862	<2	<10			<0.5			<20			2			
10-May-05	H050863	<2	<4			<0.35			<20			2			
22-May-06	H060864	<2	12			<1			**670**			<1			
28-May-07	H070865	<2	4			<1			<50			<1			
26-May-08	H080866	<2	4			<1			<100			<1			
25-May-09	H090867	<2	12			<1			<100			2			
27-May-10	H100868	<2	16			<5			<100			<1			
25-May-11	H110869	<2	60			<1			<100			<1			
07-May-12	H120870	<2	100			<5			<100			<1			
15-May-13	H130871	<2	110			<2			<100			<1			
06-May-14	H140872	<2	76			<1			<100			<1			
12-May-15	H150873	<2	110			<1			<100			<1			
10-May-16	H160874	<2	250			<1			<100			<1			
24-May-17	H170875	<2	4.3			<1			<100			<1			
07-May-18	H180876	<2	<4			<1			20			<1			
07-May-19	H190877	<2	<4			<1			300			<1			
06-May-20	MPB457	<2	<4			<1			<100			<1			
04-May-21	2021R2003		<8		0.3		0.046	1.8	280	0.28	<0.01	<2		6	883
16-Sep-21	CA1544306		10						**486**						1100
TOTAL SAMPLES		20	38	0	1	36	1	1	38	1	1	37	0	1	2
AVERAGE 2021			<8						383						992

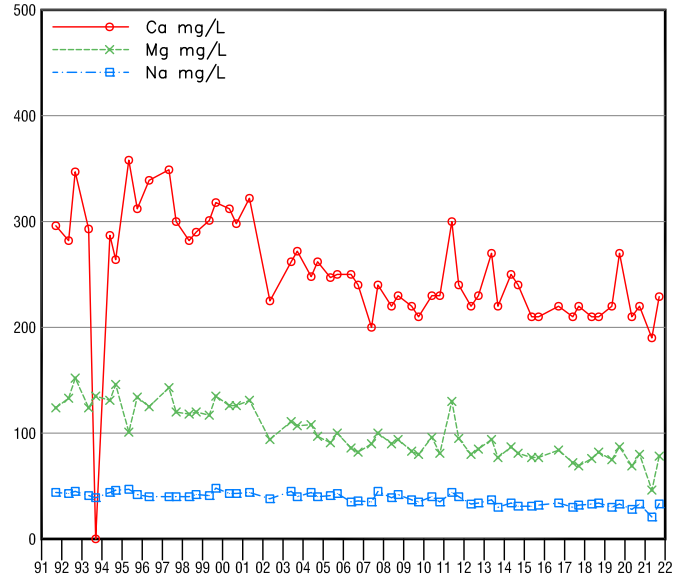
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**



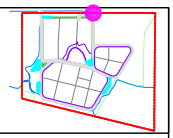








L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 32-III

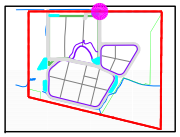
SHALLOW WEATHERED TILL

21500070 19 Apr 22	wsp GOLDER	21H1016

WELL 32-III

SHALLOW WEATHERED TILL

OBSERVATION WELL



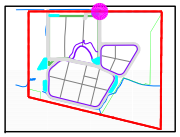
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
25-Sep-06	H060905	364	1680	936		30	**647**	240	82	36	4.2	<2	<0.1	<0.01	0.7	<0.05	-2.8
28-May-07	H070906	327	1640	869		28	**611**	200	90	35	3.6	<2	<0.1	<0.01	0.6	<0.05	-2.7
22-Sep-07	H070907	299	1600	1010		29	**615**	240	100	45	4.4	<2	<0.1	<0.01	0.8	<0.05	6.4
26-May-08	H080908	276	1610	919		25	**664**	220	90	39	3.9	<2	<0.1	<0.01	0.9	<0.05	0.3
22-Sep-08	H080909	327	1670	960		23	**674**	230	94	42	4.1	<2	<0.1	<0.01	0.8	<0.05	-0.2
25-May-09	H090910	304	1600	890		39	**602**	220	83	37	3.6	<2	<0.1	<0.01	0.8	<0.05	-0.5
28-Sep-09	H090911	306	1690	853		34	**721**	210	80	35	3.9	<2	<0.1	<0.01	0.6	<0.05	-8.3
27-May-10	H100912	299	1690	969		35	**711**	230	96	40	4.0	<2	<0.1	<0.01	0.5	<0.05	-1.3
19-Oct-10	H100913	326	1700	907		42	**624**	230	81	35	3.8	<2	<0.1	<0.01	0.5	<0.05	-2.3
25-May-11	H110914	309	2070	1283		29	**1010**	300	130	44	4.4	<2	<0.1	<0.01	0.8	<0.05	-0.6
27-Sep-11	H110915	341	1760	990		35	**700**	240	95	40	4.1	<2	<0.1	<0.01	1.6	<0.05	-1.7
07-May-12	H120916	320	1700	878		39	**650**	220	80	33	3.6	<2	<0.1	<0.01	0.46	<0.05	-4.8
18-Sep-12	H120917	370	1700	924		37	**620**	230	85	34	3.6	<2	<0.1	<0.01	0.85	<0.05	-3.1
15-May-13	H130918	330	1700	1060		40	**620**	270	94	37	3.9	<2	<0.1	<0.01	1.8	0.14	5.3
09-Sep-13	H130919	370	1700	866		37	**600**	220	77	30	3.4	<2	<0.1	<0.01	1.2	<0.05	-5.6
05-May-14	H140920	340	1700	982		30	**560**	250	87	34	3.5	<2	<0.1	<0.01	0.39	<0.05	4.7
09-Sep-14	H140921	410	1600	932		30	**530**	240	81	31	3.4	<2	<0.1	<0.01	0.4	<0.05	0.1
13-May-15	H150922	350	1600	840		27	**540**	210	77	31	3.2	<2	<0.1	<0.01	0.26	<0.05	-2.0
15-Sep-15	H150923	390	1600	850		22	**550**	210	77	32	3.6	<2	<0.1	<0.01	0.3	<0.05	-4.1
14-Sep-16	H160925	420	1600	900		21	480	220	84	34	3.8	3	<0.1	<0.01	0.34	<0.05	1.3
30-May-17	H170926	420	1300	821		15	280	210	72	30	3.3	<2	<0.1	<0.01	0.3	<0.05	9.7
13-Sep-17	H170927	440	1400	833		17	360	220	69	32	3.0	<2	0.2	<0.01	0.23	<0.05	3.8
08-May-18	H180928	360	1600	830		24	**530**	210	76	33	4.0	<2	<0.1	<0.01	0.14	<0.05	-1.7
11-Sep-18	H180929	400	1600	910		23	**530**	210	82	34	3.7	<2	<0.1	<0.01	0.15	<0.05	-2.3
08-May-19	H190930	340	1500	850		27	470	220	75	30	3.3	<2	<0.1	<0.01	0.16	<0.05	3.3
24-Sep-19	H190931	360	1500	1000		24	**510**	270	87	33	4.0	<2	0.1	<0.01	0.24	0.11	9.7
07-May-20	MPB492	370	1400	800	7.8	27	450	210	69	28	3.0	<2	<0.1	<0.01	<0.1	<0.05	-0.2
23-Sep-20	NSM050	370	1600	870	7.7	28	**570**	220	80	33	3.7	2	0.1	<0.01	0.28	<0.05	-2.5
05-May-21	2021R2015	368	1220	665	7.9	43	210	190	46.2	20.8	2.4		<0.06	<0.03	<0.05	<0.04	4.8
16-Sep-21	CA1544305	360	1510	894	8.0	28	450	229	78.3	33.2			0.24	<0.03		0.04	
TOTAL SAMPLES		56	57	57	4	57	57	57	57	57	56	39	57	57	56	57	
AVERAGE 2021		364	1365	780	8.0	36	330	210	62.3	27.0			0.12	<0.03		<0.04	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 32-III

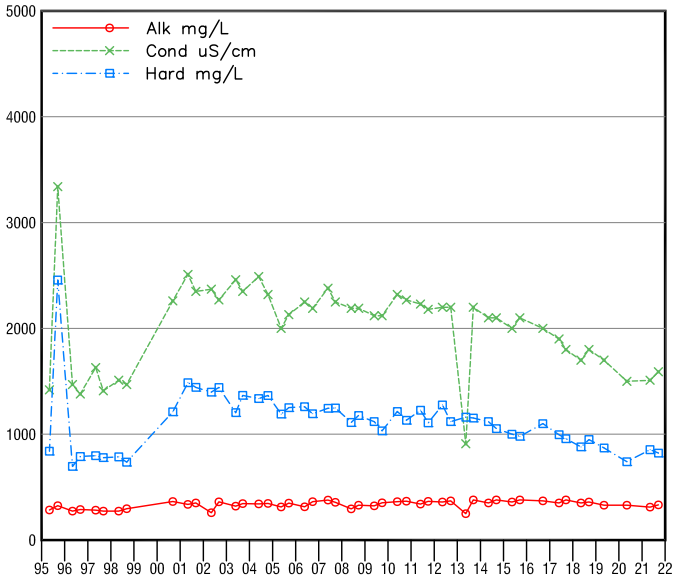
SHALLOW WEATHERED TILL

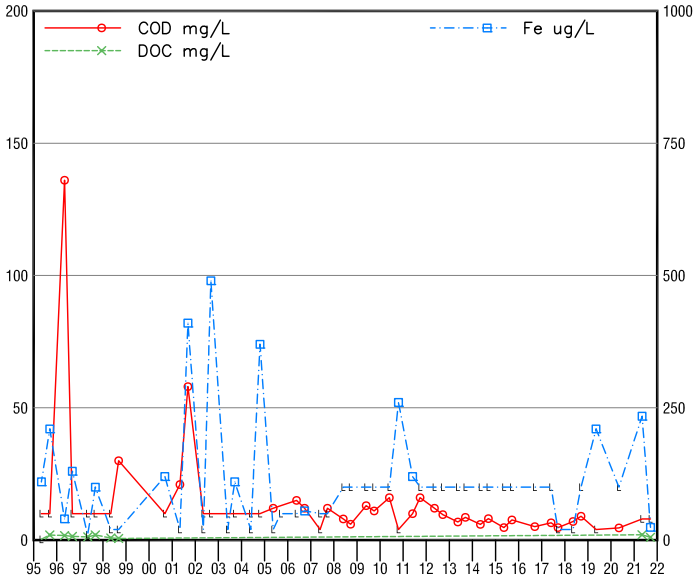
OBSERVATION WELL

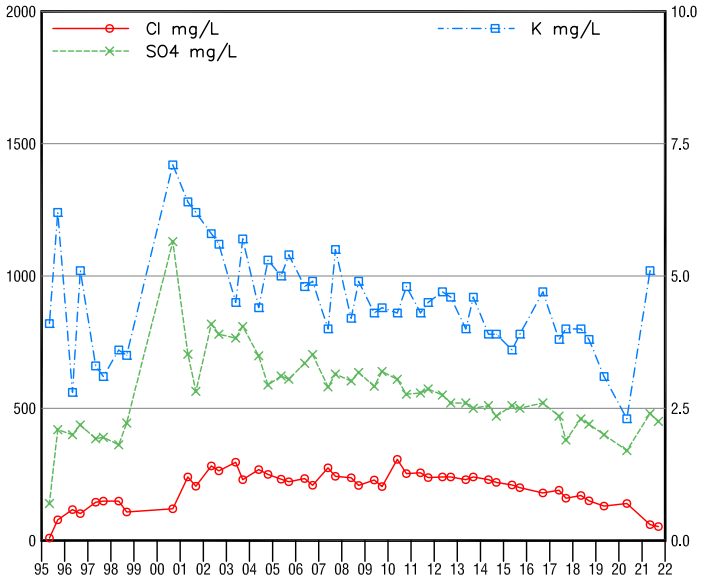


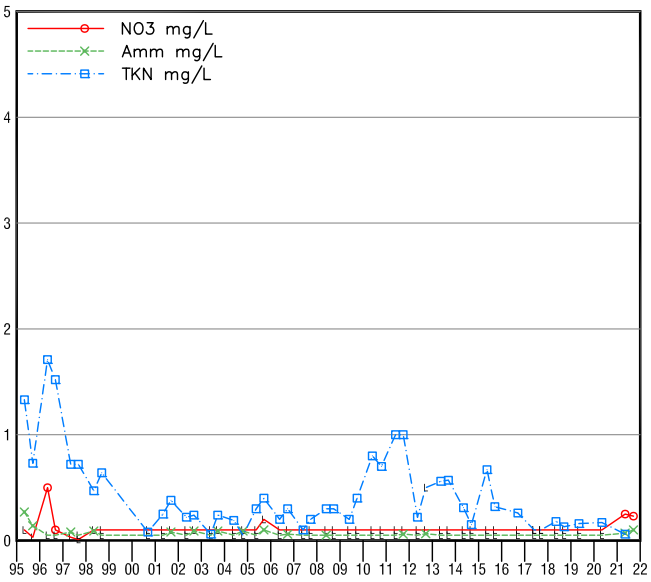
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
25-Sep-06	H060905	<2	14			<1			<50			<1			
28-May-07	H070906	<2	9			<1			<50			<1			
22-Sep-07	H070907	<2	10			<1			<50			<1			
26-May-08	H080908	<2	9			<1			<100			<1			
22-Sep-08	H080909	<2	8			<1			<100			<1			
25-May-09	H090910	<2	15			<1			<100			<1			
28-Sep-09	H090911	<2	<4			<1			<100			<1			
27-May-10	H100912	<2	10			<5			<100			<1			
19-Oct-10	H100913	<2	<4			<1			<100			<1			
25-May-11	H110914	<2	11			<5			<100			<1			
27-Sep-11	H110915	<2	14			<2			<100			<1			
07-May-12	H120916	<2	9.1			<5			<100			<1			
18-Sep-12	H120917	<2	27			<5			<100			<1			
15-May-13	H130918	<2	22			<2			<100			<1			
09-Sep-13	H130919	<2	15			<1			<100			<1			
05-May-14	H140920	<2	9.8			<2			<100			<1			
09-Sep-14	H140921	<2	8.6			<2			<100			<1			
13-May-15	H150922	<2	4.3			<2			<100			<1			
15-Sep-15	H150923	<2	14			<1			<100			<1			
14-Sep-16	H160925	3	19			<1			<100			<1			
30-May-17	H170926	<2	14			<1			<100			<1			
13-Sep-17	H170927	<2	5.1			<1			<20			<1			
08-May-18	H180928	<2	5.3			<1			<20			<1			
11-Sep-18	H180929	<2	6.1			<5			<100			<1			
08-May-19	H190930	<2	<4			<1			<100			<1			
24-Sep-19	H190931	<2	<4			<5			**7700**			<1			
07-May-20	MPB492	<2	<4			<1			<100			<1			
23-Sep-20	NSM050	2	<4			<5			170			<1			
05-May-21	2021R2015		<8		<0.2		0.009	0.9	<7	<0.09	<0.01	<2		2	826
16-Sep-21	CA1544305		<8						35						1140
TOTAL SAMPLES		39	57	0	1	55	1	1	57	1	1	56	0	1	2
AVERAGE 2021			<8						18						983

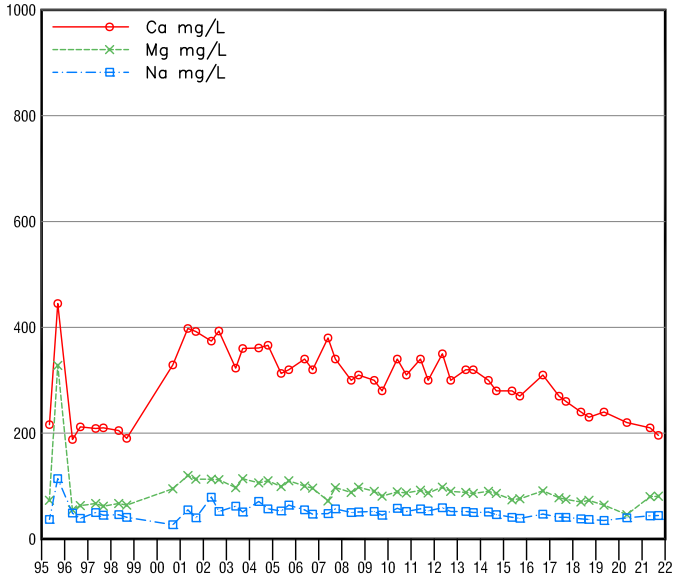
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









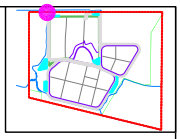


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 44-III

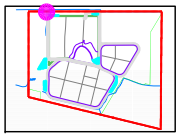
SHALLOW WEATHERED TILL

21500070 19 Apr 22	wsp GOLDER	21H1017

WELL 44-III

SHALLOW WEATHERED TILL

OBSERVATION WELL



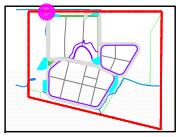
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
15-Sep-05	H050950	349	2130	1251		222	**610**	320	110	64	5.4	<2	<0.2	<0.3	0.4	0.1	3.7
22-May-06	H060951	314	2250	1260		234	**670**	340	100	55	4.8	<2	<0.1	<0.01	0.2	<0.05	1.6
26-Sep-06	H060952	363	2190	1194		209	**703**	320	96	47	4.9	<2	<0.1	<0.01	0.3	0.06	-3.2
28-May-07	H070953	378	2380	1245		**275**	**581**	380	72	48	4.0	<2	<0.1	<0.01	0.1	<0.05	-0.6
22-Sep-07	H070954	356	2250	1248		243	**629**	340	97	57	5.5	<2	<0.1	<0.01	0.2	<0.05	0.9
28-May-08	H080955	294	2190	1111		237	**603**	300	88	50	4.2	<2	<0.1	<0.01	0.3	0.05	-1.2
23-Sep-08	H080956	329	2190	1177		208	**635**	310	98	51	4.9	<2	<0.1	<0.01	0.3	<0.05	0.4
27-May-09	H090957	324	2120	1119		229	**583**	300	90	52	4.3	<2	<0.1	<0.01	0.2	<0.05	-0.6
29-Sep-09	H090958	352	2120	1032		204	**639**	280	81	45	4.4	<2	<0.1	<0.01	0.4	<0.05	-6.9
28-May-10	H100959	362	2320	1215		**307**	**609**	340	89	58	4.3	<2	<0.1	<0.01	0.8	<0.05	-3.0
19-Oct-10	H100960	367	2270	1132		**253**	**553**	310	87	52	4.8	<2	<0.1	<0.01	0.7	<0.05	-1.9
30-May-11	H110961	340	2230	1227		**256**	**558**	340	92	57	4.3	<2	<0.1	<0.01	1	<0.05	2.8
27-Sep-11	H110962	366	2180	1107		238	**573**	300	87	53	4.5	<2	<0.1	<0.01	1	0.06	-2.8
10-May-12	H120963	360	2200	1277		240	**550**	350	98	59	4.7	<2	<0.1	<0.01	0.22	<0.05	5.2
18-Sep-12	H120964	370	2200	1119		240	**520**	300	90	52	4.6	<2	<0.1	<0.01	<0.5	0.064	-0.5
15-May-13	H130965	250	910	1161		230	**520**	320	88	52	4.0	<2	<0.1	<0.01	0.56	<0.05	6.8
11-Sep-13	H130966	380	2200	1153		240	500	320	86	50	4.6	<2	<0.1	<0.01	0.57	<0.05	1.1
08-May-14	H140967	350	2100	1119		230	**510**	300	90	51	3.9	<2	<0.1	0.018	0.31	<0.05	1.2
10-Sep-14	H140968	380	2100	1053		220	470	280	86	46	3.9	<2	<0.1	<0.01	0.15	<0.05	-0.9
15-May-15	H150969	360	2000	1000		210	**510**	280	74	41	3.6	<2	<0.1	<0.01	0.67	<0.05	-3.9
17-Sep-15	H150970	380	2100	980		200	500	270	76	39	3.9	<2	<0.1	<0.01	0.32	<0.05	-4.7
14-Sep-16	H160972	370	2000	1100		180	**520**	310	91	47	4.7	<2	<0.1	<0.01	0.26	<0.05	3.8
29-May-17	H170973	350	1900	995		190	470	270	78	41	3.8	<2	<0.1	<0.01	<0.1	<0.05	-0.8
14-Sep-17	H170974	380	1800	958		160	380	260	75	41	4.0	<2	<0.1	<0.01	<0.1	<0.05	2.5
10-May-18	H180975	350	1700	880		170	460	240	70	38	4.0	<2	<0.1	<0.01	0.18	<0.05	-4.6
14-Sep-18	H180976	360	1800	950		150	440	230	73	37	3.8	<2	<0.1	<0.01	0.13	<0.05	-3.5
10-May-19	H190977	330	1700	870		130	400	240	64	35	3.1	<2	<0.1	<0.01	0.16	<0.05	0.7
05-May-20	MPB481	330	1500	740	7.7	140	340	220	46	40	2.3	<2	<0.1	<0.01	0.17	<0.05	-3.1
07-May-21	2021R2024	312	1510	854	7.9	60	480	210	80	43.8	5.1		0.25	<0.03	0.06	0.07	3.2
17-Sep-21	CA1544313	332	1590	822	7.9	53	450	196	80.8	44.4			0.23	<0.03		0.1	
TOTAL SAMPLES		48	48	48	3	48	48	48	48	48	47	38	48	48	47	48	
AVERAGE 2021		322	1550	838	7.9	57	465	203	80.4	44.1			0.24	<0.03		0.1	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 44-II

UNWEATHERED TILL

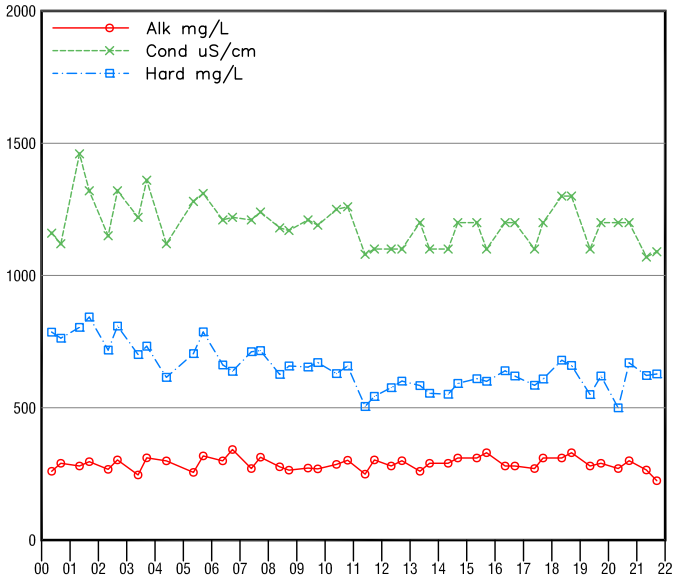
OBSERVATION WELL

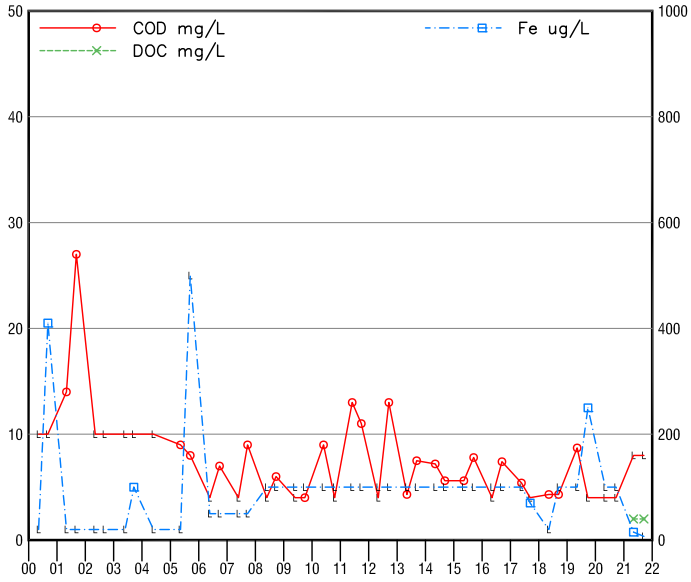


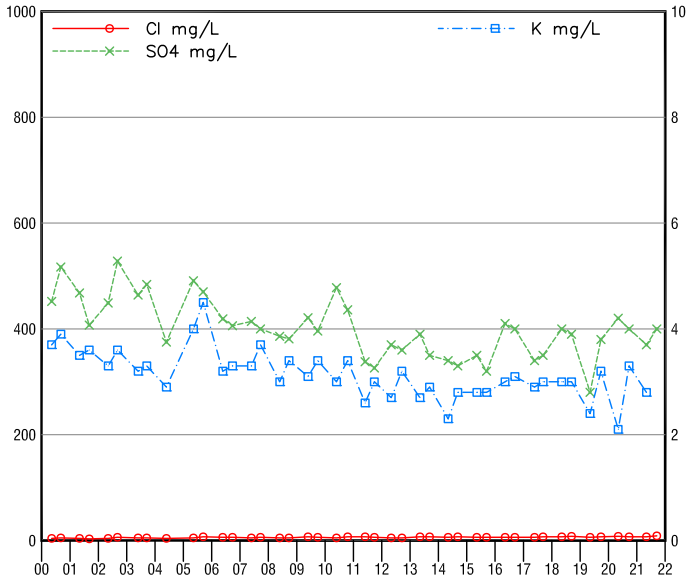
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
04-May-95	H952114		<10			<0.01			50			<1			
03-May-96	H962115		<10			<0.1			40			<1			
05-May-97	H972116		<10			1.8			<10			<1			
05-May-98	H982117		<10			0.3			<20			<1			
07-Sep-98	H982118		<10			0.34			<20			<1			
03-May-01	H012119		<10			0.22			<20			<1			
08-May-02	H022120	<2	<10			<0.5			230			<2			
29-May-03	H032121	<2	<10			<0.5			<20			<2			
27-May-04	H042122	<2	<10			<0.5			<20			<2			
16-May-05	H052123	<2	12			<0.35			<20			1			
22-May-06	H062124	<2	16			<1			<50			<1			
28-May-07	H072125	<2	<4			<1			<50			<1			
28-May-08	H082126	<2	11			<1			<100			<1			
27-May-09	H092127	<2	13			<1			<100			<1			
28-May-10	H102128	<2	11			<1			<100			<1			
30-May-11	H112129	<2	15			<1			200			<1			
10-May-12	H122130	<2	13			<1			**580**			<1			
16-May-13	H132131	<2	30			<1			<100			<1			
09-May-14	H142132	2	27			<1			<100			<1			
15-May-15	H152133	<2	10			<1			<100			<1			
31-May-17	H172135	<2	<4			<1			<100			<1			
11-May-18	H182136	<2	4.8			<1			40			<1			
10-May-19	H192137	<2	<4			<1			<100			<1			
05-May-20	MPB480	<2	<4			<1			<100						
07-May-21	2021R2023		<8		0.4		0.01	1.1	16	<0.09	<0.01	<2		<2	677
17-Sep-21	CA1544314		<8						55						711

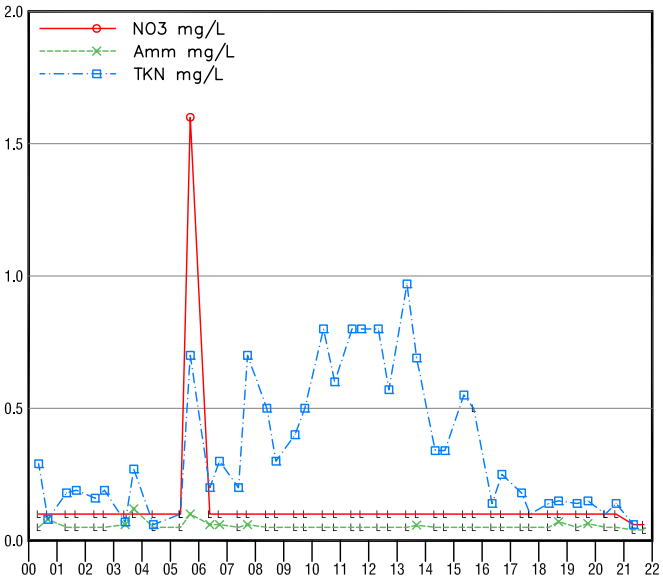
TOTAL SAMPLES	18	26	0	1	24	1	1	26	1	1	24	0	1	2
AVERAGE 2021		<8						36						694

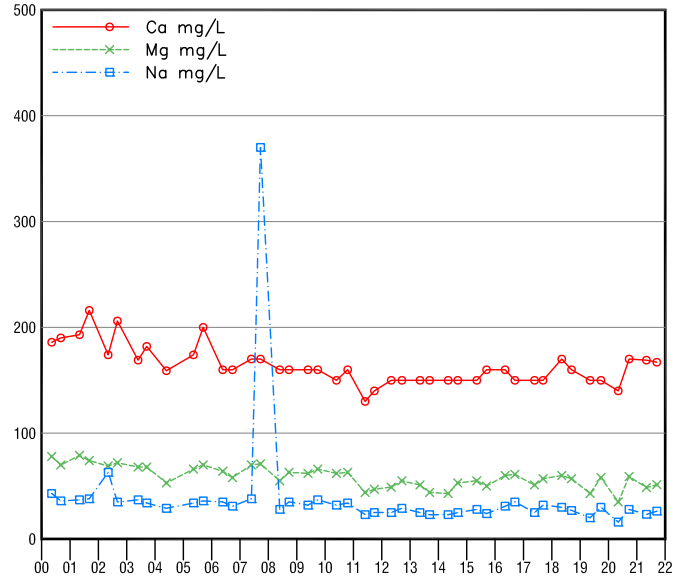
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**











L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 46-III

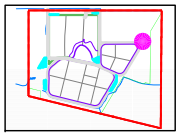
SHALLOW WEATHERED TILL

21500070 19 Apr 22	GOLDER	21H1018

WELL 46-III

SHALLOW WEATHERED TILL

OBSERVATION WELL



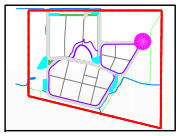
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
28-May-07	H070991	270	1210	712		5	414	170	70	38	3.3	<2	<0.1	<0.01	0.2	<0.05	6.1
22-Sep-07	H070992	313	1240	716		6	400	170	71	**370**	3.7	<2	<0.1	<0.01	0.7	0.06	34.8
27-May-08	H080993	277	1180	626		5	386	160	55	28	3.0	<2	<0.1	<0.01	0.5	<0.05	0.3
23-Sep-08	H080994	264	1170	658		5	381	160	63	35	3.4	<2	<0.1	<0.01	0.3	<0.05	5.1
26-May-09	H090995	272	1210	654		7	421	160	62	32	3.1	<2	<0.1	<0.01	0.4	<0.05	0.6
29-Sep-09	H090996	269	1190	671		6	396	160	66	37	3.4	<2	<0.1	<0.01	0.5	<0.05	4.6
28-May-10	H100997	286	1250	629		5	478	150	62	32	3.0	<2	<0.1	<0.01	0.8	<0.05	-5.9
19-Oct-10	H100998	302	1260	658		7	436	160	63	34	3.4	<2	<0.1	0.01	0.6	<0.05	-1.9
01-Jun-11	H110999	249	1080	505		7	338	130	44	23	2.6	<2	<0.1	<0.01	0.8	<0.05	-4.4
28-Sep-11	H111000	303	1100	543		6	326	140	47	25	3.0	<2	<0.1	<0.01	0.8	<0.05	-4.0
03-May-12	H121001	280	1100	576		5	370	150	49	25	2.7	<2	<0.1	<0.01	0.8	<0.05	-2.9
17-Sep-12	H121002	300	1100	601		5	360	150	55	29	3.2	<2	<0.1	<0.01	0.57	<0.05	-1.0
08-May-13	H131003	260	1200	584		7	390	150	51	25	2.7	<2	<0.1	<0.01	0.97	<0.05	-2.6
09-Sep-13	H131004	290	1100	555		7	350	150	44	23	2.9	<2	<0.1	<0.01	0.69	0.058	-4.3
06-May-14	H141005	290	1100	551		6	340	150	43	23	2.3	<2	<0.1	<0.01	0.34	<0.05	-3.8
08-Sep-14	H141006	310	1200	592		7	330	150	53	25	2.8	<2	<0.1	<0.01	0.34	<0.05	-1.0
11-May-15	H151007	310	1200	610		6	350	150	55	28	2.8	<2	<0.1	<0.01	0.55	<0.05	-1.3
14-Sep-15	H151008	330	1100	600		6	320	160	50	24	2.8	<2	<0.1	<0.01	<0.5	<0.05	-0.8
09-May-16	H161009	280	1200	640		6	410	160	60	31	3.0	<2	<0.1	<0.01	0.14	<0.05	0.2
12-Sep-16	H161010	280	1200	620		6	400	150	61	35	3.1	3	<0.1	<0.01	0.25	<0.05	0.1
23-May-17	H171011	270	1100	585		6	340	150	51	25	2.9	<2	<0.1	<0.01	0.18	<0.05	0.8
11-Sep-17	H171012	310	1200	609		7	350	150	57	32	3.0	<2	<0.1	<0.01	<0.1	<0.05	-0.1
09-May-18	H181013	310	1300	680		7	400	170	60	30	3.0	<2	<0.1	<0.01	0.14	<0.05	0.3
12-Sep-18	H181014	330	1300	660		8	390	160	57	27	3.0	<2	<0.1	<0.01	0.15	0.071	-3.5
09-May-19	H191015	280	1100	550		6	280	150	43	20	2.4	<2	<0.1	<0.01	0.14	<0.05	1.5
26-Sep-19	H191016	290	1200	620		7	380	150	58	30	3.2		<0.1	<0.01	0.15	0.064	-0.9
06-May-20	MPB465	270	1200	500	7.9	8	420	140	35	16	2.1		<0.1	<0.01	<0.1	<0.05	-15.0
23-Sep-20	NSM114	300	1200	670	7.8	7	400	170	59	28	3.3		<0.1	<0.01	0.14	<0.05	0.4
05-May-21	2021R2034	265	1070	622	8.1	7	370	169	48.6	23.3	2.8		<0.06	<0.03	0.06	<0.04	1.2
15-Sep-21	CA1539710	224	1090	628	8.1	9	400	167	51.3	26.3			<0.06			<0.04	
TOTAL SAMPLES		43	43	43	4	43	43	43	43	43	42	38	43	42	42	43	
AVERAGE 2021		245	1080	625	8.1	8	385	168	50.0	24.8			<0.06			<0.04	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 46-III

SHALLOW WEATHERED TILL

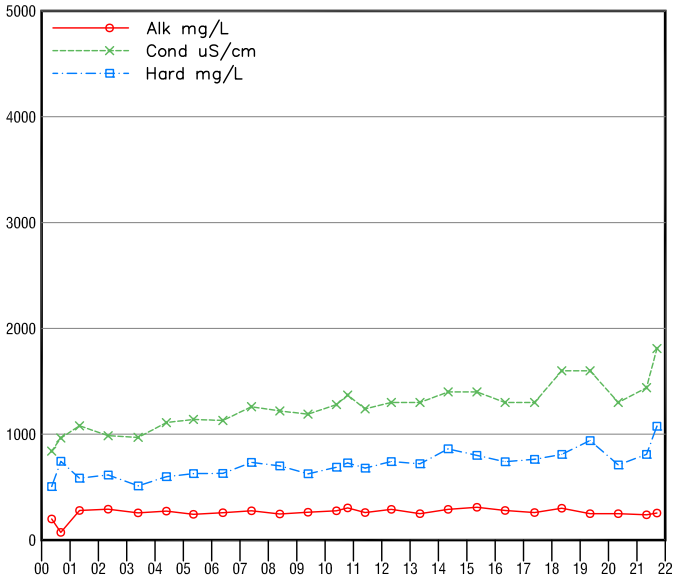
OBSERVATION WELL

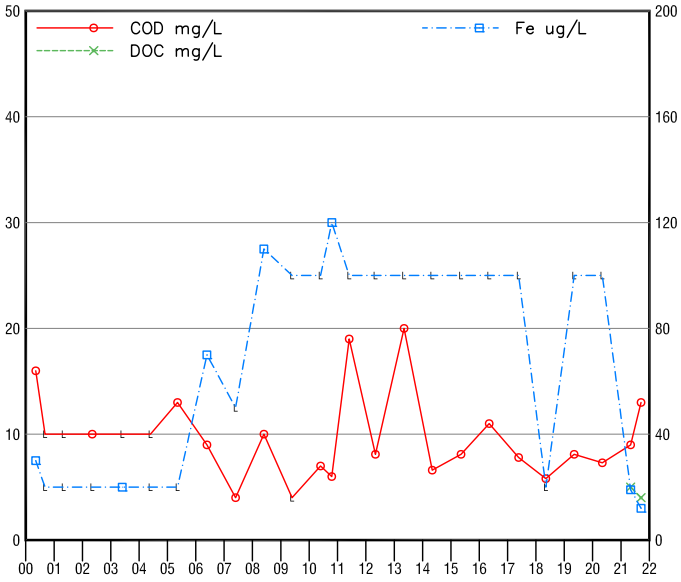


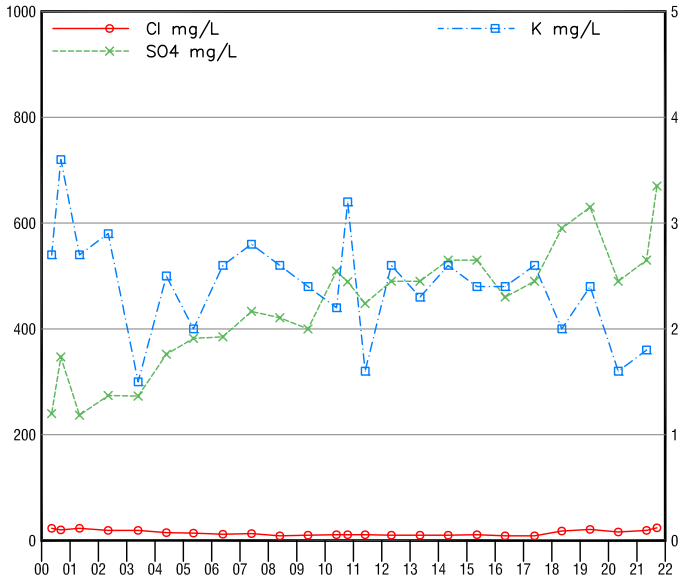
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
28-May-07	H070991	<2	<4			<1			<50			<1			
22-Sep-07	H070992	<2	9			<1			<50			<1			
27-May-08	H080993	<2	<4			<1			<100			<1			
23-Sep-08	H080994	<2	6			<1			<100			<1			
26-May-09	H090995	<2	<4			<1			<100			<1			
29-Sep-09	H090996	<2	4			<1			<100			<1			
28-May-10	H100997	<2	9			<1			<100			<1			
19-Oct-10	H100998	<2	<4			<1			<100			<1			
01-Jun-11	H110999	<2	13			<1			<100			<1			
28-Sep-11	H111000	<2	11			<1			<100			<1			
03-May-12	H121001	<2	<4			<1			<100			<1			
17-Sep-12	H121002	<2	13			<1			<100			<1			
08-May-13	H131003	<2	4.3			<1			<100			<1			
09-Sep-13	H131004	<2	7.5			<1			<100			<1			
06-May-14	H141005	<2	7.2			<1			<100			<1			
08-Sep-14	H141006	<2	5.6			<1			<100			<1			
11-May-15	H151007	<2	5.6			<1			<100			<1			
14-Sep-15	H151008	<2	7.8			<1			<100			<1			
09-May-16	H161009	<2	<4			<1			<100			<1			
12-Sep-16	H161010	3	7.4			<1			<100			<1			
23-May-17	H171011	<2	5.4			<1			<100			<1			
11-Sep-17	H171012	<2	<4			<1			70			<1			
09-May-18	H181013	<2	4.3			<1			<20			<1			
12-Sep-18	H181014	<2	4.3			<1			<100			<1			
09-May-19	H191015	<2	8.7			<5			<100			<1			
26-Sep-19	H191016		<4			<1			250			<1			
06-May-20	MPB465		<4			<1			<100			1.1			
23-Sep-20	NSM114		<4			<1			<100			<1			
05-May-21	2021R2034		<8		<0.2		0.022	0.8	15	<0.09	<0.01	<2		3	771
15-Sep-21	CA1539710		<8						<7						860

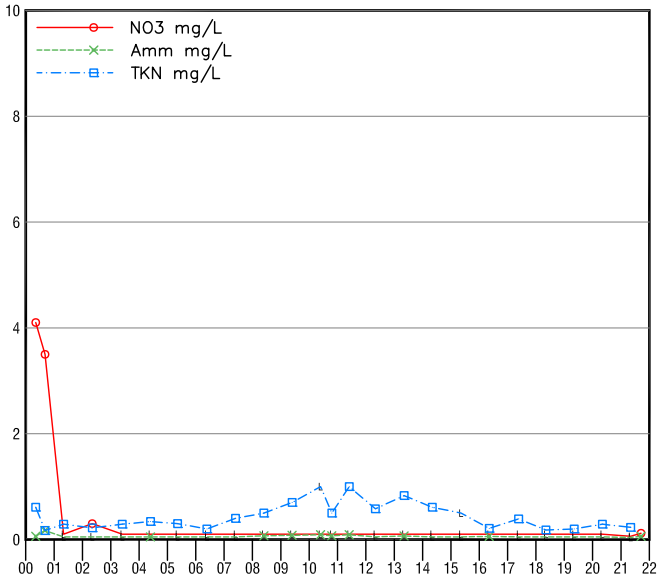
TOTAL SAMPLES	38	43	0	1	41	1	1	43	1	1	42	0	1	2
AVERAGE 2021		<8						8						816

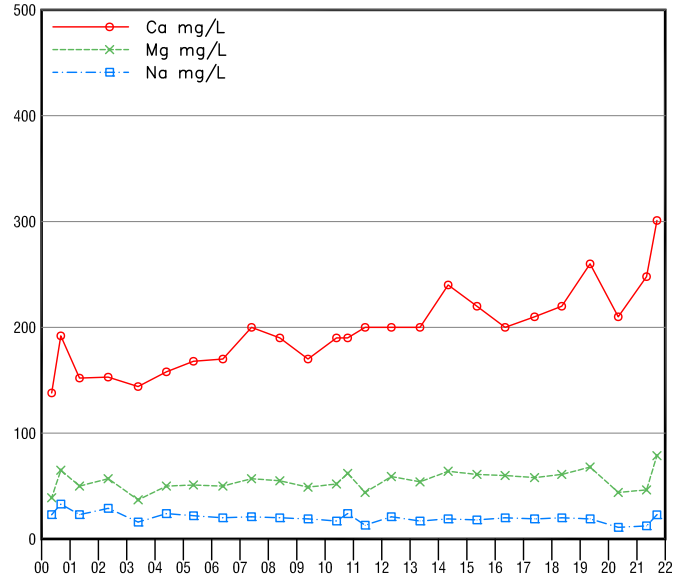
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**



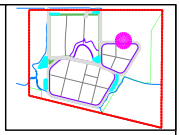








L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 47-II

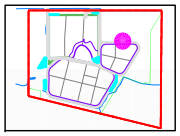
SHALLOW WEATHERED TILL

21500070 19 Apr 22	GOLDER	21H1019

WELL 47-II

SHALLOW WEATHERED TILL

OBSERVATION WELL



DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
09-May-00	H002159	200	840	506		23	240	138	39	23	2.7	<2	4.1	0.08	0.61	0.06	5.9
05-Sep-00	H002160	73	964	744		20	347	192	65	33	3.6	<2	3.5	<0.02	0.17	0.17	26.9
03-May-01	H012161	280	1080	585		23	237	152	50	23	2.7	<2	<0.1	<0.02	0.29	<0.05	6.6
08-May-02	H022162	291	986	615		19	274	153	57	29	2.9	<2	0.3	<0.02	0.22	<0.05	6.2
29-May-03	H032163	257	970	512		19	273	144	37	16	1.5	<2	<0.1	<0.02	0.29	<0.05	-1.7
27-May-04	H042164	274	1110	599		15	352	158	50	24	2.5	<2	<0.1	<0.02	0.34	0.05	-0.4
11-May-05	H052165	243	1140	628		14	382	168	51	22	2.0	<2	<0.1	<0.1	0.3	<0.05	1.4
24-May-06	H062166	259	1130	630		12	385	170	50	20	2.6	<2	<0.1	<0.01	0.2	<0.05	0.1
28-May-07	H072167	277	1260	734		13	433	200	57	21	2.8	<2	<0.1	<0.01	0.4	<0.05	2.4
27-May-08	H082168	247	1220	701		9	421	190	55	20	2.6	<2	<0.1	<0.01	0.5	0.07	3.5
26-May-09	H092169	263	1190	626		10	400	170	49	19	2.4	<2	<0.1	<0.01	0.7	0.08	-1.7
28-May-10	H102170	277	1280	688		11	**509**	190	52	17	2.2	<2	<0.1	<0.01	<1	0.09	-6.1
19-Oct-10	H102171	303	1370	729		11	489	190	62	24	3.2	<2	<0.1	0.05	0.5	0.07	-2.6
01-Jun-11	H112172	260	1240	680		11	448	200	44	13	1.6	<2	<0.1	<0.01	1	0.09	-2.1
03-May-12	H122173	290	1300	742		10	490	200	59	21	2.6	<2	<0.1	<0.01	0.58	<0.05	-1.4
08-May-13	H132174	250	1300	721		10	490	200	54	17	2.3	<2	<0.1	<0.01	0.83	0.067	-0.8
06-May-14	H142175	290	1400	862		10	**530**	240	64	19	2.6	<2	<0.1	<0.01	0.61	<0.05	2.9
11-May-15	H152176	310	1400	800		11	**530**	220	61	18	2.4	<2	<0.1	<0.01	<0.5	<0.05	-2.0
09-May-16	H162177	280	1300	740		9	460	200	60	20	2.4	<2	<0.1	0.019	0.21	0.058	1.4
23-May-17	H172178	260	1300	763		9	490	210	58	19	2.6	<2	<0.1	<0.01	0.39	<0.05	1.6
09-May-18	H182179	300	1600	810		18	**590**	220	61	20	2.0	<2	<0.1	<0.01	0.18	<0.05	-5.2
09-May-19	H192180	250	1600	940		21	**630**	260	68	19	2.4	<2	<0.1	<0.01	0.20	<0.05	2.0
06-May-20	MPB461	250	1300	710	7.7	16	490	210	44	11	1.6		<0.1	<0.01	0.29	<0.05	-3.4
05-May-21	2021R2037	238	1440	810	8.1	19	**530**	248	46.4	12.4	1.8		<0.06	<0.03	0.23	<0.04	1.4
16-Sep-21	CA1546105	255	1810	1076	7.9	24	**670**	301	78.8	22.9			0.12	<0.03		0.06	

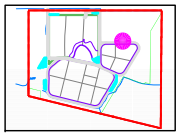
TOTAL SAMPLES		25	25	25	3	25	25	25	25	25	24	22	25	25	24	25	
AVERAGE	2021	247	1625	943	8.0	22	600	275	62.6	17.7			0.06	<0.03		<0.04	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 47-II

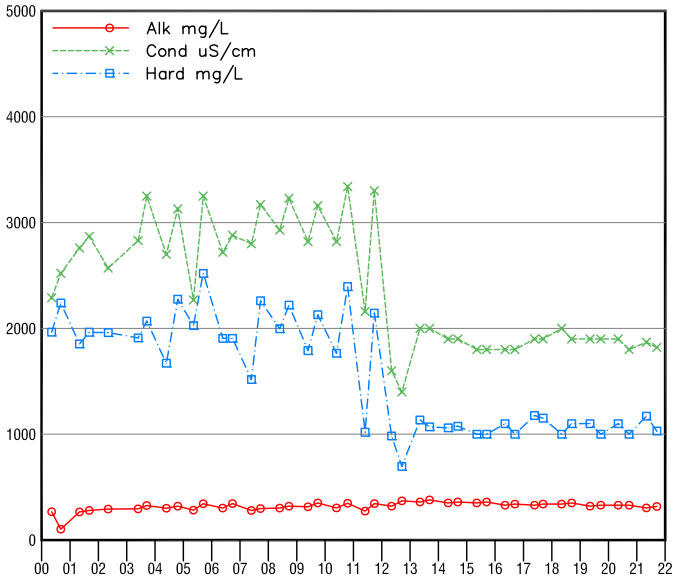
SHALLOW WEATHERED TILL

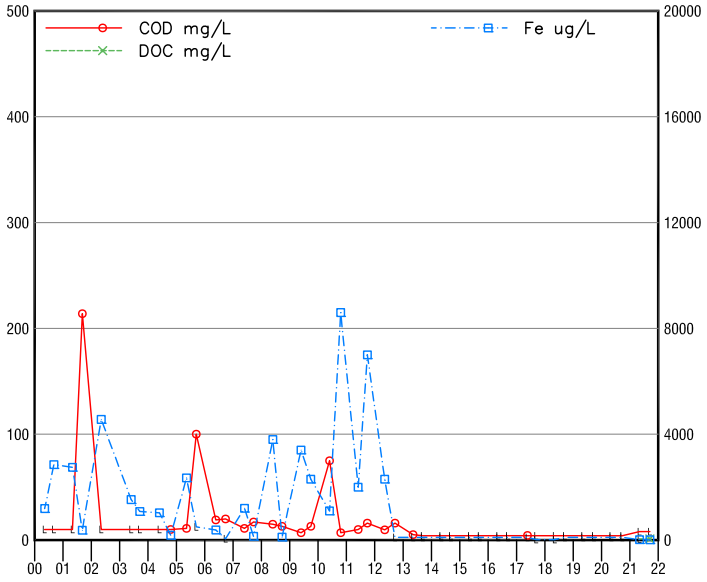
OBSERVATION WELL

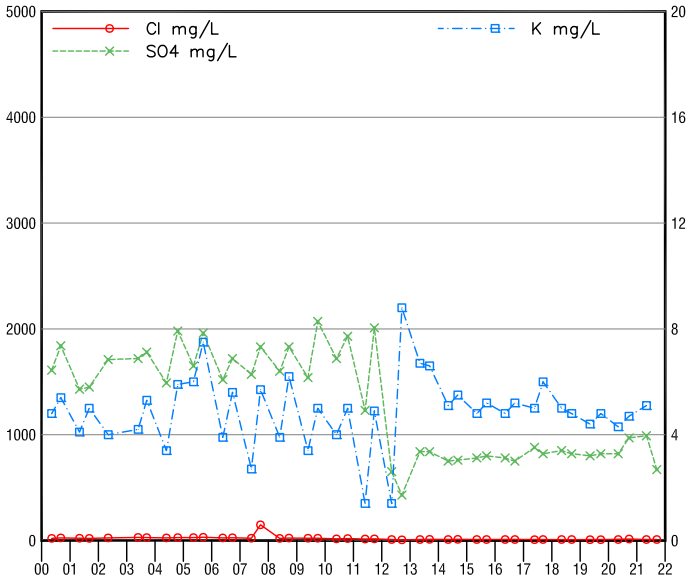


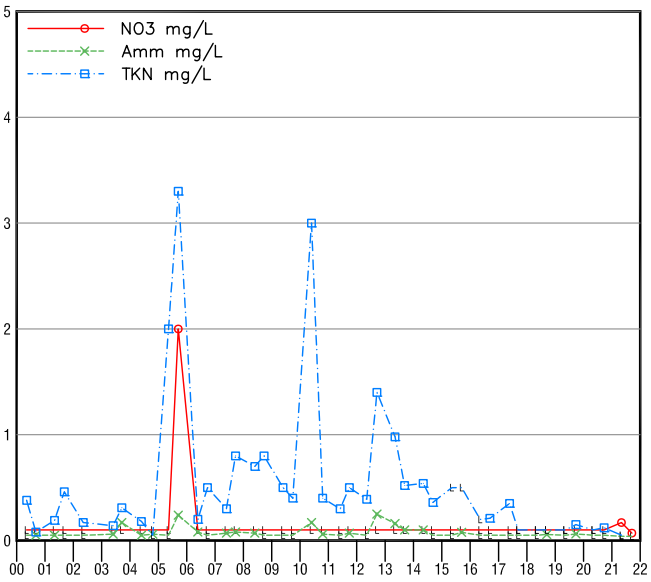
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
09-May-00	H002159	<2	16			0.03			30			<1			
05-Sep-00	H002160	<2	<10			0.05			<20			<1			
03-May-01	H012161	<2	<10			0.05			<20			<1			
08-May-02	H022162	<2	10			<0.5			<20			<2			
29-May-03	H032163	<2	<10			<0.5			20			<2			
27-May-04	H042164	<2	<10			<0.5			<20			<2			
11-May-05	H052165	<2	13			<0.35			<20			3			
24-May-06	H062166	<2	9			<1			70			<1			
28-May-07	H072167	<2	4			<1			<50			<1			
27-May-08	H082168	<2	10			<1			110			<1			
26-May-09	H092169	<2	<4			<1			<100			<1			
28-May-10	H102170	<2	7			<5			<100			<1			
19-Oct-10	H102171	<2	6			<1			120			<1			
01-Jun-11	H112172	<2	19			<1			<100			<1			
03-May-12	H122173	<2	8.1			<1			<100			<1			
08-May-13	H132174	<2	20			<1			<100			<1			
06-May-14	H142175	<2	6.6			<1			<100			<1			
11-May-15	H152176	<2	8.1			<5			<100			<1			
09-May-16	H162177	<2	11			<1			<100			<1			
23-May-17	H172178	<2	7.8			<1			<100			<1			
09-May-18	H182179	<2	5.8			<2			<20			<1			
09-May-19	H192180	<2	8.1			<5			<100			<1			
06-May-20	MPB461		7.3			<1			<100			<1			
05-May-21	2021R2037		9		0.3		0.063	2	19	<0.09	<0.01	<2		2	1030
16-Sep-21	CA1546105		13						12						1590
TOTAL SAMPLES		22	25	0	1	23	1	1	25	1	1	24	0	1	2
AVERAGE 2021			11						16						1310

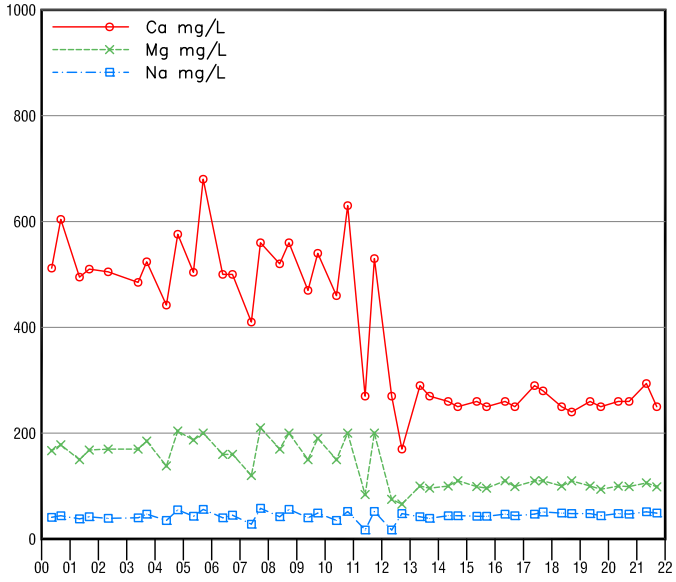
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**



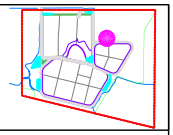








L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 48-I

FORMERLY WELL 48-IX
CONVERTED Oct 12

SHALLOW WEATHERED TILL

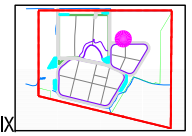
Screen 191.1 - 194.1 masl

21500070 19 Apr 22	GOLDER	21H1020

WELL 48-I

SHALLOW WEATHERED TILL

OBSERVATION WELL
Screen 191.1 - 194.1 masl



FORMERLY WELL 48-IX
CONVERTED Oct 12

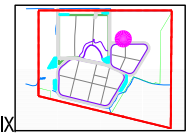
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
28-May-07	H071068	279	2800	1517		21	**1570**	410	120	28	2.7	<2	<0.1	<0.01	0.3	0.07	-10.2
22-Sep-07	H071069	297	3170	2261		148	**1830**	560	210	58	5.7	<2	<0.1	<0.01	0.8	0.08	-0.3
27-May-08	H081070	302	2930	1997		20	**1600**	520	170	42	3.9	<2	<0.1	<0.01	0.7	0.07	2.6
23-Sep-08	H081071	321	3230	2220		23	**1830**	560	200	56	6.2	<2	<0.1	<0.01	0.8	<0.05	2.0
26-May-09	H091072	315	2820	1790		22	**1540**	470	150	40	3.4	<2	<0.1	<0.01	0.5	<0.05	-1.6
29-Sep-09	H091073	350	3160	2129		21	**2070**	540	190	49	5.0	<2	<0.1	<0.01	0.4	<0.05	-6.0
28-May-10	H101074	304	2820	1765		16	**1720**	460	150	35	4.0	<2	<0.1	<0.01	3	0.17	-6.8
19-Oct-10	H101075	347	3340	2395		18	**1930**	630	200	52	5.0	<2	<0.1	<0.01	0.4	0.06	3.0
01-Jun-11	H111076	274	2160	1019		14	**1230**	270	84	17	1.4	<2	<0.1	<0.01	0.3	<0.05	-19.4
28-Sep-11	H111077	345	3300	2145		16	**2010**	530	200	52	4.9	<2	<0.1	<0.01	0.5	0.07	-3.8
08-May-12	H121078	320	1600	983		10	**650**	270	75	17	1.4	<2	<0.1	<0.01	0.39	<0.05	0.7
17-Sep-12	H121079	370	1400	696		7	430	170	66	48	8.8	<2	<0.1	0.01	1.4	0.25	-0.9
08-May-13	H131080	360	2000	1135		10	**840**	290	100	42	6.7	<2	<0.1	<0.01	0.98	0.16	-0.5
09-Sep-13	H131081	380	2000	1069		11	**840**	270	96	39	6.6	<2	<0.1	<0.01	0.52	0.1	-4.4
07-May-14	H141082	350	1900	1060		9	**750**	260	100	44	5.1	3	<0.1	0.017	0.54	0.1	0.9
08-Sep-14	H141083	360	1900	1076		11	**760**	250	110	44	5.5	<2	<0.1	<0.01	0.36	<0.05	0.5
11-May-15	H151084	350	1800	1000		10	**780**	260	99	43	4.8	<2	<0.1	<0.01	<0.5	<0.05	-0.9
14-Sep-15	H151085	360	1800	1000		9	**800**	250	96	43	5.2	<2	<0.1	<0.01	<0.5	0.077	-3.7
09-May-16	H161086	330	1800	1100		10	**780**	260	110	47	4.8	<2	<0.1	<0.01	<0.2	<0.05	2.3
12-Sep-16	H161087	340	1800	1000		9	**750**	250	99	44	5.2	3	<0.1	<0.01	0.21	<0.05	0.1
23-May-17	H171088	330	1900	1177		8	**880**	290	110	47	5.0	<2	<0.1	<0.01	0.35	<0.05	1.1
11-Sep-17	H171089	340	1900	1152		9	**820**	280	110	51	6.0	<2	<0.1	<0.01	<0.1	<0.05	2.6
08-May-18	H181090	340	2000	1000		10	**850**	250	100	49	5.0	<2	<0.1	<0.01	<0.1	<0.05	-3.8
14-Sep-18	H181091	350	1900	1100		10	**820**	240	110	48	4.8	<2	<0.1	<0.01	<0.1	0.057	-2.3
09-May-19	H191092	320	1900	1100		8	**800**	260	100	48	4.4	2	<0.1	<0.01	<0.1	<0.05	0.3
25-Sep-19	H191093	330	1900	1000		8	**820**	250	94	44	4.8		<0.1	<0.01	0.15	0.062	-3.6
06-May-20	MPB459	330	1900	1100	7.7	10	**820**	260	100	48	4.3		<0.1	<0.01	<0.1	<0.05	-1.2
23-Sep-20	NSM116	330	1800	1000	7.8	14	**970**	260	99	47	4.7		<0.1	<0.01	0.12	<0.05	-7.7
05-May-21	2021R2038	303	1870	1171	8.1	9	**990**	294	106	51.4	5.1		0.17	<0.03	<0.05	<0.04	-2.2
16-Sep-21	CA1546103	318	1820	1030	8.0	9	**670**	250	98.6	49			0.07	<0.03		<0.04	
TOTAL SAMPLES		43	43	43	4	43	43	43	43	43	42	38	43	43	42	43	
AVERAGE 2021		311	1845	1101	8.1	9	830	272	102	50.2			0.12	<0.03		<0.04	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 48-I

SHALLOW WEATHERED TILL

OBSERVATION WELL
Screen 191.1 - 194.1 masl

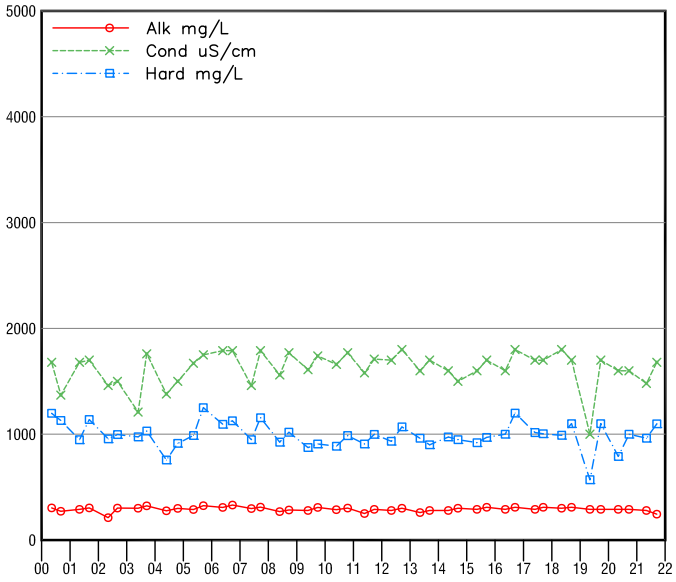


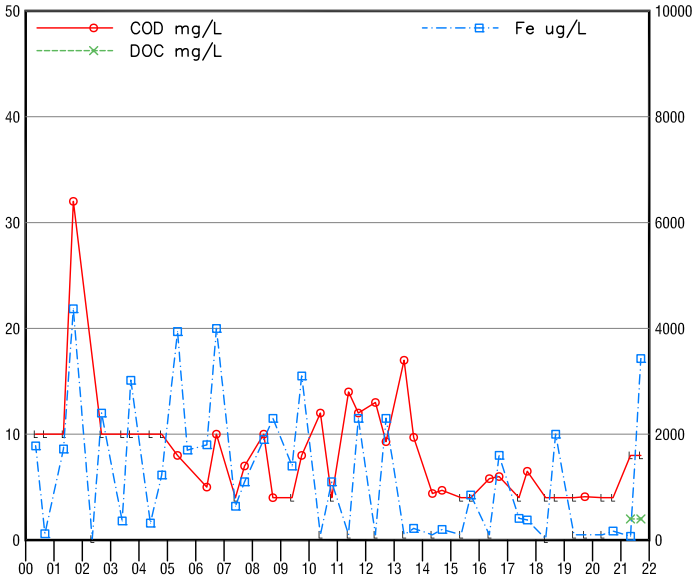
FORMERLY WELL 48-IX
CONVERTED Oct 12

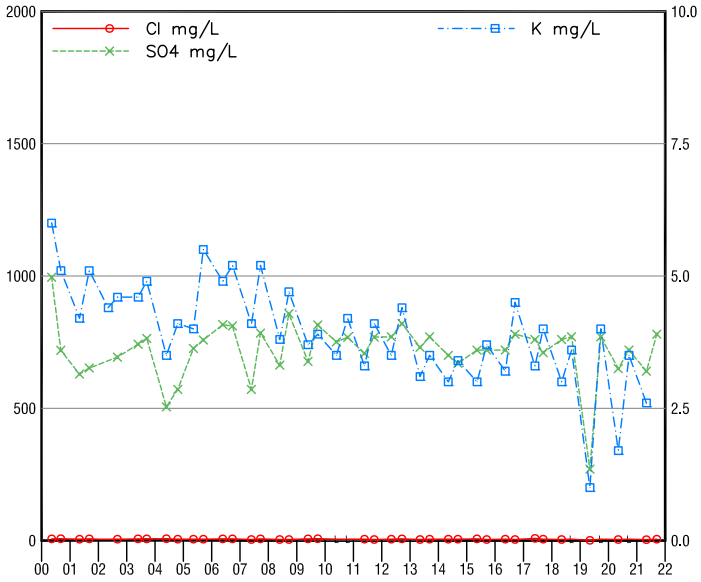
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
28-May-07	H071068	<2	11			<1			**1200**			<1			
22-Sep-07	H071069	<2	17			<1			140			<1			
27-May-08	H081070	<2	15			<1			**3800**			<1			
23-Sep-08	H081071	<2	13			<1			110			<1			
26-May-09	H091072	<2	7			<1			**3400**			<1			
29-Sep-09	H091073	<2	13			<1			**2300**			<1			
28-May-10	H101074	<2	75			<5			**1100**			4			
19-Oct-10	H101075	<2	7			<10			**8600**			<1			
01-Jun-11	H111076	<2	10			<5			**2000**			<1			
28-Sep-11	H111077	<2	16			<10			**7000**			<1			
08-May-12	H121078	<2	9.6			<5			**2300**			<1			
17-Sep-12	H121079	<2	16			<1			<100			<1			
08-May-13	H131080	<2	5.1			<2			<100			<1			
09-Sep-13	H131081	<2	<4			<2			<100			<1			
07-May-14	H141082	3	<4			<2			<100			<1			
08-Sep-14	H141083	<2	<4			<5			<100			<1			
11-May-15	H151084	<2	<4			<5			<100			<1			
14-Sep-15	H151085	<2	<4			<5			<100			<1			
09-May-16	H161086	<2	<4			<2			<100			<1			
12-Sep-16	H161087	3	<4			<2			<100			<1			
23-May-17	H171088	<2	4.3			<5			<100			<1			
11-Sep-17	H171089	<2	<4			<5			<20			<1			
08-May-18	H181090	<2	<4			<5			<20			<1			
14-Sep-18	H181091	<2	<4			<5			<100			<1			
09-May-19	H191092	2	<4			<5			<100			<1			
25-Sep-19	H191093		<4			<5			<100			<1			
06-May-20	MPB459		<4			<1			<100			2.9			
23-Sep-20	NSM116		<4			<5			<100			<1			
05-May-21	2021R2038		<8		<0.2		0.028	0.4	12	<0.09	<0.01	<2		5	1470
16-Sep-21	CA1546103		<8						7						1580

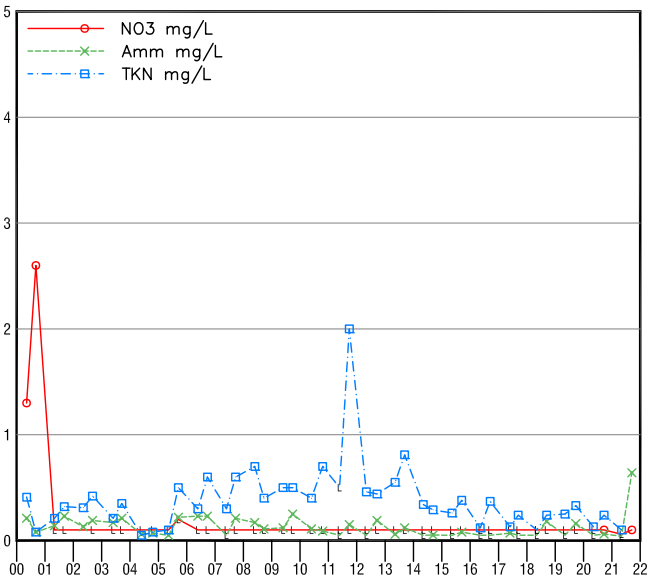
TOTAL SAMPLES	38	43	0	1	41	1	1	43	1	1	42	0	1	2	
AVERAGE 2021		<8						10						1525	

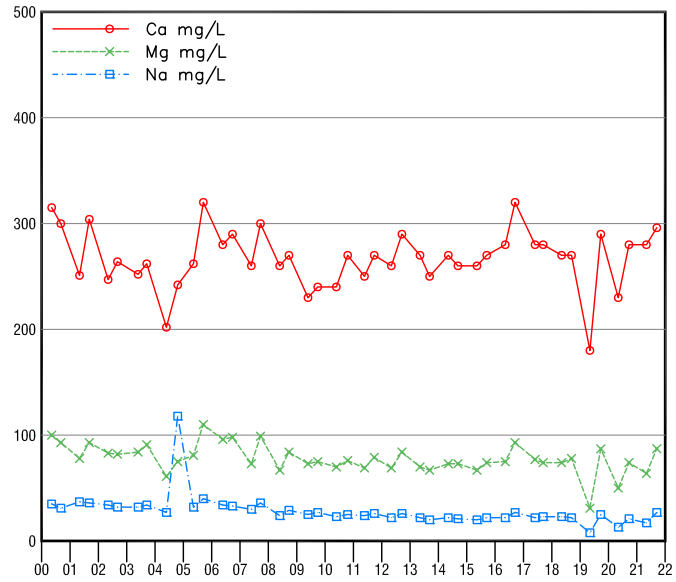
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









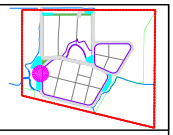


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 49-A

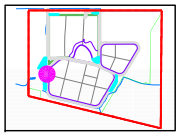
SHALLOW WEATHERED TILL

21500070 19 Apr 22	GOLDER	21H1021

WELL 49-A

SHALLOW WEATHERED TILL

OBSERVATION WELL



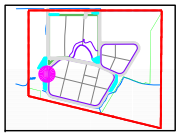
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
28-May-07	H071108	297	1460	949		4	**571**	260	73	30	4.1	<2	<0.1	<0.01	0.3	<0.05	6.5
22-Sep-07	H071109	311	1790	1156		6	**784**	300	99	36	5.2	<2	<0.1	<0.01	0.6	0.21	4.5
27-May-08	H081110	269	1560	925		4	**663**	260	67	24	3.8	<2	<0.1	<0.01	0.7	0.17	1.1
22-Sep-08	H081111	284	1770	1019		4	**857**	270	84	29	4.7	<2	<0.1	<0.01	0.4	0.11	-3.9
26-May-09	H091112	279	1610	874		6	**677**	230	73	25	3.7	<2	<0.1	<0.01	0.5	0.12	-2.9
28-Sep-09	H091113	309	1740	908		7	**815**	240	75	27	3.9	<2	<0.1	<0.01	0.5	0.25	-8.8
27-May-10	H101114	287	1660	887		<5	**751**	240	70	23	3.5	<2	<0.1	0.03	0.4	0.11	-6.3
19-Oct-10	H101115	302	1770	987		<5	**768**	270	76	25	4.2	<2	<0.1	<0.01	0.7	0.09	-2.5
24-May-11	H111116	251	1580	908		5	**707**	250	69	24	3.3	<2	<0.1	<0.01	<0.5	<0.05	-1.5
27-Sep-11	H111117	290	1710	999		4	**769**	270	79	26	4.1	<2	<0.1	0.01	2	0.15	-1.4
04-May-12	H121118	280	1700	933		5	**770**	260	69	22	3.5	<2	<0.1	0.01	0.46	<0.05	-5.0
18-Sep-12	H121119	300	1800	1069		6	**820**	290	84	26	4.4	<2	<0.1	0.012	0.44	0.19	-1.1
09-May-13	H131120	260	1600	962		4	**730**	270	70	22	3.1	<2	<0.1	<0.01	0.55	0.059	-0.6
09-Sep-13	H131121	280	1700	900		5	**770**	250	67	20	3.5	<2	<0.1	<0.01	0.81	0.12	-6.9
08-May-14	H141122	280	1600	974		5	**700**	270	73	22	3.0	<2	<0.1	<0.01	0.34	<0.05	0.5
10-Sep-14	H141123	300	1500	949		5	**670**	260	73	21	3.4	<2	<0.1	<0.01	0.29	0.052	-0.2
13-May-15	H151124	290	1600	920		6	**720**	260	67	20	3.0	<2	<0.1	<0.01	0.26	<0.05	-3.8
15-Sep-15	H151125	310	1700	970		4	**720**	270	74	22	3.7	<2	<0.1	<0.01	0.38	0.079	-1.5
11-May-16	H161126	290	1600	1000		5	**720**	280	75	22	3.2	<2	<0.1	<0.01	0.12	<0.05	0.6
15-Sep-16	H161127	310	1800	1200		4	**780**	320	93	27	4.5	<2	<0.1	<0.01	0.37	<0.05	5.1
29-May-17	H171128	290	1700	1016		8	**760**	280	77	22	3.3	<2	<0.1	<0.01	0.13	0.07	-1.1
12-Sep-17	H171129	310	1700	1004		5	**710**	280	74	23	4.0	<2	<0.1	<0.01	0.24	<0.05	0.1
08-May-18	H181130	300	1800	990		4	**760**	270	74	23	3.0	<2	<0.1	<0.01	<0.1	<0.05	-3.0
13-Sep-18	H181131	310	1700	1100		<5	**770**	270	78	22	3.6	<2	<0.1	<0.01	0.24	0.18	-2.8
07-May-19	H191132	290	1000	570		1	270	180	31	7.8	1.0	<2	<0.1	<0.01	0.25	<0.05	1.9
24-Sep-19	H191133	290	1700	1100		<5	**770**	290	87	25	4.0		<0.1	0.011	0.33	0.16	2.3
07-May-20	MPB486	290	1600	790	7.8	4	**650**	230	50	13	1.7		<0.1	<0.01	0.13	<0.05	-9.1
22-Sep-20	NSM107	290	1600	1000	7.7	<5	**720**	280	74	21	3.5		0.1	<0.01	0.24	0.061	0.7
05-May-21	2021R2026	280	1480	962	8.1	3	**640**	280	63.8	17.1	2.6		<0.06	<0.03	0.10	<0.04	2.6
15-Sep-21	CA1539702	244	1680	1098	8.1	5	**780**	296	87.2	26.9			0.1			0.64	
TOTAL SAMPLES		44	44	44	4	43	43	44	44	44	43	39	43	42	43	44	
AVERAGE 2021		262	1580	1030	8.1	4	710	288	75.5	22.0			<0.06			0.32	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *Italics* / Exceedance in **Bold**

WELL 49-A

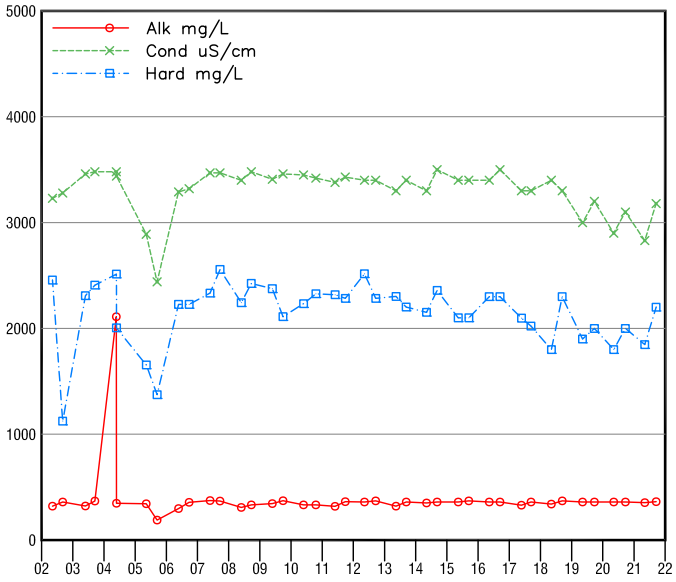
SHALLOW WEATHERED TILL

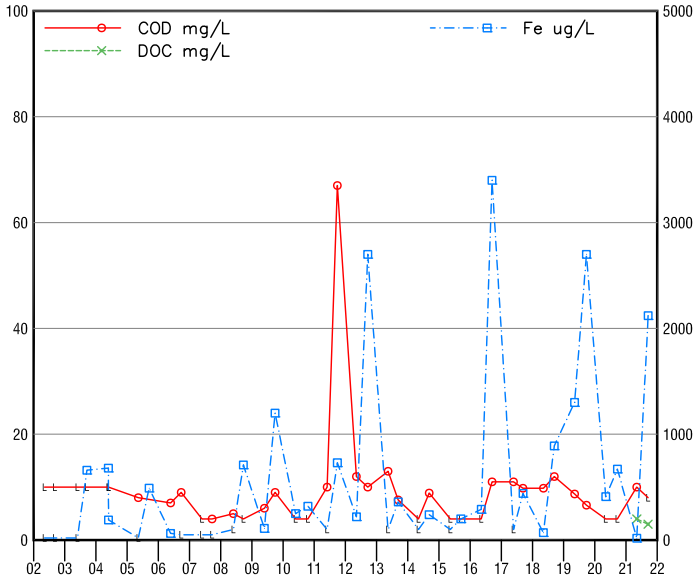
OBSERVATION WELL

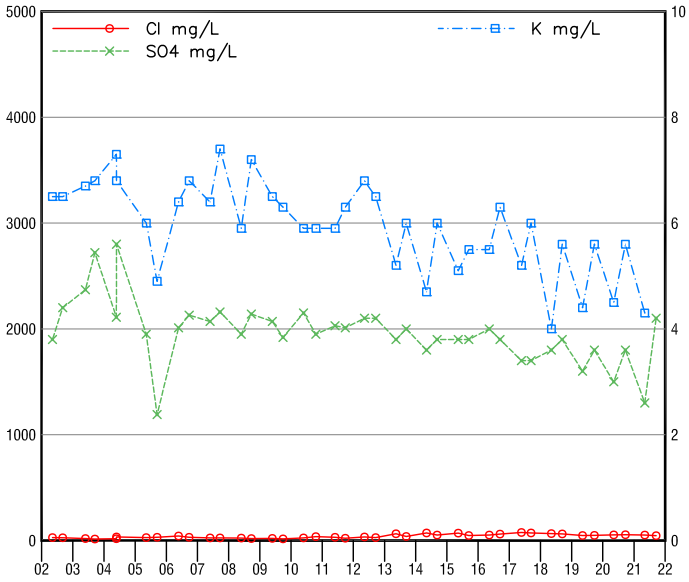


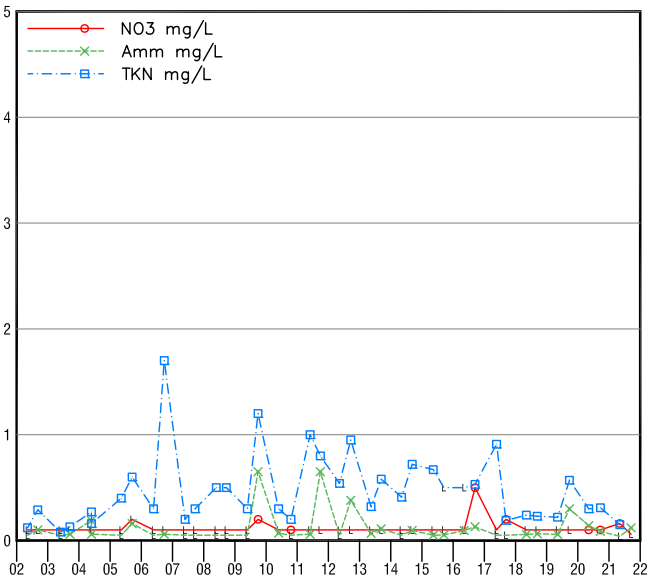
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
28-May-07	H071108	<2	<4			<1			**640**			<1			
22-Sep-07	H071109	<2	7			<1			**1100**			<1			
27-May-08	H081110	<2	10			<1			**1900**			<1			
22-Sep-08	H081111	<2	4			<1			**2300**			<1			
26-May-09	H091112	<2	<4			<1			**1400**			<1			
28-Sep-09	H091113	<2	8			<1			**3100**			<1			
27-May-10	H101114	<2	12			<5			<100			<1			
19-Oct-10	H101115	<2	<4			<5			**1100**			<1			
24-May-11	H111116	<2	14			<1			<100			<1			
27-Sep-11	H111117	<2	12			<2			**2300**			<1			
04-May-12	H121118	<2	13			<5			<100			<1			
18-Sep-12	H121119	<2	9.3			<5			**2300**			<1			
09-May-13	H131120	<2	17			<1			<100			<1			
09-Sep-13	H131121	<2	9.7			<2			220			<1			
08-May-14	H141122	<2	4.4			<2			<100			<1			
10-Sep-14	H141123	<2	4.7			<1			200			<1			
13-May-15	H151124	<2	<4			<2			<100			<1			
15-Sep-15	H151125	<2	<4			<2			**850**			<1			
11-May-16	H161126	<2	5.8			<1			<100			<1			
15-Sep-16	H161127	<2	6			<2			**1600**			<1			
29-May-17	H171128	<2	<4			<5			**410**			<1			
12-Sep-17	H171129	<2	6.5			<2			**380**			<1			
08-May-18	H181130	<2	<4			<2			<20			<1			
13-Sep-18	H181131	<2	<4			<5			**2000**			<1			
07-May-19	H191132	<2	<4			<1			<100			<1			
24-Sep-19	H191133		4.1			<5			<100			<1			
07-May-20	MPB486		<4			<1			<100			<1			
22-Sep-20	NSM107		<4			<5			170			<1			
05-May-21	2021R2026		<8		0.2		0.032	0.8	71	<0.09	<0.01	<2		3	1170
15-Sep-21	CA1539702		<8						**3430**						1460
TOTAL SAMPLES		39	42	0	1	42	1	1	44	1	1	43	0	1	2
AVERAGE 2021			<8						1751						1315

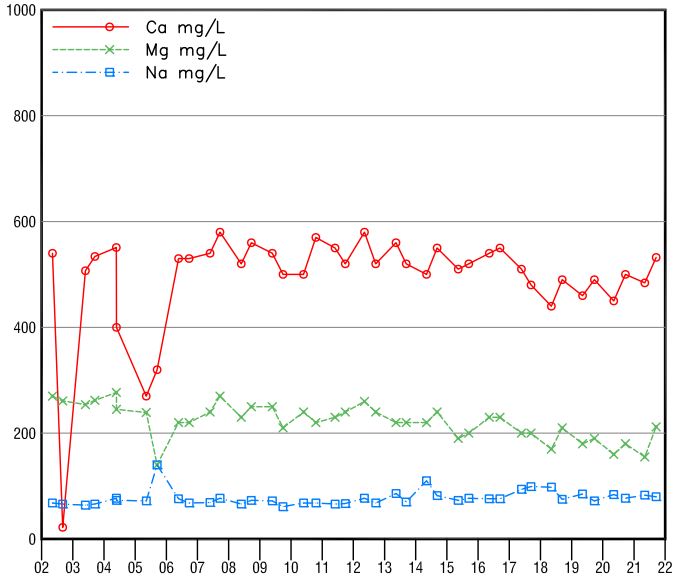
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**











L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 50-A

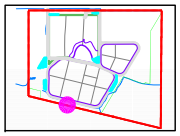
SHALLOW WEATHERED TILL

21500070 19 Apr 22	wsp GOLDER	21H1022

WELL 50-A

SHALLOW WEATHERED TILL

OBSERVATION WELL



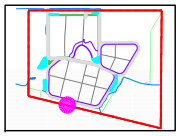
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
28-May-07	H071144	373	3470	2334		25	**2070**	540	240	69	6.4	<2	<0.1	<0.01	0.2	<0.05	-1.4
22-Sep-07	H071145	368	3470	2557		24	**2160**	580	270	77	7.4	<2	<0.1	<0.01	0.3	<0.05	1.6
28-May-08	H081146	309	3400	2243		23	**1950**	520	230	66	5.9	<2	<0.1	<0.01	0.5	<0.05	0.5
23-Sep-08	H081147	332	3480	2425		18	**2140**	560	250	73	7.2	<2	<0.1	0.02	0.5	<0.05	0.2
27-May-09	H091148	344	3410	2375		20	**2070**	540	250	72	6.5	<2	<0.1	<0.01	0.3	<0.05	0.3
29-Sep-09	H091149	372	3460	2111		16	**1920**	500	210	61	6.3	<2	0.2	<0.01	1.2	0.65	-2.9
28-May-10	H101150	332	3450	2234		25	**2150**	500	240	68	5.9	<2	<0.1	<0.01	0.3	0.07	-4.3
19-Oct-10	H101151	332	3420	2327		36	**1950**	570	220	68	5.9	<2	0.1	<0.01	0.2	<0.05	1.4
01-Jun-11	H111152	319	3380	2318		30	**2030**	550	230	66	5.9	<2	<0.1	<0.01	1	0.06	-0.1
29-Sep-11	H111153	362	3430	2284		22	**2010**	520	240	67	6.3	<2	<0.1	<0.01	0.8	0.65	-0.9
10-May-12	H121154	360	3400	2516		34	**2100**	580	260	77	6.8	<2	<0.1	<0.01	0.54	<0.05	1.9
19-Sep-12	H121155	370	3400	2284		28	**2100**	520	240	68	6.5	<2	<0.1	0.013	0.95	0.38	-2.9
15-May-13	H131156	320	3300	2302		64	**1900**	560	220	86	5.2	<2	<0.1	<0.01	0.32	0.067	2.2
11-Sep-13	H131157	360	3400	2202		38	**2000**	520	220	70	6.0	<2	<0.1	<0.01	0.58	0.11	-2.7
07-May-14	H141158	350	3300	2152		72	**1800**	500	220	110	4.7	<2	<0.1	<0.01	0.41	<0.05	1.5
09-Sep-14	H141159	360	3500	2359		52	**1900**	550	240	82	6.0	<2	<0.1	<0.01	0.72	0.095	2.7
14-May-15	H151160	360	3400	2100		70	**1900**	510	190	73	5.1	<2	<0.1	<0.01	0.67	0.05	-4.7
15-Sep-15	H151161	370	3400	2100		47	**1900**	520	200	77	5.5	<2	<0.1	0.011	<0.5	0.053	-2.5
11-May-16	H161162	360	3400	2300		52	**2000**	540	230	76	5.5	<2	<0.1	<0.01	<0.5	0.094	-1.0
14-Sep-16	H161163	360	3500	2300		61	**1900**	550	230	76	6.3	3	0.5	<0.01	0.53	0.13	1.5
24-May-17	H171164	330	3300	2097		76	**1700**	510	200	94	5.2	<2	<0.1	<0.01	0.91	<0.05	2.2
12-Sep-17	H171165	360	3300	2022		71	**1700**	480	200	99	6.0	<2	0.2	<0.01	0.19	<0.05	0.3
09-May-18	H181166	340	3400	1800		66	**1800**	440	170	98	4.0	<2	<0.1	<0.01	0.24	0.058	-6.7
13-Sep-18	H181167	370	3300	2300		63	**1900**	490	210	75	5.6	<2	<0.1	<0.01	0.23	0.064	-3.8
09-May-19	H191168	360	3000	1900		47	**1600**	460	180	85	4.4	<2	<0.1	<0.01	0.22	0.058	-0.2
25-Sep-19	H191169	360	3200	2000		49	**1800**	490	190	72	5.6		<0.1	0.020	0.57	0.3	-2.9
08-May-20	MPS800	360	2900	1800	7.6	53	**1500**	450	160	84	4.5		0.1	<0.01	0.30	0.14	-0.6
22-Sep-20	NSM105	360	3100	2000	7.6	55	**1800**	500	180	77	5.6		0.1	<0.01	0.31	0.086	-3.3
07-May-21	2021R2045	354	2830	1847	8.0	52	**1300**	484	155	82.9	4.3		0.16	<0.03	0.15	<0.04	6.6
17-Sep-21	CA1546108	362	3180	2201	7.8	46	**2100**	532	212	79.8			<0.06	<0.03		0.12	
TOTAL SAMPLES		40	40	40	4	40	40	40	40	40	39	35	40	40	39	40	
AVERAGE 2021		358	3005	2024	7.9	49	1700	508	184	81.4			0.08	<0.03		0.06	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *Italics* / Exceedance in **Bold**

WELL 50-A

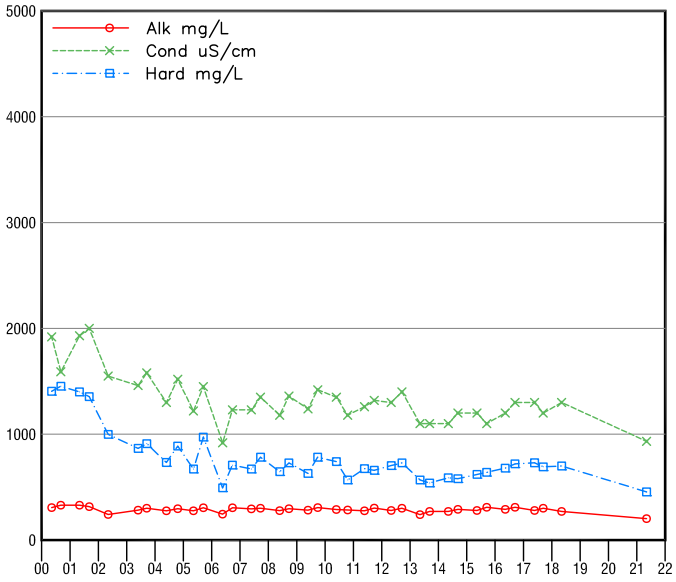
SHALLOW WEATHERED TILL

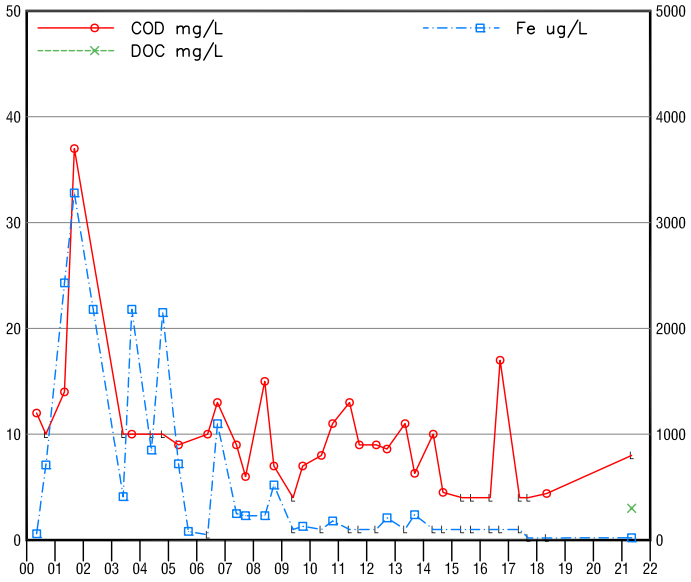
OBSERVATION WELL

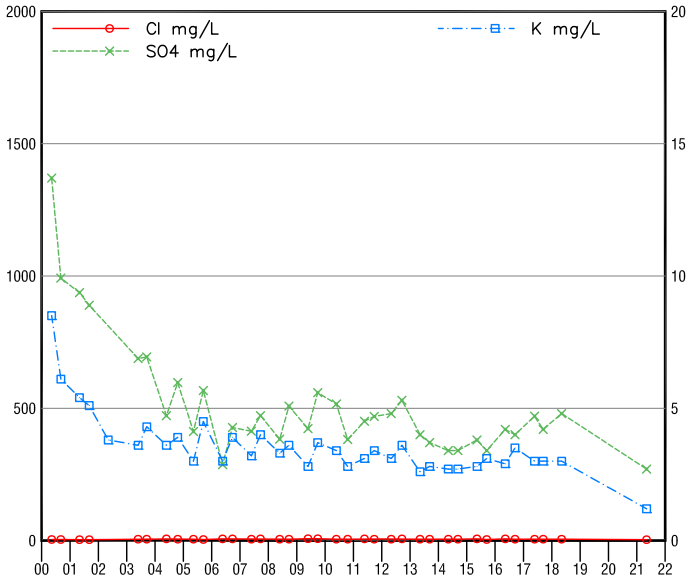


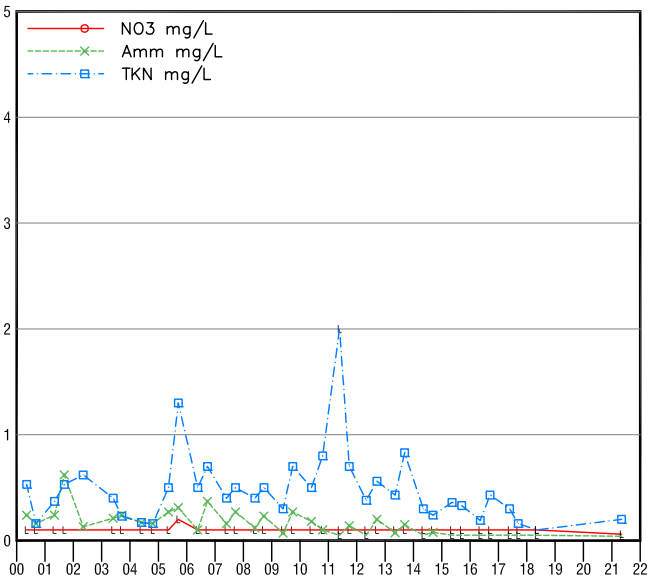
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
28-May-07	H071144	<2	<4			<1			<50			<1			
22-Sep-07	H071145	<2	4			<1			<50			<1			
28-May-08	H081146	<2	5			<1			<100			<1			
23-Sep-08	H081147	<2	<4			<1			**710**			<1			
27-May-09	H091148	<2	6			<1			110			<1			
29-Sep-09	H091149	<2	9			<1			**1200**			30			
28-May-10	H101150	<2	<4			<5			250			<1			
19-Oct-10	H101151	<2	<4			<10			**320**			<1			
01-Jun-11	H111152	<2	10			<5			<100			<1			
29-Sep-11	H111153	<2	67			<10			**730**			<1			
10-May-12	H121154	<2	12			<10			220			<1			
19-Sep-12	H121155	<2	10			<10			**2700**			<1			
15-May-13	H131156	<2	13			<10			<100			<1			
11-Sep-13	H131157	<2	7.6			<5			**360**			<1			
07-May-14	H141158	<2	<4			<5			<100			<1			
09-Sep-14	H141159	<2	8.9			<5			240			<1			
14-May-15	H151160	<2	<4			<10			<100			<1			
15-Sep-15	H151161	<2	<4			<5			200			<1			
11-May-16	H161162	<2	<4			<5			290			<1			
14-Sep-16	H161163	3	11			<5			**3400**			<1			
24-May-17	H171164	<2	11			<5			<100			<1			
12-Sep-17	H171165	<2	9.8			<5			**440**			<1			
09-May-18	H181166	<2	9.8			<5			70			<1			
13-Sep-18	H181167	<2	12			<5			**890**			<1			
09-May-19	H191168	<2	8.7			<5			**1300**			<1			
25-Sep-19	H191169		6.6			<10			**2700**			<1			
08-May-20	MPS800		<4	17		<1			**410**			<1			
22-Sep-20	NSM105		<4			<10			**670**			<1			
07-May-21	2021R2045		10		0.2		0.032	1.3	17	<0.09	<0.01	<2		4	2440
17-Sep-21	CA1546108		<8						**2120**						3170
TOTAL SAMPLES		35	39	1	1	38	1	1	40	1	1	39	0	1	2
AVERAGE 2021			<8						1069						2805

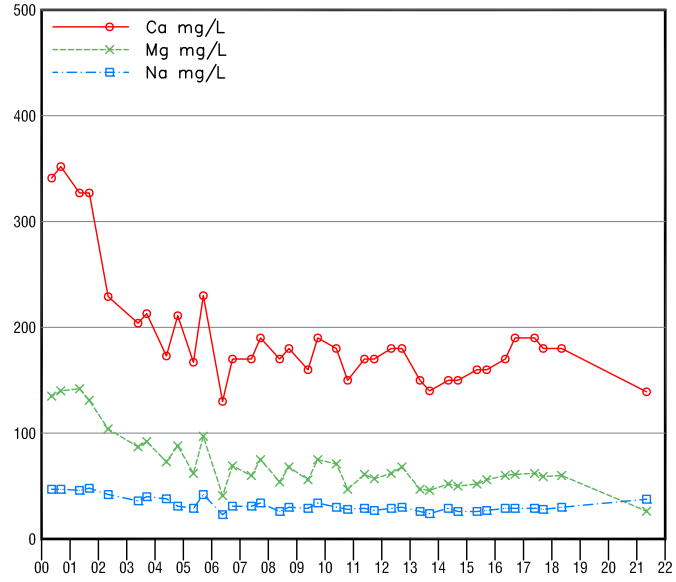
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**











L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 58-A

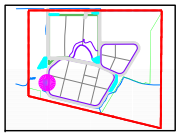
SHALLOW WEATHERED TILL

21500070 19 Apr 22	wsp GOLDER	21H1023

WELL 58-A

SHALLOW WEATHERED TILL

OBSERVATION WELL



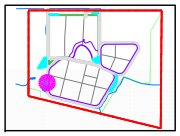
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
27-May-04	H041177	277	1300	733		6	472	173	73	38	3.6	<2	<0.1	<0.02	0.17	0.17	2.8
20-Oct-04	H041178	296	1520	888		5	**597**	211	88	31	3.9	1	<0.1	<0.02	0.16	0.16	2.2
11-May-05	H051179	276	1220	671		5	412	167	62	29	3.0	<2	<0.1	<0.1	0.5	0.27	2.0
15-Sep-05	H051180	305	1450	973		4	**567**	230	97	42	4.5	<2	<0.2	<0.3	1.3	0.31	8.7
22-May-06	H061181	244	919	493		6	287	130	41	23	3.0	<2	<0.1	<0.01	0.5	0.1	-0.3
25-Sep-06	H061182	305	1230	708		6	427	170	69	31	3.9	<2	<0.1	<0.01	0.7	0.37	1.7
28-May-07	H071183	295	1230	671		5	413	170	60	31	3.2	<2	<0.1	<0.01	0.4	0.16	0.8
22-Sep-07	H071184	301	1350	783		6	472	190	75	34	4.0	<2	<0.1	<0.01	0.5	0.27	3.8
27-May-08	H081185	278	1180	646		5	383	170	54	26	3.3	<2	<0.1	<0.01	0.4	0.12	1.8
22-Sep-08	H081186	296	1360	729		5	**508**	180	68	30	3.6	<2	<0.1	<0.01	0.5	0.23	-1.9
26-May-09	H091187	282	1240	630		7	423	160	56	29	2.8	<2	<0.1	<0.01	0.3	0.07	-2.5
28-Sep-09	H091188	306	1420	783		7	**559**	190	75	34	3.7	<2	<0.1	<0.01	0.7	0.27	-2.0
27-May-10	H101189	289	1350	741		5	**516**	180	71	30	3.4	<2	<0.1	0.01	0.5	0.18	-1.3
19-Oct-10	H101190	284	1180	568		5	382	150	47	28	2.8	<2	<0.1	<0.01	0.8	0.1	-4.2
24-May-11	H111191	276	1260	675		6	451	170	61	29	3.1	<2	<0.1	<0.01	<2	<0.05	-0.8
27-Sep-11	H111192	302	1320	659		5	469	170	57	27	3.4	<2	<0.1	0.01	0.7	0.14	-4.9
03-May-12	H121193	280	1300	704		5	480	180	62	29	3.1	<2	<0.1	<0.01	0.38	<0.05	-1.0
18-Sep-12	H121194	300	1400	729		6	**530**	180	68	30	3.6	<2	<0.1	0.017	0.56	0.2	-3.6
09-May-13	H131195	240	1100	568		5	400	150	47	26	2.6	<2	<0.1	<0.01	0.43	0.073	-2.7
09-Sep-13	H131196	270	1100	539		5	370	140	46	24	2.8	<2	<0.1	<0.01	0.83	0.15	-5.3
08-May-14	H141197	270	1100	588		5	340	150	52	29	2.7	<2	<0.1	<0.01	0.3	<0.05	1.9
09-Sep-14	H141198	290	1200	580		5	340	150	50	26	2.7	<2	<0.1	<0.01	0.24	0.078	-0.8
13-May-15	H151199	280	1200	620		6	380	160	52	26	2.8	<2	<0.1	<0.01	0.36	<0.05	-0.8
15-Sep-15	H151200	310	1100	640		4	340	160	56	27	3.1	<2	<0.1	<0.01	0.33	<0.05	1.7
11-May-16	H161201	290	1200	680		6	420	170	60	29	2.9	<2	<0.1	<0.01	0.19	<0.05	0.2
14-Sep-16	H161202	310	1300	720		5	400	190	61	29	3.5	2	<0.1	<0.01	0.43	<0.05	3.9
24-May-17	H171203	280	1300	730		5	470	190	62	29	3.0	<2	<0.1	<0.01	0.3	<0.05	1.3
12-Sep-17	H171204	300	1200	692		5	420	180	59	28	3.0	<2	<0.1	<0.01	0.16	<0.05	0.8
08-May-18	H181205	270	1300	700		5	480	180	60	30	3.0	<2	<0.1	<0.01	<0.1	<0.05	-0.7
06-May-21	2021R2040	202	933	455	8.3	3	270	139	26.3	37.6	1.2		<0.06	<0.03	0.20	<0.04	5.0
TOTAL SAMPLES		37	37	37	1	36	36	37	37	37	37	36	36	36	37	37	
AVERAGE 2021																	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 58-A

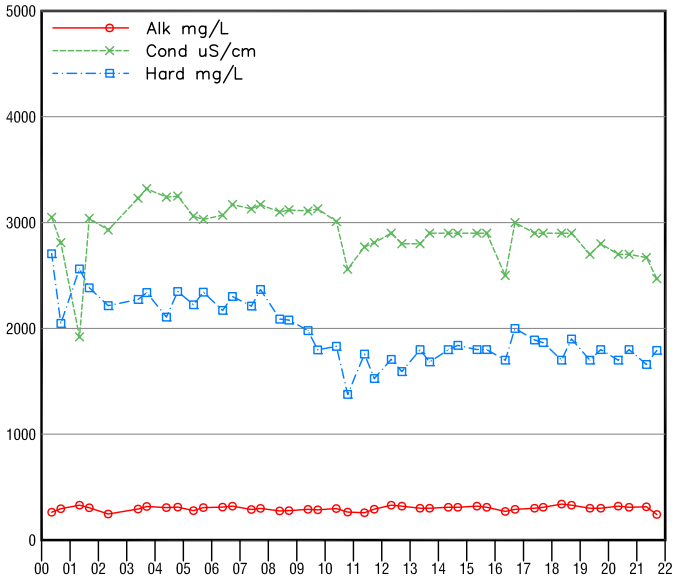
SHALLOW WEATHERED TILL

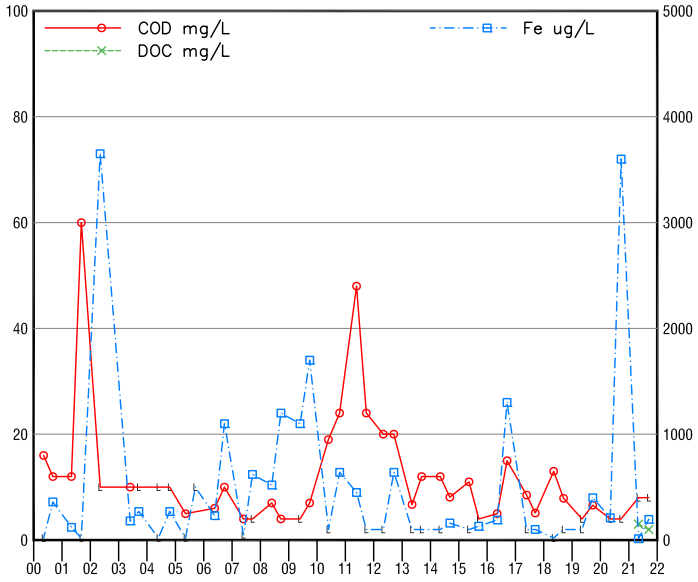
OBSERVATION WELL

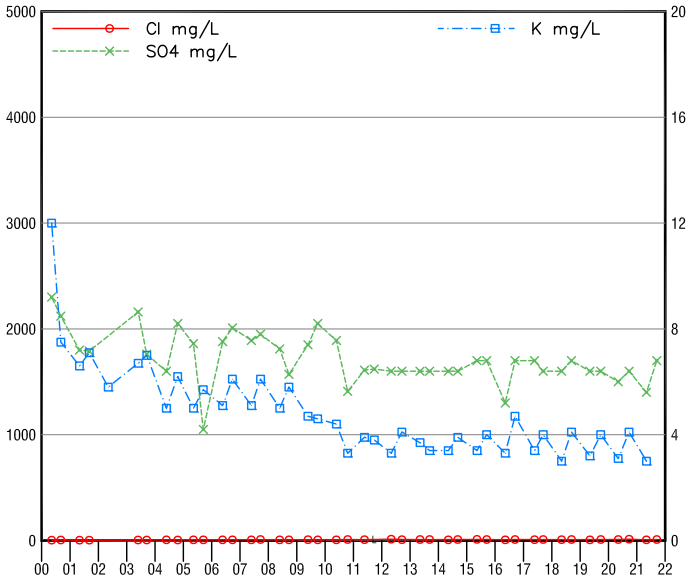


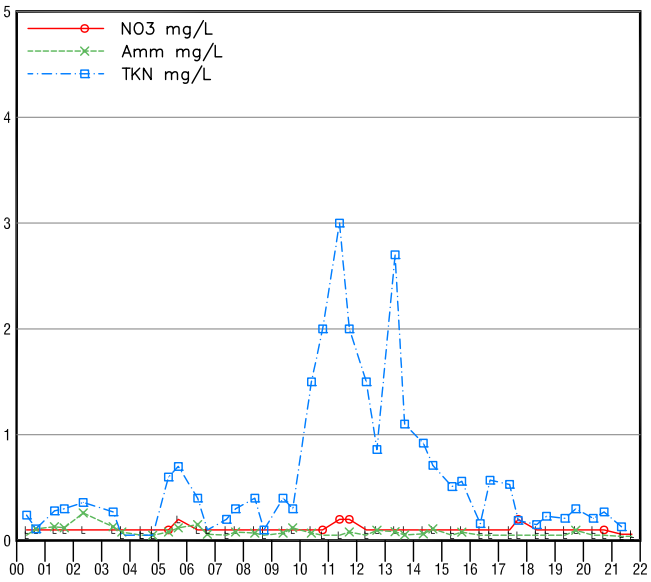
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
27-May-04	H041177	<2	<10			<0.5			**850**			<2			
20-Oct-04	H041178	1	<10			<0.5			**2150**			<2			
11-May-05	H051179	<2	9			<0.35			**720**			3			
15-Sep-05	H051180	<2				<1			82			1			
22-May-06	H061181	<2	10			<1			<50			<1			
25-Sep-06	H061182	<2	13			<1			**1100**			<1			
28-May-07	H071183	<2	9			<1			250			<1			
22-Sep-07	H071184	<2	6			<1			230			<1			
27-May-08	H081185	<2	15			<1			230			<1			
22-Sep-08	H081186	<2	7			<1			**520**			<1			
26-May-09	H091187	<2	<4			<1			<100			<1			
28-Sep-09	H091188	<2	7			<1			130			<1			
27-May-10	H101189	<2	8			<1			<100			<1			
19-Oct-10	H101190	<2	11			<1			180			<1			
24-May-11	H111191	<2	13			<1			<100			<1			
27-Sep-11	H111192	<2	9			<1			<100			<1			
03-May-12	H121193	<2	9			<1			<100			<1			
18-Sep-12	H121194	<2	8.6			<1			210			<1			
09-May-13	H131195	<2	11			<1			<100			<1			
09-Sep-13	H131196	<2	6.3			<1			240			<1			
08-May-14	H141197	<2	10			<1			<100			<1			
09-Sep-14	H141198	<2	4.5			<1			<100			<1			
13-May-15	H151199	<2	<4			<1			<100			<1			
15-Sep-15	H151200	<2	<4			<1			<100			<1			
11-May-16	H161201	<2	<4			<1			<100			<1			
14-Sep-16	H161202	2	17			<1			<100			<1			
24-May-17	H171203	<2	<4			<1			<100			<1			
12-Sep-17	H171204	<2	<4			<1			<20			<1			
08-May-18	H181205	<2	4.4			<1			<20			<1			
06-May-21	2021R2040		<8		0.4		0.046	1.7	21	<0.09	<0.01	<2		33	637
TOTAL SAMPLES		36	35	0	1	36	1	1	37	1	1	37	0	1	1
AVERAGE 2021															

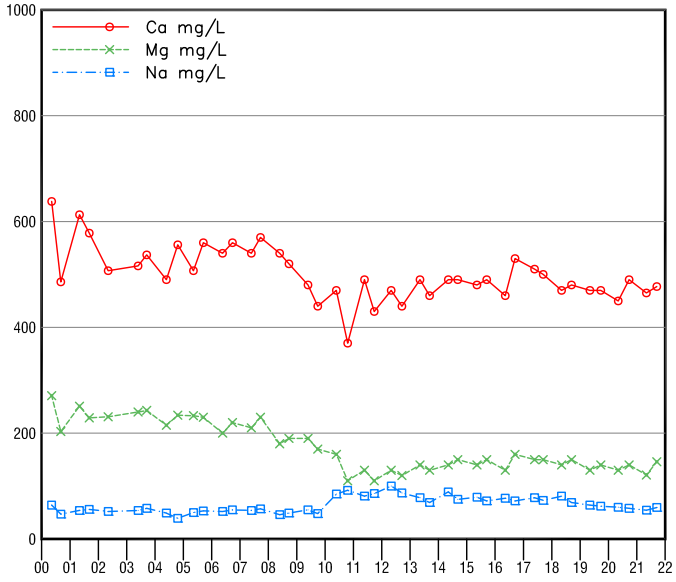
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**











L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 59-A

SHALLOW WEATHERED TILL

21500070 19 Apr 22	WSP GOLDER	21H1024

WELL 59-A

SHALLOW WEATHERED TILL

OBSERVATION WELL



DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
28-May-07	H071219	288	3130	2211		7	**1890**	540	210	54	5.1	<2	<0.1	<0.01	0.2	<0.05	1.5
22-Sep-07	H071220	299	3170	2368		9	**1950**	570	230	57	6.1	<2	<0.1	<0.01	0.3	0.08	3.3
27-May-08	H081221	275	3100	2088		6	**1810**	540	180	46	5.0	<2	<0.1	<0.01	0.4	0.07	0.6
22-Sep-08	H081222	278	3120	2079		6	**1570**	520	190	49	5.8	<2	<0.1	<0.01	0.1	<0.05	6.7
26-May-09	H091223	290	3110	1979		8	**1850**	480	190	55	4.7	<2	<0.1	<0.01	0.4	0.07	-2.8
28-Sep-09	H091224	285	3130	1797		6	**2050**	440	170	48	4.6	<2	<0.1	<0.01	0.3	0.12	-11.9
27-May-10	H101225	298	3010	1831		7	**1890**	470	160	85	4.4	<2	<0.1	<0.01	1.5	0.07	-5.9
19-Oct-10	H101226	264	2560	1376		10	**1410**	370	110	92	3.3	<2	0.1	<0.01	2	<0.05	-5.0
24-May-11	H111227	259	2770	1758		8	**1610**	490	130	81	3.9	<2	0.2	<0.01	3	<0.05	-0.2
27-Sep-11	H111228	292	2810	1526		<10	**1620**	430	110	86	3.8	<2	0.2	<0.01	2	0.08	-7.1
03-May-12	H121229	330	2900	1708		12	**1600**	470	130	100	3.3	<2	<0.1	<0.01	1.5	<0.05	-2.1
17-Sep-12	H121230	320	2800	1592		8	**1600**	440	120	87	4.1	<2	<0.1	<0.01	0.86	0.097	-5.5
09-May-13	H131231	300	2800	1799		9	**1600**	490	140	78	3.7	<2	<0.1	<0.01	2.7	0.083	-0.1
09-Sep-13	H131232	300	2900	1683		9	**1600**	460	130	69	3.4	<2	<0.1	<0.01	1.1	0.053	-3.7
08-May-14	H141233	310	2900	1799		6	**1600**	490	140	89	3.4	<2	<0.1	<0.01	0.92	0.063	0.3
08-Sep-14	H141234	310	2900	1840		9	**1600**	490	150	75	3.9	<2	<0.1	<0.01	0.71	0.11	0.5
13-May-15	H151235	320	2900	1800		11	**1700**	480	140	79	3.4	<2	<0.1	<0.01	0.51	<0.05	-3.8
15-Sep-15	H151236	310	2900	1800		10	**1700**	490	150	72	4.0	<2	<0.1	<0.01	0.56	0.079	-2.2
11-May-16	H161237	270	2500	1700		7	**1300**	460	130	77	3.3	<2	<0.1	<0.01	0.16	<0.05	6.4
14-Sep-16	H161238	290	3000	2000		10	**1700**	530	160	72	4.7	3	<0.1	<0.01	0.57	<0.05	1.7
24-May-17	H171239	300	2900	1891		8	**1700**	510	150	78	3.4	<2	<0.1	<0.01	0.53	<0.05	-0.4
12-Sep-17	H171240	310	2900	1866		9	**1600**	500	150	73	4.0	<2	0.2	<0.01	0.19	<0.05	1.0
07-May-18	H181241	340	2900	1700		8	**1600**	470	140	81	3.0	<2	<0.1	<0.01	0.15	<0.05	-2.2
12-Sep-18	H181242	330	2900	1900		9	**1700**	480	150	69	4.1	<2	<0.1	<0.01	0.23	<0.05	-3.5
07-May-19	H191243	300	2700	1700		7	**1600**	470	130	64	3.2	<2	<0.1	<0.01	0.21	<0.05	-3.2
24-Sep-19	H191244	300	2800	1800		10	**1600**	470	140	62	4.0		<0.1	<0.01	0.30	0.097	-2.3
06-May-20	MPB469	320	2700	1700	7.7	9	**1500**	450	130	60	3.1		<0.1	<0.01	0.21	<0.05	-2.8
23-Sep-20	NSM113	310	2700	1800	7.7	12	**1600**	490	140	58	4.1		0.1	<0.01	0.27	<0.05	-1.4
05-May-21	2021R2029	314	2670	1659	8.0	6	**1400**	465	121	54.4	3.0		<0.06	<0.03	0.13	<0.04	0.1
15-Sep-21	CA1539701	241	2470	1792	8.0	10	**1700**	477	146	59.6			<0.06			<0.04	
TOTAL SAMPLES		43	43	43	4	42	42	43	43	43	42	38	43	42	42	43	
AVERAGE 2021		278	2570	1726	8.0	8	1550	471	134	57.0			<0.06			<0.04	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 59-A

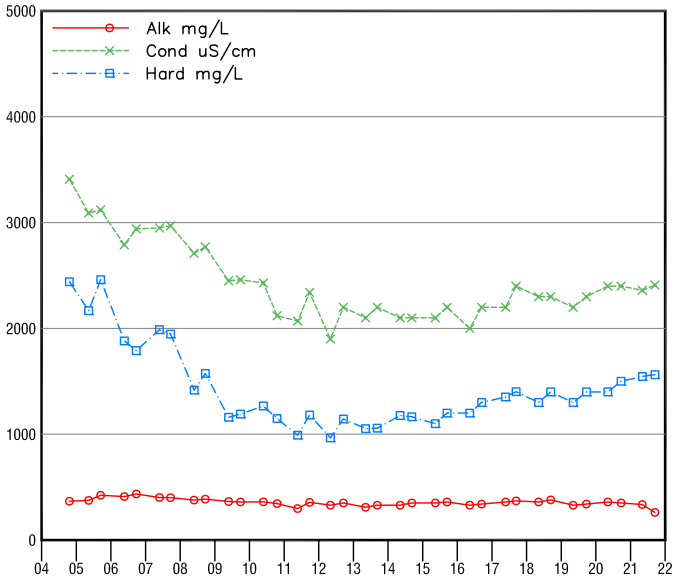
SHALLOW WEATHERED TILL

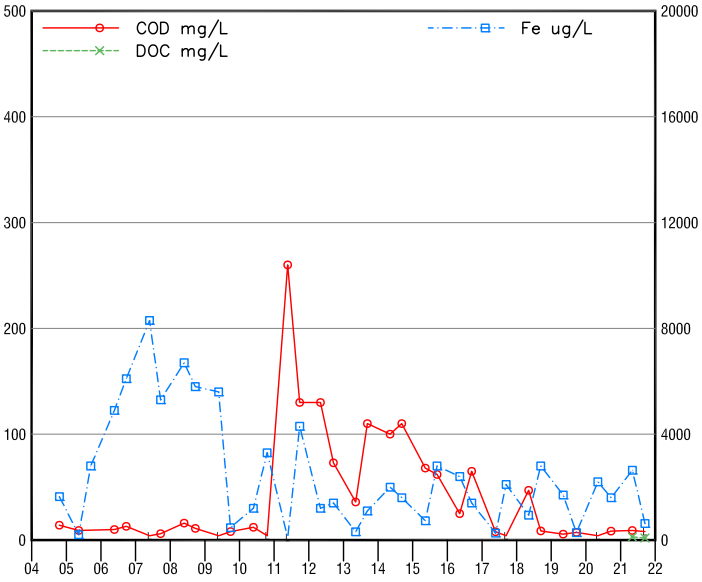
OBSERVATION WELL

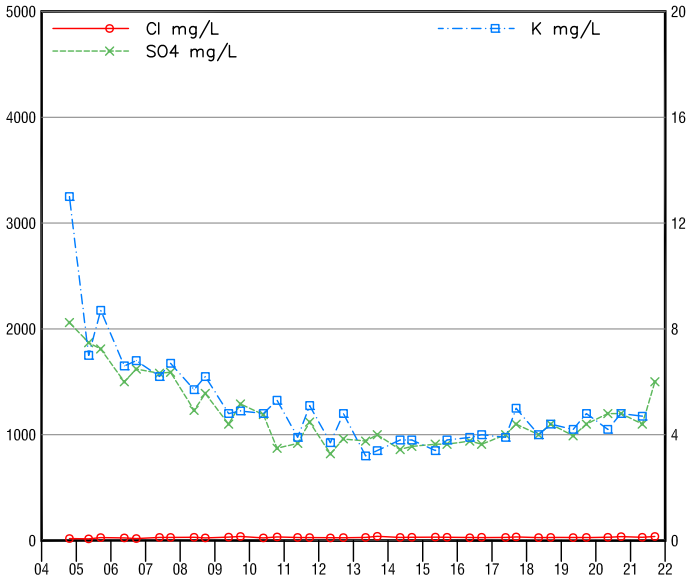


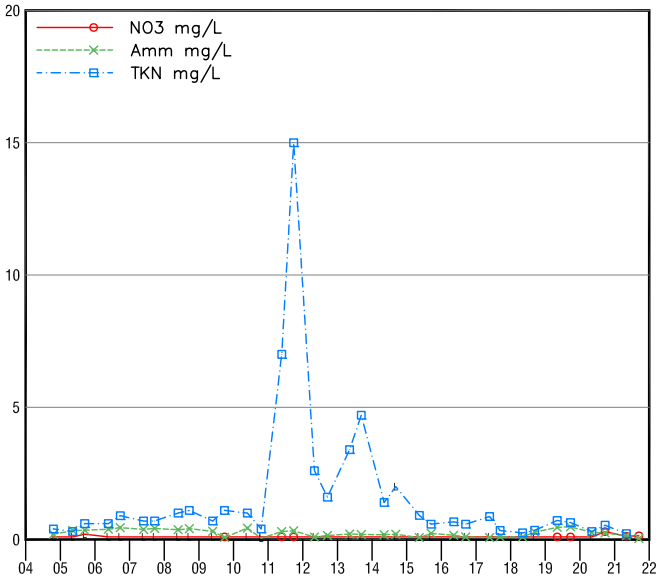
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
28-May-07	H071219	<2	4			<1			<50			<1			
22-Sep-07	H071220	<2	<4			<1			**620**			<1			
27-May-08	H081221	<2	7			<1			**520**			<1			
22-Sep-08	H081222	<2	4			<1			**1200**			<1			
26-May-09	H091223	<2	<4			<1			**1100**			<1			
28-Sep-09	H091224	<2	7			<1			**1700**			<1			
27-May-10	H101225	<2	19			<5			<100			<1			
19-Oct-10	H101226	<2	24			<1			**640**			<1			
24-May-11	H111227	<2	48			<1			**450**			<1			
27-Sep-11	H111228	<2	24			<10			<100			<1			
03-May-12	H121229	<2	20			<10			<100			<1			
17-Sep-12	H121230	<2	20			<1			**640**			<1			
09-May-13	H131231	<2	6.7			<5			<100			<1			
09-Sep-13	H131232	<2	12			<5			<100			<1			
08-May-14	H141233	<2	12			<5			<100			<1			
08-Sep-14	H141234	<2	8.1			<5			160			<1			
13-May-15	H151235	<2	11			<5			<100			<1			
15-Sep-15	H151236	<2	<4			<5			130			<1			
11-May-16	H161237	<2	5			<5			190			<1			
14-Sep-16	H161238	3	15			<5			**1300**			<1			
24-May-17	H171239	<2	8.5			<5			<100			<1			
12-Sep-17	H171240	<2	5.1			<5			100			<1			
07-May-18	H181241	<2	13			<5			<20			<1			
12-Sep-18	H181242	<2	7.9			<5			<100			<1			
07-May-19	H191243	<2	<4			<5			<100			<1			
24-Sep-19	H191244		6.6			<5			**400**			<1			
06-May-20	MPB469		<4			<1			210			<1			
23-Sep-20	NSM113		<4			<5			**3600**			<1			
05-May-21	2021R2029		<8		<0.2		0.055	1	13	0.16	<0.01	<2		13	2440
15-Sep-21	CA1539701		<8						196						2440
TOTAL SAMPLES		38	42	0	1	41	1	1	43	1	1	42	0	1	2
AVERAGE 2021			<8						105						2440

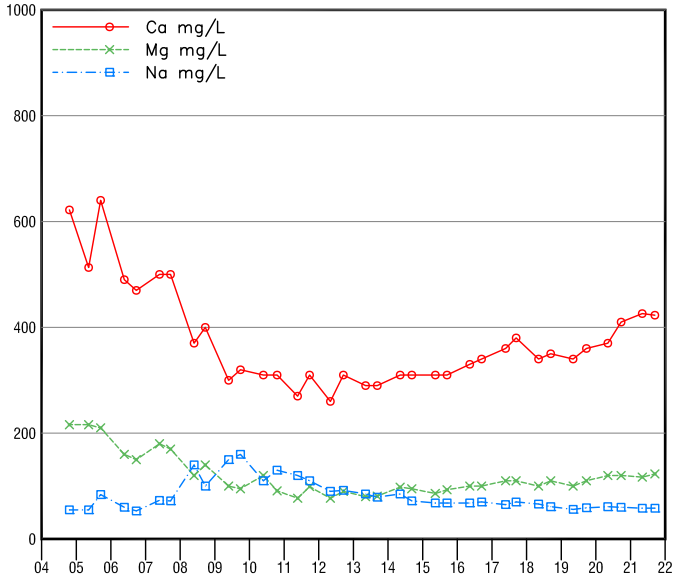
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









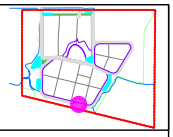


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 60-A

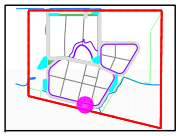
SHALLOW WEATHERED TILL

21500070 19 Apr 22	wsp GOLDER	21H1025

WELL 60-A

SHALLOW WEATHERED TILL

OBSERVATION WELL



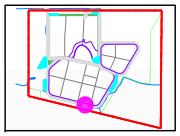
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
28-May-07	H071250	402	2950	1988		29	**1580**	500	180	73	6.2	<2	<0.1	<0.01	0.7	0.38	2.0
22-Sep-07	H071251	400	2970	1947		29	**1590**	500	170	72	6.7	<2	<0.1	<0.01	0.7	0.42	0.7
27-May-08	H081252	378	2710	1417		30	**1230**	370	120	140	5.7	2	<0.1	<0.01	1	0.37	1.2
22-Sep-08	H081253	387	2770	1574		25	**1390**	400	140	100	6.2	<2	<0.1	<0.01	1.1	0.41	-1.6
26-May-09	H091254	364	2450	1160		32	**1100**	300	100	150	4.8	<2	<0.1	<0.01	0.7	0.31	-1.6
28-Sep-09	H091255	360	2460	1190		38	**1290**	320	95	160	4.9	<2	0.1	<0.01	1.1	0.08	-6.4
27-May-10	H101256	361	2430	1267		24	**1190**	310	120	110	4.8	<2	<0.1	<0.01	1	0.43	-3.7
19-Oct-10	H101257	345	2120	1148		34	**872**	310	91	130	5.3	<2	<0.1	<0.01	0.4	<0.05	5.2
24-May-11	H111258	297	2070	991		29	**918**	270	77	120	3.9	<2	0.1	<0.01	7	0.3	-1.4
27-Sep-11	H111259	356	2340	1181		27	**1120**	310	99	110	5.1	<2	0.1	0.02	15	0.33	-4.2
03-May-12	H121260	330	1900	966		24	**820**	260	77	90	3.7	<2	<0.1	<0.01	2.6	0.091	-2.0
17-Sep-12	H121261	350	2200	1144		27	**960**	310	90	92	4.8	<2	<0.1	<0.01	1.6	0.15	-1.2
09-May-13	H131262	310	2100	1053		29	**940**	290	80	85	3.2	<2	<0.1	<0.01	3.4	0.21	-3.3
09-Sep-13	H131263	330	2200	1057		39	**1000**	290	81	79	3.4	<2	<0.1	<0.01	4.7	0.19	-7.1
08-May-14	H141264	330	2100	1177		29	**860**	310	98	85	3.8	<2	<0.1	<0.01	1.4	0.18	4.0
08-Sep-14	H141265	350	2100	1165		30	**890**	310	95	72	3.8	<2	<0.1	<0.01	<2	0.2	0.4
14-May-15	H151266	350	2100	1100		32	**910**	310	86	68	3.4	<2	<0.1	<0.01	0.91	0.074	-2.3
15-Sep-15	H151267	360	2200	1200		30	**910**	310	93	68	3.8	<2	<0.1	<0.01	0.58	0.23	-1.3
11-May-16	H161268	330	2000	1200		26	**940**	330	100	68	3.9	<2	<0.1	<0.01	0.67	0.16	1.7
14-Sep-16	H161269	340	2200	1300		30	**910**	340	100	70	4.0	3	<0.1	<0.01	0.58	0.096	3.3
24-May-17	H171270	360	2200	1352		29	**1000**	360	110	65	3.9	<2	<0.1	<0.01	0.87	0.076	1.9
12-Sep-17	H171271	370	2400	1402		33	**1100**	380	110	70	5.0	<2	<0.1	<0.01	0.34	0.1	0.1
07-May-18	H181272	360	2300	1300		27	**1000**	340	100	66	4.0	<2	<0.1	<0.01	0.25	0.098	-1.0
12-Sep-18	H181273	380	2300	1400		29	**1100**	350	110	61	4.4	4	<0.1	0.011	0.35	0.28	-3.1
07-May-19	H191274	330	2200	1300		27	**990**	340	100	56	4.2	4	0.1	0.046	0.72	0.46	-0.3
24-Sep-19	H191275	340	2300	1400		29	**1100**	360	110	59	4.8		0.1	0.090	0.64	0.48	-1.3
06-May-20	MPB468	360	2400	1400	7.7	30	**1200**	370	120	61	4.2		<0.1	0.020	0.30	0.27	-2.8
23-Sep-20	NSM115	350	2400	1500	7.6	37	**1200**	410	120	60	4.8		0.3	0.014	0.54	0.25	0.2
05-May-21	2021R2030	335	2360	1546	8.0	31	**1100**	426	117	58.2	4.7		0.12	<0.03	0.22	0.14	4.9
15-Sep-21	CA1539709	261	2410	1563	8.0	38	**1500**	423	123	58.2			0.14			0.04	
TOTAL SAMPLES		35	35	35	4	35	35	35	35	35	34	30	35	34	34	35	
AVERAGE 2021		298	2385	1555	8.0	35	1300	425	120	58.2			0.13			0.09	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 60-A

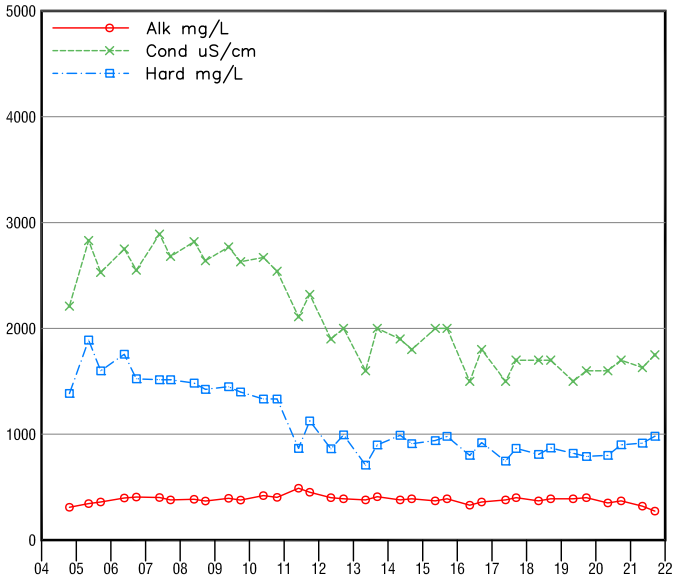
SHALLOW WEATHERED TILL

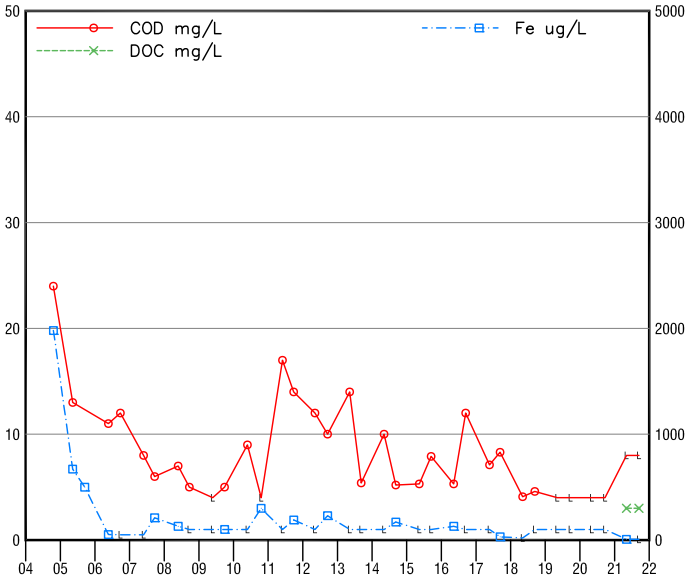
OBSERVATION WELL

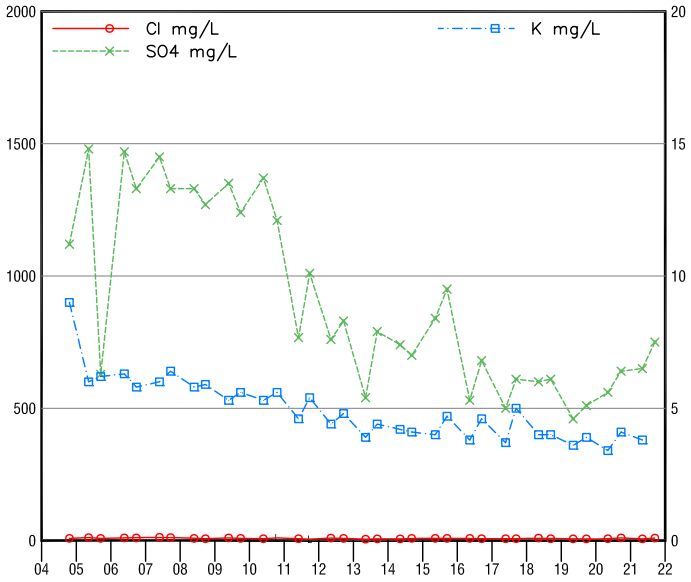


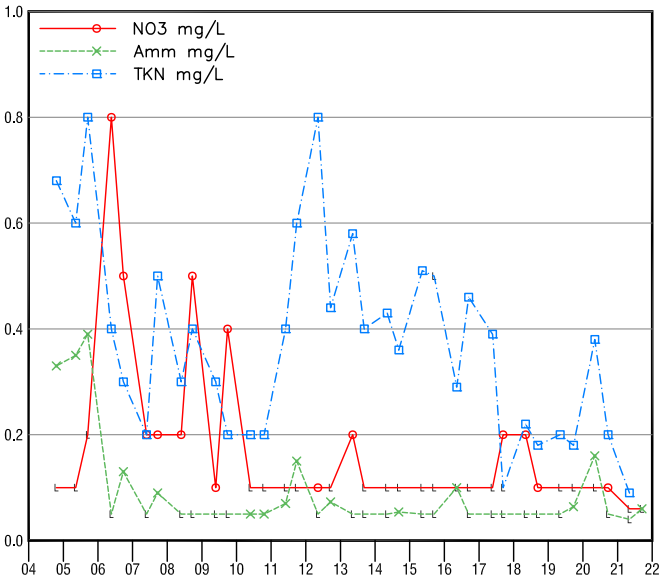
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
28-May-07	H071250	<2	<4			<1			**8300**			<1			
22-Sep-07	H071251	<2	6			<1			**5300**			<1			
27-May-08	H081252	2	16			<1			**6700**			<1			
22-Sep-08	H081253	<2	11			<1			**5800**			<1			
26-May-09	H091254	<2	<4			<1			**5600**			<1			
28-Sep-09	H091255	<2	8			<1			**470**			<1			
27-May-10	H101256	<2	12			<5			**1200**			<1			
19-Oct-10	H101257	<2	<4			<5			**3300**			<1			
24-May-11	H111258	<2	260			<1			<100			<1			
27-Sep-11	H111259	<2	130			<5			**4300**			<1			
03-May-12	H121260	<2	130			<5			**1200**			<1			
17-Sep-12	H121261	<2	73			<1			**1400**			<1			
09-May-13	H131262	<2	36			<5			**310**			<1			
09-Sep-13	H131263	<2	110			<2			**1100**			<1			
08-May-14	H141264	<2	100			<5			**2000**			<1			
08-Sep-14	H141265	<2	110			<5			**1600**			<1			
14-May-15	H151266	<2	68			<5			**730**			<1			
15-Sep-15	H151267	<2	62			<5			**2800**			<1			
11-May-16	H161268	<2	25			<2			**2400**			<1			
14-Sep-16	H161269	3	65			<5			**1400**			<1			
24-May-17	H171270	<2	7.8			<5			260			<1			
12-Sep-17	H171271	<2	<4			<5			**2100**			<1			
07-May-18	H181272	<2	47			<5			**940**			<1			
12-Sep-18	H181273	4	8.6			<5			**2800**			<1			
07-May-19	H191274	4	5.5			<5			**1700**			<1			
24-Sep-19	H191275		7.3			<5			280			<1			
06-May-20	MPB468		<4			<1			**2200**			<1			
23-Sep-20	NSM115		8.4			<5			**1600**			<1			
05-May-21	2021R2030		9		2		0.062	2.9	**2640**	1.73	<0.01	<2		7	2000
15-Sep-21	CA1539709		<8						**625**						2320
TOTAL SAMPLES		30	34	0	1	33	1	1	35	1	1	34	0	1	2
AVERAGE 2021			<8						1633						2160

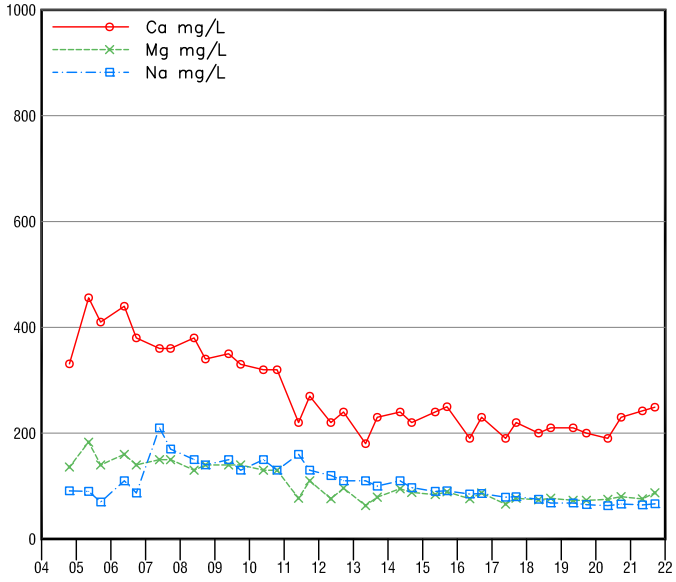
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









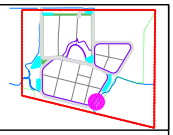


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 61-A

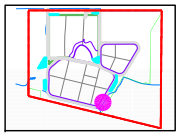
SHALLOW WEATHERED TILL

21500070 19 Apr 22	GOLDER	21H1026

WELL 61-A

SHALLOW WEATHERED TILL

OBSERVATION WELL



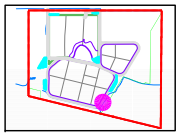
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
28-May-07	H071281	402	2890	1515		12	**1450**	360	150	**210**	6.0	<2	0.2	<0.01	0.2	<0.05	1.3
22-Sep-07	H071282	380	2680	1515		11	**1330**	360	150	170	6.4	<2	0.2	<0.01	0.5	0.09	3.1
27-May-08	H081283	386	2820	1483		8	**1330**	380	130	150	5.8	<2	0.2	<0.01	0.3	<0.05	1.0
23-Sep-08	H081284	368	2640	1424		7	**1270**	340	140	140	5.9	<2	0.5	<0.01	0.4	<0.05	1.0
26-May-09	H091285	394	2770	1449		10	**1350**	350	140	150	5.3	<2	0.1	<0.01	0.3	<0.05	-0.9
29-Sep-09	H091286	378	2630	1399		8	**1240**	330	140	130	5.6	<2	0.4	<0.01	0.2	<0.05	0.2
28-May-10	H101287	420	2670	1333		7	**1370**	320	130	150	5.3	<2	<0.1	<0.01	0.2	0.05	-5.4
19-Oct-10	H101288	403	2540	1333		<10	**1210**	320	130	130	5.6	<2	<0.1	<0.01	0.2	0.05	-1.2
02-Jun-11	H111289	490	2110	866		7	**767**	220	77	160	4.6	<2	<0.1	<0.01	0.4	0.07	-3.1
28-Sep-11	H111290	452	2320	1126		<5	**1010**	270	110	130	5.4	<2	<0.1	<0.01	0.6	0.15	-3.0
09-May-12	H121291	400	1900	862		9	**760**	220	76	120	4.4	<2	0.1	<0.01	0.8	<0.05	-3.2
19-Sep-12	H121292	390	2000	994		8	**830**	240	96	110	4.8	<2	<0.1	<0.01	0.44	0.073	-1.0
09-May-13	H131293	380	1600	708		5	**540**	180	63	110	3.9	<2	0.2	<0.01	0.58	<0.05	0.2
09-Sep-13	H131294	410	2000	899		6	**790**	230	79	100	4.4	<2	<0.1	<0.01	0.4	<0.05	-5.0
08-May-14	H141295	380	1900	990		6	**740**	240	95	110	4.2	<2	<0.1	<0.01	0.43	<0.05	3.2
08-Sep-14	H141296	390	1800	911		8	**700**	220	88	97	4.1	<2	<0.1	<0.01	0.36	0.054	-0.1
14-May-15	H151297	370	2000	940		8	**840**	240	84	90	4.0	<2	<0.1	<0.01	0.51	<0.05	-4.6
15-Sep-15	H151298	390	2000	980		8	**950**	250	89	91	4.7	<2	<0.1	<0.01	<0.5	<0.05	-7.6
11-May-16	H161299	330	1500	800		8	**530**	190	76	85	3.8	<2	<0.1	<0.01	0.29	0.1	4.5
14-Sep-16	H161300	360	1800	920		7	**680**	230	87	86	4.6	3	<0.1	<0.01	0.46	<0.05	2.1
24-May-17	H171301	380	1500	746		7	500	190	66	79	3.7	<2	<0.1	<0.01	0.39	<0.05	0.7
12-Sep-17	H171302	400	1700	866		7	**610**	220	77	80	5.0	<2	0.2	<0.01	<0.1	<0.05	0.1
07-May-18	H181303	370	1700	810		9	**600**	200	74	75	4.0	<2	0.2	<0.01	0.22	<0.05	-1.8
12-Sep-18	H181304	390	1700	870		7	**610**	210	77	68	4.0	<2	0.1	<0.01	0.18	<0.05	-2.0
07-May-19	H191305	390	1500	820		6	460	210	73	68	3.6	<2	<0.1	<0.01	0.20	<0.05	5.4
24-Sep-19	H191306	400	1600	790		6	**510**	200	73	65	3.9		<0.1	<0.01	0.18	0.064	0.4
06-May-20	MPB467	350	1600	800	7.7	7	**560**	190	75	63	3.4		<0.1	<0.01	0.38	0.16	-1.0
23-Sep-20	NSM111	370	1700	900	7.6	10	**640**	230	80	66	4.1		0.1	<0.01	0.20	<0.05	0.1
06-May-21	2021R2041	321	1630	916	8.1	6	**650**	242	75.7	64.4	3.8		<0.06	<0.03	0.09	<0.04	2.6
15-Sep-21	CA1539708	273	1750	981	8.1	9	**750**	249	87.3	66.5			<0.06			0.06	
TOTAL SAMPLES		35	35	35	4	35	35	35	35	35	34	30	35	34	34	35	
AVERAGE 2021		297	1690	949	8.1	8	700	246	81.5	65.5			<0.06			<0.04	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 61-A

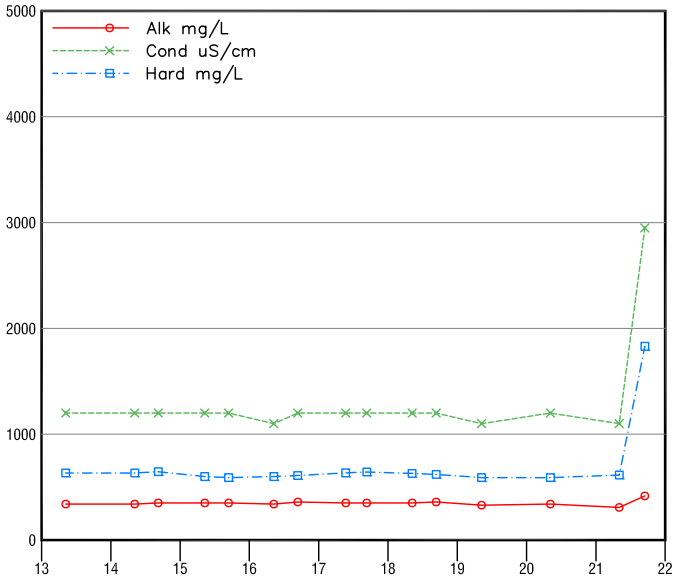
SHALLOW WEATHERED TILL

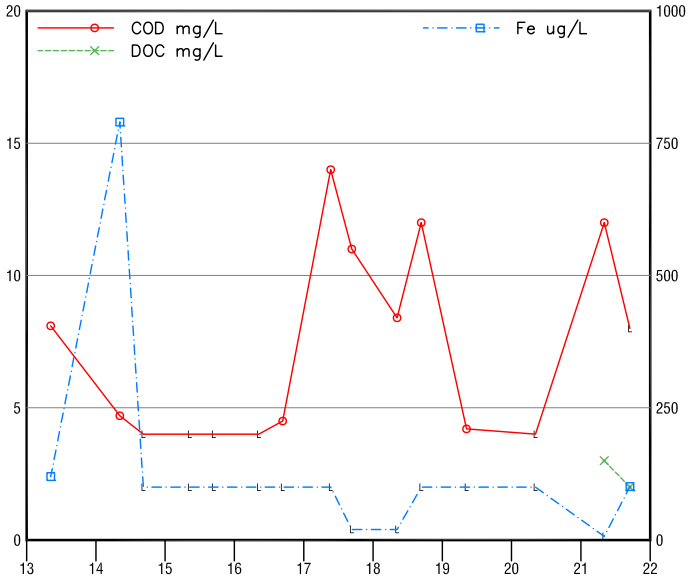
OBSERVATION WELL

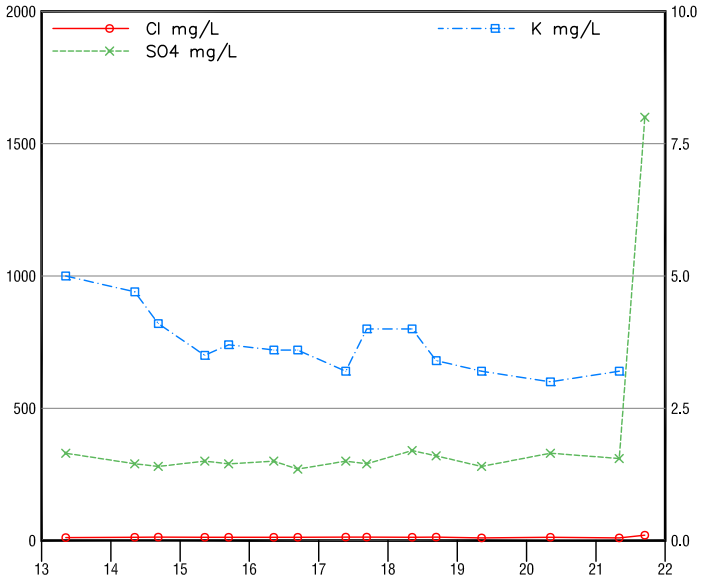


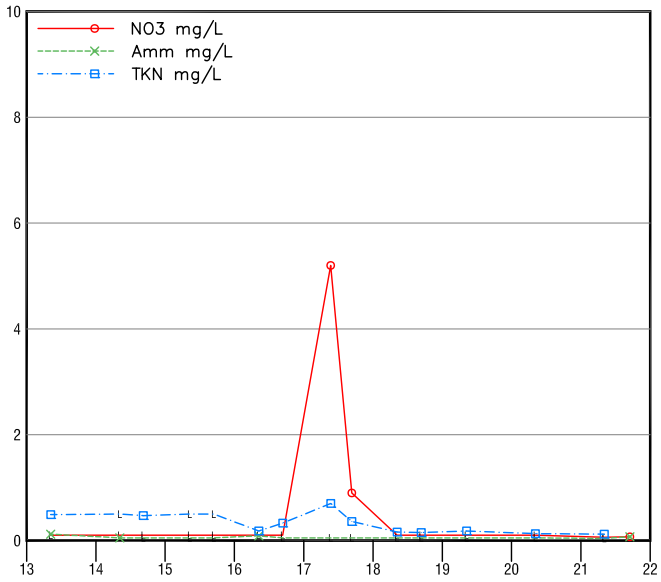
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
28-May-07	H071281	<2	8			<1			<50			<1			
22-Sep-07	H071282	<2	6			<1			210			<1			
27-May-08	H081283	<2	7			<1			130			<1			
23-Sep-08	H081284	<2	5			<1			<100			<1			
26-May-09	H091285	<2	<4			<1			<100			<1			
29-Sep-09	H091286	<2	5			<1			100			<1			
28-May-10	H101287	<2	9			<5			<100			<1			
19-Oct-10	H101288	<2	<4			<10			300			<1			
02-Jun-11	H111289	<2	17			<2			<100			<1			
28-Sep-11	H111290	<2	14			<5			190			<1			
09-May-12	H121291	<2	12			<5			<100			<1			
19-Sep-12	H121292	<2	10			<5			230			<1			
09-May-13	H131293	<2	14			<1			<100			<1			
09-Sep-13	H131294	<2	5.4			<2			<100			<1			
08-May-14	H141295	<2	10			<2			<100			<1			
08-Sep-14	H141296	<2	5.2			<5			170			<1			
14-May-15	H151297	<2	5.3			<5			<100			<1			
15-Sep-15	H151298	<2	7.9			<5			<100			<1			
11-May-16	H161299	<2	5.3			<1			130			<1			
14-Sep-16	H161300	3	12			<2			<100			<1			
24-May-17	H171301	<2	7.1			<1			<100			<1			
12-Sep-17	H171302	<2	8.3			<2			30			<1			
07-May-18	H181303	<2	4.1			<2			<20			<1			
12-Sep-18	H181304	<2	4.6			<5			<100			<1			
07-May-19	H191305	<2	<4			<1			<100			<1			
24-Sep-19	H191306		<4			<5			<100			<1			
06-May-20	MPB467		<4			<1			<100			1.8			
23-Sep-20	NSM111		<4			<5			<100			<1			
06-May-21	2021R2041		<8		0.3		0.024	0.8	7	<0.09	<0.01	<2		4	1320
15-Sep-21	CA1539708		<8						<7						1560
TOTAL SAMPLES		30	34	0	1	33	1	1	35	1	1	34	0	1	2
AVERAGE 2021			<8						<7						1440

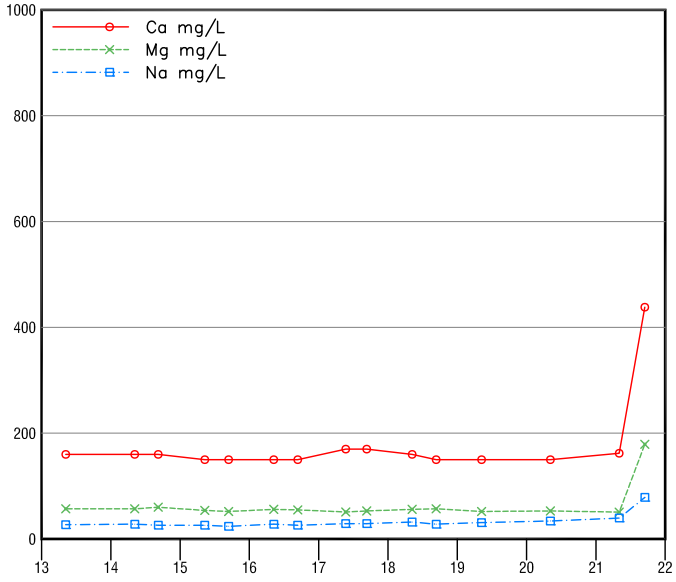
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**



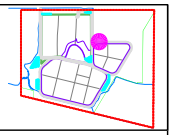








L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 62-A

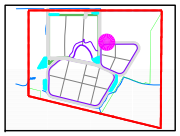
SHALLOW WEATHERED TILL

21500070 19 Apr 22	wsp GOLDER	21H1027

WELL 62-A

SHALLOW WEATHERED TILL

OBSERVATION WELL



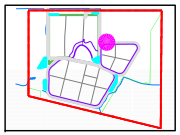
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
08-May-13	H131307	340	1200	634		11	330	160	57	27	5.0	<2	<0.1	<0.01	0.49	0.12	0.1
07-May-14	H141308	340	1200	634		12	290	160	57	28	4.7	<2	<0.1	<0.01	<0.5	0.05	3.2
08-Sep-14	H141309	350	1200	646		13	280	160	60	26	4.1	<2	<0.1	<0.01	0.47	<0.05	3.5
11-May-15	H151310	350	1200	600		12	300	150	54	26	3.5	<2	<0.1	<0.01	<0.5	<0.05	-1.6
14-Sep-15	H151311	350	1200	590		12	290	150	52	24	3.7	<2	<0.1	<0.01	<0.5	<0.05	-1.8
09-May-16	H161312	340	1100	600		12	300	150	56	28	3.6	<2	<0.1	<0.01	0.18	0.089	0.1
12-Sep-16	H161313	360	1200	610		12	270	150	55	26	3.6	3	<0.1	<0.01	0.33	<0.05	0.3
23-May-17	H171314	350	1200	635		13	300	170	51	29	3.2	<2	5.2	<0.01	0.7	<0.05	0.2
11-Sep-17	H171315	350	1200	643		13	290	170	53	29	4.0	<2	0.9	<0.01	0.36	<0.05	2.7
08-May-18	H181316	350	1200	630		12	340	160	56	32	4.0	<2	<0.1	<0.01	0.16	<0.05	-1.1
12-Sep-18	H181317	360	1200	620		13	320	150	57	28	3.4	<2	<0.1	<0.01	0.15	<0.05	-2.7
09-May-19	H191319	330	1100	590		10	280	150	52	31	3.2	<2	<0.1	<0.01	0.18	<0.05	1.9
06-May-20	MPB458	340	1200	590	7.8	12	330	150	53	34	3.0		<0.1	<0.01	0.13	<0.05	-2.2
04-May-21	2021R2025	309	1100	614	8.1	10	310	162	50.8	39.6	3.2		<0.06	<0.03	0.12	<0.04	4.3
16-Sep-21	CA1546101	417	2950	1831	7.9	20	**1600**	438	179	78.6			0.07	<0.03		0.07	
TOTAL SAMPLES		15	15	15	3	15	15	15	15	15	14	12	15	15	14	15	
AVERAGE 2021		363	2025	1223	8.0	15	955	300	115	59.1			<0.06	<0.03		<0.04	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 62-A

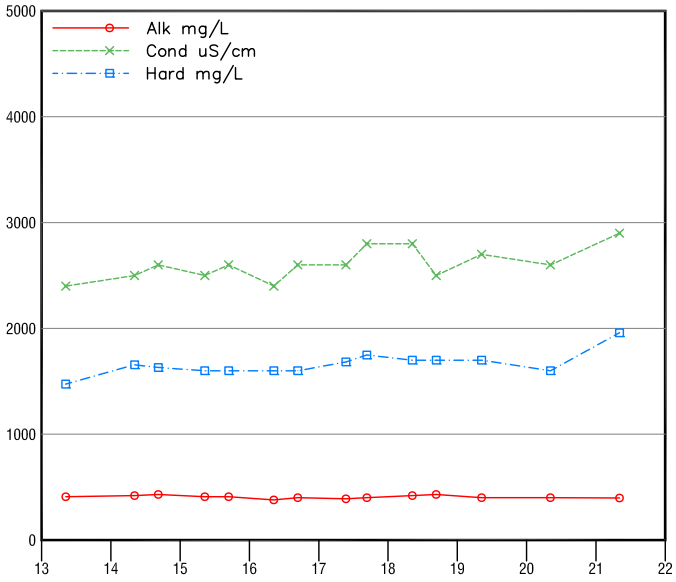
SHALLOW WEATHERED TILL

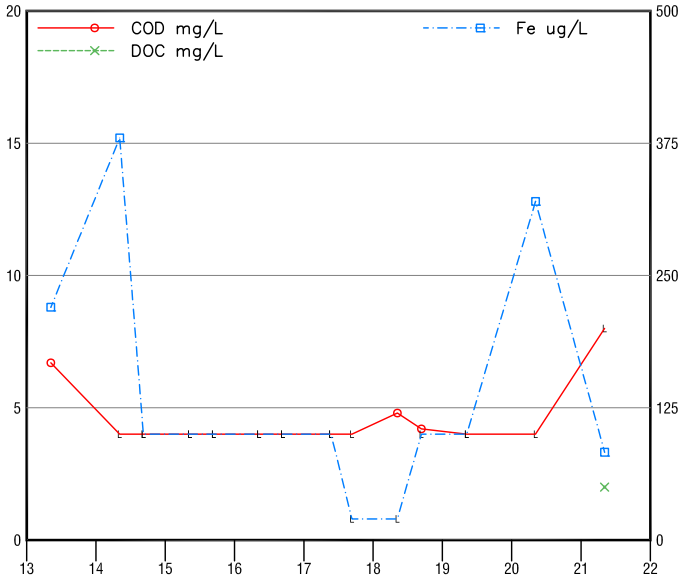
OBSERVATION WELL

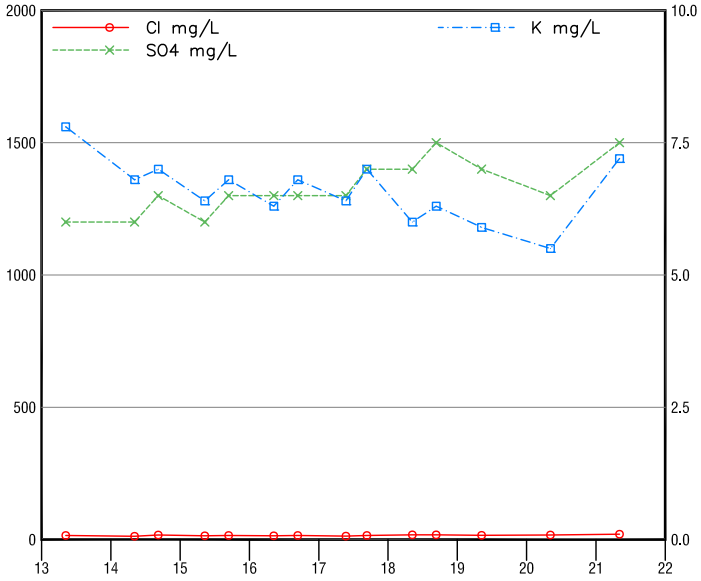


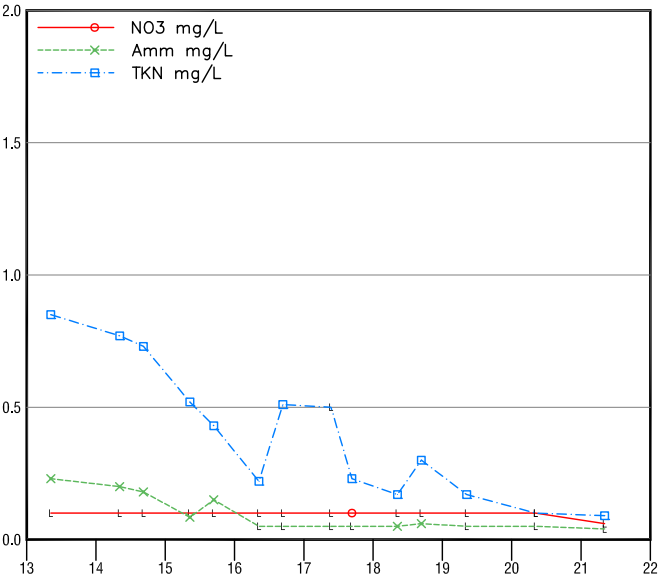
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
08-May-13	H131307	<2	8.1			<1			120			<1			
07-May-14	H141308	<2	4.7			<1			**790**			<1			
08-Sep-14	H141309	<2	<4			<1			<100			<1			
11-May-15	H151310	<2	<4			<1			<100			<1			
14-Sep-15	H151311	<2	<4			<1			<100			<1			
09-May-16	H161312	<2	<4			<1			<100			<1			
12-Sep-16	H161313	3	4.5			<1			<100			<1			
23-May-17	H171314	<2	14			<1			<100			<1			
11-Sep-17	H171315	<2	11			<1			<20			<1			
08-May-18	H181316	<2	8.4			<1			<20			<1			
12-Sep-18	H181317	<2	12			<1			<100			<1			
09-May-19	H191319	<2	4.2			<5			<100			<1			
06-May-20	MPB458		<4			<1			<100						
04-May-21	2021R2025		12		0.2		0.021	0.6	<7	<0.09	<0.01	<2		2	829
16-Sep-21	CA1546101		<8						101						2820
TOTAL SAMPLES		12	15	0	1	13	1	1	15	1	1	13	0	1	2
AVERAGE 2021			<8						51						1825

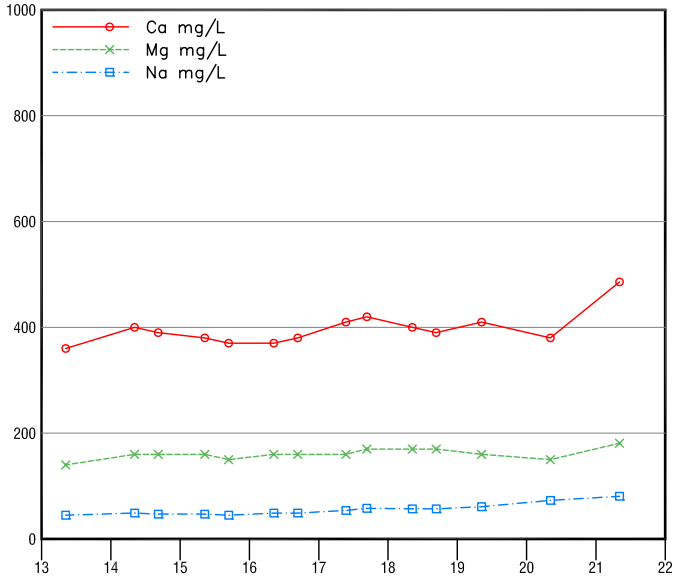
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**



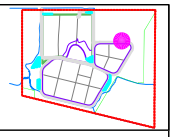








L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 63-A

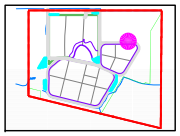
SHALLOW WEATHERED TILL

21500070 19 Apr 22	GOLDER	21H1028

WELL 63-A

SHALLOW WEATHERED TILL

OBSERVATION WELL



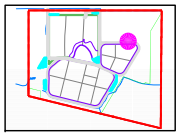
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
08-May-13	H131320	410	2400	1474		15	**1200**	360	140	45	7.8	<2	<0.1	<0.01	0.85	0.23	-3.0
06-May-14	H141321	420	2500	1656		12	**1200**	400	160	49	6.8	<2	<0.1	0.046	0.77	0.2	2.5
08-Sep-14	H141322	430	2600	1631		17	**1300**	390	160	47	7.0	<2	<0.1	<0.01	0.73	0.18	-1.8
11-May-15	H151323	410	2500	1600		14	**1200**	380	160	47	6.4	<2	<0.1	<0.01	0.52	0.084	1.1
14-Sep-15	H151324	410	2600	1600		15	**1300**	370	150	45	6.8	<2	<0.1	0.020	0.43	0.15	-4.0
09-May-16	H161325	380	2400	1600		14	**1300**	370	160	49	6.3	<2	<0.1	<0.01	0.22	<0.05	-1.6
12-Sep-16	H161326	400	2600	1600		15	**1300**	380	160	49	6.8	3	<0.1	<0.01	0.51	<0.05	-1.5
24-May-17	H171327	390	2600	1683		13	**1300**	410	160	54	6.4	<2	<0.1	<0.01	<0.5	<0.05	1.3
11-Sep-17	H171328	400	2800	1749		15	**1400**	420	170	58	7.0	<2	0.1	<0.01	0.23	<0.05	0.1
09-May-18	H181329	420	2800	1700		18	**1400**	400	170	57	6.0	<2	<0.1	<0.01	0.17	0.05	-2.0
12-Sep-18	H181330	430	2500	1700		18	**1500**	390	170	57	6.3	<2	<0.1	<0.01	0.3	0.06	-5.5
09-May-19	H191331	400	2700	1700		16	**1400**	410	160	61	5.9	<2	<0.1	<0.01	0.17	<0.05	-1.6
06-May-20	MPB463	400	2600	1600	7.7	17	**1300**	380	150	73	5.5		<0.1	<0.01	<0.1	<0.05	-1.3
05-May-21	2021R2035	398	2900	1959	8.1	20	**1500**	486	181	80.7	7.2		<0.06	<0.03	0.09	<0.04	3.7
TOTAL SAMPLES		14	14	14	2	14	14	14	14	14	14	12	14	14	14	14	
AVERAGE 2021																	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 63-A

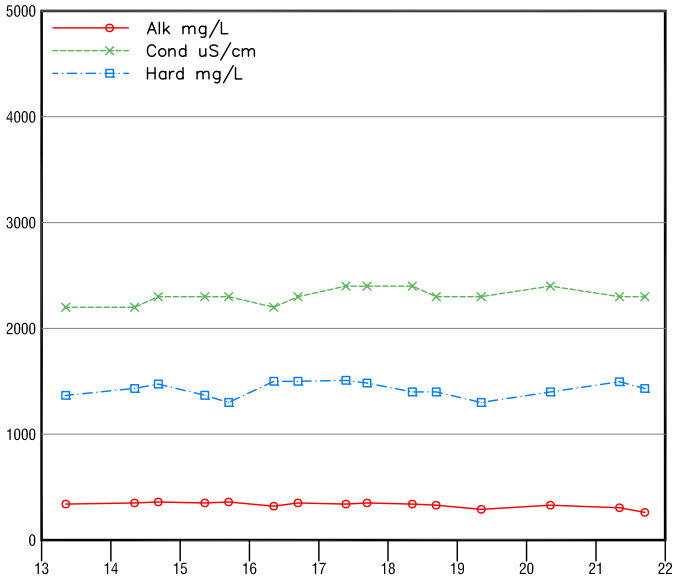
SHALLOW WEATHERED TILL

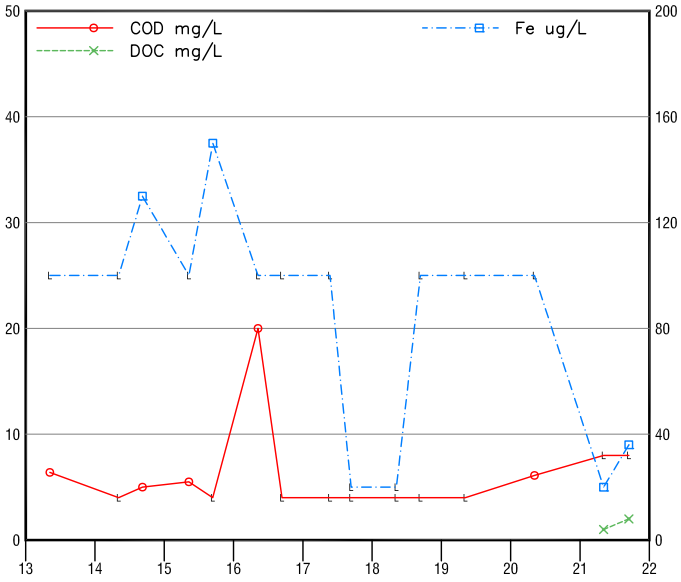
OBSERVATION WELL

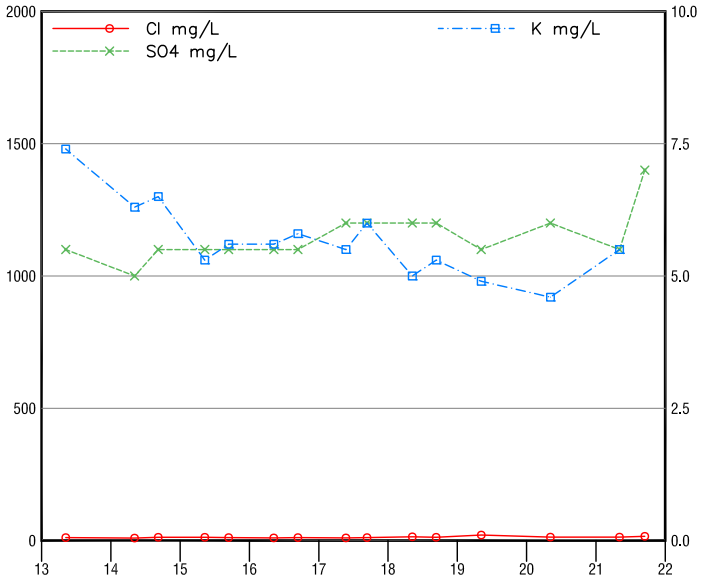


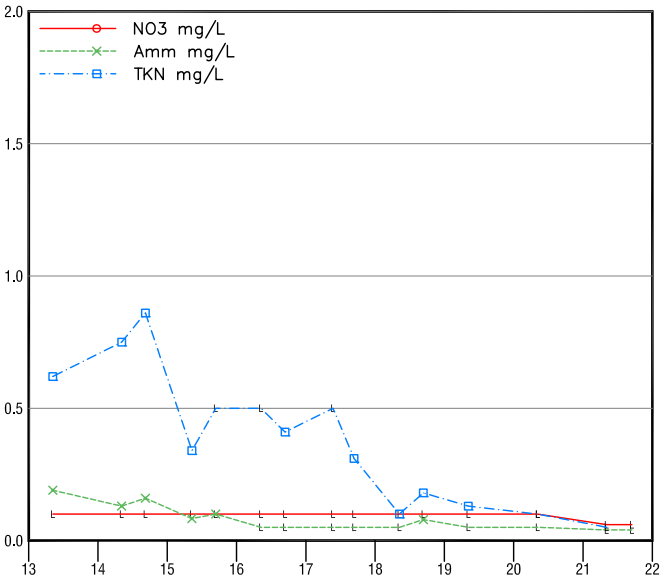
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
08-May-13	H131320	<2	6.7			<5			220			<1			
06-May-14	H141321	<2	<4			<5			**380**			<1			
08-Sep-14	H141322	<2	<4			<5			<100			<1			
11-May-15	H151323	<2	<4			<5			<100			<1			
14-Sep-15	H151324	<2	<4			<5			<100			<1			
09-May-16	H161325	<2	<4			<5			<100			<1			
12-Sep-16	H161326	3	<4			<5			<100			<1			
24-May-17	H171327	<2	<4			<5			<100			<1			
11-Sep-17	H171328	<2	<4			<5			<20			<1			
09-May-18	H181329	<2	4.8			<5			<20			<1			
12-Sep-18	H181330	<2	4.2			<5			<100			<1			
09-May-19	H191331	<2	<4			<5			<100			<1			
06-May-20	MPB463		<4			<1			**320**			<1			
05-May-21	2021R2035		<8		0.4		0.042	0.3	83	<0.09	<0.01	<2		4	2700
TOTAL SAMPLES		12	14	0	1	13	1	1	14	1	1	14	0	1	1
AVERAGE 2021															

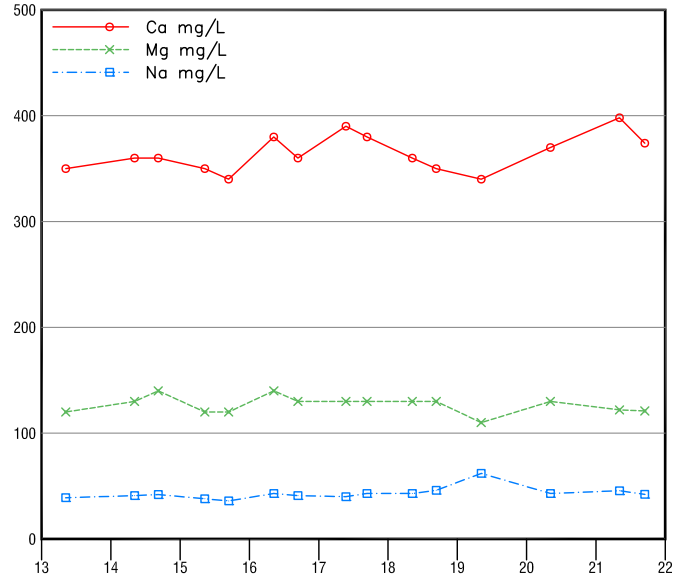
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









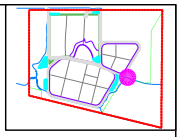


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 64-A

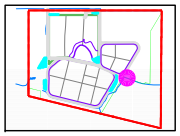
SHALLOW WEATHERED TILL

21500070 19 Apr 22	GOLDER	21H1029

WELL 64-A

SHALLOW WEATHERED TILL

OBSERVATION WELL



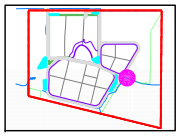
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
08-May-13	H131332	340	2200	1367		11	**1100**	350	120	39	7.4	<2	<0.1	<0.01	0.62	0.19	-1.3
06-May-14	H141333	350	2200	1433		9	**1000**	360	130	41	6.3	<2	<0.1	<0.01	0.75	0.13	4.3
08-Sep-14	H141334	360	2300	1474		12	**1100**	360	140	42	6.5	2	<0.1	0.026	0.86	0.16	1.7
11-May-15	H151335	350	2300	1368		12	**1100**	350	120	38	5.3	<2	<0.1	0.037	0.34	0.083	-1.9
14-Sep-15	H151336	360	2300	1300		11	**1100**	340	120	36	5.6	<2	<0.1	<0.01	<0.5	0.1	-3.1
09-May-16	H161337	320	2200	1500		10	**1100**	380	140	43	5.6	<2	<0.1	<0.01	<0.5	<0.05	4.7
13-Sep-16	H161338	350	2300	1500		11	**1100**	360	130	41	5.8	3	<0.1	<0.01	0.41	<0.05	0.6
24-May-17	H171339	340	2400	1509		10	**1200**	390	130	40	5.5	<2	<0.1	<0.01	<0.5	<0.05	0.1
12-Sep-17	H171340	350	2400	1484		11	**1200**	380	130	43	6.0	<2	<0.1	0.014	0.31	<0.05	-0.9
09-May-18	H181341	340	2400	1400		14	**1200**	360	130	43	5.0	<2	<0.1	<0.01	0.1	<0.05	-2.4
12-Sep-18	H181342	330	2300	1400		12	**1200**	350	130	46	5.3	<2	<0.1	0.016	0.18	0.079	-2.6
07-May-19	H191343	290	2300	1300		21	**1100**	340	110	62	4.9	<2	<0.1	<0.01	0.13	<0.05	-0.8
06-May-20	MPB466	330	2400	1400	7.6	13	**1200**	370	130	43	4.6		<0.1	<0.01	<0.1	<0.05	-1.3
05-May-21	2021R2031	305	2300	1496	8.0	13	**1100**	398	122	45.6	5.5		<0.06	<0.03	<0.05	<0.04	4.3
15-Sep-21	CA1539706	262	2300	1432	8.0	16	**1400**	374	121	42.2			<0.06			<0.04	
TOTAL SAMPLES		15	15	15	3	15	15	15	15	15	14	12	15	14	14	15	
AVERAGE 2021		284	2300	1464	8.0	15	1250	386	122	43.9			<0.06			<0.04	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 64-A

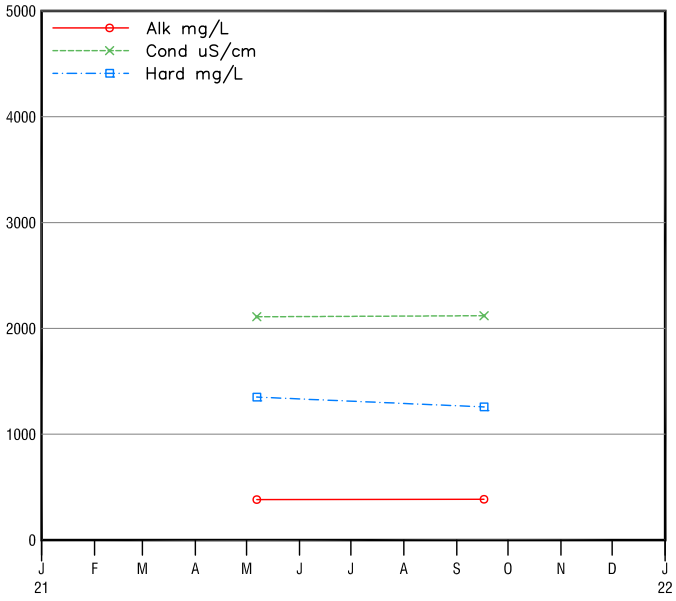
SHALLOW WEATHERED TILL

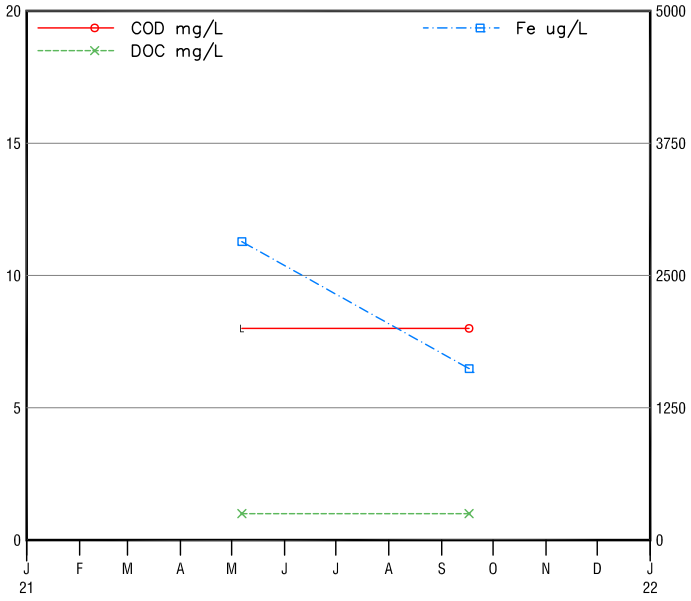
OBSERVATION WELL

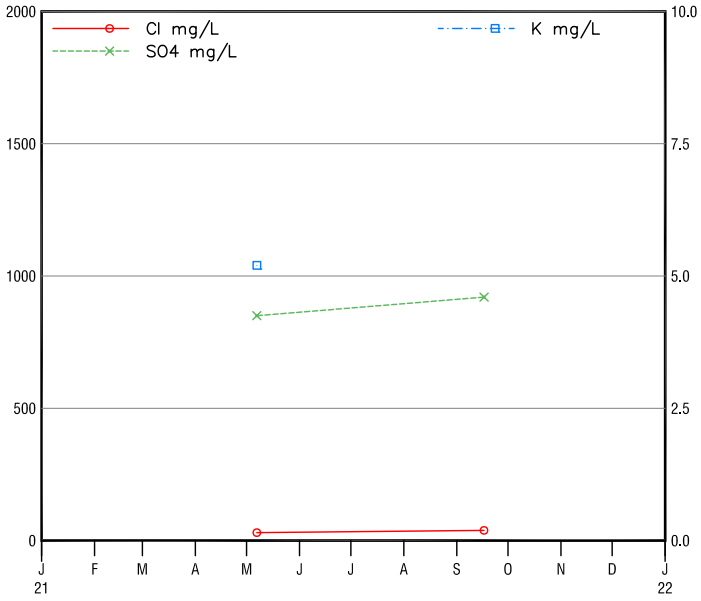


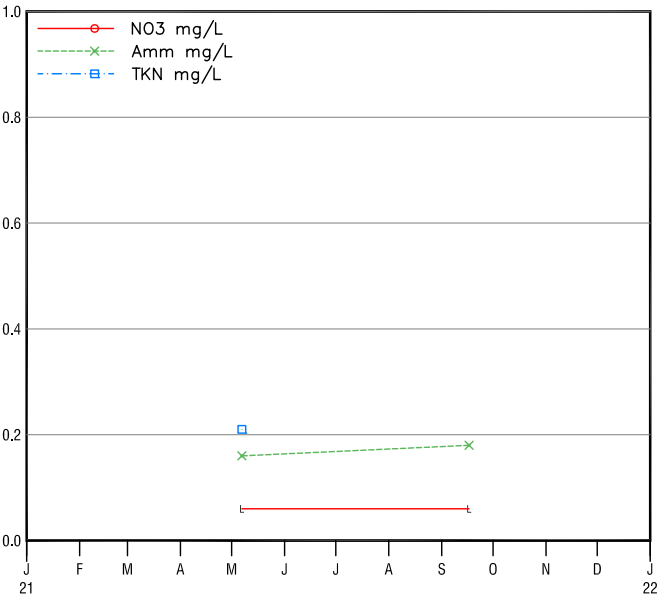
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
08-May-13	H131332	<2	6.4			<5			<100			<1			
06-May-14	H141333	<2	<4			<5			<100			<1			
08-Sep-14	H141334	2	5			<5			130			<1			
11-May-15	H151335	<2	5.5			<5			<100			<1			
14-Sep-15	H151336	<2	<4			<5			150			<1			
09-May-16	H161337	<2	20			<5			<100			<1			
13-Sep-16	H161338	3	<4			<5			<100			<1			
24-May-17	H171339	<2	<4			<5			<100			<1			
12-Sep-17	H171340	<2	<4			<5			<20			<1			
09-May-18	H181341	<2	<4			<5			<20			<1			
12-Sep-18	H181342	<2	<4			<5			<100			<1			
07-May-19	H191343	<2	<4			<5			<100			<1			
06-May-20	MPB466		6.1			<1			<100			<1			
05-May-21	2021R2031		<8		<0.2		0.043	0.5	20	<0.09	<0.01	<2		3	2020
15-Sep-21	CA1539706		<8						36						2150
TOTAL SAMPLES		12	15	0	1	13	1	1	15	1	1	14	0	1	2
AVERAGE 2021			<8						28						2085

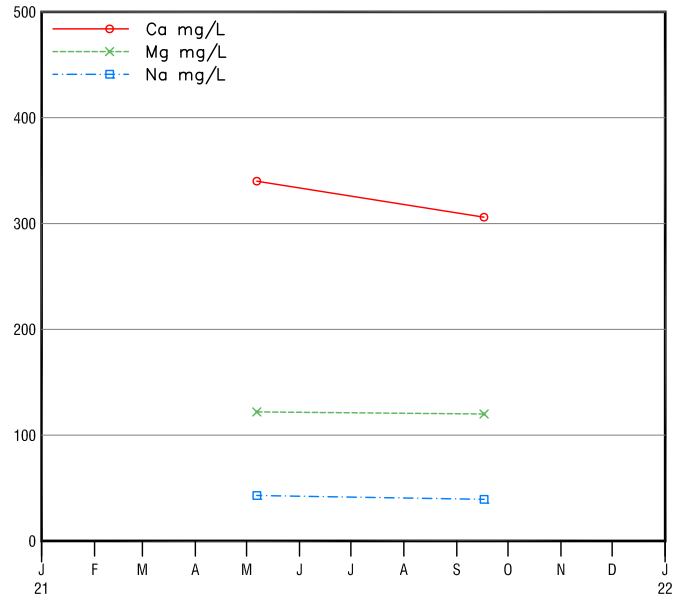
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**



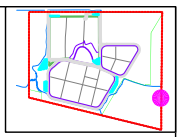








L Concentration Reported Less Than
G Concentration Reported Greater Than
A Concentration Determined Anomalous
Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 73-A

SHALLOW WEATHERED TILL

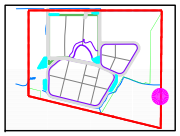
Screen 197.7 - 194.6 masl

21500070 19 Apr 22	GOLDER	21H1030

WELL 73-A

SHALLOW WEATHERED TILL

OBSERVATION WELL
Screen 197.7 - 194.6 masl



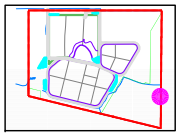
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
07-May-21	2021R2042	383	2110	1351	8.0	30	**850**	340	122	43	5.2		<0.06	<0.03	0.21	0.16	5.3
17-Sep-21	CA1546111	385	2120	1258	7.7	38	**920**	306	120	39.4			<0.06	<0.03		0.18	
TOTAL SAMPLES		2	2	2	2	2	2	2	2	2	1	0	2	2	1	2	
AVERAGE 2021		384	2115	1305	7.9	34	885	323	121	41			<0.06	<0.03		0.17	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 73-A

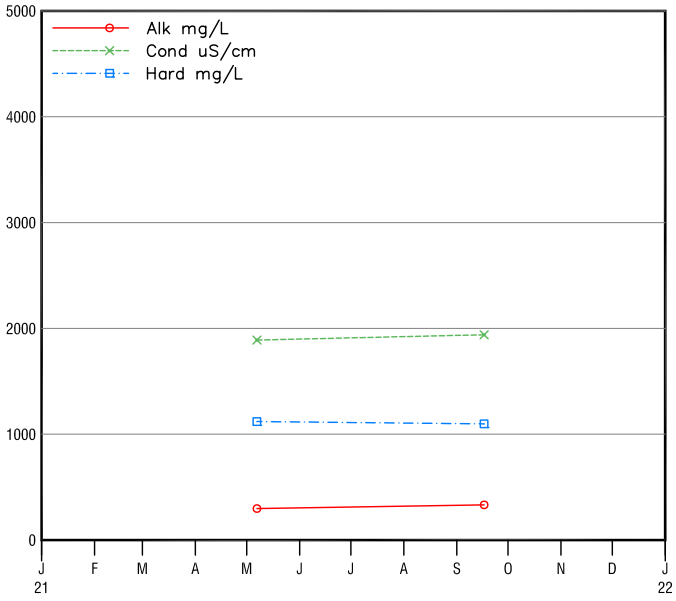
SHALLOW WEATHERED TILL

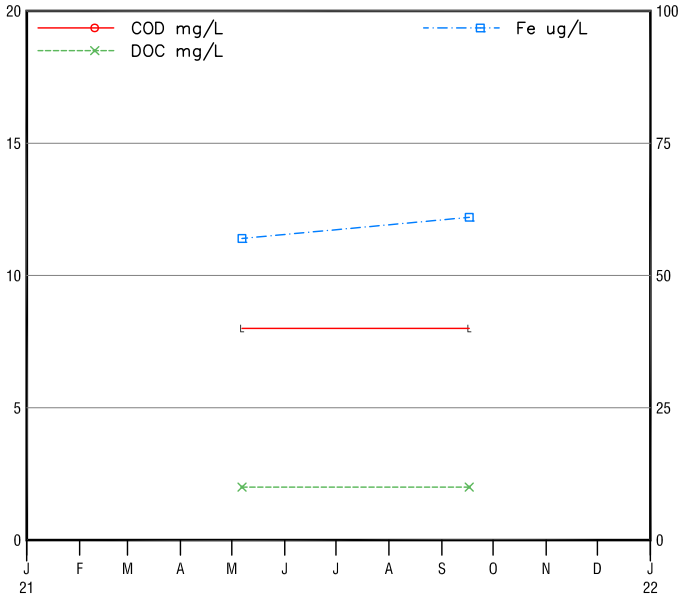
OBSERVATION WELL
Screen 197.7 - 194.6 masl

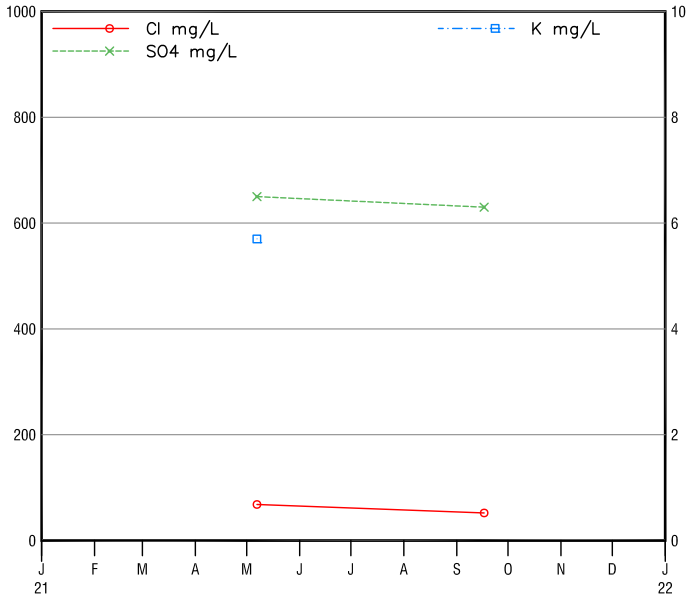


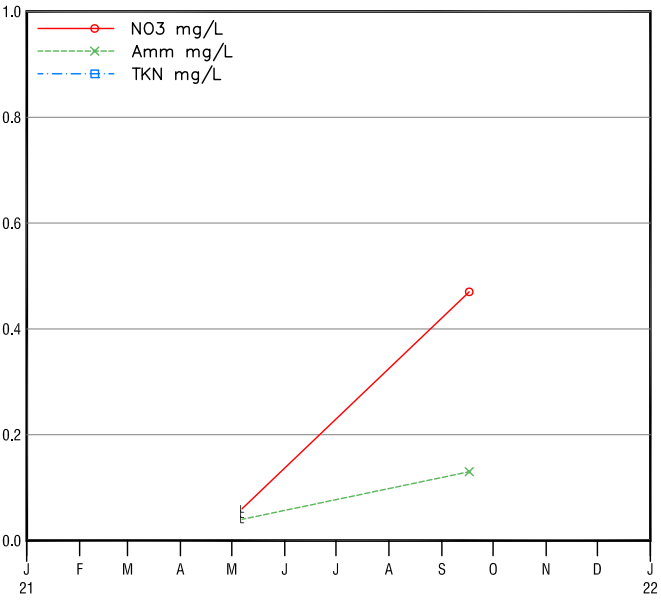
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
07-May-21	2021R2042		<8		<0.2		0.026	0.3	**2820**	<0.09	<0.01	<2		5	1720
17-Sep-21	CA1546111		8						**1620**						1920
TOTAL SAMPLES		0	2	0	1	0	1	1	2	1	1	1	0	1	2
AVERAGE 2021			<8						2220						1820

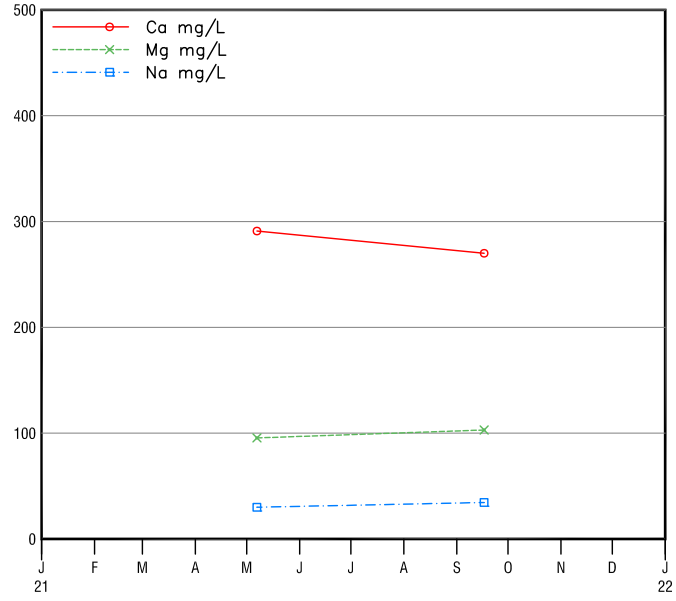
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









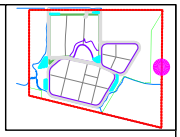


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 74-A

SHALLOW WEATHERED TILL

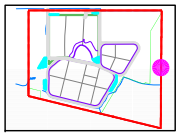
Screen 198.1 - 195.0 masl

21500070 19 Apr 22	GOLDER	21H1031

WELL 74-A

SHALLOW WEATHERED TILL

OBSERVATION WELL
Screen 198.1 - 195.0 masl



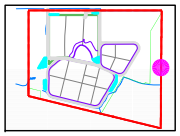
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
07-May-21	2021R2048	297	1890	1120	8.0	68	**650**	291	95.5	30	5.7		<0.06	<0.03	<0.05	<0.04	5.4
17-Sep-21	CA1546106	333	1940	1098	7.9	52	**630**	270	103	34.5			0.47	<0.03		0.13	
TOTAL SAMPLES		2	2	2	2	2	2	2	2	2	1	0	2	2	1	2	
AVERAGE 2021		315	1915	1109	8.0	60	640	281	99	32.3			0.24	<0.03		0.07	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 74-A

SHALLOW WEATHERED TILL

OBSERVATION WELL
Screen 198.1 - 195.0 masl

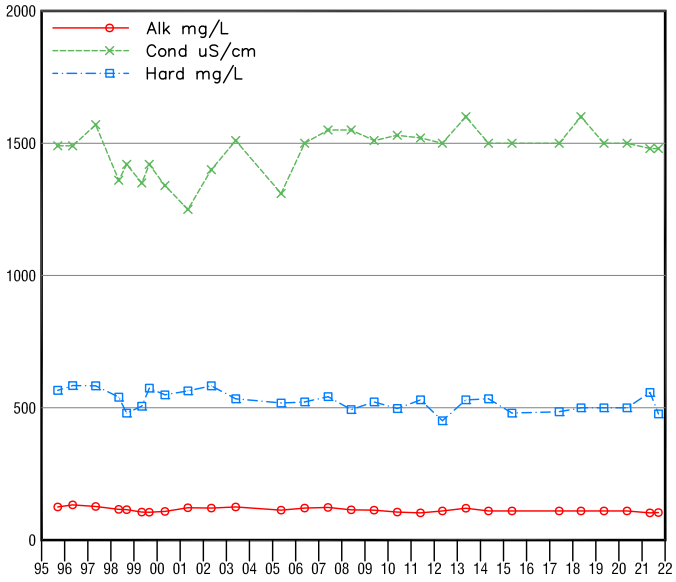


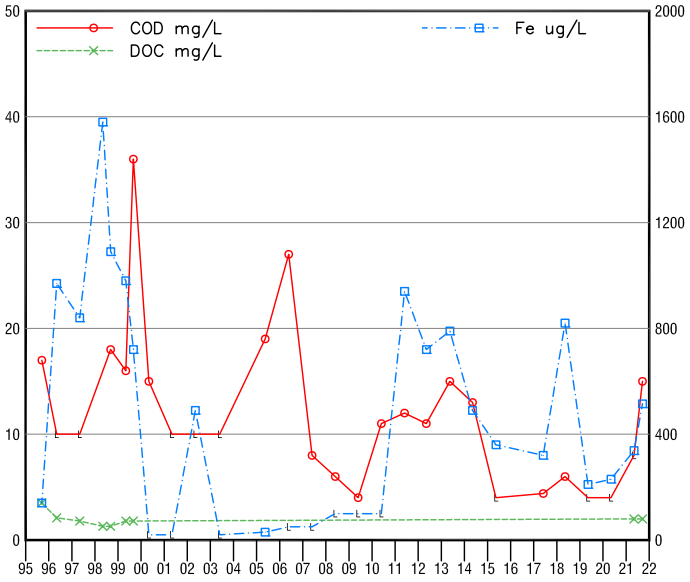
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
07-May-21	2021R2048		<8		0.4		0.048	0.6	57	<0.09	<0.01	<2		2	1510
17-Sep-21	CA1546106		<8						61						1600
TOTAL SAMPLES		0	2	0	1	0	1	1	2	1	1	1	0	1	2
AVERAGE 2021			<8						59						1555

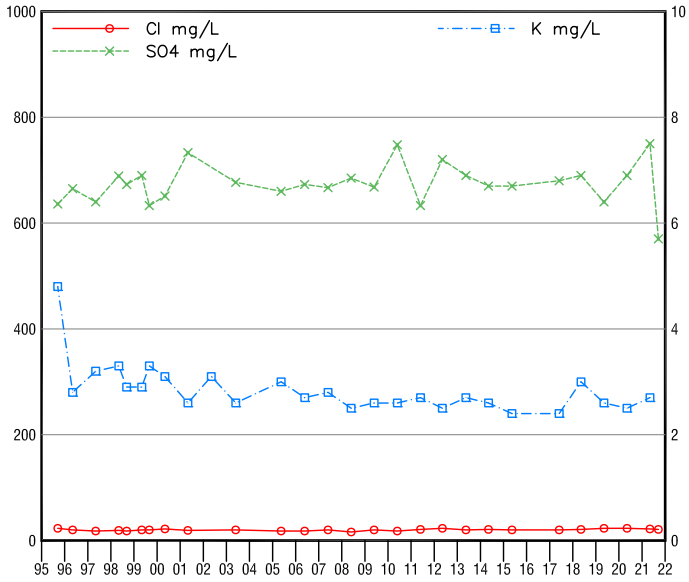
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

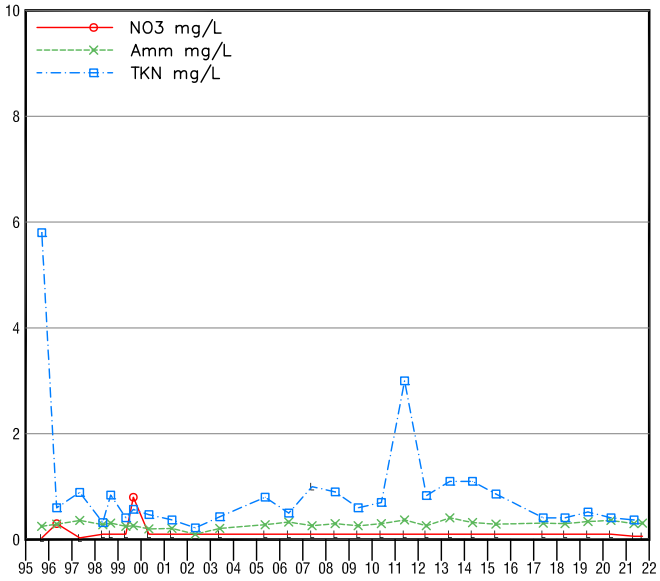
APPENDIX H2

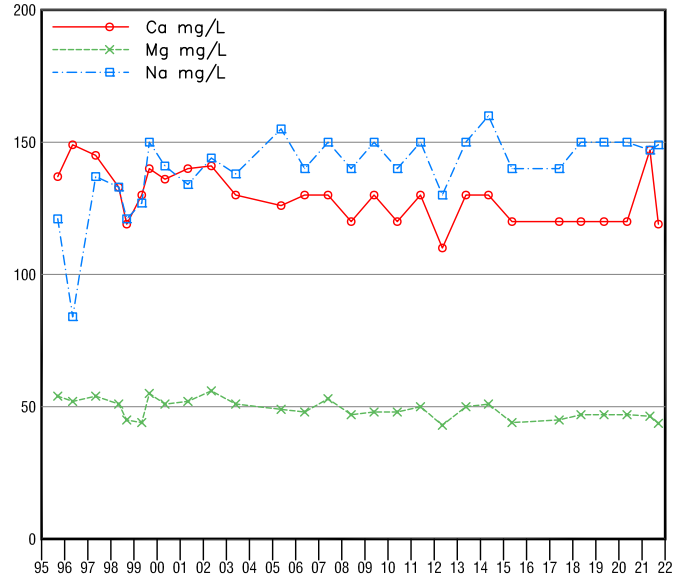
Layer 2 Hydrostratigraphic Unit Groundwater Quality Summary











L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 3-II

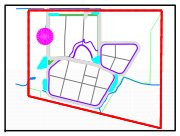
UNWEATHERED TILL

21500070 19 Apr 22	wsp GOLDER	21H2001

WELL 3-II

UNWEATHERED TILL

OBSERVATION WELL



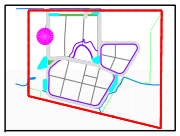
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
13-Sep-95	H952000	125	1490	566		23	**636**	137	54	121	4.8		<0.03	<0.03	5.8	0.25	0.9
06-May-96	H962001	133	1490	584		20	**665**	149	52	84	2.8		0.3	<0.01	0.6	0.29	-4.9
05-May-97	H972002	127	1570	583		18	**640**	145	54	137	3.2		<0.03	<0.03	0.89	0.36	4.1
05-May-98	H982003	116	1360	540		19	**689**	133	51	133	3.3		<0.1	<0.02	0.32	0.28	-1.2
07-Sep-98	H982004	115	1420	480		18	**673**	119	45	121	2.9		<0.1	<0.02	0.84	0.31	-5.6
04-May-99	H992005	106	1350	506		20	**690**	130	44	127	2.9		<0.1	<0.02	0.41	0.25	-3.9
01-Sep-99	H992006	105	1420	574		20	**633**	140	55	150	3.3		0.8	<0.02	0.57	0.26	6.7
04-May-00	H002007	108	1340	549		22	**651**	136	51	141	3.1	<2	<0.1	<0.02	0.47	0.2	2.6
03-May-01	H012008	122	1250	564		19	**733**	140	52	134	2.6	<2	<0.1	<0.02	0.37	0.21	-3.0
08-May-02	H022009	121	1400	583				141	56	144	3.1	<2			0.22	0.1	
29-May-03	H032010	125	1510	534		20	**677**	130	51	138	2.6	<2	<0.1	<0.02	0.43	0.21	-1.1
16-May-05	H052011	113	1310	518		18	**660**	126	49	155	3.0	3	<0.1	<0.1	0.8	0.28	1.9
24-May-06	H062012	121	1500	522		18	**673**	130	48	140	2.7	<2	<0.1	<0.01	0.5	0.33	-0.9
28-May-07	H072013	123	1550	542		20	**667**	130	53	150	2.8	<2	<0.1	<0.01	<1	0.26	1.6
28-May-08	H082014	114	1550	493		16	**685**	120	47	140	2.5	<2	<0.1	<0.01	0.9	0.3	-2.9
26-May-09	H092015	113	1510	522		20	**668**	130	48	150	2.6	<2	<0.1	<0.01	0.6	0.26	0.9
28-May-10	H102016	106	1530	497		18	**748**	120	48	140	2.6	<2	<0.1	<0.01	0.7	0.3	-6.1
30-May-11	H112017	103	1520	530		21	**633**	130	50	150	2.7	3	<0.1	<0.01	3	0.37	4.3
09-May-12	H122018	110	1500	451		23	**720**	110	43	130	2.5	<2	<0.1	<0.01	0.83	0.26	-9.3
16-May-13	H132019	120	1600	530		20	**690**	130	50	150	2.7	3	<0.1	<0.01	1.1	0.41	-0.2
09-May-14	H142020	110	1500	534		21	**670**	130	51	160	2.6	3	<0.1	<0.01	1.1	0.32	2.9
15-May-15	H152021	110	1500	480		20	**670**	120	44	140	2.4	<2	<0.1	<0.01	0.86	0.29	-2.8
31-May-17	H172023	110	1500	485		20	**680**	120	45	140	2.4	3	<0.1	<0.01	0.41	0.31	-3.2
11-May-18	H182024	110	1600	500		21	**690**	120	47	150	3.0	4	<0.1	<0.01	0.41	0.3	-1.9
09-May-19	H192025	110	1500	500		23	**640**	120	47	150	2.6	<2	<0.1	<0.01	0.52	0.34	0.9
07-May-20	MPB483	110	1500	500	7.9	23	**690**	120	47	150	2.5	<2	<0.1	<0.01	0.41	0.36	-2.2
06-May-21	2021R2021	103	1480	558	8.0	22	**750**	147	46.4	147	2.7		<0.06	<0.03	0.37	0.3	-1.8
17-Sep-21	CA1544307	104	1480	477	7.9	21	**570**	119	43.7	149			<0.06	<0.03		0.31	
TOTAL SAMPLES		28	28	28	3	27	27	28	28	28	27	19	27	27	27	28	
AVERAGE 2021		104	1480	518	8.0	22	660	133	45.1	148			<0.06	<0.03		0.31	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 3-II

UNWEATHERED TILL

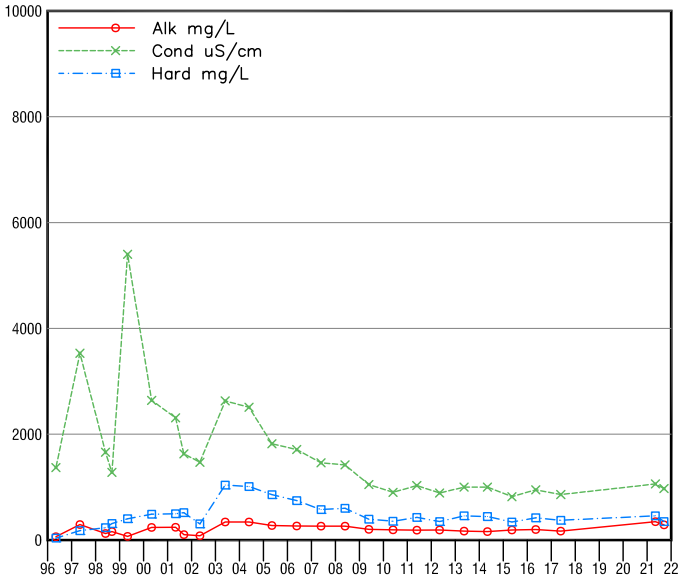
OBSERVATION WELL

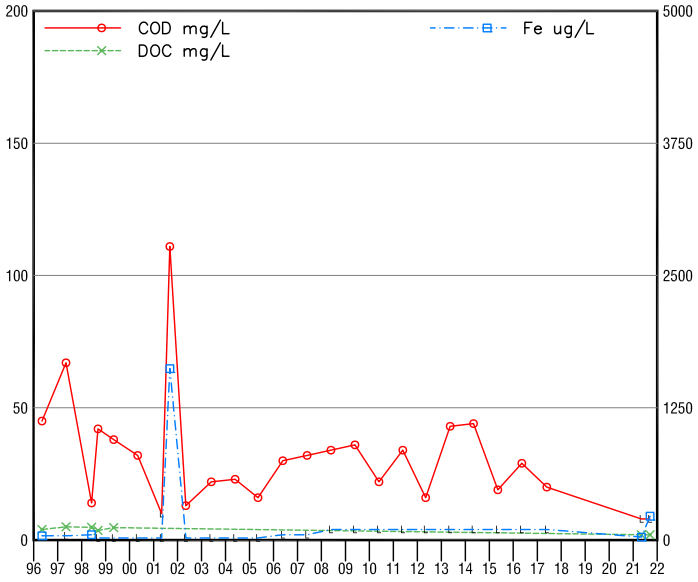


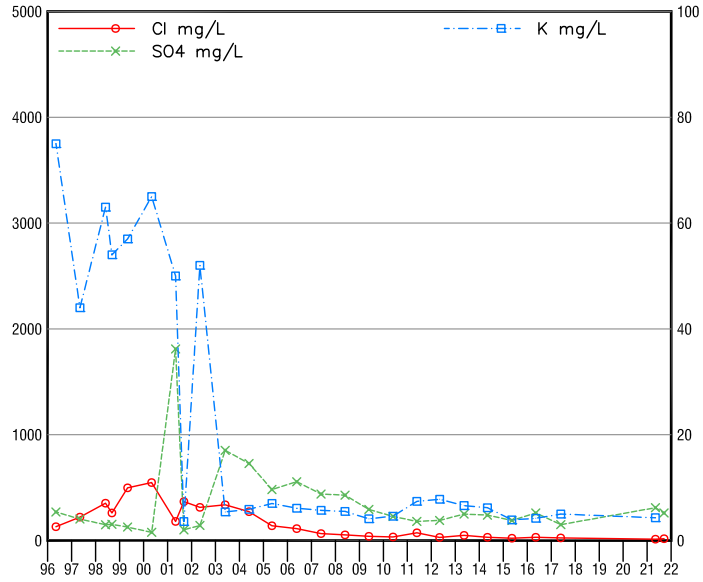
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
13-Sep-95	H952000		17			0.13			140			13			
06-May-96	H962001		<10			<0.1			**970**			<1			
05-May-97	H972002		<10			0.7			**840**			7			
05-May-98	H982003					0.1			**1580**			1			
07-Sep-98	H982004		18			0.15			**1090**			<1			
04-May-99	H992005		16			<0.5			**980**			1			
01-Sep-99	H992006		36			0.19			**720**			<1			
04-May-00	H002007	<2	15			0.13			<20			1			
03-May-01	H012008	<2	<10			0.15			<20			<1			
08-May-02	H022009	<2	<10			<0.5			**490**			<2			
29-May-03	H032010	<2	<10			<0.5			<20			<2			
16-May-05	H052011	3	19			<0.35			30			<1			
24-May-06	H062012	<2	27			<1			<50			<1			
28-May-07	H072013	<2	8			<1			<50			<1			
28-May-08	H082014	<2	6			<1			<100			<1			
26-May-09	H092015	<2	4			<1			<100			<1			
28-May-10	H102016	<2	11			<5			<100			<1			
30-May-11	H112017	3	12			<1			**940**			<1			
09-May-12	H122018	<2	11			<5			**720**			<1			
16-May-13	H132019	3	15			<2			**790**			<1			
09-May-14	H142020	3	13			<2			**490**			<1			
15-May-15	H152021	<2	<4			<1			**360**			<1			
31-May-17	H172023	3	4.4			<2			**320**			<1			
11-May-18	H182024	4	6			<2			**820**			<1			
09-May-19	H192025	<2	<4			<5			210			<1			
07-May-20	MPB483	<2	<4			<1			230			<1			
06-May-21	2021R2021		<8		0.7		0.008	0.3	**338**	<0.09	<0.01	<2		3	1100
17-Sep-21	CA1544307		15						**515**						1090

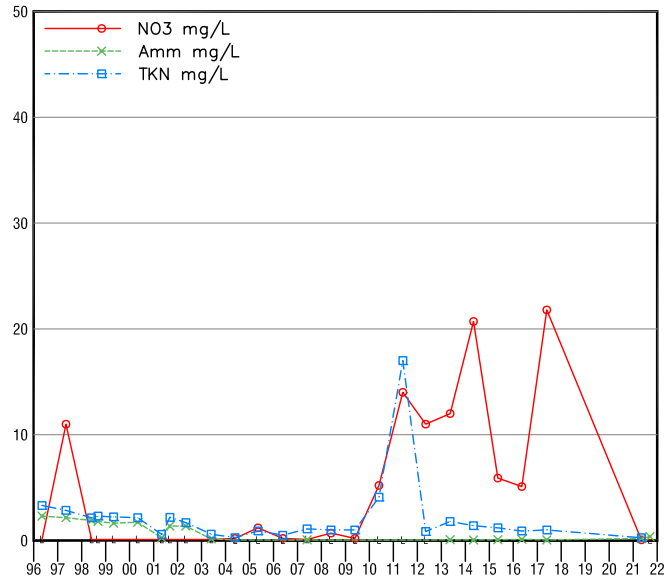
TOTAL SAMPLES	19	27	0	1	26	1	1	28	1	1	27	0	1	2
AVERAGE 2021		<8						427						1095

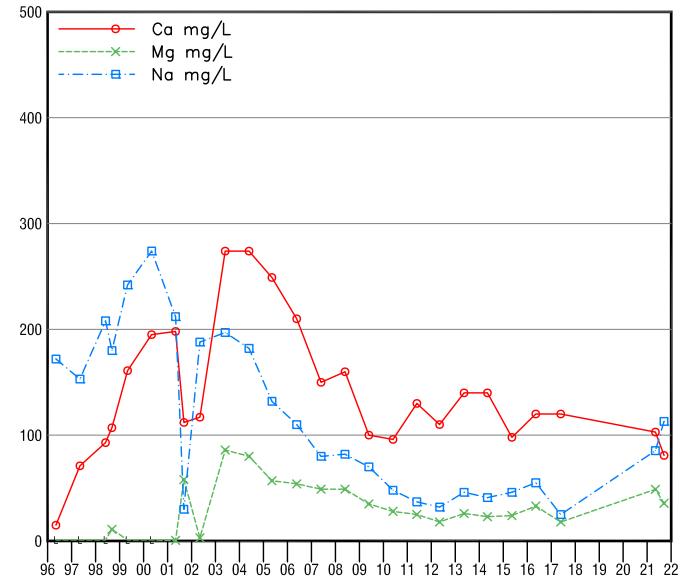
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









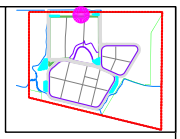


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 14-I

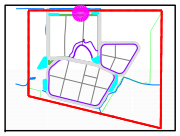
UNWEATHERED TILL

21500070 19 Apr 22	wsp GOLDER	21H2002

WELL 14-I

UNWEATHERED TILL

OBSERVATION WELL



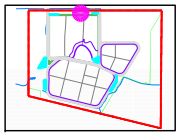
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
07-May-96	H962026	62	1370	37		130	270	15	<1	172	75		<0.1	<0.07	3.31	2.31	-1.0
07-May-97	H972027	292	3530	178		221	203	71	<1	153	44		**11.0**	0.42	2.85	2.16	-19.6
01-Jun-98	H982028	125	1660	233		**353**	149	93	<1	**208**	63		<0.1	<0.02	2.14	1.89	-0.4
07-Sep-98	H982029	160	1280	311		**260**	153	107	11	180	54		<0.1	0.02	2.31	1.8	6.4
03-May-99	H992030	68	5400	403		**498**	127	161	<1	**242**	57		<0.1	0.07	2.23	1.64	5.5
04-May-00	H002031	238	2640	488		**548**	77	195	<1	**274**	65	<2	<0.1	0.04	2.15	1.73	3.6
03-May-01	H012032	242	2310	497		180	**1810**	198	0.5	**212**	50	<2	<0.1	<0.02	0.58	0.25	-39.9
06-Sep-01	H012033	103	1630	518		**368**	101	112	58	30	3.6	<2	<0.1	<0.02	2.19	1.36	-9.9
08-May-02	H022034	82	1470	305		**313**	142	117	3.0	188	52	<2	<0.1	<0.02	1.69	1.37	7.8
29-May-03	H032035	340	2630	1039		**338**	**852**	274	86	197	5.4	<2	<0.1	<0.02	0.6	0.15	-7.2
26-May-04	H042036	340	2510	1011		**273**	**728**	274	80	182	5.9	<2	0.2	<0.02	0.27	<0.05	-2.3
10-May-05	H052037	275	1820	858		139	482	249	57	132	7.0	<2	1.2	<0.1	0.9	<0.05	8.2
22-May-06	H062038	267	1710	746		112	**556**	210	54	110	6.1	<2	0.2	<0.01	0.5	<0.05	-0.6
28-May-07	H072039	264	1460	576		65	439	150	49	80	5.7	<2	<0.1	<0.01	1.1	0.06	-3.5
26-May-08	H082040	263	1420	601		54	429	160	49	82	5.5	<2	0.7	<0.01	1	<0.05	-0.1
25-May-09	H092041	201	1050	394		39	294	100	35	70	4.1	<2	0.2	<0.01	1	<0.05	-1.0
27-May-10	H102042	194	902	355		34	228	96	28	48	4.6	<2	5.2	<0.01	4.1	<0.05	-3.4
25-May-11	H112043	187	1030	428		73	181	130	25	37	7.4	<2	**14.0**	<0.01	17	<0.05	-1.1
07-May-12	H122044	190	890	349		29	190	110	18	32	7.8	<2	**11.0**	<0.01	0.85	<0.05	-4.4
14-May-13	H132045	170	1000	457		49	250	140	26	46	6.6	<2	**12.0**	<0.01	1.8	0.076	2.1
05-May-14	H142046	160	1000	444		31	240	140	23	41	6.2	<2	**20.7**	<0.01	1.4	0.055	1.3
12-May-15	H152047	190	820	340		22	190	98	24	46	3.9	<2	5.9	<0.01	1.2	0.074	1.0
10-May-16	H162048	200	950	420		30	260	120	33	55	4.2	<2	5.1	<0.01	0.9	0.11	2.7
26-May-17	H172049	170	860	374		25	150	120	18	25	5.0	<2	**21.8**	<0.01	1	0.058	-0.5
06-May-21	2021R2020	346	1060	458	8.2	12	310	103	48.8	85.4	4.3		0.07	<0.03	0.26	0.19	-2.7
14-Sep-21	CA1539610	288	972	349	8.2	17	260	80.8	35.7	113			<0.06			0.37	
TOTAL SAMPLES		26	26	26	2	26	26	26	26	26	25	19	26	25	25	26	
AVERAGE 2021		317	1016	404	8.2	15	285	92	42.3	99			<0.06			0.28	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 14-I

UNWEATHERED TILL

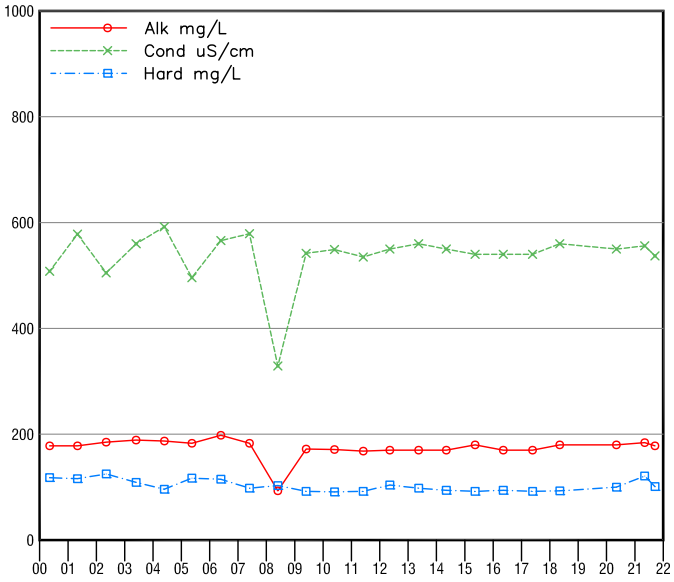
OBSERVATION WELL

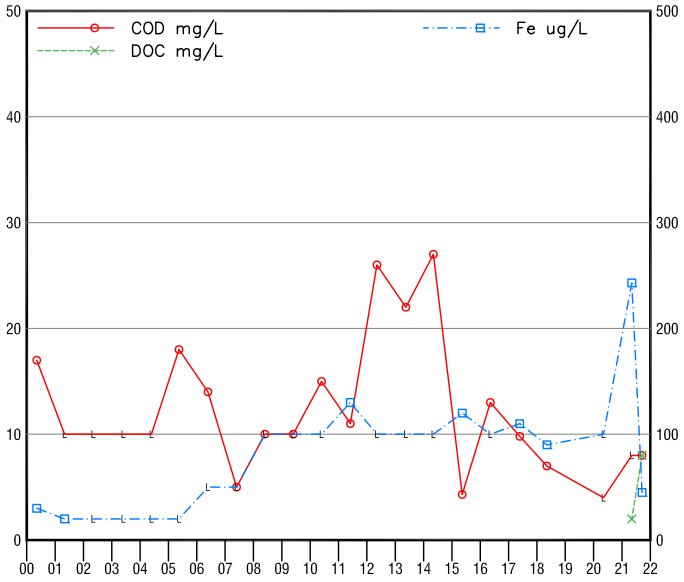


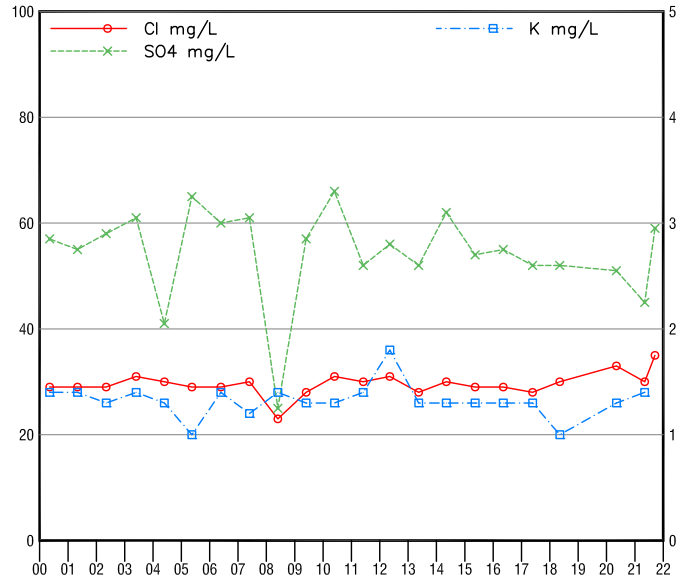
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
07-May-96	H962026		45			0.6			40			1			
07-May-97	H972027		67			<0.1			<40			1			
01-Jun-98	H982028		14			<2			50			3			
07-Sep-98	H982029		42			<0.1			<20			<1			
03-May-99	H992030		38			1.4			<20			2			
04-May-00	H002031	<2	32			1.02			<20			2			
03-May-01	H012032	<2	<10			0.8			<20			2			
06-Sep-01	H012033	<2	111			0.65			**1620**			<1			
08-May-02	H022034	<2	13			0.7			<20			<2			
29-May-03	H032035	<2	22			<0.5			<20			<2			
26-May-04	H042036	<2	23			<0.5			<20			<2			
10-May-05	H052037	<2	16			<0.35			<20			2			
22-May-06	H062038	<2	30			<1			<50			<1			
28-May-07	H072039	<2	32			<1			<50			1			
26-May-08	H082040	<2	34			<1			<100			<1			
25-May-09	H092041	<2	36			<1			<100			<1			
27-May-10	H102042	<2	22			<1			<100			<1			
25-May-11	H112043	<2	34			<1			<100			<1			
07-May-12	H122044	<2	16			<1			<100			<1			
14-May-13	H132045	<2	43			<1			<100			<1			
05-May-14	H142046	<2	44			<1			<100			<1			
12-May-15	H152047	<2	19			<1			<100			<1			
10-May-16	H162048	<2	29			<1			<100			<1			
26-May-17	H172049	<2	20			<1			<100			<1			
06-May-21	2021R2020		<8		1.5		0.019	0.4	28	<0.09	<0.01	<2		<2	703
14-Sep-21	CA1539610		<8						225						683

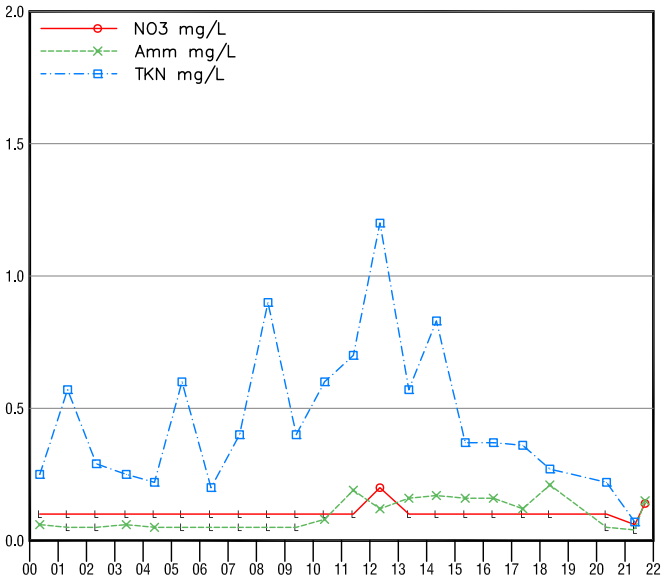
TOTAL SAMPLES	19	26	0	1	24	1	1	26	1	1	25	0	1	2
AVERAGE 2021		<8						127						693

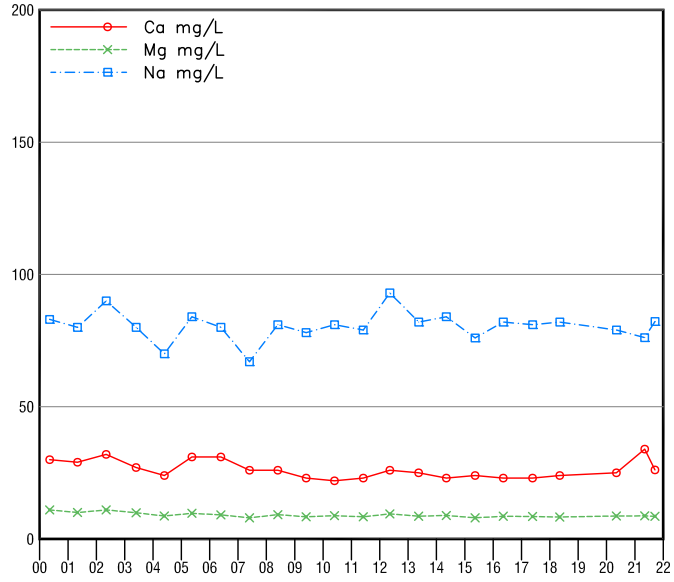
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**











L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 28-II

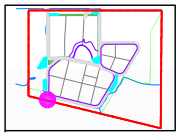
UNWEATHERED TILL

21500070 19 Apr 22	wsp GOLDER	21H2003

WELL 28-II

UNWEATHERED TILL

OBSERVATION WELL



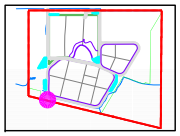
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
09-May-00	H002050	178	508	118		29	57	30	11	83	1.4	<2	<0.1	<0.02	0.25	0.06	4.2
03-May-01	H012051	178	578	116		29	55	29	10	80	1.4	<2	<0.1	<0.02	0.57	<0.05	2.4
08-May-02	H022052	185	505	125		29	58	32	11	90	1.3	<2	<0.1	<0.02	0.29	<0.05	6.0
29-May-03	H032053	189	560	109		31	61	27	9.9	80	1.4	<2	<0.1	<0.02	0.25	0.06	−2.1
26-May-04	H042054	187	592	96		30	41	24	8.7	70	1.3	<2	<0.1	<0.02	0.22	0.05	−4.2
16-May-05	H052055	183	496	117		29	65	31	9.7	84	1.0	<2	<0.1	<0.1	0.6	<0.05	1.7
25-May-06	H062056	198	566	115		29	60	31	9.1	80	1.4	<2	<0.1	<0.01	0.2	<0.05	−1.8
28-May-07	H072057	183	579	98		30	61	26	8.0	67	1.2	<2	<0.1	<0.01	0.4	<0.05	−8.2
28-May-08	H082058	93	329	103		23	25	26	9.2	81	1.4	<2	<0.1	<0.01	0.9	<0.05	29.9
27-May-09	H092059	172	542	92		28	57	23	8.4	78	1.3	<2	<0.1	<0.01	0.4	<0.05	−1.4
28-May-10	H102060	171	549	91		31	66	22	8.8	81	1.3	3	<0.1	<0.01	0.6	0.08	−2.5
02-Jun-11	H112061	168	535	92		30	52	23	8.4	79	1.4	6	<0.1	<0.01	0.7	0.19	0.4
10-May-12	H122062	170	550	104		31	56	26	9.5	93	1.8	6	0.2	0.02	1.2	0.12	6.3
17-May-13	H132063	170	560	98		28	52	25	8.6	82	1.3	<2	<0.1	<0.01	0.57	0.16	2.7
08-May-14	H142064	170	550	94		30	62	23	8.9	84	1.3	<2	<0.1	<0.01	0.83	0.17	0.4
14-May-15	H152065	180	540	92		29	54	24	8.0	76	1.3	<2	<0.1	<0.01	0.37	0.16	−3.1
11-May-16	H162066	170	540	94		29	55	23	8.6	82	1.3	<2	<0.1	<0.01	0.37	0.16	1.0
24-May-17	H172067	170	540	92		28	52	23	8.5	81	1.3	5	<0.1	<0.01	0.36	0.12	1.4
09-May-18	H182068	180	560	93		30	52	24	8.3	82	1.0	<2	<0.1	<0.01	0.27	0.21	−0.3
08-May-20	MPS804	180	550	100	7.9	33	51	25	8.7	79	1.3		<0.1	<0.01	0.22	<0.05	−1.4
07-May-21	2021R2051	184	556	121	8.3	30	45	34	8.73	76.1	1.4		<0.06	<0.03	0.07	<0.04	2.8
17-Sep-21	CA1546113	178	537	101	8.0	35	59	26.1	8.58	82.2			0.14	<0.03		0.15	
TOTAL SAMPLES		22	22	22	3	22	22	22	22	22	21	19	22	22	21	22	
AVERAGE 2021		181	547	111	8.2	33	52	30	8.66	79.2			0.07	<0.03		0.08	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 28-II

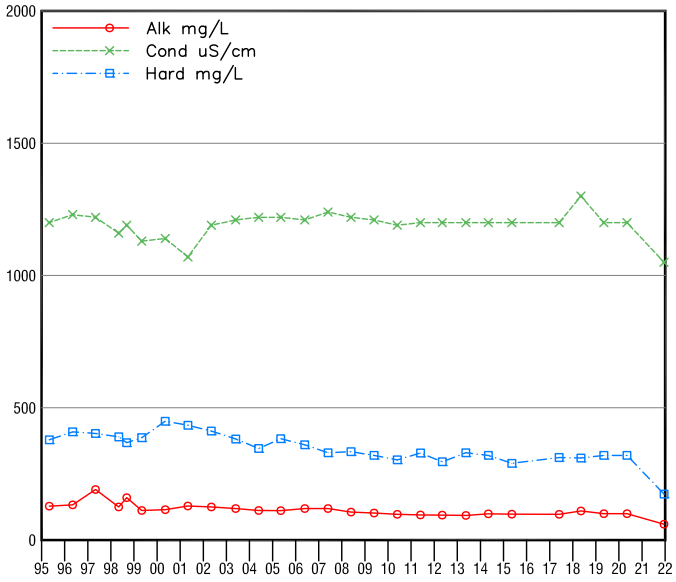
UNWEATHERED TILL

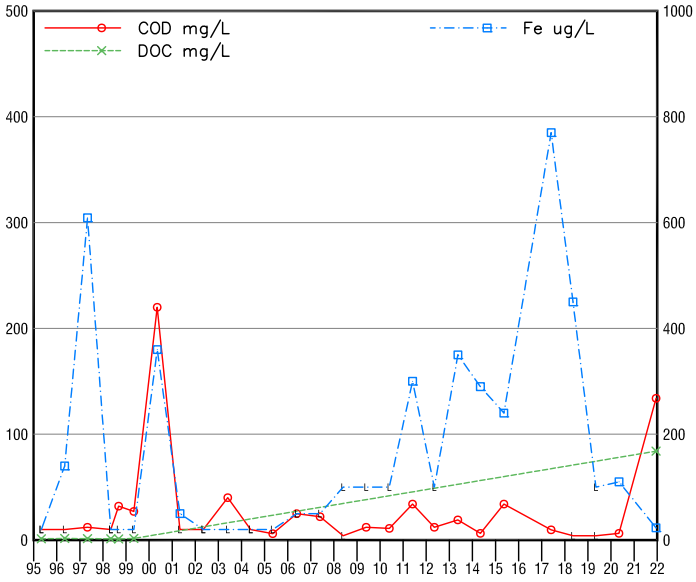
OBSERVATION WELL

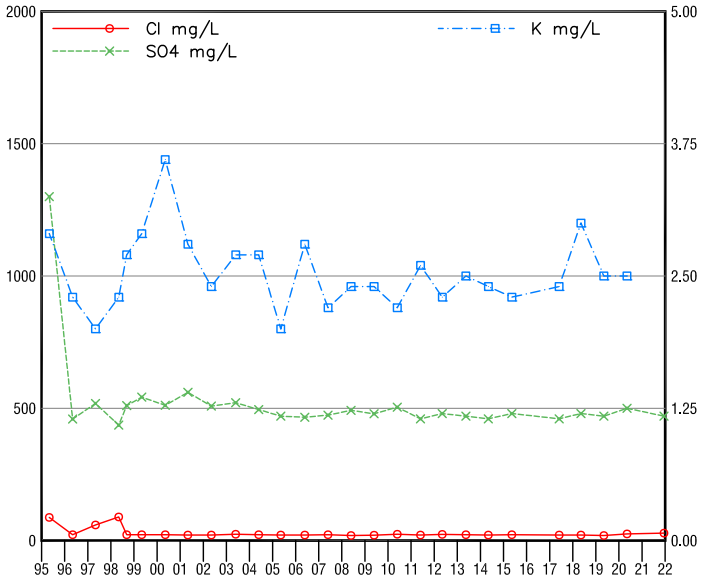


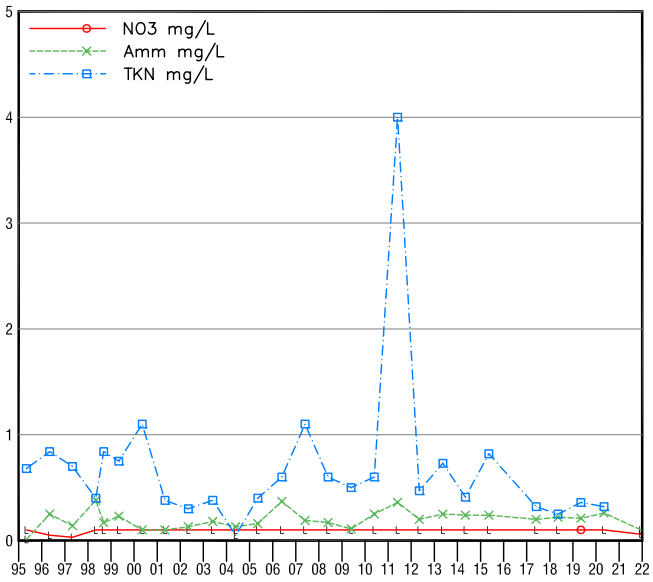
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
09-May-00	H002050	<2	17			0.25			30			<1			
03-May-01	H012051	<2	<10			0.25			20			1			
08-May-02	H022052	<2	<10			<0.5			<20			<2			
29-May-03	H032053	<2	<10			<0.5			<20			<2			
26-May-04	H042054	<2	<10			<0.5			<20			<2			
16-May-05	H052055	<2	18			<0.35			<20			1			
25-May-06	H062056	<2	14			<1			<50			<1			
28-May-07	H072057	<2	5			<1			<50			<1			
28-May-08	H082058	<2	10			<1			<100			<1			
27-May-09	H092059	<2	10			<1			<100			<1			
28-May-10	H102060	3	15			<1			<100			<1			
02-Jun-11	H112061	6	11			<1			130			<1			
10-May-12	H122062	6	26			<1			<100			<1			
17-May-13	H132063	<2	22			<1			<100			<1			
08-May-14	H142064	<2	27			<5			<100			<1			
14-May-15	H152065	<2	4.3			<1			120			<1			
11-May-16	H162066	<2	13			<1			<100			<1			
24-May-17	H172067	5	9.8			<1			110			<1			
09-May-18	H182068	<2	7			<1			90			<1			
08-May-20	MPS804		<4	<5		<1			<100			<1			
07-May-21	2021R2051		<8		0.3		0.024	0.6	243	0.27	<0.01	<2		6	343
17-Sep-21	CA1546113		8						45						413
TOTAL SAMPLES		19	22	1	1	20	1	1	22	1	1	21	0	1	2
AVERAGE 2021			<8						144						378

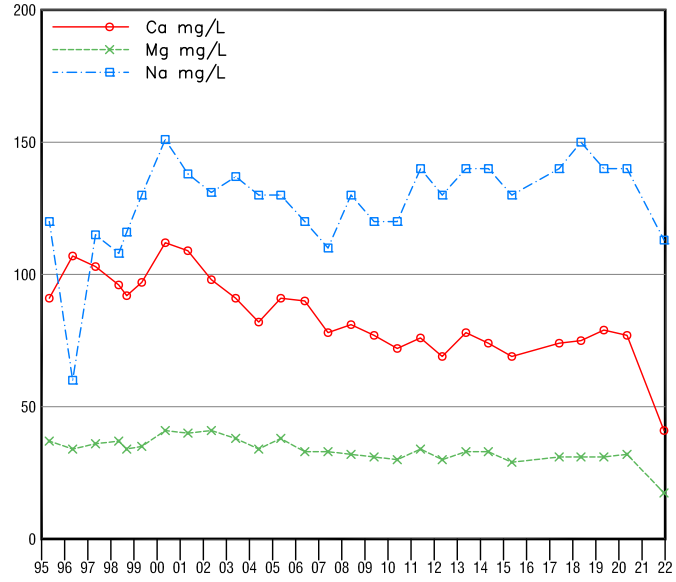
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









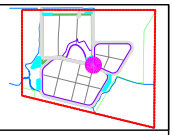


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 30-II

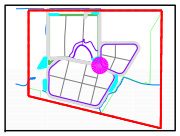
UNWEATHERED TILL

21500070 19 Apr 22	WSP GOLDER	21H2004

WELL 30-II

UNWEATHERED TILL

OBSERVATION WELL



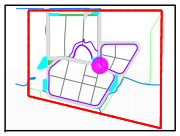
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
03-May-95	H952069	128	1200	379		87	**1300**	91	37	120	2.9		<0.1	0.79	0.68	<0.01	-42.7
06-May-96	H962070	133	1230	409		22	459	107	34	60	2.3		<0.05	<0.01	0.84	0.25	-8.5
02-May-97	H972071	191	1220	403		59	**518**	103	36	115	2.0		<0.03	<0.03	0.7	0.14	-10.5
05-May-98	H982072	125	1160	390		89	436	96	37	108	2.3		<0.1	<0.02	0.4	0.38	-5.5
07-Sep-98	H982073	160	1190	368		22	**510**	92	34	116	2.7		<0.1	<0.02	0.84	0.17	-7.1
04-May-99	H992074	112	1130	387		22	**542**	97	35	130	2.9		<0.1	<0.02	0.75	0.23	-2.5
09-May-00	H002075	115	1140	449		22	**511**	112	41	151	3.6	<2	<0.1	<0.02	1.1	0.1	7.1
03-May-01	H012076	129	1070	434		21	**560**	109	40	138	2.8	<2	<0.1	<0.02	0.38	0.1	-0.1
08-May-02	H022077	125	1190	412		21	**508**	98	41	131	2.4	<2	<0.1	<0.02	0.3	0.13	1.3
29-May-03	H032078	119	1210	382		24	**521**	91	38	137	2.7	<2	<0.1	<0.02	0.38	0.18	-0.7
26-May-04	H042079	112	1220	346		22	495	82	34	130	2.7	<2	<0.1	<0.02	<0.05	0.13	-2.1
10-May-05	H052080	111	1220	383		21	470	91	38	130	2.0	<2	<0.1	<0.1	0.4	0.16	3.0
25-May-06	H062081	119	1210	360		21	466	90	33	120	2.8	<2	<0.1	0.02	0.6	0.37	-0.6
28-May-07	H072082	119	1240	330		22	474	78	33	110	2.2	<2	<0.1	<0.01	1.1	0.19	-5.8
26-May-08	H082083	106	1220	334		19	492	81	32	130	2.4	<2	<0.1	<0.01	0.6	0.17	-2.0
25-May-09	H092084	102	1210	320		20	479	77	31	120	2.4	<2	<0.1	<0.01	0.5	0.11	-3.7
27-May-10	H102085	97	1190	303		24	**504**	72	30	120	2.2	<2	<0.1	<0.01	0.6	0.25	-7.2
30-May-11	H112086	95	1200	329		21	460	76	34	140	2.6	<2	<0.1	<0.01	4	0.36	2.9
08-May-12	H122087	94	1200	296		23	480	69	30	130	2.3	<2	<0.1	<0.01	0.47	0.2	-3.6
16-May-13	H132088	93	1200	330		22	470	78	33	140	2.5	<2	<0.1	<0.01	0.73	0.25	2.1
07-May-14	H142089	99	1200	320		21	460	74	33	140	2.4	<2	<0.1	<0.01	0.41	0.24	1.8
13-May-15	H152090	98	1200	290		22	480	69	29	130	2.3	<2	<0.1	<0.01	0.82	0.24	-4.2
30-May-17	H172092	97	1200	312		21	460	74	31	140	2.4	<2	<0.1	<0.01	0.32	0.2	1.3
10-May-18	H182093	110	1300	310		21	480	75	31	150	3.0	<2	<0.1	<0.01	0.25	0.22	0.6
07-May-19	H192094	100	1200	320		19	470	79	31	140	2.5	<2	0.1	<0.01	0.36	0.21	1.3
07-May-20	MPB488	100	1200	320	7.9	25	500	77	32	140	2.5	<2	<0.1	<0.01	0.32	0.26	-1.8
14-Dec-21	OW0014	60	1050	174	8.5	28	470	41	17.4	113			<0.06	0.04		<0.1	
TOTAL SAMPLES		27	27	27	2	27	27	27	27	27	26	20	27	27	26	27	
AVERAGE 2021																	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 30-II

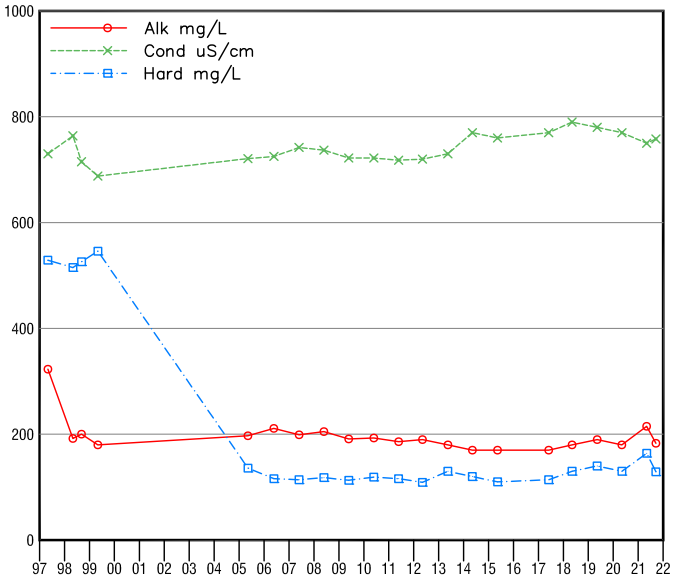
UNWEATHERED TILL

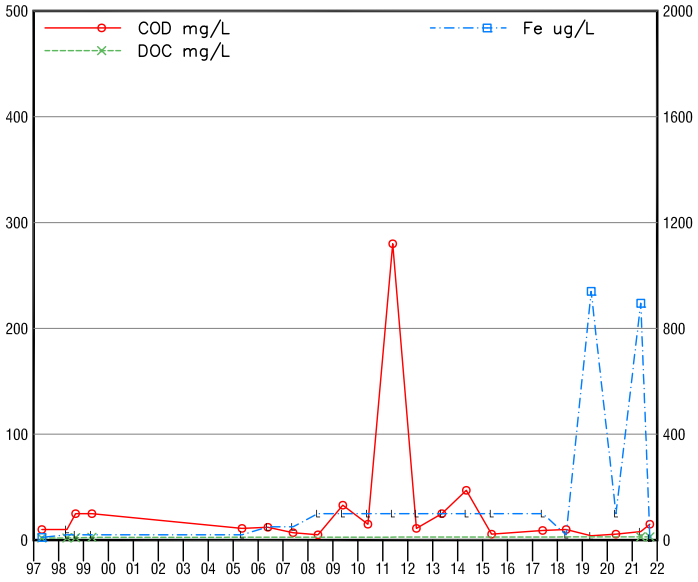
OBSERVATION WELL

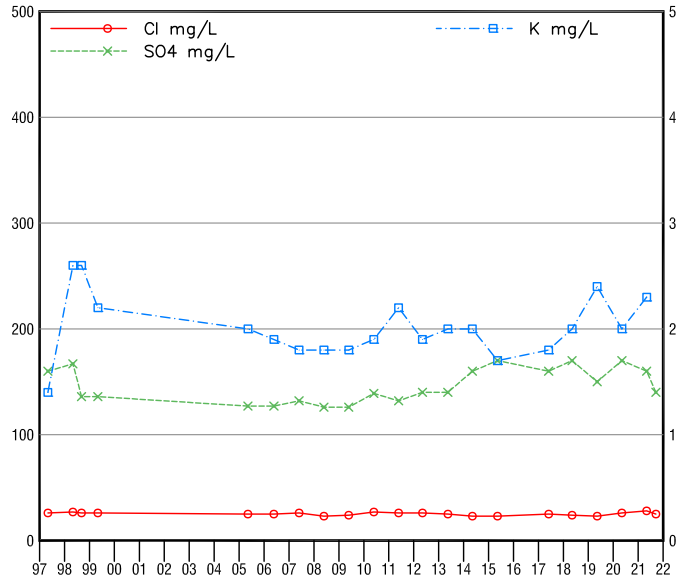


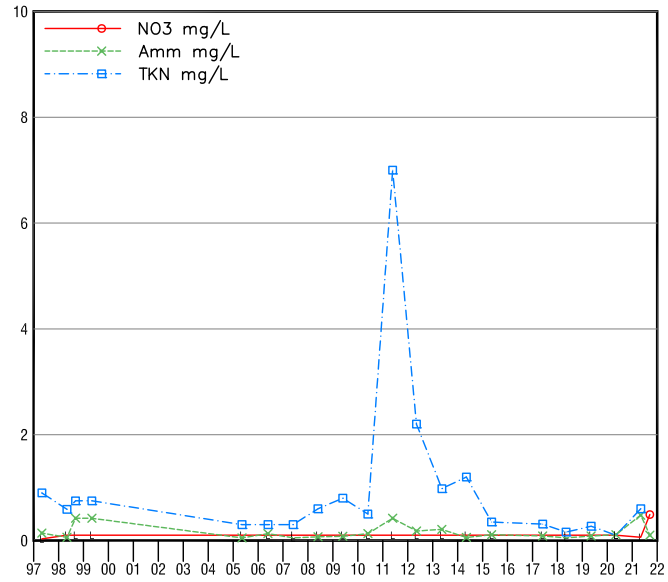
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
03-May-95	H952069		<10			<0.01			<20			<1			
06-May-96	H962070		<10			0.2			140			<1			
02-May-97	H972071		12			0.6			**609**			<1			
05-May-98	H982072		<10			0.2			<20			1			
07-Sep-98	H982073		32			0.16			<20			<1			
04-May-99	H992074		27			<0.5			<20			1			
09-May-00	H002075	<2	220			0.18			**360**			<1			
03-May-01	H012076	<2	<10			0.17			50			<1			
08-May-02	H022077	<2	<10			<0.5			<20			<2			
29-May-03	H032078	<2	40			<0.5			<20			<2			
26-May-04	H042079	<2	<10			<0.5			<20			<2			
10-May-05	H052080	<2	6			<0.35			<20			<1			
25-May-06	H062081	<2	25			<1			<50			<1			
28-May-07	H072082	<2	22			<1			<50			<1			
26-May-08	H082083	<2	<4			<1			<100			<1			
25-May-09	H092084	<2	12			<1			<100			<1			
27-May-10	H102085	<2	11			<5			<100			<1			
30-May-11	H112086	<2	34			<1			300			4			
08-May-12	H122087	<2	12			<1			<100			<1			
16-May-13	H132088	<2	19			<1			**350**			<1			
07-May-14	H142089	<2	6.4			<1			290			<1			
13-May-15	H152090	<2	34			<1			240			19			
30-May-17	H172092	<2	9.7			<1			**770**			<1			
10-May-18	H182093	<2	<4			<1			**450**			<1			
07-May-19	H192094	<2	<4			<1			<100			<1			
07-May-20	MPB488	<2	6.4			<1			110			8.1			
14-Dec-21	OW0014		134						23						705
TOTAL SAMPLES		20	27	0	0	26	0	0	27	0	0	26	0	0	1
AVERAGE 2021															

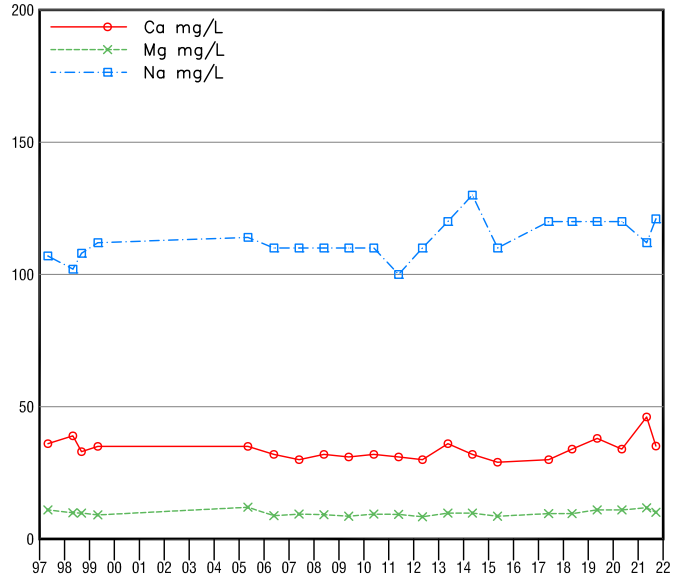
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









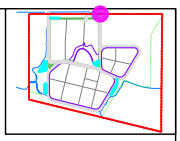


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 32-II

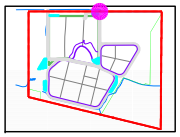
UNWEATHERED TILL

21500070 19 Apr 22	GOLDER	21H2005

WELL 32-II

UNWEATHERED TILL

OBSERVATION WELL



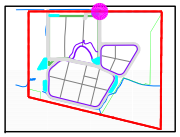
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
02-May-97	H972095	323	730	529		26	160	36	11	107	1.4		<0.03	0.06	0.9	0.14	-17.4
04-May-98	H982096	192	764	515		27	167	39	9.9	102	2.6		<0.1	<0.02	0.59	0.06	-5.3
07-Sep-98	H982097	200	715	526		26	136	33	9.8	108	2.6		<0.1	<0.02	0.75	0.42	-2.1
04-May-99	H992098	180	688	546		26	136	35	9.1	112	2.2		<0.1	<0.02	0.75	0.42	2.0
10-May-05	H052099	197	721	136		25	127	35	12	114	2.0	<1	<0.1	<0.1	0.3	0.05	3.1
25-May-06	H062100	211	725	116		25	127	32	8.8	110	1.9	<2	<0.1	<0.01	0.3	0.13	-2.7
28-May-07	H072101	199	742	114		26	132	30	9.4	110	1.8	<2	<0.1	<0.01	0.3	<0.05	-2.5
26-May-08	H082102	205	737	118		23	126	32	9.2	110	1.8	<2	<0.1	<0.01	0.6	0.07	-1.2
25-May-09	H092103	191	722	113		24	126	31	8.6	110	1.8	<2	<0.1	<0.01	0.8	0.08	-0.2
27-May-10	H102104	193	722	119		27	139	32	9.4	110	1.9	<2	<0.1	<0.01	0.5	0.13	-2.0
25-May-11	H112105	186	718	116		26	132	31	9.3	100	2.2	<2	<0.1	<0.01	7	0.42	-3.2
08-May-12	H122106	190	720	109		26	140	30	8.4	110	1.9	<2	<0.1	<0.01	2.2	0.18	-2.8
15-May-13	H132107	180	730	130		25	140	36	9.8	120	2.0	<2	<0.1	<0.01	0.98	0.21	4.4
09-May-14	H142108	170	770	120		23	160	32	9.8	130	2.0	3	<0.1	<0.01	1.2	0.057	4.8
13-May-15	H152109	170	760	110		23	170	29	8.6	110	1.7	<2	<0.1	<0.01	0.35	0.11	-4.1
30-May-17	H172111	170	770	114		25	160	30	9.6	120	1.8	<2	<0.1	<0.01	0.31	0.086	0.8
08-May-18	H182112	180	790	130		24	170	34	9.6	120	2.0	<2	<0.1	<0.01	0.16	<0.05	-0.4
10-May-19	H192113	190	780	140		23	150	38	11	120	2.4	3	<0.1	<0.01	0.27	0.085	3.5
07-May-20	MPB491	180	770	130	8.0	26	170	34	11	120	2.0	3	<0.1	<0.01	<0.1	0.11	0.1
05-May-21	2021R2014	215	750	164	8.1	28	160	46.1	11.8	112	2.3		<0.06	<0.03	0.60	0.48	-0.9
16-Sep-21	CA1544304	183	758	129	8.1	25	140	35.1	10.1	121			0.49	<0.03		0.1	
TOTAL SAMPLES		21	21	21	3	21	21	21	21	21	20	15	21	21	20	21	
AVERAGE 2021		199	754	147	8.1	27	150	40.6	11.0	117			0.25	<0.03		0.29	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 32-II

UNWEATHERED TILL

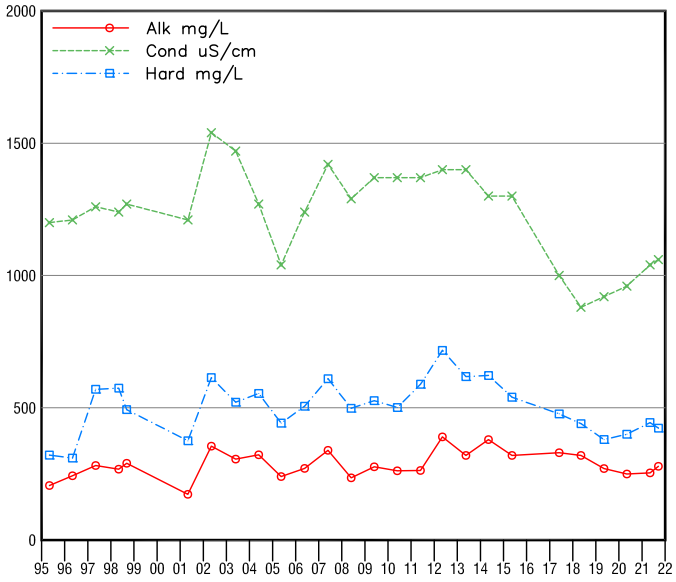
OBSERVATION WELL

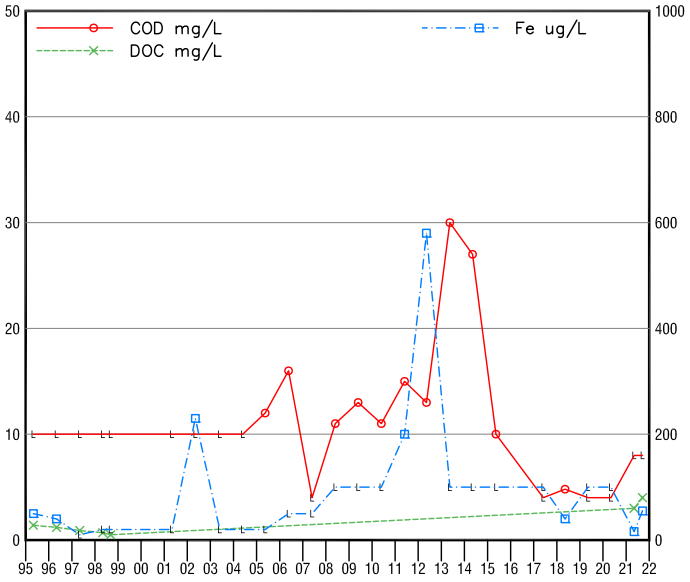


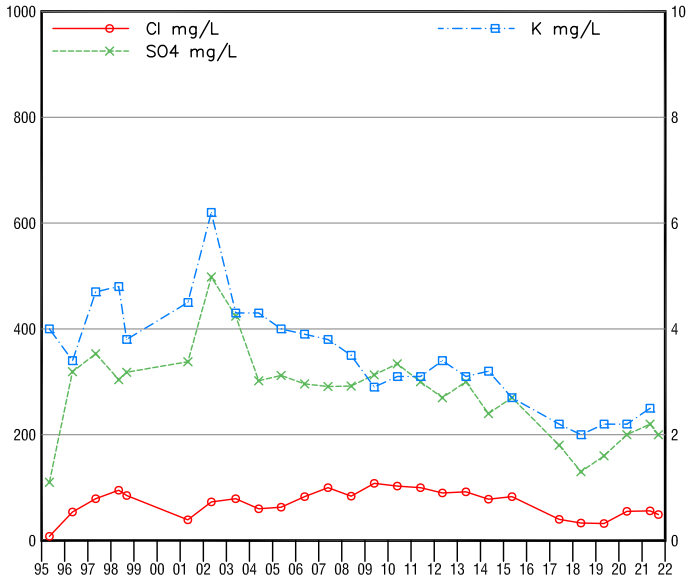
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
02-May-97	H972095		10			0.8			10			<1			
04-May-98	H982096		<10			0.2			<20			<1			
07-Sep-98	H982097		25			0.2			<20			<1			
04-May-99	H992098		25			<0.5			<20			1			
10-May-05	H052099	<1	11			<0.35			<20			2			
25-May-06	H062100	<2	12			<1			<50			<1			
28-May-07	H072101	<2	7			<1			<50			<1			
26-May-08	H082102	<2	5			<1			<100			<1			
25-May-09	H092103	<2	33			<1			<100			<1			
27-May-10	H102104	<2	15			<1			<100			<1			
25-May-11	H112105	<2	280			<1			<100			<1			
08-May-12	H122106	<2	11			<1			<100			<1			
15-May-13	H132107	<2	25			<1			<100			<1			
09-May-14	H142108	3	47			<1			<100			<1			
13-May-15	H152109	<2	5.5			<1			<100			<1			
30-May-17	H172111	<2	9			<1			<100			<1			
08-May-18	H182112	<2	10			<1			<20			<1			
10-May-19	H192113	3	<4			<1			**940**			<1			
07-May-20	MPB491	3	5.6			<1			<100			<1			
05-May-21	2021R2014		<8		3.7		0.018	1.5	**895**	0.54	0.01	<2		4	540
16-Sep-21	CA1544304		15						<7						480

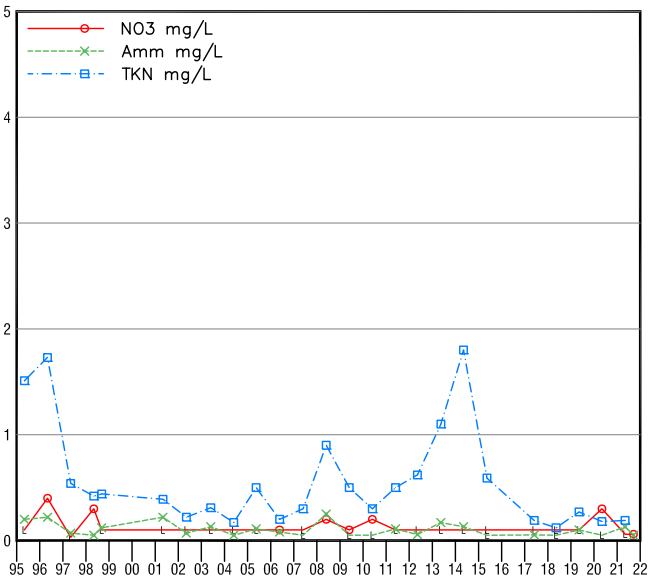
TOTAL SAMPLES	15	21	0	1	19	1	1	21	1	1	20	0	1	2	
AVERAGE 2021		<8						448						510	

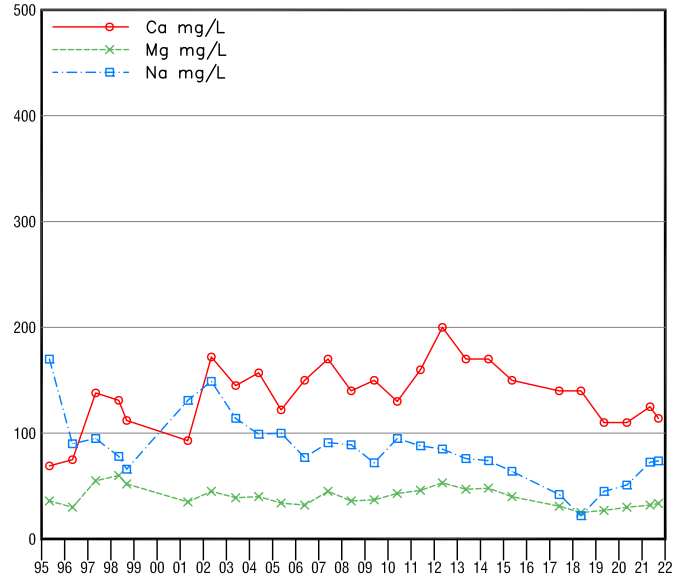
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**



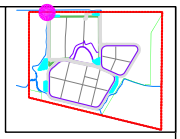








L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 44-II

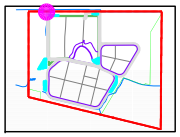
UNWEATHERED TILL

21500070 19 Apr 22	GOLDER	21H2006

WELL 44-II

UNWEATHERED TILL

OBSERVATION WELL



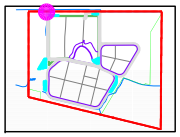
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
04-May-95	H952114	206	1200	321		8	110	69	36	170	4.0		<0.1	0.66	1.51	0.2	35.5
03-May-96	H962115	243	1210	310		54	319	75	30	90	3.4		0.4	<0.01	1.73	0.22	-12.1
05-May-97	H972116	282	1260	570		79	353	138	55	95	4.7		<0.03	0.13	0.54	0.07	1.5
05-May-98	H982117	268	1240	574		95	304	131	60	78	4.8		0.3	<0.02	0.42	0.05	2.1
07-Sep-98	H982118	290	1270	493		85	318	112	52	66	3.8		<0.1	<0.02	0.44	0.12	-7.1
03-May-01	H012119	173	1210	375		39	338	93	35	131	4.5		<0.1	<0.02	0.39	0.22	7.0
08-May-02	H022120	355	1540	614		73	498	172	45	149	6.2	<2	<0.1	<0.02	0.22	0.07	-1.5
29-May-03	H032121	306	1470	521		79	424	145	39	114	4.3	<2	<0.1	<0.02	0.31	0.13	-5.0
27-May-04	H042122	322	1270	554		60	302	157	40	99	4.3	<2	<0.1	<0.02	0.17	0.05	3.8
16-May-05	H052123	240	1040	442		63	312	122	34	100	4.0	<2	<0.1	<0.1	0.5	0.11	1.0
22-May-06	H062124	271	1240	506		83	296	150	32	77	3.9	<2	0.1	<0.01	0.2	0.08	-1.3
28-May-07	H072125	339	1420	610		100	291	170	45	91	3.8	<2	<0.1	<0.01	0.3	<0.05	1.8
28-May-08	H082126	235	1290	498		84	292	140	36	89	3.5	<2	0.2	0.02	0.9	0.25	2.8
27-May-09	H092127	277	1370	527		108	313	150	37	72	2.9	<2	0.1	<0.01	0.5	<0.05	-4.7
28-May-10	H102128	262	1370	501		103	334	130	43	95	3.1	<2	0.2	<0.01	0.3	<0.05	-3.0
30-May-11	H112129	263	1370	589		100	300	160	46	88	3.1	<2	<0.1	<0.01	0.5	0.11	4.6
10-May-12	H122130	390	1400	717		90	270	200	53	85	3.4	<2	<0.1	<0.01	0.62	0.057	6.4
16-May-13	H132131	320	1400	618		92	300	170	47	76	3.1	<2	<0.1	<0.01	1.1	0.17	1.7
09-May-14	H142132	380	1300	622		78	240	170	48	74	3.2	2	<0.1	<0.01	1.8	0.13	3.1
15-May-15	H152133	320	1300	540		83	270	150	40	64	2.7	<2	<0.1	<0.01	0.59	<0.05	-2.6
31-May-17	H172135	330	1000	477		40	180	140	31	42	2.2	<2	<0.1	<0.01	0.19	0.053	-0.2
11-May-18	H182136	320	880	440		33	130	140	25	22	2.0	<2	<0.1	<0.01	0.12	<0.05	0.1
10-May-19	H192137	270	920	380		32	160	110	27	45	2.2	<2	<0.1	<0.01	0.27	0.1	0.5
05-May-20	MPB480	250	960	400	8.0	55	200	110	30	51	2.2	<2	0.3	<0.01	0.18	<0.05	-2.4
07-May-21	2021R2023	254	1040	444	8.1	56	220	125	32	72.6	2.5		<0.06	<0.03	0.19	0.13	3.7
17-Sep-21	CA1544314	279	1060	423	8.1	49	200	114	33.6	73.8			0.06	<0.03		0.05	
TOTAL SAMPLES		26	26	26	3	26	26	26	26	26	25	18	26	26	25	26	
AVERAGE 2021		267	1050	434	8.1	53	210	120	32.8	73.2			<0.06	<0.03		0.09	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 44-II

UNWEATHERED TILL

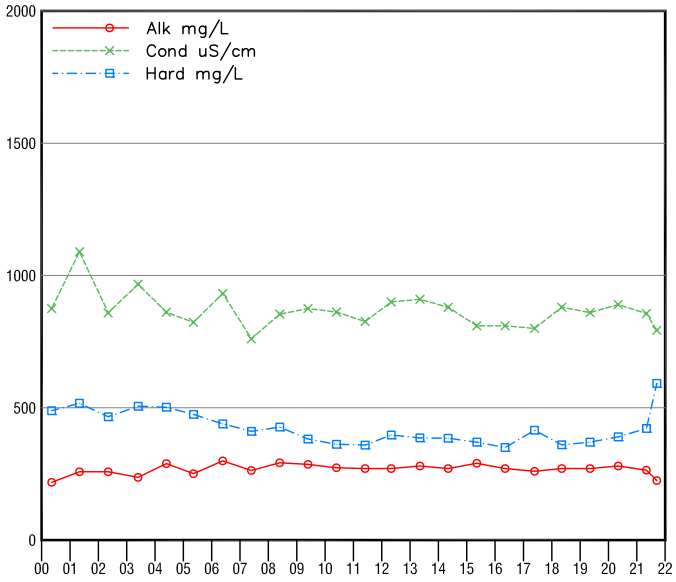
OBSERVATION WELL

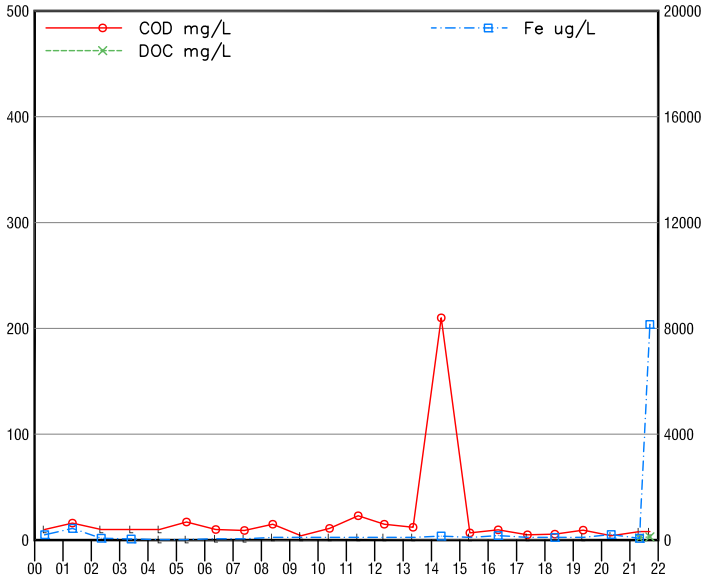


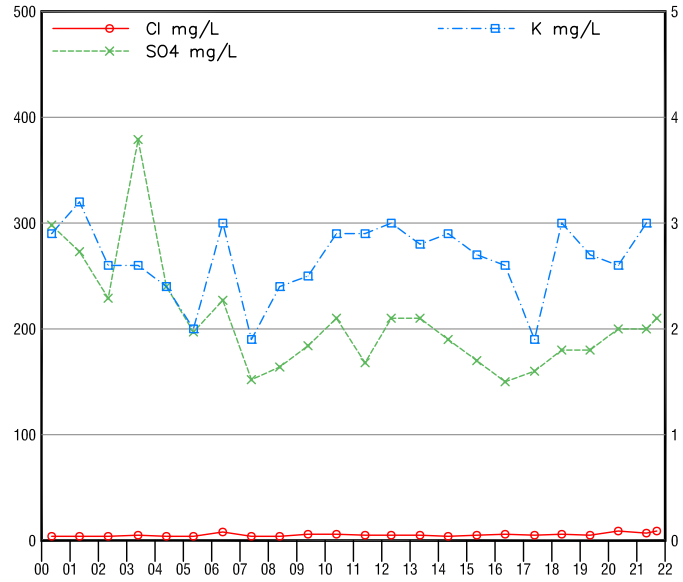
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
04-May-95	H952114		<10			<0.01			50			<1			
03-May-96	H962115		<10			<0.1			40			<1			
05-May-97	H972116		<10			1.8			<10			<1			
05-May-98	H982117		<10			0.3			<20			<1			
07-Sep-98	H982118		<10			0.34			<20			<1			
03-May-01	H012119		<10			0.22			<20			<1			
08-May-02	H022120	<2	<10			<0.5			230			<2			
29-May-03	H032121	<2	<10			<0.5			<20			<2			
27-May-04	H042122	<2	<10			<0.5			<20			<2			
16-May-05	H052123	<2	12			<0.35			<20			1			
22-May-06	H062124	<2	16			<1			<50			<1			
28-May-07	H072125	<2	<4			<1			<50			<1			
28-May-08	H082126	<2	11			<1			<100			<1			
27-May-09	H092127	<2	13			<1			<100			<1			
28-May-10	H102128	<2	11			<1			<100			<1			
30-May-11	H112129	<2	15			<1			200			<1			
10-May-12	H122130	<2	13			<1			**580**			<1			
16-May-13	H132131	<2	30			<1			<100			<1			
09-May-14	H142132	2	27			<1			<100			<1			
15-May-15	H152133	<2	10			<1			<100			<1			
31-May-17	H172135	<2	<4			<1			<100			<1			
11-May-18	H182136	<2	4.8			<1			40			<1			
10-May-19	H192137	<2	<4			<1			<100			<1			
05-May-20	MPB480	<2	<4			<1			<100						
07-May-21	2021R2023		<8		0.4		0.01	1.1	16	<0.09	<0.01	<2		<2	677
17-Sep-21	CA1544314		<8						55						711

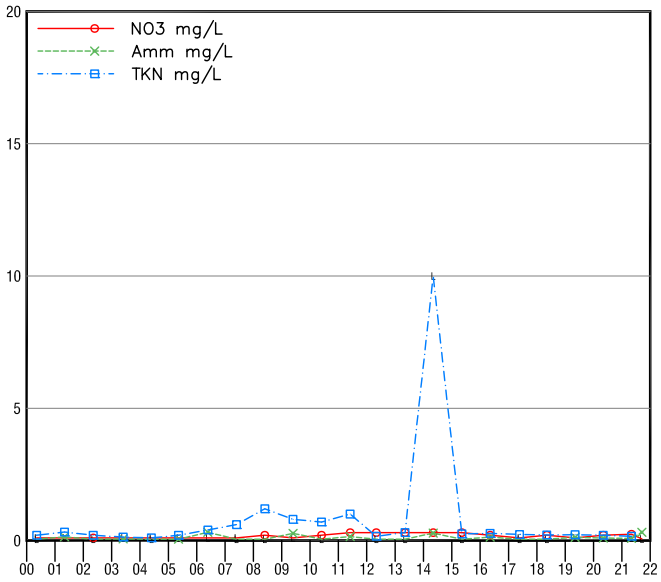
TOTAL SAMPLES	18	26	0	1	24	1	1	26	1	1	24	0	1	2
AVERAGE 2021		<8						36						694

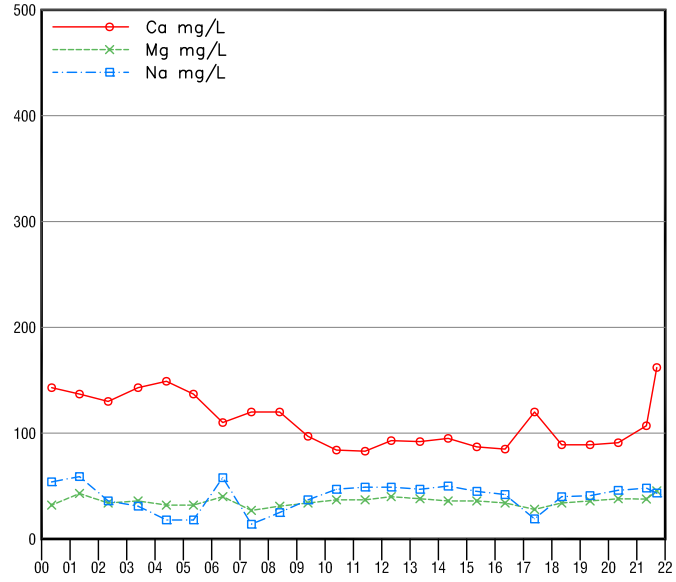
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**



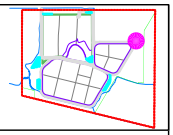








L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 46-II

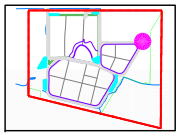
UNWEATHERED TILL

21500070 19 Apr 22	GOLDER	21H2007

WELL 46-II

UNWEATHERED TILL

OBSERVATION WELL



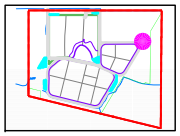
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
09-May-00	H002138	218	875	489		4	298	143	32	54	2.9	<2	<0.1	<0.02	0.2	<0.05	6.7
03-May-01	H012139	258	1090	517		4	273	137	43	59	3.2	<2	<0.1	<0.02	0.32	0.14	8.7
08-May-02	H022140	258	859	466		4	229	130	34	36	2.6	<2	0.1	<0.02	0.2	<0.05	4.2
29-May-03	H032141	237	967	506		5	379	143	36	31	2.6	<2	<0.1	<0.02	0.13	0.06	-5.1
27-May-04	H042142	289	861	502		4	240	149	32	18	2.4	<2	<0.1	<0.02	0.1	<0.05	0.1
11-May-05	H052143	251	823	475		4	197	137	32	18	2.0	<2	<0.1	<0.1	0.2	0.05	5.5
24-May-06	H062144	299	932	439		8	227	110	40	58	3.0	<2	<0.1	0.02	0.4	0.31	2.1
28-May-07	H072145	263	761	411		4	152	120	27	14	1.9	<2	<0.1	0.01	0.6	<0.05	1.9
27-May-08	H082146	292	854	427		4	164	120	31	25	2.4	<2	0.2	<0.01	1.2	<0.05	1.6
26-May-09	H092147	286	875	382		6	184	97	34	37	2.5	<2	<0.1	<0.01	0.8	0.27	-2.0
28-May-10	H102148	273	862	362		6	210	84	37	47	2.9	<2	0.2	0.01	0.7	<0.05	-3.4
01-Jun-11	H112149	270	826	359		5	168	83	37	49	2.9	<2	0.3	<0.01	1	0.15	1.9
03-May-12	H122150	270	900	397		5	210	93	40	49	3.0	<2	0.3	<0.01	0.16	<0.05	1.0
08-May-13	H132151	280	910	386		5	210	92	38	47	2.8	<2	0.3	<0.01	0.3	<0.05	-1.5
06-May-14	H142152	270	880	385		4	190	95	36	50	2.9	<2	0.3	<0.01	<10	0.28	2.5
11-May-15	H152153	290	810	370		5	170	87	36	45	2.7	<2	0.3	<0.01	0.25	<0.05	-0.9
09-May-16	H162154	270	810	350		6	150	85	34	42	2.6	<2	0.2	<0.01	0.27	0.13	1.4
23-May-17	H172155	260	800	415		5	160	120	28	19	1.9	<2	<0.1	<0.01	0.23	<0.05	2.8
09-May-18	H182156	270	880	360		6	180	89	34	40	3.0	<2	0.2	<0.01	0.21	<0.05	-1.5
09-May-19	H192157	270	860	370		5	180	89	36	41	2.7	<2	<0.1	<0.01	0.22	0.12	-0.1
06-May-20	MPB464	280	890	390	8.0	9	200	91	38	46	2.6		0.2	<0.01	0.20	0.094	-1.4
05-May-21	2021R2033	264	856	422	8.1	7	200	107	37.7	48.1	3.0		0.24	<0.03	0.16	0.08	4.8
15-Sep-21	CA1539707	225	793	592	8.2	9	210	162	45.5	43.4			<0.06			0.31	
TOTAL SAMPLES		23	23	23	3	23	23	23	23	23	22	20	23	22	22	23	
AVERAGE 2021		245	825	507	8.1	8	205	135	41.6	45.8			0.12			0.20	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 46-II

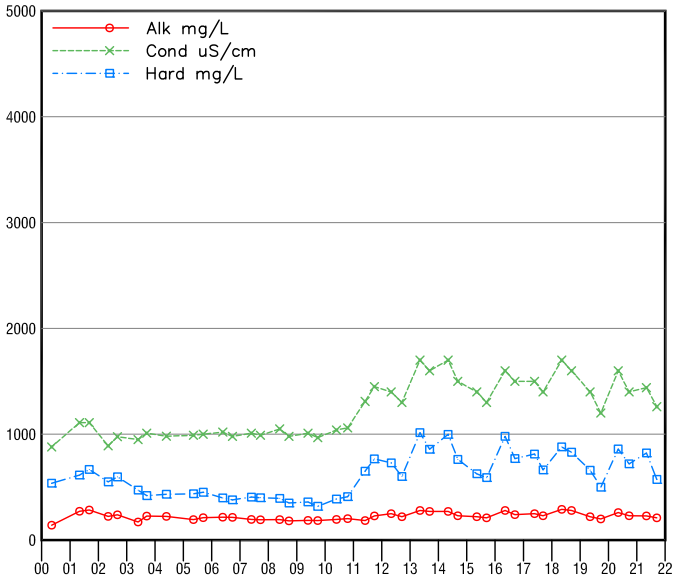
UNWEATHERED TILL

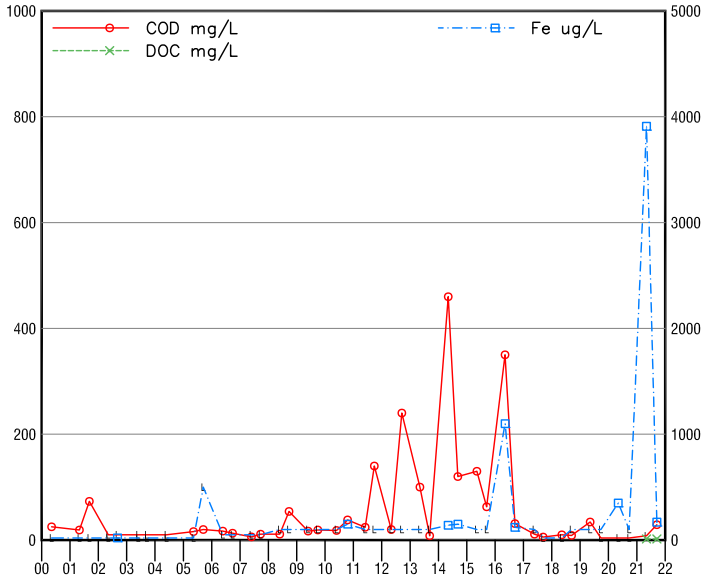
OBSERVATION WELL

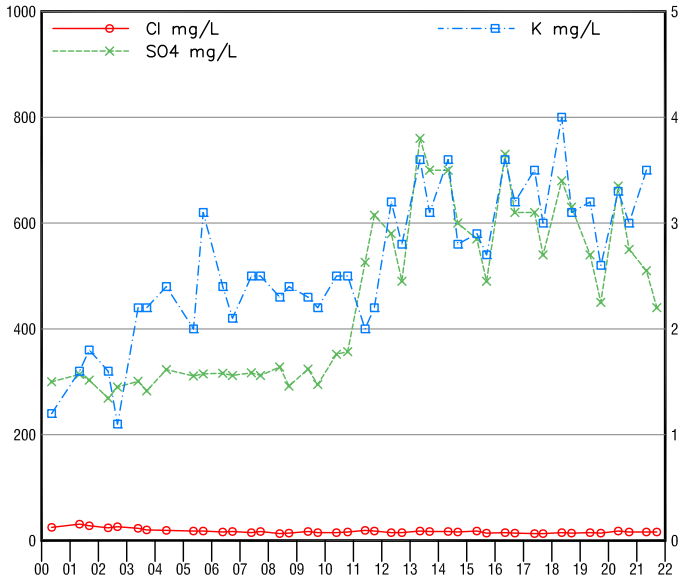


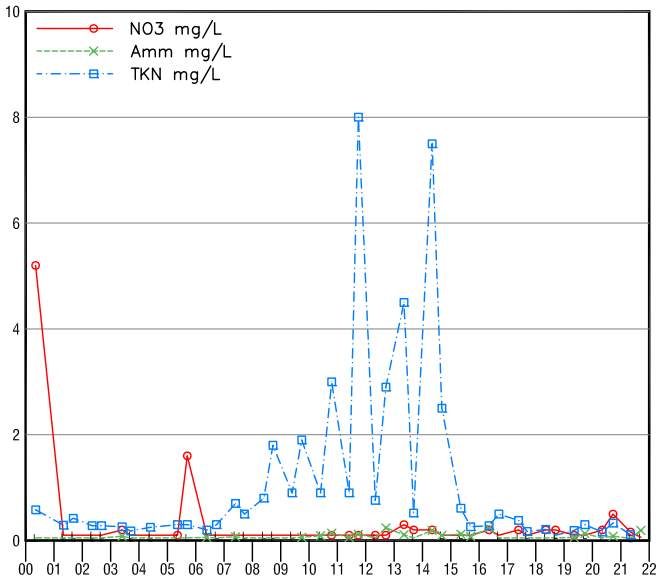
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
09-May-00	H002138	<2	<10			1.25			200			<1			
03-May-01	H012139	<2	16			1.11			**440**			<1			
08-May-02	H022140	<2	<10			0.6			70			<2			
29-May-03	H032141	<2	<10			0.5			40			<2			
27-May-04	H042142	<2	<10			<0.5			<20			<2			
11-May-05	H052143	<2	17			<0.35			<20			2			
24-May-06	H062144	<2	10			2			<50			<1			
28-May-07	H072145	<2	9			<1			<50			<1			
27-May-08	H082146	<2	15			<1			<100			<1			
26-May-09	H092147	<2	<4			<1			<100			<1			
28-May-10	H102148	<2	11			<1			<100			<1			
01-Jun-11	H112149	<2	23			<1			<100			<1			
03-May-12	H122150	<2	15			<1			<100			<1			
08-May-13	H132151	<2	12			<1			<100			<1			
06-May-14	H142152	<2	210			<1			150			<1			
11-May-15	H152153	<2	6.8			<1			<100			<1			
09-May-16	H162154	<2	9.7			<1			170			<1			
23-May-17	H172155	<2	5			<1			<100			<1			
09-May-18	H182156	<2	5.5			<1			100			<1			
09-May-19	H192157	<2	9.4			<5			<100			<1			
06-May-20	MPB464		<4			<1			210			<1			
05-May-21	2021R2033		<8		0.8		0.003	0.2	66	<0.09	<0.01	<2		<2	577
15-Sep-21	CA1539707		<8						**8150**						591
TOTAL SAMPLES		20	23	0	1	21	1	1	23	1	1	22	0	1	2
AVERAGE 2021			<8						4108						584

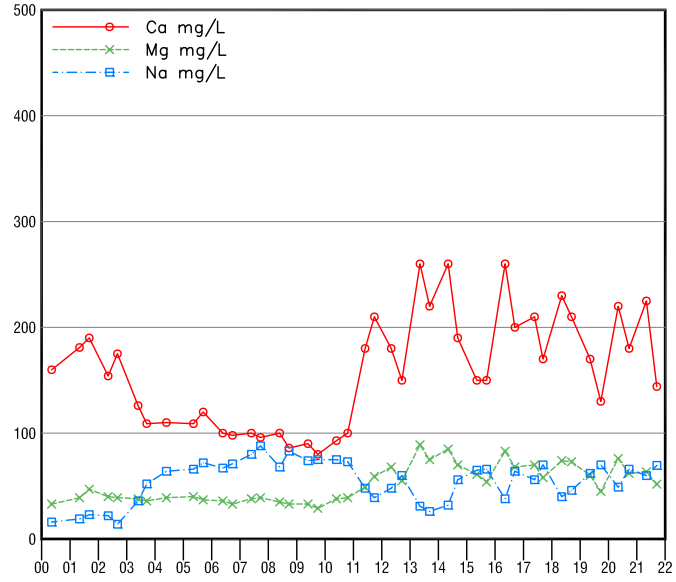
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**



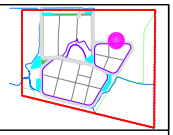








L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 47-I

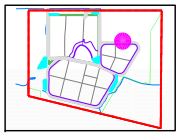
UNWEATHERED TILL

21500070 19 Apr 22	GOLDER	21H2008

WELL 47-I

UNWEATHERED TILL

OBSERVATION WELL



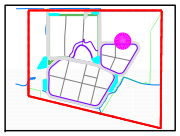
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
28-May-07	H071029	195	1010	406		15	317	100	38	80	2.5	<2	<0.1	<0.01	0.7	0.07	3.3
22-Sep-07	H071030	192	990	400		17	312	96	39	88	2.5	<2	<0.1	<0.01	0.5	<0.05	4.8
27-May-08	H081031	193	1050	394		13	328	100	35	68	2.3	<2	<0.1	<0.01	0.8	<0.05	-0.8
23-Sep-08	H081032	181	980	350		14	292	86	33	83	2.4	<2	<0.1	0.03	1.8	<0.05	2.8
26-May-09	H091033	186	1010	360		17	324	90	33	74	2.3	<2	<0.1	<0.01	0.9	<0.05	-2.1
29-Sep-09	H091034	185	968	319		15	295	80	29	75	2.2	<2	<0.1	<0.01	1.9	0.06	-2.8
28-May-10	H101035	195	1040	388		15	352	93	38	75	2.5	<2	<0.1	<0.01	0.9	0.09	-2.4
19-Oct-10	H101036	202	1060	410		16	357	100	39	73	2.5	<2	0.1	<0.01	3	0.14	-2.0
01-Jun-11	H111037	184	1310	651		19	**526**	180	49	48	2.0	<2	0.1	<0.01	0.9	0.06	0.1
28-Sep-11	H111038	228	1450	767		18	**615**	210	59	39	2.2	<2	0.1	<0.01	8	0.12	-2.2
03-May-12	H121039	250	1400	729		15	**580**	180	68	48	3.2	<2	0.1	<0.01	0.76	<0.05	-2.2
17-Sep-12	H121040	220	1300	601		15	490	150	55	60	2.8	<2	0.1	<0.01	2.9	0.24	-1.1
08-May-13	H131041	280	1700	1015		18	**760**	260	89	31	3.6	<2	0.3	<0.01	4.5	0.11	-0.5
09-Sep-13	H131042	270	1600	858		17	**700**	220	75	26	3.1	<2	0.2	<0.01	0.52	<0.05	-5.4
06-May-14	H141043	270	1700	999		17	**700**	260	85	32	3.6	<2	0.2	<0.01	7.5	0.19	2.4
08-Sep-14	H141044	230	1500	762		16	**600**	190	70	56	2.8	<2	<0.1	<0.01	2.5	0.097	0.6
11-May-15	H151045	220	1400	626		18	**570**	150	61	65	2.9	<2	<0.1	<0.01	0.61	0.12	-4.2
14-Sep-15	H151046	210	1300	590		14	490	150	54	66	2.7	<2	<0.1	<0.01	0.26	0.075	0.3
09-May-16	H161047	280	1600	980		15	**730**	260	83	38	3.6	<2	0.2	<0.01	0.28	0.23	0.9
12-Sep-16	H161048	240	1500	770		14	**620**	200	68	64	3.2	3	<0.1	<0.01	0.5	<0.05	0.9
23-May-17	H171049	250	1500	813		13	**620**	210	70	56	3.5	<2	0.2	<0.01	0.38	<0.05	1.3
11-Sep-17	H171050	230	1400	663		13	**540**	170	58	70	3.0	<2	<0.1	<0.01	0.17	<0.05	0.5
09-May-18	H181051	290	1700	880		15	**680**	230	74	40	4.0	<2	0.2	<0.01	0.21	<0.05	-2.5
13-Sep-18	H181052	280	1600	830		14	**630**	210	73	46	3.1	<2	0.2	<0.01	<0.1	<0.05	-1.5
10-May-19	H191053	220	1400	660		15	**540**	170	60	62	3.2	<2	0.1	<0.01	0.19	0.057	0.4
25-Sep-19	H191054	200	1200	500		14	450	130	45	70	2.6		<0.1	<0.01	0.30	0.13	-1.7
06-May-20	MPB460	260	1600	860	7.8	18	**670**	220	76	49	3.3		0.2	<0.01	0.16	<0.05	-0.5
23-Sep-20	NSM117	230	1400	720	7.8	16	**550**	180	62	66	3.0		0.5	<0.01	0.33	0.081	1.5
05-May-21	2021R2036	228	1440	823	8.1	16	**510**	225	63.5	59.9	3.5		0.16	<0.03	0.11	<0.04	10.5
16-Sep-21	CA1546104	210	1260	573	8.1	16	440	144	51.8	69.5			<0.06	<0.03		0.19	
TOTAL SAMPLES		42	42	42	4	42	42	42	42	42	41	37	42	42	41	42	
AVERAGE 2021		219	1350	698	8.1	16	475	185	57.7	64.7			0.08	<0.03		0.10	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 47-I

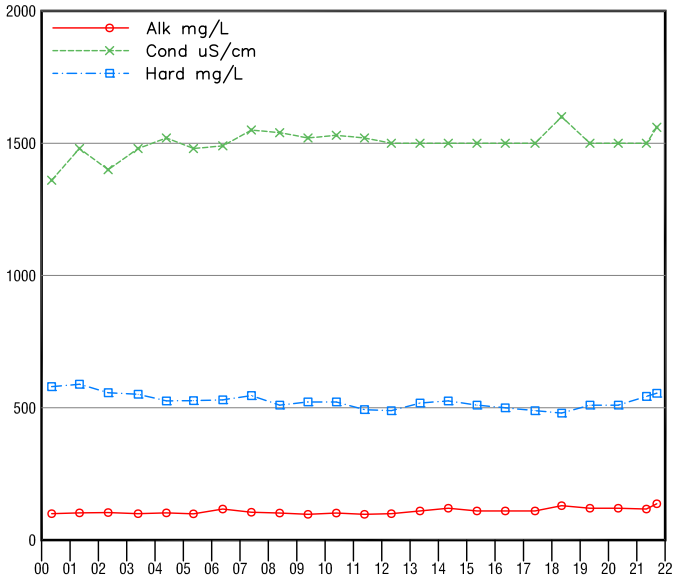
UNWEATHERED TILL

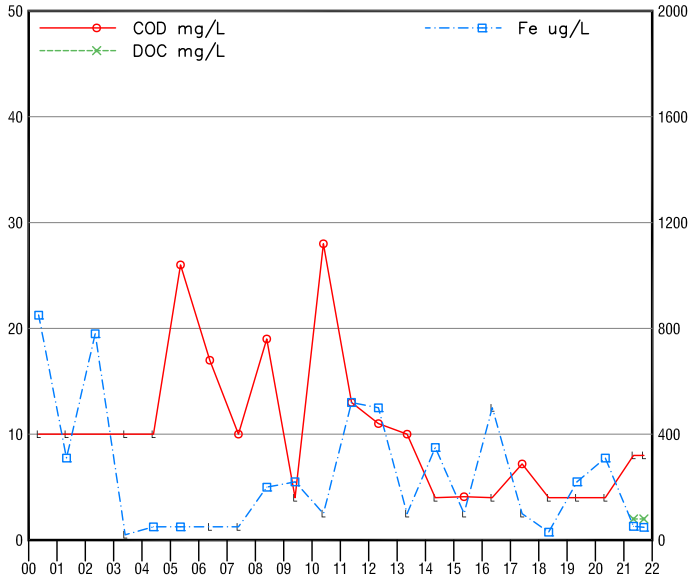
OBSERVATION WELL

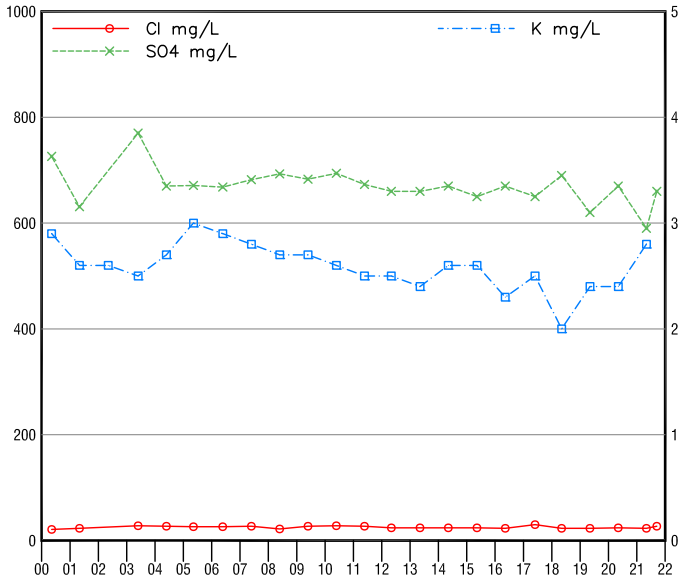


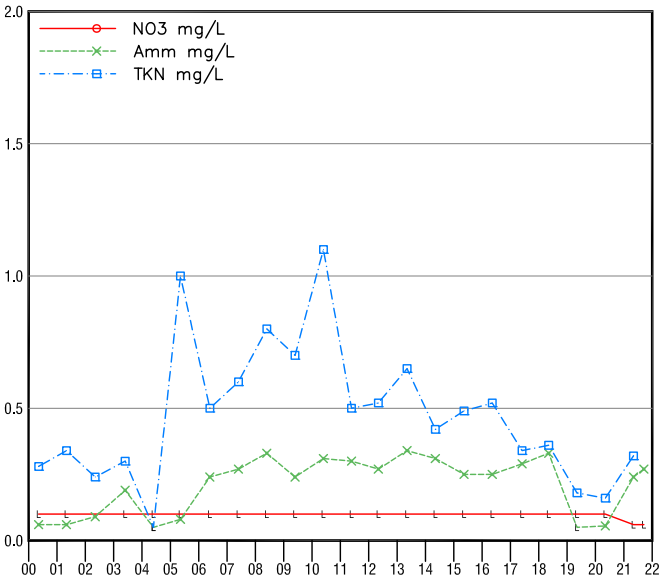
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
28-May-07	H071029	<2	6			<1			<50			<1			
22-Sep-07	H071030	<2	11			<1			<50			<1			
27-May-08	H081031	<2	11			<1			<100			<1			
23-Sep-08	H081032	<2	54			<1			<100			<1			
26-May-09	H091033	<2	17			<1			<100			<1			
29-Sep-09	H091034	<2	19			<1			<100			<1			
28-May-10	H101035	<2	18			<1			<100			<1			
19-Oct-10	H101036	<2	38			<1			150			<1			
01-Jun-11	H111037	<2	24			<1			<100			<1			
28-Sep-11	H111038	<2	140			<1			<100			<1			
03-May-12	H121039	<2	20			<1			<100			<1			
17-Sep-12	H121040	<2	240			<1			<100			<1			
08-May-13	H131041	<2	100			<2			<100			<1			
09-Sep-13	H131042	<2	8.2			<1			<100			<1			
06-May-14	H141043	<2	460			<2			140			<1			
08-Sep-14	H141044	<2	120			<2			150			<1			
11-May-15	H151045	<2	130			<5			<100			<1			
14-Sep-15	H151046	<2	63			<1			<100			<1			
09-May-16	H161047	<2	350			<2			**1100**			<1			
12-Sep-16	H161048	3	31			<1			120			<1			
23-May-17	H171049	<2	11			<2			<100			<1			
11-Sep-17	H171050	<2	5.8			<2			<20			<1			
09-May-18	H181051	<2	9.9			<2			<20			<1			
13-Sep-18	H181052	<2	8.6			<5			<100			<1			
10-May-19	H191053	<2	34			<5			<100			<1			
25-Sep-19	H191054		<4			<1			<100			<1			
06-May-20	MPB460		<4			<1			**350**						
23-Sep-20	NSM117		<4			<1			<100			<1			
05-May-21	2021R2036		<8		1.6		0.105	2.8	**3910**	4.99	<0.01	<2		16	1050
16-Sep-21	CA1546104		29						169						986
TOTAL SAMPLES		37	42	0	1	40	1	1	42	1	1	40	0	1	2
AVERAGE 2021			15						2040						1018

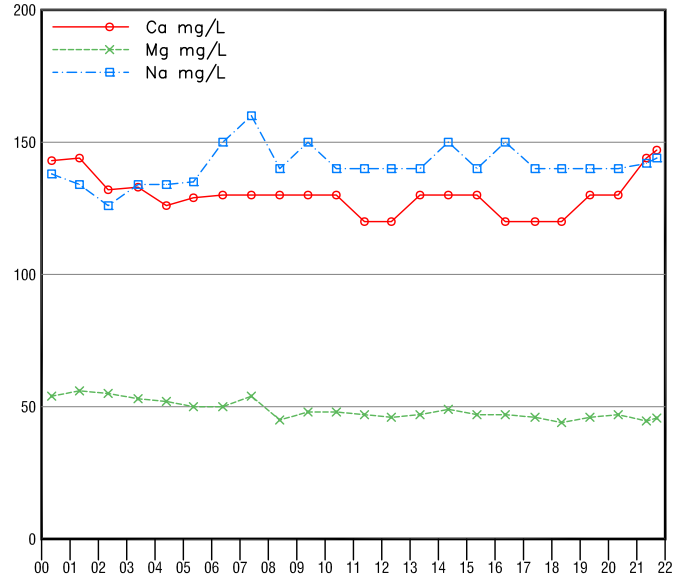
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**



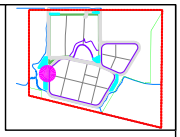








L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 49-B

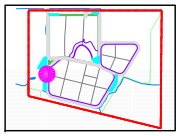
UNWEATHERED TILL

21500070 19 Apr 22	GOLDER	21H2009

WELL 49-B

UNWEATHERED TILL

OBSERVATION WELL



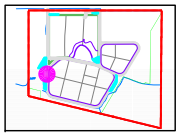
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
09-May-00	H002181	100	1360	580		21	**726**	143	54	138	2.9	<2	<0.1	<0.02	0.28	0.06	0.1
03-May-01	H012182	103	1480	589		23	**631**	144	56	134	2.6	<2	<0.1	<0.02	0.34	0.06	5.5
08-May-02	H022183	104	1400	557				132	55	126	2.6	<2			0.24	0.09	
29-May-03	H032184	100	1480	551		28	**770**	133	53	134	2.5	<2	<0.1	<0.02	0.3	0.19	-5.4
27-May-04	H042185	103	1520	526		27	**670**	126	52	134	2.7	<2	<0.1	<0.02	<0.05	<0.05	-0.9
11-May-05	H052186	99	1480	527		26	**671**	129	50	135	3.0	4	<0.1	<0.1	1	0.08	-0.5
24-May-06	H062187	117	1490	530		26	**668**	130	50	150	2.9	<2	<0.1	<0.01	0.5	0.24	0.7
28-May-07	H072188	105	1550	546		27	**682**	130	54	160	2.8	<2	<0.1	<0.01	0.6	0.27	2.6
27-May-08	H082189	102	1540	510		22	**693**	130	45	140	2.7	<2	<0.1	<0.01	0.8	0.33	-2.1
26-May-09	H092190	97	1520	522		27	**683**	130	48	150	2.7	3	<0.1	<0.01	0.7	0.24	0.4
27-May-10	H102191	102	1530	522		28	**694**	130	48	140	2.6	<2	<0.1	<0.01	1.1	0.31	-2.0
24-May-11	H112192	97	1520	493		27	**673**	120	47	140	2.5	3	<0.1	<0.01	0.5	0.3	-2.0
04-May-12	H122193	100	1500	489		24	**660**	120	46	140	2.5	6	<0.1	<0.01	0.52	0.27	-1.4
09-May-13	H132194	110	1500	518		24	**660**	130	47	140	2.4	<2	<0.1	<0.01	0.65	0.34	-0.3
08-May-14	H142195	120	1500	526		24	**670**	130	49	150	2.6	2	<0.1	<0.01	0.42	0.31	0.4
13-May-15	H152196	110	1500	510		24	**650**	130	47	140	2.6	<2	<0.1	<0.01	0.49	0.25	0.4
11-May-16	H162197	110	1500	500		23	**670**	120	47	150	2.3	<2	<0.1	<0.01	0.52	0.25	-1.0
30-May-17	H172198	110	1500	489		30	**650**	120	46	140	2.5	<2	<0.1	<0.01	0.34	0.29	-1.9
08-May-18	H182199	130	1600	480		23	**690**	120	44	140	2.0	<2	<0.1	0.017	0.36	0.33	-5.5
08-May-19	H192200	120	1500	510		23	**620**	130	46	140	2.4	3	<0.1	<0.01	0.18	<0.05	1.5
07-May-20	MPB485	120	1500	510	7.8	24	**670**	130	47	140	2.4		<0.1	<0.01	0.16	0.055	-1.5
05-May-21	2021R2027	117	1500	543	8.0	23	**590**	144	44.6	142	2.8		<0.06	<0.03	0.32	0.24	5.7
15-Sep-21	CA1539703	137	1560	555	8.2	27	**660**	147	45.7	144			<0.06			0.27	
TOTAL SAMPLES		23	23	23	3	22	22	23	23	23	22	20	22	21	22	23	
AVERAGE 2021		127	1530	549	8.1	25	625	146	45.2	143			<0.06			0.26	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 49-B

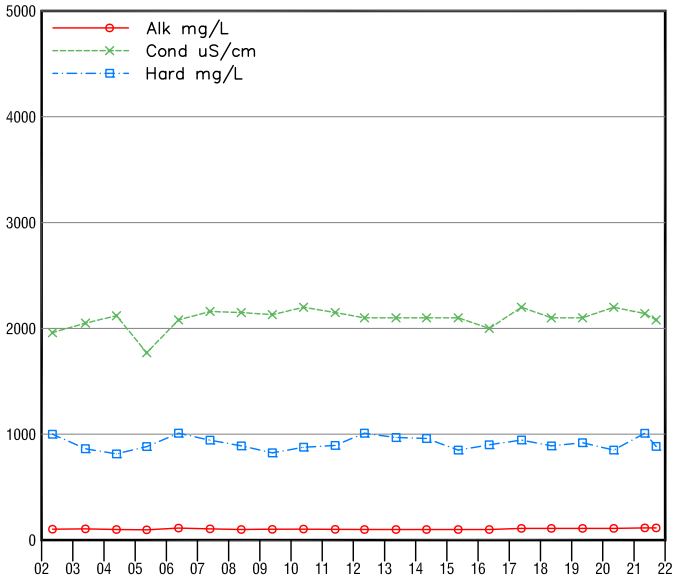
UNWEATHERED TILL

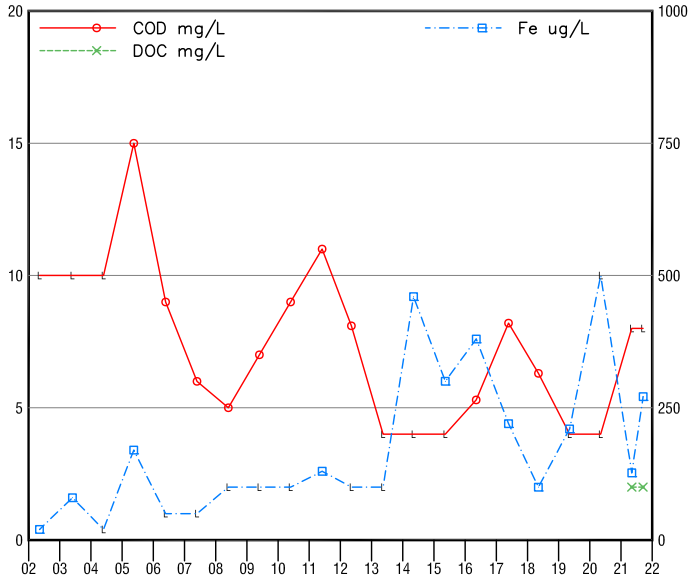
OBSERVATION WELL

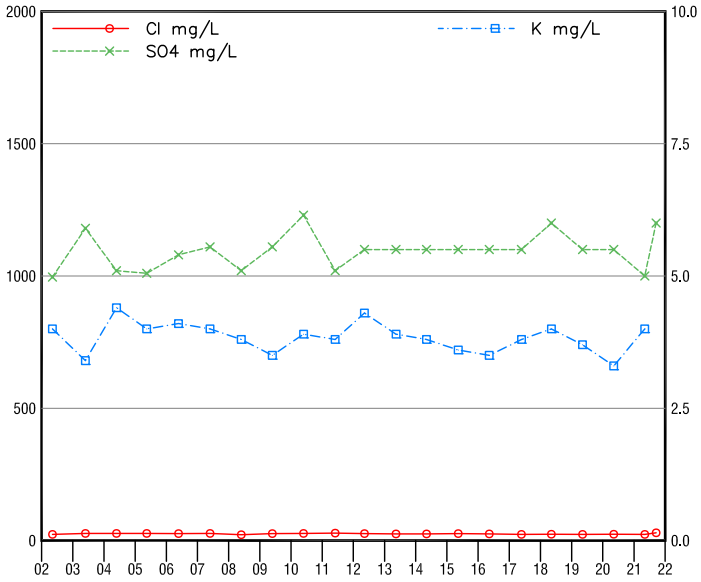


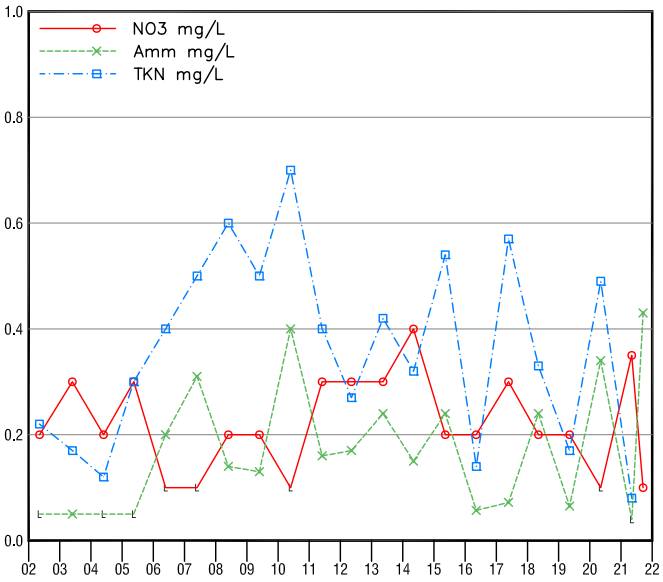
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
09-May-00	H002181	<2	<10			0.14			**850**			<1			
03-May-01	H012182	<2	<10			0.14			**310**			<1			
08-May-02	H022183	<2				<0.5			**780**			<2			
29-May-03	H032184	<2	<10			<0.5			<20			<2			
27-May-04	H042185	<2	<10			<0.5			50			<2			
11-May-05	H052186	4	26			<0.35			50			<1			
24-May-06	H062187	<2	17			<1			<50			<1			
28-May-07	H072188	<2	10			<1			<50			<1			
27-May-08	H082189	<2	19			<1			200			<1			
26-May-09	H092190	3	<4			<1			220			<1			
27-May-10	H102191	<2	28			<1			<100			<1			
24-May-11	H112192	3	13			<1			**520**			<1			
04-May-12	H122193	6	11			<1			**500**			<1			
09-May-13	H132194	<2	10			<1			<100			<1			
08-May-14	H142195	2	<4			<1			**350**			<1			
13-May-15	H152196	<2	4.1			<1			<100			<1			
11-May-16	H162197	<2	<4			<2			<500			<1			
30-May-17	H172198	<2	7.2			<5			<100			<1			
08-May-18	H182199	<2	<4			<2			30			<1			
08-May-19	H192200	3	<4			<5			220			<1			
07-May-20	MPB485		<4			<1			**310**			<1			
05-May-21	2021R2027		<8		0.9		0.006	2.8	52	0.12	<0.01	<2		4	1130
15-Sep-21	CA1539703		<8						48						1150
TOTAL SAMPLES		20	22	0	1	21	1	1	23	1	1	22	0	1	2
AVERAGE 2021			<8						50						1140

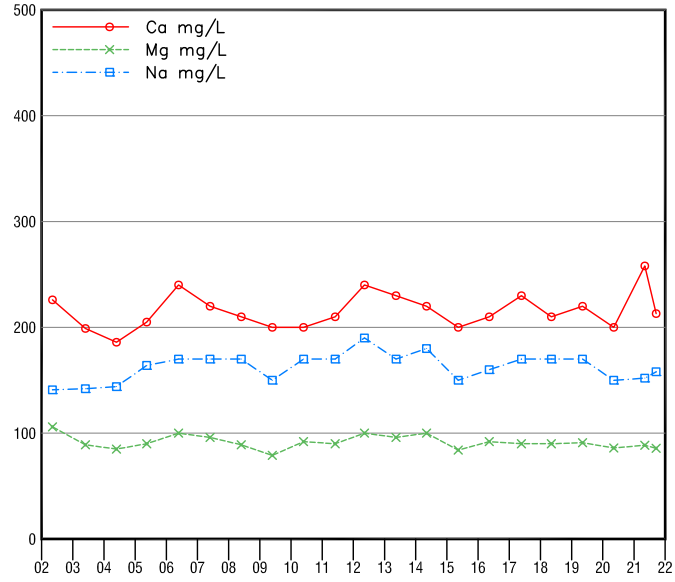
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**











L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 50-B

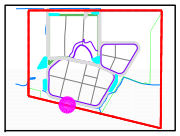
UNWEATHERED TILL

21500070 19 Apr 22	GOLDER	21H2010

WELL 50-B

UNWEATHERED TILL

OBSERVATION WELL



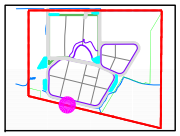
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
08-May-02	H022201	102	1960	1000		23	**996**	226	106	141	4.0	<2	0.2	<0.02	0.22	<0.05	5.6
29-May-03	H032202	105	2050	863		27	**1180**	199	89	142	3.4	<2	0.3	0.02	0.17	0.05	-7.7
27-May-04	H042203	99	2120	814		27	**1020**	186	85	144	4.4	<2	0.2	<0.02	0.12	<0.05	-2.9
16-May-05	H052204	96	1770	883		27	**1010**	205	90	164	4.0	5	0.3	<0.1	0.3	<0.05	2.4
24-May-06	H062205	113	2080	1010		26	**1080**	240	100	170	4.1	<2	<0.1	<0.01	0.4	0.2	4.2
28-May-07	H072206	106	2160	944		27	**1110**	220	96	170	4.0	<2	<0.1	0.03	0.5	0.31	0.8
28-May-08	H082207	99	2150	890		22	**1020**	210	89	170	3.8	<2	0.2	0.07	0.6	0.14	3.0
27-May-09	H092208	101	2130	824		26	**1110**	200	79	150	3.5	<2	0.2	0.03	0.5	0.13	-5.7
28-May-10	H102209	104	2200	877		27	**1230**	200	92	170	3.9	<2	<0.1	0.02	0.7	0.4	-6.3
02-Jun-11	H112210	101	2150	894		28	**1020**	210	90	170	3.8	<2	0.3	<0.01	0.4	0.16	2.7
10-May-12	H122211	100	2100	1010		26	**1100**	240	100	190	4.3	<2	0.3	<0.01	0.27	0.17	5.4
15-May-13	H132212	99	2100	969		25	**1100**	230	96	170	3.9	<2	0.3	<0.01	0.42	0.24	2.4
07-May-14	H142213	100	2100	960		25	**1100**	220	100	180	3.8	<2	0.4	<0.01	0.32	0.15	2.9
14-May-15	H152214	100	2100	850		26	**1100**	200	84	150	3.6	<2	0.2	<0.01	0.54	0.24	-4.3
11-May-16	H162215	100	2000	900		25	**1100**	210	92	160	3.5	<2	0.2	<0.01	0.14	0.057	-1.0
24-May-17	H172216	110	2200	945		23	**1100**	230	90	170	3.8	<2	0.3	<0.01	0.57	0.072	1.2
09-May-18	H182217	110	2100	890		24	**1200**	210	90	170	4.0	<2	0.2	<0.01	0.33	0.24	-4.6
09-May-19	H192218	110	2100	920		23	**1100**	220	91	170	3.7	<2	0.2	<0.01	0.17	0.065	0.4
08-May-20	MPS801	110	2200	850	7.6	24	**1100**	200	86	150	3.3		<0.1	<0.01	0.49	0.34	-4.2
07-May-21	2021R2046	115	2140	1009	7.9	23	**1000**	258	88.6	152	4.0		0.35	<0.03	0.08	<0.04	6.1
17-Sep-21	CA1546110	115	2080	885	7.8	29	**1200**	213	85.7	158			0.1	<0.03		0.43	
TOTAL SAMPLES		21	21	21	3	21	21	21	21	21	20	18	21	21	20	21	
AVERAGE 2021		115	2110	947	7.9	26	1100	236	87.2	155			0.23	<0.03		0.22	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 50-B

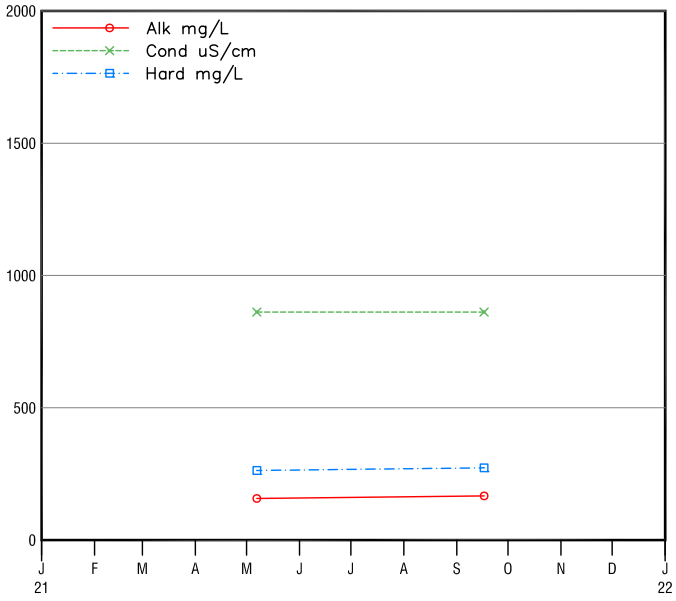
UNWEATHERED TILL

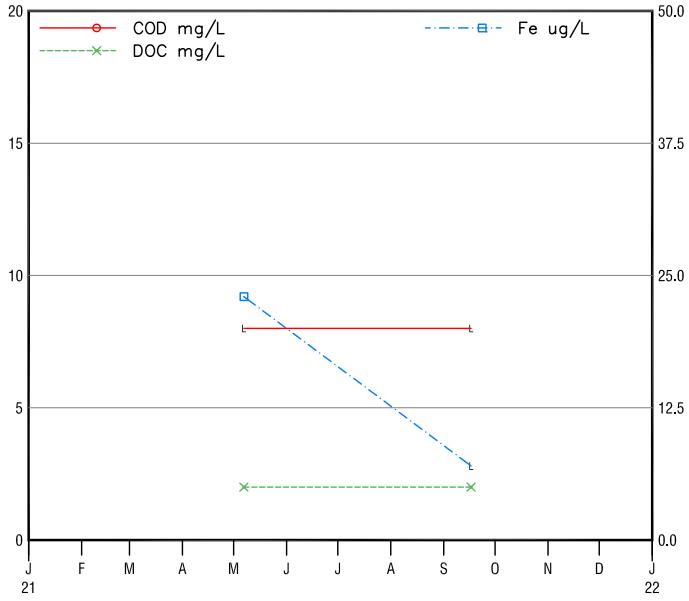
OBSERVATION WELL

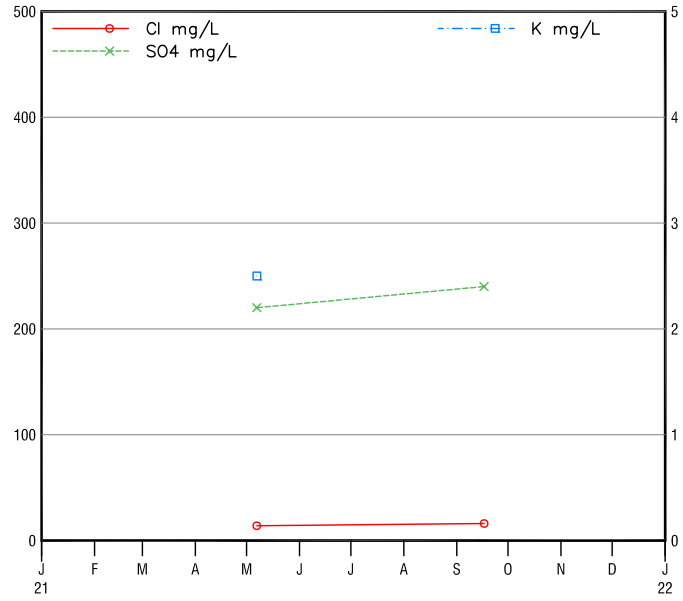


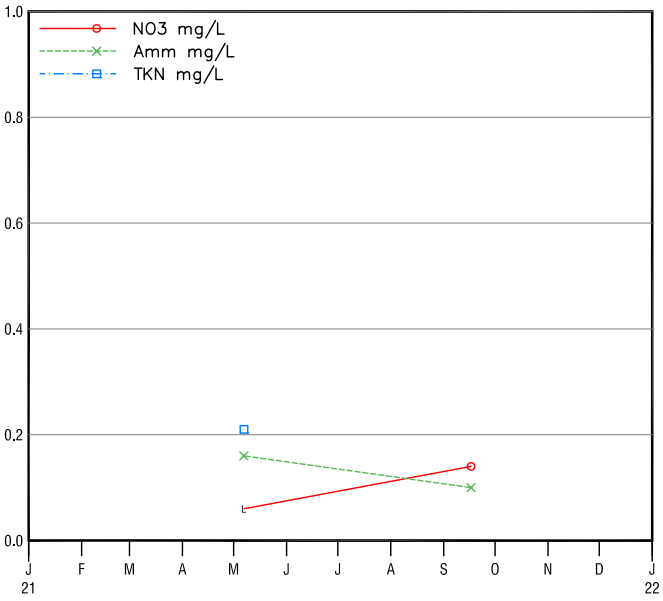
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
08-May-02	H022201	<2	<10			<0.5			20			<2			
29-May-03	H032202	<2	<10			<0.5			80			<2			
27-May-04	H042203	<2	<10			<0.5			<20			<2			
16-May-05	H052204	5	15			<0.35			170			2			
24-May-06	H062205	<2	9			<1			<50			<1			
28-May-07	H072206	<2	6			<1			<50			<1			
28-May-08	H082207	<2	5			<1			<100			<1			
27-May-09	H092208	<2	7			<1			<100			<1			
28-May-10	H102209	<2	9			<5			<100			<1			
02-Jun-11	H112210	<2	11			<2			130			<1			
10-May-12	H122211	<2	8.1			<5			<100			<1			
15-May-13	H132212	<2	<4			<5			<100			<1			
07-May-14	H142213	<2	<4			<5			**460**			<1			
14-May-15	H152214	<2	<4			<5			300			<1			
11-May-16	H162215	<2	5.3			<5			**380**			<1			
24-May-17	H172216	<2	8.2			<5			220			<1			
09-May-18	H182217	<2	6.3			<5			100			<1			
09-May-19	H192218	<2	<4			<5			210			<1			
08-May-20	MPS801		<4	<25		<1			<500			<1			
07-May-21	2021R2046		<8		0.3		0.018	<0.2	127	<0.09	<0.01	<2		<2	1750
17-Sep-21	CA1546110		<8						271						1770
TOTAL SAMPLES		18	21	1	1	19	1	1	21	1	1	20	0	1	2
AVERAGE 2021			<8						199						1760

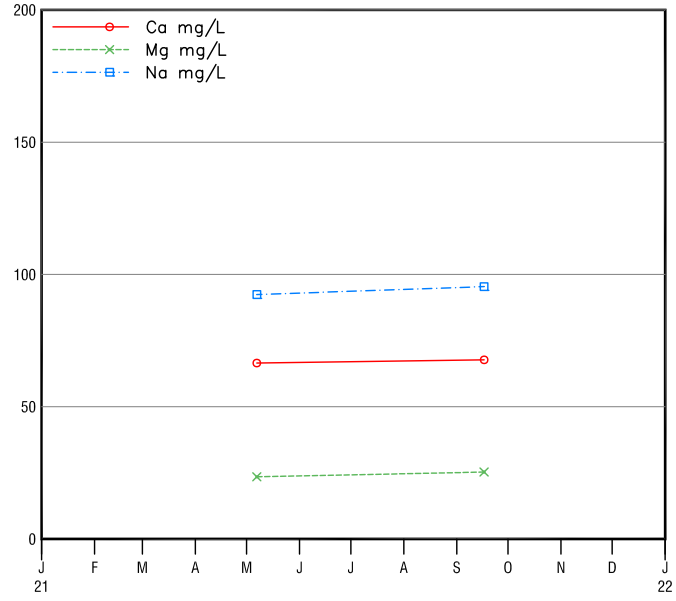
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









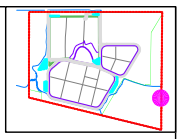


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 73-B

UNWEATHERED TILL

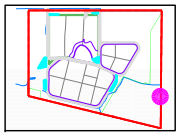
Screen 187.1 - 185.5 masl

21500070 19 Apr 22	GOLDER	21H2011

WELL 73-B

UNWEATHERED TILL

OBSERVATION WELL
Screen 187.1 - 185.5 masl



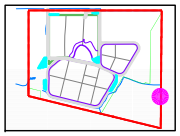
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
07-May-21	2021R2043	157	862	263	8.2	14	220	66.5	23.5	92.4	2.5		<0.06	<0.03	0.21	0.16	7.1
17-Sep-21	CA1546107	167	862	273	8.0	16	240	67.7	25.3	95.4			0.14	<0.03		0.1	
TOTAL SAMPLES		2	2	2	2	2	2	2	2	2	1	0	2	2	1	2	
AVERAGE 2021		162	862	268	8.1	15	230	67.1	24.4	93.9			0.07	<0.03		0.13	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 73-B

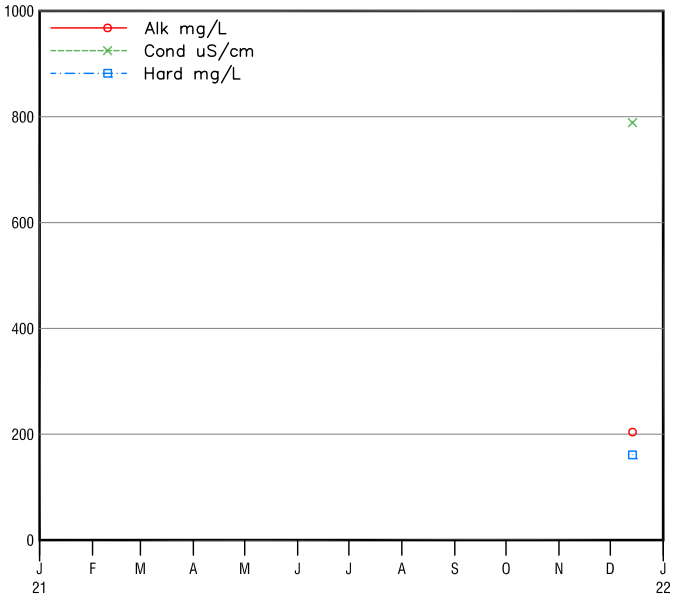
UNWEATHERED TILL

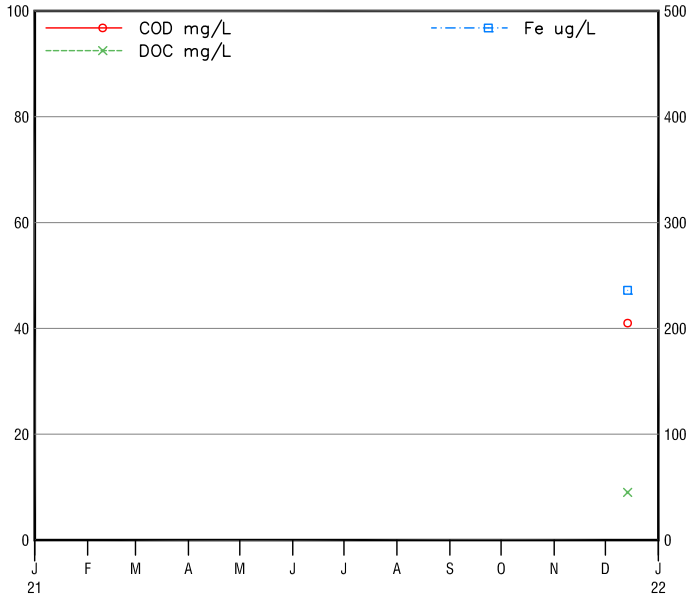
OBSERVATION WELL
Screen 187.1 - 185.5 masl

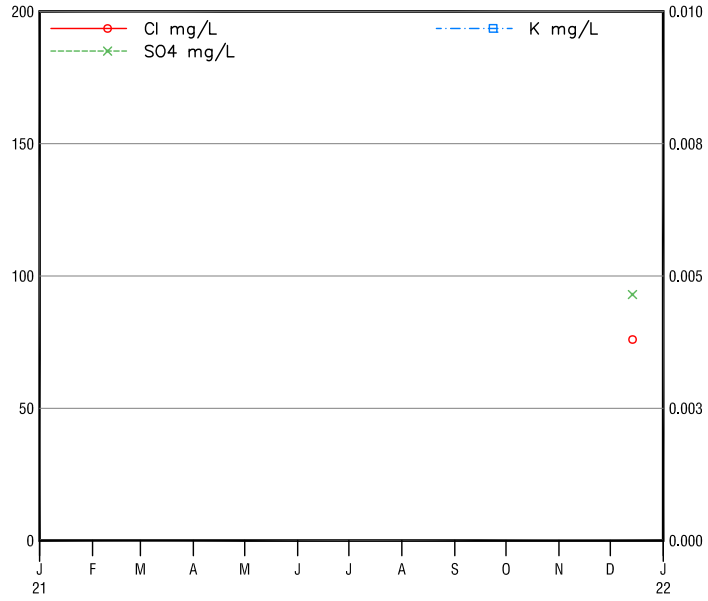


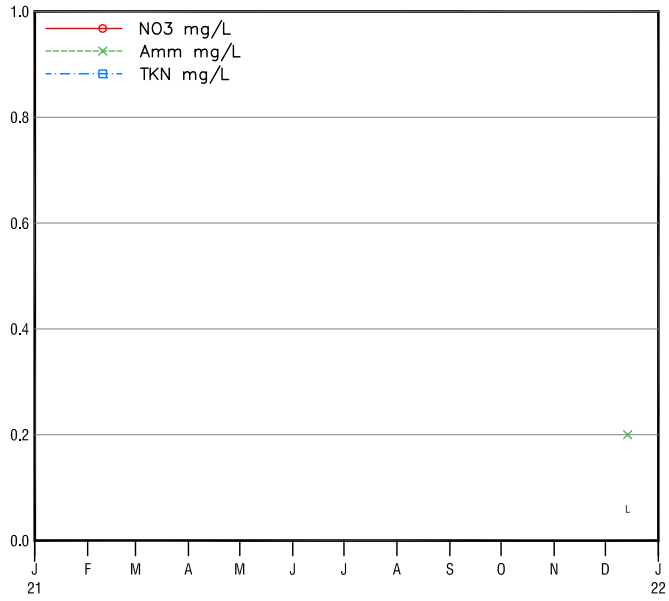
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
07-May-21	2021R2043		<8		1.4		0.045	0.4	23	<0.09	<0.01	<2		<2	543
17-Sep-21	CA1546107		<8						<7						589
TOTAL SAMPLES		0	2	0	1	0	1	1	2	1	1	1	0	1	2
AVERAGE 2021			<8						12						566

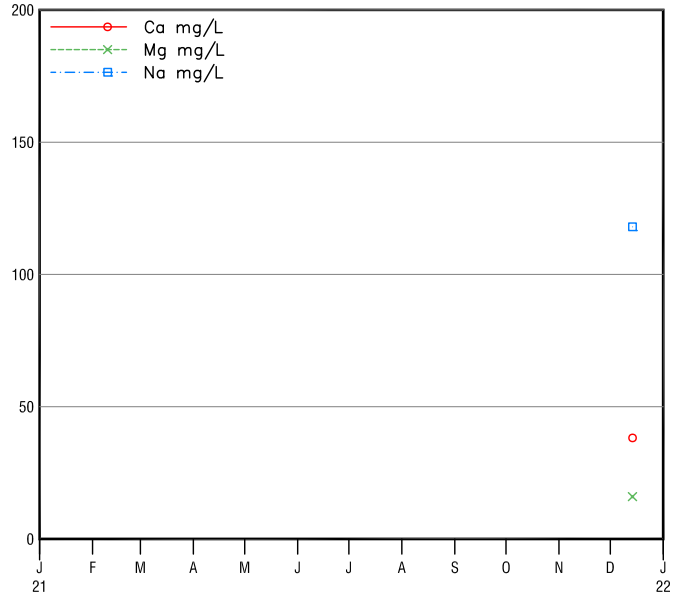
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









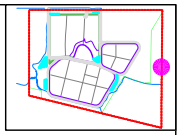


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 74-B

UNWEATHERED TILL

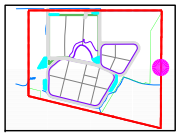
Screen 187.7 - 187.2 masl

21500070 19 Apr 22	GOLDER	21H2012

WELL 74-B

UNWEATHERED TILL

OBSERVATION WELL
Screen 187.7 - 187.2 masl



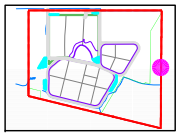
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
14-Dec-21	74B12001	204	789	161	8.2	76	93	38.2	16	118			<0.06	<0.03		0.2	
TOTAL SAMPLES		1	1	1	1	1	1	1	1	1	0	0	1	1	0	1	
AVERAGE 2021																	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 74-B

UNWEATHERED TILL

OBSERVATION WELL
Screen 187.7 - 187.2 masl

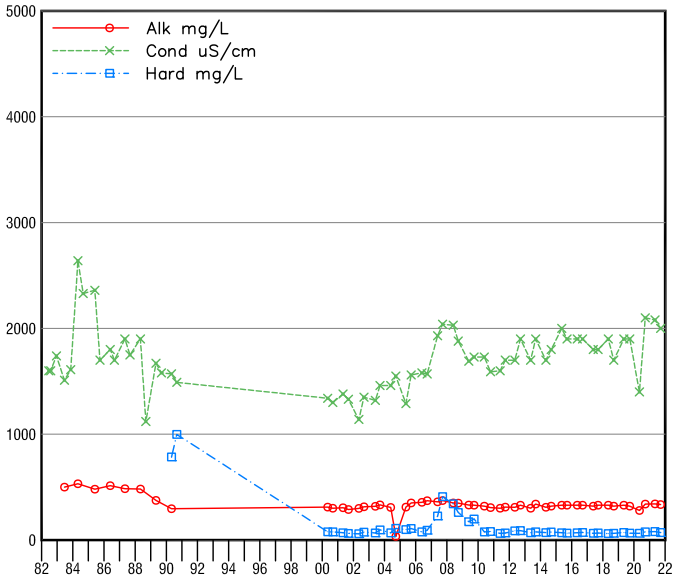


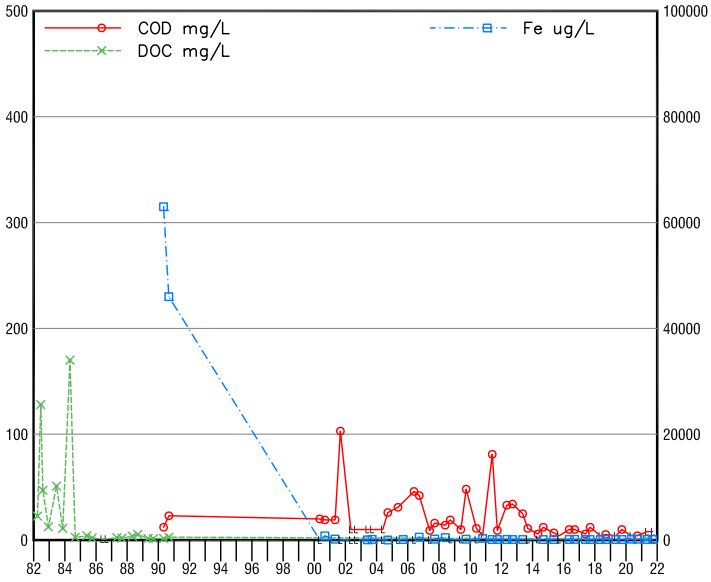
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
14-Dec-21	74B12001		41						236						590
TOTAL SAMPLES		0	1	0	0	0	0	0	1	0	0	0	0	0	1
AVERAGE 2021															

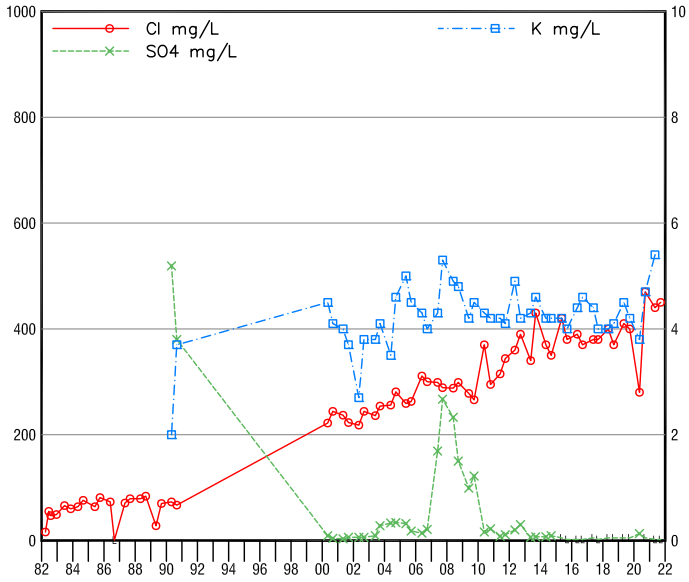
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

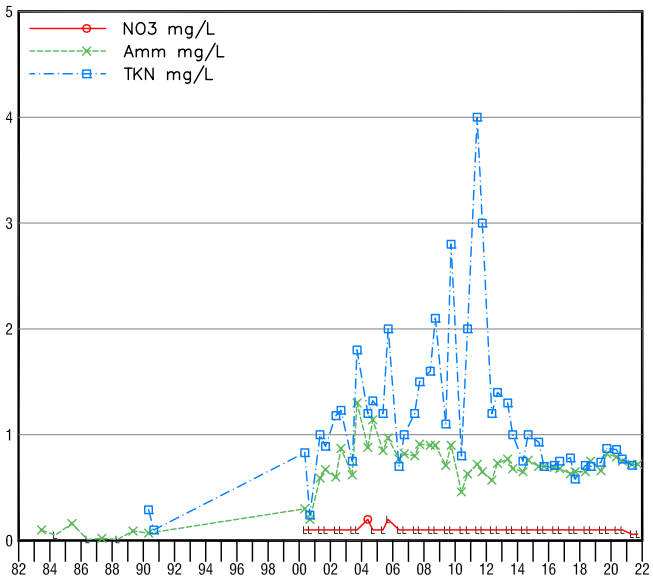
APPENDIX H3

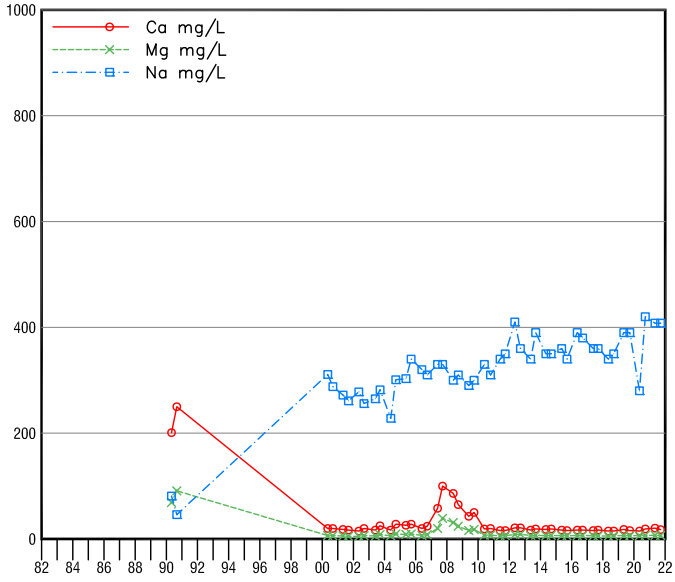
Layer 3 Hydrostratigraphic Unit Groundwater Quality Summary









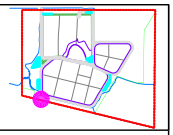


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 28-I

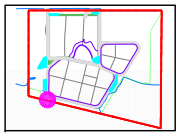
BASAL/BEDROCK AQUIFER

21500070 19 Apr 22	wsp GOLDER	21H3001

WELL 28-I

BASAL/BEDROCK AQUIFER

OBSERVATION WELL



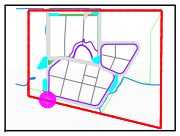
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
28-May-07	H073034	361	1930	227		**299**	169	58	20	**330**	4.3	3	<0.1	<0.01	1.2	0.8	-0.3
22-Sep-07	H073035	373	2040	410		**289**	267	100	39	**330**	5.3	8	<0.1	0.01	1.5	0.91	3.6
28-May-08	H083036	350	2030	342		**288**	233	86	31	**300**	4.9	5	<0.1	<0.01	1.6	0.9	0.3
23-Sep-08	H083037	349	1880	261		**299**	150	65	24	**310**	4.8	5	<0.1	<0.01	2.1	0.9	1.0
27-May-09	H093038	331	1690	173		**278**	99	43	16	**290**	4.2	6	<0.1	<0.01	1.1	0.71	-0.9
29-Sep-09	H093039	330	1730	199		**266**	122	50	18	**300**	4.5	13	<0.1	<0.01	2.8	0.9	1.7
28-May-10	H103040	320	1730	77		**370**	16	19	7.2	**330**	4.3	9	<0.1	<0.01	0.8	0.46	-3.4
19-Oct-10	H103041	307	1590	81		**295**	22	20	7.5	**310**	4.2	11	<0.1	<0.01	2	0.63	1.2
02-Jun-11	H113042	300	1600	63		**315**	8	16	5.7	**340**	4.2	14	<0.1	<0.01	4	0.72	3.8
29-Sep-11	H113043	312	1700	67		**344**	11	16	6.6	**350**	4.1	14	<0.1	<0.01	3	0.65	1.7
10-May-12	H123044	310	1700	87		**360**	20	21	8.4	**410**	4.9	13	<0.1	<0.01	1.2	0.57	8.2
19-Sep-12	H123045	330	1900	89		**390**	30	21	8.9	**360**	4.2	17	<0.1	<0.01	1.4	0.73	-1.7
16-May-13	H133046	300	1700	69		**340**	6	17	6.5	**340**	4.3	15	<0.1	<0.01	1.3	0.77	2.0
11-Sep-13	H133047	340	1900	77		**430**	7	19	7.1	**390**	4.6	13	<0.1	<0.01	1	0.68	-1.1
08-May-14	H143048	310	1700	70		**370**	7	18	6.2	**350**	4.2	27	<0.1	<0.01	0.75	0.65	0.1
09-Sep-14	H143049	320	1800	76		**350**	9	19	6.9	**350**	4.2	17	<0.1	<0.01	1	0.76	1.4
14-May-15	H153050	330	2000	69		**420**	<5	17	6.3	**360**	4.2	4	<0.1	<0.01	0.93	0.7	-3.5
15-Sep-15	H153051	330	1900	65		**380**	<2	16	6.1	**340**	4.0	9	<0.1	<0.01	0.7	0.7	-3.2
11-May-16	H163052	330	1900	69		**390**	<2	17	6.6	**390**	4.4	10	<0.1	<0.01	0.71	0.69	2.6
14-Sep-16	H163053	330	1900	72		**370**	<2	17	6.9	**380**	4.6	17	<0.1	<0.01	0.75	0.68	3.1
24-May-17	H173054	320	1800	64		**380**	<5	16	5.9	**360**	4.4	7	<0.1	<0.01	0.78	0.63	0.1
12-Sep-17	H173055	330	1800	67		**380**	<2	17	5.9	**360**	4.0	12	<0.1	<0.01	0.58	0.65	-0.5
09-May-18	H183056	330	1900	61		**400**	<5	15	5.6	**340**	4.0	7	<0.1	<0.01	0.71	0.65	-5.1
13-Sep-18	H183057	320	1700	64		**370**	<5	15	6.1	**350**	4.1	6	<0.1	<0.01	0.7	0.75	-0.6
08-May-19	H193058	330	1900	71		**410**	<5	18	6.5	**390**	4.5	7	<0.1	<0.01	0.74	0.66	1.1
25-Sep-19	H193060	320	1900	65		**400**	<5	16	6.1	**390**	4.2		<0.1	<0.01	0.87	0.82	2.1
08-May-20	MPS805	280	1400	64	7.9	**280**	13	15	6.2	**280**	3.8		<0.1	<0.01	0.86	0.79	-0.6
22-Sep-20	NSM106	340	2100	77	8.1	**470**	<5	19	7.0	**420**	4.7		<0.1	<0.01	0.77	0.75	-0.2
07-May-21	2021R2050	342	2080	80	8.4	**440**	<2	20.4	7.03	**408**	5.4		<0.06	<0.03	0.71	0.72	0.8
17-Sep-21	CA1546109	335	2000	71	8.2	**450**	<2	17.7	6.62	**408**			<0.06	<0.03		0.72	
TOTAL SAMPLES		52	63	46	4	64	46	46	46	46	45	39	44	44	45	52	
AVERAGE 2021		339	2040	76	8.3	445	<2	19.1	6.83	408			<0.06	<0.03		0.72	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *Italics* / Exceedance in **Bold**

WELL 28-I

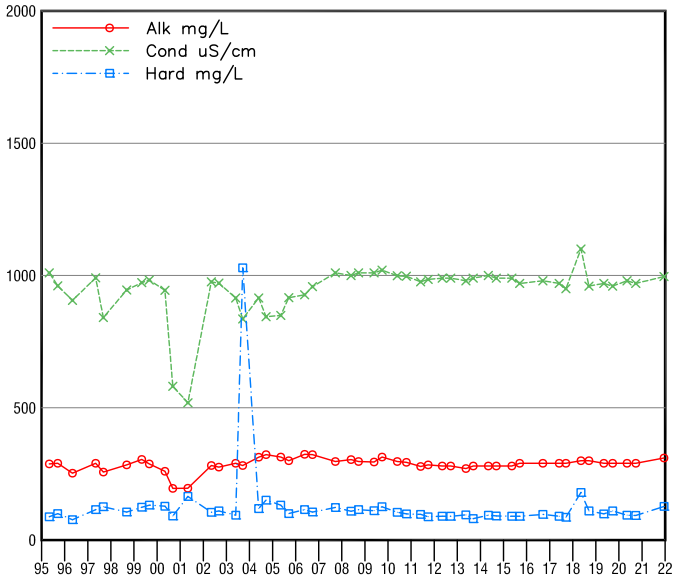
BASAL/BEDROCK AQUIFER

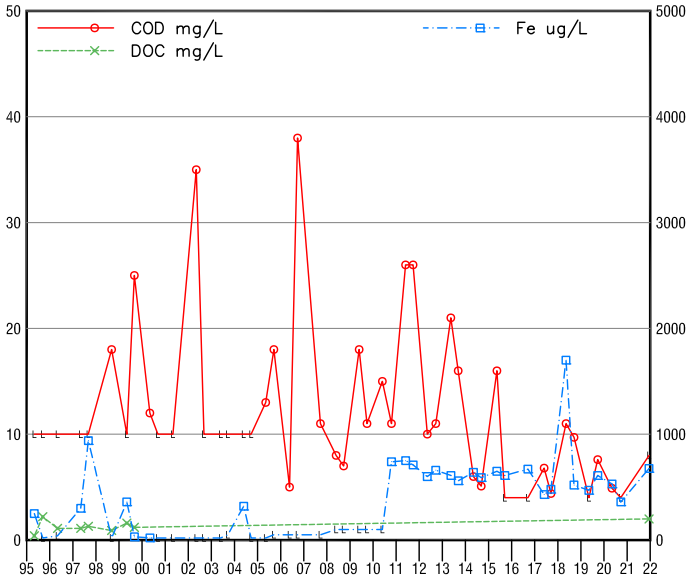
OBSERVATION WELL

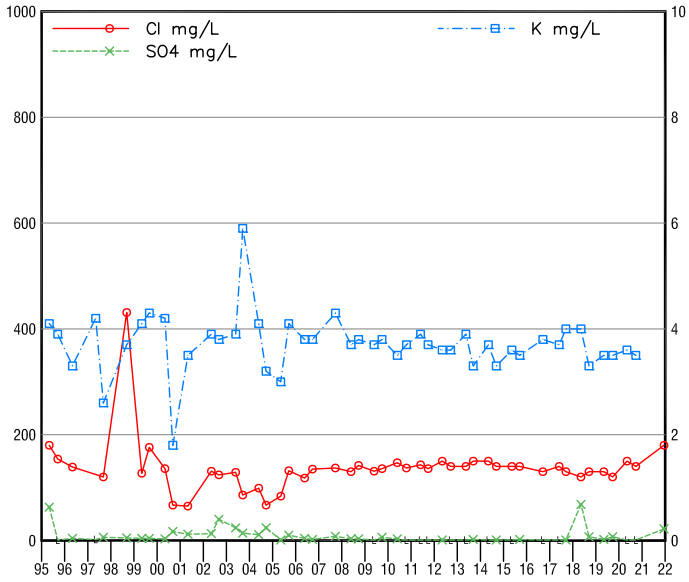


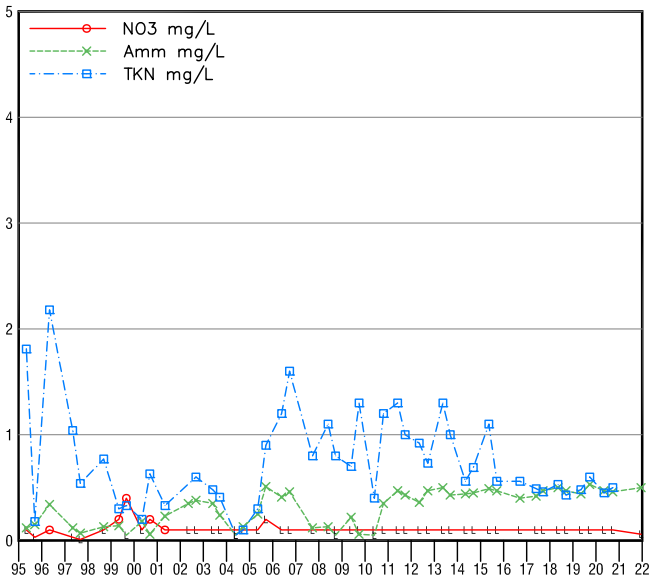
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
28-May-07	H073034	3	9			<1			<50			<1			
22-Sep-07	H073035	8	16			<1			180			<1			
28-May-08	H083036	5	14			1			**470**			3			
23-Sep-08	H083037	5	19			<1			<100			2			
27-May-09	H093038	6	10			1			<100			<1			
29-Sep-09	H093039	13	48			1			160			2			
28-May-10	H103040	9	11			<5			<100			<1			
19-Oct-10	H103041	11	<4			<5			**310**			<1			
02-Jun-11	H113042	14	81			1			110			<1			
29-Sep-11	H113043	14	9			<2			110			1			
10-May-12	H123044	13	33			<5			120			<1			
19-Sep-12	H123045	17	34			<5			110			<1			
16-May-13	H133046	15	25			<2			100			<1			
11-Sep-13	H133047	13	11			<5			<100			<1			
08-May-14	H143048	27	5.7			<5			<100			<1			
09-Sep-14	H143049	17	12			<5			100			<1			
14-May-15	H153050	4	6.8			<5			120			<1			
15-Sep-15	H153051	9	<4			4.4			<100			<1			
11-May-16	H163052	10	10			<2			120			<1			
14-Sep-16	H163053	17	10			<2			130			<1			
24-May-17	H173054	7	5.7			<5			110			<1			
12-Sep-17	H173055	12	12			4.6			110			<1			
09-May-18	H183056	7	<4			<5			110			<1			
13-Sep-18	H183057	6	5.3			<5			120			<1			
08-May-19	H193058	7	<4			<5			120			<1			
25-Sep-19	H193060		10			<5			100			<1			
08-May-20	MPS805		<4	<5		<1			180			<1			
22-Sep-20	NSM106		4			<5			180			<1			
07-May-21	2021R2050		<8		<0.2		0.005	<0.2	120	<0.09	<0.01	<2		<2	1040
17-Sep-21	CA1546109		<8						104						1060
TOTAL SAMPLES		39	45	1	1	42	1	1	46	1	1	61	0	1	2
AVERAGE 2021			<8						112						1050

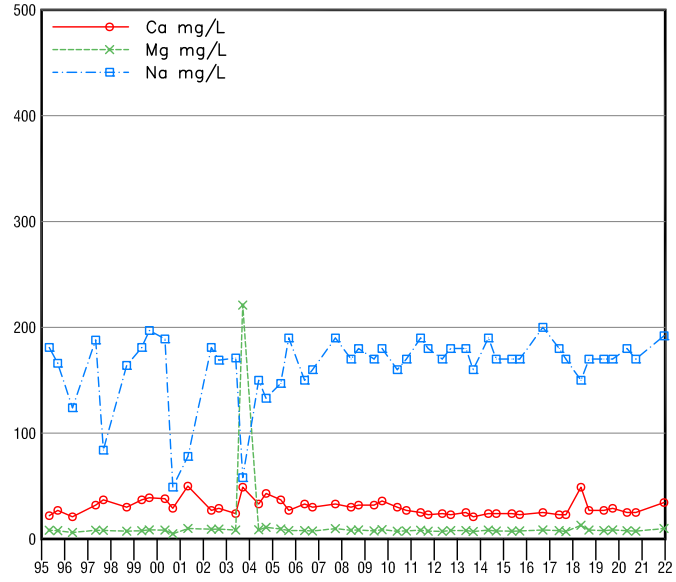
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**



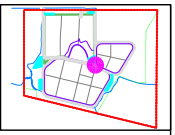








L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 30-I

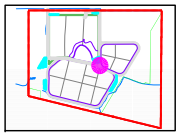
BASAL/BEDROCK AQUIFER

21500070 19 Apr 22	GOLDER	21H3002

WELL 30-I

BASAL/BEDROCK AQUIFER

OBSERVATION WELL



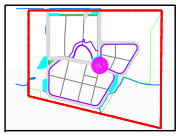
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
14-Sep-05	H053079	300	916	100		132	10	27	8.0	190	4.1	8	<0.2	<0.3	0.9	0.51	2.4
22-May-06	H063080	324	927	115		118	4	33	8.0	150	3.8	<2	<0.1	<0.01	1.2	0.41	-4.9
25-Sep-06	H063081	323	958	106		135	2	30	7.5	160	3.8	9	<0.1	0.02	1.6	0.46	-5.6
22-Sep-07	H073082	297	1010	123		137	8	33	9.8	190	4.3	9	<0.1	0.02	0.8	0.12	4.2
26-May-08	H083083	304	1000	109		130	3	30	8.2	170	3.7	<2	<0.1	<0.01	1.1	0.13	-0.7
22-Sep-08	H083084	297	1010	115		142	3	32	8.5	180	3.8	<2	<0.1	<0.01	0.8	<0.05	1.1
25-May-09	H093085	295	1010	111		131	<1	32	7.6	170	3.7	<2	<0.1	<0.01	0.7	0.22	0.7
28-Sep-09	H093086	314	1020	126		136	6	36	8.8	180	3.8	<2	<0.1	<0.01	1.3	0.06	1.0
27-May-10	H103087	297	999	105		147	3	30	7.3	160	3.5	3	<0.1	<0.01	0.4	<0.05	-5.2
19-Oct-10	H103088	294	997	99		137	<1	27	7.6	170	3.7	11	<0.1	<0.01	1.2	0.35	-1.2
31-May-11	H113089	278	976	97		143	<1	25	8.3	190	3.9	12	<0.1	<0.01	1.3	0.47	3.8
27-Sep-11	H113090	284	985	88		136	<1	23	7.4	180	3.7	13	<0.1	<0.01	1	0.43	1.2
07-May-12	H123091	280	990	90		150	1	24	7.2	170	3.6	14	<0.1	<0.01	0.92	0.36	-2.7
18-Sep-12	H123092	280	990	90		140	<1	23	8.0	180	3.6	12	<0.1	<0.01	0.73	0.47	1.2
16-May-13	H133093	270	980	95		140	<1	25	8.0	180	3.9	14	<0.1	<0.01	1.3	0.5	2.9
09-Sep-13	H133094	280	990	81		150	2	21	7.0	160	3.3	<2	<0.1	<0.01	1	0.43	-6.2
07-May-14	H143095	280	1000	94		150	<1	24	8.4	190	3.7	20	<0.1	<0.01	0.56	0.44	2.4
09-Sep-14	H143096	280	990	91		140	1	24	7.5	170	3.3	13	<0.1	<0.01	0.69	0.45	-1.2
13-May-15	H153097	280	990	90		140	<1	24	7.4	170	3.6	<2	<0.1	<0.01	1.1	0.49	-1.0
15-Sep-15	H153098	290	970	90		140	2	23	7.6	170	3.5	11	<0.1	<0.01	0.56	0.47	-2.5
15-Sep-16	H163100	290	980	97		130	<1	25	8.5	200	3.8	<2	<0.1	<0.01	0.56	0.4	6.6
30-May-17	H173101	290	970	90		140	<1	23	7.9	180	3.7	<2	<0.1	<0.01	0.49	0.42	0.1
14-Sep-17	H173102	290	950	86		130	1	23	7.0	170	4.0	7	<0.1	<0.01	0.46	0.47	-1.1
10-May-18	H183103	300	1100	180		120	68	49	13	150	4.0	10	<0.1	<0.01	0.53	0.5	-2.6
14-Sep-18	H183104	300	960	110		130	7	27	8.4	170	3.3	3	<0.1	<0.01	0.43	0.47	-1.2
07-May-19	H193105	290	970	99		130	2	27	7.9	170	3.5	11	<0.1	<0.01	0.48	0.44	0.1
24-Sep-19	H193106	290	960	110		120	7	29	8.6	170	3.5	12	<0.1	<0.01	0.60	0.53	2.0
07-May-20	MPB490	290	980	94	8.1	150	<1	25	7.8	180	3.6	8	<0.1	<0.01	0.45	0.47	-0.8
23-Sep-20	NSM053	290	970	93	8.1	140	<1	25	7.4	170	3.5	3	<0.1	<0.01	0.50	0.46	-1.9
14-Dec-21	OW0013	310	996	127	8.4	180	22	34.4	9.9	192			<0.06	<0.03		0.5	
TOTAL SAMPLES		48	48	48	3	47	48	48	48	48	47	39	48	48	46	48	
AVERAGE 2021																	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 30-I

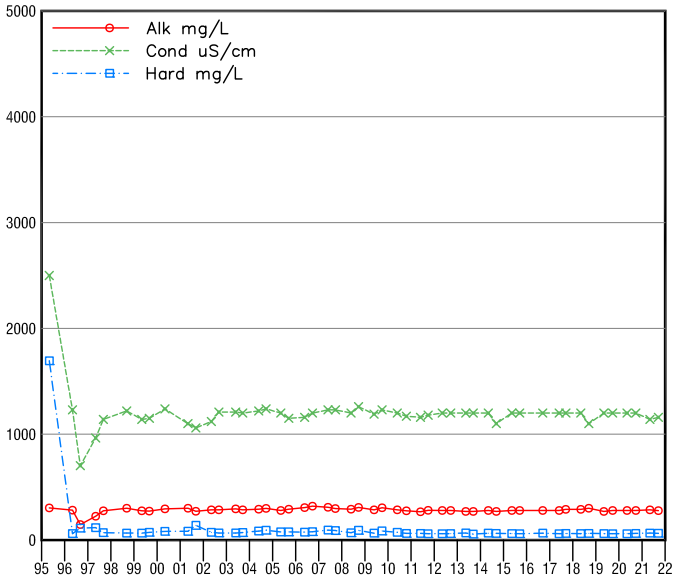
BASAL/BEDROCK AQUIFER

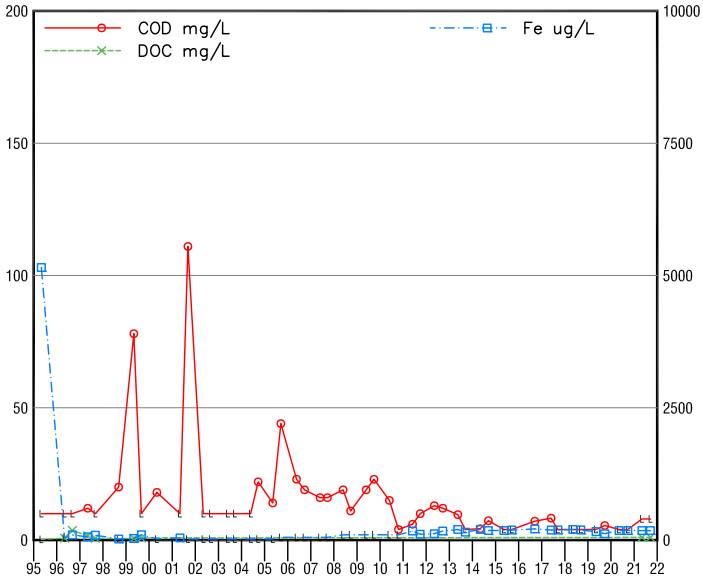
OBSERVATION WELL

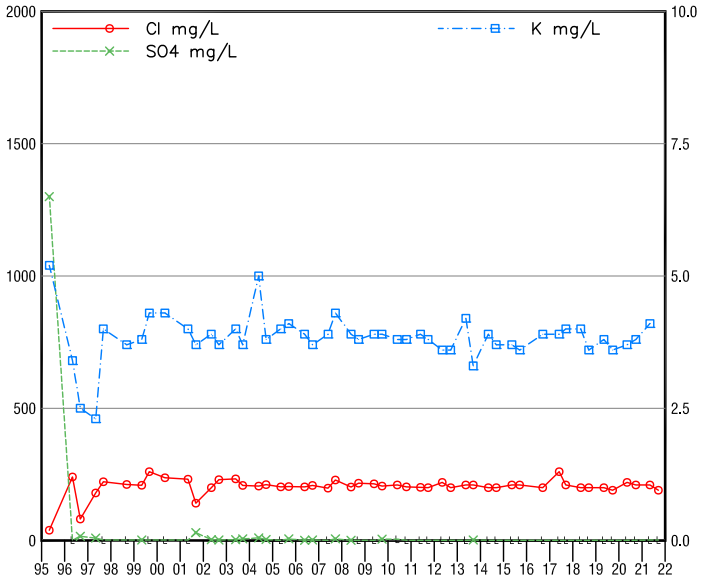


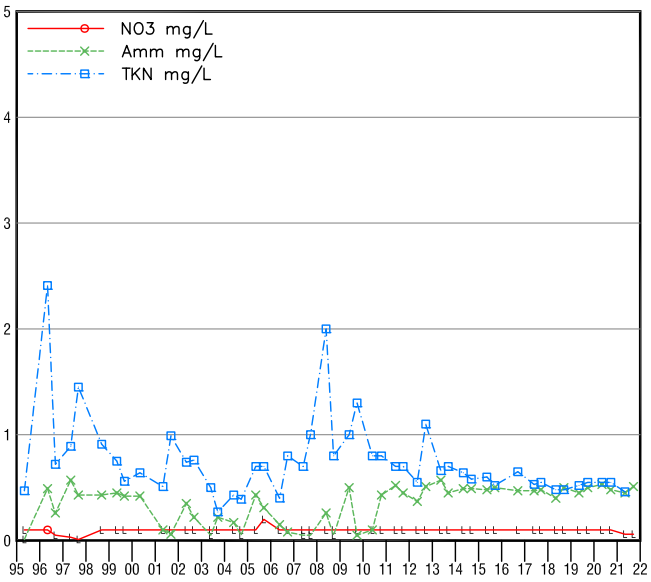
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
14-Sep-05	H053079	8	18			1			<50			1			
22-May-06	H063080	<2	5			2			<50			<1			
25-Sep-06	H063081	9	38			1			<50			<1			
22-Sep-07	H073082	9	11			<1			<50			<1			
26-May-08	H083083	<2	8			1			<100			<1			
22-Sep-08	H083084	<2	7			<1			<100			<1			
25-May-09	H093085	<2	18			1			<100			<1			
28-Sep-09	H093086	<2	11			1			<100			<1			
27-May-10	H103087	3	15			1			<100			<1			
19-Oct-10	H103088	11	11			1			**740**			1			
31-May-11	H113089	12	26			<1			**750**			<1			
27-Sep-11	H113090	13	26			<1			**710**			<1			
07-May-12	H123091	14	10			<1			**600**			<1			
18-Sep-12	H123092	12	11			<1			**660**			<1			
16-May-13	H133093	14	21			<1			**610**			<1			
09-Sep-13	H133094	<2	16			1.2			**560**			<1			
07-May-14	H143095	20	6			<1			**640**			<1			
09-Sep-14	H143096	13	5.1			<1			**590**			<1			
13-May-15	H153097	<2	16			<1			**650**			<1			
15-Sep-15	H153098	11	<4			1.5			**610**			<1			
15-Sep-16	H163100	<2	<4			<1			**670**			<1			
30-May-17	H173101	<2	6.8			<1			**430**			<1			
14-Sep-17	H173102	7	4.4			1.4			**480**			<1			
10-May-18	H183103	10	11			<1			**1700**			<1			
14-Sep-18	H183104	3	9.7			<1			**520**			<1			
07-May-19	H193105	11	<4			<1			**470**			<1			
24-Sep-19	H193106	12	7.6			<1			**610**			<1			
07-May-20	MPB490	8	4.9			<1			**530**			6.1			
23-Sep-20	NSM053	3	<4			<1			**360**			<1			
14-Dec-21	OW0013		<8						**676**						529
TOTAL SAMPLES		39	48	0	0	47	0	0	48	0	0	47	0	0	1
AVERAGE 2021															

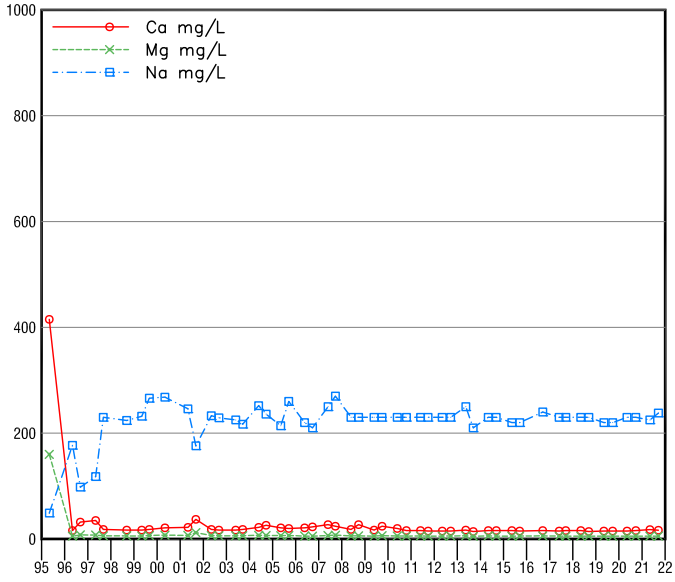
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









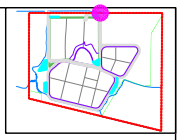


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 32-I

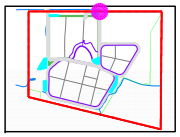
BASAL/BEDROCK AQUIFER

21500070 19 Apr 22	GOLDER	21H3003

WELL 32-I

BASAL/BEDROCK AQUIFER

OBSERVATION WELL



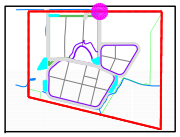
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
25-Sep-06	H063127	321	1200	79		208	2	23	5.3	**210**	3.7	6	<0.1	0.02	0.8	0.08	-6.5
28-May-07	H073128	310	1230	94		198	<1	27	6.5	**250**	3.9	<2	<0.1	<0.01	0.7	<0.05	4.4
22-Sep-07	H073129	297	1230	90		229	6	24	7.3	**270**	4.3	10	<0.1	<0.01	1	<0.05	4.3
26-May-08	H083130	292	1200	69		202	1	18	5.8	**230**	3.9	9	<0.1	<0.01	2	0.26	-0.2
22-Sep-08	H083131	309	1260	92		217	<1	27	6.0	**230**	3.8	11	<0.1	<0.01	0.8	<0.05	-1.5
25-May-09	H093132	286	1190	65		214	<1	17	5.4	**230**	3.9	5	<0.1	<0.01	1	0.5	-1.4
28-Sep-09	H093133	305	1230	86		206	5	24	6.3	**230**	3.9	13	<0.1	<0.01	1.3	0.05	-0.8
27-May-10	H103134	285	1200	73		210	<5	20	5.7	**230**	3.8	3	<0.1	<0.01	0.8	0.1	-0.2
19-Oct-10	H103135	276	1170	63		203	<1	16	5.5	**230**	3.8	11	<0.1	<0.01	0.8	0.43	0.6
30-May-11	H113136	267	1160	63		201	<1	16	5.6	**230**	3.9	13	<0.1	<0.01	0.7	0.52	1.8
27-Sep-11	H113137	281	1180	60		200	<1	15	5.5	**230**	3.8	13	<0.1	<0.01	0.7	0.45	0.4
07-May-12	H123138	280	1200	60		220	<1	15	5.5	**230**	3.6	13	<0.1	<0.01	0.55	0.37	-2.0
18-Sep-12	H123139	280	1200	61		200	<1	15	5.7	**230**	3.6	12	<0.1	<0.01	1.1	0.51	0.5
15-May-13	H133140	270	1200	67		210	<1	17	5.9	**250**	4.2	9	<0.1	<0.01	0.66	0.57	4.4
09-Sep-13	H133141	270	1200	56		210	2	14	5.0	**210**	3.3	<2	<0.1	<0.01	0.7	0.45	-4.6
05-May-14	H143142	280	1200	65		200	<1	16	6.0	**230**	3.9	11	<0.1	<0.01	0.64	0.49	0.9
09-Sep-14	H143143	270	1100	63		200	<1	16	5.5	**230**	3.7	11	<0.1	<0.01	0.58	0.49	1.6
13-May-15	H153144	280	1200	61		210	<1	16	5.3	**220**	3.7	2	<0.1	<0.01	0.6	0.48	-2.6
15-Sep-15	H153145	280	1200	60		210	<1	15	5.6	**220**	3.6	4	<0.1	<0.01	0.52	0.5	-2.7
13-Sep-16	H163147	280	1200	65		200	<1	16	5.9	**240**	3.9	21	<0.1	<0.01	0.65	0.47	2.7
30-May-17	H173148	280	1200	60		**260**	<1	15	5.4	**230**	3.9	7	<0.1	<0.01	0.53	0.47	-6.6
13-Sep-17	H173149	290	1200	62		210	<1	16	5.4	**230**	4.0	4	<0.1	<0.01	0.55	0.48	-1.4
07-May-18	H183150	290	1200	61		200	<1	16	5.4	**230**	4.0	3	<0.1	<0.01	0.48	0.4	-0.2
11-Sep-18	H183151	300	1100	63		200	<1	14	5.3	**230**	3.6	<2	<0.1	<0.01	0.48	0.5	-1.6
08-May-19	H193152	270	1200	61		200	<1	15	5.3	**220**	3.8	11	<0.1	<0.01	0.52	0.45	-0.7
24-Sep-19	H193153	280	1200	60		190	<1	15	5.2	**220**	3.6	6	<0.1	<0.01	0.55	0.5	-0.3
07-May-20	MPB493	280	1200	60	8.3	220	<1	15	5.4	**230**	3.7	2	<0.1	<0.01	0.55	0.53	-2.0
23-Sep-20	NSM049	280	1200	63	8.1	210	<1	16	5.5	**230**	3.8	5	<0.1	<0.01	0.55	0.48	-0.5
05-May-21	2021R2013	285	1140	66	8.3	210	<2	17.7	5.36	**225**	4.1		<0.06	<0.03	0.46	0.45	-1.6
16-Sep-21	CA1544302	278	1160	64	8.3	190	<2	16.6	5.51	**238**			<0.06	<0.03		0.51	
TOTAL SAMPLES		50	50	50	4	50	50	50	50	50	49	40	50	50	49	50	
AVERAGE 2021		282	1150	65	8.3	200	<2	17.2	5.44	232			<0.06	<0.03		0.48	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 32-I

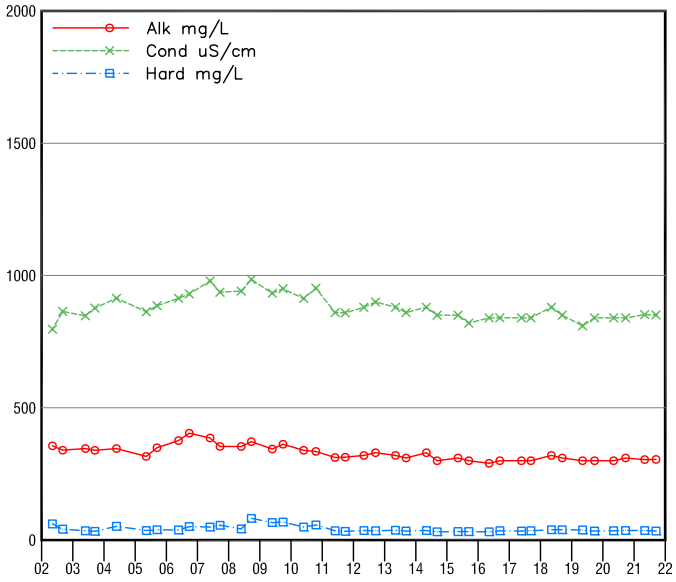
BASAL/BEDROCK AQUIFER

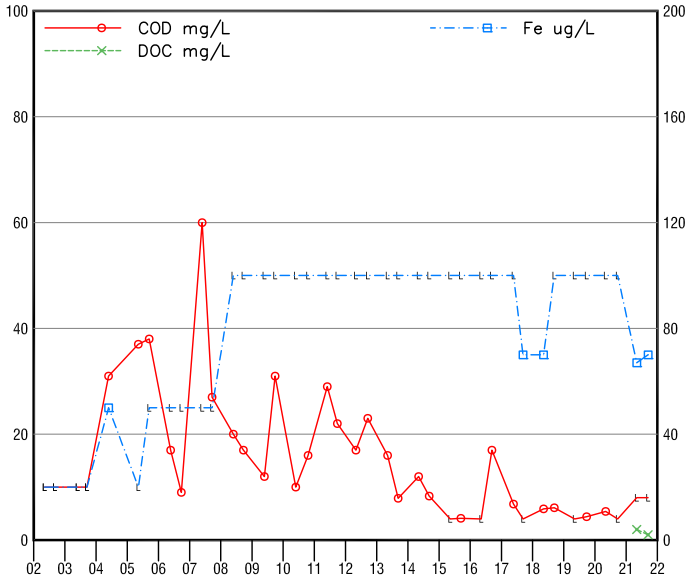
OBSERVATION WELL

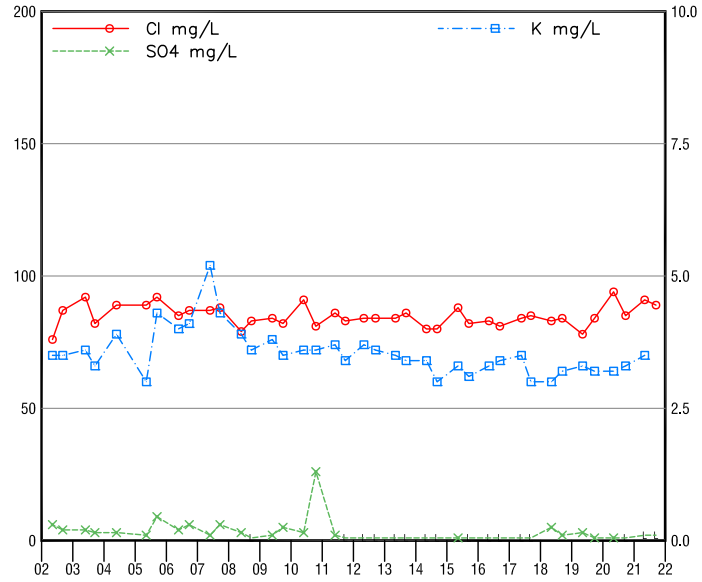


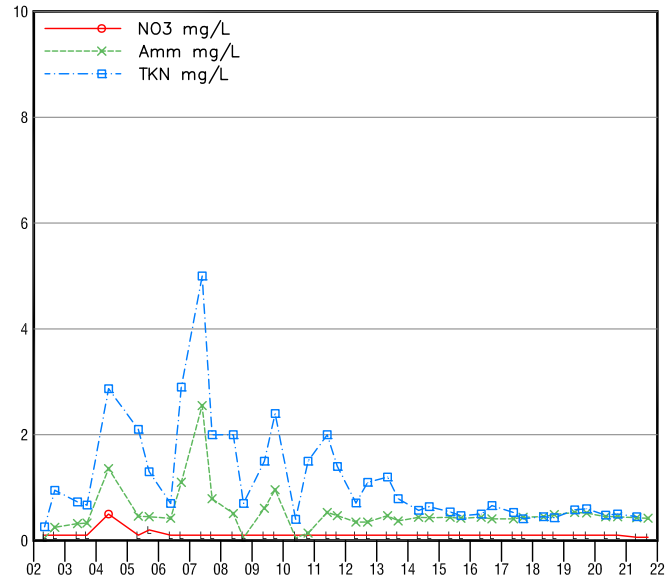
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
25-Sep-06	H063127	6	19			<1			<50			<1			
28-May-07	H073128	<2	16			2			<50			<1			
22-Sep-07	H073129	10	16			<1			<50			<1			
26-May-08	H083130	9	19			<1			<100			<1			
22-Sep-08	H083131	11	11			<1			<100			<1			
25-May-09	H093132	5	19			<1			<100			<1			
28-Sep-09	H093133	13	23			1			<100			<1			
27-May-10	H103134	3	15			<5			<100			<1			
19-Oct-10	H103135	11	4			<1			<100			<1			
30-May-11	H113136	13	6			<1			170			<1			
27-Sep-11	H113137	13	10			<1			110			<1			
07-May-12	H123138	13	13			1			120			<1			
18-Sep-12	H123139	12	12			<1			170			<1			
15-May-13	H133140	9	9.6			<1			200			<1			
09-Sep-13	H133141	<2	<4			1.1			150			<1			
05-May-14	H143142	11	4.3			<1			200			<1			
09-Sep-14	H143143	11	7.3			<1			180			<1			
13-May-15	H153144	2	<4			1.1			180			<1			
15-Sep-15	H153145	4	<4			<1			190			<1			
13-Sep-16	H163147	21	7.1			<1			210			<1			
30-May-17	H173148	7	8.3			<1			190			<1			
13-Sep-17	H173149	4	<4			2.6			190			<1			
07-May-18	H183150	3	<4			<1			200			<1			
11-Sep-18	H183151	<2	<4			1.4			190			<1			
08-May-19	H193152	11	<4			1.2			160			<1			
24-Sep-19	H193153	6	5.5			1.2			120			<1			
07-May-20	MPB493	2	<4			<1			180			<1			
23-Sep-20	NSM049	5	<4			<1			180			<1			
05-May-21	2021R2013		<8		<0.2		0.003	<0.2	179	<0.09	<0.01	<2		<2	611
16-Sep-21	CA1544302		<8						179						606
TOTAL SAMPLES		40	50	0	1	48	1	1	50	1	1	49	0	1	2
AVERAGE 2021			<8						179						609

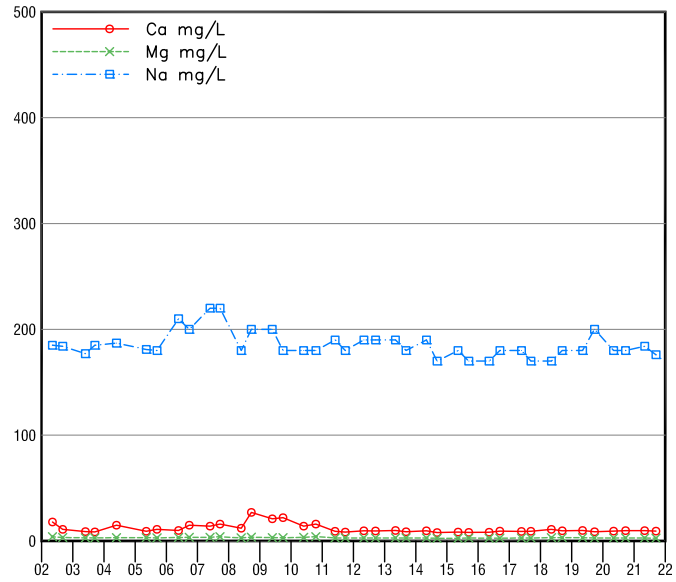
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**



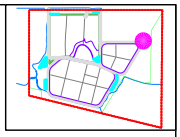








L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 46-I

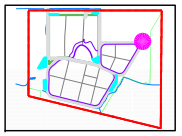
BASAL/BEDROCK AQUIFER

21500070 19 Apr 22	GOLDER	21H3004

WELL 46-I

BASAL/BEDROCK AQUIFER

OBSERVATION WELL



DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
28-May-07	H073163	386	979	49		87	2	14	3.5	**220**	5.2	11	<0.1	<0.01	5	2.55	3.1
22-Sep-07	H073164	354	937	56		88	6	16	4.0	**220**	4.3	18	<0.1	0.02	2	0.79	5.8
27-May-08	H083165	354	941	42		79	3	12	2.9	180	3.9	10	<0.1	<0.01	2	0.51	-3.1
23-Sep-08	H083166	372	985	82		83	<1	27	3.6	200	3.6	11	<0.1	<0.01	0.7	<0.05	3.3
26-May-09	H093167	344	933	66		84	2	21	3.2	200	3.8	9	<0.1	<0.01	1.5	0.61	4.5
29-Sep-09	H093168	362	950	68		82	5	22	3.1	180	3.5	5	<0.1	0.01	2.4	0.96	-1.6
28-May-10	H103169	339	913	49		91	3	14	3.4	180	3.6	6	<0.1	<0.01	0.4	<0.05	-2.7
19-Oct-10	H103170	335	952	57		81	26	16	4.1	180	3.6	8	<0.1	0.01	1.5	0.14	-2.4
01-Jun-11	H113171	312	860	35		86	2	9.2	2.9	190	3.7	13	<0.1	<0.01	2	0.53	2.2
28-Sep-11	H113172	313	859	33		83	<1	8.5	2.9	180	3.4	13	<0.1	<0.01	1.4	0.47	0.1
03-May-12	H123173	320	880	36		84	<1	9.7	2.9	190	3.7	18	<0.1	<0.01	0.71	0.35	1.9
17-Sep-12	H123174	330	900	35		84	<1	9.5	2.8	190	3.6	12	<0.1	<0.01	1.1	0.35	0.7
08-May-13	H133175	320	880	37		84	<1	9.9	2.9	190	3.5	31	<0.1	<0.01	1.2	0.47	2.0
09-Sep-13	H133176	310	860	34		86	<1	8.8	2.9	180	3.4	12	<0.1	<0.01	0.79	0.37	0.1
06-May-14	H143177	330	880	36		80	<1	9.7	2.8	190	3.4	11	<0.1	<0.01	0.57	0.44	1.4
08-Sep-14	H143178	300	850	31		80	<1	8.0	2.6	170	3.0	20	<0.1	<0.01	0.64	0.43	-0.8
11-May-15	H153179	310	850	32		88	1	8.5	2.6	180	3.3	14	<0.1	<0.01	0.54	0.44	-0.7
14-Sep-15	H153180	300	820	32		82	<1	8.1	2.8	170	3.1	10	<0.1	<0.01	0.47	0.42	-1.0
09-May-16	H163181	290	840	31		83	<1	8.2	2.7	170	3.3	4	<0.1	<0.01	0.5	0.44	0.1
12-Sep-16	H163182	300	840	35		81	<1	9.3	2.7	180	3.4	4	<0.1	<0.01	0.66	0.41	2.1
23-May-17	H173183	300	840	34		84	<1	9.1	2.8	180	3.5	9	<0.1	<0.01	0.53	0.41	1.6
11-Sep-17	H173184	300	840	35		85	<1	9.2	2.8	170	3.0	8	<0.1	<0.01	0.41	0.44	-1.2
09-May-18	H183185	320	880	39		83	5	11	3.2	170	3.0	5	<0.1	<0.01	0.45	0.45	-3.0
12-Sep-18	H183186	310	850	39		84	2	9.6	3.2	180	3.2	4	<0.1	<0.01	0.43	0.49	0.5
09-May-19	H193187	300	810	38		78	3	10	3.1	180	3.3	9	<0.1	<0.01	0.58	0.53	2.6
26-Sep-19	H193188	300	840	34		84	1	8.8	2.8	200	3.2		<0.1	<0.01	0.60	0.52	6.2
06-May-20	MPB462	300	840	35	8.3	94	1	9.3	2.8	180	3.2		<0.1	<0.01	0.48	0.45	-0.2
23-Sep-20	NSM112	310	840	36	8.1	85	<1	9.8	2.9	180	3.3		<0.1	<0.01	0.50	0.45	0.5
05-May-21	2021R2032	304	852	36	8.5	91	<2	9.76	2.82	184	3.5		<0.06	<0.03	0.45	0.43	1.2
15-Sep-21	CA1539711	305	851	34	8.6	89	<2	9.27	2.65	176			<0.06			0.42	

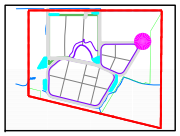
TOTAL SAMPLES	39	39	39	4	39	39	39	39	39	38	34	39	38	38	39		
AVERAGE 2021	305	852	35	8.6	90	<2	9.52	2.74	180			<0.06			0.43		

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 46-I

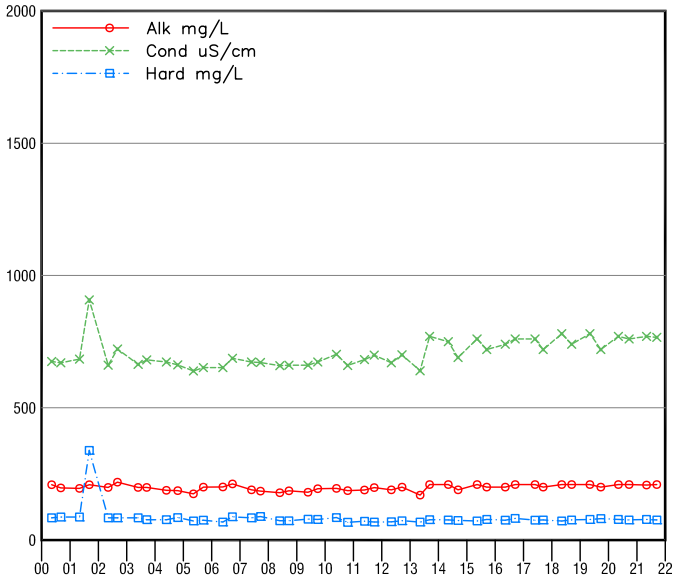
BASAL/BEDROCK AQUIFER

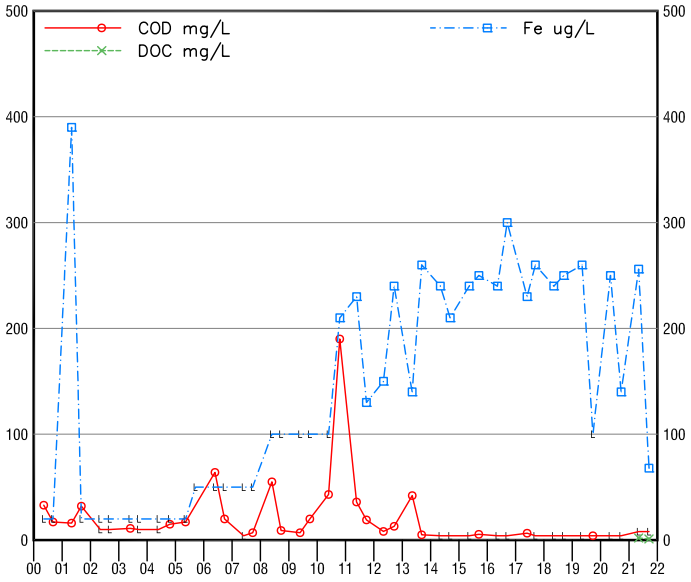
OBSERVATION WELL

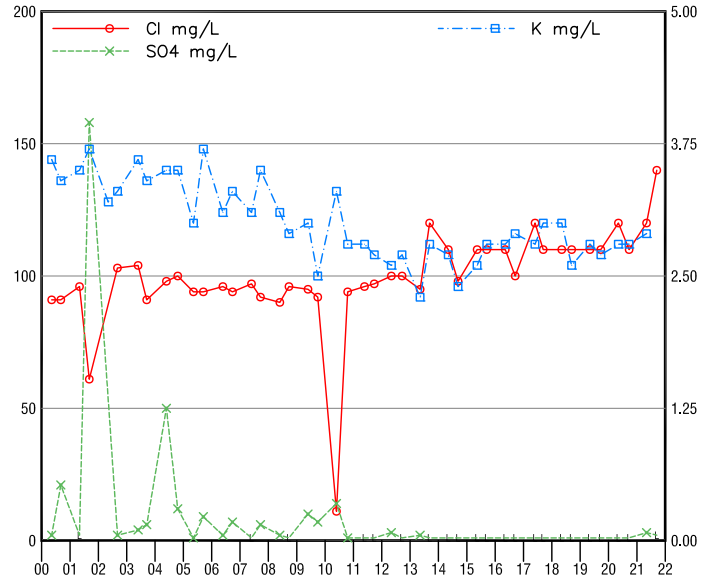


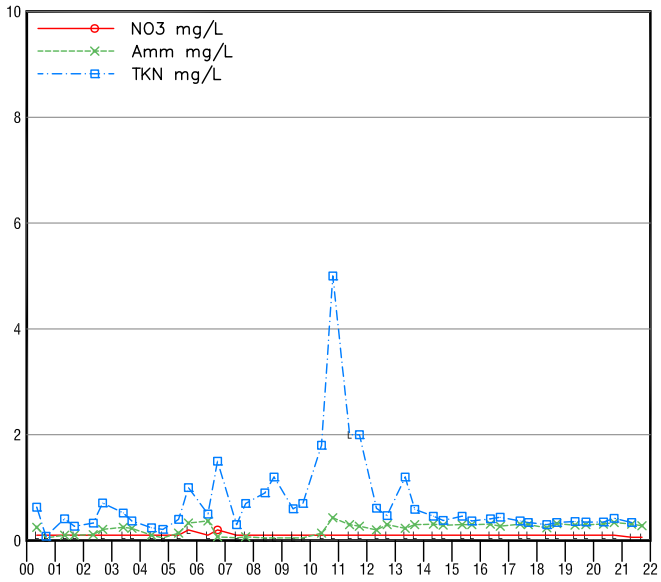
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
28-May-07	H073163	11	60			3			<50			3			
22-Sep-07	H073164	18	27			3			<50			<1			
27-May-08	H083165	10	20			3			<100			<1			
23-Sep-08	H083166	11	17			3			<100			<1			
26-May-09	H093167	9	12			3			<100			<1			
29-Sep-09	H093168	5	31			4			<100			<1			
28-May-10	H103169	6	10			4			<100			<1			
19-Oct-10	H103170	8	16			4			<100			<1			
01-Jun-11	H113171	13	29			4			<100						
28-Sep-11	H113172	13	22			4			<100			<1			
03-May-12	H123173	18	17			3.6			<100			<1			
17-Sep-12	H123174	12	23			3.9			<100			<1			
08-May-13	H133175	31	16			5.5			<100			<1			
09-Sep-13	H133176	12	7.9			5.2			<100			<1			
06-May-14	H143177	11	12			4.4			<100			<1			
08-Sep-14	H143178	20	8.3			3.4			<100			<1			
11-May-15	H153179	14	<4			2.9			<100			<1			
14-Sep-15	H153180	10	4.1			4.1			<100			<1			
09-May-16	H163181	4	<4			3.4			<100			<1			
12-Sep-16	H163182	4	17			2.9			<100			<1			
23-May-17	H173183	9	6.8			3.1			<100			<1			
11-Sep-17	H173184	8	<4			3.8			70			<1			
09-May-18	H183185	5	5.9			<1			70			<1			
12-Sep-18	H183186	4	6.1			3.5			<100			<1			
09-May-19	H193187	9	<4			2.2			<100			<1			
26-Sep-19	H193188		4.4			2			<100			<1			
06-May-20	MPB462		5.4			2.3			<100						
23-Sep-20	NSM112		<4			2.3			<100			<1			
05-May-21	2021R2032		<8		<0.2		0.013	<0.2	67	<0.09	<0.01	<2		<2	449
15-Sep-21	CA1539711		<8						70						474
TOTAL SAMPLES		34	39	0	1	37	1	1	39	1	1	36	0	1	2
AVERAGE 2021			<8						69						462

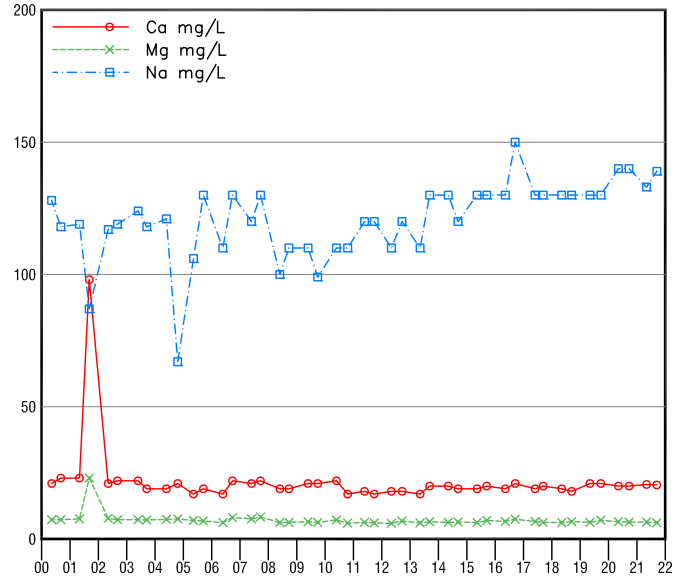
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**



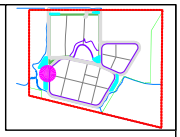








L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 49-C

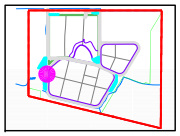
BASAL/BEDROCK AQUIFER

21500070 19 Apr 22	GOLDER	21H3005

WELL 49-C

BASAL/BEDROCK AQUIFER

OBSERVATION WELL



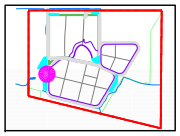
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
28-May-07	H073203	190	673	84		97	<1	21	7.6	120	3.1	4	<0.1	0.01	0.3	<0.05	3.3
22-Sep-07	H073204	185	671	89		92	6	22	8.3	130	3.5	16	<0.1	<0.01	0.7	0.07	8.0
27-May-08	H083205	179	659	73		90	2	19	6.2	100	3.1	11	<0.1	<0.01	0.9	<0.05	-2.2
22-Sep-08	H083206	186	661	73		96	<1	19	6.3	110	2.9	10	<0.1	<0.01	1.2	<0.05	-0.8
26-May-09	H093207	181	661	79		95	10	21	6.5	110	3.0	10	<0.1	<0.01	0.6	<0.05	-0.5
28-Sep-09	H093208	194	673	78		92	7	21	6.3	99	2.5	3	<0.1	<0.01	0.7	<0.05	-5.4
27-May-10	H103209	195	702	85		11	14	22	7.2	110	3.3	<2	<0.1	<0.01	1.8	0.14	18.7
19-Oct-10	H103210	187	660	67		94	1	17	6.0	110	2.8	10	<0.1	<0.01	5	0.43	-1.4
24-May-11	H113211	189	682	71		96	<1	18	6.3	120	2.8	19	<0.1	<0.01	<2	0.3	1.9
27-Sep-11	H113212	198	699	68		97	<1	17	6.1	120	2.7	13	<0.1	<0.01	2	0.27	-0.2
04-May-12	H123213	190	670	69		100	3	18	5.9	110	2.6	17	<0.1	<0.01	0.61	0.2	-3.3
18-Sep-12	H123214	200	700	73		100	<1	18	6.8	120	2.7	25	<0.1	<0.01	0.47	0.3	-0.3
09-May-13	H133215	170	640	68		95	2	17	6.1	110	2.3	25	<0.1	<0.01	1.2	0.23	0.8
09-Sep-13	H133216	210	770	77		120	<1	20	6.5	130	2.8	14	<0.1	<0.01	0.59	0.3	-2.0
07-May-14	H143217	210	750	76		110	<1	20	6.3	130	2.7	12	<0.1	<0.01	0.46	0.31	-0.2
10-Sep-14	H143218	190	690	74		98	<1	19	6.4	120	2.4	25	<0.1	<0.01	0.38	0.29	1.7
13-May-15	H153219	210	760	72		110	<1	19	6.2	130	2.6	7	<0.1	<0.01	0.46	0.3	-0.6
15-Sep-15	H153220	200	720	78		110	<1	20	7.0	130	2.8	8	<0.1	<0.01	0.37	0.3	1.6
11-May-16	H163221	200	740	75		110	<1	19	6.6	130	2.8	10	<0.1	<0.01	0.41	0.31	1.0
15-Sep-16	H163222	210	760	82		100	<1	21	7.5	150	2.9	<2	<0.1	<0.01	0.44	0.27	8.3
29-May-17	H173223	210	760	75		120	<1	19	6.6	130	2.8	2	<0.1	<0.01	0.37	0.31	-2.2
12-Sep-17	H173224	200	720	76		110	<1	20	6.3	130	3.0	6	<0.1	<0.01	0.34	0.3	1.2
08-May-18	H183225	210	780	72		110	<1	19	6.2	130	3.0	<2	<0.1	<0.01	0.3	0.24	-0.6
13-Sep-18	H183226	210	740	76		110	<1	18	6.6	130	2.6	10	<0.1	<0.01	0.34	0.32	-0.7
07-May-19	H193227	210	780	78		110	<1	21	6.3	130	2.8	<2	<0.1	<0.01	0.36	0.29	0.2
24-Sep-19	H193228	200	720	81		110	<1	21	7.1	130	2.7		<0.1	<0.01	0.35	0.3	1.9
07-May-20	MPB487	210	770	78	8.3	120	<1	20	6.5	140	2.8		<0.1	<0.01	0.35	0.31	0.9
22-Sep-20	NSM108	210	760	76	8.1	110	<1	20	6.4	140	2.8		<0.1	<0.01	0.42	0.34	2.8
05-May-21	2021R2028	208	770	78	8.4	120	3	20.6	6.38	133	2.9		<0.06	<0.03	0.34	0.31	-1.1
15-Sep-21	CA1539704	210	766	76	8.5	140	<2	20.4	6.15	139			<0.06			0.28	
TOTAL SAMPLES		44	44	44	4	43	43	44	44	44	43	39	43	42	43	44	
AVERAGE 2021		209	768	77	8.5	130	<2	20.5	6.27	136			<0.06			0.30	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *Italics* / Exceedance in **Bold**

WELL 49-C

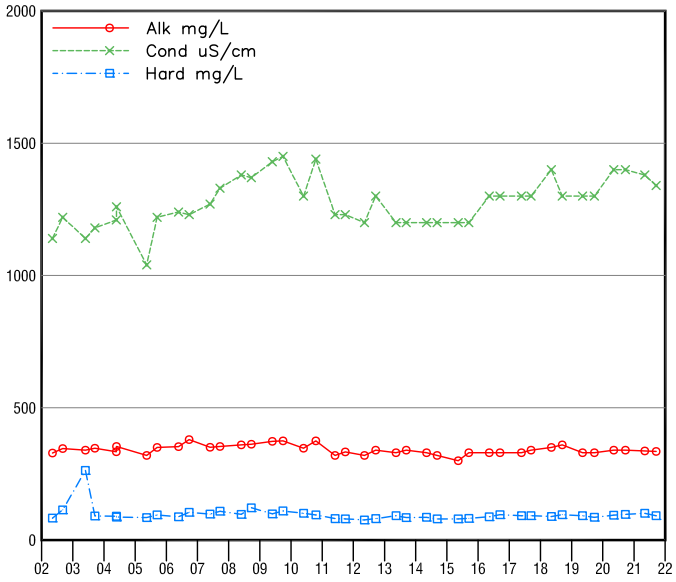
BASAL/BEDROCK AQUIFER

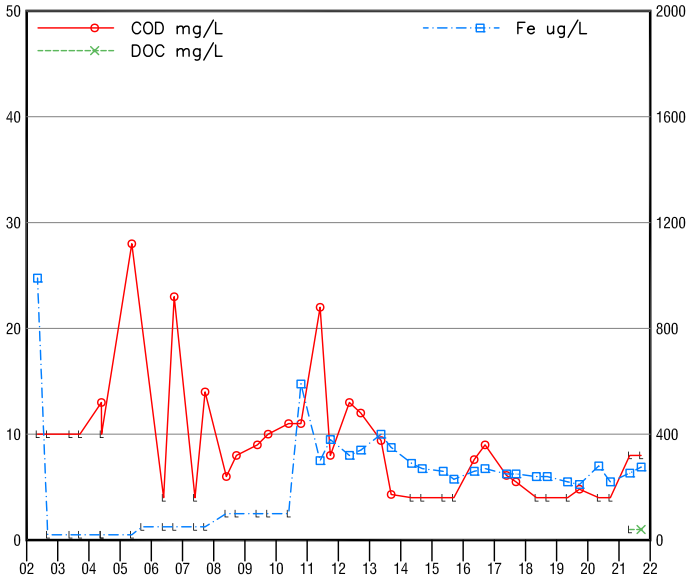
OBSERVATION WELL

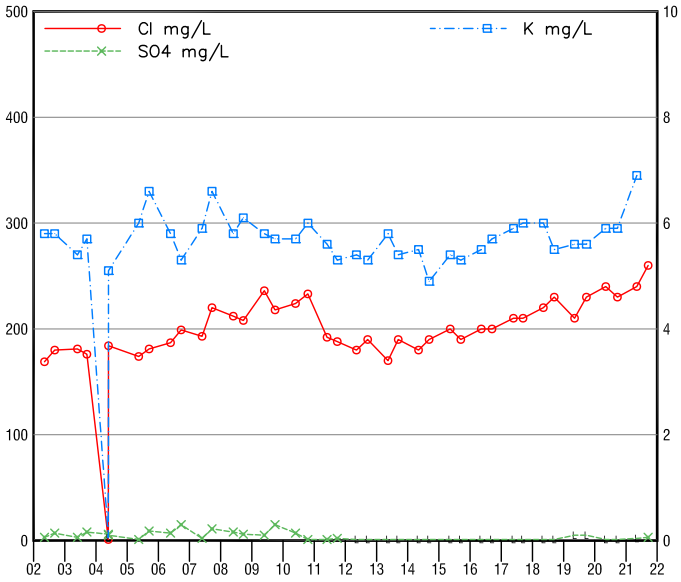


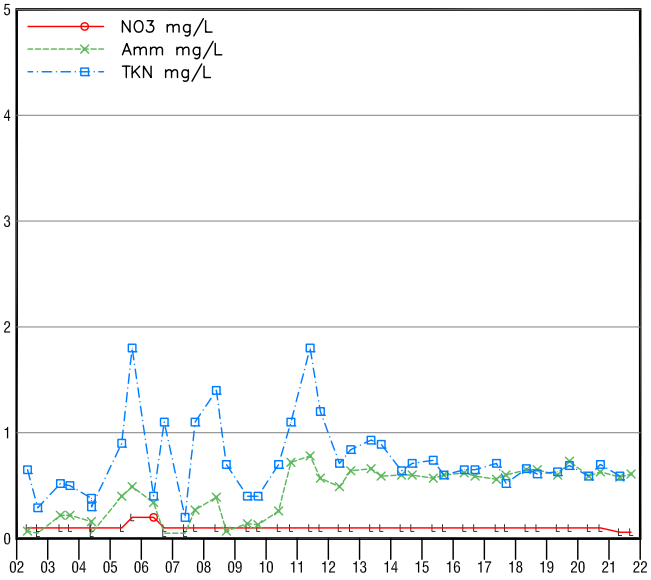
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
28-May-07	H073203	4	<4			<1			<50			<1			
22-Sep-07	H073204	16	7			<1			<50			<1			
27-May-08	H083205	11	55			<1			<100			<1			
22-Sep-08	H083206	10	9			<1			<100			<1			
26-May-09	H093207	10	7			<1			<100			<1			
28-Sep-09	H093208	3	20			<1			<100			<1			
27-May-10	H103209	<2	43			<1			<100			<1			
19-Oct-10	H103210	10	190			<1			210			<1			
24-May-11	H113211	19	36			<1			230			<1			
27-Sep-11	H113212	13	19			<1			130			<1			
04-May-12	H123213	17	8.1			<1			150			<1			
18-Sep-12	H123214	25	13			<1			240			<1			
09-May-13	H133215	25	42			<1			140			<1			
09-Sep-13	H133216	14	4.9			<1			260			<1			
07-May-14	H143217	12	<4			<1			240			<1			
10-Sep-14	H143218	25	<4			<1			210			<1			
13-May-15	H153219	7	<4			<1			240			<1			
15-Sep-15	H153220	8	5.4			<1			250			<1			
11-May-16	H163221	10	<4			<1			240			<1			
15-Sep-16	H163222	<2	<4			<1			300			<1			
29-May-17	H173223	2	6.5			<1			230			<1			
12-Sep-17	H173224	6	<4			1.2			260			<1			
08-May-18	H183225	<2	<4			<1			240			<1			
13-Sep-18	H183226	10	<4			<1			250			<1			
07-May-19	H193227	<2	<4			<1			260			<1			
24-Sep-19	H193228		4.1			<1			<100			<1			
07-May-20	MPB487		<4			<1			250			2.7			
22-Sep-20	NSM108		<4			<1			140			<1			
05-May-21	2021R2028		<8		<0.2		0.009	<0.2	256	<0.09	<0.01	<2		<2	431
15-Sep-21	CA1539704		<8						68						397
TOTAL SAMPLES		39	43	0	1	42	1	1	44	1	1	43	0	1	2
AVERAGE 2021			<8						162						414

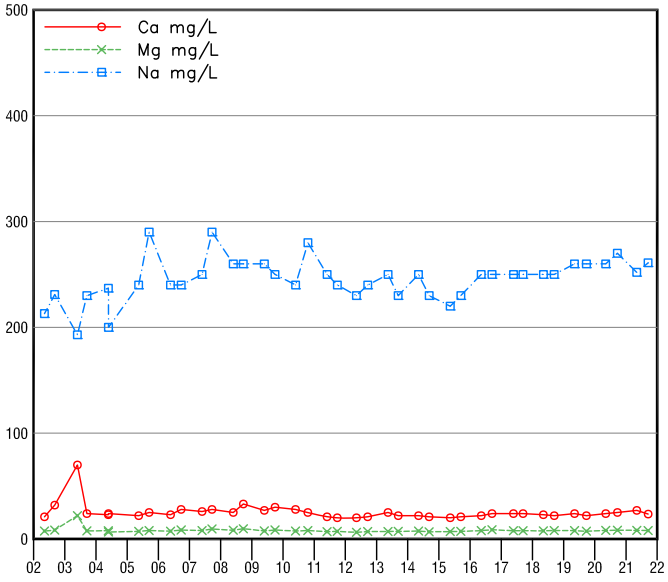
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**











L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 50-C

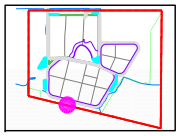
BASAL/BEDROCK AQUIFER

21500070 19 Apr 22	GOLDER	21H3006

WELL 50-C

BASAL/BEDROCK AQUIFER

OBSERVATION WELL



DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
28-May-07	H073239	351	1270	98		193	2	26	8.0	**250**	5.9	<2	<0.1	<0.01	0.2	<0.05	1.9
22-Sep-07	H073240	354	1330	109		220	11	28	9.5	**290**	6.6	12	<0.1	0.02	1.1	0.27	5.2
28-May-08	H083241	360	1380	97		212	8	25	8.3	**260**	5.8	5	<0.1	<0.01	1.4	0.39	0.3
23-Sep-08	H083242	362	1370	122		208	6	33	9.7	**260**	6.1	8	<0.1	<0.01	0.7	0.07	2.5
27-May-09	H093243	373	1430	99		236	5	27	7.6	**260**	5.8	8	<0.1	<0.01	0.4	0.14	-2.8
29-Sep-09	H093244	375	1450	110		218	15	30	8.5	**250**	5.7	8	<0.1	<0.01	0.4	0.13	-2.7
28-May-10	H103245	347	1300	101		224	7	28	7.5	**240**	5.7	9	<0.1	0.01	0.7	0.26	-3.0
19-Oct-10	H103246	375	1440	95		233	1	25	8.0	**280**	6.0	11	<0.1	<0.01	1.1	0.72	0.8
01-Jun-11	H113247	320	1230	81		192	1	21	6.9	**250**	5.6	13	<0.1	<0.01	1.8	0.78	3.5
29-Sep-11	H113248	333	1230	80		188	2	20	7.2	**240**	5.3	14	<0.1	<0.01	1.2	0.57	0.9
10-May-12	H123249	320	1200	76		180	<1	20	6.3	**230**	5.4	13	<0.1	<0.01	0.71	0.49	1.0
19-Sep-12	H123250	340	1300	81		190	<1	21	7.0	**240**	5.3	20	<0.1	<0.01	0.84	0.64	0.4
15-May-13	H133251	330	1200	92		170	<1	25	7.1	**250**	5.8	12	<0.1	<0.01	0.93	0.66	6.3
11-Sep-13	H133252	340	1200	85		190	<1	22	7.2	**230**	5.4	15	<0.1	<0.01	0.89	0.59	-1.1
07-May-14	H143253	330	1200	86		180	<1	22	7.5	**250**	5.5	14	<0.1	<0.01	0.64	0.6	4.5
09-Sep-14	H143254	320	1200	80		190	<1	21	6.8	**230**	4.9	43	<0.1	<0.01	0.71	0.6	0.2
14-May-15	H153255	300	1200	80		200	<1	20	7.0	**220**	5.4	2	<0.1	<0.01	0.74	0.57	-1.3
15-Sep-15	H153256	330	1200	82		190	<1	21	7.2	**230**	5.3	11	<0.1	<0.01	0.6	0.6	-0.5
11-May-16	H163257	330	1300	88		200	<1	22	7.9	**250**	5.5	14	<0.1	<0.01	0.65	0.62	2.3
14-Sep-16	H163258	330	1300	96		200	<1	24	8.7	**250**	5.7	17	<0.1	<0.01	0.65	0.59	3.0
24-May-17	H173259	330	1300	92		210	<1	24	7.8	**250**	5.9	4	<0.1	<0.01	0.71	0.56	1.6
12-Sep-17	H173260	340	1300	92		210	<1	24	7.8	**250**	6.0	2	<0.1	<0.01	0.52	0.6	0.8
09-May-18	H183261	350	1400	89		220	<1	23	7.7	**250**	6.0	<2	<0.1	<0.01	0.66	0.65	-1.3
13-Sep-18	H183262	360	1300	96		230	<1	22	8.0	**250**	5.5	8	<0.1	<0.01	0.61	0.65	-3.2
09-May-19	H193263	330	1300	92		210	<5	24	7.9	**260**	5.6	12	<0.1	<0.01	0.63	0.6	3.2
25-Sep-19	H193265	330	1300	86		230	<5	22	7.3	**260**	5.6		<0.1	<0.01	0.69	0.73	0.5
08-May-20	MPS802	340	1400	94	8.1	240	<1	24	8.1	**260**	5.9		<0.1	<0.01	0.59	0.59	-0.7
22-Sep-20	NSM110	340	1400	97	8.1	230	<1	25	8.3	**270**	5.9		<0.1	<0.01	0.70	0.63	2.2
07-May-21	2021R2047	337	1380	101	8.4	240	<2	27	8.18	**252**	6.9		<0.06	<0.03	0.59	0.58	-1.1
17-Sep-21	CA1546112	335	1340	92	8.2	**260**	3	23.6	7.92	**261**			<0.06	<0.03		0.61	

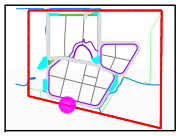
TOTAL SAMPLES	40	40	40	4	40	40	40	40	40	39	35	40	40	39	40	
AVERAGE 2021	336	1360	97	8.3	250	<2	25	8.05	257			<0.06	<0.03		0.60	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *Italics* / Exceedance in **Bold**

WELL 50-C

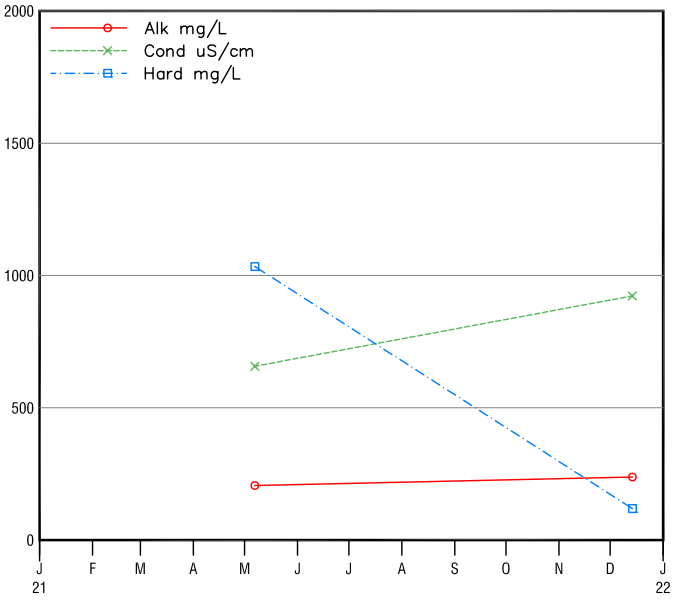
BASAL/BEDROCK AQUIFER

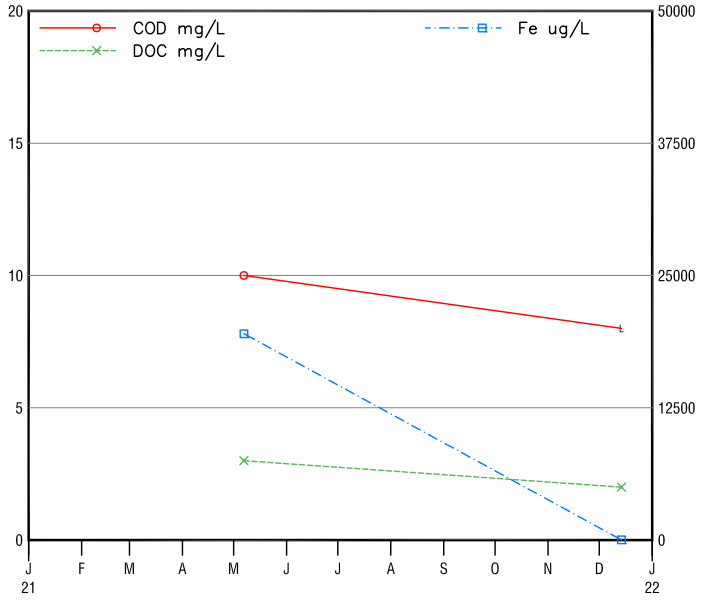
OBSERVATION WELL

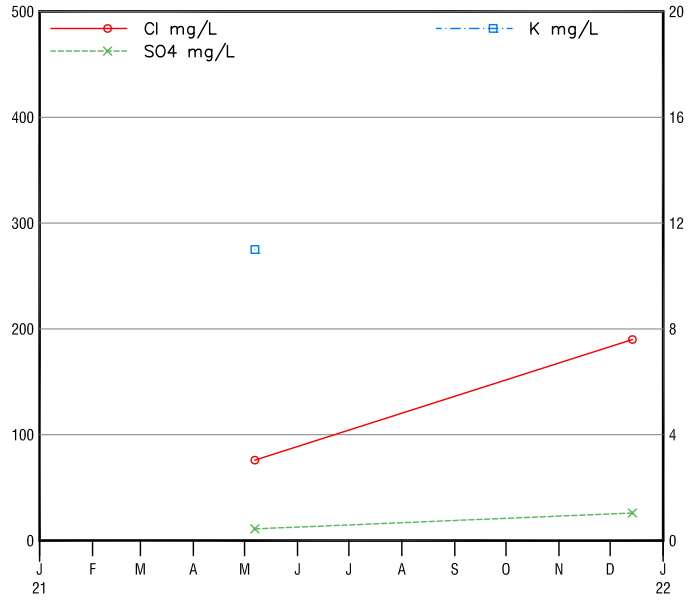


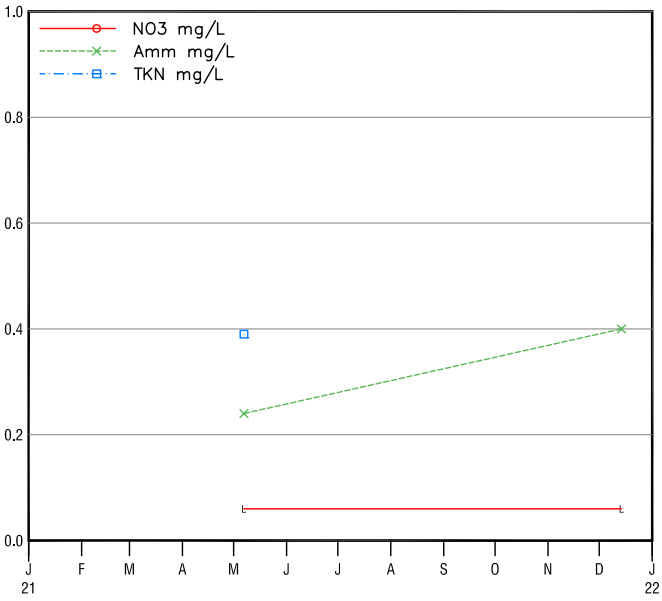
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
28-May-07	H073239	<2	<4			<1			<50			<1			
22-Sep-07	H073240	12	14			<1			<50			<1			
28-May-08	H083241	5	6			<1			<100			<1			
23-Sep-08	H083242	8	8			<1			<100			<1			
27-May-09	H093243	8	9			<1			<100			<1			
29-Sep-09	H093244	8	10			<1			<100			<1			
28-May-10	H103245	9	11			<5			<100			<1			
19-Oct-10	H103246	11	11			<1			**590**			<1			
01-Jun-11	H113247	13	22			<1			300			<1			
29-Sep-11	H113248	14	8			<1			**380**			<1			
10-May-12	H123249	13	13			1.1			**320**			<1			
19-Sep-12	H123250	20	12			<1			**340**			<1			
15-May-13	H133251	12	9.4			<1			**400**			<1			
11-Sep-13	H133252	15	4.3			2			**350**			<1			
07-May-14	H143253	14	<4			1.6			290			<1			
09-Sep-14	H143254	43	<4			<1			270			<1			
14-May-15	H153255	2	<4			<1			260			<1			
15-Sep-15	H153256	11	<4			2.8			230			<1			
11-May-16	H163257	14	7.6			<1			260			<1			
14-Sep-16	H163258	17	9			<1			270			<1			
24-May-17	H173259	4	6.1			1.5			250			<1			
12-Sep-17	H173260	2	5.5			2.2			250			<1			
09-May-18	H183261	<2	<4			<1			240			<1			
13-Sep-18	H183262	8	<4			1.5			240			<1			
09-May-19	H193263	12	<4			<5			220			<1			
25-Sep-19	H193265		4.8			<5			210			<1			
08-May-20	MPS802		<4	22		<1			280			<1			
22-Sep-20	NSM110		<4			<1			220			<1			
07-May-21	2021R2047		<8		<0.2		<0.003	<0.2	253	<0.09	<0.01	<2		<2	703
17-Sep-21	CA1546112		<8						276						754
TOTAL SAMPLES		35	39	1	1	38	1	1	40	1	1	39	0	1	2
AVERAGE 2021			<8						265						729

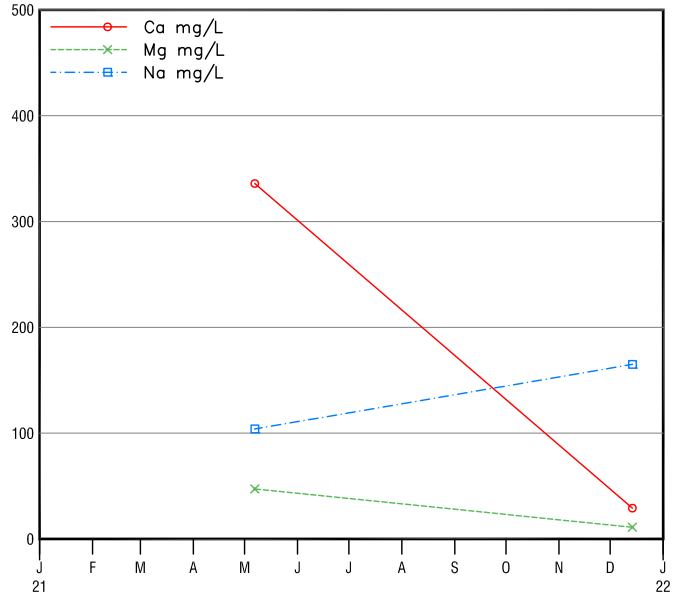
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









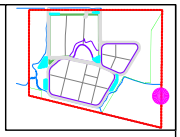


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 73-C

BASAL/BEDROCK AQUIFER

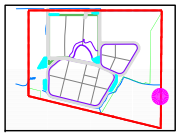
Screen 155.1 - 153.6 masl

21500070 19 Apr 22	GOLDER	21H3007

WELL 73-C

BASAL/BEDROCK AQUIFER

OBSERVATION WELL
Screen 155.1 - 153.6 masl



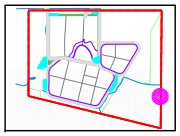
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
14-Dec-21	73C12003	238	923	119	8.3	190	26	29.2	11.1	165			<0.06	<0.03		0.4	
TOTAL SAMPLES		1	1	1	1	1	1	1	1	1	0	0	1	1	0	1	
AVERAGE 2021																	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 73-C

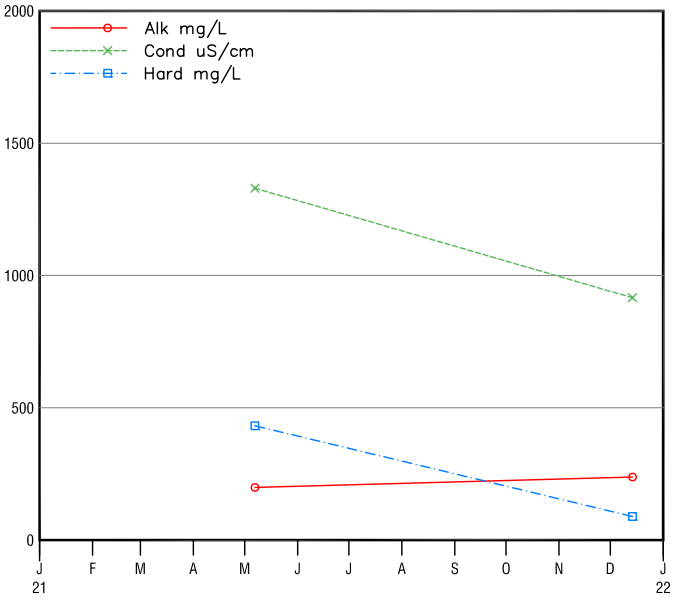
BASAL/BEDROCK AQUIFER

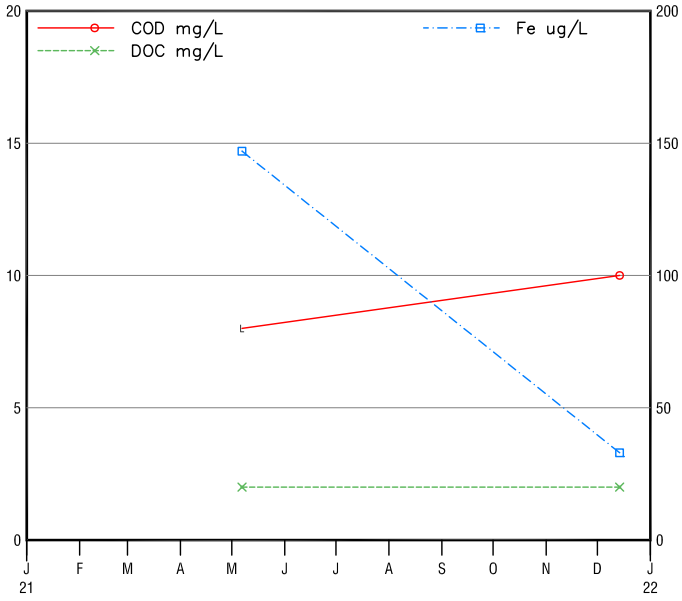
OBSERVATION WELL
Screen 155.1 - 153.6 masl

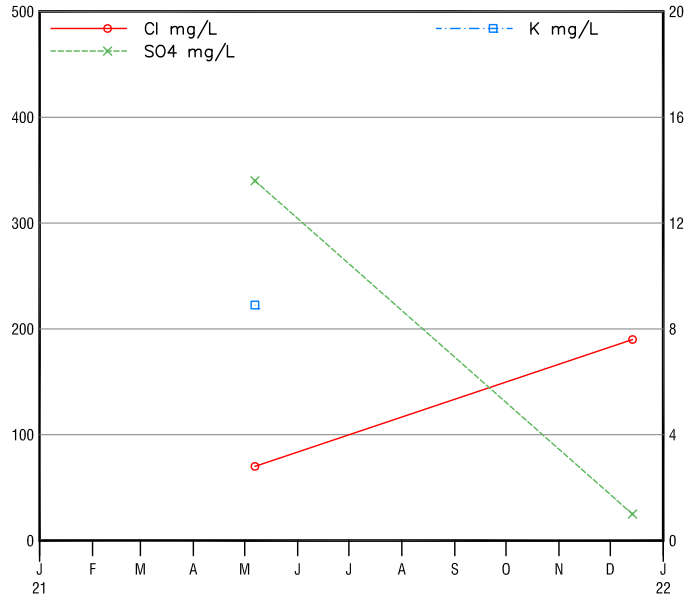


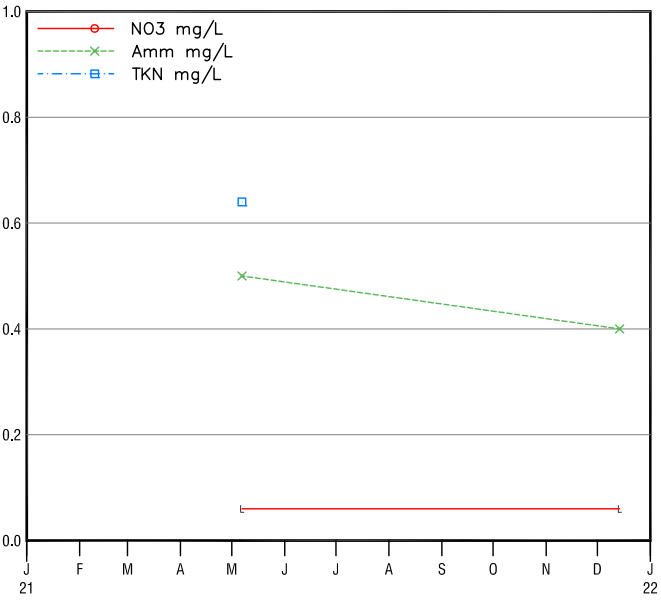
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
14-Dec-21	73C12003		<8						19						454
TOTAL SAMPLES		0	1	0	0	0	0	0	1	0	0	0	0	0	1
AVERAGE 2021															

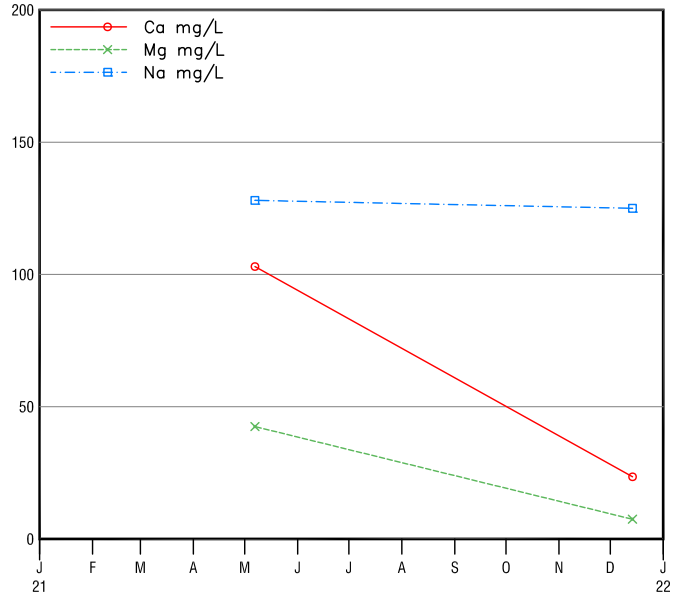
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









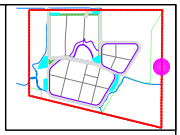


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WELL 74-C

BASAL/BEDROCK AQUIFER

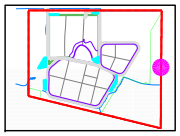
Screen 152.7 - 152.2 masl

21500070 19 Apr 22	GOLDER	21H3008

WELL 74-C

BASAL/BEDROCK AQUIFER

OBSERVATION WELL
Screen 152.7 - 152.2 masl



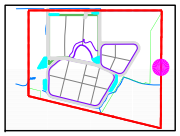
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
14-Dec-21	74C12002	238	916	89	8.3	190	25	23.5	7.46	125			<0.06	<0.03		0.4	
TOTAL SAMPLES		1	1	1	1	1	1	1	1	1	0	0	1	1	0	1	
AVERAGE 2021																	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WELL 74-C

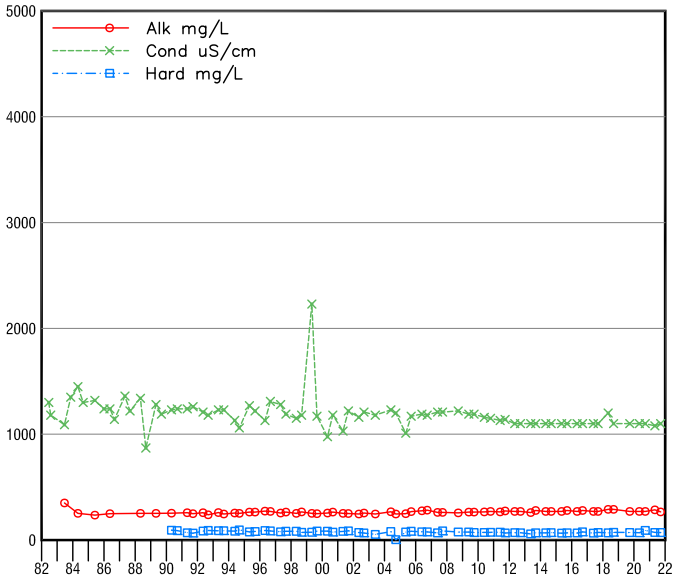
BASAL/BEDROCK AQUIFER

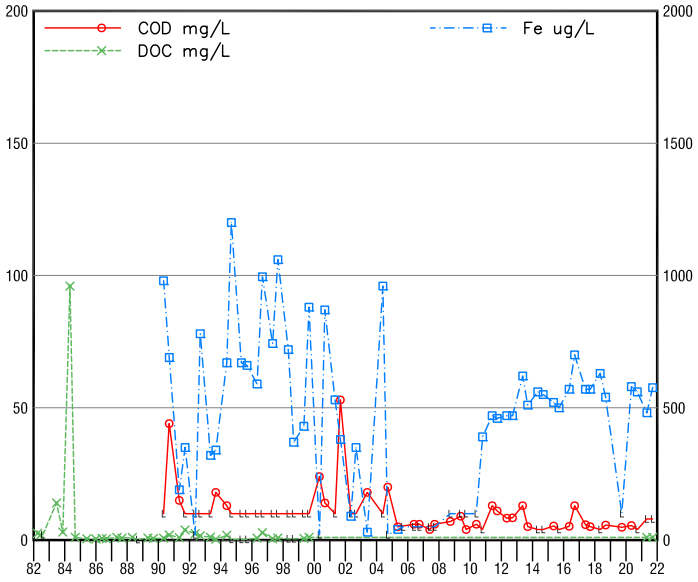
OBSERVATION WELL
Screen 152.7 - 152.2 masl

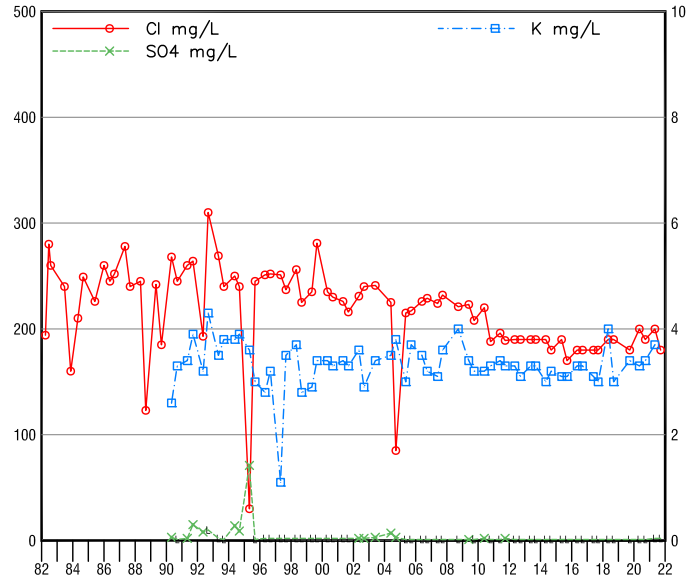


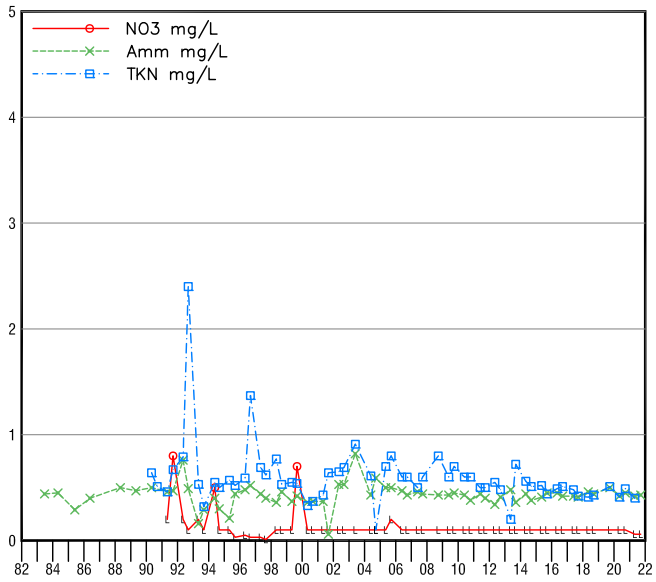
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
14-Dec-21	74C12002		10						33						480
TOTAL SAMPLES		0	1	0	0	0	0	0	1	0	0	0	0	0	1
AVERAGE 2021															

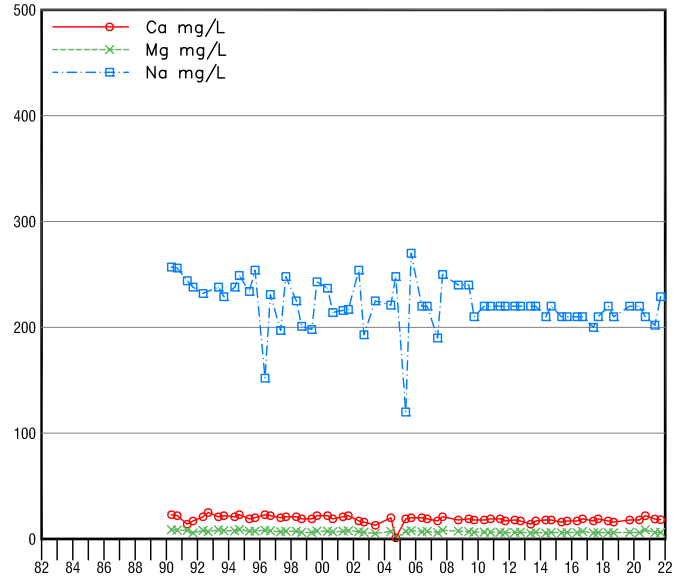
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









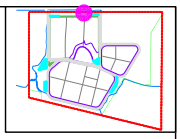


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

BW-1

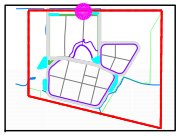
BASAL/BEDROCK AQUIFER

21500070 19 Apr 22	GOLDER	21H3009

BW-1

BASAL/BEDROCK AQUIFER

OBSERVATION WELL



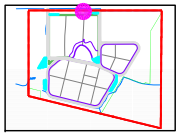
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
25-May-06	H063399	277	1190	78		226	<1	20	6.8	**220**	3.5	6	<0.1	<0.01	0.6	0.47	-2.8
26-Sep-06	H063400	283	1180	77		229	<1	19	7.2	**220**	3.2	5	<0.1	<0.01	0.6	0.43	-3.8
28-May-07	H073401	262	1210	68		224	<1	17	6.1	190	3.1	12	<0.1	<0.01	0.5	0.46	-8.6
22-Sep-07	H073402	262	1210	86		232	<1	21	8.2	**250**	3.6	20	<0.1	<0.01	0.6	0.44	3.8
23-Sep-08	H083403	257	1220	76		221	<1	18	7.5	**240**	4.0	12	<0.1	<0.01	0.8	0.43	3.1
27-May-09	H093404	264	1190	76		223	1	19	6.9	**240**	3.4	12	<0.1	<0.01	0.6	0.43	2.1
29-Sep-09	H093405	265	1190	71		208	<1	18	6.3	**210**	3.2	14	<0.1	<0.01	0.7	0.45	-2.3
27-May-10	H103406	266	1160	72		220	2	18	6.5	**220**	3.2	11	<0.1	<0.01	0.6	0.43	-2.0
19-Oct-10	H103407	270	1150	73		188	<1	19	6.3	**220**	3.3	12	<0.1	<0.01	0.6	0.38	2.1
02-Jun-11	H113408	266	1130	74		196	<1	19	6.4	**220**	3.4	14	<0.1	<0.01	0.5	0.44	1.5
27-Sep-11	H113409	275	1140	67		189	2	17	6.0	**220**	3.3	14	<0.1	<0.01	0.5	0.4	0.8
09-May-12	H123410	270	1100	70		190	<1	18	6.1	**220**	3.3	7	<0.1	<0.01	0.55	0.34	1.6
20-Sep-12	H123411	270	1100	69		190	<1	17	6.4	**220**	3.1	18	<0.1	<0.01	0.48	0.41	1.4
17-May-13	H133412	260	1100	58		190	<1	14	5.6	**220**	3.3	14	<0.1	<0.01	0.2	0.48	1.5
11-Sep-13	H133413	280	1100	68		190	<1	17	6.3	**220**	3.3	14	<0.1	<0.01	0.72	0.36	0.5
06-May-14	H143414	270	1100	68		190	<1	18	5.5	**210**	3.0	8	<0.1	<0.01	0.56	0.44	-0.7
09-Sep-14	H143415	270	1100	70		180	<1	18	6.2	**220**	3.2	20	<0.1	<0.01	0.51	0.38	2.9
12-May-15	H153416	270	1100	65		190	<1	16	5.9	**210**	3.1	14	<0.1	<0.01	0.52	0.41	-1.0
16-Sep-15	H153417	280	1100	68		170	<1	17	6.2	**210**	3.1	10	<0.1	<0.01	0.44	0.45	1.1
10-May-16	H163418	270	1100	67		180	<1	17	6.0	**210**	3.3	9	<0.1	<0.01	0.49	0.45	0.7
13-Sep-16	H163419	280	1100	77		180	<1	19	7.1	**210**	3.3	23	<0.1	<0.01	0.51	0.42	0.6
26-May-17	H173420	270	1100	66		180	<1	17	5.8	200	3.1	6	<0.1	<0.01	0.48	0.42	-1.5
13-Sep-17	H173421	270	1100	72		180	<1	19	6.0	**210**	3.0	4	<0.1	<0.01	0.42	0.41	1.1
07-May-18	H183422	290	1200	68		190	<1	17	6.0	**220**	4.0	<2	<0.1	<0.01	0.41	0.46	-0.4
11-Sep-18	H183423	290	1100	73		190	<1	16	5.9	**210**	3.0	8	<0.1	<0.01	0.43	0.44	-2.8
24-Sep-19	H193424	270	1100	71		180	<1	18	6.3	**220**	3.4	12	<0.1	<0.01	0.51	0.5	2.9
06-May-20	MPB454	270	1100	69	8.2	200	<1	18	6.0	**220**	3.3	6	<0.1	<0.01	0.41	0.42	0.3
22-Sep-20	NSM028	270	1100	91	8.1	190	<1	22	8.7	**210**	3.4	3	<0.1	<0.01	0.49	0.45	1.5
04-May-21	2021R2009	286	1080	72	8.3	200	<2	18.9	6.12	**202**	3.7		<0.06	<0.03	0.40	0.42	-4.5
17-Sep-21	CA1544310	266	1100	71	8.2	180	<2	18.3	6.21	**229**			<0.06	<0.03		0.43	
TOTAL SAMPLES		66	77	61	4	78	61	61	61	60	60	39	59	59	60	66	
AVERAGE 2021		276	1090	72	8.3	190	<2	18.6	6.17	216			<0.06	<0.03		0.43	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *Italics* / Exceedance in **Bold**

BW-1

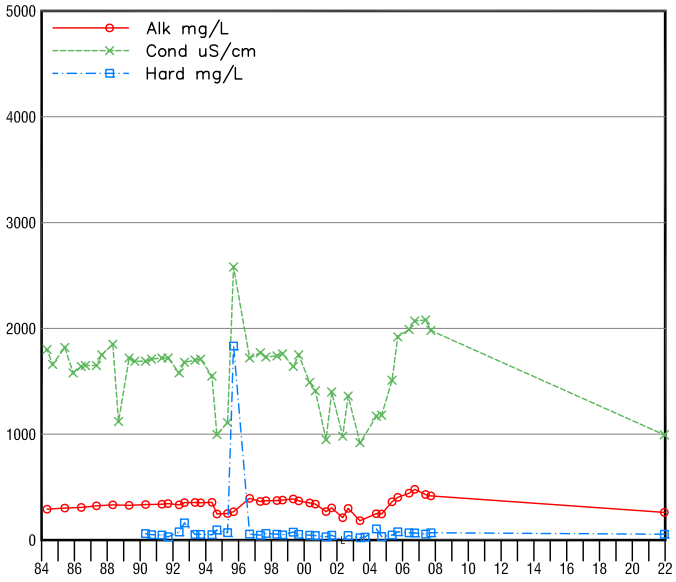
BASAL/BEDROCK AQUIFER

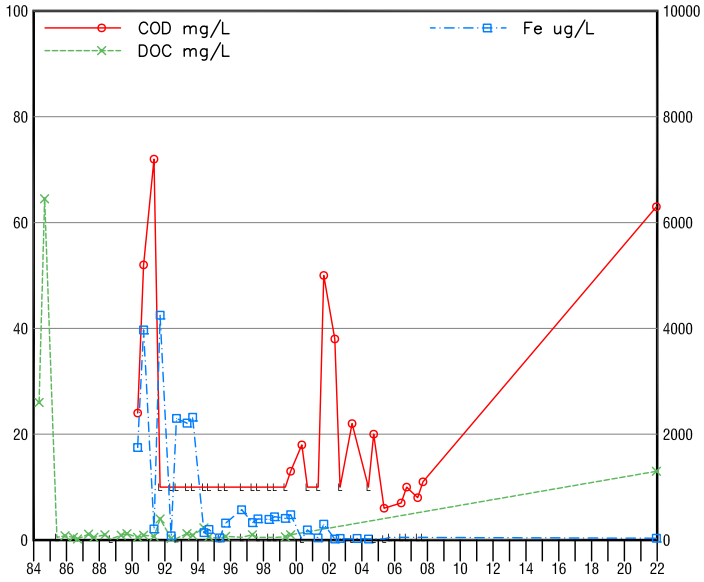
OBSERVATION WELL

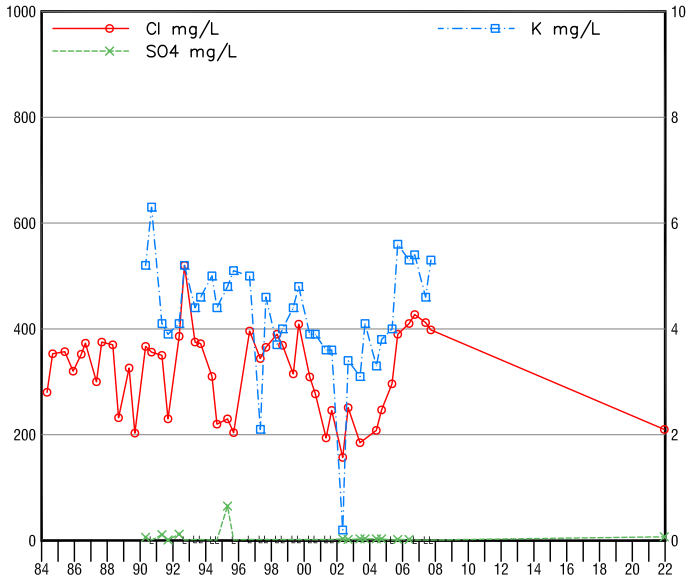


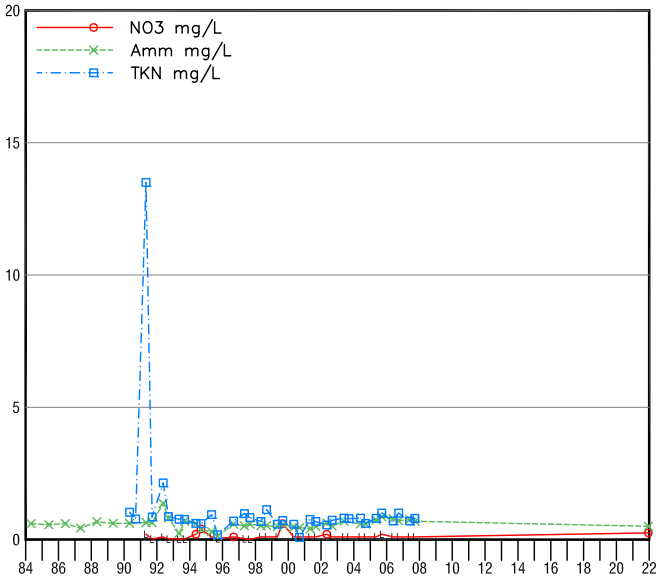
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
25-May-06	H063399	6	6			2			<50			<1			
26-Sep-06	H063400	5	6			<1			<50			<1			
28-May-07	H073401	12	4			<1			<50			<1			
22-Sep-07	H073402	20	6			1			<50			<1			
23-Sep-08	H083403	12	7			<1			<100			<1			
27-May-09	H093404	12	9			<1			<100			<1			
29-Sep-09	H093405	14	4			<1			<100			<1			
27-May-10	H103406	11	6			<1			<100			<1			
19-Oct-10	H103407	12	<4			<1			**390**			<1			
02-Jun-11	H113408	14	13			1			**470**			<1			
27-Sep-11	H113409	14	11			<1			**460**			<1			
09-May-12	H123410	7	8.3			<1			**470**			<1			
20-Sep-12	H123411	18	8.4			<1			**470**			<1			
17-May-13	H133412	14	13			1.1			**620**			<1			
11-Sep-13	H133413	14	5.1			2.5			**510**			<1			
06-May-14	H143414	8	<4			<1			**560**			<1			
09-Sep-14	H143415	20	<4			<1			**550**			<1			
12-May-15	H153416	14	5.3			<1			**520**			<1			
16-Sep-15	H153417	10	<4			<1			**500**			<1			
10-May-16	H163418	9	5.2			<1			**570**			<1			
13-Sep-16	H163419	23	13			<1			**700**			<1			
26-May-17	H173420	6	5.8			<1			**570**			<1			
13-Sep-17	H173421	4	5.1			2.2			**570**			<1			
07-May-18	H183422	<2	<4			<1			**630**			<1			
11-Sep-18	H183423	8	5.7			<1			**540**			<1			
24-Sep-19	H193424	12	4.8			<1			<100			<1			
06-May-20	MPB454	6	5.5			<1			**580**			<1			
22-Sep-20	NSM028	3	<4			<1			**560**			<1			
04-May-21	2021R2009		<8		<0.2		0.013	<0.2	**481**	0.12	<0.01	<2		136	540
17-Sep-21	CA1544310		<8						**576**						583
TOTAL SAMPLES		39	60	0	1	57	1	1	61	1	1	77	0	1	2
AVERAGE 2021			<8						529						562

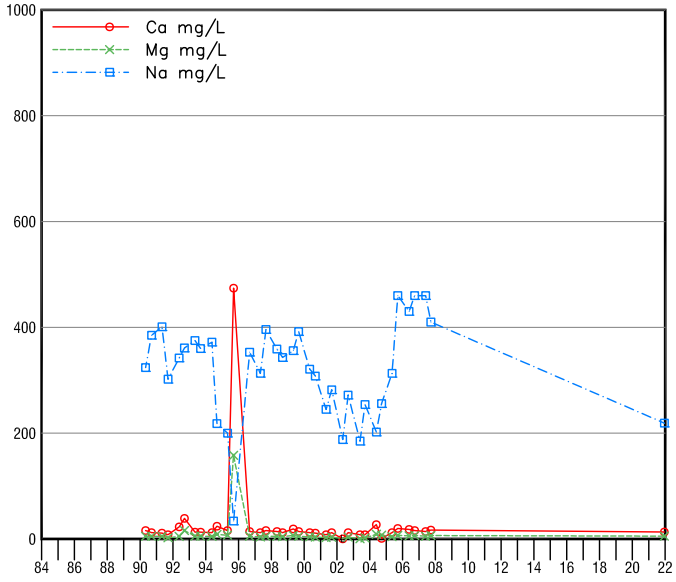
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**











L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

BW-3

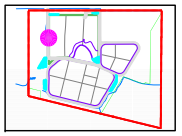
BASAL/BEDROCK AQUIFER

21500070 19 Apr 22	wsp GOLDER	21H3010

BW-3

BASAL/BEDROCK AQUIFER

OBSERVATION WELL



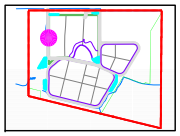
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
07-May-93	H933284	355	1700	54		**375**	<2	13	5.4	**375**	4.4		<0.02	<0.2	0.77	0.24	-0.2
09-Sep-93	H933285	352	1710	54		**372**	<2	13	5.4	**360**	4.6		<0.02	<0.2	0.76	0.69	-1.5
19-May-94	H943286	356	1550	50		**310**	<1	12	4.8	**372**	5.0		0.2	0.32	0.61	0.6	4.5
07-Sep-94	H943287	247	997	95		220	<1	24	8.8	**218**	4.4		0.4	<0.07	0.6	0.37	1.7
02-May-95	H953288	251	1110	70		230	65	16	7.1	200	4.8		<0.1	0.57	0.94	0.3	-11.4
13-Sep-95	H953289	267	2580	1833		204	<1	474	158	34	5.1		<0.03	<0.03	0.18	0.14	55.1
04-Sep-96	H963290	394	1720	56		**396**	<2	14	5.2	**353**	5.0		0.1	<0.03	0.7	0.58	-6.7
02-May-97	H973291	364	1770	46		**344**	<2	12	4.0	**313**	2.1		<0.03	<0.03	0.98	0.52	-7.4
02-Sep-97	H973292	372	1730	62		**365**	<2	16	5.1	**396**	4.6		<0.01	<0.05	0.83	0.58	2.4
05-May-98	H983293	374	1740	55		**390**	<2	14	5.0	**359**	3.7		<0.1	<0.02	0.68	0.52	-4.5
07-Sep-98	H983294	378	1760	49		**369**	<2	12	4.5	**343**	4.0		<0.1	<0.02	1.13	0.53	-5.6
04-May-99	H993295	388	1640	75		**315**	<2	19	6.7	**356**	4.4		<0.1	<0.02	0.58	0.49	1.5
01-Sep-99	H993296	370	1750	54		**409**	<2	14	5.0	**392**	4.8		0.6	<0.02	0.72	0.57	-1.7
04-May-00	H003297	350	1490	46		**309**	<2	12	4.1	**321**	3.9	<2	<0.1	<0.02	0.58	0.47	-2.2
06-Sep-00	H003298	340	1410	42		**277**	<2	11	3.6	**308**	3.9	7	<0.1	<0.02	0.08	0.45	-0.8
03-May-01	H013299	269	949	31		194	<2	8.2	2.6	**245**	3.6	32	<0.1	<0.02	0.76	0.41	2.5
06-Sep-01	H013300	303	1400	45		246	<2	12	3.4	**282**	3.6	11	<0.1	<0.02	0.68	0.49	1.1
08-May-02	H023301	212	981	<1		157	3	0.1	<1	188	0.20	4	0.2	<0.02	0.55	0.63	-3.0
05-Sep-02	H023302	299	1360	43		**251**	2	12	3.5	**272**	3.4	2	<0.1	<0.02	0.73	0.51	-1.0
29-May-03	H033303	182	920	22		185	3	8.1	0.6	185	3.1	<2	<0.1	<0.02	0.81	0.69	-1.6
17-Sep-03	H033304			28			3	8.2	1.9	**254**	4.1	4	<0.1	<0.02	0.79		
27-May-04	H043305	250	1170	105		208	3	27	9.0	**202**	3.3	<2	<0.1	<0.02	0.81	0.59	0.3
20-Sep-04	H043306	247	1180	33		247	3	1.1	7.3	**256**	3.8	1	<0.1	<0.02	0.61	0.59	-0.1
11-May-05	H053307	361	1510	47		**296**	<1	12	4.4	**313**	4.0	<2	<0.1	<0.1	0.8	0.74	-2.7
15-Sep-05	H053308	403	1920	78		**390**	2	20	6.8	**460**	5.6	<2	<0.2	<0.3	1	0.86	6.5
25-May-06	H063309	443	1990	69		**410**	2	18	5.9	**430**	5.3	9	<0.1	<0.01	0.7	0.79	-0.4
26-Sep-06	H063310	479	2070	67		**427**	<1	16	6.6	**460**	5.4	13	<0.1	<0.01	1	0.71	-0.2
28-May-07	H073311	431	2080	56		**412**	<1	14	5.2	**460**	4.6	12	<0.1	<0.01	0.7	0.75	2.6
22-Sep-07	H073312	417	1980	69		**398**	<1	17	6.5	**410**	5.3	17	<0.1	<0.01	0.8	0.69	-0.4
14-Dec-21	OW0016	262	994	55	8.6	210	7	13.2	5.37	**219**			0.25	0.08		0.5	
TOTAL SAMPLES		40	47	36	1	47	36	36	36	36	35	16	34	34	35	40	
AVERAGE 2021																	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *Italics* / Exceedance in **Bold**

BW-3

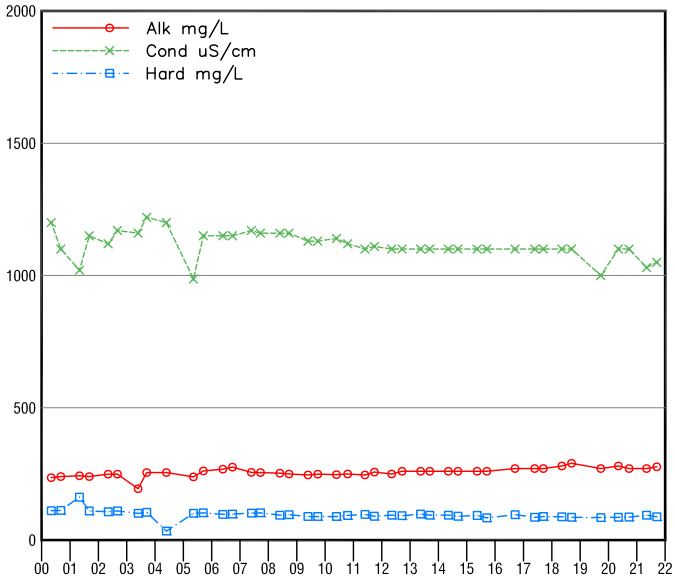
BASAL/BEDROCK AQUIFER

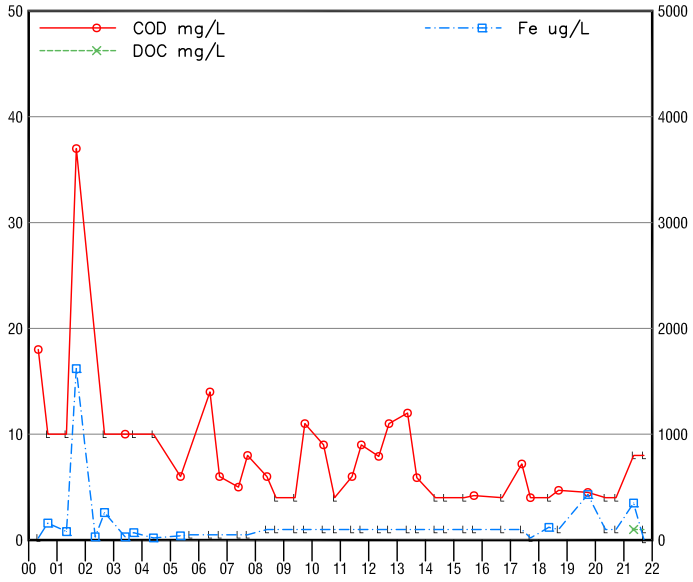
OBSERVATION WELL

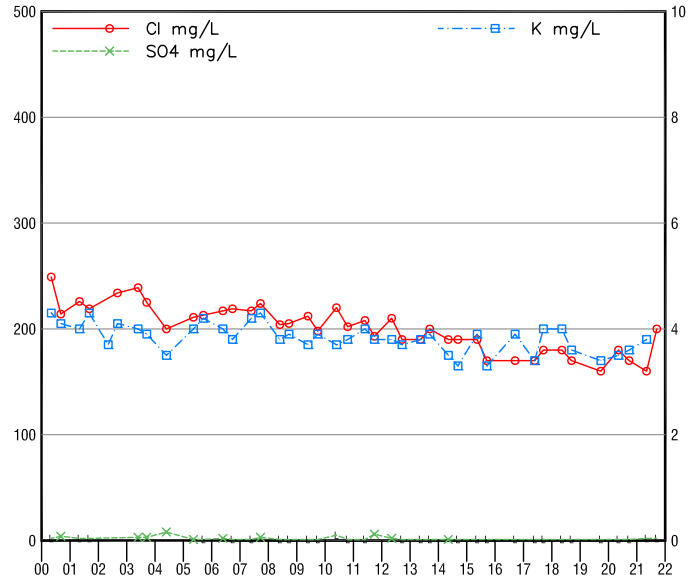


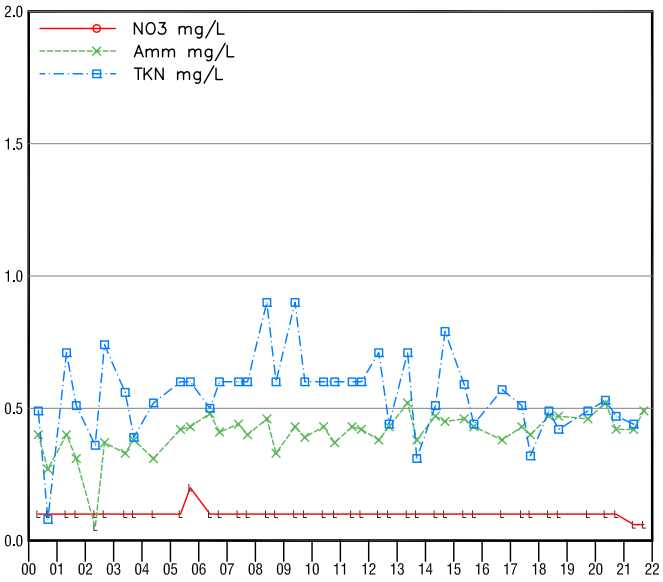
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
07-May-93	H933284		<10			<0.01			**2210**			<1			
09-Sep-93	H933285		<10			<0.01			**2320**			<1			
19-May-94	H943286		<10			0.6			140			<1			
07-Sep-94	H943287		<10			<0.01			200			2			
02-May-95	H953288		<10			<0.01			40			1			
13-Sep-95	H953289		<10			0.86			**320**			<1			
04-Sep-96	H963290		<10			1.4			**573**			<1			
02-May-97	H973291		<10			5.5			**329**			<1			
02-Sep-97	H973292		<10			1.4			**400**			<1			
05-May-98	H983293		<10			1.4			**390**			<1			
07-Sep-98	H983294		<10			1.4			**440**			<1			
04-May-99	H993295		<10			1.3			**410**			1			
01-Sep-99	H993296		13			0.93			**480**			1			
04-May-00	H003297	<2	18			1.19			<20			<1			
06-Sep-00	H003298	7	<10			1.06			190			<1			
03-May-01	H013299	32	<10			0.99			40			1			
06-Sep-01	H013300	11	50			0.6			300			<1			
08-May-02	H023301	4	38			0.8			20			2			
05-Sep-02	H023302	2	<10			1			30			<2			
29-May-03	H033303	<2	22			0.7			<20			<2			
17-Sep-03	H033304	4				0.9			30						
27-May-04	H043305	<2	<10			0.9			20			<2			
20-Sep-04	H043306	1	20			1.1			<20			<0.1			
11-May-05	H053307	<2	6			1.42			<20			1			
15-Sep-05	H053308	<2				<1			<50			<1			
25-May-06	H063309	9	7			3			<50			<1			
26-Sep-06	H063310	13	10			1			<50			<1			
28-May-07	H073311	12	8			1			<50			<1			
22-Sep-07	H073312	17	11			1			<50			<1			
14-Dec-21	OW0016		63						34						571
TOTAL SAMPLES		16	34	0	0	33	0	0	36	0	0	46	0	0	1
AVERAGE 2021															

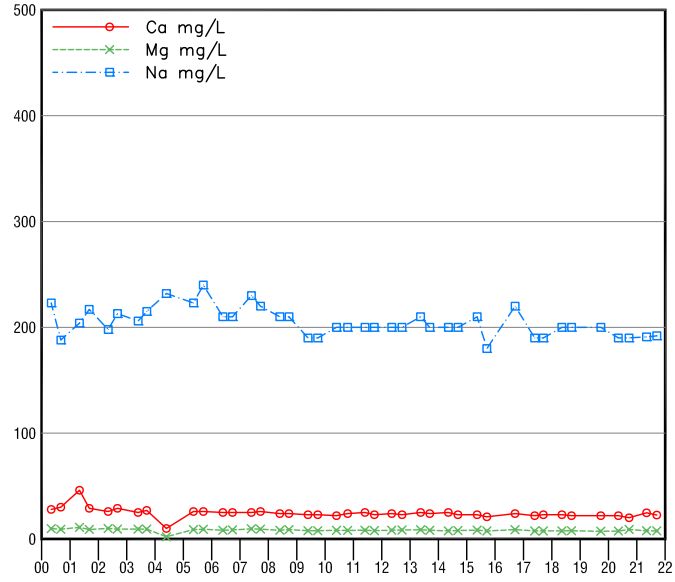
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









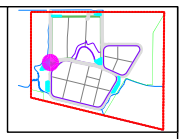


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

BW-4

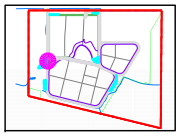
BASAL/BEDROCK AQUIFER

21500070 19 Apr 22	GOLDER	21H3011

BW-4

BASAL/BEDROCK AQUIFER

OBSERVATION WELL



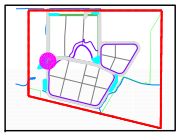
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
25-May-06	H063324	268	1150	97		217	2	25	8.3	**210**	4.0	3	<0.1	<0.01	0.5	0.48	-1.4
26-Sep-06	H063325	276	1150	98		219	<1	25	8.6	**210**	3.8	3	<0.1	0.01	0.6	0.41	-2.1
28-May-07	H073326	256	1170	102		217	<1	25	9.6	**230**	4.2	5	<0.1	<0.01	0.6	0.44	4.0
22-Sep-07	H073327	255	1160	103		224	3	26	9.3	**220**	4.3	12	<0.1	<0.01	0.6	0.4	1.3
28-May-08	H083328	253	1160	94		204	<1	24	8.3	**210**	3.8	4	<0.1	<0.01	0.9	0.46	1.5
23-Sep-08	H083329	250	1160	96		205	<1	24	8.9	**210**	3.9	6	<0.1	<0.01	0.6	0.33	1.9
26-May-09	H093330	246	1130	89		212	<1	23	7.8	190	3.7	10	<0.1	<0.01	0.9	0.43	-3.4
29-Sep-09	H093331	249	1130	89		198	<1	23	7.8	190	3.9	13	<0.1	<0.01	0.6	0.39	-1.8
28-May-10	H103332	247	1140	89		220	<5	22	8.2	200	3.7	9	<0.1	<0.01	0.6	0.43	-2.5
19-Oct-10	H103333	250	1120	93		202	<1	24	8.1	200	3.8	10	<0.1	<0.01	0.6	0.37	0.1
31-May-11	H113334	246	1100	97		208	<1	25	8.3	200	4.0	12	<0.1	<0.01	0.6	0.43	-0.1
28-Sep-11	H113335	257	1110	90		193	6	23	7.9	200	3.8	13	<0.1	<0.01	0.6	0.42	-0.4
09-May-12	H123336	250	1100	94		210	2	24	8.3	200	3.8		<0.1	<0.01	0.71	0.38	-1.2
19-Sep-12	H123337	260	1100	92		190	<1	23	8.5	200	3.7		<0.1	<0.01	0.44	0.43	0.6
16-May-13	H133338	260	1100	98		190	<1	25	8.7	**210**	3.8	11	<0.1	<0.01	0.71	0.52	3.1
11-Sep-13	H133339	260	1100	94		200	<1	24	8.2	200	3.9	12	<0.1	<0.01	0.31	0.38	-0.6
09-May-14	H143340	260	1100	94		190	1	25	7.7	200	3.5	13	<0.1	<0.01	0.51	0.47	0.6
10-Sep-14	H143341	260	1100	90		190	<1	23	8.0	200	3.3	10	<0.1	<0.01	0.79	0.45	0.3
15-May-15	H153342	260	1100	93		190	<1	23	8.4	**210**	3.9	<2	<0.1	<0.01	0.59	0.46	2.5
17-Sep-15	H153343	260	1100	84		170	<1	21	7.6	180	3.3	7	<0.1	<0.01	0.44	0.43	-1.9
15-Sep-16	H163345	270	1100	96		170	<1	24	8.8	**220**	3.9	7	<0.1	<0.01	0.57	0.38	6.5
26-May-17	H173346	270	1100	86		170	<1	22	7.6	190	3.4	9	<0.1	<0.01	0.51	0.43	-0.4
15-Sep-17	H173347	270	1100	89		180	<1	23	7.6	190	4.0	3	<0.1	<0.01	0.32	0.4	-1.5
11-May-18	H183348	280	1100	88		180	<1	23	7.7	200	4.0	3	<0.1	<0.01	0.49	0.47	-0.2
13-Sep-18	H183349	290	1100	86		170	<1	22	7.8	200	3.6	12	<0.1	<0.01	0.42	0.47	-0.1
25-Sep-19	H193350	270	1000	85		160	<1	22	7.3	200	3.4	9	<0.1	<0.01	0.49	0.46	3.1
08-May-20	MPS791	280	1100	86	8.2	180	<1	22	7.5	190	3.5	4	<0.1	<0.01	0.53	0.52	-2.7
23-Sep-20	NSM047	270	1100	87	8.1	170	<1	20	9.0	190	3.6	<2	<0.1	<0.01	0.47	0.42	-0.3
06-May-21	2021R2016	270	1030	94	8.2	160	<2	24.8	7.77	191	3.8		<0.06	<0.03	0.44	0.42	2.1
15-Sep-21	CA1539603	277	1050	88	8.6	200	<2	22.7	7.69	192			<0.06			0.49	
TOTAL SAMPLES		41	41	41	4	40	39	41	41	41	40	37	41	40	40	41	
AVERAGE 2021		274	1040	91	8.4	180	<2	23.8	7.73	192			<0.06			0.46	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *Italics* / Exceedance in **Bold**

BW-4

BASAL/BEDROCK AQUIFER

OBSERVATION WELL



DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
25-May-06	H063324	3	14			<1			<50			<1			
26-Sep-06	H063325	3	6			<1			<50			<1			
28-May-07	H073326	5	5			<1			<50			<1			
22-Sep-07	H073327	12	8			<1			<50			<1			
28-May-08	H083328	4	6			<1			<100			<1			
23-Sep-08	H083329	6	<4			<1			<100			<1			
26-May-09	H093330	10	<4			<1			<100			<1			
29-Sep-09	H093331	13	11			<1			<100			<1			
28-May-10	H103332	9	9			<5			<100			<1			
19-Oct-10	H103333	10	<4			<1			<100			<1			
31-May-11	H113334	12	6			<1			<100			<1			
28-Sep-11	H113335	13	9			<1			<100			<1			
09-May-12	H123336		7.9			<1			<100			<1			
19-Sep-12	H123337		11			<1			<100			<1			
16-May-13	H133338	11	12			1.1			<100			<1			
11-Sep-13	H133339	12	5.9			2.8			<100			<1			
09-May-14	H143340	13	<4			<1			<100			<1			
10-Sep-14	H143341	10	<4			<1			<100			<1			
15-May-15	H153342	<2	<4			<1			<100			<1			
17-Sep-15	H153343	7	4.2			1.4			<100			<1			
15-Sep-16	H163345	7	<4			<1			<100			<1			
26-May-17	H173346	9	7.2			<1			<100			<1			
15-Sep-17	H173347	3	4			2			<20			<1			
11-May-18	H183348	3	<4			<1			120			<1			
13-Sep-18	H183349	12	4.7			<1			<100			<1			
25-Sep-19	H193350	9	4.5			1.1			**430**			<1			
08-May-20	MPS791	4	<4	<5		<1			<100			<1			
23-Sep-20	NSM047	<2	<4			<1			<100			<1			
06-May-21	2021R2016		<8		<0.2		0.006	0.6	**350**	<0.09	<0.01	<2		5	554
15-Sep-21	CA1539603		<8						<7						251
TOTAL SAMPLES		37	39	1	1	39	1	1	41	1	1	40	0	1	2
AVERAGE 2021			<8						175						403

all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

APPENDIX H4

2021 Summary of Volatile Organic Compound Results

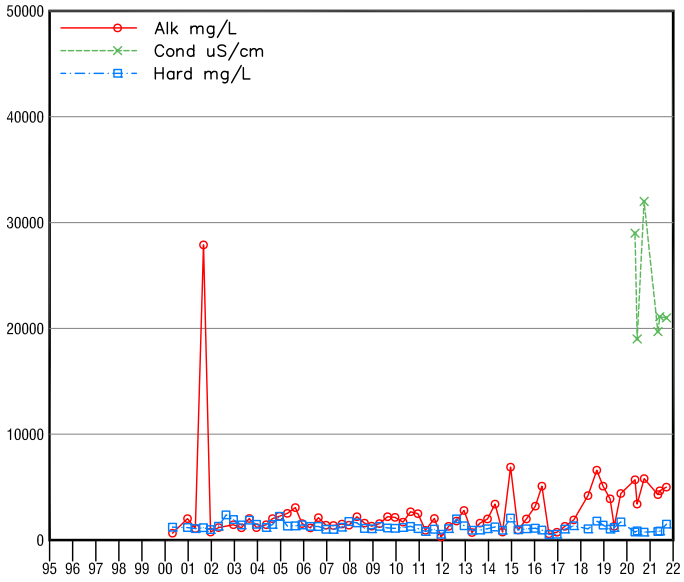
2021 Summary of Volatile Organic Compound Results
2021 Ridge Landfill Annual Monitoring Report
Waste Connections Canada

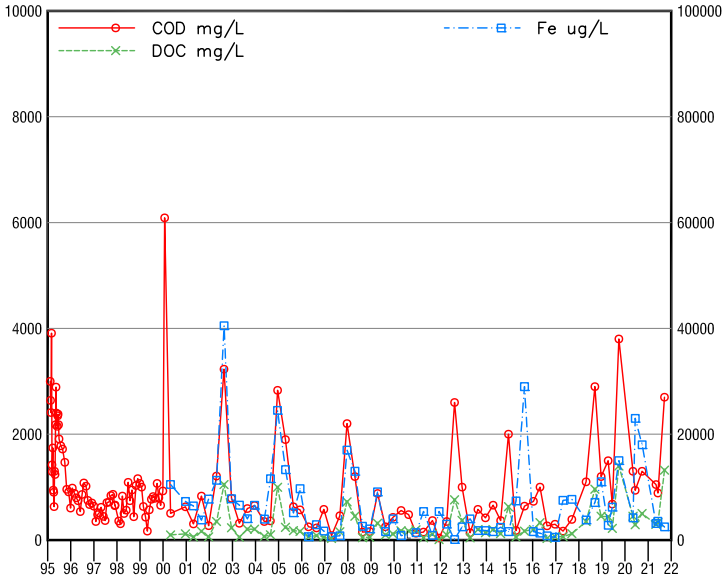
WELL ID	Sample Date / Units	Benzene ug/L	Dichlorobenzene,1,4 ug/L	Dichloromethane ug/L	Toluene ug/L	Vinyl chloride ug/L
BW-1	04-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
BW-4	06-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
LST	04-May-21	**8.5**	**4.7**	1.4	**12.2**	**2.1**
WELL 11-I	04-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 12-I	04-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 13-I	04-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 14-I	06-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 15-I	06-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 16-I	04-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 19-I	04-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 1-II	04-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 20-I	06-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 21-I	06-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 22-I	04-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 28-I	07-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 28-II	07-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 28-III	07-May-21	<0.5	<0.5	<0.5	**0.8**	<0.2
WELL 31-I	04-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 32-I	05-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 32-II	05-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 32-III	05-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 3-II	06-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 3-III	06-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 44-II	07-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 44-III	07-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 46-I	05-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 46-II	05-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 46-III	05-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 47-I	05-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 47-II	05-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 48-I	05-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 49-A	05-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 49-B	05-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 49-C	05-May-21	**<0.5**	<0.5	<0.5	<0.5	<0.2
WELL 50-A	07-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 50-B	07-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 50-C	07-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 58-A	06-May-21	<0.5	<0.5	<0.5	**0.8**	<0.2
WELL 59-A	05-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 5-II	05-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 60-A	05-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 61-A	06-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 62-A	04-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 63-A	05-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 64-A	05-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 73-A	07-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 73-B	07-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 73-C	07-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 74-A	07-May-21	<0.5	<0.5	<0.5	<0.5	<0.2
WELL 74-C	07-May-21	<0.5	<0.5	<0.5	<0.5	<0.2

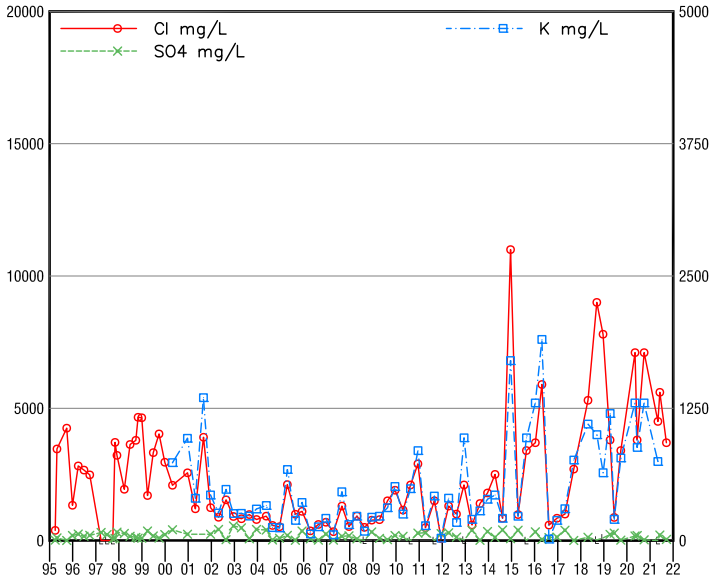
Bold = Detectable concentration of VOC

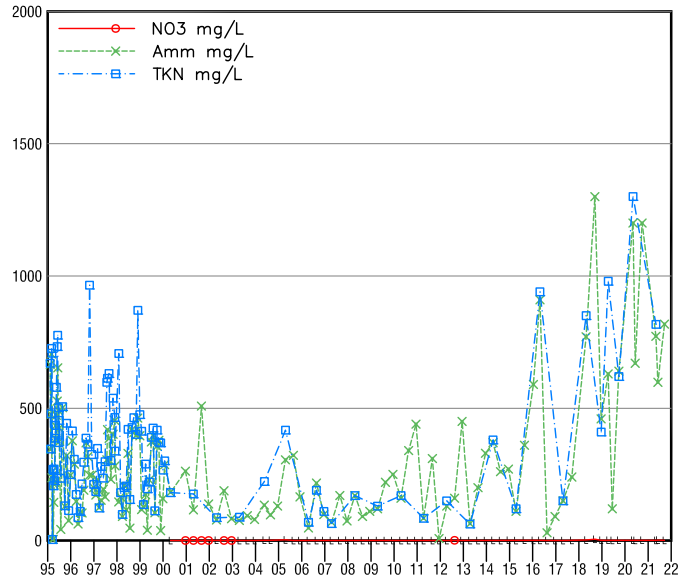
APPENDX I

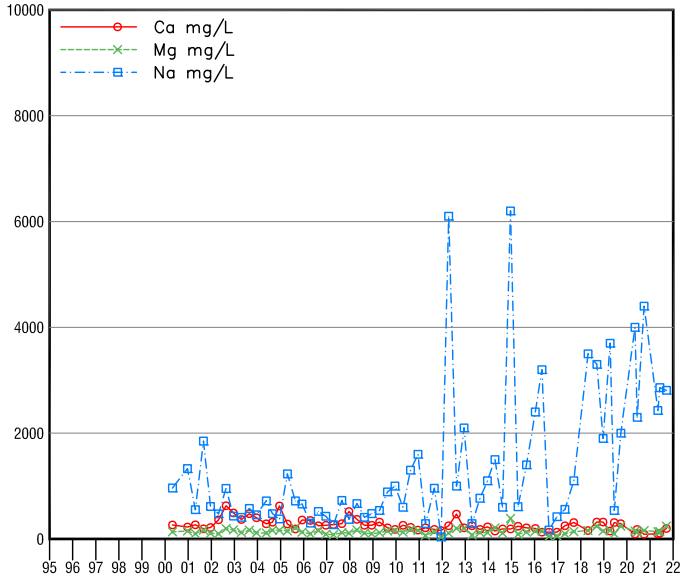
Leachate Quality Data Summary



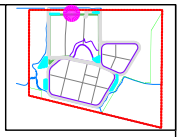








L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

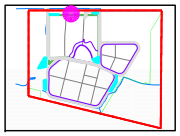
RIDGE LANDFILL, BLENHEIM, ONTARIO

LST

LEACHATE

21500070 19 Apr 22	wsp GOLDER	21I1001

LST
LEACHATE
LEACHATE



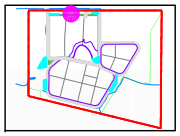
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	DOC	NO3	TSS	TKN	Amm	uAmm	P	Ion B %
14-Dec-11	H114110	291		548		71	260	160	36	39	22	9.5	<0.1	20		7.2		140	2.5
12-Apr-12	H124111	1300		1077		1300	290	250	110	6100	400	95	<0.1	13	150	130		0.39	63.4
15-Aug-12	H124112	1800		1997		1000	130	470	200	1000	170	760	0.9	95		160		0.14	19.4
12-Dec-12	H124113	2800		1348		2100	<20	210	200	2100	970	370	<0.1	42		450		0.69	20.7
16-Apr-13	H134114	710		929		590	390	250	74	290	200	43	<0.1	11	62	64		0.23	2.6
20-Aug-13	H134115	1600		944		1400	7	180	120	770	280	200	<0.1	33		200		0.23	1.5
17-Dec-13	H134116	2000		1068		1800	340	230	120	1100	390	140	<0.1	<10		330		0.56	2.5
15-Apr-14	H144117	3400		1239		2500	120	150	210	1500	430	200	<0.5	20	380	370		0.55	-5.0
12-Aug-14	H144118	760		927		840	400	190	110	600	210	120	<0.1	42		260		0.26	18.5
16-Dec-14	H144119	6900		2080		11000	69	190	390	6200	1700	630	<1	53		270		2.10	-9.2
14-Apr-15	H154120	950		970		980	390	240	90	610	230	56	<0.1	21	120	110		0.30	4.5
25-Aug-15	H154121	2000		1060		3400	<1	210	130	1400	970	170	<1	96		360		0.74	-0.8
13-Jan-16	H164122	3200		1117		3700	330	200	150	2400	1300	200	<0.5	20		590		1.10	7.2
26-Apr-16	H164123	5100		942		5900	40	130	150	3200	1900	330	<0.5	18	940	910		1.70	0.5
16-Aug-16	H164124	590		522		580	110	130	48	170	13	30	<0.1	72		29		4.30	-20.1
20-Dec-16	H164125	740		555		840	130	130	56	420	190	62	<0.1	43		91		3.70	-0.5
25-Apr-17	H174126	1300		1032		1000	390	250	99	560	300	62	<0.1	28	150	150		0.46	1.1
12-Sep-17	H174127	1900		1351		2700	4	310	140	1100	760	120	<0.5	140		240		1.60	-1.1
26-Apr-18	H184128	4200		1058		5300	120	160	160	3500	1100	350	<2	22	850	770		1.50	4.2
12-Sep-18	H184129	6600		1787		9000	<20	320	240	3300	1000	960	<5	42		1300		2.70	-12.8
20-Dec-18	H184130	5100		1417		7800	<100	320	150	1900	640	450	<1	32	410	460		0.90	-33.4
10-Apr-19	H194131	3900		1033		3800	230	150	160	3700	1200	440	<1	24	980	630		2.30	15.1
14-Jun-19	H194132	1300		1186		870	280	310	100	540	200	220	<0.5	67		120		0.74	4.0
26-Sep-19	H194133	4400		1712		3400	15	290	240	2000	780	1400	<1	170	620	640		1.40	0.9
07-May-20	MPB497	5700	29000	760	7.7	7100	170	94	150	4000	1300	450	<1	38	1300	1200	2.90	2.00	-1.2
11-Jun-20	MWE162	3400	19000	870	7.7	3800	190	180	130	2300	880	290	<0.5	310		670		6.20	3.2
28-Sep-20	NTR991	5800	32000	750	7.7	7100	24	89	160	4400	1300	500	<1	700		1200	8.77	4.00	1.9
04-May-21	2021R2065	4290	19700	812	7.7	4500	<2	96	139	2430	747	297	<0.6	30	817	772		1.56	-4.0
04-Jun-21	LST12106	4660	21100	848	7.6	5600	210	107	141	2860		332	<1.5	30		598			
17-Sep-21	CA15466	5010	21000	1502	7.9	3700	41	199	244	2810		1321	<0.6	32		818			
TOTAL SAMPLES		63	6	64	6	85	83	64	64	64	62	64	63	119	102	140	2	126	
AVERAGE 2021		4653	20600	1054	7.7	4600	84	134	175	2700		650	<0.6	31		729			

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

LST

LEACHATE

LEACHATE



DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
14-Dec-11	H114110	5	40		2		<0.1	5.9	5400	<0.59			0.082	230	
12-Apr-12	H124111	100	350		<2	<10	<1	<1	3000	0.56		430	<1	9	
15-Aug-12	H124112	960	2600		<5		<1	1.3	110	<5			3.2	<5	
12-Dec-12	H124113	310	1000		18		<5	<5	2500	<2.5			28	<10	
16-Apr-13	H134114	<2	140		2.3	<5	<0.1	<1	4000	<0.5		96	<0.5	9	
20-Aug-13	H134115	620	580		6.3		<0.2	<2	1800	<1			6.8	11	
17-Dec-13	H134116	52	420		7.3		<0.2	<2	1800	<1			9.8	<10	
15-Apr-14	H144117	130	660		18	<1	<0.5	<5	1600	<2.5		180	13	<25	
12-Aug-14	H144118	190	370		5.1		<0.1	2	2400	1			6.2	15	
16-Dec-14	H144119	440	2000		36		<0.5	<20	1600	<2.5			38	35	
14-Apr-15	H154120	39	180		<5	<10	<0.5	5.3	7400	2.6		42	4.4	<25	
25-Aug-15	H154121	240	640		26		<0.5	<5	29000	<2.5			<2.5	36	
13-Jan-16	H164122	57	730		21		<1	<10	1600	<5			23	<50	
26-Apr-16	H164123	59	1000		27	8.4	<0.5	<25	1300	<2.5		45	33	<25	
16-Aug-16	H164124	120	270		1.4		0.12	86	790	3			0.9	110	
20-Dec-16	H164125	160	300		2.4		<0.1	49	510	1.7			1.4	37	
25-Apr-17	H174126	<30	170		1.6	<100	<0.1	16	7500	1.7		<10	2	28	
12-Sep-17	H174127	110	390		7.3		<0.1	15	7700	1.2			3.3	60	
26-Apr-18	H184128	100	1100		32	<20	<0.5	12	3800	<2.5		45	53	<25	
12-Sep-18	H184129		2900		37		<1	59	7100	98			50	100	
20-Dec-18	H184130	570	1200		25	<100	<0.5	17	11000	<2.5		890	27	<25	
10-Apr-19	H194131	300	1500		56	<50	<1	31	2800	<5		190	73	<50	
14-Jun-19	H194132	300	680		8.2		<0.5	12	6200	7.5			9.2	35	
26-Sep-19	H194133		3800		36	<20	<0.5	680	15000	7.7		750	41	270	
07-May-20	MPB497	77	1300	180	46	<1	<1	200	4200	<5		85	71	<50	
11-Jun-20	MWE162	130	940	4600	34		0.98	1700	23000	88			57		
28-Sep-20	NTR991	100	1300	3900	51		<0.9	29	18000	<5			92	<50	
04-May-21	2021R2065	27	1050		61		0.03	9	3130	4.6	<0.01	840		20	8860
04-Jun-21	LST12106	228	890						3560						10700
17-Sep-21	CA15466	1700	2700						2490						11500
TOTAL SAMPLES		138	139	3	63	24	66	66	64	66	25	100	42	61	3
AVERAGE 2021		652	1547						3060						10353

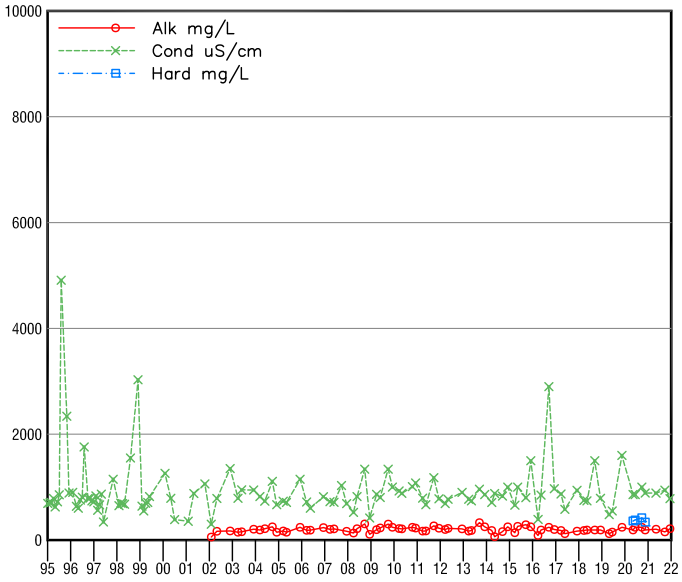
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

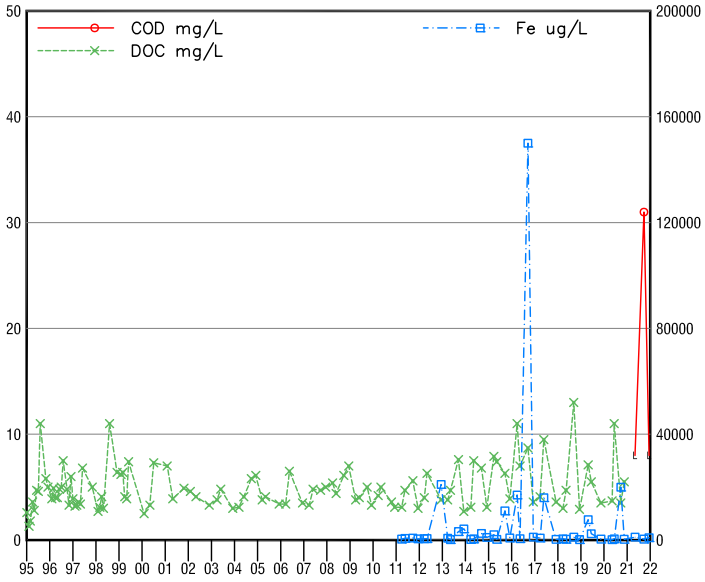
APPENDIX J

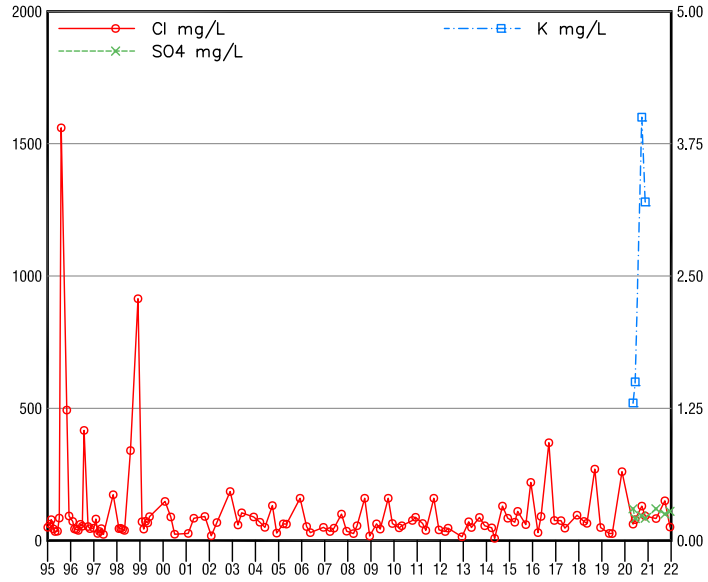
Surface Water Quality Data

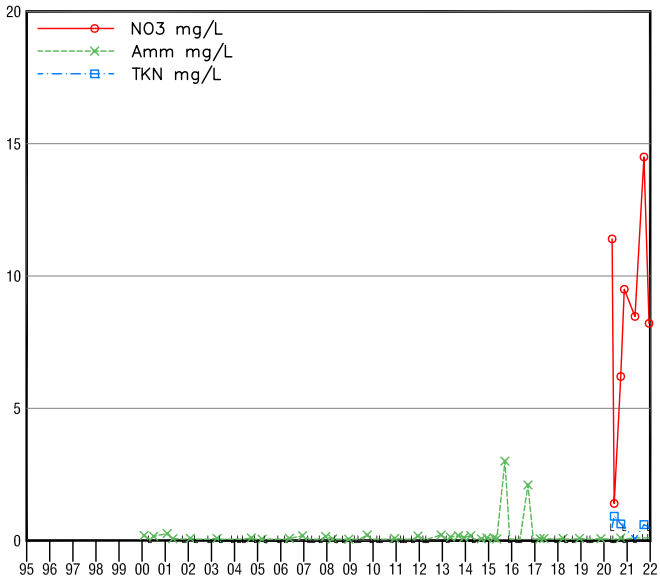
APPENDIX J1

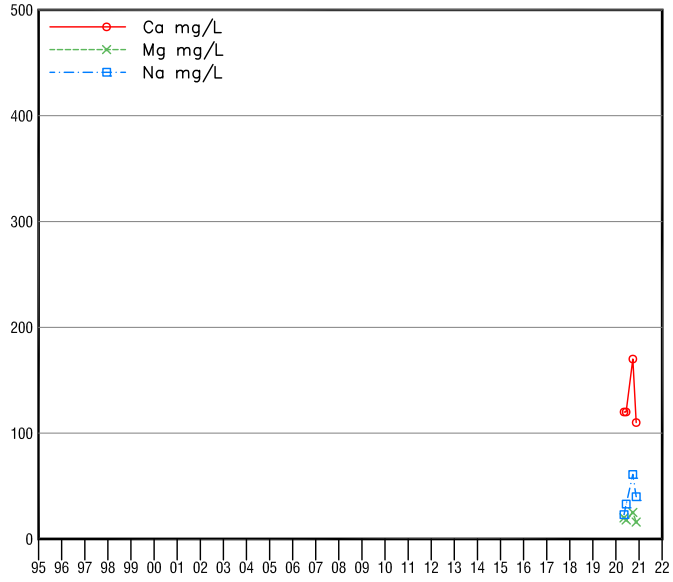
Municipal Drain Water Quality Data Summary



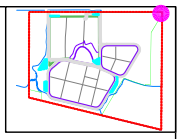








L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

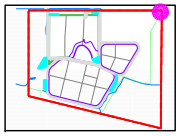
SW4

21500070 19 Apr 22	wsp GOLDER	21J1001

SW4

SURFACE WATER

SURFACE WATER STATION



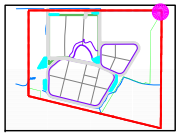
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	DOC	NO3	TSS	TKN	Amm	uAmm	P	Ion B %
	PWQO																0.02	0.02	
06-Dec-13	H135086	250	860			56						2.7		65		0.11	0.001		
26-Mar-14	H145087	180	710			48						3.1		<10		0.18	0.001		
12-May-14	H145088	62	880			8						7.5		24		<0.05	<0.01		
11-Sep-14	H145089	160	830			130						6.8		19		0.064	0.002		
05-Dec-14	H145090	250	1000			84						3.1		21		0.1	0.001		
27-Mar-15	H155091	140	660			69						7.9		<10		0.1	<0.01		
11-May-15	H155092	260	1000			110						7.4		<10		0.059	0.002		
17-Sep-15	H155093	290	800			60						6.3		220		3	**0.130**		
04-Dec-15	H155094	250	1500			220						3.9		22		<0.05	<0.01		
28-Mar-16	H165095	87	390			30						11		31		<0.05	<0.01		
13-May-16	H165096	190	850			91						7		<10		<0.05	<0.01		
15-Sep-16	H165097	240	2900			370						8.7		5200		2.1	**0.036**		
09-Dec-16	H165098	200	970			76						3.6		37		<0.05	<0.01		
27-Mar-17	H175099	180	870			75						4.1		19		0.069	0.002		
25-May-17	H175100	120	580			47						9.5		320		0.073	0.001		
04-Dec-17	H175101	170	940			96						3.6		22		<0.05	<0.01		
23-Mar-18	H185102	180	750			72						3		12		0.08	0.001		
11-May-18	H185103	190	740			65						4.7		<10		<0.05	<0.01		
10-Sep-18	H185104	190	1500			270						13		22		<0.05	<0.01		
10-Dec-18	H185105	190	790			49						2.9		<10		0.081	<0.01		
26-Apr-19	H195106	120	480			27						7.1		31		<0.05	<0.01		
14-Jun-19	H195107	150	550			26						5.5		13		<0.05	<0.01		
14-Nov-19	H195108	240	1600			260						3.5		15		0.069	<0.01		
08-May-20	MPS796	190	860	360	8.2	62	120	120	20	23	1.3	3.7	11.4	<10	<0.5	<0.05	<0.01	0.009	-1.1
11-Jun-20	MWE168	240	860	380	8.0	79	83	120	18	33	1.5	11	1.4	20	0.92	<0.05	<0.01	**0.039**	0.6
23-Sep-20	NSM242	240	1000	420	8.1	130	93	170	25	61	4.0	3.5	6.2	720	0.63	0.093	<0.01	**0.47**	12.8
16-Nov-20	OEK952	190	890	340	8.2	93	84	110	16	40	3.2	5.5	9.5	<10	<0.5	<0.05	<0.01	**0.043**	-1.2
06-May-21	2021R2055	204	887	465	8.3	83	120	149	22.6	32.3	1.1		8.47	30	<0.05	<0.1	<0.01	**0.055**	6.1
24-Sep-21	CA1500901	155	944	318	7.9	150	100	104	14.1	35.3	2.6		14.5	9	0.60	<0.1	<0.01	**0.08**	-13.5
14-Dec-21	SW12007	214	782	414	8.1	51	110	134	19.3	19.4	2.4		8.21	14	<0.5	<0.1	<0.01	**0.04**	3.5
TOTAL SAMPLES		71	114	7	7	115	7	7	7	7	7	112	7	72	7	78	78	7	
AVERAGE 2021		191	871	399	8.1	95	110	129	18.7	29.0	2.0		10.4	18	<0.5	<0.1	<0.01	0.058	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

SW4

SURFACE WATER

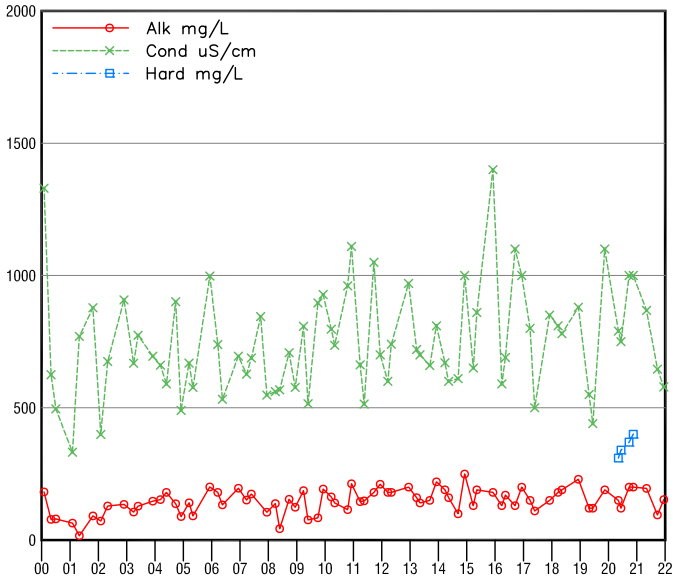
SURFACE WATER STATION

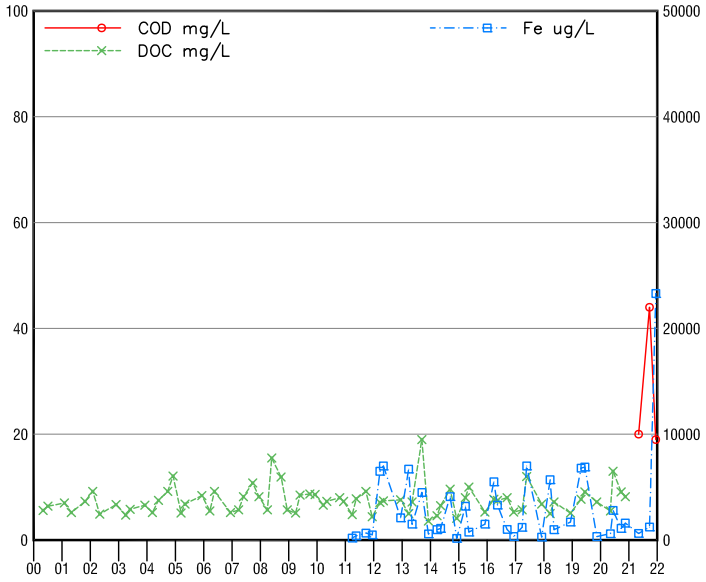


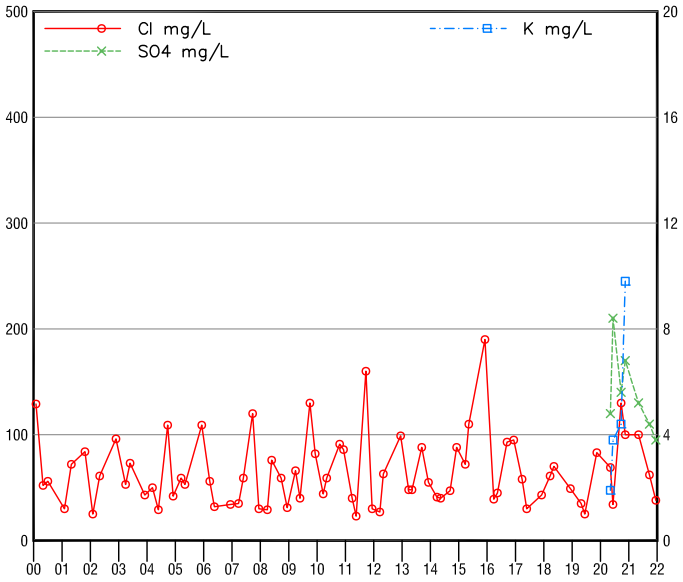
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	PWQO			75	5		0.5	5	300	5	0.2	1		20	
06-Dec-13	H135086								**4200**			**1.3**			500
26-Mar-14	H145087								230			<1			380
12-May-14	H145088								**410**			<1			646
11-Sep-14	H145089								**2500**			<1			562
05-Dec-14	H145090								**1000**			<1			588
27-Mar-15	H155091								**2000**			**1.8**			352
11-May-15	H155092								270			<1			654
17-Sep-15	H155093								**11000**			**7.9**			518
04-Dec-15	H155094								**780**			<1			1080
28-Mar-16	H165095								**17000**			<1			416
13-May-16	H165096								**510**			<1			534
15-Sep-16	H165097								**150000**			<1			2180
09-Dec-16	H165098								**1100**			<1			648
27-Mar-17	H175099								**750**			<1			520
25-May-17	H175100								**16000**			<1			364
04-Dec-17	H175101								250			<1			525
23-Mar-18	H185102								**450**			<1			400
11-May-18	H185103								300			<1			430
10-Sep-18	H185104								**1100**			<1			945
10-Dec-18	H185105								170			<1			505
26-Apr-19	H195106								**7700**			<1			370
14-Jun-19	H195107								**2400**			<1			405
14-Nov-19	H195108								**360**			<1			920
08-May-20	MPS796	<2		**100**	<1		<0.1	2	130	<0.5	<0.1	<1	<0.5	<5	520
11-Jun-20	MWE168	3		**320**	2.2		<0.09	2.5	**450**	<0.5	<0.1	<1	0.96	<5	530
23-Sep-20	NSM242	4		**12000**	**8.2**		<0.45	**24**	**20000**	**11**	<0.1	**1.1**	23	**130**	895
16-Nov-20	OEK952	<2		**250**	<1		<0.09	2.8	290	<0.5	<0.1	<1	0.97	<5	505
06-May-21	2021R2055	<4	<8		0.9		0.042	2.5	**1100**	0.71	<0.01	<1		6	537
24-Sep-21	CA1500901	<4	31		1.2		0.034	3.7	**348**	0.32	<0.01	<1		4	740
14-Dec-21	SW12007	<4	<8						**889**			<2			466

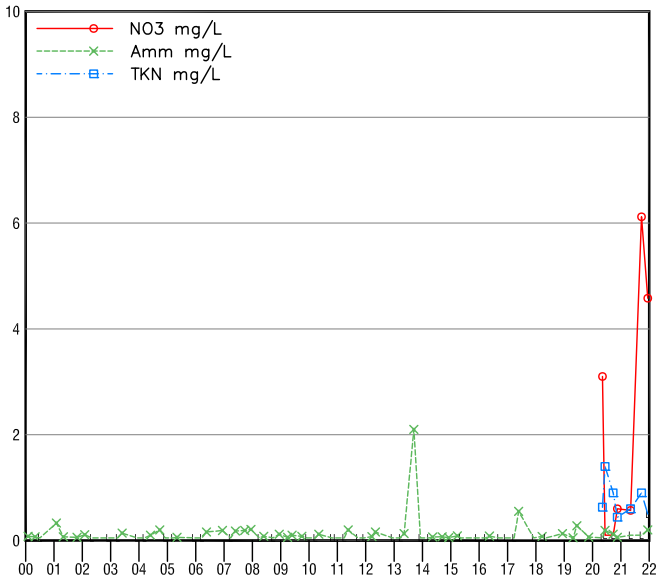
TOTAL SAMPLES	7	3	4	6	0	6	6	40	6	6	108	4	6	71
AVERAGE 2021	<4	10		1.1		0.038	3.1	779	0.52	<0.01	<2		5	581

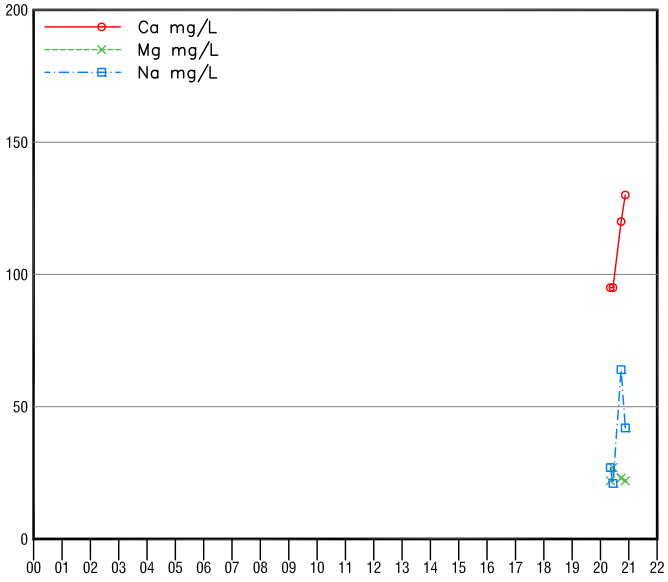
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**



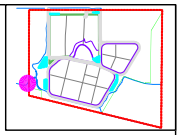








L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

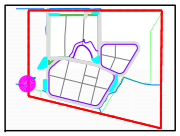
SW7

21500070 19 Apr 22	wsp GOLDER	21J1002

SW7

SURFACE WATER

SURFACE WATER STATION



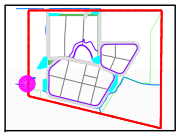
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	DOC	NO3	TSS	TKN	Amm	uAmm	P	Ion B %
	PWQO																0.02	0.02	
09-May-13	H135155	140	700			48						7.2		18		0.13	0.009		
12-Sep-13	H135156	150	660			88						19		84		2.1	**0.034**		
06-Dec-13	H135157	220	810			55						3.6		18		<0.05	<0.01		
26-Mar-14	H145158	190	670			41						4.6		19		<0.05	<0.01		
12-May-14	H145159	160	600			40						6.5		21		0.067	0.005		
11-Sep-14	H145160	99	610			47						9.6		57		0.07	0.002		
05-Dec-14	H145161	250	1000			88						4.1		<10		0.054	<0.01		
27-Mar-15	H155162	130	650			72						8		34		0.089	<0.01		
11-May-15	H155163	190	860			110						10		<10		<0.05	<0.01		
04-Dec-15	H155164	180	1400			190						5.3		15		<0.05	<0.01		
28-Mar-16	H165165	130	590			39						7.7		31		<0.05	<0.01		
13-May-16	H165166	170	690			45						7.5		75		0.084	0.002		
15-Sep-16	H165167	130	1100			93						8		45		<0.05	<0.01		
09-Dec-16	H165168	200	1000			95						5.3		<10		<0.05	<0.01		
27-Mar-17	H175169	150	800			58						5.7		29		<0.05	<0.01		
25-May-17	H175170	110	500			30						12		95		0.55	0.010		
04-Dec-17	H175171	150	850			43						6.8		<10		<0.05	<0.01		
23-Mar-18	H185172	180	810			61						5		160		0.077	0.001		
11-May-18	H185173	190	780			70						7.2		20		<0.05	<0.01		
10-Dec-18	H185175	230	880			49						5.1		78		0.13	0.004		
26-Apr-19	H195177	120	550			35						7.7		76		0.052	<0.01		
14-Jun-19	H195178	120	440			25						9.1		35		0.28	0.003		
14-Nov-19	H195179	190	1100			83						7.2		16		0.065	<0.01		
08-May-20	MPS806	150	790	310	8.3	69	120	95	22	27	1.9	5.5	3.1	23	0.63	<0.05	<0.01	**0.043**	0.9
11-Jun-20	MWE171	120	750	340	7.9	34	210	95	27	21	3.8	13	<0.1	99	1.4	0.19	**0.040**	**0.36**	2.3
23-Sep-20	NSM239	200	1000	370	8.0	130	140	120	23	64	4.4	9.1	<0.1	32	0.90	0.12	0.010	**0.11**	1.2
16-Nov-20	OEK955	200	1000	400	8.1	100	170	130	22	42	9.8	8.2	0.6	38	0.44	0.061	<0.01	**0.10**	0.2
06-May-21	2021R2056	195	868	408	8.4	100	130	122	25.1	39.6	1.4		0.57	23	0.60	<0.1	<0.01	**0.045**	2.4
24-Sep-21	CA1500902	95	646	212	7.7	62	110	67.6	10.5	27.7	9.3		6.12	40	0.90	<0.1	<0.01	**0.57**	-5.4
14-Dec-21	SW12009	153	579	372	8.0	38	95	114	21.3	14.3	11		4.58	428	<0.5	0.2	<0.01	**0.46**	17.7
TOTAL SAMPLES		75	76	7	7	76	7	7	7	7	7	72	7	76	7	76	76	7	
AVERAGE 2021		148	698	331	8.0	67	112	101	19.0	27.2	7		3.76	164	0.50	<0.1	<0.01	0.358	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *Italics* / Exceedance in **Bold**

SW7

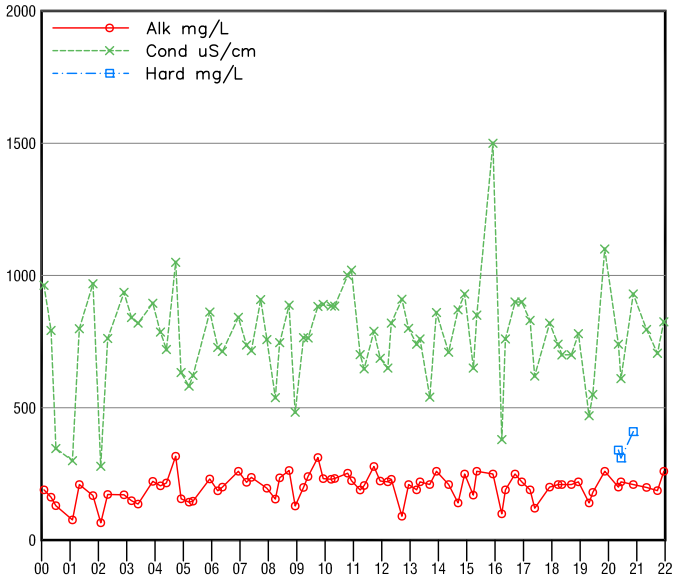
SURFACE WATER

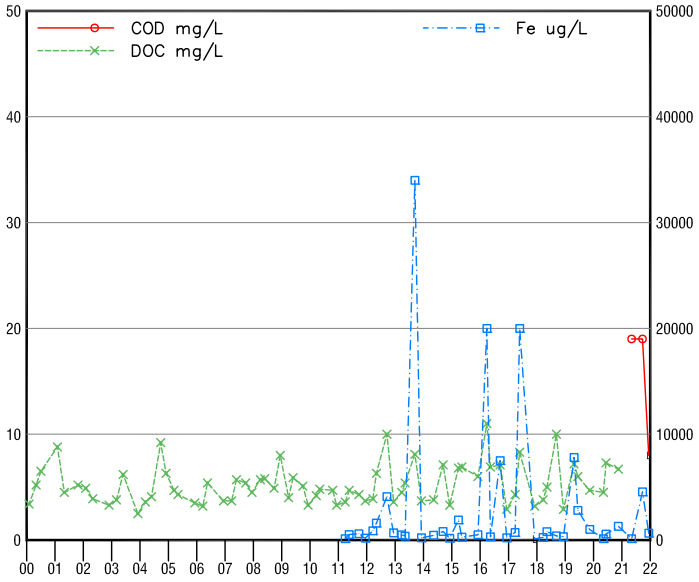
SURFACE WATER STATION

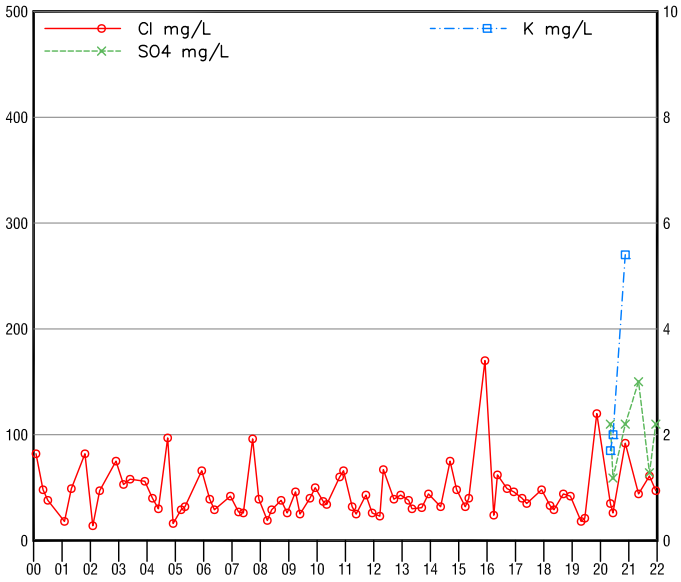


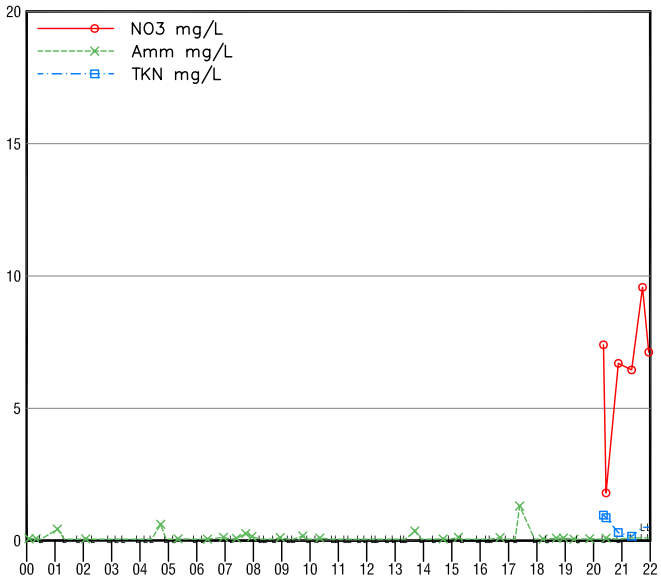
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	PWQO			75	5		0.5	5	300	5	0.2	1		20	
09-May-13	H135155								**1500**			<1			410
12-Sep-13	H135156								**4500**			<1			402
06-Dec-13	H135157								**580**			**1.2**			480
26-Mar-14	H145158								**980**			<1			376
12-May-14	H145159								**1100**			<1			358
11-Sep-14	H145160								**4100**			<1			474
05-Dec-14	H145161								160			<1			652
27-Mar-15	H155162								**3200**			**2.1**			392
11-May-15	H155163								**750**			<1			584
04-Dec-15	H155164								**1500**			<1			1050
28-Mar-16	H165165								**5500**			<1			434
13-May-16	H165166								**3300**			<1			414
15-Sep-16	H165167								**1000**			<1			810
09-Dec-16	H165168								**340**			<1			678
27-Mar-17	H175169								**1200**			<1			500
25-May-17	H175170								**7000**			<1			368
04-Dec-17	H175171								280			<1			490
23-Mar-18	H185172								**5700**			**1.4**			440
11-May-18	H185173								**980**			<1			450
10-Dec-18	H185175								**1700**			<1			540
26-Apr-19	H195177								**6800**			<1			375
14-Jun-19	H195178								**6900**			<1			335
14-Nov-19	H195179								**330**			<1			675
08-May-20	MPS806	<2		**430**	1.2		<0.1	2.2	**600**	<0.5	<0.1	<1	1.4	<5	525
11-Jun-20	MWE171	14		**1700**	**5.6**		<0.09	3.7	**2800**	1.8	<0.1	<1	4.8	16	520
23-Sep-20	NSM239	3		**690**	2.8		<0.09	1.9	**1100**	0.68	<0.1	<1	2.2	7	670
16-Nov-20	OEK955	3		**1500**	1.4		<0.09	3.3	**1600**	0.89	<0.1	<1	3.5	9	625
06-May-21	2021R2056	<4	20		1.4		0.023	2	**621**	0.57	<0.01	**2**		4	509
24-Sep-21	CA1500902	<4	44		2.2		0.045	**5.5**	**1230**	1.42	<0.01	1		12	486
14-Dec-21	SW12009	<4	19						**23300**			<2			363
TOTAL SAMPLES		7	3	4	6	0	6	6	38	6	6	76	4	6	75
AVERAGE 2021		<4	28		1.8		0.034	3.75	8384	1.00	<0.01	<2		8	453

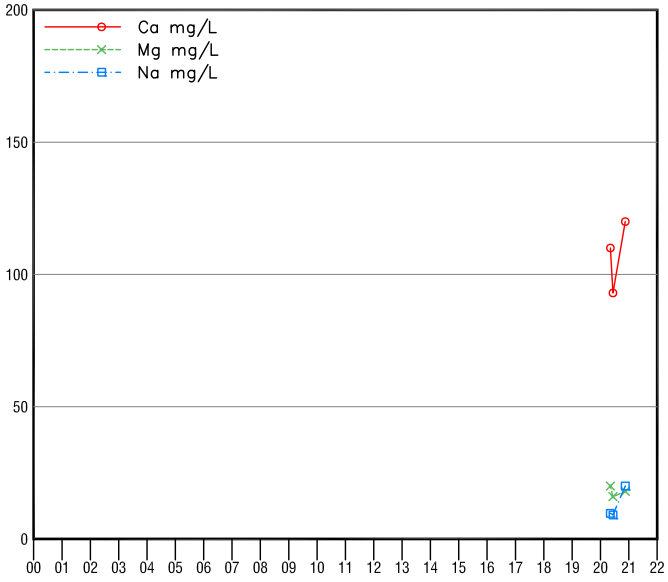
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**



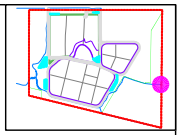








L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

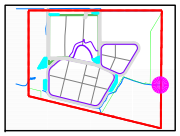
SW11

21500070 19 Apr 22	wsp GOLDER	21J1003

SW11

SURFACE WATER

SURFACE WATER STATION



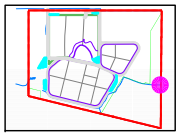
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	DOC	NO3	TSS	TKN	Amm	uAmm	P	Ion B %
	PWQO																0.02	0.02	
26-Mar-13	H135226	190	740			38						4.5		49		<0.05	<0.01		
09-May-13	H135227	220	760			30						5.4		11		<0.05	<0.01		
12-Sep-13	H135228	210	540			31						8.1		1000		0.36	0.012		
06-Dec-13	H135229	260	860			44						3.7		<10		<0.05	<0.01		
12-May-14	H145230	210	710			32						3.8		13		<0.05	<0.01		
11-Sep-14	H145231	140	870			75						7.1		16		0.058	0.001		
05-Dec-14	H145232	250	930			48						3.3		<10		<0.05	<0.01		
27-Mar-15	H155233	170	650			32						6.8		17		0.12	0.001		
11-May-15	H155234	260	850			40						6.9		<10		<0.05	<0.01		
04-Dec-15	H155235	250	1500			170						6		<10		<0.05	<0.01		
28-Mar-16	H165236	99	380			24						11		23		<0.05	<0.01		
13-May-16	H165237	190	760			62						6.9		<10		<0.05	<0.01		
15-Sep-16	H165238	250	900			49						7.1		5900		0.11	0.005		
09-Dec-16	H165239	220	900			46						2.9		<10		<0.05	<0.01		
27-Mar-17	H175240	190	830			40						4.3		11		<0.05	<0.01		
25-May-17	H175241	120	620			35						8.3		320		1.3	**0.022**		
04-Dec-17	H175242	200	820			48						3.2		<10		<0.05	<0.01		
23-Mar-18	H185243	210	740			33						3.8		<10		0.057	<0.01		
11-May-18	H185244	210	700			29						5		12		<0.05	<0.01		
10-Sep-18	H185245	210	700			44						10		11		0.084	0.004		
10-Dec-18	H185246	220	780			42						2.9		<10		0.091	0.003		
26-Apr-19	H195247	140	470			18						7.2		23		0.051	<0.01		
14-Jun-19	H195248	180	550			21						6		15		<0.05	<0.01		
14-Nov-19	H195249	260	1100			120						4.7		28		0.069	<0.01		
08-May-20	MPS797	200	740	340	8.3	35	110	110	20	9.7	1.7	4.5	7.4	<10	0.96	<0.05	<0.01	0.015	-1.3
11-Jun-20	MWE169	220	610	310	8.1	26	59	93	16	9.1	2.0	7.3	1.8	10	0.86	0.087	0.010	**0.049**	-0.4
16-Nov-20	OEK953	210	930	410	8.1	92	110	120	18	20	5.4	6.7	6.7	56	0.30	<0.05	<0.01	**0.10**	-5.7
06-May-21	2021R2057	199	796	456	8.3	44	150	141	25.3	11.8	1.0		6.45	9	0.16	<0.1	<0.01	**0.026**	4.7
24-Sep-21	CA1500903	187	706	314	8.0	61	64	101	15.1	10.2	3.9		9.57	174	<0.5	<0.1	<0.01	**0.14**	-3.3
14-Dec-21	SW12010	260	825	462	8.2	47	110	150	21.3	10.5	2.47		7.12	11	<0.5	<0.1	<0.01	**0.04**	2.4
TOTAL SAMPLES		75	76	6	6	76	6	6	6	6	6	73	6	76	6	76	76	6	
AVERAGE 2021		215	776	411	8.2	51	108	131	20.6	10.8	2.5		7.71	65	<0.5	<0.1	<0.01	0.069	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

SW11

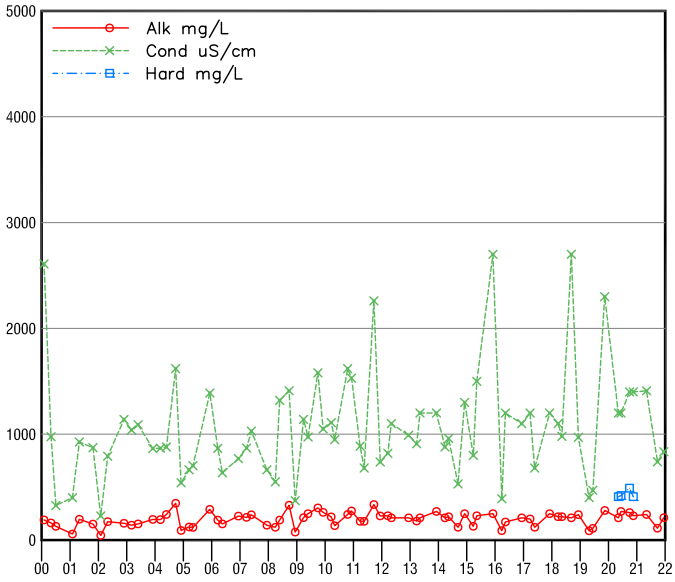
SURFACE WATER

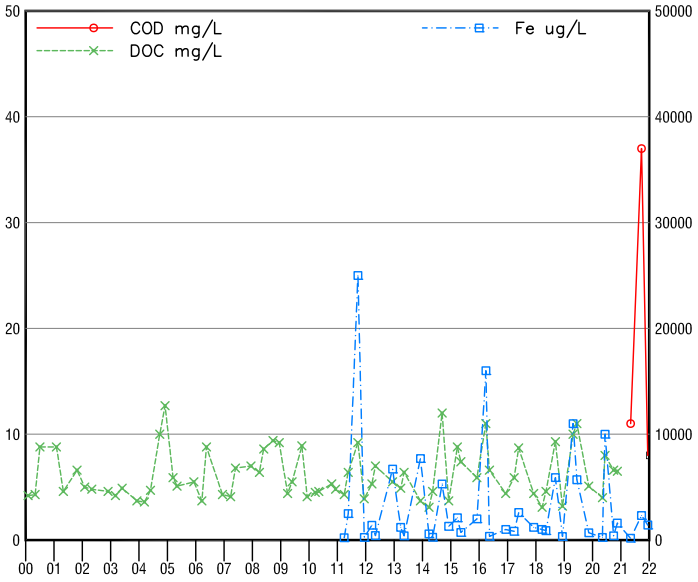
SURFACE WATER STATION

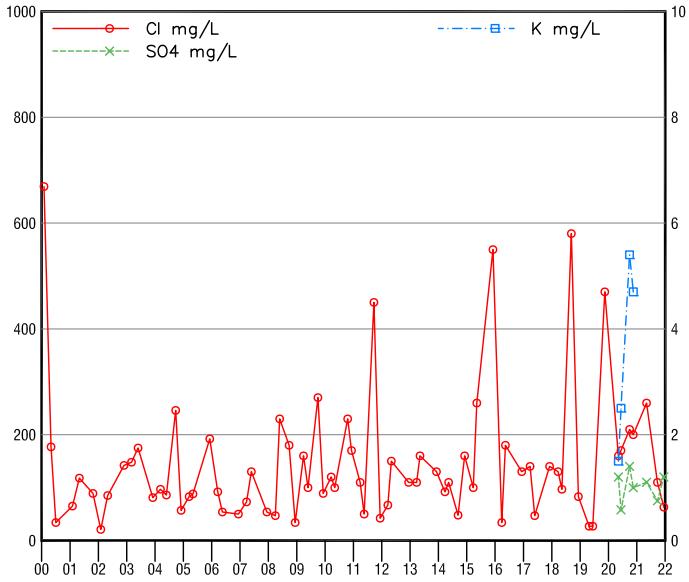


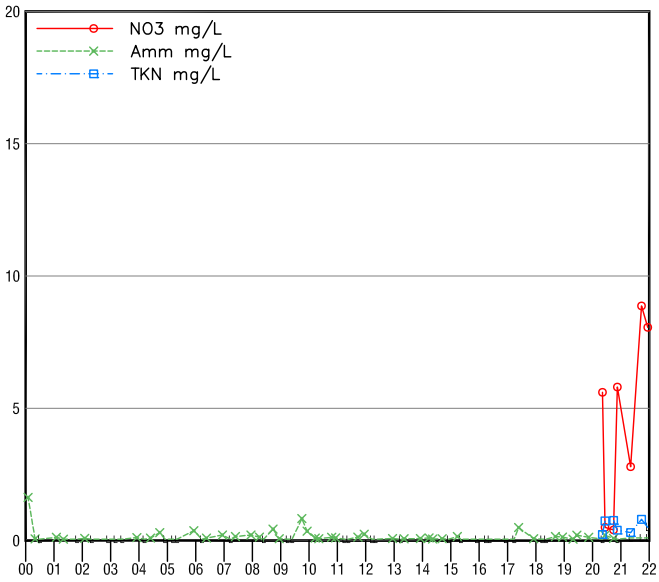
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	PWQO			75	5		0.5	5	300	5	0.2	1		20	
26-Mar-13	H135226								**490**			<1			442
09-May-13	H135227								**370**			<1			460
12-Sep-13	H135228								**34000**			<1			344
06-Dec-13	H135229								210			<1			510
12-May-14	H145230								**450**			<1			404
11-Sep-14	H145231								**810**			<1			818
05-Dec-14	H145232								170			<1			606
27-Mar-15	H155233								**1900**			<1			382
11-May-15	H155234								270			<1			548
04-Dec-15	H155235								**500**			<1			1160
28-Mar-16	H165236								**20000**			<1			404
13-May-16	H165237								**310**			<1			476
15-Sep-16	H165238								**7500**			<1			592
09-Dec-16	H165239								210			<1			552
27-Mar-17	H175240								**720**			<1			524
25-May-17	H175241								**20000**			<1			416
04-Dec-17	H175242								<100			<1			525
23-Mar-18	H185243								250			<1			405
11-May-18	H185244								**790**			<1			420
10-Sep-18	H185245								**390**			<1			470
10-Dec-18	H185246								**320**			<1			520
26-Apr-19	H195247								**7800**			<1			355
14-Jun-19	H195248								**2800**			<1			385
14-Nov-19	H195249								**1000**			<1			670
08-May-20	MPS797	<2		**97**	<1		<0.1	2	130	<0.5	<0.1	<1	<0.5	<5	490
11-Jun-20	MWE169	<2		**450**	2.5		<0.09	1.6	**570**	<0.5	<0.1	<1	1.6	<5	380
16-Nov-20	OEK953	<2		**980**	1.1		<0.09	3.1	**1300**	0.78	<0.1	<1	2.5	8	565
06-May-21	2021R2057	<4	19		0.7		0.045	1.7	125	<0.09	<0.01	<1		7	511
24-Sep-21	CA1500903	<4	19		2.5		0.11	**6.5**	**4550**	3.1	<0.01	**2**		**35**	546
14-Dec-21	SW12010	<4	<8						**648**			<2			517
TOTAL SAMPLES		6	3	3	5	0	5	5	38	5	5	76	3	5	75
AVERAGE 2021		<4	13		1.6		0.08	4.10	1774	1.6	<0.01	<2		21	525

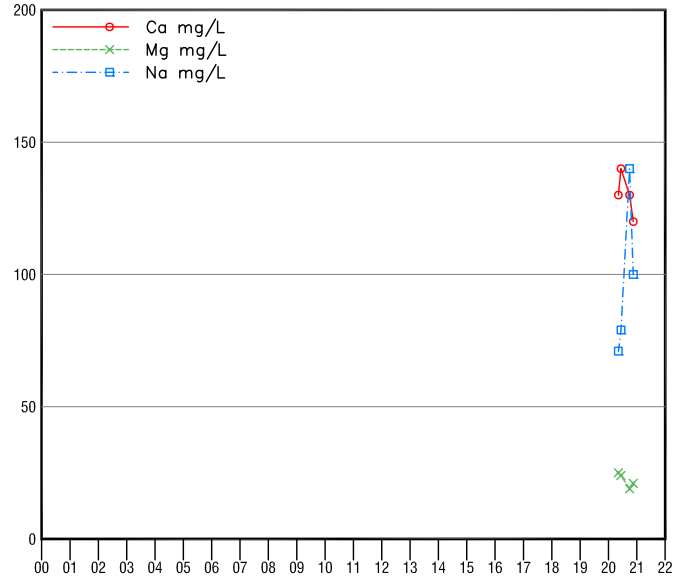
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









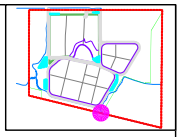


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

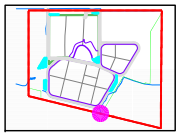
SW12

21500070 19 Apr 22	wsp GOLDER	21J1004

SW12

SURFACE WATER

SURFACE WATER STATION



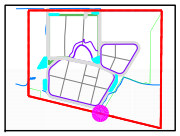
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	DOC	NO3	TSS	TKN	Amm	uAmm	P	Ion B %
	PWQO																0.02	0.02	
26-Mar-13	H135294	180	910			110						4.9		68		<0.05	<0.01		
09-May-13	H135295	210	1200			160						6.4		<10		0.065	0.004		
06-Dec-13	H135296	270	1200			130						3.7		180		0.075	<0.01		
26-Mar-14	H145297	210	880			92						3.1		15		0.096	<0.01		
12-May-14	H145298	220	960			110						4.6		<10		0.057	0.004		
11-Sep-14	H145299	120	530			48						12		36		0.066	0.002		
05-Dec-14	H145300	250	1300			160						3.7		40		<0.05	<0.01		
27-Mar-15	H155301	130	800			100						8.8		20		0.15	0.001		
11-May-15	H155302	230	1500			260						7.4		19		<0.05	<0.01		
04-Dec-15	H155303	250	2700			550						5.9		55		<0.05	<0.01		
28-Mar-16	H165304	89	390			34						11		25		<0.05	<0.01		
13-May-16	H165305	170	1200			180						6.6		<10		<0.05	<0.01		
09-Dec-16	H165306	210	1100			130						4.4		28		<0.05	<0.01		
27-Mar-17	H175307	200	1200			140						5.9		15		<0.05	<0.01		
25-May-17	H175308	120	680			47						8.7		39		0.49	0.009		
04-Dec-17	H175309	250	1200			140						4.4		25		0.068	0.001		
23-Mar-18	H185310	220	1100			130						3.1		23		<0.05	<0.01		
11-May-18	H185311	220	980			97						4.6		25		<0.05	<0.01		
10-Sep-18	H185312	210	2700			580						9.3		140		0.15	0.005		
10-Dec-18	H185313	240	970			83						3.2		<10		0.13	0.002		
26-Apr-19	H195314	88	400			27						10		42		0.051	<0.01		
14-Jun-19	H195315	110	470			27						11		24		0.2	<0.01		
14-Nov-19	H195316	280	2300			470						5.1		20		0.12	<0.01		
08-May-20	MPS798	210	1200	410	8.2	160	120	130	25	71	1.5	4	5.6	<10	0.23	<0.05	<0.01	0.016	0.3
11-Jun-20	MWE170	270	1200	420	8.1	170	58	140	24	79	2.5	8	0.5	350	0.74	0.2	0.010	**0.38**	5.8
29-Sep-20	NTR990	260	1400	490	8.1	210	140	130	19	140	5.4	6.6	0.4	22	0.76	0.078	<0.01	**0.12**	0.8
16-Nov-20	OEK954	230	1400	410	8.2	200	100	120	21	100	4.7	6.5	5.8	29	0.39	<0.05	<0.01	**0.10**	−2.0
06-May-21	2021R2058	241	1410	536	8.2	260	110	170	27.2	97.9	0.65		2.79	4	0.30	<0.1	<0.01	0.016	1.2
24-Sep-21	CA1500904	112	740	204	7.8	110	75	64.5	10.5	50.5	2.9		8.87	42	0.80	<0.1	<0.01	**0.13**	−7.9
14-Dec-21	SW12011	212	834	423	8.1	63	120	133	22	28.0	3.38		8.06	22	<0.5	<0.1	<0.01	**0.06**	3.8
TOTAL SAMPLES		74	74	7	7	74	7	7	7	7	7	71	7	74	7	74	74	7	
AVERAGE 2021		188	995	388	8.0	144	102	123	19.9	58.8	2.31		6.57	23	<0.5	<0.1	<0.01	0.069	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

SW12

SURFACE WATER

SURFACE WATER STATION

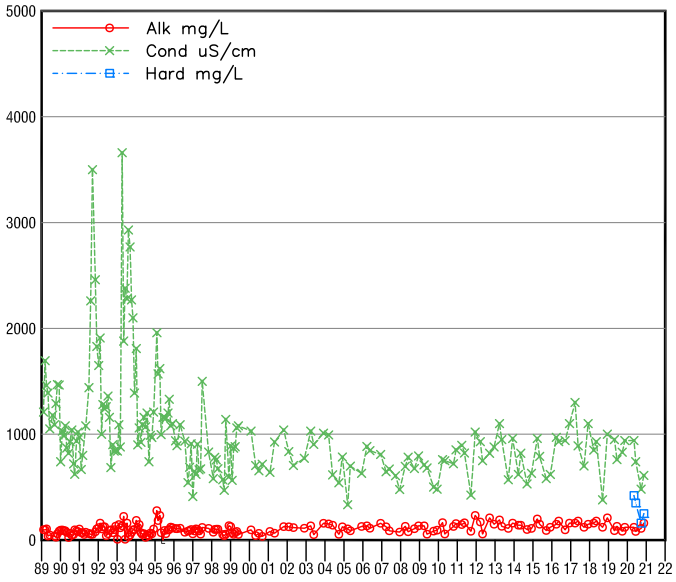


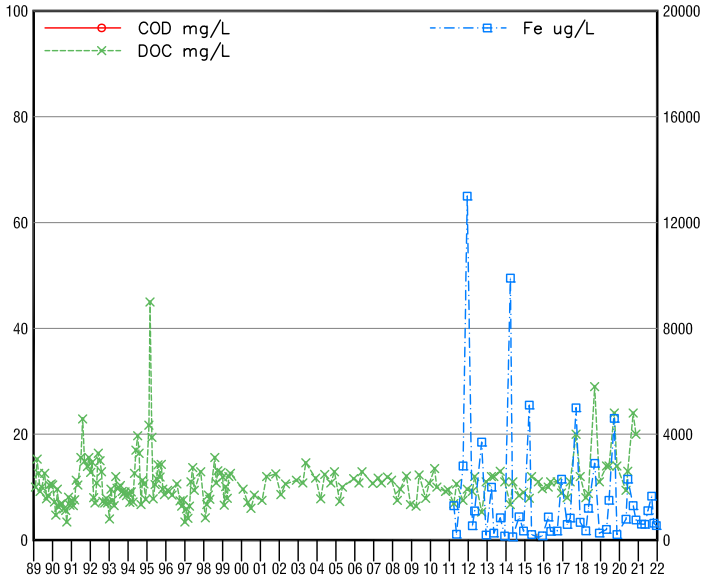
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	PWQO			75	5		0.5	5	300	5	0.2	1		20	
26-Mar-13	H135294								**1200**			<1			526
09-May-13	H135295								**400**			<1			700
06-Dec-13	H135296								**7700**			**1.9**			638
26-Mar-14	H145297								**580**			<1			472
12-May-14	H145298								260			<1			552
11-Sep-14	H145299								**5300**			<1			470
05-Dec-14	H145300								**1300**			<1			810
27-Mar-15	H155301								**2100**			**1.4**			468
11-May-15	H155302								**720**			<1			996
04-Dec-15	H155303								**2000**			<1			1920
28-Mar-16	H165304								**16000**			<1			474
13-May-16	H165305								**350**			<1			630
09-Dec-16	H165306								**1000**			<1			674
27-Mar-17	H175307								**830**			<1			742
25-May-17	H175308								**2600**			<1			442
04-Dec-17	H175309								**1200**			<1			605
23-Mar-18	H185310								**1000**			<1			635
11-May-18	H185311								**890**			<1			555
10-Sep-18	H185312								**5900**			<1			1740
10-Dec-18	H185313								**340**			<1			585
26-Apr-19	H195314								**11000**			<1			375
14-Jun-19	H195315								**5700**			<1			405
14-Nov-19	H195316								**690**			<1			1260
08-May-20	MPS798	<2		**130**	<1		<0.1	1.7	250	<0.5	<0.1	<1	<0.5	<5	790
11-Jun-20	MWE170	<2		**5800**	**9.1**		0.28	**11**	**10000**	**8**	<0.1	<1	15	**70**	670
29-Sep-20	NTR990	2		**230**	1.5		<0.09	2.8	**400**	<0.5	<0.1	<1	1.2	9	955
16-Nov-20	OEK954	<2		**1400**	1.4		<0.09	3.7	**1600**	1	<0.1	<1	3.4	12	740
06-May-21	2021R2058	<4	11		0.7		0.02	1.3	168	0.1	<0.01	<1		<2	831
24-Sep-21	CA1500904	<4	37		1.6		0.071	**6**	**2320**	2.42	<0.01	<1		18	583
14-Dec-21	SW12011	<4	<8						**1420**			<2			520
TOTAL SAMPLES		7	3	4	6	0	6	6	37	6	6	74	4	6	73
AVERAGE 2021		<4	16		1.2		0.046	4	1303	1.26	<0.01	<2		9	645

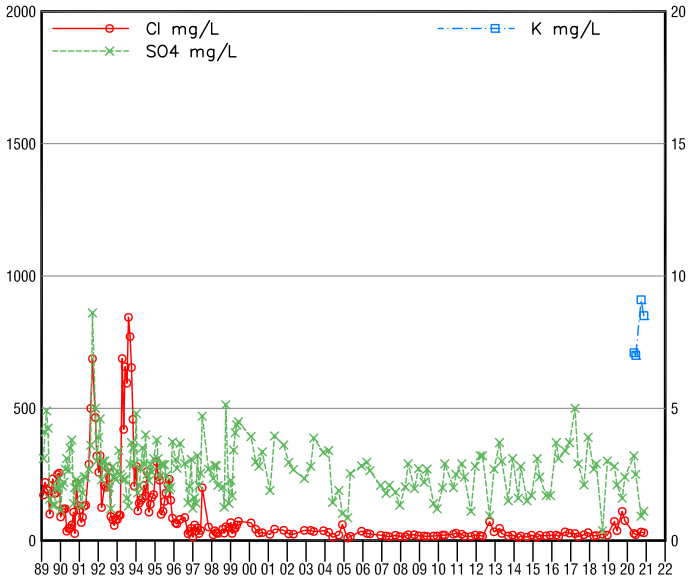
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

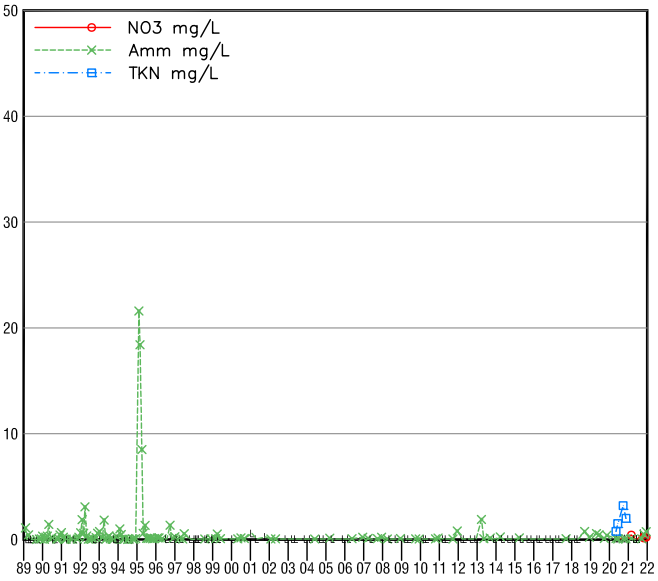
APPENDIX J2

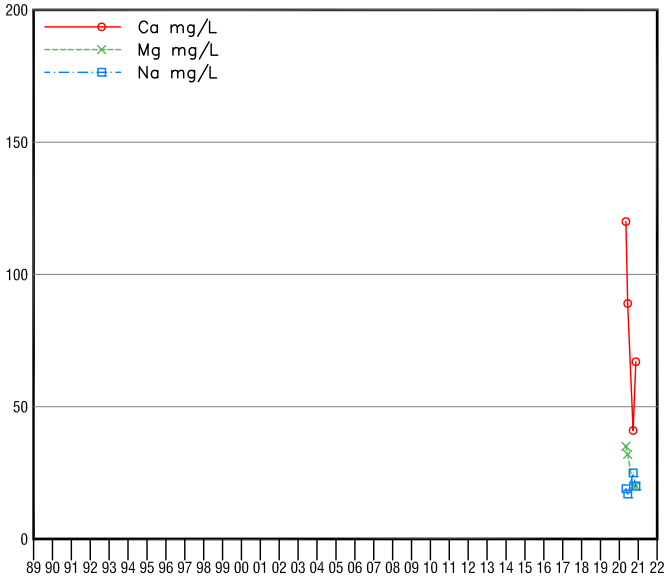
Storm Water Management Ponds Water Quality Data



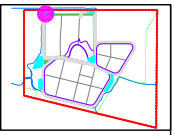








L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

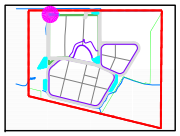
SWP-1

21500070 19 Apr 22	wsp GOLDER	21J1005

SWP-1

SURFACE WATER

SURFACE WATER STATION



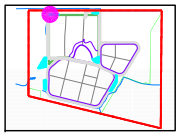
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	DOC	NO3	TSS	TKN	Amm	uAmm	P	Ion B %
	PWQO																0.02	0.02	
27-Mar-15	H155665	200	960			11	310					7.9		93		0.15	0.001	**0.99**	
11-May-15	H155666	150	790			20	240					12		<10		<0.05	<0.01	**0.081**	
17-Sep-15	H155667	91	580			18	170					11		<10		<0.05	<0.01	**0.053**	
04-Dec-15	H155668	120	620			20	170					9.7		<10		<0.05	<0.01	**0.058**	
28-Mar-16	H165669	150	970			21	370					10		13		<0.05	<0.01	**0.10**	
13-May-16	H165670	180	930			16	310					11		<10		<0.05	<0.01	**0.065**	
15-Sep-16	H165671	97	940			33	340					11		45		<0.05	<0.01	**0.46**	
09-Dec-16	H165672	160	1100			28	370					8.9		110		<0.05	<0.01	**0.16**	
27-Mar-17	H175673	160	1300			26	500					8		23		<0.05	<0.01	**0.058**	
25-May-17	H175674	180	890			14	290					11		30		<0.05	<0.01	**0.090**	
15-Sep-17	H175675	120	700			22	210					20		200		0.086	0.003	**0.87**	
04-Dec-17	H175676	150	1100			30	390					12		30		<0.05	<0.01	**0.16**	
23-Mar-18	H185677	160	850			17	270					8		15		<0.05	<0.01	**0.090**	
11-May-18	H185678	180	930			19	290					8.8		32		<0.05	<0.01	**0.13**	
10-Sep-18	H185679	120	380			24	37					29		110		0.76	**0.162**	**0.79**	
10-Dec-18	H185680	210	1000			20	300					11		12		0.22	0.005	**0.16**	
26-Apr-19	H195681	89	950			72	280					14		45		0.57	**0.063**	**0.50**	
14-Jun-19	H195682	130	760			37	210					14		38		0.44	0.007	**0.22**	
25-Sep-19	H195683	83	830			110	160					24		280		0.1	**0.024**	**1.40**	
14-Nov-19	H195684	120	940			75	240					14		18		0.39	**0.081**	**0.080**	
08-May-20	MPS795	120	940	420	8.0	27	320	120	35	19	7.1	9.4	<0.1	45	0.77	0.092	<0.01	**0.15**	0.5
11-Jun-20	MWE167	82	740	350	7.8	22	250	89	32	17	7.0	13	<0.1	99	1.5	0.057	0.020	**0.40**	4.0
23-Sep-20	NSM241	110	480	160	7.5	32	92	41	20	25	9.1	24	<0.1	110	3.2	0.06	0.010	**0.41**	0.5
16-Nov-20	OEK947	160	610	250	8.0	29	110	67	20	20	8.5	20	<0.1	40	2.0	0.067	<0.01	**0.41**	-1.6
01-Mar-21	2021R1001												0.43	18		0.1	<0.01	**0.22**	
06-May-21	2021R2064												<0.06	96		<0.04	<0.01	**0.192**	
05-Jul-21	21S0701				6.6								<0.06	86		<0.04	<0.01	**0.306**	
17-Sep-21	CA15465												<0.6	213		0.06	<0.01	**0.772**	
27-Oct-21	CA1583201												0.14	22		0.5	<0.01	**0.07**	
14-Dec-21	SW12004												0.21	22		0.74	**0.03**	**0.06**	
TOTAL SAMPLES		185	186	4	5	186	187	4	4	4	4	187	10	193	4	193	193	190	
AVERAGE 2021													<0.6	76		0.23	<0.01	0.2700	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

SWP-1

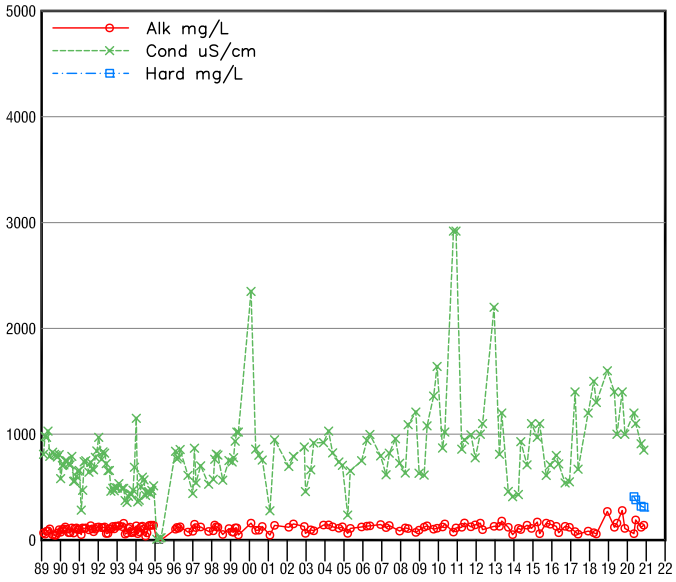
SURFACE WATER

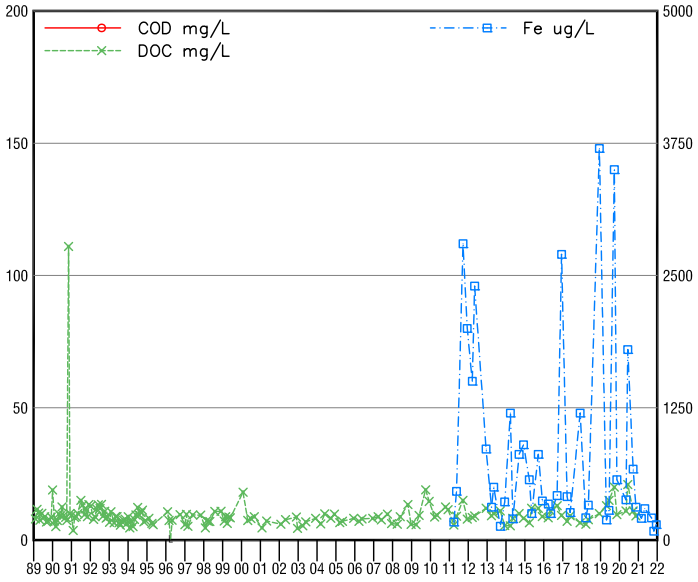
SURFACE WATER STATION

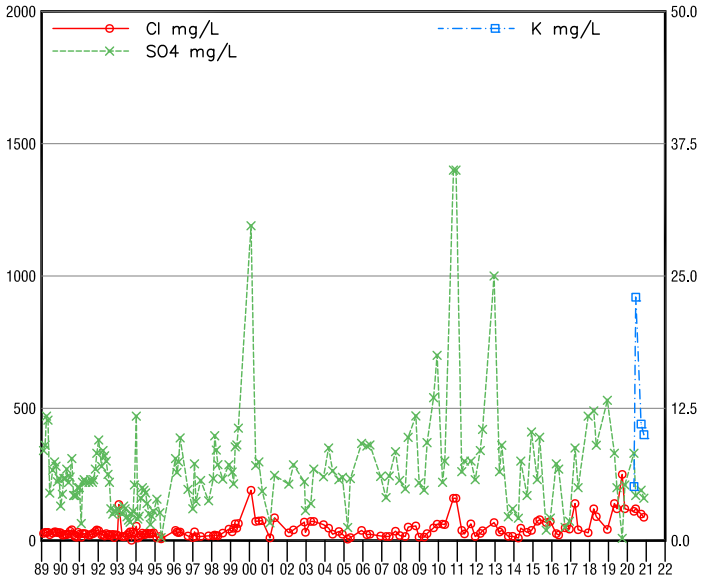


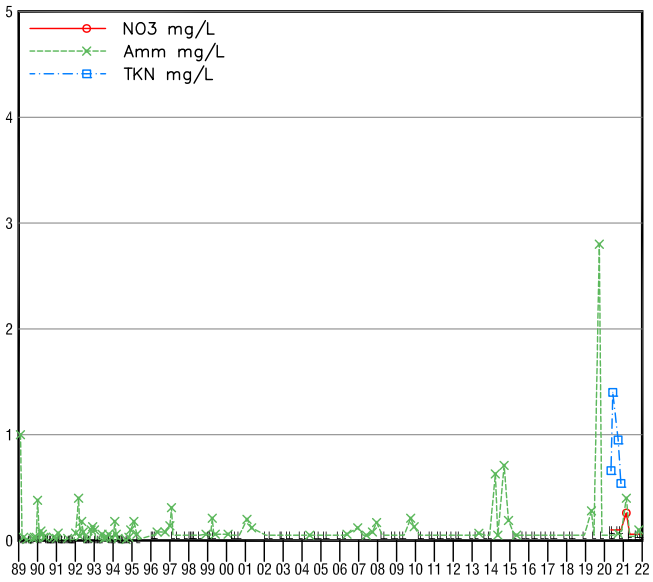
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	PWQO			75	5		0.5	5	300	5	0.2	1		20	
27-Mar-15	H155665	2							**5100**			<1			
11-May-15	H155666	2							210			<1			
17-Sep-15	H155667	<2							<100			<1			
04-Dec-15	H155668	5							160			<1			
28-Mar-16	H165669	<2							**870**			<1			
13-May-16	H165670	<2							**330**			<1			
15-Sep-16	H165671	5							**340**			<1			
09-Dec-16	H165672	8							**2300**			<1			
27-Mar-17	H175673	2							**590**			<1			
25-May-17	H175674	<2							**830**			<1			
15-Sep-17	H175675	14							**5000**			**4.6**			
04-Dec-17	H175676	10							**670**			<1			
23-Mar-18	H185677	<2							**350**			**4**			
11-May-18	H185678	3							**1200**			<1			
10-Sep-18	H185679	26							**2900**			<1			
10-Dec-18	H185680	7							260			<1			
26-Apr-19	H195681	9							**400**			<1			
14-Jun-19	H195682	16							**1500**			<1			
25-Sep-19	H195683	10							**4600**			<1			
14-Nov-19	H195684	4							210			<1			
08-May-20	MPS795	3		**470**	2.7		<0.1	1.7	**790**	0.65	<0.1	<1	1.7	6	675
11-Jun-20	MWE167	22		**1000**	**6.6**		<0.09	2.9	**2300**	2	<0.1	<1	4.5	12	535
23-Sep-20	NSM241	55		**430**	**11**		<0.09	1.9	**1300**	1.2	<0.1	<1	4.5	9	415
16-Nov-20	OEK947	15		**250**	3.7		<0.09	1.7	**760**	0.54	<0.1	<1	1.4	5	420
01-Mar-21	2021R1001								**602**			<1			
06-May-21	2021R2064								**595**			<1			
05-Jul-21	21S0701								**1110**			**2**			
17-Sep-21	CA15465								**1660**			<1			
27-Oct-21	CA1583201								**637**			<2			
14-Dec-21	SW12004								**547**			1			
TOTAL SAMPLES		186	0	4	4	0	4	4	46	4	4	192	4	4	4
AVERAGE 2021									859			<2			

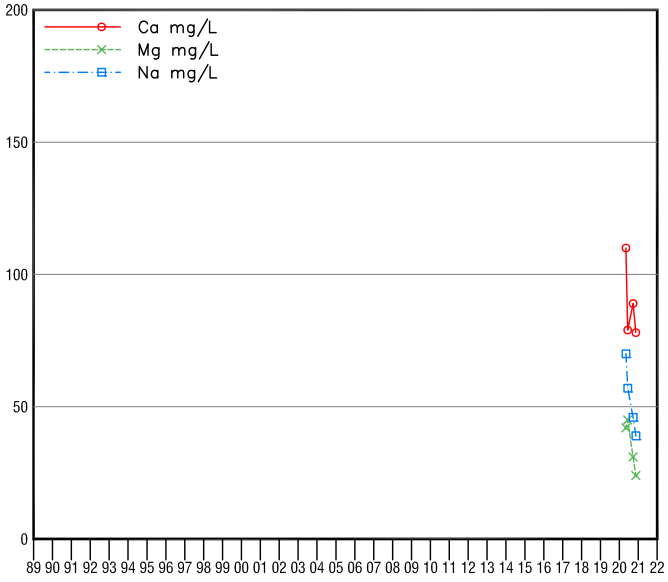
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**



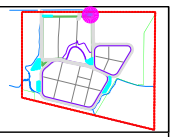








L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

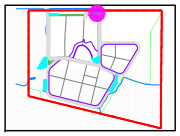
SWP-2

21500070 19 Apr 22	wsp GOLDER	21J1006

SWP-2

SURFACE WATER

SURFACE WATER STATION



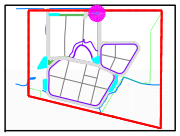
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	DOC	NO3	TSS	TKN	Amm	uAmm	P	Ion B %
	PWQO																0.02	0.02	
12-May-14	H145834	99	930			47	300					8.2		<10		0.05	0.002	**0.029**	
11-Sep-14	H145835	140	710			31	170					10		<10		0.71	0.019	**0.098**	
05-Dec-14	H145836	110	1100			38	410					8.2		15		0.19	0.001	**0.052**	
27-Mar-15	H155837	170	970			73	230					6.5		<10		<0.05	<0.01	**0.045**	
11-May-15	H155838	60	1100			79	390					12		<10		0.051	0.005	**0.027**	
17-Sep-15	H155839	160	610			68	39					12		<10		<0.05	<0.01	**0.10**	
04-Dec-15	H155840	150	710			72	85					8.9		12		<0.05	<0.01	**0.035**	
28-Mar-16	H165841	130	800			26	290					8.4		<10		<0.05	<0.01	**0.027**	
13-May-16	H165842	69	720			21	270					11		<10		<0.05	<0.01	0.016	
15-Sep-16	H165843	130	540			48	50					13		13		<0.05	<0.01	**0.093**	
09-Dec-16	H165844	120	550			43	73					9.3		110		<0.05	<0.01	**0.18**	
27-Mar-17	H175845	80	1400			140	350					7.1		<10		<0.05	<0.01	**0.022**	
25-May-17	H175846	56	670			41	200					9.2		13		<0.05	<0.01	**0.044**	
04-Dec-17	H175847	85	1200			29	470					6.5		30		<0.05	<0.01	**0.057**	
23-Mar-18	H185848	69	1500			120	490					6		<10		<0.05	<0.01	0.014	
11-May-18	H185849	57	1300			90	360					7.7		<10		<0.05	<0.01	0.019	
10-Dec-18	H185850	270	1600			42	530					10		53		<0.05	<0.01	**0.14**	
26-Apr-19	H195851	120	1400			140	330					13		<10		0.28	0.005	**0.055**	
14-Jun-19	H195852	160	1000			120	200					15		<10		<0.05	<0.01	**0.034**	
25-Sep-19	H195853	280	1400			250	8					20		140		2.8	**0.144**	**0.32**	
14-Nov-19	H195854	110	1000			120	210					9.6		11		<0.05	<0.01	**0.037**	
08-May-20	MPS794	60	1200	410	8.1	110	330	110	42	70	5.1	11	<0.1	<10	0.66	<0.05	<0.01	**0.033**	4.1
11-Jun-20	MWE166	190	1100	380	7.7	120	170	79	45	57	23	21	<0.1	52	1.4	<0.05	<0.01	**0.18**	0.3
23-Sep-20	NSM235	120	910	320	8.0	100	190	89	31	46	11	11	<0.1	<10	0.95	0.066	<0.01	**0.084**	0.7
16-Nov-20	OEK948	140	850	310	8.1	88	160	78	24	39	10	9.1	<0.1	<10	0.54	<0.05	<0.01	**0.023**	-4.7
01-Mar-21	2021R1002												0.26	54		0.4	<0.01	**0.13**	
06-May-21	2021R2063												<0.06	7		<0.04	<0.01	**0.024**	
15-Sep-21	CA1539501												<0.06	9		<0.04	<0.01	**0.052**	
27-Oct-21	CA1583202												<0.06	5		0.1	<0.01	<0.03	
14-Dec-21	SW12005												<0.06	6		<0.04	<0.01	<0.03	
TOTAL SAMPLES		165	167	4	4	167	167	4	4	4	4	167	9	172	4	172	172	172	
AVERAGE 2021													<0.06	16		0.1	<0.01	0.041	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *Italics* / Exceedance in **Bold**

SWP-2

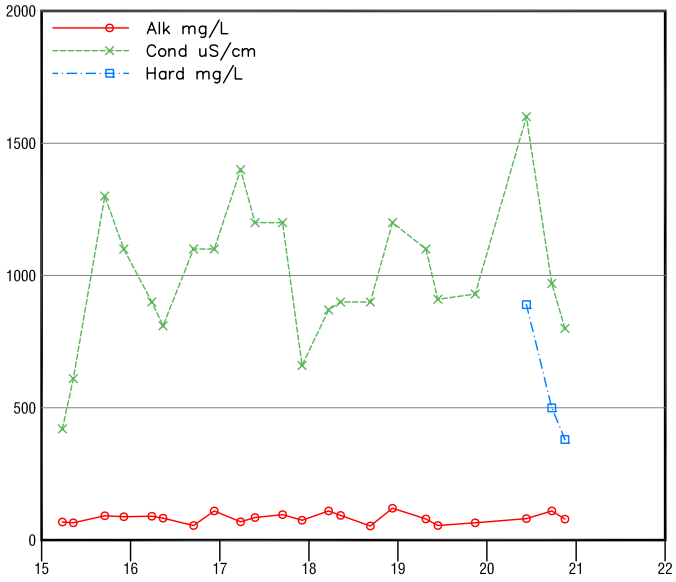
SURFACE WATER

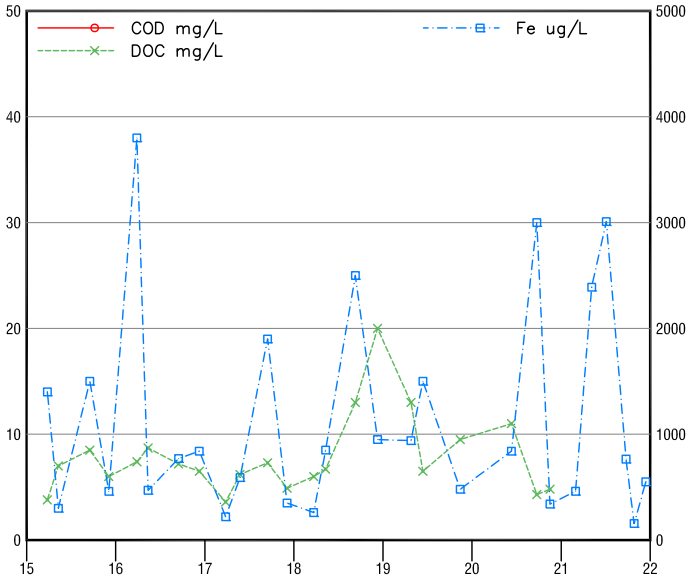
SURFACE WATER STATION

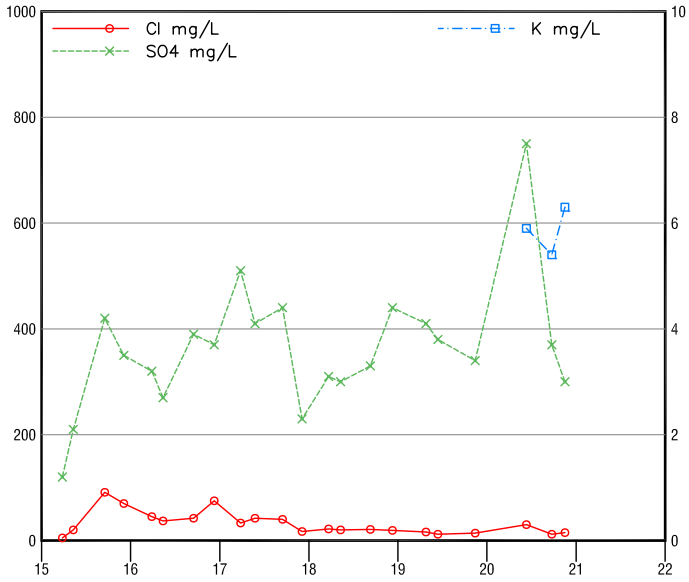


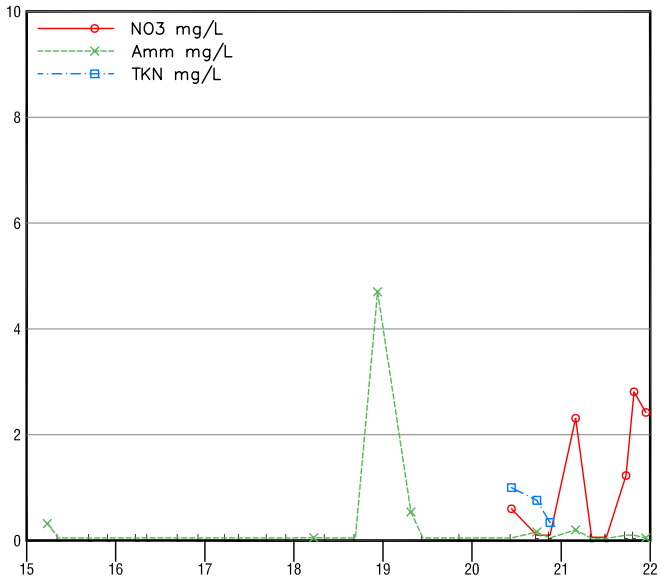
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	PWQO			75	5		0.5	5	300	5	0.2	1		20	
12-May-14	H145834	<2							200			<1			
11-Sep-14	H145835	<2							**810**			<1			
05-Dec-14	H145836	<2							**900**			**2**			
27-Mar-15	H155837	<2							**570**			<1			
11-May-15	H155838	<2							250			<1			
17-Sep-15	H155839	2							**810**			<1			
04-Dec-15	H155840	3							**370**			<1			
28-Mar-16	H165841	<2							**340**			<1			
13-May-16	H165842	<2							250			<1			
15-Sep-16	H165843	5							**420**			<1			
09-Dec-16	H165844	3							**2700**			**1.1**			
27-Mar-17	H175845	<2							**410**			<1			
25-May-17	H175846	<2							260			<1			
04-Dec-17	H175847	<2							**1200**			**2.3**			
23-Mar-18	H185848	<2							210			**2.4**			
11-May-18	H185849	<2							**330**			<1			
10-Dec-18	H185850	3							**3700**			<1			
26-Apr-19	H195851	4							190			<1			
14-Jun-19	H195852	2							280			**1.3**			
25-Sep-19	H195853	5							**3500**			**1.5**			
14-Nov-19	H195854	<2							**570**			<1			
08-May-20	MPS794	<2		48	2.5		<0.1	<1	**380**	<0.5	<0.1	<1	0.58	<5	850
11-Jun-20	MWE166	4		**660**	**20**		<0.09	2.4	**1800**	1.4	<0.1	**3.9**	2.5	18	640
23-Sep-20	NSM235	<2		25	2.4		<0.09	<0.9	**670**	<0.5	<0.1	<1	<0.5	<5	600
16-Nov-20	OEK948	<2		**100**	1.3		<0.09	0.92	**310**	<0.5	<0.1	<1	<0.5	<5	495
01-Mar-21	2021R1002								205			<1			
06-May-21	2021R2063								297			**2**			
15-Sep-21	CA1539501								209			<1			
27-Oct-21	CA1583202								84			<2			
14-Dec-21	SW12005								146			**2**			
TOTAL SAMPLES		167	0	4	4	0	4	4	42	4	4	172	4	4	4
AVERAGE 2021									188			<2			

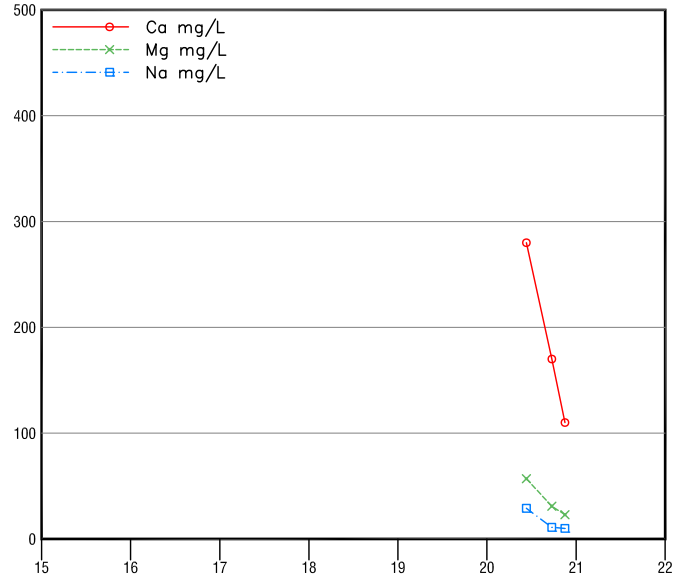
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









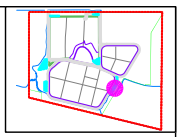


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

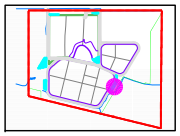
SWP-3(NEW)

21500070 19 Apr 22	wsp GOLDER	21J1007

SWP-3(NEW)

SURFACE WATER

SURFACE WATER STATION



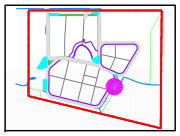
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	DOC	NO3	TSS	TKN	Amm	uAmm	P	Ion B %
	PWQO																0.02	0.02	
27-Mar-15	H155855	68	420			5	120					3.8		27		0.32	0.002	**0.050**	
11-May-15	H155856	65	610			20	210					7		<10		<0.05	<0.01	**0.023**	
17-Sep-15	H155857	92	1300			91	420					8.5		39		<0.05	<0.01	**0.088**	
04-Dec-15	H155858	88	1100			70	350					6		17		<0.05	<0.01	**0.034**	
28-Mar-16	H165859	90	900			45	320					7.4		72		<0.05	<0.01	**0.096**	
13-May-16	H165860	83	810			37	270					8.7		<10		<0.05	<0.01	**0.040**	
15-Sep-16	H165861	55	1100			42	390					7.2		27		<0.05	<0.01	**0.052**	
09-Dec-16	H165862	110	1100			75	370					6.5		27		<0.05	<0.01	**0.034**	
27-Mar-17	H175863	69	1400			33	510					3.6		14		<0.05	<0.01	0.015	
25-May-17	H175864	85	1200			42	410					6.2		25		<0.05	<0.01	**0.052**	
15-Sep-17	H175865	96	1200			40	440					7.3		63		<0.05	<0.01	**0.11**	
04-Dec-17	H175866	75	660			17	230					4.9		<10		<0.05	<0.01	**0.035**	
23-Mar-18	H185867	110	870			22	310					6		<10		0.053	<0.01	**0.035**	
11-May-18	H185868	93	900			20	300					6.7		23		<0.05	<0.01	**0.056**	
10-Sep-18	H185869	53	900			21	330					13		54		<0.05	<0.01	**0.34**	
10-Dec-18	H185870	120	1200			19	440					20		20		4.7	**0.133**	**0.14**	
26-Apr-19	H195871	80	1100			16	410					13		23		0.54	0.010	**0.092**	
14-Jun-19	H195872	55	910			12	380					6.5		44		<0.05	<0.01	**0.18**	
14-Nov-19	H195873	65	930			14	340					9.5		17		<0.05	<0.01	**0.089**	
11-Jun-20	MWE165	81	1600	890	7.9	30	750	280	57	29	5.9	11	0.6	35	1.0	<0.05	<0.01	**0.093**	5.2
23-Sep-20	NSM237	110	970	500	7.9	12	370	170	31	11	5.4	4.3	<0.1	81	0.76	0.16	0.010	**0.083**	7.0
16-Nov-20	OEK949	79	800	380	7.7	15	300	110	23	10	6.3	4.8	<0.1	18	0.34	<0.05	<0.01	**0.058**	-1.6
01-Mar-21	2021R1003												2.31	21		0.2	<0.01	**0.05**	
06-May-21	2021R2062												<0.06	62		<0.04	<0.01	**0.105**	
05-Jul-21	21S0702				7.5								<0.06	456		<0.04	<0.01	**0.204**	
24-Sep-21	CA15010												1.23	37		<0.1	<0.01	**0.04**	
27-Oct-21	CA1583203												2.81	20		<0.1	<0.01	<0.03	
14-Dec-21	SW12006												2.42	24		0.05	<0.01	**0.04**	
TOTAL SAMPLES		22	22	3	4	22	22	3	3	3	3	22	9	28	3	28	28	28	
AVERAGE 2021													1.46	103		<0.1	<0.01	0.0732	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

SWP-3(NEW)

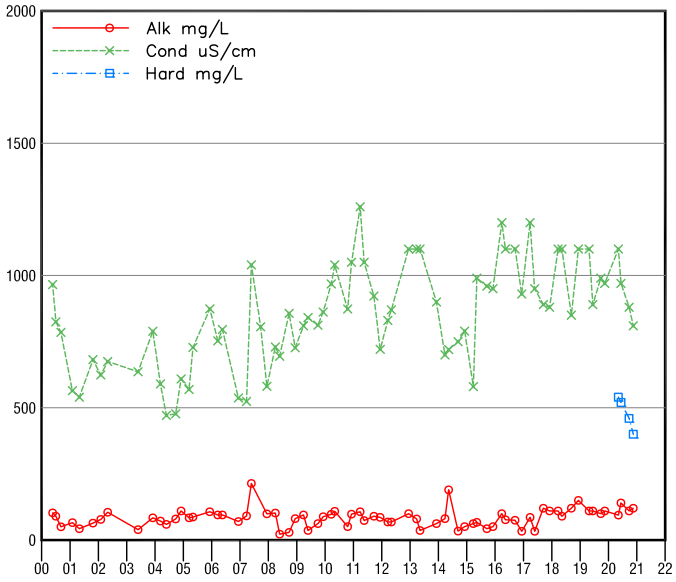
SURFACE WATER

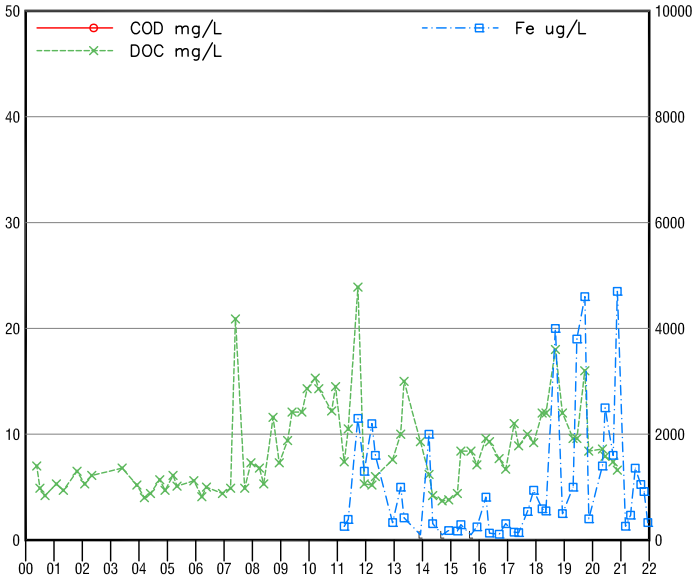
SURFACE WATER STATION

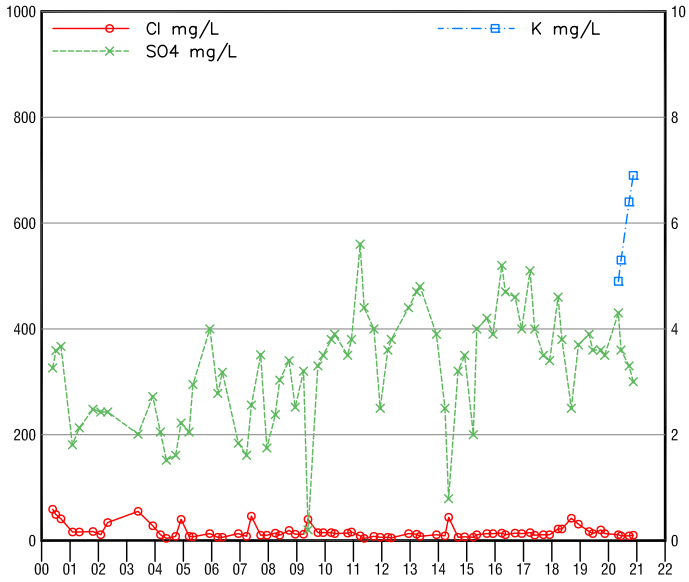


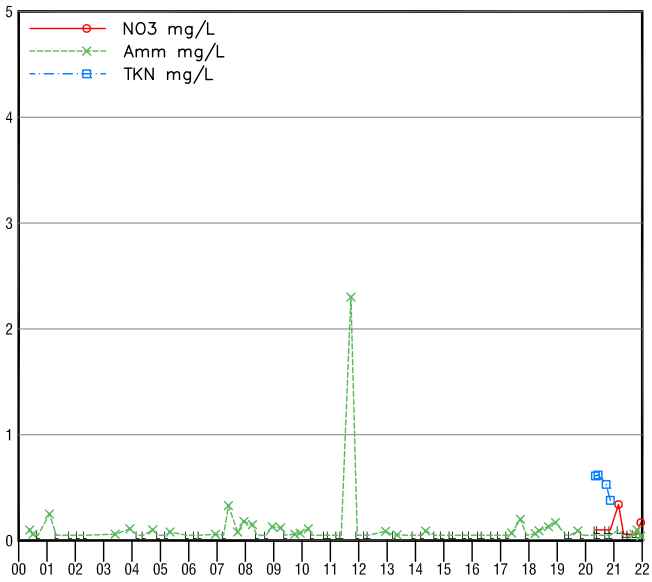
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	PWQO			75	5		0.5	5	300	5	0.2	1		20	
27-Mar-15	H155855	<2							**1400**			**2.3**			
11-May-15	H155856	<2							300			<1			
17-Sep-15	H155857	3							**1500**			<1			
04-Dec-15	H155858	<2							**460**			<1			
28-Mar-16	H165859	4							**3800**			<1			
13-May-16	H165860	<2							**470**			<1			
15-Sep-16	H165861	4							**770**			<1			
09-Dec-16	H165862	5							**840**			<1			
27-Mar-17	H175863	<2							220			<1			
25-May-17	H175864	<2							**590**			<1			
15-Sep-17	H175865	2							**1900**			**2.3**			
04-Dec-17	H175866	<2							**350**			**1.9**			
23-Mar-18	H185867	3							260			**3.6**			
11-May-18	H185868	3							**850**			<1			
10-Sep-18	H185869	5							**2500**			<1			
10-Dec-18	H185870	7							**950**			<1			
26-Apr-19	H195871	<2							**940**			<1			
14-Jun-19	H195872	4							**1500**			<1			
14-Nov-19	H195873	4							**480**			<1			
11-Jun-20	MWE165	<2		**620**	2.1		<0.09	**6.5**	**840**	0.76	<0.1	<1	2.2	7	1260
23-Sep-20	NSM237	<2		**2500**	2.5		<0.09	3.9	**3000**	1.5	<0.1	<1	6	19	715
16-Nov-20	OEK949	3		**320**	<1		<0.09	3	**340**	<0.5	<0.1	<1	0.97	5	520
01-Mar-21	2021R1003								**461**			**2**			
06-May-21	2021R2062								**2390**			<1			
05-Jul-21	21S0702								**3010**			<2			
24-Sep-21	CA15010								**765**			1			
27-Oct-21	CA1583203								156			**2**			
14-Dec-21	SW12006								**550**			<1			
TOTAL SAMPLES		22	0	3	3	0	3	3	28	3	3	28	3	3	3
AVERAGE 2021									1222			<1			

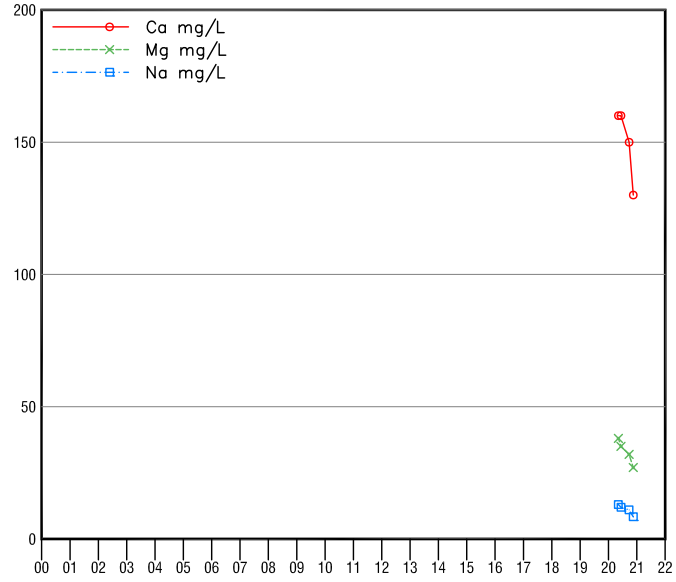
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**











L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

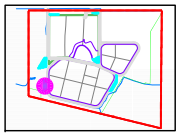
SWP-4

21500070 19 Apr 22	wsp GOLDER	21J1008

SWP-4

SURFACE WATER

SURFACE WATER STATION



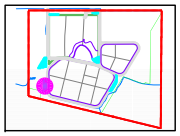
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	DOC	NO3	TSS	TKN	Amm	uAmm	P	Ion B %
	PWQO																0.02	0.02	
27-Mar-15	H155998	62	580			6	200					4.4		<10		<0.05	<0.01	**0.072**	
11-May-15	H155999	67	990			11	400					8.4		12		<0.05	<0.01	**0.025**	
17-Sep-15	H156000	43	960			13	420					8.4		<10		<0.05	<0.01	**0.029**	
04-Dec-15	H156001	51	950			13	390					7.1		<10		<0.05	<0.01	0.019	
28-Mar-16	H166002	100	1200			14	520					9.6		16		<0.05	<0.01	**0.053**	
13-May-16	H166003	77	1100			11	470					9.3		<10		<0.05	<0.01	0.018	
15-Sep-16	H166004	75	1100			14	460					7.7		<10		<0.05	<0.01	0.019	
09-Dec-16	H166005	33	930			13	400					6.7		<10		<0.05	<0.01	0.019	
27-Mar-17	H176006	86	1200			15	510					11		13		<0.05	<0.01	**0.024**	
25-May-17	H176007	33	950			10	400					8.9		<10		0.07	0.007	**0.024**	
15-Sep-17	H176008	120	890			11	350					10		16		0.2	0.010	**0.066**	
04-Dec-17	H176009	110	880			11	340					9.2		20		<0.05	<0.01	**0.089**	
23-Mar-18	H186010	110	1100			22	460					12		26		0.065	0.002	**0.11**	
11-May-18	H186011	90	1100			22	380					12		17		0.093	0.003	**0.056**	
10-Sep-18	H186012	120	850			42	250					18		110		0.13	0.011	**0.25**	
10-Dec-18	H186013	150	1100			31	370					12		12		0.17	0.003	**0.16**	
26-Apr-19	H196014	110	1100			17	390					9.6		31		<0.05	<0.01	**0.090**	
14-Jun-19	H196015	110	890			13	360					9.6		85		<0.05	<0.01	**0.18**	
24-Sep-19	H196016	100	990			20	360					16		170		0.091	0.003	**0.43**	
14-Nov-19	H196017	110	970			13	350					8.4		21		<0.05	<0.01	**0.065**	
08-May-20	MPS793	94	1100	540	7.9	11	430	160	38	13	4.9	8.6	<0.1	42	0.61	<0.05	<0.01	**0.089**	3.1
11-Jun-20	MWE164	140	970	520	8.0	9	360	160	35	12	5.3	7.9	<0.1	73	0.62	<0.05	<0.01	**0.080**	4.8
23-Sep-20	NSM236	110	880	460	8.0	9	330	150	32	11	6.4	7.4	<0.1	59	0.53	<0.05	<0.01	**0.072**	7.4
16-Nov-20	OEK950	120	810	400	8.1	10	300	130	27	8.4	6.9	6.6	<0.1	120	0.38	<0.05	<0.01	**0.13**	2.7
01-Mar-21	2021R1004												0.34	8		<0.1	<0.01	**0.12**	
06-May-21	2021R2061												<0.06	29		<0.04	<0.01	**0.05**	
05-Jul-21	21S0703				7.1								<0.06	182		<0.04	<0.01	**0.149**	
15-Sep-21	CA1539502												<0.06	41		0.06	0.01	**0.087**	
27-Oct-21	CA1583204												<0.06	40		0.1	<0.01	**0.08**	
14-Dec-21	SW12007												0.17	10		0.04	<0.01	**0.09**	
TOTAL SAMPLES		73	74	4	5	74	74	4	4	4	4	74	10	80	4	80	80	80	
AVERAGE 2021													0.09	52		<0.04	<0.01	0.0960	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

SWP-4

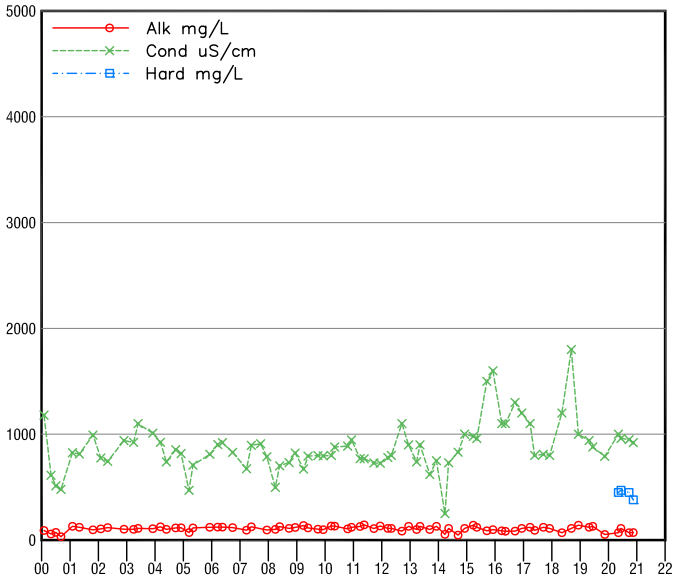
SURFACE WATER

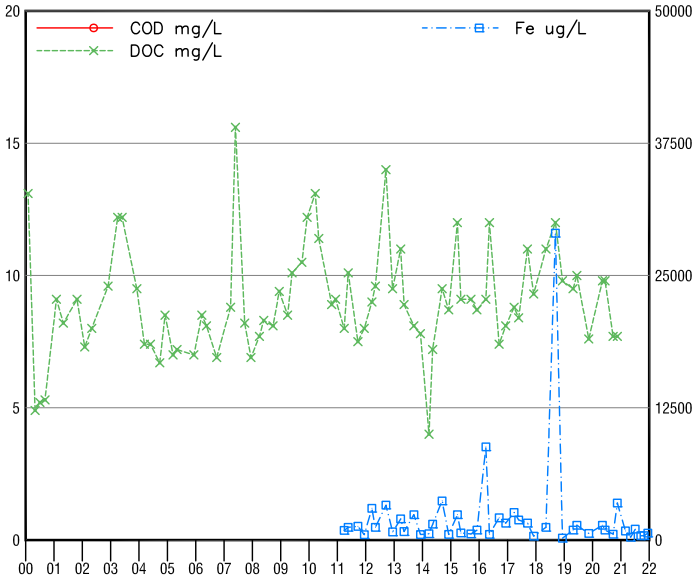
SURFACE WATER STATION

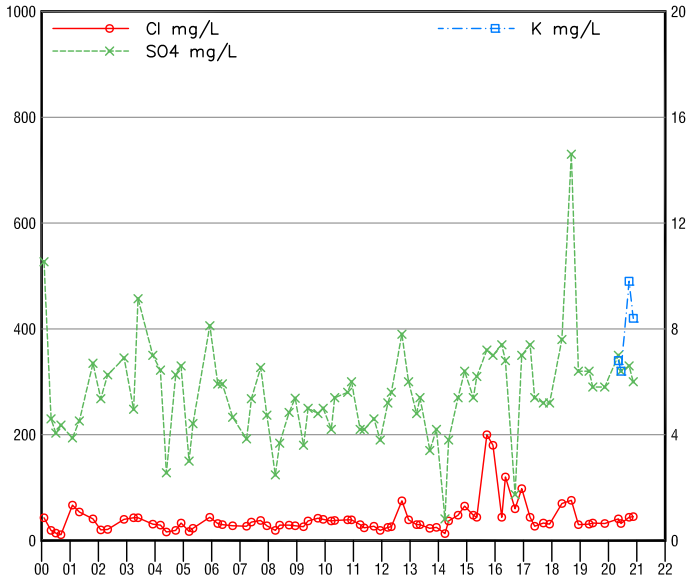


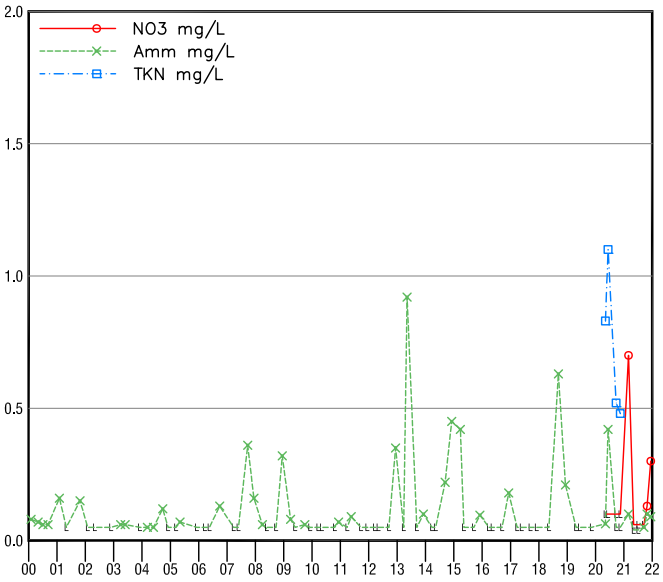
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	PWQO			75	5		0.5	5	300	5	0.2	1		20	
27-Mar-15	H155998	3							170			<1			
11-May-15	H155999	2							290			<1			
17-Sep-15	H156000	<2							<100			<1			
04-Dec-15	H156001	<2							250			<1			
28-Mar-16	H166002	<2							**810**			<1			
13-May-16	H166003	<2							130			<1			
15-Sep-16	H166004	<2							110			<1			
09-Dec-16	H166005	<2							**310**			<1			
27-Mar-17	H176006	2							150			<1			
25-May-17	H176007	<2							140			<1			
15-Sep-17	H176008	2							**540**			**2**			
04-Dec-17	H176009	4							**940**			<1			
23-Mar-18	H186010	9							**590**			**4.7**			
11-May-18	H186011	<2							**550**			<1			
10-Sep-18	H186012	<2							**4000**			<1			
10-Dec-18	H186013	3							**500**			<1			
26-Apr-19	H196014	<2							**1000**			<1			
14-Jun-19	H196015	4							**3800**			<1			
24-Sep-19	H196016	13							**4600**			<1			
14-Nov-19	H196017	3							**400**			<1			
08-May-20	MPS793	<2		**970**	2.7		<0.1	2.9	**1400**	0.51	<0.1	<1	2.4	6	820
11-Jun-20	MWE164	<2		**1400**	5		<0.09	3	**2500**	1.5	<0.1	<1	3.7	10	715
23-Sep-20	NSM236	<2		**1300**	3		<0.09	2.6	**1600**	0.78	<0.1	<1	3.4	7	735
16-Nov-20	OEK950	3		**3900**	2.8		<0.09	**6.4**	**4700**	1.8	<0.1	<1	8.5	17	555
01-Mar-21	2021R1004								262			<1			
06-May-21	2021R2061								**470**			<1			
05-Jul-21	21S0703								**1360**			<2			
15-Sep-21	CA1539502								**1050**			<1			
27-Oct-21	CA1583204								**918**			<2			
14-Dec-21	SW12007								**330**			<1			
TOTAL SAMPLES		74	0	4	4	0	4	4	44	4	4	80	4	4	4
AVERAGE 2021									732			<1			

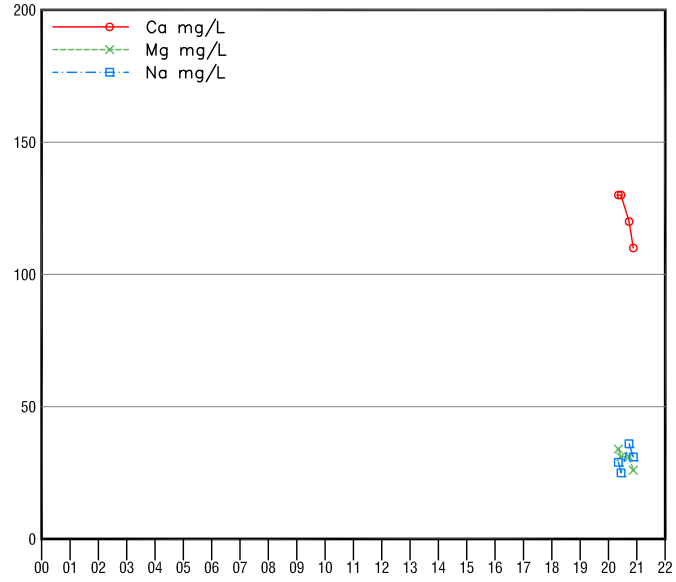
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









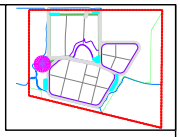


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

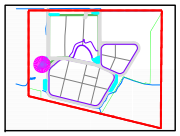
SWP-5

21500070 19 Apr 22	wsp GOLDER	21J1009

SWP-5

SURFACE WATER

SURFACE WATER STATION



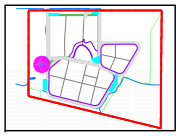
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	DOC	NO3	TSS	TKN	Amm	uAmm	P	Ion B %
	PWQO																0.02	0.02	
11-Sep-14	H146071	47	830			48	270					9.5		85		0.22	0.004	**0.12**	
05-Dec-14	H146072	110	1000			65	320					8.7		12		0.45	0.004	**0.029**	
27-Mar-15	H156073	140	980			48	270					12		27		0.42	0.004	**0.17**	
11-May-15	H156074	120	960			44	310					9.1		20		<0.05	<0.01	**0.043**	
17-Sep-15	H156075	88	1500			200	360					9.1		23		<0.05	<0.01	**0.048**	
04-Dec-15	H156076	98	1600			180	350					8.7		28		0.096	0.001	**0.045**	
28-Mar-16	H166077	88	1100			44	370					9.1		250		<0.05	<0.01	**0.27**	
13-May-16	H166078	83	1100			120	340					12		<10		<0.05	<0.01	**0.044**	
15-Sep-16	H166079	84	1300			60	87					7.4		62		<0.05	<0.01	**0.084**	
09-Dec-16	H166080	110	1200			98	350					8.1		63		0.18	0.002	**0.093**	
27-Mar-17	H176081	120	1100			44	370					8.8		82		<0.05	<0.01	**0.14**	
25-May-17	H176082	92	800			27	270					8.4		53		<0.05	<0.01	**0.13**	
15-Sep-17	H176083	120	810			33	260					11		43		<0.05	<0.01	**0.15**	
04-Dec-17	H176084	110	800			31	260					9.3		17		<0.05	<0.01	**0.087**	
11-May-18	H186085	70	1200			70	380					11		47		<0.05	<0.01	**0.10**	
10-Sep-18	H186086	110	1800			76	730					12		750		0.63	**0.030**	**0.80**	
10-Dec-18	H186087	140	1000			30	320					9.8		10		0.21	0.006	**0.063**	
26-Apr-19	H196088	120	940			31	320					9.5		26		<0.05	<0.01	**0.085**	
14-Jun-19	H196089	130	880			33	290					10		36		<0.05	<0.01	**0.14**	
14-Nov-19	H196090	52	790			32	290					7.6		37		<0.05	<0.01	**0.061**	
08-May-20	MPS792	70	1000	450	7.8	41	350	130	34	29	6.8	9.8	<0.1	63	0.83	0.063	<0.01	**0.072**	4.5
11-Jun-20	MWE163	110	960	470	7.8	32	320	130	31	25	6.4	9.8	<0.1	26	1.1	0.42	<0.01	**0.039**	2.9
23-Sep-20	NSM234	69	950	450	7.6	44	330	120	31	36	9.8	7.7	<0.1	22	0.52	<0.05	<0.01	**0.036**	4.5
16-Nov-20	OEK951	71	920	380	7.8	45	300	110	26	31	8.4	7.7	<0.1	100	0.48	<0.05	<0.01	**0.11**	2.1
01-Mar-21	2021R1005												0.7	35		0.1	<0.01	**0.18**	
06-May-21	2021R2060												<0.06	14		<0.04	<0.01	**0.032**	
05-Jul-21	21S0704				7.9								<0.06	108		<0.04	<0.01	**0.096**	
15-Sep-21	CA1539503												<0.06	11		0.05	0.01	**0.024**	
27-Oct-21	CA1583205												0.13	13		0.1	<0.01	**0.05**	
14-Dec-21	SW12008												0.3	9		0.09	0.01	**0.05**	
TOTAL SAMPLES		76	77	4	5	77	77	4	4	4	4	77	10	83	4	83	83	82	
AVERAGE 2021													0.2	32		0.1	<0.01	0.072	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

SWP-5

SURFACE WATER

SURFACE WATER STATION

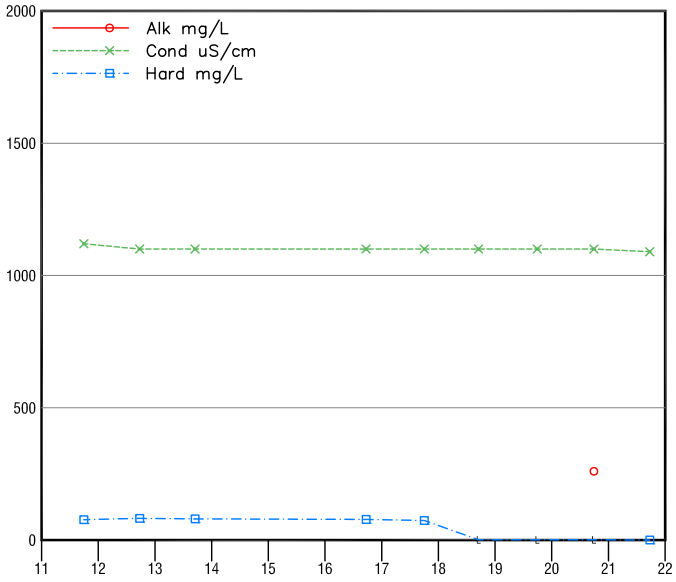


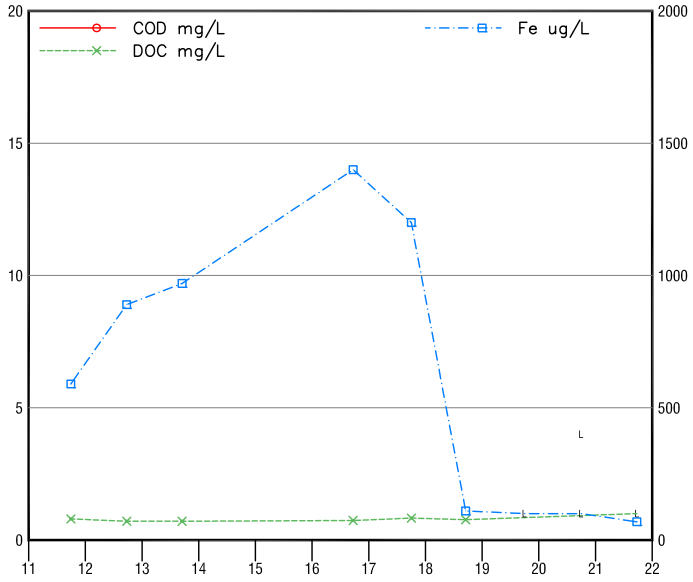
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	PWQO			75	5		0.5	5	300	5	0.2	1		20	
11-Sep-14	H146071	11							**3700**			<1			
05-Dec-14	H146072	<2							**530**			**2.5**			
27-Mar-15	H156073	4							**2400**			**5.1**			
11-May-15	H156074	2							**670**			<1			
17-Sep-15	H156075	<2							**580**			<1			
04-Dec-15	H156076	<2							**940**			<1			
28-Mar-16	H166077	<2							**8800**			<1			
13-May-16	H166078	2							**540**			<1			
15-Sep-16	H166079	<2							**2100**			<1			
09-Dec-16	H166080	4							**1600**			<1			
27-Mar-17	H176081	2							**2600**			<1			
25-May-17	H176082	<2							**1900**			<1			
15-Sep-17	H176083	<2							**1600**			**1.8**			
04-Dec-17	H176084	6							**370**			<1			
11-May-18	H186085	3							**1200**			<1			
10-Sep-18	H186086	2							**29000**			<1			
10-Dec-18	H186087	2							180			<1			
26-Apr-19	H196088	3							**940**			<1			
14-Jun-19	H196089	4							**1400**			<1			
14-Nov-19	H196090	7							**620**			<1			
08-May-20	MPS792	<2		**1000**	1.9		<0.1	**6.3**	**1400**	0.65	<0.1	<1	2.4	7	695
11-Jun-20	MWE163	<2		**820**	2.5		<0.09	4.6	**940**	0.52	<0.1	<1	2.5	<5	650
23-Sep-20	NSM234	<2		**430**	2.1		<0.09	3.2	**550**	<0.5	<0.1	<1	1.6	<5	720
16-Nov-20	OEK951	4		**2000**	2.6		<0.09	**6.5**	**3500**	2.1	<0.1	<1	4.5	18	615
01-Mar-21	2021R1005								**860**			<1			
06-May-21	2021R2060								271			<1			
05-Jul-21	21S0704								**1030**			<2			
15-Sep-21	CA1539503								**405**			<1			
27-Oct-21	CA1583205								**412**			**2**			
14-Dec-21	SW12008								**650**			<1			
TOTAL SAMPLES		77	0	4	4	0	4	4	44	4	4	83	4	4	4
AVERAGE 2021									605			<1			

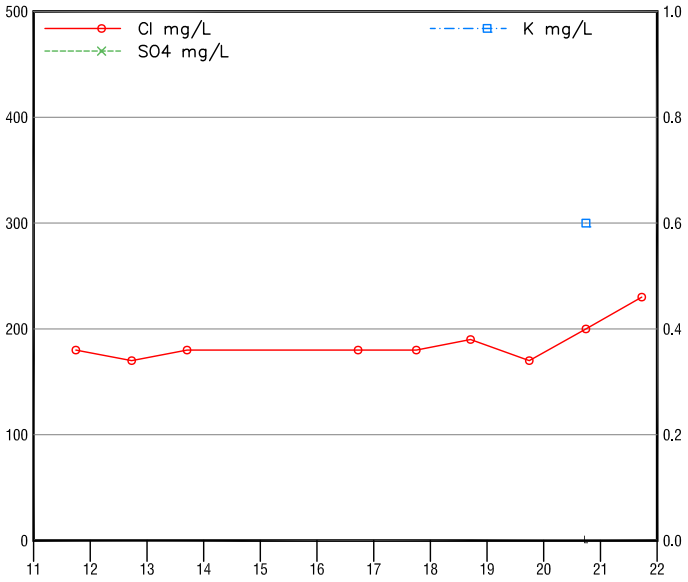
all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

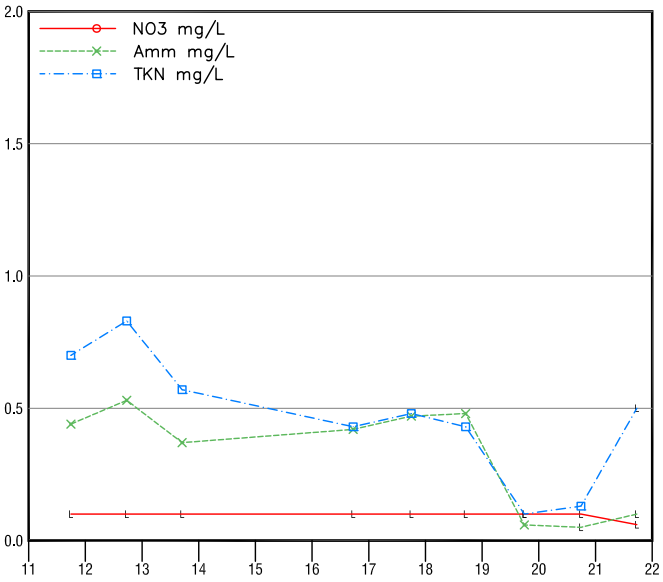
APPENDIX K

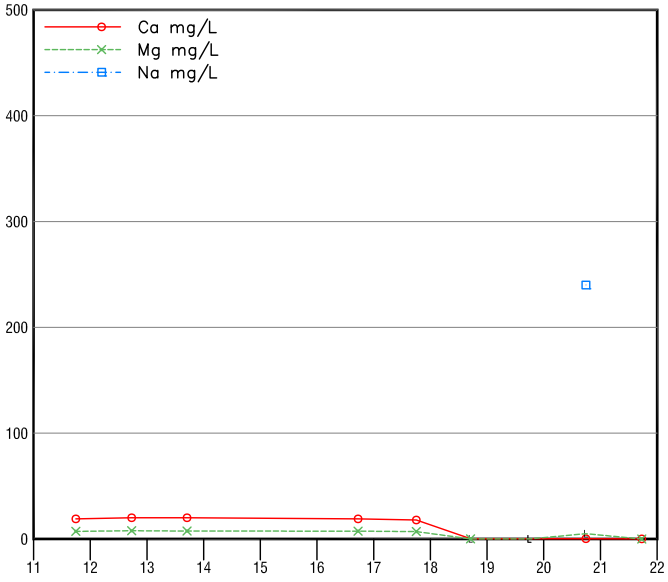
Summary of Off-Site Private Well Water Quality Data









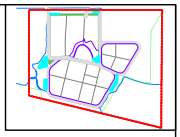


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

CRACKLE

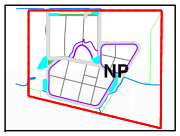
PRIVATE WELL

21500070 19 Apr 22	wsp GOLDER	21K1001

CRACKLE

PRIVATE WELL

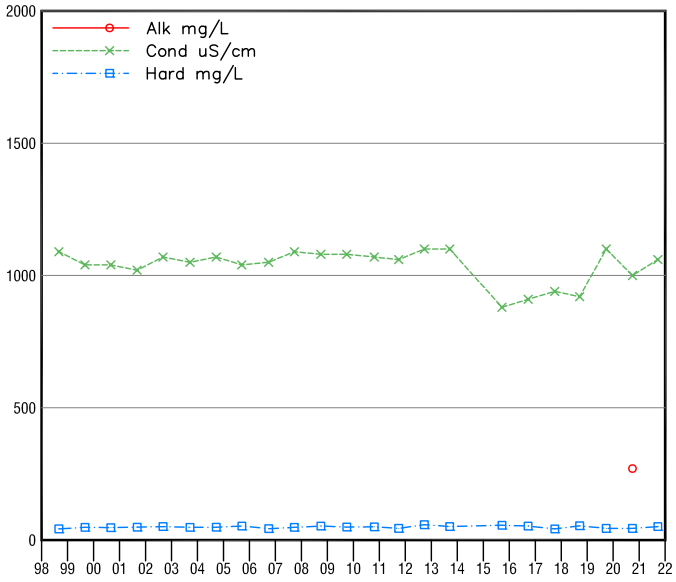
WATER SUPPLY

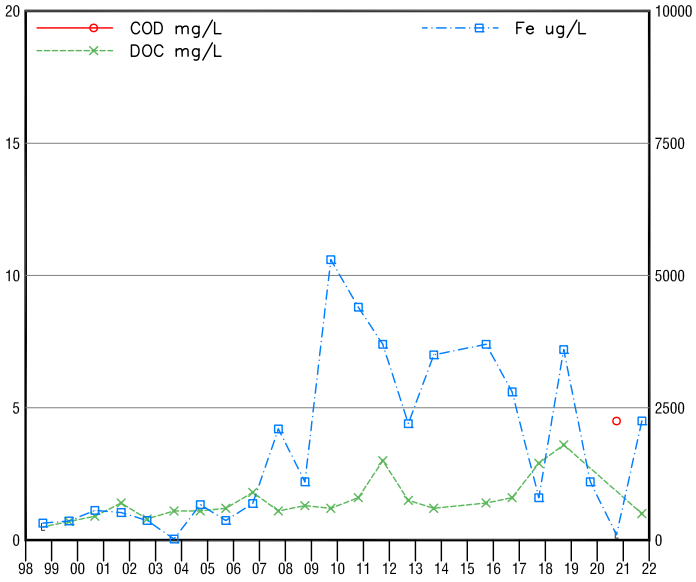


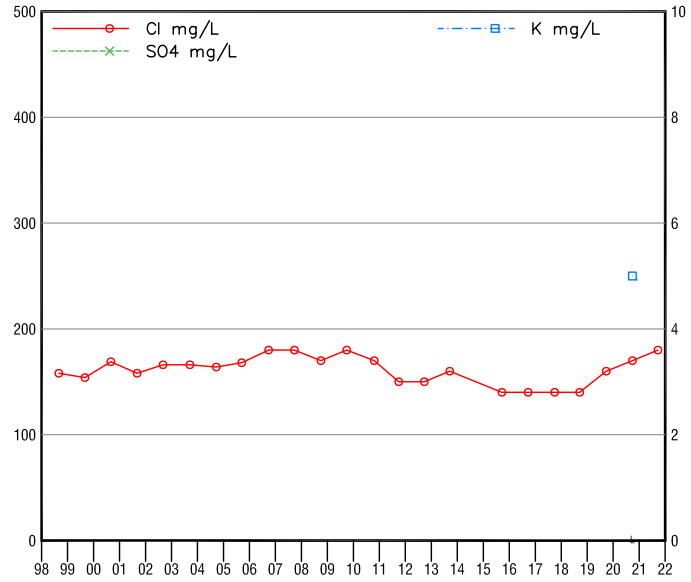
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
30-Sep-11	P11001		1120	77		180		19	7.2				<0.1	<0.01	0.7	0.44	
24-Sep-12	P12002		1100	82		170		20	7.8				<0.1	<0.01	0.83	0.53	
16-Sep-13	P13003		1100	80		180		20	7.5				<0.1	<0.01	0.57	0.37	
22-Sep-16	P16004		1100	78		180		19	7.4				<0.1	<0.01	0.43	0.42	
02-Oct-17	P17005		1100	74		180		18	7				<0.1	<0.01	0.48	0.47	
17-Sep-18	P18006		1100	<1		190		<0.2	0.057				<0.1	<0.01	0.43	0.48	
30-Sep-19	P19007		1100	<1		170		<0.2	<0.05				<0.1	<0.01	<0.1	0.059	
29-Sep-20	NTR987	260	1100	<1	8.2	200	<1	0.2	<5	**240**	0.6		<0.1	<0.01	0.13	<0.05	-1.7
24-Sep-21	CA15024		1090	0.19	8.2	230		0.06	0.008			<4	<0.06	<0.03	<0.5	<0.1	

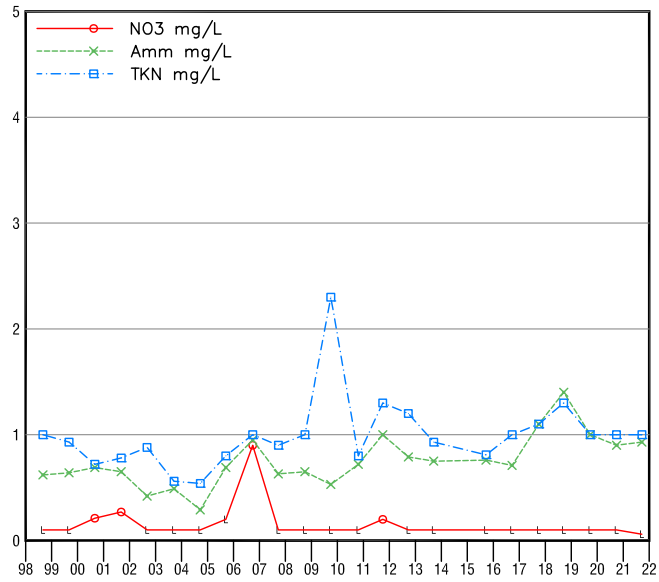
TOTAL SAMPLES	1	9	9	2	9	1	9	9	1	1	1	9	9	9	9	
AVERAGE 2021																

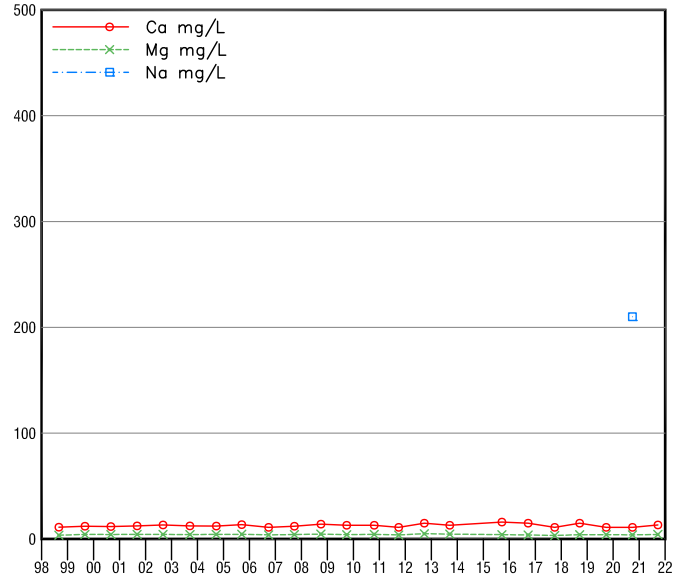
all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









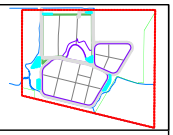


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

HORAK

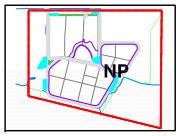
PRIVATE WELL

21500070 19 Apr 22	wsp GOLDER	21K1002

HORAK

PRIVATE WELL

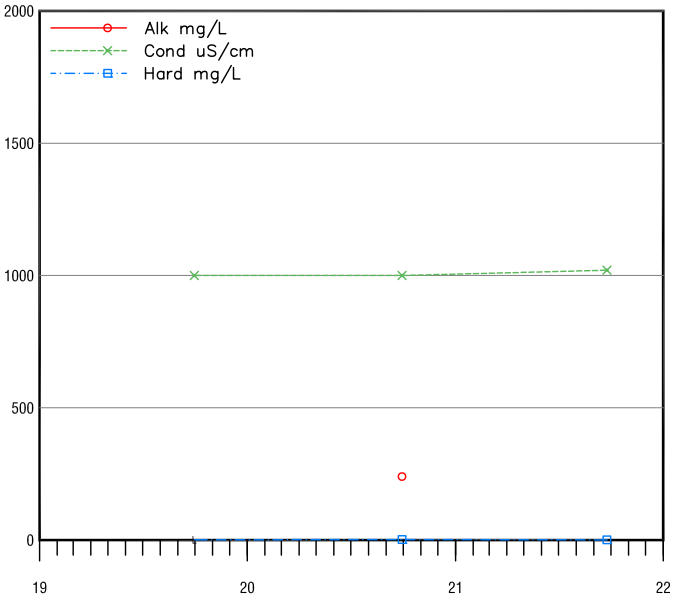
WATER SUPPLY

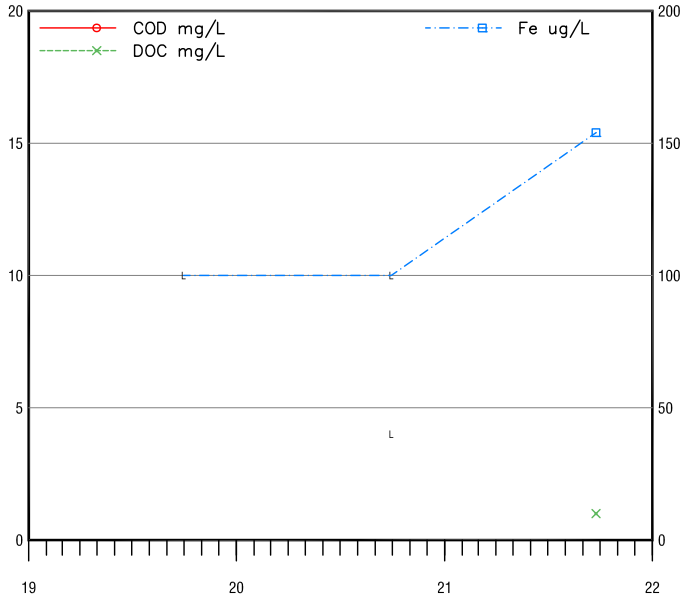


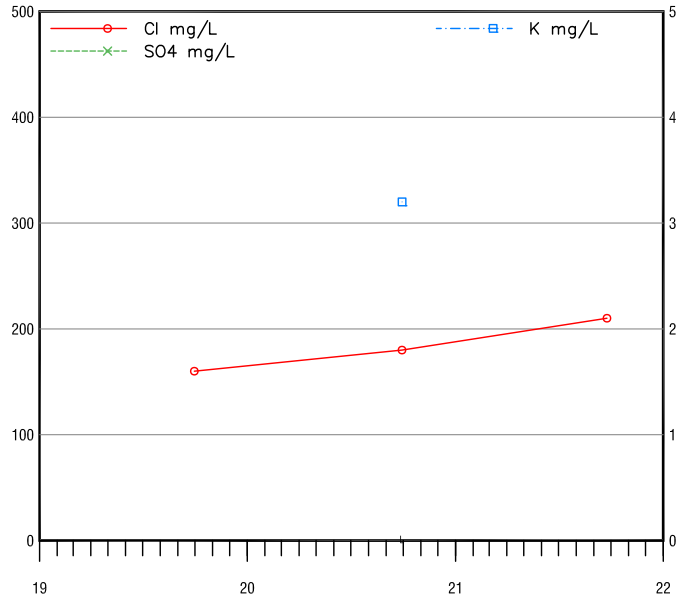
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
01-Sep-98	P98043		1090	42.3		158		11.1	3.54				<0.1	<0.02	1	0.62	
03-Sep-99	P99044		1040	48		154		12.1	4.33				<0.1	<0.02	0.93	0.64	
31-Aug-00	P00045		1040	47		169		11.8	4.25				0.21	<0.02	0.72	0.69	
05-Sep-01	P01046		1020	48.7		158		12.3	4.38				0.27	<0.02	0.78	0.65	
04-Sep-02	P02047		1070	51		166		13.3	4.32				<0.1	<0.02	0.88	0.42	
18-Sep-03	P03048		1050	48		166		12.3	4.19				<0.1	<0.02	0.56	0.49	
21-Sep-04	P04049		1070	48.4		164		12.2	4.35				<0.1	<0.02	0.54	0.29	
15-Sep-05	P05050		1040	53		168		13.6	4.43				<0.2	<0.3	0.8	0.69	
28-Sep-06	P06051		1050	43		180		11	3.9				0.9	<0.01	1	0.95	
24-Sep-07	P07052		1090	48		180		12	4.2				<0.1	<0.01	0.9	0.63	
01-Oct-08	P08053		1080	53		170		14	4.6				<0.1	<0.01	1	0.65	
30-Sep-09	P09054		1080	49		180		13	4.1				<0.1	<0.01	2.3	0.53	
22-Oct-10	P10055		1070	50		170		13	4.4				<0.1	<0.01	0.8	0.72	
30-Sep-11	P11056		1060	44		150		11	3.8				0.2	<0.01	1.3	1	
24-Sep-12	P12057		1100	58		150		15	5				<0.1	<0.01	1.2	0.79	
16-Sep-13	P13058		1100	51		160		13	4.6				<0.1	<0.01	0.93	0.75	
21-Sep-15	P15059		880	56		140		16	4.1				<0.1	<0.01	0.81	0.76	
22-Sep-16	P16060		910	53		140		15	3.8				<0.1	<0.01	1	0.71	
02-Oct-17	P17061		940	42		140		11	3.3				<0.1	<0.01	1.1	1.1	
17-Sep-18	P18062		920	54		140		15	4.1				<0.1	<0.01	1.3	1.4	
25-Sep-19	P19042		1100	44		160		11	4.1				<0.1	<0.01	1.0	1	
28-Sep-20	NTR978	270	1000	44	8.0	170	<1	11	3.9	**210**	5.0		<0.1	<0.01	1.0	0.9	0.1
20-Sep-21	CA14510		1060	50.8	8.4	180		13.3	4.26			6	<0.06	<0.03	1.0	0.93	

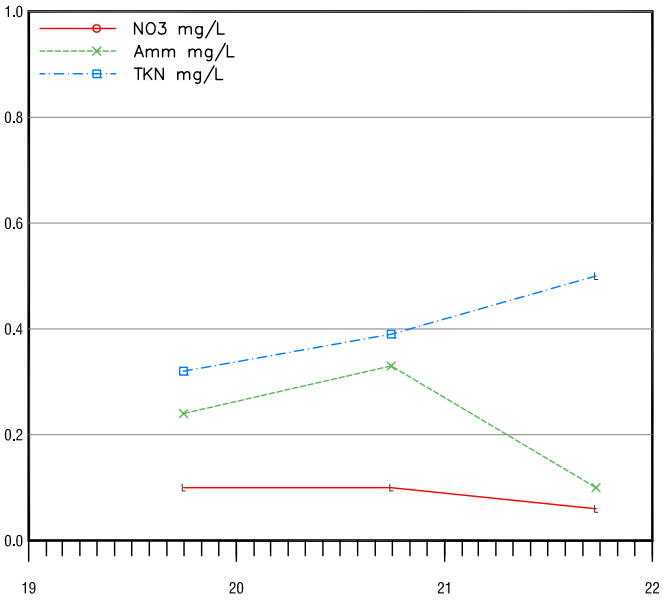
TOTAL SAMPLES	1	23	23	2	23	1	23	23	1	1	1	23	23	23	23	
AVERAGE 2021																

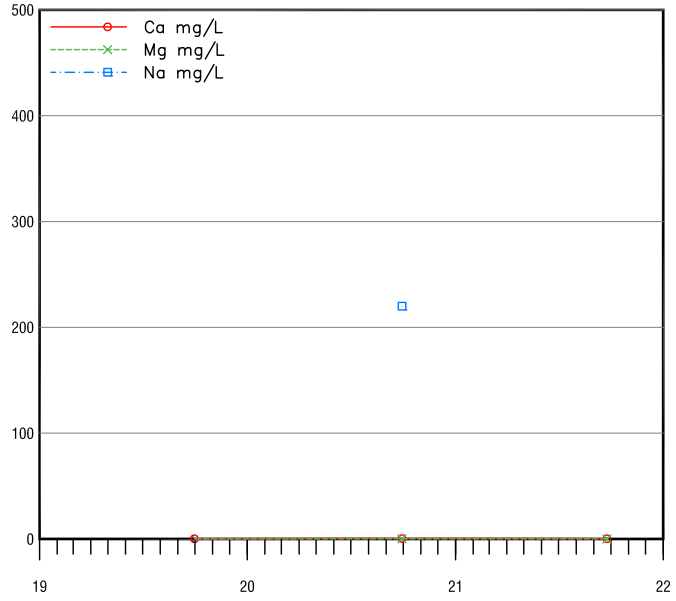
all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









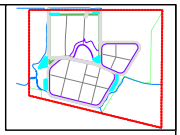


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

KORMENDY

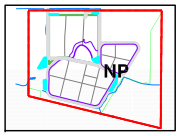
PRIVATE WELL

21500070 19 Apr 22	wsp GOLDER	21K1003

KORMENDY

PRIVATE WELL

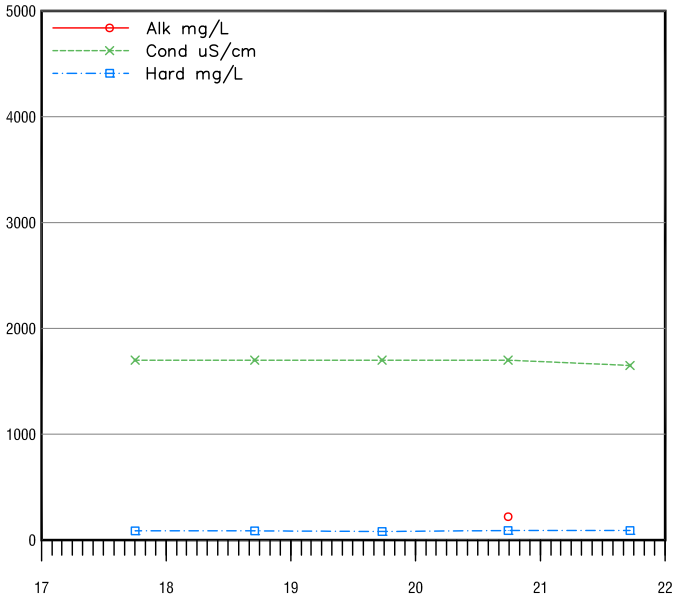
WATER SUPPLY

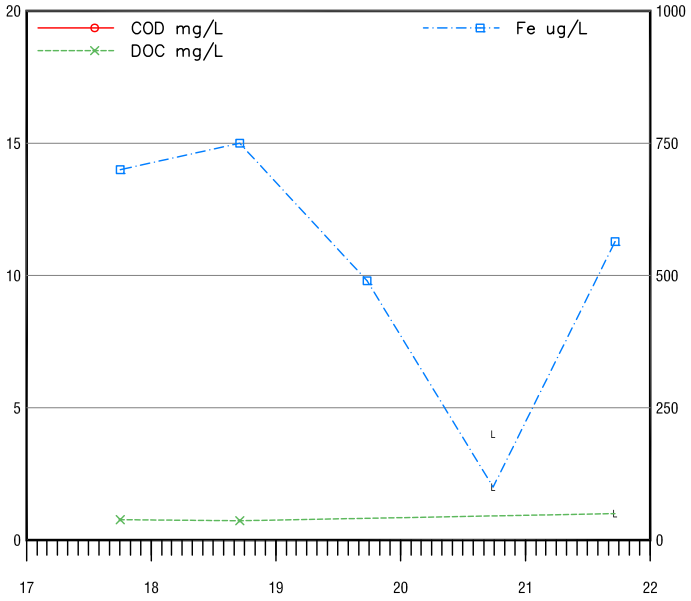


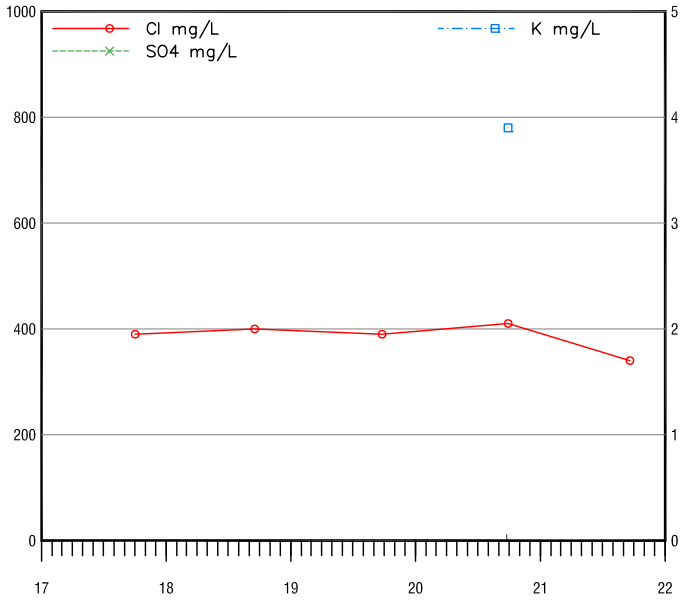
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
30-Sep-19	P19105		1000	<1		160		0.22	<0.05				<0.1	<0.01	0.32	0.24	
29-Sep-20	NTR988	240	1000	2	8.2	180	<1	0.4	0.2	**220**	3.2		<0.1	<0.01	0.39	0.33	-0.8
24-Sep-21	CA15012		1020	0.67	8.3	210		0.21	0.036			14	<0.06	<0.03	<0.5	0.1	

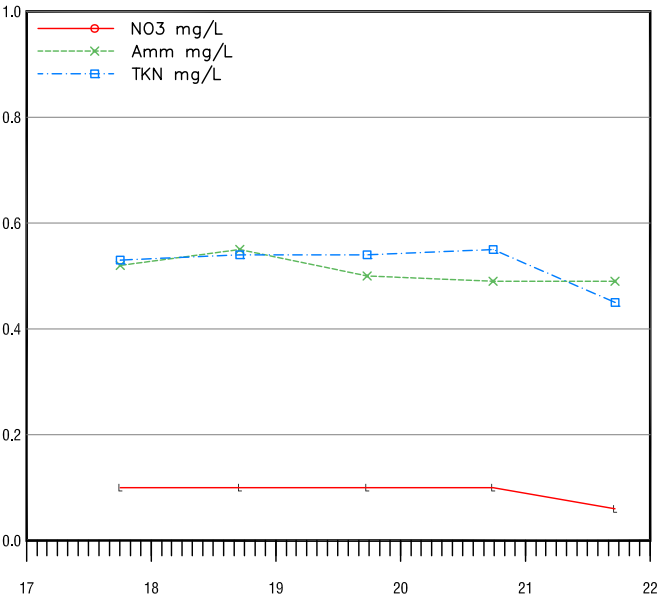
TOTAL SAMPLES	1	3	3	2	3	1	3	3	1	1	1	3	3	3	3	
AVERAGE 2021																

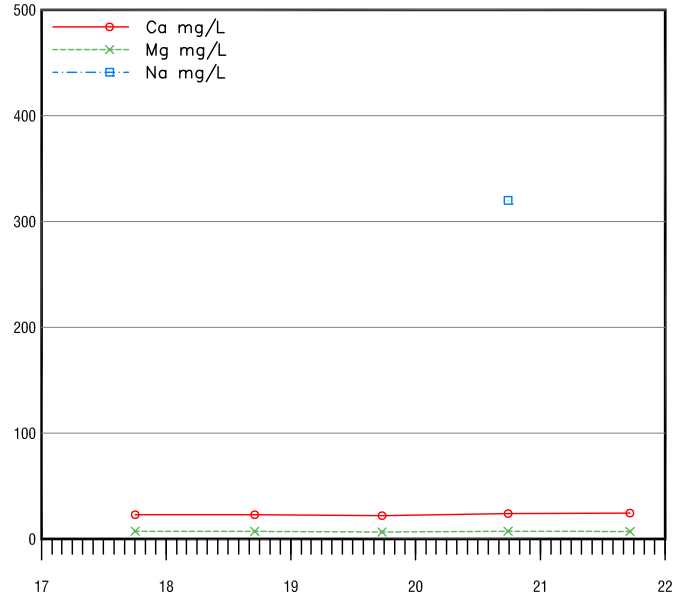
all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









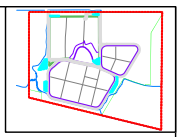


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

MCCABE

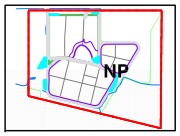
PRIVATE WELL

21500070 19 Apr 22	wsp GOLDER	21K1004

MCCABE

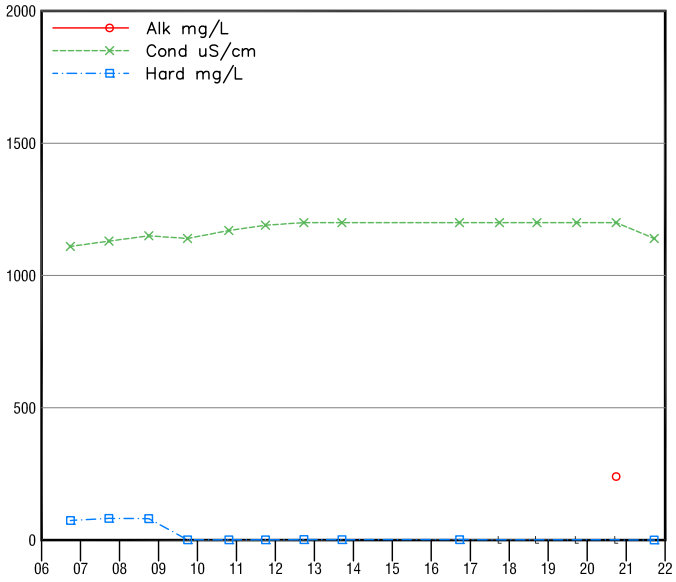
PRIVATE WELL

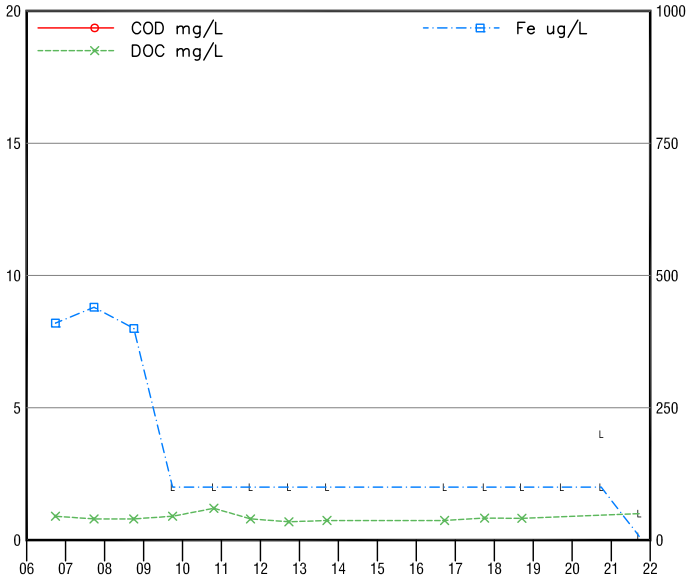
WATER SUPPLY

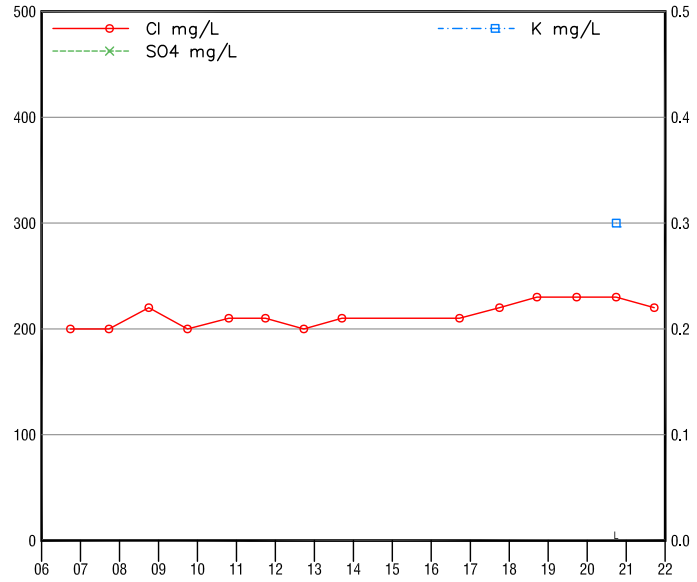


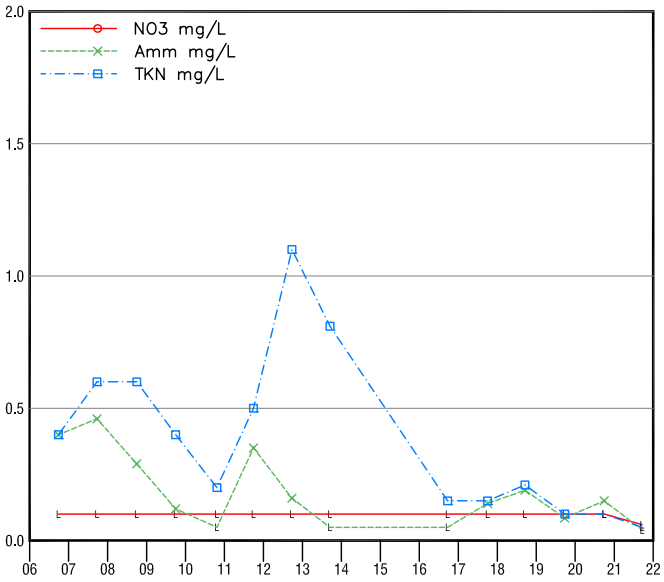
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
02-Oct-17	P17107		1700	87		**390**		23	7.3				<0.1	<0.01	0.53	0.52	
17-Sep-18	P18108		1700	87		**400**		23	7.2				<0.1	<0.01	0.54	0.55	
25-Sep-19	P19109		1700	81		**390**		22	6.6				<0.1	<0.01	0.54	0.5	
28-Sep-20	NTR973	220	1700	90	8.1	**410**	<5	24	7.3	**320**	3.9		<0.1	<0.01	0.55	0.49	−0.3
20-Sep-21	CA14509		1650	90.2	8.4	**340**		24.5	7.08			25	<0.06	<0.03	0.45	0.49	
TOTAL SAMPLES		1	5	5	2	5	1	5	5	1	1	1	5	5	5	5	
AVERAGE 2021																	

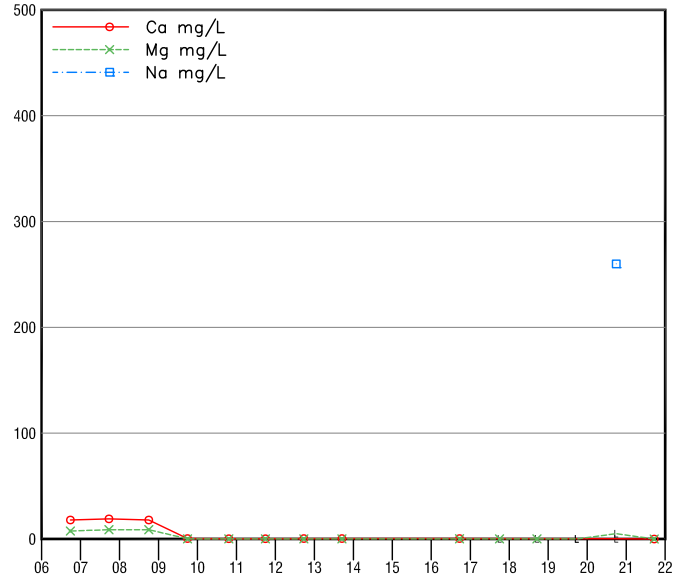
all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









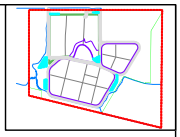


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

MUCKLE

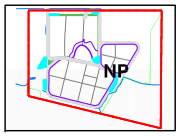
PRIVATE WELL

21500070 19 Apr 22	wsp GOLDER	21K1005

MUCKLE

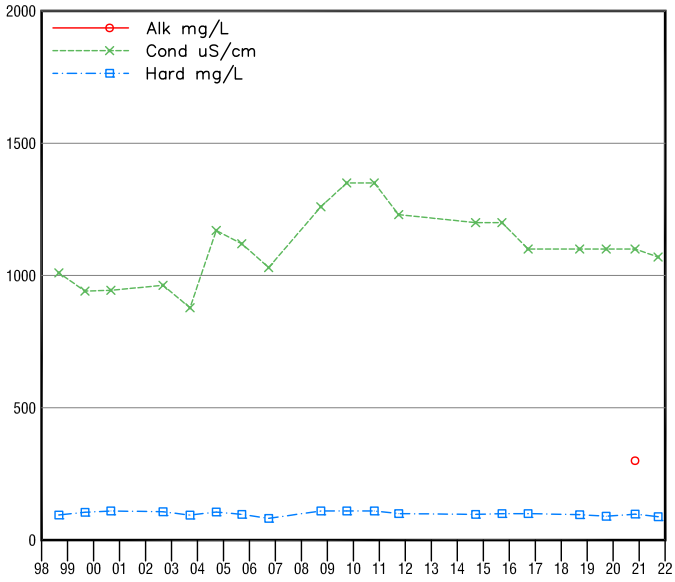
PRIVATE WELL

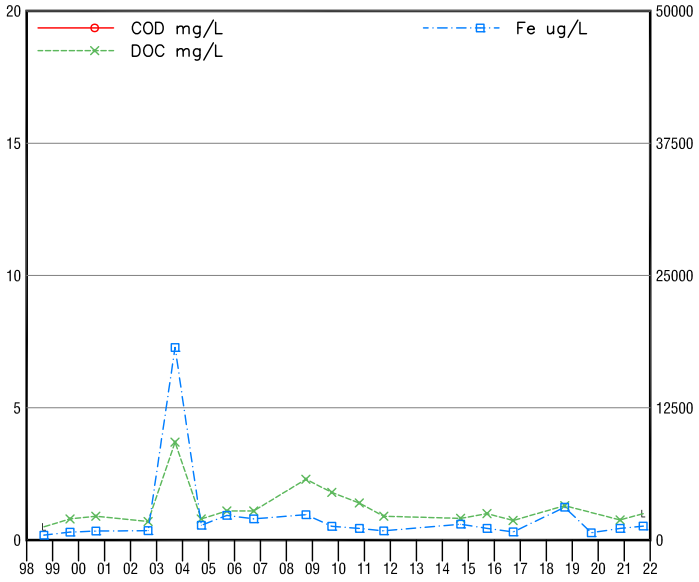
WATER SUPPLY

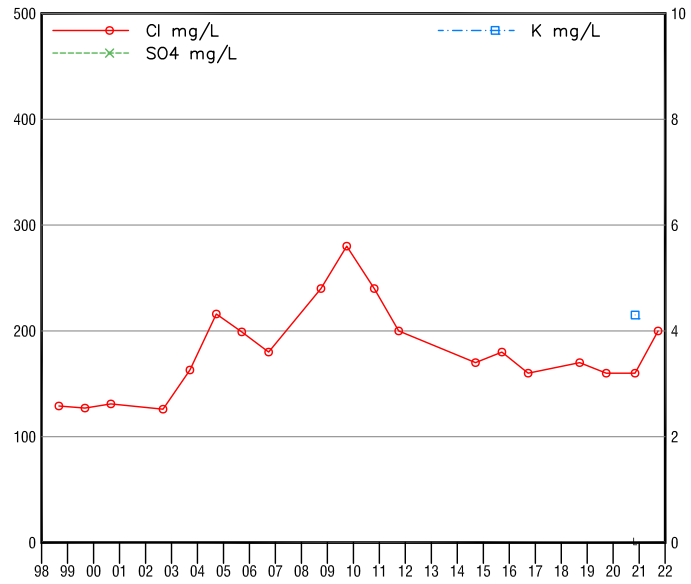


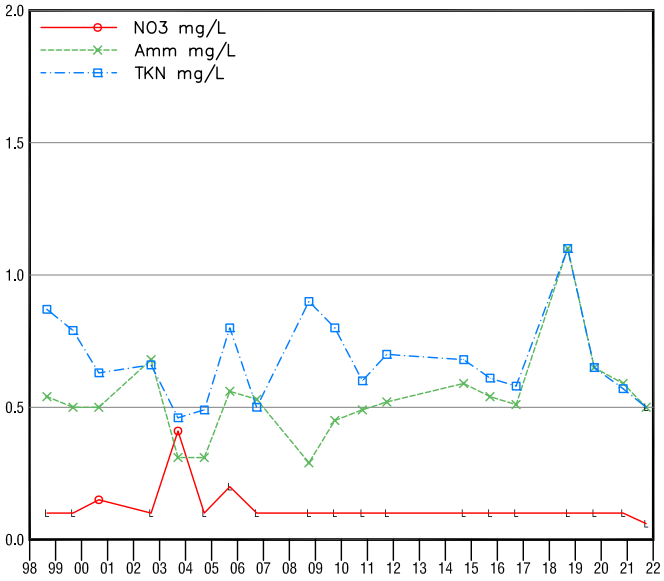
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
28-Sep-06	P06176		1110	74		200		18	7.5				<0.1	<0.01	0.4	0.4	
24-Sep-07	P07177		1130	82		200		19	8.8				<0.1	<0.01	0.6	0.46	
01-Oct-08	P08178		1150	81		220		18	8.8				<0.1	<0.01	0.6	0.29	
30-Sep-09	P09179		1140	1		200		0.35	0.14				<0.1	<0.01	0.4	0.12	
22-Oct-10	P10180		1170	1		210		0.23	0.1				<0.1	<0.01	0.2	<0.05	
30-Sep-11	P11181		1190	1		210		0.29	0.16				<0.1	<0.01	0.5	0.35	
24-Sep-12	P12182		1200	1.7		200		0.4	0.17				<0.1	<0.01	1.1	0.16	
16-Sep-13	P13183		1200	1.4		210		0.36	0.13				<0.1	<0.01	0.81	<0.05	
22-Sep-16	P16184		1200	1.6		210		0.36	0.18				<0.1	<0.01	0.15	<0.05	
02-Oct-17	P17185		1200	<1		220		<0.2	0.075				<0.1	<0.01	0.15	0.14	
17-Sep-18	P18186		1200	<1		230		<0.2	0.054				<0.1	<0.01	0.21	0.19	
25-Sep-19	P19187		1200	<1		230		<0.2	<0.05				<0.1	<0.01	0.10	0.085	
29-Sep-20	NTR984	240	1200	<1	8.2	230	<5	<0.2	<5	**260**	0.3		<0.1	<0.01	<0.1	0.15	0.2
20-Sep-21	CA14513		1140	0.12	8.5	220		0.02	0.014			48	<0.06	<0.03	<0.05	<0.04	
TOTAL SAMPLES		1	14	14	2	14	1	14	14	1	1	1	14	14	14	14	
AVERAGE 2021																	

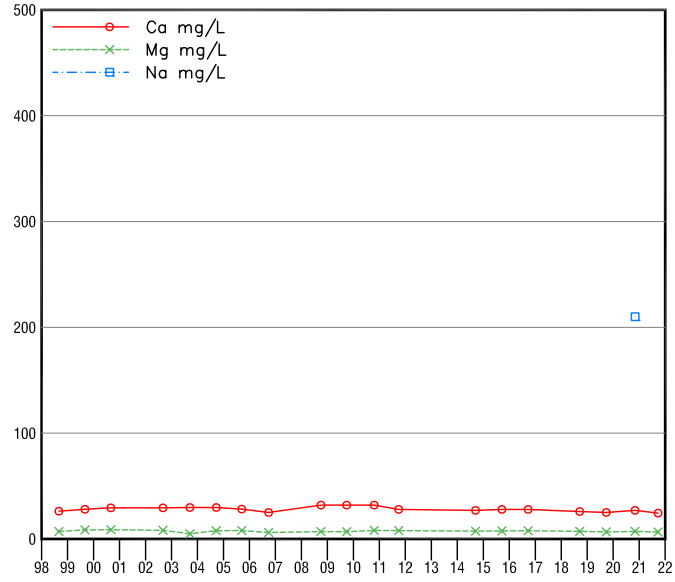
all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









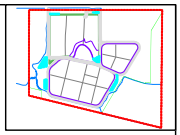


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

NAUTA

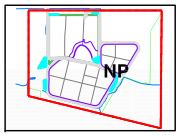
PRIVATE WELL

21500070 19 Apr 22	wsp GOLDER	21K1006

NAUTA

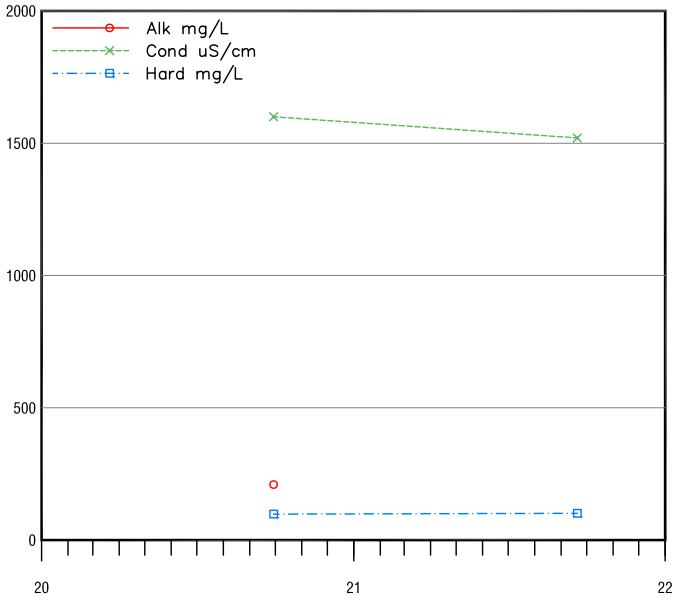
PRIVATE WELL

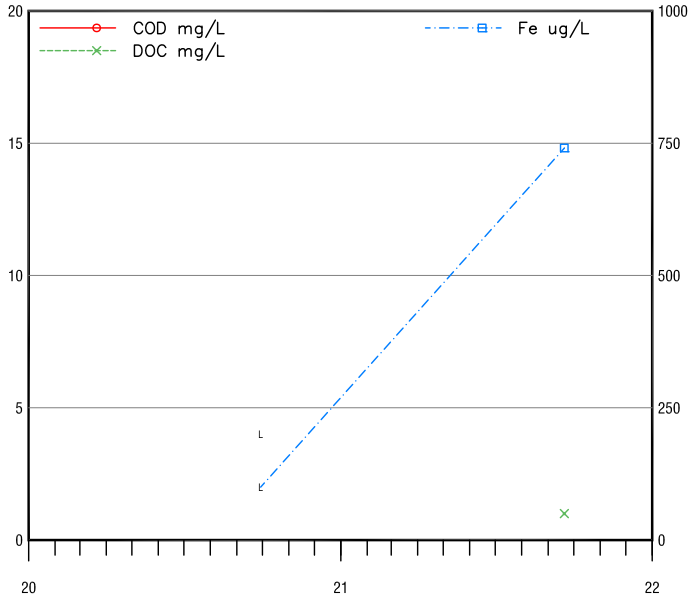
WATER SUPPLY

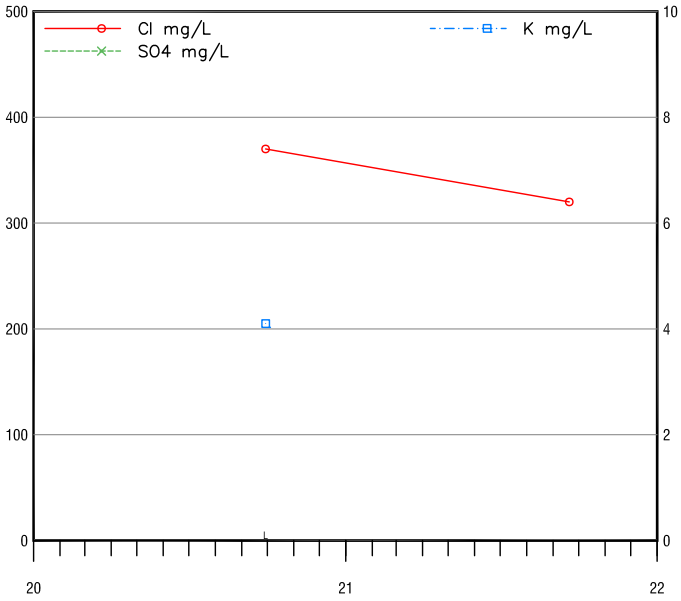


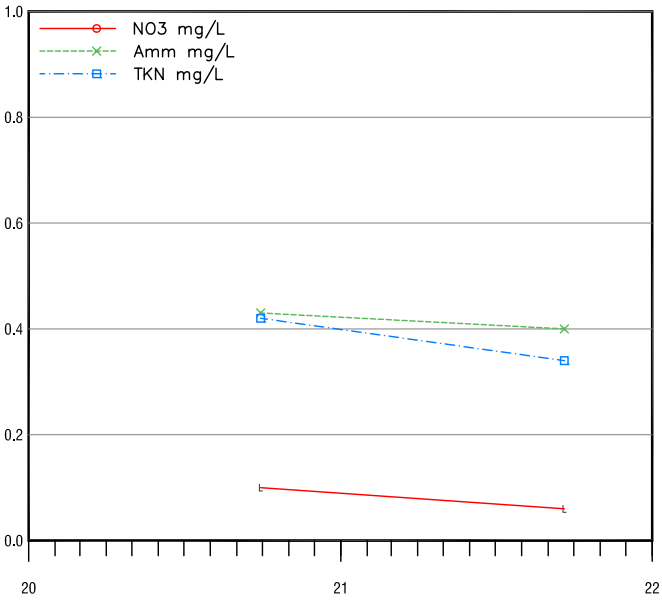
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
01-Sep-98	P98011		1010	94.7		129		26.2	7.1				<0.1	<0.02	0.87	0.54	
03-Sep-99	P99012		941	105		127		28.1	8.55				<0.1	<0.02	0.79	0.5	
31-Aug-00	P00013		944	110		131		29.5	8.74				0.15	<0.02	0.63	0.5	
04-Sep-02	P02014		963	107		126		29.4	8.2				<0.1	<0.02	0.66	0.68	
18-Sep-03	P03015		878	94.3		163		29.7	4.89				0.41	0.03	0.46	0.31	
21-Sep-04	P04016		1170	106		216		29.7	7.82				<0.1	<0.02	0.49	0.31	
15-Sep-05	P05017		1120	97		199		28.3	8.02				<0.2	<0.3	0.8	0.56	
28-Sep-06	P06018		1030	82		180		25	6.1				<0.1	<0.01	0.5	0.53	
01-Oct-08	P08019		1260	110		240		32	7				<0.1	<0.01	0.9	0.29	
30-Sep-09	P09020		1350	110		**280**		32	6.9				<0.1	<0.01	0.8	0.45	
22-Oct-10	P10021		1350	110		240		32	8.1				<0.1	<0.01	0.6	0.49	
30-Sep-11	P11022		1230	100		200		28	7.9				<0.1	<0.01	0.7	0.52	
15-Sep-14	P14023		1200	97		170		27	7.4				<0.1	<0.01	0.68	0.59	
21-Sep-15	P15024		1200	100		180		28	7.6				<0.1	<0.01	0.61	0.54	
22-Sep-16	P16025		1100	100		160		28	7.8				<0.1	<0.01	0.58	0.51	
17-Sep-18	P18026		1100	96		170		26	7.2				<0.1	<0.01	1.1	1.1	
25-Sep-19	P19027		1100	90		160		25	6.7				<0.1	<0.01	0.65	0.65	
04-Nov-20	OCH143	300	1100	98	8.1	160	<1	27	7.2	**210**	4.3	10	<0.1	<0.01	0.57	0.59	3.5
24-Sep-21	CA15020		1070	88.2	8.2	200		24.5	6.57			21	<0.06	<0.03	<0.5	0.5	
TOTAL SAMPLES		1	19	19	2	19	1	19	19	1	1	2	19	19	19	19	
AVERAGE 2021																	

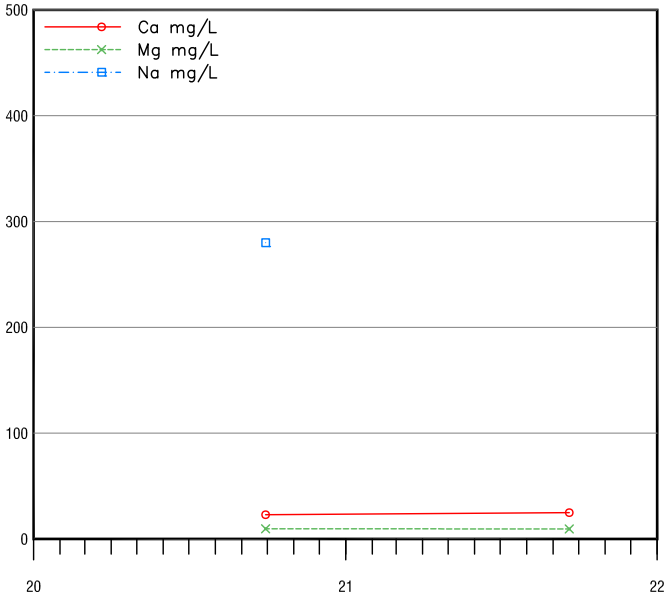
all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









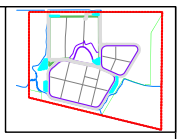


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

SEGERAN

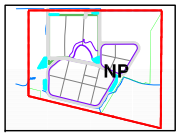
PRIVATE WELL

21500070 19 Apr 22	wsp GOLDER	21K1007

SEGERAN

PRIVATE WELL

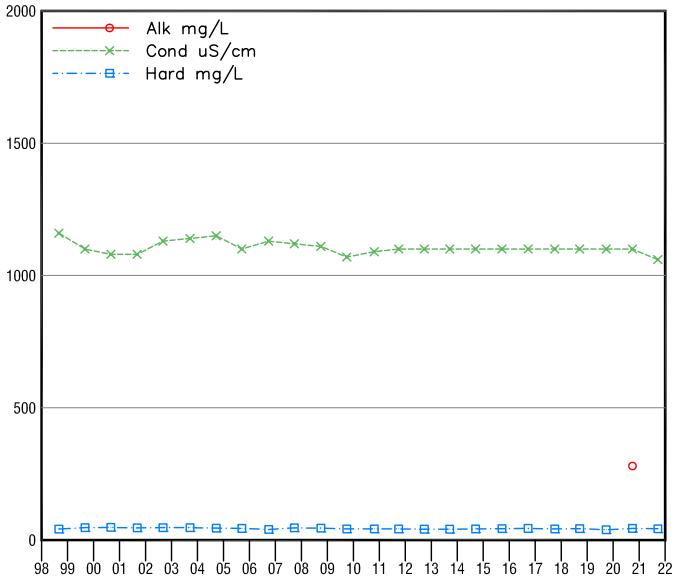
WATER SUPPLY

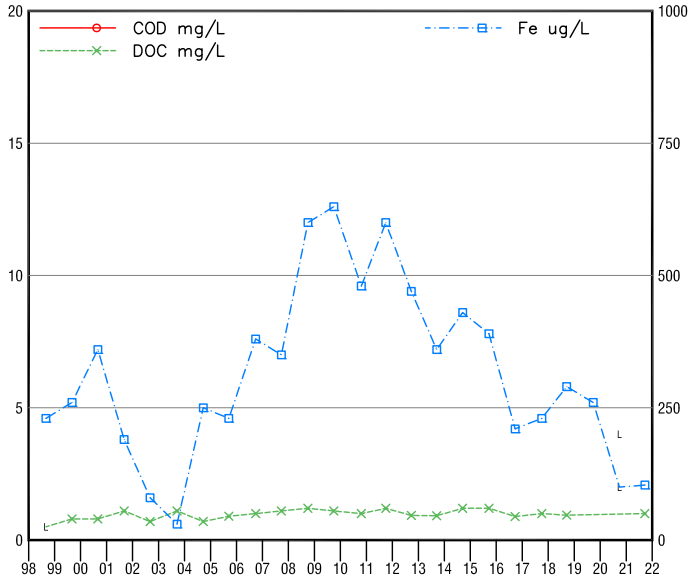


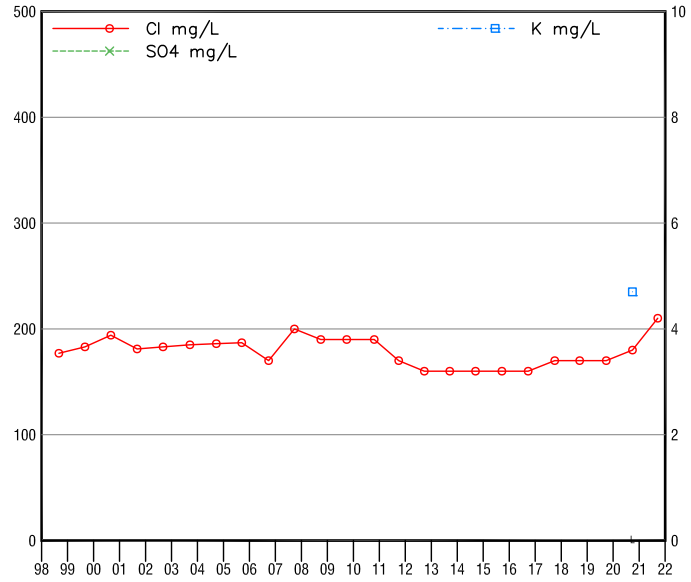
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
29-Sep-20	NTR983	210	1600	98	8.0	**370**	<5	23	9.7	**280**	4.1		<0.1	<0.01	0.42	0.43	-1.3
20-Sep-21	CA14512		1520	101	8.4	**320**		24.9	9.46			13	<0.06	<0.03	0.34	0.4	

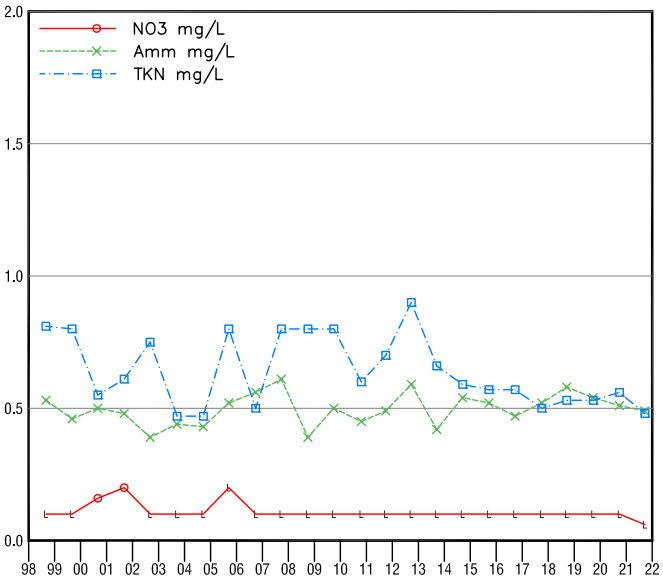
TOTAL SAMPLES	1	2	2	2	2	1	2	2	1	1	1	2	2	2	2	
AVERAGE 2021																

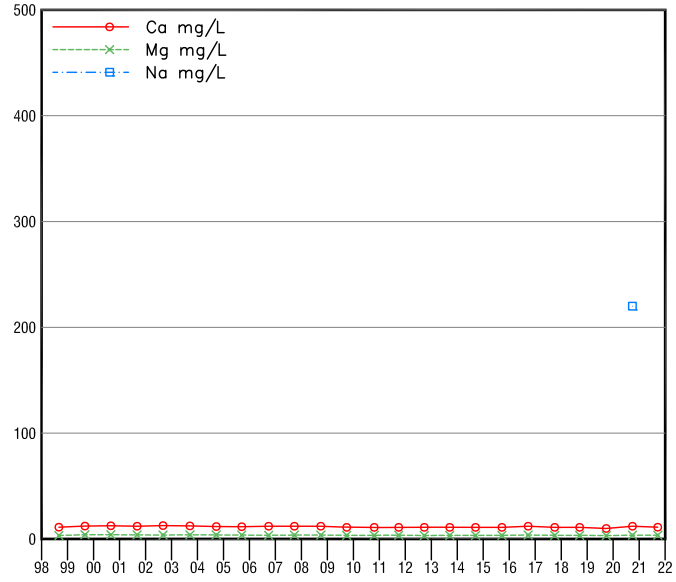
all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









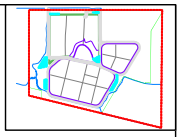


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

SIKEEMA

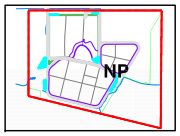
PRIVATE WELL

21500070 19 Apr 22	wsp GOLDER	21K1008

SIKEEMA

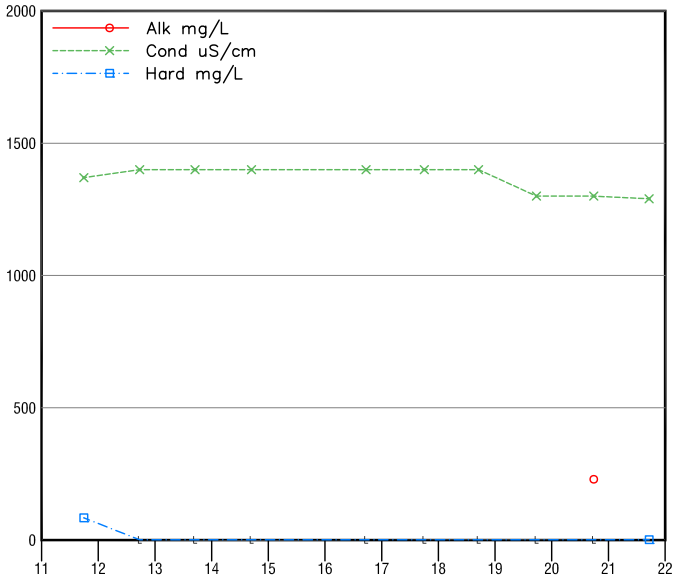
PRIVATE WELL

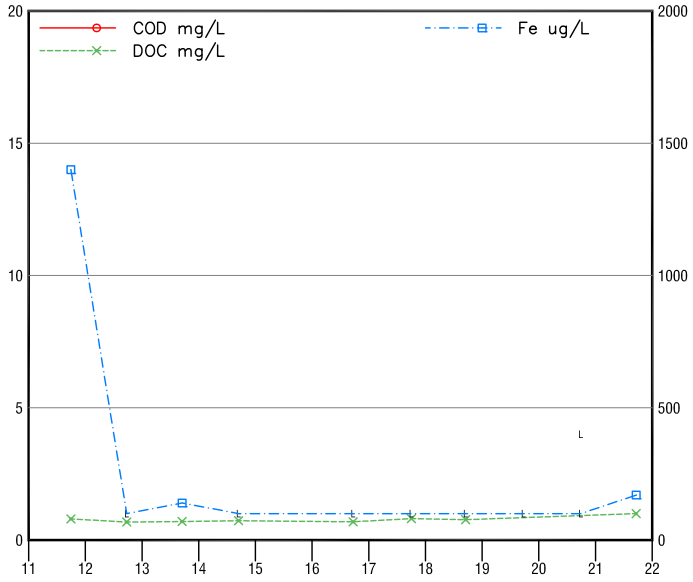
WATER SUPPLY

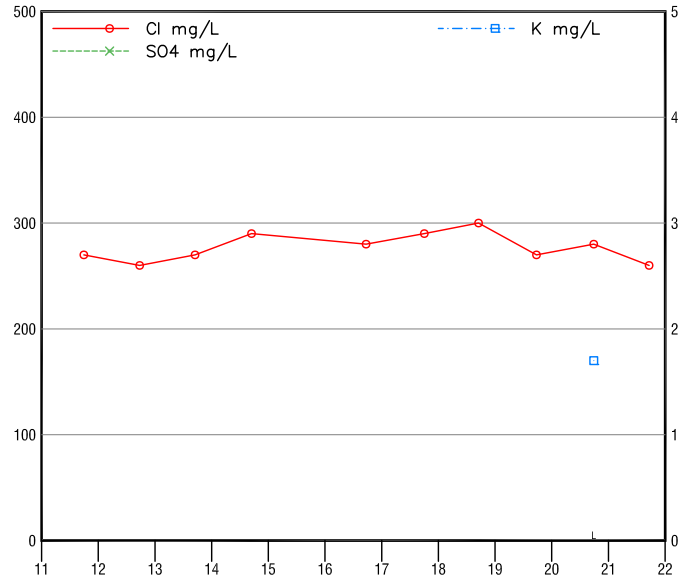


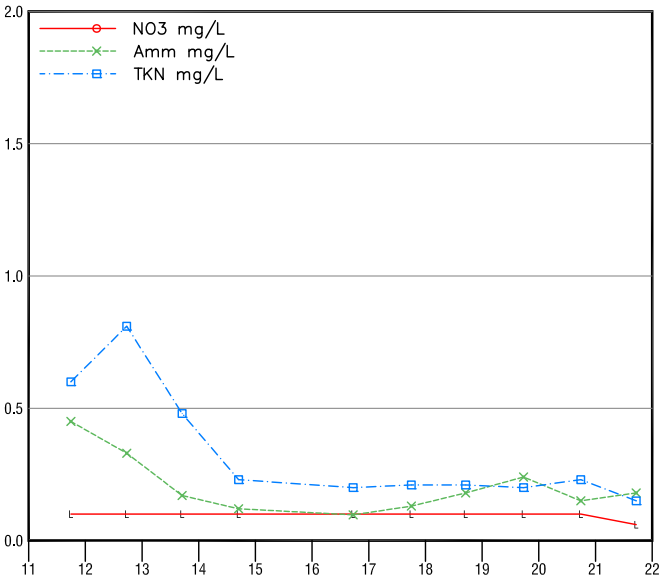
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
01-Sep-98	P98110		1160	41.5		177		11.1	3.34				<0.1	<0.02	0.81	0.53	
03-Sep-99	P99111		1100	46.9		183		12.2	3.98				<0.1	<0.02	0.8	0.46	
31-Aug-00	P00112		1080	47.8		194		12.5	4.03				0.16	<0.02	0.55	0.5	
05-Sep-01	P01113		1080	46.1		181		12.1	3.85				0.2	<0.02	0.61	0.48	
04-Sep-02	P02114		1130	46.9		183		12.6	3.76				<0.1	<0.02	0.75	0.39	
18-Sep-03	P03115		1140	47		185		12.4	3.89				<0.1	<0.02	0.47	0.44	
21-Sep-04	P04116		1150	45		186		11.7	3.83				<0.1	<0.02	0.47	0.43	
15-Sep-05	P05117		1100	44		187		11.6	3.7				<0.2	<0.3	0.8	0.52	
28-Sep-06	P06118		1130	40		170		12	3.5				<0.1	<0.01	0.5	0.56	
24-Sep-07	P07119		1120	46		200		12	3.7				<0.1	<0.01	0.8	0.61	
01-Oct-08	P08120		1110	45		190		12	3.7				<0.1	<0.01	0.8	0.39	
30-Sep-09	P09121		1070	42		190		11	3.5				<0.1	<0.01	0.8	0.5	
22-Oct-10	P10122		1090	42		190		11	3.5				<0.1	<0.01	0.6	0.45	
30-Sep-11	P11123		1100	42		170		11	3.6				<0.1	<0.01	0.7	0.49	
24-Sep-12	P12124		1100	41		160		11	3.3				<0.1	<0.01	0.9	0.59	
16-Sep-13	P13125		1100	41		160		11	3.5				<0.1	<0.01	0.66	0.42	
15-Sep-14	P14126		1100	42		160		11	3.4				<0.1	<0.01	0.59	0.54	
21-Sep-15	P15127		1100	43		160		11	3.5				<0.1	<0.01	0.57	0.52	
22-Sep-16	P16128		1100	44		160		12	3.7				<0.1	<0.01	0.57	0.47	
02-Oct-17	P17129		1100	42		170		11	3.5				<0.1	<0.01	0.5	0.52	
17-Sep-18	P18130		1100	43		170		11	3.5				<0.1	<0.01	0.53	0.58	
25-Sep-19	P19131		1100	39		170		10	3.2				<0.1	<0.01	0.53	0.54	
28-Sep-20	NTR979	280	1100	44	8.1	180	<1	12	3.6	**220**	4.7		<0.1	<0.01	0.56	0.51	−0.2
20-Sep-21	CA15495		1060	42.7	8.5	210		11.2	3.61			49	<0.06	<0.03	0.48	0.49	
TOTAL SAMPLES		1	24	24	2	24	1	24	24	1	1	1	24	24	24	24	
AVERAGE 2021																	

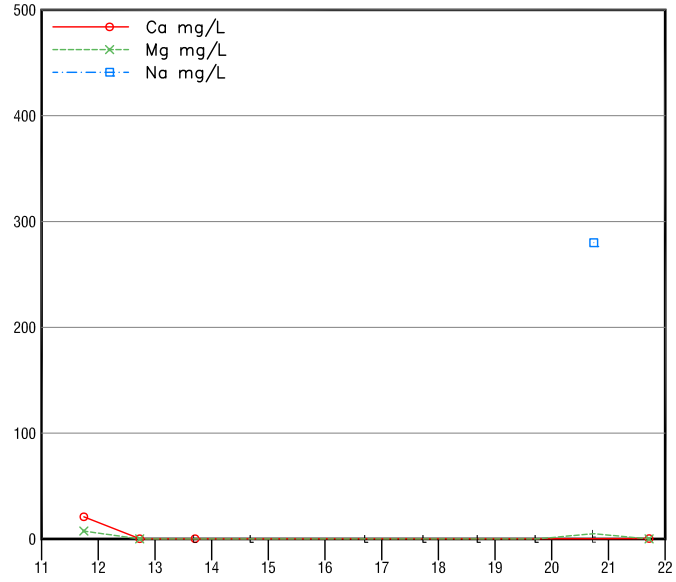
all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









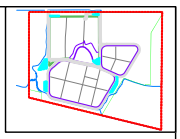


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

SPARKS

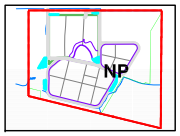
PRIVATE WELL

21500070 19 Apr 22	wsp GOLDER	21K1009

SPARKS

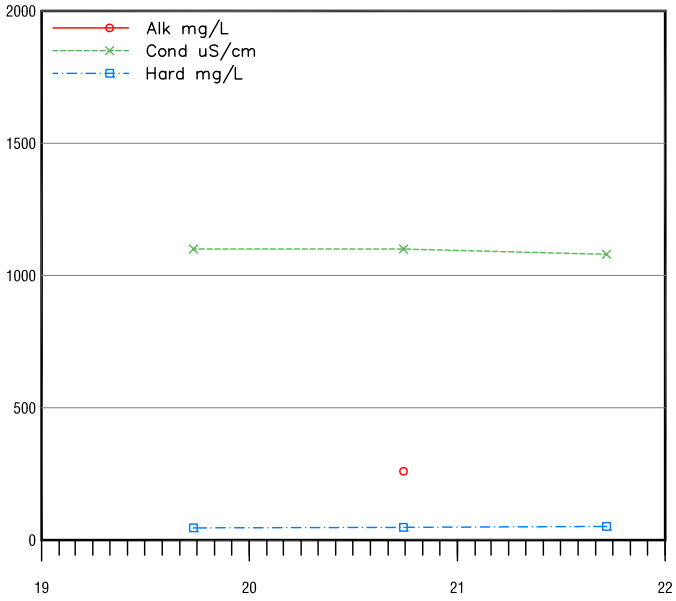
PRIVATE WELL

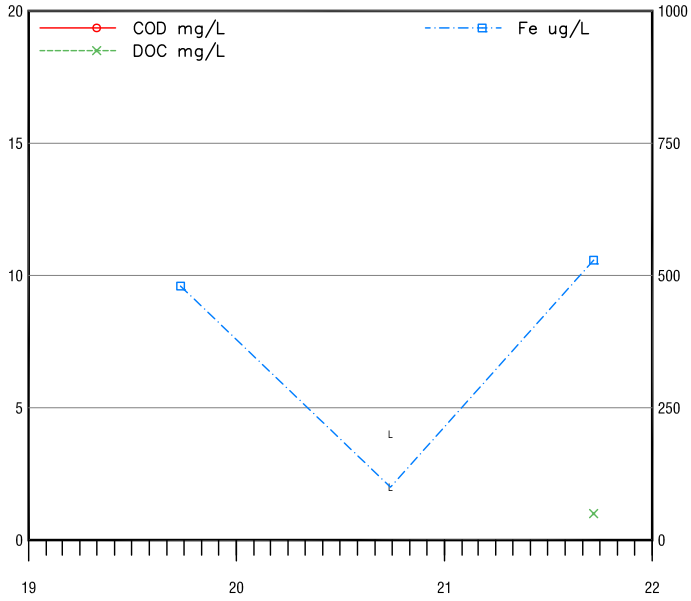
WATER SUPPLY

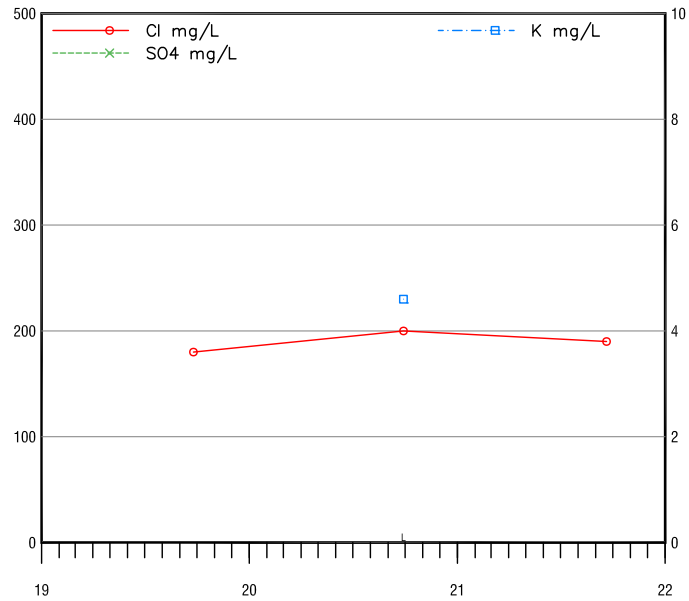


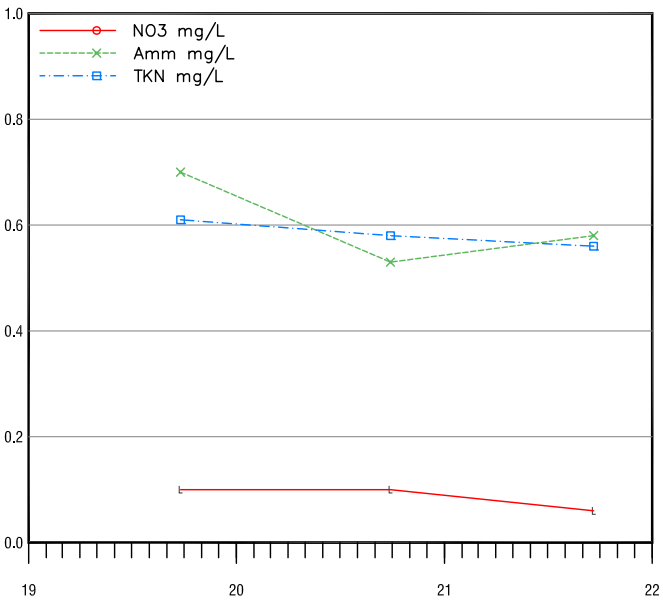
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
30-Sep-11	P11230		1370	84		**270**		21	7.5				<0.1	<0.01	0.6	0.45	
24-Sep-12	P12231		1400	<1		**260**		0.22	0.065				<0.1	<0.01	0.81	0.33	
16-Sep-13	P13232		1400	<1		**270**		0.22	<0.05				<0.1	<0.01	0.48	0.17	
15-Sep-14	P14233		1400	<1		**290**		<0.2	<0.05				<0.1	<0.01	0.23	0.12	
22-Sep-16	P16234		1400	<1		**280**		<0.2	<0.05				<0.1	<0.01	0.2	0.097	
02-Oct-17	P17235		1400	<1		**290**		<0.2	<0.05				<0.1	<0.01	0.21	0.13	
17-Sep-18	P18236		1400	<1		**300**		<0.2	<0.05				<0.1	<0.01	0.21	0.18	
25-Sep-19	P19237		1300	<1		**270**		<0.2	<0.05				<0.1	<0.01	0.20	0.24	
28-Sep-20	NTR974	230	1300	<1	8.1	**280**	<5	<0.2	<5	**280**	1.7		<0.1	<0.01	0.23	0.15	-1.1
20-Sep-21	CA14514		1290	1.3	8.5	**260**		0.4	0.069			28	<0.06	<0.03	0.15	0.18	
TOTAL SAMPLES		1	10	10	2	10	1	10	10	1	1	1	10	10	10	10	
AVERAGE 2021																	

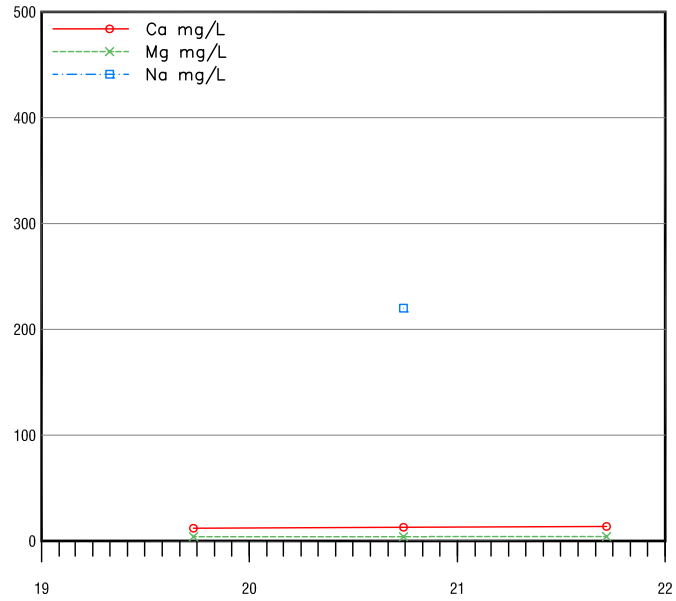
all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









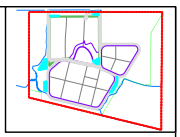


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

VERVAET

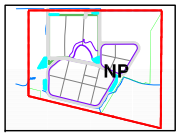
PRIVATE WELL

21500070 19 Apr 22	wsp GOLDER	21K1010

VERVAET

PRIVATE WELL

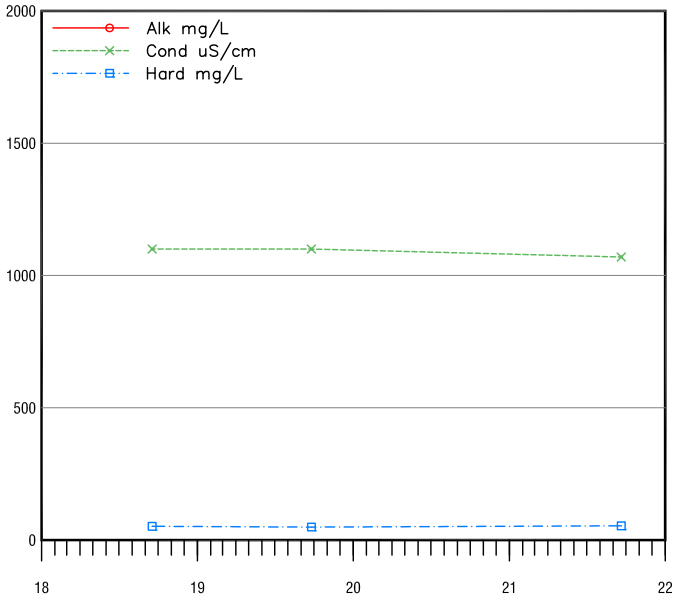
WATER SUPPLY

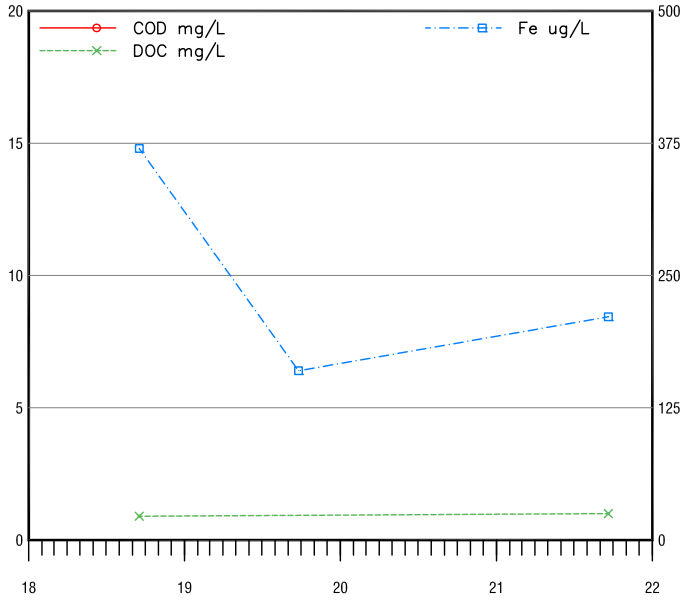


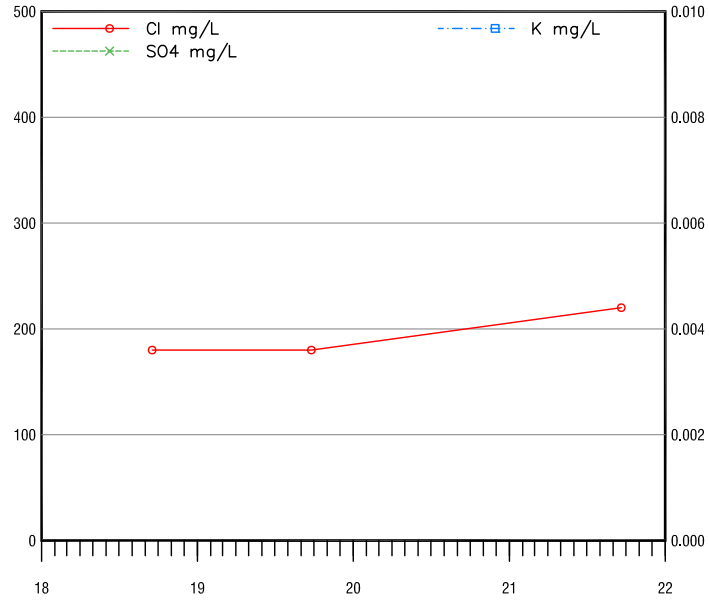
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
25-Sep-19	P19258		1100	46		180		12	4.0				<0.1	<0.01	0.61	0.70	
28-Sep-20	NTR976	260	1100	48	8.1	200	<5	13	4.1	**220**	4.6		<0.1	<0.01	0.58	0.53	-0.6
20-Sep-21	CA14516		1080	51.5	8.5	190		13.7	4.23			46	<0.06	<0.03	0.56	0.58	

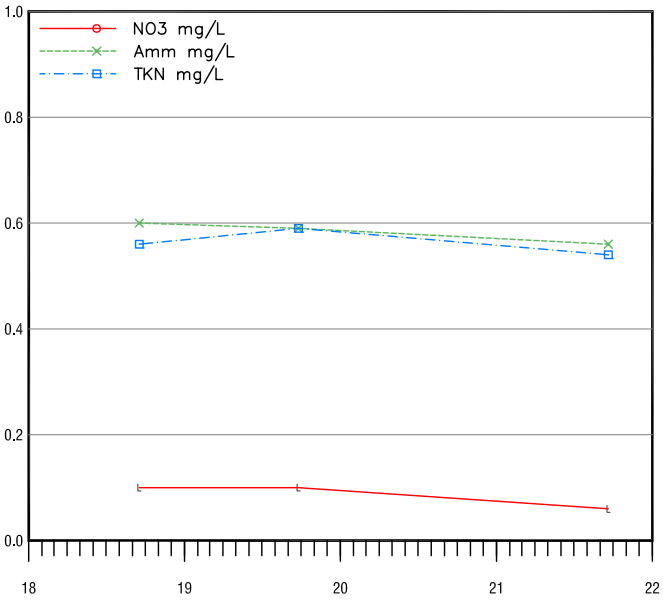
TOTAL SAMPLES	1	3	3	2	3	1	3	3	1	1	1	3	3	3	3	
AVERAGE 2021																

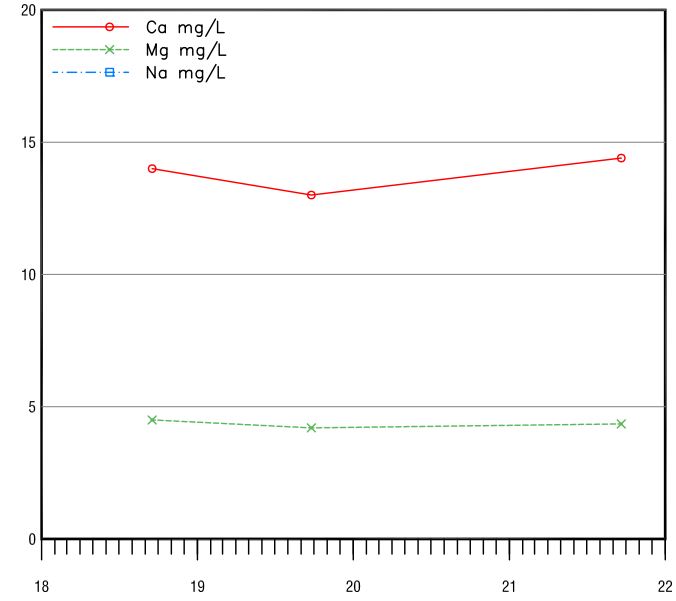
all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









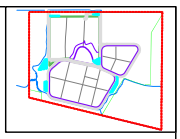


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

VERVAET-X

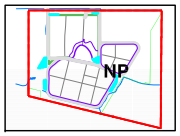
PRIVATE WELL

21500070 19 Apr 22	GOLDER	21K1011

VERVAET-X

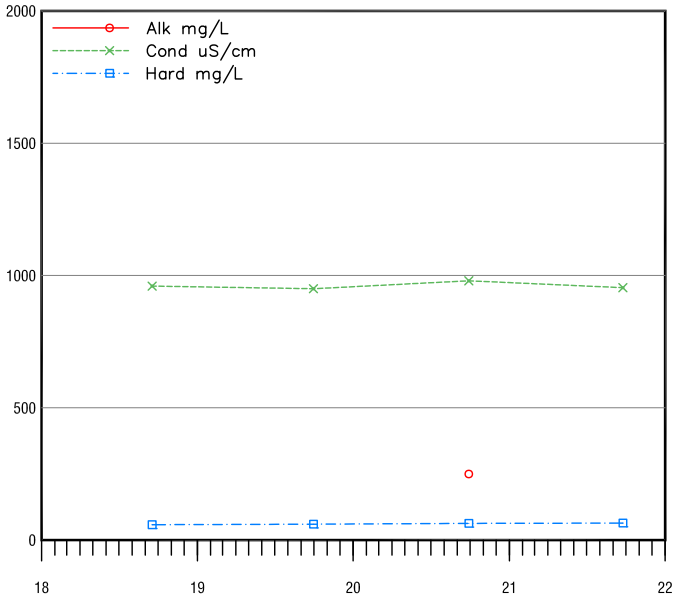
PRIVATE WELL

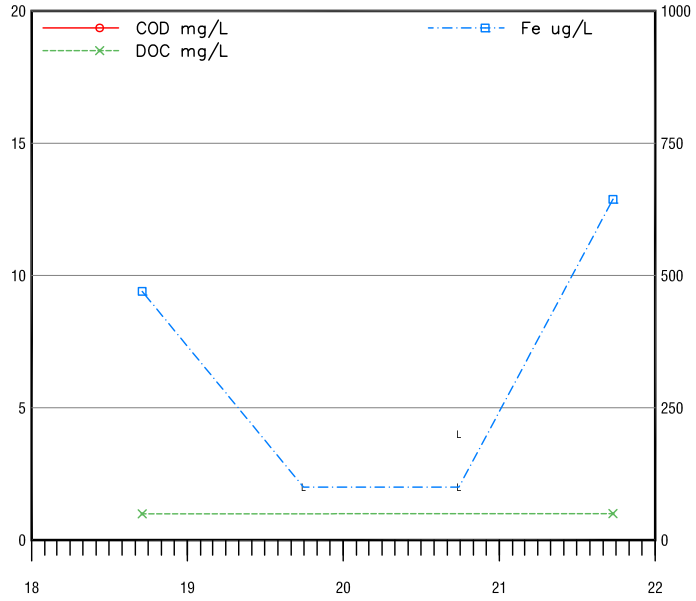
WATER SUPPLY

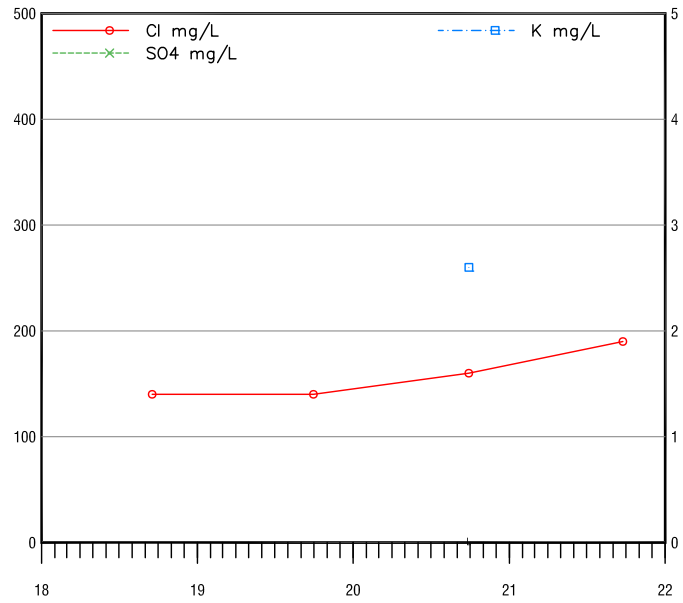


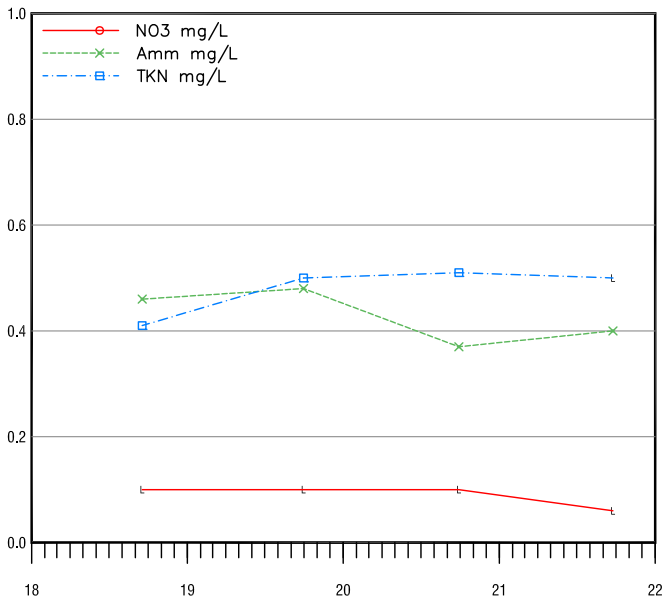
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
17-Sep-18	P18259		1100	52		180		14	4.5				<0.1	<0.01	0.56	0.60	
25-Sep-19	P19260		1100	49		180		13	4.2				<0.1	<0.01	0.59	0.59	
20-Sep-21	CA14515		1070	53.8	8.5	220		14.4	4.35			23	<0.06	<0.03	0.54	0.56	
TOTAL SAMPLES		0	3	3	1	3	0	3	3	0	0	1	3	3	3	3	
AVERAGE 2021																	

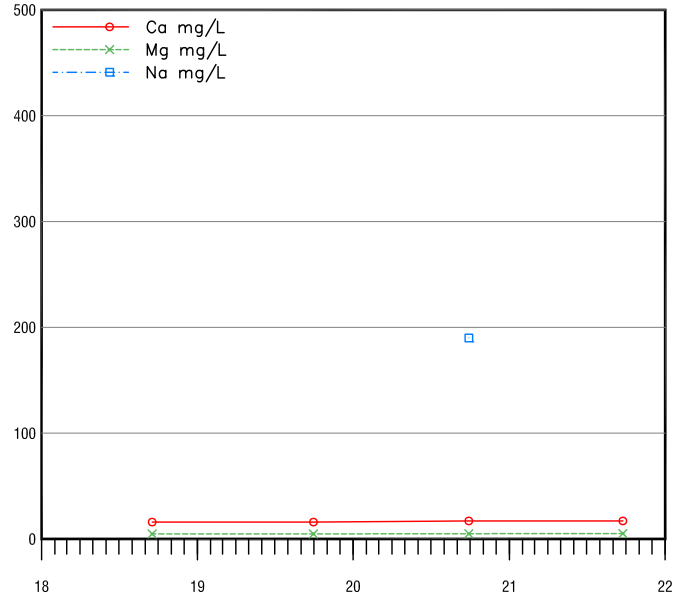
all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









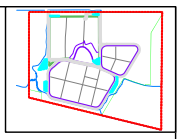


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

VINCE

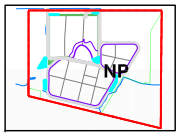
PRIVATE WELL

21500070 19 Apr 22	wsp GOLDER	21K1012

VINCE

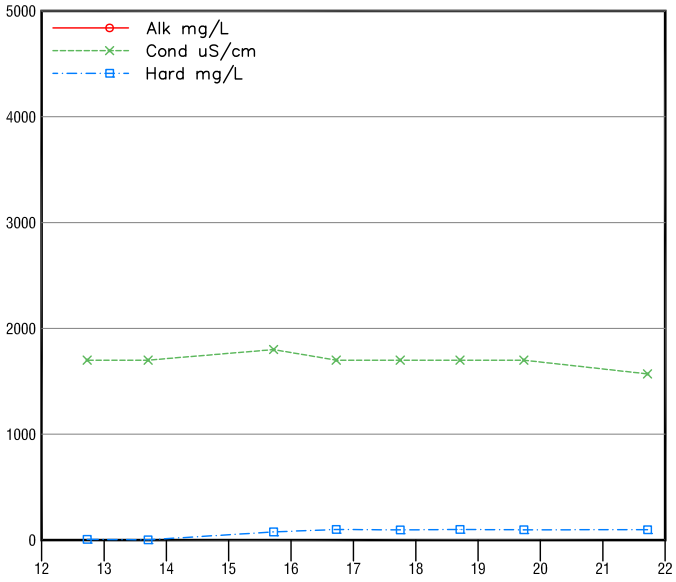
PRIVATE WELL

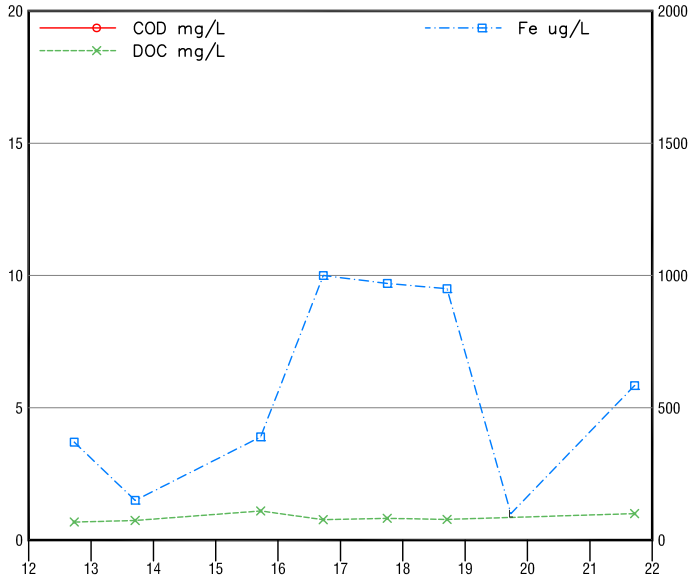
WATER SUPPLY

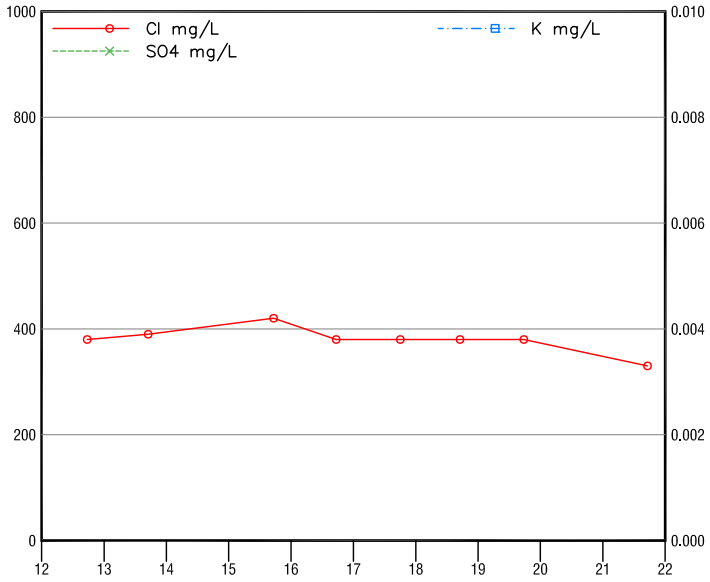


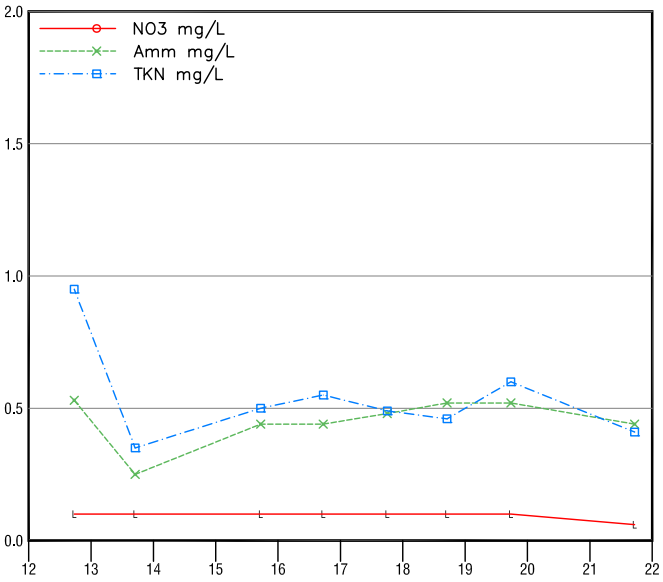
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
17-Sep-18	P18106		960	58		140		16	4.8				<0.1	<0.01	0.41	0.46	
30-Sep-19	P19261		950	60		140		16	4.8				<0.1	<0.01	0.50	0.48	
28-Sep-20	NTR981	250	980	63	8.1	160	<1	17	5.0	190	2.6		<0.1	<0.01	0.51	0.37	0.6
24-Sep-21	CA15014		954	64.1	8.2	190		17.1	5.16			11	<0.06	<0.03	<0.5	0.4	
TOTAL SAMPLES		1	4	4	2	4	1	4	4	1	1	1	4	4	4	4	
AVERAGE 2021																	

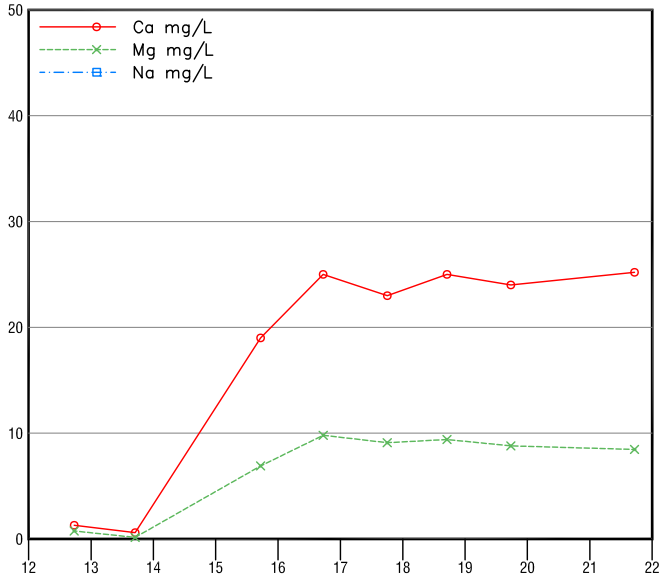
all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**



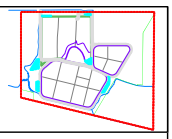








L	Concentration Reported Less Than
G	Concentration Reported Greater Than
A	Concentration Determined Anomalous
	Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WALKER S

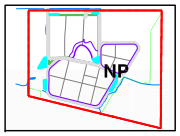
PRIVATE WELL

21500070 19 Apr 22	wsp GOLDER	21K1013

WALKER S

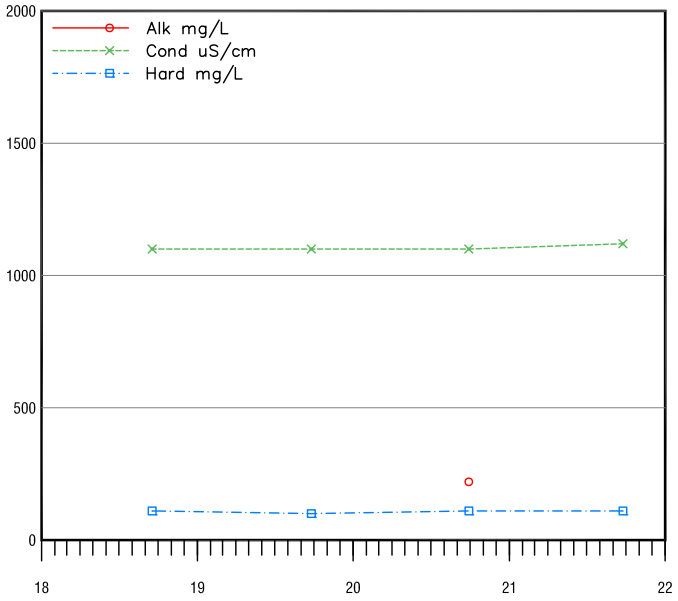
PRIVATE WELL

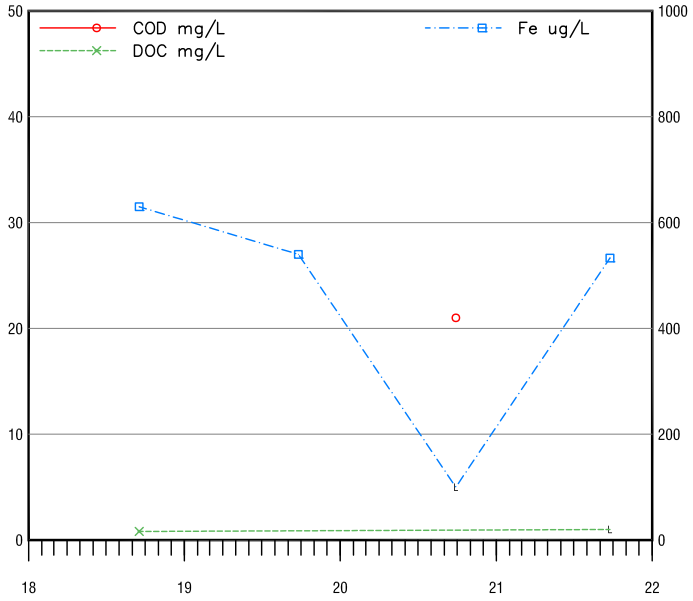
WATER SUPPLY

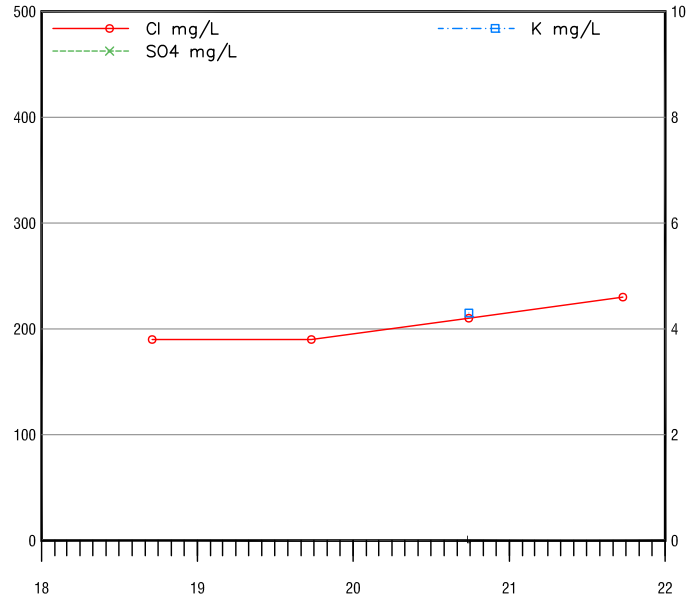


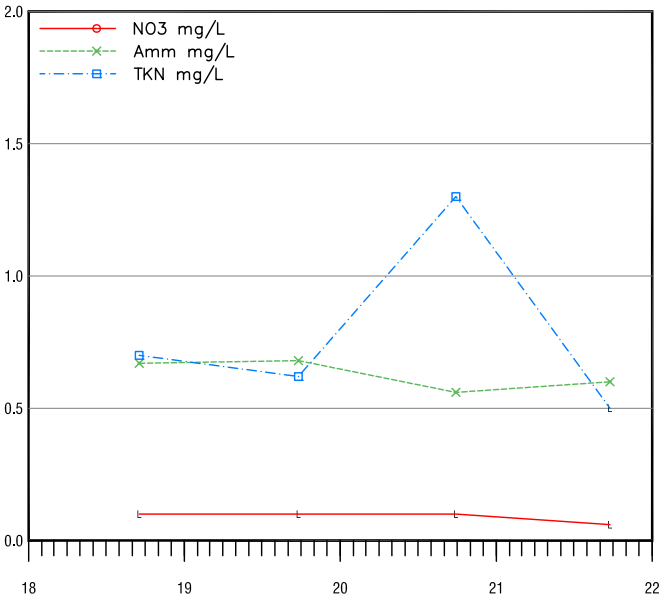
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
24-Sep-12	P12223		1700	6.4		**380**		1.3	0.76				<0.1	<0.01	0.95	0.53	
16-Sep-13	P13224		1700	2.1		**390**		0.6	0.15				<0.1	<0.01	0.35	0.25	
21-Sep-15	P15225		1800	77		**420**		19	6.9				<0.1	<0.01	0.5	0.44	
22-Sep-16	P16226		1700	100		**380**		25	9.8				<0.1	<0.01	0.55	0.44	
02-Oct-17	P17227		1700	96		**380**		23	9.1				<0.1	<0.01	0.49	0.48	
17-Sep-18	P18228		1700	100		**380**		25	9.4				<0.1	<0.01	0.46	0.52	
26-Sep-19	P19229		1700	97		**380**		24	8.8				<0.1	<0.01	0.60	0.52	
20-Sep-21	CA14511		1570	97.8	8.4	**330**		25.2	8.46			72	<0.06	<0.03	0.41	0.44	
TOTAL SAMPLES		0	8	8	1	8	0	8	8	0	0	1	8	8	8	8	
AVERAGE 2021																	

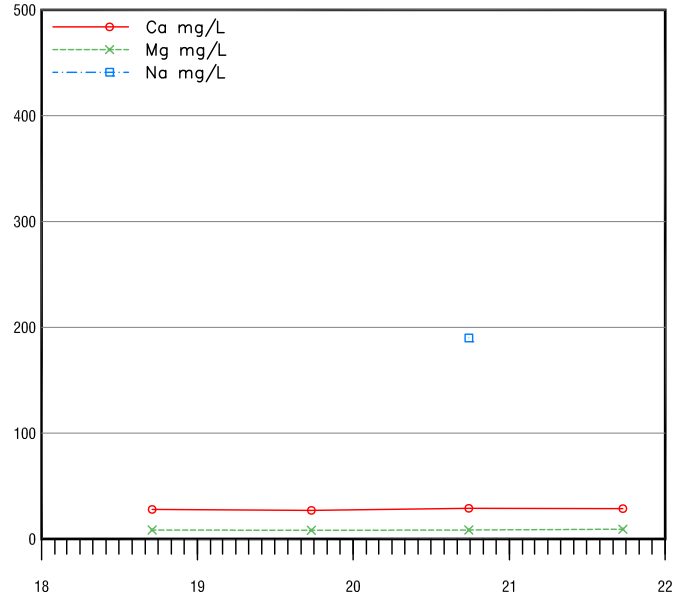
all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









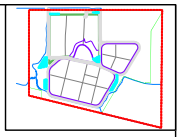


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WAMMES

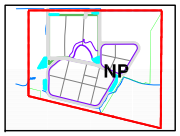
PRIVATE WELL

21500070 19 Apr 22	wsp GOLDER	21K1014

WAMMES

PRIVATE WELL

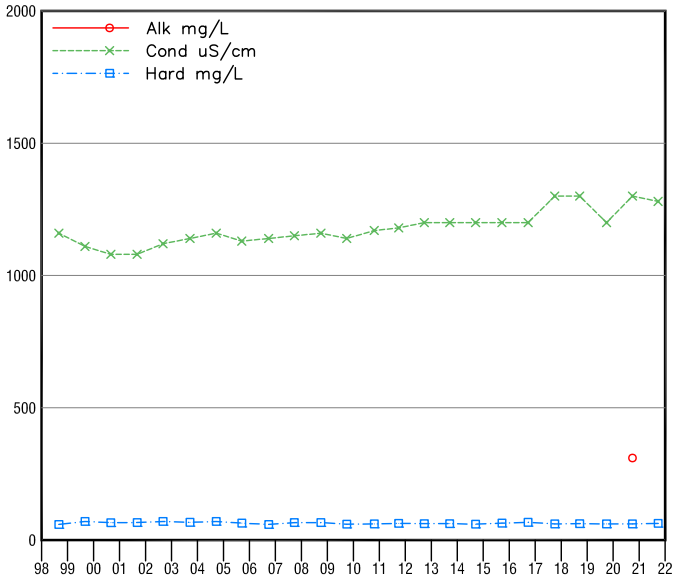
WATER SUPPLY

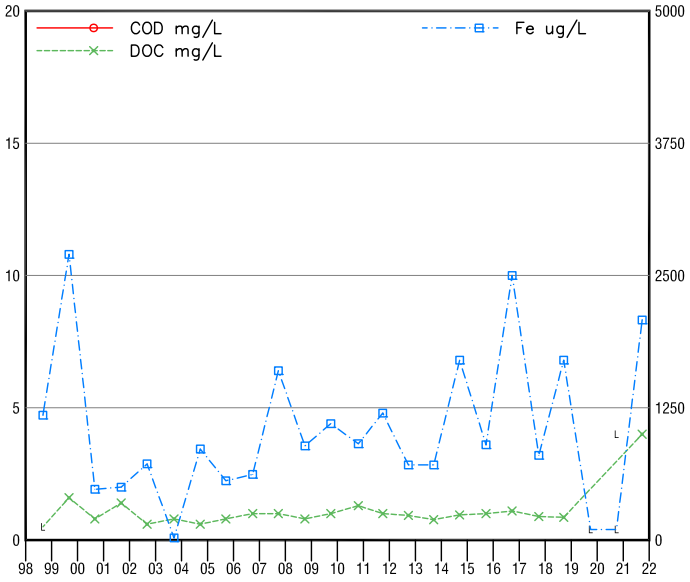


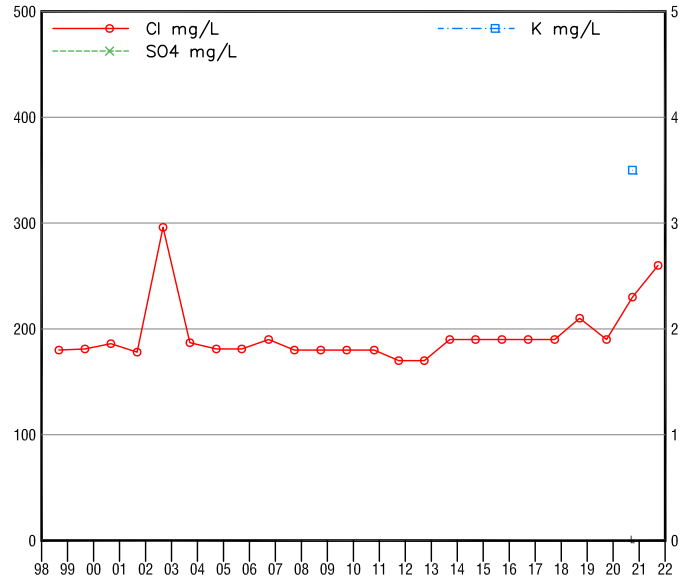
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
17-Sep-18	P18008		1100	110		190		28	8.5				<0.1	<0.01	0.70	0.67	
25-Sep-19	P19009		1100	100		190		27	8.2				<0.1	<0.01	0.62	0.68	
28-Sep-20	NTR977	220	1100	110	7.3	210	<1	29	8.5	190	4.3		<0.1	<0.01	1.3	0.56	1.2
24-Sep-21	CA15011		1120	110	8.1	230		28.7	9.24			18	<0.06	<0.03	<0.5	0.6	

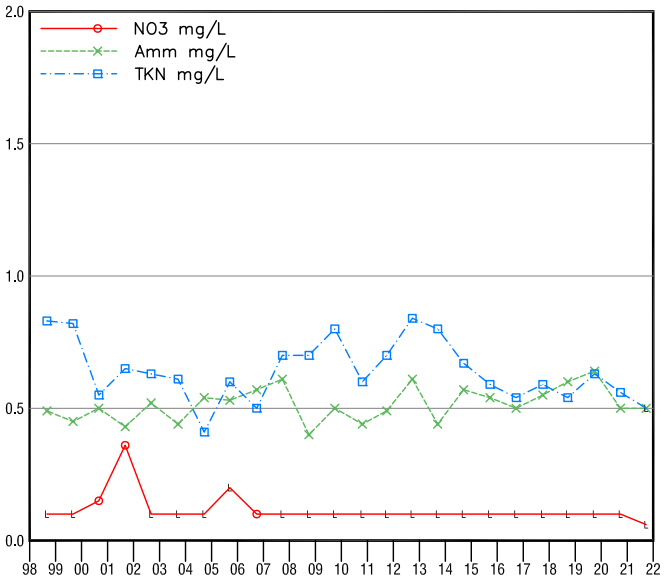
TOTAL SAMPLES	1	4	4	2	4	1	4	4	1	1	1	4	4	4	4	
AVERAGE 2021																

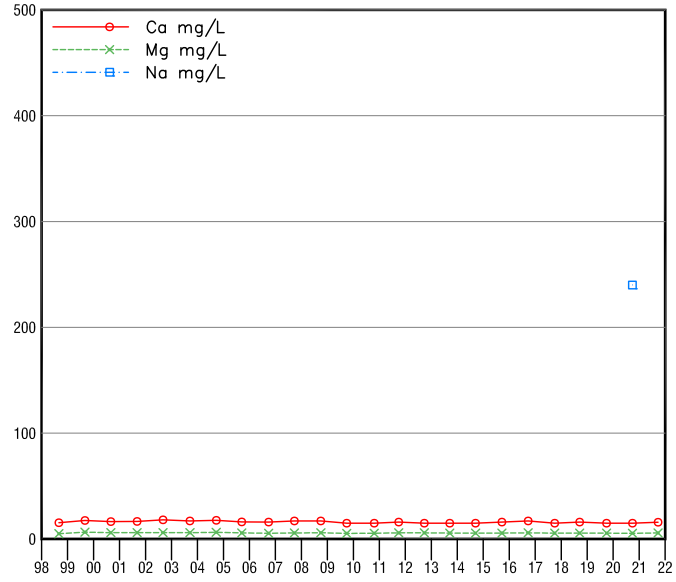
all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**









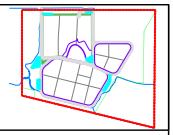


L Concentration Reported Less Than

G Concentration Reported Greater Than

A Concentration Determined Anomalous

Anomaly Not Plotted



WASTE CONNECTIONS OF CANADA INC.

RIDGE LANDFILL, BLENHEIM, ONTARIO

WOOD

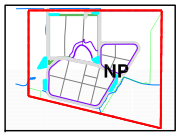
PRIVATE WELL

21500070 19 Apr 22	GOLDER	21K1015

WOOD

PRIVATE WELL

WATER SUPPLY



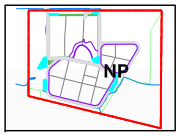
DATE	SAMPLE #	Alk	Cond uS/cm	Hard	pH units	Cl	SO4	Ca	Mg	Na	K	BOD	NO3	NO2	TKN	Amm	Ion B %
	ODWS					250	500			200			10	1			
01-Sep-98	P98201		1160	59.1		180		15.4	5.02				<0.1	<0.02	0.83	0.49	
03-Sep-99	P99202		1110	70.2		181		17.5	6.44				<0.1	<0.02	0.82	0.45	
31-Aug-00	P00203		1080	65.7		186		16.5	5.95				0.15	<0.02	0.55	0.5	
05-Sep-01	P01204		1080	66.2		178		16.6	6.01				0.36	<0.02	0.65	0.43	
04-Sep-02	P02205		1120	70.2		**296**		18.1	6.06				<0.1	<0.02	0.63	0.52	
18-Sep-03	P03206		1140	67		187		17	5.96				<0.1	<0.02	0.61	0.44	
21-Sep-04	P04207		1160	70.2		181		17.7	6.32				<0.1	<0.02	0.41	0.54	
15-Sep-05	P05208		1130	64		181		16.1	5.75				<0.2	<0.3	0.6	0.53	
28-Sep-06	P06209		1140	59		190		16	5.4				0.1	<0.01	0.5	0.57	
24-Sep-07	P07210		1150	66		180		17	5.7				<0.1	<0.01	0.7	0.61	
01-Oct-08	P08211		1160	66		180		17	5.9				<0.1	<0.01	0.7	0.4	
30-Sep-09	P09212		1140	60		180		15	5.3				<0.1	<0.01	0.8	0.5	
22-Oct-10	P10213		1170	61		180		15	5.4				<0.1	<0.01	0.6	0.44	
30-Sep-11	P11214		1180	63		170		16	5.8				<0.1	<0.01	0.7	0.49	
24-Sep-12	P12215		1200	62		170		15	5.8				<0.1	<0.01	0.84	0.61	
16-Sep-13	P13216		1200	62		190		15	5.6				<0.1	<0.01	0.8	0.44	
15-Sep-14	P14217		1200	60		190		15	5.5				<0.1	<0.01	0.67	0.57	
21-Sep-15	P15218		1200	64		190		16	5.6				<0.1	<0.01	0.59	0.54	
22-Sep-16	P16219		1200	67		190		17	5.8				<0.1	<0.01	0.54	0.5	
02-Oct-17	P17220		1300	61		190		15	5.5				<0.1	<0.01	0.59	0.55	
17-Sep-18	P18221		1300	62		210		16	5.6				<0.1	<0.01	0.54	0.6	
30-Sep-19	P19222		1200	61		190		15	5.5				<0.1	<0.01	0.63	0.64	
28-Sep-20	NTR980	310	1300	61	8.0	230	<1	15	5.4	**240**	3.5		<0.1	<0.01	0.56	0.5	-3.8
24-Sep-21	CA15019		1280	63.1	8.2	**260**		15.9	5.69			20	<0.06	<0.03	<0.5	0.5	
TOTAL SAMPLES		1	24	24	2	24	1	24	24	1	1	1	24	24	24	24	
AVERAGE 2021																	

all Concentrations mg/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

CRACKLE

PRIVATE WELL

WATER SUPPLY



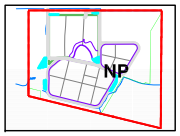
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
30-Sep-11	P11001								**590**			<1			
24-Sep-12	P12002								**890**			<0.001			
16-Sep-13	P13003								**970**			<0.001			
22-Sep-16	P16004								**1400**			<1			
02-Oct-17	P17005								**1200**			<1			
17-Sep-18	P18006								110			<1			
30-Sep-19	P19007								<100			<1			
29-Sep-20	NTR987		<4			<1			<100			<1			
24-Sep-21	CA15024	<4							69			2			
TOTAL SAMPLES		1	1	0	0	1	0	0	9	0	0	9	0	0	0
AVERAGE 2021															

all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

HORAK

PRIVATE WELL

WATER SUPPLY



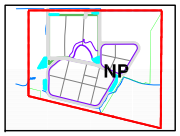
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
01-Sep-98	P98043								**320**			<1			
03-Sep-99	P99044								**360**			1			
31-Aug-00	P00045								**560**			<1			
05-Sep-01	P01046								**520**			<1			
04-Sep-02	P02047								**370**			<2			
18-Sep-03	P03048								20			<2			
21-Sep-04	P04049								**670**			<2			
15-Sep-05	P05050								**370**			1			
28-Sep-06	P06051								**690**			<1			
24-Sep-07	P07052								**2100**			<1			
01-Oct-08	P08053								**1100**			<1			
30-Sep-09	P09054								**5300**			<1			
22-Oct-10	P10055								**4400**			<1			
30-Sep-11	P11056								**3700**			13			
24-Sep-12	P12057								**2200**			<0.001			
16-Sep-13	P13058								**3500**			<0.001			
21-Sep-15	P15059								**3700**			<1			
22-Sep-16	P16060								**2800**			<1			
02-Oct-17	P17061								**800**			<1			
17-Sep-18	P18062								**3600**			<1			
25-Sep-19	P19042								**1100**			<1			
28-Sep-20	NTR978		4.5			<1			<100			<1			
20-Sep-21	CA14510	6							**2250**			<2			
TOTAL SAMPLES		1	1	0	0	1	0	0	23	0	0	23	0	0	0
AVERAGE 2021															

all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

KORMENDY

PRIVATE WELL

WATER SUPPLY



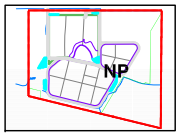
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
30-Sep-19	P19105								<100			<1			
29-Sep-20	NTR988		<4			<1			<100			<1			
24-Sep-21	CA15012	14							154			<2			
TOTAL SAMPLES		1	1	0	0	1	0	0	3	0	0	3	0	0	0
AVERAGE 2021															

all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

MCCABE

PRIVATE WELL

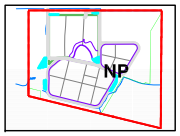
WATER SUPPLY



DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
02-Oct-17	P17107								**700**			<1			
17-Sep-18	P18108								**750**			<1			
25-Sep-19	P19109								**490**			<1			
28-Sep-20	NTR973		<4			<5			<100			<1			
20-Sep-21	CA14509	25							**564**			<2			
TOTAL SAMPLES		1	1	0	0	1	0	0	5	0	0	5	0	0	0
AVERAGE 2021															

all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

MUCKLE
PRIVATE WELL
WATER SUPPLY



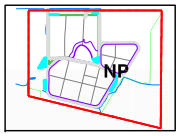
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
28-Sep-06	P06176								**410**			<1			
24-Sep-07	P07177								**440**			<1			
01-Oct-08	P08178								**400**			<1			
30-Sep-09	P09179								<100			<1			
22-Oct-10	P10180								<100			<1			
30-Sep-11	P11181								<100			<1			
24-Sep-12	P12182								<100			<0.001			
16-Sep-13	P13183								<100			<0.001			
22-Sep-16	P16184								<100			<1			
02-Oct-17	P17185								<100			<1			
17-Sep-18	P18186								<100			<1			
25-Sep-19	P19187								<100			<1			
29-Sep-20	NTR984		<4			<5			<100			<1			
20-Sep-21	CA14513	48							<7			<2			
TOTAL SAMPLES		1	1	0	0	1	0	0	14	0	0	14	0	0	0
AVERAGE 2021															

all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

NAUTA

PRIVATE WELL

WATER SUPPLY



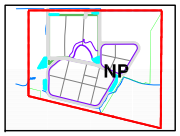
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
01-Sep-98	P98011								**460**			<1			
03-Sep-99	P99012								**750**			<1			
31-Aug-00	P00013								**850**			<1			
04-Sep-02	P02014								**890**			<2			
18-Sep-03	P03015								**18200**			<2			
21-Sep-04	P04016								**1400**			<2			
15-Sep-05	P05017								**2330**			<1			
28-Sep-06	P06018								**2000**			<1			
01-Oct-08	P08019								**2400**			<1			
30-Sep-09	P09020								**1300**			<1			
22-Oct-10	P10021								**1100**			<1			
30-Sep-11	P11022								**870**			<1			
15-Sep-14	P14023								**1500**			<1			
21-Sep-15	P15024								**1100**			<1			
22-Sep-16	P16025								**770**			<1			
17-Sep-18	P18026								**3100**			<1			
25-Sep-19	P19027								**690**			<1			
04-Nov-20	OCH143	10		<4.9	<1		0.17	3.4	**1100**	0.95		<1	<0.5	140	610
24-Sep-21	CA15020	21							**1320**			<2			
TOTAL SAMPLES		2	0	1	1	0	1	1	19	1	0	19	1	1	1
AVERAGE 2021															

all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

SEGERAN

PRIVATE WELL

WATER SUPPLY



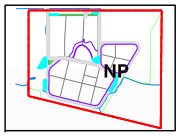
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
29-Sep-20	NTR983		<4			<5			<100			<1			
20-Sep-21	CA14512	13							**741**			<2			
TOTAL SAMPLES		1	1	0	0	1	0	0	2	0	0	2	0	0	0
AVERAGE 2021															

all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

SIKEEMA

PRIVATE WELL

WATER SUPPLY



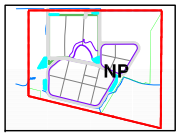
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
01-Sep-98	P98110								230			<1			
03-Sep-99	P99111								260			1			
31-Aug-00	P00112								**360**			<1			
05-Sep-01	P01113								190			<1			
04-Sep-02	P02114								80			<2			
18-Sep-03	P03115								30			<2			
21-Sep-04	P04116								250			<2			
15-Sep-05	P05117								230			<1			
28-Sep-06	P06118								**380**			<1			
24-Sep-07	P07119								**350**			<1			
01-Oct-08	P08120								**600**			<1			
30-Sep-09	P09121								**630**			<1			
22-Oct-10	P10122								**480**			<1			
30-Sep-11	P11123								**600**			<1			
24-Sep-12	P12124								**470**			<0.001			
16-Sep-13	P13125								**360**			<0.001			
15-Sep-14	P14126								**430**			1			
21-Sep-15	P15127								**390**			<1			
22-Sep-16	P16128								210			<1			
02-Oct-17	P17129								230			<1			
17-Sep-18	P18130								290			<1			
25-Sep-19	P19131								260			<1			
28-Sep-20	NTR979		<4			<1			<100			<1			
20-Sep-21	CA15495	49							104			<2			
TOTAL SAMPLES		1	1	0	0	1	0	0	24	0	0	24	0	0	0
AVERAGE 2021															

all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

SPARKS

PRIVATE WELL

WATER SUPPLY



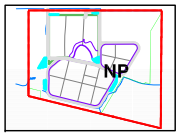
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
30-Sep-11	P11230								**1400**			<1			
24-Sep-12	P12231								<100			<0.001			
16-Sep-13	P13232								140			<0.001			
15-Sep-14	P14233								<100			<1			
22-Sep-16	P16234								<100			<1			
02-Oct-17	P17235								<100			<1			
17-Sep-18	P18236								<100			<1			
25-Sep-19	P19237								<100			<1			
28-Sep-20	NTR974		<4			<5			<100			<1			
20-Sep-21	CA14514	28							170			<2			
TOTAL SAMPLES		1	1	0	0	1	0	0	10	0	0	10	0	0	0
AVERAGE 2021															

all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

VERVAET

PRIVATE WELL

WATER SUPPLY



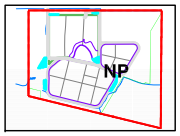
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
25-Sep-19	P19258								**480**			<1			
28-Sep-20	NTR976		<4			<5			<100			1.3			
20-Sep-21	CA14516	46							**529**			<2			
TOTAL SAMPLES		1	1	0	0	1	0	0	3	0	0	3	0	0	0
AVERAGE 2021															

all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

VERVAET-X

PRIVATE WELL

WATER SUPPLY



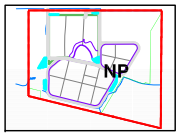
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
17-Sep-18	P18259								**370**			<1			
25-Sep-19	P19260								160			<1			
20-Sep-21	CA14515	23							211			<2			
TOTAL SAMPLES		1	0	0	0	0	0	0	3	0	0	3	0	0	0
AVERAGE 2021															

all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

VINCE

PRIVATE WELL

WATER SUPPLY



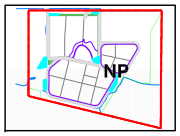
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
17-Sep-18	P18106								**470**			<1			
30-Sep-19	P19261								<100			<1			
28-Sep-20	NTR981		<4			<1			<100			<1			
24-Sep-21	CA15014	11							**644**			<2			
TOTAL SAMPLES		1	1	0	0	1	0	0	4	0	0	4	0	0	0
AVERAGE 2021															

all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WALKER S

PRIVATE WELL

WATER SUPPLY



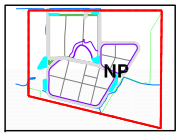
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
24-Sep-12	P12223								**370**			<0.001			
16-Sep-13	P13224								150			<0.001			
21-Sep-15	P15225								**390**			<1			
22-Sep-16	P16226								**1000**			<1			
02-Oct-17	P17227								**970**			<1			
17-Sep-18	P18228								**950**			<1			
26-Sep-19	P19229								<100			<1			
20-Sep-21	CA14511	72							**584**			<2			
TOTAL SAMPLES		1	0	0	0	0	0	0	8	0	0	8	0	0	0
AVERAGE 2021															

all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WAMMES

PRIVATE WELL

WATER SUPPLY



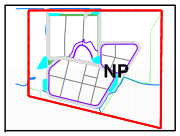
DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
17-Sep-18	P18008								**630**			<1			
25-Sep-19	P19009								**540**			<1			
28-Sep-20	NTR977		21			<1			<100			<1			
24-Sep-21	CA15011	18							**533**			<2			
TOTAL SAMPLES		1	1	0	0	1	0	0	4	0	0	4	0	0	0
AVERAGE 2021															

all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**

WOOD

PRIVATE WELL

WATER SUPPLY



DATE	SAMPLE #	BOD mg/L	COD mg/L	Al	As	Br mg/L	Cd	Cu	Fe	Pb	Hg	Phnl	Va	Zn	TDS mg/L
	ODWS			100	25		5	1000	300	10	1			5000	
01-Sep-98	P98201								**1180**			<1			
03-Sep-99	P99202								**2700**			<1			
31-Aug-00	P00203								**480**			<1			
05-Sep-01	P01204								**500**			<1			
04-Sep-02	P02205								**720**			<2			
18-Sep-03	P03206								20			<2			
21-Sep-04	P04207								**860**			<2			
15-Sep-05	P05208								**560**			<1			
28-Sep-06	P06209								**620**			<1			
24-Sep-07	P07210								**1600**			<1			
01-Oct-08	P08211								**890**			<1			
30-Sep-09	P09212								**1100**			<1			
22-Oct-10	P10213								**910**			<1			
30-Sep-11	P11214								**1200**			<1			
24-Sep-12	P12215								**710**			<0.001			
16-Sep-13	P13216								**710**			<0.001			
15-Sep-14	P14217								**1700**			<1			
21-Sep-15	P15218								**900**			<1			
22-Sep-16	P16219								**2500**			<1			
02-Oct-17	P17220								**800**			<1			
17-Sep-18	P18221								**1700**			<1			
30-Sep-19	P19222								<100			<1			
28-Sep-20	NTR980		<4			<1			<100			<1			
24-Sep-21	CA15019	20							**2080**			<2			

TOTAL SAMPLES	1	1	0	0	1	0	0	24	0	0	24	0	0	0
AVERAGE 2021														

all Concentrations ug/L unless otherwise indicated
Anomalies shown in *italics* / Exceedance in **Bold**



golder.com